Test Report

FCC Part15 Subpart C& RSS-247 Issue 2

Product Name	:	Mobile Computer
Model No.	:	MEMOR K
FCC ID	:	U4GMEMKUS
IC	:	3862E-MEMKUS

Applicant	:	Datalogic S.r.l.
Address	:	Via San Vitalino no.13,Calderara di Reno -40012(BO)-Itlay

Date of Receipt	:	Apr. 15, 2020
Test Date	:	Apr. 16, 2020 ~ Jul. 14, 2020
Issued Date	:	Jul. 14, 2020
Report No.	:	2040625R-RF-US-P06V01
Report Version	:	V1.1

Test Report Certification

Issued Date: Jul. 14, 2020
Report No.: 2040625R-RF-US-P06V01

Product Name	:	Mobile Computer
Applicant	:	Datalogic S.r.l.
Address	:	Via San Vitalino no.13,Calderara di Reno -40012(BO)-Itlay
Manufacturer	:	Datalogic S.r.l.
Address	:	Via San Vitalino no.13,Calderara di Reno -40012(BO)-Itlay
Model No.	:	MEMOR K
Trademark	:	Datalogic
FCC ID	:	U4GMEMKUS
IC	:	3862E-MEMKUS
EUT Voltage	:	3.8 Vdc
Applicable Standard	:	FCC CFR Title 47 Part 15 Subpart C KDB 558074 D01v05r02 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; ISED CAB identifier: CN0040

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(Project Assistant: Kitty Li)

Reviewed By : Frank he

(Technical Supervisor: Frank He)

Approved By : Jack Zhang

(Supervisor: Jack Zhang)

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History of This Test Report

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
2040625R-RF-US-P06V01	V1.0	Initial Issued Report	Jun. 05, 2020
2040625R-RF-US-P06V01	V1.1	1. P76, added the Peak Output Power limit for ISED. 2. P78~79, modified the EIRP limit.	Jul. 14, 2020

1. General Information

1.1. EUT Description

Product Name	Mobile Computer
Model No.	MEMOR K
Software version	0.01.02.20200513
Hardware version	V00(US)
EUT Voltage	3.8 Vdc
Test Voltage	3.8 Vdc
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 antenna		
			☐	Monopole antenna		
Antenna Gain	0.84 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.

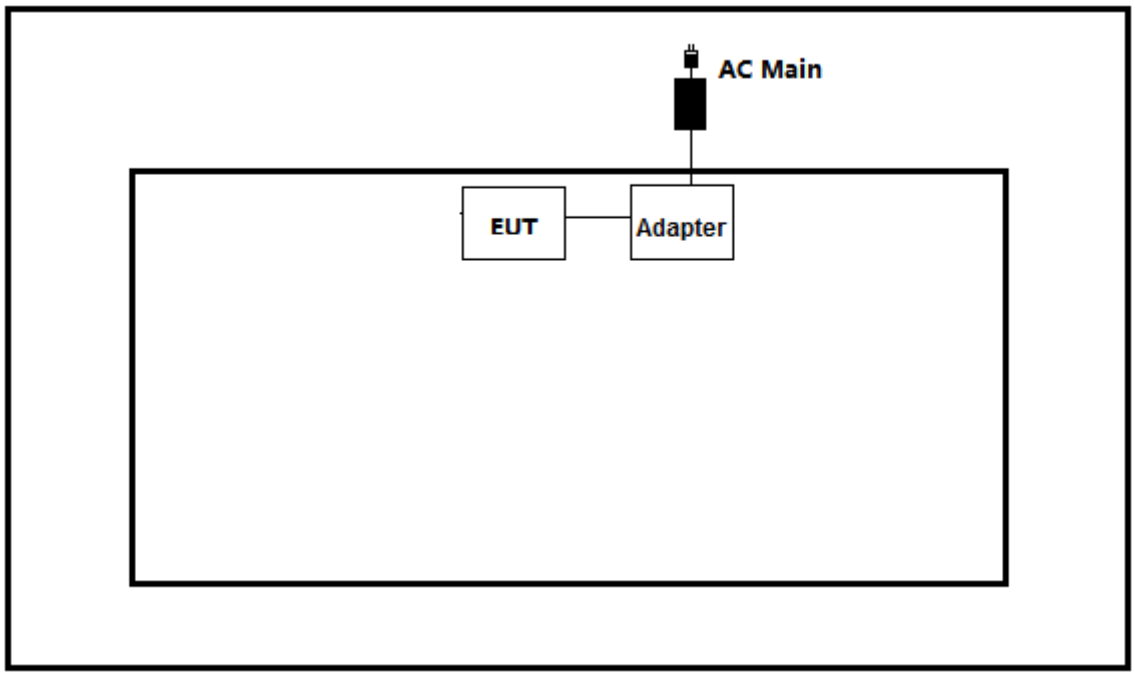
1.4 Tested System Details

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

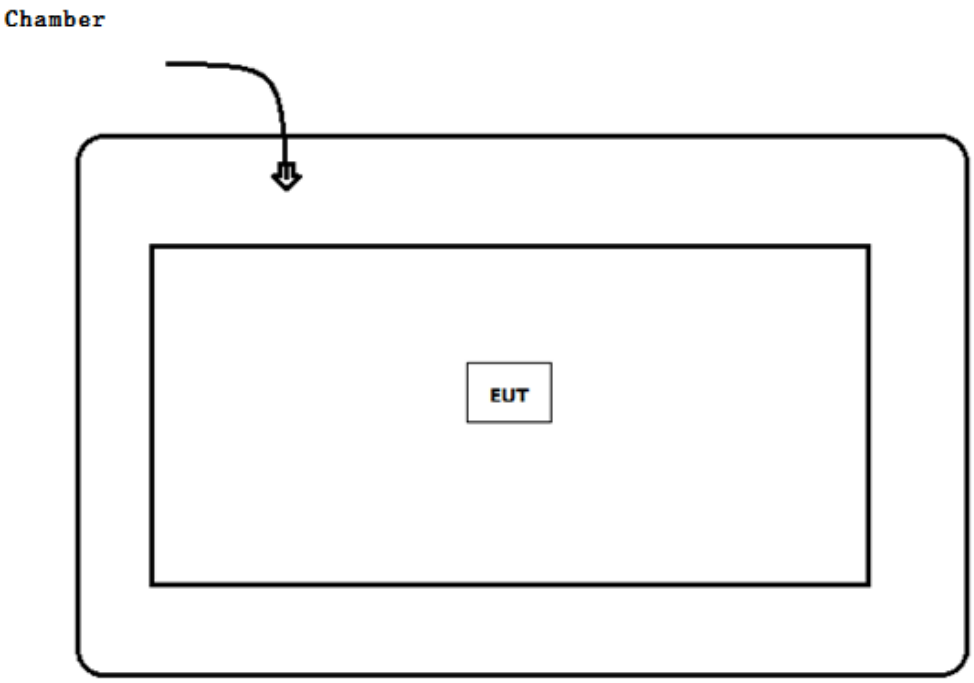
Product		Manufacturer	Model No.	Serial No.	Power Cord
1	N/A	N/A	N/A	N/A	N/A

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 1.5.
2	Execute the test program.
3	Configure the test mode, the test channel, and the data rate.
4	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

For ISED

Performed Test Item	Normative References	Test Performed	Deviation
Conducted Emission	RSS-Gen Issue 5 Section 8.8	Yes	No
Radiated Emission	RSS-Gen Issue 5 Section 8.9	Yes	No
20dB Bandwidth	RSS-247 Issue 2 Section 5.1	Yes	No
Carrier Frequency Separation	RSS-247 Issue 2 Section 5.1	Yes	No
Number of Hopping Frequencies	RSS-247 Issue 2 Section 5.1	Yes	No
Time of Occupancy (Dwell Time)	RSS-247 Issue 2 Section 5.1	Yes	No
Peak Output Power	RSS-247 Issue 2 Section 5.4	Yes	No
Emissions in non-restricted frequency bands	RSS-247 Issue 2 Section 5.5	Yes	No
Radiated Emission Band Edge	RSS-Gen Issue 5 Section 8.10	Yes	No
Antenna Requirement	RSS-Gen Issue 5 Section 8.3	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

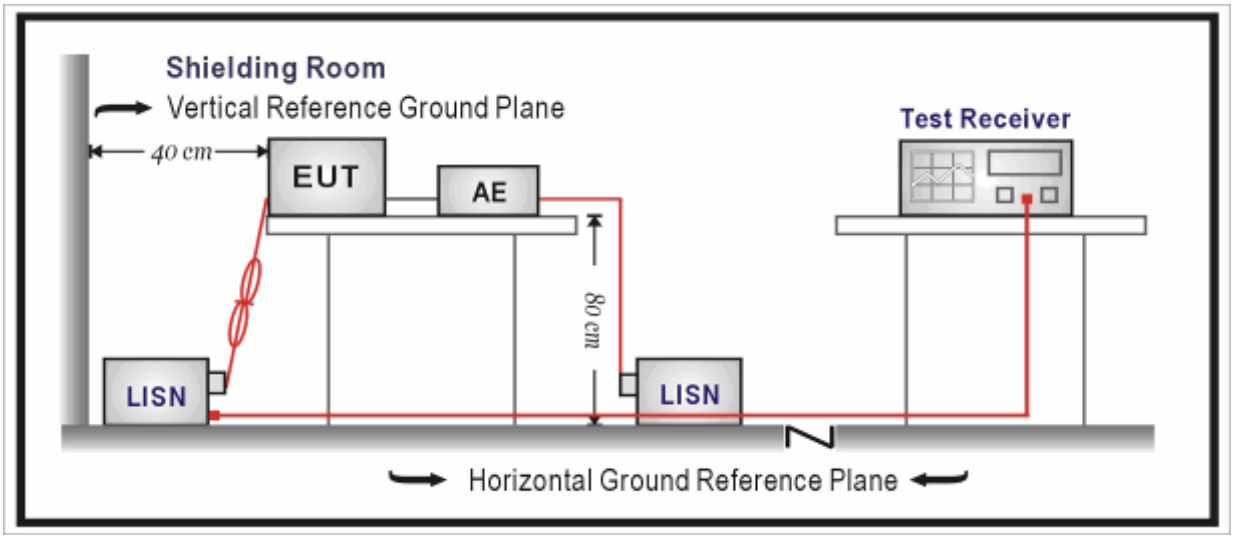
3. Conducted Emission

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	2020.04.18	2021.04.17
Two-Line V-Network	R&S	ENV 216	101189	2019.10.16	2020.10.15
Two-Line V-Network	R&S	ENV 216	101044	2020.04.18	2021.04.17
50ohm Coaxial Switch	Anritsu	MP59B	6200464462	N/A	N/A
50ohm Termination	SHX	TF2	7081402	2019.09.02	2020.09.01
Temperature/Humidity Meter	RTS	RTS-8S	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 (dB μ V)	Average(dB μ V)
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

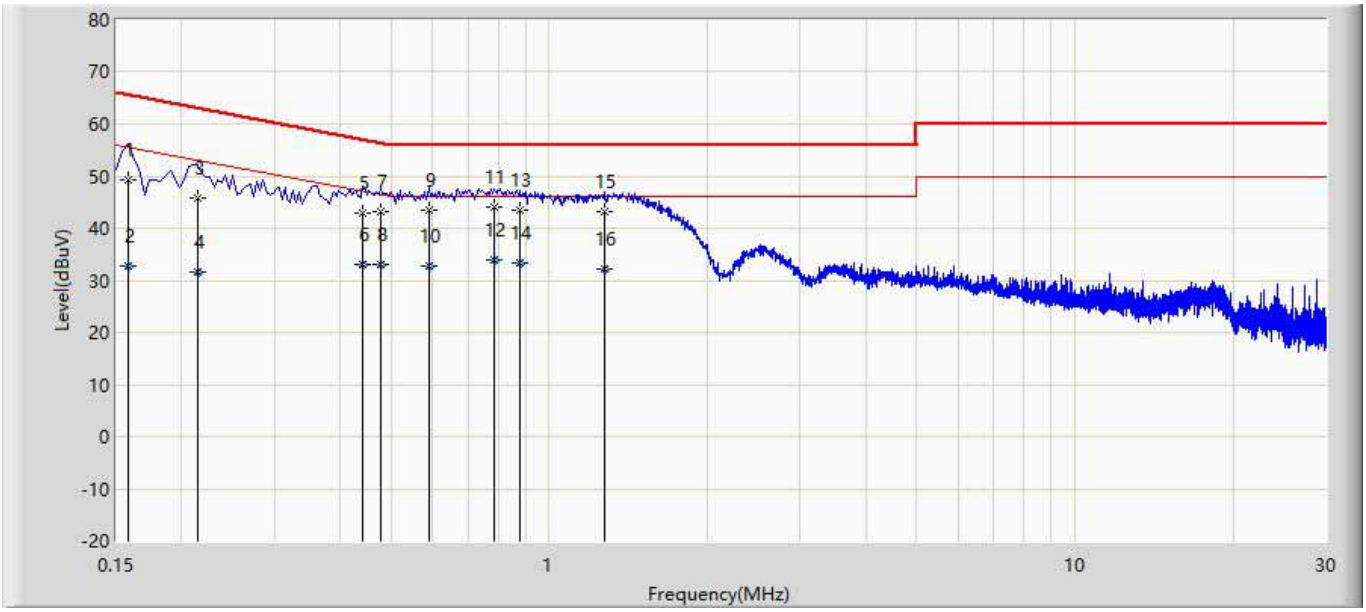
Test Method			
	References Rule	Chapter	Item
☒	ANSI C63.10-2013	6.2	Standard test method for ac power-line conducted emissions from unlicensed wireless devices

3.5. Uncertainty

The measurement uncertainty is defined as ± 2.02 dB

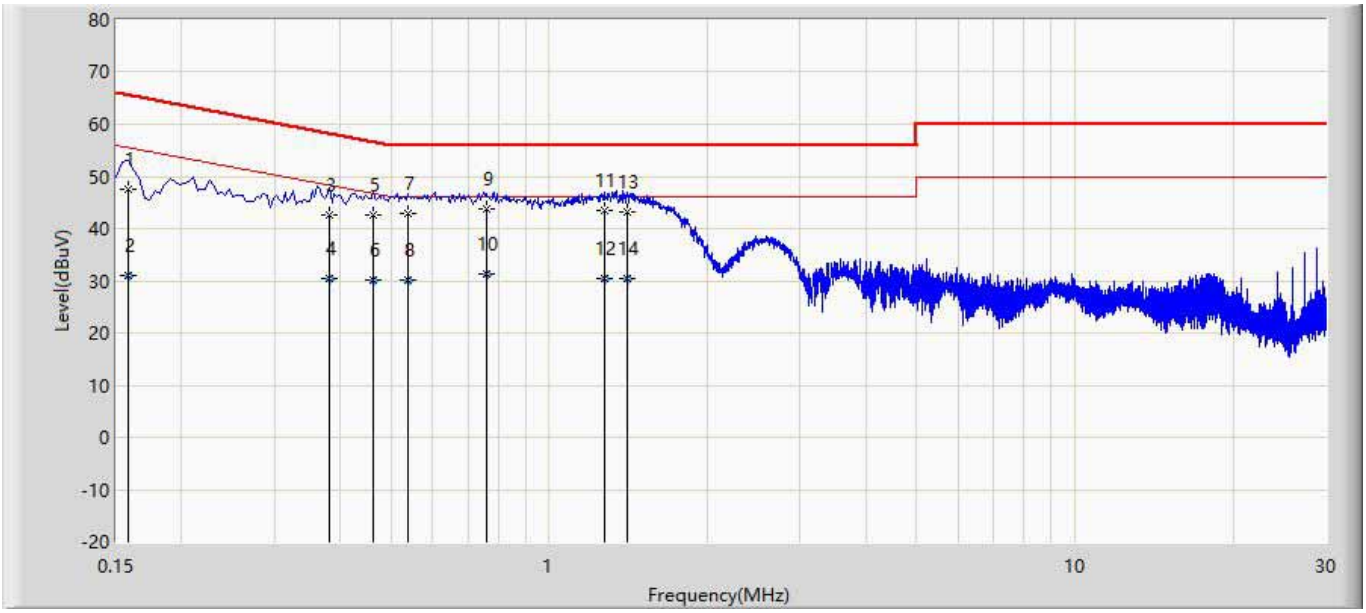
3.6. Test Result

Site: TR1	Time: 2020/04/16 - 09:25
Limit: FCC_Part15.207_CE_AC Power	Margin: 0
Probe: ENV216_101190(0.009-30MHz)	Polarity: Line
EUT: Mobile Computer	Power: AC 120V/60Hz
Note: Mode 1	



No	Mark	Frequency (MHz)	Measure Level (dBuV)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV)	Probe (dB)	Cable (dB)	Amp (dB)	Type
1		0.158	49.198	39.561	-16.370	65.568	9.608	0.029	0.000	QP
2		0.158	32.894	23.257	-22.674	55.568	9.608	0.029	0.000	AV
3		0.214	45.657	36.027	-17.392	63.049	9.600	0.029	0.000	QP
4		0.214	31.589	21.960	-21.459	53.049	9.600	0.029	0.000	AV
5		0.442	42.806	33.166	-14.218	57.024	9.600	0.041	0.000	QP
6		0.442	32.932	23.291	-14.092	47.024	9.600	0.041	0.000	AV
7		0.478	43.324	33.683	-13.050	56.374	9.600	0.041	0.000	QP
8		0.478	33.040	23.399	-13.334	46.374	9.600	0.041	0.000	AV
9		0.590	43.431	33.785	-12.569	56.000	9.600	0.046	0.000	QP
10		0.590	32.789	23.143	-13.211	46.000	9.600	0.046	0.000	AV
11	*	0.786	44.077	34.422	-11.923	56.000	9.603	0.052	0.000	QP
12		0.786	33.834	24.178	-12.166	46.000	9.603	0.052	0.000	AV
13		0.882	43.486	33.825	-12.514	56.000	9.606	0.055	0.000	QP
14		0.882	33.210	23.549	-12.790	46.000	9.606	0.055	0.000	AV
15		1.274	43.177	33.500	-12.823	56.000	9.610	0.067	0.000	QP
16		1.274	32.148	22.470	-13.852	46.000	9.610	0.067	0.000	AV

Site: TR1	Time: 2020/04/16 - 09:30
Limit: FCC_Part15.207_CE_AC Power	Margin: 0
Probe: ENV216_101190(0.009-30MHz)	Polarity: Neutral
EUT: Mobile Computer	Power: AC 120V/60Hz
Note: Mode 1	



No	Mark	Frequency (MHz)	Measure Level (dBuV)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV)	Probe (dB)	Cable (dB)	Amp (dB)	Type
1		0.158	47.484	37.863	-18.084	65.568	9.592	0.029	0.000	QP
2		0.158	30.961	21.340	-24.607	55.568	9.592	0.029	0.000	AV
3		0.382	42.611	32.980	-15.625	58.236	9.594	0.038	0.000	QP
4		0.382	30.504	20.873	-17.732	48.236	9.594	0.038	0.000	AV
5		0.462	42.663	33.031	-13.994	56.657	9.591	0.041	0.000	QP
6		0.462	30.266	20.634	-16.390	46.657	9.591	0.041	0.000	AV
7		0.538	42.787	33.153	-13.213	56.000	9.590	0.044	0.000	QP
8		0.538	30.215	20.581	-15.785	46.000	9.590	0.044	0.000	AV
9	*	0.762	43.830	34.188	-12.170	56.000	9.590	0.052	0.000	QP
10		0.762	31.404	21.763	-14.596	46.000	9.590	0.052	0.000	AV
11		1.270	43.406	33.744	-12.594	56.000	9.595	0.067	0.000	QP
12		1.270	30.313	20.651	-15.687	46.000	9.595	0.067	0.000	AV
13		1.406	43.329	33.660	-12.671	56.000	9.598	0.070	0.000	QP
14		1.406	30.416	20.747	-15.584	46.000	9.598	0.070	0.000	AV

Note:

1. " * ", means this data is the worst emission level.

2. Measurement Level = Reading Level + Factor(Probe+Cable-Amp).

4. Emissions in restricted frequency bands

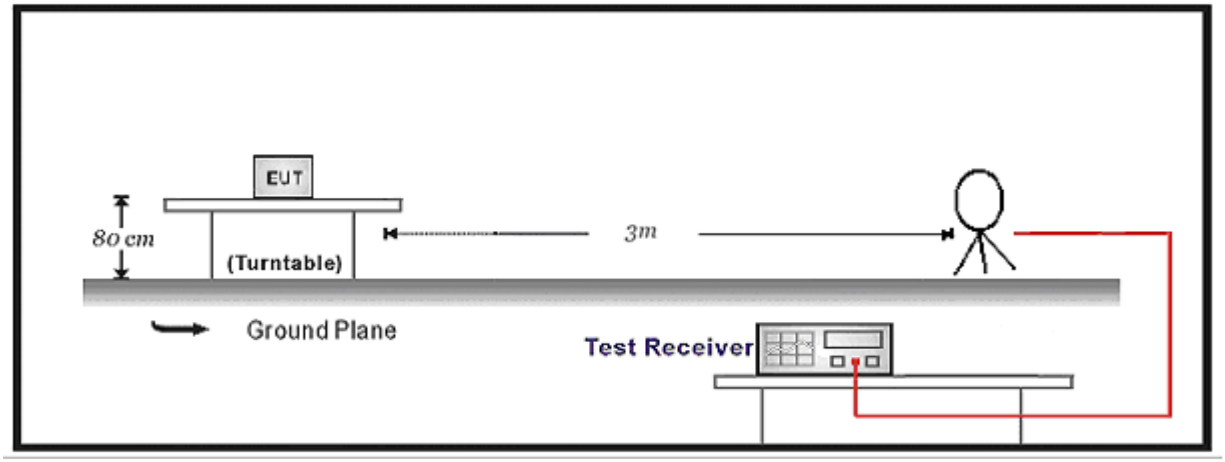
4.1. Test Equipment

Radiated Emission(Below 1GHz) / AC-3					
Instrument	Manufacturer	Type No.	Serial No.	Cal. Date	Cal. Due Date
EMI Test Receiver	R&S	ESCI	100176	2019.08.30	2020.08.29
Loop Antenna	R&S	HFH2-Z2	833799/003	2020.02.17	2021.02.16
Bilog Antenna	Teseq GmbH	CBL6112D	27613	2020.05.25	2021.05.24
Coaxial Cable	Huber+Suhner	SUCOFLEX 106	AC3-C	2020.04.13	2021.04.12
Temperature/Humidity Meter	RTS	RTS-8S	AC3-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.					

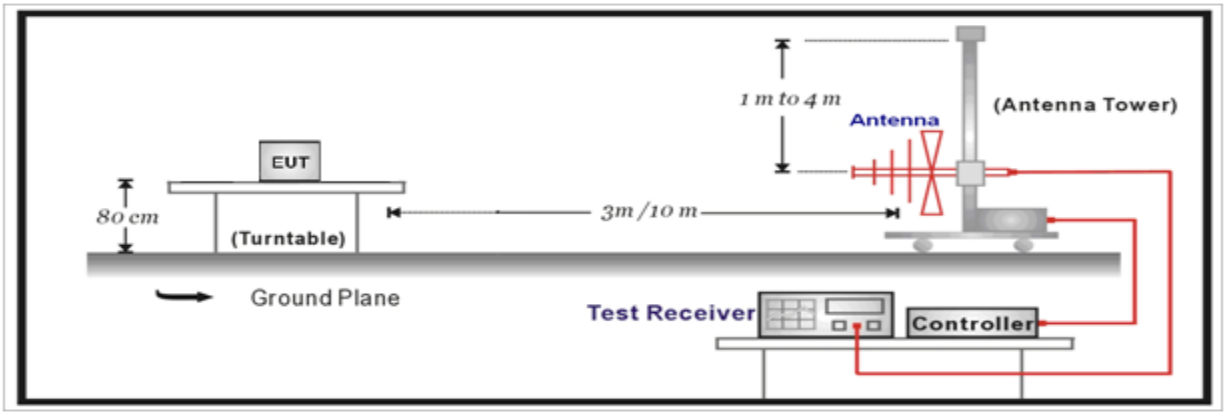
Radiated Emission(Above 1GHz) / AC-5					
Instrument	Manufacturer	Type No.	Serial No.	Cal. Date	Cal. Due Date
Spectrum Analyzer	R&S	FSV	104212	2019.12.28	2020.12.27
Signal analyzer	Agilent	E4446A	MY45300103	2020.05.08	2021.05.07
low Noise Amplifier	BXT	NA2651D	LNA17040209	2020.04.13	2021.04.12
Pre-Amplifier	EMCI	EMC184045SE	980263	2020.05.24	2021.05.23
DRG Horn Antenna	ETS-Lindgren	3117	00167055	2020.05.25	2021.05.24
Broad-Band Horn Antenna	Schwarzbeck	BBHA9170	294	2019.03.23	2021.03.22
Coaxial Cable	Huber+Suhner	SUCOFLEX 106	AC5-C2	2020.04.13	2021.04.12
Coaxial Cable	ROSENBERGER	LA1-C011-2000/3000	AC5-40G	2020.04.18	2021.04.17
Temperature/Humidity Meter	RTS	RTS-8S	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

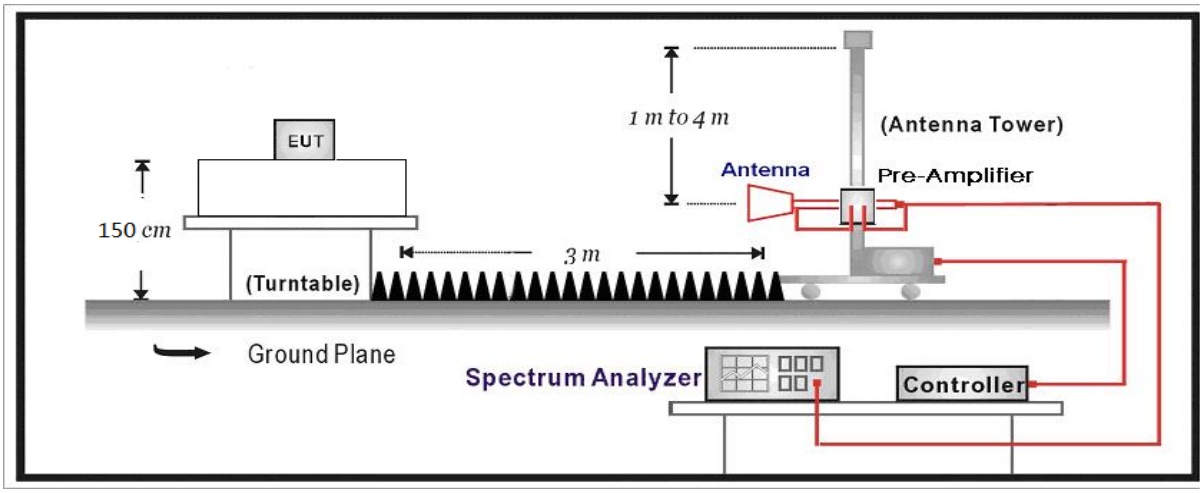
Below 30MHz Test Setup:



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:

MHz
0.090 - 0.110
0.495 - 0.505
2.1735 - 2.1905
3.020 - 3.026
4.125 - 4.128
4.17725 - 4.17775
4.20725 - 4.20775
5.677 - 5.683
6.215 - 6.218
6.26775 - 6.26825
6.31175 - 6.31225
8.291 - 8.294
8.362 - 8.366
8.37625 - 8.38675
8.41425 - 8.41475
12.29 - 12.293
12.51975 - 12.52025
12.57675 - 12.57725
13.36 - 13.41
16.42 - 16.423
16.69475 - 16.69525
16.80425 - 16.80475
25.5 - 25.67
37.5 - 38.25
73 - 74.6
74.8 - 75.2
108 - 138

MHz
149.9 - 150.05
156.52475 - 156.52525
156.7 - 156.9
162.0125 - 167.17
167.72 - 173.2
240 - 285
322 - 335.4
399.9 - 410
608 - 614
960 - 1427
1435 - 1626.5
1645.5 - 1646.5
1660 - 1710
1718.8 - 1722.2
2200 - 2300
2310 - 2390
2483.5 - 2500
2655 - 2900
3260 - 3267
3332 - 3339
3345.8 - 3358
3500 - 4400
4500 - 5150
5350 - 5460
7250 - 7750
8025 - 8500
--

GHz
9.0 - 9.2
9.3 - 9.5
10.6 - 12.7
13.25 - 13.4
14.47 - 14.5
15.35 - 16.2
17.7 - 21.4
22.01 - 23.12
23.6 - 24.0
31.2 - 31.8
36.43 - 36.5
Above 38.6

* Certain frequency bands listed in table 7 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.

Restricted Band Emissions Limit			
Frequency (MHz)	Field strength (μ V/m)	Field strength (dB μ V/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

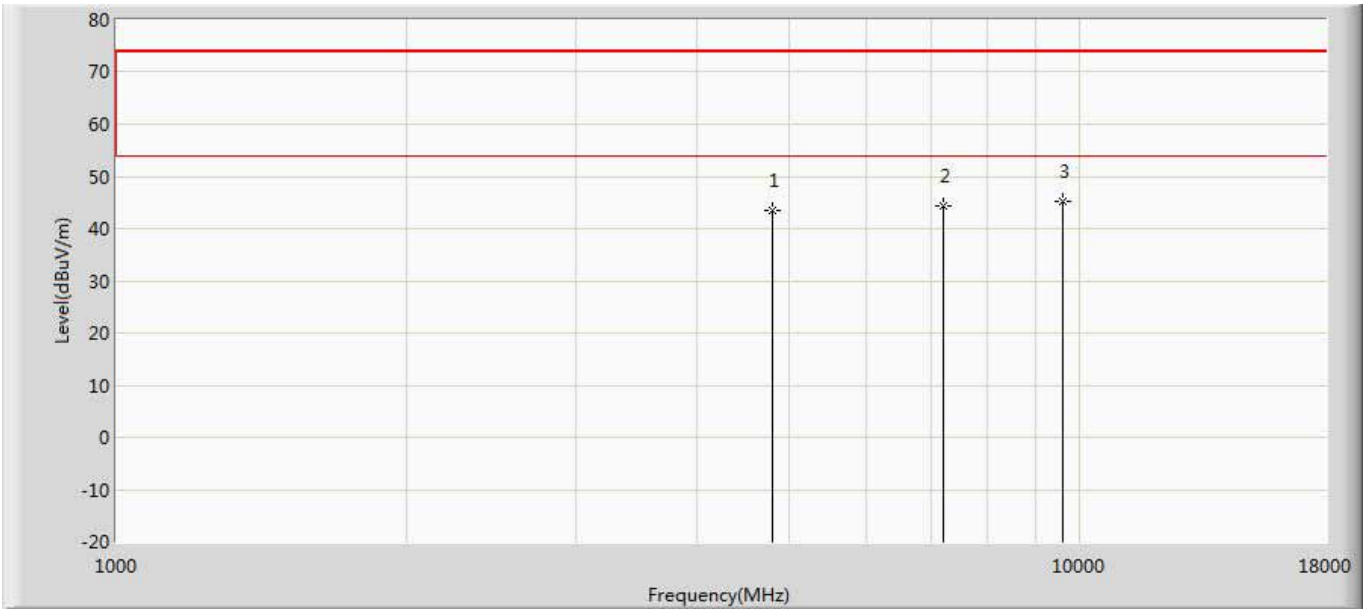
4.5. Uncertainty

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

below 1G is defined as ± 3.8 dB

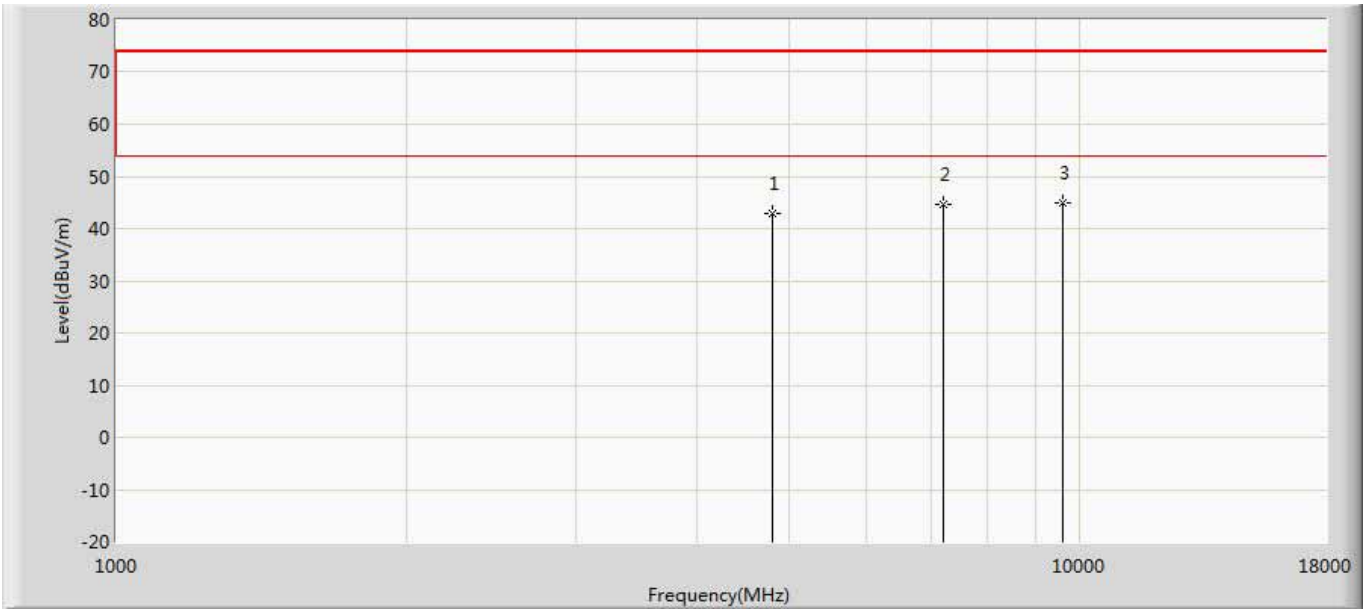
4.6. Test Result

Profile: 2040625R	Page No.: 43
Engineer: YULIU	
Site: AC5	Time: 2020/04/23 - 20:04
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Mobile Computer	Power: 3.8 Vdc
Note: Mode 1:Transmit at 2402MHz by DH5	



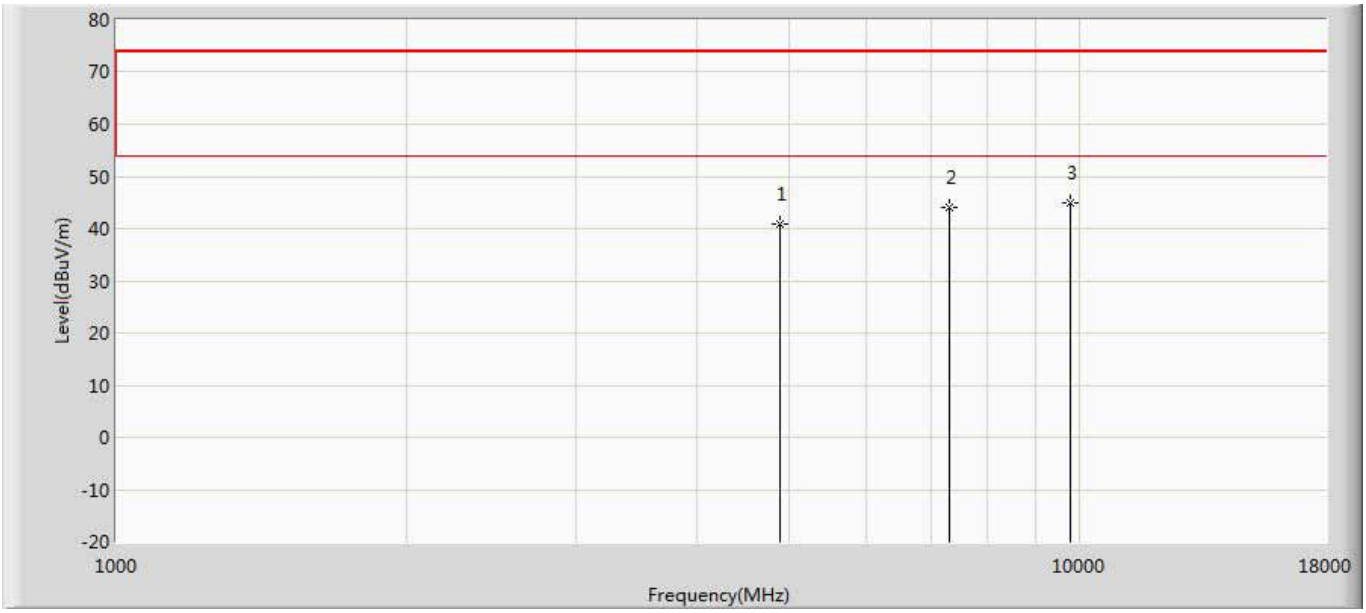
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4804.000	43.450	38.819	-30.550	74.000	4.631	PK
2		7206.000	44.443	36.419	-29.557	74.000	8.024	PK
3	*	9608.000	45.104	35.787	-28.896	74.000	9.318	PK

Profile: 2040625R	Page No.: 44
Engineer: YULIU	
Site: AC5	Time: 2020/04/23 - 20:04
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Mobile Computer	Power: 3.8 Vdc
Note: Mode 1:Transmit at 2402MHz by DH5	



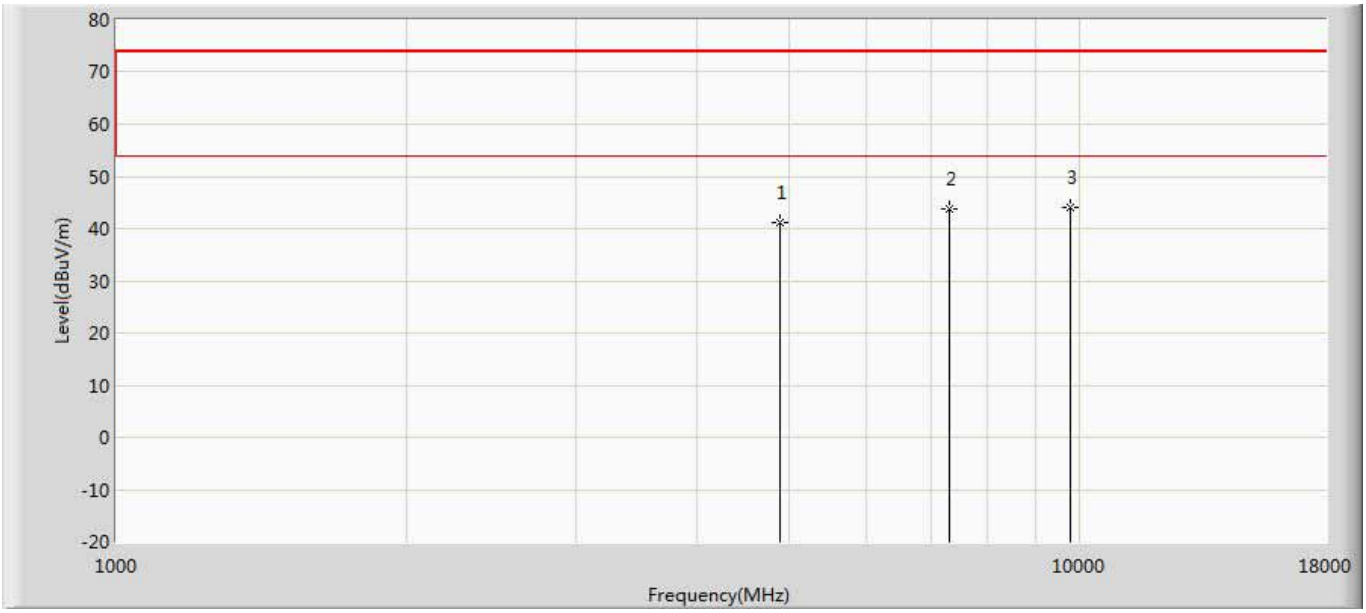
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4804.000	42.754	38.123	-31.246	74.000	4.631	PK
2		7206.000	44.551	36.527	-29.449	74.000	8.024	PK
3	*	9608.000	44.905	35.588	-29.095	74.000	9.318	PK

Profile: 2040625R	Page No.: 45
Engineer: YULIU	
Site: AC5	Time: 2020/04/23 - 20:04
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Mobile Computer	Power: 3.8 Vdc
Note: Mode 1:Transmit at 2441MHz by DH5	



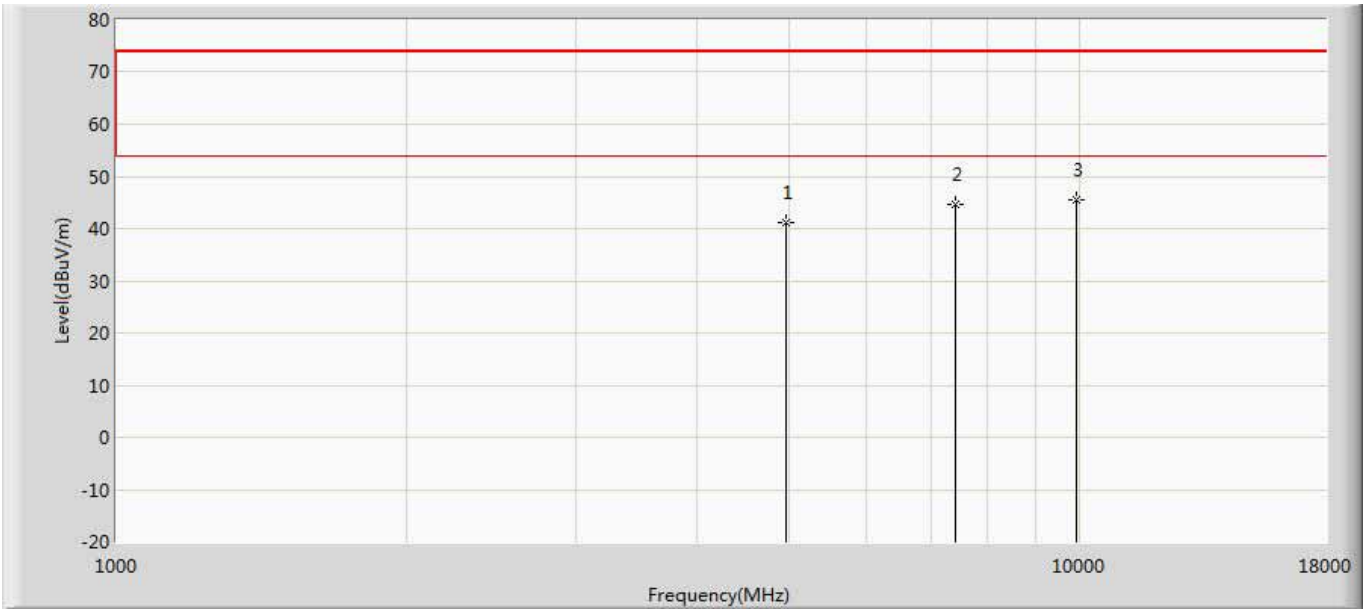
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4882.000	40.810	36.075	-33.190	74.000	4.736	PK
2		7323.000	43.958	35.862	-30.042	74.000	8.095	PK
3	*	9764.000	44.901	34.768	-29.099	74.000	10.133	PK

Profile: 2040625R	Page No.: 46
Engineer: YULIU	
Site: AC5	Time: 2020/04/23 - 20:04
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Mobile Computer	Power: 3.8 Vdc
Note: Mode 1:Transmit at 2441MHz by DH5	



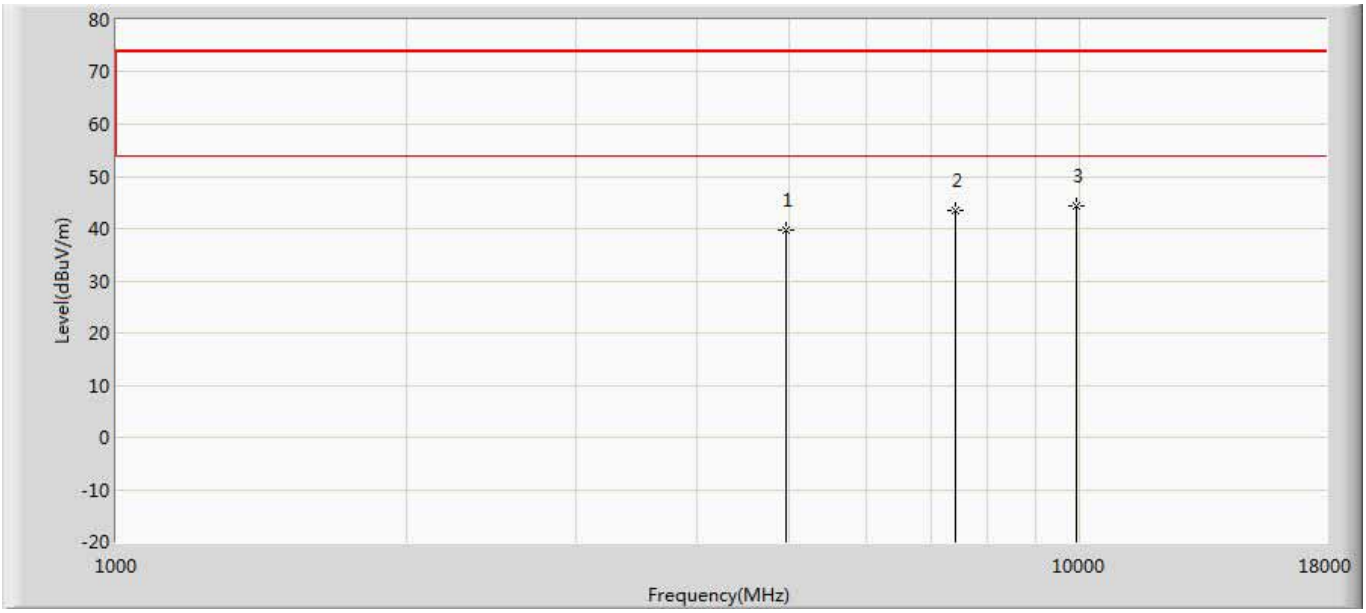
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4882.000	41.040	36.305	-32.960	74.000	4.736	PK
2		7323.000	43.897	35.801	-30.103	74.000	8.095	PK
3	*	9764.000	43.973	33.840	-30.027	74.000	10.133	PK

Profile: 2040625R	Page No.: 47
Engineer: YULIU	
Site: AC5	Time: 2020/04/23 - 20:04
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Mobile Computer	Power: 3.8 Vdc
Note: Mode 1:Transmit at 2480MHz by DH5	



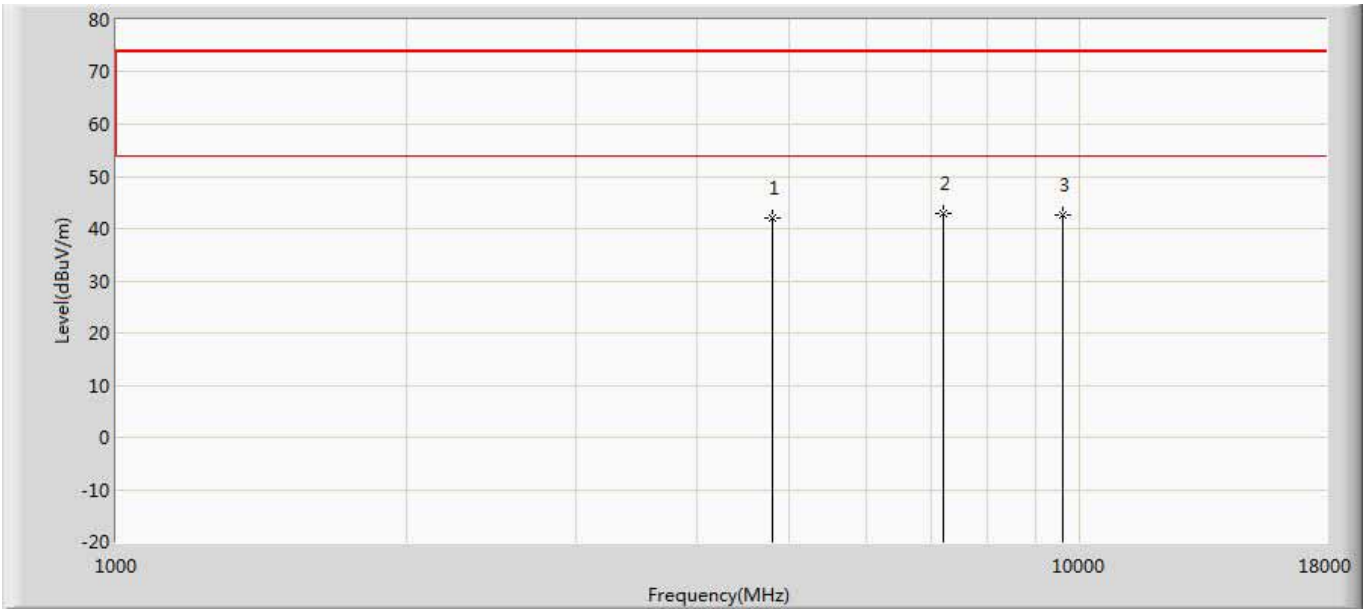
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4960.000	41.054	36.269	-32.946	74.000	4.784	PK
2		7440.000	44.686	36.635	-29.314	74.000	8.051	PK
3	*	9920.000	45.463	35.568	-28.537	74.000	9.894	PK

Profile: 2040625R	Page No.: 48
Engineer: YULIU	
Site: AC5	Time: 2020/04/23 - 20:04
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Mobile Computer	Power: 3.8 Vdc
Note: Mode 1:Transmit at 2480MHz by DH5	



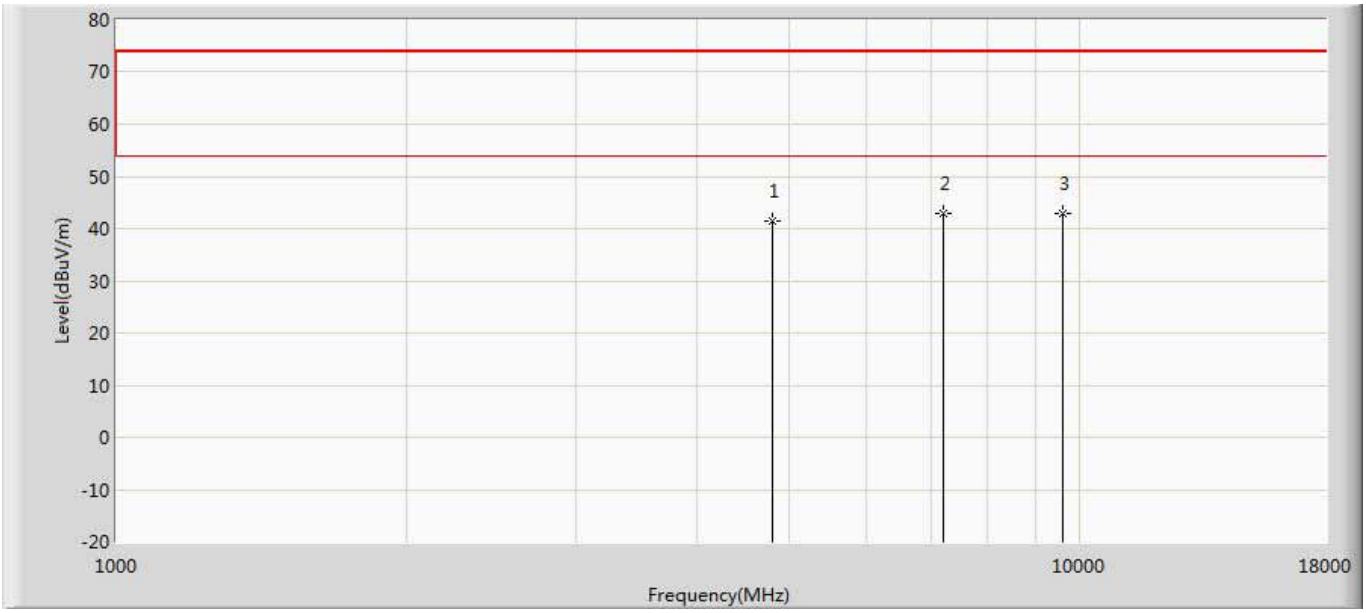
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4960.000	39.837	35.052	-34.163	74.000	4.784	PK
2		7440.000	43.451	35.400	-30.549	74.000	8.051	PK
3	*	9920.000	44.315	34.420	-29.685	74.000	9.894	PK

Profile: 2040625R	Page No.: 49
Engineer: YULIU	
Site: AC5	Time: 2020/04/23 - 20:04
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Mobile Computer	Power: 3.8 Vdc
Note: Mode 2:Transmit at 2402MHz by 2DH5	



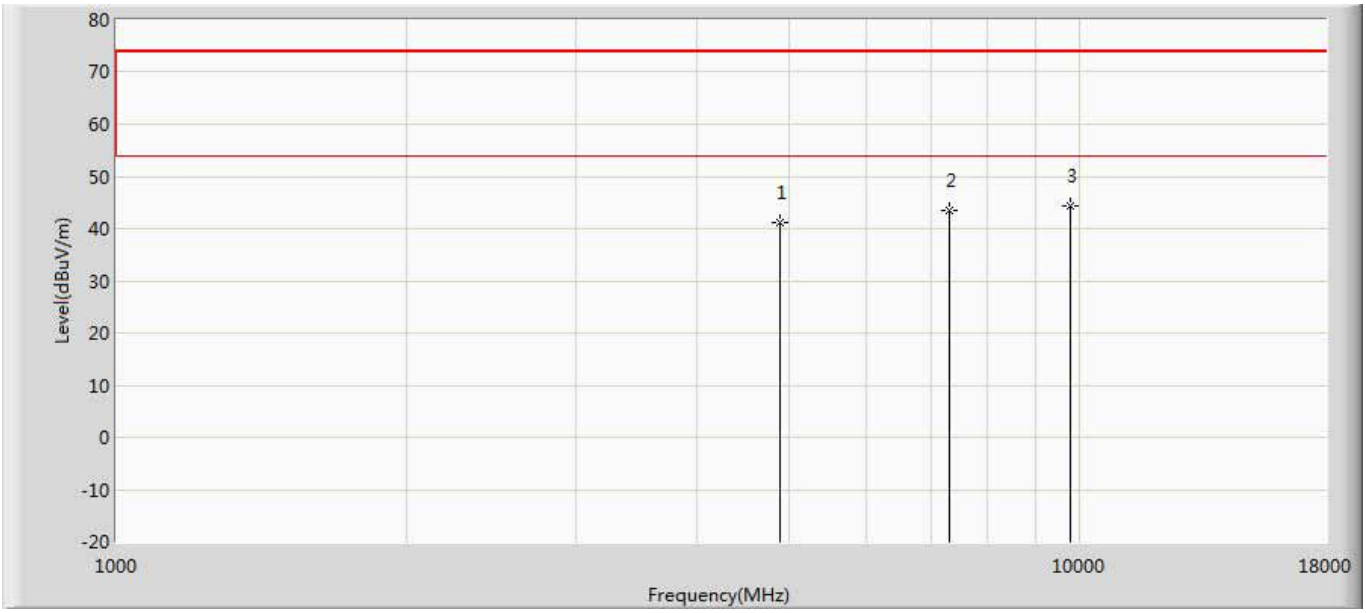
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4804.000	42.035	37.404	-31.965	74.000	4.631	PK
2	*	7206.000	42.927	34.903	-31.073	74.000	8.024	PK
3		9608.000	42.744	33.427	-31.256	74.000	9.318	PK

Profile: 2040625R	Page No.: 50
Engineer: YULIU	
Site: AC5	Time: 2020/04/23 - 20:04
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Mobile Computer	Power: 3.8 Vdc
Note: Mode 2:Transmit at 2402MHz by 2DH5	



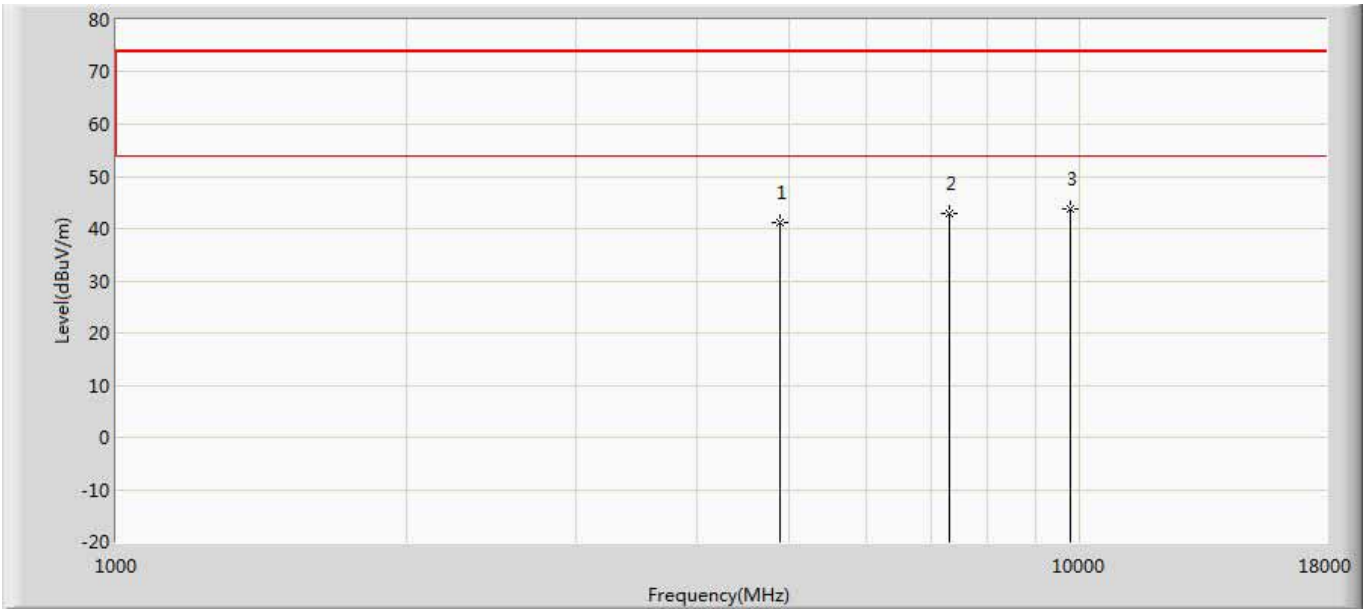
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4804.000	41.368	36.737	-32.632	74.000	4.631	PK
2		7206.000	42.986	34.962	-31.014	74.000	8.024	PK
3	*	9608.000	43.014	33.697	-30.986	74.000	9.318	PK

Profile: 2040625R	Page No.: 51
Engineer: YULIU	
Site: AC5	Time: 2020/04/23 - 20:04
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Mobile Computer	Power: 3.8 Vdc
Note: Mode 2:Transmit at 2441MHz by 2DH5	



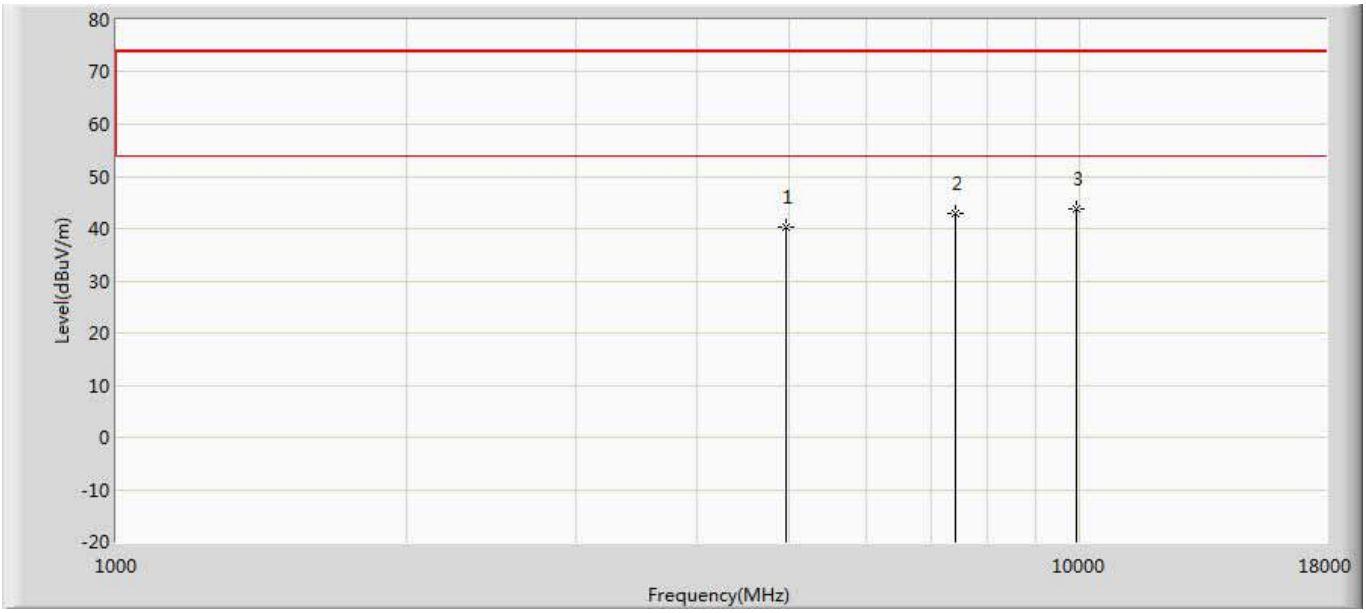
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4882.000	41.103	36.368	-32.897	74.000	4.736	PK
2		7323.000	43.363	35.267	-30.637	74.000	8.095	PK
3	*	9764.000	44.302	34.169	-29.698	74.000	10.133	PK

Profile: 2040625R	Page No.: 52
Engineer: YULIU	
Site: AC5	Time: 2020/04/23 - 20:04
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Mobile Computer	Power: 3.8 Vdc
Note: Mode 2:Transmit at 2441MHz by 2DH5	



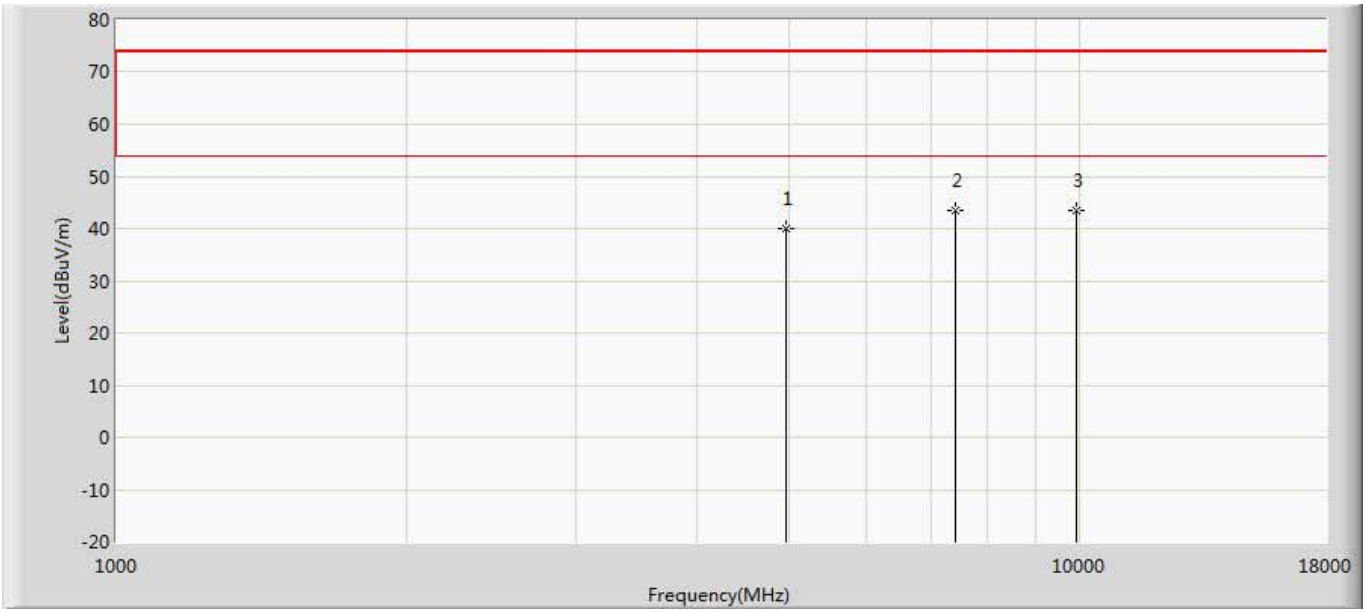
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4882.000	41.257	36.522	-32.743	74.000	4.736	PK
2		7323.000	42.780	34.684	-31.220	74.000	8.095	PK
3	*	9764.000	43.885	33.752	-30.115	74.000	10.133	PK

Profile: 2040625R	Page No.: 53
Engineer: YULIU	
Site: AC5	Time: 2020/04/23 - 20:05
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Mobile Computer	Power: 3.8 Vdc
Note: Mode 2:Transmit at 2480MHz by 2DH5	



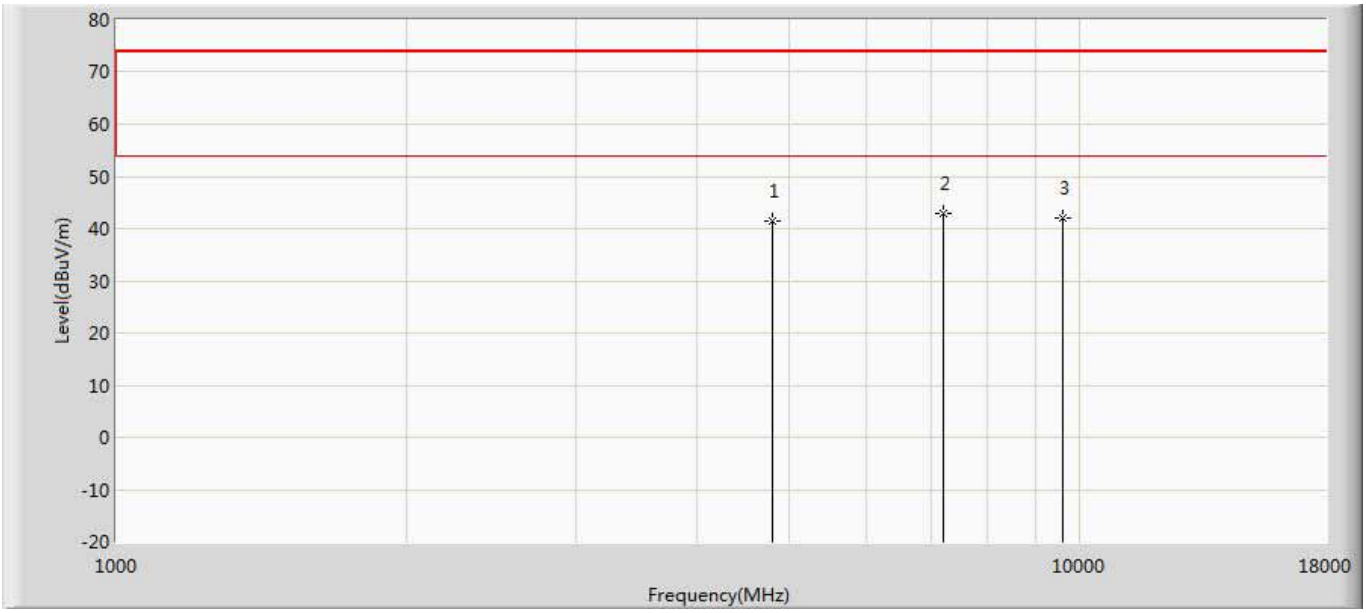
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4960.000	40.367	35.582	-33.633	74.000	4.784	PK
2		7440.000	42.909	34.858	-31.091	74.000	8.051	PK
3	*	9920.000	43.904	34.009	-30.096	74.000	9.894	PK

Profile: 2040625R	Page No.: 54
Engineer: YULIU	
Site: AC5	Time: 2020/04/23 - 20:05
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Mobile Computer	Power: 3.8 Vdc
Note: Mode 2:Transmit at 2480MHz by 2DH5	



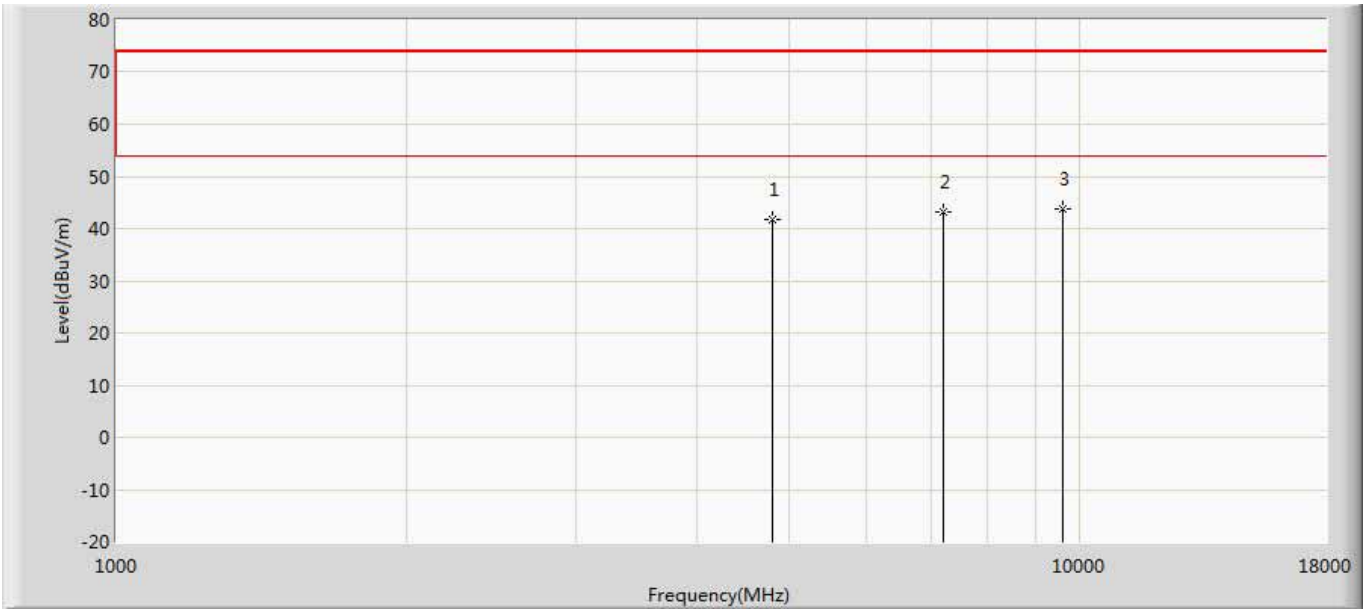
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4960.000	40.011	35.226	-33.989	74.000	4.784	PK
2		7440.000	43.407	35.356	-30.593	74.000	8.051	PK
3	*	9920.000	43.456	33.561	-30.544	74.000	9.894	PK

Profile: 2040625R	Page No.: 55
Engineer: YULIU	
Site: AC5	Time: 2020/04/23 - 20:05
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Mobile Computer	Power: 3.8 Vdc
Note: Mode 3:Transmit at 2402MHz by 3DH5	



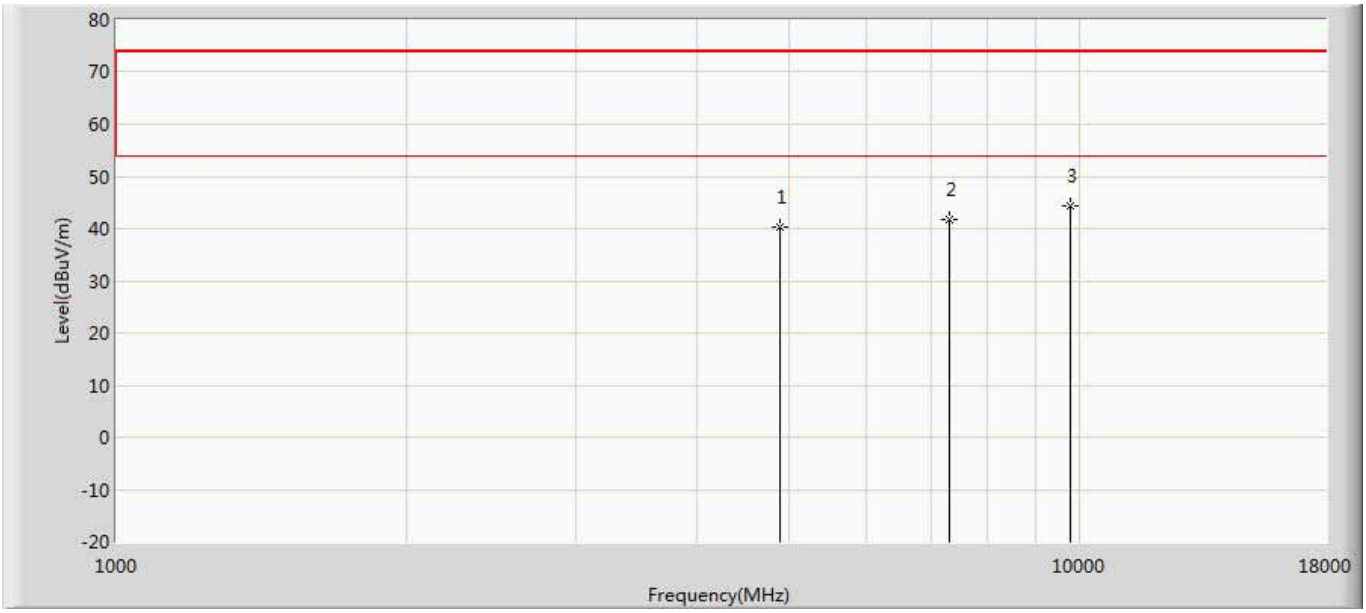
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4804.000	41.431	36.800	-32.569	74.000	4.631	PK
2	*	7206.000	42.906	34.882	-31.094	74.000	8.024	PK
3		9608.000	42.016	32.699	-31.984	74.000	9.318	PK

Profile: 2040625R	Page No.: 56
Engineer: YULIU	
Site: AC5	Time: 2020/04/23 - 20:05
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Mobile Computer	Power: 3.8 Vdc
Note: Mode 3:Transmit at 2402MHz by 3DH5	



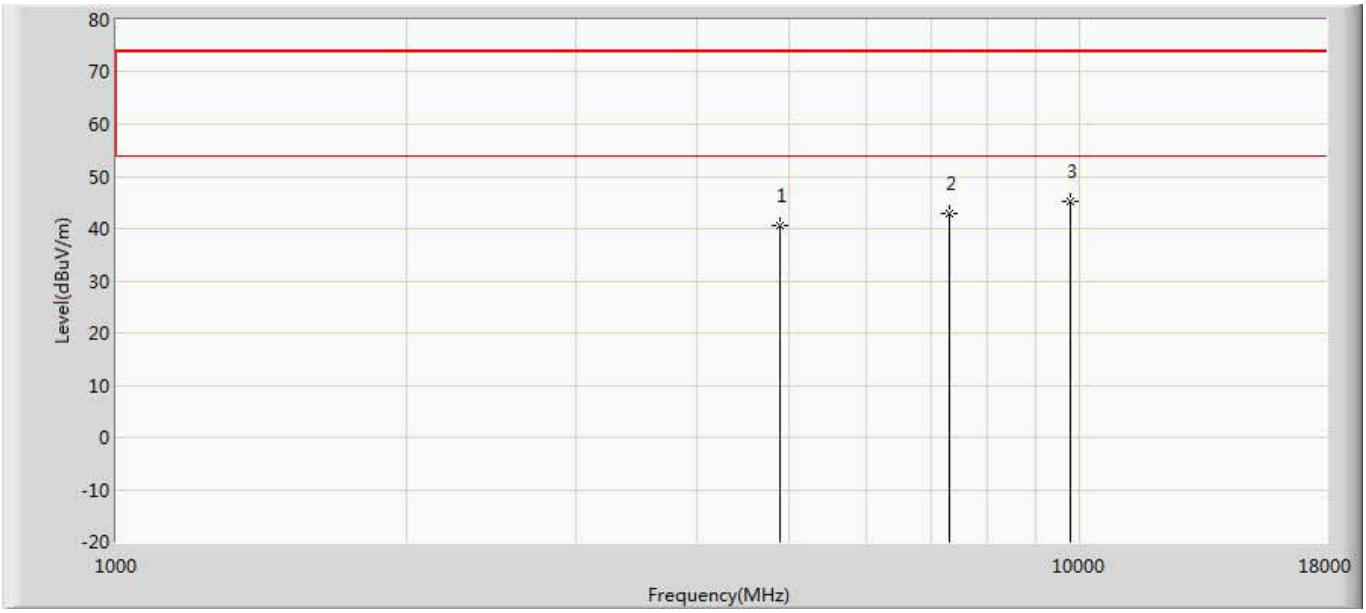
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4804.000	41.636	37.005	-32.364	74.000	4.631	PK
2		7206.000	43.207	35.183	-30.793	74.000	8.024	PK
3	*	9608.000	43.649	34.332	-30.351	74.000	9.318	PK

Profile: 2040625R	Page No.: 57
Engineer: YULIU	
Site: AC5	Time: 2020/04/23 - 20:05
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Mobile Computer	Power: 3.8 Vdc
Note: Mode 3:Transmit at 2441MHz by 3DH5	



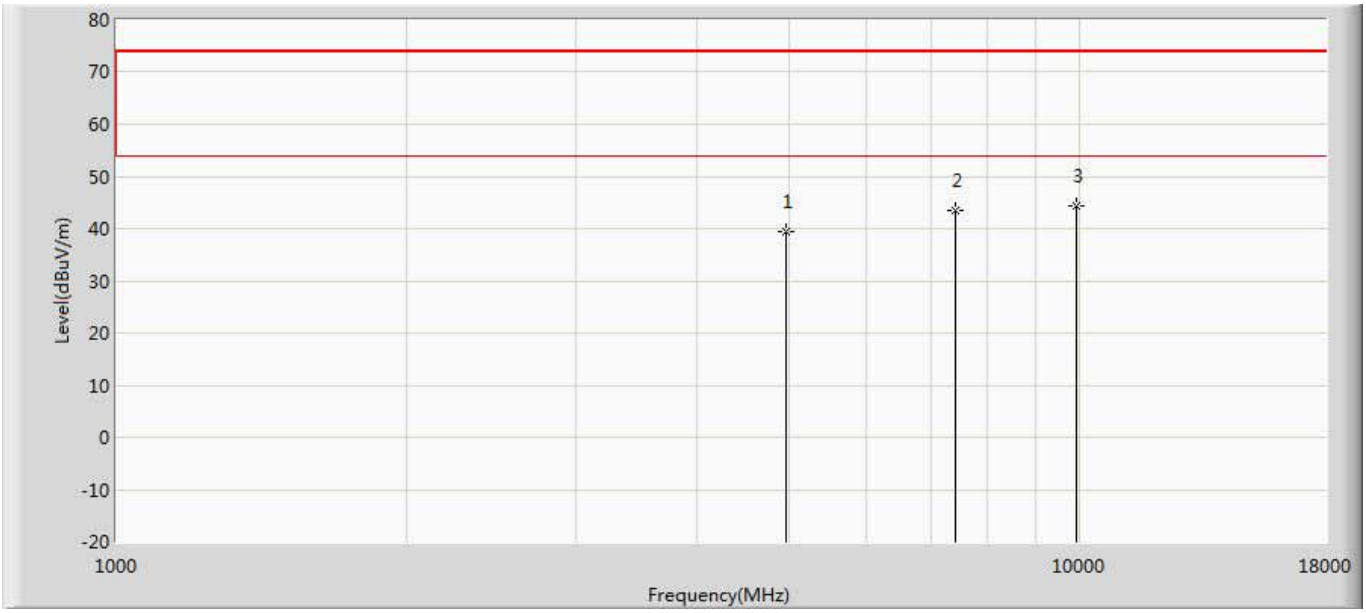
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4882.000	40.344	35.609	-33.656	74.000	4.736	PK
2		7323.000	41.783	33.687	-32.217	74.000	8.095	PK
3	*	9764.000	44.314	34.181	-29.686	74.000	10.133	PK

Profile: 2040625R	Page No.: 58
Engineer: YULIU	
Site: AC5	Time: 2020/04/23 - 20:05
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Mobile Computer	Power: 3.8 Vdc
Note: Mode 3:Transmit at 2441MHz by 3DH5	



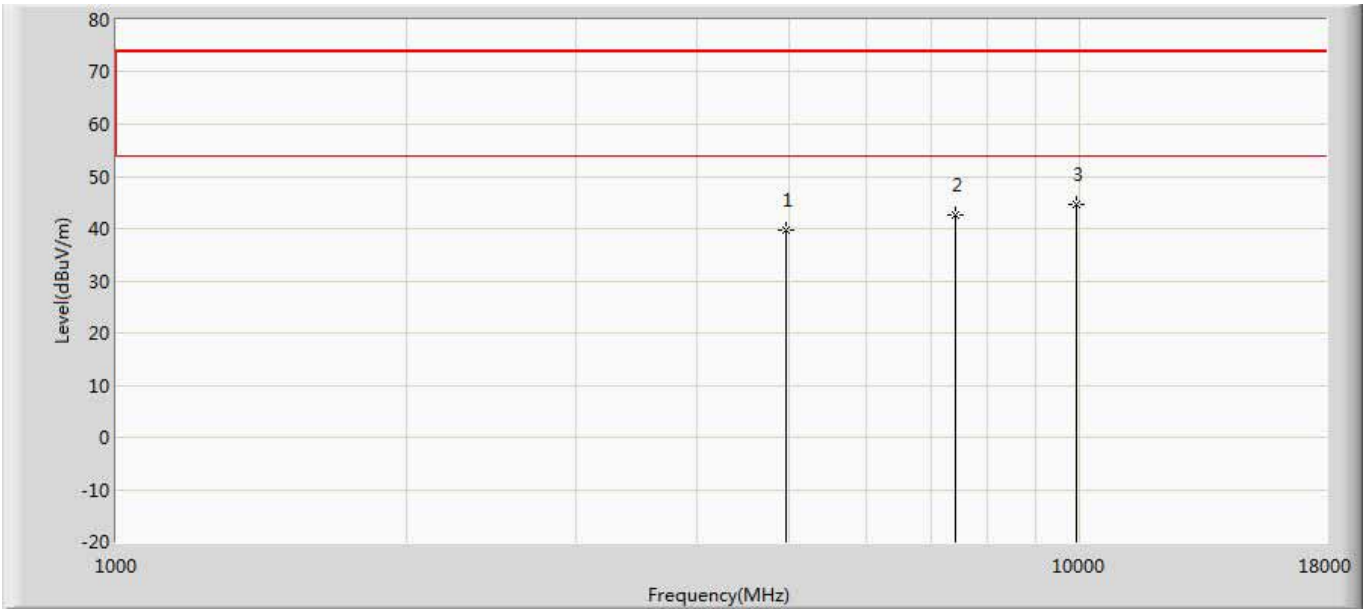
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4882.000	40.586	35.851	-33.414	74.000	4.736	PK
2		7323.000	42.793	34.697	-31.207	74.000	8.095	PK
3	*	9764.000	45.260	35.127	-28.740	74.000	10.133	PK

Profile: 2040625R	Page No.: 59
Engineer: YULIU	
Site: AC5	Time: 2020/04/23 - 20:05
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Mobile Computer	Power: 3.8 Vdc
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	39.541	34.756	-34.459	74.000	4.784	PK
2		7440.000	43.409	35.358	-30.591	74.000	8.051	PK
3	*	9920.000	44.455	34.560	-29.545	74.000	9.894	PK

Profile: 2040625R	Page No.: 60
Engineer: YULIU	
Site: AC5	Time: 2020/04/23 - 20:05
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Mobile Computer	Power: 3.8 Vdc
Note: Mode 3:Transmit at 2480MHz by 3DH5	



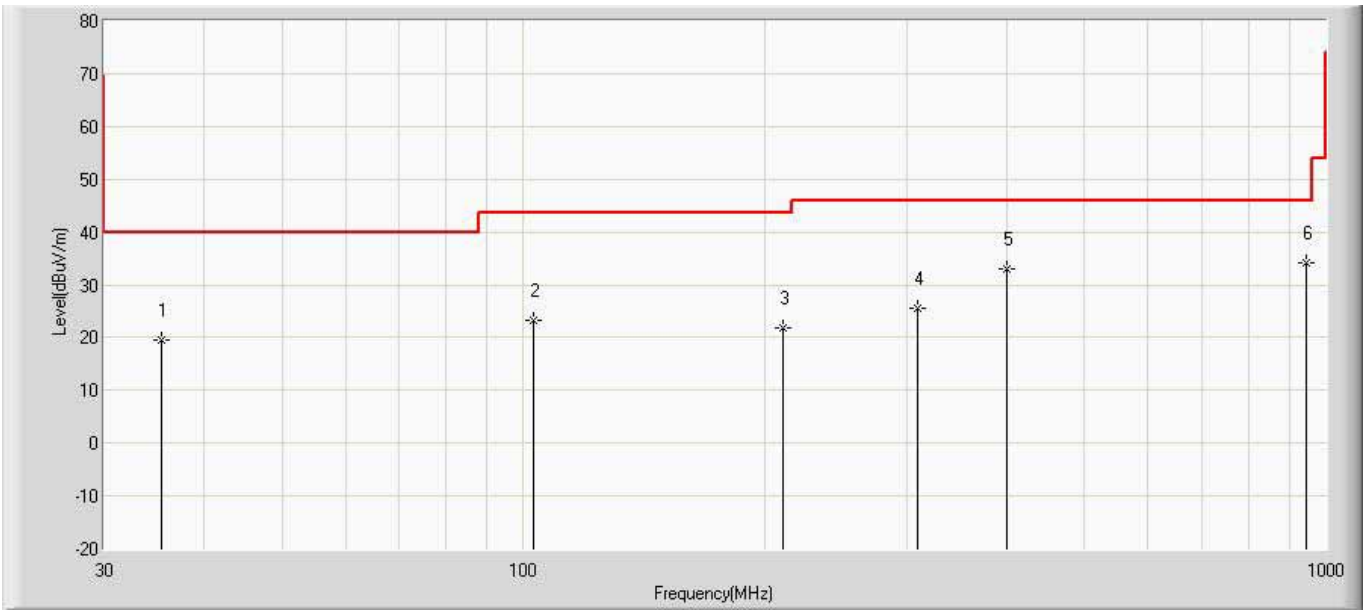
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4960.000	39.727	34.942	-34.273	74.000	4.784	PK
2		7440.000	42.580	34.529	-31.420	74.000	8.051	PK
3	*	9920.000	44.545	34.650	-29.455	74.000	9.894	PK

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.

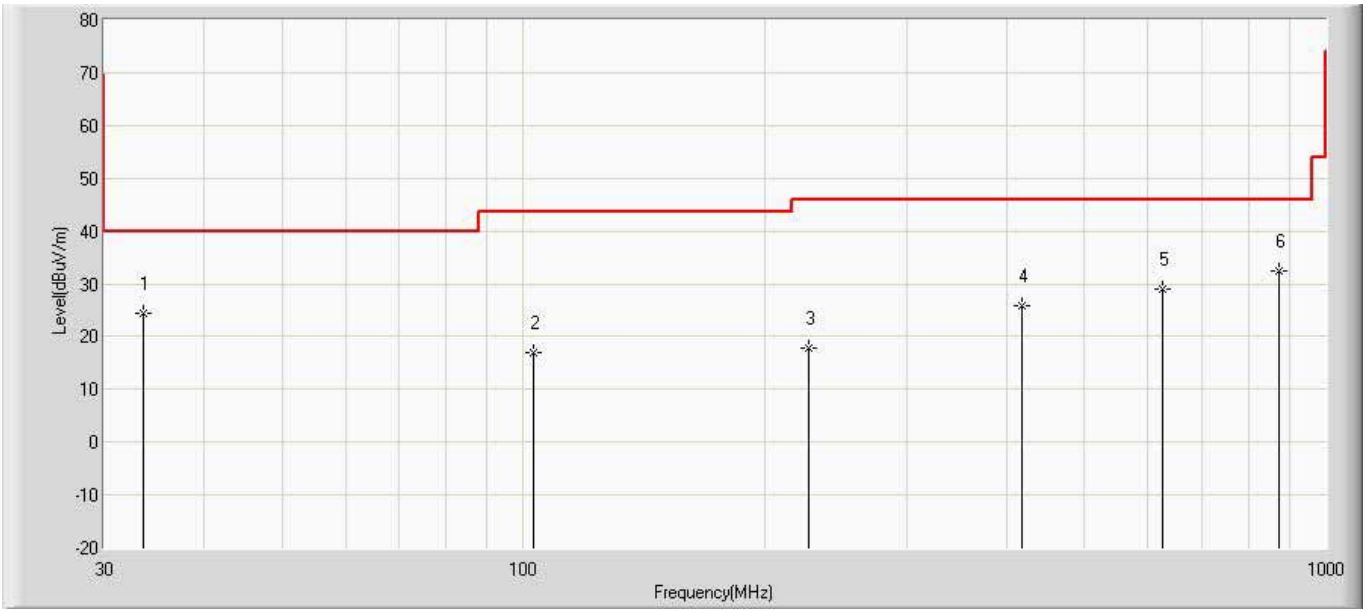
The worst case of Radiated Emission below 1GHz:

Site: AC3	Time: 2020/05/16 - 14:35
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: AC3_3m (30-1000MHz)	Polarity: Vertical
EUT: Mobile Computer	Power: 3.8 Vdc
Note: Mode 1	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		35.335	19.625	-2.693	-20.375	40.000	22.318	QP
2		102.750	23.350	1.274	-20.150	43.500	22.076	QP
3		210.541	21.774	-1.559	-21.726	43.500	23.333	QP
4		310.087	25.437	0.015	-20.563	46.000	25.422	QP
5		399.570	32.893	9.185	-13.107	46.000	23.708	QP
6	*	946.771	34.273	-0.452	-11.727	46.000	34.725	QP

Site: AC3	Time: 2020/05/16 - 14:35
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: AC3_3m (30-1000MHz)	Polarity: Horizontal
EUT: Mobile Computer	Power: 3.8 Vdc
Note: Mode 1	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		33.638	24.493	-1.574	-15.507	40.000	26.067	QP
2		102.750	16.880	0.343	-26.620	43.500	16.537	QP
3		226.910	17.755	-0.900	-28.245	46.000	18.655	QP
4		418.121	25.963	-0.938	-20.037	46.000	26.902	QP
5		625.095	29.055	-0.836	-16.945	46.000	29.891	QP
6	*	873.172	32.484	1.039	-13.516	46.000	31.444	QP

Note:

1. " * ", means this data is the worst emission level.
2. Measurement Level = Reading Level + Factor(Probe+Cable-Amp).

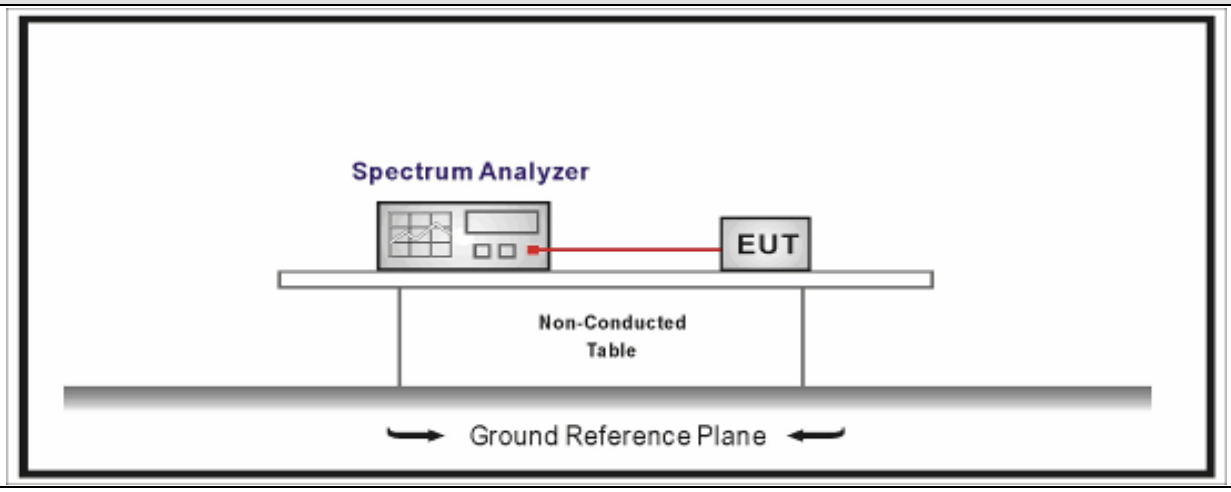
5. 20dB Bandwidth

5.1 Test Equipment

20dB 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 Analyzer	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

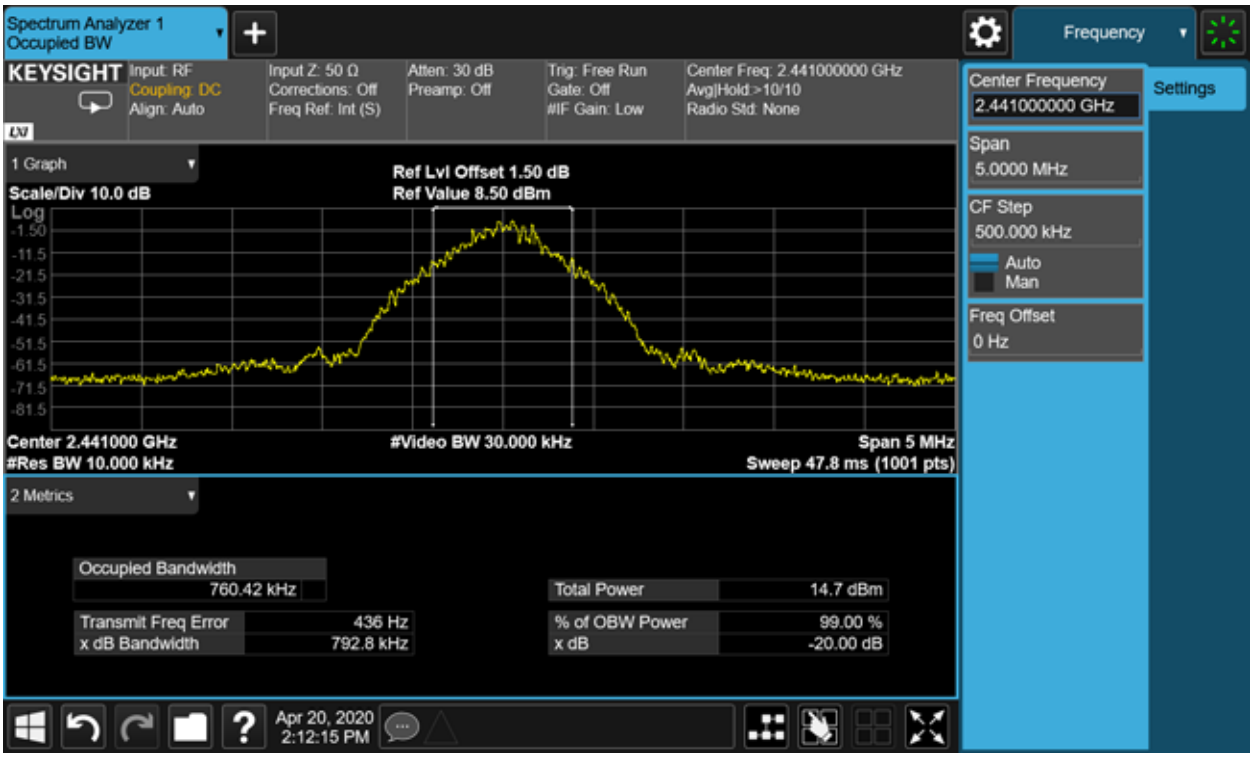
5.6 Test Result

Product Name	:	Mobile Computer			
Test Mode	:	Mode 1	Test Site	:	TR-8
Test Date	:	2020.04.20	Test Engineer	:	Pawn

Channel No.	Frequency (MHz)	20dB Bandwidth (kHz)	99% Bandwidth (kHz)
00	2402	794.5	759.95
39	2441	792.8	760.42
78	2480	793.5	758.49

Note: The worst data was shown below:

Channel 39 (2441MHz)

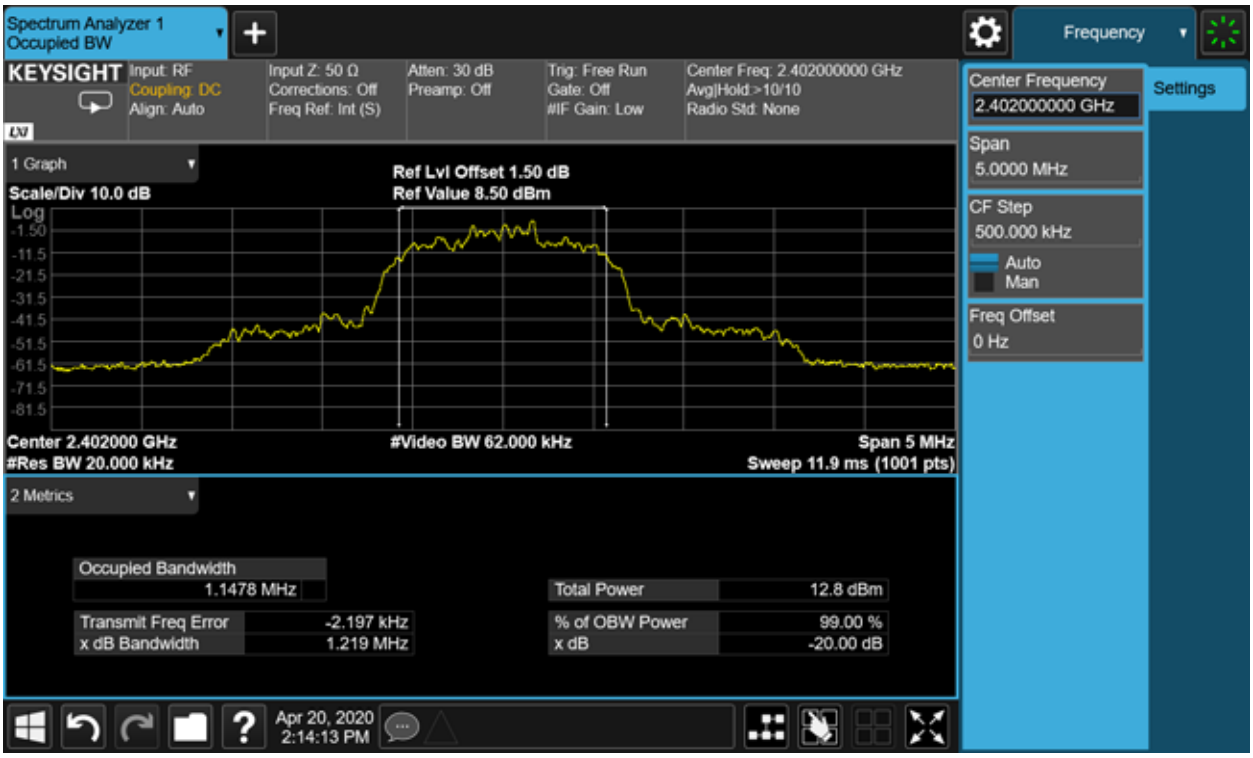


Product Name	:	Mobile Computer			
Test Mode	:	Mode 2	Test Site	:	TR-8
Test Date	:	2020.04.20	Test Engineer	:	Pawn

Channel No.	Frequency (MHz)	20dB Bandwidth (kHz)	99% Bandwidth (kHz)
00	2402	1219	1147.8
39	2441	1210	1147.8
78	2480	1211	1144.4

Note: The worst was shown below:

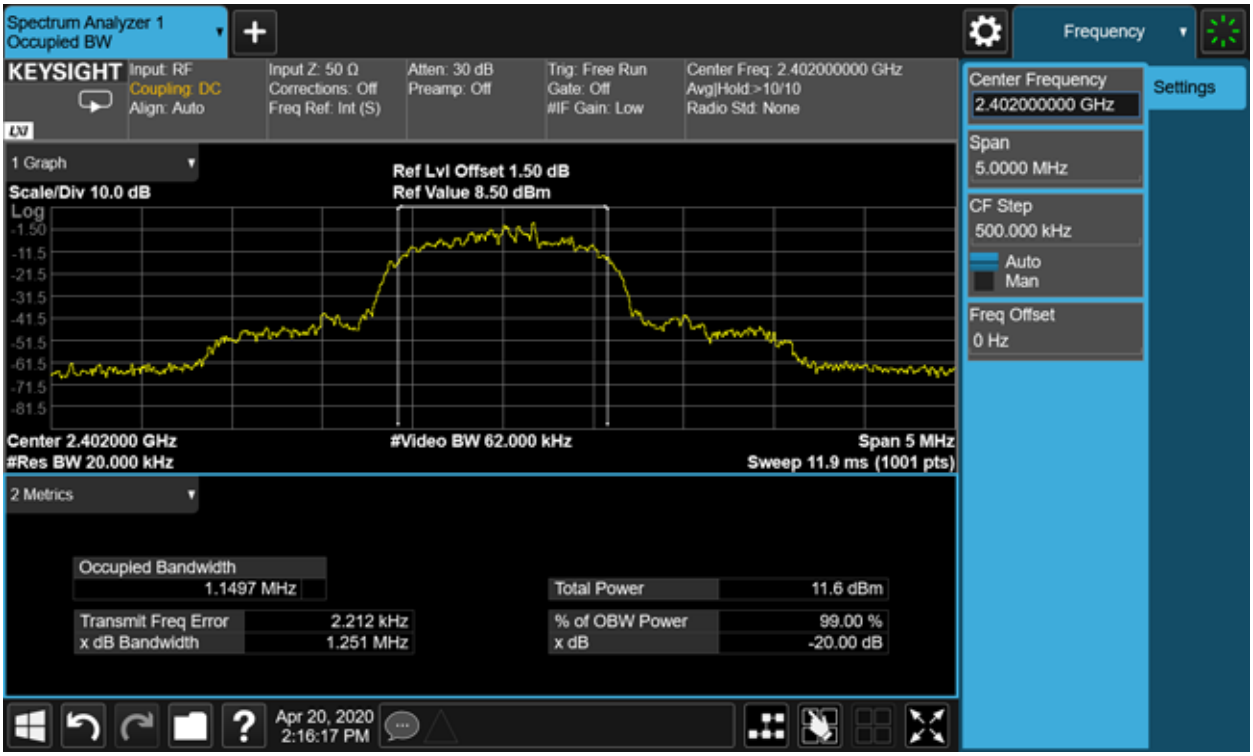
Channel 00 (2402MHz)



Product Name	:	Mobile Computer			
Test Mode	:	Mode 3	Test Site	:	TR-8
Test Date	:	2020.04.20	Test Engineer	:	Pawn

Channel No.	Frequency (MHz)	20dB Bandwidth (kHz)	99% Bandwidth (kHz)
00	2402	1251	1149.7
39	2441	1243	1148.3
78	2480	1241	1139.6

Channel 00 (2402MHz)



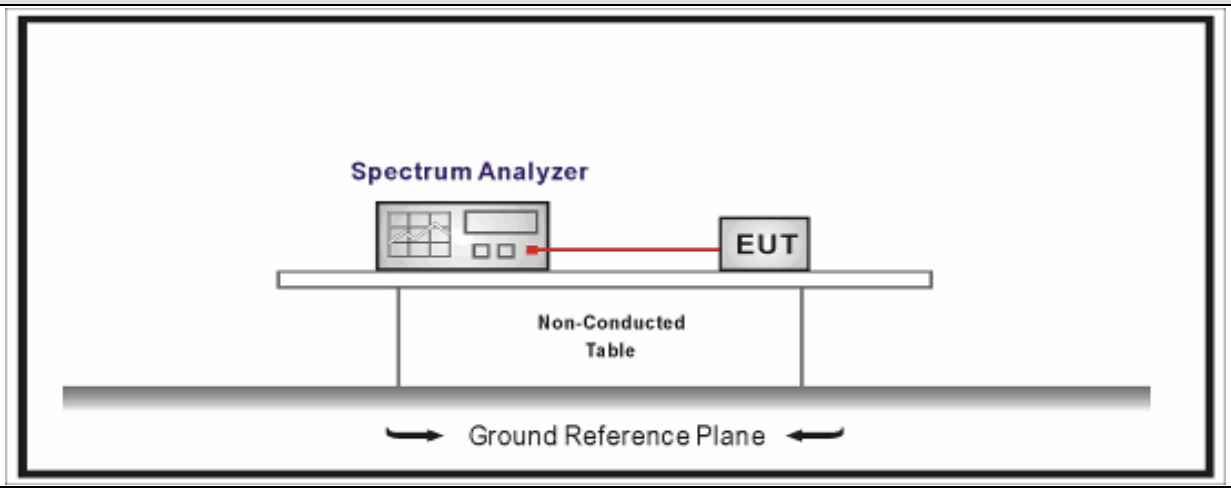
6. Carrier Frequency Separation

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	2019.09.28	2020.09.27
EXA Spectrum Analyzer	Keysight	N9010A	MY55370495	2020.04.17	2021.04.16
MXA Signal Analyzer	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.					

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, whichever is greater.
☐	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

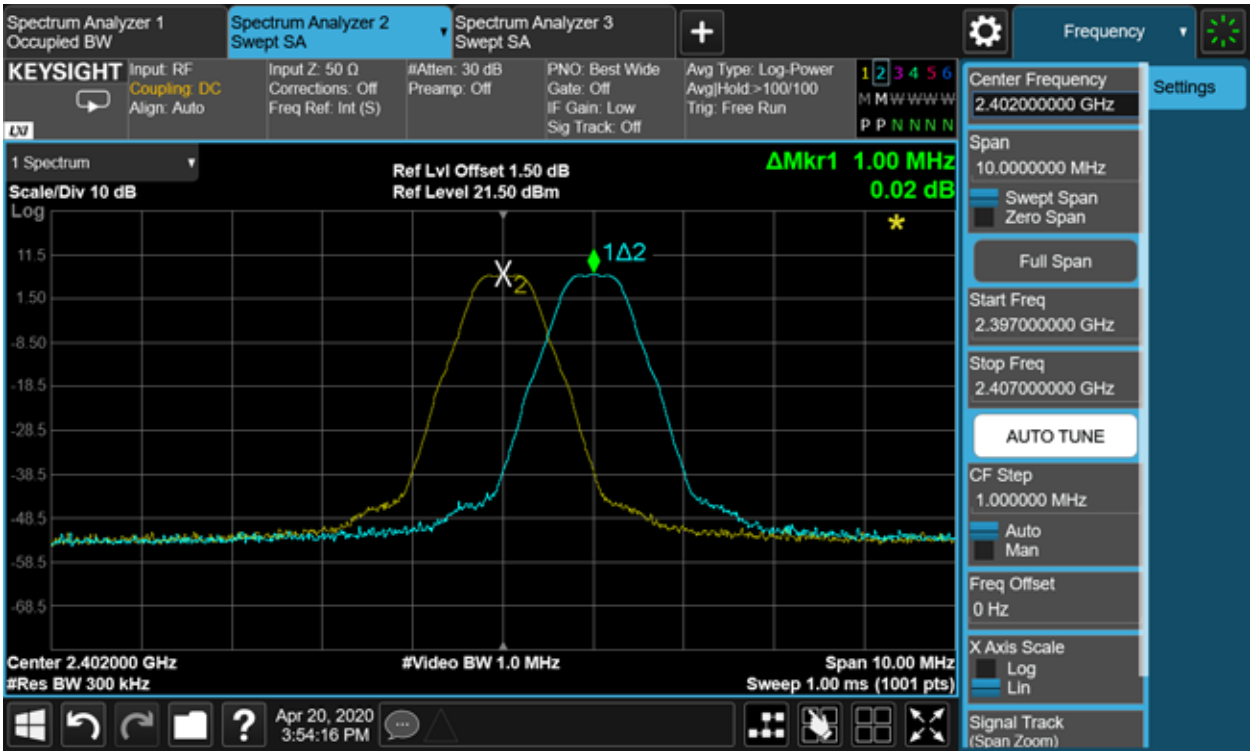
The measurement uncertainty is defined as ± 1 kHz

6.6. Test Result

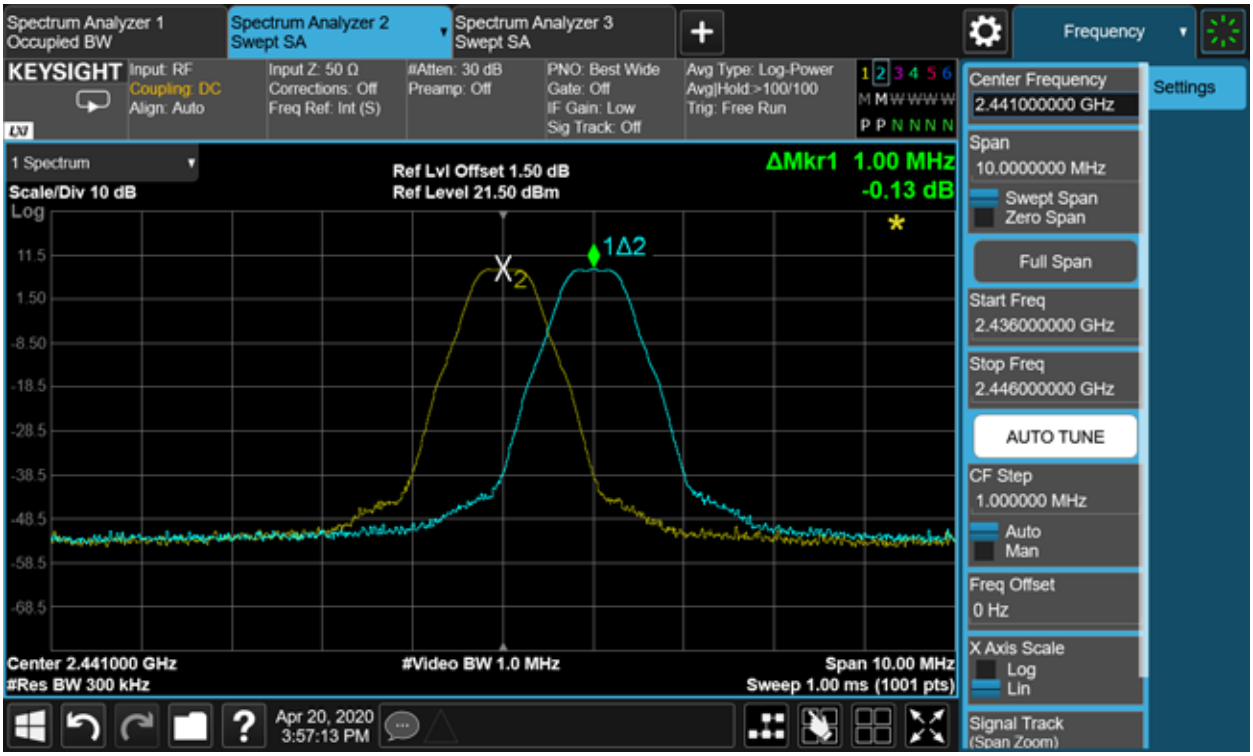
Product Name	:	Mobile Computer			
Test Mode	:	Mode 1	Test Site	:	TR-8
Test Date	:	2020.04.20	Test Engineer	:	Pawn

Channel No.	Frequency (MHz)	Carrier Frequency Separation (kHz)	Limit (kHz)	Result
00	2402	1000	794.5	Pass
39	2441	1000	792.8	Pass
78	2480	1000	793.5	Pass

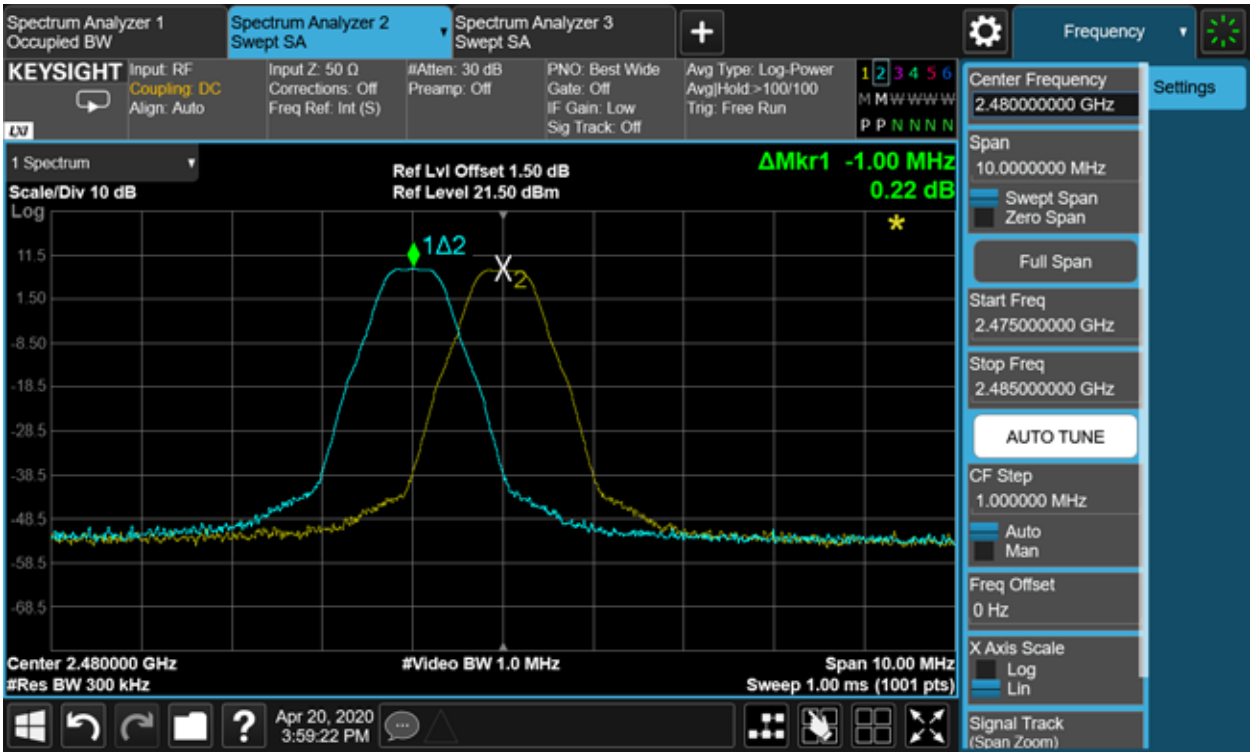
Channel 00 (2402MHz)



Channel 39 (2441MHz)



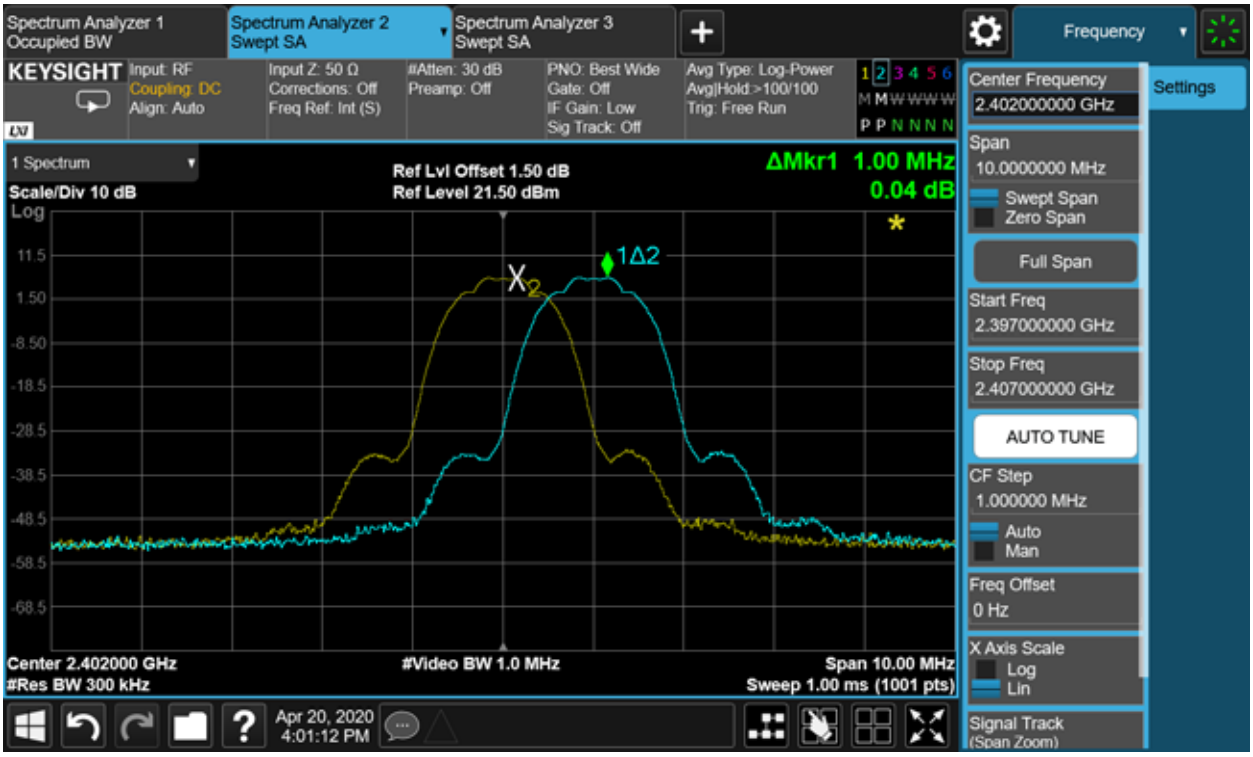
Channel 78 (2480MHz)



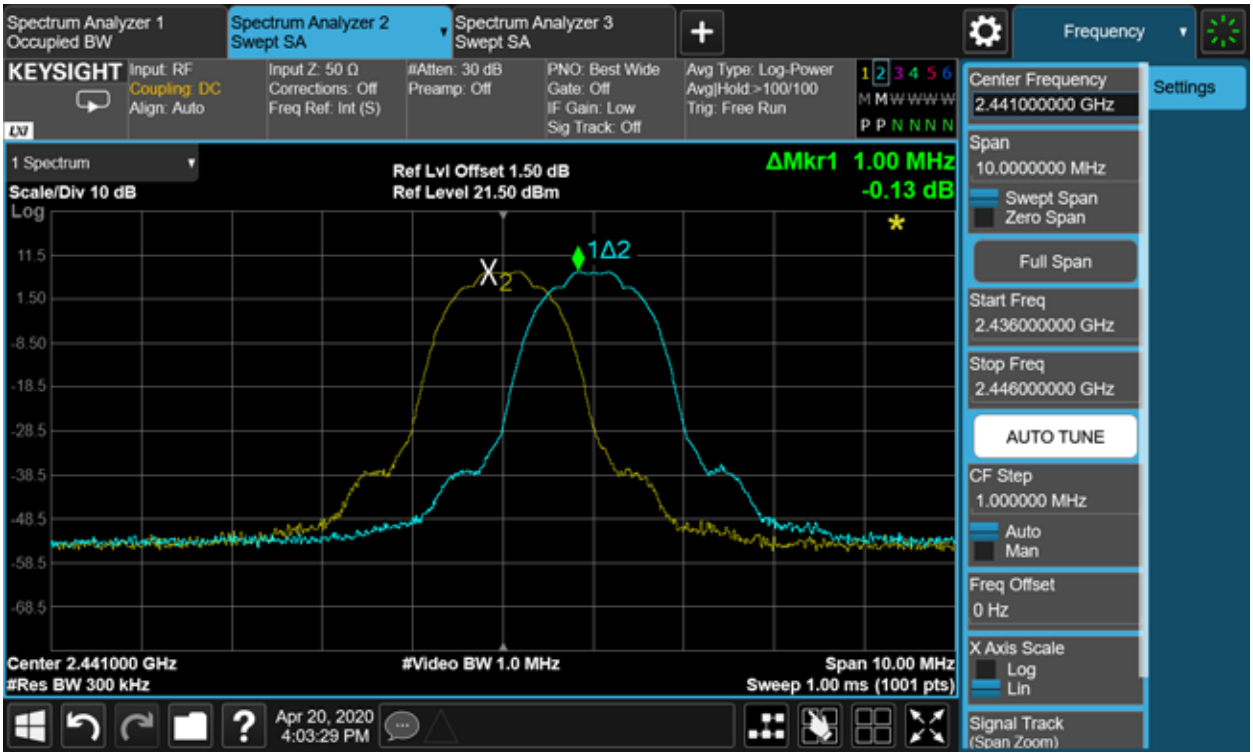
Product Name	:	Mobile Computer			
Test Mode	:	Mode 2	Test Site	:	TR-8
Test Date	:	2020.04.20	Test Engineer	:	Pawn

Channel No.	Frequency (MHz)	Carrier Frequency Separation (kHz)	Limit (kHz)	Result
00	2402	1000	812.7	Pass
39	2441	1000	806.7	Pass
78	2480	1000	807.3	Pass

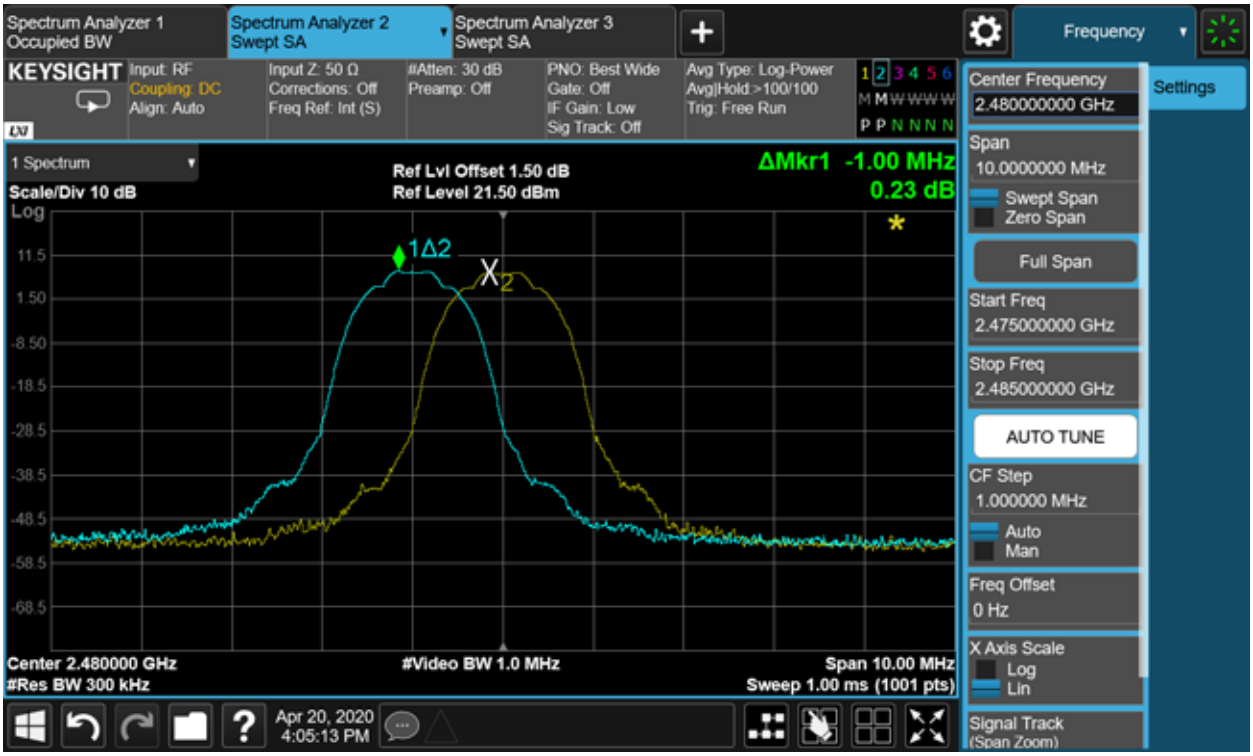
Channel 00 (2402MHz)



Channel 39 (2441MHz)



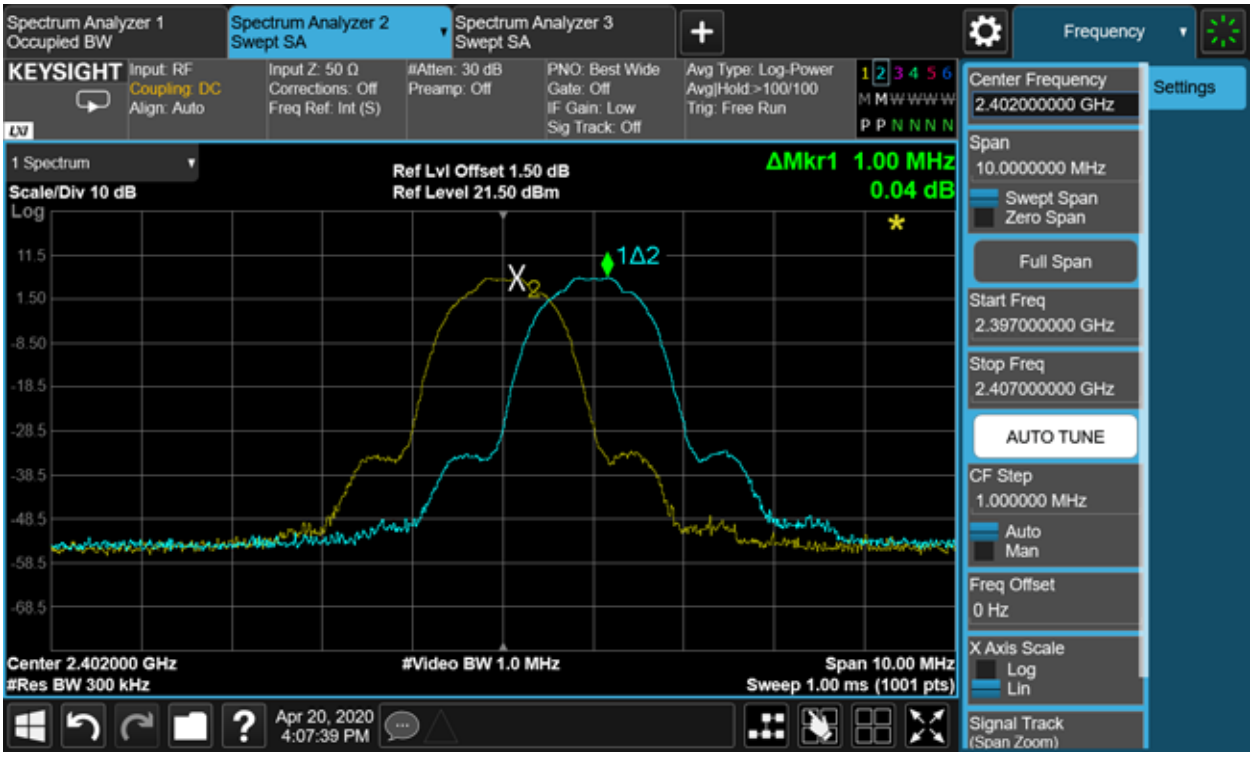
Channel 78 (2480MHz)



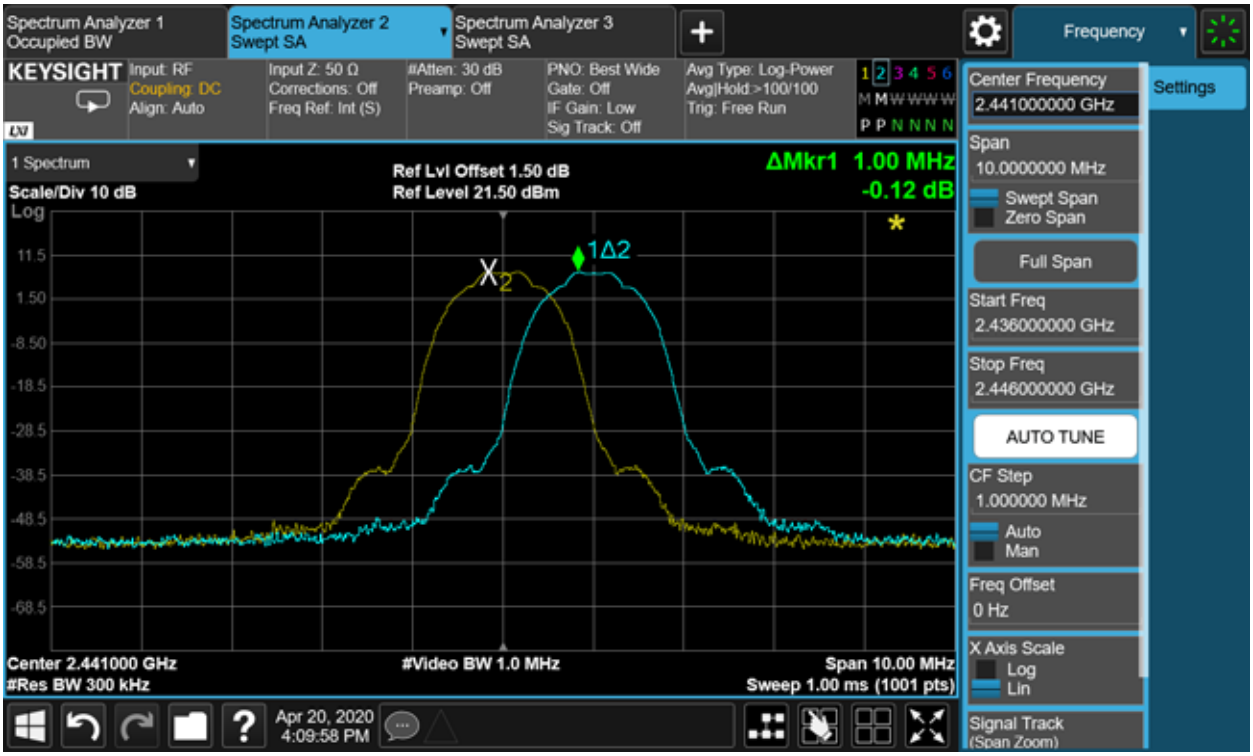
Product Name	:	Mobile Computer			
Test Mode	:	Mode 3	Test Site	:	TR-8
Test Date	:	2020.04.20	Test Engineer	:	Pawn

Channel No.	Frequency (MHz)	Carrier Frequency Separation (kHz)	Limit (kHz)	Result
00	2402	1000	834	Pass
39	2441	1000	828.7	Pass
78	2480	1000	827.3	Pass

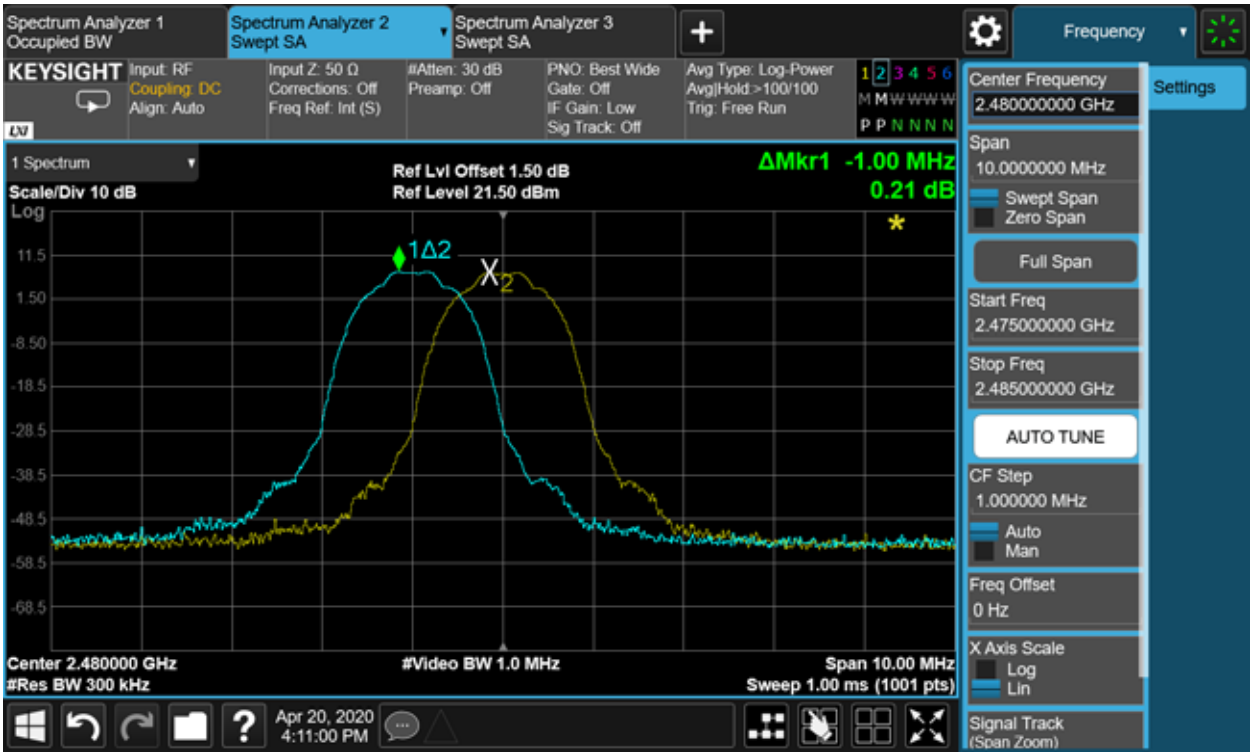
Channel 00 (2402MHz)



Channel 39 (2441MHz)



Channel 78 (2480MHz)



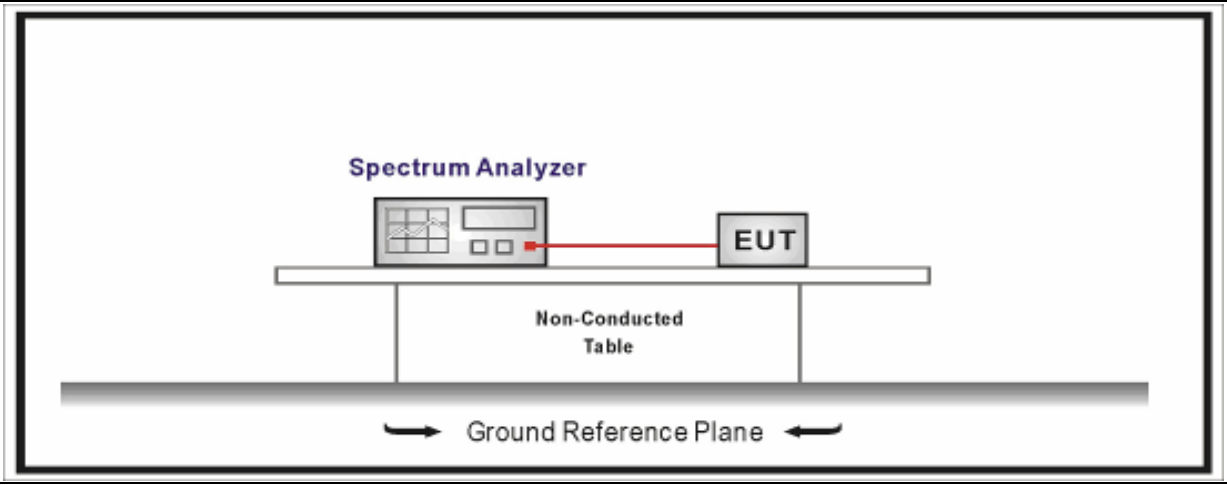
7. Number of Hopping Frequencies

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 Analyzer	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

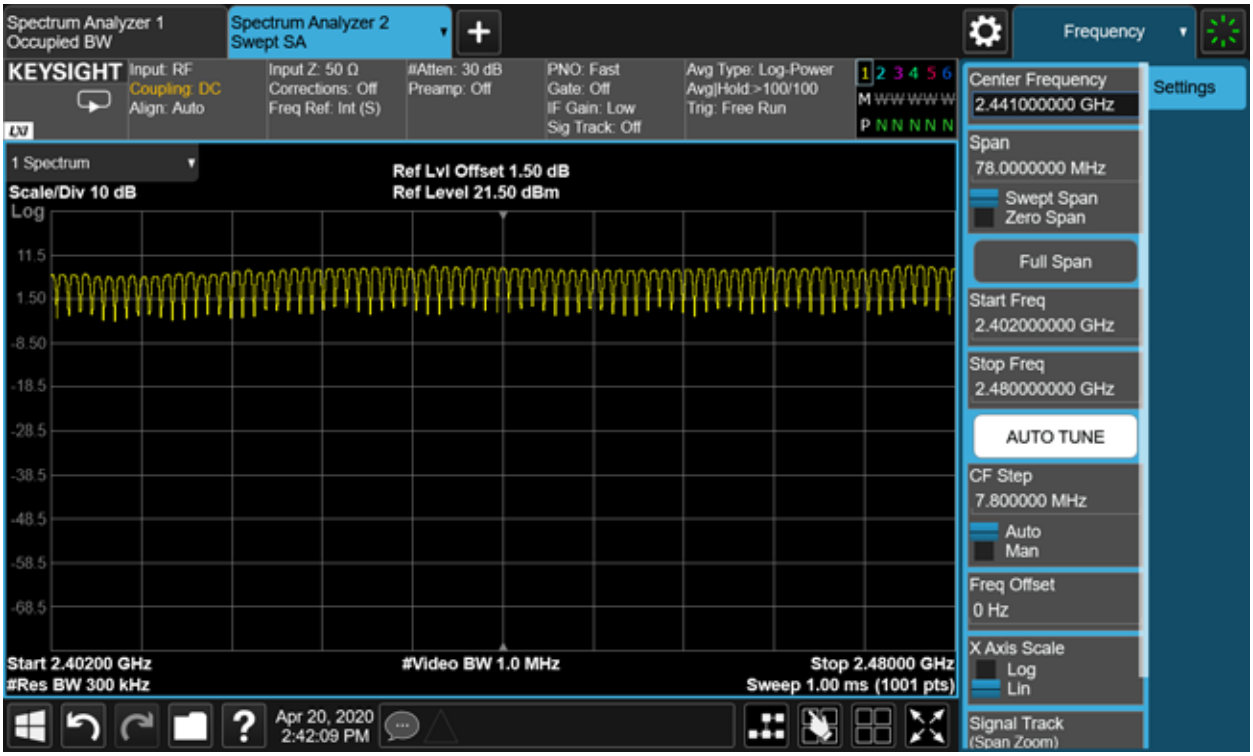
The measurement uncertainty is defined as ± 1 kHz

7.6. Test Result

Product Name	:	Mobile Computer			
Test Mode	:	Mode 1	Test Site	:	TR-8
Test Date	:	2020.04.20	Test Engineer	:	Pawn

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

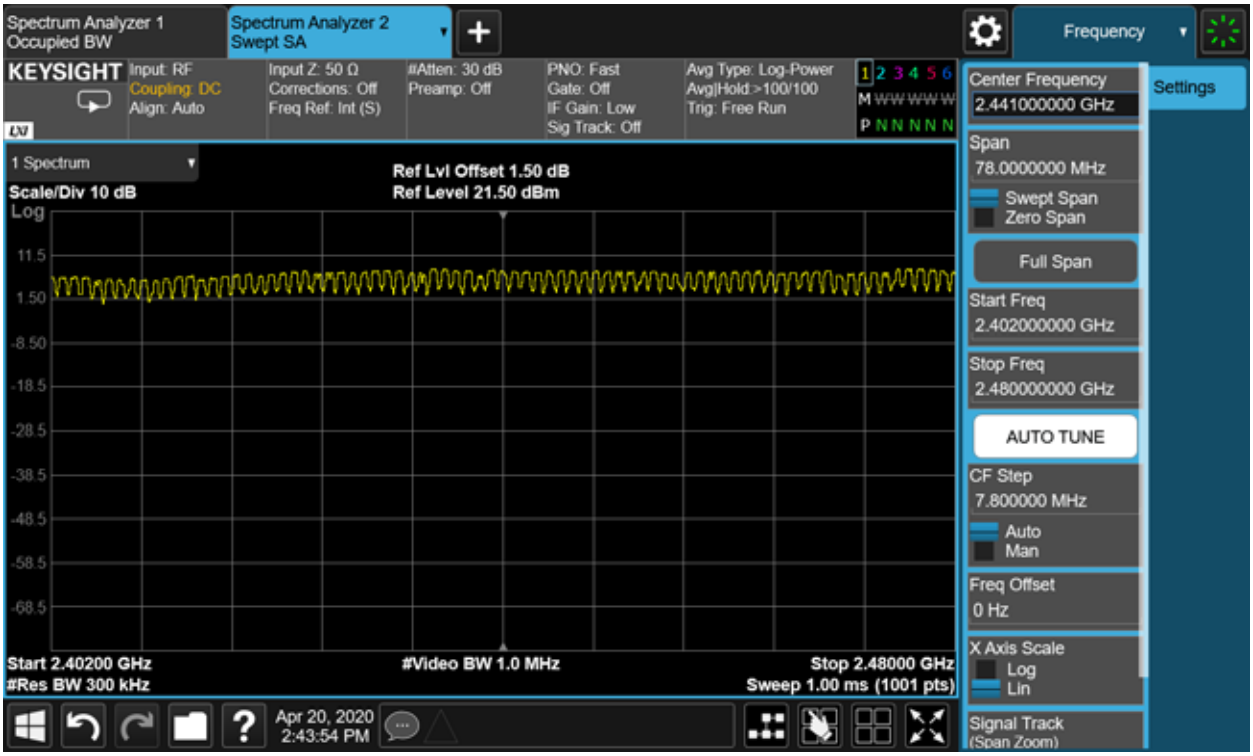
2402 - 2480MHz



Product Name	:	Mobile Computer			
Test Mode	:	Mode 2	Test Site	:	TR-8
Test Date	:	2020.04.20	Test Engineer	:	Pawn

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

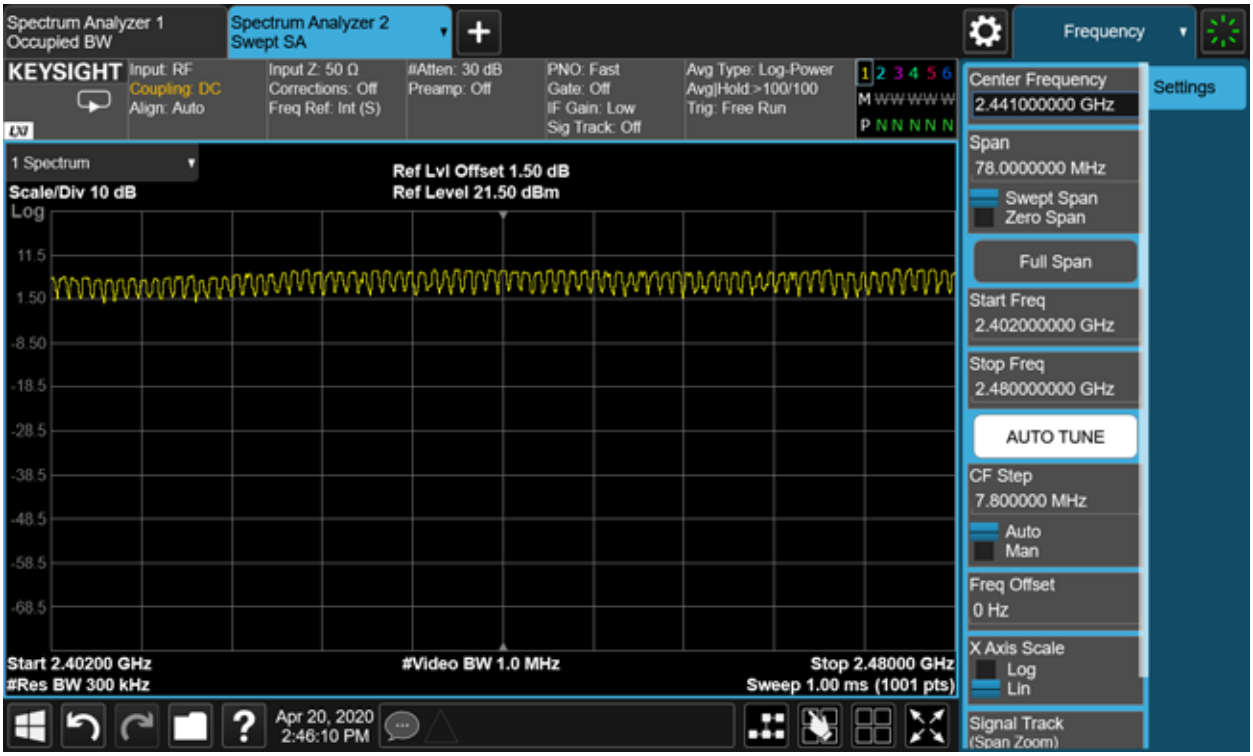
2402 - 2480 MHz



Product Name	:	Mobile Computer			
Test Mode	:	Mode 3	Test Site	:	TR-8
Test Date	:	2020.04.20	Test Engineer	:	Pawn

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

2402 - 2480 MHz



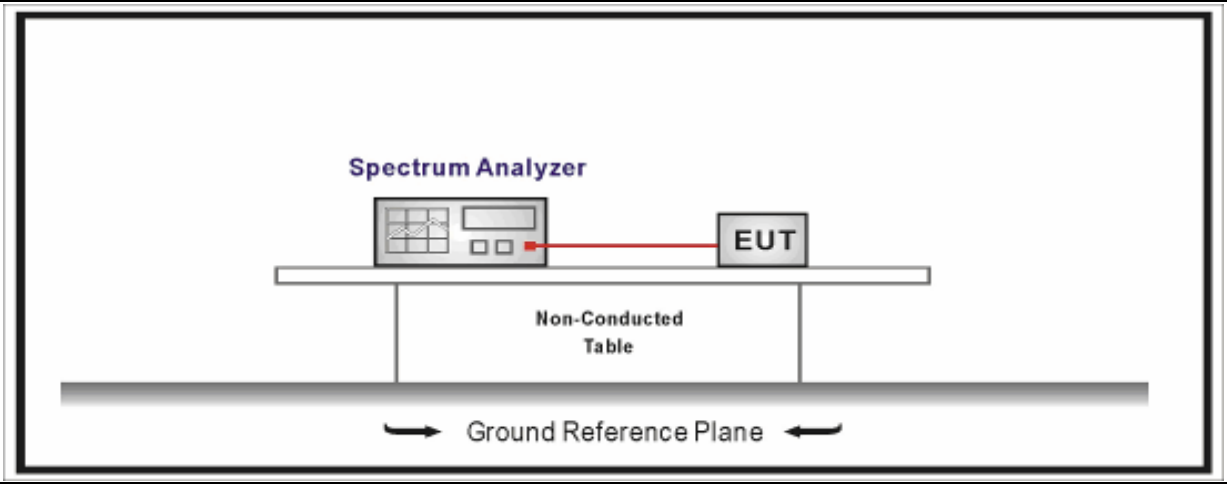
8. Time of Occupancy (Dwell Time)

8.1. Test Equipment

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 Analyzer	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	:	Mobile Computer			
Test Mode	:	Mode 1(GFSK_DH1)	Test Site	:	TR-8
Test Date	:	2020.05.20	Test Engineer	:	Pawn

Channel No.	Frequency (MHz)	Time of Occupancy (ms)	Limit (ms)	Result
39	2441	119.36	< 400	Pass

Note1: Test Time Period: 0.4*79=31.6s

Note2: Time of Occupancy=0.373*32*31.6/3.16=119.36ms

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

Channel 39 (2441MHz) - (DH1)


Spectrum Analyzer 1
Swept SA
Spectrum Analyzer 2
Swept SA
Frequency
KEYSIGHT
Input: RF
Coupling: DC
Align: Auto
Input Z: 50 Ω
Corrections: Off
Freq Ref: Int (S)
Atten: 40 dB
Preamp: Off
PNO: Fast
Gate: Off
IF Gain: Low
Sig Track: Off
Avg Type: Log-Power
Trig: Free Run
1 Spectrum
Scale/Div 10 dB
Ref Level 30.00 dBm
Log
20.0
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
Center 2.441000000 GHz
Res BW 1.0 MHz
#Video BW 3.0 MHz
Span 0 Hz
Sweep 3.16 s (40001 pts)
May 20, 2020
3:10:26 PM
Center Frequency
2.441000000 GHz
Span
0.00000000 Hz
Swept Span
Zero Span
Full Span
Start Freq
2.441000000 GHz
Stop Freq
2.441000000 GHz
AUTO TUNE
CF Step
1.000000 MHz
Auto
Man
Freq Offset
0 Hz
X Axis Scale
Log
Lin
Settings

Product Name	:	Mobile Computer			
Test Mode	:	Mode 1(GFSK_DH3)	Test Site	:	TR-8
Test Date	:	2020.05.20	Test Engineer	:	Pawn

Channel No.	Frequency (MHz)	Time of Occupancy (ms)	Limit (ms)	Result
39	2441	195.36	< 400	Pass

Note1: Test Time Period: 0.4*79=31.6s

Note2: Time of Occupancy=1.628*12*31.6/3.16=195.36ms

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

Channel 39 (2441MHz) - (DH3)


Spectrum Analyzer 1
Swept SA
Spectrum Analyzer 2
Swept SA
Frequency
KEYSIGHT
Input: RF
Coupling: DC
Align: Auto
Input Z: 50 Ω
Corrections: Off
Freq Ref: Int (S)
Atten: 40 dB
Preamp: Off
PNO: Fast
Gate: Off
IF Gain: Low
Sig Track: Off
Avg Type: Log-Power
Trig: Free Run
1 Spectrum
Scale/Div 10 dB
Ref Level 30.00 dBm
Log
20.0
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
Center 2.441000000 GHz
Res BW 1.0 MHz
#Video BW 3.0 MHz
Span 0 Hz
Sweep 3.16 s (40001 pts)
May 20, 2020
3:15:52 PM
Center Frequency
2.441000000 GHz
Settings
Span
0.00000000 Hz
Swept Span
Zero Span
Full Span
Start Freq
2.441000000 GHz
Stop Freq
2.441000000 GHz
AUTO TUNE
CF Step
1.000000 MHz
Auto
Man
Freq Offset
0 Hz
X Axis Scale
Log
Lin

Product Name	:	Mobile Computer			
Test Mode	:	Mode 1(GFSK_DH5)	Test Site	:	TR-8
Test Date	:	2020.05.20	Test Engineer	:	Pawn

Channel No.	Frequency (MHz)	Time of Occupancy (ms)	Limit (ms)	Result
39	2441	230.16	< 400	Pass

Note1: Test Time Period: 0.4*79=31.6s

Note2: Time of Occupancy=2.877*8*31.6/3.16=230.16ms

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.

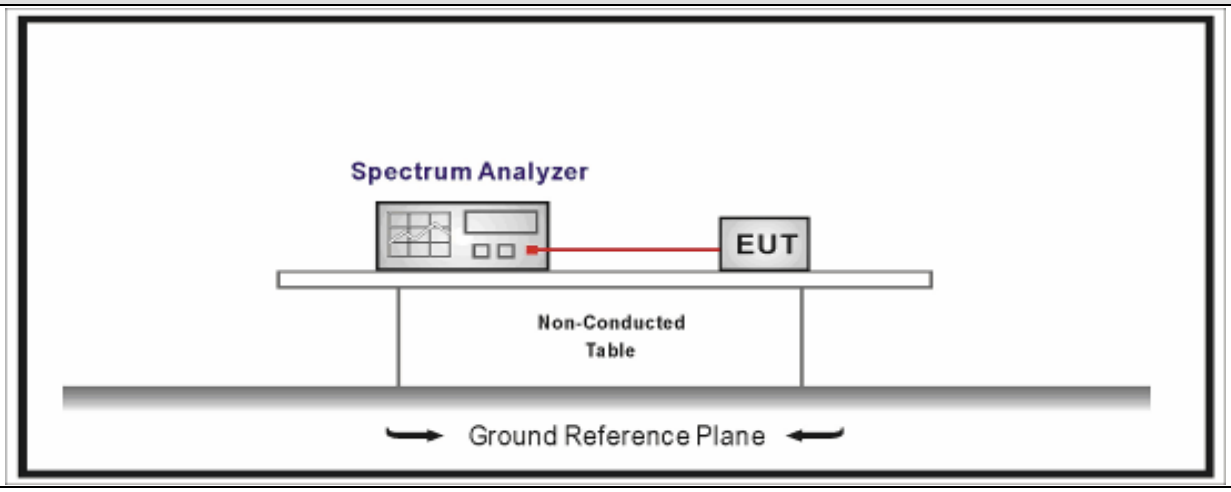
9. Peak Output Power

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 Analyzer	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 for FCC	
☒	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.

Peak Output Power for ISED	
☒	For FHSs operating in the band 2400-2483.5 MHz, the maximum peak conducted output power shall not exceed 1.0 W if the hopset uses 75 or more hopping channels. The e.i.r.p. shall not exceed 4 W, except as provided in section 5.4(e).
☐	The maximum peak conducted output power shall not exceed 0.125 W if the hopset uses less than 75 hopping channels. The e.i.r.p. shall not exceed 4 W, except as provided in section 5.4(e).
☐	For FHSs operating in the band 902-928 MHz, the maximum peak conducted output power shall not exceed 1.0 W, and the e.i.r.p. shall not exceed 4 W if the hopset uses 50 or more hopping channels; the maximum peak conducted output power shall not exceed 0.25 W and the e.i.r.p. shall not exceed 1 W if the hopset uses less than 50 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	:	Mobile Computer			
Test Mode	:	Mode 1	Test Site	:	TR-8
Test Date	:	2020.05.06	Test Engineer	:	Pawn

Channel No.	Frequency (MHz)	Measurement Power Output (dBm)	Conducted Power Limit (dBm)	EIRP (dBm)	EIRP Limit (dBm)	Result
00	2402	7.34	30	8.18	36	Pass
39	2441	8.69	30	9.53	36	Pass
78	2480	8.13	30	8.97	36	Pass

Product Name	:	Mobile Computer			
Test Mode	:	Mode 2	Test Site	:	TR-8
Test Date	:	2020.05.06	Test Engineer	:	Pawn

Channel No.	Frequency (MHz)	Measurement Power Output (dBm)	Conducted Power Limit (dBm)	EIRP (dBm)	EIRP Limit (dBm)	Result
00	2402	6.35	21	7.19	36	Pass
39	2441	8.04	21	8.88	36	Pass
78	2480	7.52	21	8.36	36	Pass

Product Name	:	Mobile Computer			
Test Mode	:	Mode 3	Test Site	:	TR-8
Test Date	:	2020.05.06	Test Engineer	:	Pawn

Channel No.	Frequency (MHz)	Measurement Power Output (dBm)	Conducted Power Limit (dBm)	EIRP (dBm)	EIRP Limit (dBm)	Result
00	2402	6.37	21	7.21	36	Pass
39	2441	8.20	21	9.04	36	Pass
78	2480	7.59	21	8.43	36	Pass

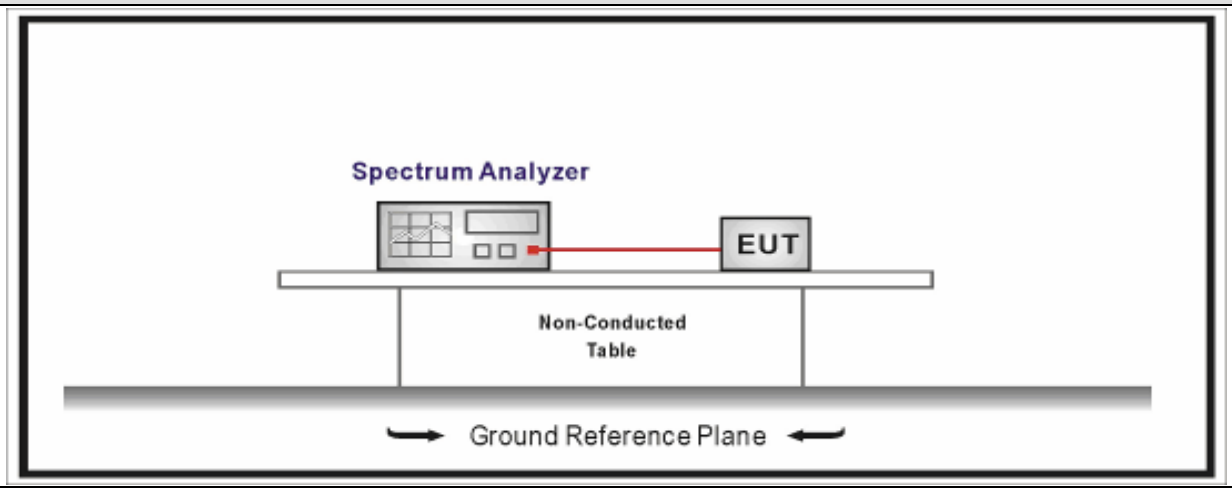
10. Emissions in non-restricted frequency bands

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	2020.04.17	2021.04.16
MXA Signal Analyzer	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	:	Mobile Computer			
Test Mode	:	Mode 1-4	Test Site	:	TR-8
Test Date	:	2020.04.20	Test Engineer	:	Pawn

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	7.009	2400.00	-55.21	62.219	>20	Pass
1	78	2480	8.093	2500.00	-59.33	67.423	>20	Pass
2	00	2402	6.395	2400.00	-54.13	60.525	>20	Pass
2	78	2480	7.711	2500.00	-59.26	66.971	>20	Pass
3	00	2402	6.368	2400.00	-54.06	60.428	>20	Pass
3	78	2480	7.674	2500.00	-59.83	67.504	>20	Pass
4	00~78	00~78	6.014	2400.00	-57.31	63.324	>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

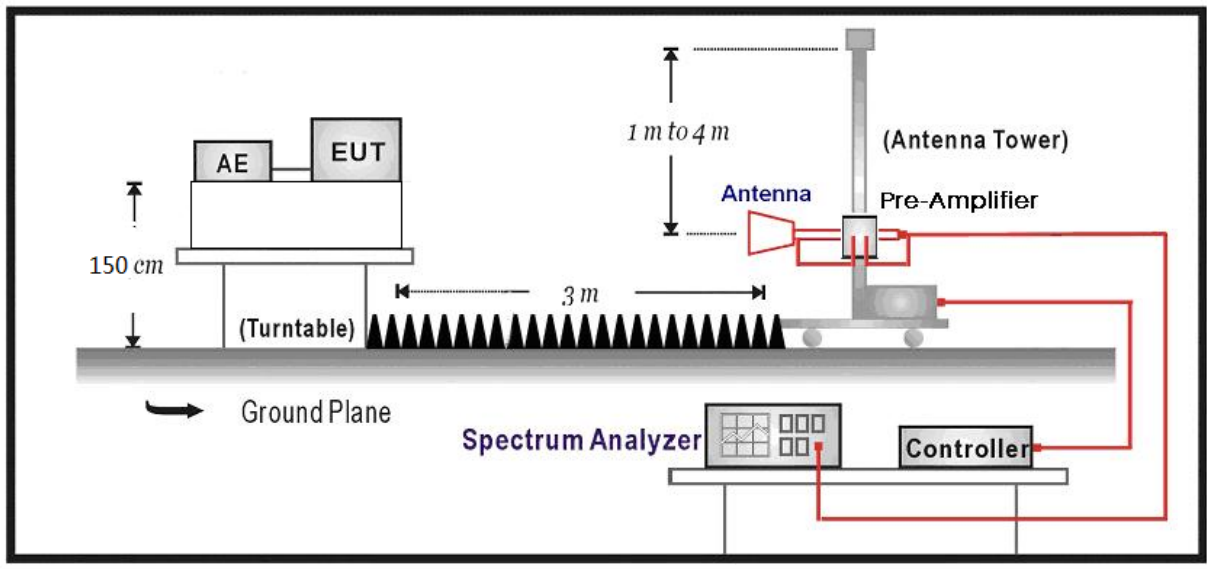
11. Radiated Emission Band Edge

11.1. Test Equipment

Radiated Emission Band Edge / AC-5					
Instrument	Manufacturer	Type No.	Serial No.	Cal. Date	Cal. Due Date
Spectrum Analyzer	R&S	FSV	104212	2019.12.28	2020.12.27
Signal analyzer	Agilent	E4446A	MY45300103	2020.05.08	2021.05.07
low Noise Amplifier	BXT	NA2651D	LNA17040209	2020.04.13	2021.04.12
Pre-Amplifier	EMCI	EMC184045SE	980263	2020.05.24	2021.05.23
DRG Horn Antenna	ETS-Lindgren	3117	00167055	2020.05.25	2021.05.24
Broad-Band Horn Antenna	Schwarzbeck	BBHA9170	294	2019.03.23	2021.03.22
Coaxial Cable	Huber+Suhner	SUCOFLEX 106	AC5-C2	2020.04.13	2021.04.12
Coaxial Cable	ROSENBERGER	LA1-C011-2000/3000	AC5-40G	2020.04.18	2021.04.17
Temperature/Humidity Meter	RTS	RTS-8S	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.					

11.2. Test Setup

Above 1GHz Test Setup:



11.3. Limit

Band edge Limit				
Frequency bands (MHz)	Detector	Limit (dB μV/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	2.88	3.375	360	6.255	46.0%
Mode 2	2.865	3.39	360	6.255	45.8%
Mode 3	2.85	3.405	360	6.255	45.6%

Mode 1

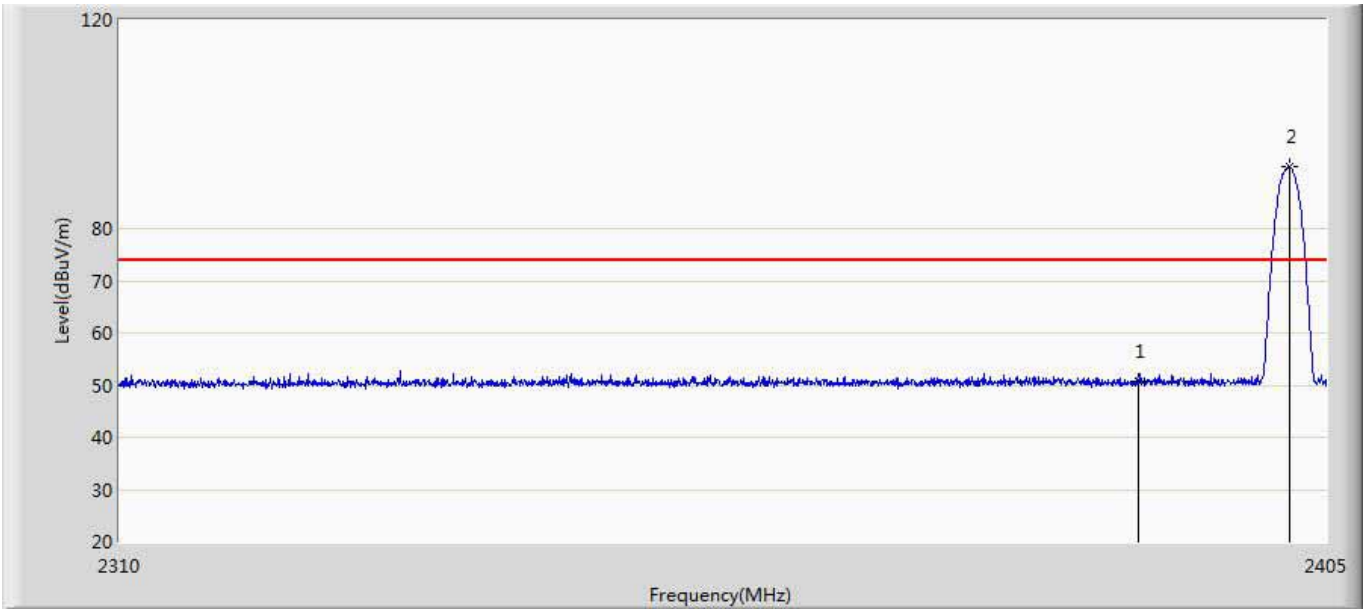
Mode 2

Mode 3


Spectrum Analyzer 1
Swept SA
Spectrum Analyzer 2
Swept SA
KEYSIGHT
Frequency
Center Frequency
2.441000000 GHz
Settings
Span
0.00000000 Hz
Swept Span
Zero Span
Full Span
Start Freq
2.441000000 GHz
Stop Freq
2.441000000 GHz
AUTO TUNE
CF Step
1.000000 MHz
Auto
Man
Freq Offset
0 Hz
X Axis Scale
Log
Lin
1 Spectrum
ΔMkr3 6.255 ms
0.01 dB
Scale/Div 10 dB
Ref Level 30.00 dBm
1Δ2
3Δ4
Center 2.441000000 GHz
Res BW 1.0 MHz
#Video BW 3.0 MHz
Span 0 Hz
Sweep 15.0 ms (1001 pts)
5 Marker Table
Mode Trace Scale X Y Function Function Width Function Value
1 Δ2 1 t (Δ) 2.850 ms (Δ) -1.635 dB
2 F 1 t 4.545 ms 2.221 dBm
3 Δ4 1 t (Δ) 6.255 ms (Δ) 0.01176 dB
4 F 1 t 4.545 ms 2.221 dBm
May 20, 2020
3:30:19 PM

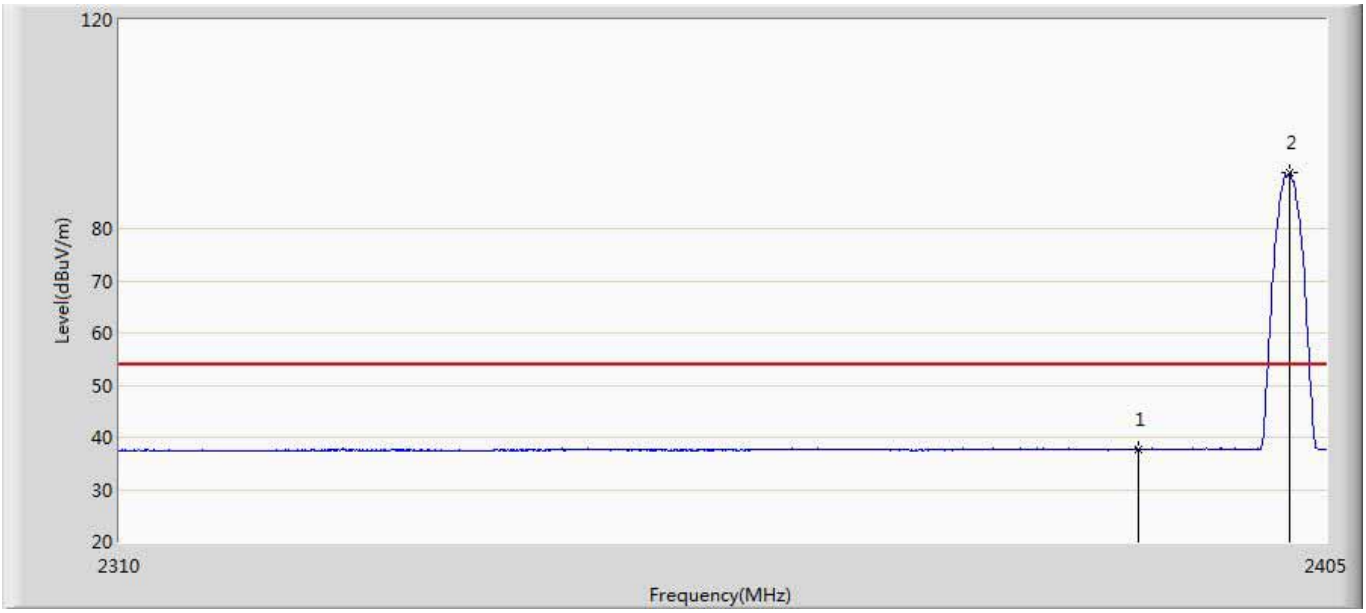
11.7. Test Result

Profile: 2040625R	Page No.: 1
Engineer: YULIU	
Site: AC5	Time: 2020/04/22 - 15:56
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Mobile Computer	Power: 3.8 Vdc
Note: Mode1:Transmit at 2402Mhz by DH5	



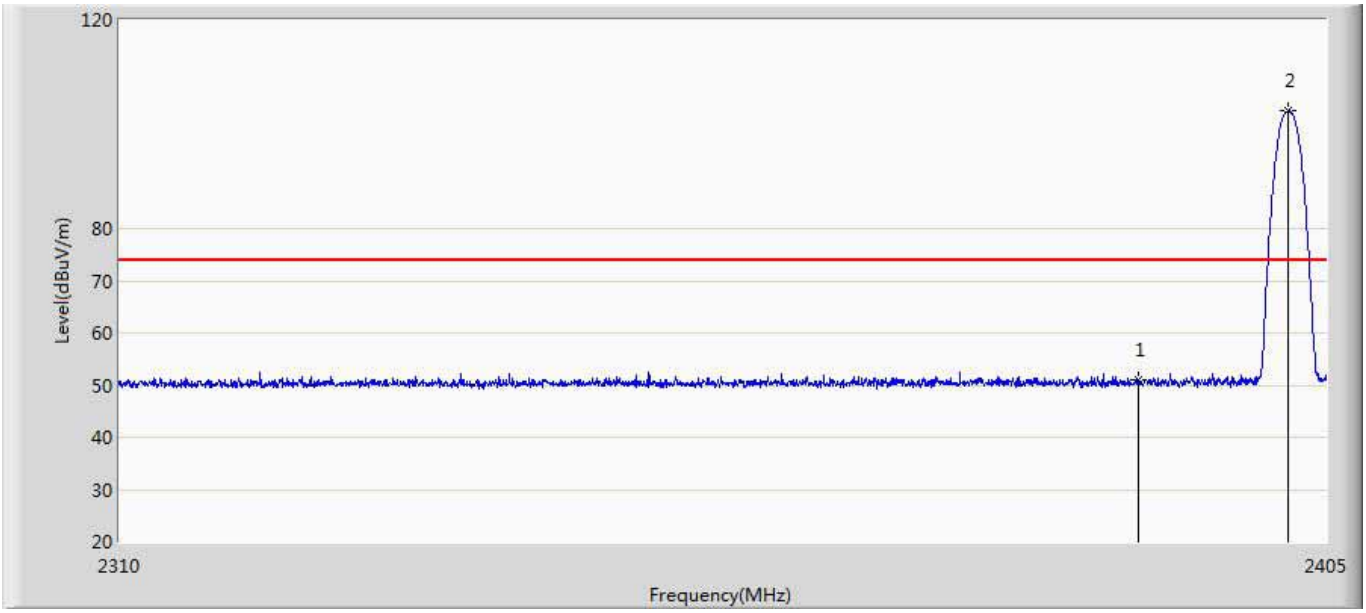
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	50.730	15.273	-23.270	74.000	35.458	PK
2	*	2402.055	91.779	56.309	17.779	74.000	35.469	PK

Profile: 2040625R	Page No.: 2
Engineer: YULIU	
Site: AC5	Time: 2020/04/22 - 16:30
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Mobile Computer	Power: 3.8 Vdc
Note: Mode1:Transmit at 2402Mhz by DH5	



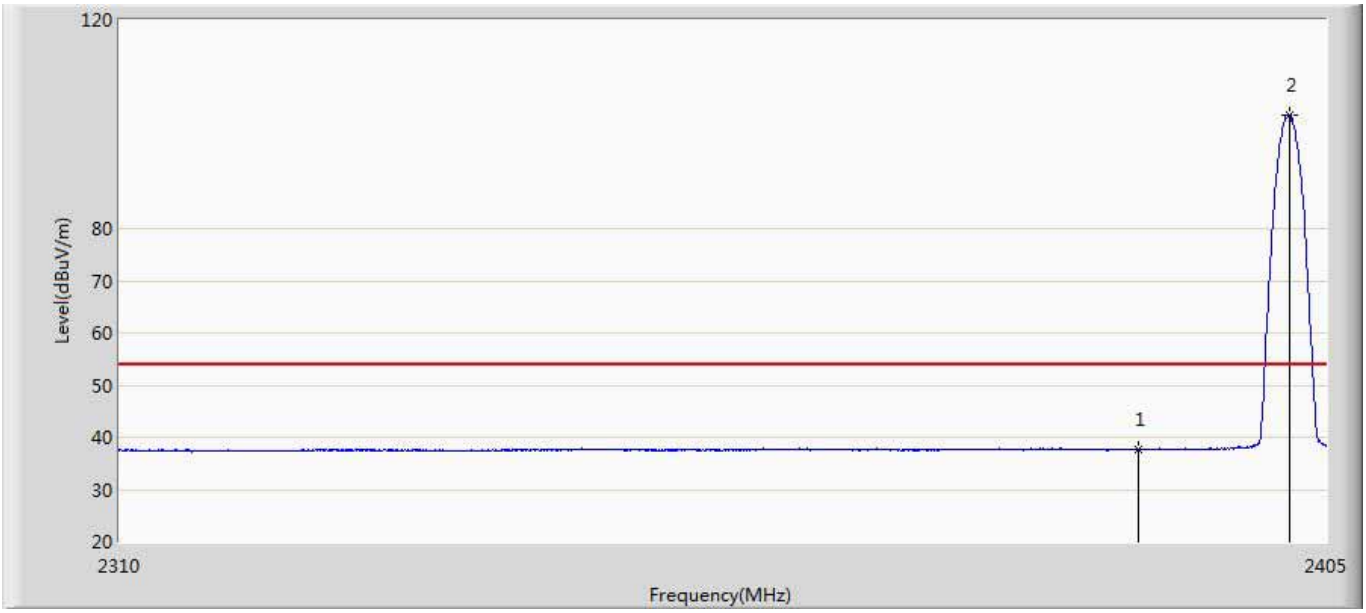
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	37.609	2.152	-16.391	54.000	35.458	AV
2	*	2402.103	90.697	55.227	36.697	54.000	35.469	AV

Profile: 2040625R	Page No.: 3
Engineer: YULIU	
Site: AC5	Time: 2020/04/22 - 16:32
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Mobile Computer	Power: 3.8 Vdc
Note: Mode1:Transmit at 2402Mhz by DH5	



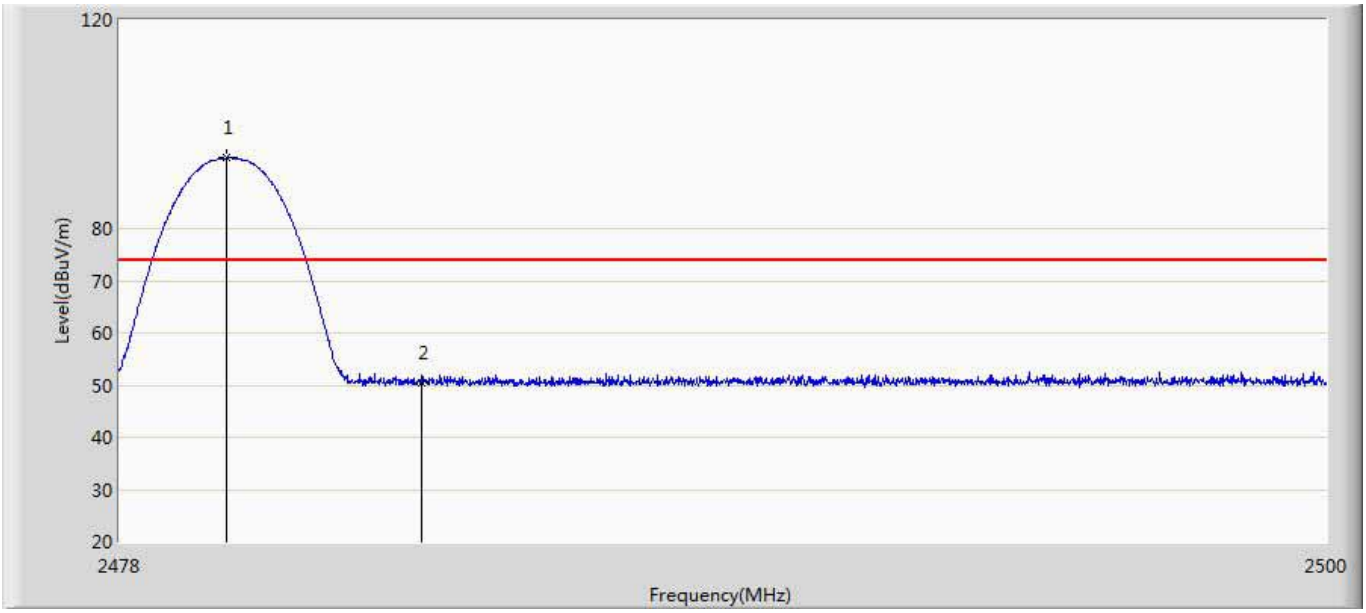
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	50.898	15.441	-23.102	74.000	35.458	PK
2	*	2401.913	102.487	67.018	28.487	74.000	35.469	PK

Profile: 2040625R	Page No.: 4
Engineer: YULIU	
Site: AC5	Time: 2020/04/22 - 16:34
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Mobile Computer	Power: 3.8 Vdc
Note: Mode1:Transmit at 2402Mhz by DH5	



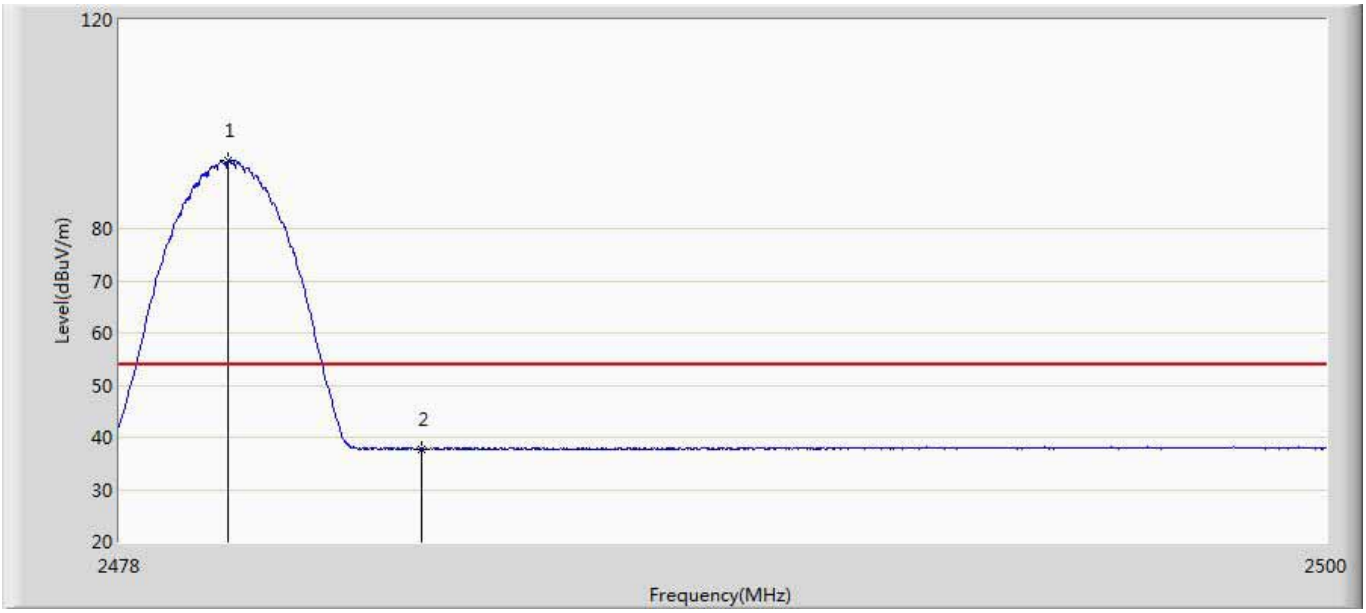
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	37.626	2.169	-16.374	54.000	35.458	AV
2	*	2402.055	101.700	66.230	47.700	54.000	35.469	AV

Profile: 2040625R	Page No.: 5
Engineer: YULIU	
Site: AC5	Time: 2020/04/22 - 16:36
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Mobile Computer	Power: 3.8 Vdc
Note: Mode1:Transmit at 2480Mhz by DH5	



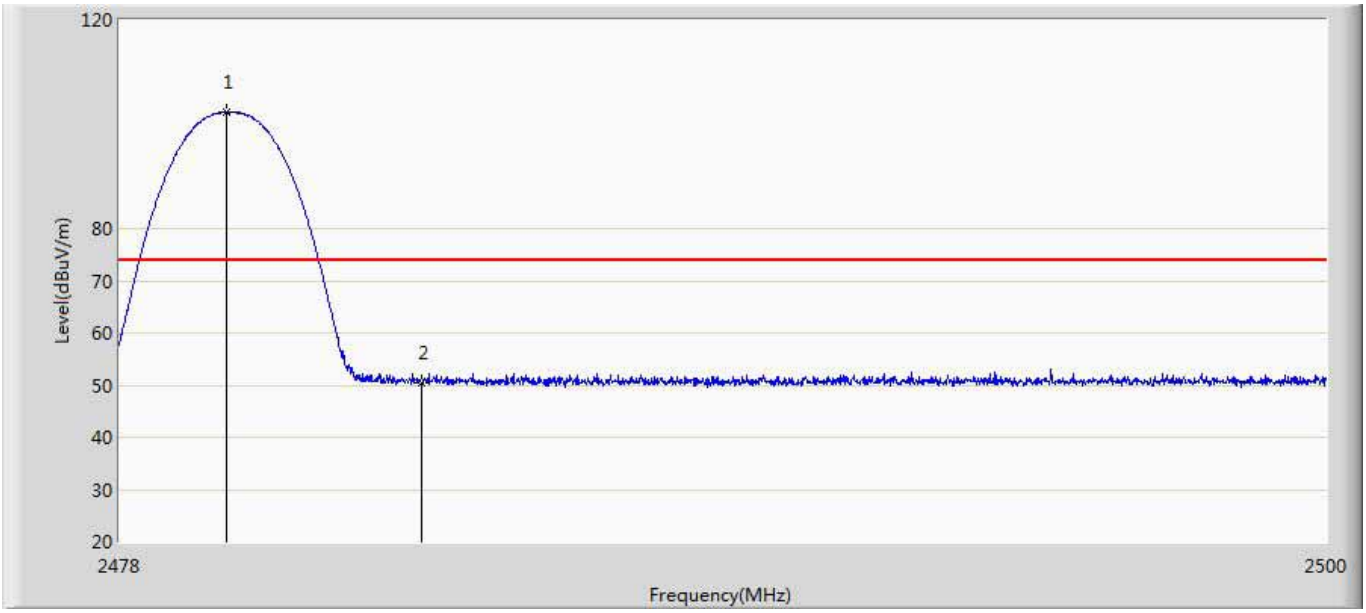
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2479.947	93.490	57.992	19.490	74.000	35.498	PK
2		2483.500	50.535	15.017	-23.465	74.000	35.517	PK

Profile: 2040625R	Page No.: 6
Engineer: YULIU	
Site: AC5	Time: 2020/04/22 - 16:39
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Mobile Computer	Power: 3.8 Vdc
Note: Mode1:Transmit at 2480Mhz by DH5	



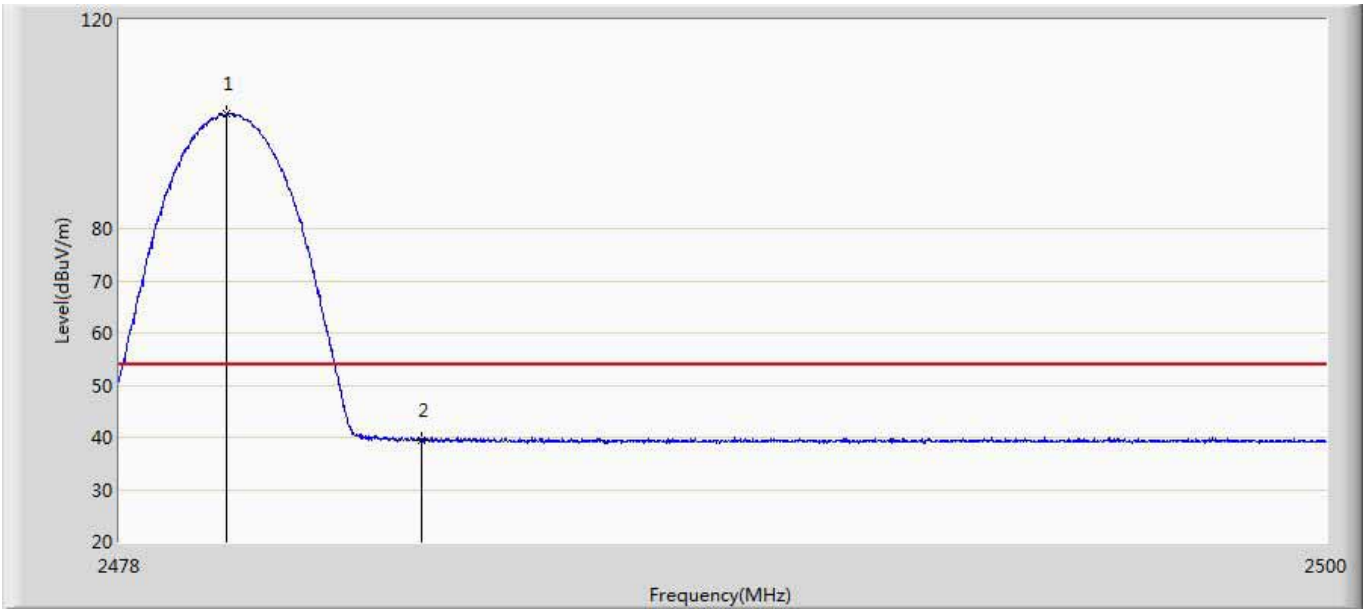
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2479.980	92.924	57.426	38.924	54.000	35.498	AV
2		2483.500	37.808	2.290	-16.192	54.000	35.517	AV

Profile: 2040625R	Page No.: 7
Engineer: YULIU	
Site: AC5	Time: 2020/04/22 - 16:41
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Mobile Computer	Power: 3.8 Vdc
Note: Mode1:Transmit at 2480Mhz by DH5	



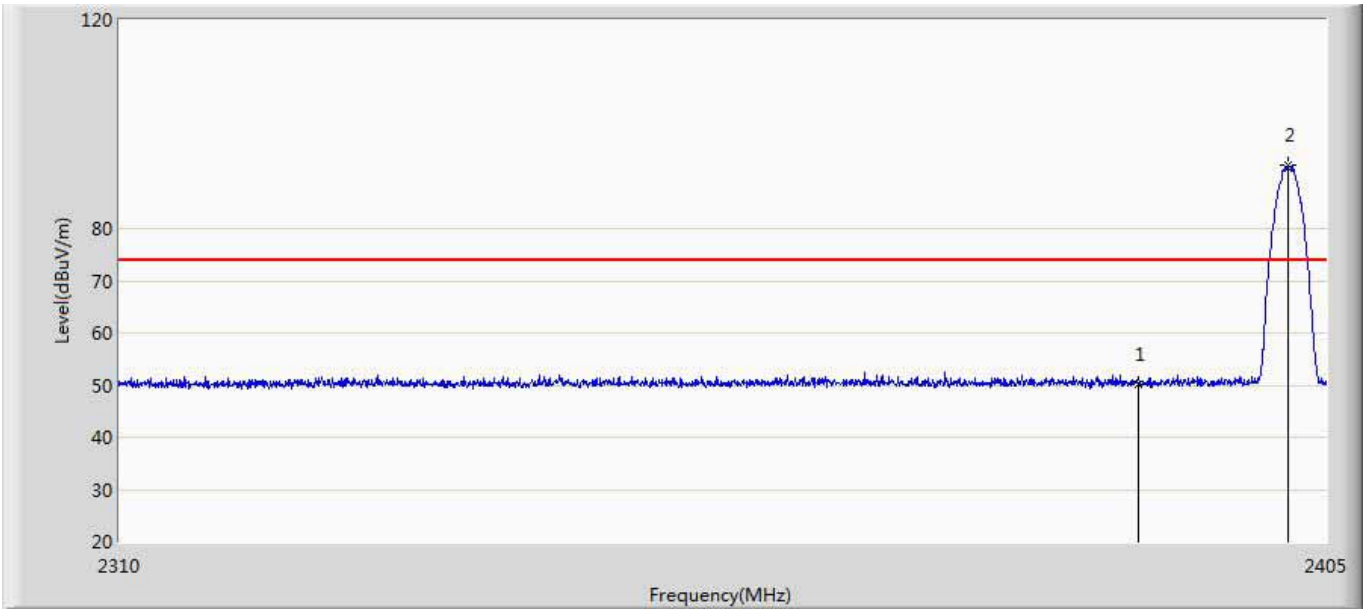
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2479.947	102.270	66.772	28.270	74.000	35.498	PK
2		2483.500	50.440	14.922	-23.560	74.000	35.517	PK

Profile: 2040625R	Page No.: 8
Engineer: YULIU	
Site: AC5	Time: 2020/04/22 - 16:43
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Mobile Computer	Power: 3.8 Vdc
Note: Mode1:Transmit at 2480Mhz by DH5	



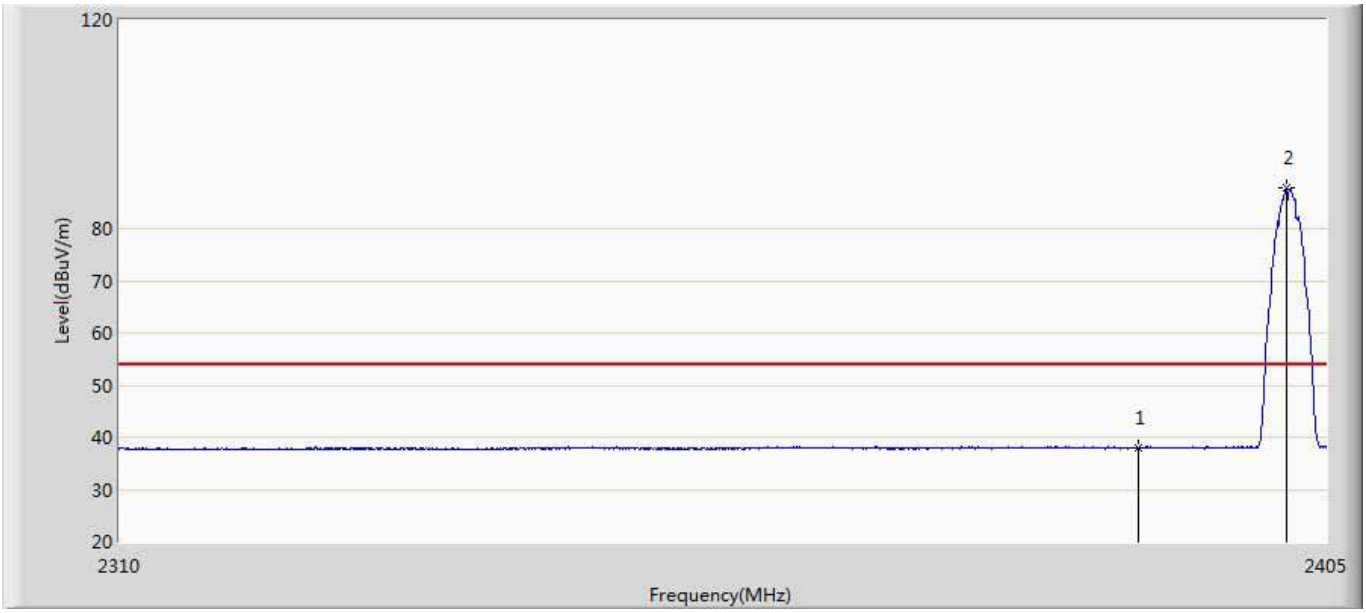
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2479.958	101.913	66.415	47.913	54.000	35.498	AV
2		2483.500	39.308	3.790	-14.692	54.000	35.517	AV

Profile: 2040625R	Page No.: 9
Engineer: YULIU	
Site: AC5	Time: 2020/04/22 - 16:53
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Mobile Computer	Power: 3.8 Vdc
Note: Mode 2:Transmit at 2402Mhz by 2DH5	



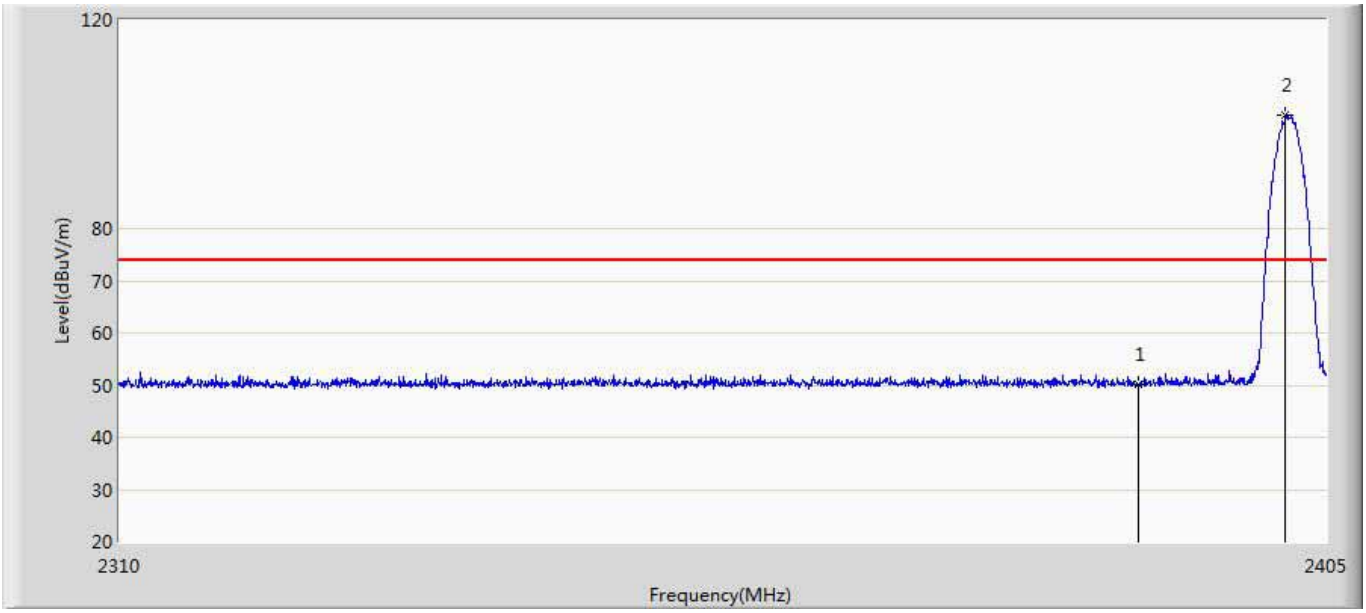
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	50.202	14.745	-23.798	74.000	35.458	PK
2	*	2401.913	92.057	56.588	18.057	74.000	35.469	PK

Profile: 2040625R	Page No.: 10
Engineer: YULIU	
Site: AC5	Time: 2020/04/22 - 16:57
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Mobile Computer	Power: 3.8 Vdc
Note: Mode 2:Transmit at 2402Mhz by 2DH5	



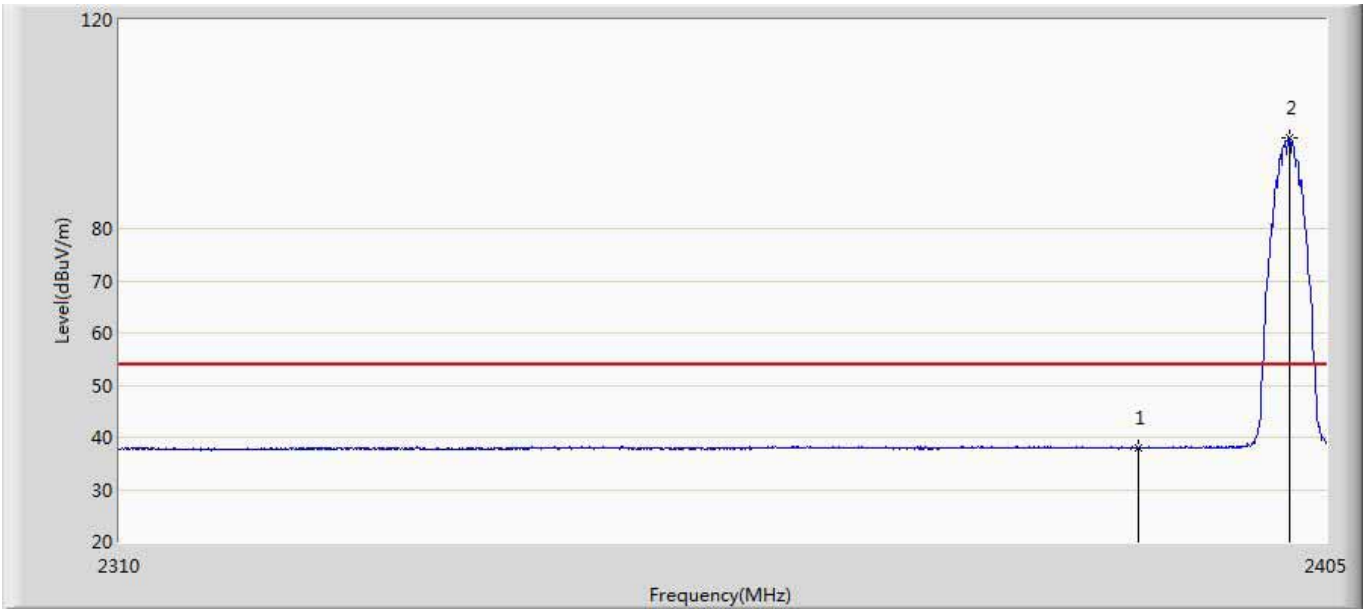
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	37.889	2.432	-16.111	54.000	35.458	AV
2	*	2401.817	87.772	52.303	33.772	54.000	35.469	AV

Profile: 2040625R	Page No.: 11
Engineer: YULIU	
Site: AC5	Time: 2020/04/22 - 17:00
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Mobile Computer	Power: 3.8 Vdc
Note: Mode 2:Transmit at 2402Mhz by 2DH5	



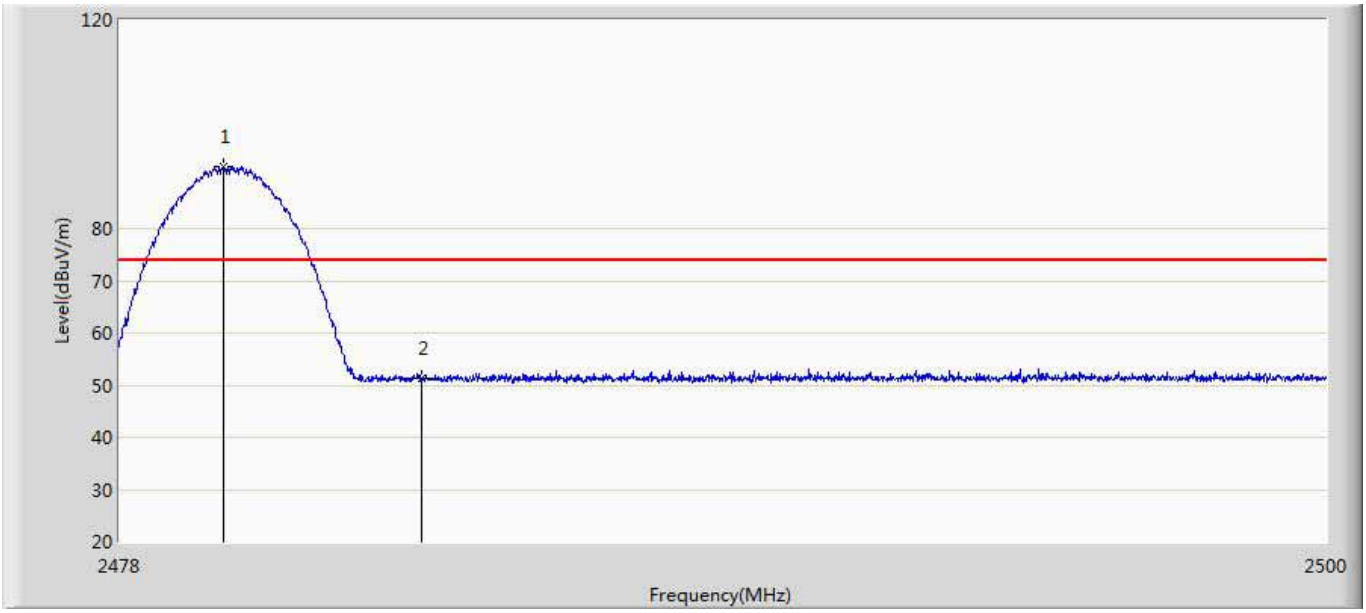
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	50.172	14.715	-23.828	74.000	35.458	PK
2	*	2401.770	101.793	66.324	27.793	74.000	35.469	PK

Profile: 2040625R	Page No.: 12
Engineer: YULIU	
Site: AC5	Time: 2020/04/22 - 17:01
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Mobile Computer	Power: 3.8 Vdc
Note: Mode 2:Transmit at 2402Mhz by 2DH5	



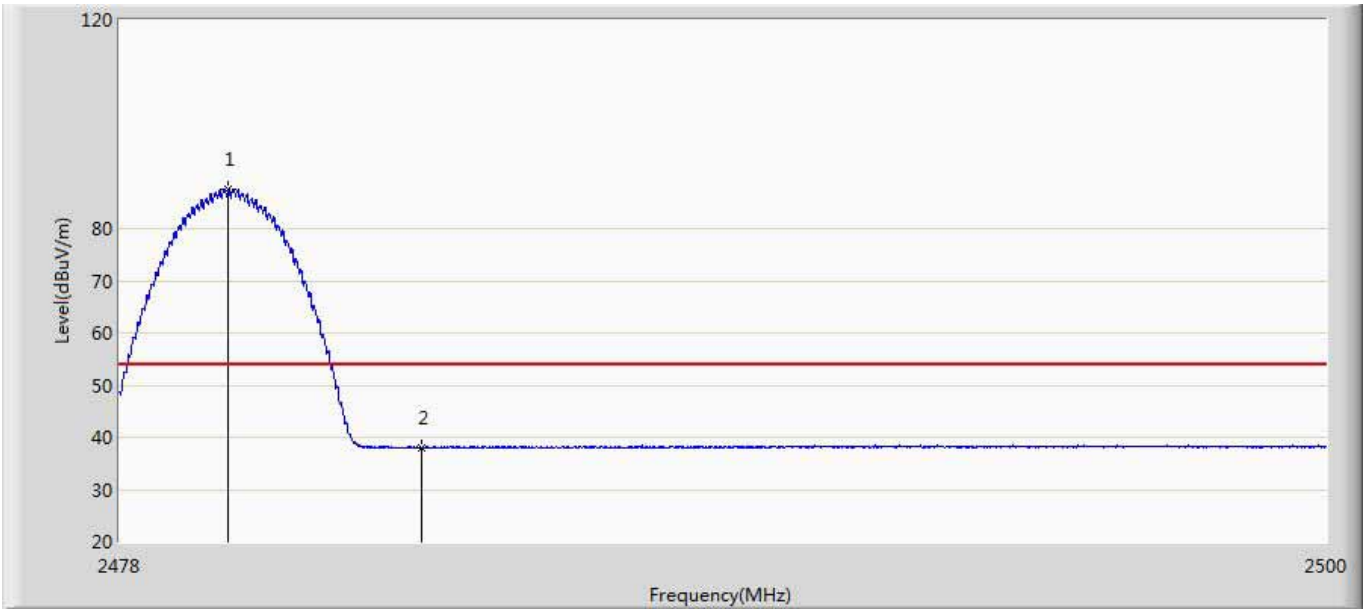
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	37.987	2.530	-16.013	54.000	35.458	AV
2	*	2402.055	97.534	62.064	43.534	54.000	35.469	AV

Profile: 2040625R	Page No.: 13
Engineer: YULIU	
Site: AC5	Time: 2020/04/22 - 17:04
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Mobile Computer	Power: 3.8 Vdc
Note: Mode 2:Transmit at 2480Mhz by 2DH5	



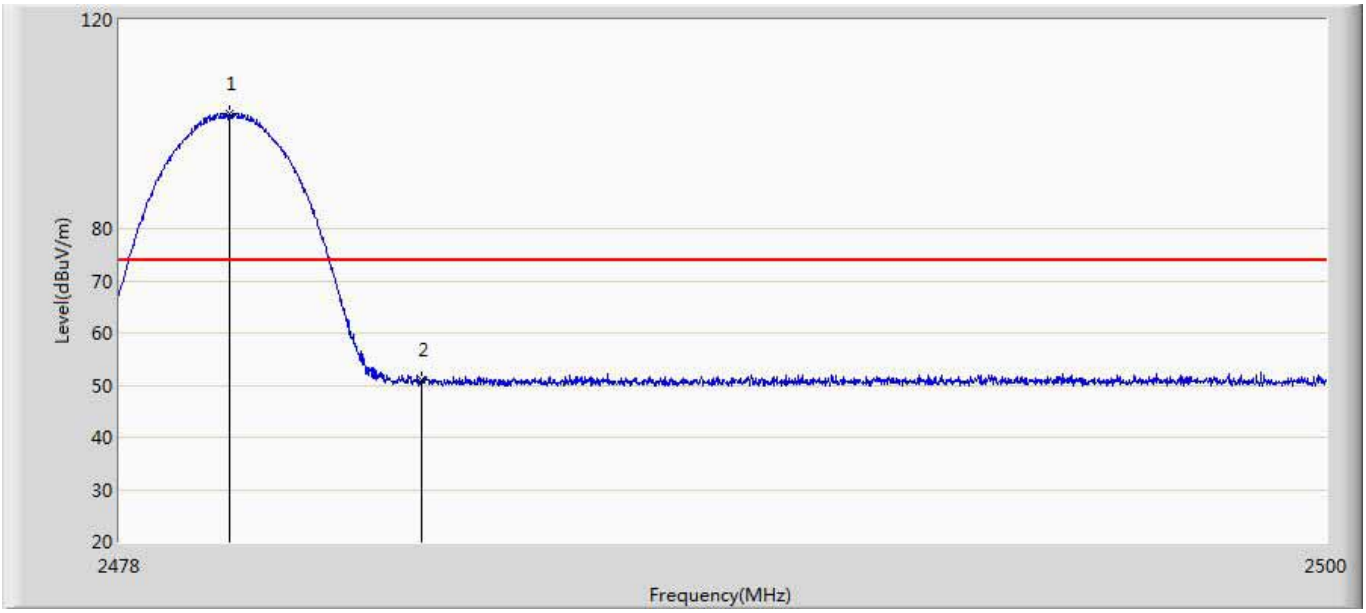
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2479.903	91.899	56.402	17.899	74.000	35.498	PK
2		2483.500	51.323	15.805	-22.677	74.000	35.517	PK

Profile: 2040625R	Page No.: 14
Engineer: YULIU	
Site: AC5	Time: 2020/04/22 - 17:12
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Mobile Computer	Power: 3.8 Vdc
Note: Mode 2:Transmit at 2480Mhz by 2DH5	



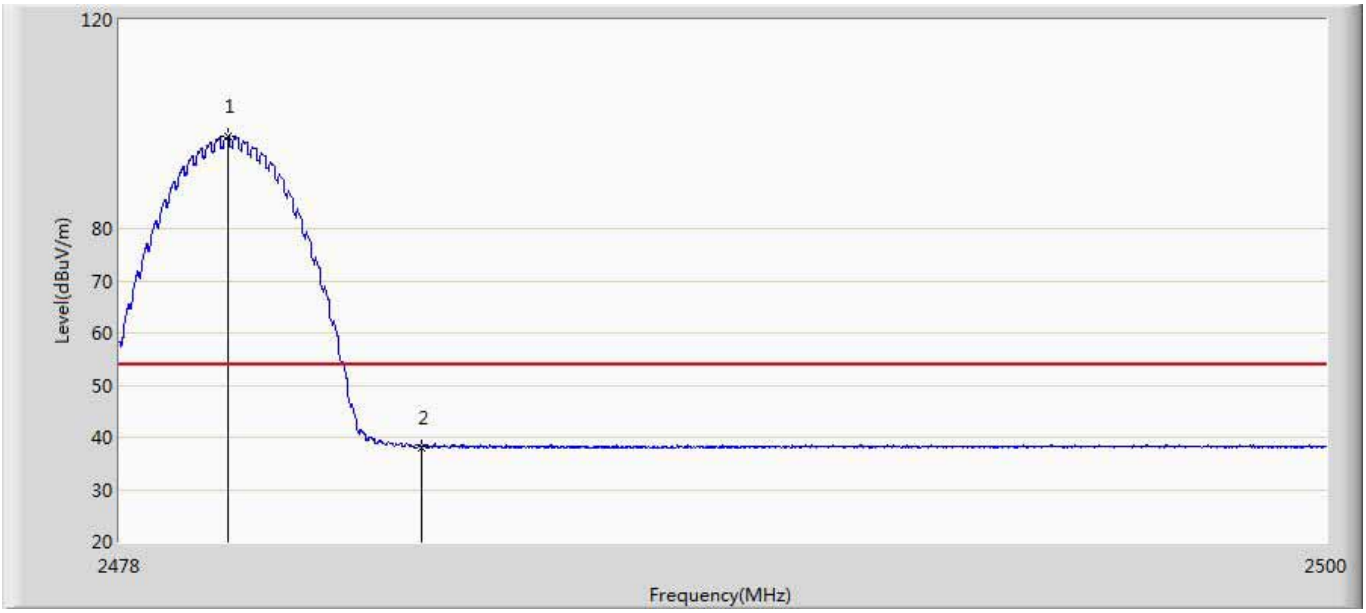
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2479.980	87.561	52.063	33.561	54.000	35.498	AV
2		2483.500	38.030	2.512	-15.970	54.000	35.517	AV

Profile: 2040625R	Page No.: 15
Engineer: YULIU	
Site: AC5	Time: 2020/04/22 - 17:14
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Mobile Computer	Power: 3.8 Vdc
Note: Mode 2:Transmit at 2480Mhz by 2DH5	



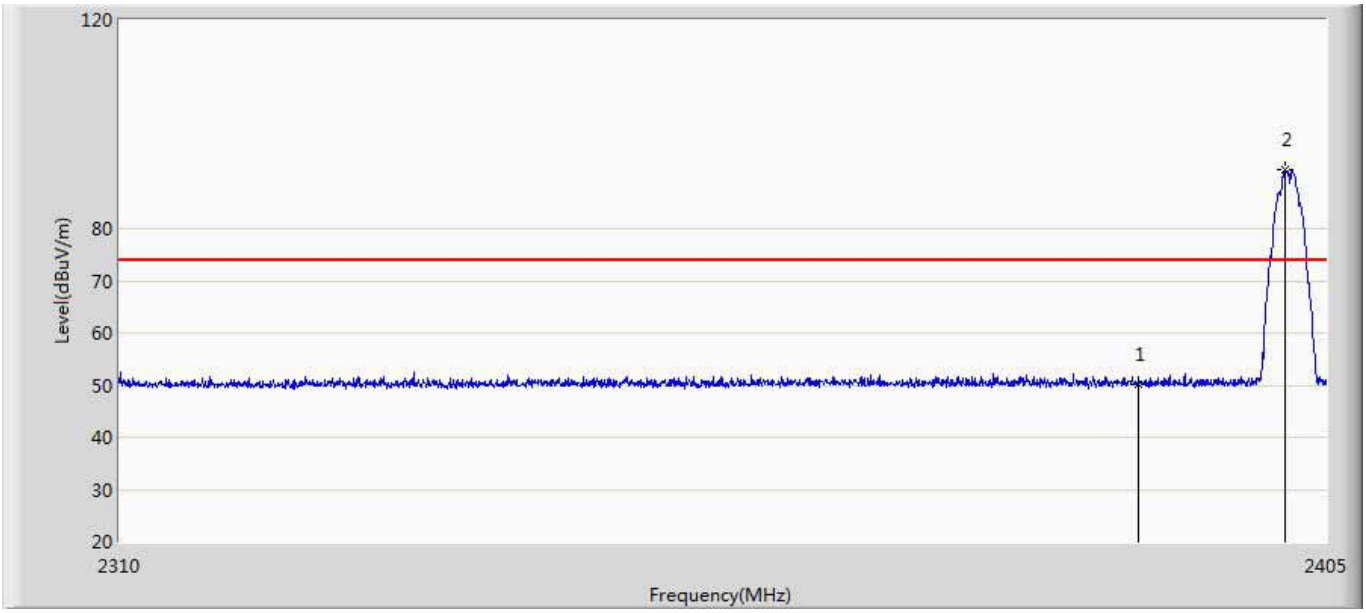
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2479.991	102.074	66.576	28.074	74.000	35.498	PK
2		2483.500	51.082	15.564	-22.918	74.000	35.517	PK

Profile: 2040625R	Page No.: 16
Engineer: YULIU	
Site: AC5	Time: 2020/04/22 - 17:15
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Mobile Computer	Power: 3.8 Vdc
Note: Mode 2:Transmit at 2480Mhz by 2DH5	



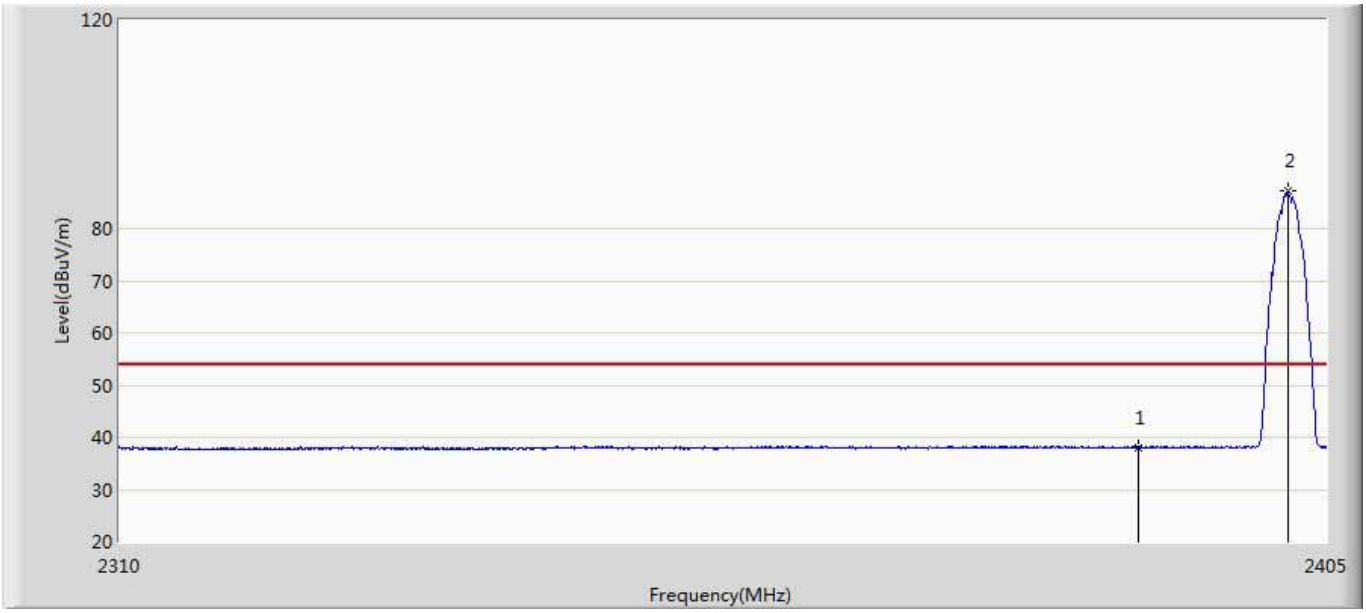
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2479.980	97.589	62.091	43.589	54.000	35.498	AV
2		2483.500	38.045	2.527	-15.955	54.000	35.517	AV

Profile: 2040625R	Page No.: 17
Engineer: YULIU	
Site: AC5	Time: 2020/04/22 - 17:18
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Mobile Computer	Power: 3.8 Vdc
Note: Mode 3:Transmit at 2402Mhz by 3DH5	



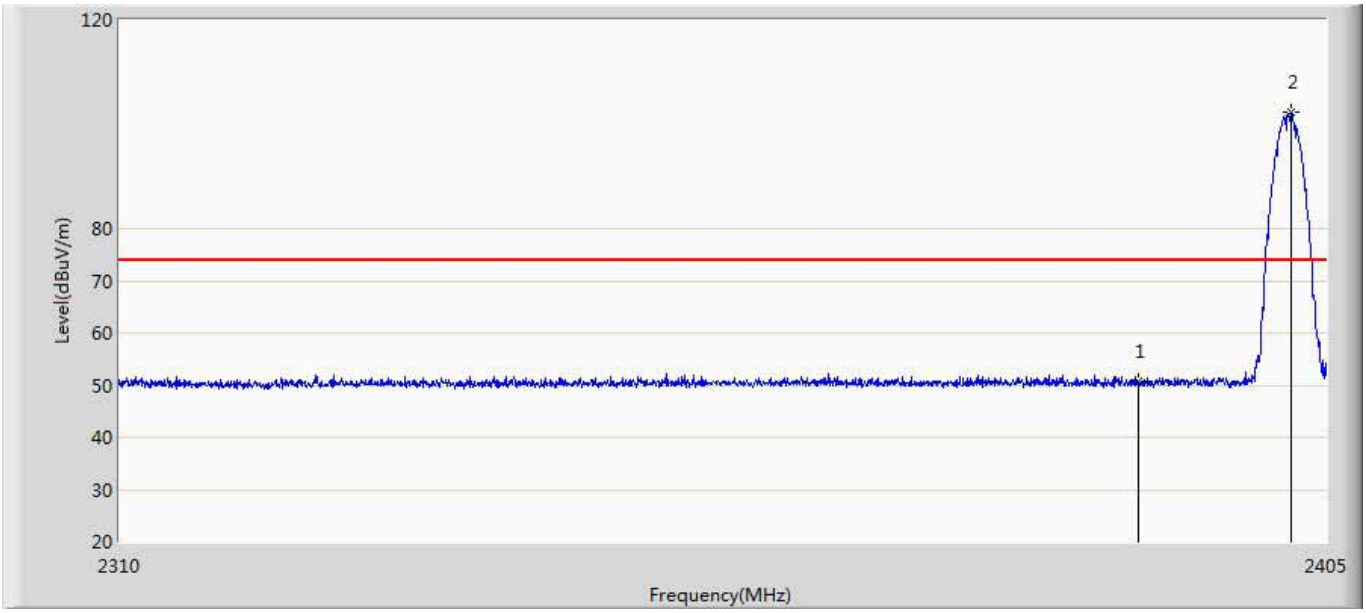
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	50.288	14.831	-23.712	74.000	35.458	PK
2	*	2401.770	91.429	55.960	17.429	74.000	35.469	PK

Profile: 2040625R	Page No.: 18
Engineer: YULIU	
Site: AC5	Time: 2020/04/22 - 17:20
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Mobile Computer	Power: 3.8 Vdc
Note: Mode 3:Transmit at 2402Mhz by 3DH5	



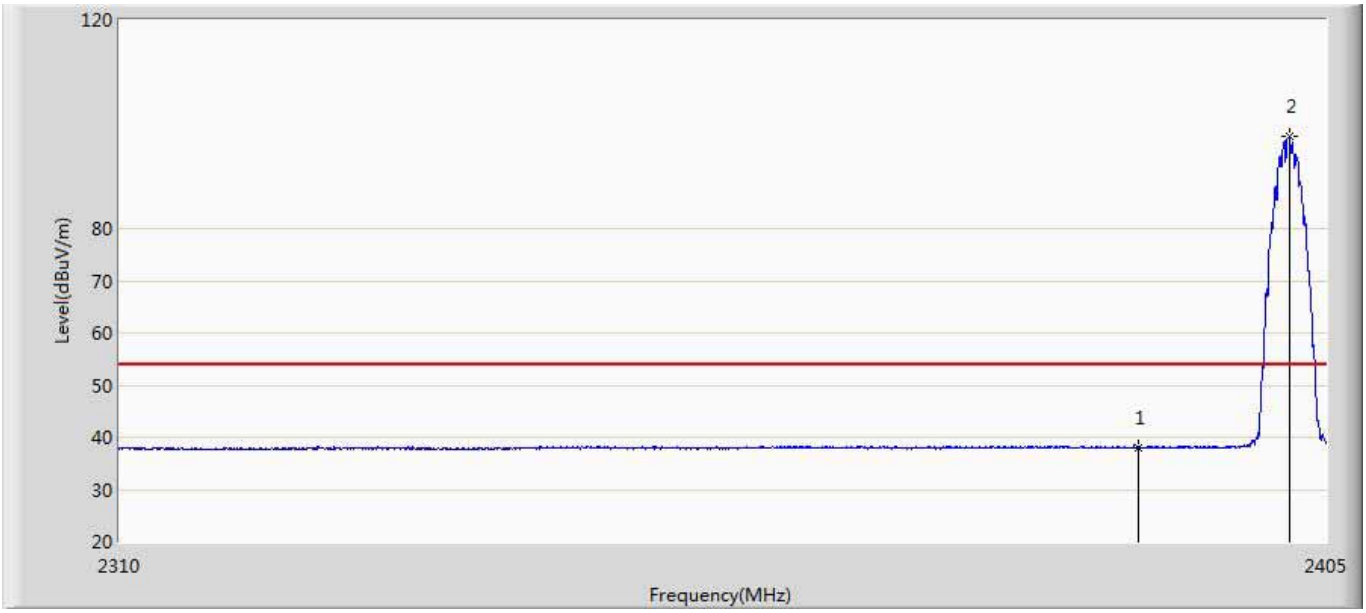
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	38.008	2.551	-15.992	54.000	35.458	AV
2	*	2401.913	87.124	51.655	33.124	54.000	35.469	AV

Profile: 2040625R	Page No.: 19
Engineer: YULIU	
Site: AC5	Time: 2020/04/22 - 17:22
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Mobile Computer	Power: 3.8 Vdc
Note: Mode 3:Transmit at 2402Mhz by 3DH5	



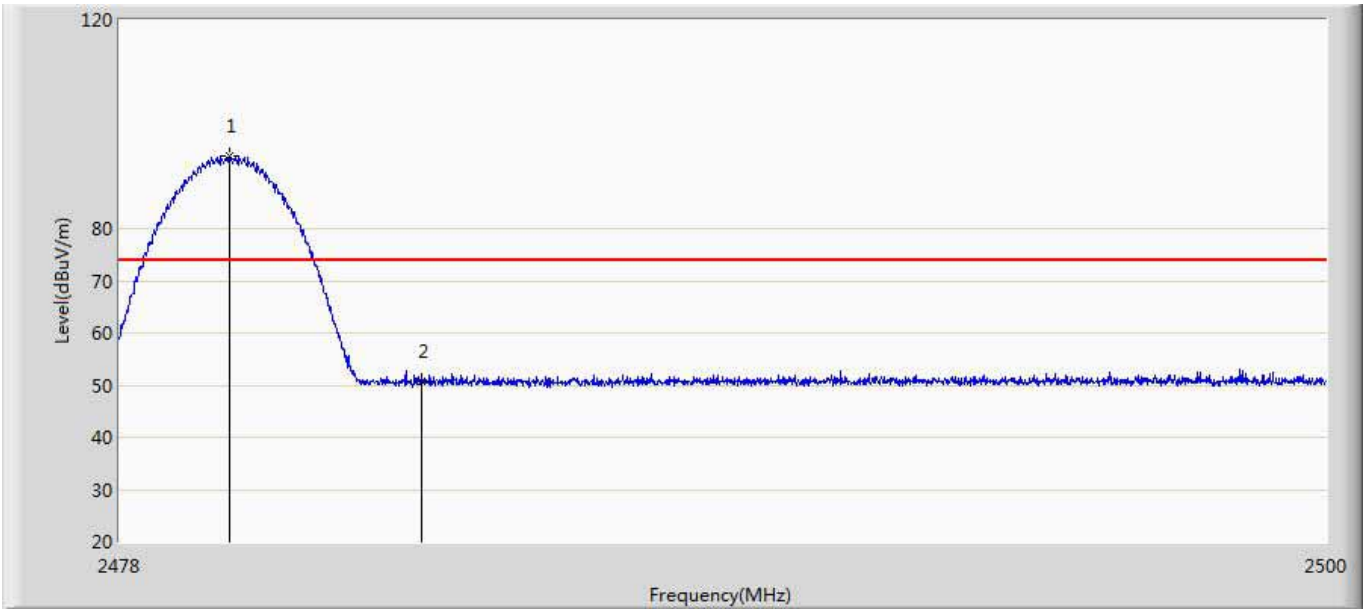
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	50.753	15.296	-23.247	74.000	35.458	PK
2	*	2402.150	102.191	66.721	28.191	74.000	35.469	PK

Profile: 2040625R	Page No.: 20
Engineer: YULIU	
Site: AC5	Time: 2020/04/22 - 17:23
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Mobile Computer	Power: 3.8 Vdc
Note: Mode 3:Transmit at 2402Mhz by 3DH5	



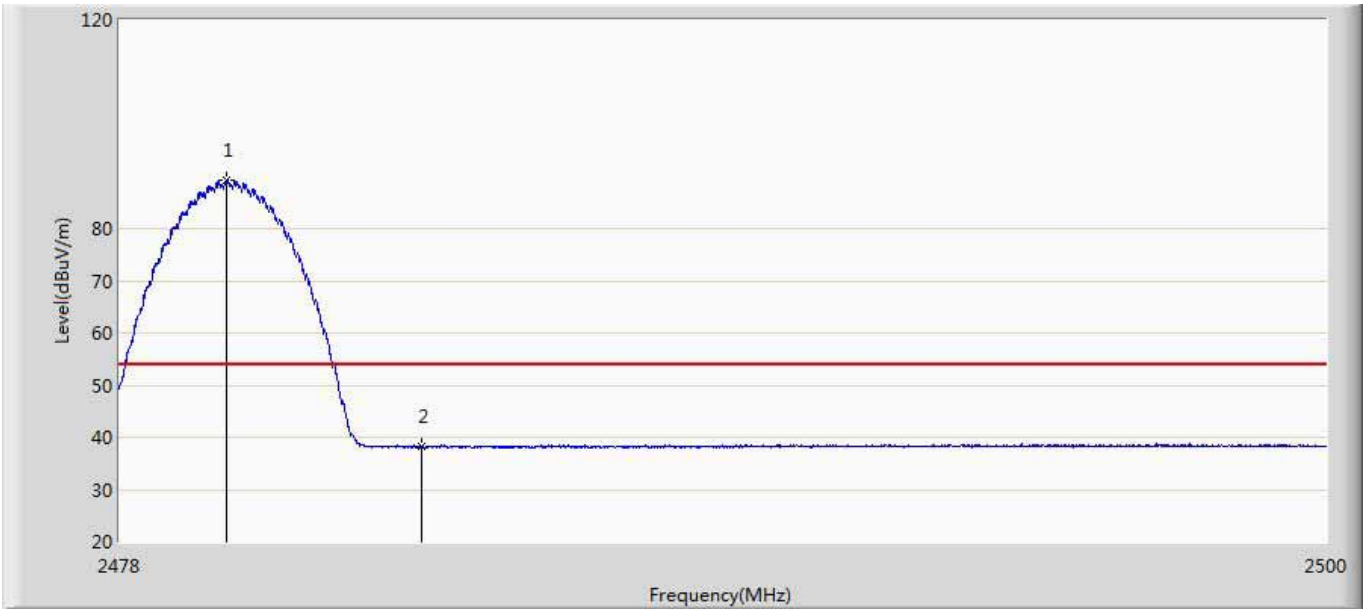
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	38.085	2.628	-15.915	54.000	35.458	AV
2	*	2402.055	97.615	62.145	43.615	54.000	35.469	AV

Profile: 2040625R	Page No.: 21
Engineer: YULIU	
Site: AC5	Time: 2020/04/22 - 17:25
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Mobile Computer	Power: 3.8 Vdc
Note: Mode 3:Transmit at 2480Mhz by 3DH5	



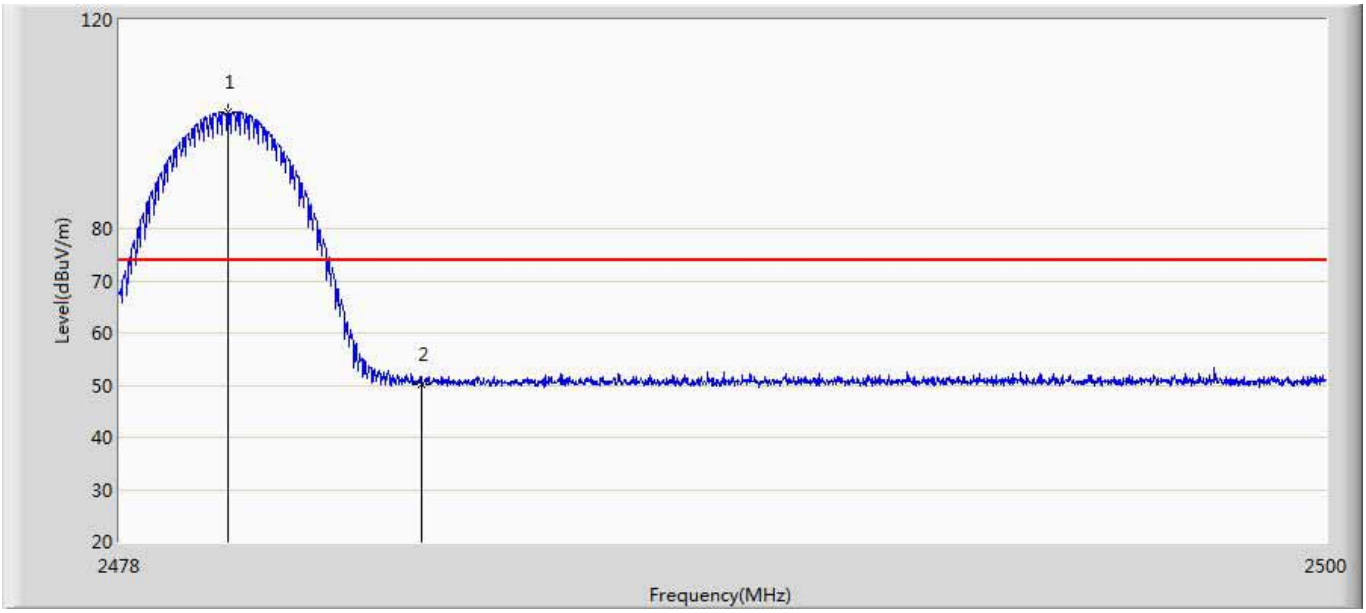
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2480.002	93.837	58.339	19.837	74.000	35.498	PK
2		2483.500	50.646	15.128	-23.354	74.000	35.517	PK

Profile: 2040625R	Page No.: 22
Engineer: YULIU	
Site: AC5	Time: 2020/04/22 - 17:27
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Mobile Computer	Power: 3.8 Vdc
Note: Mode 3:Transmit at 2480Mhz by 3DH5	



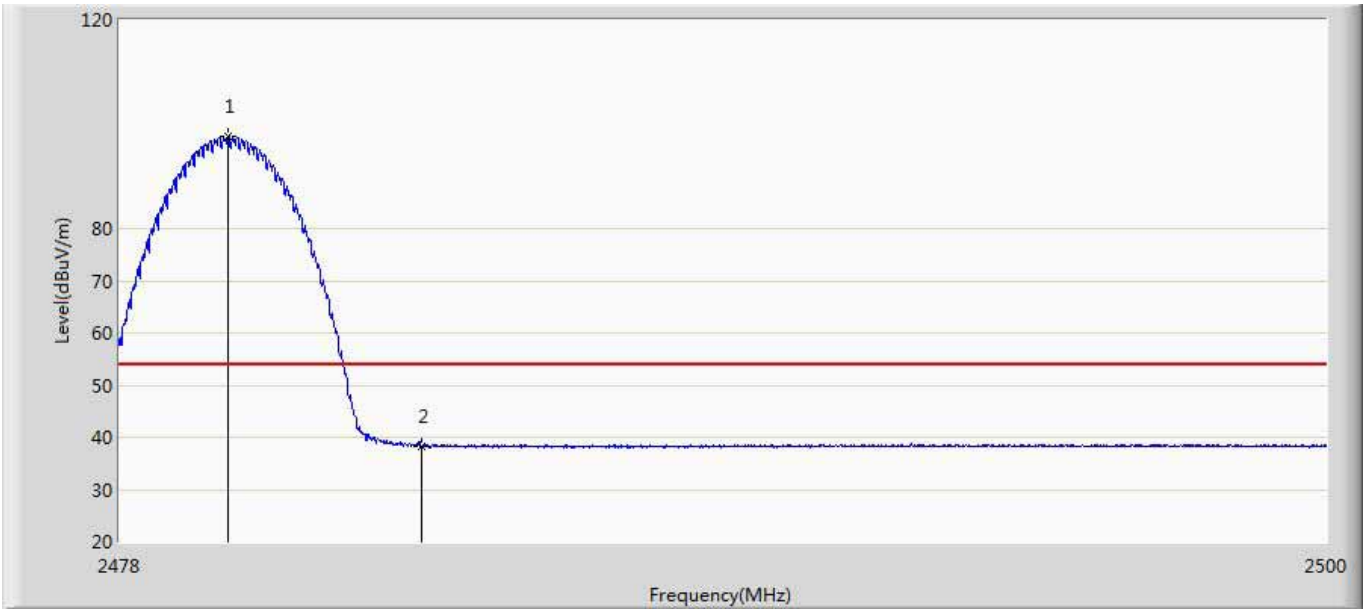
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2479.958	89.158	53.660	35.158	54.000	35.498	AV
2		2483.500	38.200	2.682	-15.800	54.000	35.517	AV

Profile: 2040625R	Page No.: 23
Engineer: YULIU	
Site: AC5	Time: 2020/04/22 - 17:29
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Mobile Computer	Power: 3.8 Vdc
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	102.245	66.747	28.245	74.000	35.498	PK
2		2483.500	50.173	14.655	-23.827	74.000	35.517	PK

Profile: 2040625R	Page No.: 24
Engineer: YULIU	
Site: AC5	Time: 2020/04/22 - 17:30
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Mobile Computer	Power: 3.8 Vdc
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	97.550	62.052	43.550	54.000	35.498	AV
2		2483.500	38.280	2.762	-15.720	54.000	35.517	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