
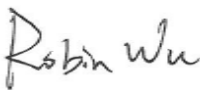


# MEASUREMENT REPORT

## EMC Test Report

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**Applicant:** Escape bv  
**Address:** Ter Heidelaan 50A, 3200 Aarschot, Belgium  
**Product:** Portable Indoor/Outdoor Wireless Speaker System  
**Model No.:** Escape P6 AIR  
**Brand Name:** ESCAPE  
**Standards:** EN 55032: 2015/A11: 2020  
EN 55035: 2017/A11: 2020  
EN 301 489 - 1 V2.2.3 (2019-11)  
EN 301 489 - 17 V3.2.4 (2020-09)  
AS/NZS CISPR 32: 2015  
**Result:** Complies  
**Test Date:** May 11 ~ June 03, 2020

Reviewed By:   
Kevin Guo  
Approved By:   
Robin Wu



The test results relate only to the samples tested.

The test results shown in the test report are traceable to the national/international standards through the calibration of the equipment and evaluated measurement uncertainty herein.

The test report shall not be reproduced except in full without the written approval of MRT Technology (Suzhou) Co., Ltd.

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### Revision History

Report No.	Version	Description	Issue Date	Note
2005RSU005-E6	Rev. 01	Initial Report	02-10-2021	Valid

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#### 1.4. Feature of Equipment under Test

Product Name:	Portable Indoor/Outdoor Wireless Speaker System
Model No.:	Escape P6 AIR
Brand Name:	ESCAPE
Wi-Fi Specification:	802.11a/b/g/n/ac
Bluetooth Specification:	Bluetooth v4.0 (Single mode for BR/EDR)

#### 1.5. Standards Applicable for Testing

##### EMI Test:

- EN 55032: 2015/A11: 2020 (Conducted Emission)
- EN 55032: 2015/A11: 2020 (Radiated Emission)
- EN 61000-3-2: 2019 (Harmonic)
- EN 61000-3-3: 2013+A1:2019 (Flicker)

##### EMS Test:

- EN 61000-4-2: 2009 (ESD)
- EN 61000-4-3: 2006+A1:2008+A2:2010 (RS)
- EN 61000-4-4: 2012 (EFT)
- EN 61000-4-5: 2014+A1:2017 (Surge)
- EN 61000-4-6: 2014 (CS)
- EN 61000-4-8: 2010 (PFM)
- EN 61000-4-11: 2004+A1: 2017 (Dips)

## 1.6. Performance Criteria

### General Requirements (EN 55035):

#### **Performance criterion A**

The equipment shall continue to operate as intended without operator intervention. No degradation of performance, loss of function or change of operating state is allowed below a performance level specified by the manufacturer when the equipment is used as intended. The performance level may be replaced by a permissible loss of performance. 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 by what the user may reasonably expect from the equipment if used as intended.

#### **Performance criterion B**

During the application of the disturbance, degradation of performance is allowed. However, no unintended change of actual operating state or stored data is allowed to persist after the test. After the test, the equipment shall continue to operate as intended without operator intervention; no degradation of performance or loss of function is allowed, below a performance level specified by the manufacturer, when the equipment is used as intended. The performance level may be replaced by a permissible loss of performance. If the minimum performance level (or the permissible performance loss), or recovery time, is not specified by the manufacturer, then either of these may be derived from the product description and documentation, and by what the user may reasonably expect from the equipment if used as intended.

#### **Performance 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. A reboot or re-start operation is allowed.

Information stored in non-volatile memory, or protected by a battery backup, shall not be lost.



**General Requirements (ETSI EN 301489-1):**

The performance criteria are used to take a decision on whether radio equipment passes or fails immunity tests.

For the purpose of the present document two categories of performance criteria apply:

- Performance criteria for continuous phenomena.
- Performance criteria for transient phenomena.

Normally, the performance criteria depends upon the type of radio equipment and/or its intended application. Thus, the present document only contains general performance criteria commonly used for the assessment of radio equipment.

**Performance criteria for continuous phenomena**

During the test, the equipment shall:

- continue to operate as intended;
- not unintentionally transmit;
- not unintentionally change its operating state;
- not unintentionally change critical stored data.

**Performance criteria for transient phenomena**

For all ports and transient phenomena with the exception described below, the following applies:

- The application of the transient phenomena shall not result in a change of the mode of operation (e.g. unintended transmission) or the loss of critical stored data.
- After application of the transient phenomena, the equipment shall operate as intended.

For surges applied to symmetrically operated wired network ports intended to be connected directly to outdoor lines the following criteria applies:

- For products with only one symmetrical port intended for connection to outdoor lines, loss of function is allowed, provided the function is self-recoverable, or can be otherwise restored.

Information stored in non-volatile memory, or protected by a battery backup, shall not be lost.

- For products with more than one symmetrical port intended for connection to outdoor lines, loss of function on the port under test is allowed, provided the function is self-recoverable.

Information stored in non-volatile memory, or protected by a battery backup, shall not be lost.

### **Special Performance Requirements (ETSI EN 301489-17):**

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.

Criteria	During test	After test
A	Shall operate as intended. (see note). Shall be no loss of function. Shall be no unintentional transmissions.	Shall operate as intended. Shall be no degradation of performance Shall be no loss of function. Shall be no loss of critical stored data.
B	May show loss of function.	Functions shall be self-recoverable. Shall operate as intended after recovering. Shall be no loss of critical stored data.
C	May be loss of function.	Functions shall be recoverable by the operator. Shall operate as intended after recovering. Shall be no loss of critical stored data.
NOTE: Operate as intended during the test allows a level of degradation in accordance with Minimum performance level.		

#### **Minimum performance level**

For equipment that supports a PER or FER, the minimum performance level shall be a PER or FER less than or equal to 10 %.

For equipment that does not support a PER or a FER, the minimum performance level shall be no loss of the wireless transmission function needed for the intended use of the equipment.

#### **Performance criteria for Continuous phenomena applied to Transmitters (CT)**

The performance criteria A shall apply.

Tests shall be repeated with the EUT in standby mode (if applicable) to ensure that unintentional transmission does not occur. In systems using acknowledgement signals, it is recognized that an ACKnowledgement (ACK) or Not ACKnowledgement (NACK) transmission may occur, and steps should be taken to ensure that any transmission resulting from the application of the test is correctly interpreted.

**Performance criteria for Transient phenomena applied to Transmitters (TT)**

The performance criteria B shall apply, except for voltage dips of 100 ms and voltage interruptions of 5000ms duration, for which performance criteria C shall apply.

Tests shall be repeated with the EUT in standby mode (if applicable) to ensure that unintentional transmission does not occur. In systems using acknowledgement signals, it is recognized that an acknowledgement (ACK) or not-acknowledgement (NACK) transmission may occur, and steps should be taken to ensure that any transmission resulting from the application of the test is correctly interpreted.

**Performance criteria for Continuous phenomena applied to Receivers (CR)**

The performance criteria A shall apply.

Where the EUT is a transceiver, under no circumstances, shall the transmitter operate unintentionally during the test. In systems using acknowledgement signals, it is recognized that an ACK or NACK transmission may occur, and steps should be taken to ensure that any transmission resulting from the application of the test is correctly interpreted.

**Performance criteria for Transient phenomena applied to Receivers (TR)**

The performance criteria B shall apply, except for voltage dips of 100 ms and voltage interruptions of 5000 ms duration for which performance criteria C shall apply.

Where the EUT is a transceiver, under no circumstances, shall the transmitter operate unintentionally during the test. In systems using acknowledgement signals, it is recognized that an ACK or NACK transmission may occur, and steps should be taken to ensure that any transmission resulting from the application of the test is correctly interpreted.

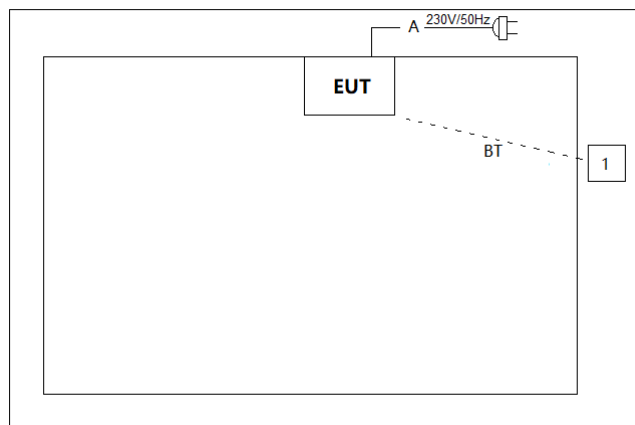
## 2. Test Configuration of Equipment under Test

### 2.1. Test Mode

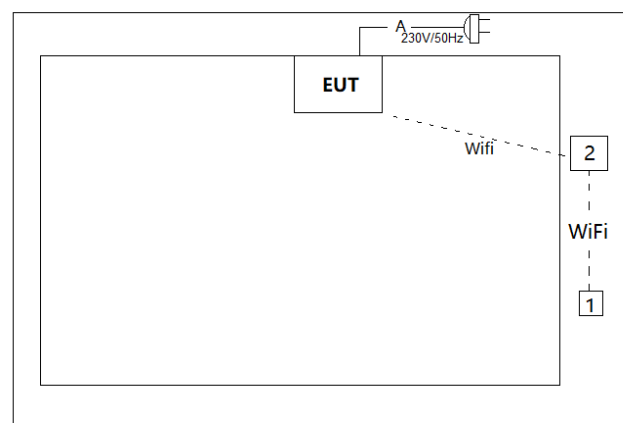
EMI Mode & EMS Mode	<p>Mode 1: EUT is powered by AC 230V/50Hz &amp; Connect EUT with mobile phone via Bluetooth &amp; Mobile phone is playing music.</p> <p>Mode 2: EUT is powered by AC 230V/50Hz &amp; Connect EUT with Router via Wi-Fi &amp; Connect mobile phone with the same Router via Wi-Fi &amp; Mobile phone is playing music.</p>
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### 2.2. Configuration of Tested System

Connection Diagram (Mode 1)



Connection Diagram (Mode 2)



Cable Type		Cable Description
A	Power Cable	Non-Shielded, 1.8m

### 2.3. Test System Details

The types for all equipment, plus descriptions of all cables used in the tested system (including inserted cards) are:

Product	Manufacturer	Model No.	Serial No.	Power Cord
1 Mobile Phone	OPPO	X9009	N/A	N/A
2 Router	CISCO	CVR100W	CCQ16220BC5	Non-Shielded, 1.8m

### 2.4. Test Procedure

1	Setup the EUT and simulators as shown on above.
2	Configurate all test modes as shown in section 2.1.
3	Start to test.

### 3. Test Summary

Test Reference Standard	Test Items	Result (Pass/Fail)	Remark
<b>Emission Measurements</b>			
EN 55032	Conducted Emission	Pass	--
EN 55032	Radiated Emission	Pass	--
EN 61000-3-2	Harmonic Current Emissions	Pass	--
EN 61000-3-3	Voltage Fluctuations and Flicker	Pass	--
<b>Immunity Measurements</b>			
EN 61000-4-2	Electrostatic Discharge	Pass	--
EN 61000-4-3	Radio-Frequency Electromagnetic Field	Pass	--
EN 61000-4-4	Fast Transients, Common Mode	Pass	--
EN 61000-4-5	Surges	Pass	--
EN 61000-4-6	Radio- Frequency Common Mode	Pass	--
EN 61000-4-8	Power Frequency Magnetic Field	Pass	--
EN 61000-4-11	Voltage Dips and Interruptions	Pass	--

## 4. Conducted Emission

### 4.1. Limit of Conducted Emission

Limits of conducted emission for AC mains power input/output ports				
Frequency Range (MHz)	Limits dB( $\mu$ V)			
	Quasi-peak		Average	
0.15 to 0.50	66 to 56		56 to 46	
0.50 to 5	56		46	
5 to 30	60		50	

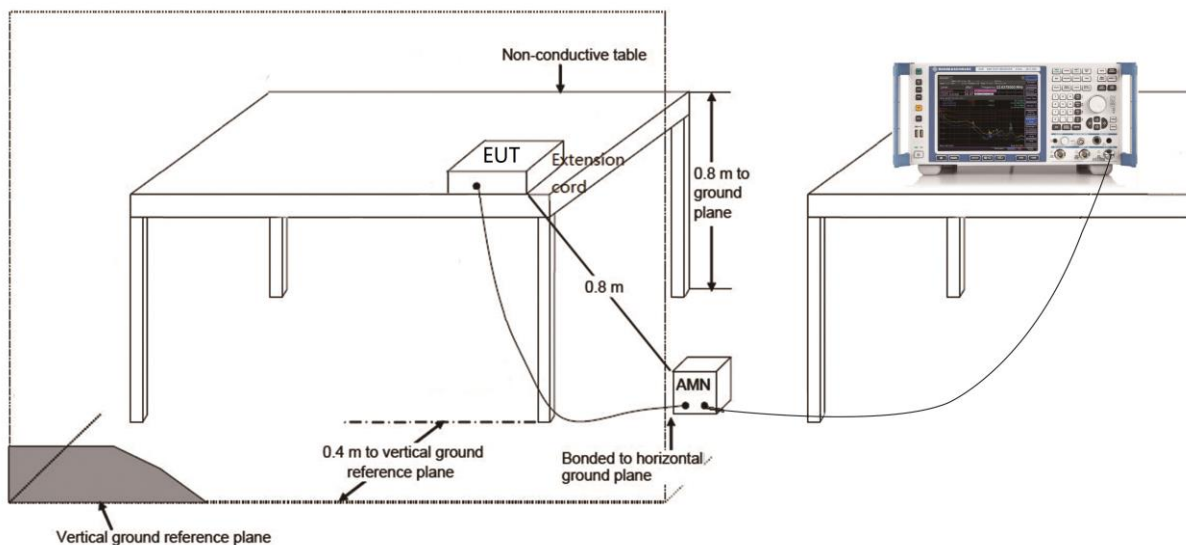
  

Limits of conducted emission for telecommunication ports				
Frequency Range (MHz)	Voltage Limits dB( $\mu$ V)		Current limits dB( $\mu$ A)	
	Quasi-peak	Average	Quasi-peak	Average
0.15 to 0.50	84 to 74	74 to 64	40 to 30	30 to 20
0.50 to 30	74	64	30	20

Note 1: The lower limit shall apply at the transition frequencies.

Note 2: The limit decreases linearly with the logarithm of the frequency in the range 0.15MHz to 0.50MHz.

### 4.2. Test Setup



### **4.3. Test Procedure**

The receiver or associated equipment under measurement and the artificial mains network are disposed as shown in 4.2. Measurements shall be carried out using a selective voltmeter having a quasi-peak detector for broadband measurements and an average detector for narrow-band measurements in accordance with CISPR 16-1.

The mains lead shall be arranged to follow the shortest possible path between the receiver and artificial mains network on the ground. The mains lead in excess of 0,8 m separating the equipment under test from the artificial mains network shall be folded back and forth parallel to the lead so as to form a bundle with a length of 0,3 m to 0,4 m.

Earthing of the equipment under test if provided with a safety earth connection, shall be made to the earth terminal provided on the artificial mains network with the shortest possible lead.

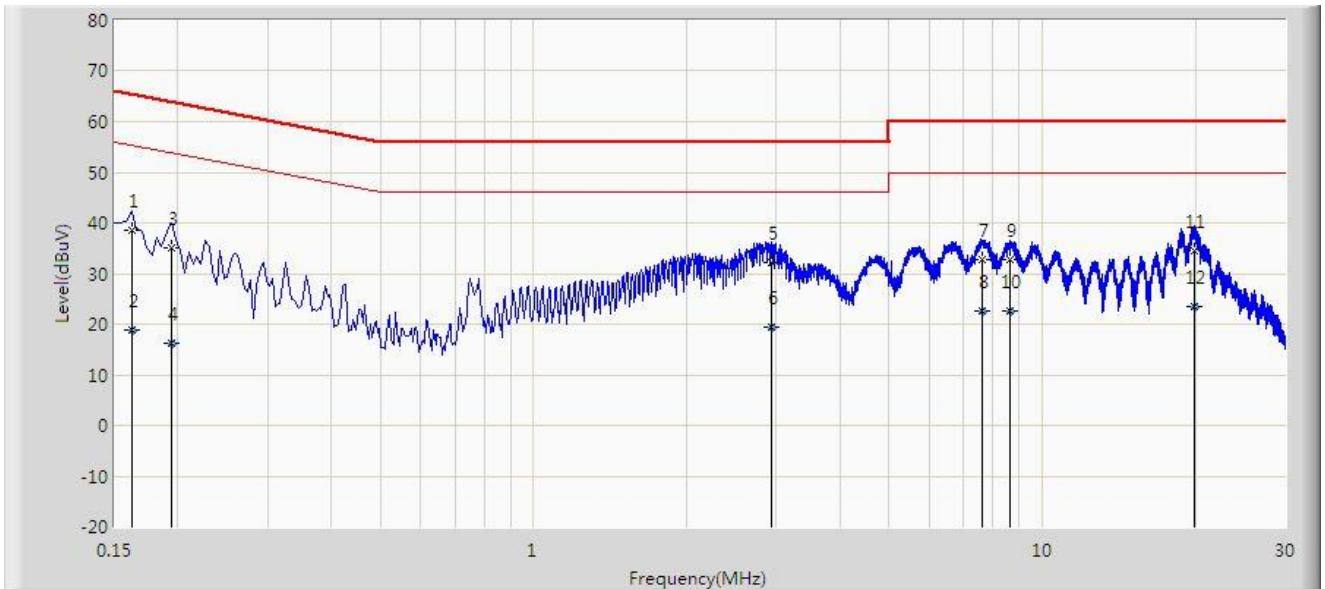
If the equipment under test has a coaxial RF input connector, tests shall be performed with and without an earth connection made to the outer conductor screen of the coaxial RF input connector. When these tests are being carried out, no other earth connections shall be made to any additional earth terminal whatever.

If the equipment under test has no coaxial RF input connector and if it has an earth terminal, tests shall be performed with this terminal earthed.



#### 4.4. Test Result

Site: SR2	Time: 2020/05/12 - 11:12
Limit: EN55032_CE_Mains_Class B	Engineer: Liz Yuan
Probe: ENV216_101683_Filter On	Polarity: Line
EUT: Portable Indoor/Outdoor Wireless Speaker System	Power: AC 230V/50Hz
Test Mode 1	

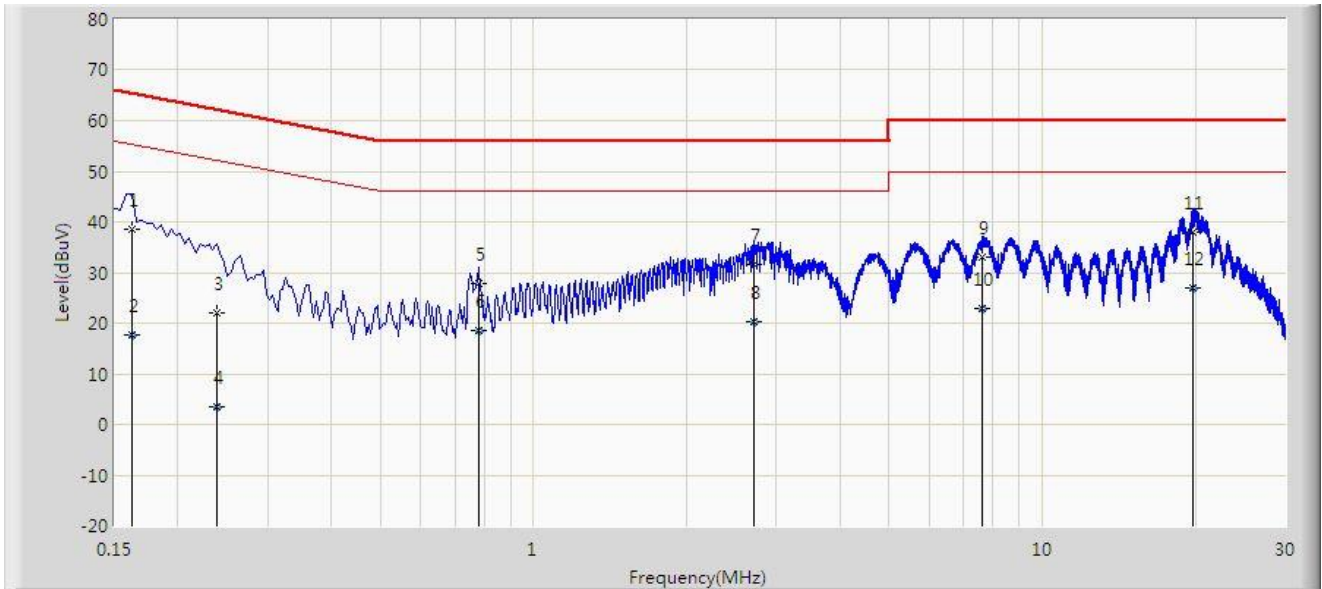


No	Flag	Mark	Frequency (MHz)	Measure Level (dBμV)	Reading Level (dBμV)	Margin (dB)	Limit (dBμV)	Factor (dB)	Type
1			0.162	38.620	28.972	-26.740	65.361	9.648	QP
2			0.162	18.950	9.302	-36.411	55.361	9.648	AV
3			0.194	35.197	25.538	-28.667	63.864	9.659	QP
4			0.194	16.333	6.673	-37.531	53.864	9.659	AV
5		*	2.930	32.194	22.337	-23.806	56.000	9.857	QP
6			2.930	19.451	9.594	-26.549	46.000	9.857	AV
7			7.618	32.802	22.447	-27.198	60.000	10.355	QP
8			7.618	22.621	12.266	-27.379	50.000	10.355	AV
9			8.642	32.616	22.218	-27.384	60.000	10.397	QP
10			8.642	22.509	12.111	-27.491	50.000	10.397	AV
11			19.882	34.490	24.161	-25.510	60.000	10.329	QP
12			19.882	23.349	13.020	-26.651	50.000	10.329	AV

Note: Measure Level (dBμV) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + LISN Factor (dB).

Site: SR2	Time: 2020/05/12 - 17:00
Limit: EN55032_CE_Mains_Class B	Engineer: Liz Yuan
Probe: ENV216_101683_Filter On	Polarity: Neutral
EUT: Portable Indoor/Outdoor Wireless Speaker System	Power: AC 230V/50Hz
Test Mode 1	

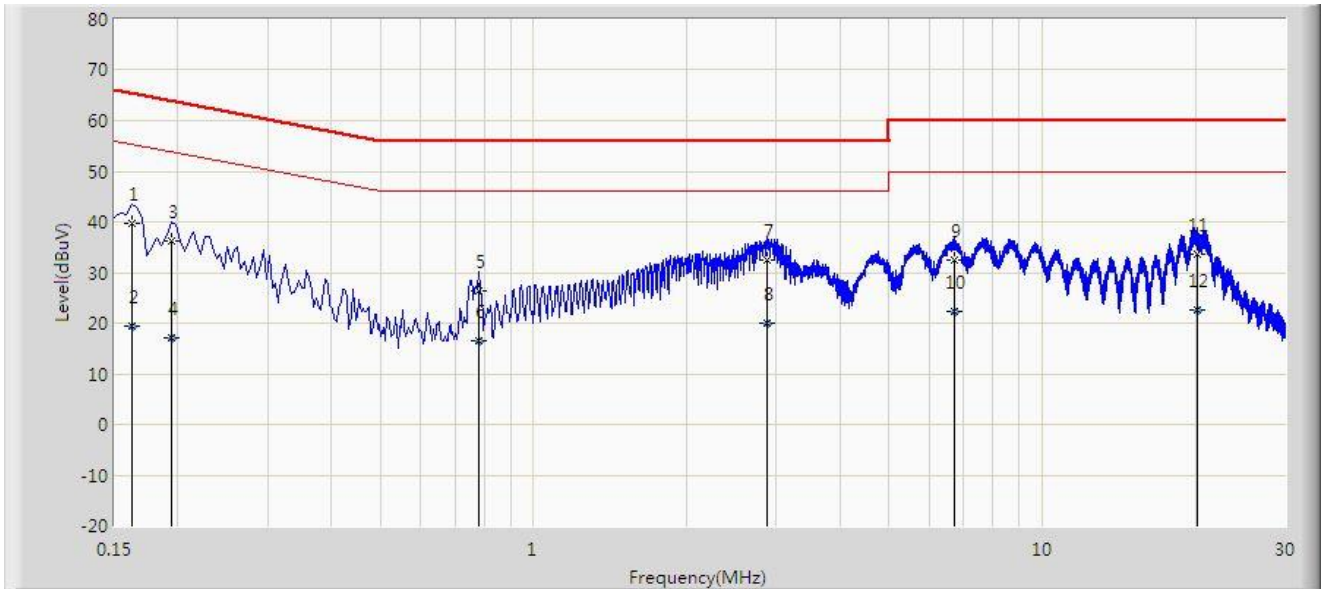


No	Flag	Mark	Frequency (MHz)	Measure Level (dBµV)	Reading Level (dBµV)	Margin (dB)	Limit (dBµV)	Factor (dB)	Type
1			0.162	38.688	29.080	-26.673	65.361	9.608	QP
2			0.162	17.807	8.199	-37.553	55.361	9.608	AV
3			0.238	21.917	12.285	-40.249	62.166	9.632	QP
4			0.238	3.413	-6.218	-48.753	52.166	9.632	AV
5			0.778	27.767	18.100	-28.233	56.000	9.667	QP
6			0.778	18.671	9.004	-27.329	46.000	9.667	AV
7			2.706	31.640	21.847	-24.360	56.000	9.793	QP
8			2.706	20.199	10.406	-25.801	46.000	9.793	AV
9			7.638	33.179	22.939	-26.821	60.000	10.240	QP
10			7.638	22.912	12.672	-27.088	50.000	10.240	AV
11		*	19.830	37.903	27.588	-22.097	60.000	10.314	QP
12			19.830	26.968	16.654	-23.032	50.000	10.314	AV

Note: Measure Level (dBµV) = Reading Level (dBµV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + LISN Factor (dB).

Site: SR2	Time: 2020/05/12 - 10:20
Limit: EN55032_CE_Mains_Class B	Engineer: Liz Yuan
Probe: ENV216_101683_Filter On	Polarity: Line
EUT: Portable Indoor/Outdoor Wireless Speaker System	Power: AC 230V/50Hz
Test Mode 2	

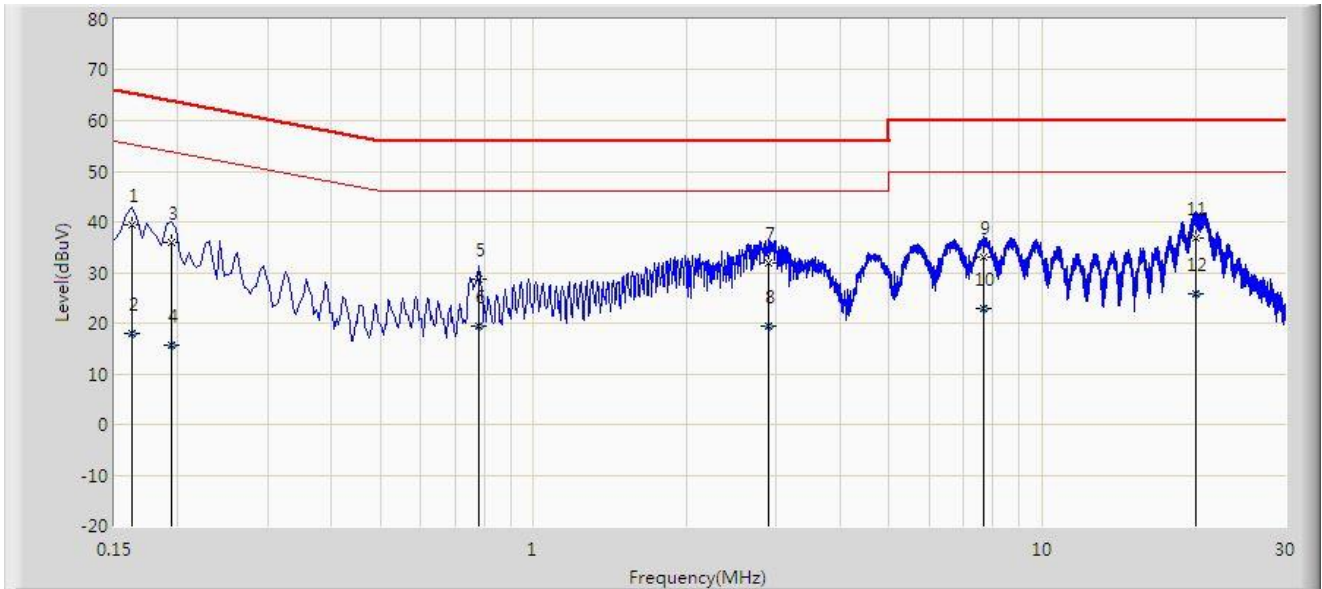


No	Flag	Mark	Frequency (MHz)	Measure Level (dBµV)	Reading Level (dBµV)	Margin (dB)	Limit (dBµV)	Factor (dB)	Type
1			0.162	39.571	29.923	-25.790	65.361	9.648	QP
2			0.162	19.444	9.796	-35.917	55.361	9.648	AV
3			0.194	36.215	26.556	-27.648	63.864	9.659	QP
4			0.194	17.191	7.532	-36.672	53.864	9.659	AV
5			0.778	26.373	16.583	-29.627	56.000	9.790	QP
6			0.778	16.590	6.800	-29.410	46.000	9.790	AV
7		*	2.870	32.441	22.592	-23.559	56.000	9.849	QP
8			2.870	20.071	10.222	-25.929	46.000	9.849	AV
9			6.698	32.481	22.158	-27.519	60.000	10.323	QP
10			6.698	22.253	11.930	-27.747	50.000	10.323	AV
11			20.182	33.556	23.226	-26.444	60.000	10.330	QP
12			20.182	22.482	12.152	-27.518	50.000	10.330	AV

Note: Measure Level (dBµV) = Reading Level (dBµV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + LISN Factor (dB).

Site: SR2	Time: 2020/05/12 - 11:07
Limit: EN55032_CE_Mains_Class B	Engineer: Liz Yuan
Probe: ENV216_101683_Filter On	Polarity: Neutral
EUT: Portable Indoor/Outdoor Wireless Speaker System	Power: AC 230V/50Hz
Test Mode 2	



No	Flag	Mark	Frequency (MHz)	Measure Level (dBµV)	Reading Level (dBµV)	Margin (dB)	Limit (dBµV)	Factor (dB)	Type
1			0.162	39.339	29.730	-26.022	65.361	9.608	QP
2			0.162	17.841	8.233	-37.520	55.361	9.608	AV
3			0.194	35.974	26.354	-27.890	63.864	9.620	QP
4			0.194	15.734	6.114	-38.129	53.864	9.620	AV
5			0.782	28.598	18.931	-27.402	56.000	9.667	QP
6			0.782	19.424	9.757	-26.576	46.000	9.667	AV
7			2.894	31.748	21.948	-24.252	56.000	9.800	QP
8			2.894	19.544	9.744	-26.456	46.000	9.800	AV
9			7.682	33.016	22.774	-26.984	60.000	10.243	QP
10			7.682	22.791	12.548	-27.209	50.000	10.243	AV
11		*	20.054	36.884	26.565	-23.116	60.000	10.319	QP
12			20.054	25.816	15.497	-24.184	50.000	10.319	AV

Note: Measure Level (dBµV) = Reading Level (dBµV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + LISN Factor (dB).

## 5. Radiated Emission

### 5.1. Limit of Radiated Emission

Frequency range (MHz)	Quasi-peak limits dB( $\mu$ V/m)
30 to 230	40
230 to 1000	47

Note 1: The lower limit shall apply at the transition frequency.

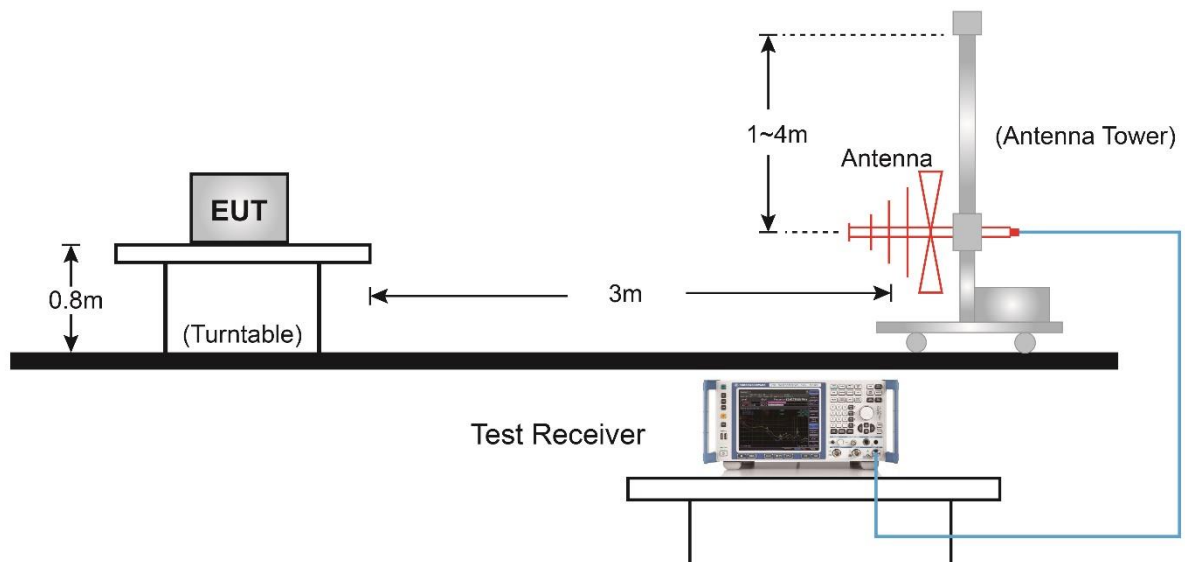
Note 2: Additional provisions may be required for cases where interference occurs.

Frequency range (GHz)	Average limit dB( $\mu$ V/m)	Peak limit dB( $\mu$ V/m)
1 to 3	50	70
3 to 6	54	74

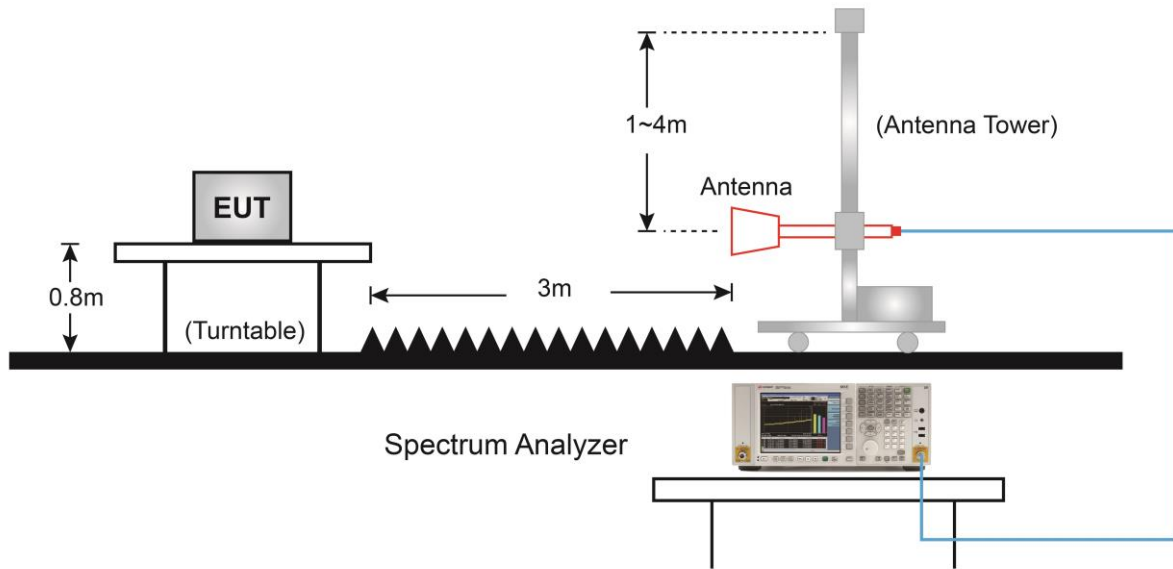
Note: The lower limit applies at the transition frequency.

### 5.2. Test Setup

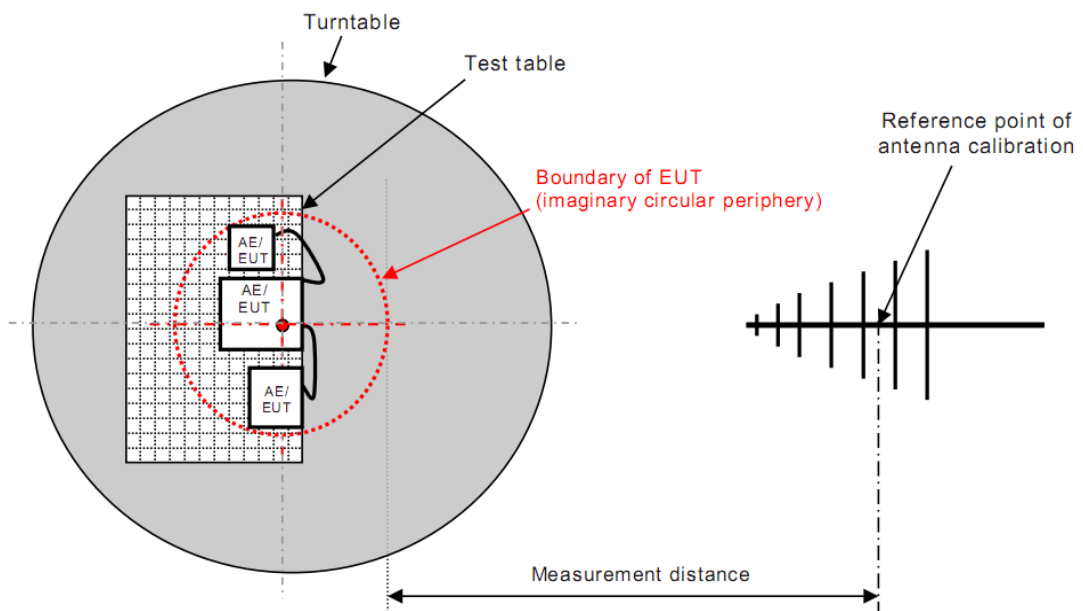
Below 1GHz Test Setup:



Above 1GHz Test Setup:

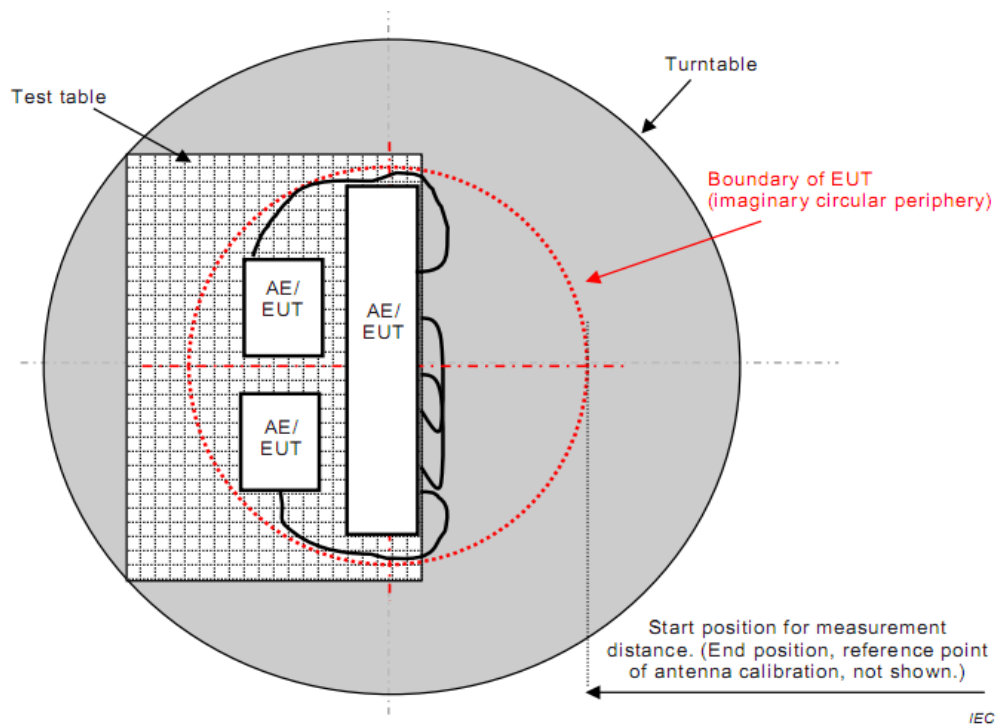


Note: About the radiated test setup, the EUT and local AE shall be arranged in the most compact practical arrangement within the test volume, while respecting typical spacing and the requirements defined in EN55032 Annex D. The central point of the arrangement shall be positioned at the center of the turntable. The measurement distance is the shortest horizontal distance between an imaginary circular periphery just encompassing this arrangement and the calibration point of the antenna. See below Figure 1 and Figure 2.



IEC

**Figure 1**



**Figure 2**

### 5.3. Test Procedure

Starting with the front of the receiver under test facing the measuring antenna, the measuring antenna is adjusted for horizontal polarization measurement and its height varied between 1 m and 4 m until the maximum reading is obtained.

The receiver under test is then rotated about its center until the maximum meter reading is obtained, after which the measuring antenna height is again varied between 1 m and 4 m and the maximum reading noted.

The procedure is repeated for vertical polarization of the measuring antenna.

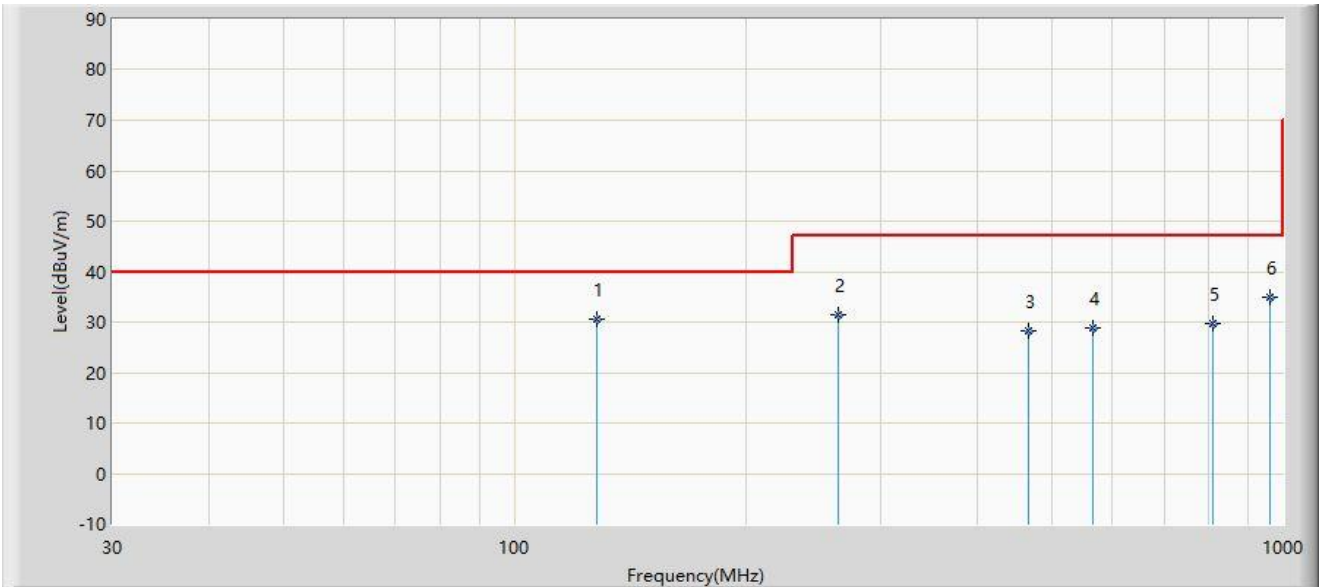
The highest value found, following this procedure, is defined as the radiation figure of the receiver.

If at certain frequencies the ambient signal field strength is high at the position of the receiving antenna, one of the following methods may be used to show compliance of the equipment under test.

For small frequency bands with high ambient signals, the disturbance value may be interpolated from the adjacent values. The interpolated value shall lie on the curve describing a continuous function of the disturbance values adjacent to the ambient noise.

### 5.4. Test Result

Site: AC2	Time: 2020/05/11 - 23:20
Limit: EN55032_RE(3m)_Class B	Engineer: Edgar Ma
Probe: AC2_VULB9162_0.03-7GHz	Polarity: Horizontal
EUT: Portable Indoor/Outdoor Wireless Speaker System	Power: AC 230V/50Hz
Test Mode 1	



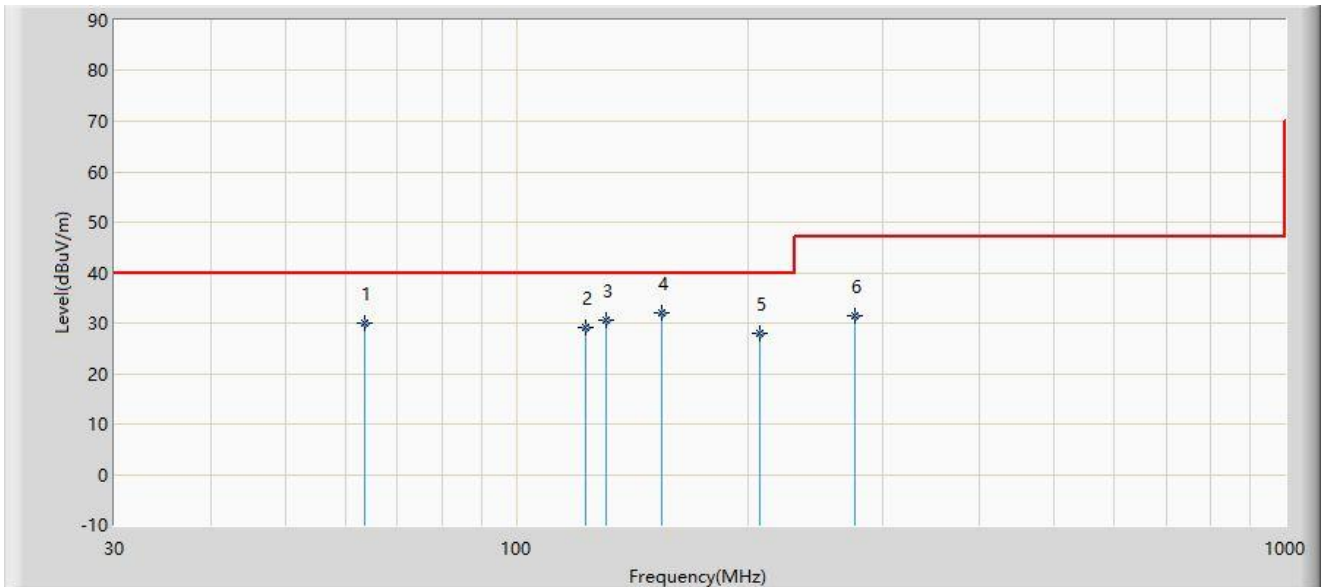
No	Flag	Mark	Frequency (MHz)	Measure Level (dBμV/m)	Reading Level (dBμV)	Margin (dB)	Limit (dBμV/m)	Factor (dB)	Type
1		*	127.970	30.462	21.070	-9.538	40.000	9.392	QP
2			264.255	31.311	17.810	-15.689	47.000	13.501	QP
3			466.985	28.396	11.170	-18.604	47.000	17.226	QP
4			565.440	28.711	9.740	-18.289	47.000	18.971	QP
5			810.850	29.631	7.170	-17.369	47.000	22.461	QP
6			959.745	34.952	11.050	-12.048	47.000	23.902	QP

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m).



Site: AC2	Time: 2020/05/11 - 23:28
Limit: EN55032_RE(3m)_Class B	Engineer: Edgar Ma
Probe: AC2_VULB9162_0.03-7GHz	Polarity: Vertical
EUT: Portable Indoor/Outdoor Wireless Speaker System	Power: AC 230V/50Hz
Test Mode 1	

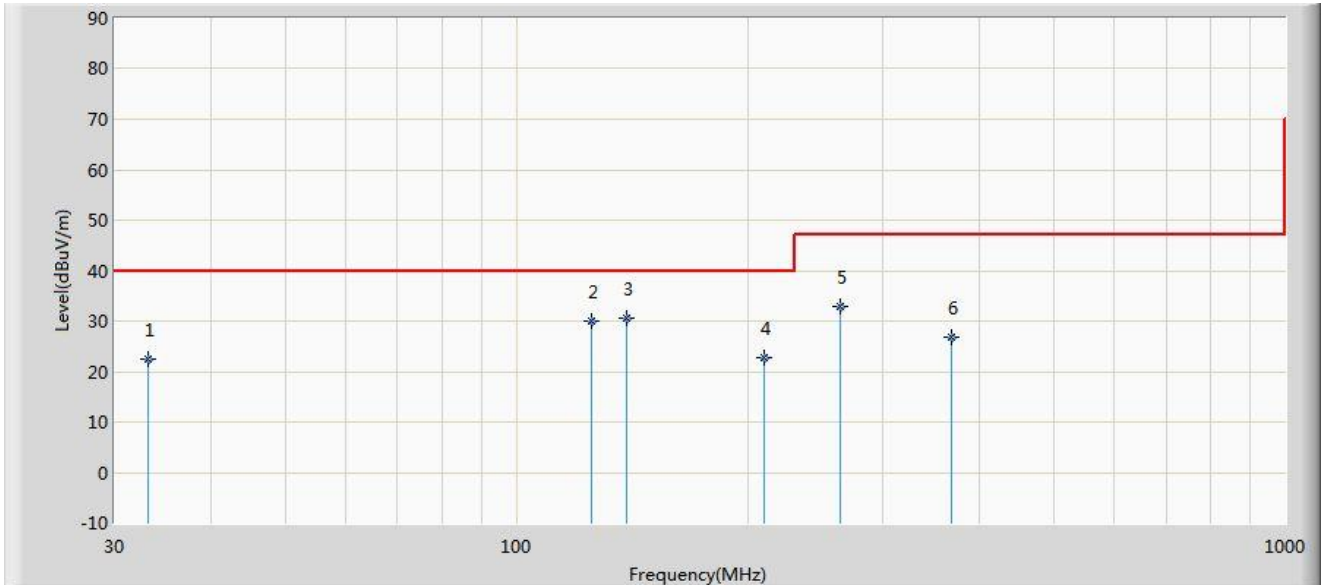


No	Flag	Mark	Frequency (MHz)	Measure Level (dB $\mu$ V/m)	Reading Level (dB $\mu$ V)	Margin (dB)	Limit (dB $\mu$ V/m)	Factor (dB)	Type
1			63.465	30.059	17.810	-9.941	40.000	12.248	QP
2			123.120	29.048	18.950	-10.952	40.000	10.098	QP
3			130.880	30.446	21.080	-9.554	40.000	9.366	QP
4		*	154.645	32.095	22.910	-7.905	40.000	9.185	QP
5			207.025	27.873	16.180	-12.127	40.000	11.693	QP
6			275.410	31.491	17.940	-15.509	47.000	13.551	QP

Note: Measure Level (dB $\mu$ V/m) = Reading Level (dB $\mu$ V) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m).

Site: AC2	Time: 2020/05/13 - 11:10
Limit: EN55032_RE(3m)_Class B	Engineer: Edgar Ma
Probe: AC2_VULB9162_0.03-7GHz	Polarity: Horizontal
EUT: Portable Indoor/Outdoor Wireless Speaker System	Power: AC 230V/50Hz
Test Mode 2	

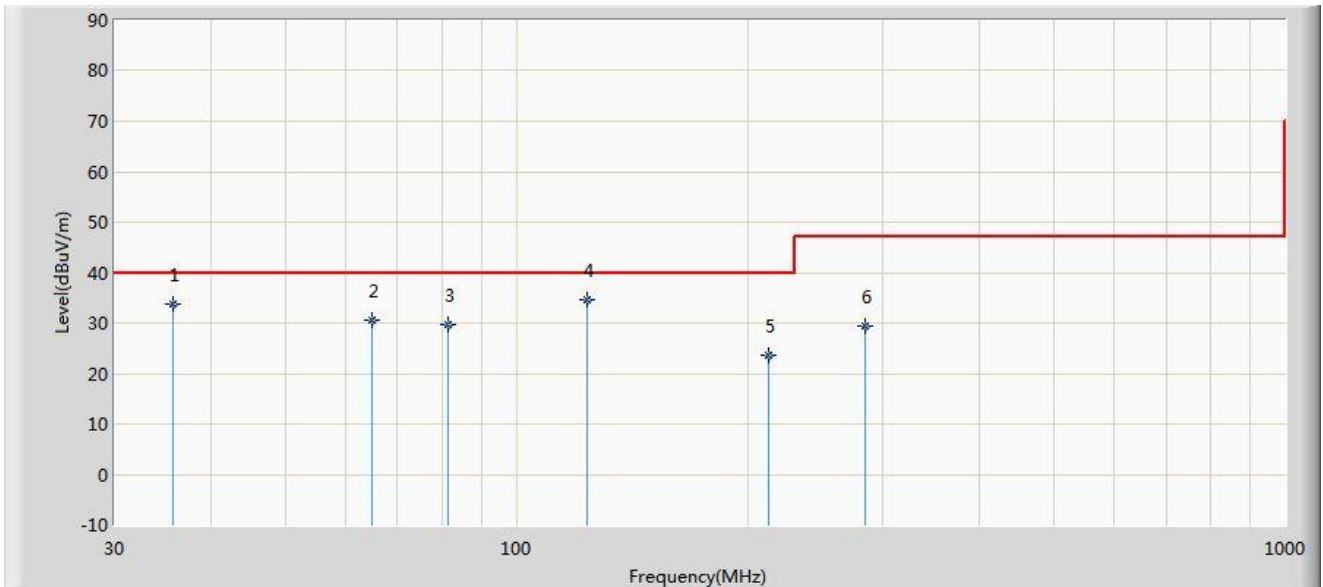


No	Flag	Mark	Frequency (MHz)	Measure Level (dB $\mu$ V/m)	Reading Level (dB $\mu$ V)	Margin (dB)	Limit (dB $\mu$ V/m)	Factor (dB)	Type
1			33.127	22.333	11.023	-17.667	40.000	11.310	QP
2			125.070	29.982	20.072	-10.018	40.000	9.910	QP
3		*	138.825	30.636	21.720	-9.364	40.000	8.915	QP
4			209.720	22.746	10.738	-17.254	40.000	12.008	QP
5			263.324	32.829	18.882	-14.171	47.000	13.947	QP
6			368.535	26.816	10.925	-20.184	47.000	15.891	QP

Note: Measure Level (dB $\mu$ V/m) = Reading Level (dB $\mu$ V) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m).

Site: AC2	Time: 2020/05/13 - 11:10
Limit: EN55032_RE(3m)_Class B	Engineer: Edgar Ma
Probe: AC2_VULB9162_0.03-7GHz	Polarity: Vertical
EUT: Portable Indoor/Outdoor Wireless Speaker System	Power: AC 230V/50Hz
Test Mode 2	

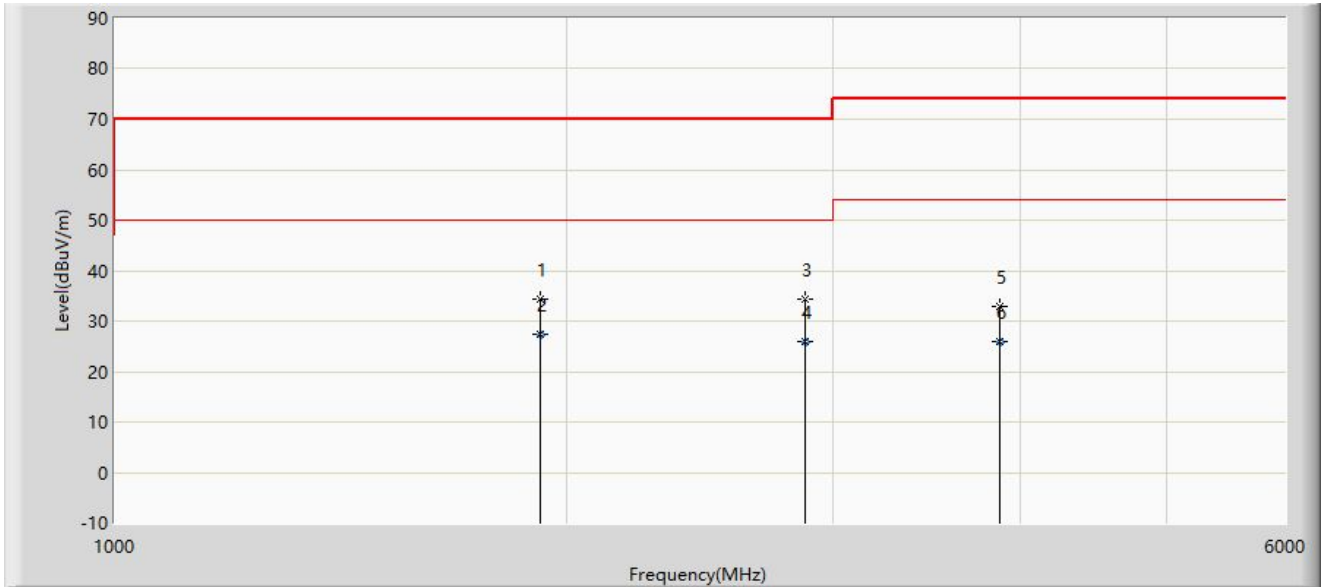


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			35.820	33.779	21.810	-6.221	40.000	11.970	QP
2			64.920	30.717	18.690	-9.283	40.000	12.026	QP
3			81.410	29.635	21.540	-10.365	40.000	8.095	QP
4		*	123.605	34.541	24.490	-5.459	40.000	10.052	QP
5			212.845	23.632	11.570	-16.368	40.000	12.063	QP
6			283.655	29.369	15.110	-17.631	47.000	14.259	QP

Note: Measure Level (dBuV/m) = Reading Level (dBuV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m).

Site: AC2	Time: 2020/05/12 - 23:40
Limit: EN55032_RE(3m)_Class B	Engineer: Edgar Ma
Probe: AC2_BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: Portable Indoor/Outdoor Wireless Speaker System	Power: AC 230V/50Hz
Test Mode 1	

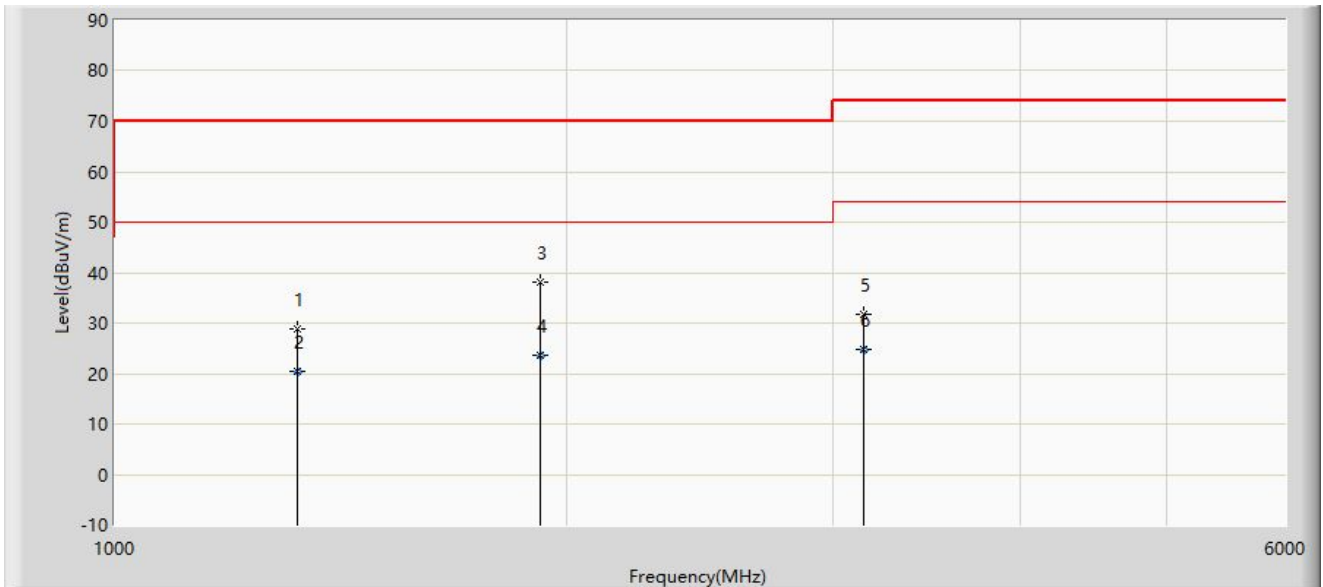


No	Flag	Mark	Frequency (MHz)	Measure Level (dB $\mu$ V/m)	Reading Level (dB $\mu$ V)	Margin (dB)	Limit (dB $\mu$ V/m)	Factor (dB)	Type
1			1920.000	34.421	41.230	-35.579	70.000	-6.809	PK
2		*	1920.000	27.371	34.180	-22.629	50.000	-6.809	AV
3			2880.000	34.267	39.084	-35.733	70.000	-4.817	PK
4			2880.000	25.893	30.710	-24.107	50.000	-4.817	AV
5			3872.500	33.025	36.258	-40.975	74.000	-3.233	PK
6			3872.500	25.937	29.170	-28.063	54.000	-3.233	AV

Note: Measure Level (dB $\mu$ V/m) = Reading Level (dB $\mu$ V) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre\_Amplifier Gain (dB).

Site: AC2	Time: 2020/05/13 - 00:15
Limit: EN55032_RE(3m)_Class B	Engineer: Edgar Ma
Probe: AC2_BBHA9120D_1-18GHz	Polarity: Vertical
EUT: Portable Indoor/Outdoor Wireless Speaker System	Power: AC 230V/50Hz
Test Mode 1	

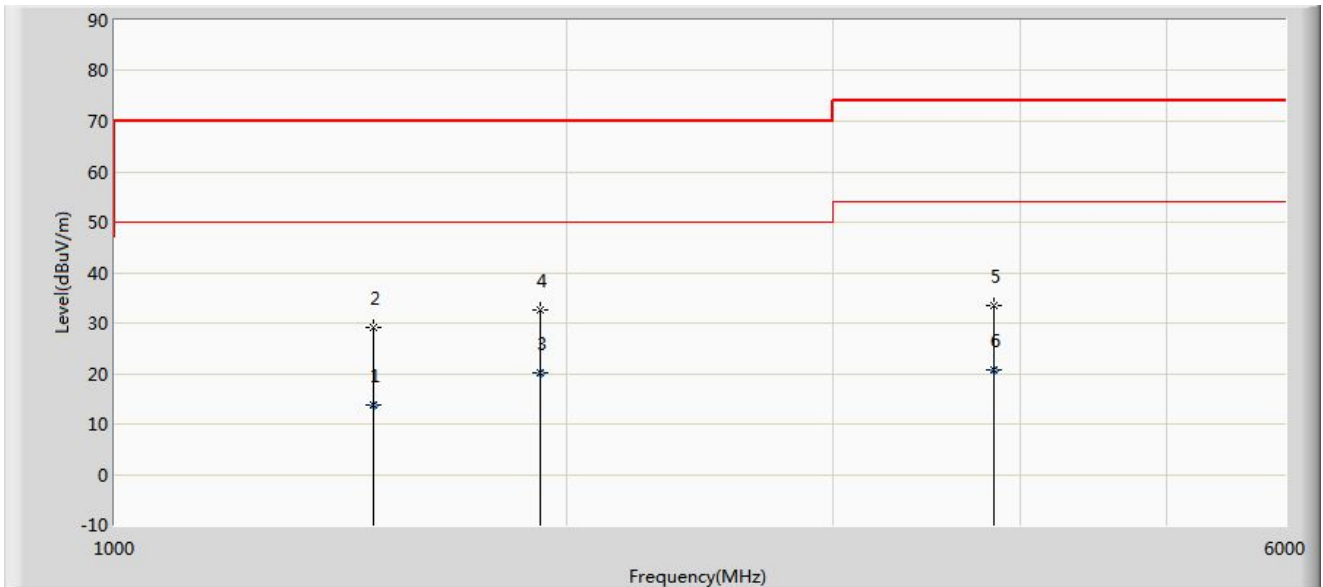


No	Flag	Mark	Frequency (MHz)	Measure Level (dB $\mu$ V/m)	Reading Level (dB $\mu$ V)	Margin (dB)	Limit (dB $\mu$ V/m)	Factor (dB)	Type
1			1322.500	28.730	35.042	-41.270	70.000	-6.312	PK
2			1322.500	20.428	26.740	-29.572	50.000	-6.312	AV
3			1920.000	38.144	44.953	-31.856	70.000	-6.809	PK
4		*	1920.000	23.621	30.430	-26.379	50.000	-6.809	AV
5			3147.500	31.848	36.213	-42.152	74.000	-4.365	PK
6			3147.500	24.785	29.150	-29.215	54.000	-4.365	AV

Note: Measure Level (dB $\mu$ V/m) = Reading Level (dB $\mu$ V) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre\_Amplifier Gain (dB).

Site: AC2	Time: 2020/05/13 - 11:11
Limit: EN55032_RE(3m)_Class B	Engineer: Edgar Ma
Probe: AC2_BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: Portable Indoor/Outdoor Wireless Speaker System	Power: AC 230V/50Hz
Test Mode 2	

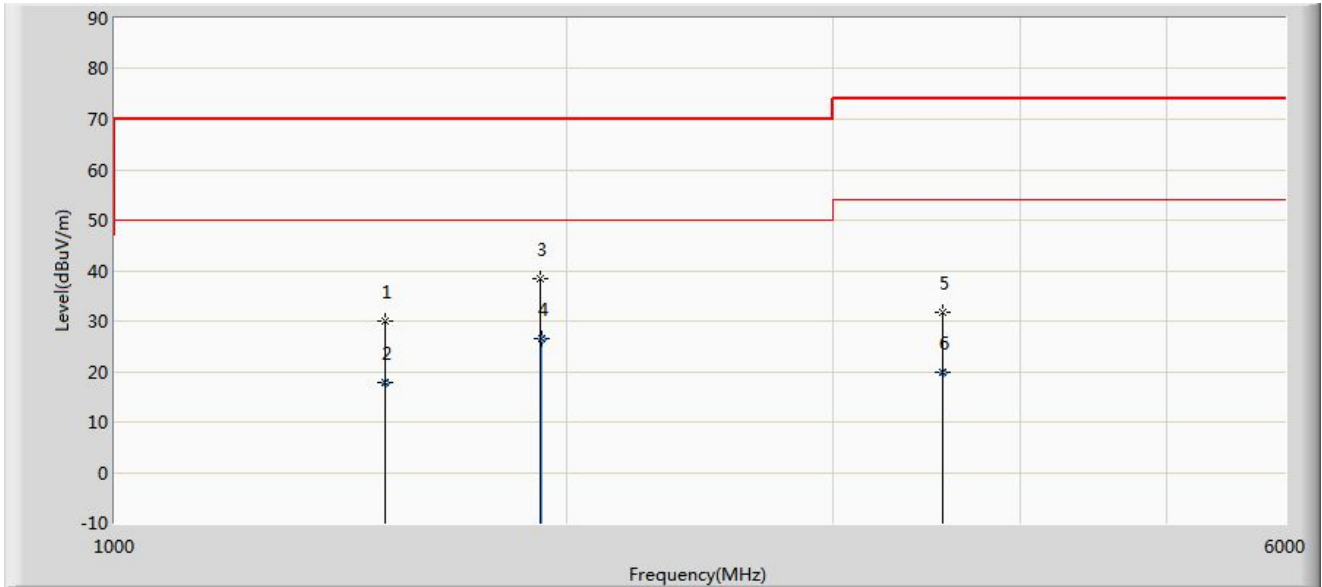


No	Flag	Mark	Frequency (MHz)	Measure Level (dB $\mu$ V/m)	Reading Level (dB $\mu$ V)	Margin (dB)	Limit (dB $\mu$ V/m)	Factor (dB)	Type
1			1487.125	13.777	18.883	-36.223	50.000	-5.106	AV
2			1487.500	29.026	34.131	-40.974	70.000	-5.105	PK
3		*	1918.820	20.243	25.554	-29.757	50.000	-5.311	AV
4			1920.000	32.579	37.880	-37.421	70.000	-5.301	PK
5			3840.000	33.424	34.951	-40.576	74.000	-1.527	PK
6			3841.125	20.646	22.172	-33.354	54.000	-1.526	AV

Note: Measure Level (dB $\mu$ V/m) = Reading Level (dB $\mu$ V) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) -Pre\_Amplifier Gain (dB).

Site: AC2	Time: 2020/05/13 - 11:11
Limit: EN55032_RE(3m)_Class B	Engineer: Edgar Ma
Probe: AC2_BBHA9120D_1-18GHz	Polarity: Vertical
EUT: Portable Indoor/Outdoor Wireless Speaker System	Power: AC 230V/50Hz
Test Mode 2	



No	Flag	Mark	Frequency (MHz)	Measure Level (dB $\mu$ V/m)	Reading Level (dB $\mu$ V)	Margin (dB)	Limit (dB $\mu$ V/m)	Factor (dB)	Type
1			1512.500	29.970	35.560	-40.030	70.000	-5.590	PK
2			1513.125	17.730	23.334	-32.270	50.000	-5.604	AV
3			1920.000	38.272	43.573	-31.728	70.000	-5.301	PK
4		*	1921.125	26.483	31.774	-23.517	50.000	-5.291	AV
5			3552.500	31.684	33.227	-42.316	74.000	-1.543	PK
6			3553.720	19.870	21.432	-34.130	54.000	-1.562	AV

Note: Measure Level (dB $\mu$ V/m) = Reading Level (dB $\mu$ V) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) -Pre\_Amplifier Gain (dB).

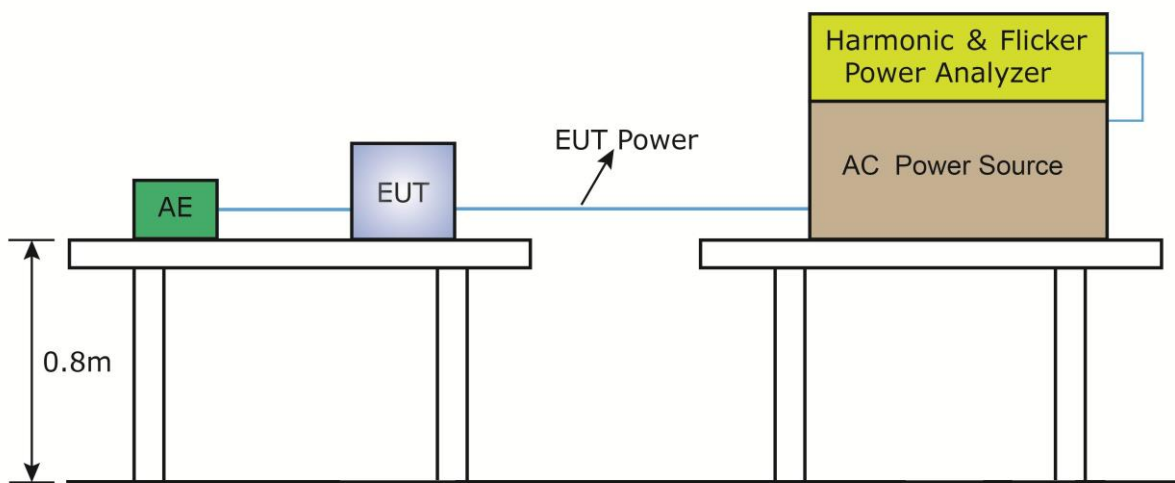
## 6. Harmonic Current Emissions

### 6.1. Limit of Harmonic Current Emissions

Limits of Class A Harmonics Currents

Harmonics Order n	Maximum Permissible harmonic current A	Harmonics Order n	Maximum Permissible harmonic current A
Odd harmonics		Even harmonics	
3	2.30	2	1.08
5	1.14	4	0.43
7	0.77	6	0.30
9	0.40	$8 \leq n \leq 40$	$0.23 * 8/n$
11	0.33	--	--
13	0.21	--	--
$15 \leq n \leq 39$	$0.15 * 15/n$	--	--

### 6.2. Test Setup



### 6.3. Test Procedure

The EUT is supplied in series with power analyzer from a power source having the same normal voltage and frequency as the rated supply voltage and the equipment under test. And the rated voltage at the supply voltage of EUT of 0.98 times and 1.02 times shall be performed.



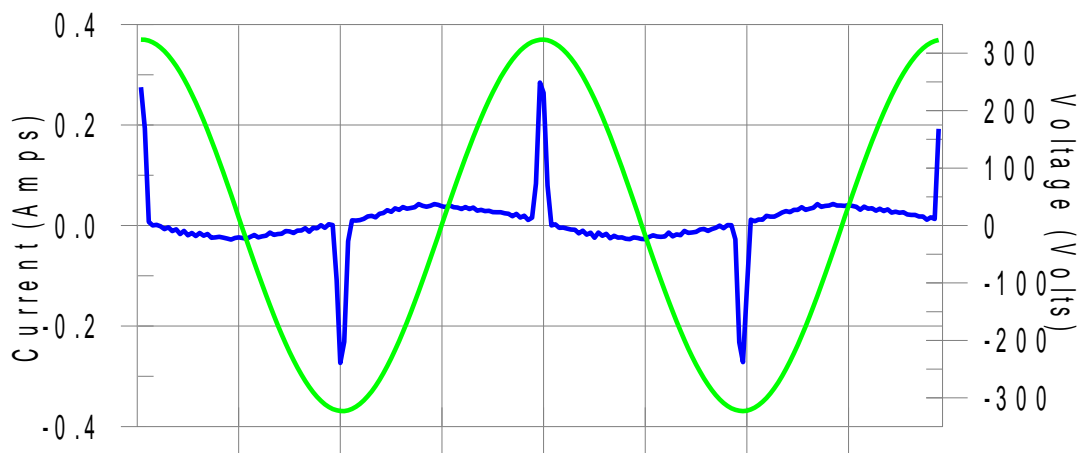
### 6.4. Test Result

Product	Portable Indoor/Outdoor Wireless Speaker System	Temperature	23°C
Test Engineer	Liz Yuan	Relative Humidity	46%
Test Mode	Mode 1	Test Date	2020/05/12

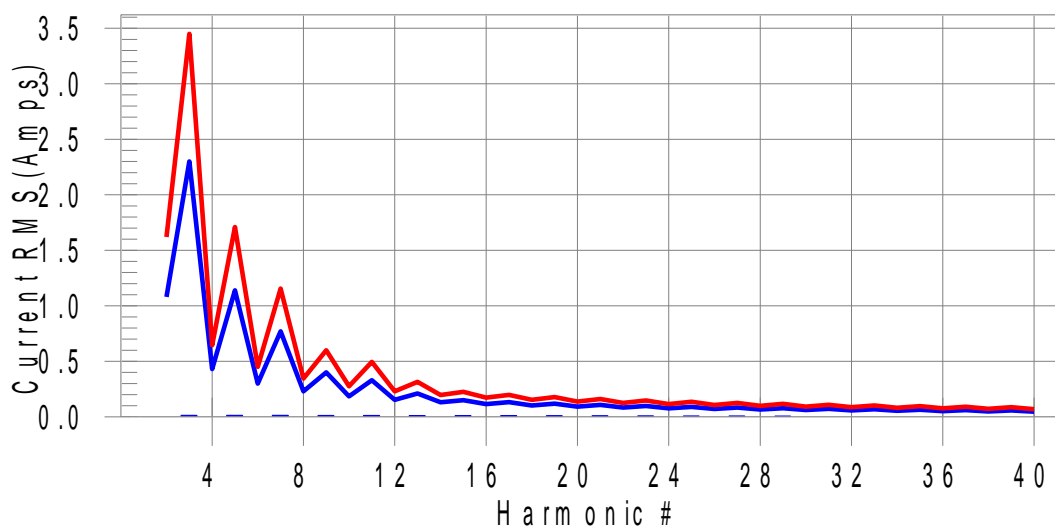
Test Result: Pass

Source qualification: Normal

#### Current & voltage waveforms



#### Harmonics and Class A limit line European Limits



Test result: Pass      Worst harmonic was #21 with 8.4% of the limit.



Test Result: Pass Source qualification: Normal

THC(A): 0.042 I-THD(%): 162.8 POHC(A): 0.016 POHC Limit(A): 0.251

Highest parameter values during test:

V_RMS (Volts):	228.78	Frequency(Hz):	50.00
I_Peak (Amps):	0.304	I_RMS (Amps):	0.052
I_Fund (Amps):	0.027	Crest Factor:	5.853
Power (Watts):	3.5	Power Factor:	0.309

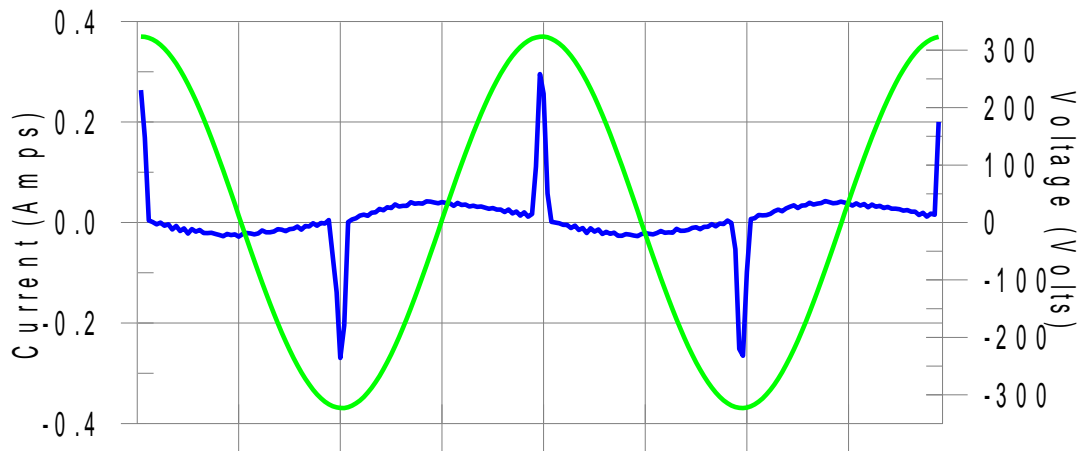
Harm#	Harms(avg)	100%Limit	%of Limit	Harms(max)	150%Limit	%of Limit	Status
2	0.001	1.080	N/A	0.001	1.620	N/A	Pass
3	0.014	2.300	0.6	0.016	3.450	0.5	Pass
4	0.001	0.430	N/A	0.001	0.645	N/A	Pass
5	0.014	1.140	1.2	0.014	1.710	0.8	Pass
6	0.000	0.300	N/A	0.001	0.450	N/A	Pass
7	0.014	0.770	1.8	0.014	1.155	1.2	Pass
8	0.000	0.230	N/A	0.001	0.345	N/A	Pass
9	0.013	0.400	3.3	0.013	0.600	2.2	Pass
10	0.000	0.184	N/A	0.001	0.276	N/A	Pass
11	0.013	0.330	3.9	0.013	0.495	2.6	Pass
12	0.000	0.153	N/A	0.001	0.230	N/A	Pass
13	0.012	0.210	5.8	0.012	0.315	3.9	Pass
14	0.000	0.131	N/A	0.000	0.197	N/A	Pass
15	0.011	0.150	7.6	0.012	0.225	5.2	Pass
16	0.000	0.115	N/A	0.000	0.173	N/A	Pass
17	0.011	0.132	8.1	0.011	0.198	5.4	Pass
18	0.000	0.102	N/A	0.000	0.153	N/A	Pass
19	0.010	0.118	8.3	0.010	0.178	5.6	Pass
20	0.000	0.092	N/A	0.000	0.138	N/A	Pass
21	0.009	0.107	8.4	0.009	0.161	5.6	Pass
22	0.000	0.084	N/A	0.000	0.125	N/A	Pass
23	0.008	0.098	8.2	0.008	0.147	5.6	Pass
24	0.000	0.077	N/A	0.000	0.115	N/A	Pass
25	0.007	0.090	8.0	0.007	0.135	5.3	Pass
26	0.000	0.071	N/A	0.000	0.107	N/A	Pass
27	0.006	0.083	7.5	0.006	0.125	5.1	Pass
28	0.000	0.066	N/A	0.000	0.099	N/A	Pass
29	0.005	0.078	7.0	0.005	0.116	4.7	Pass
30	0.000	0.061	N/A	0.000	0.092	N/A	Pass
31	0.005	0.073	N/A	0.005	0.109	N/A	Pass
32	0.000	0.058	N/A	0.000	0.086	N/A	Pass
33	0.004	0.068	N/A	0.004	0.102	N/A	Pass
34	0.000	0.054	N/A	0.000	0.081	N/A	Pass
35	0.003	0.064	N/A	0.003	0.096	N/A	Pass
36	0.000	0.051	N/A	0.000	0.077	N/A	Pass
37	0.002	0.061	N/A	0.002	0.091	N/A	Pass
38	0.000	0.048	N/A	0.000	0.073	N/A	Pass
39	0.002	0.058	N/A	0.002	0.087	N/A	Pass
40	0.000	0.046	N/A	0.000	0.069	N/A	Pass

Product	Portable Indoor/Outdoor Wireless Speaker System	Temperature	23°C
Test Engineer	Liz Yuan	Relative Humidity	46%
Test Mode	Mode 2	Test Date	2020/05/12

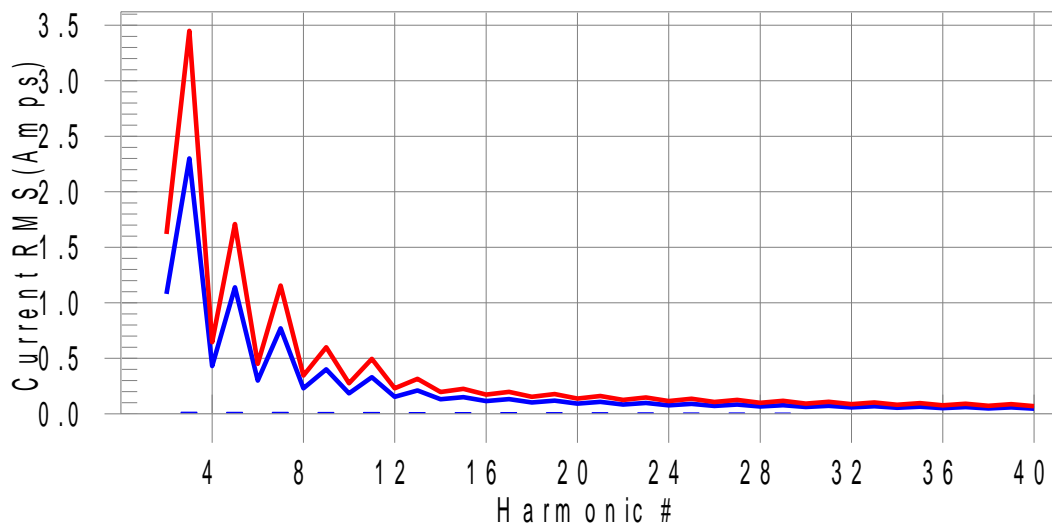
Test Result: Pass

Source qualification: Normal

**Current & voltage waveforms**



**Harmonics and Class A limit line European Limits**



**Test result: Pass Worst harmonic was #21 with 8.4% of the limit.**



Test Result: Pass Source qualification: Normal

THC(A): 0.042 I-THD(%): 162.6 POHC(A): 0.016 POHC Limit(A): 0.251

Highest parameter values during test:

V_RMS (Volts): 228.78	Frequency(Hz): 50.00
I_Peak (Amps): 0.304	I_RMS (Amps): 0.053
I_Fund (Amps): 0.027	Crest Factor: 5.904
Power (Watts): 3.5	Power Factor: 0.309

Harm#	Harms(avg)	100%Limit	%of Limit	Harms(max)	150%Limit	%of Limit	Status
2	0.001	1.080	N/A	0.001	1.620	N/A	Pass
3	0.015	2.300	0.6	0.016	3.450	0.5	Pass
4	0.001	0.430	N/A	0.001	0.645	N/A	Pass
5	0.014	1.140	1.2	0.014	1.710	0.8	Pass
6	0.000	0.300	N/A	0.001	0.450	N/A	Pass
7	0.014	0.770	1.8	0.014	1.155	1.2	Pass
8	0.000	0.230	N/A	0.001	0.345	N/A	Pass
9	0.013	0.400	3.3	0.014	0.600	2.3	Pass
10	0.000	0.184	N/A	0.001	0.276	N/A	Pass
11	0.013	0.330	3.9	0.013	0.495	2.6	Pass
12	0.000	0.153	N/A	0.001	0.230	N/A	Pass
13	0.012	0.210	5.8	0.012	0.315	3.9	Pass
14	0.000	0.131	N/A	0.001	0.197	N/A	Pass
15	0.011	0.150	7.6	0.012	0.225	5.1	Pass
16	0.000	0.115	N/A	0.000	0.173	N/A	Pass
17	0.011	0.132	8.1	0.011	0.198	5.4	Pass
18	0.000	0.102	N/A	0.000	0.153	N/A	Pass
19	0.010	0.118	8.3	0.010	0.178	5.6	Pass
20	0.000	0.092	N/A	0.000	0.138	N/A	Pass
21	0.009	0.107	8.4	0.009	0.161	5.6	Pass
22	0.000	0.084	N/A	0.000	0.125	N/A	Pass
23	0.008	0.098	8.2	0.008	0.147	5.5	Pass
24	0.000	0.077	N/A	0.000	0.115	N/A	Pass
25	0.007	0.090	8.0	0.007	0.135	5.4	Pass
26	0.000	0.071	N/A	0.000	0.107	N/A	Pass
27	0.006	0.083	7.5	0.006	0.125	5.1	Pass
28	0.000	0.066	N/A	0.000	0.099	N/A	Pass
29	0.005	0.078	7.0	0.005	0.116	4.7	Pass
30	0.000	0.061	N/A	0.000	0.092	N/A	Pass
31	0.005	0.073	N/A	0.005	0.109	N/A	Pass
32	0.000	0.058	N/A	0.000	0.086	N/A	Pass
33	0.004	0.068	N/A	0.004	0.102	N/A	Pass
34	0.000	0.054	N/A	0.000	0.081	N/A	Pass
35	0.003	0.064	N/A	0.003	0.096	N/A	Pass
36	0.000	0.051	N/A	0.000	0.077	N/A	Pass
37	0.002	0.061	N/A	0.002	0.091	N/A	Pass
38	0.000	0.048	N/A	0.000	0.073	N/A	Pass
39	0.002	0.058	N/A	0.002	0.087	N/A	Pass
40	0.000	0.046	N/A	0.000	0.069	N/A	Pass

## 7. Voltage Fluctuations and Flicker

### 7.1. Limit of Voltage Fluctuations and Flicker

The following limits apply:

- the value of  $P_{st}$  shall not be greater than 1.0;
- the value of  $P_{1t}$  shall not be greater than 0.65;
- the value of  $d(t)$  during a voltage change shall not exceed 3.3% for more than 500ms;
- the relative steady-state voltage change,  $d_c$ , shall not exceed 3.3%;
- the maximum relative voltage change,  $d_{max}$ , shall not exceed;
  - a) 4% without additional conditions;
  - b) 6% for equipment which is:
    - switched manually, or
    - switched automatically more frequently than twice per day, and also has either a delayed restart (the delay being not less than a few tens of seconds), or manual restart, after a power supply interruption.

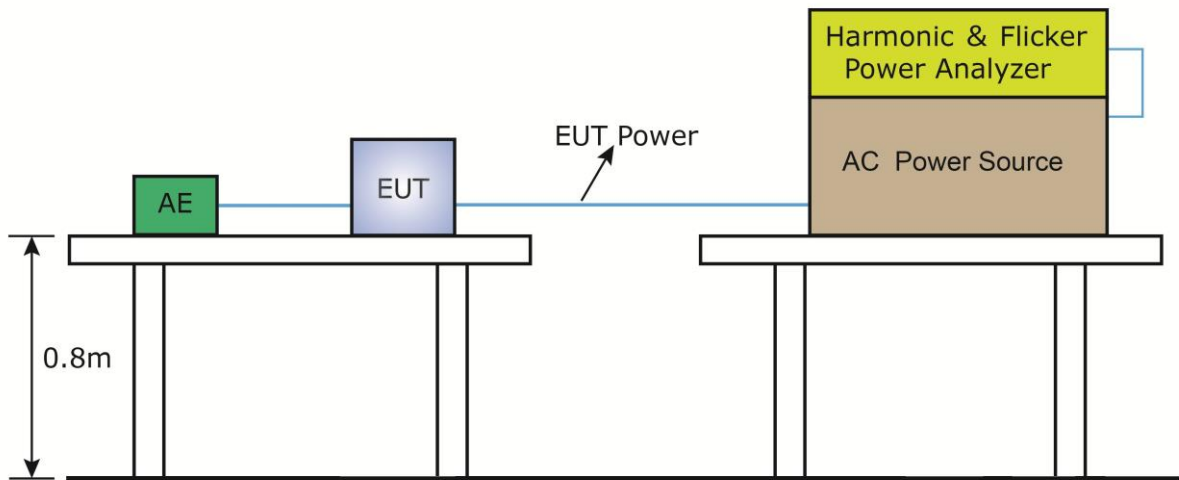
Note: The cycling frequency will be further limited by the  $P_{st}$  and  $P_{1t}$  limit.

For example: a  $d_{max}$  of 6% producing a rectangular voltage change characteristic twice per hour will give a  $P_{1t}$  of about 0.65.

- c) 7% for equipment which is:
  - attended whilst in use (for example: hair dryers, vacuum cleaners, kitchen equipment such as mixers, garden equipment such as lawn mowers, portable tools such as electric drills), or
  - switched on automatically, or is intended to be switched on manually, no more than twice per day, and also has either a delayed restart (the delay being not less than a few tens of seconds) or manual restart, after a power supply interruption.

$P_{st}$  and  $P_{1t}$  requirements shall not be applied to voltage changes caused by manual switching.

## 7.2. Test Setup



## 7.3. Test Procedure

The EUT is supplied in series with power analyzer from a power source having the same normal voltage and frequency as the rated supply voltage and the equipment under test. And the rated voltage at the supply voltage of EUT of 0.98 times and 1.02 times shall be performed.

### 7.4. Test Result

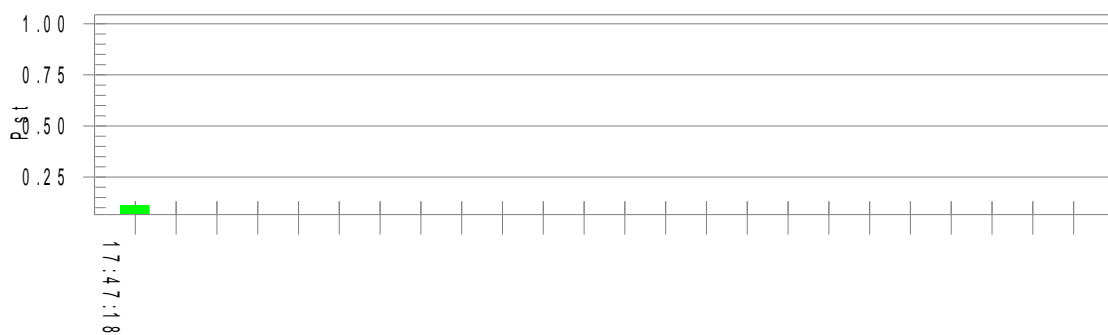
Product	Portable Indoor/Outdoor Wireless Speaker System	Temperature	23°C
Test Engineer	Liz Yuan	Relative Humidity	46%
Test Mode	Mode 1	Test Date	2020/05/12

Test Result: Pass

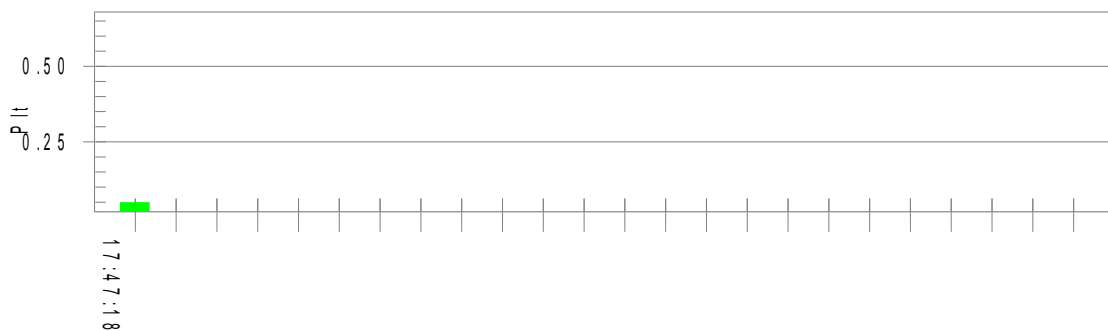
Status: Test Completed

#### Pst and limit line

#### European Limits



#### Plt and limit line

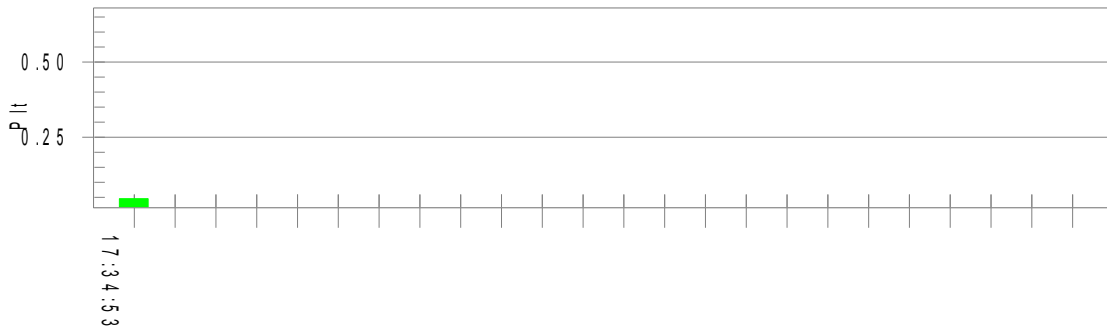


#### Parameter values recorded during the test:

Vrms at the end of test (Volt):	228.71		
Highest dt (%):	0.00	Test limit (%):	N/A N/A
T-max (mS):	0	Test limit (mS):	500.0 Pass
Highest dc (%):	0.00	Test limit (%):	3.30 Pass
Highest dmax (%):	0.04	Test limit (%):	4.00 Pass
Highest Pst (10 min. period):	0.111	Test limit:	1.000 Pass
Highest Plt (2 hr. period):	0.048	Test limit:	0.650 Pass

Product	Portable Indoor/Outdoor Wireless Speaker System	Temperature	23°C
Test Engineer	Liz Yuan	Relative Humidity	46%
Test Mode	Mode 2	Test Date	2020/05/12

**Test Result: Pass**
**Status: Test Completed**
**Pst and limit line**
**European Limits**

**Plt and limit line**

**Parameter values recorded during the test:**

Vrms at the end of test (Volt):	228.74	Test limit (%):	N/A	N/A
Highest dt (%):	0.00	Test limit (mS):	500.0	Pass
T-max (mS):	0	Test limit (%):	3.30	Pass
Highest dc (%):	0.00	Test limit (%):	4.00	Pass
Highest dmax (%):	-0.05	Test limit:	1.000	Pass
Highest Pst (10 min. period):	0.1104	Test limit:	0.650	Pass
Highest Plt (2 hr. period):	0.045			

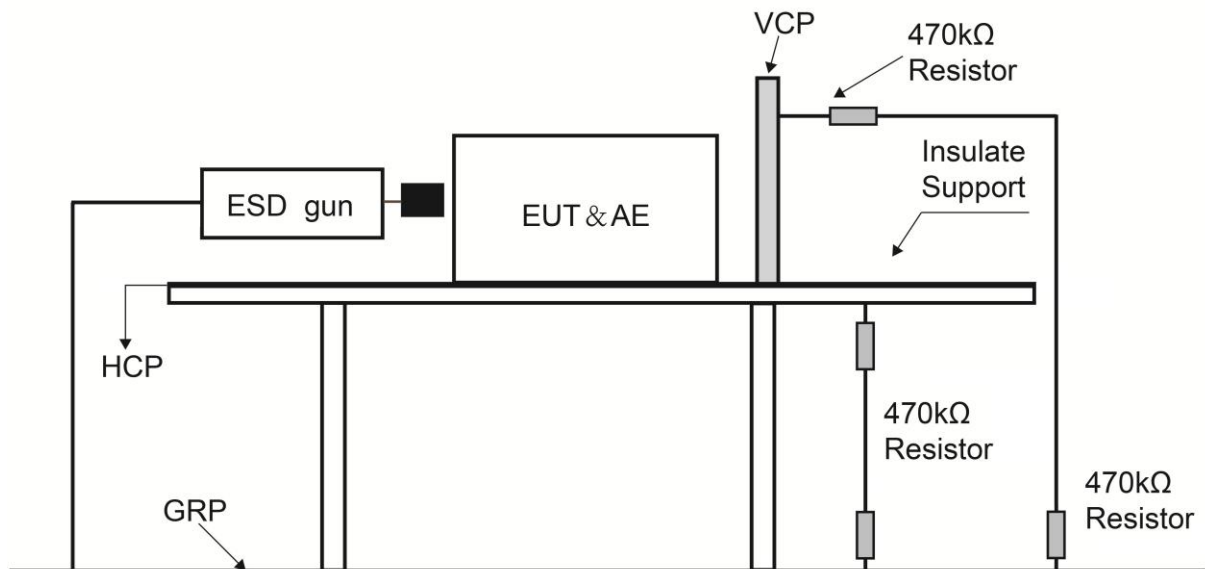


## 8. Electrostatic Discharge

### 8.1. Limit of Electrostatic Discharge

Environmental Phenomenon	Test Specification	Units	Performance Criterion
Enclosure port			
Electrostatic discharge	±4 (Contact discharge)	kV (Charge voltage)	B
	±2, ±4, ±8 (Air discharge)	kV (Charge voltage)	

### 8.2. Test Setup



### 8.3. Test Procedure

#### **Direct Application of Discharges to the EUT:**

Contact discharge was applied only to conductive surfaces of the EUT.

Air discharges were applied only to non-conductive surfaces of the EUT.

During the test, it was performed with single discharges. For the single discharge time between successive single discharges will be keep longer 1 second. It was at least twenty-five single discharges with positive and negative at the same selected point.

The selected point, which was performed with electrostatic discharge, was marked on the red label of the EUT.

#### **Indirect Application of Discharges to the EUT:**

##### Vertical Coupling Plane (VCP):

The coupling plane, of dimensions 0.5m x 0.5m, is placed parallel to, and positioned at a distance 0.1m from the EUT, with the Discharge Electrode touching the coupling plane.

The four faces of the EUT will be performed with electrostatic discharge. It was at least twenty-five single discharges with positive and negative at the same selected point.

##### Horizontal Coupling Plane (HCP):

The coupling plane is placed under to the EUT. The generator shall be positioned vertically at a distance of 0.1m from the EUT, with the Discharge Electrode touching the coupling plane.

The four faces of the EUT will be performed with electrostatic discharge. It was at least twenty-five single discharges with positive and negative at the same selected point.

#### 8.4. Test Result

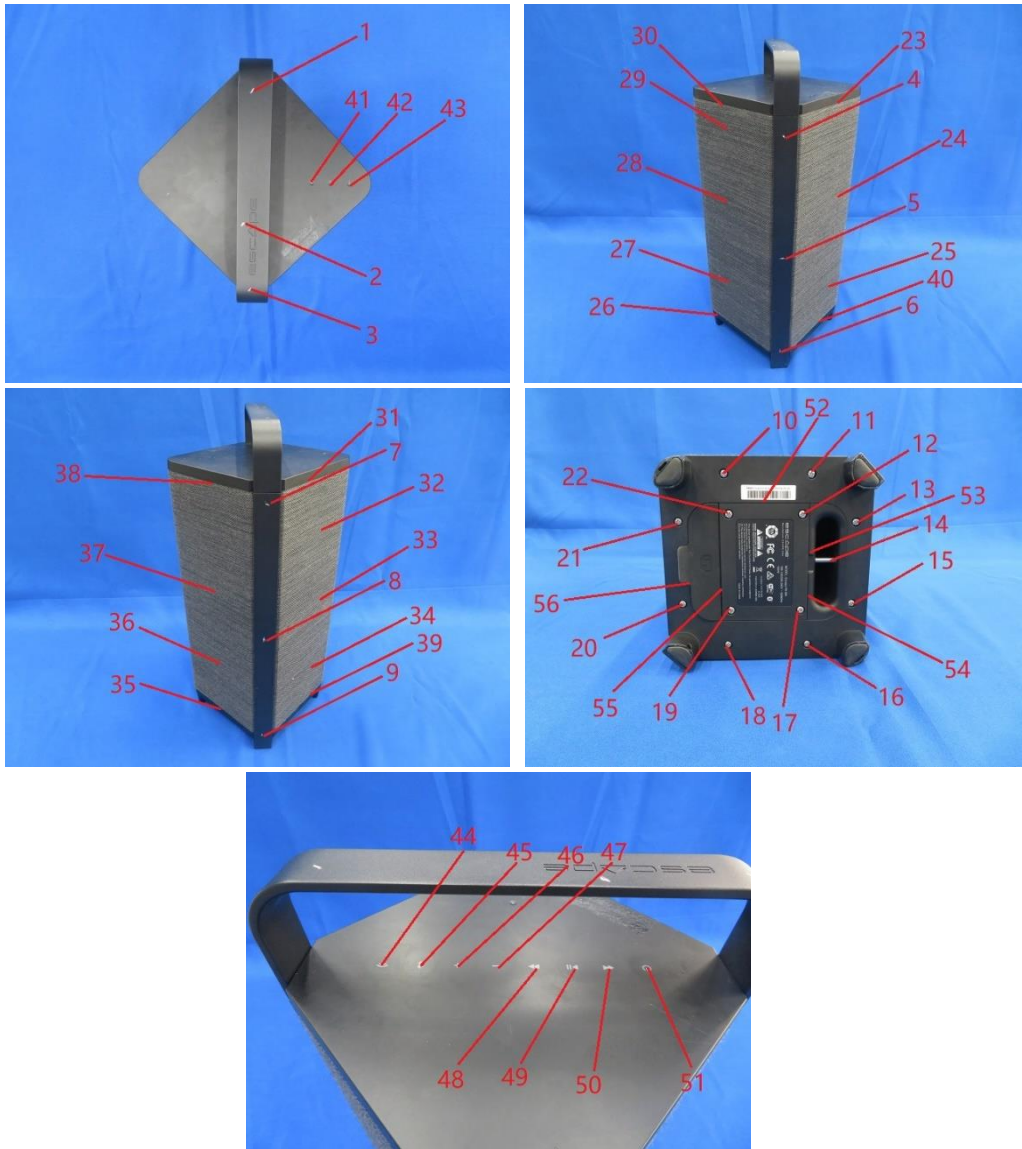
Product	Portable Indoor/Outdoor Wireless Speaker System	Temperature	24.5°C
Test Engineer	Allen Zou	Relative Humidity	52.6%
Test Mode	Mode 1 & 2	Date of Test	2020/06/03

Direct Application		Performance Criterion Result	
Test Location	Test Level	Air Discharge	Contact Discharge
1 ~ 22	±4kV	N/A	A <sup>Note</sup>
23 ~ 56	±2kV, ±4kV, ±8kV	A <sup>Note</sup>	N/A

Indirect Application		Performance Criterion Result	
Test Location	Test Level	Horizontal Coupling	Vertical Coupling
Front, Rear Left, Right	±4kV	A <sup>Note</sup>	A <sup>Note</sup>

Note: During and after the test, the EUT performance complied with performance criteria and there is no any degradation of performance and function.

### Electrostatic Discharge Test Location

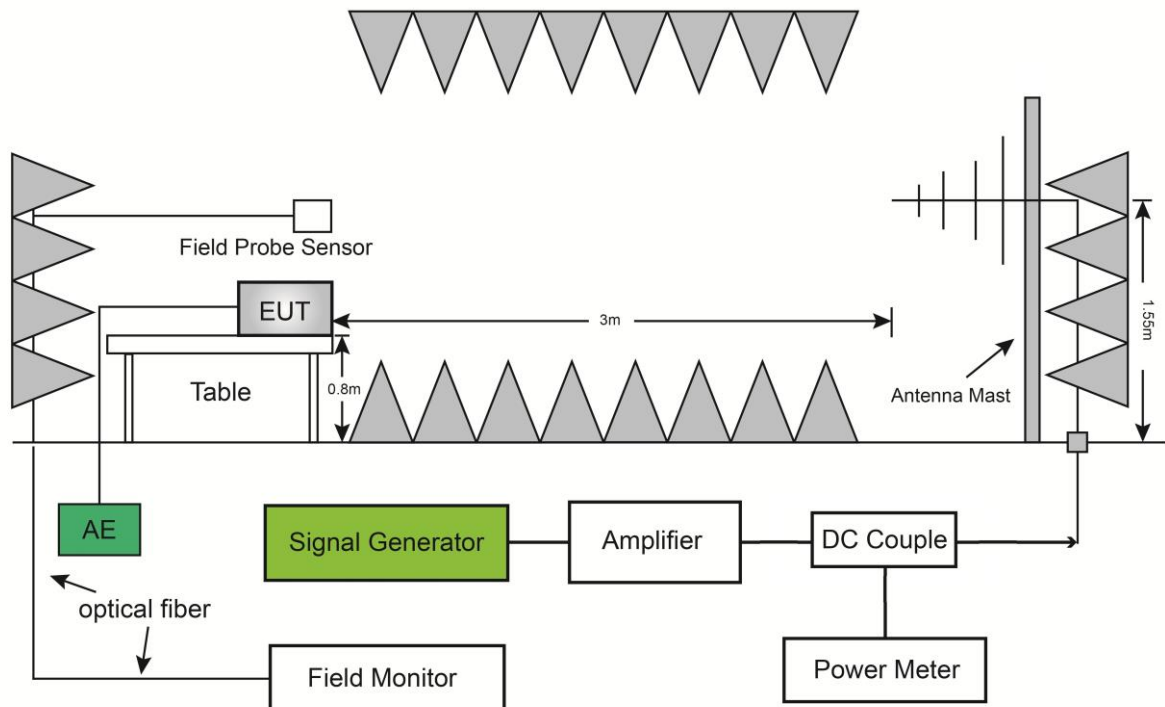


## 9. Radio-Frequency Electromagnetic Field

### 9.1. Limit of Radio-Frequency Electromagnetic Field

Environmental Phenomenon	Test Specification	Units	Performance Criterion
EN 301489-1/-17 Requirements			
Enclosure port			
Radio-Frequency	80 - 6000	MHz	A
Electromagnetic field	3	V/m (unmodulated, r.m.s)	
	80	% AM (1kHz)	
EN 55035 Requirements			
Enclosure port			
Radio-Frequency	80 - 1000	MHz	A
Electromagnetic field,	3	V/m (unmodulated, r.m.s)	
sweep test	80	% AM (1kHz)	
Radio-Frequency	1800, 2600, 3500, 5000 ( $\pm 1\%$ )	MHz	A
Electromagnetic field,	3	V/m (unmodulated, r.m.s)	
spot test	80	% AM (1kHz)	

### 9.2. Test Setup



### 9.3. Test Procedure

The EUT and load, which are placed on a table that is 0.8 meter above ground, are placed with one coincident with the calibration plane such that the distance from antenna to the EUT was 3 meters. Both horizontal and vertical polarization of the antenna and four sides of the EUT are set on measurement.

All the scanning conditions are as follows:

	Condition of Test	Remarks
1.	Field Strength	3V/m
2.	Radiated Signal	AM 80% Modulated with 1kHz
3.	Scanning Frequency	80MHz ~ 6000MHz 1800MHz, 2600MHz, 3500MHz, 5000MHz ( $\pm 1\%$ )
4.	Dwell Time	3Seconds
5.	Frequency Step Size	1%

#### 9.4. Test Result

Product	Portable Indoor/Outdoor Wireless Speaker System	Temperature	24°C
Test Engineer	Rupert Wang	Relative Humidity	52%
Test Mode	Mode 1 & 2	Date of Test	2020/05/25

Frequency (MHz)	Polarity	Test Position	Field Strength (V/m)	Performance Criterion Result
80 - 6000	Horizontal/Vertical	Front	3	A Note 1
		Rear		A Note 1
		Left		A Note 1
		Right		A Note 1
		Top		A Note 1
		Bottom		A Note 1
1800 2600 3500 5000 (±1%)	Horizontal/Vertical	Front	3	A Note 1
		Rear		A Note 1
		Left		A Note 1
		Right		A Note 1
		Top		A Note 1
		Bottom		A Note 1

Note 1: During and after the test, the EUT performance complied with performance criteria and there is no any degradation of performance and function.

Note 2: The exclusion band has been excluded from radio-frequency electromagnetic field measurement.

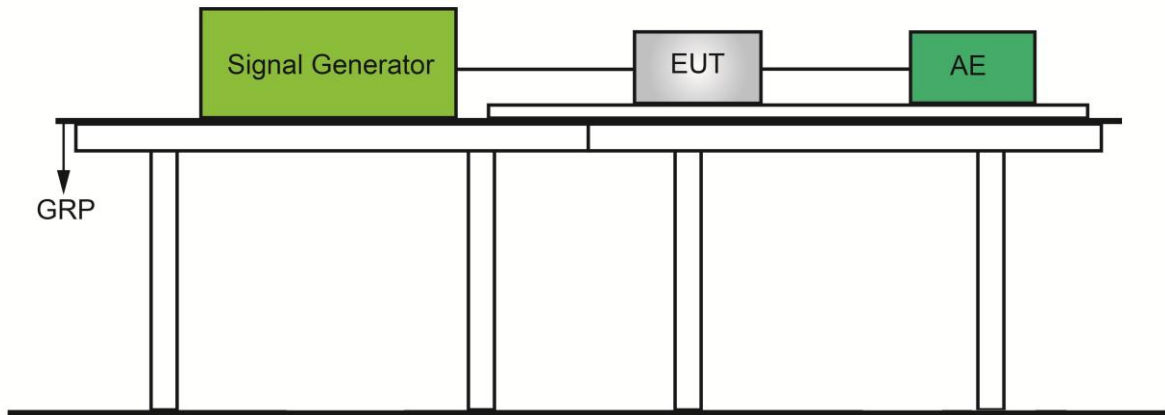
## 10. Electrical Fast Transients

### 10.1. Limit of Electrical Fast Transients

Environmental Phenomenon	Test Specification	Units	Performance Criterion
EN 301489-1/-17 Requirements			
Input AC power ports			
Electrical fast transients	±1 5/50 5	kV (open circuit test voltage) Tr/Th (ns) Repetition frequency (kHz)	B
Signal ports, telecommunication ports, and control ports (See Note 1 / 2 / 3)			
Fast transients common mode	±0.5 5/50 5	kV (peak) Tr/Th ns Repetition frequency (kHz)	B
EN 55035 Requirements			
Input AC power ports			
Electrical fast transients / burst	±1 5/50 5	kV (open circuit test voltage) Tr/Th (ns) Repetition frequency (kHz)	B
Input DC power ports, analogue / digital data ports			
Electrical fast transients / burst	±0.5 5/50 5	kV (peak) Tr/Th ns Repetition frequency (kHz)	B
<p>Note 1: This test shall be additionally performed on signal ports, telecommunication ports, control ports, and DC power ports, of radio equipment and associated ancillary equipment, if the cables may be longer than 3m.</p> <p>Note 2: The test level for signal ports, wired network ports (excluding xDSL), and control ports shall be 0.5 kV open circuit voltage at a repetition rate of 5 kHz.</p> <p>Note 3: The test level for xDSL wired network ports shall be 0,5 kV open circuit voltage at a repetition rate of 100 kHz</p>			



## 10.2. Test Setup



### **10.3. Test Procedure**

The EUT is placed on a table that is 0.8 meter height. A ground reference plane is placed on the table, and uses a 0.1m insulation between the EUT and ground reference plane.

The minimum area of the ground reference plane is 1m\*1m, and 0.65mm thick min, and projected beyond the EUT by at least 0.1m on all sides.

#### **For Input AC Power Ports:**

The EUT is connected to the power mains through a coupling device that directly couples the EFT/B interference signal.

Each of the line conductors is impressed with burst noise for 1 minute.

The length of the power lines between the coupling device and the EUT is 0.5m.

#### **For Signal Ports, Telecommunication Ports, and Control Ports:**

The EFT interference signal is through a coupling clamp device couples to the signal of the EUT with burst noise for 1 minute.

The length of the signal lines between the coupling device and the EUT is 0.5m.

#### 10.4. Test Result

Product	Portable Indoor/Outdoor Wireless Speaker System	Temperature	25.0°C
Test Engineer	Linda Wei	Relative Humidity	61%
Test Mode	Mode 1 & 2	Test Date	2020/05/15

Inject Line	Polarity	Test Level (kV)	Test Duration (second)	Inject Method	Performance Criterion Result
Input a.c. power port (Tr/Th: 5/50ns, Repetition Frequency: 5kHz)					
L	+	1	60	Direct	A Note
L	-	1	60	Direct	A Note
N	+	1	60	Direct	A Note
N	-	1	60	Direct	A Note
PE	+	1	60	Direct	A Note
PE	-	1	60	Direct	A Note
L + N	+	1	60	Direct	A Note
L + N	-	1	60	Direct	A Note
L + PE	+	1	60	Direct	A Note
L + PE	-	1	60	Direct	A Note
N + PE	+	1	60	Direct	A Note
N + PE	-	1	60	Direct	A Note
L + N + PE	+	1	60	Direct	A Note
L + N + PE	-	1	60	Direct	A Note

Note: During and after the test, the EUT performance complied with performance criteria and there is no any degradation of performance and function.

## 11. Surges

### 11.1. Limit of Surges

Environmental Phenomenon	Test Specification	Units	Performance Criterion
<b>EN 301489-1/-17 Requirements</b>			
<b>AC mains power ports</b>			
Surges	1.2/50 (8/20) ±1 line to line ±2 line to earth	Tr/Th (us) kV (open circuit test voltage) kV (open circuit test voltage)	B
<b>Telecommunication ports directly connected to indoor cables (See Note 1)</b>			
Surges	1.2/50 ±0.5 line to ground	Tr/Th (us) kV (peak)	B
<b>EN 55035 Requirements</b>			
<b>AC mains power ports (See Note 6)</b>			
Surges	1.2/50 (8/20) 1line to line	Tr/Th (us) kV (open circuit test voltage)	B
	1.2/50 (8/20) 2 lines to ground	Tr/Th (us) kV (open circuit test voltage)	
<b>DC network power ports (See Note 2/7)</b>			
Surges	1.2/50 (8/20) ±0.5 line to reference GND	Tr/Th (us) kV (open circuit test voltage)	B
<b>Analogue / digital data ports</b>			
Surges	Port type: unshielded symmetrical Apply where primary protection is intended (See Note 2/ 3 / 4 /5)		C
	10/700 (5/320) 1 and 4 lines to ground	Tr/Th (us) kV (open circuit test voltage)	
	Apply where primary protection is not intended (See Note 2/4/5)		
	10/700 (5/320) 1lineto ground	Tr/Th (us) kV (open circuit test voltage)	
Surges	Port type: coaxial or shielded (See Note 2&5)		B
	1.2/50 (8/20) 0.5 shield to ground	Tr/Th (us) kV (open circuit test voltage)	
Note:			
1. The test level for wired network ports, intended to be connected to indoor cables (longer than 30 m) shall be 0,5 kV (applied line to ground, or shield to ground)			
2. Applicable only to ports which, according to the manufacturer's specification, support cable lengths greater than3 m.			

3. Surges are applied with primary protection fitted. Where possible, use the actual primary protector intended to be used in the installation.
4. Where the surge coupling network for the 10/700 (5/320)  $\mu$ s waveform affects the functioning of high speed data ports, the test shall be carried out using a 1,2/50 (8/20)  $\mu$ s waveform and appropriate coupling network.
5. Surges are applicable to ports which satisfy all the following conditions:
  - may connect directly to cables that leave the building structure,
  - defined as an antenna port (3.1.3), a wired network port (3.1.34), or a broadcast receiver tuner port (3.1.8).

Typical ports covered include xDSL, PSTN, CATV, antenna and similar. Excluded ports are LAN and similar.
6. The number of pulses applied shall be as follows:
  - Five positive pulses line-to-neutral at 90° phase
  - Five negative pulses line-to-neutral at 270° phase

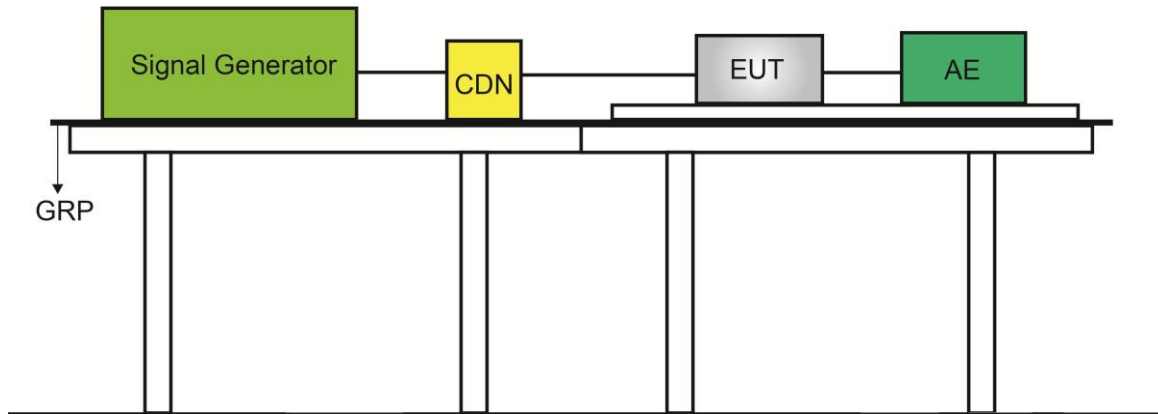
The following additional pulses are required only if the EUT has an earth connection or if the EUT is earthed via any AE.

  - Five positive pulses line-to-earth at 90° phase
  - Five negative pulses line-to-earth at 270° phase
  - Five negative pulses neutral-to-earth at 90° phase
  - Five positive pulses neutral-to-earth at 270° phase

For multiple-phase systems, where a neutral conductor is present, the test is applied (as defined above) to a single phase unless the other phases are connected to significantly different circuit arrangements.

For multiple-phase systems, where a neutral conductor is not present, the test is applied as defined in the basic standard.
7. Applicable only to ports which, according to the manufacturer's specification, may connect directly to outdoor cables.

## 11.2. Test Setup



## 11.3. Test Procedure

The EUT is placed on a table that is 0.8 meter above a metal ground plane measured 1m\*1m minimum and 0.65mm thick minimum and projected beyond the EUT by at least 0.1m on all sides. The length of power cord between the coupling device and the EUT shall be 2m or less.

### For Input AC Power Ports:

The EUT is connected to the power mains through a coupling device that directly couples the surge interference signal.

The surge noise shall be applied synchronized to the voltage phase at 0°, 90°, 180°, 270° and the peak value of the AC voltage wave. (Positive and negative)

Each of Line to Earth and Line to Line is impressed with a sequence of five surge voltages with interval of 1 minute.

### For Telecommunication Ports:

The signal line of EUT is connected to coupling and decoupling network that directly couples the surge interference signal.

Only Line to ground is impressed with a sequence of five surge voltages with interval of 1 minute.

### 11.4. Test Result

Product	Portable Indoor/Outdoor Wireless Speaker System	Temperature	25.0°C
Test Engineer	Linda Wei	Relative Humidity	61%
Test Mode	Mode 1 & 2	Test Date	2020/05/15

Inject Line	Polarity	Angle (degree)	Test Level (kV)	Waveform Tr/Th (us)	Test Interval (second)	Performance Criterion Result
Power Ports [Tr/Th: 1.2/50us (8/20us)]						
L + N	+	0	1	1.2/50	60	A <sup>Note</sup>
L + N	-	0	1	1.2/50	60	A <sup>Note</sup>
L + N	+	90	1	1.2/50	60	A <sup>Note</sup>
L + N	-	90	1	1.2/50	60	A <sup>Note</sup>
L + N	+	180	1	1.2/50	60	A <sup>Note</sup>
L + N	-	180	1	1.2/50	60	A <sup>Note</sup>
L + N	+	270	1	1.2/50	60	A <sup>Note</sup>
L + N	-	270	1	1.2/50	60	A <sup>Note</sup>
L + PE	+	0	2	1.2/50	60	A <sup>Note</sup>
L + PE	-	0	2	1.2/50	60	A <sup>Note</sup>
L + PE	+	90	2	1.2/50	60	A <sup>Note</sup>
L + PE	-	90	2	1.2/50	60	A <sup>Note</sup>
L + PE	+	180	2	1.2/50	60	A <sup>Note</sup>
L + PE	-	180	2	1.2/50	60	A <sup>Note</sup>
L + PE	+	270	2	1.2/50	60	A <sup>Note</sup>
L + PE	-	270	2	1.2/50	60	A <sup>Note</sup>
N + PE	+	0	2	1.2/50	60	A <sup>Note</sup>
N + PE	-	0	2	1.2/50	60	A <sup>Note</sup>
N + PE	+	90	2	1.2/50	60	A <sup>Note</sup>
N + PE	-	90	2	1.2/50	60	A <sup>Note</sup>
N + PE	+	180	2	1.2/50	60	A <sup>Note</sup>
N + PE	-	180	2	1.2/50	60	A <sup>Note</sup>
N + PE	+	270	2	1.2/50	60	A <sup>Note</sup>
N + PE	-	270	2	1.2/50	60	A <sup>Note</sup>

Note: During and after the test, the EUT performance complied with performance criteria and there is no any degradation of performance and function.

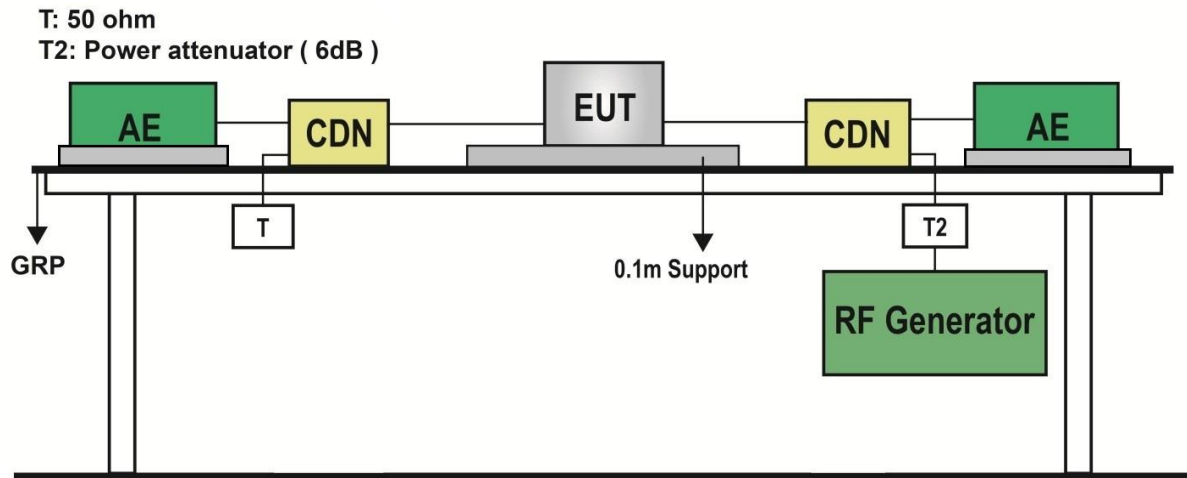
## 12. Radio-Frequency Common Mode

### 12.1. Limit of Radio-Frequency Common Mode

Environmental phenomenon	Test specification	Units	Performance criterion
EN 301489-1/-17 Requirements			
Input AC power ports (See Note 1/ 2)			
Radio-frequency common mode	0.15 - 80 3 80	MHz V (unmodulated, r.m.s) % AM (1kHz)	A
Signal ports, telecommunication ports, and control ports (See Note 1/ 2 / 3)			
Radio frequency common mode	0.15 - 80 3 80	MHz V (unmodulated, r.m.s) % AM (1kHz)	A
EN 55035 Requirements			
Input AC power ports & DC network power ports & Analogue / digital data ports			
Radio-frequency common mode	0.15 - 10, 10 - 30, 30 - 80 3, 3 to 1, 1 80	MHz V (unmodulated, r.m.s) % AM (1kHz)	A
<p>Note 1: If the wanted signal is modulated at 1000Hz, then an audio signal of 400Hz shall be used.</p> <p>Note 2: The test shall be performed over the frequency range 150kHz to 80MHz with the exception of the exclusion band for transmitters, and for receivers and duplex transceivers [see clause 4 of EN 301 489-1].</p> <p>Note 3: This test shall be additionally performed on signal ports, telecommunication ports, control ports, and DC power ports, of radio equipment and associated ancillary equipment, if the cables may be longer than 3m.</p>			



## 12.2. Test Setup



## 12.3. Test Procedure

The EUT is placed on a table that is 0.8 meter height, and a ground reference plane on the table, EUT is placed upon table and use 0.1m insulation between the EUT and ground reference plane.

	Condition of Test	Remarks
1.	Field Strength	3V, 3~1V, 1V
2.	Radiated Signal	AM 80% Modulated with 1kHz
3.	Scanning Frequency	0.15MHz-80MHz
4.	Dwell Time	3 Seconds
5.	Frequency Step Size	1%

## 12.4. Test Result

Product	Portable Indoor/Outdoor Wireless Speaker System	Temperature	25.0°C
Test Engineer	Linda Wei	Relative Humidity	61%
Test Mode	Mode 1 & 2	Date of Test	2020/05/15

Frequency (MHz)	Inject Voltage (V)	Inject Ports	Inject Method	Performance Criterion Result
0.15 ~ 80	3	AC Mains	CDN	A <sup>Note</sup>
10 ~ 30	3 ~ 1	AC Mains	CDN	A <sup>Note</sup>
30 ~ 80	1	AC Mains	CDN	A <sup>Note</sup>

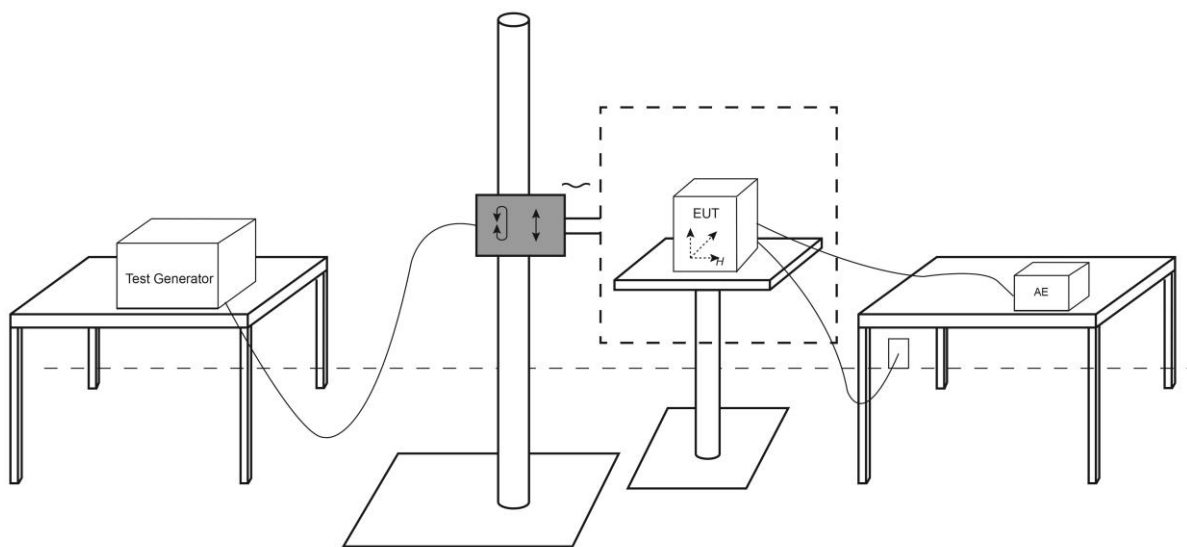
Note: During and after the test, the EUT performance complied with performance criteria and there is no any degradation of performance and function.

### 13. Power Frequency Magnetic Field

#### 13.1. Limit of Power Frequency Magnetic Field

Environmental phenomenon	Test specification	Units	Performance criterion
EN 55035 Requirements			
Enclosure port (See Note)			
Power-Frequency Magnetic Field	50 or 60 1	Hz A/m	A
Note: Applicable only to equipment containing devices intrinsically susceptible to magnetic fields, such as CRT monitors, Hall effect elements, electro-dynamic microphones, magnetic field sensors or audio frequency transformers. Refer to D.3.2 of EN 55035 for determining the test level when the EUT contains a CRT display.			

#### 13.2. Test Setup



#### 13.3. Test Procedure

The EUT is placed on a table which is 0.8 meter above a metal ground plane measured at least 1m\*1m minimum. The test magnetic field shall be placed at central of the induction coil.

The test magnetic Field shall be applied 10 minutes by the immersion method to the EUT, and the induction coil shall be rotated by 90° in order to expose the EUT to the test field with different orientation (X, Y, Z Orientations).

### 13.4. Test Result

Product	Portable Indoor/Outdoor Wireless Speaker System	Temperature	24.2°C
Test Engineer	Hedda Cheng	Relative Humidity	61.4%
Test Mode	Mode 1 & 2	Date of Test	2020/06/01

Test Coil Position	Frequency (Hz)	Magnetic Strength (A/m)	Performance Criterion Result
X Axis	50	1	A Note
Y Axis	50	1	A Note
Z Axis	50	1	A Note

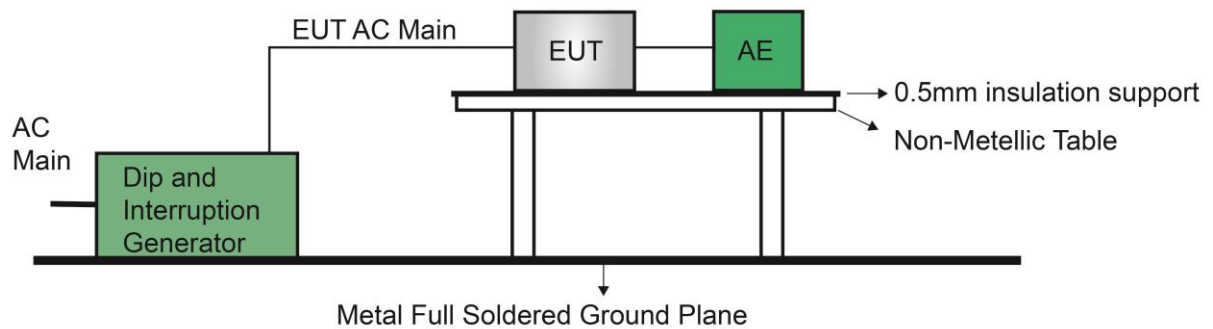
Note: During and after the test, the EUT performance complied with performance criteria and there is no any degradation of performance and function.

## 14. Voltage Dips and Interruptions

### 14.1. Limit of Voltage Dips and Interruptions

Environmental Phenomenon	Test Specification	Units	Performance Criterion
<b>EN 301489-1/-17 Requirements</b>			
<b>Input AC power ports</b>			
Voltage dips	0 0.5	% residual cycle	B
	0 1	% residual cycle	B
	70 25 (50Hz)	% residual cycle	C
Voltage interruptions	0 250 (50Hz)	% residual cycle	C
<b>EN 55035 Requirements</b>			
<b>AC mains power ports (See Note)</b>			
Voltage dips	5 0.5	% residual voltage Numbers of cycles	B
	70 25 for 50 Hz 30 for 60 Hz	% residual voltage Numbers of cycles Numbers of cycles	C
	Voltage interruptions	5 250 for 50 Hz 300 for 60 Hz	% residual voltage Numbers of cycles Numbers of cycles
<p>Note: Changes to occur at 0 degree crossover point of the voltage waveform. If the EUT does not demonstrate compliance when tested with 0 degree switching, the test shall be repeated with the switching occurring at both 90 degrees and 270 degrees. If the EUT satisfies these alternative requirements, then it fulfils the requirements. This condition shall be recorded in the test report.</p>			

## 14.2. Test Setup



## 14.3. Test Procedure

The EUT is placed on a table which is 0.8 meter above a metal ground plane measured 1m\*1m minimum, and 0.65mm thick minimum, and projected beyond the EUT by at least 0.1m on all sides. The power cord shall be used the shortest power cord as specified by the manufacturer.

For Voltage dips and interruptions test:

The selection of test voltage is based on the rated power range. If the operation range is large than 20% of lower power range, both end of specified voltage shall be tested. Otherwise, the typical voltage specification is selected as test voltage.

The EUT is connected to the power mains through a coupling device that directly couples to the voltage dips and interruption generator.

#### 14.4. Test Result

Product	Portable Indoor/Outdoor Wireless Speaker System	Temperature	24.2°C
Test Engineer	Hedda Cheng	Relative Humidity	61.4%
Test Mode	Mode 1 & 2	Date of Test	2020/06/01
Test Voltage	AC 240V/50Hz		

Test Item	Voltage % Residual	Test Duration (periods)	Performance Criterion Result
Voltage Dips	0	0.5	A <sup>Note 1</sup>
	0	1	A <sup>Note 1</sup>
	70	25	A <sup>Note 1</sup>
Voltage Interruption	0	250	B <sup>Note 2</sup>

Note 1: During and after the test, the EUT performance complied with performance criteria and there is no any degradation of performance and function.

Note 2: During the test, the EUT had temporary power failure, but it could be recovered without operator intervention after the test, so the EUT performance complied with performance criteria.

Product	Portable Indoor/Outdoor Wireless Speaker System	Temperature	24.2°C
Test Engineer	Hedda Cheng	Relative Humidity	61.4%
Test Mode	Mode 1 & 2	Date of Test	2020/06/01
Test Voltage	AC 100V/50Hz		

Test Item	Voltage % Residual	Test Duration (periods)	Performance Criterion Result
Voltage Dips	0	0.5	A <sup>Note 1</sup>
	0	1	A <sup>Note 1</sup>
	70	25	A <sup>Note 1</sup>
Voltage Interruption	0	250	B <sup>Note 2</sup>

Note 1: During and after the test, the EUT performance complied with performance criteria and there is no any degradation of performance and function.

Note 2: During the test, the EUT had temporary power failure, but it could be recovered without operator intervention after the test, so the EUT performance complied with performance criteria.



## 15. Measurement Uncertainty

Conducted Emission Measurement
The maximum measurement uncertainty is evaluated as: 9kHz~150kHz: 3.74dB 150kHz~30MHz: 3.44dB
Radiated Emission Measurement
The maximum measurement uncertainty is evaluated as: Horizontal: 30MHz~300MHz: 5.04dB 300MHz~1GHz: 4.95dB 1GHz~6GHz: 6.40dB Vertical: 30MHz~300MHz: 5.24dB 300MHz~1GHz: 6.03dB 1GHz~6GHz: 6.40dB
Harmonic Current Emissions
The maximum measurement uncertainty is evaluated as 0.2%.
Voltage Fluctuation and Flicker
The maximum measurement uncertainty is evaluated as $d_c$ and $d_{max}$ : 0.095%, $P_{st}$ and $P_{lt}$ : $\pm 4\%$ , $d_{(t)}$ : 1.5%.

## 16. List of Measuring Instrument

### Conducted Emission (WZ-SR2)

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
EMI Test Receiver	R&S	ESR3	MRTSUE06185	1 year	2022/01/12
Two-Line V-Network	R&S	ENV216	MRTSUE06002	1 year	2021/09/09
Four-Line V-Network	R&S	ENV432	MRTSUE06615	1 year	2021/10/22
Impedance Stabilization Network	TESEQ	ISN T200A	MRTSUE06004	1 year	2022/01/03
Impedance Stabilization Network	TESEQ	ISN T800	MRTSUE06005	1 year	2022/01/03
Impedance Stabilization Network	TESEQ	ISN T8-CAT6	MRTSUE06006	1 year	2022/01/03
V-Network	R&S	ESH3-Z6	MRTSUE06187	1 year	2021/04/14
V-Network	R&S	ESH3-Z6	MRTSUE06188	1 year	2021/04/14
RF Current Probe	R&S	EZ-17	MRTSUE06190	1 year	2021/04/14
Thermal Hygrometer	testo	608-H1	MRTSUE06404	1 year	2021/07/26

### Conducted Emission (SIP-SR2)

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
EMI Test Receiver	R&S	ESR3	MRTSUE06613	1 year	2021/07/02
Two-Line V-Network	R&S	ENV216	MRTSUE06003	1 year	2021/09/09
Four-Line V-Network	R&S	ENV432	MRTSUE06614	1 year	2021/10/20
Impedance Stabilization Network	R&S	ENY81	MRTSUE06608	1 year	2021/08/26
Impedance Stabilization Network	R&S	ENY81-CA6	MRTSUE06609	1 year	2021/08/26
V-Network	R&S	ESH3-Z6	MRTSUE06187	1 year	2021/04/14
V-Network	R&S	ESH3-Z6	MRTSUE06188	1 year	2021/04/14
RF Current Probe	R&S	EZ-17	MRTSUE06190	1 year	2021/04/14
Thermal Hygrometer	testo	608-H1	MRTSUE06621	1 year	2021/12/03

### Harmonic Current Emissions / Voltage Fluctuation and Flicker (SIP-SR2)

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
Power Analyzer	California	PACS-1	MRTSUE06010	1 year	2022/01/03
AC Power Source	California	3001iX	MRTSUE06011	1 year	2022/01/03
Thermal Hygrometer	testo	608-H1	MRTSUE06621	1 year	2021/12/03

## Radiated Emission (WZ-AC1)

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cal. Due Date
EMI Test Receiver	R&S	ESR7	MRTSUE06001	1 year	2022/01/04
EXA Signal Analyzer	Keysight	N9010B	MRTSUE06558	1 year	2021/07/23
Bilog Period Antenna	Schwarzbeck	VULB 9168	MRTSUE06172	1 year	2021/08/08
Horn Antenna	Schwarzbeck	BBHA 9120D	MRTSUE06023	1 year	2021/09/27
Microwave System Amplifier	Agilent	83017A	MRTSUE06076	1 year	2021/11/14
Thermal Hygrometer	testo	608-H1	MRTSUE06403	1 year	2021/07/26
Anechoic Chamber	TDK	Chamber-AC1	MRTSUE06212	1 year	2021/04/30

## Radiated Emission (WZ-AC2)

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cal. Due Date
MXE EMI Receiver	Keysight	N9038A	MRTSUE06125	1 year	2021/07/02
Bilog Period Antenna	Schwarzbeck	VULB 9162	MRTSUE06022	1 year	2021/05/26
Broad-Band Horn Antenna	Schwarzbeck	BBHA 9120D	MRTSUE06171	1 year	2021/10/25
Broadband Coaxial Pre-amplifier	Schwarzbeck	BBV 9718	MRTSUE06176	1 year	2021/11/14
Thermal Hygrometer	Minggao	ETH529	MRTSUE06170	1 year	2021/12/08
Anechoic Chamber	RIKEN	Chamber-AC2	MRTSUE06213	1 year	2021/04/30

## Radiated Emission (SIP-AC1)

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cal. Due Date
EMI Test Receiver	R&S	ESR3	MRTSUE06612	1 year	2021/07/02
EXA Signal Analyzer	Keysight	N9010B	MRTSUE06559	1 year	2021/07/23
Bilog Period Antenna	Schwarzbeck	VULB9168	MRTSUE06645	1 year	2021/08/30
Double Ridged Horn Antenna	R&S	HF907	MRTSUE06610	1 year	2021/08/30
Pre-amplifier	EMCI	EMC051845SE	MRTSUE06600	1 year	2021/11/12
Thermal Hygrometer	testo	608-H1	MRTSUE06620	1 year	2021/12/03
Anechoic Chamber	RIKEN	SIP-AC1	MRTSUE06554	1 year	2021/12/24

## Radiated Emission (SIP-AC2)

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
EMI Test Receiver	R&S	ESR3	MRTSUE06613	1 year	2021/07/02
MXA Signal Analyzer	Keysight	N9020B	MRTSUE06604	1 year	2021/09/26
Bilog Period Antenna	Schwarzbeck	VULB9168	MRTSUE06646	1 year	2021/08/30
Horn Antenna	Schwarzbeck	BBHA9120D	MRTSUE06648	1 year	2021/11/26
Preamplifier	EMCI	EMC051845SE	MRTSUE06644	1 year	2021/11/12
Thermal Hygrometer	testo	608-H1	MRTSUE06624	1 year	2021/12/03
Anechoic Chamber	RIKEN	SIP-AC2	MRTSUE06781	1 year	2021/12/24

## Radiated Emission (SIP-AC3)

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
EMI Test Receiver	R&S	ESR3	MRTSUE06612	1 year	2021/07/02
EXA Signal Analyzer	Keysight	N9010B	MRTSUE06559	1 year	2021/07/23
Bilog Period Antenna	Schwarzbeck	VULB9168	MRTSUE06647	1 year	2021/08/08
Double Ridged Horn Antenna	R&S	HF907	MRTSUE06611	1 year	2021/09/13
Preamplifier	EMCI	EMC012645SE	MRTSUE06642	1 year	2022/01/15
Thermal Hygrometer	testo	608-H1	MRTSUE06622	1 year	2021/12/03
Anechoic Chamber	RIKEN	SIP-AC3	MRTSUE06782	1 year	2021/12/24

## Electrostatic Discharge (WZ-TR2)

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
Electrostatic	HAEFELY	ONYX 30	MRTSUE06388	1 year	2022/01/04
ESD Generator	EM TEST	Dito	MRTSUE06225	1 year	2021/03/11
Temperature Humidity Meter	testo	622	MRTSUE06399	1 year	2022/01/05

## Electrostatic Discharge (SIP-SR3)

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
Electrostatic	HAEFELY	ONYX 30	MRTSUE06388	1 year	2022/01/04
ESD Generator	EM TEST	Dito	MRTSUE06225	1 year	2021/03/11
Temperature Humidity Meter	testo	622	MRTSUE06627	1 year	2021/11/25

## Radio Frequency Electromagnetic Field (SIP-AC4)

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
MXG Analog Signal Generator	Agilent	N5181A	MRTSUE06370	1 year	2021/06/11
Audio Analyzer	Keysight	U8903B	MRTSUE06143	1 year	2021/06/11
EPM Series Power Meter	Agilent	E4418B	MRTSUE06204	1 year	2021/06/11
Power Sensor	Agilent	E9301H	MRTSUE06205	1 year	2021/06/11
Nubert/Amplifier	ar	150W1000M1	MRTSUE06146	N/A	N/A
Nubert/Amplifier	rflight	NTWPAS-102510 0	MRTSUE06363	N/A	N/A
Nubert/Amplifier	rflight	NTWPAS-256010 0	MRTSUE06364	N/A	N/A
High-Gain Horn Antenna	ar	ATH800M5GA	MRTSUE06144	N/A	N/A
Log-Periodic Antenna	ar	ATR80M6G	MRTSUE06145	N/A	N/A
Horn Antenna	Schwarzbeck	BBHA9120D	MRTSUE06648	1 year	2021/11/26
Laser Powered Field Probe	ar	FL7006	MRTSUE06149	1 year	2021/12/24
Laser Probe Interface	ar	FL7000	MRTSUE06150	N/A	N/A
Two channel Microphone Conditioning Amplifier	Bruel & Kjaer	2690-OS2	MRTSUE06161	1 year	2021/10/01
Measurement Nubert/Amplifier	Bruel & Kjaer	2735	MRTSUE06162	1 year	2021/10/21
Mouth Simulator	Bruel & Kjaer	4227	MRTSUE06164	1 year	2021/10/01
Sound Calibrator	Bruel & Kjaer	4231	MRTSUE06165	1 year	2021/10/20
Microphone Unit	Bruel & Kjaer	4192-L-001	MRTSUE06166	1 year	2021/10/21
Probe Microphone	Bruel & Kjaer	4182	MRTSUE06167	1 year	2021/09/18
Thermohygrometer and barometer	testo	608-H1	MRTSUE06625	1 year	2021/12/03

## Radio Frequency Common Mode (SIP-SR5)

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
Compact Immunity Test System	TESEQ	NSG4070-35	MRTSUE06237	1 year	2021/10/20
CDN	TESEQ	ST08-10S	MRTSUE06240	1 year	2021/11/23
CDN	TESEQ	M016S	MRTSUE06238	1 year	2021/06/30
CDN	TESEQ	T800	MRTSUE06239	1 year	2021/11/23
EM clamp	TESEQ	KEMZ801A	MRTSUE06371	1 year	2021/05/08
Temperature Humidity Meter	Yuhuaze	HTC-2	MRTSUE06398	1 year	2021/09/23

Fast Transients, Common Mode / Surges / Voltage Dips and Interruptions / Power Frequency Magnetic Field  
 (WZ-TR1)

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
EMS Compact Simulator	EM TEST	UCS500N7	MRTSUE06228	1 year	2021/10/23
Capacitive Coupling Clamp	EM TEST	CN-HFK	MRTSUE06223	1 year	2021/10/23
Magnetic Field Coil	EM TEST	MS100N	MRTSUE06226	1 year	2021/10/23
Motorised Variac for Voltage Variation	EM TEST	MV2616	MRTSUE06229	1 year	2021/10/23
External 10/700us pulse module	EM TEST	TSurge7	MRTSUE06227	1 year	2021/10/23
CDN	TESEQ	ST08-10S	MRTSUE06240	1 year	2021/11/23
CDN	3ctest	405T8	MRTSUE06250	1 year	2021/10/23
CDN	3ctest	405AF8	MRTSUE06265	1 year	2021/10/23
CDN	3ctest	405T8A1	MRTSUE06721	1 year	2021/02/12
6dB Attenuator	3ctest	DTC75-6	MRTSUE06043	1 year	2021/06/11
Temperature Humidity Meter	Yuhuaze	HTC-2	MRTSUE06398	1 year	2021/09/23

 Electrical Fast Transients / Surges / Voltage Dips and Interruptions / Power Frequency Magnetic Field  
 (SIP-SR1)

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
Compact Immunity Test System	3ctest	CCS 500	MRTSUE06832	1 year	2021/05/27
Coupling Clamp	3ctest	CCC 100	MRTSUE06814	1 year	2021/04/22
Oscilloscope	Keysight	DSO-X 6002A	MRTSUE06107	1 year	2021/04/14
CDN	3ctest	405T8A1	MRTSUE06836	1 year	2021/05/24
CDN	3ctest	405AF8	MRTSUE06837	1 year	2021/05/20
Combination Wave Surge Control Module	3ctest	CWS 1000CM	MRTSUE06840	1 year	2021/05/19
CDN	3ctest	CWS 1000MM	MRTSUE06841	1 year	2021/05/19
CDN	3ctest	SPN 2216S10	MRTSUE06842	1 year	2021/05/19
Voltage Drop Module	3ctest	VVT 2216S	MRTSUE06833	1 year	2021/05/27
Power Frequency Magnetic Field Transformer	3ctest	MFT 400	MRTSUE06835	1 year	2021/05/27
Magnetic Field Coil	3ctest	TCXS111	MRTSUE06839	1 year	2021/05/27
Temperature Humidity Meter	testo	608-H1	MRTSUE06617	1 year	2021/11/25

Software	Version	Function
EMI Software	V3	EMI Test Software
Compliance Test System	v 4.6.2	Harmonic & Flicker
JS32-RS	V1.0.0.1	RS Test Software
NSG 4070 CTRL	v 1.3.0.1	CS Test Software
IEC CTRL	v 6.0.1	EMS Test Software
EMS Lab	1.8.2.0	EMS Test Software

\_\_\_\_\_ The End \_\_\_\_\_

## **Appendix A - Test Setup Photograph**

Refer to "2005RSU005-ET" file.



## **Appendix B - EUT Photograph**

Refer to "2005RSU005-EE" file.