

CE EMC TEST REPORT

FOR

Applicant	:	Harman International Industries, Inc.
Address	:	8500 Balboa Boulevard, Northridge, CA 91329, UNITED STATES
Equipment under Test	:	JBL Bar 2.0 All-in-One
Model No.	:	Bar 2.0 CNTR
Trade Mark	:	JBL
Manufacturer	:	Harman International Industries, Inc.
Address	:	8500 Balboa Boulevard, Northridge, CA 91329, UNITED STATES

Issued By: Dongguan Dongdian Testing Service Co., Ltd.

Add: No. 17, Zongbu Road 2, Songshan Lake Sci&Tech, Industry Park, Dongguan
City, Guangdong Province, China, 523808

Tel: +86-0769-38826678, **E-mail:** ddt@dgddt.com, **http://**www.dgddt.com

REPORT

TABLE OF CONTENTS

1.	Summary of test results	7
2.	General test information	8
2.1.	Description of EUT	8
2.2.	Primary Function of EUT	8
2.3.	Port of EUT	8
2.4.	Accessories of EUT	9
2.5.	Block diagram EUT configuration for test	9
2.6.	Decision of final test mode	9
2.7.	Deviations of test standard	10
2.8.	Test environment conditions	10
2.9.	Test laboratory	10
2.10.	Measurement uncertainty	10
3.	Conducted Emission Test Report (mains power port)	11
3.1.	General information	11
3.2.	Test Equipment	11
3.3.	Reference Standard	11
3.4.	Block Diagram of Test Setup	11
3.5.	Limits	12
3.6.	Assistant equipment used for test	13
3.7.	Test Procedure	13
3.8.	Test Result	13
3.9.	Test Photo	18
4.	Radiated emissions test	19
4.1.	General information	19
4.2.	Test Equipment	19
4.3.	Reference Standard	19
4.4.	Block diagram of test setup	20
4.5.	Limits	23
4.6.	Assistant equipment used for test	23
4.7.	Test Procedure	23
4.8.	Test result	24
4.9.	Test photo	39
5.	Harmonic current and Voltage fluctuations & flicker test report	41
5.1.	General information	41
5.2.	Test Equipment	41
5.3.	Test Standard	41
5.4.	Block diagram of test setup	41

5.5.	Harmonic current limits	42
5.6.	Voltage fluctuations & flicker Limit.....	43
5.7.	Assistant equipment used for test	43
5.8.	Test Procedure	43
5.9.	Test result	43
5.10.	Test photo	45
6.	Electrostatic discharge test report	46
6.1.	General information	46
6.2.	Test Equipment.....	46
6.3.	Test and Reference Standards.....	46
6.4.	Block diagram of test setup	46
6.5.	Test levels and performance criterion	47
6.6.	Assistant equipment used for test	47
6.7.	Test Procedure	47
6.8.	Test result	48
6.9.	Test photo	49
7.	Continuous radio frequency disturbances	50
7.1.	General information	50
7.2.	Test Equipment.....	50
7.3.	Test and Reference Standards.....	51
7.4.	Block diagram of test setup	51
7.5.	Test levels and performance criterion	52
7.6.	Assistant equipment used for test	53
7.7.	Test Procedure	53
7.8.	Test result	53
7.9.	Test photo	55
8.	Electrical fast transients (EFT) test report	56
8.1.	General information	56
8.2.	Test Equipment.....	56
8.3.	Test and Reference Standards.....	56
8.4.	Block diagram of test setup	56
8.5.	Test levels and performance criterion	57
8.6.	Assistant equipment used for test	57
8.7.	Test Procedure	57
8.8.	Test result	58
8.9.	Test photo	58
9.	Surges test report	59
9.1.	General information	59
9.2.	Test Equipment.....	59

9.3.	Test and Reference Standards.....	59
9.4.	Block diagram of test setup	59
9.5.	Test levels and performance criterion	59
9.6.	Assistant equipment used for test	60
9.7.	Test Procedure	60
9.8.	Test result	61
9.9.	Test photo	62
10.	Continuous conducted disturbances	63
10.1.	General information	63
10.2.	Test Equipment.....	63
10.3.	Test and Reference Standards.....	63
10.4.	Block diagram of test setup	63
10.5.	Test levels and performance criterion	64
10.6.	Assistant equipment used for test	65
10.7.	Test Procedure	65
10.8.	Test result	65
10.9.	Test photo	66
11.	Power-frequency magnetic fields	67
11.1.	General information	67
11.2.	Test Equipment.....	67
11.3.	Test and Reference Standards.....	67
11.4.	Block diagram of test setup	67
11.5.	Test levels and performance criterion	67
11.6.	Assistant equipment used for test	68
11.7.	Test Procedure	68
11.8.	Test result	68
11.9.	Test photo	69
12.	Voltage dips and interruptions	70
12.1.	General information	70
12.2.	Test Equipment.....	70
12.3.	Test and Reference Standards.....	70
12.4.	Block diagram of test setup	70
12.5.	Test levels and performance criterion	70
12.6.	Assistant equipment used for test	71
12.7.	Test Procedure	71
12.8.	Test result	71
12.9.	Test photo	72
13.	Photos of the EUT.....	73

TEST REPORT DECLARE

Applicant	:	Harman International Industries, Inc.
Address	:	8500 Balboa Boulevard, Northridge, CA 91329, UNITED STATES
Equipment under Test	:	JBL Bar 2.0 All-in-One
Model No.	:	Bar 2.0 CNTR
Trade mark	:	JBL
Manufacturer	:	Harman International Industries, Inc.
Address	:	8500 Balboa Boulevard, Northridge, CA 91329, UNITED STATES

Test Standard Used:

EN 55032:2015, EN 55035:2017, EN 61000-3-2:2014, EN 61000-3-3:2013

We Declare:

The equipment described above is tested by Dongguan Dongdian Testing Service Co., Ltd. and in the configuration tested the equipment complied with the standards specified above (class B). The test results are contained in this test report and Dongguan Dongdian Testing Service Co., Ltd. is assumed of full responsibility for the accuracy and completeness of these tests.

After test and evaluation, our opinion is that the equipment in accordance with above standards about the electromagnetic compatibility requirements of Directive 2014/30/EU.

Report No.:	DDT-R18112312-1E2		
Date of Receipt:	Jan. 29, 2019	Date of Test:	Jan. 29, 2019 ~ Apr. 08, 2019

Prepared By:

Approved By:



Sincere Luo
Sincere Luo/Engineer



Damon Hu/EMC Manager

Note: This report applies to above tested sample only. This report shall not be reproduced in parts without written approval of Dongguan Dongdian Testing Service Co., Ltd.

Revision history

Rev.	Revisions	Issue Date	Revised By
---	Initial issue	Apr. 09, 2019	

1. Summary of test results

Description of Test Item	Standard	Result
Conducted disturbance at AC mains terminals	EN 55032:2015	PASS
Radiated disturbance test	EN 55032:2015	PASS
Harmonic current emissions	EN 61000-3-2:2014	N/A
Voltage fluctuations & flicker	EN 61000-3-3:2013	PASS
Electrostatic discharge (ESD)	EN 55035:2017; EN 61000-4-2:2009	PASS
Continuous radio frequency disturbances	EN 55035:2017; EN 61000-4-3:2006+A1:2008+A2:2010	PASS
Electrical fast transients(EFT)	EN 55035:2017; EN 61000-4-4:2012	PASS
Surges	EN 55035:2017; EN 61000-4-5: 2014/AC: 2017	PASS
Continuous conducted disturbances	EN 55035:2017; EN 61000-4-6:2014/AC:2015	PASS
Power-frequency magnetic fields	EN 55035:2017; EN 61000-4-8:2010	PASS
Voltage dips and interruptions	EN 55035:2017; EN 61000-4-11:2004/A1:2017	PASS
Note: N/A is an abbreviation for Not Applicable, and means this item is not applicable for this device.		

2. General test information

2.1. Description of EUT

EUT* Name	: JBL Bar 2.0 All-in-One
Model Number	: Bar 2.0 CNTR
EUT function description	: Please reference user manual of this device
Power supply	: 100-240V~, 50/60Hz
EUT Class	: Class B
Maximum work frequency	: 2480MHz
Sample Type	: Series production

Note: EUT is the ab. of equipment under test.

2.2. Primary Function of EUT

Function	Description
☐ Broadcast reception function	N/A
☐ Print	N/A
☐ Scan	N/A
☐ Display and display output	N/A
☐ Musical tone generating	N/A
☐ Networking	N/A
☐ Audio output	N/A
☐ Telephony	N/A
☒ Bluetooth	Bluetooth connection function not tested in this report.
☐ Other:	N/A
Note: “ ☐ ” means the product does not have this function, “ ☒ ” means the product has this function, N/A means not applicable	

2.3. Port of EUT

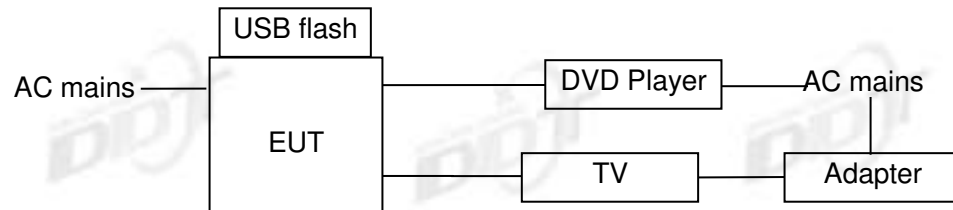
Port	Description
☒ AC mains power port	AC mains power port
☐ DC network power port	N/A
☐ Wired network port	N/A
☒ Signal data/control port	HDMI / Optical / USB port
☐ Antenna port	N/A
☐ Broadcast receiver tuner port	N/A
☐ Audio output port	N/A
☐ Video output port	N/A
☐ Other:	N/A
Note: “ ☐ ” means the product does not have this port, “ ☒ ” means the product has this port, N/A means not applicable	

2.4. Accessories of EUT

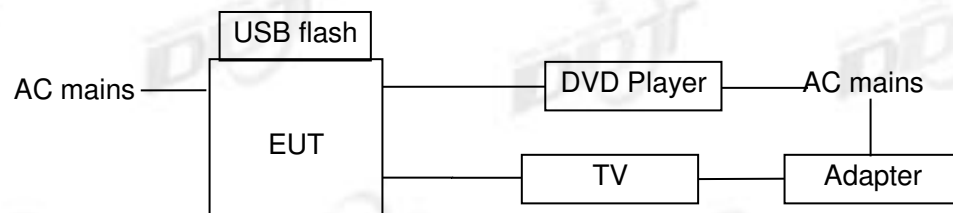
Description of Accessories	Manufacturer	Model number	Serial No.	Other
AC cable	Harman	N/A	N/A	Length: 1.5m, unshielded
HDMI cable	Harman	N/A	N/A	Length: 1.5m, shielded, two core

2.5. Block diagram EUT configuration for test

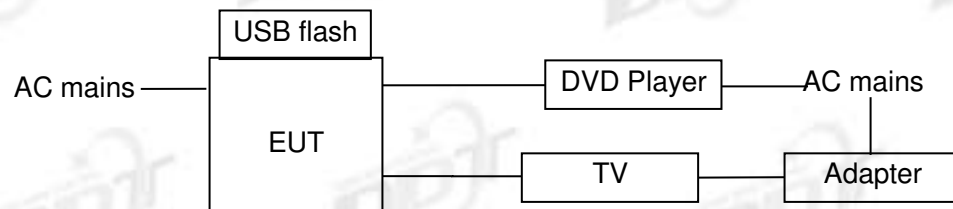
For mode 1: ARC mode:



For mode 2: OPT mode:



For mode 3: USB mode:



Test mode description: DVD Player and USB flash playing 1 kHz sine audio signal and input to EUT.

Adjust the volume of Phone make to EUT radiated the highest emissions.

2.6. Decision of final test mode

According pre-test, the worst test modes decided as below and reported.

Emission	Conducted Emission	Mode 1: ARC mode
	Radiated emission	Mode 1: ARC mode Mode 2: OPT mode Mode 3: USB mode
	Voltage fluctuations & flicker	Mode 1: ARC mode
Immunity	Electrostatic discharge	Mode 1: ARC mode Mode 2: OPT mode Mode 3: USB mode
	Continuous radio frequency disturbances	Mode 1: ARC mode

	Electrical fast transients	Mode 1: ARC mode
	Surges	Mode 1: ARC mode
	Continuous conducted disturbances	Mode 1: ARC mode
	Power-frequency magnetic fields	Mode 1: ARC mode
	Voltage dips and interruptions	Mode 1: ARC mode

2.7. Deviations of test standard

No Deviation.

2.8. Test environment conditions

During the measurement the environmental conditions were within the listed ranges:

Temperature range:	21-25°C
Humidity range:	40-75%
Pressure range:	86-106kPa

2.9. Test laboratory

Dongguan Dongdian Testing Service Co., Ltd.

Add: No. 17, Zongbu Road 2, Songshan Lake Sci&Tech, Industry Park, Dongguan City, Guangdong Province, China, 523808

Tel: +86-0769-38826678, <http://www.dgddt.com>, Email: ddt@dgddt.com

CNAS Accreditation No. L6451; A2LA Accreditation No. 3870.01

FCC Designation Number: CN1182; Test Firm Registration Number: 540522

Industry Canada site registration number: 10288A-1

2.10. Measurement uncertainty

Test Item	Uncertainty
Conducted disturbance at mains terminals	3.32dB (150KHz-30MHz)
Uncertainty for telecommunication port conduction emission test	AAN with aLCL = 55 ... 40 dB c: 3.64dB AAN with aLCL = 65 ... 50 dB c: 4.08dB AAN with aLCL = 75 ... 60 dB c: 4.56dB
Uncertainty for Radiation Emission test (30MHz-1GHz)	4.70 dB (Antenna Polarize: V)
	4.84 dB (Antenna Polarize: H)
Uncertainty for Radiation disturbance test (1GHz to 6GHz)	4.10dB(1-6GHz)
Temperature	0.4°C
Humidity	2%

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

3. Conducted Emission Test Report (mains power port)

3.1. General information

Test and report Engineer	: Aaron
Test and report Date	: Mar. 20, 2019

3.2. Test Equipment

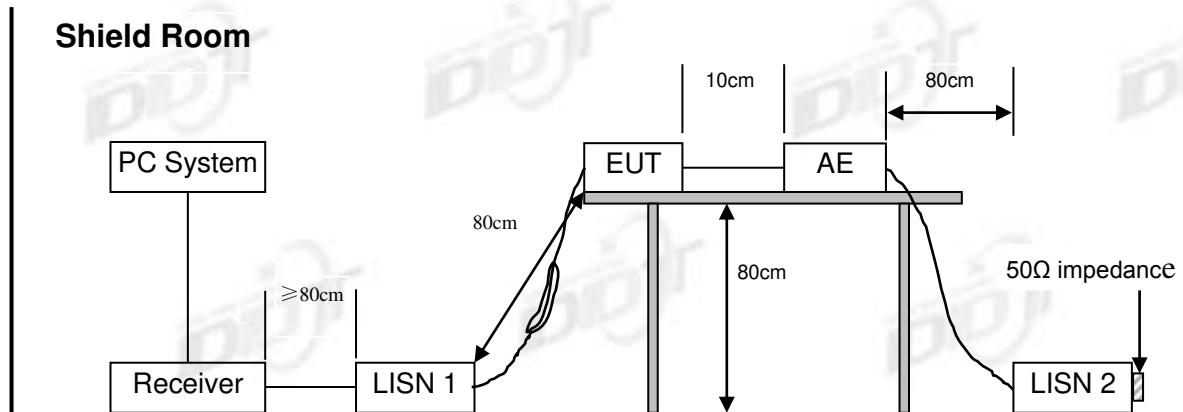
Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
Test Receiver	R&S	ESU8	100316	Oct. 12, 2018	1 Year
LISN 1	R&S	ENV216	101109	Oct. 12, 2018	1 Year
LISN 2	R&S	ESH2-Z5	100309	Oct. 12, 2018	1 Year
Pulse Limiter	R&S	ESH3-Z2	101242	Oct. 12, 2018	1 Year
CE Cable 1	HUBSER	ESU8/RF2	W10.01	Oct. 12, 2018	1 Year
Test software	Audix	E3	V 6.11111b	N/A	N/A

3.3. Reference Standard

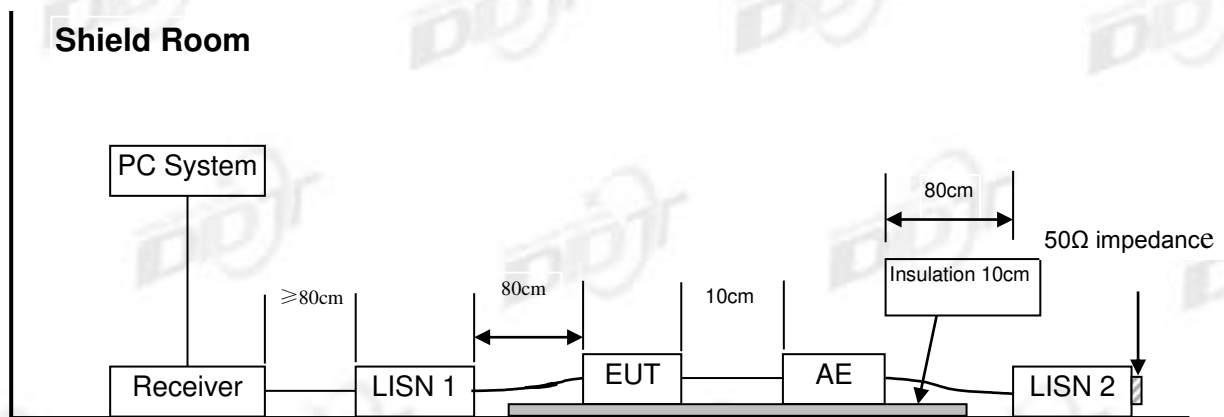
EN 55032:2015

3.4. Block Diagram of Test Setup

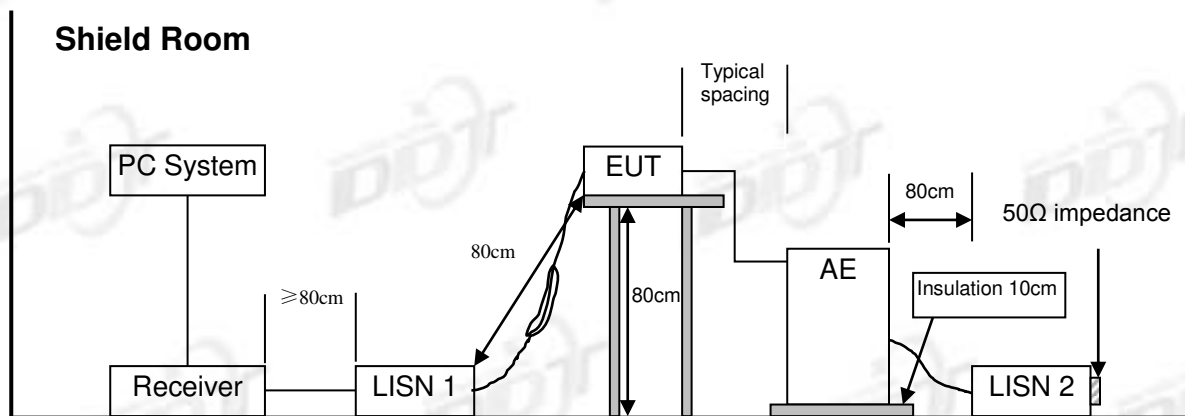
For table-top equipment



For floor standing equipment



For combinations equipment



3.5. Limits

Class A

Frequency	Quasi-Peak Level dB(μV)	Average Level dB(μV)
150kHz ~ 500kHz	79	66
500kHz ~ 30MHz	73	60

Class B

Frequency	Quasi-Peak Level dB(μV)	Average Level dB(μV)
150kHz ~ 500kHz	66 ~ 56*	56 ~ 46*
500kHz ~ 5MHz	56	46
5MHz ~ 30MHz	60	50

Notes: 1. * Decreasing linearly with logarithm of frequency.

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

3.6. Assistant equipment used for test

Assistant equipment	Manufacturer	Model number	Description	other
TV	SONY	KDL-40RM10B	2037745	N/A
USB flash	Kingston	DTSE9/16GB	N/A	N/A
Optical cable	N/A	N/A	N/A	Length: 1.0m, unshielded
DVD player	Pioneer	BDP-440	N/A	N/A

3.7. Test Procedure

- (1) The EUT was placed on a non-metallic table, 80cm above the ground plane.
- (2) Setup the EUT and assistant equipment as shown in section 2.5 and 3.6.
- (3) The EUT's power adapter was connected to the power mains through a line impedance stabilization network (L.I.S.N). which this provided a 50-ohm coupling impedance for the EUT (Please refer to the block diagram of the test setup and photographs). Both sides of power line were checked for maximum conducted disturbance. In order to find the maximum emission, the relative positions of equipment and all of the interface cables were changed according to EN 55032 on conducted disturbance emission test.
- (4) The bandwidth of test receiver is set at 9 KHz.
- (5) The frequency range from 150 KHz to 30MHz is checked.

3.8. Test Result

PASS. (See below detailed test result)

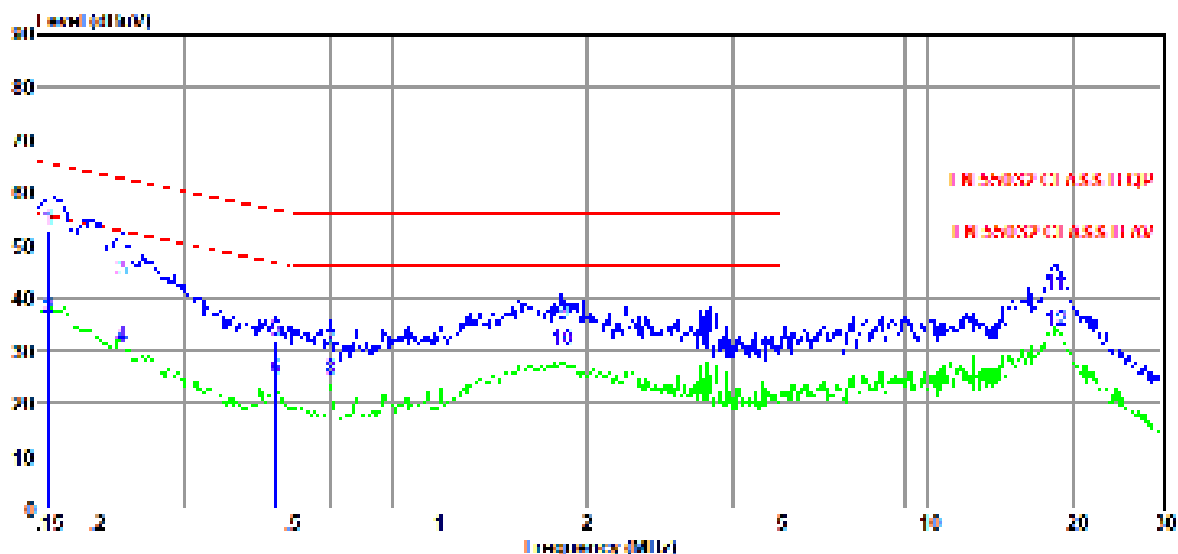
Note 1: All emissions not reported below are too low against the prescribed limits.

Note 2: "-----" means Peak detection; "-----" means Average detection.

TR-4-E-010 Conducted Emission Test Result

Test Site : DDT 1# Shield Room **D:\2018 CE report data\Q18112312-1E\CE-1.EM6**
Test Date : 2019-03-20 **Tested By** : Aaron
EUT : JBL Bar 2.0 All-in-One **Model Number** : Bar 2.0 CNTR
Power Supply : AC 230V/50Hz **Test Mode** : Mode 1
Condition : Temp:24.5°C,Humi:55%,Press:100.1KPa **LISN** : 2018 ENV216/NEUTRAL
Memo :

Data: 6



Item	Freq.	Read Level	LISN Factor	Cable Loss	Pulse Limiter Factor	Result Level	Limit Line	Over Limit	Detector	Phase
(Mark)	(MHz)	(dBμV)	(dB)	(dB)	(dB)	(dBμV)	(dBμV)	(dB)		
1	0.16	33.34	9.64	0.02	9.86	52.86	65.56	-12.70	QP	NEUTRAL
2	0.16	16.72	9.64	0.02	9.86	36.24	55.56	-19.32	Average	NEUTRAL
3	0.22	23.91	9.64	0.02	9.86	43.43	62.70	-19.27	QP	NEUTRAL
4	0.22	11.02	9.64	0.02	9.86	30.54	52.70	-22.16	Average	NEUTRAL
5	0.46	12.24	9.64	0.02	9.86	31.76	56.67	-24.91	QP	NEUTRAL
6	0.46	5.04	9.64	0.02	9.86	24.56	46.67	-22.11	Average	NEUTRAL
7	0.60	10.43	9.64	0.03	9.86	29.96	56.00	-26.04	QP	NEUTRAL
8	0.60	4.80	9.64	0.03	9.86	24.33	46.00	-21.67	Average	NEUTRAL
9	1.79	15.38	9.67	0.06	9.87	34.98	56.00	-21.02	QP	NEUTRAL
10	1.79	10.38	9.67	0.06	9.87	29.98	46.00	-16.02	Average	NEUTRAL
11	18.33	20.48	10.08	0.06	9.94	40.56	60.00	-19.44	QP	NEUTRAL
12	18.33	13.59	10.08	0.06	9.94	33.67	50.00	-16.33	Average	NEUTRAL

Note: 1. Result Level = Read Level + LISN Factor + Pulse Limiter Factor + Cable loss.

2. If QP Result complies with AV limit, AV Result is deemed to comply with AV limit.

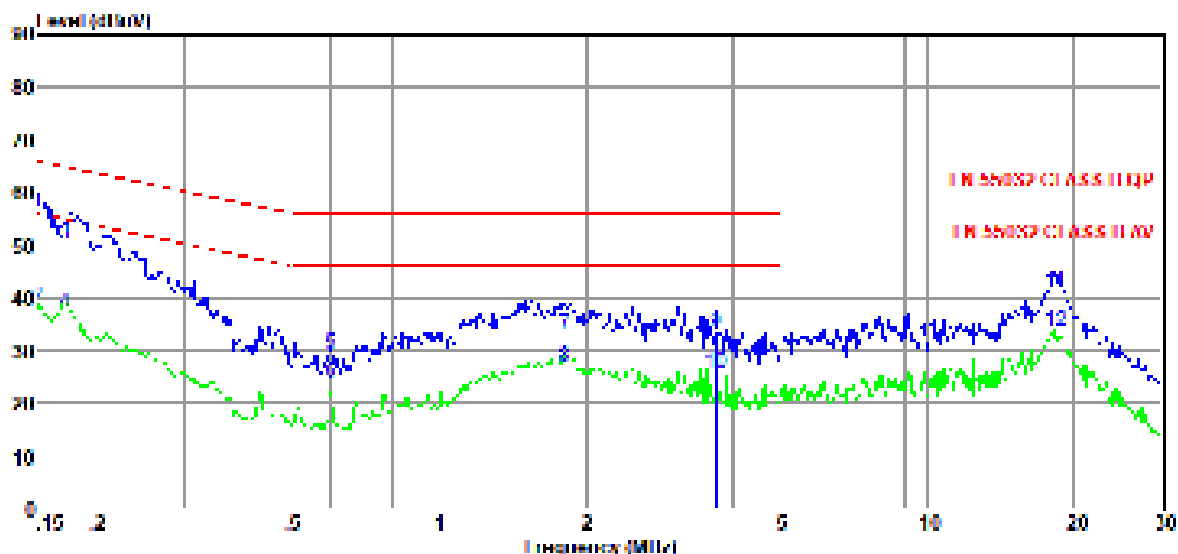
3. Test setup: RBW: 200 Hz (9 kHz—150 kHz), 9 kHz (150 kHz—30 MHz).

4. Step size: 80Hz (0.009MHz-0.15MHz), 4 kHz (0.15MHz-30MHz), Scan time: auto.

TR-4-E-010 Conducted Emission Test Result

Test Site : DDT 1# Shield Room **D:\2018 CE report data\Q18112312-1E\CE-1.EM6**
Test Date : 2019-03-20 **Tested By** : Aaron
EUT : JBL Bar 2.0 All-in-One **Model Number** : Bar 2.0 CNTR
Power Supply : AC 230V/50Hz **Test Mode** : Mode 1
Condition : Temp:24.5°C,Humi:55%,Press:100.1KPa **LISN** : 2018 ENV216/LINE
Memo :

Data: 8



Item	Freq.	Read Level	LISN Factor	Cable Loss	Pulse Limiter Factor	Result Level	Limit Line	Over Limit	Detector	Phase
(Mark)	(MHz)	(dBμV)	(dB)	(dB)	(dB)	(dBμV)	(dBμV)	(dB)		
1	0.15	36.85	9.63	0.02	9.86	56.36	66.00	-9.64	QP	LINE
2	0.15	18.93	9.63	0.02	9.86	38.44	56.00	-17.56	Average	LINE
3	0.17	30.53	9.63	0.02	9.86	50.04	64.90	-14.86	QP	LINE
4	0.17	17.72	9.63	0.02	9.86	37.23	54.90	-17.67	Average	LINE
5	0.60	9.93	9.64	0.03	9.86	29.46	56.00	-26.54	QP	LINE
6	0.60	4.25	9.64	0.03	9.86	23.78	46.00	-22.22	Average	LINE
7	1.81	13.48	9.65	0.06	9.87	33.06	56.00	-22.94	QP	LINE
8	1.81	7.41	9.65	0.06	9.87	26.99	46.00	-19.01	Average	LINE
9	3.70	13.94	9.68	0.05	9.87	33.54	56.00	-22.46	QP	LINE
10	3.70	5.92	9.68	0.05	9.87	25.52	46.00	-20.48	Average	LINE
11	18.33	21.18	10.02	0.06	9.94	41.20	60.00	-18.80	QP	LINE
12	18.33	13.74	10.02	0.06	9.94	33.76	50.00	-16.24	Average	LINE

Note: 1. Result Level = Read Level + LISN Factor + Pulse Limiter Factor + Cable loss.

2. If QP Result complies with AV limit, AV Result is deemed to comply with AV limit.

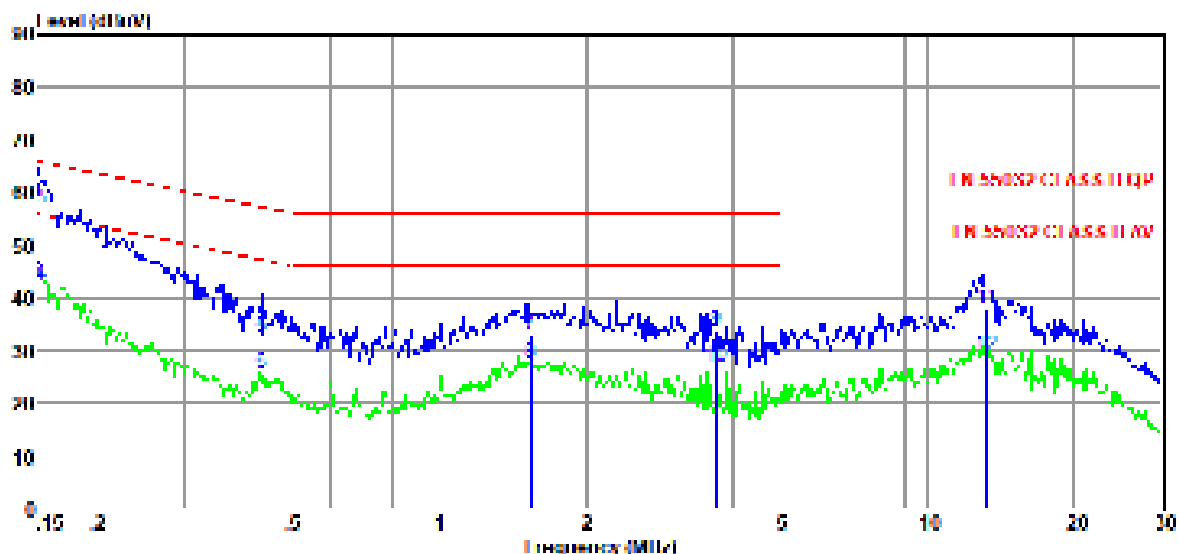
3. Test setup: RBW: 200 Hz (9 kHz—150 kHz), 9 kHz (150 kHz—30 MHz).

4. Step size: 80Hz (0.009MHz-0.15MHz), 4 kHz (0.15MHz-30MHz), Scan time: auto.

TR-4-E-010 Conducted Emission Test Result

Test Site : DDT 1# Shield Room **D:\2018 CE report data\Q18112312-1E\CE-1.EM6**
Test Date : 2019-03-20 **Tested By** : Aaron
EUT : JBL Bar 2.0 All-in-One **Model Number** : Bar 2.0 CNTR
Power Supply : AC 110V/60Hz **Test Mode** : Mode 1
Condition : Temp:24.5'C,Humi:55%,Press:100.1KPa **LISN** : 2018 ENV216/LINE
Memo :

Data: 2



Item	Freq.	Read Level	LISN Factor	Cable Loss	Pulse Limiter Factor	Result Level	Limit Line	Over Limit	Detector	Phase
(Mark)	(MHz)	(dBμV)	(dB)	(dB)	(dB)	(dBμV)	(dBμV)	(dB)		
1	0.15	38.58	9.63	0.02	9.86	58.09	66.00	-7.91	QP	LINE
2	0.15	23.48	9.63	0.02	9.86	42.99	56.00	-13.01	Average	LINE
3	0.15	37.28	9.63	0.02	9.86	56.79	65.87	-9.08	QP	LINE
4	0.15	22.82	9.63	0.02	9.86	42.33	55.87	-13.54	Average	LINE
5	0.43	12.92	9.64	0.02	9.86	32.44	57.24	-24.80	QP	LINE
6	0.43	6.03	9.64	0.02	9.86	25.55	47.24	-21.69	Average	LINE
7	1.54	13.55	9.65	0.07	9.87	33.14	56.00	-22.86	QP	LINE
8	1.54	7.97	9.65	0.07	9.87	27.56	46.00	-18.44	Average	LINE
9	3.70	14.16	9.68	0.05	9.87	33.76	56.00	-22.24	QP	LINE
10	3.70	7.24	9.68	0.05	9.87	26.84	46.00	-19.16	Average	LINE
11	13.20	17.49	10.08	0.09	9.92	37.58	60.00	-22.42	QP	LINE
12	13.20	9.01	10.08	0.09	9.92	29.10	50.00	-20.90	Average	LINE

Note: 1. Result Level = Read Level + LISN Factor + Pulse Limiter Factor + Cable loss.

2. If QP Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Test setup: RBW: 200 Hz (9 kHz—150 kHz), 9 kHz (150 kHz—30 MHz).

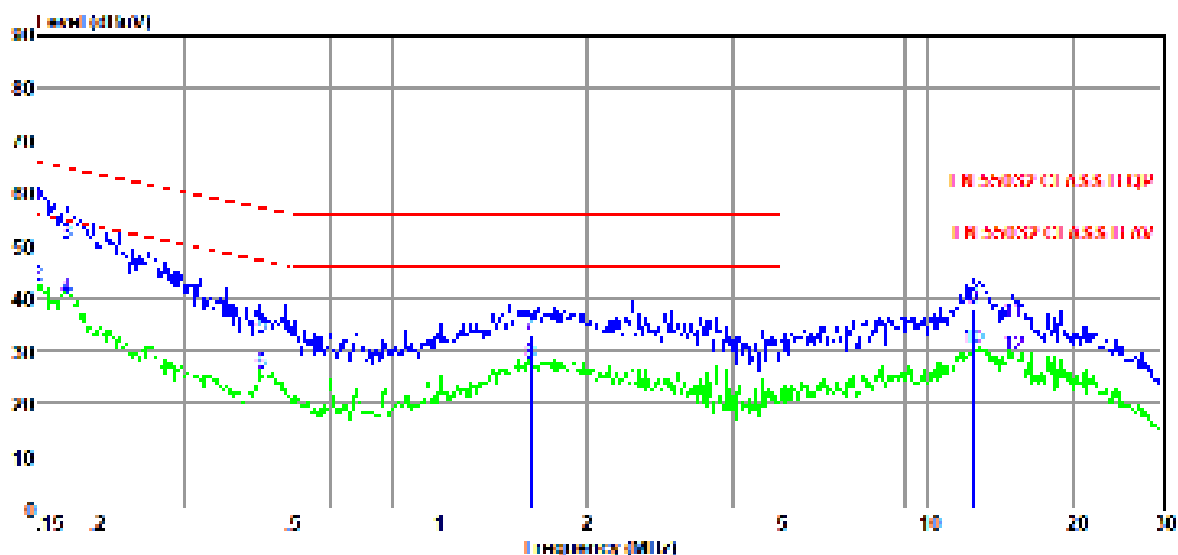
4. Step size: 80Hz (0.009MHz-0.15MHz), 4 kHz (0.15MHz-30MHz), Scan time: auto.

TR-4-E-010 Conducted Emission Test Result

Test Site : DDT 1# Shield Room **D:\2018 CE report data\Q18112312-1E\CE-1.EM6**
Test Date : 2019-03-20 **Tested By** : Aaron
EUT : JBL Bar 2.0 All-in-One **Model Number** : Bar 2.0 CNTR
Power Supply : AC 110V/60Hz **Test Mode** : Mode 1
Condition : Temp:24.5°C,Humi:55%,Press:100.1KPa **LISN** : 2018 ENV216/NEUTRAL

Memo :

Data: 4



Item (Mark)	Freq. (MHz)	Read Level (dBμV)	LISN Factor (dB)	Cable Loss (dB)	Pulse Limiter Factor (dB)	Result Level (dBμV)	Limit Line (dBμV)	Over Limit (dB)	Detector	Phase
1	0.15	38.12	9.64	0.02	9.86	57.64	66.00	-8.36	QP	NEUTRAL
2	0.15	22.84	9.64	0.02	9.86	42.36	56.00	-13.64	Average	NEUTRAL
3	0.17	31.03	9.64	0.02	9.86	50.55	64.86	-14.31	QP	NEUTRAL
4	0.17	20.27	9.64	0.02	9.86	39.79	54.86	-15.07	Average	NEUTRAL
5	0.43	12.84	9.64	0.02	9.86	32.36	57.24	-24.88	QP	NEUTRAL
6	0.43	6.30	9.64	0.02	9.86	25.82	47.24	-21.42	Average	NEUTRAL
7	1.54	13.36	9.66	0.07	9.87	32.96	56.00	-23.04	QP	NEUTRAL
8	1.54	7.99	9.66	0.07	9.87	27.59	46.00	-18.41	Average	NEUTRAL
9	12.45	17.82	10.09	0.11	9.92	37.94	60.00	-22.06	QP	NEUTRAL
10	12.45	10.17	10.09	0.11	9.92	30.29	50.00	-19.71	Average	NEUTRAL
11	14.99	15.03	10.32	0.04	9.93	35.32	60.00	-24.68	QP	NEUTRAL
12	14.99	8.69	10.32	0.04	9.93	28.98	50.00	-21.02	Average	NEUTRAL

Note: 1. Result Level = Read Level + LISN Factor + Pulse Limiter Factor + Cable loss.
 2. If QP Result complies with AV limit, AV Result is deemed to comply with AV limit.
 3. Test setup: RBW: 200 Hz (9 kHz—150 kHz), 9 kHz (150 kHz—30 MHz).
 4. Step size: 80Hz (0.009MHz-0.15MHz), 4 kHz (0.15MHz-30MHz), Scan time: auto.

3.9. Test Photo



4. Radiated emissions test

4.1. General information

Test and report Engineer	: Aaron
Test and report Date	: Mar. 20, 2019

4.2. Test Equipment

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
Radiation 1#chamber (below 1G)					
EMI Test Receiver	R&S	ESU8	100316	Oct. 12, 2018	1 Year
Trilog Broadband Antenna	Schwarzbeck	VULB9163	9163-462	Nov. 09, 2018	1 Year
RF Cable	HUBSER	CP-X2+ CP-X1	W11.03+ W12.02	Oct. 12, 2018	1Year
Test software	Audix	E3	V 6.11111b	N/A	N/A
Radiation 1#chamber (above 1G)					
EMI Test Receiver	R&S	ESU8	100316	Oct. 12, 2018	1 Year
Spectrum analyzer	Agilent	E4447A	MY50180031	Jun. 29, 2018	1 Year
Double Ridged Horn Antenna	R&S	HF907	100276	Nov. 16, 2018	1 Year
Pre-amplifier	TERA-MW	TRLA-0040G35	101303	Oct. 12, 2018	1 Year
Pre-amplifier	A.H.	PAM-0118	360	Oct. 12, 2018	1 Year
RF Cable	N/A	SMAJ-SMAJ-1M+ SMAJ-SMAJ-11M	17070133+1 7070131	Oct. 12, 2018	1 Year
Test software	Audix	E3	V 6.11111b	N/A	N/A
Notes. N/A means Not applicable.					

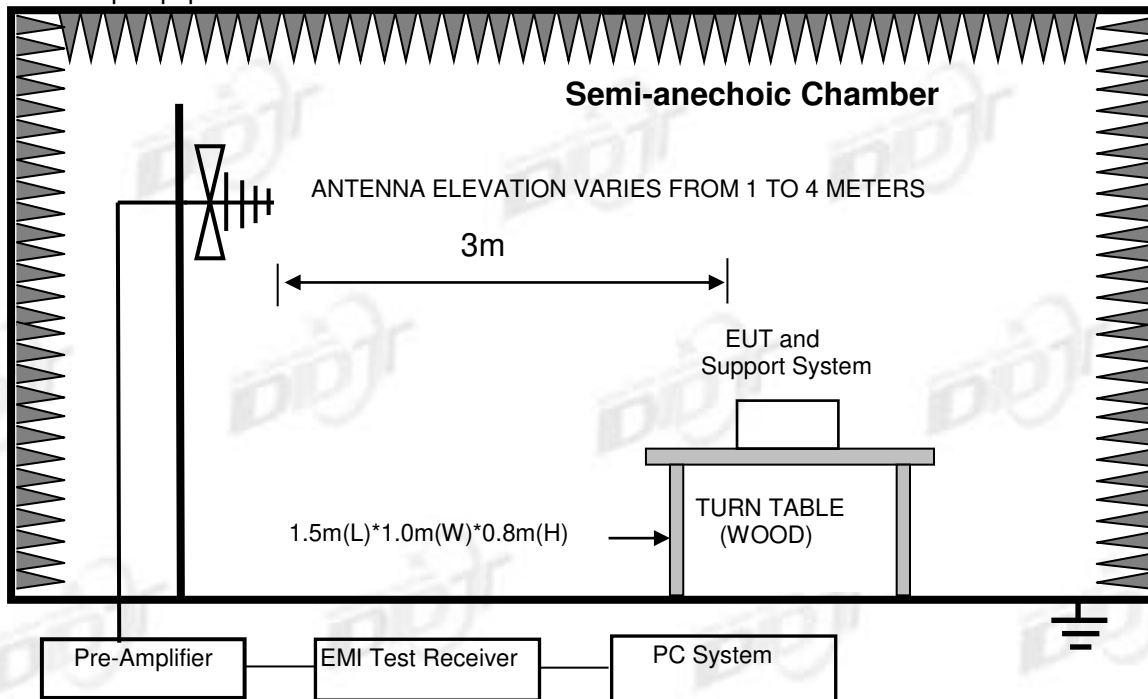
4.3. Reference Standard

EN 55032:2015

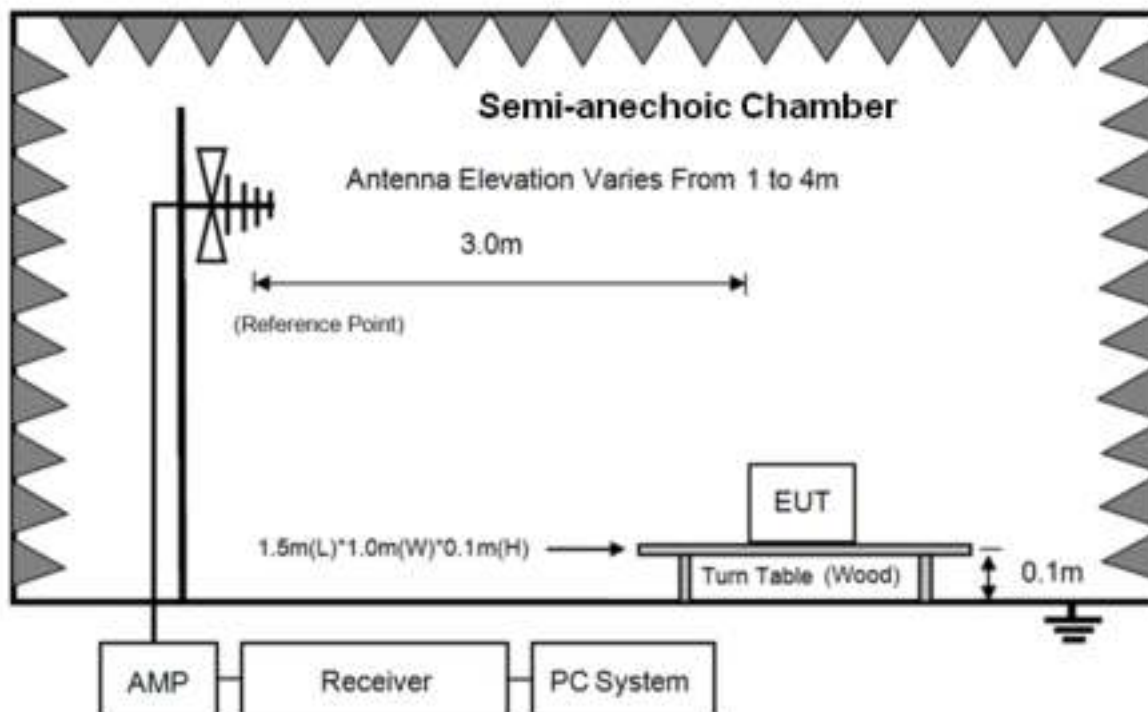
4.4. Block diagram of test setup

Below 1GHz

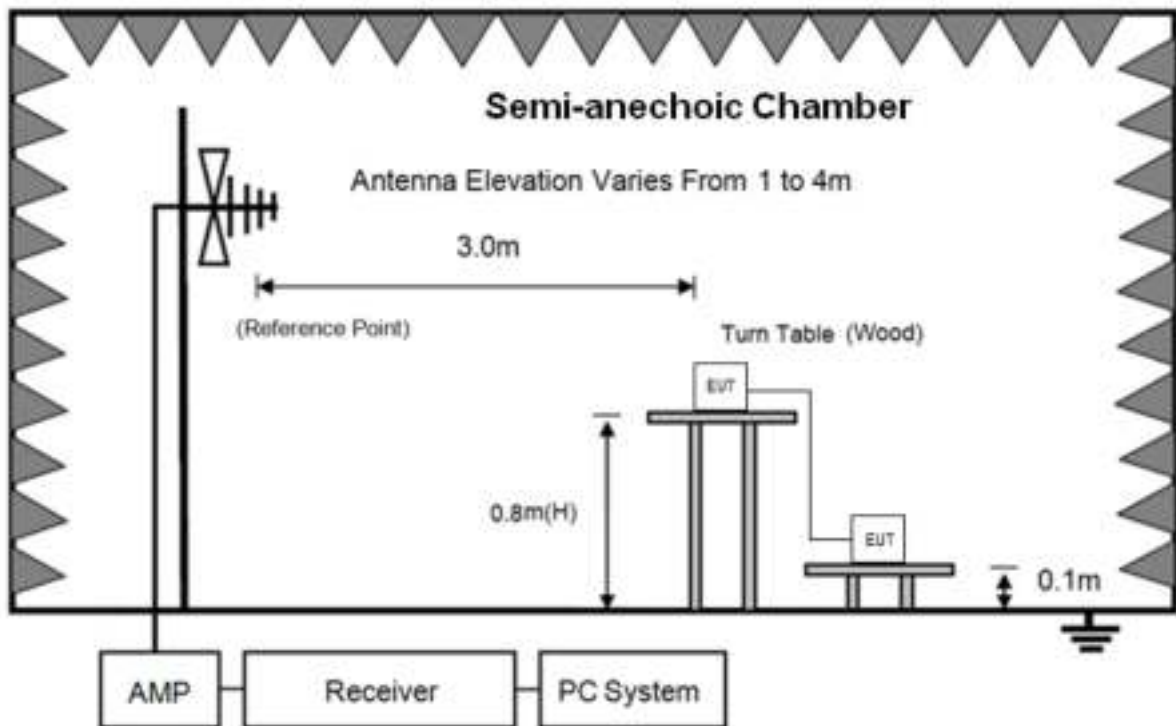
For table-top equipment



For floor standing equipment

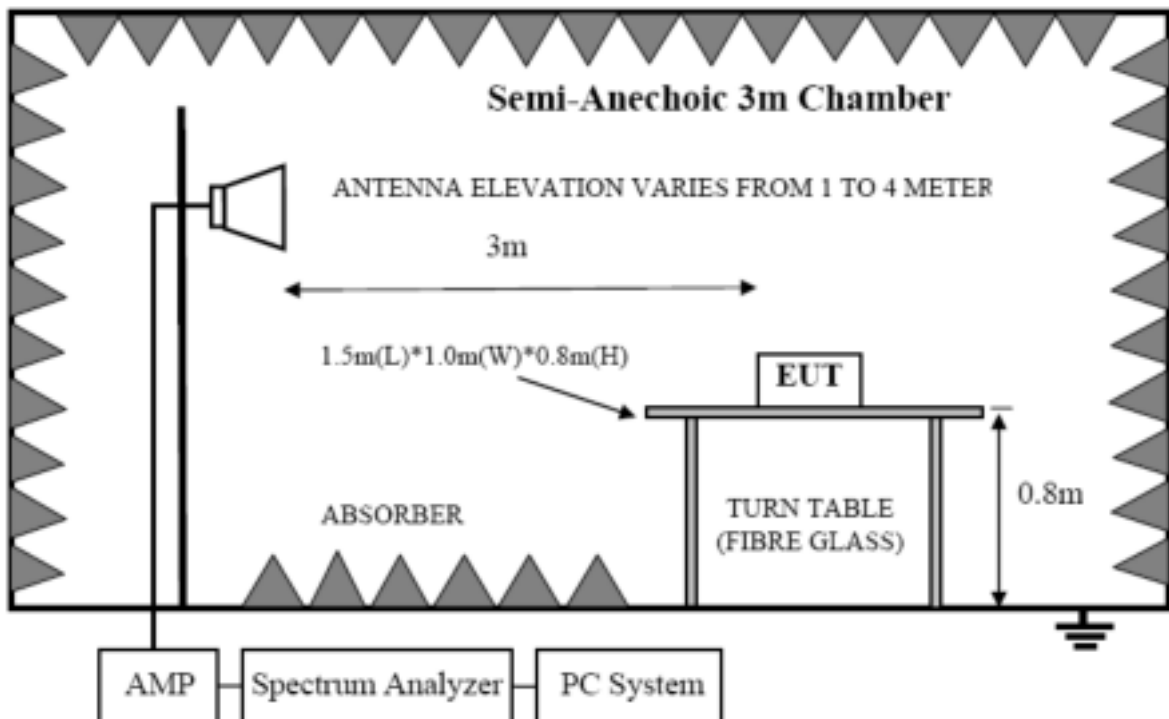


For combinations equipment

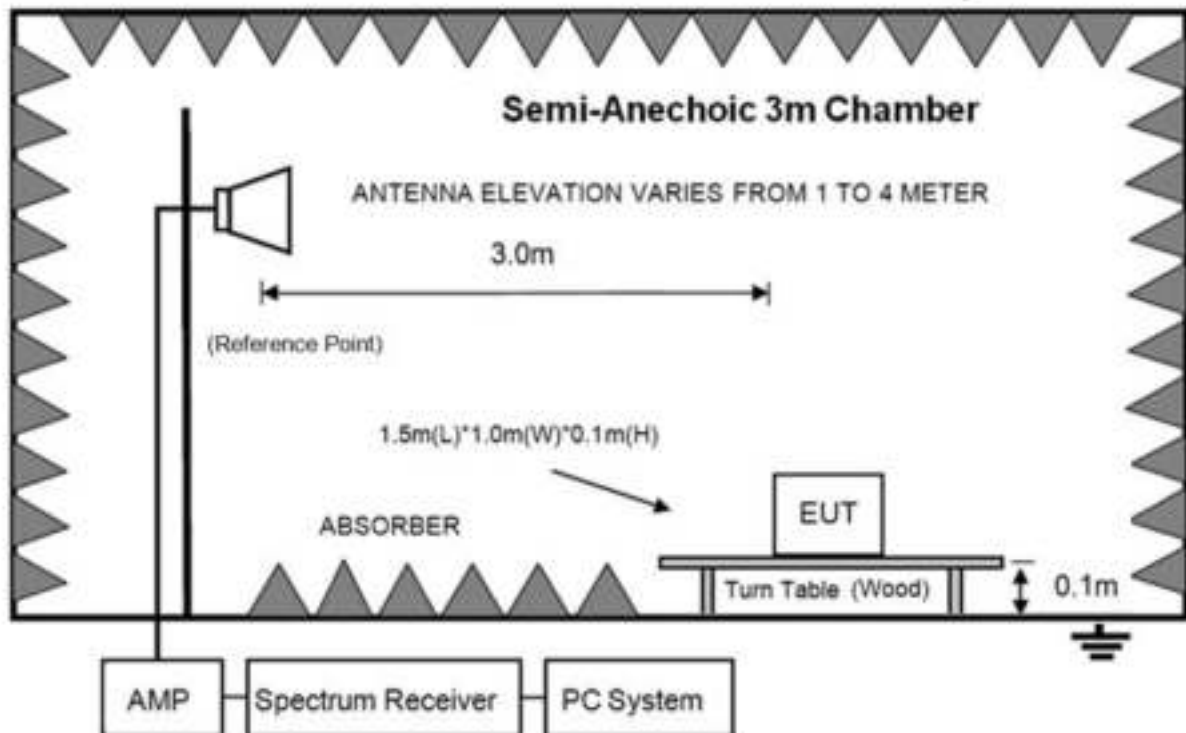


Above 1GHz

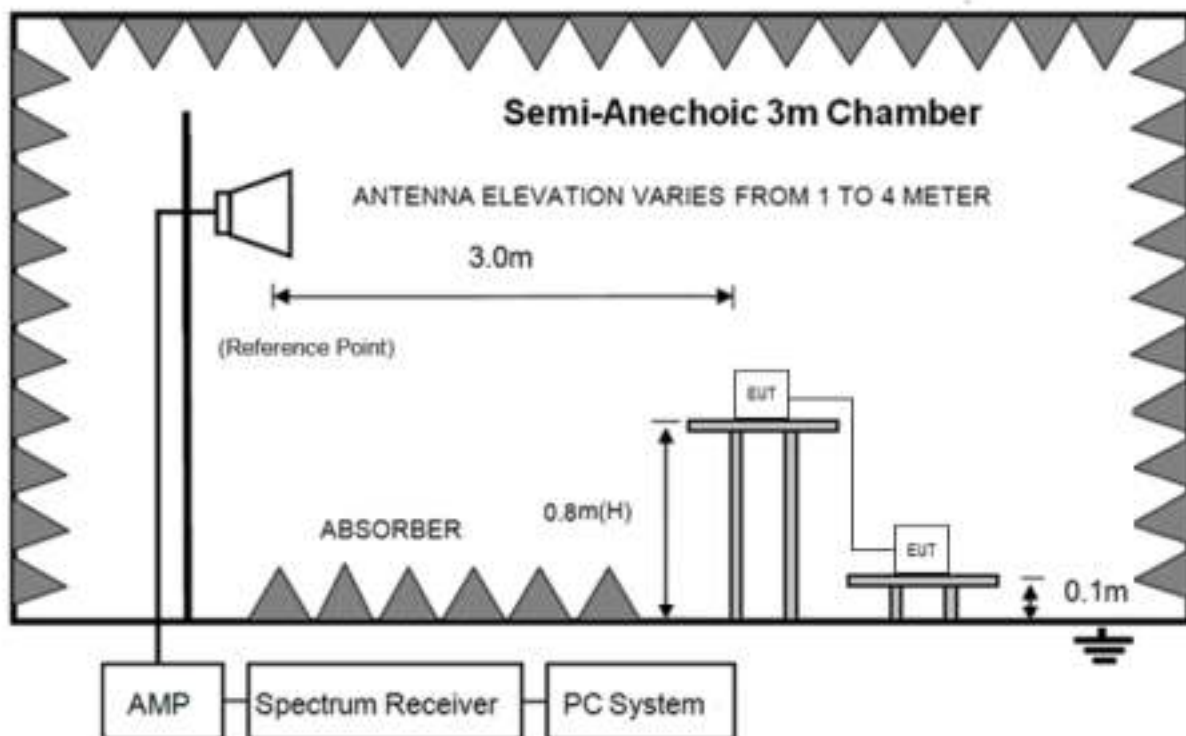
For table-top equipment



For floor standing equipment



For combinations equipment



4.5. Limits

Class A

Equipment	Frequency	Field Strengths Limits at 10m measuring distance dB(μ V)/m	Field Strengths Limits at 3m measuring distance dB(μ V)/m
Class A Equipment	30MHz to 230MHz	40	50
	230MHz to 1000MHz	47	57
	1GHz to 3GHz	/	Average:56 ; Peak:76
	3GHz to 6GHz	/	Average:60 ; Peak:80

Class B

Equipment	Frequency	Field Strengths Limits at 10m measuring distance dB(μ V)/m	Field Strengths Limits at 3m measuring distance dB(μ V)/m
Class B Equipment	30MHz to 230MHz	30	40
	230MHz to 1000MHz	37	47
	1GHz to 3GHz	/	Average:50 ; Peak:70
	3GHz to 6GHz	/	Average:54 ; Peak:74
FM receivers*	30MHz to 1000MHz	Fundamental 50	Fundamental 60
	30MHz to 300MHz	Harmonics 42	Harmonics 52
	300MHz to 1000MHz	Harmonics 46	Harmonics 56

*: these relaxed limits apply only to emission at the fundamental and harmonic frequencies of the local oscillator signals at all other frequencies shall be compliant with the limits of class B equipment given above.

Note: (1) The smaller limit shall apply at the cross point between two frequency bands.

(2) Distance is the distance in meters between the measuring instrument, antenna and the closest point of any part of the device or system.

4.6. Assistant equipment used for test

Assistant equipment	Manufacturer	Model number	Description	other
TV	SONY	KDL-40RM10B	2037745	N/A
USB flash	Kingston	DTSE9/16GB	N/A	N/A
Optical cable	N/A	N/A	N/A	Length: 1.0m, unshielded
DVD player	Pioneer	BDP-440	N/A	N/A

4.7. Test Procedure

(1) The EUT was placed on a non-metallic table, 80 cm above the ground plane inside an semi-anechoic chamber.

(2) Test antenna was located 3m (see note) from the EUT on an adjustable mast. A pre-scan was first performed in order to find prominent radiated emissions. For final emissions measurements at each frequency of interest, the EUT were rotated and the antenna height was varied between 1m and 4m in order to maximize the emission.

Measurements in both horizontal and vertical polarities were made and the data was

recorded. In order to find the maximum emission, the relative positions of equipment and all of the interface cables were changed according to EN 55032 on radiated emission test.

- (3) Spectrum frequency from 30MHz to ☐1GHz / ☒6GHz was investigated.
- (4) For final emissions measurements at each frequency of interest, the EUT were rotated and the antenna height was varied between 1m and 4m in order to maximize the emission. Measurements in both horizontal and vertical polarities were made and the data was recorded. In order to find the maximum emission, the relative positions of equipment and all of the interface cables were changed according to EN 55032 on Radiated Emission test.
- (5) For emissions from 30MHz to 1GHz, Quasi-Peak values were measured with EMI Receiver and the bandwidth of Receiver is 120 KHz.
- (6) For emissions above 1GHz, both Peak and Average level were measured with Spectrum Analyzer, and the RBW is set at 1MHz VBW is set at 3MHz.

4.8. Test result

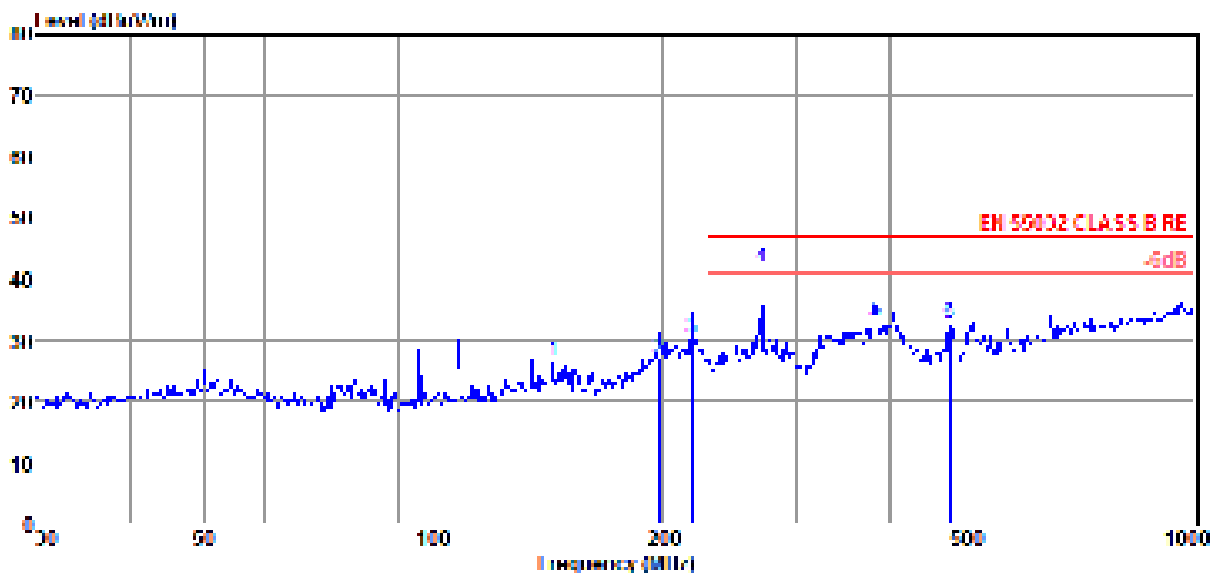
PASS. (See below detailed test result)

Note: All emissions not reported below are too low against the prescribed limits.

TR-4-E-009 Radiated Emission Test Result

Test Site : DDT 3m Chamber 1# **D:\2018 RE1# Report Data\Q18112312-1E\RE -20190319.EM6**
Test Date : 2019-03-20 **Tested By** : Aaron
EUT : JBL Bar 2.0 All-in-One **Model Number** : Bar 2.0 CNTR
Power Supply : AC 230V/50Hz **Test Mode** : Mode 1
Condition : Temp:24.5°C,Humi:55%,Press:101.4kPa **Antenna/Distance** : 2018 VULB 9163 1#/3m/HORIZONTAL
Memo :

Data: 41



Item (Mark)	Freq. (MHz)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss dB	Result Level (dBμV/m)	Limit Line (dBμV/m)	Over Limit (dB)	Detector	Polarization
1	143.83	13.27	8.58	4.47	26.32	40.00	-13.68	QP	HORIZONTAL
2	197.89	11.03	11.11	4.80	26.94	40.00	-13.06	QP	HORIZONTAL
3	219.08	13.37	11.98	4.88	30.23	40.00	-9.77	QP	HORIZONTAL
4	270.38	23.25	13.33	5.08	41.66	47.00	-5.34	QP	HORIZONTAL
5	381.25	12.33	15.33	5.44	33.10	47.00	-13.90	QP	HORIZONTAL
6	478.85	10.02	16.81	5.76	32.59	47.00	-14.41	QP	HORIZONTAL

Note: 1. Result Level = Read Level + Antenna Factor + Cable loss.

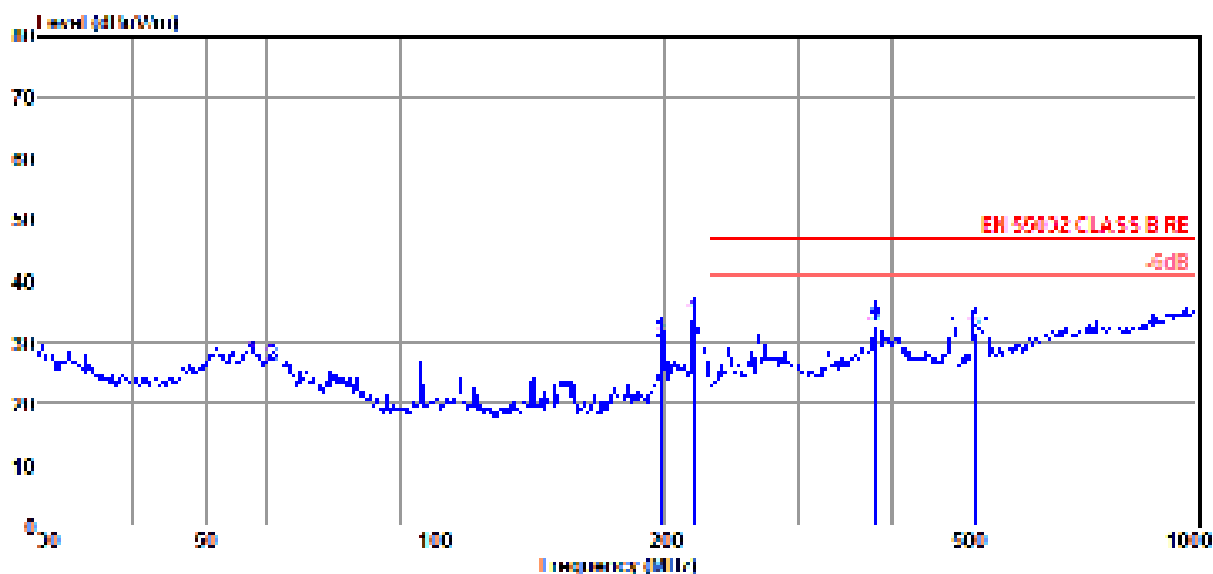
2. If Peak Result complies with QP limit, QP Result is deemed to comply with QP limit.

3. Test setup: RBW: 120 kHz, VBW: 300 kHz, Sweep time: auto.

TR-4-E-009 Radiated Emission Test Result

Test Site : DDT 3m Chamber 1# **D:\2018 RE1# Report Data\Q18112312-1E\RE -20190319.EM6**
Test Date : 2019-03-20 **Tested By** : Aaron
EUT : JBL Bar 2.0 All-in-One **Model Number** : Bar 2.0 CNTR
Power Supply : AC 230V/50Hz **Test Mode** : Mode 1
Condition : Temp:24.5°C,Humi:55%,Press:101.4kPa **Antenna/Distance** : 2018 VULB 9163 1#/3m/VERTICAL
Memo :

Data: 42



Item (Mark)	Freq. (MHz)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss dB	Result Level (dBμV/m)	Limit Line (dBμV/m)	Over Limit (dB)	Detector	Polarization
1	57.39	10.72	12.18	3.93	26.83	40.00	-13.17	QP	VERTICAL
2	60.92	10.82	11.21	3.96	25.99	40.00	-14.01	QP	VERTICAL
3	197.89	13.98	11.11	4.80	29.89	40.00	-10.11	QP	VERTICAL
4	219.08	17.12	11.98	4.88	33.98	40.00	-6.02	QP	VERTICAL
5	378.58	11.81	15.29	5.44	32.54	47.00	-14.46	QP	VERTICAL
6	513.63	8.44	17.31	5.86	31.61	47.00	-15.39	QP	VERTICAL

Note: 1. Result Level = Read Level + Antenna Factor + Cable loss.

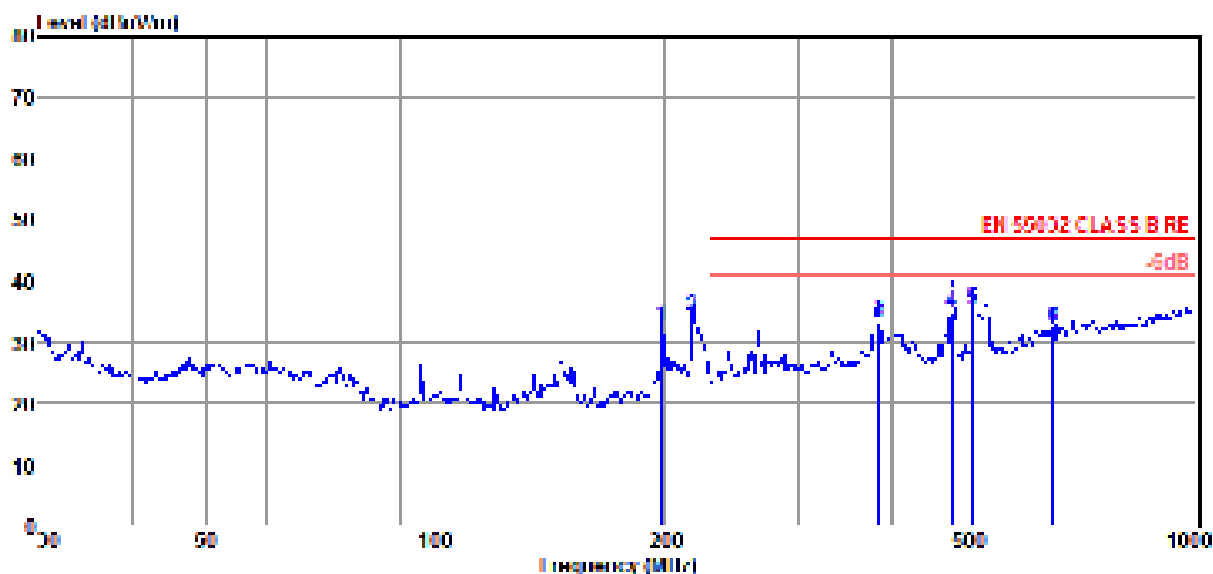
2. If Peak Result complies with QP limit, QP Result is deemed to comply with QP limit.

3. Test setup: RBW: 120 kHz, VBW: 300 kHz, Sweep time: auto.

TR-4-E-009 Radiated Emission Test Result

Test Site : DDT 3m Chamber 1# **D:\2018 RE1# Report Data\Q18112312-1E\RE -20190319.EM6**
Test Date : 2019-03-20 **Tested By** : Aaron
EUT : JBL Bar 2.0 All-in-One **Model Number** : Bar 2.0 CNTR
Power Supply : AC 110V/60Hz **Test Mode** : Mode 1
Condition : Temp:24.5°C,Humi:55%,Press:101.4kPa **Antenna/Distance** : 2018 VULB 9163 1#/3m/VERTICAL
Memo :

Data: 43



Item (Mark)	Freq. (MHz)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss dB	Result Level (dBμV/m)	Limit Line (dBμV/m)	Over Limit (dB)	Detector	Polarization
1	198.59	16.61	11.21	4.81	32.63	40.00	-7.37	QP	VERTICAL
2	218.31	17.60	11.96	4.88	34.44	40.00	-5.56	QP	VERTICAL
3	383.93	12.32	15.37	5.45	33.14	47.00	-13.86	QP	VERTICAL
4	478.85	12.24	16.81	5.76	34.81	47.00	-12.19	QP	VERTICAL
5	510.04	12.37	17.25	5.85	35.47	47.00	-11.53	QP	VERTICAL
6	649.66	7.00	19.33	6.24	32.57	47.00	-14.43	QP	VERTICAL

Note: 1. Result Level = Read Level + Antenna Factor + Cable loss.

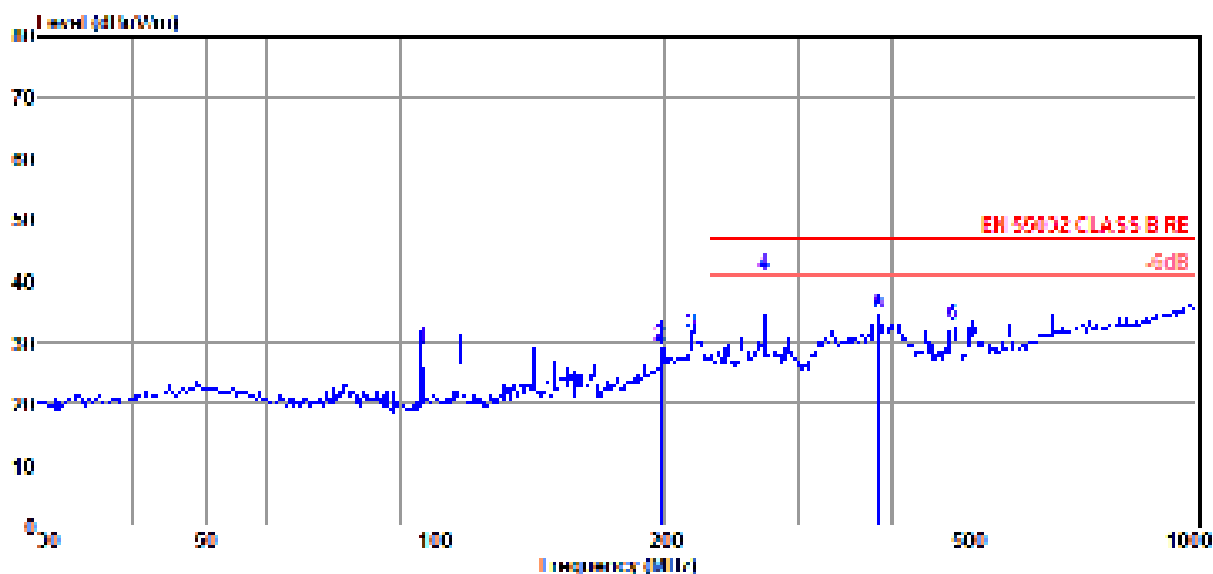
2. If Peak Result complies with QP limit, QP Result is deemed to comply with QP limit.

3. Test setup: RBW: 120 kHz, VBW: 300 kHz, Sweep time: auto.

TR-4-E-009 Radiated Emission Test Result

Test Site : DDT 3m Chamber 1# **D:\2018 RE1# Report Data\Q18112312-1E\RE -20190319.EM6**
Test Date : 2019-03-20 **Tested By** : Aaron
EUT : JBL Bar 2.0 All-in-One **Model Number** : Bar 2.0 CNTR
Power Supply : AC 110V/60Hz **Test Mode** : Mode 1
Condition : Temp:24.5°C,Humi:55%,Press:101.4kPa **Antenna/Distance** : 2018 VULB 9163 1#/3m/HORIZONTAL
Memo :

Data: 44



Item (Mark)	Freq. (MHz)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss dB	Result Level (dBμV/m)	Limit Line (dBμV/m)	Over Limit (dB)	Detector	Polarization
1	96.10	13.55	11.06	4.18	28.79	40.00	-11.21	QP	HORIZONTAL
2	197.89	13.48	11.11	4.80	29.39	40.00	-10.61	QP	HORIZONTAL
3	218.31	14.57	11.96	4.88	31.41	40.00	-8.59	QP	HORIZONTAL
4	270.38	22.60	13.33	5.08	41.01	47.00	-5.99	QP	HORIZONTAL
5	383.93	13.93	15.37	5.45	34.75	47.00	-12.25	QP	HORIZONTAL
6	480.53	10.03	16.83	5.76	32.62	47.00	-14.38	QP	HORIZONTAL

Note: 1. Result Level = Read Level + Antenna Factor + Cable loss.

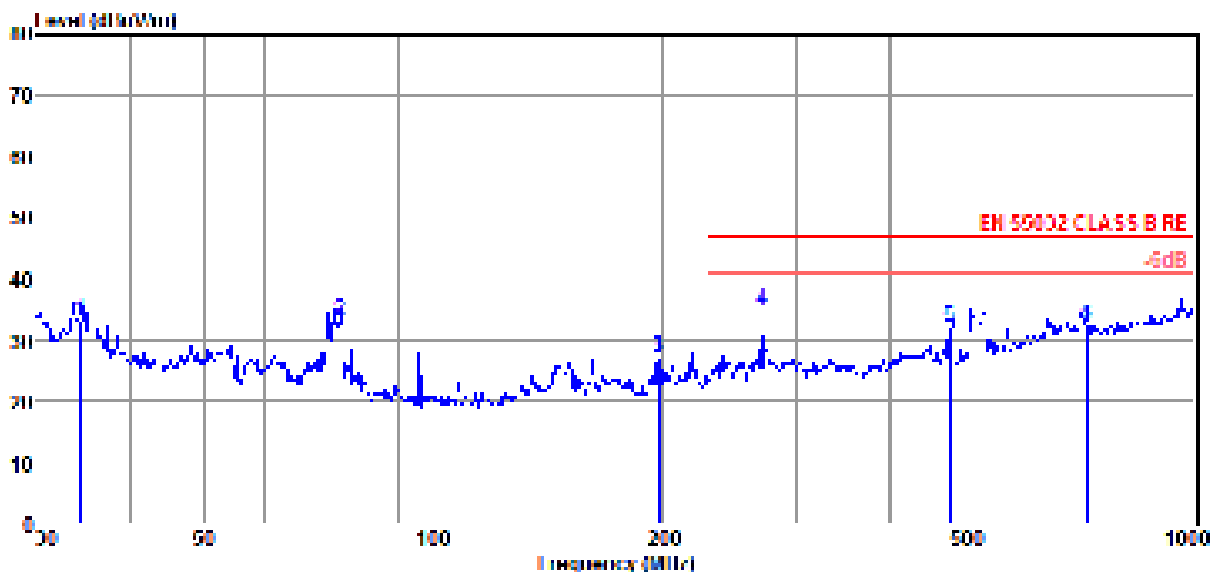
2. If Peak Result complies with QP limit, QP Result is deemed to comply with QP limit.

3. Test setup: RBW: 120 kHz, VBW: 300 kHz, Sweep time: auto.

TR-4-E-009 Radiated Emission Test Result

Test Site : DDT 3m Chamber 1# **D:\2018 RE1# Report Data\Q18112312-1E\RE -20190319.EM6**
Test Date : 2019-03-20 **Tested By** : Aaron
EUT : JBL Bar 2.0 All-in-One **Model Number** : Bar 2.0 CNTR
Power Supply : AC 230V/50Hz **Test Mode** : Mode 2
Condition : Temp:24.5°C,Humi:55%,Press:101.4kPa **Antenna/Distance** : 2018 VULB 9163 1#/3m/VERTICAL
Memo :

Data: 47



Item (Mark)	Freq. (MHz)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss dB	Result Level (dBμV/m)	Limit Line (dBμV/m)	Over Limit (dB)	Detector	Polarization
1	34.40	17.30	12.19	3.70	33.19	40.00	-6.81	QP	VERTICAL
2	75.45	19.93	9.16	4.05	33.14	40.00	-6.86	QP	VERTICAL
3	197.89	11.41	11.11	4.80	27.32	40.00	-12.68	QP	VERTICAL
4	270.38	16.50	13.33	5.08	34.91	47.00	-12.09	QP	VERTICAL
5	478.85	9.73	16.81	5.76	32.30	47.00	-14.70	QP	VERTICAL
6	724.26	5.68	20.25	6.44	32.37	47.00	-14.63	QP	VERTICAL

Note: 1. Result Level = Read Level + Antenna Factor + Cable loss.

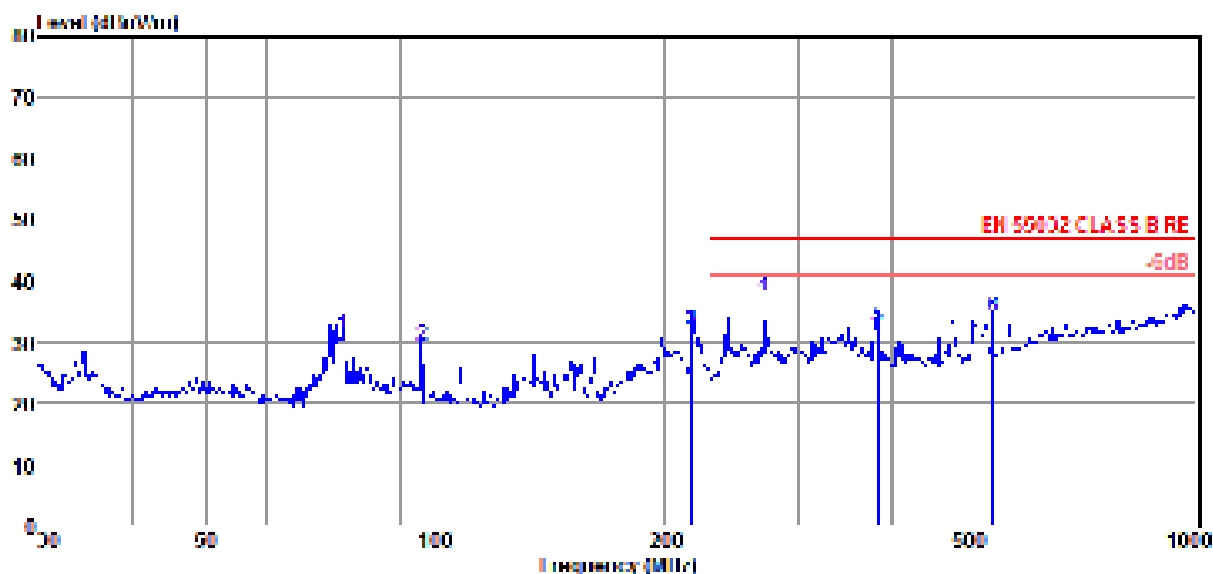
2. If Peak Result complies with QP limit, QP Result is deemed to comply with QP limit.

3. Test setup: RBW: 120 kHz, VBW: 300 kHz, Sweep time: auto.

TR-4-E-009 Radiated Emission Test Result

Test Site : DDT 3m Chamber 1# **D:\2018 RE1# Report Data\Q18112312-1E\RE -20190319.EM6**
Test Date : 2019-03-20 **Tested By** : Aaron
EUT : JBL Bar 2.0 All-in-One **Model Number** : Bar 2.0 CNTR
Power Supply : AC 230V/50Hz **Test Mode** : Mode 2
Condition : Temp:24.5°C,Humi:55%,Press:101.4kPa **Antenna/Distance** : 2018 VULB 9163 1#/3m/HORIZONTAL
Memo :

Data: 48



Item (Mark)	Freq. (MHz)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss dB	Result Level (dBμV/m)	Limit Line (dBμV/m)	Over Limit (dB)	Detector	Polarization
1	75.45	17.82	9.16	4.05	31.03	40.00	-8.97	QP	HORIZONTAL
2	96.10	14.27	11.06	4.18	29.51	40.00	-10.49	QP	HORIZONTAL
3	217.54	15.19	11.94	4.88	32.01	40.00	-7.99	QP	HORIZONTAL
4	270.38	18.92	13.33	5.08	37.33	47.00	-9.67	QP	HORIZONTAL
5	382.59	11.72	15.35	5.45	32.52	47.00	-14.48	QP	HORIZONTAL
6	541.37	10.36	17.71	5.94	34.01	47.00	-12.99	QP	HORIZONTAL

Note: 1. Result Level = Read Level + Antenna Factor + Cable loss.

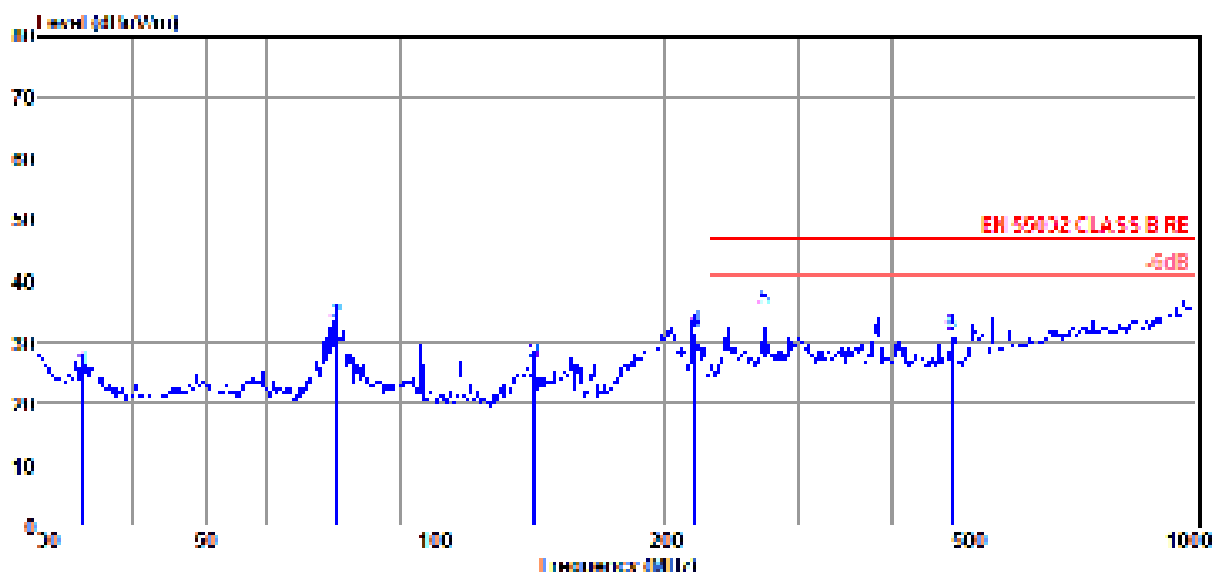
2. If Peak Result complies with QP limit, QP Result is deemed to comply with QP limit.

3. Test setup: RBW: 120 kHz, VBW: 300 kHz, Sweep time: auto.

TR-4-E-009 Radiated Emission Test Result

Test Site : DDT 3m Chamber 1# **D:\2018 RE1# Report Data\Q18112312-1E\RE -20190319.EM6**
Test Date : 2019-03-20 **Tested By** : Aaron
EUT : JBL Bar 2.0 All-in-One **Model Number** : Bar 2.0 CNTR
Power Supply : AC 110V/60Hz **Test Mode** : Mode 2
Condition : Temp:24.5°C,Humi:55%,Press:101.4kPa **Antenna/Distance** : 2018 VULB 9163 1#/3m/HORIZONTAL
Memo :

Data: 45



Item (Mark)	Freq. (MHz)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss dB	Result Level (dBμV/m)	Limit Line (dBμV/m)	Over Limit (dB)	Detector	Polarization
1	34.40	9.01	12.19	3.70	24.90	40.00	-15.10	QP	HORIZONTAL
2	74.14	19.81	9.24	4.05	33.10	40.00	-6.90	QP	HORIZONTAL
3	135.03	12.97	9.09	4.39	26.45	40.00	-13.55	QP	HORIZONTAL
4	219.85	14.65	12.01	4.88	31.54	40.00	-8.46	QP	HORIZONTAL
5	270.38	16.85	13.33	5.08	35.26	47.00	-11.74	QP	HORIZONTAL
6	478.85	8.49	16.81	5.76	31.06	47.00	-15.94	QP	HORIZONTAL

Note: 1. Result Level = Read Level + Antenna Factor + Cable loss.

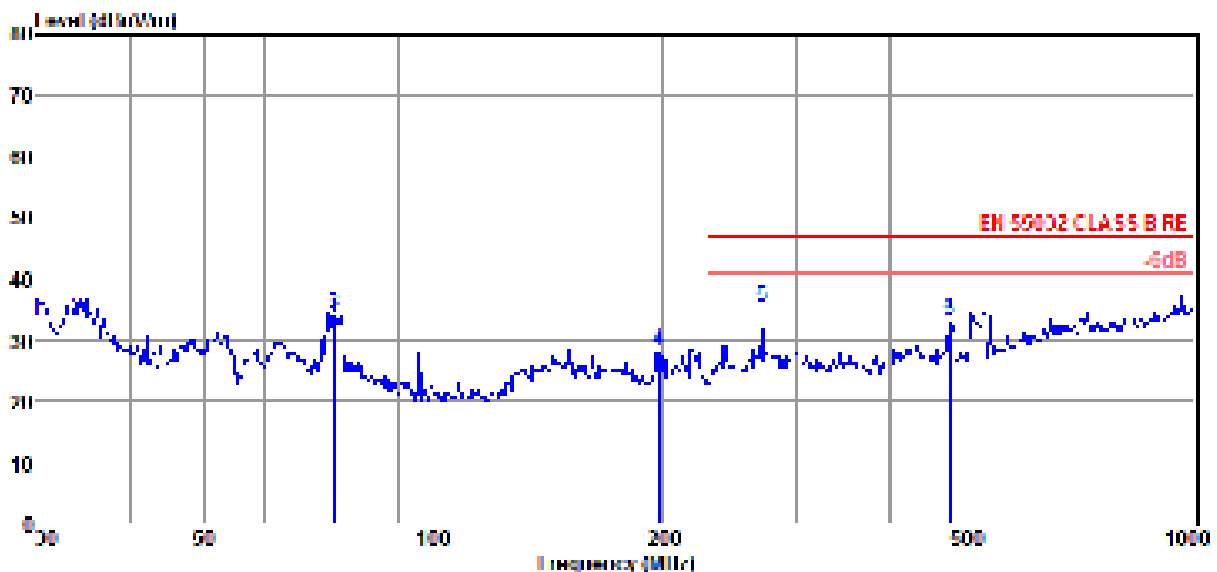
2. If Peak Result complies with QP limit, QP Result is deemed to comply with QP limit.

3. Test setup: RBW: 120 kHz, VBW: 300 kHz, Sweep time: auto.

TR-4-E-009 Radiated Emission Test Result

Test Site : DDT 3m Chamber 1# **D:\2018 RE1# Report Data\Q18112312-1E\RE -20190319.EM6**
Test Date : 2019-03-20 **Tested By** : Aaron
EUT : JBL Bar 2.0 All-in-One **Model Number** : Bar 2.0 CNTR
Power Supply : AC 110V/60Hz **Test Mode** : Mode 2
Condition : Temp:24.5°C,Humi:55%,Press:101.4kPa **Antenna/Distance** : 2018 VULB 9163 1#/3m/VERTICAL
Memo :

Data: 46



Item (Mark)	Freq. (MHz)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss dB	Result Level (dBμV/m)	Limit Line (dBμV/m)	Over Limit (dB)	Detector	Polarization
1	30.00	18.61	11.10	3.64	33.35	40.00	-6.65	QP	VERTICAL
2	34.16	17.80	12.14	3.70	33.64	40.00	-6.36	QP	VERTICAL
3	74.14	21.03	9.24	4.05	34.32	40.00	-5.68	QP	VERTICAL
4	197.89	12.30	11.11	4.80	28.21	40.00	-11.79	QP	VERTICAL
5	270.38	17.11	13.33	5.08	35.52	47.00	-11.48	QP	VERTICAL
6	478.85	10.66	16.81	5.76	33.23	47.00	-13.77	QP	VERTICAL

Note: 1. Result Level = Read Level + Antenna Factor + Cable loss.

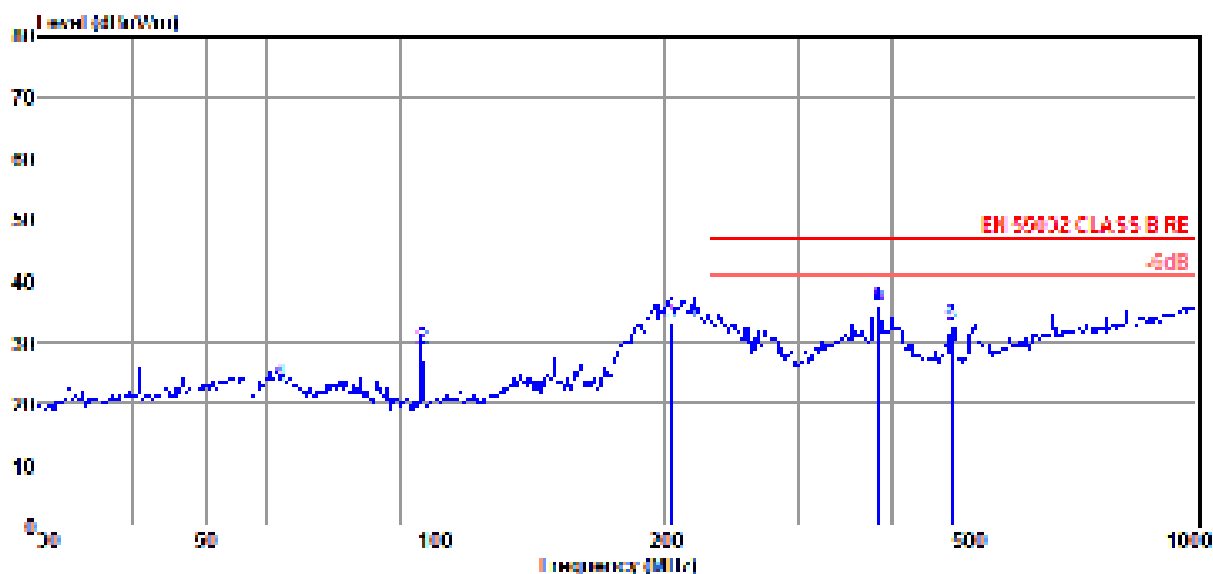
2. If Peak Result complies with QP limit, QP Result is deemed to comply with QP limit.

3. Test setup: RBW: 120 kHz, VBW: 300 kHz, Sweep time: auto.

TR-4-E-009 Radiated Emission Test Result

Test Site : DDT 3m Chamber 1# **D:\2018 RE1# Report Data\Q18112312-1E\RE -20190319.EM6**
Test Date : 2019-03-20 **Tested By** : Aaron
EUT : JBL Bar 2.0 All-in-One **Model Number** : Bar 2.0 CNTR
Power Supply : AC 230V/50Hz **Test Mode** : Mode 3
Condition : Temp:24.5°C,Humi:55%,Press:101.4kPa **Antenna/Distance** : 2018 VULB 9163 1#/3m/HORIZONTAL
Memo :

Data: 33



Item (Mark)	Freq. (MHz)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss dB	Result Level (dBμV/m)	Limit Line (dBμV/m)	Over Limit (dB)	Detector	Polarization
1	62.65	7.90	10.87	3.97	22.74	40.00	-17.26	QP	HORIZONTAL
2	96.10	13.57	11.06	4.18	28.81	40.00	-11.19	QP	HORIZONTAL
3	204.24	16.60	11.53	4.83	32.96	40.00	-7.04	QP	HORIZONTAL
4	218.31	16.20	11.96	4.88	33.04	40.00	-6.96	QP	HORIZONTAL
5	383.93	14.91	15.37	5.45	35.73	47.00	-11.27	QP	HORIZONTAL
6	478.85	10.24	16.81	5.76	32.81	47.00	-14.19	QP	HORIZONTAL

Note: 1. Result Level = Read Level + Antenna Factor + Cable loss.

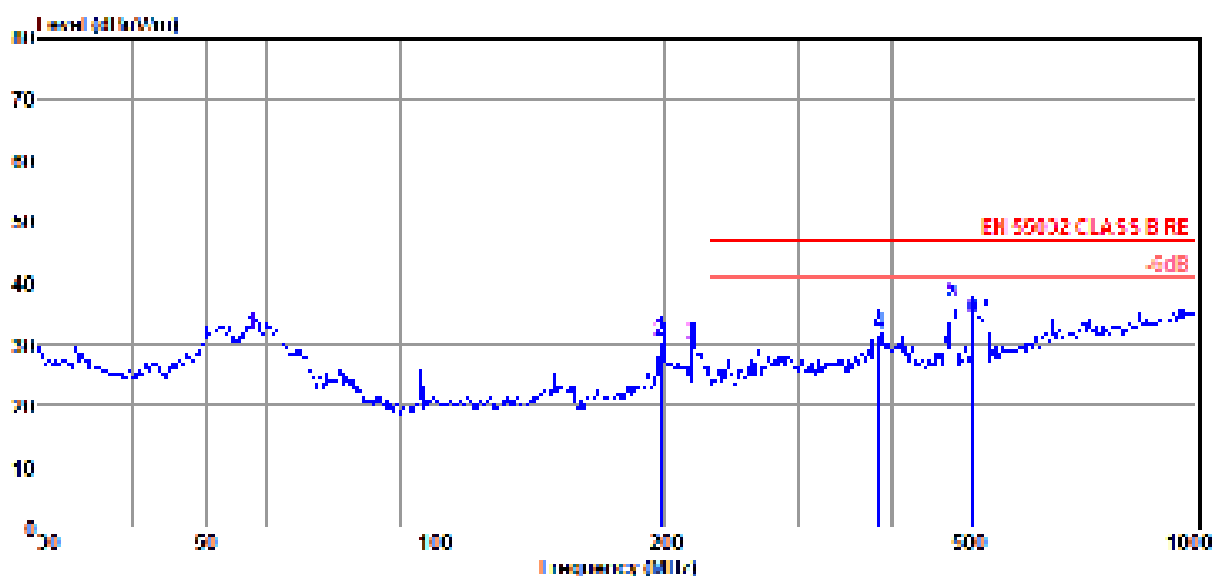
2. If Peak Result complies with QP limit, QP Result is deemed to comply with QP limit.

3. Test setup: RBW: 120 kHz, VBW: 300 kHz, Sweep time: auto.

TR-4-E-009 Radiated Emission Test Result

Test Site : DDT 3m Chamber 1# **D:\2018 RE1# Report Data\Q18112312-1E\RE -20190319.EM6**
Test Date : 2019-03-20 **Tested By** : Aaron
EUT : JBL Bar 2.0 All-in-One **Model Number** : Bar 2.0 CNTR
Power Supply : AC 230V/50Hz **Test Mode** : Mode 3
Condition : Temp:24.5°C,Humi:55%,Press:101.4kPa **Antenna/Distance** : 2018 VULB 9163 1#/3m/VERTICAL
Memo :

Data: 34



Item (Mark)	Freq. (MHz)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss dB	Result Level (dBμV/m)	Limit Line (dBμV/m)	Over Limit (dB)	Detector	Polarization
1	57.39	15.39	12.18	3.93	31.50	40.00	-8.50	QP	VERTICAL
2	197.89	14.55	11.11	4.80	30.46	40.00	-9.54	QP	VERTICAL
3	218.31	13.10	11.96	4.88	29.94	40.00	-10.06	QP	VERTICAL
4	383.93	10.71	15.37	5.45	31.53	47.00	-15.47	QP	VERTICAL
5	480.53	14.25	16.83	5.76	36.84	47.00	-10.16	QP	VERTICAL
6	510.04	10.88	17.25	5.85	33.98	47.00	-13.02	QP	VERTICAL

Note: 1. Result Level = Read Level + Antenna Factor + Cable loss.

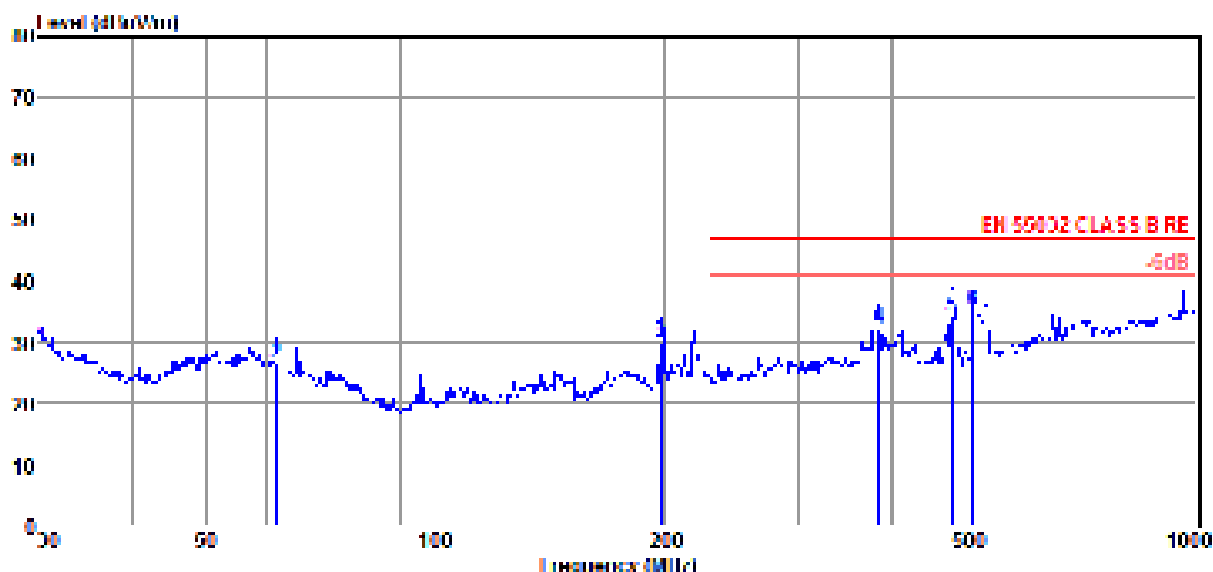
2. If Peak Result complies with QP limit, QP Result is deemed to comply with QP limit.

3. Test setup: RBW: 120 kHz, VBW: 300 kHz, Sweep time: auto.

TR-4-E-009 Radiated Emission Test Result

Test Site : DDT 3m Chamber 1# **D:\2018 RE1# Report Data\Q18112312-1E\RE -20190319.EM6**
Test Date : 2019-03-20 **Tested By** : Aaron
EUT : JBL Bar 2.0 All-in-One **Model Number** : Bar 2.0 CNTR
Power Supply : AC 110V/60Hz **Test Mode** : Mode 3
Condition : Temp:24.5°C,Humi:55%,Press:101.4kPa **Antenna/Distance** : 2018 VULB 9163 1#/3m/VERTICAL
Memo :

Data: 35



Item (Mark)	Freq. (MHz)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss dB	Result Level (dBμV/m)	Limit Line (dBμV/m)	Over Limit (dB)	Detector	Polarization
1	30.32	14.31	11.18	3.64	29.13	40.00	-10.87	QP	VERTICAL
2	61.78	11.44	11.04	3.96	26.44	40.00	-13.56	QP	VERTICAL
3	197.89	13.92	11.11	4.80	29.83	40.00	-10.17	QP	VERTICAL
4	383.93	11.41	15.37	5.45	32.23	47.00	-14.77	QP	VERTICAL
5	478.85	11.45	16.81	5.76	34.02	47.00	-12.98	QP	VERTICAL
6	510.04	12.07	17.25	5.85	35.17	47.00	-11.83	QP	VERTICAL

Note: 1. Result Level = Read Level + Antenna Factor + Cable loss.

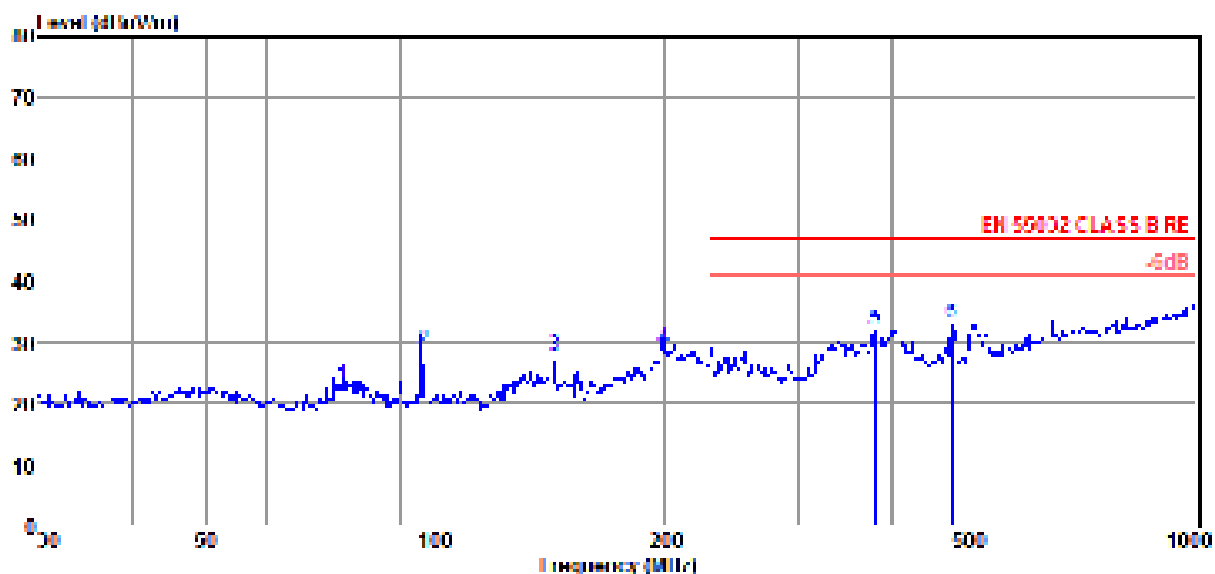
2. If Peak Result complies with QP limit, QP Result is deemed to comply with QP limit.

3. Test setup: RBW: 120 kHz, VBW: 300 kHz, Sweep time: auto.

TR-4-E-009 Radiated Emission Test Result

Test Site : DDT 3m Chamber 1# **D:\2018 RE1# Report Data\Q18112312-1E\RE -20190319.EM6**
Test Date : 2019-03-20 **Tested By** : Aaron
EUT : JBL Bar 2.0 All-in-One **Model Number** : Bar 2.0 CNTR
Power Supply : AC 110V/60Hz **Test Mode** : Mode 3
Condition : Temp:24.5°C,Humi:55%,Press:101.4kPa **Antenna/Distance** : 2018 VULB 9163 1#/3m/HORIZONTAL
Memo :

Data: 36



Item (Mark)	Freq. (MHz)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss dB	Result Level (dBμV/m)	Limit Line (dBμV/m)	Over Limit (dB)	Detector	Polarization
1	75.45	9.53	9.16	4.05	22.74	40.00	-17.26	QP	HORIZONTAL
2	96.10	13.40	11.06	4.18	28.64	40.00	-11.36	QP	HORIZONTAL
3	143.83	14.78	8.58	4.47	27.83	40.00	-12.17	QP	HORIZONTAL
4	199.29	12.66	11.30	4.81	28.77	40.00	-11.23	QP	HORIZONTAL
5	378.58	11.20	15.29	5.44	31.93	47.00	-15.07	QP	HORIZONTAL
6	478.85	10.31	16.81	5.76	32.88	47.00	-14.12	QP	HORIZONTAL

Note: 1. Result Level = Read Level + Antenna Factor + Cable loss.

2. If Peak Result complies with QP limit, QP Result is deemed to comply with QP limit.

3. Test setup: RBW: 120 kHz, VBW: 300 kHz, Sweep time: auto.

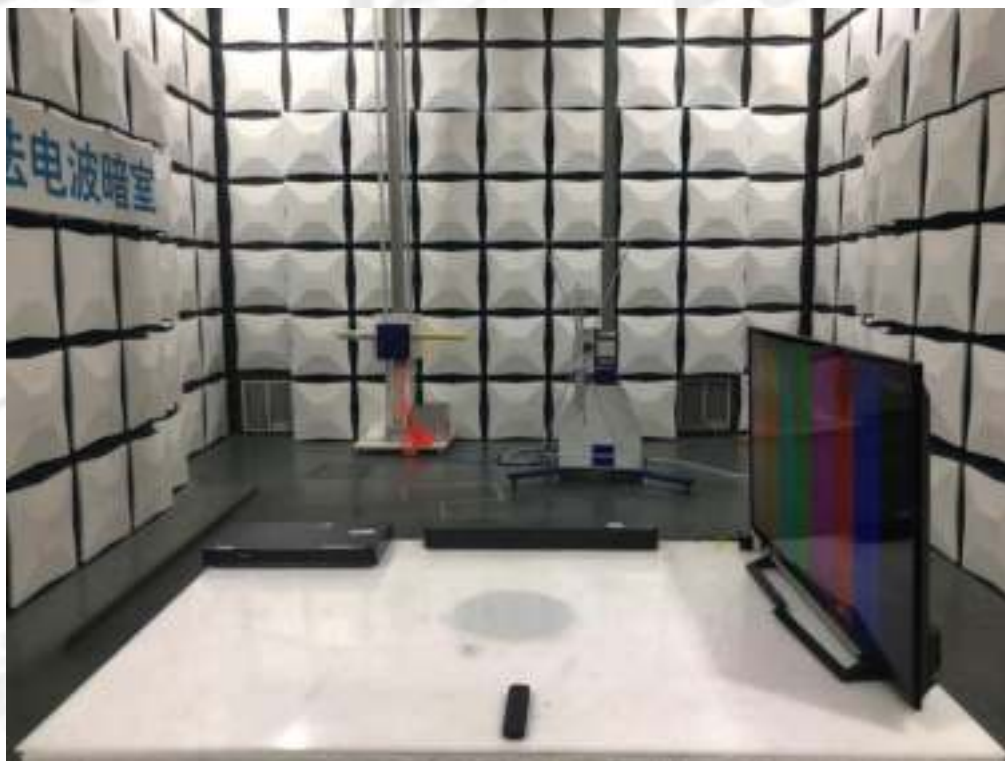
Radiated Emission test (1GHz-6GHz)

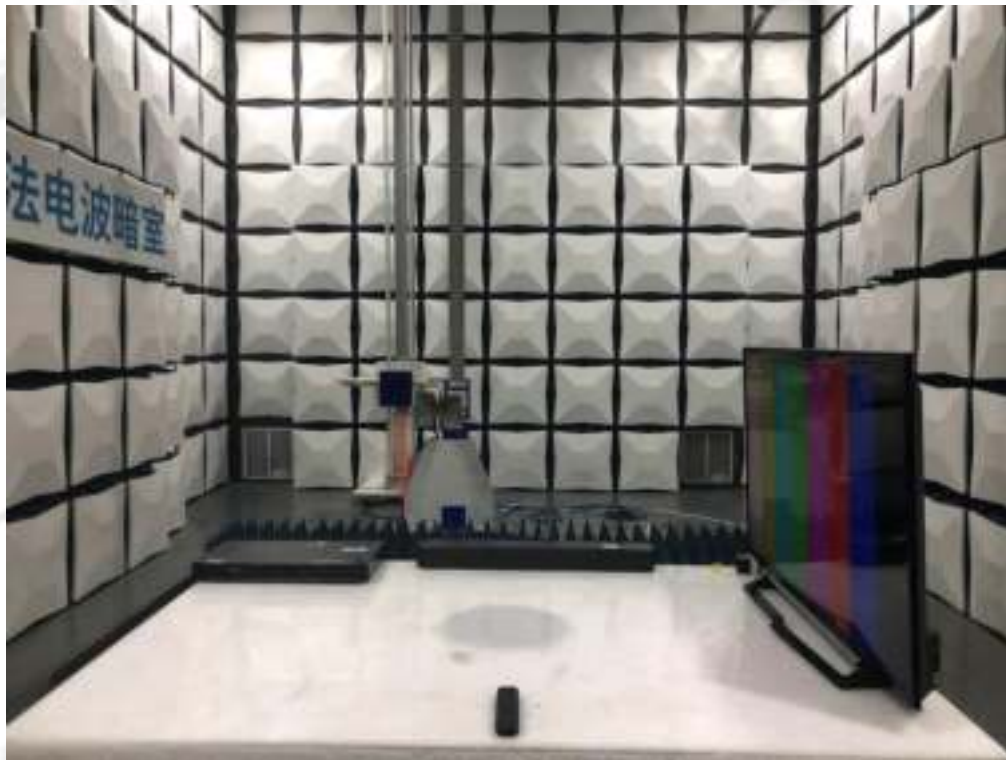
Freq. (MHz)	Read level (dBμV)	Antenna Factor (dB/m)	PRM Factor (dB)	Cable Loss (dB)	Result Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector type	Polarization
Power Supply: AC 230V/50Hz Test mode: Mode 1 Memo:									
2538.86	53.78	29.46	44.24	4.99	43.99	70.00	-26.01	Peak	VERTICAL
3327.66	54.58	31.81	44.40	6.49	48.48	74.00	-25.52	Peak	VERTICAL
3994.95	51.40	32.89	44.40	8.86	48.75	74.00	-25.25	Peak	VERTICAL
4702.43	51.17	33.73	44.25	10.08	50.73	74.00	-23.27	Peak	VERTICAL
4926.68	53.73	33.86	44.21	9.85	53.23	74.00	-20.77	Peak	VERTICAL
5143.16	52.53	34.02	44.17	10.35	52.73	74.00	-21.27	Peak	VERTICAL
3015.37	52.35	31.23	44.40	5.85	45.03	74.00	-28.97	Peak	HORIZONTAL
3587.75	52.53	32.25	44.40	7.28	47.66	74.00	-26.34	Peak	HORIZONTAL
3973.53	52.00	32.86	44.40	8.73	49.19	74.00	-24.81	Peak	HORIZONTAL
4585.94	50.30	33.65	44.28	9.80	49.47	74.00	-24.53	Peak	HORIZONTAL
4787.45	49.46	33.78	44.24	11.19	50.19	74.00	-23.81	Peak	HORIZONTAL
5133.96	51.01	34.01	44.17	10.34	51.19	74.00	-22.81	Peak	HORIZONTAL
Power Supply: AC 110V/60Hz Test mode: Mode 1 Memo:									
2766.88	54.14	30.36	44.32	5.44	45.62	70.00	-24.38	Peak	HORIZONTAL
3297.99	53.93	31.75	44.40	6.38	47.66	74.00	-26.34	Peak	HORIZONTAL
4096.43	51.29	33.04	44.38	9.30	49.25	74.00	-24.75	Peak	HORIZONTAL
4577.73	51.03	33.65	44.28	9.82	50.22	74.00	-23.78	Peak	HORIZONTAL
5124.77	50.77	34.00	44.17	10.32	50.92	74.00	-23.08	Peak	HORIZONTAL
5665.66	49.13	34.44	44.06	11.19	50.70	74.00	-23.30	Peak	HORIZONTAL
2645.67	53.95	29.89	44.28	5.17	44.73	70.00	-25.27	Peak	VERTICAL
3562.13	53.05	32.21	44.40	7.21	48.07	74.00	-25.93	Peak	VERTICAL
3980.66	52.48	32.87	44.40	8.77	49.72	74.00	-24.28	Peak	VERTICAL
4253.50	51.80	33.27	44.34	9.00	49.73	74.00	-24.27	Peak	VERTICAL
4917.86	53.14	33.85	44.21	9.84	52.62	74.00	-21.38	Peak	VERTICAL
5706.41	49.49	34.47	44.06	11.21	51.11	74.00	-22.89	Peak	VERTICAL
Power Supply: AC 230V/50Hz Test mode: Mode 2 Memo:									
2872.97	53.31	30.75	44.36	5.62	45.32	70.00	-24.68	Peak	HORIZONTAL
3375.71	52.62	31.89	44.40	6.68	46.79	74.00	-27.21	Peak	HORIZONTAL
3994.95	51.61	32.89	44.40	8.86	48.96	74.00	-25.04	Peak	HORIZONTAL
4643.82	50.64	33.69	44.27	9.89	49.95	74.00	-24.05	Peak	HORIZONTAL
4926.68	52.44	33.86	44.21	9.85	51.94	74.00	-22.06	Peak	HORIZONTAL
5665.66	49.33	34.44	44.06	11.19	50.90	74.00	-23.10	Peak	HORIZONTAL
2827.01	53.08	30.58	44.34	5.55	44.87	70.00	-25.13	Peak	VERTICAL
3543.03	53.81	32.17	44.40	7.16	48.74	74.00	-25.26	Peak	VERTICAL
3987.79	52.35	32.88	44.40	8.81	49.64	74.00	-24.36	Peak	VERTICAL
4464.33	49.29	33.55	44.30	9.91	48.45	74.00	-25.55	Peak	VERTICAL
4660.49	52.14	33.70	44.26	9.94	51.52	74.00	-22.48	Peak	VERTICAL
5799.18	49.44	34.54	44.04	11.43	51.37	74.00	-22.63	Peak	VERTICAL
Power Supply: AC 110V/60Hz Test mode: Mode 2 Memo:									
2872.97	53.96	30.75	44.36	5.62	45.97	70.00	-24.03	Peak	VERTICAL
3412.19	53.50	31.95	44.40	6.80	47.85	74.00	-26.15	Peak	VERTICAL
3581.33	53.89	32.24	44.40	7.26	48.99	74.00	-25.01	Peak	VERTICAL
4528.78	51.43	33.62	44.29	9.97	50.73	74.00	-23.27	Peak	VERTICAL
4753.26	51.15	33.76	44.25	10.74	51.40	74.00	-22.60	Peak	VERTICAL
5378.78	49.98	34.21	44.12	10.48	50.55	74.00	-23.45	Peak	VERTICAL
2999.21	52.96	31.20	44.40	5.81	45.57	70.00	-24.43	Peak	HORIZONTAL
3555.75	52.55	32.19	44.40	7.19	47.53	74.00	-26.47	Peak	HORIZONTAL
4096.43	51.31	33.04	44.38	9.30	49.27	74.00	-24.73	Peak	HORIZONTAL
4545.04	50.48	33.63	44.29	9.92	49.74	74.00	-24.26	Peak	HORIZONTAL
5208.08	50.98	34.07	44.16	10.43	51.32	74.00	-22.68	Peak	HORIZONTAL
5778.43	49.08	34.53	44.04	11.38	50.95	74.00	-23.05	Peak	HORIZONTAL
Power Supply: AC 230V/50Hz Test mode: Mode 3 Memo:									
2837.16	53.51	30.62	44.34	5.56	45.35	70.00	-24.65	Peak	VERTICAL
3517.73	52.62	32.13	44.40	7.09	47.44	74.00	-26.56	Peak	VERTICAL

4002.11	51.63	32.90	44.40	8.90	49.03	74.00	-24.97	Peak	VERTICAL
4416.59	49.85	33.49	44.31	9.73	48.76	74.00	-25.24	Peak	VERTICAL
4796.04	49.38	33.78	44.24	11.30	50.22	74.00	-23.78	Peak	VERTICAL
5189.45	50.07	34.06	44.16	10.42	50.39	74.00	-23.61	Peak	VERTICAL
2679.07	52.88	30.02	44.29	5.26	43.87	70.00	-26.13	Peak	HORIZONTAL
3210.53	52.42	31.60	44.40	6.31	45.93	74.00	-28.07	Peak	HORIZONTAL
3418.31	53.32	31.96	44.40	6.82	47.70	74.00	-26.30	Peak	HORIZONTAL
3987.79	51.97	32.88	44.40	8.81	49.26	74.00	-24.74	Peak	HORIZONTAL
4685.61	51.23	33.72	44.26	10.01	50.70	74.00	-23.30	Peak	HORIZONTAL
5006.77	51.29	33.91	44.20	9.99	50.99	74.00	-23.01	Peak	HORIZONTAL
Power Supply: AC 110V/60Hz Test mode: Mode 3 Memo:									
2832.08	53.09	30.60	44.34	5.55	44.90	70.00	-25.10	Peak	HORIZONTAL
3187.60	53.67	31.55	44.40	6.27	47.09	74.00	-26.91	Peak	HORIZONTAL
3430.58	54.90	31.98	44.40	6.85	49.33	74.00	-24.67	Peak	HORIZONTAL
4030.90	52.69	32.95	44.39	9.02	50.27	74.00	-23.73	Peak	HORIZONTAL
4253.50	50.61	33.27	44.34	9.00	48.54	74.00	-25.46	Peak	HORIZONTAL
5079.06	50.36	33.97	44.18	10.22	50.37	74.00	-23.63	Peak	HORIZONTAL
2683.87	53.39	30.04	44.29	5.27	44.41	70.00	-25.59	Peak	VERTICAL
3058.91	52.96	31.31	44.40	5.95	45.82	74.00	-28.18	Peak	VERTICAL
3530.36	53.31	32.15	44.40	7.12	48.18	74.00	-25.82	Peak	VERTICAL
4052.62	51.09	32.98	44.39	9.12	48.80	74.00	-25.20	Peak	VERTICAL
4488.39	50.11	33.58	44.30	10.01	49.40	74.00	-24.60	Peak	VERTICAL
5359.54	49.64	34.19	44.12	10.48	50.19	74.00	-23.81	Peak	VERTICAL
Result: Pass									

Note: Result Level = Read Level + Antenna Factor + Cable loss - PRM Factor.

4.9. Test photo





5. Harmonic current and Voltage fluctuations & flicker test report

5.1. General information

Test and report Engineer	: Elosky
Test and report Date	: Feb. 21, 2019

5.2. Test Equipment

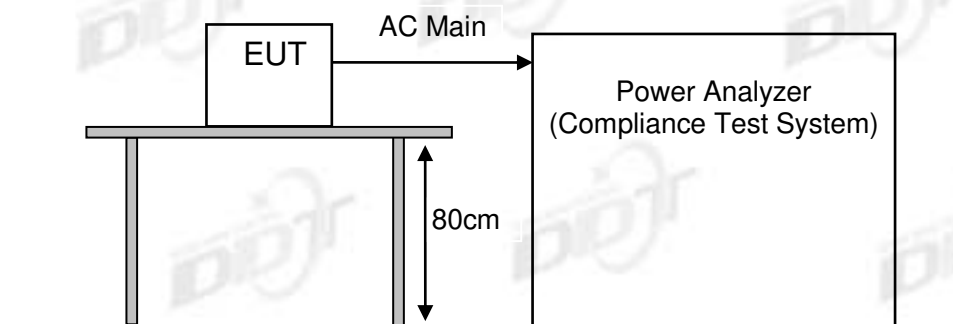
Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
HARMONICS and Voltage fluctuation and flicker tester	EMC-PARTNER	HAR1000-1P	HAP1000-1P230V-0205	Jul. 02, 2018	1Year
Test Software	EMC-PARTNER	Harmonics-1000	4.19	N/A	N/A

5.3. Test Standard

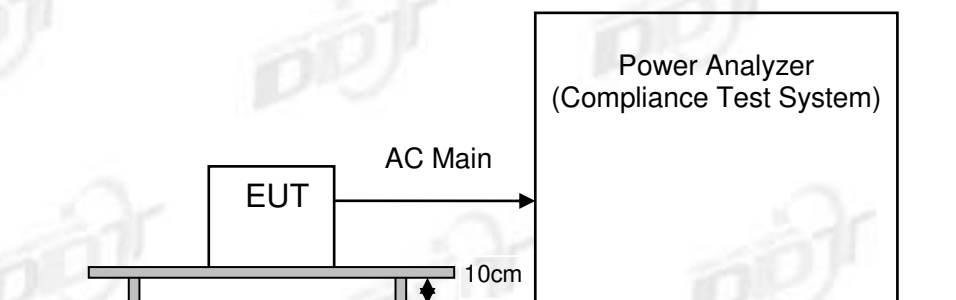
EN 61000-3-2:2014, Classification of equipment: ☒ Class A, ☐ Class B, ☐ Class C, ☐ Class D. EN 61000-3-3:2013

5.4. Block diagram of test setup

(1) Table-top device



(2) Floor-standing device



5.5. Harmonic current limits

For Class A equipment

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

For Class B equipment

The harmonics of the input current shall not exceed the values given in class A equipment limits multiplied by a factor of 1.5.

For Class C equipment

Harmonic order(n)	Maximum permissible harmonic current expressed as a percentage of the input current at the fundamental frequency %
2	2
3	$30 \times \lambda$
5	10
7	7
9	3
$11 \leq n \leq 39$ (odd harmonic only)	$0.23 \cdot 8/n$
Note: λ is the circuit power factor.	

For Class D equipment

Harmonic order(n)	Maximum permissible harmonic current per watt mA/W	Maximum permissible harmonic current (A)
3	3.4	2.30
5	1.9	1.14
7	1.0	0.77
9	0.5	0.40
11	0.35	0.33
$13 \leq n \leq 39$ (odd harmonic only)	$3.85/n$	Refer to Class A limit

5.6. Voltage fluctuations & flicker Limit

Test Item	Limit	Note
Pst	1.0	Pst means Short-term flicker indicator
Plt	0.65	Plt means long-term flicker indicator
Tdt	0.2	Tdt means maximum time that dt exceeds 3%
dmax(%)	4%	dmax means maximum relative voltage change.
dc(%)	3%	dc means relative steady-state voltage change.

5.7. Assistant equipment used for test

Assistant equipment	Manufacturer	Model number	Description	other
TV	SONY	KDL-40RM10B	2037745	N/A
USB flash	Kingston	DTSE9/16GB	N/A	N/A
Optical cable	N/A	N/A	N/A	Length: 1.0m, unshielded
DVD player	Pioneer	BDP-440	N/A	N/A

5.8. Test Procedure

For Harmonic current test:

The EUT was placed on the top of a wooden table 0.8 meters above the ground and operated to produce the maximum harmonic components under normal operating conditions for each successive harmonic component in turn. The correspondent test program of test instrument to measure the current harmonics emanated from EUT is chosen. The measure time shall be not less than the necessary for the EUT to be exercised.

For Voltage fluctuations & flicker

The EUT was placed on the top of a wooden table 0.8 meters above the ground and operated to produce the most unfavorable sequence of voltage changes under normal conditions during the flick measurement; the measure time shall include that part of whole operation changes. The observation period for short-term flicker indicator is 10 minutes and the observation period for long-term flicker indicator is 2 hours.

5.9. Test result

Harmonic current test result:

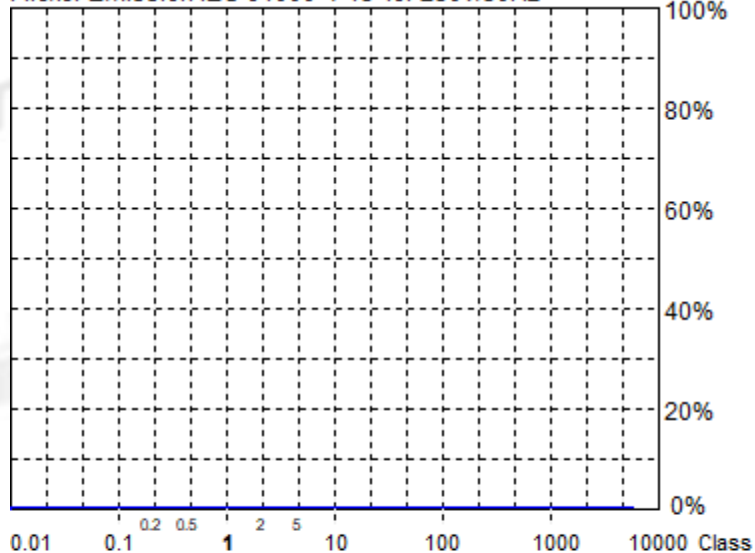
Not Applicable

This product is not defined as lighting equipment, and has rated power less than 75W, therefore, no limit apply according to EN 61000-3-2 harmonics currents emissions test.

Voltage fluctuations & flicker test result:**Flicker Emission - IEC 61000-3-3, EN 61000-3-3**

Comply: IEC 61000-3-3 Ed.3 - IEC 61000-4-15 Ed.2

Flicker Emission IEC 61000-4-15 for 230V/50Hz



Actual Flicker (Fli):	0.00
Short-term Flicker (Pst):	0.07
Limit (Pst):	1.00
Long-term Flicker (Plt):	0.07
Limit (Plt):	0.65
Maximum Relative Volt. Change (dmax):	0.00%
Limit (dmax):	4.00%
Relative Steady-state Voltage Change (dc):	0.00%
Limit (dc):	3.00%
Tmax 3.00% (dt):	0.00ms
Limit (dt>Lim):	200ms

Flicker Emission - IEC 61000-3-3, EN 61000-3-3

2019/2/21 15:21:47

Urms = 231.7 V P = 36.72 W
 Irms = 0.351 A pf = 0.452

Range: 2 A
 V-nom: 230 V
 TestTime: 10 min (100%)

Test running, Measurement within Limits

HAR-1000 EMC-Partner

Full Bar : Actual Values
 Empty Bar : Maximum Values
 Circles : Average Values
 Blue : Current , Green : Voltage , Red : Failed

Operator	Elosky
EUT	JBL Bar 2.0 All-in-One
Model Number	Bar 2.0 CNTR
Test mode	Mode 1
Memo	

Urms = 231.5V	Freq = 50.000	Range: 2 A
Irms = 0.349A	Ipk = 1.420A	cf = 4.073
P = 36.72W	S = 80.70VA	pf = 0.455

Test - Time : 1 x 10min = 10min (100 %)

LIN (Line Impedance Network) : No LIN

Limits :	Plt :	0.65	Pst :	1.00
	dmax :	4.00 %	dc :	3.00 %
	dtLim:	3.00 %	dt>Lim:	200ms

Test running, Measurement within Limits

	dmax
	[%]
1	0.000
1	0.000

5.10. Test photo



6. Electrostatic discharge test report

6.1. General information

Test and report Engineer	: Elosky
Test and report Date	: Mar. 16, 2019

6.2. Test Equipment

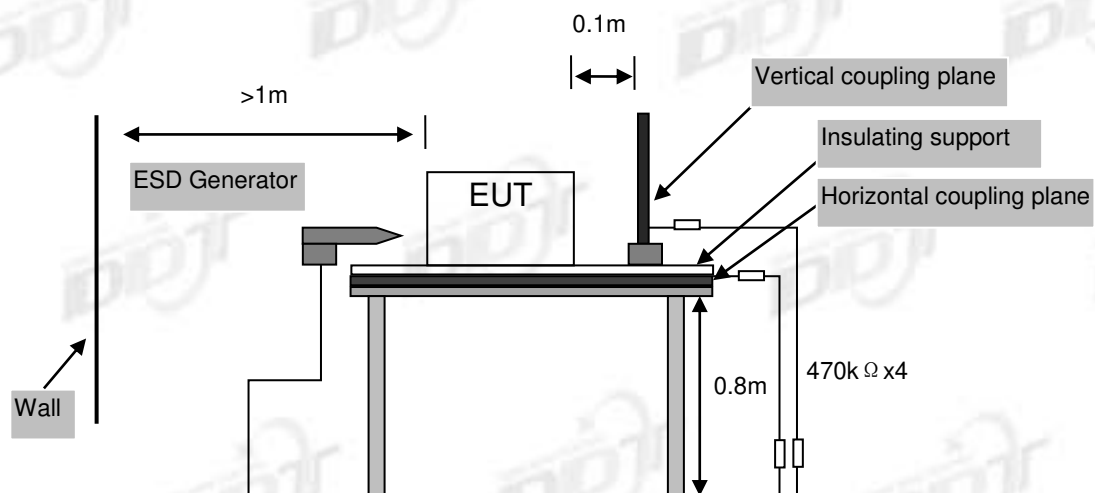
Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
ESD Generator	TESEQ	NSG 437	981	Nov. 05, 2018	1 Year

6.3. Test and Reference Standards

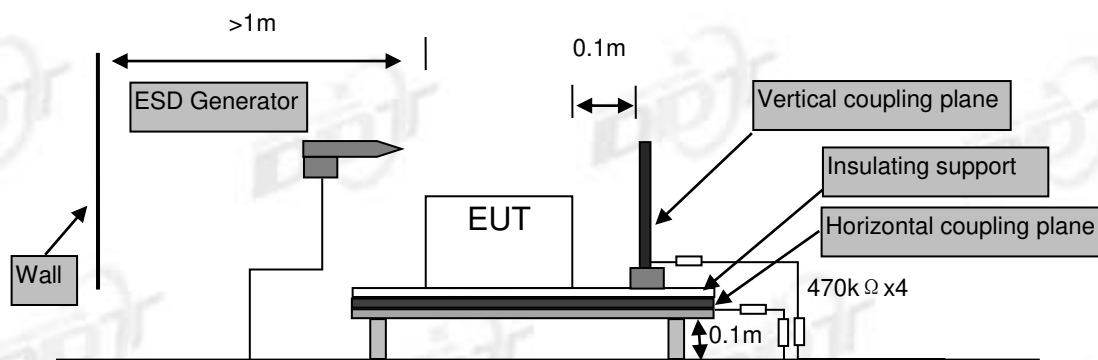
EN 55035:2017; EN 61000-4-2:2009

6.4. Block diagram of test setup

(1) Table-top equipment



(2) Floor-standing equipment



6.5. Test levels and performance criterion

Test Level		Performance Criteria
Air Discharge	$\pm 2\text{kV}$, $\pm 4\text{kV}$ and $\pm 8\text{kV}$	B
Contact Discharge	$\pm 4\text{kV}$	

Performance criteria B description: During the test, degradation of performance is allowed. However, no change of operating state or stored data is allowed to persist after the test. After the test, the EUT 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 EUT is used as intended.

6.6. Assistant equipment used for test

Assistant equipment	Manufacturer	Model number	Description	other
TV	SONY	KDL-40RM10B	2037745	N/A
USB flash	Kingston	DTSE9/16GB	N/A	N/A
Optical cable	N/A	N/A	N/A	Length: 1.0m, unshielded
DVD player	Pioneer	BDP-440	N/A	N/A

6.7. Test Procedure

Air Discharge:

The test was applied on non-conductive surfaces of EUT. The round discharge tip of the discharge electrode was approached as fast as possible to touch the EUT. After each discharge, the discharge electrode was removed from the EUT. The generator was re-triggered for a new single discharge and repeated 20 times for each pre-selected test point. This procedure was repeated until all the air discharge completed.

Contact Discharge:

All the procedure was same as air discharge. Except that the generator was re-triggered for a new single discharge. The tip of the discharge electrode was touching the EUT before the discharge switch was operated.

Indirect discharge for horizontal coupling plane:

At least 20 single discharges were applied to the horizontal coupling plane, at points on each side of the EUT. The discharge electrode positions vertically at a distance of 0.1m from the EUT and with the discharge electrode touching the coupling plane.

Indirect discharge for vertical coupling plane:

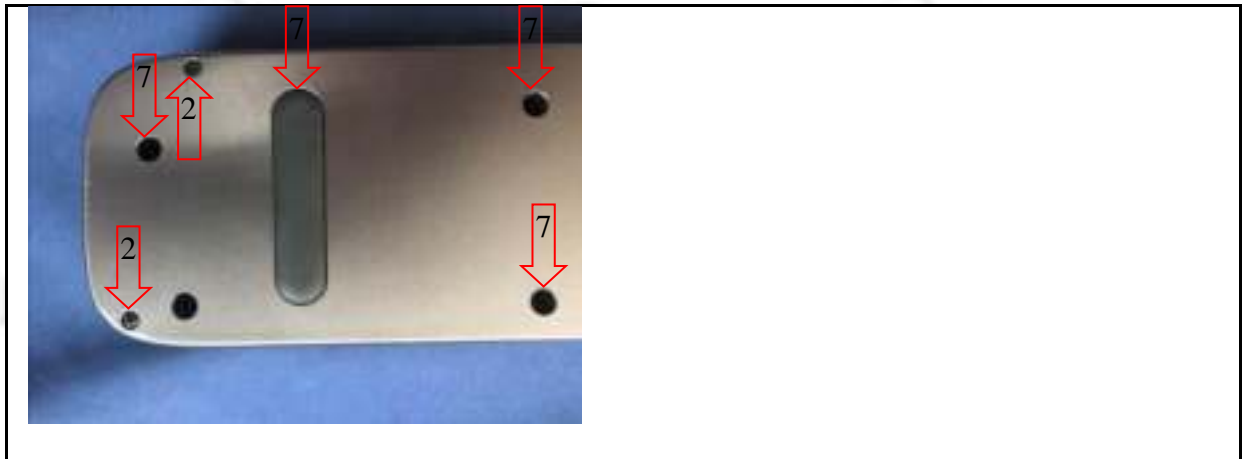
At least 20 single discharges were applied to the center of one vertical edge of the coupling plane. The coupling plane, of dimensions 0.5m X 0.5m, was placed parallel to, and positioned at a distance of 0.1m from the EUT. Discharges were applied to the coupling plane, with this plane in sufficient different positions that the four faces of the EUT are completely illuminated.

6.8. Test result

Ambient Condition : 22.6 °C 51.5 %RH 101.4 kPa						
Test Site: DDT 3# Shield Room			Power supply: AC 230V/50Hz			
Test Times: 20 times at each point for contact discharge; 20 times at each point for air discharge.						
Operation Mode	Type of discharge	Test Level	Test Point	Performance		Result
				Required	Observation	(Pass/Fail)
Mode 1	Contact to EUT	±4kV	1,2,3	B	A	Pass
	Contact to Coupling Planes	±4kV	Coupling Planes	B	A	Pass
	Air	±2kV, ±4kV, and ±8kV	1,3,4,5,6,7	B	A	Pass
Mode 2	Contact to EUT	±4kV	1,2,3,4	B	A	Pass
	Contact to Coupling Planes	±4kV	Coupling Planes	B	A	Pass
	Air	±2kV, ±4kV, and ±8kV	1,3,4,5,6,7	B	A	Pass
Mode 3	Contact to EUT	±4kV	1,2,4	B	A	Pass
	Contact to Coupling Planes	±4kV	Coupling Planes	B	A	Pass
	Air	±2kV, ±4kV, and ±8kV	1,3,4,5,6,7	B	A	Pass
Test Point:						
No.	Description	No.	Description	No.	Description	
1	Metal covering	4	HDMI OUT port	7	Gap	
2	Screw	5	OPTICAL port	8	/	
3	USB port	6	Key	9	/	
Observation Description:						
A: Operation as intend, no loss of function during test and after test.						

Photo of ESD point on EUT





6.9. Test photo



7. Continuous radio frequency disturbances

7.1. General information

Test and report Engineer	: Elosky
Test and report Date	: Mar. 16, 2019

7.2. Test Equipment

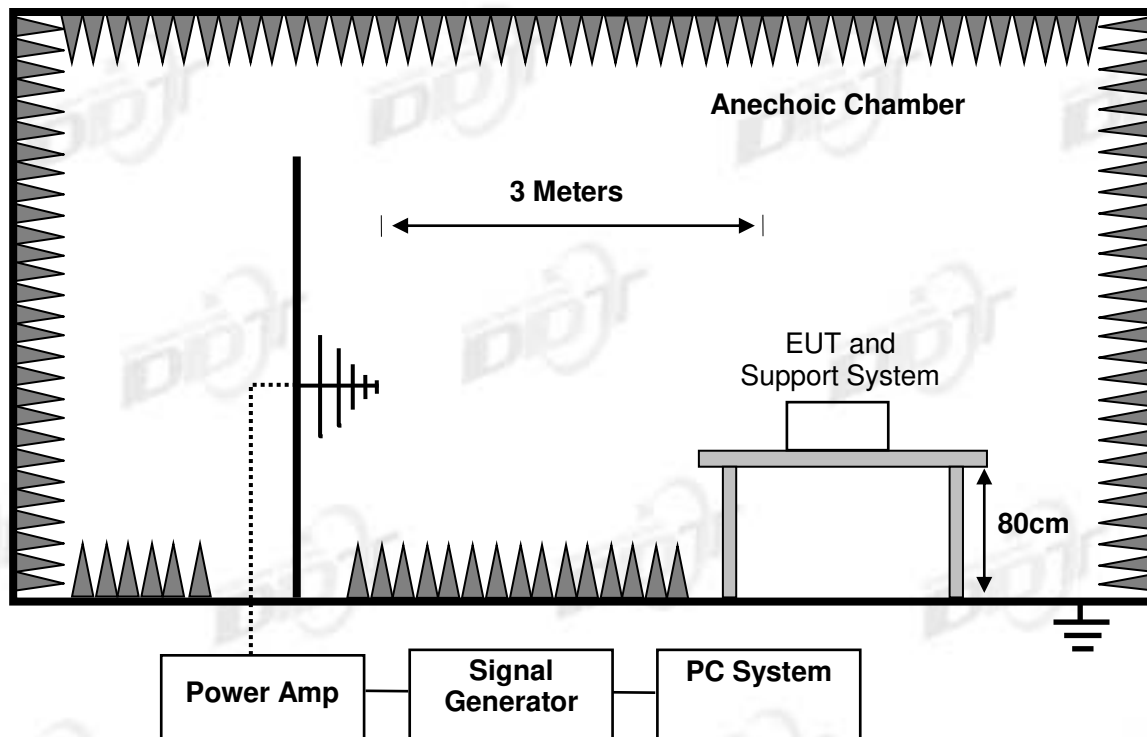
Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
RF Strength Susceptibility Test (80-1000MHz)					
2#Chamber	AUDIX	N/A	N/A	May. 17, 2018	1 Year
MXG analog signal generator	Agilent	N5181A	MY49061013	Oct. 13, 2018	1 Year
Amplifier	A&R	100W1000M1	17028	NCR	NCR
Four Port Junction Pad	A&R	DC6180	19325	Apr. 23, 2018	1 Year
Power Meter	Anritsu	ML2487A	6K00002472	Apr. 23, 2018	1 Year
Power Sensor	Anritsu	MA2491A	0033005	Apr. 23, 2018	1 Year
Log-periodic Antenna	A&R	AT1080	16512	NCR	NCR
RF Cable	MICABLE	A04-07-07-2M	09111339	NCR	NCR
RF Cable	MICABLE	A04-07-07-2M	09111340	NCR	NCR
RF Cable	STORM	MFR-57500	90-195-2MTR	NCR	NCR
RF Cable	STORM	MFR-57500	90-195-4MTR	NCR	NCR
Conditioning Amplifier	B&K	2690	2620236	NCR	NCR
Artificial Ear	B&K	2669	2598573	NCR	NCR
Mouth Simulator	B&K	4227	2617378	NCR	NCR
Radio Communication Analyzer	Rohde & Schwarz	CMW500	103249	Dec. 01, 2018	1 Year
Audio Analyzer	HP	8903B	3514A16369	Apr. 23, 2018	1 Year
Test Software	AUDIX	i2	3.2010-1-8	N/A	N/A
RF Strength Susceptibility Test (1G~6GHz)					
2#Chamber	AUDIX	N/A	N/A	May 17, 2018	1 Year
RF Chamber	AUDIX	N/A	N/A	May 17, 2018	1 Year
MXG analog signal generator	Agilent	N5181A	MY49061013	Oct. 13, 2018	1 Year
Amplifier	MILMEGA	AS0825-125	1014056	NCR	NCR
Amplifier	MILMEGA	AS0206-50	1036253	NCR	NCR
MICROWAVE HORN ANTENNA	Schwarzbeck	STLP9149	9149-060	NCR	NCR
Four Port Junction Pad	A&R	DC7144A	311987	Apr. 23, 2018	1 Year
Power Meter	Anritsu	ML2487A	6K00002472	Apr. 23, 2018	1 Year
Power Sensor	Anritsu	MA2491A	0033005	Apr. 23, 2018	1 Year
RF Cable	MICABLE	A04-07-07-2M	09111339	NCR	NCR
RF Cable	MICABLE	A04-07-07-2M	09111340	NCR	NCR
RF Cable	STORM	MFR-57500	90-195-2MTR	NCR	NCR

RF Cable	STORM	MFR-57500	90-195-4MTR	NCR	NCR
Conditioning Amplifier	B&K	2690	2620236	NCR	NCR
Artificial Ear	B&K	2669	2598573	NCR	NCR
Mouth Simulator	B&K	4227	2617378	NCR	NCR
Radio Communication Analyzer	ROHDE&SCHWARZ	CMW500	103249	Dec. 01, 2018	1 Year
Audio Analyzer	HP	8903B	3514A16369	Apr. 23, 2018	1 Year
Test Software	AUDIX	i2	3.2010-1-8	N/A	N/A
Multi-meter	FLUKE	15B+	33640463WS	Jun. 29, 2018	1 Year
Note: N/A means not applicable; NCR means not calibration requirement.					

7.3. Test and Reference Standards

EN 55035:2017; EN 61000-4-3: 2006+A1:2008+A2: 2010

7.4. Block diagram of test setup



7.5. Test levels and performance criterion

Swept frequency test		Performance Criteria
Frequency (MHz)	80 to 1000	A
Field Strength	3V/m rms voltage level of the unmodulated signal	
Modulation	AM modulated to a depth of 80% by a sine wave of ☒ 1kHz, ☐ 400Hz(note 1)	
Step Size	1% increments	
Dwell time	< 5 Sec.	

Spot frequency test		Performance Criteria
Frequency (MHz)	1800, 2600, 3500, 5000	A
Field Strength	3V/m rms voltage level of the unmodulated signal	
Modulation	AM modulated to a depth of 80% by a sine wave of ☒ 1kHz, ☐ 400Hz(note 1)	
Dwell time	< 5 Sec.	

Note 1: The 1kHz modulation may be replaced by a different audio modulation frequency more appropriate for a given EUT if, for example, 1kHz is not within the operating audio range of the EUT.

Performance criteria A description for devices with the audio output function: The measured acoustic interference ratio and/or the measured electrical interference ratio during the test shall be -20 dB or better.

For equipment with audio output function:

- ☐ The acoustic measurement method was selected according to clause G6.4.1 of EN 55035.
☒ The electrical measurement method was selected according to clause G6.4.2 of EN 55035.

Performance criteria A for devices with the telephony function.

Frequency range MHz	Acoustic or electrical interference ratio	Equivalent direct measurement		
		dB(SPL)	Digital dBm0	Analogue dBm0
80 to 1000	-0 dB	75	-30	-30

Note: At the step in the frequency range, the lower limit shall be applied.

The interference ratio (electrical or acoustic) shall meet the limits in column 2; or,

The acoustic level of the demodulated audio shall be less than the limits in column 3; or

The digitally coded level of demodulated audio shall be less than limits in column 4; or,

The analogue level of the demodulated audio shall be less than the limits in column 5.

Performance criteria A description for other devices: During and after the test the EUT shall continue to operate as intended without operator intervention. No degradation of performance or loss of function is allowed below a minimum performance level specified by the manufacturer when the EUT is used as intended.

7.6. Assistant equipment used for test

Assistant equipment	Manufacturer	Model number	Description	other
TV	SONY	KDL-40RM10B	2037745	N/A
USB flash	Kingston	DTSE9/16GB	N/A	N/A
Optical cable	N/A	N/A	N/A	Length: 1.0m, unshielded
DVD player	Pioneer	BDP-440	N/A	N/A

7.7. Test Procedure

The field sensor is placed on the EUT table (0.8 meter above the ground) which is 3 meters away from the transmitting antenna. Through the signal generator, power amplifier and transmitting antenna to produce a uniformity field strength (3V/m measured by field sensor) around the EUT table from frequency range specified and records the signal generator's output level at the same time for whole measured frequency range. Then, put EUT and its simulators on the EUT turn table and keep them 3 meters away from the transmitting antenna which is mounted on an antenna tower and fixes at 1 meter height above the ground. Using the recorded signal generator's output level to measure the EUT from frequency range specified and both horizontal & vertical polarization of antenna must be set and measured. Each of the four sides of EUT must be faced this transmitting antenna and measures individually.

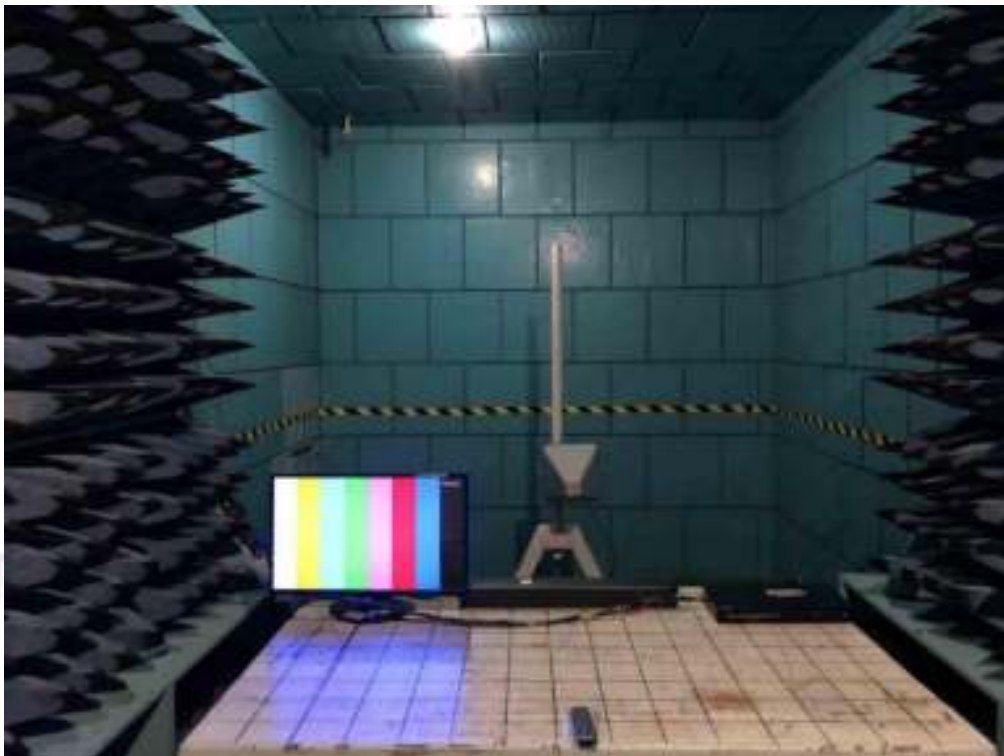
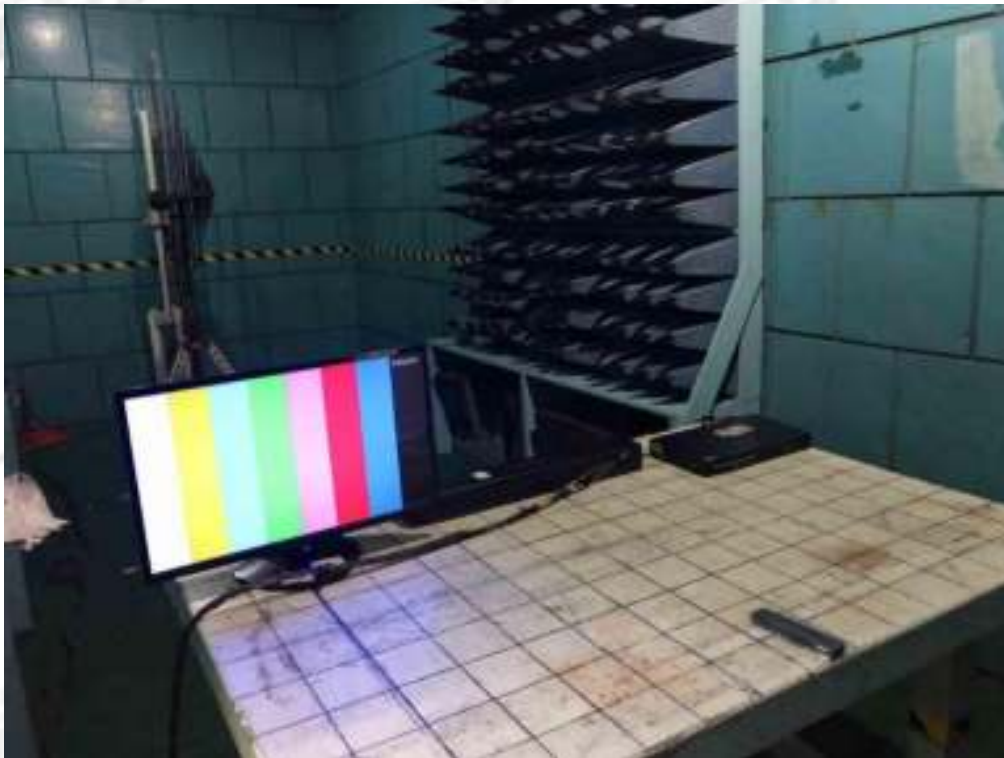
Note: This test was subcontracted to AUDIX Technology (Shenzhen) Co. Ltd.

7.8. Test result

Ambient Condition : <u>22.6</u> °C <u>51.5</u> %RH <u>101.4</u> kPa						
Power supply: <u>AC 230V/50Hz</u>						
Field Strength: ☒ 3V/m ☐ 10V/m ☐ Other: Dwell time: ☒ 1s ☐ other:						
Spot Frequency: 1800MHz, 2600MHz, 3500MHz, 5000MHz ☐ other:						
Modulation : ☐ None ☒ AM ☒ 1KHz ☐ 400Hz Modulation depth: ☒ 80% ☐ other:						
Operation Mode	EUT Position towards antenna	Antenna: Horizontal		Antenna: Vertical		Result (Pass/Fail)
		Required	Observation	Required	Observation	
Mode 1	Front	A	A	A	A	Pass
	Right	A	A	A	A	Pass
	Rear	A	A	A	A	Pass
	Left	A	A	A	A	Pass
$L_0 = 17\text{dB}$ (acoustic reference level); $L_1 = -63\text{dB}$ (test result value applied the RF disturbance, recorded the worst value). Acoustic interference ratio= $L_1 - L_0 = -80\text{dB} \leq -20\text{dB}$. Note 1: this row only for the device with audio output function. Note 2: this device without the telephony function.						
Observation Description: A: Operation as intend, no loss of function during test and after test.						

Ambient Condition : <u>22.6</u> °C <u>51.5</u> %RH <u>101.4</u> kPa						
Power supply: <u>AC 230V/50Hz</u>						
Field Strength : ☒ 3V/m ☐ 10V/m Steps: ☐ 1% ☐ other: Dwell time: ☒ 1s ☐ other:						
Swept Frequency Range: ☒ 80MHz---1GHz; ☐ 1.4GHz---2.7GHz; ☐ other:						
Modulation : ☐ None ☒ AM ☒ 1kHz ☐ 400Hz Modulation depth: ☒ 80% ☐ other:						
Operation Mode	EUT Position towards antenna	Antenna: Horizontal		Antenna: Vertical		Result (Pass/Fail)
		Required	Observation	Required	Observation	
Mode 1	Front	A	A	A	A	Pass
	Right	A	A	A	A	Pass
	Rear	A	A	A	A	Pass
	Left	A	A	A	A	Pass
$L_0 = 17\text{dB}$ (acoustic reference level); $L_1 = -63\text{dB}$ (test result value applied the RF disturbance, recorded the worst value). Acoustic interference ratio= $L_1 - L_0 = -80\text{dB} \leq -20\text{dB}$. Note 1: this row only for the device with audio output function. Note 2: this device without the telephony function.						
Observation Description: A: Operation as intend, no loss of function during test and after test.						

7.9. Test photo



8. Electrical fast transients (EFT) test report

8.1. General information

Test and report Engineer	: Elosky
Test and report Date	: Mar. 16, 2019

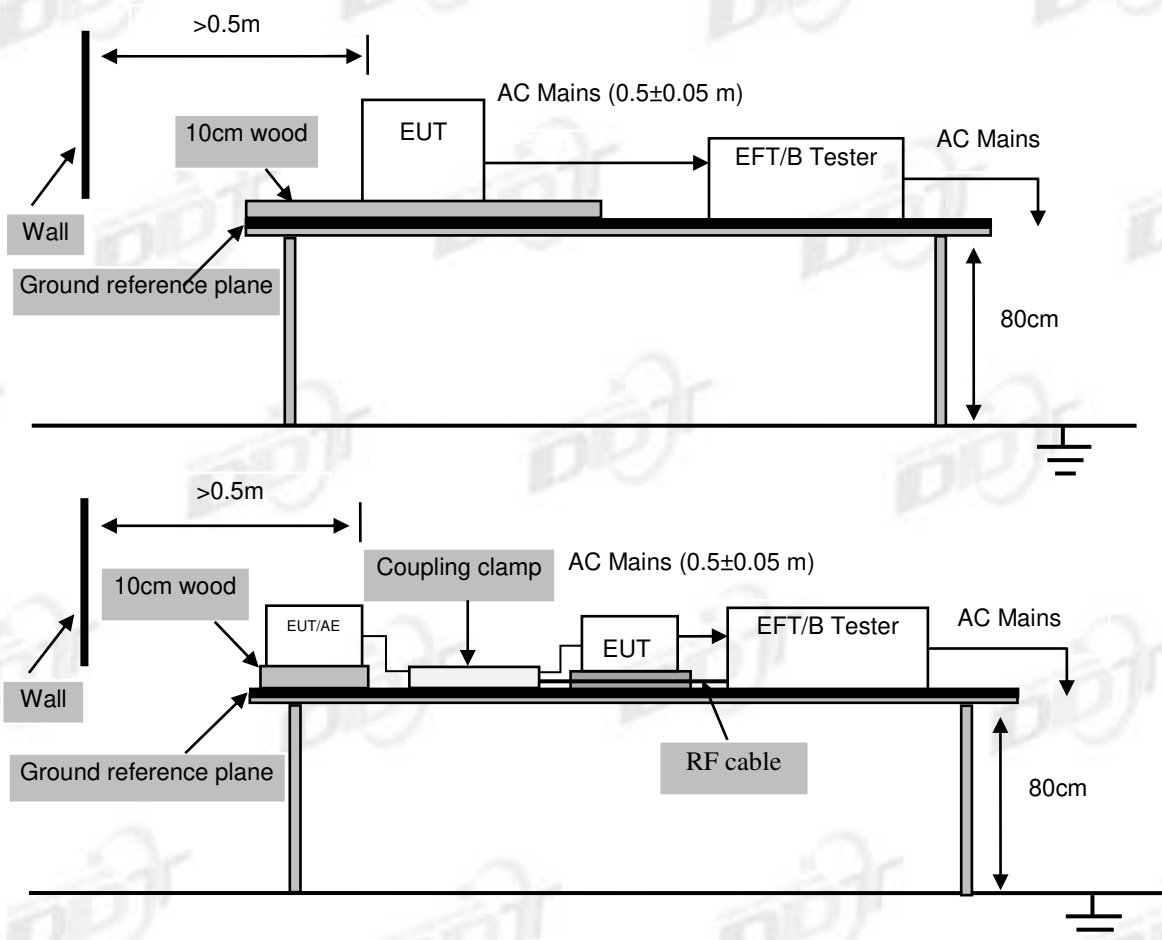
8.2. Test Equipment

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
EFT Generator	EMC PARTNER	TRA3000F	TRA3000F-1502	Jun. 29, 2018	1 Year
Capacitive coupling clamp	EMC PARTNER	103648	CN-EFT1000-1514	Jun. 29, 2018	1 Year

8.3. Test and Reference Standards

EN 55035:2017; EN 61000-4-4:2012

8.4. Block diagram of test setup



8.5. Test levels and performance criterion

Test Level			Performance Criteria
Test voltage	±1kV For AC mains Port	±0.5kV for dc input or signal Port	B
Repetition Frequency	5kHz	5kHz	
Burst Duration	15ms	15ms	
Burst Period	300ms	300ms	
Inject Time(s)	120s	120s	
Inject Method	Direct For AC mains port	Direct For signal port Direct For dc input port	
Inject Line	AC Mains of adapter	DC input of adapter or Capacitive coupling clamp	

Note: This test shall be additionally performed on analogue/digital data ports, and DC network power ports, of radio equipment and associated ancillary equipment, if the cables may be longer than 3 m.

Performance criteria B description: During the test, degradation of performance is allowed. However, no change of operating state or stored data is allowed to persist after the test. After the test, the EUT 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 EUT is used as intended.

8.6. Assistant equipment used for test

Assistant equipment	Manufacturer	Model number	Description	other
TV	SONY	KDL-40RM10B	2037745	N/A
USB flash	Kingston	DTSE9/16GB	N/A	N/A
Optical cable	N/A	N/A	N/A	Length: 1.0m, unshielded
DVD player	Pioneer	BDP-440	N/A	N/A

8.7. Test Procedure

The EUT and its simulators were placed on the ground reference plane and were insulated from it by a wood support 0.1m ± 0.01m thick. The ground reference plane was 1m*1m metallic sheet with 0.65mm minimum thickness. This reference ground plane was project beyond the EUT by at least 0.1m on all sides and the minimum distance between EUT and all other conductive structure, except the ground plane was more than 0.5m. All cables to the EUT was placed on the wood support, cables not subject to EFT/B was routed as far as possible from the cable under test to minimize the coupling between the cables.

For DC input and AC power ports:

The EUT was connected to the power mains by using a coupling device that couples the EFT interference signal to AC power lines. Both positive transients and negative transients of test voltage were applied during compliance test and the duration of the test can't less than 2mins.

For signal ports:

The capacitive coupling clamp was connected to the power by using a coupling device that couples the EFT interference signal to capacitive coupling clamp. Both positive transients and negative transients of test voltage were applied during compliance test and the duration of the test can't less than 2mins.

8.8. Test result

Ambient Condition : <u>22.6</u> °C <u>51.5</u> %RH <u>101.4</u> kPa						
Test Site: DDT 4# Shield Room Power supply: AC 230V/50Hz						
Port: ☒ AC Mains ☐ DC Supply ☐ Signal: Burst Period: ☒ 300ms ☐ Other:						
Coupling: ☒ Direct ☐ Capacitive Clamp Test Time: ☒ 120S ☐ Other:						
Repetition Frequency: ☒ 5kHz ☐ 100kHz Burst Duration: ☒ 15ms ☐ Other:						
Operation Mode	Line/port	Test Voltage	Performance			Result (Pass/Fail)
			Required	Observation(+)	Observation(-)	
Mode 1	L	1kV	B	A	A	Pass
	N	1kV	B	A	A	Pass
	L-N	1kV	B	A	A	Pass
Observation Description:						
A: Operation as intend, no loss of function during test and after test.						

8.9. Test photo



9. Surges test report

9.1. General information

Test and report Engineer	: Elosky
Test and report Date	: Mar. 16, 2019

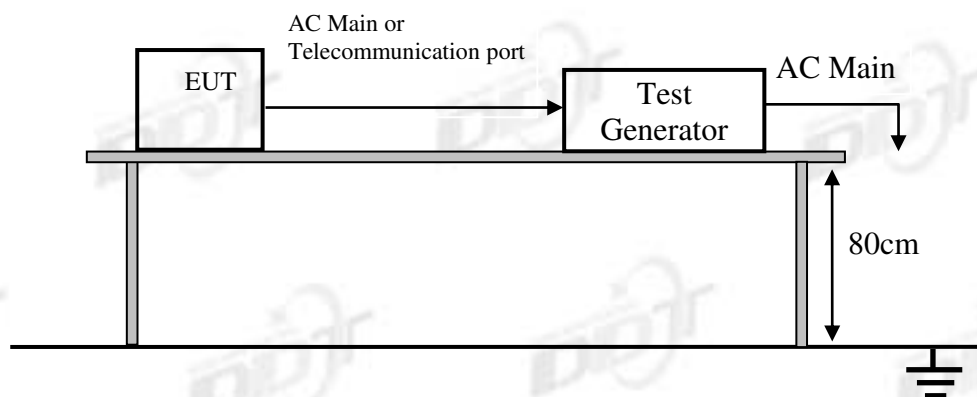
9.2. Test Equipment

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
Surge Generator	EMC PARTNER	TRANSIENT2000	MIG0603IN2 S-T-1504	Jun. 29, 2018	1 Year
Coupling/Decoupling Network for communication port	EMC PARTNER	CDN-UTP8 ED3	1557	Nov. 13, 2018	1 Year
Coupling/Decoupling Network for signal port	EMC PARTNER	CDN-KIT1000	CDN-KIT1000-1510	Jun. 29, 2018	1 Year

9.3. Test and Reference Standards

EN55035:2017; EN 61000-4-5:2014/AC: 2017;

9.4. Block diagram of test setup



9.5. Test levels and performance criterion

Test level for AC mains ports		Performance Criterion
Line to Line	1kV 1.2/50(8/20) μ s	B
Line to Ground	2kV 1.2/50(8/20) μ s	B
Analogue/digital data port, Port type: unshielded symmetrical		Performance Criterion
Line to Ground	1 kV and 4kV 10/700(5/320) μ s (used with the primary protection)	C
Line to Ground	1 kV 10/700(5/320) μ s (used without the primary protection)	C

Note: Applicable only to ports which, according to the manufacturer's specification, the cable lengths greater than 3m.

Analogue/digital data port, Port type: coaxial or shielded		Performance Criterion
Shield to ground	0.5 kV 1.2/50(8/20) μ s	B
Note: Applicable only to ports which, according to the manufacturer's specification, the cable lengths greater than 3m.		
DC network power port		Performance Criterion
Line to reference ground	0.5 kV 1.2/50(8/20) μ s	B
Note: Applicable only to ports which, according to the manufacturer's specification, 1. The cable lengths greater than 3m; 2. May connect directly to outdoor cables.		

Performance criteria B description: During the test, degradation of performance is allowed. However, no change of operating state or stored data is allowed to persist after the test. After the test, the EUT 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 EUT is used as intended.

9.6. Assistant equipment used for test

Assistant equipment	Manufacturer	Model number	Description	other
TV	SONY	KDL-40RM10B	2037745	N/A
USB flash	Kingston	DTSE9/16GB	N/A	N/A
Optical cable	N/A	N/A	N/A	Length: 1.0m, unshielded
DVD player	Pioneer	BDP-440	N/A	N/A

9.7. Test Procedure

For line-to- ground coupling mode, provide a 2kV 1.2/50us voltage surge (at pen-circuit condition) and 8/20us current surge to EUT selected points.

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
- Maximum 1/min repetition rate are applied during test.
Different phase angles are done individually.

For telecommunication surge test, each line of internet port to ground coupling mode, provide a 1.0kV 10/700us voltage surge (at pen-circuit condition) and 5/320us current surge to EUT selected points.

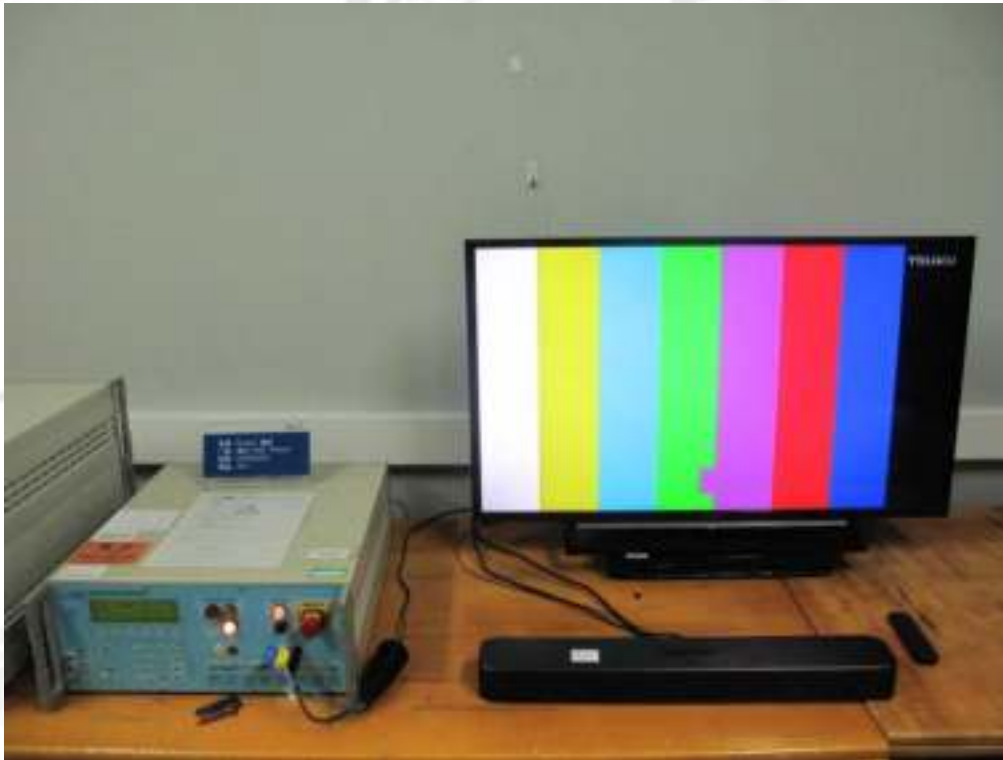
At least 5 positive and 5 negative (polarity) tests with a maximum 1/min repetition rate are applied during test.

Record the EUT operating situation during compliance test and decide the EUT immunity criterion for above each test.

9.8. Test result

Ambient Condition : <u>22.6</u> °C <u>51.5</u> %RH <u>101.4</u> kPa											
Test Site: DDT 3# Shield Room Power supply: AC 230V/50Hz											
Line : ☒ AC Mains ☐ DC Supply ☐ Signal											
Wave Type: ☒ 1.2/50us-8/20us ☐ 10/700 us-5/320us											
Pluse times: ☒ five positive pluses at 90°phase, five negative pluses at 270°phase. ☐ five positive pluses and five negative pluses.											
Pulse Interval: 60S											
Operation Mode	Line/Port	0.5kV			1kV			2kV			Result
		Performance			Performance			Performance			(Pass/Fail)
		Required	+	-	Required	+	-	Required	+	-	
Mode 1	L-N	B	A	A	B	A	A	/	/	/	Pass
	L-PE	B	A	A	B	A	A	B	A	A	Pass
	N-PE	B	A	A	B	A	A	B	A	A	Pass
Observation Description: A: Operation as intend, no loss of function during test and after test.											

9.9. Test photo



10. Continuous conducted disturbances

10.1. General information

Test and report Engineer	: Elosky
Test and report Date	: Mar. 16, 2019

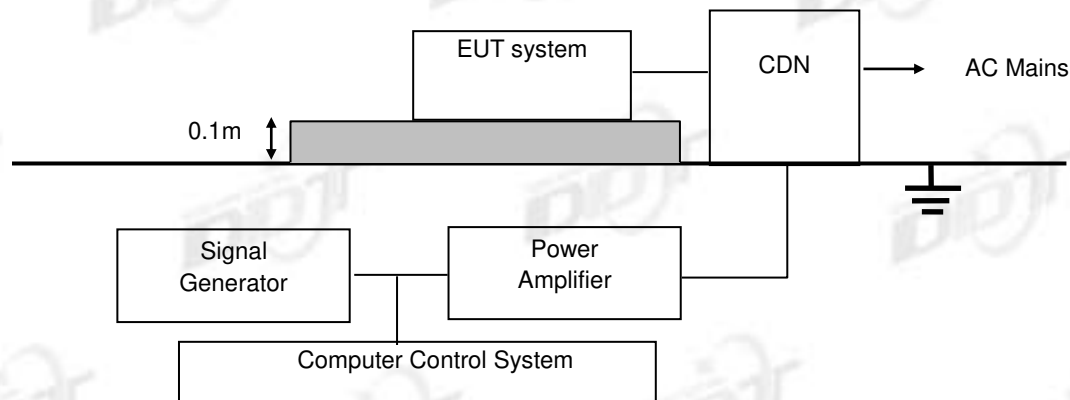
10.2. Test Equipment

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
Conducted immunity test system	FRANKONIA	CIT-10	126B1207	Jun. 29, 2018	1 Year
CDN	FRANKONIA	CDN M2+M3	A2210191	Jun. 29, 2018	1 Year
Attenuation	BIRD	DAM75W (6dB)	1143	Oct. 12, 2018	1 Year
EM clamp	FRANKONIA	EMCL	132A1143/2012	Jun. 29, 2018	1 Year
Test Software	CD-LAB	F5.318	1435V9992015	N/A	N/A
CDN	FRANKONIA	CDNT8	A6100017/2012	Oct. 12, 2018	1 Year
Audio Analyzer	R&S	UPL16	100167	Jun. 29, 2018	1 Year

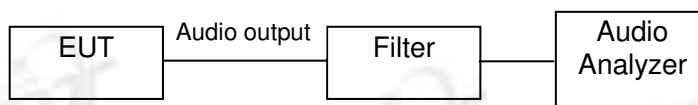
10.3. Test and Reference Standards

EN 55035:2017; EN 61000-4-6:2014/AC: 2015

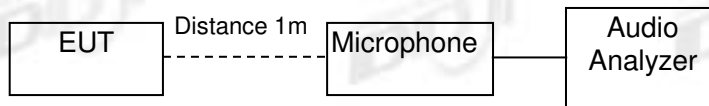
10.4. Block diagram of test setup



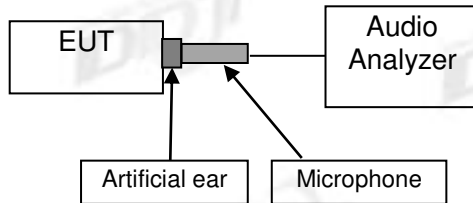
For audio output function (electrical measurement, direct connection to EUT)



For audio output function (acoustic measurement)



For audio output function (on-ear acoustic measurement)



10.5. Test levels and performance criterion

Test Level		Performance Criteria
Frequency and Field Strength	0.15MHz to 10MHz, 3V rms voltage level of the unmodulated signal	A
	10MHz to 30MHz, 3V to 1V rms voltage level of the unmodulated signal	
	30MHz to 80MHz, 1V rms voltage level of the unmodulated signal	
Modulation	AM modulated to a depth of 80% by a sine wave of ☒ 1kHz, ☐ 400Hz (note 1)	
Step Size	1% increments	
Dwell time	1 Sec.	

Note 1: The 1kHz modulation may be replaced by a different audio modulation frequency more appropriate for a given EUT if, for example, 1kHz is not within the operating audio range of the EUT.

Performance criteria A description for devices with the audio output function: The measured acoustic interference ratio and/or the measured electrical interference ratio during the test shall be -20 dB or better.

☒ The acoustic measurement method was selected according to clause G6.4.1 of EN 55035.

☐ The electrical measurement method was selected according to clause G6.4.2 of EN 55035.

Performance criteria A for devices with the telephony function.

Frequency range MHz	Acoustic or electrical interference ratio	Equivalent direct measurement		
		dB(SPL)	Digital dBm0	Analogue dBm0
0.15 to 30	-20 dB	55	-50	-50
30 to 80	-10 dB	65	-40	-40

Note: At the step in the frequency range, the lower limit shall be applied.

The interference ratio (electrical or acoustic) shall meet the limits in column 2; or,

The acoustic level of the demodulated audio shall be less than the limits in column 3; or

The digitally coded level of demodulated audio shall be less than limits in column 4; or,

The analogue level of the demodulated audio shall be less than the limits in column 5.

Performance criteria A description for other devices: During and after the test the EUT shall continue to operate as intended without operator intervention. No degradation of performance or loss of function is allowed below a minimum performance level specified by the manufacturer when the EUT is used as intended.

10.6. Assistant equipment used for test

Assistant equipment	Manufacturer	Model number	Description	other
TV	SONY	KDL-40RM10B	2037745	N/A
USB flash	Kingston	DTSE9/16GB	N/A	N/A
Optical cable	N/A	N/A	N/A	Length: 1.0m, unshielded
DVD player	Pioneer	BDP-440	N/A	N/A

10.7. Test Procedure

The EUT are placed on an insulating support 0.1m high above a ground reference plane. CDN (coupling and decoupling device) is placed on the ground plane about 0.3m from EUT. Cables between CDN and EUT are as short as possible, and their height above the ground reference plane shall be between 30 and 50 mm (where possible).

The disturbance signal described below is injected to EUT through CDN.

The EUT operates within its operational mode(s) under intended climatic conditions after power on.

The frequency range is swept from 0.150MHz to ☒80MHz/☐230MHz, the interference signal level according to clause 10.5, and with the disturbance signal 80% amplitude modulated with a ☒1kHz / ☐400Hz sine wave.

The rate of sweep shall not exceed 1.5×10^{-3} decades/s. Where the frequency is swept incrementally; the step size shall not exceed 1% of the start and thereafter 1% of the preceding frequency value.

Recording the EUT operating situation during compliance testing and decide the EUT immunity criterion.

10.8. Test result

Ambient Condition : <u>22.6</u> °C <u>51.5</u> %RH <u>101.4</u> kPa						
Test Site: DDT 4# Shield Room Power supply: AC 230V/50Hz						
Modulation Signal: ☒ 1kHz ☐ 400Hz 80% AM ☐ Other:						
Steps: ☒ 1% ☐ other: Dwell time: ☒ 1s ☐ other:						
Operation mode	Frequency Range	Injected Position	Strength(e.m.f) (unmodulated)	Required	Observation	Result (Pass/Fail)
Mode 1	0.15MHz-10MHz	AC port	3V	A	A	Pass
	10MHz-30MHz	AC port	3V-1V	A	A	Pass
	30MHz-80MHz	AC port	1V	A	A	Pass
L ₀ = <u>-54dB</u> (acoustic reference level); L ₁ = <u>-90dB</u> (test result value applied the RF disturbance, recorded the worst value). Acoustic interference ratio= L ₁ -L ₀ = <u>-36dB</u> ≤-20dB.						
Note 1: this row only for the device with audio output function.						
Note 2: this device without the telephony function.						
Observation Description: A: Operation as intend, no loss of function during test and after test.						

10.9. Test photo



11. Power-frequency magnetic fields

11.1. General information

Test and report Engineer	: Elosky
Test and report Date	: Mar. 16, 2019

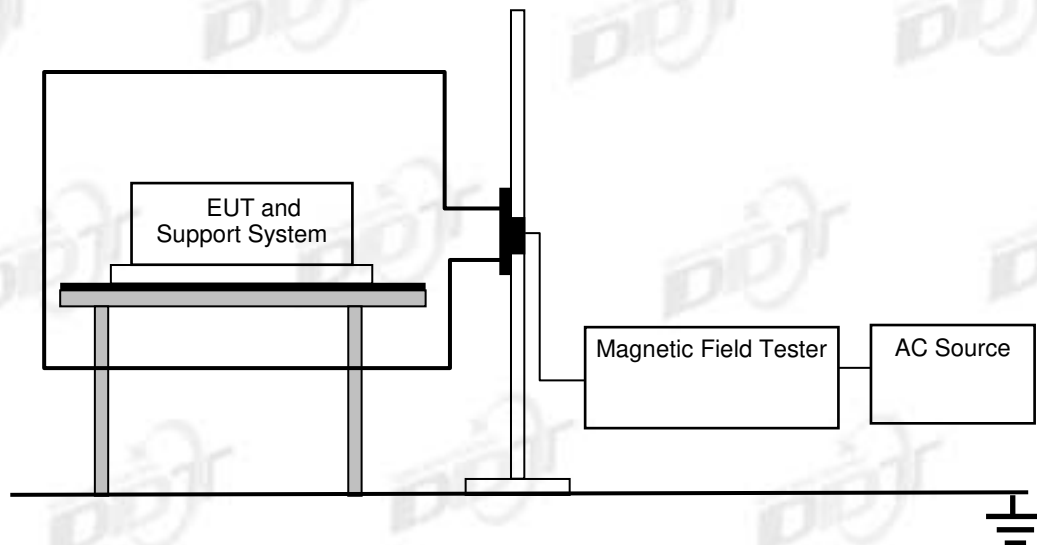
11.2. Test Equipment

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
Generator	EMC PARTNER	TRA3000F	TRA3000F-1502	Jun. 29, 2018	1 Year
Magnetic Field Tester	EMC-PARTNER	MF1000-1	207	Jun. 29, 2018	1 Year

11.3. Test and Reference Standards

EN 55035:2017; EN 61000-4-8:2010

11.4. Block diagram of test setup



11.5. Test levels and performance criterion

Level	Magnetic Field Strength (A/m)	Performance Criterion
1	1	A

Performance criteria A description: During and after the test the EUT shall continue to operate as intended without operator intervention. No degradation of performance or loss of function is allowed below a minimum performance level specified by the manufacturer when the EUT is used as intended.

11.6. Assistant equipment used for test

Assistant equipment	Manufacturer	Model number	Description	other
TV	SONY	KDL-40RM10B	2037745	N/A
USB flash	Kingston	DTSE9/16GB	N/A	N/A
Optical cable	N/A	N/A	N/A	Length: 1.0m, unshielded
DVD player	Pioneer	BDP-440	N/A	N/A

11.7. Test Procedure

The EUT shall be subjected to the test magnetic field by using the induction coil of standard dimensions (1m*1m) and shown in Section 11.4 Then induction coil shall then be rotated by 90° in order to expose the EUT to the test field with different orientations.

11.8. Test result

Ambient Condition : <u>22.6</u> °C <u>51.5</u> %RH <u>101.4</u> kPa						
Test Site: DDT 4# Shield Room Power supply: <u>AC 230V/50Hz</u>						
Operation Mode	Test Level	Testing Duration	Coil Orientation	Required	Observation	Result (Pass/Fail)
Mode 1	1A/m	5 min / coil	X	A	A	Pass
	1A/m	5 min / coil	Y	A	A	Pass
	1A/m	5 min / coil	Z	A	A	Pass
Observation Description: A: Operation as intend, no loss of function during test and after test.						

11.9. Test photo



12. Voltage dips and interruptions

12.1. General information

Test and report Engineer	: Elosky
Test and report Date	: Mar. 16, 2019

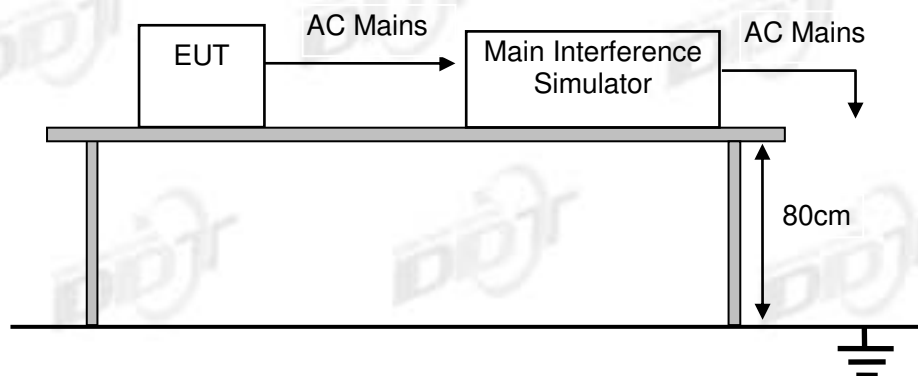
12.2. Test Equipment

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
DIPS TESTER	EMC PARTNER	TRA3000D	EXT-TRA3000D-1510	Jun. 29, 2018	1 Year

12.3. Test and Reference Standards

EN 55035:2017; EN 61000-4-11:2004/A1:2017

12.4. Block diagram of test setup



12.5. Test levels and performance criterion

Test Level %UT	Duration (in period)	Performance Criterion
<5	0.5	B
70	25 for 50Hz/30 for 60Hz	C
<5	250 for 50Hz/300 for 60Hz	C

Performance criteria B description: During the test, degradation of performance is allowed. However, no change of operating state or stored data is allowed to persist after the test. After the test, the EUT 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 EUT is used as intended.

Performance criteria C description: During and after testing, a temporary loss of function is allowed, provided the function is self recoverable, or can be restored by the operation of the controls or cycling of the power to the EUT by the user in accordance with the manufacturer's instructions. Functions, and/or information stored in non-volatile memory, or protected by a battery backup, shall not be lost.

12.6. Assistant equipment used for test

Assistant equipment	Manufacturer	Model number	Description	other
TV	SONY	KDL-40RM10B	2037745	N/A
USB flash	Kingston	DTSE9/16GB	N/A	N/A
Optical cable	N/A	N/A	N/A	Length: 1.0m, unshielded
DVD player	Pioneer	BDP-440	N/A	N/A

12.7. Test Procedure

The EUT and test generator were setup as shown. The interruptions are introduced at selected phase angles with specified duration. Record any degradation of performance.

12.8. Test result

Ambient Condition : <u>22.6</u> °C <u>51.5</u> %RH <u>101.4</u> kPa						
Test Site: DDT 4# Shield Room Power supply: <u>AC 100V/60Hz</u>						
Operation Mode	Voltage Dips & Interruptions %Ur	Duration (in period)	Phase Angle	Required	Observation	Result (Pass/Fail)
Mode 1	0	0.5P	0°, 180°	B	A	Pass
	70	30P	0°, 180°	C	A	Pass
	0	300P	0°, 180°	C	B	Pass
Observation Description: A: Operation as intend, no loss of function during test and after test. B: EUT will stop charging and can recover by itself after test.						

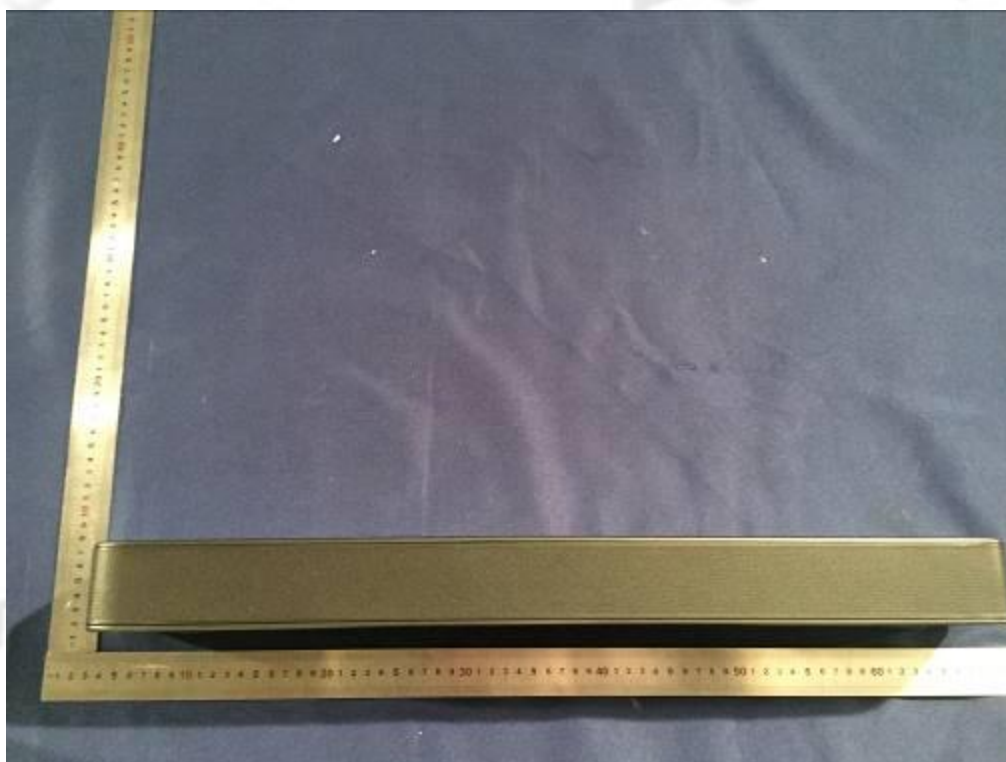
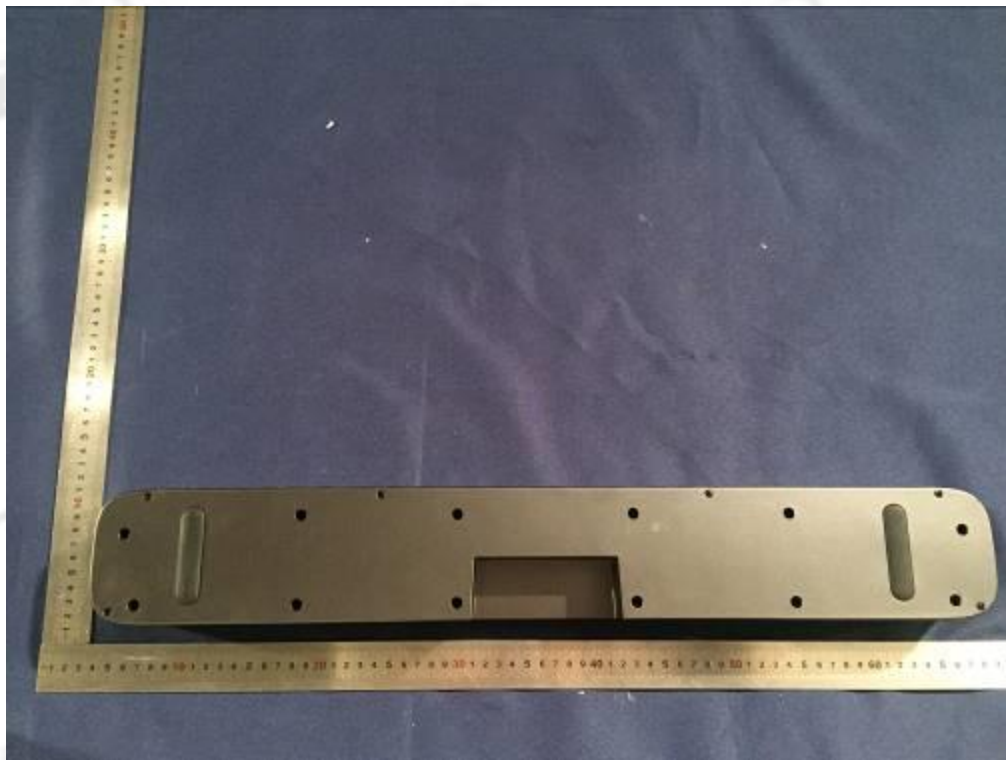
Ambient Condition : <u>22.6</u> °C <u>51.5</u> %RH <u>101.4</u> kPa						
Test Site: DDT 4# Shield Room Power supply: <u>AC 240V/50Hz</u>						
Operation Mode	Voltage Dips & Interruptions %Ur	Duration (in period)	Phase Angle	Required	Observation	Result (Pass/Fail)
Mode 1	0	0.5P	0°, 180°	B	A	Pass
	70	25P	0°, 180°	C	A	Pass
	0	250P	0°, 180°	C	B	Pass
Observation Description: A: Operation as intend, no loss of function during test and after test. B: EUT will stop charging and can recover by itself after test.						

12.9. Test photo



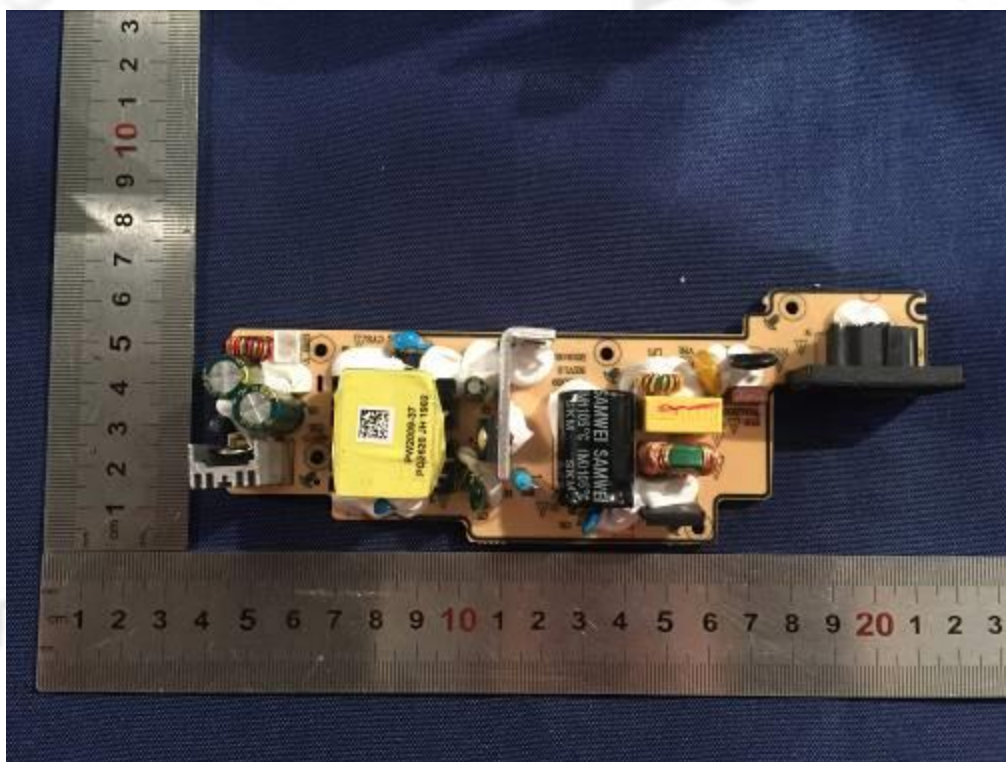
13. Photos of the EUT

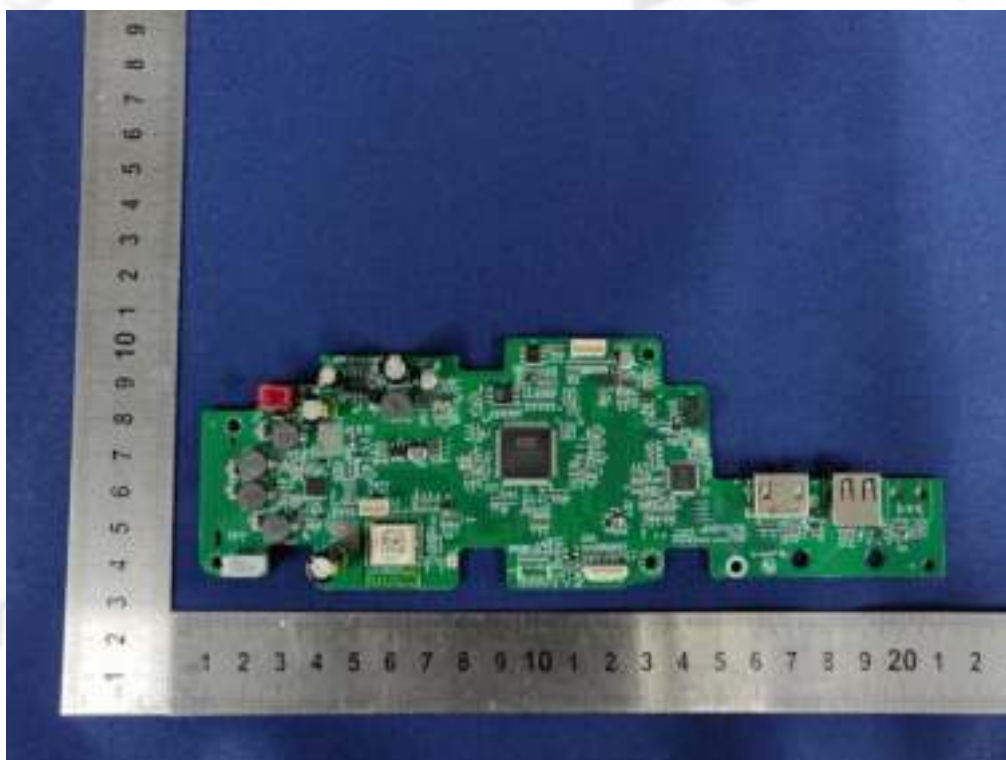
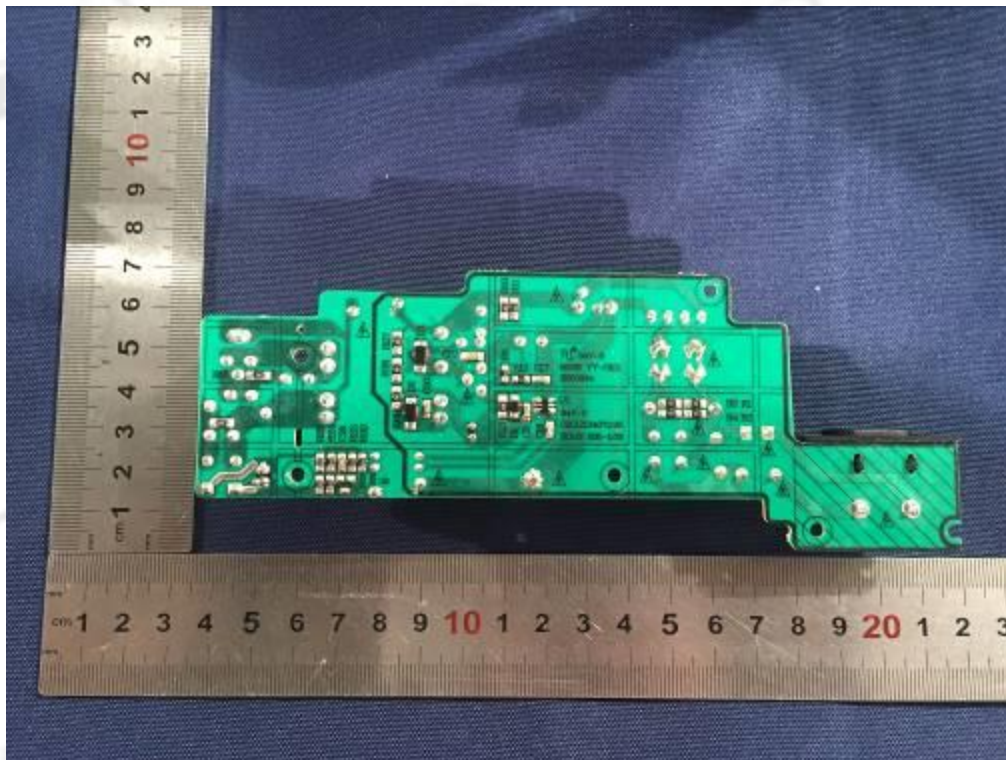


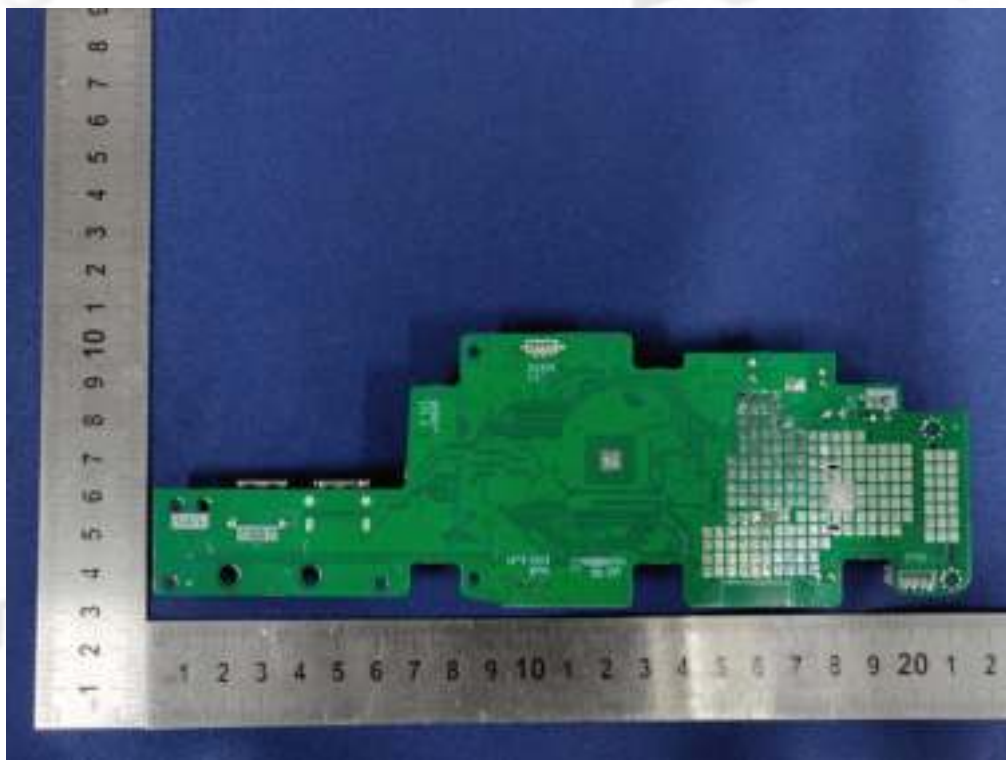
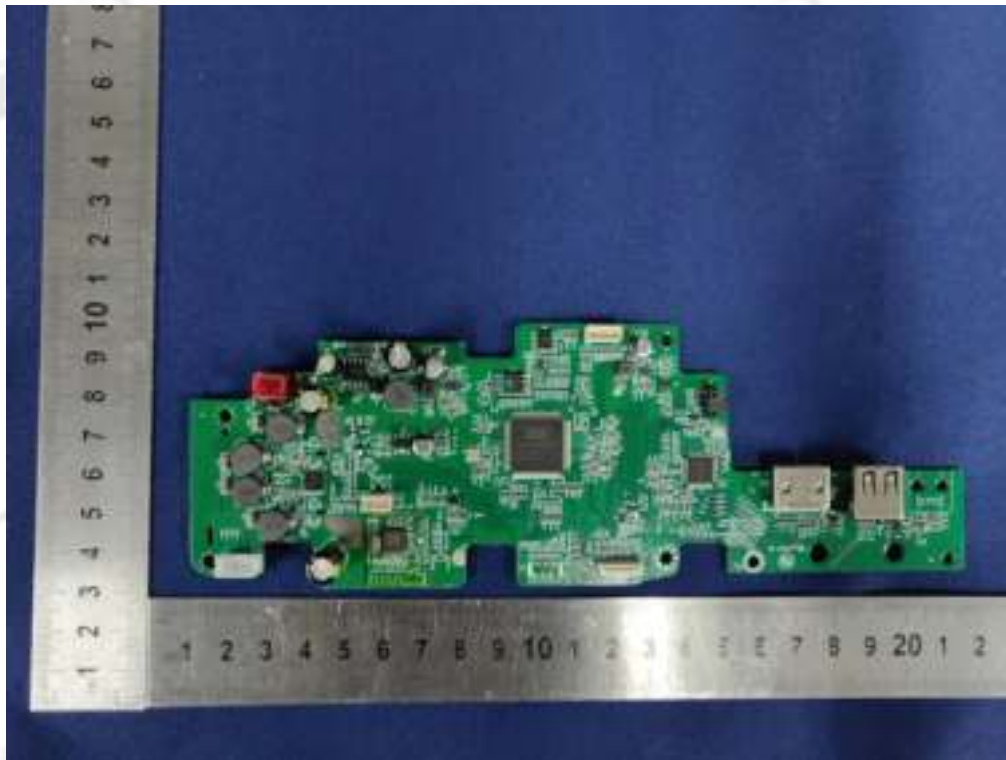






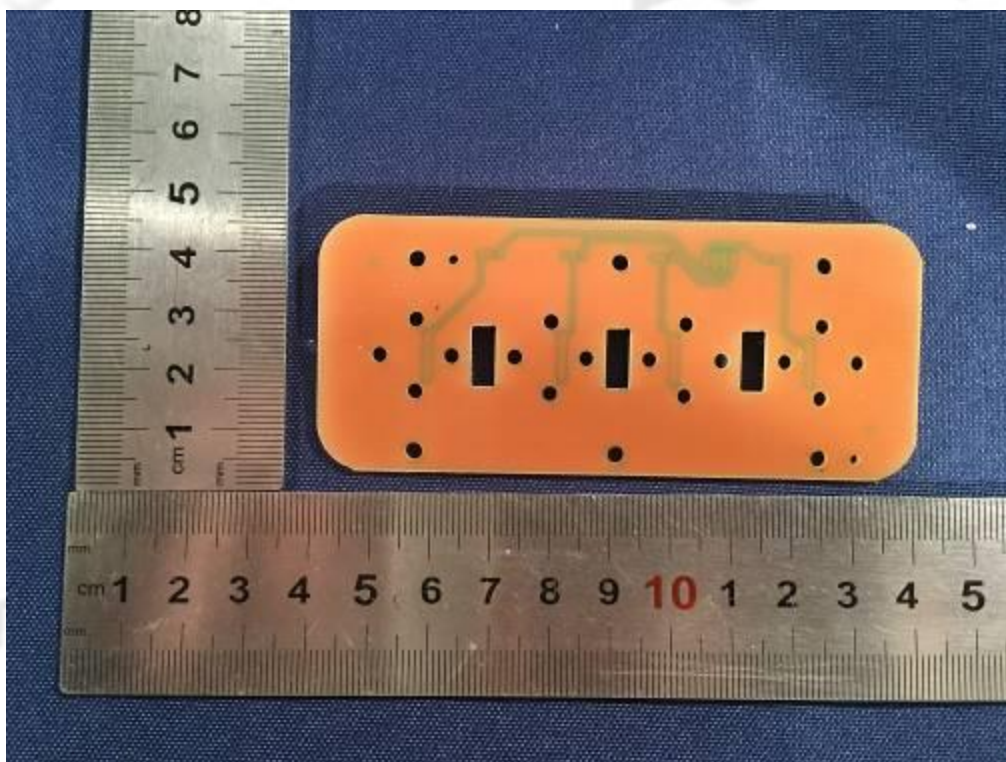
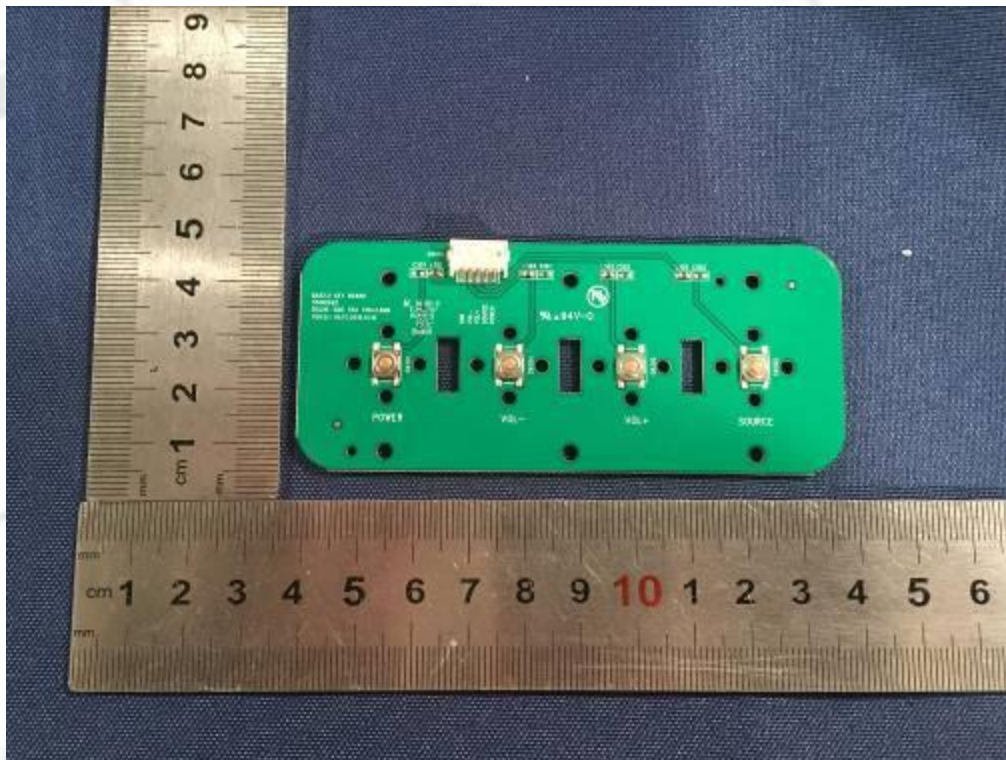


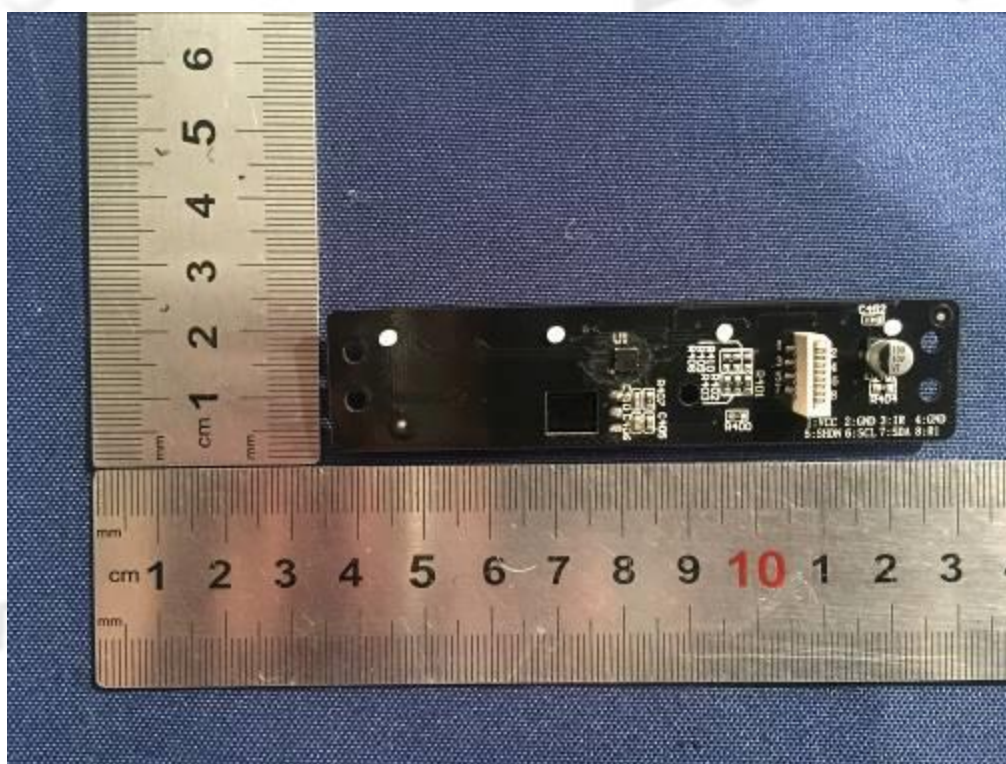


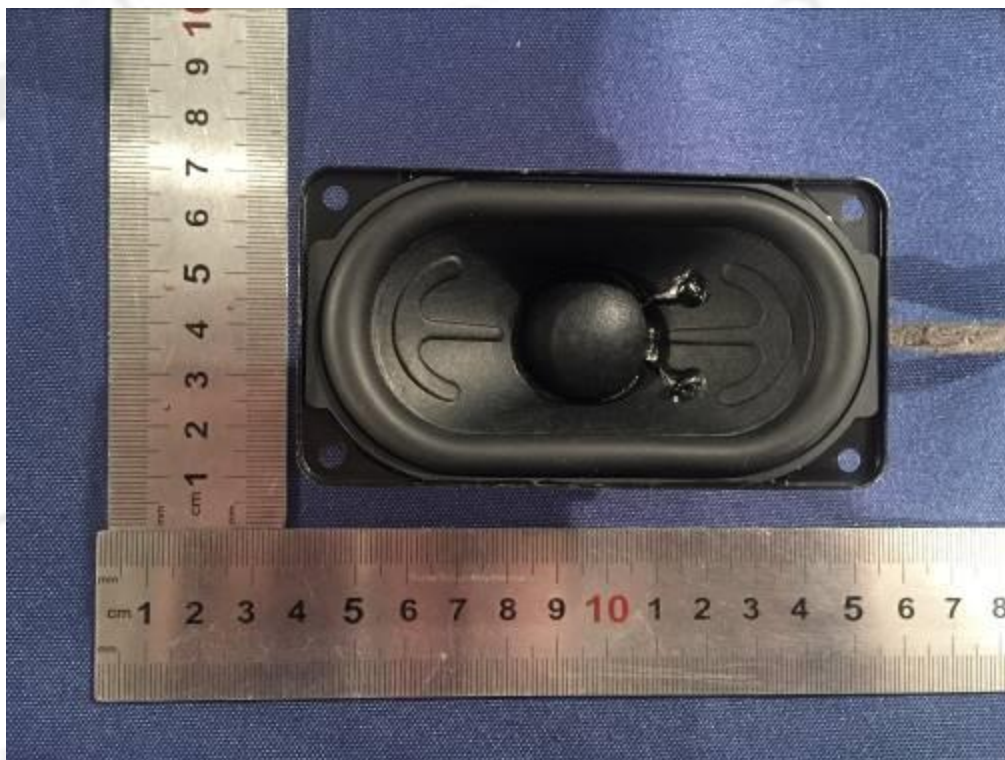












END OF REPORT