Report No.: DDT-R22112306-2E04

Issued Date: Dec. 08, 2022

FCC AND ISED CERTIFICATION TEST REPORT

FOR

Applicant	**:**	Harman International Industries, Inc.
Address	**:**	8500 Balboa Boulevard, Northridge, CA 91329, UNITED STATES
Equipment under Test	**:**	Multi-Channel Soundbar with wireless subwoofer
Model No.	**:**	BAR 700
Trade Mark	**:**	JBL
FCC ID	**:**	APIBAR800
IC	**:**	6132A-BAR800
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

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Test Report Declare

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Test Standard Used: FCC Rules and Regulations Part 15 Subpart C, RSS-247 Issue 2 February 2017.

Test procedure used: ANSI C63.10:2013, RSS-Gen Issue 5, Apr. 2018, 558074 D01 15.247 Meas Guidance v05r02, 662911 D01 Multiple Transmitter Output v02r01

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. 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 provided for test compliance with the requirement of the above FCC&ISED standards.

Report No:	DDT-R22112306-2E04		
Date of Receipt:	Nov. 23, 2022	**Date of Test:**	Nov. 23, 2022 ~ Dec. 05, 2022

Prepared By:

Ella Gong

Ella Gong/Engineer

Approved By:

DONGGUAN DONGDIAN TESTING SERVICE CO., LTD. APPROVED

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	Dec. 08, 2022	

1. Summary of Test Results

The EUT have been tested according to the applicable standards as referenced below.		
Description of Test Item	**Standard**	**Results**
Radiated Spurious Emissions	FCC Part 15: 15.247 ANSI C63.10:2013 RSS-247 Issue 2 RSS-Gen Issue 5	Pass
Power Line Conducted Emission	FCC Part 15: 15.207 ANSI C63.10: 2013 RSS-Gen Issue 5	Pass

Note:
1. This report added a model BAR 700 based on the report DDT-R21123117-2E04, the difference is that BAR 700 has two less overhead speakers and one less power amplifier IC on Power amplifier board than BAR 800. This change based on engineering judgment that only Radiated Emission (below 1 GHz) and Power Line Conducted Emissions need to test.
2. Please refer to report DDT-R21123117-2E04 for the other original data.

2. General Test Information

2.1. Description of EUT

EUT* Name	:	Multi-Channel Soundbar with wireless subwoofer
Model Number	:	BAR 700
EUT function description	:	Please reference user manual of this device
Power supply	:	AC 100-240V-50/60Hz 70W
Radio Technology	:	IEEE 802.11b/g/n/ax
Operation frequency	:	IEEE 802.11b: 2412MHz-2462MHz IEEE 802.11g: 2412MHz-2462MHz IEEE 802.11n HT20: 2412MHz-2462MHz IEEE 802.11n HT40: 2422MHz-2452MHz IEEE 802.11ax HE20: 2412MHz-2462MHz IEEE 802.11ax HE40: 2422MHz-2452MHz
Modulation	:	IEEE 802.11b: DSSS (CCK, DQPSK, DBPSK) IEEE 802.11g: OFDM (64QAM, 16QAM, QPSK, BPSK) IEEE 802.11n HT20, HT40: OFDM (64QAM, 16QAM, QPSK, BPSK) IEEE 802.11ax HE20, HE40: OFDM (1024QAM, 64QAM, 16QAM, QPSK, BPSK)
Transmitter rate	:	IEEE 802.11b: up to 11 Mbps IEEE 802.11g: up to 54 Mbps IEEE 802.11n HT20, HT40: up to 130 Mbps IEEE 802.11ax HE20, HE40: up to 573.5 Mbps
Antenna Gain	:	Antenna 1: FPC antenna, Maximum PK gain: 2.17 dBi Antenna 2: FPC antenna, Maximum PK gain: 2.64 dBi
Sample Number	:	S22112306-03

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

Antenna information			
	Ant1 gain	Ant2 gain	MIMO
IEEE 802.11b	2.17	2.64	/
IEEE 802.11g	2.17	2.64	/
IEEE 802.11n HT20	2.17	2.64	5.42
IEEE 802.11n HT40	2.17	2.64	5.42
IEEE 802.11ax HE20	2.17	2.64	5.42
IEEE 802.11ax HE40	2.17	2.64	5.42

Channel information					
CH	Frequency (MHz)	CH	Frequency (MHz)	CH	Frequency (MHz)
1	2412	5	2432	9	2452
2	2417	6	2437	10	2457
3	2422	7	2442	11	2462
4	2427	8	2447	/	/

Operating Mode	Resource Unit	26 Tone(2M)	
IEEE 802.11ax(HE20)	Specific Resource Unit	0	
		1	
		2	
		3	
		4	
		5	
		6	
		7	
		8	
		9	
	Resource Unit	52 Tone(4M)	
	Specific Resource Unit	37	
		38	
		39	
		40	
	Resource Unit	106 Tone(8M)	
	Specific Resource Unit	53	
		54	
	Resource Unit	242 Tone(20M)	
	Specific Resource Unit	61	
Operating Mode	Resource Unit	26 Tone(2M)	
IEEE 802.11ax(HE40)	Specific Resource Unit	0	9
		1	10
		2	11
		3	12
		4	13
		5	14
		6	15
		7	16
		8	17
	Resource Unit	52 Tone(4M)	
	Specific Resource Unit	37	41
		38	42
		39	43
		40	44
	Resource Unit	106 Tone(8M)	
	Specific Resource Unit	53	55
		54	56
	Resource Unit	242 Tone(20M)	
	Specific Resource Unit	61	62
	Resource Unit	484 Tone(40M)	
	Specific Resource Unit	65	

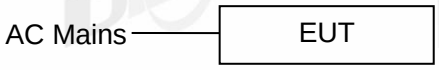
2.2. Accessories of EUT

Description of Accessories	Manufacturer	Model number	Description	Other
AC cable	Harman	N/A	N/A	Length: 1.85m,
HDMI cable	Harman	N/A	N/A	Length: 1.15m, with two magnetic rings
Remote control	Harman	N/A	N/A	N/A

2.3. Assistant equipment used for test

Assistant equipment	Manufacturer	Model number	EMC Compliance	SN
N/A	N/A	N/A	N/A	N/A

2.4. Block diagram of EUT configuration for test



The test software was used to control EUT work in Continuous Tx mode and select test channel, wireless mode as below table.
Test software: adb.exe
The pathloss of external cable: 0.5dB (According to the manufacturer's claims)

Tested mode, channel, and data rate information				
Mode	Setting Tx Power	data rate (Mbps) (see Note)	Channel	Frequency (MHz)
IEEE 802.11b	12	1	LCH: CH1	2412
	12	1	MCH: CH6	2437
	12	1	HCH: CH11	2462
IEEE 802.11g	11	6	LCH: CH1	2412
	11	6	MCH: CH6	2437
	11	6	HCH: CH11	2462
IEEE 802.11n HT20	11	MCS 0	LCH: CH1	2412
	11	MCS 0	MCH: CH6	2437
	11	MCS 0	HCH: CH11	2462
IEEE 802.11n HT40	11	MCS 0	LCH: CH3	2422
	11	MCS 0	MCH: CH6	2437
	11	MCS 0	HCH: CH9	2452
IEEE 802.11ax HE20	SU:13 RU:15	MCS 0	LCH: CH1	2412
	SU:13 RU:15	MCS 0	MCH: CH6	2437
	SU:13 RU:15	MCS 0	HCH: CH11	2462
IEEE 802.11ax HE40	SU:13 RU:15	MCS 0	LCH: CH3	2422
	SU:13 RU:15	MCS 0	MCH: CH6	2437
	SU:13 RU:15	MCS 0	HCH: CH9	2452
Note: According exploratory test, EUT will have maximum output power in those data rate, so those data rate were used for all test.				

2.5. Deviations of test standard

No Deviation

2.6. Test environment conditions

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

Temperature range:	+21 ℃ to +25 ℃
Humidity range:	40% to 75%
Pressure range:	86 kPa to 106 kPa

2.7. 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 Number: 3870.01

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

Innovation, Science and Economic Development Canada Site Registration Number: 10288A

Conformity Assessment Body identifier: CN0048

VCCI facility registration number: C-20087, T-20088, R-20123, R-20155, G-20118

2.8. Measurement uncertainty

Test Item	Uncertainty
Bandwidth	1.1%
Peak Output Power (Conducted) (Spectrum analyzer)	0.86 dB (10 MHz ≤ f < 3.6 GHz);
	1.38 dB (3.6 GHz ≤ f < 8 GHz)
Peak Output Power (Conducted) (Power Sensor)	0.74 dB
Power Spectral Density	0.74 dB (10 MHz ≤ f < 3.6 GHz);
	1.38 dB (3.6 GHz ≤ f < 8 GHz)
Frequencies Stability	6.7×10^{-8} (Antenna couple method)
	5.5×10^{-8} (Conducted method)
Conducted spurious emissions	0.86 dB (10 MHz ≤ f < 3.6 GHz);
	1.40 dB (3.6 GHz ≤ f < 8 GHz)
	1.66 dB (8 GHz≤ f < 22 GHz)
Uncertainty for radio frequency (RBW<20 kHz)	3×10^{-8}
Temperature	0.4℃
Humidity	2%
Uncertainty for Radiation Emission Test (9 kHz - 30 MHz)	3.44 dB
Uncertainty for Radiation Emission test (30 MHz-1 GHz)	4.70 dB (Antenna Polarize: V)
	4.84 dB (Antenna Polarize: H)
Uncertainty for Radiation Emission test (1 GHz-40 GHz)	4.10 dB (1-6 GHz)
	4.40 dB (6 GHz-18 GHz)
	3.54 dB (18 GHz-26 GHz)
	4.30 dB (26 GHz-40 GHz)
Uncertainty for Power line conduction emission test	3.32 dB (150 kHz-30 MHz)
Note: This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.	

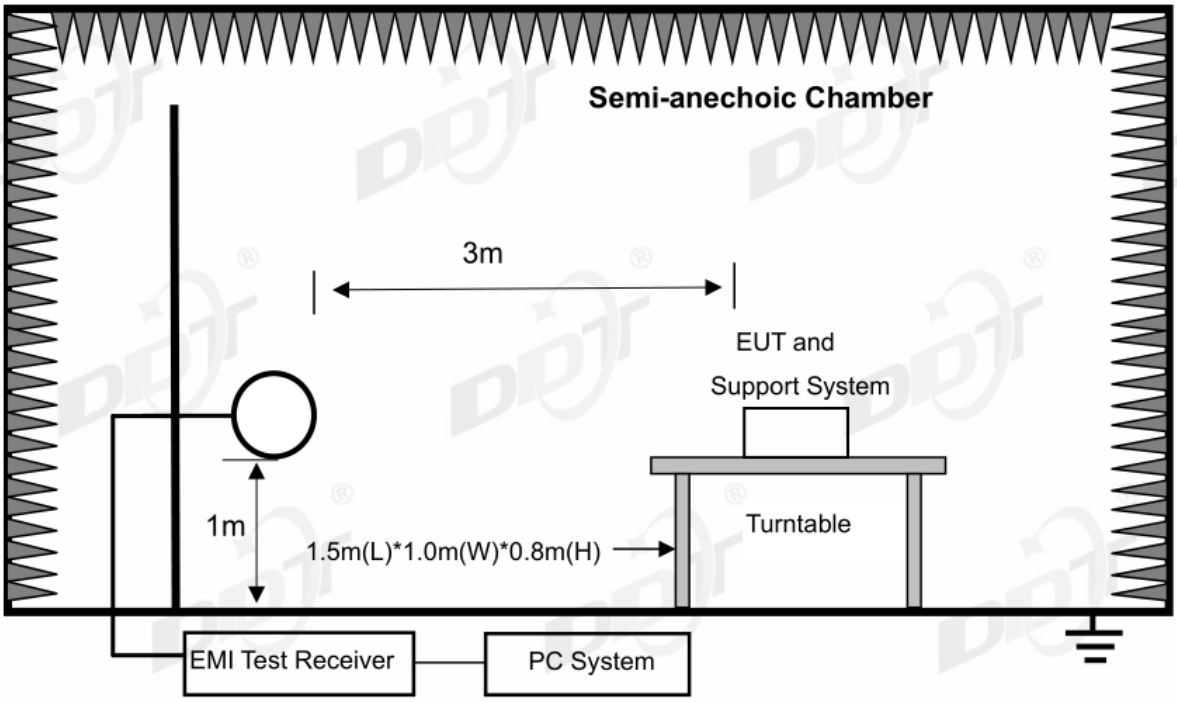
3. Equipment Used During Test

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
☒Radiation 3#chamber					
EMI Test Receiver	R&S	ESU26	100472	May 19, 2022	1 Year
Spectrum analyzer	Agilent	E4447A	MY50180031	May 17, 2022	1 Year
Active Loop antenna	Schwarzbeck	FMZB-1519	1519-038	Sep. 29, 2022	1 Year
Trilog Broadband Antenna	Schwarzbeck	VULB 9163	01429	Jul. 22, 2022	1 Year
Double Ridged Horn Antenna	Schwarzbeck	BBHA9120 D	02468	Sep. 29, 2022	1 Year
Broad Band Horn Antenna	Schwarzbeck	BBHA 9170	790	May 06, 2022	1 Year
Pre-amplifier	COM-POWER	PAM-118A	18040084	Aug.17, 2022	1 Year
Pre-amplifier	COM-POWER	PAM-840A	461369	Apr. 11, 2022	1 Year
RE Cable	N/A	W23.02 CP1-X2 + W23.09 AP1-X8+ JCT26S-NJ-NJ-1.5M+ JCT26S-NJ-NJ-1.5M	4.5M+8M+1.5M+1.5M	Aug.17, 2022	1 Year
RF Cable	Yuhu Technology	JCTB810-NJ-NJ-9M	21123964	May. 19,2022	1 Year
RF Cable	Yuhu Technology	ZT26S-SMAJ-SMAJ-1M	21073466	Aug.17, 2022	1 Year
Test software	Tonscend	JS32-RE	V 5.0.0.1	N/A	N/A
Test software	Audix	E3	V 6.1.1.1	N/A	N/A
☒Power Line Conducted Emissions Test 1#					
Test Receiver	R&S	ESCI	100551	Aug. 26, 2022	1 Year
LISN 1	R&S	ENV216	101109	Aug. 26, 2022	1 Year
LISN 2	R&S	ESH2-Z5	100309	Aug. 26, 2022	1 Year
Pulse Limiter	R&S	ESH3-Z2	101242	Aug. 26, 2022	1 Year
CE Cable 1	HUBSER	N/A	W10.01	Aug. 26, 2022	1 Year
Test software	Audix	E3	V 6.11111b	N/A	N/A
Test Receiver	R&S	ESCI	100551	Aug. 26, 2022	1 Year

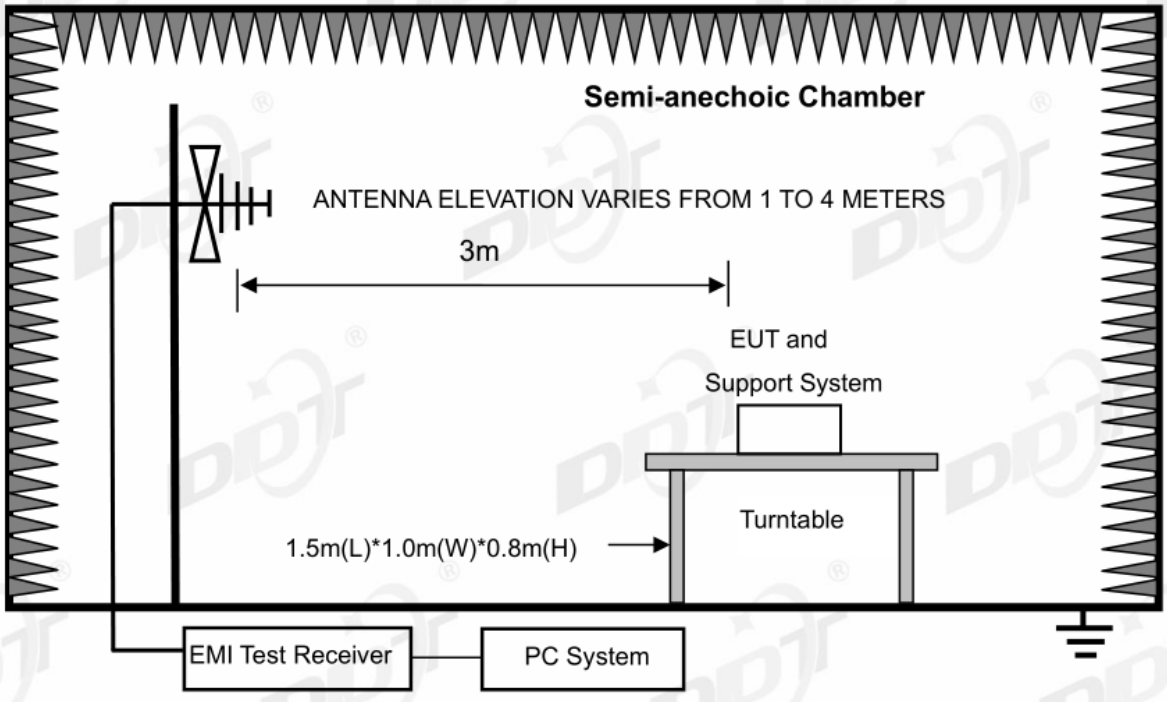
4. Radiated Spurious Emissions

4.1. Block diagram of test setup

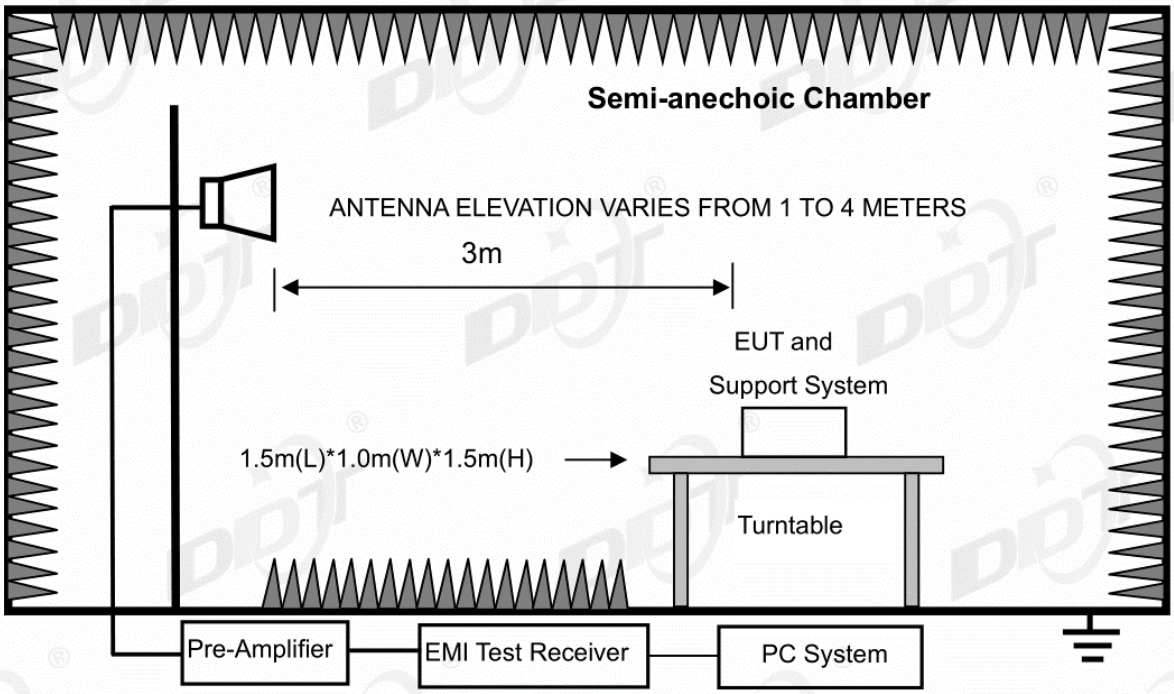
In 3 m Anechoic Chamber, test setup diagram for 9 kHz - 30 MHz:



In 3 m Anechoic Chamber, test setup diagram for 30 MHz - 1 GHz:



In 3 m Anechoic Chamber, test setup diagram for frequency above 1 GHz:



Note: For harmonic emissions test an appropriate high pass filter was inserted in the input port of AMP.

4.2. Limit

(1) FCC 15.205 Restricted frequency band

MHz	MHz	MHz	GHz
0.090-0.110	16.42-16.423	399.9-410	4.5-5.15
[1]0.495-0.505	16.69475-16.69525	608-614	5.35-5.46
2.1735-2.1905	16.80425-16.80475	960-1240	7.25-7.75
4.125-4.128	25.5-25.67	1300-1427	8.025-8.5
4.1772&4.17775	37.5-38.25	1435-1626.5	9.0-9.2
4.2072&4.20775	73-74.6	1645.5-1646.5	9.3-9.5
6.215-6.218	74.8-75.2	1660-1710	10.6-12.7
6.26775-6.26825	108-121.94	1718.8-1722.2	13.25-13.4
6.31175-6.31225	123-138	2200-2300	14.47-14.5
8.291-8.294	149.9-150.05	2310-2390	15.35-16.2
8.362-8.366	156.52475-156.52525	2483.5-2500	17.7-21.4
8.37625-8.38675	156.7-156.9	2690-2900	22.01-23.12
8.41425-8.41475	162.0125-167.17	3260-3267	23.6-24.0
12.29-12.293	167.72-173.2	3332-3339	31.2-31.8
12.51975-12.52025	240-285	3345.8-3358	36.43-36.5
12.57675-12.57725	322-335.4	3600-4400	([2])
13.36-13.41			

[1]Until February 1, 1999, this restricted band shall be 0.490-0.510 MHz.

[2]Above 38.6

RSS-Gen section 8.10 Restricted frequency bands*

MHz	MHz	MHz	GHz
0.090-0.110	12.51975-12.52025	240-285	3.5-4.4
0.495-0.505	12.57675-12.57725	322-335.4	4.5-5.15
2.1735-2.1905	13.36-13.41	399.9-410	5.35-5.46
3.020-3.026	16.42-16.423	608-614	7.25-7.75
4.125-4.128	16.69475-16.69525	960-1427	8.025-8.5
4.1772&4.17775	16.80425-16.80475	1435-1626.5	9.0-9.2
4.2072&4.20775	25.5-25.67	1645.5-1646.5	9.3-9.5
5.677-5.683	37.5-38.25	1660-1710	10.6-12.7
6.215-6.218	73-74.6	1718.8-1722.2	13.25-13.4
6.26775-6.26825	74.8-75.2	2200-2300	14.47-14.5
6.31175-6.31225	108-138	2310-2390	15.35-16.2
8.291-8.294	149.9-150.05	2483.5-2500	17.7-21.4
8.362-8.366	156.52475-156.52525	2655-2900	22.01-23.12
8.37625-8.38675	156.7-156.9	3260-3267	23.6-24.0
8.41425-8.41475	162.0125-167.17	3332-3339	31.2-31.8
12.29-12.293	167.72-173.2	3345.8-3358	36.43-36.5
			Above 38.6

* Certain frequency bands listed in table and in bands above 38.6 GHz are designated for licence-exempt applications. These frequency bands and the requirements that apply to related devices are set out in the 200 and 300 series of RSSs.

(2) FCC 15.209 Limit & RSS-Gen section 8.9 Limit

FREQUENCY MHz	DISTANCE Meters	FIELD STRENGTHS LIMIT	
		μV/m	dB(μV)/m
0.009 ~ 0.490	300	2400/F(kHz)	67.6-20log(F)
0.490 ~ 1.705	30	24000/F(kHz)	87.6-20log(F)
1.705 ~ 30.0	30	30	29.54
30 ~ 88	3	100	40.0
88 ~ 216	3	150	43.5
216 ~ 960	3	200	46.0
960 ~ 1000	3	500	54.0
Above 1000	3	74.0 dB(μV)/m (Peak) 54.0 dB(μV)/m (Average)	

Note: (1) The emission limits shown in the above table are based on measurements employing a CISPR QP detector except for the frequency bands 9 - 90 kHz, 110 - 490 kHz and above 1000 MHz. Radiated emissions limits in these three bands are based on measurements employing an average detector.

(2) At frequencies below 30 MHz, measurement may be performed at a distance closer than that specified, and the limit at closer measurement distance can be extrapolated by below formula:

$$Limit_{3m}(dBuV/m) = Limit_{30m}(dBuV/m) + 40Log(30m/3m)$$

(3) Limit for this EUT

The emissions appearing within 15.205 restricted frequency bands shall not exceed the limits

shown in 15.209, and the emissions appearing within RSS-Gen section 8.10 Restricted frequency bands shall not exceed the limits shown in RSS-Gen section 8.9, all the other emissions shall be at least 20 dB below the fundamental emissions or comply with 15.209 limits and RSS-Gen section 8.9 limits..

4.3. Test procedure

(1) EUT height should be 0.8 m for below 1 GHz at a semi-anechoic chamber while EUT height should be 1.5 m for above 1 GHz at full chamber or semi-anechoic chamber ground with absorbers.

(2) The antenna used as below table.

Test frequency range	Test antenna used	Measuring distance
9 kHz-30 MHz	Active Loop antenna	3 m
30 MHz-1 GHz	Trilog Broadband Antenna	3 m
1 GHz-18 GHz	Double Ridged Horn Antenna(1GHz-18GHz)	3 m
18 GHz-40 GHz	Horn Antenna(18GHz-40GHz)	1 m

According ANSI C63.10:2013 clause 6.4.4.2 and 6,5.3, for measurements below 30 MHz, antenna was located 3 m from EUT, the loop antenna was positioned in three antenna orientations (parallel, perpendicular, and round-parallel), for each measurement antenna alignment, the EUT shall be rotated through 0° to 360° on a turntable, and the lowest height of the magnetic antenna shall be 1 m above the ground. For measurement above 30 MHz, the trilog Broadband Antenna or Horn Antenna was located 3 m from EUT, Measurements were made with the antenna positioned in both the horizontal and vertical planes of Polarization, and the measurement antenna was varied from 1 m to 4 m. in height above the reference ground plane to obtain the maximum signal strength.

(3) Below pre-scan procedure was first performed in order to find prominent frequency spectrum radiated emissions from 9 kHz to 25 GHz:

(a) Scanning the peak frequency spectrum with the antenna specified in step (3), and the EUT was rotated 360 degree, the antenna height was varied from 1 m to 4 m (Except loop antenna, it's fixed 1m above ground.)

(b) Change work frequency or channel of device if practicable.

(c) Change modulation type of device if practicable.

(d) Change power supply range from 85% to 115% of the rated supply voltage

(e) Rotated EUT though three orthogonal axes to determine the attitude of EUT arrangement produces highest emissions.

Spectrum frequency from 9 kHz to 25 GHz (tenth harmonic of fundamental frequency) was investigated, and no any obvious emission were detected from 18GHz to 25GHz, so below final test was performed with frequency range from 9kHz to 18GHz.

(4) For final emissions measurements at each frequency of interest, the EUT was rotated and the antenna height was varied between 1 m and 4 m 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 equipments and all of the interface cables were changed according to ANSI C63.10 2013 on Radiated Emission test.

(5) The emissions from 9 kHz to 1 GHz were measured based on CISPR QP detector except for the frequency bands 9-90 kHz, 110-490 kHz, for emissions from 9 kHz-90 kHz,110 kHz-490 kHz and above 1 GHz were measured based on average detector, for emissions above 1 GHz, peak emissions also be measured and need comply with Peak limit.

(6) The emissions from 9 kHz to 1 GHz, QP or average values were measured with EMI receiver with below RBW

Frequency band	RBW
9 kHz-150 kHz	200 Hz
150 kHz-30 MHz	9 kHz
30 MHz-1 GHz	120 kHz

(7) For emissions above 1GHz, both Peak and Average level were measured with Spectrum Analyzer, and the RBW is set at 1 MHz, VBW is set at 3 MHz for Peak measure; RMS detector RBW 1 MHz VBW 10 Hz for Average measure (according ANSI C63.10:2013 clause 4.2.3.2.3 procedure for average measure).

4.4. Test result

Pass. (See below detailed test result)

All the emissions except fundamental emission from 9 kHz to 25 GHz were comply with 15.209 limits and RSS-Gen section 8.9 limits.

Note1: According exploratory test, the emission levels are 20 dB below the limit detected from 9 kHz to 30 MHz and 18 GHz to 25 GHz, so the final test was performed with frequency range from 30 MHz to 18 GHz and recorded in below.

Note2: 30 MHz ~ 25 GHz: (Scan with all mode, the worst case is 802.11n HT20 mode)

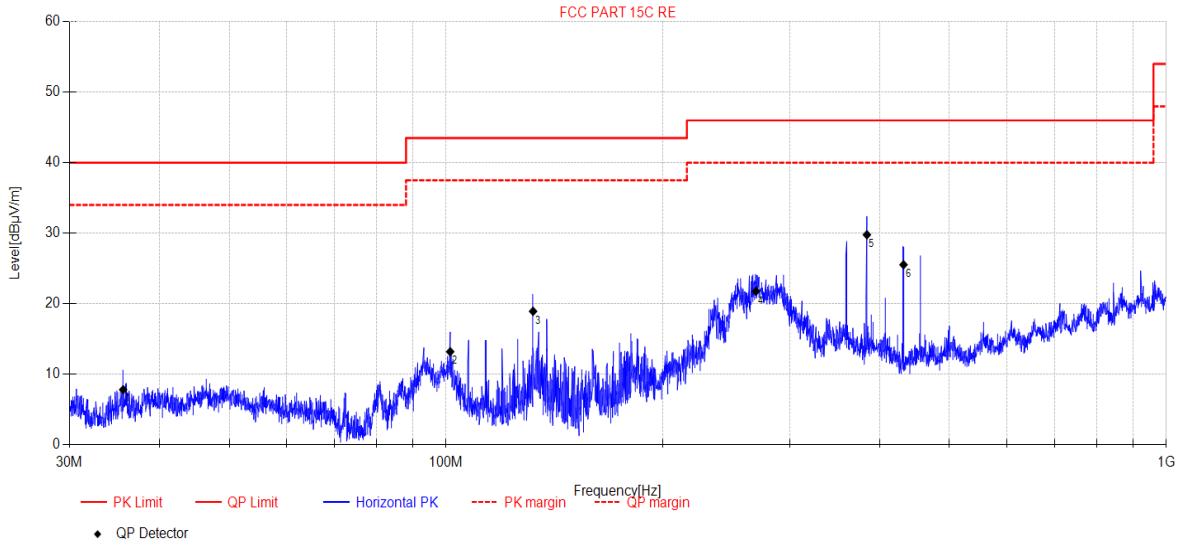
Note3: For emissions below 1 GHz, according exploratory explorer test, when change Tx mode and channel, have no distinct influence on emissions level, so for emissions below 1 GHz, the final test was only performed with EUT working in 11N20 and 802.11ax HE20, Tx 2412 MHz 26 Tone mode.

Note4: For emissions above 1 GHz. If peak results comply with AV limit, AV Result is deemed to comply with AV limit. And the BT+SRD+2.4GWIFI is the worst simultaneous case and reported.

Radiated Emission test (below 1GHz)

TR-4-E-009 Radiated Emission Test Result

Test Date:	2022-11-28	**Tested By**:	Johnson Huang
EUT:	Multi-Channel Soundbar with wireless subwoofer	**Model Number**:	BAR 700
Test Mode:	TX Mode	**Power Supply**:	AC 120V/60Hz
Condition:	Temp:23.4°C;Humi:46.5%;Press:100.3kPa	**Test Site**:	DDT 3# Chamber
File Path:	d:\ts\2022 report data\Q22112306-BAR700\FCC BELOW 1G\20221128-112110_H		
Memo:	2.4G WIFI		

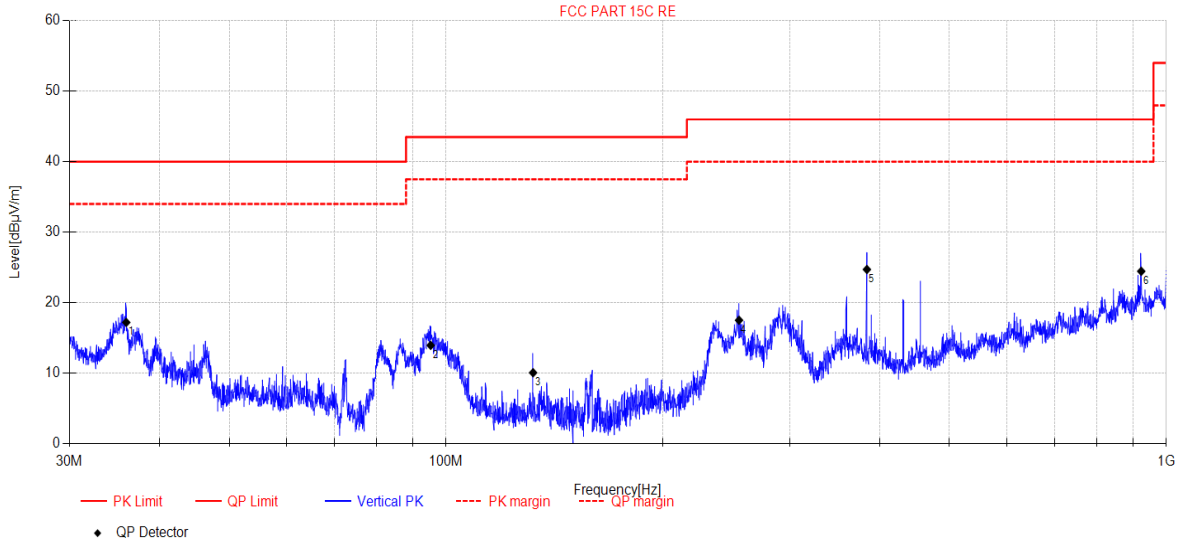


Final Data List								
NO.	**Freq. [MHz]**	**Reading [dBµV/m]**	**Factor [dB]**	**Result [dBµV/m]**	**Limit [dBµV/m]**	**Margin [dB]**	**Detector**	**Polarity**
1	35.62	28.44	-20.64	7.80	40.00	32.20	QP	Horizontal
2	101.33	33.38	-20.20	13.18	43.50	30.32	QP	Horizontal
3	132.09	42.24	-23.33	18.91	43.50	24.59	QP	Horizontal
4	269.31	39.57	-17.82	21.75	46.00	24.25	QP	Horizontal
5	384.01	44.9	-15.13	29.77	46.00	16.23	QP	Horizontal
6	431.71	39.82	-14.30	25.52	46.00	20.48	QP	Horizontal

Note:
1. Result Level = Read Level + Factor
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 Date:	2022-11-28	**Tested By**:	Johnson Huang
EUT:	Multi-Channel Soundbar with wireless subwoofer	**Model Number**:	BAR 700
Test Mode:	TX Mode	**Power Supply**:	AC 120V/60Hz
Condition:	Temp:23.4°C;Humi:46.5%;Press:100.3kPa	**Test Site**:	DDT 3# Chamber
File Path:	d:\ts\2022 report data\Q22112306-BAR700\FCC BELOW 1G\20221128-112129_V		
Memo:	2.4G WIFI		

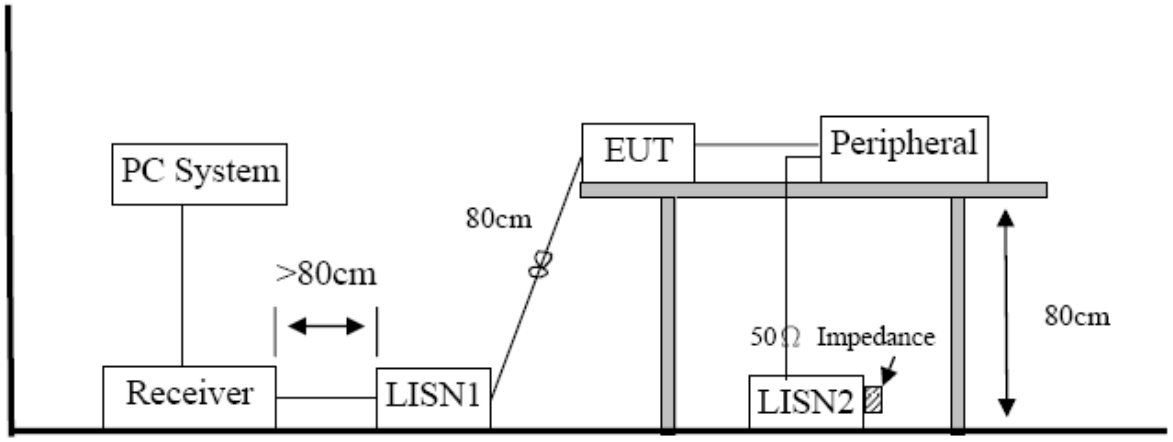


Final Data List								
NO.	**Freq. [MHz]**	**Reading [dBµV/m]**	**Factor [dB]**	**Result [dBµV/m]**	**Limit [dBµV/m]**	**Margin [dB]**	**Detector**	**Polarity**
1	35.97	37.73	-20.53	17.20	40.00	22.80	QP	Vertical
2	95.20	34.84	-20.90	13.94	43.50	29.56	QP	Vertical
3	132.09	33.39	-23.33	10.06	43.50	33.44	QP	Vertical
4	255.16	35.63	-18.13	17.50	46.00	28.50	QP	Vertical
5	384.01	39.84	-15.13	24.71	46.00	21.29	QP	Vertical
6	923.18	30.32	-5.87	24.45	46.00	21.55	QP	Vertical

Note:
1. Result Level = Read Level + Factor
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.

5. Power Line Conducted Emission

5.1. Block diagram of test setup



5.2. Power Line Conducted Emission Limits (Class B)

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

Note 1: * Decreasing linearly with logarithm of frequency.

Note 2: The lower limit shall apply at the transition frequencies.

5.3. Test procedure

The EUT and Support equipment, if needed, were put placed on a non-metallic table, 80 cm above the ground plane.

All I/O cables were positioned to simulate typical actual usage as per ANSI C63.4.

All support equipment power received from a second LISN.

Emissions were measured on each current carrying line of the EUT using an EMI Test Receiver connected to the LISN powering the EUT.

The Receiver scanned from 150 kHz to 30 MHz for emissions in each of the test modes.

During the above scans, the emissions were maximized by cable manipulation.

After the preliminary scan, we found the test mode producing the highest emission level.

The EUT configuration and worse cable configuration of the above highest emission levels were recorded for reference of the final test.

EUT and support equipment were set up on the test bench as per the configuration with highest emission level in the preliminary test.

A scan was taken on both power lines, Neutral and Line, recording at least the six highest emissions.

Emission frequency and amplitude were recorded into a computer in which correction factors were used to calculate the emission level and compare reading to the applicable limit.

The test data of the worst-case condition(s) was recorded.

The bandwidth of test receiver is set at 9 kHz.

5.4. Test result

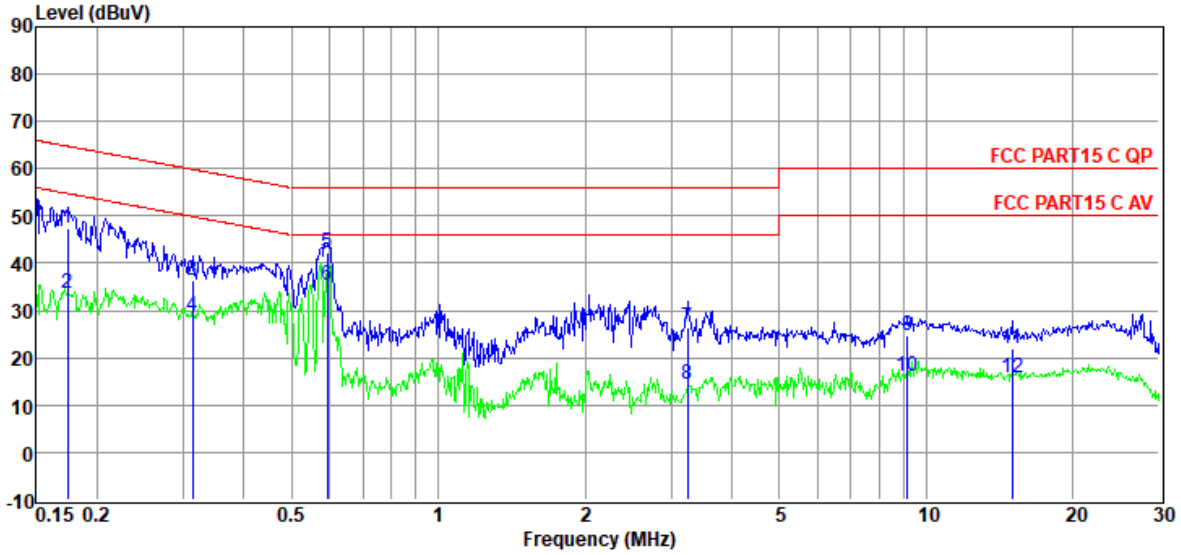
Pass. (See below detailed test result)

Note1: All emissions not reported below are too low against the prescribed limits.
Note2: "-----" means peak detection; "-----" means average detection
Note3: Pre-test AC conducted emission at both voltage AC 120V/60Hz and AC 240V/60Hz, recorded worse case.

TR-4-E-010 Conducted Emission Test Result

Test Site	:	DDT 1# Shield Room	D:\2022 CE report date\Q22112306-2E BAR 700\FCC.EM6		
Test Date	:	2022-12-01	**Tested By**	:	Bairong
EUT	:	Multi-Channel Soundbar with wireless subwoofer	**Model Number**	:	BAR 700
Power Supply	:	AC 120V/60Hz	**Test Mode**	:	TX mode
Condition	:	TEMP:24.6°C, RH:54.1%, BP:101.1kPa	**LISN**	:	2021 1# ENV216/NEUTRAL
Memo	:	2.4G WIFI			

Data: 8



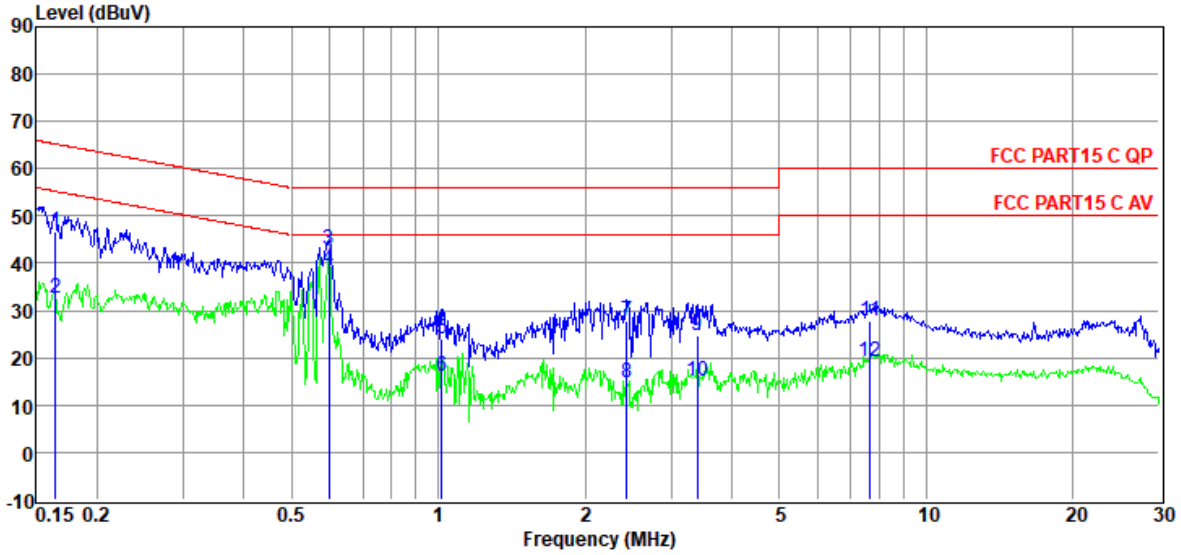
Item (Mark)	Freq. (MHz)	Read Level (dBµV)	LISN Factor (dB)	Cable Loss (dB)	Pulse Limiter Factor (dB)	Result Level (dBµV)	Limit Line (dBµV)	Over Limit (dB)	Detector	Phase
1	0.17	27.80	9.80	0.01	9.92	47.53	64.77	-17.24	QP	NEUTRAL
2	0.17	13.74	9.80	0.01	9.92	33.47	54.77	-21.30	Average	NEUTRAL
3	0.31	16.92	9.65	0.02	9.92	36.51	59.88	-23.37	QP	NEUTRAL
4	0.31	9.38	9.65	0.02	9.92	28.97	49.88	-20.91	Average	NEUTRAL
5	0.59	22.60	9.65	0.02	9.91	42.18	56.00	-13.82	QP	NEUTRAL
6	0.59	15.67	9.65	0.02	9.91	35.25	46.00	-10.75	Average	NEUTRAL
7	3.24	6.86	9.74	0.05	9.91	26.56	56.00	-29.44	QP	NEUTRAL
8	3.24	-5.15	9.74	0.05	9.91	14.55	46.00	-31.45	Average	NEUTRAL
9	9.16	4.94	9.75	0.10	9.94	24.73	60.00	-35.27	QP	NEUTRAL
10	9.16	-3.57	9.75	0.10	9.94	16.22	50.00	-33.78	Average	NEUTRAL
11	14.99	2.42	9.60	0.15	9.93	22.10	60.00	-37.90	QP	NEUTRAL
12	14.99	-3.96	9.60	0.15	9.93	15.72	50.00	-34.28	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:\2022 CE report date\Q22112306-2E BAR 700\FCC.EM6		
Test Date	:	2022-12-01	**Tested By**	:	Bairong
EUT	:	Multi-Channel Soundbar with wireless subwoofer	**Model Number**	:	BAR 700
Power Supply	:	AC 120V/60Hz	**Test Mode**	:	TX mode
Condition	:	TEMP:24.6°C, RH:54.1%, BP:101.1kPa	**LISN**	:	2021 1# ENV216/LINE
Memo	:	2.4G WIFI			

Data: 18



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	0.16	27.16	9.66	0.01	9.92	46.75	65.25	-18.50	QP	LINE
2	0.16	13.18	9.66	0.01	9.92	32.77	55.25	-22.48	Average	LINE
3	0.60	23.32	9.55	0.02	9.91	42.80	56.00	-13.20	QP	LINE
4	0.60	19.34	9.55	0.02	9.91	38.82	46.00	-7.18	Average	LINE
5	1.02	4.60	9.60	0.03	9.89	24.12	56.00	-31.88	QP	LINE
6	1.02	-3.35	9.60	0.03	9.89	16.17	46.00	-29.83	Average	LINE
7	2.44	8.45	9.53	0.05	9.90	27.93	56.00	-28.07	QP	LINE
8	2.44	-4.74	9.53	0.05	9.90	14.74	46.00	-31.26	Average	LINE
9	3.40	5.14	9.58	0.05	9.91	24.68	56.00	-31.32	QP	LINE
10	3.40	-4.31	9.58	0.05	9.91	15.23	46.00	-30.77	Average	LINE
11	7.69	8.24	9.50	0.09	9.94	27.77	60.00	-32.23	QP	LINE
12	7.69	-0.35	9.50	0.09	9.94	19.18	50.00	-30.82	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.

7. Photos of the EUT

Please refer to appendix III

END OF REPORT