SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd.

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TEST REPORT

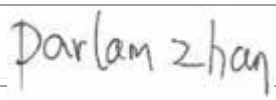
Application No.:	SHEM1804002467CR
FCC ID:	2ACHK-01070189
Applicant:	iRay Technology Co. Ltd.
Address of Applicant:	RM 202, Building 7, No. 590, Ruiqing RD., Pudong, Shanghai, China
Manufacturer:	iRay Technology Co. Ltd.
Address of Manufacturer:	RM 202, Building 7, No. 590, Ruiqing RD., Pudong, Shanghai, China
Factory:	iRay Technology Co. Ltd.
Address of Factory:	RM 202, Building 7, No. 590, Ruiqing RD., Pudong, Shanghai, China
Equipment Under Test (EUT):	
EUT Name:	WiFi Module
Model No.:	WIFI-2-V897EA1
Standard(s) :	47 CFR Part 15, Subpart E 15.407
Date of Receipt:	2018-04-04
Date of Test:	2018-04-04 to 2018-06-21
Date of Issue:	2018-07-20
Test Result:	**Pass***

* In the configuration tested, the EUT complied with the standards specified above.

Parlam Zhan
E&E Section Manager

The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards. Any mention of SGS International Electrical Approvals or testing done by SGS International Electrical Approvals in connection with, distribution or use of the product described in this report must be approved by SGS International Electrical Approvals in writing.

Revision Record			
Version	**Description**	**Date**	**Remark**
00	Original	2018-07-20	/

Authorized for issue by:				
		 **Vincent Zhu / Project Engineer**		
		 **Parlam Zhan /Reviewer**		

2 Test Summary

Radio Spectrum Technical Requirement				
Item	**Standard**	**Method**	**Requirement**	**Result**
Antenna Requirement	47 CFR Part 15, Subpart E 15.407	N/A	47 CFR Part 15, Subpart C 15.203	Pass
Transmission in the Absence of Data	47 CFR Part 15, Subpart E 15.407	N/A	47 CFR Part 15, Subpart C 15.407 (c)	Pass

N/A: Not applicable

Radio Spectrum Matter Part				
Item	**Standard**	**Method**	**Requirement**	**Result**
99% Bandwidth	47 CFR Part 15, Subpart E 15.407	KDB 789033 II D	N/A*	Pass
26dB Emission bandwidth	47 CFR Part 15, Subpart E 15.407	KDB 789033 D02 II C 1	47 CFR Part 15, Subpart C 15.407 (a)	Pass
Minimum 6 dB bandwidth (5.725-5.85 GHz band)	47 CFR Part 15, Subpart E 15.407	KDB 789033 D02 II C 2	47 CFR Part 15, Subpart C 15.407 (e)	Pass
Maximum Conducted output power	47 CFR Part 15, Subpart E 15.407	KDB 789033 D02 II E	47 CFR Part 15, Subpart C 15.407 (a)	Pass
Peak Power spectrum density	47 CFR Part 15, Subpart E 15.407	KDB 789033 D02 II F	47 CFR Part 15, Subpart C 15.407 (a)	Pass
Radiated Emissions	47 CFR Part 15, Subpart E 15.407	KDB 789033 D02 II G	47 CFR Part 15, Subpart C 15.209 & 15.407(b)	Pass
Radiated Emissions which fall in the restricted bands	47 CFR Part 15, Subpart E 15.407	KDB 789033 D02 II G	47 CFR Part 15, Subpart C 15.209 & 15.407(b)	Pass
Frequency Stability	47 CFR Part 15, Subpart E 15.407	ANSI C63.10 (2013) Section 6.8	47 CFR Part 15, Subpart C 15.407 (g)	Pass

3 Contents

4 General Information

4.1 Details of E.U.T.

Power supply:	DC 3.3V
Test voltage:	DC3.3V
Antenna Gain	Antenna 0: 6dBi, Antenna 1: 6dBi
Antenna Type	Connector Antenna
Operation Frequency:	802.11a/n(HT20)/ac(HT20): 5180-5240MHz, 5745MHz-5825MHz 802.11n(HT40)/ac(HT40): 5190-5230MHz, 5755MHz-5795MHz
Modulation Technique:	OFDM(256QAM, 64QAM, 16QAM, QPSK, BPSK) Remark: 256QAM for 802.11 ac only
Data Rate:	802.11a: 6/9/12/18/24/36/48/54Mbps 802.11n: MCS0-15 802.11ac: MCS0-9
Number of Channel:	802.11 a/n(HT20)/ac(HT20): 9 Channel 36, 40, 44, 48, 149, 153, 157, 161, 165 802.11 n(HT40)/ac(HT40): 4 Channel 38, 46, 151, 159

4.2 Description of Support Units

Description	Manufacturer	Model No.	Serial No.
Laptop	Lenovo	ThinkPad X100e	/
Test Fixture	/	/	/

4.3 Measurement Uncertainty

No.	Item	Measurement Uncertainty
1	Radio Frequency	7.25 x 10-8
2	Timeout	2s
3	Duty cycle	0.37%
4	Occupied Bandwidth	3%
5	RF conducted power	0.75dB
6	RF power density	2.84dB
7	Conducted Spurious emissions	0.75dB
8	RF Radiated power	4.5dB (Below 1GHz)
		4.8dB (Above 1GHz)
9	Radiated Spurious emission test	4.2dB (Below 30MHz)
		4.4dB (30MHz-1GHz)
		4.6dB (1GHz-18GHz)
		5.2dB (Above 18GHz)
10	Temperature test	1°C
11	Humidity test	3%
12	Supply voltages	1.5%
13	Time	3%

Note: The measurement uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

4.4 Test Location

All tests were performed at:

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. E&E Lab

588 West Jindu Road, Xinqiao, Songjiang, 201612 Shanghai, China

Tel: +86 21 6191 5666 Fax: +86 21 6191 5678

No tests were sub-contracted.

4.5 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

• CNAS (No. CNAS L0599)

CNAS has accredited SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. to ISO/IEC 17025:2005 General Requirements for the Competence of Testing and Calibration Laboratories (CNAS-CL01 Accreditation Criteria for the Competence of Testing and Calibration Laboratories) for the competence in the field of testing.

• NVLAP (Certificate No. 201034-0)

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. is accredited by the National Voluntary Laboratory Accreditation Program(NVLAP). Certificate No. 201034-0.

• FCC –Designation Number: CN5033

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. has been recognized as an accredited testing laboratory.

Designation Number: CN5033. Test Firm Registration Number: 479755.

• Industry Canada (IC) – IC Assigned Code: 8617A

The 3m Semi-anechoic chamber of SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 8617A-1.

• VCCI (Member No.: 3061)

The 3m Semi-anechoic chamber and Shielded Room of SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. has been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: R-13868, C-14336, T-12221, G-10830 respectively.

4.6 Deviation from Standards

None

4.7 Abnormalities from Standard Conditions

None

5 Equipment List

Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
Conducted Test					
Spectrum Analyzer	R&S	FSP-30	SHEM002-1	2017-12-20	2018-12-19
Spectrum Analyzer	Agilent	N9020A	SHEM181-1	2017-09-26	2018-09-25
Power meter	R&S	NRP	SHEM057-1	2017-12-26	2018-12-25
Power Sensor	R&S	NRP-Z22	SHEM136-1	2017-07-22	2018-07-21
Power Sensor	R&S	NRP-Z91	SHEM057-2	2017-12-26	2018-12-25
Signal Generator	R&S	SMR40	SHEM058-1	2017-07-03	2018-07-02
Signal Generator	Agilent	N5182A	SHEM182-1	2017-09-26	2018-09-25
Communication Tester	R&S	CMW270	SHEM183-1	2017-10-22	2018-10-21
Switcher	Tonscend	JS0806	SHEM184-1	2017-09-26	2018-09-25
Splitter	Anritsu	MA1612A	SHEM185-1	/	/
Coupler	e-meca	803-S-1	SHEM186-1	/	/
High-low Temp Cabinet	Suzhou Zhihe	TL-40	SHEM087-1	2017-09-26	2018-09-25
AC Power Stabilizer	WOCEN	6100	SHEM045-1	2017-12-26	2018-12-25
DC Power Supply	QJE	QJ30003SII	SHEM046-1	2017-12-26	2018-12-25
Conducted test Cable	/	RF01, RF 02	/	2017-12-26	2018-12-25
Radiated Test					
EMI test receiver	R&S	ESU40	SHEM051-1	2017-12-20	2018-12-19
Spectrum Analyzer	R&S	FSP-30	SHEM002-1	2017-12-20	2018-12-19
Loop Antenna (9kHz-30MHz)	Schwarzbeck	FMZB1519	SHEM135-1	2017-04-10	2020-04-09
Antenna (25MHz-2GHz)	Schwarzbeck	VULB9168	SHEM048-1	2017-02-28	2020-02-27
Antenna (25MHz-3GHz)	Schwarzbeck	HL562	SHEM010-1	2017-02-28	2020-02-27
Horn Antenna (1-8GHz)	Schwarzbeck	HF906	SHEM009-1	2017-10-24	2020-10-23
Horn Antenna (1-18GHz)	Schwarzbeck	BBHA9120D	SHEM050-1	2017-01-14	2020-01-13
Horn Antenna (14-40GHz)	Schwarzbeck	BBHA 9170	SHEM049-1	2017-12-03	2020-12-02
Pre-amplifier (9KHz-2GHz)	CLAVIIO	BDLNA-0001-412010	SHEM164-1	2017-08-22	2018-08-21
Pre-amplifier (1-18GHz)	CLAVIIO	BDLNA-0118-352810	SHEM050-2	2017-08-22	2018-08-21
High-amplifier (14-40GHz)	Schwarzbeck	10001	SHEM049-2	2017-12-20	2018-12-19
Band filter	LORCH	9BRX-875/X150-SR	SHEM156-1	/	/
Band filter	LORCH	13BRX-1950/X500-SR	SHEM083-2	/	/
Band filter	LORCH	5BRX-2400/X200-SR	SHEM155-1	/	/
Band filter	LORCH	5BRX-5500/X1000-SR	SHEM157-2	/	/
High pass Filter	Wainwright	WHK3.0/18G-100SS	SHEM157-1	/	/
High pass Filter	Wainwright	WHKS1700-3SS	SHEM157-3	/	/
Semi/Fully Anechoic	ST	11*6*6M	SHEM078-2	2017-07-22	2020-07-21
RE test Cable	/	RE01, RE02, RE06	/	2017-12-26	2018-12-25

6 Radio Spectrum Technical Requirement

6.1 Antenna Requirement

6.1.1 Test Requirement:

47 CFR Part 15, Subpart C 15.203

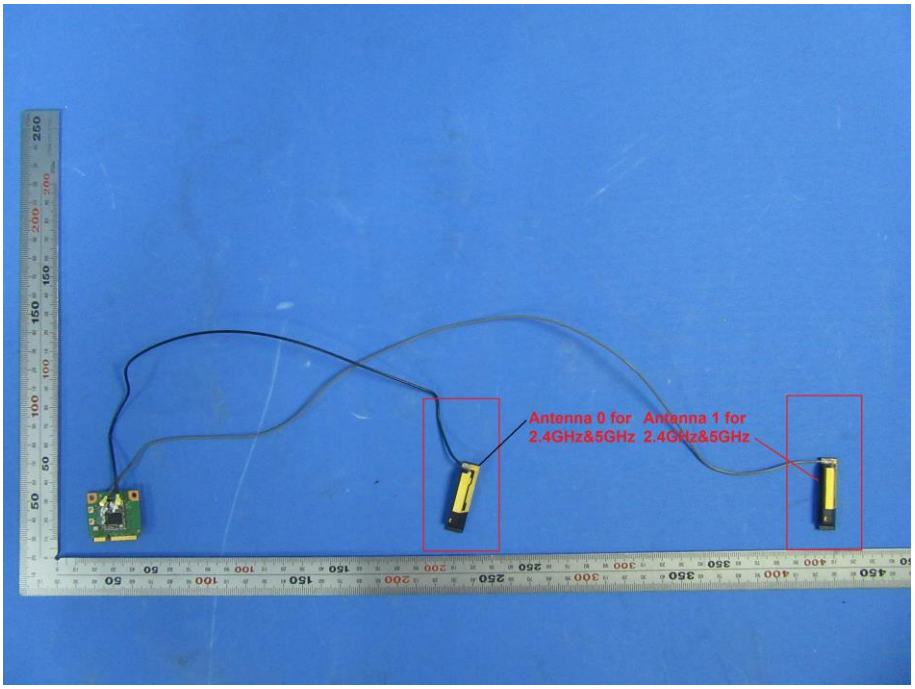
6.1.2 Conclusion

Standard Requirement:

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 antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit permanently attached antenna or of an so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

EUT Antenna:

The antenna is Connector Antenna and no consideration of replacement. The best case gain of the antenna0 is 6dBi and antenna1 is 6dBi



6.2 Transmission in the Absence of Data

6.2.1 Test Requirement:

47 CFR Part 15, Subpart C 15.407 (c)

6.2.2 Conclusion

Standard Requirement:

The device shall automatically discontinue transmission in case of either absence of information to transmit or operational failure. These provisions are not intended to preclude the transmission of control or signalling information or the use of repetitive codes used by certain digital technologies to complete frame or burst intervals.

Applicants shall include in their application for equipment authorization a description of how this requirement is met.

EUT Details:

WIFI chip (Marvell 88W8897) support automatically discontinue transmission in case of either absence of information to transmit or operational failure, if the chip detect absence of information to transmit or operational failure, it will be automatically shut off.

7 Radio Spectrum Matter Test Results

7.1 26dB Emission bandwidth

Test Requirement 47 CFR Part 15, Subpart C 15.407 (a)

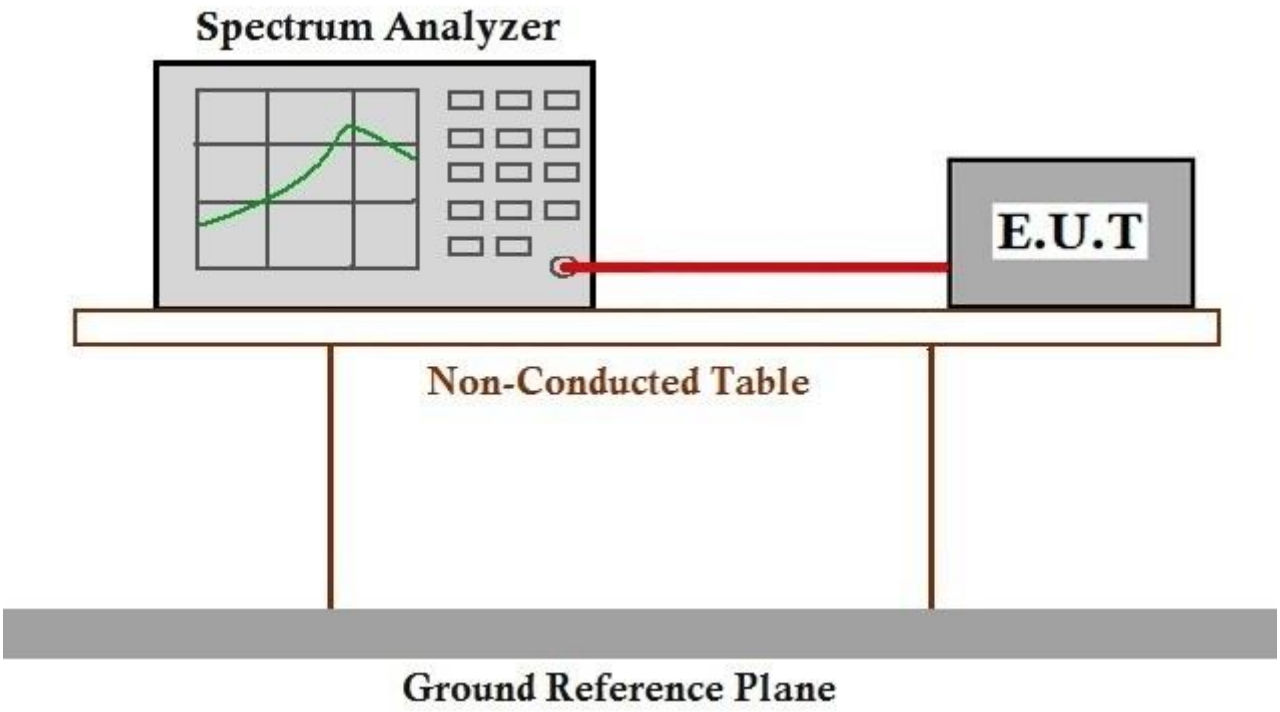
Test Method: KDB 789033 D02 II C 1

7.1.1 E.U.T. Operation

Operating Environment:

Temperature: 22 °C Humidity: 50 % RH Atmospheric Pressure: 1001 mbar

7.1.2 Test Setup Diagram



7.1.3 Measurement Procedure and Data

The detailed test data see: Appendix B for SHEM180400246702

7.2 Minimum 6 dB bandwidth (5.725-5.85 GHz band)

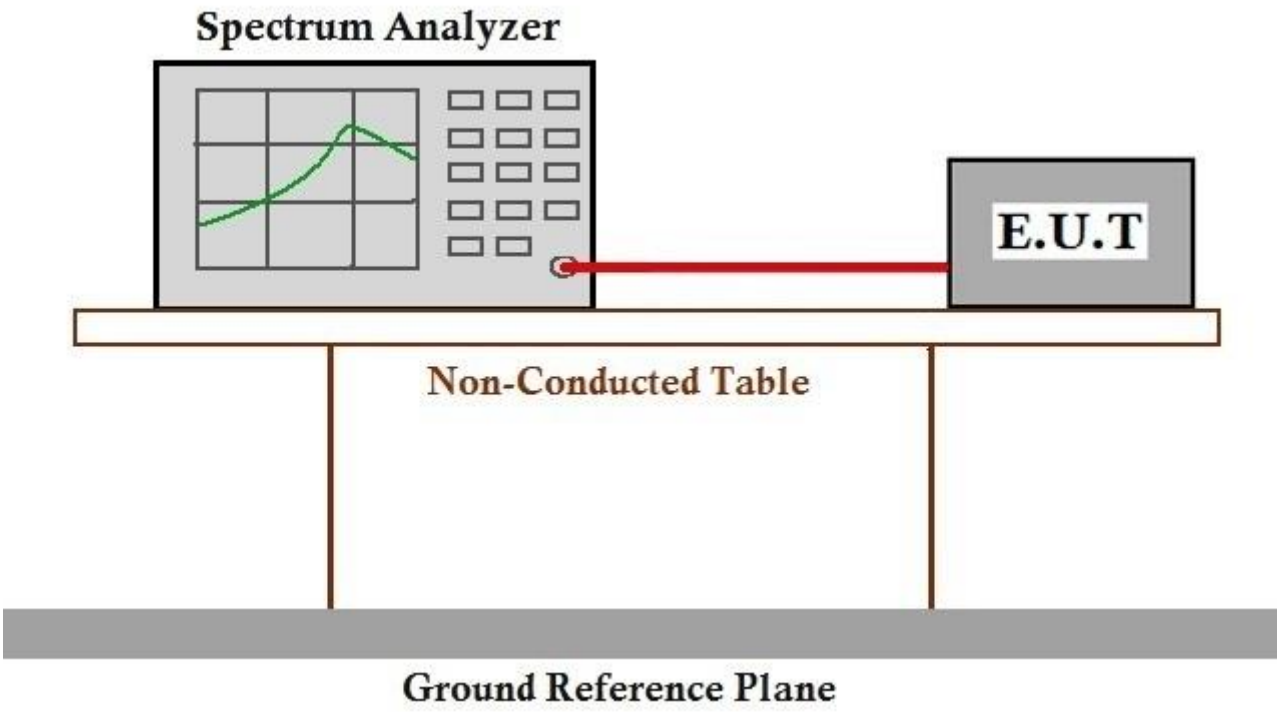
Test Requirement 47 CFR Part 15, Subpart C 15.407 (e)
Test Method: KDB 789033 D02 II C 2
Limit: ⩾500 kHz

7.2.1 E.U.T. Operation

Operating Environment:

Temperature: 22 °C Humidity: 50 % RH Atmospheric Pressure: 1001 mbar

7.2.2 Test Setup Diagram



7.2.3 Measurement Procedure and Data

The detailed test data see: Appendix B for SHEM180400246702

7.3 Maximum Conducted output power

Test Requirement 47 CFR Part 15, Subpart C 15.407 (a)

Test Method: KDB 789033 D02 II E

Limit:

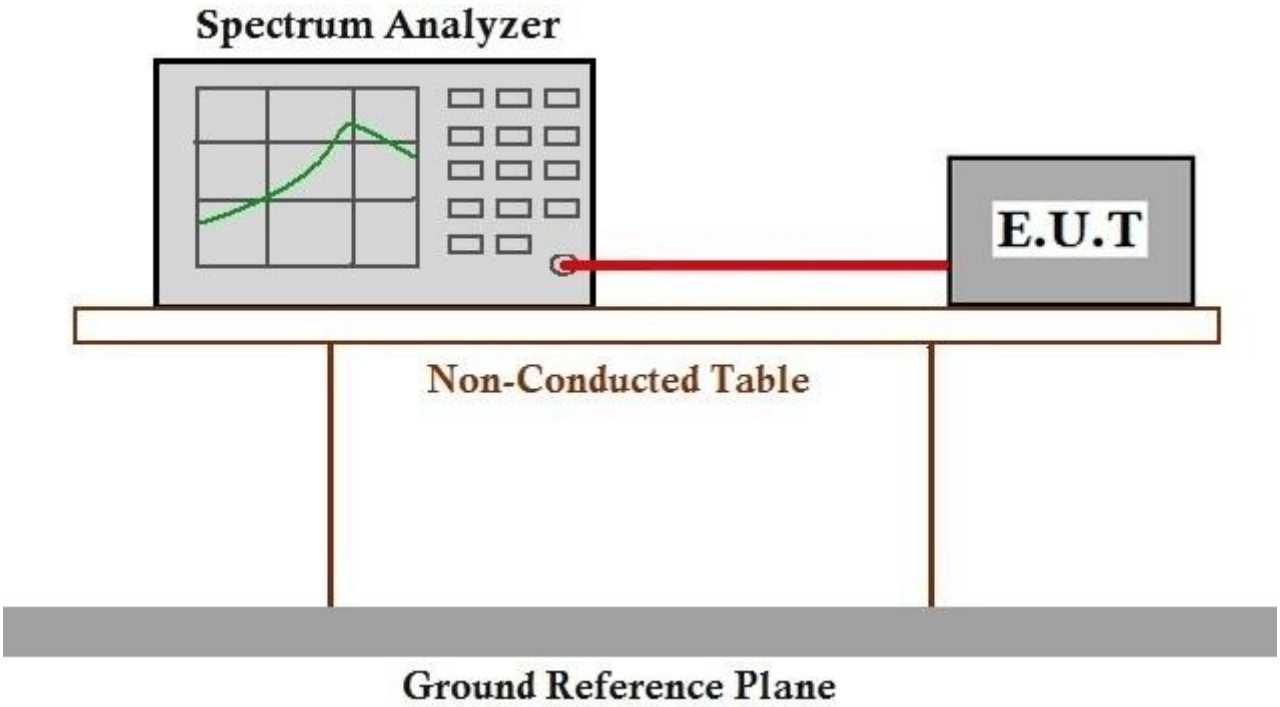
Frequency band(MHz)	Limit
5150-5250	≤1W(30dBm) for master device
	≤250mW(24dBm) for client device
5250-5350	≤250mW(24dBm) for client device or 11dBm+10logB*
5470-5725	≤250mW(24dBm) for client device or 11dBm+10logB*
5725-5850	≤1W(30dBm)
Remark: 1.*Where B is the 26dB emission bandwidth in MHz. 2.The maximum conducted output power must be measured over any interval of continuous transmission using instrumentation calibrated in terms of an rms-equivalent voltage. 3. The two antennas completely correlated with each other, so the directional gain of the two antenna in MIMO mode is 9dBi, the directional antenna gains greater than 6dBi, so the limit of conducted peak output power for 5150MHz to 5250MHz must reduce to 21dBm; the limit of conducted peak output power for 5725MHz to 5850MHz must reduce to 27dBm	

7.3.1 E.U.T. Operation

Operating Environment:

Temperature: 22 °C Humidity: 50 % RH Atmospheric Pressure: 1001 mbar

7.3.2 Test Setup Diagram



7.3.3 Measurement Procedure and Data

The detailed test data see: Appendix B for SHEM180400246702

7.4 Peak Power spectrum density

Test Requirement 47 CFR Part 15, Subpart C 15.407 (a)

Test Method: KDB 789033 D02 II F

Limit:

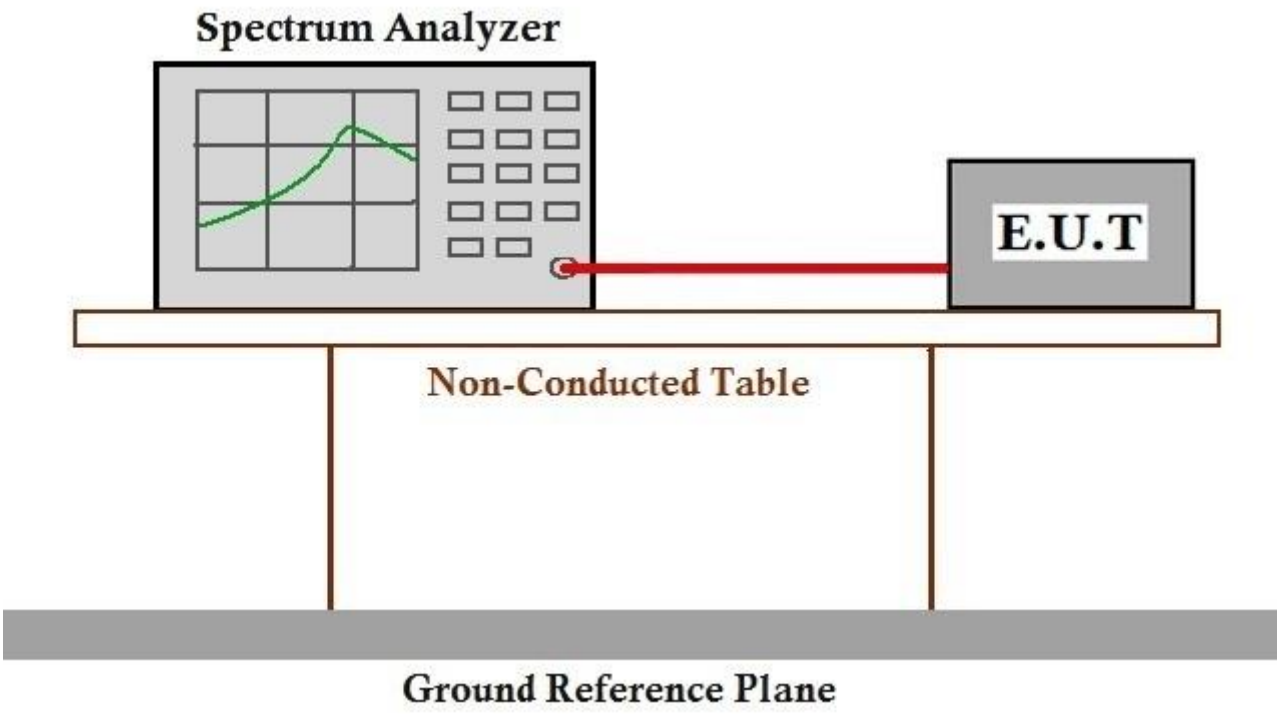
Frequency band(MHz)	Limit
5150-5250	≤17dBm in 1MHz for master device
	≤11dBm in 1MHz for client device
5250-5350	≤11dBm in 1MHz for client device
5470-5725	≤11dBm in 1MHz for client device
5725-5850	≤30dBm in 500 kHz
Remark: 1.The maximum power spectral density is measured as a conducted emission by direct connection of a calibrated test instrument to the equipment under test. 2. The two antennas completely correlated with each other, so the directional gain of the two antenna in MIMO mode is 9dBi, the directional antenna gains greater than 6dBi, so the limit of conducted PSD for 5150MHz to 5250MHz must reduce to 8dBm; the limit of conducted PSD for 5725MHz to 5850MHz must reduce to 27dBm	

7.4.1 E.U.T. Operation

Operating Environment:

Temperature: 22 °C Humidity: 50 % RH Atmospheric Pressure: 1001 mbar

7.4.2 Test Setup Diagram



7.4.3 Measurement Procedure and Data

The detailed test data see: Appendix B for SHEM180400246702

7.5 Radiated Emissions

Test Requirement 47 CFR Part 15, Subpart C 15.209 & 15.407(b)

Test Method: KDB 789033 D02 II G

7.5.1 E.U.T. Operation

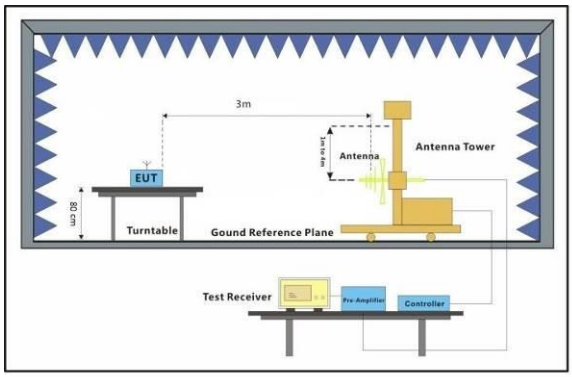
Operating Environment:

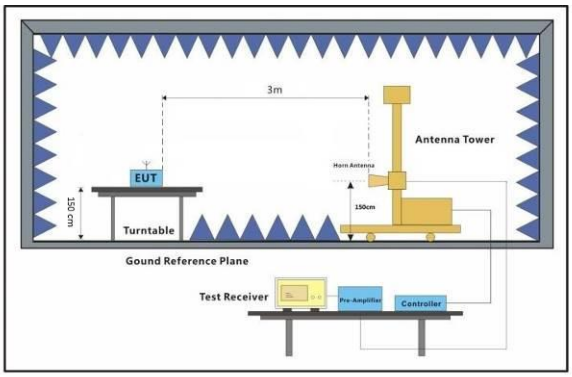
Temperature: 22 °C Humidity: 50 % RH Atmospheric Pressure: 1001 mbar

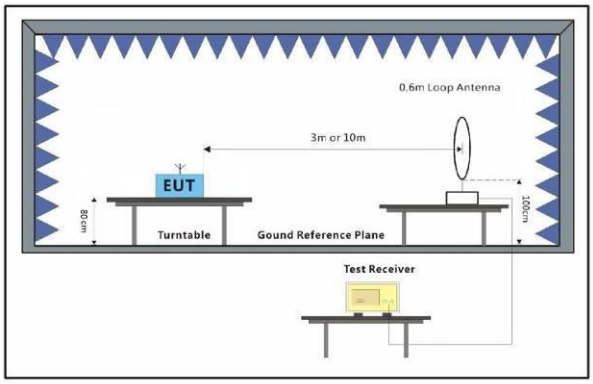
Test mode b: TX mode (Band 1)_Keep the EUT in continuously transmitting mode with all modulation types. All data rates for each modulation type have been tested and found the data rate @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n(HT20); data rate @ MCS0 is the worst case of IEEE 802.11n(HT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT20); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT80). Only the data of worst case is recorded in the report.

c: TX mode (Band 3)_Keep the EUT in continuously transmitting mode with all modulation types. All data rates for each modulation type have been tested and found the data rate @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n(HT20); data rate @ MCS0 is the worst case of IEEE 802.11n(HT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT20); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT40); Only the data of worst case is recorded in the report.

7.5.2 Test Setup Diagram







7.5.3 Measurement Procedure and Data

a. For below 1GHz, the EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 or 10 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.

b. For above 1GHz, the EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter fully-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.

c. The EUT was set 3 or 10 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.

d. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

e. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.

f. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

g. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

h. Test the EUT in the lowest channel, the middle channel, the Highest channel.

i. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is the worst case.

j. Repeat above procedures until all frequencies measured was complete.

Remark:

1. Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor

2. For emission below 1GHz, through the pre-scan found the worst case is the lowest channel of 802.11a. Only the worst case is recorded in the report.

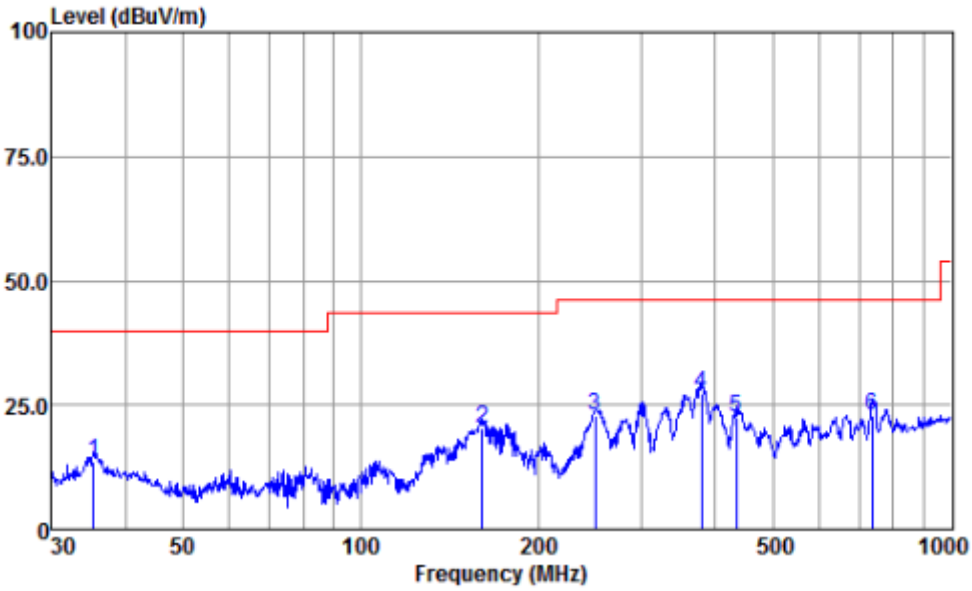
3. Scan from 9kHz to 40GHz, the disturbance above 18GHz and below 30MHz was very low. The points marked on above plots are the highest emissions could be found when testing, so only above points had been displayed. The amplitude of spurious emissions from the radiator which are attenuated more than 20dB below the limit need not be reported.

4. As shown in this section, for frequencies above 1GHz, the field strength limits are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation. For the emissions whose peak level is lower than the average limit, only the peak measurement is shown in the report.

5. Peak limit for Band 1 is -27dBm/MHz, according EIRP[dBm] = E[dBμV/m] − 95.2, So the converted “E” value is 68.2dBuV/m

6. This test item was investigated while operating in SISO and MIMO mode, however, it was determined that SISO antenna 1 operation for a modulation and MIMO antenna operation for n/ac modulation produced the worst emissions. So the emissions produced from other operation are not report.

Below 1GHz
Mode:b; Polarization:Horizontal

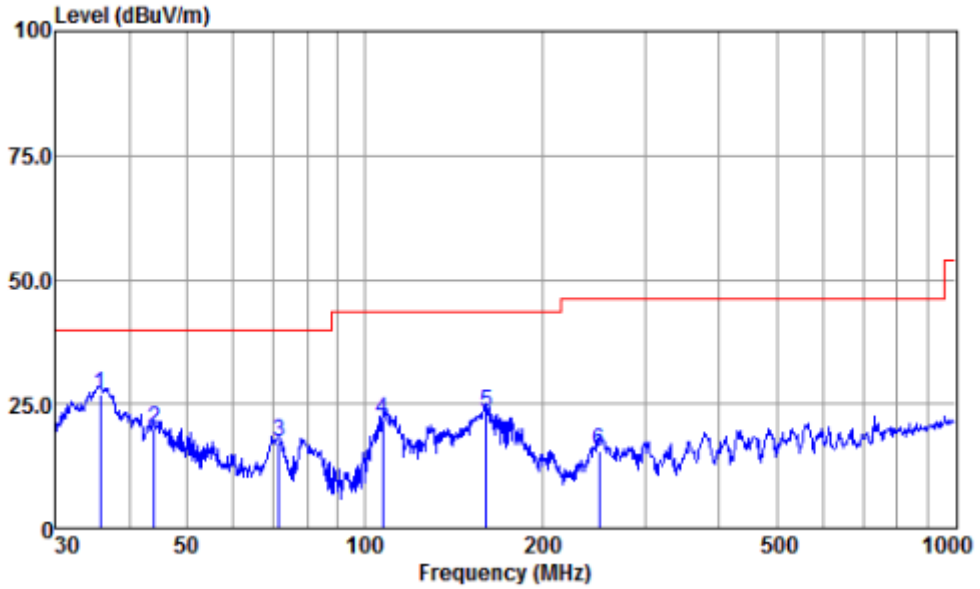


Antenna Polarity :HORIZONTAL
Test mode :b

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
	MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
1	35.25	40.11	15.86	0.20	42.61	13.56	40.00	-26.44	QP
2	160.91	49.21	12.93	0.64	42.59	20.19	43.50	-23.31	QP
3	250.30	53.22	11.50	0.77	42.46	23.03	46.00	-22.97	QP
4	378.58	53.88	14.73	0.96	42.16	27.41	46.00	-18.59	QP
5	434.07	47.72	15.87	1.06	42.11	22.54	46.00	-23.46	QP
6	737.07	42.74	20.87	1.85	42.53	22.93	46.00	-23.07	QP

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

Mode:b; Polarization:Vertical



Antenna Polarity :VERTICAL

Test mode :b

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
	MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
1	35.62	53.28	15.90	0.21	42.61	26.78	40.00	-13.22	QP
2	44.12	48.44	13.81	0.24	42.63	19.86	40.00	-20.14	QP
3	71.58	48.98	10.86	0.34	42.67	17.51	40.00	-22.49	QP
4	107.51	54.43	9.58	0.49	42.70	21.80	43.50	-21.70	QP
5	160.91	52.21	12.93	0.64	42.59	23.19	43.50	-20.31	QP
6	250.30	45.51	11.50	0.77	42.46	15.32	46.00	-30.68	QP

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

Above 1GHz

Mode:b; Polarization:Horizontal; Modulation:a; bandwidth:20MHz; Channel:Low

Frequency	RX_R	Factor	Emission	Limit	Margin	Detector
MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
10360	32.97	14.28	47.25	68.2	-20.95	peak
15540	30.12	21.58	51.70	54	-2.30	peak
20720	26.03	23.16	49.19	54	-4.81	peak

Mode:b; Polarization:Vertical; Modulation:a; bandwidth:20MHz; Channel:Low

Frequency	RX_R	Factor	Emission	Limit	Margin	Detector
MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
10360	33.17	14.28	47.45	68.2	-20.75	peak
15540	28.02	21.58	49.60	54	-4.40	peak
20720	30.10	23.16	53.26	54	-0.74	peak

Mode:b; Polarization:Horizontal; Modulation:a; bandwidth:20MHz; Channel:middle

Frequency	RX_R	Factor	Emission	Limit	Margin	Detector
MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
10440	34.75	14.14	48.89	68.2	-19.31	peak
15660	29.46	21.22	50.68	54	-3.32	peak
20880	26.40	23.24	49.64	54	-4.36	peak

Mode:b; Polarization:Vertical; Modulation:a; bandwidth:20MHz; Channel:middle

Frequency	RX_R	Factor	Emission	Limit	Margin	Detector
MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
10440	35.83	14.14	49.97	68.2	-18.23	peak
15660	25.90	21.22	47.12	54	-6.88	peak
20880	29.52	23.24	52.76	54	-1.24	peak

Mode:b; Polarization:Horizontal; Modulation:a; bandwidth:20MHz; Channel:High

Frequency	RX_R	Factor	Emission	Limit	Margin	Detector
MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
10480	32.98	14.08	47.06	68.2	-21.14	peak
15720	32.15	21.10	53.25	54	-0.75	peak
20960	25.94	23.64	49.58	54	-4.42	peak

Mode:b; Polarization:Vertical; Modulation:a; bandwidth:20MHz; Channel:High

Frequency	RX_R	Factor	Emission	Limit	Margin	Detector
MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
10480	33.38	14.08	47.46	68.2	-20.74	peak
15720	27.60	21.10	48.70	54	-5.30	peak
20960	27.31	23.64	50.95	54	-3.05	peak

Mode:b; Polarization:Horizontal; Modulation:n; bandwidth:20MHz; Channel:Low

Frequency	RX_R	Factor	Emission	Limit	Margin	Detector
MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
10360	29.32	14.28	43.60	68.2	-24.60	peak
15540	26.01	21.58	47.59	54	-6.41	peak
20720	26.67	23.16	49.83	54	-4.17	peak

Mode:b; Polarization:Vertical; Modulation:n; bandwidth:20MHz; Channel:Low

Frequency	RX_R	Factor	Emission	Limit	Margin	Detector
MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
10360	34.32	14.28	48.60	68.2	-19.60	peak
15540	29.08	21.58	50.66	54	-3.34	peak
20720	27.44	23.16	50.60	54	-3.40	peak

Mode:b; Polarization:Horizontal; Modulation:n; bandwidth:20MHz; Channel:middle

Frequency	RX_R	Factor	Emission	Limit	Margin	Detector
MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
10440	30.90	14.14	45.04	68.2	-23.16	peak
15660	28.94	21.22	50.16	54	-3.84	peak
20880	27.20	23.24	50.44	54	-3.56	peak

Mode:b; Polarization:Vertical; Modulation:n; bandwidth:20MHz; Channel:middle

Frequency	RX_R	Factor	Emission	Limit	Margin	Detector
MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
10440	34.06	14.14	48.20	68.2	-20.00	peak
15660	26.56	21.22	47.78	54	-6.22	peak
20880	27.62	23.24	50.86	54	-3.14	peak

Mode:b; Polarization:Horizontal; Modulation:n; bandwidth:20MHz; Channel:High

Frequency	RX_R	Factor	Emission	Limit	Margin	Detector
MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
10480	30.29	14.08	44.37	68.2	-23.83	peak
15720	26.82	21.10	47.92	54	-6.08	peak
20960	29.99	23.64	53.63	54	-0.37	peak

Mode:b; Polarization:Vertical; Modulation:n; bandwidth:20MHz; Channel:High

Frequency	RX_R	Factor	Emission	Limit	Margin	Detector
MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
10480	31.80	14.08	45.88	68.2	-22.32	peak
15720	27.92	21.10	49.02	54	-4.98	peak
20960	27.04	23.64	50.68	54	-3.32	peak

Mode:b; Polarization:Horizontal; Modulation:n; bandwidth:40MHz; Channel:Low

Frequency	RX_R	Factor	Emission	Limit	Margin	Detector
MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
10380	30.89	14.25	45.14	68.2	-23.06	peak
15570	30.68	21.49	52.17	54	-1.83	peak
20760	28.36	23.16	51.52	54	-2.48	peak

Mode:b; Polarization:Vertical; Modulation:n; bandwidth:40MHz; Channel:Low

Frequency	RX_R	Factor	Emission	Limit	Margin	Detector
MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
10380	31.14	14.25	45.39	68.2	-22.81	peak
15570	31.22	21.49	52.71	54	-1.29	peak
20760	29.14	23.16	52.30	54	-1.70	peak

Mode:b; Polarization:Horizontal; Modulation:n; bandwidth:40MHz; Channel:High

Frequency	RX_R	Factor	Emission	Limit	Margin	Detector
MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
10460	32.82	14.11	46.93	68.2	-21.27	peak
15690	28.83	21.14	49.97	54	-4.03	peak
20920	25.01	23.31	48.32	54	-5.68	peak

Mode:b; Polarization:Vertical; Modulation:n; bandwidth:40MHz; Channel:High

Frequency	RX_R	Factor	Emission	Limit	Margin	Detector
MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
10460	33.04	14.11	47.15	68.2	-21.05	peak
15690	30.58	21.14	51.72	54	-2.28	peak
20920	26.84	23.31	50.15	54	-3.85	peak

Mode:b; Polarization:Horizontal; Modulation:c; bandwidth:20MHz; Channel:Low

Frequency	RX_R	Factor	Emission	Limit	Margin	Detector
MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
10360	30.33	14.28	44.61	68.2	-23.59	peak
15540	29.36	21.58	50.94	54	-3.06	peak
20720	29.22	23.16	52.38	54	-1.62	peak

Mode:b; Polarization:Vertical; Modulation:c; bandwidth:20MHz; Channel:Low

Frequency	RX_R	Factor	Emission	Limit	Margin	Detector
MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
10360	29.39	14.28	43.67	68.2	-24.53	peak
15540	27.62	21.58	49.20	54	-4.80	peak
20720	29.92	23.16	53.08	54	-0.92	peak

Mode:b; Polarization:Horizontal; Modulation:c; bandwidth:20MHz; Channel:middle

Frequency	RX_R	Factor	Emission	Limit	Margin	Detector
MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
10440	30.39	14.14	44.53	68.2	-23.67	peak
15660	27.36	21.22	48.58	54	-5.42	peak
20880	29.66	23.24	52.90	54	-1.10	peak

Mode:b; Polarization:Vertical; Modulation:c; bandwidth:20MHz; Channel:middle

Frequency	RX_R	Factor	Emission	Limit	Margin	Detector
MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
10440	30.72	14.14	44.86	68.2	-23.34	peak
15660	30.47	21.22	51.69	54	-2.31	peak
20880	27.15	23.24	50.39	54	-3.61	peak

Mode:b; Polarization:Horizontal; Modulation:c; bandwidth:20MHz; Channel:High

Frequency	RX_R	Factor	Emission	Limit	Margin	Detector
MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
10480	32.68	14.08	46.76	68.2	-21.44	peak
15720	27.29	21.10	48.39	54	-5.61	peak
20960	27.04	23.64	50.68	54	-3.32	peak

Mode:b; Polarization:Vertical; Modulation:c; bandwidth:20MHz; Channel:High

Frequency	RX_R	Factor	Emission	Limit	Margin	Detector
MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
10480	35.74	14.08	49.82	68.2	-18.38	peak
15720	26.72	21.10	47.82	54	-6.18	peak
20960	30.00	23.64	53.64	54	-0.36	peak

Mode:b; Polarization:Horizontal; Modulation:c; bandwidth:40MHz; Channel:Low

Frequency	RX_R	Factor	Emission	Limit	Margin	Detector
MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
10380	30.54	14.25	44.79	68.2	-23.41	peak
15570	28.11	21.49	49.60	54	-4.40	peak
20760	27.60	23.16	50.76	54	-3.24	peak

Mode:b; Polarization:Vertical; Modulation:c; bandwidth:40MHz; Channel:Low

Frequency	RX_R	Factor	Emission	Limit	Margin	Detector
MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
10380	31.96	14.25	46.21	68.2	-21.99	peak
15570	29.16	21.49	50.65	54	-3.35	peak
20760	28.87	23.16	52.03	54	-1.97	peak

Mode:b; Polarization:Horizontal; Modulation:c; bandwidth:40MHz; Channel:High

Frequency	RX_R	Factor	Emission	Limit	Margin	Detector
MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
10460	32.41	14.11	46.52	68.2	-21.68	peak
15690	27.91	21.14	49.05	54	-4.95	peak
20920	28.40	23.31	51.71	54	-2.29	peak

Mode:b; Polarization:Vertical; Modulation:c; bandwidth:40MHz; Channel:High

Frequency	RX_R	Factor	Emission	Limit	Margin	Detector
MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
10460	35.35	14.11	49.46	68.2	-18.74	peak
15690	27.94	21.14	49.08	54	-4.92	peak
20920	27.44	23.31	50.75	54	-3.25	peak

Mode:c; Polarization:Horizontal; Modulation:a; bandwidth:20MHz; Channel:Low

Frequency	RX_R	Factor	Emission	Limit	Margin	Detector
MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
11490	34.58	14.41	48.99	54	-5.01	peak
17235	25.89	22.57	48.46	68.2	-19.74	peak
22980	27.34	24.45	51.79	54	-2.21	peak

Mode:c; Polarization:Vertical; Modulation:a; bandwidth:20MHz; Channel:Low

Frequency	RX_R	Factor	Emission	Limit	Margin	Detector
MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
11490	32.93	14.41	47.34	54	-6.66	peak
17235	28.71	22.57	51.28	68.2	-16.92	peak
22980	27.59	24.45	52.04	54	-1.96	peak

Mode:c; Polarization:Horizontal; Modulation:a; bandwidth:20MHz; Channel:middle

Frequency	RX_R	Factor	Emission	Limit	Margin	Detector
MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
11570	33.15	14.25	47.40	54	-6.60	peak
17355	26.93	21.86	48.79	68.2	-19.41	peak
23140	26.50	24.68	51.18	68.2	-17.02	peak

Mode:c; Polarization:Vertical; Modulation:a; bandwidth:20MHz; Channel:middle

Frequency	RX_R	Factor	Emission	Limit	Margin	Detector
MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
11570	34.57	14.25	48.82	54	-5.18	peak
17355	25.97	21.86	47.83	68.2	-20.37	peak
23140	27.27	24.68	51.95	68.2	-16.25	peak

Mode:c; Polarization:Horizontal; Modulation:a; bandwidth:20MHz; Channel:High

Frequency	RX_R	Factor	Emission	Limit	Margin	Detector
MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
11650	32.15	14.06	46.21	54	-7.79	peak
17475	25.15	21.15	46.30	68.2	-21.90	peak
23300	24.98	25.11	50.09	68.2	-18.11	peak

Mode:c; Polarization:Vertical; Modulation:a; bandwidth:20MHz; Channel:High

Frequency	RX_R	Factor	Emission	Limit	Margin	Detector
MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
11650	33.96	14.06	48.02	54	-5.98	peak
17475	27.00	21.15	48.15	68.2	-20.05	peak
23300	23.57	25.11	48.68	68.2	-19.52	peak

Mode:c; Polarization:Horizontal; Modulation:n; bandwidth:20MHz; Channel:Low

Frequency	RX_R	Factor	Emission	Limit	Margin	Detector
MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
11490	31.04	14.41	45.45	54	-8.55	peak
17235	28.30	22.57	50.87	68.2	-17.33	peak
22980	27.36	24.45	51.81	54	-2.19	peak

Mode:c; Polarization:Vertical; Modulation:n; bandwidth:20MHz; Channel:Low

Frequency	RX_R	Factor	Emission	Limit	Margin	Detector
MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
11490	33.72	14.41	48.13	54	-5.87	peak
17235	26.73	22.57	49.30	68.2	-18.90	peak
22980	26.61	24.45	51.06	54	-2.94	peak

Mode:c; Polarization:Horizontal; Modulation:n; bandwidth:20MHz; Channel:middle

Frequency	RX_R	Factor	Emission	Limit	Margin	Detector
MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
11570	33.91	14.25	48.16	54	-5.84	peak
17355	26.20	21.86	48.06	68.2	-20.14	peak
23140	25.20	24.68	49.88	68.2	-18.32	peak

Mode:c; Polarization:Vertical; Modulation:n; bandwidth:20MHz; Channel:middle

Frequency	RX_R	Factor	Emission	Limit	Margin	Detector
MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
11570	31.06	14.25	45.31	54	-8.69	peak
17355	28.16	21.86	50.02	68.2	-18.18	peak
23140	25.08	24.68	49.76	68.2	-18.44	peak

Mode:c; Polarization:Horizontal; Modulation:n; bandwidth:20MHz; Channel:High

Frequency	RX_R	Factor	Emission	Limit	Margin	Detector
MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
11650	32.60	14.06	46.66	54	-7.34	peak
17475	29.81	21.15	50.96	68.2	-17.24	peak
23300	27.54	25.11	52.65	68.2	-15.55	peak

Mode:c; Polarization:Vertical; Modulation:n; bandwidth:20MHz; Channel:High

Frequency	RX_R	Factor	Emission	Limit	Margin	Detector
MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
11650	34.73	14.06	48.79	54	-5.21	peak
17475	29.86	21.15	51.01	68.2	-17.19	peak
23300	27.60	25.11	52.71	68.2	-15.49	peak

Mode:c; Polarization:Horizontal; Modulation:n; bandwidth:40MHz; Channel:Low

Frequency	RX_R	Factor	Emission	Limit	Margin	Detector
MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
11510	34.36	14.40	48.76	54	-5.24	peak
17265	26.04	22.40	48.44	68.2	-19.76	peak
23020	25.10	24.68	49.78	54	-4.22	peak

Mode:c; Polarization:Vertical; Modulation:n; bandwidth:40MHz; Channel:Low

Frequency	RX_R	Factor	Emission	Limit	Margin	Detector
MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
11510	32.20	14.40	46.60	54	-7.40	peak
17265	28.75	22.40	51.15	68.2	-17.05	peak
23020	28.03	24.68	52.71	54	-1.29	peak

Mode:c; Polarization:Horizontal; Modulation:n; bandwidth:40MHz; Channel:High

Frequency	RX_R	Factor	Emission	Limit	Margin	Detector
MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
11590	33.34	14.20	47.54	54	-6.46	peak
17385	26.87	21.68	48.55	68.2	-19.65	peak
23180	24.62	24.72	49.34	68.2	-18.86	peak

Mode:c; Polarization:Vertical; Modulation:n; bandwidth:40MHz; Channel:High

Frequency	RX_R	Factor	Emission	Limit	Margin	Detector
MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
11590	33.00	14.20	47.20	54	-6.80	peak
17385	27.47	21.68	49.15	68.2	-19.05	peak
23180	29.00	24.72	53.72	68.2	-14.48	peak

Mode:c; Polarization:Horizontal; Modulation:c; bandwidth:20MHz; Channel:Low

Frequency	RX_R	Factor	Emission	Limit	Margin	Detector	
MHz	dBuV	dB	dBuV/m	dBuV/m	dB		
11490	34.74	14.41	49.15	54	-4.85	peak	
17235	28.48	22.57	51.05	68.2	-17.15	peak	
22980	29.04	24.45	53.49	54	-0.51	peak	

Mode:c; Polarization:Vertical; Modulation:c; bandwidth:20MHz; Channel:Low

Frequency	RX_R	Factor	Emission	Limit	Margin	Detector
MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
11490	36.82	14.41	51.23	54	-2.77	peak
17235	25.98	22.57	48.55	68.2	-19.65	peak
22980	26.51	24.45	50.96	54	-3.04	peak

Mode:c; Polarization:Horizontal; Modulation:c; bandwidth:20MHz; Channel:middle

Frequency	RX_R	Factor	Emission	Limit	Margin	Detector
MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
11570	35.89	14.25	50.14	54	-3.86	peak
17355	27.52	21.86	49.38	68.2	-18.82	peak
23140	28.41	24.68	53.09	68.2	-15.11	peak

Mode:c; Polarization:Vertical; Modulation:c; bandwidth:20MHz; Channel:middle

Frequency	RX_R	Factor	Emission	Limit	Margin	Detector
MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
11570	36.16	14.25	50.41	54	-3.59	peak
17355	29.84	21.86	51.70	68.2	-16.50	peak
23140	29.28	24.68	53.96	68.2	-14.24	peak

Mode:c; Polarization:Horizontal; Modulation:c; bandwidth:20MHz; Channel:High

Frequency	RX_R	Factor	Emission	Limit	Margin	Detector
MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
11650	33.55	14.06	47.61	54	-6.39	peak
17475	28.58	21.15	49.73	68.2	-18.47	peak
23300	27.28	25.11	52.39	68.2	-15.81	peak

Mode:c; Polarization:Vertical; Modulation:c; bandwidth:20MHz; Channel:High

Frequency	RX_R	Factor	Emission	Limit	Margin	Detector
MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
11650	33.34	14.06	47.40	54	-6.60	peak
17475	27.31	21.15	48.46	68.2	-19.74	peak
23300	29.66	25.11	54.77	68.2	-13.43	peak

Mode:c; Polarization:Horizontal; Modulation:c; bandwidth:40MHz; Channel:Low

Frequency	RX_R	Factor	Emission	Limit	Margin	Detector
MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
11510	30.97	14.40	45.37	54	-8.63	peak
17265	28.19	22.40	50.59	68.2	-17.61	peak
23020	26.89	24.68	51.57	54	-2.43	peak

Mode:c; Polarization:Vertical; Modulation:c; bandwidth:40MHz; Channel:Low

Frequency	RX_R	Factor	Emission	Limit	Margin	Detector
MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
11510	31.61	14.40	46.01	54	-7.99	peak
17265	27.72	22.40	50.12	68.2	-18.08	peak
23020	28.23	24.68	52.91	54	-1.09	peak

Mode:c; Polarization:Horizontal; Modulation:c; bandwidth:40MHz; Channel:High

Frequency	RX_R	Factor	Emission	Limit	Margin	Detector
MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
11590	35.06	14.20	49.26	54	-4.74	peak
17385	28.01	21.68	49.69	68.2	-18.51	peak
23180	23.30	24.72	48.02	68.2	-20.18	peak

Mode:c; Polarization:Vertical; Modulation:c; bandwidth:40MHz; Channel:High

Frequency	RX_R	Factor	Emission	Limit	Margin	Detector
MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
11590	33.88	14.20	48.08	54	-5.92	peak
17385	25.81	21.68	47.49	68.2	-20.71	peak
23180	27.72	24.72	52.44	68.2	-15.76	peak

7.6 Radiated Emissions which fall in the restricted bands

Test Requirement 47 CFR Part 15, Subpart C 15.209 & 15.407(b)

Test Method: KDB 789033 D02 II G

Limit:

Frequency(MHz)	Field strength(microvolts/meter)	Measurement distance(meters)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30.0	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3
Remark: The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9-90kHz, 110-490kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation.		

7.6.1 E.U.T. Operation

Operating Environment:

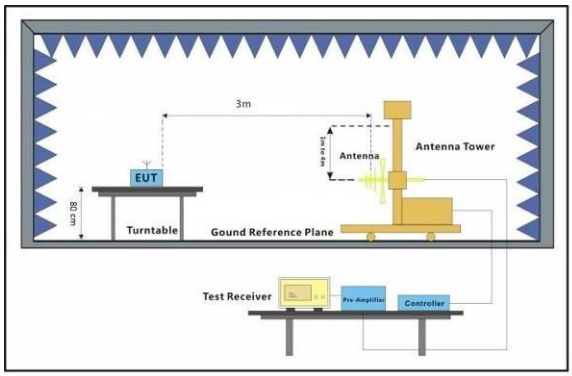
Temperature: 22 °C Humidity: 50 % RH Atmospheric Pressure: 1001 mbar

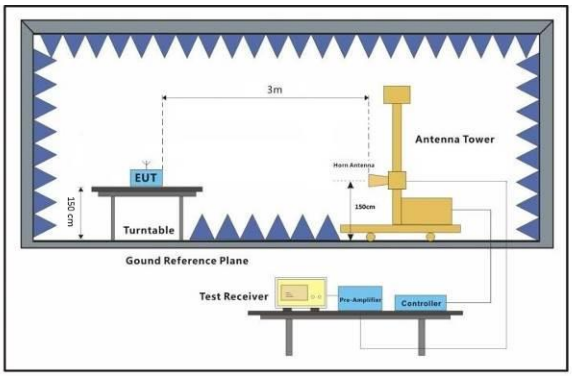
Test mode

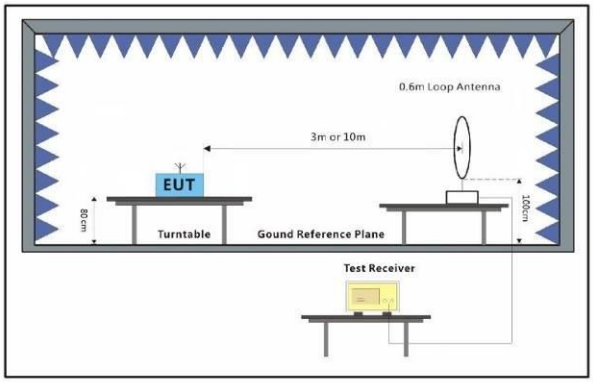
b: TX mode (Band 1)_Keep the EUT in continuously transmitting mode with all modulation types. All data rates for each modulation type have been tested and found the data rate @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n(HT20); data rate @ MCS0 is the worst case of IEEE 802.11n(HT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT20); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT80). Only the data of worst case is recorded in the report.

c: TX mode (Band 3)_Keep the EUT in continuously transmitting mode with all modulation types. All data rates for each modulation type have been tested and found the data rate @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n(HT20); data rate @ MCS0 is the worst case of IEEE 802.11n(HT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT20); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT40); Only the data of worst case is recorded in the report.

7.6.2 Test Setup Diagram







7.6.3 Measurement Procedure and Data

a. For below 1GHz, the EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 or 10 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.

b. For above 1GHz, the EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter fully-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.

c. The EUT was set 3 or 10 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.

d. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

e. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.

f. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

g. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

h. Test the EUT in the lowest channel, the middle channel, the Highest channel.

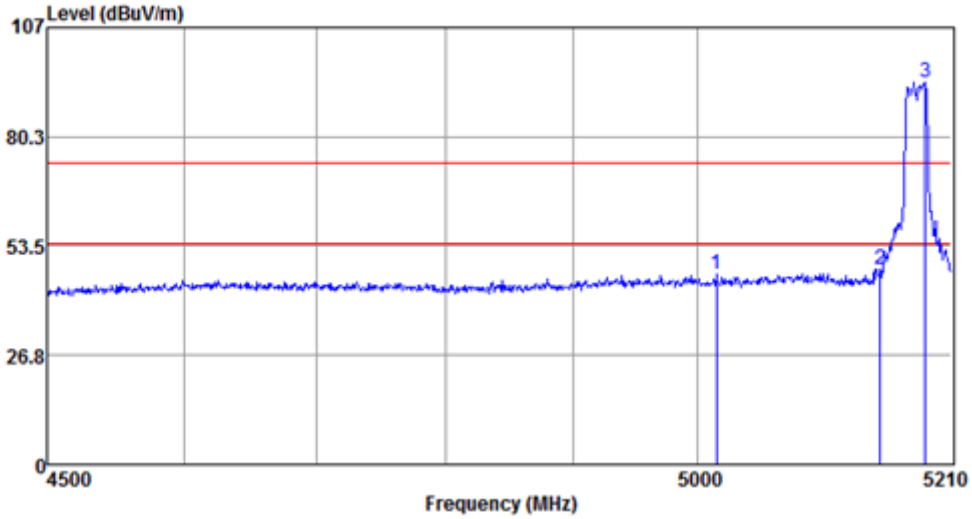
i. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is the worst case.

j. Repeat above procedures until all frequencies measured was complete.

Remark: Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor

h. This test item was investigated while operating in SISO and MIMO mode, however, it was determined that SISO antenna 1 operation for a modulation and MIMO antenna operation for n/ac modulation produced the worst emissions. So the emissions produced from other operation are not report.

Mode:b; Polarization:Horizontal; Modulation:a; bandwidth:20MHz; Channel:Low

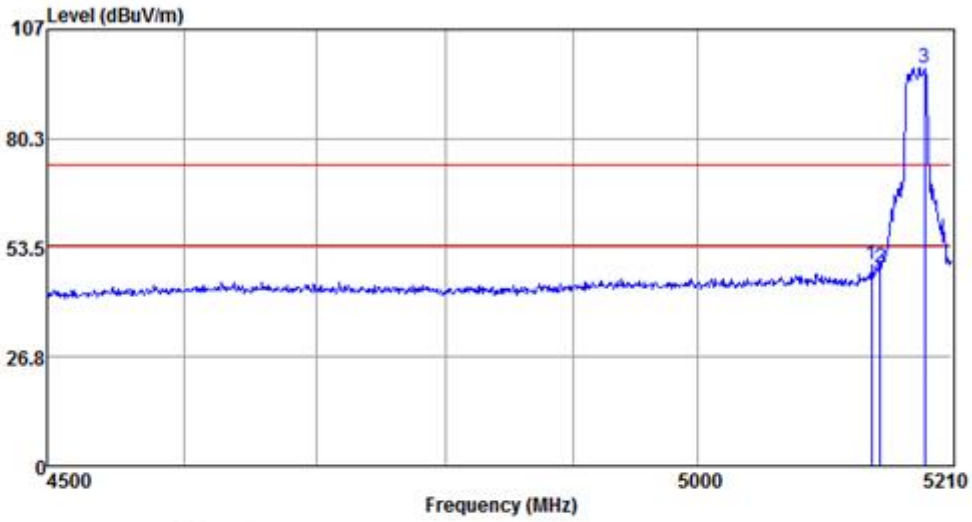


Antenna Polarity :HORIZONTAL

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
	MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
1	5015.28	44.43	31.42	9.81	38.88	46.78	74.00	-27.22	Peak
2	5150.00	45.75	31.61	9.06	38.81	47.61	74.00	-26.39	Peak
3	5187.91	91.83	31.68	8.86	38.79	93.58	74.00	19.58	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

Mode:b; Polarization:Vertical; Modulation:a; bandwidth:20MHz; Channel:Low

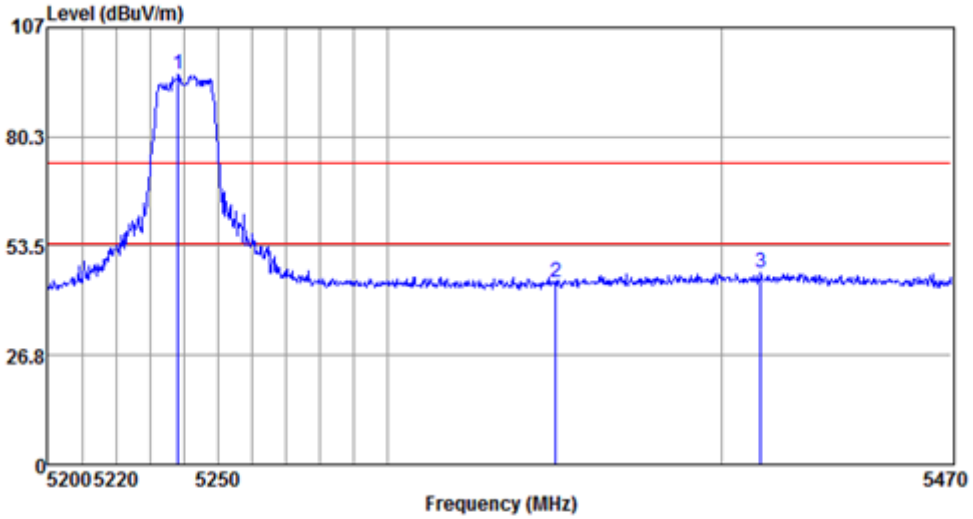


Antenna Polarity :VERTICAL

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
	MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
1	5142.51	47.53	31.61	9.06	38.81	49.39	74.00	-24.61	Peak
2	5150.00	46.78	31.61	9.06	38.81	48.64	74.00	-25.36	Peak
3	5187.15	95.91	31.68	8.86	38.79	97.66	74.00	23.66	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

Mode:b; Polarization:Horizontal; Modulation:a; bandwidth:20MHz; Channel:High

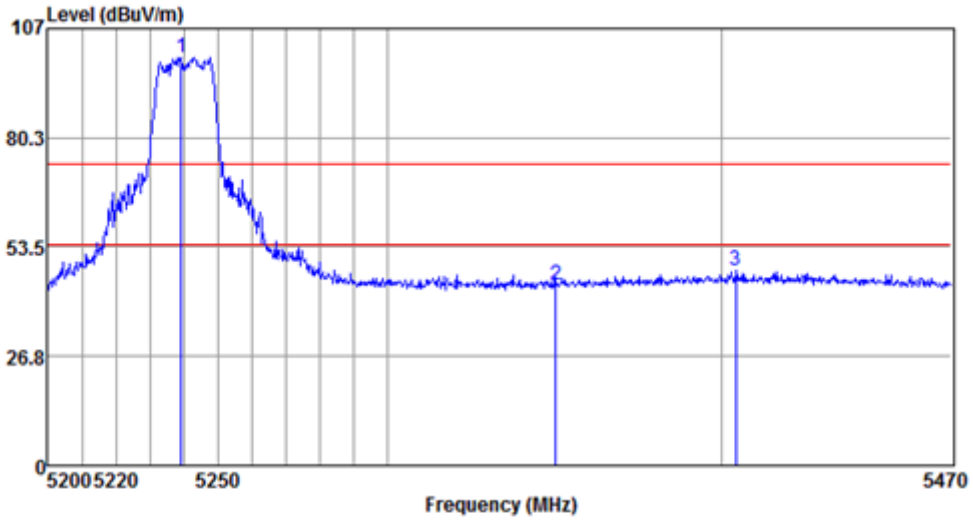


Antenna Polarity :HORIZONTAL

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
	MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
1	5238.04	93.84	31.74	8.68	38.77	95.49	74.00	21.49	Peak
2	5350.00	42.12	31.89	9.20	38.70	44.51	74.00	-29.49	Peak
3	5411.89	44.06	31.97	9.44	38.67	46.80	74.00	-27.20	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

Mode:b; Polarization:Vertical; Modulation:a; bandwidth:20MHz; Channel:High

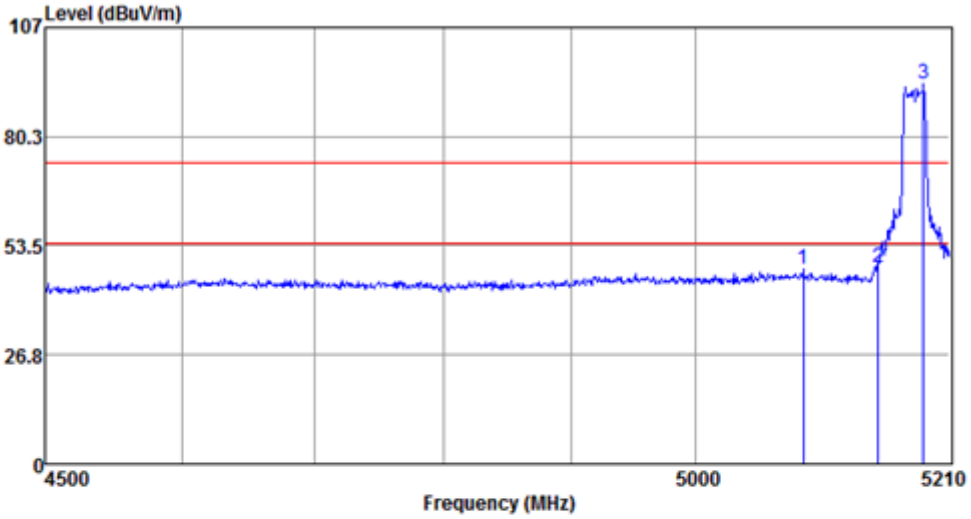


Antenna Polarity :VERTICAL

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
	MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
1	5239.10	98.35	31.74	8.68	38.77	100.00	74.00	26.00	Peak
2	5350.00	41.75	31.89	9.20	38.70	44.14	74.00	-29.86	Peak
3	5404.22	45.00	31.97	9.44	38.67	47.74	74.00	-26.26	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

Mode:b; Polarization:Horizontal; Modulation:n; bandwidth:20MHz; Channel:Low

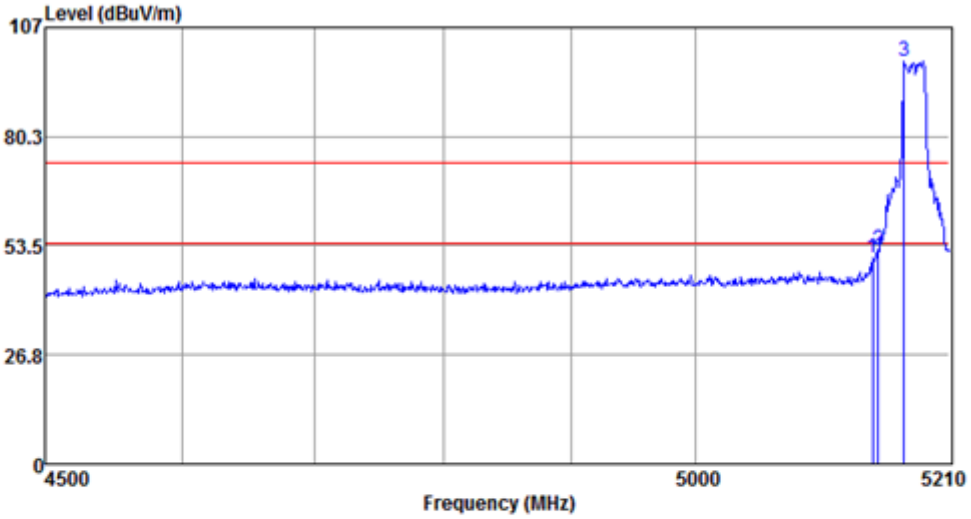


Antenna Polarity :HORIZONTAL

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
	MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
1	5087.81	45.61	31.53	9.44	38.84	47.74	74.00	-26.26	Peak
2	5150.00	46.41	31.61	9.06	38.81	48.27	74.00	-25.73	Peak
3	5187.91	91.30	31.68	8.86	38.79	93.05	74.00	19.05	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

Mode:b; Polarization:Vertical; Modulation:n; bandwidth:20MHz; Channel:Low

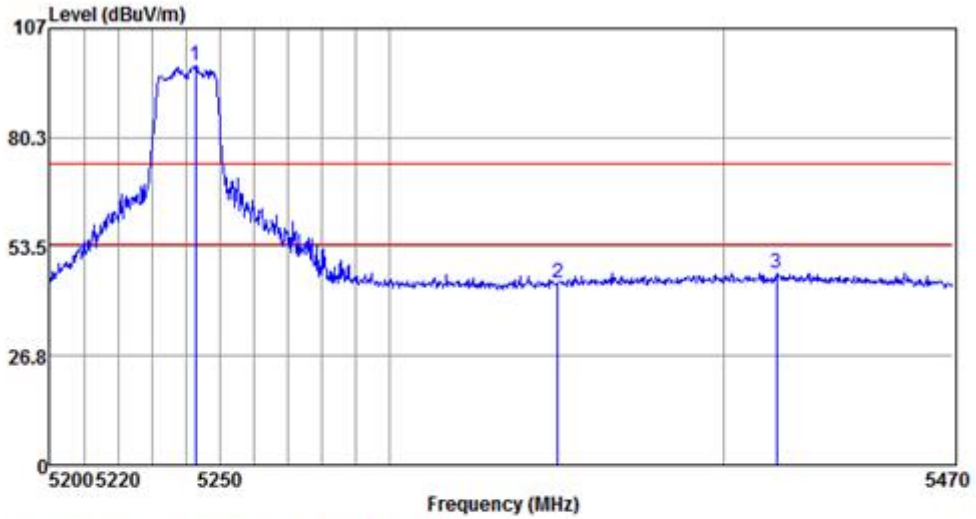


Antenna Polarity :VERTICAL

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
	MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
1	5145.52	48.67	31.61	9.06	38.81	50.53	74.00	-23.47	Peak
2	5150.00	50.60	31.61	9.06	38.81	52.46	74.00	-21.54	Peak
3	5171.98	97.06	31.65	8.86	38.80	98.77	74.00	24.77	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

Mode:b; Polarization:Horizontal; Modulation:n; bandwidth:20MHz; Channel:High

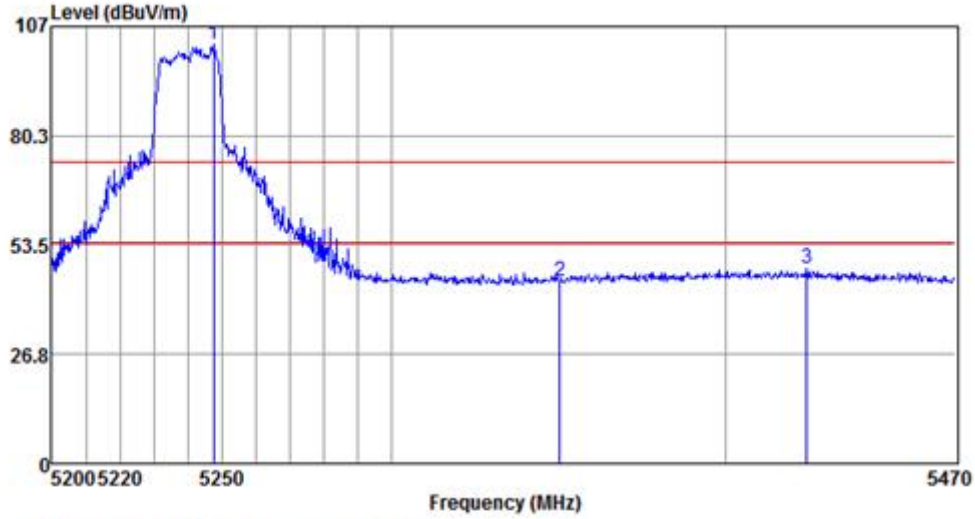


Antenna Polarity :HORIZONTAL

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
	MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
1	5242.55	96.27	31.74	8.68	38.77	97.92	74.00	23.92	Peak
2	5350.00	42.37	31.89	9.20	38.70	44.76	74.00	-29.24	Peak
3	5416.00	44.54	31.97	9.34	38.67	47.18	74.00	-26.82	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

Mode:b; Polarization:Vertical; Modulation:n; bandwidth:20MHz; Channel:High

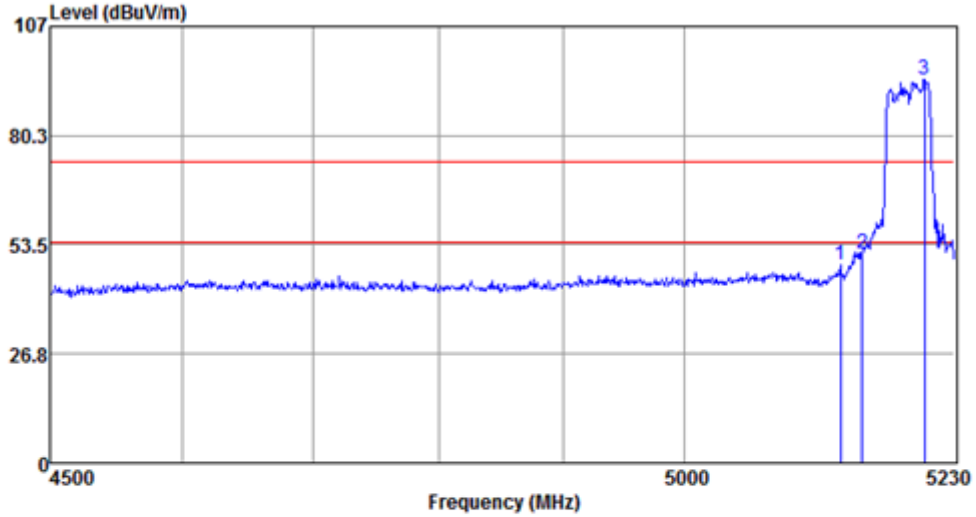


Antenna Polarity :VERTICAL

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
	MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
1	5247.33	100.97	31.76	8.68	38.76	102.65	74.00	28.65	Peak
2	5350.00	42.36	31.89	9.20	38.70	44.75	74.00	-29.25	Peak
3	5424.50	44.98	31.99	9.34	38.66	47.65	74.00	-26.35	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

Mode:b; Polarization:Horizontal; Modulation:n; bandwidth:40MHz; Channel:Low

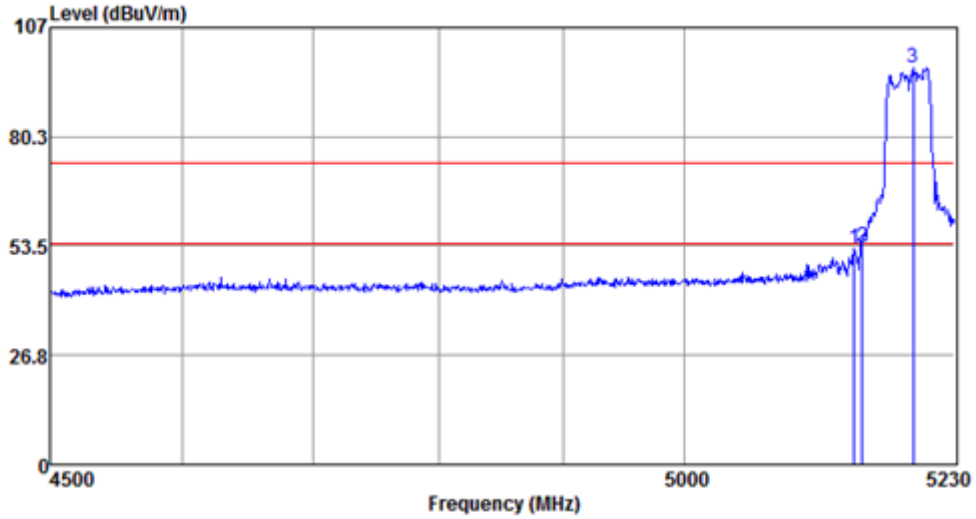


Antenna Polarity :HORIZONTAL

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
	MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
1	5131.87	46.74	31.59	9.06	38.82	48.57	74.00	-25.43	Peak
2	5150.00	49.52	31.61	9.06	38.81	51.38	74.00	-22.62	Peak
3	5204.12	92.45	31.70	8.66	38.78	94.03	74.00	20.03	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

Mode:b; Polarization:Vertical; Modulation:n; bandwidth:40MHz; Channel:Low

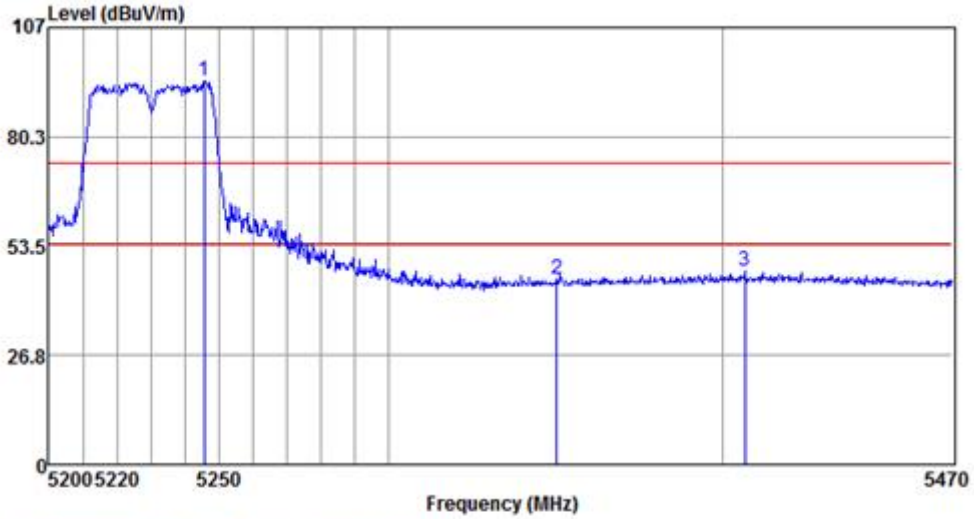


Antenna Polarity :VERTICAL

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
	MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
1	5143.45	51.24	31.61	9.06	38.81	53.10	74.00	-20.90	Peak
2	5150.00	51.32	31.61	9.06	38.81	53.18	74.00	-20.82	Peak
3	5193.96	95.41	31.68	8.86	38.79	97.16	74.00	23.16	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

Mode:b; Polarization:Horizontal; Modulation:n; bandwidth:40MHz; Channel:High

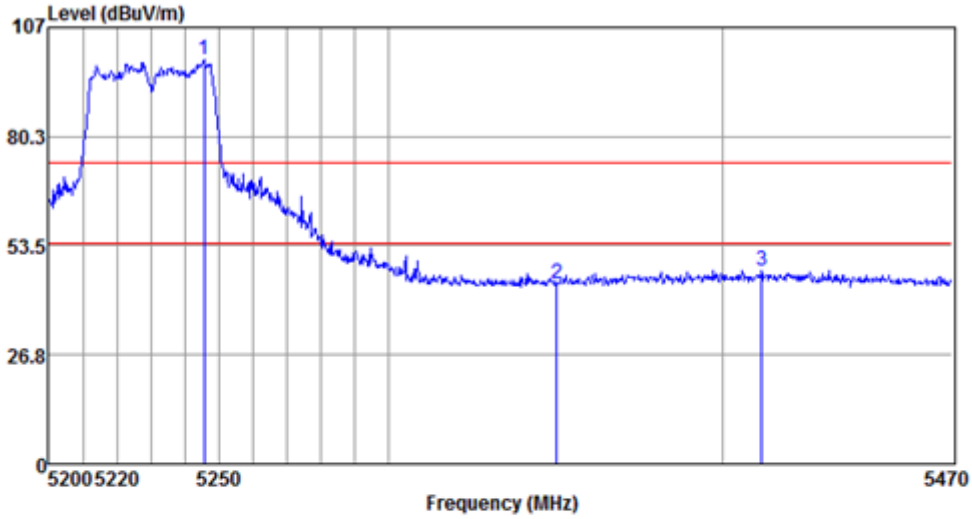


Antenna Polarity :HORIZONTAL

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
	MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
1	5245.47	92.37	31.74	8.68	38.77	94.02	74.00	20.02	Peak
2	5350.00	42.82	31.89	9.20	38.70	45.21	74.00	-28.79	Peak
3	5406.68	44.49	31.97	9.44	38.67	47.23	74.00	-26.77	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

Mode:b; Polarization:Vertical; Modulation:n; bandwidth:40MHz; Channel:High

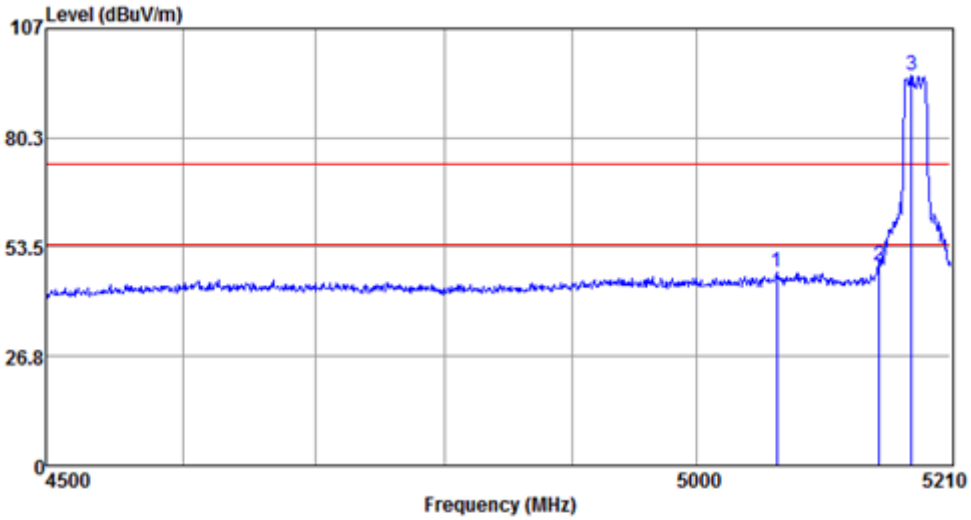


Antenna Polarity :VERTICAL

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
	MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
1	5245.47	97.37	31.74	8.68	38.77	99.02	74.00	25.02	Peak
2	5350.00	41.79	31.89	9.20	38.70	44.18	74.00	-29.82	Peak
3	5411.89	44.83	31.97	9.44	38.67	47.57	74.00	-26.43	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

Mode:b; Polarization:Horizontal; Modulation:c; bandwidth:20MHz; Channel:Low

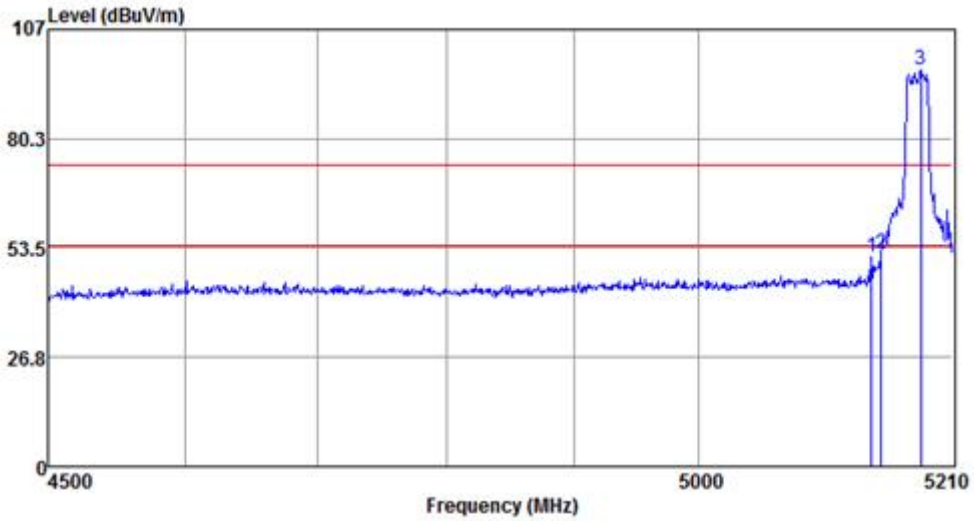


Antenna Polarity :HORIZONTAL

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
	MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
1	5065.49	45.23	31.48	9.44	38.86	47.29	74.00	-26.71	Peak
2	5150.00	47.00	31.61	9.06	38.81	48.86	74.00	-25.14	Peak
3	5177.28	93.67	31.65	8.86	38.80	95.38	74.00	21.38	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

Mode:b; Polarization:Vertical; Modulation:c; bandwidth:20MHz; Channel:Low

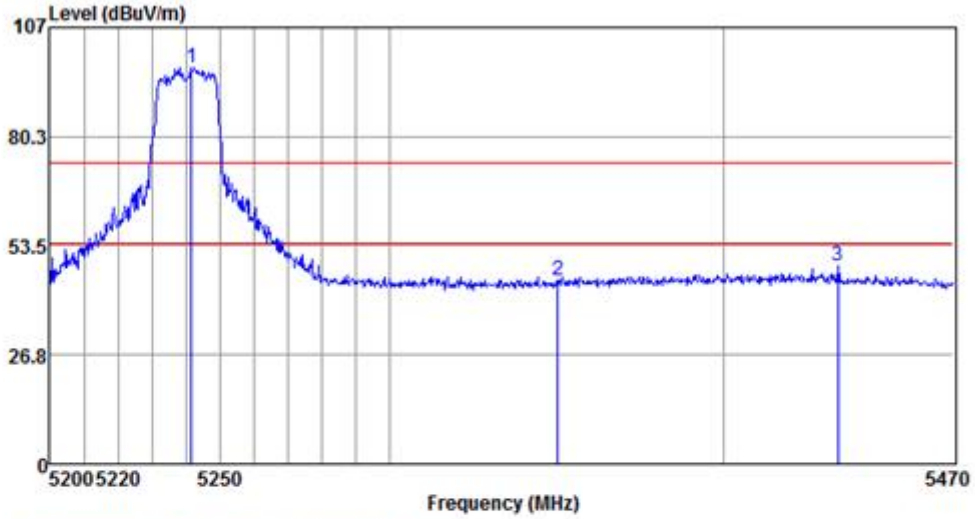


Antenna Polarity :VERTICAL

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
	MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
1	5141.76	49.63	31.59	9.06	38.82	51.46	74.00	-22.54	Peak
2	5150.00	50.39	31.61	9.06	38.81	52.25	74.00	-21.75	Peak
3	5183.35	95.28	31.65	8.86	38.80	96.99	74.00	22.99	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

Mode:b; Polarization:Horizontal; Modulation:c; bandwidth:20MHz; Channel:High

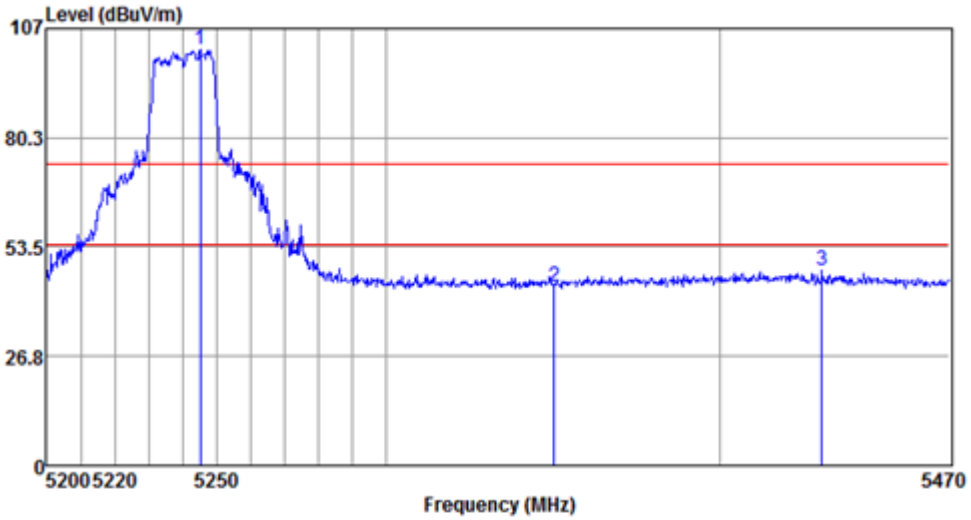


Antenna Polarity :HORIZONTAL

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
	MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
1	5241.49	95.65	31.74	8.68	38.77	97.30	74.00	23.30	Peak
2	5350.00	42.68	31.89	9.20	38.70	45.07	74.00	-28.93	Peak
3	5434.67	45.78	32.02	9.34	38.65	48.49	74.00	-25.51	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

Mode:b; Polarization:Vertical; Modulation:c; bandwidth:20MHz; Channel:High

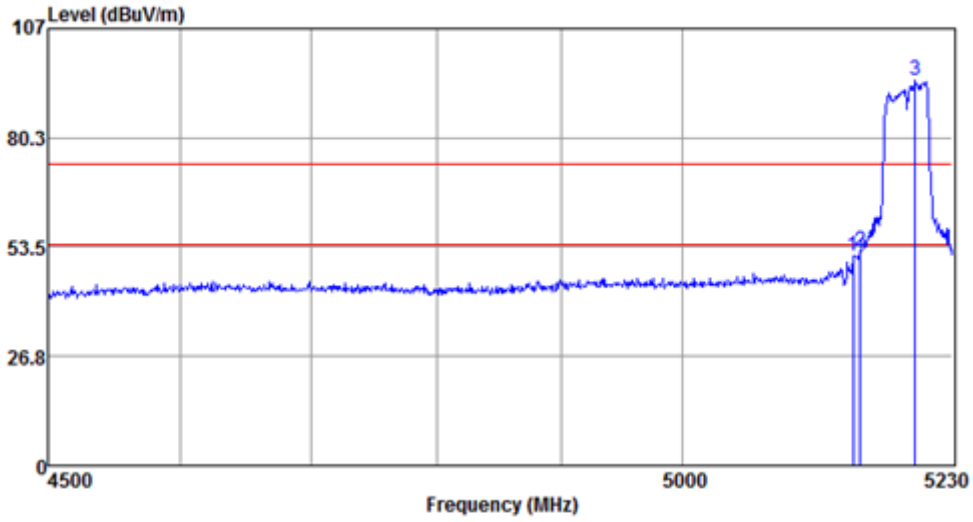


Antenna Polarity :VERTICAL

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
	MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
1	5244.94	100.13	31.74	8.68	38.77	101.78	74.00	27.78	Peak
2	5350.00	41.63	31.89	9.20	38.70	44.02	74.00	-29.98	Peak
3	5431.10	45.22	31.99	9.34	38.66	47.89	74.00	-26.11	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

Mode:b; Polarization:Horizontal; Modulation:c; bandwidth:40MHz; Channel:Low

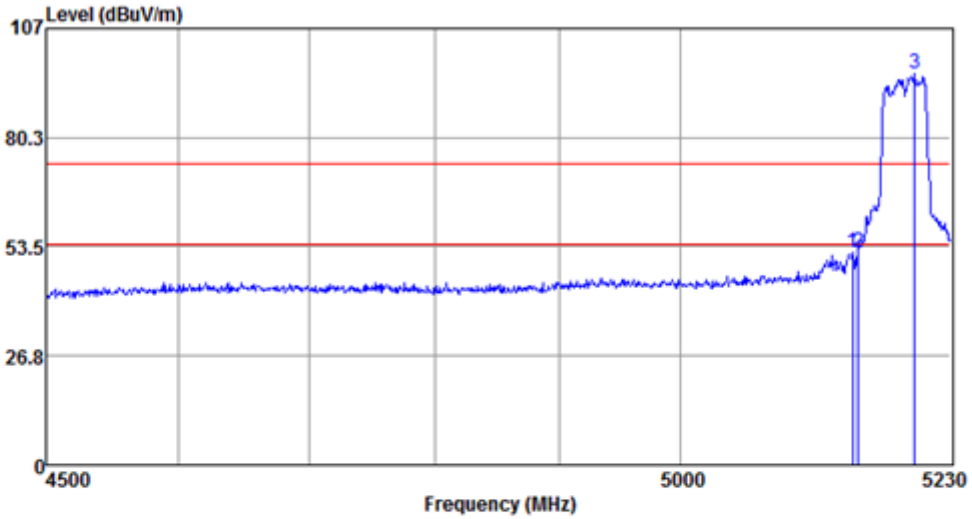


Antenna Polarity :HORIZONTAL

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
	MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
1	5144.22	49.52	31.61	9.06	38.81	51.38	74.00	-22.62	Peak
2	5150.00	50.76	31.61	9.06	38.81	52.62	74.00	-21.38	Peak
3	5197.86	92.62	31.68	8.86	38.79	94.37	74.00	20.37	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

Mode:b; Polarization:Vertical; Modulation:c; bandwidth:40MHz; Channel:Low

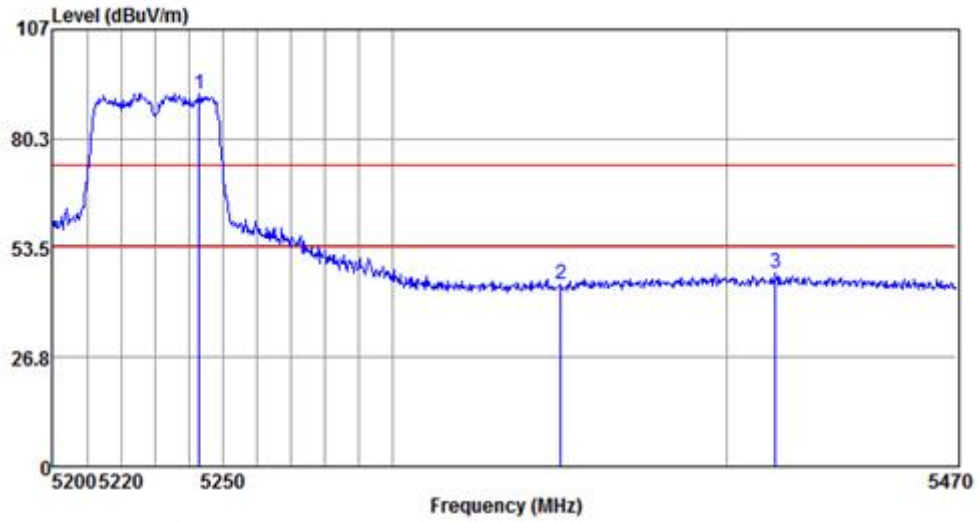


Antenna Polarity :VERTICAL

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
	MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
1	5145.77	50.12	31.61	9.06	38.81	51.98	74.00	-22.02	Peak
2	5150.00	50.23	31.61	9.06	38.81	52.09	74.00	-21.91	Peak
3	5198.65	94.13	31.68	8.86	38.79	95.88	74.00	21.88	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

Mode:b; Polarization:Horizontal; Modulation:c; bandwidth:40MHz; Channel:High

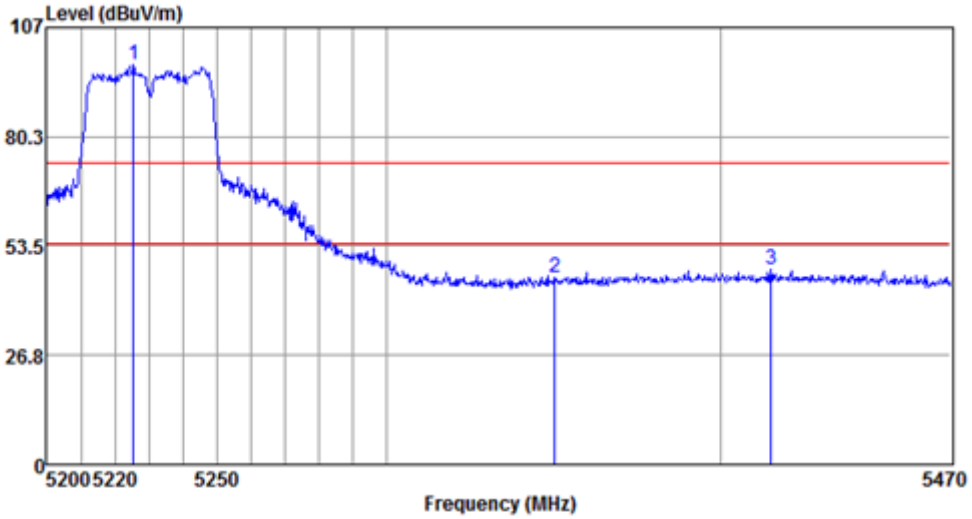


Antenna Polarity :HORIZONTAL

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
	MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
1	5242.82	89.65	31.74	8.68	38.77	91.30	74.00	17.30	Peak
2	5350.00	42.38	31.89	9.20	38.70	44.77	74.00	-29.23	Peak
3	5414.90	44.61	31.97	9.34	38.67	47.25	74.00	-26.75	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

Mode:b; Polarization:Vertical; Modulation:c; bandwidth:40MHz; Channel:High

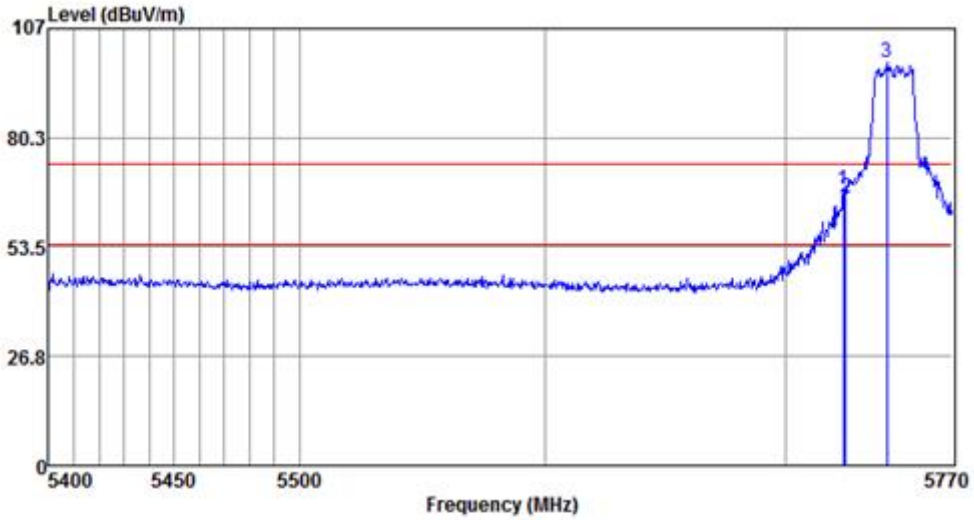


Antenna Polarity :VERTICAL

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
	MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
1	5225.33	96.17	31.72	8.66	38.78	97.77	74.00	23.77	Peak
2	5350.00	43.32	31.89	9.20	38.70	45.71	74.00	-28.29	Peak
3	5415.18	44.96	31.97	9.34	38.67	47.60	74.00	-26.40	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

Mode:c; Polarization:Horizontal; Modulation:a; bandwidth:20MHz; Channel:Low

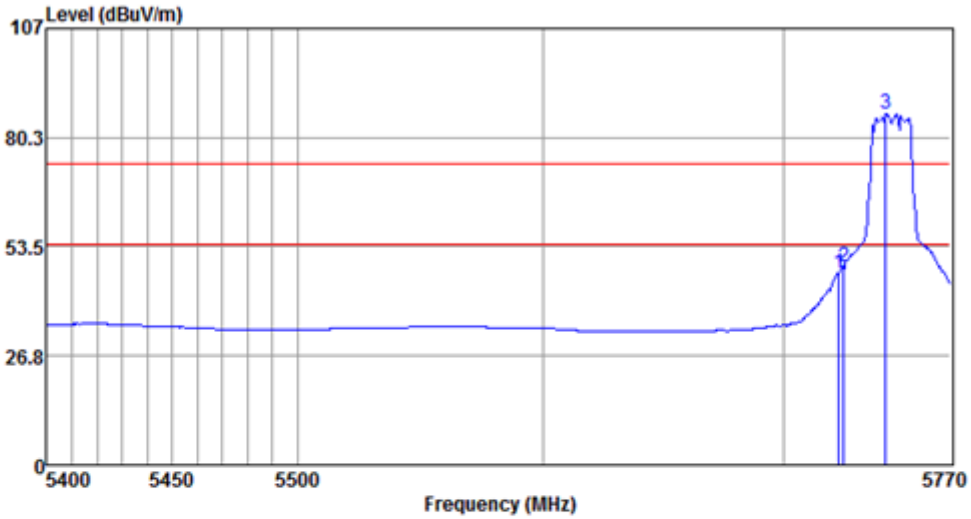


Antenna Polarity :HORIZONTAL

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
	MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
1	5723.92	65.22	32.15	9.00	38.75	67.62	74.00	-6.38	Peak
2	5725.00	63.24	32.15	9.00	38.75	65.64	74.00	-8.36	Peak
3	5742.15	96.27	32.15	9.00	38.76	98.66	74.00	24.66	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

Mode:c; Polarization:Horizontal; Modulation:a; bandwidth:20MHz; Channel:Low

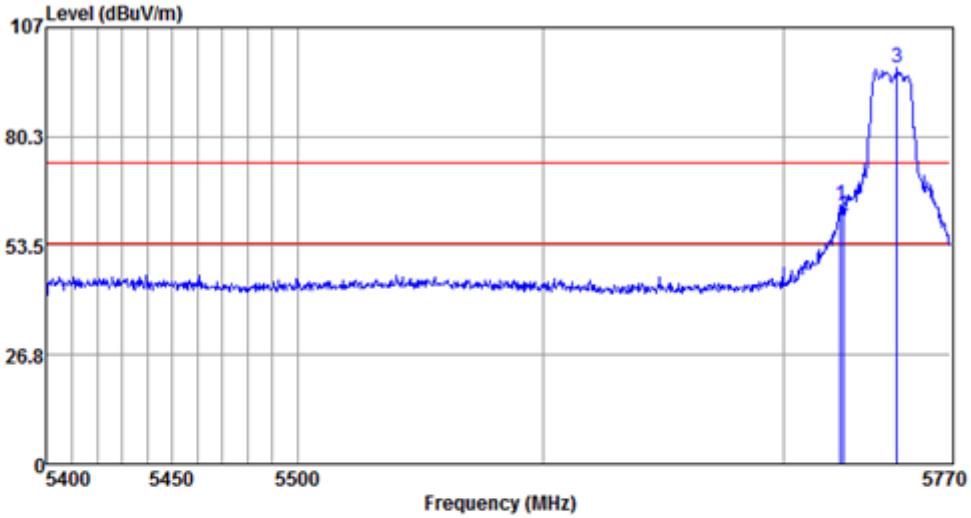


Antenna Polarity :HORIZONTAL

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
	MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
1	5722.78	44.68	32.15	9.00	38.75	47.08	54.00	-6.92	Average
2	5725.00	46.31	32.15	9.00	38.75	48.71	54.00	-5.29	Average
3	5742.53	83.61	32.15	9.00	38.76	86.00	54.00	32.00	Average

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

Mode:c; Polarization:Vertical; Modulation:a; bandwidth:20MHz; Channel:Low

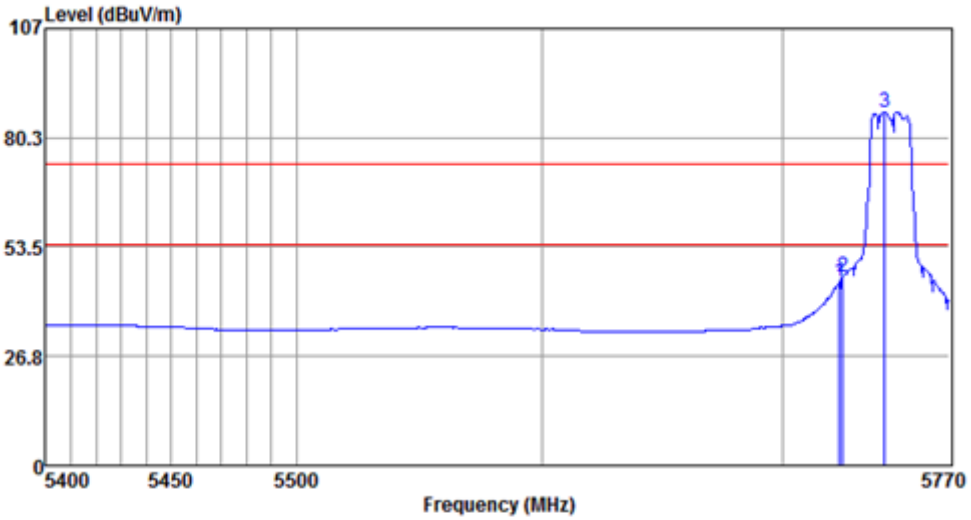


Antenna Polarity :VERTICAL

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
	MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
1	5723.54	61.17	32.15	9.00	38.75	63.57	74.00	-10.43	Peak
2	5725.00	58.59	32.15	9.00	38.75	60.99	74.00	-13.01	Peak
3	5747.48	94.85	32.15	9.00	38.76	97.24	74.00	23.24	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

Mode:c; Polarization:Vertical; Modulation:a; bandwidth:20MHz; Channel:Low

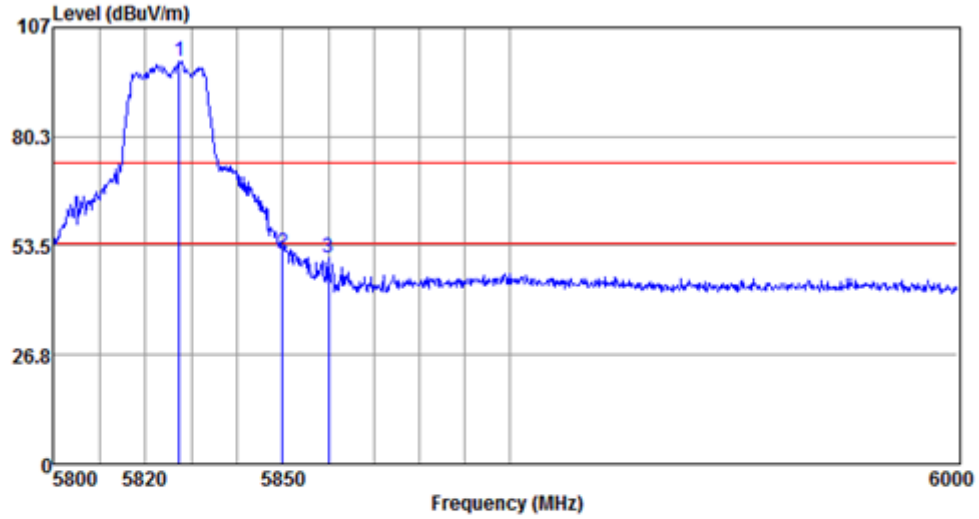


Antenna Polarity :VERTICAL

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
	MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
1	5723.54	42.45	32.15	9.00	38.75	44.85	54.00	-9.15	Average
2	5725.00	43.92	32.15	9.00	38.75	46.32	54.00	-7.68	Average
3	5742.53	84.22	32.15	9.00	38.76	86.61	54.00	32.61	Average

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

Mode:c; Polarization:Vertical; Modulation:a; bandwidth:20MHz; Channel:High

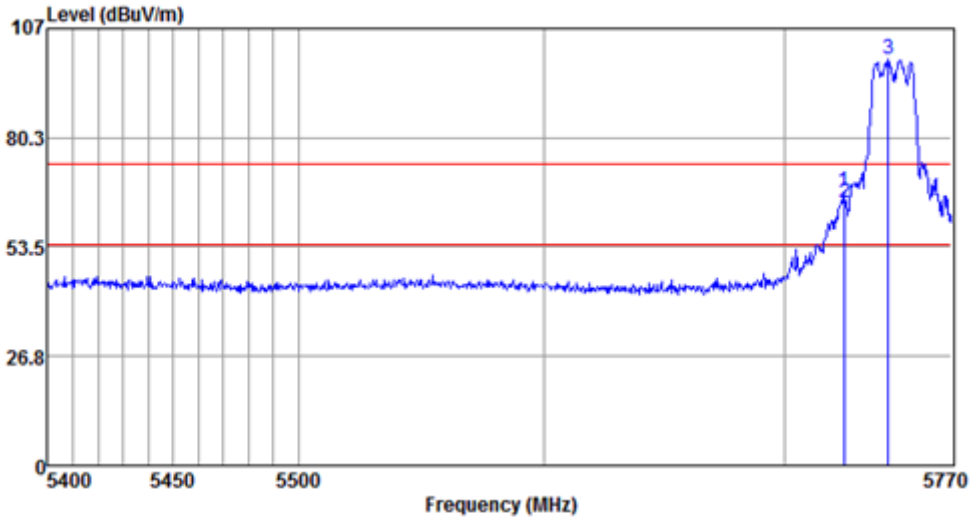


Antenna Polarity :VERTICAL

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
	MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
1	5827.40	96.63	32.17	8.87	38.77	98.90	74.00	24.90	Peak
2	5850.00	49.48	32.17	8.90	38.75	51.80	74.00	-22.20	Peak
3	5860.08	48.28	32.17	8.90	38.74	50.61	74.00	-23.39	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

Mode:c; Polarization:Horizontal; Modulation:n; bandwidth:20MHz; Channel:Low

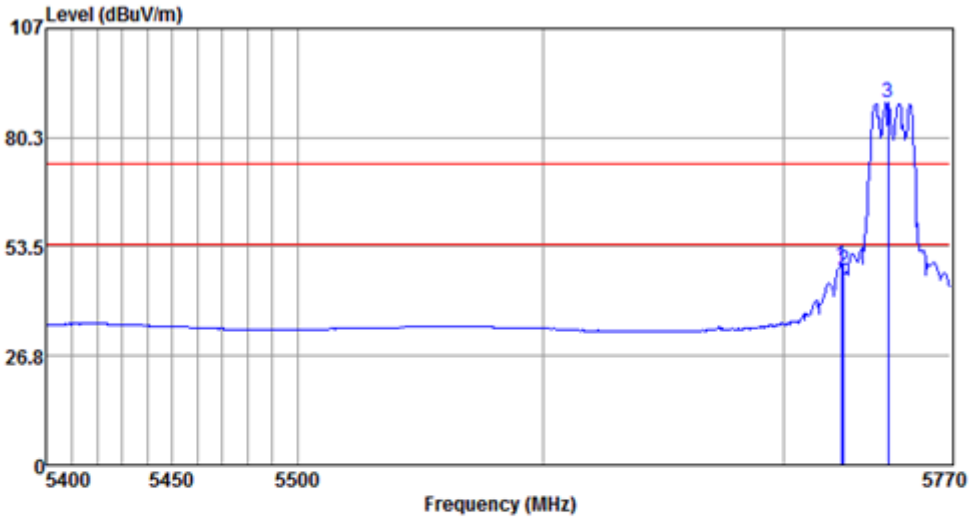


Antenna Polarity :HORIZONTAL

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
	MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
1	5724.67	64.78	32.15	9.00	38.75	67.18	74.00	-6.82	Peak
2	5725.00	62.13	32.15	9.00	38.75	64.53	74.00	-9.47	Peak
3	5743.29	97.26	32.15	9.00	38.76	99.65	74.00	25.65	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

Mode:c; Polarization:Horizontal; Modulation:n; bandwidth:20MHz; Channel:Low

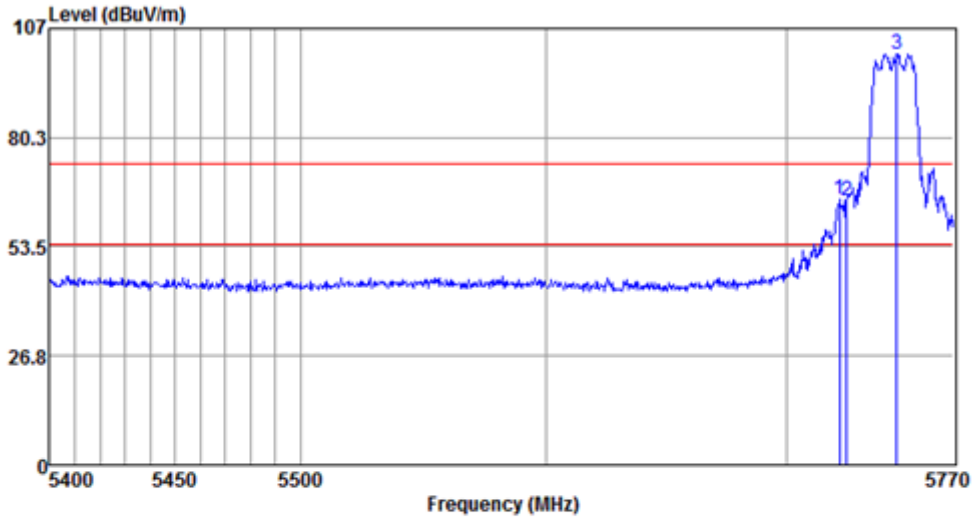


Antenna Polarity :HORIZONTAL

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
	MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
1	5723.92	46.74	32.15	9.00	38.75	49.14	54.00	-4.86	Average
2	5725.00	45.25	32.15	9.00	38.75	47.65	54.00	-6.35	Average
3	5743.68	86.41	32.15	9.00	38.76	88.80	54.00	34.80	Average

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

Mode:c; Polarization:Vertical; Modulation:n; bandwidth:20MHz; Channel:Low

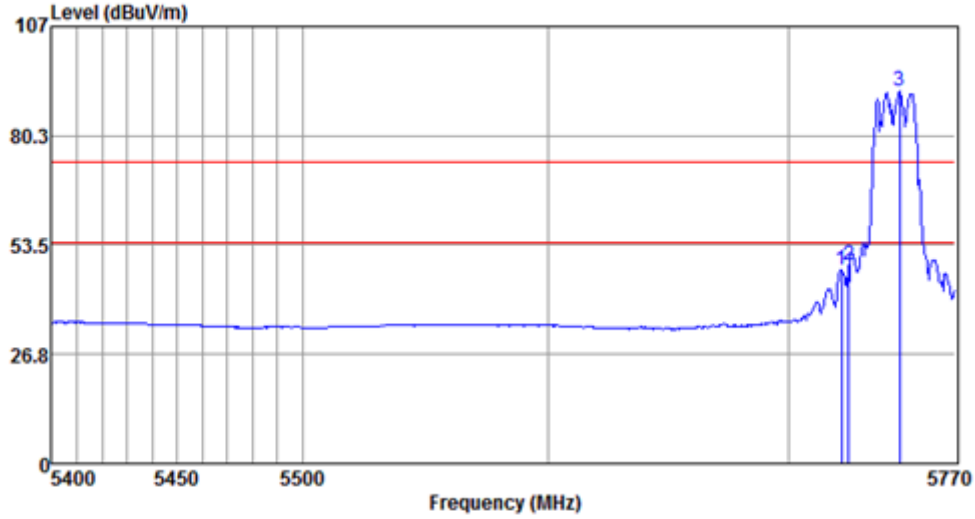


Antenna Polarity :VERTICAL

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
	MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
1	5722.02	62.75	32.14	9.00	38.74	65.15	74.00	-8.85	Peak
2	5725.00	62.23	32.15	9.00	38.75	64.63	74.00	-9.37	Peak
3	5745.96	98.48	32.15	9.00	38.76	100.87	74.00	26.87	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

Mode:c; Polarization:Vertical; Modulation:n; bandwidth:20MHz; Channel:Low

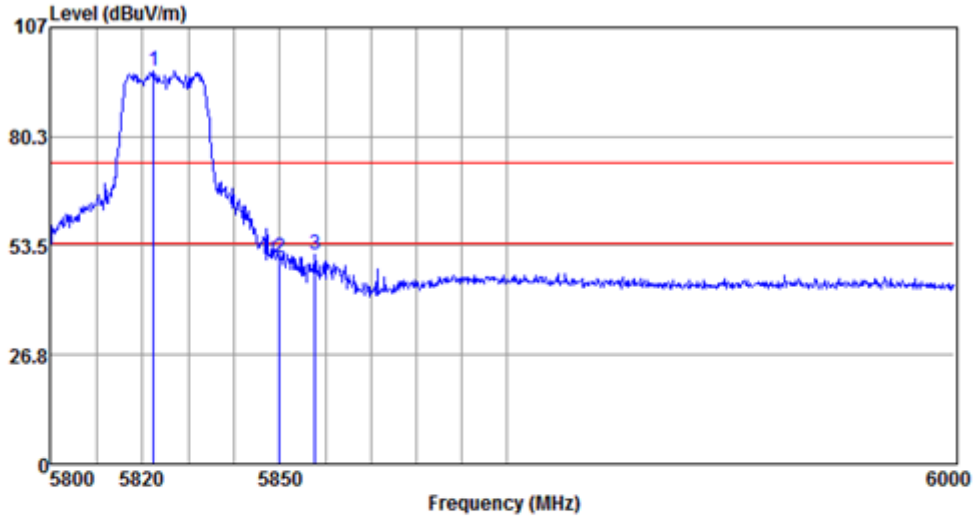


Antenna Polarity :VERTICAL

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
	MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
1	5722.02	45.06	32.14	9.00	38.74	47.46	54.00	-6.54	Average
2	5725.00	46.18	32.15	9.00	38.75	48.58	54.00	-5.42	Average
3	5746.34	88.67	32.15	9.00	38.76	91.06	54.00	37.06	Average

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

Mode:c; Polarization:Horizontal; Modulation:n; bandwidth:20MHz; Channel:High

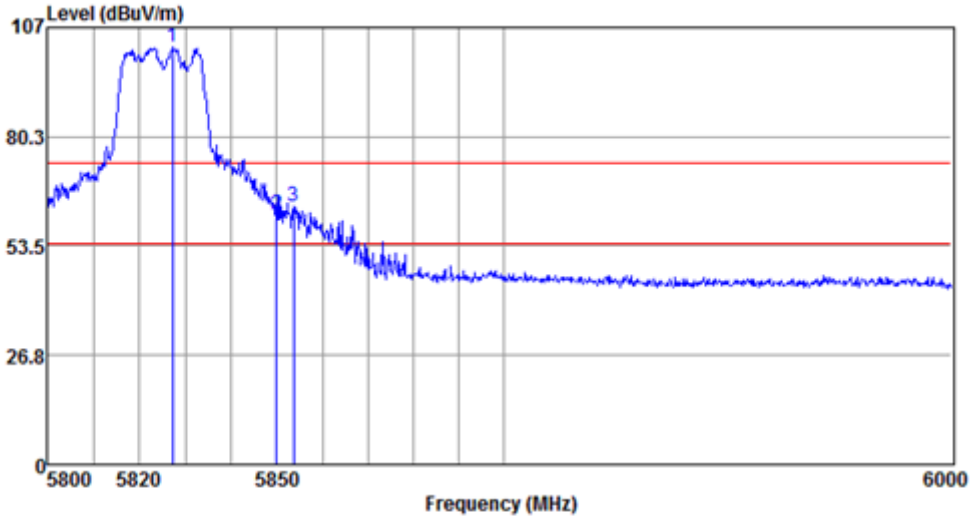


Antenna Polarity :HORIZONTAL

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
	MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
1	5822.46	94.14	32.17	8.87	38.77	96.41	74.00	22.41	Peak
2	5850.00	48.37	32.17	8.90	38.75	50.69	74.00	-23.31	Peak
3	5857.70	48.86	32.17	8.90	38.74	51.19	74.00	-22.81	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

Mode:c; Polarization:Vertical; Modulation:n; bandwidth:20MHz; Channel:High

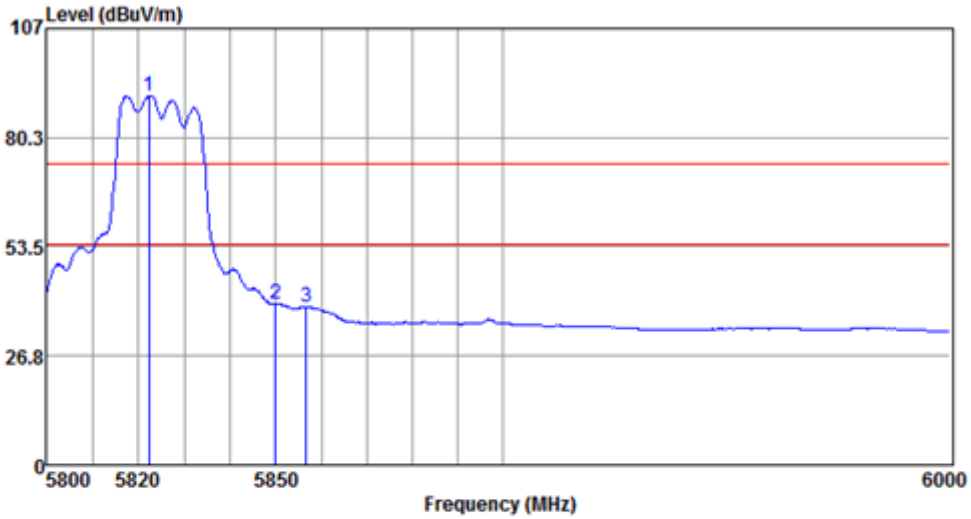


Antenna Polarity :VERTICAL

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
	MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
1	5827.20	99.91	32.17	8.87	38.77	102.18	74.00	28.18	Peak
2	5850.00	58.84	32.17	8.90	38.75	61.16	74.00	-12.84	Peak
3	5853.73	60.93	32.17	8.90	38.75	63.25	74.00	-10.75	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

Mode:c; Polarization:Vertical; Modulation:n; bandwidth:20MHz; Channel:High

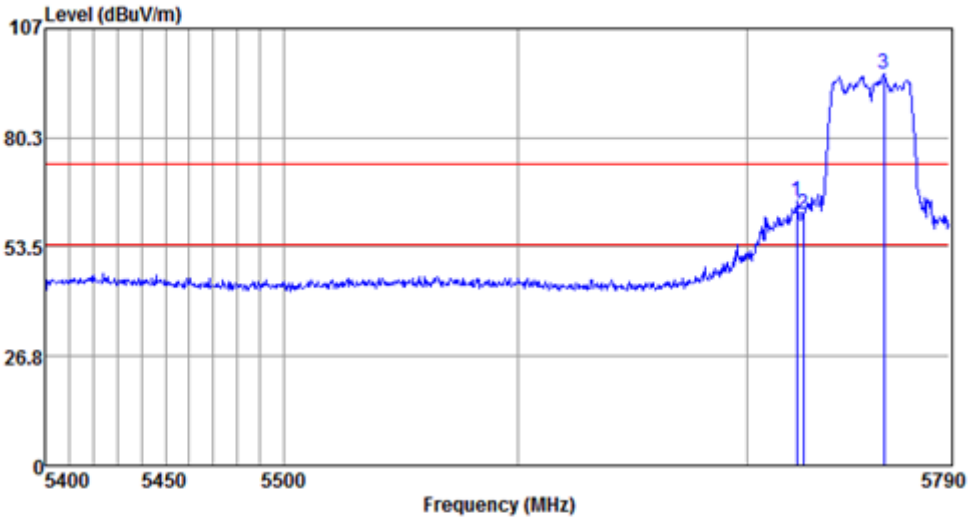


Antenna Polarity :VERTICAL

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
	MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
1	5822.26	88.33	32.17	8.87	38.77	90.60	54.00	36.60	Average
2	5850.00	37.29	32.17	8.90	38.75	39.61	54.00	-14.39	Average
3	5856.71	36.31	32.17	8.90	38.74	38.64	54.00	-15.36	Average

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

Mode:c; Polarization:Horizontal; Modulation:n; bandwidth:40MHz; Channel:Low

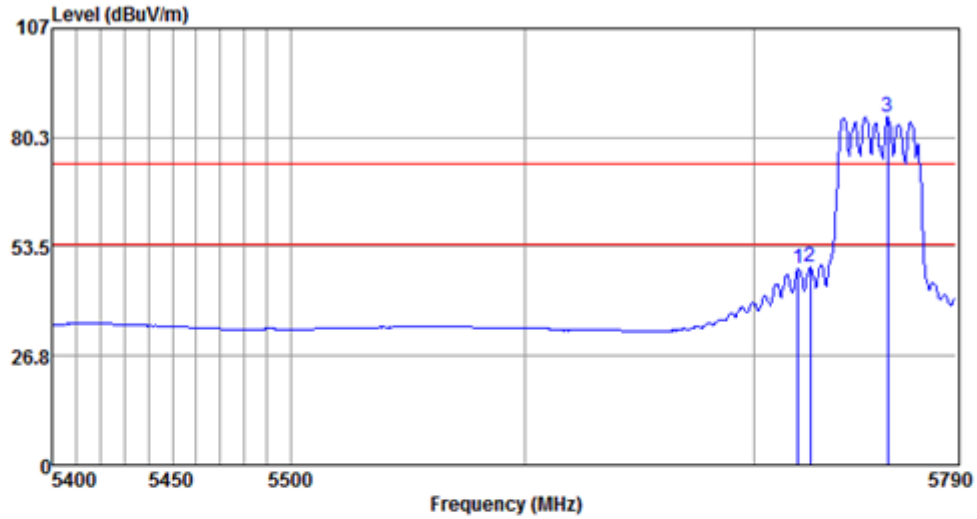


Antenna Polarity :HORIZONTAL

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
	MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
1	5722.17	62.34	32.15	9.00	38.75	64.74	74.00	-9.26	Peak
2	5725.00	59.00	32.15	9.00	38.75	61.40	74.00	-12.60	Peak
3	5760.60	93.49	32.15	8.93	38.78	95.79	74.00	21.79	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

Mode:c; Polarization:Horizontal; Modulation:n; bandwidth:40MHz; Channel:Low

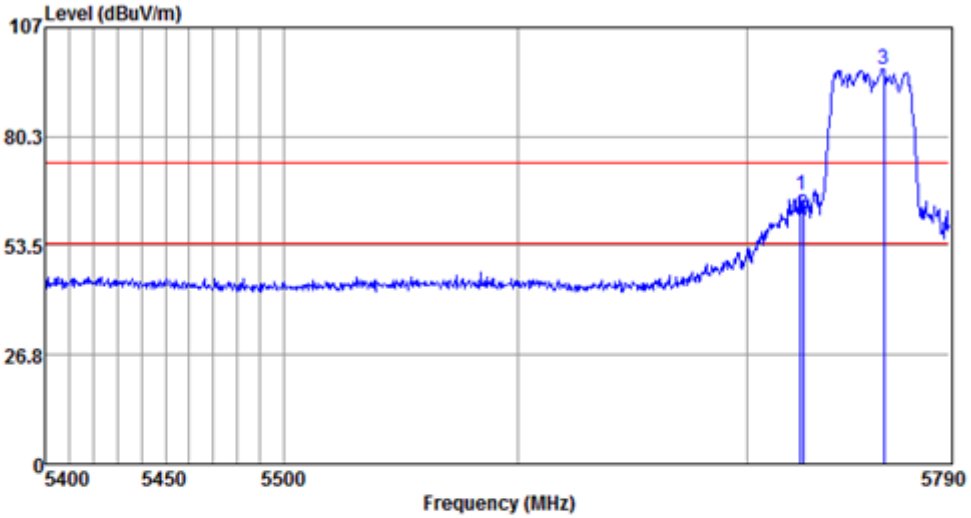


Antenna Polarity :HORIZONTAL

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
	MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
1	5719.77	45.70	32.14	9.00	38.74	48.10	54.00	-5.90	Average
2	5725.00	46.18	32.15	9.00	38.75	48.58	54.00	-5.42	Average
3	5759.40	83.12	32.15	8.93	38.78	85.42	54.00	31.42	Average

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

Mode:c; Polarization:Vertical; Modulation:n; bandwidth:40MHz; Channel:Low

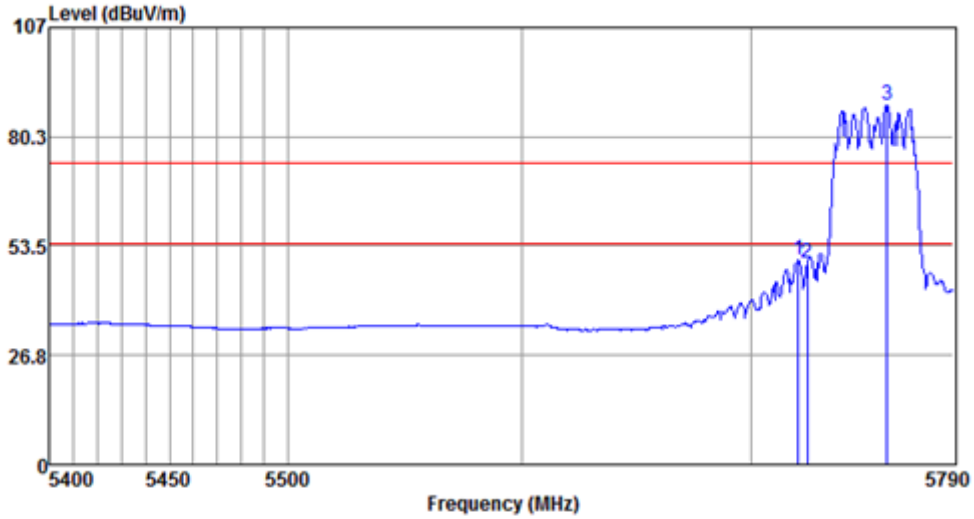


Antenna Polarity :VERTICAL

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
	MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
1	5723.76	63.66	32.15	9.00	38.75	66.06	74.00	-7.94	Peak
2	5725.00	58.82	32.15	9.00	38.75	61.22	74.00	-12.78	Peak
3	5760.60	94.38	32.15	8.93	38.78	96.68	74.00	22.68	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

Mode:c; Polarization:Vertical; Modulation:n; bandwidth:40MHz; Channel:Low

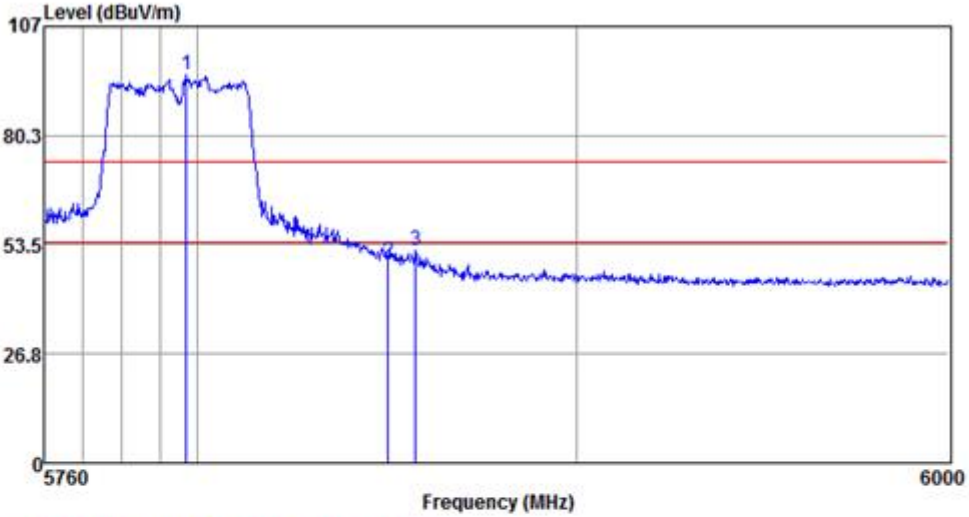


Antenna Polarity :VERTICAL

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
	MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
1	5720.97	47.68	32.14	9.00	38.74	50.08	54.00	-3.92	Average
2	5725.00	47.01	32.15	9.00	38.75	49.41	54.00	-4.59	Average
3	5760.20	85.57	32.15	8.93	38.78	87.87	54.00	33.87	Average

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

Mode:c; Polarization:Horizontal; Modulation:n; bandwidth:40MHz; Channel:High

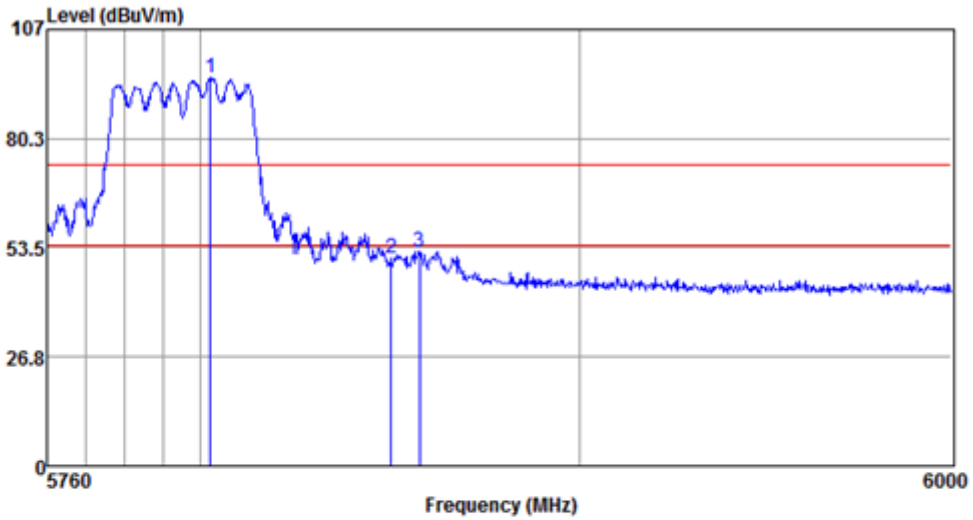


Antenna Polarity :HORIZONTAL

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
	MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
1	5797.04	92.93	32.16	8.87	38.80	95.16	74.00	21.16	Peak
2	5850.00	47.17	32.17	8.90	38.75	49.49	74.00	-24.51	Peak
3	5857.22	49.98	32.17	8.90	38.74	52.31	74.00	-21.69	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

Mode:c; Polarization:Vertical; Modulation:n; bandwidth:40MHz; Channel:High

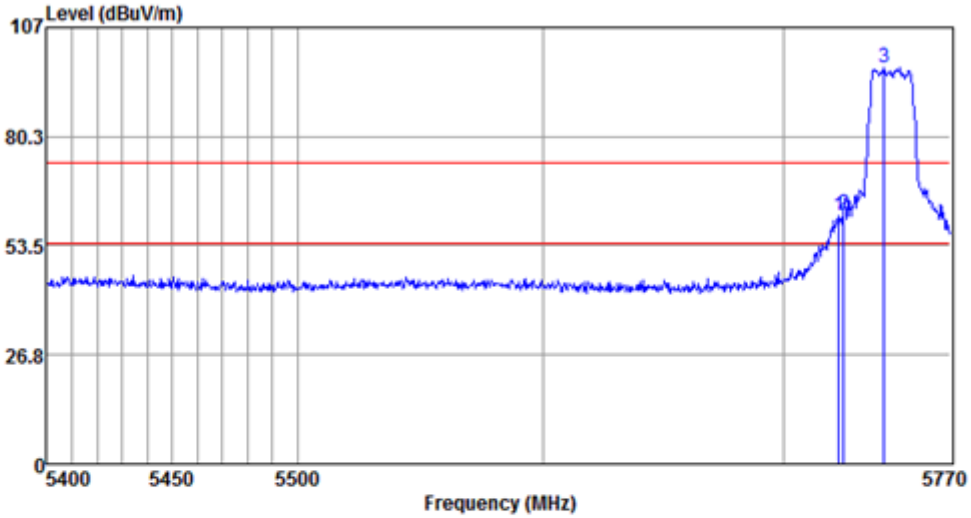


Antenna Polarity :VERTICAL

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
	MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
1	5802.48	93.01	32.16	8.87	38.80	95.24	74.00	21.24	Peak
2	5850.00	48.80	32.17	8.90	38.75	51.12	74.00	-22.88	Peak
3	5857.46	50.34	32.17	8.90	38.74	52.67	74.00	-21.33	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

Mode:c; Polarization:Horizontal; Modulation:c; bandwidth:20MHz; Channel:Low

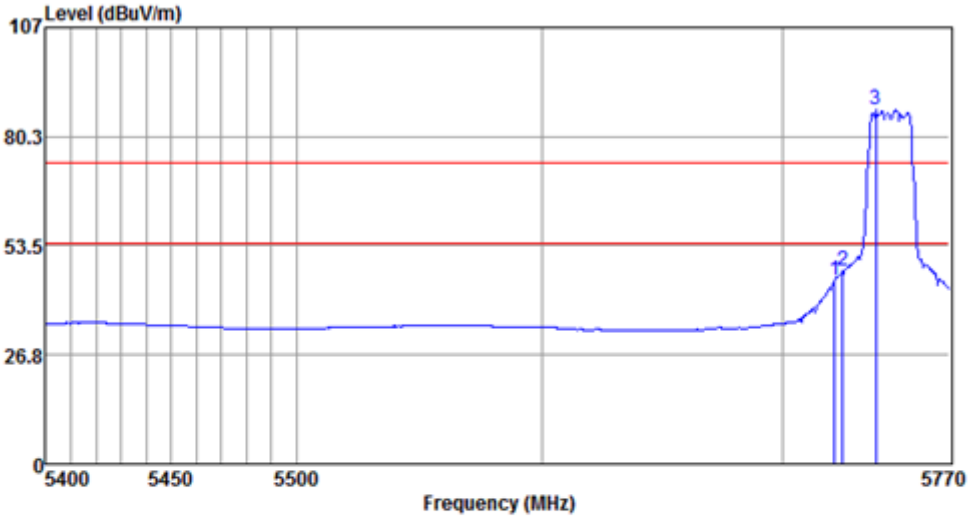


Antenna Polarity :HORIZONTAL

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
	MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
1	5722.78	58.35	32.15	9.00	38.75	60.75	74.00	-13.25	Peak
2	5725.00	58.94	32.15	9.00	38.75	61.34	74.00	-12.66	Peak
3	5741.77	94.86	32.15	9.00	38.76	97.25	74.00	23.25	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

Mode:c; Polarization:Horizontal; Modulation:c; bandwidth:20MHz; Channel:Low

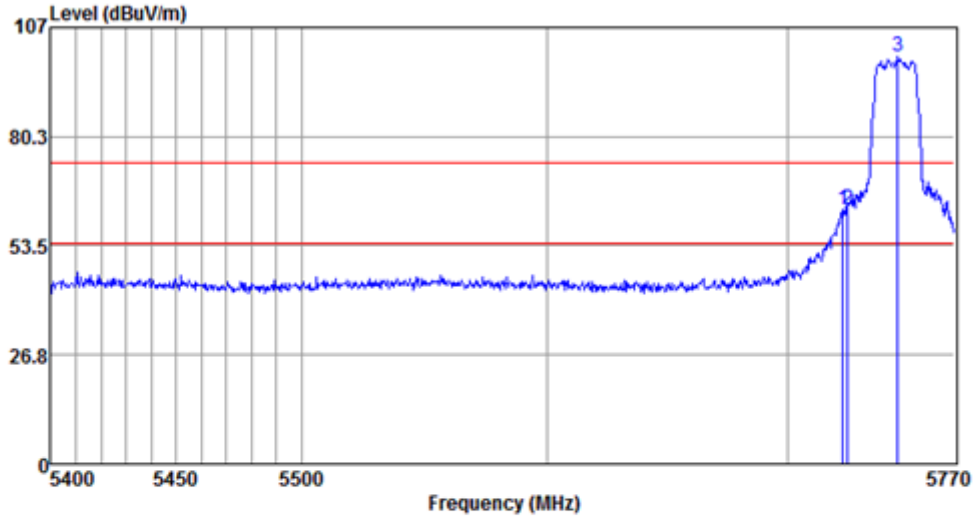


Antenna Polarity :HORIZONTAL

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
	MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
1	5721.64	42.61	32.14	9.00	38.74	45.01	54.00	-8.99	Average
2	5725.00	44.93	32.15	9.00	38.75	47.33	54.00	-6.67	Average
3	5738.73	84.43	32.15	9.00	38.76	86.82	54.00	32.82	Average

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

Mode:c; Polarization:Vertical; Modulation:c; bandwidth:20MHz; Channel:Low

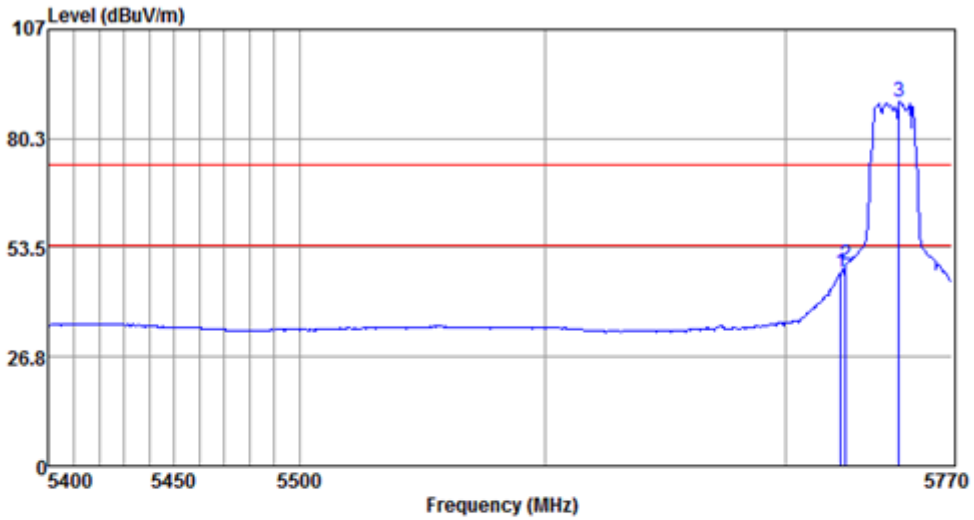


Antenna Polarity :VERTICAL

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
	MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
1	5722.78	60.00	32.15	9.00	38.75	62.40	74.00	-11.60	Peak
2	5725.00	60.06	32.15	9.00	38.75	62.46	74.00	-11.54	Peak
3	5745.96	97.64	32.15	9.00	38.76	100.03	74.00	26.03	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

Mode:c; Polarization:Vertical; Modulation:c; bandwidth:20MHz; Channel:Low

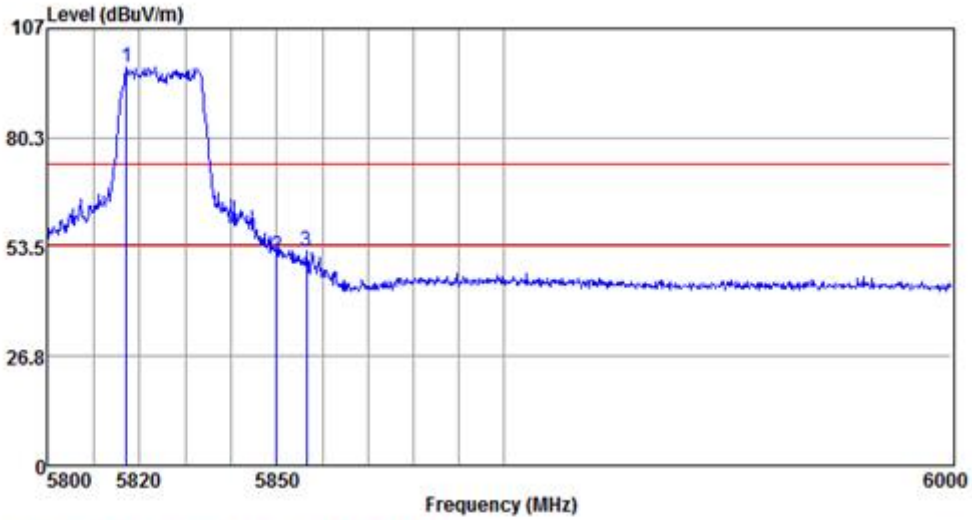


Antenna Polarity :VERTICAL

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
	MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
1	5722.78	45.02	32.15	9.00	38.75	47.42	54.00	-6.58	Average
2	5725.00	47.05	32.15	9.00	38.75	49.45	54.00	-4.55	Average
3	5747.48	86.85	32.15	9.00	38.76	89.24	54.00	35.24	Average

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

Mode:c; Polarization:Horizontal; Modulation:c; bandwidth:20MHz; Channel:High

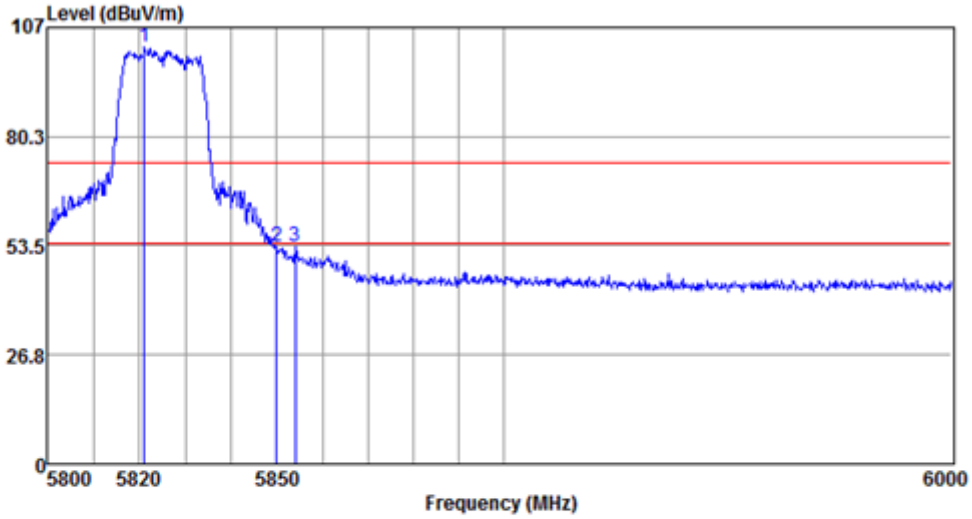


Antenna Polarity :HORIZONTAL

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
	MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
1	5817.13	95.28	32.16	8.87	38.78	97.53	74.00	23.53	Peak
2	5850.00	49.09	32.17	8.90	38.75	51.41	74.00	-22.59	Peak
3	5856.51	50.25	32.17	8.90	38.74	52.58	74.00	-21.42	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

Mode:c; Polarization:Vertical; Modulation:c; bandwidth:20MHz; Channel:High

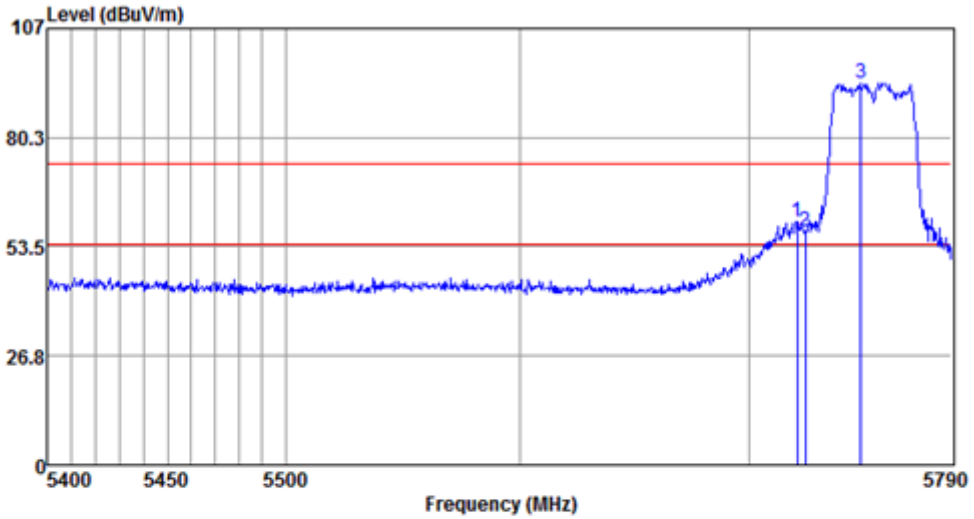


Antenna Polarity :VERTICAL

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
	MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
1	5821.08	99.89	32.16	8.87	38.78	102.14	74.00	28.14	Peak
2	5850.00	50.91	32.17	8.90	38.75	53.23	74.00	-20.77	Peak
3	5854.13	50.79	32.17	8.90	38.75	53.11	74.00	-20.89	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

Mode:c; Polarization:Horizontal; Modulation:c; bandwidth:40MHz; Channel:Low

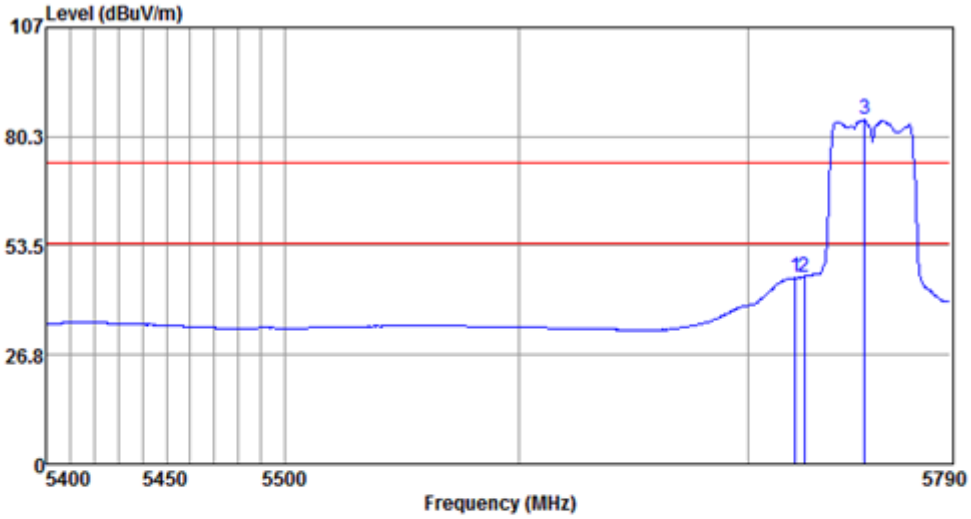


Antenna Polarity :HORIZONTAL

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
	MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
1	5721.37	57.13	32.14	9.00	38.74	59.53	74.00	-14.47	Peak
2	5725.00	54.80	32.15	9.00	38.75	57.20	74.00	-16.80	Peak
3	5749.77	91.19	32.15	9.00	38.76	93.58	74.00	19.58	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

Mode:c; Polarization:Horizontal; Modulation:c; bandwidth:40MHz; Channel:Low

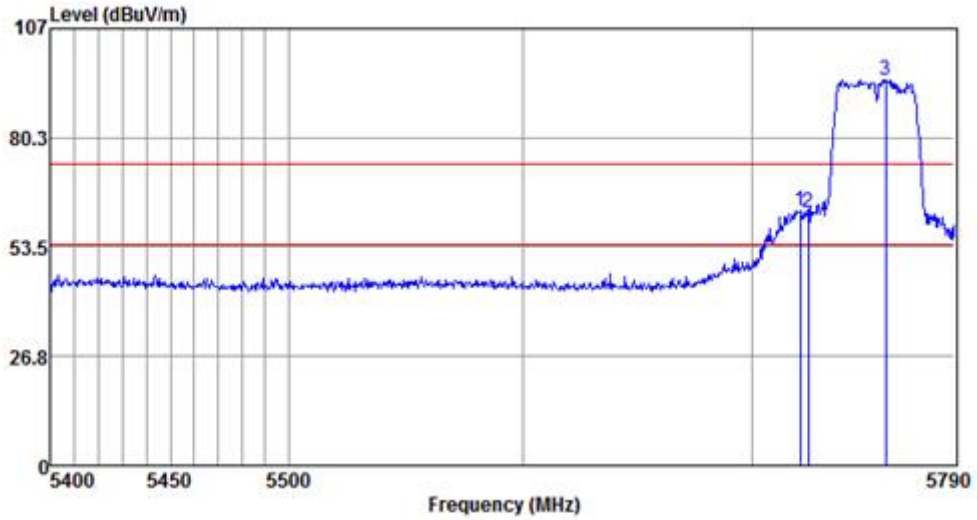


Antenna Polarity :HORIZONTAL

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
	MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
1	5720.97	43.27	32.14	9.00	38.74	45.67	54.00	-8.33	Average
2	5725.00	43.59	32.15	9.00	38.75	45.99	54.00	-8.01	Average
3	5751.77	82.21	32.15	8.93	38.76	84.53	54.00	30.53	Average

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

Mode:c; Polarization:Vertical; Modulation:c; bandwidth:40MHz; Channel:Low

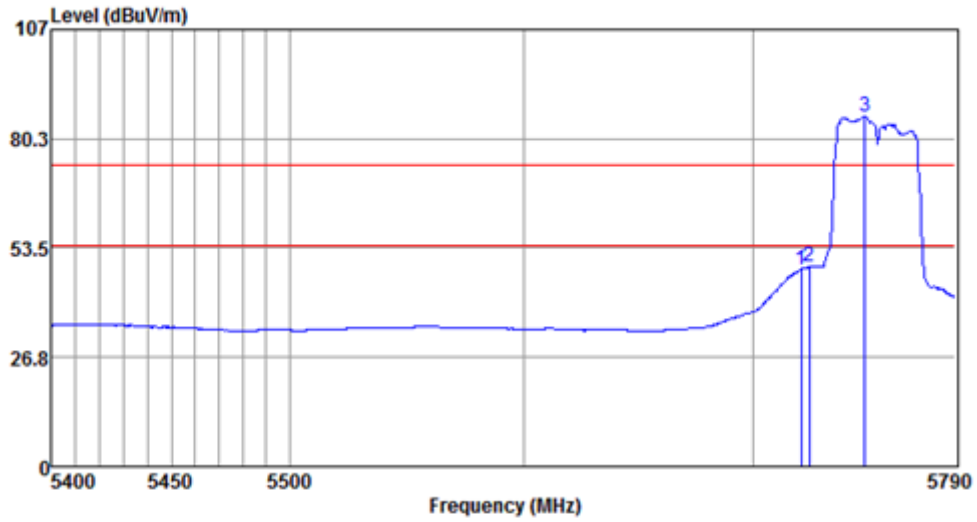


Antenna Polarity :VERTICAL

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
	MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
1	5721.37	60.17	32.14	9.00	38.74	62.57	74.00	-11.43	Peak
2	5725.00	59.44	32.15	9.00	38.75	61.84	74.00	-12.16	Peak
3	5759.40	92.13	32.15	8.93	38.78	94.43	74.00	20.43	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

Mode:c; Polarization:Vertical; Modulation:c; bandwidth:40MHz; Channel:Low

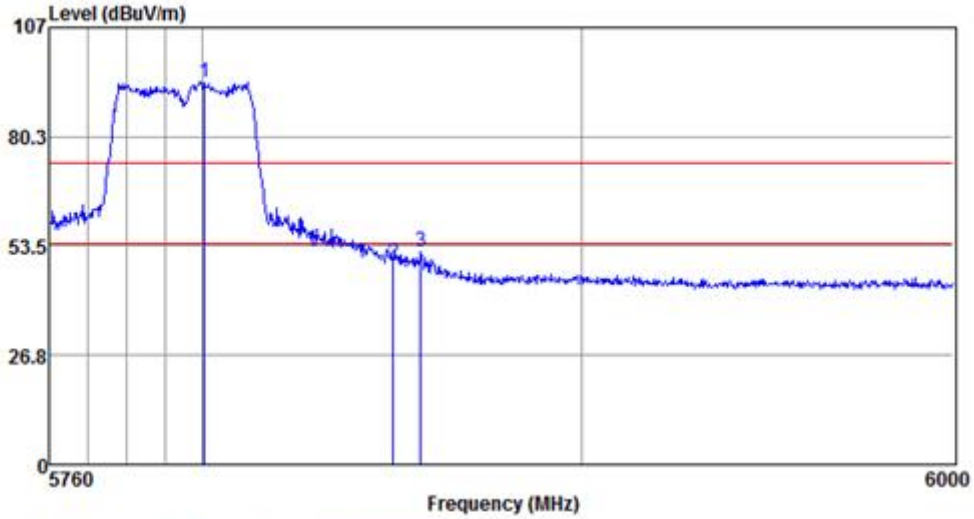


Antenna Polarity :VERTICAL

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
	MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
1	5721.37	45.81	32.14	9.00	38.74	48.21	54.00	-5.79	Average
2	5725.00	46.53	32.15	9.00	38.75	48.93	54.00	-5.07	Average
3	5749.77	83.22	32.15	9.00	38.76	85.61	54.00	31.61	Average

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

Mode:c; Polarization:Horizontal; Modulation:c; bandwidth:40MHz; Channel:High

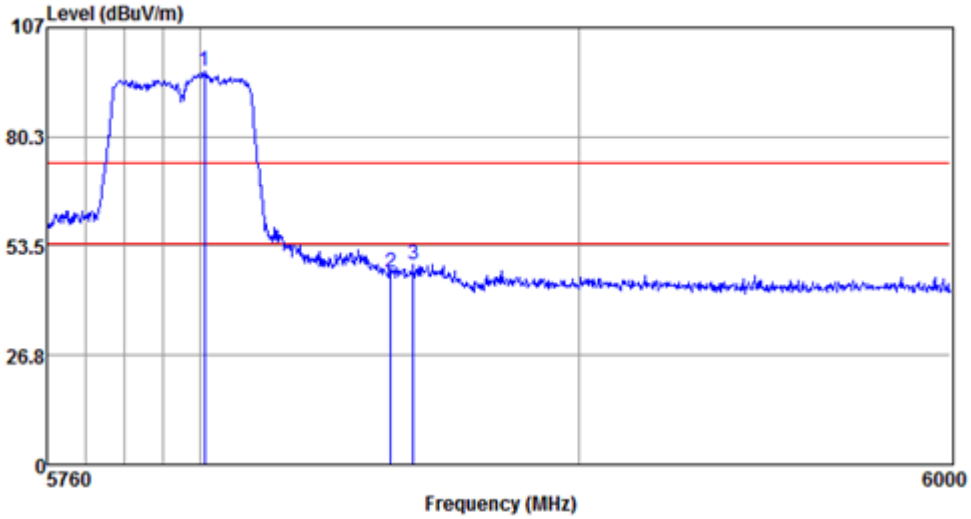


Antenna Polarity :HORIZONTAL

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
	MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
1	5800.35	91.54	32.16	8.87	38.80	93.77	74.00	19.77	Peak
2	5850.00	47.17	32.17	8.90	38.75	49.49	74.00	-24.51	Peak
3	5857.22	49.98	32.17	8.90	38.74	52.31	74.00	-21.69	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

Mode:c; Polarization:Vertical; Modulation:c; bandwidth:40MHz; Channel:High



Antenna Polarity :VERTICAL

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
	MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
1	5801.06	94.03	32.16	8.87	38.80	96.26	74.00	22.26	Peak
2	5850.00	44.84	32.17	8.90	38.75	47.16	74.00	-26.84	Peak
3	5856.02	46.76	32.17	8.90	38.74	49.09	74.00	-24.91	Peak

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

7.7 Frequency Stability

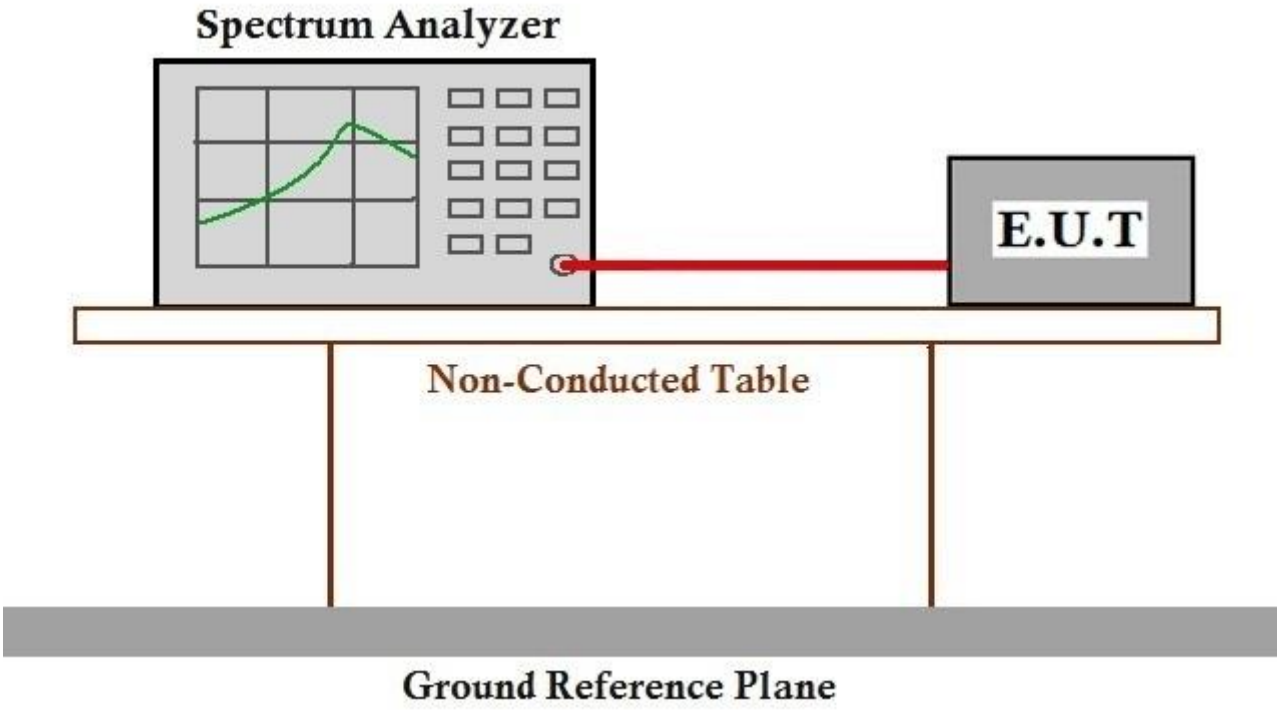
Test Requirement	47 CFR Part 15, Subpart C 15.407 (g)
Test Method:	ANSI C63.10 (2013) Section 6.8
Limit:	The frequency tolerance shall be maintained within the band of operation frequency over a temperature variation of 0 degrees to 35 degrees C at normal supply voltage, and for a variation in the primary supply voltage from 85% to 115% of the rated supply voltage at a temperature of 20 degrees C.

7.7.1 E.U.T. Operation

Operating Environment:

Temperature: 22 °C Humidity: 50 % RH Atmospheric Pressure: 1001 mbar

7.7.2 Test Setup Diagram



7.7.3 Measurement Procedure and Data

The detailed test data see: Appendix B for SHEM180400246702

8 Test Setup Photographs

Refer to the < Test Setup photos-FCC>.

9 EUT Constructional Details

Refer to the < External Photos > & < Internal Photos >.

- End of the Report -