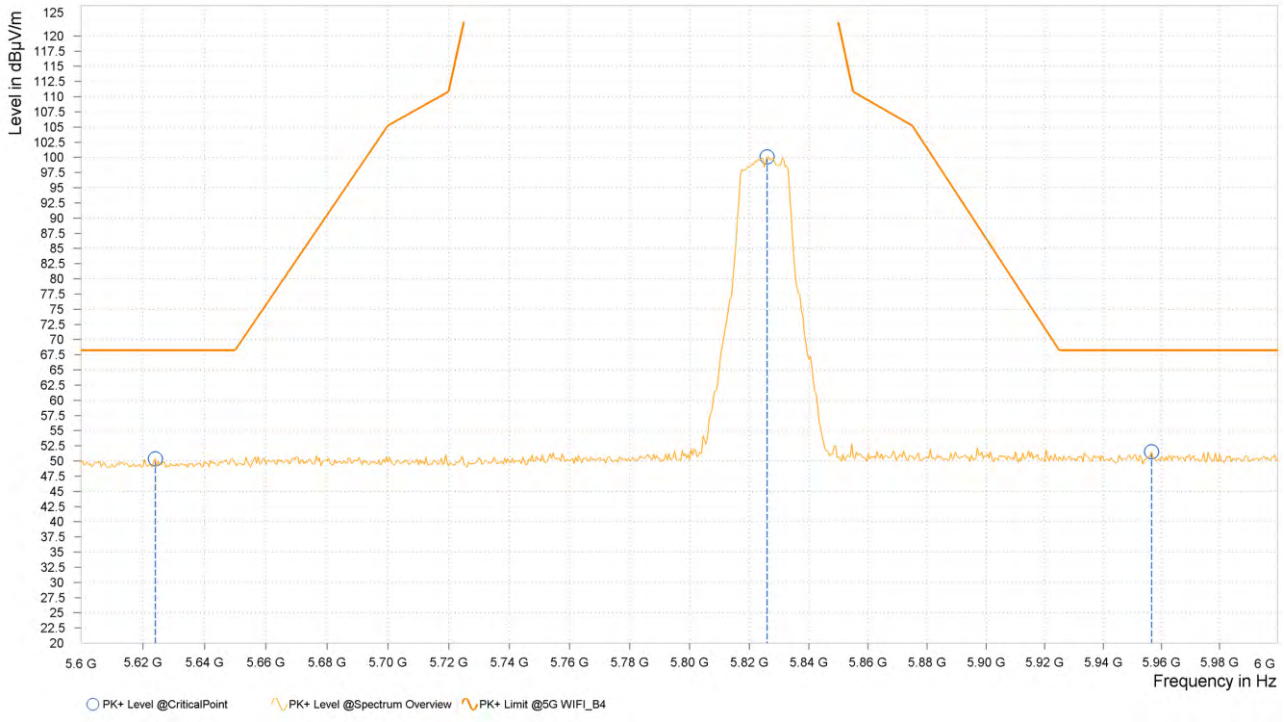
CHANNEL	TX Channel 165	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

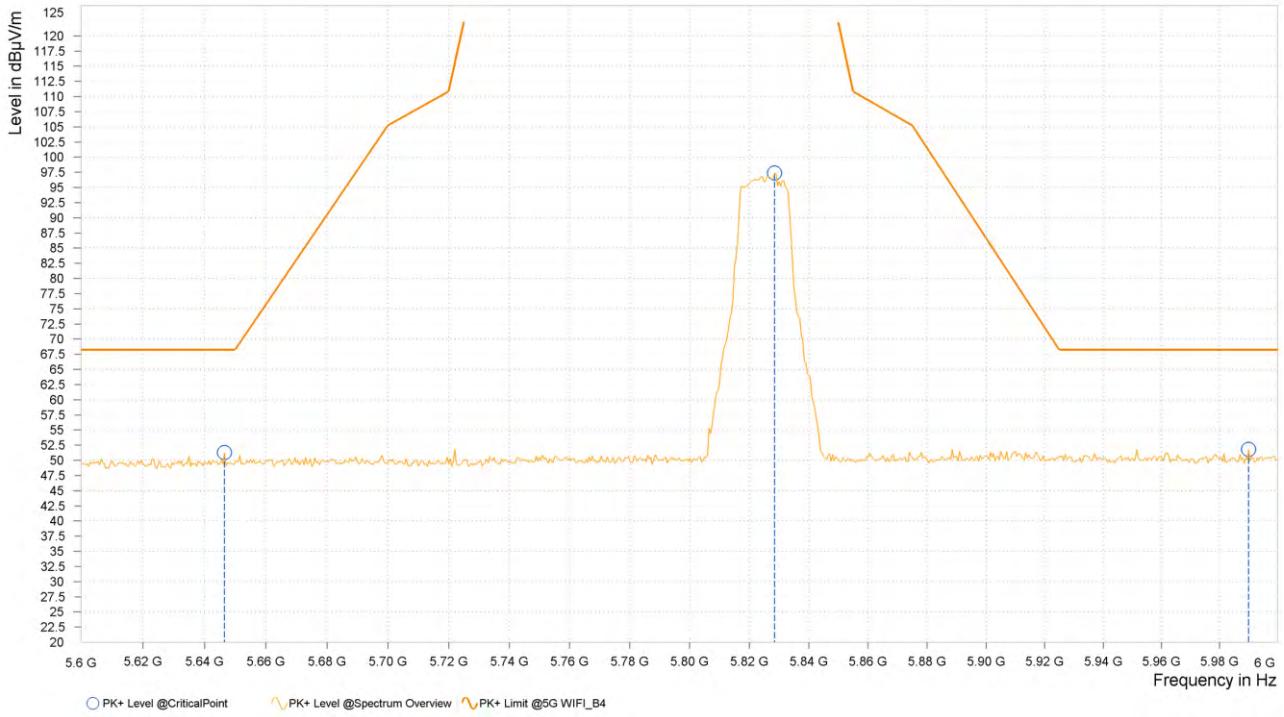
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

Rg	Frequency [MHz]	PK+ Level [dBµV/m]	PK+ Limit [dBµV/m]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
12	5,624.000	50.38	68.20	17.82	13.59	H	312.5	1.00
12	5,826.000	100.10			14.25	H	312.5	1.00
12	5,956.500	51.52	68.20	16.68	14.52	H	5.7	1.00



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]
12	5,646.500	51.26	68.20	16.94	13.72	V	335.1	1.00
12	5,828.500	97.39			14.25	V	44.7	1.00
12	5,990.000	51.83	68.20	16.37	14.63	V	92.5	1.00



REMARKS:

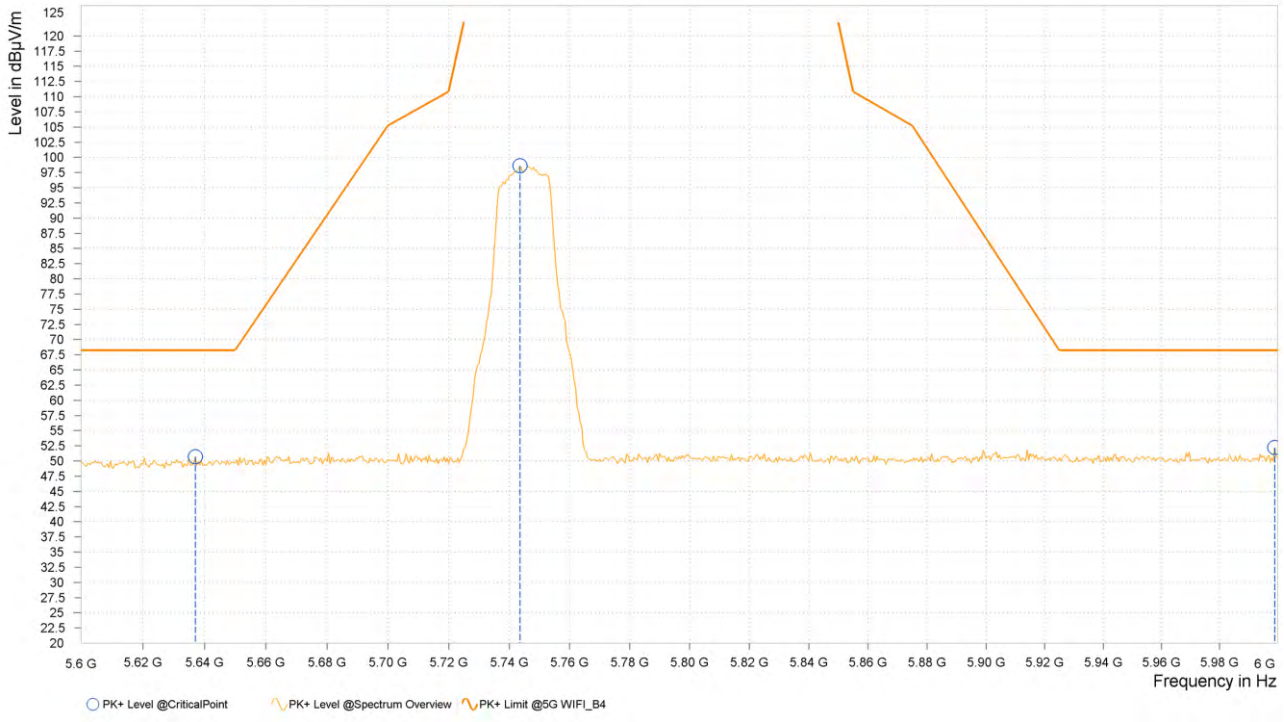
1. Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
   Margin value = Limit value- Emission level.
2. 5825MHz: Fundamental frequency.

802.11n (20MHz)

CHANNEL	TX Channel 149	**DETECTOR FUNCTION**	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

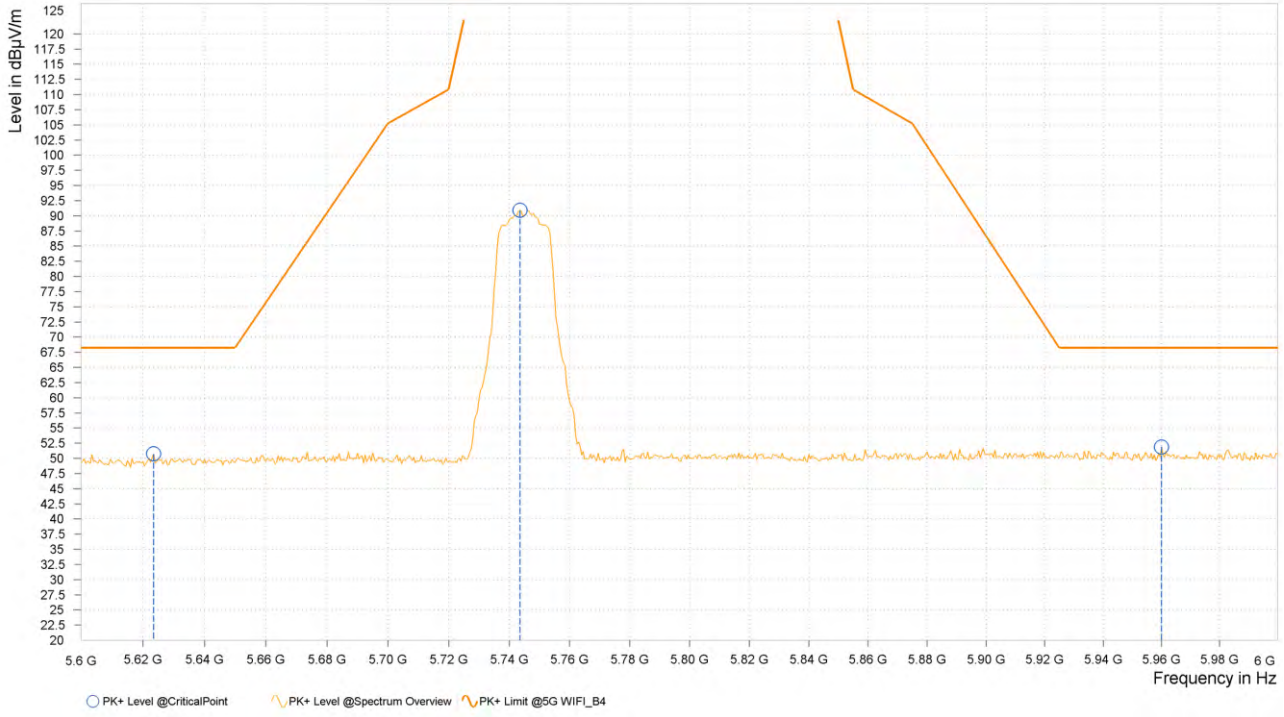
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

Rg	Frequency [MHz]	PK+ Level [dBµV/m]	PK+ Limit [dBµV/m]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
12	5,637.000	50.71	68.20	17.49	13.66	H	348.6	1.00
12	5,743.500	98.59			14.03	H	303	1.00
12	5,999.000	52.21	68.20	15.99	14.67	H	108.4	2.00



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]
12	5,623.500	50.73	68.20	17.47	13.59	V	48.3	1.00
12	5,743.500	90.90			14.03	V	287.8	2.00
12	5,960.000	51.87	68.20	16.33	14.53	V	131.2	2.00



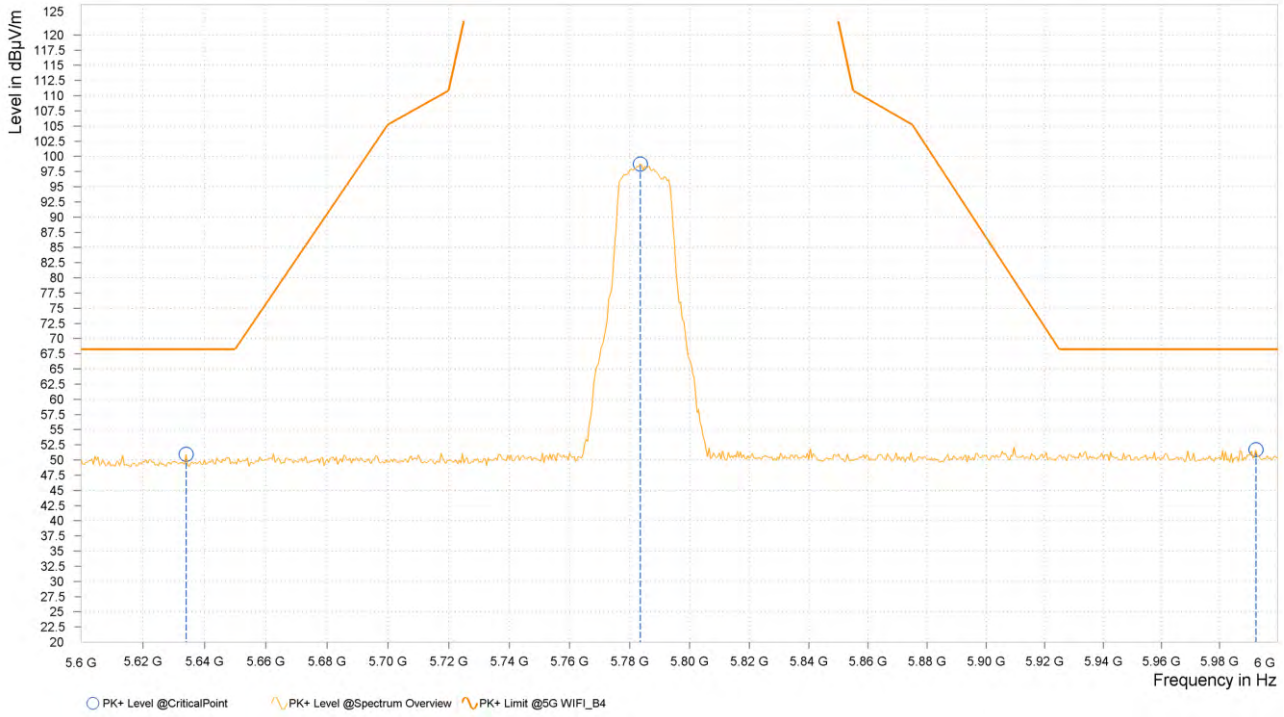
REMARKS:

1. Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
   Margin value = Limit value- Emission level.
2. 5745MHz: Fundamental frequency.

CHANNEL	TX Channel 157	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

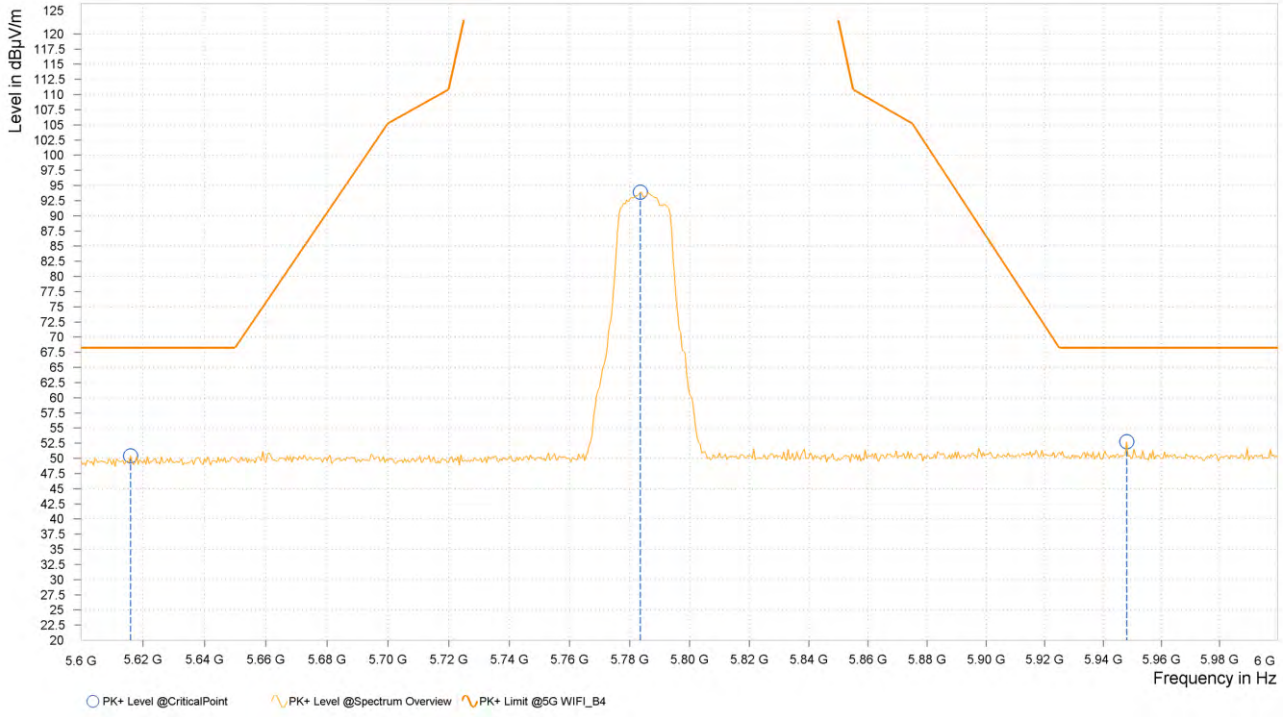
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

Rg	Frequency [MHz]	PK+ Level [dBµV/m]	PK+ Limit [dBµV/m]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
12	5,634.000	50.94	68.20	17.26	13.65	H	352.6	1.00
12	5,783.500	98.76			14.15	H	311.3	1.00
12	5,992.500	51.67	68.20	16.53	14.63	H	54.7	2.00



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]
12	5,616.000	50.42	68.20	17.78	13.55	V	359.1	1.00
12	5,783.500	93.89			14.15	V	49.5	1.00
12	5,948.000	52.72	68.20	15.48	14.50	V	5	1.00



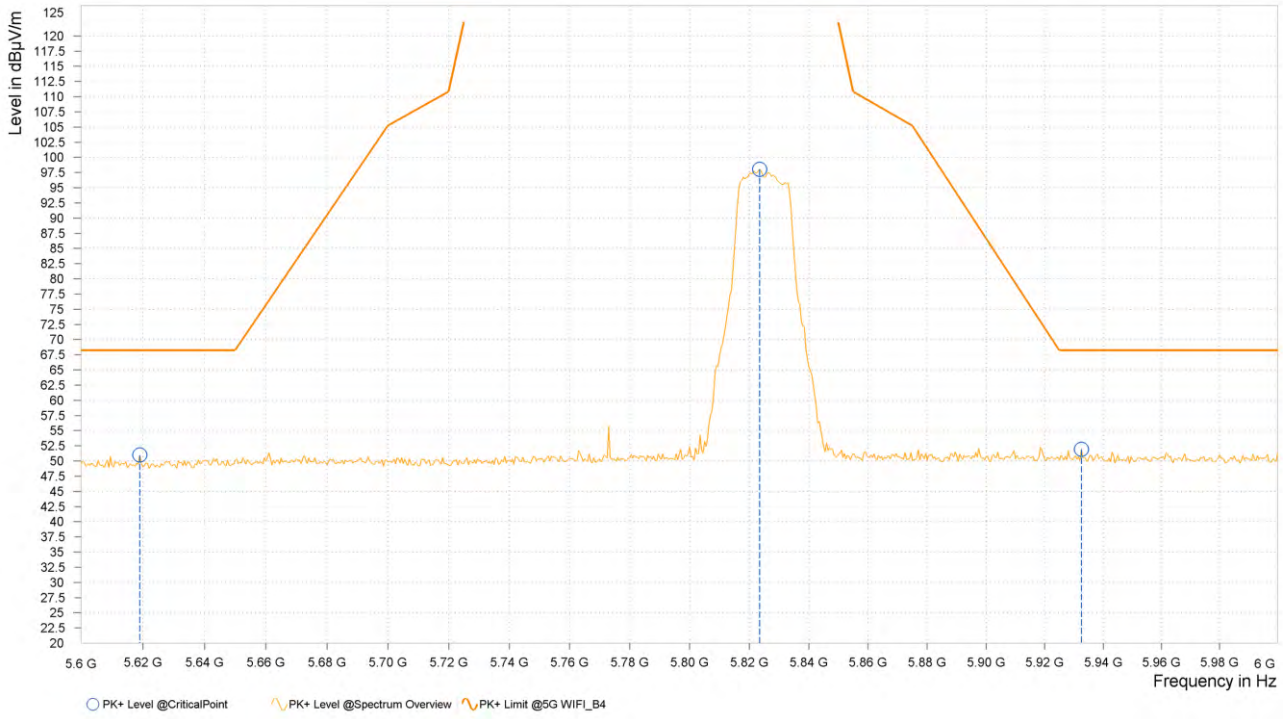
REMARKS:

1. Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
   Margin value = Limit value- Emission level.
2. 5785MHz: Fundamental frequency.

CHANNEL	TX Channel 165	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

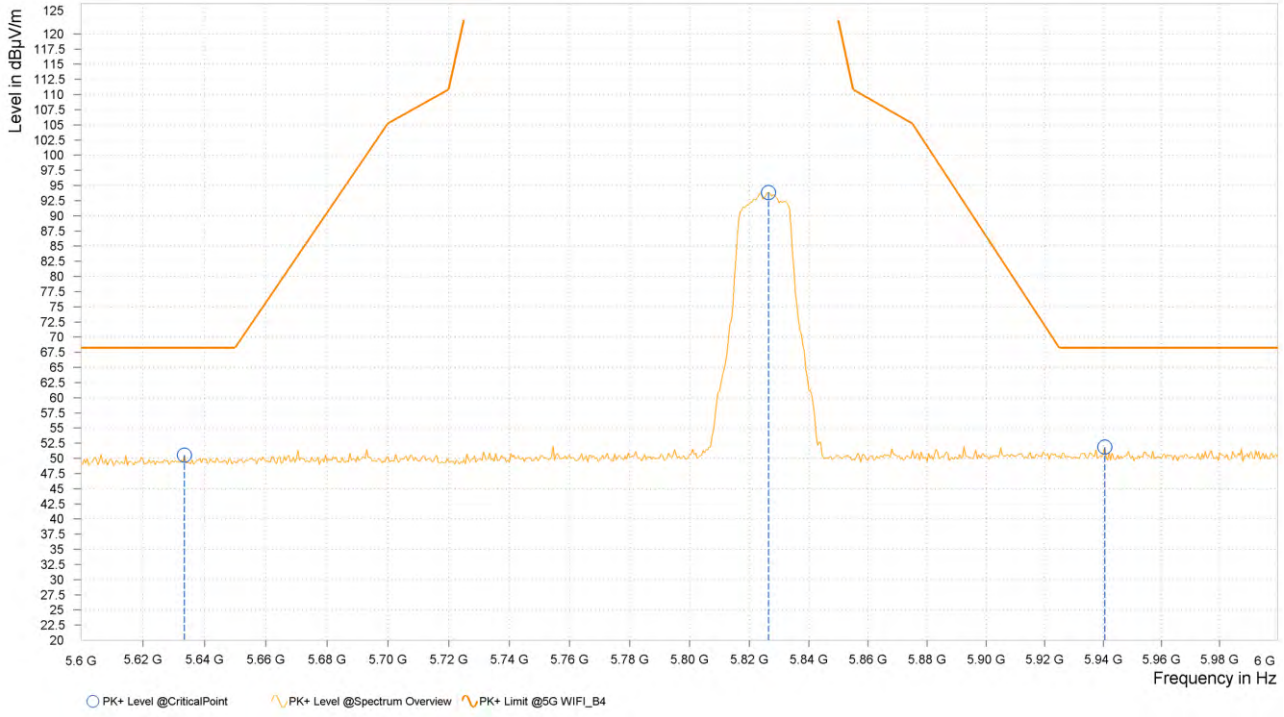
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

Rg	Frequency [MHz]	PK+ Level [dBµV/m]	PK+ Limit [dBµV/m]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
12	5,619.000	50.99	68.20	17.21	13.56	H	352.2	1.00
12	5,823.500	98.05			14.25	H	306.5	1.00
12	5,932.500	51.93	68.20	16.27	14.48	H	0.9	2.00



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]
12	5,633.500	50.53	68.20	17.67	13.64	V	355	2.00
12	5,826.500	93.86			14.25	V	208.9	2.00
12	5,940.500	51.85	68.20	16.35	14.49	V	259	2.00



REMARKS:

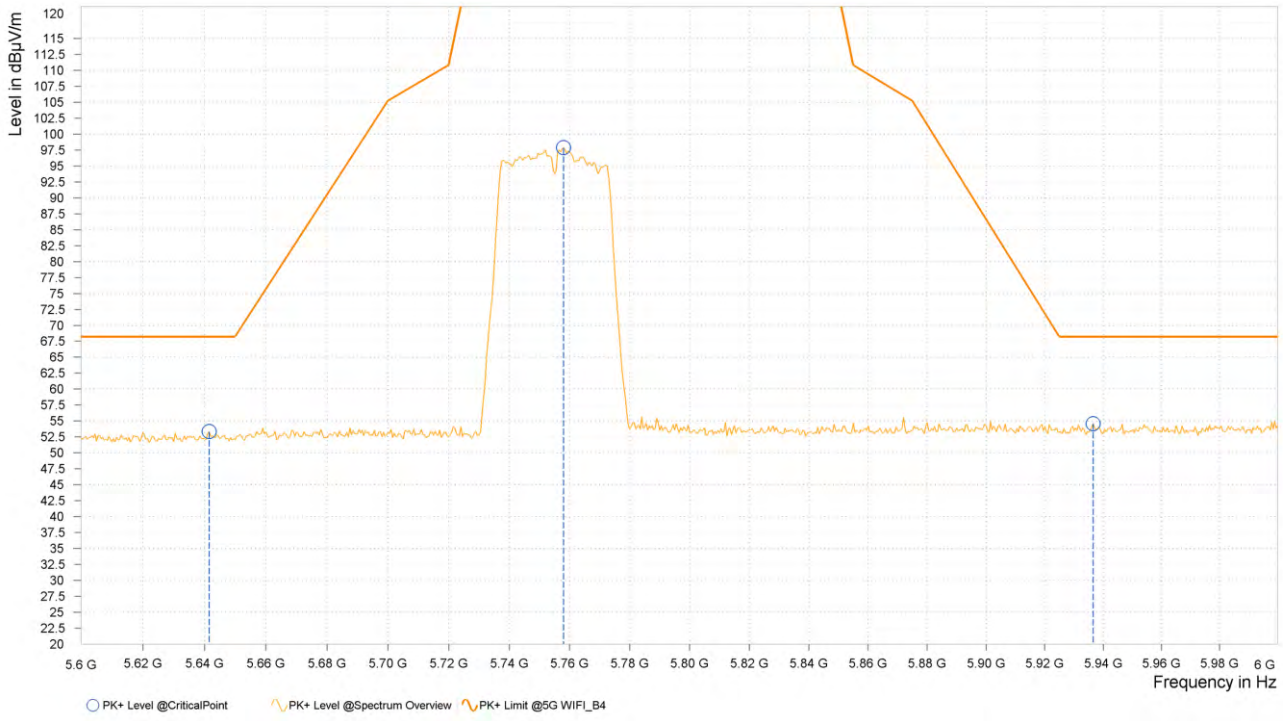
1. Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
   Margin value = Limit value- Emission level.
2. 5825MHz: Fundamental frequency.

802.11n (40MHz)

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

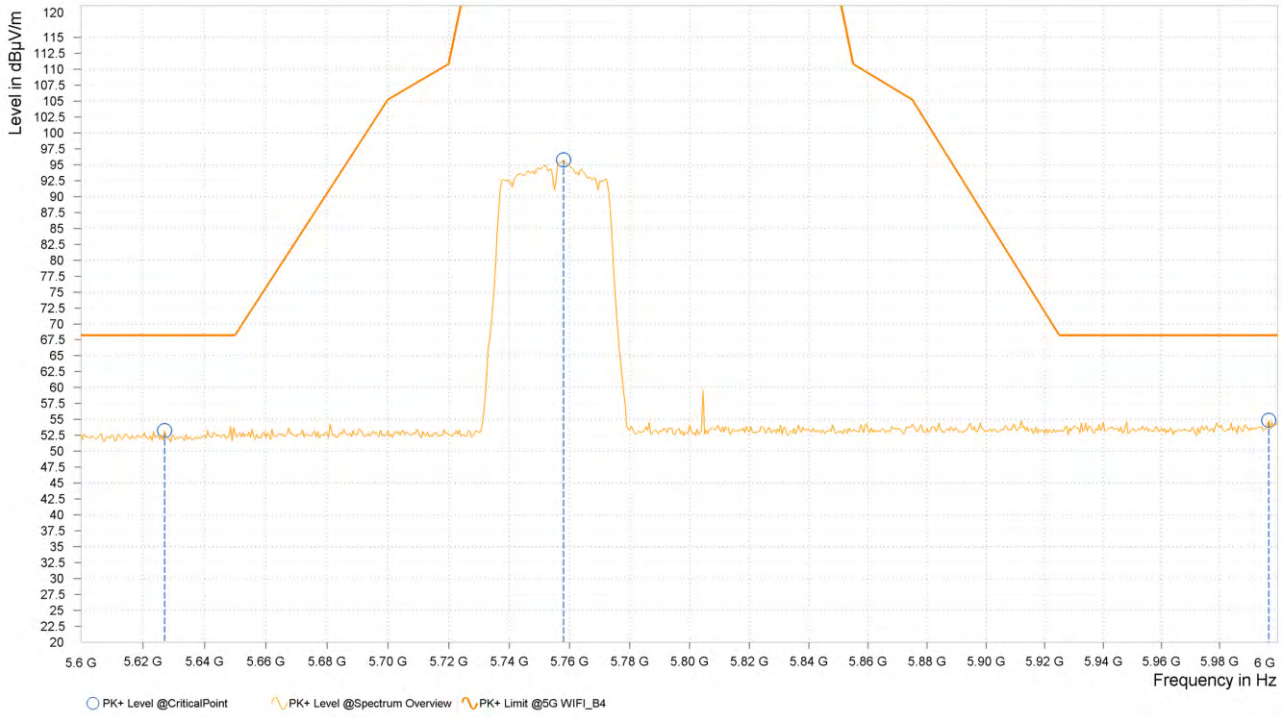
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

Rg	Frequency [MHz]	PK+ Level [dBµV/m]	PK+ Limit [dBµV/m]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
9	5,641.500	53.34	68.20	14.86	13.69	H	353	1.00
9	5,758.000	97.88			14.06	H	311.3	1.00
9	5,936.500	54.58	68.20	13.62	14.48	H	100.9	1.00



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]
9	5,627.000	53.23	68.20	14.97	13.61	V	205	1.00
9	5,758.000	95.75			14.06	V	208.8	2.00
9	5,997.000	54.84	68.20	13.36	14.66	V	359	1.00



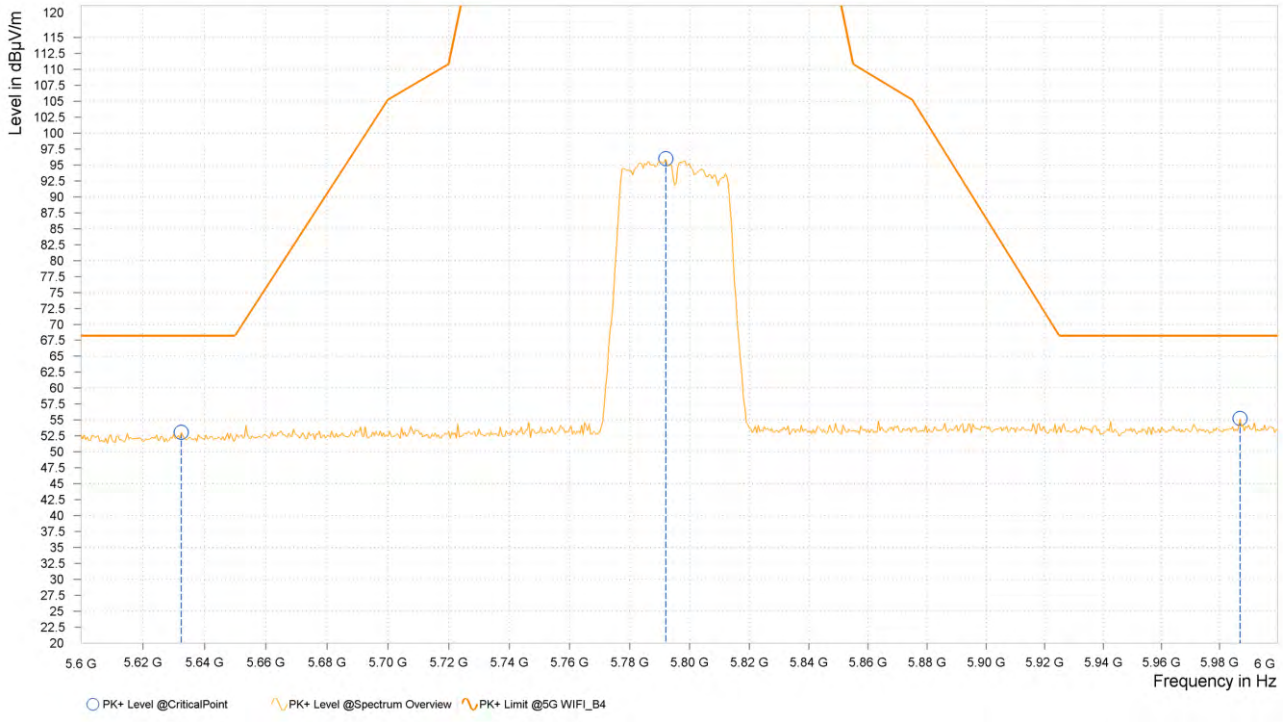
REMARKS:

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		

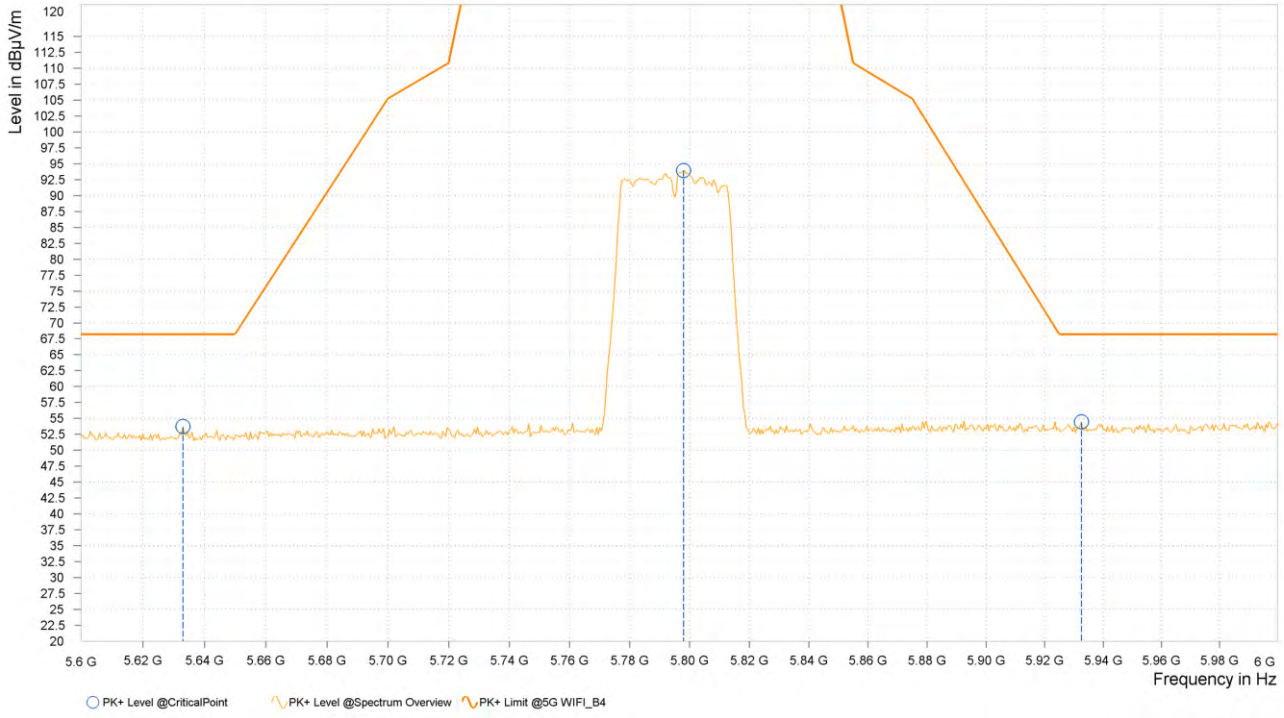
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

Rg	Frequency [MHz]	PK+ Level [dBµV/m]	PK+ Limit [dBµV/m]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
9	5,632.500	53.08	68.20	15.12	13.64	H	275.4	1.00
9	5,792.000	95.99			14.18	H	355	2.00
9	5,987.000	55.23	68.20	12.97	14.62	H	359.1	1.00



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]
9	5,633.000	53.73	68.20	14.47	13.64	V	359	2.00
9	5,798.000	93.95			14.20	V	101	1.00
9	5,932.500	54.46	68.20	13.74	14.48	V	353.4	1.00



REMARKS:

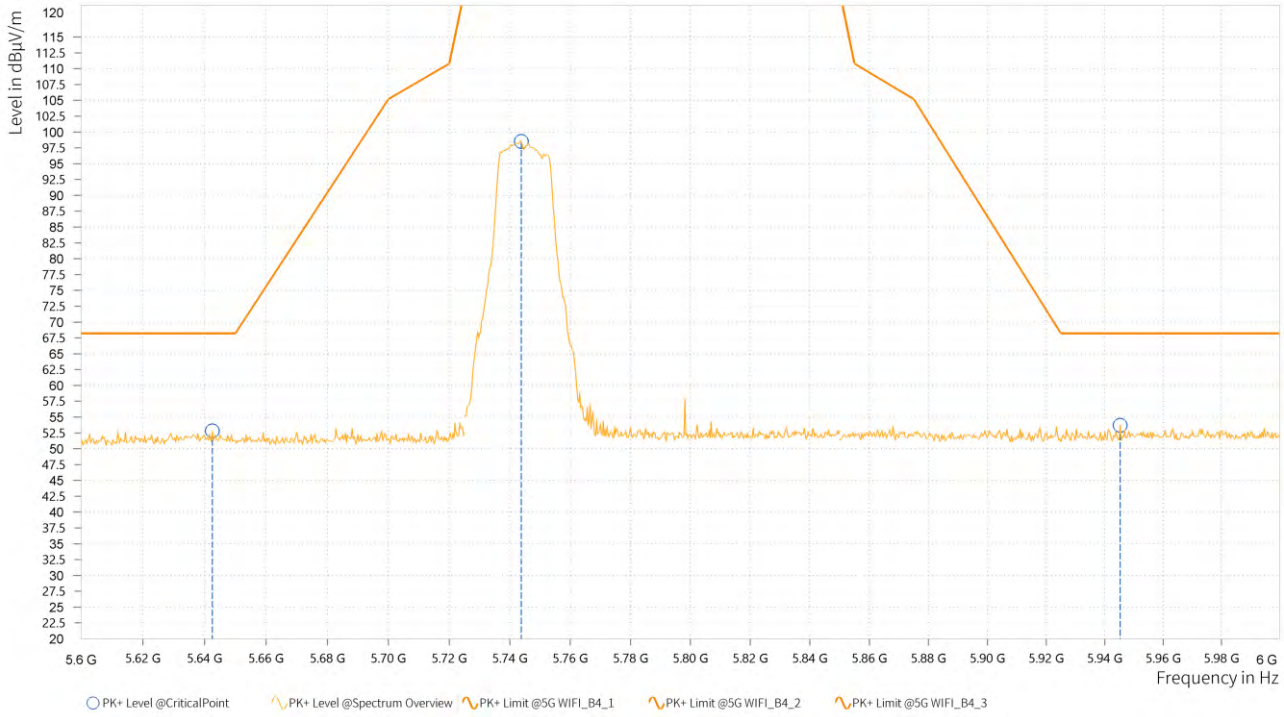
1. Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
   Margin value = Limit value- Emission level.
2. 5795MHz: Fundamental frequency.

802.11ac (20MHz)

CHANNEL	TX Channel 149	**DETECTOR FUNCTION**	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

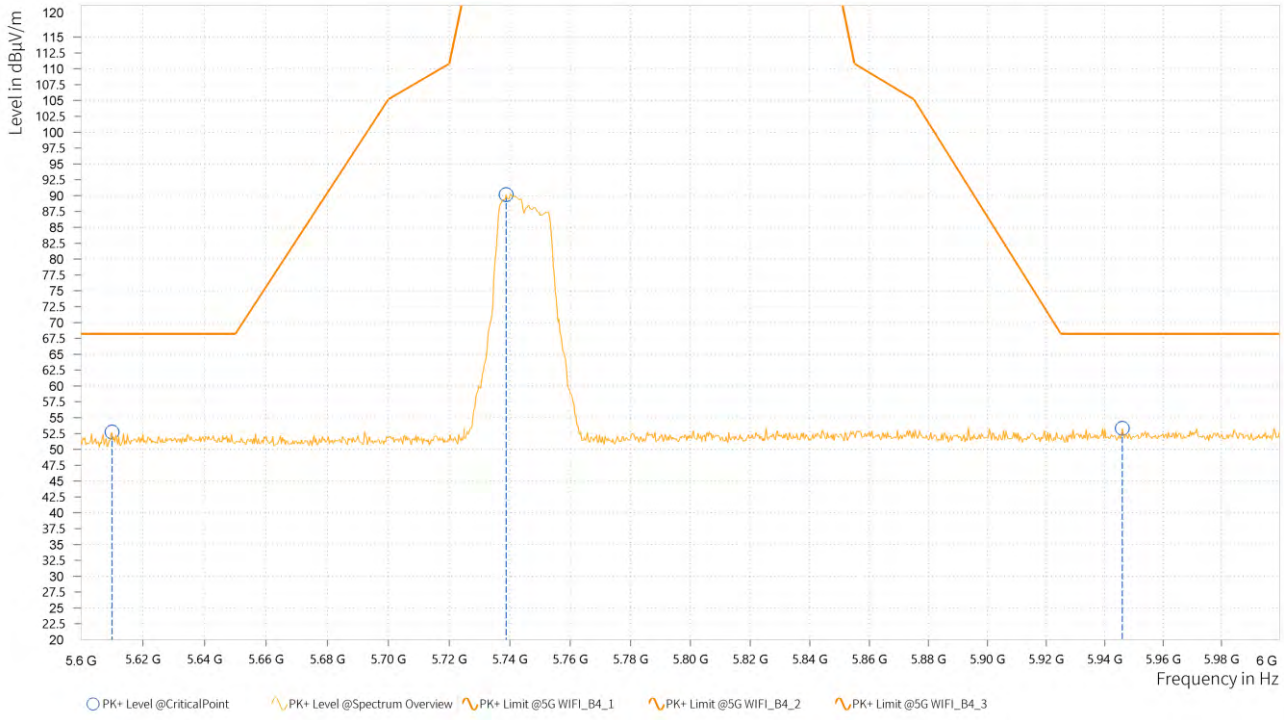
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

Rg	Frequency [MHz]	PK+ Level [dBµV/m]	PK+ Limit [dBµV/m]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
11	5,642.500	52.83	68.20	15.37	4.36	H	1	1
12	5,743.750	98.50			4.58	H	270.8	1
13	5,945.250	53.72	68.20	14.48	5.49	H	175.3	1



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]
11	5,610.000	52.71	68.20	15.49	4.27	V	4.5	1
12	5,738.750	90.18			4.54	V	287.6	1
13	5,946.000	53.31	68.20	14.89	5.49	V	1	1



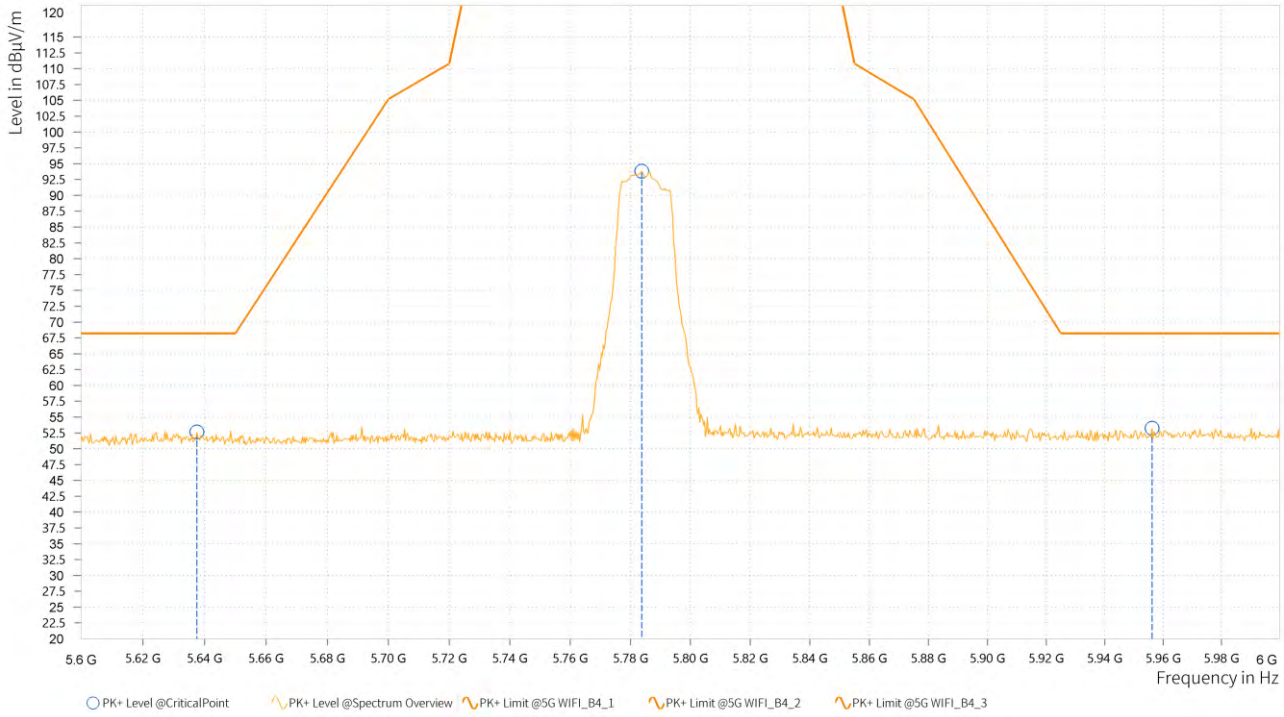
REMARKS:

1. Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
   Margin value = Limit value- Emission level.
2. 5745MHz: Fundamental frequency.

CHANNEL	TX Channel 157	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

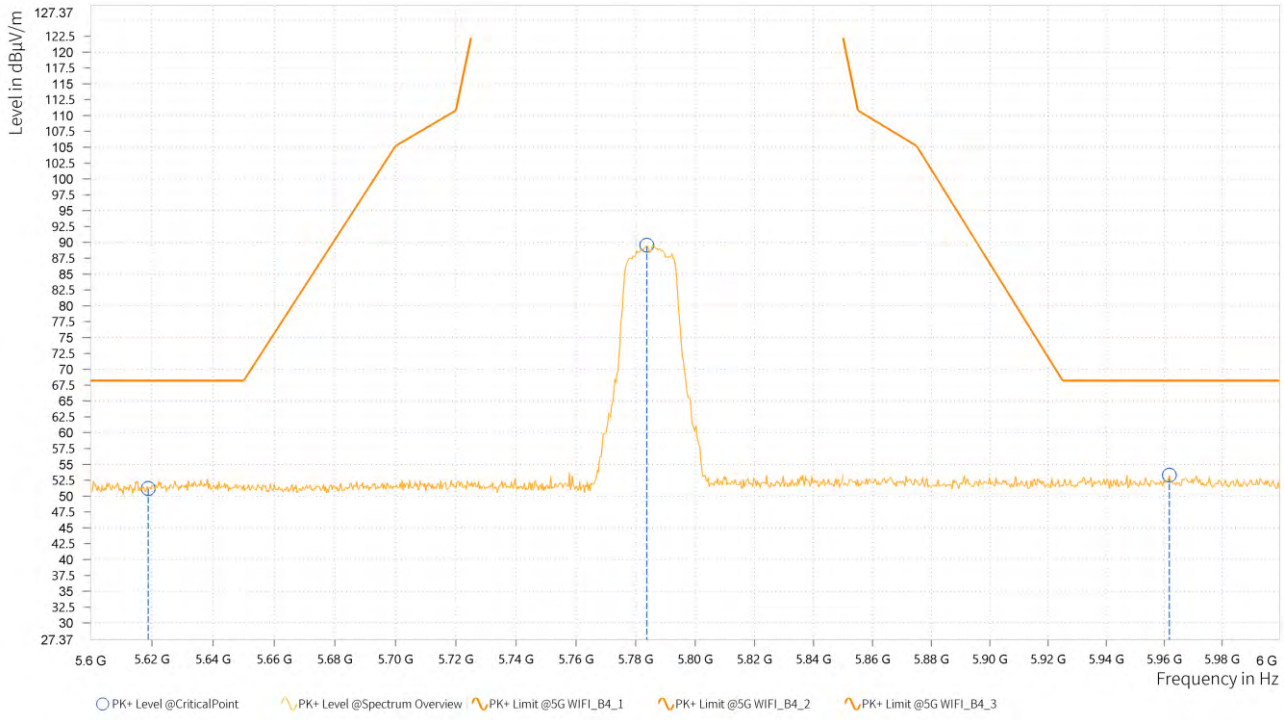
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

Rg	Frequency [MHz]	PK+ Level [dBµV/m]	PK+ Limit [dBµV/m]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
11	5,637.500	52.63	68.20	15.57	4.35	H	53.3	1
12	5,783.750	93.83			4.93	H	359	1
13	5,956.125	53.24	68.20	14.96	5.50	H	1	1



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]
11	5,618.750	51.22	68.20	16.98	4.31	V	357.8	1
12	5,783.750	89.57			4.93	V	1	1
13	5,961.750	53.29	68.20	14.91	5.52	V	1	1



REMARKS:

1. Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
   Margin value = Limit value- Emission level.
2. 5785MHz: Fundamental frequency.

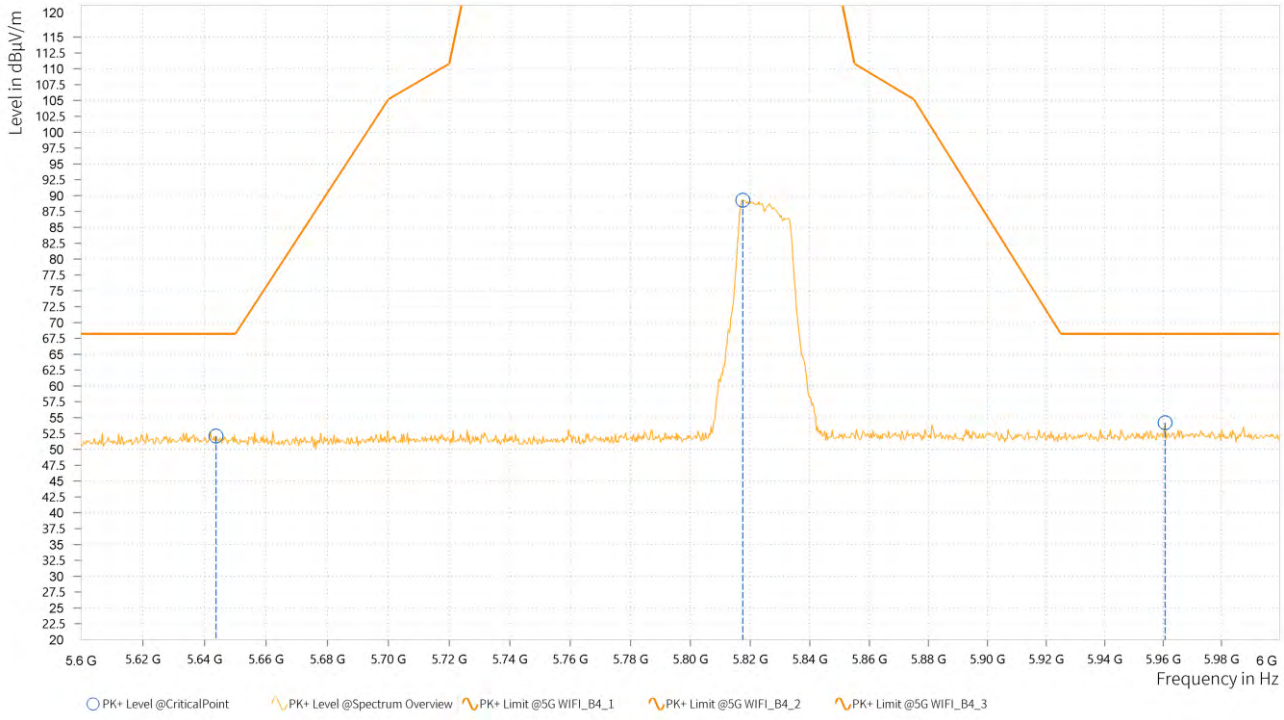
CHANNEL	TX Channel 165	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

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]
11	5,626.250	51.69	68.20	16.51	4.33	H	5.1	1
12	5,823.750	93.23			5.24	H	282.8	2
13	5,941.875	53.62	68.20	14.58	5.49	H	1	1

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]
11	5,643.750	52.10	68.20	16.10	4.36	V	6.6	1
12	5,817.500	89.28			5.19	V	95.3	2
13	5,960.625	54.19	68.20	14.01	5.51	V	183.7	1



REMARKS:

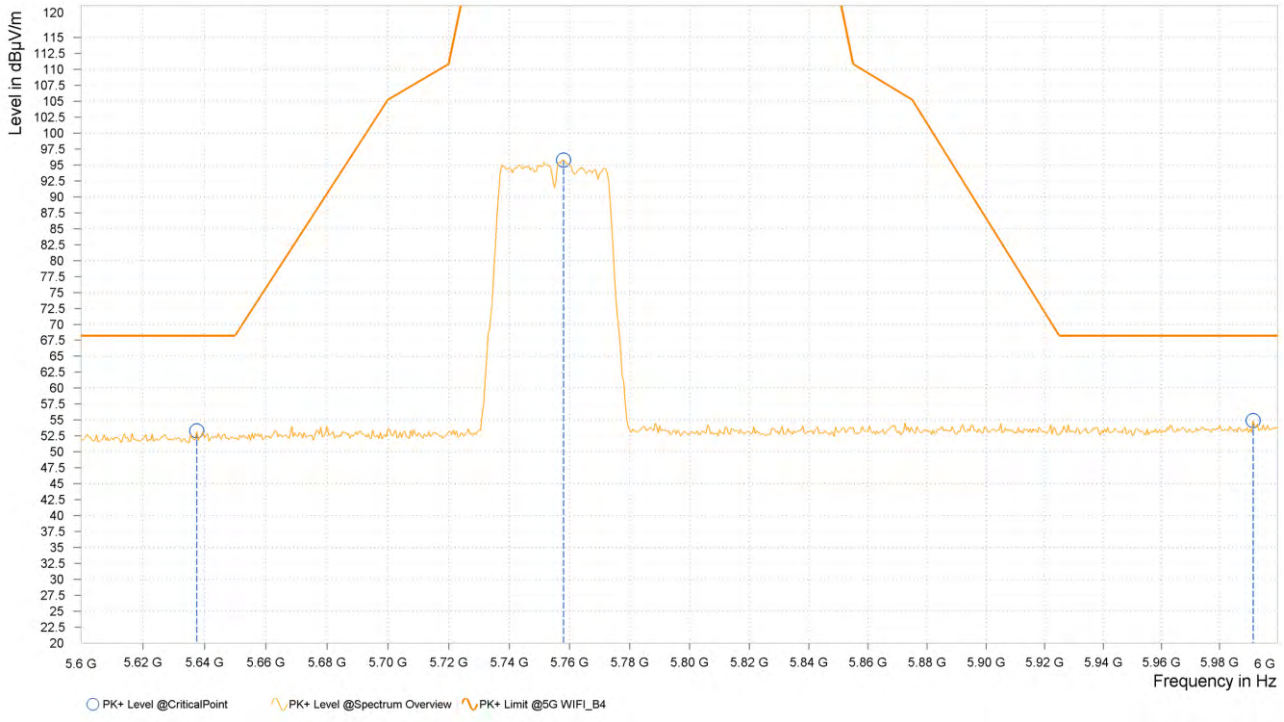
1. Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
   Margin value = Limit value- Emission level.
2. 5825MHz: Fundamental frequency.

802.11ac (40MHz)

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

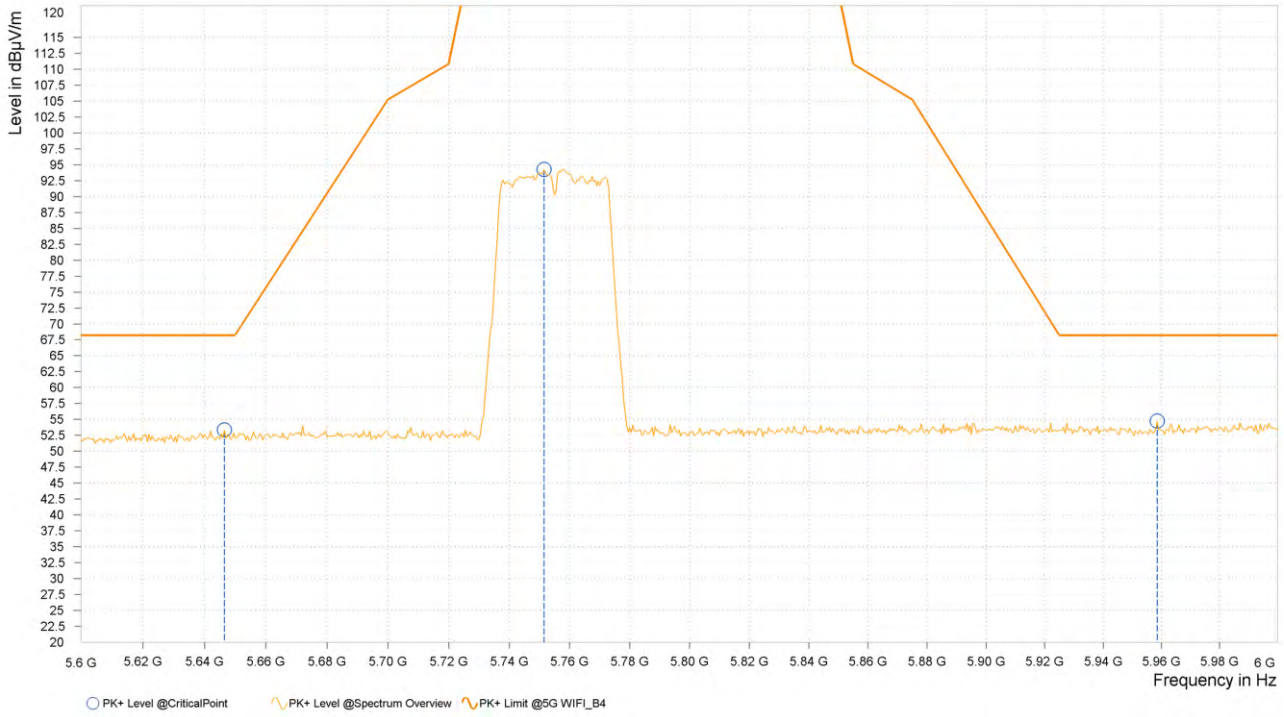
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

Rg	Frequency [MHz]	PK+ Level [dBµV/m]	PK+ Limit [dBµV/m]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
9	5,637.500	53.29	68.20	14.91	13.67	H	103.4	1.00
9	5,758.000	95.79			14.06	H	319.7	1.00
9	5,991.500	54.91	68.20	13.29	14.63	H	147.8	2.00



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]
9	5,646.500	53.35	68.20	14.85	13.72	V	41.4	2.00
9	5,751.500	94.25			14.04	V	202.9	2.00
9	5,958.500	54.74	68.20	13.46	14.52	V	226.4	1.00



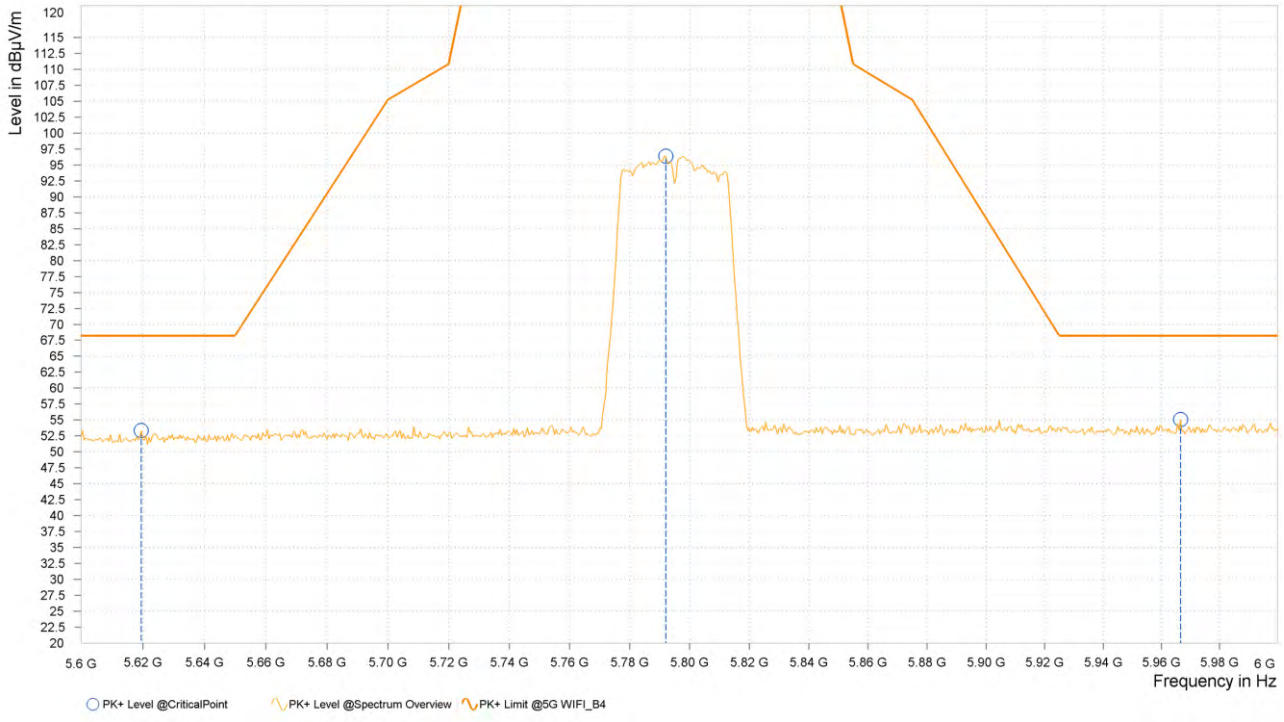
REMARKS:

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		

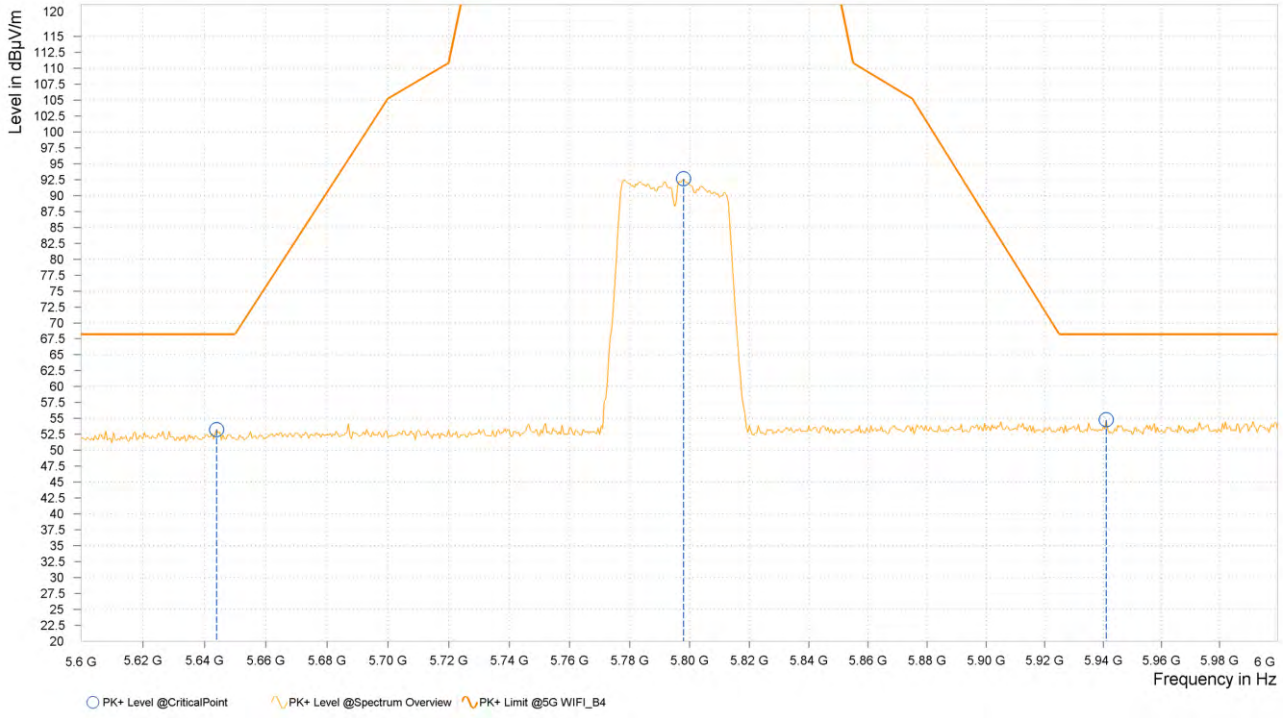
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

Rg	Frequency [MHz]	PK+ Level [dBµV/m]	PK+ Limit [dBµV/m]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
9	5,619.500	53.36	68.20	14.84	13.56	H	4.9	1.00
9	5,792.000	96.36			14.18	H	355.6	2.00
9	5,966.500	55.09	68.20	13.11	14.55	H	359	1.00



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]
9	5,644.000	53.27	68.20	14.93	13.70	V	1	1.00
9	5,798.000	92.65			14.20	V	104.5	1.00
9	5,941.000	54.78	68.20	13.42	14.49	V	320.8	1.00



REMARKS:

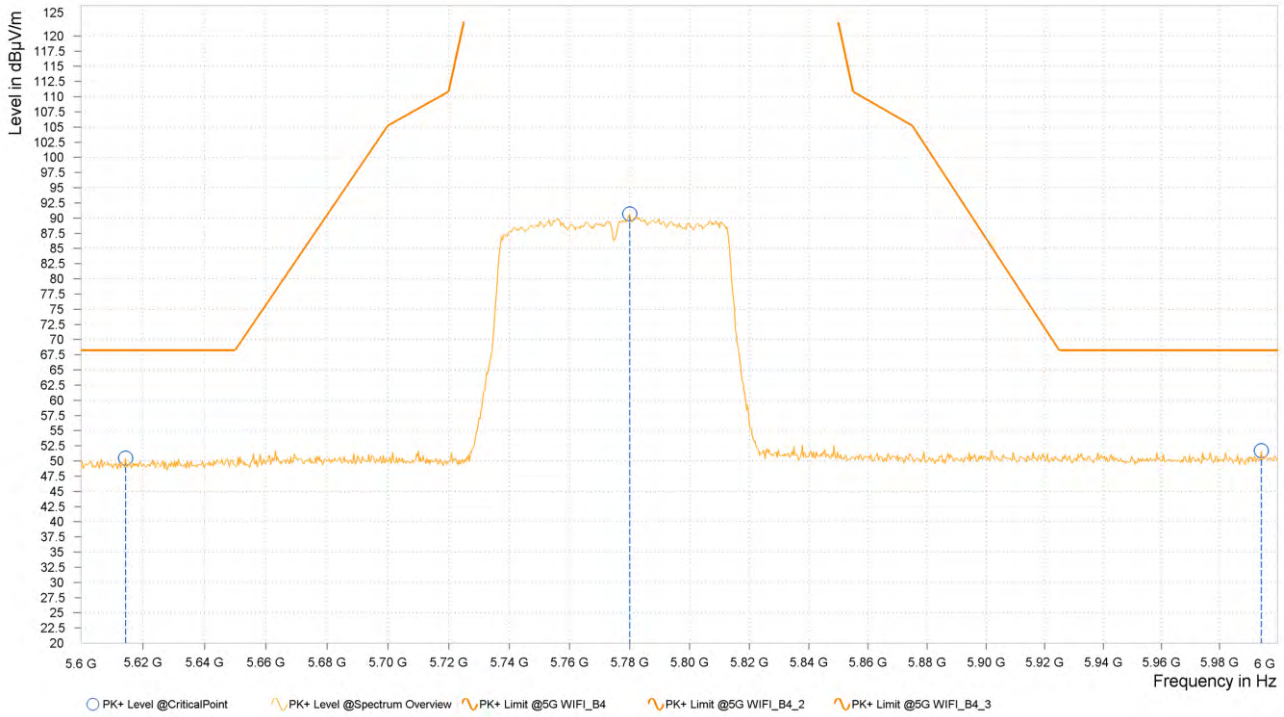
1. Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
   Margin value = Limit value- Emission level.
2. 5795MHz: Fundamental frequency.

802.11ac (80MHz)

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

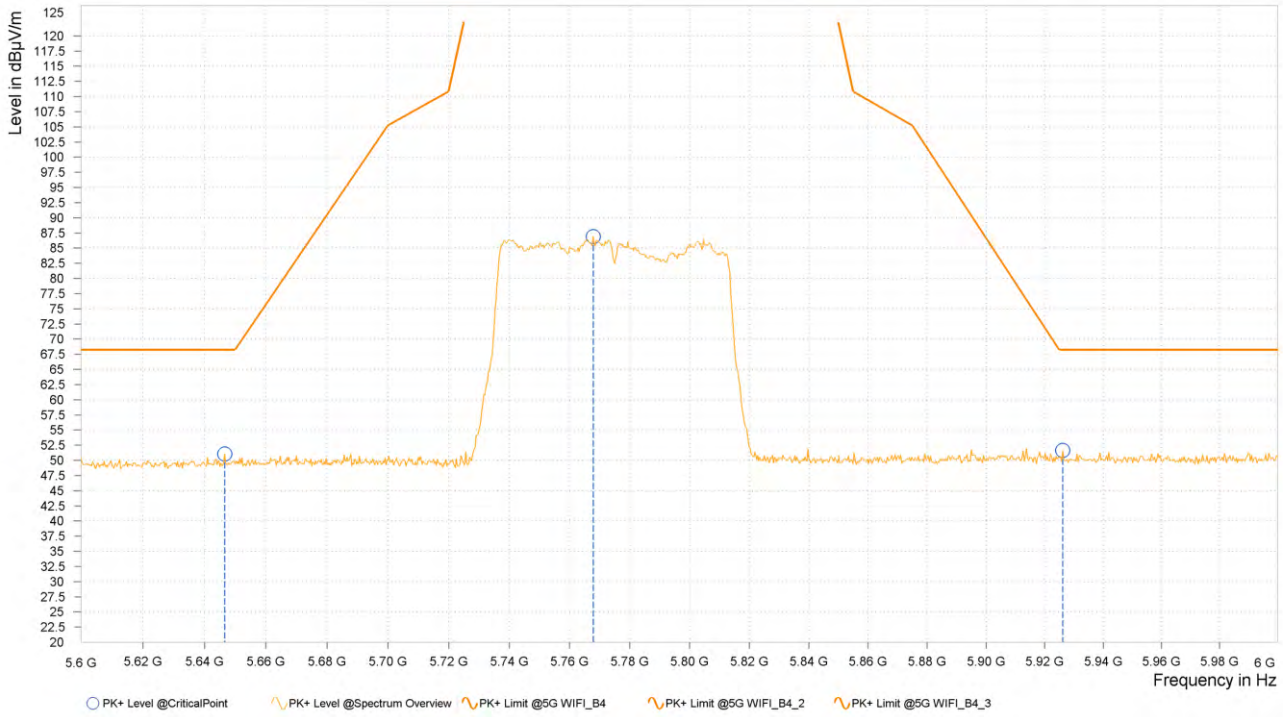
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

Rg	Frequency [MHz]	PK+ Level [dBµV/m]	PK+ Limit [dBµV/m]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
6	5,614.375	50.46	68.20	17.74	13.54	H	353.8	1.00
7	5,780.000	90.68			14.14	H	0.9	2.00
8	5,994.375	51.67	68.20	16.53	14.64	H	359	2.00



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]
6	5,646.563	51.07	68.20	17.13	13.72	V	216.9	1.00
7	5,767.813	86.92			14.09	V	85.4	1.00
8	5,926.125	51.64	68.20	16.56	14.48	V	0.9	2.00



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 1

802.11n (40MHz):

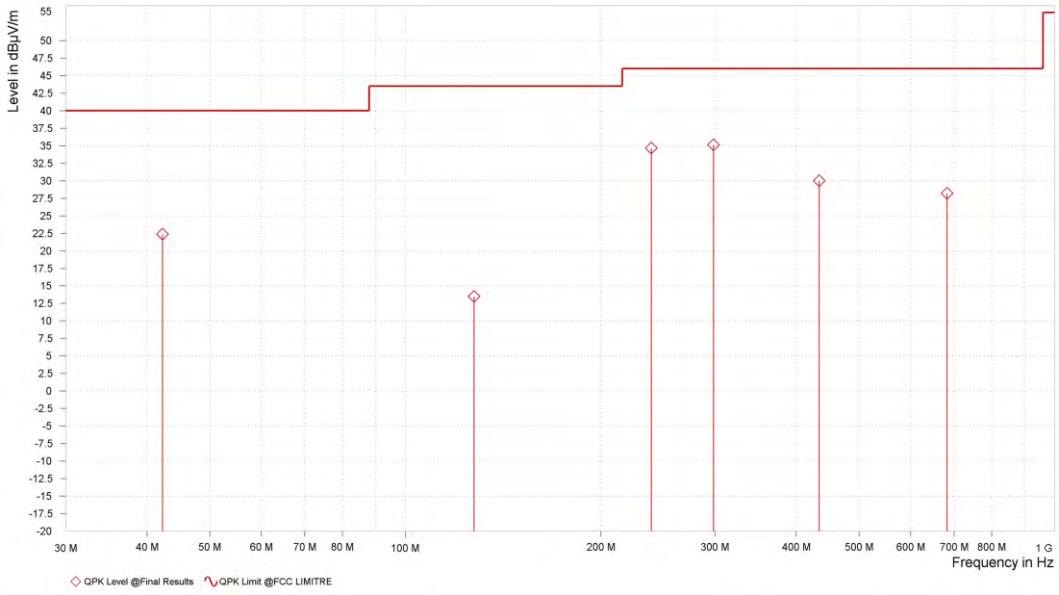
CHANNEL	TX Channel 38	**DETECTOR FUNCTION**	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 1GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

Rg	Frequency [MHz]	QPK Level [dBµV/m]	QPK Limit [dBµV/m]	QPK Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]	Meas. BW [kHz]
1	42.271	22.35	40.00	17.65	-10.50	H	75	2.00	120.000
1	127.631	13.49	43.50	30.01	-15.19	H	75	2.00	120.000
1	239.278	34.64	46.00	11.36	-9.33	H	287.4	1.00	120.000
1	298.302	35.10	46.00	10.90	-7.18	H	142.7	1.00	120.000
1	433.908	30.00	46.00	16.00	-4.74	H	359	2.00	120.000
1	683.101	28.18	46.00	17.82	-2.29	H	75	2.00	120.000

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.



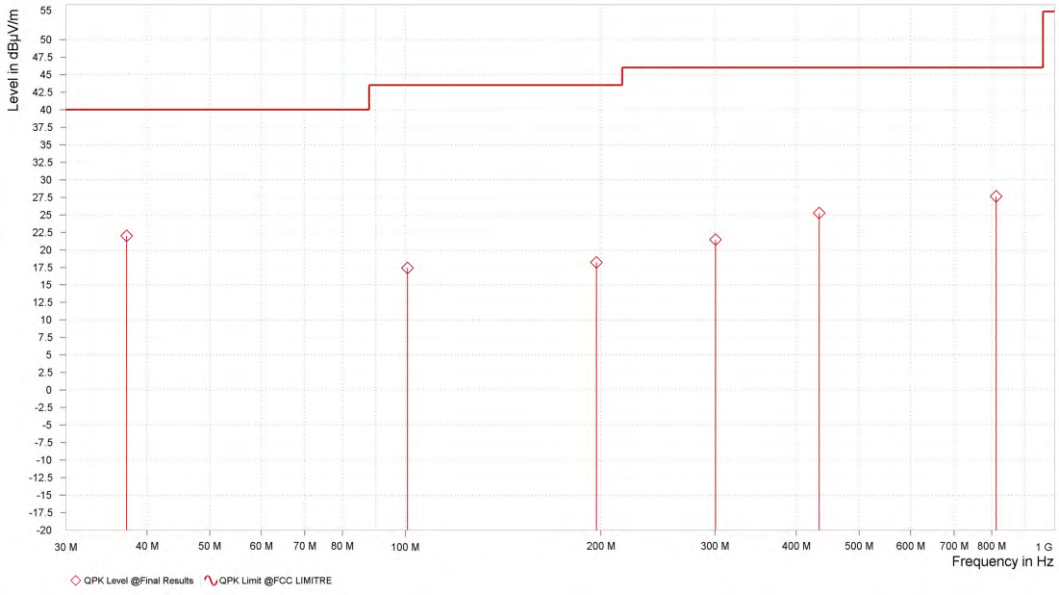
CHANNEL	Channel 38	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 1GHz		

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

Rg	Frequency [MHz]	QPK Level [dBµV/m]	QPK Limit [dBµV/m]	QPK Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]	Meas. BW [kHz]
1	37.227	21.97	40.00	18.03	-11.89	V	286.2	1.00	120.000
1	100.810	17.40	43.50	26.10	-12.26	V	1	1.00	120.000
1	196.986	18.20	43.50	25.30	-11.22	V	0.9	2.00	120.000
1	300.485	21.43	46.00	24.57	-7.15	V	286.2	1.00	120.000
1	433.908	25.23	46.00	20.77	-4.74	V	1	1.00	120.000
1	812.596	27.61	46.00	18.39	-0.24	V	5	1.00	120.000

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.

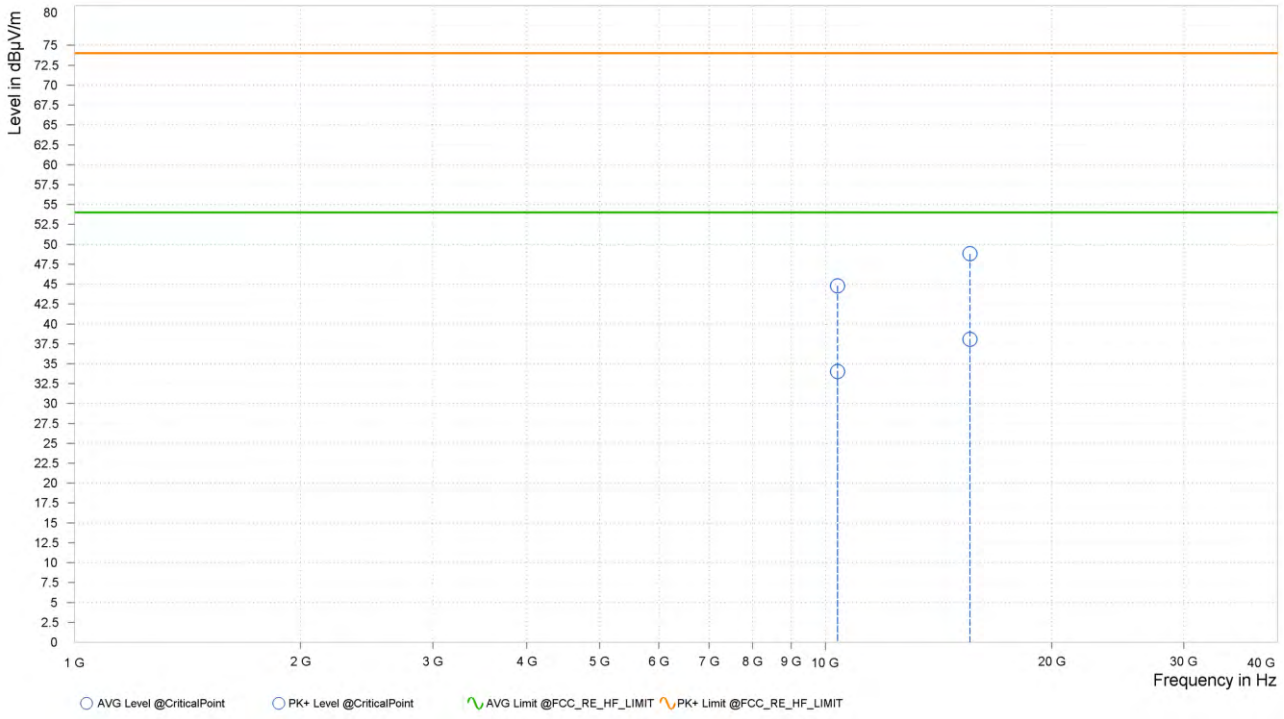
Band 1

802.11n (40MHz)

CHANNEL	TX Channel 38	**DETECTOR FUNCTION**	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

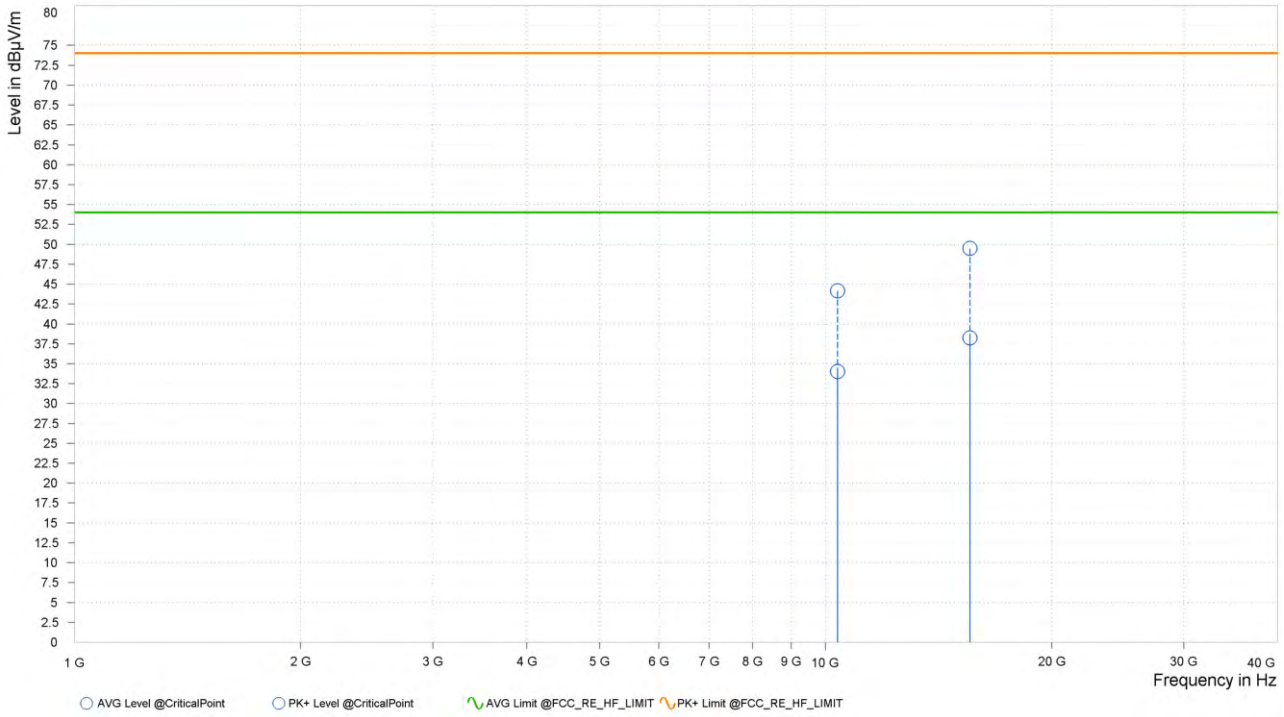
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

Rg	Frequency [MHz]	PK+ Level [dBµV/m]	PK+ Limit [dBµV/m]	PK+ Margin [dB]	AVG Level [dBµV/m]	AVG Limit [dBµV/m]	AVG Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
2	10,380.000	44.79	74.00	29.21	34.04	54.00	19.96	6.67	H	267.4	2.00
2	15,570.000	48.81	74.00	25.19	38.07	54.00	15.93	11.17	H	267.4	2.00



ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

Rg	Frequency [MHz]	PK+ Level [dBµV/m]	PK+ 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]
2	10,380.000	44.14	74.00	29.86	34.02	54.00	19.98	6.67	V	359	2.00
2	15,570.000	49.49	74.00	24.51	38.25	54.00	15.75	11.17	V	5	2.00



REMARKS:

1. Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
   Margin value = Limit value- Emission level.
2. 5180MHz: Fundamental frequency.

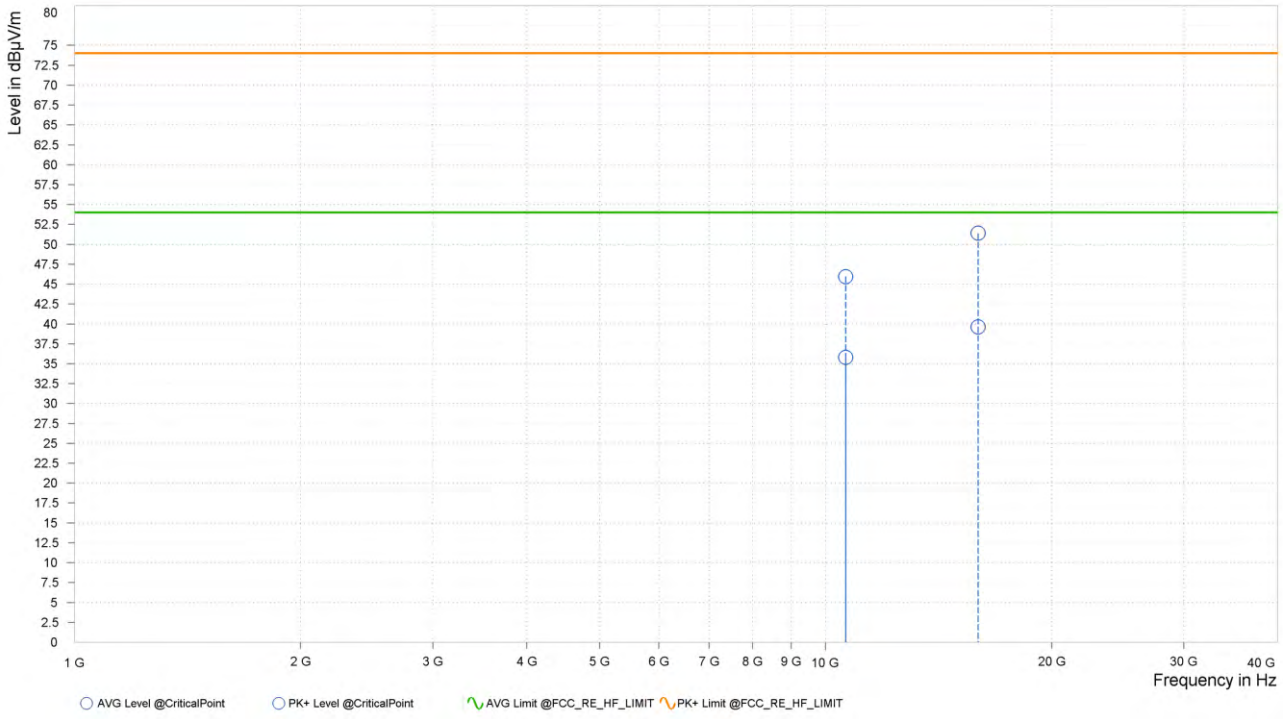
Band 2:

802.11n (20MHz)

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

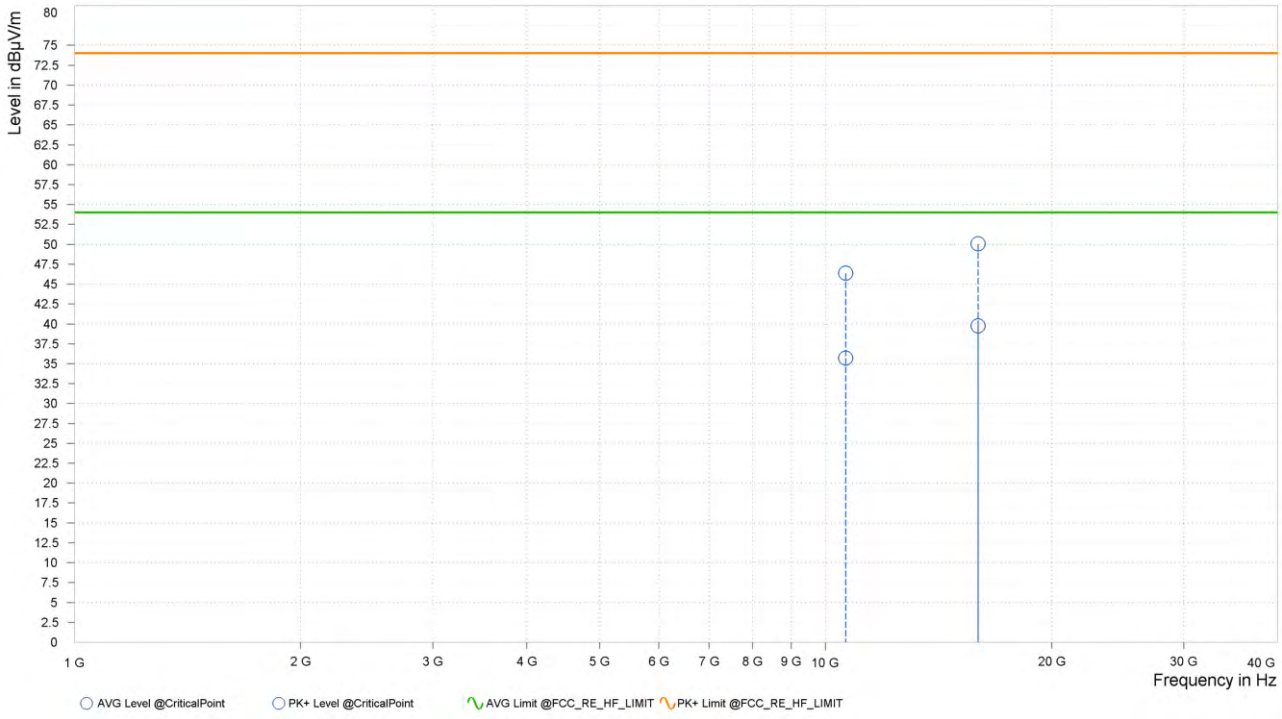
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

Rg	Frequency [MHz]	PK+ Level [dBµV/m]	PK+ 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]
2	10,640.000	45.96	74.00	28.04	35.78	54.00	18.22	7.64	H	128.7	2.00
2	15,960.000	51.40	74.00	22.60	39.64	54.00	14.36	12.59	H	230	1.00



ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

Rg	Frequency [MHz]	PK+ Level [dBµV/m]	PK+ 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]
2	10,640.000	46.37	74.00	27.63	35.70	54.00	18.30	7.64	V	359	2.00
2	15,960.000	50.05	74.00	23.95	39.76	54.00	14.24	12.59	V	359	2.00



REMARKS:

1. Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
   Margin value = Limit value- Emission level.
2. 5260MHz: Fundamental frequency.

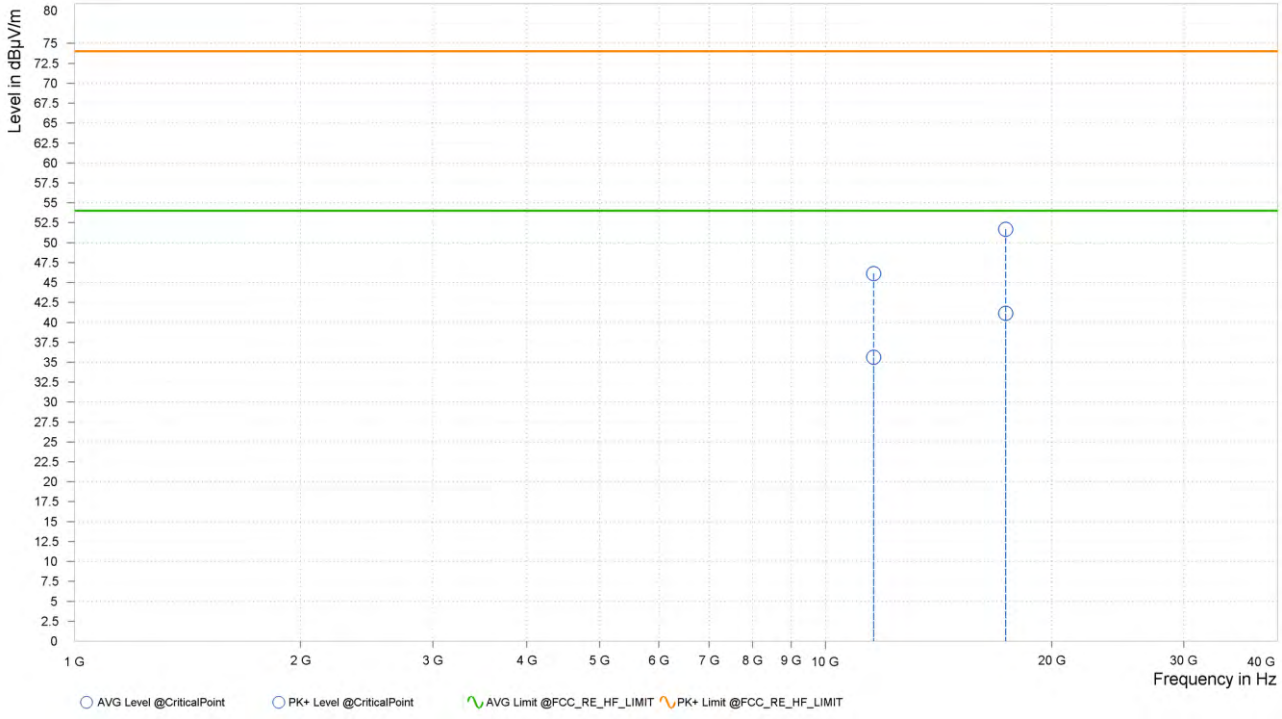
Band 4:

802.11n(40MHz)

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

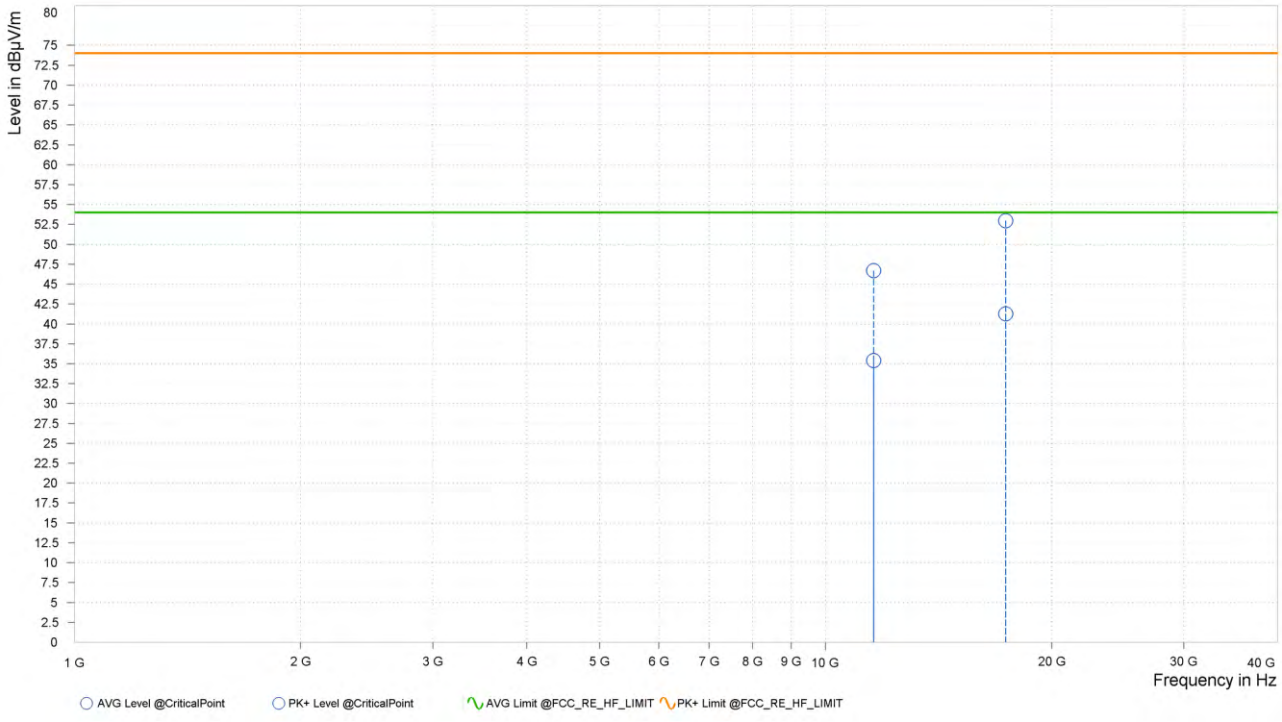
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

Rg	Frequency [MHz]	PK+ Level [dBµV/m]	PK+ Limit [dBµV/m]	PK+ Margin [dB]	AVG Level [dBµV/m]	AVG Limit [dBµV/m]	AVG Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
2	11,590.000	46.13	74.00	27.87	35.60	54.00	18.40	8.41	H	0.9	2.00
2	17,385.000	51.69	74.00	22.31	41.12	54.00	12.88	15.43	H	0.9	2.00



ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

Rg	Frequency [MHz]	PK+ Level [dBµV/m]	PK+ 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]
2	11,590.000	46.70	74.00	27.30	35.40	54.00	18.60	8.41	V	266.3	2.00
2	17,385.000	52.98	74.00	21.02	41.28	54.00	12.72	15.43	V	0.9	2.00



REMARKS:

1. Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
   Margin value = Limit value- Emission level.
2. 5745MHz: Fundamental frequency.

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	Feb.25,22	Feb.24,24
EMI Test Receiver	Rohde&Schwarz	ESR3	102749	Feb.24,24	Feb.23,26
ELEKTRA test software	Rohde&Schwarz	ELEKTRA	NA	N/A	N/A
LISN network	Rohde&Schwarz	ENV216	102640	Feb.17,22	Feb.16,24
LISN network	Rohde&Schwarz	ENV216	102640	Feb.16,24	Feb.15,26
CABLE	Rohde&Schwarz	W61.01	N/A	Apr.28,23	Apr.27,24
CABLE	Rohde&Schwarz	W601	N/A	Apr.28,23	Apr.27,24

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

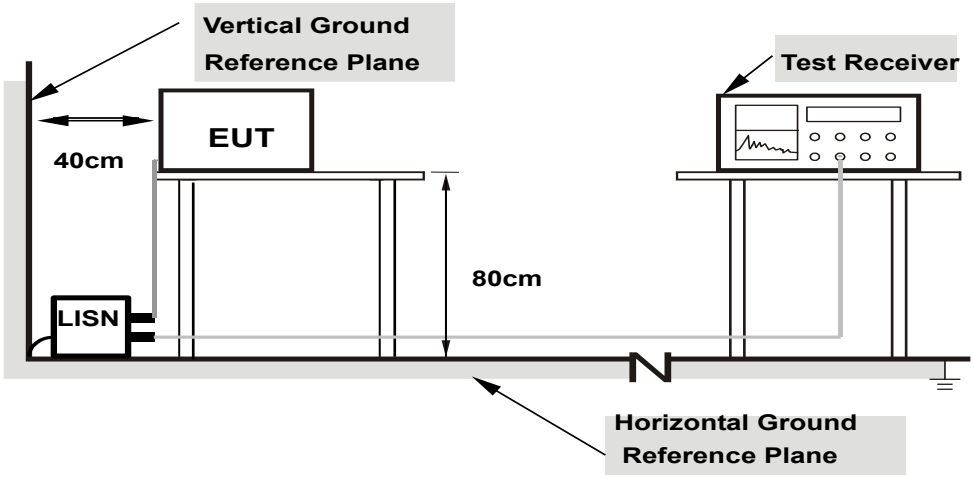
a. The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling 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	0.150	52.22	66.00	13.78	33.35	56.00	22.65	12.57	L1	9.000
1	0.474	33.34	56.44	23.10	19.44	46.44	27.00	11.75	L1	9.000
1	1.118	28.70	56.00	27.30	18.55	46.00	27.45	11.75	L1	9.000
1	6.095	31.70	60.00	28.30	20.04	50.00	29.96	11.80	L1	9.000
1	10.280	26.18	60.00	33.82	16.96	50.00	33.04	11.83	L1	9.000
1	16.697	21.77	60.00	38.23	12.02	50.00	37.98	11.85	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	0.150	49.57	66.00	16.43	33.26	56.00	22.74	12.13	N	9.000
1	0.420	45.69	57.45	11.76	38.88	47.45	8.57	12.81	N	9.000
1	0.969	39.46	56.00	16.54	32.58	46.00	13.42	12.74	N	9.000
1	6.095	34.19	60.00	25.81	26.91	50.00	23.09	12.77	N	9.000
1	9.663	31.10	60.00	28.90	24.60	50.00	25.40	12.79	N	9.000
1	15.554	26.46	60.00	33.54	19.84	50.00	30.16	12.83	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

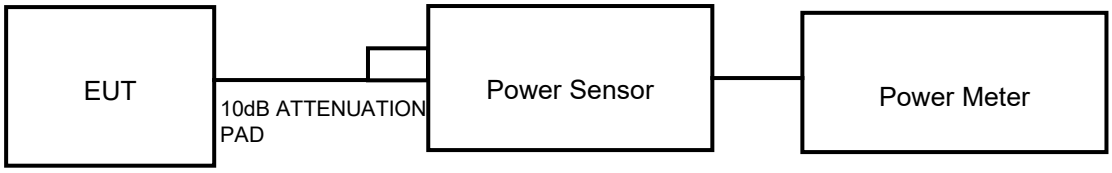
Operation Band	EUT Category		LIMIT
U-NII-1		Outdoor Access Point	1 Watt (30 dBm) (Max. e.i.r.p ≦ 125mW(21 dBm) at any elevation angle above 30 degrees as measured from the horizon)
		Fixed point-to-point Access Point	1 Watt (30 dBm)
		Indoor Access Point	1 Watt (30 dBm)
	√	Client devices	250mW (24 dBm)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

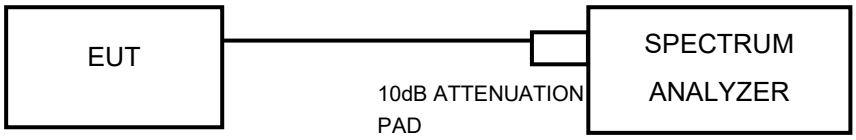
3.3.2 TEST SETUP

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	Feb.25,22	Feb.24,24
EMI Test Receiver	R&S	ESW 44	101973	Feb.24,24	Feb.23,26
Open Switch and Control Unit	R&S	OSP-B157W8	100836	N/A	N/A
Vector Signal Generator	R&S	SMBV100B	102176	Feb.16,22	Feb.15,24
Vector Signal Generator	R&S	SMBV100B	102176	Feb.15,24	Feb.14,26
Signal Generator	R&S	SMB100A03	182185	Feb.16,22	Feb.15,24
Signal Generator	R&S	SMB100A03	182185	Feb.15,24	Feb.14,26
Wideband Radio Communication	R&S	CMW500	169399	Jun.26,22	Jun.25,24
Hygrothermograph	DELI	20210528	SZ015	Sep.06,22	Sep.05,24
PC	LENOVO	E14	HRSW0024	N/A	N/A
CABLE	R&S	J12J103539-00-1	SEP-03-20-069	Apr.28,23	Apr.27,24
CABLE	R&S	J12J103539-00-1	SEP-03-20-070	Apr.28,23	Apr.27,24

Test Software	EMC32	EMC32	N/A	N/A	N/A
Temperature Chamber	votsch	VT4002	5856607810 0050	May.31,22	May.30,24
Power Meter	R&S	NRX	102380	Feb.15,22	Feb.14,24
Power Meter	R&S	NRX	102380	Feb.14,24	Feb.13,26
Power Meter probe	R&S	NRP6A	102942	Feb.15,22	Feb.14,24
Power Meter probe	R&S	NRP6A	102942	Feb.14,24	Feb.13,26

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

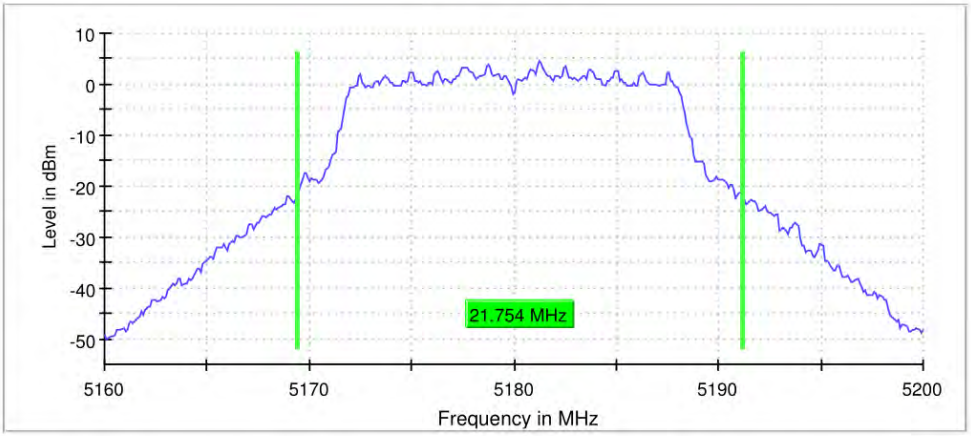
EMISSION BANDWIDTH

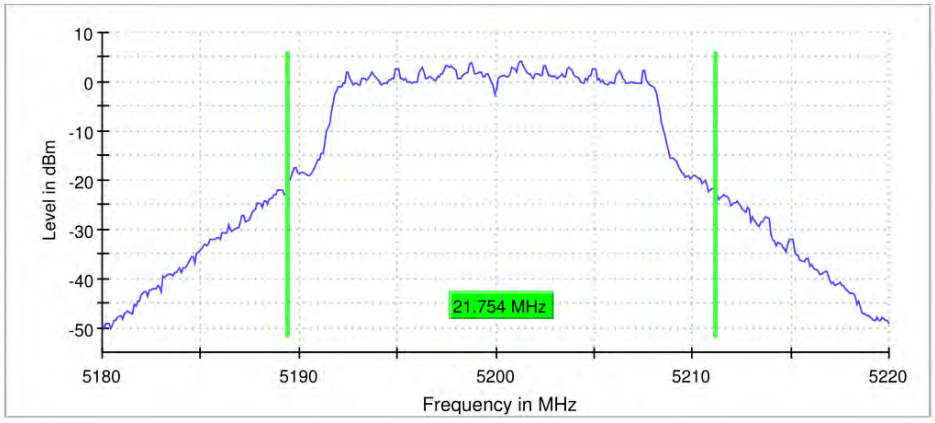
TEST RESULT

TestMode	Antenna	Frequency [MHz]	26db EBW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11A	Ant0	5180	21.754	5169.424	5191.178	---	---
	Ant0	5200	21.754	5189.424	5211.178	---	---
	Ant0	5240	21.754	5229.424	5251.178	---	---
	Ant0	5260	21.754	5249.424	5271.178	---	---
	Ant0	5300	21.754	5289.424	5311.178	---	---
	Ant0	5320	22.055	5309.123	5331.178	---	---
	Ant0	5745	22.055	5733.822	5755.877	---	---
	Ant0	5785	22.356	5773.822	5796.178	---	---
	Ant0	5825	22.055	5813.822	5835.877	---	---
11N20-SISO	Ant0	5180	22.155	5169.023	5191.178	---	---
	Ant0	5200	22.256	5188.822	5211.078	---	---
	Ant0	5240	22.256	5228.922	5251.178	---	---
	Ant0	5260	22.155	5249.023	5271.178	---	---
	Ant0	5300	22.055	5289.023	5311.078	---	---
	Ant0	5320	22.556	5308.922	5331.478	---	---
	Ant0	5745	22.657	5733.822	5756.479	---	---
	Ant0	5785	22.256	5773.822	5796.078	---	---
	Ant0	5825	22.256	5813.822	5836.078	---	---
11N40-SISO	Ant0	5190	41.955	5169.098	5211.053	---	---
	Ant0	5230	41.955	5209.098	5251.053	---	---
	Ant0	5270	41.955	5249.098	5291.053	---	---
	Ant0	5310	41.955	5289.098	5331.053	---	---
	Ant0	5755	41.955	5733.797	5775.752	---	---
	Ant0	5795	41.955	5774.098	5816.053	---	---
11AC80-SISO	Ant0	5210	85.266	5167.618	5252.884	---	---
	Ant0	5290	85.768	5247.116	5332.884	---	---
	Ant0	5775	85.768	5731.614	5817.382	---	---

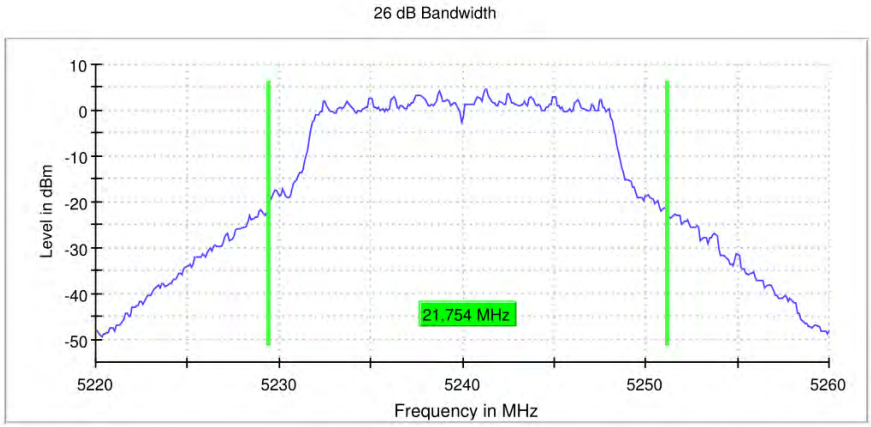
NOTE：
20M 26DB：
RBW 200.000 kHz
VBW 1.000 MHz
40M 26DB：
RBW 400.000 kHz
VBW 1.000 MHz
80M 26DB：
RBW 1.000 MHz
VBW 3.000 MHz

TEST GRAPHS

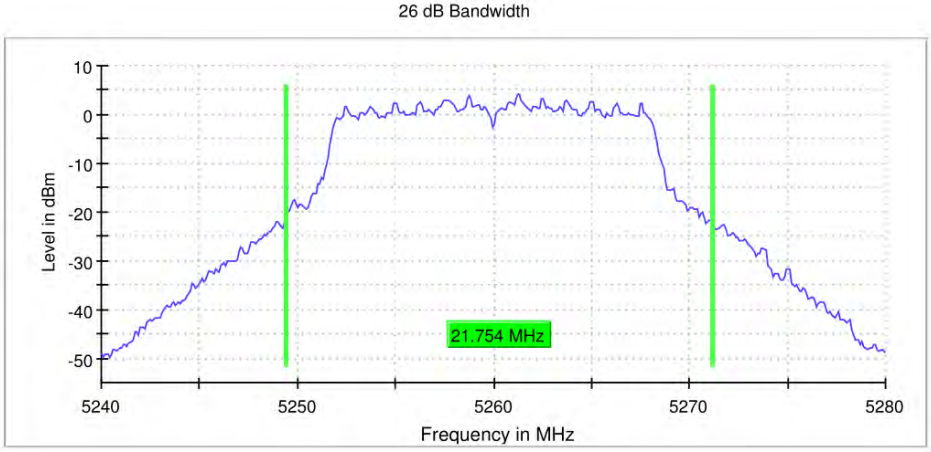
11A_Ant0_5180


11A _Ant0_5200


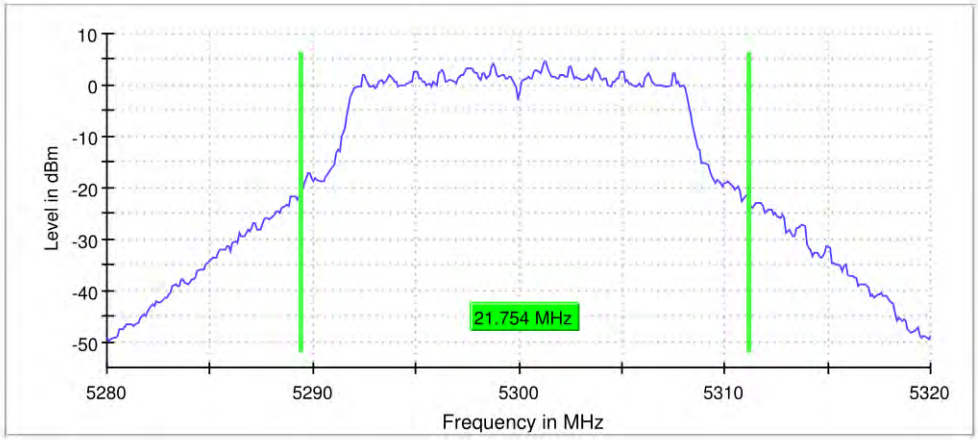
11A _Ant0_5240



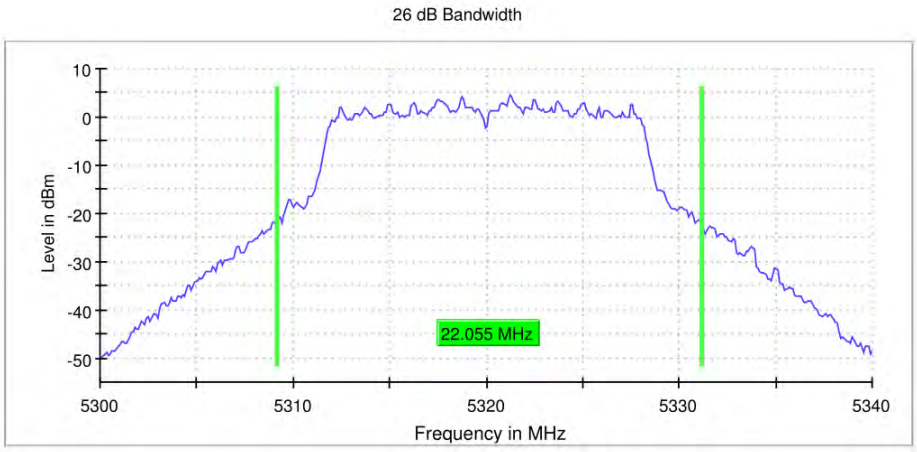
11A _Ant0_5260



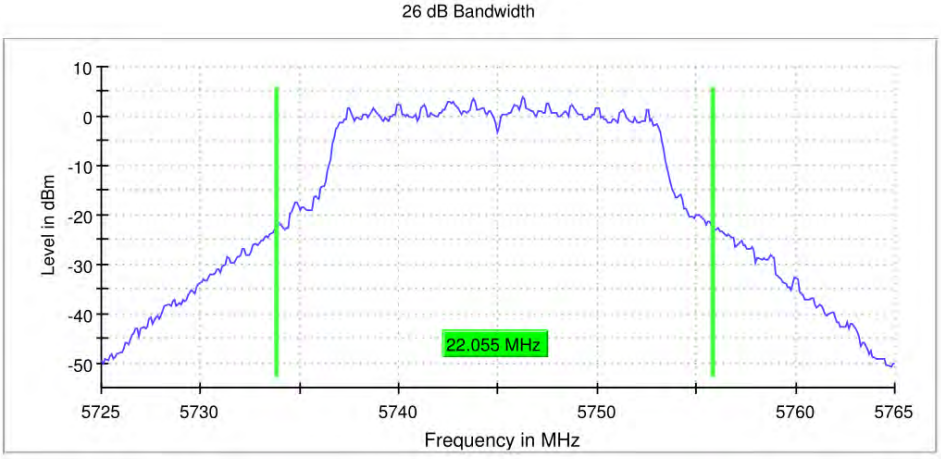
11A _Ant0_5300



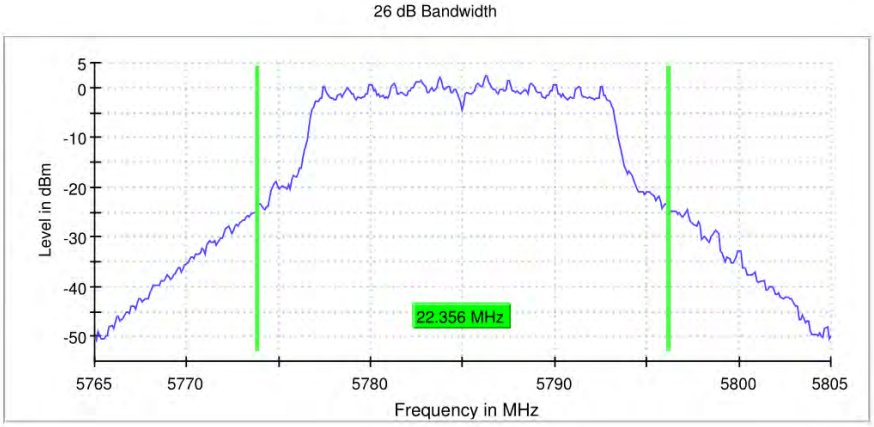
11A _Ant0_5320



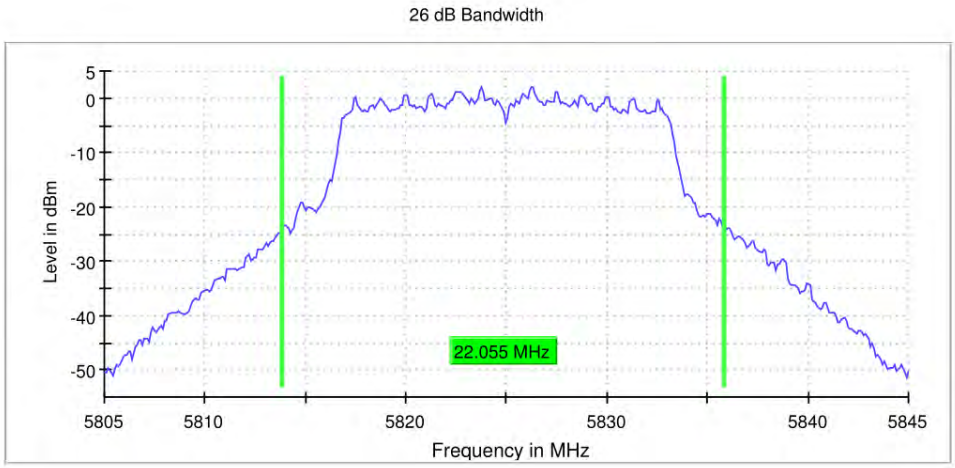
11A _Ant0_5745



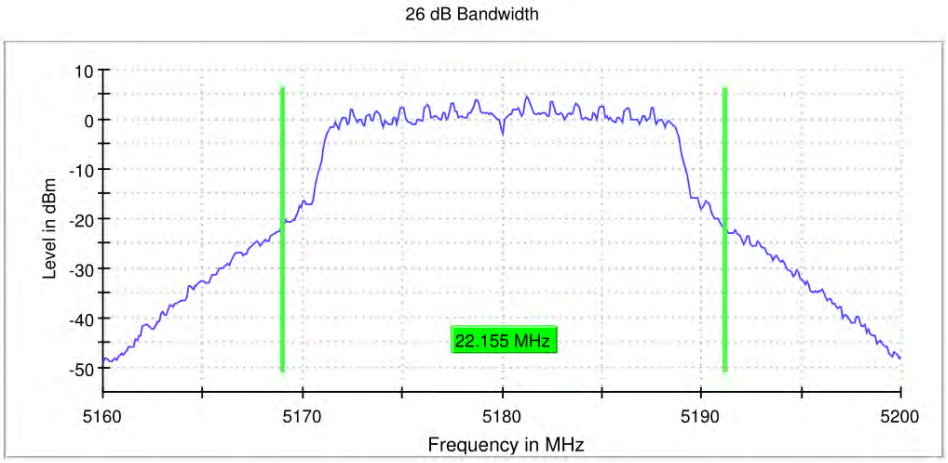
11A _Ant0_5785



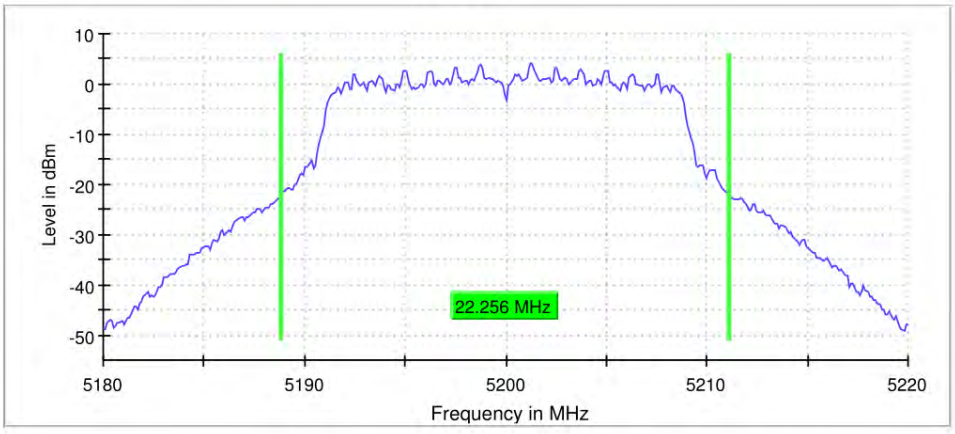
11A_Ant0_5825



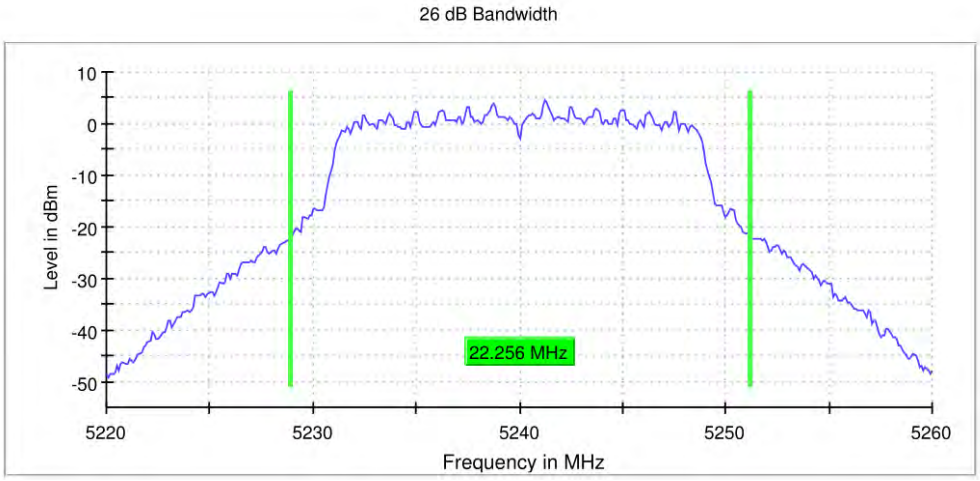
11N20_Ant0_5180



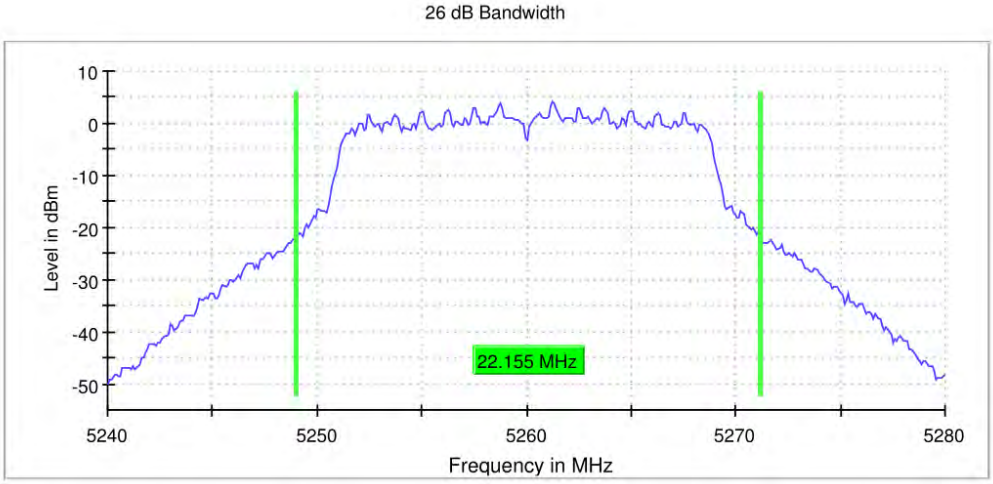
11N20 _Ant0_5200



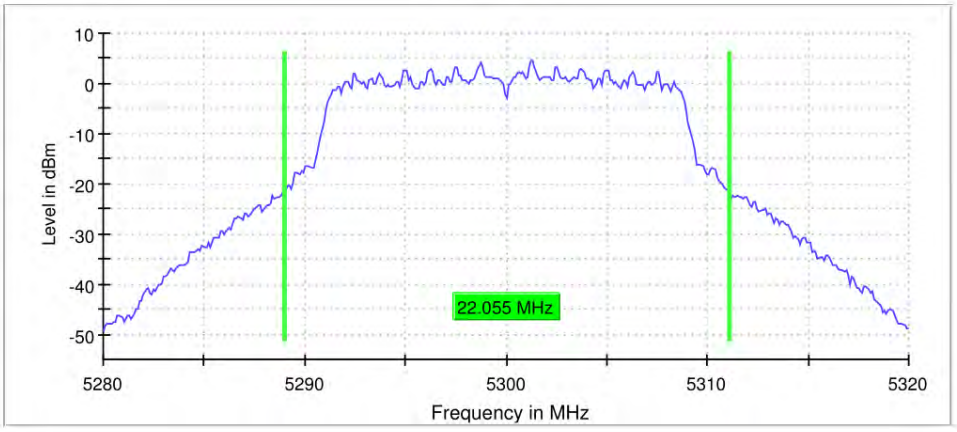
11N20 _Ant0_5240

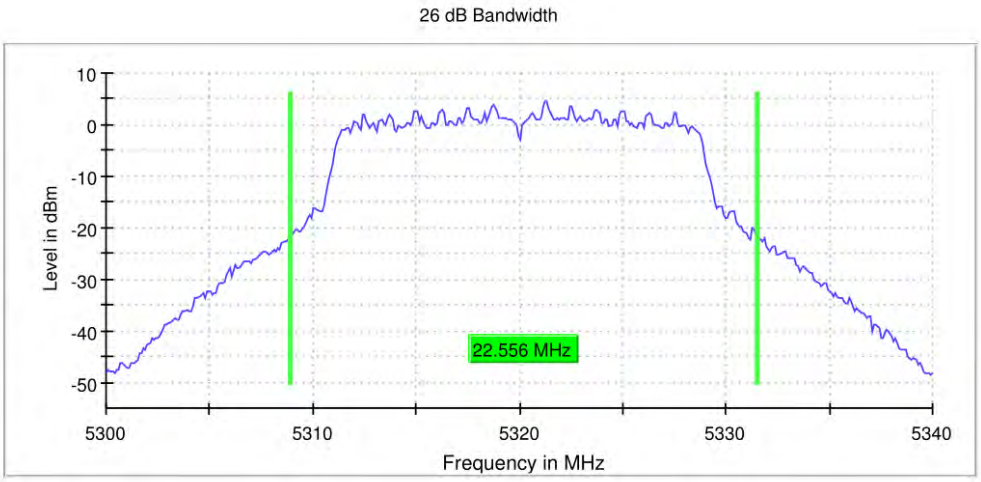


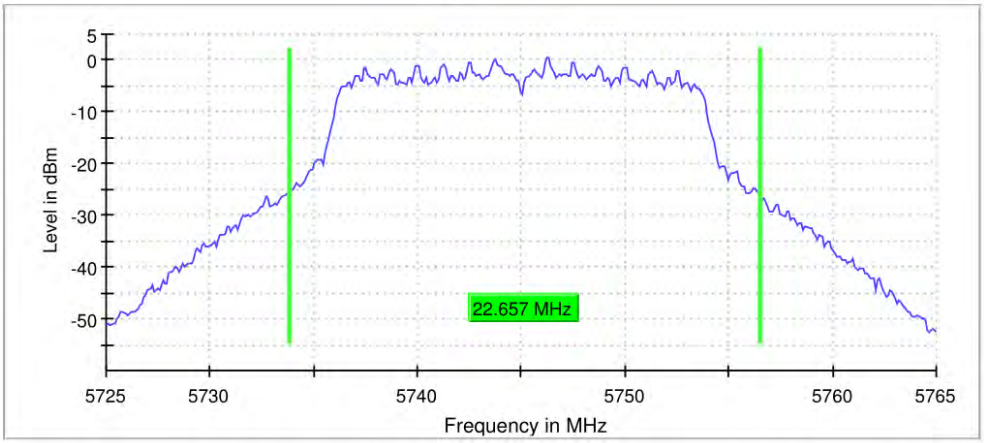
11N20 _Ant0_5260



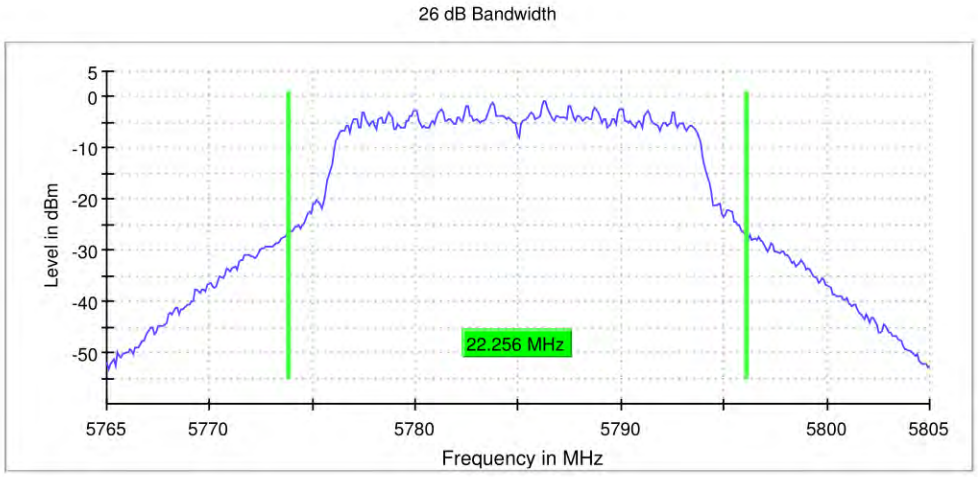
11N20_Ant0_5300



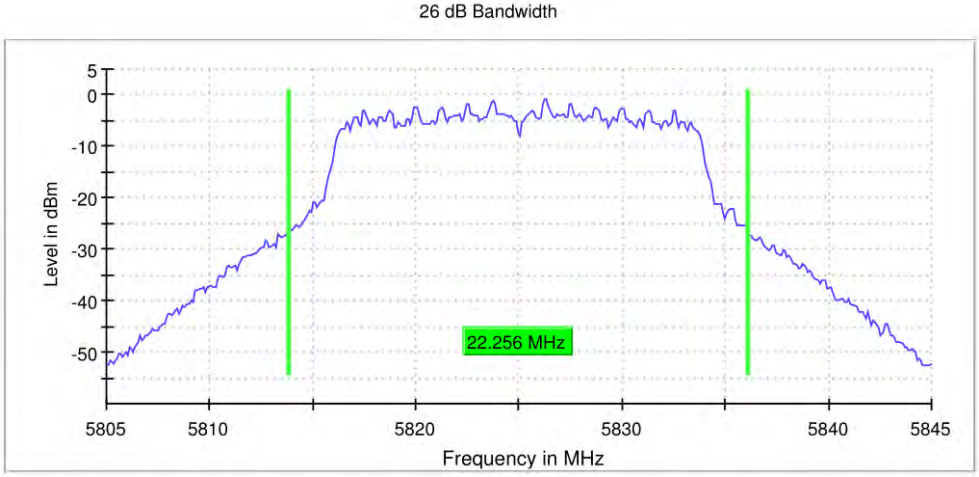
11N20 _Ant0_5320


11N20 _Ant0_5745


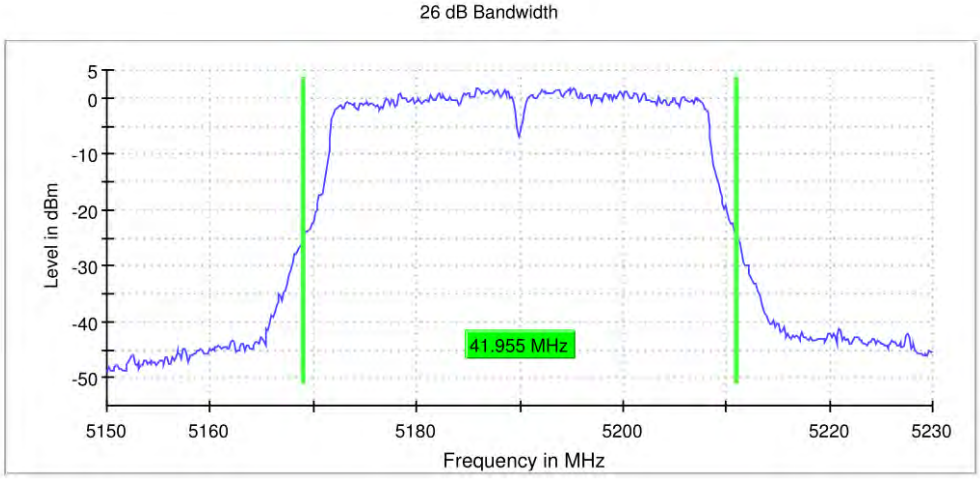
11N20 _Ant0_5785



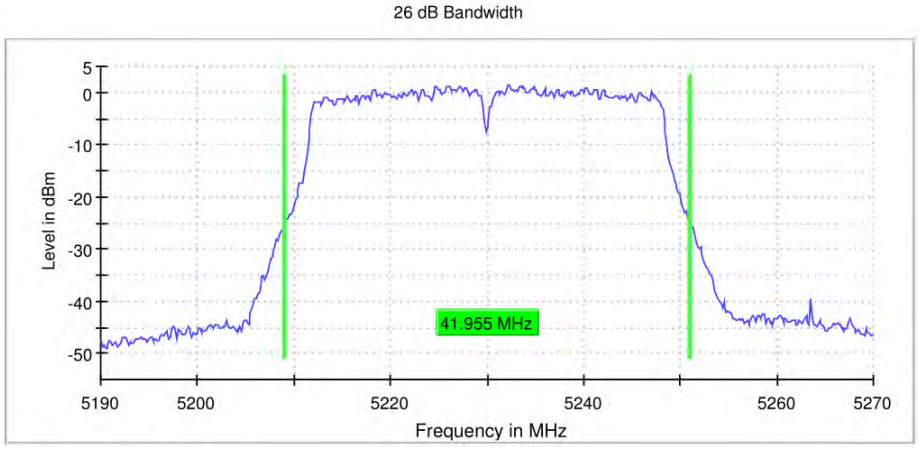
11N20 _Ant0_5825



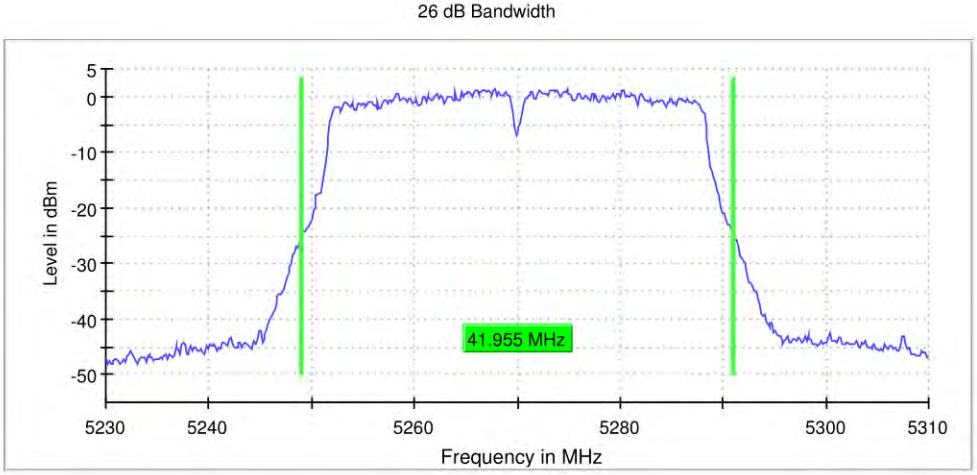
11N40 _Ant0_5190



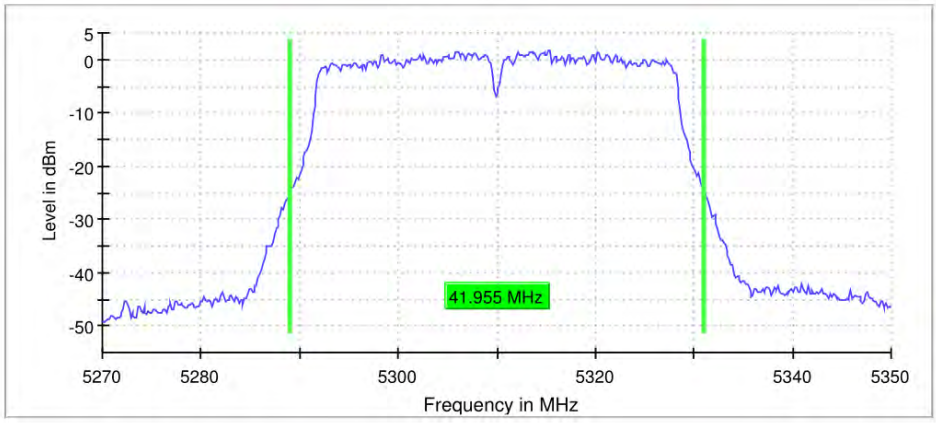
11N40 _Ant0_5230



11N40 _Ant0_5270

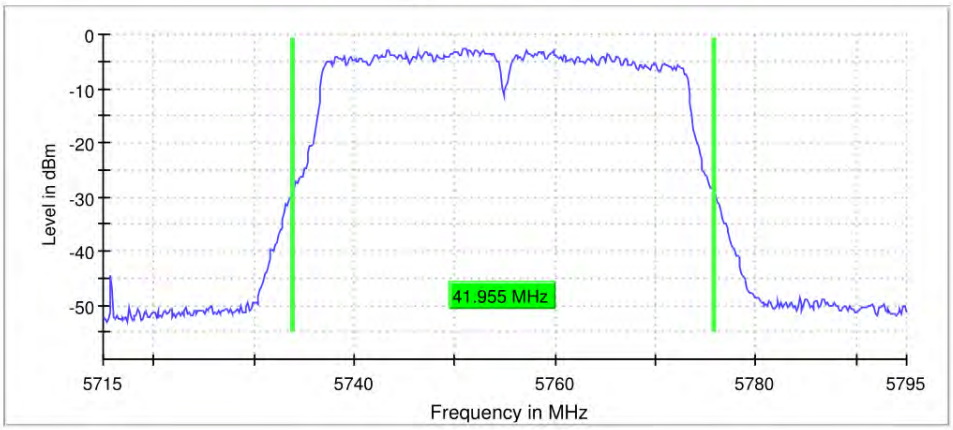


11N40 _Ant0_5310



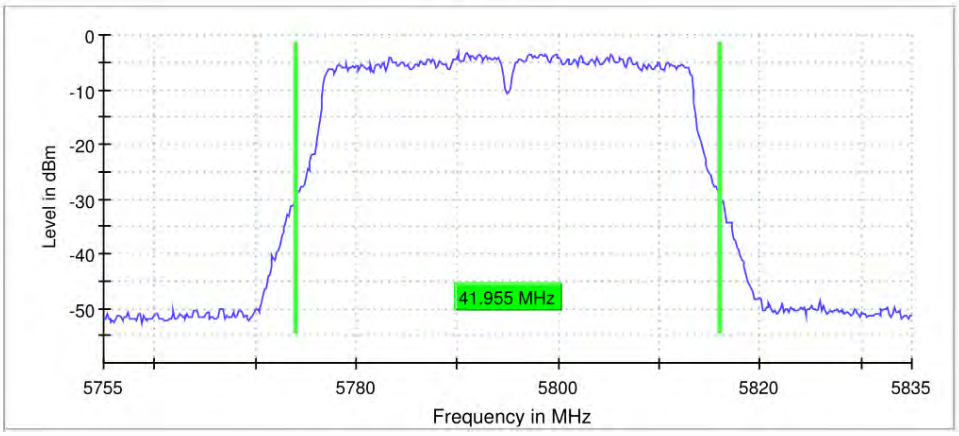
11N40 _Ant0_5755

26 dB Bandwidth



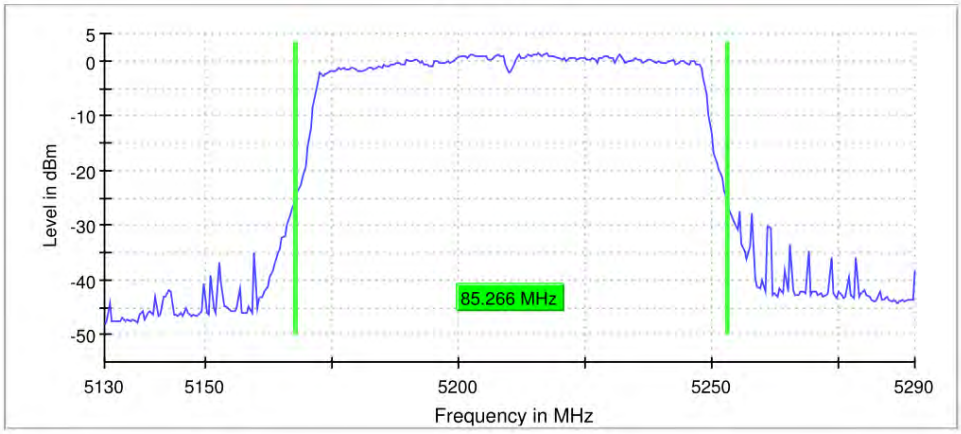
11N40 _Ant0_5795

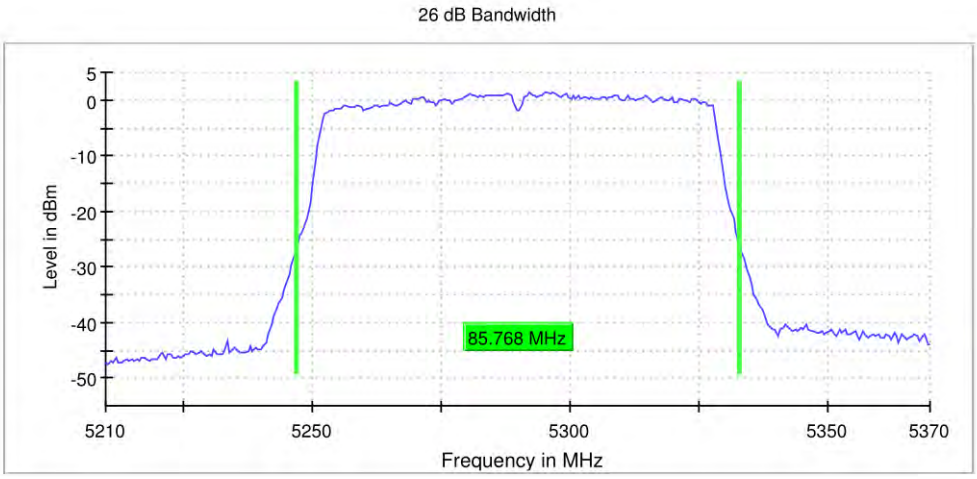
26 dB Bandwidth

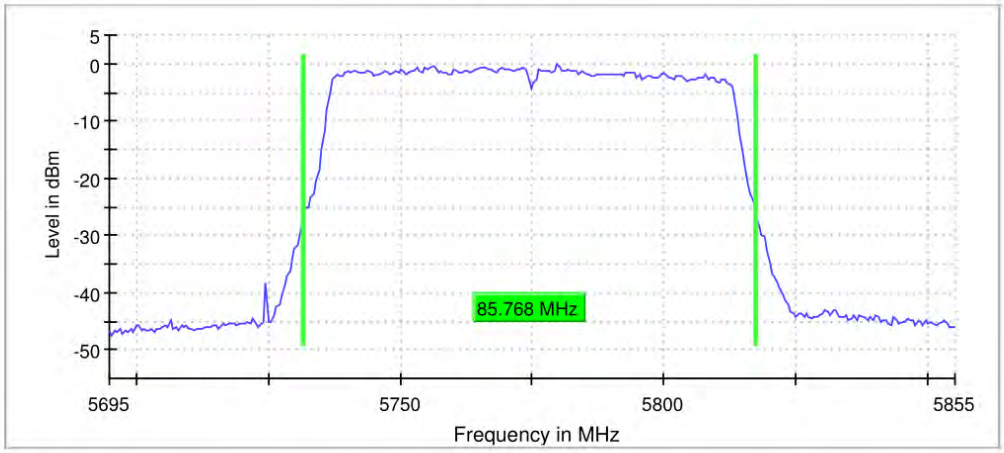


11AC80 _Ant0_5210

26 dB Bandwidth



11AC80 _Ant0_5290


11AC80 _Ant0_5775


OCCUPIED CHANNEL BANDWIDTH

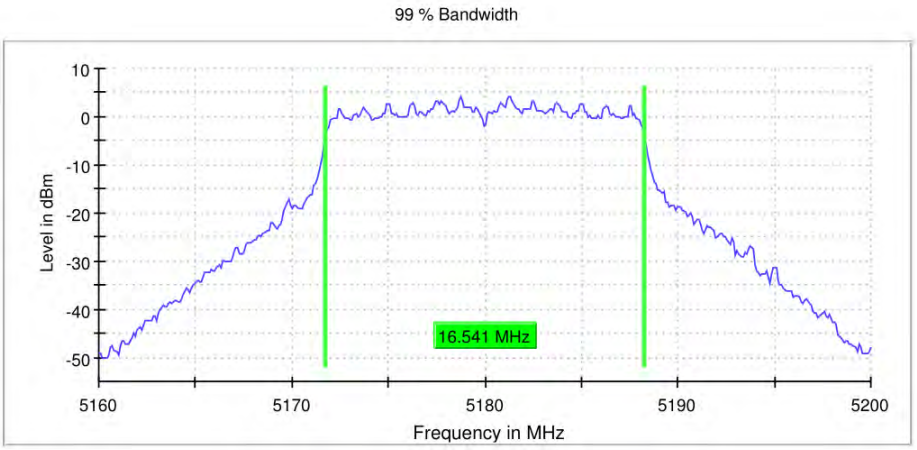
TEST RESULT

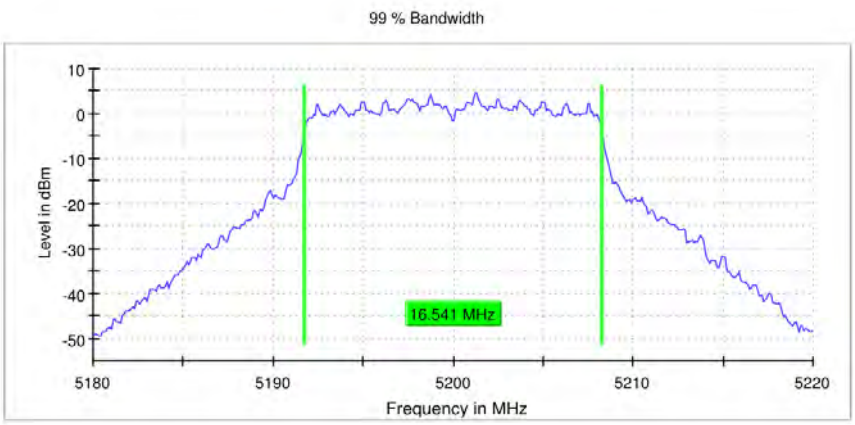
TestMode	Antenna	Frequency [MHz]	OCB [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11A	Ant0	5180	16.541	5171.729	5188.270	---	---
	Ant0	5200	16.541	5191.729	5208.270	---	---
	Ant0	5240	16.642	5231.729	5248.370	---	---
	Ant0	5260	16.541	5251.729	5268.270	---	---
	Ant0	5300	16.642	5291.729	5308.371	---	---
	Ant0	5320	16.541	5311.729	5328.270	---	---
	Ant0	5745	16.541	5736.729	5753.270	---	---
	Ant0	5785	16.541	5776.729	5793.270	---	---
	Ant0	5825	16.541	5816.729	5833.270	---	---
11N20-SISO	Ant0	5180	17.744	5171.128	5188.872	---	---
	Ant0	5200	17.845	5191.128	5208.973	---	---
	Ant0	5240	17.744	5231.128	5248.872	---	---
	Ant0	5260	17.744	5251.128	5268.872	---	---
	Ant0	5300	17.744	5291.128	5308.872	---	---
	Ant0	5320	17.744	5311.128	5328.872	---	---
	Ant0	5745	17.845	5736.028	5753.873	---	---
	Ant0	5785	17.744	5776.128	5793.872	---	---
	Ant0	5825	17.744	5816.128	5833.872	---	---
11N40-SISO	Ant0	5190	36.614	5171.818	5208.432	---	---
	Ant0	5230	36.614	5211.818	5248.432	---	---
	Ant0	5270	36.614	5251.818	5288.432	---	---
	Ant0	5310	36.614	5291.818	5328.432	---	---
	Ant0	5755	36.614	5736.567	5773.181	---	---
	Ant0	5795	36.614	5776.818	5813.432	---	---
11AC80-SISO	Ant0	5210	76.238	5172.132	5248.370	---	---
	Ant0	5290	76.238	5252.132	5328.370	---	---
	Ant0	5775	76.238	5736.630	5812.868	---	---

NOTE：
20M 26DB：
RBW 200.000 kHz
VBW 1.000 MHz
40M 26DB：
RBW 500.000 kHz
VBW 2.000 MHz
80M 26DB：
RBW 1.000 MHz
VBW 3.000 MHz

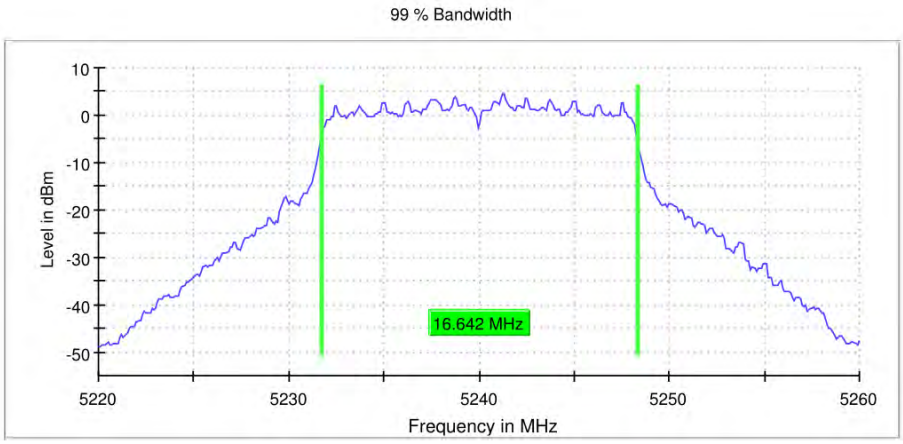
NOTE：For 802.11n HT20/ac VHT20 and 802.11n HT40 /ac VHT40 modes, the test evaluated only 802.11n HT20/HT40, referring to their high power.

TEST GRAPHS

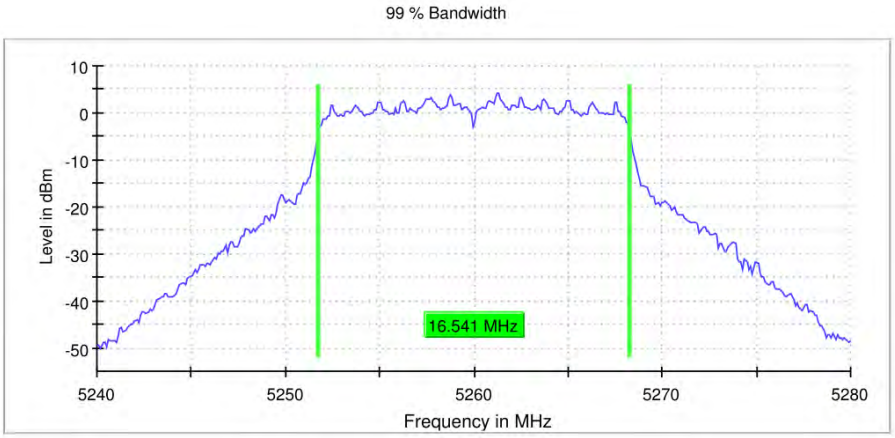
11A_Ant0_5180


11A _Ant0_5200


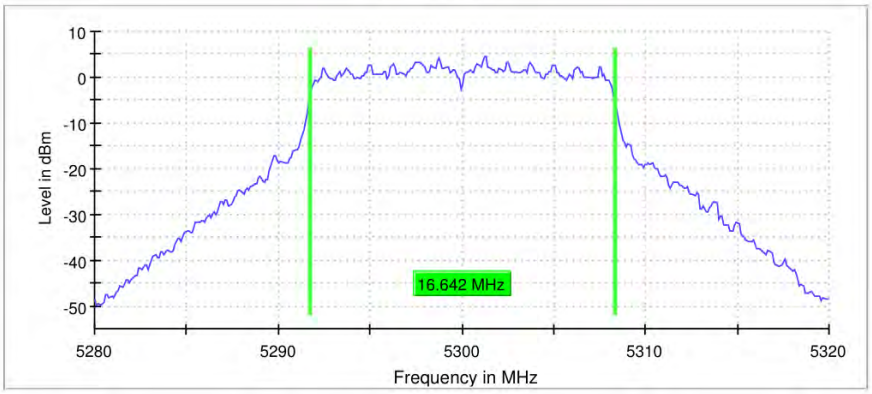
11A _Ant0_5240



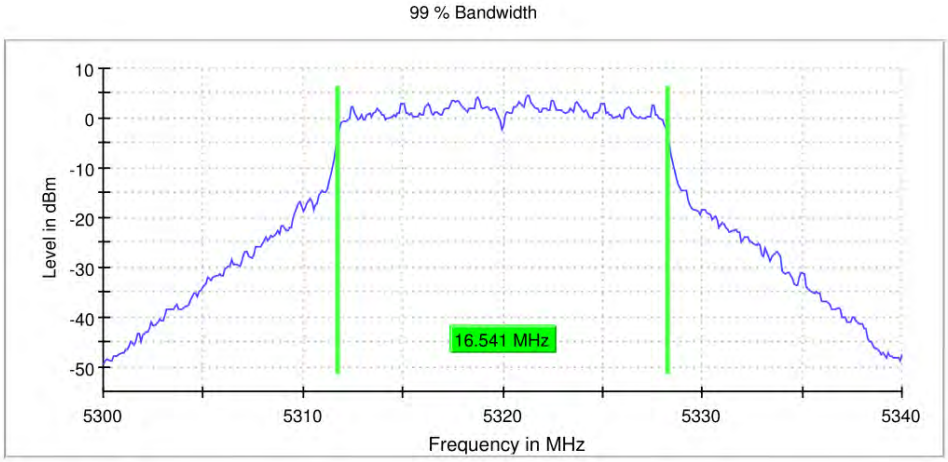
11A _Ant0_5260



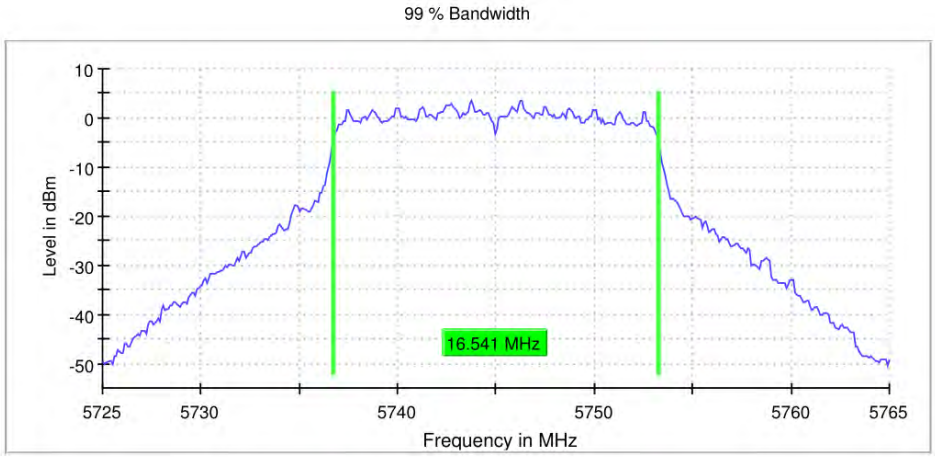
11A _Ant0_5300



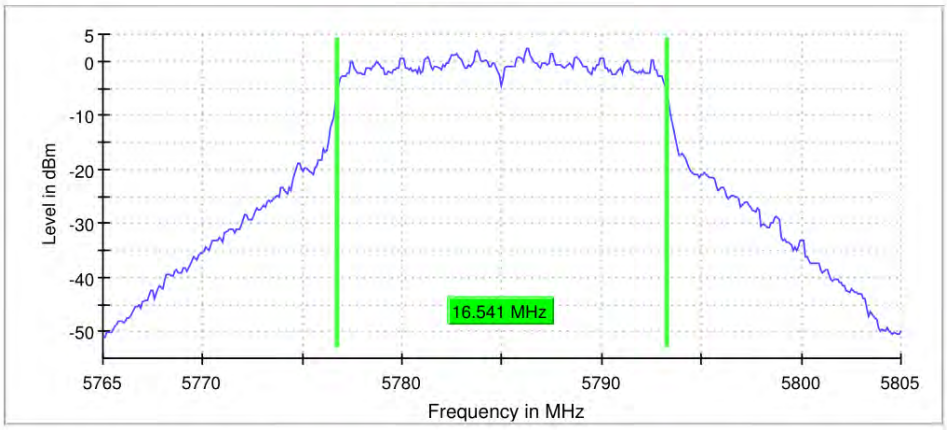
11A _Ant0_5320



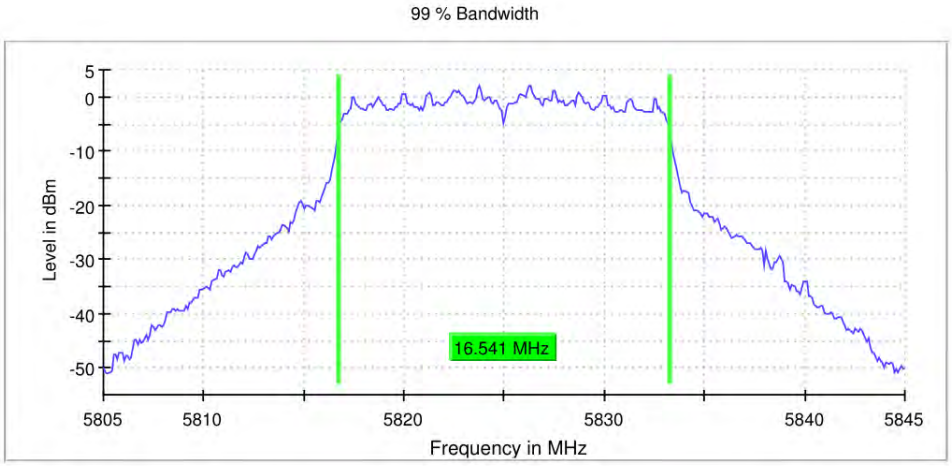
11A _Ant0_5745



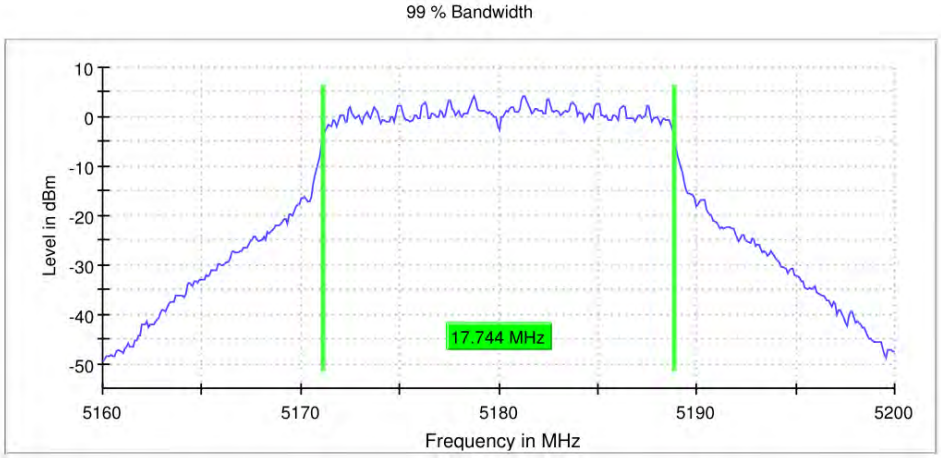
11A _Ant0_5785



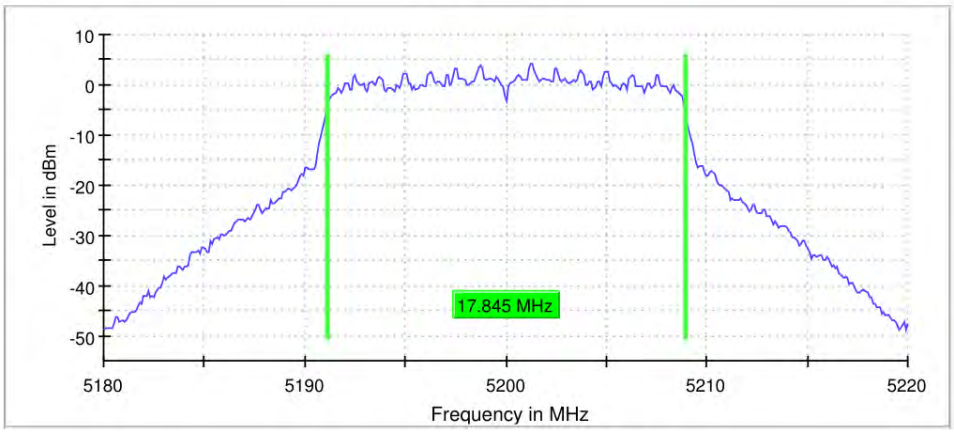
11A_Ant0_5825



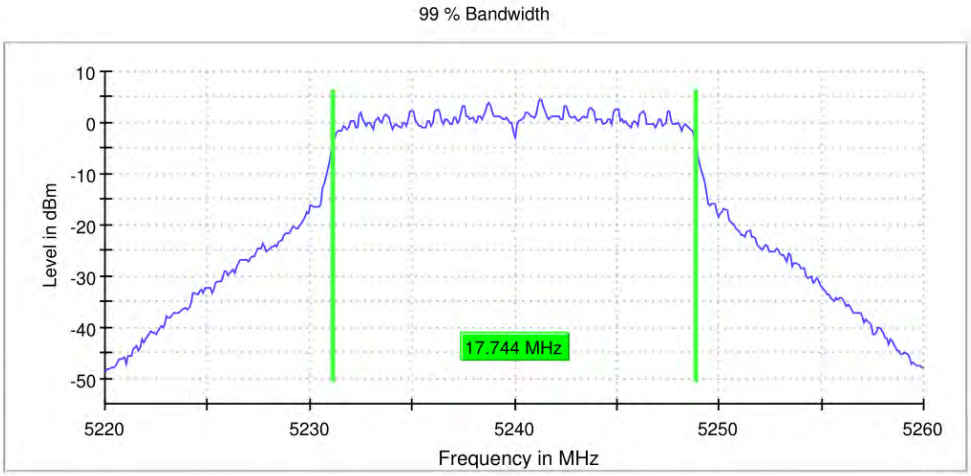
11N20_Ant0_5180



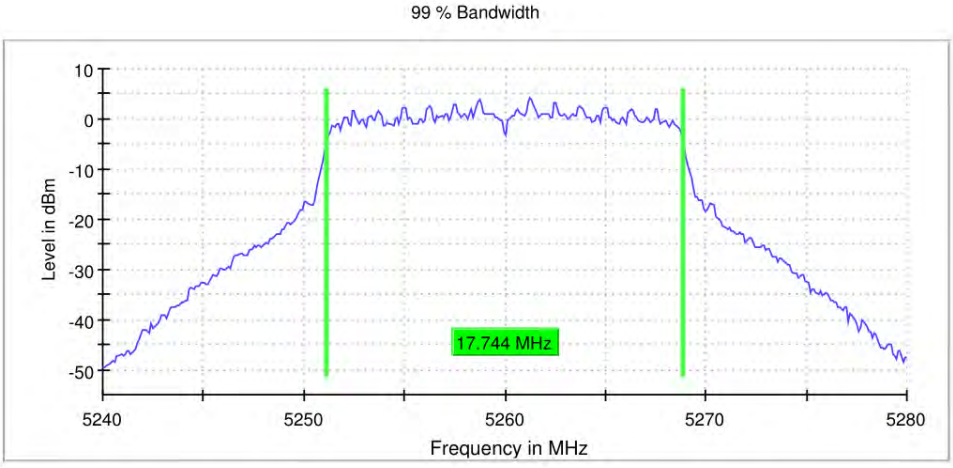
11N20 _Ant0_5200



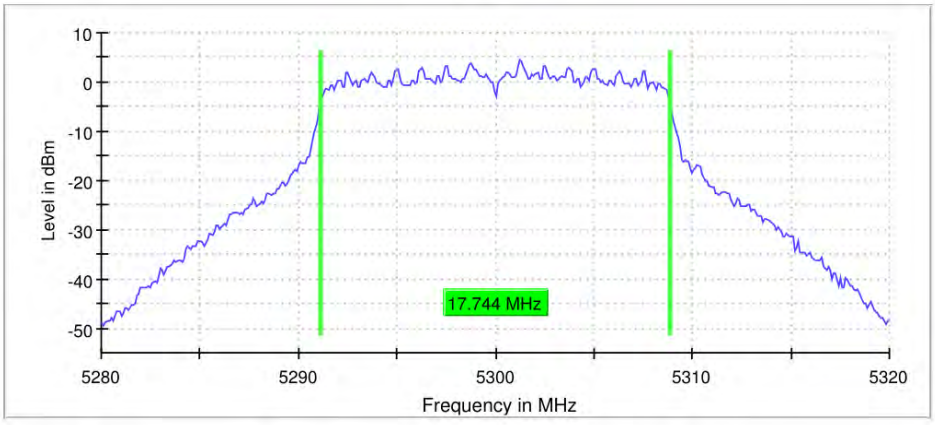
11N20 _Ant0_5240



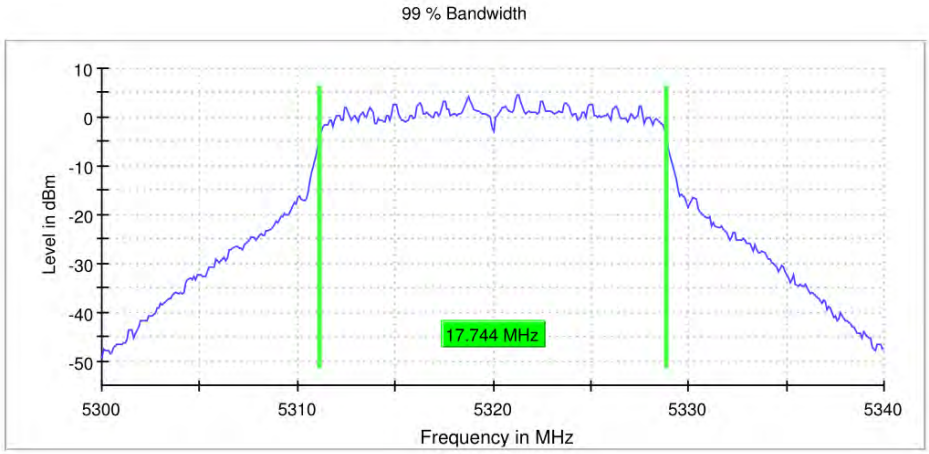
11N20 _Ant0_5260



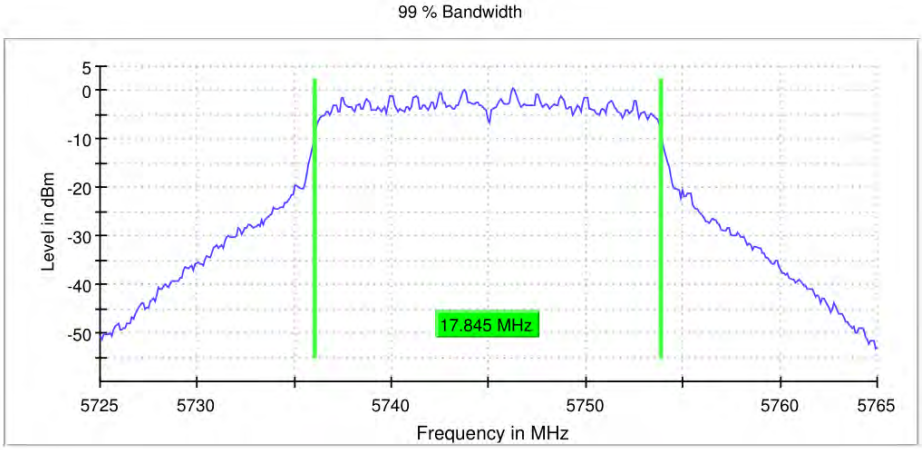
11N20_Ant0_5300



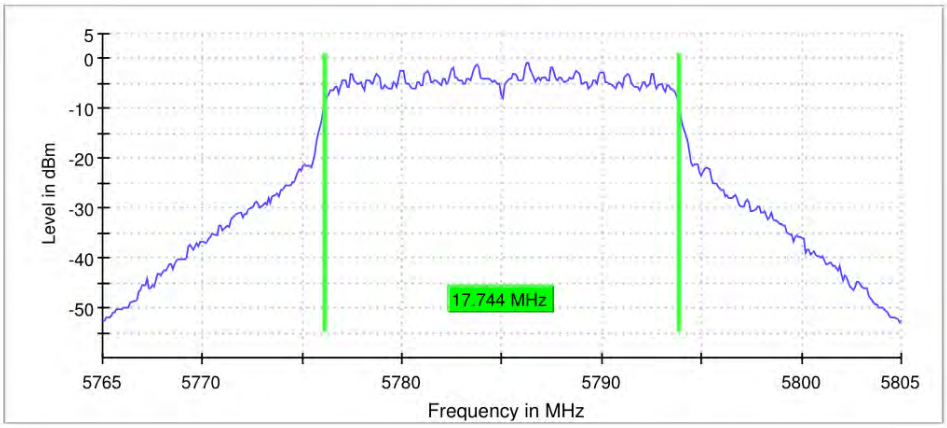
11N20 _Ant0_5320



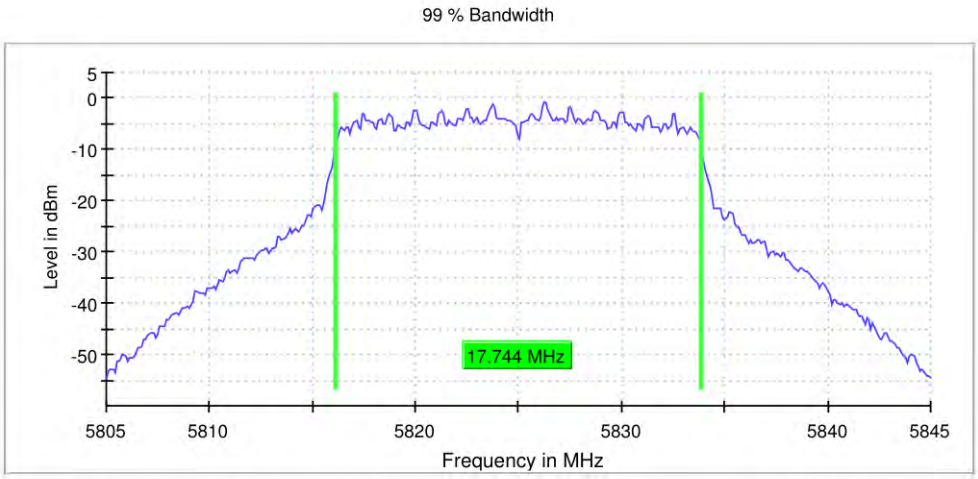
11N20 _Ant0_5745



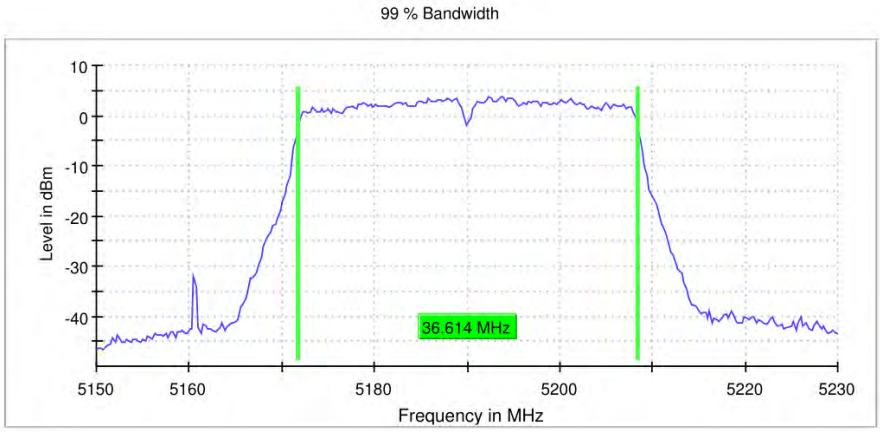
11N20 _Ant0_5785



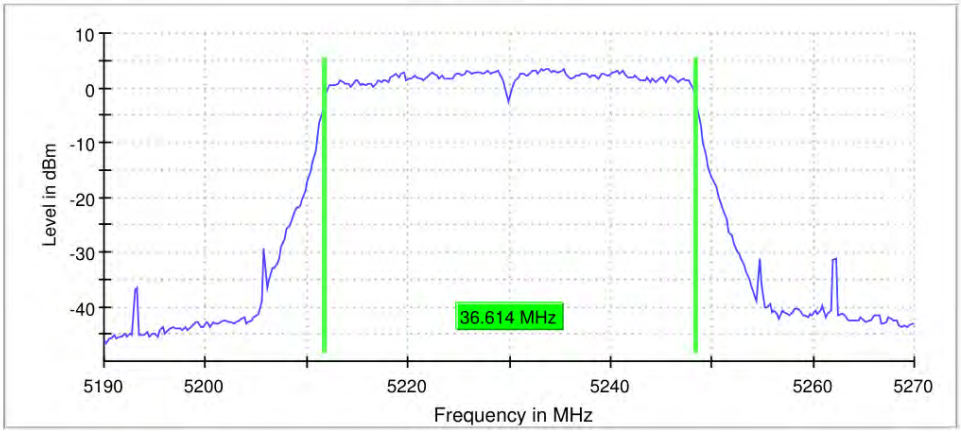
11N20 _Ant0_5825



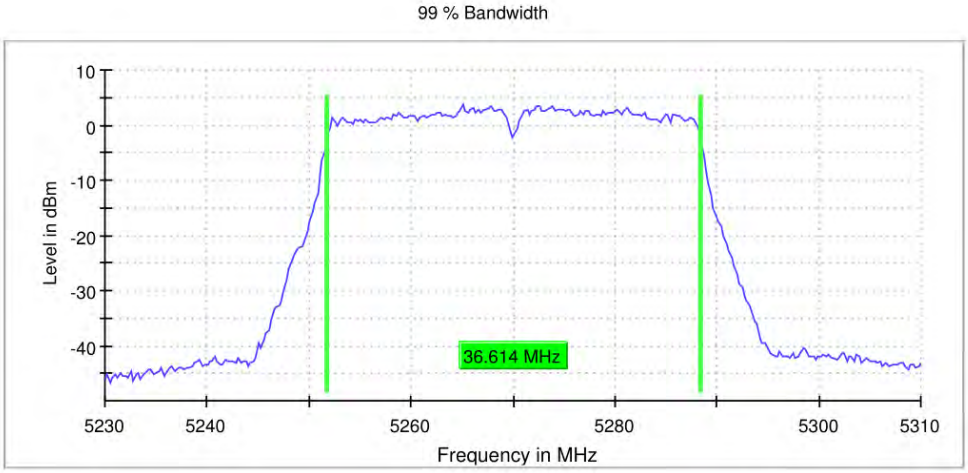
11N40 _Ant0_5190



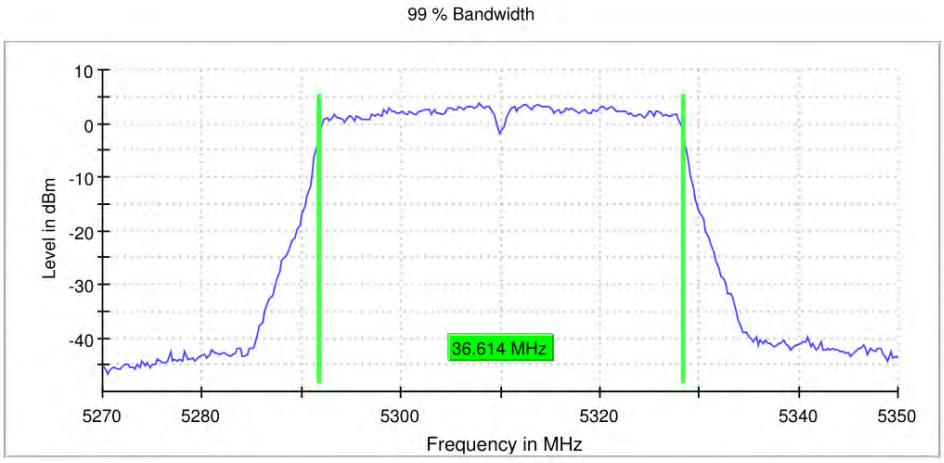
11N40 _Ant0_5230



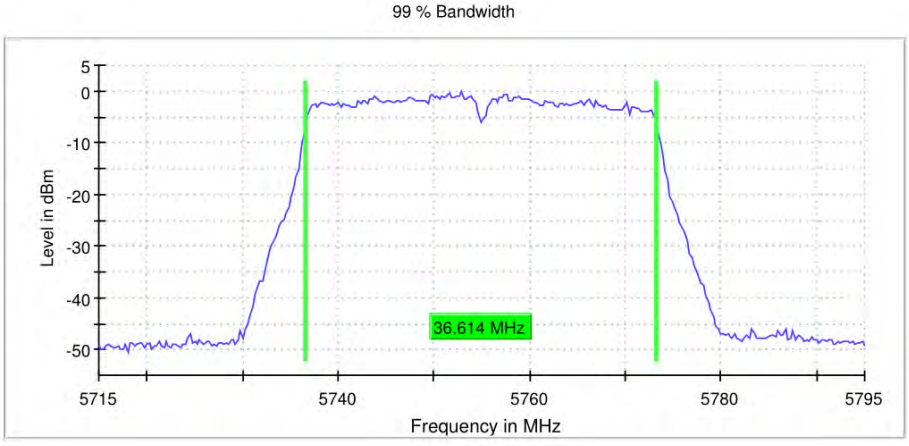
11N40 _Ant0_5270



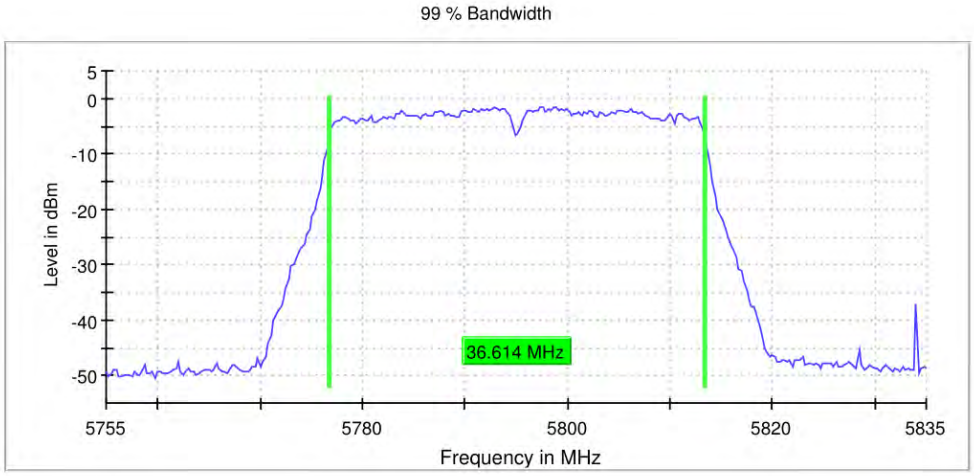
11N40 _Ant0_5310



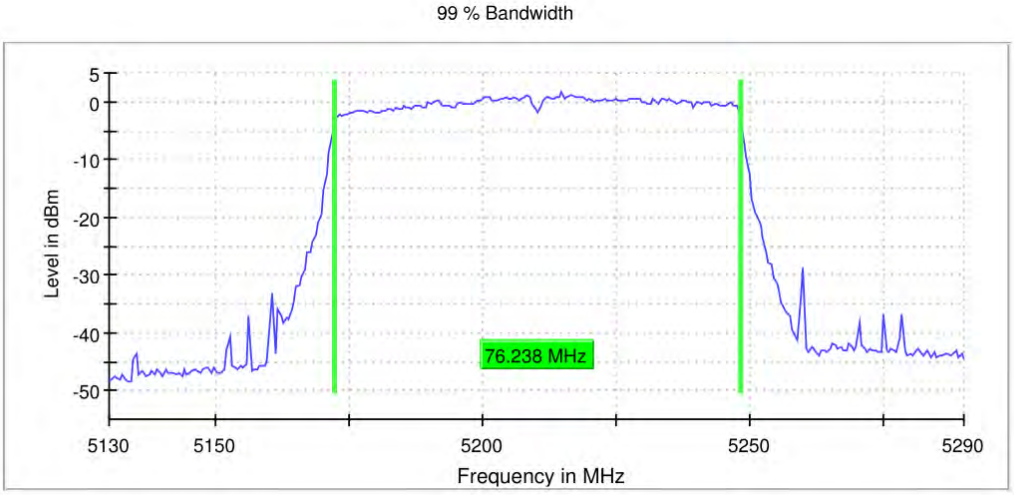
11N40 _Ant0_5755



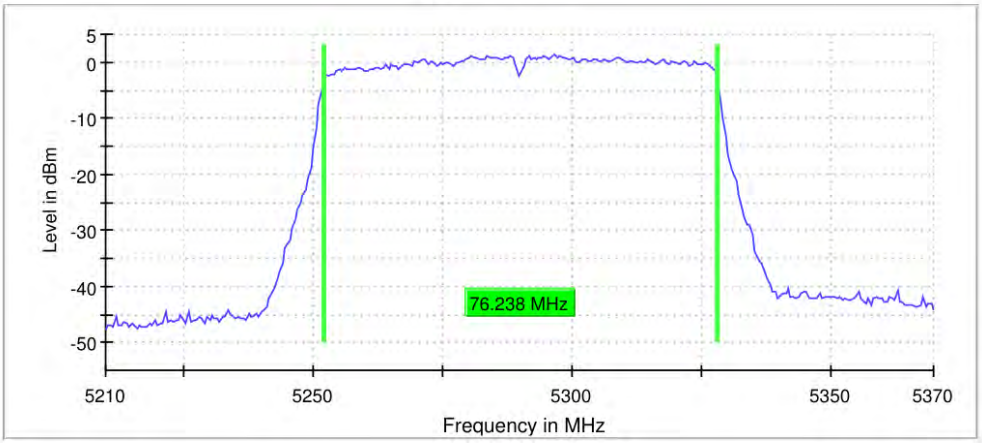
11N40 _Ant0_5795



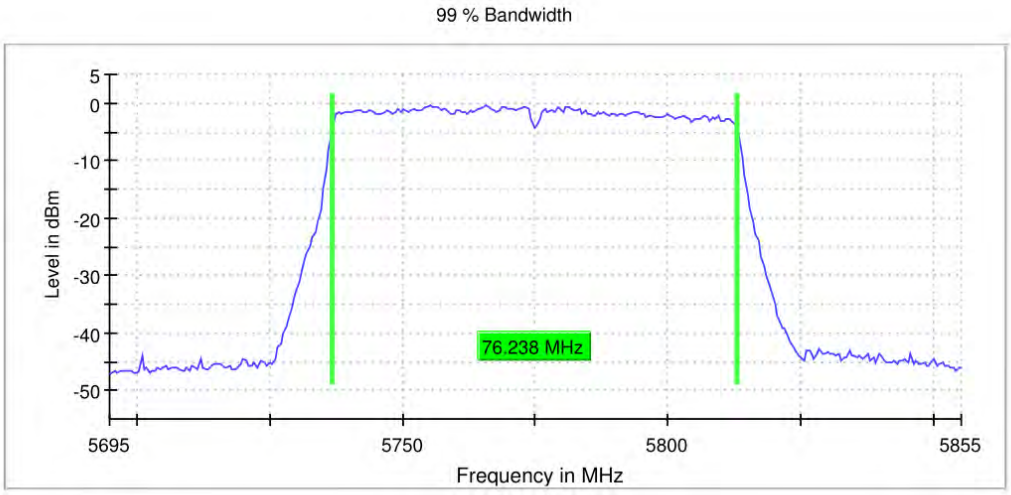
11AC80 _Ant0_5210



11AC80 _Ant0_5290



11AC80 _Ant0_5775

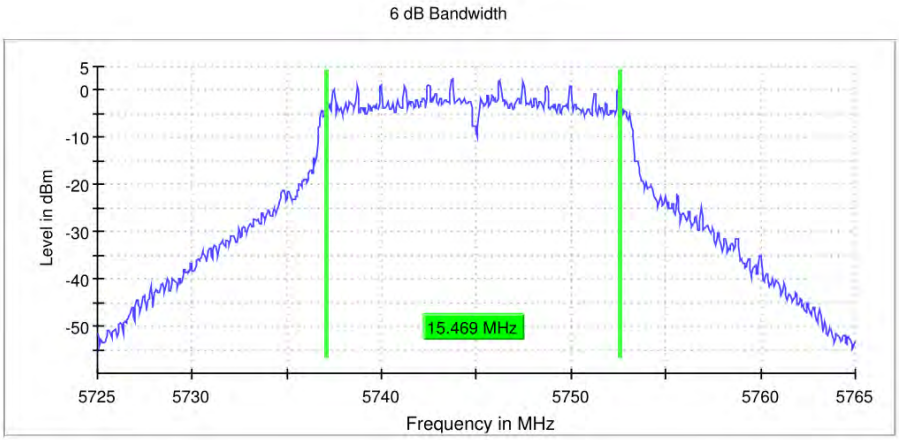

99 % Bandwidth
Level in dBm
5
0
-10
-20
-30
-40
-50
76.238 MHz
5695
5750
5800
5855
Frequency in MHz

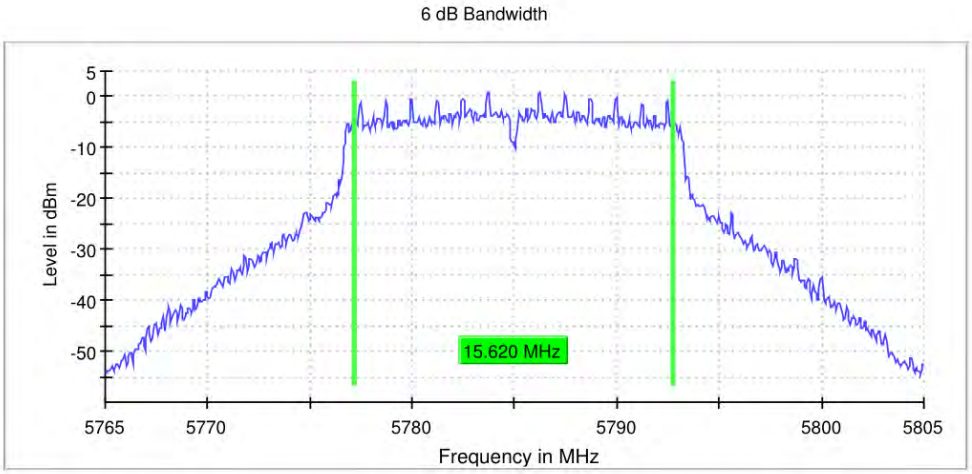
MIN EMISSION BANDWIDTH

TEST RESULT B4

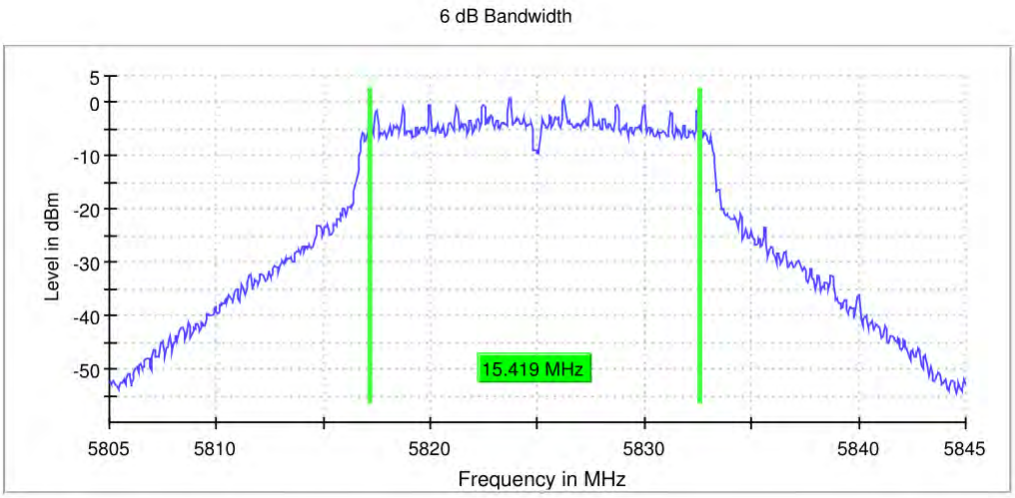
TestMode	Antenna	Frequency [MHz]	6db EBW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11A	Ant0	5745	15.469	5737.115	5752.584	0.5	PASS
	Ant0	5785	15.620	5777.165	5792.785	0.5	PASS
	Ant0	5825	15.419	5817.165	5832.584	0.5	PASS
11N20-SISO	Ant0	5745	16.070	5736.514	5752.584	0.5	PASS
	Ant0	5785	16.671	5776.514	5793.185	0.5	PASS
	Ant0	5825	16.070	5816.514	5832.584	0.5	PASS
11N40-SISO	Ant0	5755	35.822	5736.814	5772.636	0.5	PASS
	Ant0	5795	35.822	5777.364	5813.186	0.5	PASS
11AC80-SISO	Ant0	5775	75.424	5737.213	5812.637	0.5	PASS
NOTE: **RBW 100.000 kHz** **VBW 300.000 kHz**							

TEST GRAPHS B4

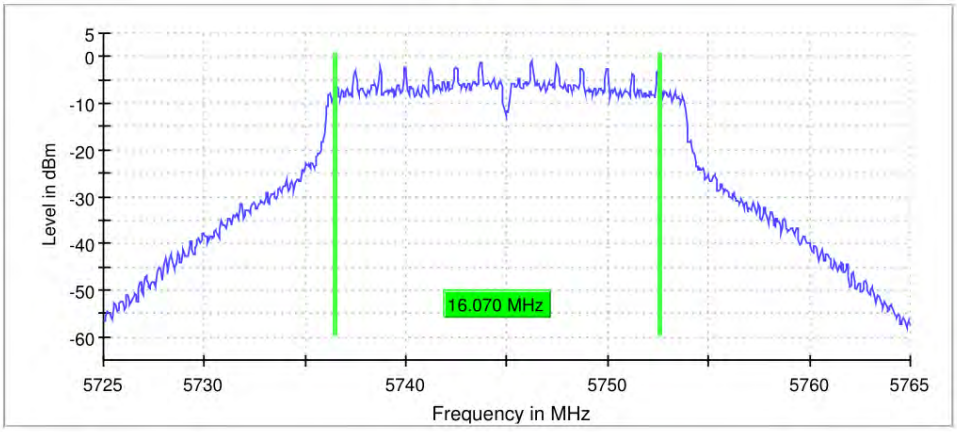
11A _Ant0_5745


11A _Ant0_5785


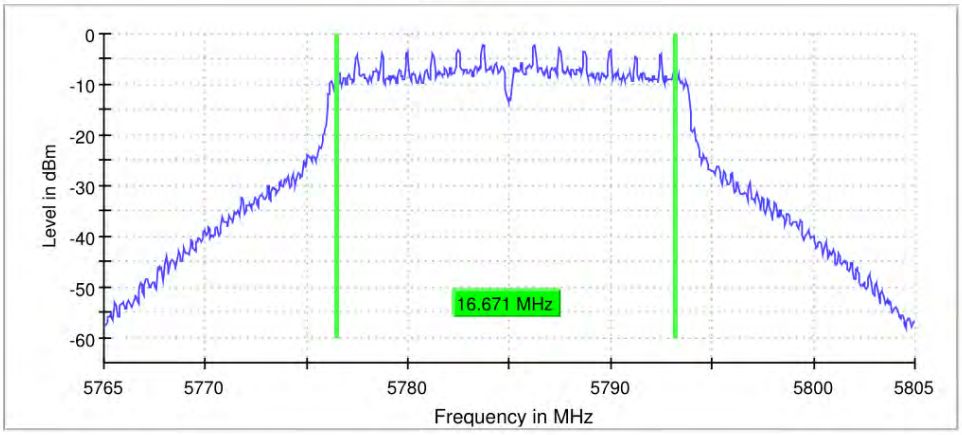
11A _Ant0_5825



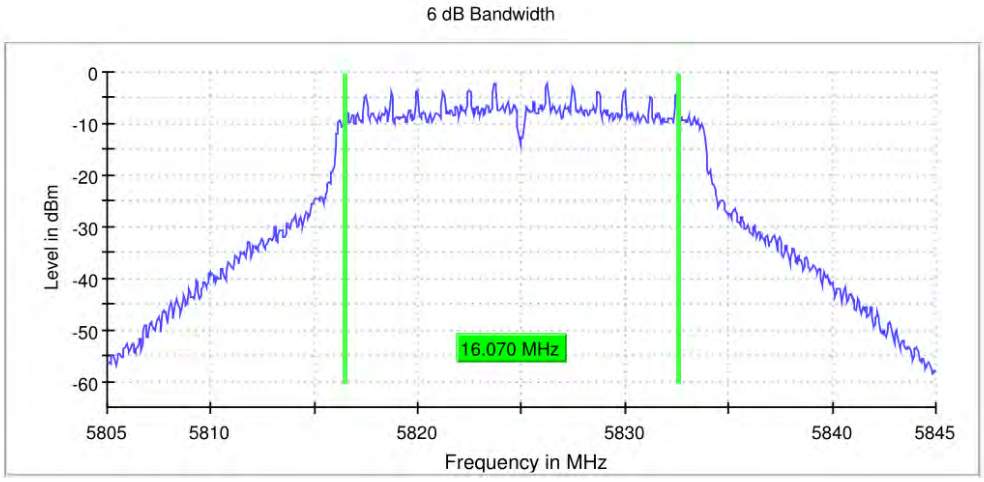
11N20-SISO _Ant0_5745



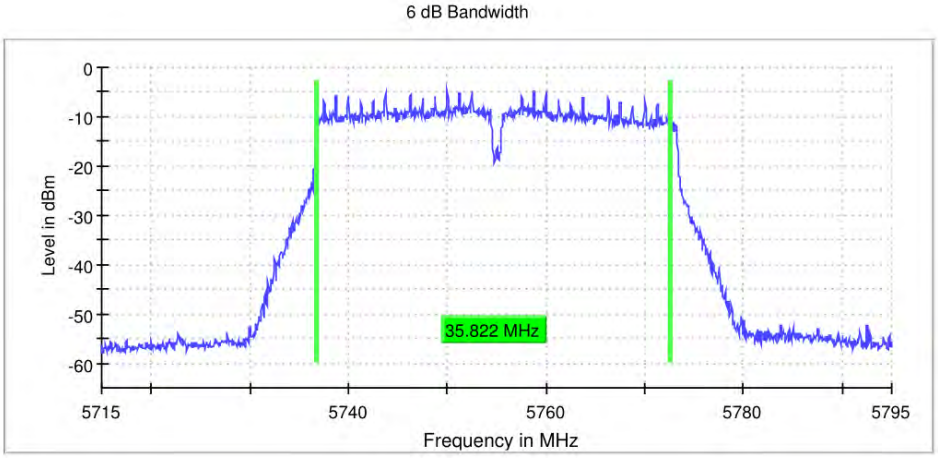
11N20-SISO_Ant0_5785



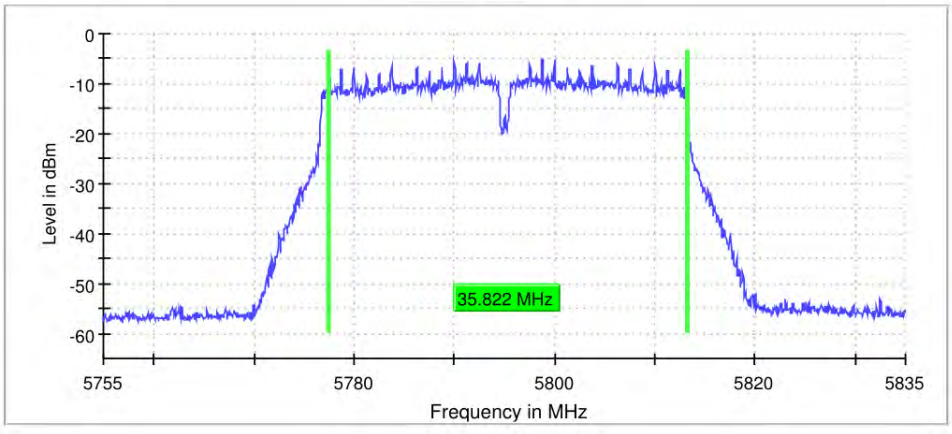
11N20-SISO_Ant1_5825



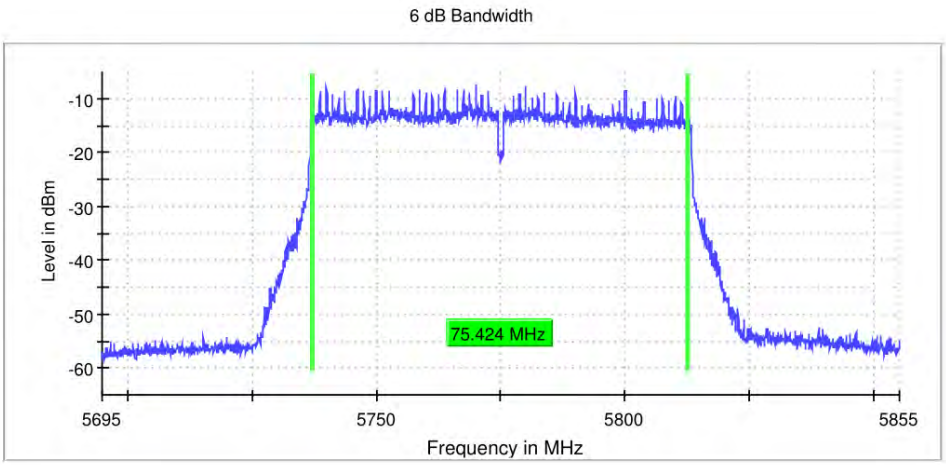
11N40-SISO_Ant0_5755



11N40-SISO_Ant0_5795



11AC80-SISO_Ant0_5775


6 dB Bandwidth
-10
-20
-30
-40
-50
-60
Level in dBm
75.424 MHz
5695
5750
5800
5855
Frequency in MHz

DUTY CYCLE

TEST RESULT

TestMode	Antenna	Frequency[MHz]	Transmission Duration [ms]	Transmission Period [ms]	Duty Cycle [%]
11A	Ant0	5180	2.065	2.100	98.33
	Ant0	5745	2.065	2.100	98.33
11N20SISO	Ant0	5180	1.925	1.960	98.21
	Ant0	5745	1.925	1.967	97.86
11AC20SISO	Ant0	5815	1.932	1.968	98.17
	Ant0	5745	1.932	1.975	97.82
11N40SISO	Ant0	5190	0.948	0.984	96.34
	Ant0	5755	0.952	0.988	96.36
11AC40SISO	Ant0	5190	0.950	0.986	96.35
	Ant0	5755	0.954	0.990	96.36
11AC80SISO	Ant0	5210	0.464	0.500	92.80
	Ant0	5775	0.464	0.500	92.80

TEST GRAPHS

11A _Ant0_5180

Band4-11A _Ant0_5745