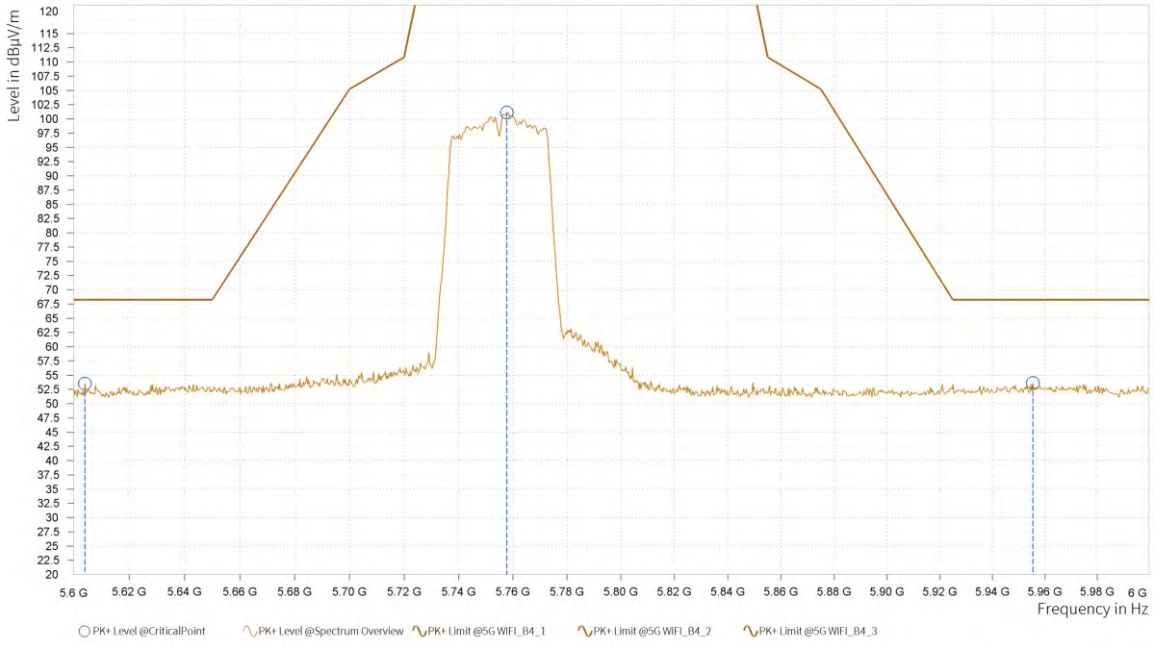
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

Rg	Frequency [MHz]	PK+ Level [dBµV/m]	PK+ Limit [dBµV/m]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
10	5,604.063	53.55	68.2	14.65	16.25	V	154.3	2.0
11	5,757.810	101.14			16.98	V	50.5	1.0
12	5,955.375	53.62	68.2	14.58	16.41	V	261.1	2.0



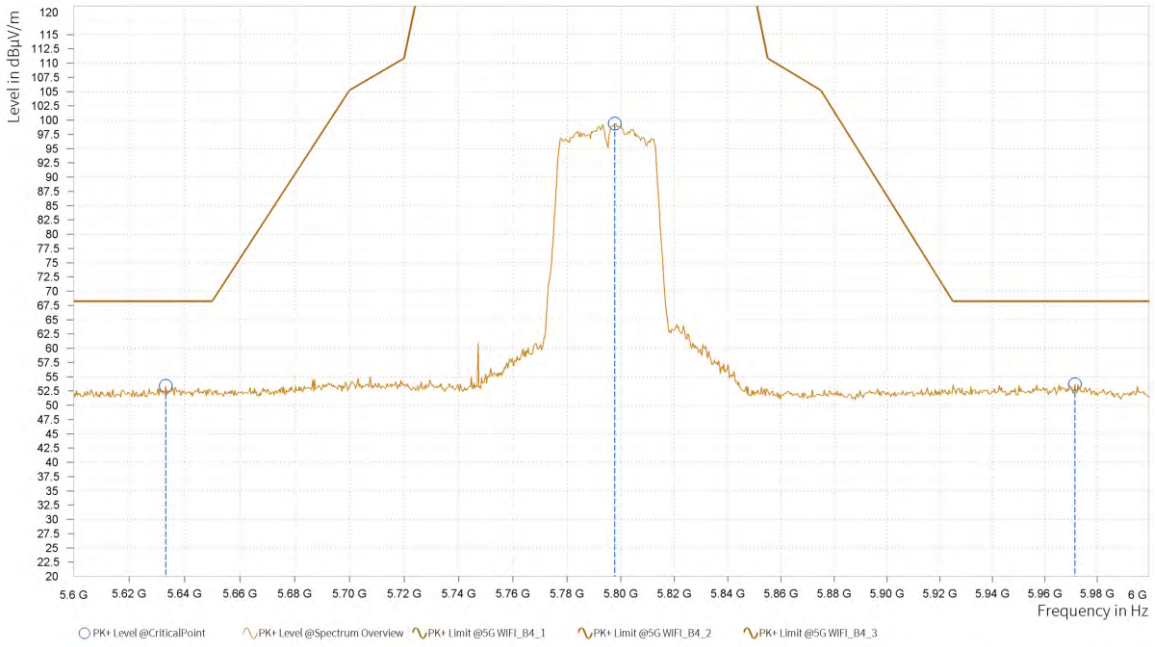
REMARKS:

1. Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
   Margin value = Limit value- Emission level.
2. 5755MHz: Fundamental frequency.

CHANNEL	TX Channel 159	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

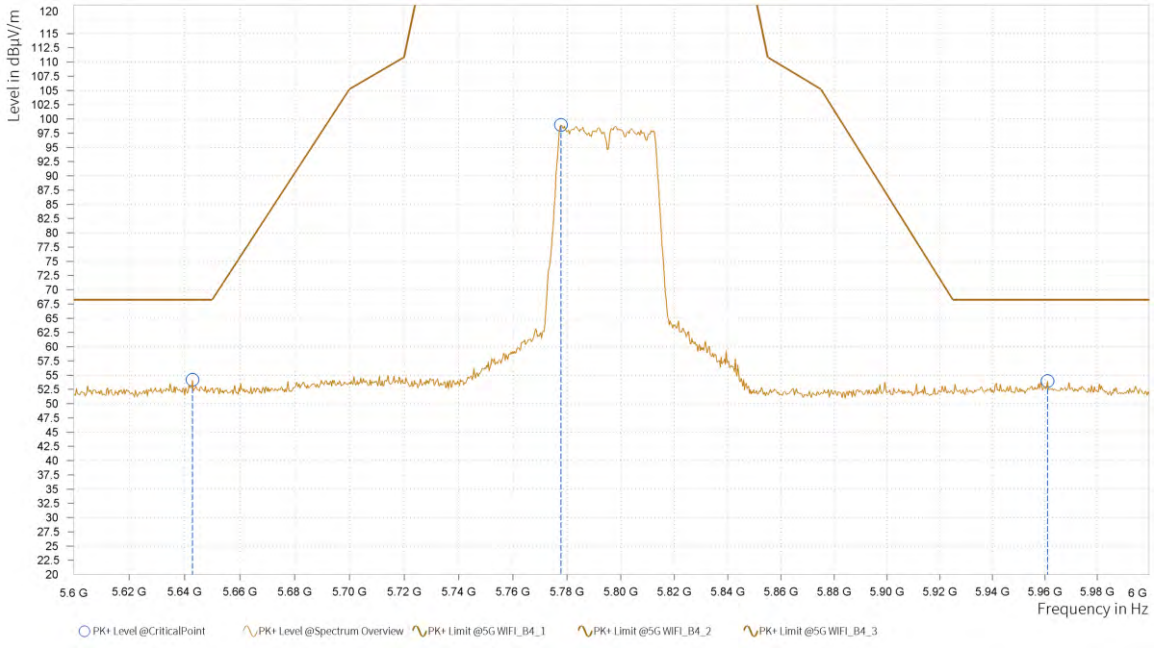
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

Rg	Frequency [MHz]	PK+ Level [dBµV/m]	PK+ Limit [dBµV/m]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
10	5,633.125	53.39	68.2	14.81	16.44	H	355.6	2.0
11	5,797.813	99.36			16.41	H	311.4	2.0
12	5,971.500	53.68	68.2	14.52	16.42	H	0.9	2.0



ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

Rg	Frequency [MHz]	PK+ Level [dBµV/m]	PK+ Limit [dBµV/m]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
10	5,642.813	54.17	68.2	14.03	16.54	V	323.4	1.0
11	5,777.813	98.94			16.69	V	267.2	1.0
12	5,961.000	53.97	68.2	14.23	16.45	V	359.1	1.0



REMARKS:

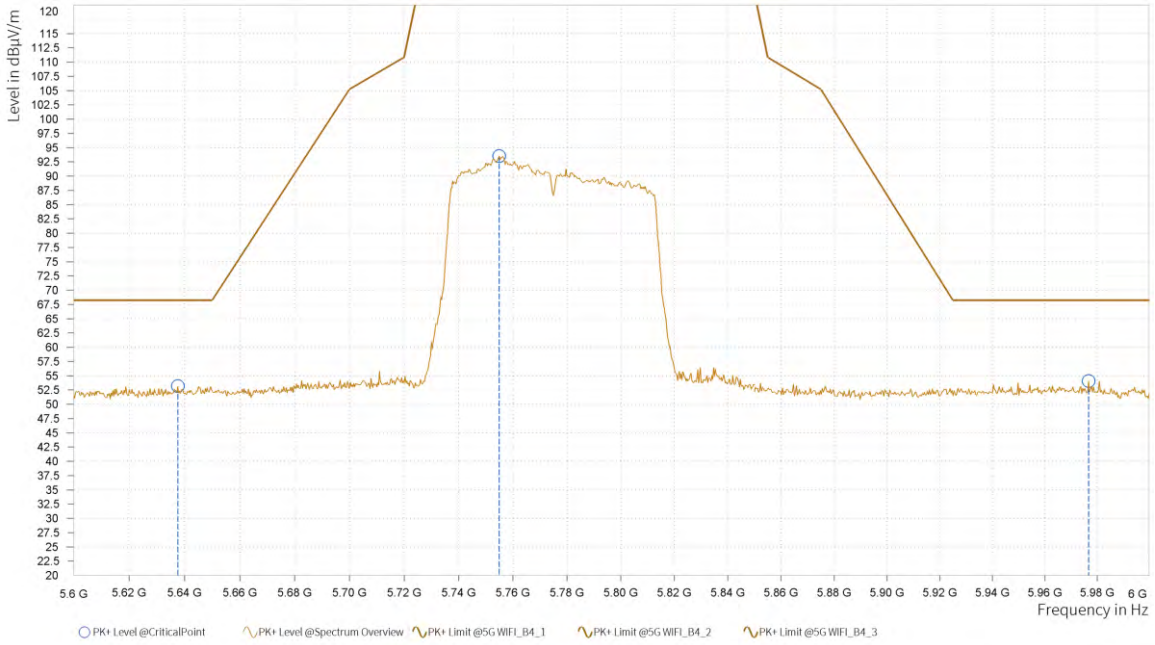
1. Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
   Margin value = Limit value- Emission level.
2. 5795MHz: Fundamental frequency.

802.11ac (80MHz)

CHANNEL	TX Channel 155	**DETECTOR FUNCTION**	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

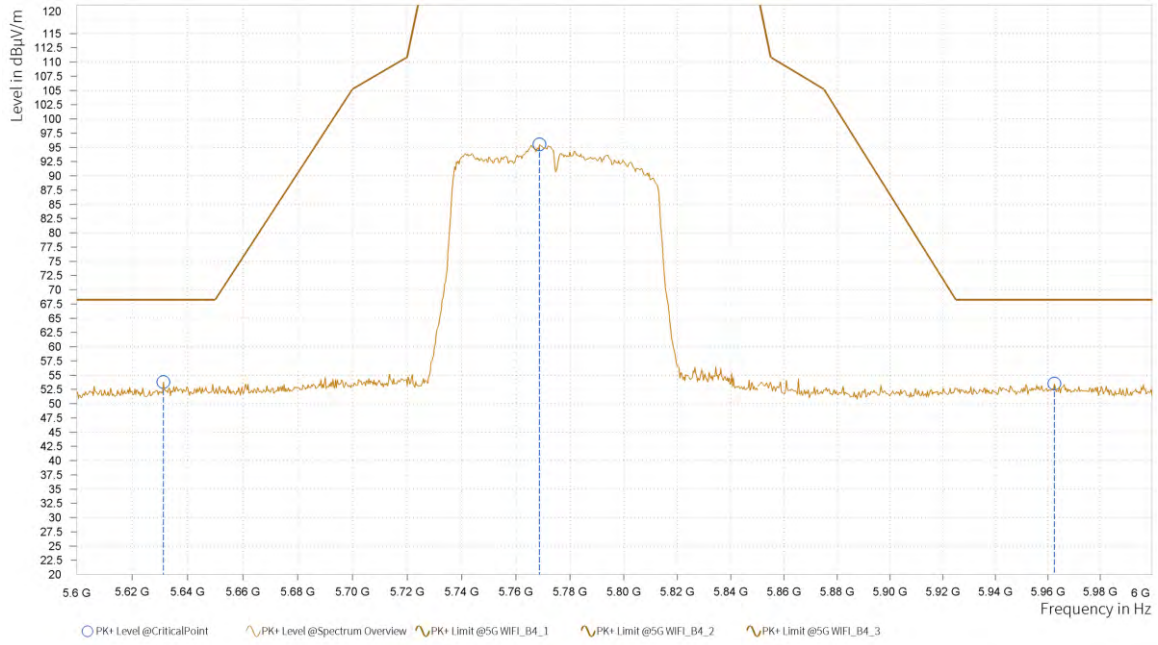
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

Rg	Frequency [MHz]	PK+ Level [dBµV/m]	PK+ Limit [dBµV/m]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
5	5,637.500	53.16	68.2	15.04	16.49	H	137.0	2.0
6	5,755.000	93.55			17.02	H	275.7	1.0
7	5,976.750	54.05	68.2	14.15	16.4	H	183.7	2.0



ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

Rg	Frequency [MHz]	PK+ Level [dBµV/m]	PK+ Limit [dBµV/m]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
5	5,631.250	53.82	68.2	14.38	16.42	V	98.8	2.0
6	5,768.750	95.52			16.82	V	165.8	1.0
7	5,962.500	53.5	68.2	14.7	16.45	V	359.1	1.0



REMARKS:

1. Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
   Margin value = Limit value- Emission level.
2. 5775MHz: Fundamental frequency.

RADIATED EMISSION

BELOW 1GHz WORST-CASE DATA:

30 MHz – 1GHz data:

Band 4

802.11n (40MHz):

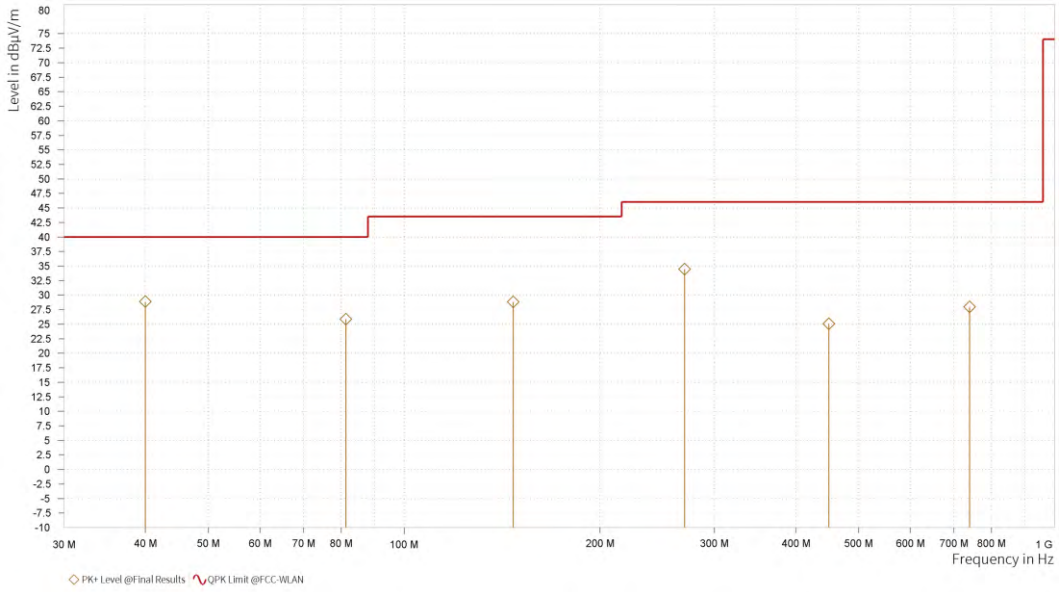
CHANNEL	TX Channel 151	**DETECTOR FUNCTION**	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 1GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

Rg	Frequency [MHz]	PK+ Level [dBµV/m]	PK+: QPK Limit [dBµV/m]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
1	39.991	28.86	40.0	11.14	-12.73	H	359.1	1.0
1	81.362	25.86	40.0	14.14	-17.58	H	88.1	2.0
1	147.079	28.81	43.5	14.69	-16.65	H	88.1	2.0
1	269.833	34.46	46.0	11.54	-11.66	H	131.0	1.0
1	449.962	25.06	46.0	20.94	-9.45	H	354.2	2.0
1	740.234	27.96	46.0	18.04	-3.76	H	358.7	1.0

REMARKS:

1. Emission level (dBuV/m) = Read level (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Limit value- Emission level.



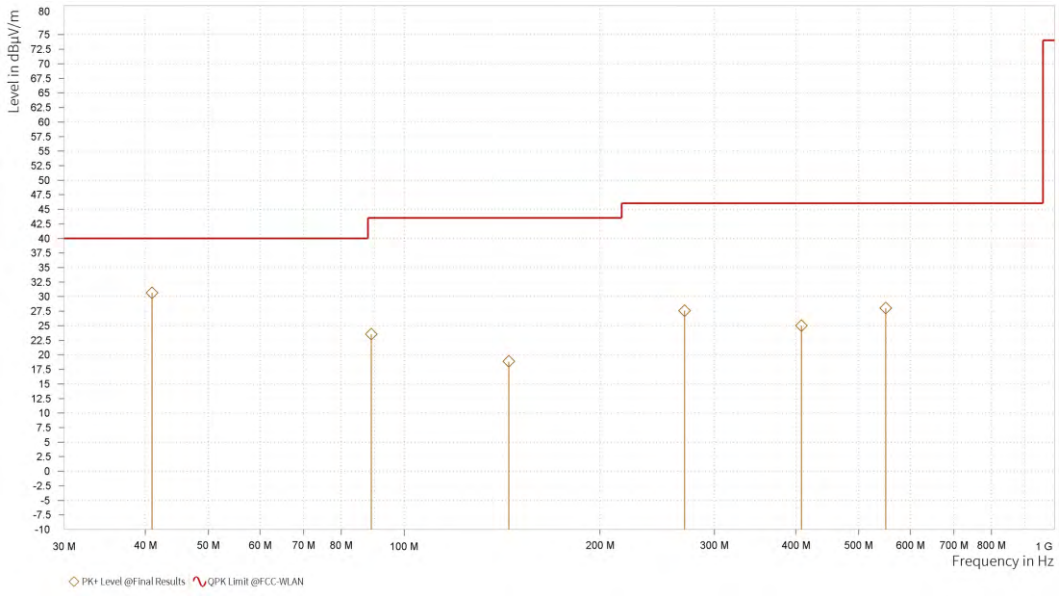
CHANNEL	Channel 151	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 1GHz		

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

Rg	Frequency [MHz]	PK+ Level [dBµV/m]	PK+: QPK Limit [dBµV/m]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
1	40.961	30.63	40.0	9.37	-12.49	V	1.0	1.0
1	88.976	23.52	43.5	19.98	-15.81	V	279.2	1.0
1	144.897	18.85	43.5	24.65	-16.86	V	0.9	2.0
1	269.978	27.56	46.0	18.44	-11.66	V	229.0	2.0
1	407.961	25.01	46.0	20.99	-9.75	V	229.0	2.0
1	550.017	28.0	46.0	18.0	-7.2	V	355.5	2.0

REMARKS:

1. Emission level (dBuV/m) = Read level (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Limit value- Emission level.



ABOVE 1GHz WORST-CASE DATA:

Note: For higher frequency, the emission is too low to be detected.

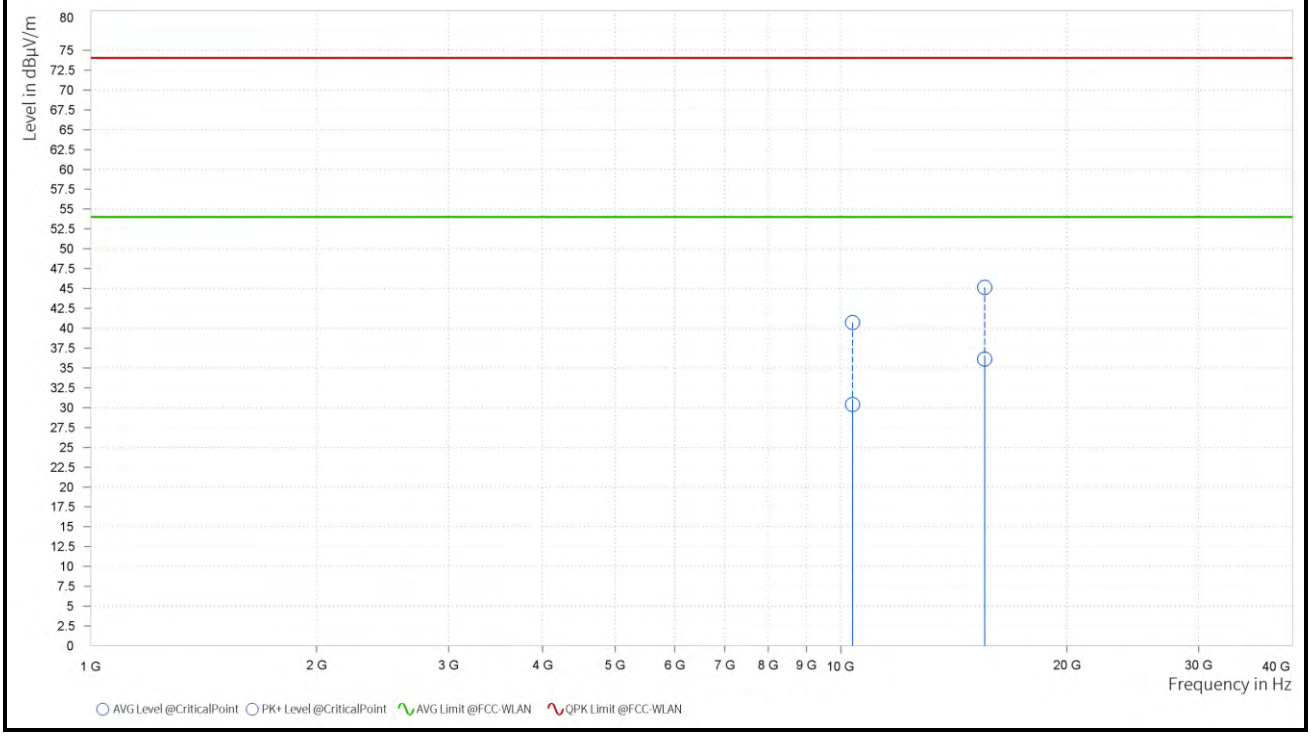
Band 1

802.11n (20MHz)

CHANNEL	TX Channel 36	**DETECTOR FUNCTION**	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

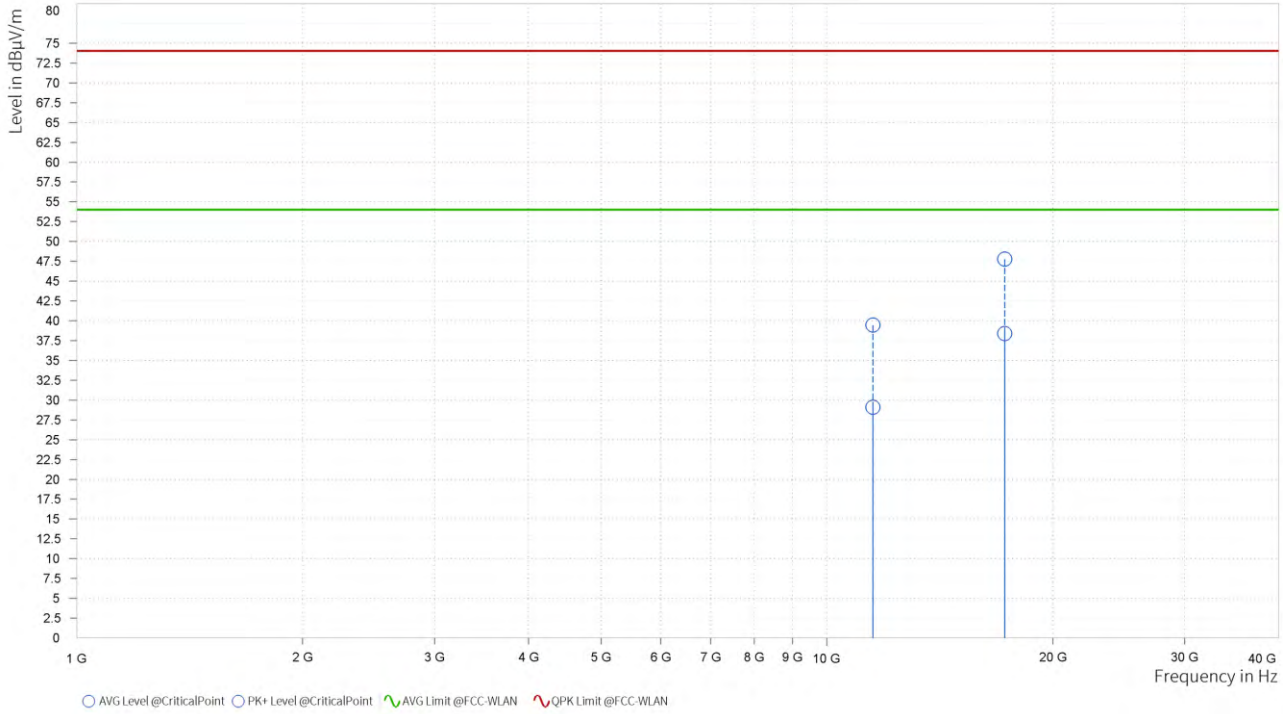
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

Rg	Frequency [MHz]	PK+ Level [dBµV/m]	PK+: QPK Limit [dBµV/m]	PK+ Margin [dB]	AVG Level [dBµV/m]	AVG Limit [dBµV/m]	AVG Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
4	10,360.000	40.73	74.0	33.27	30.38	54.0	23.62	13.95	H	1	1.0
4	15,540.000	45.15	74.0	28.85	36.13	54.0	17.87	20.68	H	1	1.0



ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

Rg	Frequency [MHz]	PK+ Level [dBµV/m]	PK+: QPK Limit [dBµV/m]	PK+ Margin [dB]	AVG Level [dBµV/m]	AVG Limit [dBµV/m]	AVG Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
4	11,510.000	39.45	74.0	34.55	29.1	54.0	24.9	13.73	V	1	1.0
4	17,265.000	47.76	74.0	26.24	38.4	54.0	15.6	22.32	V	1	1.0



REMARKS:

1. Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
   Margin value = Limit value- Emission level.
2. 5210MHz: Fundamental frequency.

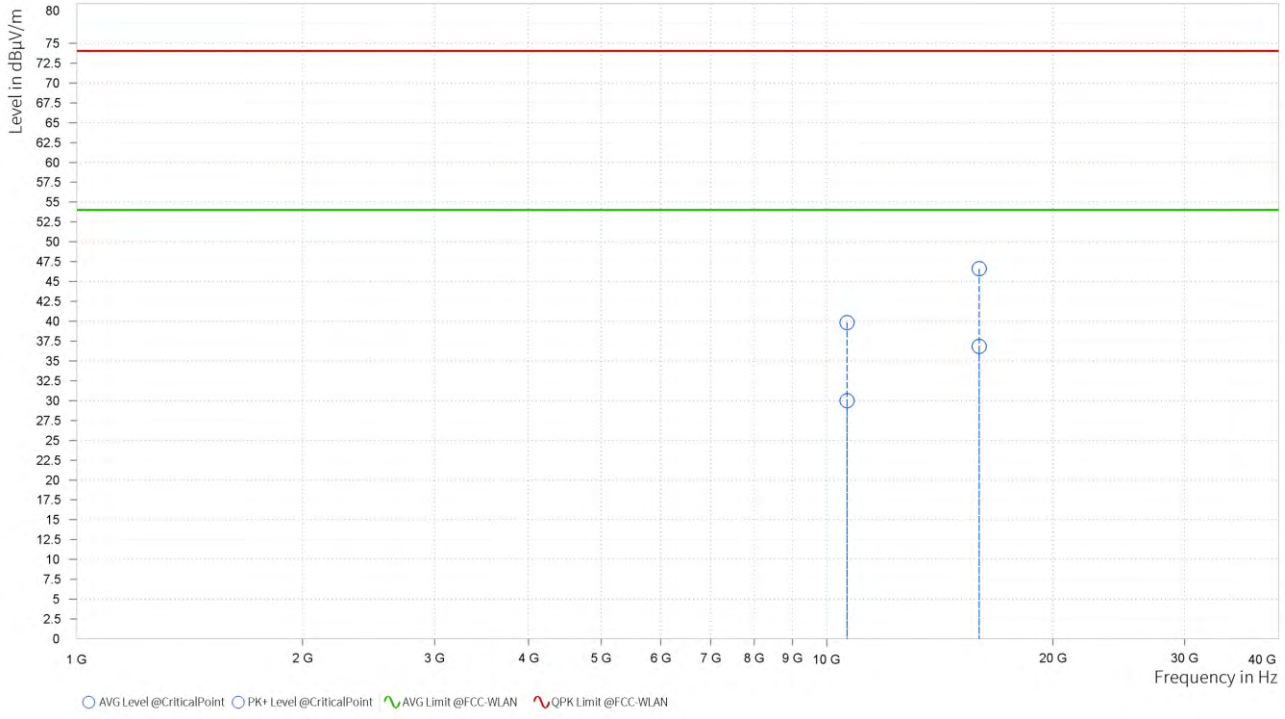
Band 2:

802.11a

CHANNEL	TX Channel 64	**DETECTOR FUNCTION**	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

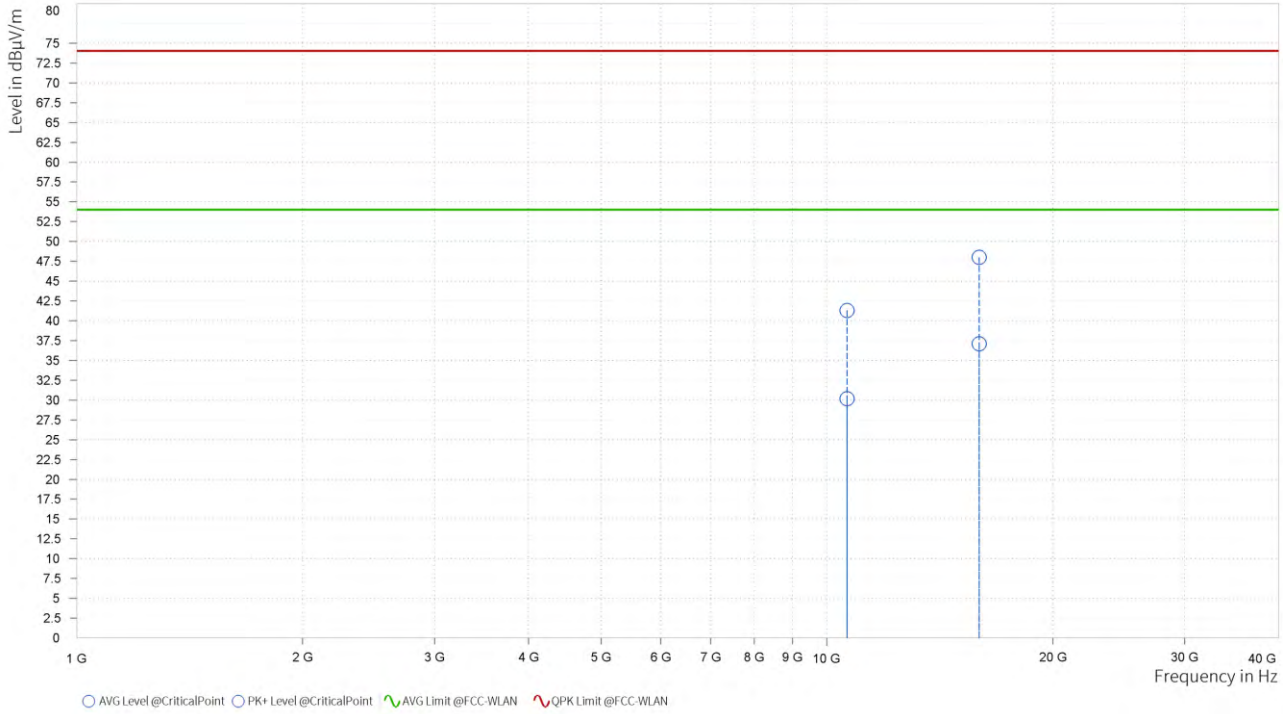
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

Rg	Frequency [MHz]	PK+ Level [dBµV/m]	PK+: QPK Limit [dBµV/m]	PK+ Margin [dB]	AVG Level [dBµV/m]	AVG Limit [dBµV/m]	AVG Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
4	10,640.000	39.83	74.0	34.17	30.0	54.0	24.0	14.69	H	1	1.0
4	15,960.000	46.6	74.0	27.4	36.81	54.0	17.19	21.02	H	1	1.0



ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

Rg	Frequency [MHz]	PK+ Level [dBµV/m]	PK+: QPK Limit [dBµV/m]	PK+ Margin [dB]	AVG Level [dBµV/m]	AVG Limit [dBµV/m]	AVG Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
4	10,640.000	41.32	74.0	32.68	30.15	54.0	23.85	14.69	V	1	1.0
4	15,960.000	48.0	74.0	26.0	37.1	54.0	16.9	21.02	V	1	1.0



REMARKS:

1. Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
   Margin value = Limit value- Emission level.
2. 5290MHz: Fundamental frequency.

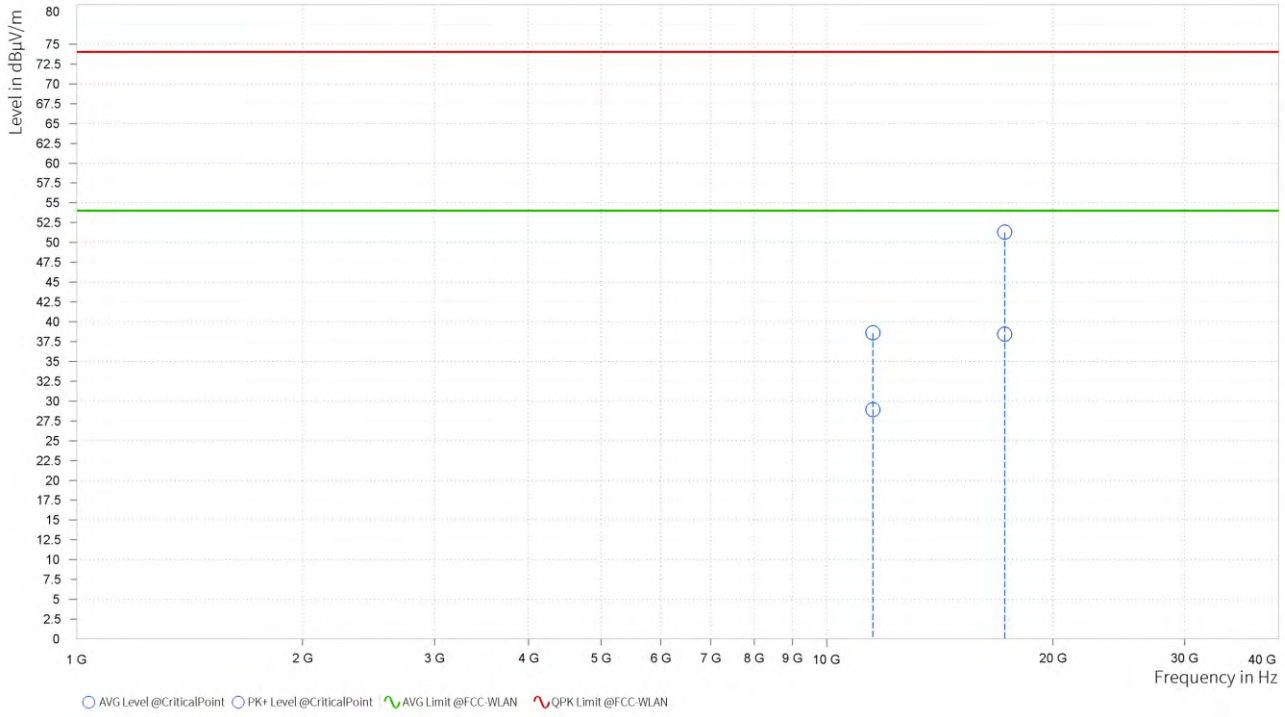
Band 4

802.11n (40MHz)

CHANNEL	TX Channel 151	**DETECTOR FUNCTION**	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

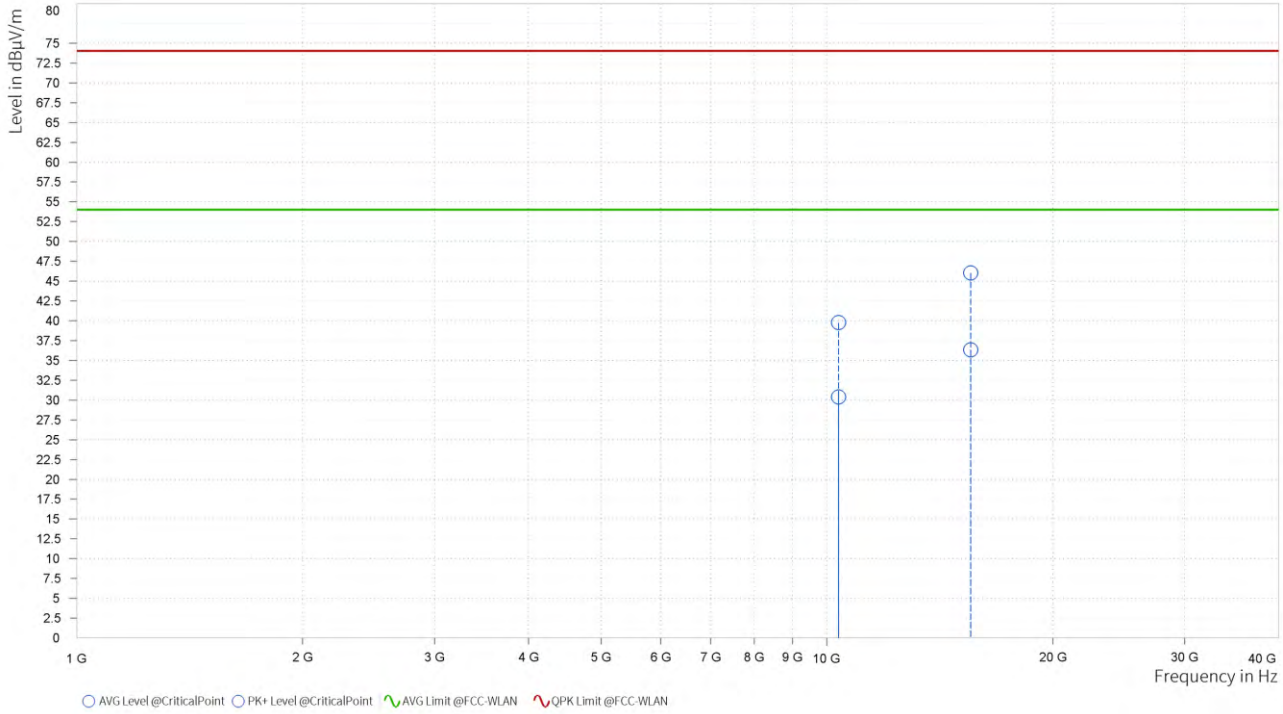
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

Rg	Frequency [MHz]	PK+ Level [dBµV/m]	PK+: QPK Limit [dBµV/m]	PK+ Margin [dB]	AVG Level [dBµV/m]	AVG Limit [dBµV/m]	AVG Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
4	11,510.000	38.61	74.0	35.39	28.92	54.0	25.08	13.73	H	1	1.0
4	17,265.000	51.29	74.0	22.71	38.43	54.0	15.57	22.32	H	1	1.0



ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

Rg	Frequency [MHz]	PK+ Level [dBµV/m]	PK+: QPK Limit [dBµV/m]	PK+ Margin [dB]	AVG Level [dBµV/m]	AVG Limit [dBµV/m]	AVG Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
4	10,360.000	39.76	74.0	34.24	30.41	54.0	23.59	13.95	V	1	1.0
4	15,540.000	46.02	74.0	27.98	36.33	54.0	17.67	20.68	V	1	1.0



REMARKS:

1. Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
   Margin value = Limit value- Emission level.
2. 5530MHz: Fundamental frequency.
3. #: Out of restricted band.

3.2 CONDUCTED EMISSION MEASUREMENT

3.2.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT

FREQUENCY OF EMISSION (MHz)	CONDUCTED LIMIT (dBμV)	
	Quasi-peak	Average
0.15 ~ 0.5	66 to 56	56 to 46
0.5 ~ 5	56	46
5 ~ 30	60	50

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

2. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50MHz.

3. All emanations from a class A/B digital device or system, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strengths specified above.

3.2.2 TEST INSTRUMENTS

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
EMI Test Receiver	Rohde&Schwarz	ESR3	102749	Mar.28,24	Mar.27,26
ELEKTRA test software	Rohde&Schwarz	ELEKTRA	NA	N/A	N/A
LISN network	Rohde&Schwarz	ENV216	102640	Mar.28,24	Mar.27,26
CABLE	Rohde&Schwarz	W61.01	N/A	Apr.27,24	Apr.26,25
CABLE	Rohde&Schwarz	W601	N/A	Apr.27,24	Apr.26,25

NOTE:

1. The test was performed in the CE shielded room.
2. The calibration interval of the above test instruments is 12 /24 months. And the calibrations are traceable to CEPREI/CHINA, GRGT/CHINA, and NIM/CHINA.

3.2.3 TEST PROCEDURES

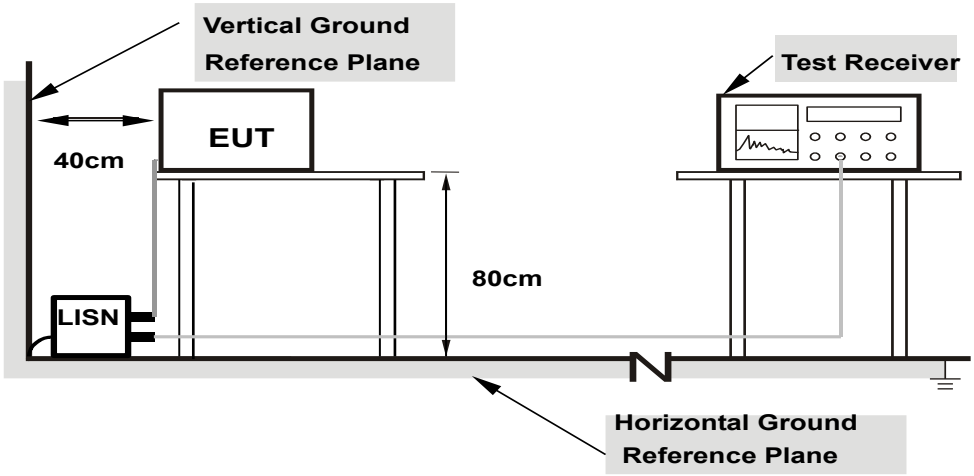
a. The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling impedance for the measuring instrument.
b. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.
c. The frequency range from 150kHz to 30MHz was searched. Emission levels under (Limit - 20dB) were not recorded.

NOTE: All modes of operation were investigated, and the worst-case emissions are reported.

3.2.4 DEVIATION FROM TEST STANDARD

No deviation.

3.2.5 TEST SETUP



Note: 1.Support units were connected to second LISN.
2.Both of LISNs (AMN) are 80 cm from EUT and at least 80 from other units and other metal planes

For the actual test configuration, please refer to the attached file (Test Setup Photo).

3.2.6 EUT OPERATING CONDITIONS

Same as 3.1.7.

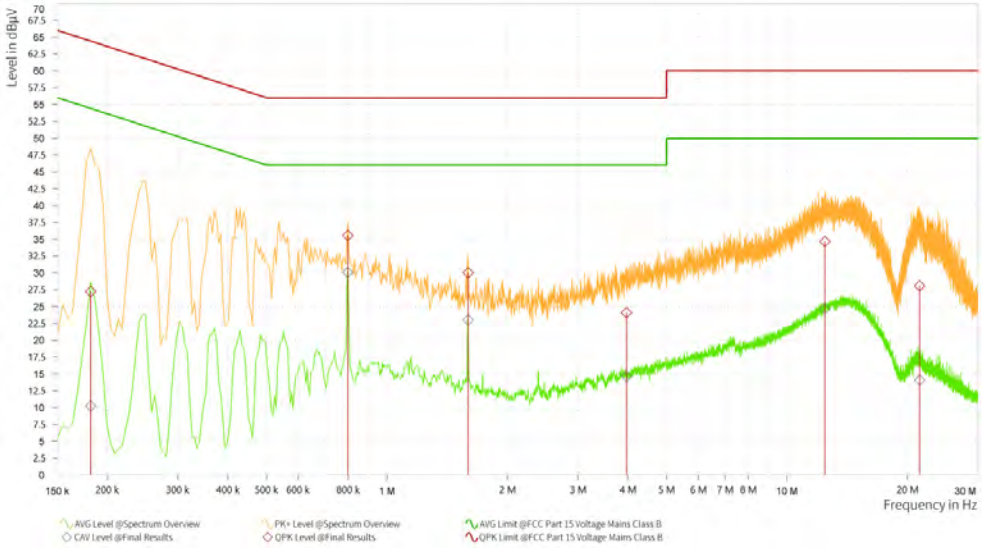
3.2.7 TEST RESULTS

CONDUCTED WORST-CASE DATA:

Frequency Range	150KHz ~ 30MHz	**Detector Function & Resolution Bandwidth**	Quasi-Peak (QP) / Average (AV), 9 kHz
Input Power	120Vac, 60Hz	**Environmental Conditions**	26deg. C, 51%RH
Tested By	Hanwen Xu		

Rg	Frequency [MHz]	QPK Level [dBµV]	QPK Limit [dBµV]	QPK Margin [dB]	CAV Level [dBµV]	CAV: AVG Limit [dBµV]	CAV Margin [dB]	Correction [dB]	Line	Meas. BW [kHz]
1	0.182	27.22	64.42	37.20	10.23	54.42	44.19	12.21	L1	9.000
1	0.798	35.57	56.00	20.43	30.09	46.00	15.91	11.74	L1	9.000
1	1.595	30.04	56.00	25.96	23.00	46.00	23.00	11.75	L1	9.000
1	3.971	24.09	56.00	31.91	14.63	46.00	31.37	11.78	L1	9.000
1	12.440	34.65	60.00	25.35	24.68	50.00	25.32	11.84	L1	9.000
1	21.467	28.09	60.00	31.91	14.07	50.00	35.93	11.88	L1	9.000

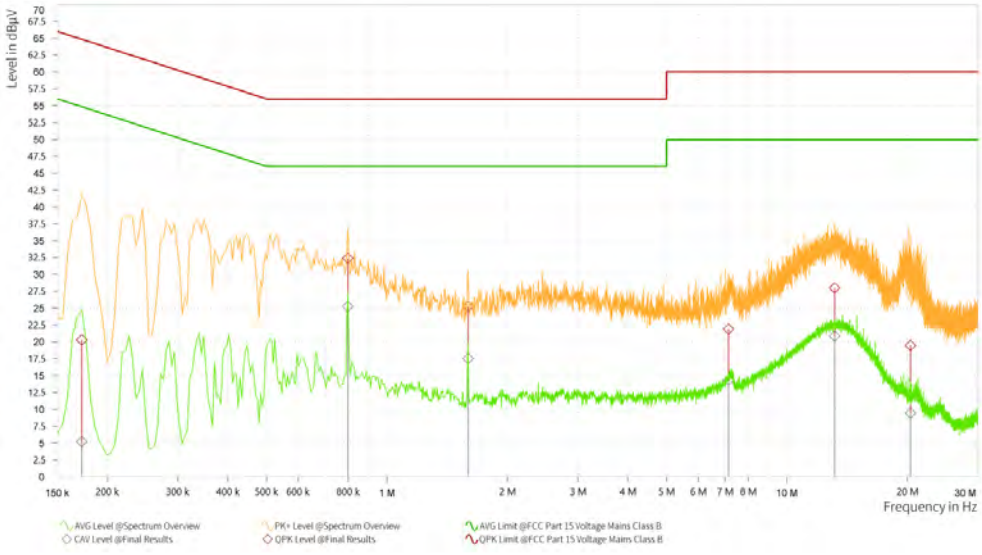
REMARKS: 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. The emission levels of other frequencies were very low against the limit.
4. Margin value = Limit value - Emission level
5. Correction factor = Insertion loss + Cable loss
6. Emission Level = Correction Factor + Reading Value.



Frequency Range	150KHz ~ 30MHz	**Detector Function & Resolution Bandwidth**	Quasi-Peak (QP) / Average (AV), 9 kHz
Input Power	120Vac, 60Hz	**Environmental Conditions**	26deg. C, 51%RH
Tested By	Hanwen Xu		

Rg	Frequency [MHz]	QPK Level [dBµV]	QPK Limit [dBµV]	QPK Margin [dB]	CAV Level [dBµV]	CAV: AVG Limit [dBµV]	CAV Margin [dB]	Correction [dB]	Line	Meas. BW [kHz]
1	0.173	20.28	64.84	44.56	5.21	54.84	49.63	12.21	N	9.000
1	0.798	32.38	56.00	23.62	25.25	46.00	20.75	12.74	N	9.000
1	1.595	25.24	56.00	30.76	17.55	46.00	28.45	12.74	N	9.000
1	7.143	21.88	60.00	38.12	14.30	50.00	35.70	12.78	N	9.000
1	13.155	27.97	60.00	32.03	20.86	50.00	29.14	12.81	N	9.000
1	20.369	19.47	60.00	40.53	9.44	50.00	40.56	12.85	N	9.000

REMARKS: 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. The emission levels of other frequencies were very low against the limit.
4. Margin value = Limit value - Emission level
5. Correction factor = Insertion loss + Cable loss
6. Emission Level = Correction Factor + Reading Value.



3.3 MAXIMUM CONDUCTED OUTPUT POWER MEASUREMENT

3.3.1 LIMITS OF MAXIMUM CONDUCTED OUTPUT POWER MEASUREMENT

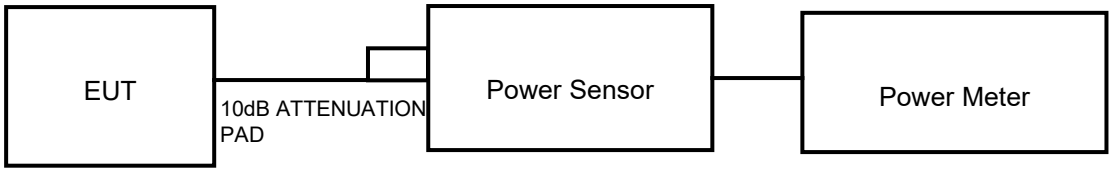
Operation Band	EUT Category		LIMIT
U-NII-1		Outdoor Access Point	1 Watt (30 dBm) (Max. e.i.r.p ≦ 125mW(21 dBm) at any elevation angle above 30 degrees as measured from the horizon)
		Fixed point-to-point Access Point	1 Watt (30 dBm)
		Indoor Access Point	1 Watt (30 dBm)
	√	Client devices	250mW (24 dBm)
U-NII-2A	√		250mW (24 dBm) or 11 dBm+10 log B*
U-NII-2C	√		250mW (24 dBm) or 11 dBm+10 log B*
U-NII-3	√		1 Watt (30 dBm)

NOTE: Where B is the 26dB emission bandwidth in MHz

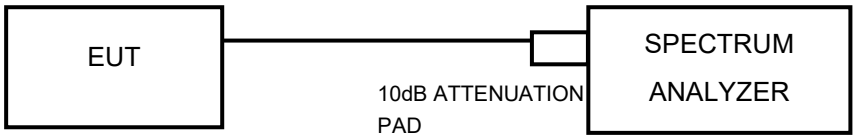
3.3.2 TEST SETUP

FOR POWER OUTPUT MEASUREMENT

802.11a, 802.11n/ac (20MHz), 802.11 n/ac (40MHz), 802.11ac (80MHz) TEST CONFIGURATION



FOR 26dB BANDWIDTH



3.3.3 TEST INSTRUMENTS

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
EMI Test Receiver	R&S	ESW 44	101973	Mar.28,24	Mar.27,26
Open Switch and Control Unit	R&S	OSP-B157W8	100836	N/A	N/A
Vector Signal Generator	R&S	SMBV100B	102176	Mar.29,24	Mar.28,26
Signal Generator	R&S	SMB100A03	182185	Mar.29,24	Mar.28,26
WIDEBANDRADIO COMMUNICATION TESTER	R&S	CMW500	169399	Jun.19,24	Jun.18,26
Hygrothermograph	DELI	20210528	SZ015	Sep.06,22	Sep.05,24
Hygrothermograph	DELI	20210528	SZ015	Sep.05,24	Sep.04,26
PC	LENOVO	E14	HRSW0024	N/A	N/A
CABLE	R&S	J12J103539-00-1	SEP-03-20-069	Apr.27,24	Apr.26,25
CABLE	R&S	J12J103539-00-1	SEP-03-20-070	Apr.27,24	Apr.26,25
Test Software	EMC32	EMC32	N/A	N/A	N/A
Temperature Chamber	votsch	VT4002	585660781000050	May.30,24	May.29,26
Power Meter	R&S	NRX	102380	Mar.28,24	Mar.27,26
Power Meter probe	R&S	NRP6A	102942	Mar.28,24	Mar.27,26

NOTE:

1. The calibration interval of the above test instruments is 12 /24 months, and the calibrations are traceable to CEPREI/CHINA, GRGT/CHINA and NIM/CHINA.
2. The test was performed in the RF Oven room.

3.3.4 TEST PROCEDURE

FOR POWER MEASUREMENT

For 802.11a, 802.11 n/ac (20MHz), 802.11 n/ac (40MHz) , 802.11ac (80MHz)

Method PM is used to perform output power measurement, trigger and gating function of wide band power meter is enabled to measure max output power of TX on burst. Duty factor is not added to measured value.

FOR 99 PERCENT OCCUPIED BANDWIDTH

The following procedure shall be used for measuring (99 %) power bandwidth:

1. Set center frequency to the nominal EUT channel center frequency.
2. Set span = 1.5 times to 5.0 times the OBW.
3. Set RBW = 1 % to 5 % of the OBW
4. Set VBW ≥ 3 · RBW
5. Video averaging is not permitted. Where practical, a sample detection and single sweep mode shall be used. Otherwise, peak detection and max hold mode (until the trace stabilizes) shall be used.
6. Use the 99 % power bandwidth function of the instrument (if available).
7. If the instrument does not have a 99 % power bandwidth function, the trace data points are recovered and directly summed in power units. The recovered amplitude data points, beginning at the lowest frequency, are placed in a running sum until 0.5 % of the total is reached; that frequency is recorded as the lower frequency. The process is repeated until 99.5 % of the total is reached; that frequency is recorded as the upper frequency. The 99% occupied bandwidth is the difference between these two frequencies.

FOR 26dB BANDWIDTH

1) Set RBW = approximately 1% of the emission bandwidth.
2) Set the VBW > RBW.
3) Detector = Peak.
4) Trace mode = max hold.
5) Measure the maximum width of the emission that is 26 dB down from the peak 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%.

FOR 6dB BANDWIDTH

1. Set RBW = 100 kHz.
2. Set the video bandwidth (VBW) ≥ 3 RBW.
3. Detector = Peak.
4. Trace mode = max hold.
5. Sweep = auto couple.
6. Allow the trace to stabilize.
7. 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.

3.3.5 DEVIATION FROM TEST STANDARD

No deviation.

3.3.6 EUT OPERATING CONDITIONS

The software provided by the client to enable the EUT under transmission condition continuously at specific channel frequencies individually.

3.3.7 TEST RESULTS

Please Refer to Appendix Of this test report.

3.4 MAXIMUM POWER SPECTRAL DENSITY MEASUREMENT

3.4.1 LIMITS OF MAXIMUM POWER SPECTRAL DENSITY MEASUREMENT

Operation Band	EUT Category		LIMIT
U-NII-1		Outdoor Access Point	17dBm/ MHz
		Fixed point-to-point Access Point	
		Indoor Access Point	
	√	Client devices	11dBm/ MHz
U-NII-2A	√		11dBm/ MHz
U-NII-2C	√		11dBm/ MHz
U-NII-3	√		30dBm/ 500kHz

3.4.2 TEST SETUP

3.4.3 TEST INSTRUMENTS

Refer to section 3.3.3 to get information about the above instrument.

3.4.4 TEST PROCEDURES

Using method SA-2(Band1/2/3)
1) Set span to encompass the entire emission bandwidth (EBW) of the signal.
2) Set RBW = 1 MHz, Set VBW ≥ 3 MHz, Detector = RMS
3) Set Channel power measure = 1MHz
4) Sweep time = auto, trigger set to “free run”.
5) Trace average at least 100 traces in power averaging mode.
6) Add 10 log (1/x), where x is the duty cycle, to the measured power in order to compute the average power during the actual transmission times (because the measurement represents an average over both the on and off times of the transmission).
7) Record the max value
Using method SA-2 (Band4)
1) Set span to encompass the entire emission bandwidth (EBW) of the signal.
2) Set RBW = 300 KHz, Set VBW ≥ 1 MHz, Detector = RMS
3) Set Channel power measure = 1MHz
4) Sweep time = auto, trigger set to “free run”.
5) Trace average at least 100 traces in power averaging mode.
6) Add 10 log(500kHz/RBW) to the test result. 10 log(500kHz/300KHZ) = 2.22dBm
7) Add 10 log (1/x), where x is the duty cycle, to the measured power in order to compute the average power during the actual transmission times (because the measurement represents an average over both the on and off times of the transmission).
8) Record the max value

3.4.5 DEVIATION FROM TEST STANDARD

No deviation.

3.4.6 EUT OPERATING CONDITIONS

Same as 3.1.7.

3.4.7 TEST RESULTS

Please Refer to Appendix Of this test report.

3.5 AUTOMATICALLY DISCONTINUE TRANSMISSION

3.5.1 LIMIT OF AUTOMATICALLY DISCONTINUE TRANSMISSION

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 signaling 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.

3.5.2 TEST INSTRUMENTS

Refer to section 3.3.3 to get information about the above instrument.

3.5.3 TEST RESULT

While the EUT is not transmitting any information, the EUT can automatically discontinue transmission and become standby mode for power saving。 The EUT can detect the controlling of ACK message transmitting from remote device and verify whether it shall resend or discontinue transmission.

3.6 ANTENNA REQUIREMENTS

3.6.1 STANDARD APPLICABLE

If transmitting antenna directional gain is greater than 6 dBi, both the peak transmits power, and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

3.6.2 ANTENNA CONNECTED CONSTRUCTION

An embedded-in antenna design is used.

3.6.3 ANTENNA GAIN

The antenna peak gain of EUT is less than 6 dBi. Therefore, it is not necessary to reduce maximum peak output power limit and PSD limit.

4 PHOTOGRAPHS OF THE TEST CONFIGURATION

Please refer to the attached file (Test Setup Photo).

5 MODIFICATIONS RECORDERS FOR ENGINEERING CHANGES TO THE EUT BY THE LAB

No modifications were made to the EUT by the lab during the test.

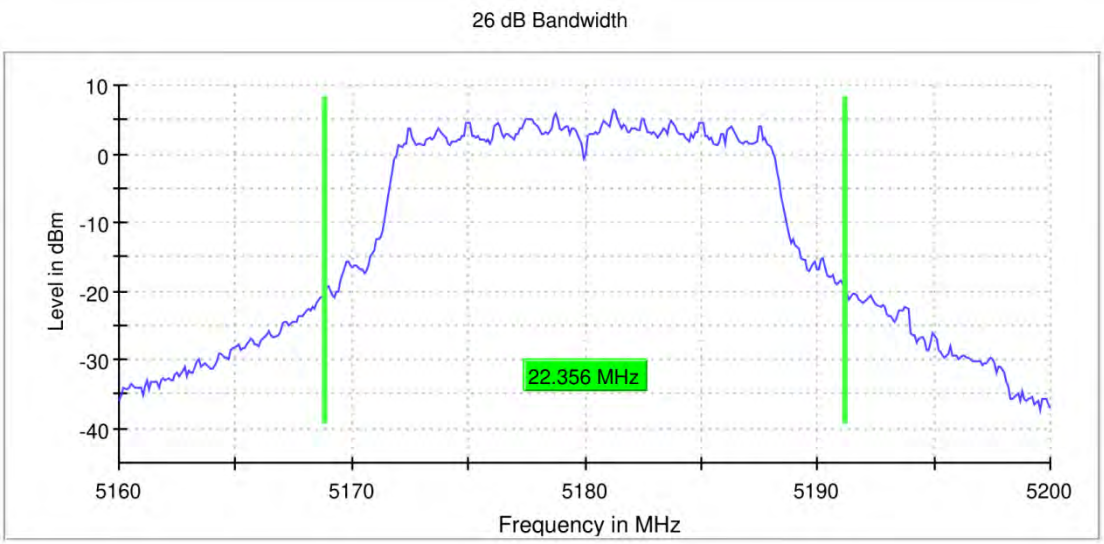
6 APPENDIX: RLAN

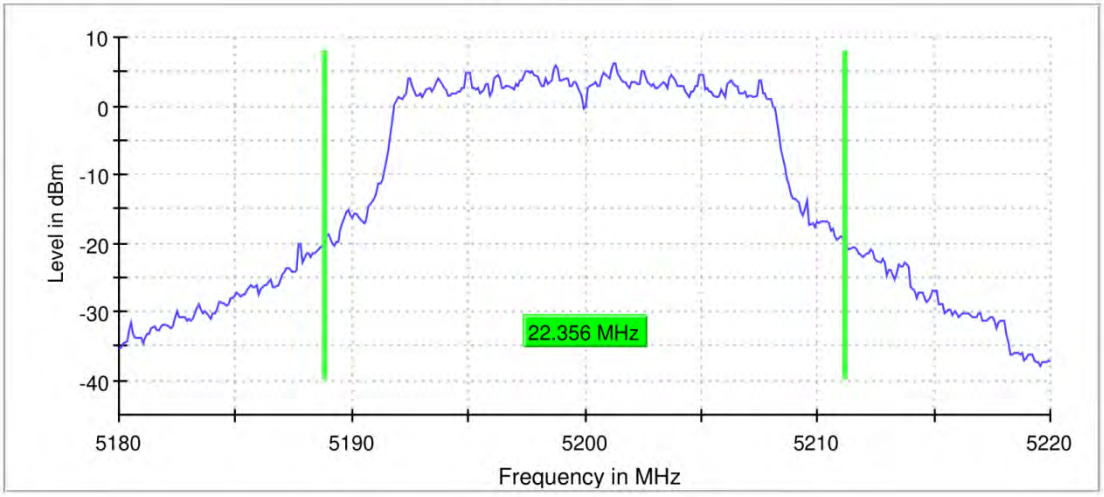
EMISSION BANDWIDTH

TEST RESULT

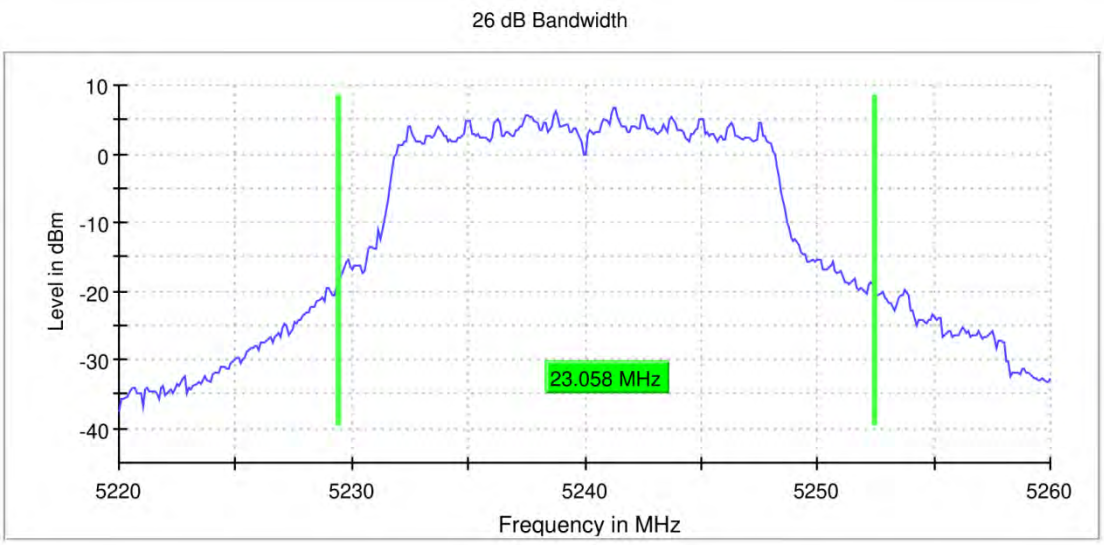
TestMode	Antenna	Frequency [MHz]	26db EBW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11A	ANT0	5180	22.356	5168.822	5191.178	---	---
	ANT0	5200	22.356	5188.822	5211.178	---	---
	ANT0	5240	23.058	5229.424	5252.482	---	---
	ANT0	5260	23.659	5248.822	5272.481	---	---
	ANT0	5300	25.063	5288.922	5313.985	---	---
	ANT0	5320	25.163	5308.822	5333.985	---	---
	ANT0	5745	23.860	5733.521	5757.381	---	---
	ANT0	5785	22.757	5773.421	5796.178	---	---
	ANT0	5825	23.960	5813.521	5837.481	---	---
11N20	ANT0	5180	22.857	5168.622	5191.479	---	---
	ANT0	5200	22.857	5188.622	5211.479	---	---
	ANT0	5240	22.857	5228.922	5251.779	---	---
	ANT0	5260	22.857	5248.622	5271.479	---	---
	ANT0	5300	23.659	5288.722	5312.381	---	---
	ANT0	5320	23.158	5308.722	5331.88	---	---
	ANT0	5745	23.258	5733.622	5756.88	---	---
	ANT0	5785	23.258	5773.622	5796.88	---	---
	ANT0	5825	23.759	5813.622	5837.381	---	---
11N40	ANT0	5190	41.053	5169.549	5210.602	---	---
	ANT0	5230	41.053	5209.549	5250.602	---	---
	ANT0	5270	41.053	5249.398	5290.451	---	---
	ANT0	5310	41.053	5289.398	5330.451	---	---
	ANT0	5755	41.053	5734.398	5775.451	---	---
	ANT0	5795	41.504	5774.398	5815.902	---	---
11AC80	ANT0	5210	85.266	5168.119	5253.385	---	---
	ANT0	5290	84.765	5248.119	5332.884	---	---
	ANT0	5775	84.765	5732.618	5817.383	---	---

TEST GRAPHS

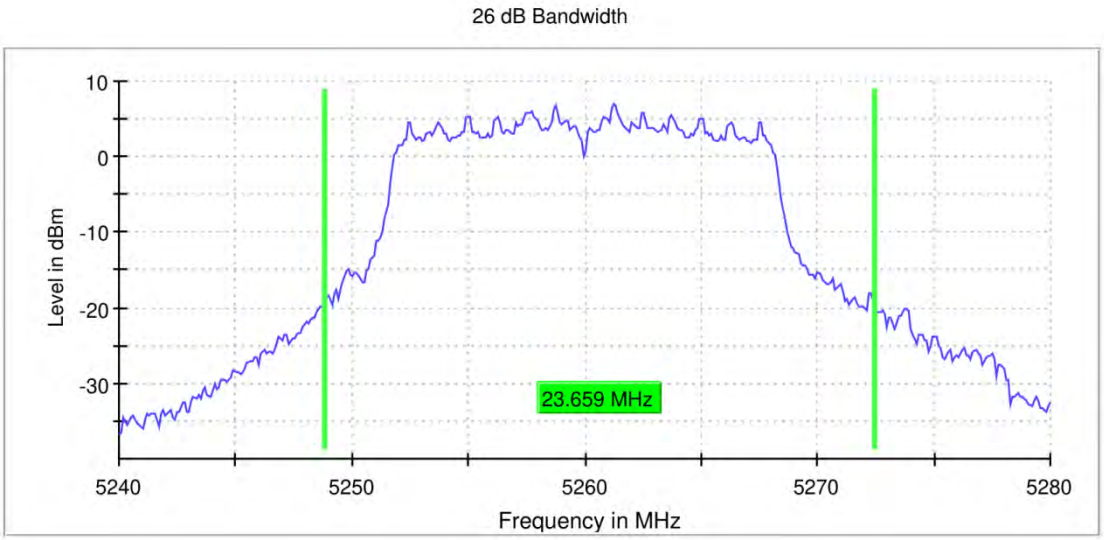
11A_ANT0_5180


11A _ANT0_5200


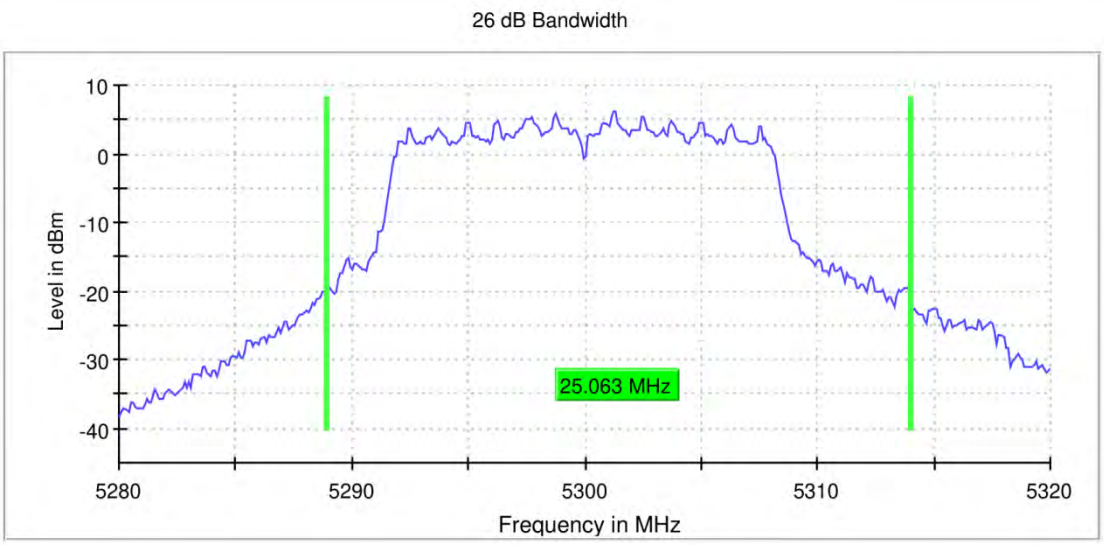
11A _ANT0_5240



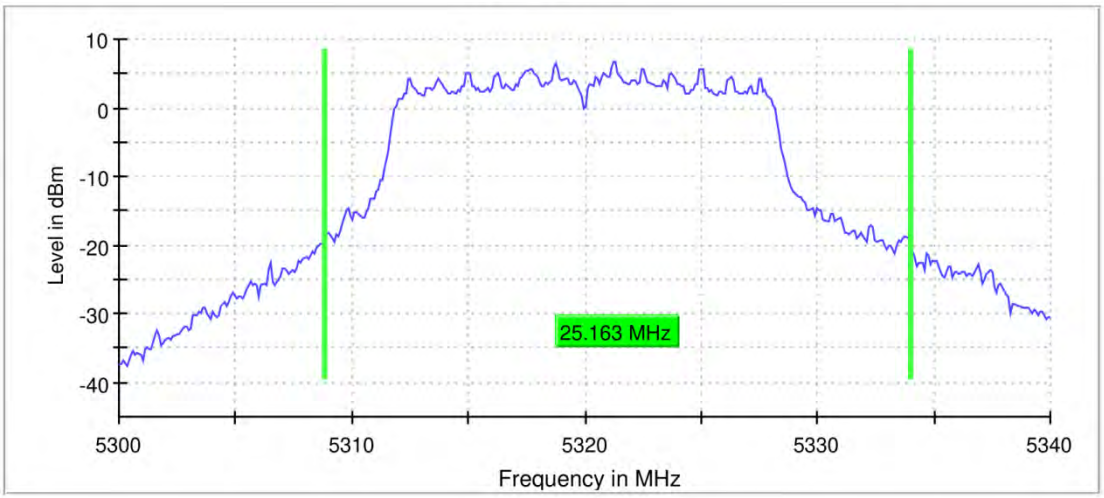
11A _ANT0_5260



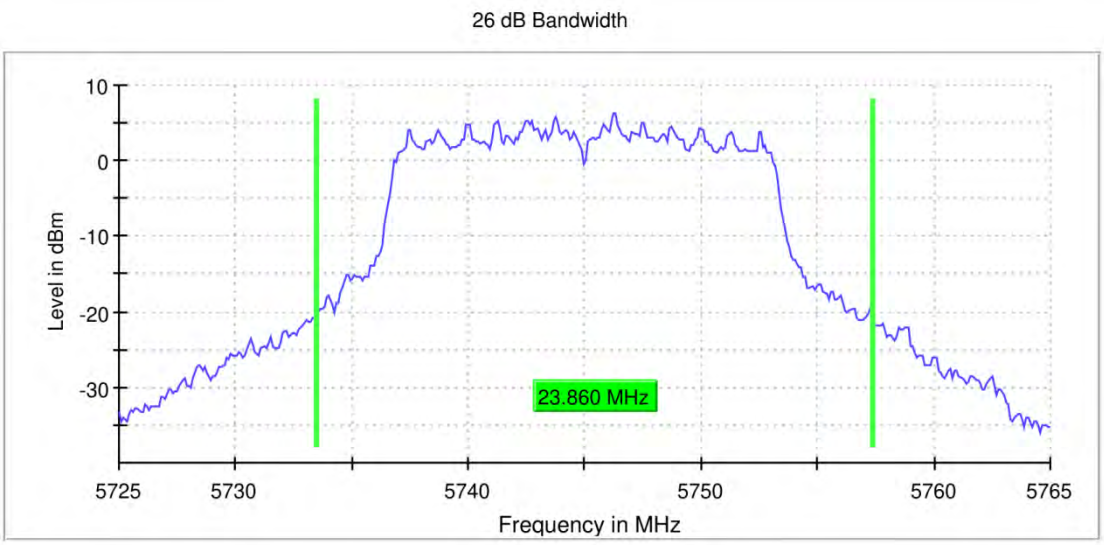
11A _ANT0_5300



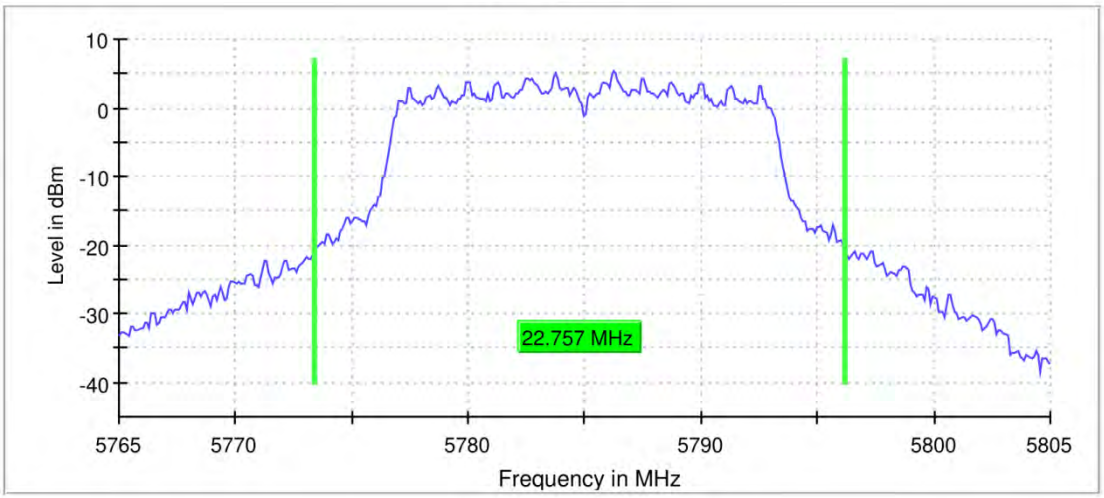
11A _ANT0_5320



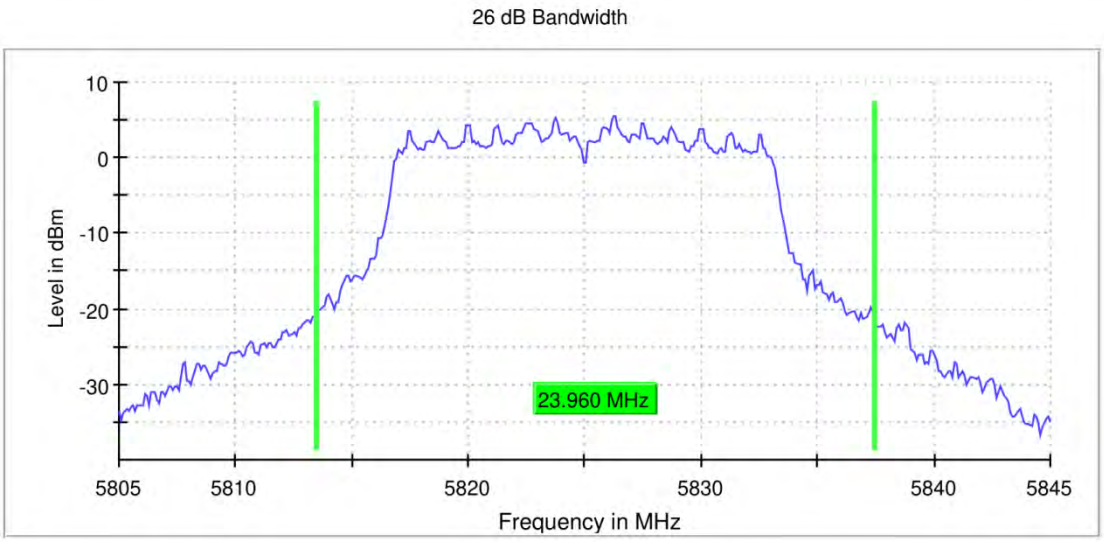
11A _ANT0_5745



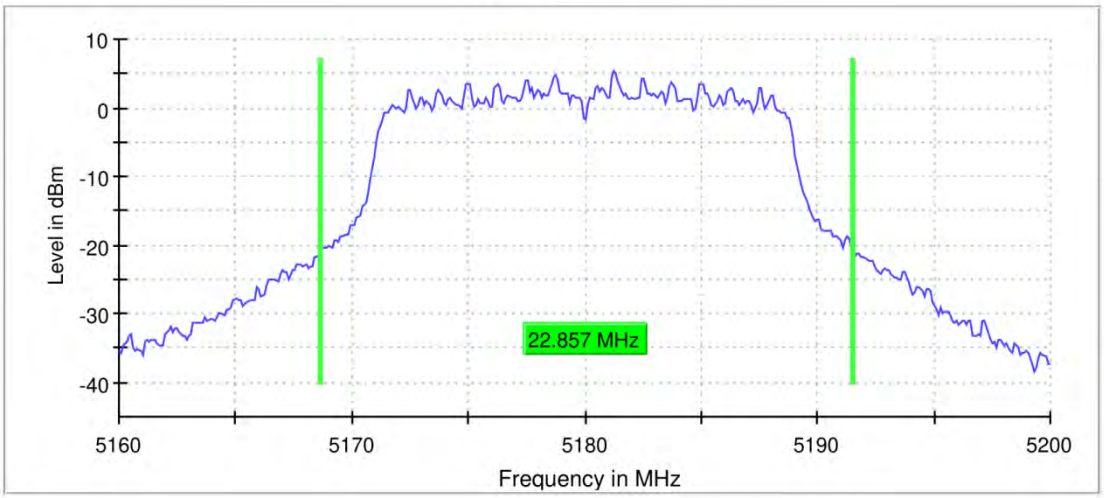
11A _ANT0_5785



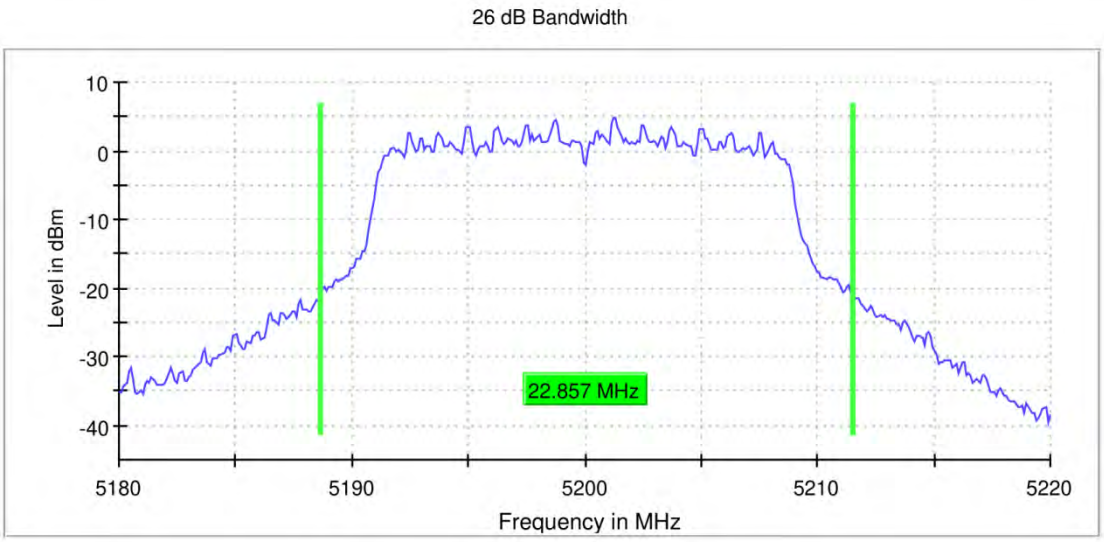
11A_ANT0_5825



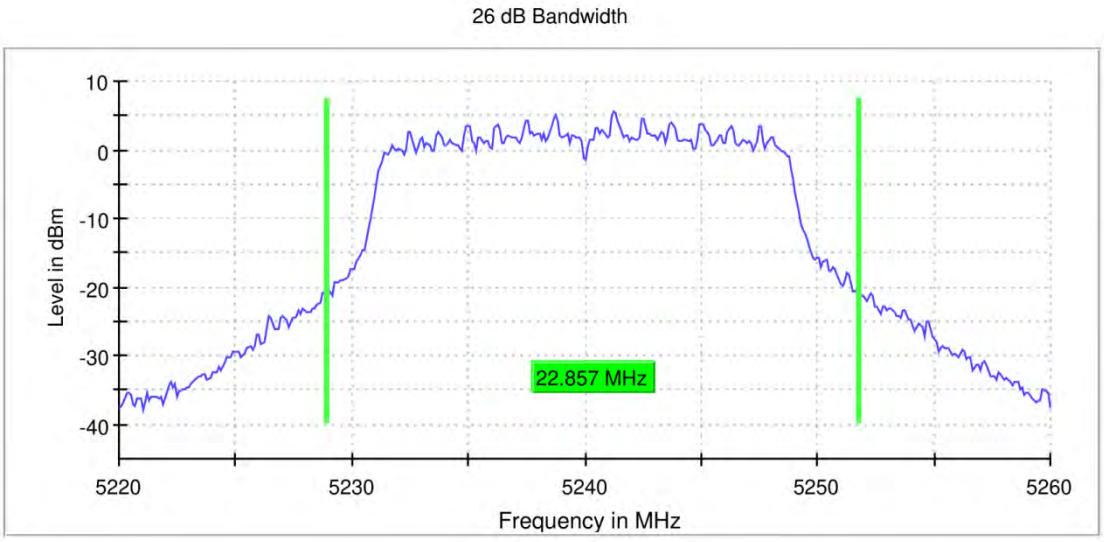
11N20_ANT0_5180



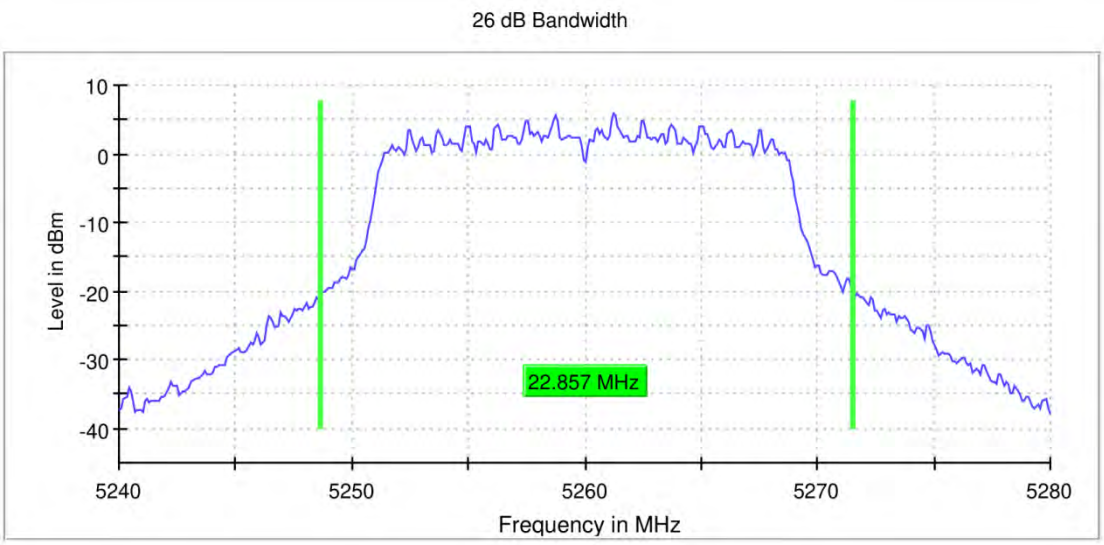
11N20 _ANT0_5200



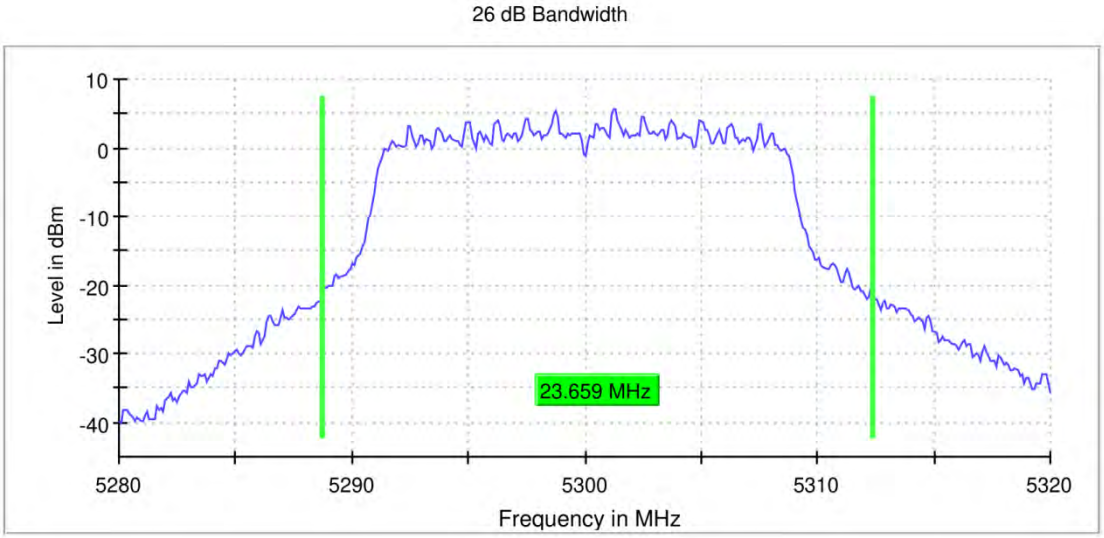
11N20 _ANT0_5240



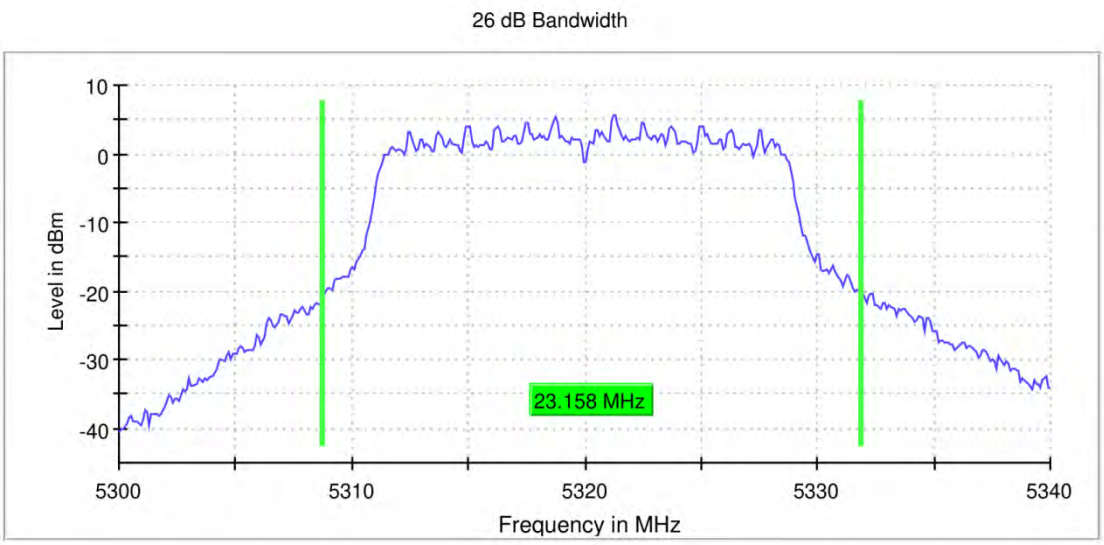
11N20 _ANT0_5260



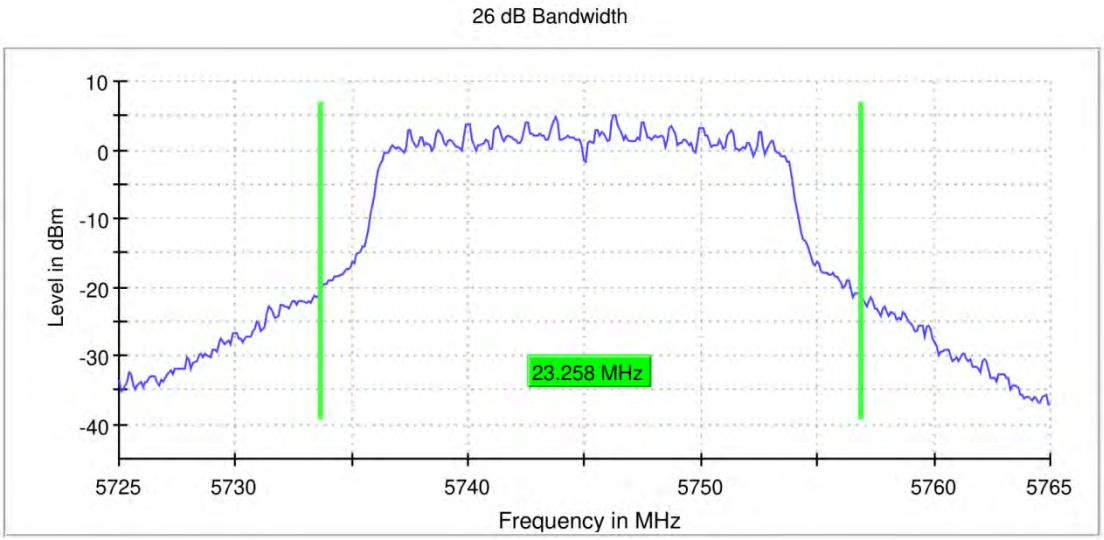
11N20_ANT0_5300



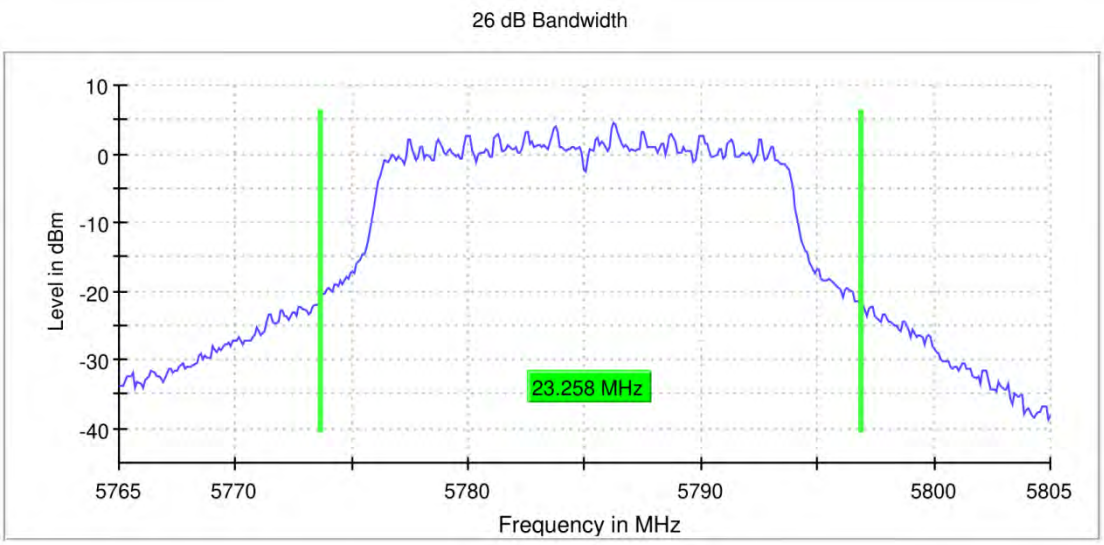
11N20 _ANT0_5320



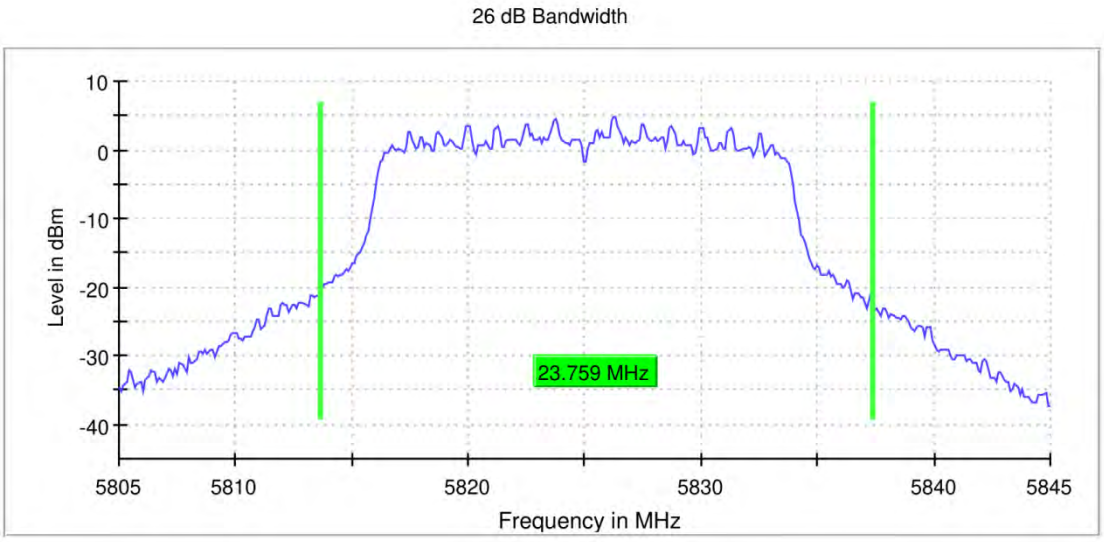
11N20 _ANT0_5745



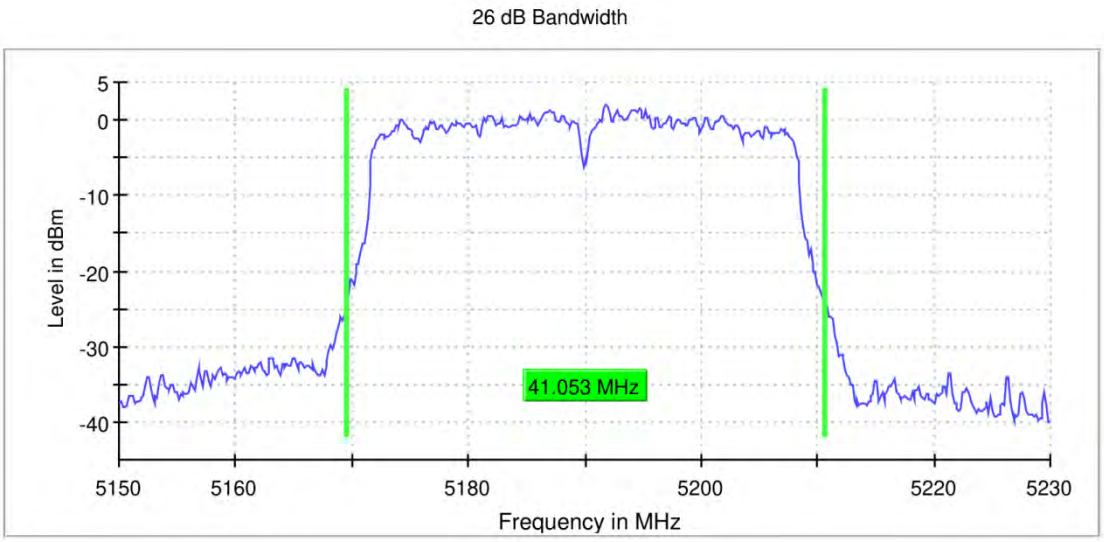
11N20 _ANT0_5785



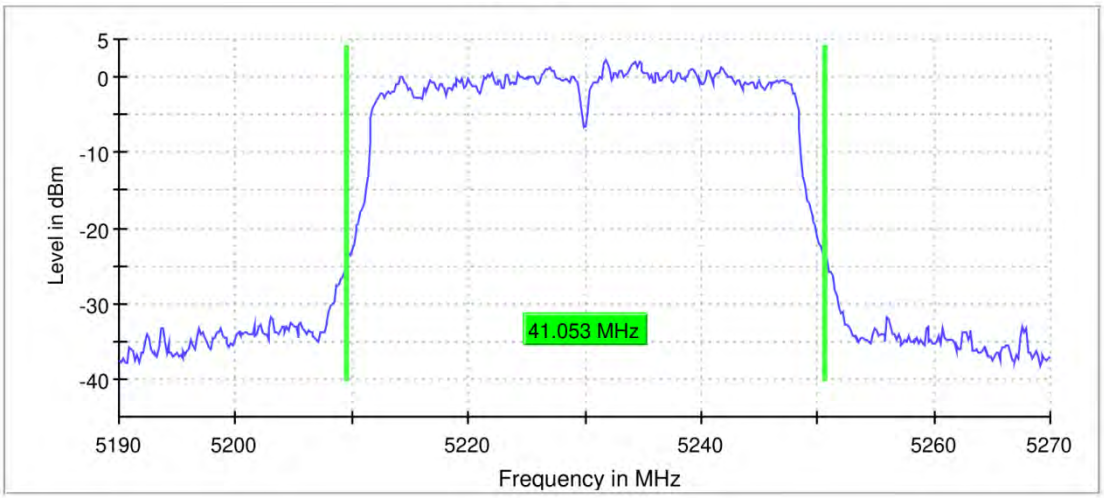
11N20 _ANT0_5825



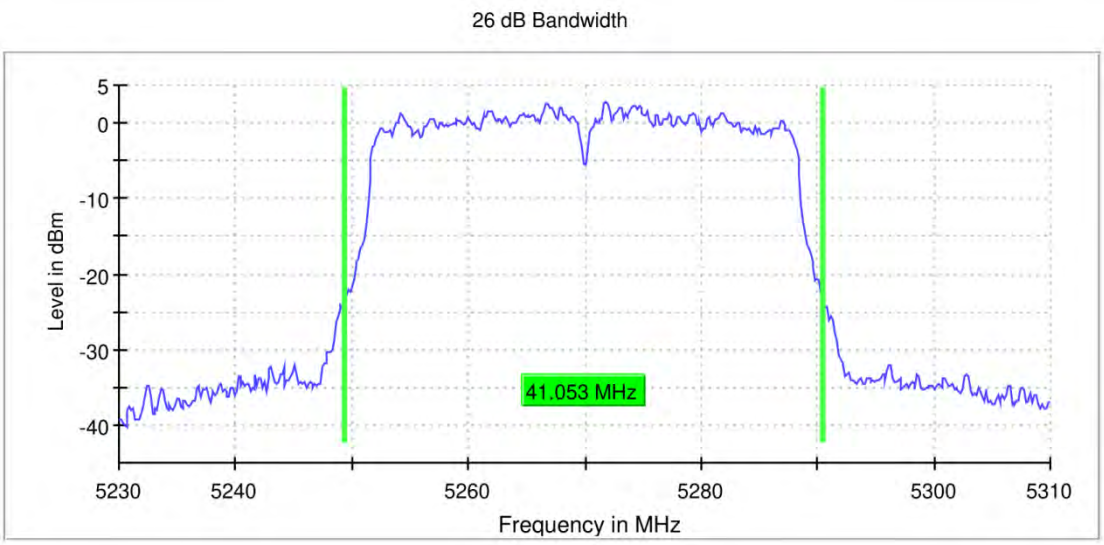
11N40 _ANT0_5190



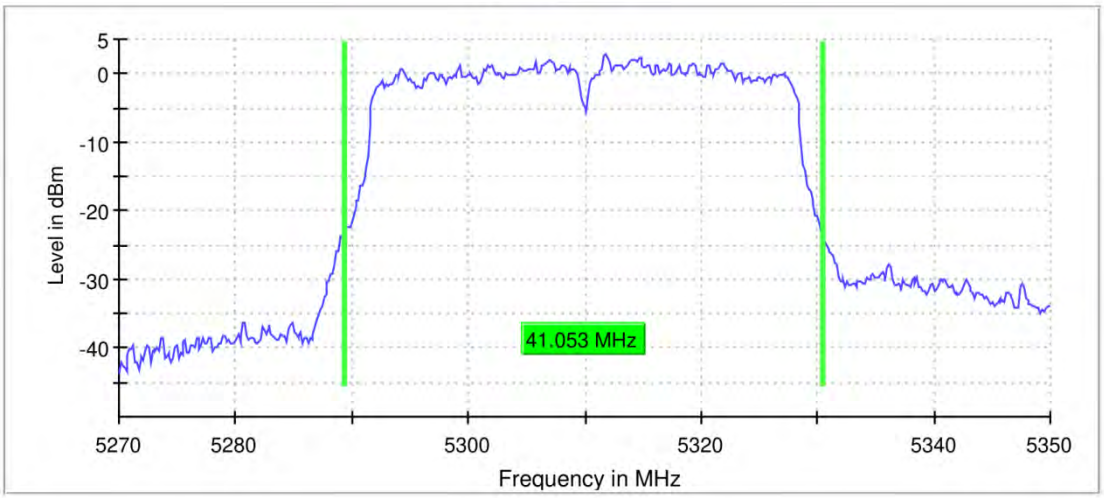
11N40 _ANT0_5230



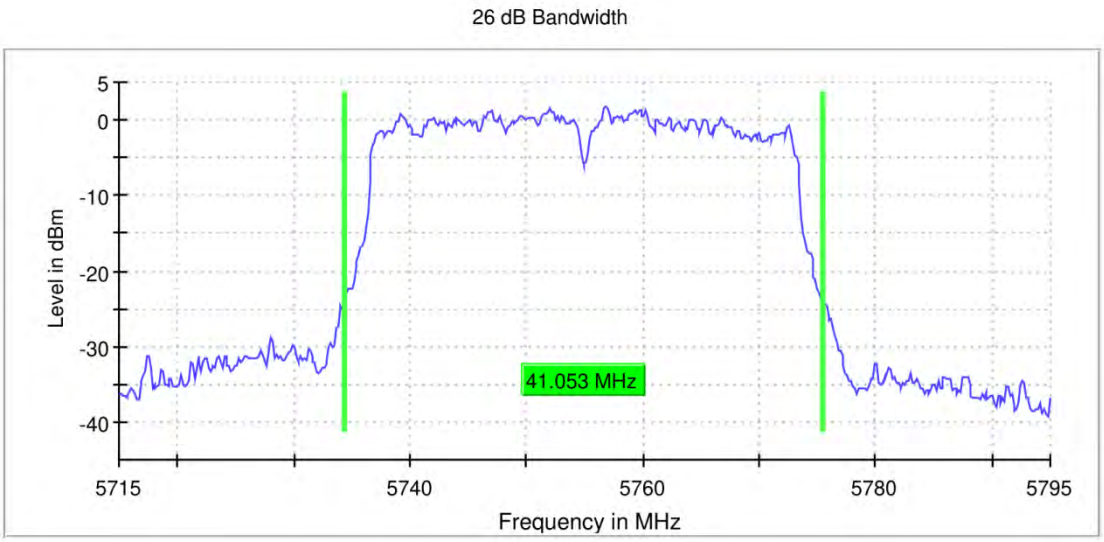
11N40 _ANT0_5270



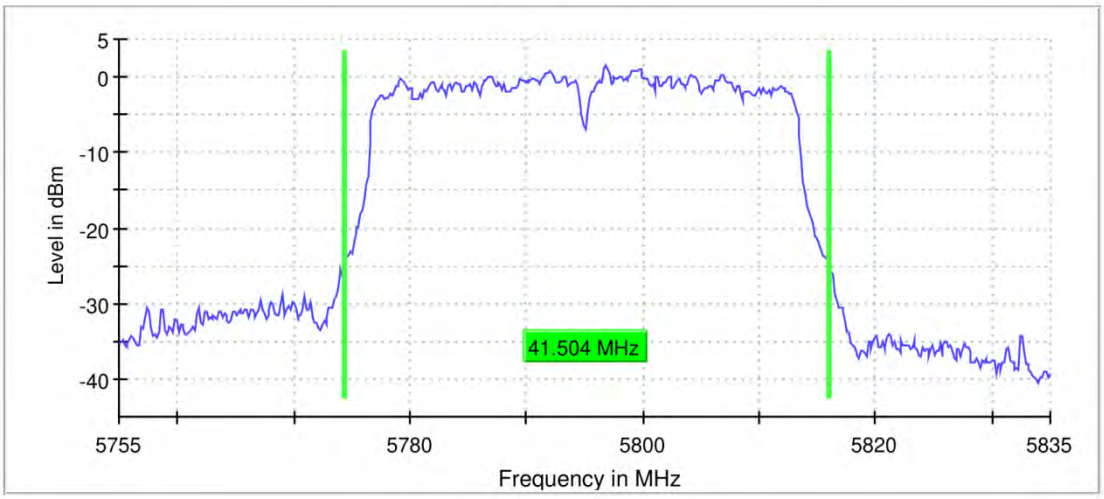
11N40 _ANT0_5310



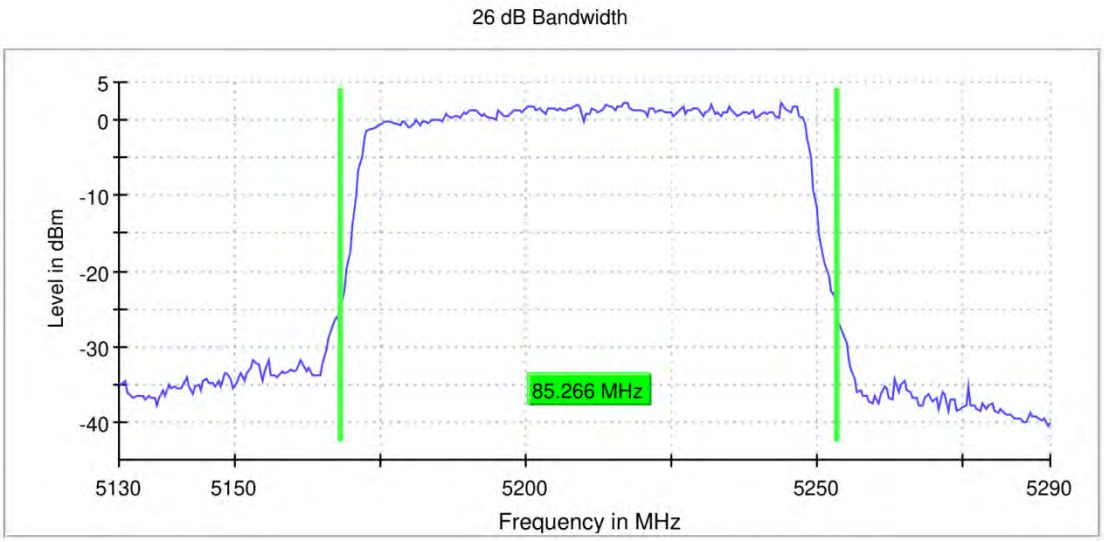
11N40 _ANT0_5755



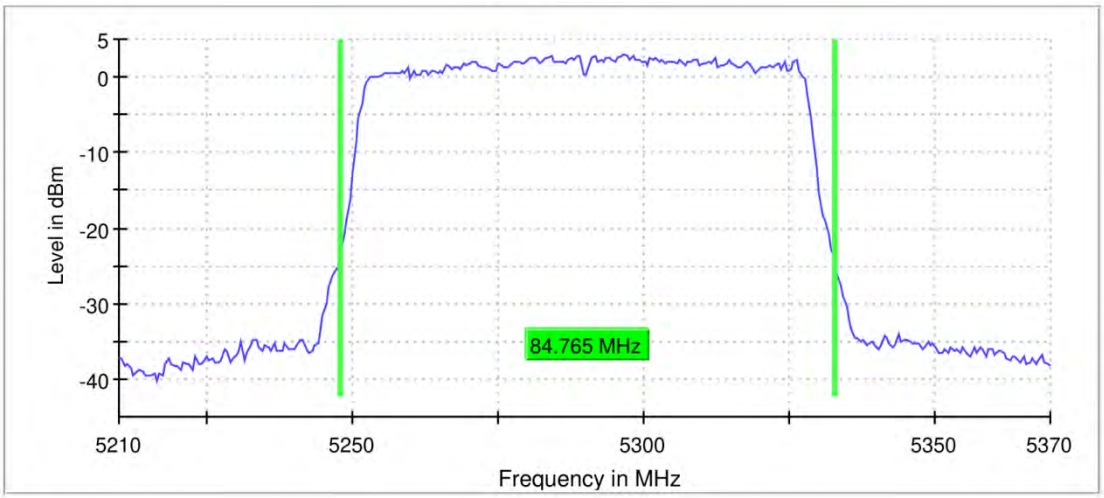
11N40 _ANT0_5795



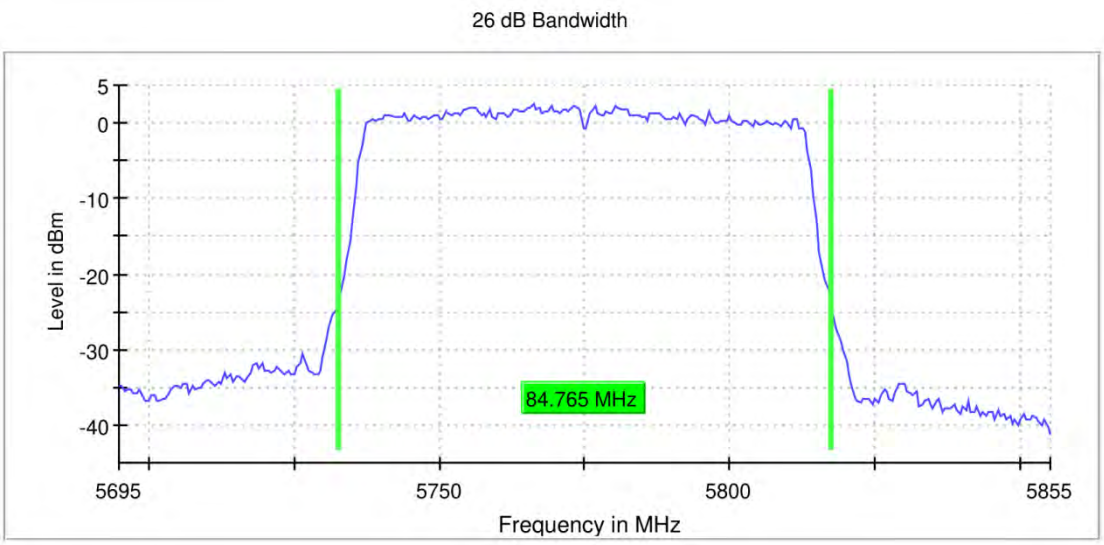
11AC80 _ANT0_5210



11AC80 _ANT0_5290



11AC80 _ANT0_5775



20M

RBW200 KHz

VBW 1 MHz

40M

RBW500 KHz

VBW 2 MHz

80M

RBW 1.000 MHz

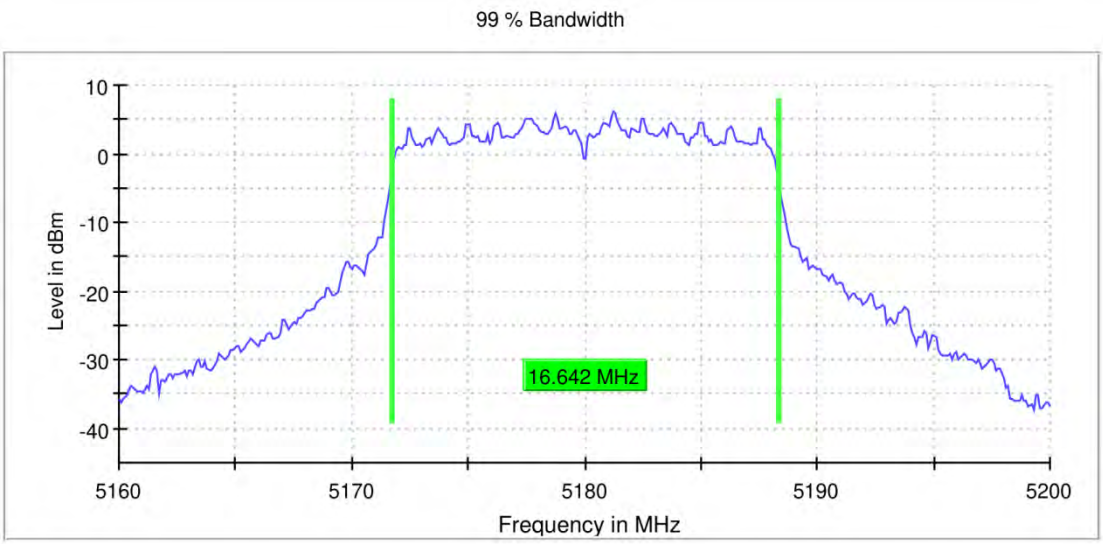
VBW 3.000 MHz

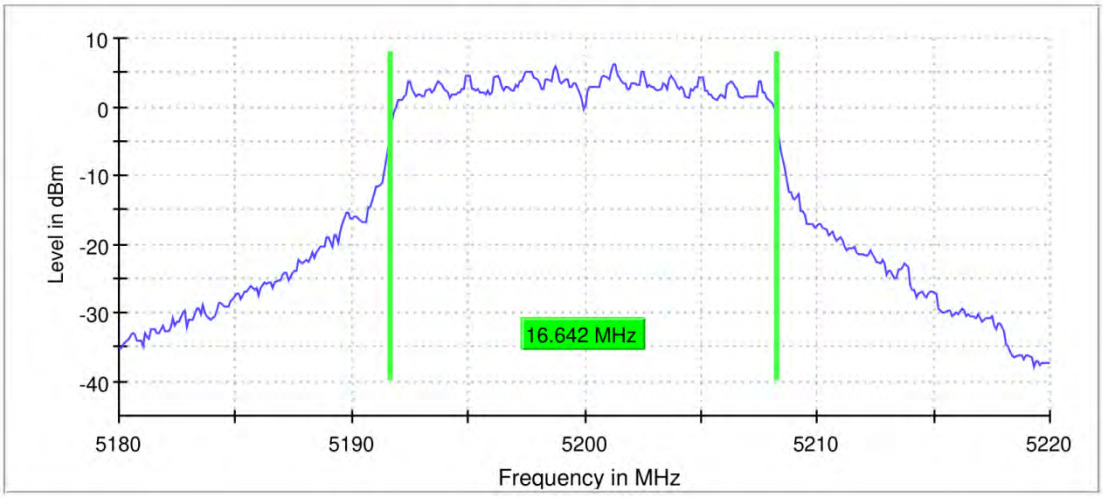
OCCUPIED CHANNEL BANDWIDTH

TEST RESULT

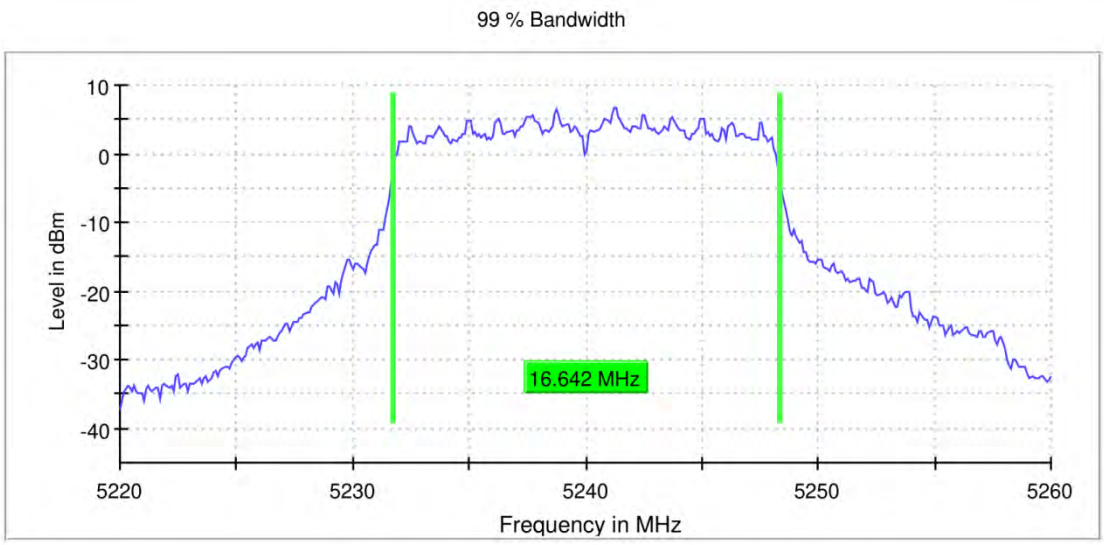
TestMode	Antenna	Frequency [MHz]	OCB [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11A	ANT0	5180	16.642	5171.729	5188.371	---	---
	ANT0	5200	16.642	5191.629	5208.271	---	---
	ANT0	5240	16.642	5231.729	5248.371	---	---
	ANT0	5260	16.642	5251.729	5268.371	---	---
	ANT0	5300	16.742	5291.729	5308.471	---	---
	ANT0	5320	16.742	5311.729	5328.471	---	---
	ANT0	5745	16.742	5736.629	5753.371	---	---
	ANT0	5785	16.742	5776.629	5793.371	---	---
	ANT0	5825	16.742	5816.629	5833.371	---	---
11N20	ANT0	5180	17.845	5171.128	5188.973	---	---
	ANT0	5200	17.945	5191.028	5208.973	---	---
	ANT0	5240	17.845	5231.128	5248.973	---	---
	ANT0	5260	17.845	5251.128	5268.973	---	---
	ANT0	5300	17.845	5291.128	5308.973	---	---
	ANT0	5320	17.845	5311.128	5328.973	---	---
	ANT0	5745	17.945	5736.028	5753.973	---	---
	ANT0	5785	17.945	5776.028	5793.973	---	---
	ANT0	5825	17.945	5816.028	5833.973	---	---
11N40	ANT0	5190	36.364	5171.818	5208.182	---	---
	ANT0	5230	36.614	5211.818	5248.432	---	---
	ANT0	5270	36.364	5251.818	5288.182	---	---
	ANT0	5310	36.364	5291.818	5328.182	---	---
	ANT0	5755	36.614	5736.567	5773.181	---	---
	ANT0	5795	36.364	5776.818	5813.182	---	---
11AC80	ANT0	5210	76.238	5172.132	5248.370	---	---
	ANT0	5290	76.238	5252.132	5328.370	---	---
	ANT0	5775	76.238	5736.630	5812.868	---	---

TEST GRAPHS

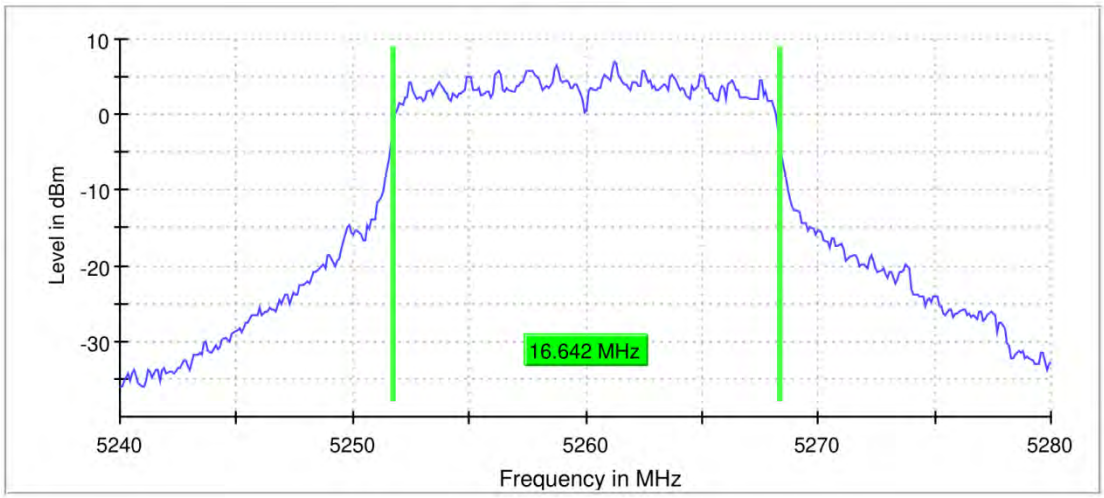
11A_ANT0_5180


11A _ANT0_5200


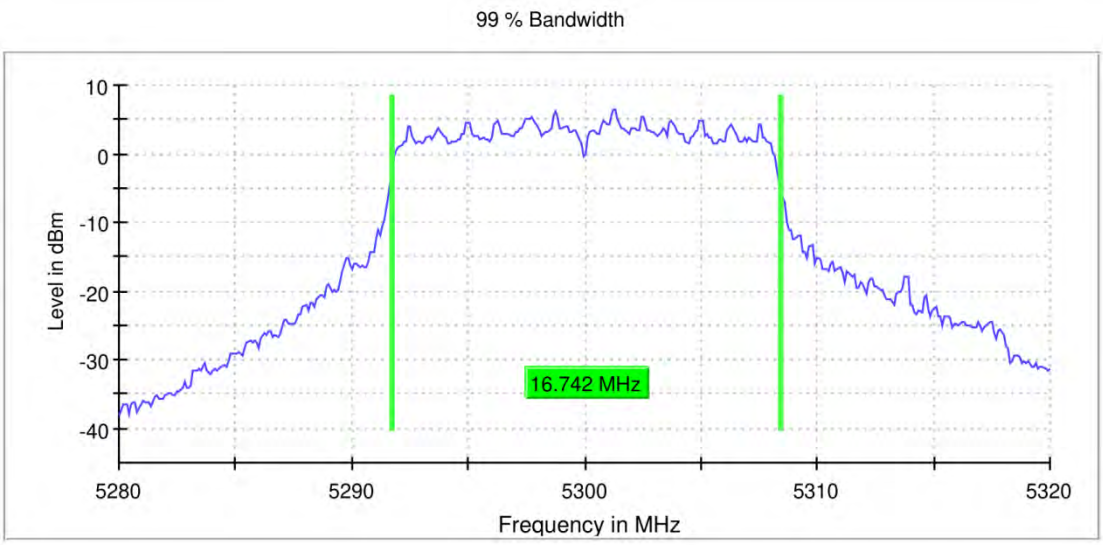
11A _ANT0_5240



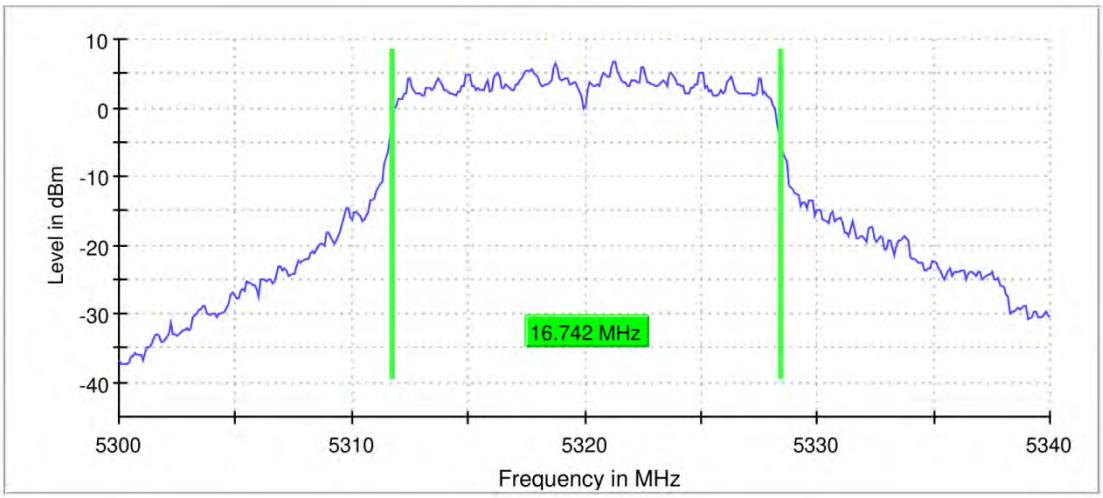
11A _ANT0_5260



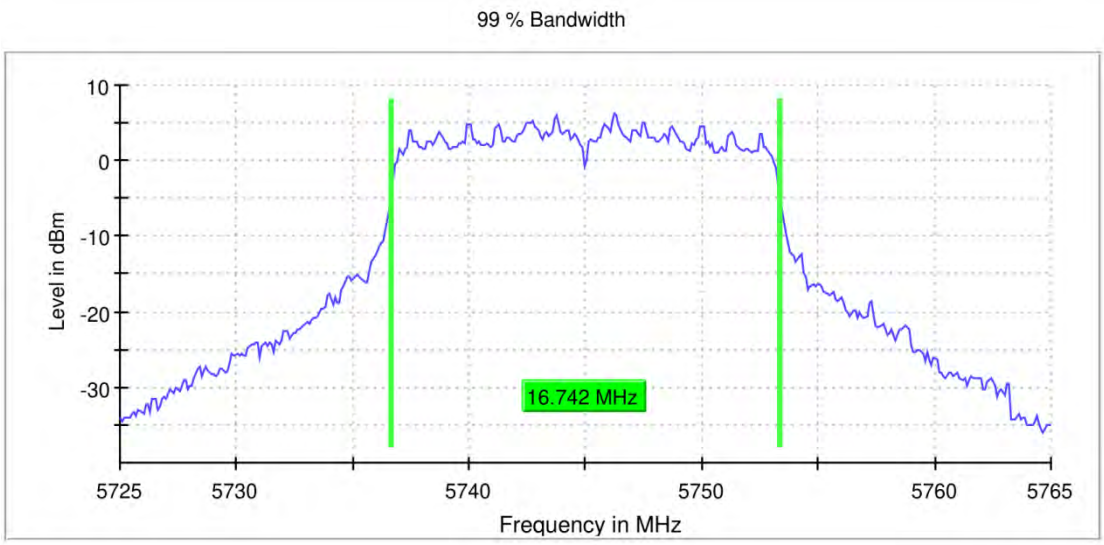
11A _ANT0_5300



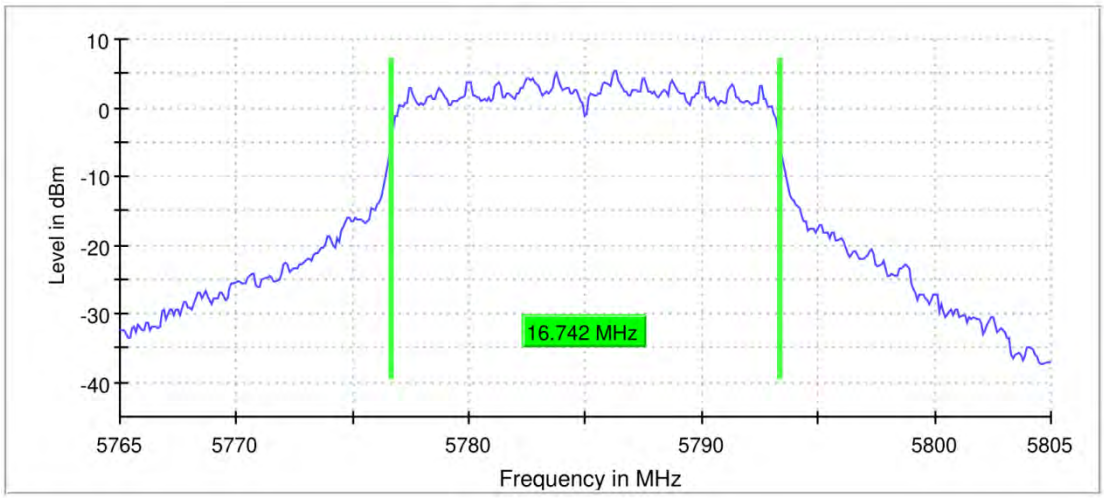
11A _ANT0_5320



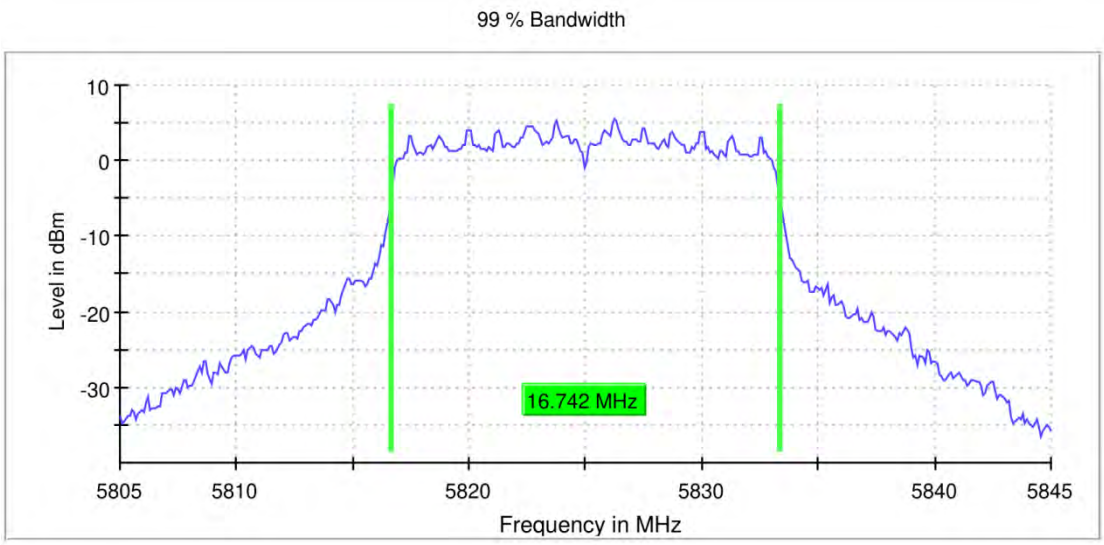
11A _ANT0_5745



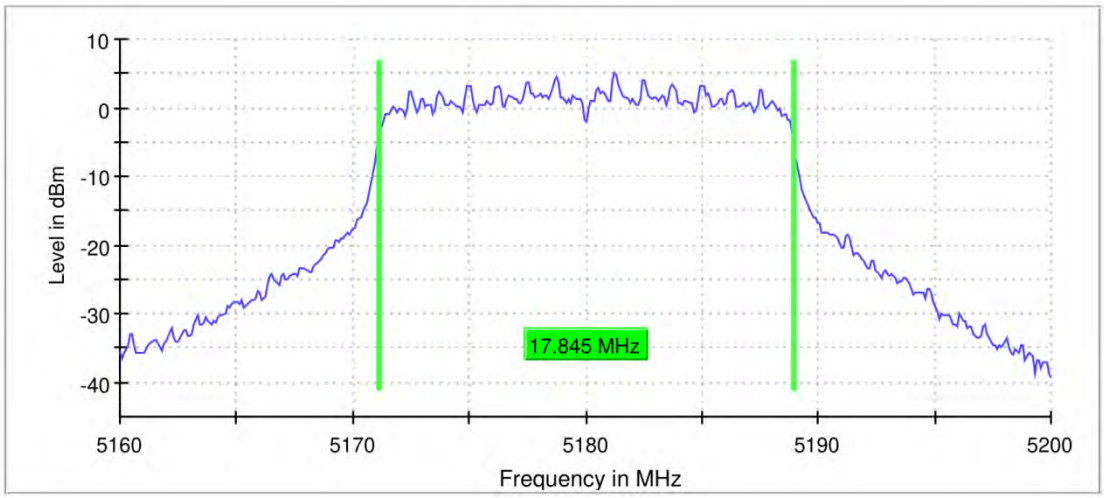
11A _ANT0_5785



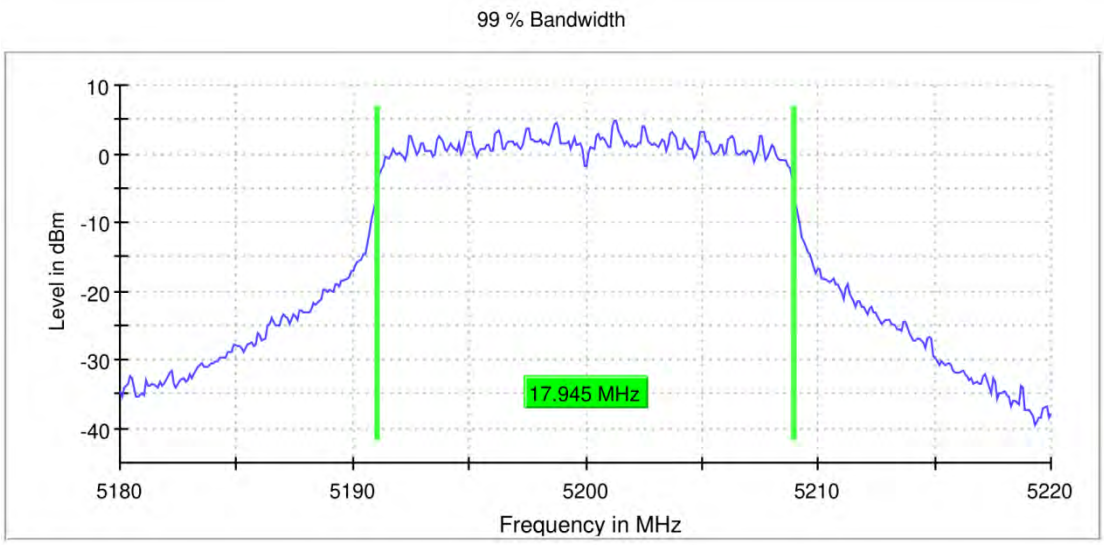
11A_ANT0_5825



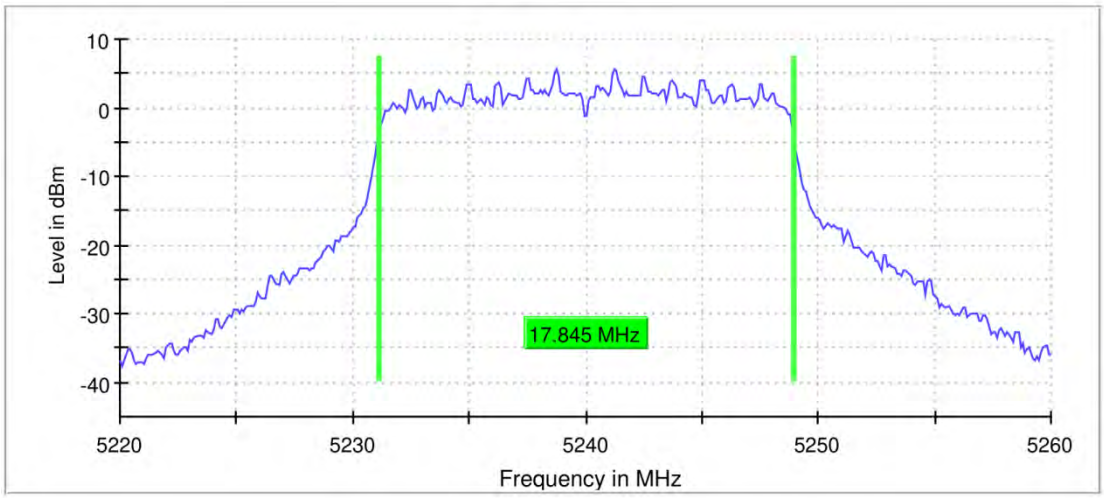
11N20_ANT0_5180



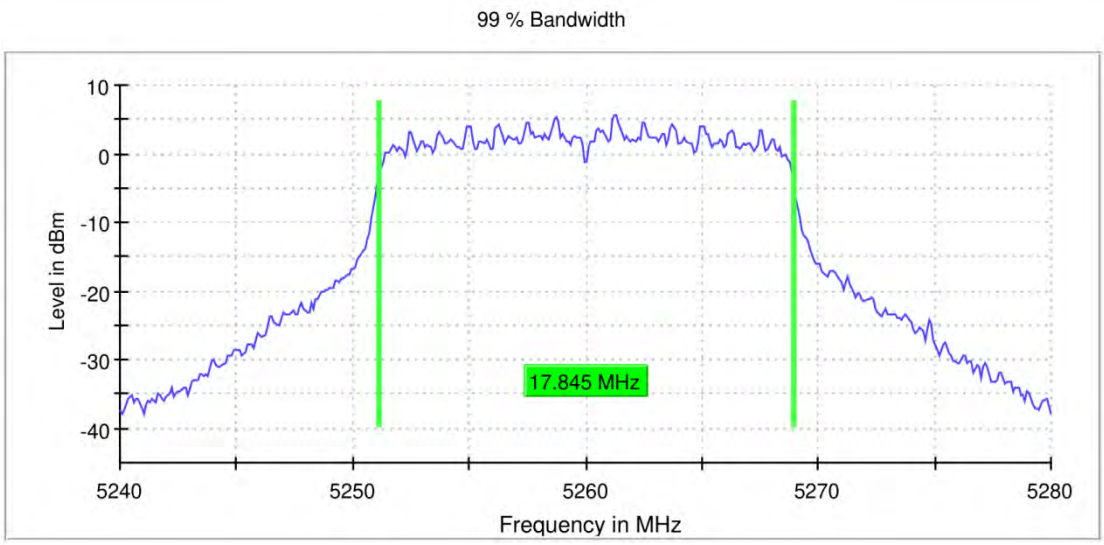
11N20 _ANT0_5200



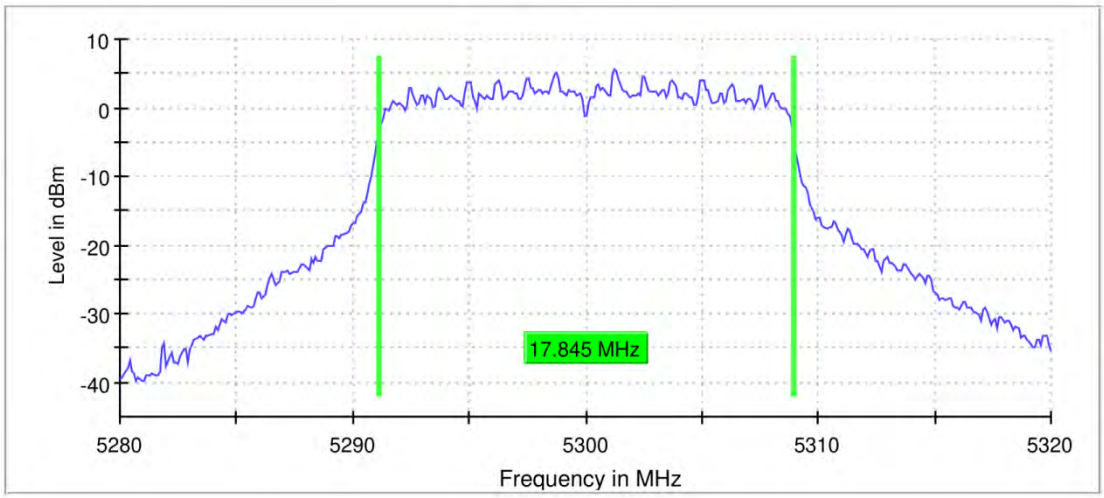
11N20 _ANT0_5240



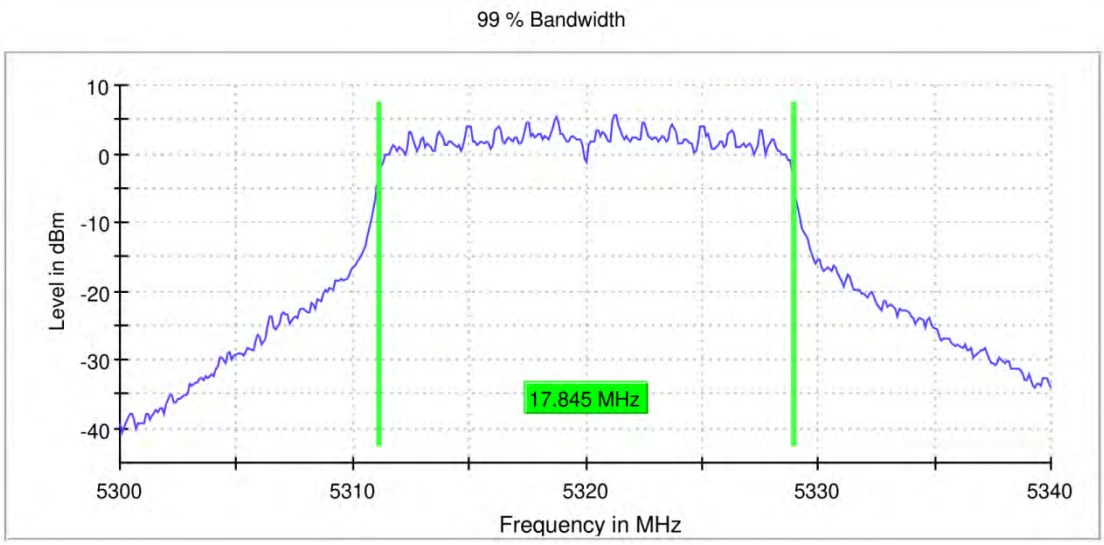
11N20 _ANT0_5260



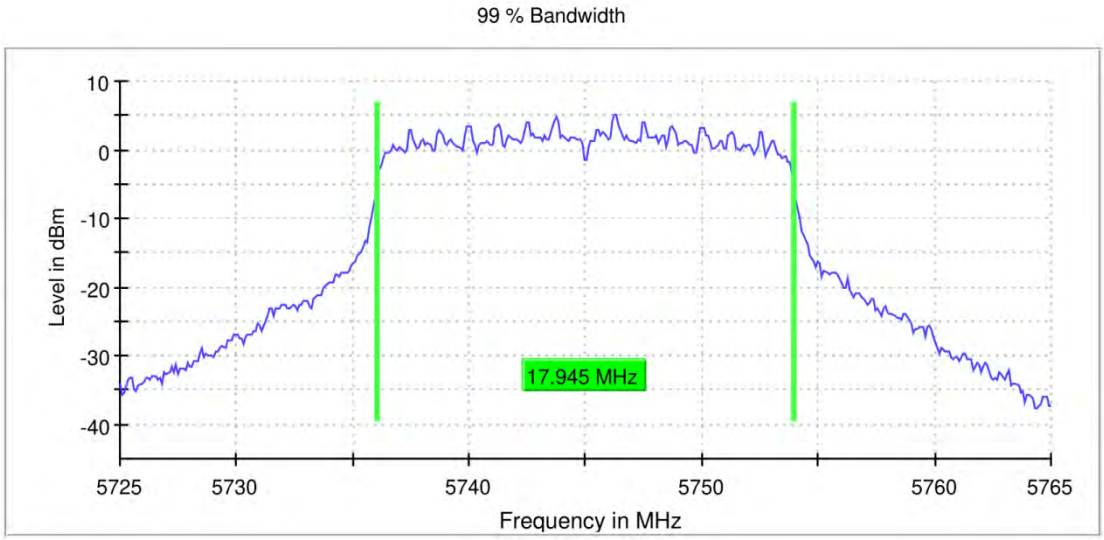
11N20_ANT0_5300



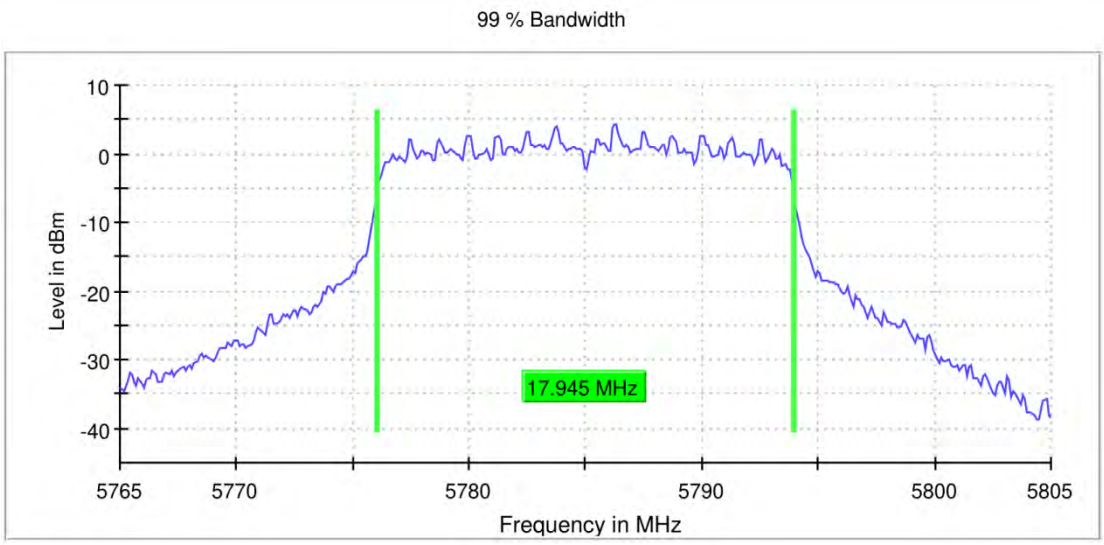
11N20 _ANT0_5320



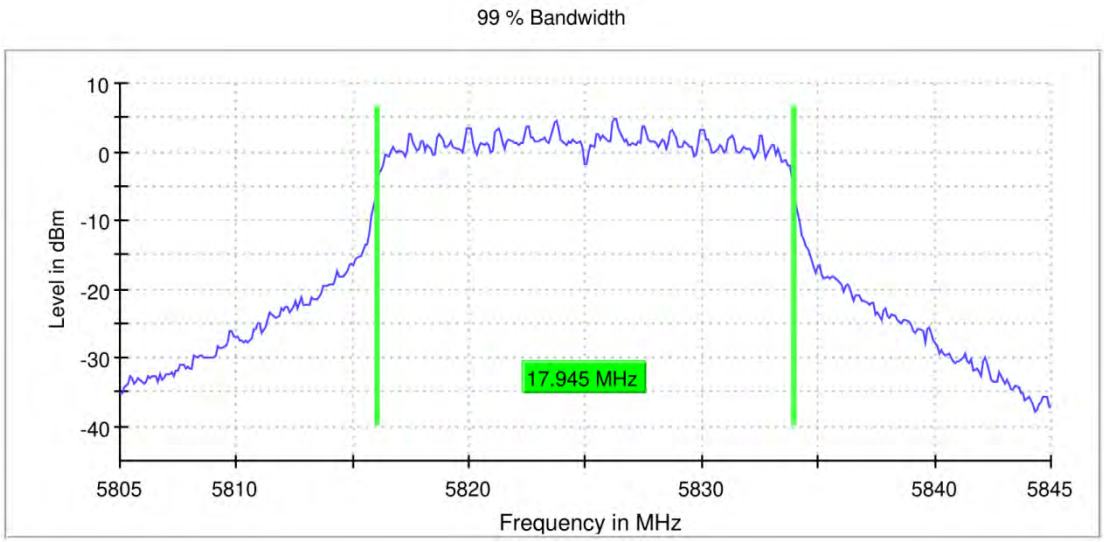
11N20 _ANT0_5745



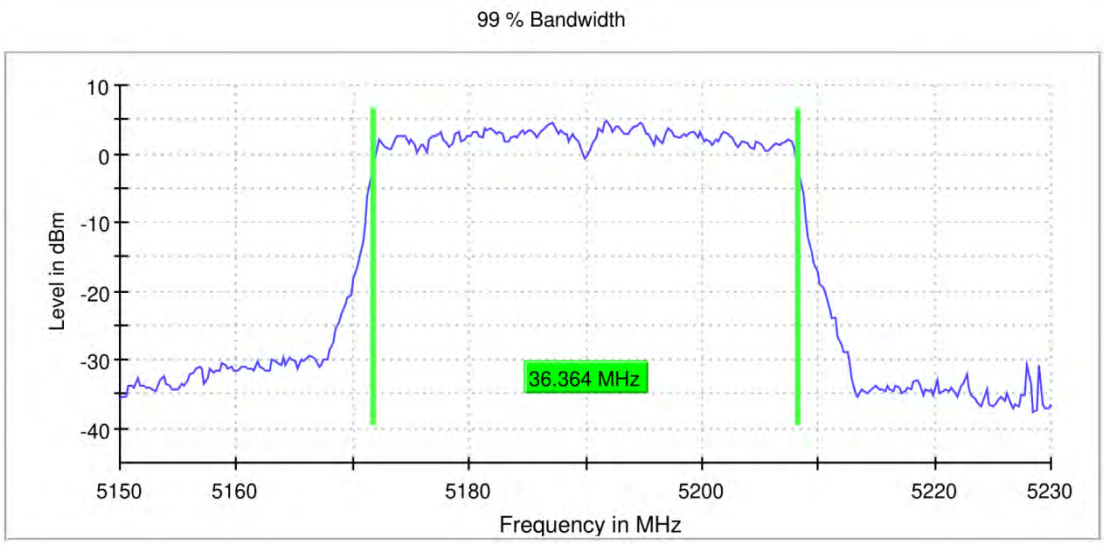
11N20 _ANT0_5785



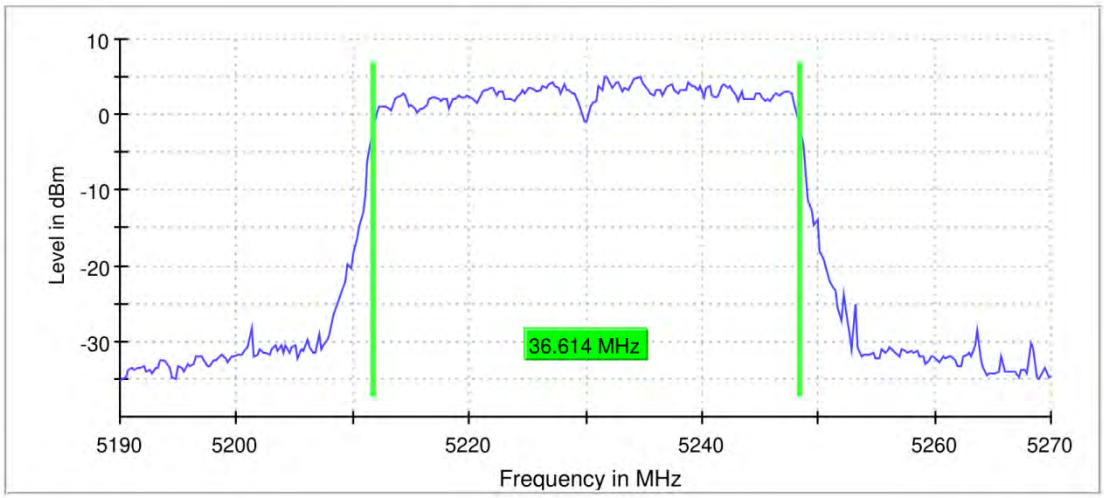
11N20 _ANT0_5825



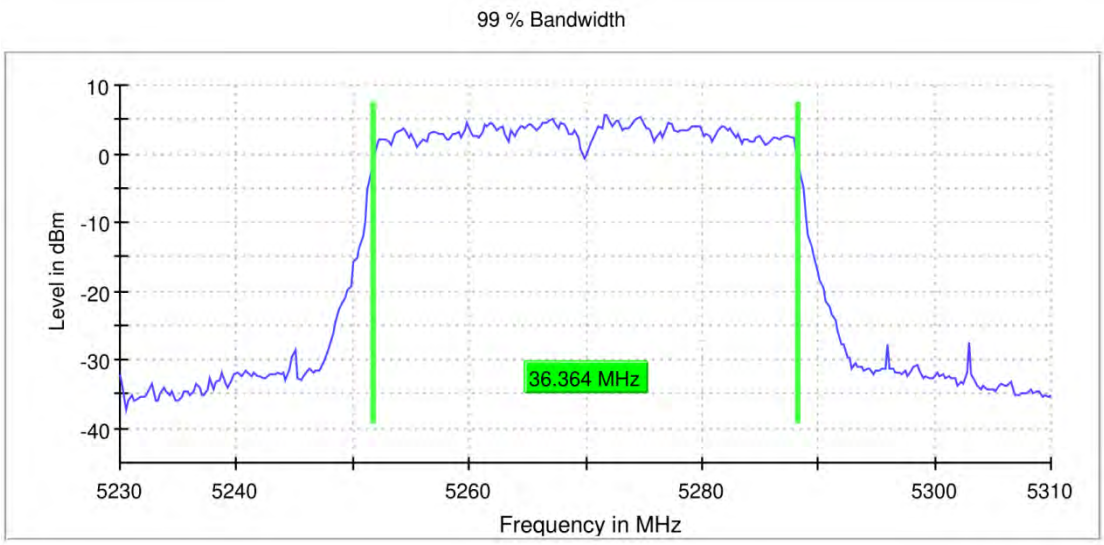
11N40 _ANT0_5190



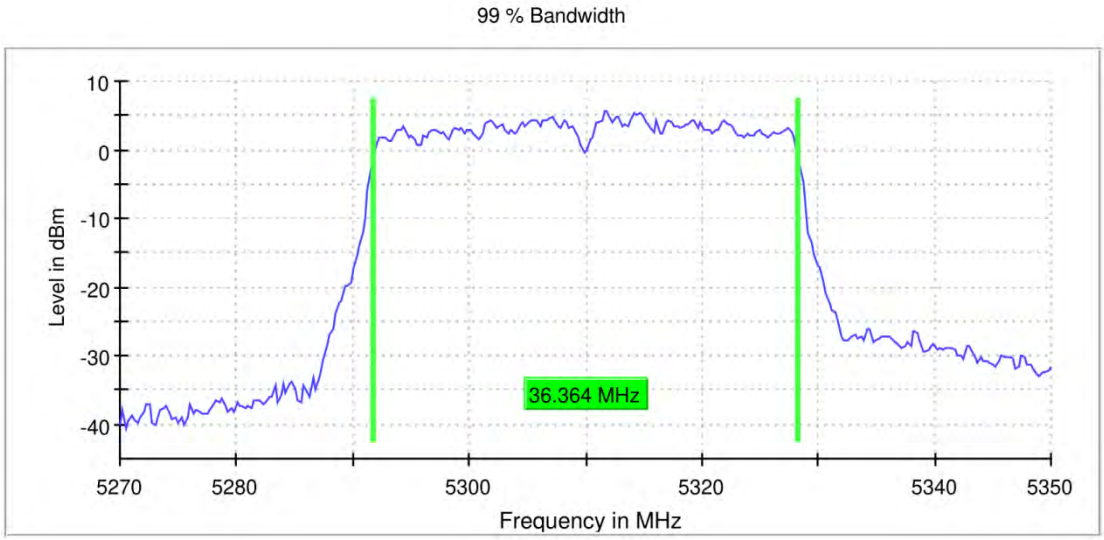
11N40 _ANT0_5230



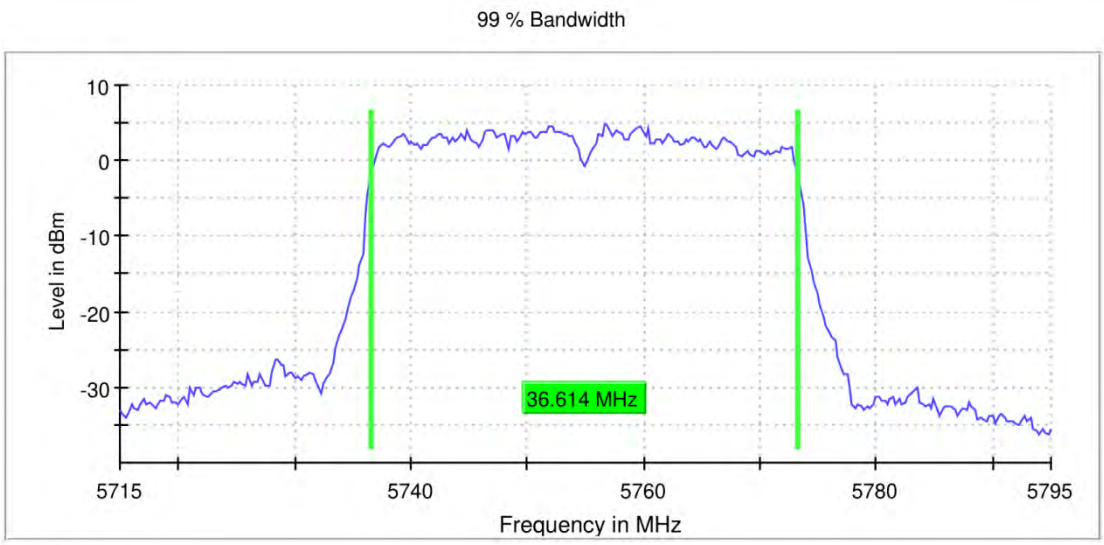
11N40 _ANT0_5270



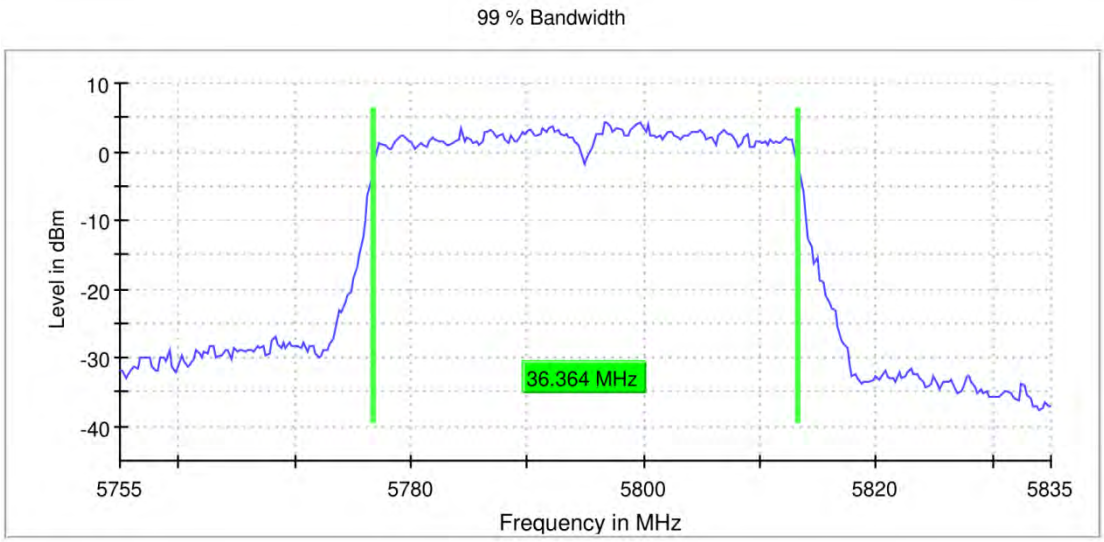
11N40 _ANT0_5310



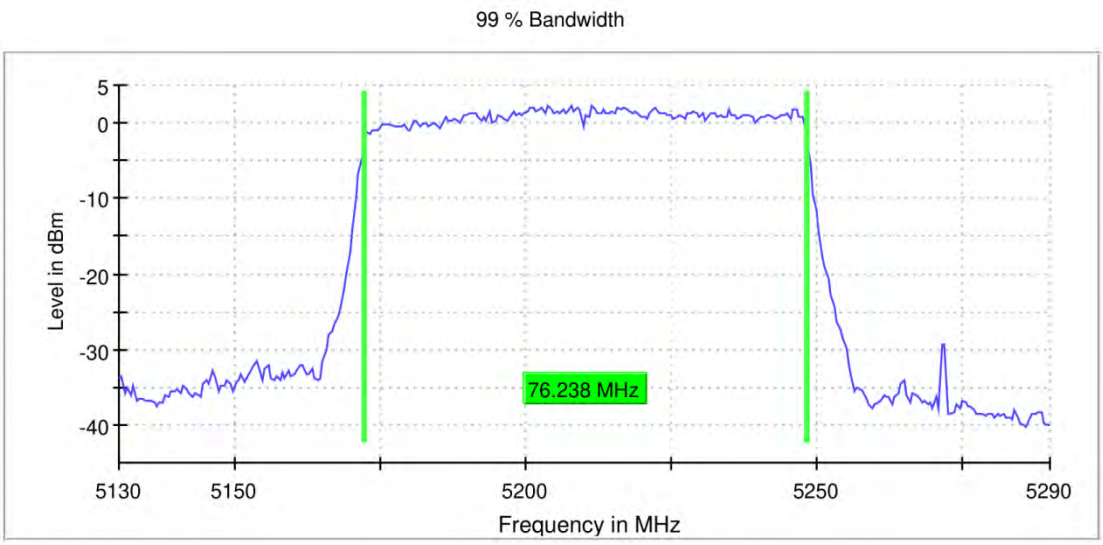
11N40 _ANT0_5755



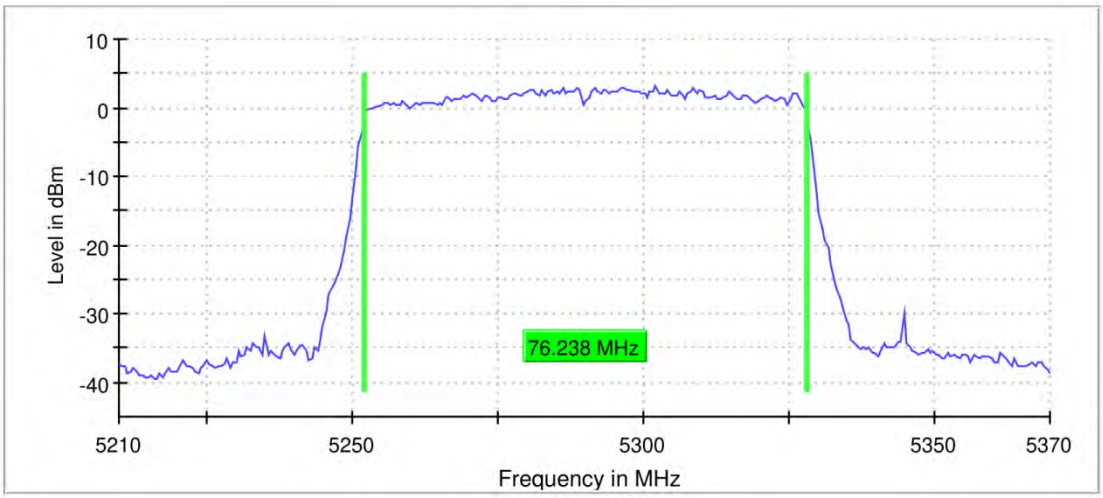
11N40 _ANT0_5795



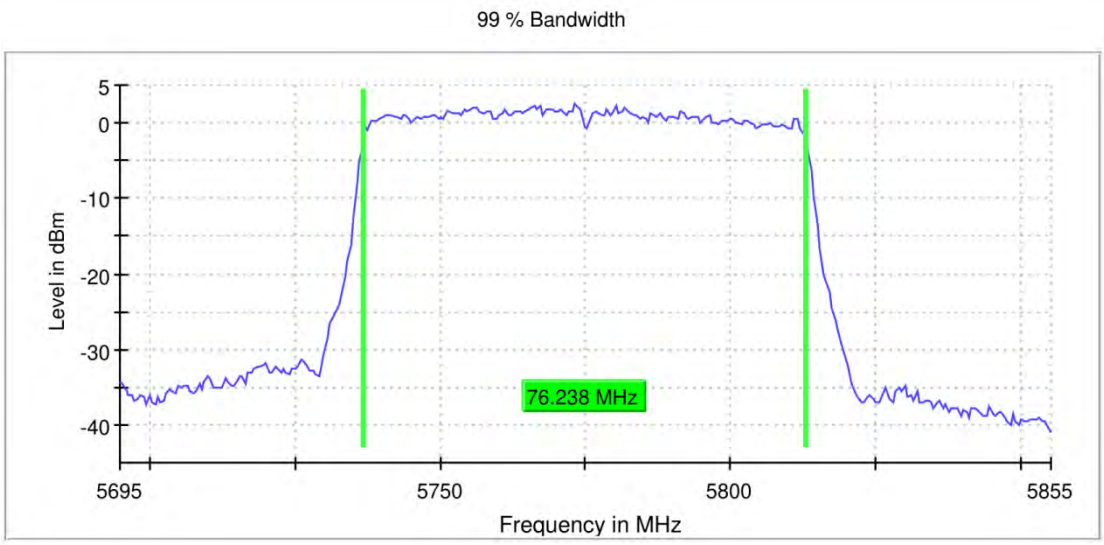
11AC80 _ANT0_5210



11AC80 _ANT0_5290



11AC80 _ANT0_5775



20M

RBW 200.000 kHz

VBW 1.000 MHz

40M

RBW 500.000 kHz

VBW 2.000 MHz

80M

RBW 1.000 MHz

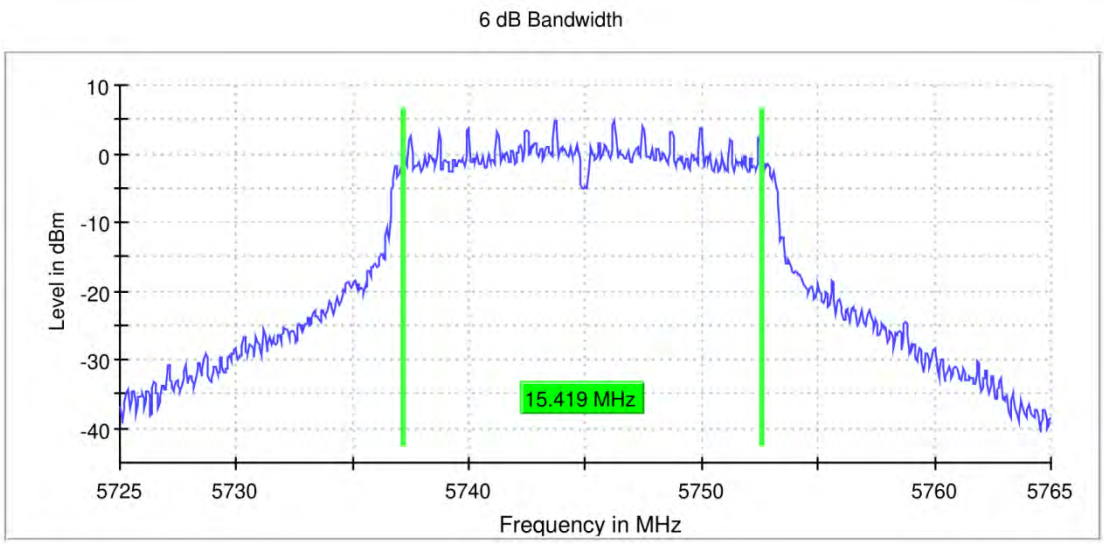
VBW 3.000 MHz

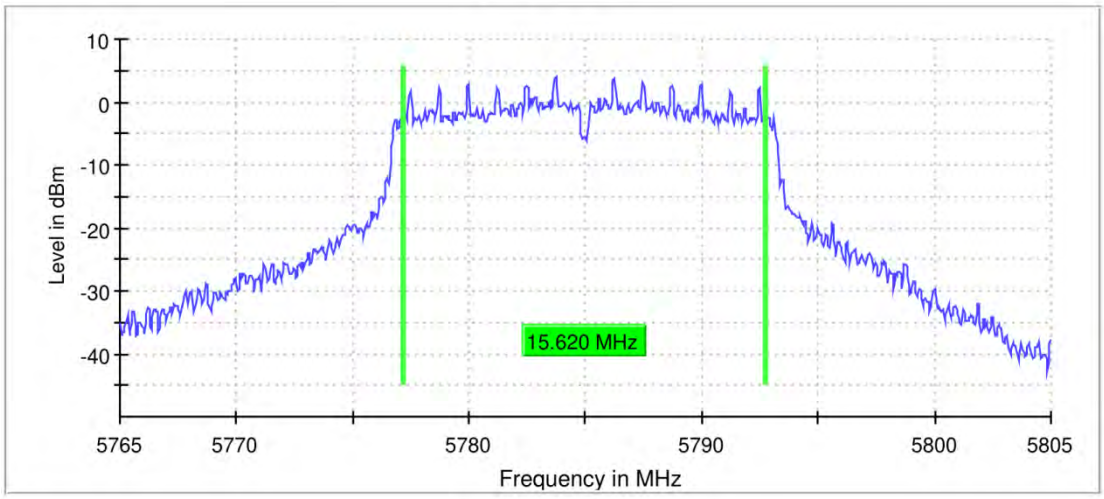
MIN EMISSION BANDWIDTH

TEST RESULT B4

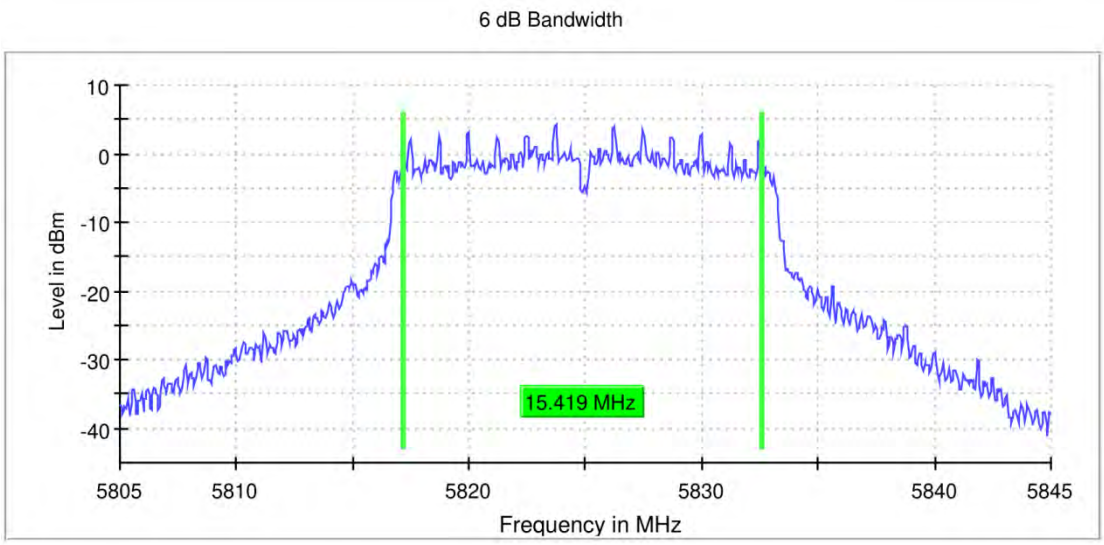
TestMode	Antenna	Frequency [MHz]	6db EBW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11A	ANT0	5745	15.419	5737.165	5752.584	0.5	PASS
	ANT0	5785	15.620	5777.165	5792.785	0.5	PASS
	ANT0	5825	15.419	5817.165	5832.584	0.5	PASS
11N20	ANT0	5745	15.870	5736.715	5752.585	0.5	PASS
	ANT0	5785	16.270	5776.414	5792.684	0.5	PASS
	ANT0	5825	15.870	5816.715	5832.585	0.5	PASS
11N40	ANT0	5755	35.472	5737.164	5772.636	0.5	PASS
	ANT0	5795	35.822	5777.164	5812.986	0.5	PASS
11AC80	ANT0	5775	75.274	5737.363	5812.637	0.5	PASS

TEST GRAPHS B4

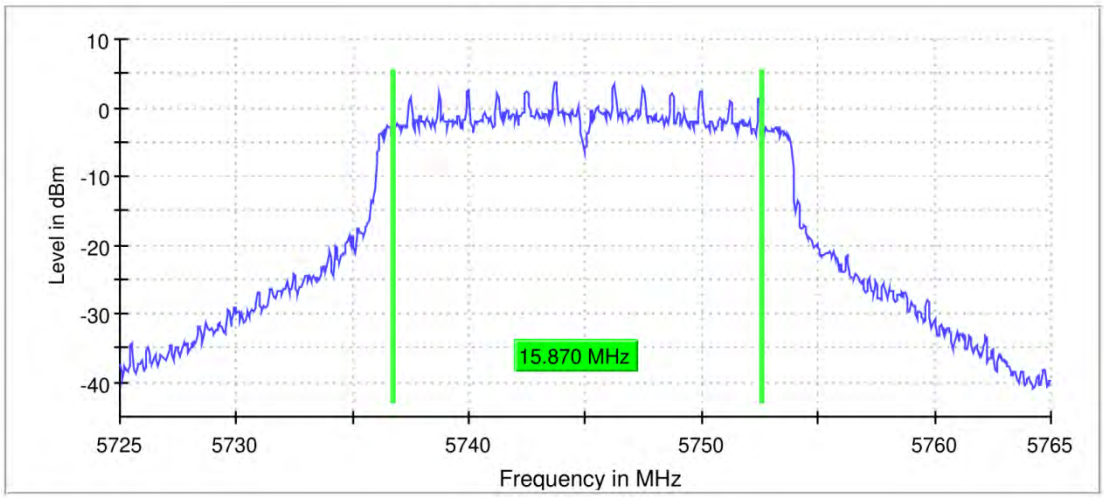
11A _ANT0_5745


11A _ANT0_5785


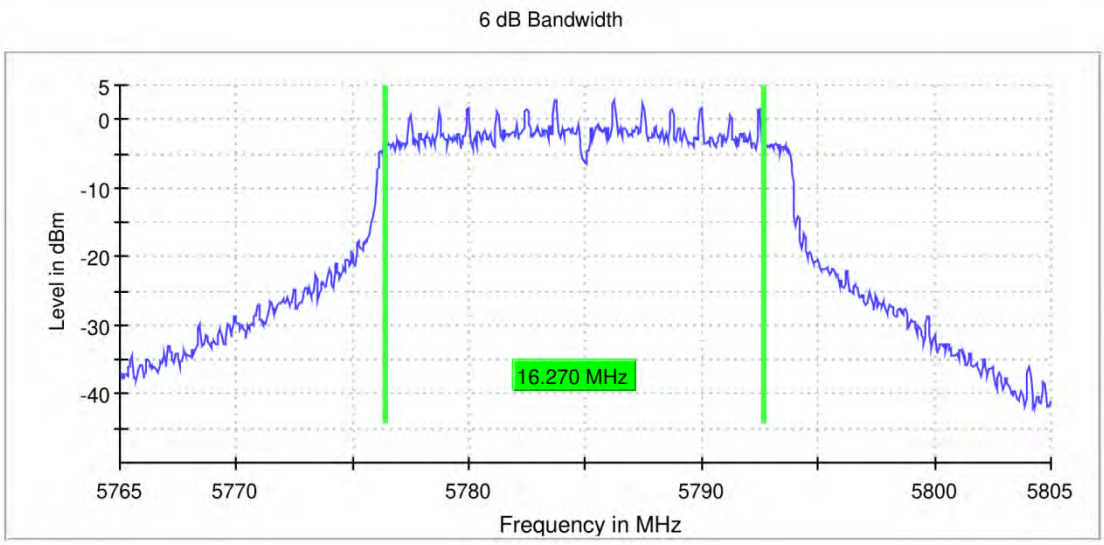
11A _ANT0_5825



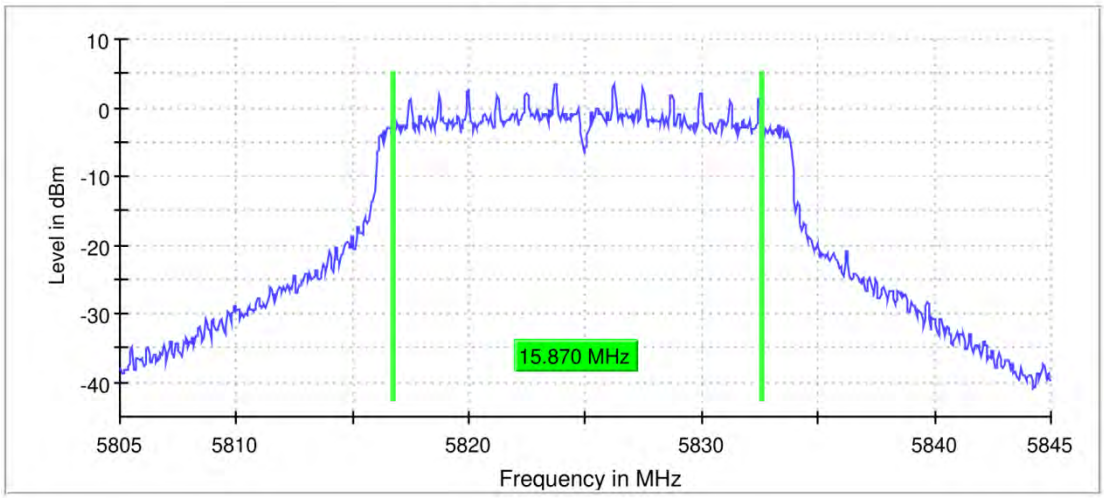
11N20 _ANT0_5745



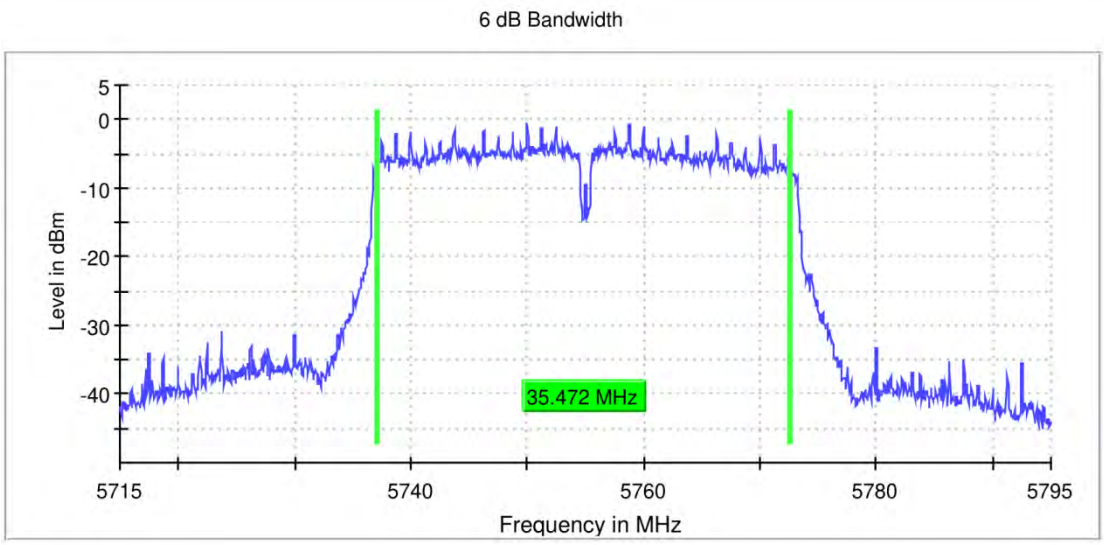
11N20_ANT0_5785



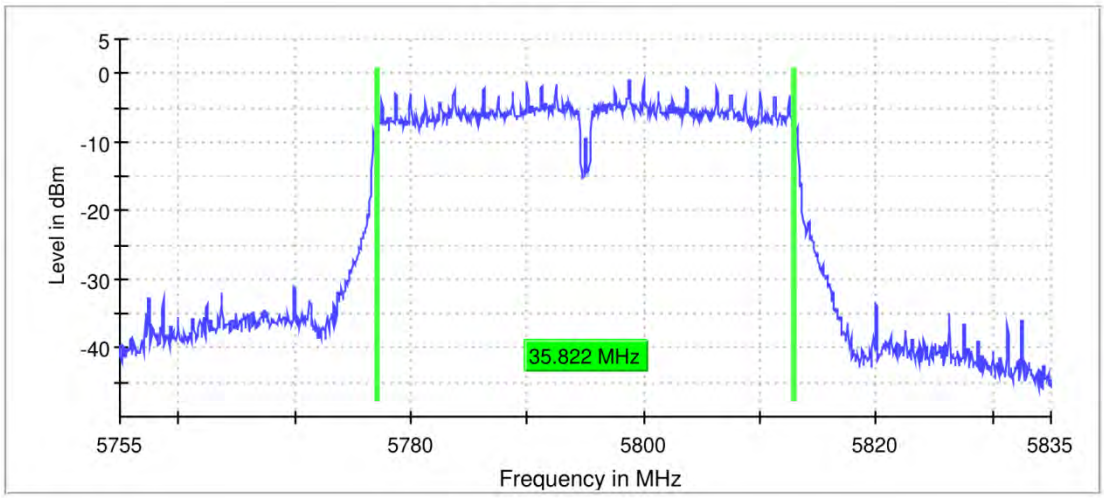
11N20_ANT0_5825



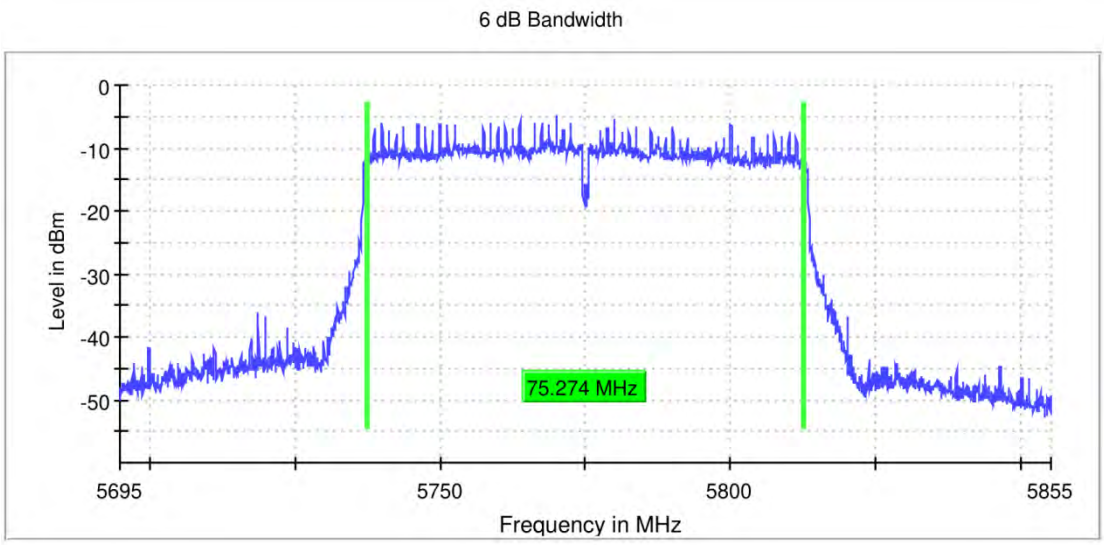
11N40_ANT0_5755



11N40_ANT0_5795



11AC80_ANT0_5775



20M

RBW 100.000 kHz

VBW 300.000 kHz

40M

RBW 100.000 kHz

VBW 300.000 kHz

80M

RBW 100.000 kHz

VBW 300.000 kHz

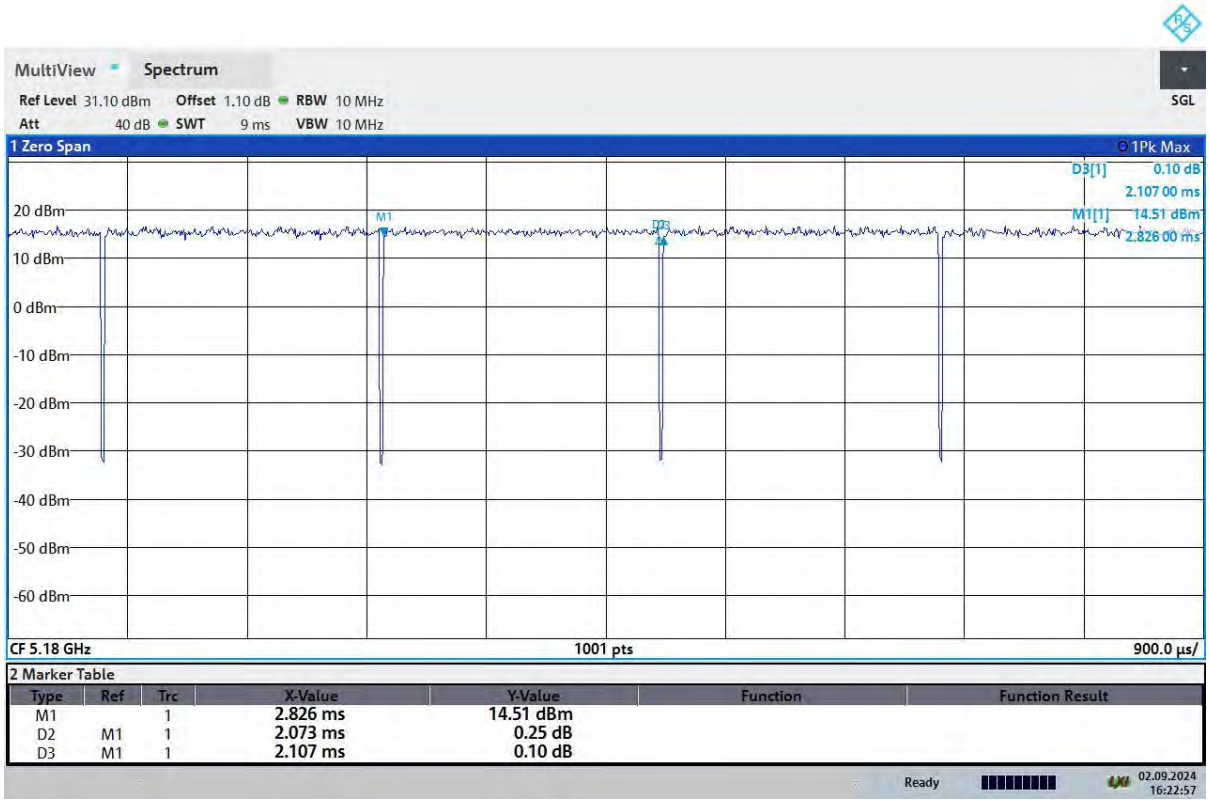
DUTY CYCLE

TEST RESULT

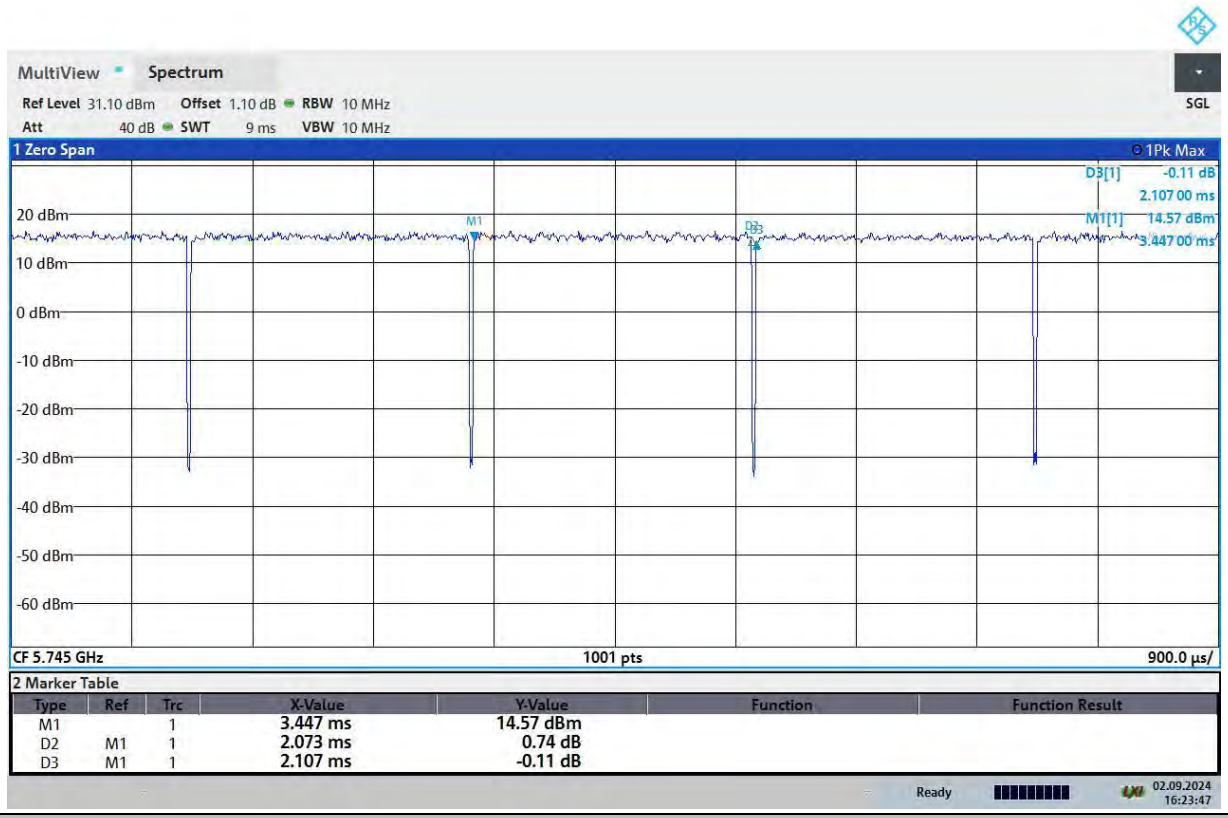
TestMode	Antenna	Frequency[MHz]	Transmission Duration [ms]	Transmission Period [ms]	Duty Cycle [%]	dutycycle factor
11A	ANT0	5180	2.073	2.107	98.39%	0.07
	ANT0	5745	2.073	2.107	98.39%	0.07
11N20SISO	ANT0	5180	1.921	1.963	97.86%	0.09
	ANT0	5745	1.929	1.963	98.27%	0.08
11AC20SISO	ANT0	5180	1.926	1.966	96.35%	0.16
	ANT0	5745	1.926	1.966	96.34%	0.16
11N40SISO	ANT0	5190	1.926	1.966	97.97%	0.09
	ANT0	5755	0.949	0.985	97.97%	0.09
11AC40SISO	ANT0	5190	0.948	0.984	96.36%	0.16
	ANT0	5755	1.902	1.974	96.36%	0.16
11AC80SISO	ANT0	5210	1.902	1.974	92.80%	0.32
	ANT0	5775	1.854	1.998	92.80%	0.32

TEST GRAPHS

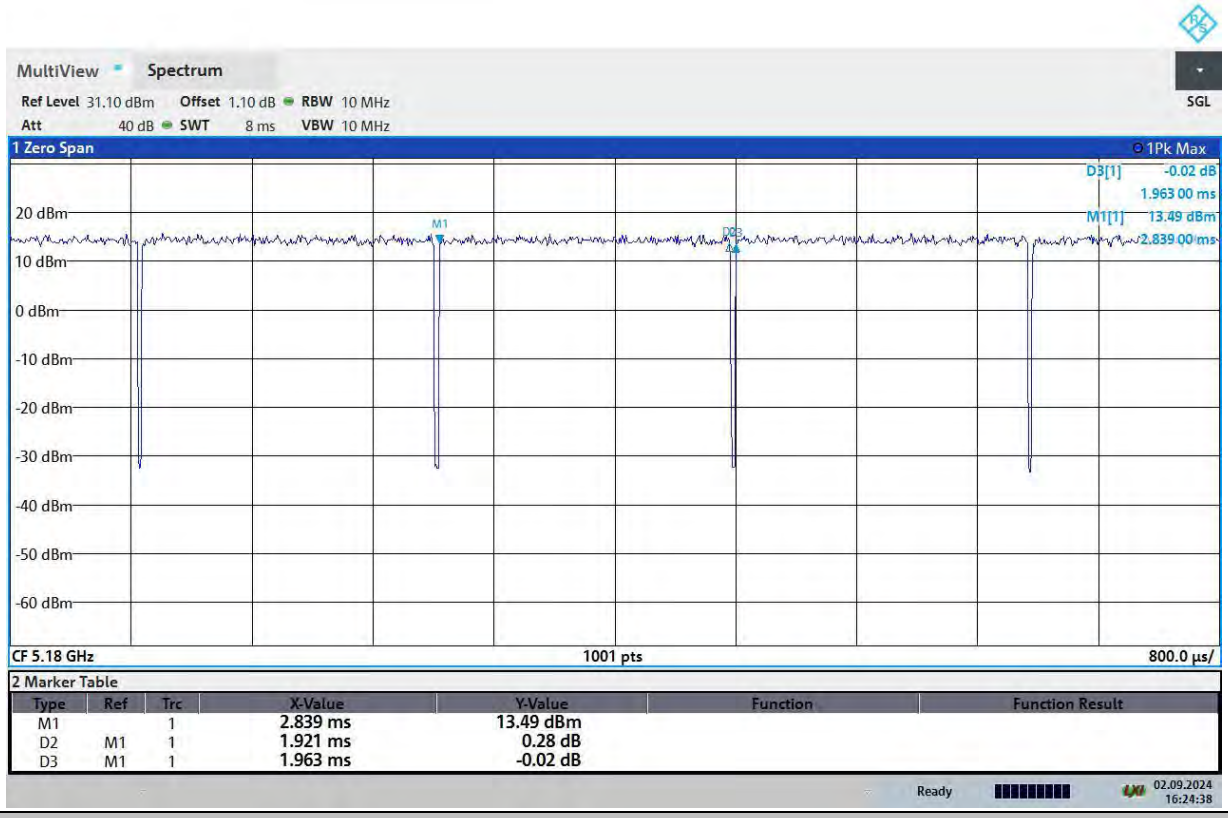
11A _ANT0_5180



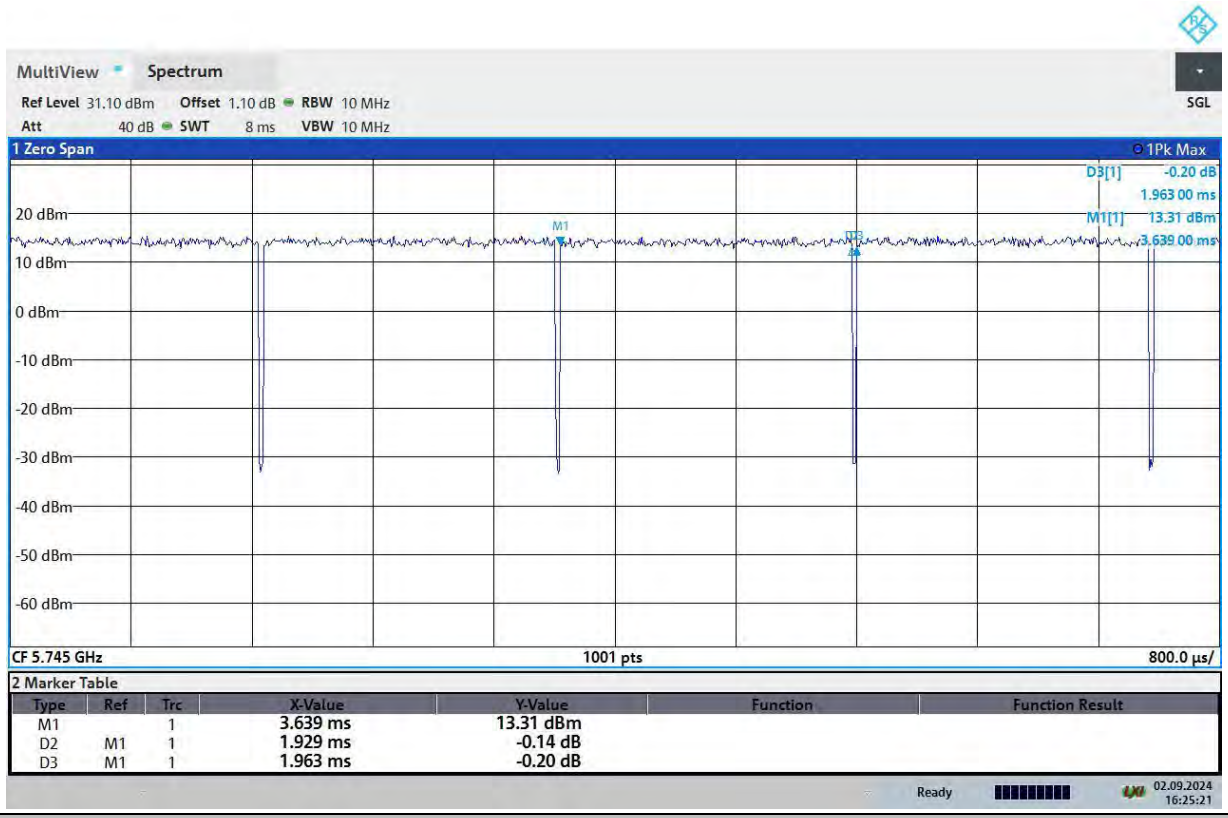
Band4-11A _ANT0_5745



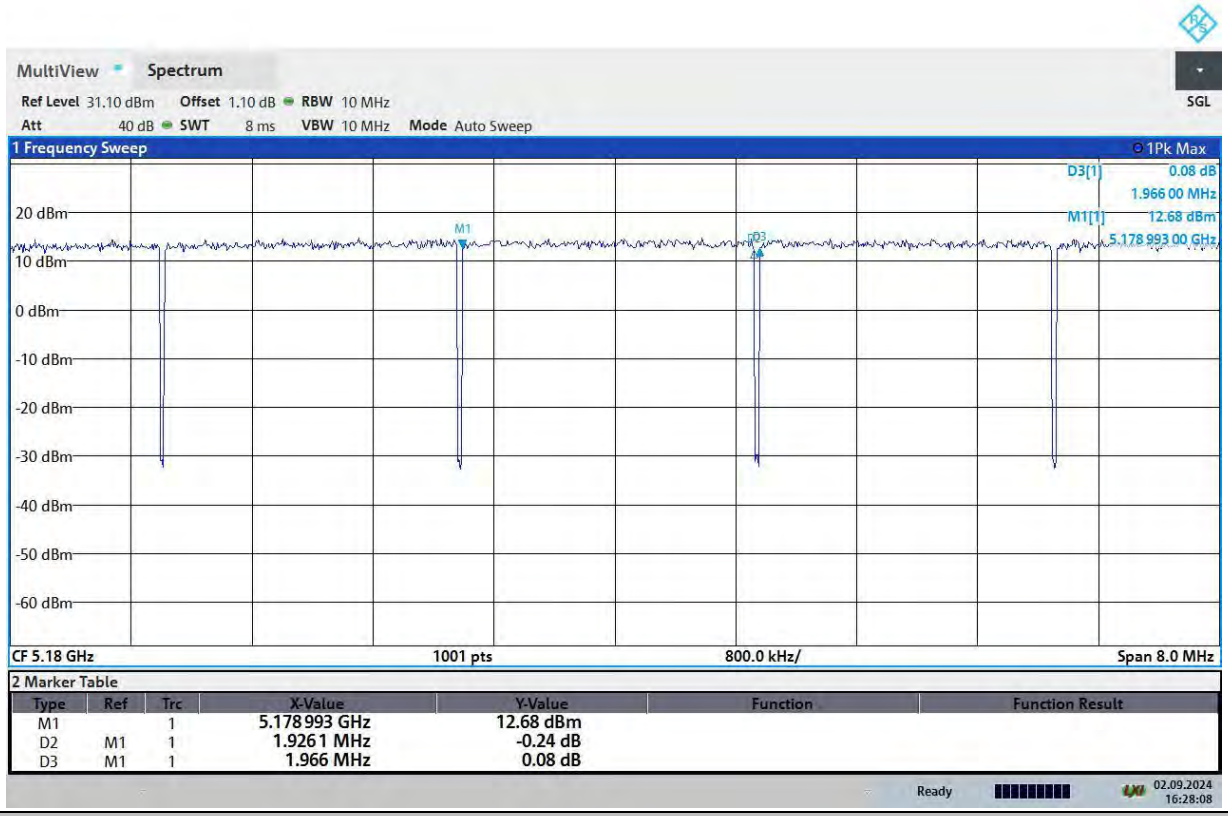
11N20_ANT0 _5180



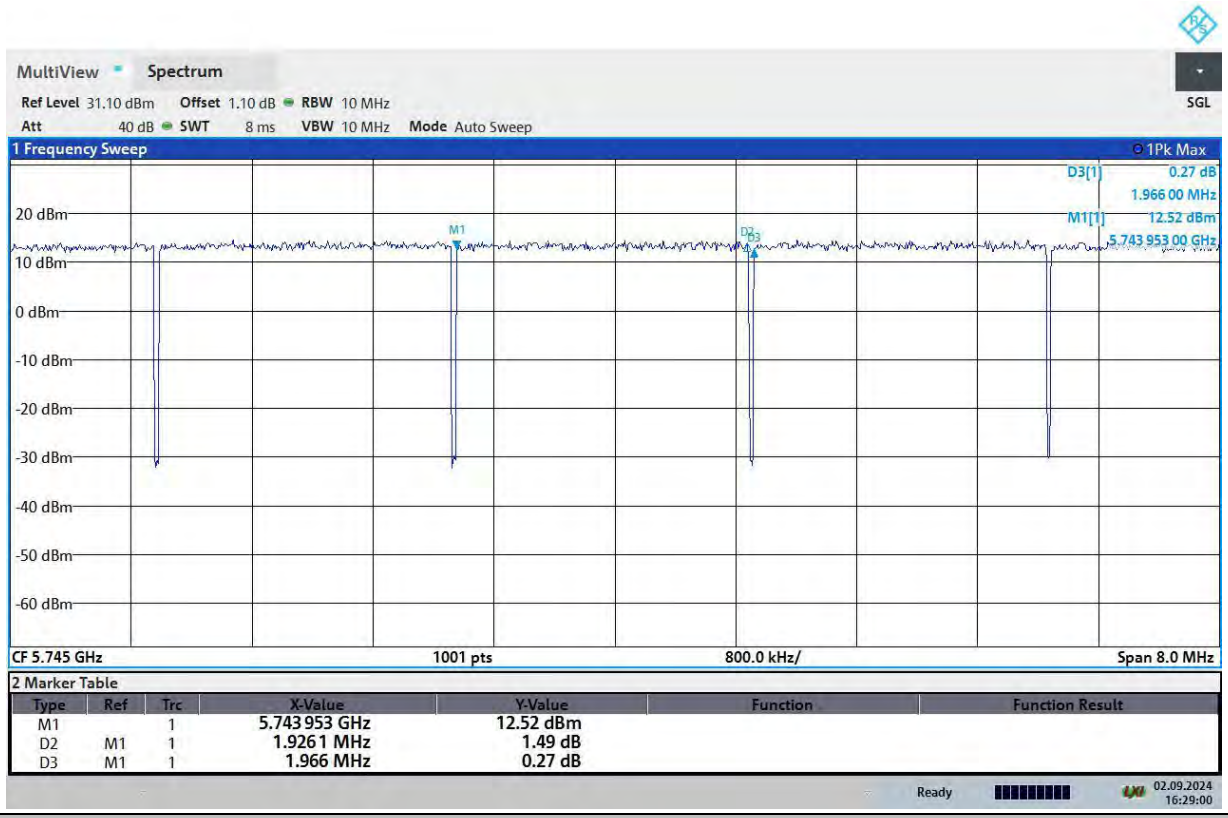
Band4-11N20_ANT0 _5745



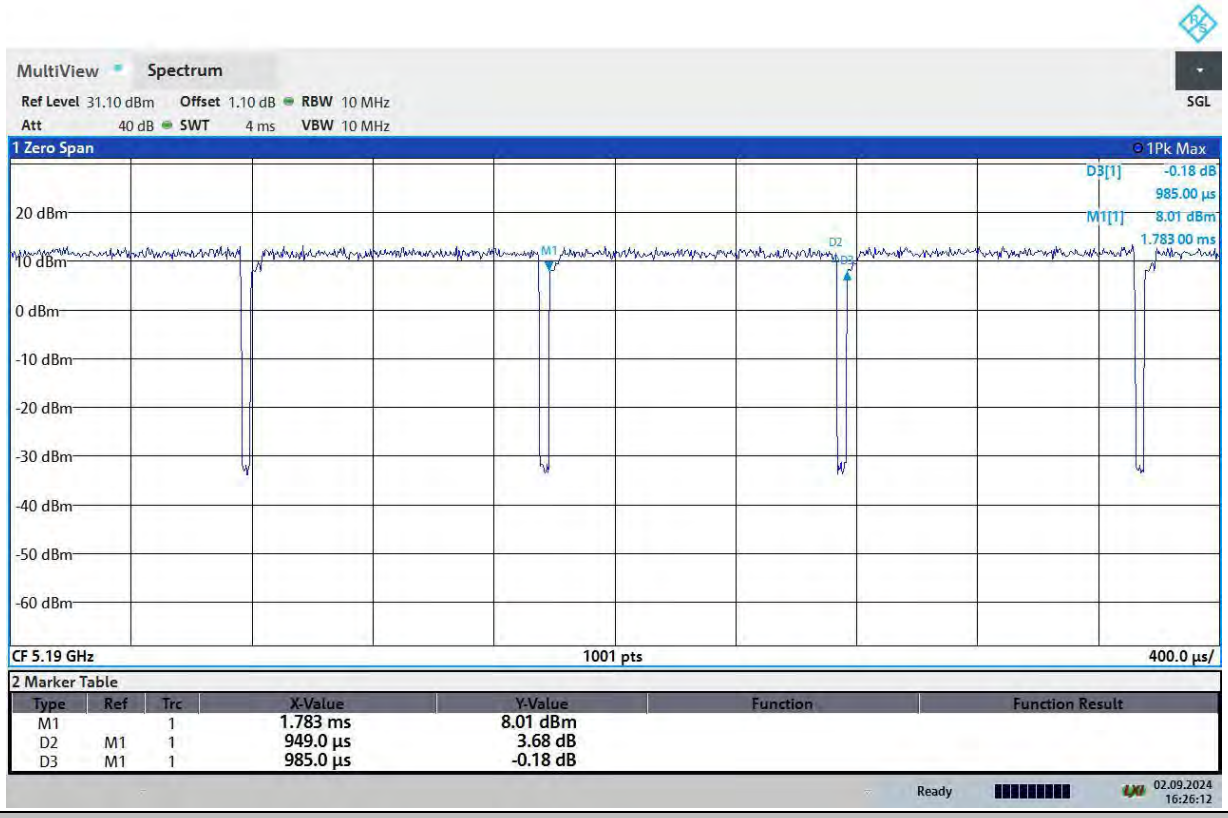
11AC20_ANT0 _5180



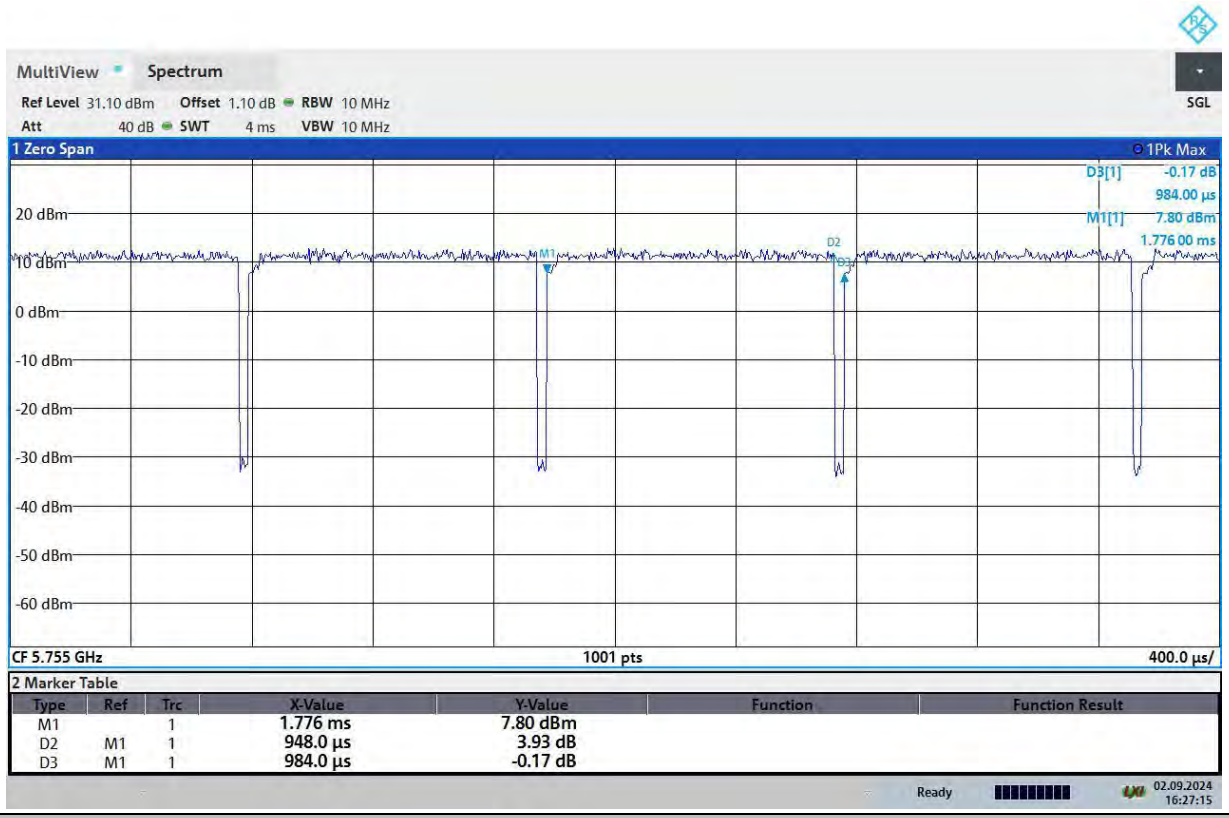
Band4-11AC20_ANT0 _5745



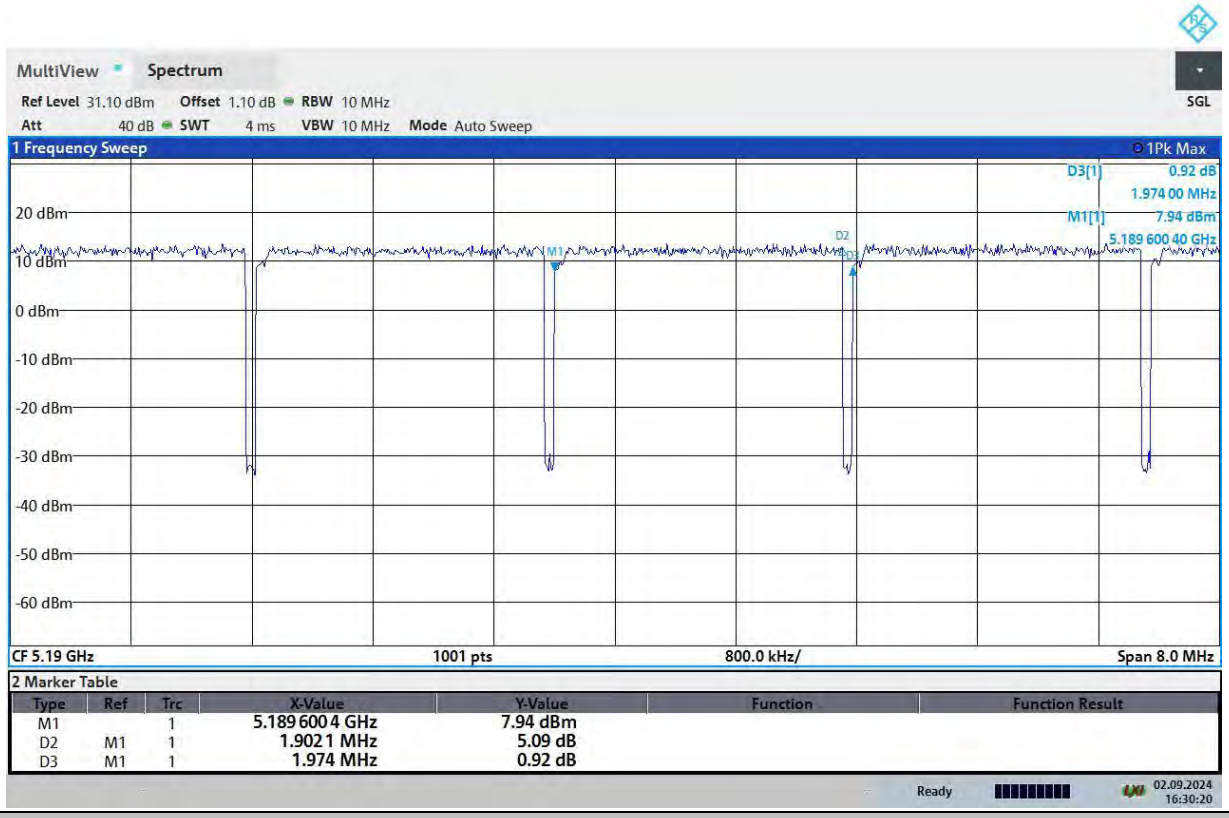
11N40_ANT0 _5190



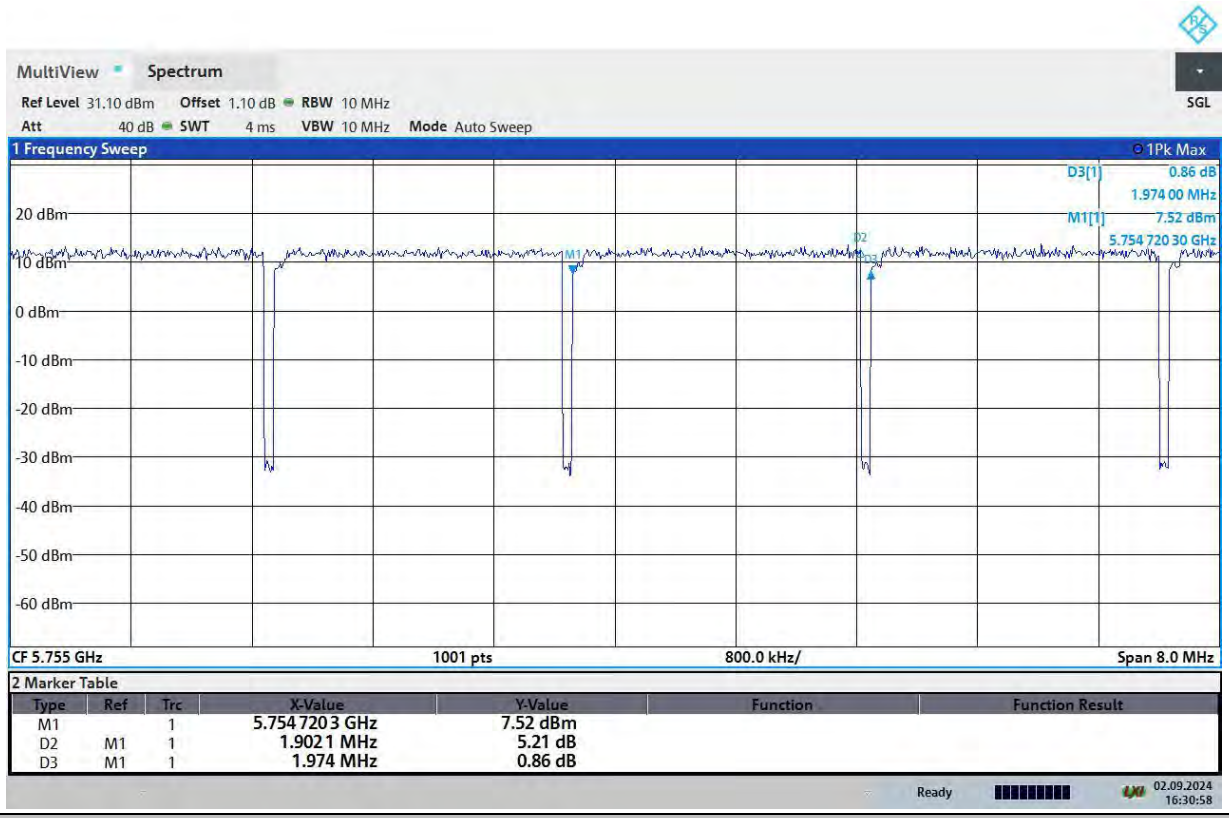
Band4-11N40_ANT0 _5755



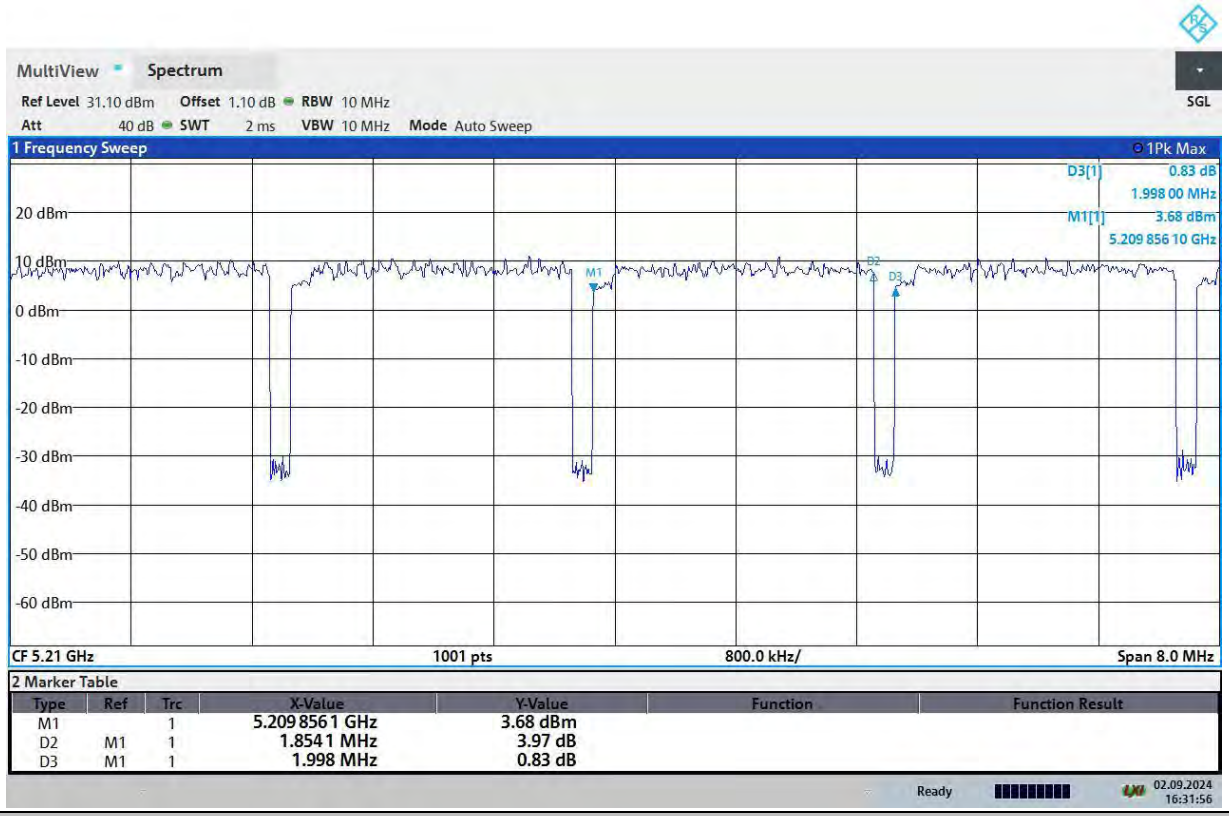
11AC40_ANT0 _5190



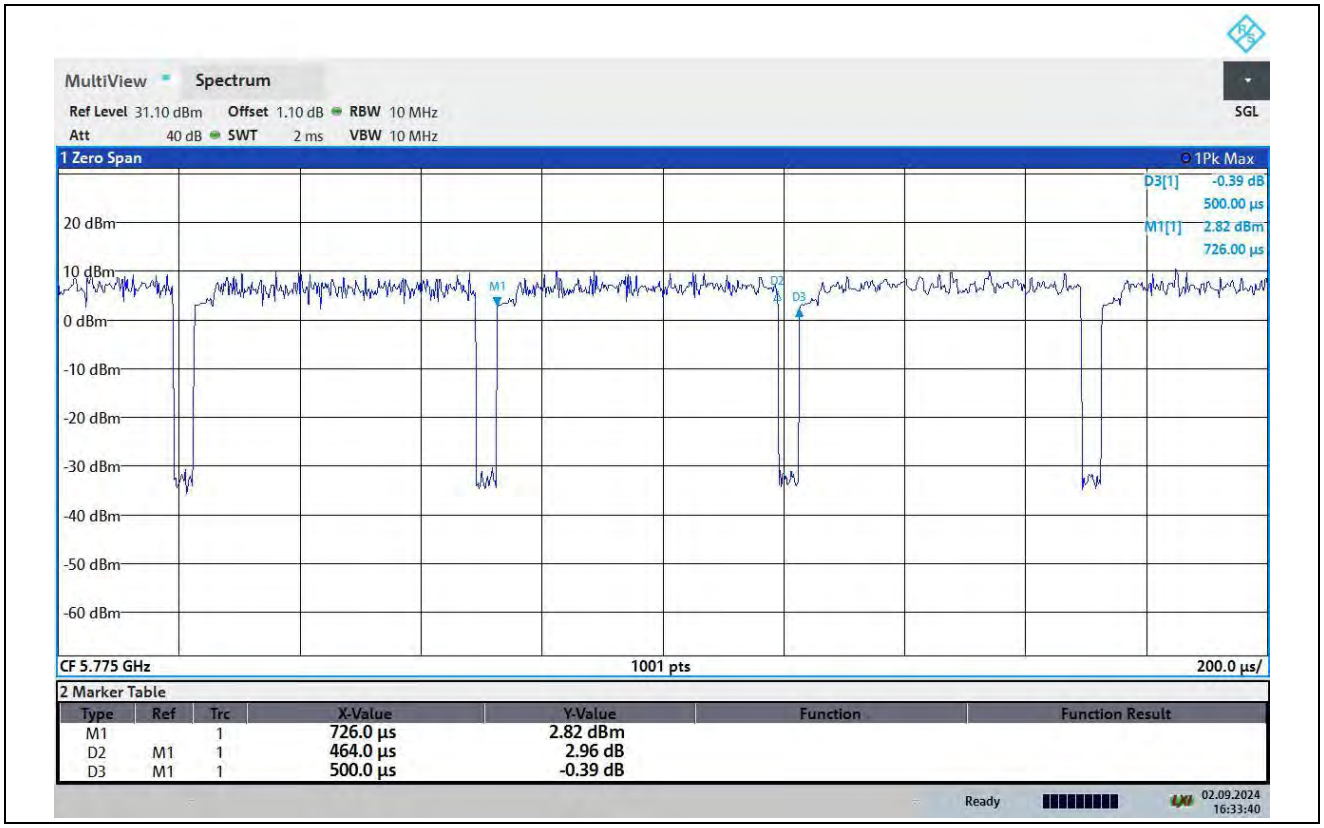
Band4-11AC40_ANT0 _5755



11AC80_ANT0 _5210



Band4-11AC80_ANT0 _5775


MultiView
Spectrum
Ref Level 31.10 dBm Offset 1.10 dB RBW 10 MHz
Att 40 dB SWT 2 ms VBW 10 MHz
SGL
1 Zero Span
1Pk Max
D3[1] -0.39 dB
500.00 µs
M1[1] 2.82 dBm
726.00 µs
20 dBm
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
M1
D2
D3
CF 5.775 GHz
1001 pts
200.0 µs/
2 Marker Table
Type Ref Trc X-Value Y-Value Function Function Result
M1 1 726.0 µs 2.82 dBm
D2 M1 1 464.0 µs 2.96 dB
D3 M1 1 500.0 µs -0.39 dB
Ready
02.09.2024
16:33:40

MAXIMUM CONDUCTED OUTPUT POWER

TEST RESULT

Power Table For_U-NII-1									
Test Mode	TX Mod.	Freq. (MHz)	Ant.	Maximum Conducted Power (dBm)	FCC Conducted Power Limit (dBm)	EIRP (dBm)	FCC EIRP Limit	Verdict	Power Setting
11A	SISO	5180	ANT0	13.02	≤24.00	13.82	≤36.00	Pass	14
		5200	ANT0	13.16	≤24.00	13.96	≤36.00	Pass	14
		5240	ANT0	**14.71**	≤24.00	15.51	≤36.00	Pass	14
11N20	SISO	5180	ANT0	11.82	≤24.00	12.62	≤36.00	Pass	13
		5200	ANT0	11.88	≤24.00	12.68	≤36.00	Pass	13
		5240	ANT0	13.45	≤24.00	14.25	≤36.00	Pass	13
11N40	SISO	5190	ANT0	11.49	≤24.00	12.29	≤36.00	Pass	12
		5230	ANT0	12.73	≤24.00	13.53	≤36.00	Pass	12
11AC20	SISO	5180	ANT0	10.91	≤24.00	11.71	≤36.00	Pass	12
		5200	ANT0	10.89	≤24.00	11.69	≤36.00	Pass	12
		5240	ANT0	12.44	≤24.00	13.24	≤36.00	Pass	12
11AC40	SISO	5190	ANT0	11.48	≤24.00	12.28	≤36.00	Pass	12
		5230	ANT0	12.67	≤24.00	13.47	≤36.00	Pass	12
11AC80	SISO	5210	ANT0	9.84	≤24.00	10.64	≤36.00	Pass	10

Power Table For_U-NII-2A									
Test Mode	TX Mod.	Freq. (MHz)	Ant.	Maximum Conducted Power (dBm)	FCC Conducted Power Limit (dBm)	EIRP (dBm)	FCC EIRP Limit	Verdict	Power Setting
11A	SISO	5260	ANT0	14.71	≤24.00	15.51	≤30.00	Pass	14
		5300	ANT0	14.92	≤24.00	15.72	≤30.00	Pass	14
		5320	ANT0	**15.41**	≤24.00	16.21	≤30.00	Pass	14
11N20	SISO	5260	ANT0	13.37	≤24.00	14.17	≤30.00	Pass	13
		5300	ANT0	13.81	≤24.00	14.61	≤30.00	Pass	13
		5320	ANT0	14.33	≤24.00	15.13	≤30.00	Pass	13
11N40	SISO	5270	ANT0	13.03	≤24.00	13.83	≤30.00	Pass	12
		5310	ANT0	13.74	≤24.00	14.54	≤30.00	Pass	12
11AC20	SISO	5260	ANT0	12.44	≤24.00	13.24	≤30.00	Pass	12
		5300	ANT0	12.80	≤24.00	13.60	≤30.00	Pass	12
		5320	ANT0	13.30	≤24.00	14.10	≤30.00	Pass	12
11AC40	SISO	5270	ANT0	12.90	≤24.00	13.70	≤30.00	Pass	12
		5310	ANT0	13.58	≤24.00	14.38	≤30.00	Pass	12
11AC80	SISO	5290	ANT0	11.04	≤24.00	11.84	≤30.00	Pass	10

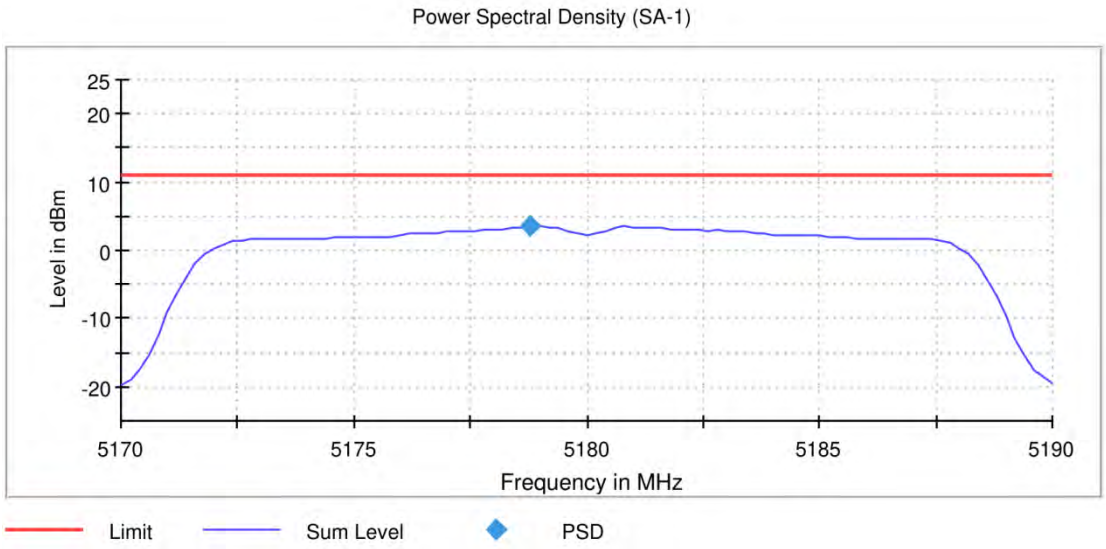
Power Table For_U-NII-3									
Test Mode	TX Mod.	Freq. (MHz)	Ant.	Maximum Conducted Power (dBm)	Conducted Power Limit (dBm)	EIRP (dBm)	IC EIRP Limit	Verdict	Power Setting
11A	SISO	5745	ANT0	**14.86**	≤30.00	15.66	≤36.00	Pass	14
		5785	ANT0	13.28	≤30.00	14.08	≤36.00	Pass	14
		5825	ANT0	14.51	≤30.00	15.31	≤36.00	Pass	14
11N20	SISO	5745	ANT0	13.71	≤30.00	14.51	≤36.00	Pass	13
		5785	ANT0	12.22	≤30.00	13.02	≤36.00	Pass	13
		5825	ANT0	13.35	≤30.00	14.15	≤36.00	Pass	13
11N40	SISO	5755	ANT0	13.10	≤30.00	13.90	≤36.00	Pass	12
		5795	ANT0	11.74	≤30.00	12.54	≤36.00	Pass	12
11AC20	SISO	5745	ANT0	12.76	≤30.00	13.56	≤36.00	Pass	12
		5785	ANT0	11.39	≤30.00	12.19	≤36.00	Pass	12
		5825	ANT0	12.43	≤30.00	13.23	≤36.00	Pass	12
11AC40	SISO	5755	ANT0	13.06	≤30.00	13.86	≤36.00	Pass	12
		5795	ANT0	11.66	≤30.00	12.46	≤36.00	Pass	12
11AC80	SISO	5775	ANT0	10.62	≤30.00	11.42	≤36.00	Pass	10
Note:The Maximum Conducted Power with duty cycle factor.									

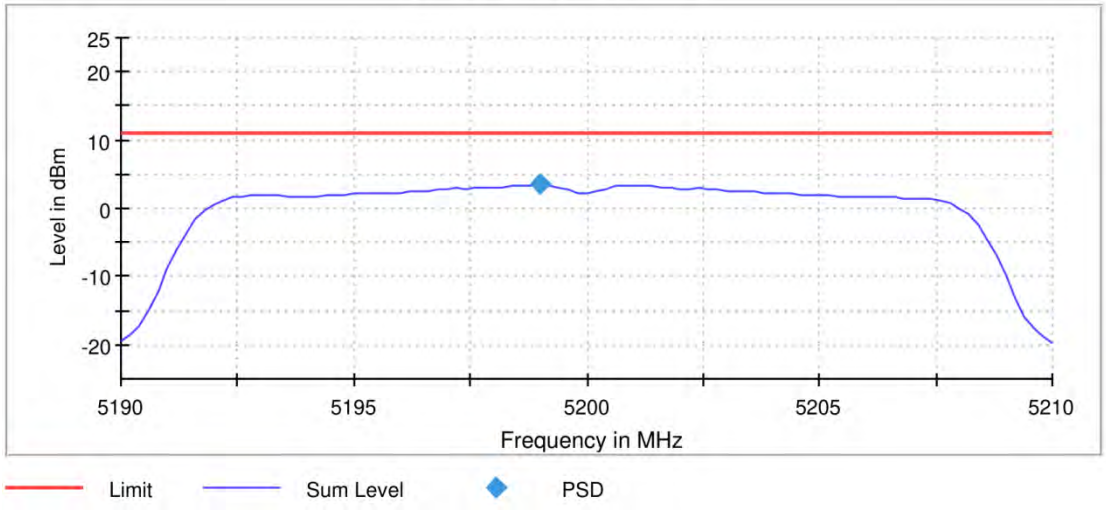
MAXIMUM POWER SPECTRAL DENSITY

TEST RESULT

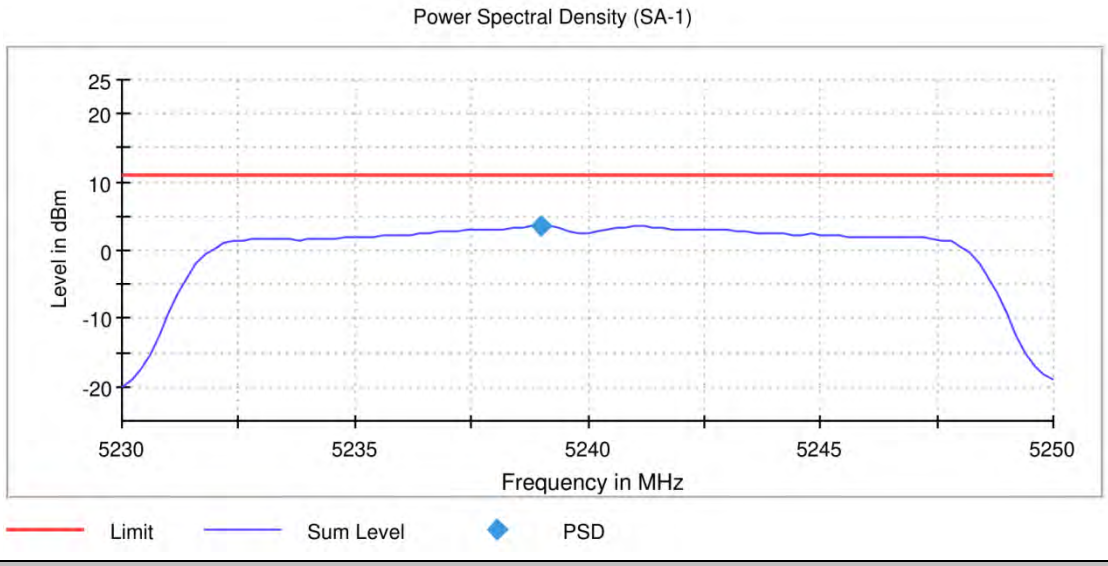
TestMode	Antenna	Frequency[MHz]	Result [dBm/MHz]	PSD Limit [dBm/MHz]	Verdict
11A	ANT0	5180	3.467	≤11.00	Pass
	ANT0	5200	3.495	≤11.00	Pass
	ANT0	5240	3.577	≤11.00	Pass
	ANT0	5260	4.045	≤11.00	Pass
	ANT0	5300	3.608	≤11.00	Pass
	ANT0	5320	4.008	≤11.00	Pass
	ANT0	5745	0.791	≤30.00	Pass
	ANT0	5785	-0.374	≤30.00	Pass
	ANT0	5825	-0.251	≤30.00	Pass
11N20	ANT0	5180	1.636	≤11.00	Pass
	ANT0	5200	1.719	≤11.00	Pass
	ANT0	5240	2.272	≤11.00	Pass
	ANT0	5260	2.181	≤11.00	Pass
	ANT0	5300	2.376	≤11.00	Pass
	ANT0	5320	2.495	≤11.00	Pass
	ANT0	5745	-0.766	≤30.00	Pass
	ANT0	5785	-1.815	≤30.00	Pass
	ANT0	5825	-0.917	≤30.00	Pass
11N40	ANT0	5190	-1.829	≤11.00	Pass
	ANT0	5230	-1.681	≤11.00	Pass
	ANT0	5270	-1.156	≤11.00	Pass
	ANT0	5310	-1.189	≤11.00	Pass
	ANT0	5755	-4.852	≤30.00	Pass
	ANT0	5795	-5.228	≤30.00	Pass
11AC80	ANT0	5210	-7.522	≤11.00	Pass
	ANT0	5290	-6.536	≤11.00	Pass
	ANT0	5775	-10.218	≤30.00	Pass

TEST GRAPHS

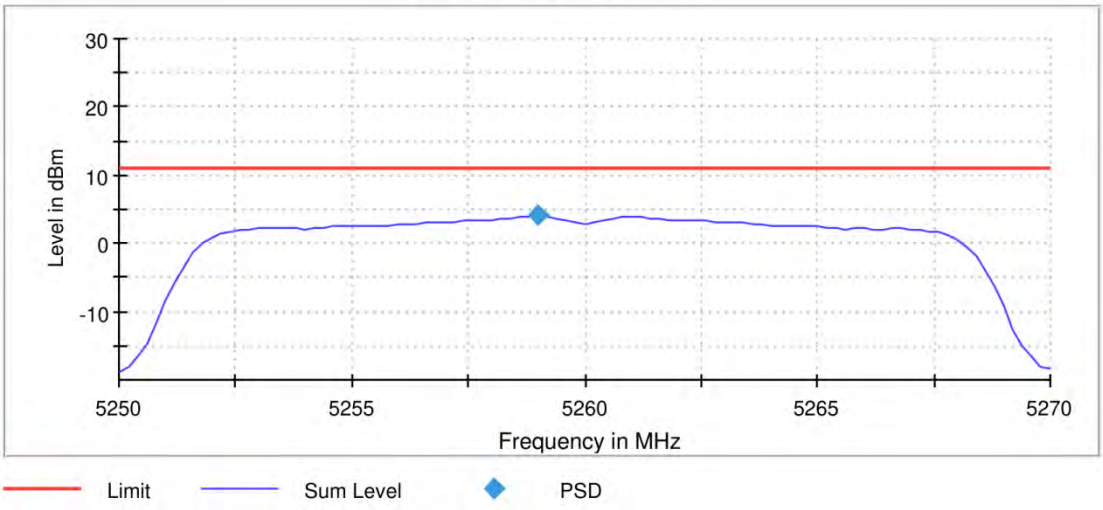
11A_ANT0_5180


11A _ANT0_5200


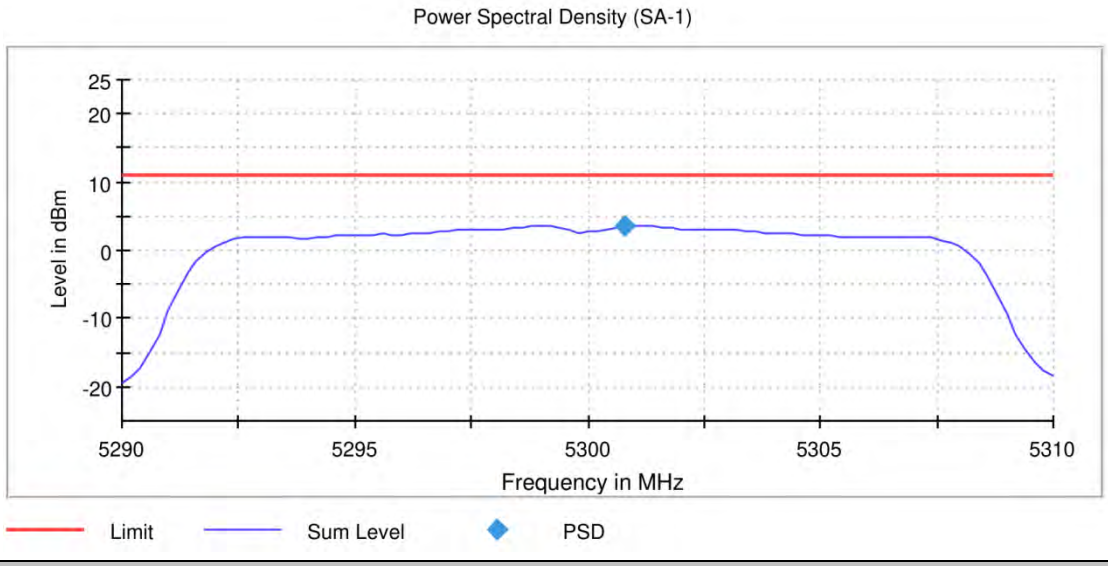
11A _ANT0_5240



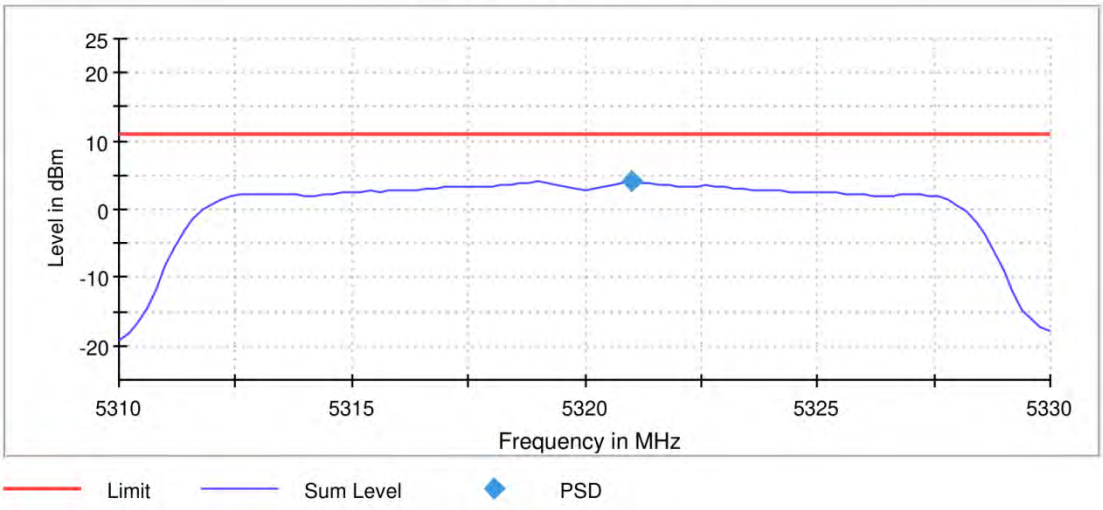
11A _ANT0_5260



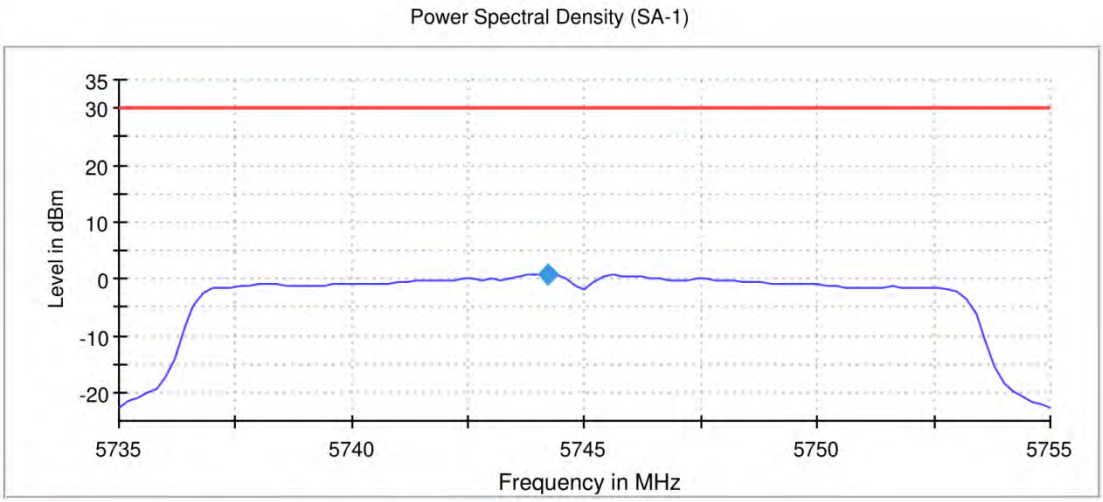
11A _ANT0_5300



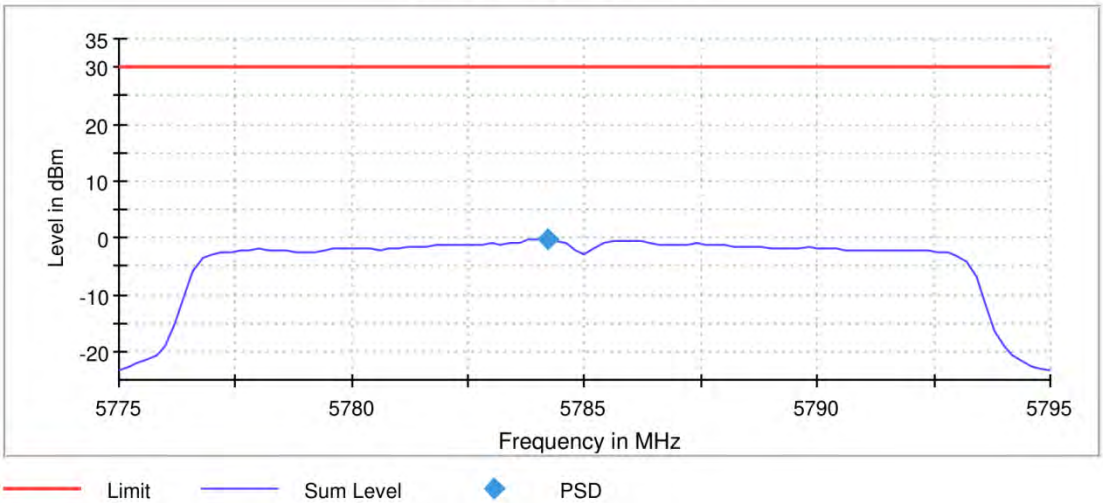
11A _ANT0_5320



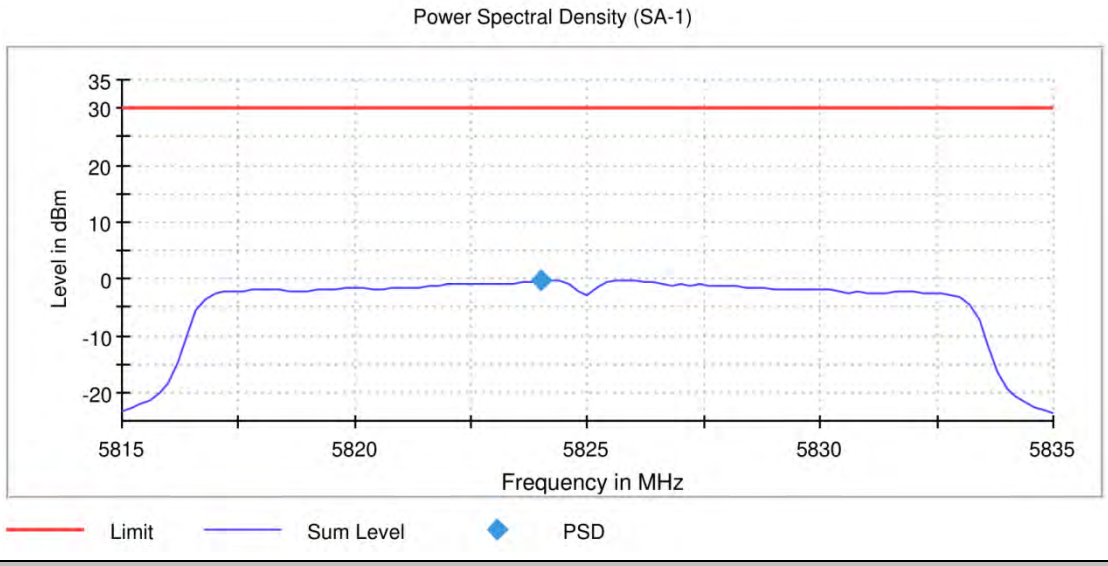
11A _ANT0_5745



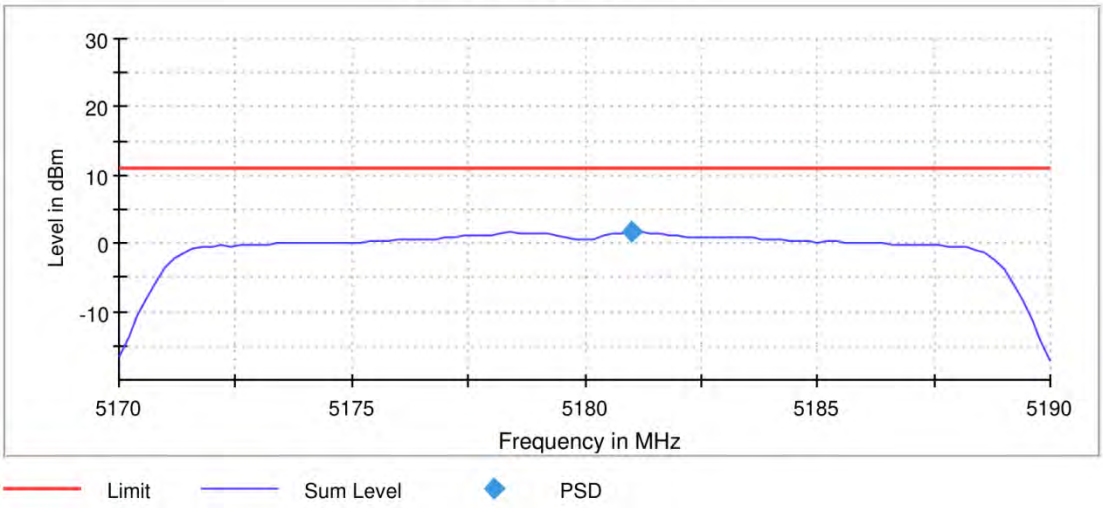
11A _ANT0_5785



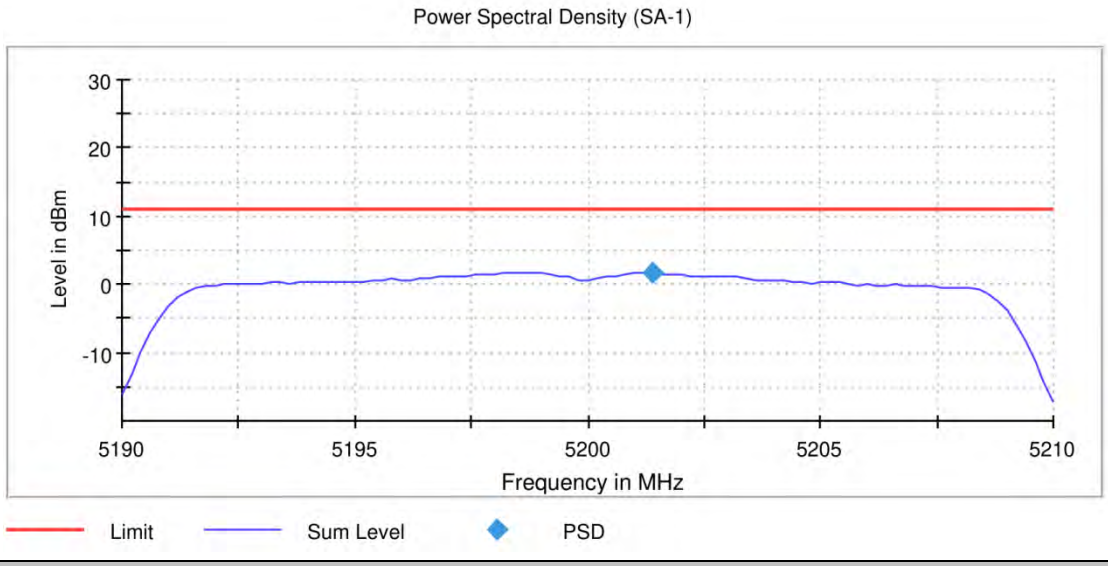
11A_ANT0_5825



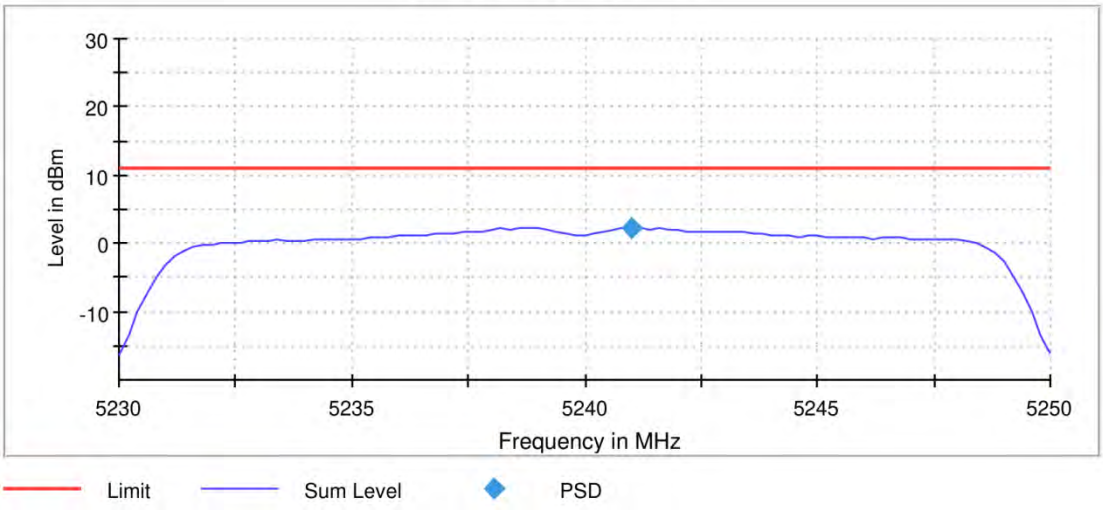
11N20_ANT0_5180



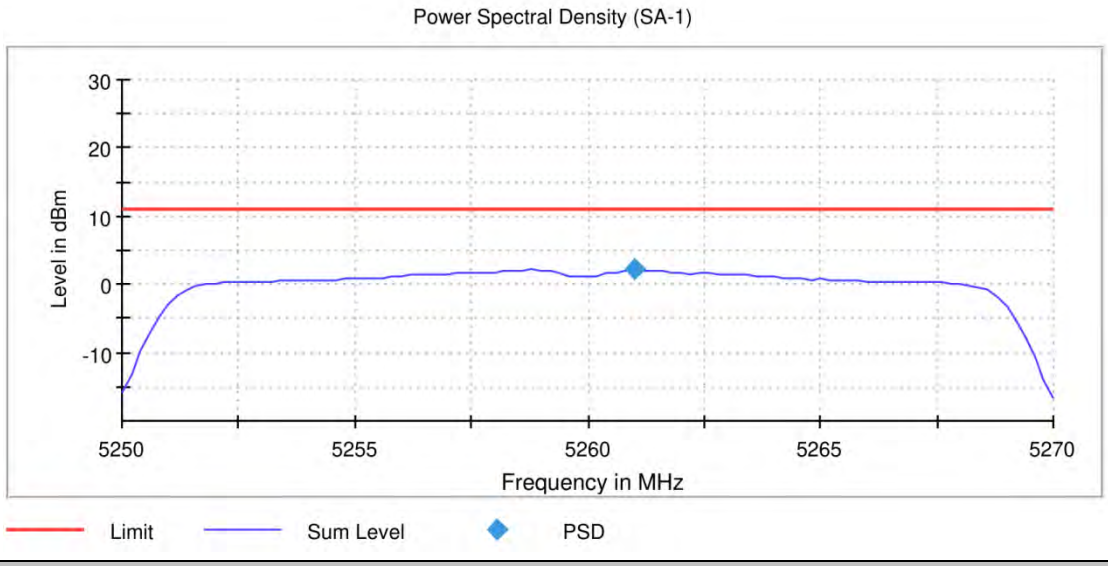
11N20 _ANT0_5200



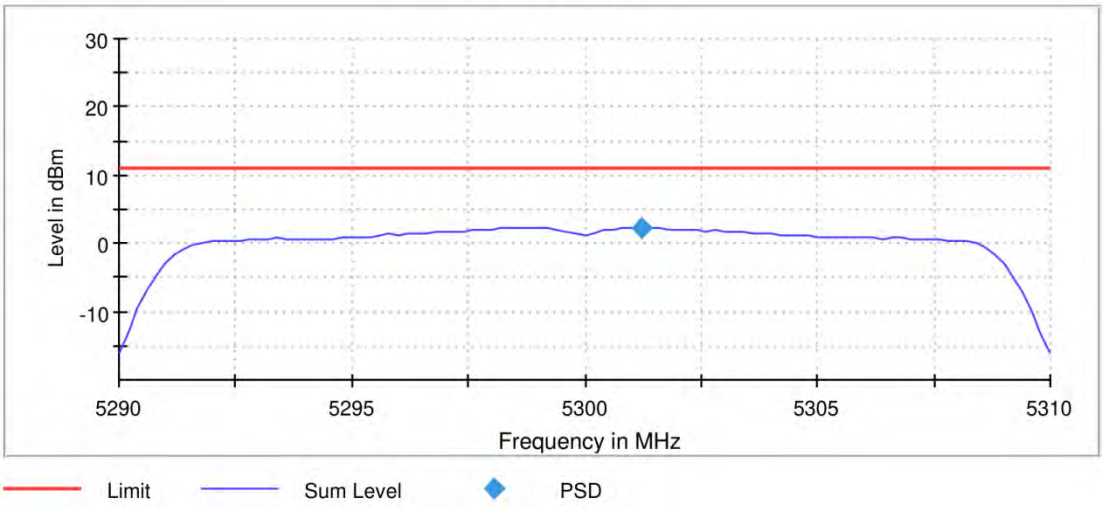
11N20 _ANT0_5240



11N20 _ANT0_5260



11N20_ANT0_5300



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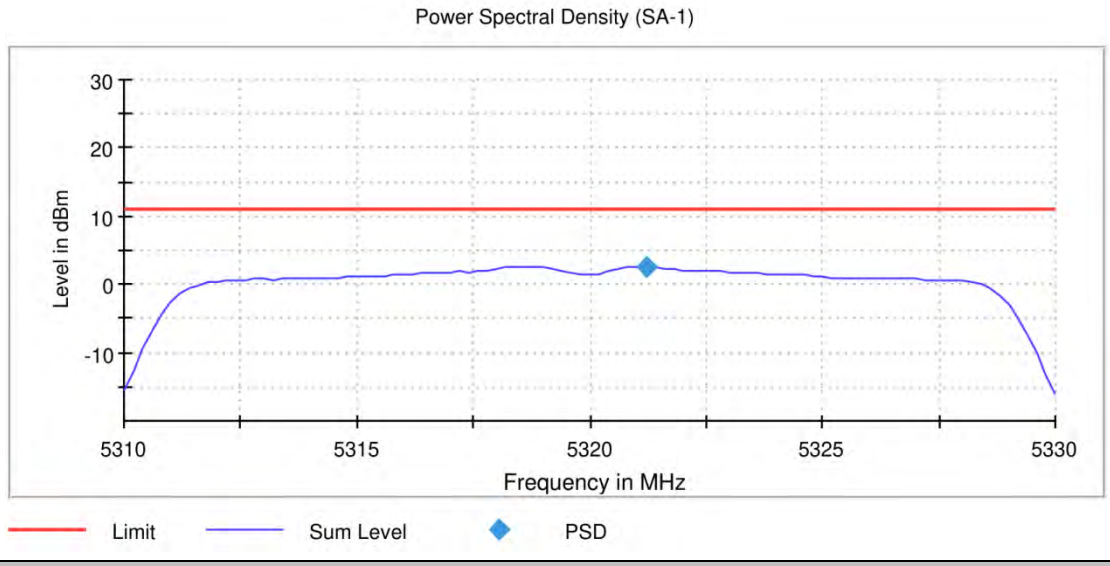

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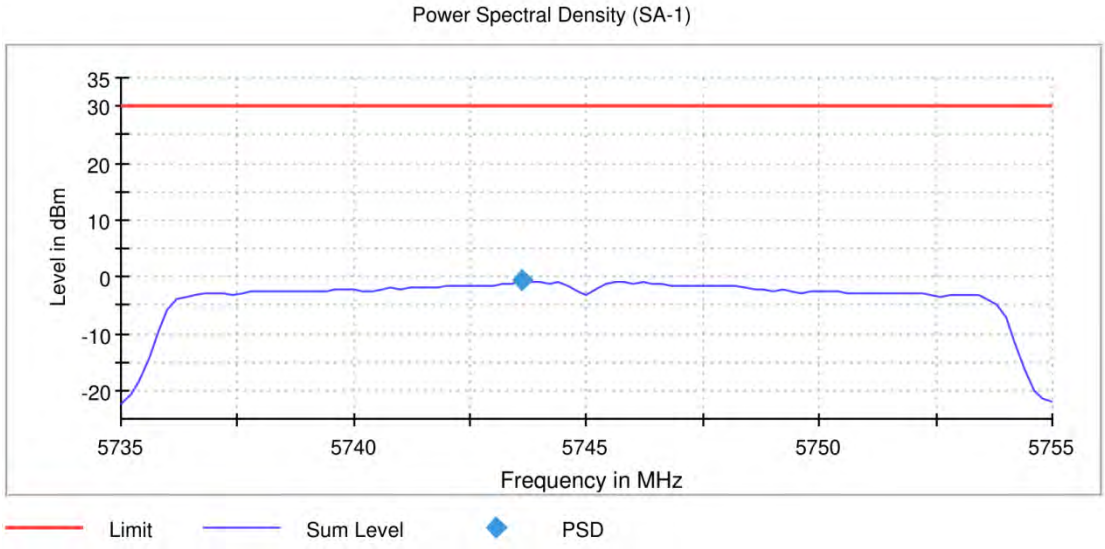
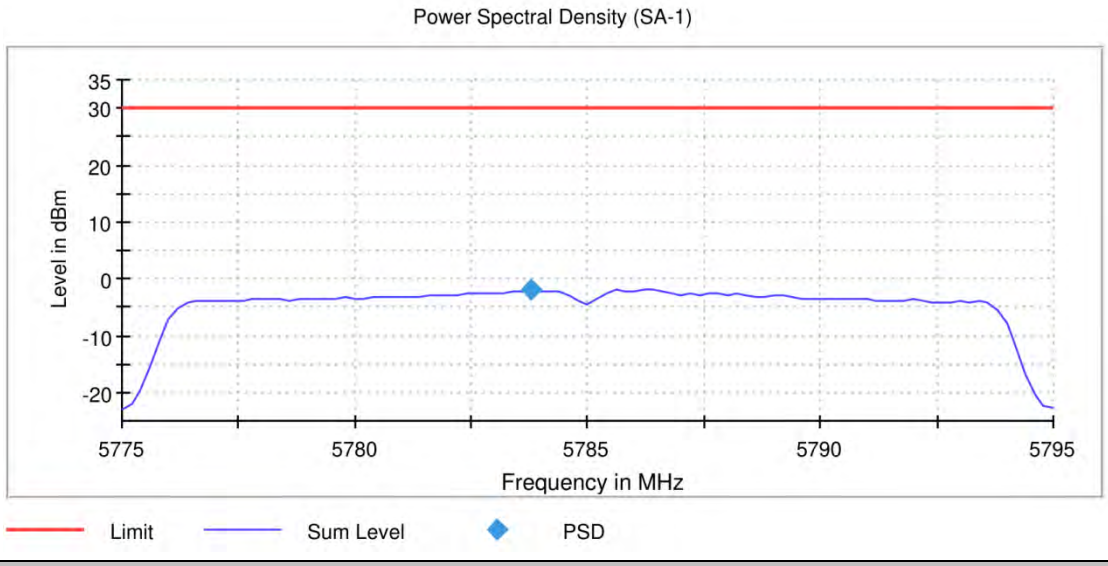
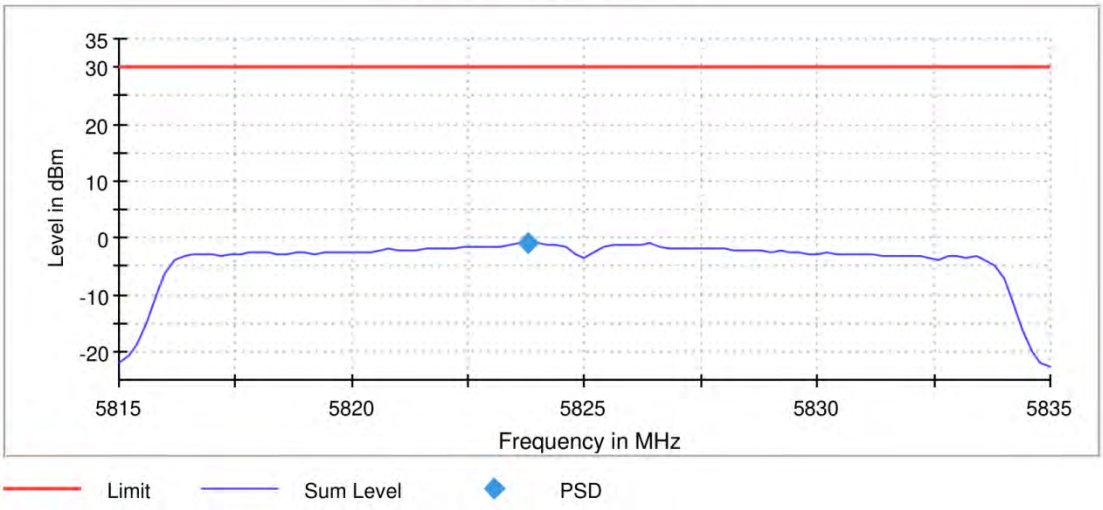


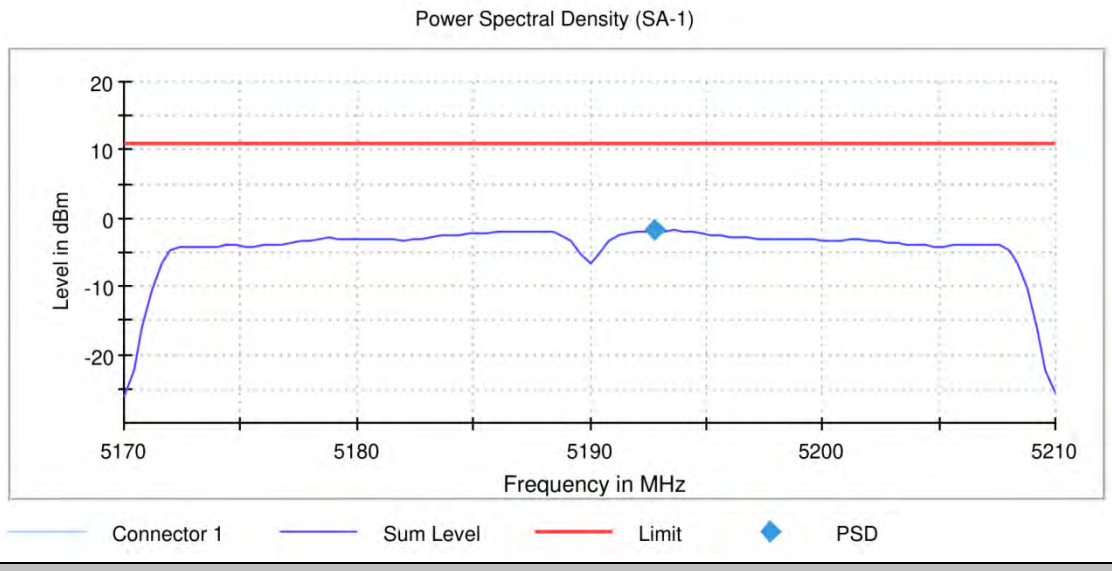
11N20 _ANT0_5785



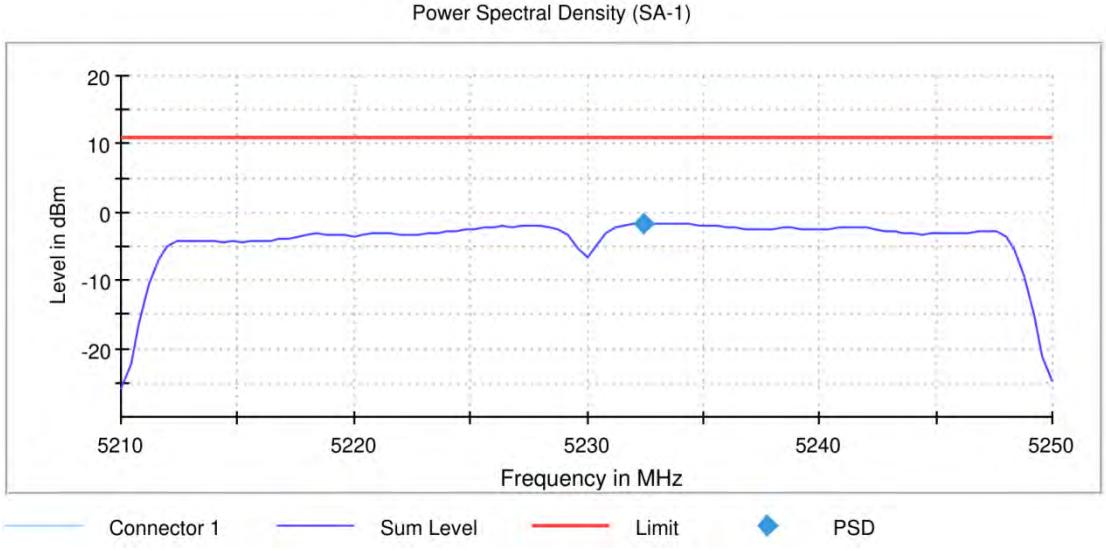
11N20 _ANT0_5825



11N40 _ANT0_5190



11N40 _ANT0_5230



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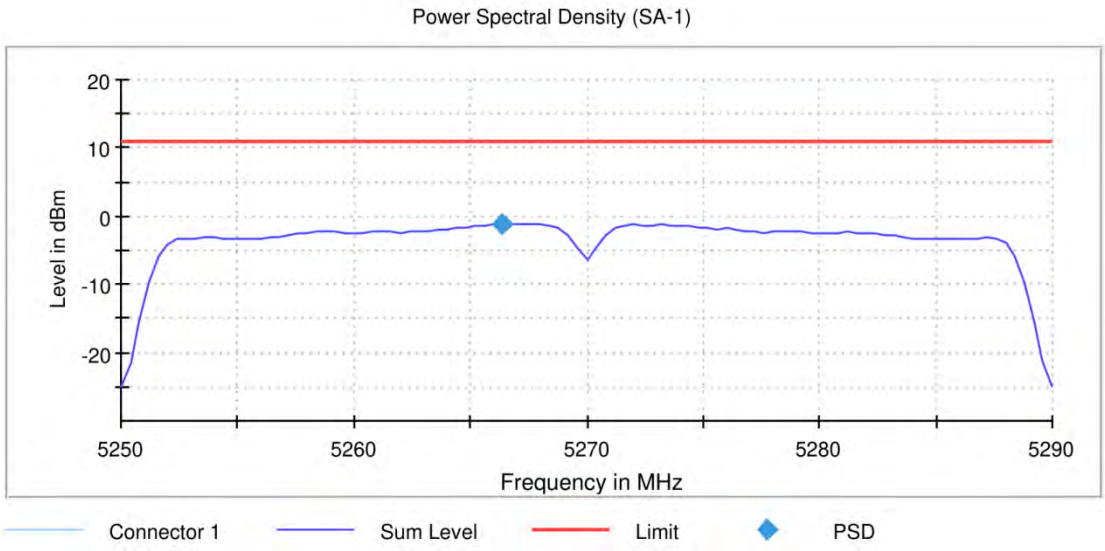
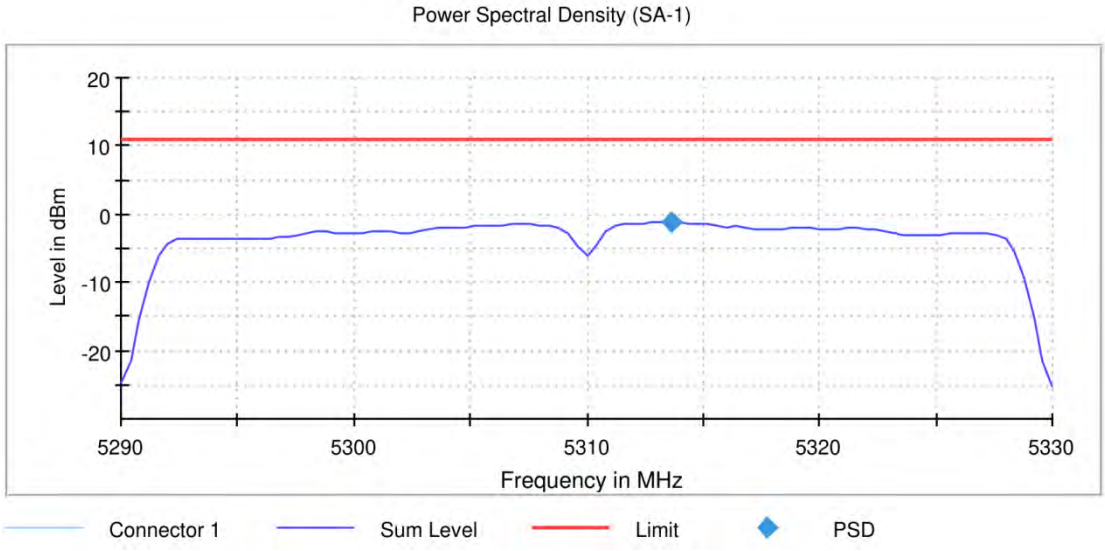
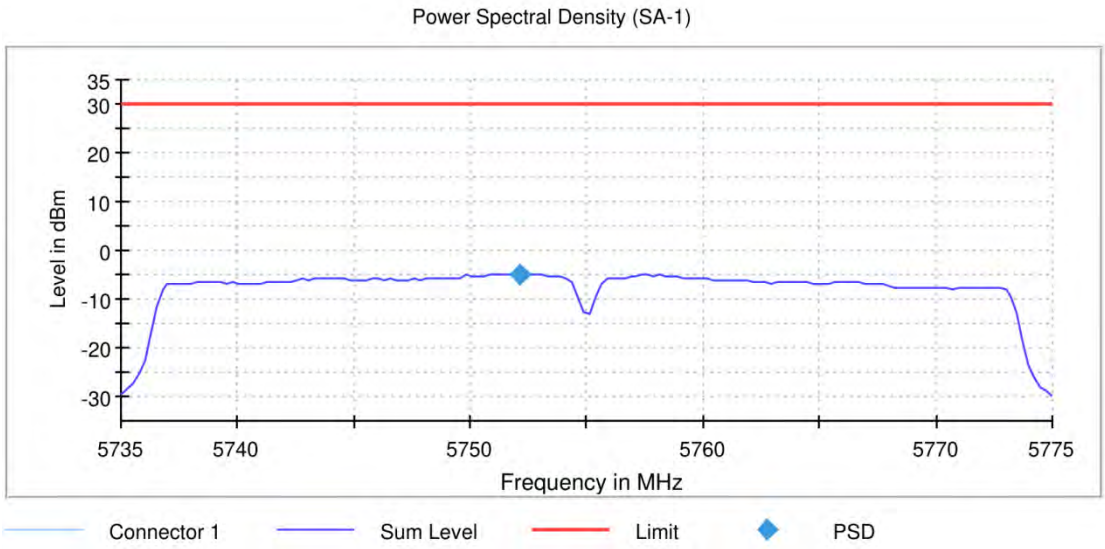


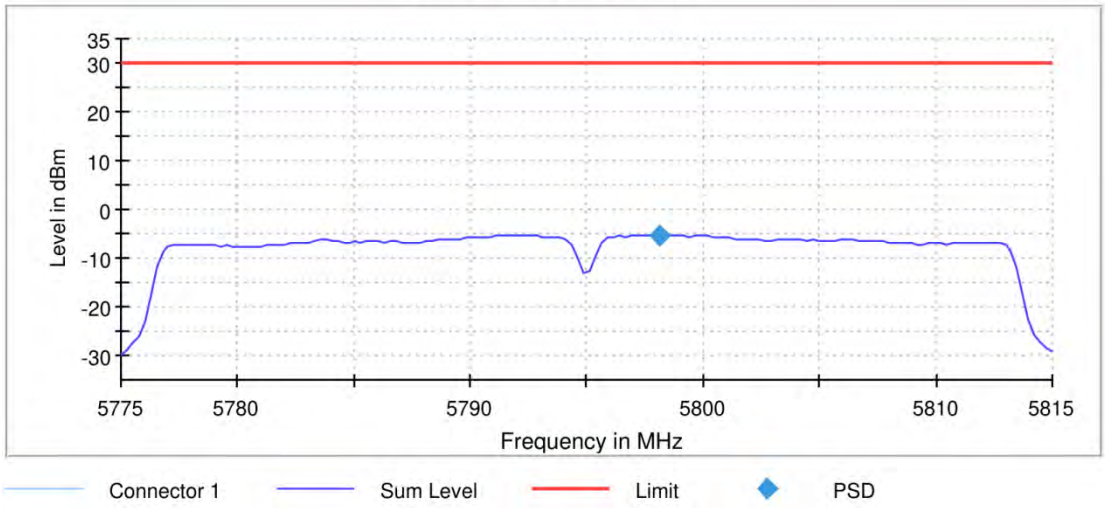
11N40 _ANT0_5310



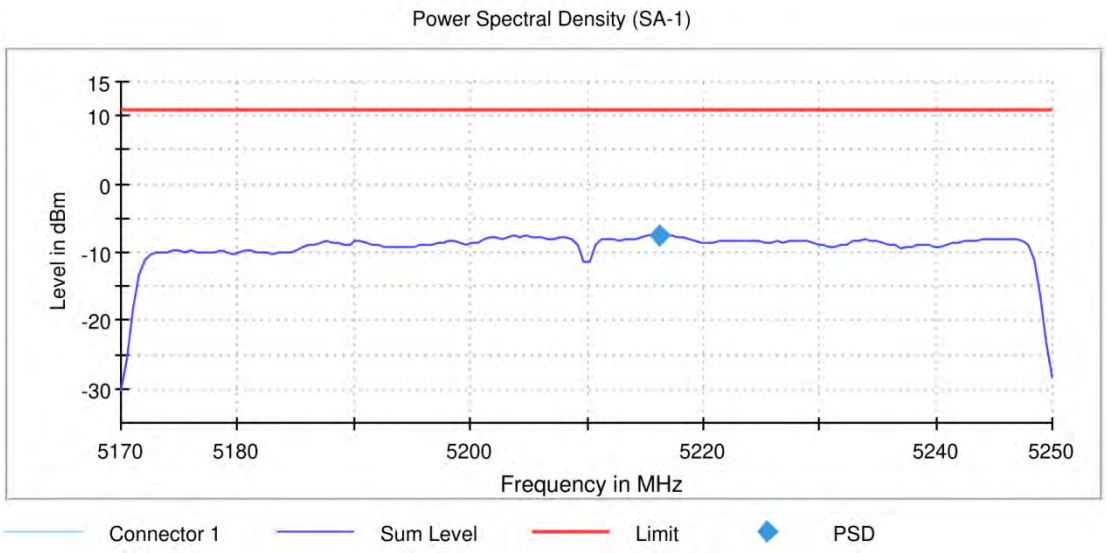
11N40 _ANT0_5755



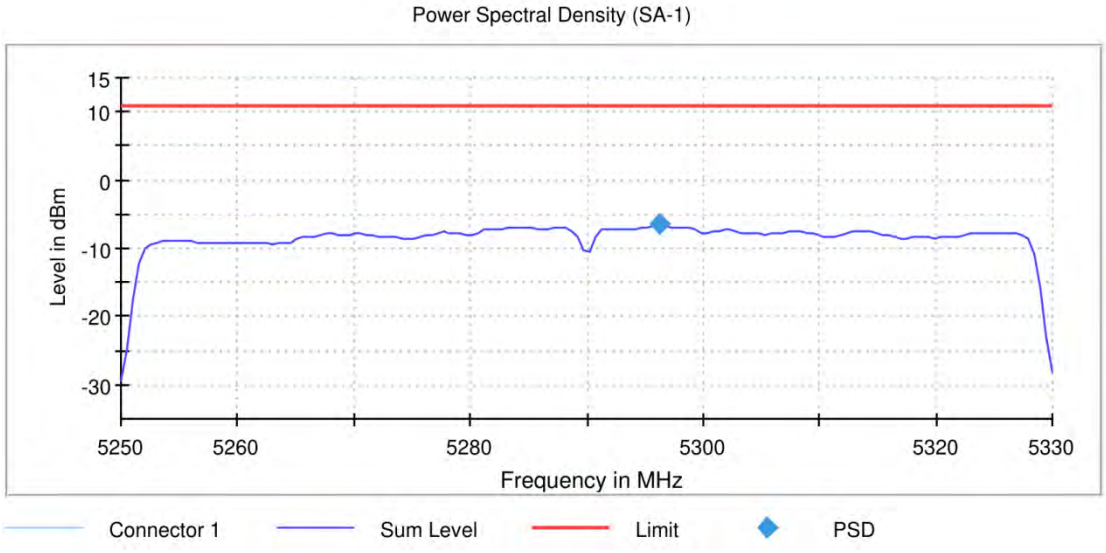
11N40 _ANT0_5795



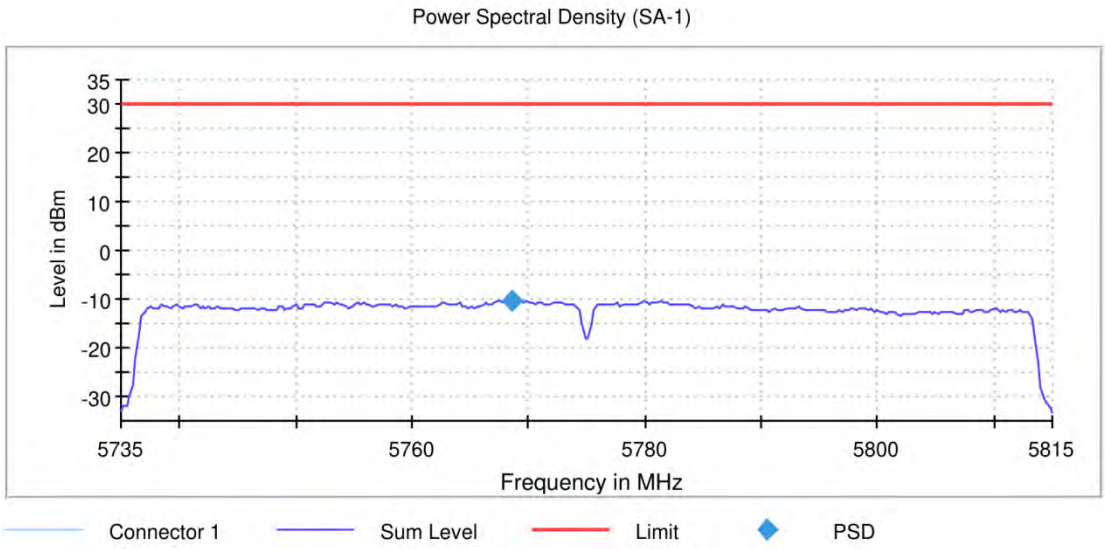
11AC80 _ANT0_5210



11AC80 _ANT0_5290



11AC80 _ANT0_5775



20M

RBW 1.000 MHz

VBW 3.000 MHz

40M

RBW 1.000 MHz

VBW 3.000 MHz

80M

RBW 1.000 MHz

VBW 3.000 MHz

160M

RBW 1.000 MHz

VBW 3.000 MHz

BAND4

20M

RBW 500.000 kHz

VBW 2.000 MHz

40M

RBW 500.000 kHz

VBW 2.000 MHz

80M

RBW 500.000 kHz

VBW 2.000 MHz

--END--