Shenzhen JT Detection Technology Co., Ltd

Shenzhen KingAnDa Technology Development CO.,LTD

CE EMC REPORT

Prepared For:	Shenzhen KingAnDa Technology Development CO.,LTD 5floor, East Block NO.2 , Shangxue Industrial Area, Bantian Street, Longgang Distinct,Shenzhen
Product Name :	Bluetooth headset
Trade Name :	**N/A**
Model :	HBQ-Q14,HBQ-Q15,HBQ-Q16,HBQ-Q17,HBQ-Q19,HBQ-Q20,HBQ-Q21, HBQ-Q22,HBQ-Q24 ,HBQ-Q25
Prepared By :	Shenzhen JT Detection Technology Co., Ltd. Floor 10, Shijie Building,No.384,Gushu Road 1st， Xixiang Street,Baoan district, Shenzhen
Test Date:	Jun 23,2018
Date of Report :	Jun 20, 2018-Jun 23,2018
Report No.:	0623EMC-JAD

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TEST REPORT DECLARATION

Applicant		Shenzhen KingAnDa Technology Development CO.,LTD
Address		5floor, East Block NO.2 , Shangxue Industrial Area, Bantian Street, Longgang Distinct,Shenzhen
Manufacturer		Shenzhen KingAnDa Technology Development CO.,LTD
Address		5floor, East Block NO.2 , Shangxue Industrial Area, Bantian Street, Longgang Distinct,Shenzhen
EUT Description	:	Bluetooth headset
Model Number	:	HBQ-Q14,HBQ-Q15,HBQ-Q16,HBQ-Q17,HBQ-Q19,HBQ-Q20,HBQ-Q21, HBQ-Q22,HBQ-Q24 ,HBQ-Q25

Test Standards:
ETSI ETSI EN 301 489-17 V2.2.1 (2012-09)
ETSI EN 301 489-1 v 2.2.0:2018-037 V2.2.1 (2012-09)

The EUT described above is tested by JT Detection Technology Co., Ltd. Laboratory to determine the maximum emissions from the EUT and ensure the EUT to be compliance with the immunity requirements of the EUT. JT Detection Technology Co., Ltd Laboratory is assumed full responsibility for the accuracy of the test results. Also, this report shows that the EUT technically complies with the 2014/53/EU directive and its amendment requirements.

The test report is valid for above tested sample only and shall not be reproduced in part without written approval of the laboratory.

Prepared by:

Tested by:

Reviewer:

Approved & Authorized Signer:

1. TEST RESULTS SUMMARY

Table 1 Test Results Summary

Test Items	Test Results
Conducted Disturbance	N/A
Radiated Emission	Pass
Harmonic Current	N/A
Voltage Fluctuation and Flicker	N/A
Electrostatic Discharge Immunity	Pass
Radiated Electromagnetic Fields Immunity	Pass
Electric Fast Transient Burst Immunity	N/A
Surge Immunity	N/A
Conducted Immunity	N/A
Voltage dips and interruptions Immunity	N/A

Note:
N/A- Please refer to Applicability overview tables in sections 7.1 and 7.2 of ETSI EN 301 489-17 V2.2.1 (2012-09)/ETSI EN 301 489-1 v 2.2.0:2018-03 requirements.
Pass- The manufacturer has verified that medium access protocol has been implemented by the EUT.

2. GENERAL INFORMATION

2.1. Report information

2.1.1. This report is not a certificate of quality; it only applies to the sample of the specific product/equipment given at the time of its testing. The results are not used to indicate or imply that they are application to the similar items. In addition, such results must not be used to indicate or imply that JT approves recommends or endorses the manufacture, supplier or use of such product/equipment, or that JT in any way guarantees the later performance of the product/equipment.

2.1.2. The sample/s mentioned in this report is/are supplied by Applicant, JT therefore assumes no responsibility for the accuracy of information on the brand name, model number, origin of manufacture or any information supplied.

2.1.3. Additional copies of the report are available to the Applicant at an additional fee. No third part can obtain a copy of this report through JT, unless the applicant has authorized JT in writing to do so.

2.2. Measurement Uncertainty

(95% confidence levels, k=2)

Test Item	Uncertainty
Uncertainty for Conduction emission test	2.2dB
Uncertainty for Radiation emission test (30MHz to 1GHz)	4.0dB

3. PRODUCT DESCRIPTION

3.1. EUT Description

Description : Shenzhen KingAnDa Technology Development CO.,LTD

Applicant : 5floor, East Block NO.2 , Shangxue Industrial Area, Bantian Street, Longgang Distinct,Shenzhen

Model : HBQ-Q14,HBQ-Q15,HBQ-Q16,HBQ-Q17,HBQ-Q19,HBQ-Q20,HBQ-Q21, HBQ-Q22,HBQ-Q24 ,HBQ-Q25

Power : DC 5 V

3.2. Block Diagram of EUT Configuration

Figure 1 EUT SETUP

3.3. Support Equipment List

Table 2 Ancillary Equipment

Name	Model No	S/N	Manufacturer
/	/	/	/

3.4. Operating Condition of EUT

Test mode 1: *Operating*
Test mode 2: n.a

3.5. Test Conditions

Temperature: 20-26℃
Relative Humidity: 50-68 %

3.6. Modifications

No modification was made.

3.7. Abbreviations

AC	Alternating Current
AMN	Artificial Mains Network
DC	Direct Current
EM	Electro Magnetic
EMC	Electro Magnetic Compatibility
EUT	Equipment Under Test
IF	Intermediate Frequency
RF	Radio Frequency
rms	root mean square
EMI	Electromagnetic Interference
EMS	Electromagnetic Susceptibility

3.8. Performance Criterion

Criterion A: The equipment shall continue to operate as intended without operator intervention. No degradation of performance of loss of function is allowed below a performance level specified by the manufacturer when the equipment is used as intended.

Criterion B: After the test, the equipment shall continue to operate as intended without operator intervention. No degradation of performance or loss of function is allowed, after the application of the phenomena below a performance level specified by the manufacturer, when the equipment is used as intended.

Criterion C: Loss of function is allowed, provided the function is self-recoverable, or can be restored by the operation of the controls by the user in accordance with the manufacturer's instructions.

4. TEST EQUIPMENT USED

4.1. Test Equipment Used to Measure Conducted Disturbance

Table 3 Conducted Disturbance Test Equipment

No.	Equipment	Manufacturer	Model No.	Last Cal.	Cal. Interval
SB3319	EMI Test Receiver	Rohde & Schwarz	ESCS30	Jan.20, 2018	1 Year
SB4357	AMN	Rohde & Schwarz	ENV216	Jan.20, 2018	1 Year

4.2. Test Equipment Used to Measure Radiated Disturbance

Table 4 Radiated Disturbance Test Equipment

No.	Equipment	Manufacturer	Model No.	Last Cal.	Cal. Interval
SB3436	EMI Test Receiver	Rohde & Schwarz	ESI26	Jan.20, 2018	1 Year
SB3440	Bilog Antenna	Chase	CBL6112B	Jan.20, 2018	1 Year
SB4436	Horn Antenna	Sunol Sciences	DRH-118	Jan.20, 2018	1 Year

4.3. Test Equipment Used to Measure Harmonic Current /Voltage Fluctuation and Flicker

Table 5 Harmonic Current /Voltage Fluctuation and Flicker Test Equipment

No.	Equipment	Manufacturer	Model No.	Last Cal.	Cal. Interval
SB2588	Power	CI	5001ix-CTS-400	Jan.20, 2018	1 Year
SB2588/01	Three Phase Harmonic flicker test system	CI	PACS-3	Jan.20, 201	1 Year
SB2588/02	Power	CI	5001ix-CTS-400-NO	Jan.20, 2018	1 Year
SB2588/03	Power	CI	5001ix-CTS-400-NO	Jan.20, 207	1 Year

4.4. Test Equipment Used to Measure Electrostatic Discharge Immunity

Table 6 ESD Immunity Test Equipment

No.	Equipment	Manufacturer	Model No.	Last Cal.	Cal. Interval
SB2561	ESD tester	SCHNAFFNER	NSG435	Jan.20, 2018	1 Year

4.5. Test Equipment Used to Measure RF Electromagnetic Fields Immunity

Table 7 Radiated Electromagnetic Field Immunity, keyed carrier Test Equipment

No.	Equipment	Manufacturer	Model No.	Last Cal.	Cal. Interval
SB3433	Signal Generator	Rohde & Schwarz	SMT03	Jan.20, 2018	1 Year
SB3437/02	Voltage Probe	Rohde & Schwarz	URDX-LY01-Z2	Jan.20, 2018	1Year
SB3173	Power Amplifier	AR	150W1000	Jan.20, 2018	1Year
SB2622	Bilog Antenna	Chase	CBL6111C	Jan.20, 2018	1Year

4.6. Test Equipment Used to Measure Conducted Immunity

Table 8 Conducted Immunity Test Equipment

No.	Equipment	Manufacturer	Model No.	Last Cal.	Cal. Interval
SB2605	CW sine Generator	EMTEST	CWS500	Jan.20, 2018	1 Year
SB2605/01	CDN	EMTEST	CDN-M2	Jan.20, 2018	1 Year
SB2605/04	EM Clamp	FCC	F-203I-23mm	Jan.20, 2018	1 Year

4.7. Test Equipment Used to Measure Burst/Surge/Voltage Dips and Interruptions Immunity

Table 9 Surge Immunity Test Equipment

No.	Equipment	Manufacturer	Model No.	Last Cal.	Cal. Interval
SB3070	Simulator	EMTEST	UCS500M4	Jan.20, 2018	1 Year

5. CONDUCTED DISTURBANCE TEST

5.1. Test Standard and Limit

5.1.1. Test Standard

ETSI ETSI EN 301 489-17 V2.2.1 (2012-09)/ETSI EN 301 489-1 v 2.2.0:2018-037 V2.2.1 (2012-09)

5.1.2. Test Limit

Table 10 Conducted Disturbance Test Limit

Frequency	Maximum RF Line Voltage (dB V)	
	Quasi-peak Level	Average Level
150kHz~500kHz	66 ~ 56 *	56 ~ 46 *
500kHz~5MHz	56	46
5MHz~30MHz	60	50

* Decreasing linearly with logarithm of the frequency

5.2. Test Procedure

The EUT is put on a table of non-conducting material that is 80cm high. The vertical conducting wall of shielding is located 40cm to the rear of the EUT. The power line of the EUT is connected to the AC mains through a Artificial Mains Network (A.M.N.). A EMI test receiver is used to test the emissions from both sides of AC line. The bandwidth of EMI test receiver is set at 9kHz.

5.3. Test Arrangement

The arrangement of the equipment is installed to meet the standards and operating in a manner, which tends to maximize its emission characteristics in a normal application. The detailed information refers to test picture.

5.4. Test Data

Test Result: ☐ Pass ☑ N/A(Not Applicable)

6. RADIATED DISTURBANCE TEST

6.1. Test Standard and Limit

6.1.1. Test Standard

ETSI ETSI EN 301 489-17 V2.2.1 (2012-09)/ETSI EN 301 489-1 v 2.2.0:2018-037 V2.2.1 (2012-09)

6.1.2. Test Limit

Table 11 Radiated Disturbances below 1G Test Limit (Class B)

Frequency	Limit (dB V/m) Quasi-peak Level
30MHz~230MHz	40
230MHz~1000MHz	47

* The lower limit shall apply at the transition frequency.
* The test distance is 3m.

Table 12 Radiated Disturbances above 1G Test Limit

Frequency range	Average Limit (dB V/m)	Peak Limit (dB V/m)
1000MHz~3000MHz	50	70
3000MHz~6000MHz	54	74

NOTE: The lower limit applies at the transition frequency

6.2. Test Procedure

The EUT is placed on a turntable, which is 0.8 meter above ground. The turntable can rotate 360 degrees to determine the position of the maximum emission level. EUT is set **3 meters** away from the receiving antenna, which is mounted on an antenna tower. The antenna can move up and down between 1 to 4 meters to find out the maximum emission level. Broadband antenna is used as a receiving antenna. Both horizontal and vertical polarization of the antenna is set on test.

6.3. Test Arrangement

The arrangement of the equipment is installed to meet the standards and operating in a manner, which tends to maximize its emission characteristics in a normal application. The detailed information refers to test picture.

6.4. Test Data

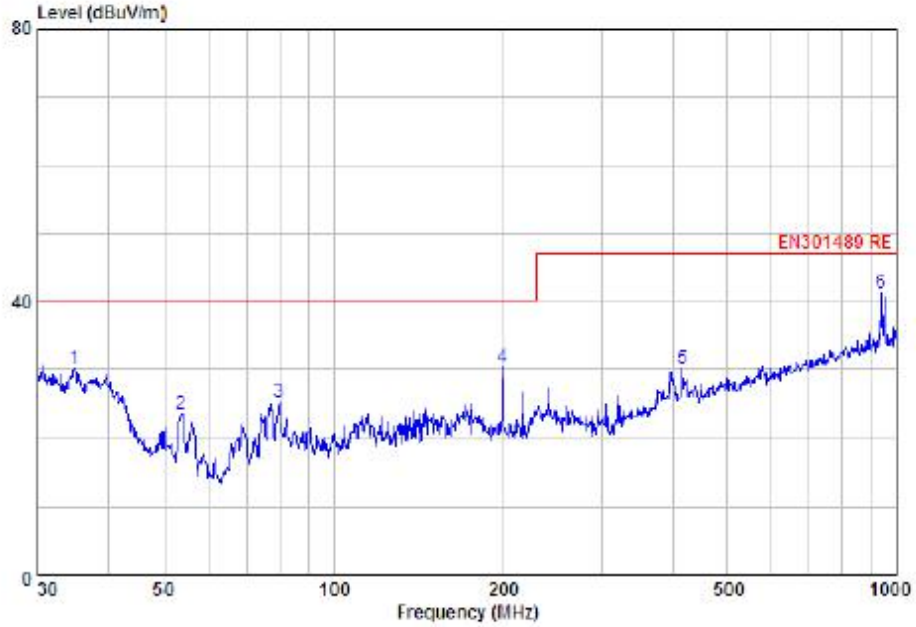
Test Result: ☑ Pass ☐ N/A(Not Applicable)

Test mode: Operating

Plot(s) of Test Data：

Plot(s) of Test Data is presented hereinafter as reference.

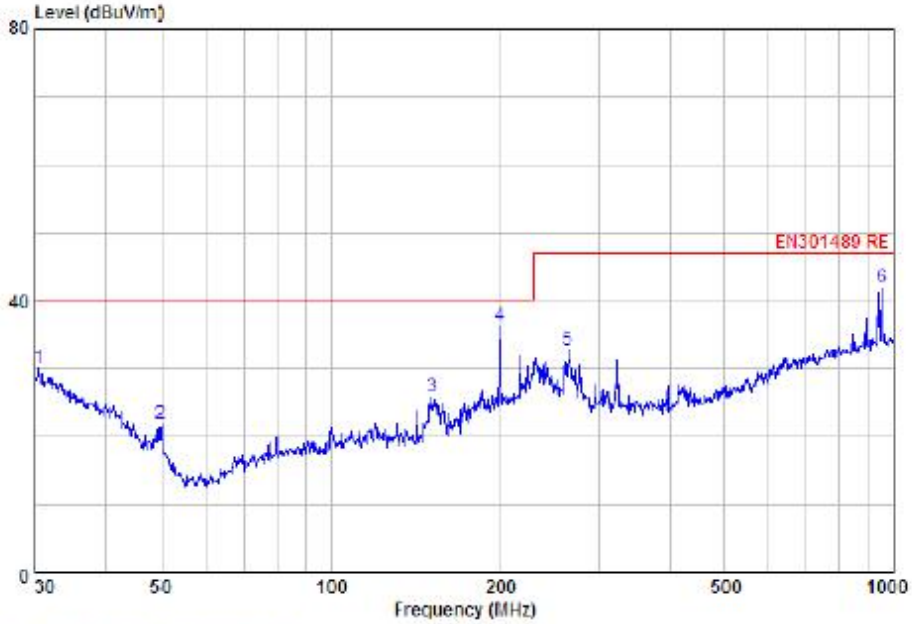
Horizontal



Condition : EN301489 RE 3m VERTICAL
: RBW:120.000KHz VBW:300.000KHz SWT:Auto

	Freq	Level	Remark	Pol/Phase	Limit Line	Over Limit
	MHz	dBuV/m			dBuV/m	dB
1	35.005	30.1	Peak	VERTICAL	40.0	-9.9
2	53.505	23.4	Peak	VERTICAL	40.0	-16.6
3	80.081	25.2	Peak	VERTICAL	40.0	-14.8
4	199.286	30.2	Peak	VERTICAL	40.0	-9.8
5	416.179	30.1	Peak	VERTICAL	47.0	-16.9
6	938.833	41.2	Peak	VERTICAL	47.0	-5.8

Vertical



Condition : EN301489 RE 3m HORIZONTAL
: RBW:120.000KHz VBW:300.000KHz SWT:Auto

	Freq	Level	Remark	Pol/Phase	Limit Line	Over Limit
	MHz	dBuV/m			dBuV/m	dB
1	30.424	30.0	Peak	HORIZONTAL	40.0	-10.0
2	50.057	21.9	Peak	HORIZONTAL	40.0	-18.1
3	151.067	25.8	Peak	HORIZONTAL	40.0	-14.2
4	199.986	36.4	Peak	HORIZONTAL	40.0	-3.6
5	263.819	32.8	Peak	HORIZONTAL	47.0	-14.2
6	952.094	41.9	Peak	HORIZONTAL	47.0	-5.1

7. HARMONIC CURRENT EMISSION TEST

7.1. Test Standard and Limit

7.1.1. Test Standard

ETSI ETSI EN 301 489-17 V2.2.1 (2012-09)/ETSI EN 301 489-1 v 2.2.0:2018-037 V2.2.1 (2012-09)

7.1.2. Limits

Table 13 Harmonic Current Test Limit (Class A)

Harmonic order (n)	Maximum permissible harmonic current (A)
Odd harmonics	
3	2.30
5	1.14
7	0.77
9	0.40
11	0.33
13	0.21
15 n 39	0.15 15/**n**
Even harmonics	
2	1.08
4	0.43
6	0.30
8 n 40	0.23 8/**n**

7.2. Test Procedure

The power cord of the EUT is connected to the output of the test system. Turn on the Power of the EUT and use the test system to test the harmonic current level.

7.3. Test Data

Test Result: ☐ Pass

☑ N/A (Not Applicable,DC Input,not aby test)

N/A (Not Applicable,Equipment with a rated power of 75 W☐or less,other than lighting equipment,are out included in this standard.)

8. VOLTAGE FLUCTUATION AND FLICKER TEST

8.1. Test Standard and Limit

8.1.1. Test Standard

ETSI ETSI EN 301 489-17 V2.2.1 (2012-09)/ETSI EN 301 489-1 v 2.2.0:2018-037 V2.2.1 (2012-09)

8.1.2. Limit

Table 14 Flicker Test Limit

Test items	Limits
Pst	1.0
dc	3.3%
dmax	4.0%
dt	Not exceed 3.3% for 500ms

8.2. Test Procedure

The power cord of the EUT is connected to the output of the test system. Turn on the power of the EUT and use the test system to test the harmonic current level.

8.3. Test Data

Test Result: ☐ Pass ☑ N/A(Not Applicable)

Table 15 Harmonic Test data

	EUT values	Limit	Result
Pst	0.006	1.00	--
Plt	0.005	0.65	--
dc [%]	0.003	3.30	--
dmax [%]	0.003	4.00	--
dt [s]	0.000	0.50	--

9. ELECTROSTATIC DISCHARGE IMMUNITY TEST

9.1. Test Requirements

9.1.1. Test Standard

ETSI ETSI EN 301 489-17 V2.2.1 (2012-09)/ETSI EN 301 489-1 v 2.2.0:2018-037 V2.2.1 (2012-09)

9.1.2. Test Level

Table 16 Test Level for ESD Immunity Test

Port	Test Specification
Enclosure Port	8kV air discharge 4kV contact discharge

9.1.3. Performance criterion**: B, TT, TR**

9.2. Test Procedure

9.2.1. Contact Discharge**:**

The ESD generator is held perpendicular to the surface to which the discharge is applied and the tip of the discharge electrode touch the surface of EUT. Then turn the discharge switch. The generator is then re-triggered for a new single discharge and repeated 10 times for each pre-selected test point. This procedure shall be repeated until all the air discharge completed

9.2.2. Air Discharge**:**

Air discharge is used where contact discharge can't be applied. The round discharge tip of the discharge electrode shall be approached as fast as possible to touch the EUT. After each discharge, the discharge electrode shall be removed from the EUT. The generator is then re-triggered for a new single discharge and repeated 10 times for each pre-selected test point. This procedure shall be repeated until all the air discharge completed

9.2.3. Indirect discharge for horizontal coupling plane

At least 10 single discharges shall be applied to the horizontal coupling plane, at points on each side of the EUT.

9.2.4. Indirect discharge for vertical coupling plane

At least 10 single discharger shall be applied to the center of one vertical edge of the coupling plane. The coupling plane, of dimensions 0.5m X 0.5m, is placed parallel to, and positioned at a distance of 0.1m from the EUT. Discharges shall be applied to the coupling plane, with this plane in sufficient different positions that the four faces of the EUT are completely illuminated.

9.3. Test Data

Table 17 ESD Immunity Test Data

Test Mode: Operating			
Location	**Test condition**	**Performance criterion**	**Results**
Gaps	Air discharge 10 times per test point Level: ±2 kV, ±4 kV, ±8 kV	B	Pass
Function Keys		B	Pass
Metal Parts	Contact discharge 10 times per test point Level: ±2 kV, ±4 kV	B	Pass
HCP		B	Pass
VCP		B	Pass

10. RADIATED ELECTROMAGNETIC FIELD IMMUNITY TEST

10.1.Test Requirements

10.1.1.Test Standard

ETSI ETSI EN 301 489-17 V2.2.1 (2012-09)/ETSI EN 301 489-1 v 2.2.0:2018-037 V2.2.1 (2012-09)

10.1.2.Test Level

Table 18 Test Level for Radiated Electromagnetic Field Immunity Test

Port	Test Specification
Enclosure Port	80-1000MHz, 1.4GHz-2.7GHz 3 V/m 80 % AM (1kHz)

10.1.3. Performance criterion**: A, CT, CR**

10.2.Test Procedure

The EUT and its simulators are placed on a turn table which is 0.8 meter above ground. EUT is set 3 meter away from the transmitting antenna which is mounted on an antenna tower. Both horizontal and vertical polarizations of the antenna are set on test. Each of the four sides of EUT must be faced this transmitting antenna and measured individually .In order to judge the EUT performance.

10.3.Test Data

Table 19 Radiated Electromagnetic Field Immunity Test Data

Test Mode: Operating		
Frequency Rang (MHz)	80 MHz –1GHz, 1.4GHz-2.7GHz	
Field Strength (V/m)	3V/m	
Steps (%)	1%	
Performance criterion: A		
	Horizontal	**Vertical**
Front	Pass	Pass
Rear	Pass	Pass
Left	Pass	Pass
Right	Pass	Pass

11. ELECTRICAL FAST TRANSIENTS/BURSTS IMMUNITY TEST

11.1.Test Requirements

11.1.1.Test Standard

ETSI ETSI EN 301 489-17 V2.2.1 (2012-09)/ETSI EN 301 489-1 v 2.2.0:2018-037 V2.2.1 (2012-09)

11.1.2.Level

Table 20 Test Level for EFT Immunity Test

Port	Test Specification
AC Power input	1kV (peak) 5/50 ns Tr/Th 5kHz repetition frequency
Signal line	1kV (peak) 5/50 ns Tr/Th 5kHz repetition frequency

11.1.3.Performance criterion: **B, TT, TR**

11.2.Test Procedure

11.2.1.For AC mains power ports**:**

The EUT is connected to the power mains by using a coupling device, which couples the EFT interference signal to AC power lines. Both polarities of the test voltage should be applied during compliance test and the duration of the test is 1minute.

11.3.Test Data

Test Result: ☐ Pass ☑ N/A(Not Applicable)

Table 21 Burst Immunity Test data

Test Mode: --				
Injected Line	**Voltage (kV)**	**Test Time (s)**	**Injected Method**	**Result**
L	+1	60	Direct	--
	-1	60	Direct	--
N	+1	60	Direct	--
	-1	60	Direct	--
L,N	+1	60	Direct	--
	-1	60	Direct	--

12. TRANSIENTS AND SURGES TEST

12.1.Test Requirements

12.1.1.Test Standard

ETSI ETSI EN 301 489-17 V2.2.1 (2012-09)/ETSI EN 301 489-1 v 2.2.0:2018-037 V2.2.1 (2012-09)

12.1.2.Level

Table 22 Test Level for Surge

Severity Level	Open-Circuit Test Voltage KV
1	0.5
2	1.0
3	2.0
4	4.0
*	Special

12.1.3.Performance criterion: **B, TT, TR**

12.2.Test Procedure

Set up the EUT and test generator for line to line coupling mode, provide a 0.5KV 1.2/50us voltage surge (at open-circuit condition) and 8/20us current surge to EUT selected points.
At least 5 positive and 5 negative (polarity) tests with a maximum 1/min repetition rate are conducted during test. Different phase angles are done individually. Record the EUT operating situation during compliance test and decide the EUT immunity criterion for above each test.

12.3.Test Data

Test Result: ☐ Pass ☑ N/A(Not Applicable)

Table 23 Surge Immunity Test data

Test Mode: --						
Injected Line	**Wave Form**	**Voltage (kV)**	**Phase**	**Number of Pulse**	**Interval time**	**Result**
L-N	1.2/50μs	+1.0	0°, 90°, 180°,270°	20	60s	--
		-1.0	0°, 90°, 180°,270°	20	60s	--

13. CONDUCTED IMMUNITY TEST

13.1.Test Requirements

13.1.1.Test Standard

ETSI ETSI EN 301 489-17 V2.2.1 (2012-09)/ETSI EN 301 489-1 v 2.2.0:2018-037 V2.2.1 (2012-09)

13.1.2.Level

Table 24 Test Level for Conducted Immunity

Port	Test Specification
Input and output AC power port	0.15MHz~80MHz 3V(r.m.s.) (unmodulated)

13.1.3.Performance criterion**: A, CT, CR**

13.2.Test Procedure

Set up the EUT, CDN and test generators as shown above. The test is performed with the generator contacted to each CDN in turn. The frequency range is swept from 150kHz to 230MHz, using the signal levels established during the setting process, and with the disturbance signal 80% amplitude modulated with a 1kHz sine wave.

13.3.Test Data

Test Result: ☐ Pass ☑ N/A(Not Applicable)

Table 25 Conducted Immunity Test data

Test Mode: --			
Frequency Range (MHz)	**Injecteded Position**	**Strength**	**Result**
0.15MHz-80MHz	AC Lines	3V(rms), Unmodulated	--
Dwell time: 1s; Steps: 1%			

14. VOLTAGE DIPS AND INTERRUPTIONS IMMUNITY TEST

14.1.Test Requirements

14.1.1.Test Standard

ETSI ETSI EN 301 489-17 V2.2.1 (2012-09)/ETSI EN 301 489-1 v 2.2.0:2018-037 V2.2.1 (2012-09)

14.1.2.Level

Table 26 Test Level for Voltage Dips and Interruptions

Port	Environmental phenomenon	Voltage dip and short interruptions %U_T	Cycle
Input AC power port	Voltage dips	0 %	0.5
		0 %	1
	Voltage interruptions	70 %	25
		0 %	250

14.2.Test Procedure

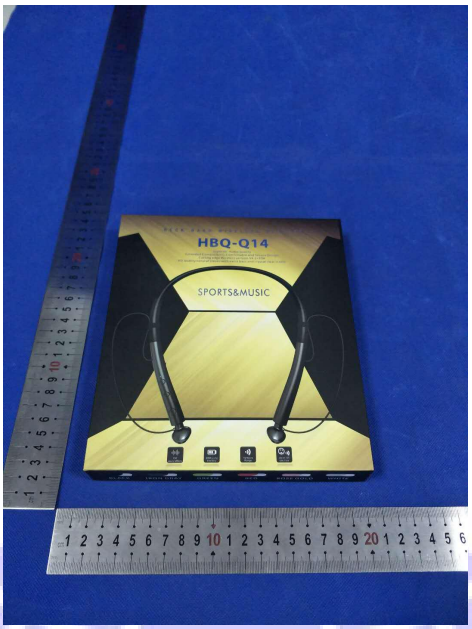
14.2.1.Refer to EN 61000-4-11

14.3.Test Data

Test Result: ☐ Pass ☑ N/A(Not Applicable)

Table 27 Voltage DIP and Short Interruptions Immunity Test data

Test Level % U_T	Voltage Dips & Short Interruptions % U_T	Duration (in periods)	Result
0	100	0.5P	--
0	100	1P	--
70	30	25P	--
0	100	250P	--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