Certificate #2861.01

TEST REPORT

Report No.:	**E20190626729101-5**	**Application No.:**	**E20190626729101**
Applicant:	SCREENEO INNOVATION SA		
Address:	Route de Lully 5C 1131 Tolochenaz Switzerland		
Sample Description:	Home Projector		
Model:	Screeneo U3		
Adding Model:	/		
FCC ID:	2ASRT-HDP3550		
Test Specification:	FCC 47 CFR Part 15 Subpart C		
Test Date:	2019/08/30 to 2019/09/20		
Issue Date:	2019/12/12		
Test Result:	**PASS**		

Prepared By:	**Reviewed By:**	**Approved By:**
Wu Haoting / Test Engineer	Xie Jiemin/ Technical Manager	Zhu Yan/ Manager
Wu Haoting	Xie Jiemin	Zhu Yan

Other Aspects:

/

Abbreviations: *ok / P = passed; fail / F = failed; n.a. / N = not applicable*

DIRECTIONS OF TEST

1. This company carries out test task according to the national regulation of verifications which can be traced to National Primary Standards and BIPM.

2. The test report merely corresponds to the test sample. It is not permitted to copy extracts of these test result without the written permission of the test laboratory.

3. If there is any objection concerning the test, the client should inform the laboratory within 15 days from the date of receiving the test report.

TABLE OF CONTENTS

1. TEST RESULT SUMMARY

FCC 47 CFR Part 15 Subpart C			
Standard	**Item**	**Limit / Severity**	**Result**
FCC Part 15,Subpart C (15.247)	Antenna Requirement	§15.203	PASS
	Conducted Emissions	§15.207 (a)	PASS
	Radiated Spurious Emission	§15.247(d)	PASS
	6 dB Bandwidth	§15.247 (a)(2)	PASS
	Maximum Peak Output Power	§15.247(b)(3)	PASS
	Power Spectral Density	§15.247(e)	PASS
	Conducted band edges and Spurious Emission	§15.247(d)	PASS
	Restricted bands of operation	§15.205	PASS

2. GENERAL DESCRIPTION OF EUT

2.1. APPLICANT

Name:	SCREENEO INNOVATION SA
Address:	Route de Lully 5C 1131 Tolochenaz Switzerland

2.2. MANUFACTURER

Name:	SCREENEO INNOVATION SA
Address:	Route de Lully 5C 1131 Tolochenaz Switzerland

2.3. FACTORY

Name:	Zhangzhou Wanlida Technology Co.,Ltd.
Address:	Wanlida Industrial Zone, Nanjing,Zhangzhou, Fujian, China

2.4. BASIC DESCRIPTION OF EQUIPMENT UNDER TEST

Equipment:	Home Projector
Model No.:	Screeneo U3
Adding Model	/
Trade Name:	PHILIPS
FCC ID:	2ASRT-HDP3550
Power supply:	100V-240V~4.0A 50/60Hz
Frequency Range	2412MHz~2462MHz
Transmit Power:	16.87dBm for 802.11b mode 23.43dBm for 802.11g mode 23.06dBm for 802.11n HT20 mode
Modulation type:	DSSS for 802.11b mode OFDM for 802.11g mode OFDM for 802.11n mode
Channel space:	5MHz
Antenna Specification:	Internal antenna with 4.0dBi gain (Max.)
Temperature Range:	+5℃ ~+35℃
Hardware Version:	9124C
Software Version:	V0.XX

I/O Port: AC IN port *1, USB(5V/0.5A)port *1, 12V TRIGGER port*1, USB(5V/1A) port*1, AUDIO OUT port *2, AUDIO IN port *1, S/PDIF OPTICAL port *1, HDMI port *3, VGA port *1, AV-IN port *1

Note: AC cable: unsheilded, 1.80m

2.5. TEST OPERATION MODE

Test Item	Mode No.	Description of the modes
Conducted Emission	1	Continuously Transmitting
Radiated Emission	1	Continuously Transmitting

2.6. LOCAL SUPPORTIVE INSTRUMENTS

Name of Equipment	Manufacturer	Model	Serial Number	Note
Notebook	LENOVO	TianYi 310-14ISK	MP18DLC6	/
Adapter(Notebook)	LENOVO	ADLX65NVV3A	SA10M42747	/
Cable				
AC Cable	/	/	/	Unshielded 1.00m
DC Cable	/	/	/	Shielded 1.80m

Test software:

Software version	Test level
RFTestTool	/

3. LABORATORY AND ACCREDITATIONS

3.1. LABORATORY

The tests and measurements refer to this report were performed by EMC Laboratory of GRG METROLOGY & TEST (SHENZHEN) CO., LTD

Add.: No. 1301, Guanguang Road, Xinlan Community, Guanlan Street, Longhua District, Shenzhen, 518110, People's Republic of China

Telephone: +86-755-61180008

Fax: /

3.2. ACCREDITATIONS

A2LA	Certificate Number 2861.01

3.3. MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

Parameter	Uncertainty
Radiated Emission, 30 to 200 MHz Test Site : 966(2)	+/-3.6880dB
Radiated Emission, 200 to 1000 MHz Test Site : 966(2)	+/-3.6695dB
Radiated Emission, 1 to 8 GHz	+/-5.1782dB
Radiated Emission, 8 to 18 GHz	+/-5.2173dB
Conducted Emissions	+/-3.6836dB
Band Width	178kHz
Peak Output Power MU	+/-1.906dB
Band Edge MU	+/-0.182dB
Channel Separation MU	416.178Hz
Duty Cycle MU	0.054ms
Frequency Stability MU	226Hz

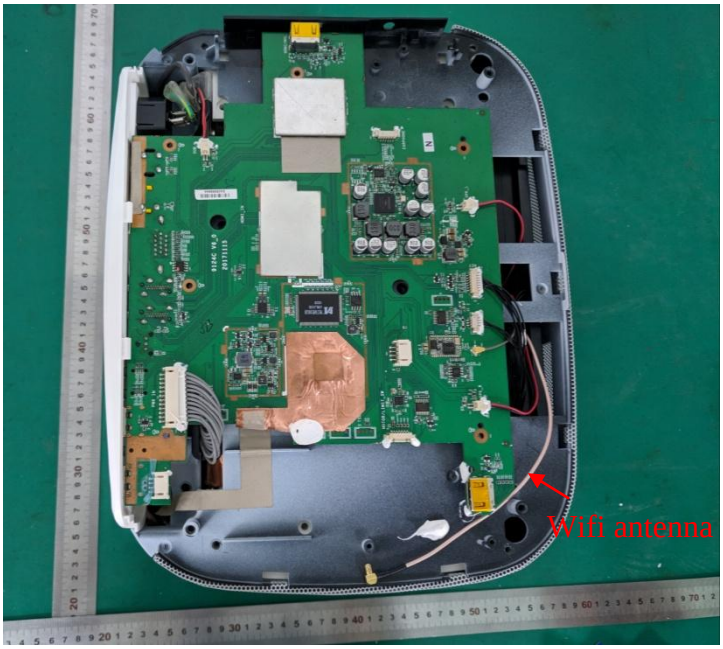
This uncertainty represents an expanded uncertainty factor of k=2.

4. LIST OF USED TEST EQUIPMENT AT GRGT

Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
Conducted Emissions				
EMI TEST RECEIVER	ROHDE&SCHWARE	ESCI	100783	2020/01/09
LISN(EUT)	ROHDE&SCHWARE	ENV216	101543	2020/03/05
Test S/W	FARAD	EZ-EMC/ CCS-3A1-CE		
Radiated Spurious Emission& Restricted bands of operation				
Receiver	ROHDE&SCHWARZ	ESCI	100783	2020/01/09
Spectrum Analyzer	Agilent	N9010A	MY52221469	2020/01/10
Bilog Antenna	Schwarzbeck	VULB 9160	9160-3401	2019/12/21
Horn Antenna	Schwarzbeck	BBHA9120	D286	2019/12/21
Board-Band Horn Antenna	Schwarzbeck	BBHA 9170	9170-497	2020/01/15
Amplifier	EM Electronics Corporation	EM330	060661	2019/12/21
Amplifier	Agilent	8449B	3008A02060	2019/12/21
Test S/W	FARAD	LZ-RF / CCS-SZ-3A2		
6 dB Bandwidth				
Spectrum Analyzer	Agilent	N9010A	MY52221469	2020/01/10
Peak Output Power				
Pulse Power Sentor	Agilent	MA2411B	1126150	2020/04/24
Power Meter	Anritsu	ML2495A	1204003	2020/04/24
Conducted band edges and Spurious Emission				
Spectrum Analyzer	Agilent	N9010A	MY52221469	2020/01/10
Peak Output Spectral Density Measurement				
Spectrum Analyzer	Agilent	N9010A	MY52221469	2020/01/10

5. ANTENNA REQUIREMENT

The EUT has one antenna. The antennas is internal antenna.
The max gain of antenna is 4.0dBi. which accordance 15.203.is considered sufficient to comply with the provisions of this section



6. CONDUCTED EMISSION MEASUREMENT

6.1. LIMITS

Frequency range	Limits (dBμV)	
	Quasi-peak	Average
150kHz ～ 0.5MHz	66～56	56～46
0.5 MHz ～ 5 MHz	56	46
5 MHz ～ 30 MHz	60	50

NOTE: (1) The lower limit shall apply at the transition frequencies.
(2) The limit decreases in line with the logarithm of the frequency in the range of 150 kHz to 0.5MHz.

6.2. TEST PROCEDURES

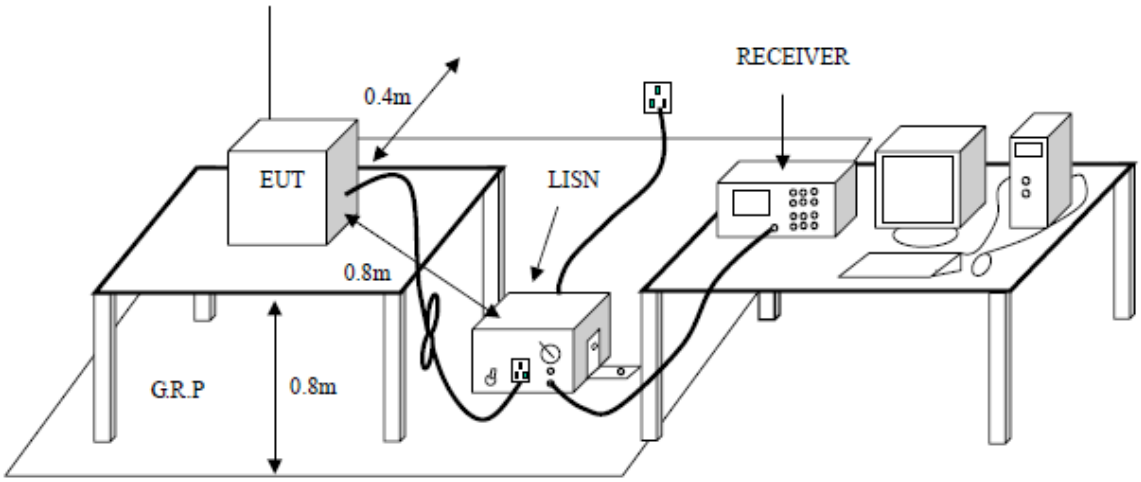
Procedure of Preliminary Test

Test procedures follow ANSI C63.4:2014.
For measurement of the disturbance voltage the equipment under test (EUT) is connected to the power supply mains and any other extended network via one or more artificial network(s). An EUT, whether intended to be grounded or not, and which is to be used on a table is configured as follows:
– Either the bottom or the rear of the EUT shall be at a controlled distance of 40 cm from a reference ground plane. This ground plane is normally the wall or floor of a shielded room. It may also be a grounded metal plane of at least 2 m by 2 m. This is physically accomplished as follows:
1) place the EUT on a table of non-conducting material which is at least 80 cm high. Place the EUT so that it is 40 cm from the wall of the shielded room, or
2) place the EUT on a table of non-conducting material which is 40 cm high so that the bottom of the EUT is 40 cm above the ground plane;
– All other conductive surfaces of the EUT shall be at least 80 cm from the reference ground plane;
– The EUT are placed on the floor that one side of the housings is 40 cm from the vertical reference ground plane and other metallic parts;
– Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth forming a bundle 30 cm to 40 cm long, hanging approximately in the middle between the ground plane and the table.
– I/O cables that are connected to a peripheral shall be bundled in the centre. The end of the cable may be terminated if required using correct terminating impedance. The total length shall not exceed 1 m.
The test mode(s) described in Item 2.4 were scanned during the preliminary test. After the preliminary scan, we found the test mode described in Item 2.4 producing the highest emission level. The EUT configuration and cable configuration of the above highest emission levels were recorded for reference of the final test.

Procedure of Final Test

EUT and support equipment were set up on the test bench as per the configuration with highest emission level in the preliminary test. A scan was taken on both power lines, recording at least the six highest emissions. Emission frequency and amplitude were recorded into a computer in which correction factors were used to calculate the emission level and compare reading to the applicable limit. The test data of the worst-case condition(s) was recorded.

6.3. TEST SETUP



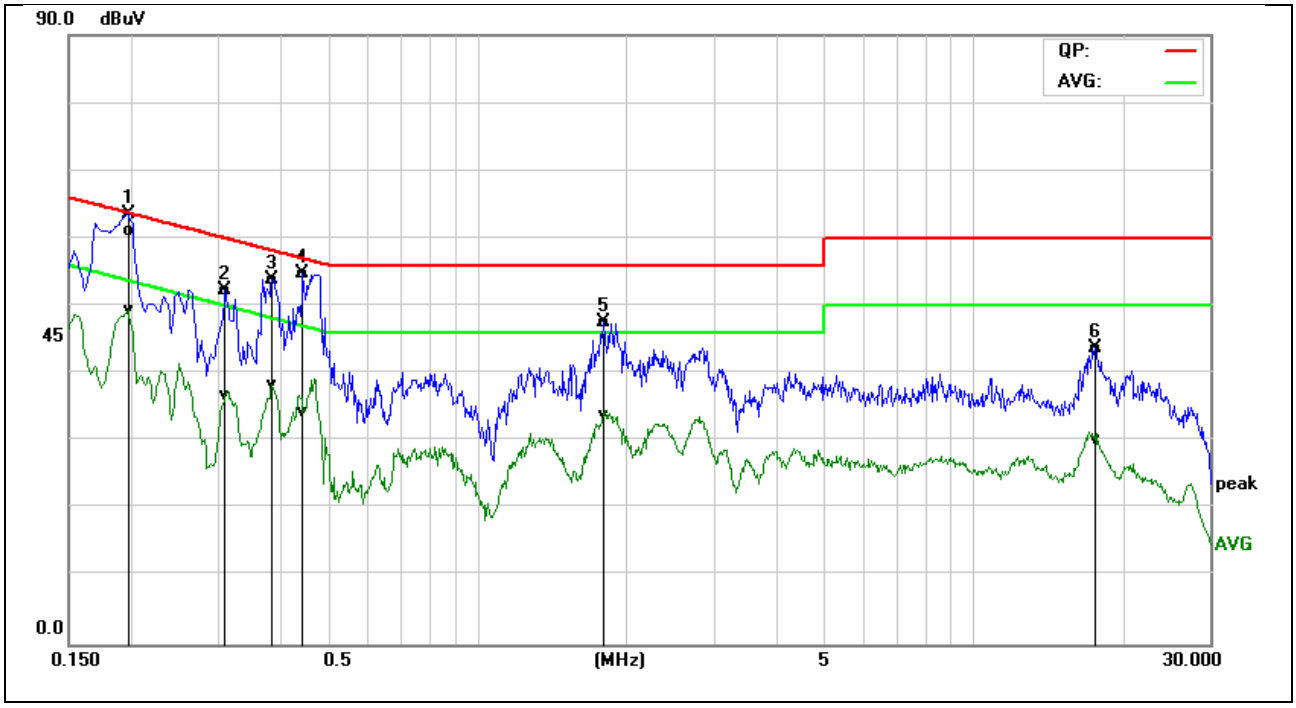
6.4. DATA SAMPLE

Frequency (MHz)	QuasiPeak Reading (dBuV)	Average Reading (dBuV)	Correction Factor (dB)	QuasiPeak Result (dBuV)	Average Result (dBuV)	QuasiPeak Limit (dBuV)	Average Limit (dBuV)	QuasiPeak Margin (dB)	Average Margin (dB)	Remark (Pass/Fail)
X.XXXX	32.69	25.65	11.52	44.21	37.17	65.78	55.79	-21.57	-18.62	Pass

Factor = Insertion loss of LISN + Cable Loss
Result = Quasi-peak Reading/ Average Reading + Factor
Limit = Limit stated in standard
Margin = Result (dBuV) – Limit (dBuV)

6.5. TEST RESULTS

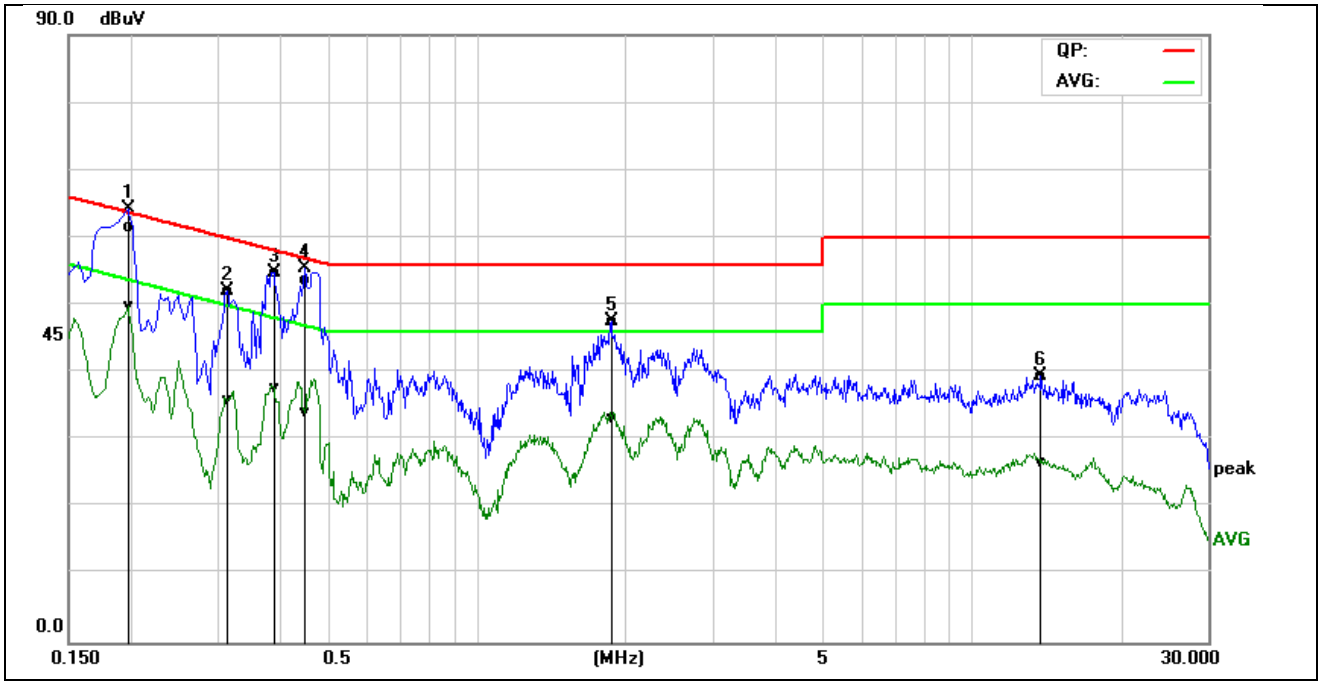
Model No.	Screeneo U3	**RBW,VBW**	9 kHz
Environmental Conditions	26.6°C, 60% RH	**Test Mode**	Mode 1
Tested By	Luck Zhu	**Line**	L
Tested Date	2019/09/04	**Test Voltage**	AC120V/60Hz



Frequency (MHz)	QuasiPeak Reading (dBuV)	Average Reading (dBuV)	Correction Factor (dB)	QuasiPeak Result (dBuV)	Average Result (dBuV)	QuasiPeak Limit (dBuV)	Average Limit (dBuV)	QuasiPeak Margin (dB)	Average Margin (dB)	Remark (Pass/Fail)
0.1980	51.27	39.42	9.93	61.20	49.35	63.69	53.69	-2.49	-4.34	Pass
0.3100	42.36	26.87	9.93	52.29	36.80	59.97	49.97	-7.68	-13.17	Pass
0.3860	43.95	28.38	9.88	53.83	38.26	58.15	48.15	-4.32	-9.89	Pass
0.4460	44.86	24.54	9.85	54.71	34.39	56.95	46.95	-2.24	-12.56	Pass
1.8060	37.75	23.93	9.83	47.58	33.76	56.00	46.00	-8.42	-12.24	Pass
17.5780	34.05	20.48	9.82	43.87	30.30	60.00	50.00	-16.13	-19.70	Pass

REMARKS: *L= Live Line*

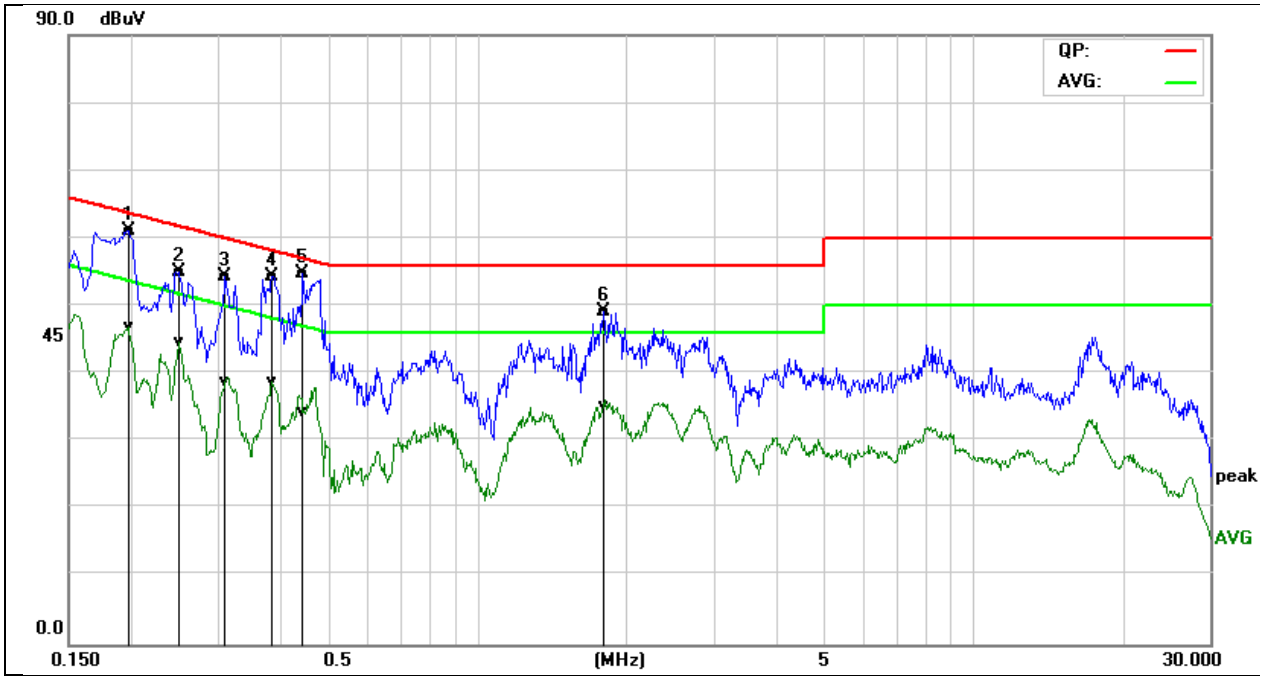
Model No.	Screeneo U3	**RBW,VBW**	9 kHz
Environmental Conditions	26.6°C, 60% RH	**Test Mode**	Mode 1
Tested By	Luck Zhu	**Line**	N
Tested Date	2019/09/04	**Test Voltage**	AC120V/60Hz



Frequency (MHz)	QuasiPeak Reading (dBuV)	Average Reading (dBuV)	Correction Factor (dB)	QuasiPeak Result (dBuV)	Average Result (dBuV)	QuasiPeak Limit (dBuV)	Average Limit (dBuV)	QuasiPeak Margin (dB)	Average Margin (dB)	Remark (Pass/Fail)
0.1980	51.72	39.91	9.88	61.60	49.79	63.69	53.69	-2.09	-3.90	Pass
0.3140	42.13	26.13	9.85	51.98	35.98	59.86	49.86	-7.88	-13.88	Pass
0.3899	44.91	27.79	9.84	54.75	37.63	58.06	48.07	-3.31	-10.44	Pass
0.4500	43.87	24.31	9.83	53.70	34.14	56.87	46.88	-3.17	-12.74	Pass
1.8740	37.67	23.32	9.84	47.51	33.16	56.00	46.00	-8.49	-12.84	Pass
13.8340	29.53	16.91	9.85	39.38	26.76	60.00	50.00	-20.62	-23.24	Pass

REMARKS: *N= Neutral Line*

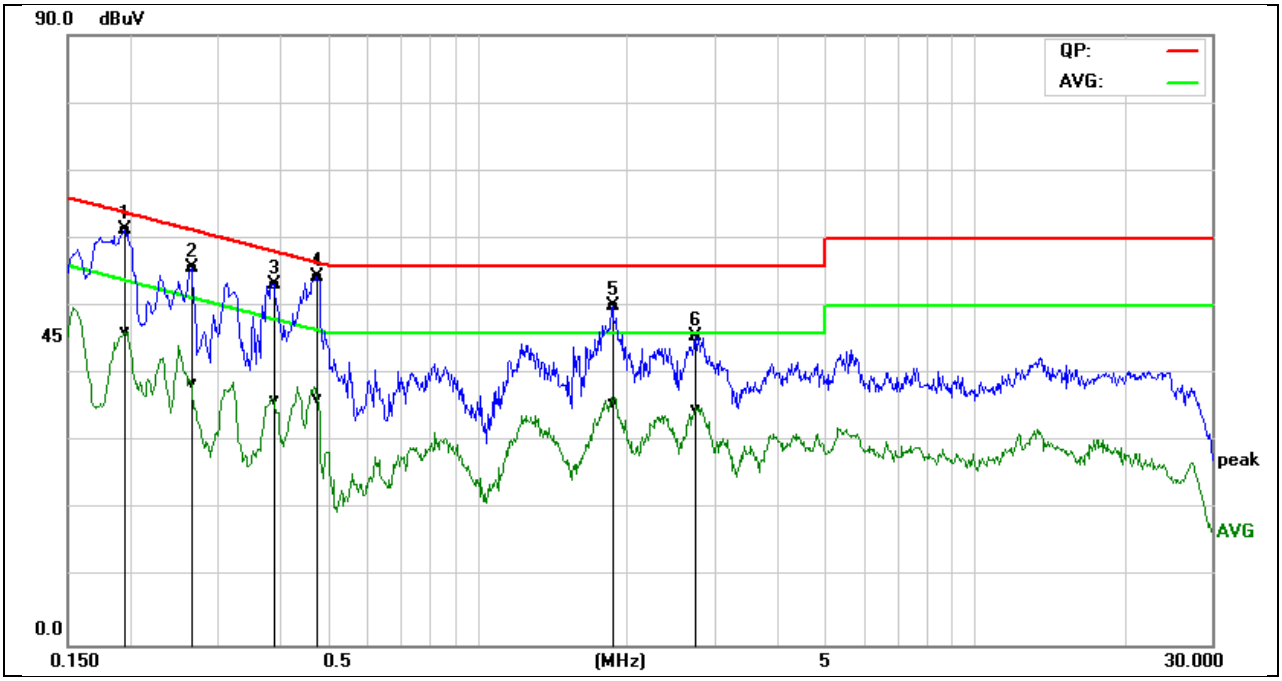
Model No.	Screeneo U3	**RBW,VBW**	9 kHz
Environmental Conditions	26.6°C, 60% RH	**Test Mode**	Mode 1
Tested By	Luck Zhu	**Line**	L
Tested Date	2019/09/06	**Test Voltage**	AC240V/50Hz



Frequency (MHz)	QuasiPeak Reading (dBuV)	Average Reading (dBuV)	Correction Factor (dB)	QuasiPeak Result (dBuV)	Average Result (dBuV)	QuasiPeak Limit (dBuV)	Average Limit (dBuV)	QuasiPeak Margin (dB)	Average Margin (dB)	Remark (Pass/Fail)
0.1980	51.16	36.92	9.93	61.09	46.85	63.69	53.69	-2.60	-6.84	Pass
0.2500	45.12	34.65	9.94	55.06	44.59	61.75	51.76	-6.69	-7.17	Pass
0.3100	44.36	28.87	9.93	54.29	38.80	59.97	49.97	-5.68	-11.17	Pass
0.3860	44.45	28.88	9.88	54.33	38.76	58.15	48.15	-3.82	-9.39	Pass
0.4460	44.86	24.54	9.85	54.71	34.39	56.95	46.95	-2.24	-12.56	Pass
1.8060	39.25	25.43	9.83	49.08	35.26	56.00	46.00	-6.92	-10.74	Pass

REMARKS: *L = Live Line*

Model No.	Screeneo U3	**RBW,VBW**	9 kHz
Environmental Conditions	26.6°C, 60% RH	**Test Mode**	Mode 1
Tested By	Luck Zhu	**Line**	N
Tested Date	2019/09/06	**Test Voltage**	AC240V/50Hz



Frequency (MHz)	QuasiPeak Reading (dBuV)	Average Reading (dBuV)	Correction Factor (dB)	QuasiPeak Result (dBuV)	Average Result (dBuV)	QuasiPeak Limit (dBuV)	Average Limit (dBuV)	QuasiPeak Margin (dB)	Average Margin (dB)	Remark (Pass/Fail)
0.1955	51.41	36.42	9.88	61.29	46.30	63.80	53.80	-2.51	-7.50	Pass
0.2660	45.80	28.75	9.86	55.66	38.61	61.24	51.24	-5.58	-12.63	Pass
0.3899	43.41	26.29	9.84	53.25	36.13	58.06	48.07	-4.81	-11.94	Pass
0.4780	44.53	26.59	9.82	54.35	36.41	56.37	46.37	-2.02	-9.96	Pass
1.8740	40.17	25.82	9.84	50.01	35.66	56.00	46.00	-5.99	-10.34	Pass
2.7460	35.69	24.99	9.84	45.53	34.83	56.00	46.00	-10.47	-11.17	Pass

REMARKS: *N= Neutral Line*

7. RADIATED SPURIOUS EMISSIONS

7.1. LIMITS

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required.

Frequency (MHz)	Quasi-peak(μV/m)	Measurement distance(m)	Quasi-peak(dBμV/m)@distance 3m
0.009-0.490	2400/F(kHz)	300	53.8~88.5
0.490-1.705	24000/F(kHz)	30	43~53.8
1.705-30.0	30	30	49.5
30 ~ 88	100	3	40
88~216	150	3	43.5
216 ~ 960	200	3	46
Above 960	500	3	54

NOTE: (1) The lower limit shall apply at the transition frequencies.

7.2. TEST PROCEDURES (please refer to measurement standard)

1) Sequence of testing 9 kHz to 30 MHz

Setup:

--- The equipment was set up to simulate a typical usage like described in the user manual or described by manufacturer.

--- If the EUT is a tabletop system, a rotatable table with 0.8 m height is used.

--- If the EUT is a floor standing device, it is placed on the ground.

--- Auxiliary equipment and cables were positioned to simulate normal operation conditions.

--- The AC power port of the EUT (if available) is connected to a power outlet below the turntable.

--- The measurement distance is 3 meter.

--- The EUT was set into operation.

Pre measurement:

--- The turntable rotates from 0 °to 315 °using 45 °steps.

--- The antenna height is 0.8 meter.

--- At each turntable position the analyzer sweeps with peak detection to find the maximum of all emissions

Final measurement:

--- Identified emissions during the pre measurement the software maximizes by rotating the turntable position (0 °to 360 °) and by rotating the elevation axes (0 °to 360 °).

--- The final measurement will be done in the position (turntable and elevation) causing the highest emissions with QPK detector.

--- The final levels, frequency, measuring time, bandwidth, turntable position, correction factor, margin to the limit and limit will be recorded. Also a plot with the graph of the pre measurement and the limit will be stored.

2) Sequence of testing 30 MHz to 1 GHz

Setup:

--- The equipment was set up to simulate a typical usage like described in the user manual or described by manufacturer.

--- If the EUT is a tabletop system, a table with 0.8 m height is used, which is placed on the ground plane.

--- If the EUT is a floor standing device, it is placed on the ground plane with insulation between both.

--- Auxiliary equipment and cables were positioned to simulate normal operation conditions

--- The AC power port of the EUT (if available) is connected to a power outlet below the turntable.

--- The measurement distance is 3 meter.

--- The EUT was set into operation.

Pre measurement:

--- The turntable rotates from 0 °to 315 °using 45 °steps.

--- The antenna is polarized vertical and horizontal.

--- The antenna height changes from 1 to 3 meter.

--- At each turntable position, antenna polarization and height the analyzer sweeps three times in peak to find the maximum of all emissions.

Final measurement:

--- The final measurement will be performed with minimum the six highest peaks.

--- According to the maximum antenna and turntable positions of premeasurement the software maximize the peaks by changing turntable position (±45°) and antenna movement between 1 and 4 meter.

--- The final measurement will be done with QP detector with an EMI receiver.

--- The final levels, frequency, measuring time, bandwidth, antenna height, antenna polarization, turntable angle, correction factor, margin to the limit and limit will be recorded. Also a plot with the graph of the premeasurement with marked maximum final measurements and the limit will be stored.

3) Sequence of testing 1 GHz to 18 GHz

Setup:

--- The equipment was set up to simulate a typical usage like described in the user manual or described by manufacturer.

--- If the EUT is a tabletop system, a rotatable table with 1.5 m height is used.

--- If the EUT is a floor standing device, it is placed on the ground plane with insulation between both.

--- Auxiliary equipment and cables were positioned to simulate normal operation conditions

--- The AC power port of the EUT (if available) is connected to a power outlet below the turntable.

--- The measurement distance is 3 meter.

--- The EUT was set into operation.

Pre measurement:

--- The turntable rotates from 0° to 315° using 45° steps.

--- The antenna is polarized vertical and horizontal.

--- The antenna height scan range is 1 meter to 2.5 meter.

--- At each turntable position and antenna polarization the analyzer sweeps with peak detection to find the maximum of all emissions.

Final measurement:

--- The final measurement will be performed with minimum the six highest peaks.

--- According to the maximum antenna and turntable positions of premeasurement the software maximize the peaks by changing turntable position (±45°) and antenna movement between 1 and 4 meter. This procedure is repeated for both antenna polarizations.

--- The final measurement will be done in the position (turntable, EUT-table and antenna polarization) causing the highest emissions with Peak and Average detector.
--- The final levels, frequency, measuring time, bandwidth, turntable position, EUT-table position, antenna polarization, correction factor, margin to the limit and limit will be recorded. Also a plot with the graph of the pre measurement with marked maximum final measurements and the limit will be stored.

4) Sequence of testing above 18 GHz
Setup:

--- The equipment was set up to simulate a typical usage like described in the user manual or described by manufacturer.

--- If the EUT is a tabletop system, a rotatable table with 1.5 m height is used.

--- If the EUT is a floor standing device, it is placed on the ground plane with insulation between both.

--- Auxiliary equipment and cables were positioned to simulate normal operation conditions

--- The AC power port of the EUT (if available) is connected to a power outlet below the turntable.

--- The measurement distance is 1 meter.

--- The EUT was set into operation.

Pre measurement:

--- The antenna is moved spherical over the EUT in different polarisations of the antenna.

Final measurement:

--- The final measurement will be performed at the position and antenna orientation for all detected emissions that were found during the premeasurements with Peak and Average detector.
--- The final levels, frequency, measuring time, bandwidth, correction factor, margin to the limit and limit will be recorded. Also a plot with the graph of the premeasurement and the limit will be stored.

NOTE: The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is 3MHz for RMS Average (Duty cycle < 98%) for Average detection (AV) at frequency above 1GHz, then the measurement results was added to a correction factor (10 log(1/duty cycle)).

1.3. TEST SETUP

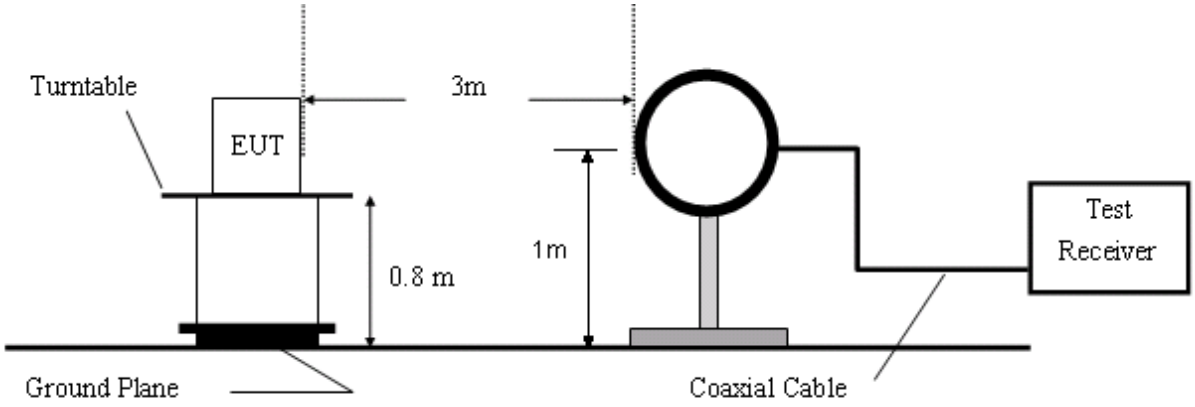


Figure 1. 9KHz to 30MHz radiated emissions test configuration

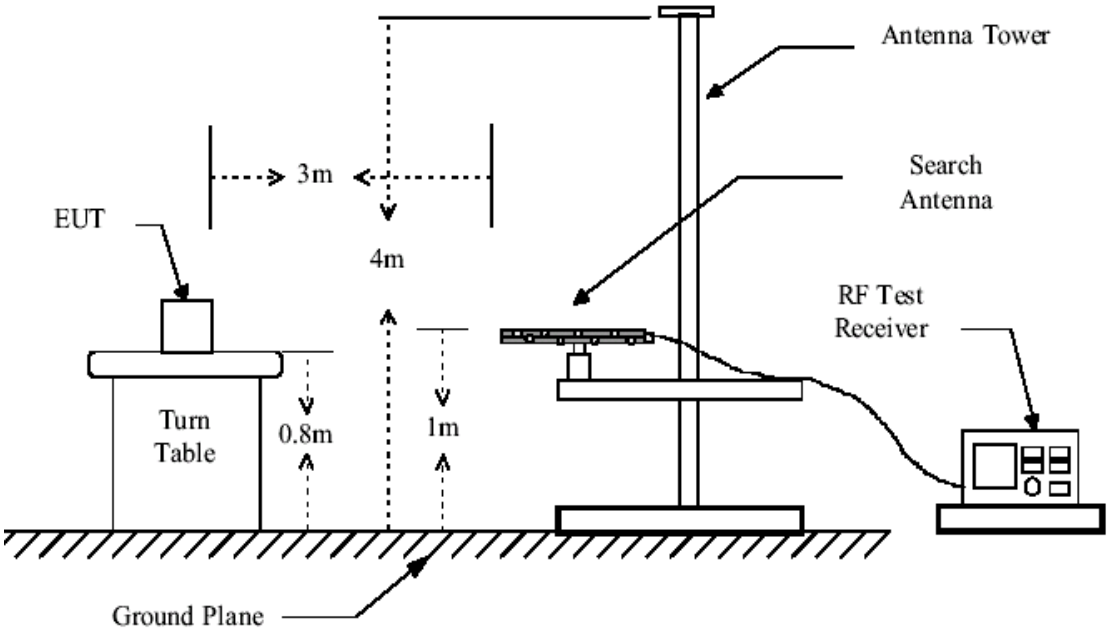


Figure 2. 30MHz to 1GHz radiated emissions test configuration

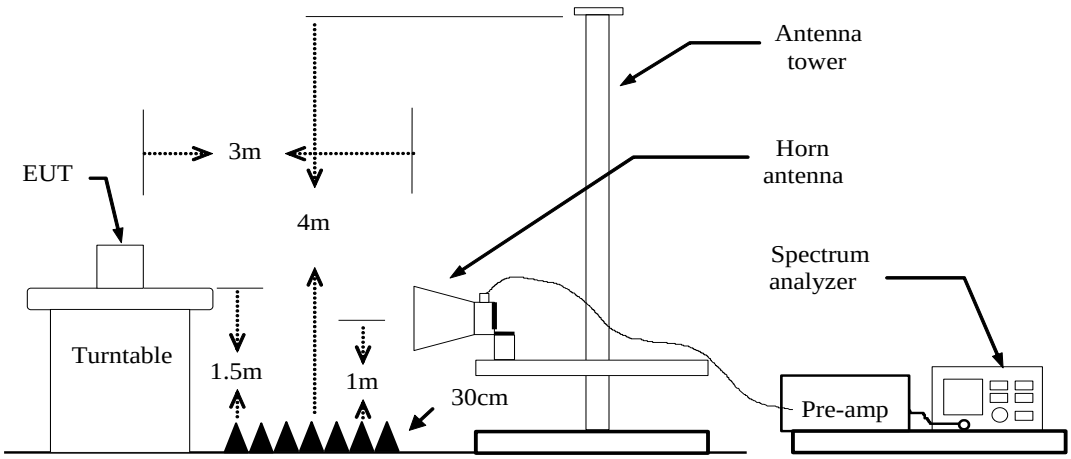


Figure 3. Above 1GHz radiated emissions test configuration

7.3. DATA SAMPLE

30MHz to 1GHz

No.	Frequency (MHz)	Reading (dBuV/m)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Pole
xxx	xxx	37.06	-15.48	21.58	40.00	-18.42	QP	Vertical

Above 1 GHz

No.	Frequency (MHz)	Reading (dBuV/m)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Pole
xxx	xxx	65.45	-11.12	54.33	74.00	-19.67	peak	Vertical
xxx	xxx	63.00	-11.12	51.88	54.00	-2.12	AVG	Vertical

Frequency (MHz) = Emission frequency in MHz

Ant.Pol. (H/V) = Antenna polarization

Reading (dBuV) = Uncorrected Analyzer / Receiver reading

Correction Factor (dB/m) = Antenna factor + Cable loss – Amplifier gain

Result (dBuV/m) = Reading (dBuV) + Correction Factor (dB/m)

Limit (dBuV/m) = Limit stated in standard

Margin (dB) = Remark Result (dBuV/m) – Limit (dBuV/m)

Peak = Peak Reading

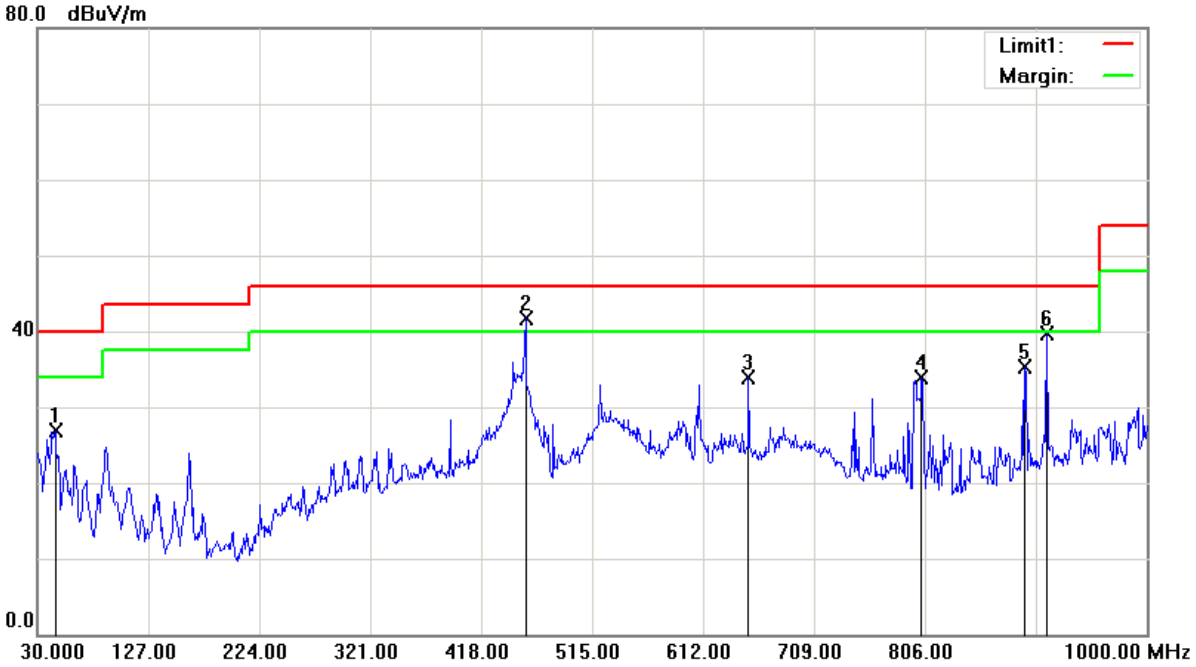
QP = Quasi-peak Reading

AVG = Average Reading

7.4. TEST RESULTS

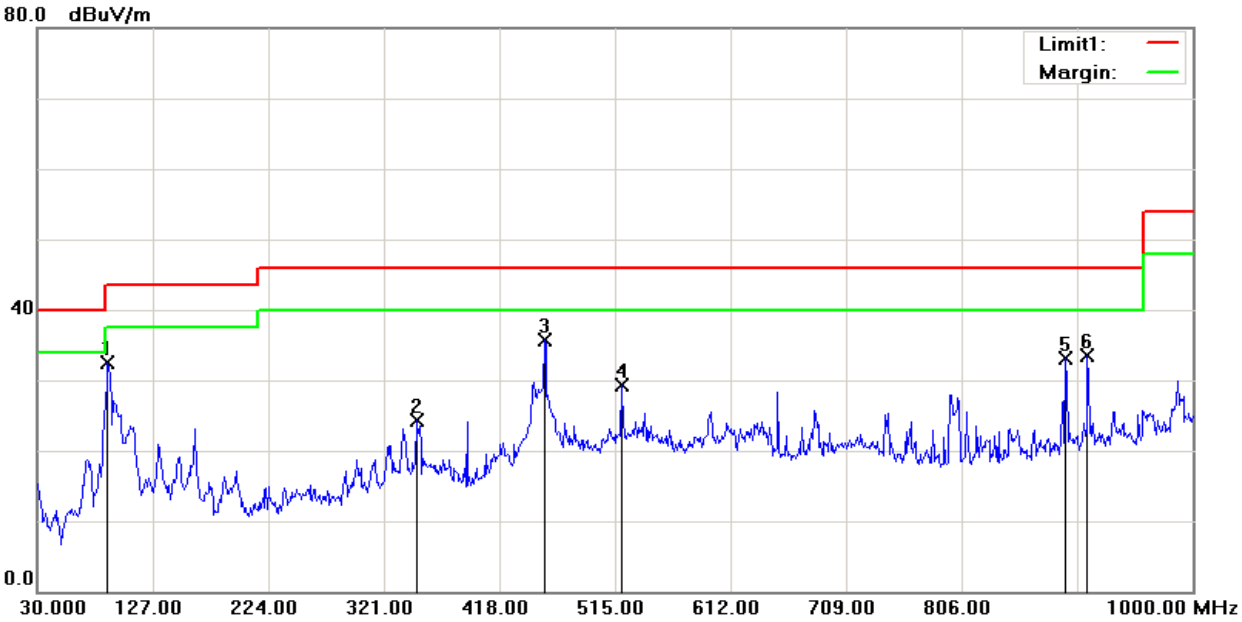
30MHz to 1GHz

Mode: TX
Highest channel (2462MHz) Date: 2019/08/30



No.	Frequency (MHz)	Reading (dBuV/m)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Pole
1	45.5200	54.95	-28.13	26.82	40.00	-13.18	QP	Vertical
2	456.8000	63.79	-22.07	41.72	46.00	-4.28	QP	Vertical
3	651.7700	52.15	-18.16	33.99	46.00	-12.01	QP	Vertical
4	803.0900	51.89	-17.97	33.92	46.00	-12.08	QP	Vertical
5	893.3000	51.08	-15.77	35.31	46.00	-10.69	QP	Vertical
6	912.7000	55.32	-15.62	39.70	46.00	-6.30	QP	Vertical

Mode: TX
Highest channel (2462MHz) Date: 2019/08/30



No.	Frequency (MHz)	Reading (dBuV/m)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Pole
1	89.1700	62.28	-29.83	32.45	43.50	-11.05	QP	Horizontal
2	348.1600	49.34	-24.97	24.37	46.00	-21.63	QP	Horizontal
3	455.8300	57.85	-22.08	35.77	46.00	-10.23	QP	Horizontal
4	520.8200	50.48	-21.14	29.34	46.00	-16.66	QP	Horizontal
5	893.3000	48.89	-15.77	33.12	46.00	-12.88	QP	Horizontal
6	911.7300	49.11	-15.62	33.49	46.00	-12.51	QP	Horizontal

Remark:

1 No emission found between lowest internal used/generated frequency to 30MHz.
2 Pre-scan all modes and recorded the worst case mode 1results in this report (Highest channel)
3 Radiated emissions measured in frequency range from 9 kHz to 1GHz were made with an instrument using Quasi-peak detector mode.
4 Data of measurement within this frequency range shown "---" in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
5 The IF bandwidth of Receiver between 30MHz to 1GHz was 120 kHz.

Above 1GHz:

Mode: TX / IEEE 802.11b
Lowest channel (2412MHz) Date: 2019/08/30

No.	Frequency (MHz)	Reading (dBuV/m)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Pole
1	1315.000	56.76	-5.83	50.93	74.00	-23.07	peak	Vertical
2	1486.000	53.55	-5.37	48.18	74.00	-25.82	peak	Vertical
3	1603.000	56.39	-4.72	51.67	74.00	-22.33	peak	Vertical
4	1828.000	46.83	-3.38	43.45	74.00	-30.55	peak	Vertical
5	1981.000	45.81	-2.47	43.34	74.00	-30.66	peak	Vertical
6	5401.000	43.09	3.38	46.47	74.00	-27.53	peak	Vertical
7	1315.000	55.07	-7.39	47.68	74.00	-26.32	peak	Horizontal
8	1486.000	51.37	-6.76	44.61	74.00	-29.39	peak	Horizontal
9	1594.000	52.09	-6.21	45.88	74.00	-28.12	peak	Horizontal
10	1828.000	46.33	-4.96	41.37	74.00	-32.63	peak	Horizontal
11	4051.000	44.18	-0.02	44.16	74.00	-29.84	peak	Horizontal
12	4825.000	41.99	0.97	42.96	74.00	-31.04	peak	Horizontal

Mode: TX/ IEEE 802.11b
Middle channel (2437 MHz) Date: 2019/08/30

No.	Frequency (MHz)	Reading (dBuV/m)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Pole
1	1315.000	56.75	-5.83	50.92	74.00	-23.08	peak	Vertical
2	1486.000	53.34	-5.37	47.97	74.00	-26.03	peak	Vertical
3	1594.000	56.58	-4.77	51.81	74.00	-22.19	peak	Vertical
4	1828.000	46.68	-3.38	43.30	74.00	-30.70	peak	Vertical
5	4051.000	41.86	1.69	43.55	74.00	-30.45	peak	Vertical
6	5401.000	43.39	3.38	46.77	74.00	-27.23	peak	Vertical
7	1315.000	54.83	-7.39	47.44	74.00	-26.56	peak	Horizontal
8	1486.000	50.29	-6.76	43.53	74.00	-30.47	peak	Horizontal
9	1594.000	51.86	-6.21	45.65	74.00	-28.35	peak	Horizontal
10	3142.000	43.87	-1.23	42.64	74.00	-31.36	peak	Horizontal
11	4051.000	43.73	-0.02	43.71	74.00	-30.29	peak	Horizontal
12	4870.000	42.74	0.97	43.71	74.00	-30.29	peak	Horizontal

Mode: TX/ IEEE 802.11b
Highest channel (2462MHz) Date: 2019/08/30

No.	Frequency (MHz)	Reading (dBuV/m)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Pole
1	1315.000	57.88	-5.83	52.05	74.00	-21.95	peak	Vertical
2	1486.000	53.73	-5.37	48.36	74.00	-25.64	peak	Vertical
3	1594.000	56.03	-4.77	51.26	74.00	-22.74	peak	Vertical
4	2089.000	45.59	-2.16	43.43	74.00	-30.57	peak	Vertical
5	4051.000	43.41	1.69	45.10	74.00	-28.90	peak	Vertical
6	5401.000	43.16	3.38	46.54	74.00	-27.46	peak	Vertical
7	1315.000	55.13	-7.39	47.74	74.00	-26.26	peak	Horizontal
8	1486.000	51.21	-6.76	44.45	74.00	-29.55	peak	Horizontal
9	1594.000	51.96	-6.21	45.75	74.00	-28.25	peak	Horizontal
10	2467.000	45.64	-3.29	42.35	74.00	-31.65	peak	Horizontal
11	4051.000	42.98	-0.02	42.96	74.00	-31.04	peak	Horizontal
12	4924.000	41.44	0.99	42.43	74.00	-31.57	peak	Horizontal

Mode: TX / IEEE 802.11g
Lowest channel (2412MHz) Date: 2019/08/30

No.	Frequency (MHz)	Reading (dBuV/m)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Pole
1	1315.000	55.95	-5.83	50.12	74.00	-23.88	peak	Vertical
2	1486.000	53.28	-5.37	47.91	74.00	-26.09	peak	Vertical
3	1594.000	56.34	-4.77	51.57	74.00	-22.43	peak	Vertical
4	1828.000	47.00	-3.38	43.62	74.00	-30.38	peak	Vertical
5	4051.000	42.34	1.69	44.03	74.00	-29.97	peak	Vertical
6	5401.000	42.73	3.38	46.11	74.00	-27.89	peak	Vertical
7	1315.000	55.51	-7.39	48.12	74.00	-25.88	peak	Horizontal
8	1486.000	51.56	-6.76	44.80	74.00	-29.20	peak	Horizontal
9	1594.000	52.34	-6.21	46.13	74.00	-27.87	peak	Horizontal
10	3367.000	41.72	-1.15	40.57	74.00	-33.43	peak	Horizontal
11	4051.000	42.01	-0.02	41.99	74.00	-32.01	peak	Horizontal
12	4717.000	40.79	0.95	41.74	74.00	-32.26	peak	Horizontal

Mode: TX/ IEEE 802.11g
Middle channel (2437 MHz) Date: 2019/08/30

No.	Frequency (MHz)	Reading (dBuV/m)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Pole
1	1315.000	56.90	-5.83	51.07	74.00	-22.93	peak	Vertical
2	1486.000	53.09	-5.37	47.72	74.00	-26.28	peak	Vertical
3	1594.000	55.94	-4.77	51.17	74.00	-22.83	peak	Vertical
4	3565.000	42.84	1.01	43.85	74.00	-30.15	peak	Vertical
5	4051.000	42.92	1.69	44.61	74.00	-29.39	peak	Vertical
6	5401.000	43.44	3.38	46.82	74.00	-27.18	peak	Vertical
7	1315.000	54.48	-7.39	47.09	74.00	-26.91	peak	Horizontal
8	1486.000	51.14	-6.76	44.38	74.00	-29.62	peak	Horizontal
9	1603.000	51.08	-6.16	44.92	74.00	-29.08	peak	Horizontal
10	4051.000	43.06	-0.02	43.04	74.00	-30.96	peak	Horizontal
11	5401.000	41.00	1.98	42.98	74.00	-31.02	peak	Horizontal
12	7309.000	42.33	6.11	48.44	74.00	-25.56	peak	Horizontal

Mode: TX/ IEEE 802.11g
Highest channel (2462MHz) Date: 2019/08/30

No.	Frequency (MHz)	Reading (dBuV/m)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Pole
1	1315.000	57.32	-5.83	51.49	74.00	-22.51	peak	Vertical
2	1486.000	54.10	-5.37	48.73	74.00	-25.27	peak	Vertical
3	1594.000	56.74	-4.77	51.97	74.00	-22.03	peak	Vertical
4	1828.000	46.65	-3.38	43.27	74.00	-30.73	peak	Vertical
5	4051.000	42.34	1.69	44.03	74.00	-29.97	peak	Vertical
6	5401.000	43.14	3.38	46.52	74.00	-27.48	peak	Vertical
7	1315.000	54.96	-7.39	47.57	74.00	-26.43	peak	Horizontal
8	1486.000	50.93	-6.76	44.17	74.00	-29.83	peak	Horizontal
9	1594.000	52.73	-6.21	46.52	74.00	-27.48	peak	Horizontal
10	1828.000	46.65	-4.96	41.69	74.00	-32.31	peak	Horizontal
11	2584.000	44.91	-2.91	42.00	74.00	-32.00	peak	Horizontal
12	4051.000	42.69	-0.02	42.67	74.00	-31.33	peak	Horizontal

Mode: TX / IEEE 802.11n HT20
Lowest channel (2412MHz) Date: 2019/08/30

No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark	Pole
	(MHz)	(dBuV/m)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)		
1	1315.000	56.67	-5.83	50.84	74.00	-23.16	peak	Vertical
2	1594.000	56.67	-4.77	51.90	74.00	-22.10	peak	Vertical
3	3151.000	43.84	0.91	44.75	74.00	-29.25	peak	Vertical
4	4051.000	42.07	1.69	43.76	74.00	-30.24	peak	Vertical
5	5401.000	43.47	3.38	46.85	74.00	-27.15	peak	Vertical
6	7543.000	40.31	8.35	48.66	74.00	-25.34	peak	Vertical
7	1315.000	54.62	-7.39	47.23	74.00	-26.77	peak	Horizontal
8	1594.000	52.92	-6.21	46.71	74.00	-27.29	peak	Horizontal
9	1828.000	46.71	-4.96	41.75	74.00	-32.25	peak	Horizontal
10	2854.000	44.15	-1.86	42.29	74.00	-31.71	peak	Horizontal
11	4051.000	43.18	-0.02	43.16	74.00	-30.84	peak	Horizontal
12	5401.000	42.26	1.98	44.24	74.00	-29.76	peak	Horizontal

Mode: TX/ IEEE 802.11n HT20
Middle channel (2437 MHz) Date: 2019/08/30

No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark	Pole
	(MHz)	(dBuV/m)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)		
1	1315.000	56.81	-5.83	50.98	74.00	-23.02	peak	Vertical
2	1486.000	53.18	-5.37	47.81	74.00	-26.19	peak	Vertical
3	1594.000	56.81	-4.77	52.04	74.00	-21.96	peak	Vertical
4	1828.000	47.89	-3.38	44.51	74.00	-29.49	peak	Vertical
5	4051.000	42.78	1.69	44.47	74.00	-29.53	peak	Vertical
6	5401.000	43.35	3.38	46.73	74.00	-27.27	peak	Vertical
7	1315.000	55.27	-7.39	47.88	74.00	-26.12	peak	Horizontal
8	1486.000	52.18	-6.76	45.42	74.00	-28.58	peak	Horizontal
9	1594.000	51.94	-6.21	45.73	74.00	-28.27	peak	Horizontal
10	4051.000	42.77	-0.02	42.75	74.00	-31.25	peak	Horizontal
11	5401.000	41.34	1.98	43.32	74.00	-30.68	peak	Horizontal
12	7309.000	40.92	6.11	47.03	74.00	-26.97	peak	Horizontal

Mode: TX/ IEEE 802.11n HT20
Highest channel (2462MHz) Date: 2019/08/30

No.	Frequency (MHz)	Reading (dBuV/m)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Pole
1	1315.000	57.03	-5.83	51.20	74.00	-22.80	peak	Vertical
2	1486.000	52.93	-5.37	47.56	74.00	-26.44	peak	Vertical
3	1594.000	56.55	-4.77	51.78	74.00	-22.22	peak	Vertical
4	1828.000	47.54	-3.38	44.16	74.00	-29.84	peak	Vertical
5	4051.000	42.74	1.69	44.43	74.00	-29.57	peak	Vertical
6	5401.000	43.79	3.38	47.17	74.00	-26.83	peak	Vertical
7	1315.000	54.55	-7.39	47.16	74.00	-26.84	peak	Horizontal
8	1486.000	52.00	-6.76	45.24	74.00	-28.76	peak	Horizontal
9	1594.000	52.55	-6.21	46.34	74.00	-27.66	peak	Horizontal
10	2467.000	45.26	-3.29	41.97	74.00	-32.03	peak	Horizontal
11	4051.000	43.83	-0.02	43.81	74.00	-30.19	peak	Horizontal
12	5401.000	40.43	1.98	42.41	74.00	-31.59	peak	Horizontal

Remark:

1 Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.

2 Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.

3 Average test would be performed if the peak result were greater than the average limit or as required by the applicant.

4 Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

5 Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.

8. 6DB BANDWIDTH

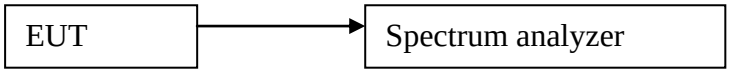
8.1. LIMITS

Systems using digital modulation techniques may operate in the 902–928 MHz, 2400–2483.5 MHz, and 5725–5850 MHz bands. The minimum 6 dB bandwidth shall be at least 500 kHz.

8.2. TEST PROCEDURES

1) Remove the antenna from the EUT, and then connect a low loss RF cable from antenna port to the spectrum analyzer**.**
2) Set resolution bandwidth (RBW) = 100kHz.Set the video bandwidth (VBW) ≥ 3 x RBW. Detector = Peak. Trace mode = max hold. Sweep = auto couple. Allow the trace to stabilize, record 6dB bandwidth value.
3) Repeat above procedures until all frequencies measured were complete.

8.3. TEST SETUP



8.4. TEST RESULTS

Test mode: IEEE 802.11b

Channel No.	Frequency (MHz)	Bandwidth (kHz)	Limit (kHz)	Test Result
1	2412	8584	>500	PASS
6	2437	9050		PASS
11	2462	9034		PASS

Test mode: IEEE 802.11g

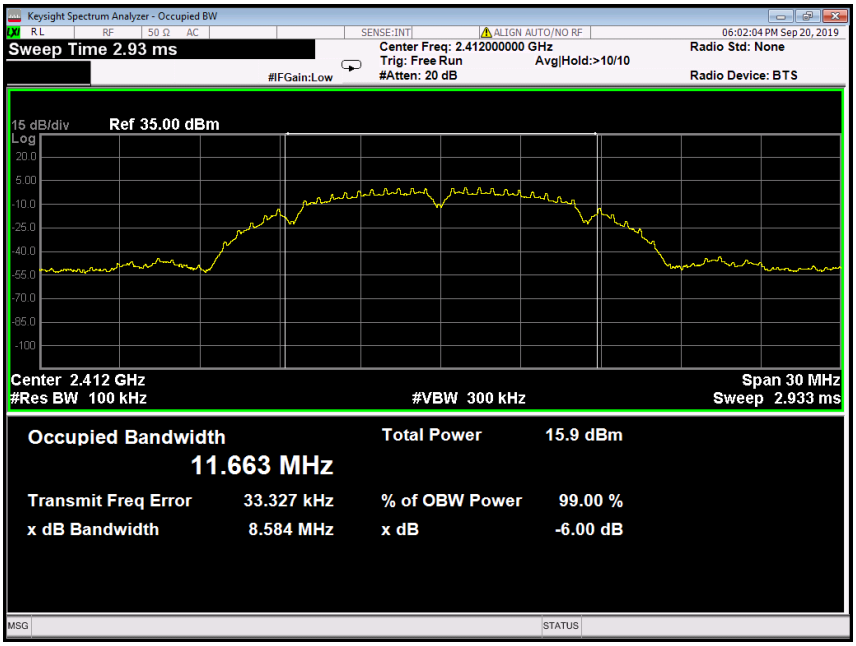
Channel No.	Frequency (MHz)	Bandwidth (kHz)	Limit (kHz)	Test Result
1	2412	16310	>500	PASS
6	2437	16320		PASS
11	2462	16330		PASS

Test mode: IEEE 802.11n HT20

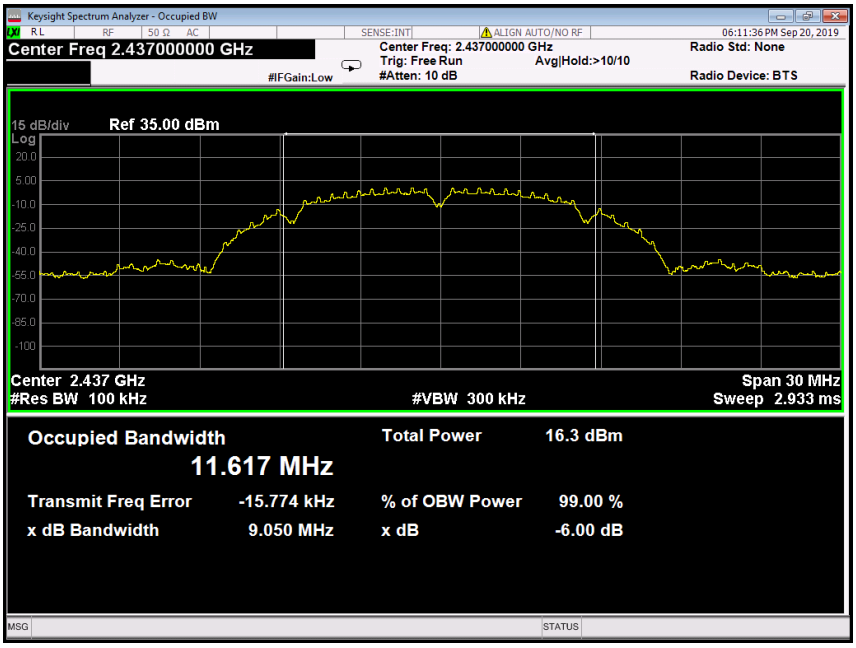
Channel No.	Frequency (MHz)	Bandwidth (kHz)	Limit (kHz)	Test Result
1	2412	17290	>500	PASS
6	2437	17320		PASS
11	2462	17540		PASS

IEEE 802.11b mode:

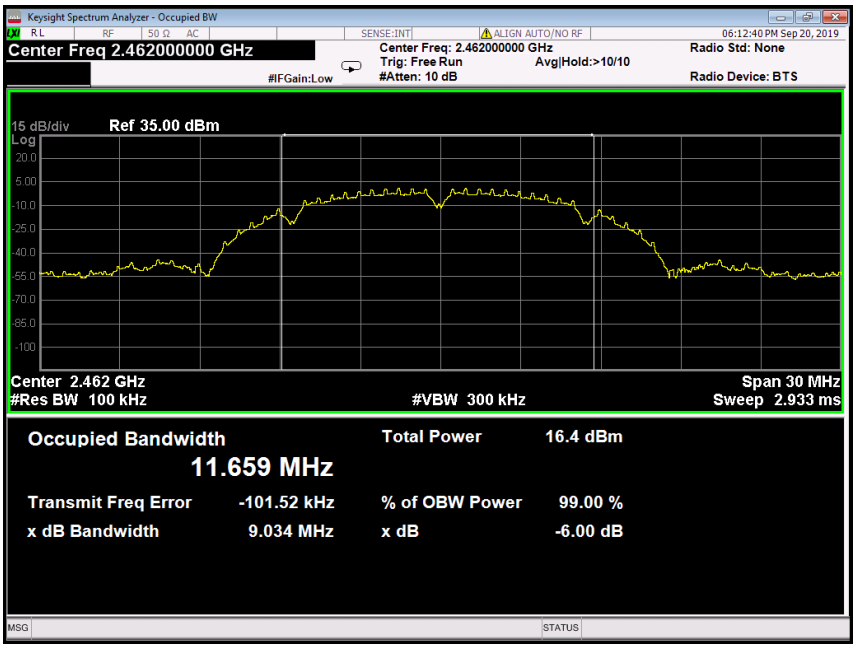
Channel 2412MHz



Channel 2437MHz

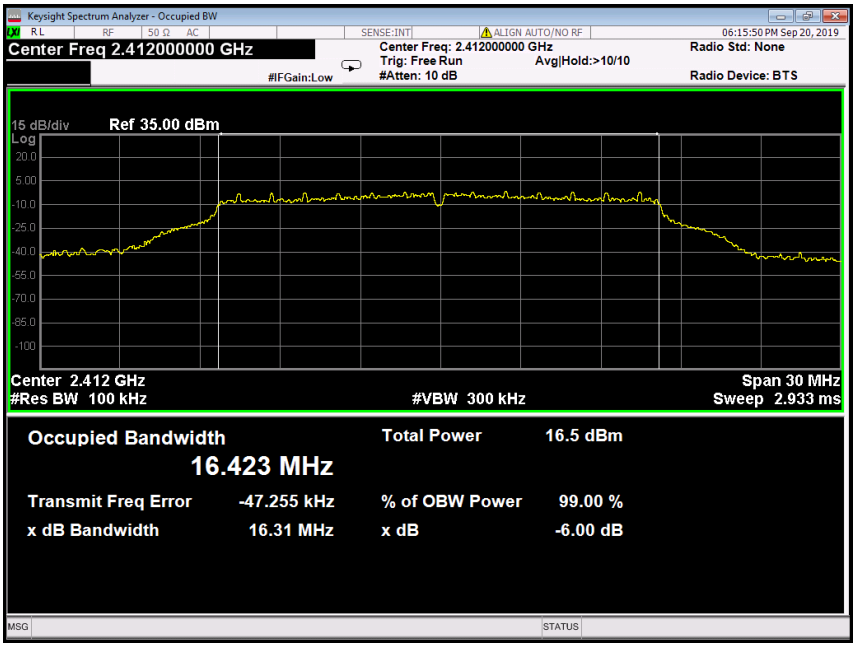


Channel 2462MHz

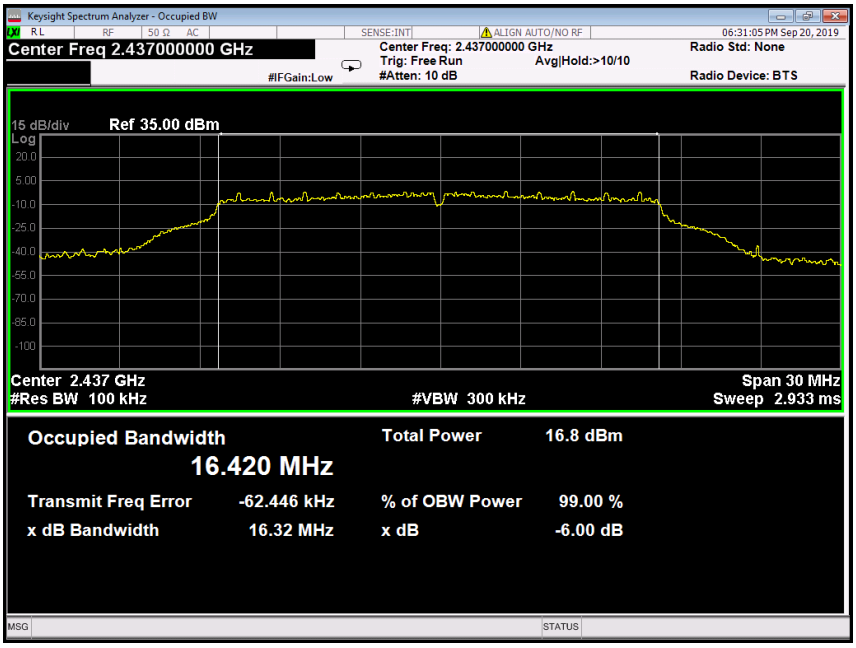


IEEE 802.11g mode:

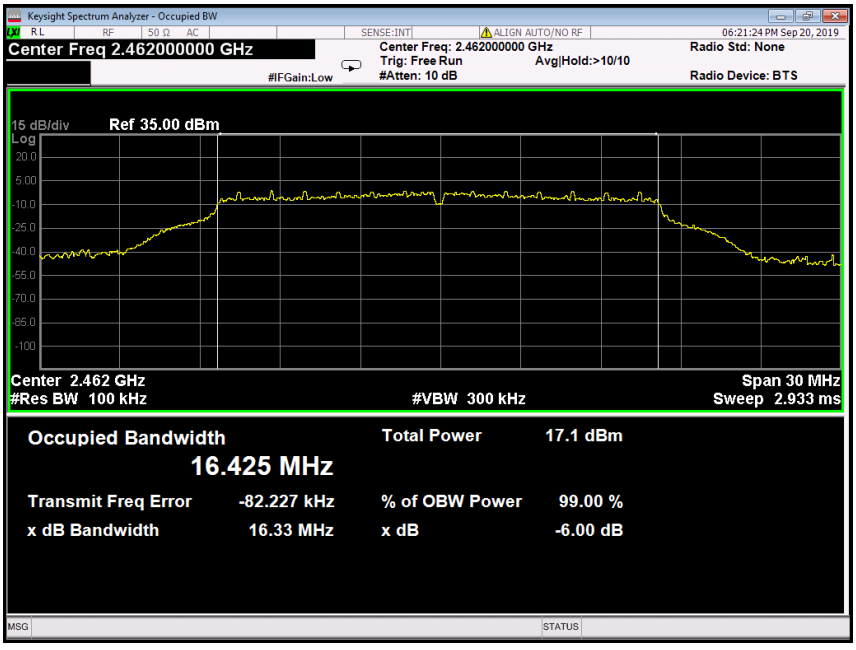
Channel 2412MHz



Channel 2437MHz

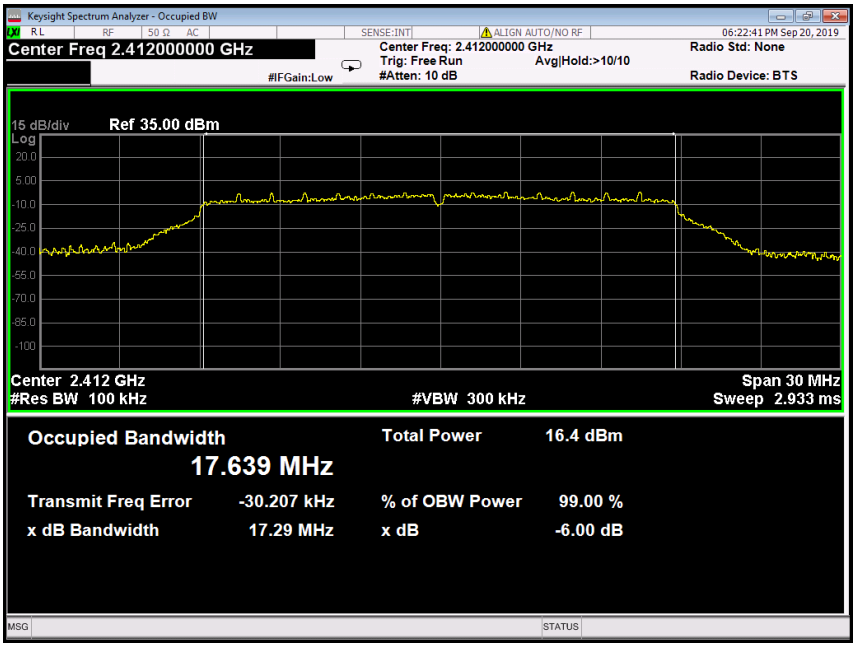


Channel 2462MHz

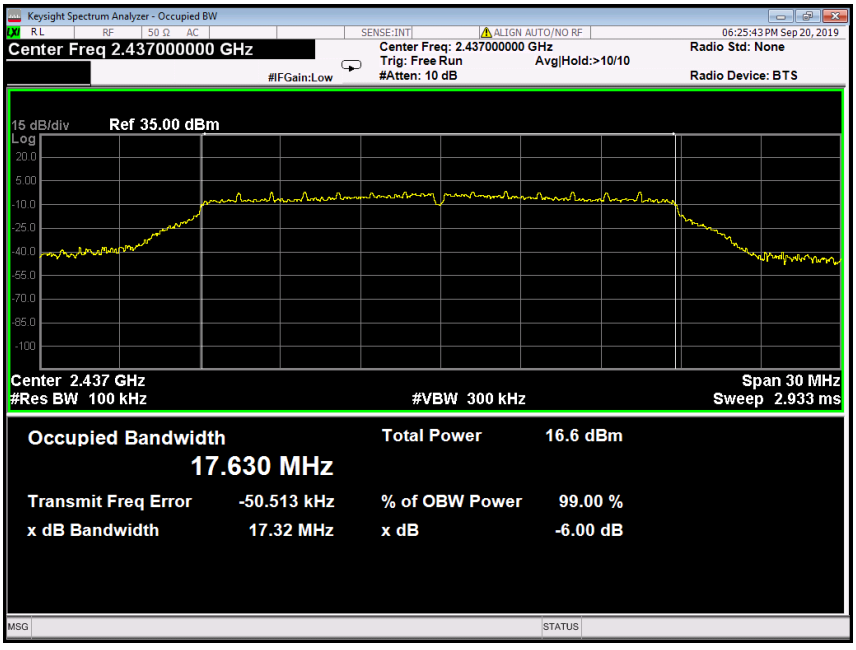


IEEE 802.11n HT20 mode:

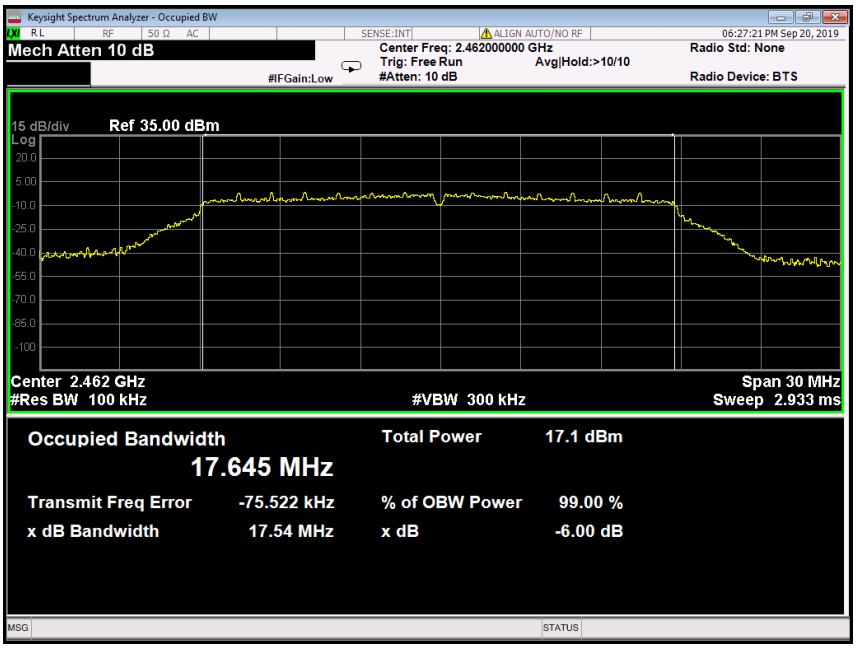
Channel 2412MHz



Channel 2437MHz



Channel 2462MHz



9. MAXIMUM PEAK OUTPUT POWER

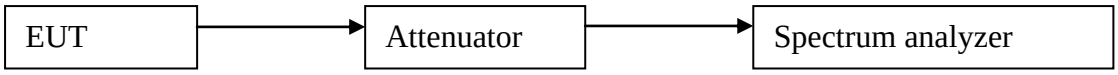
9.1. LIMITS

The maximum Peak output power measurement is 1W

9.2. TEST PROCEDURES

1) Place the EUT on a bench and set it in transmitting mode.
2) Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to an EMI Test Receiver.
3) The spectrum analyzer resolution bandwidth that is ≤EBW. So we test the Maximum Conducted Output Power ——Integrated band power method.
4) Set the analyzer span≥ 1.5 x DTS bandwidth. Set the RBW = 1 MHz. Set the VBW ≥ 3 MHz. Sweep time = auto couple. Detector = peak. Allow trace to fully stabilize.

9.3. TEST SETUP



9.4. TEST RESULTS

802.11b Mode:

Channel No.	Frequency (MHz)	Measured Channel Power (dBm)	Peak / AVG	Limit	Result
1	2412	16.12	Peak	1W (30dBm)	Pass
6	2437	16.63			Pass
11	2462	16.87			Pass
1	2412	13.20	AVG	1W (30dBm)	Pass
6	2437	13.68			Pass
11	2462	13.78			Pass

802.11g Mode:

Channel No.	Frequency (MHz)	Measured Channel Power (dBm)	Peak / AVG	Limit	Result
1	2412	22.60	Peak	1W (30dBm)	Pass
6	2437	23.00			Pass
11	2462	23.43			Pass
1	2412	12.70	AVG	1W (30dBm)	Pass
6	2437	12.95			Pass
11	2462	13.38			Pass

802.11n HT20 Mode:

Channel No.	Frequency (MHz)	Measured Channel Power (dBm)	Peak / AVG	Limit	Result
1	2412	22.25	Peak	1W (30dBm)	Pass
6	2437	23.02			Pass
11	2462	23.06			Pass
1	2412	12.15	AVG	1W (30dBm)	Pass
6	2437	12.63			Pass
11	2462	13.00			Pass

10. POWER SPECTRAL DENSITY

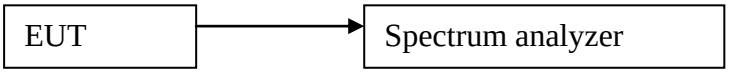
10.1. LIMITS

For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission. This power spectral density shall be determined in accordance with the provisions of paragraph (b) of this section. The same method of determining the conducted output power shall be used to determine the power spectral density.

10.2. TEST PROCEDURES

1) Remove the antenna from the EUT, and then connect a low loss RF cable from antenna port to the spectrum analyzer.
2) Position the EUT was set without connection to measurement instrument. Turn on the EUT and connect its antenna terminal to measurement instrument via a low loss cable. Then set it to any one measured frequency within its operating range, and make sure the instrument is operated in its linear range.
3) Set the analyzer span to 1.5 times the DTS bandwidth. Set the RBW = 3 kHz. Set the VBW ≥3 RBW. Detector = peak. Ensure that the number of measurement points in the sweep ≥ 2 x span/RBW (use of a greater number of measurement points than this minimum requirement is recommended).
4) Repeat above procedures until all frequencies measured were complete.

10.3. TEST SETUP



10.4. TEST RESULTS

IEEE 802.11b Mode:

Channel No.	Frequency (MHz)	PPSD (dBm)	Limit (dBm/3kHz)	Result
1	2412	-9.508	8	Pass
6	2437	-9.111		Pass
11	2462	-9.186		Pass

IEEE 802.11g Mode:

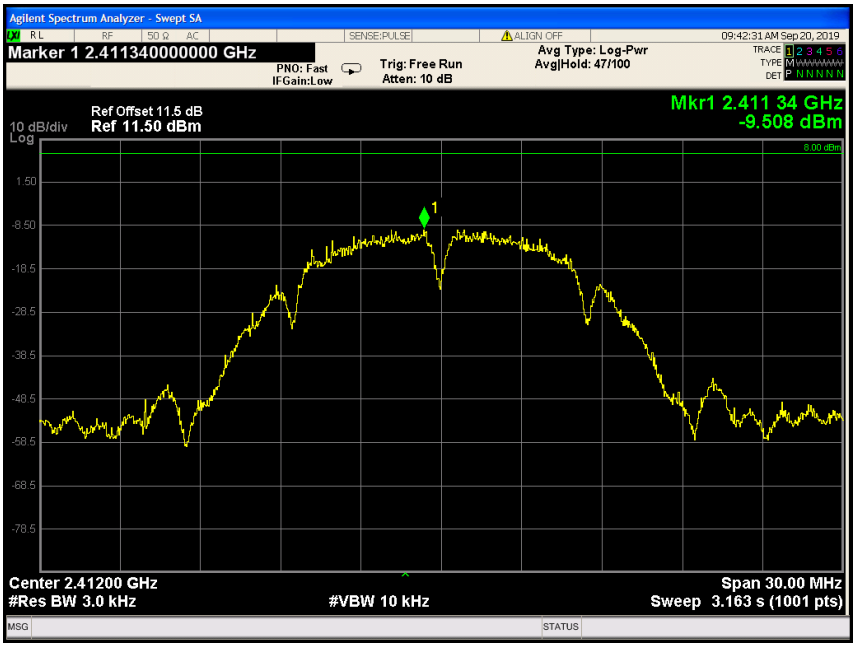
Channel No.	Frequency (MHz)	PPSD (dBm)	Limit (dBm/3kHz)	Result
1	2412	-11.105	8	Pass
6	2437	-10.539		Pass
11	2462	-10.489		Pass

IEEE 802.11n HT20 Mode:

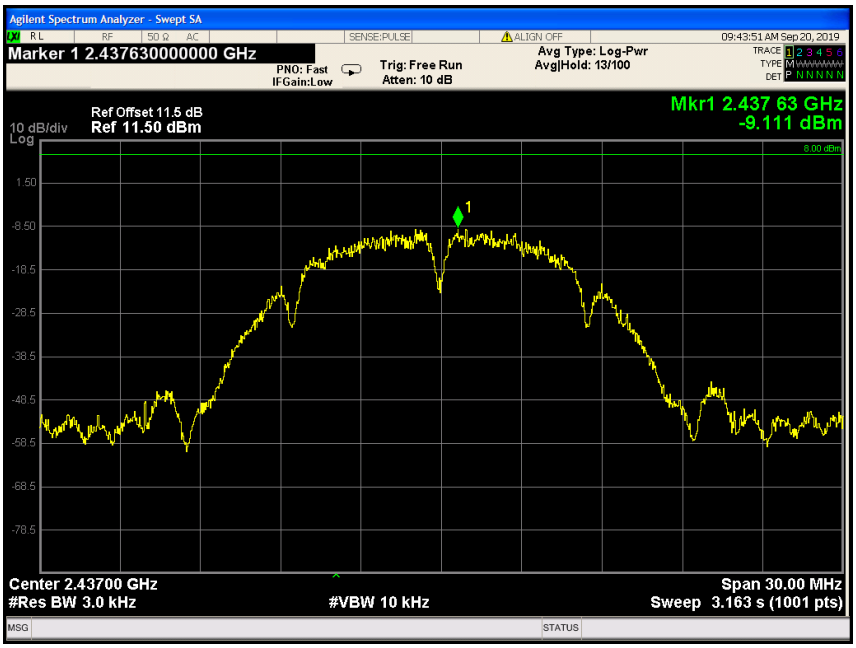
Channel No.	Frequency (MHz)	PPSD (dBm)	Limit (dBm/3kHz)	Result
1	2412	-12.130	8	Pass
6	2437	-11.598		Pass
11	2462	-12.219		Pass

IEEE 802.11b mode:

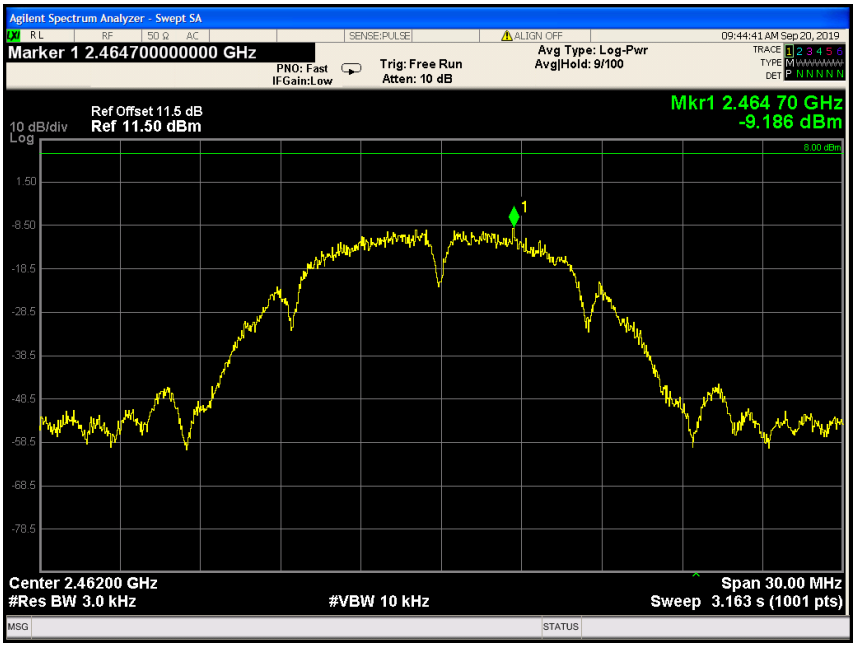
Channel 2412MHz



Channel 2437MHz

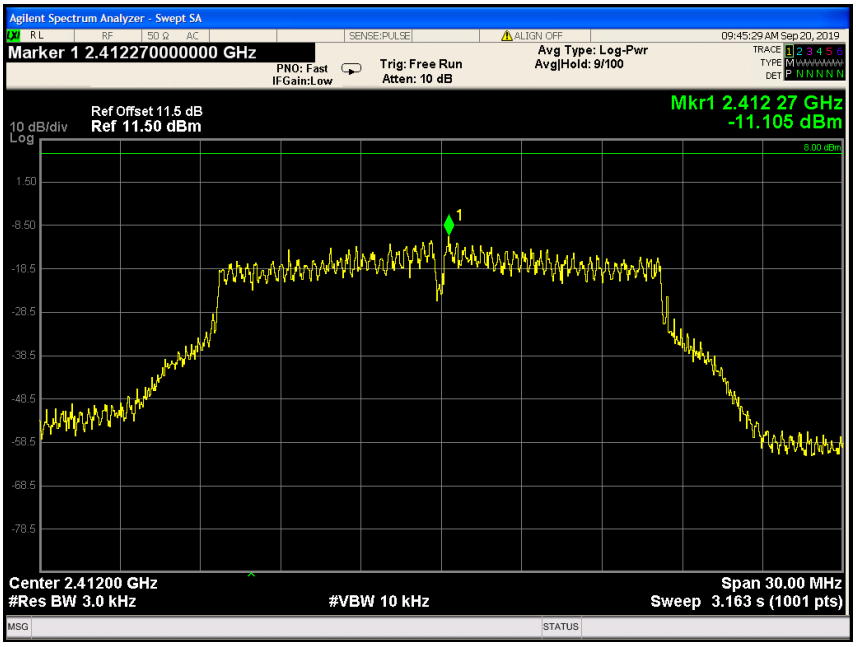


Channel 2462MHz

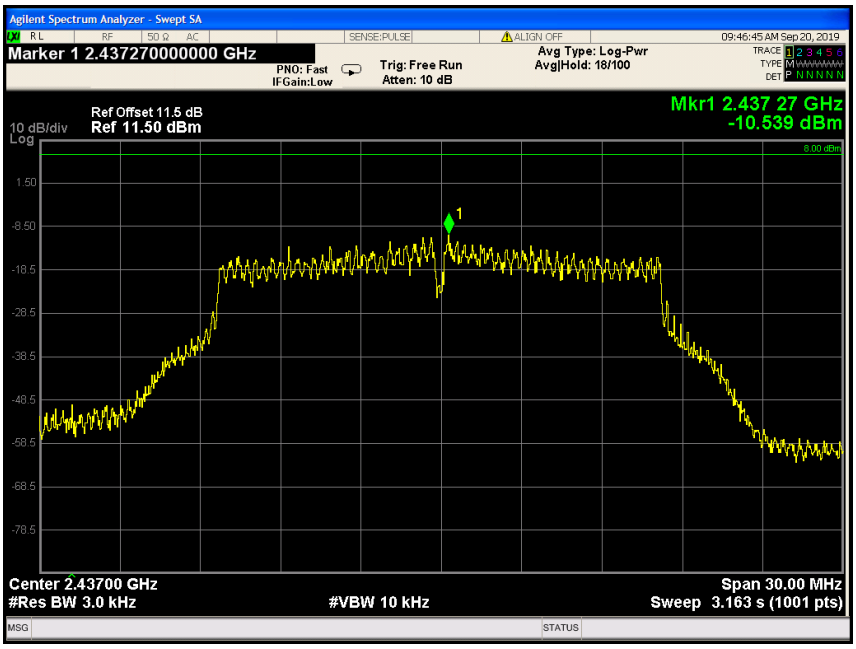


IEEE 802.11g mode:

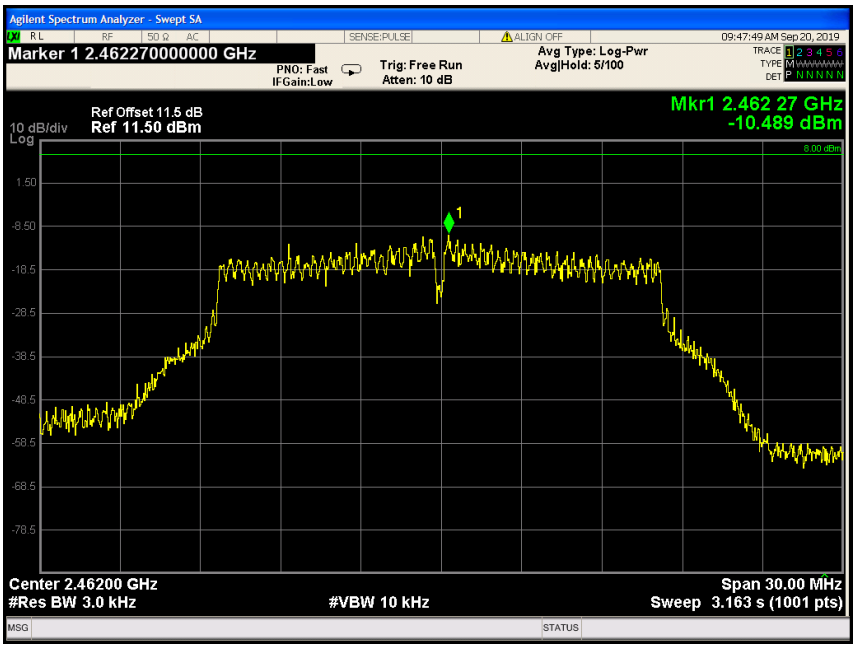
Channel 2412MHz



Channel 2437MHz

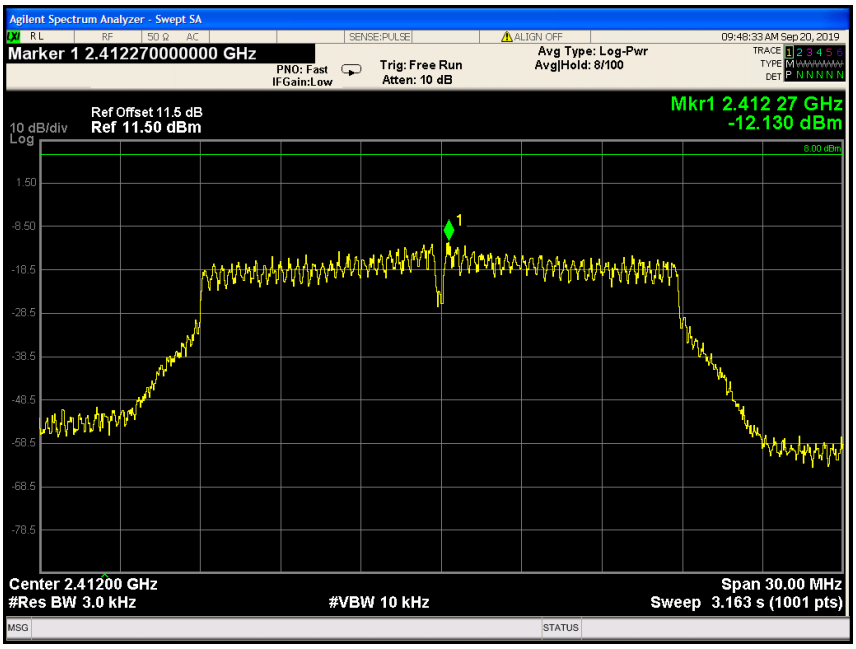


Channel 2462MHz

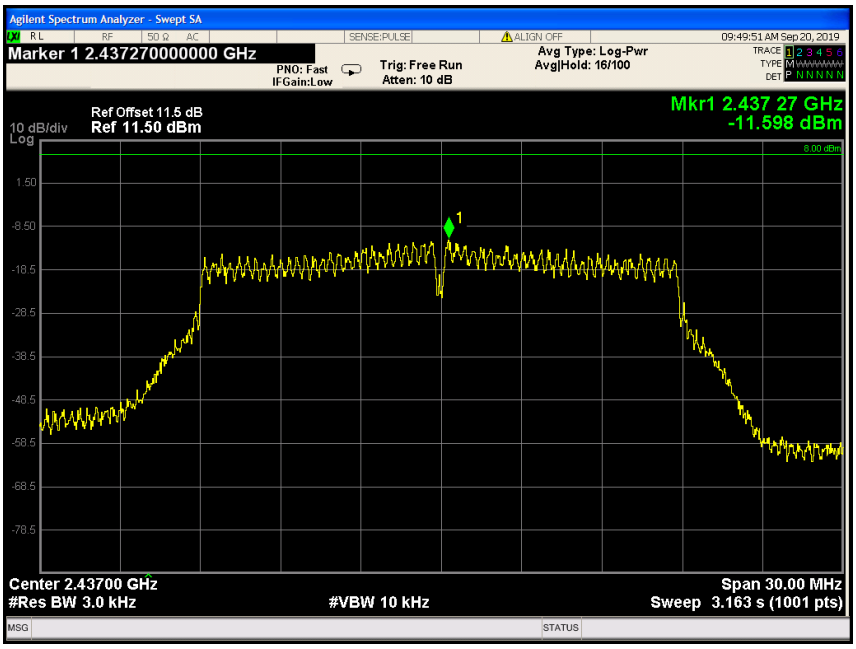


IEEE 802.11n HT20 mode:

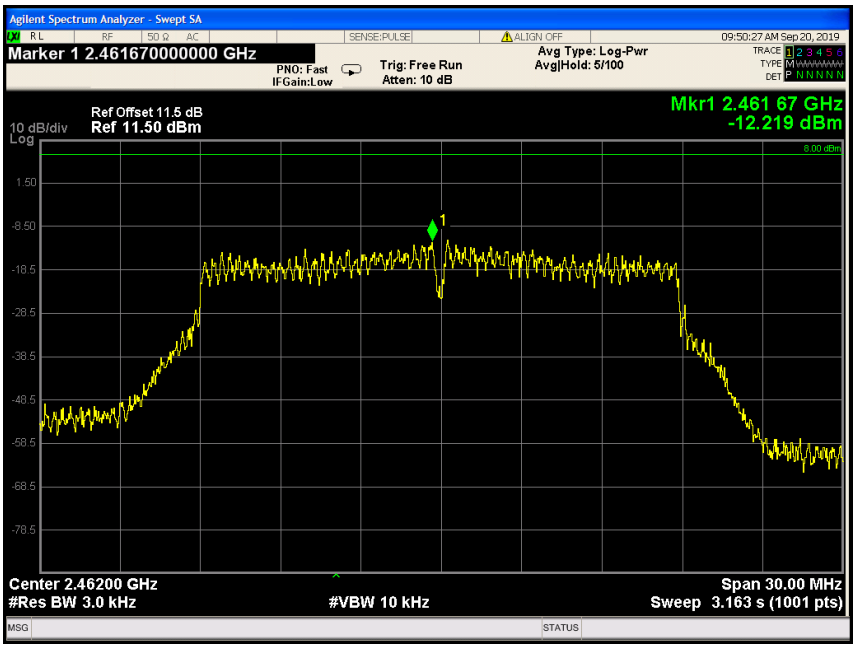
Channel 2412MHz



Channel 2437MHz



Channel 2462MHz



11. CONDUCTED BAND EDGES AND SPURIOUS EMISSIONS

11.1. LIMITS

(d) In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB.

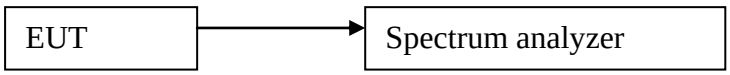
11.2. TEST PROCEDURES

Test procedures follow KDB 558074 D01 DTS Measurement Guidance v03r01.

Remove the antenna from the EUT and then connect a low attenuation cable from the antenna port to the spectrum.

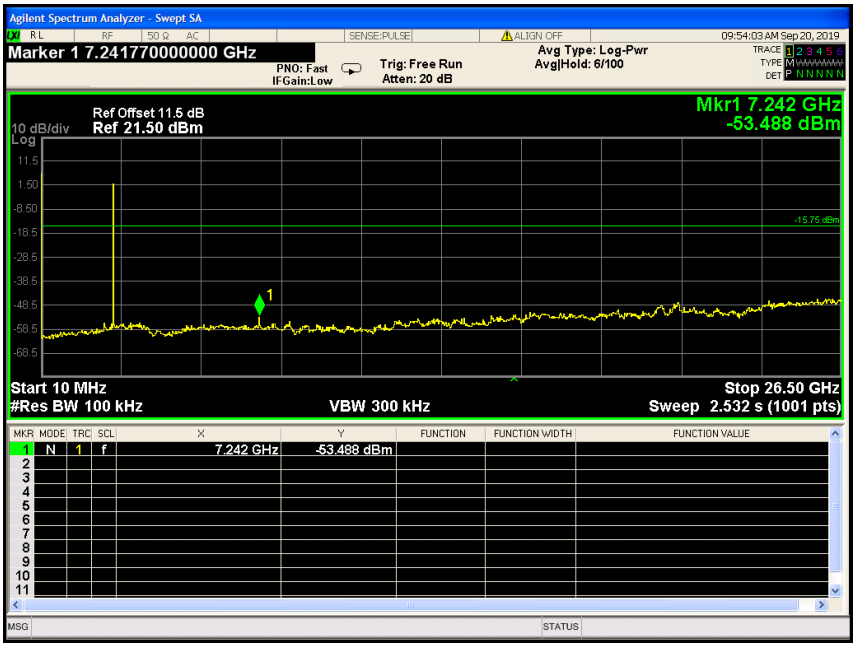
1) Remove the antenna from the EUT and then connect a low attenuation cable from the antenna port to the spectrum.
2) Set the spectrum analyzer: RBW =100KHz; VBW =300KHz, Span = 10MHz to 26GHz; Sweep = auto; Detector Function = Peak. Trace = Max, hold.
3) Measure and record the results in the test report.
4) The RF fundamental frequency should be excluded against the limit line in the operating frequency band.

11.3.TEST SETUP

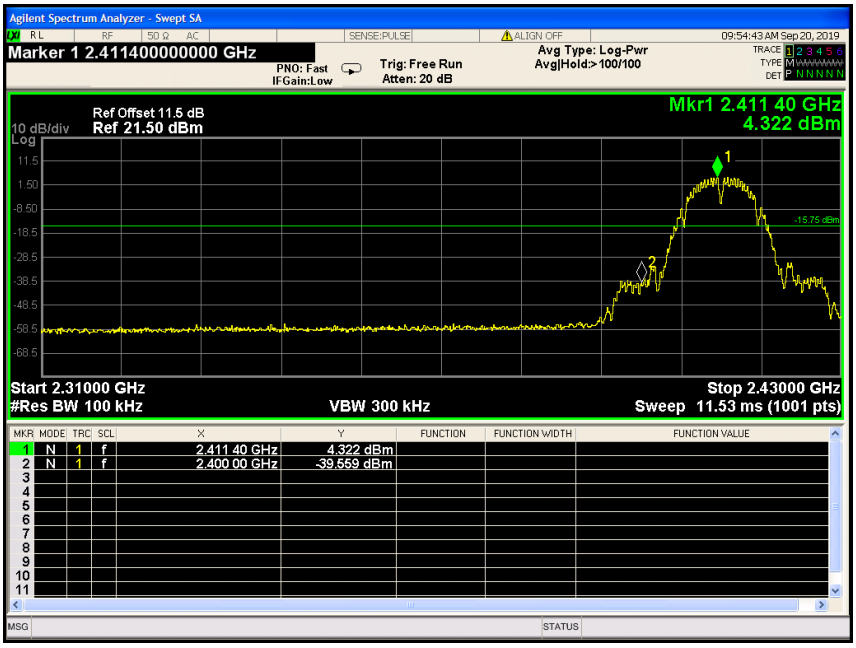


11.4.TEST RESULTS

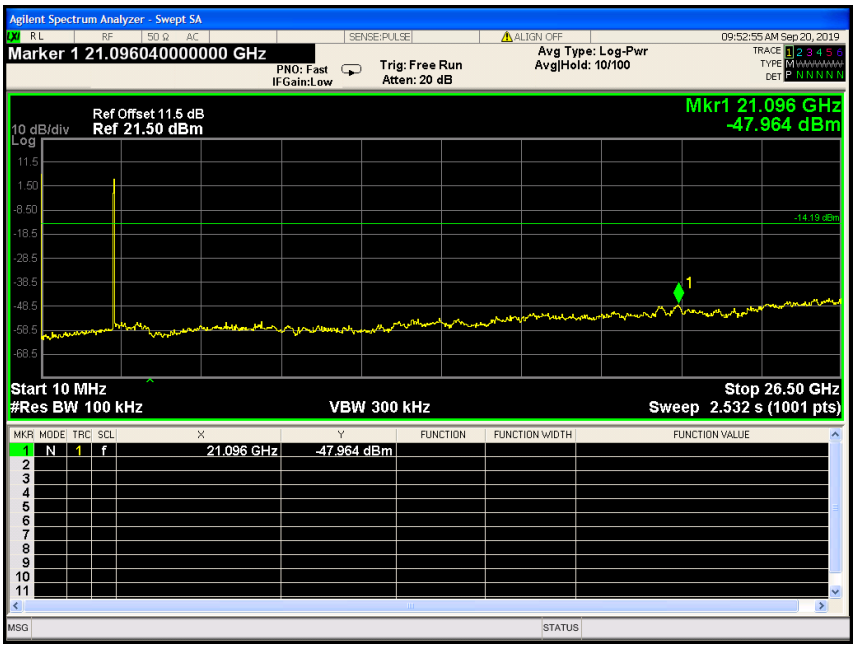
IEEE 802.11b mode :
Channel 2412MHz
0.01GHz-26.5GHz

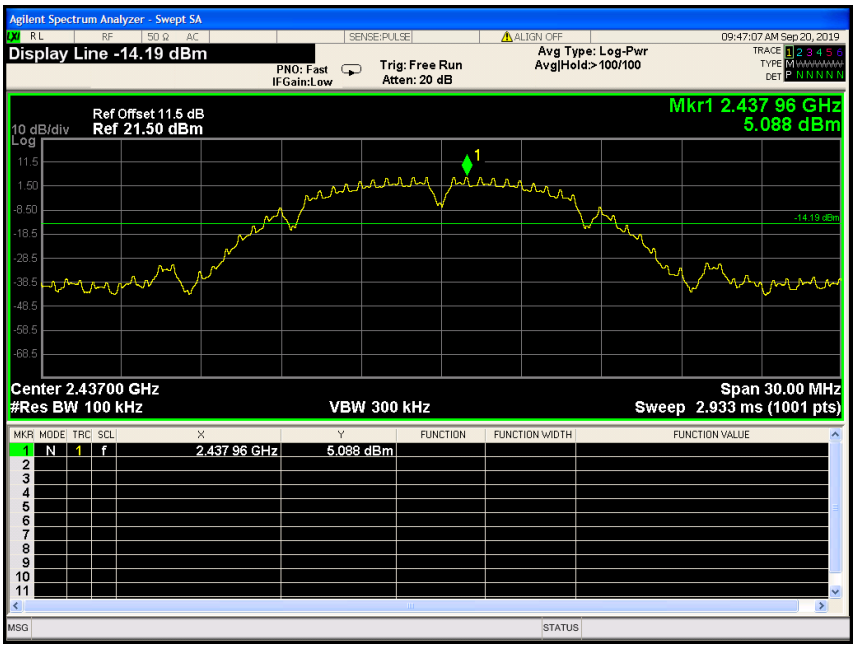


2.31GHz-2.43GHz

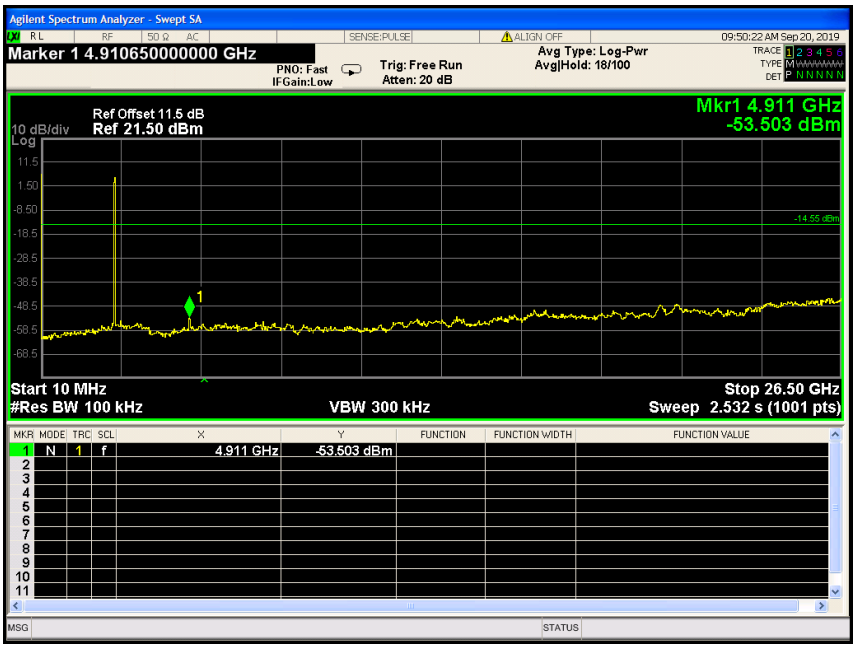


IEEE 802.11b mode:
Channel 2437MHz
0.01GHz-26.5GHz



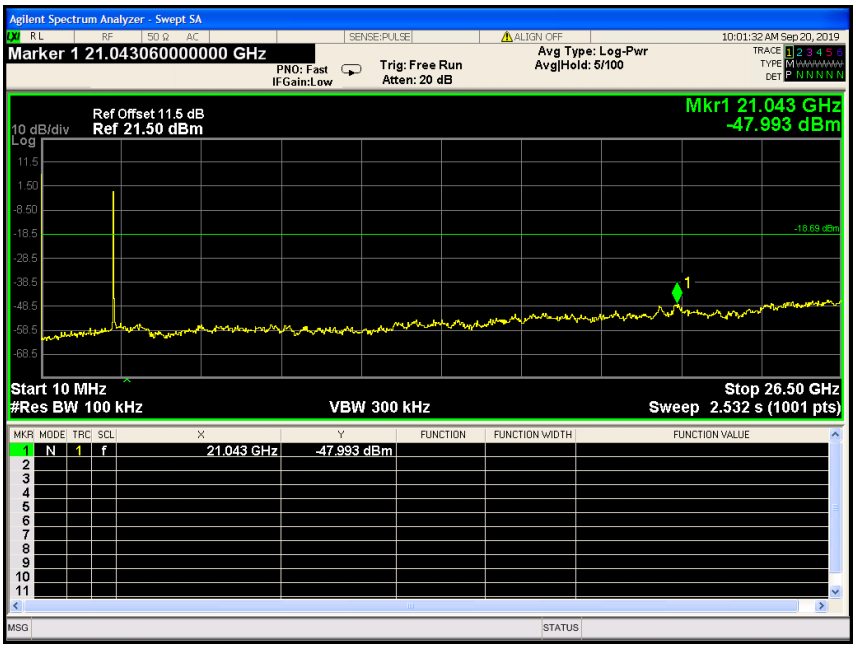


IEEE 802.11b mode:
Channel 2462MHz
0.01GHz-26.5GHz

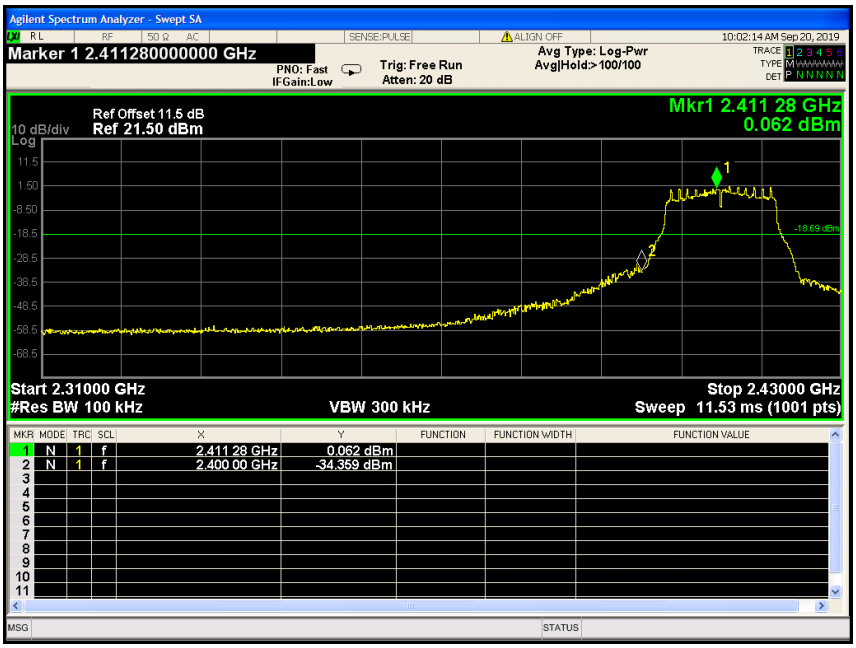


2.45GHz-2.5GHz

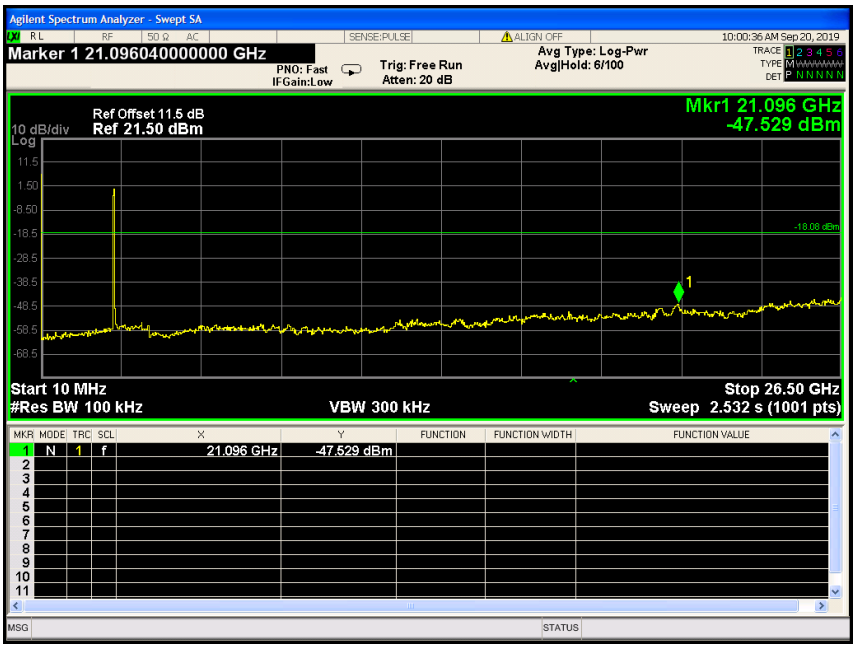
IEEE 802.11g mode:
Channel 2412MHz
0.01GHz-26.5GHz

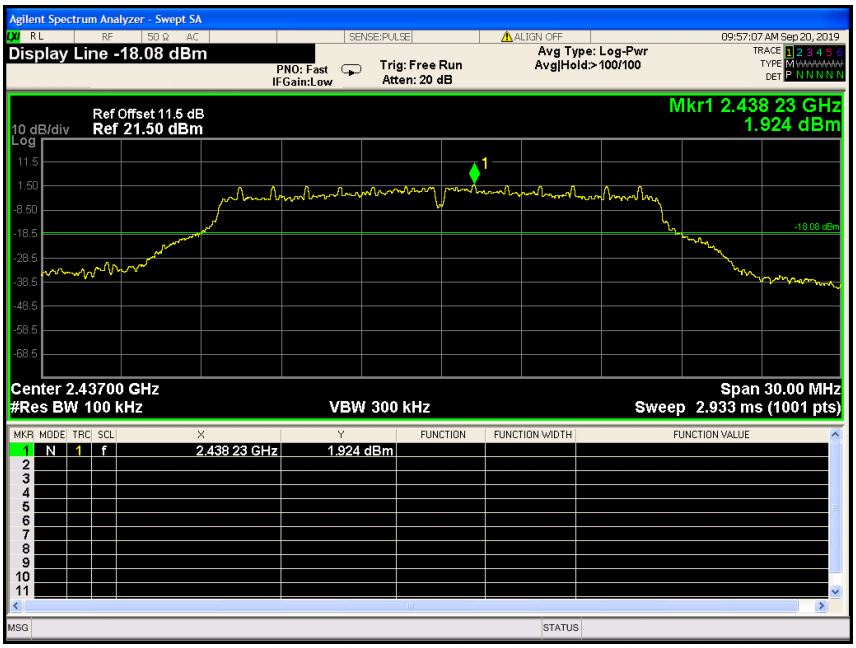


2.31GHz-2.43GHz

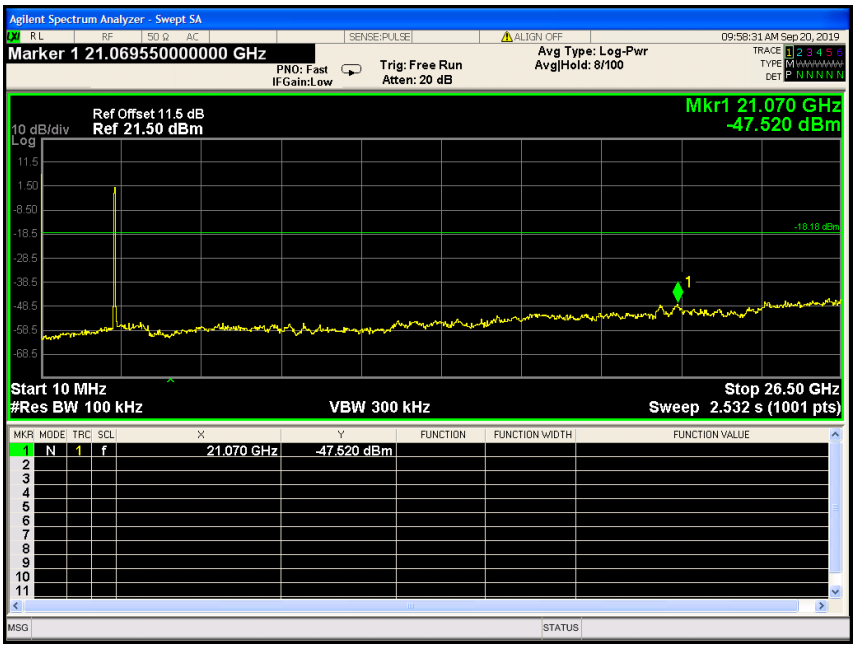


IEEE 802.11g mode:
Channel 2437MHz
0.01GHz-26.5GHz

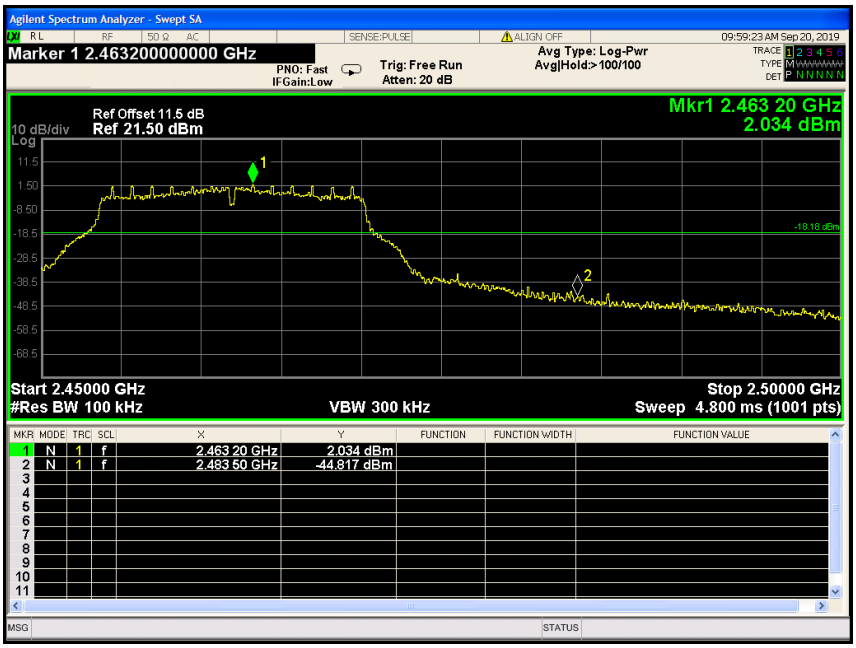




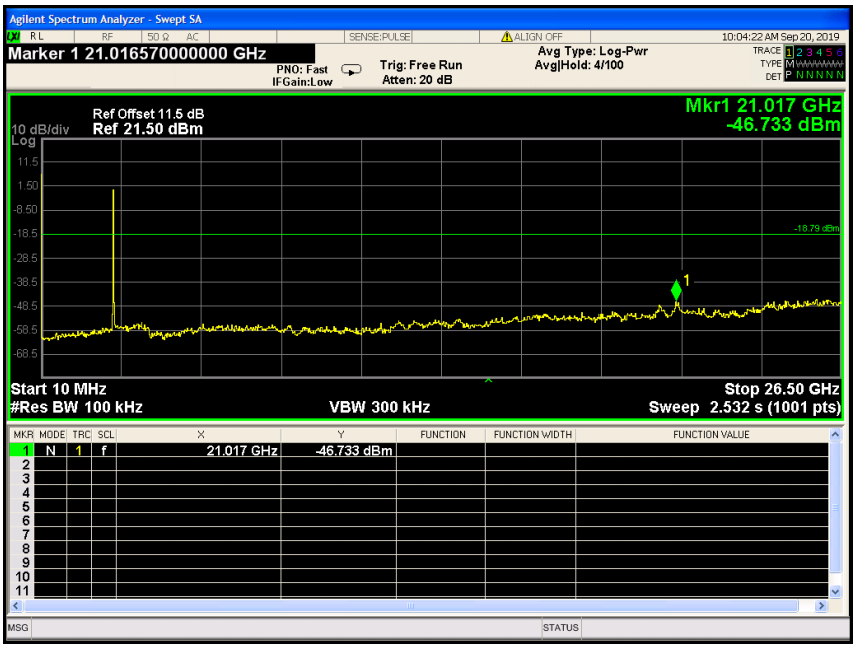
IEEE 802.11g mode:
Channel 2462MHz
0.01GHz-26.5GHz



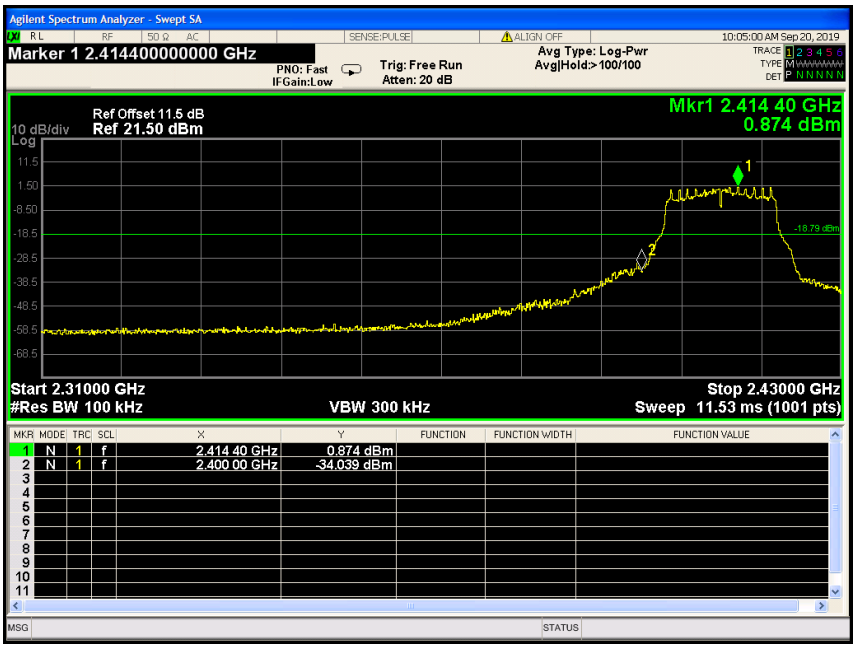
2.45GHz-2.5GHz



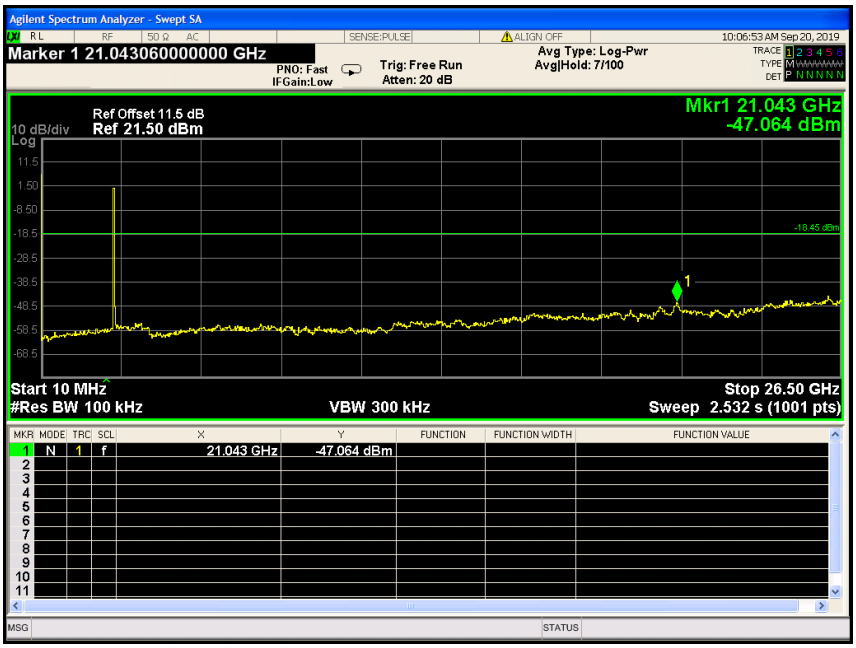
IEEE 802.11n HT20 mode:
Channel 2412MHz
0.01GHz-26.5GHz

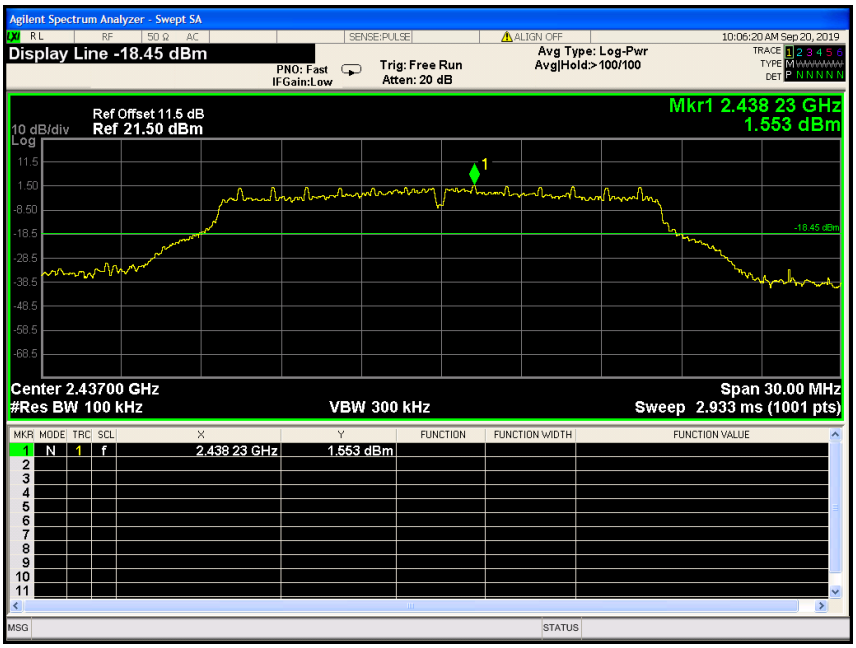


2.31GHz-2.43GHz

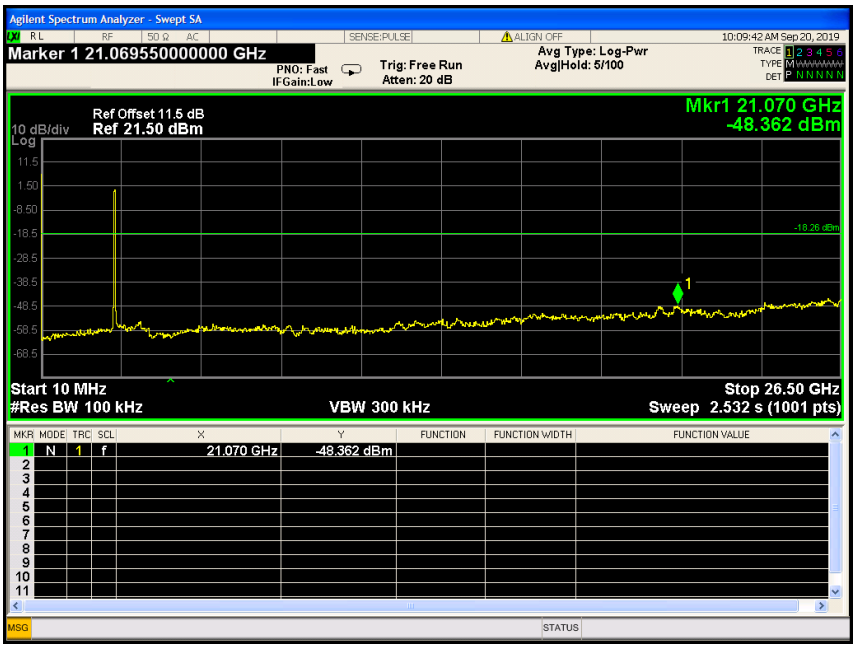


IEEE 802.11n HT20 mode:
Channel 2437MHz
0.01GHz-26.5GHz

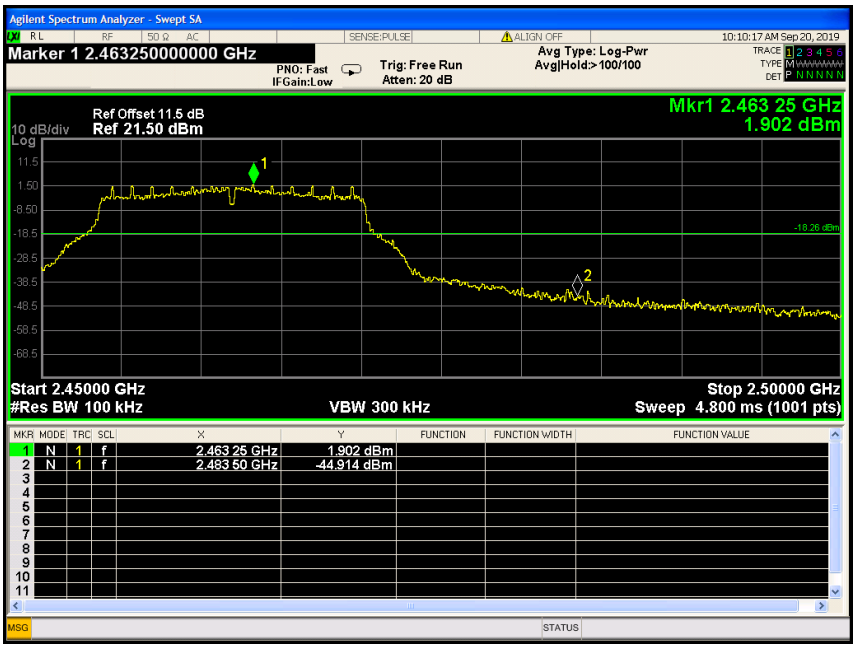




IEEE 802.11n HT20 mode:
Channel 2462MHz
0.01GHz-26.5GHz



2.45GHz-2.5GHz



12. RESTRICTED BANDS OF OPERATION

12.1.LIMITS

Section 15.247(d) In addition, Radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).

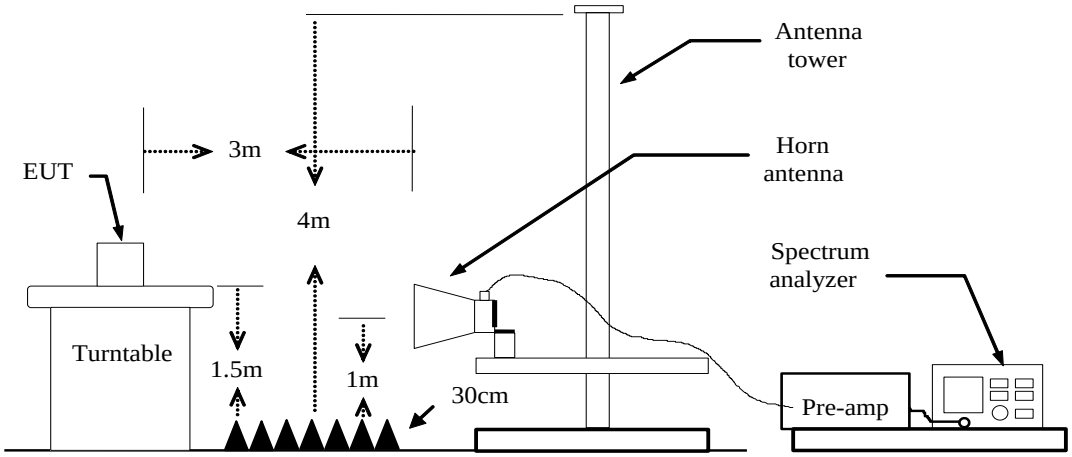
MHz	MHz	MHz	GHz
0.090 - 0.110	16.42 - 16.423	399.9 - 410	4.5 - 5.15
[1]0.495 - 0.505	16.69475 -	608 - 614	5.35 - 5.46
2.1735 - 2.1905	16.69525	960 - 1240	7.25 - 7.75
4.125 - 4.128	16.80425 -	1300 - 1427	8.025 - 8.5
4.17725 - 4.17775	16.80475	1435 - 1626.5	9.0 - 9.2
4.20725 - 4.20775	25.5 - 25.67	1645.5 - 1646.5	9.3 - 9.5
6.215 - 6.218	37.5 - 38.25	1660 - 1710	10.6 - 12.7
6.26775 - 6.26825	73 - 74.6	1718.8 - 1722.2	13.25 - 13.4
6.31175 - 6.31225	74.8 - 75.2	2200 - 2300	14.47 - 14.5
8.291 - 8.294	108 - 121.94	2310 - 2390	15.35 - 16.2
8.362 - 8.366	123 - 138	2483.5 - 2500	17.7 - 21.4
8.37625 - 8.38675	149.9 - 150.05	2655 - 2900	22.01 - 23.12
8.41425 - 8.41475	156.52475 -	3260 - 3267	23.6 - 24.0
12.29 - 12.293	156.52525	3332 - 3339	31.2 - 31.8
12.51975 -	156.7 - 156.9	3345.8 - 3358	36.43 - 36.5
12.52025	162.0125 - 167.17	3600 - 4400	
12.57675 -	167.72 - 173.2		
12.57725	240 - 285		
13.36 - 13.41	322 - 335.4		

12.2.TEST PROCEDURES

Test procedures follow KDB 558074 D01 DTS Meas Guidance v03r01.

1) The EUT is placed on a turntable, which is 1.5m above the ground plane.
2) The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
3) EUT is set 3m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emission.
4) Set the spectrum analyzer in the following setting in order to capture the lower and upper band-edges of the emission:
   a) PEAK: RBW=1MHz / VBW=1MHz / Sweep=AUTO
   b) AVERAGE: RBW=1MHz / VBW=1/T / Sweep=AUTO
5) Repeat the procedures until all the PEAK and AVERAGE versus POLARIZATION are measured.

12.3.TEST SETUP

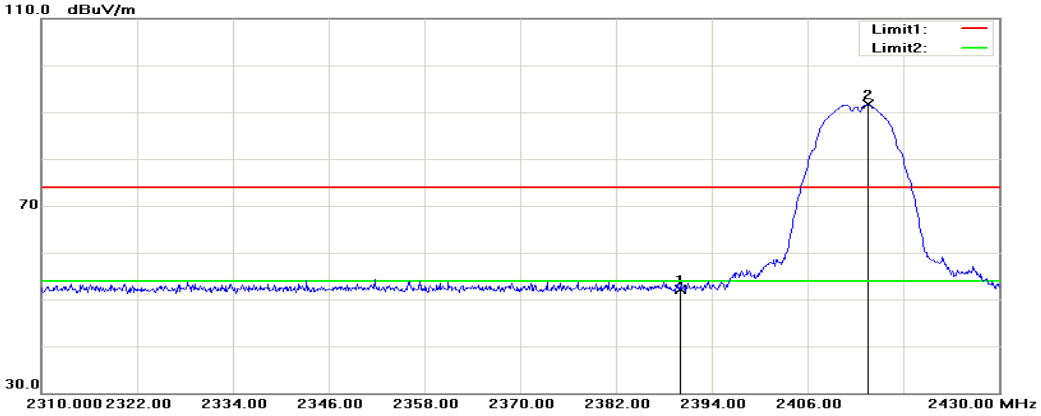


12.4.TEST RESULTS

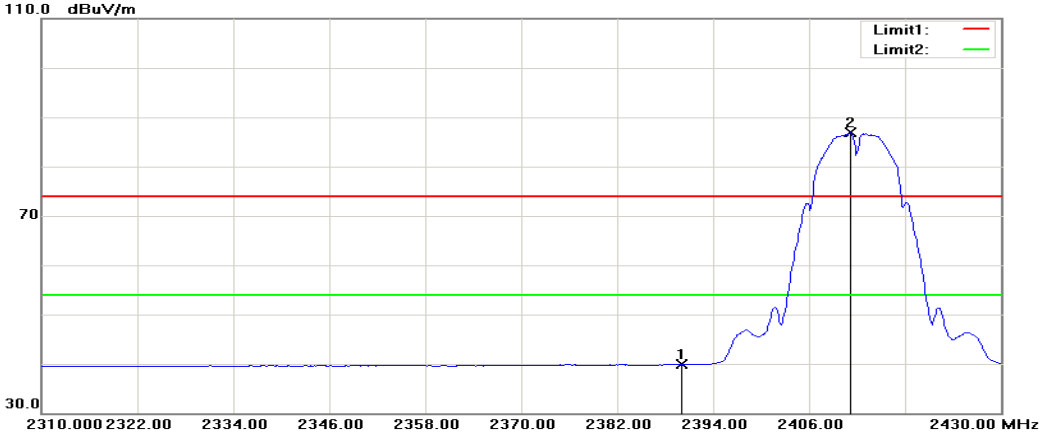
IEEE 802.11b mode

Lowest Channel

Detector mode: Peak Polarity: Vertical



Detector mode: Average Polarity: Vertical

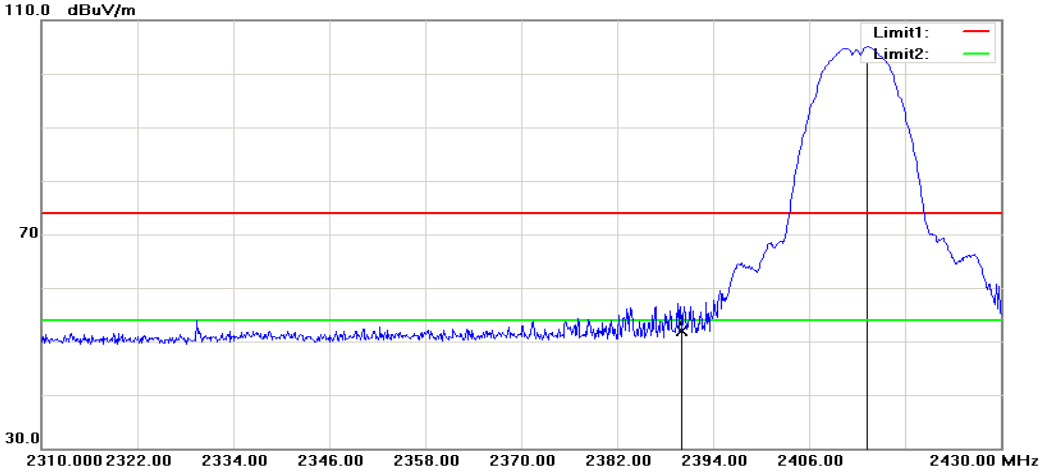


No.	Frequency MHz	Reading dBuV	Factor dB	Result dBuV/m	Limit dBuV/m	Margin dB	Remark	Pole
1	2390.000	53.54	-1.48	52.06	74.00	-21.94	Peak	Vertical
2	2413.560	93.04	-1.43	91.61	---	---	Peak	Vertical
1	2390.000	41.34	-1.48	39.86	54.00	-14.14	Average	Vertical
2	2411.160	88.24	-1.43	86.81	---	---	Average	Vertical

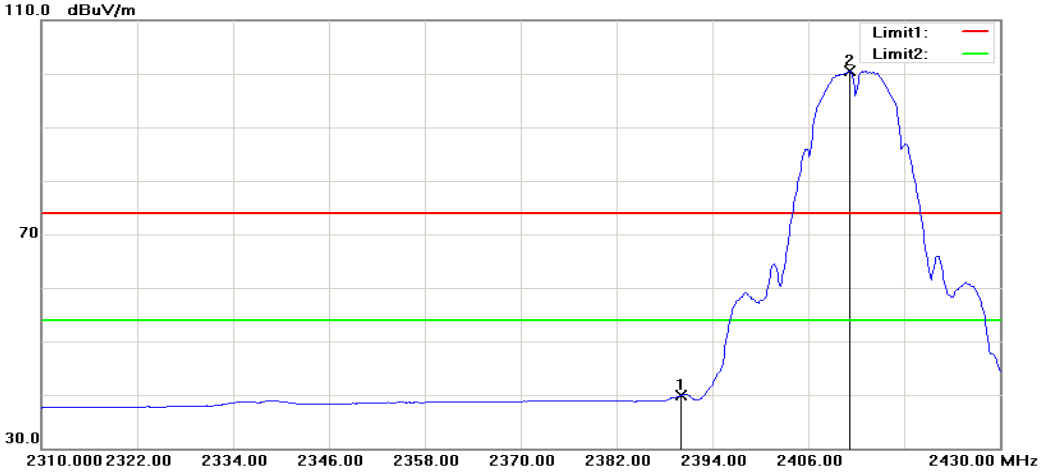
IEEE 802.11b mode

Lowest Channel

Detector mode: Peak Polarity: Horizontal



Detector mode: Average Polarity: Horizontal

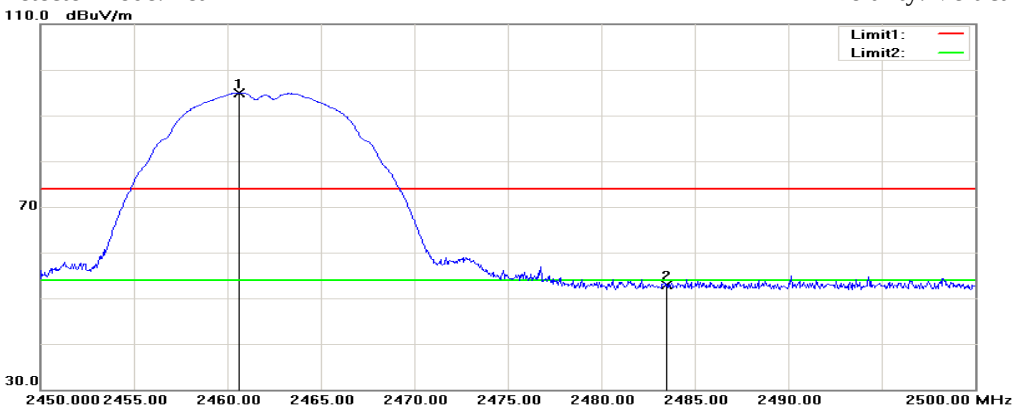


No.	Frequency MHz	Reading dBuV	Factor dB	Result dBuV/m	Limit dBuV/m	Margin dB	Remark	Pole
1	2390.000	55.29	-3.41	51.88	74.00	-22.12	Peak	Horizontal
2	2413.320	108.40	-3.37	105.03	---	---	Peak	Horizontal
1	2390.000	43.30	-3.41	39.89	54.00	-14.11	Average	Horizontal
2	2411.160	103.90	-3.37	100.53	---	---	Average	Horizontal

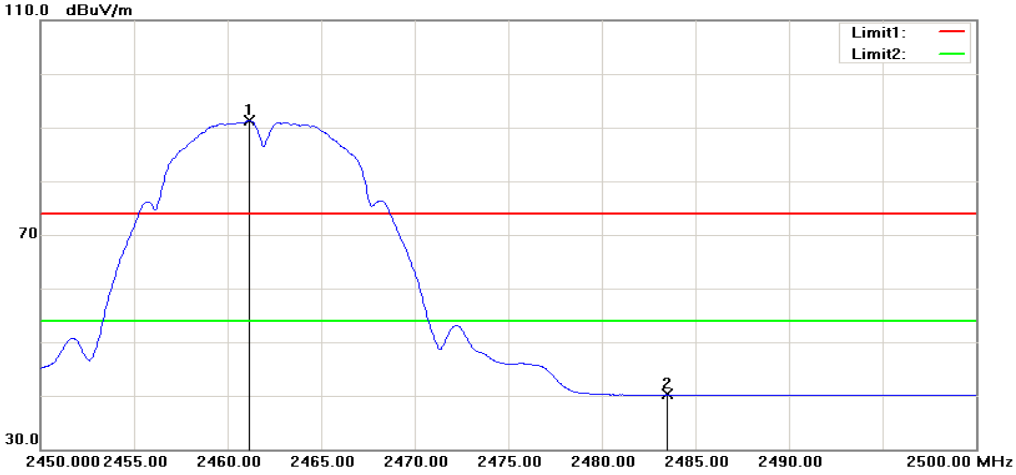
IEEE 802.11b mode

Highest Channel

Detector mode: Peak Polarity: Vertical



Detector mode: Average Polarity: Vertical

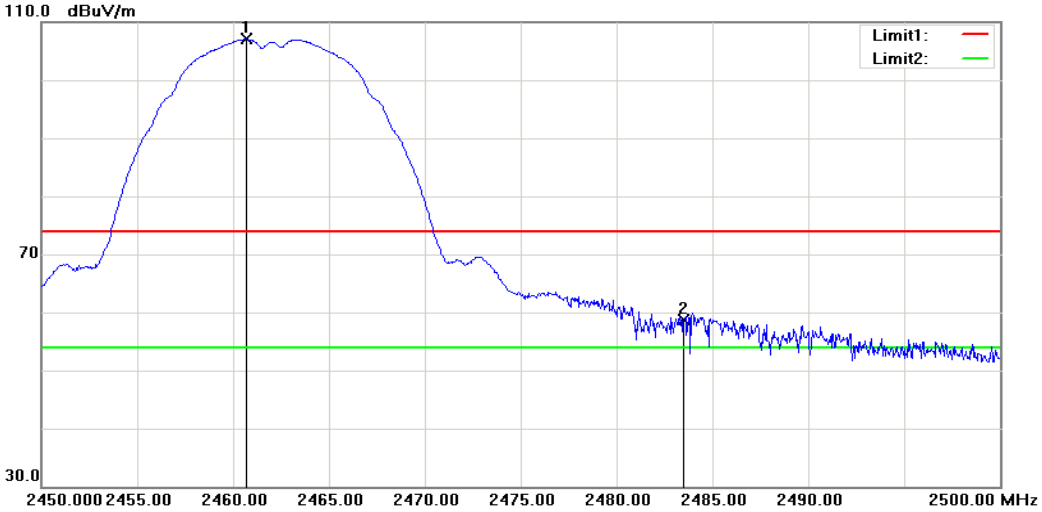


No.	Frequency MHz	Reading dBuV	Factor dB	Result dBuV/m	Limit dBuV/m	Margin dB	Remark	Pole
1	2460.650	96.31	-1.32	94.99	---	---	Peak	Vertical
2	2483.500	54.21	-1.27	52.94	74.00	-21.06	Peak	Vertical
1	2461.150	92.61	-1.32	91.29	---	---	Average	Vertical
2	2483.500	41.47	-1.27	40.20	54.00	-13.80	Average	Vertical

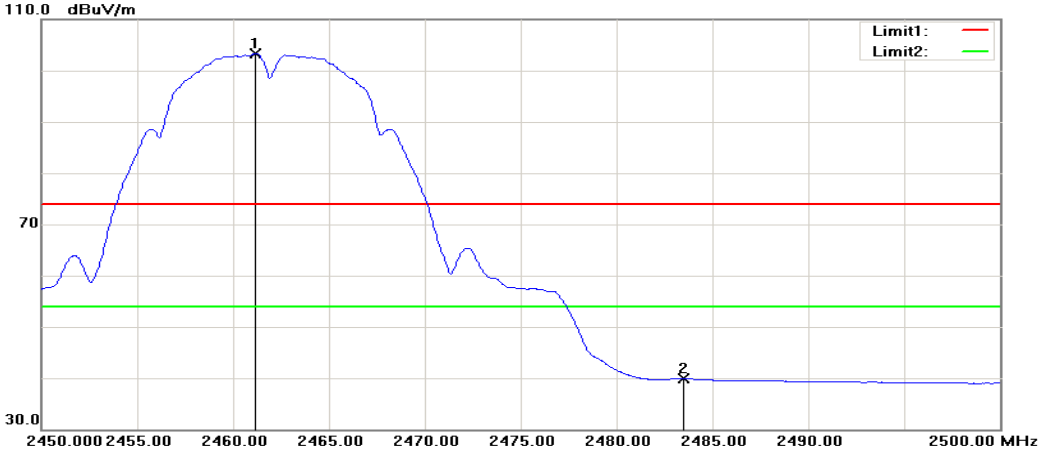
IEEE 802.11b mode

Highest Channel

Detector mode: Peak Polarity: Horizontal



Detector mode: Average Polarity: Horizontal

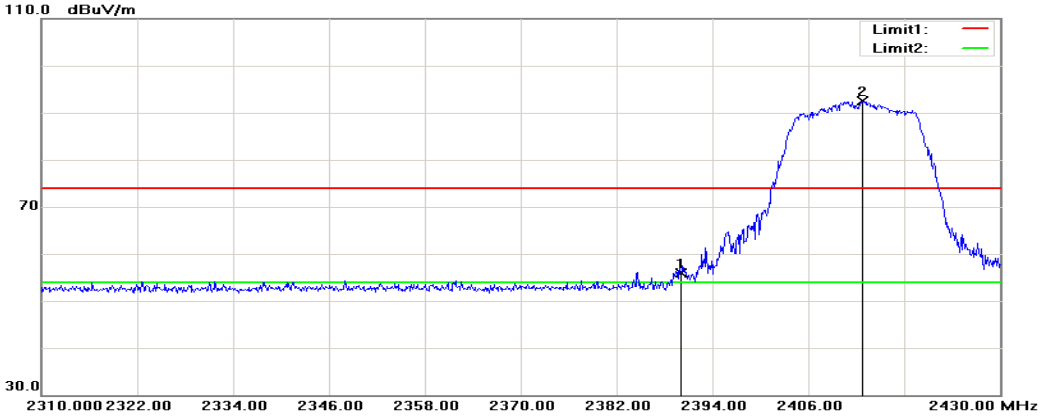


No.	Frequency MHz	Reading dBuV	Factor dB	Result dBuV/m	Limit dBuV/m	Margin dB	Remark	Pole
1	2460.700	110.30	-3.29	107.01	---	---	Peak	Horizontal
2	2483.500	61.87	-3.25	58.62	74.00	-15.38	Peak	Horizontal
1	2461.150	106.62	-3.29	103.33	---	---	Average	Horizontal
2	2483.500	43.16	-3.25	39.91	54.00	-14.09	Average	Horizontal

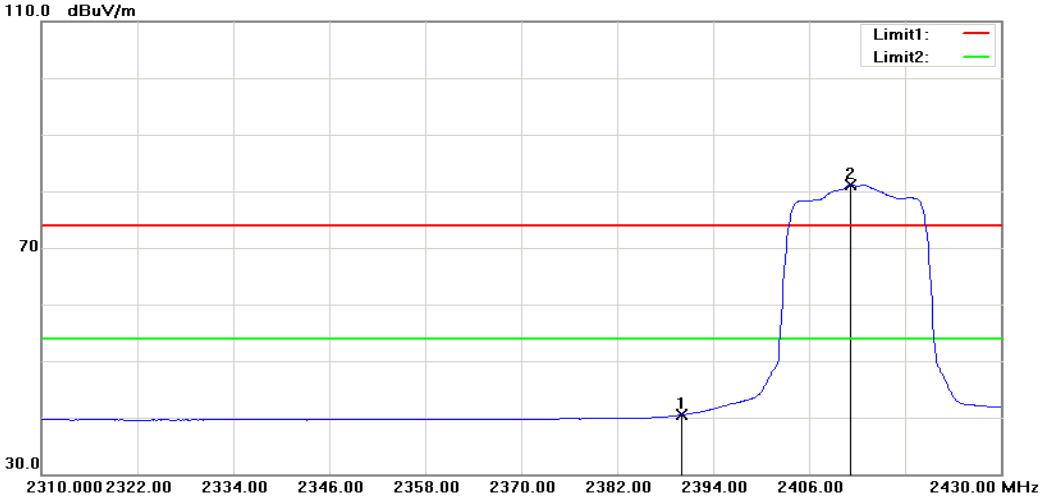
IEEE 802.11g mode

Lowest Channel

Detector mode: Peak Polarity: Vertical



Detector mode: Average Polarity: Vertical

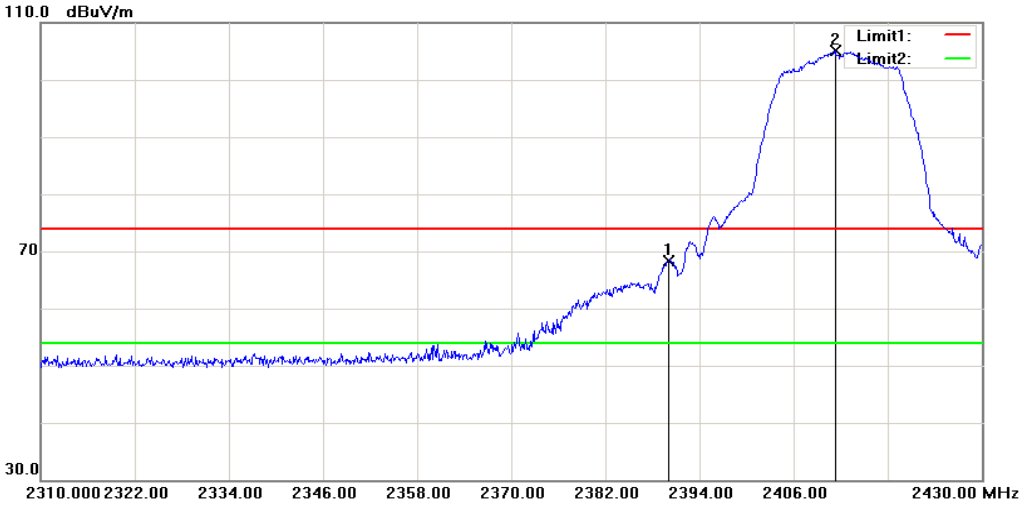


No.	Frequency MHz	Reading dBuV	Factor dB	Result dBuV/m	Limit dBuV/m	Margin dB	Remark	Pole
1	2390.000	57.42	-1.48	55.94	74.00	-18.06	Peak	Vertical
2	2412.840	93.84	-1.43	92.41	---	---	Peak	Vertical
1	2390.000	42.01	-1.48	40.53	54.00	-13.47	Average	Vertical
2	2411.160	82.56	-1.43	81.13	---	---	Average	Vertical

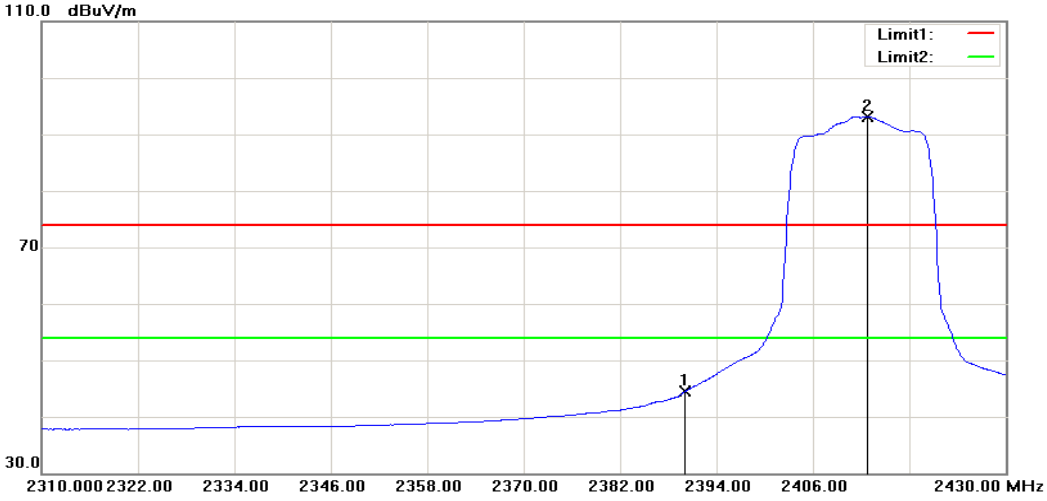
IEEE 802.11g mode

Lowest Channel

Detector mode: Peak Polarity: Horizontal



Detector mode: Average Polarity: Horizontal

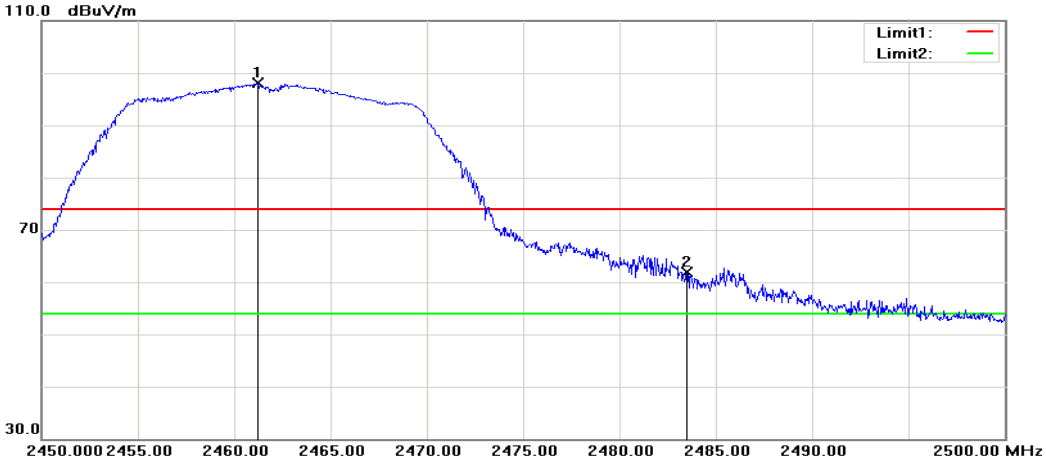


No.	Frequency MHz	Reading dBuV	Factor dB	Result dBuV/m	Limit dBuV/m	Margin dB	Remark	Pole
1	2390.000	71.69	-3.41	68.28	74.00	-5.72	Peak	Horizontal
2	2411.280	108.48	-3.37	105.11	---	---	Peak	Horizontal
1	2390.000	47.83	-3.41	44.42	54.00	-9.58	Average	Horizontal
2	2412.840	96.56	-3.37	93.19	---	---	Average	Horizontal

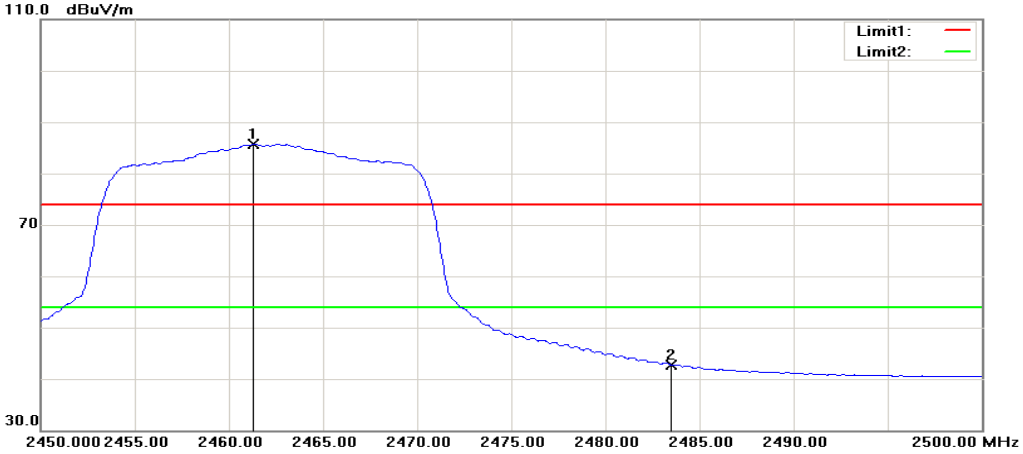
IEEE 802.11g mode

Highest Channel

Detector mode: Peak Polarity: Vertical



Detector mode: Average Polarity: Vertical

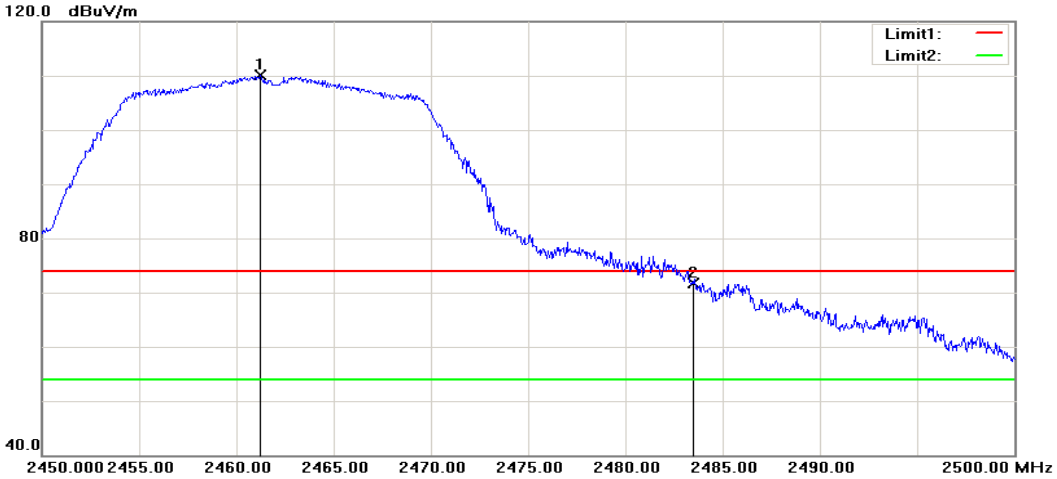


No.	Frequency MHz	Reading dBuV	Factor dB	Result dBuV/m	Limit dBuV/m	Margin dB	Remark	Pole
1	2461.200	99.38	-1.32	98.06	---	---	Peak	Vertical
2	2483.500	63.16	-1.27	61.89	74.00	-12.11	Peak	Vertical
1	2461.300	87.06	-1.32	85.74	---	---	Average	Vertical
2	2483.500	43.97	-1.27	42.70	54.00	-11.30	Average	Vertical

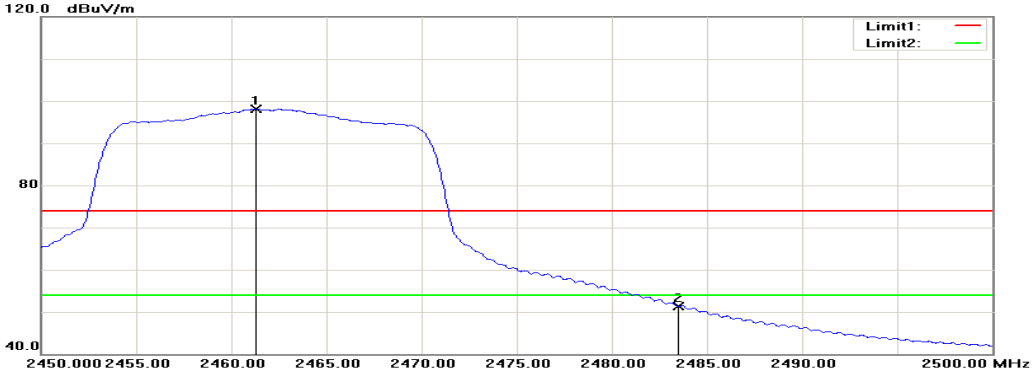
IEEE 802.11g mode

Highest Channel

Detector mode: Peak Polarity: Horizontal



Detector mode: Average Polarity: Horizontal

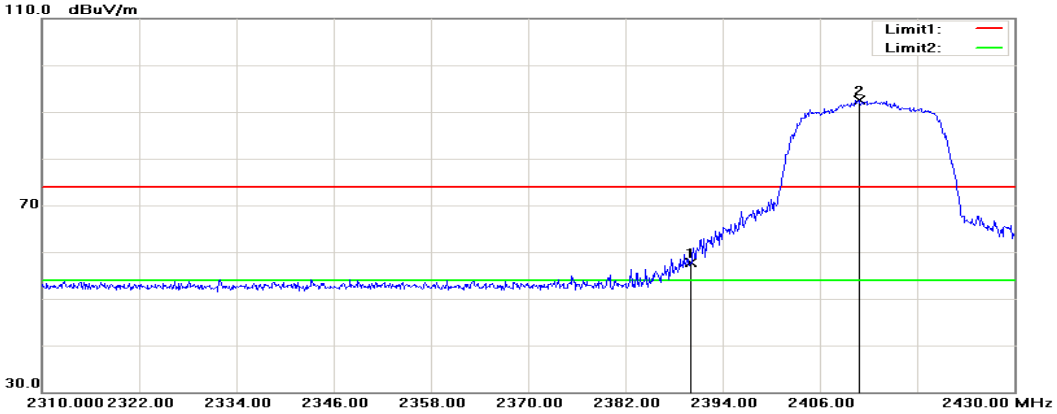


No.	Frequency MHz	Reading dBuV	Factor dB	Result dBuV/m	Limit dBuV/m	Margin dB	Remark	Pole
1	2461.200	113.44	-3.29	110.15	---	---	Peak	Horizontal
2	2483.500	74.96	-3.25	71.71	74.00	-2.29	Peak	Horizontal
1	2461.300	101.48	-3.29	98.19	---	---	Average	Horizontal
2	2483.500	54.55	-3.25	51.30	54.00	-2.70	Average	Horizontal

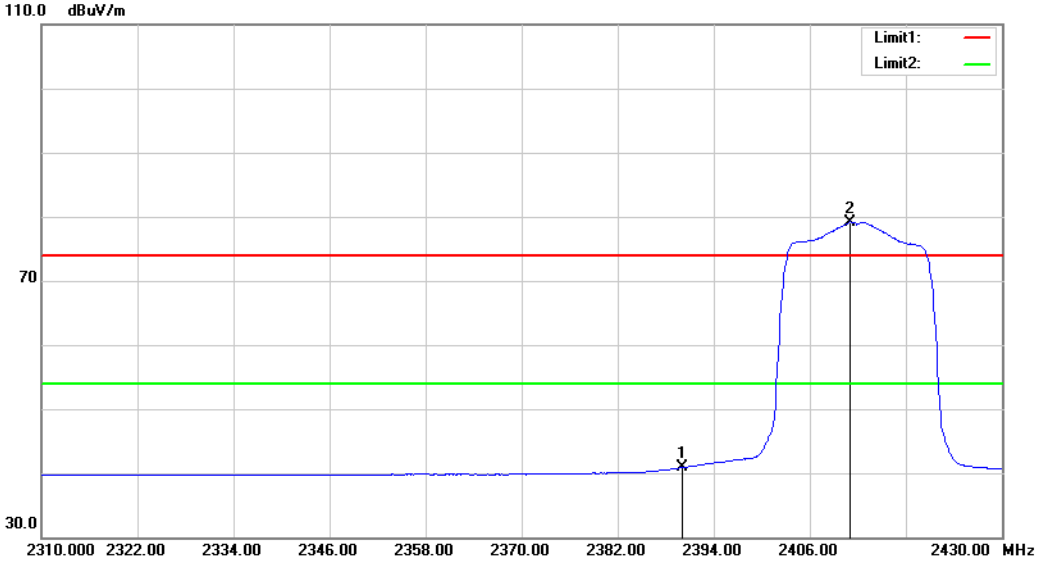
IEEE 802.11n HT20 mode

Lowest Channel

Detector mode: Peak Polarity: Vertical



Detector mode: Average Polarity: Vertical

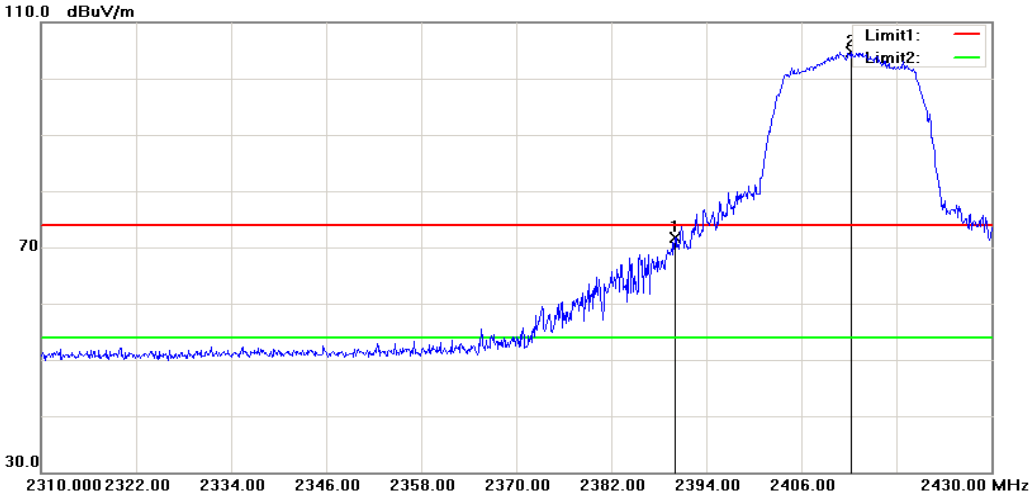


No.	Frequency MHz	Reading dBuV	Factor dB	Result dBuV/m	Limit dBuV/m	Margin dB	Remark	Pole
1	2390.000	59.22	-1.48	57.74	74.00	-16.26	Peak	Vertical
2	2410.800	93.98	-1.43	92.55	---	---	Peak	Vertical
1	2390.000	42.34	-1.48	40.86	54.00	-13.14	Average	Vertical
2	2411.040	80.63	-1.43	79.20	---	---	Average	Vertical

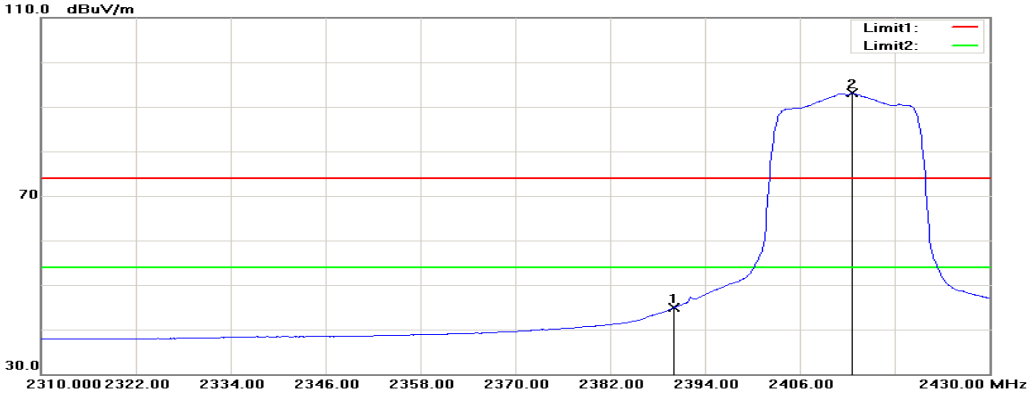
IEEE 802.11n HT20 mode

Lowest Channel

Detector mode: Peak Polarity: Horizontal



Detector mode: Average Polarity: Horizontal

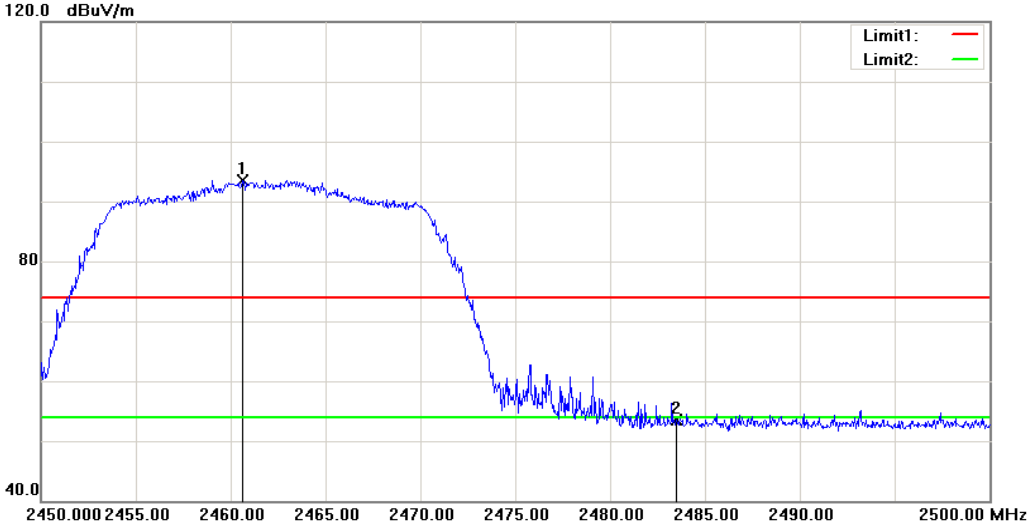


No.	Frequency MHz	Reading dBuV	Factor dB	Result dBuV/m	Limit dBuV/m	Margin dB	Remark	Pole
1	2390.000	75.14	-3.41	71.73	74.00	-2.27	Peak	Horizontal
2	2412.240	108.11	-3.37	104.74	---	---	Peak	Horizontal
1	2390.000	48.27	-3.41	44.86	54.00	-9.14	Average	Horizontal
2	2412.600	96.39	-3.37	93.02	---	---	Average	Horizontal

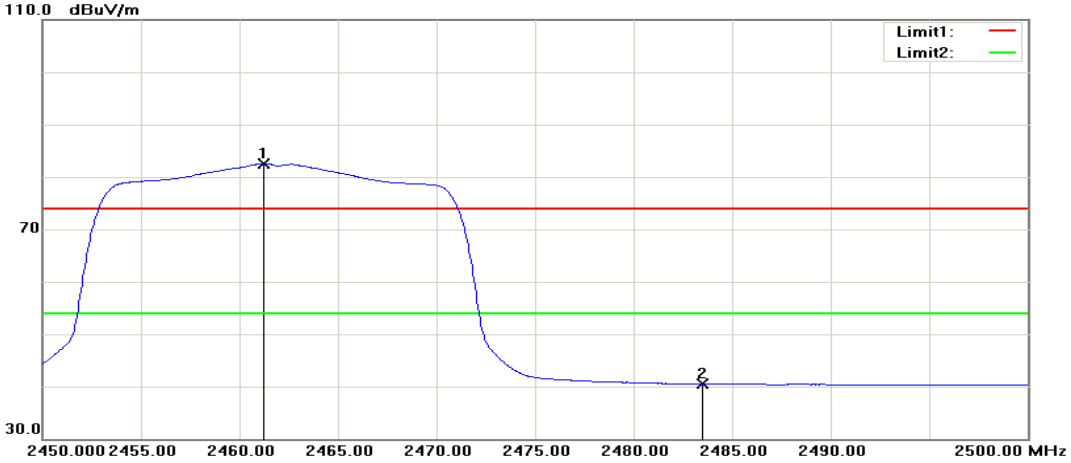
IEEE 802.11n HT20 mode

Highest Channel

Detector mode: Peak Polarity: Vertical



Detector mode: Average Polarity: Vertical

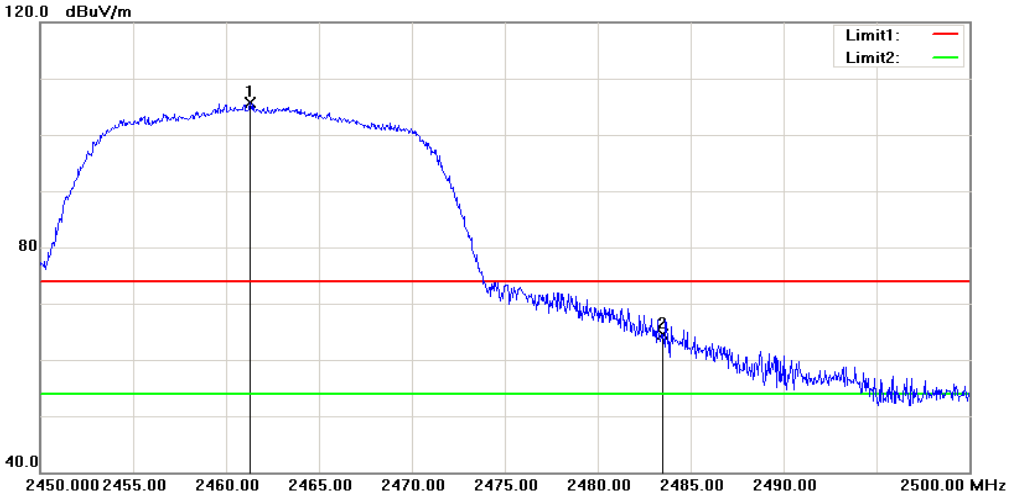


No.	Frequency MHz	Reading dBuV	Factor dB	Result dBuV/m	Limit dBuV/m	Margin dB	Remark	Pole
1	2460.650	94.81	-1.32	93.49	---	---	Peak	Vertical
2	2483.500	54.83	-1.27	53.56	74.00	-20.44	Peak	Vertical
1	2461.250	83.85	-1.32	82.53	---	---	Average	Vertical
2	2483.500	41.83	-1.27	40.56	54.00	-13.44	Average	Vertical

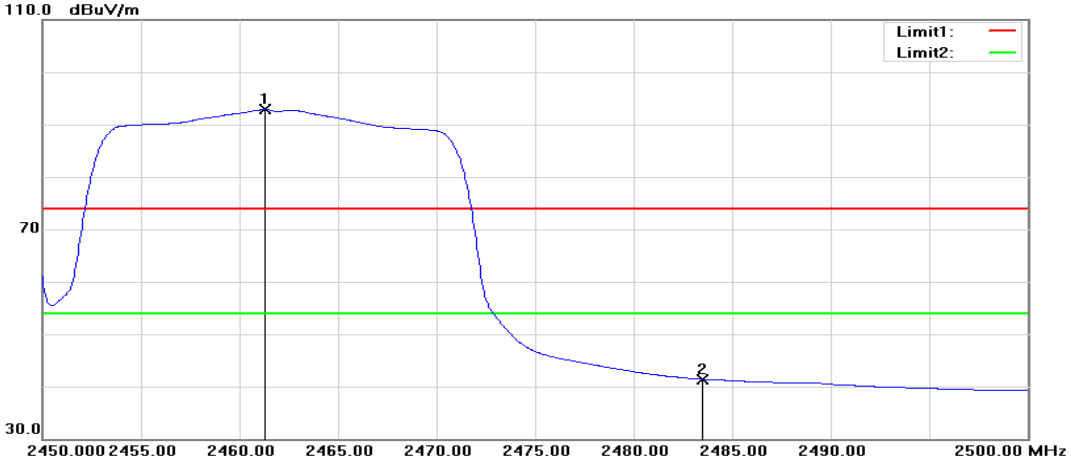
IEEE 802.11n HT20 mode

Highest Channel

Detector mode: Peak Polarity: Horizontal



Detector mode: Average Polarity: Horizontal

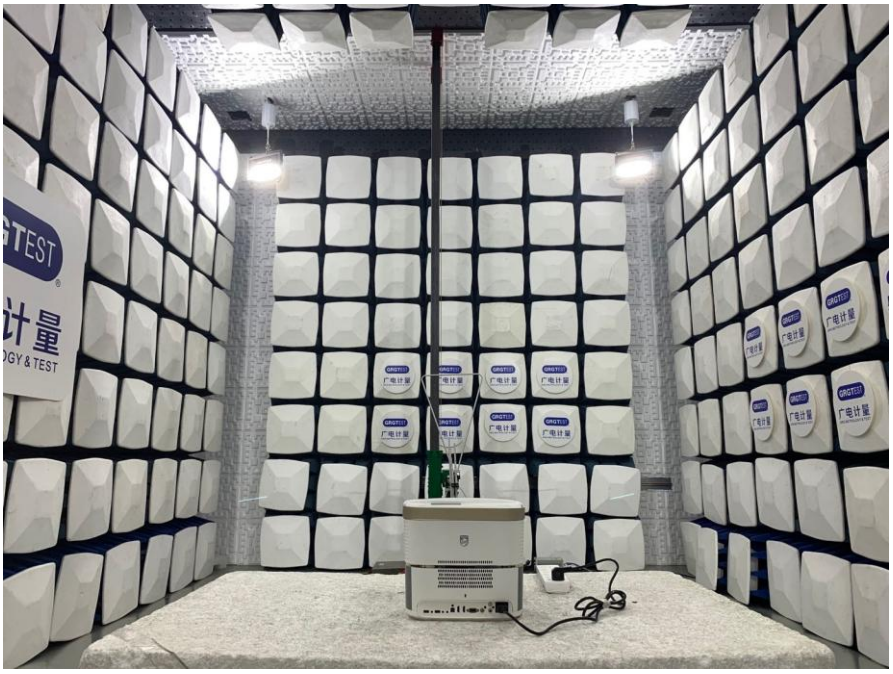


No.	Frequency MHz	Reading dBuV	Factor dB	Result dBuV/m	Limit dBuV/m	Margin dB	Remark	Pole
1	2461.300	108.98	-3.29	105.69	---	---	Peak	Horizontal
2	2483.500	67.72	-3.25	64.47	74.00	-9.53	Peak	Horizontal
1	2461.300	96.13	-3.29	92.84	---	---	Average	Horizontal
2	2483.500	44.65	-3.25	41.40	54.00	-12.60	Average	Horizontal

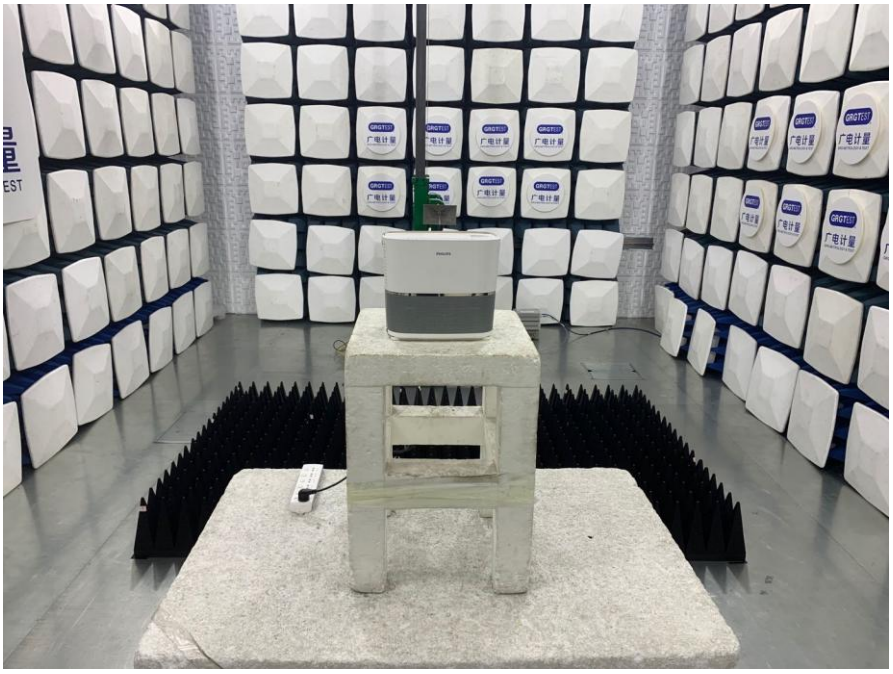
APPENDIX A: PHOTOGRAPH OF THE TEST ARRANGEMENT

CE

RSE（Below 1GHz）



RSE（Above 1GHz）



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