Test Report

FCC Part15 Subpart C

Product Name	:	Car Audio
Model No.	:	MP-202S-00
FCC ID	:	2AVYXMP-202S-00

Applicant	:	SAIC GM Wuling Automobile Co., Ltd.
Address	:	No.18 Hexi Road, Liuzhou City, Guangxi Zhuang Autonomous Region, China

Date of Receipt	:	Apr. 09, 2020
Test Date	:	Apr. 12, 2020 ~ Apr. 20, 2020
Issued Date	:	Apr. 22, 2020
Report No.	:	2040215R-RF-US-P06V01
Report Version	:	V1.0

Test Report Certification

Issued Date : Apr. 22, 2020
Report No. : 2040215R-RF-US-P06V01

Product Name	:	Car Audio
Applicant	:	SAIC GM Wuling Automobile Co., Ltd.
Address	:	No.18 Hexi Road, Liuzhou City, Guangxi Zhuang Autonomous Region, China
Manufacturer	:	Huizhou Desay SV Automotive Co., Ltd.
Address	:	No. 103, Hechang 5th Road West, ZhongKaiNational Hi-tech Industrial Development Zone,Huizhou City, Guangdong Province 516006,P.R. China.
Factory	:	Huizhou Desay SV Automotive Co., Ltd.
Address	:	No. 103, Hechang 5th Road West, ZhongKaiNational Hi-tech Industrial Development Zone,Huizhou City, Guangdong Province 516006,P.R. China.
Model No.	:	MP-202S-00
FCC ID	:	2AVYXMP-202S-00
EUT Voltage	:	DC 12V (eg. DC 3V by battery or AC 220~240V)
Test Voltage	:	DC 12V
Applicable Standard	:	FCC CFR Title 47 Part 15 Subpart C KDB 558074 D01v05 ANSI C63.10: 2013 RSS-Gen Issue 5/RSS-247 Issue 2
Test Result	:	Complied
Performed Location	:	DEKRA Testing & Certification (Suzhou) Co., Ltd. No.99 Hongye Rd., Suzhou Industrial Park, Suzhou, 215006, Jiangsu, China TEL: +86-512-6251-5088 / FAX: +86-512-6251-5098 FCC Designation Number: CN1199;

Documented By : Kitty Li

(Adm. Specialist: Kitty Li)

Reviewed By : Frank he

(Senior Engineer: Frank He)

Approved By : Jack zhang

(Engineering Supervisor: Jack Zhang)

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History of This Test Report

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
2040215R-RF-US-P06V01	V1.0	Initial Issued Report	Apr. 22, 2020

1. General Information

1.1. EUT Description

Product Name	Car Audio
Model No.	MP-202S-00
EUT Voltage	DC 12V(eg. DC 3V by battery or AC 220~240V)
Test Voltage	DC 12V
Bluetooth Specification	V3.0
Frequency Range	2402- 2480 MHz
Channel Number	V3.0: 79
Channel Separation	V3.0: 1MHz
Type of Modulation	V3.0: GFSK, Pi/4 DQPSK, 8DPSK
Data Rate	V3.0: 1Mbps(GFSK), 2Mbps(Pi/4 DQPSK), 3Mbps(8DPSK)
Antenna Type	Reference to Antenna List
Peak Antenna Gain	Reference to Antenna List

Bluetooth Working Frequency of Each Channel: (For V3.0)							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
00	2402 MHz	01	2403 MHz	02	2404 MHz	03	2405 MHz
04	2406 MHz	05	2407 MHz	06	2408 MHz	07	2409 MHz
08	2410 MHz	09	2411 MHz	10	2412 MHz	11	2413 MHz
12	2414 MHz	13	2415 MHz	14	2416 MHz	15	2417 MHz
16	2418 MHz	17	2419 MHz	18	2420 MHz	19	2421 MHz
20	2422 MHz	21	2423 MHz	22	2424 MHz	23	2425 MHz
24	2426 MHz	25	2427 MHz	26	2428 MHz	27	2429 MHz
28	2430 MHz	29	2431 MHz	30	2432 MHz	31	2433 MHz
32	2434 MHz	33	2435 MHz	34	2436 MHz	35	2437 MHz
36	2438 MHz	37	2439 MHz	38	2440 MHz	39	2441 MHz
40	2442 MHz	41	2443 MHz	42	2444 MHz	43	2445 MHz
44	2446 MHz	45	2447 MHz	46	2448 MHz	47	2449 MHz
48	2450 MHz	49	2451 MHz	50	2452 MHz	51	2453 MHz
52	2454 MHz	53	2455 MHz	54	2456 MHz	55	2457 MHz
56	2458 MHz	57	2459 MHz	58	2460 MHz	59	2461 MHz
60	2462 MHz	61	2463 MHz	62	2464 MHz	63	2465 MHz
64	2466 MHz	65	2467 MHz	66	2468 MHz	67	2469 MHz
68	2470 MHz	69	2471 MHz	70	2472 MHz	71	2473 MHz
72	2474 MHz	73	2475 MHz	74	2476 MHz	75	2477 MHz
76	2478 MHz	77	2479 MHz	78	2480 MHz	N/A	N/A

1.2 Antenna information

Antenna model	N/A					
Antenna Delivery	☒	1*TX+1*RX	☐	2*TX+2*RX	☐	3*TX+3*RX
Antenna technology	☒	SISO				
	☐	MIMO	☐	Basic		
			☐	CDD		
			☐	Beam-forming		
Antenna Type	☐	External	☐	Dipole		
	☒	Internal	☐	PIFA		
			☒	PCB		
			☐	Ceramic Chip Antenna		
			☐	Stamping Antenna		
			☐	Metal plate type F antenna		
			☐	Monopole antenna		
Antenna Gain	4 dBi					

1.3 Mode of Operation

DEKRA has verified the construction and function in typical operation. All the test modes were carried out with the EUT in normal operation, which was shown in this test report and defined as:

Test Mode
Mode 1: Transmitter-1Mbps(GFSK_DH5)
Mode 2: Transmitter-2Mbps(Pi/4 DQPSK_DH5)
Mode 3: Transmitter-3Mbps(8DPSK_DH5)
Mode 4: Transmitter-Hopping

Note:

1. For portable device, radiated spurious emission was verified over X, Y, Z Axis, and shown the worst case on this report.
2. Regards to the frequency band operation for systems using FHSS modulation: normal operation (hopping) was selected to test for conducted spurious test.
3. The extreme test condition for voltage and temperature were declared by the manufacturer.
4. The reading values of all the test items contain cable loss.

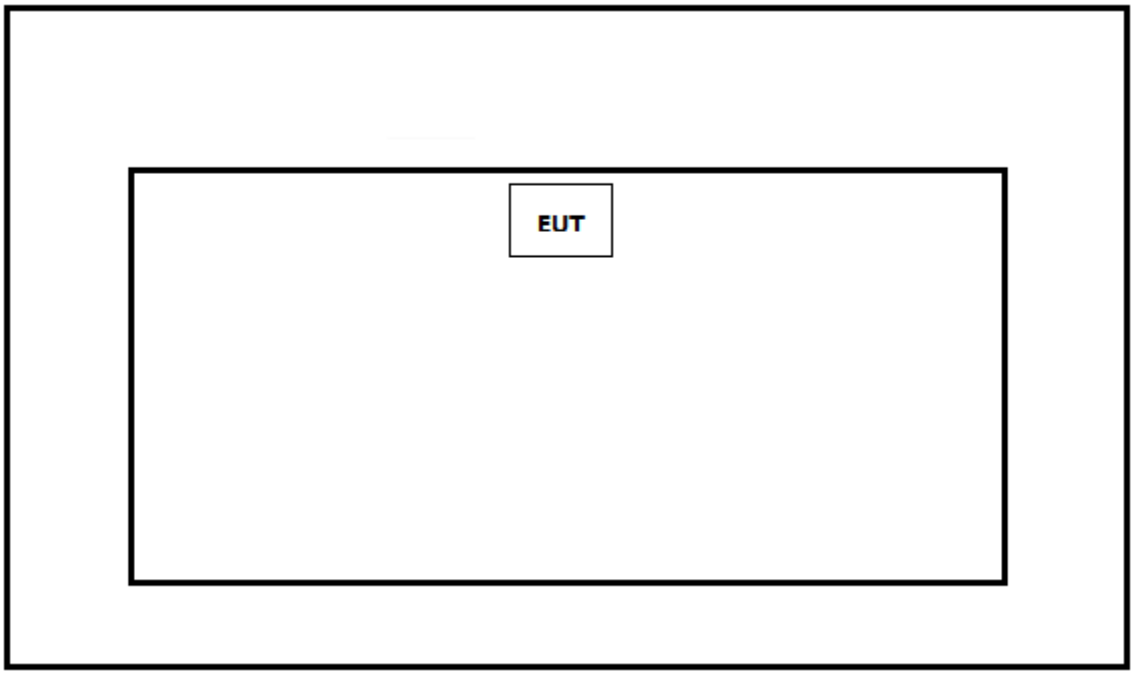
1.4 Tested System Details

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

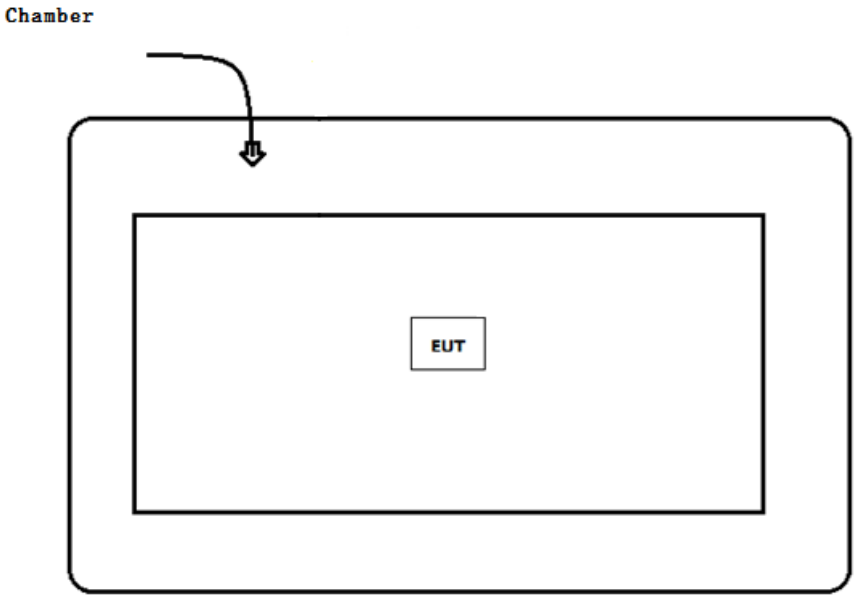
Product		Manufacturer	Model No.	Serial No.	Power Cord
1	N/A	N/A	N/A	N/A	N/A
A	N/A	N/A	N/A	N/A	N/A
B	N/A	N/A	N/A	N/A	N/A

1.5 Configuration of Tested System

Test setup Diagram- AC Line Conducted Emission Test



Test setup Diagram- Radiated Emission



1.6 EUT Exercise Software

1	Setup the EUT as shown in Section 2.2
2	Execute the test program.
3	Configure the test mode, the test channel, and the data rate.
4	Press “Send” to start the continuous transmitting.
5	Verify that the EUT works properly.

2. Technical Test

2.1. Summary of Test Result

☒ No deviations from the test standards

☐ Deviations from the test standards as below description:

For FCC

Performed Test Item	Normative References	Test Performed	Deviation
Conducted Emission	FCC CFR Title 47 Part 15 Subpart C: 2015 Section 15.207	Yes	No
Emissions in restricted frequency bands	FCC CFR Title 47 Part 15 Subpart C: 2015 Section 15.209	Yes	No
20dB Bandwidth	FCC CFR Title 47 Part 15 Subpart C: 2015 Section 15.247(a)(1)	Yes	No
Carrier Frequency Separation	FCC CFR Title 47 Part 15 Subpart C: 2015 Section 15.247(a)(1)	Yes	No
Number of Hopping Frequencies	FCC CFR Title 47 Part 15 Subpart C: 2015 Section 15.247(a)(1)(iii)	Yes	No
Time of Occupancy (Dwell Time)	FCC CFR Title 47 Part 15 Subpart C: 2015 Section 15.247(a)(1)(iii)	Yes	No
Peak Output Power	FCC CFR Title 47 Part 15 Subpart C: 2015 Section 15.247(b)(1)	Yes	No
Emissions in non-restricted frequency bands	FCC CFR Title 47 Part 15 Subpart C: 2015 Section 15.215(c), 15.247(d)	Yes	No
Radiated Emission Band Edge	FCC CFR Title 47 Part 15 Subpart C: 2015 15.247(d)	Yes	No
Antenna Requirement	FCC CFR Title 47 Part 15 Subpart C: 2015 Section 15.203	Yes	No

2.2. Test Environment

Items	Required (IEC 68-1)	Actual
Temperature (°C)	15-35	21
Humidity (%RH)	25-75	50
Barometric pressure (mbar)	860-1060	950-1000

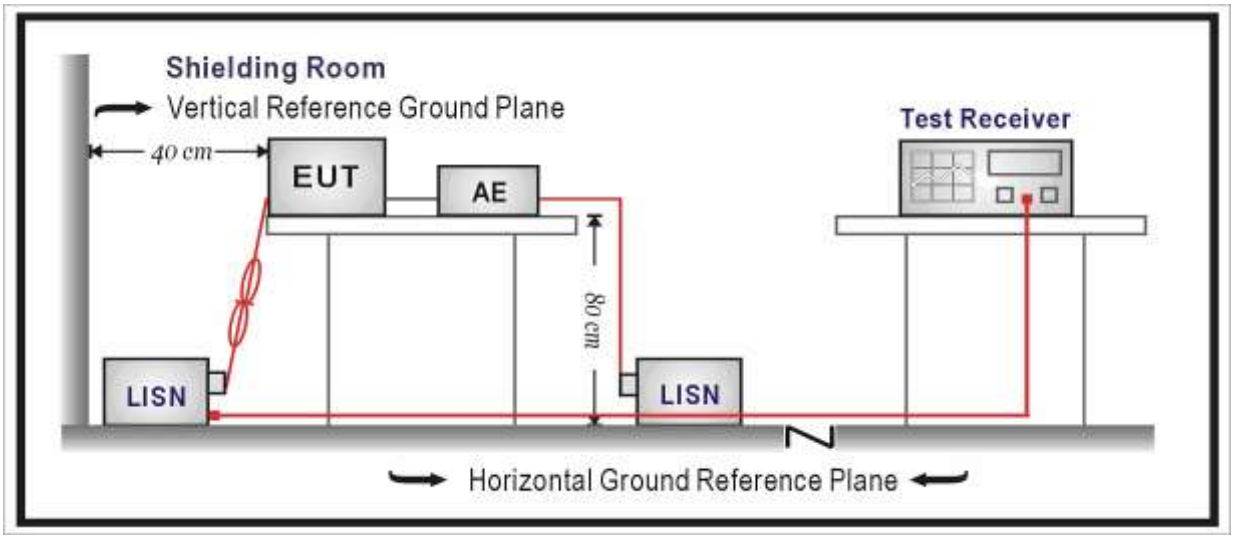
3. Conducted Emission

3.1. Test Equipment

AC Power Line Conducted Emission / TR-1					
Instrument	Manufacturer	Type No.	Serial No.	Cal. Date	Cal. Due Date
EMI Test Receiver	R&S	ESCI	100906	2020.04.20	2021.04.19
Two-Line V-Network	R&S	ENV 216	101189	2019.10.16	2020.10.15
Two-Line V-Network	R&S	ENV 216	101044	2019.05.25	2020.05.24
50ohm Coaxial Switch	Anritsu	MP59B	6200464462	N/A	N/A
50ohm Termination	SHX	TF2	07081402	2019.09.15	2020.09.15
Temperature/Humidity Meter	Zhichen	ZC1-2	TR1-TH	2019.08.21	2020.08.20
Quietek EMI V3(test software)	Quietek	N/A	N/A	N/A	N/A
Note: All equipment is calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.					

3.2. Test Setup

AC Power Line Conducted Emission test setup



3.3. Limit

Frequency of Emission (MHz)	Conducted Limit	
	Quasi-peak (dBμV)	Average(dBμV)
0.15-0.5	66 to 56	56 to 46
0.5-5	56	46
5-30	60	50
Note 1: The lower limit shall apply at the transition frequencies. Note 2: The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.5 MHz.		

3.4. Test Procedure

Test Method			
	References Rule	Chapter	Item
☒	ANSI C63.10-2013	6.2	Standard test method for ac power-line conducted emissions from unlicensed wireless devices

3.5. Uncertainty

The measurement uncertainty is defined as ± 2.02 dB

3.6. Test Result

Note: Because the sample is DC powered, no evaluation is required Conducted Emission.

4. Emissions in restricted frequency bands

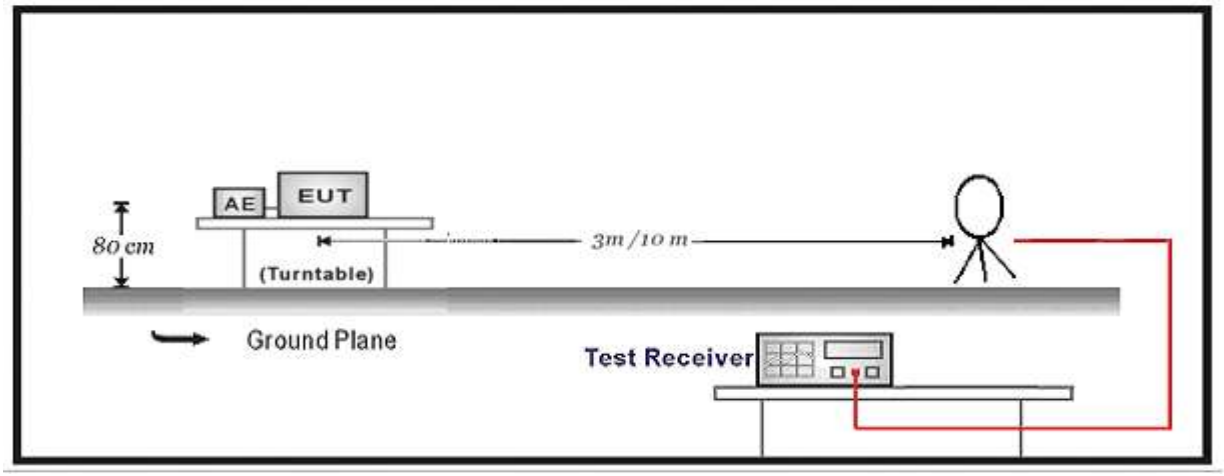
4.1. Test Equipment

Radiated Emission(Below 1GHz) / AC-2					
Instrument	Manufacturer	Type No.	Serial No.	Cal. Date	Cal. Due Date
EMI Test Receiver	R&S	ESCI	100573	2019.12.28	2020.12.27
Loop Antenna	R&S	HFH2-Z2	833799/003	2020.02.17	2021.02.16
Bilog Antenna	Teseq GmbH	CBL6112D	27611	2019.09.23	2020.09.22
Coaxial Cable	Huber+Suhner	SUCOFLEX 106	AC2-C	2020.04.13	2021.04.12
Temperature/Humidity Meter	Zhichen	ZC1-2	AC2-TH	2019.09.02	2020.09.01
Quietek EMI V3(test software)	Quietek	N/A	N/A	N/A	N/A
Note: All equipment is calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.					

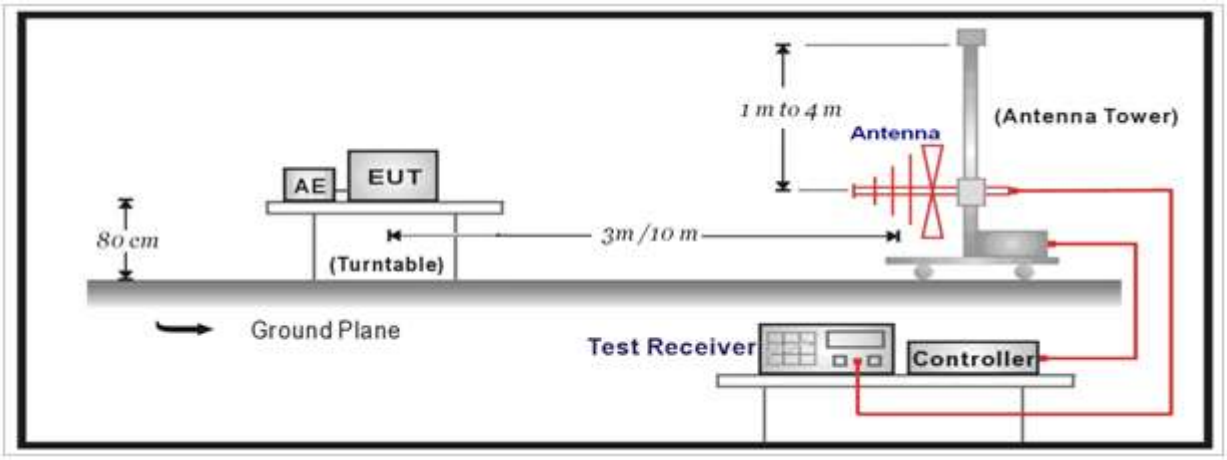
Radiated Emission(Above 1GHz) / AC-5					
Instrument	Manufacturer	Type No.	Serial No.	Cal. Date	Cal. Due Date
Spectrum Analyzer	Agilent	E4446A	MY45300103	2019.05.08	2020.05.07
Preamplifier	Miteq	NSP1800-25	1364185	2019.05.06	2020.05.05
Preamplifier	QuieTek	AP-040G	CHM-0906001	2019.05.06	2020.05.05
DRG Horn	ETS-Lindgren	3117	00123988	2019.09.25	2020.09.24
Broad-Band Horn Antenna	Schwarzbeck	BBHA9170	294	2019.03.23	2021.03.22
Coaxial Cable	Huber+Suhner	SUCOFLEX 106	AC5-C1	2020.04.13	2021.04.12
Coaxial Cable	Huber+Suhner	SUCOFLEX 106	AC5-C2	2020.04.13	2021.04.12
Coaxial Cable	Huber+Suhner	SUCOFLEX 102	AC5-C3	2020.04.13	2021.04.12
EMI Receiver	Agilent	N9038A	MY51210196	2019.05.25	2020.05.24
Temperature/Humidity Meter	Zhichen	ZC1-2	AC5-TH	2019.09.02	2020.09.01
Quietek EMI V3(test software)	Quietek	N/A	N/A	N/A	N/A
Note: All equipment is calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.					

4.2. Test Setup

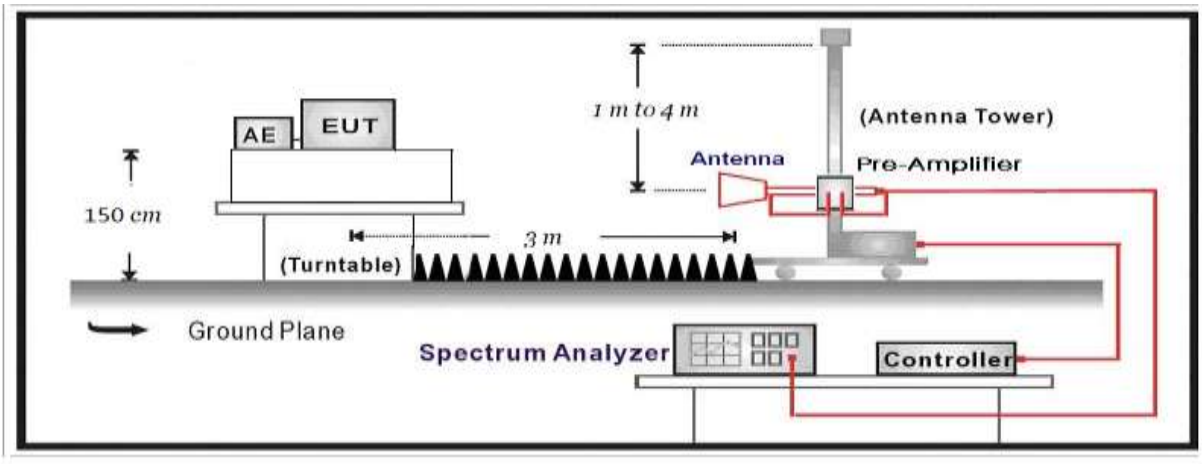
Below 30MHz Test Setup:



30MHz-1GHz Test Setup:



Above 1GHz Test Setup:



4.3. Limit

For FCC:

Restricted Bands of operation			
Frequency (MHz)	Frequency (MHz)	Frequency (MHz)	Frequency (GHz)
0.090 – 0.110	16.42 – 16.423	399.9 – 410	4.5 – 5.15
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
4.17725 – 4.17775	37.5 – 38.25	1435 – 1626.5	9.0 – 9.2
4.20725 – 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
8.81425 – 8.81475	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	
13.36 – 13.41			

For ISED:

Restricted Bands of operation			
Frequency (MHz)	Frequency (MHz)	Frequency (MHz)	Frequency (GHz)
0.090-0.110	13.36-13.41	1645.5-1646.5	13.25-13.4
2.1735-2.1905	16.42-16.423	1660-1710	14.47-14.5
3.020-3.026	16.69475-16.69525	1718.8-1722.2	15.35-16.2
4.125-4.128	16.80425-16.80475	2200-2300	17.7-21.4
4.17725-4.17775	25.5-25.67	2310-2390	22.01-23.12
4.20725-4.20775	37.5-38.25	2655-2900	23.6-24.0
5.677-5.683	73-74.6	3260-3267	31.2-31.8
6.215-6.218	74.8-75.2	3332-3339	36.43-36.5
6.26775-6.26825	108-138	3345.8-3358	Above 38.6
6.31175-6.31225	156.52475-156.52525	3500-4400	
8.291-8.294	156.7-156.9	4500-5150	
8.362-8.366	240-285	5350-5460	
8.37625-8.38675	322-335.4	7250-7750	
8.41425-8.41475	399.9-410	8025-8500	
12.29-12.293	608-614	9.0-9.2	
12.51975-12.52025	960-1427	9.3-9.5	
12.57675-12.57725	1435-1626.5	10.6-12.7	

Restricted Band Emissions Limit			
Frequency (MHz)	Field strength (μV/m)	Field strength (dBμV/m)	Measurement distance (m)
0.009 - 0.49	2400/F(kHz)	48.5 – 13.8	300(Note 1)
0.49 - 1.705	24000/F(kHz)	33.8 - 23	30(Note 1)
1.705 - 30	30	29.5	30(Note 1)
30 - 88	100	40	3(Note 2)
88 - 216	150	43.5	3(Note 2)
216 - 960	200	46	3(Note 2)
Above 960	500	54	3(Note 2)

Note 1: At frequencies below 30 MHz, measurements may be performed at a distance closer than that specified in the regulations; however, an attempt should be made to avoid making measurements in the near field. Pending the development of an appropriate measurement procedure for measurements performed below 30 MHz, when performing measurements at a closer distance than specified, the results shall be extrapolated to the specified distance by either making measurements at a minimum of two distances on at least one radial to determine the proper extrapolation factor or by using the square of an inverse linear distance extrapolation factor (40 dB/decade).

Note 2: At frequencies at or above 30 MHz, measurements may be performed at a distance other than what is specified provided: measurements are not made in the near field except where it can be shown that near field measurements are appropriate due to the characteristics of the device; and it can be demonstrated that the signal levels needed to be measured at the distance employed can be detected by the measurement equipment. Measurements shall not be performed at a distance greater than 30 meters unless it can be further demonstrated that measurements at a distance of 30 meters or less are impractical. When performing measurements at a distance other than that specified, the results shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade (inverse linear-distance for field strength measurements; inverse-linear-distance-squared for power density measurements).

4.4. Test Procedure

Test Method			
	References Rule	Chapter	Description
☒	ANSI C63.10	6.4	Radiated emissions from unlicensed wireless devices below 30 MHz
☒	ANSI C63.10	6.5	Radiated emissions from unlicensed wireless devices in the frequency range of 30 MHz to 1000 MHz
☒	ANSI C63.10	6.6	Radiated emissions from unlicensed wireless devices above 1 GHz

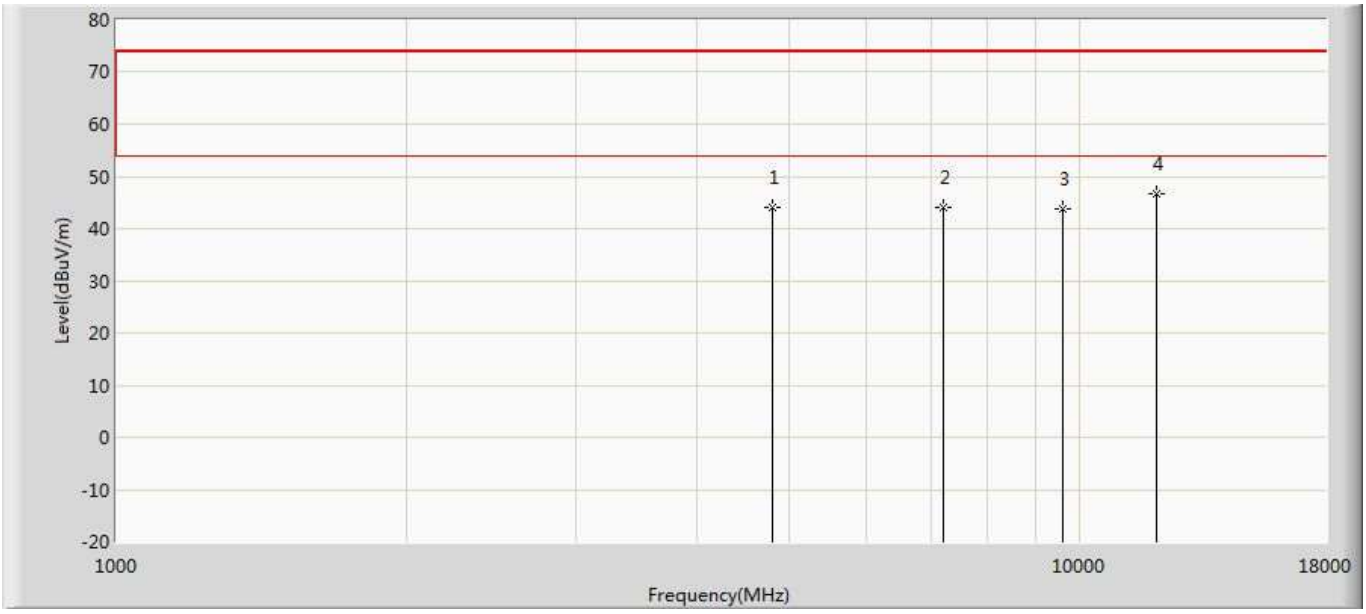
4.5. Uncertainty

The measurement uncertainty above 1G is defined as ± 3.9 dB

below 1G is defined as ± 3.8 dB

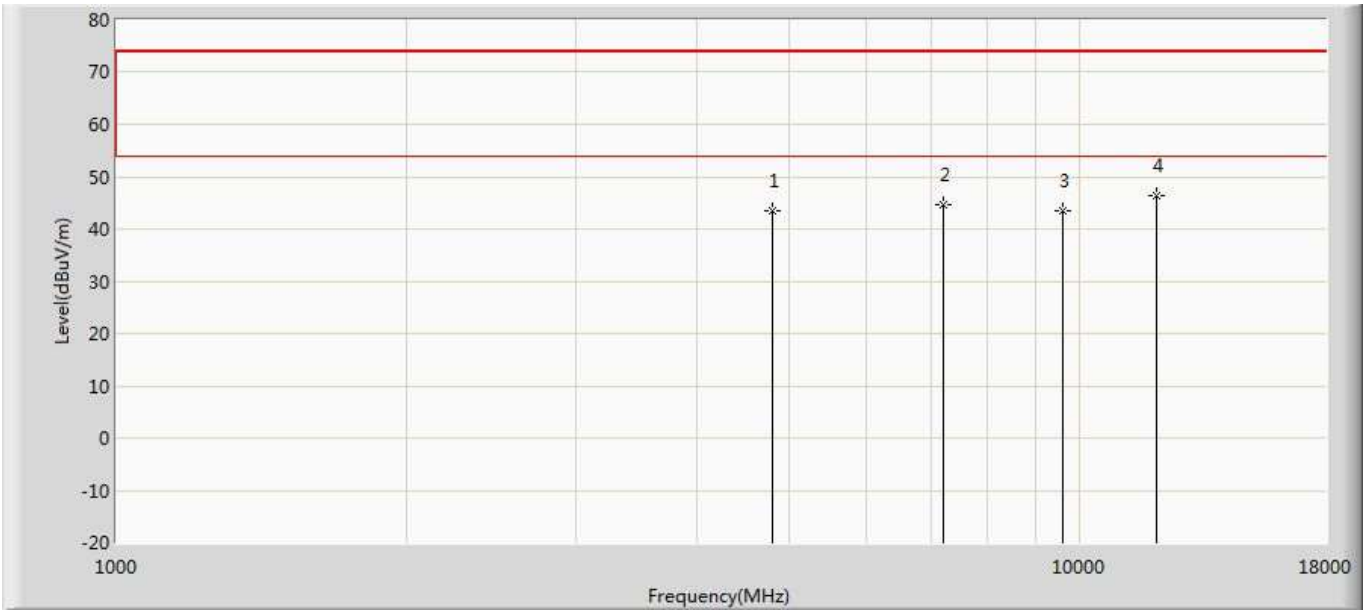
4.6. Test Result

Profile: 2040215R	Page No.: 43
Engineer: Tongben	
Site: AC5	Time: 2020/04/19 - 00:52
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: MP-202S-00	Power: AC 120V/60Hz
Note: Mode 1:Transmit at 2402MHz by DH5	



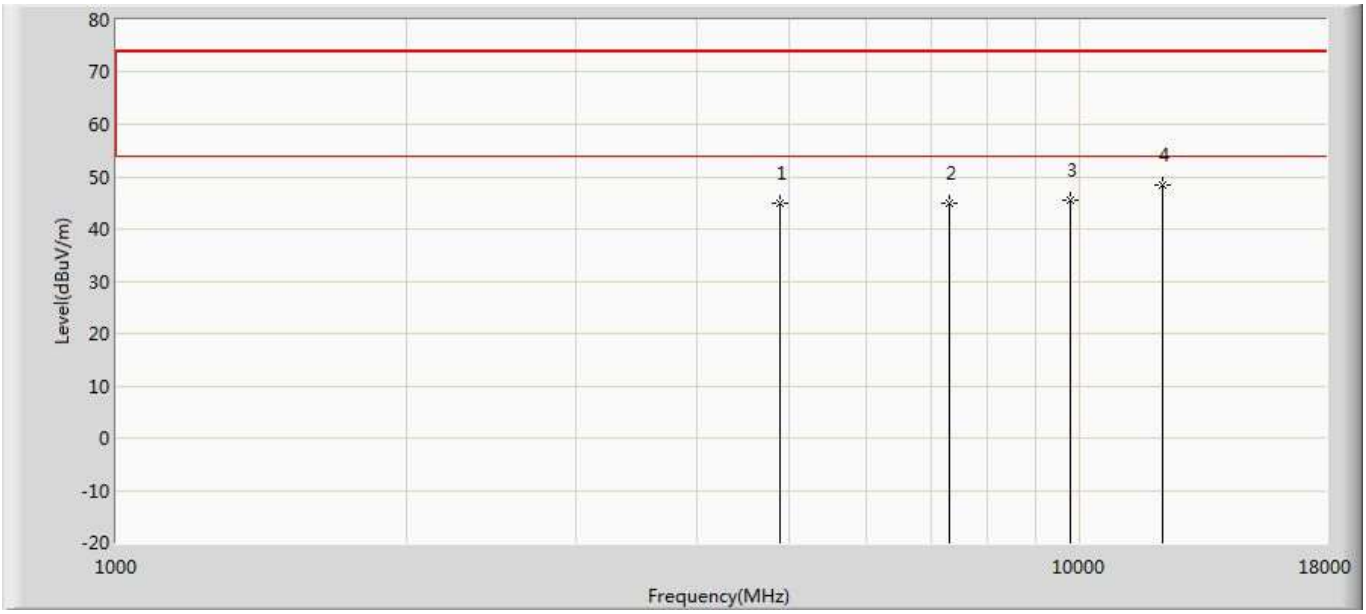
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4804.000	44.089	40.428	-29.911	74.000	3.662	PK
2		7206.000	44.145	37.482	-29.855	74.000	6.663	PK
3		9608.000	43.772	35.636	-30.228	74.000	8.137	PK
4	*	12010.000	46.597	33.807	-27.403	74.000	12.789	PK

Profile: 2040215R	Page No.: 44
Engineer: Tongben	
Site: AC5	Time: 2020/04/19 - 00:52
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: MP-202S-00	Power: AC 120V/60Hz
Note: Mode 1:Transmit at 2402MHz by DH5	



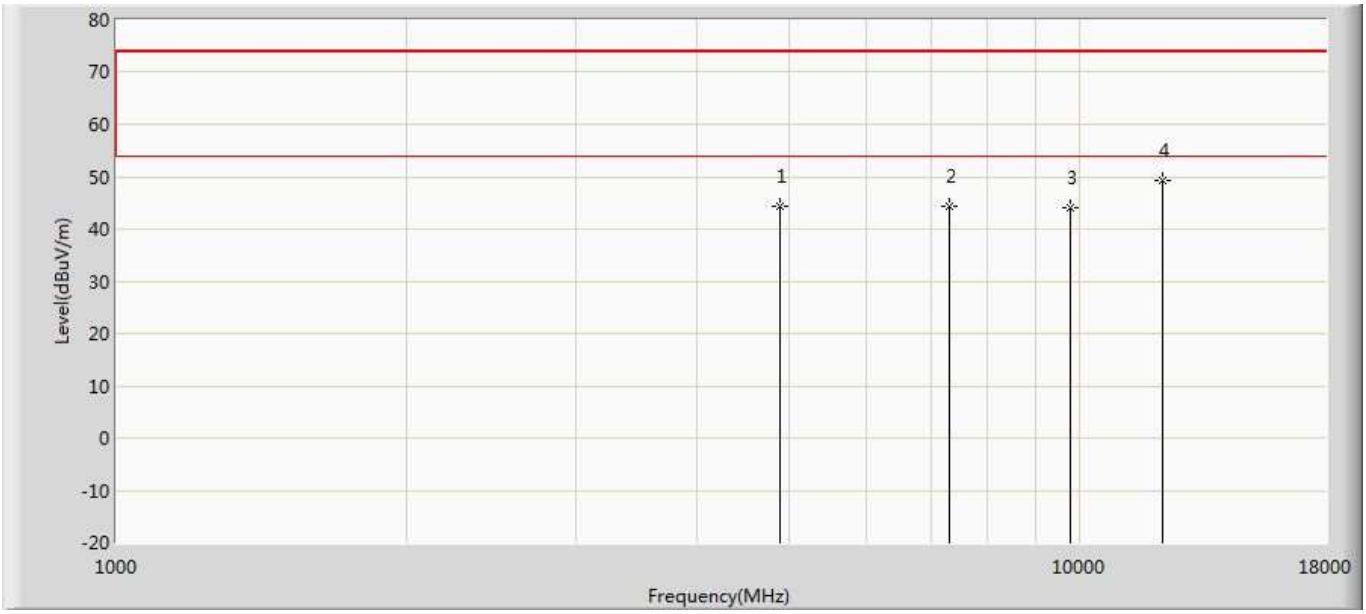
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4804.000	43.494	39.833	-30.506	74.000	3.662	PK
2		7206.000	44.616	37.953	-29.384	74.000	6.663	PK
3		9608.000	43.589	35.453	-30.411	74.000	8.137	PK
4	*	12010.000	46.484	33.694	-27.516	74.000	12.789	PK

Profile: 2040215R	Page No.: 45
Engineer: Tongben	
Site: AC5	Time: 2020/04/19 - 00:52
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: MP-202S-00	Power: AC 120V/60Hz
Note: Mode 1:Transmit at 2441MHz by DH5	



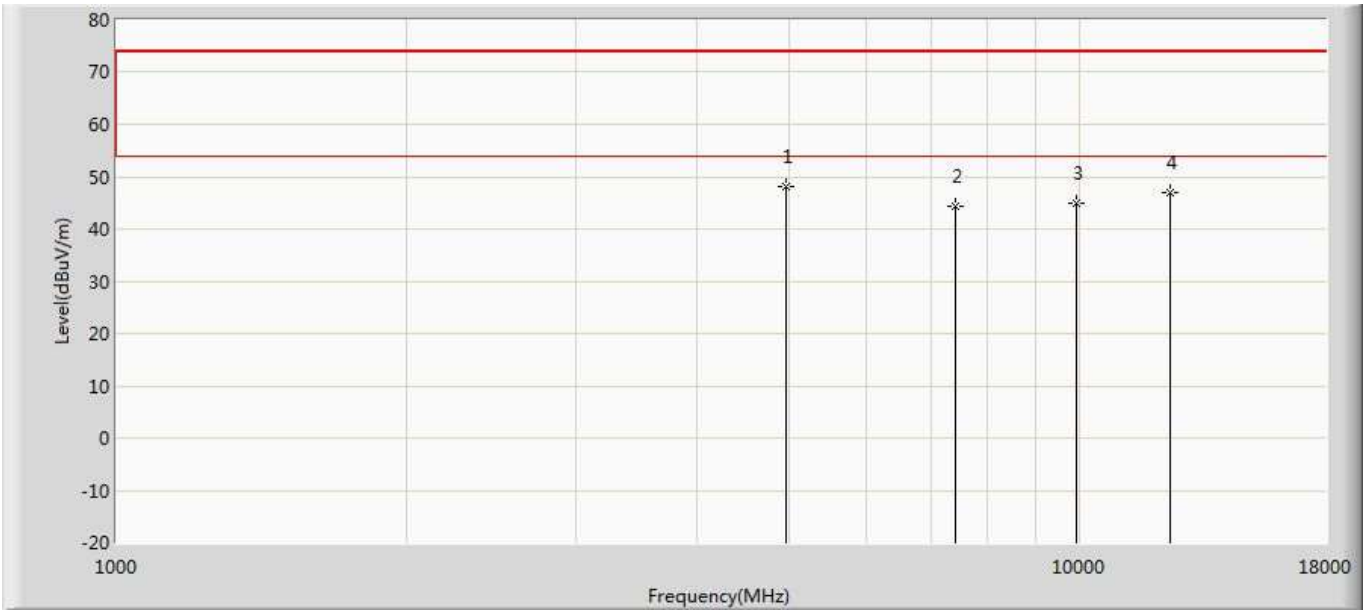
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4882.000	44.993	41.375	-29.007	74.000	3.619	PK
2		7323.000	44.909	38.206	-29.091	74.000	6.702	PK
3		9764.000	45.423	36.655	-28.577	74.000	8.767	PK
4	*	12205.000	48.344	34.687	-25.656	74.000	13.658	PK

Profile: 2040215R	Page No.: 46
Engineer: Tongben	
Site: AC5	Time: 2020/04/19 - 00:52
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: MP-202S-00	Power: AC 120V/60Hz
Note: Mode 1:Transmit at 2441MHz by DH5	



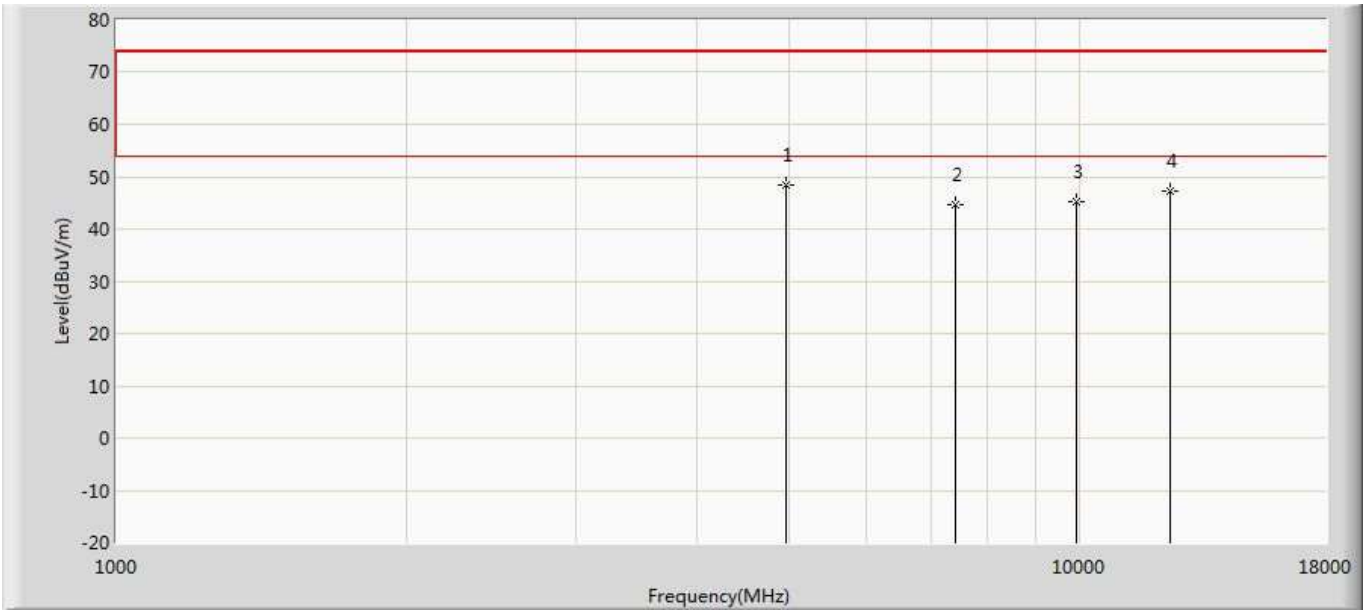
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4882.000	44.231	40.613	-29.769	74.000	3.619	PK
2		7323.000	44.475	37.772	-29.525	74.000	6.702	PK
3		9764.000	44.152	35.384	-29.848	74.000	8.767	PK
4	*	12205.000	49.250	35.593	-24.750	74.000	13.658	PK

Profile: 2040215R	Page No.: 47
Engineer: Tongben	
Site: AC5	Time: 2020/04/19 - 00:52
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: MP-202S-00	Power: AC 120V/60Hz
Note: Mode 1:Transmit at 2480MHz by DH5	



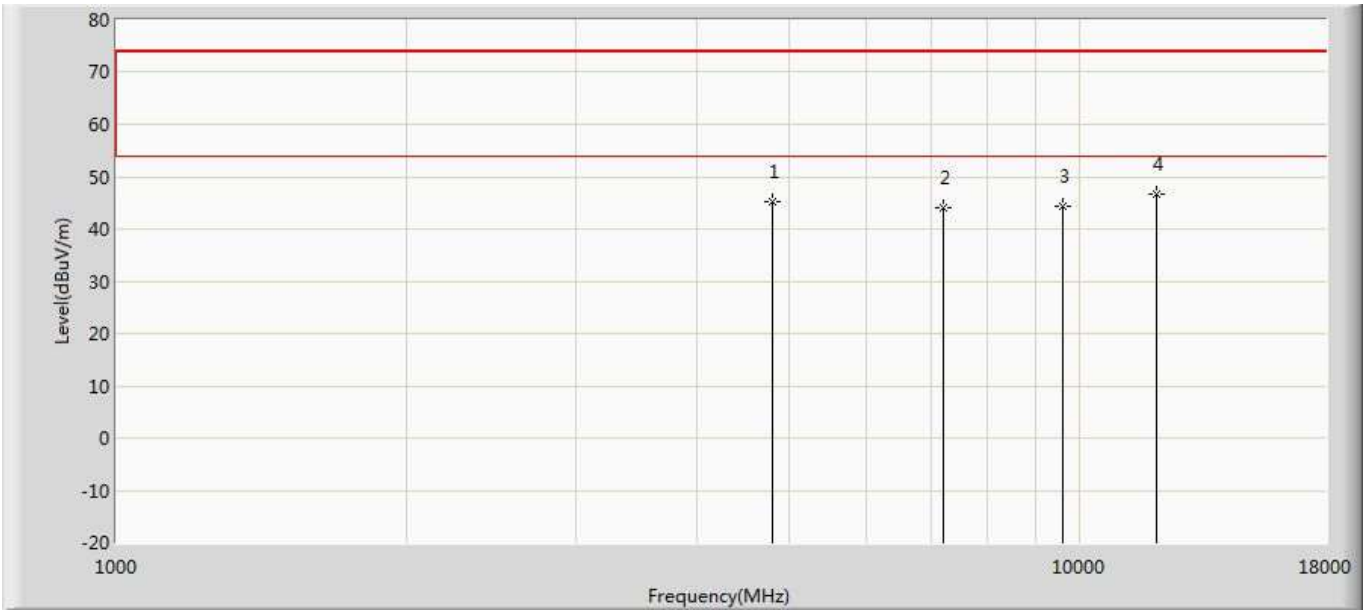
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	4960.000	48.159	44.548	-25.841	74.000	3.611	PK
2		7440.000	44.208	37.623	-29.792	74.000	6.585	PK
3		9920.000	45.012	36.287	-28.988	74.000	8.725	PK
4		12400.000	47.028	33.052	-26.972	74.000	13.976	PK

Profile: 2040215R	Page No.: 48
Engineer: Tongben	
Site: AC5	Time: 2020/04/19 - 00:52
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: MP-202S-00	Power: AC 120V/60Hz
Note: Mode 1:Transmit at 2480MHz by DH5	



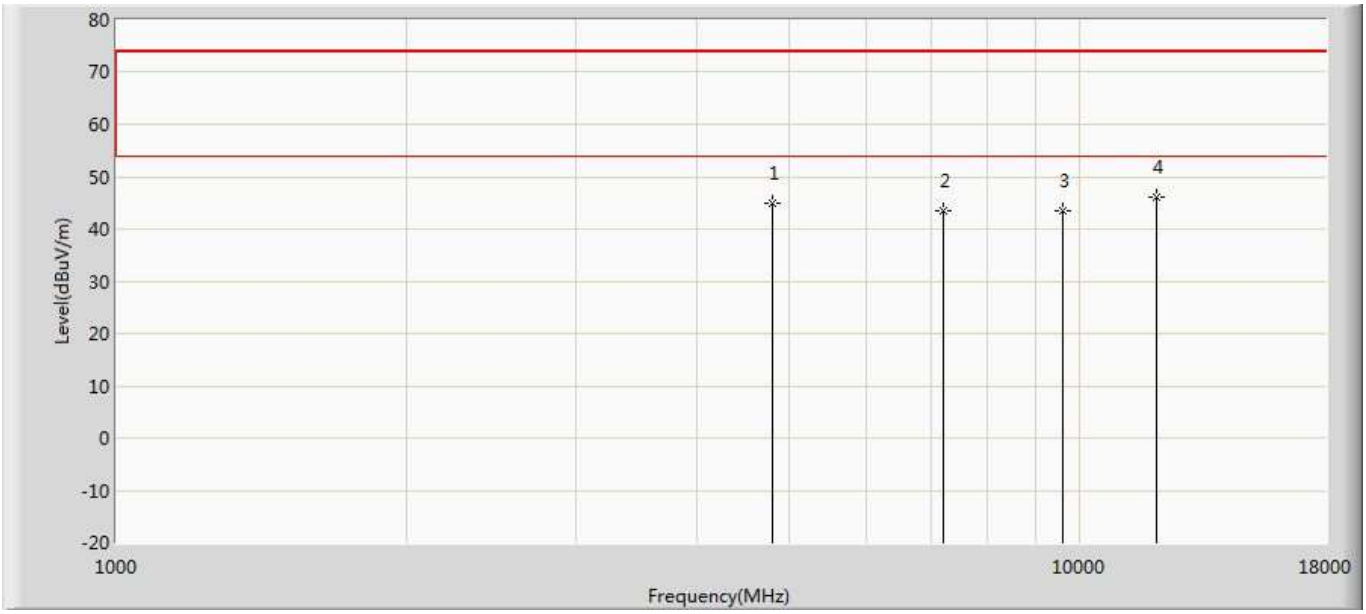
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	4960.000	48.314	44.703	-25.686	74.000	3.611	PK
2		7440.000	44.615	38.030	-29.385	74.000	6.585	PK
3		9920.000	45.075	36.350	-28.925	74.000	8.725	PK
4		12400.000	47.323	33.347	-26.677	74.000	13.976	PK

Profile: 2040215R	Page No.: 49
Engineer: Tongben	
Site: AC5	Time: 2020/04/19 - 00:52
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: MP-202S-00	Power: AC 120V/60Hz
Note: Mode 2:Transmit at 2402MHz by 2DH5	



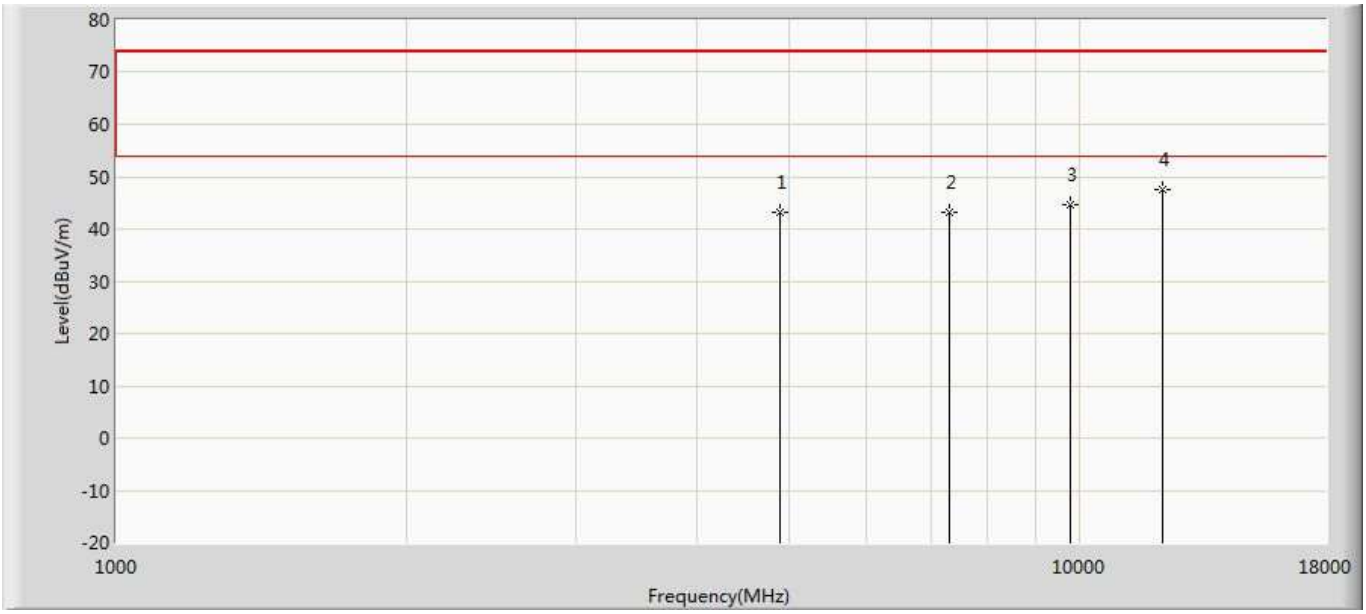
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4804.000	45.207	41.546	-28.793	74.000	3.662	PK
2		7206.000	44.000	37.337	-30.000	74.000	6.663	PK
3		9608.000	44.408	36.272	-29.592	74.000	8.137	PK
4	*	12010.000	46.745	33.955	-27.255	74.000	12.789	PK

Profile: 2040215R	Page No.: 50
Engineer: Tongben	
Site: AC5	Time: 2020/04/19 - 00:52
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: MP-202S-00	Power: AC 120V/60Hz
Note: Mode 2:Transmit at 2402MHz by 2DH5	



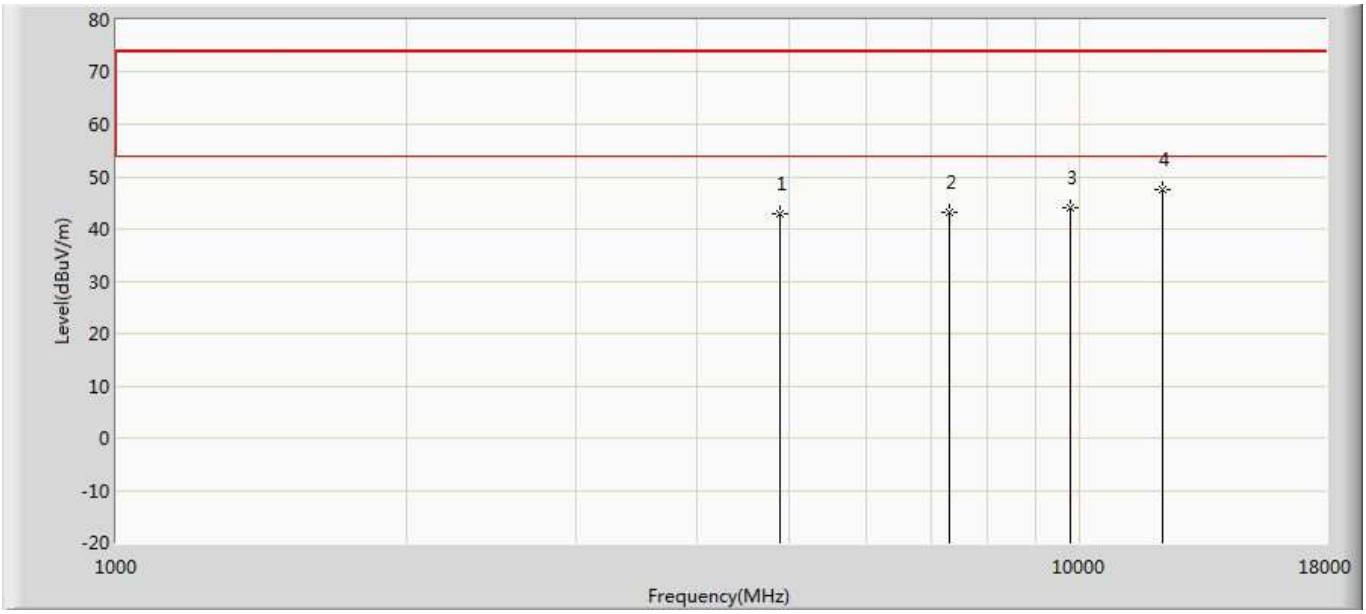
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4804.000	44.845	41.184	-29.155	74.000	3.662	PK
2		7206.000	43.382	36.719	-30.618	74.000	6.663	PK
3		9608.000	43.593	35.457	-30.407	74.000	8.137	PK
4	*	12010.000	46.152	33.362	-27.848	74.000	12.789	PK

Profile: 2040215R	Page No.: 51
Engineer: Tongben	
Site: AC5	Time: 2020/04/19 - 00:52
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: MP-202S-00	Power: AC 120V/60Hz
Note: Mode 2:Transmit at 2441MHz by 2DH5	



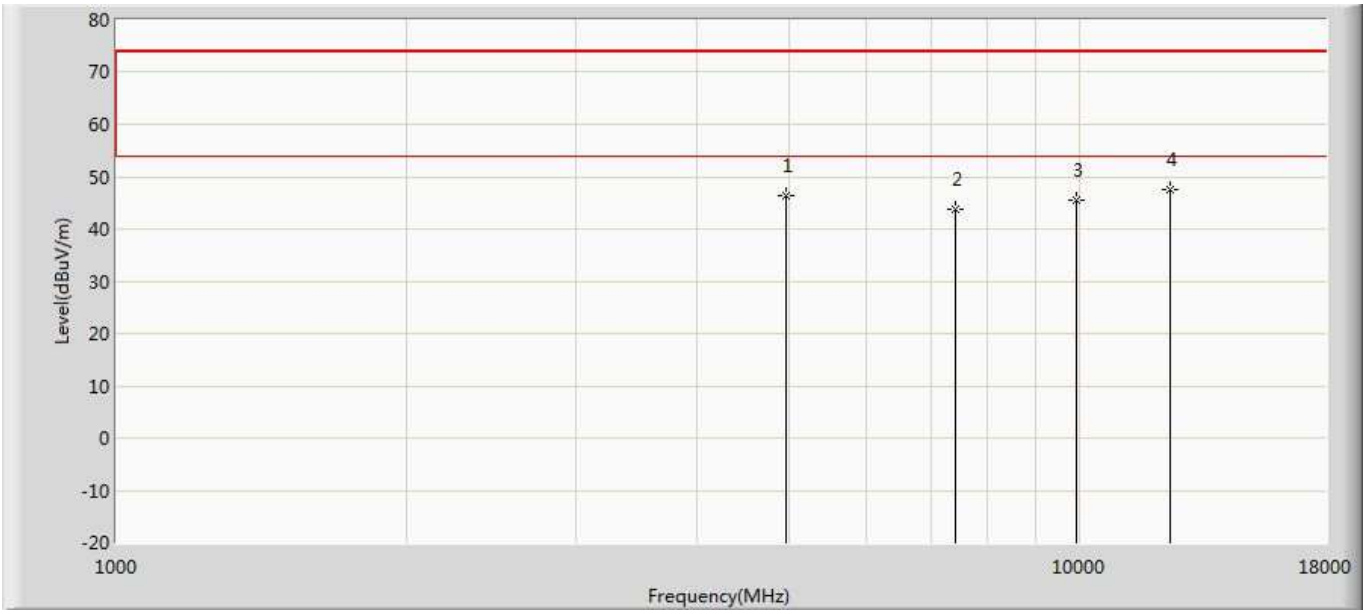
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4882.000	43.324	39.706	-30.676	74.000	3.619	PK
2		7323.000	43.305	36.602	-30.695	74.000	6.702	PK
3		9764.000	44.764	35.996	-29.236	74.000	8.767	PK
4	*	12205.000	47.531	33.874	-26.469	74.000	13.658	PK

Profile: 2040215R	Page No.: 52
Engineer: Tongben	
Site: AC5	Time: 2020/04/19 - 00:52
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: MP-202S-00	Power: AC 120V/60Hz
Note: Mode 2:Transmit at 2441MHz by 2DH5	



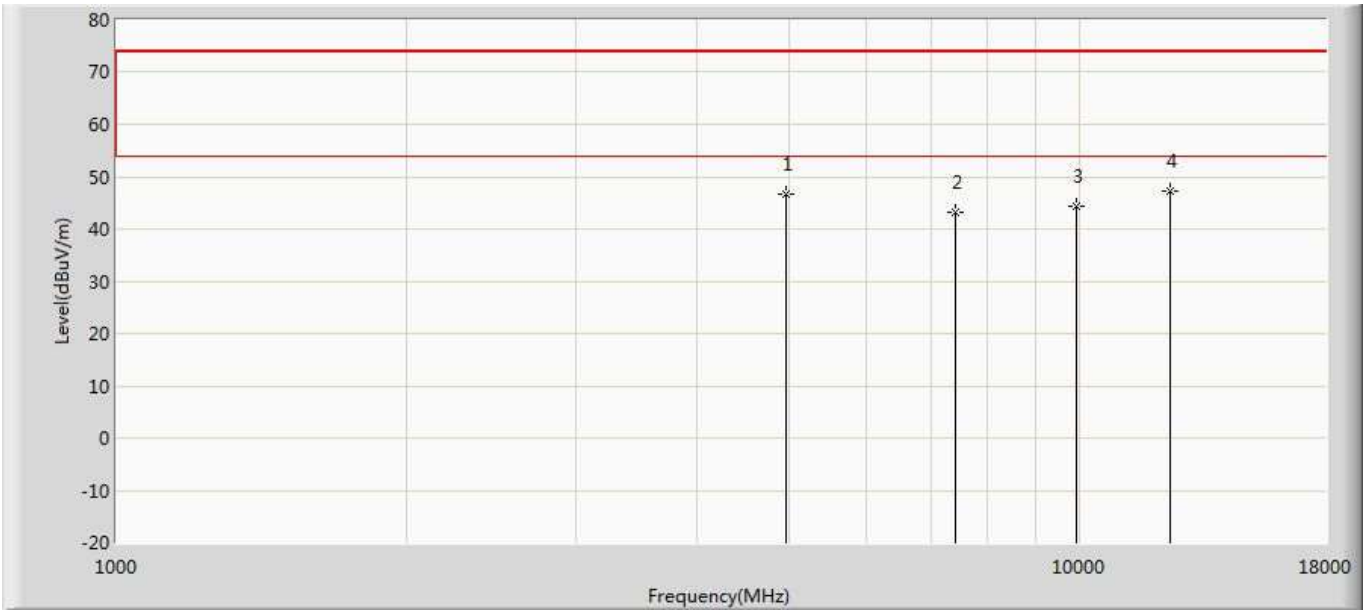
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4882.000	43.010	39.392	-30.990	74.000	3.619	PK
2		7323.000	43.233	36.530	-30.767	74.000	6.702	PK
3		9764.000	44.151	35.383	-29.849	74.000	8.767	PK
4	*	12205.000	47.395	33.738	-26.605	74.000	13.658	PK

Profile: 2040215R	Page No.: 53
Engineer: Tongben	
Site: AC5	Time: 2020/04/19 - 00:52
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: MP-202S-00	Power: AC 120V/60Hz
Note: Mode 2:Transmit at 2480MHz by 2DH5	



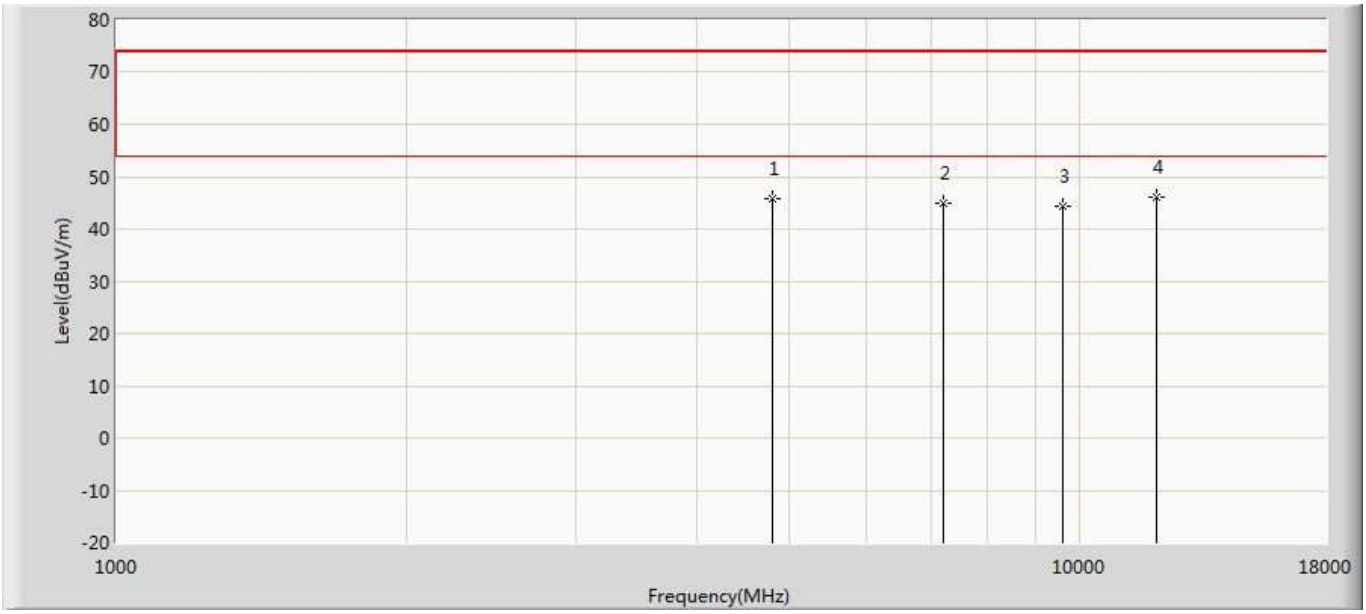
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4960.000	46.422	42.811	-27.578	74.000	3.611	PK
2		7440.000	43.729	37.144	-30.271	74.000	6.585	PK
3		9920.000	45.403	36.678	-28.597	74.000	8.725	PK
4	*	12400.000	47.392	33.416	-26.608	74.000	13.976	PK

Profile: 2040215R	Page No.: 54
Engineer: Tongben	
Site: AC5	Time: 2020/04/19 - 00:52
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: MP-202S-00	Power: AC 120V/60Hz
Note: Mode 2:Transmit at 2480MHz by 2DH5	



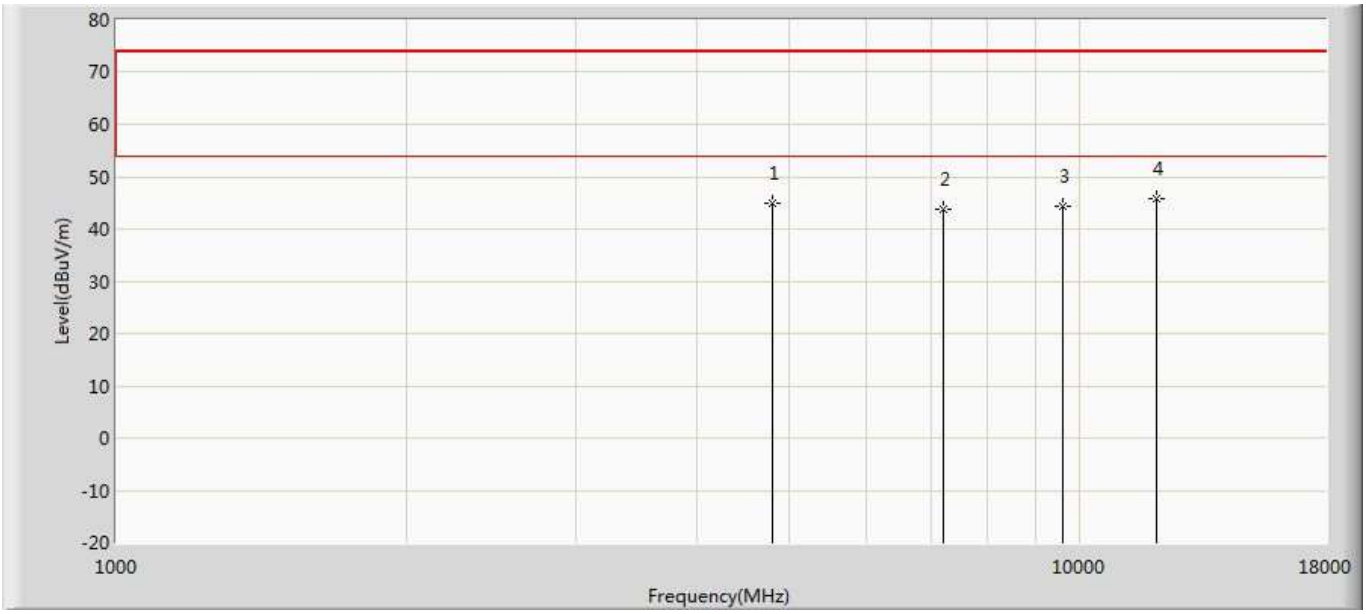
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4960.000	46.733	43.122	-27.267	74.000	3.611	PK
2		7440.000	43.324	36.739	-30.676	74.000	6.585	PK
3		9920.000	44.473	35.748	-29.527	74.000	8.725	PK
4	*	12400.000	47.154	33.178	-26.846	74.000	13.976	PK

Profile: 2040215R	Page No.: 55
Engineer: Tongben	
Site: AC5	Time: 2020/04/19 - 00:53
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: MP-202S-00	Power: AC 120V/60Hz
Note: Mode 3:Transmit at 2402MHz by 3DH5	



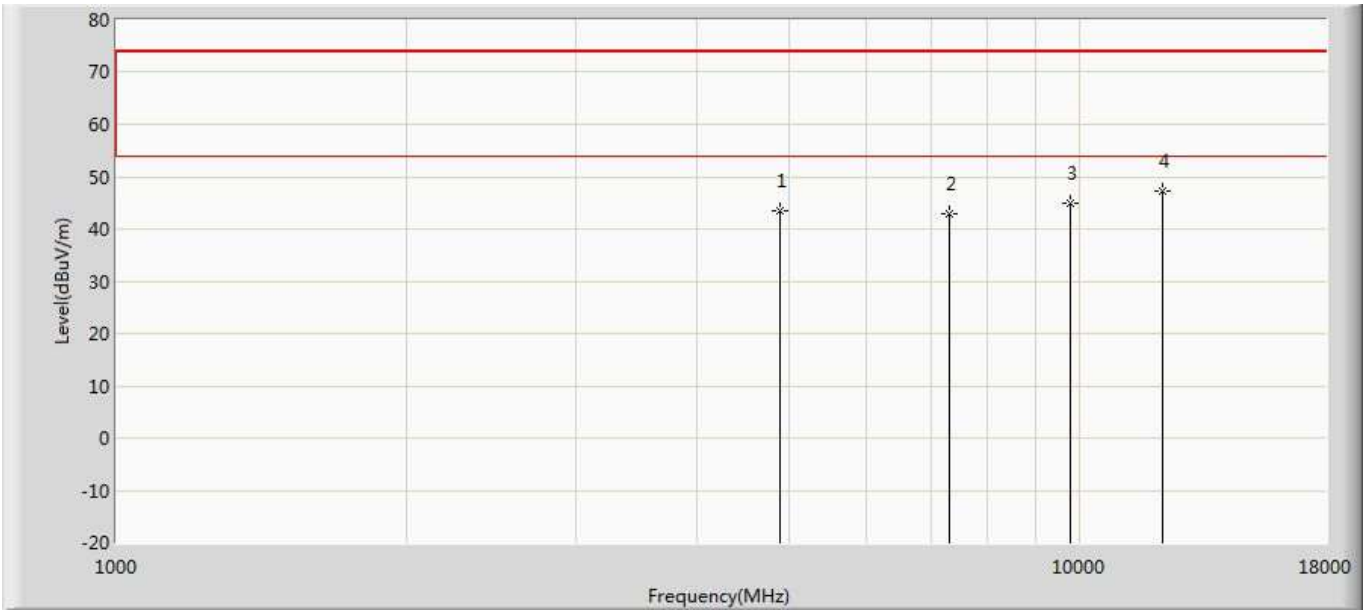
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4804.000	45.927	42.266	-28.073	74.000	3.662	PK
2		7206.000	45.063	38.400	-28.937	74.000	6.663	PK
3		9608.000	44.214	36.078	-29.786	74.000	8.137	PK
4	*	12010.000	46.163	33.373	-27.837	74.000	12.789	PK

Profile: 2040215R	Page No.: 56
Engineer: Tongben	
Site: AC5	Time: 2020/04/19 - 00:53
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: MP-202S-00	Power: AC 120V/60Hz
Note: Mode 3:Transmit at 2402MHz by 3DH5	



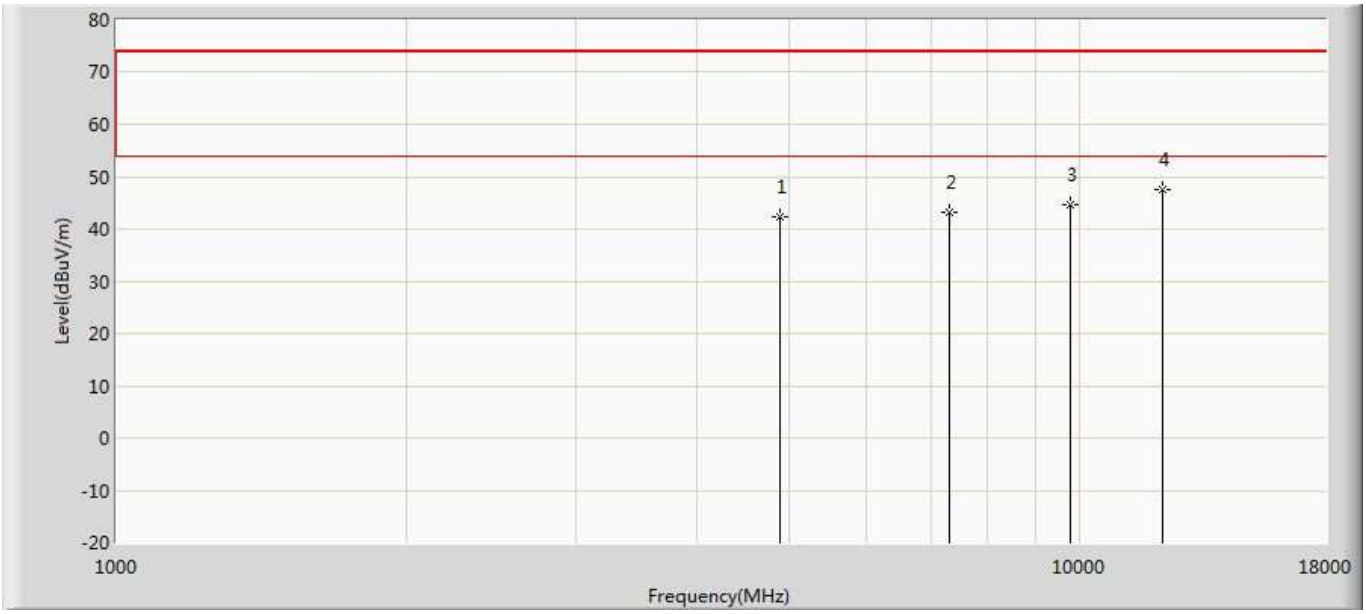
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4804.000	44.843	41.182	-29.157	74.000	3.662	PK
2		7206.000	43.902	37.239	-30.098	74.000	6.663	PK
3		9608.000	44.315	36.179	-29.685	74.000	8.137	PK
4	*	12010.000	45.809	33.019	-28.191	74.000	12.789	PK

Profile: 2040215R	Page No.: 57
Engineer: Tongben	
Site: AC5	Time: 2020/04/19 - 00:53
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: MP-202S-00	Power: AC 120V/60Hz
Note: Mode 3:Transmit at 2441MHz by 3DH5	



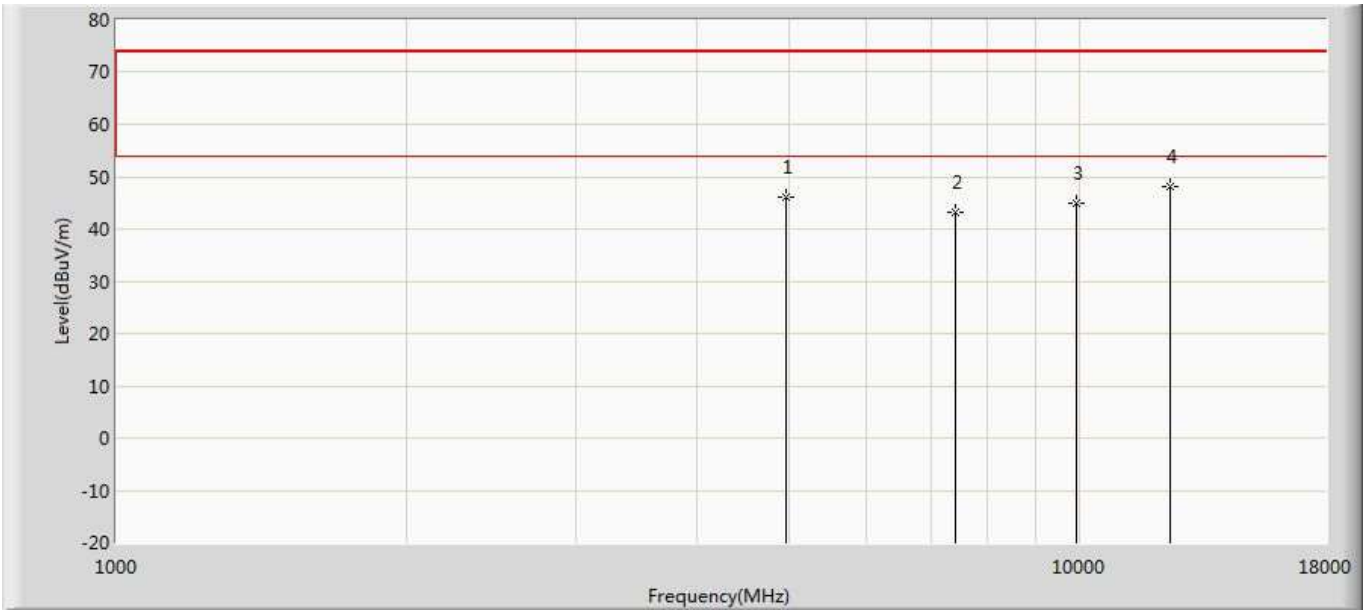
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4882.000	43.531	39.913	-30.469	74.000	3.619	PK
2		7323.000	42.983	36.280	-31.017	74.000	6.702	PK
3		9764.000	44.972	36.204	-29.028	74.000	8.767	PK
4	*	12205.000	47.278	33.621	-26.722	74.000	13.658	PK

Profile: 2040215R	Page No.: 58
Engineer: Tongben	
Site: AC5	Time: 2020/04/19 - 00:53
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: MP-202S-00	Power: AC 120V/60Hz
Note: Mode 3:Transmit at 2441MHz by 3DH5	



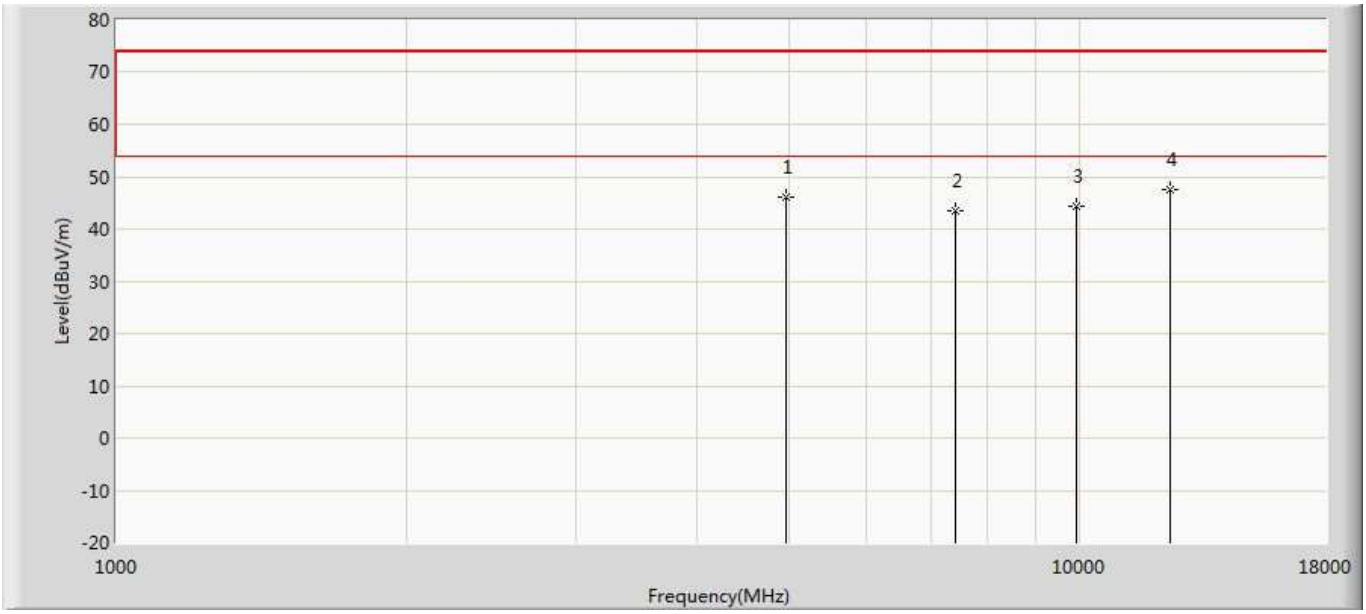
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4882.000	42.320	38.702	-31.680	74.000	3.619	PK
2		7323.000	43.111	36.408	-30.889	74.000	6.702	PK
3		9764.000	44.533	35.765	-29.467	74.000	8.767	PK
4	*	12205.000	47.419	33.762	-26.581	74.000	13.658	PK

Profile: 2040215R	Page No.: 59
Engineer: Tongben	
Site: AC5	Time: 2020/04/19 - 00:53
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: MP-202S-00	Power: AC 120V/60Hz
Note: Mode 3:Transmit at 2480MHz by 3DH5	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4960.000	46.122	42.511	-27.878	74.000	3.611	PK
2		7440.000	43.072	36.487	-30.928	74.000	6.585	PK
3		9920.000	44.983	36.258	-29.017	74.000	8.725	PK
4	*	12400.000	48.203	34.227	-25.797	74.000	13.976	PK

Profile: 2040215R	Page No.: 60
Engineer: Tongben	
Site: AC5	Time: 2020/04/19 - 00:53
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: MP-202S-00	Power: AC 120V/60Hz
Note: Mode 3:Transmit at 2480MHz by 3DH5	



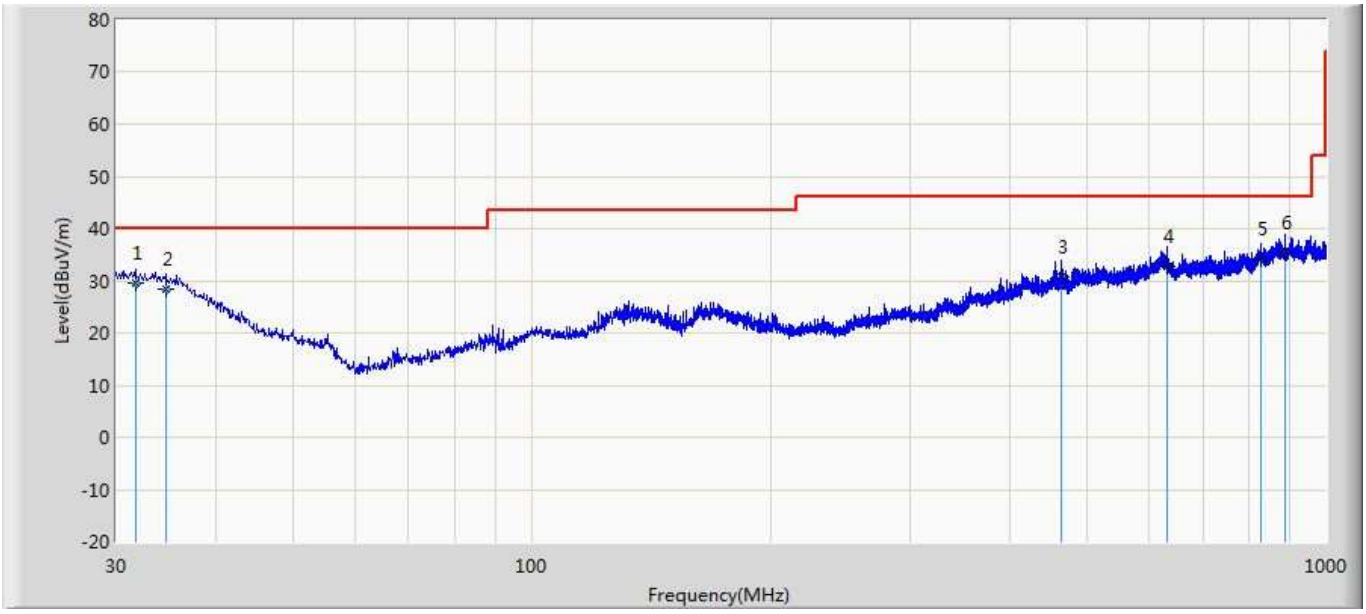
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4960.000	46.161	42.550	-27.839	74.000	3.611	PK
2		7440.000	43.482	36.897	-30.518	74.000	6.585	PK
3		9920.000	44.473	35.748	-29.527	74.000	8.725	PK
4	*	12400.000	47.489	33.513	-26.511	74.000	13.976	PK

Note:

1. Measured Level = Reading Level + Factor.
2. The test frequency range, 9kHz~30MHz, 18GHz~26GHz, both of the worst case are at least 20dB below the limits, therefore no data appear in the report.
3. This limit applies for using average detector, if the test result on peak is lower than average limit, then average measurement needn't be performed.
4. As the radiated emission was performed, so conducted emission was not tested.

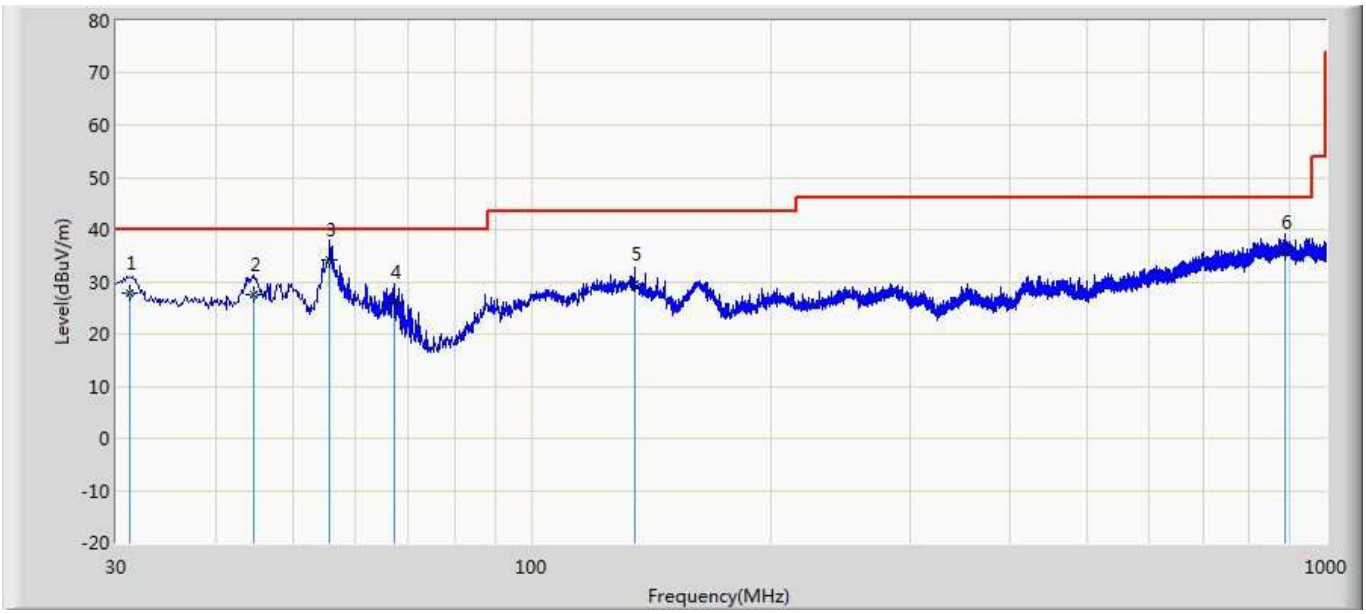
The worst case of Radiated Emission below 1GHz:

Engineer: Shuo	
Site: AC2	Time: 2020/04/19
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: AC2_3M(30-1000M)	Polarity: Horizontal
EUT: MP-202S-00	Power: AC 120V/60Hz
Note: Mode1	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Probe (dB/m)	Cable (dB)	Amp (dB)	Ant Pos (cm)	Table Pos (deg)	Type
1	*	31.698	29.527	2.400	-10.473	40.000	20.788	6.339	0.000	200	360	QP
2		34.607	28.319	1.300	-11.681	40.000	20.681	6.338	0.000	200	264	QP
3		463.832	30.864	3.700	-15.136	46.000	19.098	8.066	0.000	100	288	QP
4		631.157	32.725	2.700	-13.275	46.000	21.505	8.520	0.000	300	1	QP
5		828.431	34.218	2.500	-11.782	46.000	22.707	9.010	0.000	200	249	QP
6		889.177	35.489	3.300	-10.511	46.000	23.044	9.145	0.000	100	308	QP

Engineer: Shuo	
Site: AC2	Time: 2020/04/19
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: AC2_3M(30-1000M)	Polarity: Vertical
EUT: MP-202S-00	Power: AC 120V/60Hz
Note: Mode1	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Probe (dB/m)	Cable (dB)	Amp (dB)	Ant Pos (cm)	Table Pos (deg)	Type
1		31.212	27.932	4.300	-12.068	40.000	17.293	6.339	0.000	100	296	QP
2		44.792	27.668	9.800	-12.332	40.000	11.413	6.455	0.000	200	120	QP
3	*	55.705	34.058	16.800	-5.942	40.000	10.729	6.529	0.000	100	159	QP
4		67.345	26.045	10.600	-13.955	40.000	8.851	6.595	0.000	200	324	QP
5		134.639	29.446	9.700	-14.054	43.500	12.814	6.932	0.000	100	287	QP
6		888.329	35.607	2.400	-10.393	46.000	24.063	9.144	0.000	100	122	QP

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. " * ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Factor(Probe+Cable-Amp).

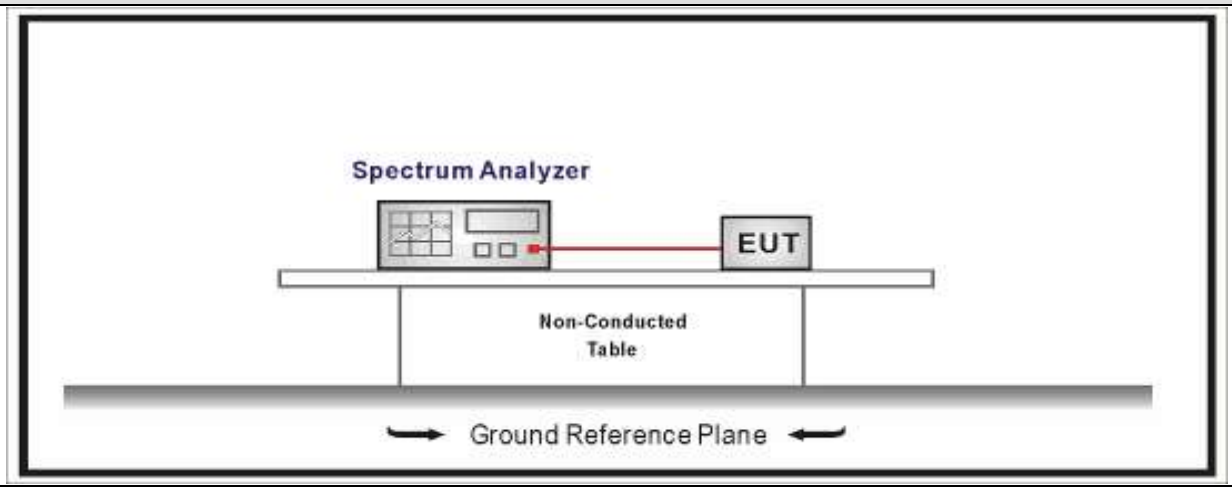
5. 20dB Bandwidth

5.1 Test Equipment

20dB Occupied Bandwidth / TR-8					
Instrument	Manufacturer	Type No.	Serial No.	Cal. Date	Cal. Due Date
Spectrum Analyzer	Agilent	N9010A	MY48030494	2019.09.28	2020.09.27
EXA Spectrum Analyzer	Keysight	N9010A	MY55370495	2020.04.17	2021.04.16
MXA Signal Anlyzer	Keysight	N9020A	MY56060147	2019.08.30	2020.08.29
Temperature/Humidity Meter	zhichen	ZC1-2	TR8-TH	2019.09.02	2020.09.01
Note: All equipment is calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.					

5.2 Test Setup

20dB Occupied Bandwidth test setup:



5.3 Limit

Carrier Frequency Separation	
☒	For frequency hopping systems operating in 2400-2483.5 MHz band, within frequency range.
☐	For frequency hopping systems operating in 902-928 MHz band, the maximum allowed 20 dB bandwidth of the hopping channel is 500 kHz.
☐	For frequency hopping systems operating in 5725-5850 MHz band, the maximum 20 dB bandwidth of the hopping channel is 1 MHz.

5.4 Test Procedure

Test Method			
	References Rule	Chapter	Description
☒	ANSI C63.10	6.9.2	Occupied bandwidth tests

5.5 Uncertainty

The measurement uncertainty is defined as ± 1 kHz

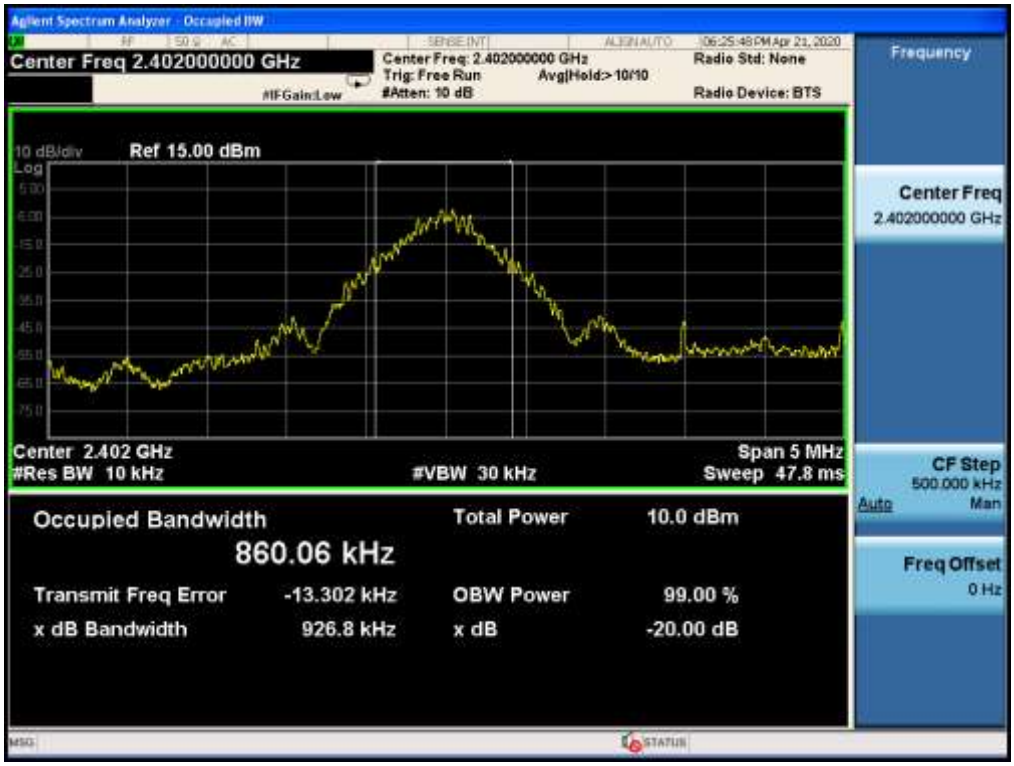
5.6 Test Result

Product Name	:	Car Audio	Test Voltage	:	DC 12V
Test Mode	:	Mode 1	Test Site	:	TR-8
Test Date	:	2020.04.21	Test Engineer	:	Neil

Channel No.	Frequency (MHz)	20dB Bandwidth (kHz)	99% Bandwidth (kHz)
00	2402	926.8	860.06
39	2441	920.8	871.15
78	2480	925.9	876.68

Note: The worst was shown below:

Channel 00 (2402MHz)



Product Name	:	Car Audio	Test Voltage	:	DC 12V
Test Mode	:	Mode 2	Test Site	:	TR-8
Test Date	:	2020.04.21	Test Engineer	:	Neil

Channel No.	Frequency (MHz)	20dB Bandwidth (kHz)	99% Bandwidth (kHz)
00	2402	1297	1185.1
39	2441	1323	1227.5
78	2480	1343	1279.8

Note: The worst was shown below:

Channel 78 (2480MHz)

Product Name	:	Car Audio	Test Voltage	:	DC 12V
Test Mode	:	Mode 3	Test Site	:	TR-8
Test Date	:	2020.04.21	Test Engineer	:	Neil

Channel No.	Frequency (MHz)	20dB Bandwidth (kHz)	99% Bandwidth (kHz)
00	2402	1314	1183.3
39	2441	1294	1226.2
78	2480	1339	1266.3

Channel 78 (2480MHz)

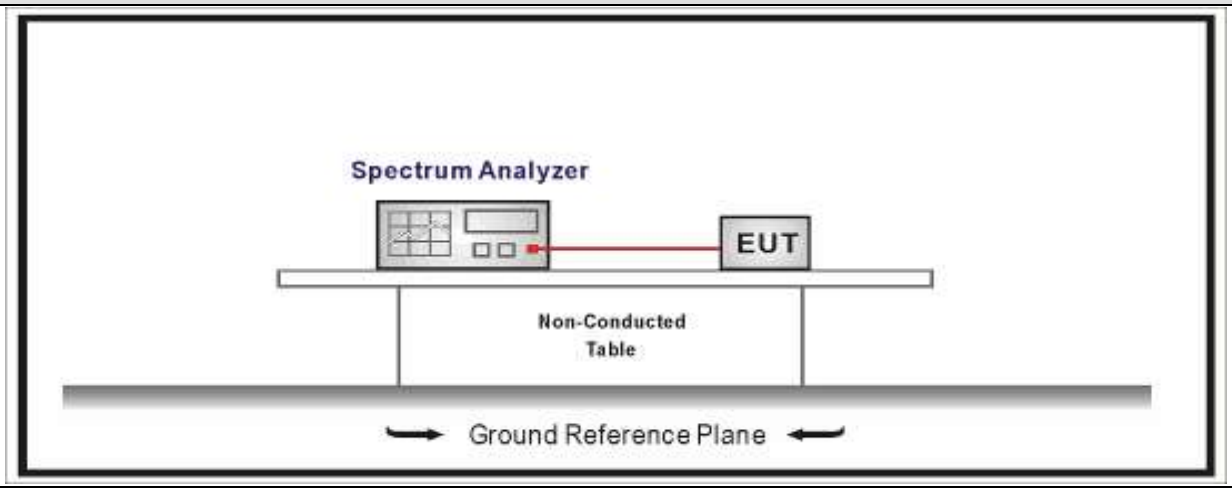
6. Carrier Frequency Separation

6.1. Test Equipment

Carrier Frequency Separation / TR-8					
Instrument	Manufacturer	Type No.	Serial No.	Cal. Date	Cal. Due Date
Spectrum Analyzer	Agilent	N9010A	MY48030494	2020.02.03	2021.02.02
EXA Spectrum Analyzer	Keysight	N9010A	MY55370495	2020.04.09	2021.04.08
MXA Signal Anlyzer	Keysight	N9020A	MY56060147	2020.04.09	2021.04.08
Temperature/Humidity Meter	zhichen	ZC1-2	TR8-TH	2020.04.09	2021.04.08
Note: All equipment is calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.					

6.2. Test Setup

Carrier Frequency Separation test setup:



6.3. Limit

Carrier Frequency Separation	
☐	Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hopping channel, whichever is greater.
☒	Frequency hopping systems operating in the 2400-2483.5 MHz band may have hopping channel carrier frequencies that are separated by 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel.
☐	The 20 dB bandwidth of the hopping channel is less than 250 kHz, the system shall use at least 50 hopping frequencies and the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 20 second period;
☐	The 20 dB bandwidth of the hopping channel is 250 kHz or greater, the system shall use at least 25 hopping frequencies and the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 10 second period. The maximum allowed 20 dB bandwidth of the hopping channel is 500 kHz.
☐	Frequency hopping systems operating in the 5725-5850 MHz band shall use at least 75 hopping frequencies. The maximum 20 dB bandwidth of the hopping channel is 1 MHz.

6.4. Test Procedure

Test Method			
	References Rule	Chapter	Description
☒	ANSI C63.10	7.8.2	Carrier frequency separation

6.5. Uncertainty

The measurement uncertainty is defined as ± 1 kHz

6.6. Test Result

Product Name	:	Car Audio	Test Voltage	:	DC 12V
Test Mode	:	Mode 1	Test Site	:	TR-8
Test Date	:	2020.04.21	Test Engineer	:	Neil

Channel No.	Frequency (MHz)	Carrier Frequency Separation (kHz)	Limit (kHz)	Result
00	2402	1000	617.87	Pass
39	2441	1000	613.87	Pass
78	2480	1000	617.27	Pass

Channel 00 (2402MHz)

Channel 39 (2441MHz)

Channel 78 (2480MHz)

Product Name	:	Car Audio	Test Voltage	:	DC 12V
Test Mode	:	Mode 2	Test Site	:	TR-8
Test Date	:	2020.04.21	Test Engineer	:	Neil

Channel No.	Frequency (MHz)	Carrier Frequency Separation (kHz)	Limit (kHz)	Result
00	2402	1000	864.67	Pass
39	2441	1000	882.00	Pass
78	2480	1000	895.33	Pass

Channel 00 (2402MHz)

Channel 39 (2441MHz)

Channel 78 (2480MHz)

Product Name	:	Car Audio	Test Voltage	:	DC 12V
Test Mode	:	Mode 3	Test Site	:	TR-8
Test Date	:	2020.04.21	Test Engineer	:	Neil

Channel No.	Frequency (MHz)	Carrier Frequency Separation (kHz)	Limit (kHz)	Result
00	2402	1000	876.00	Pass
39	2441	1000	862.67	Pass
78	2480	1000	892.67	Pass

Channel 00 (2402MHz)

Channel 39 (2441MHz)

Channel 78 (2480MHz)

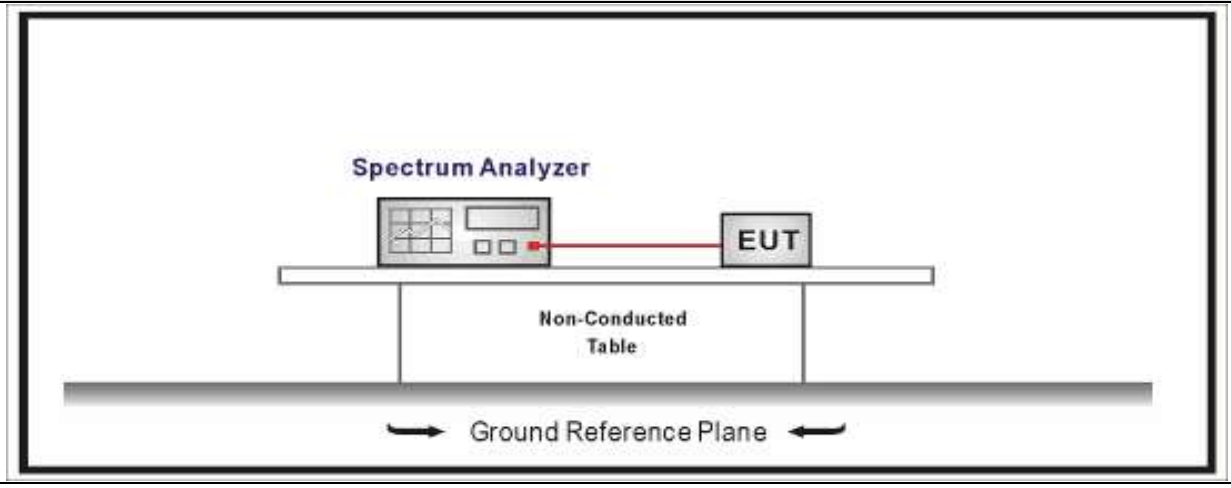
7. Number of Hopping Frequencies

7.1. Test Equipment

Number of Hopping Frequencies / TR-8					
Instrument	Manufacturer	Type No.	Serial No.	Cal. Date	Cal. Due Date
Spectrum Analyzer	Agilent	N9010A	MY48030494	2019.09.28	2020.09.27
EXA Spectrum Analyzer	Keysight	N9010A	MY55370495	2020.04.17	2021.04.16
MXA Signal Anlyzer	Keysight	N9020A	MY56060147	2019.08.30	2020.08.29
Temperature/Humidity Meter	zhichen	ZC1-2	TR8-TH	2019.09.02	2020.09.01
Note: All equipment is calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.					

7.2. Test Setup

Number of Hopping Frequencies test setup:



7.3. Limit

Carrier Frequency Separation	
☒	For frequency hopping systems operating in the 2400-2483.5 MHz band shall use at least 15 hopping frequencies.
☐	For frequency hopping systems operating in 902-928 MHz band, if the 20 dB bandwidth of the hopping channel is less than 250 kHz, shall use at least 50 hopping frequencies.
☐	For frequency hopping systems operating in 902-928 MHz band, if the 20 dB bandwidth of the hopping channel is higher than 250 kHz, shall use at least 25 hopping frequencies.
☐	For frequency hopping systems operating in the 5725-5850 MHz band shall use at least 75 hopping frequencies.

7.4. Test Procedure

Test Method			
	References Rule	Chapter	Description
☒	ANSI C63.10	7.8.3	Number of Hopping Frequencies

7.5. Uncertainty

The measurement uncertainty is defined as ± 1 kHz

7.6. Test Result

Product Name	:	Car Audio	Test Voltage	:	DC 12V
Test Mode	:	Mode 4(GFSK_DH5)	Test Site	:	TR-8
Test Date	:	2020.04.21	Test Engineer	:	Neil

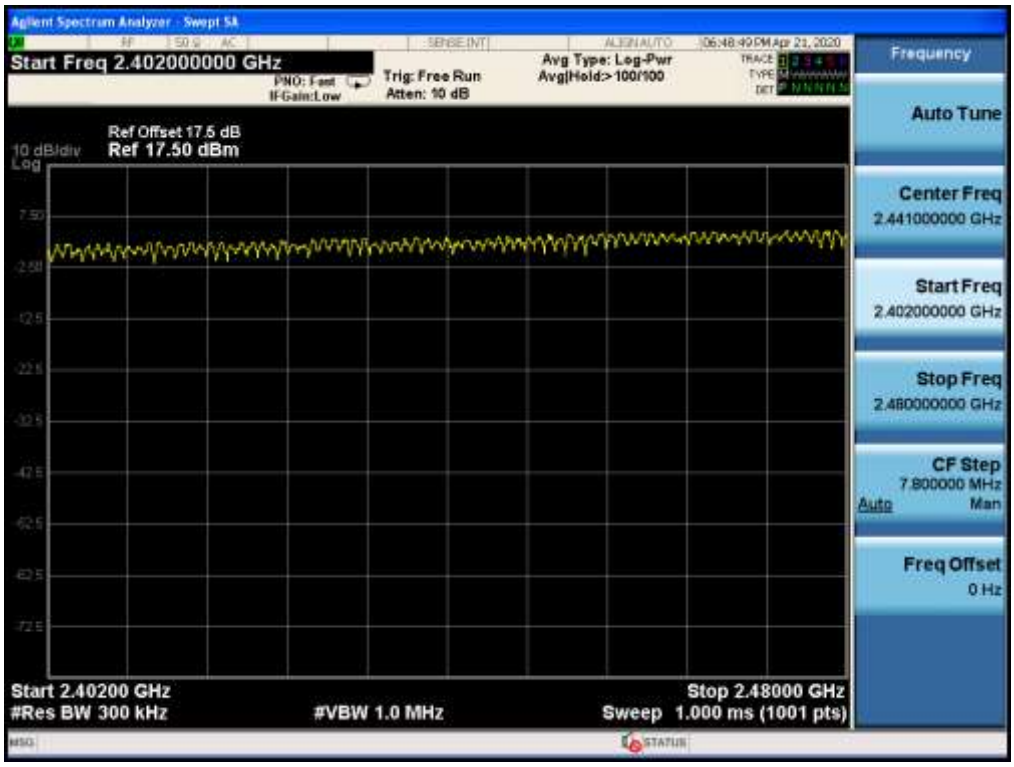
Frequency Band (MHz)	Number of Hopping Frequencies	Limit	Result
2400 - 2483.5	79	>15	Pass

2402 - 2480MHz

Product Name	:	Car Audio	Test Voltage	:	DC 12V
Test Mode	:	Mode 4(Pi/4 DQPSK_DH5)	Test Site	:	TR-8
Test Date	:	2020.04.21	Test Engineer	:	Neil

Frequency Band (MHz)	Number of Hopping Frequencies	Limit	Result
2400 - 2483.5	79	>15	Pass

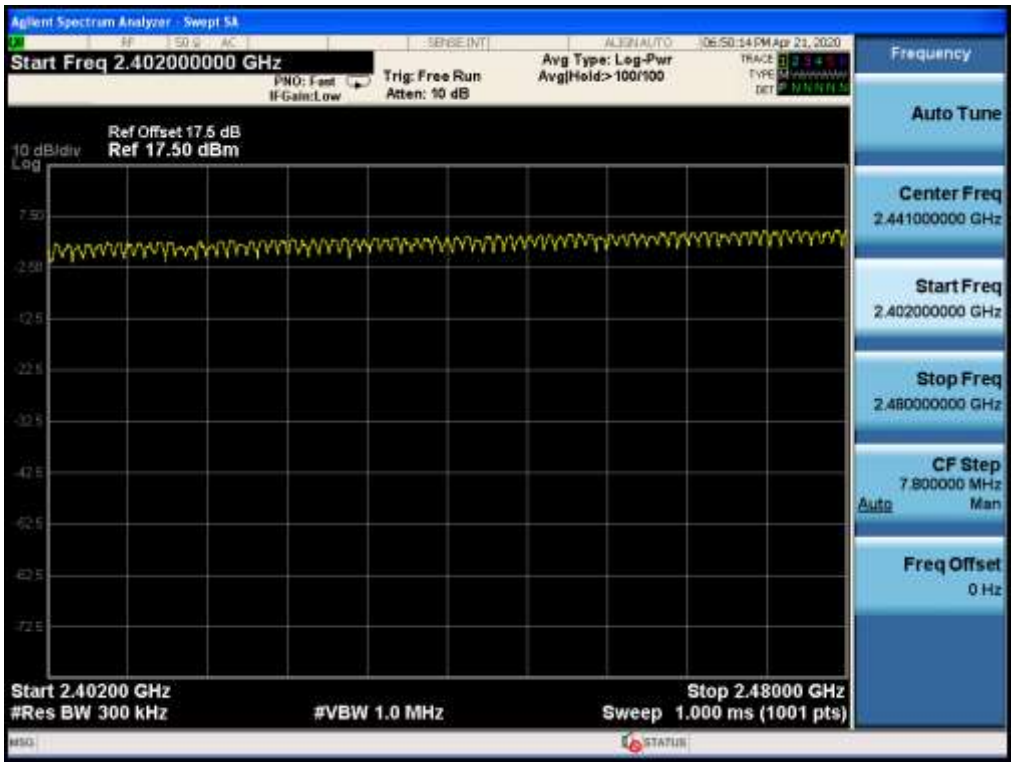
2402 - 2480 MHz



Product Name	:	Car Audio	Test Voltage	:	DC 12V
Test Mode	:	Mode 4(8DPSK_DH5)	Test Site	:	TR-8
Test Date	:	2020.04.21	Test Engineer	:	Neil

Frequency Band (MHz)	Number of Hopping Frequencies	Limit	Result
2400 - 2483.5	79	>15	Pass

2402 - 2480 MHz



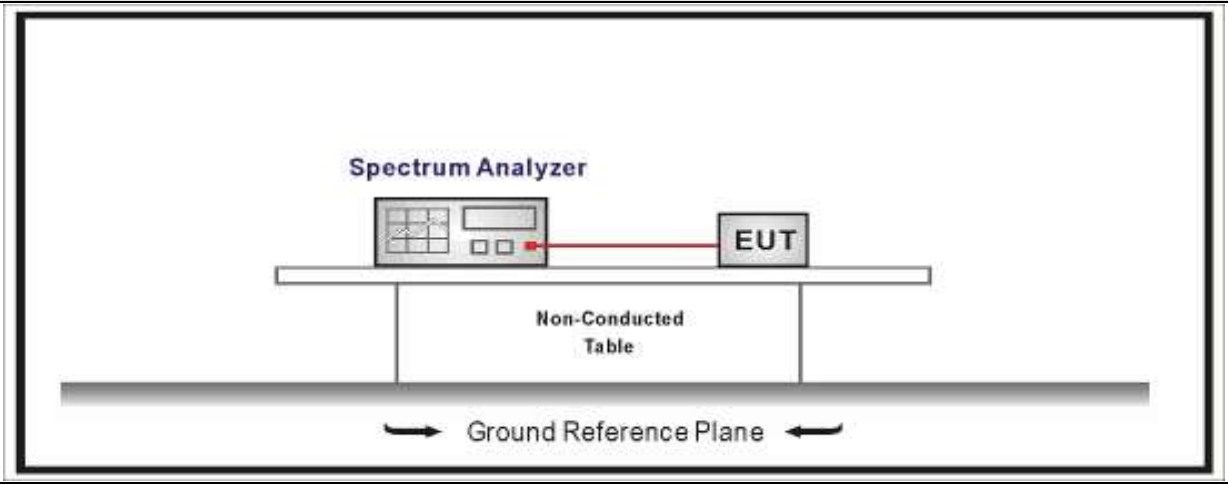
8. Time of Occupancy (Dwell Time)

8.1. Test Equipment

Time of Occupancy (Dwell Time) / TR-8					
Instrument	Manufacturer	Type No.	Serial No.	Cal. Date	Cal. Due Date
Spectrum Analyzer	Agilent	N9010A	MY48030494	2019.09.28	2020.09.27
EXA Spectrum Analyzer	Keysight	N9010A	MY55370495	2020.04.17	2021.04.16
MXA Signal Anlyzer	Keysight	N9020A	MY56060147	2019.08.30	2020.08.29
Temperature/Humidity Meter	zhichen	ZC1-2	TR8-TH	2019.09.02	2020.09.01
Note: All equipment is calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.					

8.2. Test Setup

Time of Occupancy (Dwell Time) test setup:



8.3. Limit

Time of Occupancy (Dwell Time)	
☒	Frequency hopping systems in the 2400-2483.5 MHz band shall use at least 15 channels. The average time of occupancy on any channel shall not be greater than 0.4 seconds within a period of 0.4 seconds multiplied by the number of hopping channels employed.
☐	For frequency hopping systems operating in the 902-928 MHz band: if the 20 dB bandwidth of the hopping channel is less than 250 kHz, the system shall use at least 50 hopping frequencies and the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 20 second period
☐	For frequency hopping systems operating in the 902-928 MHz band: if the 20 dB bandwidth of the hopping channel is 250 kHz or greater, the system shall use at least 25 hopping

	frequencies and the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 10 second period.
☐	Frequency hopping systems operating in the 5725-5850 MHz band shall use at least 75 hopping frequencies. The maximum 20 dB bandwidth of the hopping channel is 1 MHz. The average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 30 second period.

8.4. Test Procedure

Test Method			
	References Rule	Chapter	Description
☒	ANSI C63.10	7.8.4	Time of Occupancy (Dwell Time)

8.5. Uncertainty

The measurement uncertainty is defined as ± 0.1 us

8.6. Test Result

Product Name	:	Car Audio	Test Voltage	:	DC 12V
Test Mode	:	Mode 1(GFSK_DH1)	Test Site	:	TR-8
Test Date	:	2020.04.21	Test Engineer	:	Neil

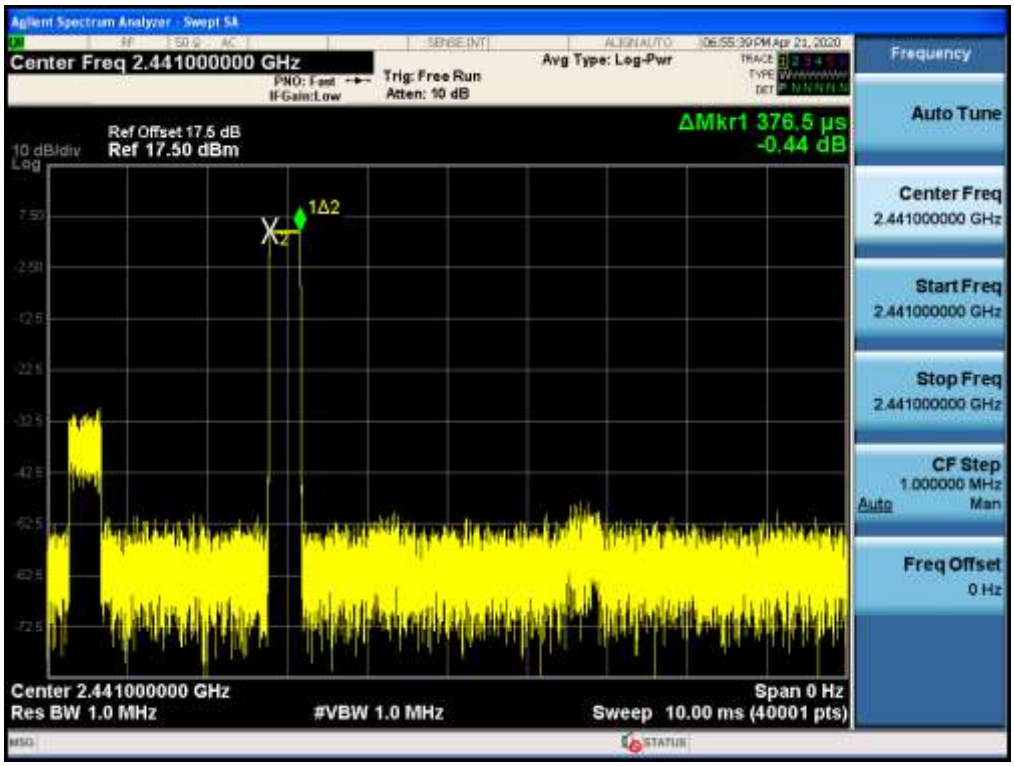
Channel No.	Frequency (MHz)	Time of Occupancy (ms)	Limit (ms)	Result
39	2441	116.72	< 400	Pass

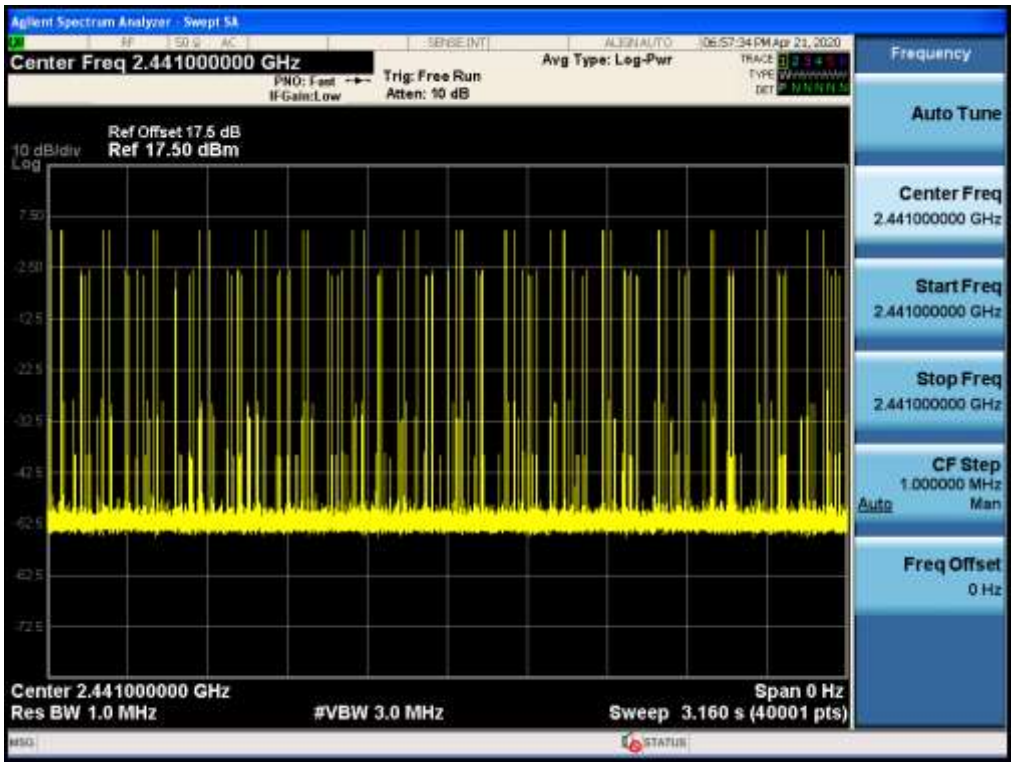
Note1: Test Time Period: 0.4*79

Note2: Time of Occupancy=0.3765*31*31.6/3.16

Note3: We have evaluated different packet type, shown in the report is the worst data.

Channel 39 (2441MHz) - (DH1)




Agilent Spectrum Analyzer - Swept SA
Center Freq 2.441000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 10 dB
Avg Type: Log-Pwr
Ref Offset 17.5 dB
10 dB/div
Ref 17.50 dBm
Log
Center 2.441000000 GHz
Res BW 1.0 MHz
#VBW 3.0 MHz
Span 0 Hz
Sweep 3.160 s (40001 pts)
Frequency
Auto Tune
Center Freq
2.441000000 GHz
Start Freq
2.441000000 GHz
Stop Freq
2.441000000 GHz
CF Step
1.000000 MHz
Auto
Man
Freq Offset
0 Hz

Product Name	:	Car Audio	Test Voltage	:	DC 12V
Test Mode	:	Mode 1(GFSK_DH3)	Test Site	:	TR-8
Test Date	:	2020.04.21	Test Engineer	:	Neil

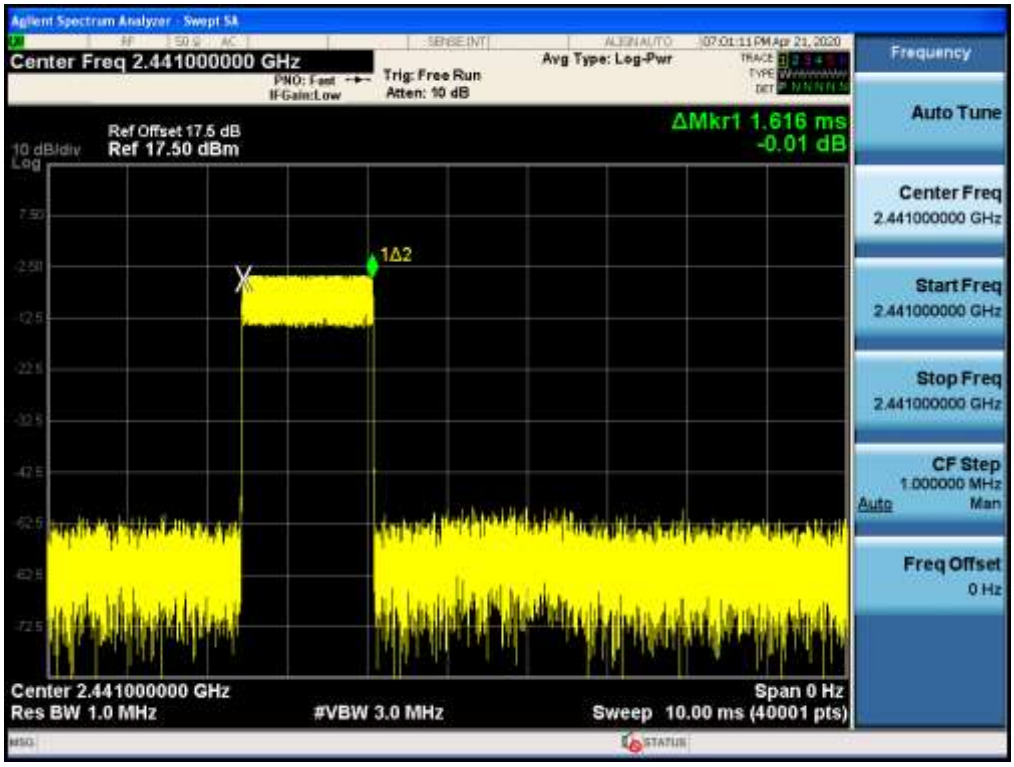
Channel No.	Frequency (MHz)	Time of Occupancy (ms)	Limit (ms)	Result
39	2441	226.24	< 400	Pass

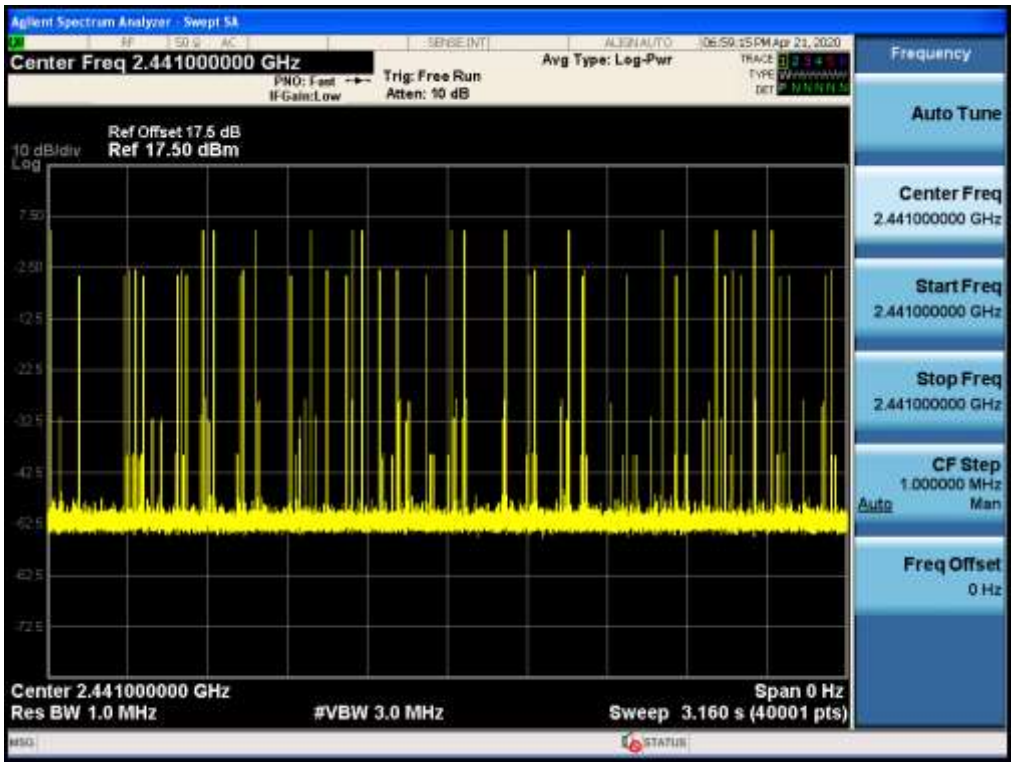
Note1: Test Time Period: 0.4*79

Note2: Time of Occupancy=1.616*14*31.6/3.16

Note3: We have evaluated different packet type, shown in the report is the worst data.

Channel 39 (2441MHz) - (DH3)




Agilent Spectrum Analyzer - Swept SA
Center Freq 2.441000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 10 dB
Avg Type: Log-Pwr
Ref Offset 17.5 dB
10 dB/div
Ref 17.50 dBm
Log
Center 2.441000000 GHz
Res BW 1.0 MHz
#VBW 3.0 MHz
Span 0 Hz
Sweep 3.160 s (40001 pts)
Frequency
Auto Tune
Center Freq
2.441000000 GHz
Start Freq
2.441000000 GHz
Stop Freq
2.441000000 GHz
CF Step
1.000000 MHz
Auto
Man
Freq Offset
0 Hz

Product Name	:	Car Audio	Test Voltage	:	DC 12V
Test Mode	:	Mode 1(GFSK_DH5)	Test Site	:	TR-8
Test Date	:	2020.04.21	Test Engineer	:	Neil

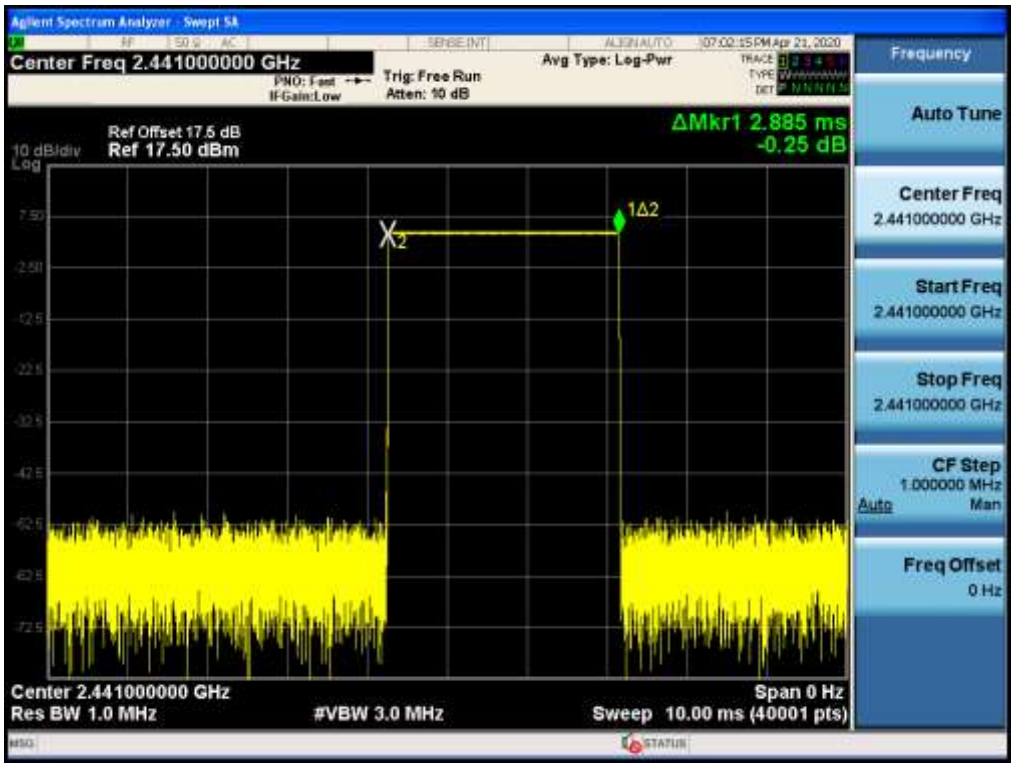
Channel No.	Frequency (MHz)	Time of Occupancy (ms)	Limit (ms)	Result
39	2441	259.65	< 400	Pass

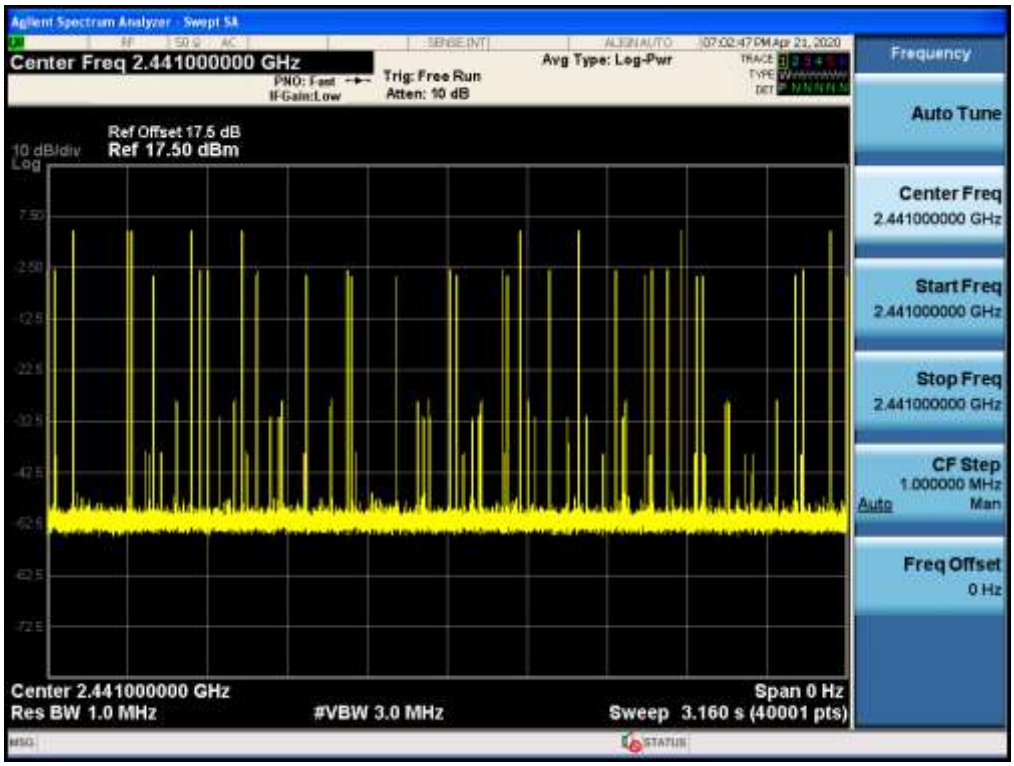
Note1: Test Time Period: 0.4*79

Note2: Time of Occupancy=2.885*9*31.6/3.16

Note3: We have evaluated different packet type, shown in the report is the worst data.

Channel 39 (2441MHz) - (DH5)





Note: The packet time of AFH mode is same as normal mode, due to the packet time of AFH mode multiply with lesser factor is dwell time of 0.4X20=8S, the dwell time of AFH mode comply with the limit.

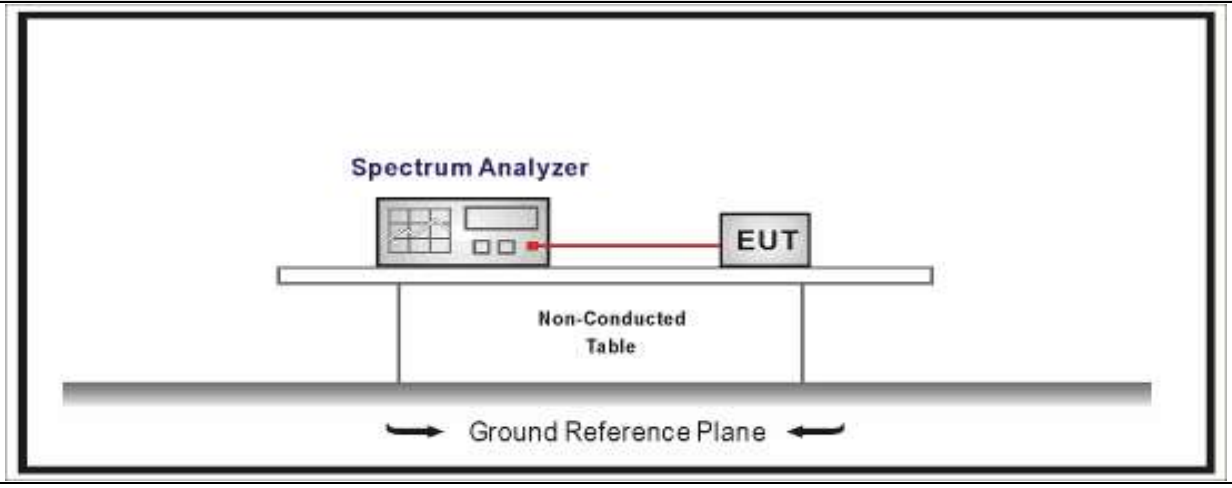
9. Peak Output Power

9.1. Test Equipment

Peak Output Power / TR-8					
Instrument	Manufacturer	Type No.	Serial No.	Cal. Date	Cal. Due Date
Spectrum Analyzer	Agilent	N9010A	MY48030494	2019.09.28	2020.09.27
EXA Spectrum Analyzer	Keysight	N9010A	MY55370495	2020.04.17	2021.04.16
MXA Signal Anlyzer	Keysight	N9020A	MY56060147	2019.08.30	2020.08.29
Temperature/Humidity Meter	zhichen	ZC1-2	TR8-TH	2019.09.02	2020.09.01
Note: All equipment is calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.					

9.2. Test Setup

Peak Output Power test setup:



9.3. Limit

Peak Output Power	
☐	Frequency hopping systems operating in the 2400-2483.5 MHz band employing at least 75 non-overlapping hopping channels, and all frequency hopping systems in the 5725-5850 MHz band: 1 watt. For all other frequency hopping systems in the 2400-2483.5 MHz band: 0.125 watts.
☒	Frequency hopping systems operating in the 2400-2483.5 MHz band may have hopping channel carrier frequencies that are separated by 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel, whichever is greater, provided the systems operate with an output power no greater than 125 mW.
☐	For frequency hopping systems operating in the 902-928 MHz band: 1 watt for systems employing at least 50 hopping channels; and, 0.25 watts for systems employing less than 50 hopping channels, but at least 25 hopping channels

9.4. Test Procedure

Test Method			
	References Rule	Chapter	Description
☒	ANSI C63.10	7.8.5	Output power test procedure for frequency-hopping spread-spectrum (FHSS) devices

9.5. Uncertainty

The measurement uncertainty is defined as ± 1.0 dB

9.6. Test Result

Product Name	:	Car Audio	Test Voltage	:	DC 12V
Test Engineer	:	Neil	Test Site	:	TR-8
Test Date	:	2020.04.20			

Test Mode	Channel No.	Frequency (MHz)	Measurement Power Output (dBm)	Conducted Power Limit (dBm)	Result
Mode 1	00	2402	3.27	21.00	Pass
	39	2441	4.59	21.00	Pass
	78	2480	5.34	21.00	Pass
Mode 2	00	2402	1.86	21.00	Pass
	39	2441	3.67	21.00	Pass
	78	2480	4.71	21.00	Pass
Mode 3	00	2402	2.09	21.00	Pass
	39	2441	3.98	21.00	Pass
	78	2480	5.08	21.00	Pass

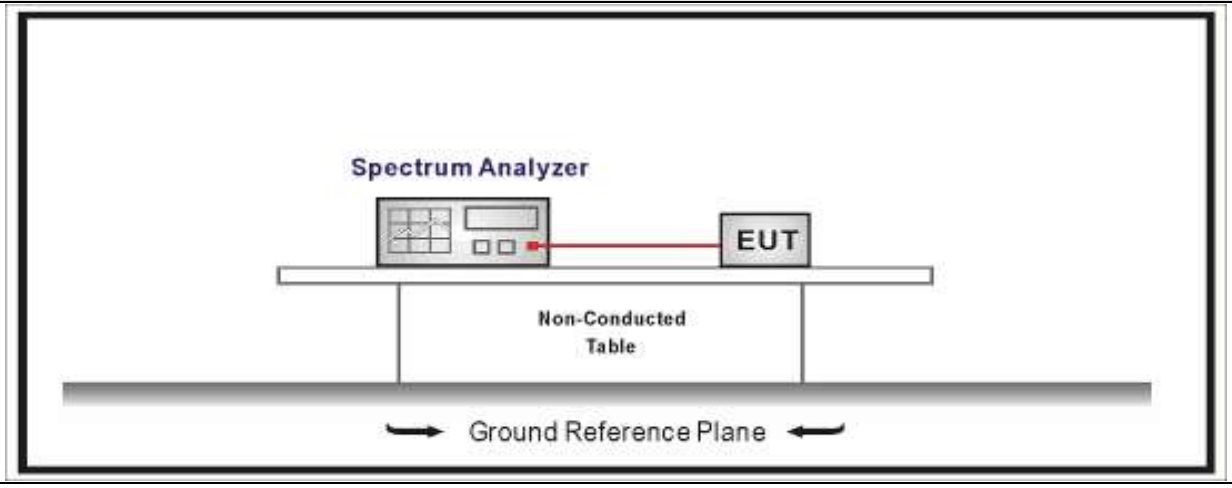
10. Emissions in non-restricted frequency bands

10.1. Test Equipment

Emissions in non-restricted frequency bands / TR-8					
Instrument	Manufacturer	Type No.	Serial No.	Cal. Date	Cal. Due Date
Spectrum Analyzer	Agilent	N9010A	MY48030494	2019.09.28	2020.09.27
EXA Spectrum Analyzer	Keysight	N9010A	MY55370495	2019.04.17	2020.04.16
MXA Signal Anlyzer	Keysight	N9020A	MY56060147	2019.08.30	2020.08.29
Temperature/Humidity Meter	zhichen	ZC1-2	TR8-TH	2019.09.02	2020.09.01
Note: All equipment is calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.					

10.2. Test Setup

Emissions in non-restricted frequency bands test setup:



10.3. Limit

Un-Restricted Band Emissions Limit	
RF Output power (Detection methods)	Limit(dB)
RF Output power(Average detector)	30c(Note1)
RF Output power(PK detector)	20c(Note2)

Note 1: If maximum conducted (average) output power was used to demonstrate compliance as described in 9.2, then the peak power in any 100 kHz bandwidth outside of the authorized frequency band shall be attenuated by at least 30 dB relative to the maximum in-band peak PSD level in 100 kHz (i.e., 30 dBc).

Note 2: If the maximum peak conducted output power procedure was used, then the peak output power measured in any 100 kHz bandwidth outside of the authorized frequency band shall be attenuated by at least 20 dB relative to the maximum in-band peak PSD level in 100 kHz (i.e., 20 dBc).

10.4. Test Procedure

Test Method			
	References Rule	Chapter	Description
☒	ANSI C63.10	7.8.6	Band-edge Compliance of RF Conducted Emissions

10.5. Uncertainty

The measurement uncertainty is defined as ± 1.0 dB

10.6. Test Result

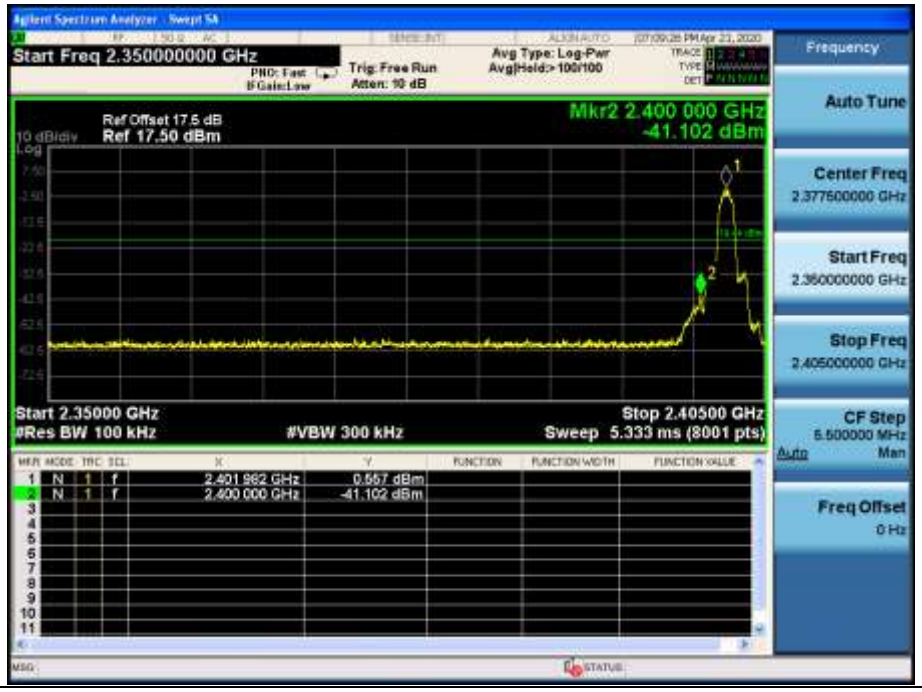
Product Name	:	Car Audio	Test Voltage	:	DC 12V
Test Engineer	:	Neil	Test Site	:	TR-8
Test Date	:	2020.04.21			

Mode	Channel	Test Frequency (MHz)	In-Band PSD[a] (dBm/100kHz)	Frequency (MHz)	Out-Band PSD[b] (dBm/100kHz)	[a]-[b] (dB)	Limit (dB)	Result
1	00	2402	3.157	2400.00	-43.658	46.82	>20	Pass
1	78	2480	5.904	2500.00	-44.624	50.53	>20	Pass
2	00	2402	0.744	2400.00	-39.967	40.71	>20	Pass
2	78	2480	4.370	2500.00	-46.227	50.60	>20	Pass
3	00	2402	0.557	2400.00	-41.102	41.66	>20	Pass
3	78	2480	4.899	2500.00	-47.040	51.94	>20	Pass
4	00~78	00~78	3.961	2400.00	-44.663	48.62	>20	Pass

Note1: The worst case of Emissions in non-restricted frequency bands as below:

2: Mode 1-3, The In-Band PSD is the highest PSD of All channels.

Mode3 CH00(2402MHz)



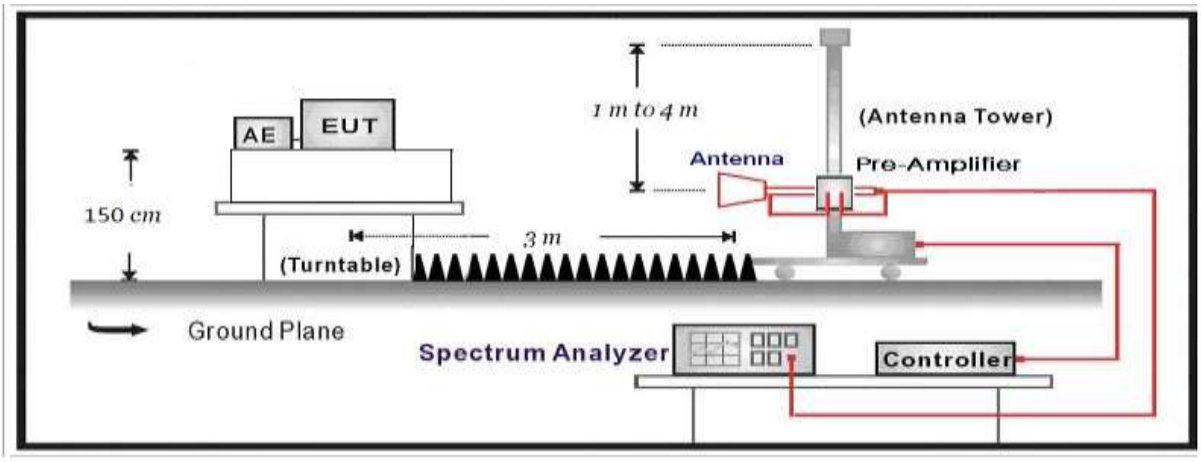
11. Radiated Emission Band Edge

11.1. Test Equipment

Radiated Emission(Above 1GHz) / AC-5					
Instrument	Manufacturer	Type No.	Serial No.	Cal. Date	Cal. Due Date
EMI Receiver	Agilent	N9038A	MY51210196	2019.05.25	2020.05.24
Pre-Amplifier	Miteq	NSP1800-25	1364185	2019.05.03	2020.05.02
DRG Horn Antenna	ETS-Lindgren	3117	00167055	2019.05.25	2020.05.24
Broad-Band Horn Antenna	Schwarzbeck	BBHA9170	294	2019.03.23	2021.03.22
Coaxial Cable	Huber+Suhner	SUCOFLEX 106	AC5-C1	2020.04.13	2021.04.12
Coaxial Cable	Huber+Suhner	SUCOFLEX 106	AC5-C2	2020.04.13	2021.04.12
Temperature/Humidity Meter	Zhichen	ZC1-2	AC5-TH	2019.09.02	2020.09.01

11.2. Test Setup

Above 1GHz Test Setup:



11.3. Limit

Band edge Limit				
Frequency bands (MHz)	Detector	Limit (dBμV/m)	RBW (MHz)	Distance (m)
2310-2390 2483.5-2500	PK	74	1	3
	AV	54	1	3
Note: The field strength of emissions appearing within these frequency bands shall not exceed the limits.				

11.4. Test Procedure

Test Method			
	References Rule	Chapter	Description
☐	DA 00-705	N/A	duty cycle correction factor
☒	ANSI C63.10	6.10	Band-edge testing
	☒ ANSI C63.10	6.10.5	Restricted-band band-edge measurements
	☐ ANSI C63.10	6.10.6	Marker-delta method
☐	ANSI C63.10	6.4	Radiated emissions from unlicensed wireless devices below 30 MHz
☐	ANSI C63.10	6.5	Radiated emissions from unlicensed wireless devices in the frequency range of 30 MHz to 1000 MHz
☒	ANSI C63.10	6.6	Radiated emissions from unlicensed wireless devices above 1 GHz

11.5. Uncertainty

The measurement uncertainty above 1G is defined as ± 3.9 dB

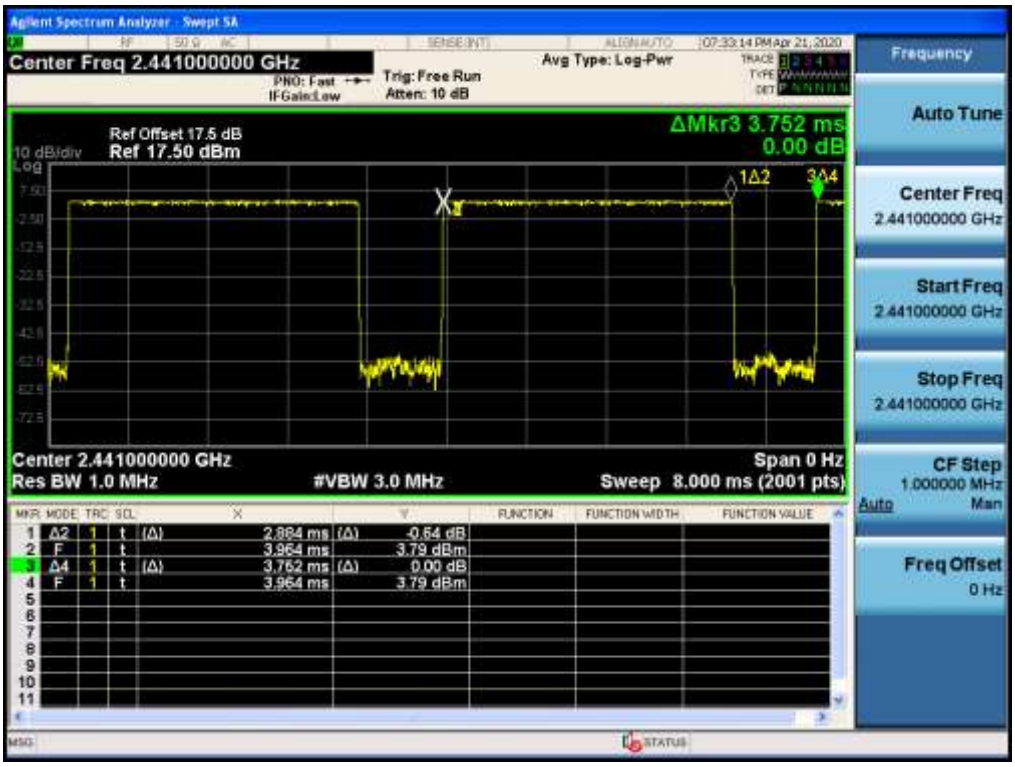
below 1G is defined as ± 3.8 dB

11.6. Duty Cycle

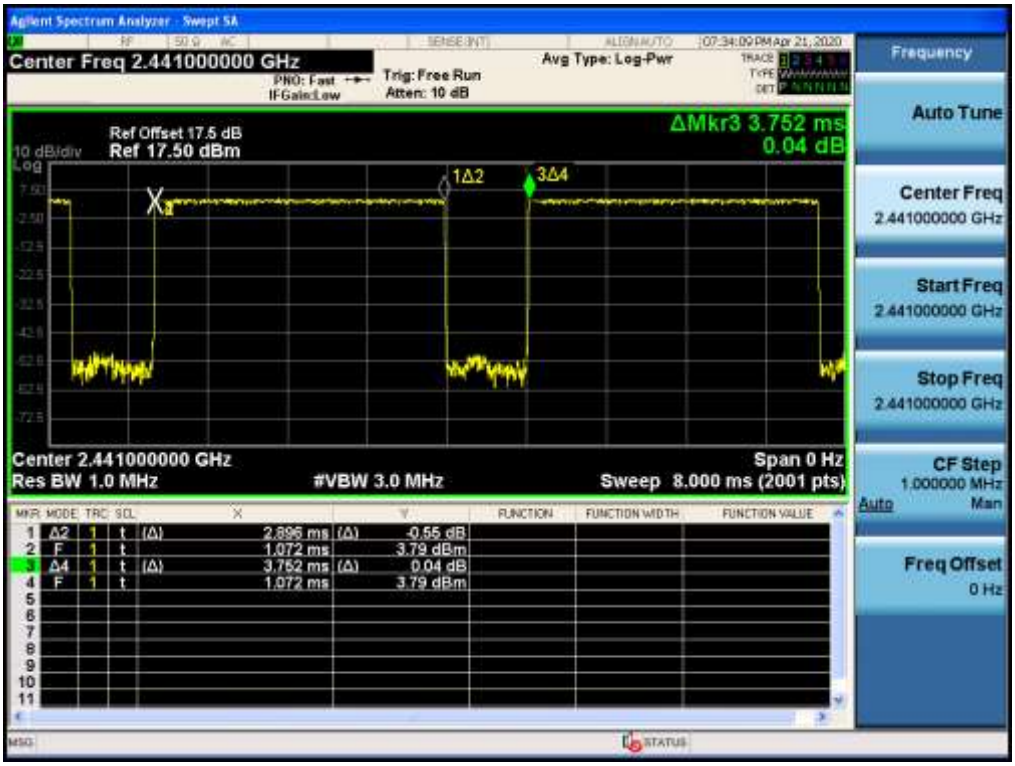
Test Mode	Tx On (ms)	Tx Off (ms)	Reduced VBW (Hz)	Tx On + Tx Off (ms)	Duty Cycle
Mode 1	2.888	0.864	350	3.752	77%
Mode 2	2.884	0.868	350	3.752	77%
Mode 3	2.896	0.856	350	3.752	77%

Mode 1

Mode 2

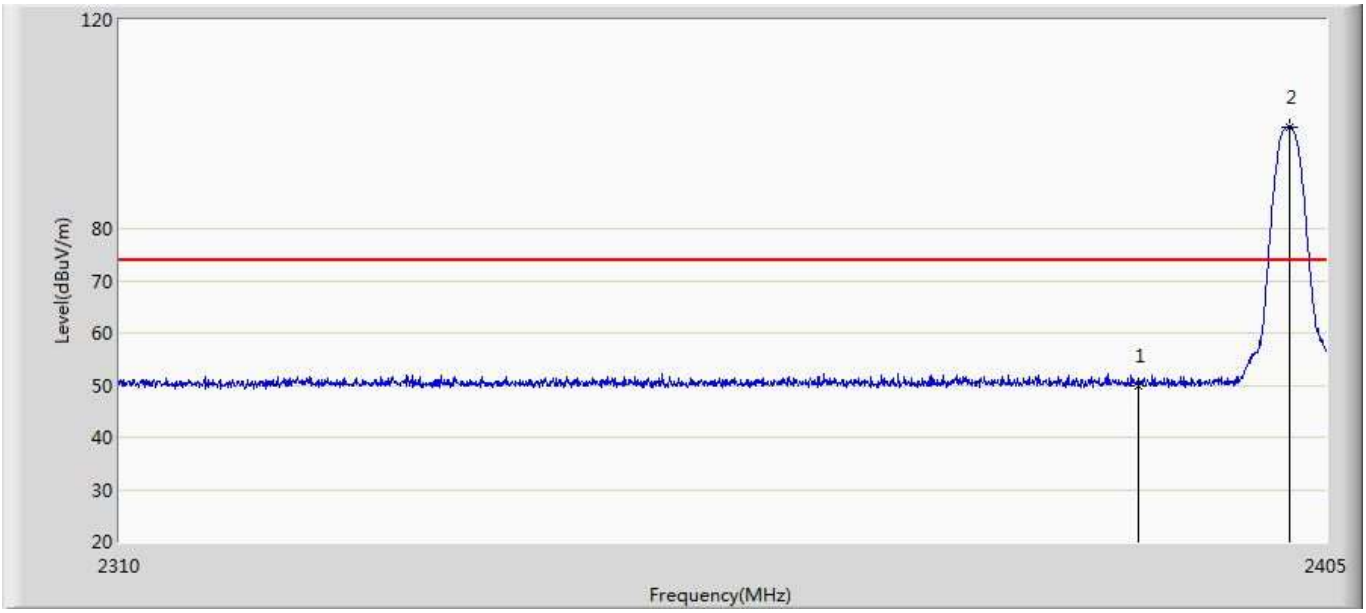

Agilent Spectrum Analyzer - Swept SA
Center Freq 2.441000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 10 dB
Avg Type: Log-Pwr
07:33:14 PM Apr 21, 2020
Frequency
Auto Tune
Ref Offset 17.5 dB
10 dB/div
Ref 17.50 dBm
ΔMkr3 3.752 ms
0.00 dB
1Δ2
3Δ4
Center 2.441000000 GHz
Res BW 1.0 MHz
#VBW 3.0 MHz
Span 0 Hz
Sweep 8.000 ms (2001 pts)
1 Δ2 1 t (Δ) 2.864 ms (Δ) -0.64 dB
2 F 1 t 3.964 ms 3.79 dBm
3 Δ4 1 t (Δ) 3.752 ms (Δ) 0.00 dB
4 F 1 t 3.964 ms 3.79 dBm
Center Freq
2.441000000 GHz
Start Freq
2.441000000 GHz
Stop Freq
2.441000000 GHz
CF Step
1.000000 MHz
Auto
Man
Freq Offset
0 Hz
MSG
STATUS

Mode 3


Agilent Spectrum Analyzer - Swept SA
Center Freq 2.441000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 10 dB
Avg Type: Log-Pwr
07:34:09 PM Apr 21, 2020
Frequency
Auto Tune
Ref Offset 17.5 dB
10 dB/div
Ref 17.50 dBm
ΔMkr3 3.752 ms
0.04 dB
1Δ2
3Δ4
Center 2.441000000 GHz
Res BW 1.0 MHz
#VBW 3.0 MHz
Span 0 Hz
Sweep 8.000 ms (2001 pts)
1 Δ2 1 t (Δ) 2.896 ms (Δ) -0.55 dB
2 F 1 t 1.072 ms 3.79 dBm
3 Δ4 1 t (Δ) 3.752 ms (Δ) 0.04 dB
4 F 1 t 1.072 ms 3.79 dBm
Center Freq
2.441000000 GHz
Start Freq
2.441000000 GHz
Stop Freq
2.441000000 GHz
CF Step
1.000000 MHz
Auto
Man
Freq Offset
0 Hz
MSG
STATUS

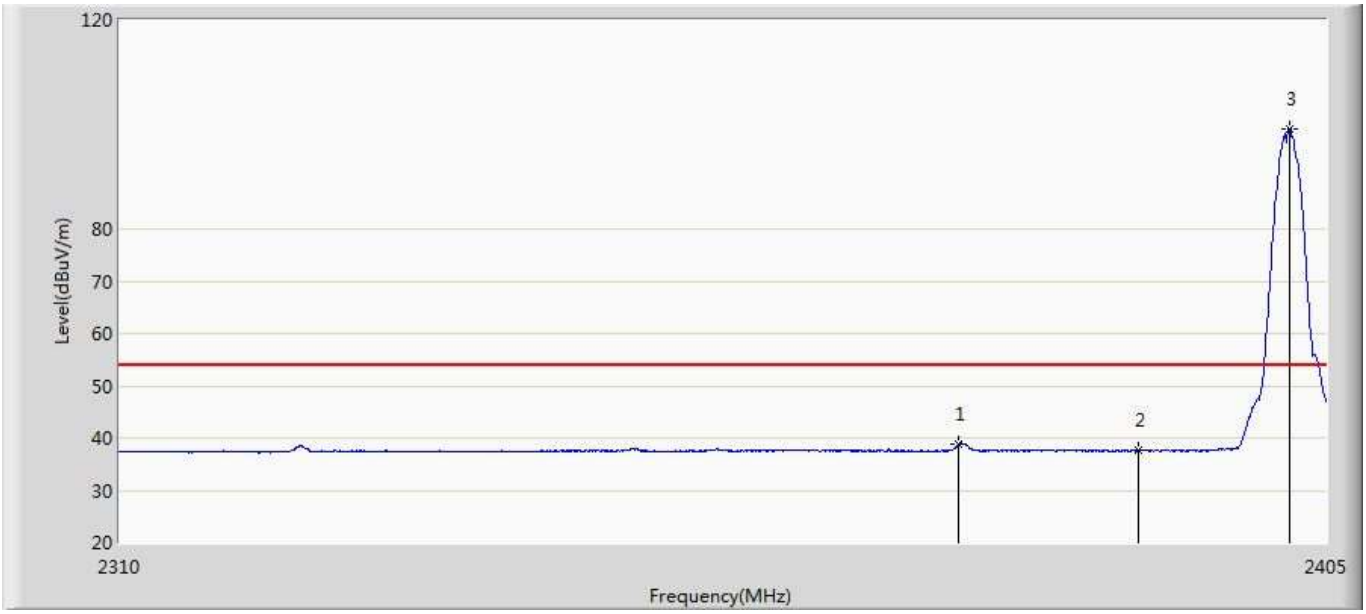
11.7. Test Result

Profile: 2040215R	Page No.: 1
Engineer: Tongben	
Site: AC5	Time: 2020/04/18 - 22:24
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: MP-202S-00	Power: AC 120V/60Hz
Note: Mode 1:Transmit at 2402MHz by DH5	



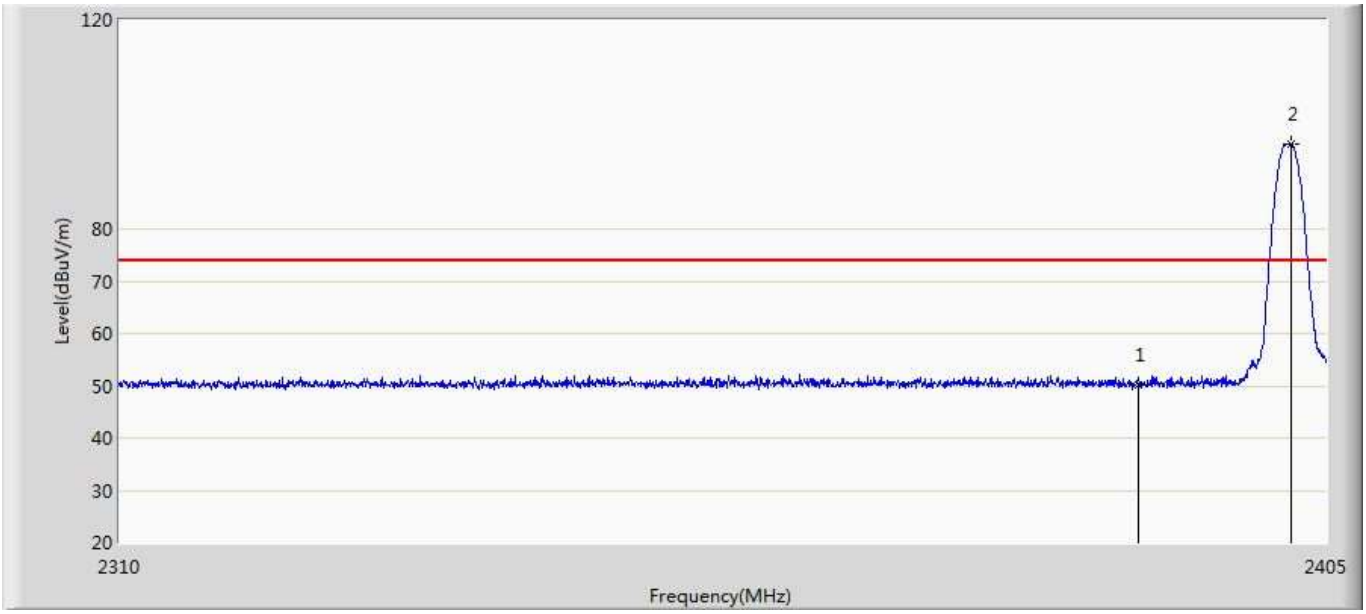
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	49.961	14.646	-24.039	74.000	35.315	PK
2	*	2402.055	99.543	64.231	N/A	N/A	35.312	PK

Profile: 2040215R	Page No.: 2
Engineer: Tongben	
Site: AC5	Time: 2020/04/18 - 22:30
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: MP-202S-00	Power: AC 120V/60Hz
Note: Mode 1:Transmit at 2402MHz by DH5	



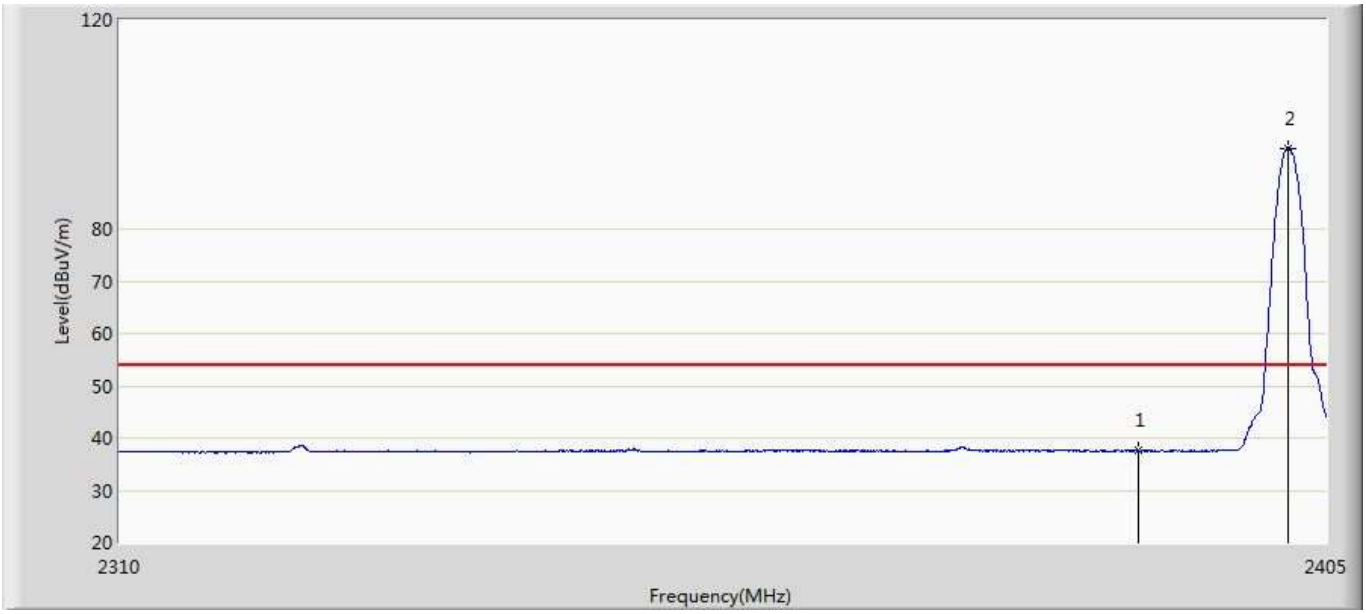
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2375.692	38.839	3.529	-15.161	54.000	35.311	AV
2		2390.000	37.598	2.283	-16.402	54.000	35.315	AV
3	*	2402.055	99.066	63.754	N/A	N/A	35.312	AV

Profile: 2040215R	Page No.: 3
Engineer: Tongben	
Site: AC5	Time: 2020/04/18 - 22:34
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: MP-202S-00	Power: AC 120V/60Hz
Note: Mode 1:Transmit at 2402MHz by DH5	



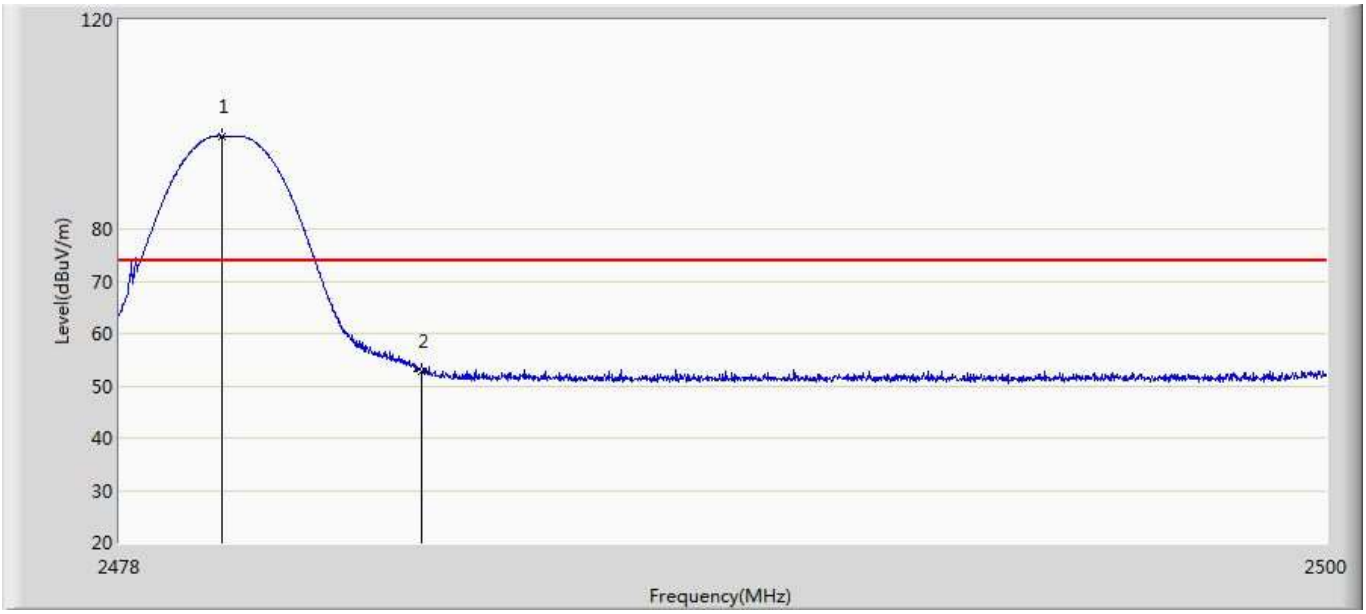
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	50.028	14.713	-23.972	74.000	35.315	PK
2	*	2402.150	96.287	60.975	N/A	N/A	35.312	PK

Profile: 2040215R	Page No.: 4
Engineer: Tongben	
Site: AC5	Time: 2020/04/18 - 22:36
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: MP-202S-00	Power: AC 120V/60Hz
Note: Mode 1:Transmit at 2402MHz by DH5	



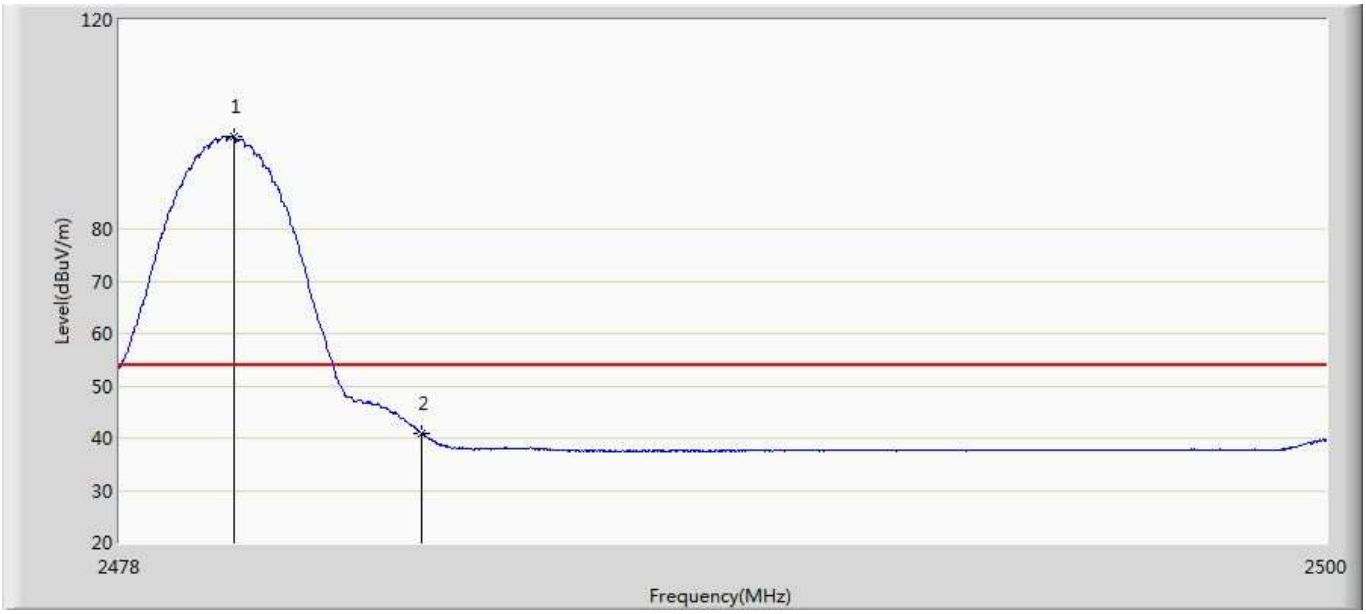
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	37.616	2.301	-16.384	54.000	35.315	AV
2	*	2401.913	95.458	60.145	N/A	N/A	35.312	AV

Profile: 2040215R	Page No.: 5
Engineer: Tongben	
Site: AC5	Time: 2020/04/18 - 22:39
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: MP-202S-00	Power: AC 120V/60Hz
Note: Mode 1:Transmit at 2480MHz by DH5	



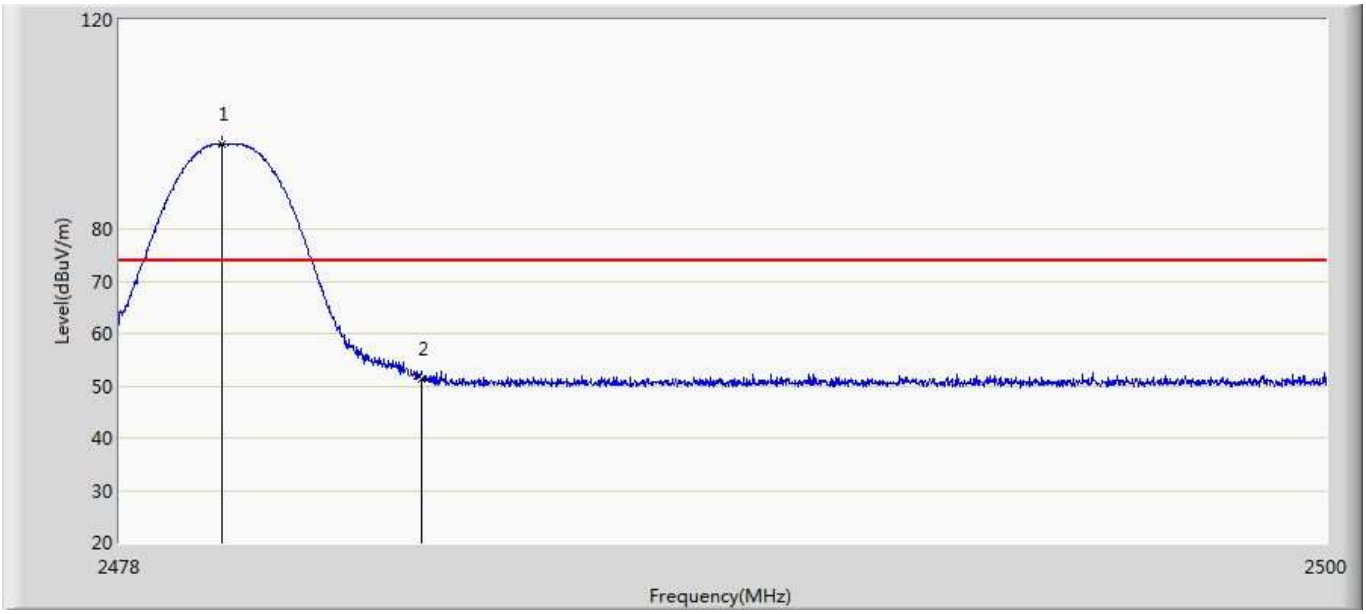
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2479.870	97.813	62.514	N/A	N/A	35.299	PK
2		2483.500	52.713	17.415	-21.287	74.000	35.297	PK

Profile: 2040215R	Page No.: 6
Engineer: Tongben	
Site: AC5	Time: 2020/04/18 - 23:01
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: MP-202S-00	Power: AC 120V/60Hz
Note: Mode 1:Transmit at 2480MHz by DH5	



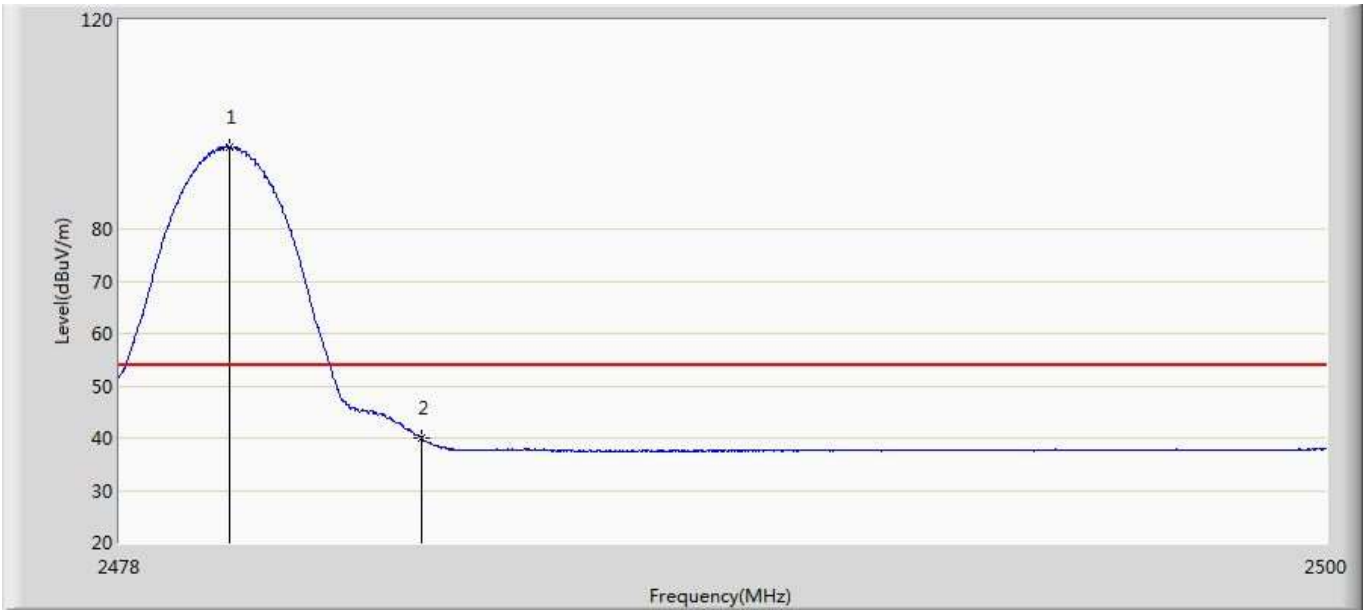
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2480.079	97.715	62.416	N/A	N/A	35.299	AV
2		2483.500	40.982	5.684	-13.018	54.000	35.297	AV

Profile: 2040215R	Page No.: 7
Engineer: Tongben	
Site: AC5	Time: 2020/04/18 - 23:03
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: MP-202S-00	Power: AC 120V/60Hz
Note: Mode 1:Transmit at 2480MHz by DH5	



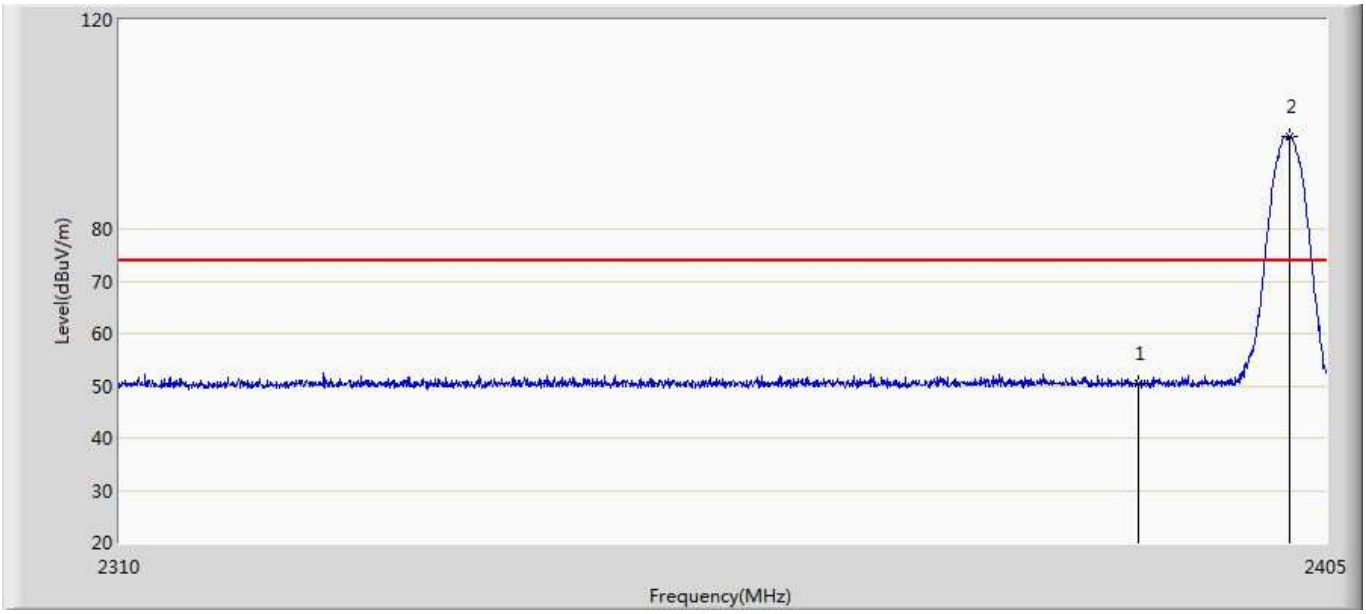
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2479.870	96.252	60.953	N/A	N/A	35.299	PK
2		2483.500	51.374	16.076	-22.626	74.000	35.297	PK

Profile: 2040215R	Page No.: 8
Engineer: Tongben	
Site: AC5	Time: 2020/04/18 - 23:05
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: MP-202S-00	Power: AC 120V/60Hz
Note: Mode 1:Transmit at 2480MHz by DH5	



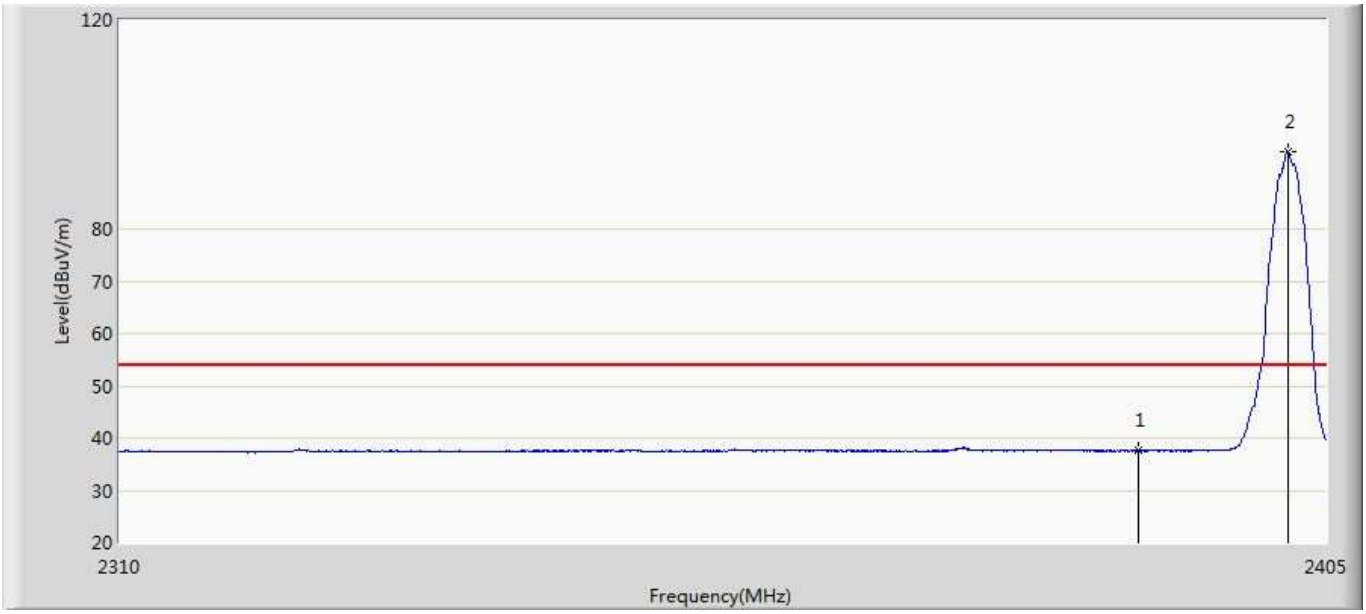
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2480.013	95.711	60.412	N/A	N/A	35.299	AV
2		2483.500	39.862	4.564	-14.138	54.000	35.297	AV

Profile: 2040215R	Page No.: 9
Engineer: Tongben	
Site: AC5	Time: 2020/04/18 - 23:08
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: MP-202S-00	Power: AC 120V/60Hz
Note: Mode 2:Transmit at 2402MHz by 2DH5	



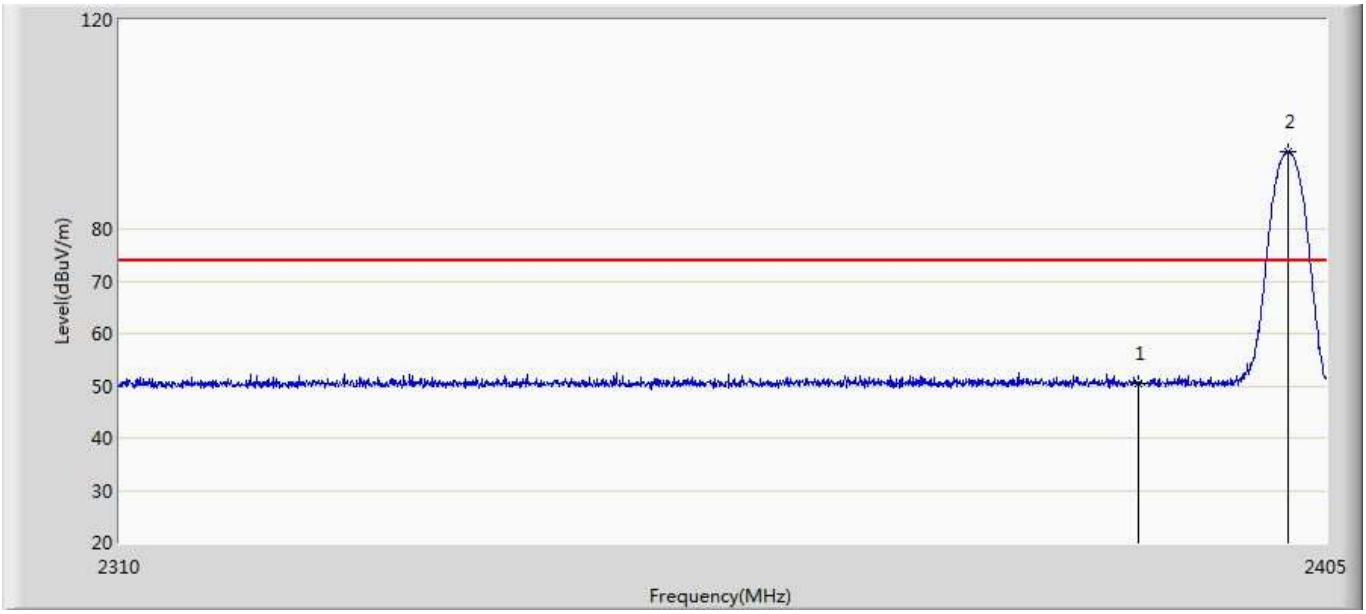
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	50.437	15.122	-23.563	74.000	35.315	PK
2	*	2402.055	97.657	62.345	N/A	N/A	35.312	PK

Profile: 2040215R	Page No.: 10
Engineer: Tongben	
Site: AC5	Time: 2020/04/18 - 23:12
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: MP-202S-00	Power: AC 120V/60Hz
Note: Mode 2:Transmit at 2402MHz by 2DH5	



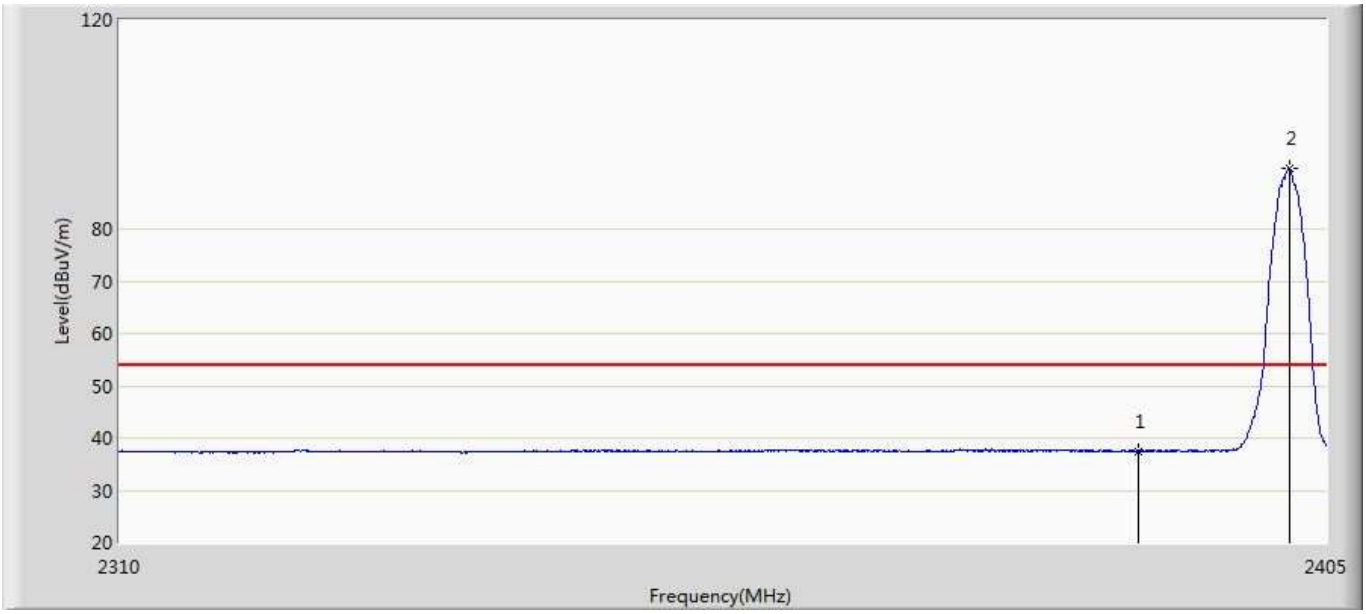
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	37.594	2.279	-16.406	54.000	35.315	AV
2	*	2402.008	94.719	59.407	N/A	N/A	35.312	AV

Profile: 2040215R	Page No.: 11
Engineer: Tongben	
Site: AC5	Time: 2020/04/18 - 23:15
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: MP-202S-00	Power: AC 120V/60Hz
Note: Mode 2:Transmit at 2402MHz by 2DH5	



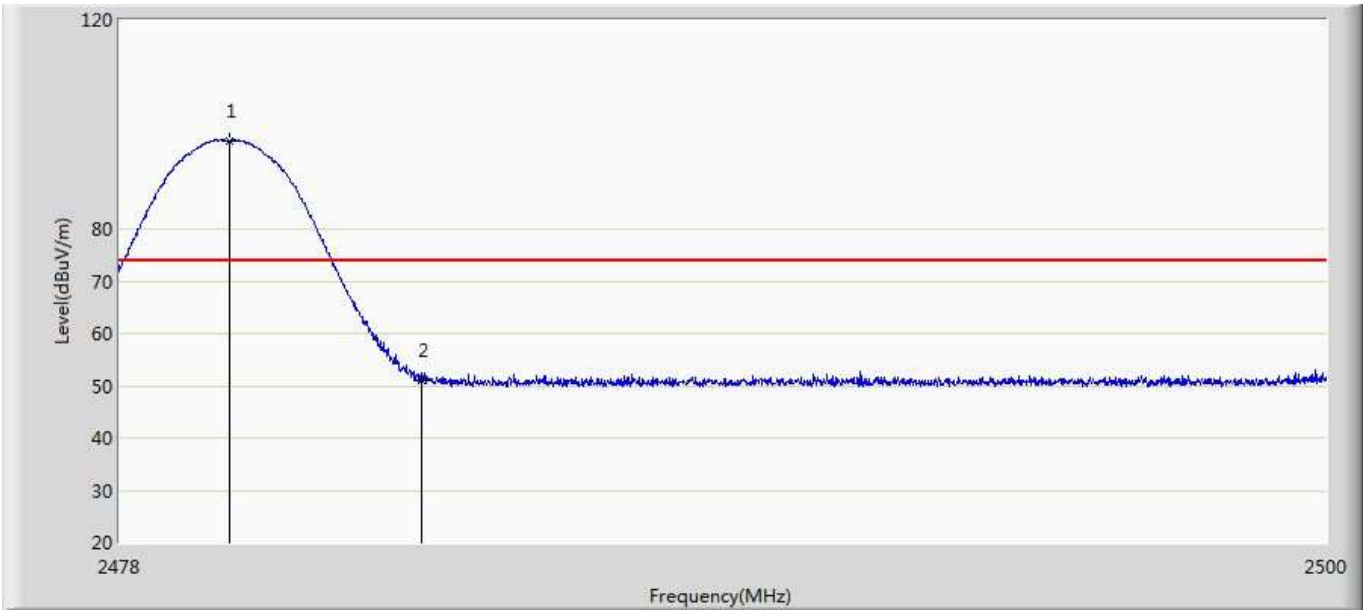
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	50.545	15.230	-23.455	74.000	35.315	PK
2	*	2401.913	94.791	59.478	N/A	N/A	35.312	PK

Profile: 2040215R	Page No.: 12
Engineer: Tongben	
Site: AC5	Time: 2020/04/18 - 23:18
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: MP-202S-00	Power: AC 120V/60Hz
Note: Mode 2:Transmit at 2402MHz by 2DH5	



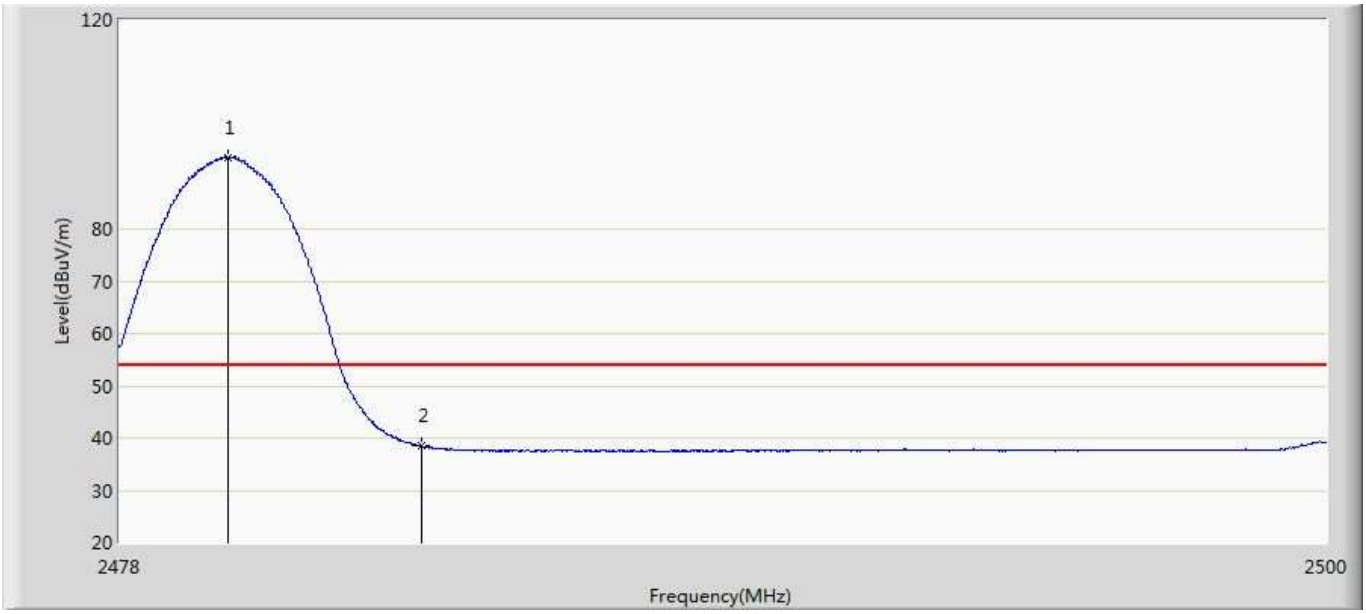
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	37.525	2.210	-16.475	54.000	35.315	AV
2	*	2402.055	91.611	56.299	N/A	N/A	35.312	AV

Profile: 2040215R	Page No.: 13
Engineer: Tongben	
Site: AC5	Time: 2020/04/18 - 23:21
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: MP-202S-00	Power: AC 120V/60Hz
Note: Mode 2:Transmit at 2480MHz by 2DH5	



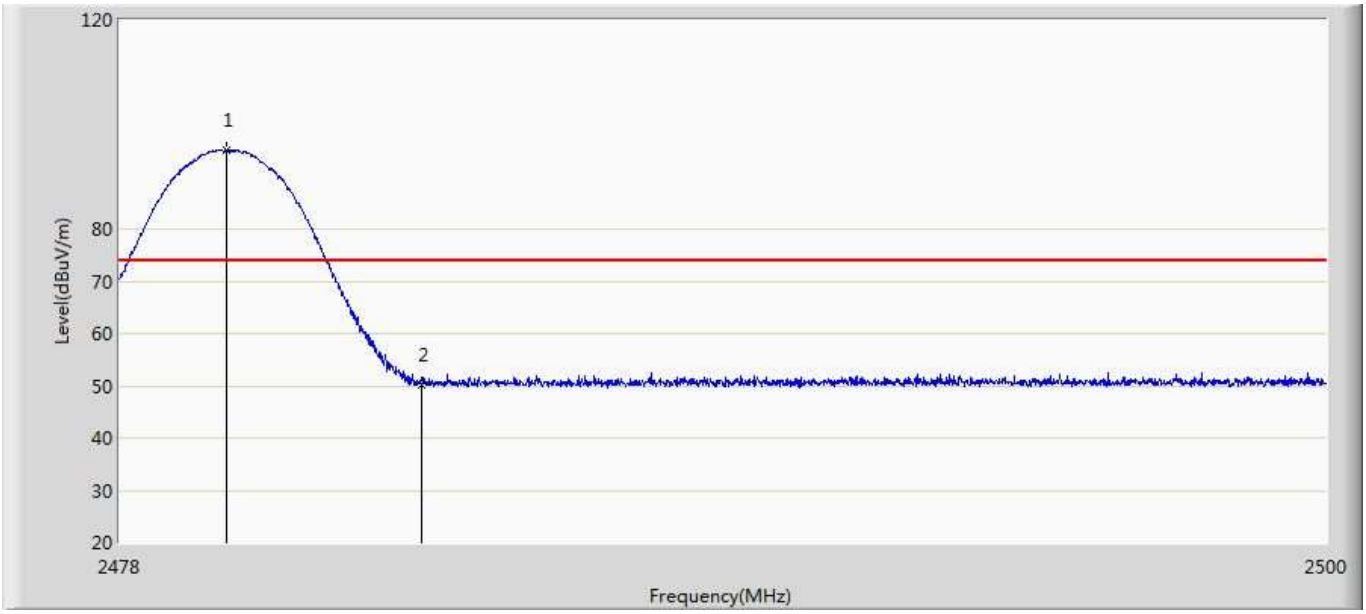
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2479.991	96.904	61.605	N/A	N/A	35.299	PK
2		2483.500	51.093	15.795	-22.907	74.000	35.297	PK

Profile: 2040215R	Page No.: 14
Engineer: Tongben	
Site: AC5	Time: 2020/04/18 - 23:25
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: MP-202S-00	Power: AC 120V/60Hz
Note: Mode 2:Transmit at 2480MHz by 2DH5	



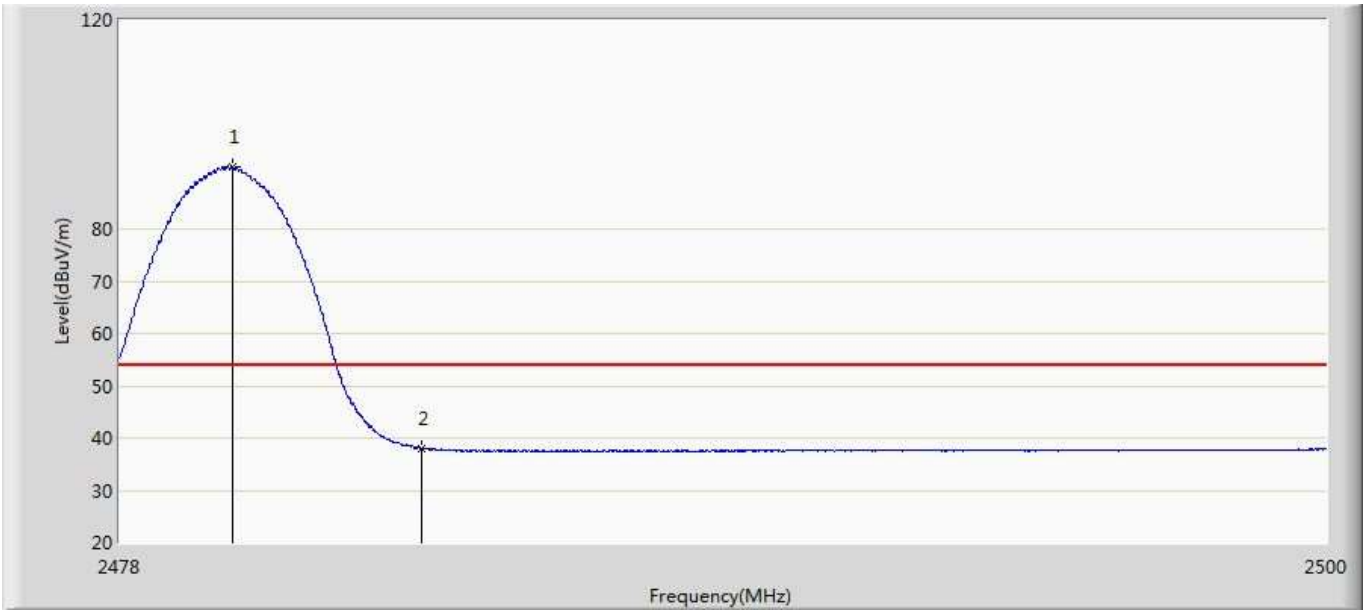
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2479.980	93.760	58.461	N/A	N/A	35.299	AV
2		2483.500	38.510	3.212	-15.490	54.000	35.297	AV

Profile: 2040215R	Page No.: 15
Engineer: Tongben	
Site: AC5	Time: 2020/04/18 - 23:29
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: MP-202S-00	Power: AC 120V/60Hz
Note: Mode 2:Transmit at 2480MHz by 2DH5	



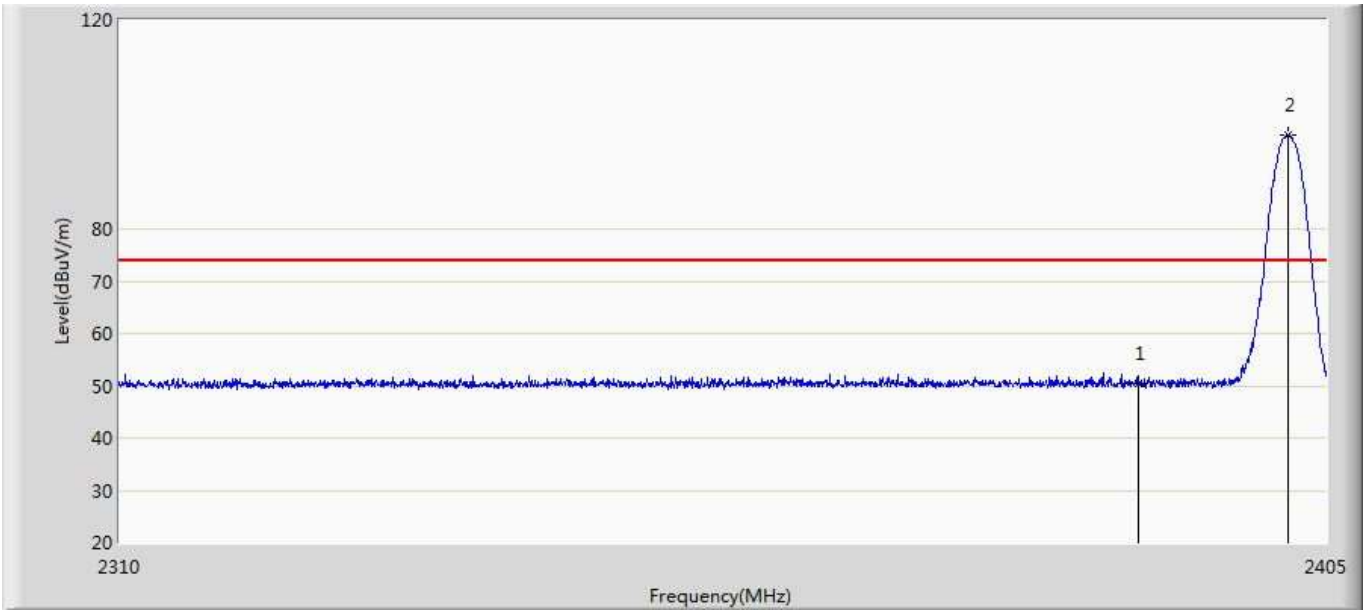
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2479.936	95.048	59.749	N/A	N/A	35.299	PK
2		2483.500	50.137	14.839	-23.863	74.000	35.297	PK

Profile: 2040215R	Page No.: 16
Engineer: Tongben	
Site: AC5	Time: 2020/04/18 - 23:32
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: MP-202S-00	Power: AC 120V/60Hz
Note: Mode 2:Transmit at 2480MHz by 2DH5	



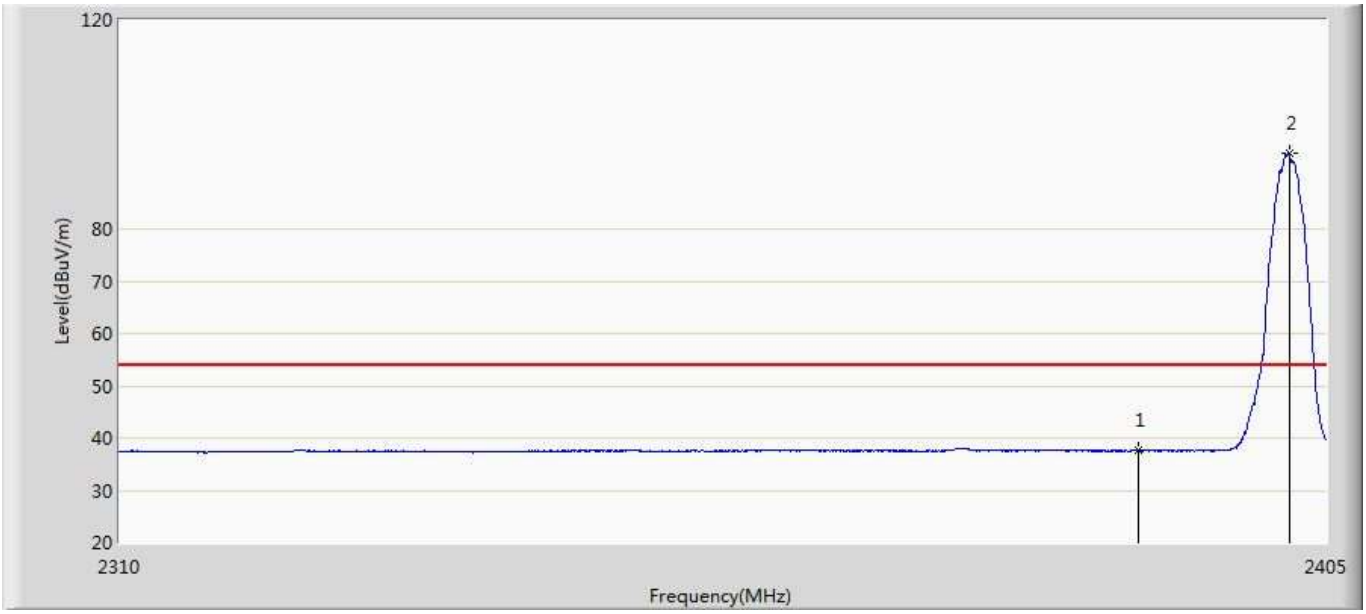
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2480.046	91.966	56.667	N/A	N/A	35.299	AV
2		2483.500	37.927	2.629	-16.073	54.000	35.297	AV

Profile: 2040215R	Page No.: 17
Engineer: Tongben	
Site: AC5	Time: 2020/04/18 - 23:35
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: MP-202S-00	Power: AC 120V/60Hz
Note: Mode 3:Transmit at 2402MHz by 3DH5	



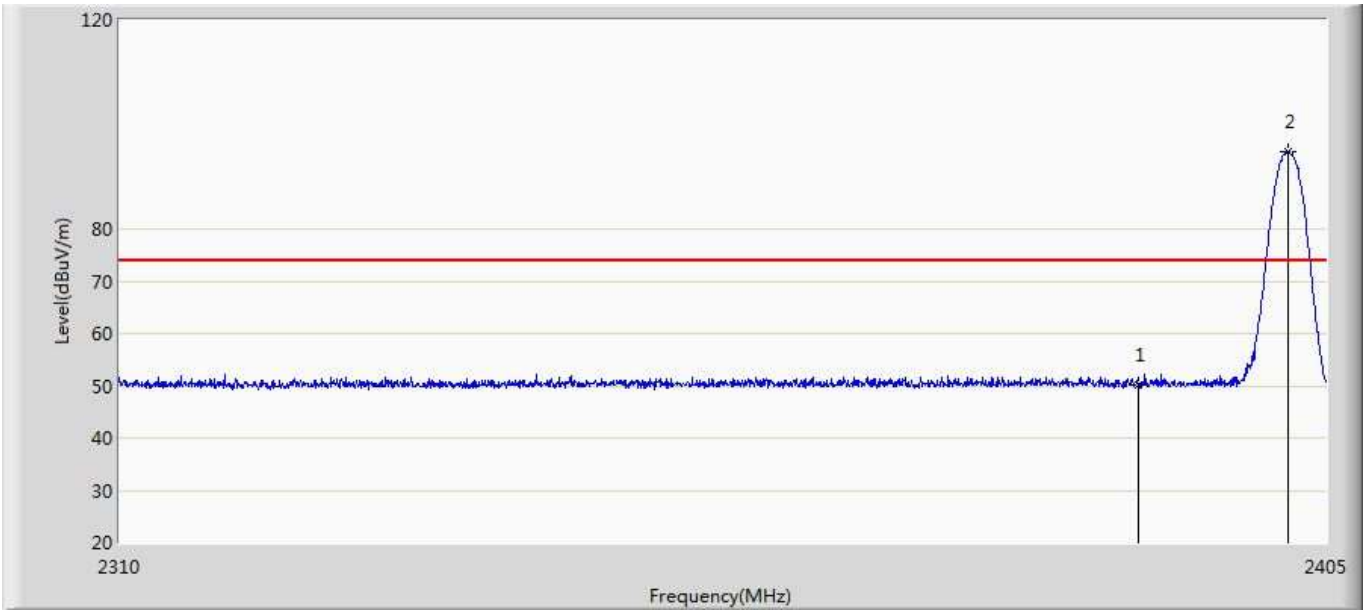
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	50.328	15.013	-23.672	74.000	35.315	PK
2	*	2402.000	97.933	62.621	N/A	N/A	35.312	PK

Profile: 2040215R	Page No.: 18
Engineer: Tongben	
Site: AC5	Time: 2020/04/18 - 23:38
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: MP-202S-00	Power: AC 120V/60Hz
Note: Mode 3:Transmit at 2402MHz by 3DH5	



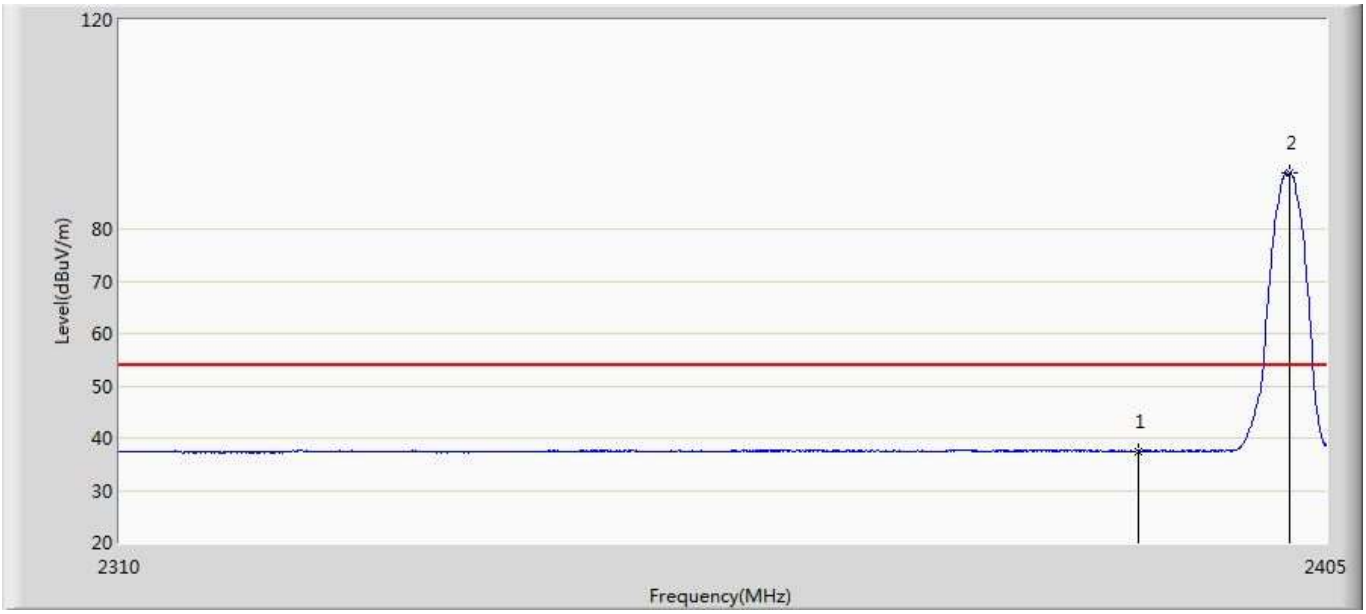
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	37.569	2.254	-16.431	54.000	35.315	AV
2	*	2402.055	94.544	59.232	N/A	N/A	35.312	AV

Profile: 2040215R	Page No.: 19
Engineer: Tongben	
Site: AC5	Time: 2020/04/18 - 23:42
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: MP-202S-00	Power: AC 120V/60Hz
Note: Mode 3:Transmit at 2402MHz by 3DH5	



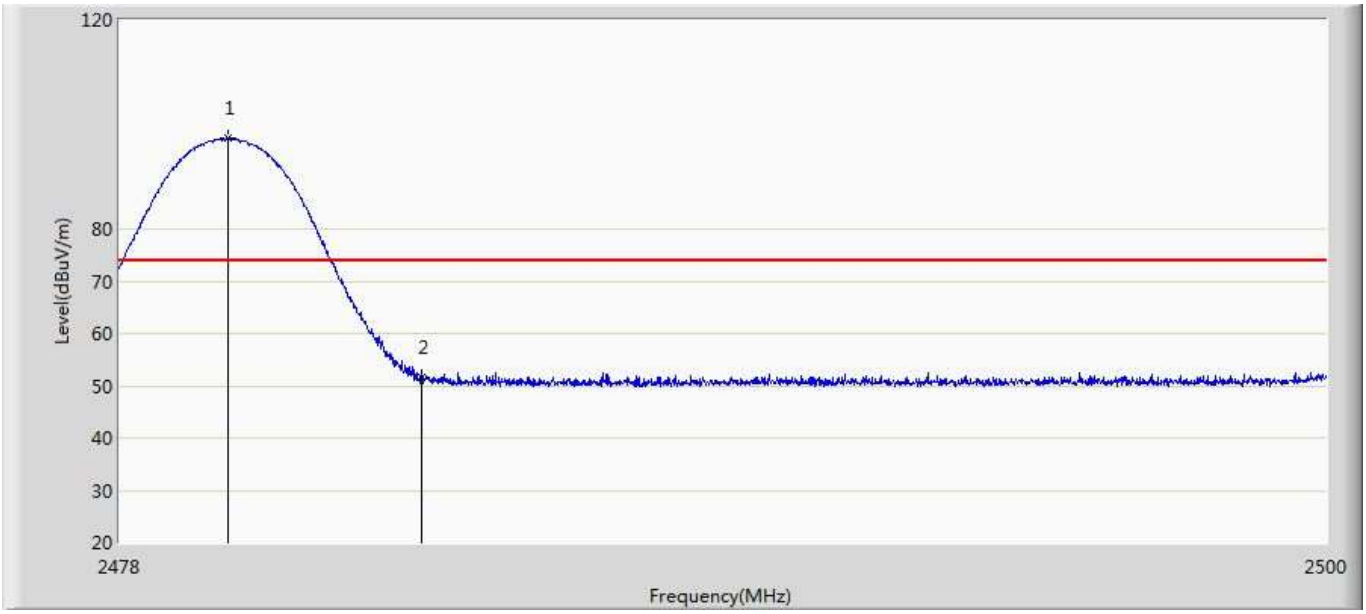
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	50.038	14.723	-23.962	74.000	35.315	PK
2	*	2402.000	94.900	59.588	N/A	N/A	35.312	PK

Profile: 2040215R	Page No.: 20
Engineer: Tongben	
Site: AC5	Time: 2020/04/18 - 23:44
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: MP-202S-00	Power: AC 120V/60Hz
Note: Mode 3:Transmit at 2402MHz by 3DH5	



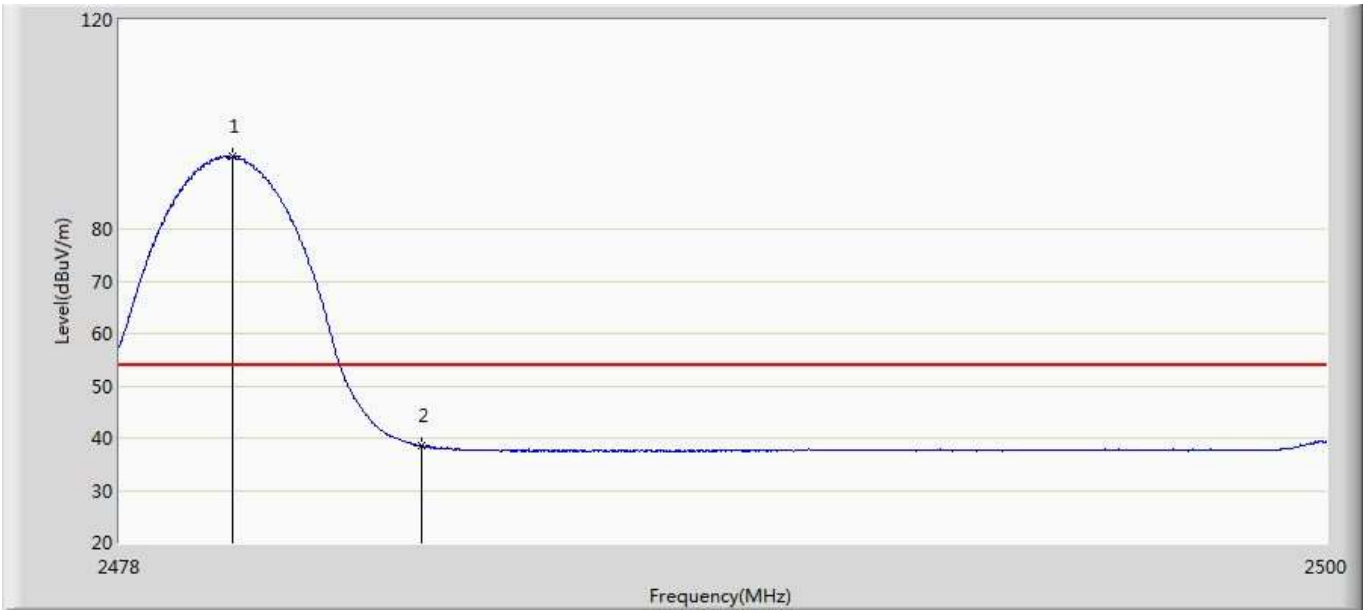
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	37.531	2.216	-16.469	54.000	35.315	AV
2	*	2402.103	90.706	55.394	N/A	N/A	35.312	AV

Profile: 2040215R	Page No.: 21
Engineer: Tongben	
Site: AC5	Time: 2020/04/18 - 23:47
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: MP-202S-00	Power: AC 120V/60Hz
Note: Mode 3:Transmit at 2480MHz by 3DH5	



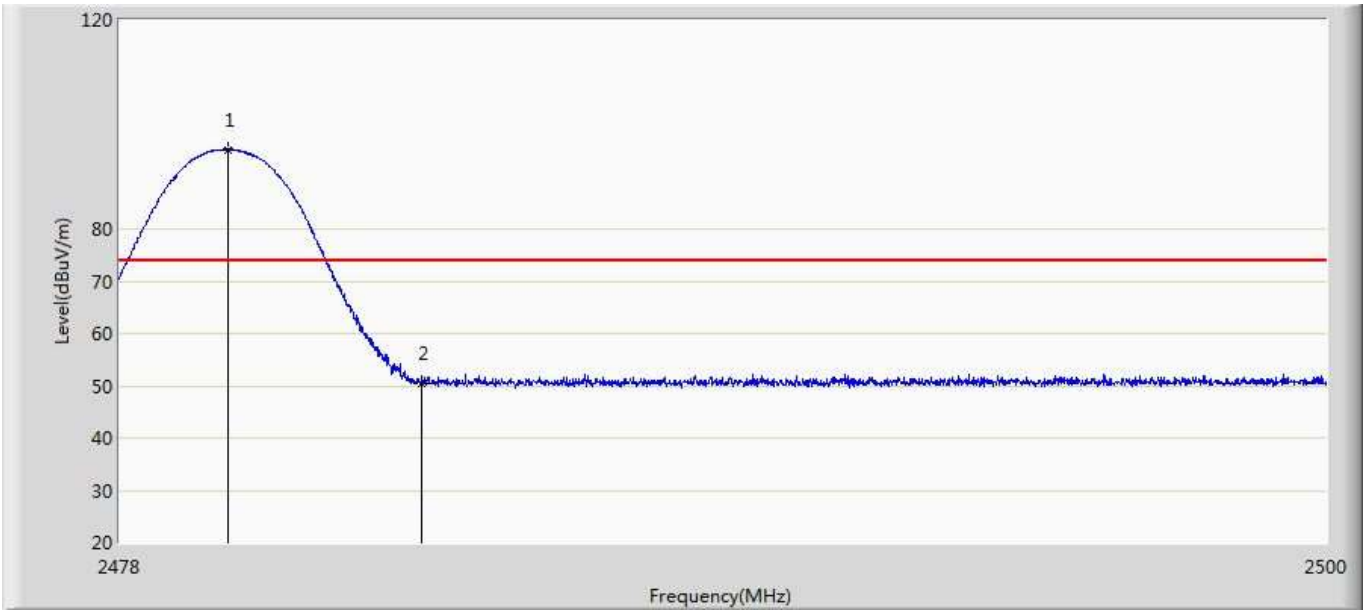
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2479.980	97.326	62.027	N/A	N/A	35.299	PK
2		2483.500	51.697	16.399	-22.303	74.000	35.297	PK

Profile: 2040215R	Page No.: 22
Engineer: Tongben	
Site: AC5	Time: 2020/04/18 - 23:50
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: MP-202S-00	Power: AC 120V/60Hz
Note: Mode 3:Transmit at 2480MHz by 3DH5	



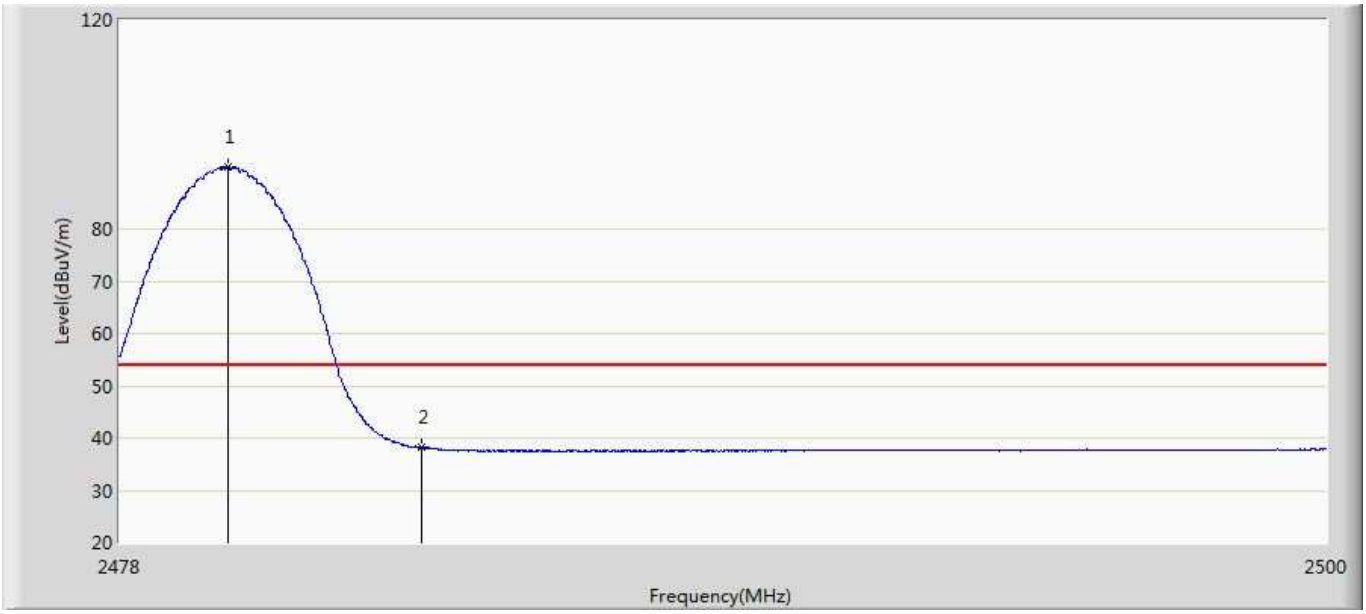
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2480.046	93.794	58.495	N/A	N/A	35.299	AV
2		2483.500	38.567	3.269	-15.433	54.000	35.297	AV

Profile: 2040215R	Page No.: 23
Engineer: Tongben	
Site: AC5	Time: 2020/04/18 - 23:53
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: MP-202S-00	Power: AC 120V/60Hz
Note: Mode 3:Transmit at 2480MHz by 3DH5	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2479.980	95.101	59.802	N/A	N/A	35.299	PK
2		2483.500	50.424	15.126	-23.576	74.000	35.297	PK

Profile: 2040215R	Page No.: 24
Engineer: Tongben	
Site: AC5	Time: 2020/04/18 - 23:56
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: MP-202S-00	Power: AC 120V/60Hz
Note: Mode 3:Transmit at 2480MHz by 3DH5	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2479.980	91.851	56.552	N/A	N/A	35.299	AV
2		2483.500	38.202	2.904	-15.798	54.000	35.297	AV

12. Antenna Requirement

12.1. Limit

Antenna Requirement Limit
An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited. This requirement does not apply to carrier current devices or to devices operated under the provisions of §15.211, §15.213, §15.217, §15.219, or §15.221. Further, this requirement does not apply to intentional radiators that must be professionally installed, such as perimeter protection systems and some field disturbance sensors, or to other intentional radiators which, in accordance with §15.31(d), must be measured at the installation site. However, the installer shall be responsible for ensuring that the proper antenna is employed so that the limits in this part are not exceeded.

12.2. Antenna Connector Construction

Antenna Connector Construction	
☒	The use of a permanently attached antenna
☐	The antenna use of a unique coupling to the intentional radiator
☐	The use of a nonstandard antenna jack or electrical connector
Please refer to the attached document “Internal Photograph” to show the antenna connector.	

The End