



Test Report

FCC Part15 Subpart C& RSS-247 Issue 2

Product Name : Solos
Model No. : 33-00045-00
FCC ID : ZAOSOLOS002
IC : 9529A-SOLOS002

Applicant : Kopin Display Corp.

Address : 125 North Drive, Westborough, Massachusetts ,United
States,01581

Date of Receipt : Dec. 06, 2017
Test Date : Dec. 06, 2017~ Jan. 19, 2018
Issued Date : Jan. 19, 2018
Report No. : 17C2013R-RF-US-P06V03
Report Version : V 1.0

The test results relate only to the samples tested.

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

This report must not be used to claim product endorsement by TAF, A2LA or any agency of the government.

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Test Report Certification

Issued Date : Jan. 19, 2018

Report No. : 17C2013R-RF-US-P06V03



Product Name : Solos

Applicant : Kopin Display Corp.
Address : 125 North Drive, Westborough, Massachusetts ,United States,01581

Manufacturer : Kopin Display Corp.
Address : 125 North Drive, Westborough, Massachusetts ,United States,01581

Model No. : 33-00045-00

FCC ID : ZAOSOLOS002

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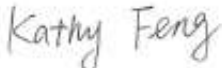
EUT Voltage : 3.4~4.425V


Test Voltage : AC120V/60Hz

Applicable Standard : FCC CFR Title 47 Part 15 Subpart C
KDB DA 00-705 Released March 30, 2000
ANSI C63.10: 2013
RSS-Gen Issue 4/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 Lab Code: 4075B

Documented By : 
(Project Assistant: Kathy Feng)

Reviewed By : 
(Senior Engineer: Frank He)


Approved By : 
(Engineering Manager: Harry Zhao)

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History of This Test Report

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
17C2013R-RF-US-P06V03	V1.0	Initial Issued Report	Jan. 19, 2018

1. General Information

1.1. EUT Description

Product Name	Solos
Model No.	33-00045-00
Working Voltage	3.4~4.425V
Test Voltage	AC120V/60Hz
Bluetooth Specification	V2.1+EDR
Frequency Range	2402- 2480 MHz
Channel Number	V2.1+EDR: 79
Channel Separation	V2.1+EDR: 1MHz
Type of Modulation	V2.1+EDR: GFSK, Pi/4 DQPSK, 8DPSK
Data Rate	V2.1+EDR: 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 V2.1+EDR)							
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 manufacturer	N/A						
Antenna Delivery	<input checked="" type="checkbox"/> 1*TX+1*RX	<input type="checkbox"/> 2*TX+2*RX	<input type="checkbox"/> 3*TX+3*RX				
Antenna technology	<input checked="" type="checkbox"/> SISO <input type="checkbox"/> MIMO <table border="1" style="margin-left: 20px;"> <tr><td><input type="checkbox"/> Basic</td></tr> <tr><td><input type="checkbox"/> CDD</td></tr> <tr><td><input type="checkbox"/> Beam-forming</td></tr> </table>				<input type="checkbox"/> Basic	<input type="checkbox"/> CDD	<input type="checkbox"/> Beam-forming
<input type="checkbox"/> Basic							
<input type="checkbox"/> CDD							
<input type="checkbox"/> Beam-forming							
Antenna Type	<input type="checkbox"/> External <input type="checkbox"/> Dipole <input type="checkbox"/> PIFA <input type="checkbox"/> PCB <input checked="" type="checkbox"/> Internal <table border="1" style="margin-left: 20px;"> <tr><td><input checked="" type="checkbox"/> Chip Antenna</td></tr> <tr><td><input type="checkbox"/> Metal plate type F antenna</td></tr> <tr><td><input type="checkbox"/> Monopole antenna</td></tr> </table>				<input checked="" type="checkbox"/> Chip Antenna	<input type="checkbox"/> Metal plate type F antenna	<input type="checkbox"/> Monopole antenna
<input checked="" type="checkbox"/> Chip Antenna							
<input type="checkbox"/> Metal plate type F antenna							
<input type="checkbox"/> Monopole antenna							
Antenna Gain	2.72dBi						

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.

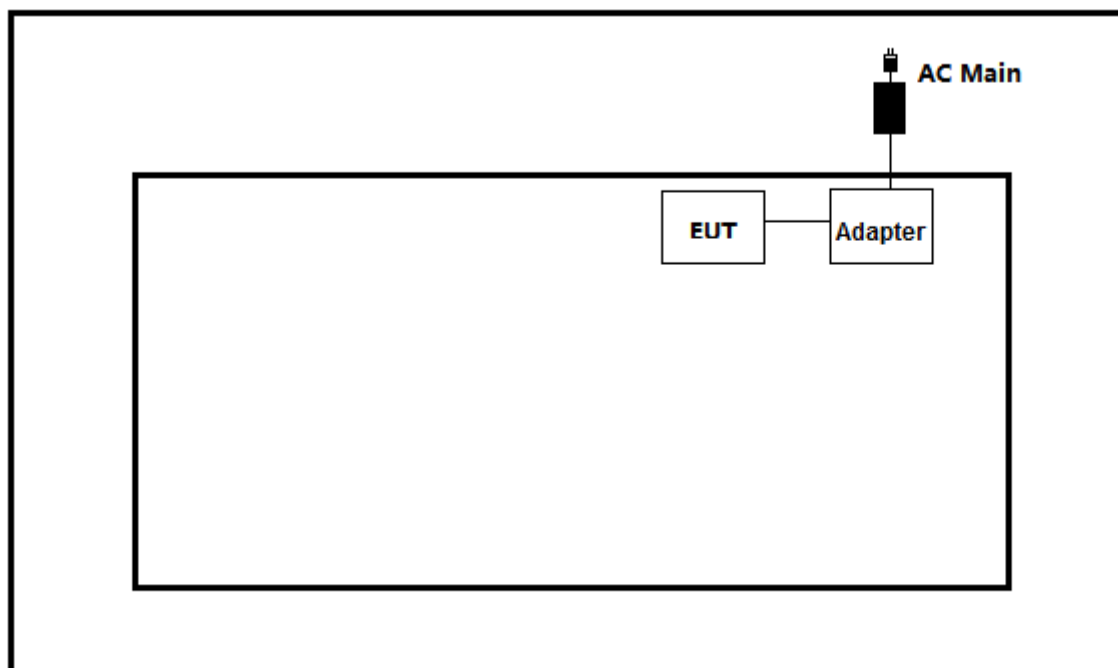
1.4 Tested System Details

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

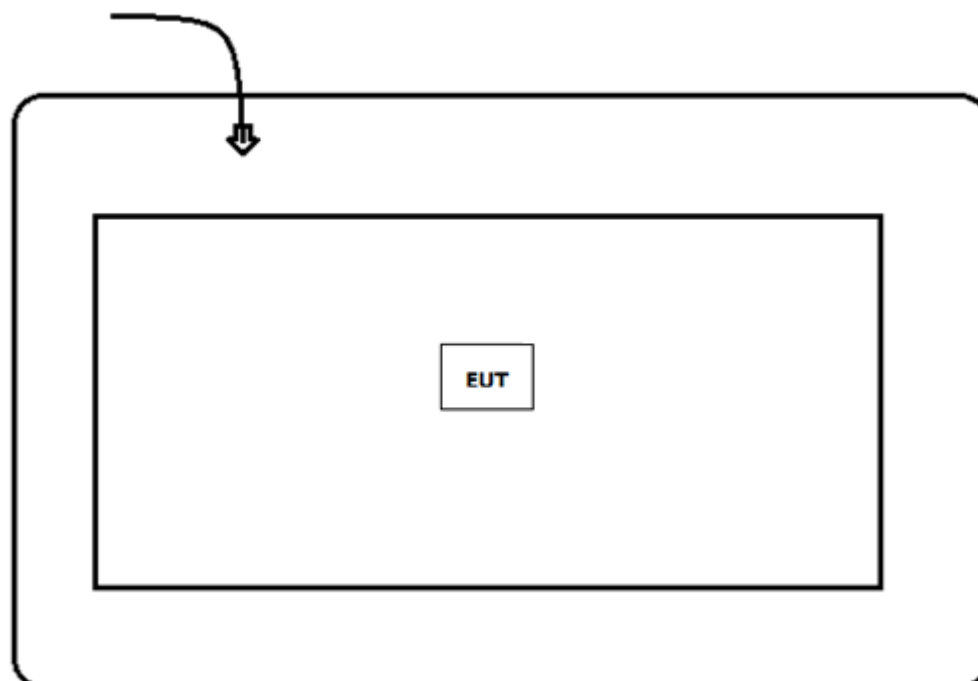
1.5 Configuration of Tested System

Test setup Diagram- AC Line Conducted Emission Test



Test setup Diagram- Radiated Emission

Chamber



1.6 EUT Exercise Software

1	Setup the EUT and simulators as shown on above.
2	Turn on the power of equipment.
3	Press the button.
4	Select the transmission mode and test channel, then start test.

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

For ISED

Performed Test Item	Normative References	Test Performed	Deviation
Conducted Emission	RSS-Gen Issue 4 Section 8.8	Yes	No
Radiated Emission	RSS-Gen Issue 4 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 4 Section 8.10	Yes	No
Antenna Requirement	RSS-Gen Issue 4 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

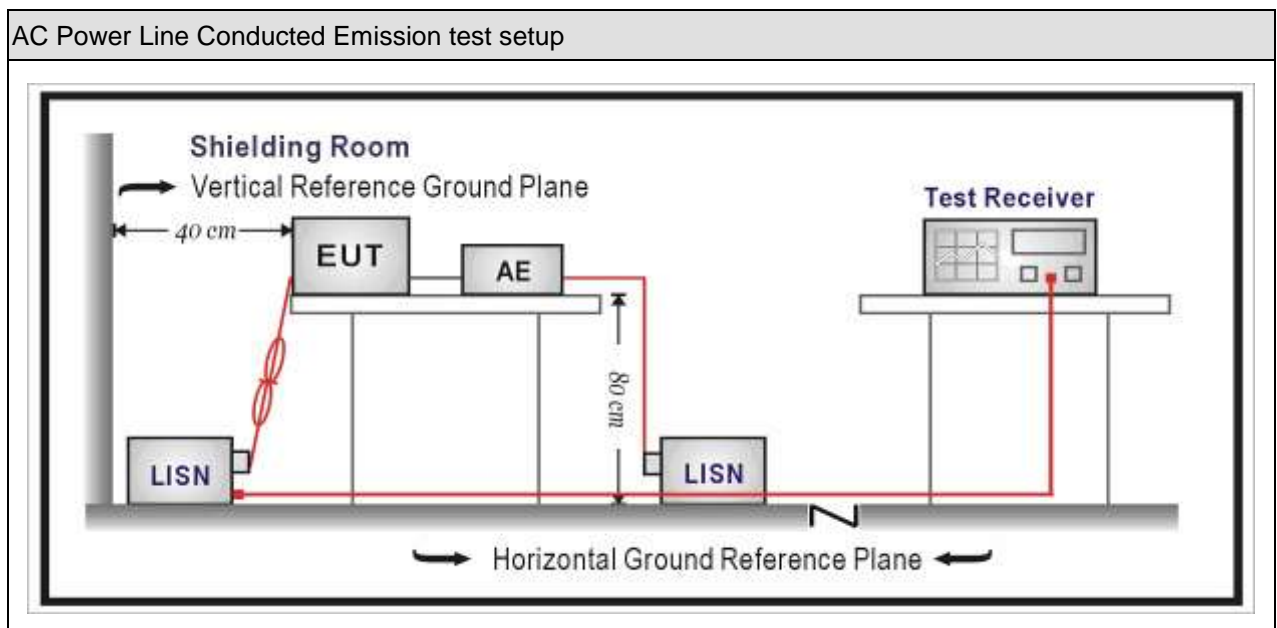
3. Conducted Emission

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	2017.03.05	2018.03.04
Two-Line V-Network	R&S	ENV 216	101189	2017.07.16	2018.07.15
Two-Line V-Network	R&S	ENV 216	101044	2017.09.15	2018.09.15
50ohm Coaxial Switch	Anritsu	MP59B	6200464462	N/A	N/A
50ohm Termination	SHX	TF2	07081402	2017.09.15	2018.09.15
Temperature/Humidity Meter	Zhichen	ZC1-2	TR1-TH	2018.01.05	2019.01.04

Note: All equipment are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.

3.2. 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

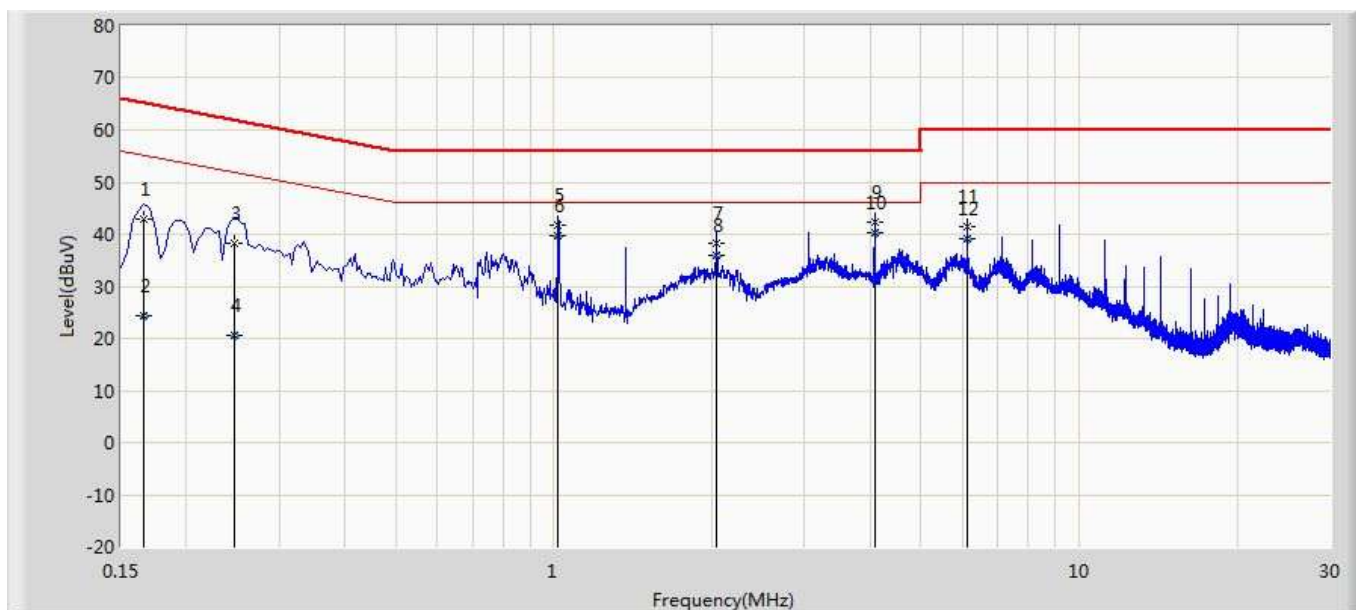
Test Method			
	References Rule	Chapter	Item
<input checked="" type="checkbox"/>	ANSI C63.10-2013	6.2	Standard test method for ac power-line conducted emissions from unlicensed wireless devices

3.5. Uncertainty

The measurement uncertainty is defined as ± 2.02 dB

3.6. Test Result

Engineer: Aaron	
Site: TR1	Time: 2017/12/12
Limit: FCC_Part15.207_CE_AC Power	Margin: 0
Probe: ENV216_101190(0.009-30MHz)	Polarity: Line
EUT: Solos	Power: AC 120V/60Hz
Note: Mode 1: Transmit at 2402MHz by DH5	



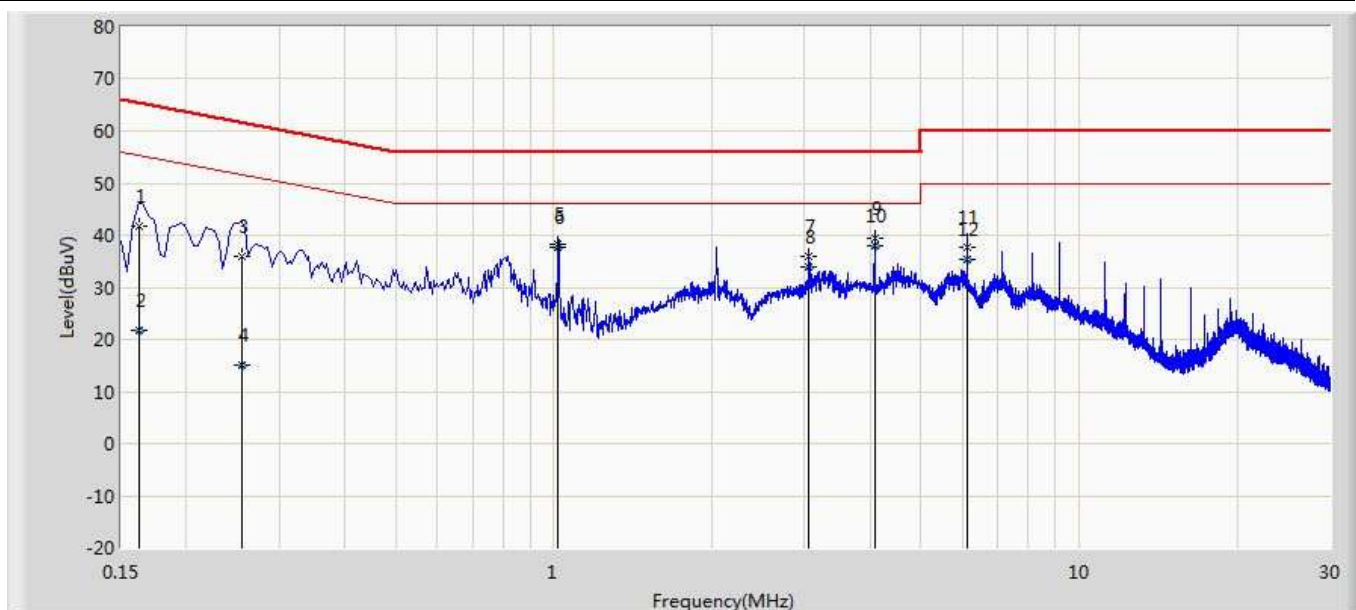
No	Mark	Frequency (MHz)	Measure Level (dBuV)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV)	Probe (dB)	Cable (dB)	Amp (dB)	Type
1		0.166	42.820	33.187	-22.338	65.158	9.607	0.027	0.000	QP
2		0.166	24.460	14.827	-30.698	55.158	9.607	0.027	0.000	AV
3		0.246	38.380	28.749	-23.511	61.891	9.600	0.031	0.000	QP
4		0.246	20.448	10.818	-31.443	51.891	9.600	0.031	0.000	AV
5		1.018	41.827	32.157	-14.173	56.000	9.610	0.060	0.000	QP
6		1.018	39.594	29.924	-6.406	46.000	9.610	0.060	0.000	AV
7		2.038	38.210	28.512	-17.790	56.000	9.611	0.088	0.000	QP
8		2.038	35.935	26.237	-10.065	46.000	9.611	0.088	0.000	AV
9		4.078	42.338	32.564	-13.662	56.000	9.645	0.129	0.000	QP
10	*	4.078	40.235	30.461	-5.765	46.000	9.645	0.129	0.000	AV
11		6.118	41.375	31.535	-18.625	60.000	9.683	0.158	0.000	QP
12		6.118	39.158	29.318	-10.842	50.000	9.683	0.158	0.000	AV

Note:

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

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

Engineer: Aaron	
Site: TR1	Time: 2017/12/12
Limit: FCC_Part15.207_CE_AC Power	Margin: 0
Probe: ENV216_101190(0.009-30MHz)	Polarity: Neutral
EUT: Solos	Power: AC 120V/60Hz
Note: Mode 1: Transmit at 2402MHz by DH5	



No	Mark	Frequency (MHz)	Measure Level (dBuV)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV)	Probe (dB)	Cable (dB)	Amp (dB)	Type
1		0.162	41.754	32.135	-23.607	65.361	9.593	0.026	0.000	QP
2		0.162	21.822	12.203	-33.539	55.361	9.593	0.026	0.000	AV
3		0.254	36.067	26.438	-25.558	61.625	9.598	0.031	0.000	QP
4		0.254	15.170	5.541	-36.455	51.625	9.598	0.031	0.000	AV
5		1.018	38.335	28.684	-17.665	56.000	9.591	0.060	0.000	QP
6		1.018	37.691	28.041	-8.309	46.000	9.591	0.060	0.000	AV
7		3.058	35.985	26.251	-20.015	56.000	9.624	0.110	0.000	QP
8		3.058	33.979	24.245	-12.021	46.000	9.624	0.110	0.000	AV
9		4.078	39.351	29.585	-16.649	56.000	9.638	0.129	0.000	QP
10	*	4.078	37.893	28.126	-8.107	46.000	9.638	0.129	0.000	AV
11		6.118	37.636	27.800	-22.364	60.000	9.678	0.158	0.000	QP
12		6.118	35.477	25.641	-14.523	50.000	9.678	0.158	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

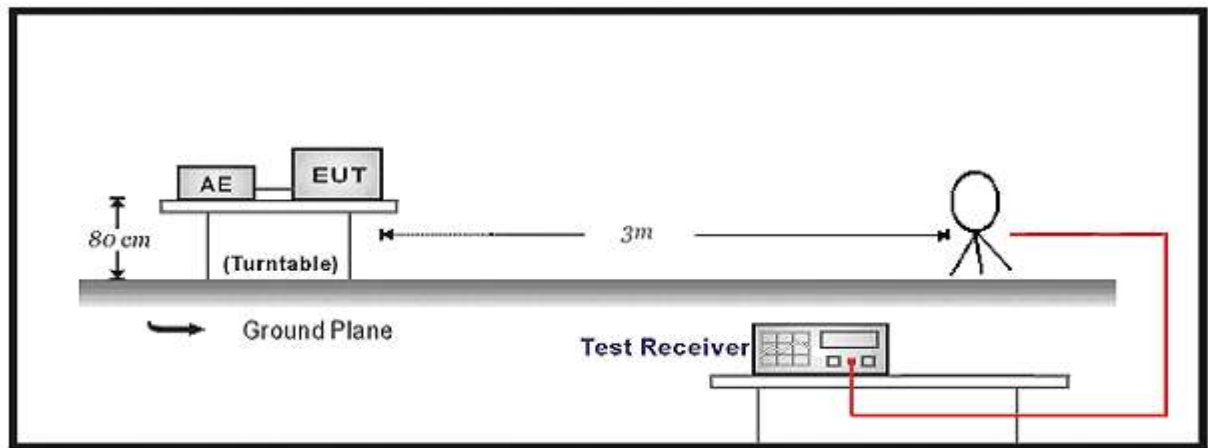
4.1. Test Equipment

Radiated Emission(Below 1GHz) / AC-2					
Instrument	Manufacturer	Type No.	Serial No.	Cal. Date	Cal. Due Date
EMI Test Receiver	R&S	ESCI	100573	2017.03.29	2018.03.28
Loop Antenna	R&S	HFH2-Z2	833799/003	2017.11.16	2018.11.15
Bilog Antenna	Teseq GmbH	CBL6112D	27611	2017.10.16	2018.10.15
Coaxial Cable	Huber+Suhner	SUCOFLEX 106	AC2-C	2017.03.02	2018.03.01
Temperature/Humidity Meter	Zhichen	ZC1-2	AC2-TH	2018.01.04	2019.01.03
Note: All equipment are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.					

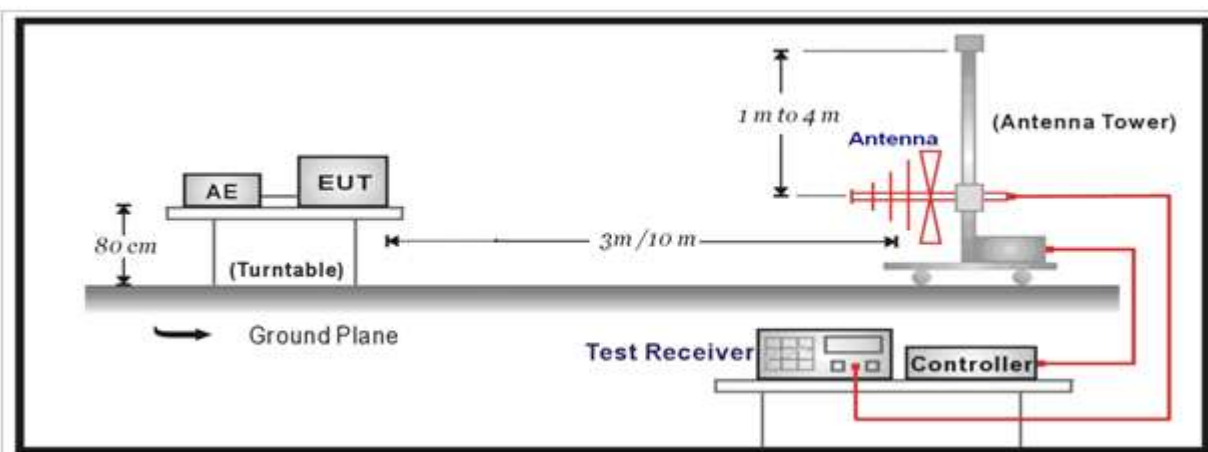
Radiated Emission(Above 1GHz) / AC-5					
Instrument	Manufacturer	Type No.	Serial No.	Cal. Date	Cal. Due Date
Spectrum Analyzer	Agilent	E4446A	MY45300103	2018.01.04	2019.01.03
Preamplifier	Miteq	NSP1800-25	1364185	2017.05.06	2018.05.05
Preamplifier	QuieTek	AP-040G	CHM-0906001	2017.05.06	2018.05.05
DRG Horn	ETS-Lindgren	3117	00123988	2018.01.22	2019.01.21
Broad-Band Horn Antenna	Schwarzbeck	BBHA9170	294	2017.11.25	2018.11.24
Coaxial Cable	Huber+Suhner	SUCOFLEX 106	AC5-C1	2017.03.02	2018.03.01
Coaxial Cable	Huber+Suhner	SUCOFLEX 106	AC5-C2	2017.03.02	2018.03.01
Coaxial Cable	Huber+Suhner	SUCOFLEX 102	AC5-C3	2017.03.02	2018.03.01
EMI Receiver	Agilent	N9038A	MY51210196	2017.06.10	2018.06.09
Temperature/Humidity Meter	Zhichen	ZC1-2	AC5-TH	2018.01.04	2019.01.03
Note: All equipment are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.					

4.2. Test Setup

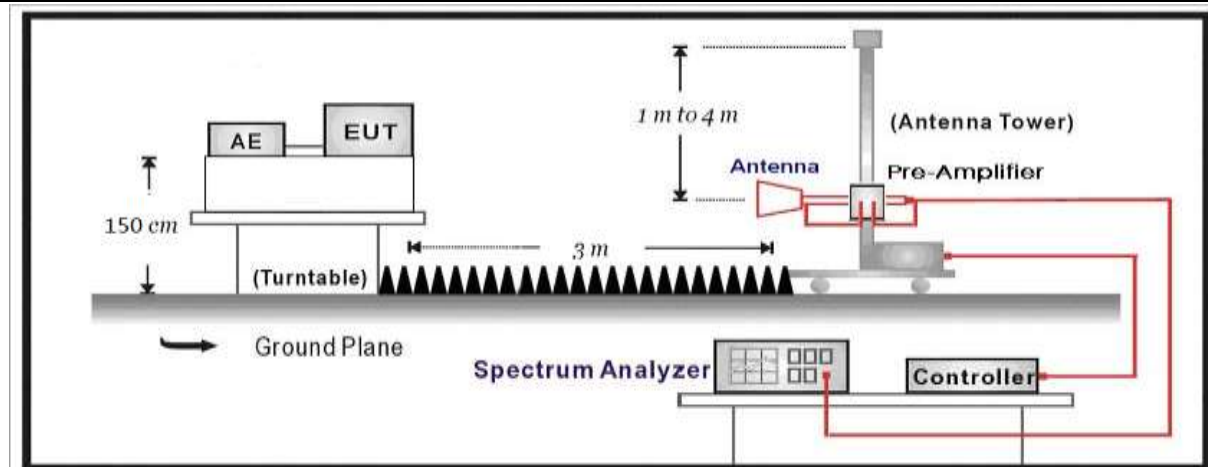
Below 30MHz Test Setup:



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 (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

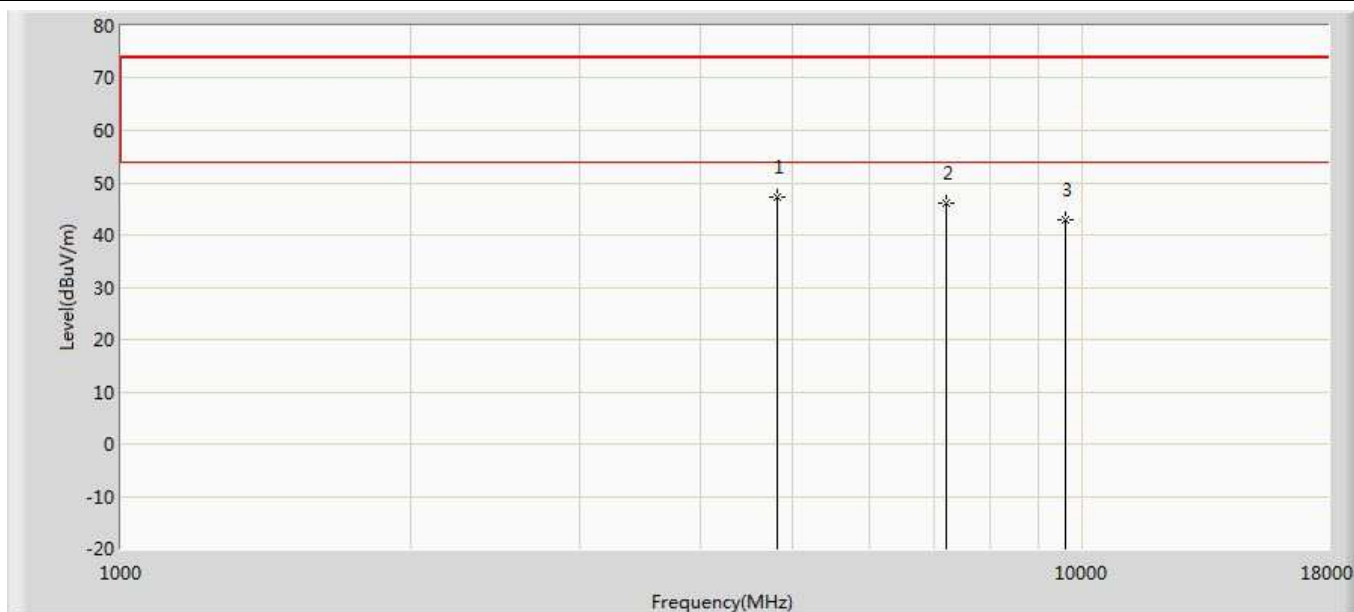
Test Method			
	References Rule	Chapter	Description
<input checked="" type="checkbox"/>	ANSI C63.10	6.4	Radiated emissions from unlicensed wireless devices below 30 MHz
<input checked="" type="checkbox"/>	ANSI C63.10	6.5	Radiated emissions from unlicensed wireless devices in the frequency range of 30 MHz to 1000 MHz
<input checked="" type="checkbox"/>	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

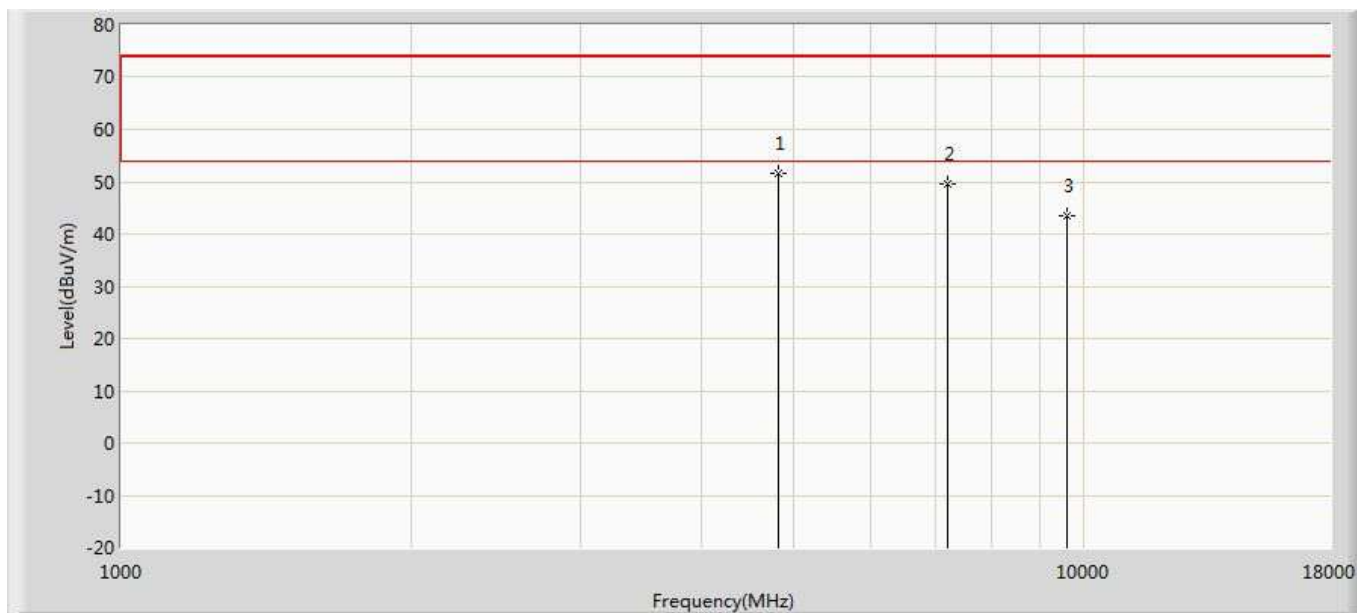
4.6. Test Result

Engineer: Damon	
Site: AC5	Time: 2018/01/16 - 21:22
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Solos	Power: AC120V/60Hz
Note: Mode 1:Transmit at channel 2402MHz by DH5	



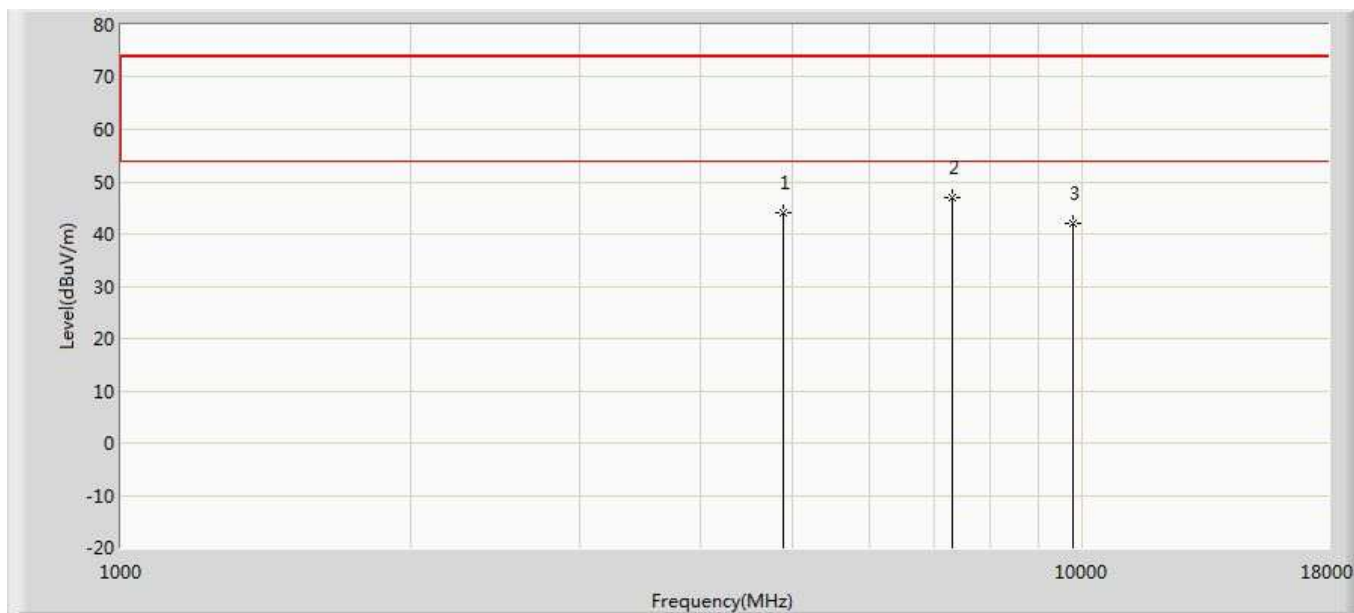
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	4808.000	47.153	48.844	-26.847	74.000	-1.691	PK
2		7205.000	46.170	43.267	-27.830	74.000	2.903	PK
3		9608.000	42.778	37.951	-31.222	74.000	4.827	PK

Engineer: Damon	
Site: AC5	Time: 2018/01/16 - 21:21
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Solos	Power: AC120V/60Hz
Note: Mode 1:Transmit at channel 2402MHz by DH5	



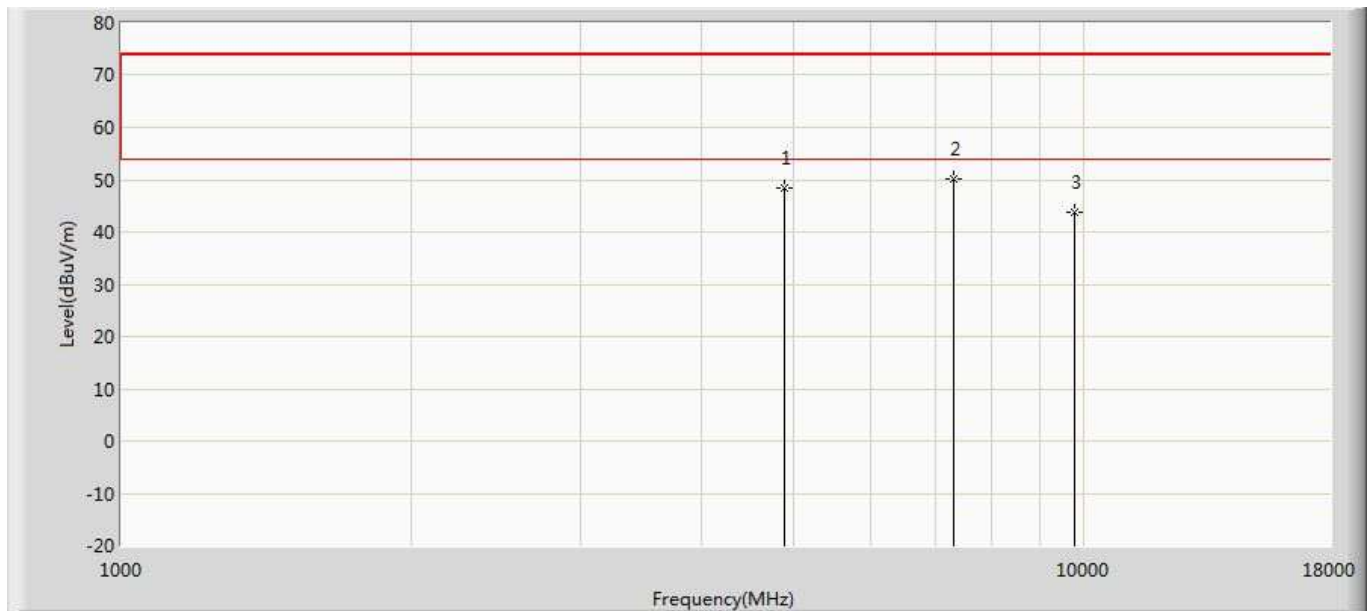
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	4808.000	51.615	53.306	-22.385	74.000	-1.691	PK
2		7205.000	49.462	46.559	-24.538	74.000	2.903	PK
3		9608.000	43.588	38.761	-30.412	74.000	4.827	PK

Engineer: Damon	
Site: AC5	Time: 2018/01/16 - 21:22
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Solos	Power: AC120V/60Hz
Note: Mode 1:Transmit at channel 2441MHz by DH5	



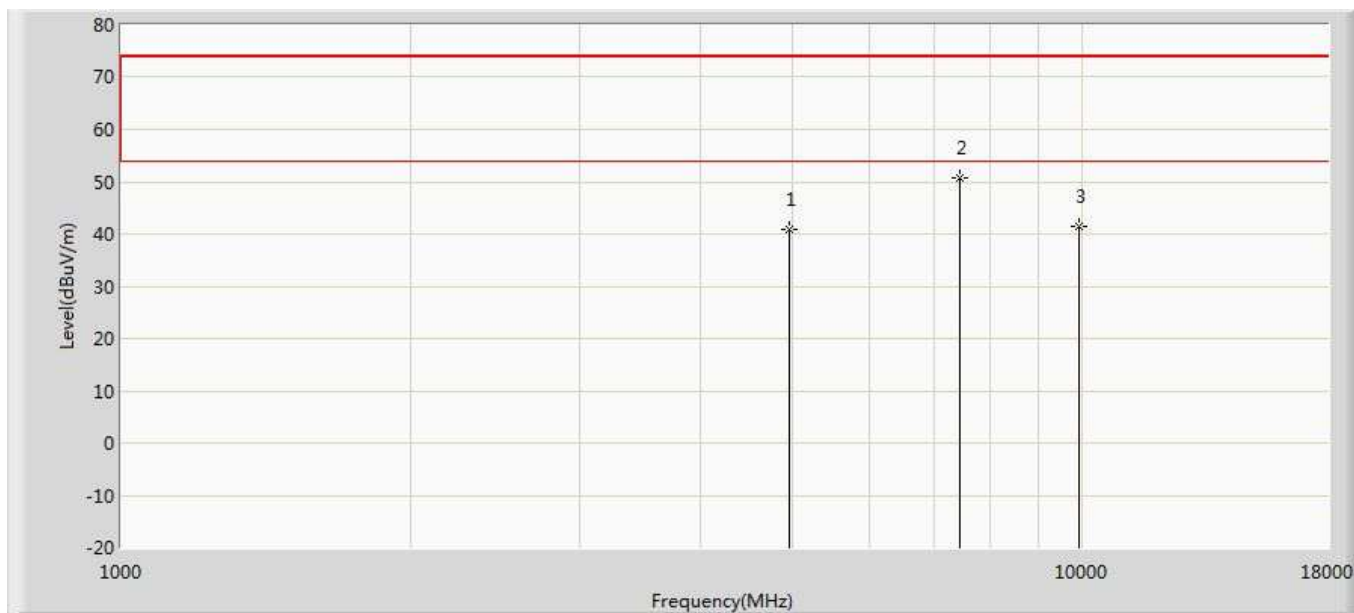
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4884.500	44.084	45.780	-29.916	74.000	-1.696	PK
2	*	7324.000	46.817	44.022	-27.183	74.000	2.795	PK
3		9764.000	42.093	37.824	-31.907	74.000	4.270	PK

Engineer: Damon	
Site: AC5	Time: 2018/01/16 - 21:21
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Solos	Power: AC120V/60Hz
Note: Mode 1:Transmit at channel 2441MHz by DH5	



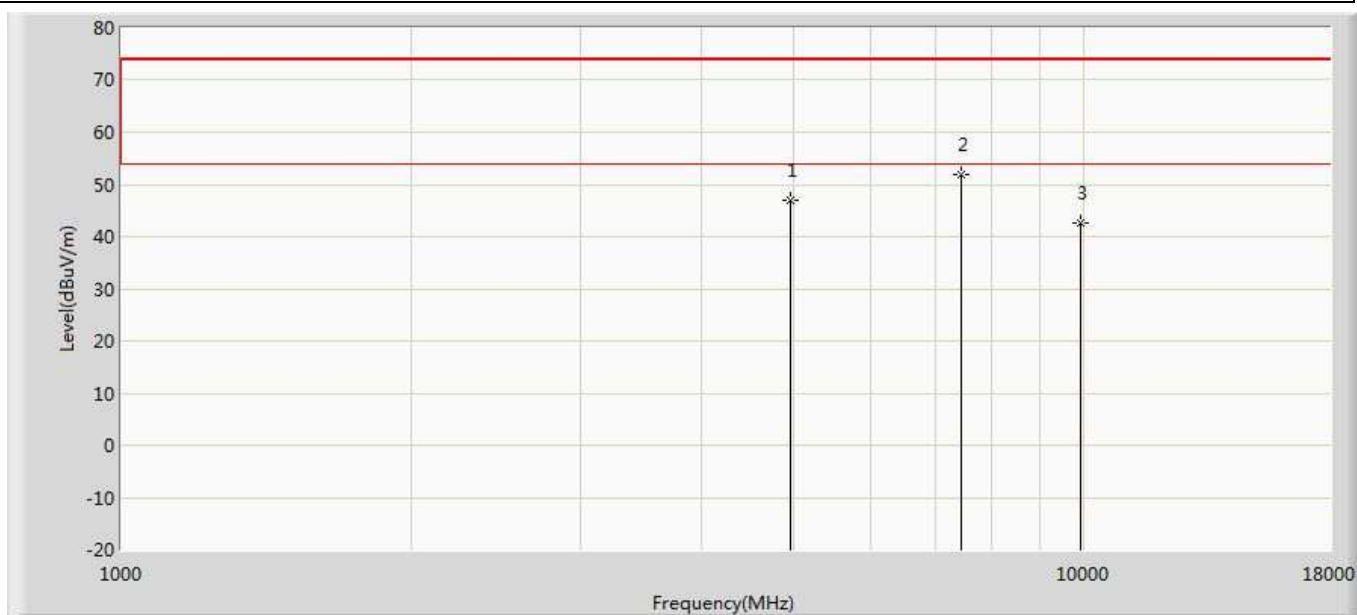
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4884.500	48.444	50.140	-25.556	74.000	-1.696	PK
2	*	7324.000	50.091	47.296	-23.909	74.000	2.795	PK
3		9764.000	43.858	39.589	-30.142	74.000	4.270	PK

Engineer: Damon	
Site: AC5	Time: 2018/01/16 - 21:22
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Solos	Power: AC120V/60Hz
Note: Mode 1:Transmit at channel 2480MHz by DH5	



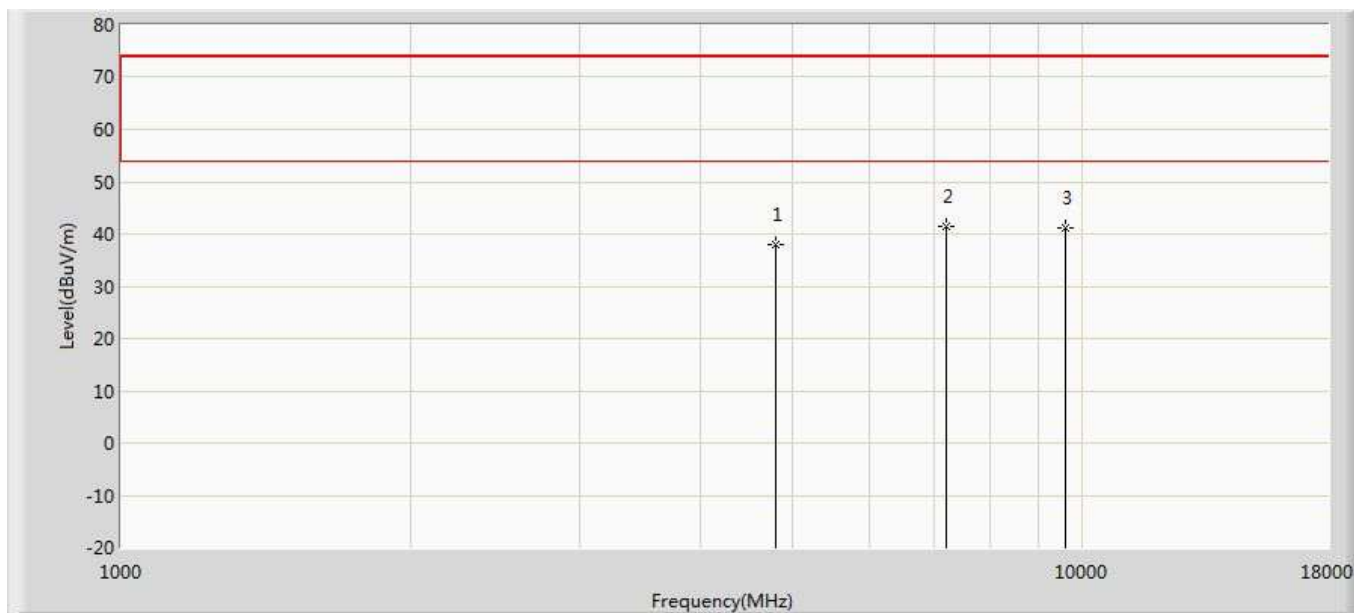
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4960.000	40.883	42.809	-33.117	74.000	-1.926	PK
2	*	7443.000	50.723	48.063	-23.277	74.000	2.660	PK
3		9920.000	41.477	36.346	-32.523	74.000	5.130	PK

Profile: Geer	Page No.: 72
Engineer:	
Site: AC5	Time: 2018/01/16 - 21:45
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Solos	Power: AC120V/60Hz
Note: Mode 1:Transmit at channel 2480MHz by DH5	



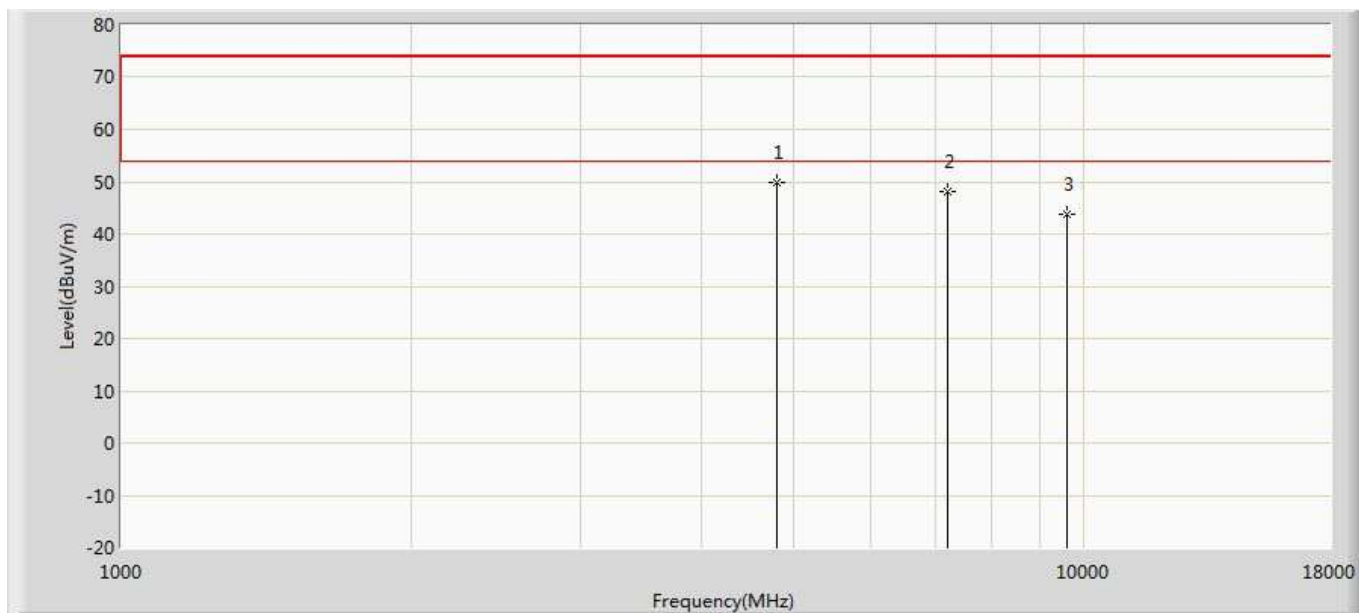
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4961.000	47.045	48.996	-26.955	74.000	-1.951	PK
2	*	7443.000	51.905	49.245	-22.095	74.000	2.660	PK
3		9920.000	42.545	37.414	-31.455	74.000	5.130	PK

Engineer: Damon	
Site: AC5	Time: 2018/01/16 - 21:22
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Solos	Power: AC120V/60Hz
Note: Mode 2:Transmit at channel 2402MHz by 2DH5	



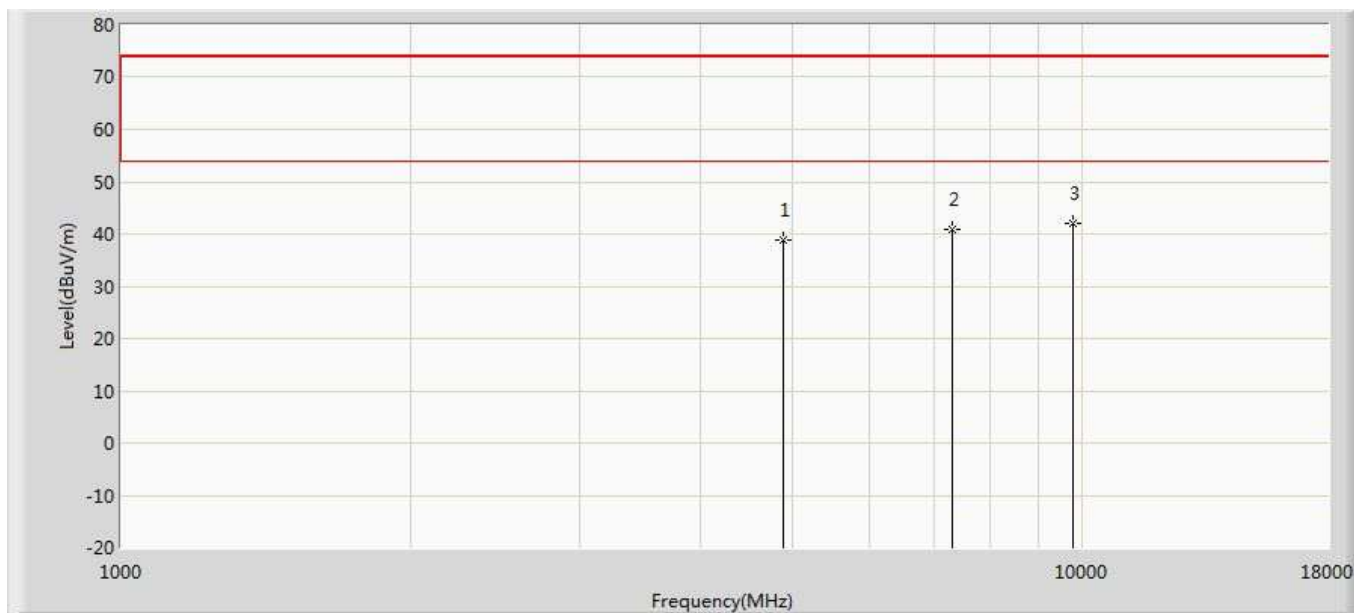
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4804.000	38.035	39.687	-35.965	74.000	-1.652	PK
2	*	7206.000	41.402	38.522	-32.598	74.000	2.880	PK
3		9608.000	41.197	36.370	-32.803	74.000	4.827	PK

Engineer: Damon	
Site: AC5	Time: 2018/01/16 - 21:21
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Solos	Power: AC120V/60Hz
Note: Mode 2:Transmit at channel 2402MHz by 2DH5	



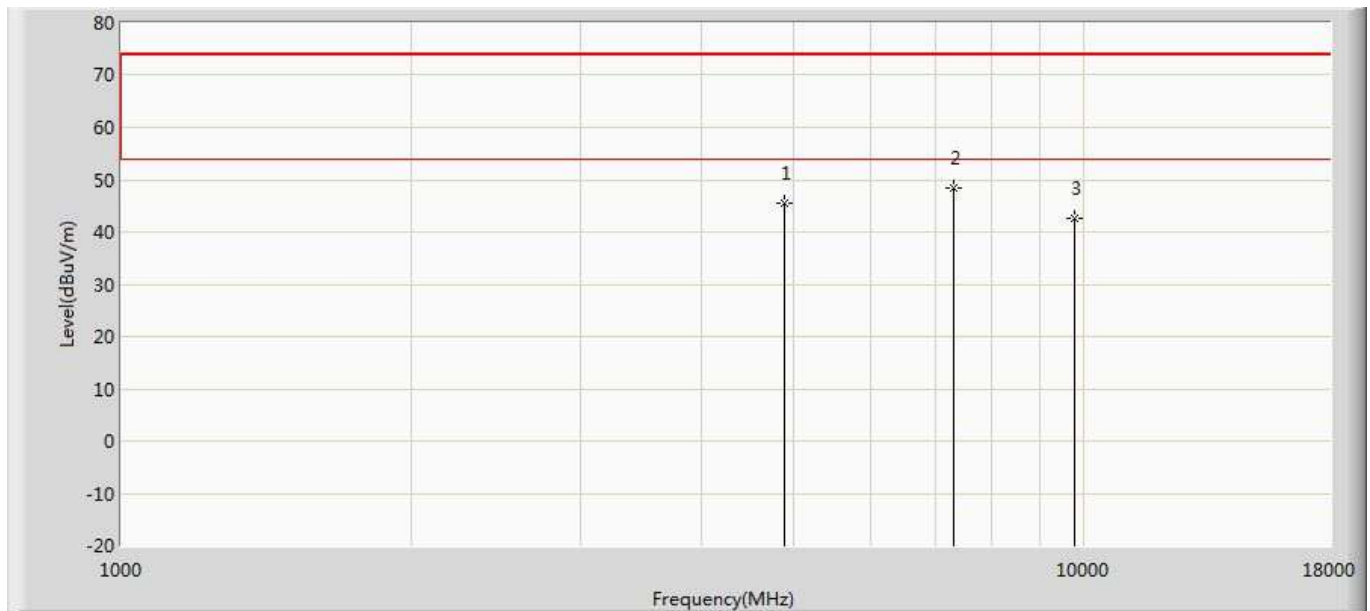
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	4799.500	49.763	51.371	-24.237	74.000	-1.608	PK
2		7205.000	48.142	45.239	-25.858	74.000	2.903	PK
3		9608.000	43.750	38.923	-30.250	74.000	4.827	PK

Engineer: Damon	
Site: AC5	Time: 2018/01/16 - 21:22
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Solos	Power: AC120V/60Hz
Note: Mode 2:Transmit at channel 2441MHz by 2DH5	



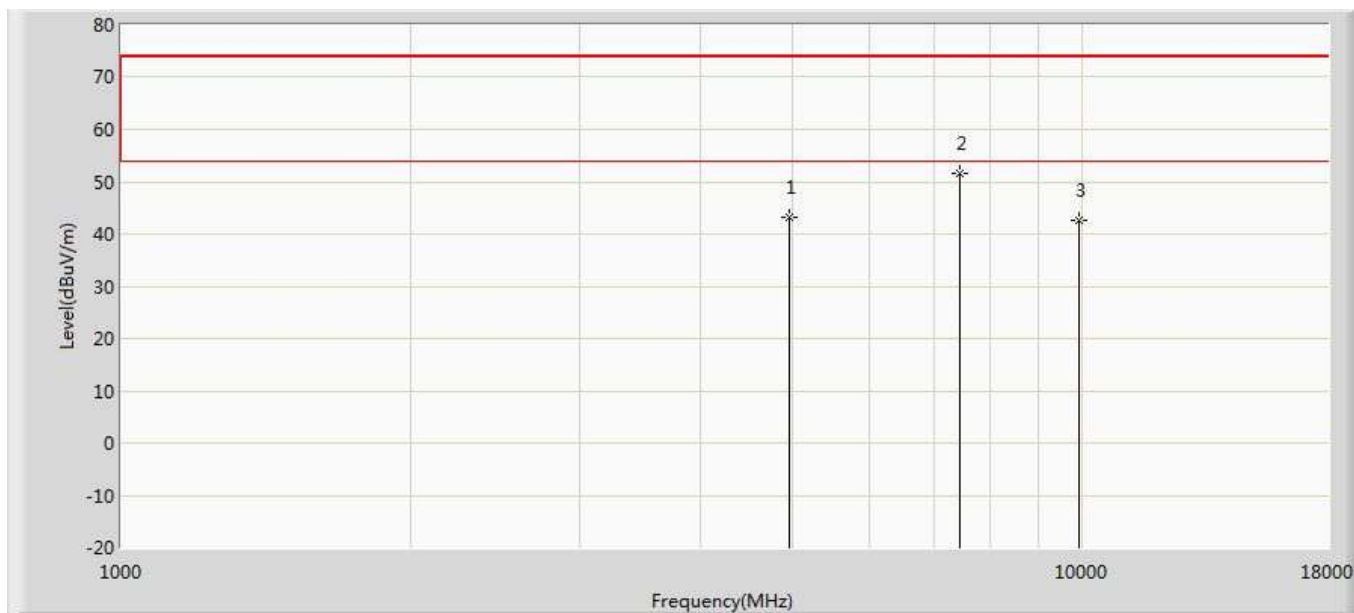
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4882.000	38.891	40.554	-35.109	74.000	-1.663	PK
2		7323.000	40.820	38.019	-33.180	74.000	2.801	PK
3	*	9764.000	42.109	37.840	-31.891	74.000	4.270	PK

Engineer: Damon	
Site: AC5	Time: 2018/01/16 - 21:21
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Solos	Power: AC120V/60Hz
Note: Mode 2:Transmit at channel 2441MHz by 2DH5	



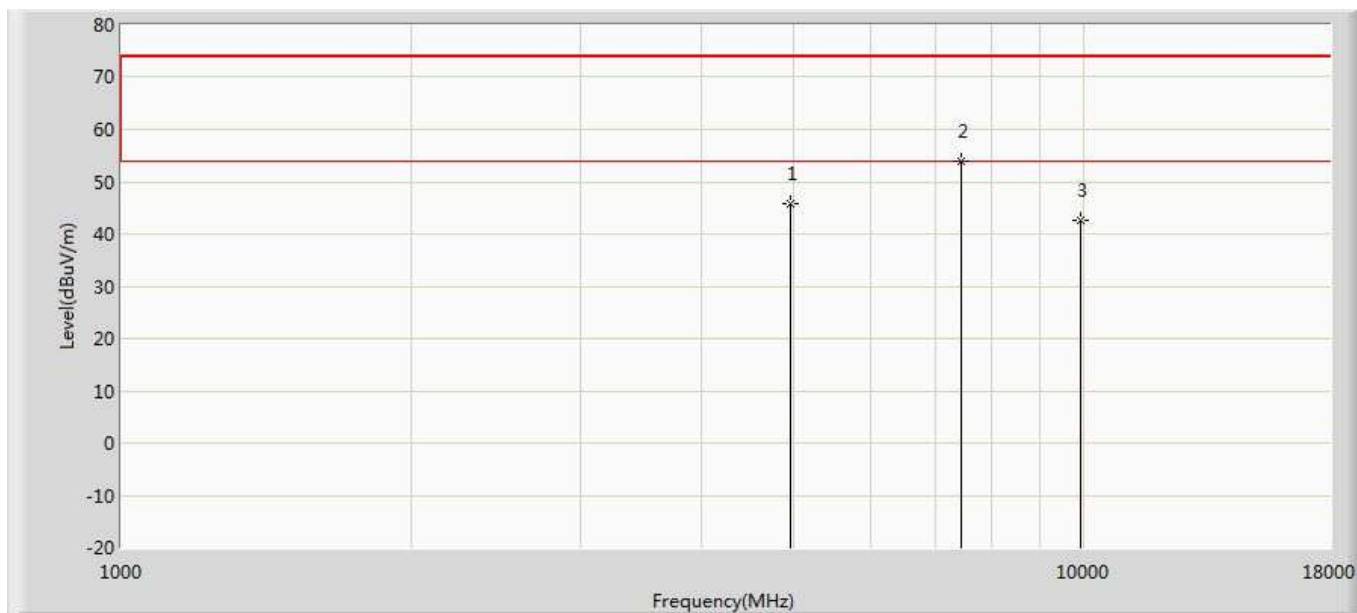
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4884.500	45.651	47.347	-28.349	74.000	-1.696	PK
2	*	7324.000	48.429	45.634	-25.571	74.000	2.795	PK
3		9764.000	42.732	38.463	-31.268	74.000	4.270	PK

Engineer: Damon	
Site: AC5	Time: 2018/01/16 - 21:23
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Solos	Power: AC120V/60Hz
Note: Mode 2:Transmit at channel 2480MHz by 2DH5	



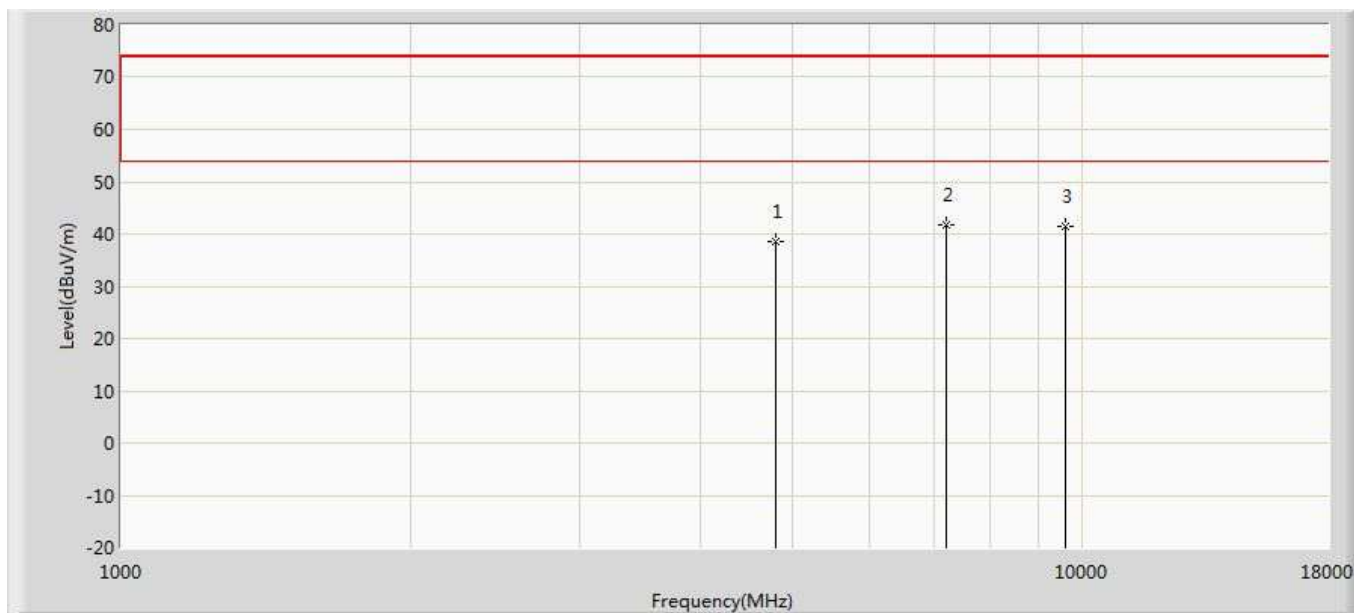
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4960.000	43.186	45.112	-30.814	74.000	-1.926	PK
2	*	7443.000	51.540	48.880	-22.460	74.000	2.660	PK
3		9920.000	42.631	37.500	-31.369	74.000	5.130	PK

Engineer: Damon	
Site: AC5	Time: 2018/01/16 - 21:22
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Solos	Power: AC120V/60Hz
Note: Mode 2:Transmit at channel 2480MHz by 2DH5	



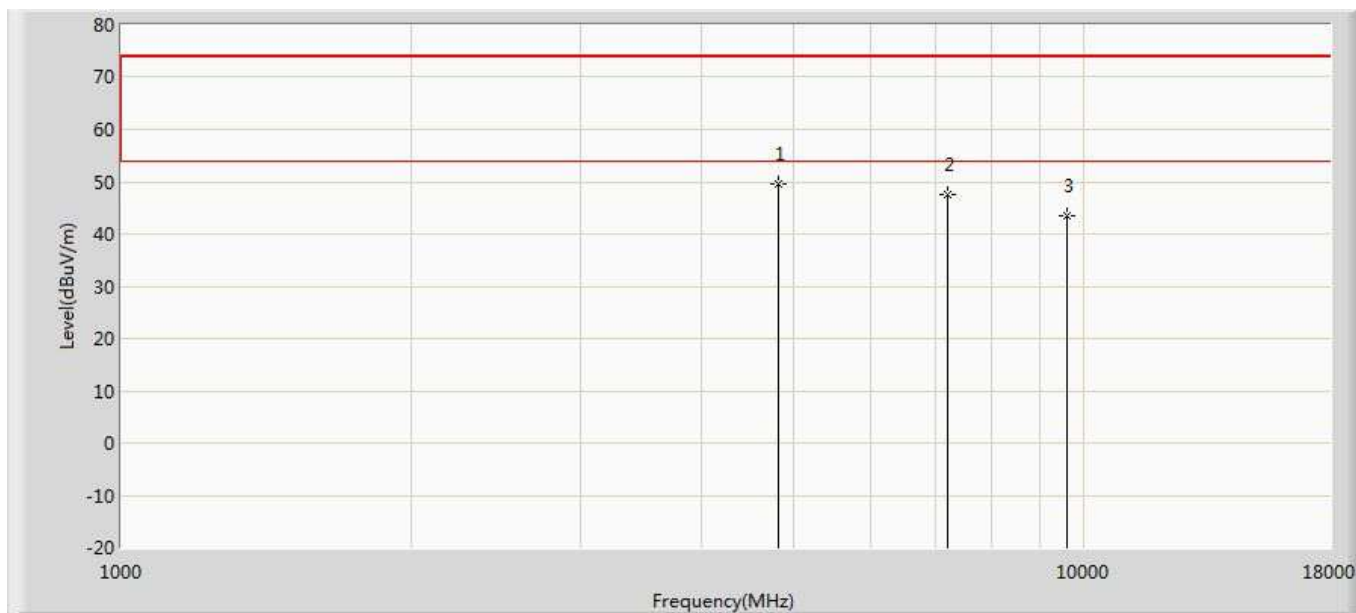
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4961.000	45.663	47.614	-28.337	74.000	-1.951	PK
2	*	7443.000	53.951	51.291	-20.049	74.000	2.660	PK
3		9920.000	42.571	37.440	-31.429	74.000	5.130	PK

Engineer: Damon	
Site: AC5	Time: 2018/01/16 - 21:23
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Solos	Power: AC120V/60Hz
Note: Mode 3:Transmit at channel 2402MHz by 3DH5	



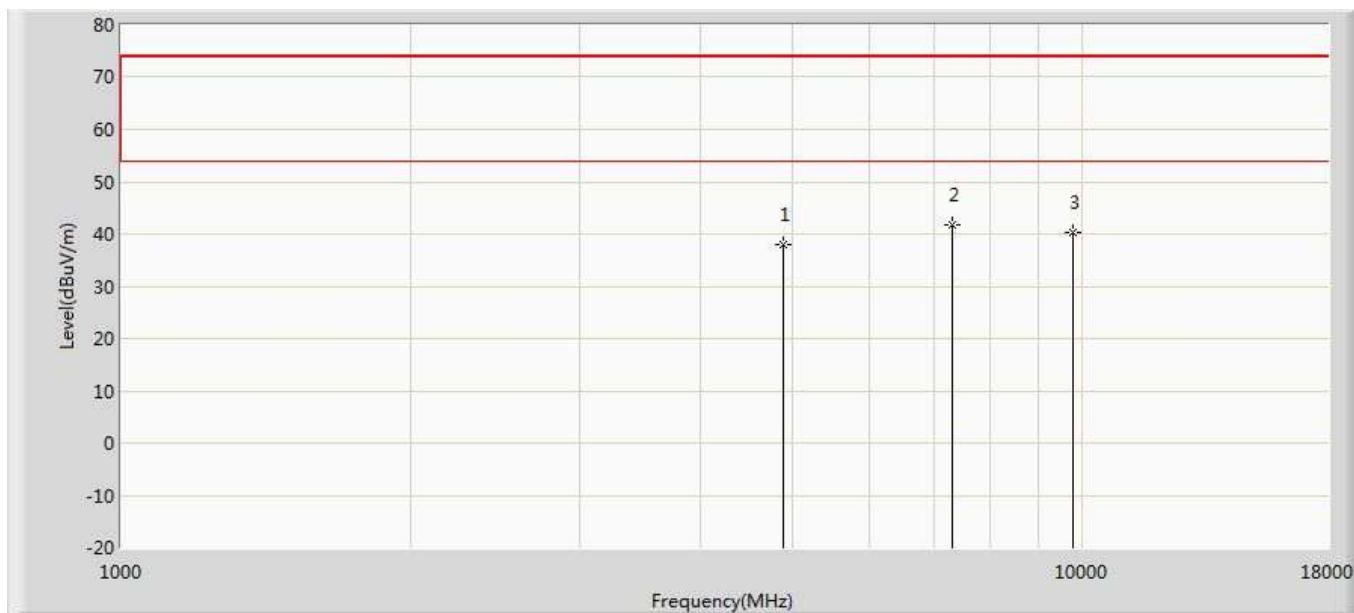
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4804.000	38.459	40.111	-35.541	74.000	-1.652	PK
2	*	7206.000	41.815	38.935	-32.185	74.000	2.880	PK
3		9608.000	41.509	36.682	-32.491	74.000	4.827	PK

Engineer: Damon	
Site: AC5	Time: 2018/01/16 - 21:22
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Solos	Power: AC120V/60Hz
Note: Mode 3:Transmit at channel 2402MHz by 3DH5	



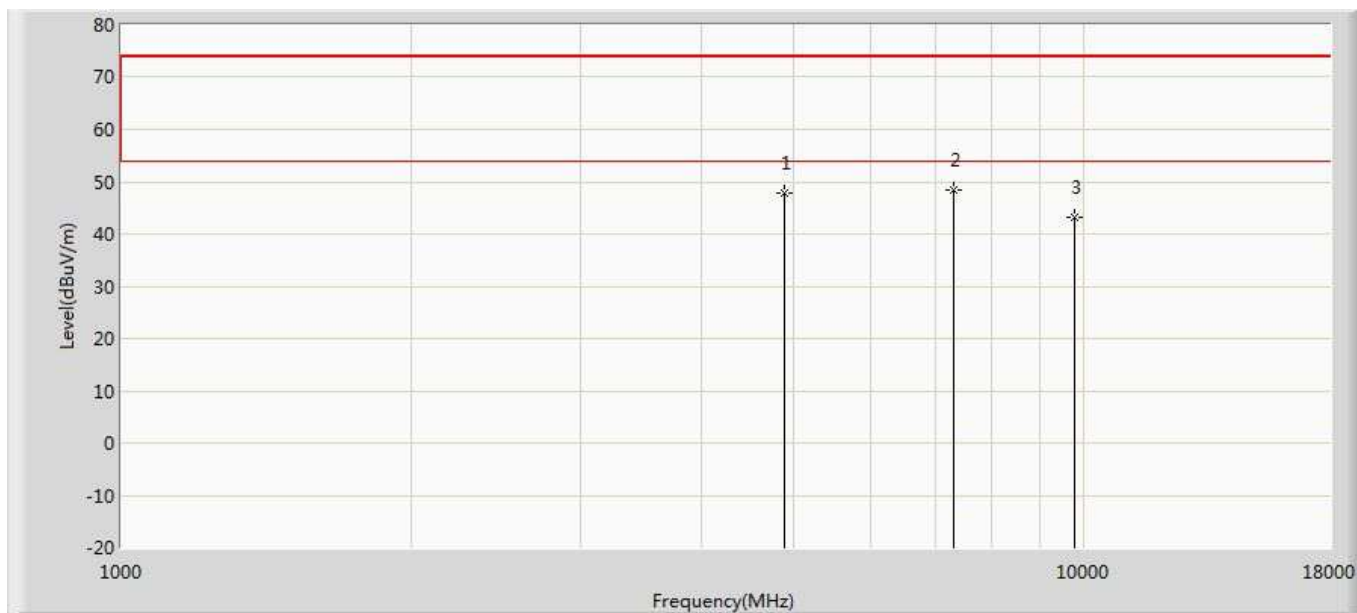
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	4808.000	49.635	51.326	-24.365	74.000	-1.691	PK
2		7205.000	47.506	44.603	-26.494	74.000	2.903	PK
3		9608.000	43.540	38.713	-30.460	74.000	4.827	PK

Engineer: Damon	
Site: AC5	Time: 2018/01/16 - 21:23
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Solos	Power: AC120V/60Hz
Note: Mode 3:Transmit at channel 2441MHz by 3DH5	



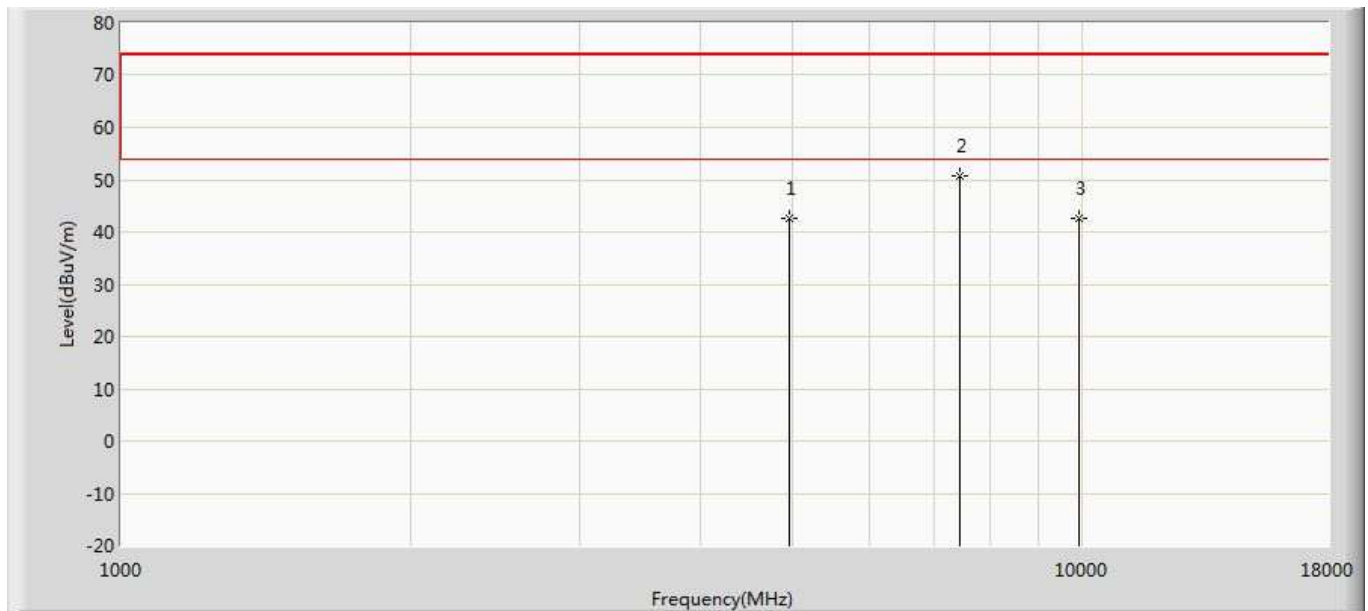
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4882.000	38.051	39.714	-35.949	74.000	-1.663	PK
2	*	7323.000	41.645	38.844	-32.355	74.000	2.801	PK
3		9764.000	40.167	35.898	-33.833	74.000	4.270	PK

Engineer: Damon	
Site: AC5	Time: 2018/01/16 - 21:22
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Solos	Power: AC120V/60Hz
Note: Mode 3:Transmit at channel 2441MHz by 3DH5	



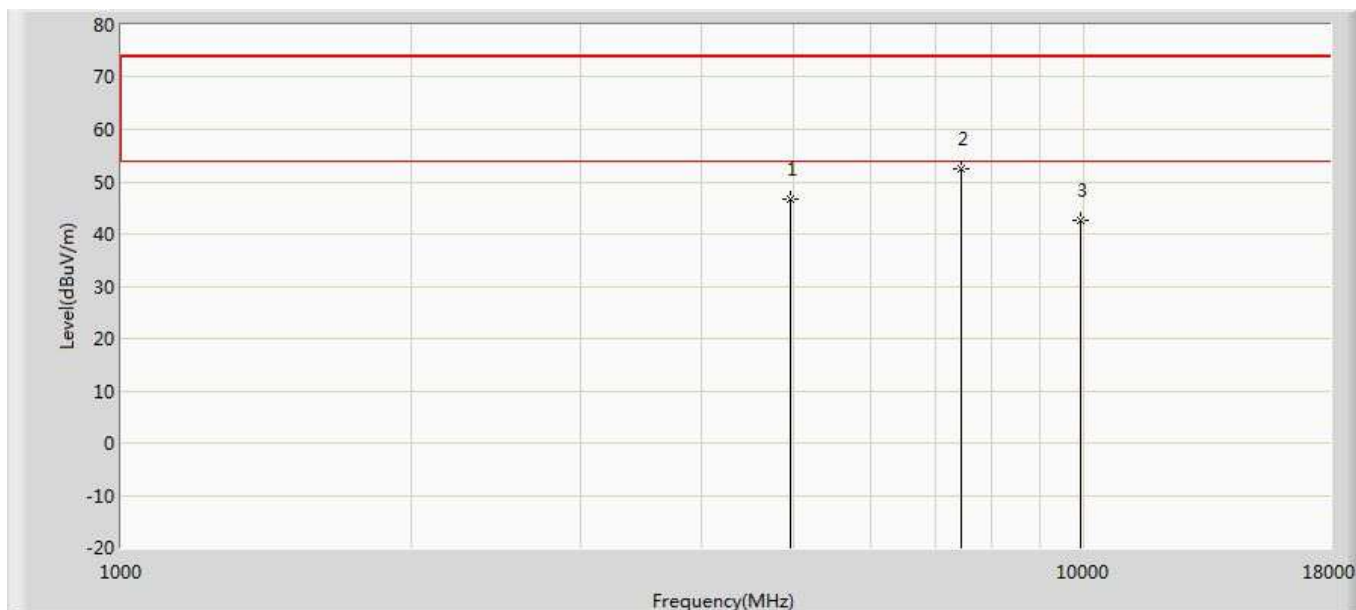
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4884.500	47.751	49.447	-26.249	74.000	-1.696	PK
2	*	7324.000	48.399	45.604	-25.601	74.000	2.795	PK
3		9764.000	43.046	38.777	-30.954	74.000	4.270	PK

Engineer: Damon	
Site: AC5	Time: 2018/01/16 - 21:23
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Solos	Power: AC120V/60Hz
Note: Mode 3:Transmit at channel 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	42.752	44.678	-31.248	74.000	-1.926	PK
2	*	7443.000	50.701	48.041	-23.299	74.000	2.660	PK
3		9920.000	42.719	37.588	-31.281	74.000	5.130	PK

Engineer: Damon	
Site: AC5	Time: 2018/01/16 - 21:22
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Solos	Power: AC120V/60Hz
Note: Mode 3:Transmit at channel 2480MHz by 3DH5	



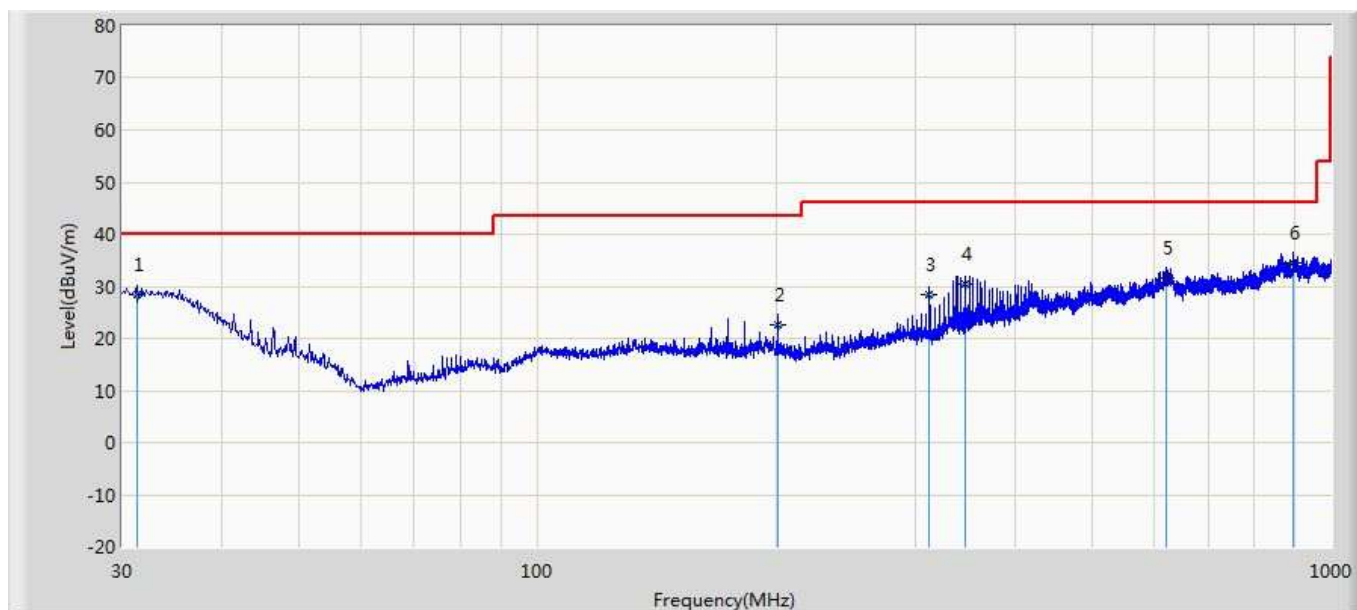
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4961.000	46.600	48.551	-27.400	74.000	-1.951	PK
2	*	7443.000	52.572	49.912	-21.428	74.000	2.660	PK
3		9920.000	42.637	37.506	-31.363	74.000	5.130	PK

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: Bob Yu	
Site: AC2	Time: 2017/12/15
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: AC2_3M(30-1000M)	Polarity: Horizontal
EUT: Solos	Power: AC 120V/60Hz
Note: Mode 1: Transmit at 2402MHz by DH5	

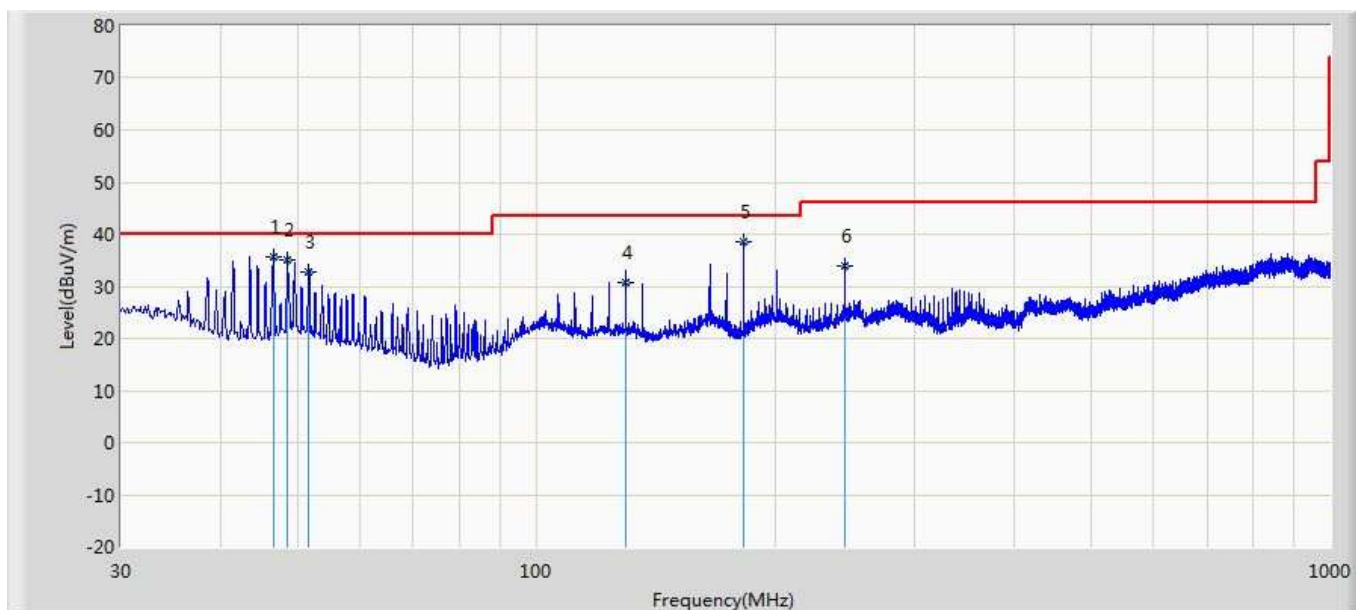


No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Probe (dB/m)	Cable (dB)	Amp (dB)	Ant Pos (cm)	Table Pos (deg)	Type
1		31.334	28.285	0.800	-11.715	40.000	20.851	6.634	0.000	100	50	QP
2		201.084	22.675	4.800	-20.825	43.500	10.529	7.346	0.000	200	66	QP
3		312.027	28.338	7.300	-17.662	46.000	13.377	7.660	0.000	200	165	QP
4		346.099	30.443	8.300	-15.557	46.000	14.371	7.772	0.000	100	130	QP
5		620.972	31.735	0.900	-14.265	46.000	22.276	8.559	0.000	100	171	QP
6	*	896.570	34.413	1.800	-11.587	46.000	23.371	9.242	0.000	100	30	QP

Note:

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

Engineer: Bob Yu	
Site: AC2	Time: 2017/12/18
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: AC2_3M(30-1000M)	Polarity: Vertical
EUT: Solos	Power: AC 120V/60Hz
Note: Mode 1: Transmit at 2402MHz by DH5	



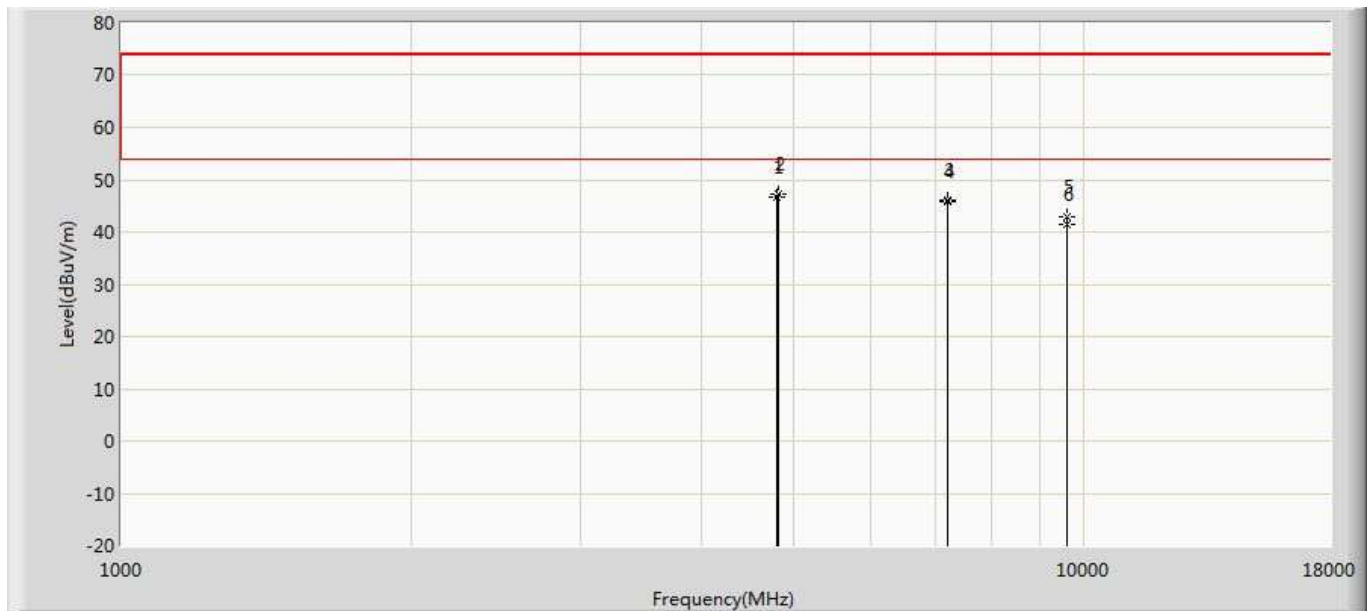
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Probe (dB/m)	Cable (dB)	Amp (dB)	Ant Pos (cm)	Table Pos (deg)	Type
1	*	46.676	35.586	17.100	-4.414	40.000	11.905	6.580	0.000	100	208	QP
2		48.670	34.934	15.700	-5.066	40.000	12.670	6.564	0.000	200	180	QP
3		51.704	32.845	13.900	-7.155	40.000	12.372	6.573	0.000	100	222	QP
4		129.667	30.589	10.100	-12.911	43.500	13.428	7.061	0.000	100	79	QP
5		182.411	38.537	19.200	-4.963	43.500	12.032	7.304	0.000	200	106	QP
6		244.490	33.854	10.000	-12.146	46.000	16.310	7.544	0.000	200	155	QP

Note:

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

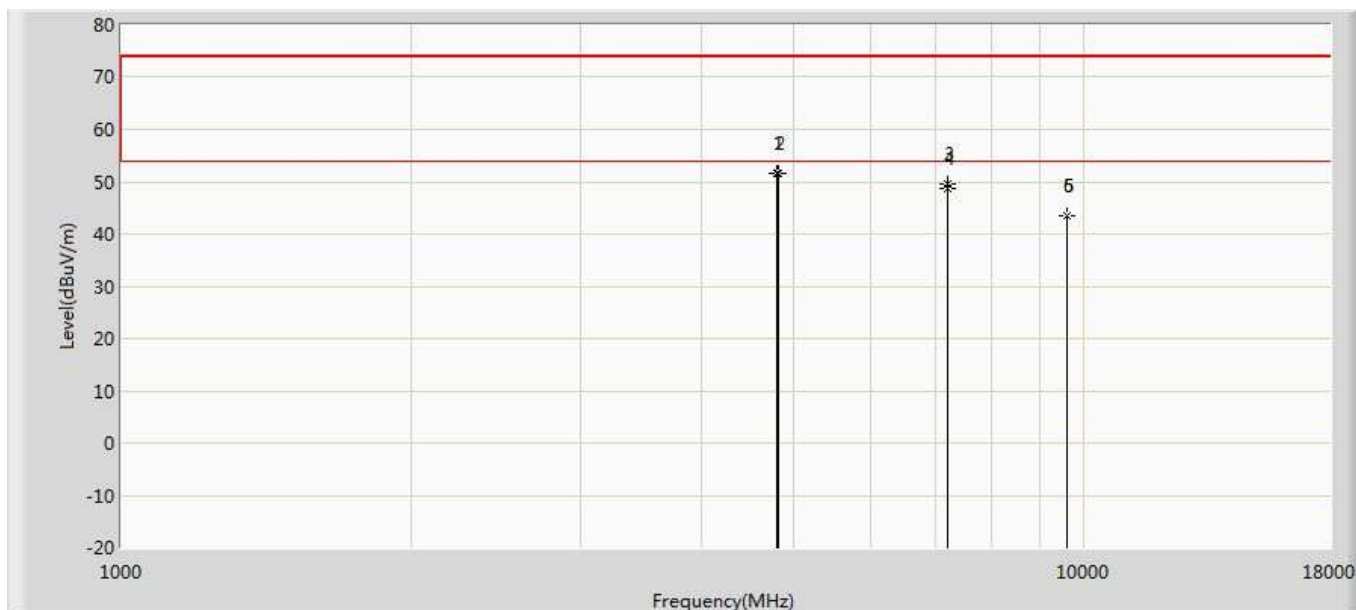
The worst case of Simultaneous Radiated Emission:

Engineer: Damon	
Site: AC5	Time: 2018/01/17 - 18:07
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Solos	Power: AC120V/60Hz
Note: Mode 1:Transmit at channel 2402MHz by DH5+BLE	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4804.000	46.571	48.223	-27.429	74.000	-1.652	PK
2	*	4808.000	47.153	48.844	-26.847	74.000	-1.691	PK
3		7205.000	46.170	43.267	-27.830	74.000	2.903	PK
4		7206.000	45.756	42.876	-28.244	74.000	2.880	PK
5		9608.000	42.778	37.951	-31.222	74.000	4.827	PK
6		9608.350	41.384	36.548	-32.616	74.000	4.836	PK

Engineer: Damon	
Site: AC5	Time: 2018/01/17 - 18:08
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Solos	Power: AC120V/60Hz
Note: Mode 1:Transmit at channel 2402MHz by DH5+BLE	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		4804.000	51.486	53.138	-22.514	74.000	-1.652	PK
2	*	4808.000	51.615	53.306	-22.385	74.000	-1.691	PK
3		7205.000	49.462	46.559	-24.538	74.000	2.903	PK
4		7206.000	48.697	45.817	-25.303	74.000	2.880	PK
5		9608.000	43.588	38.761	-30.412	74.000	4.827	PK
6		9608.000	43.588	38.761	-30.412	74.000	4.827	PK

Note:

1. Measured Level = Reading Level + Factor.
2. The test frequency range, 9kHz~30MHz, 18GHz~40GHz, 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.

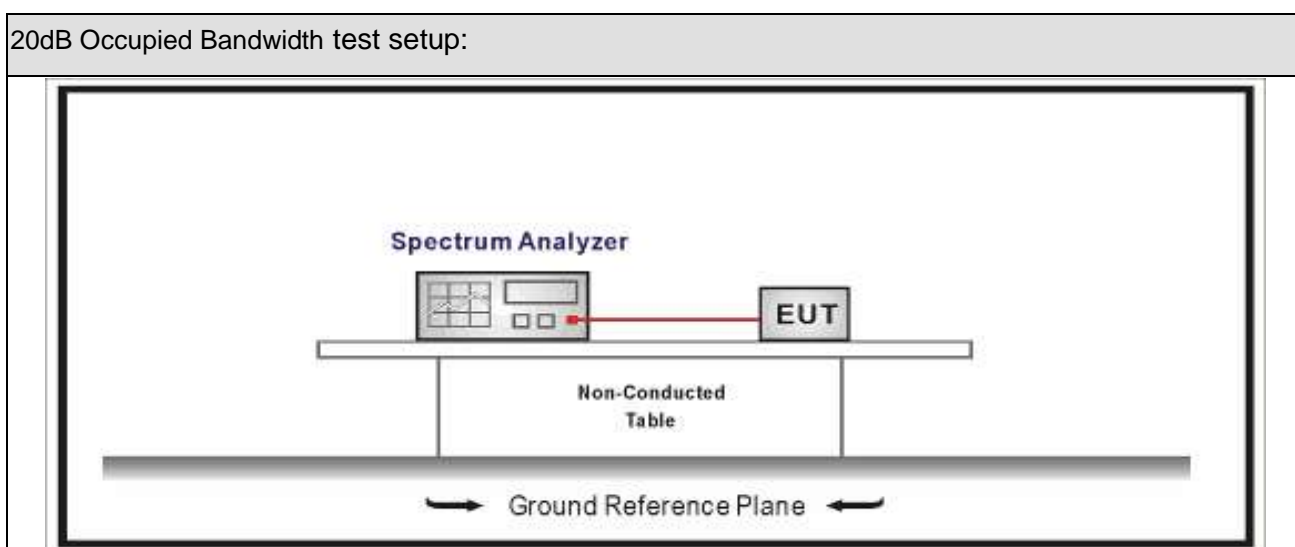
5. 20dB Bandwidth

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	2017.02.04	2018.02.03
EXA Spectrum Analyzer	Keysight	N9010A	MY55370495	2017.04.09	2018.04.08
MXA Signal Analyzer	Keysight	N9020A	MY56060147	2017.04.09	2018.04.08
Temperature/Humidity Meter	zhichen	ZC1-2	TR8-TH	2017.04.10	2018.04.09

Note: All equipment are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.

5.2 Test Setup



5.3 Limit

Carrier Frequency Separation	
<input checked="" type="checkbox"/>	For frequency hopping systems operating in 2400-2483.5 MHz band, within frequency range.
<input type="checkbox"/>	For frequency hopping systems operating in 902-928 MHz band, the maximum allowed 20 dB bandwidth of the hopping channel is 500 kHz.
<input type="checkbox"/>	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
<input checked="" type="checkbox"/>	DA 00-705	N/A	20 dB Bandwidth

5.5 Uncertainty

The measurement uncertainty is defined as ± 1 kHz

5.6 Test Result

Product Name	: Solos	Power	: AC 120V/60Hz
Test Mode	: Mode 1	Test Site	: TR-8
Test Date	: 2017.12.13	Test Engineer	: Damon

Channel No.	Frequency (MHz)	20dB Bandwidth (kHz)	99% Bandwidth (kHz)
00	2402	879.4	830.80
39	2441	920.4	869.63
78	2480	881.6	857.89

Channel 00 (2402MHz)

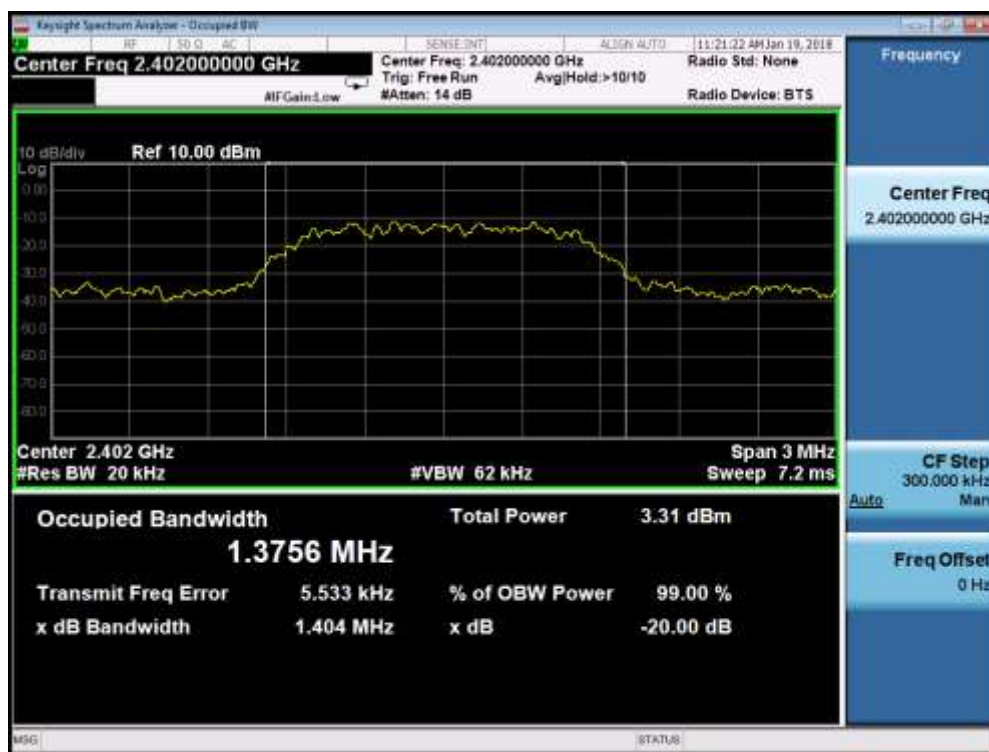


Channel 39 (2441MHz)**Channel 78 (2480MHz)**

Product Name	: Solos	Power	: AC 120V/60Hz
Test Mode	: Mode 2	Test Site	: TR-8
Test Date	: 2018.01.19	Test Engineer	: Damon

Channel No.	Frequency (MHz)	20dB Bandwidth (kHz)	99% Bandwidth (kHz)
00	2402	1404	1375.6
39	2441	1396	1310.8
78	2480	1389	1270.7

Channel 00 (2402MHz)



Channel 39 (2441MHz)



Channel 78 (2480MHz)



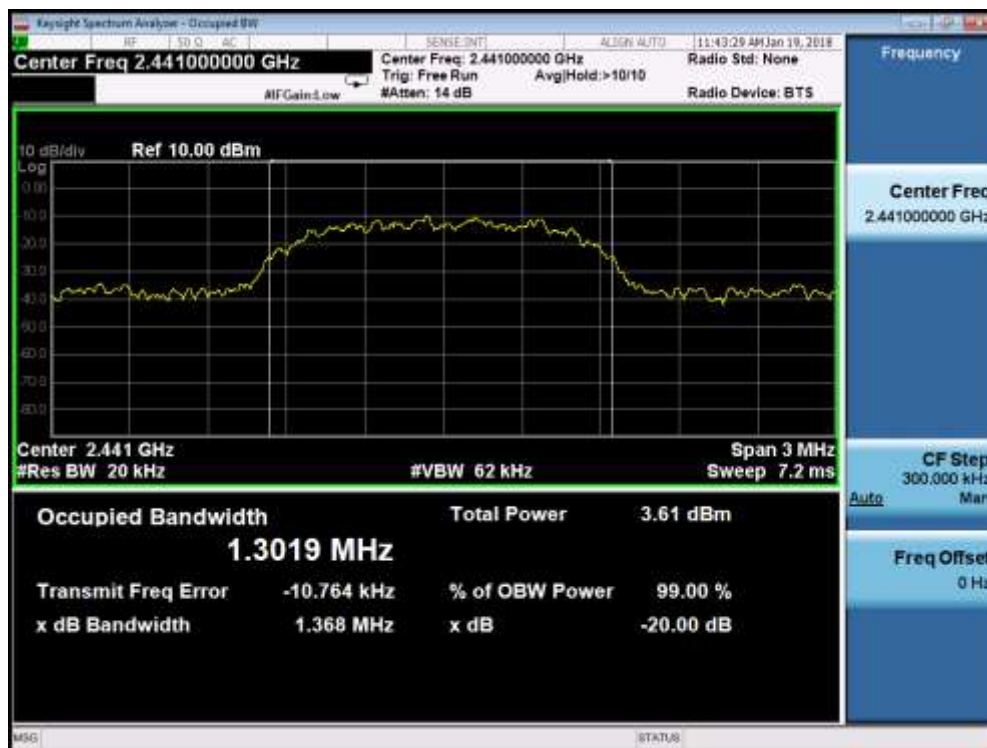
Product Name	: Solos	Power	: AC 120V/60Hz
Test Mode	: Mode 3	Test Site	: TR-8
Test Date	: 2018.01.19	Test Engineer	: Damon

Channel No.	Frequency (MHz)	20dB Bandwidth (kHz)	99% Bandwidth (kHz)
00	2402	1389	1353.1
39	2441	1368	1301.9
78	2480	1360	1259.3

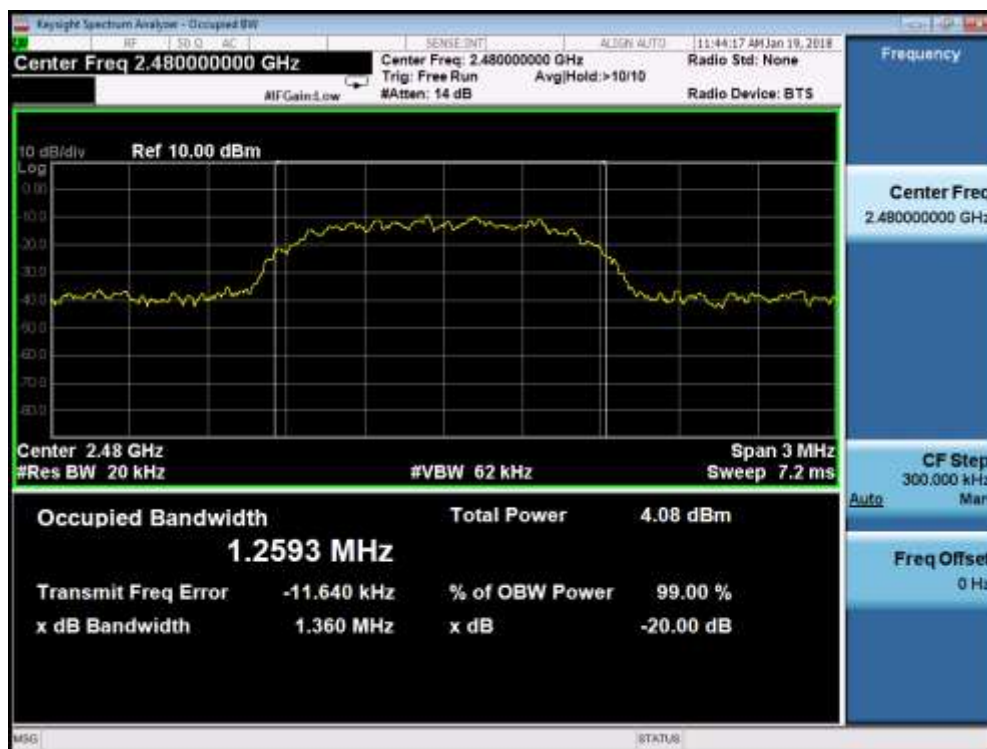
Channel 00 (2402MHz)



Channel 39 (2441MHz)



Channel 78 (2480MHz)



6. Carrier Frequency Separation

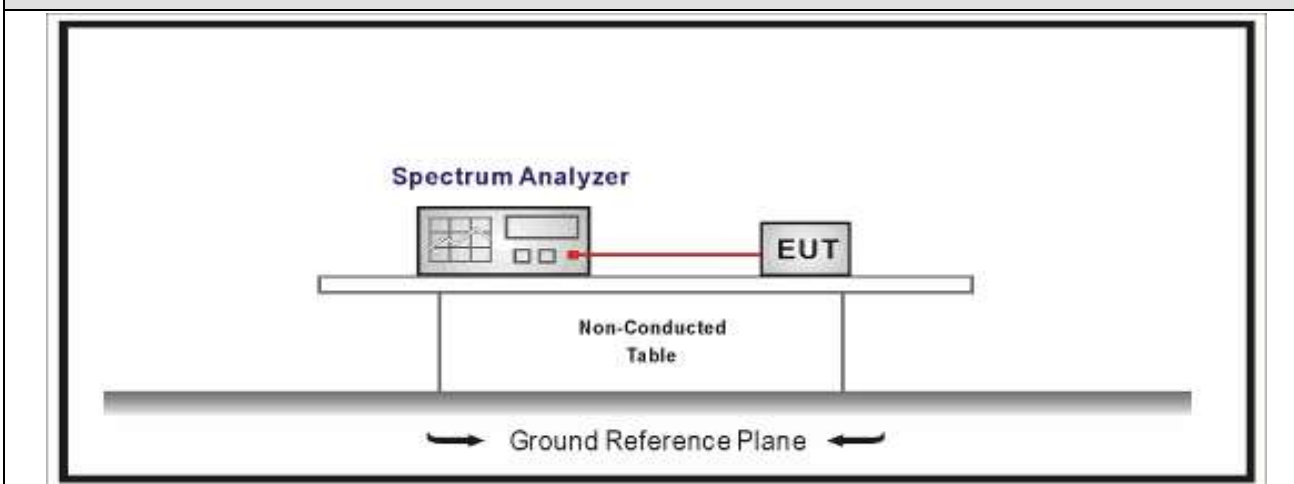
6.1. Test Equipment

Carrier Frequency Separation / TR-8					
Instrument	Manufacturer	Type No.	Serial No.	Cal. Date	Cal. Due Date
Spectrum Analyzer	Agilent	N9010A	MY48030494	2017.02.04	2018.02.03
EXA Spectrum Analyzer	Keysight	N9010A	MY55370495	2017.04.09	2018.04.08
MXA Signal Analyzer	Keysight	N9020A	MY56060147	2017.04.09	2018.04.08
Temperature/Humidity Meter	zhichen	ZC1-2	TR8-TH	2017.04.10	2018.04.09

Note: All equipment are 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	
<input type="checkbox"/>	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.
<input checked="" type="checkbox"/>	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.
<input type="checkbox"/>	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;
<input type="checkbox"/>	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.
<input type="checkbox"/>	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
<input checked="" type="checkbox"/>	ANSI C63.10	7.8.2	Carrier frequency separation

6.5. Uncertainty

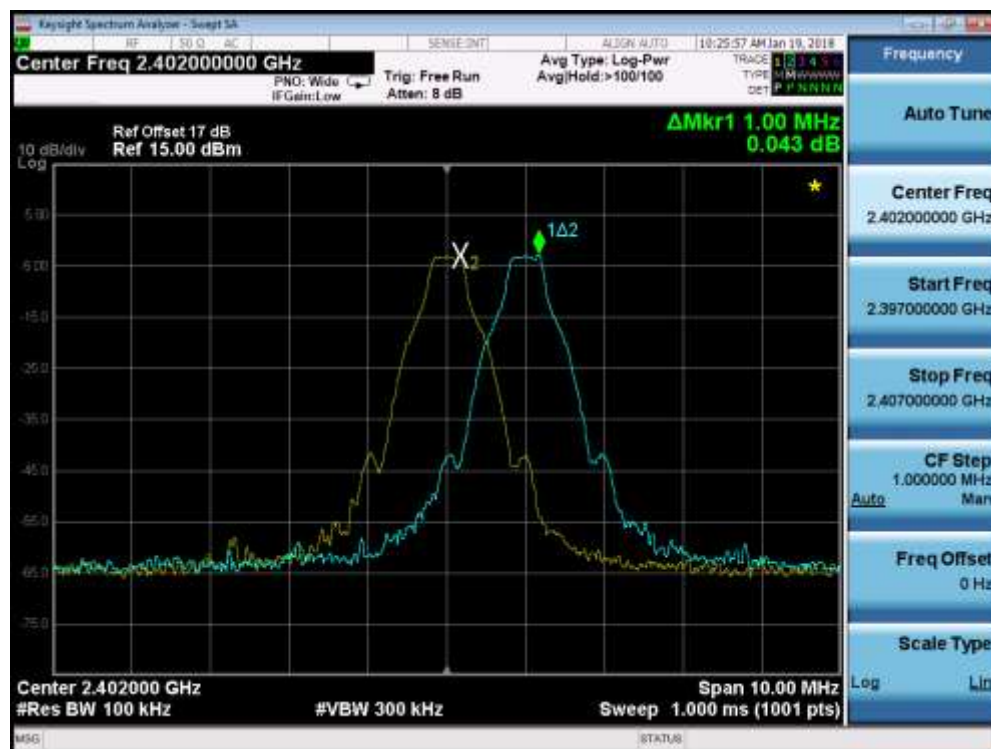
The measurement uncertainty is defined as ± 1 kHz

6.6. Test Result

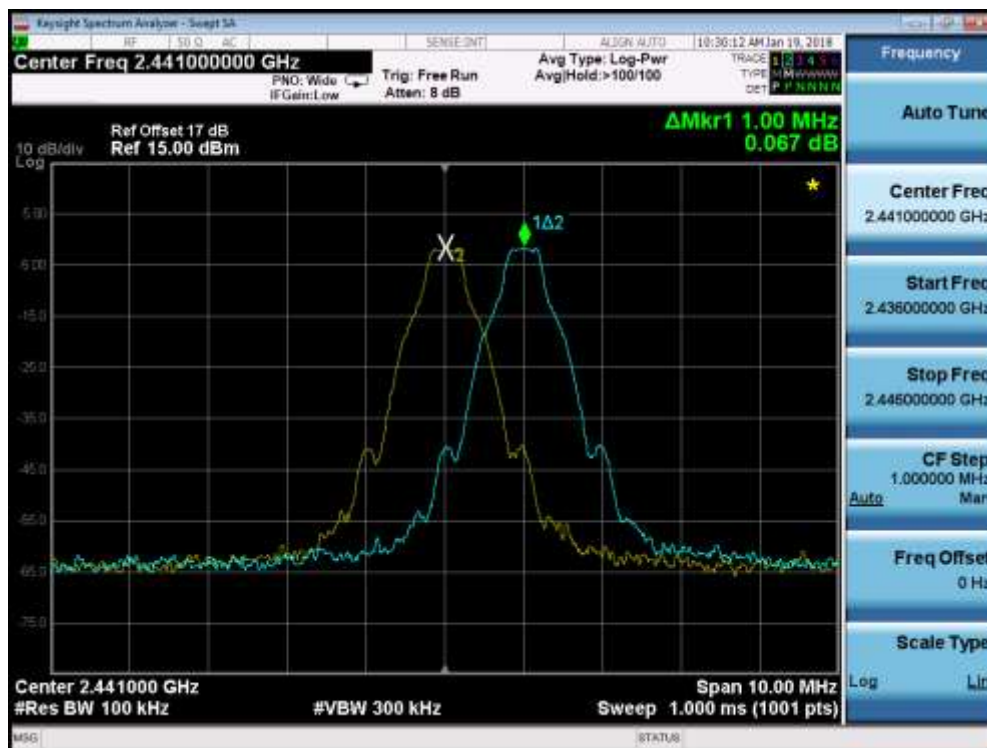
Product Name	: Solos	Power	: AC 120V/60Hz
Test Mode	: Mode 1	Test Site	: TR-8
Test Date	: 2018.01.19	Test Engineer	: Tommy

Channel No.	Frequency (MHz)	Carrier Frequency Separation (kHz)	Limit (kHz)	Result
00	2402	1000	586.3	Pass
39	2441	1000	613.6	Pass
78	2480	1000	587.7	Pass

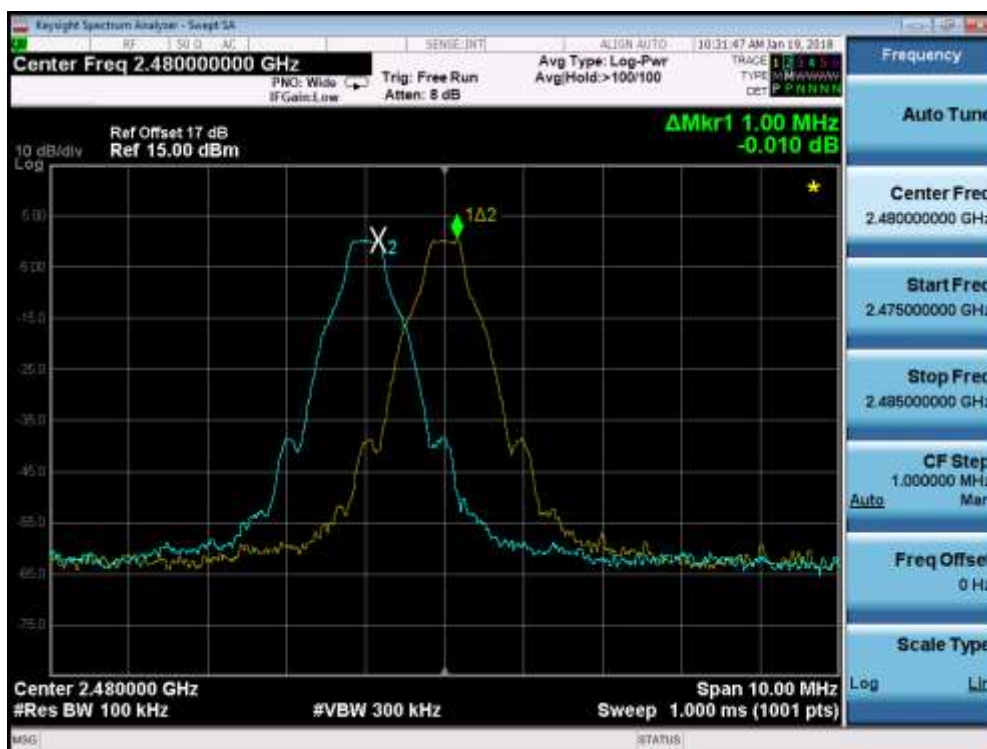
Channel 00 (2402MHz)



Channel 39 (2441MHz)



Channel 78 (2480MHz)



Product Name	: Solos	Power	: AC 120V/60Hz
Test Mode	: Mode 2	Test Site	: TR-8
Test Date	: 2018.01.19	Test Engineer	: Tommy

Channel No.	Frequency (MHz)	Carrier Frequency Separation (kHz)	Limit (kHz)	Result
00	2402	1000	936.0	Pass
39	2441	1000	930.7	Pass
78	2480	1000	926.0	Pass

Channel 00 (2402MHz)



Channel 39 (2441MHz)



Channel 78 (2480MHz)



Product Name	: Solos	Power	: AC 120V/60Hz
Test Mode	: Mode 3	Test Site	: TR-8
Test Date	: 2018.01.19	Test Engineer	: Tommy

Channel No.	Frequency (MHz)	Carrier Frequency Separation (kHz)	Limit (kHz)	Result
00	2402	1000	926.0	Pass
39	2441	1000	912.0	Pass
78	2480	1000	906.7	Pass

Channel 00 (2402MHz)



Channel 39 (2441MHz)



Channel 78 (2480MHz)

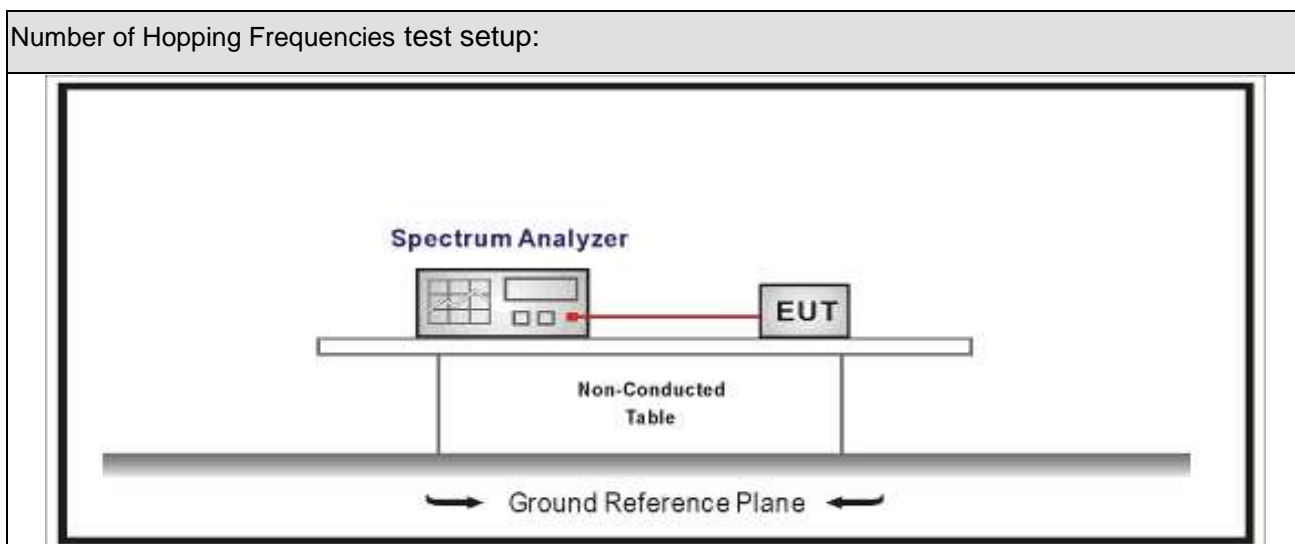


7. Number of Hopping Frequencies

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	2017.02.04	2018.02.03
EXA Spectrum Analyzer	Keysight	N9010A	MY55370495	2017.04.09	2018.04.08
MXA Signal Analyzer	Keysight	N9020A	MY56060147	2017.04.09	2018.04.08
Temperature/Humidity Meter	zhichen	ZC1-2	TR8-TH	2017.04.10	2018.04.09
Note: All equipment are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.					

7.2. Test Setup



7.3. Limit

Carrier Frequency Separation	
<input checked="" type="checkbox"/>	For frequency hopping systems operating in the 2400-2483.5 MHz band shall use at least 15 hopping frequencies.
<input type="checkbox"/>	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.
<input type="checkbox"/>	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.
<input type="checkbox"/>	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
<input checked="" type="checkbox"/>	ANSI C63.10	7.8.3	Number of Hopping Frequencies

7.5. Uncertainty

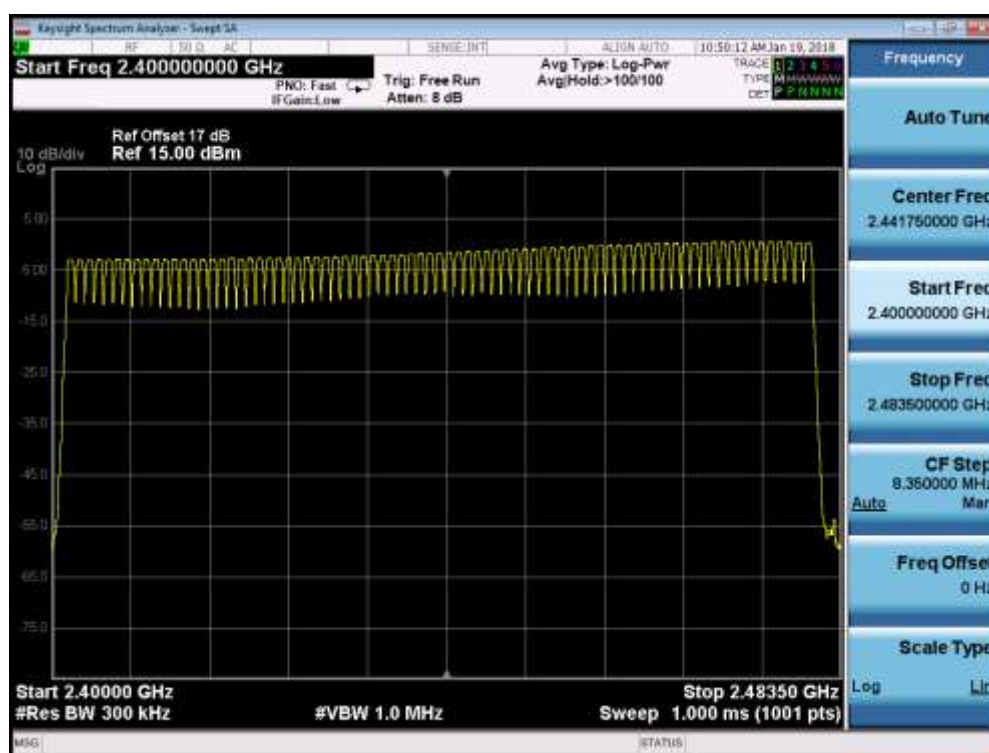
The measurement uncertainty is defined as ± 1 kHz

7.6. Test Result

Product Name	: Solos	Power	: AC 120V/60Hz
Test Mode	: Mode 1	Test Site	: TR-8
Test Date	: 2018.01.19	Test Engineer	: Tommy

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

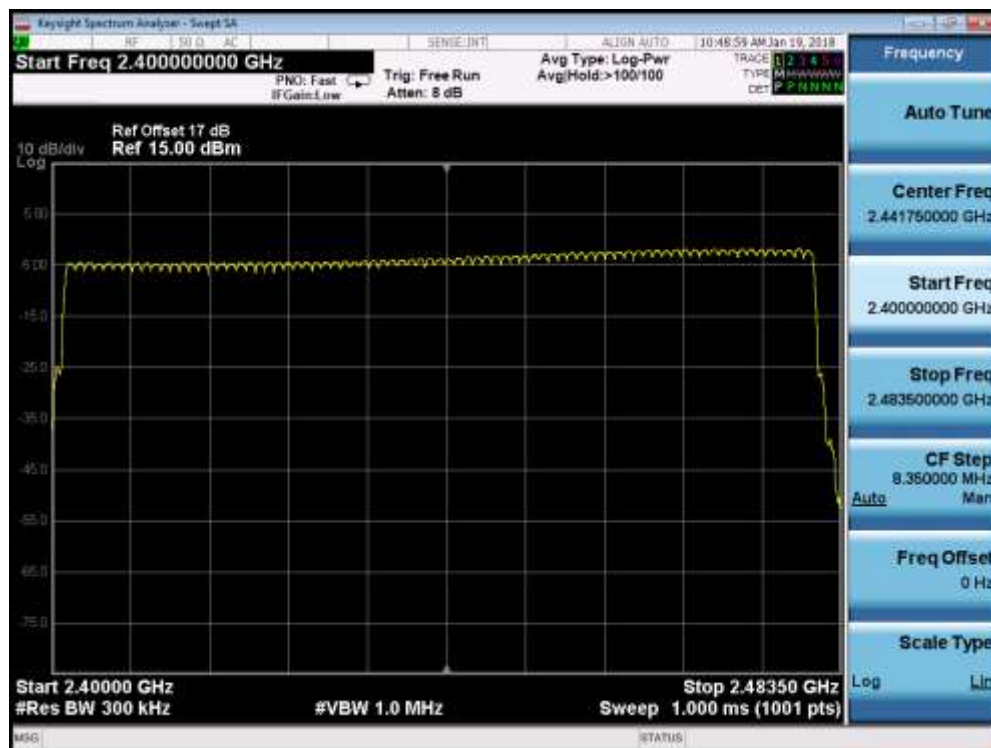
2402 - 2480MHz



Product Name	: Solos	Power	: AC 120V/60Hz
Test Mode	: Mode 2	Test Site	: TR-8
Test Date	: 2018.01.19	Test Engineer	: Tommy

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

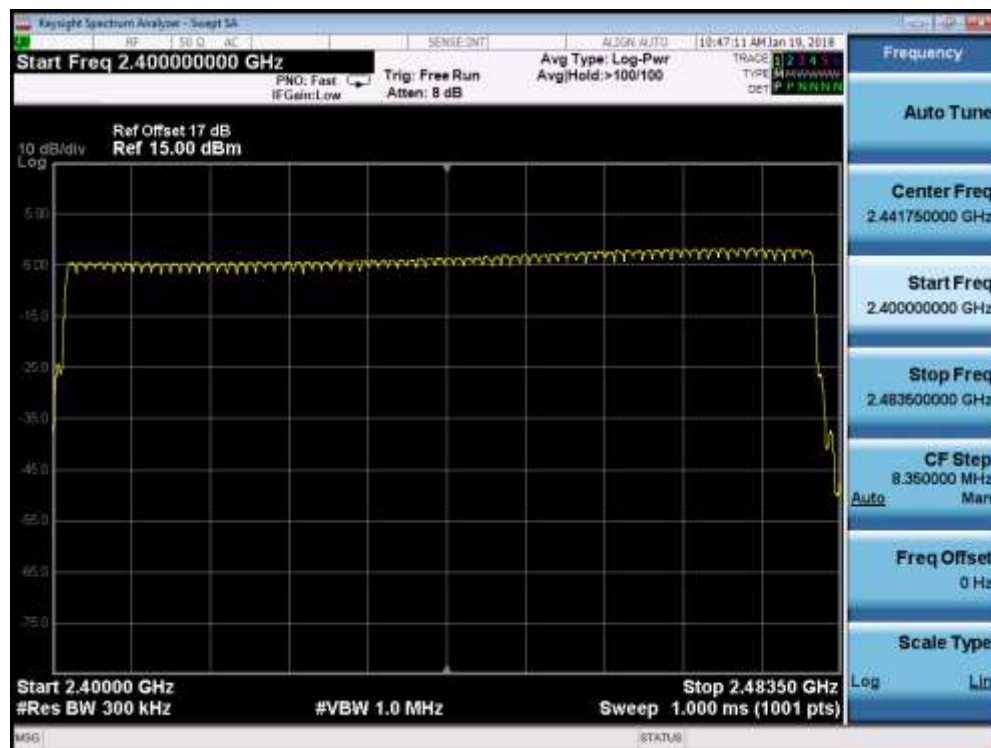
2402 - 2480 MHz



Product Name	: Solos	Power	: AC 120V/60Hz
Test Mode	: Mode 3	Test Site	: TR-8
Test Date	: 2018.01.19	Test Engineer	: Tommy

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

2402 - 2480 MHz

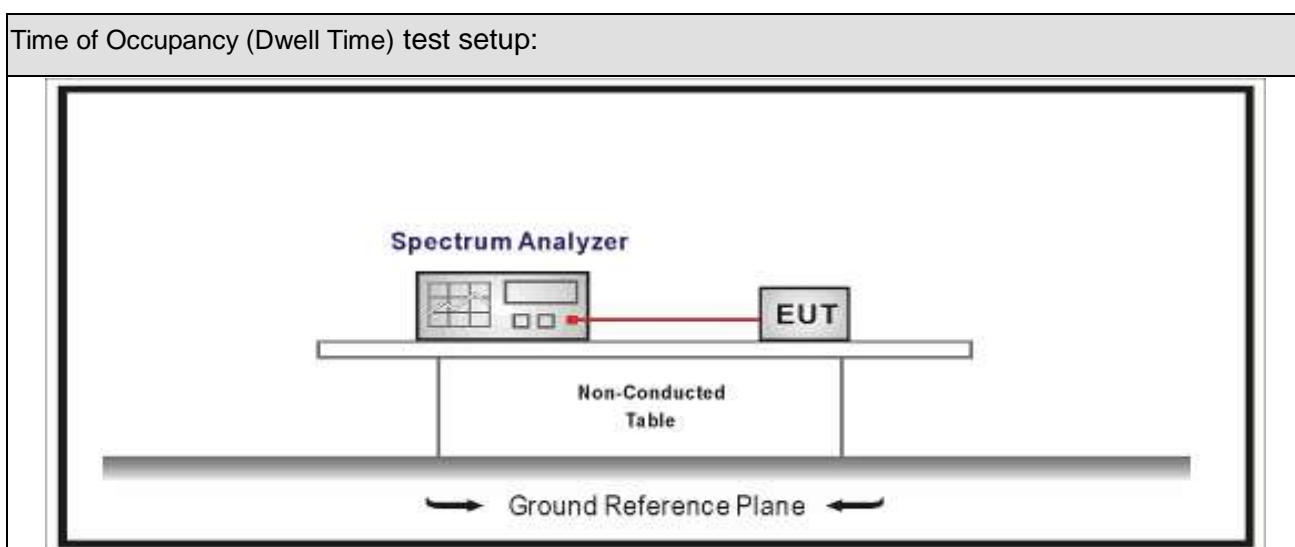


8. Time of Occupancy (Dwell Time)

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	2017.02.04	2018.02.03
EXA Spectrum Analyzer	Keysight	N9010A	MY55370495	2017.04.09	2018.04.08
MXA Signal Analyzer	Keysight	N9020A	MY56060147	2017.04.09	2018.04.08
Temperature/Humidity Meter	zhichen	ZC1-2	TR8-TH	2017.04.10	2018.04.09
Note: All equipment are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.					

8.2. Test Setup



8.3. Limit

Time of Occupancy (Dwell Time)	
<input checked="" type="checkbox"/>	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.
<input type="checkbox"/>	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
<input type="checkbox"/>	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.
<input type="checkbox"/>	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
<input checked="" type="checkbox"/>	ANSI C63.10	7.8.4	Time of Occupancy (Dwell Time)

8.5. Uncertainty

The measurement uncertainty is defined as $\pm 0.1 \text{ us}$

8.6. Test Result

Product Name	: Solos	Power	: AC 120V/60Hz
Test Mode	: Mode 1(GFSK_DH5)	Test Site	: TR-8
Test Date	: 2018.01.19	Test Engineer	: Damon

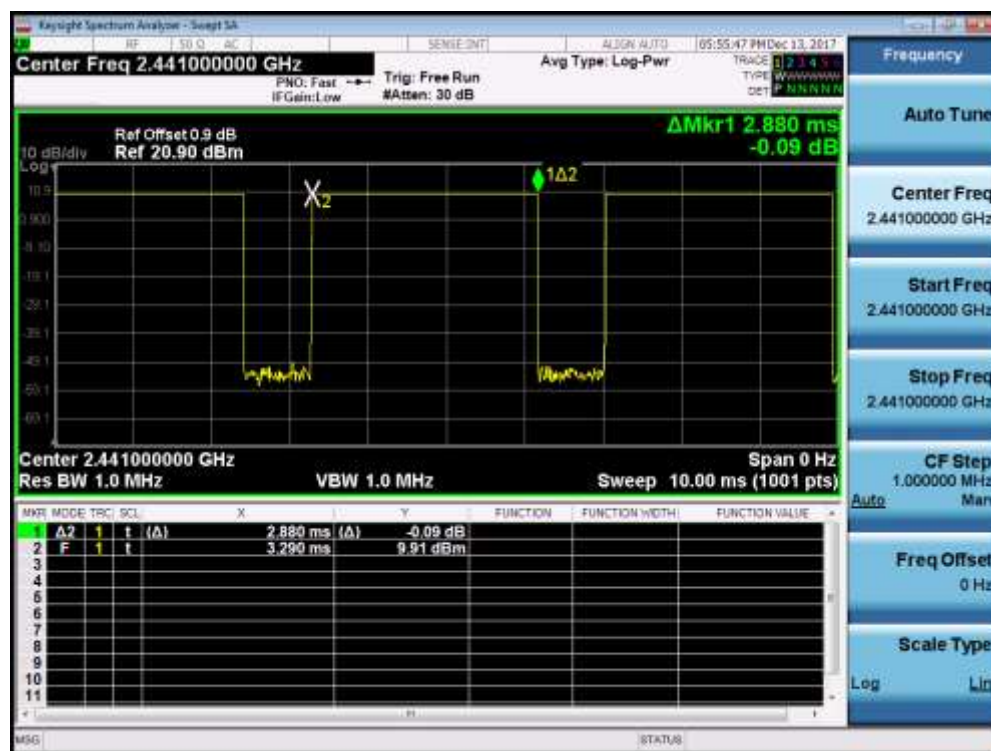
Channel No.	Frequency (MHz)	Time of Occupancy (ms)	Limit (ms)	Result
39	2441	307.2	< 400	Pass

Note1: Test Time Period: $0.4 \times 79 = 31.6 \text{ sec}$

Note2: Time of Occupancy= pulse time $\times (1600 / (6 \times 79)) \times 31.6$

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

Channel 39 (2441MHz)-(DH5)



Product Name	: Solos	Power	: AC 120V/60Hz
Test Mode	: Mode 2(Pi/4 DQPSK_DH5)	Test Site	: TR-8
Test Date	: 2018.01.19	Test Engineer	: Damon

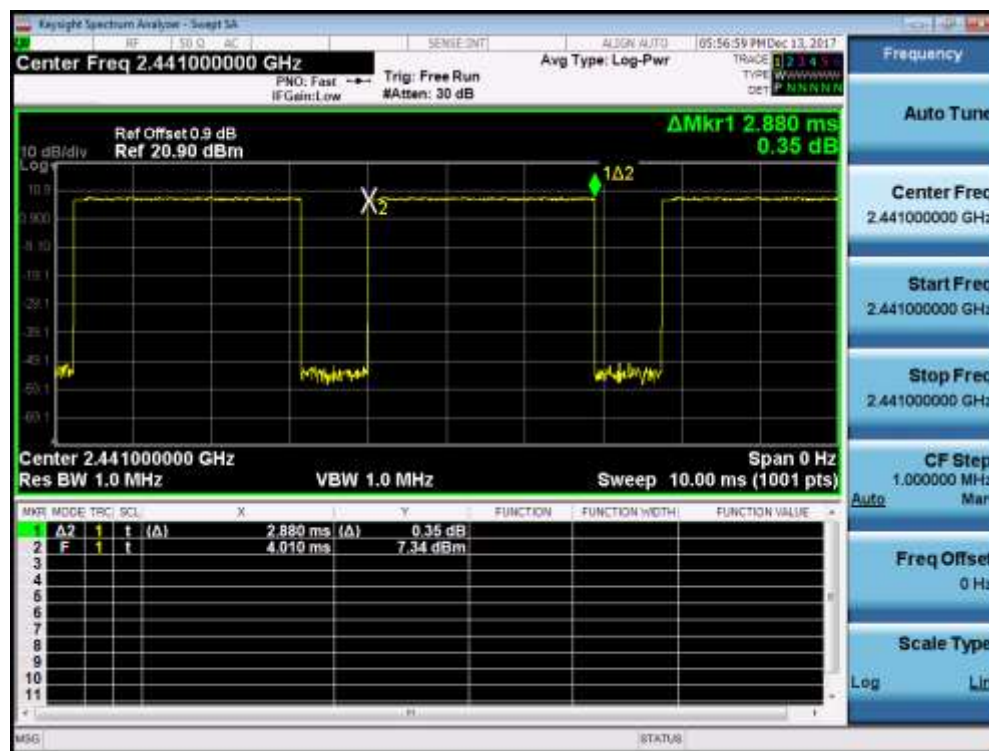
Channel No.	Frequency (MHz)	Time of Occupancy (ms)	Limit (ms)	Result
39	2441	307.2	< 400	Pass

Note1: Test Time Period: $0.4 \times 79 = 31.6$ sec

Note2: Time of Occupancy= pulse time*(1600/(6*79))*31.6

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

Channel 39 (2441MHz) - (2DH5)



Product Name	: Solos	Power	: AC 120V/60Hz
Test Mode	: Mode 3(8DPSK_DH5)	Test Site	: TR-8
Test Date	: 2018.01.19	Test Engineer	: Tommy

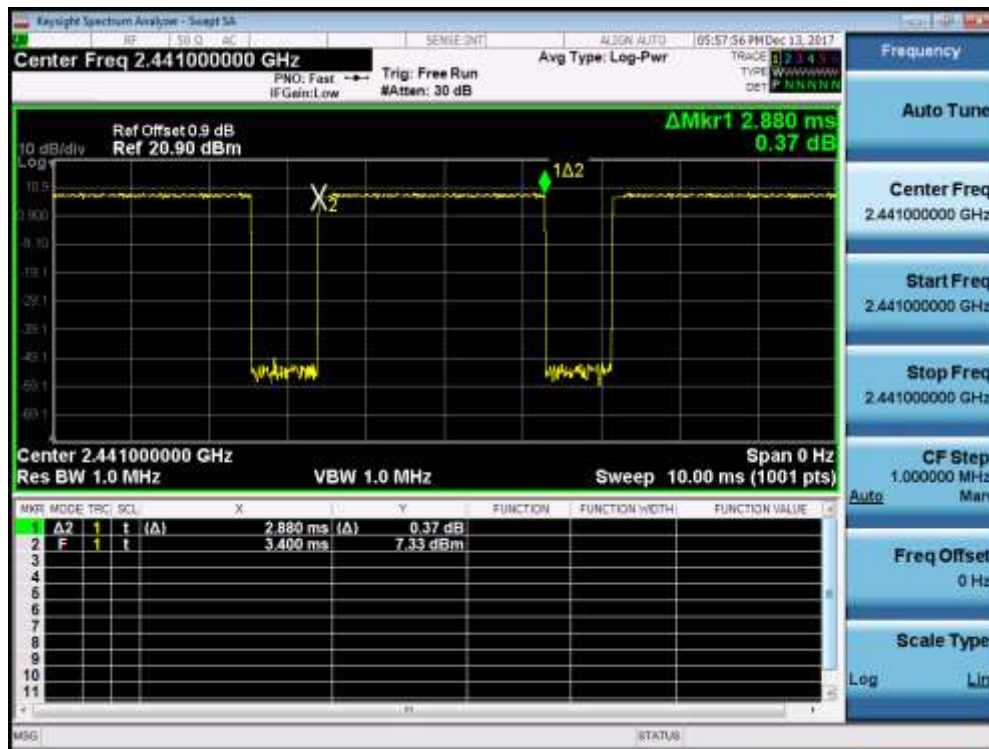
Channel No.	Frequency (MHz)	Time of Occupancy (ms)	Limit (ms)	Result
39	2441	307.2	< 400	Pass

Note1: Test Time Period: $0.4 \times 79 = 31.6$ sec

Note2: Time of Occupancy= pulse time*(1600/(6*79))*31.6

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

Channel 39 (2441MHz) - (3DH5)

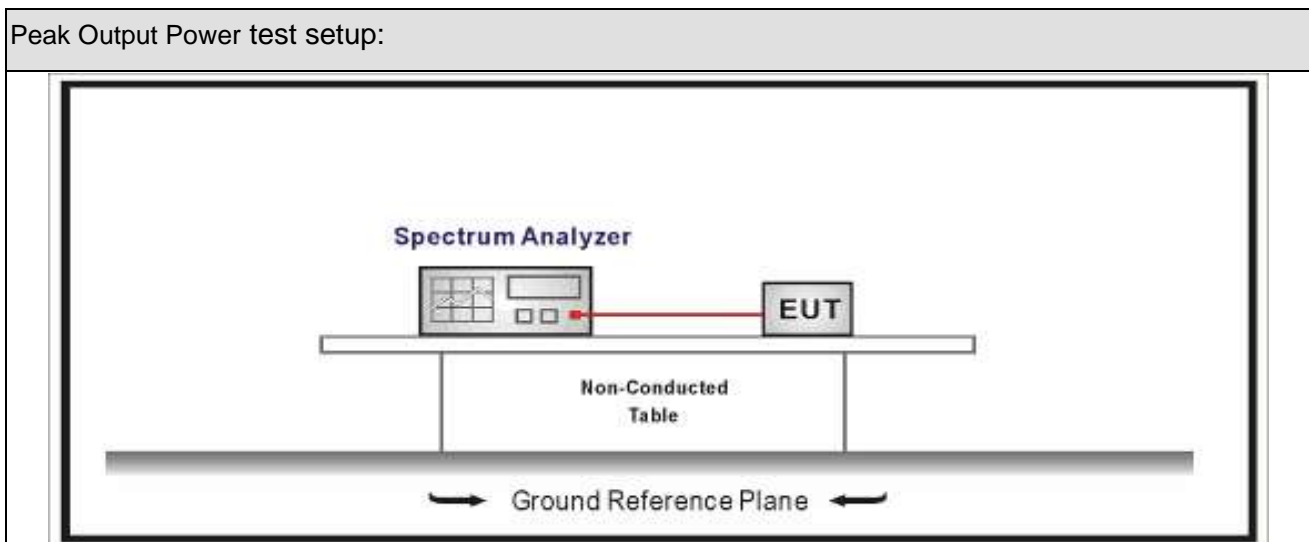


9. Peak Output Power

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	2017.02.04	2018.02.03
EXA Spectrum Analyzer	Keysight	N9010A	MY55370495	2017.04.09	2018.04.08
MXA Signal Analyzer	Keysight	N9020A	MY56060147	2017.04.09	2018.04.08
Temperature/Humidity Meter	zhichen	ZC1-2	TR8-TH	2017.04.10	2018.04.09
Note: All equipment are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.					

9.2. Test Setup



9.3. Limit

Peak Output Power	
<input type="checkbox"/>	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.
<input checked="" type="checkbox"/>	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.
<input type="checkbox"/>	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
<input checked="" type="checkbox"/>	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	:	Solos	Power	:	AC 120V/60Hz
Test Mode	:	Mode 1	Test Site	:	TR-8
Test Date	:	2018.01.17	Test Engineer	:	Damon

Channel No.	Frequency (MHz)	Measurement Power Output (dBm)	Limit (dBm)	Result
00	2402	-0.879	21.00	Pass
39	2441	-0.655	21.00	Pass
78	2480	-0.380	21.00	Pass

Product Name	:	Solos	Power	:	AC 120V/60Hz
Test Mode	:	Mode 2	Test Site	:	TR-8
Test Date	:	2018.01.17	Test Engineer	:	Damon

Channel No.	Frequency (MHz)	Measurement Power Output (dBm)	Limit (dBm)	Result
00	2402	-1.014	21.00	Pass
39	2441	-0.518	21.00	Pass
78	2480	-0.316	21.00	Pass

Product Name	:	Solos	Power	:	AC 120V/60Hz
Test Mode	:	Mode 3	Test Site	:	TR-8
Test Date	:	2018.01.17	Test Engineer	:	Damon

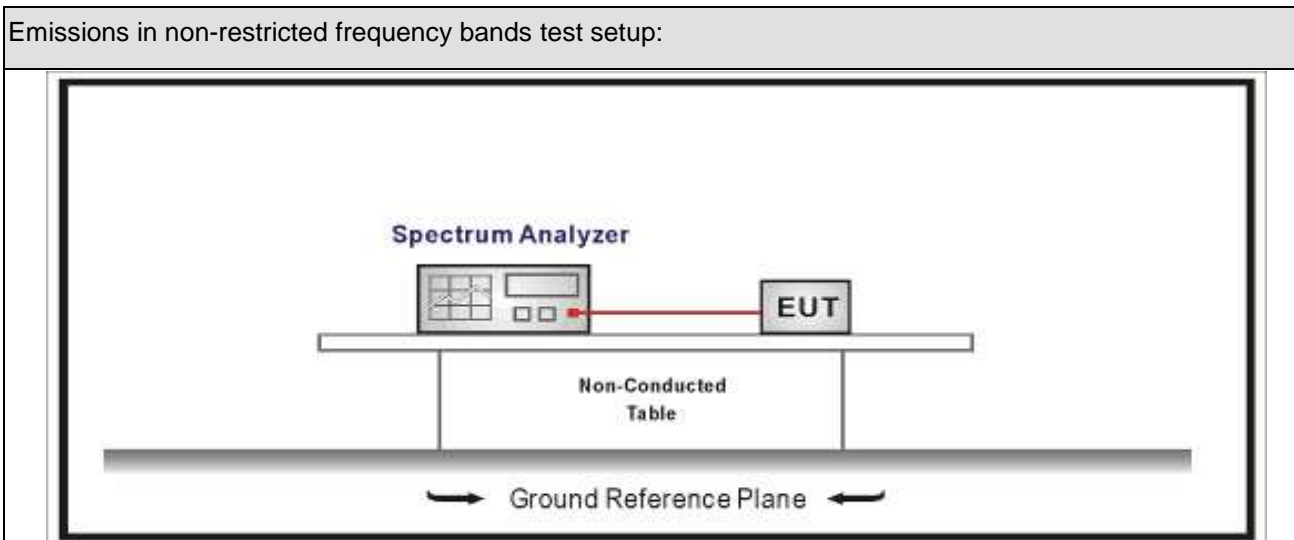
Channel No.	Frequency (MHz)	Measurement Power Output (dBm)	Limit (dBm)	Result
00	2402	-0.675	21.00	Pass
39	2441	0.022	21.00	Pass
78	2480	0.457	21.00	Pass

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	2017.02.04	2018.02.03
EXA Spectrum Analyzer	Keysight	N9010A	MY55370495	2017.04.09	2018.04.08
MXA Signal Analyzer	Keysight	N9020A	MY56060147	2017.04.09	2018.04.08
Temperature/Humidity Meter	zhichen	ZC1-2	TR8-TH	2017.04.10	2018.04.09
Note: All equipment are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.					

10.2. 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)
<p>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).</p> <p>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).</p>	

10.4. Test Procedure

Test Method			
	References Rule	Chapter	Description
<input checked="" type="checkbox"/>	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

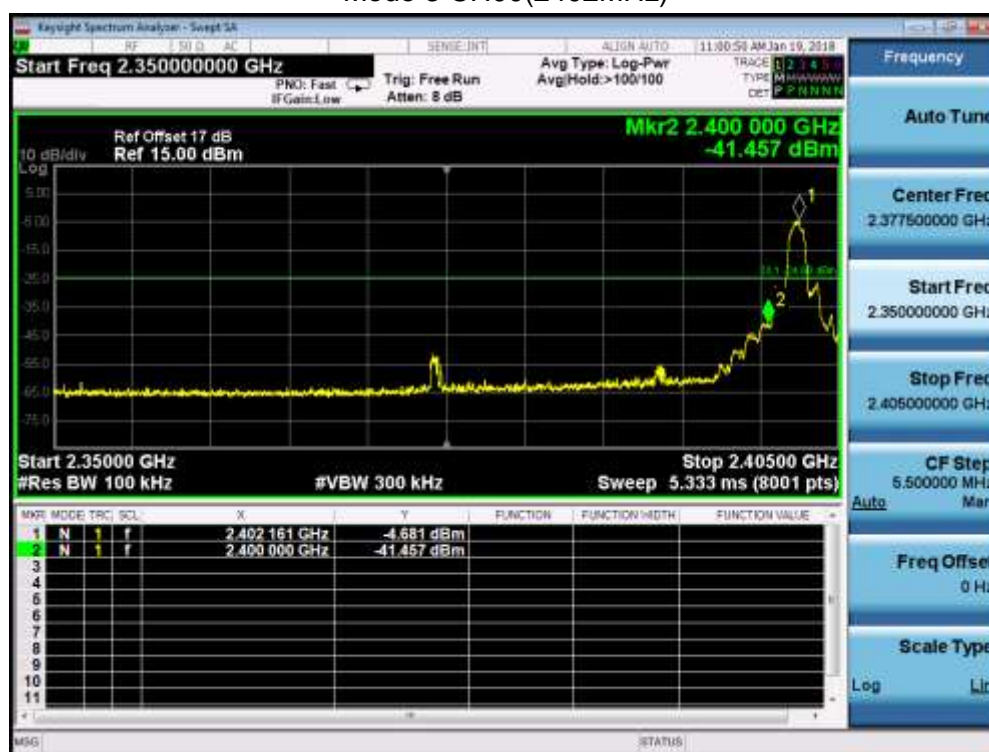
Product Name	: Solos	Power	: AC 120V/60Hz
Test Mode	: Mode 1~4	Test Site	: TR-8
Test Date	: 2018.01.19	Test Engineer	: Tommy

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	-3.118	2400.00	-61.404	58.286	>20	Pass
1	78	2480	0.115	2500.00	-65.431	65.546	>20	Pass
2	00	2402	-4.643	2400.00	-42.237	37.594	>20	Pass
2	78	2480	-2.292	2500.00	-65.126	62.834	>20	Pass
3	00	2402	-4.681	2400.00	-41.457	36.776	>20	Pass
3	78	2480	-2.264	2500.00	-64.839	62.575	>20	Pass
4	00~78	00~78	-3.258	2400.00	-60.023	56.765	>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.

Mode 3 CH00(2402MHz)



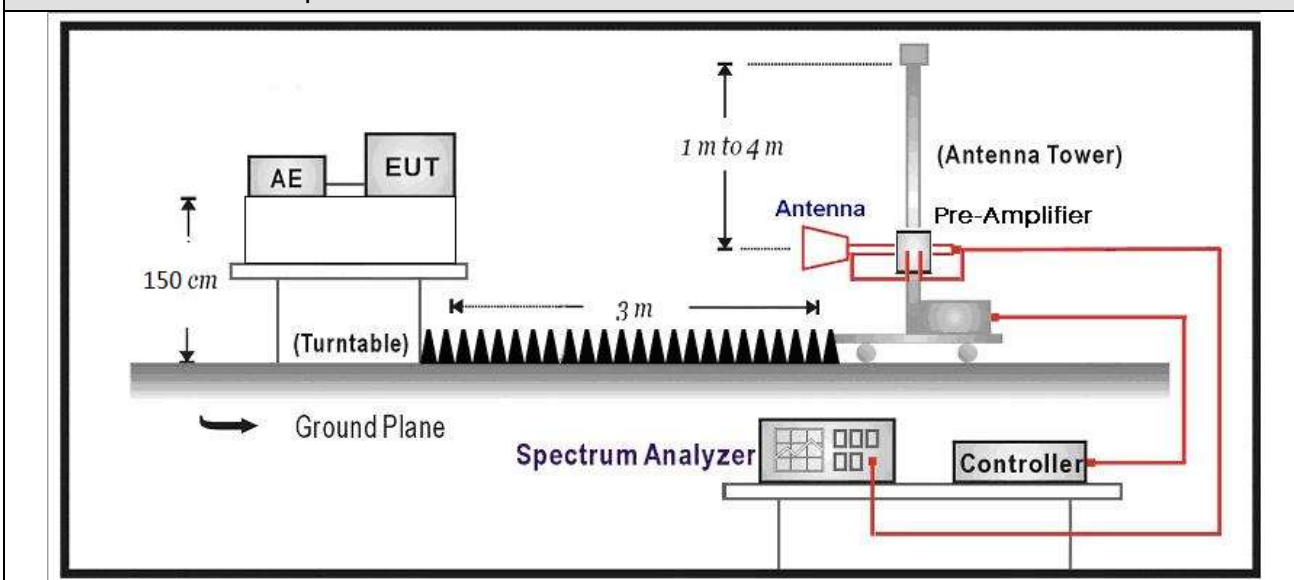
11. Radiated Emission Band Edge

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	2017.07.16	2018.07.15
Pre-Amplifier	Miteq	NSP1800-25	1364185	2017.05.03	2018.05.02
DRG Horn Antenna	ETS-Lindgren	3117	00167055	2017.07.12	2018.07.11
Broad-Band Horn Antenna	Schwarzbeck	BBHA9170	294	2017.09.18	2018.09.17
Coaxial Cable	Huber+Suhner	SUCOFLEX 106	AC5-C1	2017.02.28	2018.02.27
Coaxial Cable	Huber+Suhner	SUCOFLEX 106	AC5-C2	2017.02.28	2018.02.27
Temperature/Humidity Meter	Zhichen	ZC1-2	AC5-TH	2018.01.05	2019.01.04

11.2. Test Setup

Above 1GHz Test Setup:



11.3. Limit

Band edge Limit				
Frequency bands (MHz)	Detector	Limit (dB μ V/m)	RBW (MHz)	Distance (m)
2310-2390	PK	74	1	3
2483.5-2500	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
<input checked="" type="checkbox"/>	DA 00-705	N/A	duty cycle correction factor
<input checked="" type="checkbox"/>	ANSI C63.10	6.10	Band-edge testing
	<input checked="" type="checkbox"/> ANSI C63.10	6.10.5	Restricted-band band-edge measurements
	<input type="checkbox"/> ANSI C63.10	6.10.6	Marker-delta method
<input type="checkbox"/>	ANSI C63.10	6.4	Radiated emissions from unlicensed wireless devices below 30 MHz
<input type="checkbox"/>	ANSI C63.10	6.5	Radiated emissions from unlicensed wireless devices in the frequency range of 30 MHz to 1000 MHz
<input checked="" type="checkbox"/>	ANSI C63.10	6.6	Radiated emissions from unlicensed wireless devices above 1 GHz

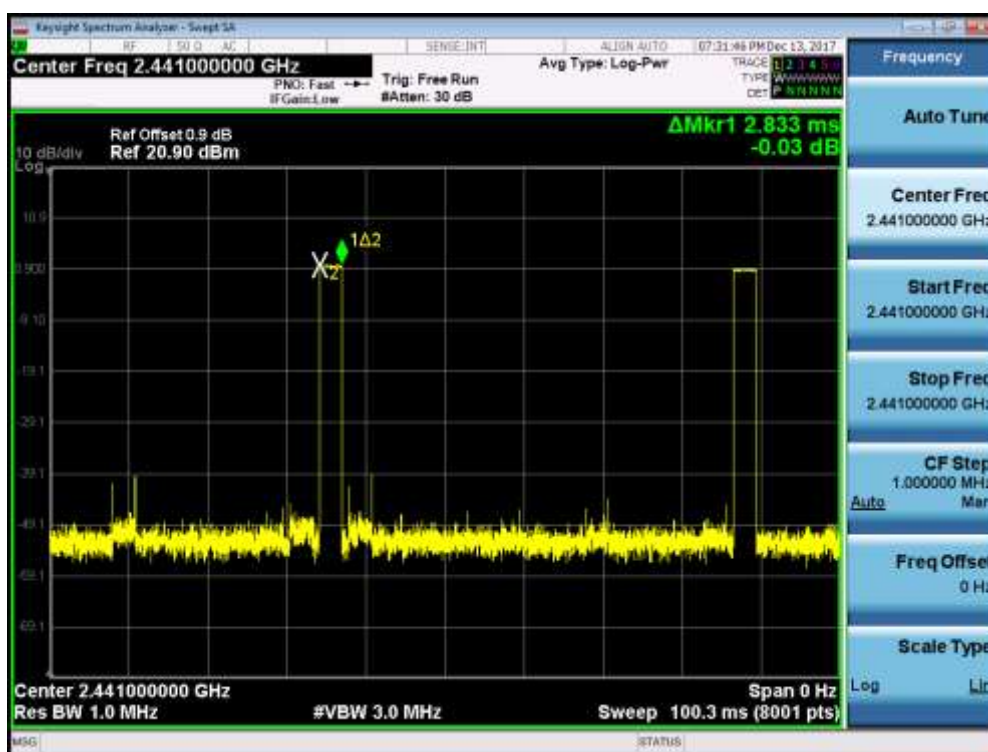
11.5. Uncertainty

The measurement uncertainty above 1G is defined as ± 3.9 dB
below 1G is defined as ± 3.8 dB

11.6. Duty Factor

Test Mode	Pulse Time (ms)	Pulse Number	Accumulated Transmit Time (ms)	Duty Factor (dB)
Mode 4	2.8	2	5.6	-24.036

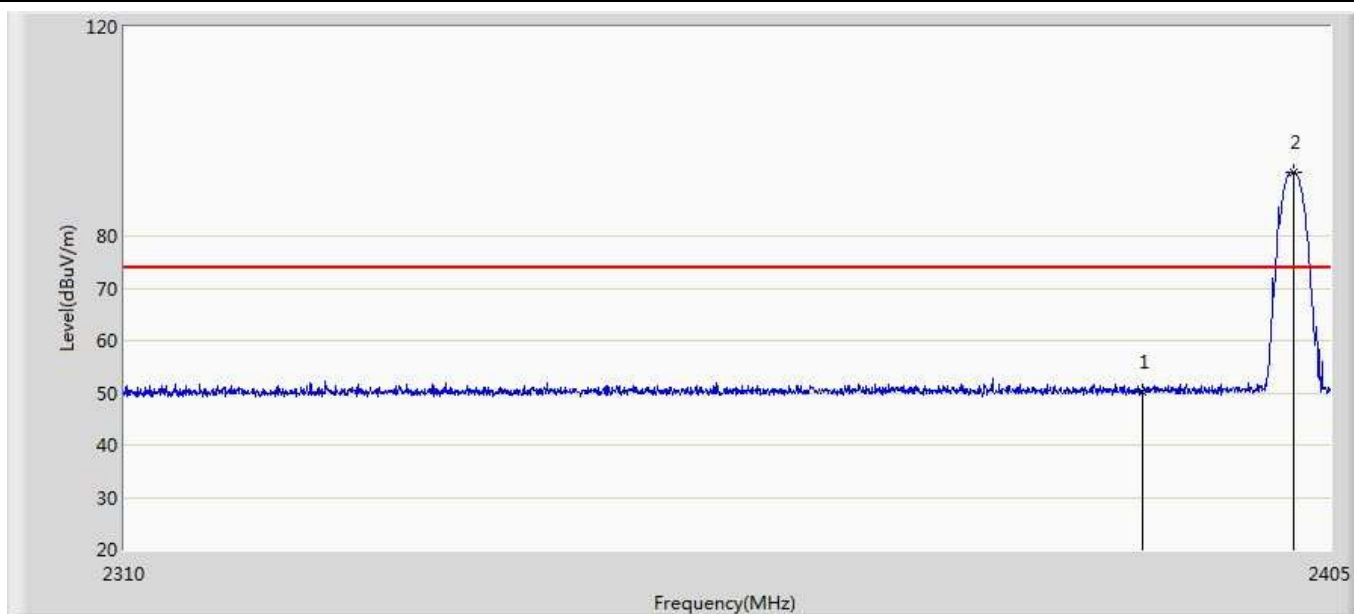
Pulse Number



Note: Duty Factor = $20\log(\text{Accumulated Transmit Time} / 100\text{ms})$

11.7. Test Result

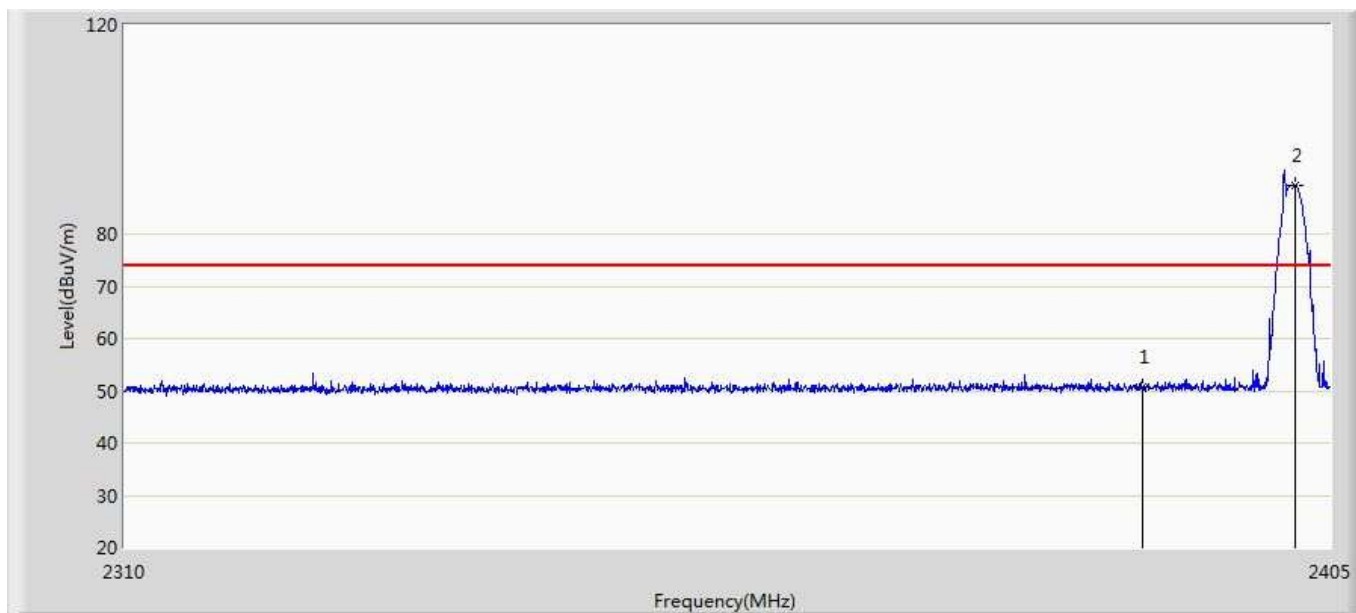
Engineer: Damon	
Site: AC5	Time: 2018/01/16 - 19:30
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Solos	Power: AC120V/60Hz
Note: Mode 1:Transmit at channel 2402MHz by DH5	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	50.145	14.463	-23.855	74.000	35.682	PK
2	*	2402.055	92.047	56.334	18.047	74.000	35.712	PK

No	Mark	Frequency (MHz)	PK Level (dBuV/m)	AV Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	50.145	26.109	-27.891	54.000	-24.036	AV
2	*	2402.055	92.047	68.011	14.011	54.000	-24.036	AV

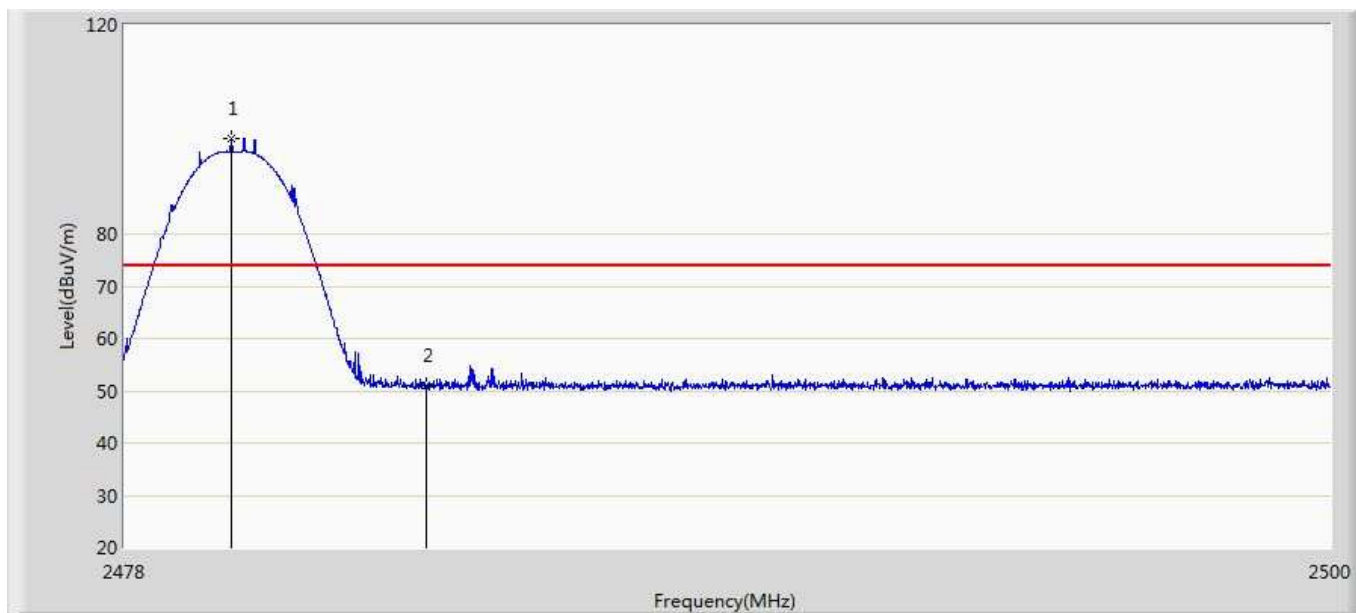
Engineer: Damon	
Site: AC5	Time: 2018/01/16 - 19:33
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Solos	Power: AC120V/60Hz
Note: Mode 1:Transmit at channel 2402MHz by DH5	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	50.646	14.964	-23.354	74.000	35.682	PK
2	*	2402.198	89.328	53.615	15.328	74.000	35.714	PK

No	Mark	Frequency (MHz)	PK Level (dBuV/m)	AV Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	50.646	26.610	-27.390	54.000	-24.036	AV
2	*	2402.198	89.328	65.292	11.292	54.000	-24.036	AV

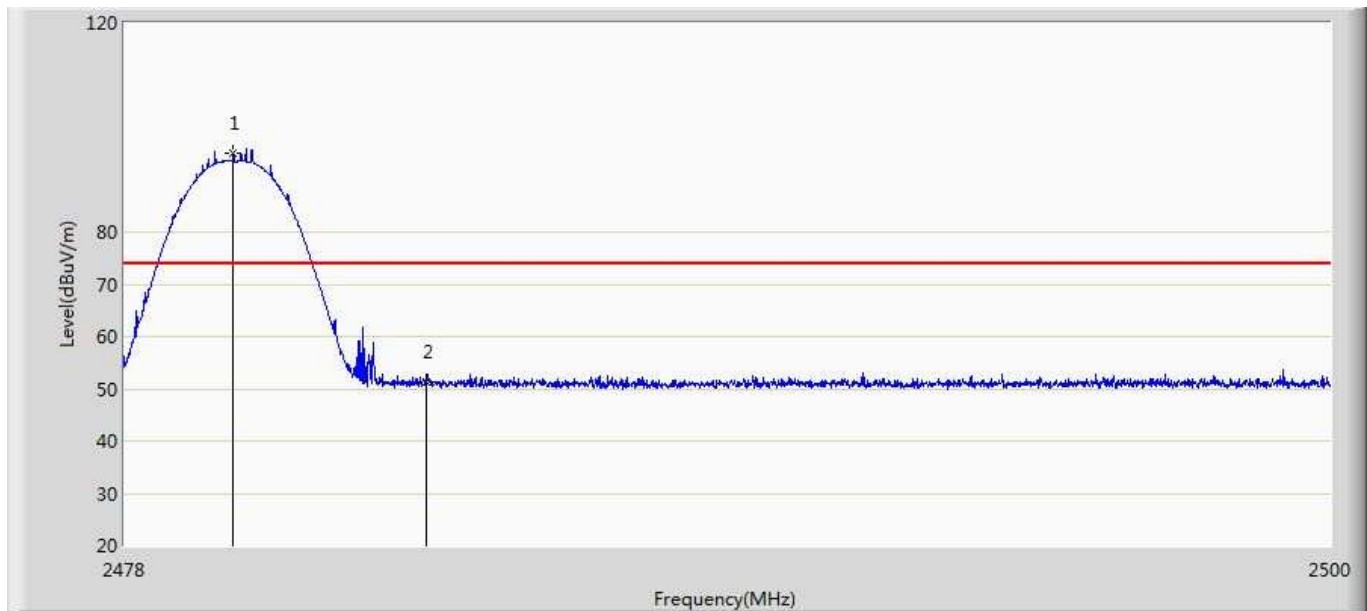
Engineer: Damon	
Site: AC5	Time: 2018/01/16 - 19:35
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Solos	Power: AC120V/60Hz
Note: Mode 1:Transmit at channel 2480MHz by DH5	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2479.936	98.184	62.318	24.184	74.000	35.866	PK
2		2483.500	51.079	15.187	-22.921	74.000	35.891	PK

No	Mark	Frequency (MHz)	PK Level (dBuV/m)	AV Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2479.936	98.184	74.148	20.148	54.000	-24.036	AV
2	*	2483.500	51.079	27.043	-26.957	54.000	-24.036	AV

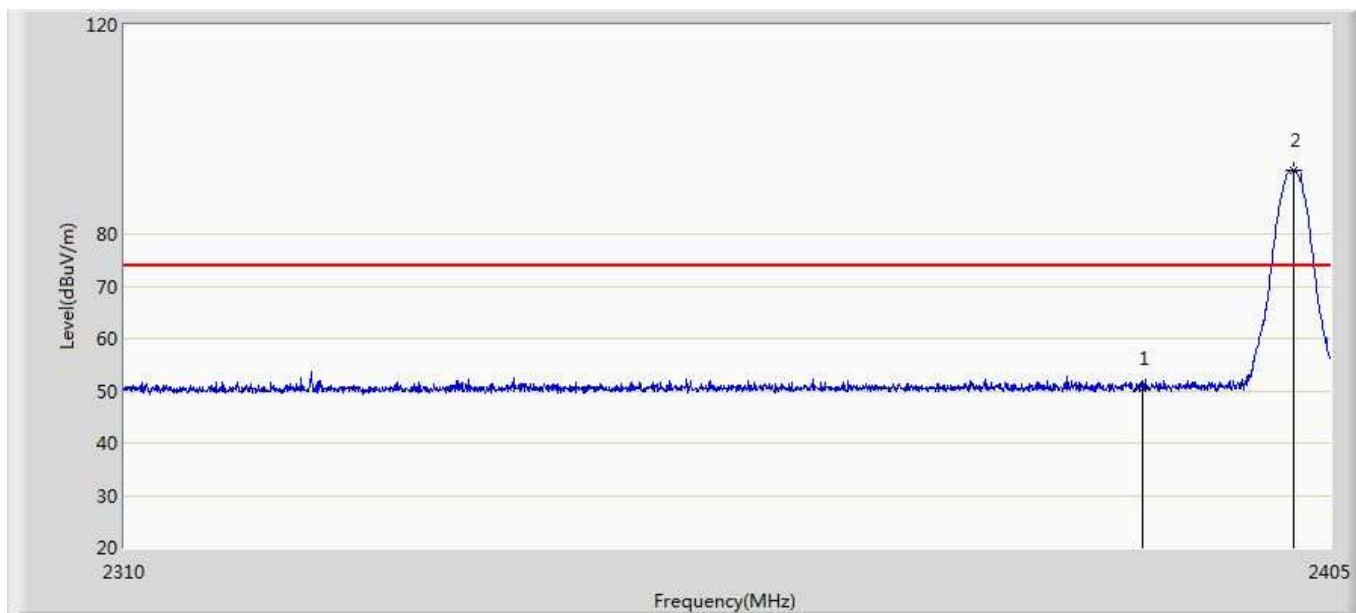
Engineer: Damon	
Site: AC5	Time: 2018/01/16 - 19:37
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Solos	Power: AC120V/60Hz
Note: Mode 1:Transmit at channel 2480MHz by DH5	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2479.980	94.978	59.112	20.978	74.000	35.866	PK
2		2483.500	51.250	15.358	-22.750	74.000	35.891	PK

No	Mark	Frequency (MHz)	PK Level (dBuV/m)	AV Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2479.980	94.978	70.942	16.942	54.000	-24.036	AV
2	*	2483.500	51.250	27.214	-26.786	54.000	-24.036	AV

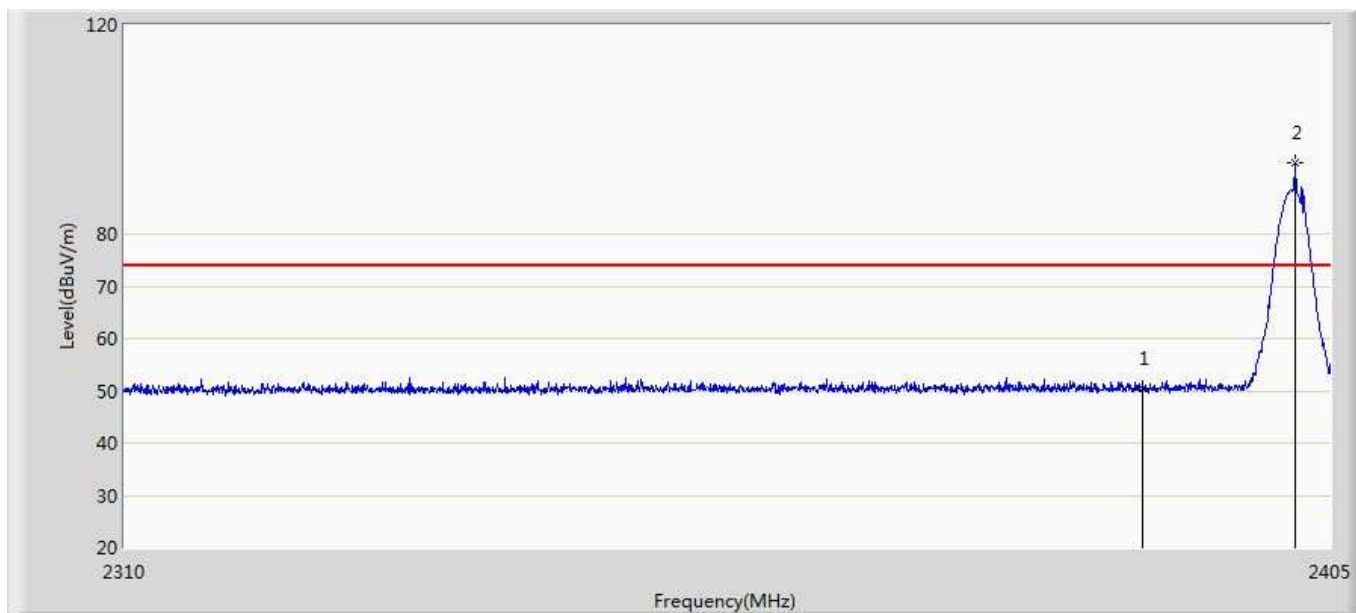
Engineer: Damon	
Site: AC5	Time: 2018/01/16 - 19:39
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Solos	Power: AC120V/60Hz
Note: Mode 2:Transmit at channel 2402MHz by 2DH5	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	50.290	14.608	-23.710	74.000	35.682	PK
2	*	2402.055	92.219	56.506	18.219	74.000	35.712	PK

No	Mark	Frequency (MHz)	PK Level (dBuV/m)	AV Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	50.290	26.254	-27.746	54.000	-24.036	AV
2	*	2402.055	92.219	68.183	14.183	54.000	-24.036	AV

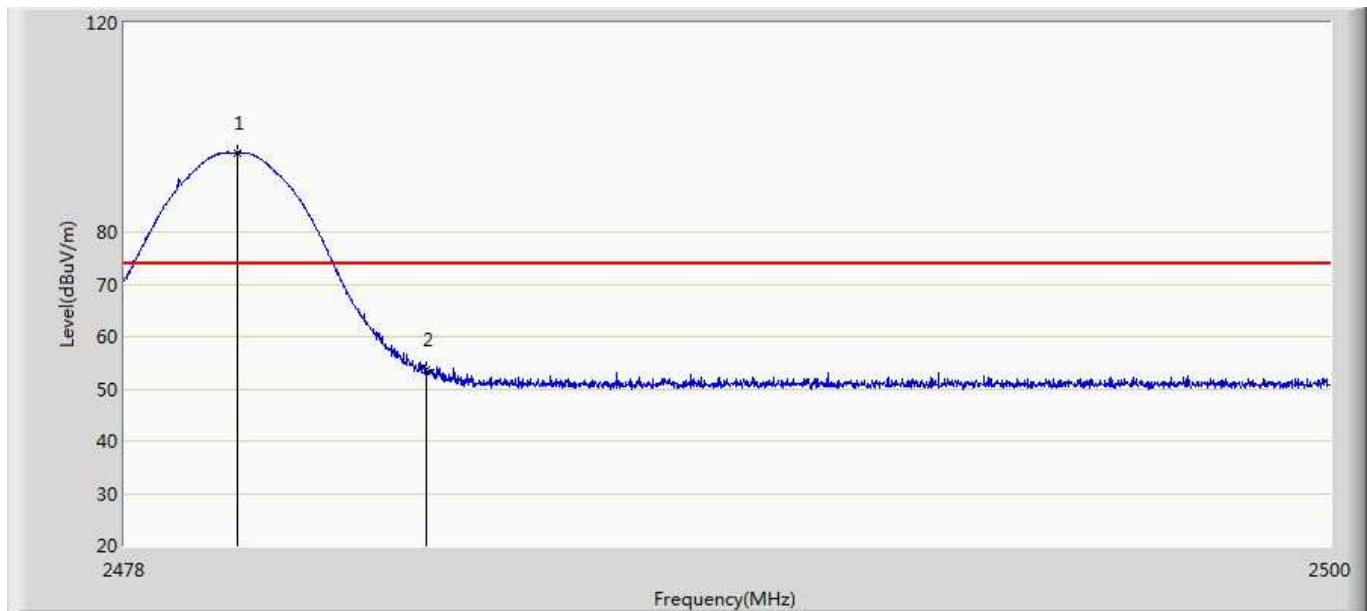
Engineer: Damon	
Site: AC5	Time: 2018/01/16 - 19:45
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Solos	Power: AC120V/60Hz
Note: Mode 2:Transmit at channel 2402MHz by 2DH5	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	50.339	14.657	-23.661	74.000	35.682	PK
2	*	2402.198	93.610	57.897	19.610	74.000	35.714	PK

No	Mark	Frequency (MHz)	PK Level (dBuV/m)	AV Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	50.339	26.303	-27.697	54.000	-24.036	AV
2	*	2402.198	93.610	69.574	15.574	54.000	-24.036	AV

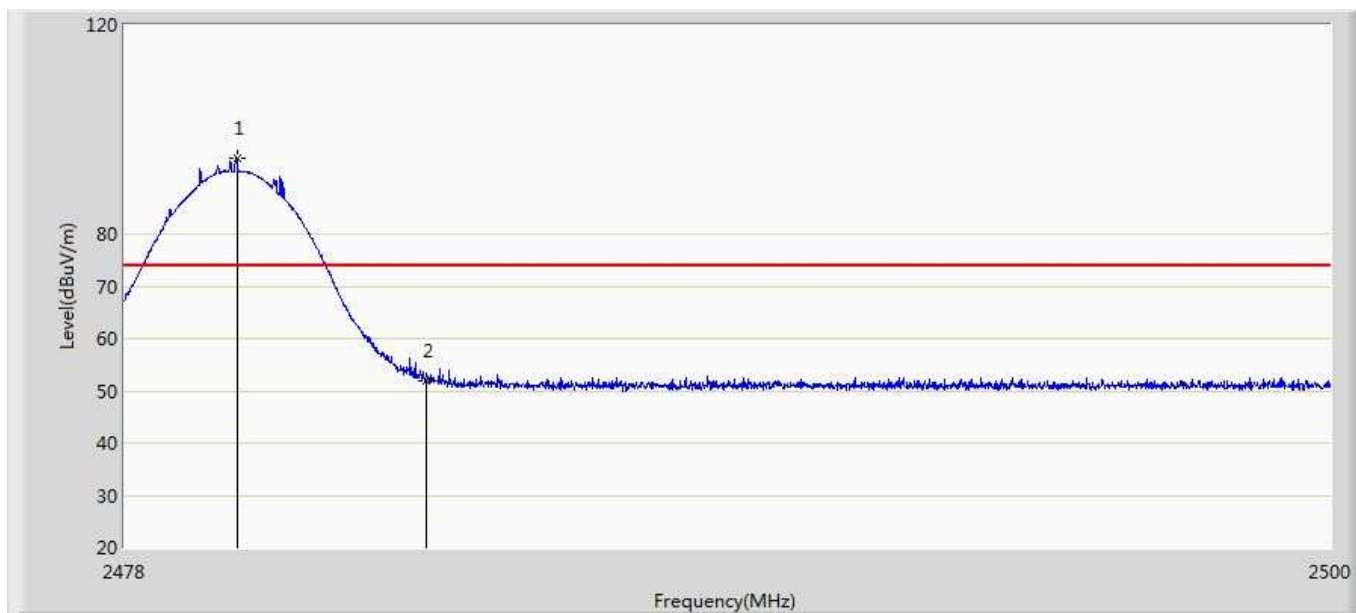
Engineer: Damon	
Site: AC5	Time: 2018/01/16 - 19:48
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Solos	Power: AC120V/60Hz
Note: Mode 2:Transmit at channel 2480MHz by 2DH5	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2480.046	95.084	59.217	21.084	74.000	35.866	PK
2		2483.500	53.492	17.600	-20.508	74.000	35.891	PK

No	Mark	Frequency (MHz)	PK Level (dBuV/m)	AV Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2480.046	95.084	71.048	17.048	54.000	-24.036	AV
2	*	2483.500	53.492	29.456	-24.544	54.000	-24.036	AV

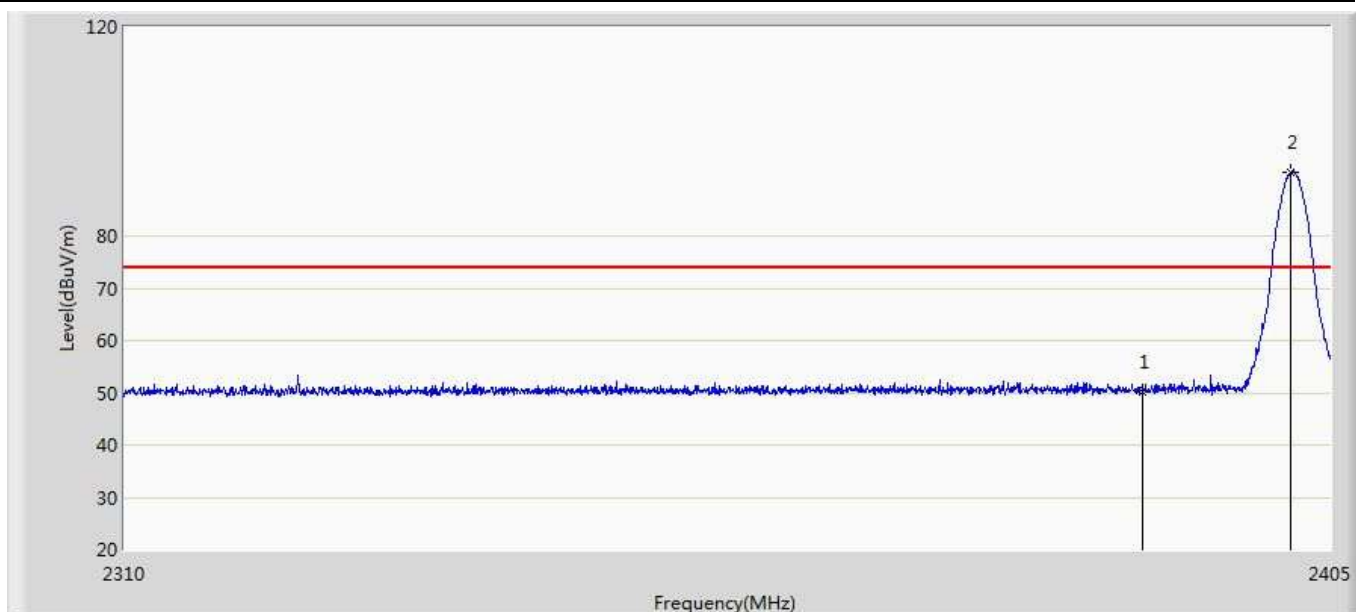
Engineer: Damon	
Site: AC5	Time: 2018/01/16 - 19:50
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Solos	Power: AC120V/60Hz
Note: Mode 2:Transmit at channel 2480MHz by 2DH5	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2480.046	94.469	58.602	20.469	74.000	35.866	PK
2		2483.500	51.909	16.017	-22.091	74.000	35.891	PK

No	Mark	Frequency (MHz)	PK Level (dBuV/m)	AV Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2480.046	94.469	70.433	16.433	54.000	-24.036	AV
2	*	2483.500	51.909	27.873	-26.127	54.000	-24.036	AV

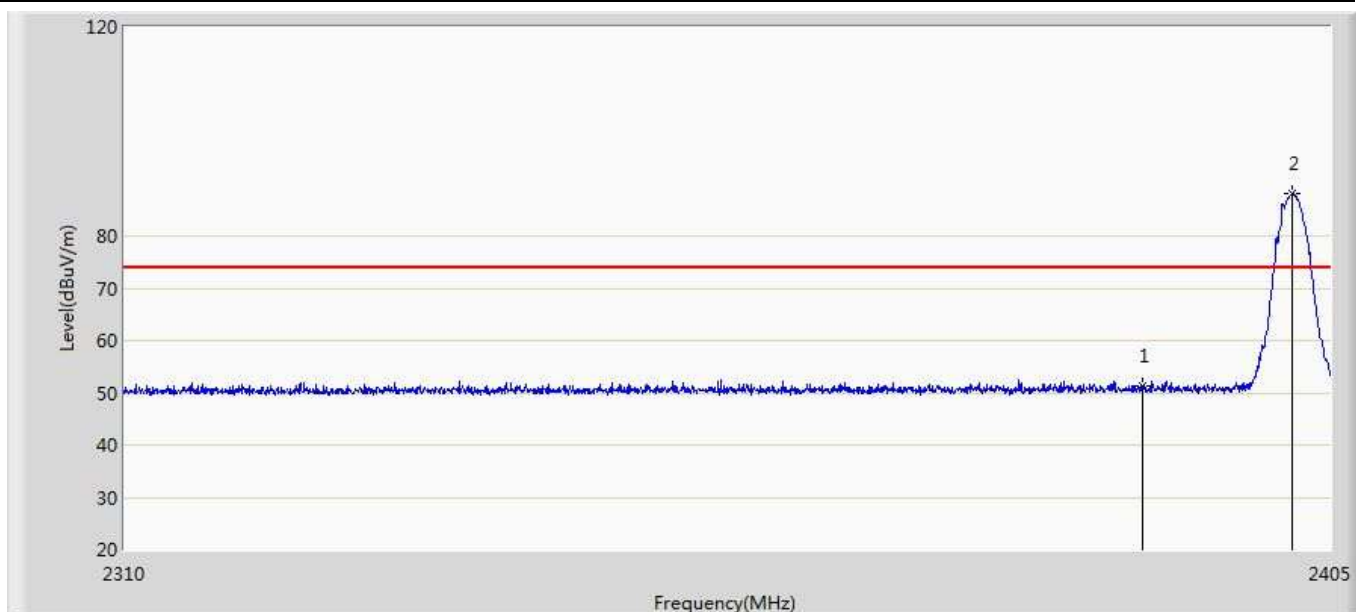
Engineer: Damon	
Site: AC5	Time: 2018/01/16 - 19:52
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Solos	Power: AC120V/60Hz
Note: Mode 3:Transmit at channel 2402MHz by 3DH5	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	50.046	14.364	-23.954	74.000	35.682	PK
2	*	2401.865	92.211	56.499	18.211	74.000	35.712	PK

No	Mark	Frequency (MHz)	PK Level (dBuV/m)	AV Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	50.046	26.010	-27.990	54.000	-24.036	AV
2	*	2401.865	92.211	68.175	14.175	54.000	-24.036	AV

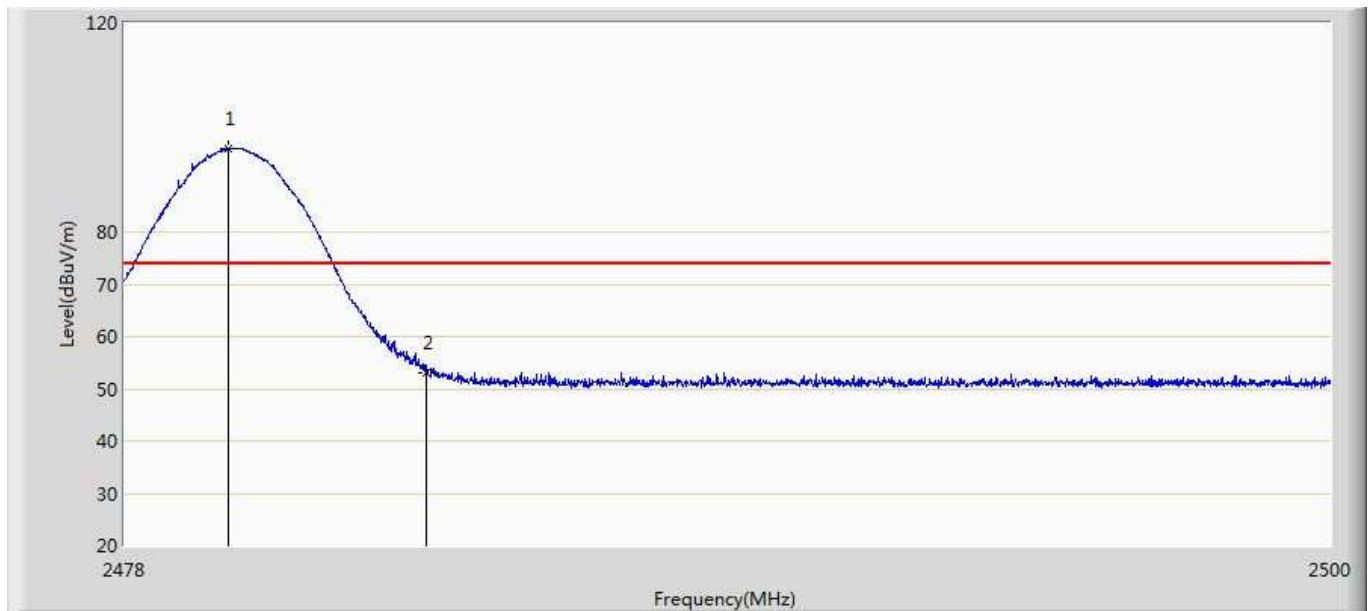
Engineer: Damon	
Site: AC5	Time: 2018/01/16 - 19:55
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Solos	Power: AC120V/60Hz
Note: Mode 3:Transmit at channel 2402MHz by 3DH5	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	51.329	15.647	-22.671	74.000	35.682	PK
2	*	2402.008	88.171	52.458	14.171	74.000	35.712	PK

No	Mark	Frequency (MHz)	PK Level (dBuV/m)	AV Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	51.329	27.293	-26.707	54.000	-24.036	AV
2	*	2402.008	88.171	64.135	10.135	54.000	-24.036	AV

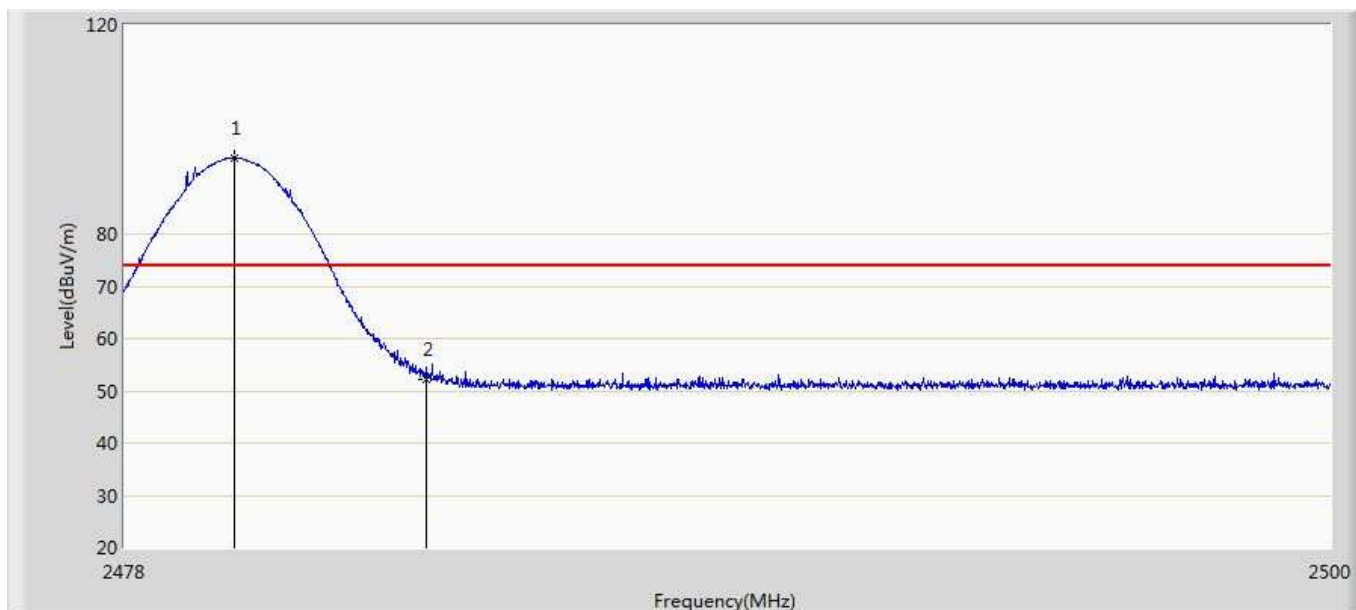
Engineer: Damon	
Site: AC5	Time: 2018/01/16 - 19:57
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Solos	Power: AC120V/60Hz
Note: Mode 3:Transmit at channel 2480MHz by 3DH5	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2479.881	95.959	60.094	21.959	74.000	35.865	PK
2		2483.500	53.096	17.204	-20.904	74.000	35.891	PK

No	Mark	Frequency (MHz)	PK Level (dBuV/m)	AV Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2479.881	95.959	71.923	17.923	54.000	-24.036	AV
2	*	2483.500	53.096	29.060	-24.940	54.000	-24.036	AV

Engineer: Damon	
Site: AC5	Time: 2018/01/16 - 19:59
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Solos	Power: AC120V/60Hz
Note: Mode 3:Transmit at channel 2480MHz by 3DH5	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2480.013	94.633	58.767	20.633	74.000	35.866	PK
2		2483.500	52.216	16.324	-21.784	74.000	35.891	PK

No	Mark	Frequency (MHz)	PK Level (dBuV/m)	AV Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2480.013	94.633	70.597	16.597	54.000	-24.036	AV
2	*	2483.500	52.216	28.180	-25.820	54.000	-24.036	AV

12. Antenna Requirement

12.1.Limit

Antenna Requirement Limit	
<p>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.</p>	

12.2.Antenna Connector Construction

Antenna Connector Construction	
<input type="checkbox"/>	The use of a permanently attached antenna
<input type="checkbox"/>	The antenna use of a unique coupling to the intentional radiator
<input checked="" type="checkbox"/>	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 _____