

 MOTOROLA SOLUTIONS	    CERTIFICATE 2518.08 MS ISO/IEC 17025 TESTING SAMM NO. 0825																												
MOTOROLA PENANG ADV. COMM. LABORATORY Motorola Solutions Malaysia Sdn. Bhd. Plot 2A Medan Bayan Lepas, Mukim 12, S.W.D. 11900 Bayan Lepas, Penang, Malaysia.	FCC / IC TEST REPORT Report Revision : Rev.B																												
<table><tr><td>Date/s Tested</td><td>: 03-Mar-2021 - 08-Mar-2021</td></tr><tr><td>Manufacturer/Location</td><td>: Motorola Solutions Malaysia SDN BHD</td></tr><tr><td>Manufacturer Address</td><td>: Plot 2A Medan Bayan Lepas, Mukim 12 SWD, 11900 Bayan Lepas, Penang, Malaysia</td></tr><tr><td>Requestor</td><td>: SZE KEAT NG</td></tr><tr><td>Product Type</td><td>: Mobile</td></tr><tr><td>Product Version (PMN)</td><td>: APX 6500</td></tr><tr><td>Model Number (HVIN)</td><td>: M25SSS9PW1BN</td></tr><tr><td>Frequency Band</td><td>: 5180-5825 MHz</td></tr><tr><td>Firmware Version (FVIN)</td><td>: D23.50.08</td></tr><tr><td>Applicant Name</td><td>: Motorola Solutions Inc</td></tr><tr><td>Applicant Address</td><td>: 8000 West Sunrise Boulevard, Fort Lauderdale, Florida 33322</td></tr><tr><td>FCC Registrations</td><td>: 461337</td></tr><tr><td>ISED Registrations</td><td>: MY0001</td></tr></table>  The equipment was tested accordance to the requirement listed below: <table><tr><td>(5GHz Wi-Fi) FCC 47 CFR Part 15 Subpart E IC RSS 247 Issue 2</td><td>PASS</td></tr></table>		Date/s Tested	: 03-Mar-2021 - 08-Mar-2021	Manufacturer/Location	: Motorola Solutions Malaysia SDN BHD	Manufacturer Address	: Plot 2A Medan Bayan Lepas, Mukim 12 SWD, 11900 Bayan Lepas, Penang, Malaysia	Requestor	: SZE KEAT NG	Product Type	: Mobile	Product Version (PMN)	: APX 6500	Model Number (HVIN)	: M25SSS9PW1BN	Frequency Band	: 5180-5825 MHz	Firmware Version (FVIN)	: D23.50.08	Applicant Name	: Motorola Solutions Inc	Applicant Address	: 8000 West Sunrise Boulevard, Fort Lauderdale, Florida 33322	FCC Registrations	: 461337	ISED Registrations	: MY0001	(5GHz Wi-Fi) FCC 47 CFR Part 15 Subpart E IC RSS 247 Issue 2	PASS
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Prepared By:  GAN BOON TEONG Test Personnel	Approved Signatory:  VINCENT FOONG CHUEN KIT Responsible Engineer																												

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REVISION HISTORY

Revision History	Description	Date	Originator
Rev. A	Initial Report	24-Mar-2021	Gan Boon Teong
Rev. B	Add space on Product Version and Remove Tanapa	27-Jan-2022	Nuraini Ismail

1.0. Summary of Test Results

FCC Clause	IC Clause	Test Item	Result	Remarks	Serial Number tested	Tested by
15.407 (a)(1/2/3)	RSS 247 6.2	Maximum Conducted Output Power (Average)	Pass	Highest output power: 802.11a: 11.69dBm 802.11n20/ac20: 11.831dBm	471TXD0212	Gan
15.407(a) (1/2/3)	RSS 247 6.2	Maximum Power Spectral Density	Pass	References data from FCC ID AZ492FT7124 / ISED 109U- 92FT7124	NA	NA
15.407 (e)	RSS 247 6.2.4	6dB Bandwidth	Pass	References data from FCC ID AZ492FT7124 / ISED 109U- 92FT7124	NA	NA
15.407 (g)	RSS Gen 6.11	Frequency Stability	Pass	References data from FCC ID AZ492FT7124 / ISED 109U- 92FT7124	NA	NA
15.407 (b) (1/2/3/4/6)	RSS 247 6.2	Band Edge Radiated Spurious Emission Measurement	Pass	Worst case emission: No spur detected	471TXD0193	Amaluddin& Qawiman
15.407 (b) (1/2/3/4/6)	RSS 247 6.2	Radiated Spurious Emission Measurement	Pass	Worst case emission: 36.9842dBμV/m (margin: 6.5158dB)	471TXD0193	Amaluddin& Qawiman
15.207 15.407 (b)(6)	RSS Gen 8.8	AC Powerline Conducted Emission	Pass	Device does not operate on AC	NA	NA
15.203	-	Antenna requirement	Pass	Internal antenna is not accessible to the end-user	NA	NA

***NOTE: The WiFi chipset is identical to FCC ID AZ492FT7124 / ISED 109U-92FT7124. The rest of conducted measurements are by similarity. Only worst case configuration of radiated emission based on FCC ID AZ492FT7124 / ISED 109U-92FT7124 is tested. As per KDB 484596 D01v01, the applicant takes full responsibility that data referenced represents compliance to the relevant rules for this current FCC ID.**

2.0. Measurement Uncertainty

Measurement	Frequency	Expended Uncertainty (k=1.96) (±)
AC Power Line Conducted Spurious Emission	150KHz ~ 30MHz	3.43 dB
Radiated Emissions up to 1 GHz	30MHz ~ 200MHz	4.25 dB
	200MHz ~ 1000MHz	4.25 dB
Radiated Emissions above 1 GHz	1GHz ~ 18GHz	4.94 dB
	18GHz ~ 25GHz	4.94 dB
Conducted Spurious Emissions	9kHz ~ 12.75GHz	2.82 dB
Frequency Stability	9kHz ~ 12.75GHz	0.0085 ppm
Audio Frequency Response / Low Pass Filter Response	300Hz – 20kHz	4.09 %
Modulation Limiting	300Hz – 3kHz	1.15 %
Occupied Bandwidth	9kHz ~ 12.75GHz	2.82 dB
Band Edge Conducted Spurious Emission	9kHz ~ 12.75GHz	2.82 dB
Transient Frequency Behavior	9kHz ~ 12.75GHz	5.4 ms
Adjacent Channel Power	9kHz ~ 12.75GHz	2.82 dB

3.0. Equipment List

Bluetooth ATE # 1 (SW Version: Ate Main_3.1.10_R2)

Description	Model	Serial Number	Calibration Date	Calibration Due Date
SPECTRUM ANALYZER	FSEK30	838495/014	19-Apr-20	19-Apr-21
CHAMBER	SH-641	92002639	8-Dec-20	8-Dec-21
POWER SUPPLY (0-20V / 0-25A)	6652A	3541A02565	26-Jun-20	26-Jun-21
SPECTRUM ANALYZER	E4445A	MY45301089	7-Sep-19	7-Sep-21
N to N RF Cable # 1	SF126/11N/11N	NA	NA	NA

Radiated Emission Station (SW Version: EMC FCC RE v1.6.2)

Description	Model	Serial Number	Calibration Date	Calibration Due Date
DRG HORN FREQ.	SAS-571	720	21-Mar-19	21-Mar-21
DRG HORN FREQ.	SAS-571	1143	24-Feb-21	24-Feb-23
POWER SUPPLY	6032A	2615A01178	21-May-20	21-May-21
SIGNAL GENERATOR	SMB 100A	181117	8-Nov-18	8-Nov-21
EMI TEST RECEIVER	ESW44	101750	15-Jan-21	15-Jan-22
EMI TEST RECEIVER	ESIB26	100017	19-Jul-19	19-Mar-21
5m SEMI-ANECHOIC CHAMBER	S800-HX	J2308	Not Required	Not Required
BILOG ANTENNA	CBL6112B	2964	23-Apr-19	23-Apr-21
BILOG ANTENNA	CBL6112B	2950	8-Jul-19	8-Jul-21
DATA LOGGER	SDL500	A.016776	4-Jun-20	4-Jun-21
SYSTEM CONTROLLER	SC104V	050806-1	Not Required	Not Required
TURNTABLE FLUSH MOUNT 2M	FM2011	NA	Not Required	Not Required
ANTENNA POSITIONING TOWER	TLT2	NA	Not Required	Not Required
BROAD-BAND HORN ANTENNA	BBHA9170	BBHA9170143	15-Jul-20	15-Jul-21
18 - 40GHz PREAMPLIFIER	MITEQ Hi GAIN SUCOFLEX	2006313	Not Required	Not Required
PREAMPLIFIER	PAM-0118	269	24-May-19	24-May-22
LOOP ANTENNA	6502	00208416	15-Sep-20	15-Sep-21

4.0. General Information

General Description of EUT:

Product	Mobile
Brand	Motorola Solutions
Test Model	APX6500
Power Supply Rating	13.6V
Mode of operation	WLAN 5GHz
Modulation Type	QPSK, BPSK, 16QAM, 64QAM, 256QAM
Modulation Technology	OFDM
Transfer Rate	802.11a: 6.0/9.0/12.0/18.0/24.0/36.0/48.0/54.0 Mbps 802.11n: up to MCS15 802.11ac: up to MCS9
Operating Frequency	5.180 ~ 5.240 GHz, 5.260 ~ 5.320 GHz, 5.50 ~ 5.720 GHz, 5.745 ~ 5.825 GHz
Output Power (26 EBW or 99% OBW)	15.84 mW for 5.180 ~ 5.240 GHz 15.84 mW for 5.260 ~ 5.320 GHz 15.84 mW for 5.50 ~ 5.720 GHz 15.84 mW for 5.745 ~ 5.825 GHz
Antenna Type	Motorcycle (AN000163A02) with 5.25 dBi Gain
SW Version	D23.50.08

Note:

The EUT contains following accessory devices and data cable:

Item	Brand	Model or P/N
ANTENNA, STUBBY,WIFI/GNSS, M-CYCLE, QMA, 6FT, LMR195, FLEXIBLE, PVC FREE GPS WIFI ROOF 2400MHz - 2500MHz; 4900MHz - 5900MHz	MOTOROLA	AN000163A02
CABLE, DATA, USB, 1-1/2M, XTL5000	MOTOROLA	HKN6163C
Keypad Microphone	MOTOROLA	HMN4079G
15 Watt Speaker (Water Resistant)	MOTOROLA	HSN4040A
CABLE, CH POWER AND SPEAKER	MOTOROLA	HKN6188B
ASSY,CBL,PWR	MOTOROLA	HKN4191B
131 CAN Cable Remote Mount	MOTOROLA	HKN6164B
O7 Control Head	MOTOROLA	PMHN4194C
O2/O7 REMOTE CHIB	MOTOROLA	PMUN1057B
APXM STANDARD TIB MP	MOTOROLA	PMUN1083A

Description of Test Modes:

For 5180 to 5240 MHz:

Channels for 802.11a, 802.11n, 802.11ac (HT20, VHT20)

Channel	Frequency (MHz)
36	5180
40	5200
44	5220
48	5240

Channels for 802.11n, 802.11ac (HT40, VHT40)

Channel	Frequency (MHz)
38	5190
46	5230

Channels for 802.11ac (VHT80)

Channel	Frequency (MHz)
42	5210

For 5260 to 5320 MHz:

Channels for 802.11a, 802.11n, 802.11ac (HT20, VHT20)

Channel	Frequency (MHz)
52	5260
56	5280
60	5300
64	5320

Channels for 802.11n, 802.11ac (HT40, VHT40)

Channel	Frequency (MHz)
54	5270
62	5310

Channels for 802.11ac (VHT80)

Channel	Frequency (MHz)
58	5290

For 5500 to 5720 MHz:

Channels for 802.11a, 802.11n, 802.11ac (HT20, VHT20)

Channel	Frequency (MHz)
100	5500
104	5520
108	5540
112	5560
116	5580
120	5600
124	5620
128	5640
132	5660
136	5680
140	5700
144	5720

Channels for 802.11n, 802.11ac (HT40, VHT40)

Channel	Frequency (MHz)
102	5510
110	5550
118	5590
126	5630
134	5670
142	5710

Channels for 802.11ac (VHT80)

Channel	Frequency (MHz)
106	5530
122	5610
138	5690

For 5745 to 5825 MHz:

Channels for 802.11a, 802.11n, 802.11ac (HT20, VHT40)

Channel	Frequency(MHz)
149	5745
153	5765
157	5785
161	5805
165	5825

Channels for 802.11n, 802.11ac (HT40, VHT40)

Channel	Frequency(MHz)
151	5755
159	5795

Channels for 802.11ac (VHT80)

Channel	Frequency (MHz)
155	5775

General Description of Applied Standards

The EUT is a RF Product. According to the specifications of the manufacturer, the EUT is to comply with the requirements of the following standards:

FCC Part15, Subpart E (15.407)

789033 D02 General UNII Test Procedures New Rules v01r04

644545 D03 Guidance for IEEE 802 11ac New Rules v01

ANSI C63.10-2013

RSS 247 Issue 2, RSS Gen

All test have been performed and recorded as per above standards.

Deviation from standard

Not applicable as no deviation from standard test method

Modifications to EUT

No modifications were done to the UUT to facilitate the tests in this report.

5.0. Test Mode Applicability and Test Channel Detail

EUT Configure Mode	Applicable to				Description
	RE≥1G	RE<1G	PLC	APCM	
A	√	√	√	√	Power from adapter
B	x	√	x	x	Power from carcharger (12Vdc)
C	x	√	x	x	Power from carcharger (24Vdc)

Where:

RE≥1G: Radiated Emission above 1GHz & Band edge Measurement

RE<1G: Radiated Emission below 1GHz

PLC: Power Line Conducted Emission

APCM: Antenna Port Conducted Measurement

Note: The EUT had been pre-scanned on the position of each 3 axis planes. The worst case was found when positioned on Y-plane.

Radiated Emission Test (Above 1GHz)

☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).

☒ Following channel(s) was (were) selected for the final test as listed below.

EUT Configure Mode	Frequency Band	MODE	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate (Mbps)
-	5180-5240	802.11a	36-48	36,44,48	OFDM	BPSK	6.0
-	5180-5240	802.11n/ac (HT20, VHT20)	36-48	36,44,48	OFDM	BPSK	6.5
-	5180-5240	802.11n/ac (HT40,VHT40)	38-46	38,46	OFDM	BPSK	13.5
-	5180-5240	802.11ac (VHT80)	42	42	OFDM	BPSK	29.3
-	5260-5320	802.11a	52-64	52,60,64	OFDM	BPSK	6.0
-	5260-5320	802.11n/ac (HT20, VHT20)	52-46	52,60,64	OFDM	BPSK	6.5
-	5260-5320	802.11n/ac (HT40,VHT40)	54-62	54,62	OFDM	BPSK	13.5
-	5260-5320	802.11ac (VHT80)	58	58	OFDM	BPSK	29.3
-	5500-5700	802.11a	100-140	100,116,140	OFDM	BPSK	6.0
-	5500-5720	802.11n/ac (HT20, VHT20)	100-144	100,116,144	OFDM	BPSK	6.5
-	5500-5720	802.11n/ac (HT40,VHT40)	102-142	102,110,142	OFDM	BPSK	13.5
-	5500-5720	802.11ac (VHT80)	106-138	106,122,138	OFDM	BPSK	29.3
-	5745-5825	802.11a	149-165	149,157,165	OFDM	BPSK	6.0
-	5745-5825	802.11n/ac (HT20, VHT20)	149-165	149,157,165	OFDM	BPSK	6.5
-	5745-5825	802.11n/ac (HT40,VHT40)	151-159	151,159	OFDM	BPSK	13.5
-	5745-5825	802.11ac (VHT80)	155	155	OFDM	BPSK	29.3

Radiated Emission Test (Below 1GHz)

☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).

☒ Following channel(s) was (were) selected for the final test as listed below.

EUT Configure Mode	MODE	Frequency band (MHz)	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate (Mbps)
-	802.11a	5180-5240	36 to 48	36	OFDM	BPSK	6.0
-	802.11a	5260-5320	52 to 64		OFDM	BPSK	6.0
-	802.11a	5500-5700	100 to 140		OFDM	BPSK	6.0
-	802.11a	5745-5825	149 to 165		OFDM	BPSK	6.0

Power Line Conducted Emission Test

☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).

☒ Following channel(s) was (were) selected for the final test as listed below.

EUT Configure Mode	MODE	Frequency band (MHz)	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate (Mbps)
-	802.11a	5180-5240	36 to 48	36	OFDM	BPSK	6.0
-	802.11a	5260-5320	52 to 64		OFDM	BPSK	6.0
-	802.11a	5500-5700	100 to 140		OFDM	BPSK	6.0
-	802.11a	5745-5825	149 to 165		OFDM	BPSK	6.0

Antenna Port Conducted Measurement:

☒ This item includes all test value of each mode, but only includes spectrum plot of worst value of each mode.

☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).

☒ Following channel(s) was (were) selected for the final test as listed below.

EUT Configure Mode	Frequency Band	MODE	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate (Mbps)
-	5180-5240	802.11a	36-48	36,44,48	OFDM	BPSK	6.0
-	5180-5240	802.11n/ac (HT20, VHT20)	36-48	36,44,48	OFDM	BPSK	6.5
-	5180-5240	802.11n/ac (HT40,VHT40)	38-46	38,46	OFDM	BPSK	13.5
-	5180-5240	802.11ac (VHT80)	42	42	OFDM	BPSK	29.3
-	5260-5320	802.11a	52-64	52,60,64	OFDM	BPSK	6.0
-	5260-5320	802.11n/ac (HT20, VHT20)	52-46	52,60,64	OFDM	BPSK	6.5
-	5260-5320	802.11n/ac (HT40,VHT40)	54-62	54,62	OFDM	BPSK	13.5
-	5260-5320	802.11ac (VHT80)	58	58	OFDM	BPSK	29.3
-	5500-5700	802.11a	100-140	100,116,140	OFDM	BPSK	6.0
-	5500-5720	802.11n/ac (HT20, VHT20)	100-144	100,116,144	OFDM	BPSK	6.5
-	5500-5720	802.11n/ac (HT40,VHT40)	102-142	102,110,142	OFDM	BPSK	13.5
-	5500-5720	802.11ac (VHT80)	106-138	106,122,138	OFDM	BPSK	29.3
-	5745-5825	802.11a	149-165	149,157,165	OFDM	BPSK	6.0
-	5745-5825	802.11n/ac (HT20, VHT20)	149-165	149,157,165	OFDM	BPSK	6.5
-	5745-5825	802.11n/ac (HT40,VHT40)	151-159	151,159	OFDM	BPSK	13.5
-	5745-5825	802.11ac (VHT80)	155	155	OFDM	BPSK	29.3

Test Condition:

Applicable To	Environmental Conditions	Input Power	Tested By
RE≥1G	23.6°C, 69.3% RH	13.6V DC	Nazrin&Amaluddin
RE<1G	23.6°C, 69.3% RH	13.6V DC	Nazrin&Amaluddin
PLC	22.4°C, 68.6% RH	120V AC,240V AC	Nazrin&Amaluddin
APCM	25°C, 50% RH	13.6V DC	Gan

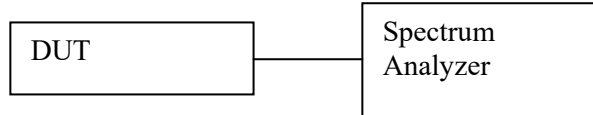
Duty Cycle of Test Signal

802.11a, 802.11n: Duty cycle of test signal is >99%.

If Duty cycle of test signal is <98%, duty cycle factor shall be considered. (Refer to section 6.0 for duty cycle measurement)

6.0. Duty Cycle of Test Signal

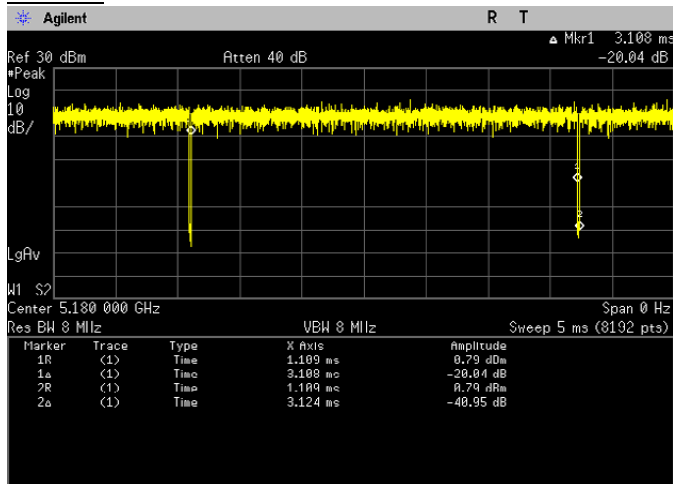
6.0.1. Test Setup



- 1) Set DUT to desire transmit frequency and transmit with maximum power.
- 2) Connect DUT's antenna terminal to spectrum analyzer with a low loss cable.
- 3) Setting of Spectrum analyzer :
 - a. Set the RBW = 10 MHz or the highest RBW available on spectrum analyzer.
 - b. Set the VBW ≥ RBW.
 - c. Set to Zero Span.
 - d. Detector = Peak.
 - e. Sweep time = 10ms or others that allow to measure accurate duty cycle.
 - f. Trace mode = Max hold.
- 4) Record the duty cycle as X and save the plot.

6.0.2. Test Data

802.11a

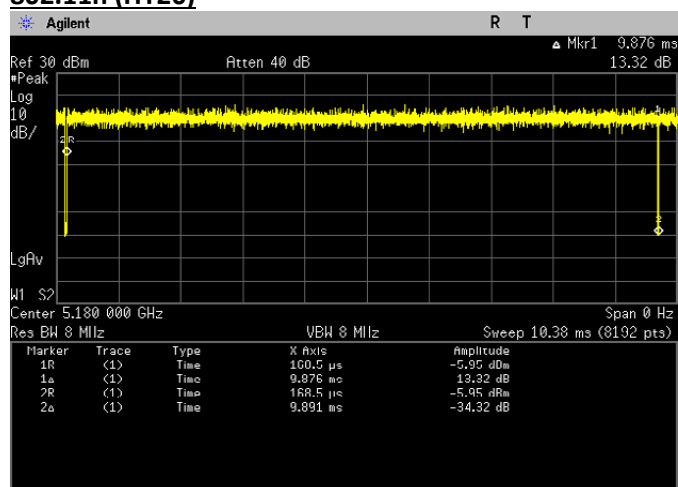


On time	3.108	ms
On + off time	3.124	ms
Duty Cycle	0.9949	
Duty Cycle Factor	0.022	

*Duty cycle = On time/ On +off time

*Duty Cycle factor = 10*log (1/Duty Cycle)

802.11n (HT20)



On time	9.876	ms
On + off time	9.891	ms
Duty Cycle	0.9985	
Duty Cycle Factor	0.007	

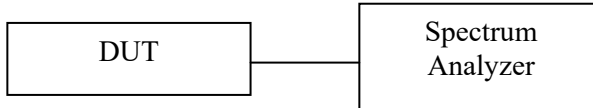
*Duty cycle = On time/ On +off time

*Duty Cycle factor = 10*log (1/Duty Cycle)

7.0. Transmitter Test Parameters

7.1. Bandwidth measurements

7.1.1. Test Setup



- a) Test Setup as per illustrated above.
- b) Set DUT to transmit at desire transmit frequency.
- c) Connect DUT's antenna terminal to spectrum analyzer with a low loss cable.
- d) Setting of Spectrum analyzer for 26dB EBW:
 - RBW = approximate 1% of emission bandwidth
 - VBW > RBW
 - Detector = Peak
 - Trace =Max hold
 - Measure the maximum width of the emission that is 26 dB down from the maximum of the emission.
 - Compare this with the RBW setting of the analyzer. Readjust RBW and repeat measurement as needed until the RBW/EBW ratio is approximately 1%.
- e) Setting of Spectrum analyzer for 99% Occupied bandwidth:
 - Span = 1.5 times to 5.0 times the OBW
 - RBW = 1% to 5 % of the OBW
 - VBW $\geq 3 \cdot$ RBW
 - Detector = Peak
 - Trace = Max Hold
 - Use the 99% power bandwidth function of the instrument
- f) The measurement method follows FCC KDB 789033 D02 General UNII Test Procedures New Rules v01r04 under clause C.1) & D).

7.1.2. Test Limits

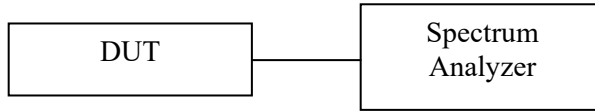
Not applicable.

7.1.3. Test Data

N/A

7.2. Maximum Conducted Output Power

7.2.1. Test Setup



- Test setup as per illustrated above.
- Set DUT to transmit at desire transmit frequency.
- Connect DUT's antenna terminal to spectrum analyzer with a low loss cable.
- Setting of Spectrum analyzer :
 - Span to encompass the entire 26dB EBW or 99% Occupied Bandwidth.
 - RBW = 1 MHz
 - VBW $\geq$ 3 MHz
 - Detector = power averaging (RMS)
 - Trace = Max hold
 - Number of points in sweep $\geq 2 \times \text{span} / \text{RBW}$
 - Sweep time = auto
 - Trace average at least 100 traces in power averaging (rms) mode
 - Compute power by integrating the spectrum across the EBW (or, alternatively, the entire 99% occupied bandwidth) of the signal using the instrument's band power measurement function with band limits set equal to the EBW (or occupied bandwidth) band edges.
 - Add $10 \log (1/x)$, where x is the duty cycle, to the measured power to compute the average power during the actual transmission times
- The measurement method follows FCC KDB 789033 D02 General UNII Test Procedures New Rules v01r04 under clause E.2.d) Method SA-2.
- The Maximum output power results are included duty cycle correction factor.

7.2.2. Test Limits

FCC 15.407(a)

Range(GHz)	Condition	Output Power Limit
5.15-5.25 (UNII-1)	Outdoor AP	$\leq 1\text{W}$
	Indoor AP	$\leq 1\text{W}$
	Fixed Point to Point AP	$\leq 1\text{W}$
	√ Mobile and Portable client devices	$\leq 250\text{mW}$
5.25-5.35 (UNII-2A)	√	$\leq 250\text{mW}$ or $11\text{dBm} + 10\log_{10} B^*$
5.47-5.525 (UNII-2C)	√	*B is 26dB emission bandwidth in MHz
5.725-5.85 (UNII-3)	√	$\leq 1\text{W}$

RSS-247 6.2

Range(GHz)	Condition	Output Power Limit
5.15-5.25	indoor only (e.i.r.p.)	$\leq 200\text{mW}$ or $10+10\log_{10}B^*$ *B is 99% emission bandwidth in 1MHz
5.25-5.35	(Conducted & e.i.r.p.)	Conducted: $\leq 250\text{mW}$ or $11+10\log_{10}B^*$ EIRP: $< 1.0\text{W}$ or $17+10\log_{10}B^*$ *B is 99% emission bandwidth in 1MHz
5.47-5.6 5.65-5.725	(Conducted & e.i.r.p.)	Conducted: $\leq 250\text{mW}$ or $11+10\log_{10}B^*$ EIRP: $< 1.0\text{W}$ or $17+10\log_{10}B^*$ *B is 99% emission bandwidth in 1MHz
5.725-5.85	(Conducted)	$\leq 1\text{W}$

7.2.3. Additional Info

Antenna	Gain (dBi)
Antenna 1	5.25
Duty Cycle Correction Factor	
802.11a	0.022
802.11n (HT20)	0.007

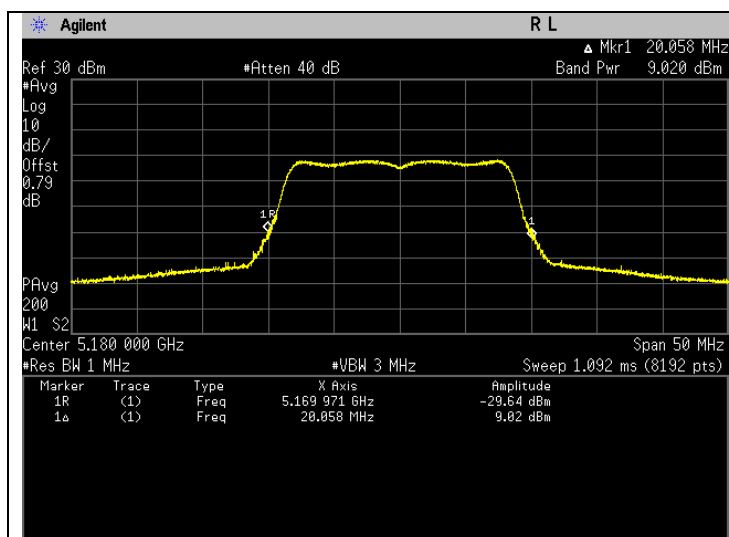
7.2.4. Test Data

Summary table

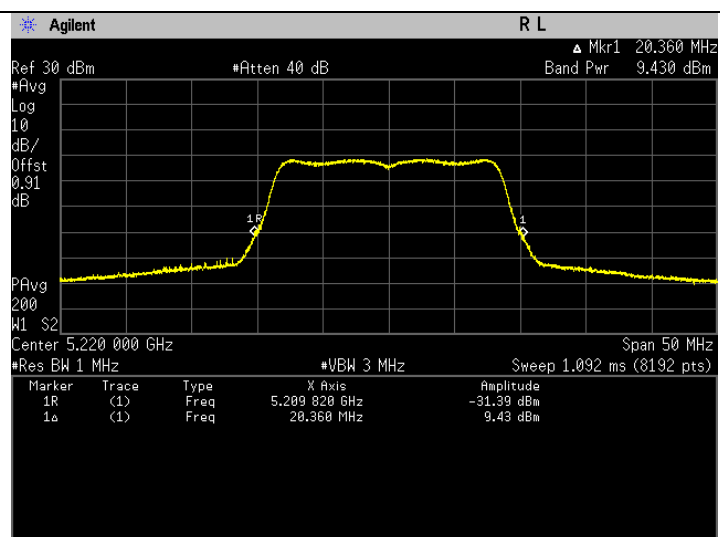
WLAN	Frequency Range (MHz)	Bandwidth (MHz)	RF Power Output		EIRP	
			Max measured (mW)	Max declared (mW)	Max measured (mW)	Max declared (mW)
802.11a	5180-5240	20	9.05	15.85	30.32	53.09
	5260-5320	20	9.19	15.85	30.8	53.09
	5500-5720	20	14.76	15.85	49.43	53.09
	5745-5825	20	13.08	15.85	43.82	53.09
802.11n/ac	5180-5240	20	9.34	15.85	31.28	53.09
	5260-5320	20	9.5	15.85	31.82	53.09
	5500-5720	20	15.24	15.85	51.06	53.09
	5745-5825	20	13.51	15.85	45.25	53.09

802.11a (26dB EBW)

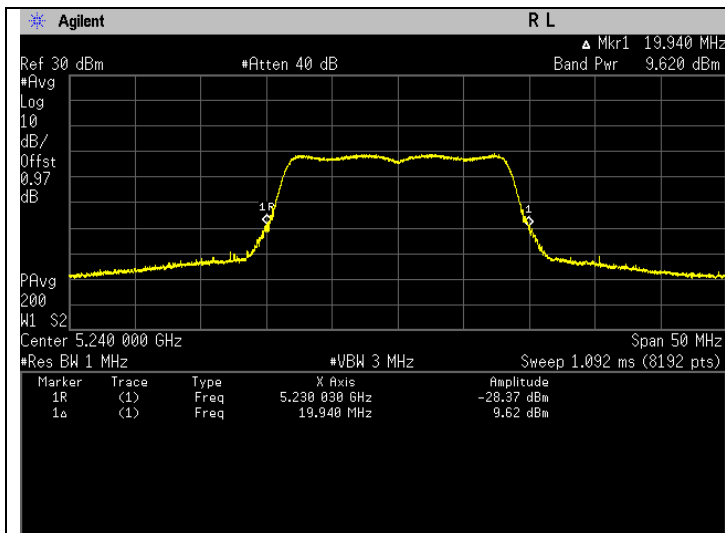
Freq. (MHz)	Test Conditions	Results		
		Power (mW)	Power (dBm)	Status
5180	Mod Type: BPSK, Data Rate: 6	8.021	9.042	Pass
5220	Mod Type: BPSK, Data Rate: 6	8.815	9.452	Pass
5240	Mod Type: BPSK, Data Rate: 6	9.209	9.642	Pass
5260	Mod Type: BPSK, Data Rate: 6	9.024	9.554	Pass
5300	Mod Type: BPSK, Data Rate: 6	8.966	9.526	Pass
5320	Mod Type: BPSK, Data Rate: 6	9.374	9.719	Pass
5500	Mod Type: BPSK, Data Rate: 6	12.007	10.794	Pass
5580	Mod Type: BPSK, Data Rate: 6	15.015	11.765	Pass
5700	Mod Type: BPSK, Data Rate: 6	11.223	10.501	Pass
5745	Mod Type: BPSK, Data Rate: 6	13.305	11.240	Pass
5785	Mod Type: BPSK, Data Rate: 6	12.148	10.845	Pass
5825	Mod Type: BPSK, Data Rate: 6	8.539	9.314	Pass



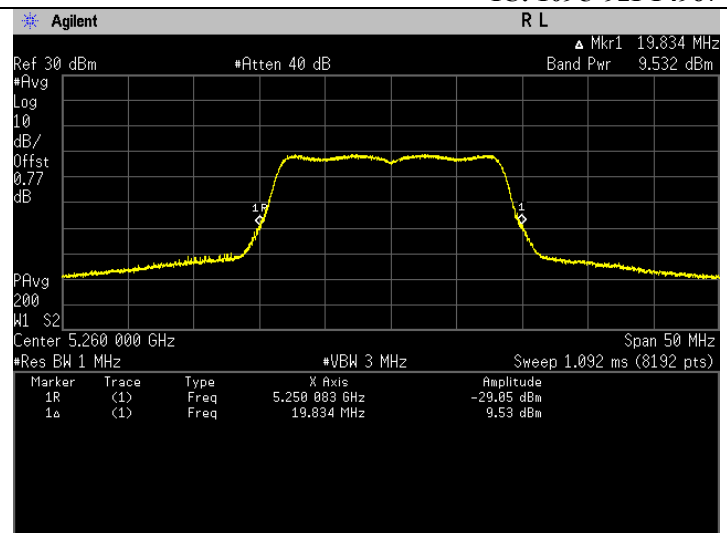
Frequency 5180 MHz, FCC.



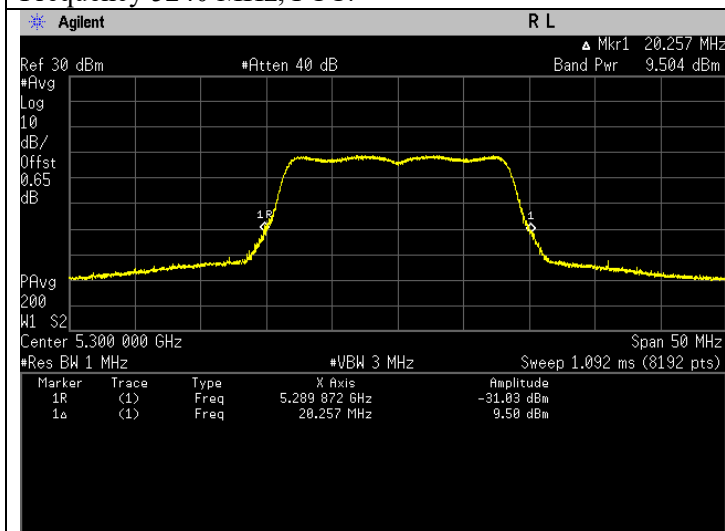
Frequency 5220 MHz, FCC.



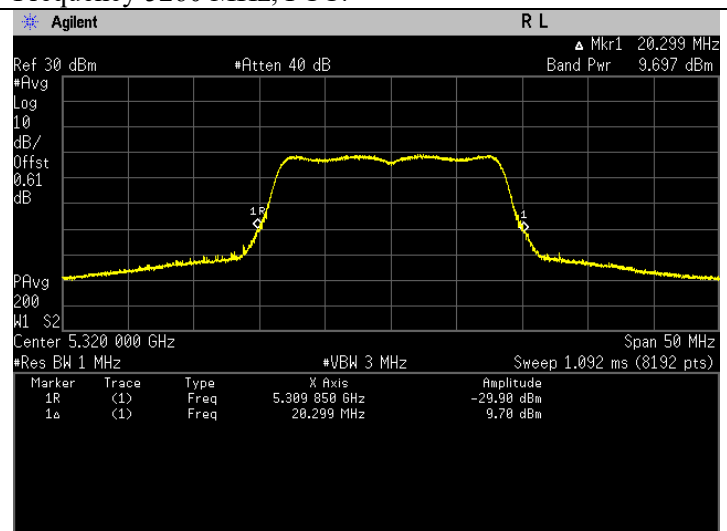
Frequency 5240 MHz, FCC.



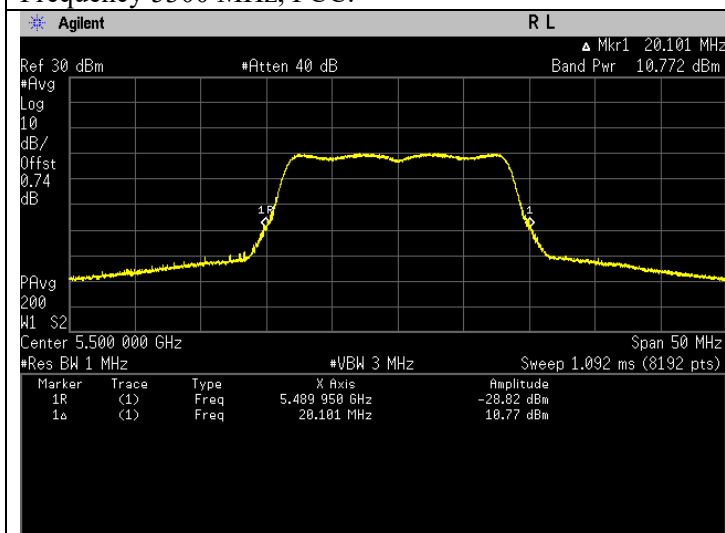
Frequency 5260 MHz, FCC.



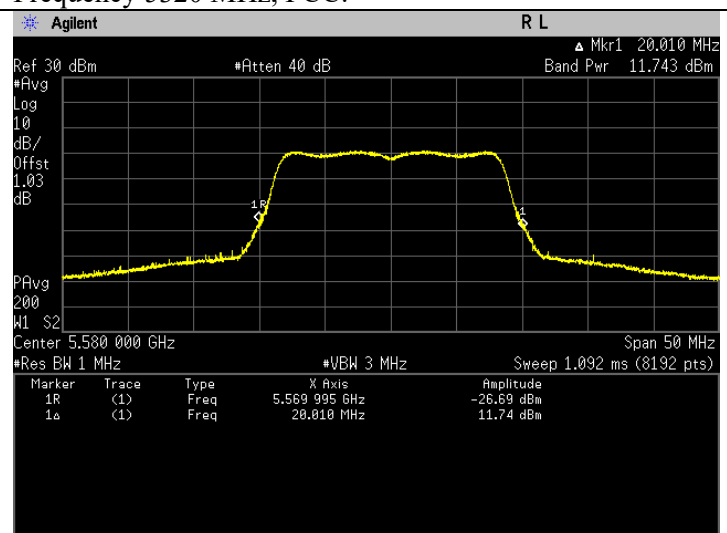
Frequency 5300 MHz, FCC.



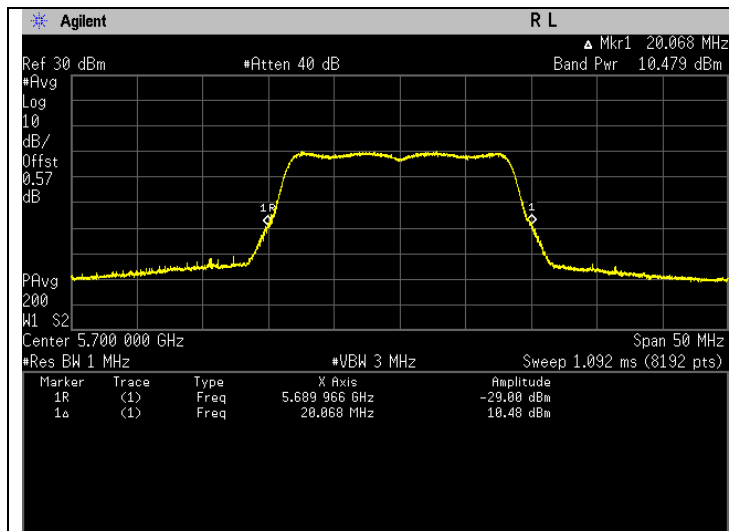
Frequency 5320 MHz, FCC.



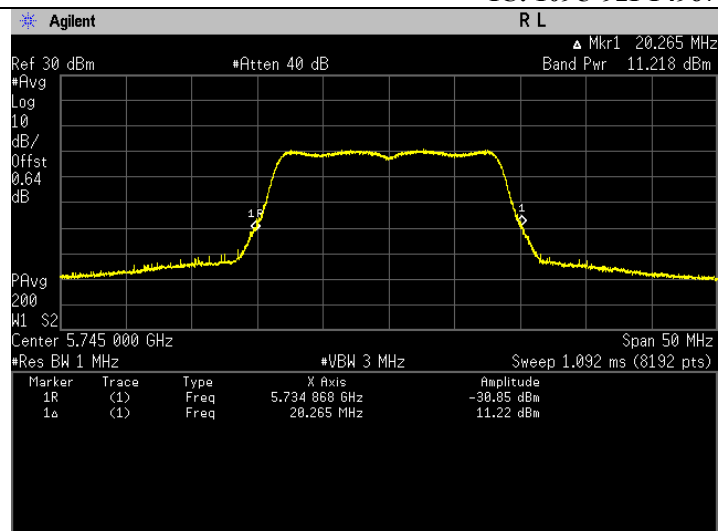
Frequency 5500 MHz, FCC.



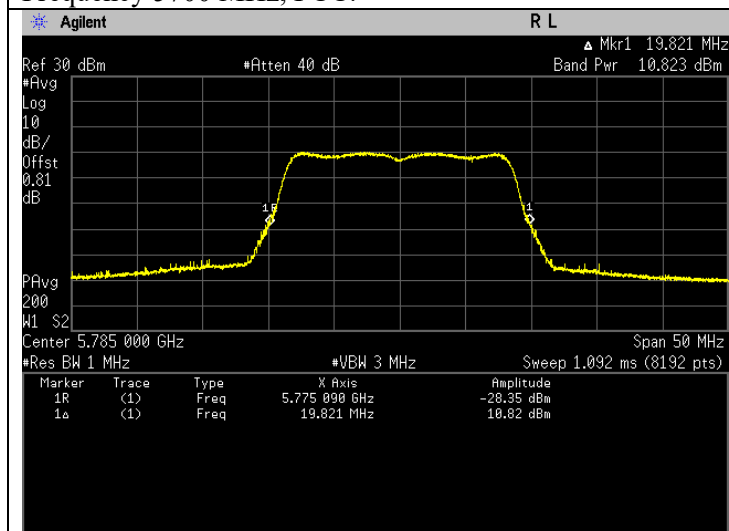
Frequency 5580 MHz, FCC.



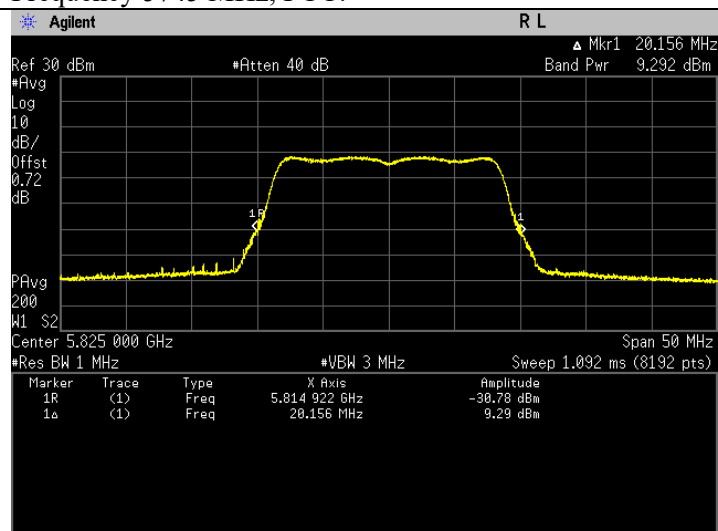
Frequency 5700 MHz, FCC.



Frequency 5745 MHz, FCC.



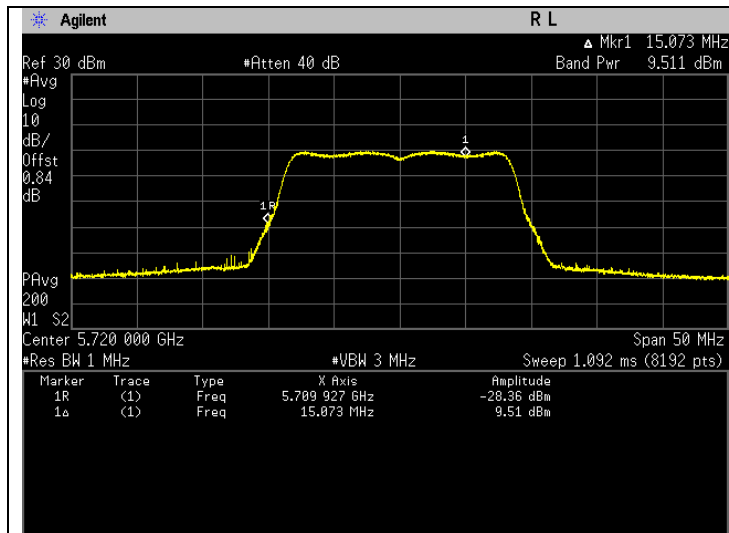
Frequency 5785 MHz, FCC.



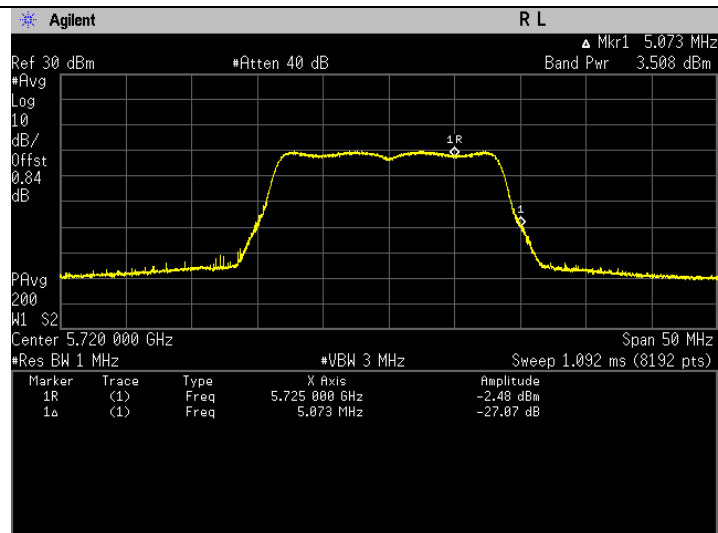
Frequency 5825 MHz, FCC.

Straddle Frequency

Freq. (MHz)	Test Conditions	Results		
		U-NII- 2C		
		Power (mW)	Power (dBm)	Status
5720	Mod Type: BPSK, Data Rate: 6	8.981	9.533	Pass
		U-NII-3		
5720	Mod Type: BPSK, Data Rate: 6	2.254	3.530	Pass



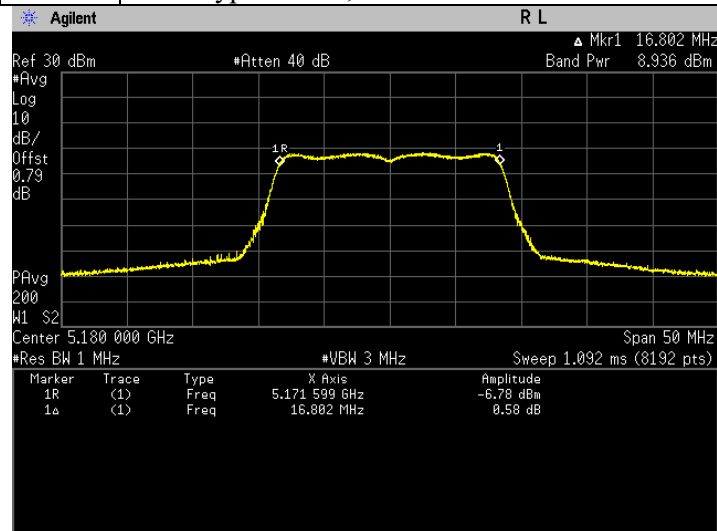
Frequency 5720 MHz, FCC, U-NII-2C. *Note: The band power is captured before the 5725 MHz.



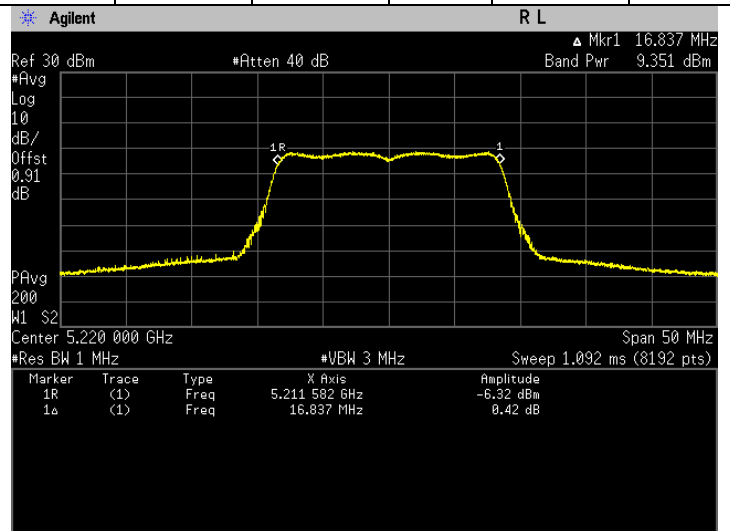
Frequency 5720 MHz, FCC, U-NII-3. *Note: The band power is captured after the 5725 MHz.

802.11a (99% EBW)

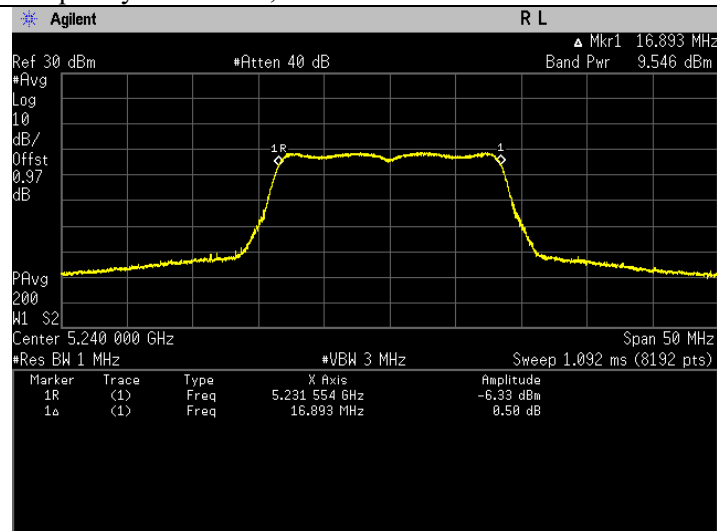
Freq. (MHz)	Test Conditions	Results				
		Power (mW)	Power (dBm)	Status	EIRP (dBm)	Status
5180	Mod Type: BPSK, Data Rate: 6	7.867	8.958	Pass	14.208	Pass
5220	Mod Type: BPSK, Data Rate: 6	8.656	9.373	Pass	14.623	Pass
5240	Mod Type: BPSK, Data Rate: 6	9.054	9.568	Pass	14.818	Pass
5260	Mod Type: BPSK, Data Rate: 6	8.860	9.474	Pass	14.724	Pass
5300	Mod Type: BPSK, Data Rate: 6	8.860	9.474	Pass	14.724	Pass
5320	Mod Type: BPSK, Data Rate: 6	9.194	9.635	Pass	14.885	Pass
5500	Mod Type: BPSK, Data Rate: 6	11.774	10.709	Pass	15.959	Pass
5580	Mod Type: BPSK, Data Rate: 6	14.758	11.690	Pass	16.940	Pass
5700	Mod Type: BPSK, Data Rate: 6	11.039	10.429	Pass	15.679	Pass
5745	Mod Type: BPSK, Data Rate: 6	13.083	11.167	Pass	16.417	Pass
5785	Mod Type: BPSK, Data Rate: 6	12.004	10.793	Pass	16.043	Pass
5825	Mod Type: BPSK, Data Rate: 6	8.422	9.254	Pass	14.504	Pass



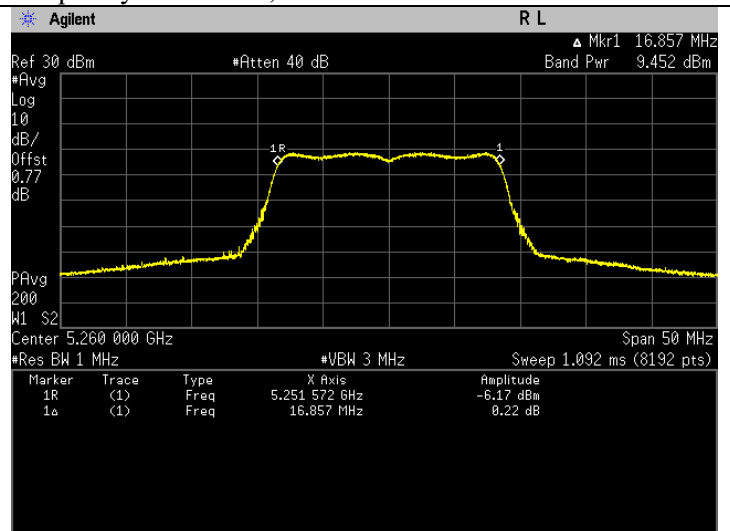
Frequency 5180 MHz, ISED



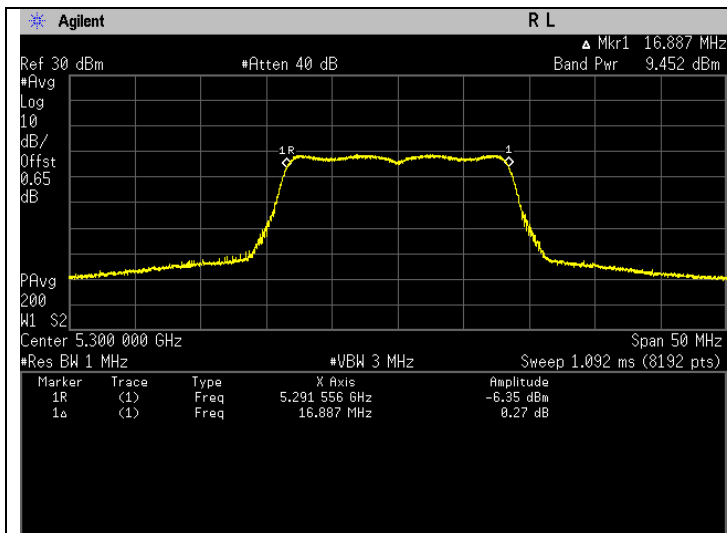
Frequency 5220 MHz, ISED



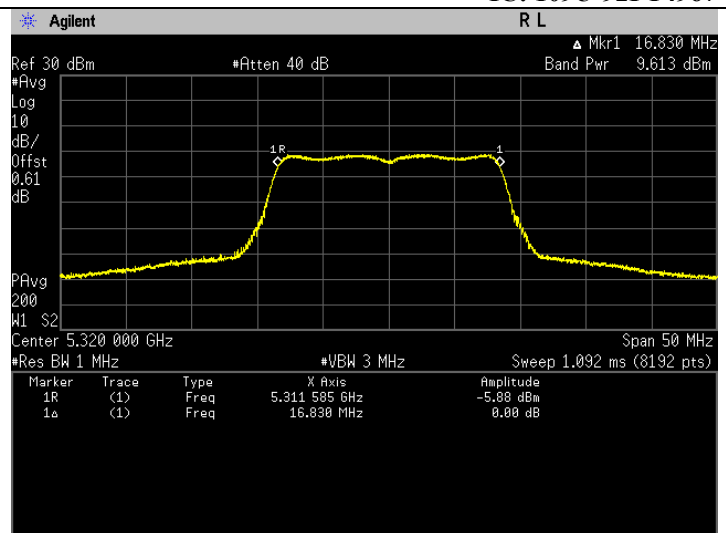
Frequency 5240 MHz, ISED



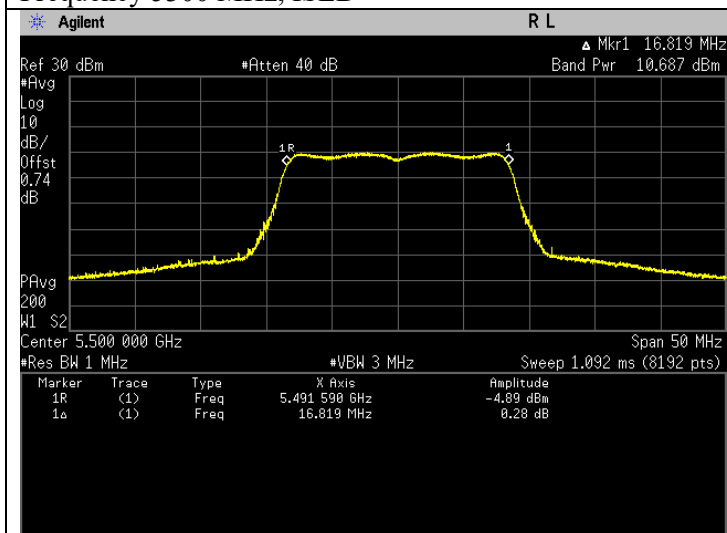
Frequency 5260 MHz, ISED



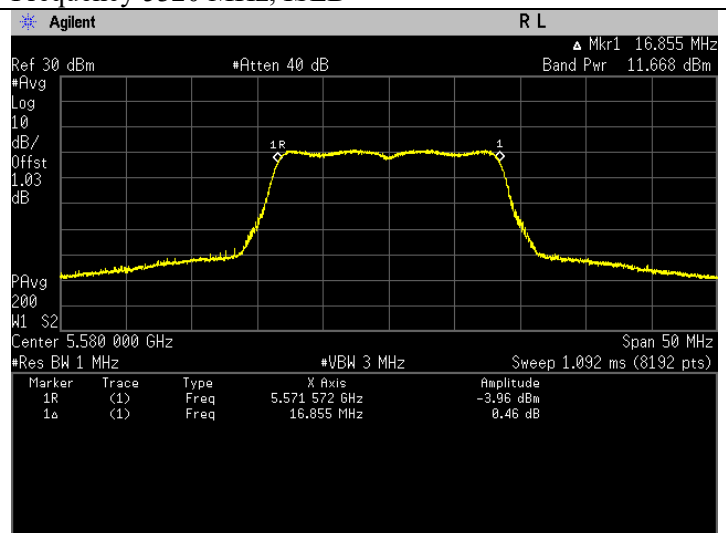
Frequency 5300 MHz, ISED



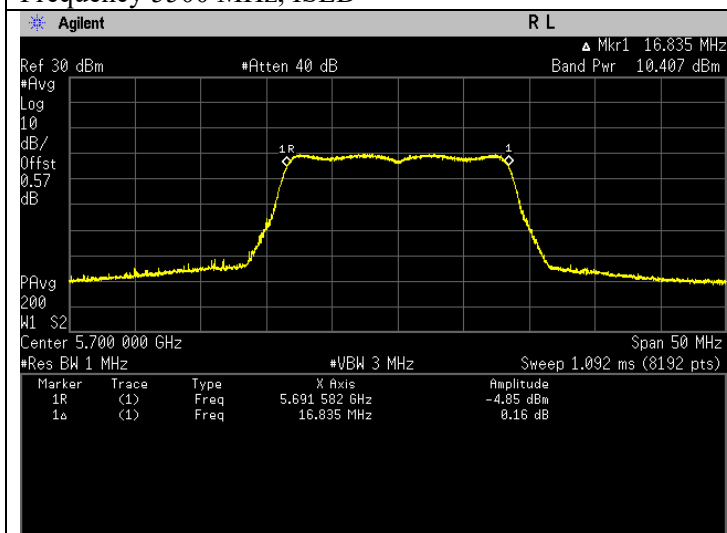
Frequency 5320 MHz, ISED



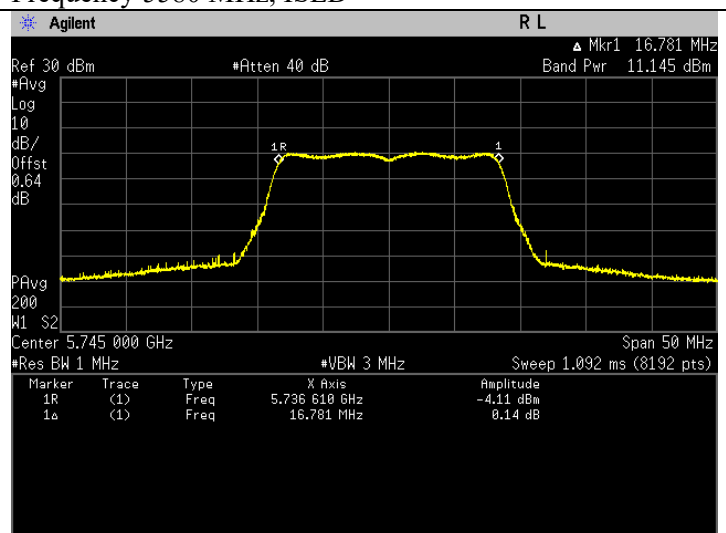
Frequency 5500 MHz, ISED



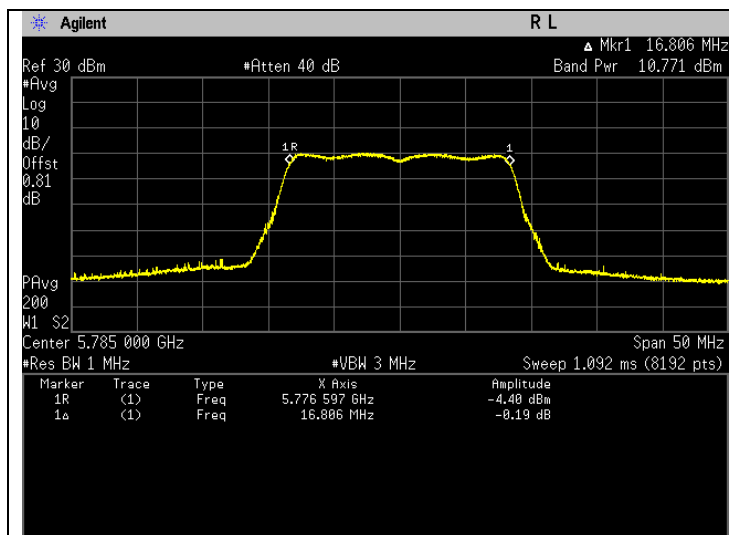
Frequency 5580 MHz, ISED



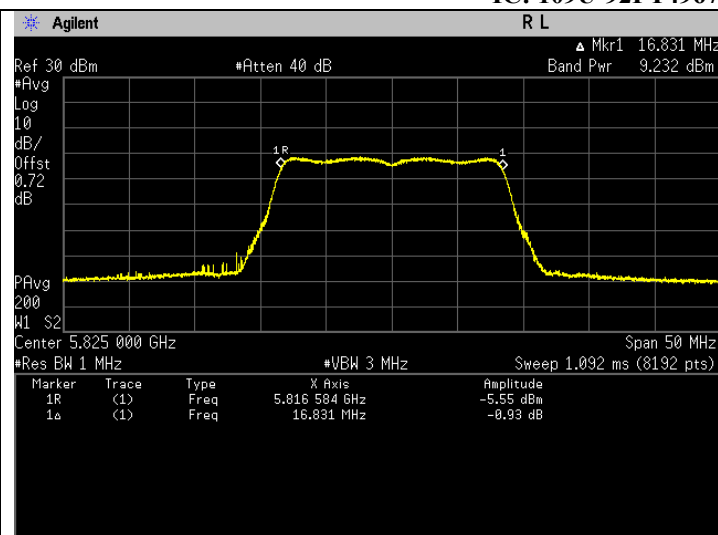
Frequency 5700 MHz, ISED



Frequency 5745 MHz, ISED



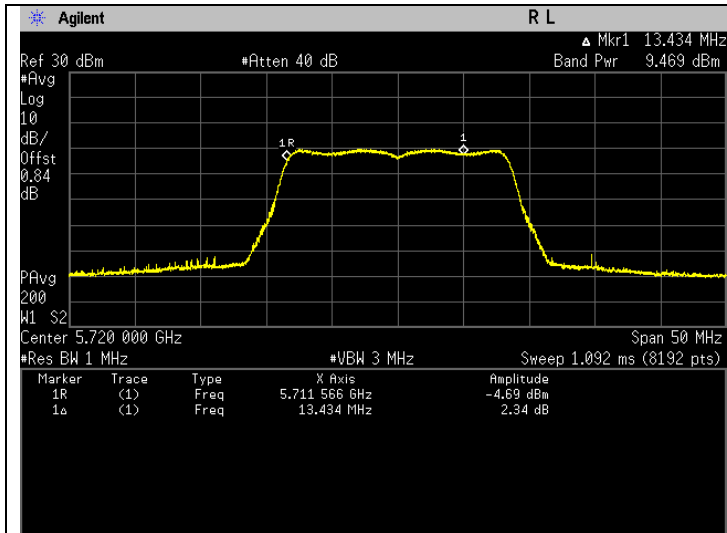
Frequency 5785 MHz, ISED



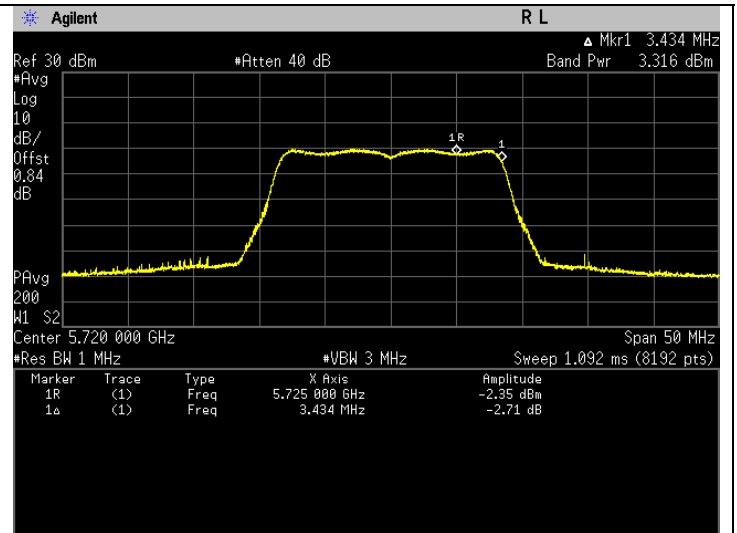
Frequency 5825 MHz, ISED

Straddle Frequency

Freq. (MHz)	Test Conditions	Results				
		U-NII- 2C				
		Power (mW)	Power (dBm)	Status	EIRP (dBm)	Status
5720	Mod Type: BPSK, Data Rate: 6	8.894	9.491	Pass	14.741	Pass
		U-NII-3				
5720	Mod Type: BPSK, Data Rate: 6	2.157	3.338	Pass	8.588	Pass



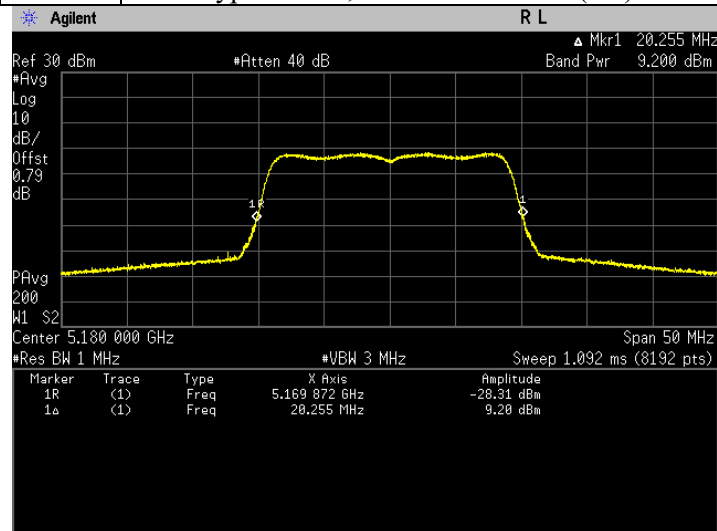
Frequency 5720 MHz, ISED, U-NII-2C. *Note: The band power is captured before the 5725 MHz.



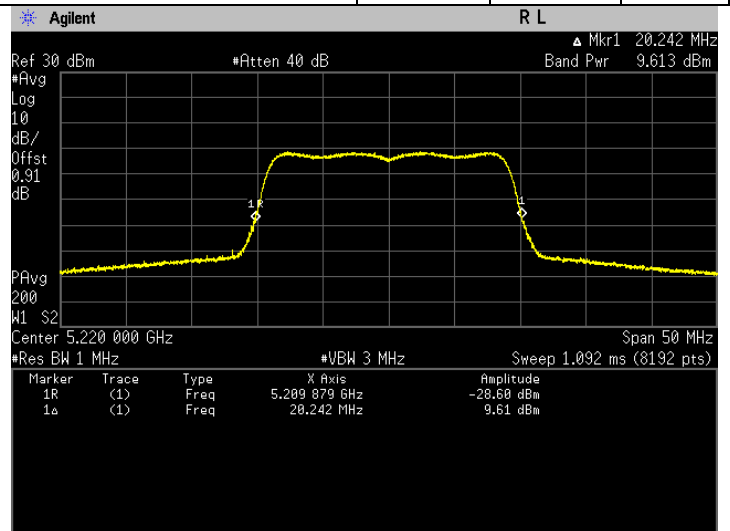
Frequency 5720 MHz, ISED, U-NII-3. *Note: The band power is captured after the 5725 MHz.

802.11n (HT20)(26dB EBW)

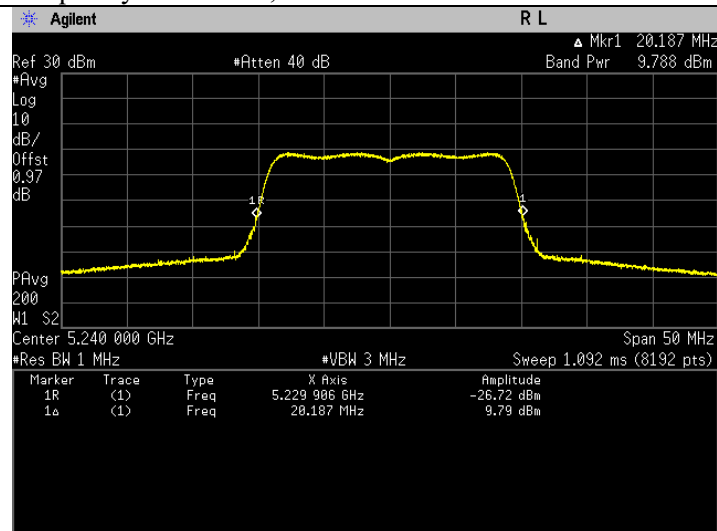
Freq. (MHz)	Test Conditions	Results		
		Power (mW)	Power (dBm)	Status
5180	Mod Type: BPSK, Data Rate: MCS0 (6.5)	8.330	9.207	Pass
5220	Mod Type: BPSK, Data Rate: MCS0 (6.5)	9.161	9.620	Pass
5240	Mod Type: BPSK, Data Rate: MCS0 (6.5)	9.538	9.795	Pass
5260	Mod Type: BPSK, Data Rate: MCS0 (6.5)	9.364	9.715	Pass
5300	Mod Type: BPSK, Data Rate: MCS0 (6.5)	9.329	9.699	Pass
5320	Mod Type: BPSK, Data Rate: MCS0 (6.5)	9.720	9.877	Pass
5500	Mod Type: BPSK, Data Rate: MCS0 (6.5)	12.424	10.943	Pass
5580	Mod Type: BPSK, Data Rate: MCS0 (6.5)	15.590	11.929	Pass
5700	Mod Type: BPSK, Data Rate: MCS0 (6.5)	11.629	10.656	Pass
5745	Mod Type: BPSK, Data Rate: MCS0 (6.5)	13.786	11.395	Pass
5785	Mod Type: BPSK, Data Rate: MCS0 (6.5)	12.611	11.008	Pass
5825	Mod Type: BPSK, Data Rate: MCS0 (6.5)	8.875	9.482	Pass



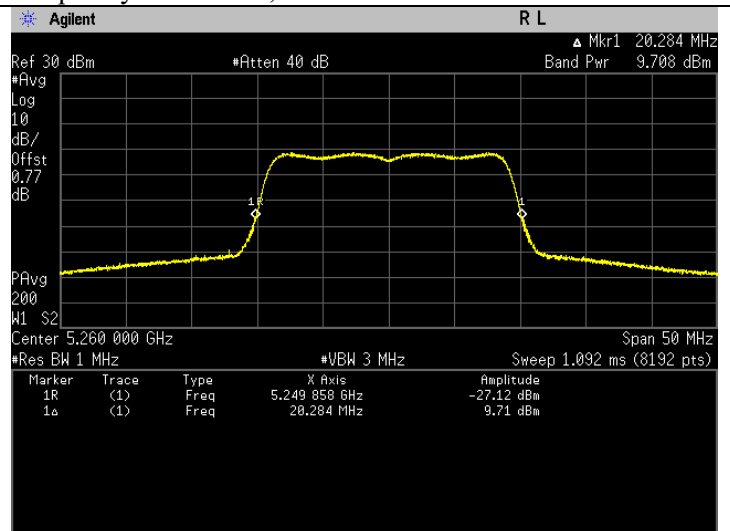
Frequency 5180 MHz, FCC.



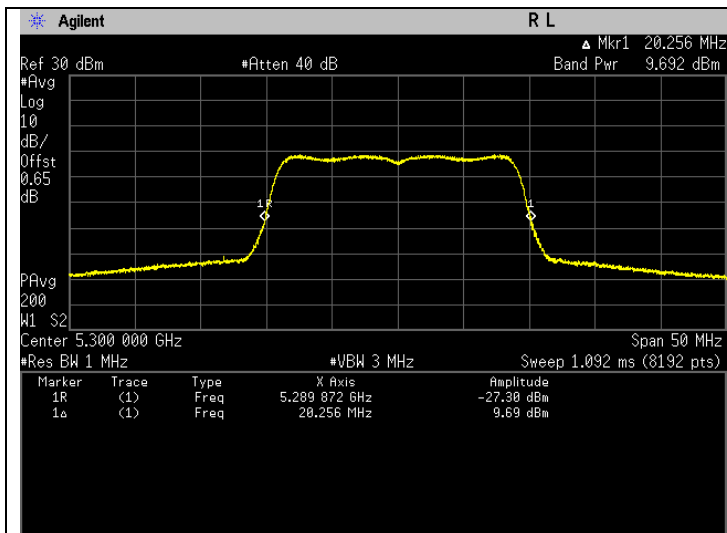
Frequency 5220 MHz, FCC.



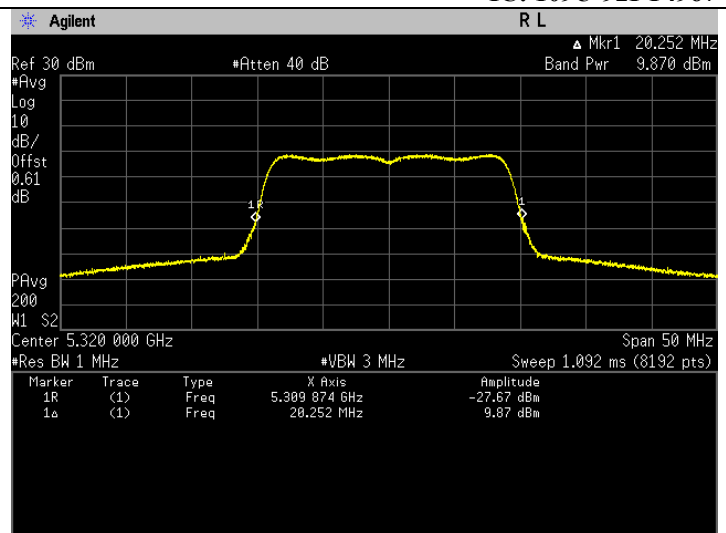
Frequency 5240 MHz, FCC.



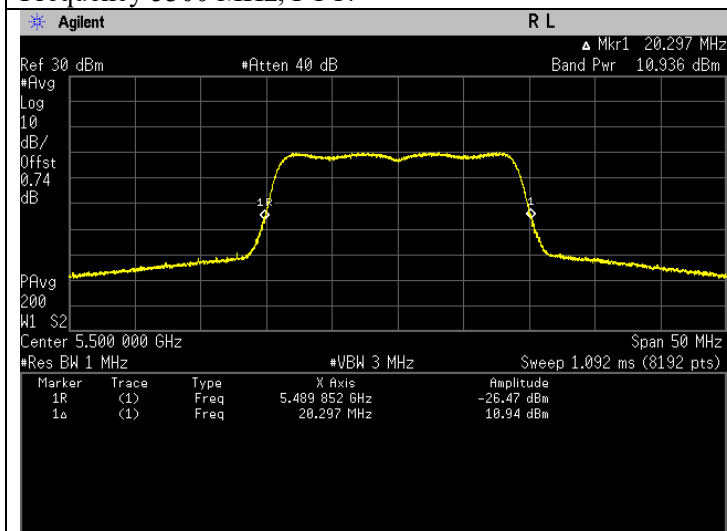
Frequency 5260 MHz, FCC.



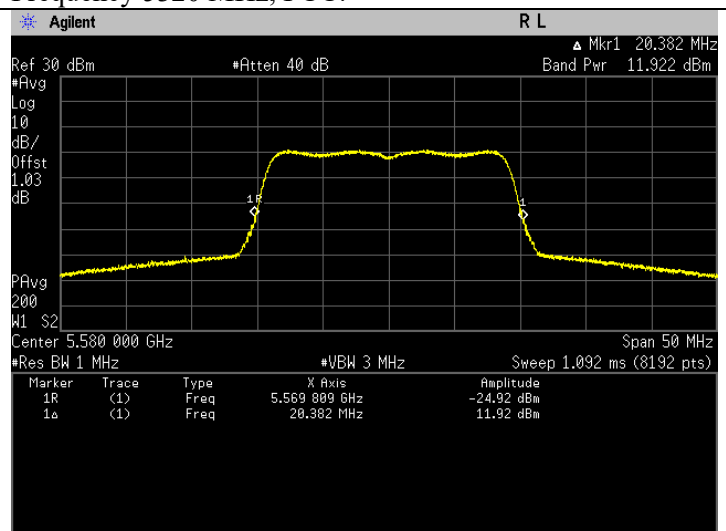
Frequency 5300 MHz, FCC.



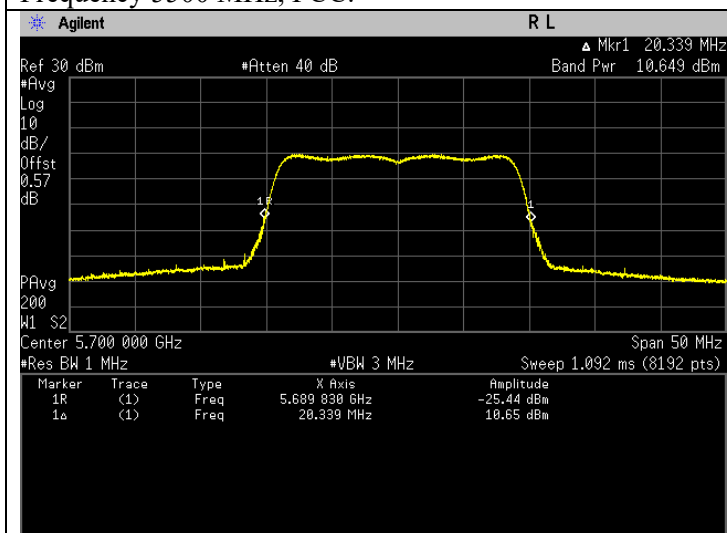
Frequency 5320 MHz, FCC.



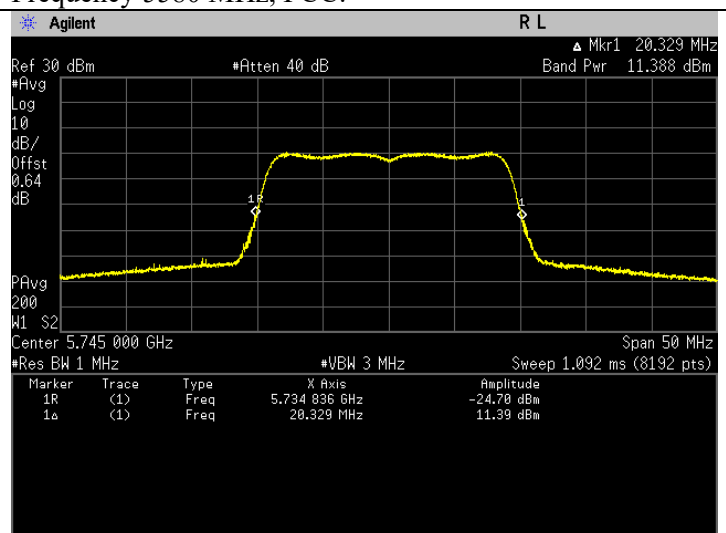
Frequency 5500 MHz, FCC.



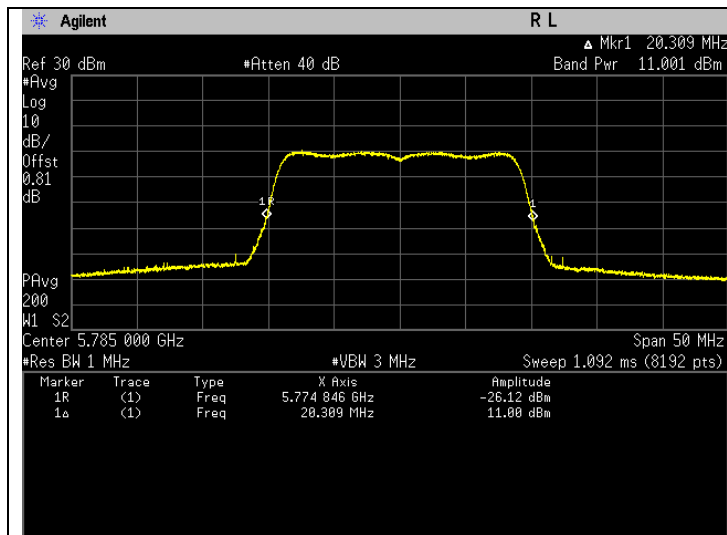
Frequency 5580 MHz, FCC.



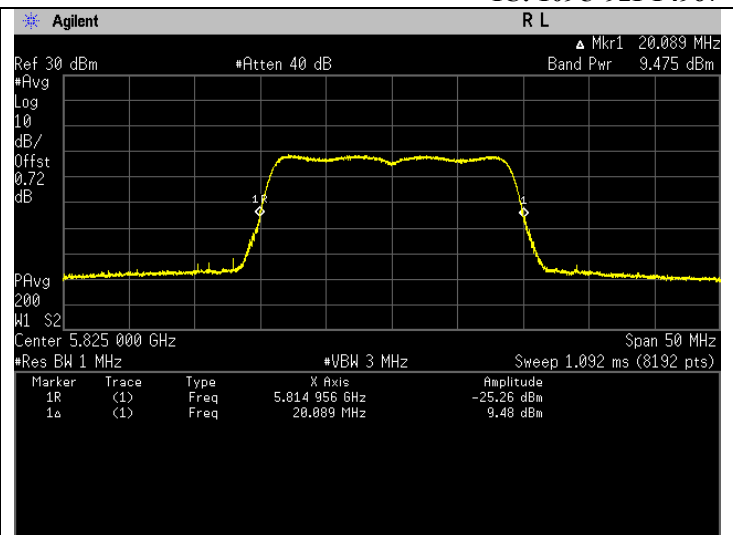
Frequency 5700 MHz, FCC.



Frequency 5745 MHz, FCC.



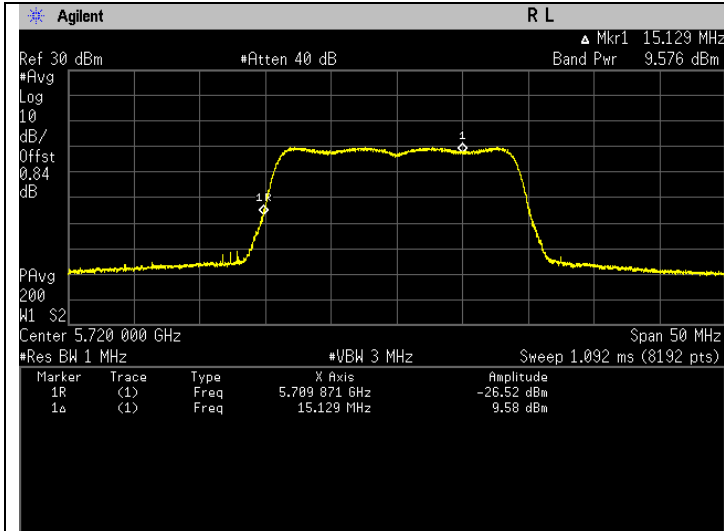
Frequency 5785 MHz, FCC.



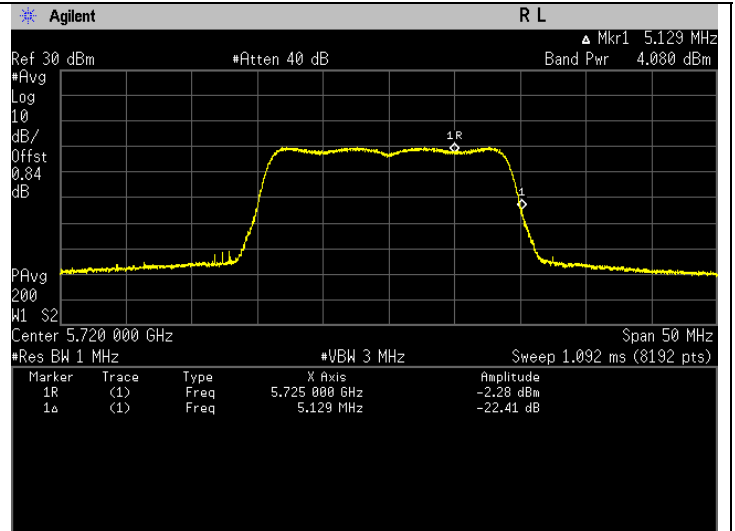
Frequency 5825 MHz, FCC.

Straddle Frequency

Freq. (MHz)	Test Conditions	Results		
		U-NII- 2C		
		Power (mW)	Power (dBm)	Status
5720	Mod Type: BPSK, Data Rate: MCS0 (6.5)	9.083	9.583	Pass
		U-NII-3		
5720	Mod Type: BPSK, Data Rate: MCS0 (6.5)	2.562	4.087	Pass



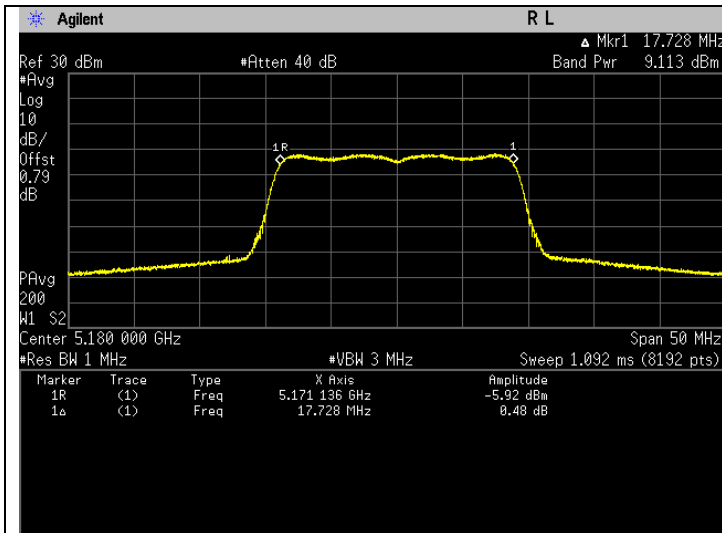
Frequency 5720 MHz, FCC, U-NII-2C. *Note: The band power is captured before the 5725 MHz.



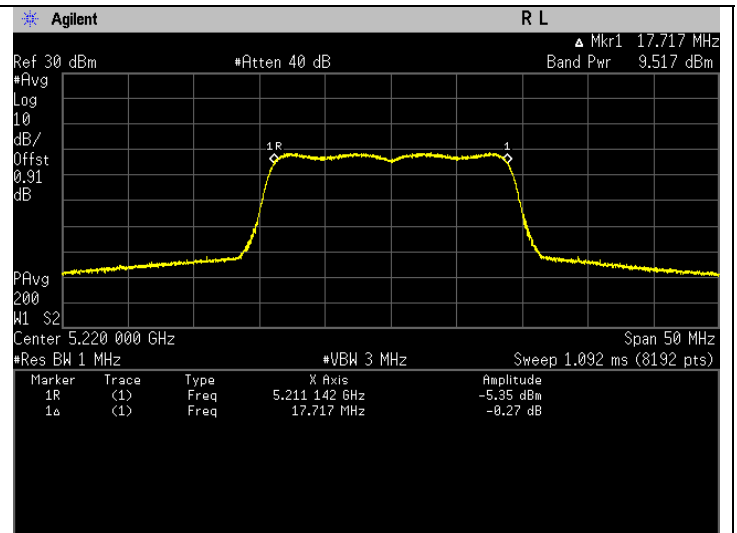
Frequency 5720 MHz, FCC, U-NII-3. *Note: The band power is captured after the 5725 MHz.

802.11n (HT20)(99% EBW)

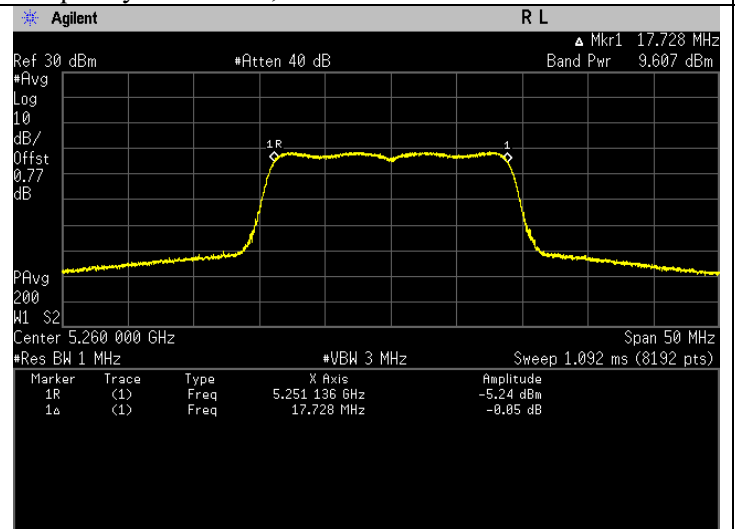
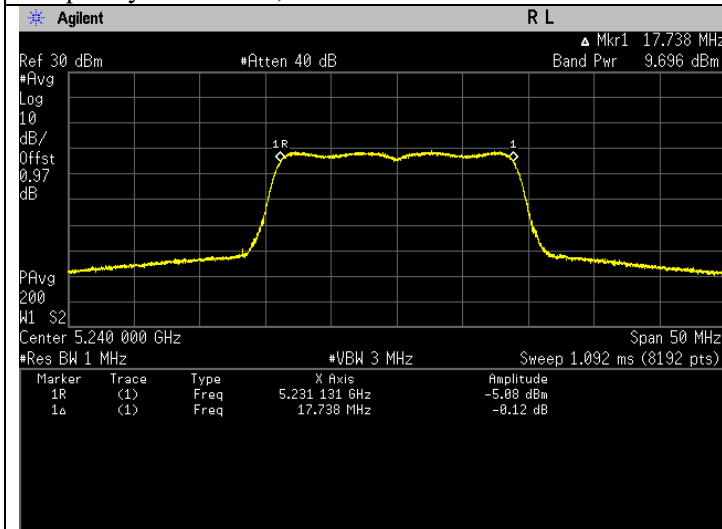
Freq. (MHz)	Test Conditions	Results				
		Power (mW)	Power (dBm)	Status	EIRP (dBm)	Status
5180	Mod Type: BPSK, Data Rate: MCS0 (6.5)	8.165	9.120	Pass	14.370	Pass
5220	Mod Type: BPSK, Data Rate: MCS0 (6.5)	8.961	9.524	Pass	14.774	Pass
5240	Mod Type: BPSK, Data Rate: MCS0 (6.5)	9.338	9.703	Pass	14.953	Pass
5260	Mod Type: BPSK, Data Rate: MCS0 (6.5)	9.149	9.614	Pass	14.864	Pass
5300	Mod Type: BPSK, Data Rate: MCS0 (6.5)	9.104	9.593	Pass	14.843	Pass
5320	Mod Type: BPSK, Data Rate: MCS0 (6.5)	9.498	9.777	Pass	15.027	Pass
5500	Mod Type: BPSK, Data Rate: MCS0 (6.5)	12.116	10.834	Pass	16.084	Pass
5580	Mod Type: BPSK, Data Rate: MCS0 (6.5)	15.242	11.831	Pass	17.081	Pass
5700	Mod Type: BPSK, Data Rate: MCS0 (6.5)	11.420	10.577	Pass	15.827	Pass
5745	Mod Type: BPSK, Data Rate: MCS0 (6.5)	13.507	11.306	Pass	16.556	Pass
5785	Mod Type: BPSK, Data Rate: MCS0 (6.5)	12.335	10.912	Pass	16.162	Pass
5825	Mod Type: BPSK, Data Rate: MCS0 (6.5)	8.685	9.388	Pass	14.638	Pass



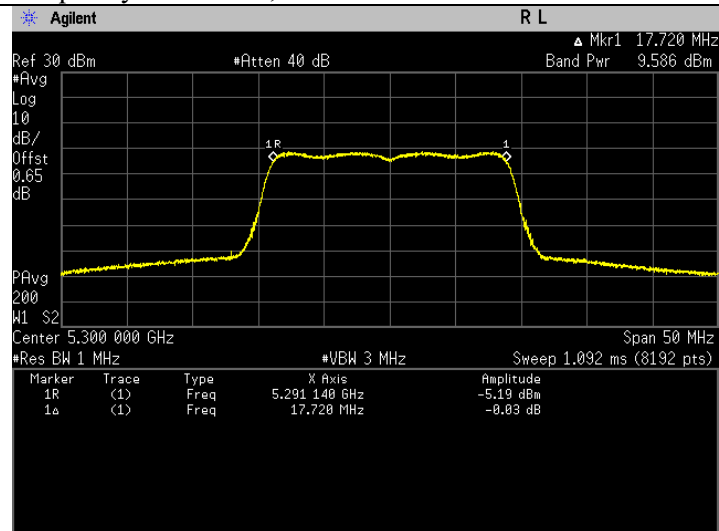
Frequency 5180 MHz, ISED



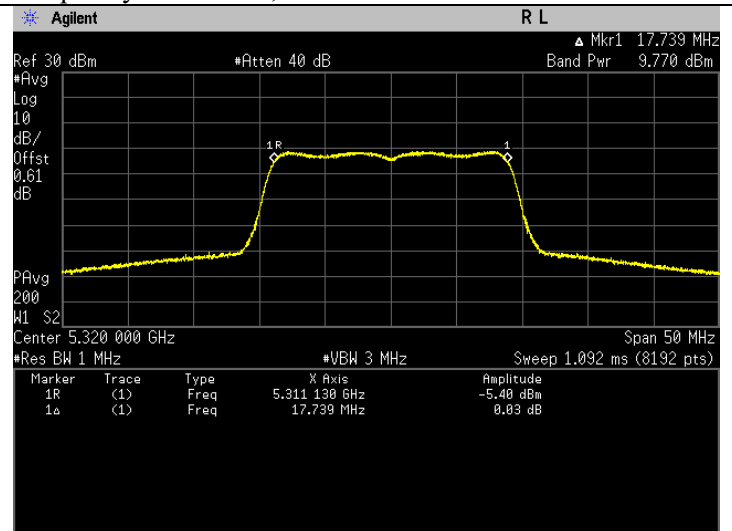
Frequency 5220 MHz, ISED



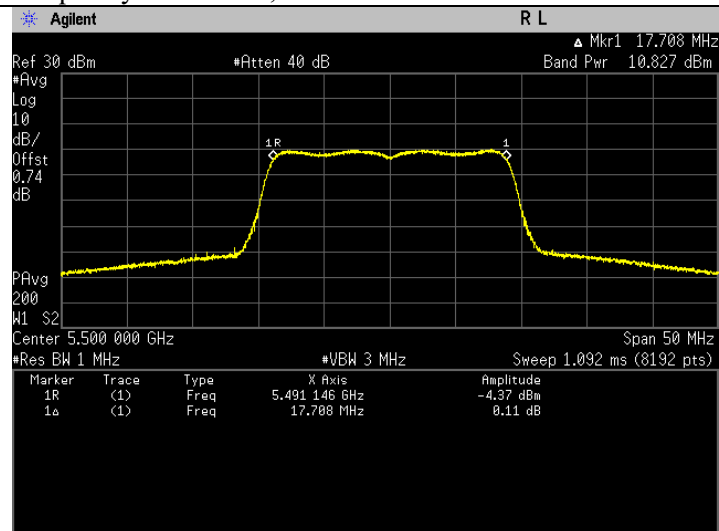
Frequency 5240 MHz, ISED



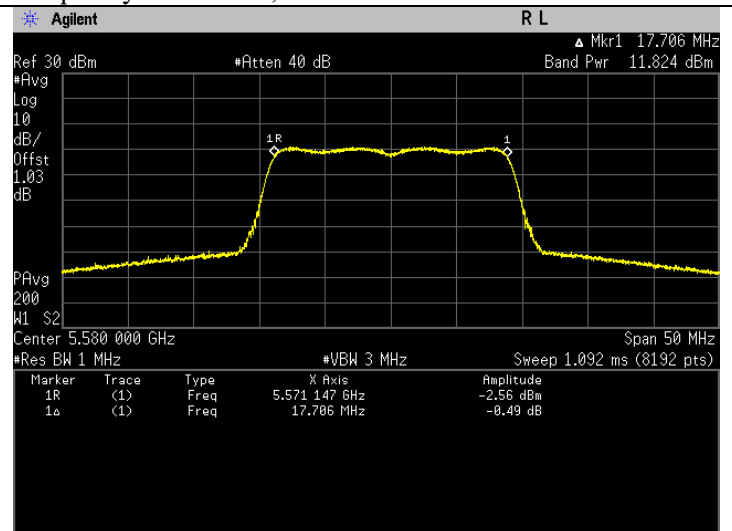
Frequency 5260 MHz, ISED



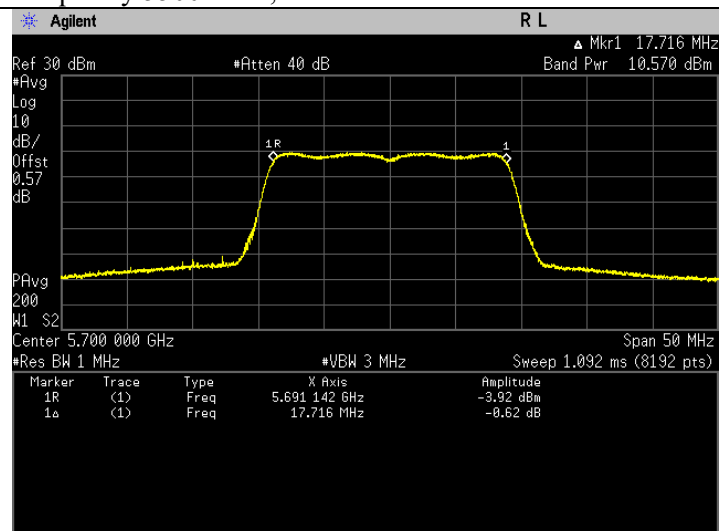
Frequency 5300 MHz, ISED



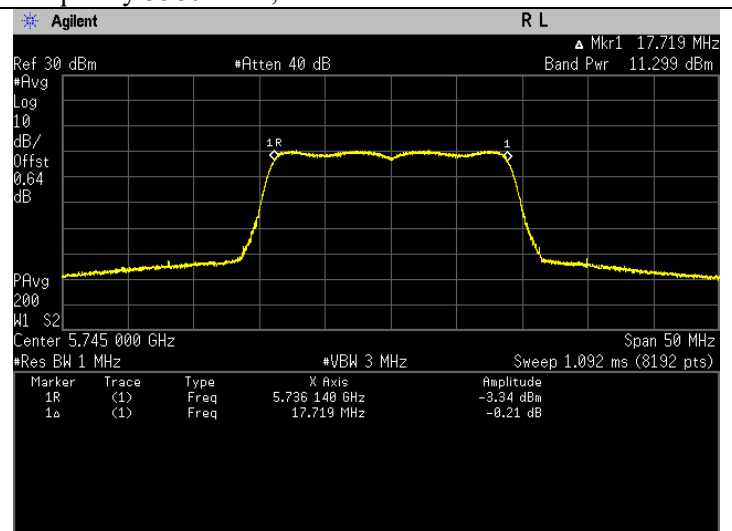
Frequency 5320 MHz, ISED

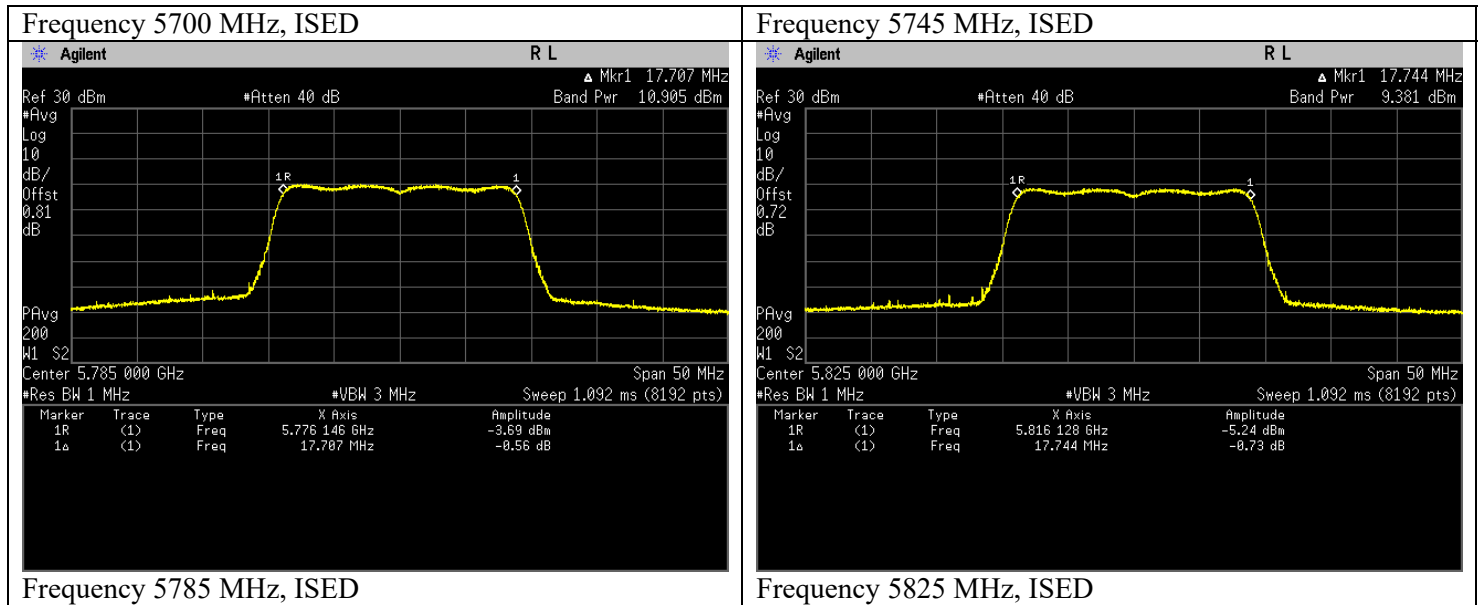


Frequency 5500 MHz, ISED



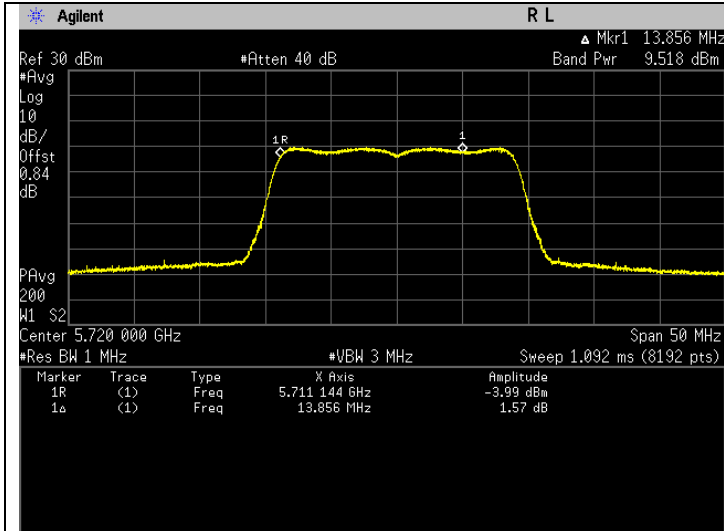
Frequency 5580 MHz, ISED



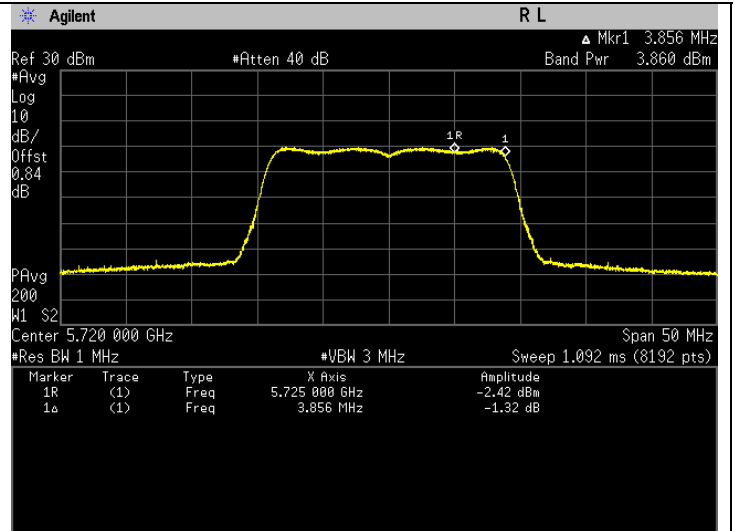


Straddle Frequency

Freq. (MHz)	Test Conditions	Results				
		U-NII- 2C				
		Power (mW)	Power (dBm)	Status	EIRP (dBm)	Status
5720	Mod Type: BPSK, Data Rate: MCS0 (6.5)	8.963	9.525	Pass	14.775	Pass
		U-NII-3				
5720	Mod Type: BPSK, Data Rate: MCS0 (6.5)	2.436	3.867	Pass	9.117	Pass



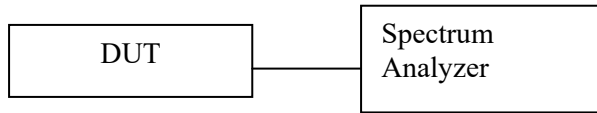
Frequency 5720 MHz, ISED, U-NII-2C. *Note: The band power is captured before the 5725 MHz.



Frequency 5720 MHz, ISED, U-NII-3. *Note: The band power is captured after the 5725 MHz.

7.3. Maximum Power Spectral Density

7.3.1. Test Setup



- Test setup as per illustrated above.
- Set DUT to transmit at desire transmit frequency.
- Connect DUT's antenna terminal to spectrum analyzer with a low loss cable.
- Setting of Spectrum analyzer :
 - Span to encompass the entire 26dB EBW or 99% occupied bandwidth.
 - RBW = 1 MHz (5.15-5.25 GHz, 5.25-5.35 GHz, and 5.47-5.725 GHz) / 500 kHz (5.725-5.85 GHz)
 - VBW $\geq 3 \cdot$ RBW
 - Detector = power averaging (RMS)
 - Trace = Max hold
 - Number of points in sweep $\geq 2 \times$ span / RBW
 - Sweep time = auto
 - Trace average at least 100 traces in power averaging (rms) mode
- Use the peak search function on the instrument to find the peak of the spectrum and record its value.
- Add $10 \log (1/x)$, where x is the duty cycle, to the peak of the spectrum.
- The measurement method follows FCC KDB 789033 D02 General UNII Test Procedures New Rules v01r04 under clause F) Method SA-2.
- The Maximum power spectral density results are included duty cycle correction factor.

7.3.2. Test Limits

FCC 15.407(a)

Range (GHz)	Condition	Limit
5.15-5.25	Outdoor AP	17dBm/ 1MHz
	Indoor AP	17dBm/ 1MHz
	Fixed Point to Point AP	17dBm/ 1MHz
	√ Mobile and Portable Client Devices	11dBm/ 1MHz
5.25-5.35	√	11dBm/ 1MHz
5.47-5.525	√	11dBm/ 1MHz
5.725-5.85	√	30dBm/ 500kHz

RSS-247 6.2

Range(GHz)	Condition	Limit
5.15-5.25	Indoor Operation Only	EIRP: 10dBm/ 1MHz
5.25-5.35		11dBm/ 1MHz
5.47-5.6 5.6-5.525		11dBm/ 1MHz
5.725-5.85		30dBm/ 500kHz

7.3.3. Additional Info

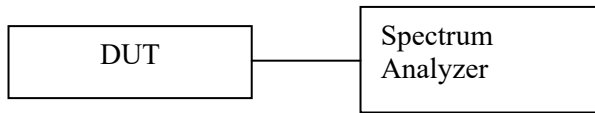
Antenna	Gain (dBi)
Antenna 1	5.25
Duty Cycle Correction Factor	
802.11a	0.022
802.11n (HT20)	0.007

7.3.4. Test Data

NA

7.4. 6dB Bandwidth

7.4.1. Test Setup



- a) Test setup as per illustrated above.
- b) Set DUT to transmit at desire transmit frequency.
- c) 6dB bandwidth is applicable for the band 5.725-5.85GHz only.
- d) Connect DUT's antenna terminal to spectrum analyzer with a low loss cable.
- e) Setting of Spectrum analyzer :
 - RBW = 100 kHz
 - VBW $\geq 3 \cdot$ RBW
 - Detector = Peak
 - Trace = Max Hold
 - Sweep = Auto couple
- f) Allow trace to stabilize.
- g) Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.
- h) The measurement method follows FCC KDB 789033 D02 General UNII Test Procedures New Rules v01r04 under clause C.2).

7.4.2. Test Limits

FCC 15.407(e)

Within the 5.725-5.85GHz band, the minimum 6 dB bandwidth of U-NII devices shall be at least 500 kHz.

RSS 247 6.2.4

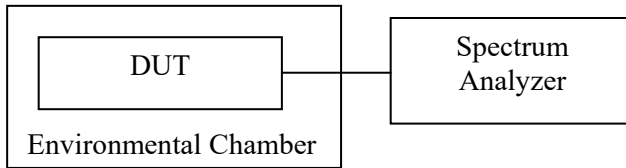
For equipment operating in the band 5725-5850 MHz, the minimum 6 dB bandwidth shall be at least 500 kHz.

7.4.3. Test Data

NA

7.5. Frequency Stability

7.5.1. Test Setup



- a) Test setup as per illustrated above.
- b) Set DUT to transmit un-modulated signal at desire transmit frequency.
- c) Connect DUT's antenna terminal to spectrum analyzer with a low loss cable.
- d) The DUT was operated at the maximum output power, and spectrum which is set to maximum hold function and peak detector.
- e) The peak value of the power envelope was measured and noted.
- f) Test was conducted from temperature range from -30⁰C to 50⁰C with step size of 10⁰C on manufacturer's rated supply voltage.
- g) At temperature of 20⁰C, +/-15% of manufacturer's rated voltage are to be applied.
- h) The frequency stability is measured and recorded of frequency deviation due to temperature and supply voltage variations as mentioned at condition f) & g) above.

7.5.2. Test Limits

FCC 15.407(g)

Manufacturers of U-NII devices are responsible for ensuring frequency stability such that an emission is maintained within the band of operation under all conditions of normal operation as specified in the users manual.

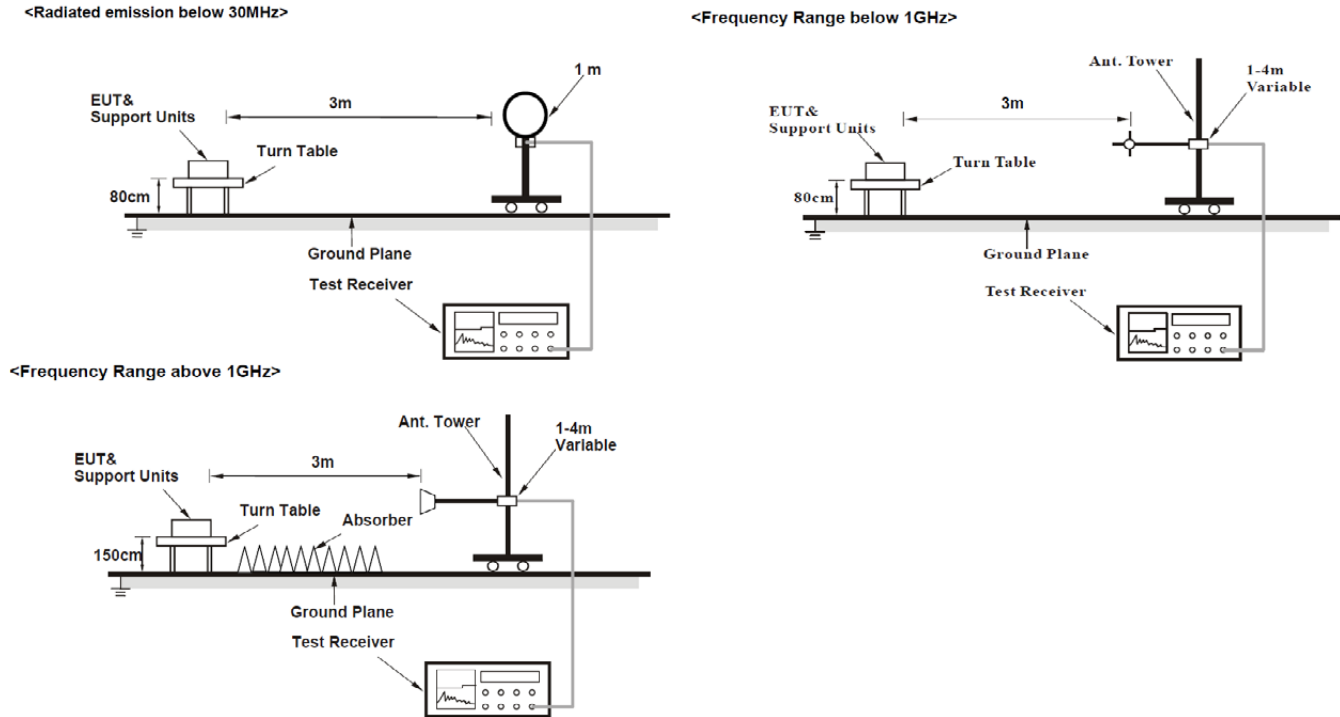
RSS-GEN 6.11

7.5.3. Test Data

NA

7.6. Band Edge Radiated Spurious Emission Measurement

7.6.1. Test Setup



1. The EUT is placed on the top of a rotating table 0.8m/1.5m above the ground at a 3m semi-anechoic chamber. The table is rotated 360 degrees to determine the position of the highest radiation.
2. The EUT is set 3m away from the interference-receiving antenna, which is mounted on the top of a variable-height antenna tower.
3. The antenna is Bilog/Horn antenna depend on which frequency range uses, and its 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.
4. For each suspected emission, the EUT is arranged to its worst case and then the antenna is tuned to heights from 1m to 4m and the rotatable table is turned from 0 degrees to 360 degrees to find the maximum reading.
5. The test-receiver system is set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
6. If the emission level of the EUT in peak mode is fall within the range of 10dB from the limit specified, the emissions would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet. Otherwise, the testing could be stopped and the peak values of the EUT would be reported.

NOTE:

- The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120 kHz for Quasi-peak detection at frequency below 1GHz.
- The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and video bandwidth is 3 MHz for Peak detection at frequency above 1 GHz.
- The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is 10Hz for Average detection using reduced video bandwidth (Duty cycle $\geq 98\%$) at frequency above 1GHz.
- The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is $1/\tau$ Hz, where τ is minimum transmitter on time (Duty cycle $< 98\%$) for Average detection using reduced video bandwidth at frequency above 1GHz.
- All modes of operation were investigated and the worst-case emissions are reported.

7.6.2. Test Limits

Radiated emissions which fall in the restricted bands must comply with the radiated emission limits specified as below table.

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

NOTE:

- The lower limit shall apply at the transition frequencies.
- Emission level (dBuV/m) = 20 log Emission level (uV/m).
- For frequencies above 1000 MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20dB under any condition of modulation.

For Radiated emissions which fall out of the restricted bands must comply with the radiated emission limits specified as below table.

Applicable To		Limit	
789033 D02 General UNII Test Procedures New Rules v01r03		Field Strength at 3 m	
		PK: 74 (dBµV/m)	AV: 54 (dBµV/m)
Frequency Band	Applicable To	EIRP Limit	Equivalent Field Strength at 3 m
5150–5250 MHz	15.407(b)(1)	PK: -27 (dBm/MHz)	PK: 68.2 (dBµV/m)
5250–5350 MHz	15.407(b)(2)		
5470–5725 MHz	15.407(b)(3)		
5725–5850 MHz	15.407(b)(4)(i)	PK: -27 (dBm/MHz) ^{*1} PK: 10 (dBm/MHz) ^{*2} PK: 15.6 (dBm/MHz) ^{*3} PK: 27 (dBm/MHz) ^{*4}	PK: 68.2 (dBµV/m) ^{*1} PK: 105.2 (dBµV/m) ^{*2} PK: 110.8 (dBµV/m) ^{*3} PK: 122.2 (dBµV/m) ^{*4}
	15.407(b)(4)(ii)	Emission limits in section 15.247(d)	
^{*1} beyond 75 MHz or more above of the band edge.			
^{*2} below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above.			
^{*3} below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above.			
^{*4} from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.			

NOTE:

The following formula is used to convert the equipment isotropic radiated power (eirp) to field strength:

$$E = ((1000000 \sqrt{(30P)}) / 3) \mu\text{V/m, where } P \text{ is the eirp (Watts)}$$

802.11a

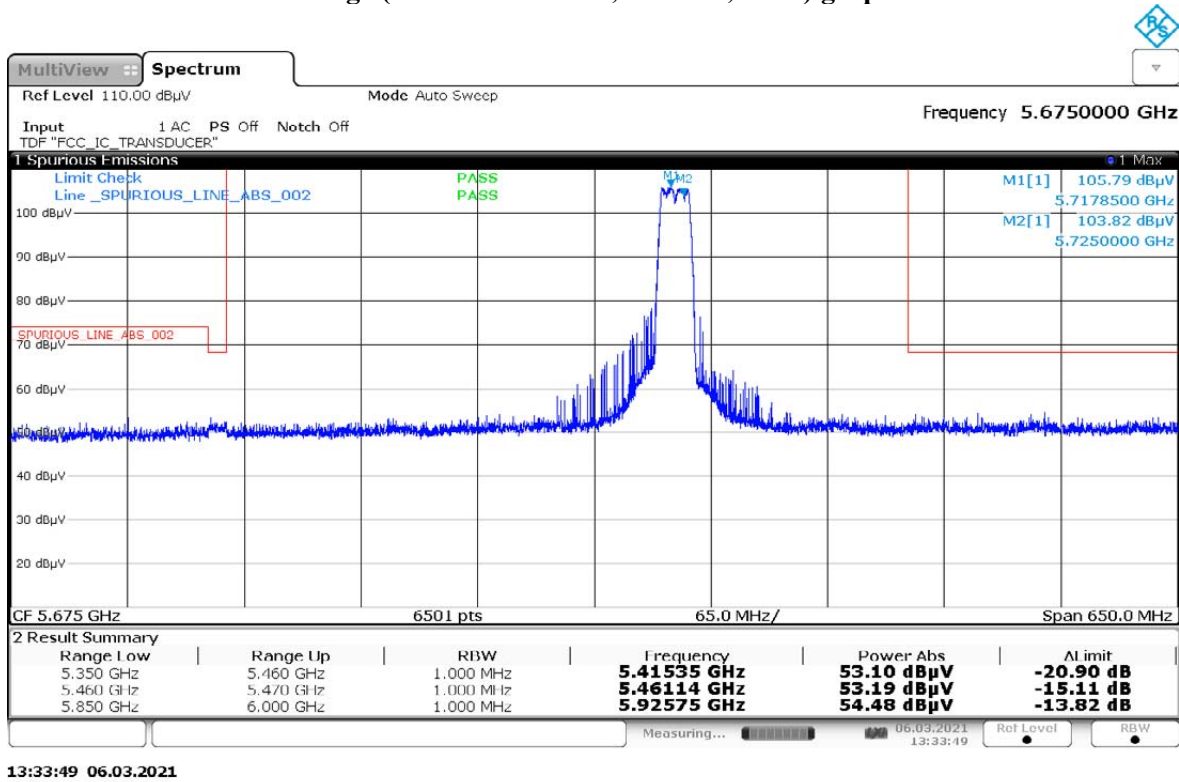
Model Number: M25SSS9PW1BN S/N: 471TXD0193 EMC SR ID#: 25038-EMC-00016
Battery: NA Accessory: HMN4079G-CF1, HSN4040A-C3, 1187-HKN6188B-1,
HKN4191B-C1, 3466-HKN6163C-6, HKN6164B-C3, PMHN4194C-CF18, PMUN1057B-CF6, PMUN1083A-CF3,
AN000163A02
Test Channel: Straddle Test Frequency: 5720.0000 MHz Test Standard: ANSI C63.10-2013
Worst Case Plane: Y-Plane (802.11a)

[illegible]

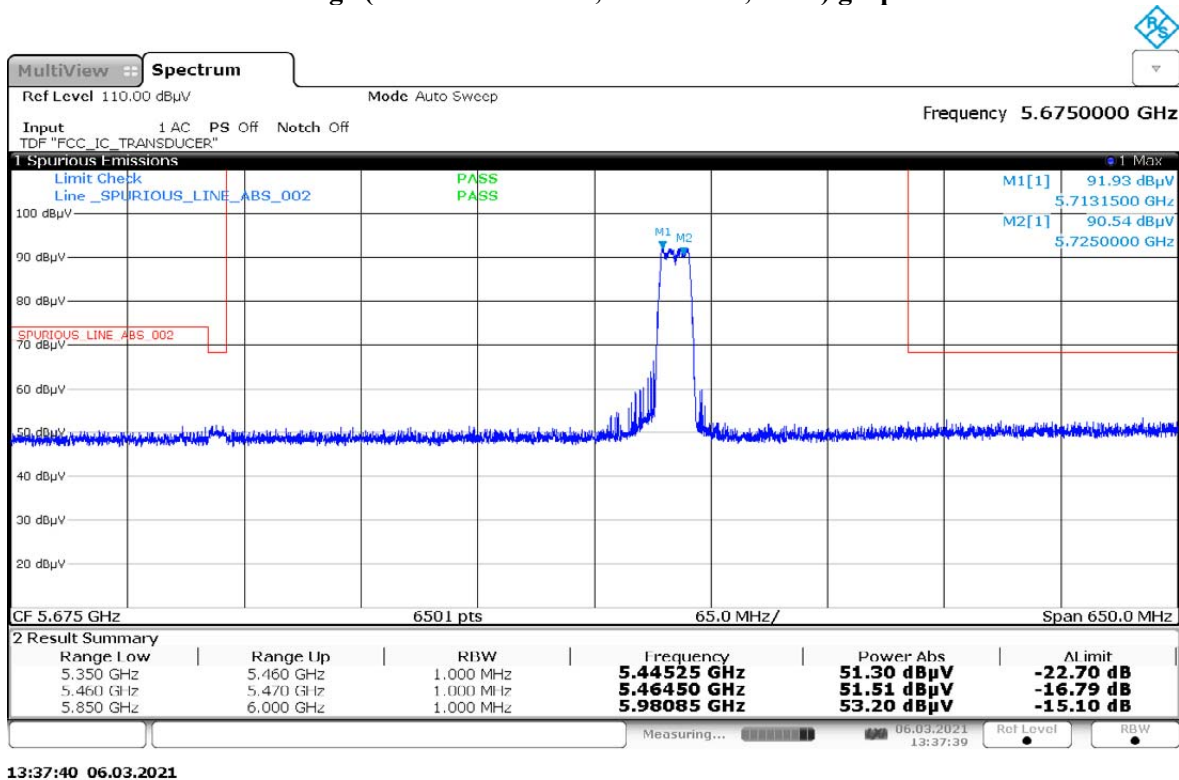
Remarks: Pass Result	Marginal Result	Fail Result
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Humidity (%): 69.3
Test Date: Sat, 6 Mar, 2021

Restricted Band Edge (Straddle Channel, Vertical, Peak) graphical screen shot



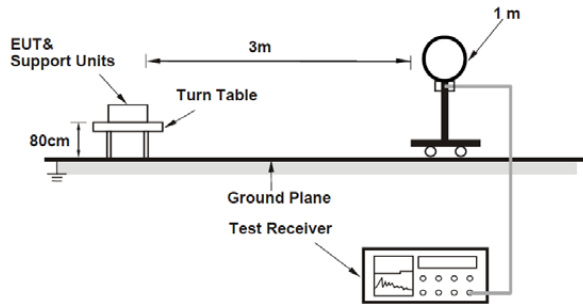
Restricted Band Edge (Straddle Channel, Horizontal, Peak) graphical screen shot



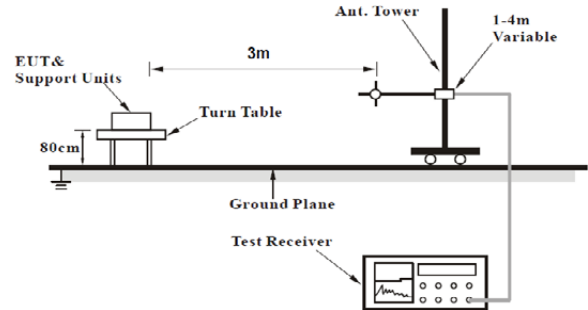
7.7. Radiated Spurious Emission Measurement

7.7.1. Test Setup

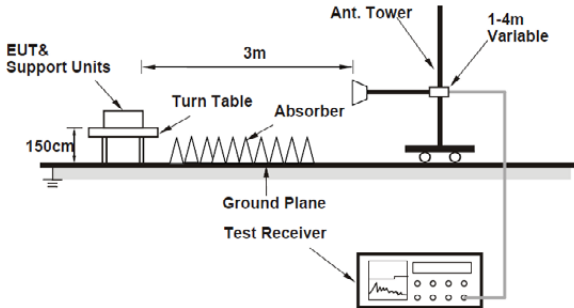
<Radiated emission below 30MHz>



<Frequency Range below 1GHz>



<Frequency Range above 1GHz>



1. The EUT is placed on the top of a rotating table 0.8m/1.5m above the ground at a 3m semi-anechoic chamber. The table is rotated 360 degrees to determine the position of the highest radiation.
2. The EUT is set 3m away from the interference-receiving antenna, which is mounted on the top of a variable-height antenna tower.
3. The antenna is Bilog/Horn antenna depend on which frequency range uses, and its 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.
4. For each suspected emission, the EUT is arranged to its worst case and then the antenna is tuned to heights from 1m to 4m and the rotatable table is turned from 0 degrees to 360 degrees to find the maximum reading.
5. The test-receiver system is set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
6. If the emission level of the EUT in peak mode is fall within the range of 10dB from the limit specified, the emissions would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet. Otherwise, the testing could be stopped and the peak values of the EUT would be reported.

NOTE:

- The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120 kHz for Quasi-peak detection at frequency below 1GHz.
- The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and video bandwidth is 3 MHz for Peak detection at frequency above 1 GHz.
- The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is 10Hz for Average detection using reduced video bandwidth (Duty cycle $\geq 98\%$) at frequency above 1GHz.
- The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is $1/\tau$ Hz, where τ is minimum transmitter on time (Duty cycle $< 98\%$) for Average detection using reduced video bandwidth at frequency above 1GHz.
- All modes of operation were investigated and the worst-case emissions are reported.

7.7.2. Test Limits

Radiated emissions which fall in the restricted bands must comply with the radiated emission limits specified as below table.

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

NOTE:

- The lower limit shall apply at the transition frequencies.
- Emission level (dBuV/m) = 20 log Emission level (uV/m).
- For frequencies above 1000 MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20dB under any condition of modulation.

For Radiated emissions which fall out of the restricted bands must comply with the radiated emission limits specified as below table.

Applicable To		Limit	
789033 D02 General UNII Test Procedures New Rules v01r03		Field Strength at 3 m	
		PK: 74 (dBµV/m)	AV: 54 (dBµV/m)
Frequency Band	Applicable To	EIRP Limit	Equivalent Field Strength at 3 m
5150–5250 MHz	15.407(b)(1)	PK: -27 (dBm/MHz)	PK: 68.2 (dBµV/m)
5250–5350 MHz	15.407(b)(2)		
5470–5725 MHz	15.407(b)(3)		
5725–5850 MHz	15.407(b)(4)(i)	PK: -27 (dBm/MHz) ^{*1} PK: 10 (dBm/MHz) ^{*2} PK: 15.6 (dBm/MHz) ^{*3} PK: 27 (dBm/MHz) ^{*4}	PK: 68.2 (dBµV/m) ^{*1} PK: 105.2 (dBµV/m) ^{*2} PK: 110.8 (dBµV/m) ^{*3} PK: 122.2 (dBµV/m) ^{*4}
	15.407(b)(4)(ii)	Emission limits in section 15.247(d)	
^{*1} beyond 75 MHz or more above of the band edge.			
^{*2} below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above.			
^{*3} below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above.			
^{*4} from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.			

NOTE:

The following formula is used to convert the equipment isotropic radiated power (eirp) to field strength:

$$E = ((1000000 \sqrt{(30P)}) / 3) \mu\text{V/m, where } P \text{ is the eirp (Watts)}$$

7.7.3. Test Data

802.11n (HT20)

Test: WIFI SAC Transmitter Radiated Emission

Model#: M25SSS9PW1BN

S/N: 471TXD0193

EMC SR ID#: 25038-EMC-00016

Battery: NA

Accessory: HMN4079G-CF1, HSN4040A-C3, 1187-HKN6188B-1,

HKN4191B-C1, 3466-HKN6163C-6, HKN6164B-C3, PMHN4194C-CF18, PMUN1057B-CF6, PMUN1083A-CF3,
AN000163A02

Test Channel: High

Test Frequency: 5240.0000 MHz

Test Standard: ANSI C63.10-2013

Worst Case Plane: Y-Plane (802.11n)

Radiated Emission (High Channel) tabular data

Vertical Radiated Emission Result

Spur Freq (MHz)	Spur level QPK (dBμV/m)	Spur level PK (dBμV/m)	Spur level AV (dBμV/m)	Limit QPK (dBμV/m)	Limit PK (dBμV/m)	Limit AV (dBμV/m)	Margin QPK (dBμV/m)	Margin PK (dBμV/m)	Margin AV (dBμV/m)	Carrier PK Power (dBμV/m)
168.0000	31.4067	-	-	43.5000	-	-	12.0933	-	-	-
264.0100	19.6519	-	-	46.0000	-	-	26.3481	-	-	-

Horizontal Radiated Emission Result

167.9990	36.9842	-	-	43.5000	-	-	6.5158	-	-	-
264.0010	28.4527	-	-	46.0000	-	-	17.5473	-	-	-

Remarks: Pass Result	Marginal Result	Fail Result
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Temperature (degC): 23.6

Humidity (%): 69.3

Test Performed by: Nazrin&Amaluddin

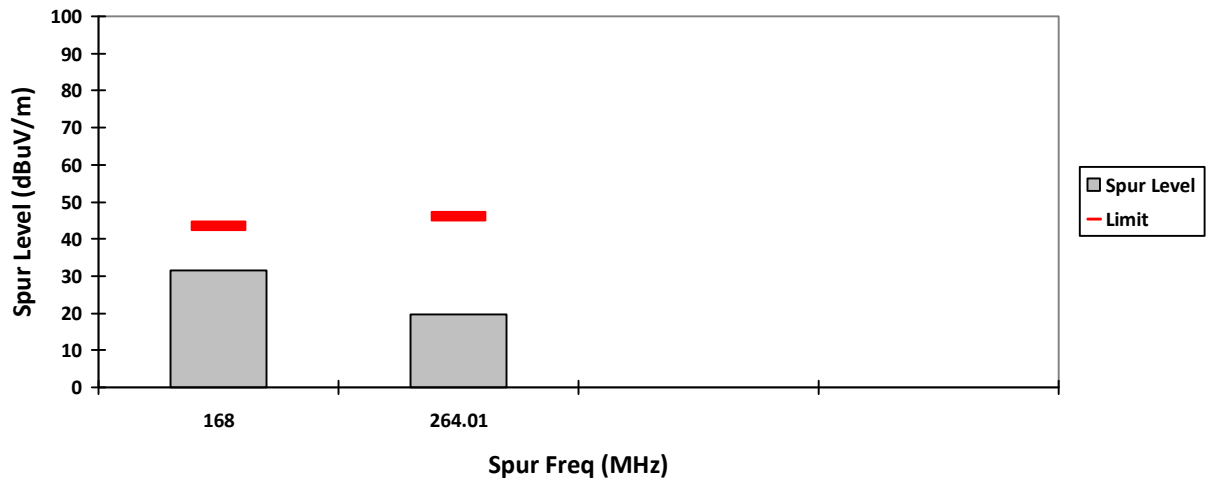
Test Date: Sun, 7 Mar, 2021

System MU: 4.03dB

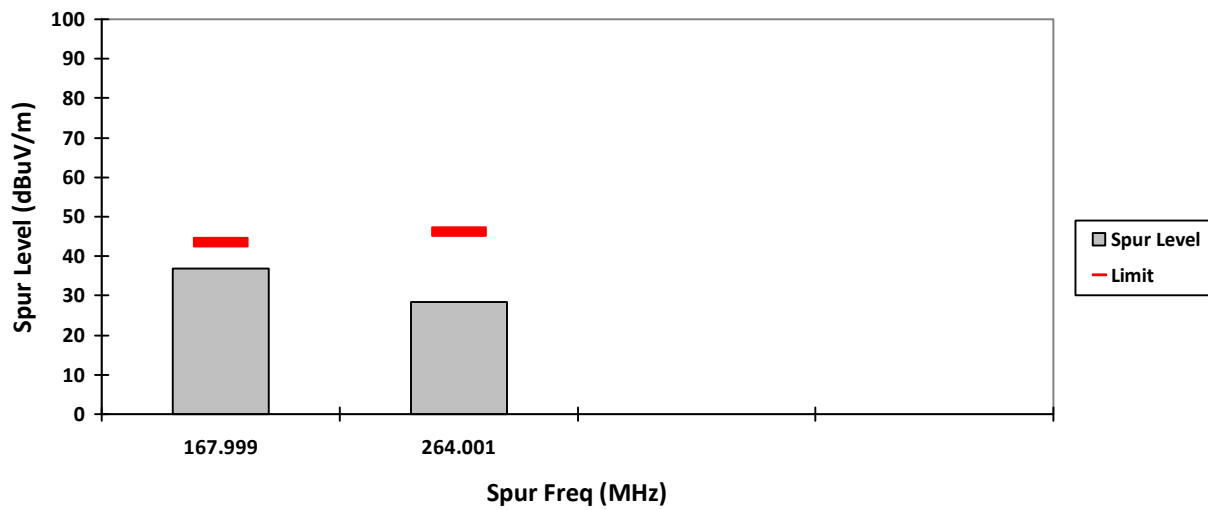
Remarks: ** Indicates the spurious emission could not be detected due to noise limitations or ambient.

*Pursuant to CFR 47 Part 2.1057 (c), emissions attenuated more than 20 dB below the permissible limit are not reported.

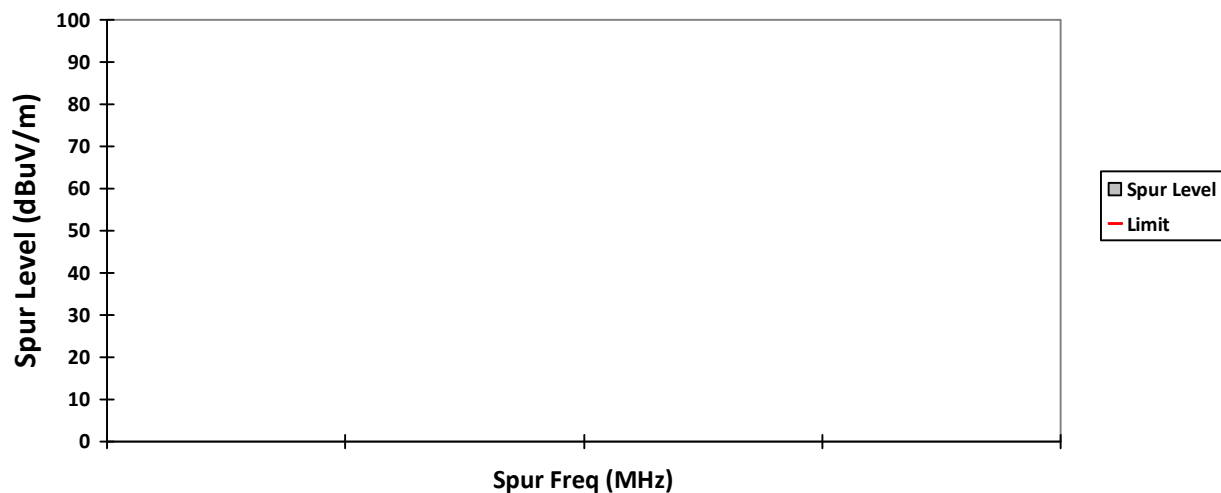
VERTICAL, QPK



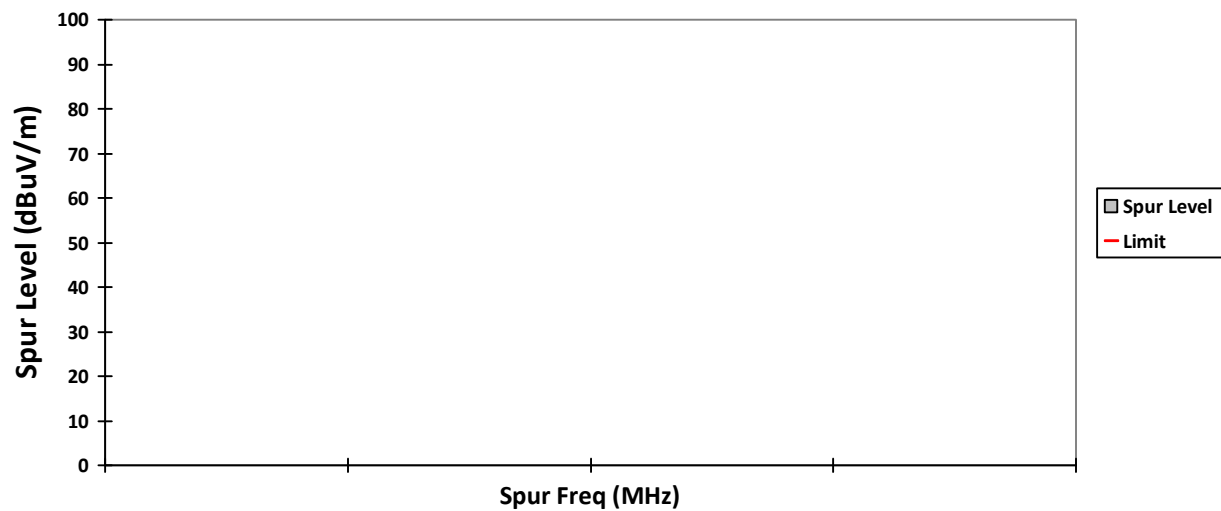
HORIZONTAL, QPK



VERTICAL, PK



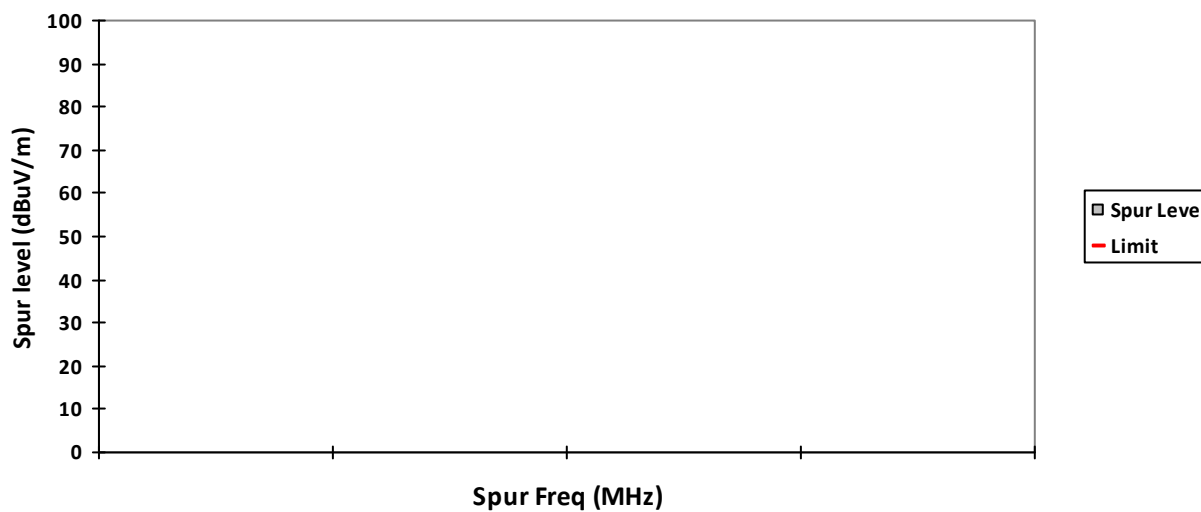
HORIZONTAL, PK



VERTICAL, AV

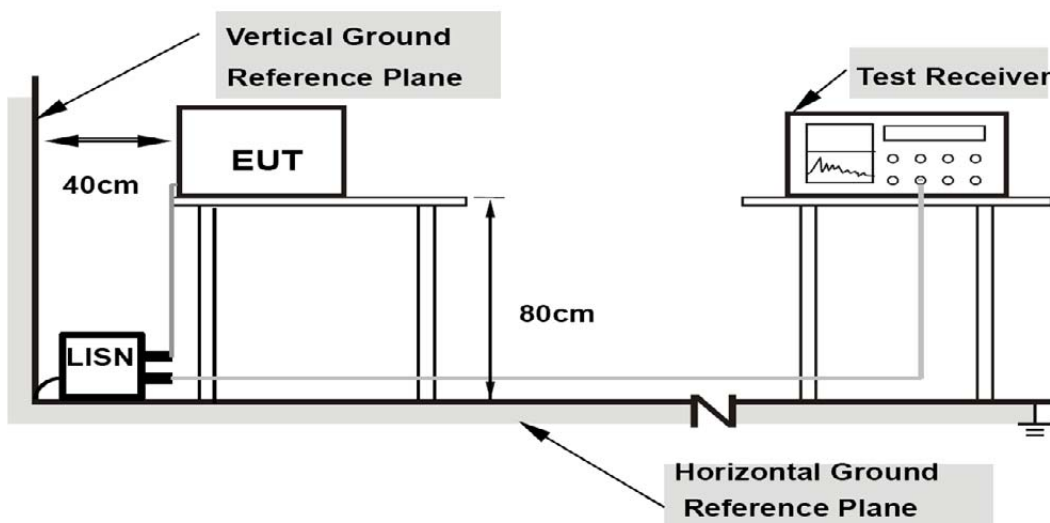


HORIZONTAL, AV



7.8. AC Powerline Conducted Emission

7.8.1. Test Setup



- 1) Tests were conducted for both Receive and Transmit Mode of the EUT.
- 2) The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/50uH of coupling impedance for the measuring instrument.
- 3) Both lines of the power mains connected to the EUT were checked for maximum conducted interference.
- 4) The frequency range from 150 kHz to 30MHz was measured.

7.8.2. Test Limits

For AC Power Line Conducted Test Limit can be Class A or B depends on product classification.

**Limits for conducted disturbance at the mains ports
of class A ITE**

Frequency range MHz	Limits dB(μ V)	
	Quasi-peak	Average
0,15 to 0,50	79	66
0,50 to 30	73	60

NOTE The lower limit shall apply at the transition frequency.

Table 1: Limits for Conducted Disturbance at the Mains Ports of Class A ITE.

**Limits for conducted disturbance at the mains ports
of class B ITE**

Frequency range MHz	Limits dB(μ V)	
	Quasi-peak	Average
0,15 to 0,50	66 to 56	56 to 46
0,50 to 5	56	46
5 to 30	60	50
NOTE 1 The lower limit shall apply at the transition frequencies. NOTE 2 The limit decreases linearly with the logarithm of the frequency in the range 0,15 MHz to 0,50 MHz.		

Table 2: Limits for Conducted Disturbance at the Mains Ports of Class B ITE

7.8.3. Test Data

Not Applicable. Testing is not required, radio shall turn off during charging mode.

END OF TEST REPORT