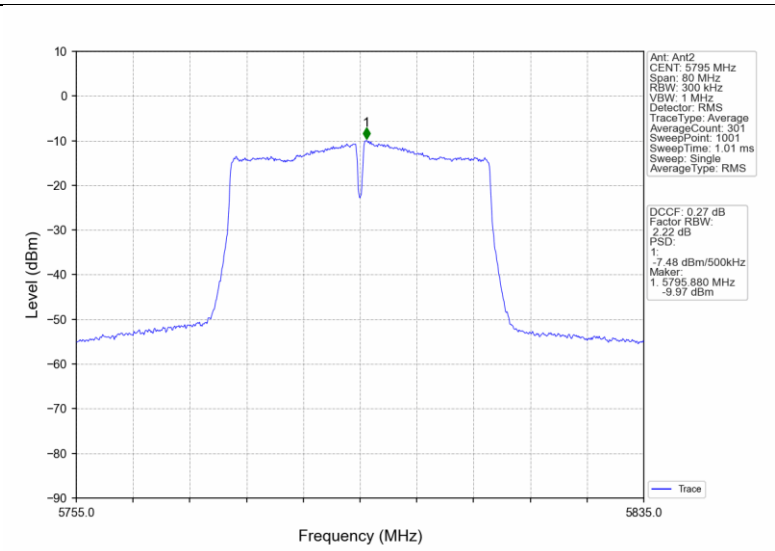
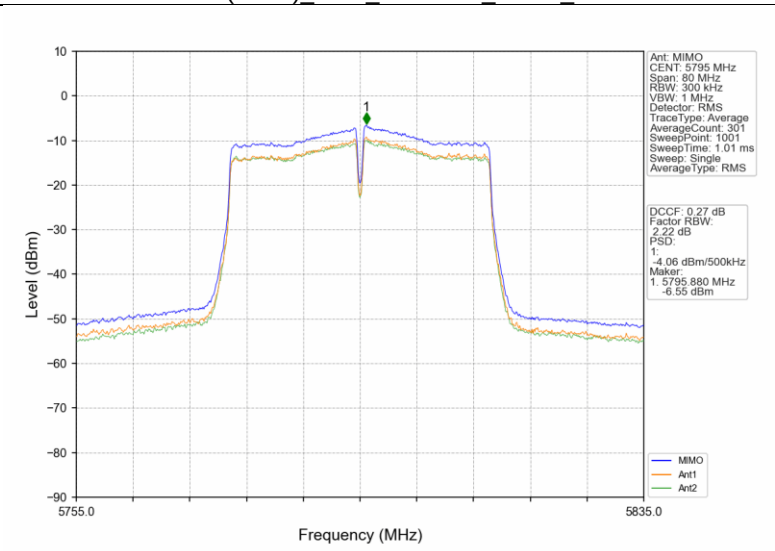


802.11n(HT40)_HCH_5795MHz_MIMO_NTNV



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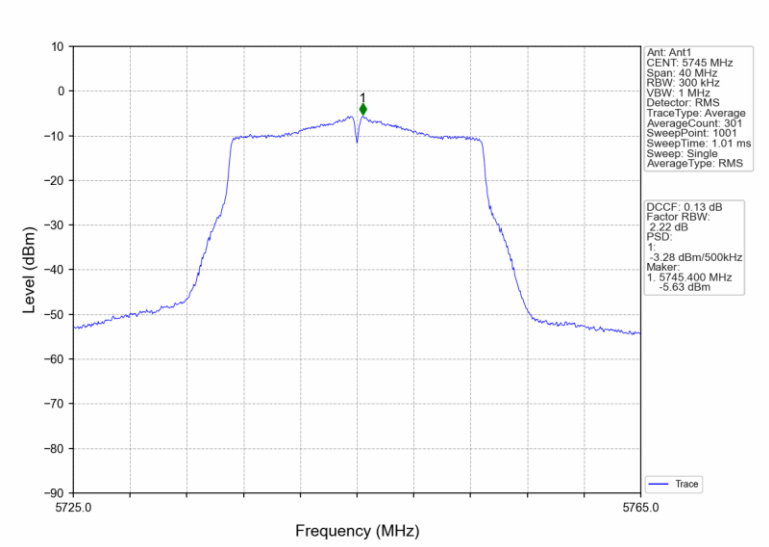

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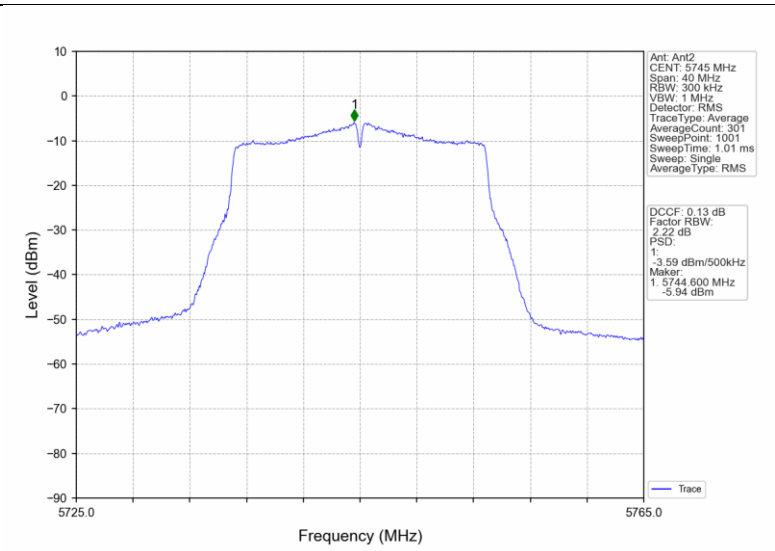

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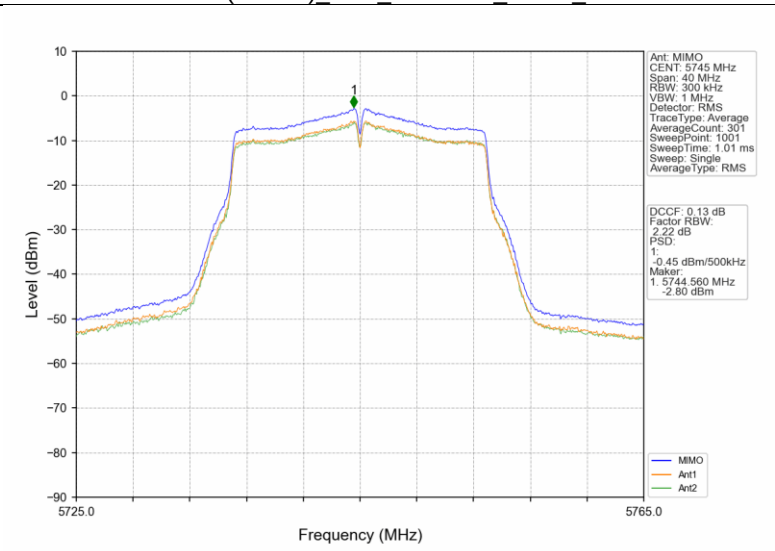

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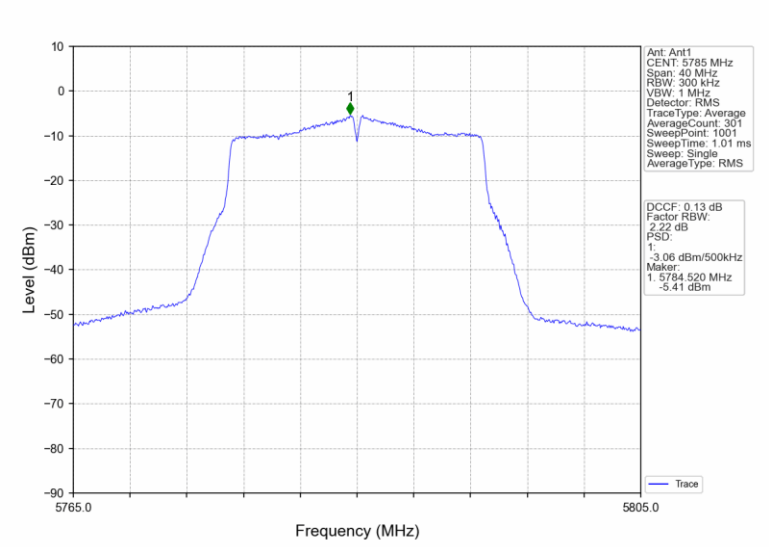

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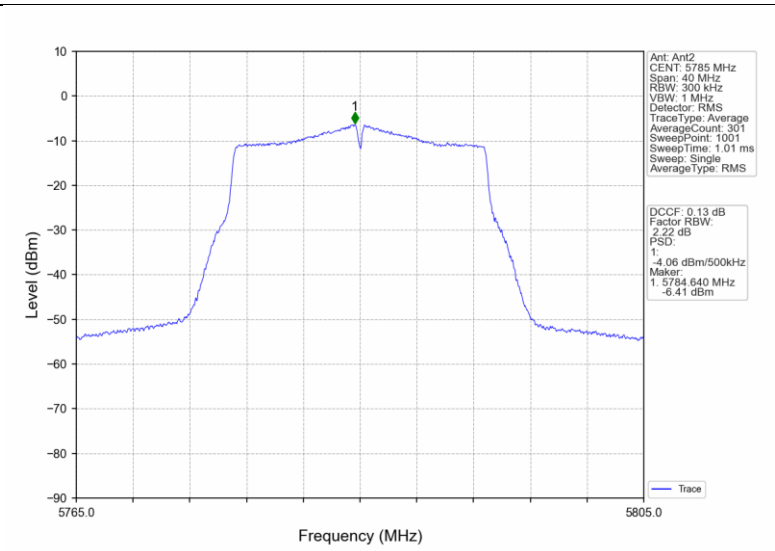

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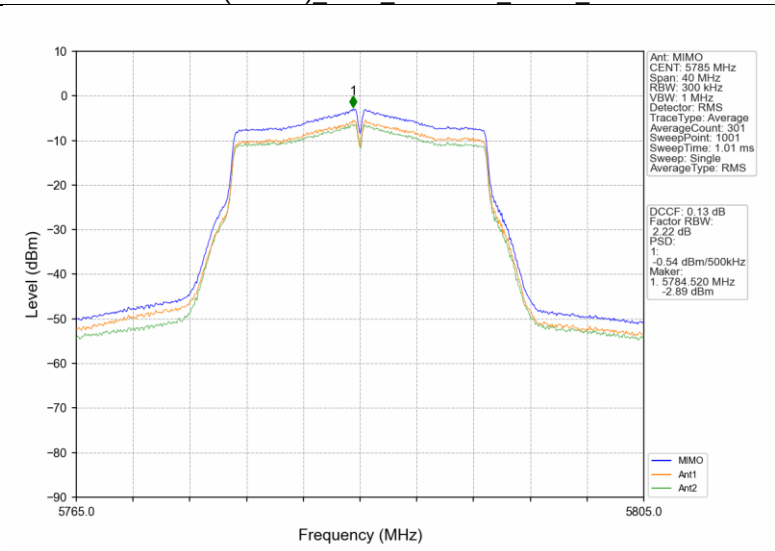

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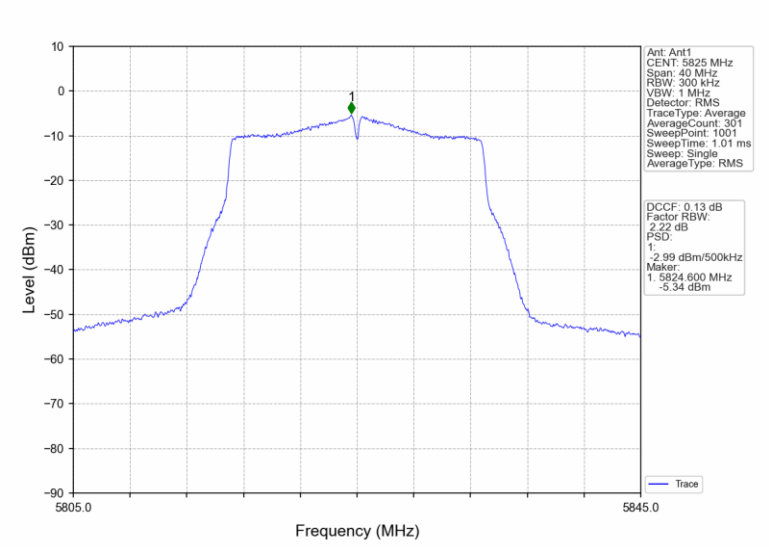

802.11ac(VHT20)_HCH_5825MHz_Ant2_NTNV

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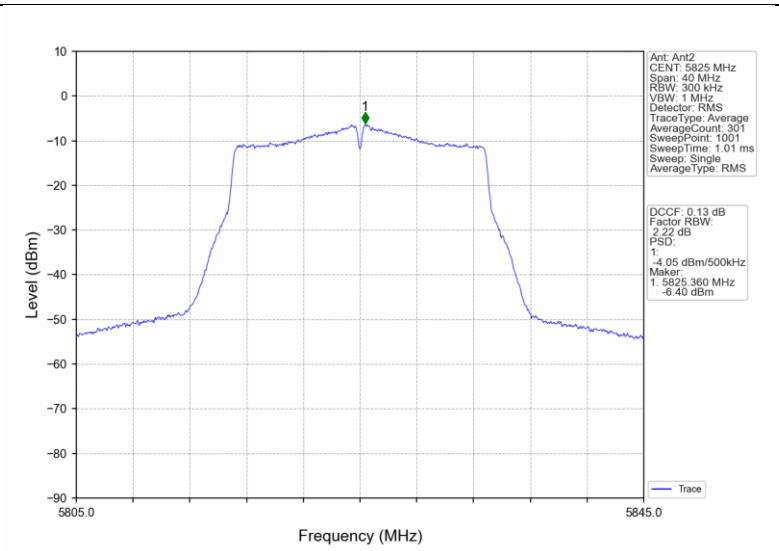

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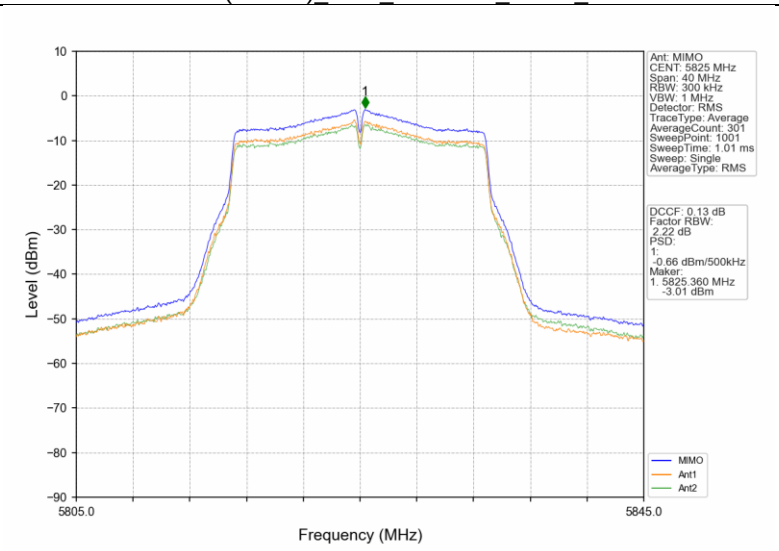
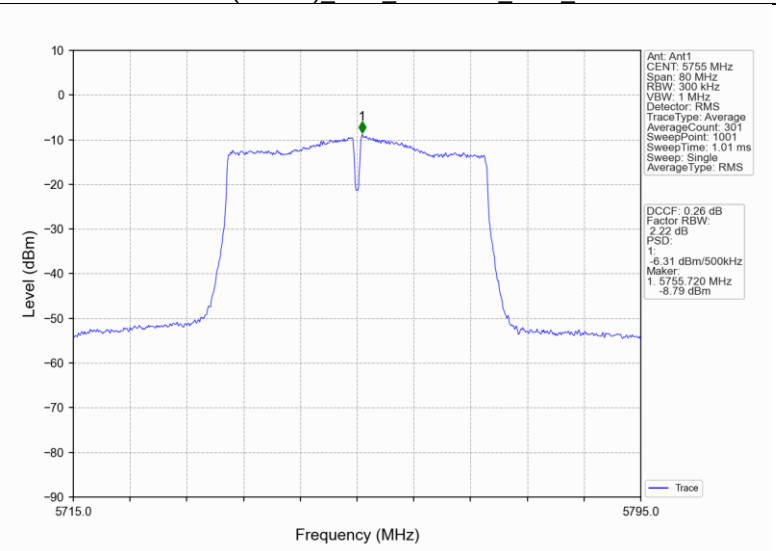


802.11ac(VHT40)_LCH_5755MHz_Ant1_NTNV



802.11ac(VHT40)_LCH_5755MHz_Ant2_NTNV

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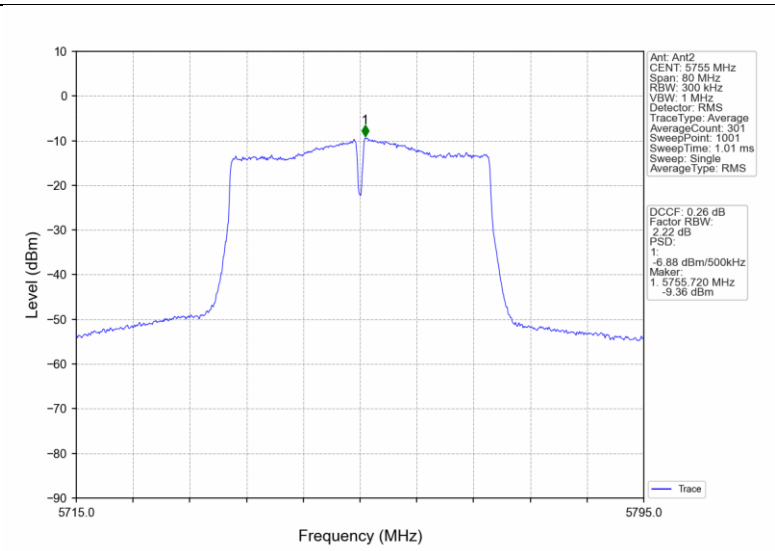

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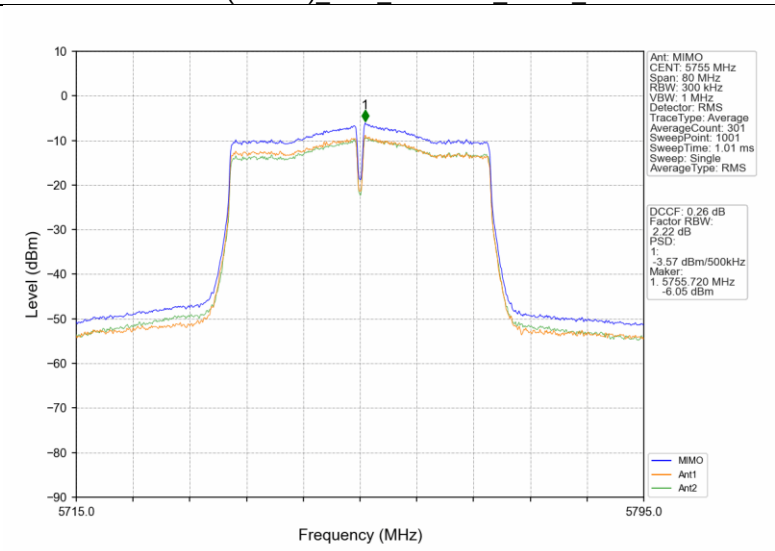

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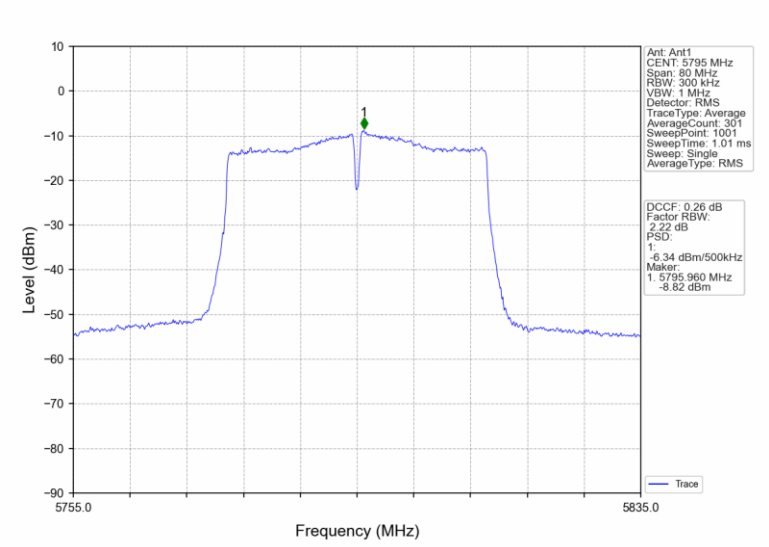

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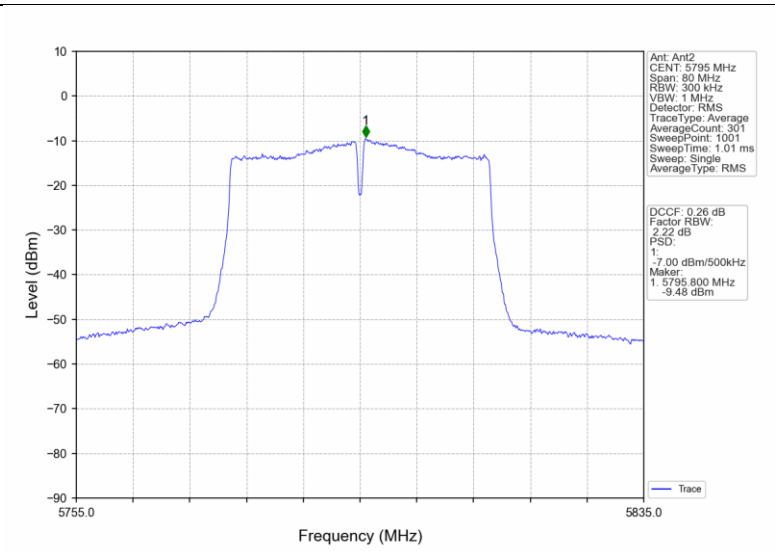
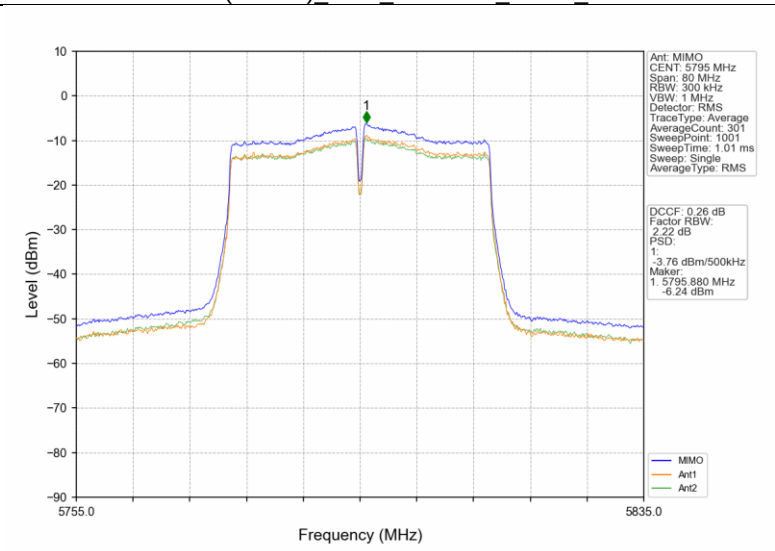
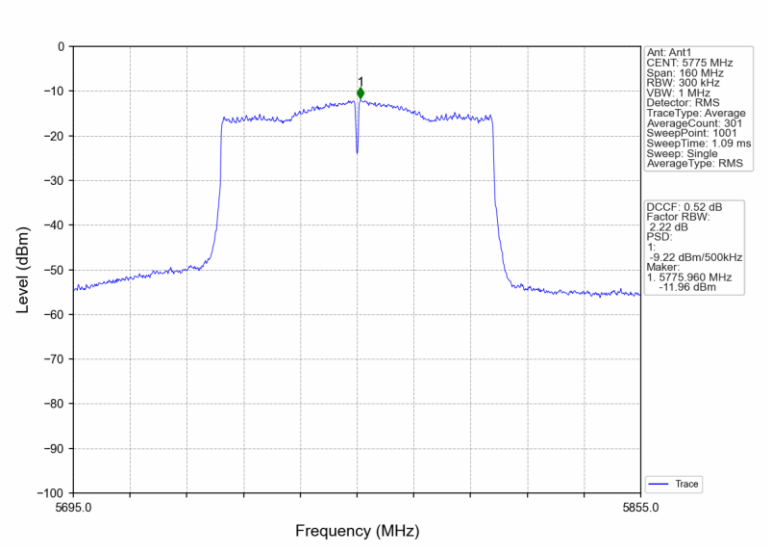


802.11ac(VHT40)_HCH_5795MHz_MIMO_NTNV



802.11ac(VHT80)_MCH_5775MHz_Ant1_NTNV



802.11ac(VHT80)_MCH_5775MHz_Ant2_NTNV

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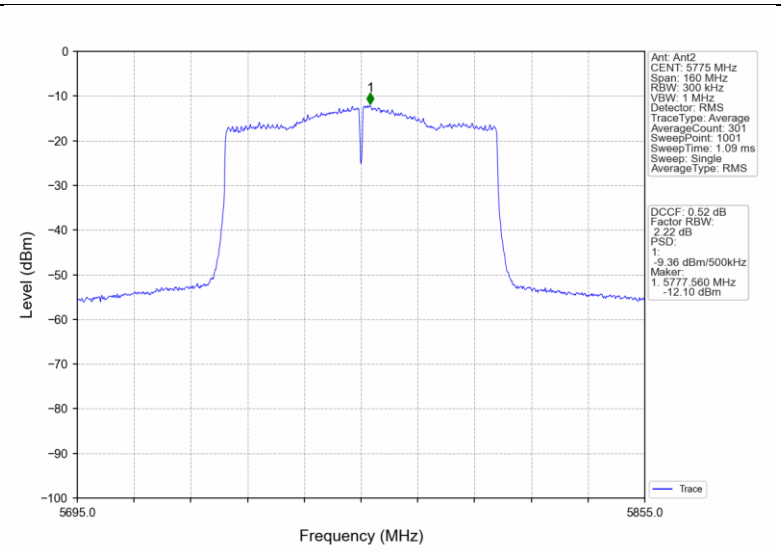
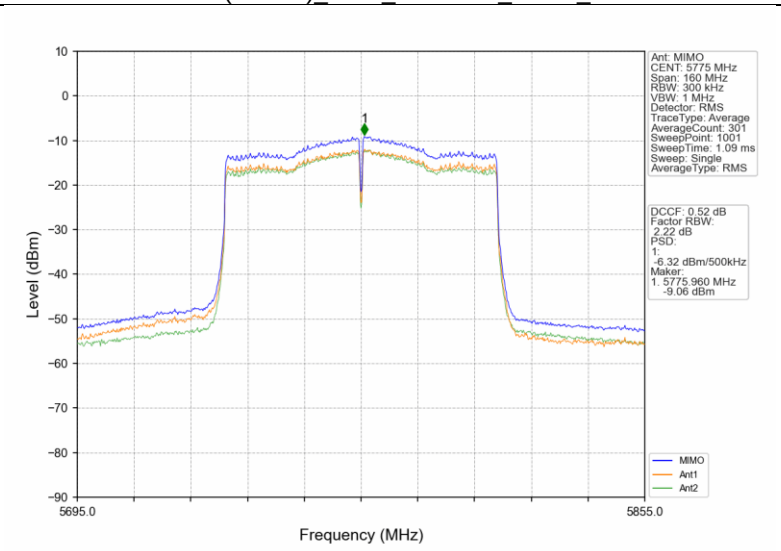


802.11ac(VHT80)_MCH_5775MHz_MIMO_NTNV



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8.5 Radiated Unwanted Emissions

Radiated Transmitting spurious emission test result as below:

Test Method:

Radiated Mode:

1. The EUT was place 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 ≥ 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 ≥ [3 × RBW].
   c) Detector = Power averaging (rms), if [span / (# of points in sweep)] ≤ 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.

FCC Limit

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.

Frequency MHz	Field Strength μV/m	Field Strength dBμV/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

Note 1: Limit 3m(dBμV/m)=Limit 300m(dBμV/m)+40Log(300m/3m) (Below 30MHz)
Note 2: Limit 3m(dBμV/m)=Limit 30m(dBμV/m)+40Log(30m/3m) (Below 30MHz)

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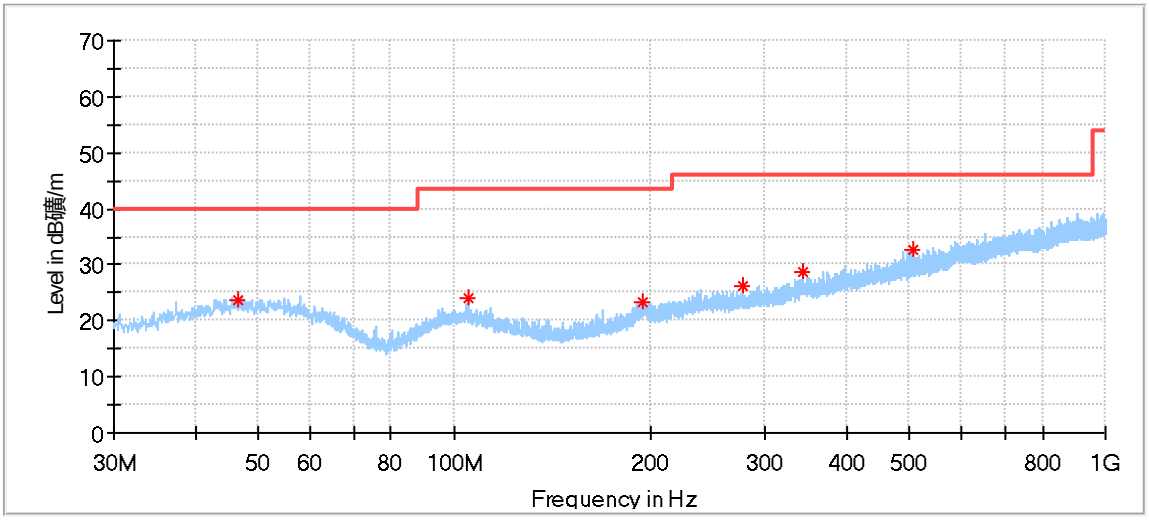
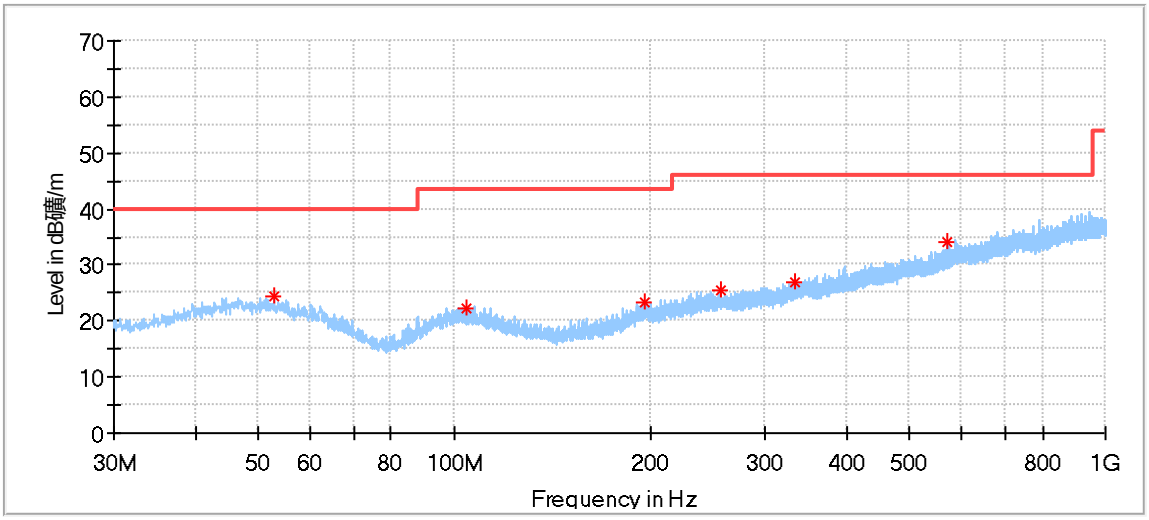
Transmitting spurious emission test result as below:

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.

Below 1G:



Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Corr. (dB)
46.651667	23.79	40.00	16.21	200.0	H	209.0	18.45	---
104.797778	23.93	43.50	19.57	100.0	H	19.0	16.02	---
195.277222	23.45	43.50	20.05	100.0	H	305.0	16.35	---
277.026667	26.08	46.00	19.92	100.0	H	252.0	17.94	---
342.016667	28.73	46.00	17.27	100.0	H	89.0	19.89	---
506.701111	32.82	46.00	13.18	200.0	H	174.0	23.13	---



Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Corr. (dB)
52.848889	24.50	40.00	15.50	200.0	V	42.0	18.15	---
104.043333	22.42	43.50	21.08	200.0	V	303.0	16.10	---
196.516667	23.16	43.50	20.34	200.0	V	227.0	16.36	---
256.279444	25.43	46.00	20.57	200.0	V	270.0	18.01	---
333.448333	26.97	46.00	19.03	200.0	V	42.0	19.52	---
572.553333	34.10	46.00	11.90	200.0	V	347.0	24.17	---

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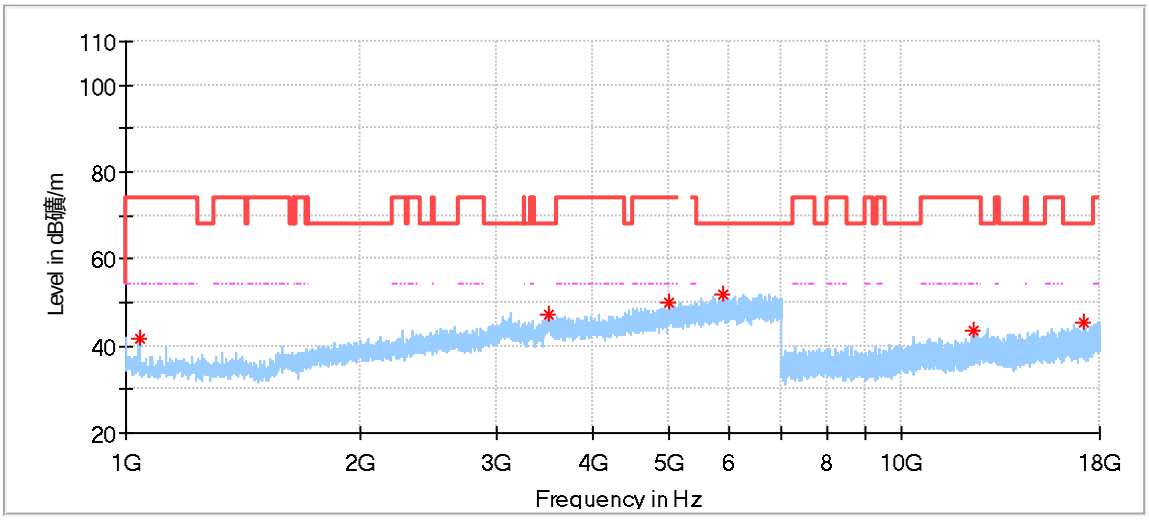
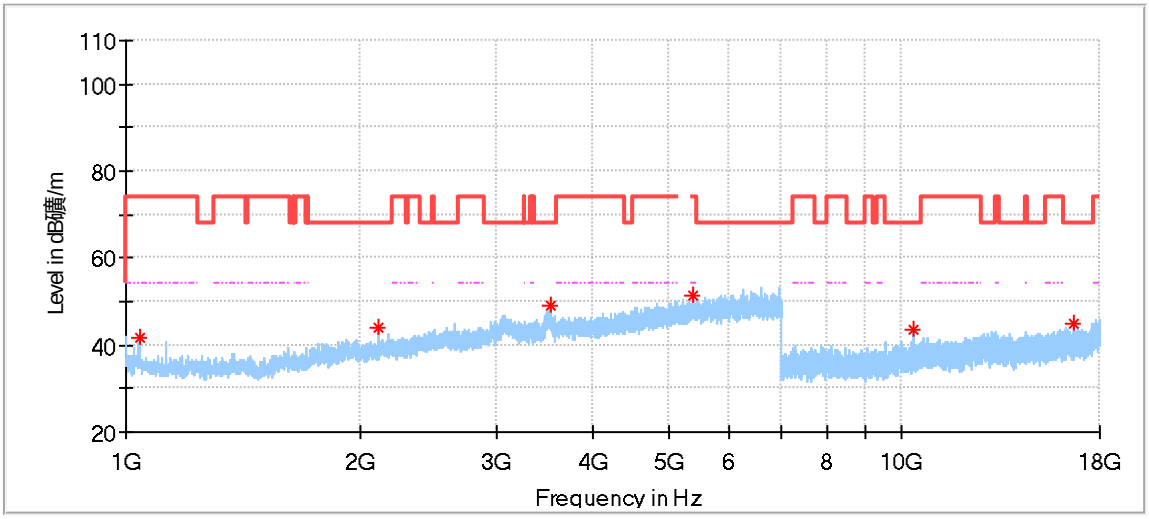
Above 1GHz:

Test data 1GHz – 18GHz:

Ant1_11a_5180MHz:



Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
1039.500000	41.86	74.00	32.14	150.0	V	329.0	-8.22
3497.500000	47.45	68.20	20.75	150.0	V	104.0	4.29
5015.000000	50.01	74.00	23.99	150.0	V	0.0	5.57
5873.000000	51.89	68.20	16.31	150.0	V	221.0	8.02
12363.000000	43.33	74.00	30.67	150.0	V	120.0	12.15
17124.500000	45.41	68.20	22.79	150.0	V	141.0	18.86



Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
1039.500000	41.56	74.00	32.44	150.0	H	231.0	-8.22
2117.000000	43.82	68.20	24.39	150.0	H	271.0	-3.89
3518.000000	48.96	68.20	19.24	150.0	H	82.0	3.57
5367.000000	51.37	74.00	22.63	150.0	H	107.0	6.68
10360.500000	43.70	68.20	24.50	150.0	H	309.0	10.07
16648.000000	44.93	68.20	23.27	150.0	H	248.0	17.99

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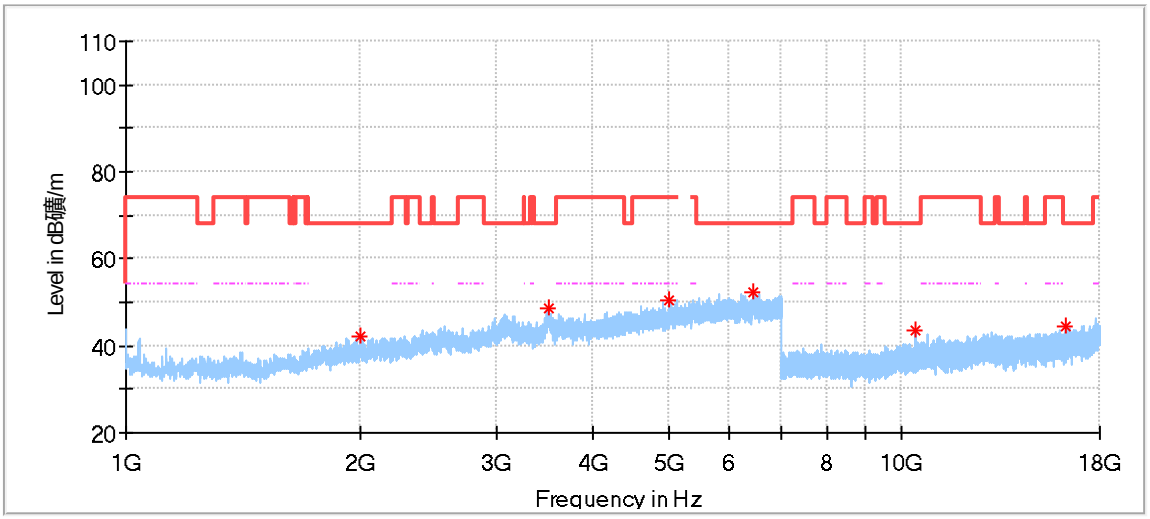
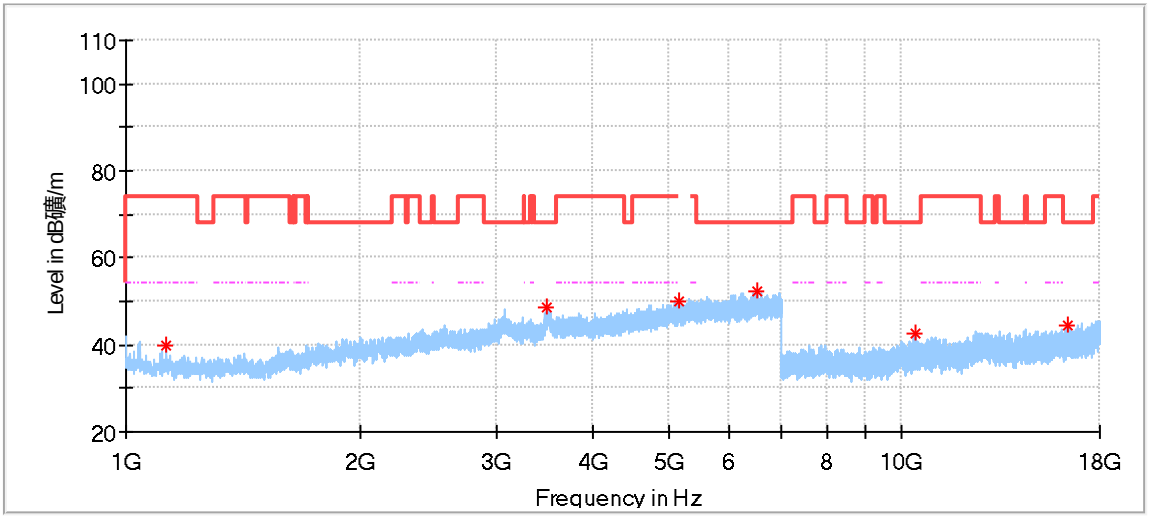
Ant1_11a_5220MHz:

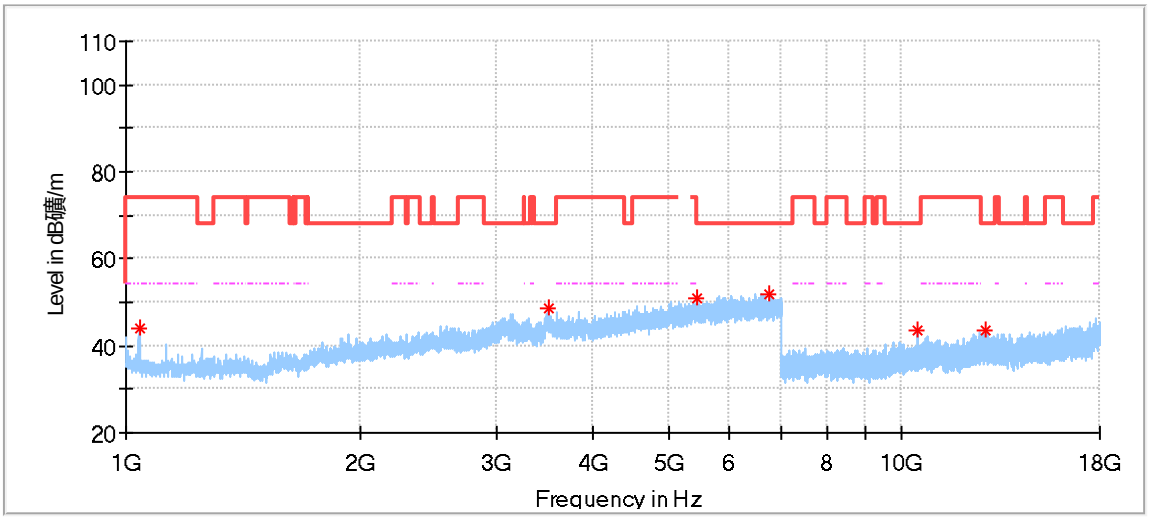


Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
2000.000000	42.37	68.20	25.83	150.0	H	312.0	-3.98
3504.500000	48.49	68.20	19.71	150.0	H	226.0	4.26
5020.500000	50.29	74.00	23.71	150.0	H	122.0	5.61
6433.500000	52.24	68.20	15.96	150.0	H	207.0	8.65
10400.000000	43.74	68.20	24.46	150.0	H	311.0	10.14
16300.500000	44.44	68.20	23.76	150.0	H	98.0	16.81

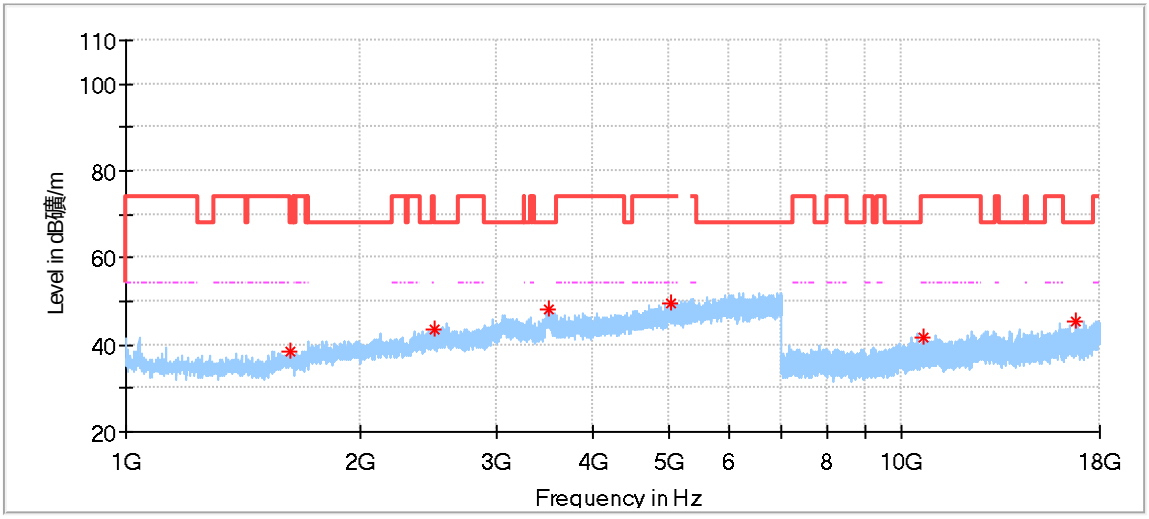


Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
1125.000000	39.95	74.00	34.05	150.0	V	172.0	-8.88
3486.500000	48.48	68.20	19.72	150.0	V	340.0	3.46
5159.500000	50.14	---	---	150.0	V	59.0	6.11
6492.000000	52.32	68.20	15.88	150.0	V	179.0	9.00
10400.500000	42.52	68.20	25.68	150.0	V	100.0	10.14
16324.500000	44.41	68.20	23.79	150.0	V	120.0	16.82

Ant1_11a_5240MHz:



Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
1039.500000	43.79	74.00	30.21	150.0	H	4.0	-8.22
3497.000000	48.48	68.20	19.72	150.0	H	297.0	4.25
5443.500000	50.76	74.00	23.24	150.0	H	350.0	6.82
6733.000000	51.95	68.20	16.25	150.0	H	30.0	8.86
10480.000000	43.58	68.20	24.62	150.0	H	311.0	10.11
12844.500000	43.46	68.20	24.74	150.0	H	62.0	12.95



Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
1630.000000	38.64	68.20	29.56	150.0	V	70.0	-6.90
2496.500000	43.64	74.00	30.36	150.0	V	170.0	-1.85
3506.000000	48.17	68.20	20.03	150.0	V	103.0	4.19
5056.000000	49.66	74.00	24.34	150.0	V	90.0	5.83
10663.500000	41.72	74.00	32.28	150.0	V	290.0	10.33
16806.500000	45.29	68.20	22.91	150.0	V	164.0	18.41

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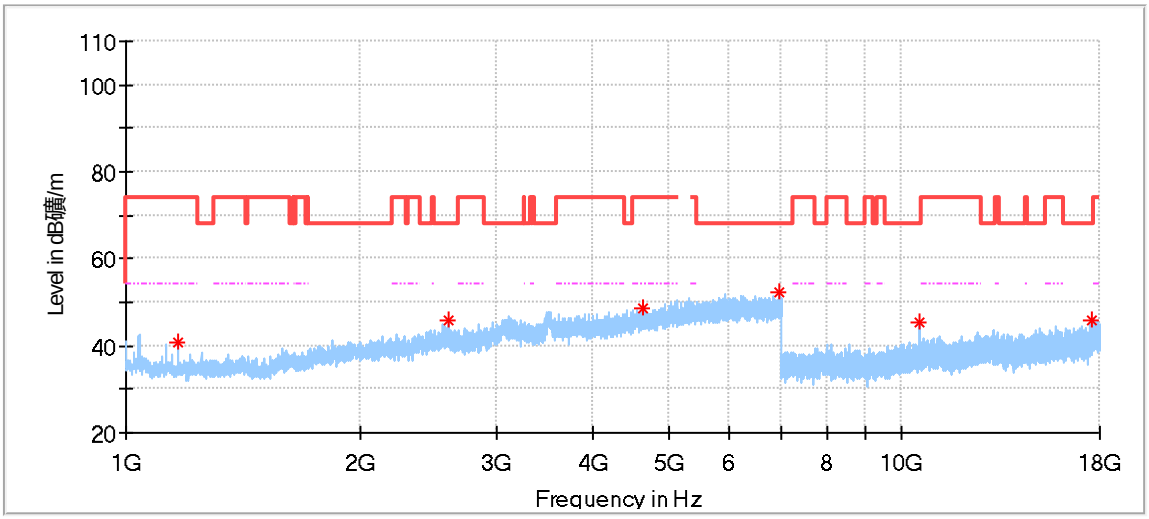
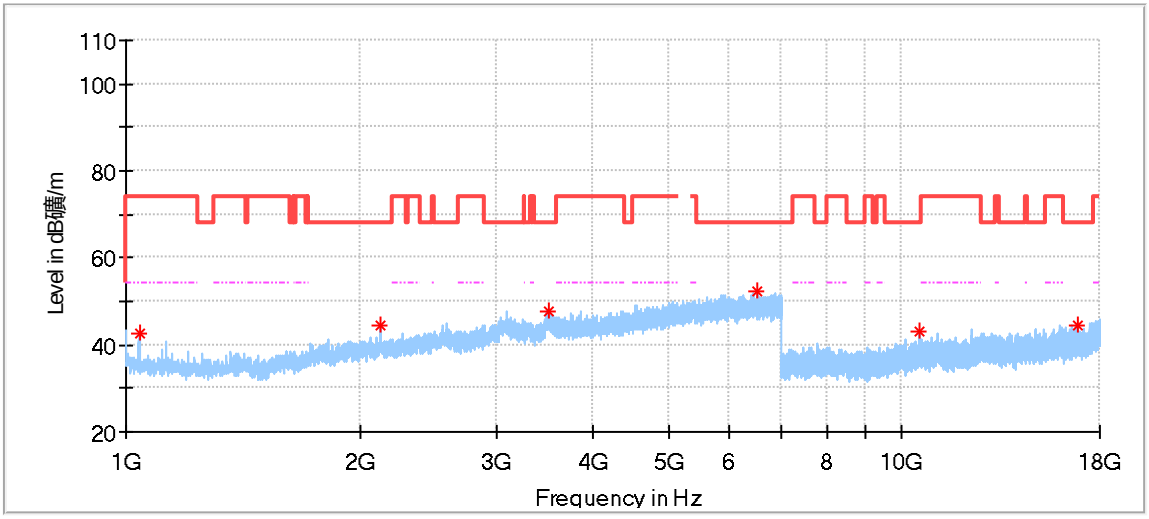
Ant1_11a_5260MHz:

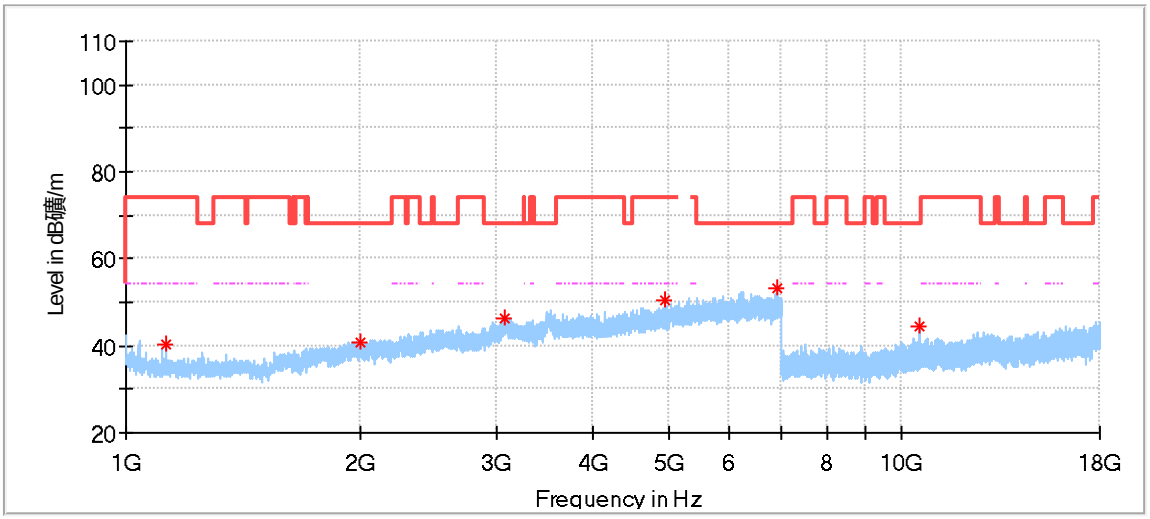


Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
1166.500000	40.85	74.00	33.15	150.0	H	150.0	-8.81
2612.000000	45.84	68.20	22.36	150.0	H	359.0	-1.17
4650.500000	48.61	74.00	25.39	150.0	H	186.0	4.44
6955.500000	52.18	68.20	16.02	150.0	H	63.0	9.07
10520.000000	45.34	68.20	22.86	150.0	H	311.0	10.09
17622.500000	45.84	68.20	22.36	150.0	H	206.0	19.53

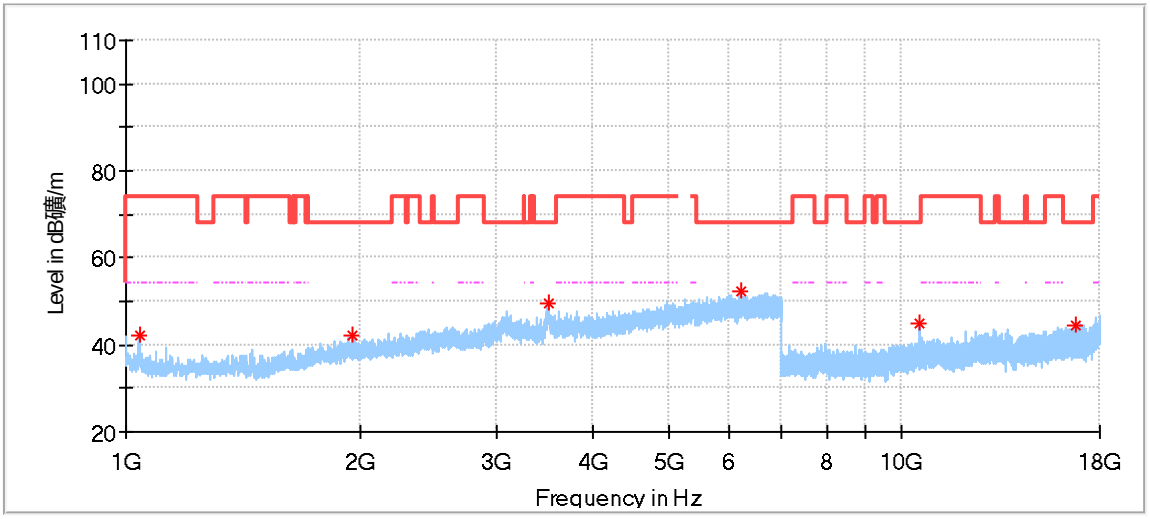


Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
1039.500000	42.65	74.00	31.35	150.0	V	130.0	-8.22
2132.500000	44.57	68.20	23.63	150.0	V	50.0	-3.59
3516.500000	47.58	68.20	20.62	150.0	V	10.0	3.65
6519.000000	52.29	68.20	15.91	150.0	V	224.0	8.92
10520.000000	42.85	68.20	25.35	150.0	V	185.0	10.09
16818.000000	44.66	68.20	23.54	150.0	V	185.0	18.43

Ant1_11a_5280MHz:

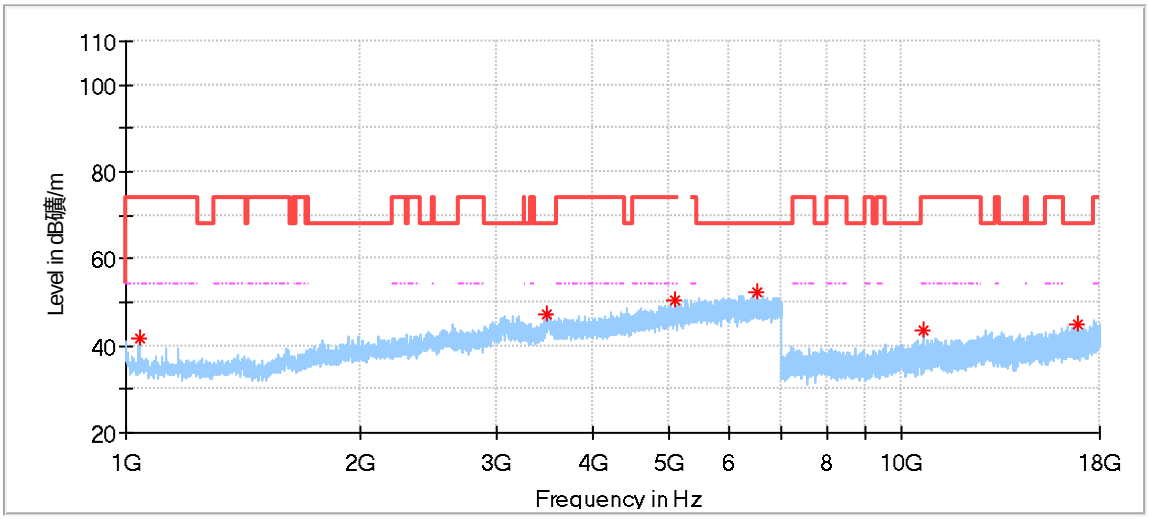


Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
1125.500000	40.09	74.00	33.91	150.0	H	158.0	-8.88
2005.500000	40.94	68.20	27.26	150.0	H	171.0	-3.90
3078.000000	46.36	68.20	21.84	150.0	H	10.0	1.52
4962.500000	50.25	74.00	23.75	150.0	H	342.0	5.30
6893.500000	53.03	68.20	15.17	150.0	H	98.0	8.93
10560.000000	44.59	68.20	23.61	150.0	H	312.0	10.10

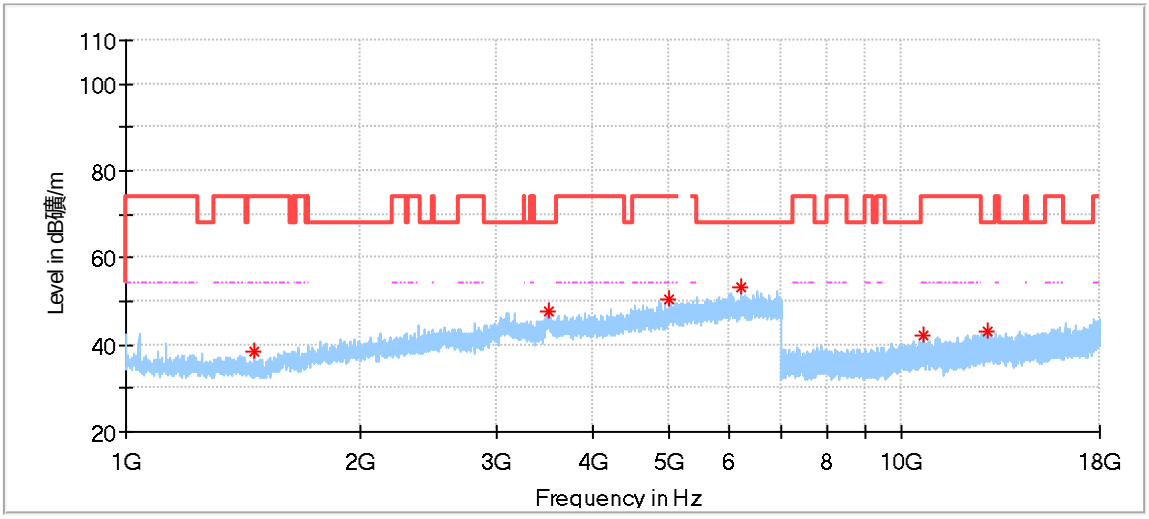


Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
1039.500000	42.10	74.00	31.90	150.0	V	250.0	-8.22
1953.000000	41.98	68.20	26.22	150.0	V	43.0	-4.32
3509.500000	49.73	68.20	18.47	150.0	V	237.0	4.01
6223.500000	52.18	68.20	16.02	150.0	V	90.0	8.88
10560.000000	45.01	68.20	23.19	150.0	V	98.0	10.10
16794.000000	44.24	68.20	23.96	150.0	V	356.0	18.39

Ant1_11a_5320MHz:

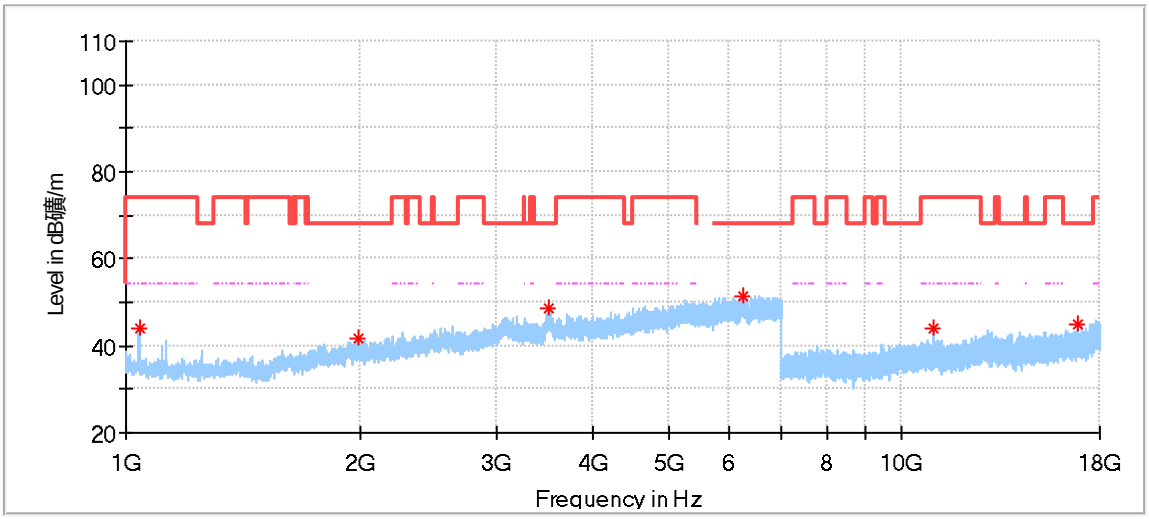


Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
1039.500000	41.50	74.00	32.50	150.0	H	186.0	-8.22
3491.000000	47.39	68.20	20.81	150.0	H	112.0	3.80
5088.500000	50.52	74.00	23.48	150.0	H	286.0	5.88
6496.000000	52.08	68.20	16.12	150.0	H	334.0	8.99
10640.000000	43.67	74.00	30.33	150.0	H	309.0	10.27
16835.000000	44.85	68.20	23.35	150.0	H	105.0	18.46

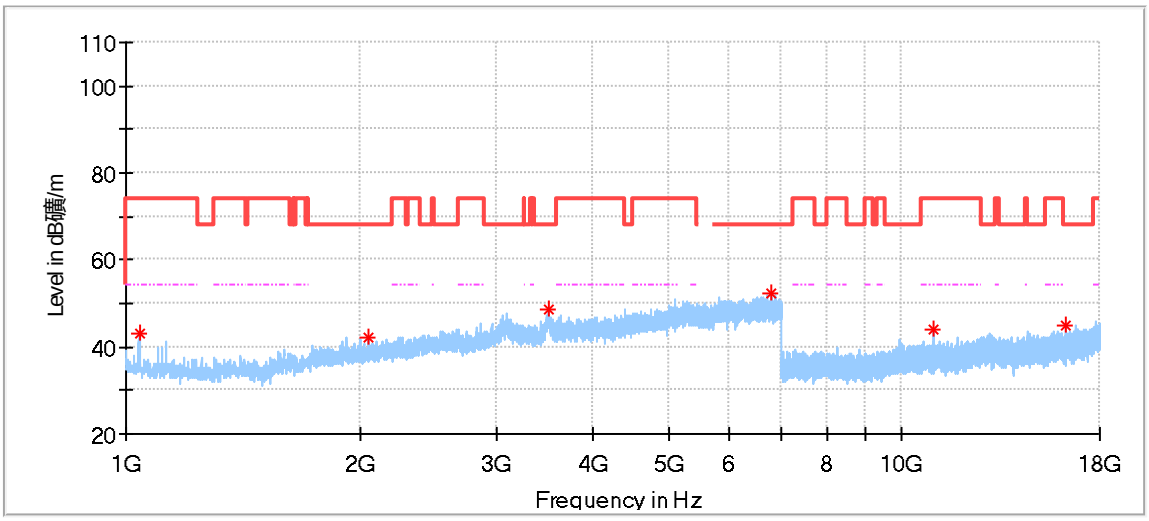


Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
1463.000000	38.38	74.00	35.62	150.0	V	46.0	-8.83
3510.000000	47.67	68.20	20.53	150.0	V	206.0	3.98
5025.500000	50.43	74.00	23.58	150.0	V	356.0	5.64
6222.500000	53.10	68.20	15.10	150.0	V	140.0	8.86
10640.500000	42.13	74.00	31.87	150.0	V	260.0	10.27
12869.500000	42.99	68.20	25.21	150.0	V	340.0	12.94

Ant1_11a_5500MHz:



Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
1039.500000	44.13	74.00	29.87	150.0	H	16.0	-8.22
1994.500000	41.56	68.20	26.64	150.0	H	352.0	-4.08
3507.500000	48.84	68.20	19.36	150.0	H	206.0	4.11
6240.500000	51.50	68.20	16.70	150.0	H	206.0	9.11
11000.000000	44.14	74.00	29.86	150.0	H	311.0	10.80
16833.000000	45.01	68.20	23.19	150.0	H	269.0	18.45



Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
1039.500000	42.98	74.00	31.02	150.0	V	103.0	-8.22
2057.000000	42.00	68.20	26.20	150.0	V	63.0	-4.17
3512.000000	48.45	68.20	19.75	150.0	V	76.0	3.88
6801.500000	52.37	68.20	15.83	150.0	V	351.0	8.89
11000.500000	43.85	74.00	30.15	150.0	V	356.0	10.80
16272.500000	44.76	68.20	23.44	150.0	V	42.0	16.77

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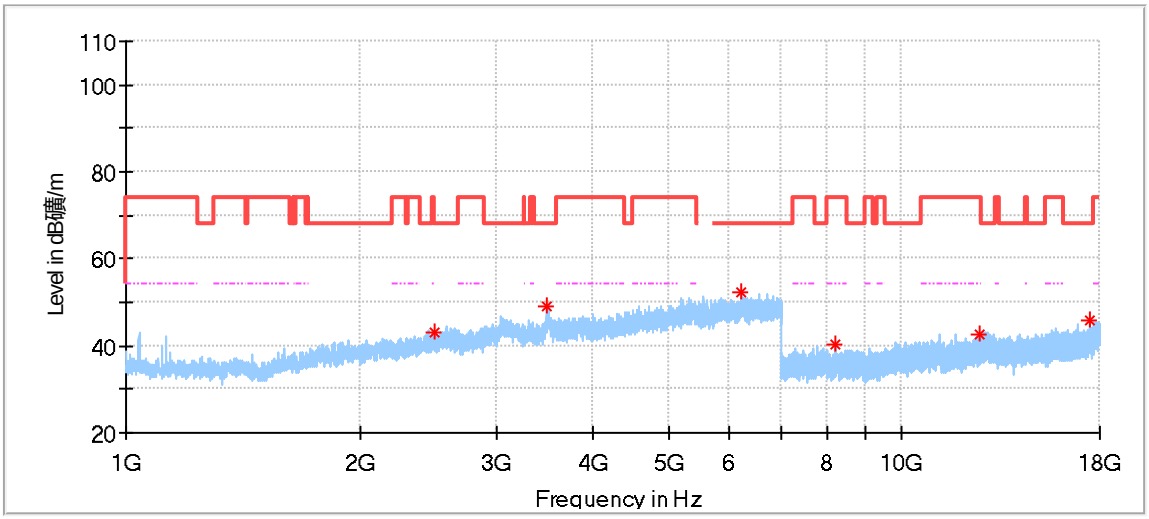
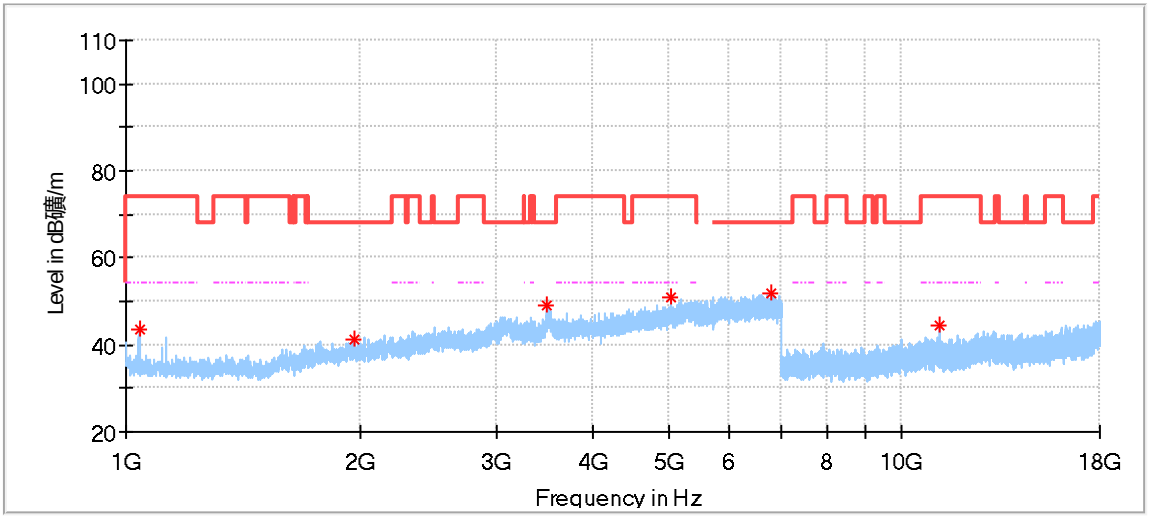
Ant1_11a_5580MHz:



Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
2492.500000	43.02	74.00	30.98	150.0	H	76.0	-1.84
3494.500000	48.99	68.20	19.21	150.0	H	36.0	4.06
6224.500000	52.35	68.20	15.85	150.0	H	179.0	8.90
8225.000000	40.42	74.00	33.58	150.0	H	185.0	7.42
12604.500000	42.61	74.00	31.39	150.0	H	4.0	12.67
17421.500000	45.77	68.20	22.43	150.0	H	206.0	19.06



Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
1039.500000	43.31	74.00	30.69	150.0	V	324.0	-8.22
1969.500000	41.46	68.20	26.74	150.0	V	4.0	-4.17
3492.500000	49.00	68.20	19.20	150.0	V	83.0	3.91
5029.500000	51.04	74.00	22.96	150.0	V	76.0	5.67
6806.500000	52.07	68.20	16.13	150.0	V	110.0	8.87
11160.000000	44.28	74.00	29.72	150.0	V	4.0	11.03

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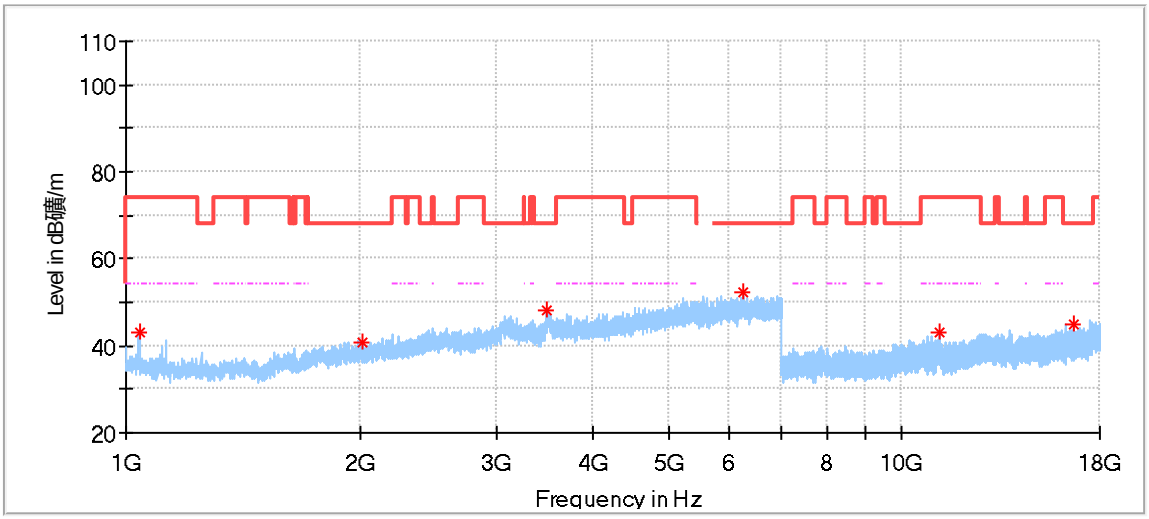
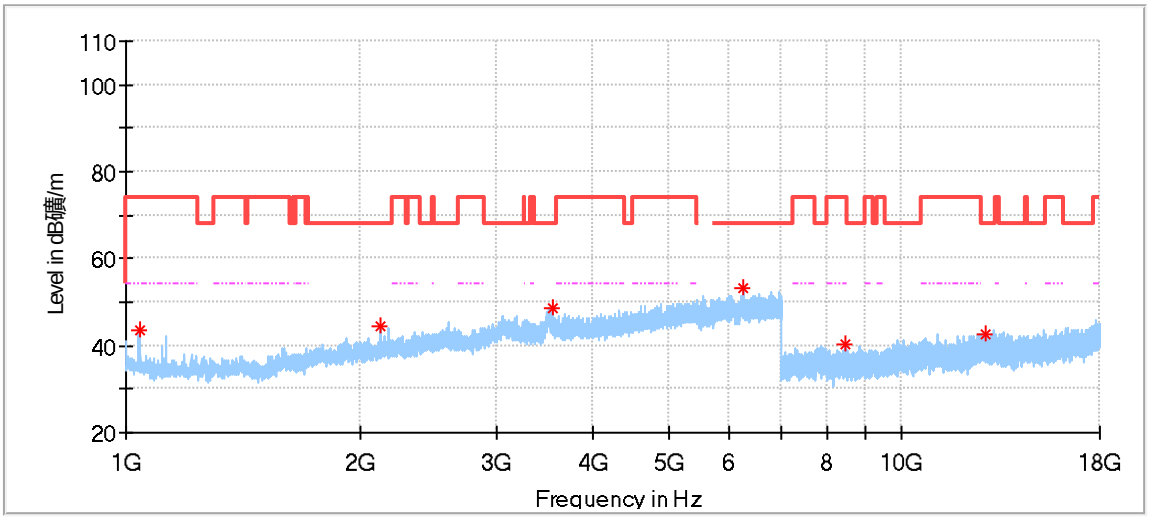
Ant1_11a_5700MHz:



Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
1039.500000	43.15	74.00	30.85	150.0	H	0.0	-8.22
2022.500000	40.76	68.20	27.44	150.0	H	177.0	-4.11
3494.000000	48.22	68.20	19.98	150.0	H	340.0	4.03
6240.000000	52.27	68.20	15.93	150.0	H	117.0	9.12
11176.000000	43.01	74.00	30.99	150.0	H	164.0	11.03
16650.500000	44.72	68.20	23.48	150.0	H	290.0	18.00



Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
1039.500000	43.38	74.00	30.62	150.0	V	183.0	-8.22
2129.500000	44.45	68.20	23.75	150.0	V	177.0	-3.61
3546.000000	48.42	68.20	19.78	150.0	V	163.0	2.11
6240.500000	53.09	68.20	15.11	150.0	V	358.0	9.11
8455.000000	40.51	74.00	33.49	150.0	V	266.0	7.57
12840.000000	42.51	68.20	25.69	150.0	V	78.0	12.95

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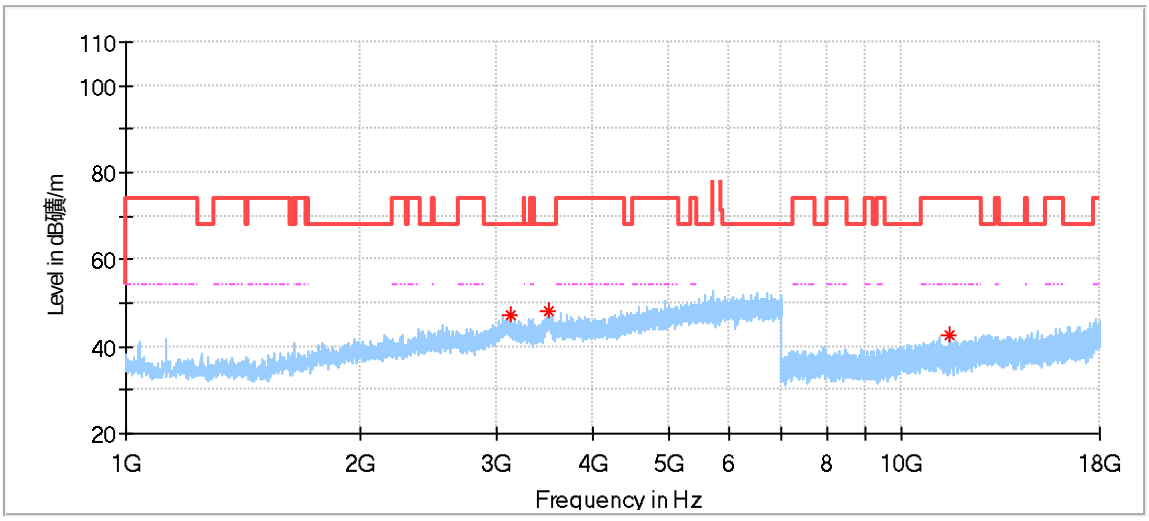
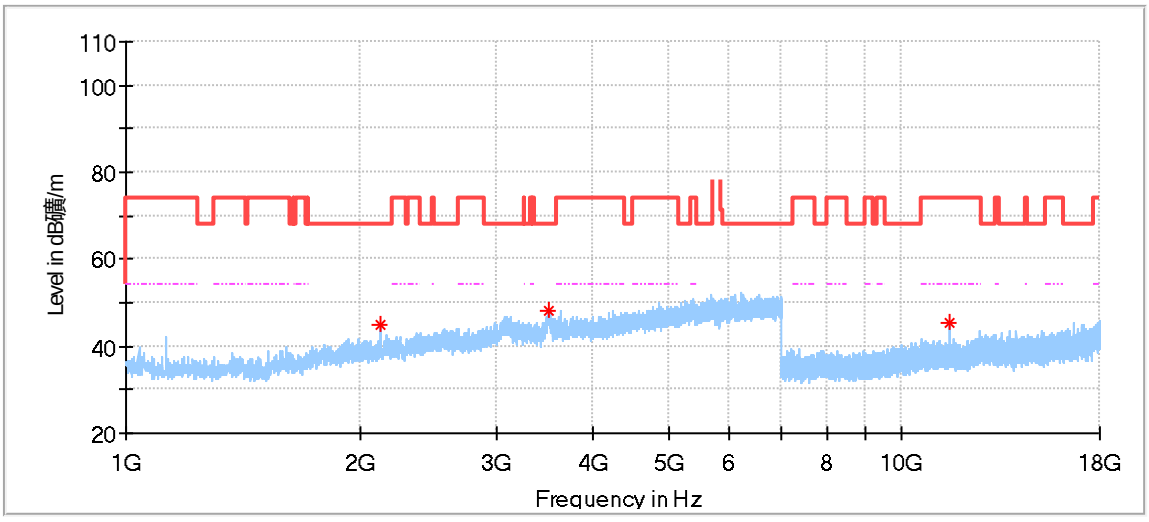
Ant1_11a_5745MHz:



Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
3123.500000	47.20	68.20	21.00	150.0	H	208.0	1.35
3509.500000	48.11	68.20	20.09	150.0	H	161.0	4.01
11490.000000	42.70	74.00	31.30	150.0	H	175.0	11.18



Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
2126.500000	44.88	68.20	23.32	150.0	V	250.0	-3.68
3504.500000	48.12	68.20	20.08	150.0	V	350.0	4.26
11490.000000	45.53	74.00	28.47	150.0	V	154.0	11.18

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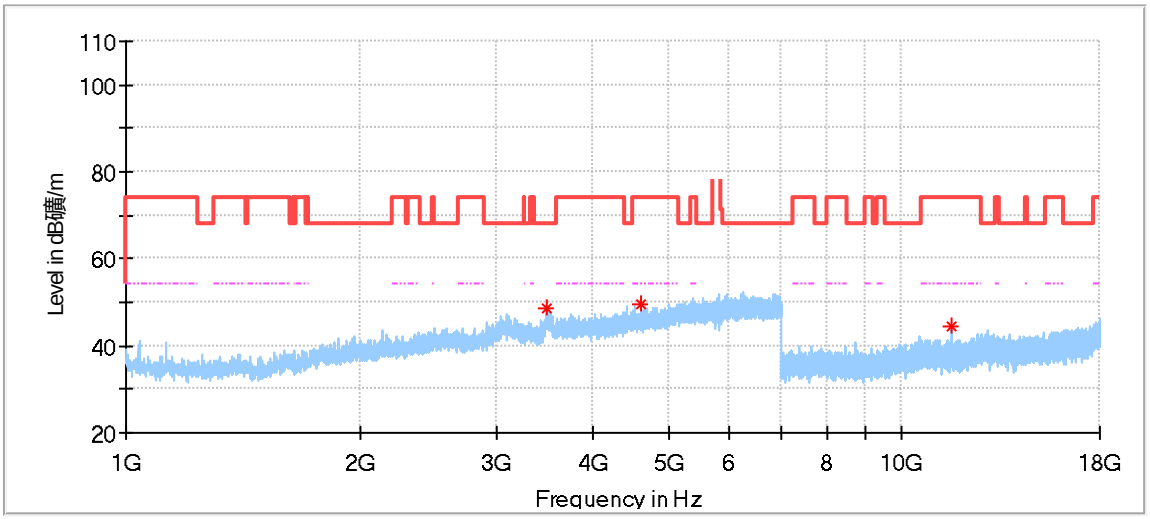
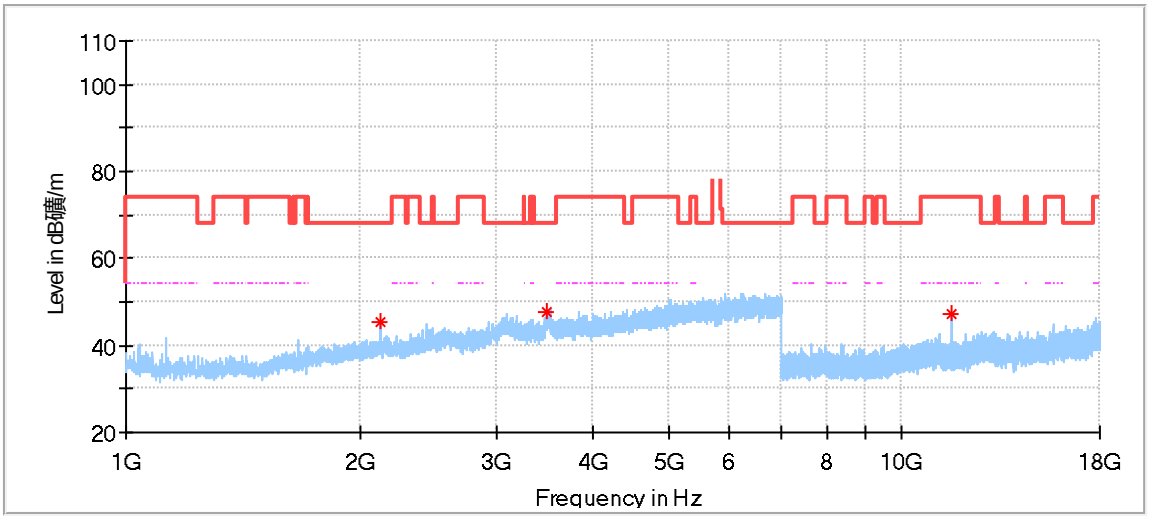
Ant1_11a_5785MHz:



Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
3488.000000	48.74	68.20	19.46	150.0	H	222.0	3.57
4617.500000	49.48	74.00	24.52	150.0	H	108.0	4.41
11570.000000	44.27	74.00	29.73	150.0	H	177.0	11.19



Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
2125.500000	45.56	68.20	22.64	150.0	V	241.0	-3.70
3480.000000	47.88	68.20	20.32	150.0	V	268.0	2.96
11570.000000	47.29	74.00	26.71	150.0	V	177.0	11.19

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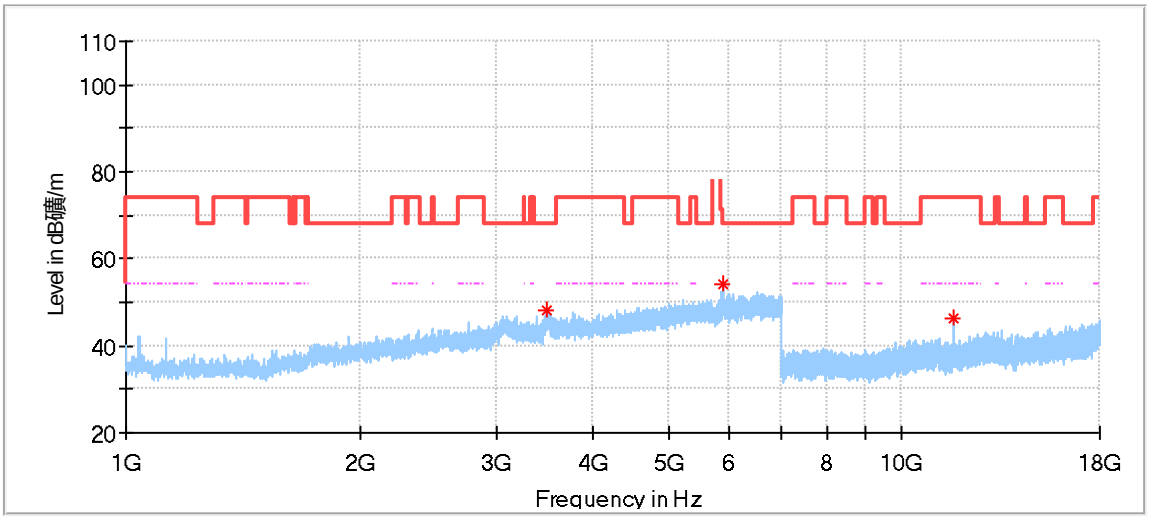
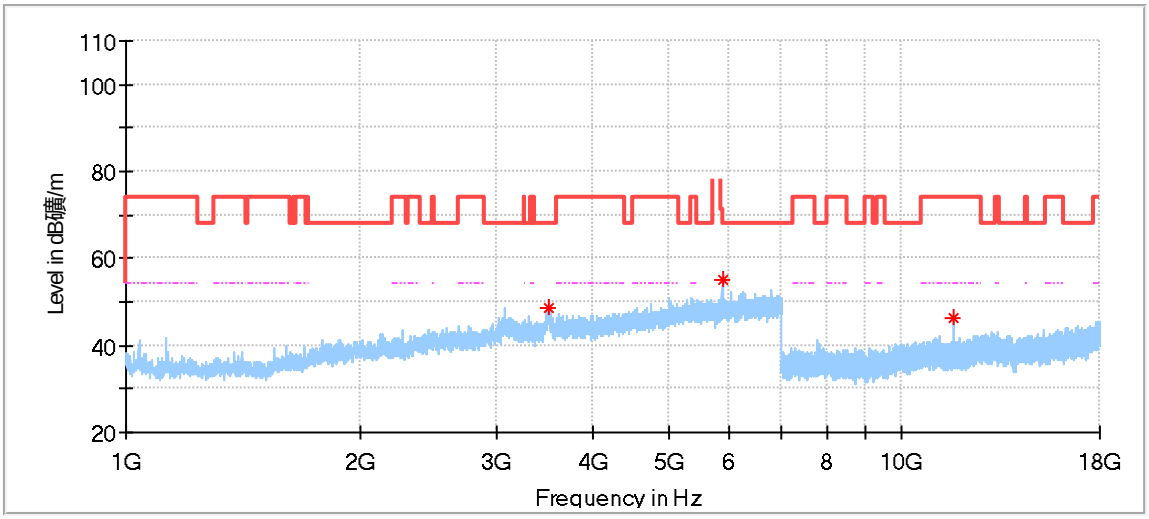
Ant1_11a_5825MHz:



Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
3493.000000	48.31	68.20	19.89	150.0	H	316.0	3.95
5872.000000	54.09	68.20	14.11	150.0	H	189.0	8.01
11650.500000	46.16	74.00	27.84	150.0	H	177.0	11.24



Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
3501.000000	48.80	68.20	19.40	150.0	V	284.0	4.43
5867.000000	55.01	71.20	16.19	150.0	V	210.0	7.98
11650.000000	46.12	74.00	27.88	150.0	V	175.0	11.24

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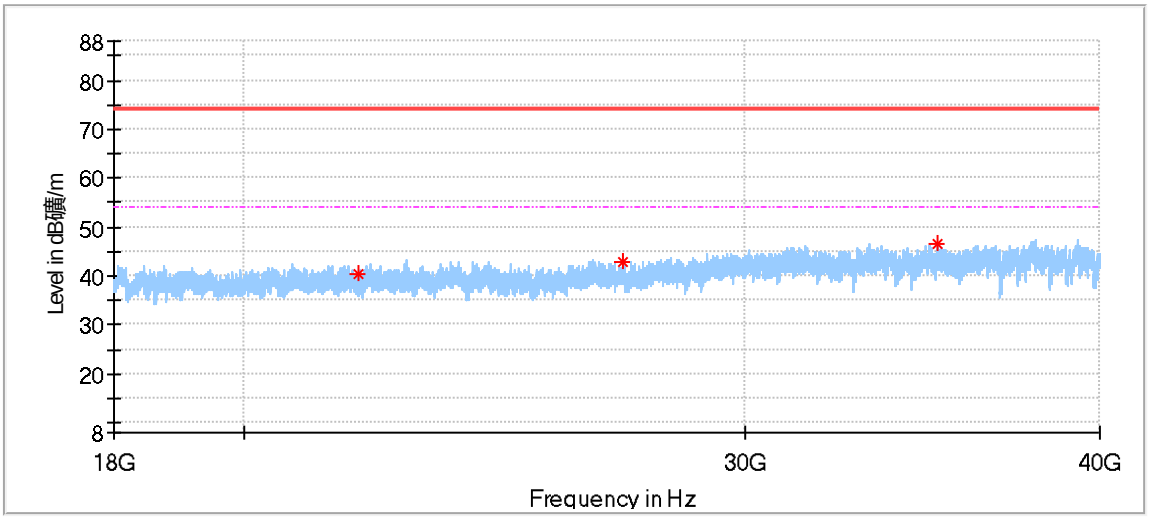
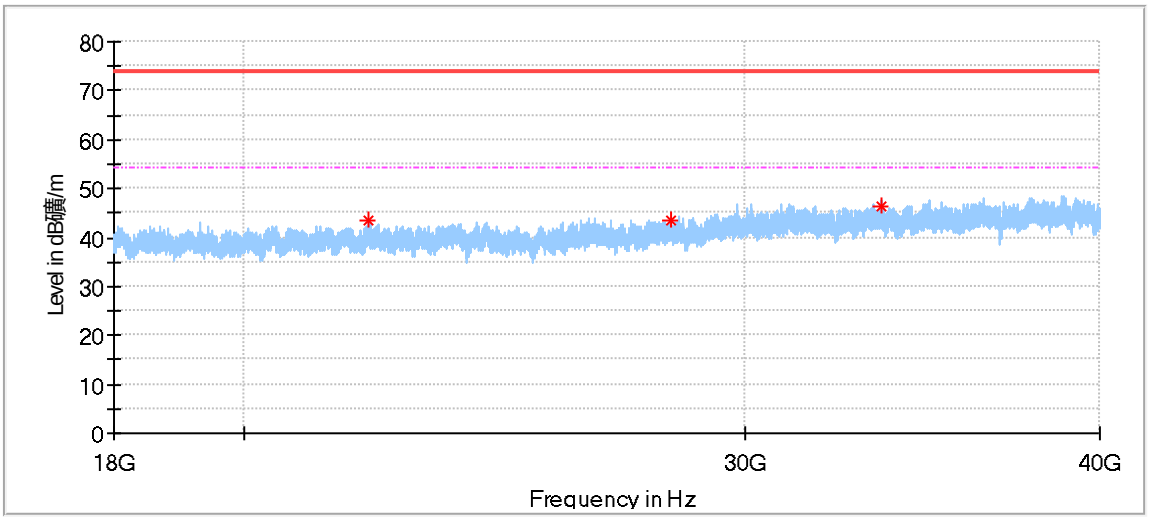
Test data 18GHz – 40GHz:
Ant1_11a_5180MHz:



Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Corr. (dB)
21925.625000	40.51	74.00	33.49	100.0	H	6.0	0.0	---
27163.687500	42.71	74.00	31.29	100.0	H	75.0	1.8	---
35090.562500	46.36	74.00	27.64	100.0	H	192.0	4.4	---



Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Corr. (dB)
22138.062500	43.34	74.00	30.66	100.0	V	204.0	0.3	---
28271.937500	43.45	74.00	30.55	100.0	V	133.0	2.1	---
33494.875000	46.39	74.00	27.61	100.0	V	217.0	3.3	---

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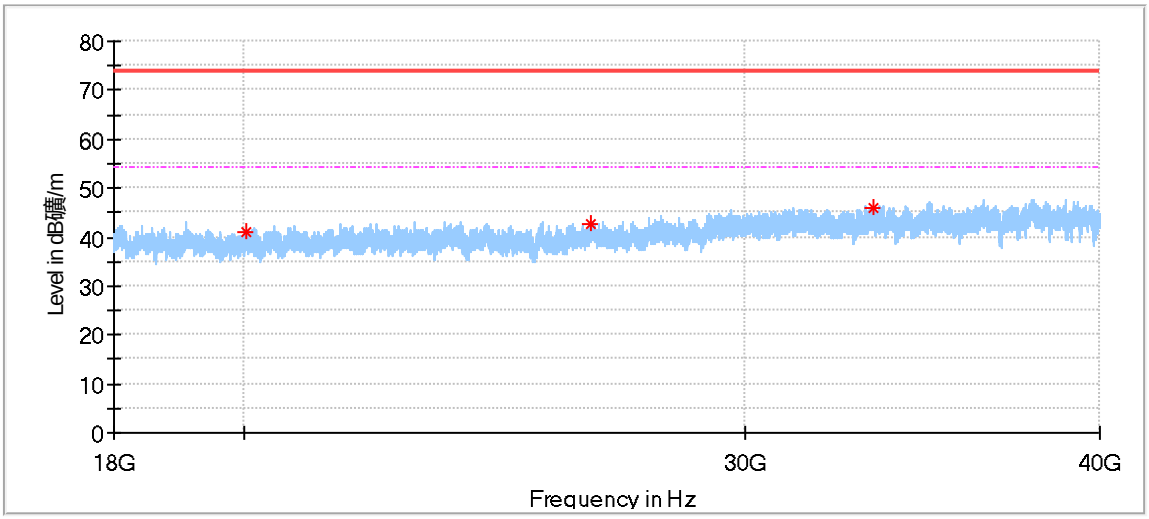
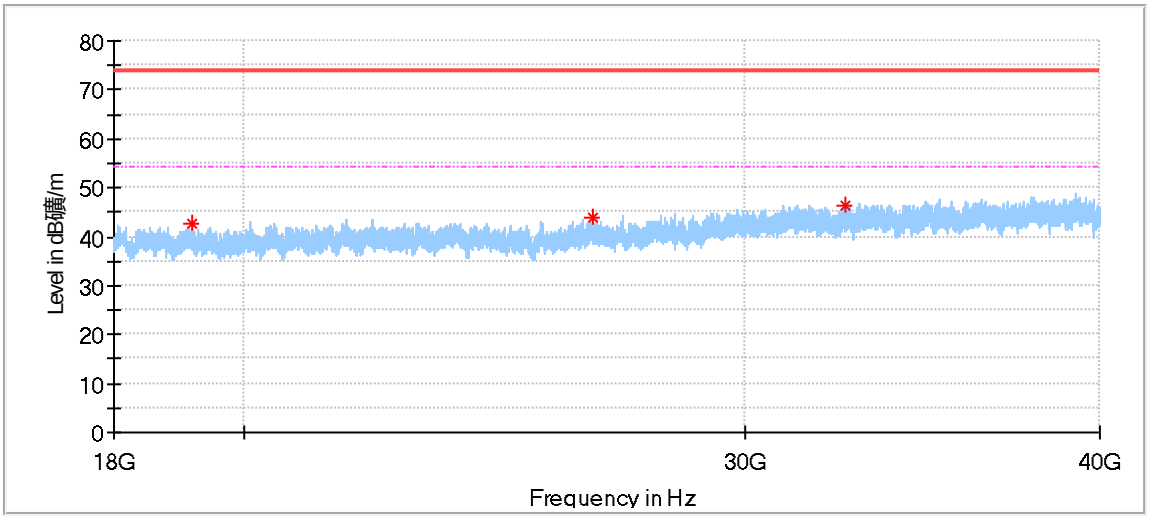
Ant1_11a_5200MHz:



Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Corr. (dB)
20039.812500	40.89	74.00	33.11	100.0	H	0.0	-1.9	---
26493.375000	42.72	74.00	31.28	100.0	H	253.0	2.6	---
33295.500000	45.82	74.00	28.18	100.0	H	189.0	3.3	---



Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Corr. (dB)
19178.375000	42.65	74.00	31.35	100.0	V	106.0	-2.0	---
26517.437500	43.76	74.00	30.24	100.0	V	106.0	2.6	---
32536.500000	46.24	74.00	27.76	100.0	V	339.0	3.0	---

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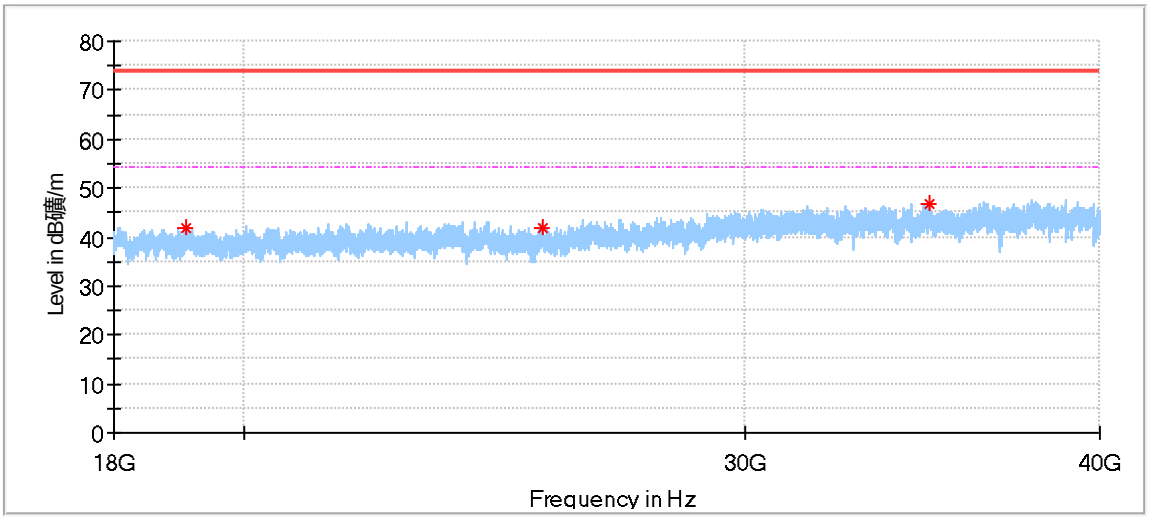
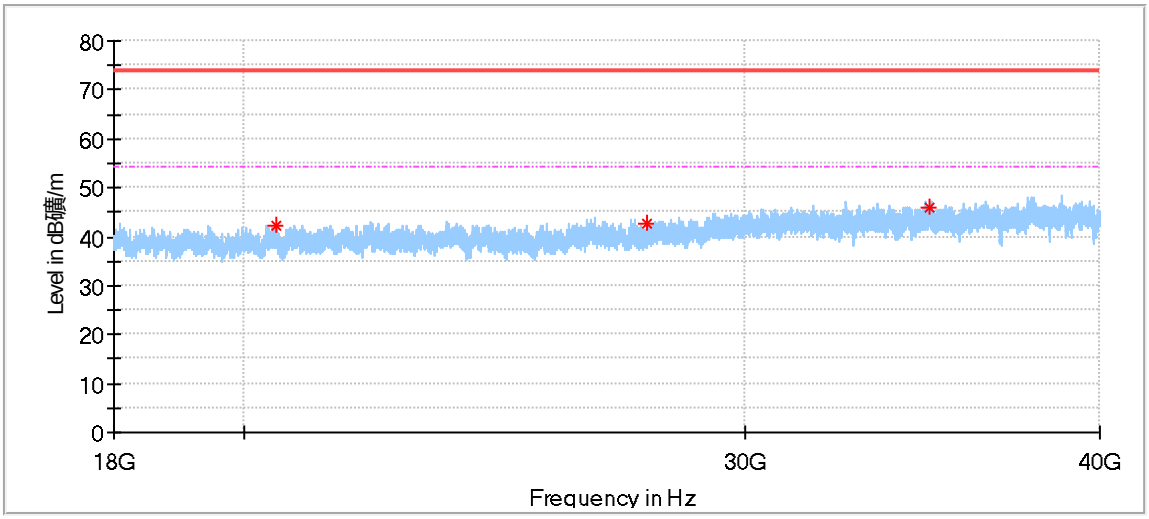
Ant1_11a_5240MHz:



Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Corr. (dB)
19094.500000	41.80	74.00	32.20	100.0	H	301.0	-1.9	---
25481.375000	41.86	74.00	32.14	100.0	H	17.0	1.1	---
34867.125000	46.72	74.00	27.28	100.0	H	203.0	4.2	---



Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Corr. (dB)
20541.000000	42.38	74.00	31.62	100.0	V	0.0	-0.8	---
27726.062500	42.83	74.00	31.17	100.0	V	0.0	1.9	---
34836.187500	46.15	74.00	27.85	100.0	V	275.0	4.2	---

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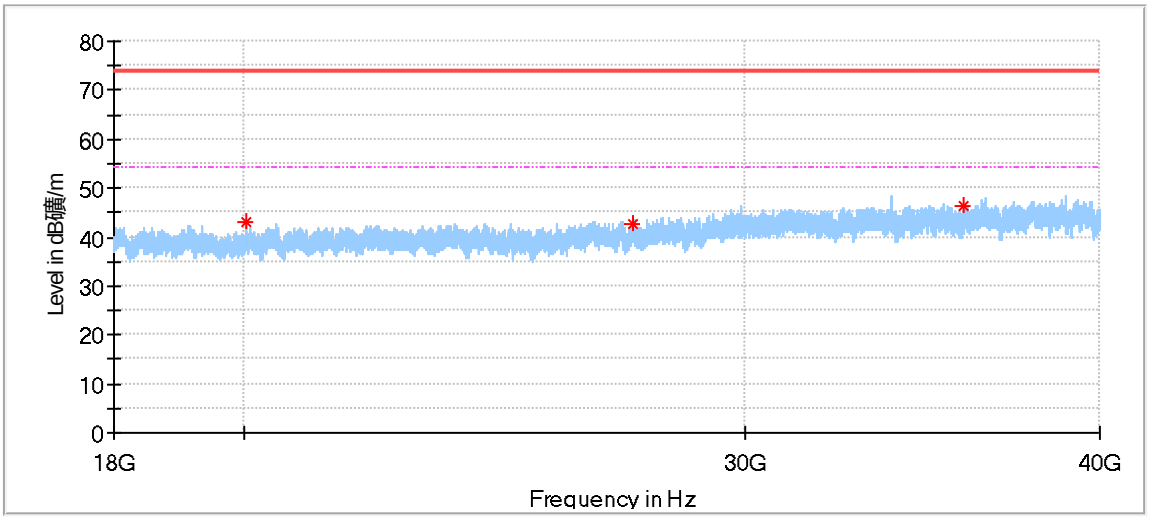
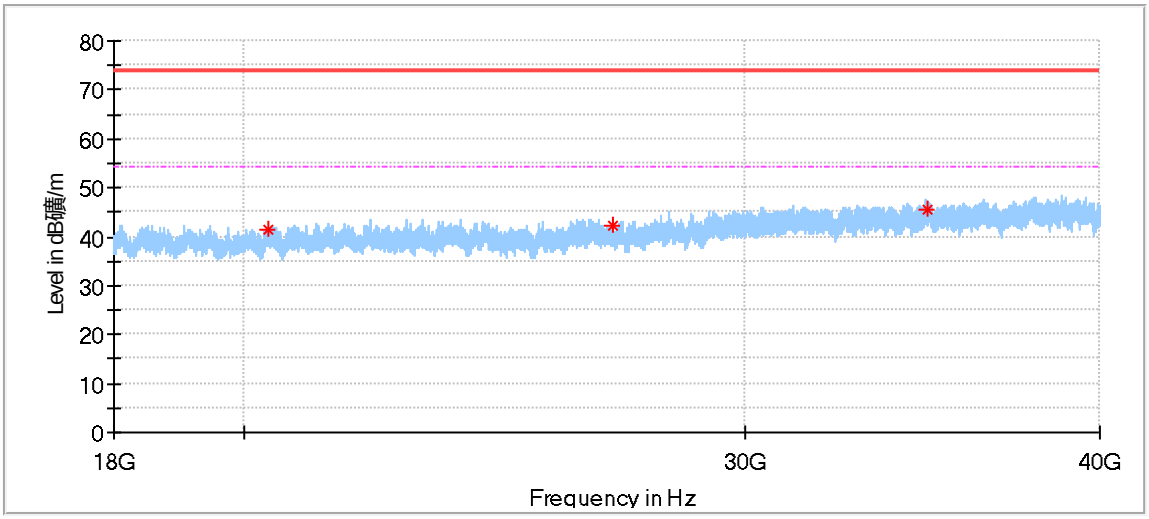
Ant1_11a_5260MHz:



Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Corr. (dB)
20030.875000	42.95	74.00	31.05	100.0	H	167.0	-1.9	---
27383.000000	42.68	74.00	31.32	100.0	H	21.0	1.8	---
35832.375000	46.30	74.00	27.70	100.0	H	58.0	4.5	---



Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Corr. (dB)
20402.125000	41.50	74.00	32.50	100.0	V	269.0	-1.2	---
26947.125000	42.10	74.00	31.90	100.0	V	298.0	1.9	---
34764.000000	45.34	74.00	28.66	100.0	V	311.0	4.1	---

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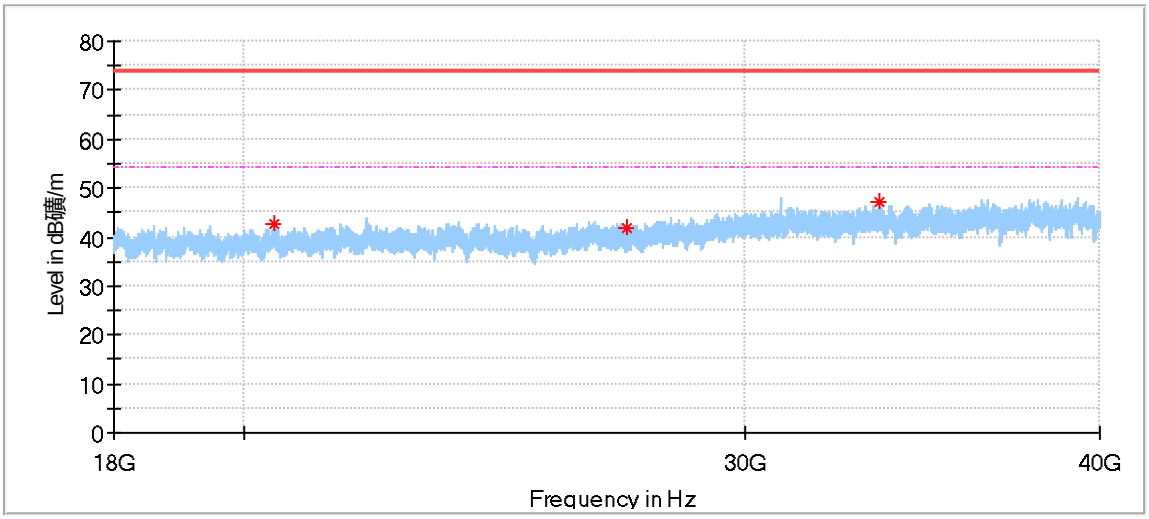
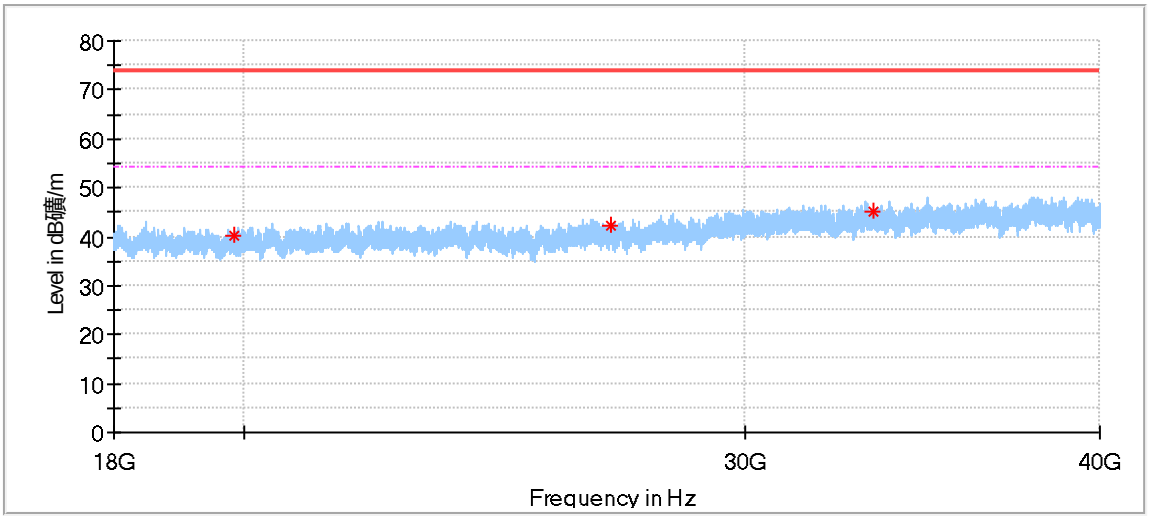
Ant1_11a_5280MHz:



Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Corr. (dB)
20498.375000	42.52	74.00	31.48	100.0	H	324.0	-0.8	---
27270.937500	41.64	74.00	32.36	100.0	H	252.0	1.8	---
33441.250000	47.06	74.00	26.94	100.0	H	41.0	3.3	---



Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Corr. (dB)
19843.875000	40.36	74.00	33.64	100.0	V	0.0	-2.1	---
26922.375000	42.28	74.00	31.72	100.0	V	326.0	2.0	---
33314.750000	45.19	74.00	28.81	100.0	V	354.0	3.3	---

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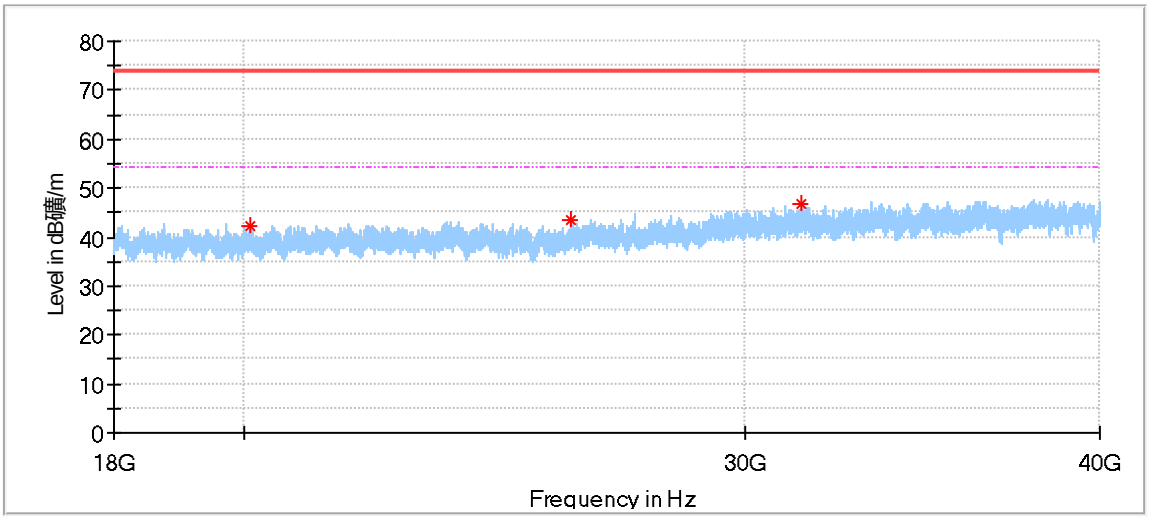
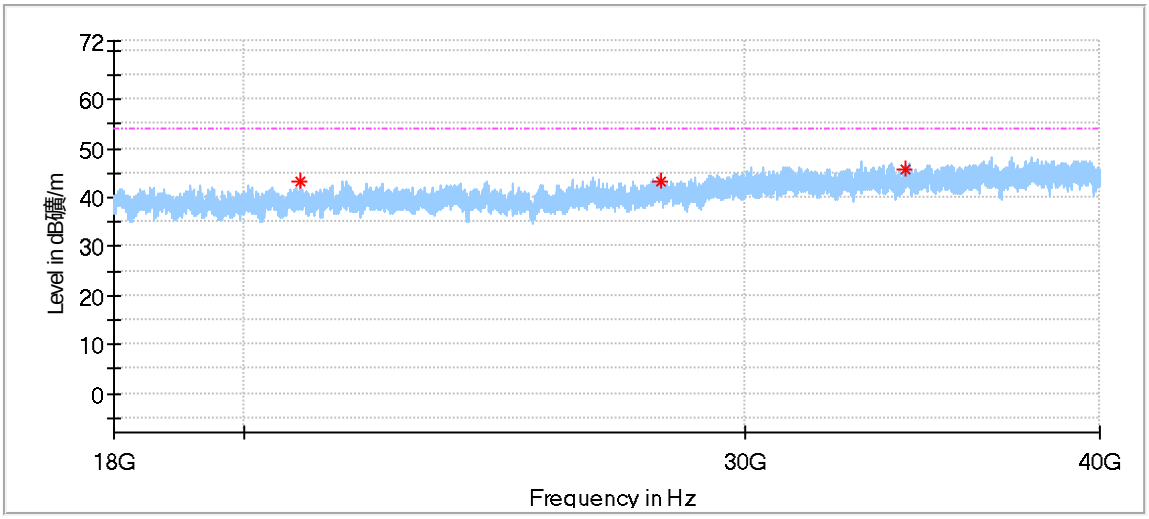
Ant1_11a_5320MHz:



Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Corr. (dB)
20084.500000	42.23	74.00	31.77	100.0	H	59.0	-1.8	---
26057.500000	43.30	74.00	30.70	100.0	H	96.0	1.3	---
31425.500000	46.72	74.00	27.28	100.0	H	341.0	2.7	---



Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Corr. (dB)
20940.437500	43.29	74.00	30.71	100.0	V	109.0	-0.2	---
28045.750000	43.18	74.00	30.82	100.0	V	264.0	2.1	---
34172.750000	45.63	74.00	28.37	100.0	V	335.0	3.6	---

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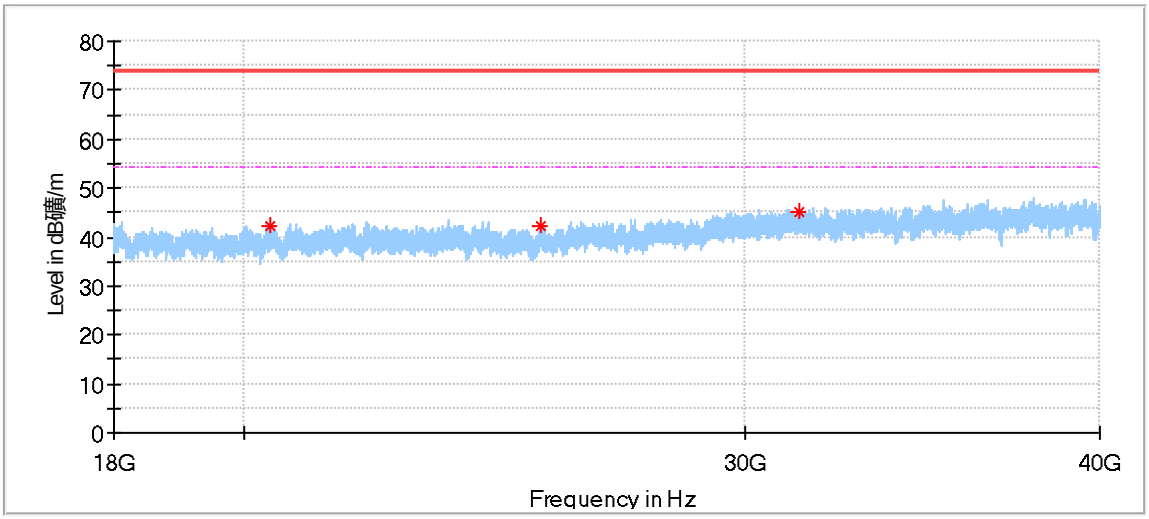
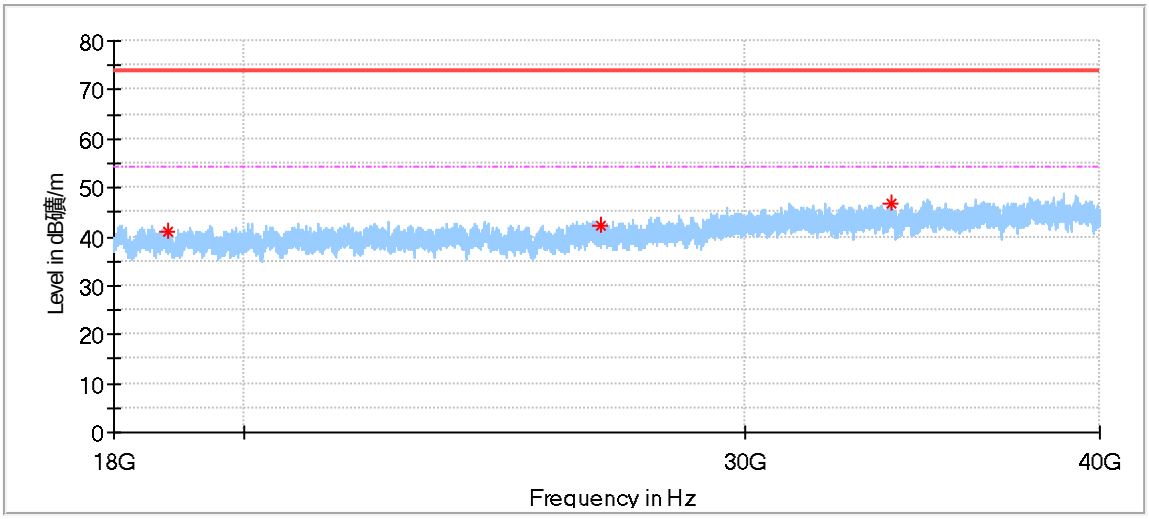
Ant1_11a_5500MHz:



Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Corr. (dB)
20444.062500	42.15	74.00	31.85	100.0	H	22.0	-1.0	---
25431.875000	42.35	74.00	31.65	100.0	H	0.0	1.1	---
31346.437500	45.19	74.00	28.81	100.0	H	294.0	2.6	---



Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Corr. (dB)
18806.437500	41.11	74.00	32.89	100.0	V	353.0	-2.2	---
26720.250000	42.30	74.00	31.70	100.0	V	89.0	2.3	---
33786.375000	46.69	74.00	27.31	100.0	V	89.0	3.4	---

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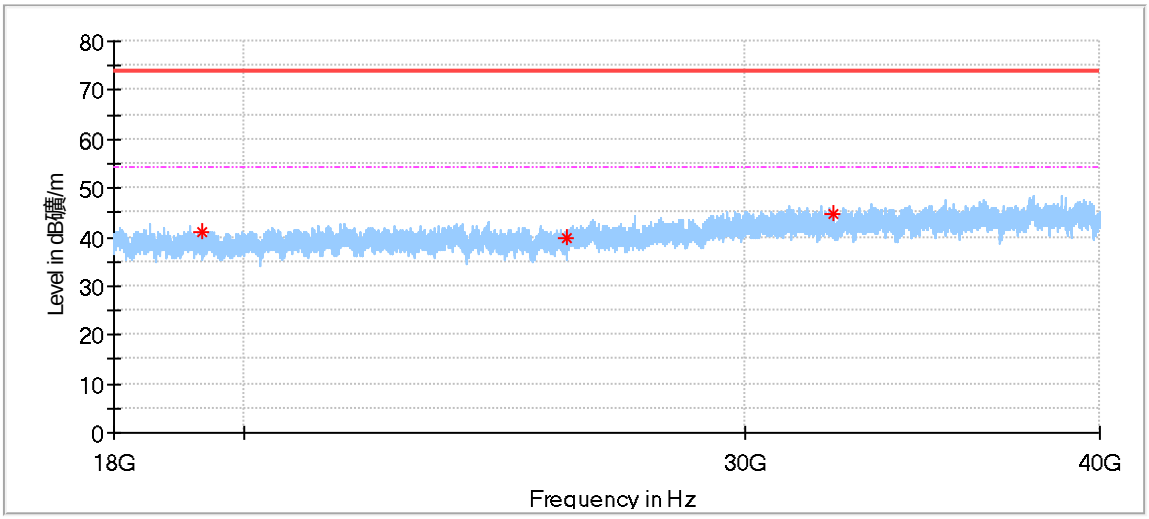
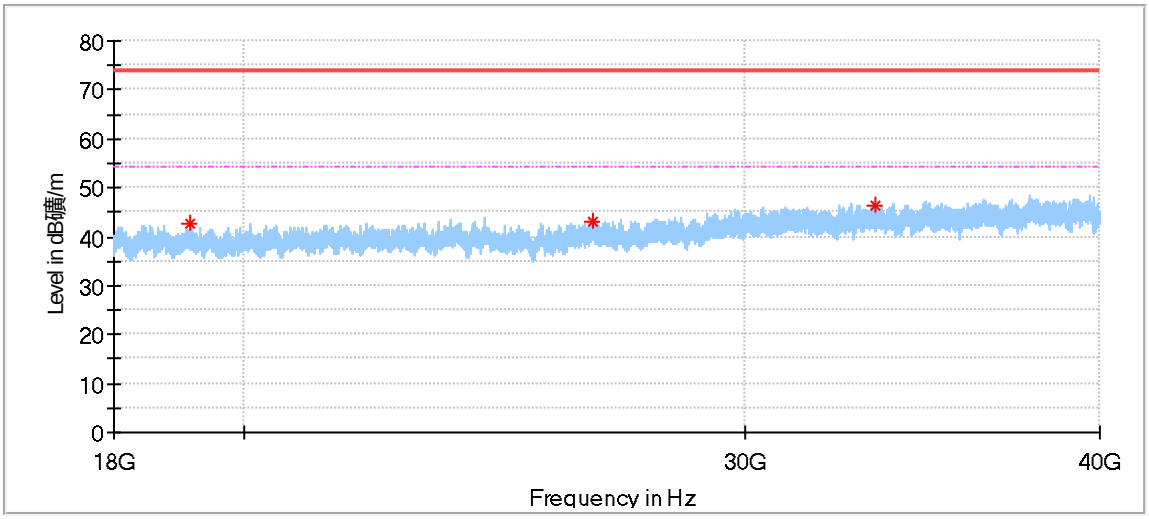
Ant1_11a_5580MHz:



Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Corr. (dB)
19320.000000	41.02	74.00	32.98	100.0	H	231.0	-2.2	---
25992.187500	39.92	74.00	34.08	100.0	H	167.0	1.2	---
32217.500000	44.53	74.00	29.47	100.0	H	280.0	3.0	---



Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Corr. (dB)
19143.312500	42.59	74.00	31.41	100.0	V	307.0	-1.9	---
26540.812500	43.09	74.00	30.91	100.0	V	251.0	2.6	---
33331.250000	46.43	74.00	27.57	100.0	V	335.0	3.3	---

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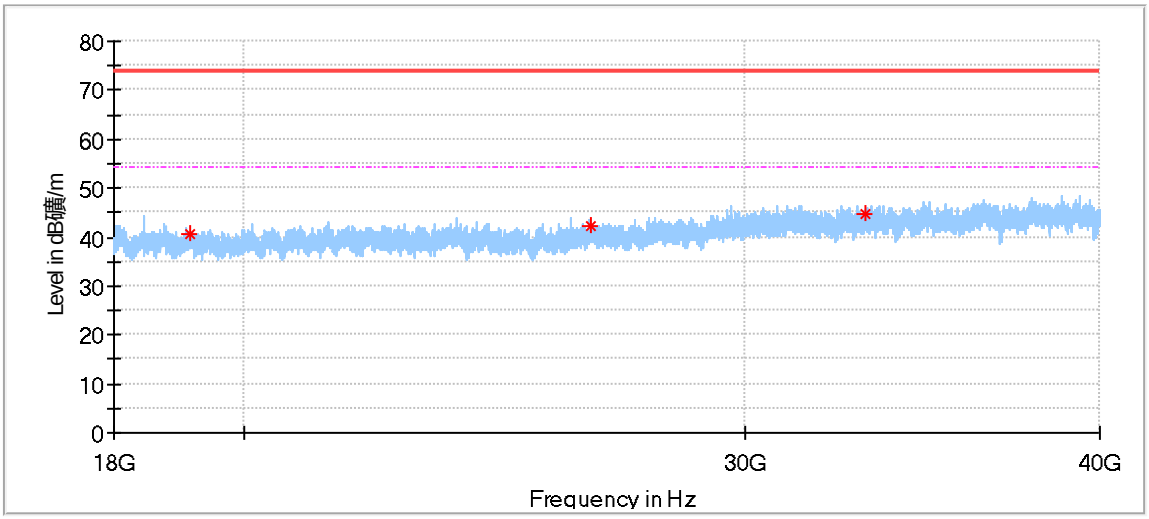
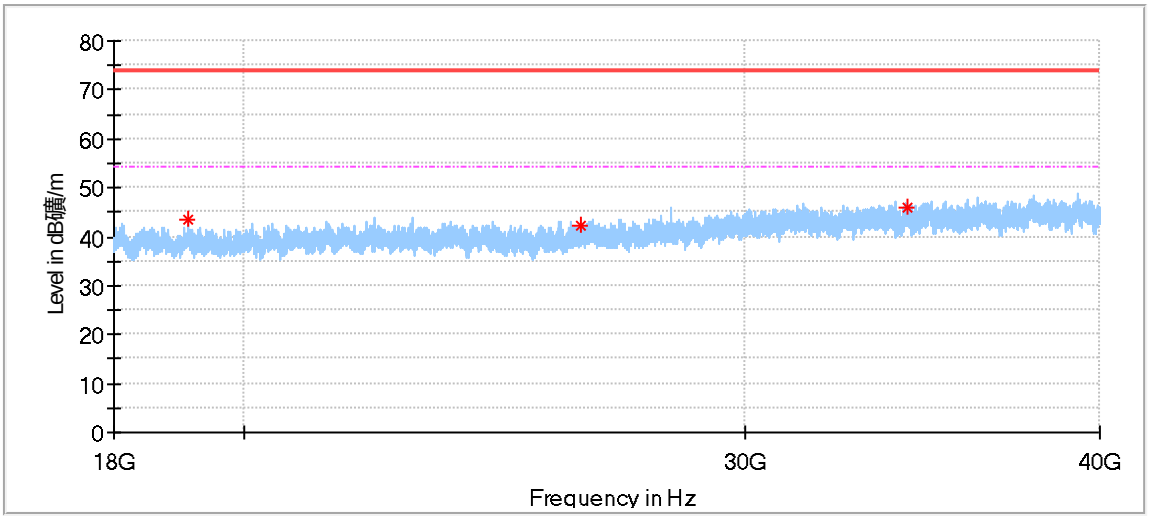
Ant1_11a_5700MHz:



Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Corr. (dB)
19137.125000	40.77	74.00	33.23	100.0	H	166.0	-1.9	---
26507.125000	42.25	74.00	31.75	100.0	H	73.0	2.6	---
33058.312500	44.52	74.00	29.48	100.0	H	198.0	3.3	---



Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Corr. (dB)
19112.375000	43.67	74.00	30.33	100.0	V	137.0	-1.9	---
26267.187500	42.12	74.00	31.88	100.0	V	0.0	1.8	---
34247.000000	45.80	74.00	28.20	100.0	V	180.0	3.6	---

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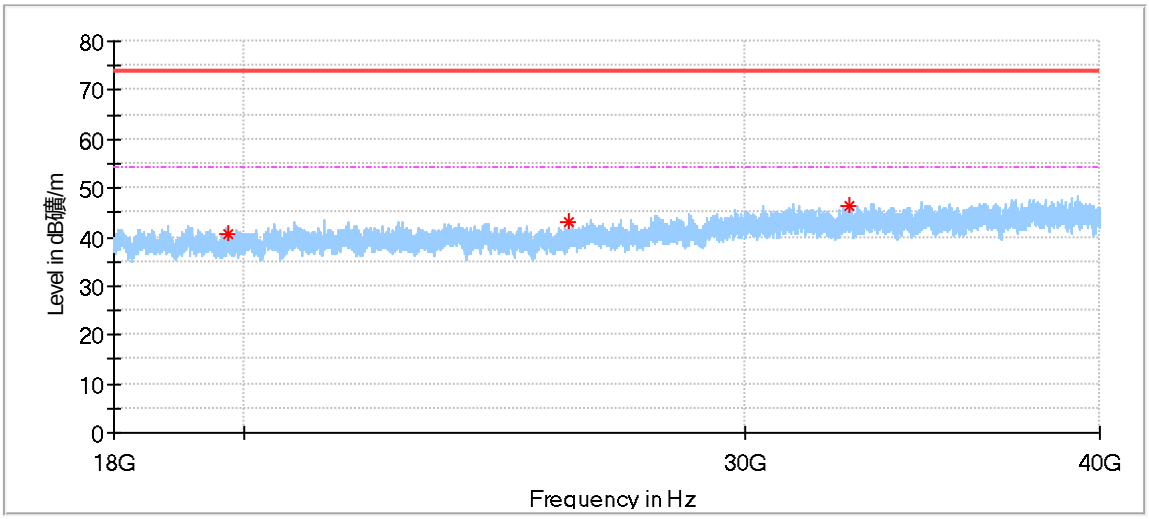
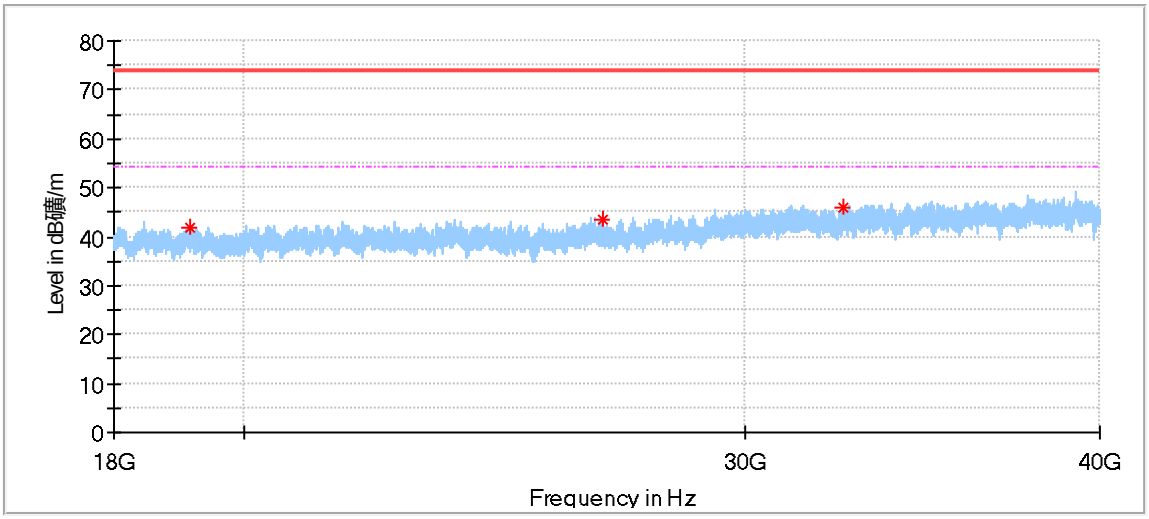
Ant1_11a_5745MHz:



Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Corr. (dB)
19744.875000	40.79	74.00	33.21	100.0	H	231.0	-2.3	---
26011.437500	43.12	74.00	30.88	100.0	H	147.0	1.2	---
32655.437500	46.18	74.00	27.82	100.0	H	214.0	3.1	---



Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Corr. (dB)
19151.562500	41.82	74.00	32.18	100.0	V	0.0	-2.0	---
26726.437500	43.42	74.00	30.58	100.0	V	80.0	2.3	---
32508.312500	45.92	74.00	28.08	100.0	V	80.0	3.0	---

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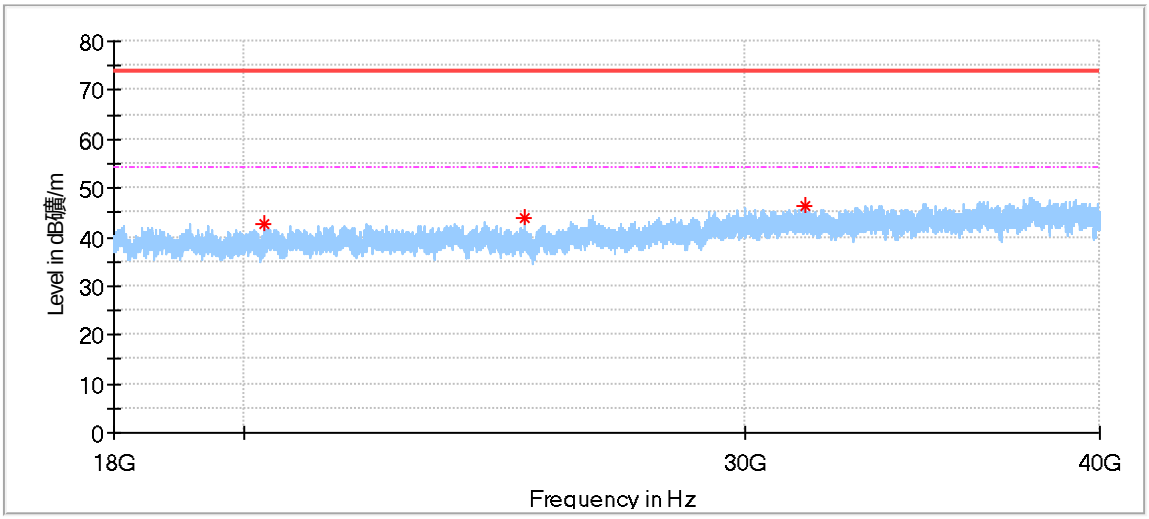
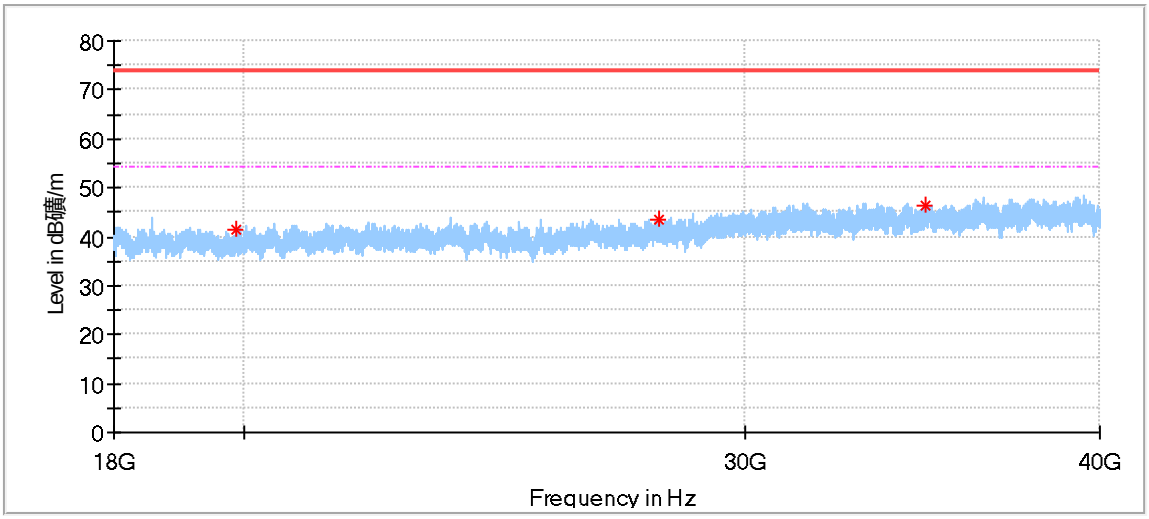
Ant1_11a_5785MHz:



Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Corr. (dB)
20339.562500	42.52	74.00	31.48	100.0	H	0.0	-1.5	---
25121.125000	43.72	74.00	30.28	100.0	H	353.0	0.9	---
31516.937500	46.33	74.00	27.67	100.0	H	195.0	2.7	---



Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Corr. (dB)
19881.000000	41.26	74.00	32.75	100.0	V	0.0	-2.0	---
27998.312500	43.35	74.00	30.65	100.0	V	323.0	2.0	---
34750.250000	46.31	74.00	27.69	100.0	V	90.0	4.0	---

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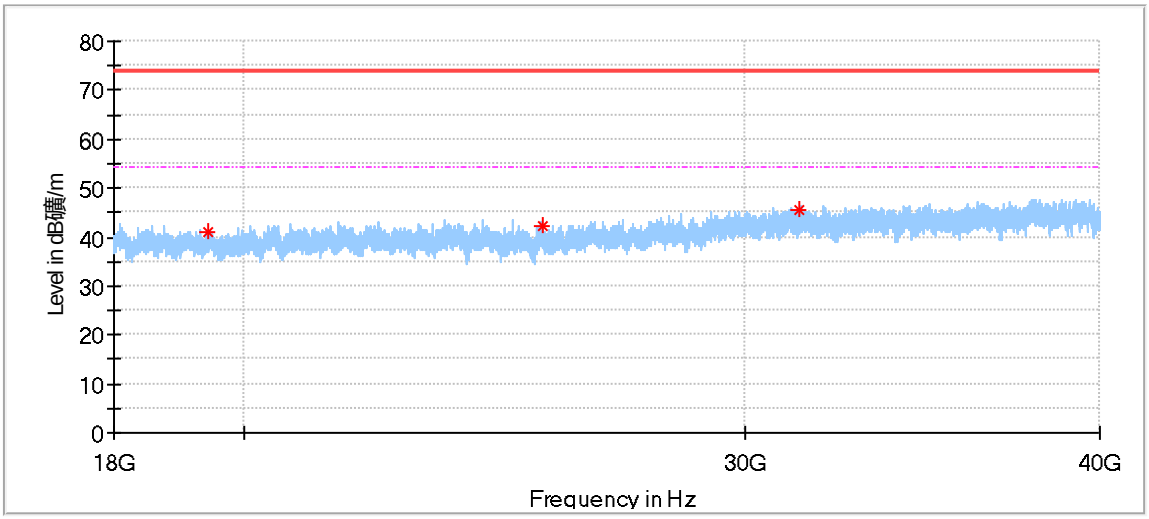
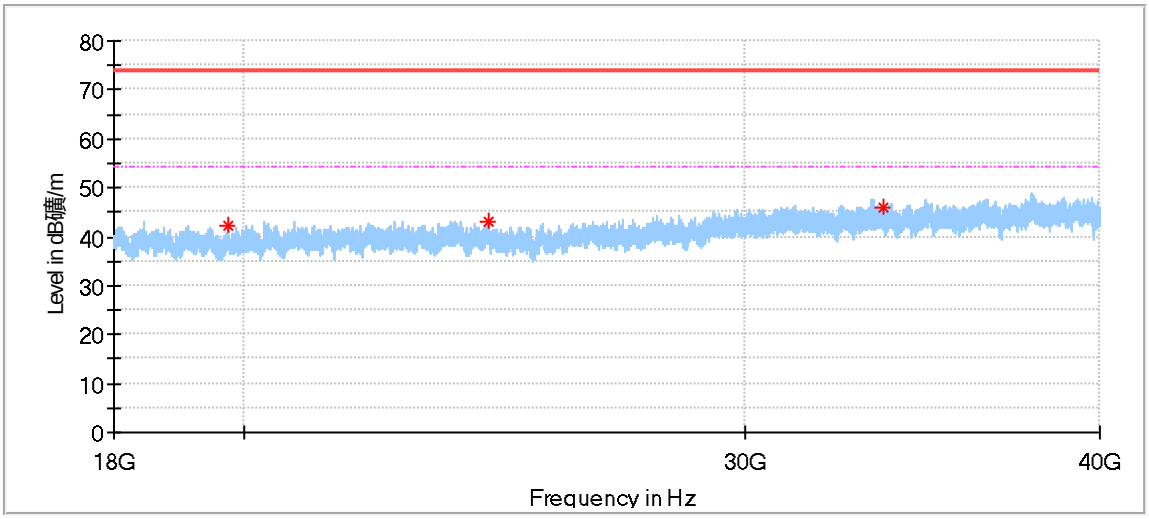
Ant1_11a_5825MHz:



Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Corr. (dB)
19435.500000	41.05	74.00	32.95	100.0	H	192.0	-1.9	---
25478.625000	42.07	74.00	31.93	100.0	H	243.0	1.1	---
31354.687500	45.44	74.00	28.56	100.0	H	258.0	2.7	---



Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Corr. (dB)
19749.687500	42.37	74.00	31.63	100.0	V	6.0	-2.3	---
24377.937500	42.91	74.00	31.09	100.0	V	224.0	1.1	---
33553.312500	45.78	74.00	28.22	100.0	V	224.0	3.3	---

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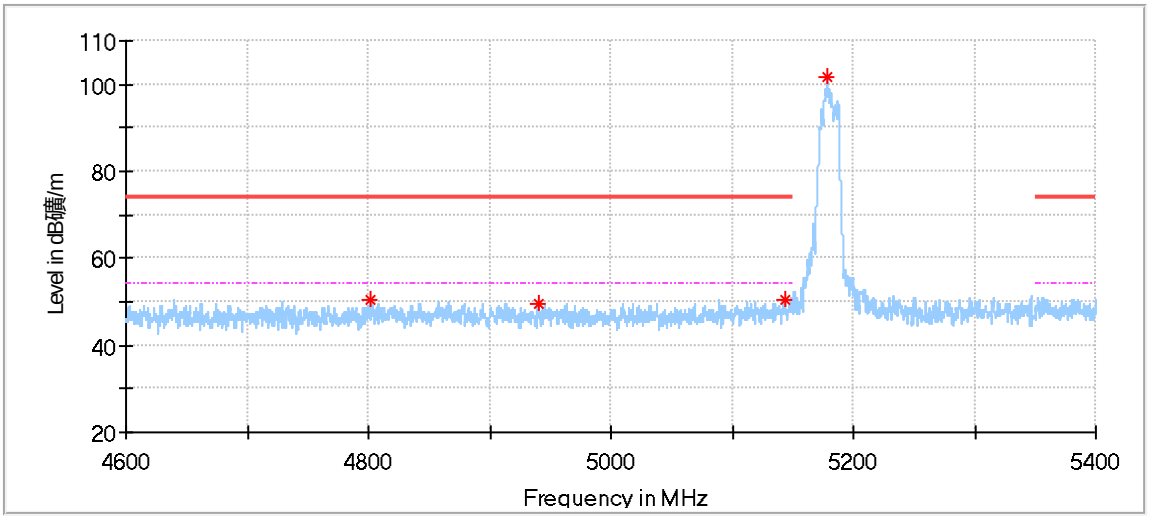
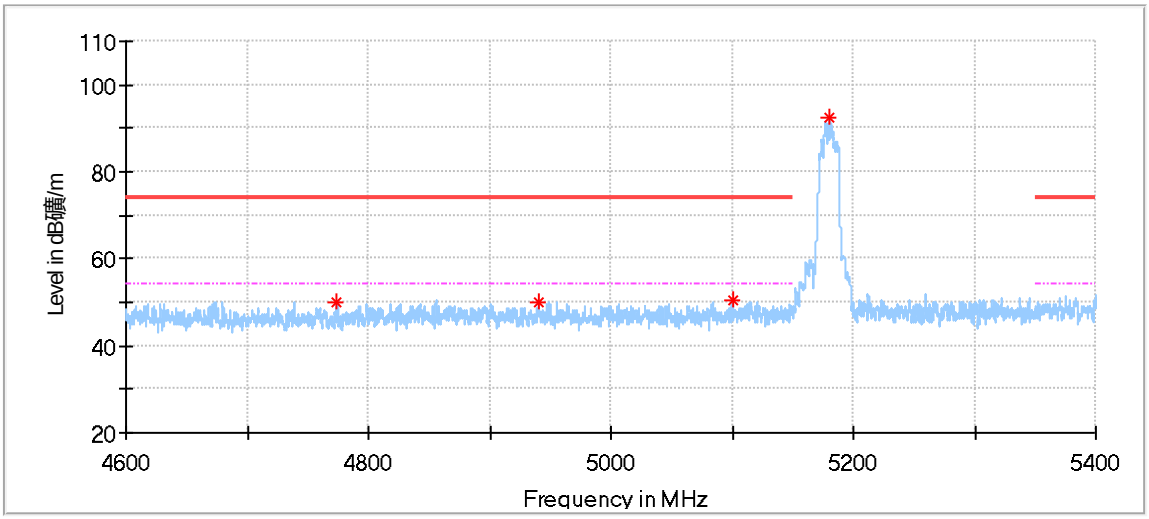
Band Edge (Radiated Mode):
Ant1_11a_5180MHz:



Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
4802.200000	50.29	74.00	23.71	150.0	H	115.0	3.09
4940.200000	49.57	74.00	24.43	150.0	H	9.0	3.42
5144.066667	50.69	74.00	23.31	150.0	H	356.0	4.17
5178.866667	101.51	---	---	150.0	H	71.0	4.29



Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
4774.333333	50.14	74.00	23.86	150.0	V	188.0	3.03
4940.866667	50.22	74.00	23.78	150.0	V	350.0	3.42
5100.000000	50.67	74.00	23.33	150.0	V	14.0	3.75
5180.333333	92.52	---	---	150.0	V	108.0	4.29

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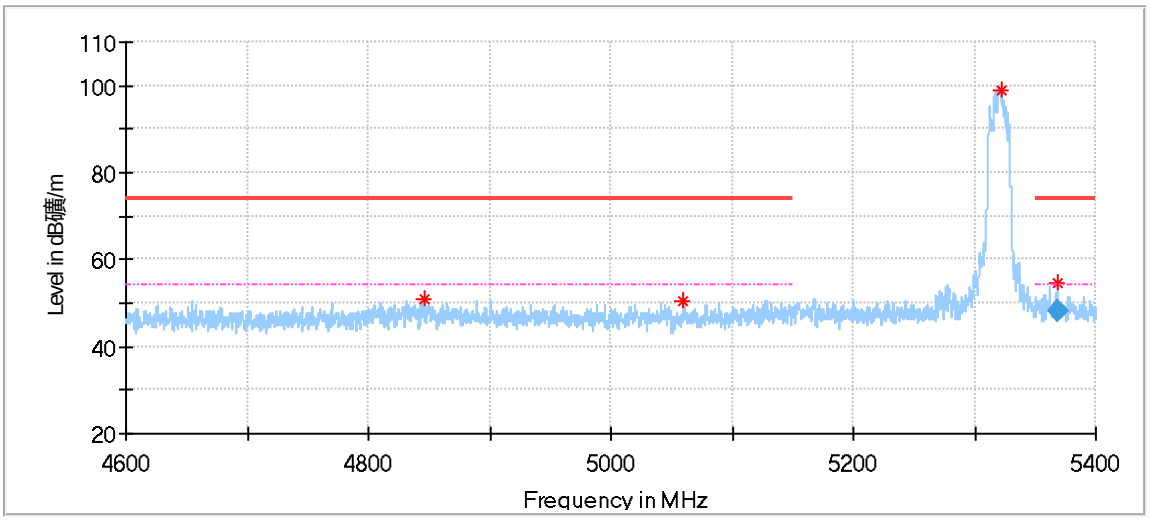
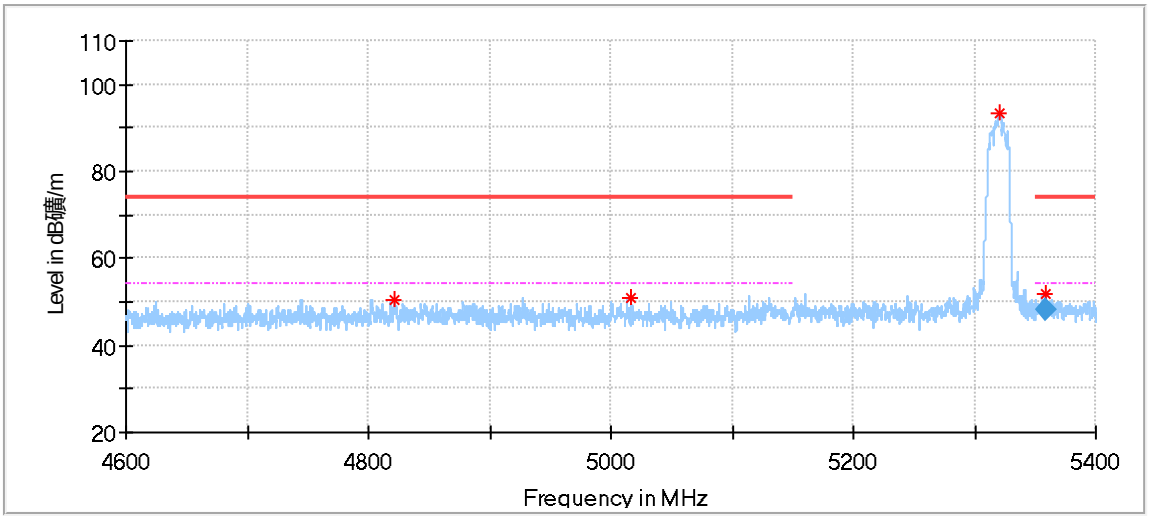
Ant1_11a_5320MHz:



Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
4845.600000	50.89	74.00	23.11	150.0	H	109.0	3.30
5060.066667	50.42	74.00	23.58	150.0	H	161.0	3.50
5322.600000	99.12	---	---	150.0	H	65.0	4.43
5368.200000	54.55	74.00	19.45	150.0	H	36.0	4.46



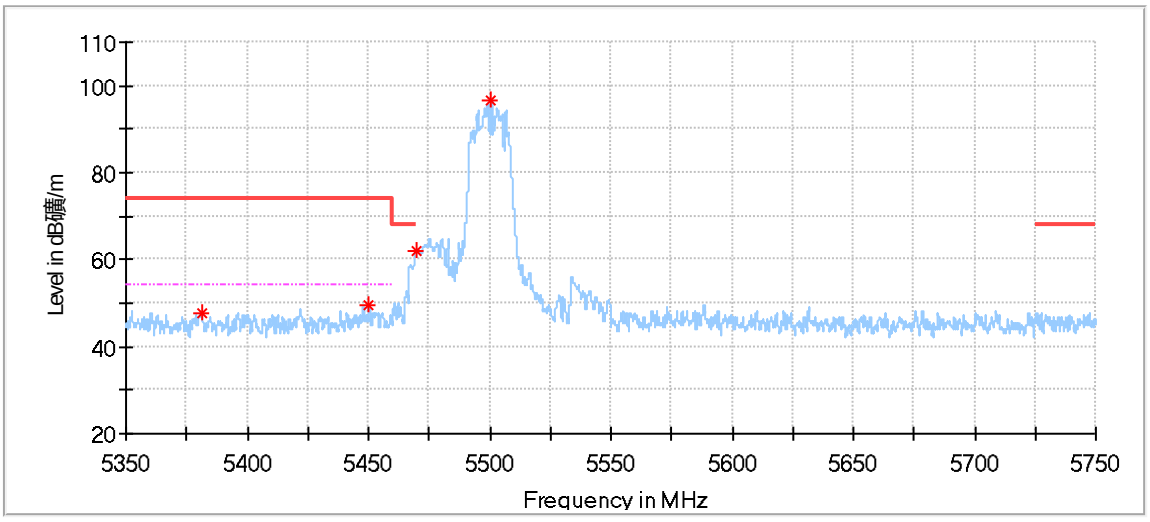
Critical_Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
4820.933333	50.66	74.00	23.34	150.0	V	264.0	3.15
5017.066667	50.91	74.00	23.09	150.0	V	15.0	3.41
5320.600000	93.30	---	---	150.0	V	58.0	4.43
5358.133333	51.70	74.00	22.30	150.0	V	58.0	4.44

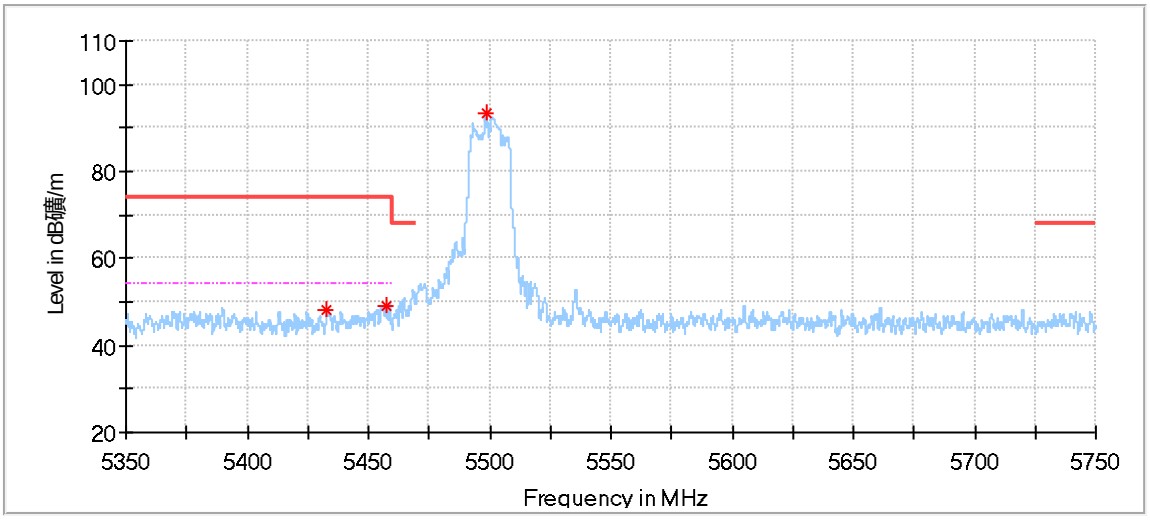
Final_Result

Frequency (MHz)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
5358.133333	48.32	54.00	5.68	150.0	V	58.0	4.44

Ant1_11a_5500MHz:



Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
5381.066667	47.69	74.00	26.31	150.0	H	224.0	4.53
5450.000000	49.70	74.00	24.30	150.0	H	224.0	4.82
5469.966667	62.07	68.20	6.13	150.0	H	217.0	4.85
5500.700000	96.66	---	---	150.0	H	217.0	4.77



Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
5432.800000	48.18	74.00	25.82	150.0	V	253.0	4.80
5457.233333	49.24	74.00	24.76	150.0	V	214.0	4.83
5498.866667	93.29	---	---	150.0	V	214.0	4.78

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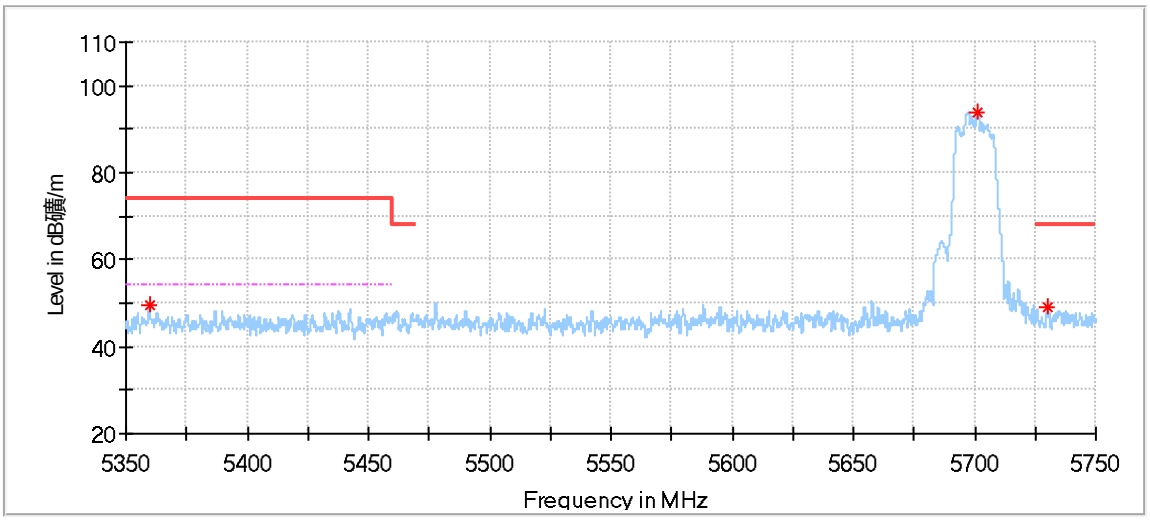
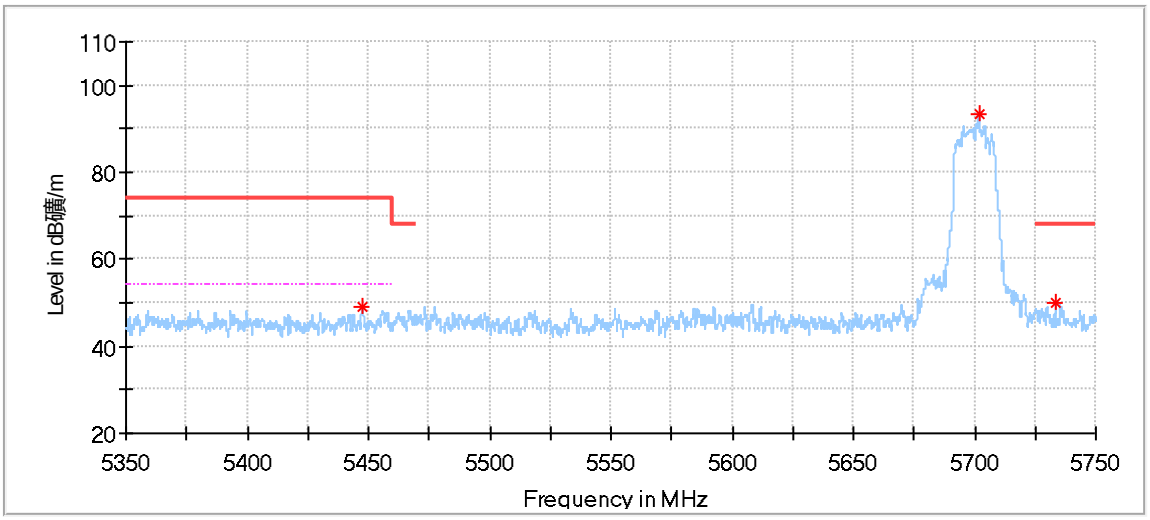
Ant1_11a_5700MHz:



Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
5359.633333	49.54	74.00	24.46	150.0	H	4.0	4.44
5701.166667	93.84	---	---	150.0	H	155.0	4.86
5730.000000	48.91	68.20	19.29	150.0	H	131.0	4.99



Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
5447.466667	49.02	74.00	24.98	150.0	V	232.0	4.82
5701.700000	93.60	---	---	150.0	V	217.0	4.87
5733.333333	49.94	68.20	18.26	150.0	V	156.0	5.00

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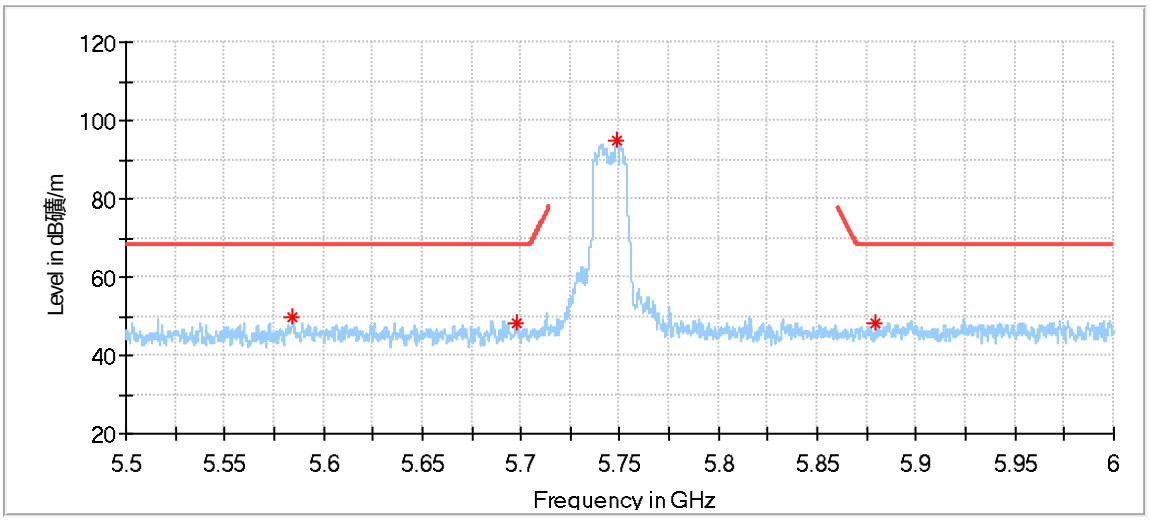
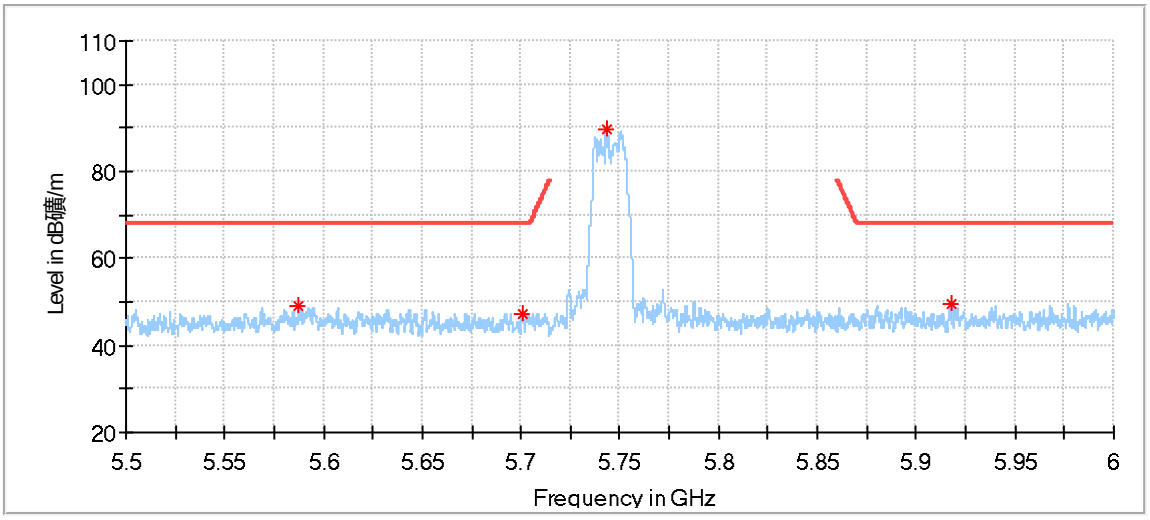
Ant1_11a_5745MHz:



Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
5584.416667	49.75	68.20	18.45	150.0	H	0.0	4.98
5697.875000	48.14	68.20	20.06	150.0	H	7.0	4.86
5748.666667	95.08	---	---	150.0	H	1.0	5.07
5879.791667	48.44	68.20	19.76	150.0	H	296.0	5.73



Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
5587.583333	49.11	68.20	19.09	150.0	V	87.0	5.00
5700.875000	47.13	68.20	21.07	150.0	V	335.0	4.86
5742.958333	89.91	---	---	150.0	V	29.0	5.05
5917.666667	49.49	68.20	18.71	150.0	V	36.0	5.76

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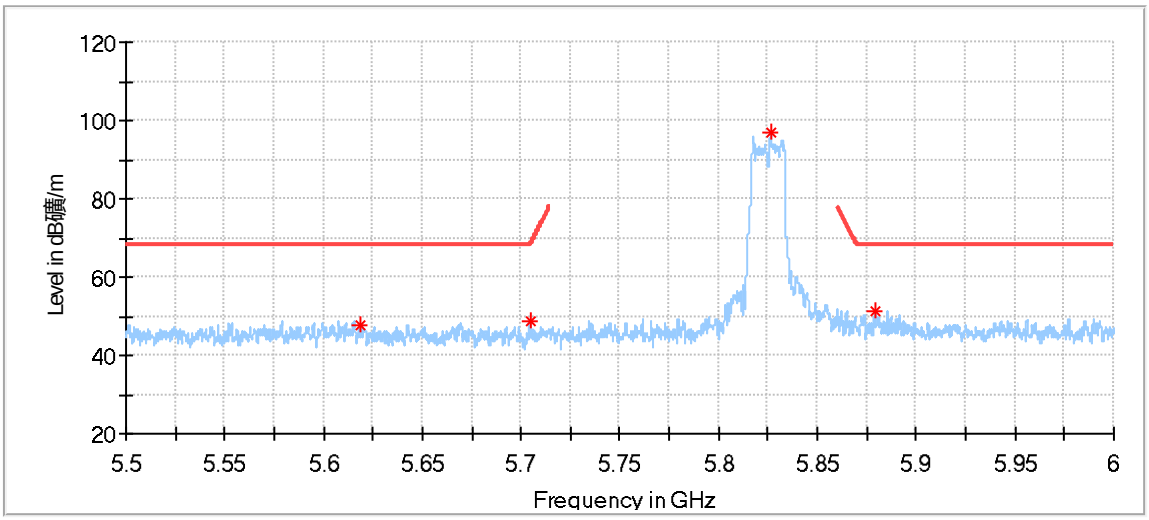
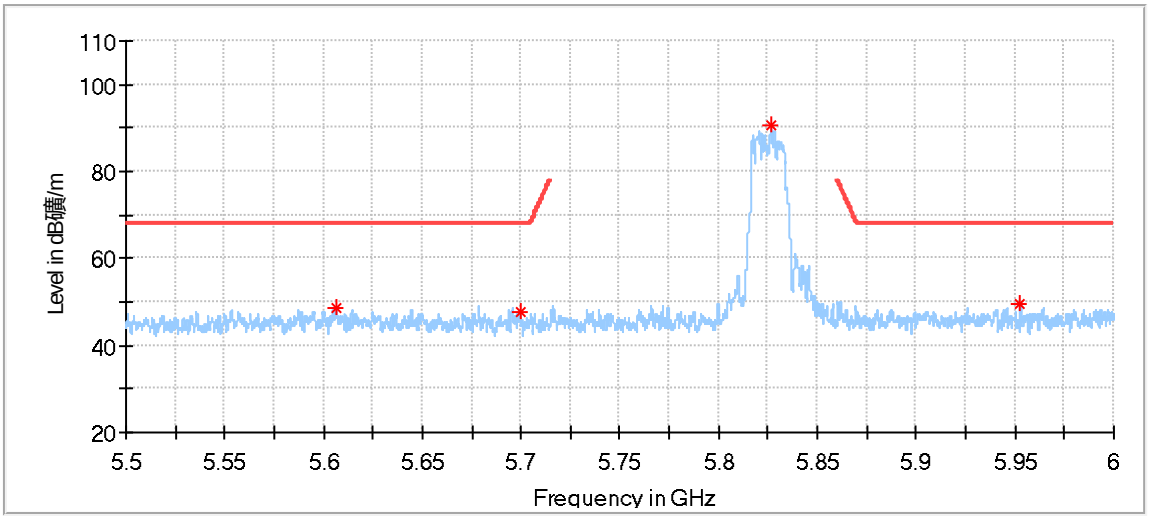
Ant1_11a_5825MHz:



Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
5619.000000	47.88	68.20	20.32	150.0	H	285.0	4.91
5704.375000	48.71	68.20	19.49	150.0	H	264.0	4.87
5826.333333	96.81	---	---	150.0	H	358.0	5.39
5879.125000	51.24	68.20	16.96	150.0	H	0.0	5.72



Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
5606.416667	48.62	68.20	19.58	150.0	V	78.0	4.96
5699.458333	47.84	68.20	20.36	150.0	V	289.0	4.86
5826.500000	90.49	---	---	150.0	V	252.0	5.40
5952.833333	49.35	68.20	18.85	150.0	V	101.0	5.83

Remark:

1, Corrected Amplitude = Read level + Corrector factor

Above 1GHz: Corrector factor = Antenna Factor + Cable Loss- Amplifier Gain

Below 1GHz: Corrector factor = Antenna Factor + Cable Loss

2, We test all modes and only the worst case (802.11a_SISO_Ant1 modulation) recorded in the report.

3, Testing is carried out with frequency rang 9kHz to 40GHz, which below 30MHz and data of measurement within this frequency range shown “---” in the table above means the reading of emissions are attenuated more than 30dB below the permissible limits or the field strength is too small to be measured.

4, 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.

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8.7 Frequencies Stability

Test Method

1. The EUT was placed on 0.8m height table, the RF output of EUT was connected to the test receiver by RF cable. The path loss was compensated to the results for each measurement.
2. Set Centre Frequency of the channel under test.
3. Set Detector PEAK
4. Set RBW: 10kHz, VBW: 3RBW
5. Set Span: Encompass the entire emissions bandwidth (EBW) of the signal.
6. Allow the trace to stabilize, find the peak value of the power envelope and record the frequency, then calculated the frequency drift.

The test extreme voltage is to change the primary supply voltage from 85 to 115 percent of the nominal value.
User manual temperature is 0℃ to +35℃, normal Temperature is +25℃.

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

Test Results (All conditions and all modes were performed, only list Worst-Case in the report)

Remark: NV is normal Voltage: 3.8Vdc, HV is High Voltage: 4.18Vdc, LV is Low Voltage: 3.42Vdc, NT is normal Temperature: +25℃.

Limit: It is required that that the emissions are maintained within the band of operation under all conditions of normal operation as specified in the user's manual.

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Ant1							
Mode	TX Type	Frequency (MHz)	Temperature (°C)	Voltage (VDC)	Measured Frequency (MHz)	Limit (MHz)	Verdict
802.11ac (VHT20)	MIMO	5180	25	3.42	5180.000	5150 to 5250	Pass
				3.80	5180.000	5150 to 5250	Pass
				4.18	5180.000	5150 to 5250	Pass
			0	3.80	5180.000	5150 to 5250	Pass
			10	3.80	5180.000	5150 to 5250	Pass
			30	3.80	5180.000	5150 to 5250	Pass
			35	3.80	5180.000	5150 to 5250	Pass
		5200	25	3.42	5200.000	5150 to 5250	Pass
				3.80	5200.000	5150 to 5250	Pass
				4.18	5200.000	5150 to 5250	Pass
			0	3.80	5200.000	5150 to 5250	Pass
			10	3.80	5200.000	5150 to 5250	Pass
			30	3.80	5200.000	5150 to 5250	Pass
			35	3.80	5200.000	5150 to 5250	Pass
		5240	25	3.42	5240.000	5150 to 5250	Pass
				3.80	5240.000	5150 to 5250	Pass
				4.18	5240.000	5150 to 5250	Pass
			0	3.80	5240.000	5150 to 5250	Pass
			10	3.80	5240.000	5150 to 5250	Pass
			30	3.80	5240.000	5150 to 5250	Pass
			35	3.80	5240.000	5150 to 5250	Pass
		5260	25	3.42	5260.000	5250 to 5350	Pass
				3.80	5260.000	5250 to 5350	Pass
				4.18	5260.000	5250 to 5350	Pass
			0	3.80	5260.000	5250 to 5350	Pass
			10	3.80	5260.000	5250 to 5350	Pass
			30	3.80	5260.000	5250 to 5350	Pass
			35	3.80	5260.000	5250 to 5350	Pass
		5300	25	3.42	5300.000	5250 to 5350	Pass
				3.80	5300.000	5250 to 5350	Pass
				4.18	5300.000	5250 to 5350	Pass
			0	3.80	5300.000	5250 to 5350	Pass
			10	3.80	5300.000	5250 to 5350	Pass
			30	3.80	5300.000	5250 to 5350	Pass
			35	3.80	5300.000	5250 to 5350	Pass
		5320	25	3.42	5320.000	5250 to 5350	Pass
				3.80	5320.000	5250 to 5350	Pass
				4.18	5320.000	5250 to 5350	Pass
			0	3.80	5320.000	5250 to 5350	Pass
			10	3.80	5320.000	5250 to 5350	Pass
			30	3.80	5320.000	5250 to 5350	Pass
			35	3.80	5320.000	5250 to 5350	Pass
		5500	25	3.42	5500.000	5470 to 5725	Pass
				3.80	5500.000	5470 to 5725	Pass
				4.18	5500.000	5470 to 5725	Pass
			0	3.80	5500.000	5470 to 5725	Pass
			10	3.80	5500.000	5470 to 5725	Pass
			30	3.80	5500.000	5470 to 5725	Pass
			35	3.80	5500.000	5470 to 5725	Pass
		5580	25	3.42	5580.000	5470 to 5725	Pass
				3.80	5580.000	5470 to 5725	Pass
				4.18	5580.000	5470 to 5725	Pass
			0	3.80	5580.000	5470 to 5725	Pass
			10	3.80	5580.000	5470 to 5725	Pass
			30	3.80	5580.000	5470 to 5725	Pass
			35	3.80	5580.000	5470 to 5725	Pass
		5700	25	3.42	5700.000	5470 to 5725	Pass
				3.80	5700.000	5470 to 5725	Pass
				4.18	5700.000	5470 to 5725	Pass
			0	3.80	5700.000	5470 to 5725	Pass
			10	3.80	5700.000	5470 to 5725	Pass

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			30	3.80	5700.000	5470 to 5725	Pass
			35	3.80	5700.000	5470 to 5725	Pass
		5745	25	3.42	5745.000	5725 to 5850	Pass
				3.80	5745.000	5725 to 5850	Pass
				4.18	5745.000	5725 to 5850	Pass
			0	3.80	5745.000	5725 to 5850	Pass
			10	3.80	5745.000	5725 to 5850	Pass
			30	3.80	5745.000	5725 to 5850	Pass
			35	3.80	5745.000	5725 to 5850	Pass
		5785	25	3.42	5785.000	5725 to 5850	Pass
				3.80	5785.000	5725 to 5850	Pass
				4.18	5785.000	5725 to 5850	Pass
			0	3.80	5785.000	5725 to 5850	Pass
			10	3.80	5785.000	5725 to 5850	Pass
			30	3.80	5785.000	5725 to 5850	Pass
			35	3.80	5785.000	5725 to 5850	Pass
		5825	25	3.42	5825.000	5725 to 5850	Pass
				3.80	5825.000	5725 to 5850	Pass
				4.18	5825.000	5725 to 5850	Pass
			0	3.80	5825.000	5725 to 5850	Pass
			10	3.80	5825.000	5725 to 5850	Pass
			30	3.80	5825.000	5725 to 5850	Pass
			35	3.80	5825.000	5725 to 5850	Pass
802.11ac (VHT40)	MIMO	5190	25	3.42	5190.000	5150 to 5250	Pass
				3.80	5190.000	5150 to 5250	Pass
				4.18	5190.000	5150 to 5250	Pass
			0	3.80	5190.000	5150 to 5250	Pass
			10	3.80	5190.000	5150 to 5250	Pass
			30	3.80	5190.000	5150 to 5250	Pass
			35	3.80	5190.000	5150 to 5250	Pass
		5230	25	3.42	5230.040	5150 to 5250	Pass
				3.80	5230.040	5150 to 5250	Pass
				4.18	5230.040	5150 to 5250	Pass
			0	3.80	5230.040	5150 to 5250	Pass
			10	3.80	5230.040	5150 to 5250	Pass
			30	3.80	5230.040	5150 to 5250	Pass
			35	3.80	5230.040	5150 to 5250	Pass
		5270	25	3.42	5270.040	5250 to 5350	Pass
				3.80	5270.040	5250 to 5350	Pass
				4.18	5270.040	5250 to 5350	Pass
			0	3.80	5270.040	5250 to 5350	Pass
			10	3.80	5270.040	5250 to 5350	Pass
			30	3.80	5270.040	5250 to 5350	Pass
			35	3.80	5270.040	5250 to 5350	Pass
		5310	25	3.42	5310.040	5250 to 5350	Pass
				3.80	5310.040	5250 to 5350	Pass
				4.18	5310.040	5250 to 5350	Pass
			0	3.80	5310.040	5250 to 5350	Pass
			10	3.80	5310.040	5250 to 5350	Pass
			30	3.80	5310.040	5250 to 5350	Pass
			35	3.80	5310.040	5250 to 5350	Pass
		5510	25	3.42	5510.040	5470 to 5725	Pass
				3.80	5510.040	5470 to 5725	Pass
				4.18	5510.040	5470 to 5725	Pass
			0	3.80	5510.040	5470 to 5725	Pass
			10	3.80	5510.040	5470 to 5725	Pass
			30	3.80	5510.040	5470 to 5725	Pass
			35	3.80	5510.040	5470 to 5725	Pass
		5550	25	3.42	5550.040	5470 to 5725	Pass
				3.80	5550.040	5470 to 5725	Pass
				4.18	5550.040	5470 to 5725	Pass
			0	3.80	5550.040	5470 to 5725	Pass
			10	3.80	5550.040	5470 to 5725	Pass
			30	3.80	5550.040	5470 to 5725	Pass

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			35	3.80	5550.040	5470 to 5725	Pass
		5670	25	3.42	5670.040	5470 to 5725	Pass
				3.80	5670.040	5470 to 5725	Pass
				4.18	5670.040	5470 to 5725	Pass
			0	3.80	5670.040	5470 to 5725	Pass
			10	3.80	5670.040	5470 to 5725	Pass
			30	3.80	5670.040	5470 to 5725	Pass
			35	3.80	5670.040	5470 to 5725	Pass
		5755	25	3.42	5755.000	5725 to 5850	Pass
				3.80	5755.000	5725 to 5850	Pass
				4.18	5755.000	5725 to 5850	Pass
			0	3.80	5755.000	5725 to 5850	Pass
			10	3.80	5755.000	5725 to 5850	Pass
			30	3.80	5755.000	5725 to 5850	Pass
			35	3.80	5755.000	5725 to 5850	Pass
		5795	25	3.42	5795.040	5725 to 5850	Pass
				3.80	5795.040	5725 to 5850	Pass
				4.18	5795.040	5725 to 5850	Pass
			0	3.80	5795.040	5725 to 5850	Pass
			10	3.80	5795.040	5725 to 5850	Pass
			30	3.80	5795.040	5725 to 5850	Pass
			35	3.80	5795.040	5725 to 5850	Pass
802.11ac (VHT80)	MIMO	5210	25	3.42	5210.075	5150 to 5250	Pass
				3.80	5210.075	5150 to 5250	Pass
				4.18	5210.075	5150 to 5250	Pass
			0	3.80	5210.075	5150 to 5250	Pass
			10	3.80	5210.075	5150 to 5250	Pass
			30	3.80	5210.075	5150 to 5250	Pass
			35	3.80	5210.075	5150 to 5250	Pass
		5290	25	3.42	5290.075	5250 to 5350	Pass
				3.80	5290.075	5250 to 5350	Pass
				4.18	5290.075	5250 to 5350	Pass
			0	3.80	5290.075	5250 to 5350	Pass
			10	3.80	5290.075	5250 to 5350	Pass
			30	3.80	5290.075	5250 to 5350	Pass
			35	3.80	5290.075	5250 to 5350	Pass
		5530	25	3.42	5530.075	5470 to 5725	Pass
				3.80	5530.075	5470 to 5725	Pass
				4.18	5530.075	5470 to 5725	Pass
			0	3.80	5530.075	5470 to 5725	Pass
			10	3.80	5530.075	5470 to 5725	Pass
			30	3.80	5530.075	5470 to 5725	Pass
			35	3.80	5530.075	5470 to 5725	Pass
		5610	25	3.42	5610.000	5470 to 5725	Pass
				3.80	5610.000	5470 to 5725	Pass
				4.18	5610.000	5470 to 5725	Pass
			0	3.80	5610.000	5470 to 5725	Pass
			10	3.80	5610.000	5470 to 5725	Pass
			30	3.80	5610.000	5470 to 5725	Pass
			35	3.80	5610.000	5470 to 5725	Pass
		5775	25	3.42	5775.075	5725 to 5850	Pass
				3.80	5775.075	5725 to 5850	Pass
				4.18	5775.075	5725 to 5850	Pass
			0	3.80	5775.075	5725 to 5850	Pass
			10	3.80	5775.075	5725 to 5850	Pass
			30	3.80	5775.075	5725 to 5850	Pass
			35	3.80	5775.075	5725 to 5850	Pass

Remark 1: LV = 85% of the nominal supply voltage, HV =115% of the nominal supply voltage.
Remark 2: We test all frequencies and only show these representative frequencies.

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8.8 Dynamic Frequency Selection (DFS)

Mode of Operation:

Parameters of EUT	
Frequency	5250-5350MHz 5470-5600MHz 5650-5725MHz
Operational Mode	☐Master ☒Client without Radar Detection ☐Client with Radar Detection
Modulation	OFDM
Channel Bandwidth	20MHz, 40MHz, 80MHz

Working Modes and required Test Items

The manufacturer shall whether the EUT is capable of operating as a master and a client. If the EUT is capable of operating in more than one operating mode then each operating mode shall be tested separately.

Table 1: Applicability of DFS Requirements Prior to Use of a Channel

Requirement	Operational Mode		
	Master	Client Without Radar Detection	Client With Radar Detection
Non-Occupancy Period	Yes	Not required	Yes
DFS Detection Threshold	Yes	Not required	Yes
Channel Availability Check Time	Yes	Not required	Not required
U-NII Detection Bandwidth	Yes	Not required	Yes

Table 2: Applicability of DFS requirements during normal operation

Requirement	Operational Mode	
	Master Device or Client with Radar Detection	Client Without Radar Detection
DFS Detection Threshold	Yes	Not required
Channel Closing Transmission Time	Yes	Yes
Channel Move Time	Yes	Yes
U-NII Detection Bandwidth	Yes	Not required

Additional requirements for devices with multiple bandwidth modes	Master Device or Client with Radar Detection	Client Without Radar Detection
U-NII Detection Bandwidth and Statistical Performance Check	All BW modes must be tested	Not required
Channel Move Time and Channel Closing Transmission Time	Test using widest BW mode available	Test using the widest BW mode available for the link
All other tests	Any single BW mode	Not required
Note: Frequencies selected for statistical performance check (Section 7.8.4) should include several frequencies within the radar detection bandwidth and frequencies near the edge of the radar detection bandwidth. For 802.11 devices it is suggested to select frequencies in each of the bonded 20 MHz channels and the channel center frequency.		

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Requirement:
Per KDB 905462 D02 v02 the following are the requirements for client Devices:
a) A Client Device will not transmit before having received appropriate control signals from a Master Device.
b) A Client Device will stop all its transmissions whenever instructed by a Master Device to which it is associated and will meet the Channel Move Time and Channel Closing Transmission Time requirements. The Client Device will not resume any transmissions until it has again received control signals from a Master Device.
c) If a Client Device is performing In-Service Monitoring and detects a Radar Waveform above the DFS Detection Threshold, it will inform the Master Device. This is equivalent to the Master Device detecting the Radar Waveform and d) through f) of section 5.1.1 apply.
d) Irrespective of Client Device or Master Device detection the Channel Move Time and Channel Closing Transmission Time requirements remain the same.
e) The client test frequency must be monitored to ensure no transmission of any type has occurred for 30 minutes. Note: If the client moves with the master, the device is considered compliant if nothing appears in the client non-occupancy period test. For devices that shut down (rather than moving channels), no beacons should appear**.**

Table 3: DFS Response Requirement Values

Parameter	**Value**
Non-occupancy period	Minimum 30 minutes
Channel Availability Check Time	60 seconds
Channel Move Time	10 seconds See Note 1.
Channel Closing Transmission Time	200 milliseconds + an aggregate of 60 milliseconds over remaining 10 second period. See Notes 1 and 2.
U-NII Detection Bandwidth	Minimum 100% of the U-NII 99% transmission power bandwidth. See Note 3.
Note 1: *Channel Move Time* and the *Channel Closing Transmission Time* should be performed with Radar Type 0. The measurement timing begins at the end of the Radar Type 0 burst. **Note 2:** The *Channel Closing Transmission Time* is comprised of 200 milliseconds starting at the beginning of the *Channel Move Time* plus any additional intermittent control signals required to facilitate a *Channel* move (an aggregate of 60 milliseconds) during the remainder of the 10 second period. The aggregate duration of control signals will not count quiet periods in between transmissions. **Note 3:** During the *U-NII Detection Bandwidth* detection test, radar type 0 should be used. For each frequency step the minimum percentage of detection is 90 percent. Measurements are performed with no data traffic.	

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DFS Detection Thresholds Values

Table 4 below provides the DFS Detection Thresholds for Master Devices as well as Client Devices incorporating In-Service Monitoring.

Table 4: DFS Detection Thresholds for Master Devices and Client Devices with Radar Detection

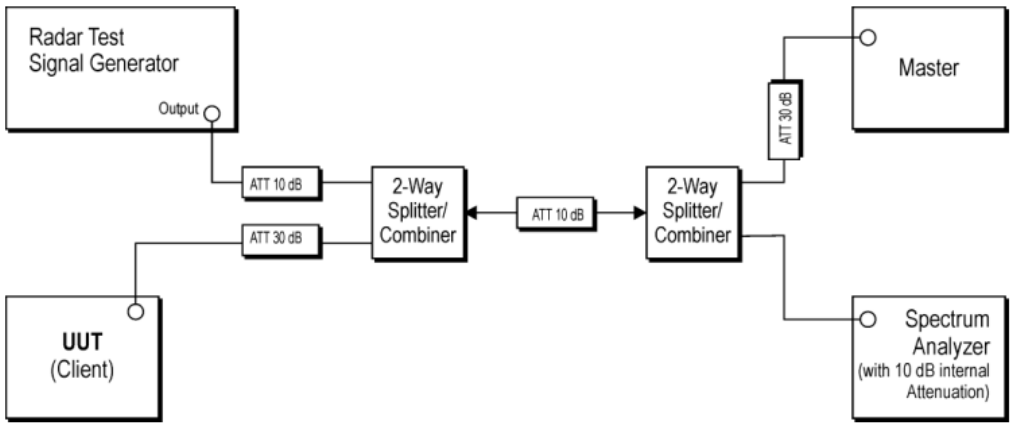
Maximum Transmit Power	Value (See Notes 1, 2, and 3)
EIRP ≥ 200 milliwatt	-64 dBm
EIRP < 200 milliwatt and power spectral density < 10 dBm/MHz	-62 dBm
EIRP < 200 milliwatt that do not meet the power spectral density requirement	-64 dBm
Note 1: This is the level at the input of the receiver assuming a 0 dBi receive antenna. **Note 2:** Throughout these test procedures an additional 1 dB has been added to the amplitude of the test transmission waveforms to account for variations in measurement equipment. This will ensure that the test signal is at or above the detection threshold level to trigger a DFS response. **Note3:** EIRP is based on the highest antenna gain. For MIMO devices refer to KDB Publication 662911 D01.	

Test Procedure

The FCC KDB 905462 D02 v02 describes a radiated test setup and a conducted test setup. A conducted test setup was used for this testing. Figure 1 shows the typical test setup. One channel selected between 5260 and 5350 MHz is chosen for the testing.

Figure 1. Test Setup for DFS

Setup for client with injection at the master.



Channel Closing Transmission Time, Channel Move Time and Non-Occupancy Period.

Block Diagram of test setup test procedure.

(1) The Radar Pulse generator is setup to provide a pulse at frequency that the master and client are operating, A type 0 radar pulse is used for the testing.
(2) The vector signal generator is adjusted to provide the radar burst (18 pulses) at the level of approximately -62dBm at the antenna of the master device.
(3) A trigger is provided from the pulse generator to the DFS monitoring system in order to capture the traffic and the occurrence of the radar pulse.
(4) The Client Device (EUT) is set up per the diagram in Figure 1 and communications between the Master device and the Client is established.
(5) Iperf software is used to properly load the test channel.
(6) The real ime spectrum analyzer is set to record a 16sec window to any transmissions occurring up to and after 10sec.

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(7) The system is again setup and the monitoring time is shortened in order to capture the Channel Closing Transmission Time. This time is measured to ensure that the Client ceases transmission within 200ms and the aggregate of emissions occurring after 200ms up to 10 sec do not exceed 60ms.
(Note: the channel may be different since the Master and Client have changed channels due to the detection of e initial radar pulse.)
(8) After the initial radar burst the channel is monitored for 30 minutes to ensure no transmissions or beacons occur. A second monitoring setup is used to verify that the Master and Client have both moved to different channels.

Test Result

Clause	Test Parameter	Remarks	Pass/Fail
15.407	DFS Detection Threshold	Not Applicable	N/A
15.407	Channel Availability Check time	Not Applicable	N/A
15.407	Channel Move time	Applicable	Pass
15.407	Channel Closing Transmission time	Applicable	Pass
15.407	Non-occupancy Period	Not Applicable	N/A
15.407	Uniform Spreading	Not Applicable	N/A
15.407	U-NII Detection Bandwidth	Not Applicable	N/A

Test Mode	Channel	Radar Type	Result[dBm]	Limit[dBm]	Verdict
11A	5280	Type0	-63.13	-61.00	PASS
	5500	Type0	-62.95	-61.00	PASS
11N40	5270	Type0	-63.60	-61.00	PASS
	5510	Type0	-63.38	-61.00	PASS
11AC80	5290	Type0	-62.79	-61.00	PASS
	5530	Type0	-63.07	-61.00	PASS

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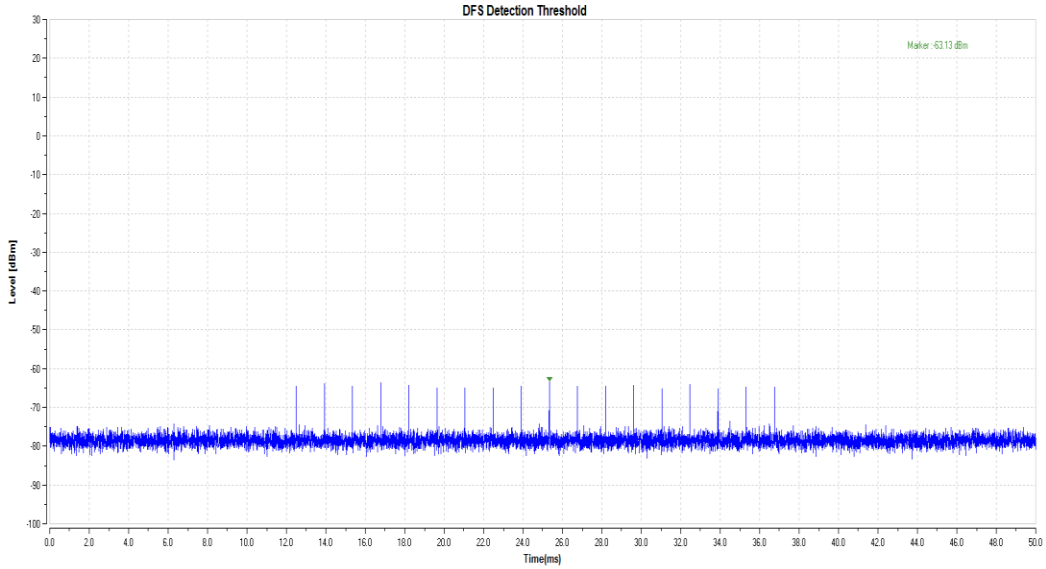
Test Graphs:

11A_5280_Type0



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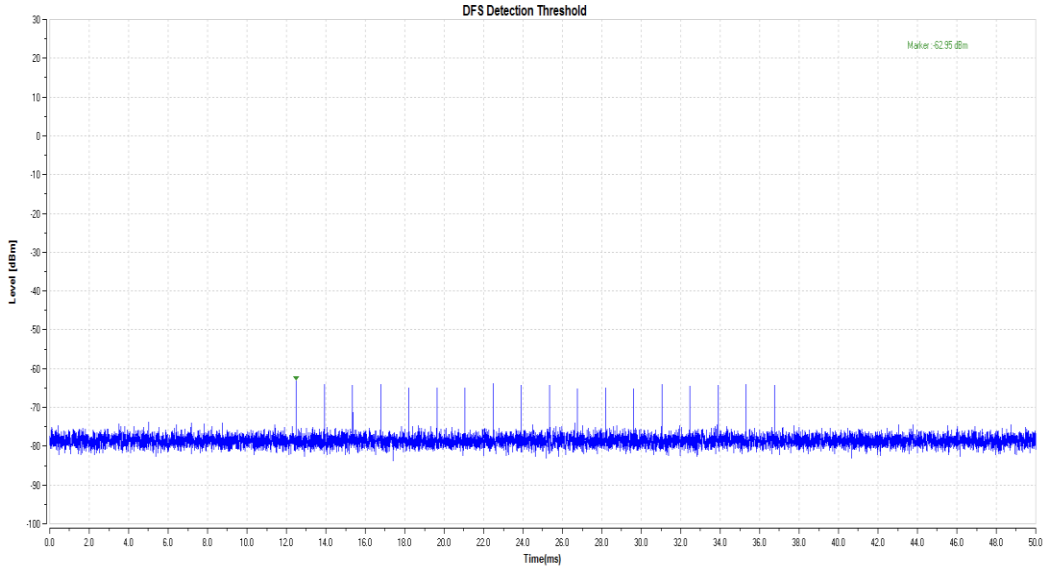

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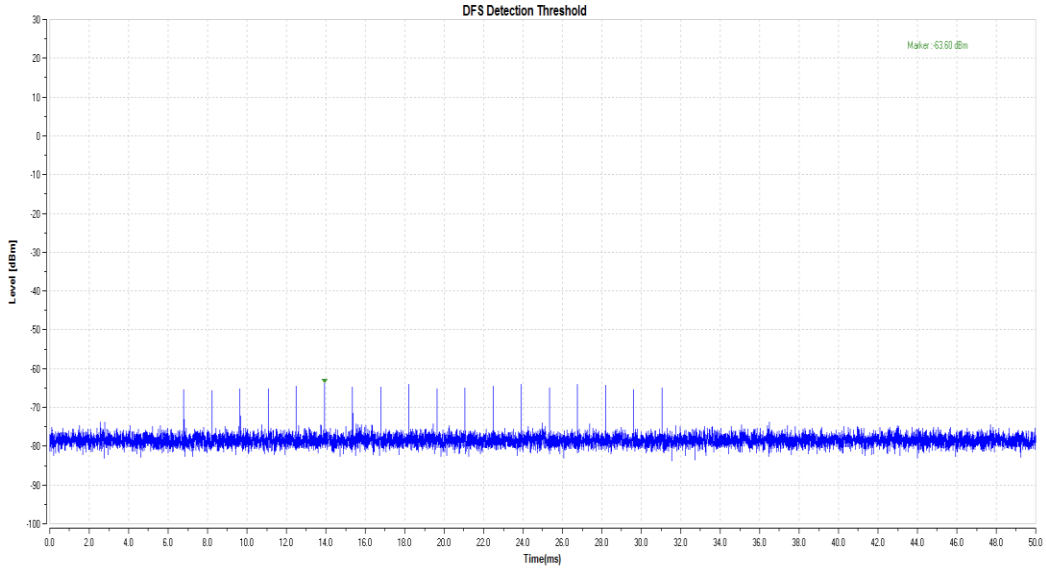

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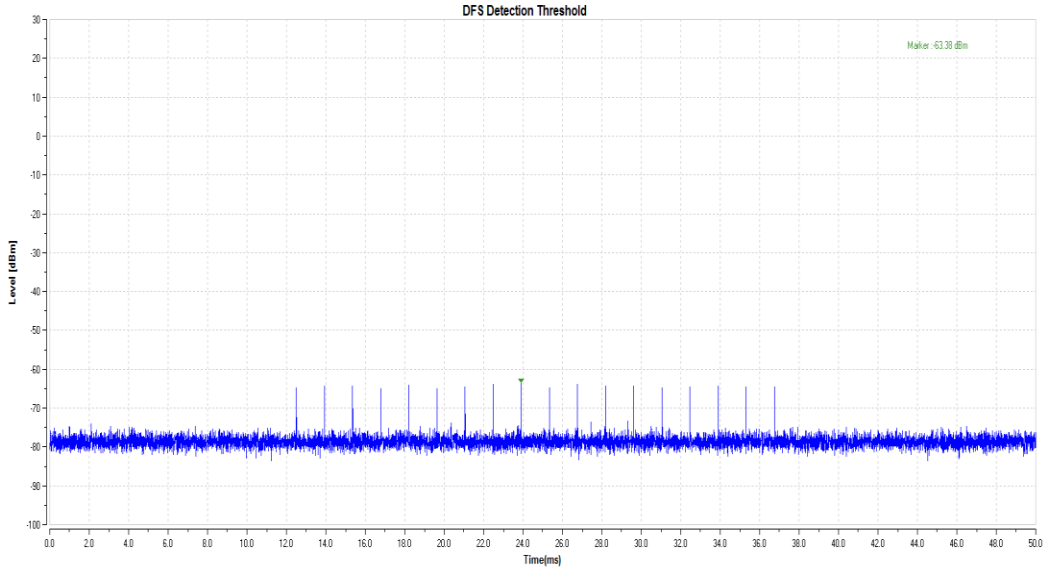
11N40SISO_5510_Type0



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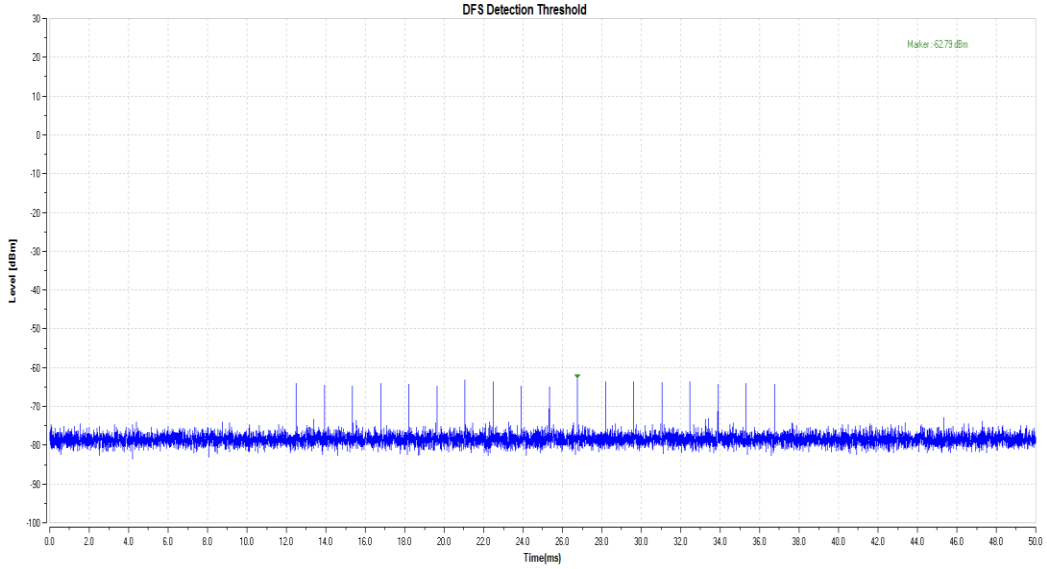

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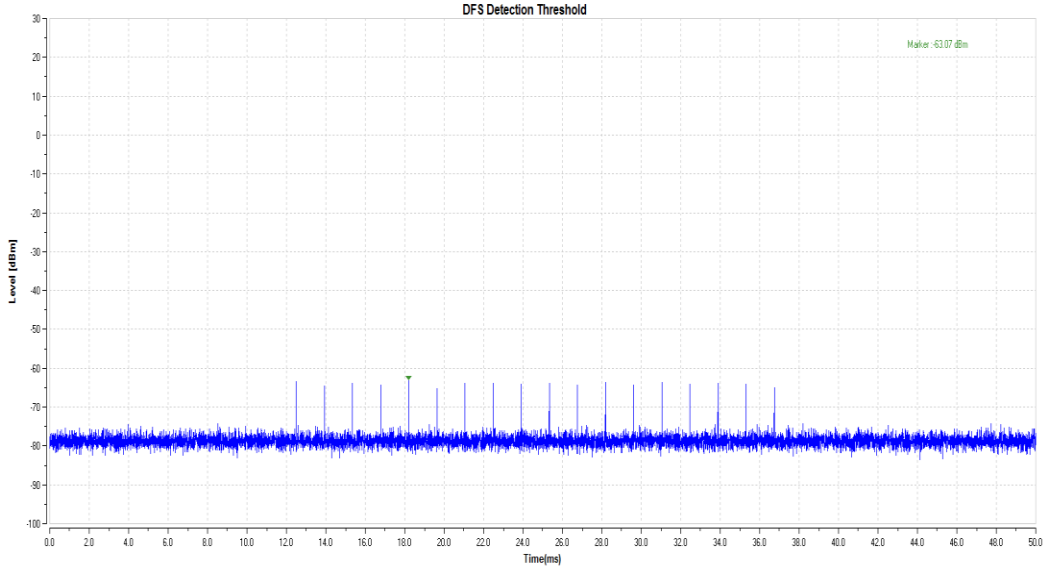

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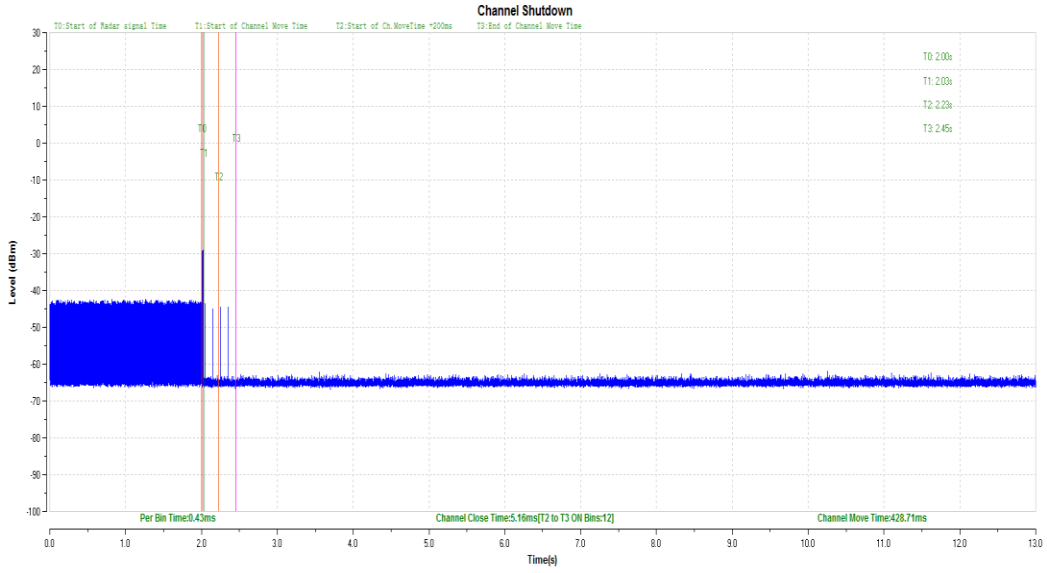
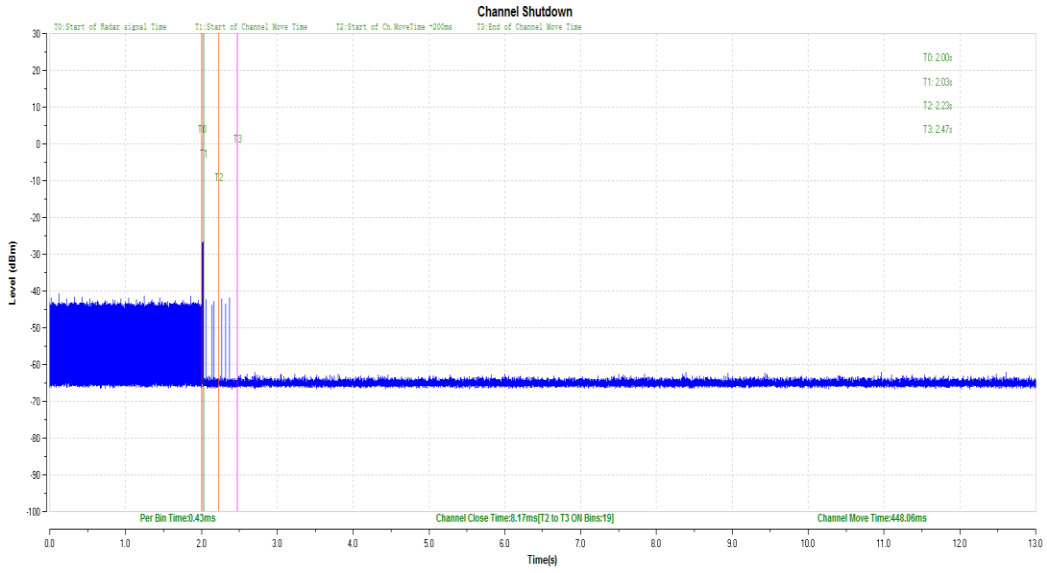
Test Mode	Channel	CCT[s]	Limit[s]	CMT[ms]	Limit[ms]	Verdict
11A	5280	5.16	60	428.71	10000	PASS
	5500	8.17	60	448.06	10000	PASS
11N40SISO	5270	8.17	60	457.95	10000	PASS
	5510	8.6	60	506.54	10000	PASS
11AC80SISO	5290	6.02	60	454.08	10000	PASS
	5530	5.16	60	418.82	10000	PASS

11A_5280



11A_5500



11N40SISO_5270

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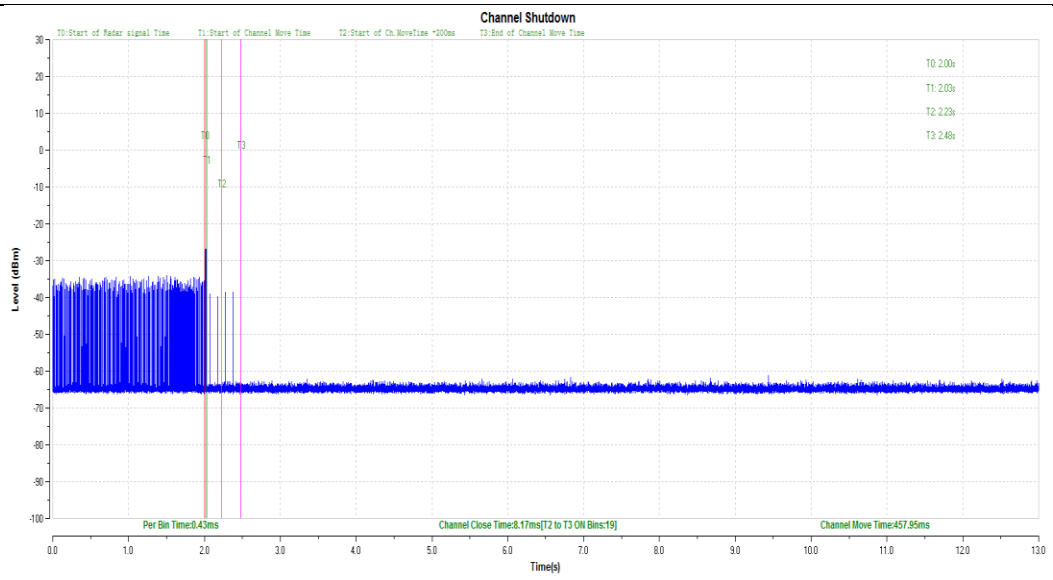
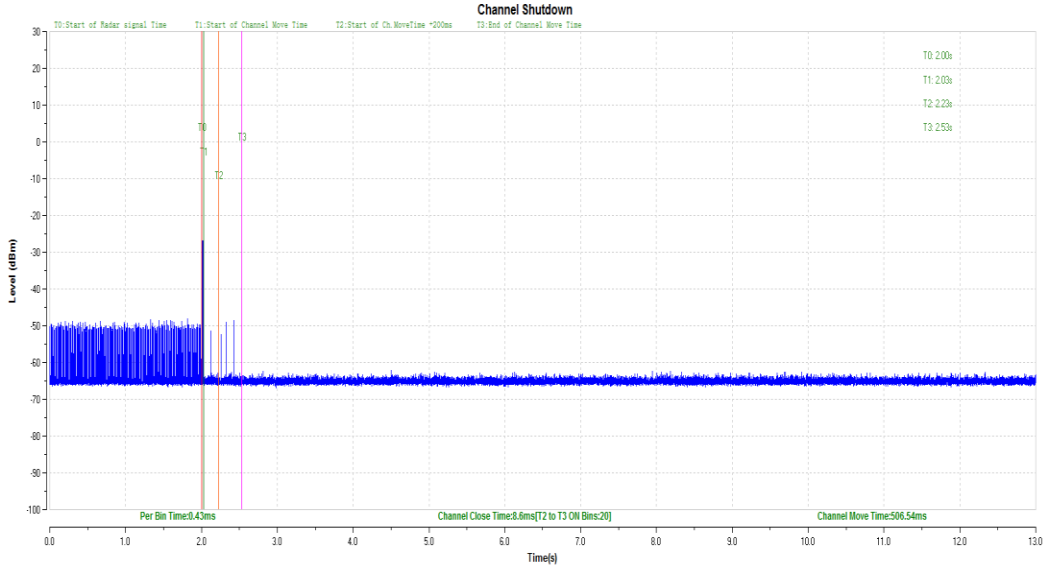


11N40SISO_5510



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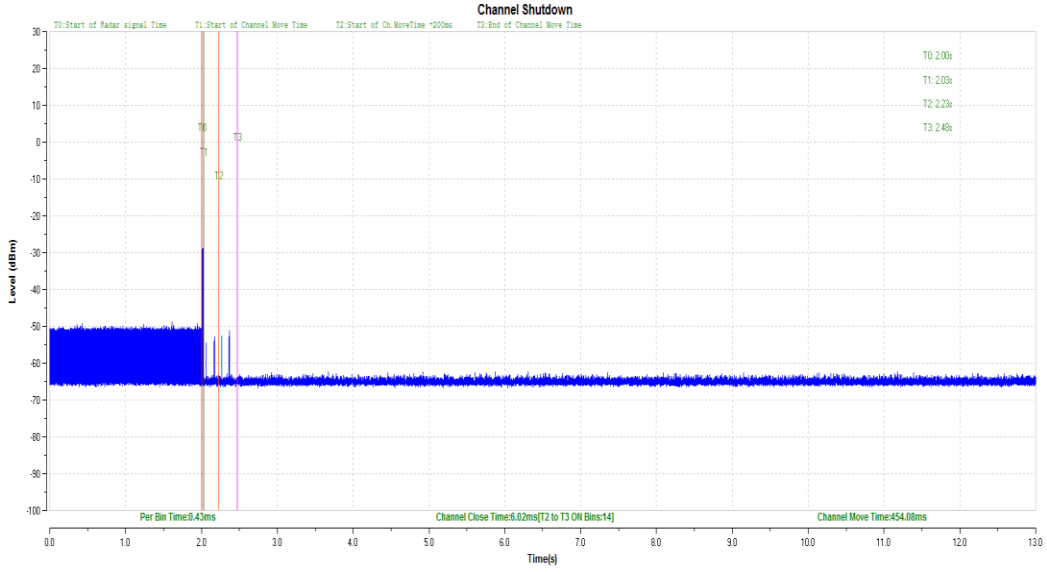

11AC80SISO_5530

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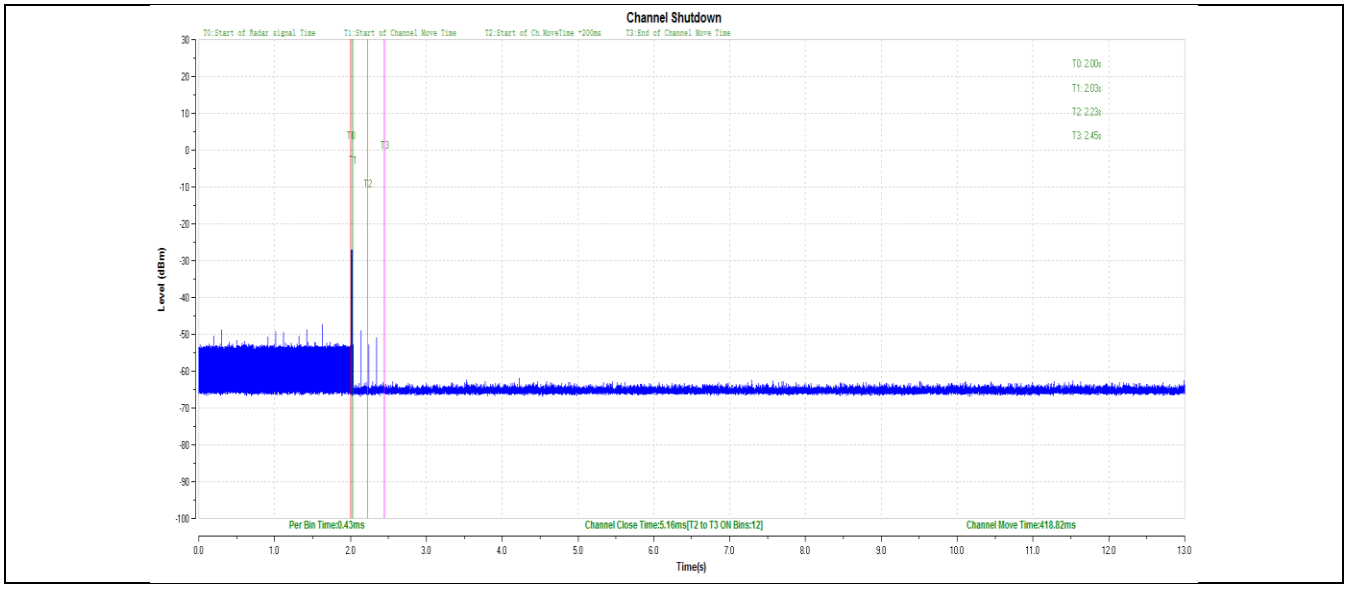

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9. Test Equipment List

Radiated Emission 1# Test

DESCRIPTION	MANUFACTURER	MODEL NO.	EQUIPMENT ID	SERIAL NO.	CAL INTERVAL (YEAR)	CAL. DUE DATE
EMI Test Receiver	Rohde & Schwarz	ESR 7	68-4-74-19-001	102176	1	2024-5-20
Loop Antenna	Rohde & Schwarz	HFH2-Z2	68-4-80-14-006	100398	1	2024-8-7
3m Semi-anechoic chamber	TDK	SAC-3 #1	68-4-90-14-001	----	3	2024-5-28
Test software	Rohde & Schwarz	EMC32	68-4-90-14-001-A10	Version10.35.02	N/A	N/A

Radiated Emission 2# Test

DESCRIPTION	MANUFACTURER	MODEL NO.	EQUIPMENT ID	SERIAL NO.	CAL INTERVAL (YEAR)	CAL. DUE DATE
EMI Test Receiver	Rohde & Schwarz	ESR 26	68-4-74-14-002	101269	1	2024-5-20
Trilog Super Broadband Test Antenna	Schwarzbeck	VULB 9162	68-4-80-19-003	284	1	2024-3-5
Wave Guide Antenna	ETS	3117	68-4-80-19-001	00218954	1	2024-4-26
Pre-amplifier	Rohde & Schwarz	SCU 18F	68-4-29-19-001	100745	1	2024-5-19
Sideband Horn Antenna	Q-PAR	QWH-SL-18-40-K-SG	68-4-80-14-008	12827	1	2024-7-11
Pre-amplifier	Rohde & Schwarz	SCU 40A	68-4-29-14-002	100432	1	2024-8-1
Attenuator	Mini-circuits	UNAT-6+	68-4-81-21-002	15542	1	2024-5-19
3m Semi-anechoic chamber	TDK	SAC-3 #2	68-4-90-19-006	----	2	2024-5-28
Test software	Rohde & Schwarz	EMC32	68-4-90-19-006-A01	Version10.35.02	N/A	N/A

Conducted Emission 2# Test

DESCRIPTION	MANUFACTURER	MODEL NO.	EQUIPMENT ID	SERIAL NO.	CAL INTERVAL (YEAR)	CAL. DUE DATE
EMI Test Receiver	Rohde & Schwarz	ESR 3	68-4-74-19-002	102590	1	2024-5-19
LISN	Rohde & Schwarz	ENV216	68-4-87-19-001	102472	1	2024-5-20
Attenuator	Shanghai Huaxiang	TS2-26-3	68-4-81-16-003	080928189	1	2024-5-19
Test software	Rohde & Schwarz	EMC32	68-4-90-19-005-A01	Version10.35.02	N/A	N/A
Shielding Room	TDK	CSR #2	68-4-90-19-005	----	3	2025-10-15

Conducted RF Test System

DESCRIPTION	MANUFACTURER	MODEL NO.	EQUIPMENT ID	SERIAL NO.	CAL INTERVAL (YEAR)	CAL. DUE DATE
Signal Analyzer	Rohde & Schwarz	FSV40	68-4-74-14-004	101030	1	2024-5-19
RF Switch Module	Rohde & Schwarz	OSP120/OSP-B157W	68-4-93-14-003	101226/100929	1	2024-5-20
Power Splitter	Weinschel	1580	68-4-85-14-001	SC319	1	2024-5-20
10dB Attenuator	Weinschel	4M-10	68-4-81-14-003	43152	1	2024-5-19
10dB Attenuator	R&S	DNF	68-4-81-14-004	DNF-001	1	2024-5-19
10dB Attenuator	R&S	DNF	68-4-81-14-005	DNF-002	1	2024-5-19
10dB Attenuator	R&S	DNF	68-4-81-14-006	DNF-003	1	2024-5-19
10dB Attenuator	R&S	DNF	68-4-81-14-007	DNF-004	1	2024-5-19
Test software	TST PASS	System for BT/WIFI	68-4-93-23-001-A03	Version 2.0	N/A	N/A
Shielding Room	TDK	TS8997	68-4-90-19-003	----	3	2025-10-15

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10. System Measurement Uncertainly

For a 95% confidence level, the measurement expanded uncertainties for defined systems, in accordance with the recommendations of ISO 17025 were:

System Measurement Uncertainty	
Test Items	Extended Uncertainty
Uncertainty for Conducted Emission in new shielding room (68-4-90-19-005) 150kHz-30MHz (for test using AMN ENV216)	3.15dB
Uncertainty for Radiated Emission in 3m chamber (68-4-90-14-001) 9kHz-30MHz	4.70dB
Uncertainty for Radiated Emission in 3m chamber (68-4-90-14-001) 30MHz-1000MHz	Horizontal: 4.63dB; Vertical: 4.78dB;
Uncertainty for Radiated Emission in new 3m chamber (68-4-90-19-006) 1000MHz-18000MHz	Horizontal: 5.38dB; Vertical: 5.38dB;
Uncertainty for Radiated Emission in new 3m chamber (68-4-90-19-006) 18GHz-40GHz	Horizontal: 5.29dB; Vertical: 5.29dB;
Uncertainty for Conducted RF test with TS 8997	RF Power Conducted: 1.31dB Frequency test involved: 0.6×10^{-8} or 1%

Measurement Uncertainty Decision Rule:

Determination of conformity with the specification limits is based on the decision rule according to IEC Guide 115: 2021, clause 4.4.3 and 4.5.1.

---THE END OF REPORT---

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