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检测
TESTING
CNAS L3110

TEST REPORT

Reference No.	:	WTF18F09122942E
Applicant	:	[redacted]
Address	:	
Manufacturer	:	
Address	:	The same as above
Product Name	:	Bluetooth speaker
Model No.	:	SL241
Standards	:	EN 55032:2015 EN 55024:2010+A1:2015 EN 55011:2016+A1:2017 EN 61000-6-1:2007
Date of Receipt sample	:	2018-09-10
Date of Test	:	2018-09-10 to 2018-09-15
Date of Issue	:	2018-09-18
Test Report Form No.	:	WEO-55032A-01A
Test Result	:	**Pass**

Remarks:
The results shown in this test report refer only to the sample(s) tested, this test report cannot be reproduced, except in full, without prior written permission of the company. The report would be invalid without specific stamp of test institute and the signatures of compiler and approver.

Prepared By:
Waltek Services (Shenzhen) Co., Ltd.
Address: 1/F., Fukangtai Building, West Baima Road, Songgang Street, Baoan District, Shenzhen, Guangdong, China
Tel :+86-755-83551083
Fax:+86-755-83552400

Compiled by:

Roy Hong / Project Engineer

Approved by:

Philo Zhong / Manager

1 Test Summary

EMISSION (EN 55032:2015)			
Test Item	**Test Standard**	**Class / Severity**	**Result**
Radiation Emission, 150kHz to 30MHz	EN 55011:2009+A1:2010	Table 12	Pass
Radiation Emission, 30MHz to 1000MHz	EN 55032:2015	Table A.4	Pass
Radiation Emission, 1GHz to 6GHz	EN 55032:2015	Table A.5	Pass

IMMUNITY (EN 55024:2010+A1:2015, EN 61000-6-1:2007)				
Test Item	**Test Method**	**Class / Severity**	**Performance Criteria**	**Result**
Electrostatic Discharge(ESD)	IEC 61000-4-2:2008	±4 kV Contact ±8 kV Air	B	Pass
Radio-frequency electromagnetic fields (80MHz to 1GHz)	IEC 61000-4-3:2010	3V/m, 80%, 1kHz, Amp. Mod.	A	Pass
Radio-frequency electromagnetic fields (1.4GHz to 2.0GHz)	IEC 61000-4-3:2010	3V/m, 80%, 1kHz, Amp. Mod.	A	Pass
Radio-frequency electromagnetic fields (2.0GHz to 2.7GHz)	IEC 61000-4-3:2010	3V/m, 80%, 1kHz, Amp. Mod.	A	Pass

Remark:

Pass	Test item meets the requirement
N/A	Test case does not apply to the test object

2 Contents

3 General Information

3.1 General Description of E.U.T.

Product Name	:	Bluetooth speaker
Model No.	:	SL241
Remark.....	:	---

3.2 Details of E.U.T.

Technical Data.....	:	Input: DC 5V/1.5A; Wireless output: DC 5V/0.8A; Battery capacity: 400mAh

3.3 Description of Support Units

The EUT has been tested as an independent unit. SL241 is the test sample. All tests were performed in the condition of DC 5V input with Notebook powered by USB port.

3.4 Standards Applicable for Testing

The tests were performed according to following standards:

EN 55032:2015	Electromagnetic compatibility of multimedia equipment — Emission Requirements
EN 55024:2010+A1:2015	Information technology equipment — Immunity characteristics — Limits and methods of measurement.
EN 55011:2016+A1:2017	Industrial, scientific and medical equipment - Radio-frequency disturbance characteristics - Limits and methods of measurement
EN 61000-6-1:2007	Electromagnetic compatibility (EMC) - Part 6-1: Generic standards - Immunity for residential, commercial and light-industrial environments

3.5 Subcontracted

Whether parts of tests for the product have been subcontracted to other labs:

☐ Yes ☒ No

If Yes, list the related test items and lab information:

Test items:---

Lab information: ---

3.6 Abnormalities from Standard Conditions

None.

3.7 Other

This report is based on Project No.WTF18F09122940E for adding applicant and updating the model, the new model have same electric circuit with original models only their model name is different. Therefore it do not affect the EMC test items for the supplemented model, the EUT is deemed to fulfill all the requirements and no further test has been performed.

4 Equipment Used during Test

3m Semi-anechoic Chamber for Radiation					
Item	**Equipment**	**Manufacturer**	**Model No.**	**Serial No.**	**Calibration Status**
1.	EMI Test Receiver	R&S	ESCI	101296	Valid
2.	Trilog Broadband Antenna	SCHWARZBECK	VULB9160	9160-3325	Valid
3.	Amplifier	Compliance pirection systems inc	PAP-0203	22024	Valid
4.	Cable	HUBER+SUHNER	CBL2	525178	Valid
ESD					
Item	**Equipment**	**Manufacturer**	**Model No.**	**Serial No.**	**Calibration Status**
1.	Electrostatic Discharge Simulator	Em Test	DITO	V0745103094	Valid
Radio-frequency electromagnetic fields					
Item	**Equipment**	**Manufacturer**	**Model No.**	**Serial No.**	**Calibration Status**
1.	Signal Generater	R&S	SMB100A	105942	Valid
2.	RF Power Amplifier	BONN Elekronik	BLWA0830-160/100/40D	128740	Valid
3.	Gestockte Breitband (S tacked) Log.-per.Antenna	SCHWARZBECK	STLP9128D	043	Valid
4.	Power Meter	R&S	NRP2	102031	Valid

4.1 Special Accessories and Auxiliary Equipment

Item	Equipment	Technical Data	Manufacturer	Model No.	Serial No.
1.	Notebook	AC 230V/50Hz	Lenovo	ThinkPad Edge E430	00426-OEM-8992662-00400
2.	Mobile Phone	-	SAMSUNG	SM-G9500	R28J53EFNBN

4.2 Measurement Uncertainty

Test Item	Frequency Range	Uncertainty	Note
Radiated Emission	30MHz~1000MHz	±5.03dB	(1)
Radiated Emission	1GHz ~ 6GHz	±5.47dB	(1)

(1)This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

5 Emission Test Results

5.1 Radiated Emission , 150kHz to 1000MHz

Test Requirement..... : EN 55011, EN 55032

Test Method..... : EN 55011, EN 55032

Test Limit..... : Table 12 of EN 55011, Table A.4 of EN 55032

Test Result..... : Pass

Frequency Range..... : 0.15MHz to 30MHz, 30MHz to 1000MHz

Class..... : Class B

5.1.1 E.U.T. Operation

Operating Environment:

Temperature..... : 23.5°C

Humidity..... : 48.9%RH

Atmospheric Pressure..... : 100.8 kPa

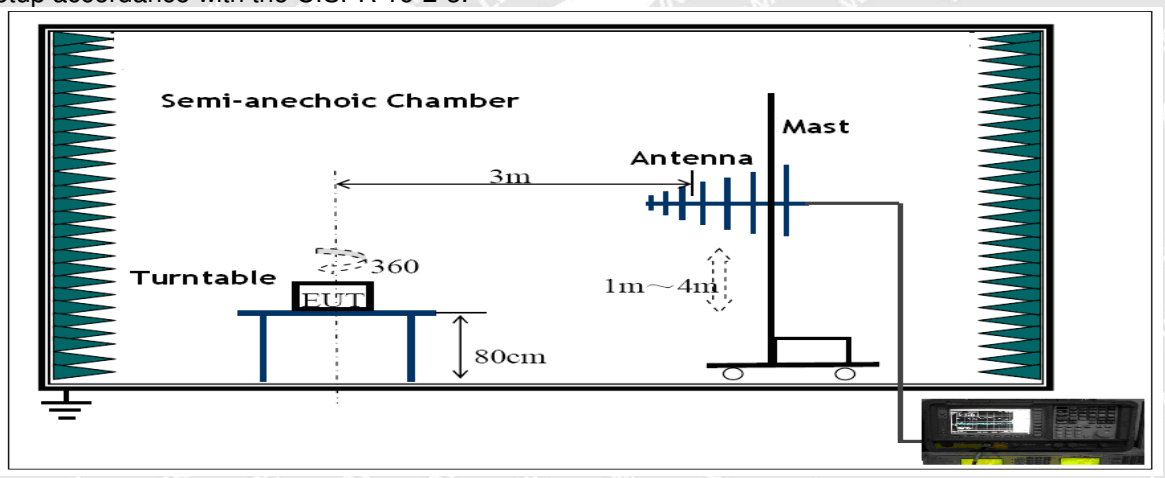
EUT Operation:

Input Voltage..... : DC 5V

Operating Mode..... : Wireless charger mode; Discharging mode; BT&wireless charger&charging mode

5.1.2 Block Diagram of Test Setup

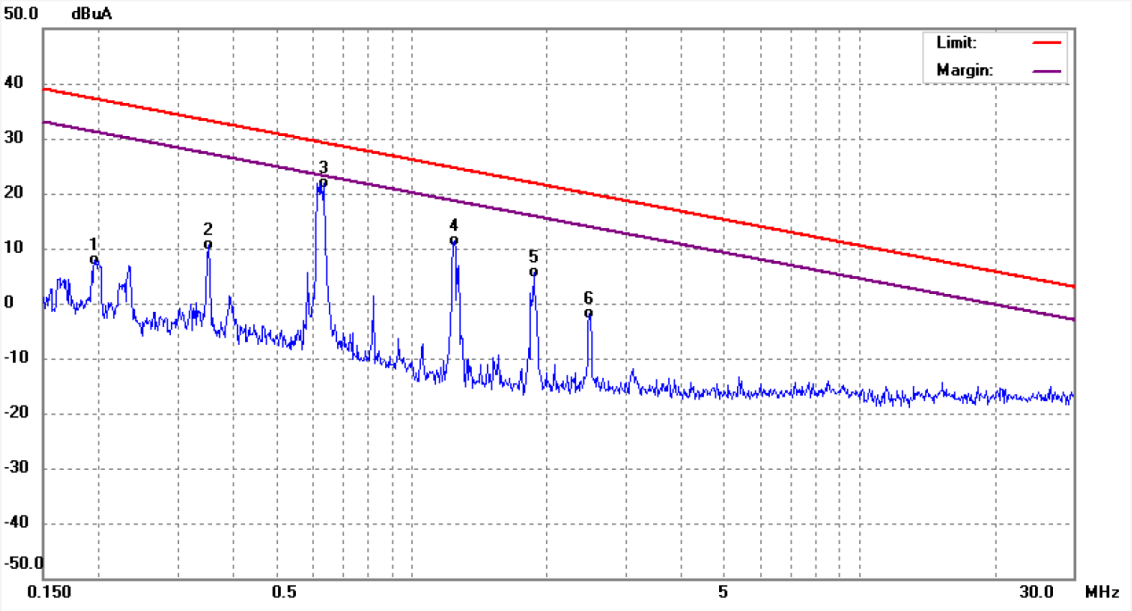
The Radiated Emission tests were performed in the 3m Semi- Anechoic Chamber test site, using the setup accordance with the CISPR 16-2-3.



5.1.3 Radiated Emission Test Data, 0.15MHz to 30MHz

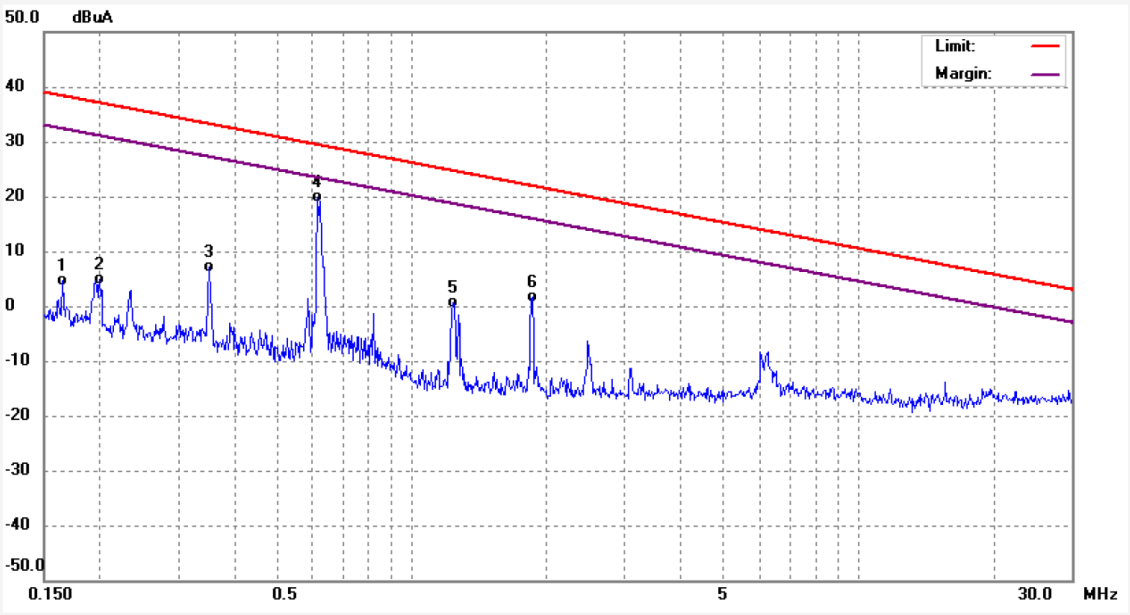
According to the data in section 5.1.3, the EUT complied with the EN 55011 standards.

Vertical Polarization (Wireless charger mode):



No.	Freq. (MHz)	Reading (dBuA)	Factor ((dB))	Result (dBuA)	Limit (dBuA)	Margin (dB)	Detector	Remark
1	0.1955	-11.86	19.72	7.86	37.20	-29.34	QP	
2	0.3520	-9.35	19.89	10.54	33.20	-22.66	QP	
3	0.6338	1.98	19.87	21.85	29.21	-7.36	QP	
4	1.2422	-9.00	20.27	11.27	24.63	-13.36	QP	
5	1.8680	-14.73	20.25	5.52	21.86	-16.34	QP	
6	2.4868	-22.07	20.09	-1.98	19.92	-21.90	QP	

Horizontal Polarization (Wireless charger mode):

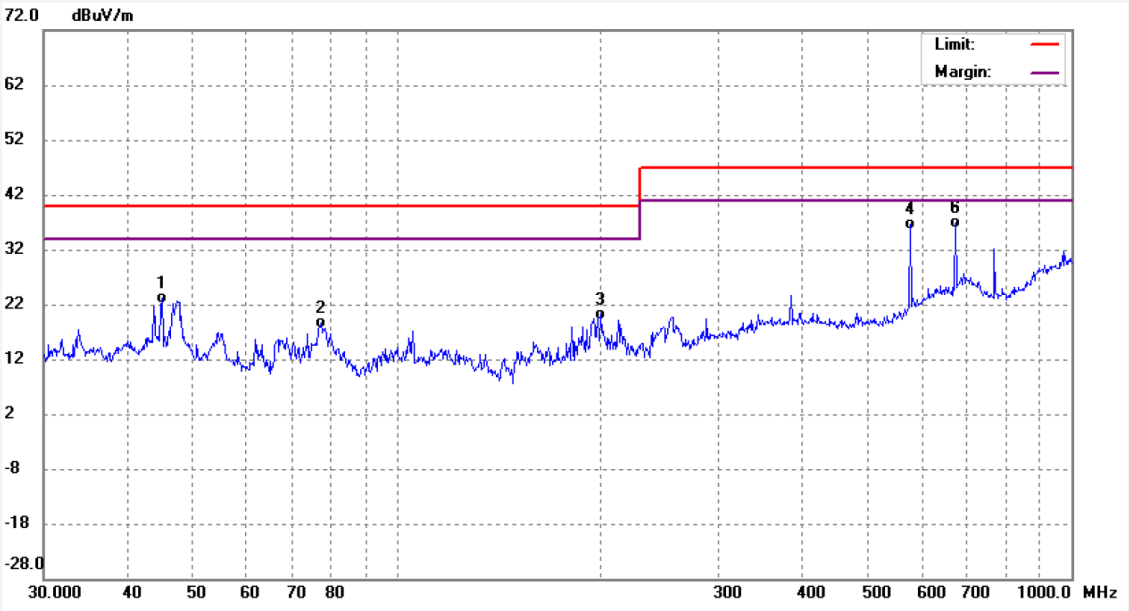


No.	Freq. (MHz)	Reading (dBuA)	Factor ((dB))	Result (dBuA)	Limit (dBuA)	Margin (dB)	Detector	Remark
1	0.1650	-15.10	19.66	4.56	38.35	-33.79	QP	
2	0.1997	-14.74	19.73	4.99	37.05	-32.06	QP	
3	0.3502	-12.76	19.88	7.12	33.24	-26.12	QP	
4	0.6140	-0.07	19.89	19.82	29.42	-9.60	QP	
5	1.2357	-19.71	20.27	0.56	24.67	-24.11	QP	
6	1.8581	-18.70	20.25	1.55	21.90	-20.35	QP	

5.1.4 Radiated Emission Test Data, 30MHz to 1000MHz

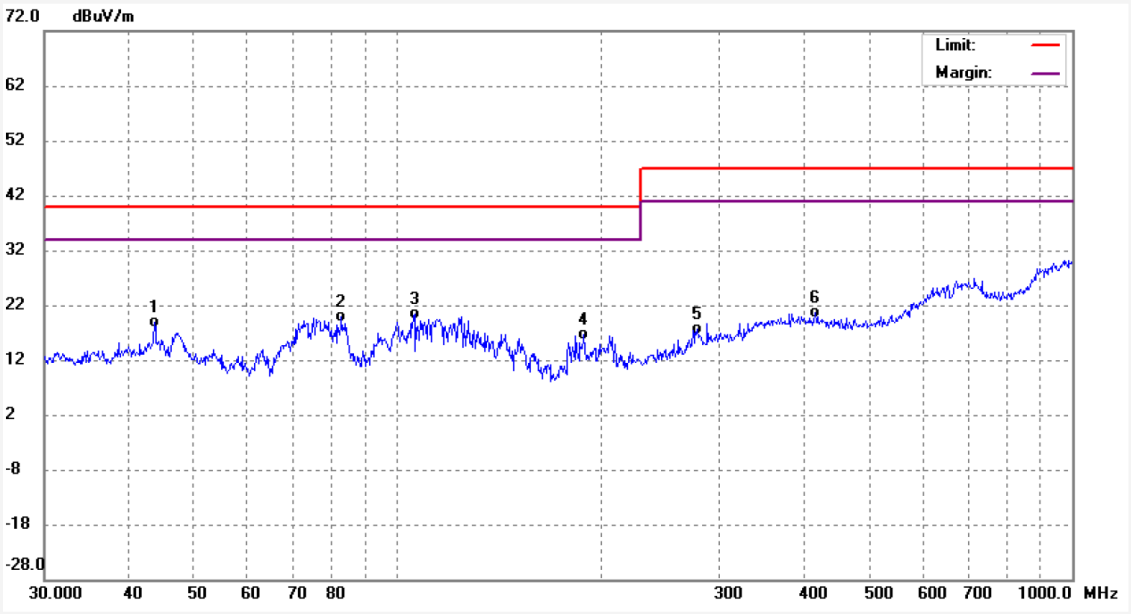
According to the data in section 5.2.4, the EUT complied with the EN 55032 standards.

Vertical Polarization (Discharging mode):



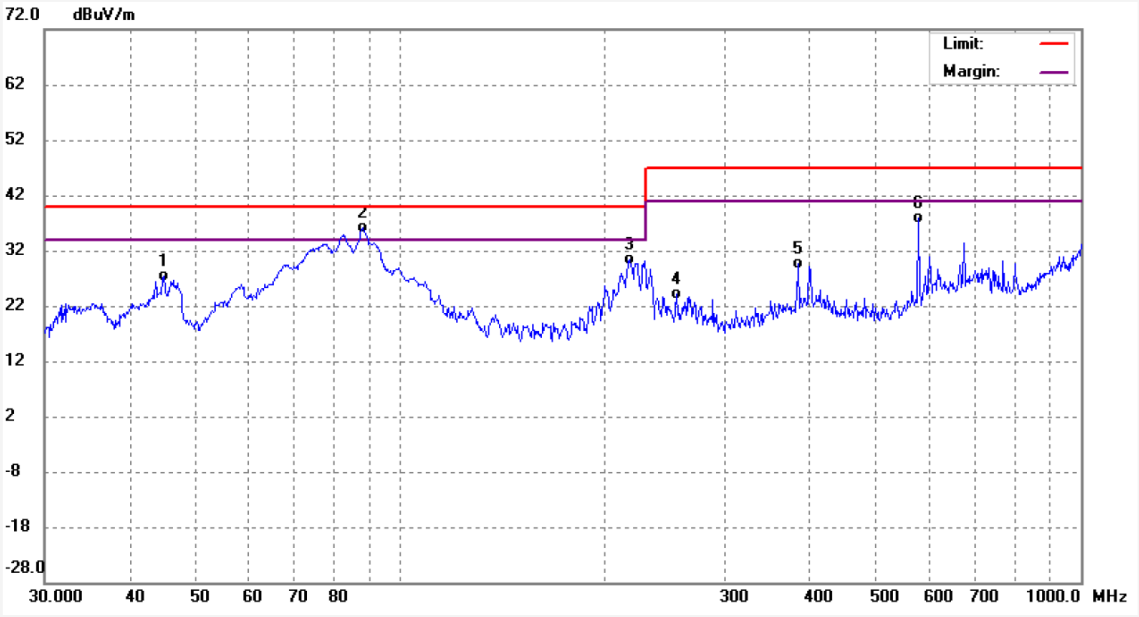
No.	Freq. (MHz)	Reading (dBuV)	Factor ((dB/m))	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	44.9006	7.27	15.82	23.09	40.00	-16.91	QP	
2	77.3212	10.28	8.35	18.63	40.00	-21.37	QP	
3	200.6881	8.64	11.55	20.19	40.00	-19.81	QP	
4	576.6443	16.31	20.35	36.66	47.00	-10.34	QP	
5	672.8444	12.65	24.14	36.79	47.00	-10.21	QP	
6	672.8444	12.65	24.14	36.79	47.00	-10.21	QP	

Horizontal Polarization (Discharging mode):



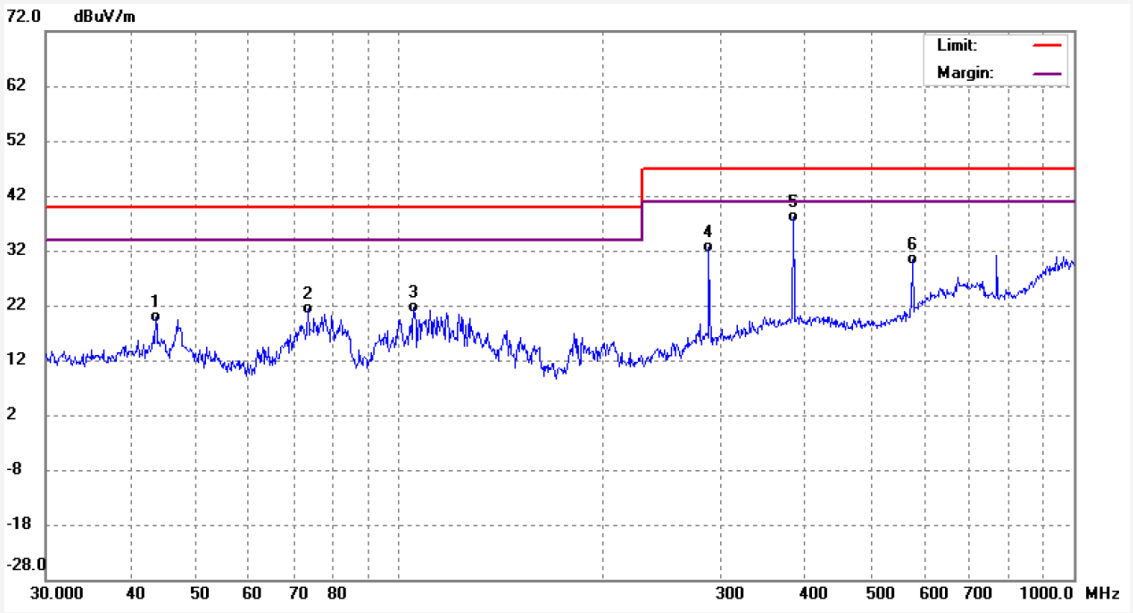
No.	Freq. (MHz)	Reading (dBuV)	Factor ((dB/m))	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	43.6584	2.90	16.09	18.99	40.00	-21.01	QP	
2	82.6482	11.11	8.66	19.77	40.00	-20.23	QP	
3	106.0126	8.09	12.19	20.28	40.00	-19.72	QP	
4	189.0743	5.88	10.76	16.64	40.00	-23.36	QP	
5	278.0668	2.61	14.95	17.56	47.00	-29.44	QP	
6	416.1791	1.43	19.17	20.60	47.00	-26.40	QP	

Vertical Polarization (BT&wireless charger&charging mode):



No.	Freq. (MHz)	Reading (dBuV)	Factor ((dB/m))	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	44.9006	11.48	15.82	27.30	40.00	-12.70	QP	
2	88.0329	26.95	9.19	36.14	40.00	-3.86	QP	
3	216.7828	18.88	11.40	30.28	40.00	-9.72	QP	
4	254.7284	10.40	13.80	24.20	47.00	-22.80	QP	
5	383.9318	10.63	18.95	29.58	47.00	-17.42	QP	
6	576.6443	17.58	20.35	37.93	47.00	-9.07	QP	

Horizontal Polarization (BT&wireless charger&charging mode):



No.	Freq. (MHz)	Reading (dBuV)	Factor ((dB/m))	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	43.6584	3.89	16.09	19.98	40.00	-20.02	QP	
2	73.3593	12.65	8.73	21.38	40.00	-18.62	QP	
3	105.2718	9.54	12.19	21.73	40.00	-18.27	QP	
4	287.9904	17.01	15.51	32.52	47.00	-14.48	QP	
5	383.9318	18.86	19.25	38.11	47.00	-8.89	QP	
6	576.6443	10.04	20.41	30.45	47.00	-16.55	QP	

5.2 Radiated Emission ,1GHz to 6GHz

Test Requirement..... : EN 55032

Test Method..... : EN 55032

Test Limit..... : Table A.5 of EN 55032

Test Result..... : Pass

Frequency Range..... : 1GHz to 6GHz

Class..... : Class B

5.2.1 E.U.T. Operation

Operating Environment:

Temperature ..... : 23.5°C

Humidity..... : 48.9%RH

Atmospheric Pressure..... : 100.8 kPa

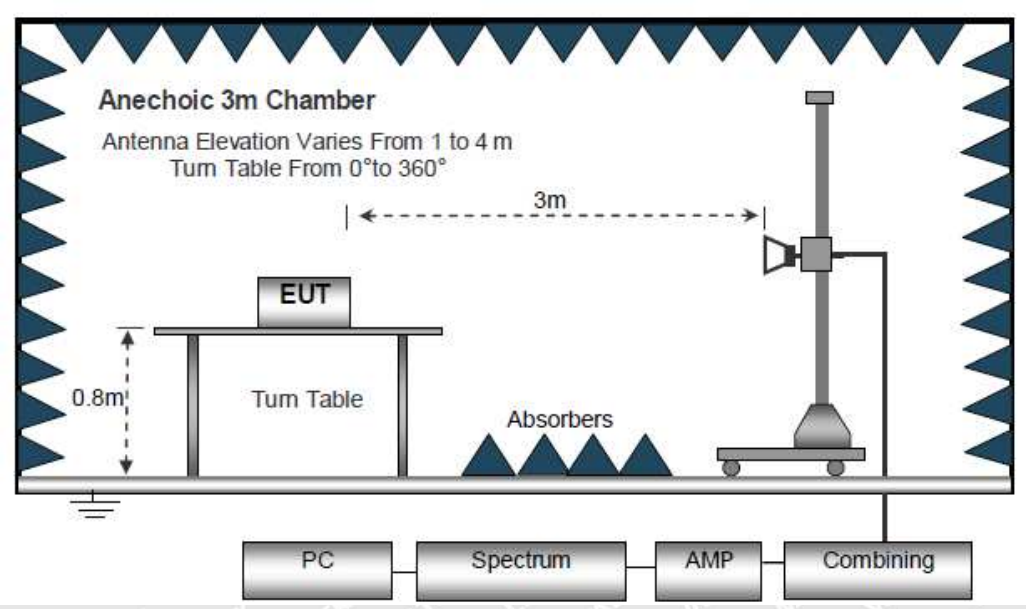
EUT Operation:

Input Voltage ..... : DC 5V

Operating Mode..... : BT with Wireless charging mode; BT with discharging mode

5.2.2 Block Diagram of Test Setup

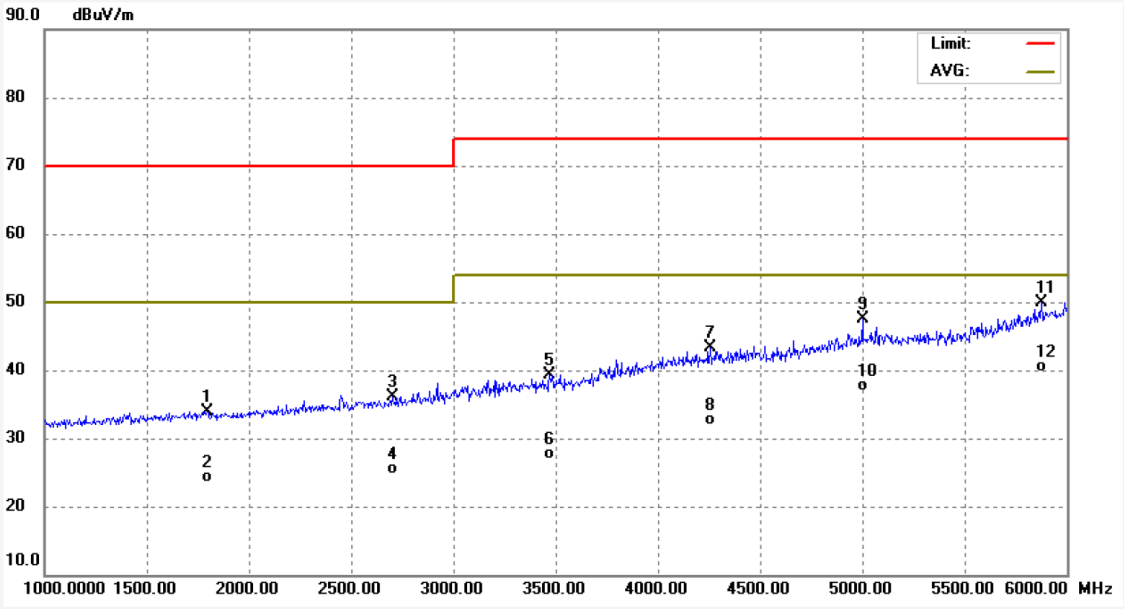
The Radiated Emission tests were performed in the 3m Semi- Anechoic Chamber test site, using the setup accordance with the CISPR 16-2-3.



5.2.3 Radiated Emission Test Data

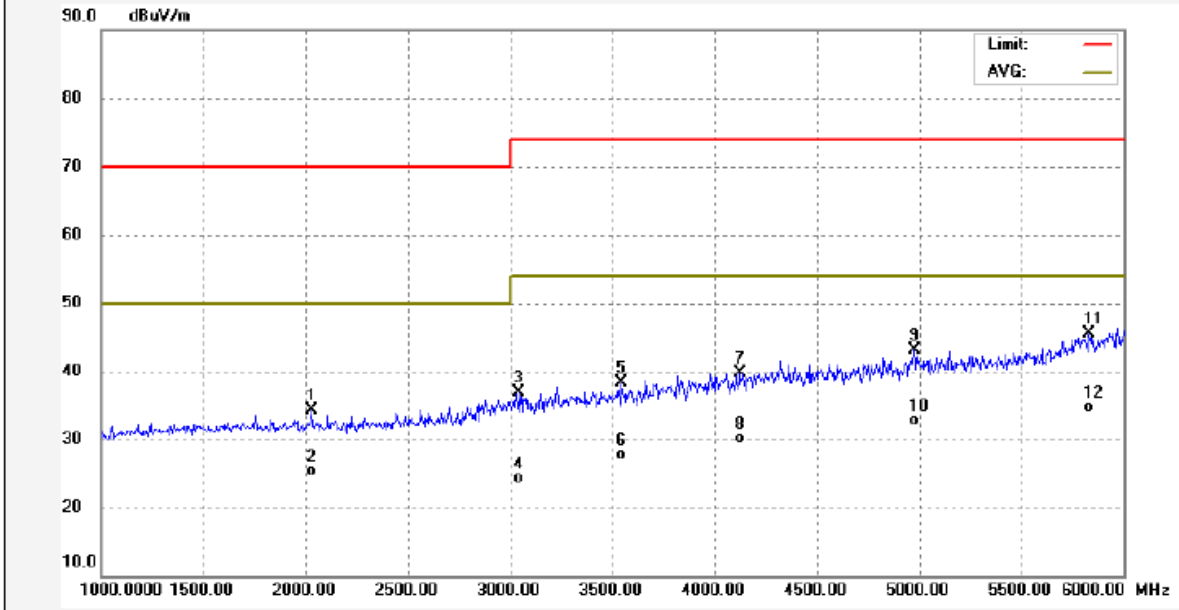
According to the data in section 5.2.4, the EUT complied with the EN 55032 standards.

Vertical Polarization (BT with discharging mode):



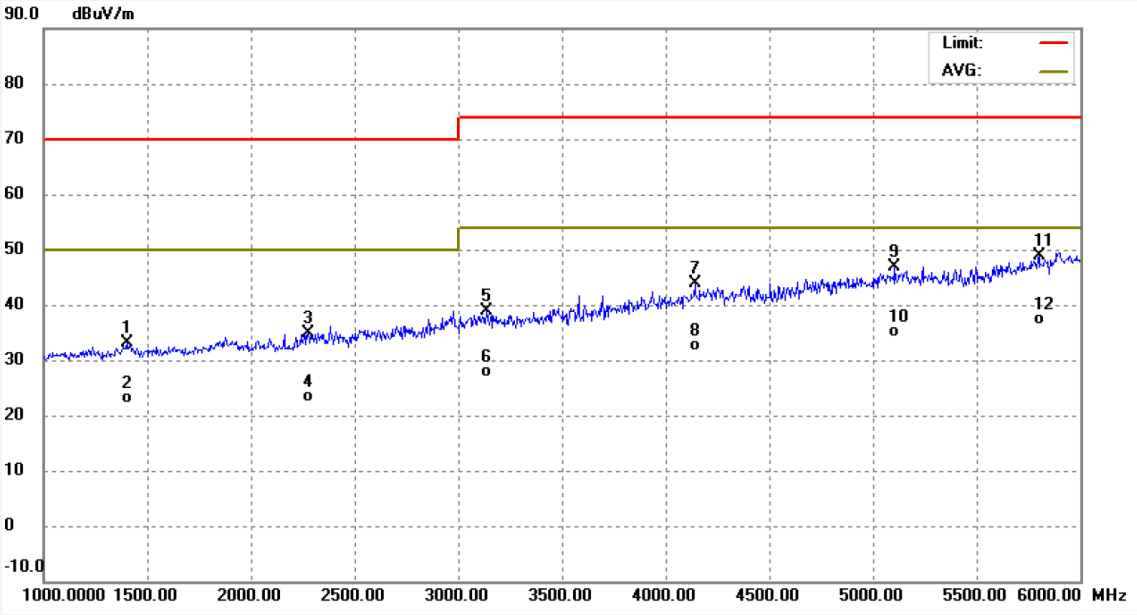
No.	Freq. (MHz)	Reading (dBuV)	Factor ((dB/m))	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	1795.000	47.14	-13.14	34.00	70.00	-36.00	peak	
2	1795.000	37.38	-13.14	24.24	50.00	-25.76	AVG	
3	2700.000	45.90	-9.87	36.03	70.00	-33.97	peak	
4	2700.000	35.41	-9.87	25.54	50.00	-24.46	AVG	
5	3470.000	47.22	-7.92	39.30	74.00	-34.70	peak	
6	3470.000	35.60	-7.92	27.68	54.00	-26.32	AVG	
7	4255.000	48.37	-5.09	43.28	74.00	-30.72	peak	
8	4255.000	37.81	-5.09	32.72	54.00	-21.28	AVG	
9	5000.000	49.50	-2.06	47.44	74.00	-26.56	peak	
10	5000.000	39.75	-2.06	37.69	54.00	-16.31	AVG	
11	5875.000	50.41	-0.57	49.84	74.00	-24.16	peak	
12	5875.000	41.14	-0.57	40.57	54.00	-13.43	AVG	

Horizontal Polarization (BT with discharging mode):



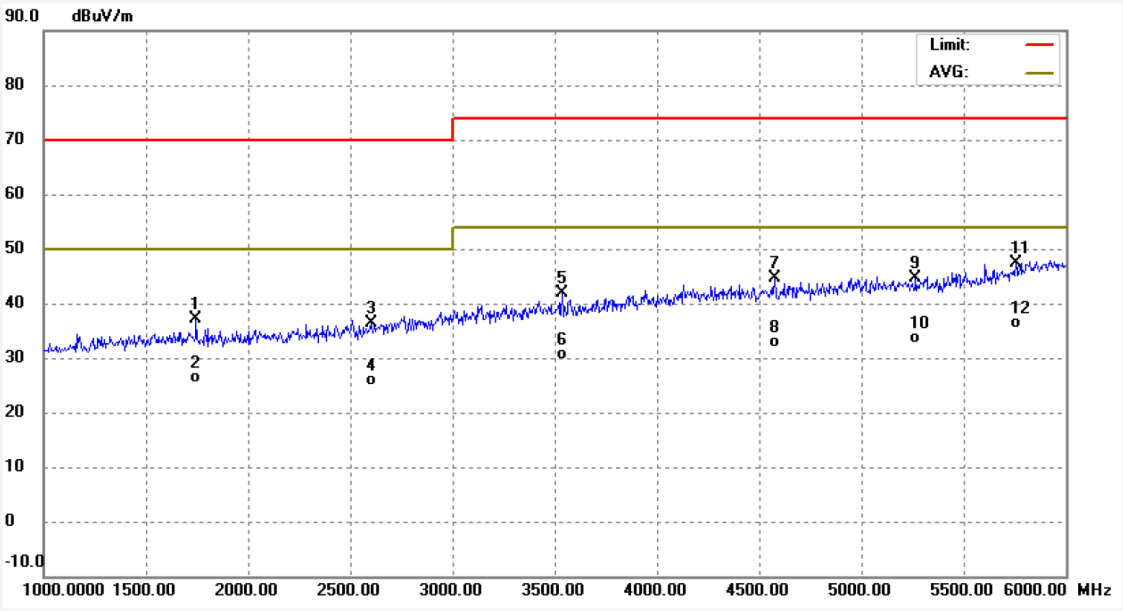
No.	Freq. (MHz)	Reading (dBuV)	Factor ((dB/m))	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	2030.000	47.94	-13.66	34.28	70.00	-35.72	peak	
2	2030.000	38.90	-13.66	25.24	50.00	-24.76	AVG	
3	3045.000	47.74	-10.89	36.85	74.00	-37.15	peak	
4	3045.000	35.28	-10.89	24.39	54.00	-29.61	AVG	
5	3545.000	48.08	-9.87	38.21	74.00	-35.79	peak	
6	3545.000	37.51	-9.87	27.64	54.00	-26.36	AVG	
7	4125.000	48.34	-8.65	39.69	74.00	-34.31	peak	
8	4125.000	38.78	-8.65	30.13	54.00	-23.87	AVG	
9	4975.000	49.38	-6.23	43.15	74.00	-30.85	peak	
10	4975.000	38.94	-6.23	32.71	54.00	-21.29	AVG	
11	5830.000	50.25	-4.80	45.45	74.00	-28.55	peak	
12	5830.000	39.42	-4.80	34.62	54.00	-19.38	AVG	

Vertical Polarization (BT with Wireless charging mode):



No.	Freq. (MHz)	Reading (dBuV)	Factor ((dB/m))	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	1400.000	47.13	-14.11	33.02	70.00	-36.98	peak	
2	1400.000	37.29	-14.11	23.18	50.00	-26.82	AVG	
3	2275.000	46.33	-11.47	34.86	70.00	-35.14	peak	
4	2275.000	34.96	-11.47	23.49	50.00	-26.51	AVG	
5	3135.000	47.66	-8.67	38.99	74.00	-35.01	peak	
6	3135.000	36.63	-8.67	27.96	54.00	-26.04	AVG	
7	4140.000	49.28	-5.47	43.81	74.00	-30.19	peak	
8	4140.000	38.05	-5.47	32.58	54.00	-21.42	AVG	
9	5105.000	48.82	-2.03	46.79	74.00	-27.21	peak	
10	5105.000	37.20	-2.03	35.17	54.00	-18.83	AVG	
11	5800.000	49.62	-0.84	48.78	74.00	-25.22	peak	
12	5800.000	38.23	-0.84	37.39	54.00	-16.61	AVG	

Horizontal Polarization (BT with Wireless charging mode):



No.	Freq. (MHz)	Reading (dBuV)	Factor ((dB/m))	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	1745.000	50.76	-13.74	37.02	70.00	-32.98	peak	
2	1745.000	40.03	-13.74	26.29	50.00	-23.71	AVG	
3	2600.000	48.77	-12.32	36.45	70.00	-33.55	peak	
4	2600.000	38.30	-12.32	25.98	50.00	-24.02	AVG	
5	3535.000	51.65	-9.88	41.77	74.00	-32.23	peak	
6	3535.000	40.57	-9.88	30.69	54.00	-23.31	AVG	
7	4575.000	51.87	-7.26	44.61	74.00	-29.39	peak	
8	4575.000	40.17	-7.26	32.91	54.00	-21.09	AVG	
9	5265.000	50.57	-6.05	44.52	74.00	-29.48	peak	
10	5265.000	39.57	-6.05	33.52	54.00	-20.48	AVG	
11	5755.000	52.40	-5.06	47.34	74.00	-26.66	peak	
12	5755.000	41.37	-5.06	36.31	54.00	-17.69	AVG	

6 Immunity Test Results

6.1 Performance Criteria

Performance criterion A: The apparatus shall continue to operate as intended during the test.
No degradation of performance or loss of function is allowed below a performance level (or permissible loss of performance) specified by the manufacturer, when the apparatus is used as intended. If the minimum performance level or the permissible performance loss is not specified by the manufacturer, then either of these may be derived from the product description and documentation, and from what the user may reasonably expect from the apparatus if used as intended.

Performance criterion B: The apparatus shall continue to operate as intended after the test.
No degradation of performance or loss of function is allowed below a performance level (or permissible loss of performance) specified by the manufacturer, when the apparatus is used as intended. During the test, degradation of performance is allowed, however, no change of actual operating state or stored data is allowed. If the minimum performance level or the permissible performance loss is not specified by the manufacturer, then either of these may be derived from the product description and documentation, and from what the user may reasonably expect from the apparatus if used as intended.

Performance criterion C: Temporary loss of function is allowed, provided the function is self-recoverable or can be restored by the operation of the controls, or by any operation specified in the instructions for use.
For further details, please refer to EN 55024.

6.2 Electrostatic Discharge(ESD)

Test Requirement	:	EN 55024, EN 61000-6-1
Test Method	:	IEC 61000-4-2
Test Result	:	Pass
Discharge Impedance	:	330Ω / 150pF
Discharge Voltage	:	Air Discharge: ±8kV Contact Discharge: ±4kV HCP & VCP: ±4kV
Polarity.....	:	Positive & Negative
Number of Discharge	:	Minimum 10 times at each test point
Discharge Mode.....	:	Single Discharge
Discharge Period	:	1 second minimum

6.2.1 E.U.T. Operation

Operating Environment:

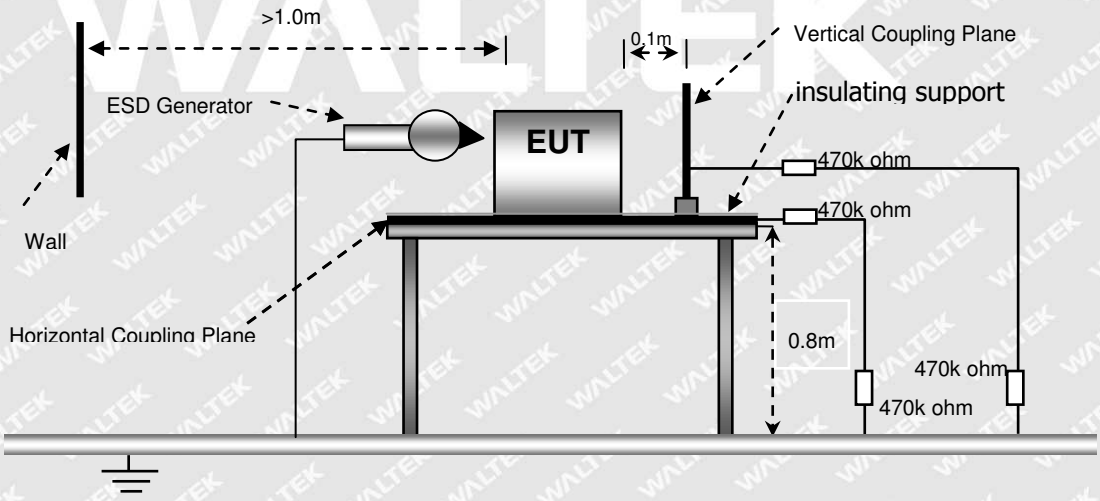
Temperature.....	:	23.2°C
Humidity	:	54.3%RH
Atmospheric Pressure	:	101.3kPa

EUT Operation:

Input Voltage.....	:	DC 5V
Operating Mode	:	On mode

6.2.2 Block Diagram of Test Setup

The ESD test was performed in accordance with the IEC 61000-4-2.



6.2.3 Direct Discharge Test Results

Observations : **Test points :** **1. All Exposed Surface & Seams;**
2. All metallic part

Direct Discharge			Test Results	
Applied Voltage (kV)	Performance Criterion	Test Point	Contact Discharge	Air Discharge
±8	B	1	N/A	Pass*
±4	B	2	Pass*	N/A

Remark: * During the test no deviation was detected to the selected operation mode(s)

6.2.4 Indirect Discharge Test Results

Observations : **Test points :** **1. All sides.**

Indirect Discharge			Test Results	
Applied Voltage (kV)	Performance Criterion	Test Point	Horizontal Coupling	Vertical Coupling
±4	B	1	Pass*	Pass*

Remark: * During the test no deviation was detected to the selected operation mode(s)

6.3 Radio-frequency electromagnetic fields, 80MHz to 6GHz

Test Requirement ..... : EN 55024

Test Method ..... : IEC 61000-4-3

Test Result ..... : Pass

Frequency Range ..... : 80MHz to 1GHz

Test level ..... : 3V/m

Modulation ..... : 80%, 1kHz Amplitude Modulation.

Face of EUT ..... : Front, Back, Left, Right

Antenna polarisation ..... : Horizontal& Vertical

6.3.1 E.U.T. Operation

Operating Environment:

Temperature..... : 21.6°C

Humidity ..... : 47.9%RH

Barometric Pressure ..... : 100.3Pa

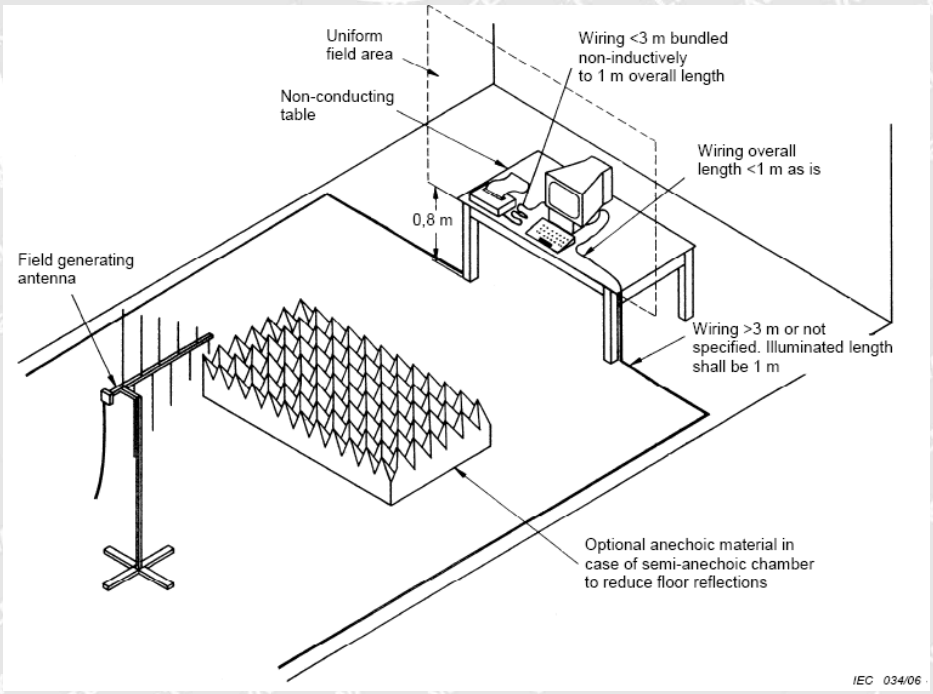
EUT Operation:

Input Voltage..... : DC 5V

Operating Mode ..... : On mode

6.3.2 Block Diagram of Setup

The Radio-frequency electromagnetic fields Immunity test was performed in accordance with the IEC 61000-4-3.



6.3.3 Test Results

Frequency	Face of EUT	Antenna polarisation	Test Level	Step Size	Dwell Time	Performance Criterion	Result
80 to 1000MHz	Front, Back, Left, Right	Horizontal	3V/m	1%	1s	A	Pass*
80 to 1000MHz	Front, Back, Left, Right	Vertical	3V/m	1%	1s	A	Pass*
1000 to 6000MHz	Front, Back, Left, Right	Horizontal	3V/m	1%	1s	A	Pass*
1000 to 6000MHz	Front, Back, Left, Right	Vertical	3V/m	1%	1s	A	Pass*

Remark:

* During the test no deviation was detected to the selected operation mode(s)

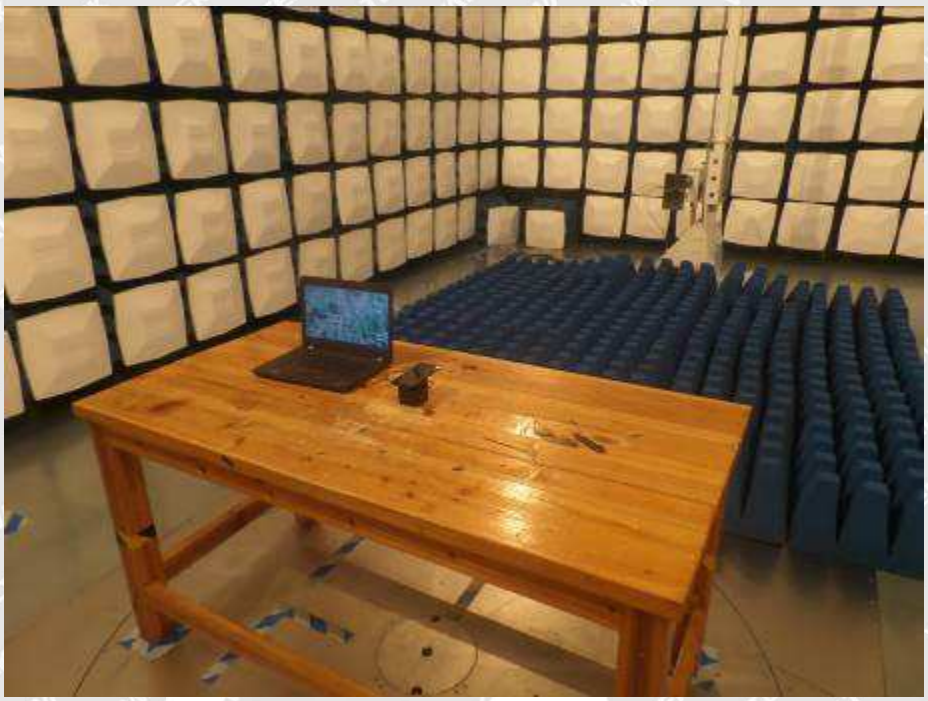
7 Photographs – Test Setup

7.1 Photograph –Radiated Emission Test Setup, 150kHz to 1GHz

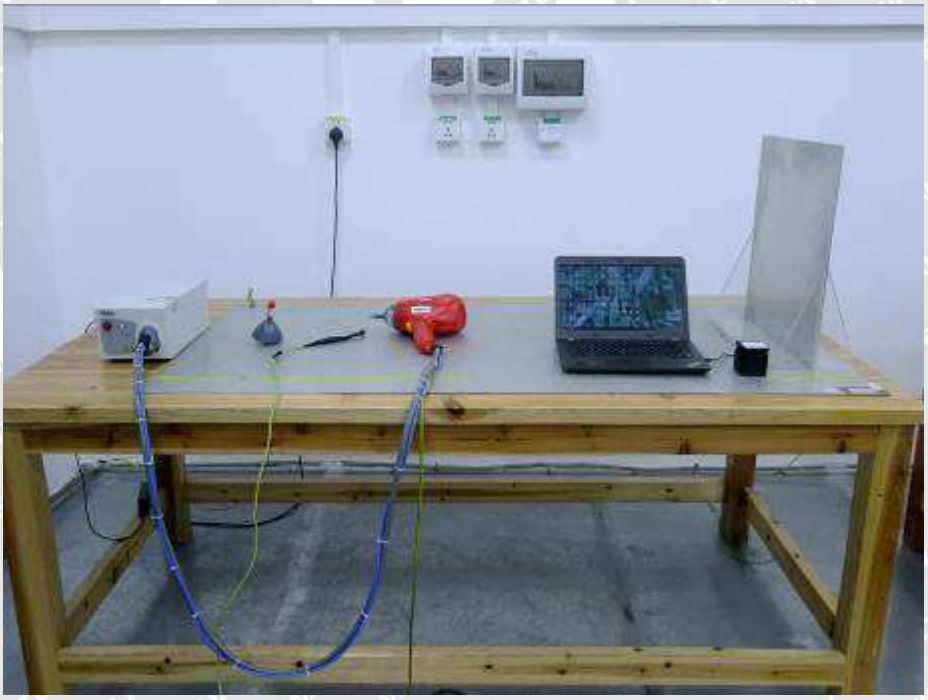
Below 30MHz

30MHz to 1GHz

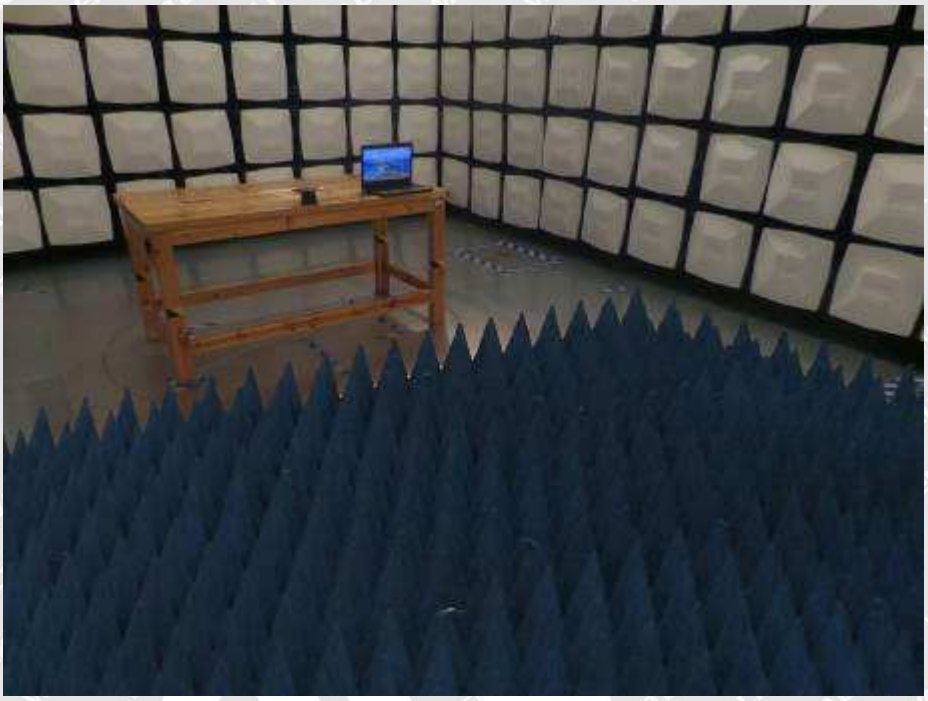
7.2 Photograph –Radiated Emission Test Setup, 1GHz to 6GHz



7.3 Photograph –ESD Test Setup



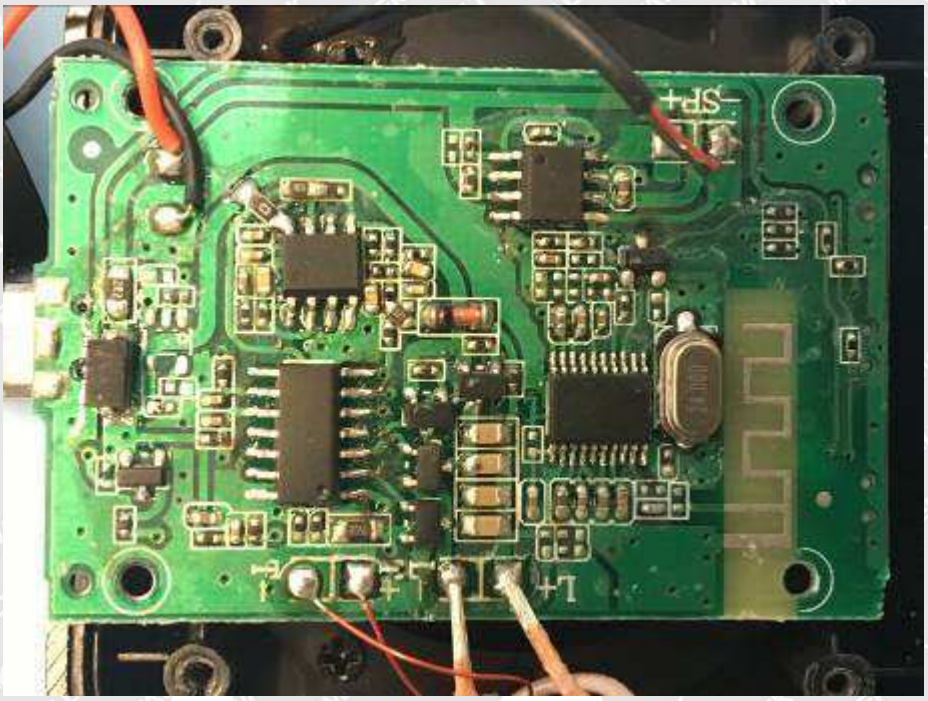
7.4 Photograph - Radiated immunity Test Setup

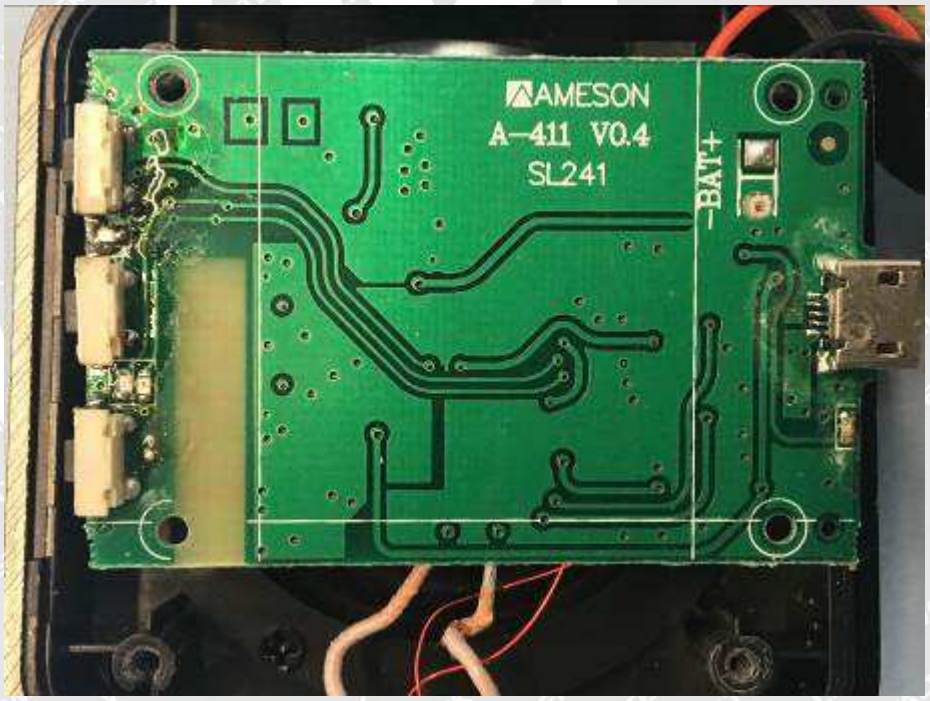


8 Photographs – Constructional Details

8.1 EUT – External View

8.2 EUT – Internal View





====== End of Report ======

VERIFICATION OF CONFORMITY

Reference No.	:	**WTF18F09122942E**
Applicant	:	[redacted]
Address	:	
Manufacturer	:	**The same as above**
Address	:	**The same as above**
Product	:	**Bluetooth speaker**
Model No.	:	**SL241**
Technical data	:	**Input: DC 5V/1.5A; Wireless output: DC 5V/0.8A; Battery capacity: 400mAh**

Test Standards:

EN 55032:2015
EN 55024:2010+A1:2015
EN 55011:2016+A1:2017
EN 61000-6-1:2007

The above product has been tested by us with the listed standards and found in compliance with the European Electromagnetic Compatibility Directive 2014/30/EU. It is possible to use CE marking to demonstrate the compliance with this EMC Directive.

EN 55032: Electromagnetic compatibility of multimedia equipment — Emission Requirements
EN 55024: Information technology equipment - Immunity characteristics - Limits and methods of measurement
EN 55011: Industrial, scientific and medical equipment - Radio-frequency disturbance characteristics - Limits and methods of measurement
EN 61000-6-1: Electromagnetic compatibility (EMC) - Part 6-1: Generic standards - Immunity for residential, commercial and light-industrial environments

The referred test report(s) show that the product complies with standard(s) recognized as giving presumption of compliance with the essential requirements in the above mentioned EU Directive. Other relevant Directives have to be observed.
After preparation of the necessary technical documentation as well as the conformity declaration, the CE marking as shown below can be affixed on the equipment.

CE

Manager: **Philo Zhong**
Date: **Sep. 18, 2018**

The statement is based on a single evaluation of the sample of above mentioned product. It does not imply an assessment of the whole production.

Waltek Services (Shenzhen) Co., Ltd.

Hotline: 400-840-2288 E-mail: info@waltek.com.cn
Http://www.waltek.com.cn

TEST REPORT

Reference No.	:	WTF18F09122950W
Applicant	:	[redacted]
Address	:	
Manufacturer	:	
Address	:	The same as above
Product Name	:	Bluetooth Speaker
Model No.	:	SL241
Standards	:	**Article 3.1a Health** (EN 62479:2010) **Article 3.1a Electrical Safety** (EN 60950-1:2006+A11:2009 +A1:2010+A12:2011+A2:2013)* **Article 3.1b EMC** (EN 55032:2015, EN 55024:2010+A1:2015, EN 55011:2016+A1:2017, EN 61000-6-1:2007)** **Article 3.1b EMC** (ETSI EN 301 489-1 V2.1.1:2017, ETSI EN 301 489-17 V3.1.1: 2017) **Article 3.2 Radio spectrum** (ETSI EN 300 328 V2.1.1:2016)
Date of Receipt sample	:	2018-09-10
Date of Test	:	2018-09-10 to 2018-09-18
Date of Issue	:	2018-09-19
Test Result	:	**Pass**

Remarks:
*Refer to test report WTF18F09122952S for details.
**Refer to test report WTF18F09122942E for details.
The results shown in this test report refer only to the sample(s) tested, this test report cannot be reproduced, except in full, without prior written permission of the company. The report would be invalid without specific stamp of test institute and the signatures of compiler and approver.

Prepared By:
Waltek Services (Foshan) Co., Ltd.
Address: S03-S05, 1/F, 19th Building, Sunlink International Machinery City, Chencun Town, Shunde District, Foshan, Guangdong, China.
Tel:+86-757-23811398
Fax:+86-757-23811381

Compiled by:

Roy Hong / Project Engineer

Approved by:

Tom Xiao / Manager

1 Test Summary

Radio Spectrum			
Test	Test Requirement	Limit / Severity	Result
RF output power	ETSI EN 300 328 V2.1.1:2016	≤20dBm	Pass
Duty Cycle, Tx-sequence, Tx-gap	ETSI EN 300 328 V2.1.1:2016	-	N/A
Accumulated Transmit Time, Frequency Occupation and Hopping Sequence	ETSI EN 300 328 V2.1.1:2016	Clause 4.3.1.4.3	Pass
Hopping Frequency Separation	ETSI EN 300 328 V2.1.1:2016	≥100kHz	Pass
Medium Utilization	ETSI EN 300 328 V2.1.1:2016	-	N/A
Adaptivity (Adaptive Frequency Hopping)	ETSI EN 300 328 V2.1.1:2016	-	N/A
Occupied Channel Bandwidth	ETSI EN 300 328 V2.1.1:2016	Within the band 2400-2483.5MHz	Pass
Transmitter unwanted in the OOB domain	ETSI EN 300 328 V2.1.1:2016	Figure 1	Pass
Transmitter unwanted emissions in the spurious domain	ETSI EN 300 328 V2.1.1:2016	Table 4	Pass
Receiver spurious emissions	ETSI EN 300 328 V2.1.1:2016	Table 5	Pass
Receiver Blocking	ETSI EN 300 328 V2.1.1:2016	Clause 4.3.1.12.4	Pass
EMC			
Test	Test Requirement	Class / Severity	Result
Radiation Emission	ETSI EN 301 489-17 V3.1.1:2017	Class B	Pass
Conducted Emissions	ETSI EN 301 489-17 V3.1.1:2017	Class B	N/A
Harmonic Current Emissions	ETSI EN 301 489-17 V3.1.1:2017	Clause 7 of EN 61000-3-2	N/A
Voltage Fluctuations and Flicker	ETSI EN 301 489-17 V3.1.1:2017	Clause 5 of EN 61000-3-3	N/A
Radio frequency electromagnetic field (80 MHz to 6 000MHz)	ETSI EN 301 489-17 V3.1.1:2017	3V/m, 80%, 1kHz, Amp. Mod.	Pass
Electrostatic Discharge (ESD)	ETSI EN 301 489-17 V3.1.1:2017	±4 kV Contact ±2/±4/±8 kV Air	Pass
Fast Transients Common Mode (EFT)	ETSI EN 301 489-17 V3.1.1:2017	AC±0.5/1.0kV	N/A
Voltage Dips and Interruptions	ETSI EN 301 489-17 V3.1.1:2017	0 % UT* for 0.5per 0 % UT* for 1per 70 % UT* for 25per 0 % UT* for 250per	N/A
RF common mode 0,15 MHz to 80 MHz (CS)	ETSI EN 301 489-17 V3.1.1:2017	3Vrms(emf), 80%, 1kHz Amp. Mod.	N/A
Surge	ETSI EN 301 489-17 V3.1.1:2017	±1kV D.M.† ±2kV C.M.‡	N/A

HEALTH			
Test	Test Method	Class / Severity	Result
RF Exposure	EN 62479:2010	-	Pass

Remark:

Pass	Test item meets the requirement
N/A	Not Applicable
RF	In this whole report RF means Radio Frequency

2 Contents

3 General Information

3.1 General Description of E.U.T.

Product Name ..... : Bluetooth Speaker

Model No. ..... : SL241

Remark ..... : ---

3.2 Details of E.U.T.

Frequency Range ..... : 2402-2480MHz, 79 Channels in total

Nominal Channel Bandwidth..... : 1MHz

Maximum RF Output Power ..... : -0.27 dBm

Bluetooth Version ..... : Bluetooth V4.2+ BR+ EDR

Type of Modulation ..... : GFSK, π/4DQPSK, 8DPSK

Antenna installation ..... : PCB Printed Antenna

Antenna Gain ..... : 0dBi

The lowest oscillator..... : 24MHz

Receiver Category..... : 3

Supply Voltage..... : Input: DC 5V/1.5A; Wireless output: DC 5V/0.8A; Battery capacity: 400mAh

3.3 Channel List

Channel No.	Frequency (MHz)	Channel No.	Frequency (MHz)	Channel No.	Frequency (MHz)	Channel No.	Frequency (MHz)
1	2402	**2**	2403	**3**	2404	**4**	2405
5	2406	**6**	2407	**7**	2408	**8**	2409
9	2410	**10**	2411	**11**	2412	**12**	2413
13	2414	**14**	2415	**15**	2416	**16**	2417
17	2418	**18**	2419	**19**	2420	**20**	2421
21	2422	**22**	2423	**23**	2424	**24**	2425
25	2426	**26**	2427	**27**	2428	**28**	2429
29	2430	**30**	2431	**31**	2432	**32**	2433
33	2434	**34**	2435	**35**	2436	**36**	2437
37	2438	**38**	2439	**39**	2440	**40**	2441
41	2442	**42**	2443	**43**	2444	**44**	2445
45	2446	**46**	2447	**47**	2448	**48**	2449
49	2450	**50**	2451	**51**	2452	**52**	2453
53	2454	**54**	2455	**55**	2456	**56**	2457
57	2458	**58**	2459	**59**	2460	**60**	2461
61	2462	**62**	2463	**63**	2464	**64**	2465
65	2466	**66**	2467	**67**	2468	**68**	2469
69	2470	**70**	2471	**71**	2472	**72**	2473
73	2474	**74**	2475	**75**	2476	**76**	2477
77	2478	**78**	2479	**79**	2480	-	-

3.4 Additional information

a) The type of modulation used by the equipment:

☒ FHSS

☐ Other forms of modulation

b) In case of FHSS modulation:

• In case of non-Adaptive Frequency Hopping equipment:

The number of Hopping Frequencies: ***N/A***

• In case of Adaptive Frequency Hopping Equipment:

The maximum number of Hopping Frequencies: ***79***

The minimum number of Hopping Frequencies: ***79***

c) Adaptive / non-adaptive equipment:

☐ non-adaptive Equipment

☒ adaptive Equipment without the possibility to switch to a non-adaptive mode

☐ adaptive Equipment which can also operate in a non-adaptive mode

d) In case of adaptive equipment:

☐ The equipment has implemented an LBT based DAA mechanism

☒ The equipment has implemented a non-LBT based DAA mechanism

☐ The equipment can operate in more than one adaptive mode

e) In case of non-adaptive Equipment:

The maximum RF Output Power (e.i.r.p.): ***N/A***dBm

The maximum (corresponding) Duty Cycle: ***N/A*** %

Equipment with dynamic behaviour, that behaviour is described here. (e.g. the different combinations of duty cycle and corresponding power levels to be declared): ***N/A***

f) The different transmit operating modes (tick all that apply):

☒ Operating mode 1: Single Antenna Equipment

- ☒ Equipment with only one antenna
- ☐ Equipment with two diversity antennas but only one antenna active at any moment in time
- ☐ Smart Antenna Systems with two or more antennas, but operating in a (legacy) mode where only one antenna is used (e.g. IEEE 802.11™ [i.3] legacy mode in smart antenna systems)

☐ Operating mode 2: Smart Antenna Systems - Multiple Antennas without beam forming

- ☐ Single spatial stream / Standard throughput / (e.g. IEEE 802.11™ [i.3] legacy mode)
- ☐ High Throughput (> 1 spatial stream) using Nominal Channel Bandwidth 1
- ☐ High Throughput (> 1 spatial stream) using Nominal Channel Bandwidth 2

☐ Operating mode 3: Smart Antenna Systems - Multiple Antennas with beam forming

- ☐ Single spatial stream / Standard throughput (e.g. IEEE 802.11™ [i.3] legacy mode)
- ☐ High Throughput (> 1 spatial stream) using Nominal Channel Bandwidth 1
- ☐ High Throughput (> 1 spatial stream) using Nominal Channel Bandwidth 2

g) Type of Equipment (stand-alone, combined, plug-in radio device, etc.):

☒ Stand-alone

☐ Combined Equipment (Equipment where the radio part is fully integrated within another type of equipment)

☐ Plug-in radio device (Equipment intended for a variety of host systems)

☐ Other .....

h) The normal and the extreme operating conditions that apply to the equipment:

Normal operating conditions (if applicable):

Operating temperature: ***25*** ° C

Extreme operating conditions:

Operating temperature range: Minimum: ***-10*** ° C Maximum ***+50*** ° C

i) The intended combination(s) of the radio equipment power settings and one or more antenna assemblies and their corresponding e.i.r.p. levels:

• Antenna Type:

☒ Integral Antenna (information to be provided in case of conducted measurements)

Antenna Gain:0dBi

☐ Dedicated Antennas (equipment with antenna connector)

☐ Single power level with corresponding antenna(s)

☐ Multiple power settings and corresponding antenna(s)

j) Describe the test modes available which can facilitate testing:

The EUT can be into the Engineer mode for testing.

k) The equipment type (e.g. Bluetooth®, IEEE 802.11™ [i.3], IEEE 802.15.4™ [i.4], proprietary, etc.):

Bluetooth

l) Geo-location capability supported by the equipment:

☐ Yes

☐ The geographical location determined by the equipment as defined in clause 4.3.1.13.2 or clause 4.3.2.12.2 is not accessible to the user

☒ No

3.5 Subcontracted

Whether parts of tests for the product have been subcontracted to other labs:

☐ Yes ☒ No

If Yes, list the related test items and lab information:

Test items: ---

Lab information: ---

3.6 Abnormalities from Standard Conditions

None.

3.7 Other

This report is based on Project No. WTF18F09122947W for adding applicant and updating the models, the new models have same electric circuit with original models only their model name is different. Therefore it do not affect the EMC test items for the supplemented model, the EUT is deemed to fulfill all the requirements and no further test has been performed.

4 Equipment Used during Test

4.1 Equipment List

3m Semi-anechoic Chamber for Radiation Emission and Spurious Emission						
Item	**Equipment**	**Manufacturer**	**Model No.**	**Serial No.**	**Last Calibration Date**	**Calibration Due Date**
1	EMI TEST RECEIVER	RS	ESR7	101566	2018-01-18	2019-01-17
2	Spectrum Analyzer	Agilent	N9020A	MY48011796	2018-01-18	2019-01-17
3	Trilog Broadband Antenna	SCHWARZBECK	VULB9162	9162-117	2018-01-18	2019-01-17
4	Coaxial Cable (below 1GHz)	H+S	CBL3-NN-12+3 m	214NN320	2018-01-18	2019-01-17
5	Broad-band Horn Antenna	SCHWARZBECK	BBHA 9120 D	01561	2018-01-18	2019-01-17
6	Broadband Preamplifier (below 1GHz)	SCHWARZBECK	BBV 9743	BBV 9743#170	2018-01-18	2019-01-17
7	Broadband Preamplifier (Above 1GHz)	Lunar E M	LNA1G18-40	20160501002	2018-01-18	2019-01-17
8	Coaxial Cable (above 1GHz)	Times-Micorwave	CBL5-NN	-	2018-01-18	2019-01-17
RF Conducted test						
Item	**Equipment**	**Manufacturer**	**Model No.**	**Serial No.**	**Last Calibration Date**	**Calibration Due Date**
1	Environmental Chamber	KSON	THS-D4C-100	5244K	2018-01-18	2019-01-17
2	Spectrum Analyzer	Agilent	N9020A	MY48011796	2018-01-18	2019-01-17
3	ESG VECTOR SIGNAL GENERATOR	Agilent	N5182A	MY50141533	2018-01-18	2019-01-17
4	EXG Analog Signal Generator	Agilent	N5181A	MY48080720	2018-01-18	2019-01-17
5	RF Control Unit	CHANGCHUANG	JS0806-2	-	2018-01-18	2019-01-17
6	WIDEBAND RADIO COMMUNICATION TESTER	RS	CMW500	158178	2018-08-01	2019-07-31
Mains Terminal Disturbance Voltage (Conducted Emission)						
Item	**Equipment**	**Manufacturer**	**Model No.**	**Serial No.**	**Last Calibration Date**	**Calibration Due Date**
1	EMI Test Receiver	R&S	ESCI	101178	2018-01-18	2019-01-17
2	LISN	R&S	ENV216	101215	2018-01-18	2019-01-17
3	LISN	SCHWARZBECK	NSLK 8128	8128-289	2018-01-18	2019-01-17
4	Cable	HUBER+SUHNER	CBL2-NN-3M	2230300	2018-01-18	2019-01-17

5	Switch	ESE	RSU/M2	---	2018-01-18	2019-01-17
Harmonics and Flicker Measuring System						
Item	**Equipment**	**Manufacturer**	**Model No.**	**Serial No.**	**Last Calibration Date**	**Calibration Due Date**
1	Harmonics and Flicker Measuring System	TESEQ	PROFLINE21 05-400	1133A01498	2018-01-18	2019-01-17
ESD						
Item	**Equipment**	**Manufacturer**	**Model No.**	**Serial No.**	**Last Calibration Date**	**Calibration Due Date**
1	ESD Simulator	TESEQ	NSG437	521	2018-01-18	2019-01-17
Injected Currents						
Item	**Equipment**	**Manufacturer**	**Model No.**	**Serial No.**	**Last Calibration Date**	**Calibration Due Date**
1	Conducted Immunity test system	TESEQ	NSG4070-75	31469	2018-01-18	2019-01-17
2	CDN	TESEQ	M016	31586	2018-01-18	2019-01-17
3	Clamp	TESEQ	KEMZ801	32362	2018-01-18	2019-01-17
Surge						
Item	**Equipment**	**Manufacturer**	**Model No.**	**Serial No.**	**Last Calibration Date**	**Calibration Due Date**
1	Surge Simulator	TESEQ	NSG3060	1395	2018-01-18	2019-01-17
EFT & Voltage Dips and Interruptions						
Item	**Equipment**	**Manufacturer**	**Model No.**	**Serial No.**	**Last Calibration Date**	**Calibration Due Date**
1	EMS test system	TESEQ	NSG3040	1858	2018-01-18	2019-01-17
2	Clamp	TESEQ	CDN8014	31405	2018-01-18	2019-01-17
Radio-frequency electromagnetic fields						
Item	**Equipment**	**Manufacturer**	**Model No.**	**Serial No.**	**Last Calibration Date**	**Calibration Due Date**
1	RF Power Amplifier	OPHIR	5225F	1051/1712	2018-01-18	2019-01-17
2	RF Power Amplifier	OPHIR	5293F	1051/171.	2018-01-18	2019-01-17
3	Stacked double logarithmic periodic antenna	SCHWARZBECK	STLP9128E-SPECIAL	STLP 9128E	2018-01-18	2019-01-17
4	Stacked double logarithmic periodic antenna	SCHWARZBECK	STLP 9149	STLP 9149 #476	2018-01-18	2019-01-17
5	RF signal generator	Agilent	N5181A	MY48080720	2018-01-18	2019-01-17

4.2 Support equipment

Item	Equipment	Technical Data	Manufacturer	Model No.	Serial No.
1.	Notebook	AC 230V/50Hz	Lenovo	ThinkPad Edge E430	00426-OEM-8992662-00400
2.	Mobile Phone	--	SAMSUNG	SM-G9500	R28J53EFNBN

4.3 Measurement Uncertainty

Parameter	Uncertainty
Occupied Channel Bandwidth	±5 %
RF output power, conducted	±1.5dB
Power Spectral Density, conducted	±3dB
Unwanted Emissions, conducted	±3dB
All emissions, radiated	±6dB
Time	±5%
Duty Cycle	±5%
Temperature	±1°C
Humidity	±5%
DC and low frequency voltages	±3%
Conduction disturbance (150kHz~30MHz)	±2.66dB
Radiated Emission(30MHz~1000MHz)	±4.56dB
Radiated Emission(1000MHz~18000MHz)	±4.66dB

5 RF Requirements

5.1 RF Output power

Test Requirement ..... : ETSI EN 300 328 V2.1.1, Clause 4.3.1.2

Test Procedure ..... : ETSI EN 300 328 V2.1.1, Clause 5.4.2.2.1.2

Limit ..... : ETSI EN 300 328 V2.1.1, Clause 4.3.1.2.3

Test Result ..... : Pass

5.1.1 E.U.T. Operation

Environmental Conditions:

Temperature..... : 25°C

Humidity ..... : 49%RH

Test Mode:

Input Voltage..... : DC 3.3V

Operating mode..... : Transmit mode

Remark ..... : Pre-Scan has been conducted to determine the worst-case mode from all available modulations. Modulation type π/4DQPSK was selected for the final test.

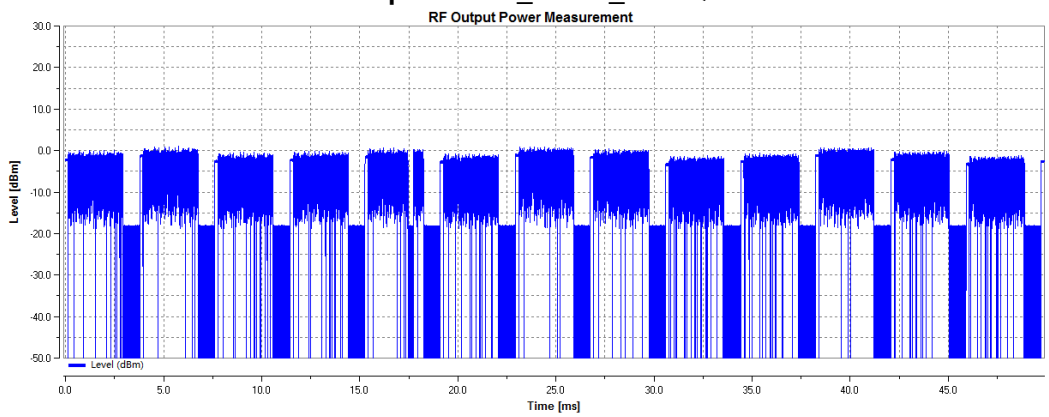
5.1.2 Test Result

Modulation Type	Test conditions		EIRP (dBm)	Limit (dBm)	Verdict
	Voltage (Vdc)	Temperature (℃)			
π/4DQPSK	V_{nor}=3.3	T_{min}=-10	-1.08	20.00	Pass
		T_{nor}=+25	-1.33		
		T_{max}=+55	-0.57		

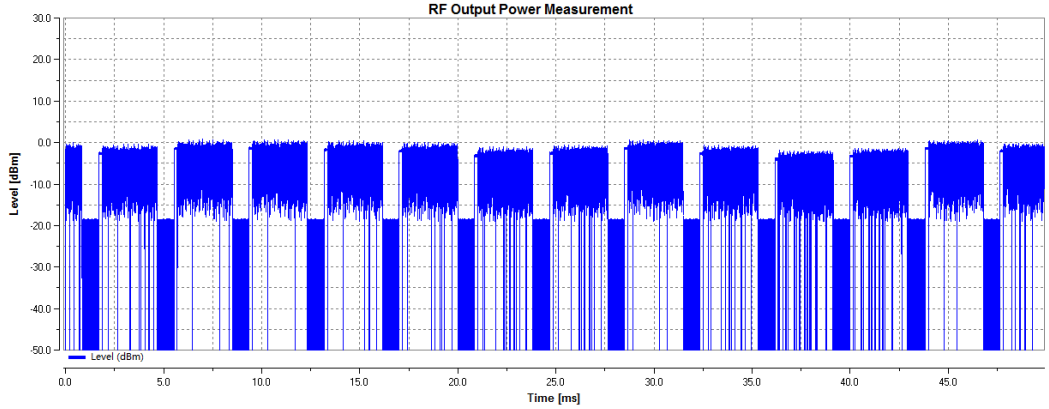
Remark: EIRP=Conducted output power + ANT gain

Test Graphs:

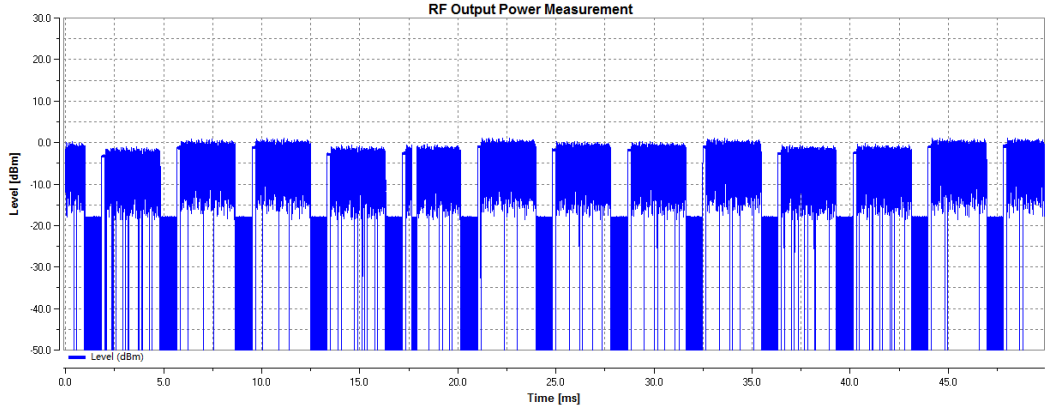
RF Output Power_TLVN _π/4DQPSK



RF Output Power_TNVN _π/4DQPSK



RF Output Power_THVN _π/4DQPSK



5.2 Accumulated Transmit Time, Minimum Frequency Occupation and Hopping Sequence

Test Requirement ..... : ETSI EN 300 328 V2.1.1, Clause 4.3.1.4

Test Procedure ..... : ETSI EN 300 328 V2.1.1, Clause 5.4.4.2

Limit ..... : ETSI EN 300 328 V2.1.1, Clause 4.3.1.4.3

Test Result ..... : Pass

5.2.1 E.U.T. Operation

Environmental Conditions:

Temperature ..... : 25°C

Humidity ..... : 49%RH

Test Mode:

Input Voltage ..... : DC 3.3V

Operating mode ..... : Transmit mode

Remark ..... : Pre-Scan has been conducted to determine the worst-case mode from all available modulations. Modulation type π/4DQPSK was selected for the final test Minimum Frequency Occupation. Modulation type GFSK was selected for the other test

5.2.2 Test Result

◆ **Accumulated Dwell Time**

Modulation Type	Test Condition	Test Channel	Accumulated Transmit Time (ms)	Limit (ms)	Verdict
GFSK	TNVN	2402MHz	345.493	400	Pass
GFSK	TNVN	2441MHz	319.160	400	Pass
GFSK	TNVN	2480MHz	389.733	400	Pass

◆ **Minimum Frequency Occupation**

Modulation Type	Test Condition	Test Channel	Frequency occupation times (N)	Limit (N)	Verdict
π/4DQPSK	TNVN	2402MHz	3	≥1	Pass
π/4DQPSK	TNVN	2441MHz	4		Pass
π/4DQPSK	TNVN	2480MHz	4		Pass

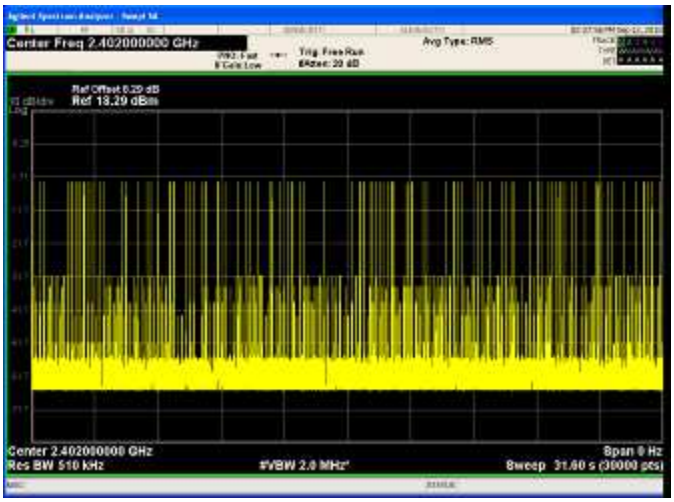
◆ **Hopping Sequence**

Modulation Type	Test Condition	Number of Hopping Channel	Limit	-20 dB Bandwidth(%)	Limit	Verdict
GFSK	TNVN	79	≥15	95.23	70 % of the band 2400MHz-2483.5MHz	Pass

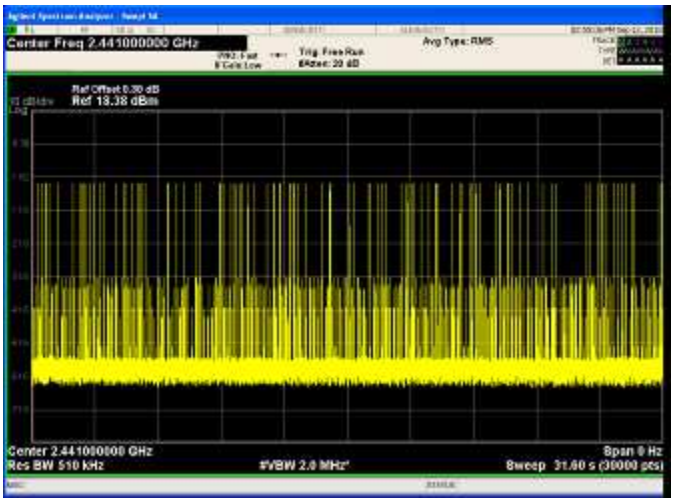
Test Graphs:

◆ **Accumulated Dwell Time**

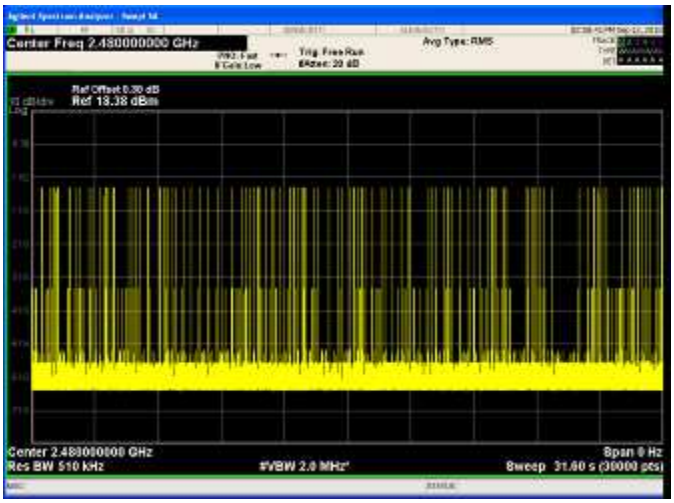
Accumulated Dwell time_TNVN_GFSK_2402



Accumulated Dwell time_TNVN_GFSK_2441

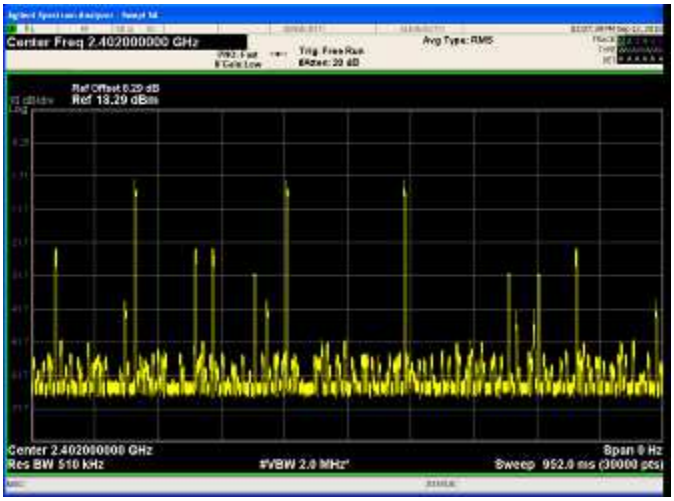


Accumulated Dwell time_TNVN_GFSK_2480

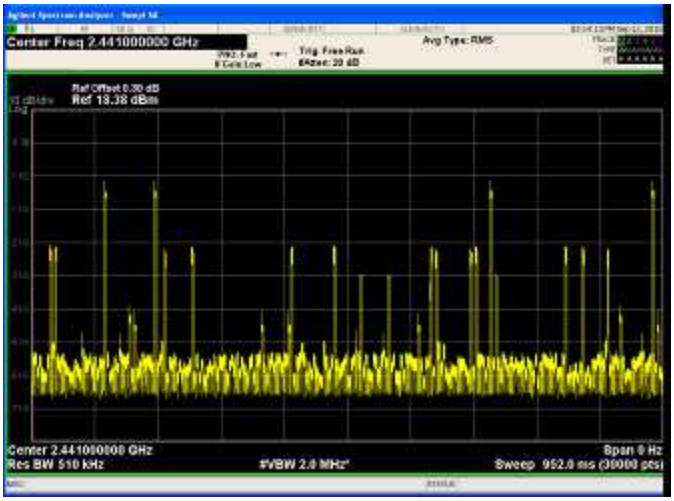


◆ **Minimum Frequency Occupation**

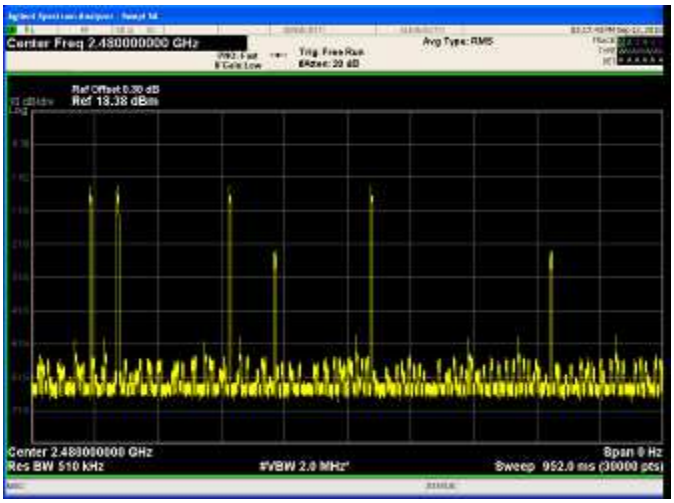
Minimum Frequency Occupation_TNVN_π/4DQPSK_2402



Minimum Frequency Occupation_TNVN_π/4DQPSK_2441

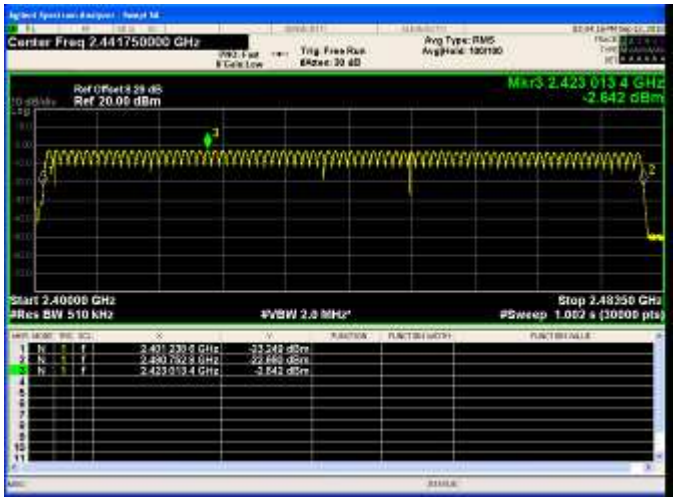


Minimum Frequency Occupation_TNVN_π/4DQPSK_2480



◆ **Hopping Sequence**

Hopping Sequence_TNVN_GFSK



5.3 Hopping Frequency Separation

Test Requirement ..... : ETSI EN 300 328 V2.1.1, Clause 4.3.1.5

Test Procedure ..... : ETSI EN 300 328 V2.1.1, Clause 5.4.5.2

Test Method ..... : Option 1 of Clause 5.4.5.2

Limit ..... : ETSI EN 300 328 V2.1.1, Clause 4.3.1.5.3

Test Result ..... : Pass

5.3.1 E.U.T. Operation

Environmental Conditions:

Temperature..... : 25°C

Humidity ..... : 49%RH

Test Mode:

Input Voltage..... : DC 3.3V

Operating mode..... : Transmit mode

Remark ..... : Pre-Scan has been conducted to determine the worst-case mode from all available modulations. Modulation type GFSK was selected for the final test.

5.3.2 Test Result

Modulation Type	Test Condition	Test Channel	Channel Separation (MHz)	Limit(kHz)	Verdict
GFSK	TNVN	2441MHz	0.970	≥100	Pass

Test Graphs:

Hopping Frequency Separation_TNVN_GFSK_2441

5.4 Occupied Channel Bandwidth

Test Requirement ..... : ETSI EN 300 328 V2.1.1, Clause 4.3.1.8

Test Procedure ..... : ETSI EN 300 328 V2.1.1, Clause 5.4.7.2

Limit ..... : ETSI EN 300 328 V2.1.1, Clause 4.3.1.8.3

Test Result ..... : Pass

5.4.1 E.U.T. Operation

Environmental Conditions:

Temperature..... : 25°C

Humidity ..... : 49%RH

Test Mode:

Input Voltage..... : DC 3.3V

Operating mode..... : Transmit mode

Remark ..... : Pre-Scan has been conducted to determine the worst-case mode from all available modulations. Modulation type GFSK was selected for the final test.

5.4.2 Test Result

Modulation Type	Test Condition	Test Channel	OBW (MHz)	FL@OBW	FH@OBW	Verdict
GFSK	TNVN	2402MHz	0.86872	2401.57578	---	Pass
GFSK	TNVN	2480MHz	0.86875	---	2480.444895	Pass

Test Graphs:

Occupied Channel Bandwidth_TNVN_GFSK_2402

Occupied Channel Bandwidth_TNVN_GFSK_2480

5.5 Transmitter unwanted emissions in the out-of-band domain

Test Requirement ..... : ETSI EN 300 328 V2.1.1, Clause 4.3.1.9

Test Procedure ..... : ETSI EN 300 328 V2.1.1, Clause 5.4.8.2

Limit ..... : ETSI EN 300 328 V2.1.1, Clause 4.3.1.9.3

Test Result ..... : Pass

5.5.1 E.U.T. Operation

Environmental Conditions:

Temperature ..... : 25°C

Humidity ..... : 49%RH

Test Mode:

Input Voltage ..... : DC 3.3V

Operating mode ..... : Transmit mode

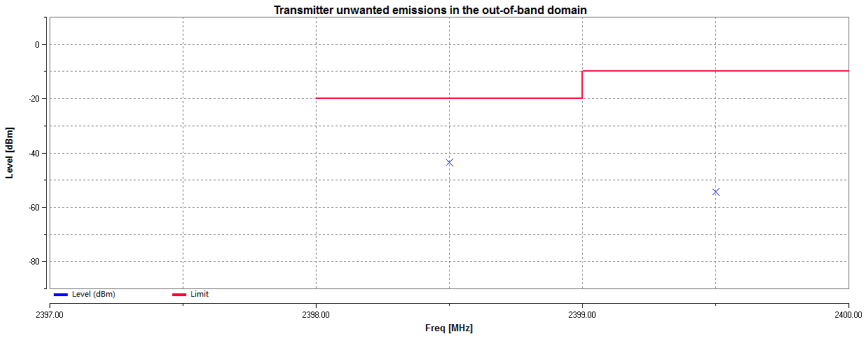
Remark ..... : Pre-Scan has been conducted to determine the worst-case mode from all available modulations. Modulation type GFSK was selected for the final test.

5.5.2 Test Result

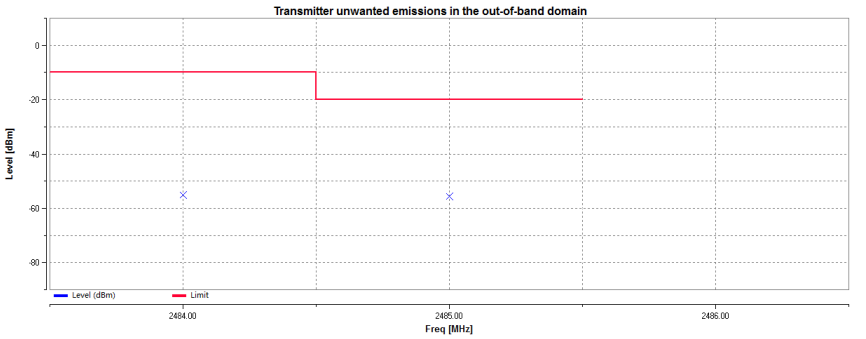
Modulation Type	Test Condition	Test Channel	Frequency (MHz)	Result (dBm)	Limit (dBm)	Verdict
GFSK	TNVN	2402	2398.500	-43.61	<=-20	Pass
GFSK	TNVN	2402	2399.500	-54.32	<=-10	Pass
GFSK	TNVN	2402	2484.000	-55.04	<=-10	Pass
GFSK	TNVN	2402	2485.000	-55.53	<=-20	Pass
GFSK	TNVN	2480	2398.500	-43.62	<=-20	Pass
GFSK	TNVN	2480	2399.500	-53.71	<=-10	Pass
GFSK	TNVN	2480	2484.000	-55.32	<=-10	Pass
GFSK	TNVN	2480	2485.000	-56.64	<=-20	Pass

Test Graphs:

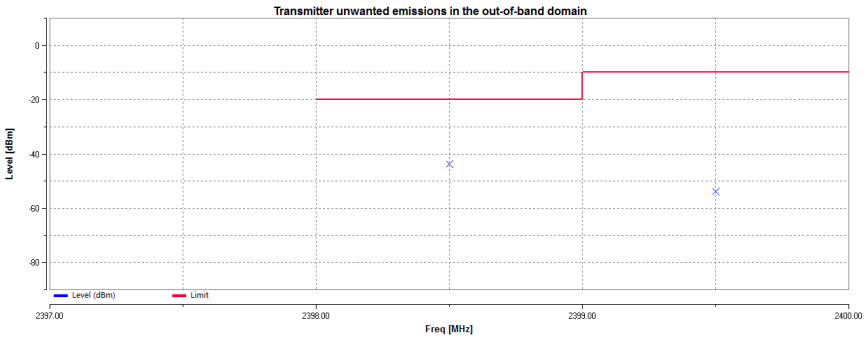
Transmitter unwanted emissions in the OOB domain_TNVN_GFSK_2402_2400MHz-2BW to 2400MHz



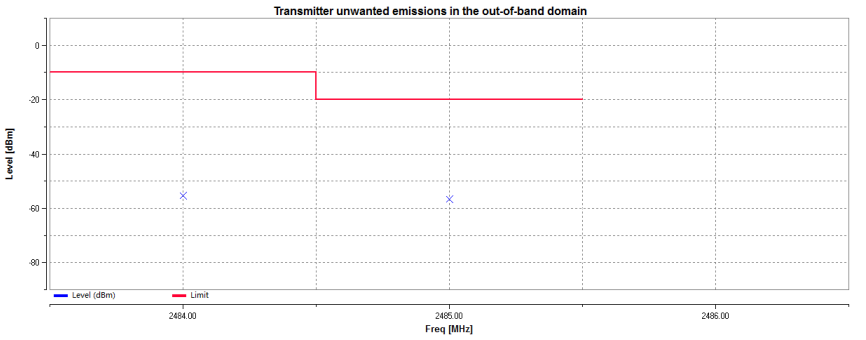
Transmitter unwanted emissions in the OOB domain_TNVN_GFSK_2402_2483.5MHz to 2483.5MHz+2BW



Transmitter unwanted emissions in the OOB domain_TNVN_GFSK_2480_2400MHz-2BW to 2400MHz



Transmitter unwanted emissions in the OOB domain_TNVN_GFSK_2402_2483.5MHz to 2483.5MHz+2BW



5.6 Transmitter unwanted emissions in the spurious domain

Test Requirement ..... : ETSI EN 300 328 V2.1.1, Clause 4.3.1.10

Test Procedure ..... : ETSI EN 300 328 V2.1.1, Clause 5.4.9.2

Limit ..... : ETSI EN 300 328 V2.1.1, Clause 4.3.1.10.3, Table 4

Test Result ..... : Pass

5.6.1 E.U.T. Operation

Environmental Conditions:

Temperature..... : 25°C

Humidity ..... : 49%RH

Test Mode:

Input Voltage..... : DC 3.3V

Operating mode..... : Transmit mode

Remark ..... : Pre-Scan has been conducted to determine the worst-case mode from all available modulations. Modulation type GFSK was selected for the final test.

5.6.2 Test Result

Frequency (MHz)	Receiver Reading (dBμV)	Turn table Angle (°)	RX Antenna		Substituted			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Height (m)	Polar (H/V)	SG Level (dBm)	Cable (dB)	Antenna Gain (dB)			
TX_TNVN_GFSK_2402										
896.02	23.37	150	1.5	H	-72.00	0.22	0.00	-71.78	-36	-35.78
896.02	23.96	134	1.5	V	-71.22	0.22	0.00	-71.00	-36	-35.00
4804.94	54.05	120	1.4	H	-37.12	2.64	12.70	-47.18	-30	-17.18
4804.94	38.18	198	1.6	V	-50.06	2.64	12.70	-60.12	-30	-30.12
7431.95	37.54	205	2.5	H	-50.86	2.98	13.00	-60.88	-30	-30.88
7431.95	36.28	220	2.1	V	-51.76	2.98	13.00	-61.78	-30	-31.78
TX_TNVN_GFSK_2480										
763.90	26.20	250	2.3	H	-71.15	0.20	0.00	-70.95	-54	-16.95
763.90	24.27	135	1.6	V	-72.88	0.20	0.00	-72.68	-54	-18.68
4956.52	55.15	195	1.9	H	-34.20	2.72	12.70	-44.18	-30	-14.18
4956.52	49.97	158	2.1	V	-38.91	2.72	12.70	-48.89	-30	-18.89
5998.45	50.86	137	1.8	H	-37.54	2.98	13.00	-47.56	-30	-17.56
5998.45	50.30	203	1.7	V	-37.74	2.98	13.00	-47.76	-30	-17.76

5.7 Receiver spurious emissions

Test Requirement ..... : ETSI EN 300 328 V2.1.1, Clause 4.3.1.11

Test Procedure ..... : ETSI EN 300 328 V2.1.1, Clause 5.4.10.2

Limit ..... : ETSI EN 300 328 V2.1.1, Clause 4.3.1.11.3, Table 5

Test Result ..... : Pass

5.7.1 E.U.T. Operation

Environmental Conditions:

Temperature..... : 25°C

Humidity ..... : 49%RH

Test Mode:

Input Voltage..... : DC 3.3V

Operating mode..... : Receive mode

Remark ..... : Pre-Scan has been conducted to determine the worst-case mode from all available modulations. Modulation type GFSK was selected for the final test.

5.7.2 Test Result

Frequency (MHz)	Receiver Reading (dBμV)	Turn table Angle (°)	RX Antenna		Substituted			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Height (m)	Polar (H/V)	SG Level (dBm)	Cable (dB)	Antenna Gain (dB)			
RX_TNVN_GFSK_2402										
960.01	20.06	205	1.2	H	-75.28	0.22	0.00	-75.06	-57	-18.06
960.01	17.73	135	2.5	V	-77.11	0.22	0.00	-76.89	-57	-19.89
4800.54	44.34	136	1.5	H	-46.83	2.64	12.70	-56.89	-47	-9.89
4800.54	30.26	209	1.6	V	-57.98	2.64	12.70	-68.04	-47	-21.04
5891.53	31.09	164	1.9	H	-57.38	2.90	12.90	-67.38	-47	-20.38
5891.53	32.09	198	2.1	V	-56.15	2.90	12.90	-66.15	-47	-19.15
RX_TNVN_GFSK_2480										
768.03	20.87	160	1.8	H	-76.02	0.20	0.00	-75.82	-57	-18.82
768.03	17.55	159	1.5	V	-79.25	0.20	0.00	-79.05	-57	-22.05
4956.52	44.20	130	1.3	H	-45.31	2.72	12.70	-55.29	-47	-8.29
4956.52	25.93	141	1.7	V	-62.88	2.72	12.70	-72.86	-47	-25.86
6445.83	27.17	185	2.6	H	-61.23	2.98	13.00	-71.25	-47	-24.25
6445.83	25.98	134	2.1	V	-62.06	2.98	13.00	-72.08	-47	-25.08

5.8 Receiver Blocking

Test Requirement ..... : ETSI EN 300 328 V2.1.1, Clause 4.3.1.12

Test Procedure ..... : ETSI EN 300 328 V2.1.1, Clause 5.4.11.2

Limit ..... : ETSI EN 300 328 V2.1.1, Clause 4.3.1.12.4, table 8

Receiver Category ..... : 3

Test Result ..... : Pass

5.8.1 E.U.T. Operation

Environmental Conditions:

Temperature ..... : 25°C

Humidity ..... : 49%RH

Test Mode:

Input Voltage ..... : DC 3.3V

Operating mode ..... : Receive mode

Remark ..... : Pre-Scan has been conducted to determine the worst-case mode from all available modulations. Modulation type GFSK was selected for the final test.

5.8.2 Test Result

Pmin=-78.26dBm, Receiver Category: 3							
Modulation Type	Wanted Signal mean Power (dBm)	Blocking Signal Frequency (MHz)	Blocking Signal Power (dB)	Type of Blocking Signal	Measured PER (%)	Limit PER (%)	Performance Criteria
GFSK	P_{min}+12dB	2380	-57	CW	0.093	≤10	Compliance
GFSK	P_{min}+12dB	2503.5	-57	CW	0.089	≤10	Compliance
GFSK	P_{min}+12dB	2300	-47	CW	0.073	≤10	Compliance
GFSK	P_{min}+12dB	2583.5	-47	CW	0.091	≤10	Compliance

Remark: The minimum performance criterion shall be a PER less than or equal to 10%.

6 EMC Requirements for Emissions

6.1 Radiated Emission

Test Requirement	:	ETSI EN 301 489-17
Test Method	:	ETSI EN 301 489-1, EN 55032, Class B
Frequency Range	:	30MHz to 1GHz, 1GHz to 6GHz
Class/Severity	:	Class B/ Table A.4 and A.5 of EN 55032
Detector	:	Peak for pre-scan (120kHz Resolution Bandwidth Below 1GHz; 1MHz Resolution Bandwidth Above 1GHz)

6.1.1 EUT Operation:

Operating Environment:

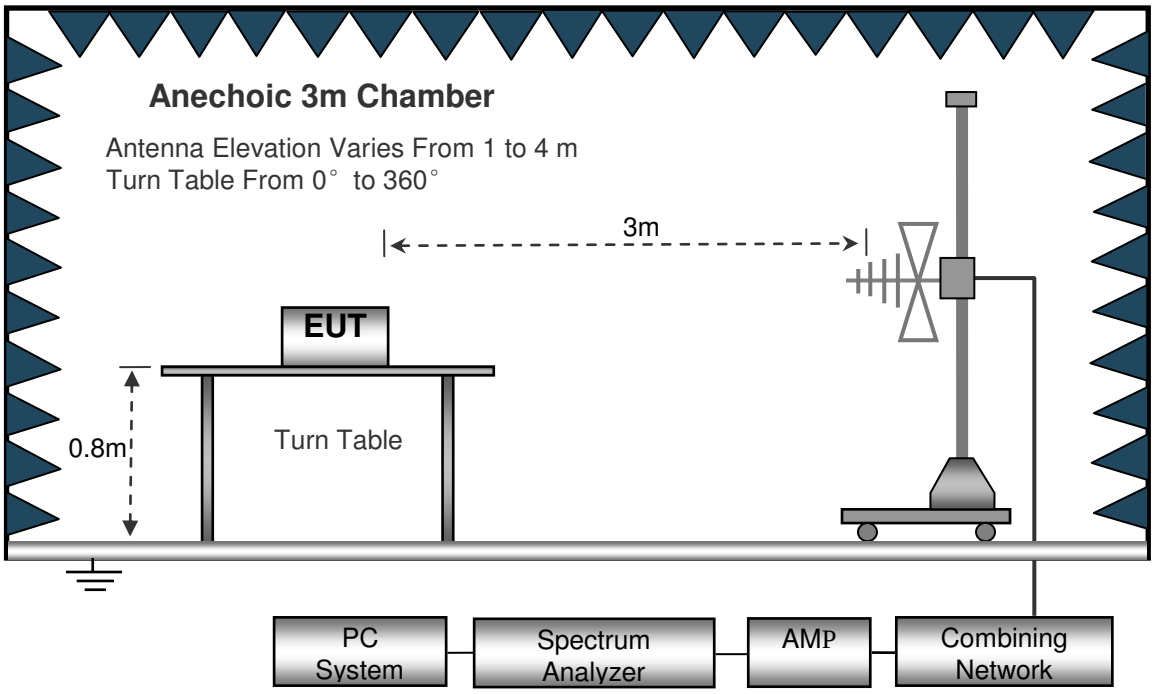
Temperature	:	23.6°C
Humidity	:	46.4%RH
Atmospheric Pressure	:	101.2kPa

EUT Operation:

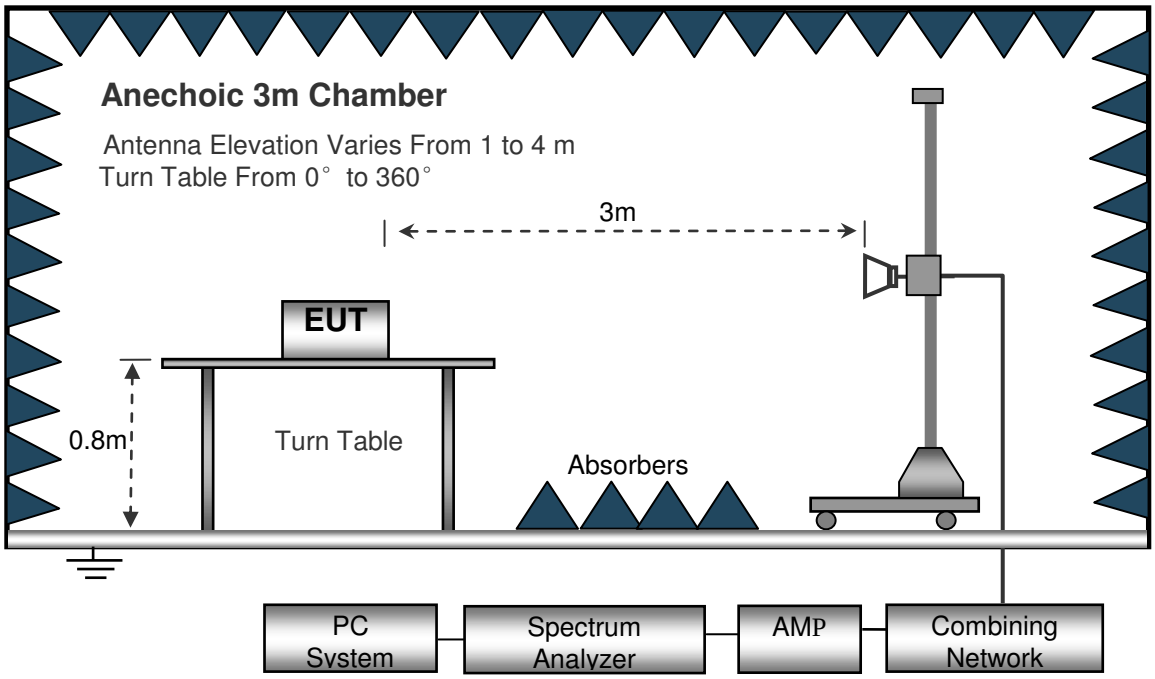
Input Voltage	:	DC 5V by USB port or Battery 3.7V
Operating Mode	:	BT with wireless charging& charging mode or BT with discharging mode

6.1.2 Test Setup

The radiated emission tests were performed using the setup accordance with the EN 55032.
Frequency Range: Below 1 000MHz



Frequency Range: Above 1 000MHz



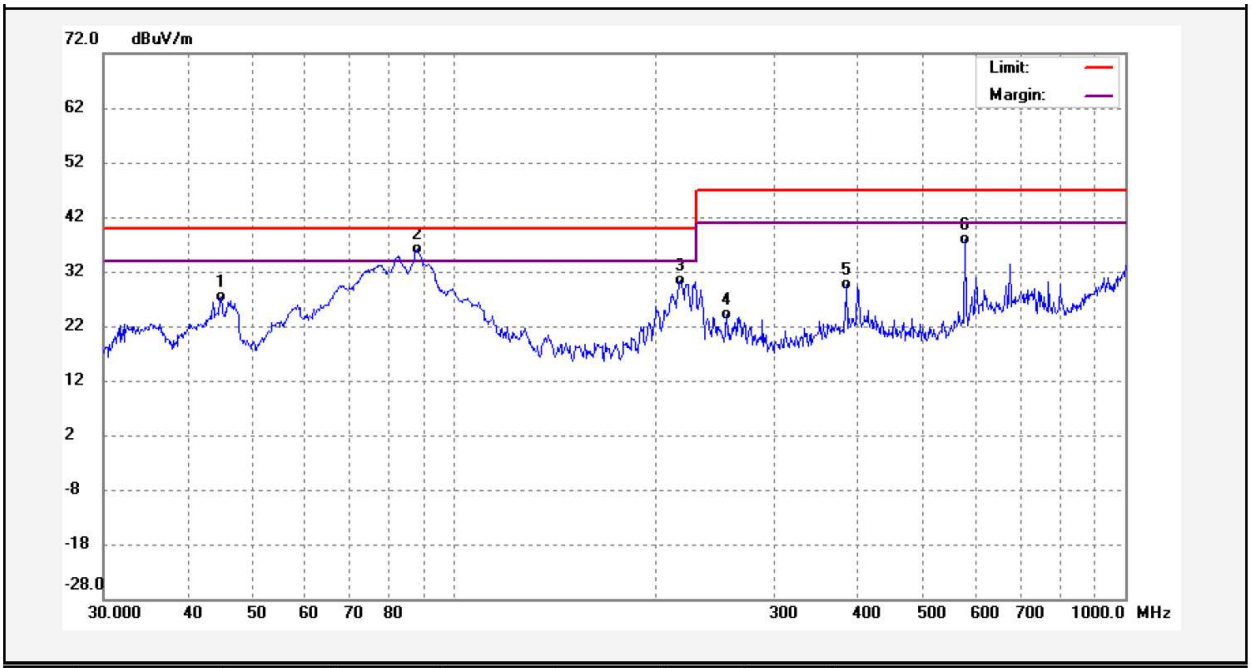
6.1.3 Corrected Amplitude & Margin Calculation

The Corrected Amplitude is calculated by adding the Antenna Factor and Cable Factor, and subtracting the Amplifier Gain from the Amplitude reading. The basic equation is as follows:
Corr. Ampl. = Indicated Reading + Antenna Factor + Cable Factor - Amplifier Gain
The “Margin” column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of -7dB means the emission is 7dB below the maximum limit for Class B. The equation for margin calculation is as follows:
Margin = Corr. Ampl. – Class B Limit

6.1.4 Test Result

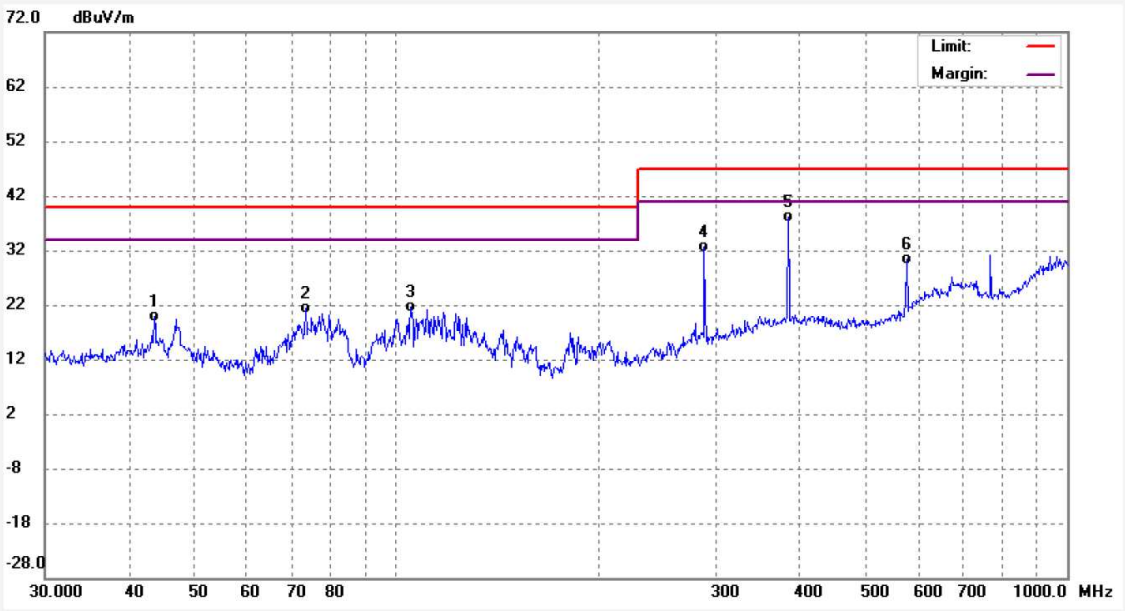
Frequency Range: 30MHz ~ 1000MHz

Antenna Polarization: Vertical (BT with wireless charging& charging mode)



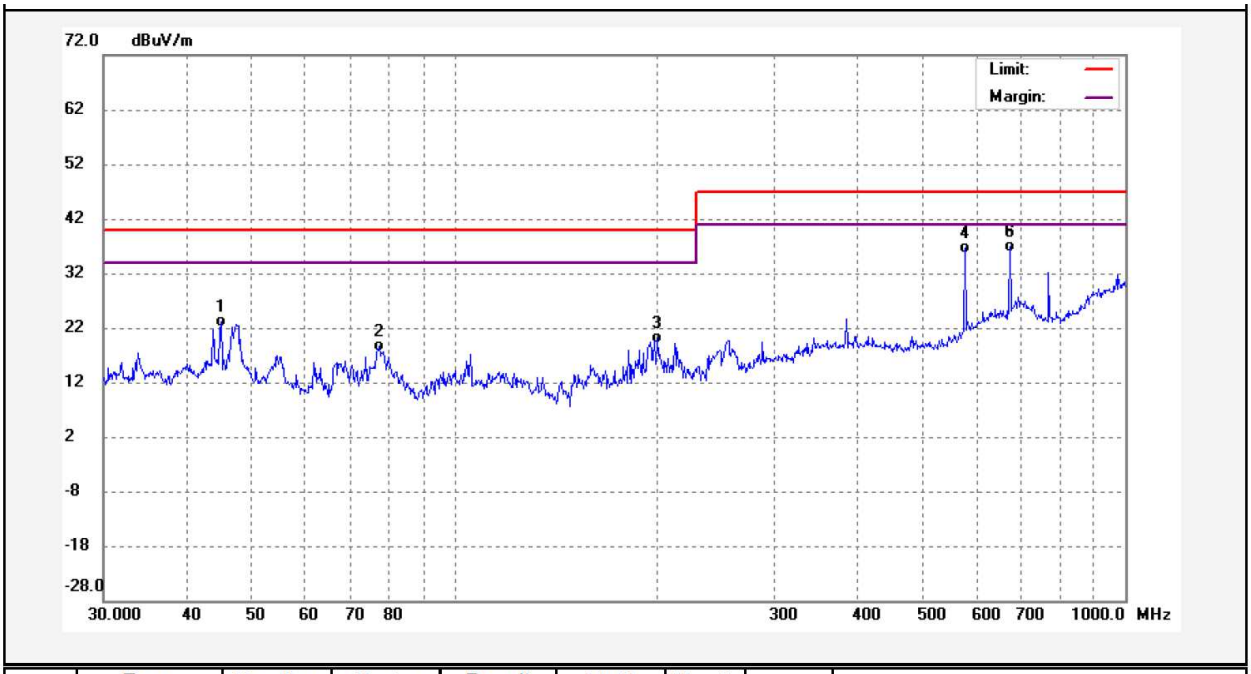
No.	Freq. (MHz)	Reading (dBuV)	Factor ((dB/m))	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	44.9006	11.48	15.82	27.30	40.00	-12.70	QP	
2	88.0329	26.95	9.19	36.14	40.00	-3.86	QP	
3	216.7828	18.88	11.40	30.28	40.00	-9.72	QP	
4	254.7284	10.40	13.80	24.20	47.00	-22.80	QP	
5	383.9318	10.63	18.95	29.58	47.00	-17.42	QP	
6	576.6443	17.58	20.35	37.93	47.00	-9.07	QP	

Antenna Polarization: Horizontal (BT with wireless charging& charging mode)



No.	Freq. (MHz)	Reading (dBuV)	Factor ((dB/m))	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	43.6584	3.89	16.09	19.98	40.00	-20.02	QP	
2	73.3593	12.65	8.73	21.38	40.00	-18.62	QP	
3	105.2718	9.54	12.19	21.73	40.00	-18.27	QP	
4	287.9904	17.01	15.51	32.52	47.00	-14.48	QP	
5	383.9318	18.86	19.25	38.11	47.00	-8.89	QP	
6	576.6443	10.04	20.41	30.45	47.00	-16.55	QP	

Antenna Polarization: Vertical (Discharging mode)



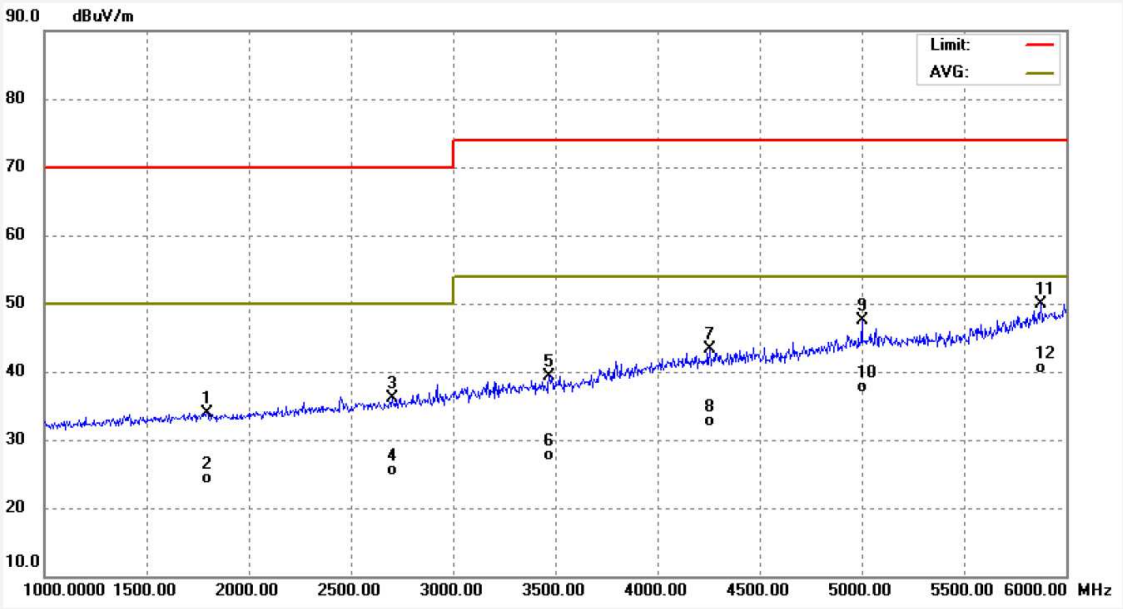
No.	Freq. (MHz)	Reading (dBuV)	Factor ((dB/m))	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	44.9006	7.27	15.82	23.09	40.00	-16.91	QP	
2	77.3212	10.28	8.35	18.63	40.00	-21.37	QP	
3	200.6881	8.64	11.55	20.19	40.00	-19.81	QP	
4	576.6443	16.31	20.35	36.66	47.00	-10.34	QP	
5	672.8444	12.65	24.14	36.79	47.00	-10.21	QP	
6	672.8444	12.65	24.14	36.79	47.00	-10.21	QP	

Antenna Polarization: Horizontal (Discharging mode)

No.	Freq. (MHz)	Reading (dBuV)	Factor ((dB/m))	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	43.6584	2.90	16.09	18.99	40.00	-21.01	QP	
2	82.6482	11.11	8.66	19.77	40.00	-20.23	QP	
3	106.0126	8.09	12.19	20.28	40.00	-19.72	QP	
4	189.0743	5.88	10.76	16.64	40.00	-23.36	QP	
5	278.0668	2.61	14.95	17.56	47.00	-29.44	QP	
6	416.1791	1.43	19.17	20.60	47.00	-26.40	QP	

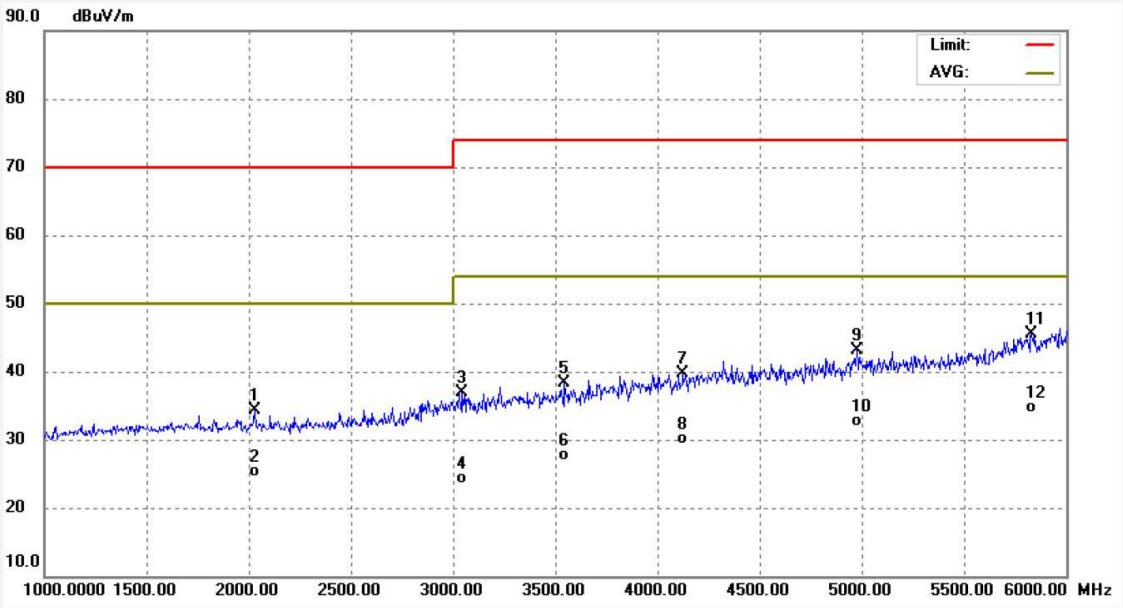
Frequency Range: 1000MHz ~ 6000MHz

Antenna Polarization: Vertical (BT with discharging mode)



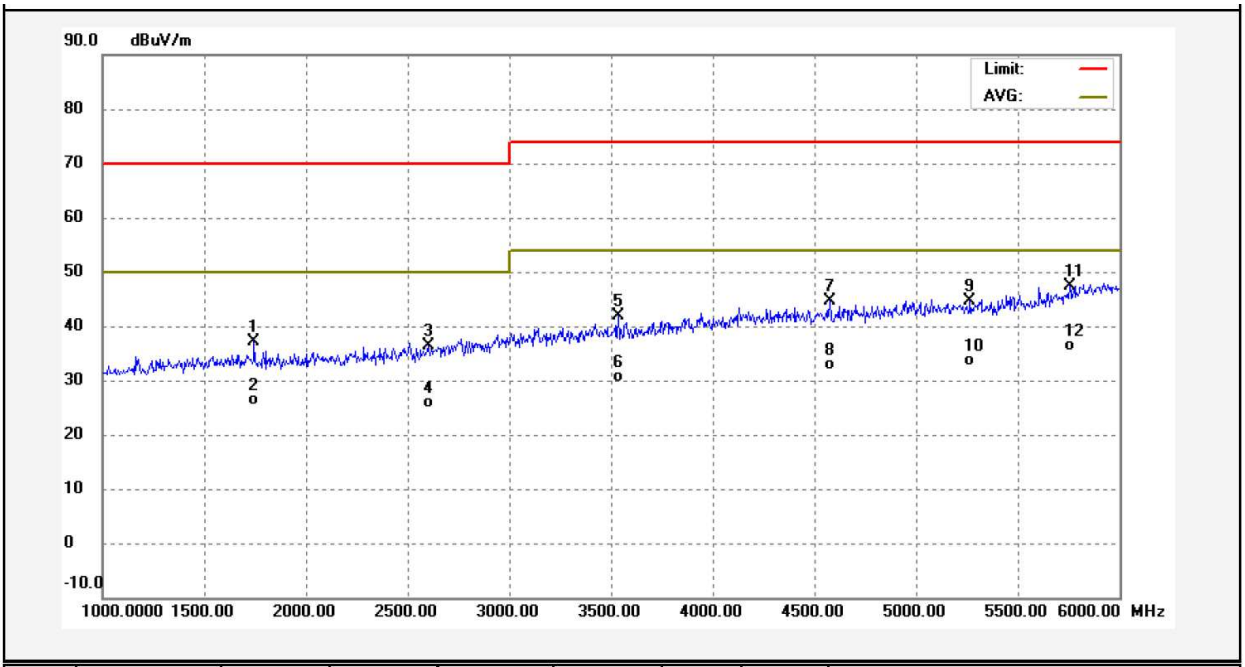
No.	Freq. (MHz)	Reading (dBuV)	Factor ((dB/m))	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	1795.000	47.14	-13.14	34.00	70.00	-36.00	peak	
2	1795.000	37.38	-13.14	24.24	50.00	-25.76	AVG	
3	2700.000	45.90	-9.87	36.03	70.00	-33.97	peak	
4	2700.000	35.41	-9.87	25.54	50.00	-24.46	AVG	
5	3470.000	47.22	-7.92	39.30	74.00	-34.70	peak	
6	3470.000	35.60	-7.92	27.68	54.00	-26.32	AVG	
7	4255.000	48.37	-5.09	43.28	74.00	-30.72	peak	
8	4255.000	37.81	-5.09	32.72	54.00	-21.28	AVG	
9	5000.000	49.50	-2.06	47.44	74.00	-26.56	peak	
10	5000.000	39.75	-2.06	37.69	54.00	-16.31	AVG	
11	5875.000	50.41	-0.57	49.84	74.00	-24.16	peak	
12	5875.000	41.14	-0.57	40.57	54.00	-13.43	AVG	

Antenna Polarization: Horizontal (BT with discharging mode)



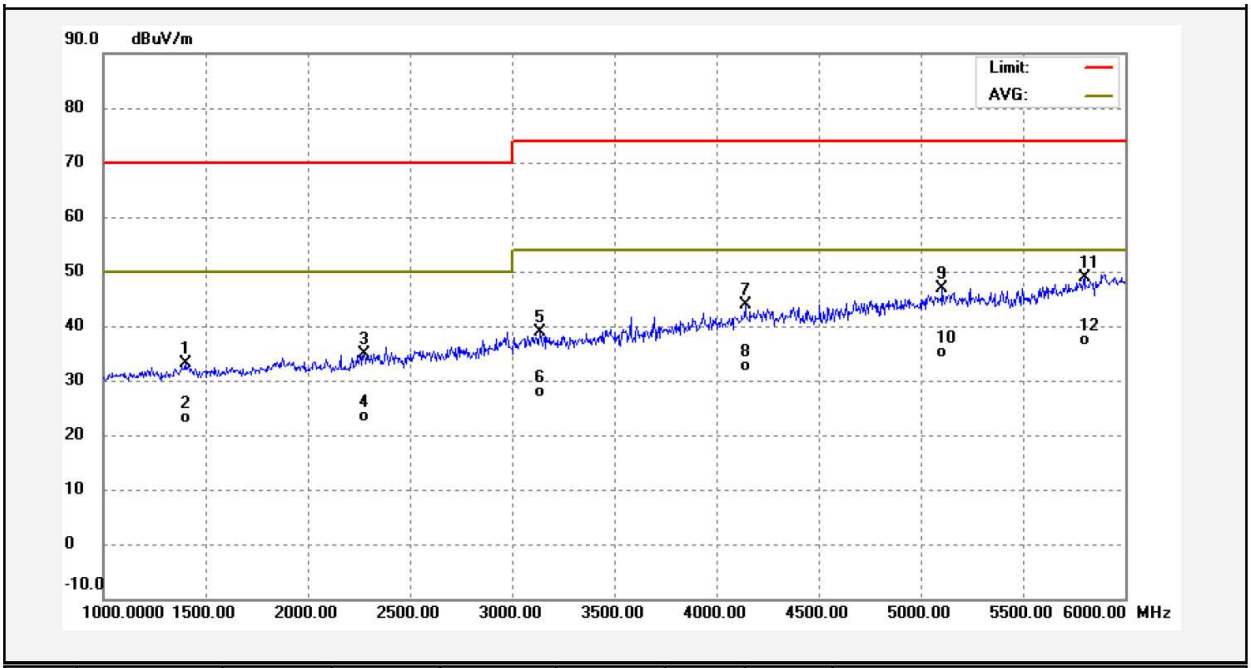
No.	Freq. (MHz)	Reading (dBuV)	Factor ((dB/m))	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	2030.000	47.94	-13.66	34.28	70.00	-35.72	peak	
2	2030.000	38.90	-13.66	25.24	50.00	-24.76	AVG	
3	3045.000	47.74	-10.89	36.85	74.00	-37.15	peak	
4	3045.000	35.28	-10.89	24.39	54.00	-29.61	AVG	
5	3545.000	48.08	-9.87	38.21	74.00	-35.79	peak	
6	3545.000	37.51	-9.87	27.64	54.00	-26.36	AVG	
7	4125.000	48.34	-8.65	39.69	74.00	-34.31	peak	
8	4125.000	38.78	-8.65	30.13	54.00	-23.87	AVG	
9	4975.000	49.38	-6.23	43.15	74.00	-30.85	peak	
10	4975.000	38.94	-6.23	32.71	54.00	-21.29	AVG	
11	5830.000	50.25	-4.80	45.45	74.00	-28.55	peak	
12	5830.000	39.42	-4.80	34.62	54.00	-19.38	AVG	

Antenna Polarization: Vertical (BT with wireless charging mode)



No.	Freq. (MHz)	Reading (dBuV)	Factor ((dB/m))	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	1745.000	50.76	-13.74	37.02	70.00	-32.98	peak	
2	1745.000	40.03	-13.74	26.29	50.00	-23.71	AVG	
3	2600.000	48.77	-12.32	36.45	70.00	-33.55	peak	
4	2600.000	38.30	-12.32	25.98	50.00	-24.02	AVG	
5	3535.000	51.65	-9.88	41.77	74.00	-32.23	peak	
6	3535.000	40.57	-9.88	30.69	54.00	-23.31	AVG	
7	4575.000	51.87	-7.26	44.61	74.00	-29.39	peak	
8	4575.000	40.17	-7.26	32.91	54.00	-21.09	AVG	
9	5265.000	50.57	-6.05	44.52	74.00	-29.48	peak	
10	5265.000	39.57	-6.05	33.52	54.00	-20.48	AVG	
11	5755.000	52.40	-5.06	47.34	74.00	-26.66	peak	
12	5755.000	41.37	-5.06	36.31	54.00	-17.69	AVG	

Antenna Polarization: Horizontal (BT with wireless charging mode)



No.	Freq. (MHz)	Reading (dBuV)	Factor ((dB/m))	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	1400.000	47.13	-14.11	33.02	70.00	-36.98	peak	
2	1400.000	37.29	-14.11	23.18	50.00	-26.82	AVG	
3	2275.000	46.33	-11.47	34.86	70.00	-35.14	peak	
4	2275.000	34.96	-11.47	23.49	50.00	-26.51	AVG	
5	3135.000	47.66	-8.67	38.99	74.00	-35.01	peak	
6	3135.000	36.63	-8.67	27.96	54.00	-26.04	AVG	
7	4140.000	49.28	-5.47	43.81	74.00	-30.19	peak	
8	4140.000	38.05	-5.47	32.58	54.00	-21.42	AVG	
9	5105.000	48.82	-2.03	46.79	74.00	-27.21	peak	
10	5105.000	37.20	-2.03	35.17	54.00	-18.83	AVG	
11	5800.000	49.62	-0.84	48.78	74.00	-25.22	peak	
12	5800.000	38.23	-0.84	37.39	54.00	-16.61	AVG	

7 EMC Requirement for Immunity

7.1 Performance Criteria

7.1.1 General performance criteria

The performance criteria are:
• performance criteria A for immunity tests with phenomena of a continuous nature;
• performance criteria B for immunity tests with phenomena of a transient nature;
• performance criteria C for immunity tests with power interruptions exceeding a certain time.
The equipment shall meet the minimum performance criteria as specified in the following clauses.

7.1.2 Performance table

Criteria	During test	After test
A	Shall operate as intended. May show degradation of performance (see note 1). Shall be no loss of function. Shall be no unintentional transmissions.	Shall operate as intended. Shall be no degradation of performance (see note 2). Shall be no loss of function. Shall be no loss of stored data or user programmable functions.
B	May show loss of function (one or more). May show degradation of performance (see note 1). No unintentional transmissions.	Functions shall be self-recoverable. Shall operate as intended after recovering. Shall be no degradation of performance (see note 2). Shall be no loss of stored data or user programmable functions.
C	May be loss of function (one or more).	Functions shall be recoverable by the operator. Shall operate as intended after recovering. Shall be no degradation of performance (see note 2).

NOTE 1:
Degradation of performance during the test is understood as a degradation to a level not below a minimum performance level specified by the manufacturer for the use of the apparatus as intended. In some cases the specified minimum performance level may be replaced by a permissible degradation of performance. If the minimum performance level or the permissible performance degradation is not specified by the manufacturer then either of these may be derived from the product description and documentation (including leaflets and advertising) and what the user may reasonably expect from the apparatus if used as intended.
NOTE 2:
No degradation of performance after the test is understood as no degradation below a minimum performance level specified by the manufacturer for the use of the apparatus as intended. In some cases the specified minimum performance level may be replaced by a permissible degradation of performance. After the test no change of actual operating data or user retrievable data is allowed.
If the minimum performance level or the permissible performance degradation is not specified by the manufacturer then either of these may be derived from the product description and documentation (including leaflets and advertising) and what the user may reasonably expect from the apparatus if used as intended.

7.2 Electrostatic Discharge(ESD)

Test Requirement	:	ETSI EN 301 489-17
Test Method	:	ETSI EN 301 489-1, EN 61000-4-2
Discharge Impedance	:	330 Ω / 150 pF
Discharge Voltage	:	Air Discharge: +/-2,4,8 KV Contact Discharge:+/-2,4 kV HCP & VCP: +/-2,4 kV
Polarity	:	Positive & Negative
Discharge Repeat Times.....	:	At Least 20 times at each test point
Discharge Mode.....	:	Single Discharge
Discharge Period	:	1 second minimum

7.2.1 E.U.T. Operation

Operating Environment:

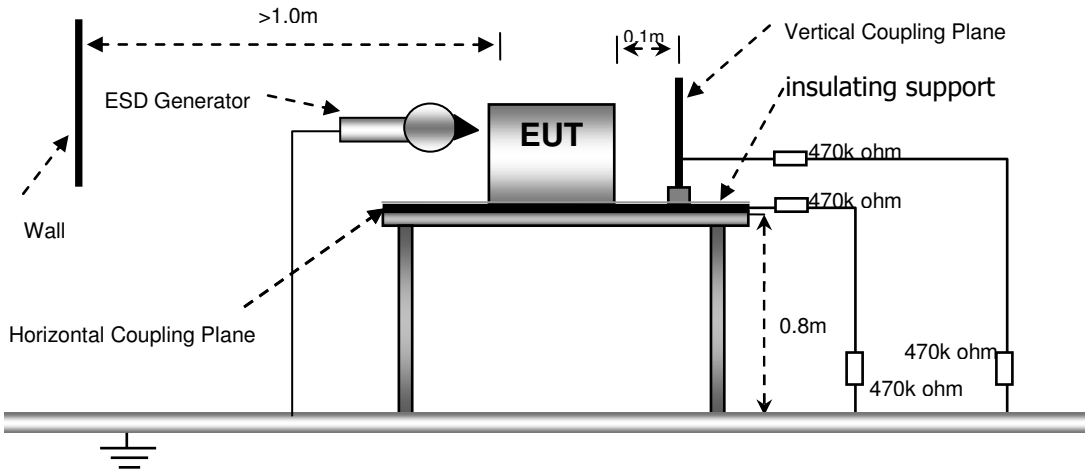
Temperature.....	:	24.6°C
Humidity	:	51.4%RH
Atmospheric Pressure	:	100.1kPa

EUT Operation:

Input Voltage.....	:	DC 5V by USB port or Battery 3.7V
Operating Mode	:	BT with charging mode or BT with discharging mode

7.2.2 Block Diagram of Setup

The ESD test was performed in accordance with the EN 61000-4-2.



7.2.3 Test Result

Direct Discharge			Performance Criteria	
Discharge Level (kV)	**Performance Criterion**	**Test Point**	**Contact Discharge**	**Air Discharge**
±8	B	1	N/A	Pass*
±4	B	2	Pass*	N/A

Remark:

Test points 1. All Exposed Surface & Seams; 2. All metallic part

* During the test no deviation was detected to the selected operation mode(s)

Indirect Discharge			Performance Criteria	
Discharge Level (kV)	**Performance Criterion**	**Test Point**	**Horizontal Coupling**	**Vertical Coupling**
±4	B	1	Pass*	Pass*

Remark:

Test points 1. All sides

* During the test no deviation was detected to the selected operation mode(s)

7.3 RF Electromagnetic Field (80MHz to 6 000MHz) (RS)

Test Requirement ..... : ETSI EN 301 489-17

Test Method ..... : ETSI EN 301 489-1, EN 61000-4-3

Face of EUT ..... : Front, Back, Left, Right

Frequency Range ..... : 80MHz to 6 000MHz

Test Level ..... : 3V/m

Modulation ..... : 80%, 1kHz Amplitude Modulation.

Antenna polarisation ..... : Horizontal& Vertical

7.3.1 E.U.T. Operation

Operating Environment:

Temperature ..... : 24.6°C

Humidity ..... : 51.4%RH

Atmospheric Pressure ..... : 100.1kPa

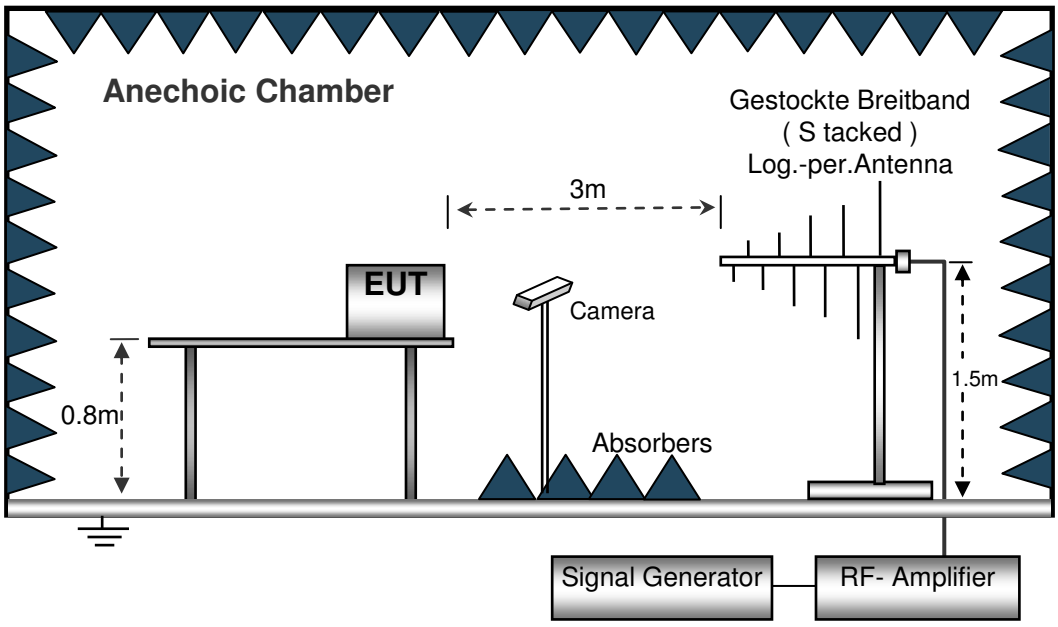
EUT Operation:

Input Voltage ..... : DC 5V by USB port or Battery 3.7V

Operating Mode ..... : BT with charging mode or BT with discharging mode

7.3.2 Block Diagram of Setup

The Radiated Immunity test was performed in accordance with the EN 61000-4-3.



7.3.3 Test Result

Frequency	Face of EUT	Antenna polarisation	Test Level	Step Size	Dwell Time	Performance Criterion	Result
80MHz to 1000MHz	Front, Back, Left, Right	Horizontal	3V/m	1%	1s	A	Pass*
80MHz to 1000MHz	Front, Back, Left, Right	Vertical	3V/m	1%	1s	A	Pass*
1000MHz to 6000MHz	Front, Back, Left, Right	Horizontal	3V/m	1%	1s	A	Pass*
1000MHz to 6000MHz	Front, Back, Left, Right	Vertical	3V/m	1%	1s	A	Pass*

Remark:

* During the test no deviation was detected to the selected operation mode(s)

8 Health Requirements

8.1 Limits

According to Council Recommendation: the criteria listed in the following table shall be used to evaluate the environment impact of human exposure to radio frequency (RF) radiation.

Reference levels for electric, magnetic and electromagnetic fields (10MHz to 300GHz).

Low-power electronic and electrical equipment is deemed to comply with the provisions of this standard if it can be demonstrated using routes B, C or D that the available antenna power and/or the average total radiated power is less than or equal to the applicable low-power exclusion level Pmax.

Annex A contains example values for Pmax derived from existing exposure limits listed in the bibliography, such as the ICNIRP guidelines [1], IEEE Std C95.1-1999 [2], and IEEE Std C95.1-2005 [3].

For wireless devices operated close to a person's body with available antenna powers and/or average total radiated powers higher than the Pmax values given in Annex A, the alternative Pmax values (called Pmax′), described in Annex B can also be used.

For low power equipment using pulsed signals, other limits may apply in addition to those considered in Annex A and Annex B. Both ICNIRP guidelines [1] and IEEE standards [2], [3] have specific restrictions on exposures to pulsed fields, and the requirements of those standards with respect to exposure to pulses shall be met. Annex C discusses this topic further.

8.2 Test Result of RF Exposure Evaluation

Test Mode	Transmit
Limit (Pmax)	20mW/13dBm

After performed the test at low/middle/high channel, the below recorded is the worst.

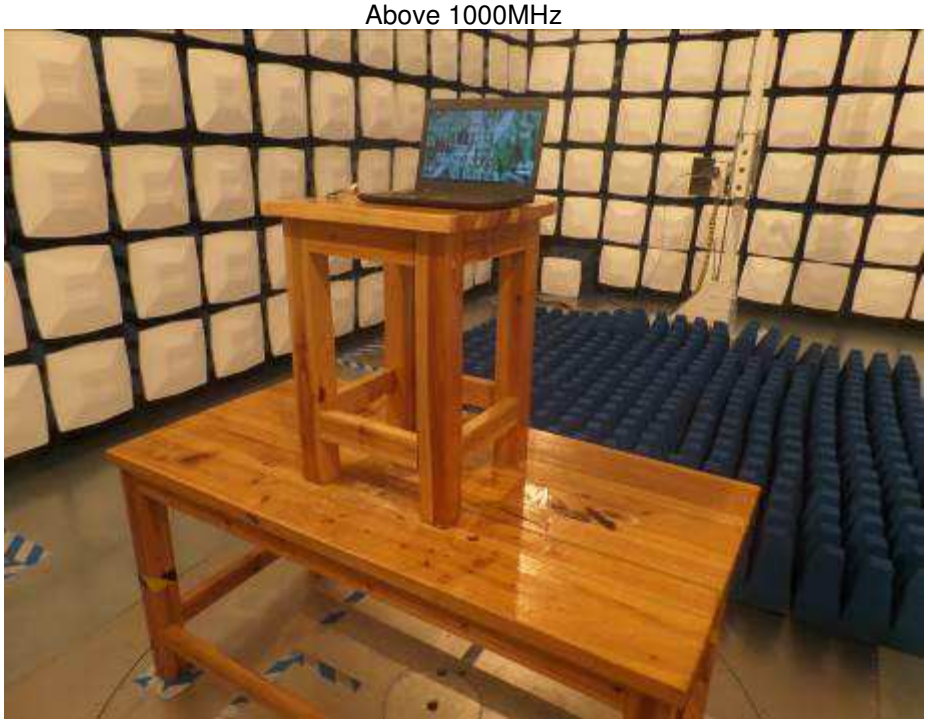
The worst e.i.r.p. (dBm)	Pmax(dBm)	Result
-0.27	13	Complies

9 Photographs —Test Setup

9.1 Photograph –Spurious Emissions Test Setup

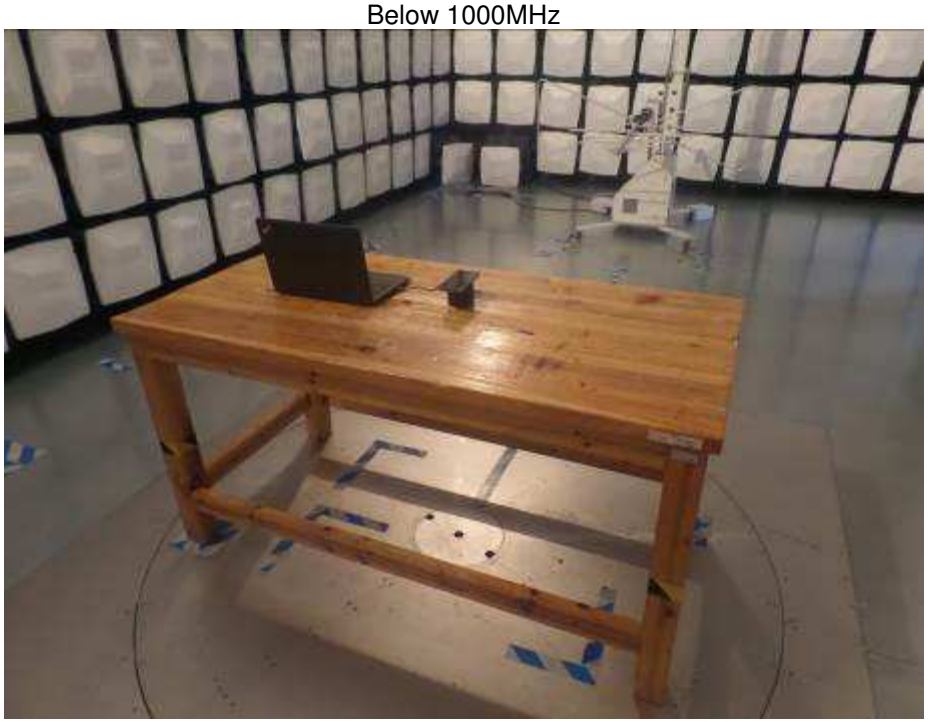
Below 1000MHz

Above 1000MHz

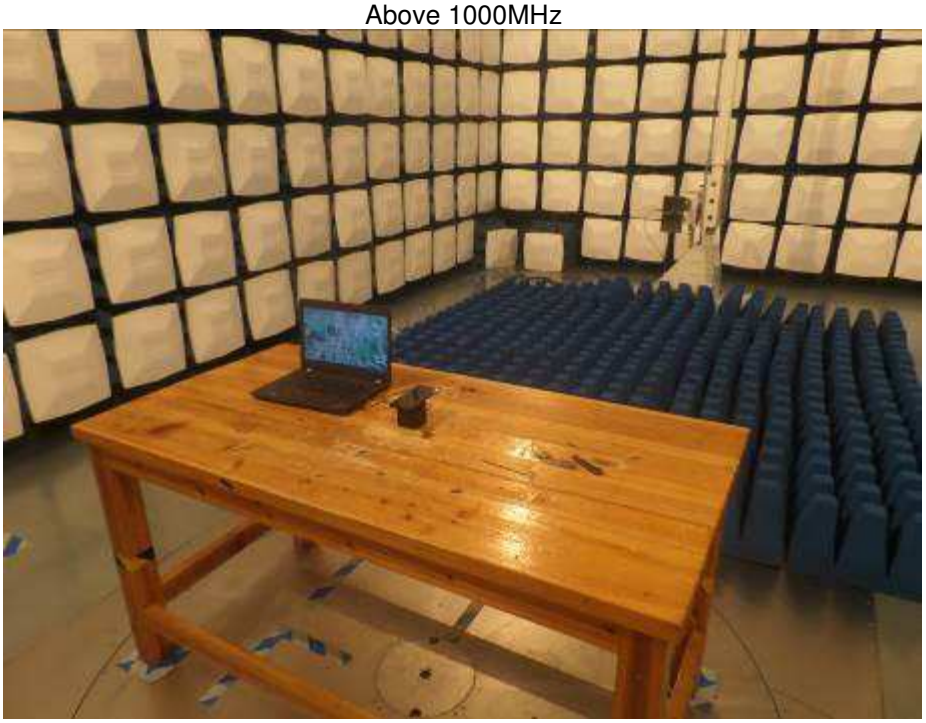


9.2 Photograph - Radiated Emissions Test Setup

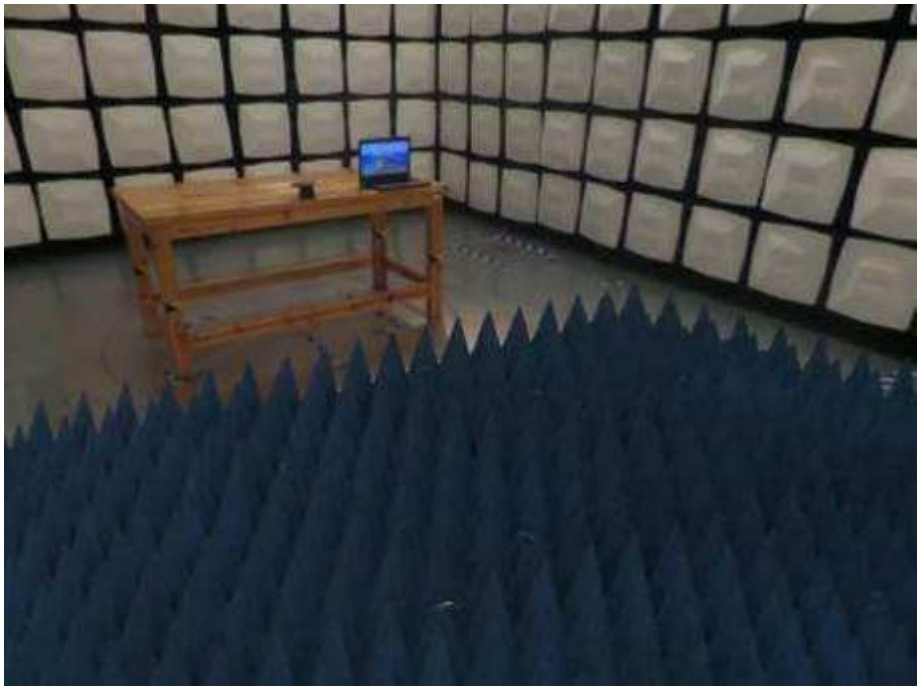
Below 1000MHz



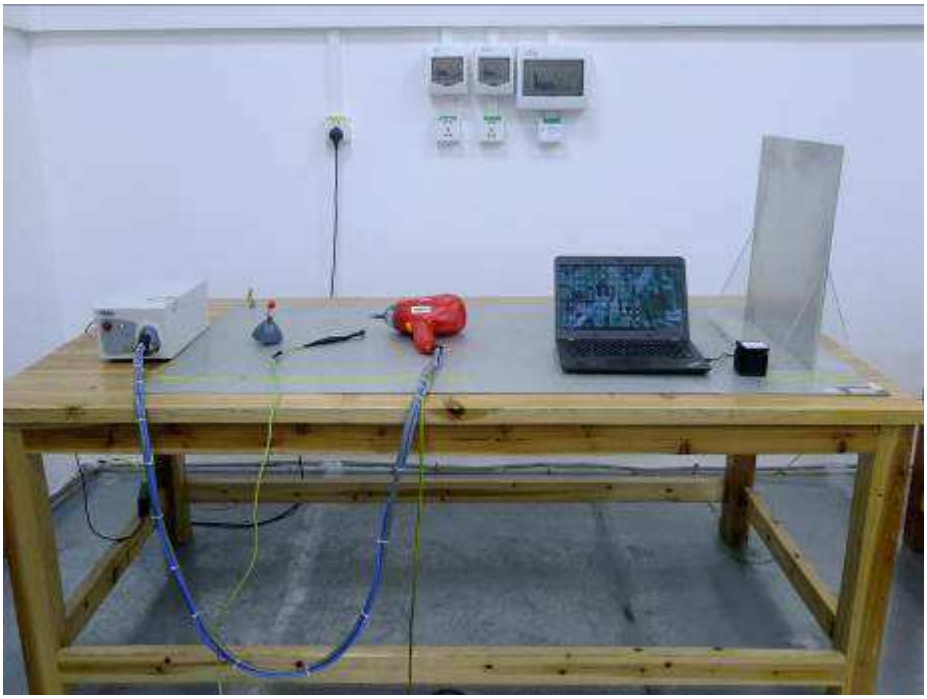
Above 1000MHz



9.3 Photograph - RF Electromagnetic Field Test Setup



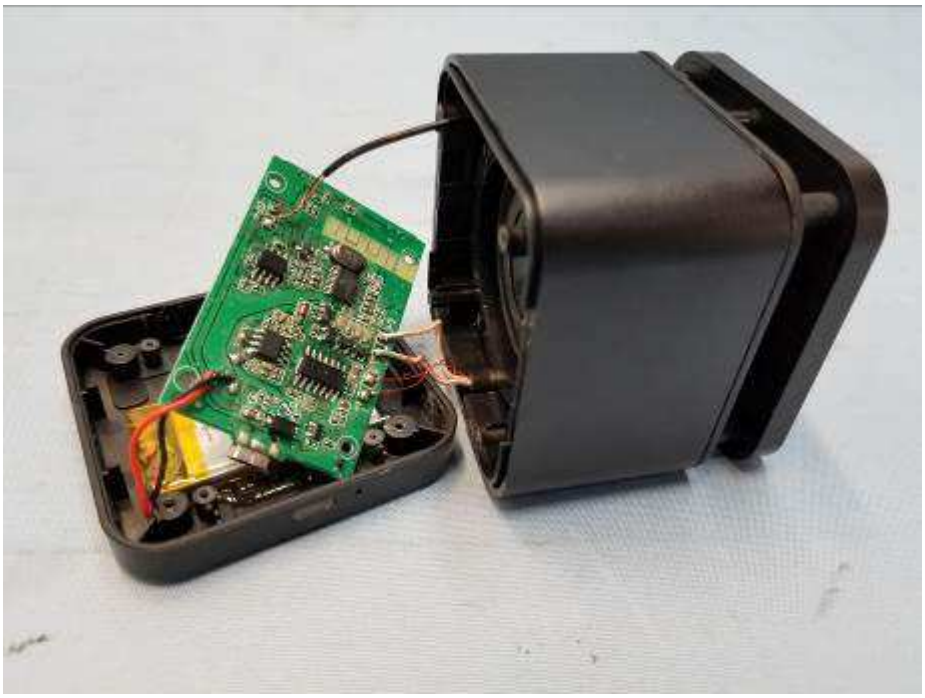
9.4 Photograph - ESD Test Setup

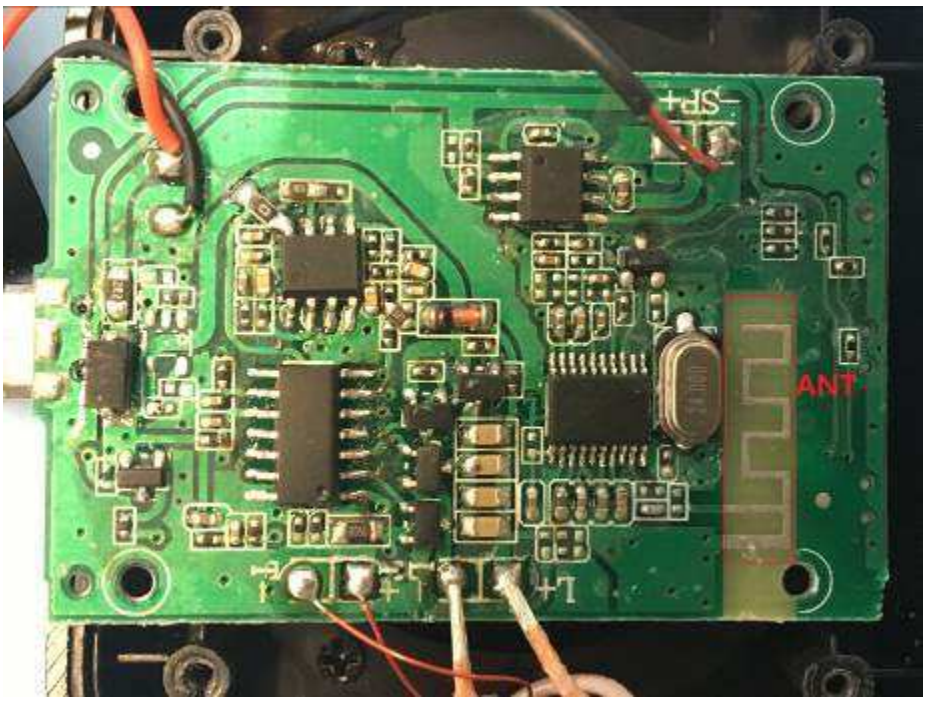


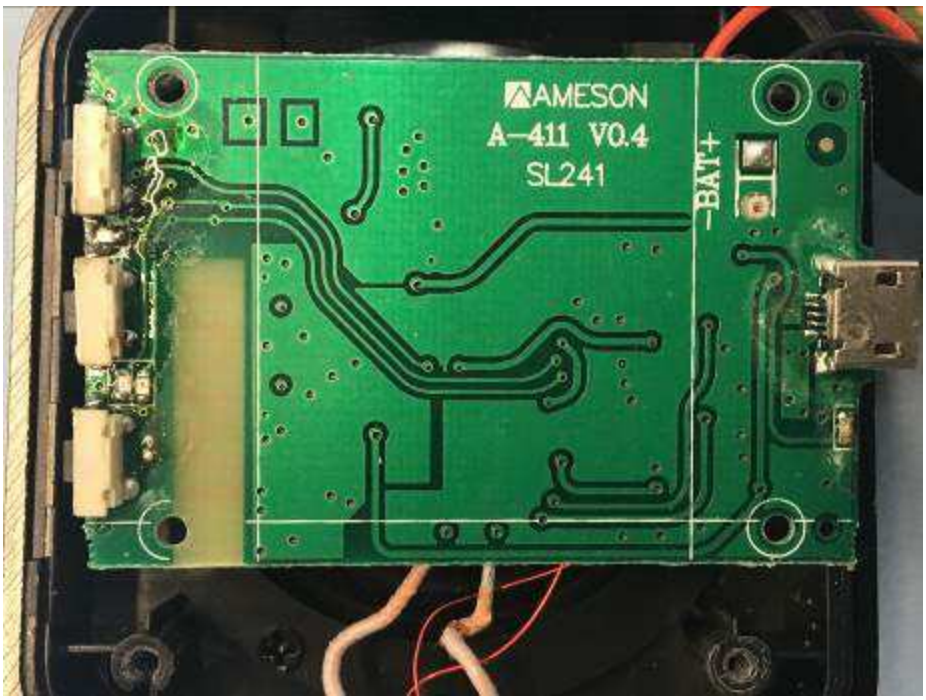
10 Photographs - Constructional Details

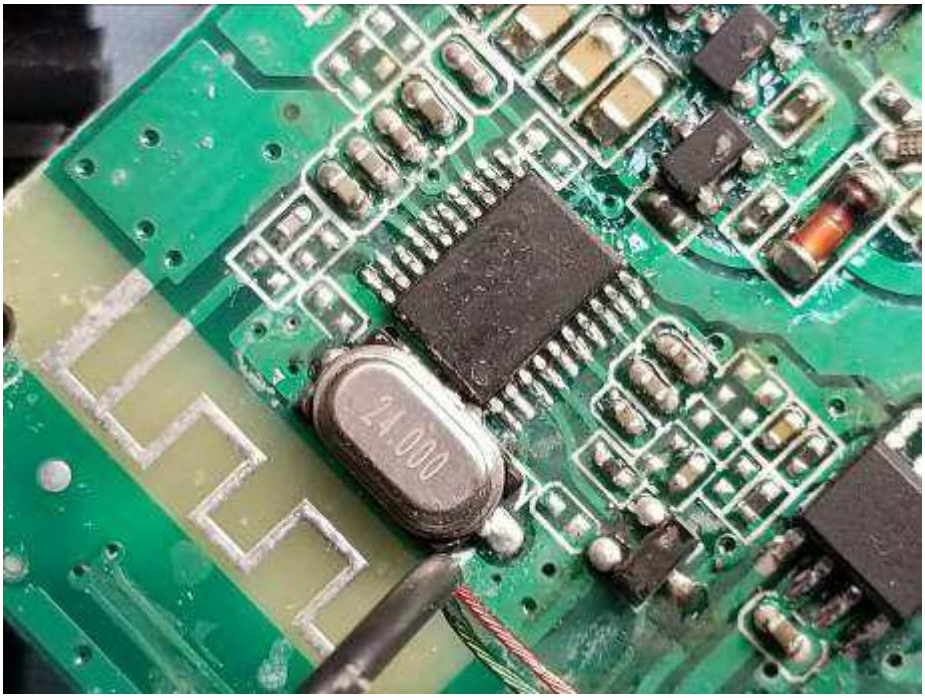
10.1 EUT – External Photos

10.2 EUT – Internal Photos









======End of Report======

VERIFICATION OF CONFORMITY

Reference No.	:	**WTF18F09122950W**
Applicant	:	[redacted]
Address	:	
Manufacturer	:	**The same as above**
Address	:	**The same as above**
Product	:	**Bluetooth speaker**
Model No.	:	**SL241**
Technical data	:	**Input: DC 5V/1.5A; Wireless output: DC 5V/0.8A; Battery capacity: 400mAh**

Applied Standard and Test Reports

Essential Requirement	Specification	Test Report Number
Article 3.1a Health and Safety	EN 62479:2010	WTF18F09122950W
	EN 60950-1:2006+A11:2009 +A1:2010+A12:2011+A2:2013	WTF18F09122952S
Article 3.1b EMC	EN 55032:2015, EN 55024:2010+A1:2015 EN 55011:2016+A1:2017 EN 61000-6-1:2007	WTF18F09122942E
	ETSI EN 301 489-1 V2.1.1:2017 ETSI EN 301 489-17 V3.1.1: 2017	WTF18F09122950W
Article 3.2 Radio spectrum	ETSI EN 300 328 V2.1.1:2016	WTF18F09122950W

The above product has been tested by us with the listed standards and found in compliance with the European RED Directive 2014/53/EU. It is possible to use CE marking to demonstrate the compliance with this RED Directive.

The referred test report(s) show that the product complies with standard(s) recognized as giving presumption of compliance with the essential requirements in the above mentioned EU Directive. Other relevant Directives have to be observed.

After preparation of the necessary technical documentation as well as the conformity declaration, the CE marking as shown below can be affixed on the equipment.

CE

Manager: **Tom Xiao**
Date: **Sep. 19, 2018**

The statement is based on a single evaluation of the sample of above mentioned product. It does not imply an assessment of the whole production.

Waltek Services (Foshan) Co., Ltd.

Hotline: 400-840-2288 E-mail: info@waltek.com.cn
Http://www.waltek.com.cn

中国认可
国际互认
检测
TESTING
CNAS L6478

TEST REPORT

Reference No.	:	WTF18F09122939C
Applicant	:	
Address	:	
Manufacturer	:	
Address		2, 3/F, building B, No. 2 Bada Industrial Park, Yongfu Road, Heping Community, Fuyong Town, Baoan District, Shenzhen
Sample Name	:	Bluetooth speaker
Model No.	:	SL241
Test Requested	:	In accordance with the RoHS Directive 2011/65/EU
Test Method	:	1) With reference to IEC 62321-2:2013,disassembly, disjointment and mechanical sample preparation 2) With reference to IEC 62321-3-1:2013, screening - Lead, mercury, cadmium, total chromium and total bromine by X-ray fluorescence spectrometry 3) With reference to IEC 62321-4:2013, determination of Mercury by ICP-OES 4) With reference to IEC 62321-5:2013, determination of Lead and Cadmium by ICP-OES 5) With reference to IEC 62321-7-2:2017 and IEC 62321-7-1:2015, determination of Hexavalent Chromium by UV-Vis 6) With reference to IEC 62321-6:2015, determination of PBBs and PBDEs by GC-MS
Test Conclusion	:	Based on the performed tests on the submitted samples, the results comply with the RoHS Directive 2011/65/EU
Date of Receipt sample	:	2018-09-04 & 2018-09-14
Date of Test	:	2018-09-04 to 2018-09-18
Date of Issue	:	2018-09-21
Test Result	:	Please refer to next page (s)

Remarks:
The results shown in this test report refer only to the sample(s) tested, this test report cannot be reproduced, except in full, without prior written permission of the company. The report would be invalid without specific stamp of test institute and the signatures of compiler and approver.

Prepared By:
Waltek Services (Foshan) Co., Ltd.
Address: No. 13-19, 2/F, 2nd Building, Sunlink International Machinery City, Chencun Town, Shunde District, Foshan, Guangdong, China
Tel :+86-757-23811398
Fax:+86-757-23811381

Compiled by:

Humour.Wu / Project Engineer

Approved by:

Dino.Zhang / Lab Manager

Test Results:

Part No.	Part Description	Result of XRF		Result of Wet Chemical Testing (mg/kg)	Conclusion on RoHS
1	Black plastic sheet	Cd	BL	PBBs : ND PBDEs : ND	Comply
		Pb	BL		
		Hg	BL		
		Cr	BL		
		Br	IN		
2	White glue	Cd	BL	NA	Comply
		Pb	BL		
		Hg	BL		
		Cr	BL		
		Br	BL		
3	Black plastic shell	Cd	BL	PBBs : ND PBDEs : ND	Comply
		Pb	BL		
		Hg	BL		
		Cr	BL		
		Br	IN		
4	Yellow glue	Cd	BL	NA	Comply
		Pb	BL		
		Hg	BL		
		Cr	BL		
		Br	BL		
5	Black rubber sheet	Cd	BL	NA	Comply
		Pb	BL		
		Hg	BL		
		Cr	BL		
		Br	BL		
6	Silvery metal sheet with black plating	Cd	BL	NA	Comply
		Pb	BL		
		Hg	BL		
		Cr	BL		
		Br	BL		
7	Silvery metal shell with black plating	Cd	BL	NA	Comply
		Pb	BL		
		Hg	BL		
		Cr	BL		
		Br	BL		
8	Black plastic sheet	Cd	BL	PBBs : ND PBDEs : ND	Comply
		Pb	BL		
		Hg	BL		
		Cr	BL		
		Br	IN		

Part No.	Part Description	Result of XRF		Result of Wet Chemical Testing (mg/kg)	Conclusion on RoHS
9	Yellow glue	Cd	BL	NA	Comply
		Pb	BL		
		Hg	BL		
		Cr	BL		
		Br	BL		
10	Black body of resistor	Cd	BL	NA	Comply
		Pb	BL		
		Hg	BL		
		Cr	BL		
		Br	BL		
11	Red metal winding of resistor	Cd	BL	NA	Comply
		Pb	BL		
		Hg	BL		
		Cr	BL		
		Br	BL		
12	Black plastic wire covering	Cd	BL	NA	Comply
		Pb	BL		
		Hg	BL		
		Cr	BL		
		Br	BL		
13	Red plastic wire covering	Cd	BL	NA	Comply
		Pb	BL		
		Hg	BL		
		Cr	BL		
		Br	BL		
14	Coppery metal wire	Cd	BL	NA	Comply
		Pb	BL		
		Hg	BL		
		Cr	BL		
		Br	BL		
15	Silvery metal screw	Cd	BL	NA	Comply
		Pb	BL		
		Hg	BL		
		Cr	BL		
		Br	BL		
16	Silvery metal screw with black coating	Cd	BL	NA	Comply
		Pb	BL		
		Hg	BL		
		Cr	BL		
		Br	BL		

Part No.	Part Description	Result of XRF		Result of Wet Chemical Testing (mg/kg)	Conclusion on RoHS
17	Silvery metal screw with black coating	Cd	BL	NA	Comply
		Pb	BL		
		Hg	BL		
		Cr	BL		
		Br	BL		
18	Red metal wire	Cd	BL	NA	Comply
		Pb	BL		
		Hg	BL		
		Cr	BL		
		Br	BL		
19	White fibrous wire	Cd	BL	NA	Comply
		Pb	BL		
		Hg	BL		
		Cr	BL		
		Br	BL		
20	Green metal wire	Cd	BL	NA	Comply
		Pb	BL		
		Hg	BL		
		Cr	BL		
		Br	BL		
21	Black plastic wire jacket	Cd	BL	NA	Comply
		Pb	BL		
		Hg	BL		
		Cr	BL		
		Br	BL		
22	Black plastic jacket of USB plug	Cd	BL	NA	Comply
		Pb	BL		
		Hg	BL		
		Cr	BL		
		Br	BL		
23	Silvery metal shell of USB plug	Cd	BL	NA	Comply
		Pb	BL		
		Hg	BL		
		Cr	BL		
		Br	BL		
24	Solder of USB plug	Cd	BL	NA	Comply
		Pb	BL		
		Hg	BL		
		Cr	BL		
		Br	BL		

Part No.	Part Description	Result of XRF		Result of Wet Chemical Testing (mg/kg)	Conclusion on RoHS
25	Silvery metal pin of USB plug	Cd	BL	NA	Comply
		Pb	BL		
		Hg	BL		
		Cr	BL		
		Br	BL		
26	White plastic sheet of USB plug	Cd	BL	NA	Comply
		Pb	BL		
		Hg	BL		
		Cr	BL		
		Br	BL		
27	Black plastic jacket of plug	Cd	BL	NA	Comply
		Pb	BL		
		Hg	BL		
		Cr	BL		
		Br	BL		
28	Silvery metal shell of plug	Cd	BL	NA	Comply
		Pb	BL		
		Hg	BL		
		Cr	BL		
		Br	BL		
29	Solder of plug	Cd	BL	Pb :244	Comply
		Pb	IN		
		Hg	BL		
		Cr	BL		
		Br	BL		
30	Silvery metal pin of plug	Cd	BL	NA	Comply
		Pb	BL		
		Hg	BL		
		Cr	BL		
		Br	BL		
31	Dark grey plastic sheet of plug	Cd	BL	NA	Comply
		Pb	BL		
		Hg	BL		
		Cr	BL		
		Br	BL		
32	Black plastic wire covering	Cd	BL	NA	Comply
		Pb	BL		
		Hg	BL		
		Cr	BL		
		Br	BL		

Part No.	Part Description	Result of XRF		Result of Wet Chemical Testing (mg/kg)	Conclusion on RoHS
33	Coppery metal wire	Cd	BL	NA	Comply
		Pb	BL		
		Hg	BL		
		Cr	BL		
		Br	BL		
34	Pink plastic wire covering	Cd	BL	NA	Comply
		Pb	BL		
		Hg	BL		
		Cr	BL		
		Br	BL		
35	Black plastic wire jacket	Cd	BL	NA	Comply
		Pb	BL		
		Hg	BL		
		Cr	BL		
		Br	BL		
36	Black plastic button of switch	Cd	BL	NA	Comply
		Pb	BL		
		Hg	BL		
		Cr	BL		
		Br	BL		
37	Black sponge sheet	Cd	BL	NA	Comply
		Pb	BL		
		Hg	BL		
		Cr	BL		
		Br	BL		
38	Brown paper sleeve	Cd	BL	NA	Comply
		Pb	BL		
		Hg	BL		
		Cr	BL		
		Br	BL		
39	Red metal winding	Cd	BL	NA	Comply
		Pb	BL		
		Hg	BL		
		Cr	BL		
		Br	BL		
40	Black plastic sheet	Cd	BL	NA	Comply
		Pb	BL		
		Hg	BL		
		Cr	BL		
		Br	BL		

Part No.	Part Description	Result of XRF		Result of Wet Chemical Testing (mg/kg)	Conclusion on RoHS
41	Black glue	Cd	BL	NA	Comply
		Pb	BL		
		Hg	BL		
		Cr	BL		
		Br	BL		
42	Solder	Cd	BL	Pb :207	Comply
		Pb	IN		
		Hg	BL		
		Cr	BL		
		Br	BL		
43	Grey glue	Cd	BL	NA	Comply
		Pb	BL		
		Hg	BL		
		Cr	BL		
		Br	BL		
44	Black fibrous net	Cd	BL	NA	Comply
		Pb	BL		
		Hg	BL		
		Cr	BL		
		Br	BL		
45	Silvery metal shell	Cd	BL	NA	Comply
		Pb	BL		
		Hg	BL		
		Cr	BL		
		Br	BL		
46	Yellow glue	Cd	BL	NA	Comply
		Pb	BL		
		Hg	BL		
		Cr	BL		
		Br	BL		
47	Coppery metal wire	Cd	BL	NA	Comply
		Pb	BL		
		Hg	BL		
		Cr	BL		
		Br	BL		
48	Silvery metal terminal	Cd	BL	NA	Comply
		Pb	BL		
		Hg	BL		
		Cr	BL		
		Br	BL		

Part No.	Part Description	Result of XRF		Result of Wet Chemical Testing (mg/kg)	Conclusion on RoHS
49	Solder	Cd	BL	Pb :235	Comply
		Pb	IN		
		Hg	BL		
		Cr	BL		
		Br	BL		
50	White paper sheet	Cd	BL	NA	Comply
		Pb	BL		
		Hg	BL		
		Cr	BL		
		Br	BL		
51	Silvery metal rivet	Cd	BL	NA	Comply
		Pb	BL		
		Hg	BL		
		Cr	BL		
		Br	BL		
52	Silvery metal sheet	Cd	BL	NA	Comply
		Pb	BL		
		Hg	BL		
		Cr	BL		
		Br	BL		
53	Silvery metal cap	Cd	BL	NA	Comply
		Pb	BL		
		Hg	BL		
		Cr	BL		
		Br	BL		
54	Silvery magnetic sheet	Cd	BL	Cr^{6+} : ND	Comply
		Pb	BL		
		Hg	BL		
		Cr	IN		
		Br	BL		
55	Yellow transparent plastic adhesive tape	Cd	BL	NA	Comply
		Pb	BL		
		Hg	BL		
		Cr	BL		
		Br	BL		
56	Dark grey magnetic core	Cd	BL	Cr^{6+} : ND	Comply
		Pb	BL		
		Hg	BL		
		Cr	IN		
		Br	BL		

Part No.	Part Description	Result of XRF		Result of Wet Chemical Testing (mg/kg)	Conclusion on RoHS
57	White fibrous sleeve	Cd	BL	NA	Comply
		Pb	BL		
		Hg	BL		
		Cr	BL		
		Br	BL		
58	Coppery metal wire	Cd	BL	NA	Comply
		Pb	BL		
		Hg	BL		
		Cr	BL		
		Br	BL		
59	Chip diode	Cd	BL	PBBs : ND PBDEs : ND	Comply
		Pb	BL		
		Hg	BL		
		Cr	BL		
		Br	IN		
60	Chip IC	Cd	BL	PBBs : ND PBDEs : ND	Comply
		Pb	BL		
		Hg	BL		
		Cr	BL		
		Br	IN		
61	Chip glass diode	Cd	BL	NA	Comply
		Pb	***OL**		
		Hg	BL		
		Cr	BL		
		Br	BL		
62	Silvery body of crystal oscillator	Cd	BL	NA	Comply
		Pb	BL		
		Hg	BL		
		Cr	BL		
		Br	BL		
63	Silvery metal crystal oscillator	Cd	BL	NA	Comply
		Pb	BL		
		Hg	BL		
		Cr	BL		
		Br	BL		
64	Black plastic base of crystal oscillator	Cd	BL	NA	Comply
		Pb	BL		
		Hg	BL		
		Cr	BL		
		Br	BL		

Part No.	Part Description	Result of XRF		Result of Wet Chemical Testing (mg/kg)	Conclusion on RoHS
65	Chip audion	Cd	BL	PBBs : ND PBDEs : ND	Comply
		Pb	BL		
		Hg	BL		
		Cr	BL		
		Br	IN		
66	Solder	Cd	BL	NA	Comply
		Pb	BL		
		Hg	BL		
		Cr	BL		
		Br	BL		
67	Chip audion	Cd	BL	NA	Comply
		Pb	BL		
		Hg	BL		
		Cr	BL		
		Br	BL		
68	Chip IC	Cd	BL	PBBs : ND PBDEs : ND	Comply
		Pb	BL		
		Hg	BL		
		Cr	BL		
		Br	IN		
69	Chip resistor	Cd	BL	NA	Comply
		Pb	***OL**		
		Hg	BL		
		Cr	BL		
		Br	BL		
70	Chip resistor	Cd	BL	NA	Comply
		Pb	***OL**		
		Hg	BL		
		Cr	BL		
		Br	BL		
71	Chip resistor	Cd	BL	NA	Comply
		Pb	BL		
		Hg	BL		
		Cr	BL		
		Br	BL		
72	Chip capacitor	Cd	BL	NA	Comply
		Pb	BL		
		Hg	BL		
		Cr	BL		
		Br	BL		

Part No.	Part Description	Result of XRF		Result of Wet Chemical Testing (mg/kg)	Conclusion on RoHS
73	Solder	Cd	BL	NA	Comply
		Pb	BL		
		Hg	BL		
		Cr	BL		
		Br	BL		
74	Chip capacitor	Cd	BL	NA	Comply
		Pb	BL		
		Hg	BL		
		Cr	BL		
		Br	BL		
75	Chip capacitor	Cd	BL	NA	Comply
		Pb	BL		
		Hg	BL		
		Cr	BL		
		Br	BL		
76	Silvery metal shell of socket	Cd	BL	NA	Comply
		Pb	BL		
		Hg	BL		
		Cr	BL		
		Br	BL		
77	Silvery metal pin of socket	Cd	BL	NA	Comply
		Pb	BL		
		Hg	BL		
		Cr	BL		
		Br	BL		
78	Dark grey plastic sheet of socket	Cd	BL	NA	Comply
		Pb	BL		
		Hg	BL		
		Cr	BL		
		Br	BL		
79	Chip LED	Cd	BL	NA	Comply
		Pb	BL		
		Hg	BL		
		Cr	BL		
		Br	BL		
80	Green PCB	Cd	BL	PBBs : ND PBDEs : ND	Comply
		Pb	BL		
		Hg	BL		
		Cr	BL		
		Br	IN		

Part No.	Part Description	Result of XRF		Result of Wet Chemical Testing (mg/kg)	Conclusion on RoHS
81	Silvery metal pin of switch	Cd	BL	NA	Comply
		Pb	BL		
		Hg	BL		
		Cr	BL		
		Br	BL		
82	White plastic base of switch	Cd	BL	PBBs : ND PBDEs : ND	Comply
		Pb	BL		
		Hg	BL		
		Cr	BL		
		Br	IN		
83	Silvery metal shell of switch	Cd	BL	NA	Comply
		Pb	BL		
		Hg	BL		
		Cr	BL		
		Br	BL		
84	Silvery metal sheet of switch	Cd	BL	NA	Comply
		Pb	BL		
		Hg	BL		
		Cr	BL		
		Br	BL		
85	Black plastic button of switch	Cd	BL	PBBs : ND PBDEs : ND	Comply
		Pb	BL		
		Hg	BL		
		Cr	BL		
		Br	IN		
86	Solder	Cd	BL	NA	Comply
		Pb	BL		
		Hg	BL		
		Cr	BL		
		Br	BL		
87	Silvery metal sheet	Cd	BL	NA	Comply
		Pb	BL		
		Hg	BL		
		Cr	BL		
		Br	BL		
88	Silvery metal sheet	Cd	BL	NA	Comply
		Pb	BL		
		Hg	BL		
		Cr	BL		
		Br	BL		

Part No.	Part Description	Result of XRF		Result of Wet Chemical Testing (mg/kg)	Conclusion on RoHS
89	Solder	Cd	BL	NA	Comply
		Pb	BL		
		Hg	BL		
		Cr	BL		
		Br	BL		
90	Green PCB	Cd	BL	PBBs : ND PBDEs : ND	Comply
		Pb	BL		
		Hg	BL		
		Cr	BL		
		Br	IN		

Remark:

(1) Results are obtained by EDXRF for primary screening, and further chemical testing by ICP (for Cd, Pb, Hg), UV-VIS (for Cr^{6+}) and GC-MS (for PBBs, PBDEs) is recommended to be performed, if the concentration exceeds the below warning value according to IEC 62321-3-1: 2013 (unit: mg/kg)

Element	Polymer	Metal	Composite Materials
Cd	BL ≤ (70-3σ) < IN < (130+3σ) ≤ OL	BL ≤ (70-3σ) < IN < (130+3σ) ≤ OL	LOD < IN < (150+3σ) ≤ OL
Pb	BL ≤ (700-3σ) < IN < (1300+3σ) ≤ OL	BL ≤ (700-3σ) < IN < (1300+3σ) ≤ OL	BL ≤ (500-3σ) < IN < (1500+3σ) ≤ OL
Hg	BL ≤ (700-3σ) < IN < (1300+3σ) ≤ OL	BL ≤ (700-3σ) < IN < (1300+3σ) ≤ OL	BL ≤ (500-3σ) < IN < (1500+3σ) ≤ OL
Cr	BL ≤ (700-3σ) < IN	BL ≤ (700-3σ) <IN	BL ≤ (500-3σ) < IN
Br	BL ≤ (300-3σ) < IN	--	BL ≤ (250-3σ) < IN

BL= Below Limit OL= Over Limit LOD = Limit of Detection -- = Not Regulated

(2) "IN" expresses the inconclusive region, and further chemical testing to confirm whether it complies with the requirement of RoHS Directive.

(3) The XRF screening test for RoHS elements – the reading may be different to the actual content in the sample be of non-uniformity composition.

(4) ppm = mg / kg, based on the dry weight of tested sample.

(5) ND = Not Detected, less than the value of Method Detection Limit.

(6) NA = Not Applicable, as the XRF screening test result was below the limit, it was not need to conduct the wet chemical testing.

(7) MDL= Method Detection Limit in wet chemical test.

Test Items	Pb	Cd	Hg	Cr^{6+}		PBB	PBDE
Units	mg/kg	mg/kg	mg/kg	mg/kg	$\mu g/cm^2$	mg/kg	mg/kg
MDL	2	2	2	2	0.1	5	5

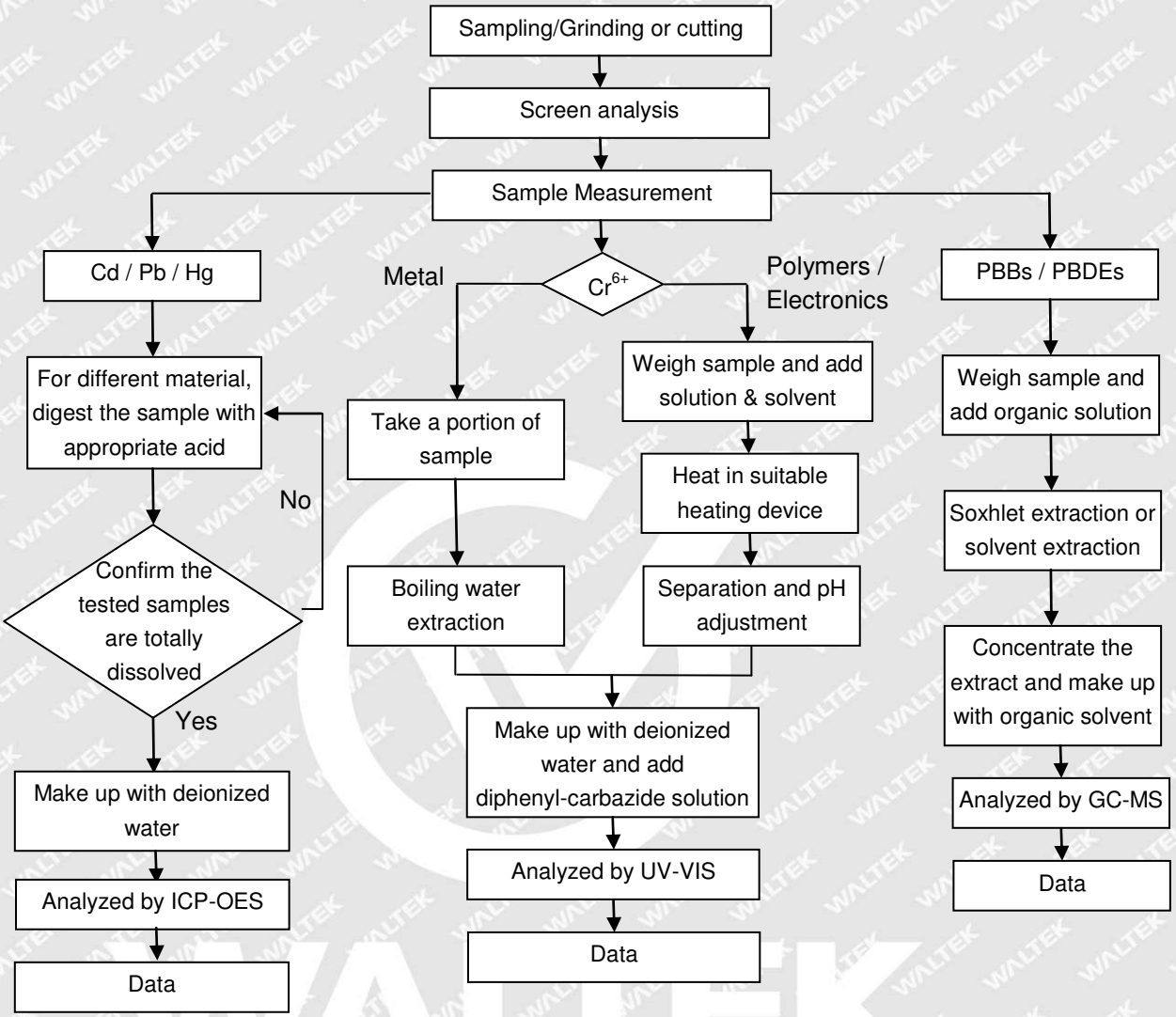
The MDL for single compound of PBBs and PBDEs is 5mg/kg, MDL of Cr^{6+} for polymer and composite sample is 2mg/kg and MDL of Cr^{6+} for metal sample is 0.1μg/cm^2.

(8) According to IEC 62321-7-1:2015, determined of Cr^{6+} on metal sample by boiling water extraction test method, and result is shown as Positive/Negative.
Boiling water extraction:
Negative = Absence of Cr^{6+} coating, the detected concentration in boiling water extraction solution is less than 0.10ug/cm^2.
Positive = Presence of Cr^{6+} coating, the detected concentration in boiling water extraction solution is greater than 0.13ug/cm^2.
Information on storage conditions and production date of the tested sample is unavailable and thus Cr^{6+} results represent status of the sample at the time of testing.

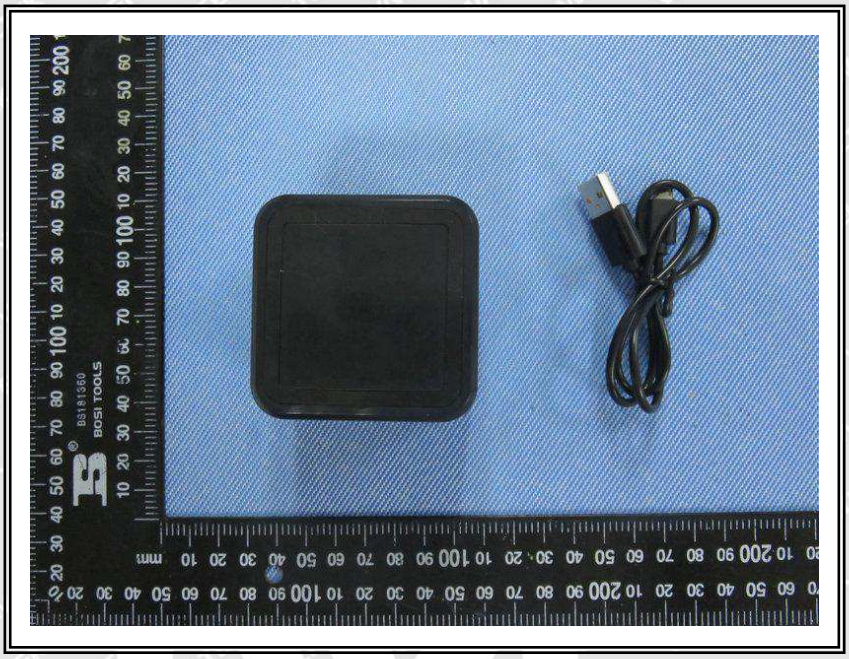
(9) * = According to the declaration from client, the source of lead in test sample could be from the glass or ceramic material of that electronic component which is exempted by Directive 2011/65/EU.

(10) The testing standard "IEC 62321-7-2:2017" does not been accredited by CNAS.

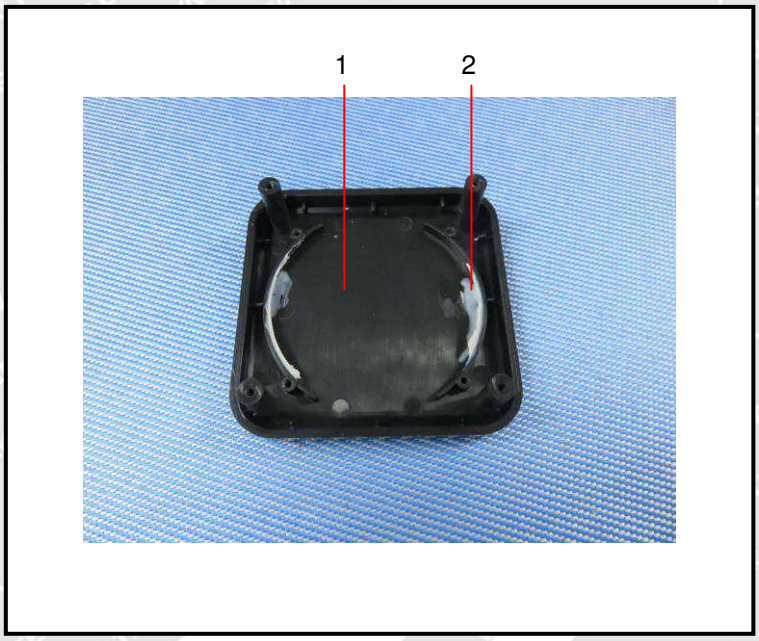
Measurement Flowchart:

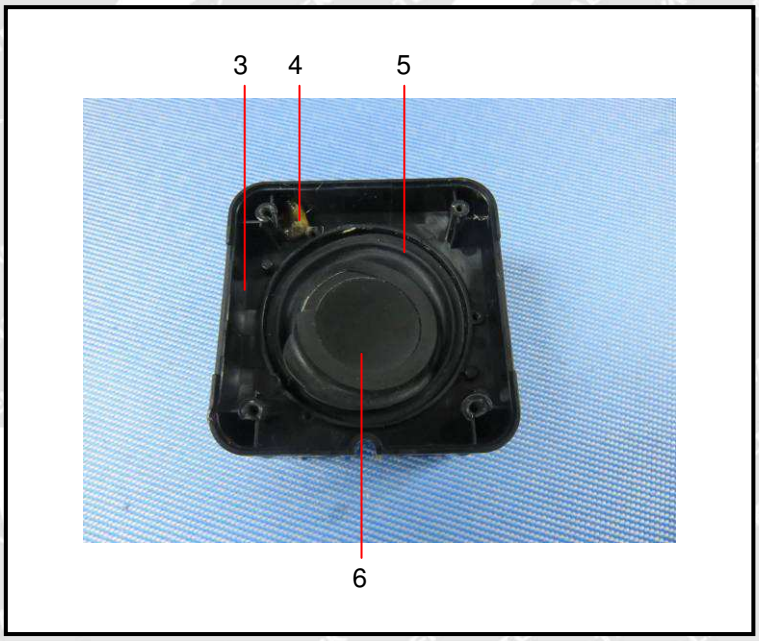


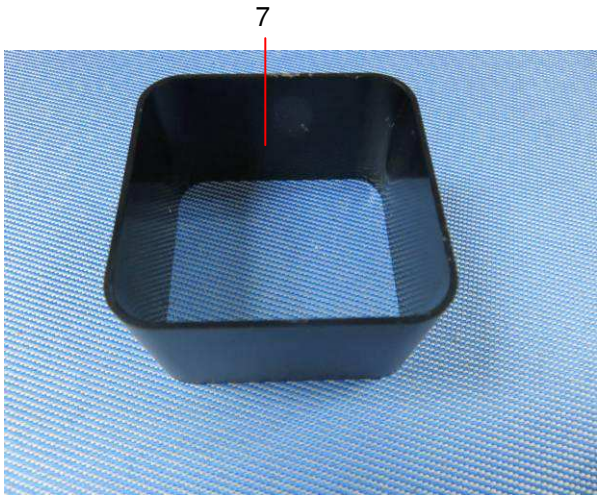
Sample Photo:



Photograph of parts tested:



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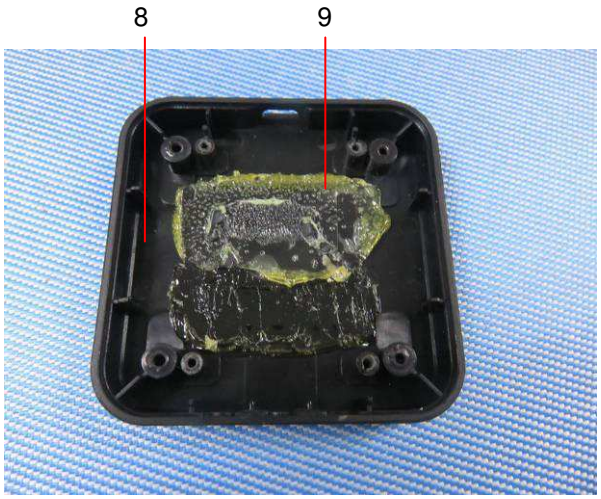
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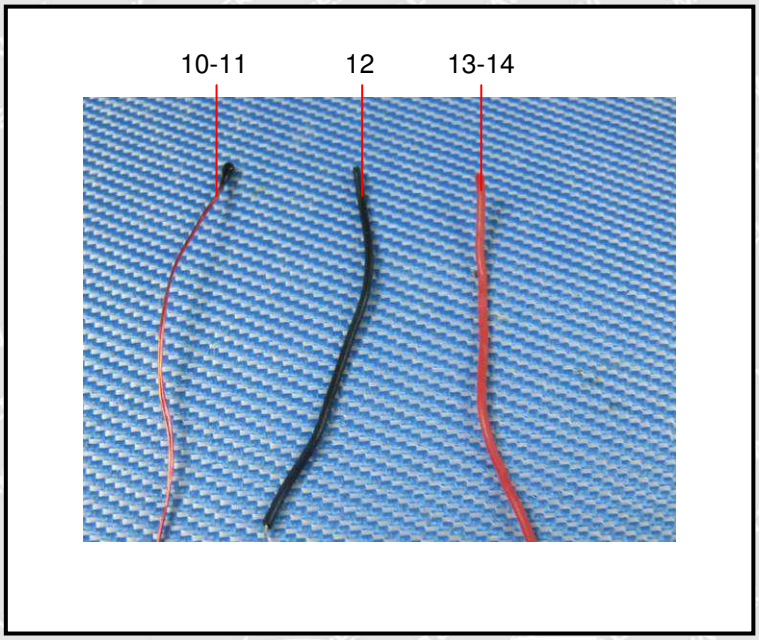
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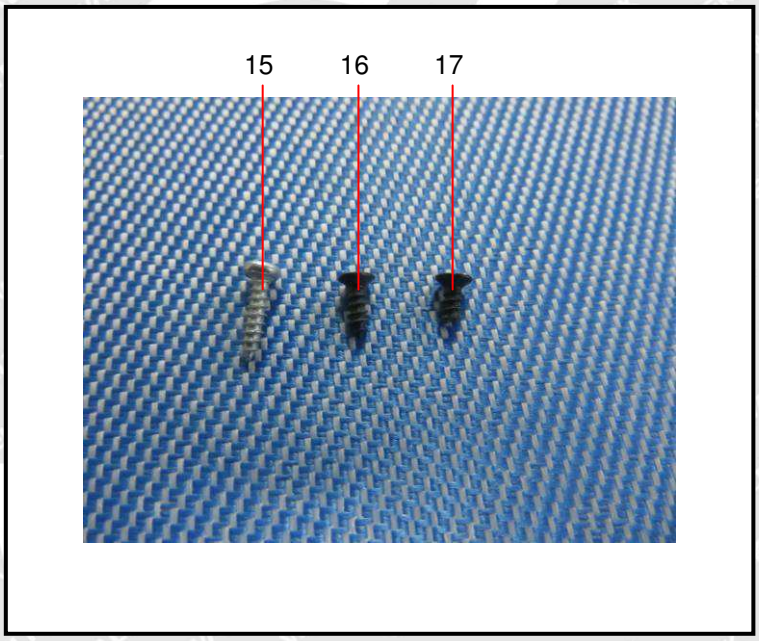
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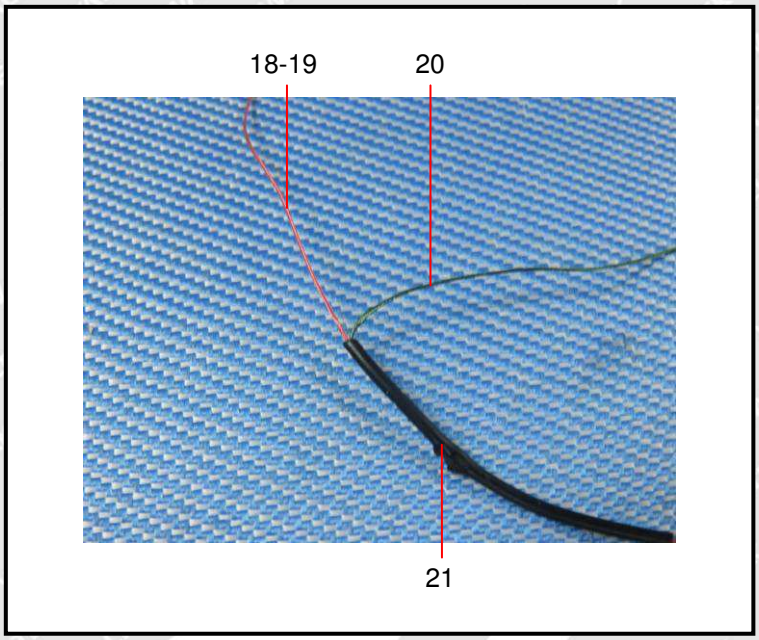
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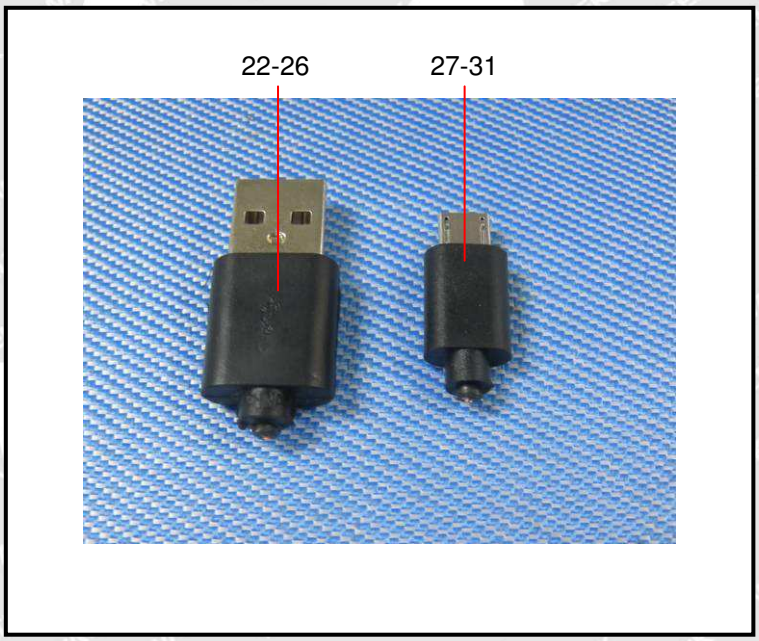
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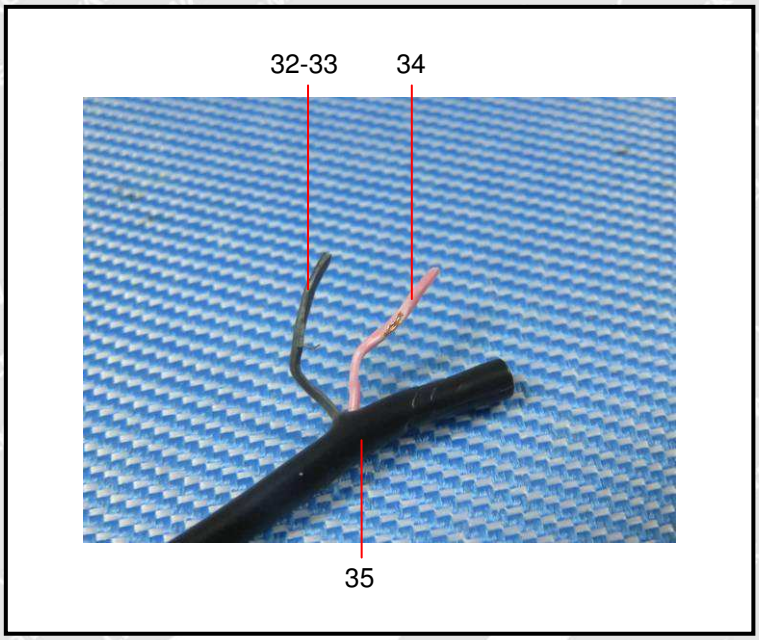
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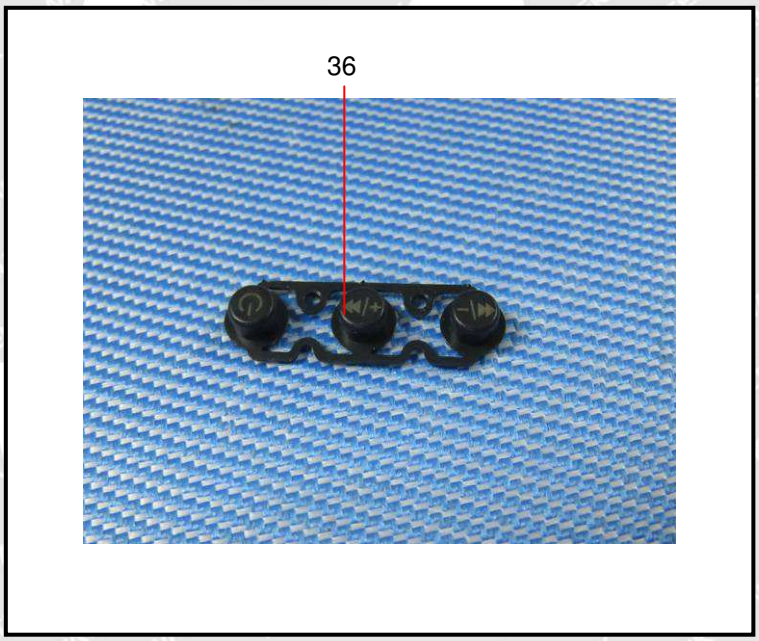
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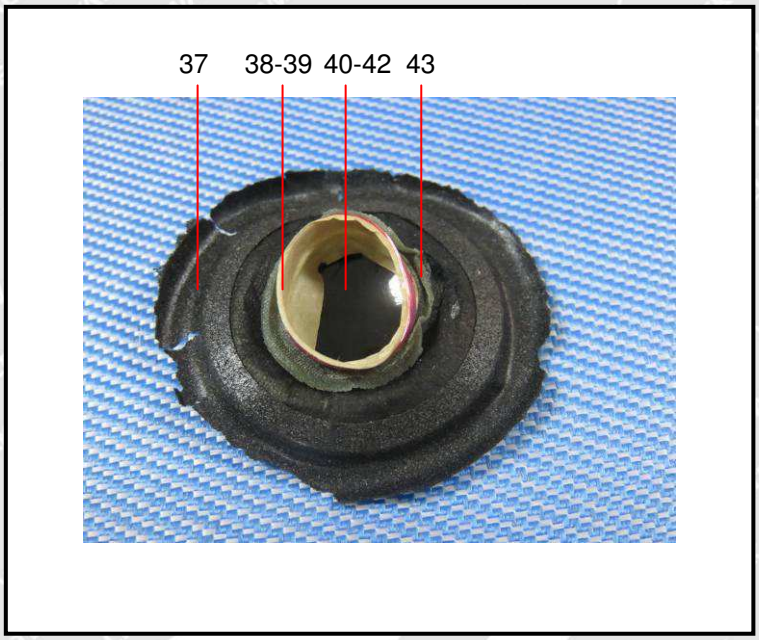
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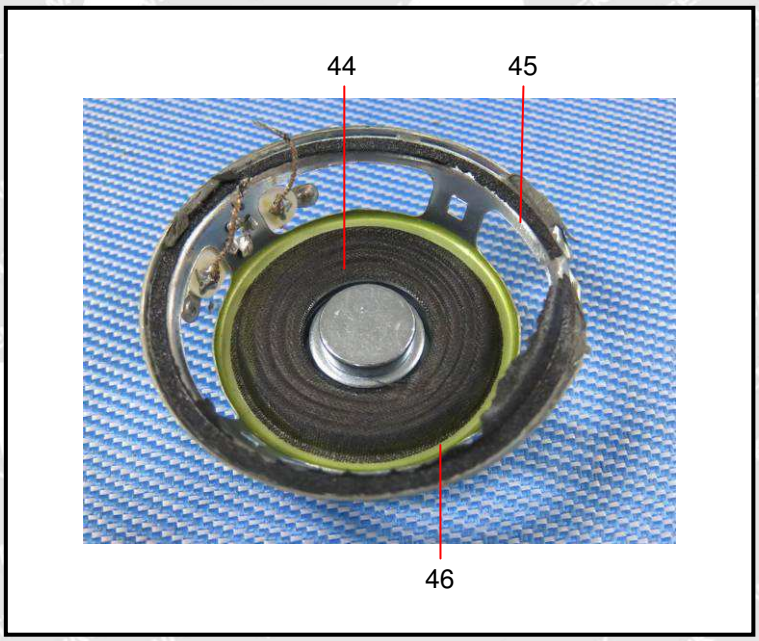
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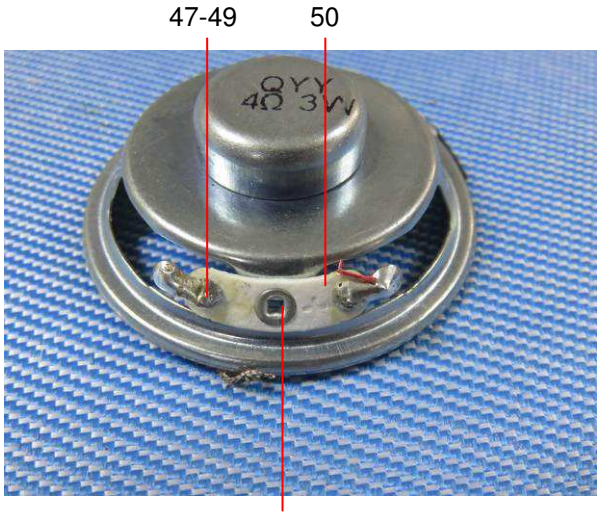
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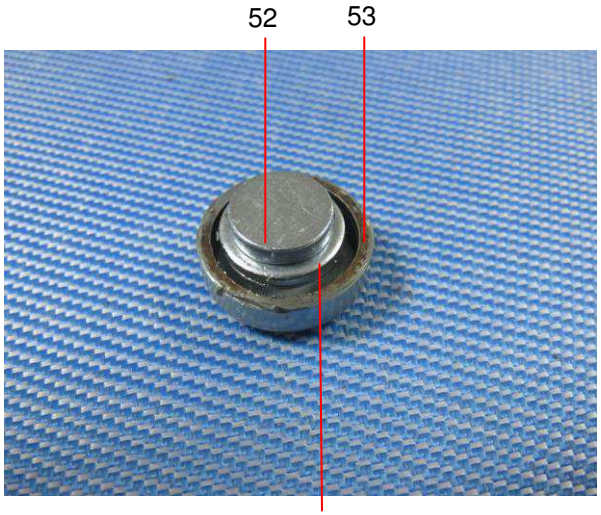
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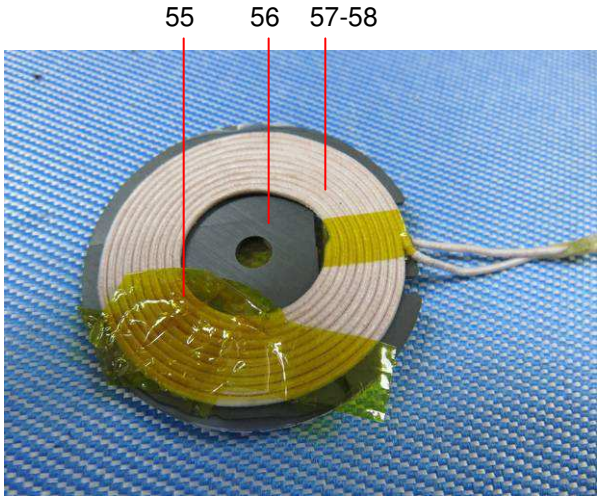
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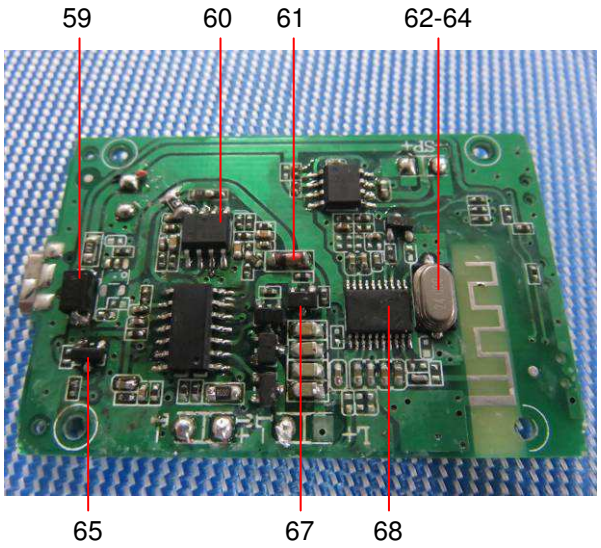
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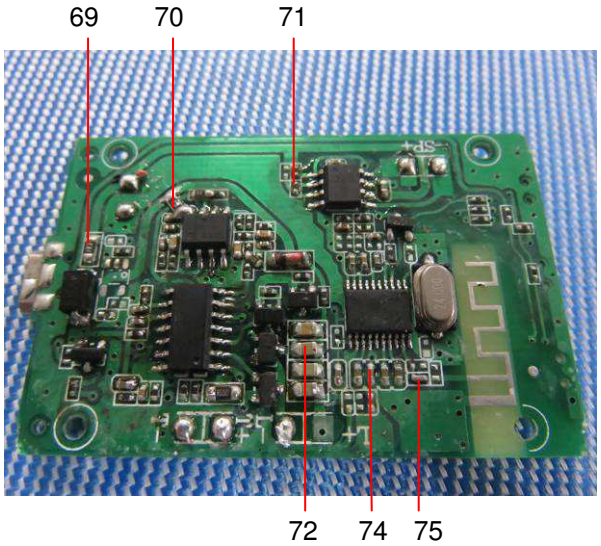
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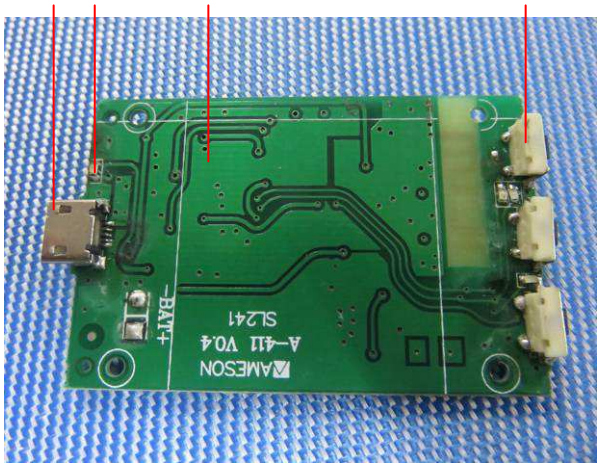
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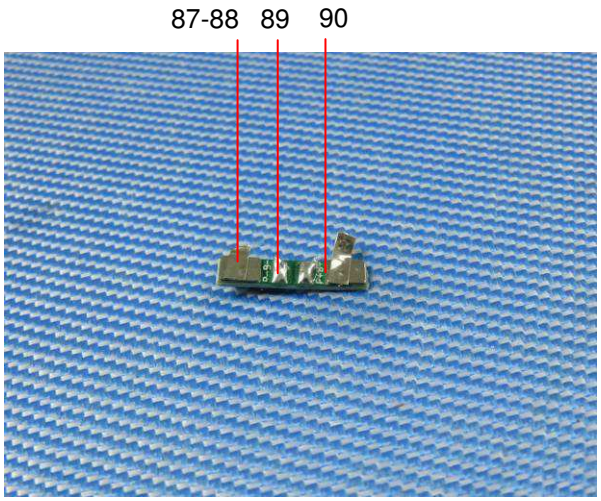

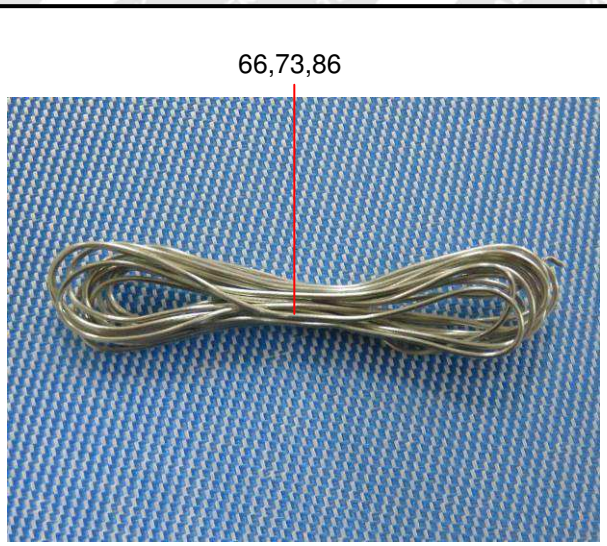

====== End of Report ======

UN38.3 Test Summary
UN38.3 试验概要

UN38.3 Report No. **UN38.3 报告编号**	TCT191213B107				
Applicant's name **委托方名称**					
Applicant's Address **委托方地址**					
Manufacturer's name **制造商名称**					
Manufacturer's Address **制造商地址**					
Manufacturer's Contact Telephone **制造商联系电话**	+86-769-829 32326	**E-mail** **邮箱**	396714398@qq.com	**Web** **网址**	https://shop140838063 3758.1688.com

Name of Sample **样品名称**	Li-ion battery 锂离子电池	**Model** **型号**	602040
Trade Mark **商标**	----	**Shape** **形状**	Prismatic 棱形
Watt-hour **瓦时**	1.48Wh	**Sample Mass** **样品重量**	9.0g
Description **描述**	Single Cell Lithium ion Battery 单芯锂离子电池	**Date of Test Report** **测试报告签发日期**	2019. 12. 19

Test Standard 检测标准:

Recommendations on the Transport of Dangerous Goods, Manual of Test and Criteria (ST/SG/AC.10/11/Rev.6) Sixth revised edition.
联合国《关于危险货物运输的建议书》第六修订版。

Test item & Conclusion 测试项目和结论:

Test item 项目	Conclusion 结论	Test item 项目	Conclusion 结论
T.1. ☒Altitude simulation 高度模拟	Pass 合格	T.5. ☒External short circuit 外部短路	Pass 合格
T.2. ☒Thermal test 温度试验	Pass 合格	T.6. ☐Impact / ☒Crush 撞击/挤压	Pass 合格
T.3. ☒Vibration 振动	Pass 合格	T.7. ☒Overcharge 过充电	Pass 合格
T.4. ☒Shock 冲击	Pass 合格	T.8. ☒Forced discharge 强制放电	Pass 合格
38.3.3 (f)	/	38.3.3 (g)	/

Approved by 批准人	Allen Qin 秦超 Manager 经理	Allen Qin 秦超	**Date of Issue 签发日期**	2019.12.19

SHENZHEN TCT TESTING TECHNOLOGY CO., LTD. TCT

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6. The summary is valid for the tested samples only.
   本概要仅对本次测试样品有效。
7. The summary must be used in conjunction with the relevant test report.
   本摘要必须与相关的测试报告同时使用。

MSDS Report

Applicant's name	
Applicant's Address	
Name of Sample	Li-ion battery
Model	602040
Nominal Voltage	3.7V
Rated Capacity	400mAh, 1.48Wh
Weight	9.0g
Size (L×W×T)	(41.0×21.0×5.4)mm
Prepared By	Shenzhen TCT Testing Technology Co., Ltd. 1B/F., Building 1, Yibaolai Industrial Park, Qiaotou, Fuyong, Baoan District, Shenzhen, Guangdong, China.
Report No.	TCT191213M107

Written by: Alisa Tu Approved by: Allen Xin

Inspected by: Amy Zeng Date: 2020. 01. 01

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Material Safety Data Sheet

Section 1- Chemical Product & Company Identification	
Name of Sample	Li-ion battery
Manufacturer's name	
Manufacturer's Address	
Contact Person	Mr. Luo
Tel	+86-769-82932326
Fax	+86-769-82932329
Emergency Tel	+86-769-82932326
E-mail	396714398@qq.com

Section 2- Hazards Identification	
Classification of Danger	See section 14.
Primary Route(s) of Exposure	Eye, skin contact, ingestion.
Health Hazard	The batteries are not hazardous when used according to the instructions of manufacturer under normal conditions. In case of abuse, there's Hazard of rupture, fire, heat, leakage of internal components, which could cause casualty loss. Abuses including but not limited to the following cases: charged for long time, short circuited, put into fire, whacked with hard object, punctured with acute object, crushed, and broken.

Section 3- Composition/Information on Ingredients

Chemical Name	*Concentration or concentration ranges (%)*	*CAS Number*
Lithium Cobalt Oxide	15-40	12190-79-3
Graphite	10-30	7782-42-5
Phosphate(1-), hexafluoro-, lithium	10-30	21324-40-3
Copper	7-13	7440-50-8
Aluminum foil	5-10	7429-90-5
Nickel	1-5	7440-02-0

Labeling according to EC directives.
No symbol and Hazard phrase are required.
Note: CAS number is Chemical Abstract Service Registry Number.
N/A=Not apply.

Section 4- First Aid Measures

Eye	Flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical aid.
Skin	Remove contaminated clothes and rinse skin with plenty of water or shower for 15 minutes. Get medical aid.
Inhalation	Remove from exposure and move to fresh air immediately. Use oxygen if available.
Ingestion	Give at least 2 glasses of milk or water. Induce vomiting unless patient is unconscious. Call a physician.

Section 5- Fire Fighting Measures

Characteristics of Hazard	Dusts at sufficient concentrations can form explosive mixtures with air. Combustion generates toxic fumes.
Hazardous Combustion Products	Carbon dioxide.
Fire-extinguishing Methods and Extinguishing Media	For small fires, use water spray, dry chemical, carbon dioxide or chemical foam.

Attention in Fire-extinguishing	Wear self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

Section 6- Accidental Release Measures

Personal Precautions, protective equipment, and emergency procedures	In case of rupture. Attention! Corrosive material. Avoid contact with skin, eyes and clothing. Ensure adequate ventilation. Use personal protective equipment as required. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak. Refer to protective measures listed in Sections 7 and 8.
Environmental Precautions	Prevent product from contaminating soil and from entering sewers or waterways.
Methods and materials for Containment	Stop the leak if safe to do so. Contain the spilled liquid with dry sand or earth. Clean up spills immediately.
Methods and materials for cleaning up	Absorb spilled material with an inert absorbent (dry sand or earth). Scoop contaminated absorbent into an acceptable waste container. Collect all contaminated absorbent and dispose of according to directions in Section 13. Scrub the area with detergent and water; collect all contaminated wash water for proper disposal.

Section 7- Handling and Storage

Handling	The battery may explode or cause burns, if disassembled, crushed or exposed to fire or high temperatures. Do not short or install with incorrect polarity.
Storage	Store in a cool, dry, well-ventilated area away from incompatible substances. Store locked up. Keep out of the reach of children.
Other Precautions	In case of rupture. Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes or clothing. Use personal protection equipment.

Section 8 - Exposure Controls/Personal Protection

Engineering Controls	Use adequate ventilation to keep airborne concentrations low. If used under conditions that generate particulates, the ACGIH TLV-TWA of 3mg/m^3 respirable fraction (10mg/m^3 total) should be observed.

Personal Protective Equipment	Eye and Face Protection: None required for consumer use. If there is a Hazard of contact: Tight sealing safety goggles. Face protection shield. Skin and Body Protection: None required for consumer use. If there is a Hazard of contact: Wear protective gloves and protective clothing. Respiratory Protection: No protective equipment is needed under normal use conditions. If exposure limits are exceeded or irritation is experienced, ventilation and evacuation may be required.

Section 9- Physical and Chemical Properties

Physical State	Appearance: Prismatic
	Color: Silver
	Odour: If leaking, smells of medical ether.
Change in condition	
pH	Not applicable as supplied.
Flash Point	Not applicable unless individual components exposed.
Flammability	Not applicable unless individual components exposed.
Relative density:	Not applicable unless individual components exposed.
Solubility (water)	Not applicable unless individual components exposed.
Solubility (other)	Not applicable unless individual components exposed.

Section 10 – Stability and Reactivity

Chemical Stability	Stable under recommended storage conditions.
Possibility of Hazardous Reactions	None under normal processing.
Conditions to Avoid	Exposure to air or moisture over prolonged periods.
Incompatible materials	Acids, Oxidizing agents, Bases.
Hazardous Decomposition Products	Carbon oxides.

Section 11 – Toxicological Information

Irritation	In the event of exposure to internal contents, vapour fumes may be very irritating to the eyes and skin.
Sensitization	Not Available.
Reproductive Toxicity	Not Available.
Toxicologically Synergistic Materials	Not Available.

Section 12-Ecological Information

General note:	Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.
Anticipated behavior of a chemical product in environment/possible environmental impact/ ecotoxicity	Not Available.

Section 13 – Disposal Considerations

Waste Treatment	Recycle or dispose of in accordance with government, state & local regulations.
Attention for Waste Treatment	Deserted batteries shouldn't be treated as ordinary trash. Shouldn't be thrown into fire or placed in high temperature. Shouldn't be dissected, pierced, crushed or treated similarly. Best disposal method is recycling.

Section 14 – Transport Information

UN number	3481
Proper shipping name	Lithium ion batteries contained in equipments (including lithium ion polymer batteries).
Label(s) / Placard Required	Miscellaneous Lithium batt
Special precautions which a user needs to be aware of, or needs to comply with, in connection with transport or conveyance either within or outside their premises	

ICAO / IATA:	Can be shipped by air in accordance with International Civil Aviation Organization (ICAO), TI or International Air Transport Association (IATA), DGR Packing Instructions (PI) 967 Section II appropriate of IATA DGR 61st (2020 Edition) for transportation.
IMDG CODE:	The batteries are not restricted to IMDG Code 2018 Edition (Amdt 39-18) according to special provision 188.
DOT:	Other requirements for the US Department of Transportation (DOT) Subchapter C, Hazardous Materials Regulations if shipped in compliance with 49 CFR 173.185.
ADR/ ADN:	The batteries are not subject to the provisions of United Nations Economic Commission for Europe (UNECE) ADR/ADN if they meet the requirements of special provision 188 of Chapter 3.3. Applicable as from 1 January 2019.
In addition, to be permitted in transport each lithium cell and battery types must have passed the applicable tests set out in Subsection 38.3 of the UN Manual of Tests and Criteria.	

Section 15 – Regulatory Information

Dangerous Goods Regulations

Recommendations on the Transport of Dangerous Goods-Model Regulations (20th revised edition)

Recommendations on the Transport of Dangerous Goods-Manual of Tests and Criteria

International Air Transport Association (IATA)

International Maritime Dangerous Goods (IMDG Code 2018 Edition Amdt 39-18)

Technical Instructions for the Safe Transport of Dangerous Goods

Classification and code of dangerous goods (GB 6944-2012)

2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Toxic Substance Control Act (TSCA)

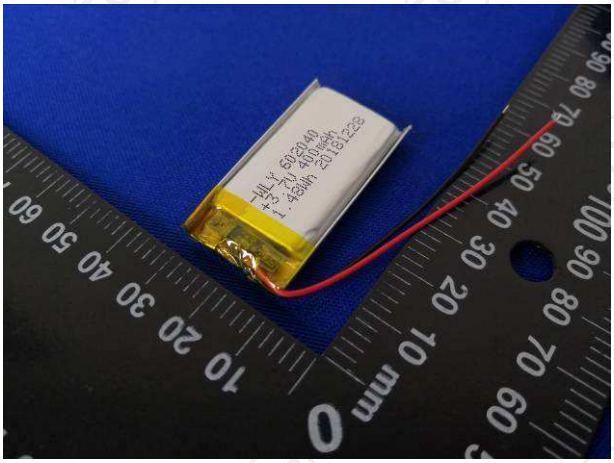
Code of Federal Regulations

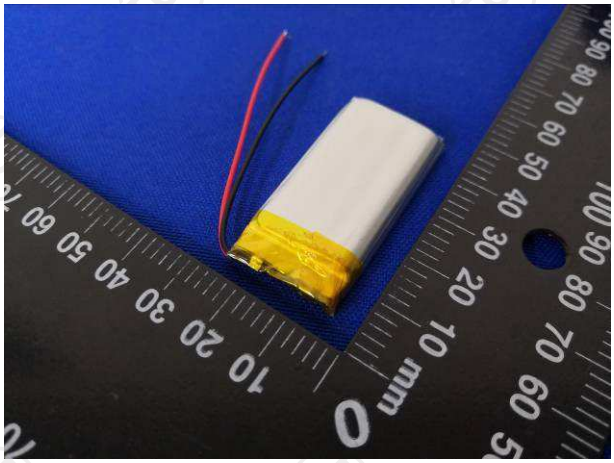
In accordance with all Federal, State and local laws

Section 16 – Additional Information

MSDS creation date: 2020 Version: 1.0

Sample photo:





To the best of our knowledge, the information contained herein is accurate. However, neither the above named supplier nor any of its subsidiaries assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

The data/information contained herein has been reviewed and approved for general release on the basis that this document contains no export controlled information.

******End of report******

Shenzhen TCT Testing Technology Co., Ltd.
1B/F., Building 1, Yibaolai Industrial Park, Qiaotou, Fuyong,
Baoan District, Shenzhen, Guangdong, China

Report for Safe Transport of Goods

货物运输条件鉴定报告书

Name of Goods:	Bluetooth radio K02 (Containing Li-ion battery 602040)
货物名称：	蓝牙收音机 K02 (内含锂离子电池 602040)
Applicant's name:	
委托方名称：	
Transportation:	Marine
运输方式：	海运

Shenzhen TCT Testing Technology Co., Ltd.
深圳市通测检测技术有限公司

Report for Safe Transport of Goods
货物运输条件鉴定报告书

Name of Goods 货物名称	Bluetooth radio K02 (Containing Li-ion battery 602040) 蓝牙收音机 K02 (内含锂离子电池 602040)
Model of Sample 样品型号	602040
Applicant's name 委托方名称	
Applicant's Address 委托方地址	
Manufacturer's name 制造商名称	
Manufacturer's Address 制造商地址	
Report No. 报告编号	TCT191213H107
Criteria 鉴定依据	International Maritime Dangerous Goods (IMDG Code 2018 Edition Amdt 39-18) 《国际海运危险货物规则》（IMDG Code 2018 版 Amdt 39-18）

TCT 通测检测 TESTING CENTRE TECHNOLOGY

Shenzhen TCT Testing Technology Co., Ltd.
1B/F., Building 1, Yibaolai Industrial Park, Qiaotou, Fuyong, Baoan District, Shenzhen, Guangdong, China

Report for Safe Transport of Goods
货物运输条件鉴定报告书

Certification **鉴定结论**	1. Hazards identification (危险品识别) None 无 (1) Rated energy＝1.48Wh. (2) Test proves that this type of battery pass the UN38.3 test. (1) 额定能量＝1.48Wh。 (2) 经测试证明其符合《联合国危险物品运输试验和标准手册》第 3 部分 38.3 条款的所有要求。 2. Suggestion according to IMO IMDG Code (海运按照 IMO IMDG Code 办理的类项) The substance is not restricted to IMO IMDG Code according to special provision 188. 根据特殊规定 188，该货物不受 IMO IMDG Code 限制。 3. Packaging requirements (包装要求) The goods are packaged according to the packaging requirement of ordinary goods. 可按普通货物条件办理。
Remark **备注**	Be applicable to transport by sea. 适用于海运。

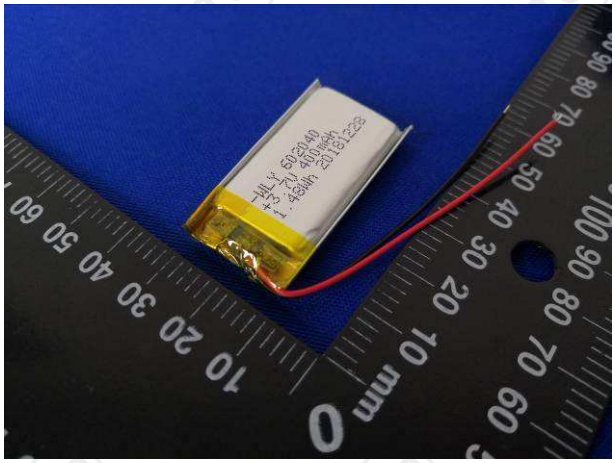
Receiving date **接收日期**	2019-12-19	**Date of Issue** **签发日期**	2020-01-01

Tested by 主检人: Alisa Tu 涂荣荣 **Approved by 批准人:** Allen Qin 秦超

Inspected by 审核人: Amy Zeng 曾宇 **Seal of TCT 报告单位（盖章）:**

Packaging Picture 包装图片:



Important Notice
注意事项

1. The conclusion of this report is responsible only for the sample provided by the applicant. The applicant should undertake the law responsibility that result from providing untruth sample and untruth information.

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7. The Chinese contents in this report are only for reference.
   本报告中的中文内容仅供参考。
8. The report is valid from 2020-01-01 to 2020-12-31.
   本报告书从 2020 年 01 月 01 日到 2020 年 12 月 31 日有效。

Testing Laboratory: Shenzhen TCT Testing Technology Co., Ltd.
测试机构：深圳市通测检测技术有限公司
Address: 1B/F., Building 1, Yibaolai Industrial Park, Qiaotou, Fuyong, Baoan District, Shenzhen, Guangdong, China
地 址：中国广东省深圳市宝安区福永桥头亿宝来工业城 1 栋 1 层 B
Search System 查询系统: http://www.tct-lab.com
Phone (电话)：0755-27673339
Fax（传真）：0755-27673332
E-mail: tom@tct-lab.com

Health Test Report

Report No.: AGC01232191110EH02A

PRODUCT DESIGNATION	:	Wireless charger bamboo speaker
BRAND NAME	:	N/A
MODEL NAME	:	SL241
APPLICANT	:	
DATE OF ISSUE	:	Dec. 27, 2019
STANDARD(S)	:	EN 62311:2008
REPORT VERSION	:	V1.0

Attestation of ***G***lobal ***C***ompliance (Shenzhen) Co., Ltd

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Report Revise Record

Report Version	Revise Time	Issued Date	Valid Version	Notes
V1.0	/	Dec. 27, 2019	Valid	Extension Report

Note:

The original test report Ref.No. AGC01232191110EH02 dated Dec. 19, 2019, was modified on Dec. 27, 2019 to include the following changes:

- Change model name;
- Change the name and address of the applicant

TABLE OF CONTENTS

1. TEST REPORT CERTIFICATION

Applicant	
Address	
manufacturer	
Address	
Factory	
Address	
Product Designation	Wireless charger bamboo speaker
Brand Name	N/A
Test Model	SL241
Date of test	Dec. 05, 2019 to Dec. 18, 2019
Deviation	None
Condition of Test Sample	Normal
Test Result	Pass
Report Template	AGCRT-EC-RF

We, Attestation of Global Compliance (Shenzhen) Co., Ltd. for compliance with the requirements set forth in the European Standard EN 62311. The results of testing in this report apply to the product/system which was tested only.

Prepared By	Thea Huang (Project Engineer)	Dec. 18, 2019
Reviewed By	Max Zhang (Reviewer)	Dec. 27, 2019
Approved By	Forrest Lei (Authorized Officer)	Dec. 27, 2019

2. GENERAL INFORMATION

2.1. DESCRIPTION OF EUT

The EUT is a short range, WPT and bluetooth device.

Details of technical specification refer to the description in follows:

Hardware Version	V1.0
Software Version	V1.0
Operate Frequency	BT: 2.402 GHz to 2.480GHz WPT: 110-205kHz
Bluetooth Version	V5.0
Antenna Type	Integral Antenna
Antenna Gain	3dBi
Power Supply	DC 3.7V by battery or DC 5V by adapter

NOTE: *1. For more information, please refer to User's Manual.*

3. TEST SETUP

3.1 STANDARD APPLICABLE

According to EN 62311:2008, Assessment of electronic and electrical equipment related to human exposure restrictions for electromagnetic fields (0 Hz – 300 GHz).

Reference levels for electric, magnetic and electromagnetic fields (0 Hz to 300 GHz, unperturbed rms values)

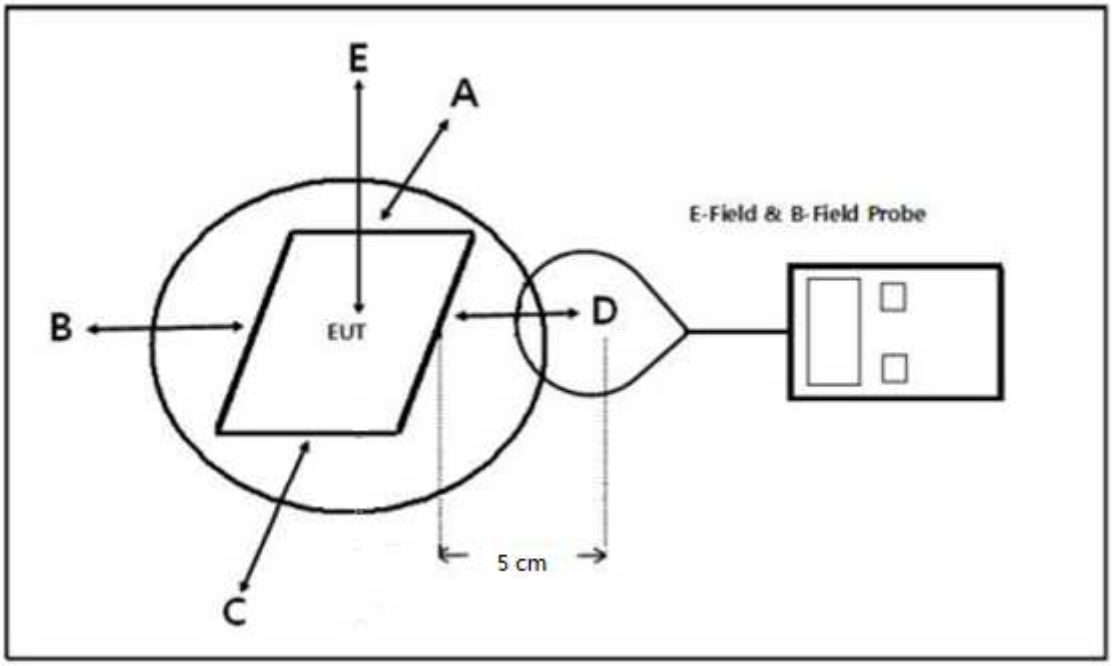
Frequency range	E-field strength (V/m)	H-field strength (A/m)	B-field (μT)	Equivalent plane wave power density S_{eq} (W/m²)
0-1 Hz	—	$3,2 \times 10^4$	4×10^4	—
1-8 Hz	10 000	$3,2 \times 10^4/f^2$	$4 \times 10^4/f^2$	—
8-25 Hz	10 000	4 000/f	5 000/f	—
0,025-0,8 kHz	250/f	4/f	5/f	—
0,8-3 kHz	250/f	5	6,25	—
3-150 kHz	87	5	6,25	—
0,15-1 MHz	87	0,73/f	0,92/f	—
1-10 MHz	$87/f^{1/2}$	0,73/f	0,92/f	—
10-400 MHz	28	0,073	0,092	2
400-2 000 MHz	$1,375\ f^{1/2}$	$0,0037\ f^{1/2}$	$0,0046\ f^{1/2}$	f/200
2-300 GHz	61	0,16	0,20	10

3.2 EVALUATION METHODS

WPT:

Measurement of E and H field

A commonly used probe size is 100 cm^2, also the contribution of the three axes X, Y and Z can be evaluated separately.



Note: Position A: Front of EUT; Position B: Left of EUT; Position C: back of EUT; Position D: Right of EUT; Position E: Top of EUT

Based on the above standard limit, any device with output power below 5A/m cannot produce an exposure exceeding this restriction under the most pessimistic exposure conditions.

BT:

According to User manual, The antenna of the product is at least 20cm away from the body of the user. Warning statement to the user for keeping at least 20cm separation distance and the prohibition of operating to a person has been printed on the user's manual. So, this product under normal use is located on electromagnetic far field between the human body.

Far Field Calculation Formula

$$E = \eta_0 H = \frac{\sqrt{30PG(\theta,\phi)}}{r}$$

G = antenna gain relative to an isotropic antenna
θ,ϕ = elevation and azimuth angles to point of investigation
r = distance from observation point to the antenna
η_0 = Characteristic impedance of free space

3.3 EVALUATION EQUIPMENT

Description	Manufacturer	Model	S/N	Cal. Date	Cal. Due
Broadband Field Meter	Narda Safety Test Solutions GmbH	NBM-550	J-0004	Jun.12, 2019	Jun.11, 2020
Probe FHP	Narda Safety Test Solutions GmbH	EHP-50F	J-0015	Jun.12, 2019	Jun.11, 2020

3.4 EVALUATION RESULTS

WPT:

Frequency	Maximum Radiated H-Field at 5cm		Limit	Result
MHz	A/m		A/m	Pass/Fail
110-205kHz	position E	0.048	5	Pass
	position A	0.017		
	position B	0.017		
	position C	0.017		
	position D	0.017		

Since Radiated H-Field at worse case is 0.048A/m, which cannot exceed the exempt condition, 5A/m. It is deemed to full fit the requirement of RF exposure basic restriction specified in EC Council Recommendation (1999/519/EC).

BT:

Max. Antenna gain=3dBi (Numeric 2)

EUT	Maximum Output Power	Output Power	E-Field Strength	E-Field Limit	Result
	dBm	mW	V/m	V/m	Pass/Fail
BT	7.45	5.56	2.88	61	Pass

Safety Test Report

Report No.: AGC01232191110ES01A

PRODUCT DESIGNATION	:	Wireless charger bamboo speaker
BRAND NAME	:	N/A
MODEL NAME	:	SL241
APPLICANT	:	
DATE OF ISSUE	:	Dec. 25, 2019
STANDARD(S)	:	EN 60065: 2014+A11:2017
REPORT VERSION:	:	V1.0

Attestation of Global Compliance (Shenzhen) Co., Ltd.

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TEST REPORT

EN 60065

Audio, video and similar electronic apparatus-Safety requirements

Report No.	AGC01232191110ES01A	
Tested by (+ signature)	Allen Liu	Allen Liu
Reviewed by (+ signature)	Byron Wang	Byron Wang
Approved by (+ signature)	Matte He (Authorized Officer)	Matte He
Date of issue	Dec. 25, 2019	
Contents	Total 41 pages	

Testing laboratory

Name	Attestation of Global Compliance (Shenzhen) Co., Ltd.
Address	1-2/F, Building 19, Junfeng Industrial Park, Chongqing Road, Heping Community, Fuhai Street, Bao'an District, Shenzhen, Guangdong, China
Testing location	Same as above.

Applicant

Name	
Address	

Manufacturer

Name	
Address	

Factory

Name	
Address	

Test specification

Standard	EN 60065:2014+A11:2017
Test procedure	Type test
Procedure deviation	N/A
Non-standard test method	N/A

Test Report Form/blank test report

Test Report Form No. ..... : AGC60065A6

TRF originator. ..... : AGC

Master TRF ..... : 2018-09

Test item

Product designation ..... : Wireless charger bamboo speaker

Brand name..... : N/A

Test model ..... : SL241

Series model ..... : N/A

Rating(s)..... : Input: 5V⎓ 1A

Test item particulars

Classification of installation and use ..... : Moveable apparatus

Supply Connection ..... : Supplied by Micro-B port

Degree of protection against ingress of dust and liquid..... : IPX0

Test case verdicts

Test case does not apply to the test object ..... : N (/A)

Test item does meet the requirement ..... : P(ass)

Test item does not meet the requirement ..... : F(ail)

Testing

Date of receipt of test item ..... : Nov. 29, 2019

Date of performance of test ..... : Dec. 02, 2019 –Dec. 20, 2019

Attachments

Attachment A ..... : Photos of product

General remarks

This report shall not be reproduced except in full without the written approval of the testing laboratory.

The test results presented in this report relate only to the item tested.

"(See remark #)" refers to a remark appended to the report.

"(See appended table)" refers to a table appended to the report.

Throughout this report a comma is used as the decimal separator.

Report Revise Record:

Report Version	Revise Time	Issued Date	Valid Version	Notes
V1.0	/	Dec. 25, 2019	Valid	Initial release

General product informations

The original test report Ref. No. AGC01232191110ES01 (dated Dec.23, 2019), was modified on Dec. 25, 2019 to change the model name, applicant, no further testing necessary.

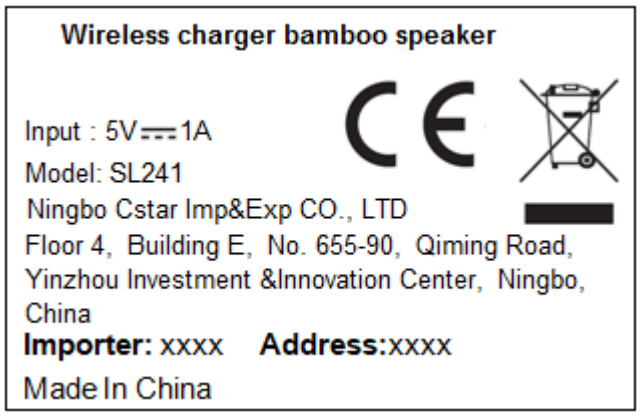
The product with model name Wireless charger bamboo speaker(Wireless charging mode load with 5V/0.8A), which supplied by DC 5V, and built-in a Li-ion rechargeable battery (3.7V, 400mAh), Which is considered a movable apparatus, and for dry location used only.

The product was submitted and tested for use at the manufacturer's recommended ambient temperature (Tma) of 40°C.

Summary of testing

The test item passed.

Copy of marking plates



Remark:

1) The CE marking and WEEE symbol (if any) should be at least 5mm and 7mm respectively in height.

2) The markings and instructions are the minimum requirements required by safety standard. For final production samples, the additional markings which do not give rise to misunderstanding may be added.

3) As declared by the manufacturer, the importer (and manufacturer, if it is different)'s name, registered trade name or mark and the postal address will be marked on the products before being place on the market.

4) Marking on the packaging or in a document accompanying the electrical equipment is only acceptable if it is not possible to place such markings on the product.

EN 60065			
Clause	Requirement – Test	Result - Remark	Verdict
3	**GENERAL REQUIREMENTS**		**P**
	Safety class of the apparatus .....:	Supply by DC5V.	P

4	**GENERAL CONDITIONS OF TESTS**		**P**
4.1.4	Ventilation instructions require the use of the test box	According to user manual	P

5	**MARKING**		**P**
5.1	General requirements		P
	Comprehensible and easily discernible		P
	Permanent durability against water and petroleum spirit	After rubbing test by water and petroleum spirit, the label still easily discernible, indelible and legible	P
5.2	a)Identification, maker .....:	See page 3	P
	b)Model number or type reference.....:	See page 3	P
	c) Class II symbol if applicable .....:	See page 3	P
	d)Nature of supply .....:		N
	e)Rated supply voltage and symbol .....:	5V ⎓	P
	f) Frequency if safety dependant.....:		N
	g) Rated current or power consumption for apparatus supplied by supply apparatus for general use.....:	1A	P
	Measured current or power consumption .....:	(See appended table 7.1)	P
	Deviation %(max 10%).....:		P
	h)Rated current or power consumption for apparatus intended for connection to an a.c. mains supply.....:		N
	Measured current or power consumption .....:		N
	Measured current or power consumption for Television set.....:		N
	Deviation %(max 10%).....:		N
	Symbols explained in the user manual		N
5.3	a)Earth terminal		N
	b)Hazardous live terminals		N
	c) Markings on supply output terminals		N
5.4	Caution marking		

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Clause	Requirement – Test	Result - Remark	Verdict
	a)Use of triangle with exclamation mark		N
	b)marking on loudspeaker grille, IEC 60417-5036		N
	c) User-replaceable coin / button cell battery marking		N
5.5	Instructions		P
5.5.1	Safety relevant information	The relevant information is given in the language acceptable to the country where the apparatus is intended to be used.	P
5.5.2	a) Mains powered equipment not exposed to dripping or splashing. Warning concerning objects filled with liquid, etc.		N
	b)Hazardous live terminals, instructions for wiring		N
	c)Instructions for replacing lithium battery		P
	d)Class I earth connection warning		N
	e)Instructions for multimedia system connection		P
	f) Special stability warning for attachment of the apparatus to the floor/wall	Not fixed apparatus	N
	g)Warning: battery exposure to heat		P
	h)Warning: protective film on CRT face		N
	i) Warning: Non-floor standing TV >7kg		N
	j) Warning: User replaceable coin / button cell battery		N
5.5.3	a-b) Disconnect device: plug/coupler or all-pole mains switch location, accessibility and markings		N
	c) Instruction for permanently connected equipment		N
	Marking, signal lamps or similar for completely disconnection from the mains		N

6	**HAZARDOUS RADIATION**		**P**
6.1	Ionizing radiation < 36 pA/kg (0,5 mR/h)		N
	Ionizing radiation under fault condition		N
6.2	Laser radiation, emission limits to IEC 60825-1:2007 ... .:		N
	Emission limits under fault conditions .....:		N
6.3	Light emiting diodes (LEDs) according to IEC 62471	Indicator light	N

7	**HEATING UNDER NORMAL OPERATING CONDITIONS**	**P**

EN 60065			
Clause	Requirement – Test	Result - Remark	Verdict
7.1	General		
7.1.1	Temperature rises not exceeding specified values; fuse links and other protective devices defeated	(see appended table 7.1)	P
7.1.2	Temperature rise of accessible parts	Ditto	P
7.1.3	Temperature rise of parts providing electrical insulation		N
7.1.4	Temperature rise of parts acting as a support or as a mechanical barrier	Ditto	P
7.1.5	Temperature rise of windings		N
7.1.6	Parts not subject to a limit under 7.1.1 to 7.1.4		N
7.2	Softening temperature of insulating material supporting parts conductively connected to the mains carrying a current > 0,2 A at least 150 °C		N

8	**CONSTRUCTIONAL REQUIREMENTS WITH REGARD TO THE PROTECTION AGAINST ELECTRIC SHOCK**		**N**
8.1	Conductive parts covered by lacquer, paper, untreated textile oxide films and beads etc. considered to be bare	Supplied by lower voltage DC power source or secondary battery, no hazardous live part inside the apparatus.	N
8.2	No shock hazard when changing voltage setting device, fuse-links or handling drawers etc.		N
8.3	Insulation of hazardous live parts not provided by hygroscopic material		N
8.4	No risk of electric shock from accessible parts or form parts rendered accessible following the removal of a cover which can be removed by hand		N
8.5	Class I apparatus		N
	Basic insulation between hazardous live parts and earthed accessible parts		N
	Resistors bridging basic insulation complying with 14. 2 a)		N
	Capacitors bridging basic insulation complying with 14.3.2a)		N
	Protective earthing terminal		N
8.6	Class II apparatus		N
	a) Basic and supplementary insulation between hazardous live parts and accessible parts		N
	b) Reinforced insulation between hazardous live parts and accessible parts		N

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Clause	Requirement – Test	Result - Remark	Verdict
8.7	Components bridging insulation		N
	Basic insulation bridged by components complying with 14.4.5.3		N
	Components bridging basic, supplementary, double or reinforced insulation complying with 14.2 a) or 14.4		N
	Basic and supplementary insulation each being bridged by a capacitor or RC-unit complying with 14.3.2 a)		N
	Double or reinforced insulation being bridged with 2 capacitors or RC-units in series complying with 14.3.2 a)		N
	Double or reinforced insulation being bridged with a single capacitor or RC-unit complying with 14.3.2 b)		N
8.8	Insulation thickness and thin sheet materials		N
	Basic or supplementary insulation > 0,4 mm (mm) :		N
	Reinforced insulation > 0,4 mm (mm) :		N
	Thin sheet material used inside the equipment		N
	Basic or supplementary insulation, at least two layers, each meeting 10.4		N
	Basic or supplementary insulation, three layers any two of which meet 10.4		N
	Reinforced insulation, two layers each of which meet 10.4		N
	Reinforced insulation, three layers any two which meet 10.4		N
8.9	Adequate insulation between internal hazardous live conductors and accessible parts, or between internal hazardous live parts and conductors connected to accessible parts		N
8.10	Double insulation between accessible parts and conductors connected to the mains		N
	Double insulation between conductors connected to accessible parts and parts connected to the mains		N
8.11	Detaching of wires		N
	No undue reduction of creepage or clearance distances if wires become detached		N
	Vibration test carried out ……..:		N
8.12	Adequate fastening of windows, lenses, lamp covers etc. (pull test 20 N for 10 s)		N
8.13	Adequate fastening of covers (pull test 50 N for 10 s)		N

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Clause	Requirement – Test	Result - Remark	Verdict
8.14	No risk of damage to the insulation of internal wiring due to hot parts or sharp edges		N
8.15	Only special supply equipment can be used		N
8.16	Insulated winding wire without additional interleaved insulation		N
8.17	Endurance test as required by 8.16		N
8.18	Disconnect from the mains		N
	Disconnect device		N
	All-pole switch or circuit breaker with>3mm contact separation		N
	Mains switch ON indication		N
8.19	Switch not fitted in the mains cord		N
8.20	Bridging components comply with clause 14		N
8.21	Non-separable thin sheet material		N

9	**ELECTRIC SHOCK HAZARD UNDER NORMAL OPERATING CONDITION**		**N**
9.1	Testing on the outside		N
9.1.1	General		N
9.1.1.1	Requirements		N
	Accessible parts shall not be hazardous live	Supplied by lower voltage DC power source or secondary battery, no hazardous live part inside the apparatus.	N
	Inaccessible terminals are not accessible or comply with relevant requirements		N
	For voltages >1000 V ac or >1500 V dc complies with clause 13.3.1 for basic insulation.....:		N
9.1.1.2	Determination of hazardous live parts		N
	a) Open circuit voltages		N
	b) Touch current measured from terminal devices using the network in Annex D .....……..:		N
	c) Discharge not exceeding 45µC		N
	d) Energy of discharge not exceeding 350mJ		N
9.1.1.3	Test with test finger and test probe		N
9.1.2	No hazardous live shafts of knobs, handles or levers		N

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Clause	Requirement – Test	Result - Remark	Verdict
9.1.3	Ventilation holes tested by means of 4 mm x 100 mm test pin	No access to hazardous live	N
9.1.4	Terminal devices tested with 1 mm x 20 mm test pin (10 N); test probe D of IEC 61032	No such terminal	N
	Terminal devices tested with 1 mm x 100 mm straight wire (1 N); test probe D of IEC 61032		
9.1.5	Pre-set controls tested with 2 mm x 100 mm test pin (10 N); test probe C of IEC 61032	No such terminal	N
9.1.6	Withdrawal of the mains plug		N
	No shock hazard due to stored charge after 2 s .... :		N
	Bleeder resistor(s) comply with 14.2 or no shock hazard when open circuited		N
	If C is not greater than 0,1 µF no test needed		N
9.1.7	Resistance to external force		N
	a) Test probe 11 of IEC 61032 for 10 s (50 N)		N
	b) Test hook of fig. 4 for 10 s (20 N)		N
	c) 30 mm diameter test tool for 5 s (100 or 250 N)		N
9.2	No hazard after removing a cover by hand		N

10	**INSULATION REQUIREMENTS**		**N**
10.2	Insulation resistance (MΩ) at least 2 MΩ min. after surge test for basic and 4 MΩ min. for reinforced insulation .....::	Not directly connect to the mains.	N
10.3	Humidity treatment 48 h or 120 h ……..:		N
10.4	Insulation resistance and dielectric strength		N
	Between parts of different polarity directly connected to the mains		N
	Between parts separated by BASIC or SUPPLEMENTARY insulation		N
	Between parts separated by REINFORCED insulation		N

11	**FAULT CONDITIONS**		**P**
11.1	No shock hazard under fault condition	No hazardous live parts in equipment	N
11.2	Heating		P
11.2.1	Requirements		P

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Clause	Requirement – Test	Result - Remark	Verdict
	No danger of fire to the surroundings		P
	Safety not impaired by abnormal heat		P
	Flames extinguish within 10 seconds		N
	No hazard from softening solder		P
	Soldered terminations not used as protective mechanism		P
11.2.2	Measurement of temperature rises	(see appended table 11.2)	P
11.2.3	Temperature rise of accessible parts	(see appended table 11.2)	P
11.2.4	Temperature rise of parts, other than windings, providing electrical insulation		N
11.2.5	Temperature rise of parts acting as a support or mechanical barrier		N
11.2.6	Temperature rise of windings		N
11.2.7	Printed boards		P
	Temperature rise does not exceed the limits of table 3 or exceed the limits of table 3 by max. 100 K for max. 5 min	No points on the PCB exceed the limit.	N
	a) Temperature rise of V-0 or VTM-0 printed circuit boards exceeding the limits of table 3 by not more than 100 K for an area not greater than 2 cm^2		N
	b) Temperature rise of V-0 or VTM-0 printed circuit boards exceeding the limits of table 3 up to 300 K for an area not greater than 2 cm^2 for a maximum of 5 min		N
	Meets all the special conditions if conductors on printed circuit boards are interrupted		N
	Class I protective earthing maintained		N
11.2.8	Temperature rise of parts not subject to the limits of 11.2.2 to 11.2.7 shall not exceed the limits in table 3, item e), "Fault conditions".	(see appended table 11.2)	P

12	**MECHANICAL STRENGTH**		**P**
12.1	Complete apparatus		P
12.1.1	The apparatus have adequate mechanical strength		P
12.1.2	Bump test where mass >7 kg	<7kg	N
12.1.3	Vibration test		N
12.1.4	Impact hammer test	After test, no damage and hazard.	P
	Steel ball test		N

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Clause	Requirement – Test	Result - Remark	Verdict
12.1.5	Drop test for portable apparatus where mass ≤ 7 kg	After test, no damage and hazard.	P
12.1.6	Thermoplastic enclosures strain relief test	70℃, 7h	P
12.2	Fixing of knobs, push buttons, keys and levers		N
12.3	Remote controls with hazardous live parts		N
12.4	Drawers (pull test 50 N, 10 s)		N
12.5	Antenna coaxial sockets providing isolation		N
12.6	Telescoping or rod antennas		N
12.6.1	6,0mm diameter end		N
	Prevented from falling into the apparatus		N
12.6.2	Physical securement, removal prevented		N
12.7	Apparatus containing coin / button cell batteries		N
12.7.2	Reduced possibility for children to remove battery		N
12.7.3	Tests		N
12.7.3.2	Stress relief test		N
12.7.3.3	Battery replacement test		N
12.7.3.4	Drop test		N
12.7.3.5	Impact test		N
12.7.4	Battery not accessible; or not removable		N

13	**CLEARANCE AND CREEPAGE DISTANCES**		**N**
13.1	Clearances in accordance with 13.3		N
	Creepage distances in accordance with 13.4		N
13.2	Determination of operating voltage		N
13.3	Clearances		N
13.3.1	Comply with 13.3 or Annex J		N
13.3.2	Circuits conductively connected to the mains comply with table 8 and where applicable table 9		N
13.3.3	Circuits not conductively connected to the mains comply with table 10		N
13.3.4	Measurement of transient voltages		N
13.4	Creepage distances not less than appropriate table 11 minimum values		N
13.5	Printed boards		N

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Clause	Requirement – Test	Result - Remark	Verdict
13.5.1	Conductors complying with pull-of and peel strength requirements, one of which may be conductively connected to the mains, as in fig. 10		N
13.5.2	Type B coated printed circuit boards complying with IEC 60664-3 (basic insulation only)		N
13.6	Conductive parts along uncemented joints clearances and creepage distances comply with 13.3 and 13.4		N
	Conductive parts along reliably cemented joints comply with 8.8		N
	Temperature cycle test and dielectric strength test		N
	500V test for transformers, magnetic coupler and similar devices, if insulation is relied upon for safety		N
13.7	Enclosed, enveloped or hermetically sealed parts not conductively connected to the mains, clearances and creepage distances as in table 12		N
13.8	Parts filled with insulating compound, meeting the requirements of 8.8		N

14	**COMPONENTS**		**P**
14.1	Flammability according to IEC 60695-11-10 or annex G, or 20.2.5		N
14.2	Resistors		N
	Resistors separately approved ..... :		N
	a) Resistors between hazardous live parts and accessible metal parts		N
	b) Resistors, other than between hazardous live parts and accessible parts		N
14.3	Capacitors and RC units	No such components.	N
	Capacitors separately approved		N
14.3.1	Damp heat test duration 21 days		N
14.3.2	Y capacitors tested to IEC 60384-14:2005 ..... :		N
14.3.3	X capacitors tested to IEC 60384-14:2005 ..... :		N
14.3.4	Capacitors operating at mains frequency but not connected to the mains: tests for X2 ..... :		N
14.3.6	Capacitors with volume exceeding 1750 mm³, where short-circuit current exceeds 0,2 A: compliance with IEC60384-1, 4.38 category B or better ……..:		N

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Clause	Requirement – Test	Result - Remark	Verdict
	Capacitors with volume exceeding 1750 mm³, where short-circuit current exceeds 0,2 A: compliance with IEC60384-1, 4.38 category B or better ……..:		N
14.4	Inductors and windings		N
14.4.1	Comply with IEC 61558-1, IEC 61558-2 (as relevant) and clause 20.2.5		N
	Transformers and inductors separately approved :		N
14.4.2	Transformers and inductors marked with manufacturer's name and type ..... :		N
14.4.3	General		N
	Insulation material complies with clause 20.2.5		N
14.4.4	Constructional requirements		N
14.4.4.1	Clearances and creepage distances comply with clause 13		N
14.4.4.2	Transformers meet the constructional requirements		N
14.4.5	Separation between windings		N
14.4.5.1	Class II transformers have adequate separation between hazardous live parts and accessible parts (double or reinforced insulation).....:		N
	Coil formers and partition walls > 0,4 mm		N
14.4.5.2	Class I transformers, with basic insulation and protective screening only if all 7 conditions are met		N
14.4.5.3	Separating transformers with at least basic insulation		N
14.4.6	Insulation between hazardous live parts and accessible parts		N
14.4.6.1	Class II transformers have adequate insulation between hazardous live parts and accessible parts (double or reinforced insulation)		N
	Coil formers and partition walls > 0,4 mm		N
14.4.6.2	Class I transformers have adequate insulation between hazardous live parts and accessible conductive parts or those conductive parts or protective screens connected to a protective earth terminal		N
	Winding wires connected to protective earth have adequate current-carrying capacity		N
14.5	High voltage components and assemblies (U > 4kV peak)		N
14.5.1	Component meets category V-1 of IEC 60695-11-10		N
14.5.2	High voltage transformers and multipliers		N

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Clause	Requirement – Test	Result - Remark	Verdict
14.5.3	High voltage assemblies and other parts		N
14.6	Protective devices		N
	Protective devices used within their ratings		N
	External clearances and creepage distances meet requirement of clause 13 for the voltage across the device when opened		N
14.6.2	Thermal releases		N
14.6.2.1	Comply with 14.6.2.2, 14.6.2.3 or 14.6.2.4		N
14.6.2.2	a) Thermal cut-outs separately approved		N
	b) Thermal cut-outs tested as part of the submission		N
14.6.2.3	a) Thermal links separately approved		N
	b) Thermal links tested as part of the submission		N
14.6.2.4	Thermal devices re-settable by soldering		N
14.6.3	Fuses and fuse holders		
14.6.3.1	Fuse-links in the mains circuit according to IEC 60127		N
14.6.3.2	Correct marking of fuse-links adjacent to holder ... :		N
14.6.3.3	Not possible to connect fuses in parallel		N
14.6.3.4	Not possible to touch hazardous live parts when replacing fuse-links without the use of a tool ..... :		N
14.6.4	PTC thermistors comply with IEC 60730-1:2010		N
	PTC devices (>15 W) category V-1 or better		N
14.6.5	Circuit protectors have adequate breaking capacity and their position is correctly marked		N
14.7	Switches		N
14.7.1 a)	Separate testing to IEC 61058-1 including: - 10 000 operations - Normal pollution suitability - For CRT TV's, make and break speed independent of speed of actuation - V-0 or compliance with G.1.1		N
14.7.1 b)	Tested in the apparatus		N
	Switch controlling > 0.2A with open contact voltage > 35 V (peak) / 24 V dc complying with 14.6.3, 14.6.4 and V-0 or G.1.1		N
	Switch controlling > 0.2A with open contact voltage < 35 V (peak) / 24 V dc complying with 14.6.3 and V-0 or G.1.1		N

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Clause	Requirement – Test	Result - Remark	Verdict
	Switch controlling ≤ 0.2A with open contact voltage > 35 V (peak)/24 V dc complying with 14.6.4 and V-0 or G.1.1		N
14.7.2	Switch tested to 14.7.1 b) checked according to IEC 61058-1 clause 13.1 and 10 000 operation test		N
14.7.3	Switch tested to 14.6.1 b) compliant with IEC 61058-1 subclause 16.2.2 d) and m) not attaining excessive temperatures in use		N
14.7.4	Switch tested to 14.6.1 b) has adequate dielectric strength		N
14.7.5	Mains switch controlling mains socket outlets additional tests to IEC 61058-1		N
14.8	Safety interlocks according to 2.8 of IEC 60950-1	No safety interlocks used	N
14.9	Voltage setting device and the like are not likely to be changed accidentally	No such devices	N
14.10	Motors		N
14.10.1	a) Endurance test on motors		N
	b) Motor start test		N
	Dielectric strength test		N
14.10.2	Not adversely affected by oil or grease etc.		P
14.10.3	Protection against moving parts		P
14.10.4	Motors with phase-shifting capacitors, three-phase motors and series motors meet clause. B.8, B.9 and B.10 of IEC 60950-1, Annex B		N
14.11	Batteries		P
14.11.1	Comply with IEC 62133 if applicable	Built-in a Li-ion battery, which complied with IEC 62133.	P
	Batteries mounted with no risk of accumulation of flammable gases		P
14.11.2	No possibility of recharging user replaceable non-rechargeable batteries		N
14.11.3	Recharging currents and times within manufacturers limits	Normal condition recharging current: 320mA; Abnormal condition recharging current: 370mA; Limit Recharging current: 400mA.	P

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Clause	Requirement – Test	Result - Remark	Verdict
	Lithium batteries discharge and reverse currents within the manufacturers limits	Normal condition discharging current: 250mA; Abnormal condition discharging current: 360mA. Limit discharging current: 400mA.	P
14.11.4	Battery mould stress relief		N
14.11.5	Battery drop test		N
14.12	Optocouplers		N
	Comply with constructional requirements of clause 8		N
	External clearances and creepage comply with 13.1		N
	Compound completely filling the casing or internal clearances and creepage comply with 13.1.....:		N
	a) Complies with 13.6 (jointed insulation) and N.3.2		N
	b) Complies with IEC 60747-5-5:2007		N
	c) Complies with 13.8		N
14.13	Surge suppression varistors		N
	Comply with IEC 61051-2		N
	Not connected between mains and accessible parts except for earthed parts of permanently connected apparatus		N
	GDT bridging basic insulation complies with electric strength and distance requirements		N
	Complies with the climatic, voltage, current pulse, fire hazard and thermal stress requirements of 14.13		N

15	**TERMINALS**		**P**
15.1	Plugs and sockets		N
15.1.1	Mains plug, appliance inlet, interconnection couplers and mains socket-outlet meet the appropriate standard		N
	Overloading of plugs or appliance inlets prevented if the apparatus has mains socket outlets		N
	Overloading of internal wiring prevented if the apparatus has mains socket outlets		N
15.1.2	Design of connectors other than for mains power		P
	Design of sockets with symbol of 5.3 b) design		P
15.1.3	Design of terminals and connectors used in output circuits of supply apparatus		P

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Clause	Requirement – Test	Result - Remark	Verdict
15.2	Provision for protective earthing		N
	Accessible conductive parts of Class I equipment reliably connected to earth terminal, within equipment		N
	Protective earth conductors correctly fixed and coloured		N
	Separate protective earth terminal near mains terminal and comply with 15.3		N
	Protective earth terminal resistant to corrosion		N
	Earth resistance test: < 0,1 Ω at 25 A ..... :		N
15.3	Terminals for external flexible cords and for permanent connection to the mains supply		N
15.3.1	Adequate terminals for connection of permanent wiring		N
15.3.2	Reliable connection of non-detachable cords:		N
	Not soldered to conductors of a printed circuit board		N
	Adequate clearances and creepage distances between connections should a wire break away		N
	Wire secured by additional means to the conductor		N
15.3.3	Screws and nuts clamping conductors have adequate threads: ISO 261, ISO 262 or similar		N
15.3.4	Conductors adequately fixed (two independent fixings)		N
15.3.5	Terminals allow connection of conductors having appropriate cross-sectional area		N
15.3.6	Terminals to 15.3.3 have sizes required by table 16		N
15.3.7	Terminals clamp conductors between metal and have adequate pressure		N
	Terminals designed to avoid conductor slipping out when tightened		N
	Terminals adequately fixed when tightened or loosened (no loosening, wiring not stressed, distances not reduced)		N
15.3.8	Terminals carrying a current more than 0,2 A: contact pressure not transmitted by insulating material except ceramic		N
15.3.9	Termination of non-detachable cords: wires terminated near to each other		N
	Terminals located and shielded: test with 8 mm strand		N
15.4	Devices forming a part of the mains plug		N
15.4.1	No undue strain on mains socket-outlets		N

EN 60065			
Clause	Requirement – Test	Result - Remark	Verdict
15.4.2	Device complies with standard for dimensions of mains plugs		N
15.4.3	Device has adequate mechanical strength (tests a,b,c)		N

16	**EXTERNAL FLEXIBLE CORDS**		**N**
16.1	Mains cords sheathed type, complying with IEC 60227 for PVC or IEC 60245 for synthetic rubber cords .. :		N
	Non-detachable cords for Class I have green/yellow core for protective earth		N
16.2	Mains cords conductors have adequate cross-sectional area for rated current consumption of the equipment		N
16.3	Flexible cords not complying with 16.1, used for interconnections between separate units of equipment used in combination and carrying hazardous live voltages comply with a) and b)		N
16.4	Flexible cords used for connection between equipment have adequate cross-sectional areas to avoid temperature rise under normal and fault conditions		N
16.5	Adequate strain relief on external flexible cords		N
	Not possible to push cord back into equipment		N
	Strain relief device unlikely to damage flexible cord		N
	For mains cords of Class I equipment, hazardous live conductors become taut before earth conductor		N
16.6	Apertures for external flexible cord: no risk of damage to the cord during assembly or movement in use		N
16.7	Transportable apparatus have appliance inlet according to IEC 60320-1 or means of stowage to protect the cord		N

17	**ELECTRICAL CONNECTIONS AND MECHANICAL FIXINGS**		**P**
17.1	Table 20 torque test metal thread, 5 times.....:		N
	Table 20 torque test non-metallic thread, 10 times....:		P
17.2	Correct introduction into female threads in non-metallic material		P
17.3	Cover fixing screws captive or no hazard when replaced by a screw whose length is 10 times its diameter	The fixing screws are captive.	N
17.4	No loosening of conductive parts carrying a current > 0,2 A		N

EN 60065			
Clause	Requirement – Test	Result - Remark	Verdict
17.5	Contact pressure not transmitted through plastic other than ceramic for connections carrying a current > 0,2 A		P
17.6	Stranded conductors of flexible supply cords carrying a current > 0,2 A with screw terminals not consolidated by solder		N
17.7	Cover fixing devices other than screws have adequate strength and their positioning is unambiguous		N
17.8	Fixing devices for detachable legs or stands provided		P
17.9	Internal pluggable connections, affecting safety, unlikely to become disconnected		N

18	**Mechanical strength of picture tubes and protection against the effects of implosion**		**N**
18.1	Comply with IEC 61965 or 18.2		N
18.2	Non-intrinsically protected tubes		N

19	**Stability and mechanical hazards**		**P**
19.1	Apparatus > 7kg have adequate stability or is required to be fastened in place and provided with the warning of 5.5.2 f) ..... :	<7Kg	N
19.2	Test at 10° to the horizontal		N
19.3	Vertical force test 100 N applied downwards		N
19.4	Horizontal force test, 100 N or 13% of weight, applied horizontally to point of least stability		N
19.5	Edges or corners not hazardous	Edges or corners are smooth and rounded.	P
19.6	Mechanical strength of glass		N
19.6.1	Glass surfaces (exc.laminated) with an area exceeding 0,1 m² or major dimension > 450 mm, pass the test of 12.1.4		N
19.6.2	Fragmentation test		N
19.7	Wall or ceiling mounting means		N
19.7.1 - 19.7.3	Not dislodged and remain mechanically intact after test according to 19.7.2 Test 1, Test 2 or Test 3 .....:		N

20	**Resistance to fire**	**P**

EN 60065			
Clause	Requirement – Test	Result - Remark	Verdict
20.1	Start and spread of fire is prevented	No potential ignition sources inside and PCB rate V-0 and plastic enclosure rate min. V-0 is used.	P
20.2	Electrical components and mechanical parts		
20.2.1	a) Exemption for components contained in an enclosure of material V-0 to IEC 60695-11-10 with openings not exceeding 1 mm in width		P
	b) Exemption for small components	All small electrical components and capacitors are mounted on a PCB of flammability class V-1 (or better).	P
20.2.2	Electrical components meet the requirements of Clause 14 or 20.2.5		P
20.2.3	Insulation of internal wiring working at voltages > 4 kV or leaving an internal fire enclosure, or located within the areas mentioned in Table 21, comply with G.2	Internal wiring working at voltages not exceeding 4 kV	N
20.2.4	Material of printed circuit boards on which the available power exceeds 15 W at a voltage between 50 V and 400 V (peak) a.c. or d.c. meets V-1 or better to IEC 60695-11-10, unless used in a fire enclosure	PCB of flammability class Min. V-1.	P
	Material of printed circuit boards on which the available power exceeds 15 W at a voltage >400 V (peak) a.c. or d.c. meets V-0 to IEC 60695-11-10.		N
20.2.5	Components and parts not covered by 20.1.1, 20.1.2 and 20.1.3 (other than fire enclosures) mounted nearer to a potential ignition source than the distances in Table 21 comply with the relevant flammability category in Table 21		N
	Components and parts as above but shielded from a potential ignition source, with the barrier area in accordance with Table 21 and fig. 13		N
	Apparatus with voltages >4kV under normal operating conditions and distances to the enclosure exceed those specified Table 21, flammability classification HB40 or better is required for the enclosure		N
20.3	Fire enclosure	Open-circuit voltage less than 4kV.	N
20.3.1	Potential ignition sources with open circuit voltage > 4 kV (peak) a.c. or d.c. contained in a fire enclosure to V-1		N
20.3.2	Internal fire enclosures with openings not exceeding 1 mm in width and with openings for wires completely filled		N

EN 60065			
Clause	Requirement – Test	Result - Remark	Verdict
20.3.3	Requirements of 20.2.1 and 20.2.2 met by an internal fire enclosure		N

Appendix A	**Additional requirements for apparatus with protection against splashing water**		N
A.5	Marking and instructions		N
A.5.1	A.5.2 i) Marked with at least IPX4 (IEC 60529) 5.5.2 a) does not apply		N
A.10	Insulation requirements		N
A.10.3	Splash and humidity treatment		N
A.10.3.1	The enclosure provide adequate protection against splashing water		N
A.10.3.2	Complies with 10.3,duration of the test is 168h		N

Appendix B	**Apparatus to be connected to the TELECOMMUNICATION NETWORKS**		**N**
	Complies with IEC 62151 clause 1		N
	Complies with IEC 62151 clause 2		N
	Complies with IEC 62151 clause 3 modified		N
	Complies with IEC 62151 clause 4 modified		N
	Complies with IEC 62151 cause 5 modified		N
	Complies with IEC 62151 clause 6		N
	Complies with IEC 62151 clause 7		N
	Complies with IEC 62151 annex A, B and C		N

ANNEX L	**Additional requirements for electronic flash apparatus for photographic purposes**		N
L.5	Marking and instructions		N
L.5.5.1	Instructions for battery chargers and Supply apparatus indicating type or model number of flash apparatus with which it is to be used		N
	Instructions for flash apparatus indicating type or model number of battery chargers or Supply apparatus with which it is to be used		N
L.7	Heating under normal operating conditions		N
L.7.1.6	Lithium batteries meet permissible temp rise in Table 3		N
L.9	Electric shock hazard under normal operating conditions		N

EN 60065			
Clause	Requirement – Test	Result - Remark	Verdict
L. 9.1.1.1	Terminals for connection to synchroniser not hazardous live		N
L.14	Components		N
L.14.6.7	Mains switch characteristics appropriate to its function under normal conditions		N

EN 60065									
Clause	Requirement – Test						Result - Remark		Verdict
CENELEC common modifications (EN)									
General	1.1.3 13.3.1 15.2 20	Note 2 Note 4 Note 2 Note	5.4 14.1 16.1 J.3 Table J.1	Note Note 1 and Note 2 Note 2 Note 1 and Note 2	5.5.2 15.1.1 16.2	Note 1 and Note 2 Note 1 and Note 2 Note			P
1.2	**Normative references**								P
	Add the following: EN 71-1, *Safety of toys – Part 1: Mechanical and physical properties* EN 50332-1, *Sound system equipment: Headphones and earphones associated with personal music players – Maximum sound pressure level measurement methodology – Part 1: General method for "one package equipment"* EN 50332-2, *Sound system equipment: Headphones and earphones associated with personal music players – Maximum sound pressure level measurement methodology – Part 2: Matching of sets with headphones if either or both are offered separately, or are offered as one package equipment but with standardised connectors between the two allowing to combine components of different manufacturers or different design*								N
3	**General requirements**								N
3.Z1	**Protective devices** To protect against excessive current, short-circuits and earth faults in MAINS, protective devices shall be included either as integral parts of the equipment or as parts of the building installation, subject to the following, a), b) and c): a) except as detailed in b) and c), protective devices necessary to comply with the requirements of Clause 11 shall be included as parts of the equipment; b) for components in series or parallel with the mains input to the equipment such as the supply cord, appliance coupler, r.f.i. filter and switch, short-circuit and earth fault protection may be provided by protective devices in the building installation; c) it is permitted for equipment supplied via an industrial mains plug or for PERMANENTLY CONNECTED APPARATUS, to rely on dedicated over current and short-circuit protection in the building installation, provided that the means of protection, e.g. fuses or circuit breakers, is fully specified in the installation instructions. If reliance is placed on protection in the building installation, the installation instructions shall so state, except that for apparatus not supplied via an industrial mains plug or for PERMANENTLY CONNECTED APPARATUS the building installation shall be regarded as providing protection in accordance with the rating of the wall socket outlet.								N
4	**General test conditions**								N
4.1.1	**Replace** the text of the note by: NOTE For ROUTINE TEST, reference is made to EN 50514:2008.								N

EN 60065			
Clause	Requirement – Test	Result - Remark	Verdict
6	**Hazardous radiations**		N
6.1	**Replace** the entire subclause by the following: Apparatus including a potential source of ionizing radiation shall be so constructed that personal protection against ionizing radiation is provided under normal operating conditions and under fault conditions. *Compliance is checked by measurement under the following conditions*: *In addition to the normal operating conditions, all controls adjustable from the outside BY HAND, by any object such as a tool or a coin, and those internal adjustments or pre-sets which are not locked in a reliable manner, are adjusted so as to give maximum radiation whilst maintaining an intelligible picture for 1 h, at the end of which the measurement is made.* NOTE 1 Soldered joints and paint lockings are examples of adequate locking. *The dose-rate is determined by means of a radiation monitor with an effective area of 10 cm², at any point 10 cm from the outer surface of the apparatus* *Moreover, the measurement shall be made under fault conditions causing an increase of the high-voltage, provided an intelligible picture is maintained for 1 h, at the end of which the measurement is made.* *The dose-rate shall not exceed 1 µSv/h (0,1 mR/h) taking account of the background level.* NOTE 2 These values appear in Council Directive 96/29/Euratom of 13 May 1996. *A picture is considered to be intelligible if the following conditions are met*: *- a scanning amplitude of at least 70 % of the usable screen width;* *- a minimum luminance of 50 cd/m² with locked blank raster provided by a test generator;* *- a horizontal resolution corresponding to at least 1,5 MHz in the centre, with a similar vertical degradation;* *- not more than one flashover per 5 min.*		N
16	**External flexible cords**		**N**
16.1	**Add** the following note after the first paragraph: NOTE Z1 The harmonized code designations corresponding to the IEC cord types are given in Annex ZD.		N

EN 60065			
Clause	Requirement – Test	Result - Remark	Verdict
Z1	**Protection against excessive sound pressure from personal music players**		**N**
Z1.1	**General** This subclause specifies requirements for protection against excessive sound pressure from personal music players that are closely coupled to the ear. Requirements for earphones and headphones intended for use with personal music players are also covered. A personal music player is a portable equipment for personal use, that: − is designed to allow the user to listen to recorded or broadcast sound or video; and − uses a listening device, such as headphones or earphones that can be worn in or on or around the ears; and − is body worn (of a size suitable to be carried in a clothing pocket) and is intended for the user to walk around while in use. EXAMPLES CD players, MP3 audio players, mobile phones with MP3 type features, PDA's or similar equipment. A personal music player shall comply with the requirements of this subclause. NOTE 1 Protection against acoustic energy sources from telecom terminal equipment is referenced to ITU-T Recommendation P.360. The requirements in this subclause are valid for music or video mode only. The requirements do not apply to: − professional equipment; NOTE 2 Professional equipment is equipment sold through special sales channels. All products sold through normal electronics stores are considered not to be professional equipment. − hearing aid equipment and other devices for assistive listening; − the following types of analogue personal music players: • long distance radio receiver (for example, a multiband radio receiver or a world band radio receiver, an AM radio receiver) and • cassette player/recorder; NOTE 3 This exemption has been allowed because this technology is falling out of use and it is expected that within a few years it will no longer exist. This exemption will not be extended to other technologies. − player while connected to an external amplifier that does not allow the user to walk around while in use. For equipment clearly designed or intended for use by young children, the limits of EN 71-1 apply.		N

EN 60065			
Clause	Requirement – Test	Result - Remark	Verdict
Z1.2	**Equipment requirements** No safety provision is required for equipment that complies with the following: − equipment provided as a package (personal music player with its listening device), where the acoustic output $L_{Aeq,T}$ is ≤ 85 dB(A) measured while playing the fixed “programme simulation noise” as described in EN 50332-1; and − personal music player provided with an analogue electrical output socket for a listening device, where the electrical output is ≤ 27 mV measured as described in EN 50332-2, while playing the fixed “programme simulation noise” as described in EN 50332-1. NOTE 1 Wherever the term acoustic output is used in this subclause, the 30 s A-weighted equivalent sound pressure level *L*Aeq,T is meant. See also Z1.5 and Annex ZE. All other equipment shall: a) protect the user from unintentional acoustic outputs exceeding those mentioned above; and b) have a standard acoustic output level not exceeding those mentioned above, and automatically return to an output level not exceeding those mentioned above when the power is switched off; and c) provide a means to actively inform the user of the increased sound pressure when the equipment is operated with an acoustic output exceeding those mentioned above. Any means used shall be acknowledged by the user before activating a mode of operation which allows for an acoustic output exceeding those mentioned above. The acknowledgement does not need to be repeated more than once every 20 h of cumulative listening time; and NOTE 2 Examples of means include visual or audible signals. Action from the user is always required. NOTE 3 The 20 h listening time is the accumulative listening time, independent how often and how long the personal music player has been switched off. d) have a warning as specified in Z1.3; and e) not exceed the following: 1) equipment provided as a package (player with its listening device), the acoustic output shall be ≤ 100 dB(A) measured while playing the fixed “programme simulation noise” described in EN 50332-1; and 2) a personal music player provided with an analogue electrical output socket for a listening device, the electrical output shall be ≤ 150 mV measured as described in EN 50332-2, while playing the fixed “programme simulation noise” described in EN 50332-1. For music where the average sound pressure (long term $L_{Aeq,T}$) measured over the duration of the song is lower than the average produced by the programme simulation noise, the warning does not need to be given as long as the average sound pressure of the song does not exceed the basic limit of 85 dB(A). In this case, *T* becomes the duration of the song.		N

EN 60065			
Clause	Requirement – Test	Result - Remark	Verdict
Cont.	NOTE 4 Classical music typically has an average sound pressure (long term *L*Aeq,T) which is much lower than the average programme simulation noise. Therefore, if the player is capable to analyse the song and compare it with the programme simulation noise, the warning does not need to be given as long as the average sound pressure of the song is below the basic limit of 85 dB(A). NOTE 5 For example, if the player is set with the programme simulation noise to 85 dB(A), but the average music level of the song is only 65 dB(A), there is no need to give a warning or ask an acknowledgement as long as the average sound level of the song is not above the basic limit of 85 dB(A).		N
Z1.3	The warning shall be placed on the equipment, or on the packaging, or in the instruction manual and shall consist of the following: − the symbol of Figure Z1 with a minimum height of 5 mm; and − the following wording, or similar: To prevent possible hearing damage, do not listen at high volume levels for long periods.  **Figure Z1 – Warning label (IEC 60417-6044)** Alternatively, the entire warning may be given through the equipment display during use, when the user is asked to acknowledge activation of the higher level.		N
Z1.4	**Requirements for listening devices (headphones, earphones, etc.)**		**N**
Z1.4.1	**Corded passive listening devices with analogue input** With 94 dB(A) sound pressure output $L_{Aeq,T}$, the input voltage of the fixed “programme simulation noise” described in EN 50332-2 shall be ≥ 75 mV. This requirement is applicable in any mode where the headphones can operate including any available setting (for example built-in volume level control, an additional sound feature like equalization, etc.). NOTE The values of 94 dB(A) – 75 mV correspond with 85 dB(A) – 27 mV and 100 dB(A) – 150 mV.		N

EN 60065			
Clause	Requirement – Test	Result - Remark	Verdict
Z1.4.3	**Cordless listening devices** In wireless mode: − with any playing and transmitting device playing the fixed programme simulation noise described in EN 50332-1; and − respecting the wireless transmission standards, where an air interface standard exists that specifies the equivalent acoustic level; and − with volume and sound settings in the listening device (for example built-in volume level control, additional sound feature like equalization, etc.) set to the combination of positions that maximize the measured acoustic output for the above-mentioned programme simulation noise, the acoustic output $L_{Aeq,T}$ of the listening device shall be ≤ 100 dB(A).		N
Z1.5	**Measurement methods** Measurements shall be made in accordance with EN 50332-1 or EN 50332-2 as applicable. Unless stated otherwise, the time interval *T* shall be 30 s. NOTE Test method for cordless equipment provided without listening device should be defined.		N

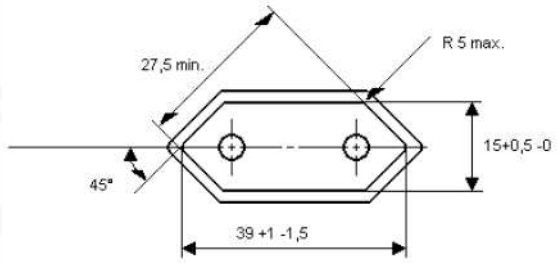
	ANNEXES		**N**
Annex B	**Replace** the text of Note 1 by the following: In the CENELEC countries listed in IEC 62151, special national conditions apply.		N
Annex N	After the note in N.1, **add** the following: For ROUTINE TEST, reference is made to EN 50514:2008.		N

ZA	**NORMATIVE REFERENCES TO INTERNATIONAL PUBLICATIONS WITH THEIR CORRESPONDING EUROPEAN PUBLICATIONS**	—

ZB	**ANNEX ZB, SPECIAL NATIONAL CONDITIONS (EN)**		**N**
2.6.1	**Denmark** The following is added: Certain types of Class I apparatus, see 15.1.1, may be provided with a plug not establishing earthing continuity when inserted in Danish socket-outlets *Justification:* Heavy Current Regulations, Section 6c		N
3.Z1	**Denmark** **Add** to the end of the subclause Due to many existing installations where the socket-outlets can be protected with fuses with higher rating than the rating of the socket-outlets the protection for pluggable equipment type A shall be an integral part of the equipment. *Justification:* In Denmark an existing 13 A socket outlet can be protected by a 20 A fuse.		N

EN 60065			
Clause	Requirement – Test	Result - Remark	Verdict
5.4	**Denmark, Finland, Norway and Sweden** To the end of the subclause the following is added: CLASS I apparatus which is intended for connection to the building installation wiring via a plug or an appliance coupler, or both and in addition is intended for connection to other apparatus or a network shall, if safety relies on connection to protective earth or if surge suppressors are connected between the network TERMINALS and ACCESSIBLE parts, have a marking stating that the apparatus must be connected to an earthed MAINS socket-outlet. The marking text in the applicable countries shall be as follows: In **Denmark**: "Apparatets stikprop skal tilsluttes en stikkontakt med jord, som giver forbindelse til stikproppens jord." In **Finland**: "Laite on liitettävä suojakoskettimilla varustettuun pistorasiaan" In **Norway**: "Apparatet må tilkoples jordet stikkontakt" In **Sweden**: "Apparaten skall anslutas till jordat uttag"		N
5.5.2	**Norway and Sweden** **Add** to the end of 5.5.2 (after the compliance statement) the following: The screen of the coaxial cable of the television distribution system is normally not earthed at the entrance of the building and there is normally no equipotential bonding system within the building. Therefore the protective earthing of the building installation need to be isolated from the screen of a coaxial cable based television distribution system. It is however accepted to provide the insulation external to the apparatus by an adapter or an interconnection cable with galvanic isolator, which may be provided by a retailer, for example. The user manual shall then have the following or similar information in Norwegian and Swedish language respectively, depending on in what country the apparatus is intended to be used in: "Apparatus connected to the protective earthing of the building installation through the MAINS connection or through other apparatus with a connection to protective earthing – and to a television distribution system using coaxial cable, may in some circumstances create a fire hazard. Connection to a television distribution system has therefore to be provided through a device providing electrical isolation below a certain frequency range (galvanic isolator, see EN 60728-11)" NOTE In Norway, due to regulation for installations of CATV-installations, and in Sweden, a galvanic isolator shall provide electrical insulation below 5 MHz. The insulation shall withstand a dielectric strength of 1,5 kV r.m.s., 50 Hz or 60 Hz, for 1 min. Translation to Norwegian (the Swedish text will also be accepted in Norway): "Utstyr som er koplet til beskyttelsesjord via nettplugg og/eller via annet jordtilkoplet utstyr – og er tilkoplet et kabel-TV nett, kan forårsake brannfare.		N

EN 60065			
Clause	Requirement – Test	Result - Remark	Verdict
Cont.	For å unngå dette skal det ved tilkopling av utstyret til kabel-TV nettet installeres en galvanisk isolator mellom utstyret og kabel-TV nettet.” Translation to Swedish: ”Utrustning som är kopplad till skyddsjord via jordat vägguttag och/eller via annan utrustning och samtidigt är kopplad till kabel-TV nät kan i vissa fall medföra risk för brand. För att undvika detta skall vid anslutning av utrustningen till kabel-TV nät galvanisk isolator finnas mellan utrustningen och kabel-TV nätet.”		N
13.3.1	**Norway** **Add** to the second paragraph the following: Due to the IT power distribution system used, the a.c. MAINS supply voltage is considered to be equal to the line-to-line voltage, and will remain 230 V in case of a single earth fault. *Justification:* Based on a use in Norway of an IT power distribution system where the neutral is not provided		N
15.1.1	**Denmark** To the first paragraph the following is added: In Denmark, supply cords of single phase appliances having a rated current not exceeding 13 A shall be provided with a plug according to DS 60884-2-D1. Appliances of Class I provided with socket-outlets with earth contact or which are intended to be used in locations where protection against indirect contact is required according to the wiring rules shall be provided with a plug which assure earth continuity with the socket-outlet in accordance with DS 60884-2-D1. If a single-phase equipment having a RATED CURRENT exceeding 13 A or if a poly-phase equipment is provided with a supply cord with a plug, this plug shall be in accordance with the standard sheets DK 6-1a in DS 60884-2-D1 or EN 60309-1. To the second paragraph the following is added: Socket outlets intended for providing power to Class II apparatus with a rated current of 2,5 A shall be in accordance with DS 60884-2-D1 standard sheet DKA 1-4a. Other current rating socket outlets shall be in compliance with DS 60884-2-D1 Standard Sheet DKA 1-3a or DKA 1-1c. To the third paragraph the following is added: Mains socket-outlets with earthing contact shall be in compliance with DS 60884-2-D1, Standard sheet DK 1-3a, DK 1-1c, DK 1-1d, DK 1-5a or DK 1-7a *Justification*: Heavy Current Regulations, Section 6c		N

EN 60065			
Clause	Requirement – Test	Result - Remark	Verdict
15.1.1	**Ireland** Apparatus which is fitted with a flexible cable or cord shall be provided with a plug in accordance with Statutory Instrument 525: 1997, “13 A Plugs and Conversion Adapters for Domestic Use Regulations: 1997. *Justification*: SI 525: 1997		N
15.1.1	**Norway** Mains socket-outlets mounted on Class II apparatus shall comply with the specifications given in CEE Publ. 7 as far as applicable, with the following amendments: § 8 Dimensions a) 2,5 A 250 V two-pole socket-outlets for electronic apparatus shall comply with the enclosed Standard Sheet I. STANDARD SHEET I 2,5 A/250 V SOCKET-OUTLET FOR ELECTRONIC APPLIANCES OF CLASS II  Dimensions in mm Other dimensions according to CEE Publication 7 Standard Sheet I "Portable Single-Way Socket-Outlets". § 24 Mechanical strength a) 2,5 A, 250 V socket-outlets for Class II electronic apparatus are tested as specified in EN 60065:2014, 12.1.3. Also the protecting rim shall be tested. *Justification*: Act of 24 May 1929 relating to supervision of electrical installation (TEA 1929/FEL 1998).		N
15.1.1	**United Kingdom** Apparatus which is fitted with a flexible cable or cord and is designed to be connected to a mains socket conforming to BS 1363 by means of that flexible cable or cord and plug shall be fitted with a "standard plug" in accordance with Statutory Instrument 1768: 1994: The Plugs and Sockets etc. (Safety) Regulations 1994, unless exempted by those Regulations. NOTE "Standard plug" is defined in SI 1768:1994 and essentially means an approved plug conforming to BS 1363 or an approved conversion plug. *Justification*: SI 1768: 1994		N

EN 60065			
Clause	Requirement – Test	Result - Remark	Verdict
Annex B	**Finland, Norway and Sweden** All sub clauses given below are sub clauses of IEC 62151 (ref. corrigenda 1 and 2 to IEC 62151). **Subclause 4.1.1 (corrigendum 2):** **Add** after the first paragraph: NOTE In **Finland**, **Norway** and **Sweden**, CLASS I equipment which is intended for connection to the building installation via a non-industrial plug or a non-industrial appliance coupler, or both and in addition is intended for connection to other equipment or a network shall, if safety relies on connection to protective earth or if surge suppressors are connected between the network terminals and ACCESSIBLE parts, has a marking stating that the equipment must be connected to an earthed mains socket-outlet. The marking text in the applicable countries shall be as follows: In Finland: " Laite on liitettävä suojakoskettimilla varustettuun pistorasiaan " In Norway: "Apparatet må tilkoples jordet stikkontakt" In Sweden: "Apparaten skall anslutas till jordat uttag" **Subclause 4.1.4 (corrigendum 1)** **Add** at the end of the subclause: NOTE In **Norway**, for requirements see 4.1.1, note and 5.3.1, note 1. **Subclause 4.2.1.2 (corrigendum 1)** **Add** at the end of the subclause: NOTE 3 In **Norway**, for requirements see 5.3.1, note 1. **Subclause 4.2.1.3 (corrigendum 2)** **Add** at the end of the subclause: NOTE In **Norway**, for requirements see 4.1.1, note and 5.3.1, note 1. **Subclause 4.2.1.4 (corrigendum 1)** **Number** the existing note as NOTE 1 and **add** at the end of the subclause the following NOTE 2: NOTE 2 In **Norway**, for requirements see 4.1.1, note and 5.3.1, note 1. **Subclause 5.3.1 (corrigendum 1)** **Add** after the first test specifications paragraph: NOTE 1 In **Finland**, **Norway** and **Sweden**, there are additional requirements for the insulation. **Renumber** the existing note as NOTE 2. For additional requirements for the insulation in Finland, Norway and Sweden in NOTE 1 the following text is added between the first and the second paragraph (this text is identical to the corresponding EN 60950-1:2001): NOTE 1 In **Finland**, **Norway** and **Sweden**, if this insulation is solid, including insulation forming part of a component, it shall at least consist of either • two layers of thin sheet material, each of which shall pass the electric strength test below, or • one layer having a distance through insulation of at least 0,4 mm, which shall pass the electric strength test below If this insulation forms part of a semiconductor component (e.g. an optocoupler), there is no distance through insulation requirement for the insulation consisting of an insulating compound completely filling the casing, so that CLEARANCES and CREEPAGE DISTANCES do not exist, if the component passes the electric strength test in the accordance with the compliance clause below and in addition: • passes the test and inspection criteria of 13.6 with an electric strength test of 10.3 using the test voltage of 1,5 kV multiplied by 1,6, and • is subject to routine testing for electric strength during manufacturing, using a test voltage of 1,5 kV (for performance of the test see N.2.1). It is permitted to bridge this insulation with a capacitor complying with EN 132400:1994, subclass Y2.		N

EN 60065			
Clause	Requirement – Test	Result - Remark	Verdict
Cont.	A capacitor classified Y3 according to EN 132400:1994, may bridge this insulation under the following conditions: • the insulation requirements are satisfied by having a capacitor classified Y3 as defined by EN 132400, which in addition to the Y3 testing, is tested with an impulse test of 2,5 kV defined in IEC 62151:2000, 6.2.1; • the additional testing shall be performed on all the test specimens as described in EN 132400; • the impulse test of 2,5 kV is to be performed before the endurance test in EN 132400 in the sequence of tests as described in EN 132400.		N
	Subclause 5.3.2 (corrigendum 1) **Add** after the fourth dash: NOTE In **Finland**, **Norway** and **Sweden**, exclusions are applicable for equipment which is intended for connection to the building installation wiring using screw terminals or other reliable means, and for equipment which is intended for connection to the building installation wiring via an industrial plug and socket -outlet or an appliance coupler, or both, complying with EN 60309 or with a comparable national standard.		N
J.2	**Norway** After Table J.1 the following is added: Due to the IT power distribution system used, the a.c. MAINS supply voltage is considered to be equal to the line-to-line voltage, and will remain 230 V in case of a single earth fault. *Justification:* Based on a use in Norway of an IT power distribution system where the neutral is not provided		N

ZC	**ANNEX ZC, NATIONAL DEVIATIONS (EN)**		**N**
6.1	**Germany** The following requirement applies: For the operation of any cathode ray tube intended for the display of visual images operating at an acceleration voltage exceeding 40 kV, authorization is required, or application of type approval (Bauartzulassung) and marking. *Justification*: German ministerial decree against ionizing radiation (Röntgenverordnung), in force since 2002-07-01, implementing the Council Directive 96/29/Euratom in Germany. NOTE Contact address: Physikalisch-Technische Bundesanstalt, Bundesallee 100, D-38116 Braunschweig, Tel.: Int+49-531-592-6320, Internet: http://www.ptb.de		N
14.1	**Sweden** The following requirements shall be fulfilled: Switches containing mercury such as thermostats, relays and level controllers are not allowed.		N

7.1	TABLE: temperature rise measurements							P
	Power consumption in the OFF/Stand-by mode of the functional switch (W) ..... :					--		--
Cond.	Un (V)	Hz	In (A)	Pn (W)	Uout (V)	P_{out} (W)	Operating Condition / Status	
Charge mode with empty battery via micro-B USB port:								
1	5.0	--	0.97	4.85	--	--	1/8 power of non-clipped output power, 1 kHz sinusoidal wave, and operated on Bluetooth mode(wireless charge load with 5V/0.8A).	
2	5.0	--	0.53	2.65	--	--	Only charge mode.	
Discharge mode with full charged battery:								
3	3.7	--	0.25	0.93	--	--	1/8 power of non-clipped output power, 1 kHz sinusoidal wave, and operated on Bluetooth mode.	
Note:								

	Loudspeaker impedance (Ω) ..... :	4Ω		--
	Several loudspeaker systems ..... :	--		--
	Marking of loudspeaker terminals ..... :	--		--
	Ambient(ºC) ..... :	40 ºC		--
Test Condition No.		No.1	No.3	--
Thermocouple Locations		dT (K)	dT (K)	dT (K) limit
Internal wire		12.1	10.9	80-40=40
Battery surface		3.7	3.2	Ref.
PCB near UM1		25.3	22.5	130-40=90
Button		4.8	3.6	50-5=45
Plastic enclosure inside near PCB		13.4	11.7	75-40=35
Plastic enclosure outside near PCB		10.9	9.8	60-5=55
Ambient		40.0(ºC)	40.0(ºC)	--
	Winding temperature rise measurements			N
	Ambient temperature T1 (ºC)	--		--
	Ambient temperature T1 (ºC)	--		--

Temperature rise of winding	R_1 (Ω)	R_2 (Ω)	ΔT (K)	Limit dT (K)	Insulation class
--	--	--	--	--	--
Note:					

7.2	TABLE: Heat Resistance of Insulating Materials			N
Temperature T of part	T - normal conditions (ºC)	T - fault conditions (ºC)	Min T softening (ºC)	
--	--	--	--	

10.4	TABLE: Insulation Resistance Measurements		N
Insulation resistance R between:		R (MΩ)	Required R (MΩ)
--		--	--
Note: --			

10.4	**TABLE: Dielectric Strength**		N
Test voltage applied between:		Test voltage (Vpeak)	Breakdown
--		--	--
Note:--			

11	**TABLE: Fault Conditions**		P
	model/type of power supply……:	USB port: 5Vdc Battery: 3.7Vdc	--
	Ambient temperature (ºC).....:	24.0-26.0	--

No.	Component	Fault	dT (K) / Component	Test conditions, test duration, test result
1	Speaker	S-C	29.6/PCB max.temp, 14.4/Plastic enclosure 4.2/Battery surface	The speaker no work, no damage and hazards.
2	U2, Pin 3-4	S-C	30.4/PCB max.temp, 15.6/Plastic enclosure 4.8/Battery surface	Unit working normal. No damaged, no hazards.
3	Battery P+ and P-	S-C	--	Unit shut down immediately, no damage and hazards.
4	EUT	Max. Volume	31.4/PCB max.temp, 15.1/Plastic enclosure 4.5/Battery surface	Unit working normal. No damaged, no hazards.
Note: Fault S-C = short circuit; O-L = over load; CD = component damaged.				

13	TABLE: Clearance And Creepage Distance Measurements						N
Rated supply voltage:		Pollution degree...:		Material Group ....:			
2 N force on internal parts applied:							
30 N force on outside of conductive enclosure applied:							
clearance and creepage distance at/of:	Working voltage (V)		Clearance (mm)		Creepage (mm)		
	U peak	U r.m.s.	Required	Measured	required	Measured	
--	--	--	--	--	--	--	
Note:--							

Note: --					
14	TABLE: Critical components information				P
Component	Manufacturer/trademark	Type/model	Value / rating	Standard	Approval/ Reference
Li-ion battery	Shenzhen Guoya Smart Technology Co., Ltd	602040	3.7V, 400mAh, 9.18Wh	IEC 62133: 2012	Report No.: 68.282.18.0448.01
Battery wire	Interchangeable	Interchangeable	24AWG, 300V, 80°C	UL758	UL
PCB	Interchangeable	Interchangeable	V-0, 130°C	UL94, UL796	UL
Plastic enclosure	CHI MEI CORPORATION	XT-7100(+)	Min 1.5mm, V-0, 75°C	UL94	UL E56070
Speaker	Interchangeable	Interchangeable	4Ω, 3W	EN 60065:2014+A11:2017	Tested with appliance
Note: --					

Attachment A
Photos of product

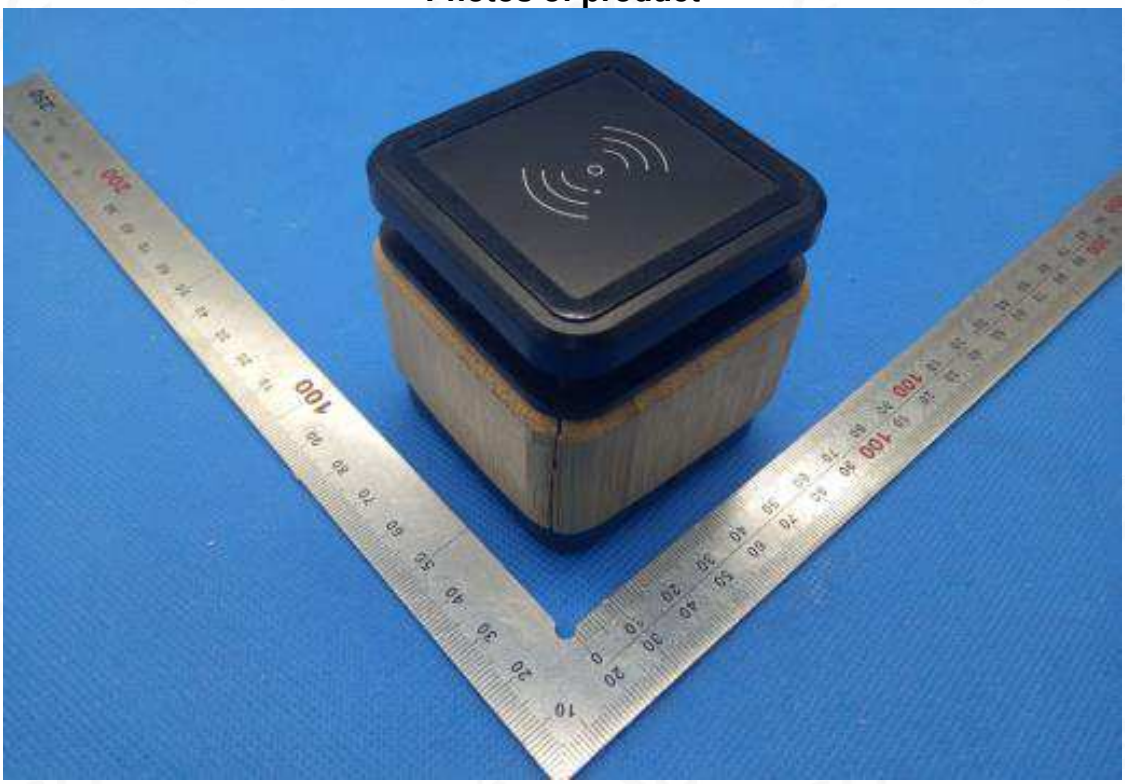


Fig.1– overview

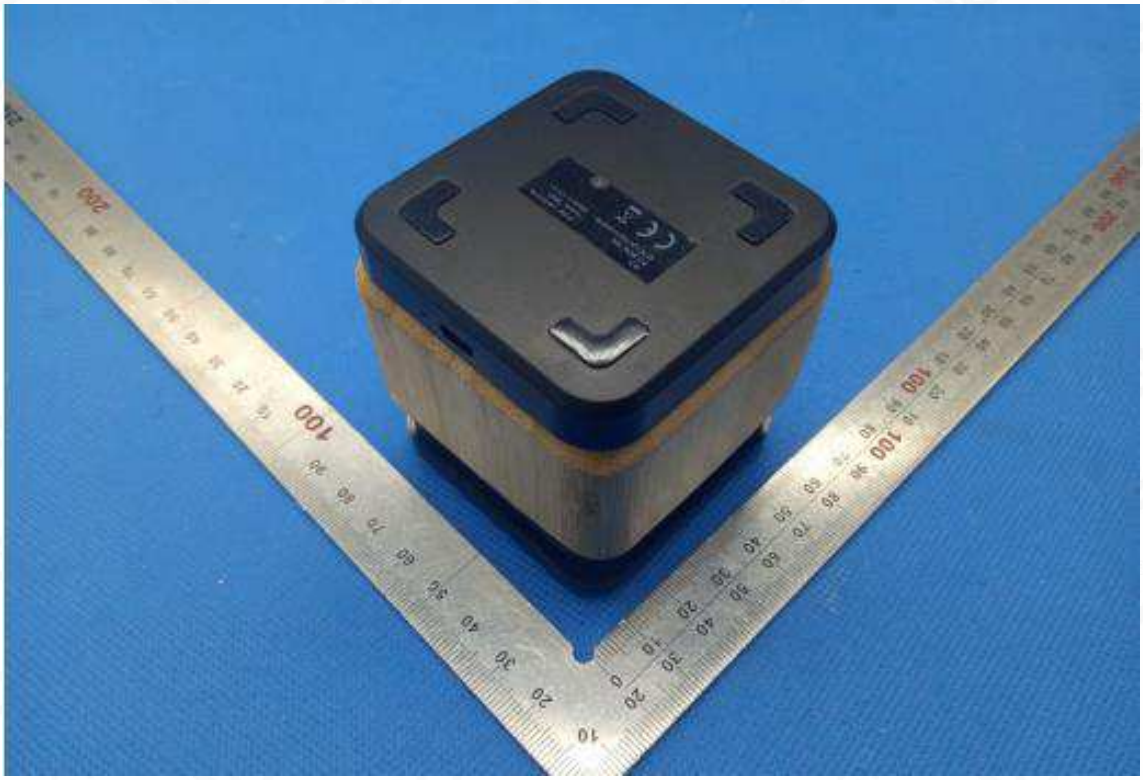


Fig.2– overview

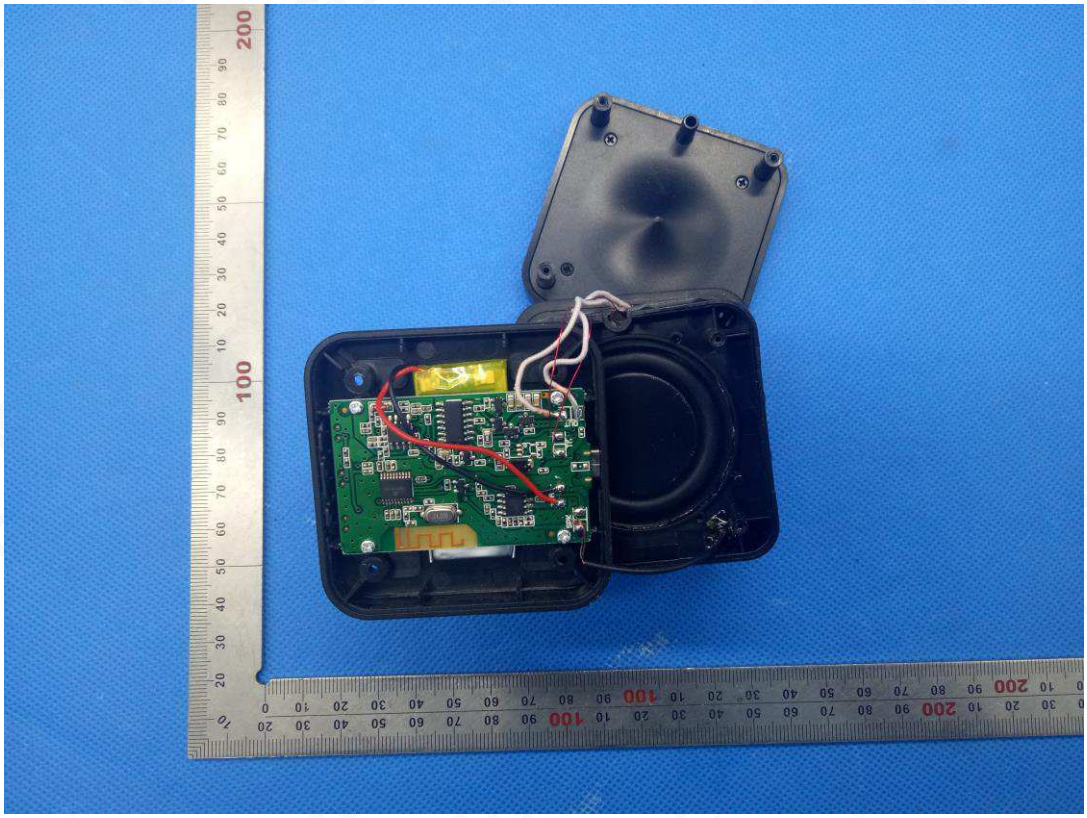


Fig.3 – open view

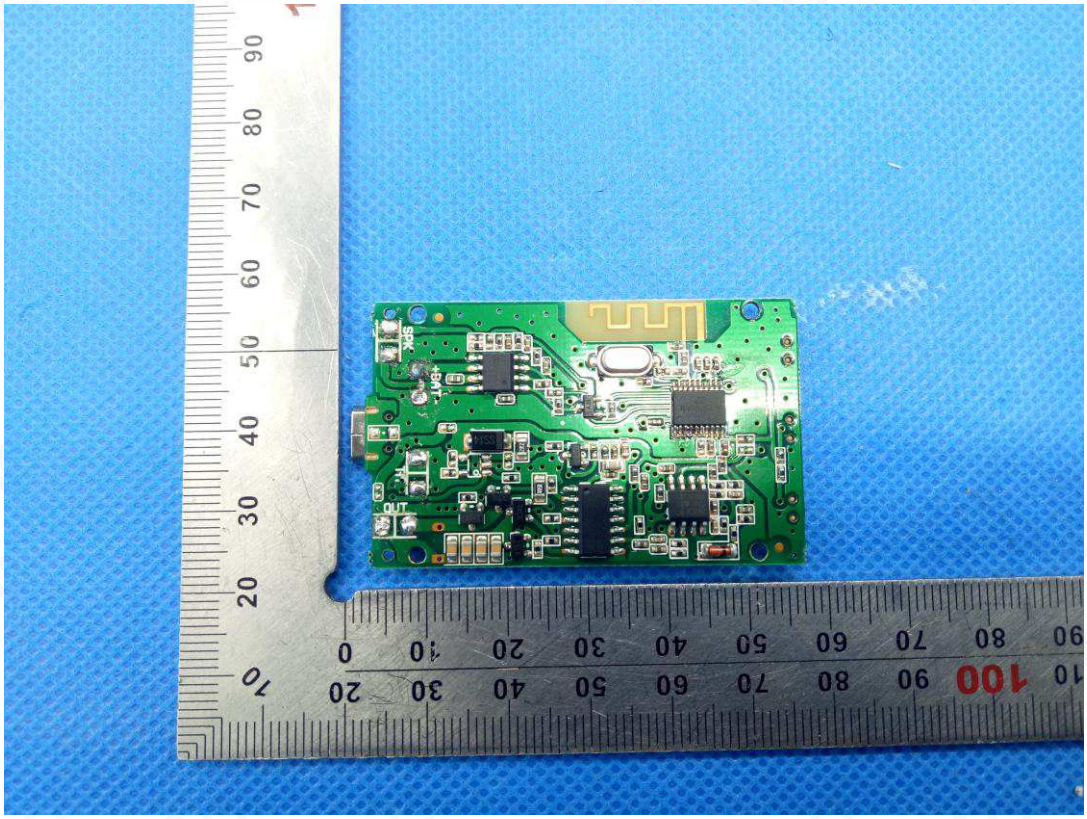


Fig.4 –part view

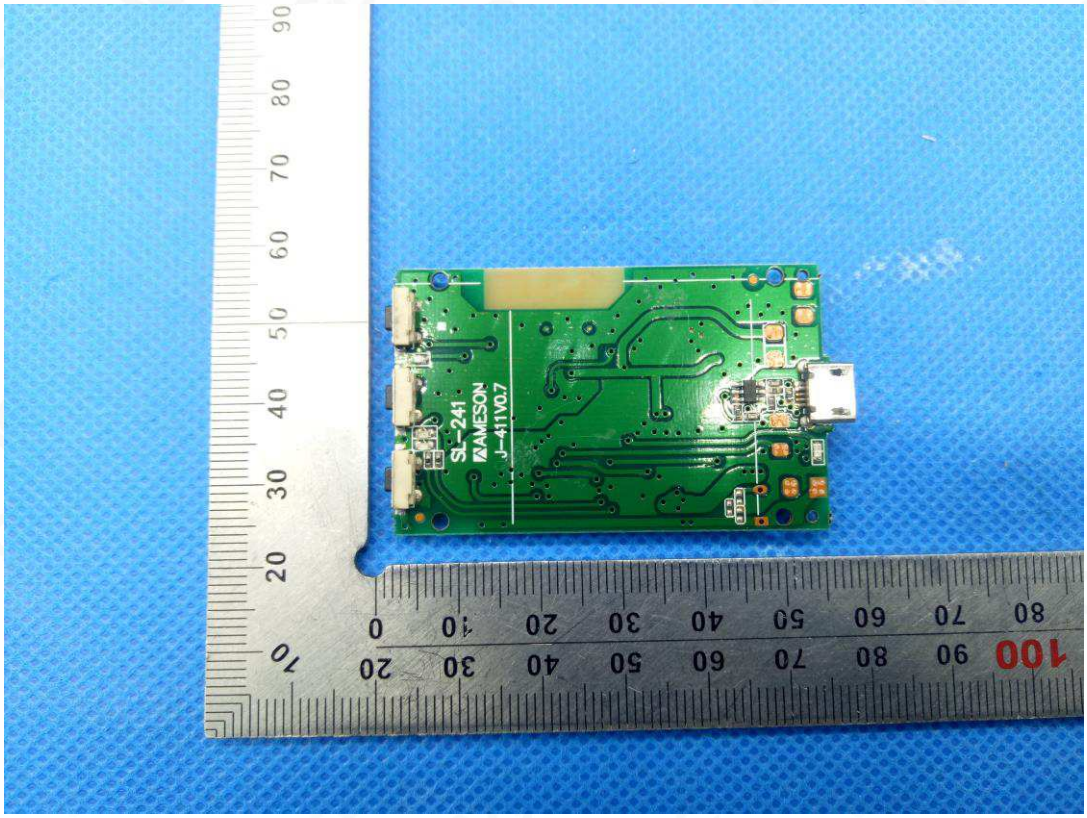


Fig.5 –part view

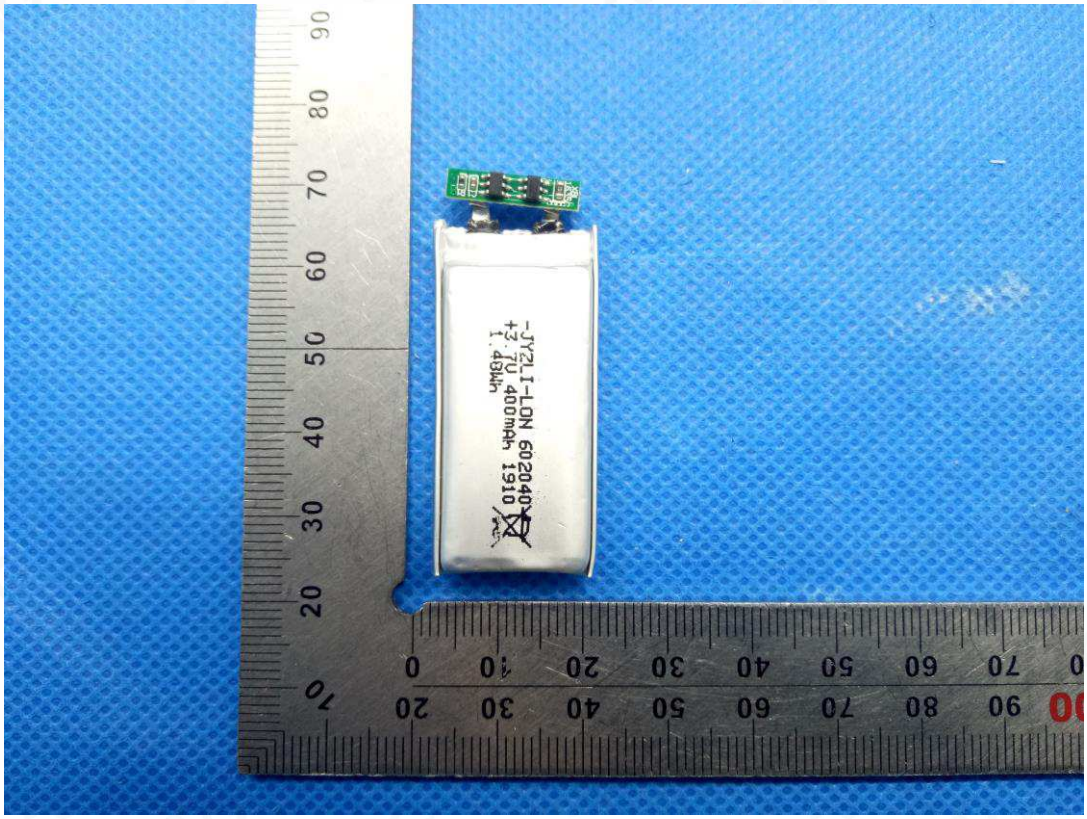


Fig.6 –battery view

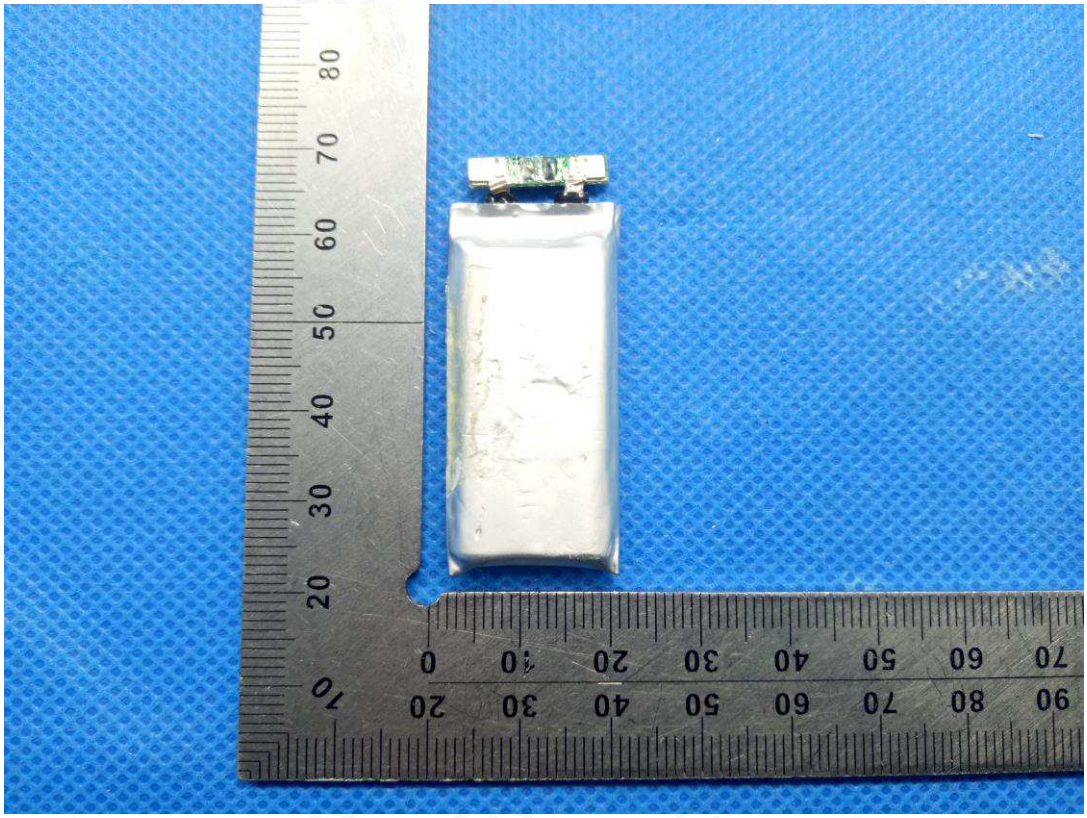


Fig.7 – battery view

-----END OF REPORT-----

RF Test Report

Report No.: AGC01232191110EE04A

PRODUCT DESIGNATION	:	Wireless charger bamboo speaker
BRAND NAME	:	N/A
MODEL NAME	:	SL241
APPLICANT	:	
DATE OF ISSUE	:	Dec. 27, 2019
STANDARD(S)	:	ETSI EN 300 328 V2.2.2 (2019-07)
REPORT VERSION	:	V1.0

***A**ttestation of **G**lobal Compliance (Shenzhen) Co., Ltd*

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REPORT REVISE RECORD

Report Version	Revise Time	Issued Date	Valid Version	Notes
V1.0	/	Dec. 27, 2019	Valid	Extension Report

Note:

The original test report Ref.No. AGC01232191110EE04 dated Dec. 19, 2019, was modified on Dec. 27, 2019 to include the following changes:

- Change model name;
- Change the name and address of the applicant

TABLE OF CONTENTS

1. TEST RESULT CERTIFICATION

Applicant	
Address	
manufacturer	
Address	
Factory	
Address	
Product Designation	Wireless charger bamboo speaker
Brand Name	N/A
Test Model	SL241
Date of test	Dec. 05, 2019 to Dec. 18, 2019
Deviation	None
Condition of Test Sample	Normal
Test Result	Pass
Report Template	AGCRT-EC-BR/RF

We (AGC), Attestation of Global Compliance (Shenzhen) Co., Ltd. for compliance with the requirements set forth in the European Standard ETSI EN 300 328 V2.2.2. The results of test in this report apply to the product/system which was tested only. Other similar equipment will not necessarily produce the same results due to production tolerance and measurement uncertainties.

Prepared By	Thea Huang (Project Engineer)	Dec. 18, 2019
Reviewed By	Max Zhang (Reviewer)	Dec. 27, 2019
Approved By	Forrest Lei (Authorized Officer)	Dec. 27, 2019

2. TECHNICAL INFORMATION

2.1. EUT DESCRIPTION

Operating Frequency Range(s)	2402MHz~2480MHz
The type of the equipment	FHSS adaptive equipment with only one antenna
Modulation	☒GFSK , ☒π /4-DQPSK, ☐8-DPSK
Bluetooth Version	V5.0
The number of Hopping Frequencies	79
Nominal Channel Bandwidth	1MHz
The maximum RF Output Power	7.45dBm
Hardware Version	V1.0
Software Version	V1.0
Antenna designation	☒Integral Antenna (Temporary RF connector provided by manufacture) ☐Dedicated Antenna
Antenna gain	3dBi
Power Supply	DC 3.7V by battery or DC 5V by adapter
The extreme operating conditions	Operating temperature range: -10°C~45°C
Geo-location capability	☐Yes ☒No

Note:

1. The above information was declared by the applicant.
2. The equipment submitted representative production models.
3. The EUT cannot operated unmodulated.
4. The EUT provides Bluetooth wireless interface operating at 2.4G ISM band (2402MHz-2480MHz).
5. Only the Bluetooth was tested according the standard requirement.
6. The EUT is a stand-alone and portable equipment according to ETSI EN 300 328 V2.2.2.
7. For more details, please refer to the User's manual of the EUT.

2.2. SUPPORT EQUIPMENT

Item	Equipment	Mfr/Brand	Model/Type No.	Remark
--	--	--	--	--

2.3. DESCRIPTION OF TEST MODES

NO.	TEST MODE DESCRIPTION
1	Low channel TX
2	Middle channel TX
3	High channel TX
4	Normal Hopping
5	Low channel (Receiver Mode)
6	Middle channel (Receiver Mode)
7	High channel (Receiver Mode)

Note:
1. All the transmit mode would tested with each modulation (GFSK, π /4-DQPSK).
2. All modes have been tested and the worst mode test data recording in the test report, if no any other data.

2.4. OBJECTIVE

Perform Radio Spectrum tests for CE Marking according to the provisions of article 3.2 of the Radio Equipment Directive (2014/53/EU) for the BT function of the EUT.

2.5. TEST ITEMS AND THE RESULTS

The EUT has been tested according to ETSI EN 300 328 V2.2.2(2019-07).

ETSI EN 300 328 V2.2.2 (2019-07)	Wideband transmission systems; Data transmission equipment operating in the 2,4 GHz band; Harmonised Standard for access to radio spectrum

Test items and the results are as bellow:

№	Basic Standard	Test Type	Test Mode	Result
1	ETSI EN 300 328 4.3.1.2	RF Output Power	Mode 4	Pass
2	ETSI EN 300 328 4.3.1.3	Duty Cycle,Tx-sequence,Tx-gap	N/A	N/A
3	ETSI EN 300 328 4.3.1.4	Accumulated transmit time, Frequency Occupation and hopping sequence	Mode 4	Pass
4	ETSI EN 300 328 4.3.1.5	Hopping Frequency Separation	Mode 4	Pass
5	ETSI EN 300 328 4.3.1.6	Medium Utilisation	N/A	N/A
6	ETSI EN 300 328 4.3.1.7	Adaptivity (Adaptive Frequency Hopping)	N/A	N/A
7	ETSI EN 300 328 4.3.1.8	Occupied Channel Bandwidth	Mode 1,3	Pass
8	ETSI EN 300 328 4.3.1.9	Transmitter unwanted emission in the out of band domain	Mode 1,3	Pass
9	ETSI EN 300 328 4.3.1.10	Transmitter unwanted emission in the Spurious domain	Mode 1,3	Pass
10	ETSI EN 300 328 4.3.1.11	Receiver Spurious emissions	Mode 5,7	Pass
11	ETSI EN 300 328 4.3.1.12	Receiver Blocking	Mode 4	Pass

Note:

1. N/A means it's not applicable to this item.
2. Owing to the maximum declared RF Output power (e.i.r.p.) less than 10 dBm, so the item 2, 5, 6 are not applicable.

2.6. ENVIRONMENTAL CONDITIONS

- Temperature: 0-40ºC
- Humidity: 30-60 %
- Atmospheric pressure: 86-106 kPa

3. MEASUREMENT UNCERTAINTY

The uncertainty is calculated using the methods suggested in the “Guide to the Expression of Uncertainty in Measurement” (GUM) published by ISO.

-Uncertainty of Radio Frequency, Uc=±1 x 10-7

- Uncertainty of total RF power, conducted, Uc = ±0.8dB
- Uncertainty of RF power density, conducted, Uc = ±2.6dB
- Uncertainty of spurious emissions, conducted, Uc = ±2.7dB
- Uncertainty of spurious emissions, radiated, Uc = ±5.4dB
- Uncertainty of Temperature: ±0.5° C
- Uncertainty of Humidity: ±1 %
- Uncertainty of DC and low frequency voltages: ±2%

4. IDENTIFICATION OF THE RESPONSIBLE TESTING LOCATION

Site	Attestation of Global Compliance(Shenzhen) Co., Ltd.
Location	1-2/F, Building 19, Junfeng Industrial Park, Chongqing Road, Heping Community, Fuhai Street, Bao'an District, Shenzhen, Guangdong, China

LIST OF EQUIPMENTS USED

Description	Manufacturer	Model No.	S/N	Calibration Due.	Calibration Due.
MXG X-Series Vector Signal Generator	Agilent	N5182B	MY50140530	Sep. 09, 2019	Sep. 08, 2020
Signal Generator	Agilent	N5171B	MY45141029	Sep. 09, 2019	Sep. 08, 2020
EXA Signal Analyzer	Agilent	N9020A	MY52090123	Sep. 09, 2019	Sep. 08, 2020
Signal Analyzer	Agilent	E4440A	MY44303916	Feb. 27, 2019	Feb. 26, 2020
USB Wideband Power Sensor	Agilent	U2021XA	MY54110007	Sep. 09, 2019	Sep. 08, 2020
USB Wideband Power Sensor	Agilent	U2021XA	MY54110009	Sep. 09, 2019	Sep. 08, 2020
RF Communication Tester	R&S	CMW270	1201.0002K75 -100528-Tu WIRELESSCO NN.TESTER	Sep. 09, 2019	Sep. 08, 2020
Attenuator	Wariors	W13	11324	Sep. 09, 2019	Sep. 08, 2020
Power spliter	Mini-Circuits	ZFRSC-183-s	3122	Sep. 09, 2019	Sep. 08, 2020
2.4G Band Fliter	EM Electronics	2400-2500	N/A	Feb. 27, 2019	Feb. 26, 2020
Small environment tester	ESPEC	SH-242	N/A	Oct. 08, 2019	Oct. 07, 2020
AMPLIFIER	ETS-LINDGREN	3117PA	00225134	Oct. 15, 2019	Oct. 14, 2020
ANTENNA	SCHWARZBECK	VULB9168	494	Jan. 09, 2019	Jan. 08, 2021
ANTENNA	ETS-LINDGREN	3142C	00060447	May. 17, 2019	May. 16, 2021
HORN ANTENNA	ETS-LINDGREN	3117	00154520	Oct. 21, 2018	Oct. 20, 2020
HORN ANTENNA	ETS-LINDGREN	3117	00034609	May. 17, 2019	May. 16, 2021
RF Cable	Harbour	SHWCB-3000-N	N/A	May. 14, 2019	May. 13, 2020

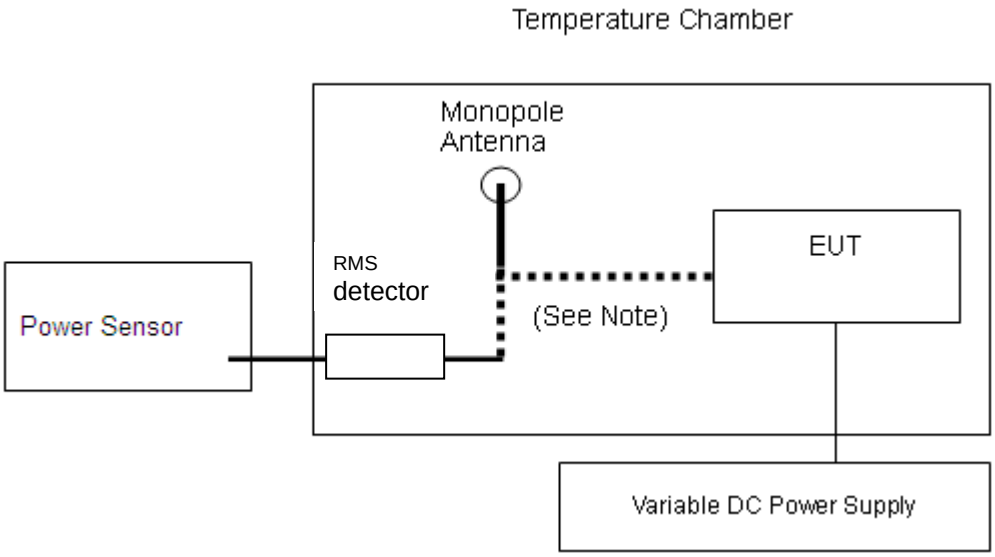
5. ETSI EN 300 328 REQUIREMENTS

5.1. RF OUTPUT POWER

EN 300 328 Clause 4.3.1.2

The maximum RF output power for adaptive Frequency Hopping equipment shall be equal to or less than 20 dBm.The maximum RF output power for non-adaptive Frequency Hopping equipment, shall be declared by the supplier. See clause 5.3.1 m). The maximum RF output power for this equipment shall be equal to or less than the value declared by the supplier. This declared value shall be equal to or less than 20 dBm.

Test Configuration



Remarks:
EUT was direct connected to test equipment through coupling device.

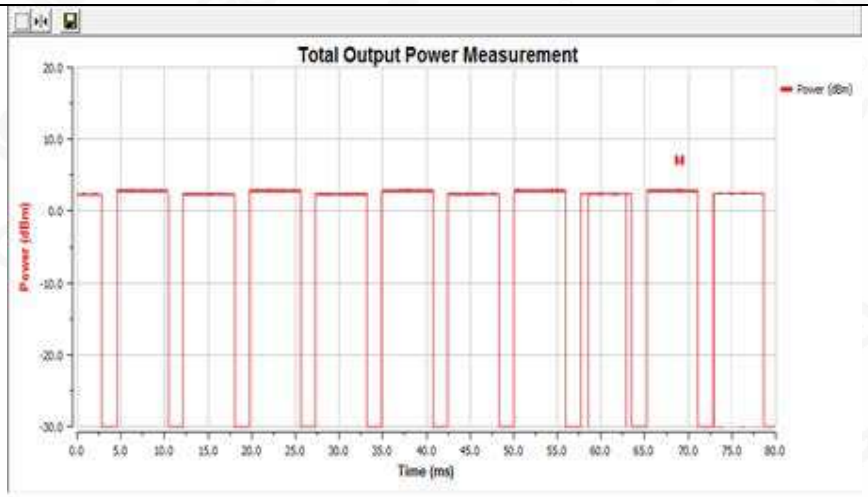
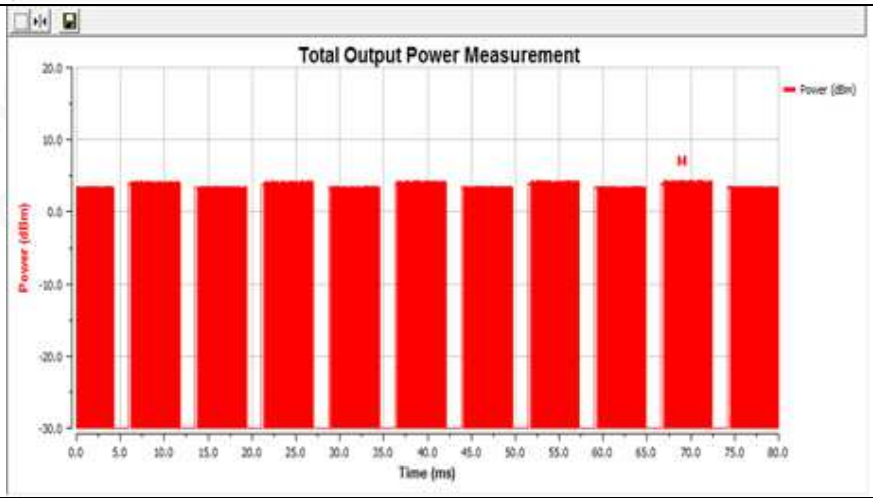
TEST PROCEDURE

1. Please refer to ETSI EN 300 328 (V2.2.2) clause 5.4.2.1 for the test conditions.
2. Please refer to ETSI EN 300 328 (V2.2.2) clause 5.4.2.2.1 for the measurement method.

TEST RESULTS

Operation Mode:	Hopping mode	Test Date:	Dec. 16, 2019
Temperature:	25°C	Tested by:	Thea
Humidity:	55 % RH		
Number of Burst		= 13	
Measurement Time		= 50ms	

TEST CONDITIONS	RF OUTPUT POWERMEASUREMENT RESULT (dBm)		
	Temp (25)°C	Temp (-10)°C	Temp (45)°C
FOR GFSK MOUDULATION	7.23	7.19	7.15
Π/4-DQPSK MOUDULATION	7.45	7.40	7.36
Limit	20dBm		

GFSK	
π/4-DQPSK	

Note: Result=Reading+ Ant. Gain
Only the worst case recorded in the test report.

Conclusion: PASS

5.2. ACCUMULATED TRANSMIT TIME, FREQUENCY OCCUPIATION AND HOPPING SEQUENCE

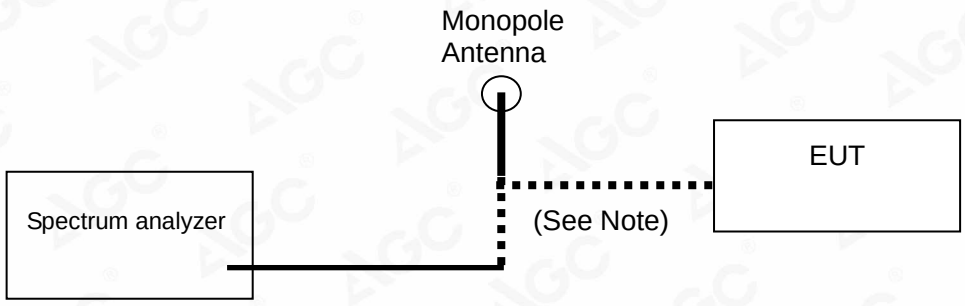
ETSI EN 300 328 SUBCLAUSE 4.3.1.4

ACCUMULATED TRANSMIT TIME	
CONDITION	**LIMIT**
☐Non-adaptive frequency hopping systems	≤ 15 ms
☒Adaptive frequency hopping systems	≤ 400 ms

FREQUENCY OCCUPATION	
CONDITION	**LIMIT(OPTION 1)**
☐Non-adaptive frequency hopping systems	Each hopping frequency of the hopping sequence shall be occupied at least once within a period not exceeding four times the product of the dwell time and the number of hopping frequencies in use.
☒Adaptive frequency hopping systems	

HOPPING SEQUENCE(S)	
CONDITION	**LIMIT**
☐Non-adaptive frequency hopping systems	≥5 hopping frequencies or 5/minimum Hopping Frequency Separation in MHz , whichever is the greater.
☒Adaptive frequency hopping systems	Operating frequency band ≥58.45MHz (Operating over a minimum of 70 % of the operating in the band 2,4 GHz to 2,4835 GHz)
	≥15 hopping frequencies or 15/minimum Hopping Frequency Separation in MHz , whichever is the greater.

TEST CONFIGURATION



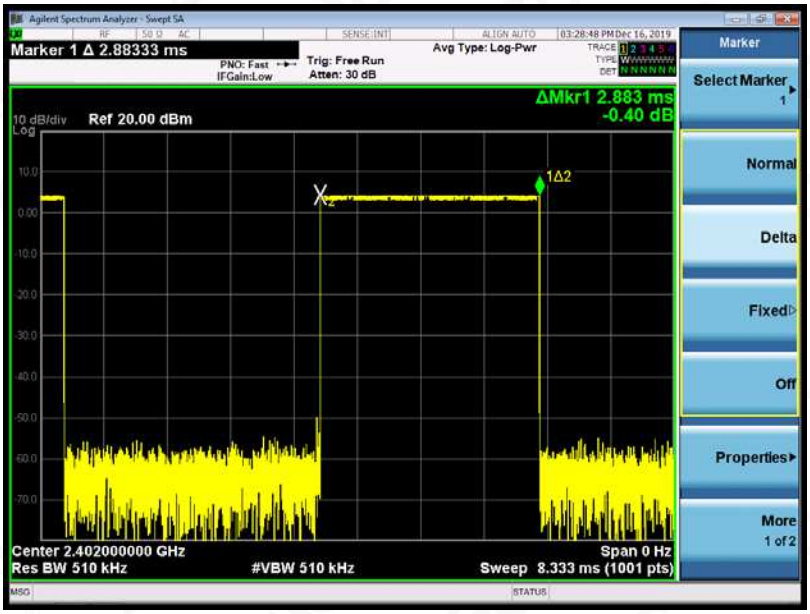
TEST PROCEDURE
Please refer to ETSI EN300328 V2.2.2 Section 5.4.4

TEST RESULT FOR ACCUMULATED TRANSMIT TIME

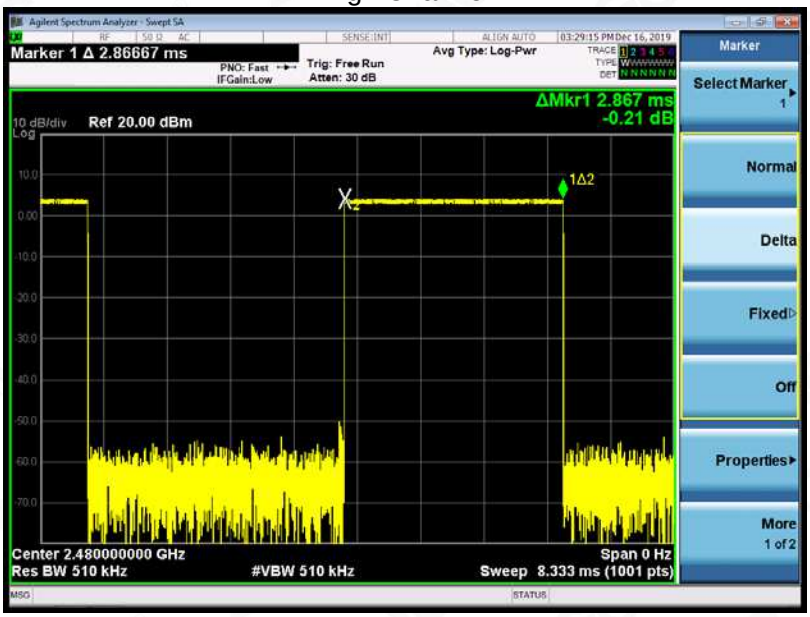
Bluetooth 1Mbps(DH5) Test Result

Channel	Pulse time(ms)	Accumulated Transmit Time (ms)	Limit (ms)
Low	2.883	307.62	400
High	2.867	305.91	400

Low Channel



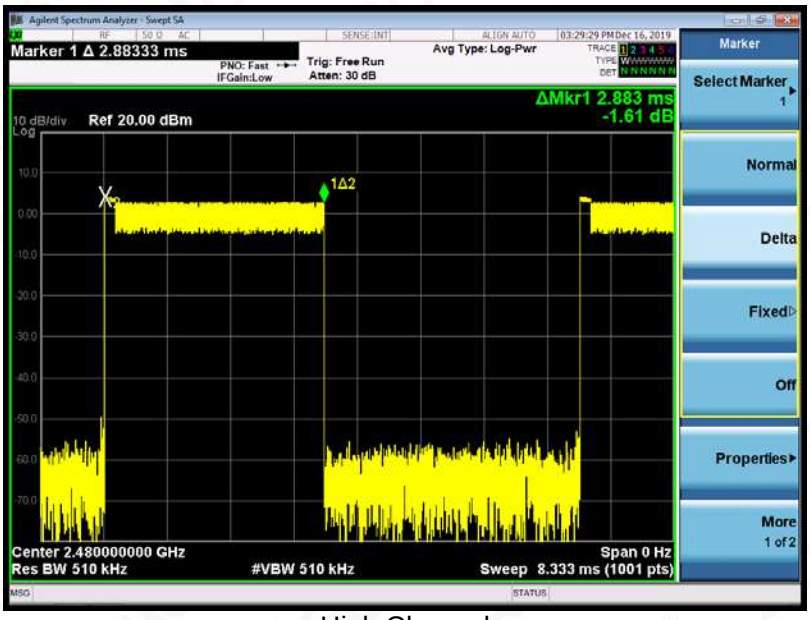
High Channel



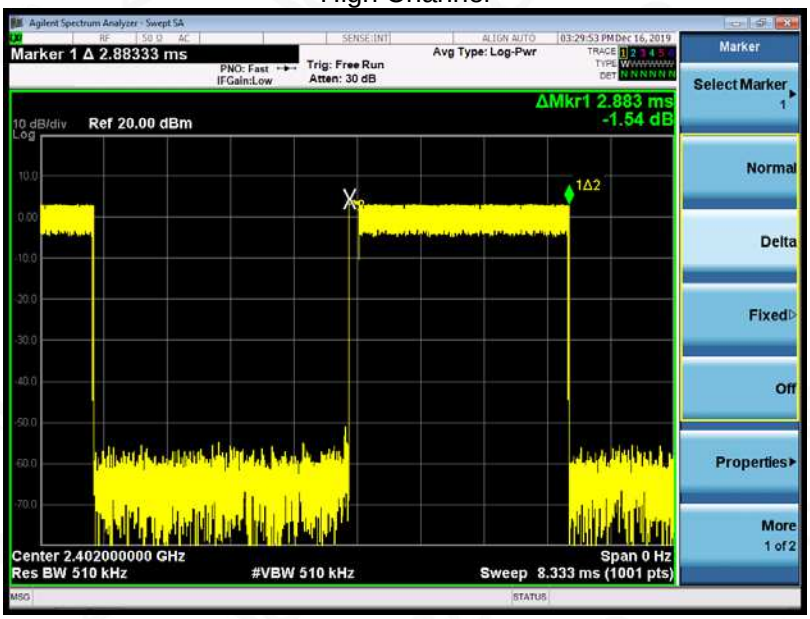
Bluetooth 2Mbps(DH5) Test Result

Channel	Pulse time(ms)	Accumulated Transmit Time (ms)	Limit (ms)
Low	2.883	307.62	400
High	2.883	307.62	400

Low Channel



High Channel



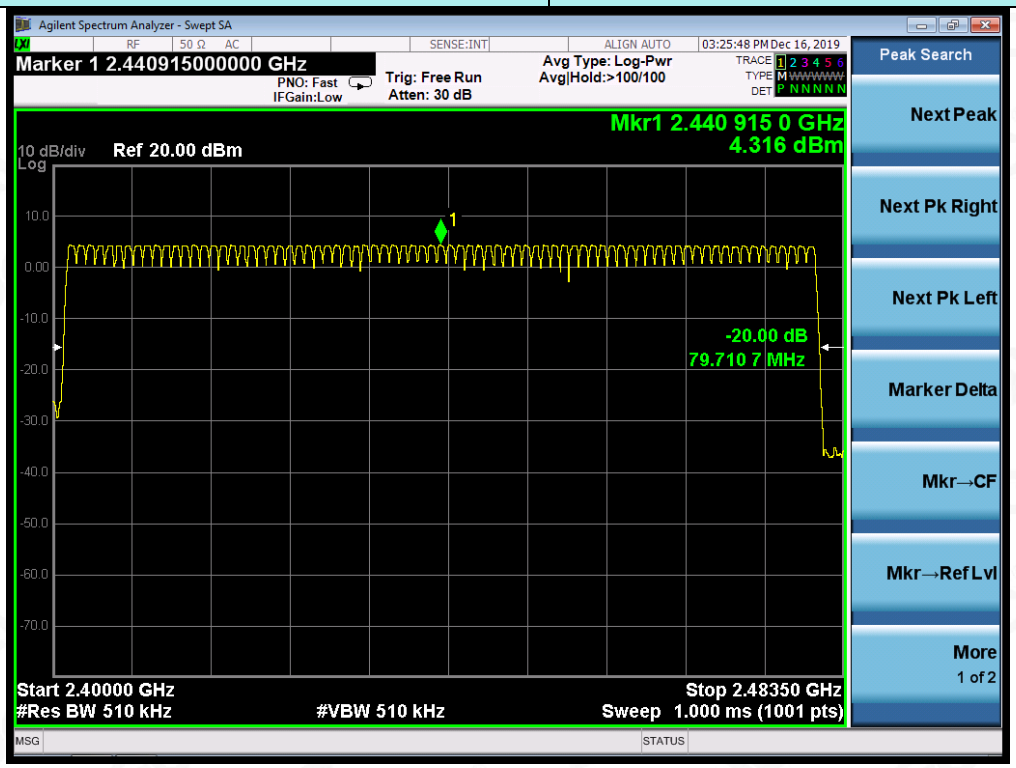
Note: Accumulated Transmit Time=pulse time*hopping numbers,
Hopping numbers={1000/[(0.625*time slot+0.625)*79]}*31.6
Time slot(DH1,DH3,DH5)

TEST RESULT FOR HOPPING SEQUENCE

Channel	Frequency (GHz)	Channel	Frequency (GHz)
01	2.402	42	2.443
02	2.403	43	2.444
03	2.404	44	2.445
04	2.405	45	2.446
05	2.406	46	2.447
06	2.407	47	2.448
07	2.408	48	2.449
08	2.409	49	2.450
09	2.410	50	2.451
10	2.411	51	2.452
11	2.412	52	2.453
12	2.413	53	2.454
13	2.414	54	2.455
14	2.415	55	2.456
15	2.416	56	2.457
16	2.417	57	2.458
17	2.418	58	2.459
18	2.419	59	2.460
19	2.420	60	2.461
20	2.421	61	2.462
21	2.422	62	2.463
22	2.423	63	2.464
23	2.424	64	2.465
24	2.420	65	2.466
25	2.426	66	2.467
26	2.427	67	2.468
27	2.428	68	2.469
28	2.429	69	2.470
29	2.430	70	2.471
30	2.431	71	2.472
31	2.432	72	2.473
32	2.433	73	2.474
33	2.434	74	2.475
34	2.435	75	2.476
35	2.436	76	2.477
36	2.437	77	2.478
37	2.438	78	2.479
38	2.439	79	2.480
39	2.440		
40	2.441		
41	2.442		

Hopping Channel Test Plot

Hopping Sequence (MHz)	79.7107
Hopping Number	79



TEST RESULT FOR FREQUENCY OCCUPATION

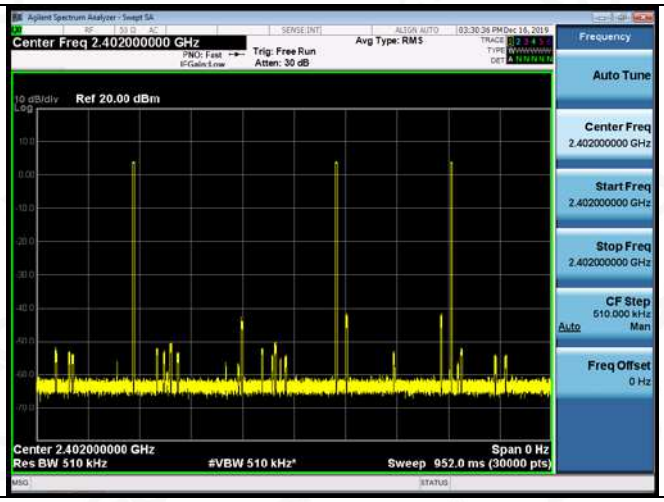
Test Result

Channel	Modulation	Frequency occupation (pcs)	Limit (pcs)	Result
LCH	GFSK	3	≥1	Pass
	π/4-DQPSK	5		Pass
HCH	GFSK	2		Pass
	π/4-DQPSK	4		Pass

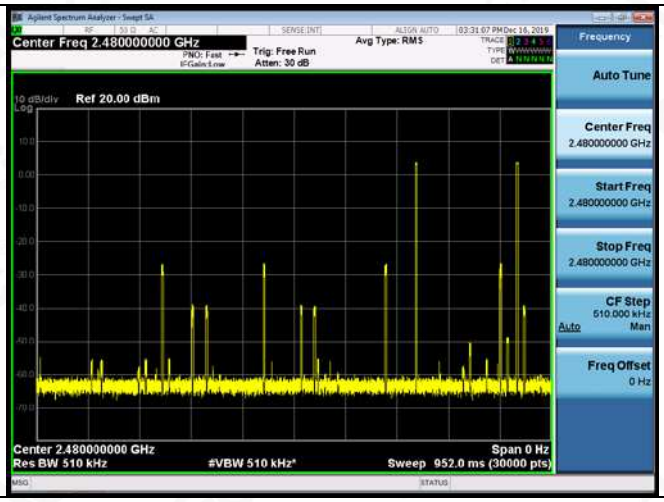
Test Graphs

☐ **Minimum Frequency Occupation**

GFSK

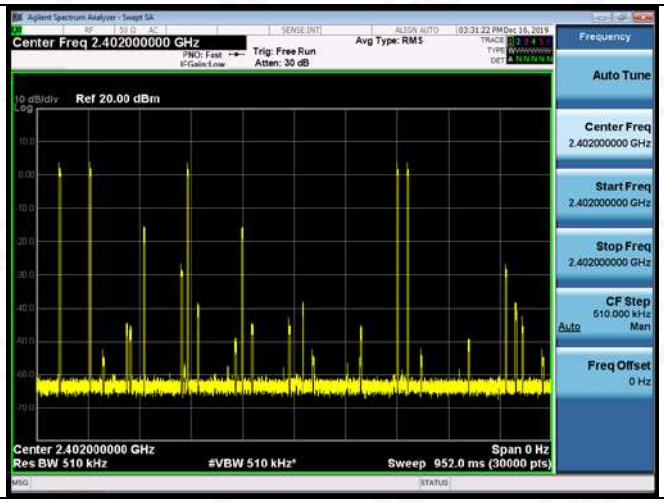


CH00

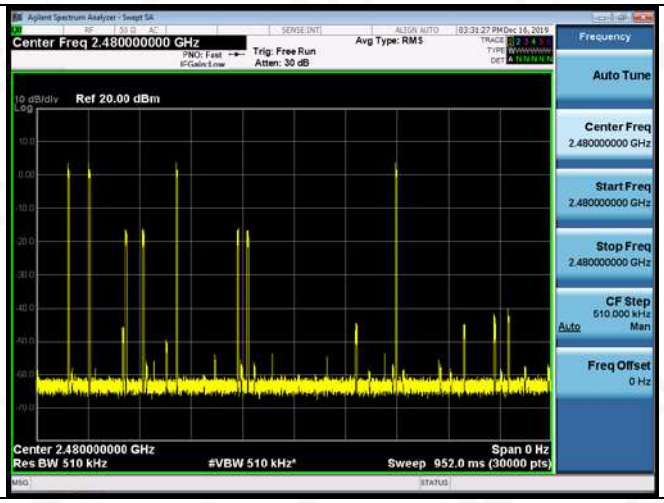


CH78

π/4-DQPSK



CH00



CH78

Note: pcs means the number of hopping sequence.

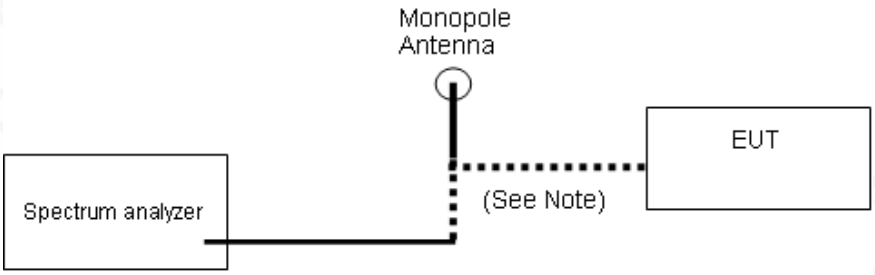
5.3. HOPPING FREQUENCY SEPARATION

ETSI EN 300 328 SUBCLAUSE **4.3.1.5**

For Non-adaptive frequency hopping systems:
The minimum Hopping Frequency Separation shall be equal to Occupied Channel Bandwidth (see clause 4.3.1.7) of a single hop, with a minimum separation of 100 kHz.

For Adaptive frequency hopping systems:
The minimum Hopping Frequency Separation shall be 100 kHz.

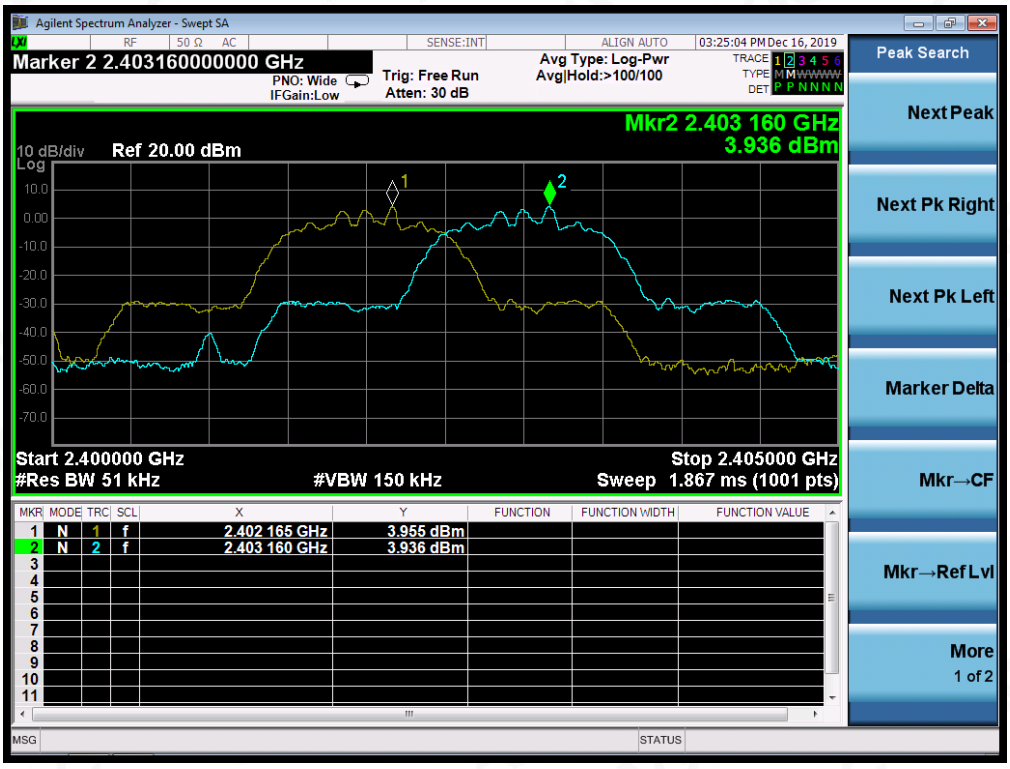
CONFIGURATION



TEST PROCEDURE
Test Procedure please refer to clause 5.4.5.2.1

TEST RESULT

Hopping Frequency Separation (MHz)	0.995



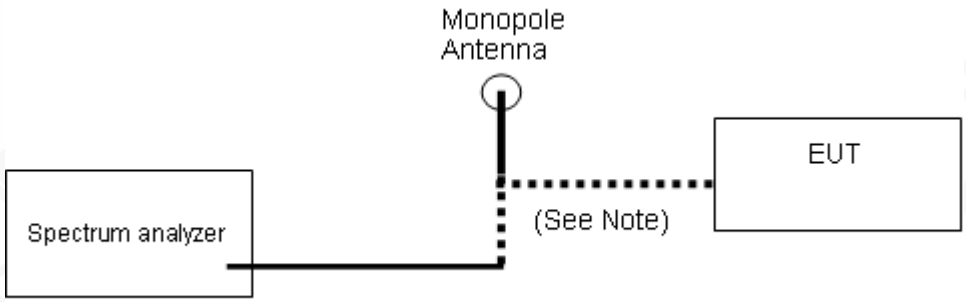
Note: The modulation used during test is π/4-DQPSK and this is the worst case.
Conclusion: PASS

5.4. OCCUPIED CHANNEL BANDWIDTH

EN300328 4.3.1.4 OCCUPIED CHANNEL BANDWIDTH

The Occupied Channel Bandwidth is the bandwidth that contains 99 % of the power of the signal.

CONFIGURATION



TEST PROCEDURE

1. Please refer to ETSI EN 300 328 (V2.2.2) clause 5.4.7.1 for the test conditions.
2. Please refer to ETSI EN 300 328 (V2.2.2) clause 5.4.7.2 the measurement method.
3. The Test equipment information as following
   Centre frequency: 2402MHz,2480MHz
   Resolution bandwidth: 20kHz
   Video bandwidth: 62kHz
   Detector mode :RMS
   Trace mode :Max Hold

TEST RESULTS

Modulation	Channel	OBW [MHz]	FL@OBW	FH@OBW	Verdict
GFSK	LCH	0.86473	2401.564	---	PASS
GFSK	HCH	0.86421	---	2480.428	PASS
π/4DQPSK	LCH	1.2176	2401.392	---	PASS
π/4DQPSK	HCH	1.2111	---	2480.610	PASS

Graphs			
GFSK/LCH			
GFSK/HCH			

π/4DQPSK/LCH			
π/4DQPSK/HCH			

5.5. TRANSMITTER UNWANTED EMISSIONS IN THE OUT OF BAND DOMAIN

EN300328 4.3.1.9 TRANSMITTER UNWANTED EMISSIONS IN THE OUT OF BAND DOMAIN

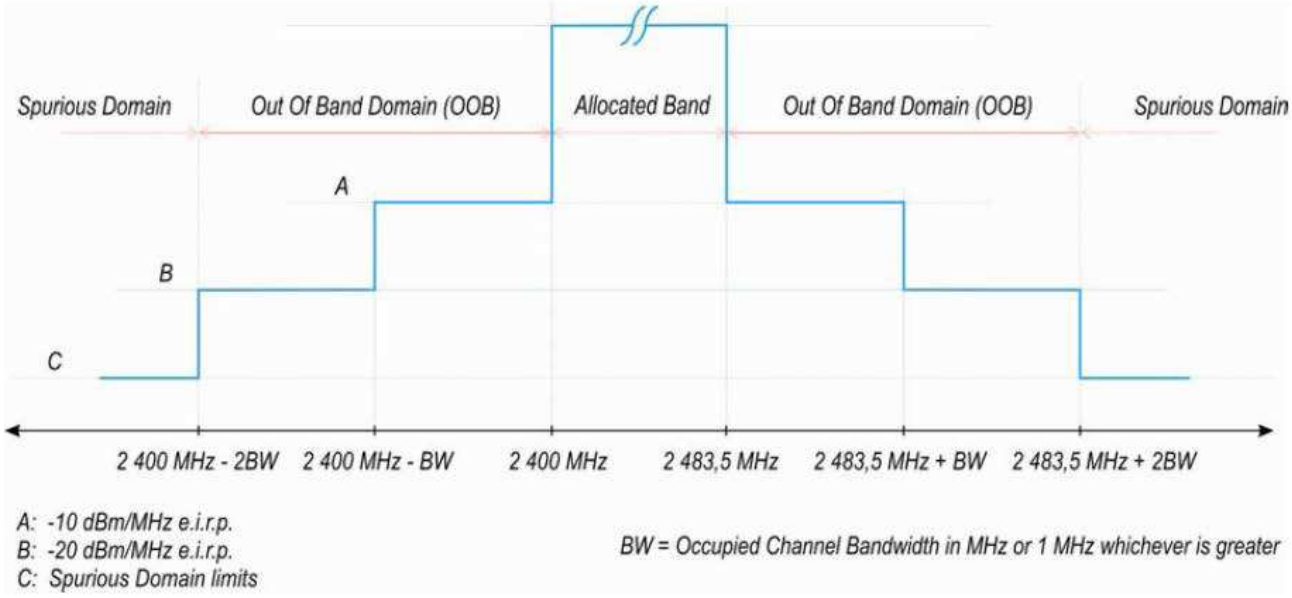
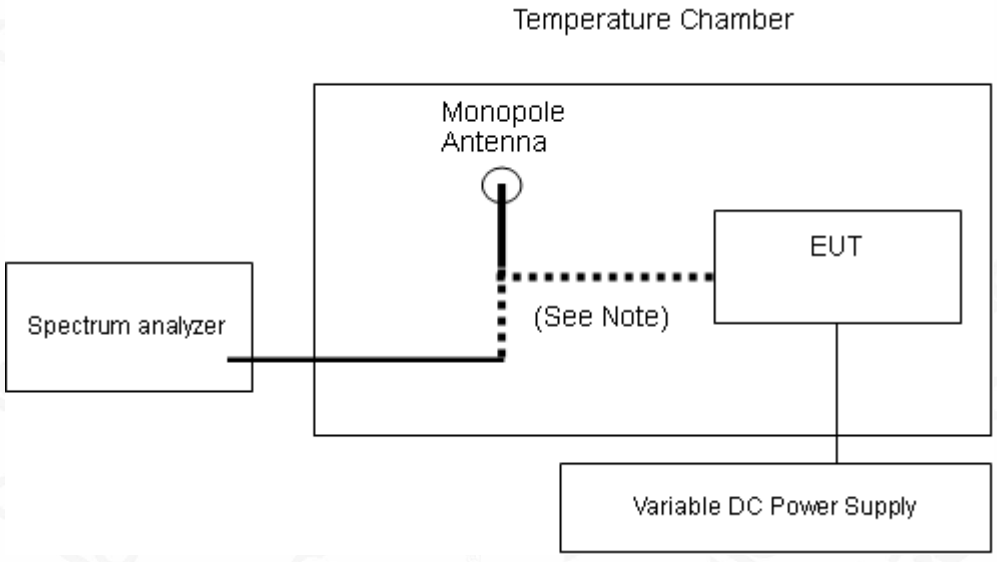


Figure 1: Transmit mask

TEST CONFIGURATION



For have temporary antenna connector product

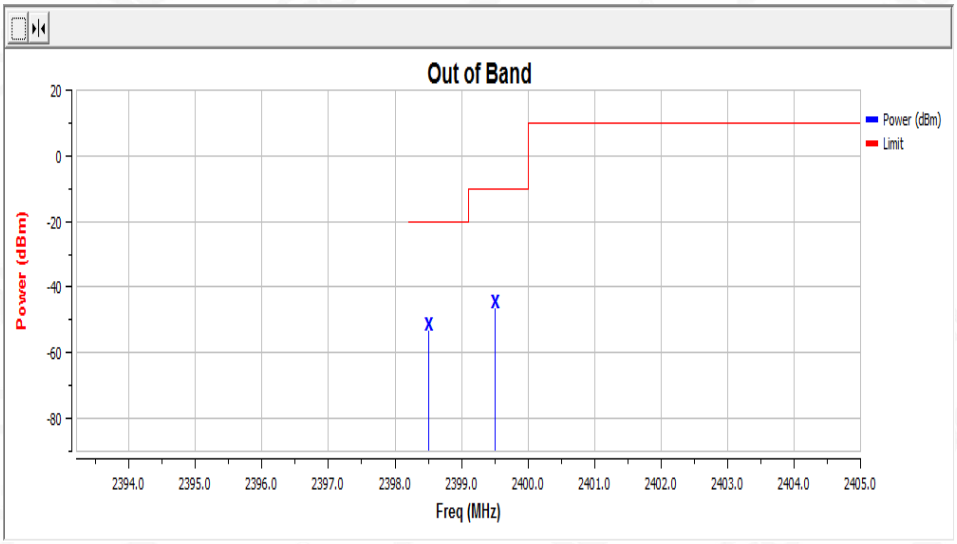
TEST PROCEDURE

Test Procedure Please refer to ETSI EN 300 328 (V2.2.2) Clause 5.4.8.2.1

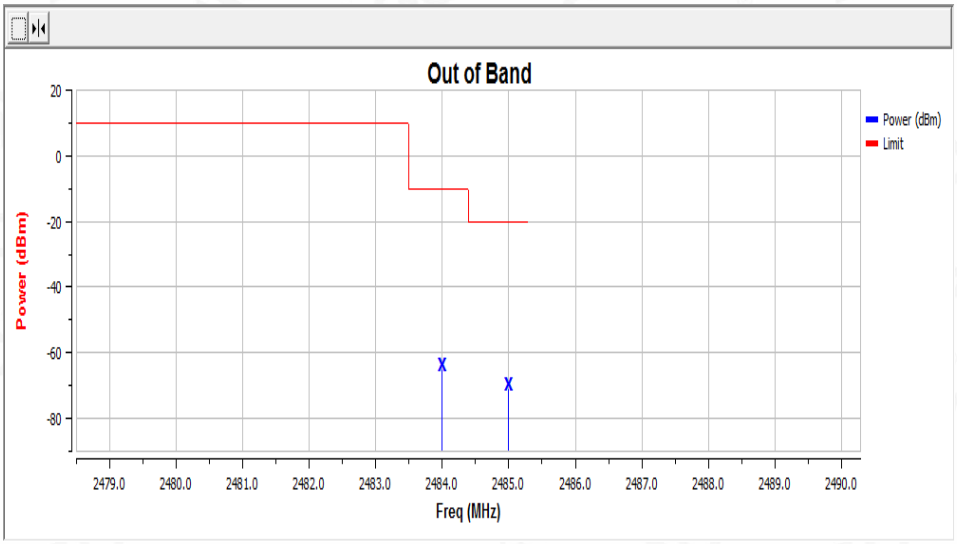
TEST RESULT

TEST CONDITIONS	Hopping mode		
	Temp (25)°C	Temp (-10)°C	Temp (45)°C
GFSK MOUDULATION	PASS	PASS	PASS
Π/4-DQPSK MOUDULATION	PASS	PASS	PASS

GFSK-LOW BAND



GFSK-HIGH BAND



Note: All the modes had been tested, but only the worst data recorded in the report.
Conclusion: PASS

5.6. TRANSMITTER SPURIOUS EMISSIONS

Spurious emissions are emissions outside the frequency range(s) of the equipment as defined in Clause 4.3.1.10.

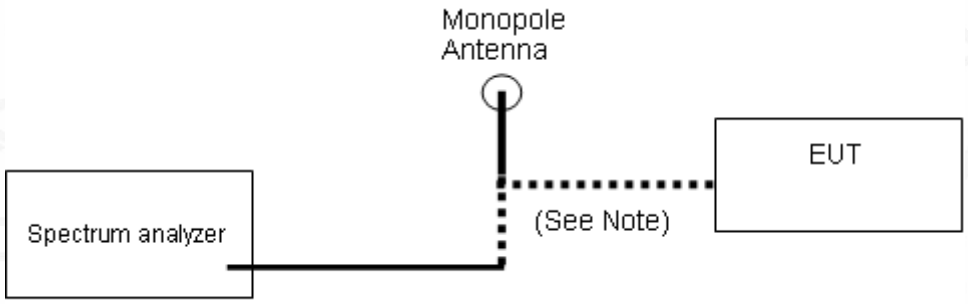
The spurious emissions of the transmitter shall not exceed the values in tables in the indicated bands:

Frequency Range	Maximum Power e.r.p(<=1GHz)/e.i.r.p(>1GHz)	Bandwidth
30MHz to 47MHz	-36dBm	100kHz
47MHz to 74MHz	-54dBm	100kHz
74MHz to 87.5MHz	-36dBm	100kHz
87.5MHz to 118MHz	-54dBm	100kHz
118MHz to 174MHz	-36dBm	100kHz
174 MHz to 230MHz	-54dBm	100kHz
230 MHz to 470MHz	-36dBm	100kHz
470 MHz to 694MHz	-54dBm	100kHz
694 MHz to 1GHZ	-36dBm	100kHz
1 GHZ to 12.75GHZ	-30dBm	1MHz

TEST PROCEDURE

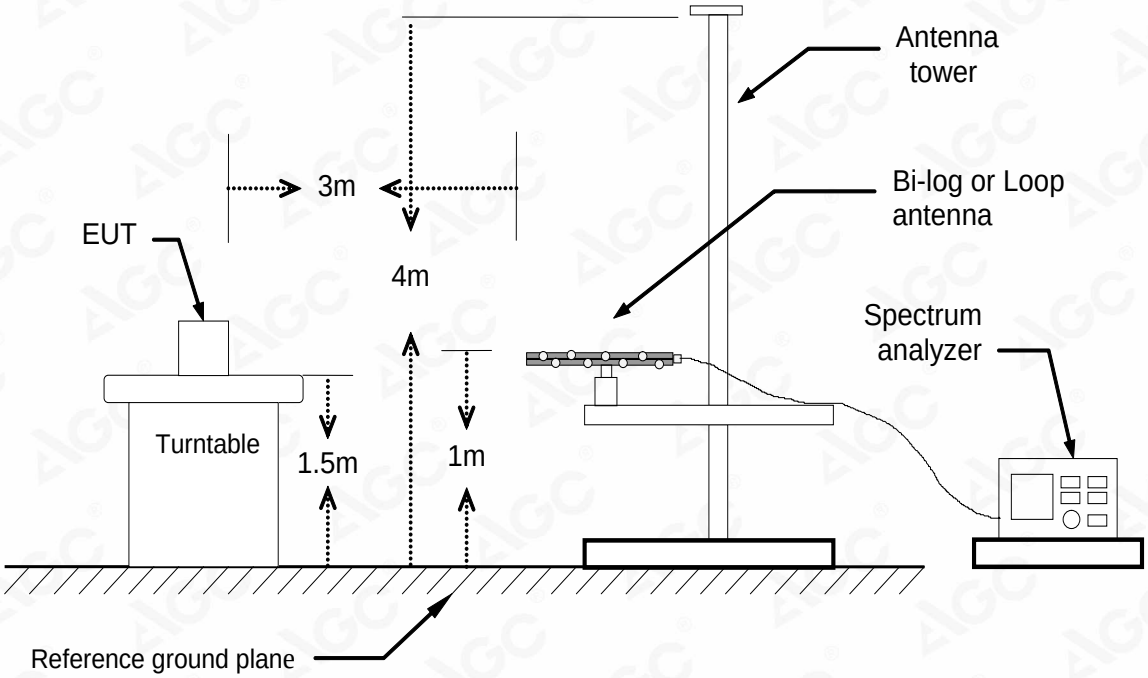
1) The emissions over the range 30 MHz to 1 000 MHz shall be identified.
2) Spectrum analyzer settings:
   Resolution bandwidth: 100 kHz
   Video bandwidth: 300 kHz
   Detector mode: Peak
   Sweep Points: ≥ 19 400
   Trace Mode: Max Hold
3) Allow the trace to stabilize. Any emissions identified during the sweeps above and that fall within the 6 dB range below the applicable limit or above, shall be individually measured using RMS detector and compared to the limits.
4) The emissions over the range 1 GHz to 12,75 GHz shall be identified.
5) Resolution bandwidth: 1 MHz
   Video bandwidth: 3 MHz
   Detector mode: Peak
   Trace Mode: Max Hold
   Sweep Points: ≥ 23 500
6) Allow the trace to stabilize. Any emissions identified during the sweeps above and that fall within the 6 dB range below the applicable limit or above, shall be individually measured using RMS detector and compared to the limits.
7) For radiated method, the applicable measurement procedures as described in the EN 300 328 V2.2.2 annex C.2 and C.4 are used.

Test Configuration

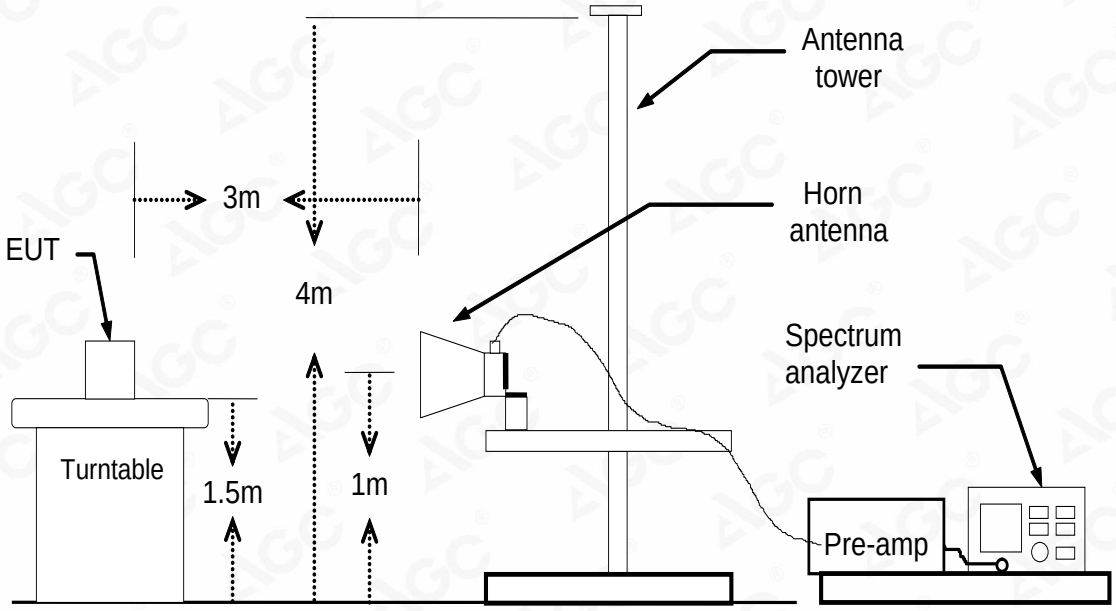


Conducted Method

Below 1GHz



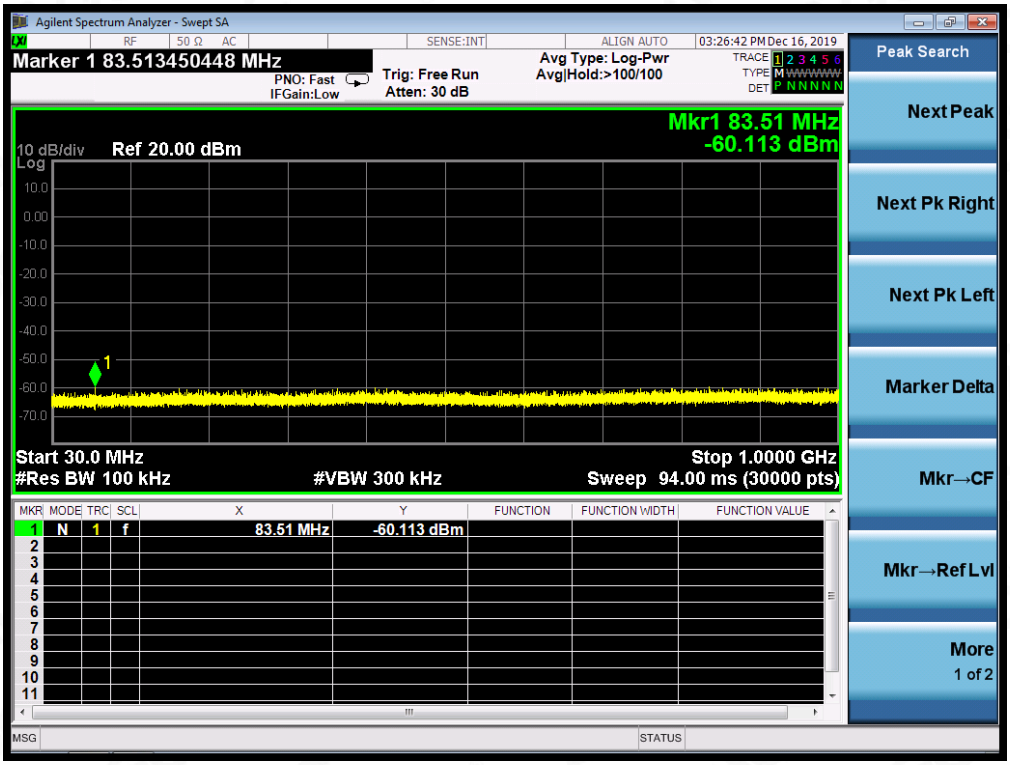
Above 1GHz

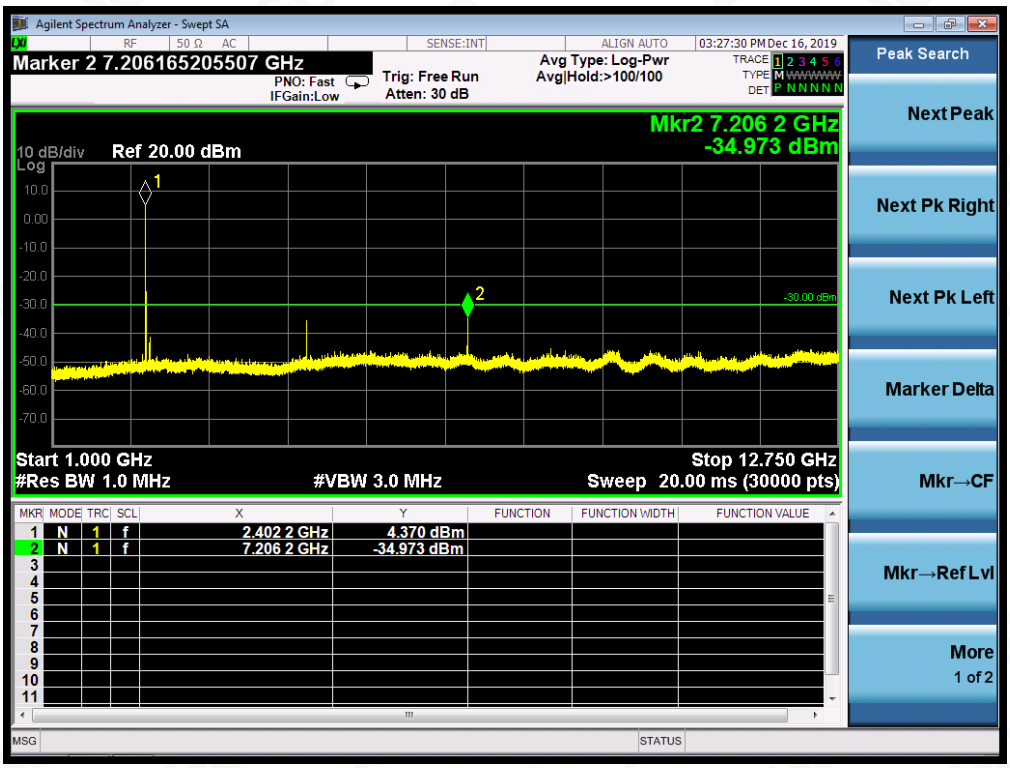


Radiated Method

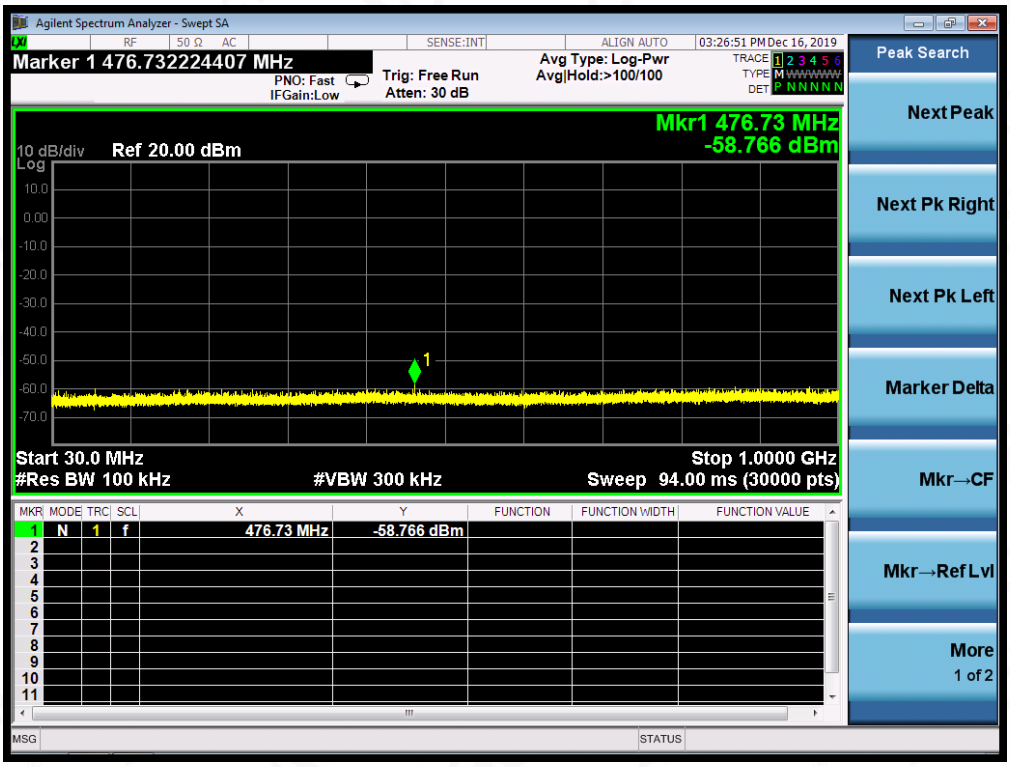
CONDUCTED RESULTS:

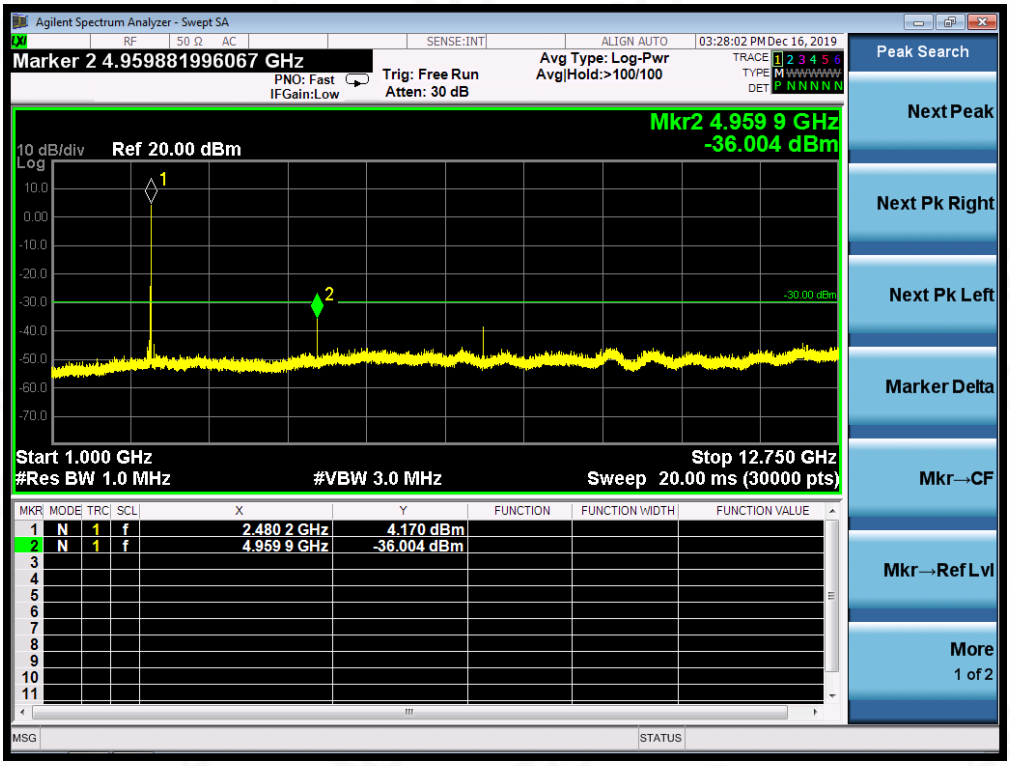
(Worst Case: Low channel, 1Mbps)





(Worst Case: High channel, 1Mbps)





Note: 1. All the modes had been test but only the worst data record in the report.

2. The 2.4G fundamental frequency is not considered to compare with the limit.

RADIATED RESUILTS:
(Worst Case: Low channel, 1Mbps)

Transmitter Spurious Emission below 1GHz (30MHz-1GHz)

Frequency	Reading Level	Antenna	S.G.	Cable Loss	Ant.Gain	Emission Level	Limit	Margin
(MHz)	(dBuV/m)	Polarization	(dBm)	(dB)	(dBi)	(dBm)	(dBm)	(dB)
93.26	32.84	V	-61.63	0.04	1.64	-60.03	-54.00	6.03
153.43	27.95	V	-66.76	0.06	0.70	-66.12	-36.00	30.12
353.99	31.82	V	-67.96	0.25	5.89	-62.32	-36.00	26.32
424.23	26.75	V	-73.62	0.33	7.02	-66.93	-36.00	30.93
629.10	28.94	V	-71.17	0.51	7.26	-64.42	-54.00	10.42
760.89	28.16	V	-71.66	0.61	6.60	-65.67	-36.00	29.67
Other(30-1000)	--	V	--	--	--	--	-36.00/-54.00	--
105.94	30.83	H	-62.70	0.04	0.80	-61.94	-54.00	7.94
155.58	27.45	H	-65.61	0.06	0.70	-64.97	-36.00	28.97
352.61	28.37	H	-69.72	0.25	5.76	-64.20	-36.00	28.20
434.66	27.86	H	-72.17	0.34	6.62	-65.89	-36.00	29.89
629.80	28.66	H	-71.04	0.51	7.26	-64.30	-54.00	10.30
728.19	28.60	H	-70.63	0.59	6.70	-64.52	-36.00	28.52
Other(30-1000)	--	H	--	--	--	--	-36.00/-54.00	--

Transmitter Spurious Emission above 1GHz (1GHz-12.75GHz)

Frequency	Reading Level	Antenna	S.G.	Cable Loss	Ant.Gain	Emission Level	Limit	Margin
(MHz)	(dBuV/m)	Polarization	(dBm)	(dB)	(dBi)	(dBm)	(dBm)	(dB)
4804	51.75	V	-48.47	2.65	9.34	-41.78	-30.00	11.78
7206	47.02	V	-54.84	3.13	11.32	-46.65	-30.00	16.65
Other(1000-12750)	--	V	--	--	--	--	-30.00	--
4804	51.39	H	-49.47	2.65	9.34	-42.78	-30.00	12.78
7206	44.26	H	-57.11	3.13	11.32	-48.92	-30.00	18.92
Other(1000-12750)	--	H	--	--	--	--	-30.00	--

Note: 1.The margins of the other spectrum are not exceeding the minimum value of margin, and this part of the results without recording in the test report.

2. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with “--” remark, if no specific emission from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that’s already beyond the background noise floor.

(Worst Case: High channel, 1Mbps)

Transmitter Spurious Emission below 1GHz (30MHz-1GHz)

Frequency	Reading Level	Antenna	S.G.	Cable Loss	Ant.Gain	Emission Level	Limit	Margin
(MHz)	(dBuV/m)	Polarization	(dBm)	(dB)	(dBi)	(dBm)	(dBm)	(dB)
96.37	31.08	V	-63.60	0.04	1.70	-61.94	-54.00	7.94
153.63	27.38	V	-67.22	0.06	0.70	-66.58	-36.00	30.58
356.78	30.80	V	-69.21	0.25	6.28	-63.18	-36.00	27.18
425.16	26.21	V	-73.99	0.33	7.00	-67.33	-36.00	31.33
628.91	29.18	V	-71.18	0.51	7.22	-64.48	-54.00	10.48
756.85	28.04	V	-70.94	0.61	6.40	-65.15	-36.00	29.15
Other(30-1000)	--	V	--	--	--	--	-36.00/-54.00	--
108.58	31.09	H	-62.82	0.04	1.16	-61.70	-54.00	7.70
156.82	27.00	H	-67.54	0.06	0.80	-66.80	-36.00	30.80
353.89	29.22	H	-70.29	0.25	5.89	-64.65	-36.00	28.65
429.33	27.03	H	-72.81	0.34	6.92	-66.22	-36.00	30.22
633.06	29.49	H	-69.70	0.52	7.24	-62.98	-54.00	8.98
728.11	27.58	H	-72.04	0.59	6.70	-65.93	-36.00	29.93
Other(30-1000)	--	H	--	--	--	--	-36.00/-54.00	--

Transmitter Spurious Emission above 1GHz (1GHz-12.75GHz)

Frequency	Reading Level	Antenna	S.G.	Cable Loss	Ant.Gain	Emission Level	Limit	Margin
(MHz)	(dBuV/m)	Polarization	(dBm)	(dB)	(dBi)	(dBm)	(dBm)	(dB)
4960	52.50	V	-48.28	2.65	9.34	-41.59	-30.00	11.59
7440	46.88	V	-54.14	3.13	11.32	-45.95	-30.00	15.95
Other(1000-12750)	--	V	--	--	--	--	-30.00	--
4960	51.91	H	-48.61	2.65	9.34	-41.92	-30.00	11.92
7440	44.69	H	-55.85	3.13	11.32	-47.66	-30.00	17.66
Other(1000-12750)	--	H	--	--	--	--	-30.00	--

Note: 1.The margins of the other spectrum are not exceeding the minimum value of margin, and this part of the results without recording in the test report.

2. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with “--” remark, if no specific emission from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that’s already beyond the background noise floor.

Conclusion: PASS

5.7. RECEIVER SPURIOUS EMISSIONS

ETSI EN300328 SUBCLAUSE 4.3.1.11

Receiver spurious emissions are emissions at any frequency when the equipment is in receive mode. The spurious emissions of the receiver shall not exceed the values given in table.

Frequency Range	Maximum Power e.r.p(<=1GHz)/e.i.r.p(>1GHz)	Measurement Bandwidth
30MHz to 1000MHz	-57dBm	100kHz
1GHz to 12.75GHz	-47dBm	1MHz

Test Configuration

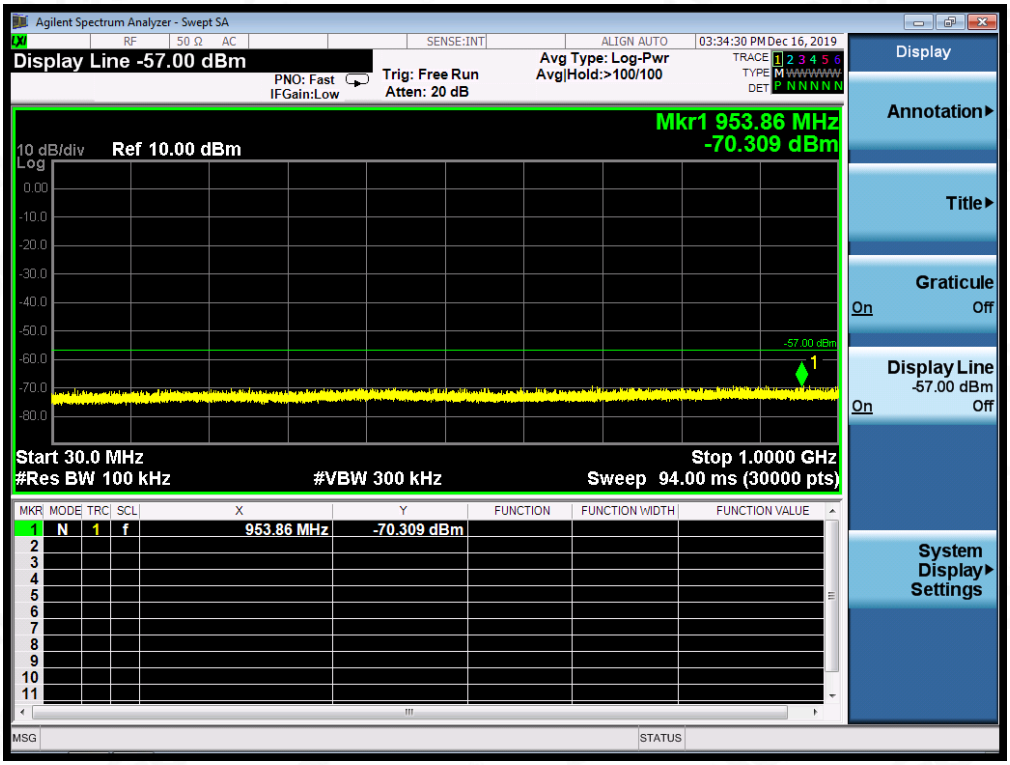
Same as 5.6.

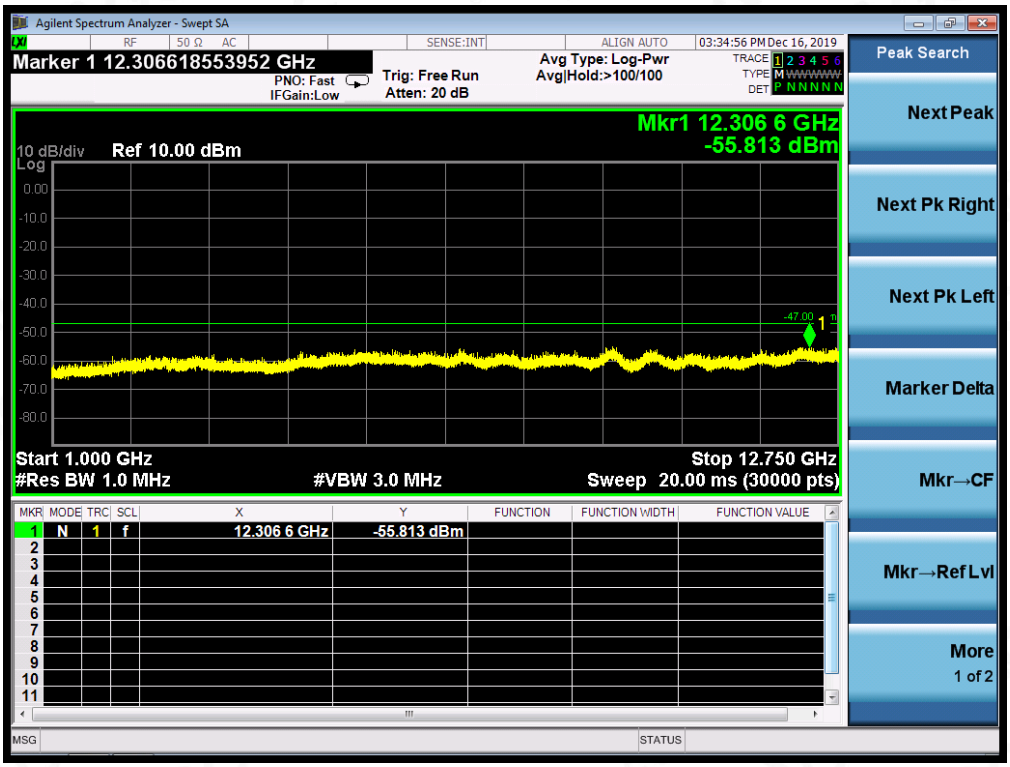
TEST PROCEDURE

1) The emissions over the range 30 MHz to 1 000 MHz shall be identified.
2) Spectrum analyzer settings:
   Resolution bandwidth: 100 kHz
   Video bandwidth: 300 kHz
   Detector mode: Peak
   Sweep Points: ≥ 19 400
   Trace Mode: Max Hold
3) Allow the trace to stabilize. Any emissions identified during the sweeps above and that fall within the 6 dB range below the applicable limit or above, shall be individually measured using RMS detector and compared to the limits.
4) The emissions over the range 1 GHz to 12,75 GHz shall be identified.
5) Resolution bandwidth: 1 MHz
   Video bandwidth: 3 MHz
   Detector mode: Peak
   Trace Mode: Max Hold
   Sweep Points: ≥ 23 500
6) Allow the trace to stabilize. Any emissions identified during the sweeps above and that fall within the 6 dB range below the applicable limit or above, shall be individually measured using RMS detector and compared to the limits.
7) For radiated method, the applicable measurement procedures as described in the EN 300 328 V2.2.2 annex C.2 and C.4 are used.

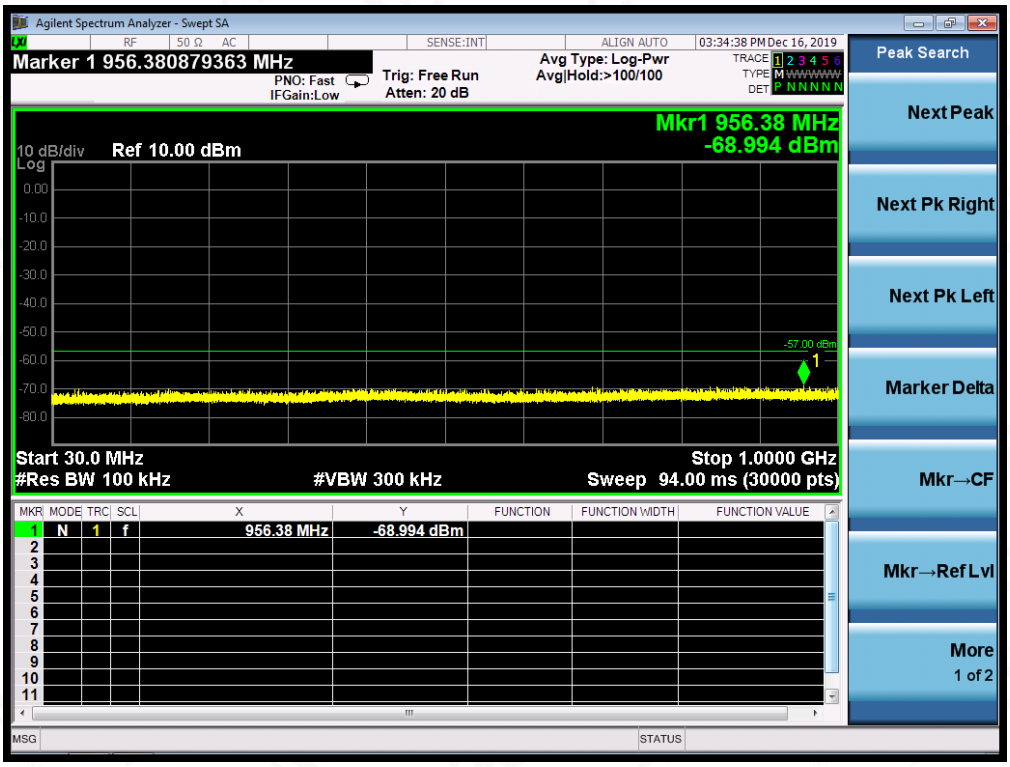
TEST RESULTS FOR CONDUCTED METHOD

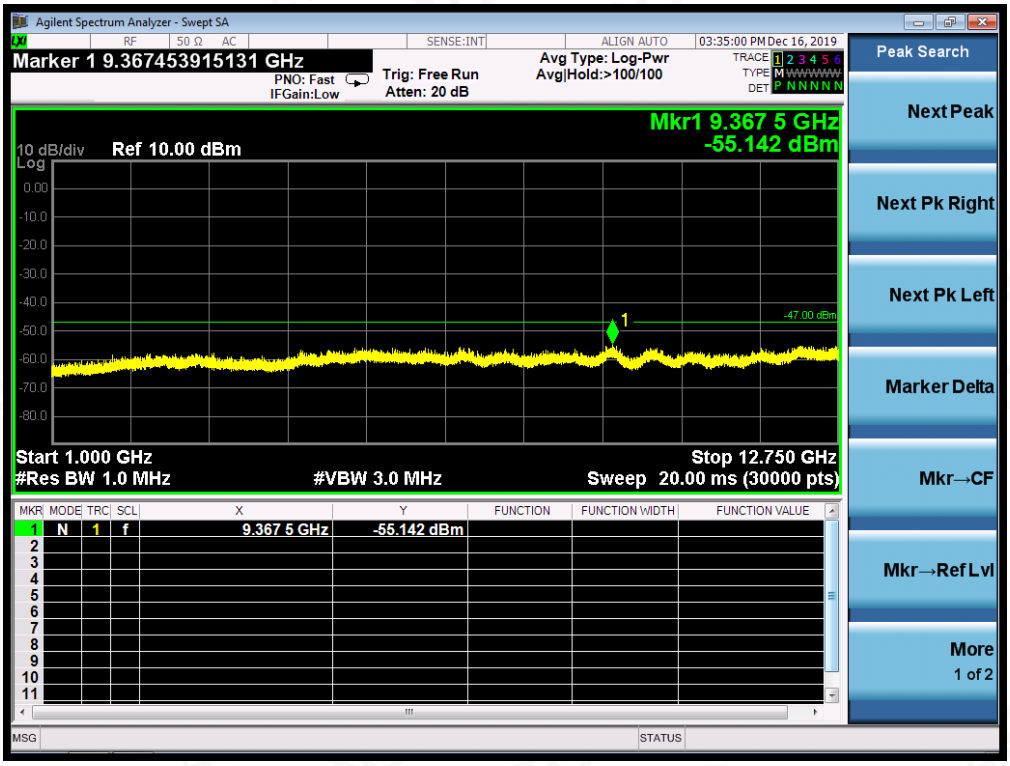
RECEIVER MODE (Worst Case: Low channel, 1Mbps)





(Worst Case: High channel, 1Mbps)





Note: 1. All the modes had been test but only the worst data record in the report.

TEST RESULTS FOR RADIATED METHOD
(Worst Case: Low channel, 1Mbps)

Receiver Spurious Emission below 1GHz (30MHz-1GHz)

Frequency	Reading Level	Antenna	S.G.	Cable Loss	Ant.Gain	Emission Level	Limit	Margin
(MHz)	(dBuV/m)	Polarization	(dBm)	(dB)	(dBi)	(dBm)	(dBm)	(dB)
125.32	27.35	V	-65.64	0.05	0.30	-65.39	-57.00	8.39
157.40	29.54	V	-64.72	0.06	0.90	-63.88	-57.00	6.88
355.45	28.46	V	-69.91	0.25	6.15	-64.01	-57.00	7.01
531.31	27.64	V	-71.91	0.44	6.66	-65.70	-57.00	8.70
676.44	30.10	V	-68.59	0.55	6.56	-62.58	-57.00	5.58
831.18	30.99	V	-68.02	0.66	6.37	-62.31	-57.00	5.31
Other(30-1000)	--	V	--	--	--	--	-57.00	--
137.91	28.77	H	-64.80	0.05	0.00	-64.85	-57.00	7.85
162.60	29.73	H	-65.53	0.06	1.36	-64.23	-57.00	7.23
340.48	29.85	H	-69.39	0.23	5.70	-63.92	-57.00	6.92
538.27	27.83	H	-71.87	0.45	7.08	-65.24	-57.00	8.24
674.64	29.90	H	-68.88	0.55	6.64	-62.79	-57.00	5.79
826.61	28.59	H	-71.45	0.66	6.50	-65.61	-57.00	8.61
Other(30-1000)	--	H	--	--	--	--	-57.00	--

Receiver Spurious Emission above 1GHz (1GHz-12.75GHz)

Frequency	Reading Level	Antenna	S.G.	Cable Loss	Ant.Gain	Emission Level	Limit	Margin
(MHz)	(dBuV/m)	Polarization	(dBm)	(dB)	(dBi)	(dBm)	(dBm)	(dB)
1540.09	32.08	V	-67.13	1.22	6.84	-61.51	-47.00	14.51
--	--	V	--	--	--	--	--	--
Other(1000-12750)	--	V	--	--	--	--	-47.00	--
1550.46	33.75	H	-66.60	1.19	6.67	-61.12	-47.00	14.12
--	--	H	--	--	--	--	--	--
Other(1000-12750)	--	H	--	--	--	--	-47.00	--

Note: 1.The margins of the other spectrum are not exceeding the minimum value of margin, and this part of the results without recording in the test report.

2. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with “--” remark, if no specific emission from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that’s already beyond the background noise floor.

(Worst Case: High channel, 1Mbps)

Receiver Spurious Emission below 1GHz (30MHz-1GHz)

Frequency	Reading Level	Antenna	S.G.	Cable Loss	Ant.Gain	Emission Level	Limit	Margin
(MHz)	(dBuV/m)	Polarization	(dBm)	(dB)	(dBi)	(dBm)	(dBm)	(dB)
127.98	27.10	V	-66.04	0.05	0.22	-65.87	-57.00	8.87
158.50	29.77	V	-63.64	0.06	1.00	-62.70	-57.00	5.70
360.88	29.47	V	-70.83	0.26	6.80	-64.29	-57.00	7.29
534.73	27.19	V	-72.10	0.44	6.84	-65.71	-57.00	8.71
674.18	30.64	V	-67.89	0.55	6.64	-61.80	-57.00	4.80
831.61	29.87	V	-68.61	0.66	6.37	-62.90	-57.00	5.90
Other(30-1000)	--	V	--	--	--	--	-57.00	--
139.44	27.73	H	-65.26	0.05	0.00	-65.31	-57.00	8.31
160.43	28.03	H	-67.06	0.06	1.20	-65.92	-57.00	8.92
339.51	30.70	H	-67.69	0.23	5.74	-62.18	-57.00	5.18
536.84	27.43	H	-73.27	0.45	6.96	-66.75	-57.00	9.75
678.70	28.94	H	-70.02	0.55	6.48	-64.09	-57.00	7.09
828.33	27.60	H	-71.91	0.66	6.40	-66.16	-57.00	9.16
Other(30-1000)	--	H	--	--	--	--	-57.00	--

Receiver Spurious Emission above 1GHz (1GHz-12.75GHz)

Frequency	Reading Level	Antenna	S.G.	Cable Loss	Ant.Gain	Emission Level	Limit	Margin
(MHz)	(dBuV/m)	Polarization	(dBm)	(dB)	(dBi)	(dBm)	(dBm)	(dB)
1554.62	32.16	V	-68.21	1.22	6.84	-62.59	-47.00	15.59
--	--	V	--	--	--	--	--	--
Other(1000-12750)	--	V	--	--	--	--	-47.00	--
1546.28	33.45	H	-66.76	1.19	6.67	-61.28	-47.00	14.28
--	--	H	--	--	--	--	--	--
Other(1000-12750)	--	H	--	--	--	--	-47.00	--

Note: 1.The margins of the other spectrum are not exceeding the minimum value of margin, and this part of the results without recording in the test report.

2. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with “--” remark, if no specific emission from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that’s already beyond the background noise floor.

Conclusion: PASS

5.8. RECEIVER BLOCKING

☐Receiver Blocking parameters for Receiver Category 1 equipment

Wanted signal mean power from companion device (dBm) (see notes 1 and 4)	Blocking signal frequency (MHz)	Blocking signal power (dBm) (see note 4)	Type of blocking signal
(-133 dBm + 10 × log10(OCBW)) or -68 dBm whichever is less (see note 2)	2 380 2 504	-34	CW
(-139 dBm + 10 × log10(OCBW)) or -74 dBm whichever is less (see note 3)	2 300 2 330 2 360 2 524 2 584 2 674		

NOTE 1: OCBW is in Hz.

NOTE 2: In case of radiated measurements using a companion device and the level of the wanted signal from the companion device cannot be determined, a relative test may be performed using a wanted signal up to Pmin + 26 dB where Pmin is the minimum level of wanted signal required to meet the minimum performance criteria as defined in clause 4.3.1.12.3 in the absence of any blocking signal.

NOTE 3: In case of radiated measurements using a companion device and the level of the wanted signal from the companion device cannot be determined, a relative test may be performed using a wanted signal up to Pmin + 20 dB where Pmin is the minimum level of wanted signal required to meet the minimum performance criteria as defined in clause 4.3.1.12.3 in the absence of any blocking signal.

NOTE 4: The level specified is the level at the UUT receiver input assuming a 0 dBi antenna assembly gain. In case of conducted measurements, this level has to be corrected for the (in-band) antenna assembly gain (G). In case of radiated measurements, this level is equivalent to a power flux density (PFD) in front of the UUT antenna with the UUT being configured/positioned as recorded in clause 5.4.3.2.2.

☒Receiver Blocking parameters for Receiver Category 2 equipment

Wanted signal mean power from companion device (dBm) (see notes 1 and 3)	Blocking signal frequency (MHz)	Blocking signal power (dBm) (see note 3)	Type of blocking signal
(-139 dBm + 10 × log10(OCBW) + 10 dB) or (-74 dBm + 10 dB) whichever is less (see note 2)	2 380 2 504 2 300 2 584	-34	CW

NOTE 1: OCBW is in Hz.

NOTE 2: In case of radiated measurements using a companion device and the level of the wanted signal from the companion device cannot be determined, a relative test may be performed using a wanted signal up to Pmin + 26 dB where Pmin is the minimum level of wanted signal required to meet the minimum performance criteria as defined in clause 4.3.1.12.3 in the absence of any blocking signal.

NOTE 3: The level specified is the level at the UUT receiver input assuming a 0 dBi antenna assembly gain. In case of conducted measurements, this level has to be corrected for the (in-band) antenna assembly gain (G). In case of radiated measurements, this level is equivalent to a power flux density (PFD) in front of the UUT antenna with the UUT being configured/positioned as recorded in clause 5.4.3.2.2.

☐Receiver Blocking parameters for Receiver Category 3 equipment

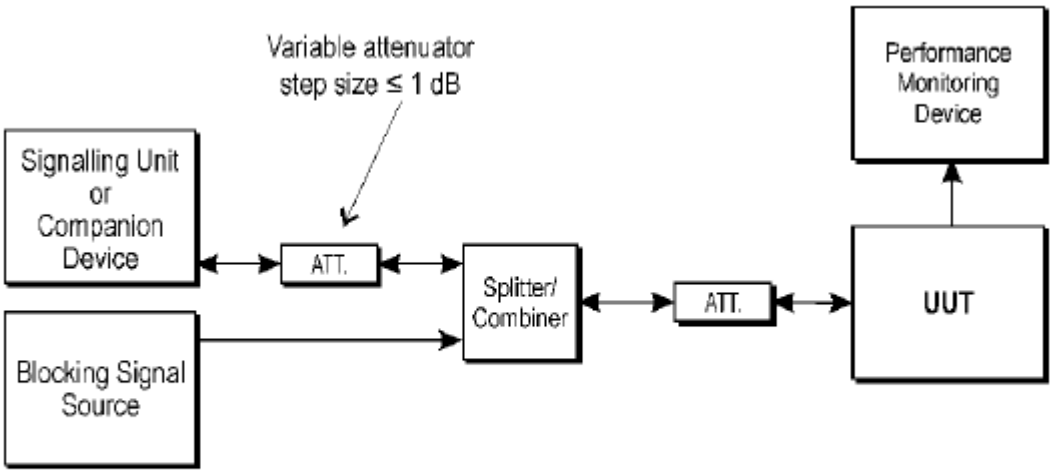
Wanted signal mean power from companion device (dBm) (see notes 1 and 3)	Blocking signal frequency (MHz)	Blocking signal power (dBm) (see note 3)	Type of blocking signal
(-139 dBm + 10 × log10(OCBW) + 20 dB) or (-74 dBm + 20 dB) whichever is less (see note 2)	2 380 2 504 2 300 2 584	-34	CW

NOTE 1: OCBW is in Hz.

NOTE 2: In case of radiated measurements using a companion device and the level of the wanted signal from the companion device cannot be determined, a relative test may be performed using a wanted signal up to Pmin + 30 dB where Pmin is the minimum level of wanted signal required to meet the minimum performance criteria as defined in clause 4.3.1.12.3 in the absence of any blocking signal.

NOTE 3: The level specified is the level at the UUT receiver input assuming a 0 dBi antenna assembly gain. In case of conducted measurements, this level has to be corrected for the (in-band) antenna assembly gain (G). In case of radiated measurements, this level is equivalent to a power flux density (PFD) in front of the UUT antenna with the UUT being configured/positioned as recorded in clause 5.4.3.2.2.

TEST CONFIGURATION



Test Set-up for receiver blocking

TEST PROCEDURE

The simplified conducted measure procedures are as follows:

1) he UUT shall be set to hopping mode.

2) The blocking signal generator is set to the first frequency as defined in the appropriate table corresponding to the receiver category and type of equipment.

3)With the blocking signal generator switched off, a communication link is established between the UUT and the associated companion device using the test setup. The level of the wanted signal shall be set to the value provided in the table corresponding to the receiver category and type of equipment. This level may be measured directly at the output of the companion device and a correction is made for the coupling loss into the UUT. The actual level for the wanted signal shall be recorded in the test report.

4) The blocking signal at the UUT is set to the level provided in the table corresponding to the receiver category and type of equipment. It shall be verified and recorded in the test report that the performance criteria is met.

5) Repeat step 4 for each remaining combination of frequency and level for the blocking signal as provided in the table corresponding to the receiver category and type of equipment.

TEST RESULT

Test Condition	Blocking Signal Frequency(MHz)	Blocking Signal Power(dBm)	Wanted signal mean power from companion device(dBm)	Performance PER	Limit PER	Result
GFSK Hopping Mode	2300	-31.00	-66.63	1.15%	10%	Pass
	2380	-31.00	-66.63	0.92%	10%	
	2504	-31.00	-66.63	2.97%	10%	
	2584	-31.00	-66.63	1.92%	10%	

Test Condition	Blocking Signal Frequency(MHz)	Blocking Signal Power(dBm)	Wanted signal mean power from companion device(dBm)	Performance PER	Limit PER	Result
π/4-DQPSK Hopping Mode	2300	-31.00	-65.14	1.36%	10%	Pass
	2380	-31.00	-65.14	0.94%	10%	
	2504	-31.00	-65.17	2.87%	10%	
	2584	-31.00	-65.17	1.88%	10%	

Note: The levels of the blocking signal and wanted signal have to be corrected for the (in-band) antenna assembly gain.

APPENDIX A: PHOTOGRAPHS OF THE TEST SETUP

Refer to Attached file(appendix I)

APPENDIX B: PHOTOGRAPHS OF THE EUT

Refer to Attached file(appendix I)

----END OF REPORT----

Test model Photographs

Report No.: AGC01232191110AP01A

PRODUCT DESIGNATION	:	Wireless charger bamboo speaker
BRAND NAME	:	N/A
MODEL NAME	:	SL241
APPLICANT	:	
DATE OF ISSUE	:	Dec. 27, 2019
REPORT VERSION	:	V1.0

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Report Revise Record

Report Version	Revise Time	Issued Date	Valid Version	Notes
V1.0	/	Dec. 27, 2019	Valid	Extension Report

Note:

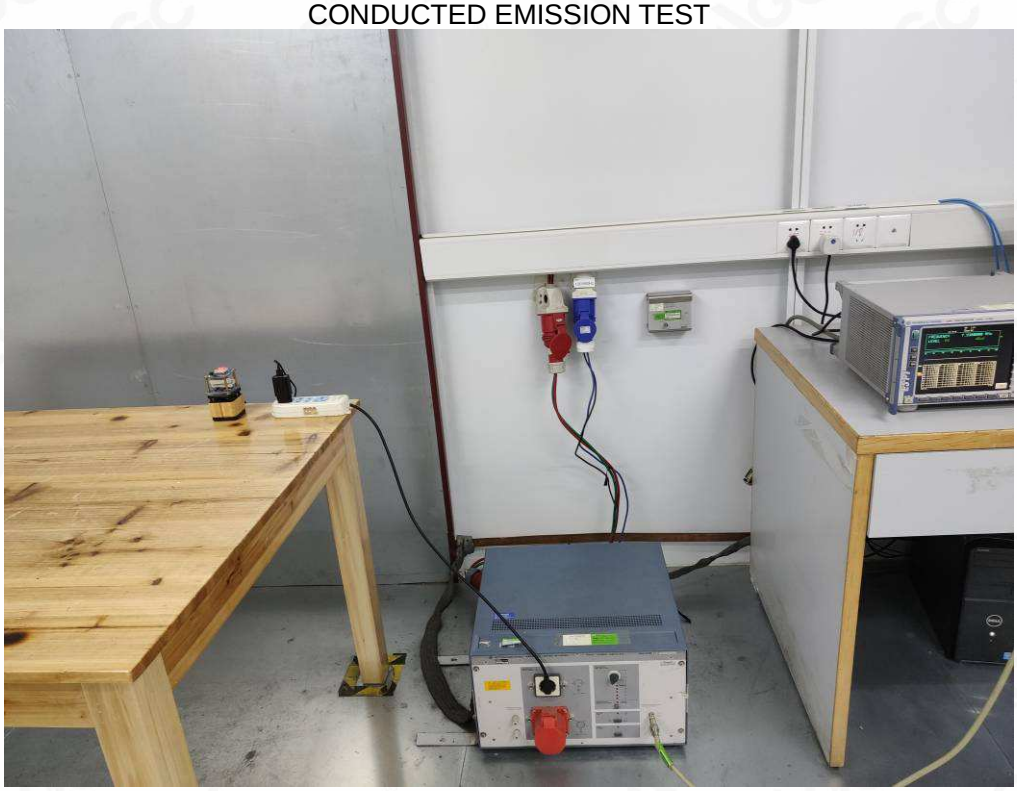
The original test report Ref.No. AGC01232191110AP01 dated Dec. 19, 2019, was modified on Dec. 27, 2019 to include the following changes:

- Change model name;
- Change the name and address of the applicant

EMC TEST SETUP PHOTOGRAPHS

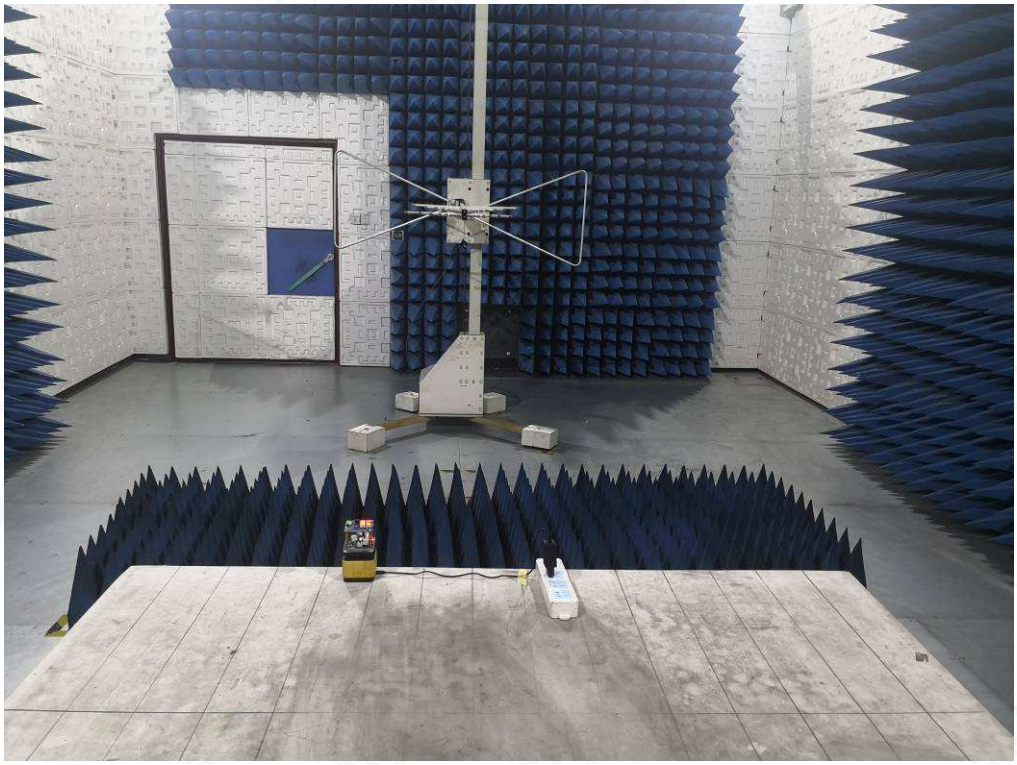
RADIATED EMISSION TEST SETUP

CONDUCTED EMISSION TEST



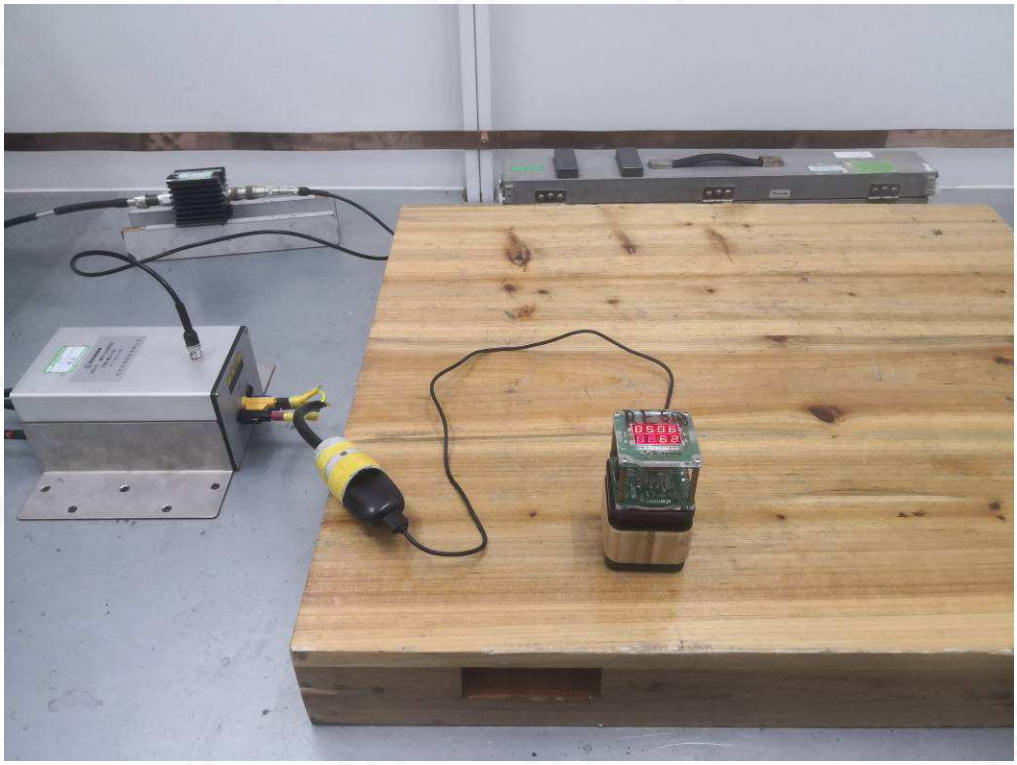
EN 61000-4-2 ESD TEST SETUP

EN 61000-4-3 RS TEST SETUP



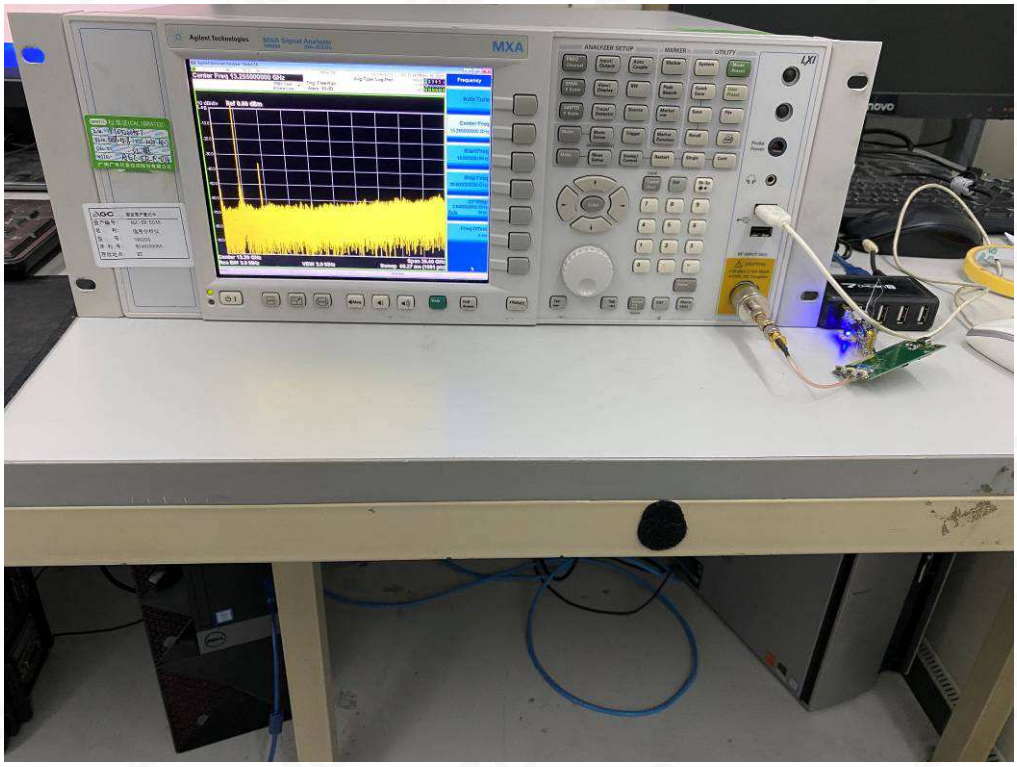
POWER HARMONICS AND VOLTAGE FLICKER/FLUCTUATION TEST

CS IMMUNITY TEST



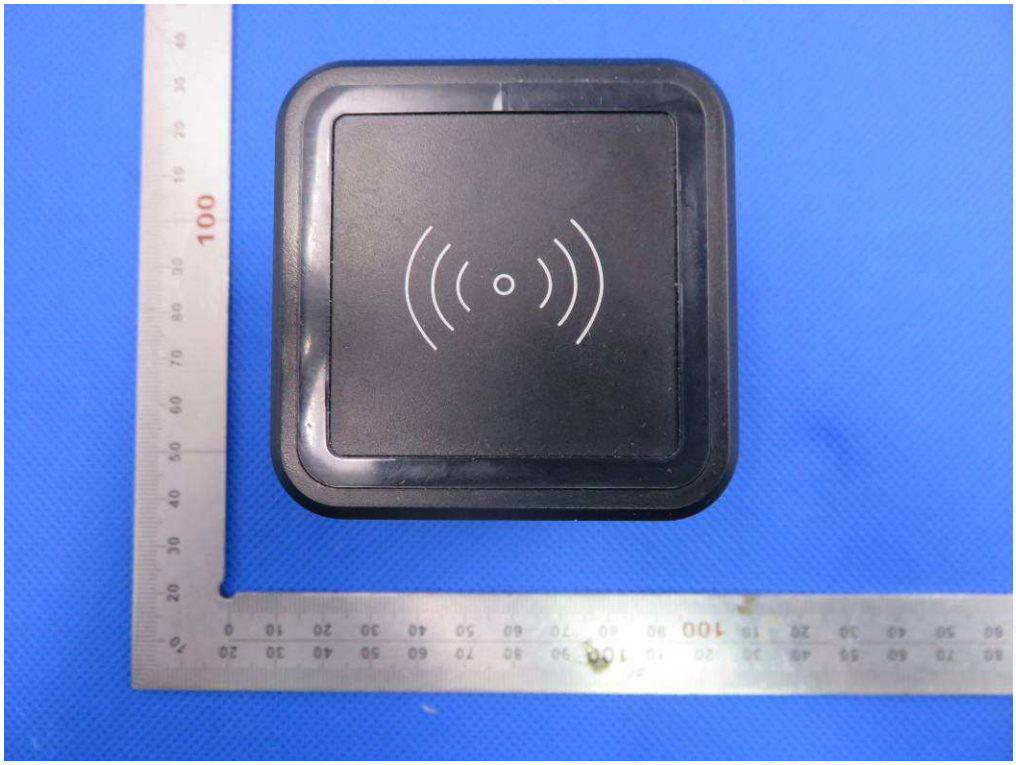
EFT / SURGE / DIPS IMMUNITY TEST

RF TEST SETUP PHOTOGRAPH

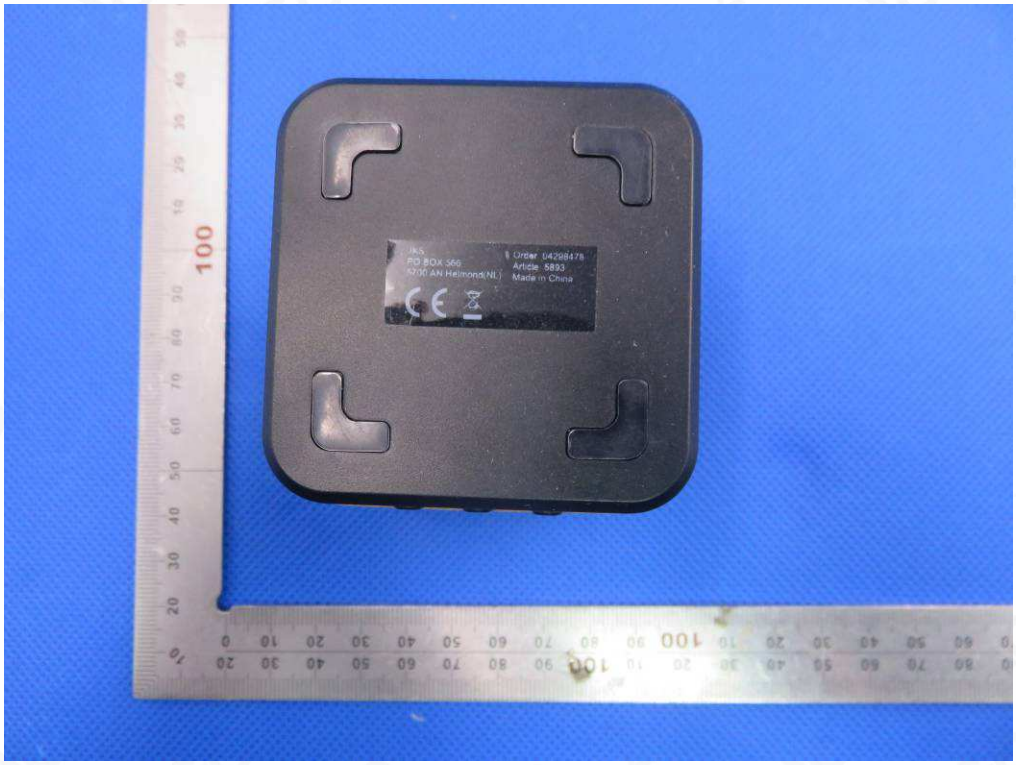


EUT PHOTOGRAPHS

TOP VIEW OF EUT



BOTTOM VIEW OF EUT



FRONT VIEW OF EUT

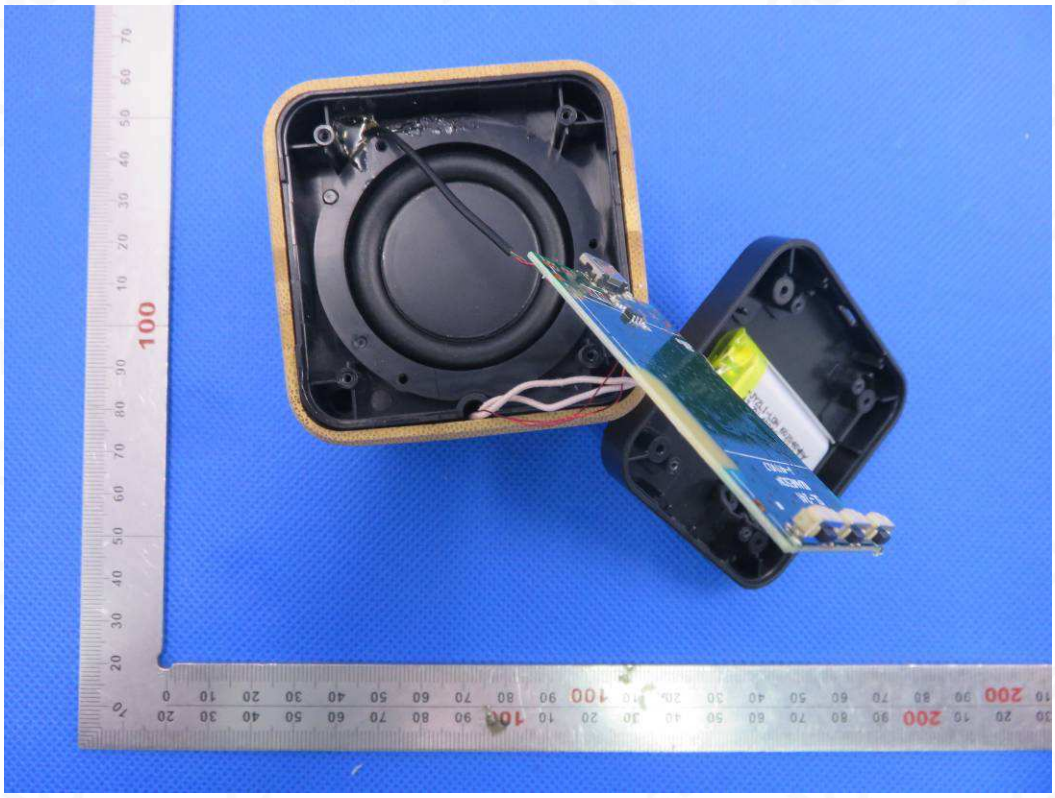
BACK VIEW OF EUT

LEFT VIEW OF EUT

RIGHT VIEW OF EUT

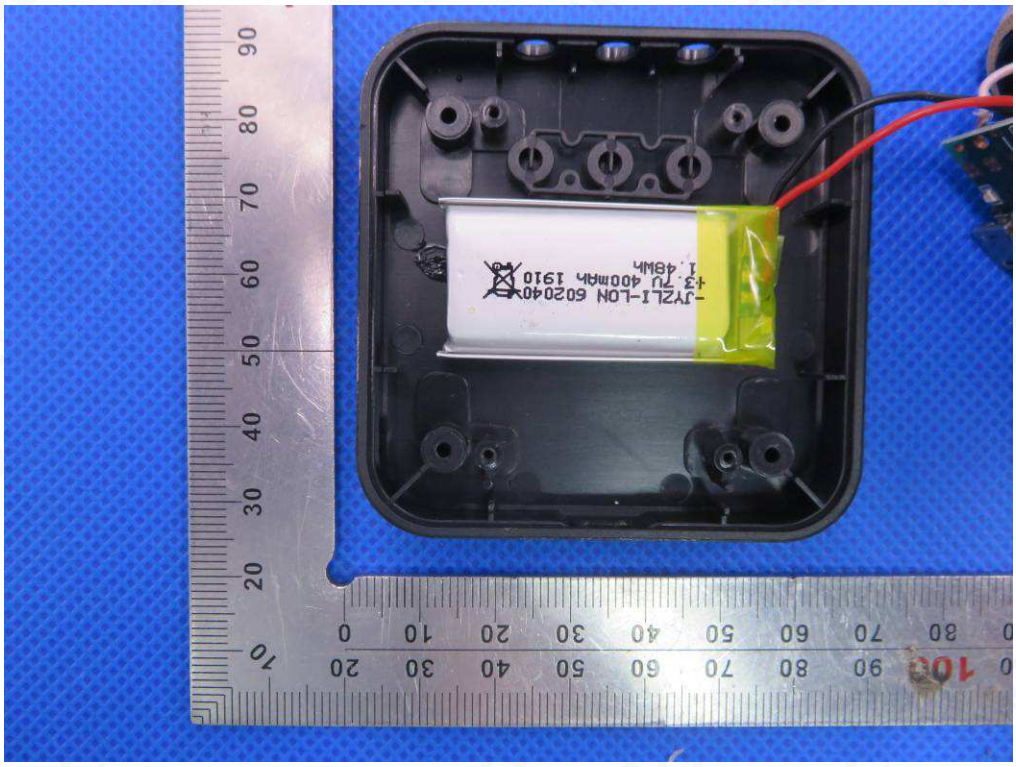
VIEW OF EUT(PORT)

OPEN VIEW OF EUT-1

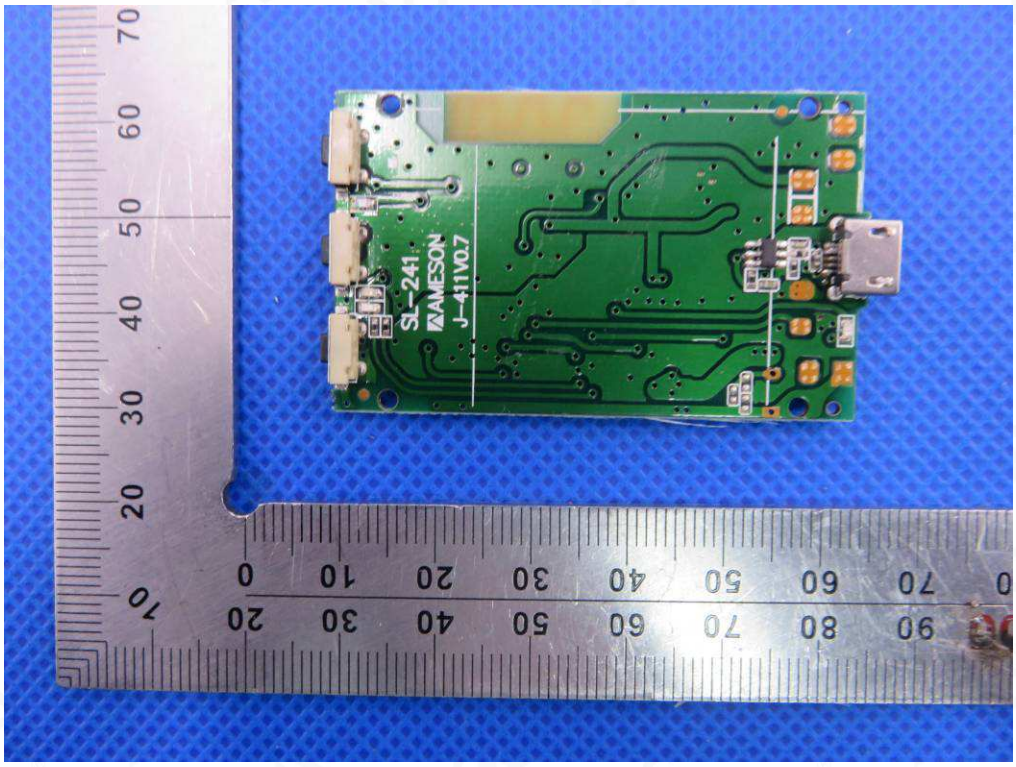


OPEN VIEW OF EUT-2

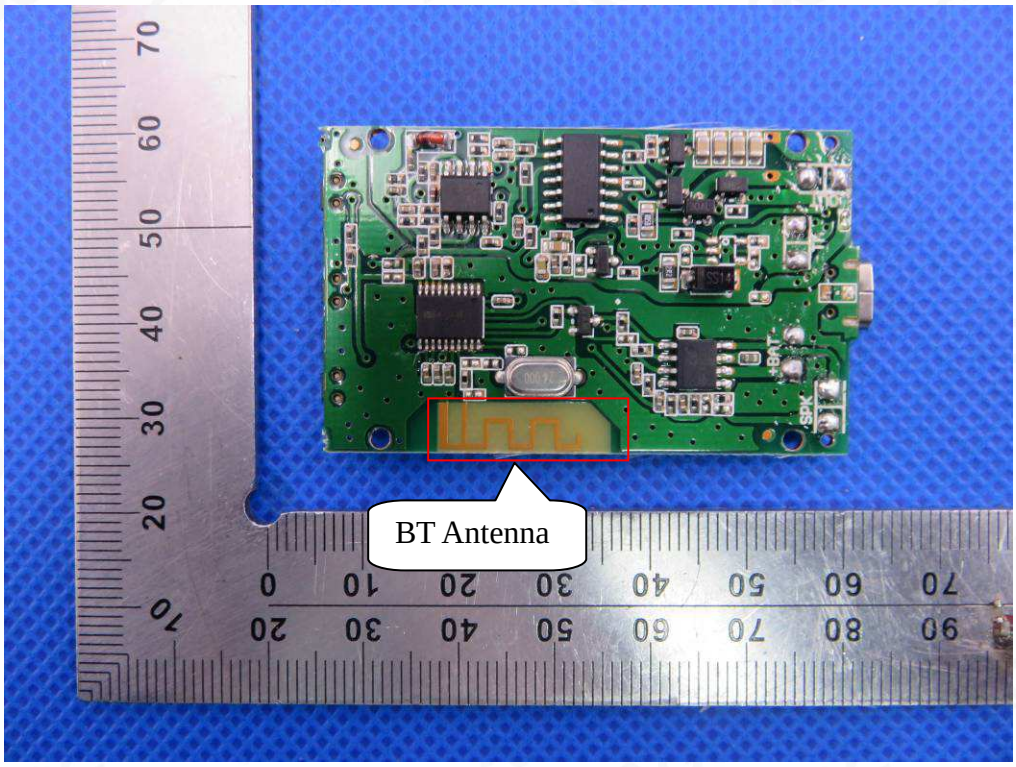
OPEN VIEW OF EUT-3



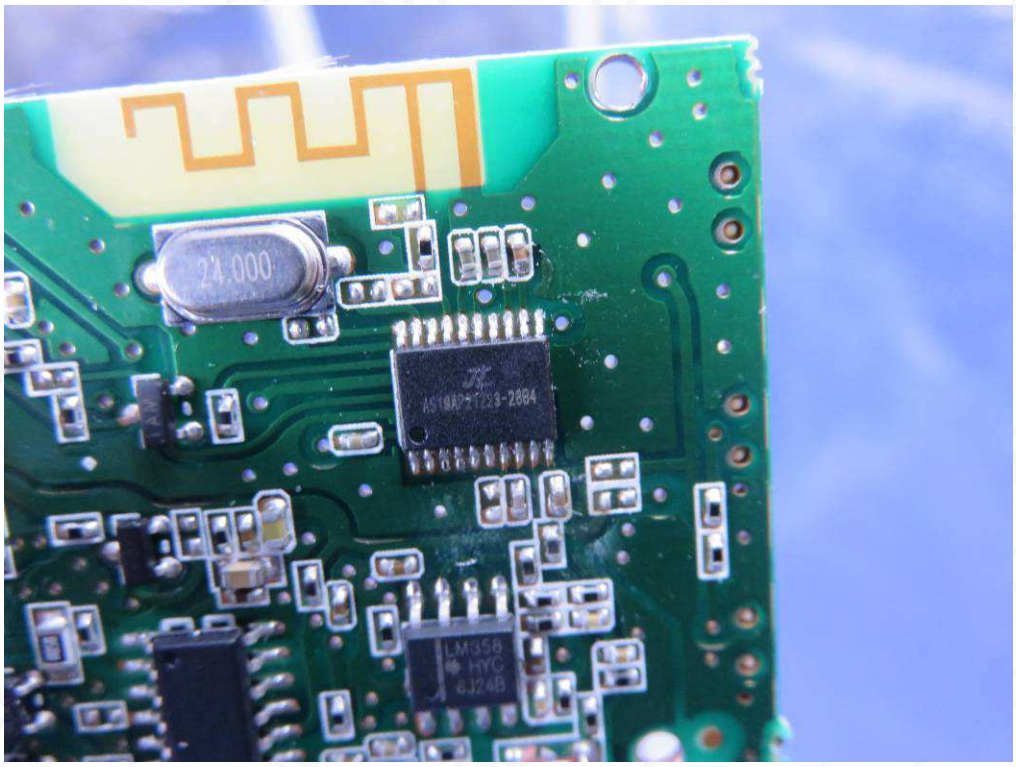
INTERNAL VIEW OF EUT-1



INTERNAL VIEW OF EUT-2



INTERNAL VIEW OF EUT-3



----THE END ----

Test Report

Report No.: AGC01232191110-004 Date: Dec.23, 2019 Page 1 of 20

Applicant:

Address:

Test site: 1,6/F.,Building 2,No. 1-4, Chaxi Sanwei Technical Industrial Park, Gushu, Xixiang, Baoan District, Shenzhen, Guangdong, China

Report on the submitted sample(s) said to be:

Sample Name:	Wireless charger bamboo speaker
Model No.:	SL241
Country of Origin:	CHINA
Country of Destination:	EUROPE
Sample Received Date:	Nov.28, 2019
Testing Period:	Nov.28, 2019 to Dec.23, 2019

Test Requested: Please refer to following page(s).

Test Method: Please refer to following page(s).

Test Result: Please refer to following page(s).

Approved by:

Liulinwen, Lewis

Technical Director

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Test Report

Report No.: AGC01232191110-004 Date: Dec.23, 2019 Page 2 of 20

Test Requested:	**Conclusion**
1. As specified by client, to determine the Polycyclic Aromatic Hydrocarbons (PAHs) content in the submitted sample(s) with reference to entry 50, Annex XVII of the REACH Regulation (EC) No 1907/2006.	Pass
2. As specified by client, to determine the phthalates content in the submitted sample(s) with reference to entry 51 and its amendment (EU)2018/2005& entry 52, Annex XVII of the REACH Regulation (EC) No 1907/2006 and Amendment Regulation (EC) No 552/2009.	Pass
3. As specified by client, to determine the Pentachlorophenol content in the submitted sample(s) with reference to entry 22, Annex XVII of the REACH Regulation (EC) No 1907/2006.	Pass
4. As specified by client, to determine the Pb, Cd, Hg, Cr^{6+}, PBBs, PBDEs, DBP, BBP, DEHP, DIBP content in the submitted sample in accordance with Directive 2011/65/EU (RoHS) and its amendment directive (EU) 2015/863 on XRF and Chemical Method.	Pass

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Test Report

Test Result(s):

1. Test Result(s) of Polycyclic Aromatic Hydrocarbons (PAHs)

Unit: mg/kg

Test Item(s)	Test Method /Equipment	MDL	Result(s)		Limit
			1-2	1-3	
Benzo[a]anthracene (BaA)	AfPS GS 2014:01 PAK GC-MS	0.1	N.D.	N.D.	1
Chrysene (CHR)		0.1	N.D.	N.D.	1
Benzo[b]fluoranthene (BbFA)		0.1	N.D.	N.D.	1
Benzo[k]fluoranthene (BkFA)		0.1	N.D.	N.D.	1
Benzo[j]fluoranthene (BjFA)		0.1	N.D.	N.D.	1
Benzo[a]pyrene (BaP)		0.1	N.D.	N.D.	1
Benzo[e]pyrene(BeP)		0.1	N.D.	N.D.	1
Dibenzo[a,h]anthracene (DBAhA)		0.1	N.D.	N.D.	1
Sum of 8 PAHs		—	N.D.	N.D.	—
Conclusion		/	**Pass**	**Pass**	/

Note: 1. MDL=Method Detection Limit

2. N.D.=Not Detected(less than method detection limit)

3. "—"=Not regulated

4. As specified by client, only test the designated sample.

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Test Report

2. Test Result(s) of phthalates content

Unit: %, w/w

Test Item(s)	Test Method/ Equipment	MDL	Result(s)		Limit
			1-2	1-3	
Dibutyl phthalate (DBP)	EN 14372:2004 GC-MS	0.01	N.D.	N.D.	0.1
Butylbenzyl phthalate (BBP)		0.01	N.D.	N.D.	0.1
Di- (2-ethylhexyl) phthalate (DEHP)		0.01	N.D.	N.D.	0.1
Diisobutyl phthalate (DIBP)		0.01	N.D.	N.D.	0.1
Sum of DBP+BBP+DEHP+DIBP		—	N.D.	N.D.	0.1
Di-n-octyl phthalate (DNOP)		0.01	N.D.	N.D.	-
Di-isononyl phthalate (DINP)		0.01	N.D.	N.D.	
Di-isodecyl phthalate (DIDP)		0.01	N.D.	N.D.	
Sum of DNOP+DINP+DIDP		—	N.D.	N.D.	0.1
Conclusion		/	**Pass**	**Pass**	/

Note: 1. 0.1%,w/w =1000mg/kg
2. MDL=method detection limit
3. N.D.=not detected（less than method detection limit）
4. "—" =Not regulated
5. As specified by client, only test the designated sample

3. Test Result(s) of Pentachlorophenol (PCP) Content:

Unit: mg/kg

Test item(s)	Test Method/ Equipment	MDL	Result(s)	Limit
			1-1	
Pentachlorophenol (PCP)	EPA 8270D:2014 GC-MS	5	N.D.	1000
Conclusion		/	**Pass**	/

Note: 1. MDL=Method Detection Limit
2. N.D.=Not Detected(less than method detection limit)
3. As specified by client, only test the designated sample

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Test Report

4.Test Methods:

A:Screening by X-ray Fluorescence Spectrometry (XRF) :With reference to IEC 62321-3-1:2013 Screening – Lead, mercury, cadmium, total chromium and total bromine by X-ray fluorescence spectrometry

B:Chemical test:

Test Item	Test Method	Measuring Instrument	MDL
Cadmium (Cd)	IEC 62321-5:2013	ICP-OES	2 mg/kg
Lead (Pb)	IEC 62321-5:2013	ICP-OES	2 mg/kg
Mercury (Hg)	IEC 62321-4: 2013+A1:2017	ICP-OES	2 mg/kg
Non-metal Hexavalent Chromium (Cr^{6+})	IEC 62321-7-2:2017	UV-Vis	1 mg/kg
Metal Hexavalent Chromium (Cr^{6+})	IEC 62321-7-1:2015	UV-Vis	/
PBBs/PBDEs	IEC 62321-6:2015	GC-MS	5 mg/kg
Di-iso-butyl phthalate (DIBP)	IEC 62321-8:2017	GC-MS	50 mg/kg
Dibutyl phthalate (DBP)		GC-MS	50 mg/kg
Butylbenzyl phthalate (BBP)		GC-MS	50 mg/kg
Di-(2-ethylhexyl) Phthalate (DEHP)		GC-MS	50 mg/kg

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Test Report

Test Results:

A、EU RoHS Directive 2011/65/EU and its amendment directives on XRF

Seq. No.	Tested Part(s)	Results(mg/kg)				
		Cd	Pb	Hg	Cr	Br
1	Black rubber frame(outer shell)	BL	BL	BL	BL	BL
2	Black plastic shell(outer shell)	BL	BL	BL	BL	BL
3	Brown wood shell(outer shell)	BL	BL	BL	BL	BL
4	Black plastic inner shell(outer shell)	BL	BL	BL	BL	BL
5	Yellow glue(outer shell)	BL	BL	BL	BL	BL
6	Transparent label(outer shell)	BL	BL	BL	BL	BL
7	Black rubber mats(outer shell)	BL	BL	BL	BL	BL
8	Silver screw	BL	BL	BL	BL	N/A
9	Black screw	BL	BL	BL	BL	N/A
10	Black plastic frame(horn)	BL	BL	BL	BL	BL
11	Color zinc magnetic shielding cover(horn)	BL	BL	BL	BL	N/A
12	Connector(horn)	BL	BL	BL	BL	BL
13	Tin solder(horn)	BL	BL	BL	BL	N/A
14	Black outer wire jacket(horn)	BL	BL	BL	BL	BL
15	Red enameled wire(horn)	BL	BL	BL	BL	N/A
16	Green enameled wire(horn)	BL	BL	BL	BL	N/A
17	Globe-roof(horn)	BL	BL	BL	BL	BL
18	Vibrating diaphragm(horn)	BL	BL	BL	BL	BL
19	Damper(horn)	BL	BL	BL	BL	BL
20	Enameled wire(horn)	BL	BL	BL	BL	N/A
21	Black plastic ring(bass hood)	BL	BL	BL	BL	BL
22	Rubber vibrating diaphragm(bass hood)	BL	BL	BL	BL	BL
23	Black metal sheet(bass hood)	BL	BL	BL	BL	N/A
24	Grey ceramics(induction coil)	BL	BL	BL	X*	BL

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Test Report

Seq. No.	Tested Part(s)	Results(mg/kg)				
		Cd	Pb	Hg	Cr	Br
25	Coil wire jacket(induction coil)	BL	BL	BL	BL	BL
26	Wire core(induction coil)	BL	BL	BL	BL	N/A
27	Brown tape(induction coil)	BL	BL	BL	BL	BL
28	Double faced adhesive tape(induction coil)	BL	BL	BL	BL	BL
29	PCB board	BL	BL	BL	BL	X*
30	Tin solder	BL	BL	BL	BL	N/A
31	Chip diode	BL	BL	BL	BL	X*
32	IC body	BL	BL	BL	BL	BL
33	Tin plating	BL	BL	BL	BL	N/A
34	Chip capacitor	BL	BL	BL	BL	BL
35	Chip resistor	BL	BL	BL	BL	BL
36	Chip triode	BL	BL	BL	BL	BL
37	Crystal oscillator(crystal)	BL	BL	BL	BL	BL
38	Black plastic seat(crystal)	BL	BL	BL	BL	BL
39	Glass diode	BL	OL	BL	BL	BL
40	Chip LED	BL	BL	BL	BL	BL
41	Micro metal joint(Micro joint)	BL	BL	BL	BL	N/A
42	Grey plastic joint(Micro joint)	BL	BL	BL	BL	BL
43	Contact pin(Micro joint)	BL	BL	BL	BL	N/A
44	Black plastic switch(switch)	BL	BL	BL	BL	X*
45	Metal shell(switch)	BL	BL	BL	BL	N/A
46	Metal shrapnel(switch)	BL	BL	BL	X*	N/A
47	White plastic seat(switch)	BL	BL	BL	BL	BL
48	Black thermistor body(thermistor)	BL	BL	BL	BL	BL
49	Enameled wire(thermistor)	BL	BL	BL	BL	N/A
50	Brown tape(battery)	BL	BL	BL	X*	BL

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Seq. No.	Tested Part(s)	Results(mg/kg)				
		Cd	Pb	Hg	Cr	Br
51	Chip resistor(battery)	BL	BL	BL	BL	BL
52	Chip capacitor(battery)	BL	BL	BL	BL	BL
53	IC body(battery)	BL	BL	BL	BL	BL
54	Tin plating(battery)	BL	BL	BL	BL	N/A
55	PCB board(battery)	BL	BL	BL	BL	X*
56	Tin solder(battery)	BL	BL	BL	BL	N/A
57	Red wire jacket(battery)	BL	BL	BL	BL	BL
58	Black wire jacket(battery)	BL	BL	BL	BL	BL
59	Wire core(battery)	BL	BL	BL	BL	N/A
USB wire						
60	Black handle(USB plug)	BL	BL	BL	BL	BL
61	White plastic plug(USB plug)	BL	BL	BL	BL	BL
62	Contact pin(USB plug)	BL	BL	BL	BL	N/A
63	USB metal plug(USB plug)	BL	BL	BL	BL	N/A
64	Tin solder(USB plug)	BL	BL	BL	BL	N/A
65	Tin solder(Micro plug)	BL	BL	BL	BL	N/A
66	Grey plastic plug(Micro plug)	BL	BL	BL	BL	BL
67	Contact pin(Micro plug)	BL	BL	BL	BL	N/A
68	Thimble(Micro plug)	BL	BL	BL	X*	N/A
69	Micro metal plug(Micro plug)	BL	BL	BL	BL	N/A
70	Black outer wire jacket(wire rod)	BL	BL	BL	BL	BL
71	White wire jacket(wire rod)	BL	BL	BL	BL	BL
72	Red wire jacket(wire rod)	BL	BL	BL	BL	BL
73	Wire core	BL	BL	BL	BL	N/A

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Element	Unit	Non-metal	Metal	Composite Material
Cd	mg/kg	BL≤70-3σ<X <130+3σ≤OL	BL≤70-3σ<X <130+3σ≤OL	BL≤50-3σ<X <150+3σ≤OL
Pb	mg/kg	BL≤700-3σ<X <1300+3σ≤OL	BL≤700-3σ<X <1300+3σ≤OL	BL≤500-3σ<X <1500+3σ≤OL
Hg	mg/kg	BL≤700-3σ<X <1300+3σ≤OL	BL≤700-3σ<X <1300+3σ≤OL	BL≤500-3σ<X <1500+3σ≤OL
Cr	mg/kg	BL≤700-3σ<X	BL≤700-3σ<X	BL≤500-3σ<X
Br	mg/kg	BL≤300-3σ<X	N/A	BL≤250-3σ<X

Note: BL= Below Limit
OL= Over limited
X= Inconclusive
"N/A"= Not applicable
*= Scanning by XRF and detected by chemical method. The test results of chemical method please refer to next pages.

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Remark:

i Results were obtained by XRF for primary scanning, and further chemical testing by ICP (for Cd, Pb, Hg), UV-Vis (for Cr(VI)) and GC-MS (for PBBs, PBDEs) are recommended to be performed, if the concentration exceeds the above warning value according to IEC 62321-3-1:2013.

ii The XRF scanning test for RoHS elements – The reading may be different to the actual content in the sample be of non-uniformity composition.

iii The maximum permissible limit is quoted from RoHS directive 2011/65/EU and its amendment directive (EU) 2015/863:

RoHS Restricted Substances	Maximum Concentration Value (mg/kg) (by weight in homogenous materials)
Cadmium (Cd)	100
Lead (Pb)	1000
Mercury (Hg)	1000
Hexavalent Chromium (Cr(VI))	1000
Polybrominated biphenyls (PBBs)	1000
Polybrominateddiphenylethers (PBDEs)	1000
Di-iso-butyl phthalate (DIBP)	1000
Dibutyl phthalate (DBP)	1000
Butylbenzyl phthalate (BBP)	1000
Di-(2-ethylhexyl) Phthalate (DEHP)	1000

Disclaimers:

This XRF Scanning report is for reference purposes only. The applicant shall make its/his/her own judgment as to whether the information provided in this XRF screening report is sufficient for its/his/her purposes.

The result shown in this XRF scanning report will differ based on various factors, including but not limited to, the sample size, thickness, area, surface flatness, equipment parameters and matrix effect (e.g. plastic, rubber, metal, glass, ceramic etc.). Further wet chemical pre-treatment with relevant chemical equipment analysis are required to obtain quantitative data.

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B、The Test Results of Chemical Method:

1) The Test Results of non-metal Cr^{6+}

Test Item(s)	Unit	Result(s)		Limit
		24	50	
Hexavalent Chromium(Cr^{6+})	mg/kg	N.D.	N.D.	1000

Note: N.D. = Not Detected or less than MDL
mg/kg = parts per million
MDL = Method Detection Limit

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2)The Test Results of metalCr^{6+}

Test Item(s)	MDL	Result(s)		Limit
		46	68	
Hexavalent Chromium (Cr^{6+})	See note	Negative	Negative	#

Note:

- Negative = Absence of Cr(VI) on the tested areas
- MDL = Method Detection Limit
- Boiling-water-extraction:

Number	Colorimetric result (Cr(VI) concentration)	Qualitative result
1	The sample solution is<the 0,10 µg/cm² equivalent comparison standard solution	The sample is negative for Cr(VI) − The Cr(VI) concentration is below the limit ofquantification. The coating is considered a non-Cr(VI) based coating.
2	The sample solution is ≥ the 0,10 µg/cm² and ≤ the0,13 µg/cm² equivalent comparison standard solutions	The result is considered to be inconclusive – Unavoidable coating variations may influence thedetermination.
3	The sample solution is > the 0,13 µg/cm² equivalent comparison standard solution	The sample is positive for Cr(VI) − The Cr(VI) concentration is above the limit of quantification andthe statistical margin of error. The sample coating isconsidered to contain Cr(VI).

- # =Negative indicates the absence of Cr(VI) on the tested areas concentration is below the limit of quantification. The coating is considered a non-Cr(VI) based coating.

Uncertainty indicates the absence of Cr(VI) on the tested areasunavoidable coating variations may influence the determination.

Positive indicates the presence of Cr(VI) on the tested areas concentration is above the limit of quantification andthe statistical margin of error. The sample coating isconsidered to contain Cr(VI).

Storage conditions and production date of the tested sample are unavailable and thus result of Cr(VI) represent status of the sample at the time of testing.

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Test Report

3) The Test Results of PBBs & PBDEs

Unit:mg/kg

Item(s)	MDL	Result(s)				Limit
		29	31	44	55	
Polybrominated Biphenyls (PBBs)						
Monobromobiphenyl	5	N.D.	N.D.	N.D.	N.D.	Total PBBs Content <1000
Dibromobiphenyl	5	N.D.	N.D.	N.D.	N.D.	
Tribromobiphenyl	5	N.D.	N.D.	N.D.	N.D.	
Tetrabromobiphenyl	5	N.D.	N.D.	N.D.	N.D.	
Pentabromobiphenyl	5	N.D.	N.D.	N.D.	N.D.	
Hexabromobiphenyl	5	N.D.	N.D.	N.D.	N.D.	
Heptabromobiphenyl	5	N.D.	N.D.	N.D.	N.D.	
Octabromobiphenyl	5	N.D.	N.D.	N.D.	N.D.	
Nonabromodiphenyl	5	N.D.	N.D.	N.D.	N.D.	
Decabromodiphenyl	5	N.D.	N.D.	N.D.	N.D.	
Total content	/	N.D.	N.D.	N.D.	N.D.	
PolybrominatedDiphenylethers (PBDEs)						
Monobromodiphenyl ether	5	N.D.	N.D.	N.D.	N.D.	Total PBDEs Content <1000
Dibromodiphenyl ether	5	N.D.	N.D.	N.D.	N.D.	
Tribromodiphenyl ether	5	N.D.	N.D.	N.D.	N.D.	
Tetrabromodiphenyl ether	5	N.D.	N.D.	N.D.	N.D.	
Pentabromodiphenyl ether	5	N.D.	N.D.	N.D.	N.D.	
Hexabromodiphenyl ether	5	N.D.	N.D.	N.D.	N.D.	
Heptabromodiphenyl ether	5	N.D.	N.D.	N.D.	N.D.	
Octabromodiphenyl ether	5	N.D.	N.D.	N.D.	N.D.	
Nonabromodiphenyl ether	5	N.D.	N.D.	N.D.	N.D.	
Decabromodiphenyl ether	5	N.D.	N.D.	N.D.	N.D.	
Total content	/	N.D.	N.D.	N.D.	N.D.	
Conclusion	/	**Pass**	**Pass**	**Pass**	**Pass**	/

Note: N.D. = Not Detected or less than MDL
mg/kg = parts per million
MDL = Method Detection Limit

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Test Report

4)Test result of DBP, BBP, DEHP, DIBP content

Unit: mg/kg

Test item / Limit / Seq. No.	DIBP	DBP	BBP	DEHP	Conclusion
	1000	1000	1000	1000	
1	N.D.	N.D.	N.D.	N.D.	Pass
2	N.D.	N.D.	N.D.	N.D.	Pass
3	N.D.	N.D.	N.D.	N.D.	Pass
4	N.D.	N.D.	N.D.	N.D.	Pass
5	N.D.	N.D.	N.D.	N.D.	Pass
6	N.D.	N.D.	N.D.	N.D.	Pass
7	N.D.	N.D.	N.D.	N.D.	Pass
10	N.D.	N.D.	N.D.	N.D.	Pass
12	N.D.	N.D.	N.D.	N.D.	Pass
14	N.D.	N.D.	N.D.	N.D.	Pass
17	N.D.	N.D.	N.D.	N.D.	Pass
18	N.D.	N.D.	N.D.	N.D.	Pass
19	N.D.	N.D.	N.D.	N.D.	Pass
21	N.D.	N.D.	N.D.	N.D.	Pass
22	N.D.	N.D.	N.D.	N.D.	Pass
24	N.D.	N.D.	N.D.	N.D.	Pass
25	N.D.	N.D.	N.D.	N.D.	Pass
27	N.D.	N.D.	N.D.	N.D.	Pass
28	N.D.	N.D.	N.D.	N.D.	Pass
29	N.D.	N.D.	N.D.	N.D.	Pass
31	N.D.	N.D.	N.D.	N.D.	Pass
32	N.D.	N.D.	N.D.	N.D.	Pass
34	N.D.	N.D.	N.D.	N.D.	Pass
35	N.D.	N.D.	N.D.	N.D.	Pass
36	N.D.	N.D.	N.D.	N.D.	Pass
37	N.D.	N.D.	N.D.	N.D.	Pass

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Test Report

Test item / Limit / Seq. No.	DIBP	DBP	BBP	DEHP	Conclusion
	1000	1000	1000	1000	
38	N.D.	N.D.	N.D.	N.D.	Pass
39	N.D.	N.D.	N.D.	N.D.	Pass
40	N.D.	N.D.	N.D.	N.D.	Pass
42	N.D.	N.D.	N.D.	N.D.	Pass
44	N.D.	N.D.	N.D.	N.D.	Pass
47	N.D.	N.D.	N.D.	N.D.	Pass
48	N.D.	N.D.	N.D.	N.D.	Pass
50	N.D.	N.D.	N.D.	N.D.	Pass
51	N.D.	N.D.	N.D.	N.D.	Pass
52	N.D.	N.D.	N.D.	N.D.	Pass
53	N.D.	N.D.	N.D.	N.D.	Pass
55	N.D.	N.D.	N.D.	N.D.	Pass
57	N.D.	N.D.	N.D.	N.D.	Pass
58	N.D.	N.D.	N.D.	N.D.	Pass
60	N.D.	N.D.	N.D.	N.D.	Pass
61	N.D.	N.D.	N.D.	N.D.	Pass
66	N.D.	N.D.	N.D.	N.D.	Pass
70	N.D.	N.D.	N.D.	N.D.	Pass
71	N.D.	N.D.	N.D.	N.D.	Pass
72	N.D.	N.D.	N.D.	N.D.	Pass

Note: 1. MDL＝Method Detection Limit
2. N.D.=Not Detected(less than method detection limit)

Remark:
Exemption

Seq. No	Exemption clause	Content
39	7(c)-I	Electrical and electronic components containing lead in a glass or ceramic other than dielectric ceramic in capacitors, e.g. piezoelectronic devices, or in a glass or ceramic matrix compound

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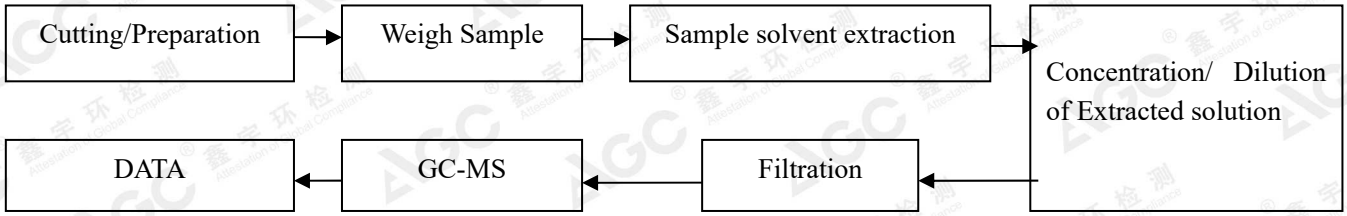
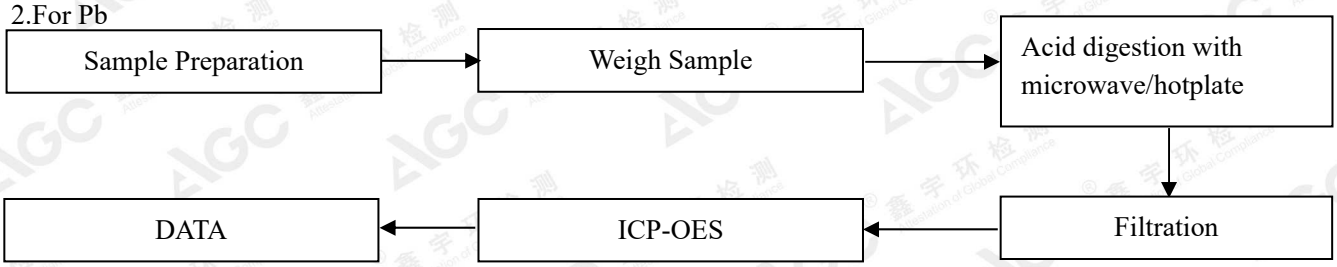
Test Report

Test Flow Chart

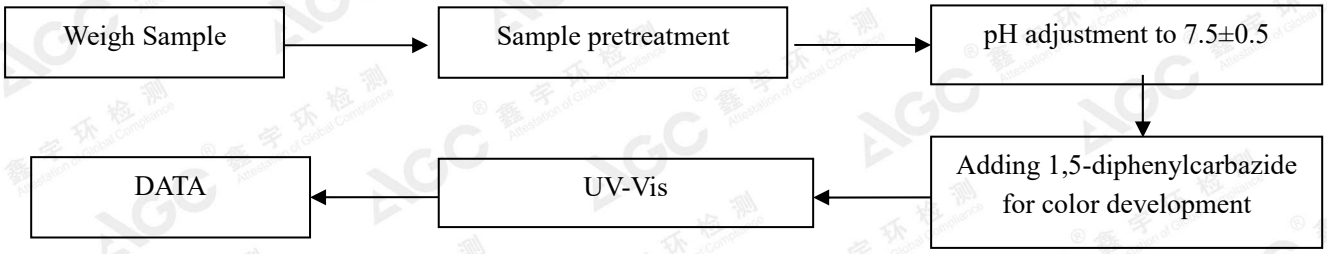
1. For PAHs, phthalates, Pentachlorophenol



2.For Pb



3.For non-metal Cr(Ⅵ)



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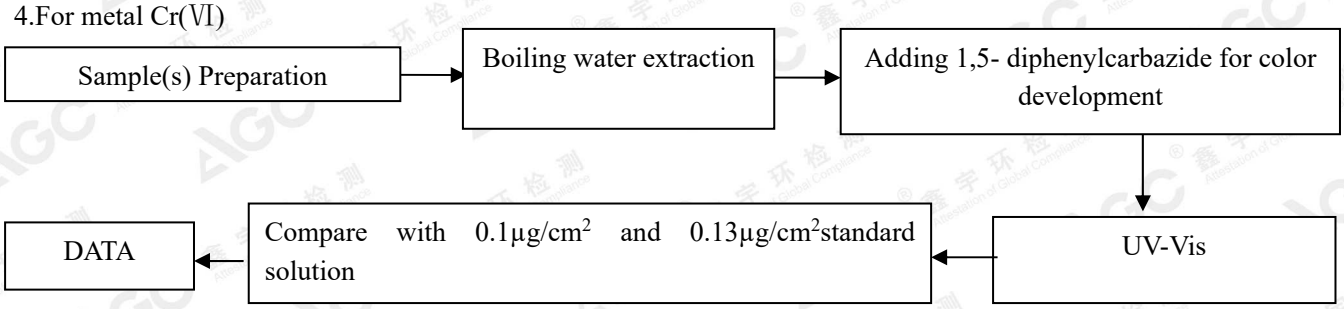
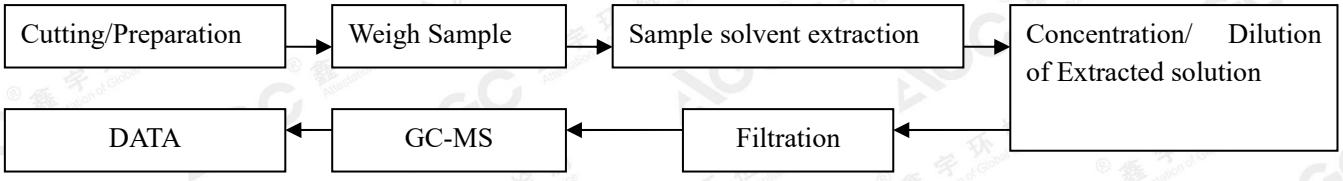


5.For PBBs, PBDEs, DBP, BBP, DEHP, DIBP



Test result on specimen No.13, No.14 were resubmitted on Dec.19, 2019.

-As client's request, add this report that the results are copied from report No.: AGC01232191110-001.

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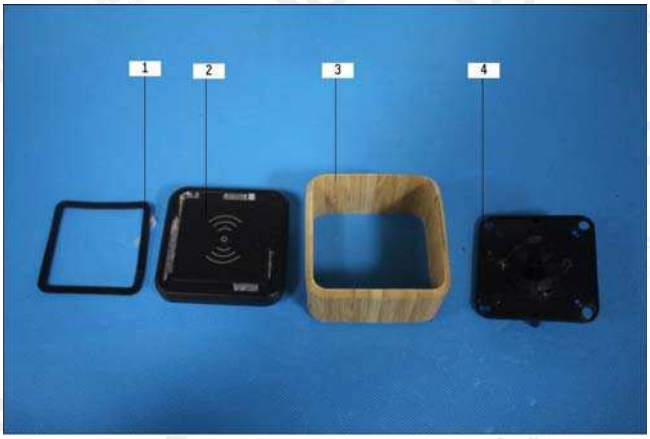
Test Report

The photo of the sample



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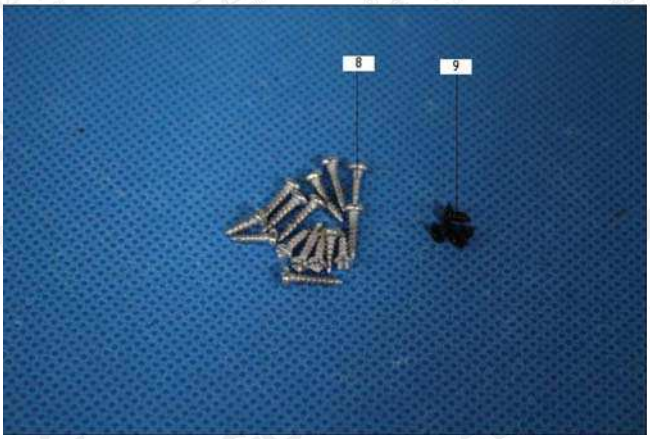

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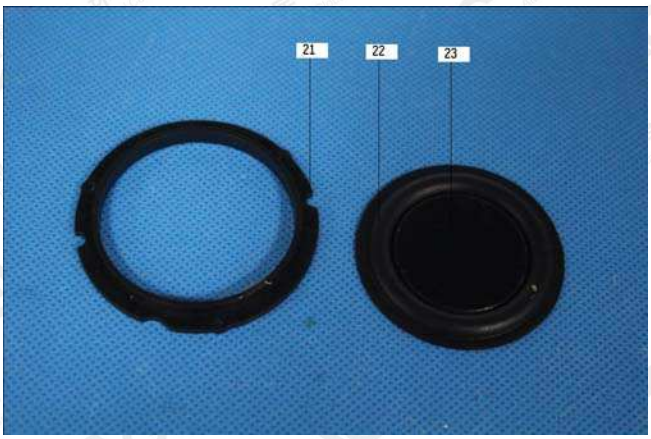

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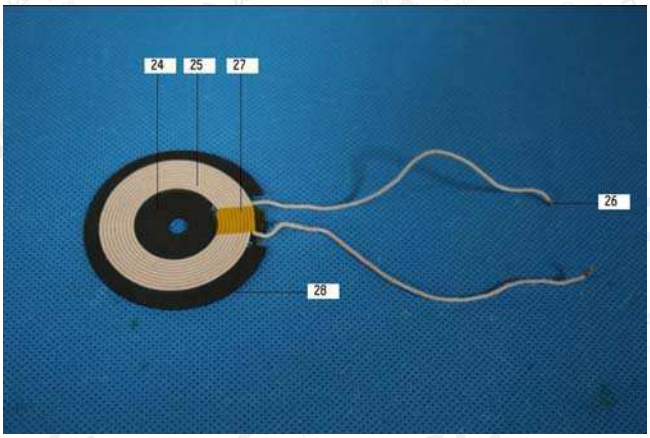

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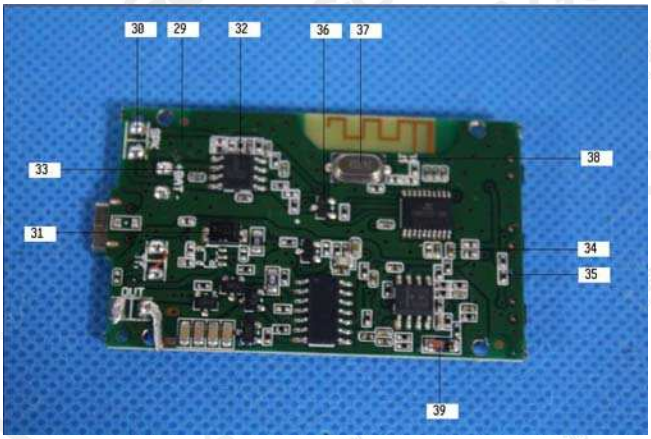

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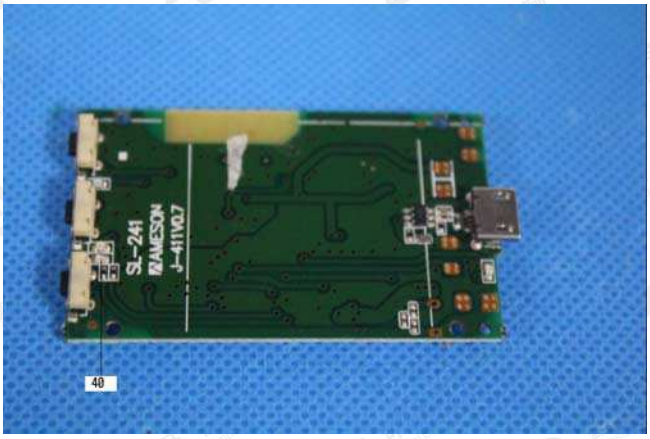

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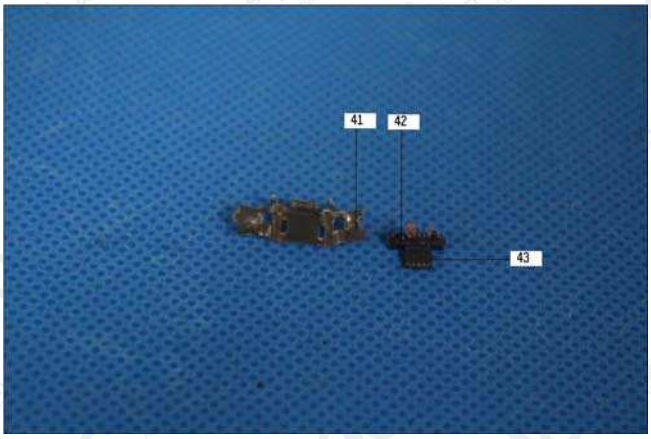

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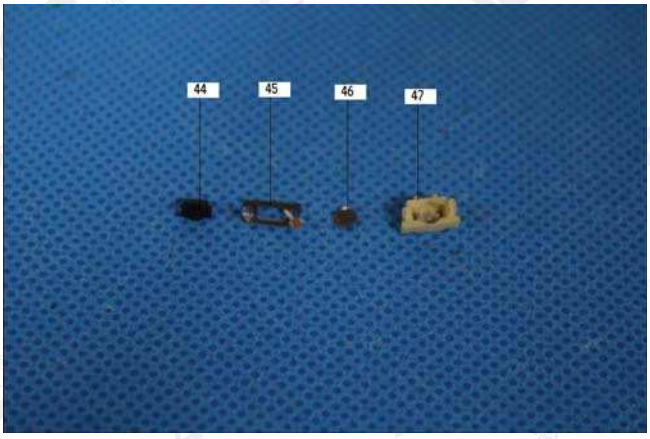

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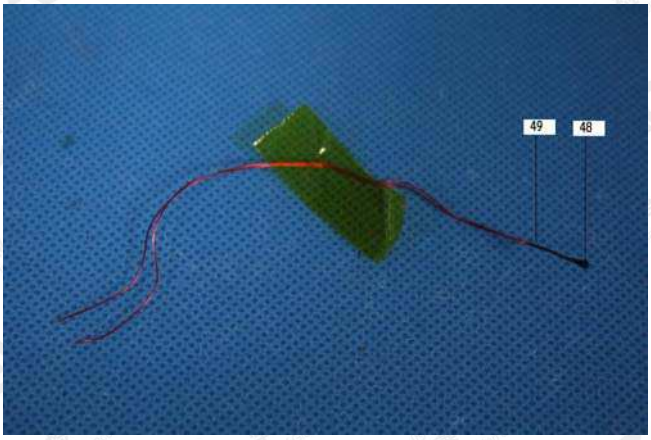

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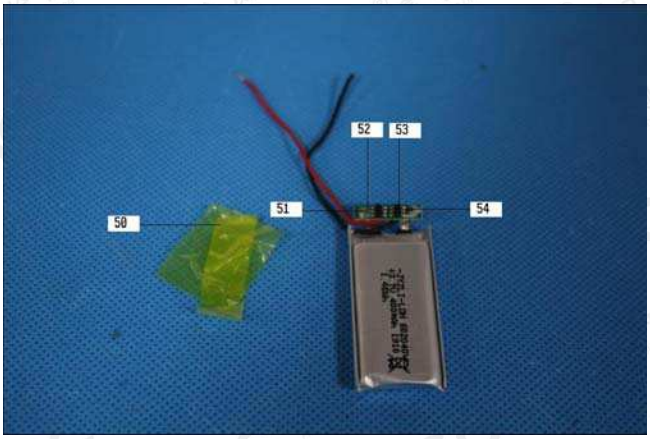

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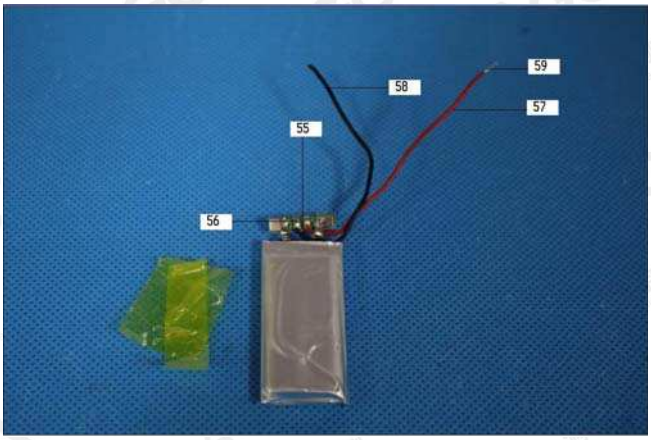

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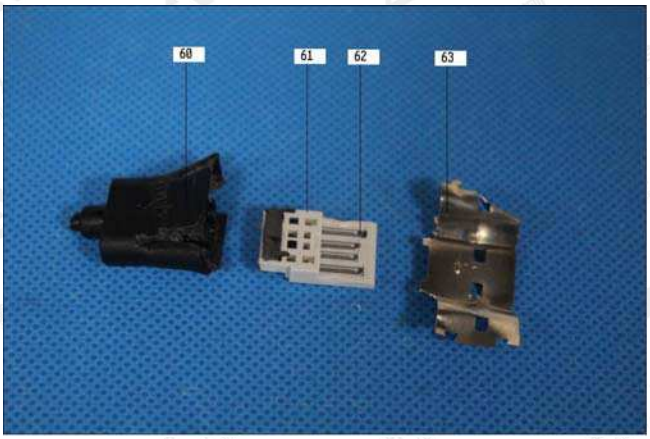

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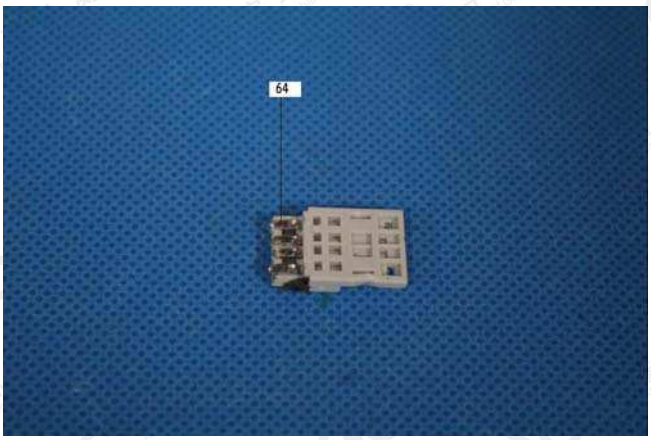

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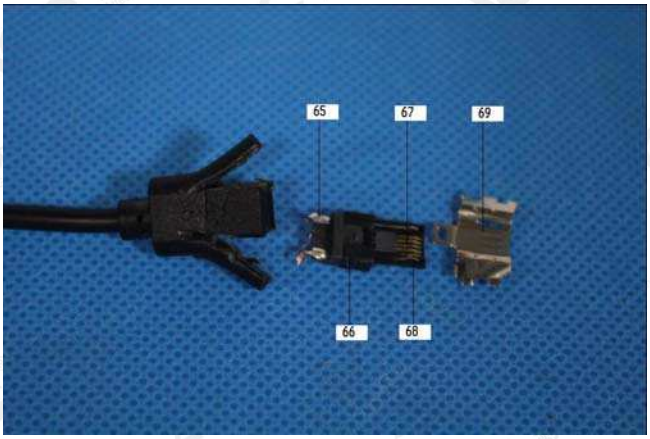
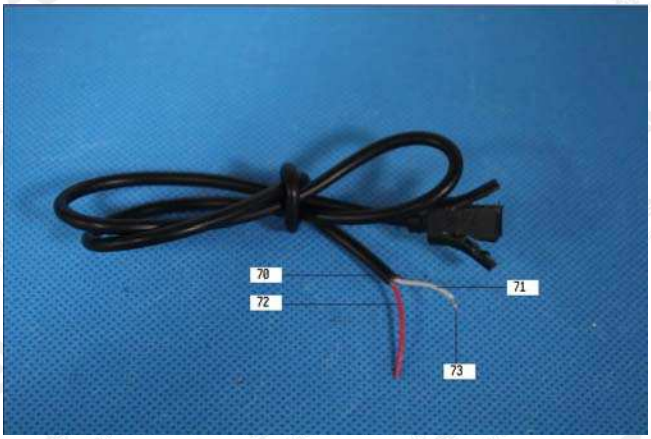


17



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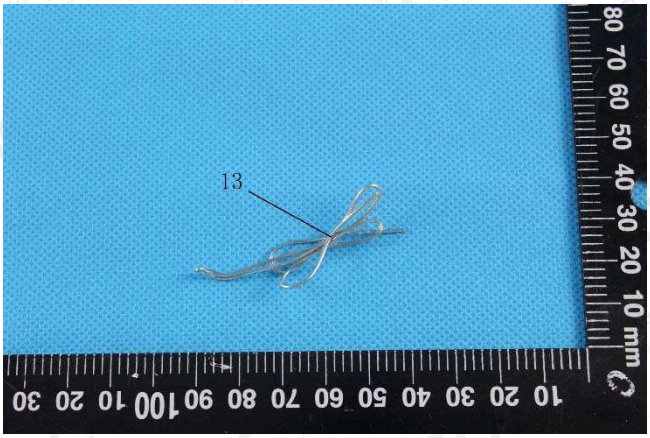

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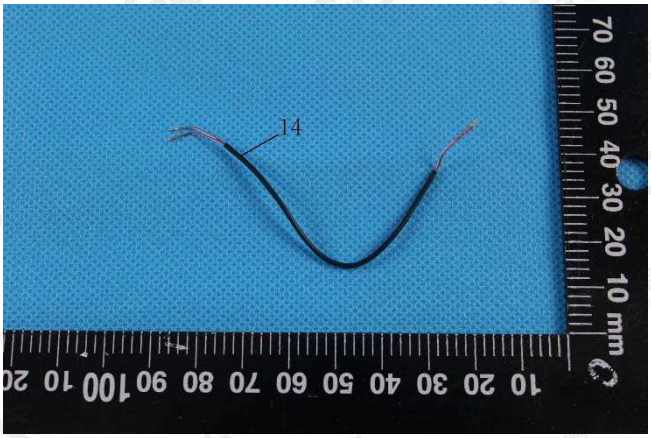

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Tel: +86-755 8358 3833 Fax: +86-755 2531 6612 E-mail: agc01@agc-cert.com 400 089 2118
Add: Building 2, No.171, Meihua Road, Shangmeilin, Futian District, Shenzhen, Guangdong China

Auditee :	[redacted]
Audit Date From :	**20/10/2020**
Audit Date To :	**21/10/2020**
Expiry Date of the Audit :	**Please refer to the producer profile in the amfori BSCI platform**
Auditing Company :	**SGS**
Auditor's Name(s) :	**Christy Li(Lead)**
Auditing Branch (if applicable) :	**SGS CHINA**

This is an extract of the on line Audit Report.The complete report is available in the amfori BSCI Platform.
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Rating Definitions

Rating	A combination of ratings per Performance Area where:	Consequence
A **Very Good**	• Minimum 7 Performance Areas rated A • No Performance Areas rated C, D or E These are three examples: A A A A A A A A A A A A A A A A A A A A A A A B B B A A A A A A A B B B B B B	The auditee has the level of maturity to maintain its improvement process without the need for a follow-up audit.
B **Good**	• Maximum 3 Performance Areas rated C • No Performance Areas rated D or E These are three examples: A A A A A A B B B B B B B A A A A A B B B B B B B C B B B B B B B B B B C C C	The auditee has the level of maturity to maintain its improvement process without the need for a follow-up audit.
C **Acceptable**	• Maximum 2 Performance Areas rated D • No Performance Areas rated E These are three examples: A A A A A A A A C C C C A A A A B B B B C C C D C C C C C C C C C C D D	The auditee needs follow up to support its progress. Following the completion of the audit, the auditee develops a Remediation Plan within 60 days.
D **Insufficient**	• Maximum 6 Performance Areas rated E These are three examples: A A A A A A A A A D D D A A A B B B C C C D D D E D D D D D D D E E E E E E	The auditee needs follow up to support its progress. Following the completion of the audit, the auditee develops a Remediation Plan within 60 days.
E **Unacceptable**	• Minimum 7 Performance Areas rated E These are three examples: A A A A A A E E E E E E E A A B B C D E E E E E E E E E E E E E E E E E E E E	amfori BSCI Participants shall closely oversee the auditee's progress as the producer may represent a higher risk than other business partners.
Zero Tolerance	**A Zero Tolerance Issue was identified (see amfori BSCI System Manual Part V – Annex 5: amfori BSCI Zero Tolerance Protocol)**	**Immediate actions are required. The amfori BSCI Zero Tolerance Protocol is to be followed.**

Main Auditee Information

Name of producer :	[redacted]		
DBID number :	[redacted]		
Audit ID :	[redacted]		
Address :	[redacted]		
Province :	[redacted]	Country :	[redacted]
Management Representative :	[redacted]		
Contact person:	[redacted]	Sector :	**Non-Food**
Industry Type :	**Mechanical and electrical engineering**	Product group :	**Electrical supplies**
Product Type :	**Power bank?Bluetooth Speaker, Earbuds, Wireless charger, Portable electronic Fan, Outdoor products**		

Audit Details

Audit Range :	☒ **Full Audit**	☐ **Follow-up Audit**	
Audit Scope :	☒ **Main Auditee**	☐ **Main Auditee & Farms**	
Audit Environment :	☒ **Industrial**	☐ **Agricultural**	☐ **Small Producer**
Audit Announcement :	☒ **Fully-Announced**	☐ **Fully-Unannounced**	☐ **Semi-Announced**
Random Unannounced Check (RUC) :	**No**		
Audit extent (if applicable) :	**none**		
Audit interferences or contingencies (if applicable) :	**none**		
Overall rating :	**C**		
Need of follow-up :	**Yes**	If YES, by :	**21/10/2021**

Rating per Performance Area (PA)

PA 1	PA 2	PA 3	PA 4	PA 5	PA 6	PA 7	PA 8	PA 9	PA 10	PA 11	PA 12	PA 13
D	B	A	A	B	D	B	A	A	A	A	A	A

Executive summary of audit report

[redacted] ([redacted]) was established in Jan 2014 and the business license number was [redacted]. The audited factory manufactured Power bank、Bluetooth Speaker, Earbuds, Wireless charger, Portable electronic Fan, Outdoor products. The main production processes included SMT, assembly and packing. The factory used the 2nd and 3rd floor of one 3-storey production building as office, workshop and warehouse. The factory did not provide dormitory, canteen and transportation to workers.
There were total 63 employees in the factory during this audit, and the peak season was not obvious. No child labor or young worker was found in the auditee. No subcontractor was used by the factory. No service provider was used. The factory management was cooperative during the whole assessment, agreed to conduct worker interview and take photos, and was receptive to the result. Ms. Bi Zhengwang/Admin supervisor and Ms. Lu Qiuju /Worker representative signed the findings report and agreed the deadline for the findings.
For wage issue, all workers were paid by hourly rate and by cash on 7th of following month. The minimum wage was RMB 12.65 per hour. The factory paid workers with 150% and 200% of basic wage for overtime working on weekdays and weekends. Workers were paid with adequate benefit, such as statutory holiday wage, paid annual leave. But not all workers were provided with social insurance.

This audit was conducted by Christy Li(APSCA Number: RA21701882).
Remark:
1 The auditee rented the 2nd and 3rd floor of one 3-storey production building in the industrial zone for production, and the lease contract was provided for review, the first floor was used by plastic parts injection factory, the business license of first floor was provided for review, and the audit just covered the second and third floor using by the auditee.
2. One packing line at 2nd floor workshop and 2 out of 5 production line at 3rd floor workshop of the main auditee was not in production, the factory Management stated that it was due to the impact of the outbreak of coronavirus, and no enough production order or current products did not need above production process.

Ratings Summary

Auditee's background information

Auditee's name :	[redacted]	Legal status :	**Limited company**
Local Name :		Year in which the auditee was founded :	**2014**
Address :	[redacted]	Contact person (please select) :	[redacted]
Province :	[redacted]	Contact's Email :	[redacted]
City :	[redacted]	Auditee's official language(s) for written communications :	**Chinese**
Region :	**North East Asia**	Other relevant languages for the auditee :	**None**
Country :	**China**	Website of auditee (if applicable) :	**None**
GPS coordinates :	**E22°41'43" N113°48'22"**	Total turnover (in Euros) :	[redacted]
Sector :	**Non-Food**	Of which exports % :	[redacted]
Industry :	**Mechanical and electrical engineering**	Of which domestic market % :	[redacted]
If other, please specify :		Production volume :	**5000000 pcs per year**
Product Group :	**Electrical supplies**	Production cost calculation :	**Yes**
If other, please specify :		Lost time injury calculation cost :	**No**
Product Type :	**Power bank?Bluetooth Speaker, Earbuds, Wireless charger, Portable electronic Fan, Outdoor products**		

Auditee's employment structure at the time of the audit

Total number of workers : **63** Total number of workers in the production unit to be monitored (if applicable) : **0**

	MALE WORKERS	FEMALE WORKERS
Permanent workers	**28**	**35**
Temporary workers	**0**	**0**
In management positions	**6**	**4**
Apprentices	**0**	**0**
On probation	**0**	**0**
With disabilities	**0**	**0**
Migrants (national citizens)	**28**	**35**
Migrants (foreign citizens)	**0**	**0**
Workers on the permanent payroll	**28**	**35**
Production based workers	**0**	**0**
With shifts at night	**0**	**0**
Unionised	**0**	**0**
Pregnant	**-**	**0**
On maternity leave	**-**	**0**

Finding Report

Performance Area 1 : Social Management System and Cascade Effect

Full Audit [Audit Id - [redacted] Audit Date: 20/10/2020 PA Score: D — Deadline date:20/04/2021

GOOD PRACTICES:

AREAS OF IMPROVEMENT:

Consolidated finding: The overall observation showed that the main auditee partially fulfilled the requirements of this performance area. The factory established the amfori BSCI management system document, and Mr. Bi Zhengwang/Admin supervisor was appointed to implement the amfori BSCI management system; the factory established suppliers control procedure which included how to select the qualified suppliers and monitor the social performance of main suppliers. The amfori BSCI COC and TOI were signed between main suppliers and the factory, and the factory conducted assessment in 2020. However, gaps have been identified in implementation.
综合概况：整体现场的情况显示主要被审核方部分符合该绩效区域。 工厂建立了amfori BSCI管理体系文件，同时任命毕正旺/行政主管为管理者代表来负责执行amfori BSCI的管理体系，工厂建立了供应商管控程序，包括如何挑选合格供应商并定期监控供应商社会责任方面的绩效，工厂还与主要供应商签署了amfori BSCI 行为守则和商业伙伴专用实施条款并在2020年进行了评估。 但是发现主要被审核方在系统执行方面和amfori BSCI要求有差距:

1.1 - Finding: the main auditee partially respects this principle because the main auditee established amfori BSCI management system. But it was not effectively implemented, that leading to some issues of working hour, social insurance, health & safety etc. were identified during the audit.
主要被审核方（生产商）部分遵守原则，原因是主要被审核方已建立了amfori BSCI管理系统。 但由于未有效执行，导致了工作时间、社保、健康安全等方面问题的发生。

1.4 - Finding: the main auditee partially respects this principle. Because the factory had implemented capacity planning, but due to the implementation was not completed, that leading to workers' overtime hours exceeded legal requirement.
主要被审核方（生产商）部分遵守原则，原因是工厂执行了产能规划，但是执行不完善，导致工人的加班时间超出法规要求。

Remarks from Auditee:

Performance Area 2 : Workers Involvement and Protection

Full Audit [Audit Id - [redacted] Audit Date: 20/10/2020 PA Score: B — Deadline date:20/04/2021

GOOD PRACTICES:

AREAS OF IMPROVEMENT:

Consolidated finding: The overall observation showed that the main auditee partially fulfilled the requirements of this performance area. 2 worker representatives were elected by workers in Mar. of 2020, communication meeting between the management and worker representatives was conducted per season with communication records available for review. The last meeting was conducted on Sep. 4, 2020. The factory provided sufficient trainings including amfori BSCI COC, legal regulations and relevant factory rules for managements, workers and worker representatives to ensure that the amfori BSCI management system could be implemented successfully in factory. Amfori BSCI Code and Terms had been posted at the bulletin board. However, gaps have been identified in implementation:
综合概况：整体现场的情况显示主要被审核方部分符合该绩效区域。 在2020年3月所有员工参与选举产生了2名员工代表，每季度管理层与员工代表进行了沟通会议并保留相应记录，最近一次的会议是在2020年9月4日。工厂为管理层，员工以及员工代表提供足够的培训，包括amfori BSCI行为守则，法律法规以及工厂的规章制度来确保amfori BSCI系统在工厂内能有效运行。同时Amfori BSCI行为守则和海报张贴在公告栏里。 但是发现主要被审核方在系统执行方面和amfori BSCI要求有差距:

2.2 - Finding: The main auditee partially respects this principle because 80% of the interviewed workers did not know what's amfori BSCI, although training records of amfori BSCI Code were provided for review.
被审核方（生产商）部分遵守该准则，原因是80%被访谈工人不知道什么是amfori BSCI，虽然工厂提供了amfori BSCI行为准则培训记录供审核。

2.5 - Finding: The main auditee partially respects this principle because no grievance mechanism for communities was established in the factory, such as outside stakeholders. Although the factory established written grievance mechanism for individuals in the factory.
被审核方部分遵守该原则原因是工厂仅建立了与厂内员工的申诉机制，但未建立与社会的申诉机制，如外部的利益相关方。

Remarks from Auditee:

Performance Area 3 : The rights of Freedom of Association and Collective Bargaining

Full Audit [Audit Id - [redacted] Audit Date: 20/10/2020 PA Score: A — Deadline date:

GOOD PRACTICES:

AREAS OF IMPROVEMENT:

Consolidated finding: The overall observation showed the main auditee fulfilled the requirement of performance area. The factory has established Freedom of Association and Collective Bargaining procedure, defining that workers could freely establish or join worker organization and have the right of collective bargaining. All workers took part in the selection of worker representatives, and the meeting between management and worker representative once per season was held and contents covered health & safety, working hours and benefits, etc. No collective bargain agreement was concluded between the factory and workers, but the factory did not prevent workers from bargaining for the agreement. Based on on-site observation, the factory had effective grievance mechanism including suggestion box, worker representative and face to face to management or supervisor directly.
综合概况：整体观察显示主要被审核方符合该绩效区域的要求。 工厂建立了自由结社和集体谈判的程序，说明了员工可以自由组建或加入工人团体并有集体谈判的权利。工人参与且选举了员工代表，代表每季度与管理层举行一次会议，内容包括健康安全，工作时间和福利待遇等。工厂和员工无集体谈判协议，但工厂也未阻止员工有意愿的时候和工厂谈判。工厂设有有效的申诉渠道，包含意见箱，工人代表和面对面直接跟管理层或主管反映。

Remarks from Auditee:

Performance Area 4 : No Discrimination

Full Audit [Audit Id - [redacted] Audit Date: 20/10/2020 PA Score: A Deadline date:

GOOD PRACTICES:

AREAS OF IMPROVEMENT:

Consolidated finding: The overall observation showed the main auditee fulfilled the requirement of performance area. The non-discrimination policy was established, and the non-discrimination risk assessment was conducted. Based on management and workers interview, the factory did not discriminate workers due to their gender, age, marital status, political background etc. during the recruitment, OT work or promotion. The policy on discipline measures made by the factory was in line with legal requirement and amfori BSCI code of conduct.
综合概况：整体观察显示主要被审核方符合该绩效区域的要求。 工厂制定了禁止歧视政策，并进行风险评估。管理层及员工访谈显示，工厂没有因员工的性别，年龄，婚姻状况，政治背景等而导致在入职，加班，晋升等发生任何歧视。工厂制定了惩戒措施程序，措施均符合法规和amfori BSCI要求。

Remarks from Auditee:

Performance Area 5 : Fair Remuneration

Full Audit [Audit Id - [redacted] Audit Date: 20/10/2020 PA Score: B Deadline date:20/04/2021

GOOD PRACTICES:

AREAS OF IMPROVEMENT:

Consolidated finding: The overall observation showed that the main auditee partially fulfilled the requirements of this performance area. The factory had established the policy about wage and compensation, local official minimum wage document and welfare documents were collected. Paid annual leave, statutory holiday, sick leave, marriage leave, maternity leave and funeral leave were defined and provided to workers. Payroll records from Oct. 2019 to Sep. 2020 were provided and 10 sampled workers payment were reviewed. Based on samples review, wages were calculated by hourly rate for production worker, QC, warehouse and management staff. The minimum wage of sampled workers was RMB2200 per month, which met the local minimum wage of RMB2200 per month. Workers' wages were paid by cash before 7th day of next month. Pay slips were provided to workers on the date of wages issue date. The pay slip included the information of basic wage, overtime wage and position allowance, and no deduction was conducted in the wage. However, gaps have been identified in implementation:
综合概况：整体现场的情况显示主要被审核方部分符合该绩效区域。 工厂建立了工资和福利的政策，且收集了当地政府最低工资文件及福利待遇文件。工厂规定并提供了有薪年假、法定节假日、病假、婚假、产假和丧假给员工。工厂提供了从2019年10月到2020年9月的工资记录，抽取了10名员工作为样本。记录表明，所有生产工人，QC，仓库，管理人员工资均采用计时方式，员工的最低工资为RMB2200每月，符合当地法规要求RMB2200每月。下个月7号前以现金方式支付当月的工资。发工资当天有提供工资条给员工，工资条包含了基本工资，加班工资和岗位津贴，工资中无其他扣款项。 但是发现主要被审核方在系统执行方面和amfori BSCI要求有差距:

5.5 - Finding: The main auditee does not respect this principle because based on social insurance payment records of Sep. 2020, the factory provided retirement insurance to 31 workers and provided injury, medical, unemployment, child-bearing insurance to 44 workers. There were totally 63 employees in the factory.
被审核方（生产商）未遵守该原则，原因是根据2020年9月的社保缴费记录，工厂为63名员工中的31名提供了养老保险，为44名提供了工伤、医疗、失业和生育保险。工厂总人数为63人。

Remarks from Auditee:

Performance Area 6 : Decent Working Hours

Full Audit [Audit Id - [redacted] Audit Date: 20/10/2020 PA Score: D Deadline date:20/04/2021

GOOD PRACTICES:

AREAS OF IMPROVEMENT:

Consolidated finding: The overall observation showed that the main auditee partially fulfilled the requirements of this performance area. The factory established working hour policy according to local legal requirement. Fingerprint attendance machine was used to record workers' working time. Normal working hour of the factory was 8 hours per day and 5 days per week. Only one shift was for all employees and working time was 8:00-12:00, 13:30-17:30, and if OT needed, 18:30-20:30. Time records from Oct.1, 2019 to audit date were provided and 10 samples were selected for review. Maximum 2 hours OT per day, maximum 20 hours OT per week, maximum 82 hours OT per month. At least 1 day off after 6 days consecutive working days was guaranteed. Based on workers interview, workers confirmed that they worked overtime voluntarily. 150%, 200% and 300% of normal rate would be compensated for overtime on normal working days, rest day and statutory holidays. However, gaps have been identified in implementation.
综合概况：整体现场的情况显示主要被审核方部分符合该绩效区域。 工厂根据法律要求建立了工作时间的政策。工厂使用指纹识别考勤系统用来记录员工的工作时间。正常工作时间为每天8小时，每周5天。所有员工只设1个班次，工作时间为：8:00-12:00, 13:30-17:30，如果需要加班，加班时间为18:30-20:30。2019年10月1日至审核当天的考勤已提供，抽样了10名员工的考勤。每天最大加班2小时，每周最大加班20小时，每月最大加班82小时。每周有一天休息。通过员工访谈，工人均表示加班自愿。工厂按基本工资的1.5倍，2倍及3倍来支付工人平时加班，周末加班及假日加班的工资。 但是发现主要被审核方在系统执行方面和amfori BSCI要求有差距。

6.2 - Finding: The main auditee does not respect this principle because workers' OT hour exceeded legal requirement. Based on attendance records from 1 Oct. 2019 to the audit date, it was noted that 100% sampled workers' monthly OT hours exceeded 36 hours in each month except Feb. 2020, the maximum was up to 82 hours in Dec 2019 and Aug 2020. The maximum weekly working hour of workers were 60 hours. The average monthly overtime is 67 hours.
主要被审核方（生产商）未遵守该原则，原因是工人加班时间超法规要求。 根据工厂提供的2019年10月1日至审核当天的考勤记录，发现100%的抽样工人除了2020年2月之外，每个月的月加班均超过36小时，最大在2019年12月及2020年8月达82小时。工人的最大周工时为60小时，平均 月加班67小时。

Remarks from Auditee:

Performance Area 7 : Occupational Health and Safety

Full Audit [Audit Id - [redacted] Audit Date: 20/10/2020 PA Score: B Deadline date:20/04/2021

GOOD PRACTICES:

AREAS OF IMPROVEMENT:

Consolidated finding: The overall observation showed that the main auditee partially fulfilled the requirements of this performance area. 1. The factory established the effective system of health and safety. The factory set up workers' health safety committee with production workers involved, and Mr. Bi Zhengwang/Admin supervisor was appointed as EHS representative. The factory provided the fire acceptance inspection report of the 4-storey production building. The factory equipped adequate fire equipment for the production workshop, such as fire alarms, fire extinguishers, fire hydrants, safety exit sign and emergency lights and evacuation signs and so on. Based on onsite sampling test, fire hydrant water pressure, fire alarm and emergency light were valid and available. 2. The factory regularly conducted firefighting equipment training and fire drill on half of per year, and the last fire drill was conducted on Jun. 16, 2020. 3. The factory set up relative operating process for machinery safety risk positions, provided relative training for workers to keep watching risks. Clean drinking water facilities was provided for workers and adequate toilets were provided for workers. The drinking water was tested on Sep. 8, 2020 and provided the inspection report for review. 4. The factory had 1 trained first aid personnel, trained on Aug. 21, 2020. First aid kits with enough suppliers were equipped for each workshop. There was only 1 cargo lift used in the factory, which were inspected on Aug 3, 2020. 5. The factory did not provide dormitory, canteen and transportation to workers. However, gaps have been identified in implementation:
综合概况：整体现场的情况显示主要被审核方部分符合该绩效区域。 1.工厂建立了有效的员工健康安全体系。工厂成立了包含员工参与的健康安全委员会，指定毕正旺先生/行政主管为健康安全代表。工厂提供了一栋3层生产楼的消防验收报告。工厂给所有车间配置了足够的消防设施，例如灭火器，消防警铃，消防栓，安全出口标识，疏散指示和应急灯等。审核期间经过现场的抽样测试，消防栓水压，消防警铃和应急灯都是有效的和可用的。 2.工厂定期进行消防设施的使用培训和每半年进行一次消防疏散演习，最近一次消防演习的时间为2020年6月16日。 3.工厂针对有机械安全风险的岗位制定了相应的操作规程，并且给员工提供了培训以防范风险。工厂提供了干净卫生的饮水设施，且有提供足够的洗手间。饮用水在2020年9月8检测，提供了报告供查阅。 4.工厂共有1名合格的急救人员，在2020年8月21日培训，装有足够药品的急救药箱在每个车间都有配置。只有1台货梯在工厂使用，上次检测在2020年8月3日。 5.工厂未提供宿舍，食堂和交通。 但是发现主要被审核方在系统执行方面和amfori BSCI要求有差距:

7.1 - Finding:The main auditee partially respects this principle because the factory had established management system on health and safety, included the identify and awareness of related legal regulation, health and safety check, training and etc. But H&S issues were identified due to management negligence.
主要被审核方（生产商）部分遵循该准则， 原因是工厂已建立健康安全管理体系，包括相关法规的识别与了解，健康安全检查，培训等，但是由于管理疏忽，导致仍然有健康安全问题存在。

7.2 - Finding: The main auditee did not respects this principle because the main auditee only provided injury insurance to 44 out of 63 employees. No commercial accident insurance was provided to employees.
被审核方未符合该原则，原因是被审核方只给63名员工中的44名提供了工伤保险。 被审核方未给员工提供商业意外险。

7.3 - Finding: The main auditee partially respects this principle because the factory had carried out complete risk assessment for safe, healthy and hygienic working conditions, but it didn't provide occupational health examination for all workers contacted hazardous factors, such as soldering workers and workers who used the chemical.
被审核方（生产商）部分遵循该准则。原因是工厂有针对安全，健康和卫生工作条件进行完善的风险评估，但是未给所有接触有害工作环境的工人提供职业健康体检，例如焊锡工人和使用化学品的工人。

7.4 - Finding: The main auditee does not respect this principle because the factory had conducted risk assessment throughout the facility, but workers or worker representatives were not involved in the risk assessment.
被审核方未遵守该原则，原因是工厂有进行风险评估，但是员工或员工代表未参与到风险评估中。

7.7 - Finding: The main auditee partially respects this principle because the factory had installed LEV for soldering positions, but 3 out of 5 sampled soldering position didn't have LEV.
被审核方部分遵守该原则，原因是工厂在焊锡岗位安装LEV，但是抽样5个焊锡岗位其中3个未安装LEV。

7.11 - Finding: The main auditee does not respect this principle because the factory used the 2nd floor and 3rd floor of one 3-storey production building as for workshop, warehouse and office room. But the factory did not provide the completion acceptance report of this building for review.
主要被审核方（生产商）未遵守该原则，原因是工厂使用1栋3层生产楼的2楼和3楼作为车间、仓库及办公室，工厂未提供该栋建筑的竣工验收报告。

Remarks from Auditee:

Performance Area 8 : No Child Labour

Full Audit [Audit Id - [redacted] Audit Date: 20/10/2020 PA Score: A Deadline date:

GOOD PRACTICES:

AREAS OF IMPROVEMENT:

Consolidated finding: The overall observation showed the main auditee fulfilled the requirement of performance area. The factory established the policy of recruiting, and it regulated that the factory would not recruit workers under 16. The factory checked workers' ID during recruiting and HR specialist knew the skills of asking workers' experience and ages when they had any doubt of workers' ID card or age according to interview with HR specialist. In addition, the factory established remediation measure of child labor in order to set up measure of recruiting child labor incidentally. No child labor was identified in the factory in this audit. The youngest worker in the factory was 19 years old, born in 2001.

综合概况：整体观察显示主要被审核方符合该绩效区域的要求。 工厂制定了招聘政策，制定工厂不会招聘年龄小于16岁的工人。员工入职时工厂会查看身份证并且当人事专员对员工年龄有怀疑时，会通过有技巧地面谈以核实员工的年龄。另工厂制定了童工补救措施以防万一发现童工的应对措施。审核过程中，未发现有任何童工存在。工厂最小年龄的工人已19岁，2001年出生。

Remarks from Auditee:

Performance Area 9 : Special protection for young workers

Full Audit [Audit Id - [redacted] Audit Date: 20/10/2020 PA Score: A Deadline date:

GOOD PRACTICES:

AREAS OF IMPROVEMENT:

Consolidated finding: The overall observation showed the main auditee fulfilled the requirement of performance area. The factory established the procedure on protection young workers and conducted risk assessment on young workers. Young workers would not be arranged in night shift, and the total time including work, transportation and education not exceeding 10 hours a day for young workers was identified. Pre-work and regular health examination would be required for young workers stated in the procedure. There were no young workers identified in the factory.
综合概况：整体观察显示主要被审核方符合该绩效区域的要求。 工厂制定了未成年工保护程序并对未成年工进行了风险评估。未成年工不能上夜班，同时包括每日交通，教育和工作的总时间不超过10小时进行了有效的识别。程序里要求对未成年工进行岗前和定期体检。审核中没有发现未成年工。

Remarks from Auditee:

Performance Area 10 : No Precarious Employment

Full Audit [Audit Id - [redacted] Audit Date: 20/10/2020 PA Score: A Deadline date:

GOOD PRACTICES:

AREAS OF IMPROVEMENT:

Consolidated finding: The overall observation showed the main auditee fulfilled the requirement of performance area. The factory established the human resource management procedure which regulated the standard of recruitment, remuneration, hours of work, disciplinary measures, promotion, trainings, termination of employment. The factory signed labor contracts with all new workers within than 1 month. All workers have assigned the labor contract with factory. Wage, working hours, holidays, post, welfare were defined in the labor contract. No dispatching workers, no temporary worker, and no student worker etc. were applied in this factory.
综合概况：整体观察显示主要被审核方符合该绩效区域的要求。工厂建立了人力资源管理程序，涵盖了人员招聘，薪资，工时，奖惩，晋升，培训，解除合同等各方面的规定。工厂和所有新进员工在入职一个月内签订劳动合同。所有的工人都与工厂签订了劳动合同，签合同中有规定工资，工时，假期和福利等内容。工厂没有使用派遣工，临时工，学生工等。

Remarks from Auditee:

Performance Area 11 : No Bonded Labour

Full Audit [Audit Id - [redacted] Audit Date: 20/10/2020 PA Score: A Deadline date:

GOOD PRACTICES:

AREAS OF IMPROVEMENT:

Consolidated finding: The overall observation showed the main auditee fulfilled the requirement of performance area. The factory established the policy on anti-forced labor. The amfori BSCI management representative understood well the scope of forced labor. According to onsite observation and interview with workers, workers confirmed that there were no forced labor evidences showed in the factory, for example, they could resign according to legal requirement and they could leave the factory freely. No inhumane or degrading treatment was found during the audit. The discipline policy was also in line with legal requirement.
综合概况：整体观察显示主要被审核方符合该绩效区域的要求。 工厂制定了反强迫劳动的政策，工厂负责amfori BSCI管理代表理解哪些方式是属于强迫劳动的范畴。依据现场观察和员工访谈，员工很确定地表明工厂内无强迫劳动的现象，如员工可以依照法规要求提出辞工，并且可以自由离开工厂。员工也未受到任何被侮辱或非人道的待遇。工厂制定的惩戒政策也是符合法律法规要求。

Remarks from Auditee:

Performance Area 12 : Protection of the Environment

Full Audit [Audit Id - [redacted] Audit Date: 20/10/2020 PA Score: A Deadline date:20/04/2021

GOOD PRACTICES:

AREAS OF IMPROVEMENT:

Consolidated finding: The overall observation showed the main auditee partially fulfilled the requirement of performance area. The auditee established a policy based on amfori BSCI standards and local law requirements for environment protection. The land belonged to the factory was industrial land and water used by the factory was come from municipal water. The main waste generated from factory was noise and waste air. During on site observation, it was found waste was not dumped in natural environments, or burned on open fires. However, gaps had been identified in implementation:
综合概况：整体现场的情况显示主要被审核方部分符合该绩效区域。 工厂基于amfori BSCI的标准和当地法规要求建立环境政策及程序文件。工厂主要使用当地市政提供的自来水，并且工厂用地属于工业用地。工厂主要的污染物是噪音和废气。 通过现场走访发现生产废物未直接排放到自然环境当中或直接焚烧。但是发现工厂在如下方面和amfori BSCI要求有差距：

12.3 - Finding: The main auditee partially respects this principle because the factory management was unable to provide the approval document for on-site inspection and acceptance of completed environmental protection facilities for review. The factory had worked out the report form of environmental impacts of the construction of the facility and obtained approval document for the report form of environmental impacts.
被审核方部分遵守该原则，原因是被审核方未能提供建设项目竣工环境保护验收文件。工厂有进行环境影响评估，并且获得了环评批复。

Remarks from Auditee:

Performance Area 13 : Ethical Business Behaviour

Full Audit [Audit Id - [redacted] Audit Date: 20/10/2020 PA Score: A Deadline date:

GOOD PRACTICES:

AREAS OF IMPROVEMENT:

Consolidated finding: The overall observation showed that the main auditee fulfilled the requirements of this performance area. Anti-corruption procedure was established, and the training was provided to all workers regularly. The grievance mechanism for workers to report unethical behaviors was established, and proper investigation and disciplinary actions would be followed. The factory provided actual records including payroll records, attendance records, production records, etc. for review.

综合概况：整体现场的情况显示主要被审核方符合该绩效区域。 工厂建立了反腐败程序，并对所有员工定期进行培训。工厂建立了适当的投诉机制以便工人举报不道德的行为，并对不道德的行为会进行调查和采取处罚措施。审核中工厂提供了准确的包括工资表，考勤记录和生产记录。

Remarks from Auditee:

Summary

Audit Type	Date	Audit Id	PA1	PA2	PA3	PA4	PA5	PA6	PA7	PA8	PA9	PA10	PA11	PA12	PA13	Overall Rating
Full Audit	20/10/2020	[redacted]	D	B	A	A	B	D	B	A	A	A	A	A	A	C

Producer Photos

External photo(s) of the production unit(s)
Factory gate and name.JPG

External photo(s) of the production unit(s)
Factory gate.JPG

External photo(s) of the production unit(s)
Factory name 1.JPG

External photo(s) of the production unit(s)
Factory name 2.JPG

External photo(s) of the production unit(s)
Factory production building.JPG

External photo(s) of the production unit(s)
Industrial area gate.JPG

Photo first aid facilities
Eye washing provided.JPG

Photo first aid facilities
First aid box.JPG

Photo of chemical storage room (if applicable)
Chemicals stored.JPG

Photo of chemical storage room (if applicable)
Chemicals with safety label.JPG

Photo of chemical storage room (if applicable)
MSDS posted.JPG

Photo of fire safety equipment
Fire alarm testing.JPG

Photo of fire safety equipment
Fire emergency lighting testing.JPG

Photo of fire safety equipment
Fire evacuation instructions.JPG

Photo of fire safety equipment
Fire evacuation map.JPG

Photo of fire safety equipment
Fire exits.JPG

Photo of fire safety equipment
Fire facilities 1.JPG

Photo of fire safety equipment
Fire facilities 2.JPG

Photo of fire safety equipment
Fire hydrant testing.JPG

Photo of fire safety equipment
Fire stairs.JPG

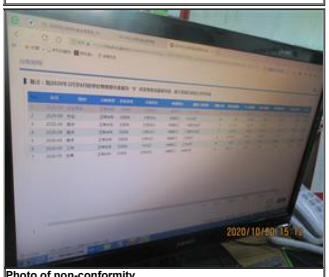

Photo of non-conformity
NC the main auditee did not provide social insurance for workers as per legal requirement.JPG

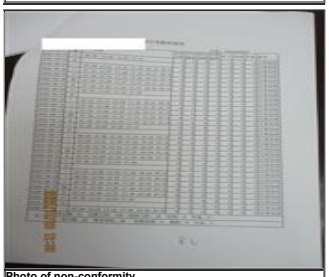

Photo of non-conformity
NC workers OT hour exceeded legal requirement..JPG

Photo of non-conformity
NC partly sampled soldering position did not have LEV.JPG

Photo of the code of conduct on display
amfori BSCI code of conduct.JPG

Photo of the inside of the main production hall
Aging room.JPG

Photo of the inside of the main production hall
Assembly and packaging.JPG

Photo of the inside of the main production hall
Attendance record machine.JPG

Photo of the inside of the main production hall
Electric box with warning sign.JPG

Photo of the inside of the main production hall
Finished production warehouse.JPG

Photo of the inside of the main production hall
Raw materials warehouse.JPG

Photo of the inside of the main production hall
SMT.JPG

Photo of the inside of the main production hall
Suggestion box.JPG

Photo of the personal protection equipments (if applicable)
Chemical workers with PPE.JPG

Photo of the personal protection equipments (if applicable)
PPE warning sign 2.JPG

Photo of the personal protection equipments (if applicable)
PPE warning sign.JPG

Photo of the personal protection equipments (if applicable)
Soldering worker with dustproof mask 2 .JPG

Photo of the personal protection equipments (if applicable)
Soldering workers with dustproof masks 1.JPG

Photo of the sanitary facilities
Drinking provided for workers.JPG

Photo of the sanitary facilities
Toilet.JPG