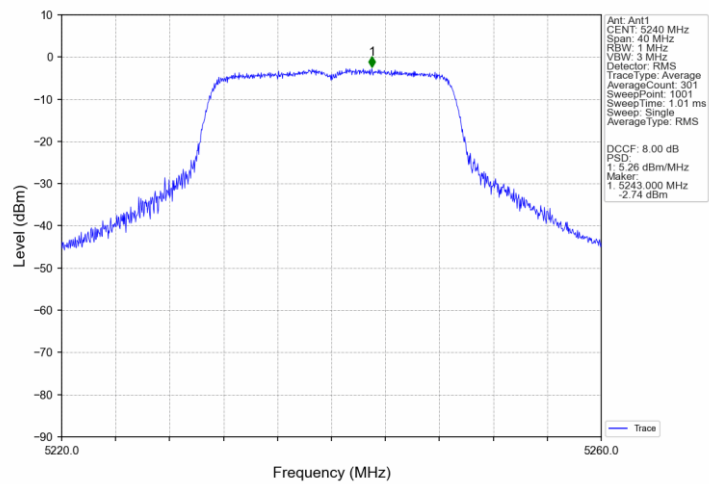
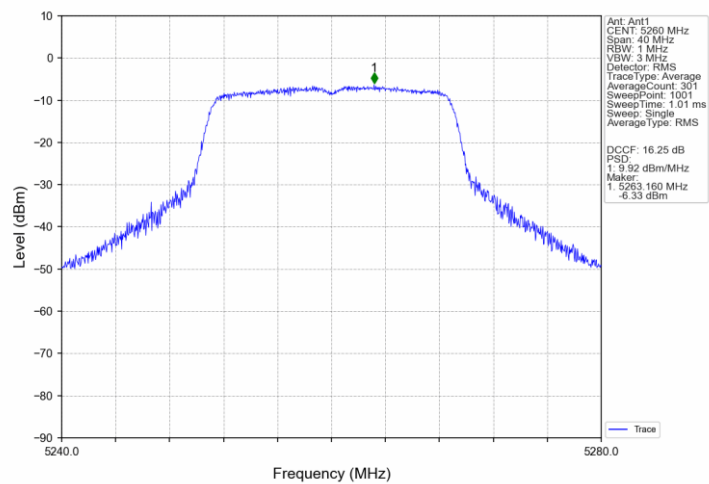




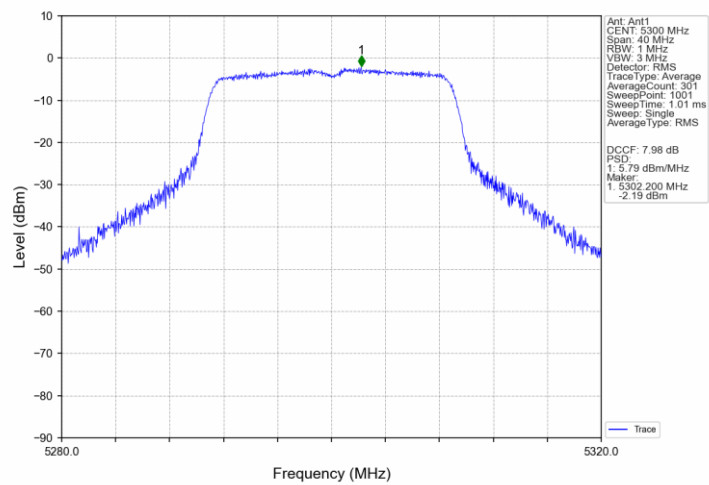
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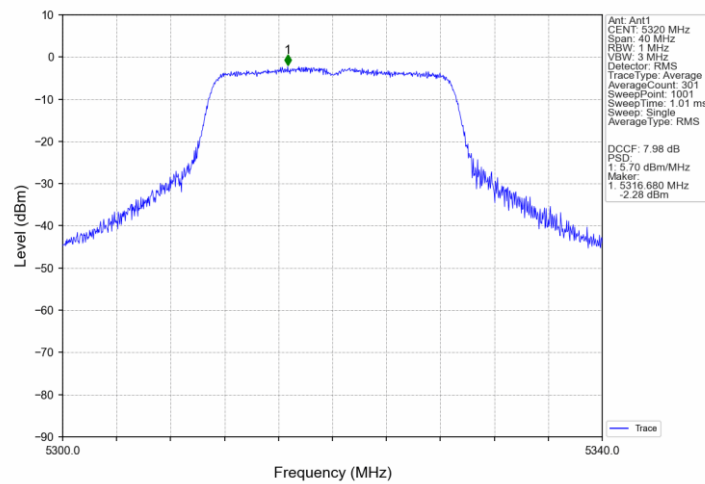
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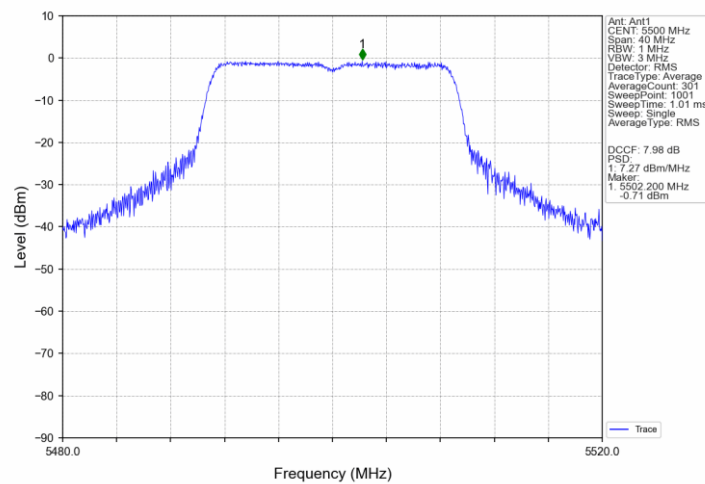
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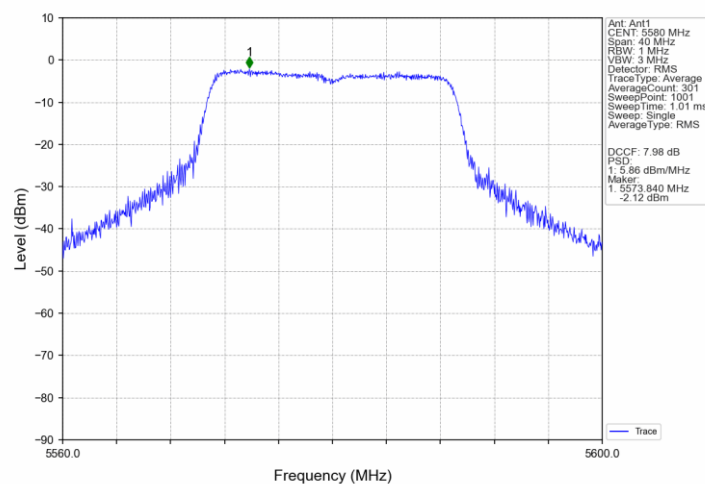
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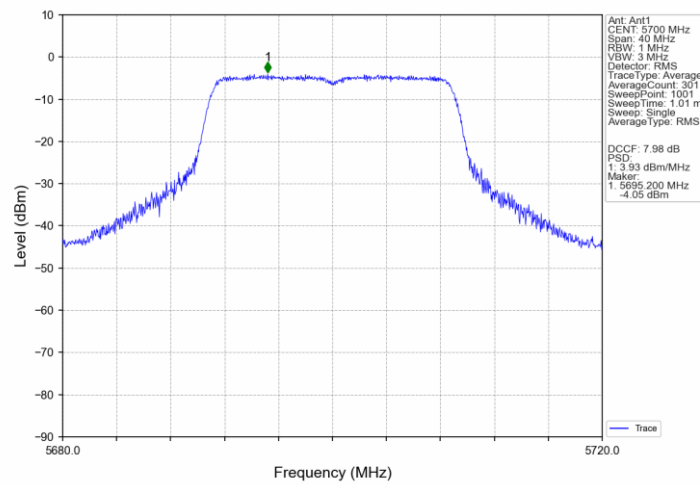
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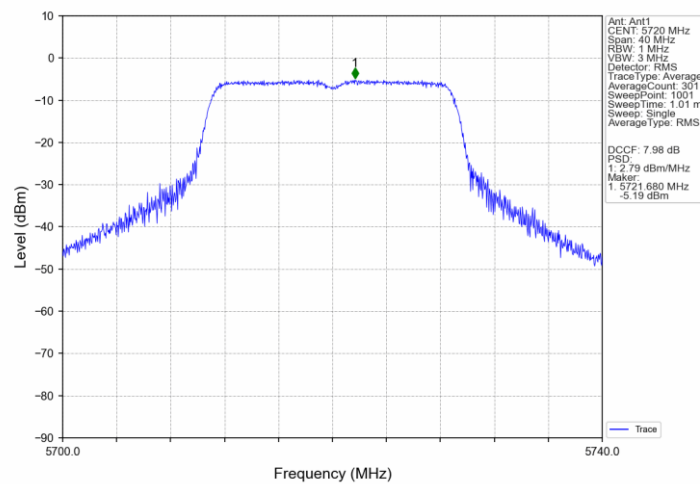
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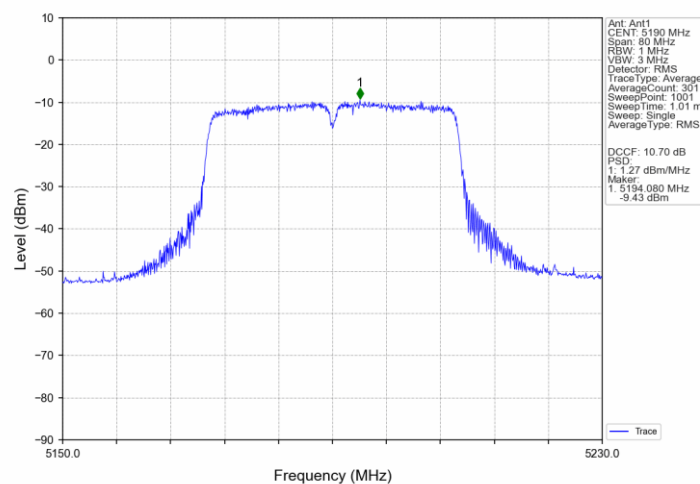
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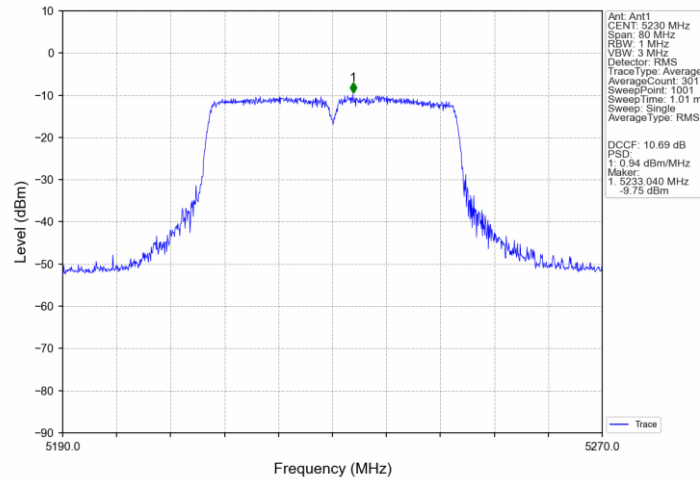
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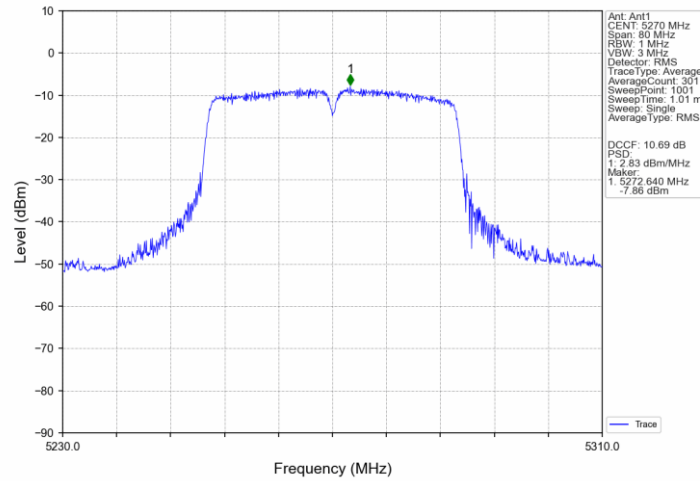
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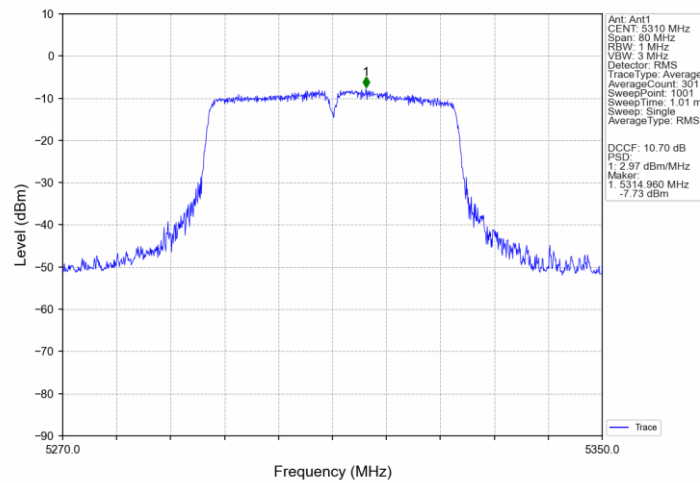
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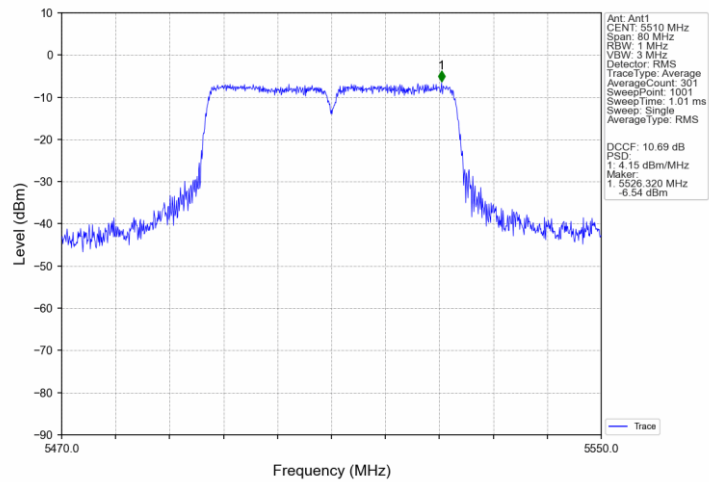


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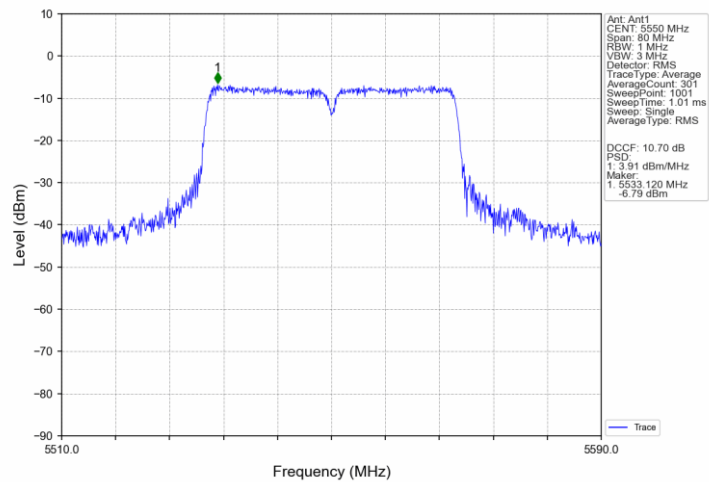




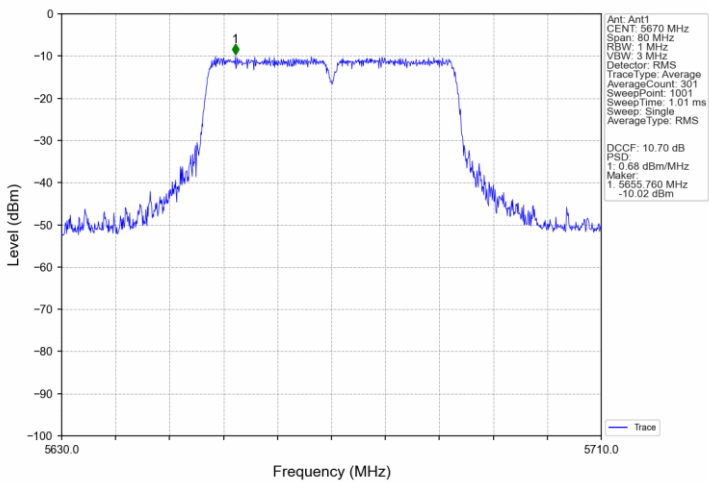
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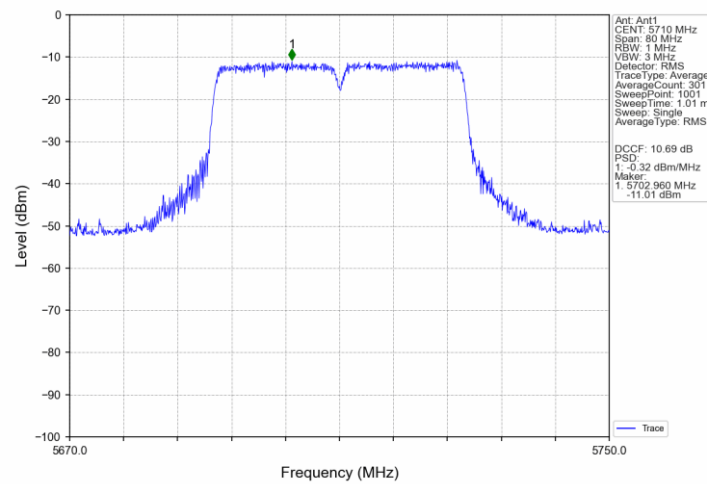
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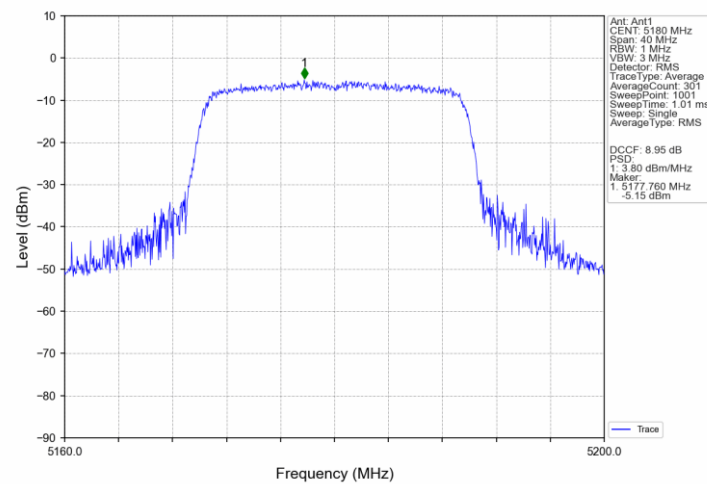
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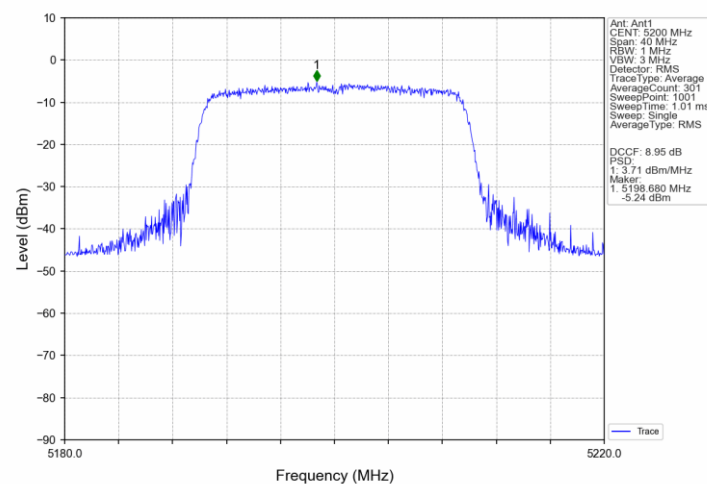
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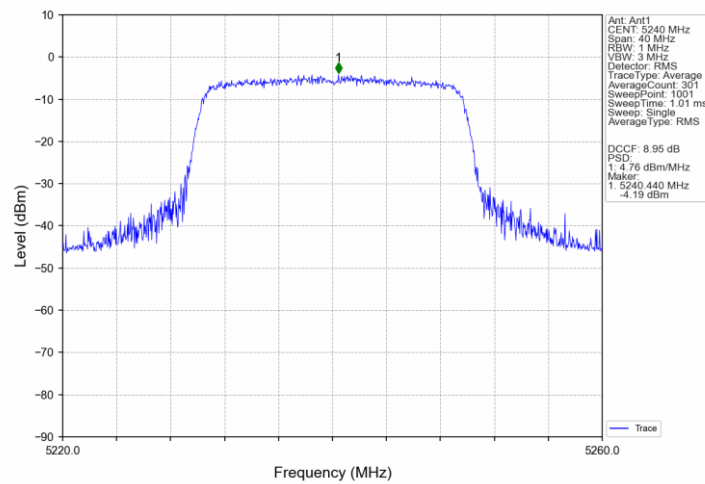
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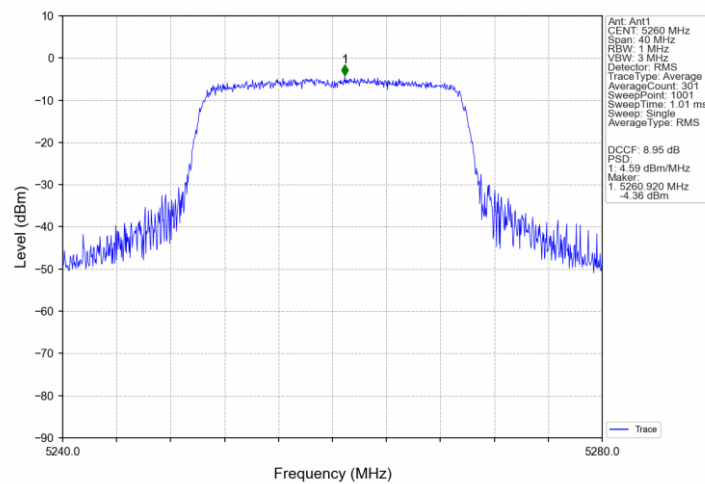
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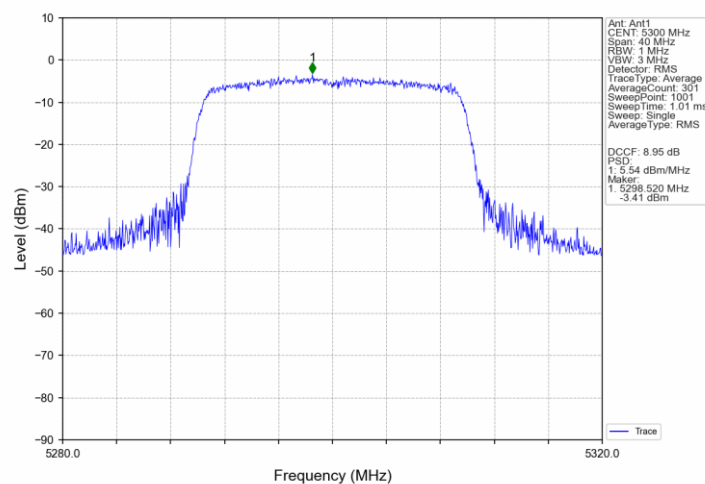
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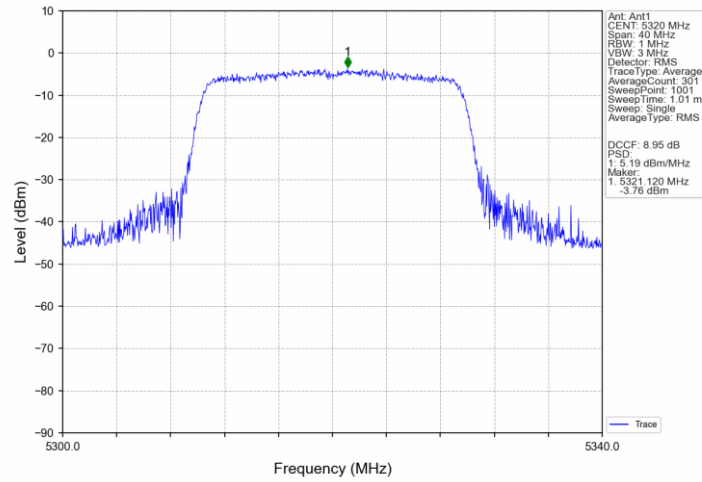
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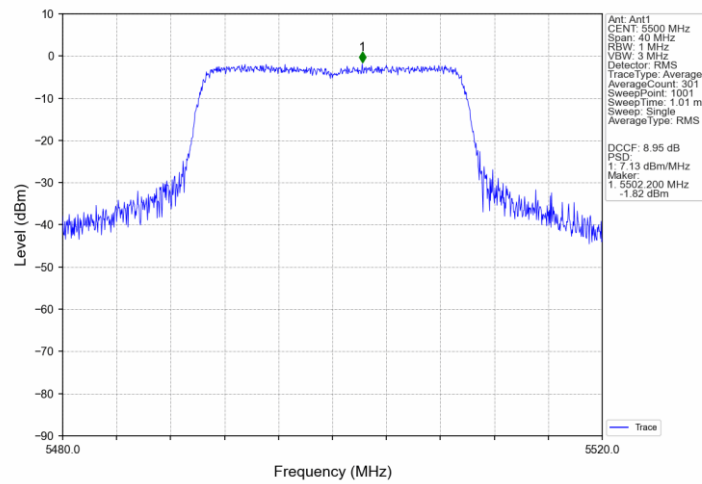
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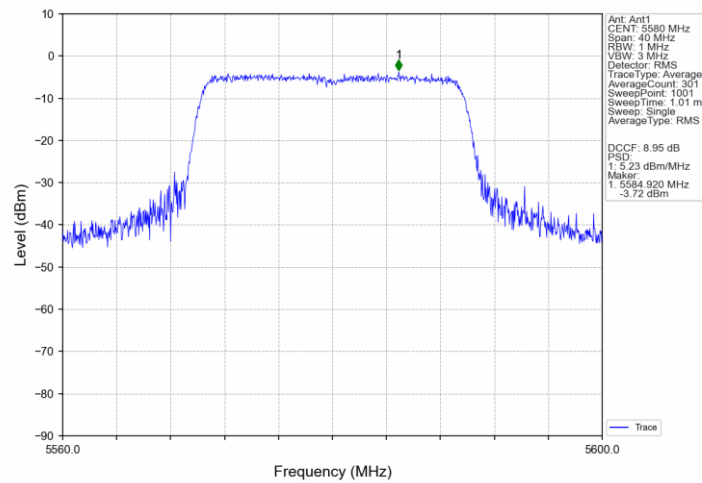
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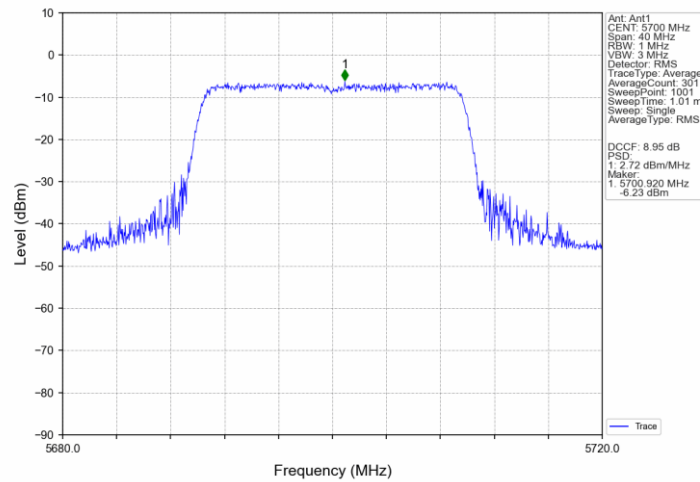
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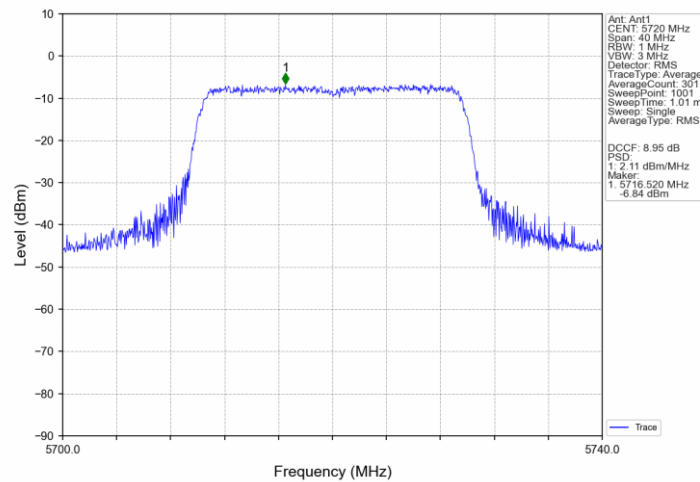
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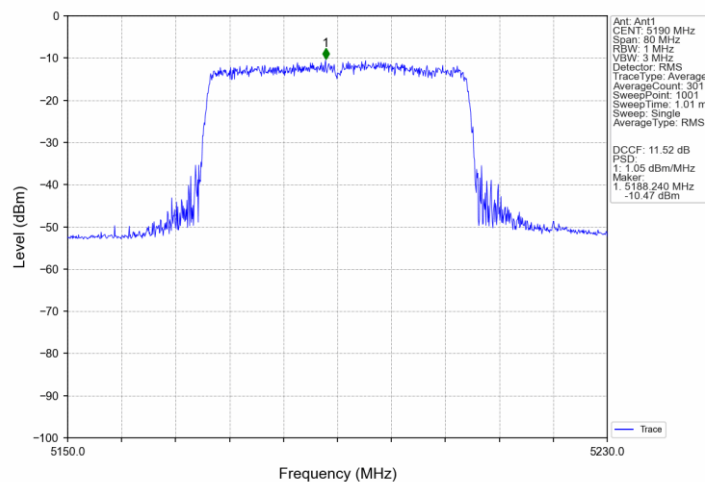
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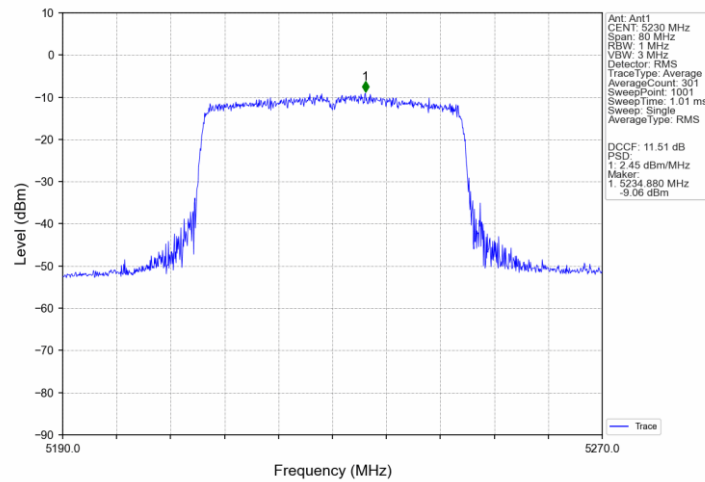
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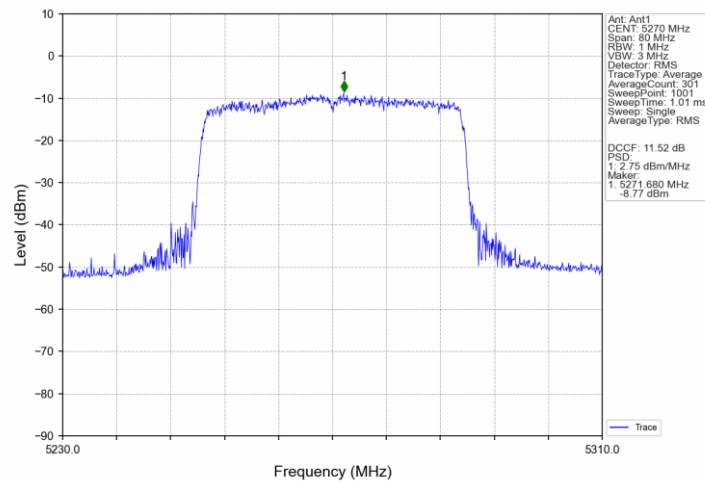
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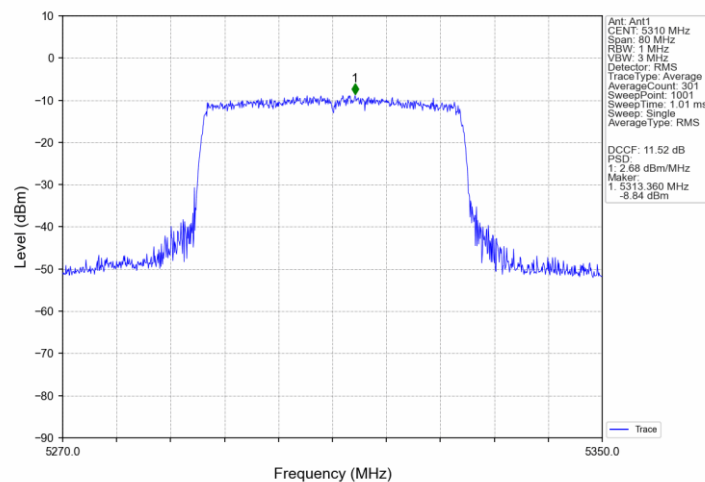
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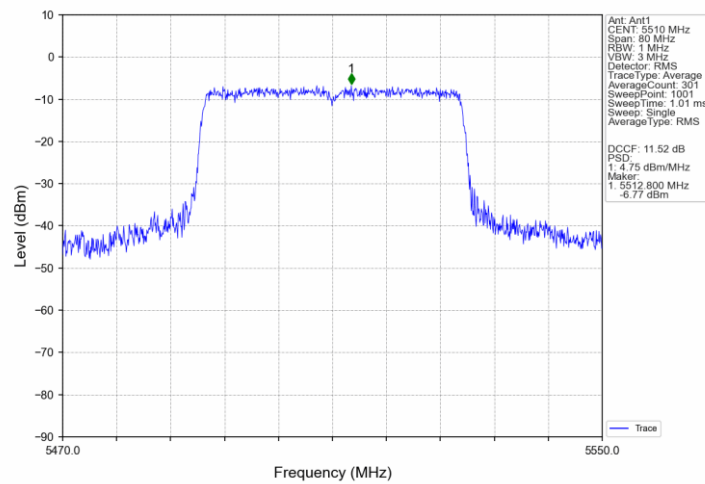
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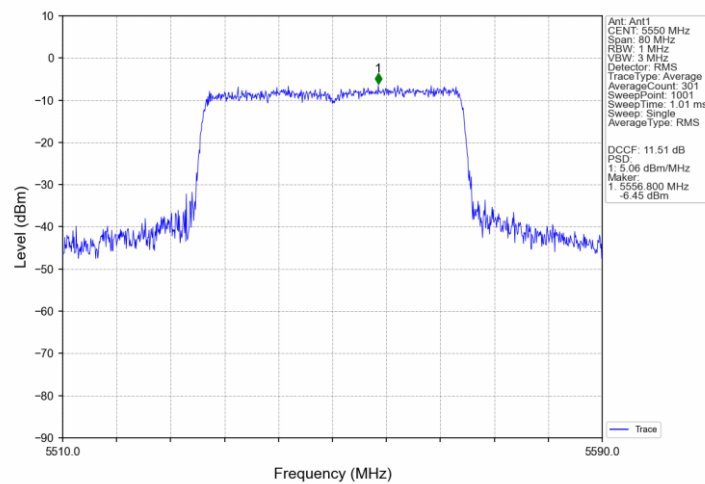
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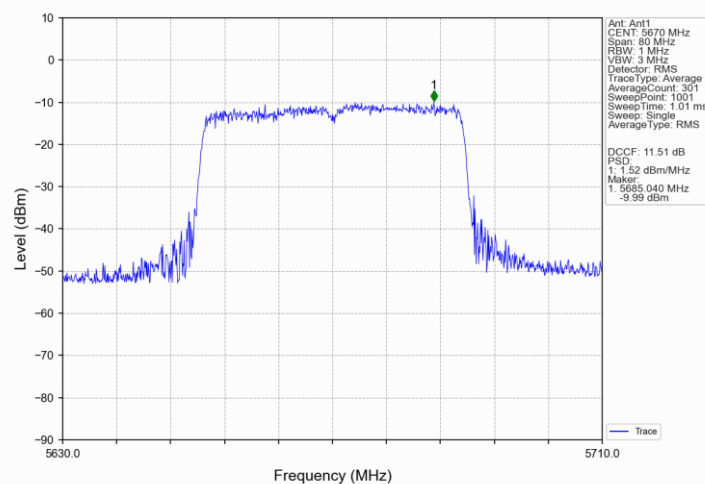
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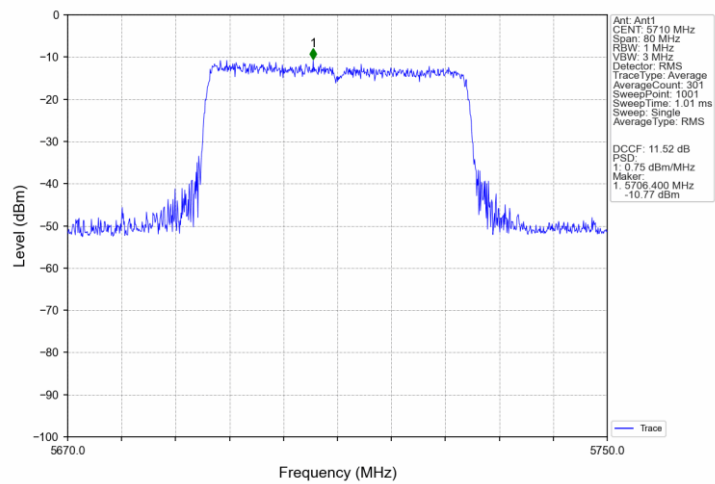


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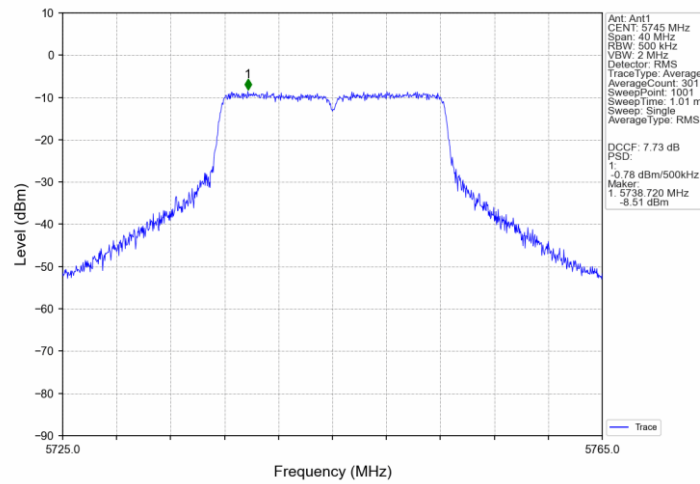


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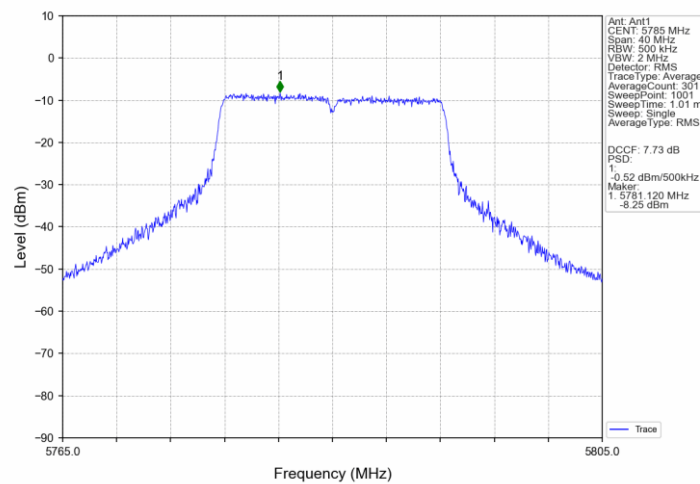


PSD-Band3

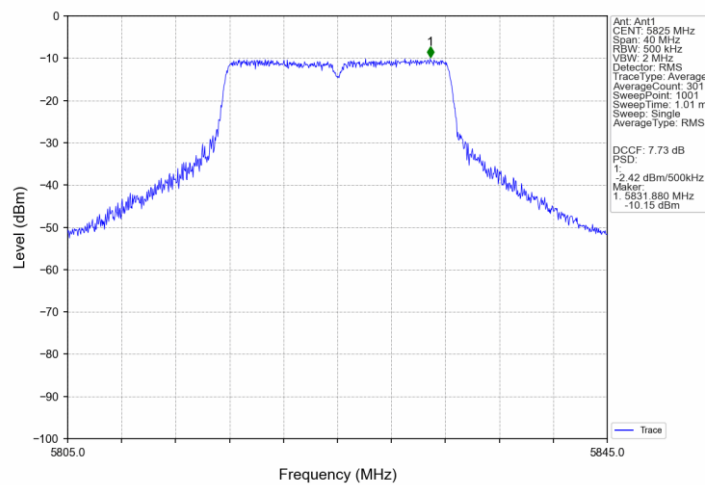
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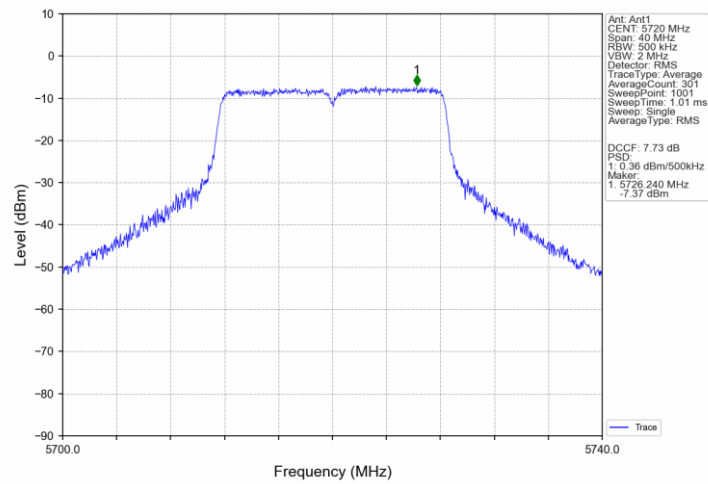
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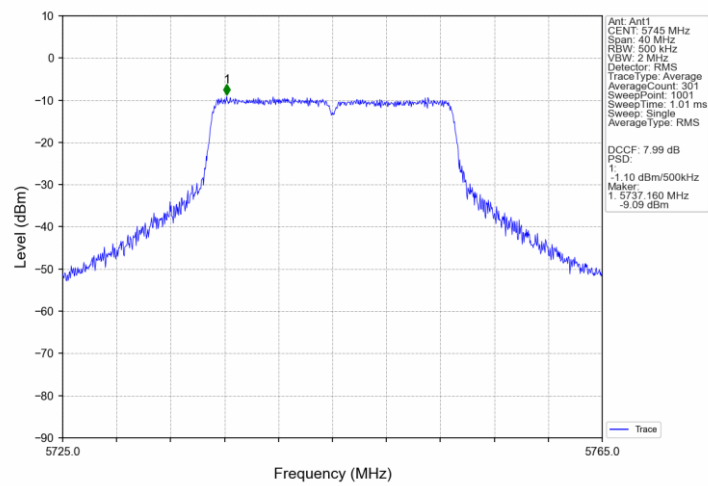
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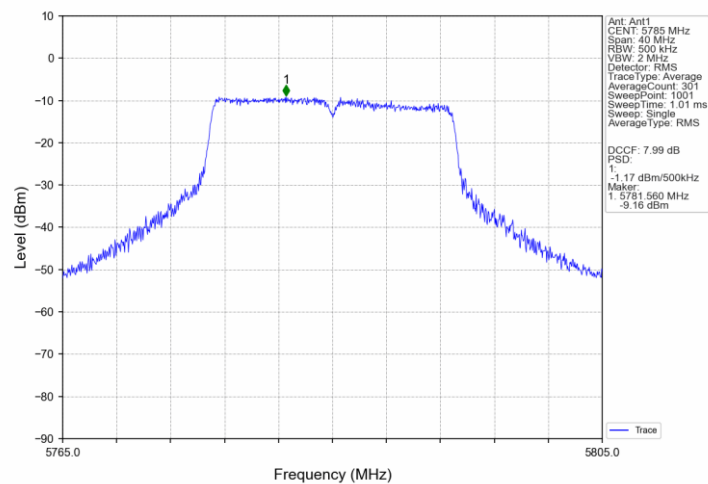
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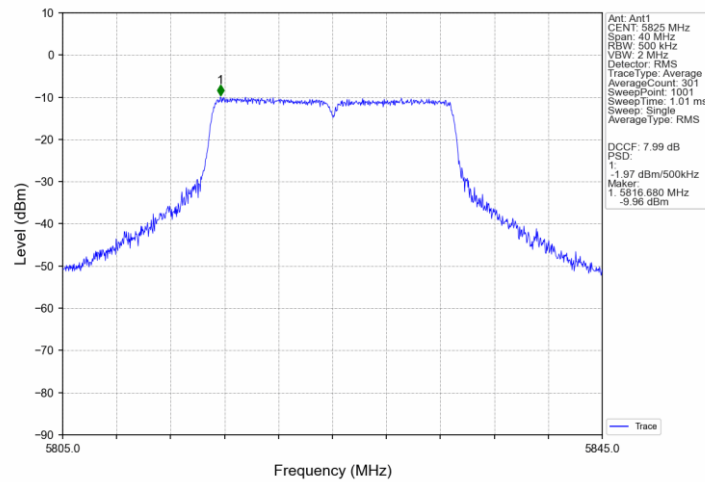
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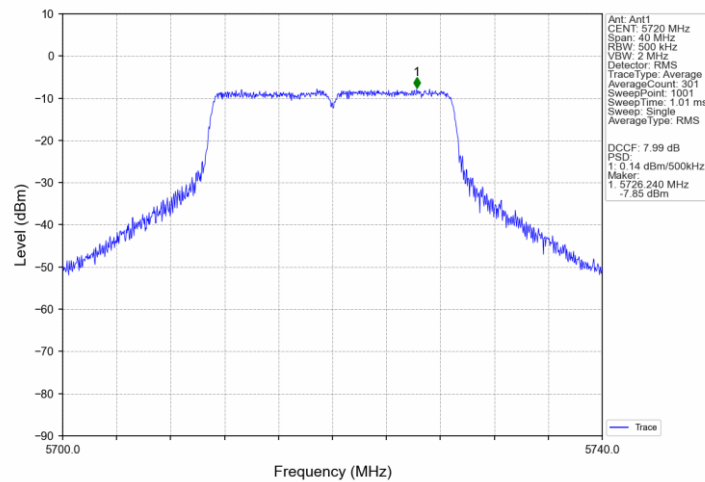
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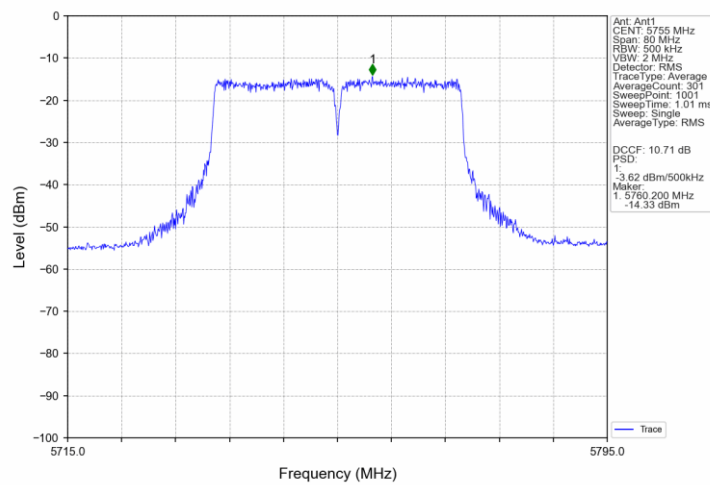
802.11n(HT20) HCH 5825MHz Ant1 NTN



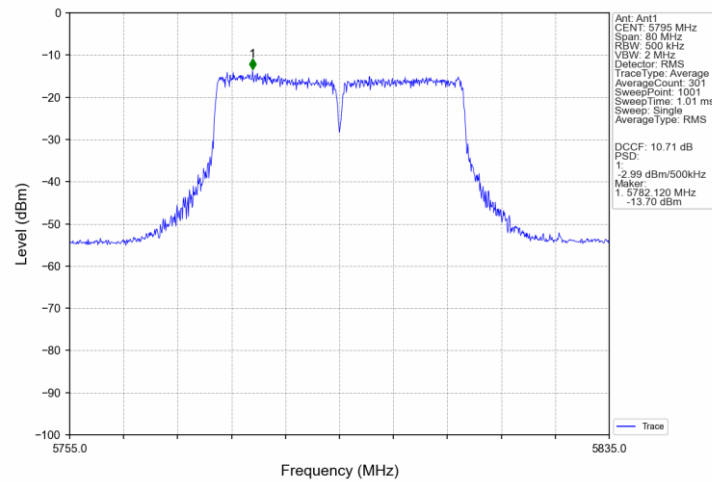
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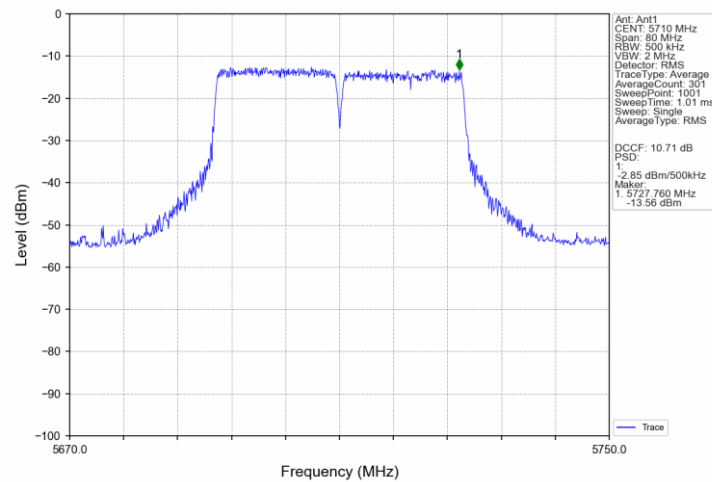
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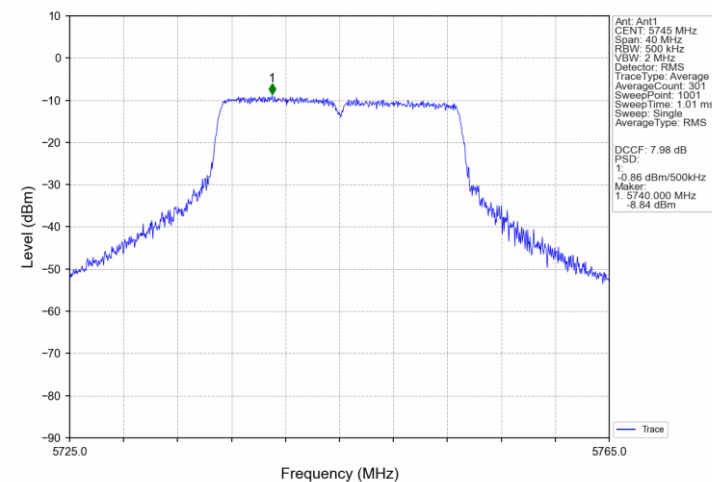
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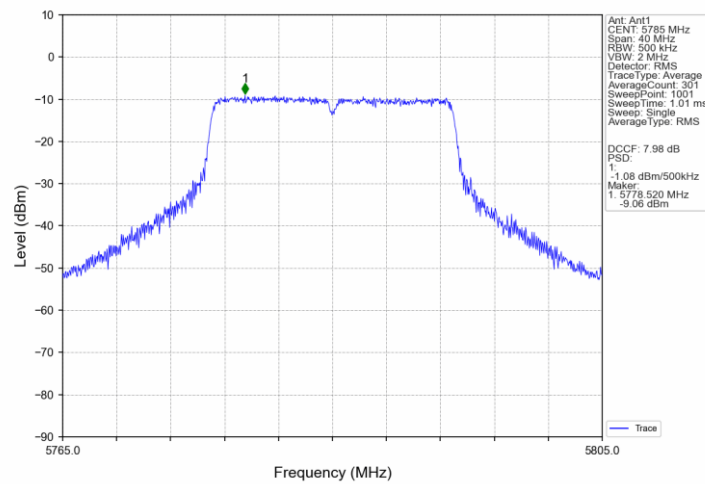
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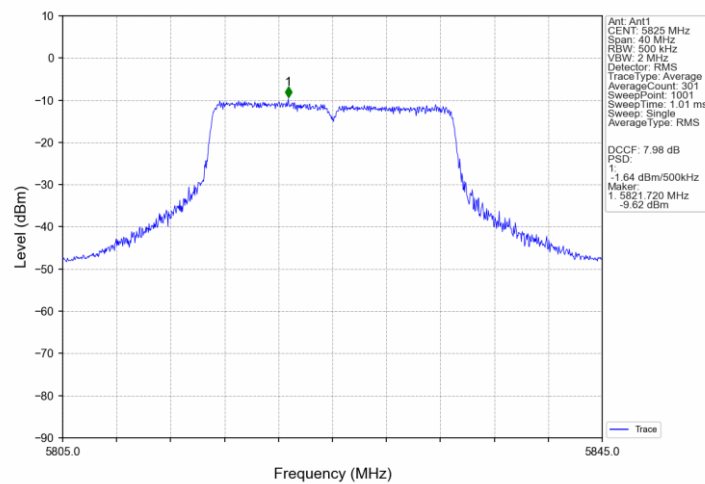
802.11ac(VHT20) LCH 5745MHz Ant1 NTN



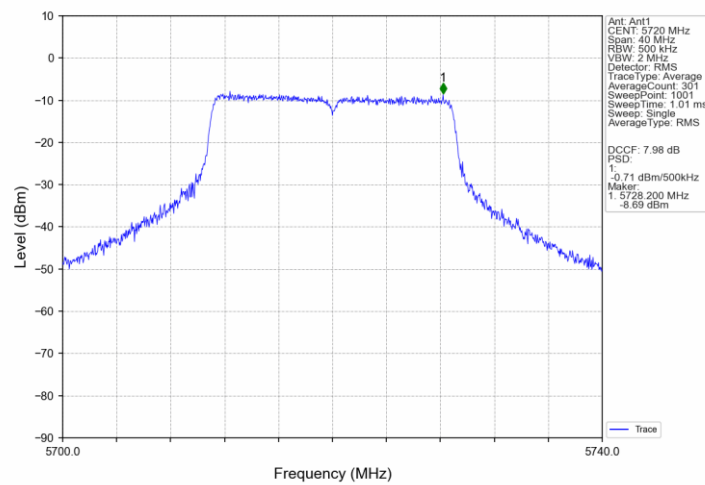
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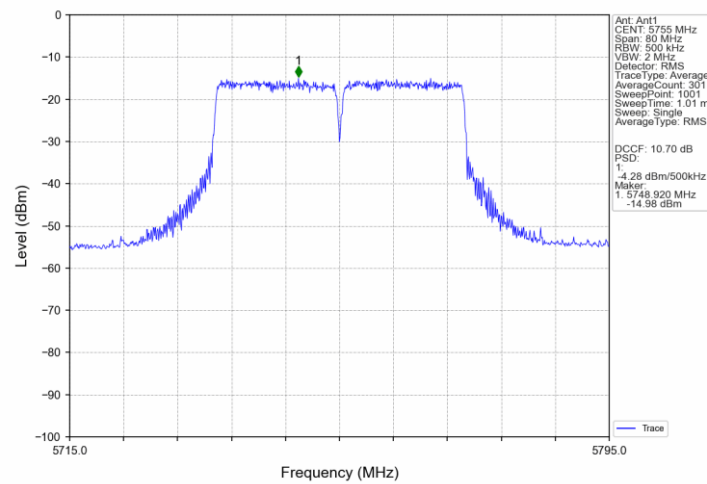
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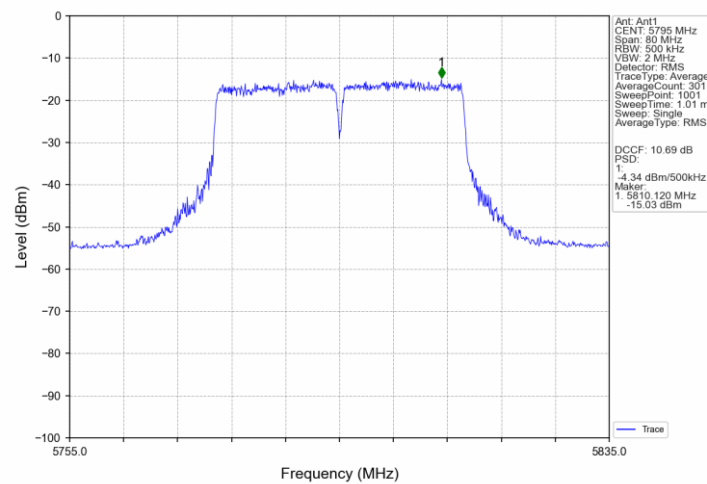
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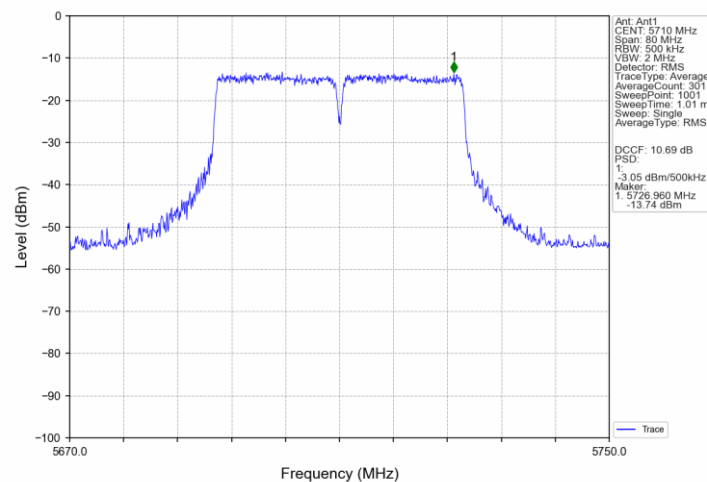
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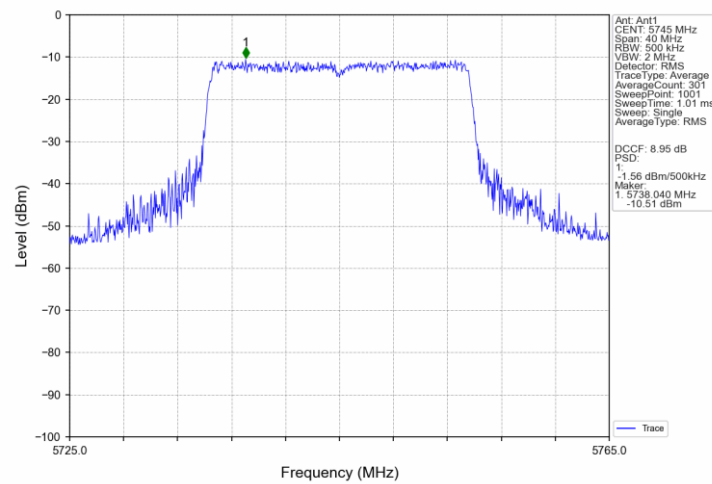
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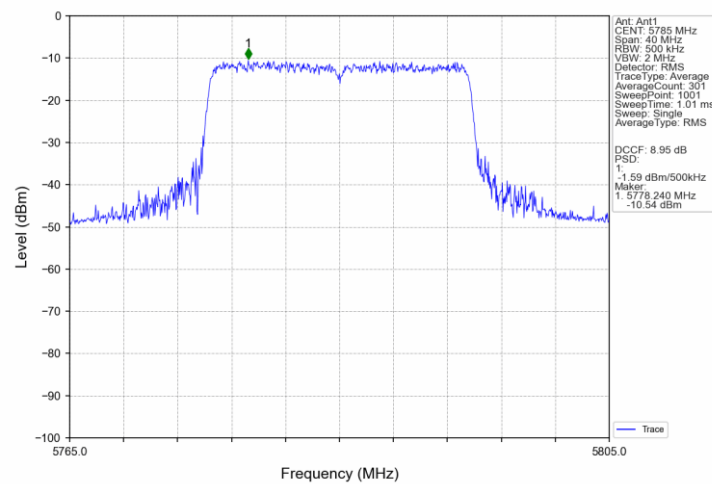
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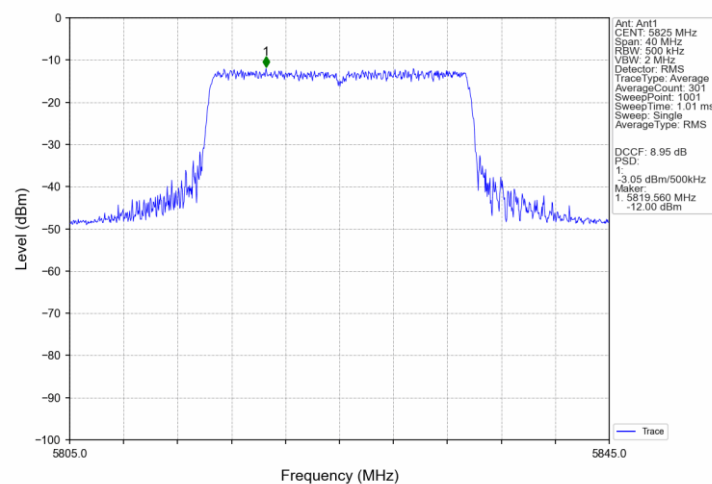
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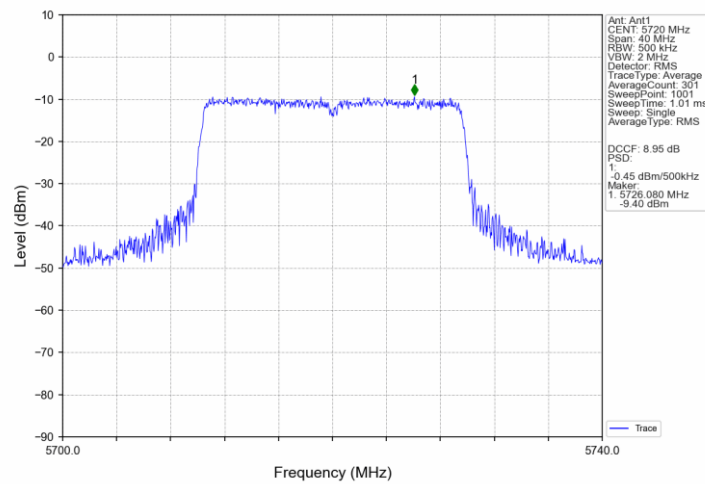
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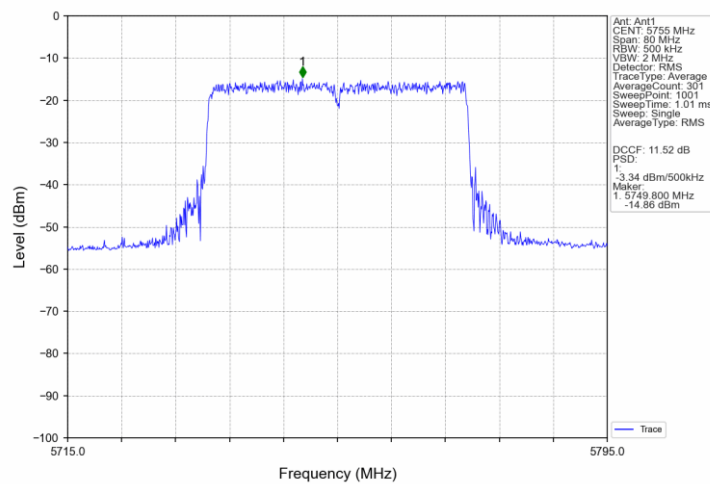
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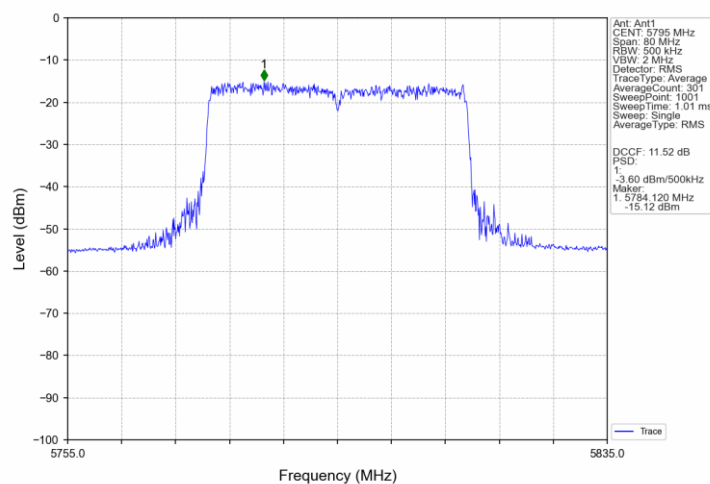
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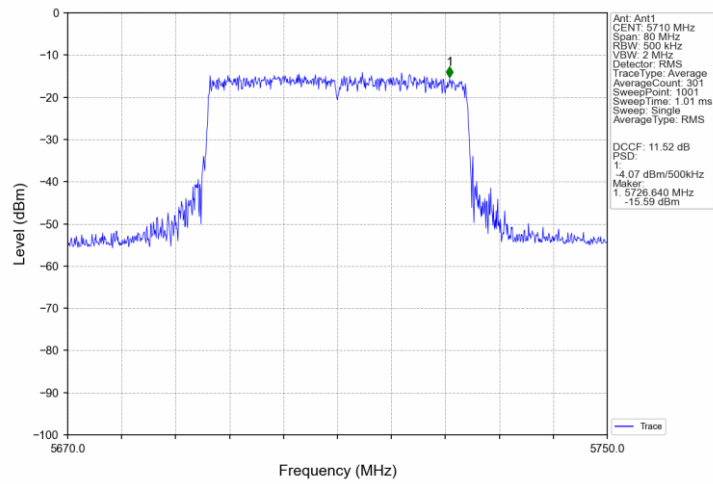
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802.11ax(HEW40)_HCH_5795MHz_Ant1_NTNV



802.11ax(HEW40)_HCH_5710MHz_Ant1_NTNV



9.5 Unwanted Emissions

Test Method

According to KBD789033 D02

Transmitting spurious emission test result as below (Radiated Mode):

Test Method:

Radiated Mode:

1. The EUT was placed on a turn table which is 1.5m above ground plane for above 1GHz and 0.8m above ground for below 1GHz at 3meter chamber room for test. The table was rotated 360 degrees to determine the position of the highest radiation.
2. The EUT was set 3 meters away from the interference – receiving antenna, which was mounted on the top of a variable – height antenna tower.
3. The height of antenna is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
4. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned
5. Use the following spectrum analyzer settings According to C63.10:
 - 1) Procedure for Unwanted Emissions Measurements Below 1000 MHz
 - RBW = 120 kHz
 - VBW = 300 kHz
 - Detector = Peak
 - Trace mode = max hold
 - 2) For Above 1GHz:
 Procedure for Peak Unwanted Emissions Measurements Above 1000 MHz
 - RBW = 1 MHz
 - VBW $\geq$ 3 MHz
 - Detector = Peak
 - Sweep time = auto
 - Trace mode = max hold
 - 3) Procedures for Average Unwanted Emissions Measurements above 1000 MHz
 - a) RBW = 1 MHz.
 - b) VBW $\geq$ [3 $\times$ RBW].
 - c) Detector = Power averaging (rms), if [span / (# of points in sweep)] $\leq$ RBW / 2. Satisfying this condition can require increasing the number of points in the sweep or reducing the span. If the condition is not satisfied, then the detector mode shall be set to peak.
 - d) Averaging type = power (i.e., rms) (As an alternative, the detector and averaging type may be set for linear voltage averaging. Some instruments require linear display mode to use linear voltage averaging. Log or dB averaging shall not be used.)
 - e) Sweep time = auto.
 - f) Perform a trace average of at least 100 traces if the transmission is continuous. If the transmission is not continuous, then the number of traces shall be increased by a factor of 1 / D, where D is the duty cycle. For example, with 50% duty cycle, at least 200 traces shall be averaged. (If a specific emission is demonstrated to be continuous—i.e., 100% duty cycle—then rather than turning ON and OFF with the transmit cycle, at least 100 traces shall be averaged.)

g) If tests are performed with the EUT transmitting at a duty cycle less than 98%, then a correction factor shall be added to the measurement results prior to comparing with the emission limit, to compute the emission level that would have been measured had the test been performed at 100% duty cycle. The correction factor is computed as follows:

(1) If power averaging (rms) mode was used in the preceding step e), then the correction factor is $[10 \log (1 / D)]$, where D is the duty cycle. For example, if the transmit duty cycle was 50%, then 3 dB shall be added to the measured emission levels.

(2) If linear voltage averaging mode was used in the preceding step e), then the correction factor is $[20 \log (1 / D)]$, where D is the duty cycle. For example, if the transmit duty cycle was 50%, then 6 dB shall be added to the measured emission levels. If a specific emission is demonstrated to be continuous (100% duty cycle) rather than turning ON and OFF with the transmit cycle, then no duty cycle correction is required for that emission.

Limit

The radio emission outside the operating frequency band shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power. Radiated emissions which fall in the restricted bands, as defined in section 15.205, must comply with the radiated emission limits specified in section 15.209.

Frequency MHz	Field Strength $\mu\text{V/m}$	Field Strength dB $\mu\text{V/m}$	Detector	Measurement distance meters
0.009-0.490	2400/F(kHz)	48.5-13.8	AV	300
0.490-1.705	24000/F(kHz)	33.8-23.0	QP	30
1.705-30	30	29.5	QP	30
30-88	100	40	QP	3
88-216	150	43.5	QP	3
216-960	200	46	QP	3
960-1000	500	54	QP	3
Above 1000	500	54	AV	3
Above 1000	5000	74	PK	3

According to part 15.407b (1) (2) (3) (4)

For transmitters operating in the 5.15-5.25 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz.

For transmitters operating in the 5.25-5.35 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz.

For transmitters operating in the 5.47-5.725 GHz band: All emissions outside of the 5.47-5.725 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz.

For transmitters operating in the 5.725-5.85 GHz band: All emissions shall be limited to a level of -27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.

According to part 15.407b (9), Unwanted emissions below 1 GHz must comply with the general field strength limits set forth in §15.209.

According to part 15.407b (10), The provisions of §15.205 apply to intentional radiators operating under this section.

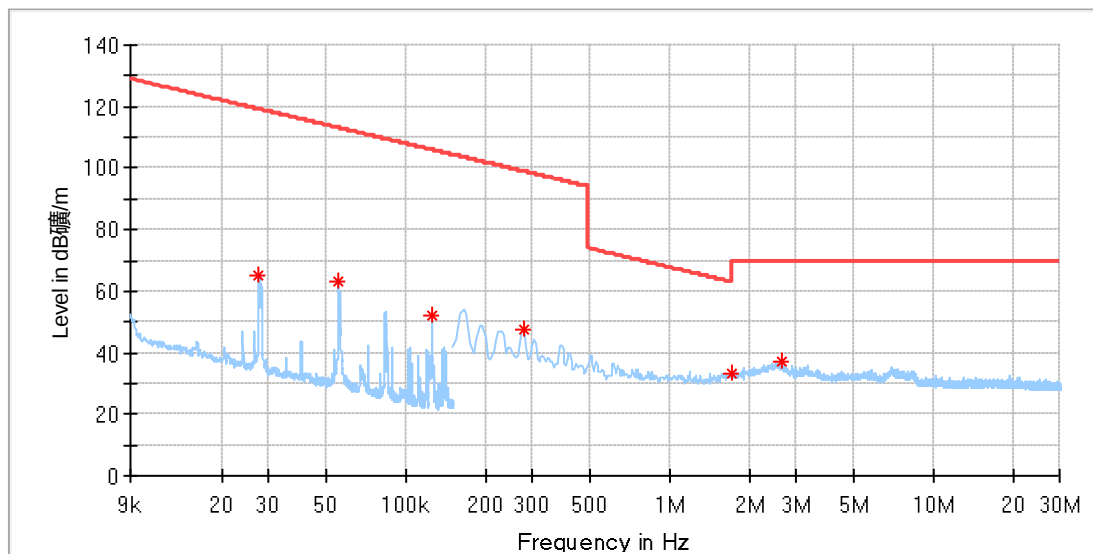
Note: According to C63.10, the Conversion Factors between E[dB $\mu\text{V/m}$] and EIRP[dBm] as below: $E[\text{dB}\mu\text{V/m}] = \text{EIRP}[\text{dBm}] + 95.2$, for d = 3 meters.

Transmitting spurious emission test result as below:

According to C63.10, if the peak (or quasi-peak) measured value complies with the average limit, it is unnecessary to perform an average measurement, so AV emission value did not show in below table if the peak value complies with average limit.

All test modes at test frequencies from 9KHz to 1GHz were evaluated in the report, but only the only poor case test results were listed.

Test data 9KHz – 30MHz---802.11a-5180MHz:

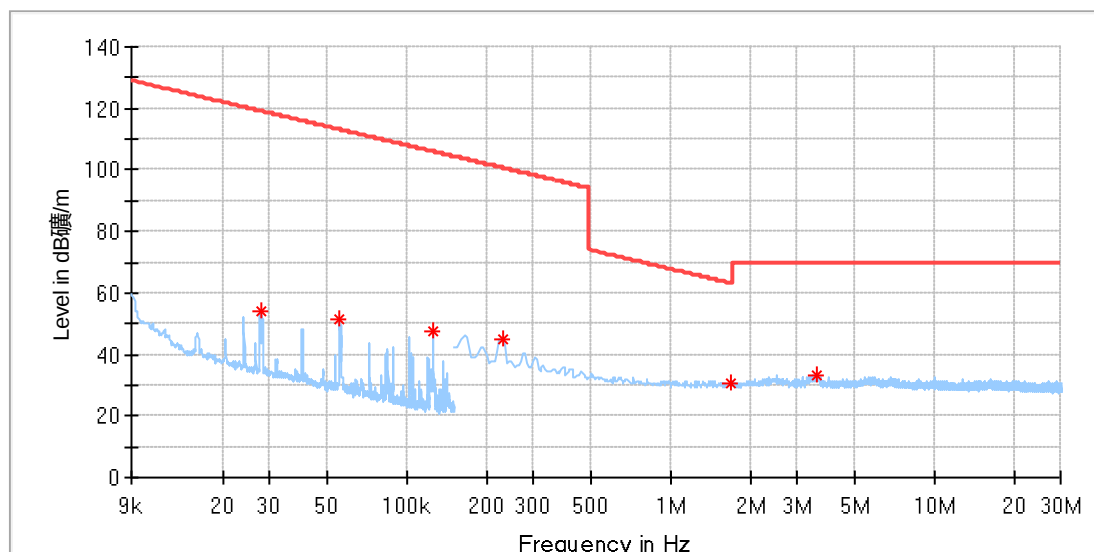


Critical_Freqs

Frequency (MHz)	MaxPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Pol	Azimuth (deg)	Corr. (dB/m)
0.027706	64.90	119.15	54.25	H	117.0	19.88
0.055577	62.88	113.06	50.18	H	165.0	19.92
0.124620	51.79	105.99	54.20	H	277.0	19.92
0.279350	47.62	98.92	51.30	H	155.0	19.90
1.702200	33.17	63.01	29.84	H	1.0	20.02
2.642475	36.93	70.00	33.07	H	44.0	20.15

Final_Result

Frequency (MHz)	QuasiPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Pol	Azimuth (deg)	Corr. (dB/m)
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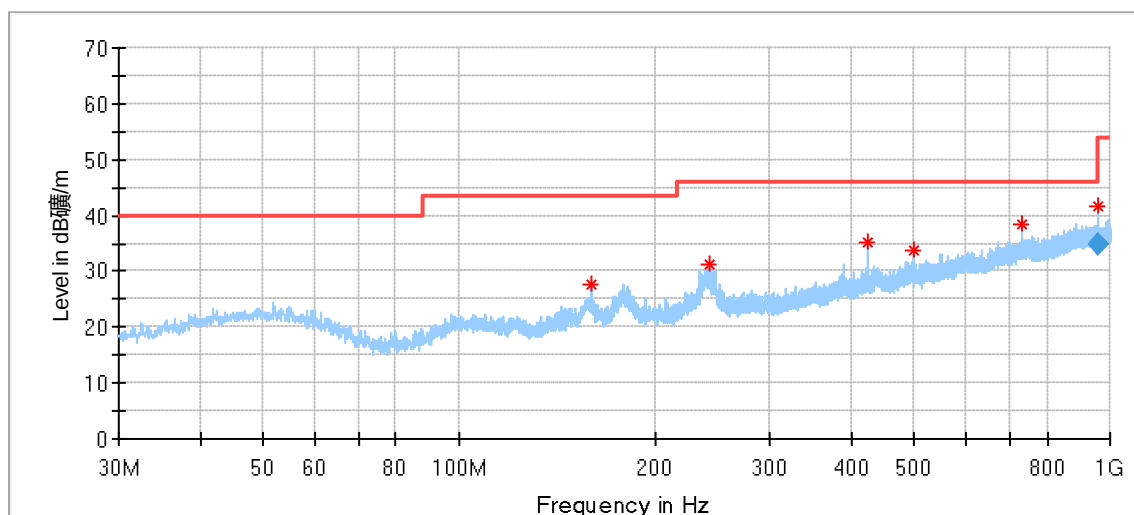
Critical_Freqs

Frequency (MHz)	MaxPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Pol	Azimuth (deg)	Corr. (dB/m)
0.027753	53.99	119.14	65.15	V	150.0	19.88
0.055577	51.28	113.06	61.78	V	91.0	19.92
0.124573	47.32	105.99	58.68	V	352.0	19.92
0.229600	44.96	100.64	55.68	V	355.0	19.88
1.672350	30.45	63.17	32.72	V	73.0	20.02
3.582750	32.90	70.00	37.10	V	82.0	20.13

Final Result

Frequency (MHz)	QuasiPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Pol	Azimuth (deg)	Corr. (dB/m)
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Test data 30MHz – 1000MHz---802.11a-5180MHz:

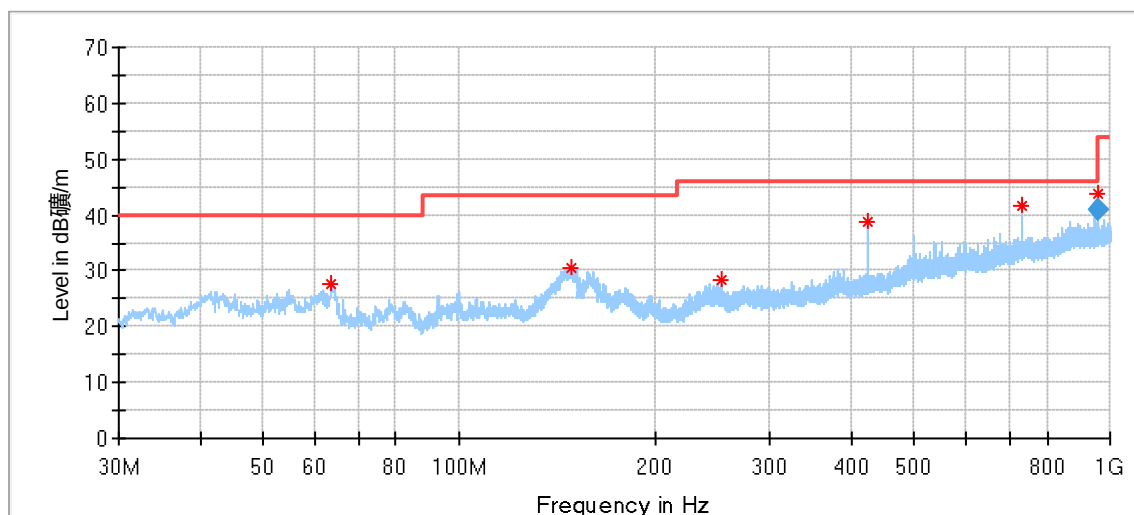


Critical_Freqs

Frequency (MHz)	MaxPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
159.710556	27.72	43.50	15.78	200.0	H	182.0	13.10
242.214444	31.25	46.00	14.75	200.0	H	255.0	17.26
424.520556	35.02	46.00	10.98	200.0	H	15.0	21.67
499.965000	33.57	46.00	12.43	200.0	H	316.0	23.00
733.465556	38.49	46.00	7.51	200.0	H	288.0	27.07
959.906667	41.79	46.00	4.21	200.0	H	328.0	29.58

Final Result

Frequency (MHz)	QuasiPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
959.906667	34.70	46.00	11.30	200.0	H	328.0	29.58

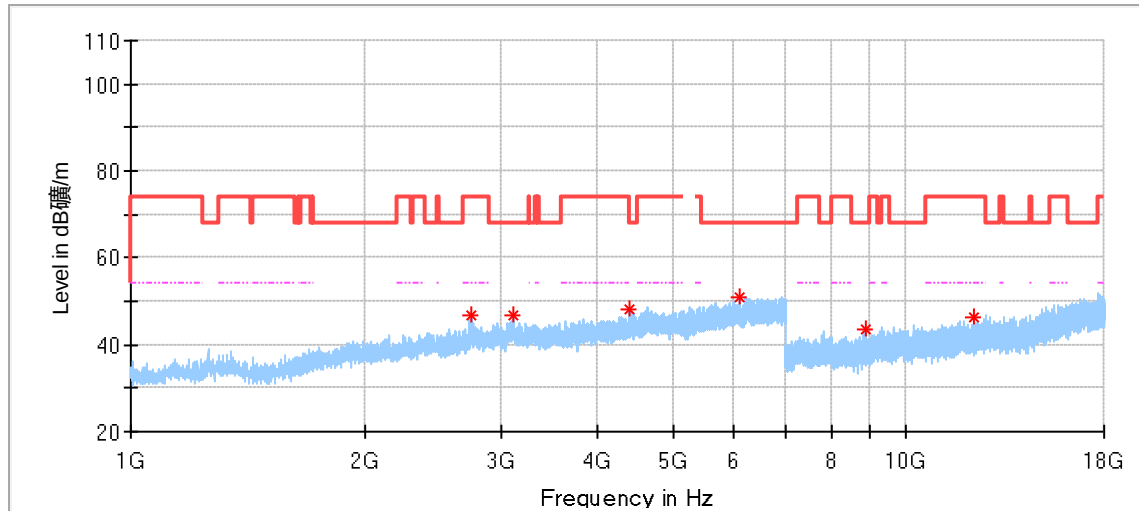


Critical_Freqs

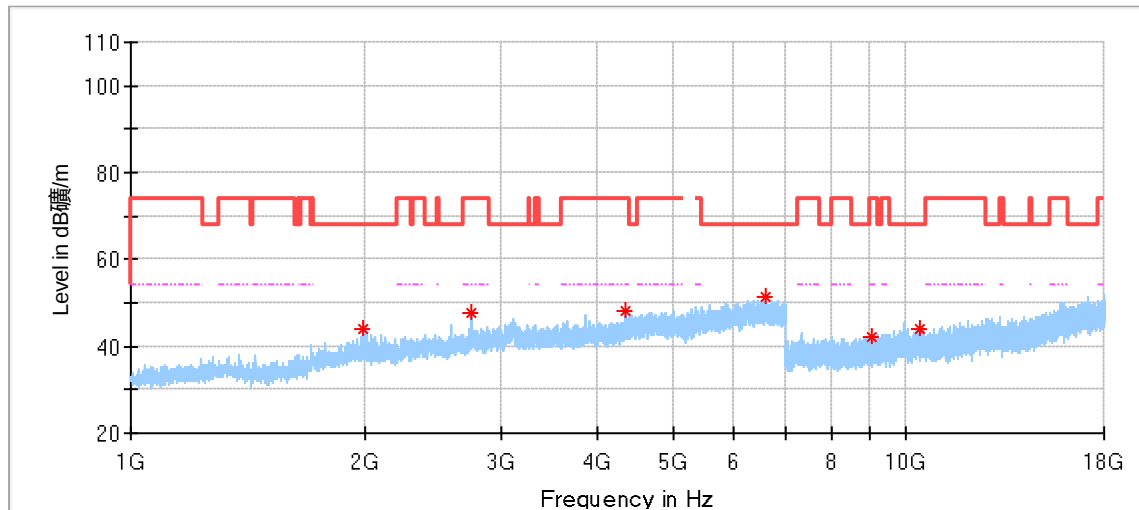
Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
63.518889	27.62	40.00	12.38	100.0	V	167.0	15.94
148.825000	30.44	43.50	13.06	100.0	V	230.0	12.57
253.746667	28.21	46.00	17.79	100.0	V	295.0	17.86
424.520556	38.92	46.00	7.08	100.0	V	349.0	21.67
733.465556	41.65	46.00	4.35	100.0	V	0.0	27.07
959.906667	43.68	46.00	2.32	100.0	V	251.0	29.58

Final_Result

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
959.906667	40.90	46.00	5.10	100.0	V	251.0	29.58

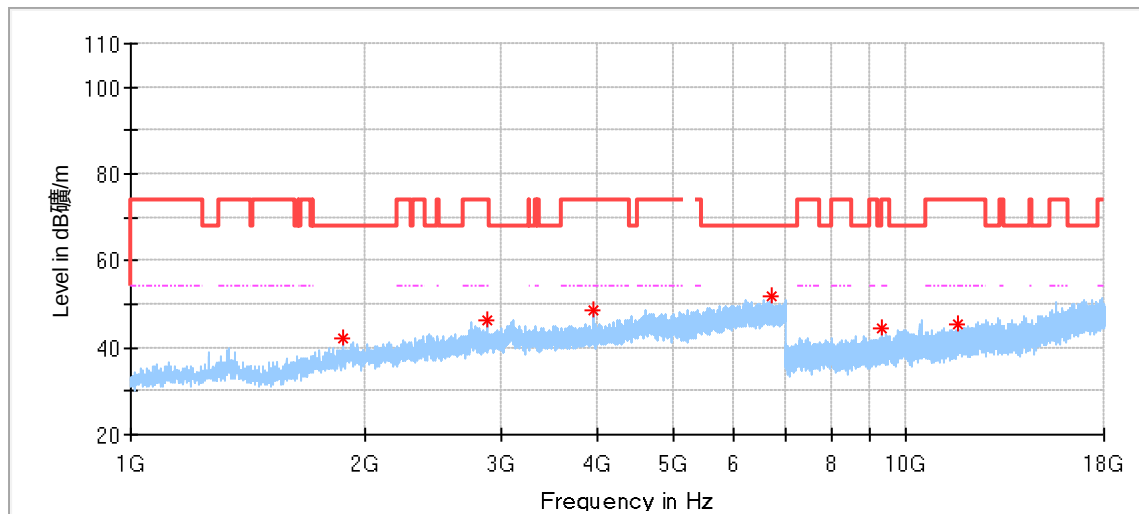
Test data 1GHz – 18GHz:**802.11a Modulation 5180MHz Test Result****Critical Freqs**

Frequency (MHz)	MaxPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
2751.500000	46.80	74.00	27.20	150.0	H	221.0	-1.93
3121.000000	46.54	68.20	21.66	150.0	H	351.0	0.78
4394.500000	48.18	74.00	25.82	150.0	H	0.0	2.98
6102.000000	50.92	68.20	17.28	150.0	H	69.0	7.28
8890.000000	43.51	68.20	24.69	150.0	H	6.0	11.93
12240.500000	46.36	74.00	27.65	150.0	H	356.0	16.06

**Critical Freqs**

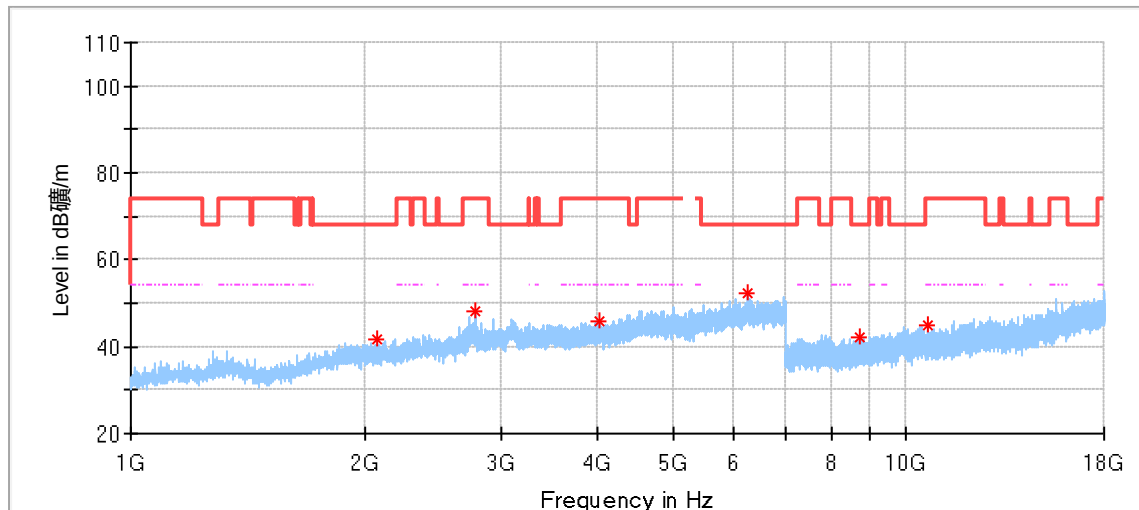
Frequency (MHz)	MaxPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
1992.500000	43.82	68.20	24.38	150.0	V	251.0	-4.35
2749.500000	47.86	74.00	26.14	150.0	V	286.0	-1.93
4353.500000	48.29	74.00	25.71	150.0	V	10.0	2.71
6591.500000	51.29	68.20	16.91	150.0	V	69.0	8.11
9039.000000	42.33	74.00	31.67	150.0	V	54.0	12.17
10438.000000	44.03	68.20	24.17	150.0	V	6.0	14.23

802.11a Modulation 5200MHz Test Result



Critical_Freqs

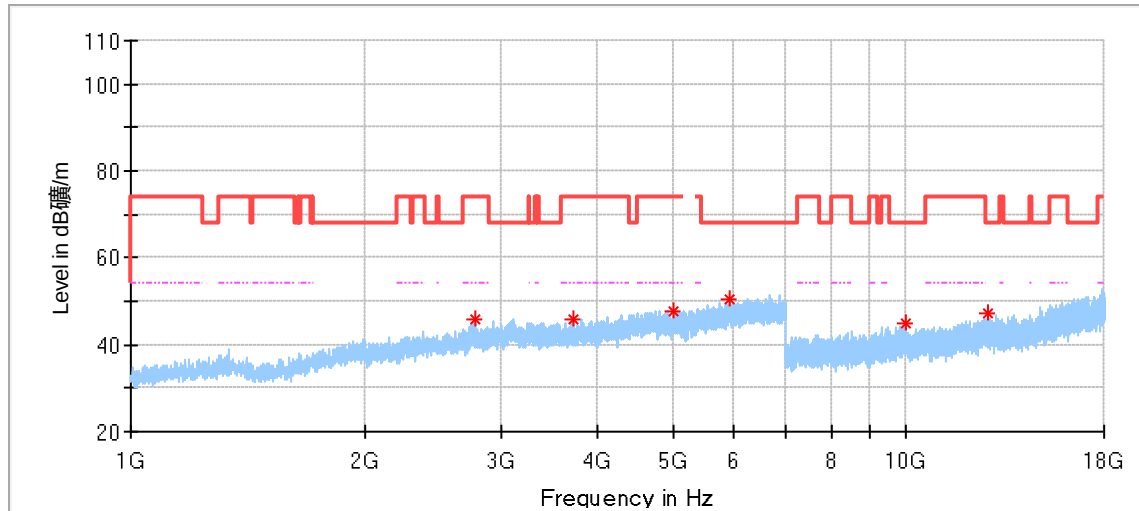
Frequency (MHz)	MaxPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Corr. (dB)
1878.500000	42.35	68.20	25.85	150.0	H	326.0	-4.83	---
2877.000000	46.29	74.00	27.71	150.0	H	112.0	-1.00	---
3958.000000	48.51	74.00	25.49	150.0	H	228.0	1.22	---
6691.500000	51.92	68.20	16.28	150.0	H	103.0	8.10	---
9287.000000	44.43	68.20	23.77	150.0	H	356.0	13.54	---
11663.500000	45.48	74.00	28.52	150.0	H	159.0	15.60	---



Critical_Freqs

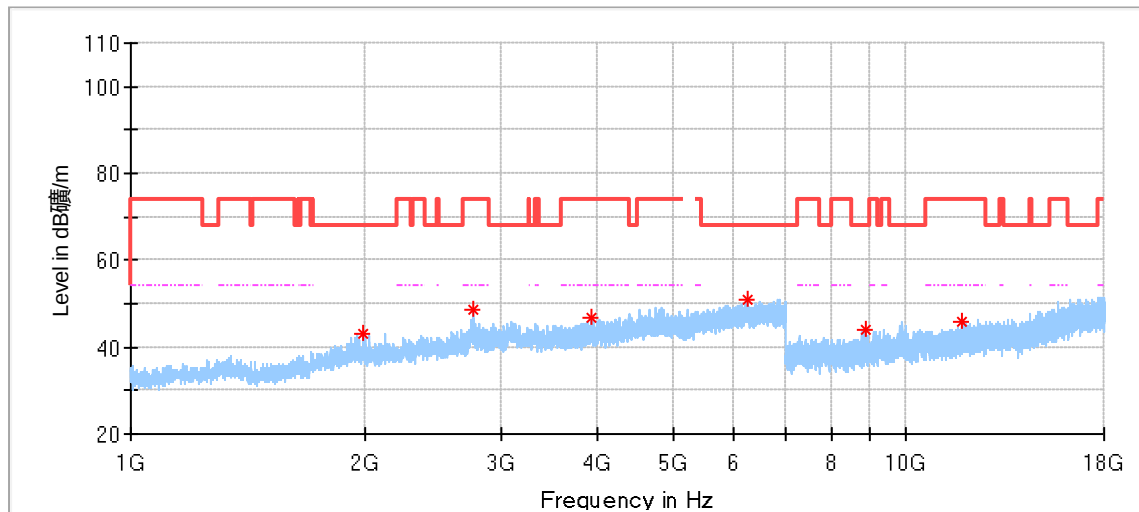
Frequency (MHz)	MaxPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Corr. (dB)
2076.000000	41.74	68.20	26.46	150.0	V	103.0	-4.37	---
2778.000000	48.15	74.00	25.85	150.0	V	157.0	-1.76	---
4033.000000	45.63	74.00	28.37	150.0	V	32.0	1.59	---
6241.000000	52.35	68.20	15.85	150.0	V	166.0	8.33	---
8720.000000	42.30	68.20	25.90	150.0	V	300.0	11.78	---
10660.000000	44.86	74.00	29.14	150.0	V	244.0	13.65	---

802.11a Modulation 5240MHz Test Result



Critical Freqs

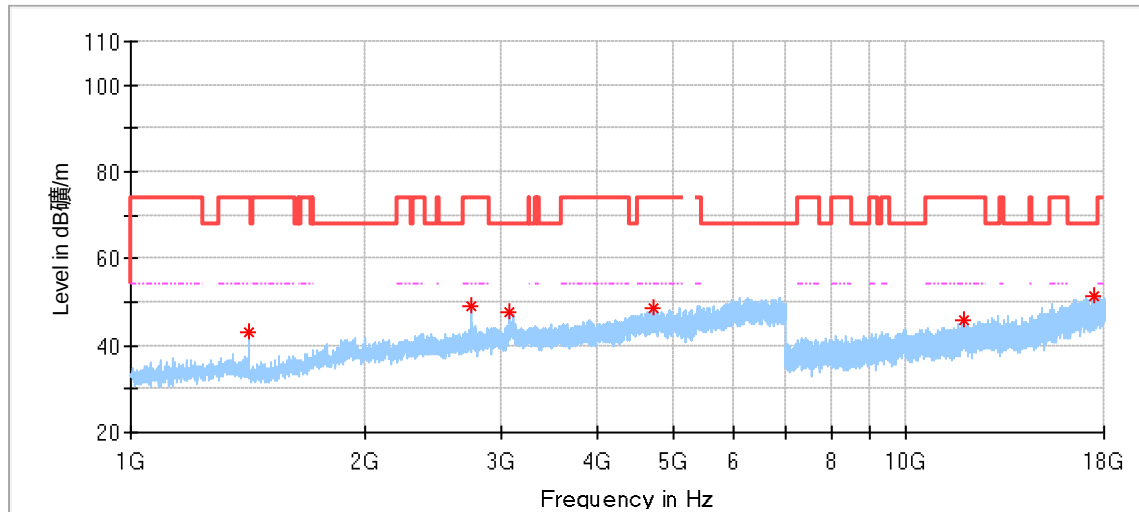
Frequency (MHz)	MaxPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
2777.000000	45.85	74.00	28.15	150.0	H	85.0	-1.77
3725.500000	45.81	74.00	28.19	150.0	H	201.0	0.71
5006.500000	47.78	74.00	26.22	150.0	H	112.0	4.44
5925.500000	50.33	68.20	17.87	150.0	H	15.0	6.93
10005.000000	44.69	68.20	23.51	150.0	H	356.0	13.91
12758.000000	47.19	68.20	21.01	150.0	H	161.0	16.27



Critical Freqs

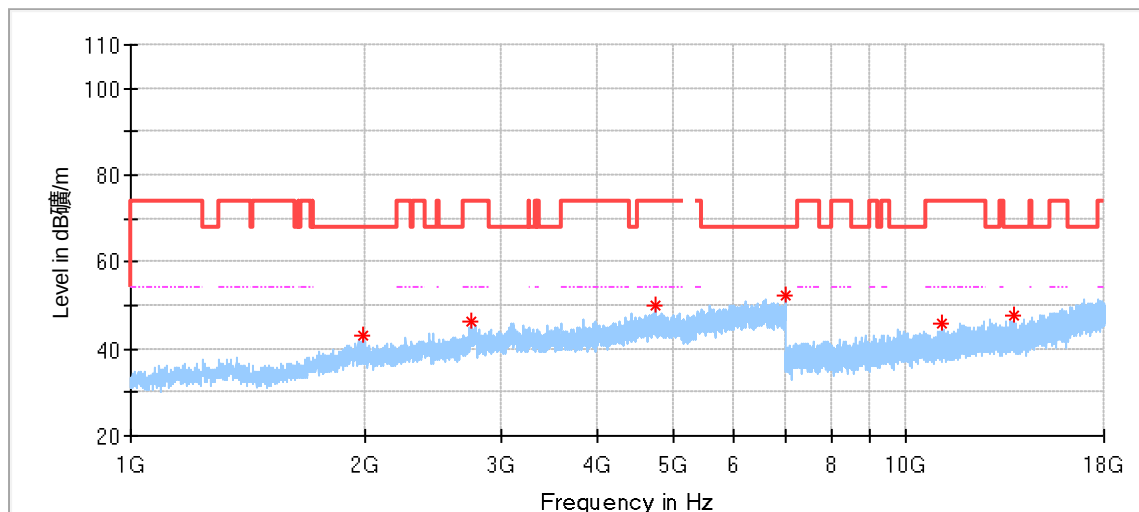
Frequency (MHz)	MaxPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
1997.500000	43.20	68.20	25.00	150.0	V	237.0	-4.37
2763.500000	48.62	74.00	25.38	150.0	V	148.0	-1.86
3935.000000	46.74	74.00	27.26	150.0	V	23.0	1.22
6227.500000	50.79	68.20	17.41	150.0	V	335.0	8.15
8846.500000	44.06	68.20	24.14	150.0	V	8.0	12.30
11795.500000	46.08	74.00	27.92	150.0	V	162.0	16.06

802.11a Modulation 5260MHz Test Result



Critical_Freqs

Frequency (MHz)	MaxPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
1420.000000	42.87	74.00	31.13	150.0	H	297.0	-8.93
2744.500000	49.08	74.00	24.92	150.0	H	234.0	-1.94
3075.500000	47.66	68.20	20.54	150.0	H	109.0	0.64
4729.000000	48.81	74.00	25.19	150.0	H	91.0	4.31
11878.000000	45.82	74.00	28.18	150.0	H	306.0	16.20
17429.500000	51.26	68.20	16.94	150.0	H	251.0	24.53



Critical_Freqs

Frequency (MHz)	MaxPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
1993.000000	43.15	68.20	25.05	150.0	V	20.0	-4.35
2750.500000	46.33	74.00	27.67	150.0	V	344.0	-1.93
4744.500000	50.07	74.00	23.93	150.0	V	264.0	4.31
6991.000000	52.48	68.20	15.72	150.0	V	0.0	8.62
11150.000000	45.81	74.00	28.19	150.0	V	198.0	14.33
13798.500000	47.63	68.20	20.57	150.0	V	198.0	16.09