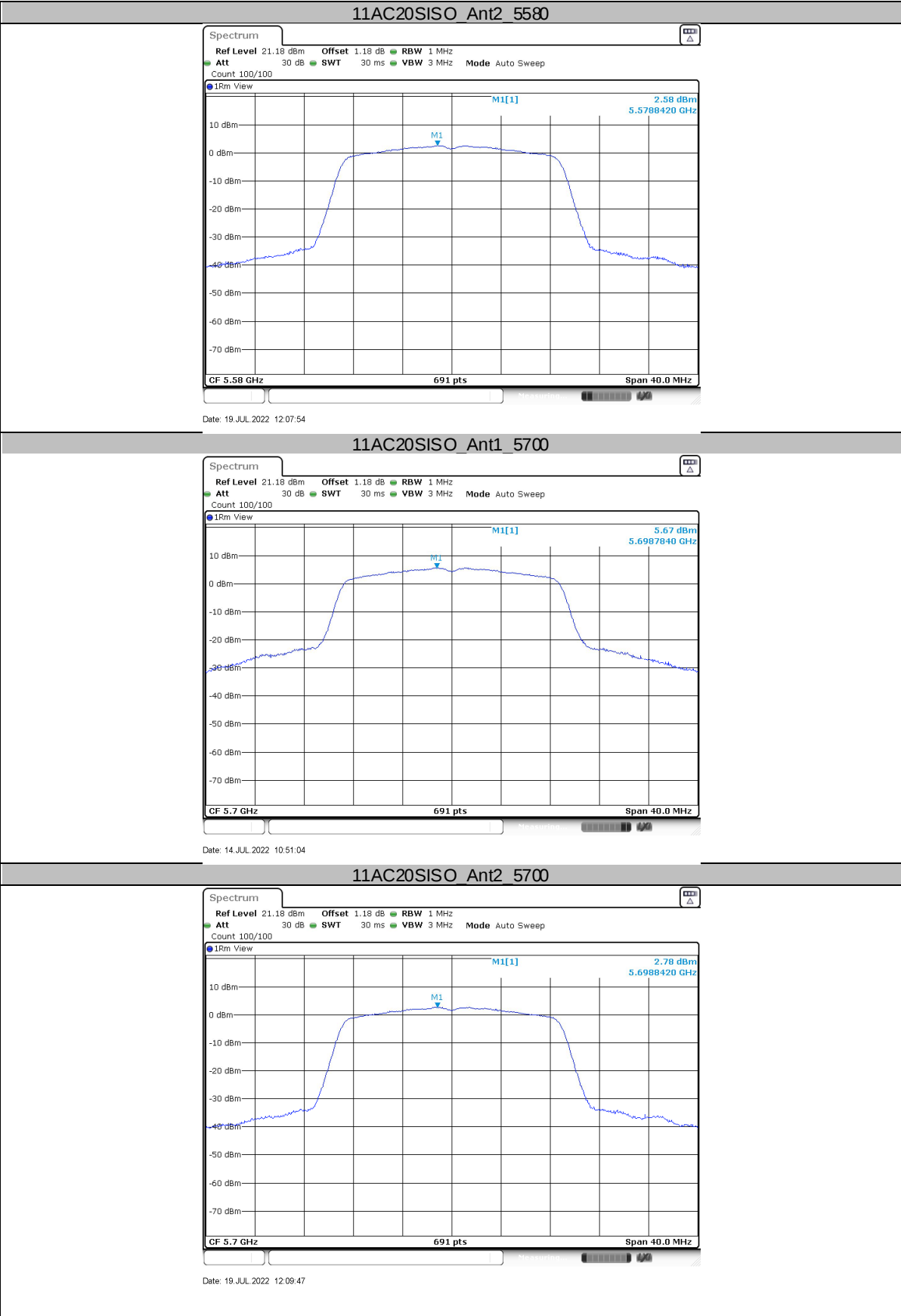
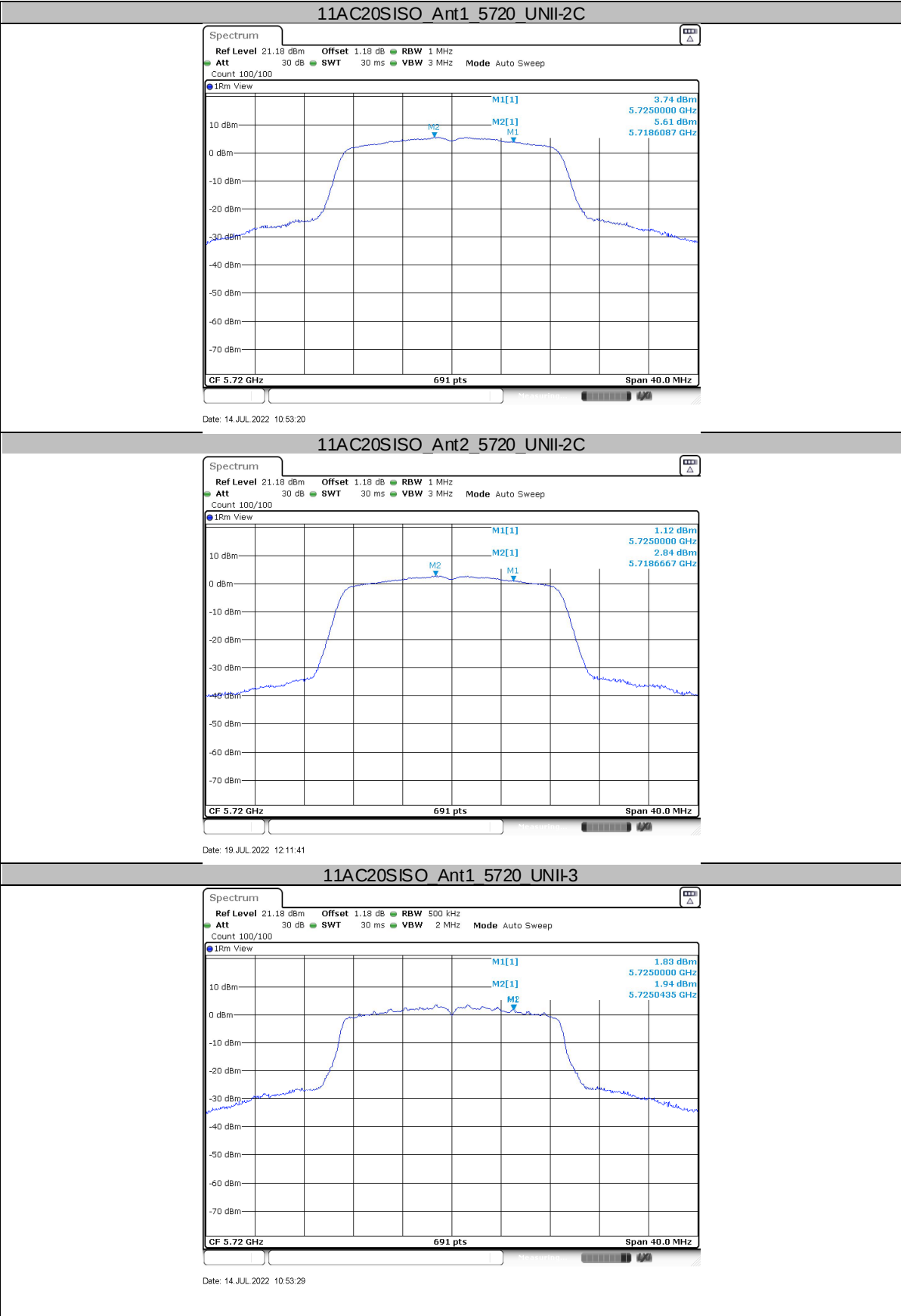
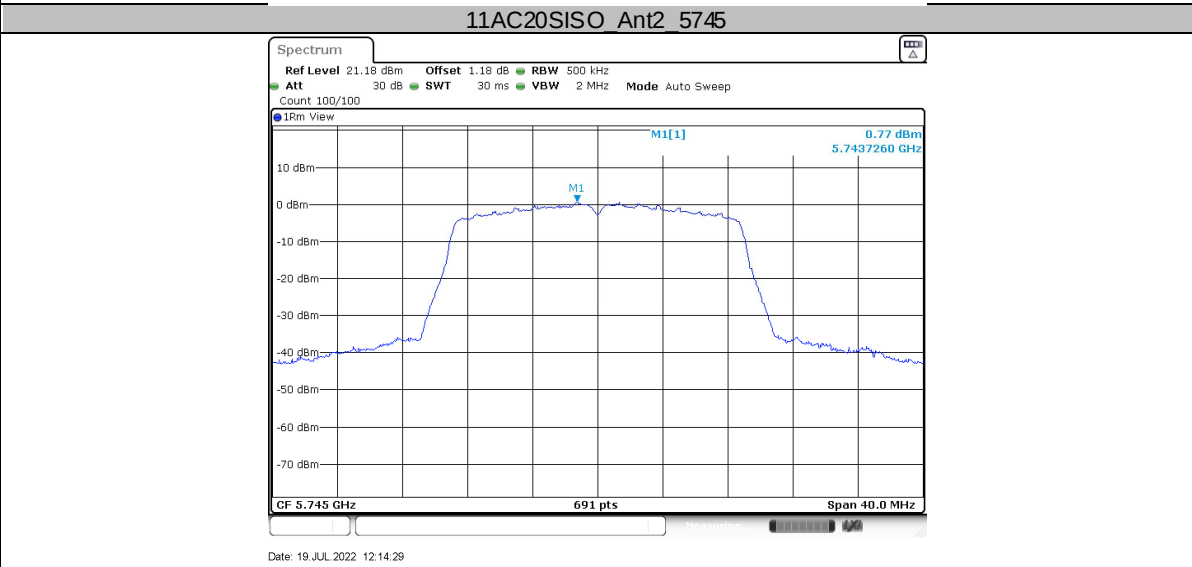
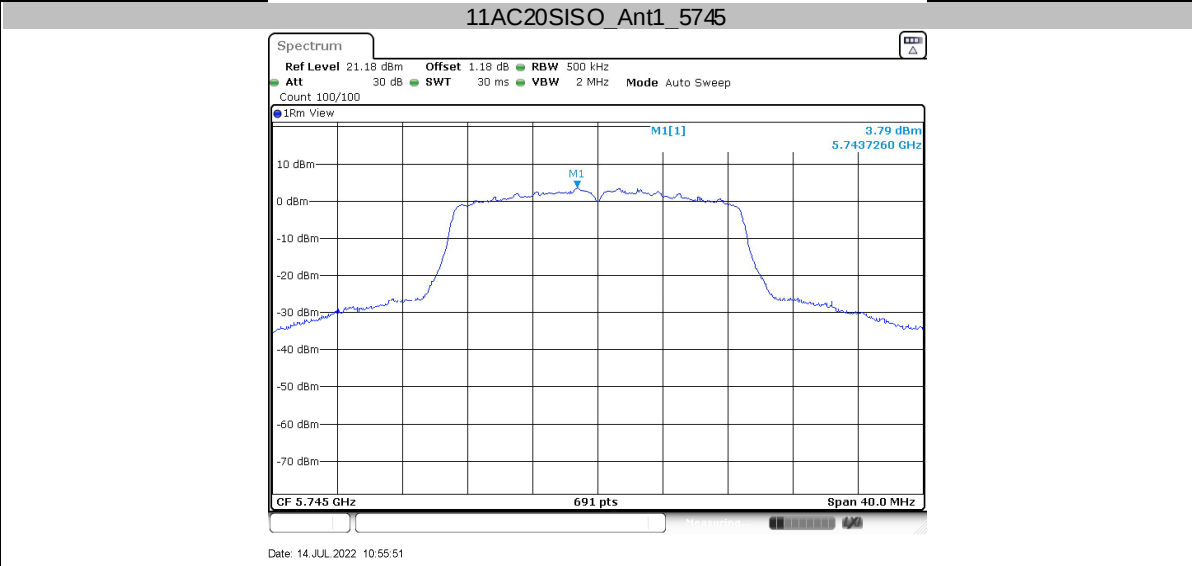
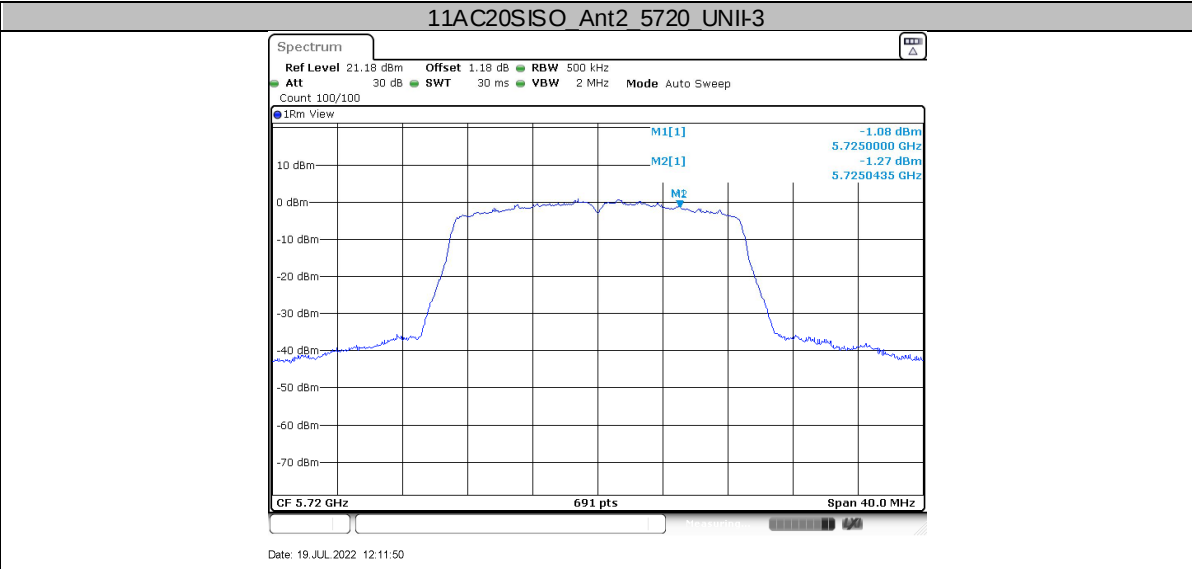
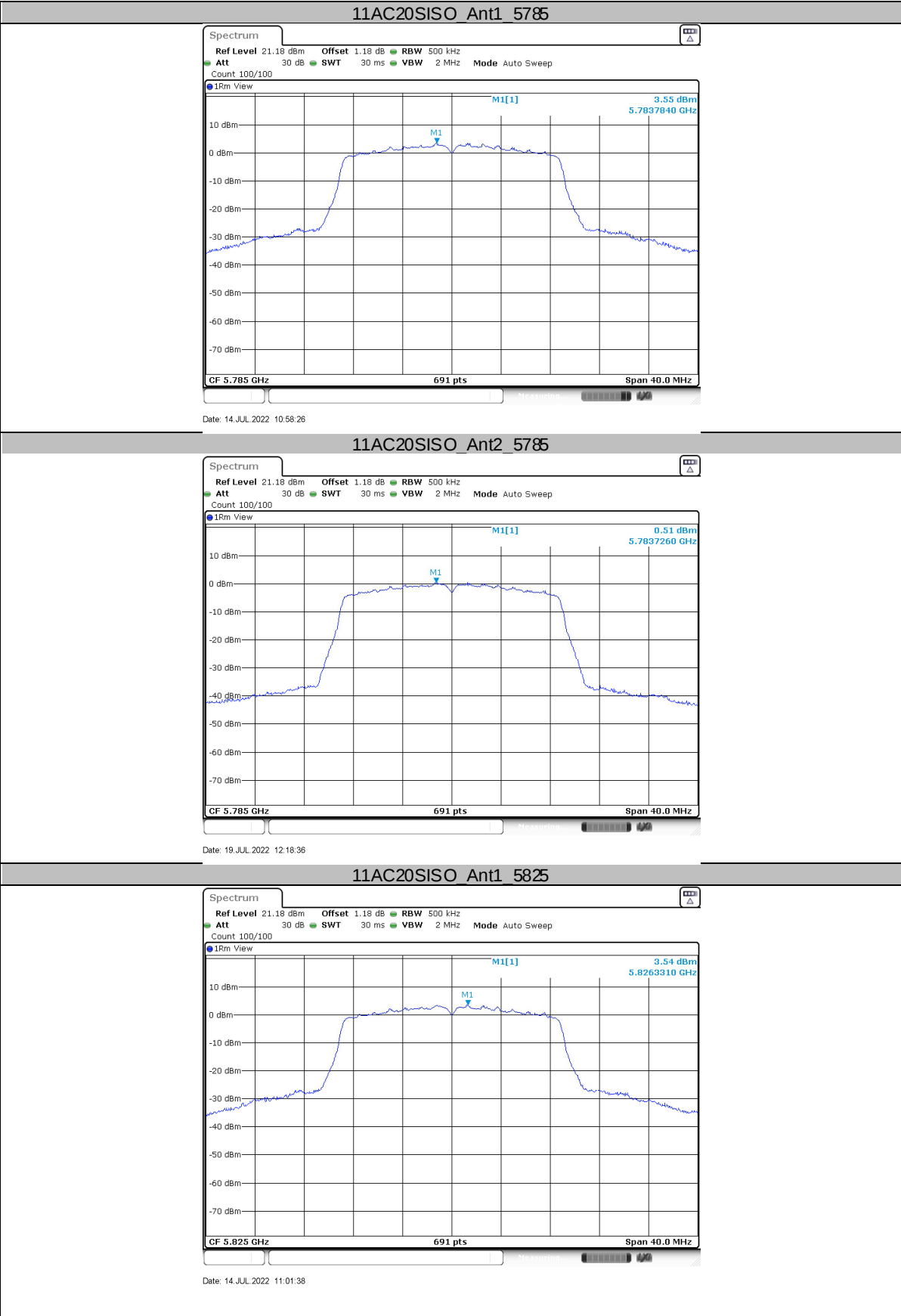
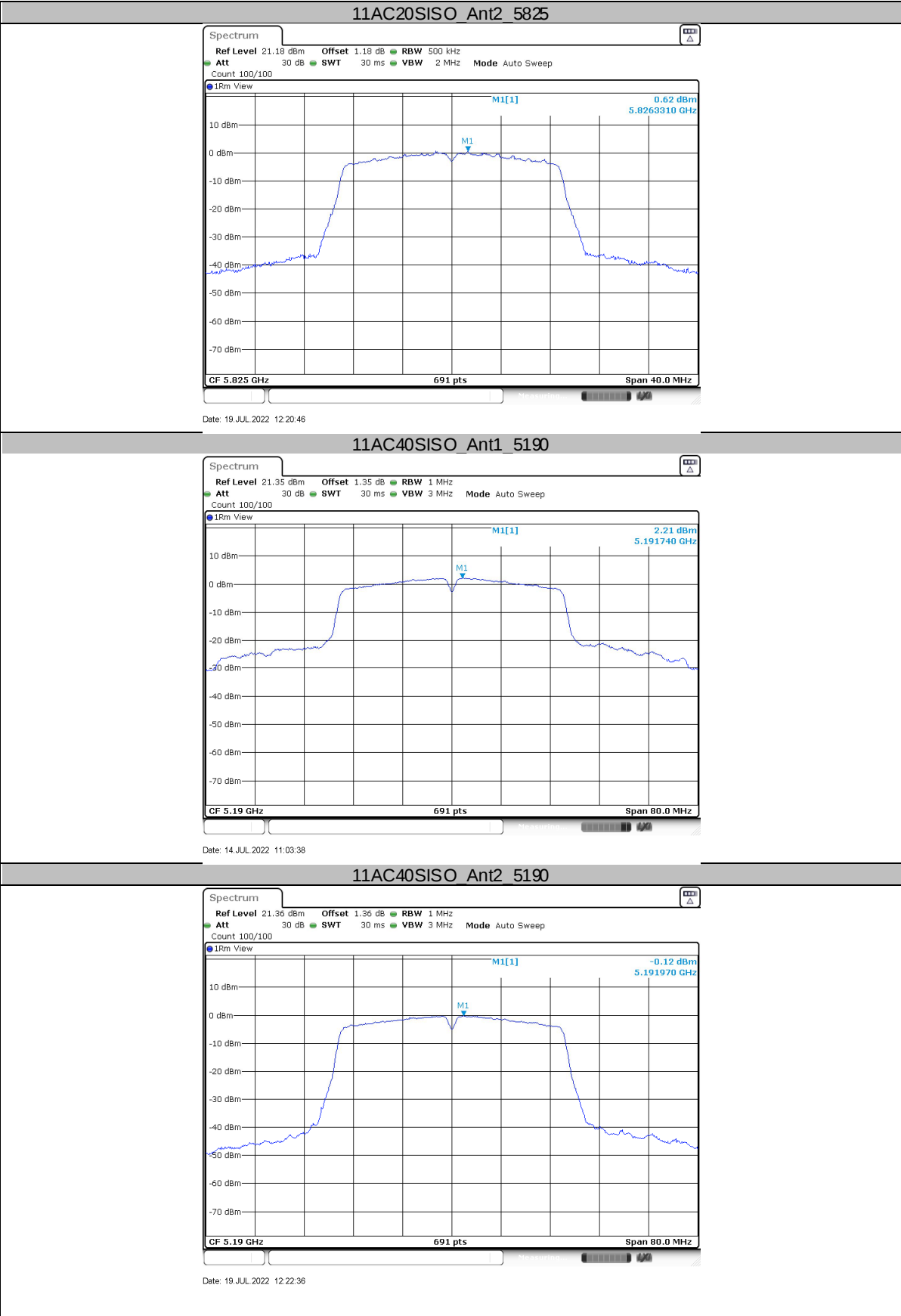


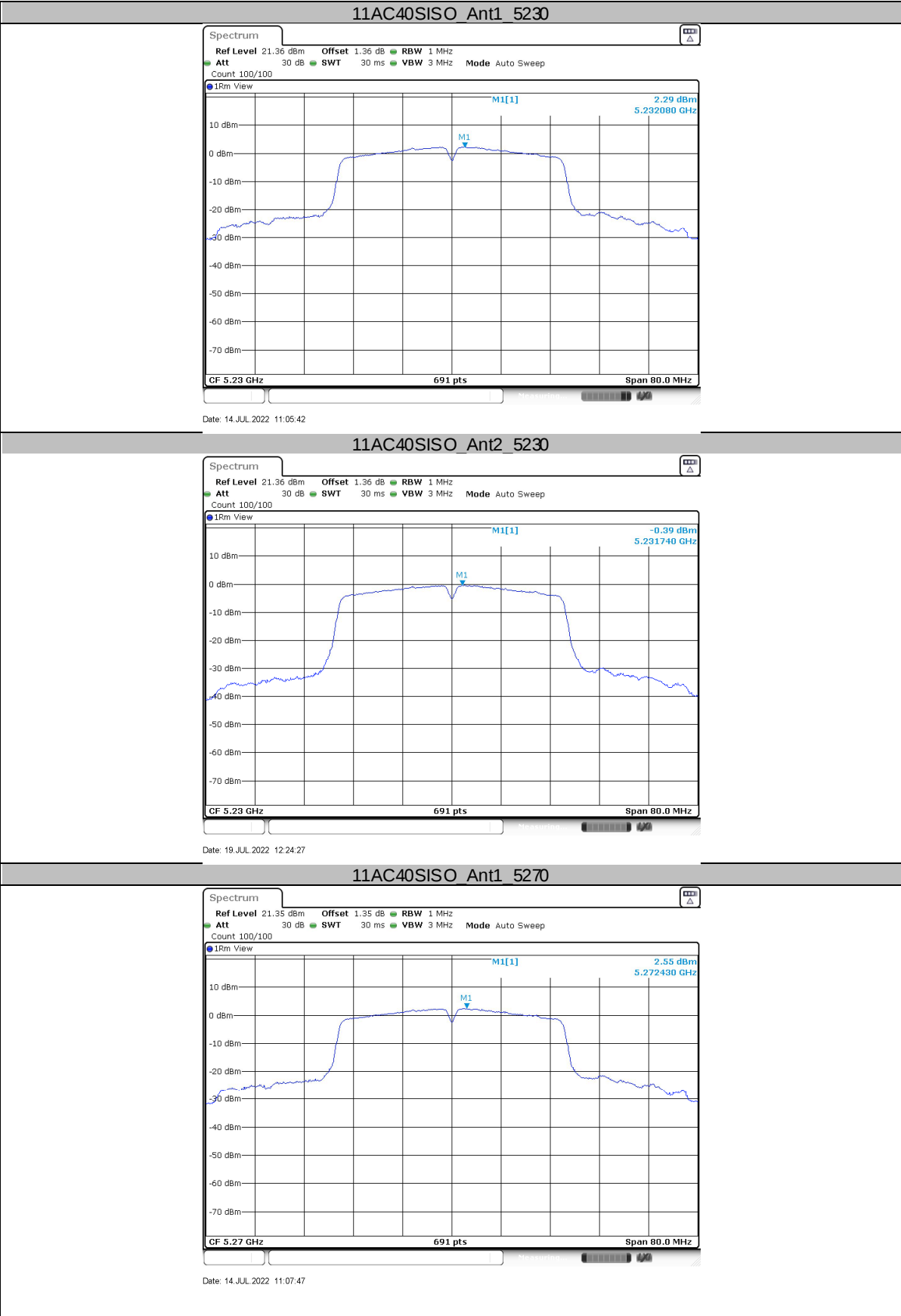


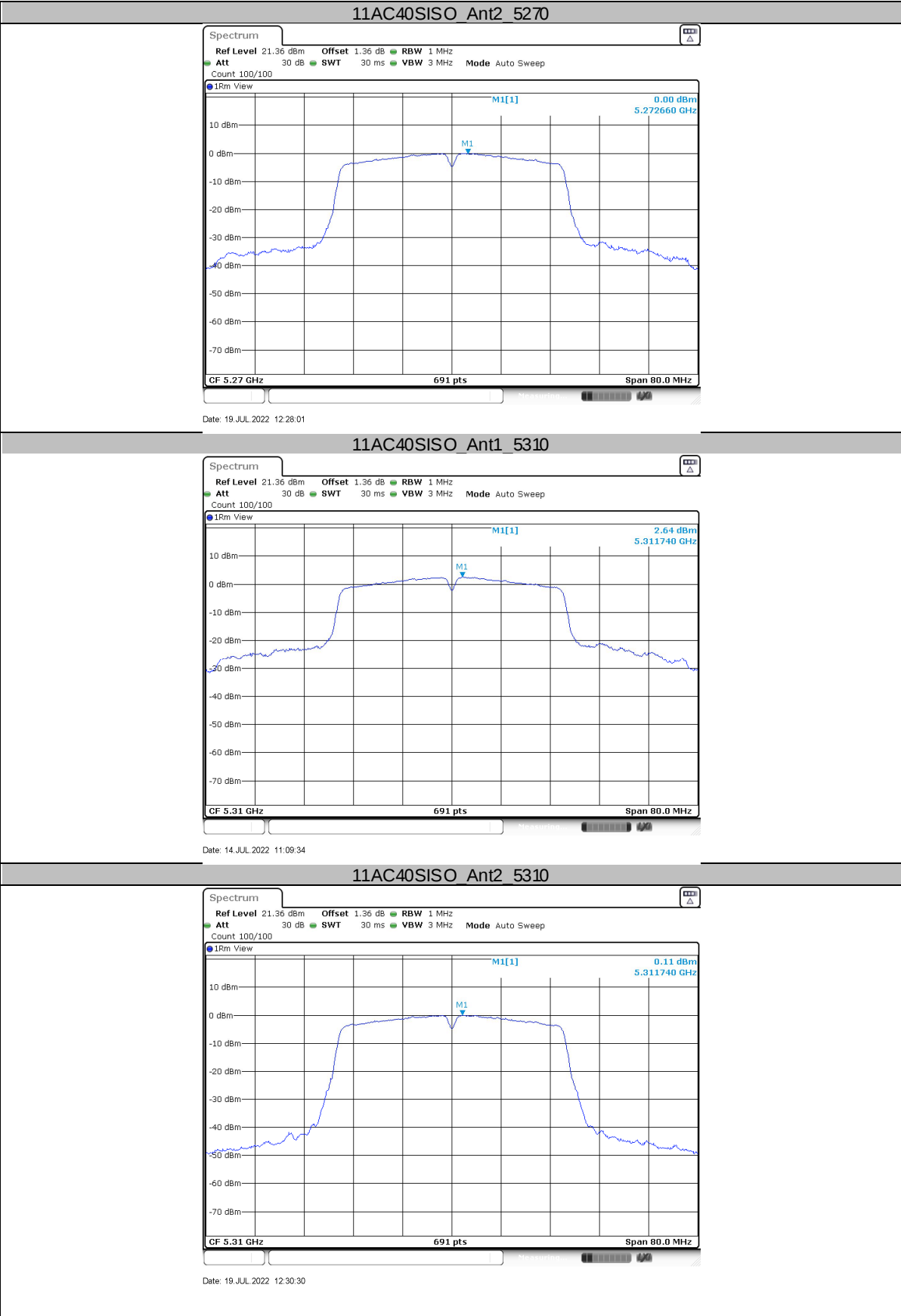


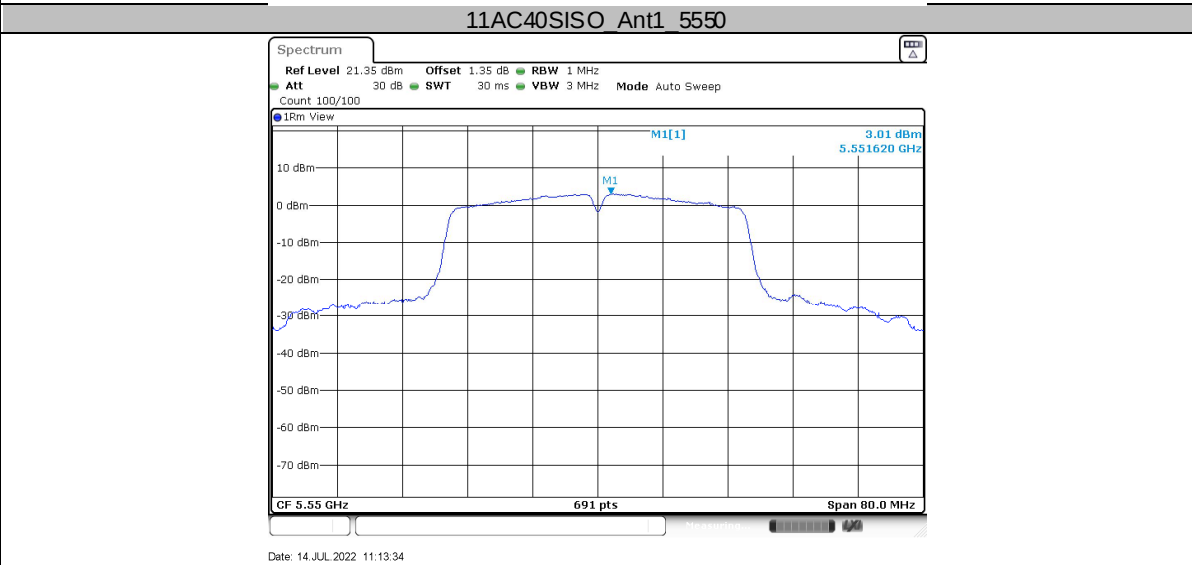
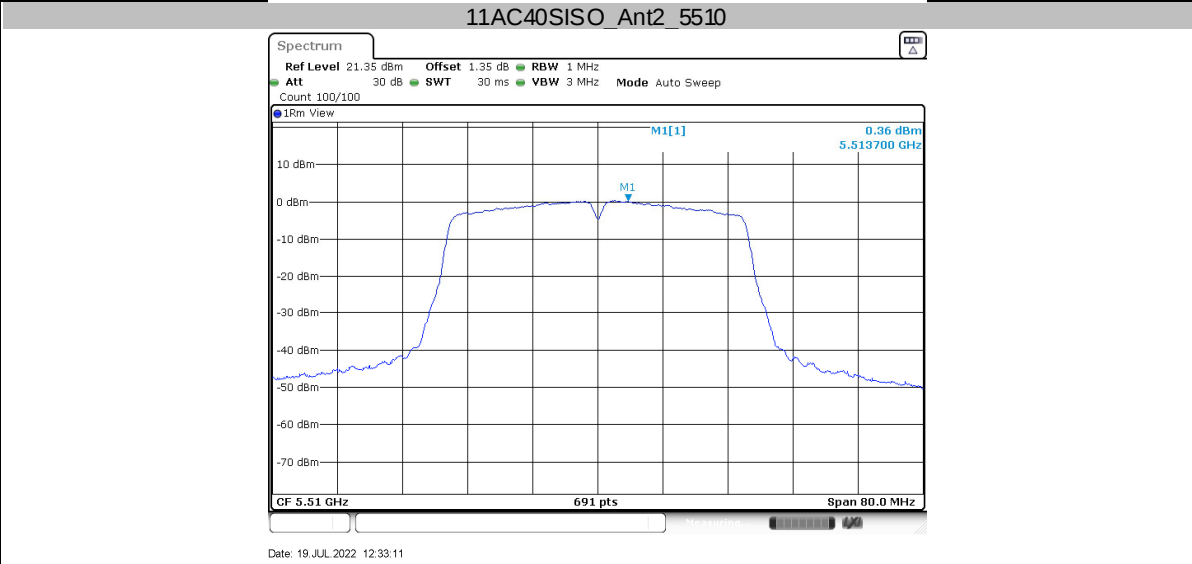
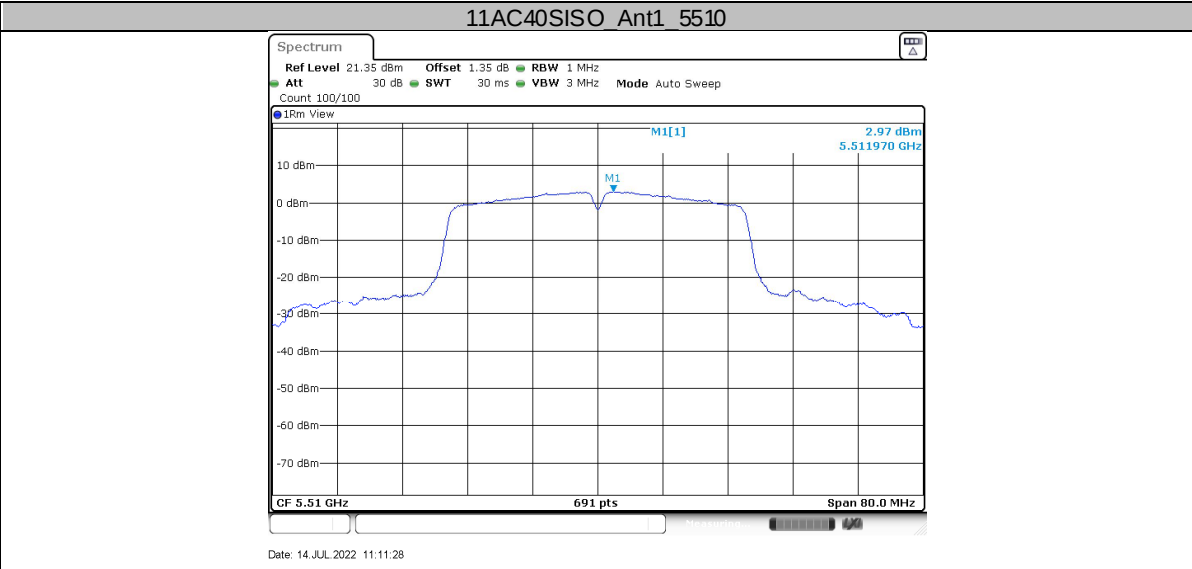


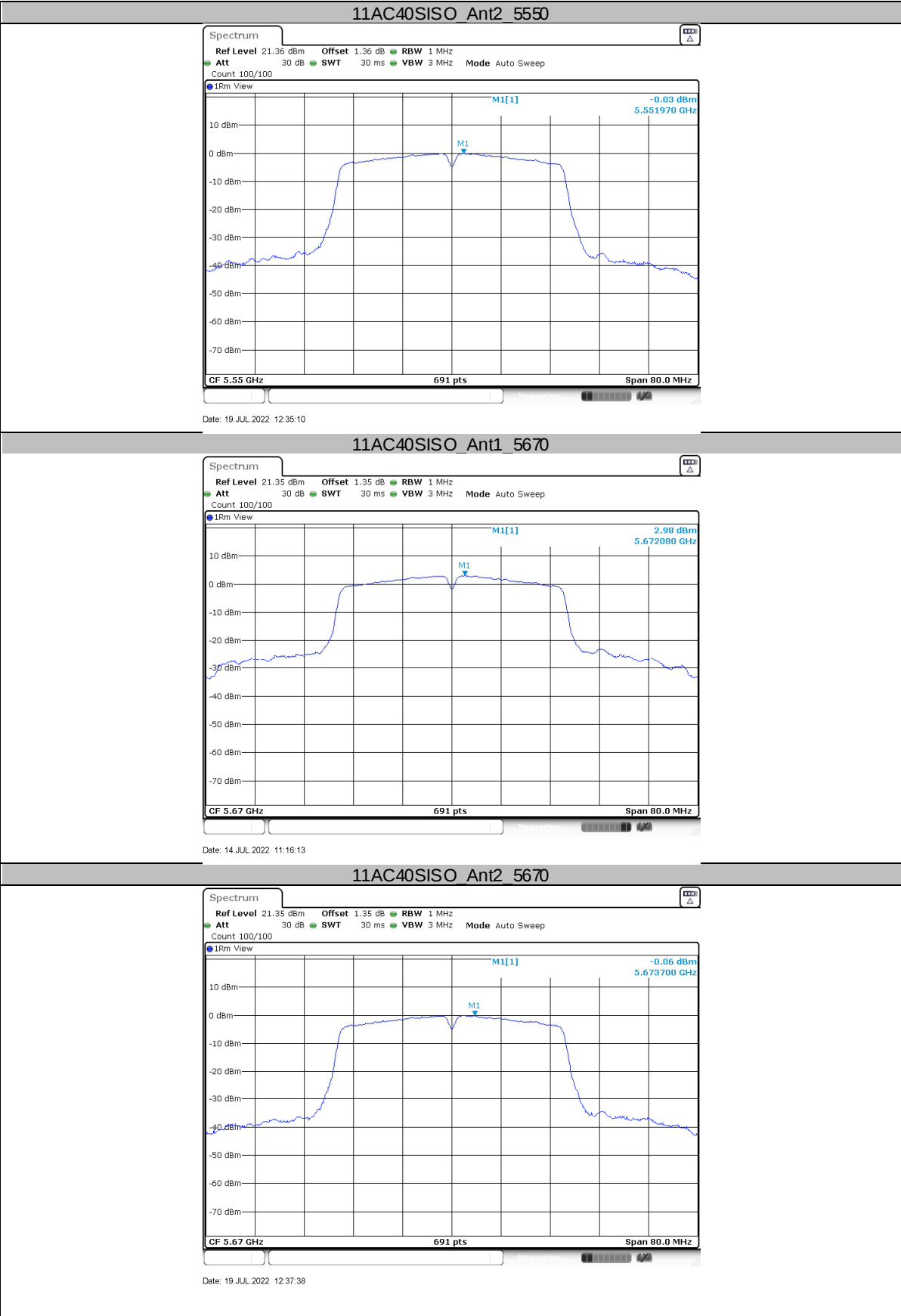


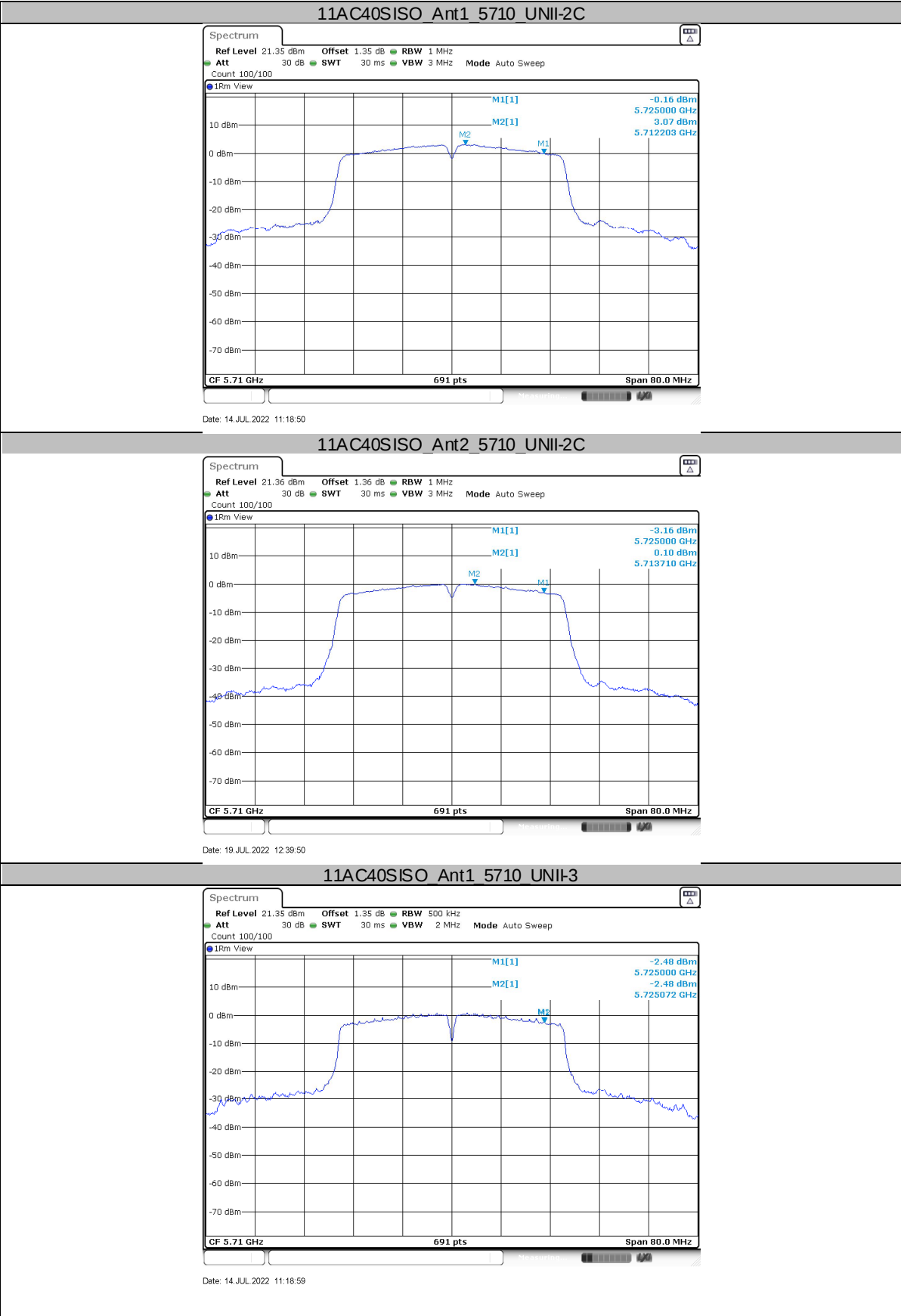


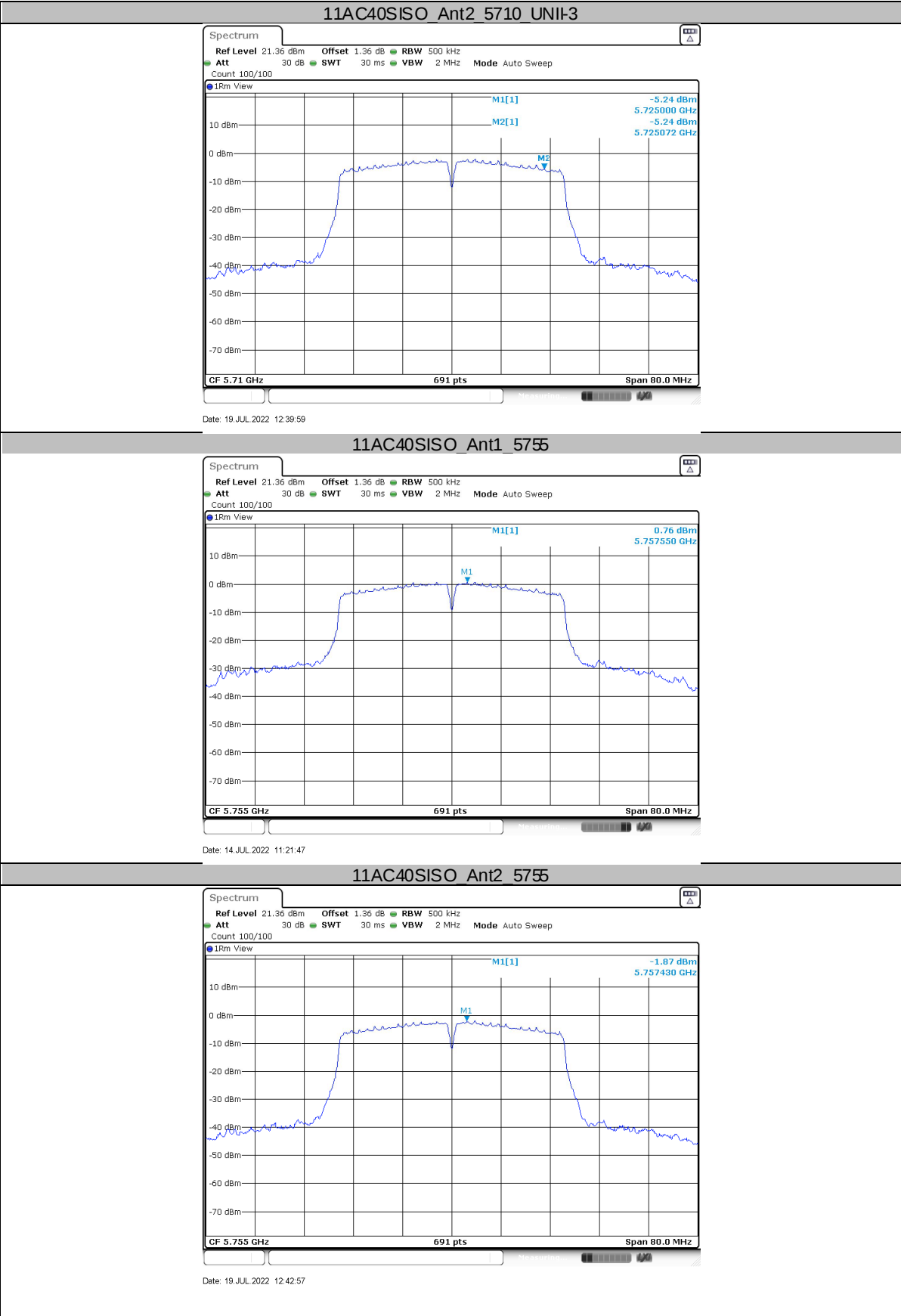


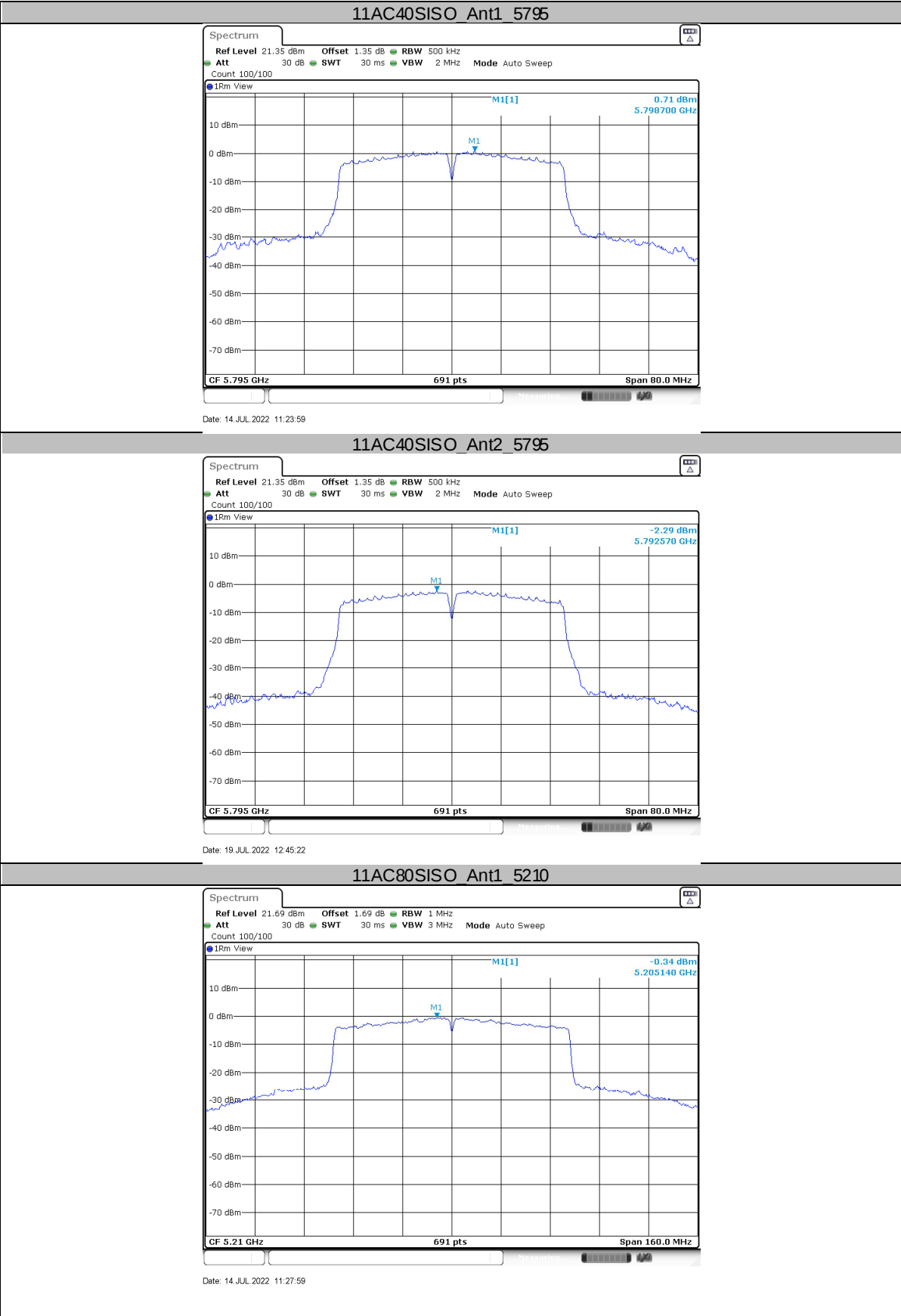


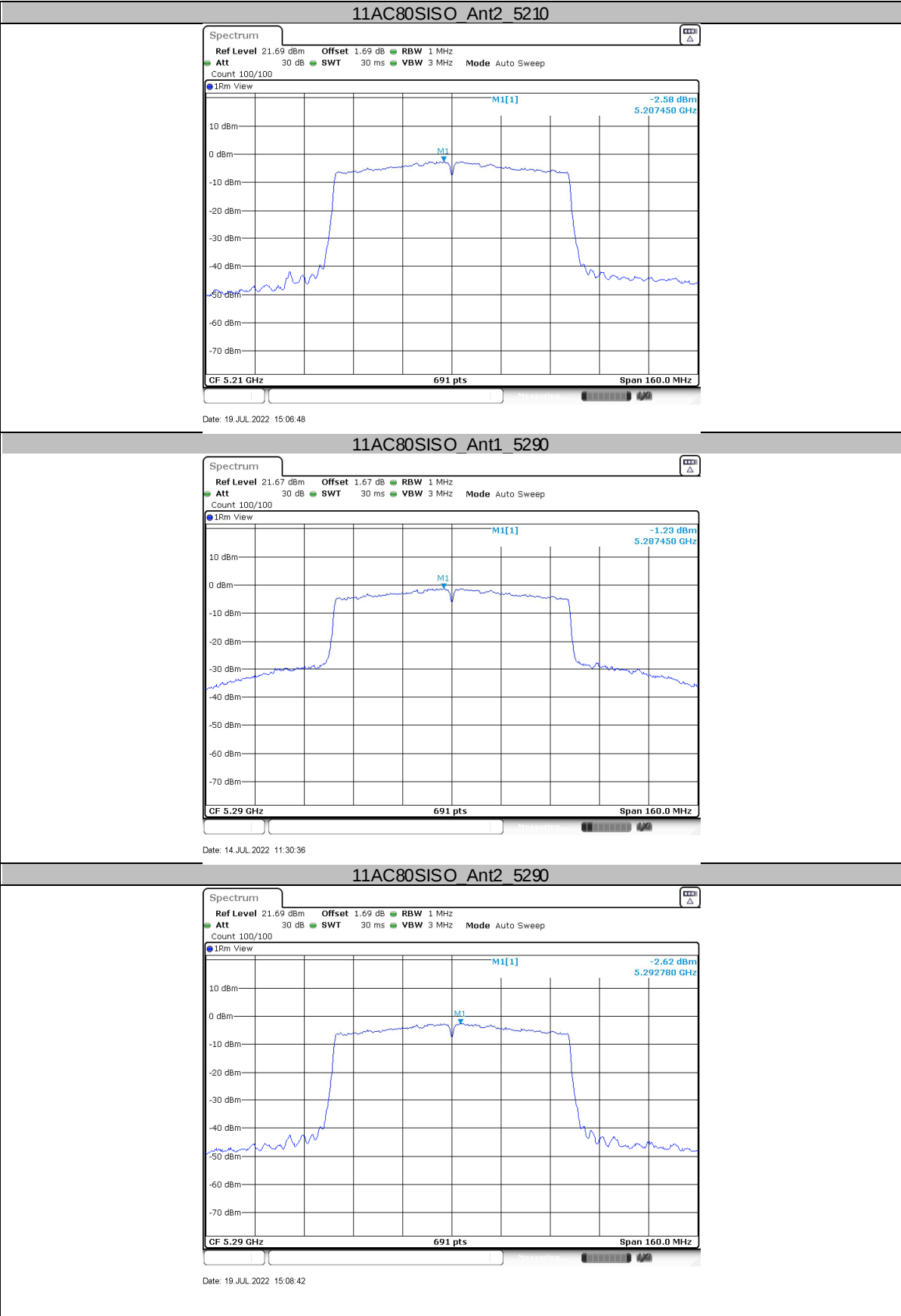


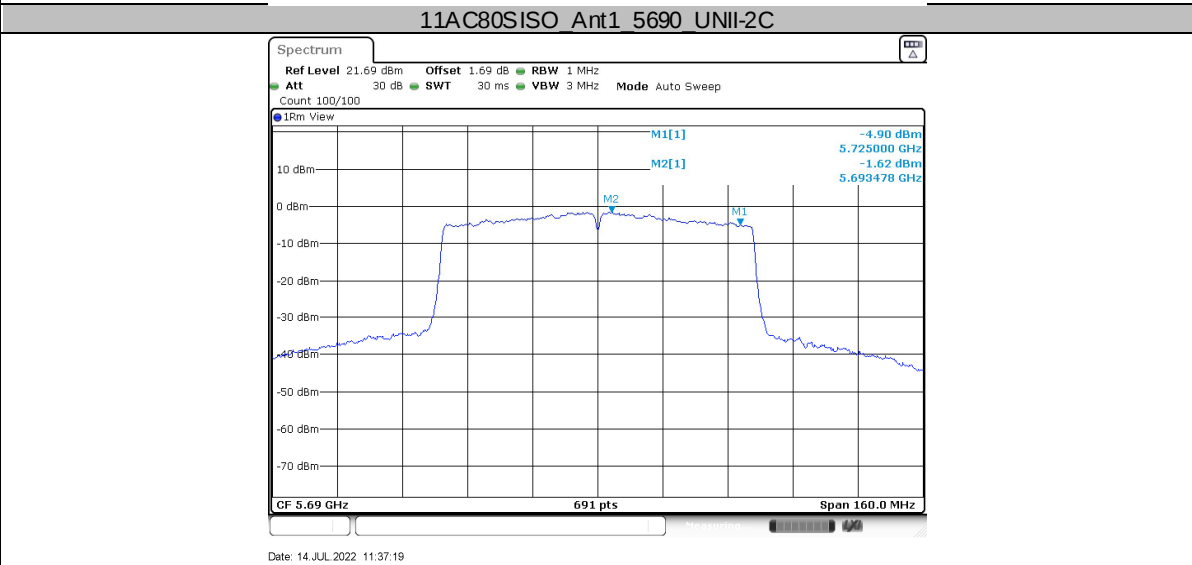
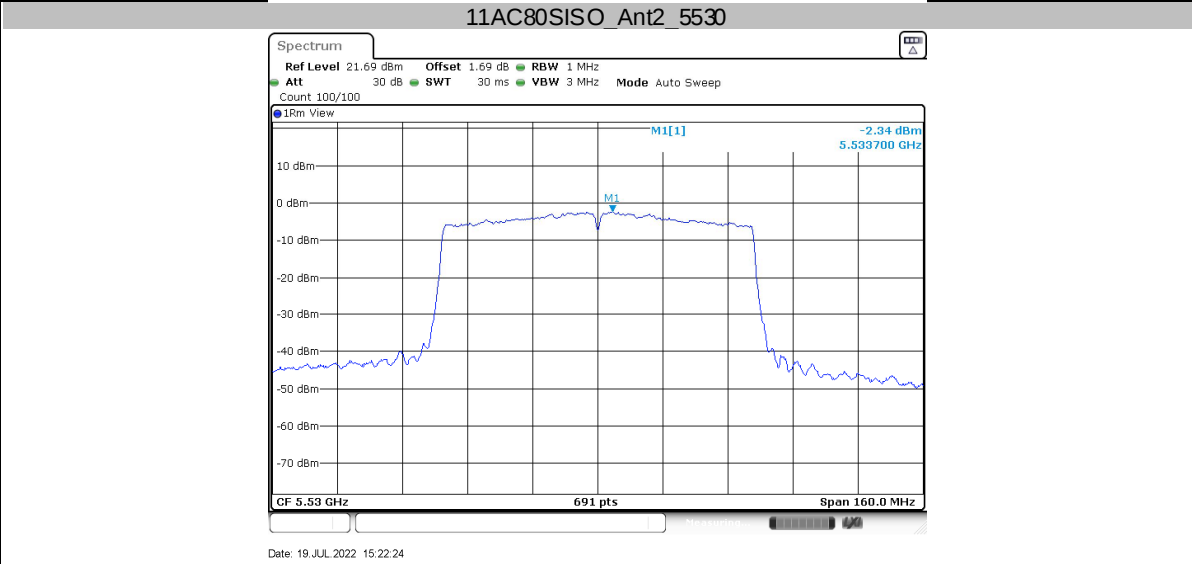
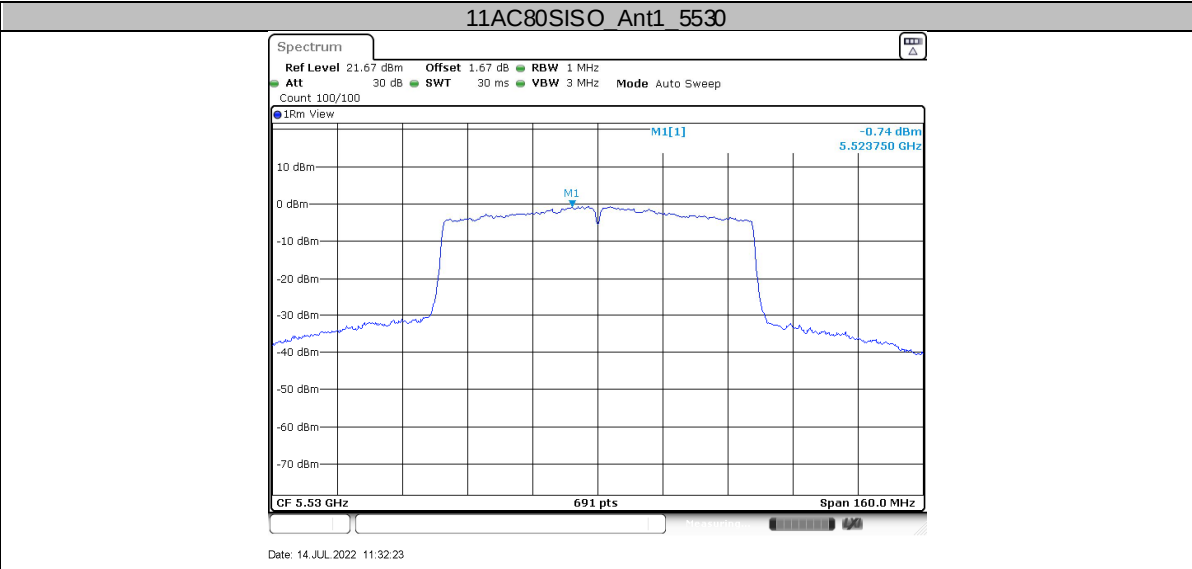


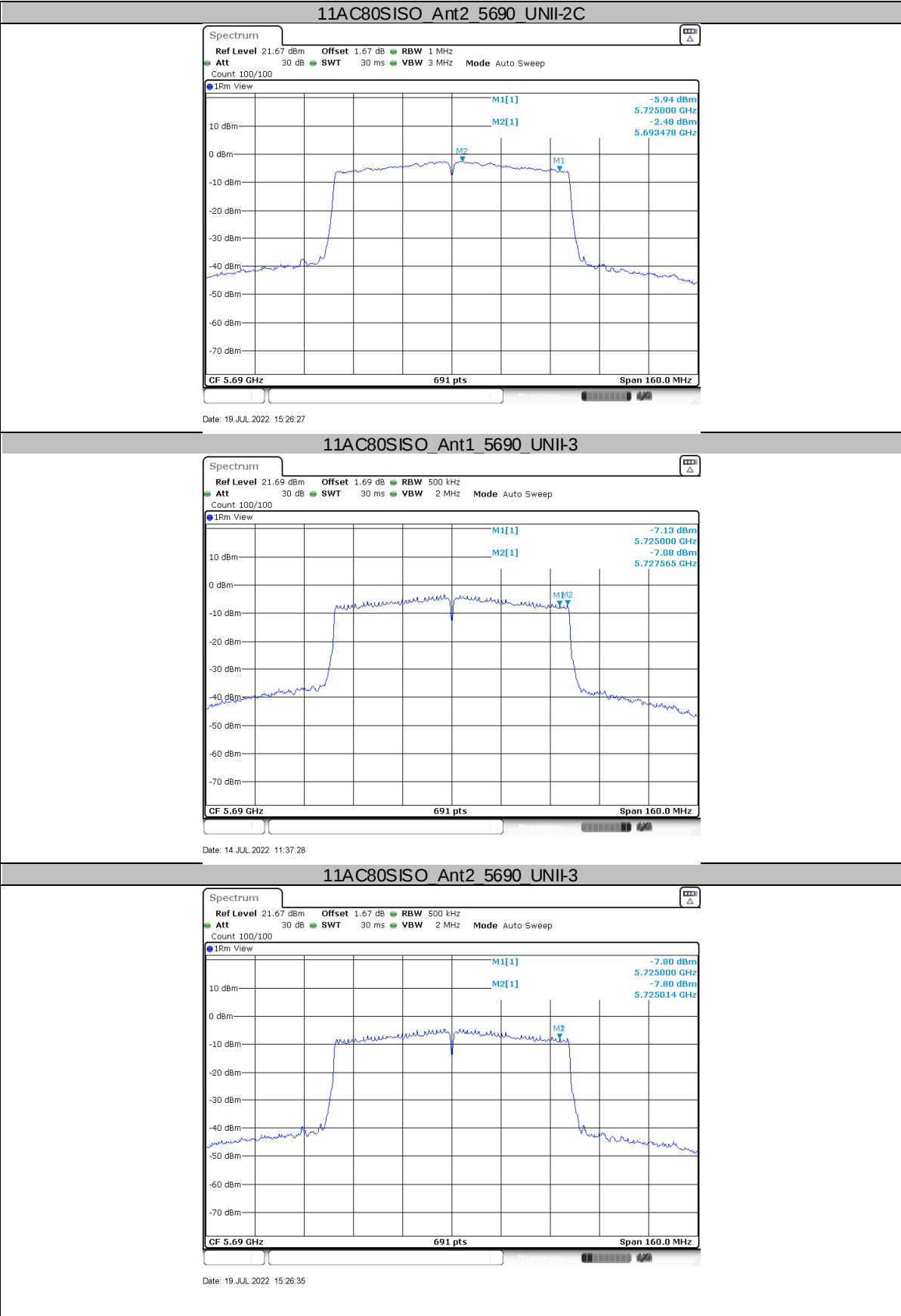


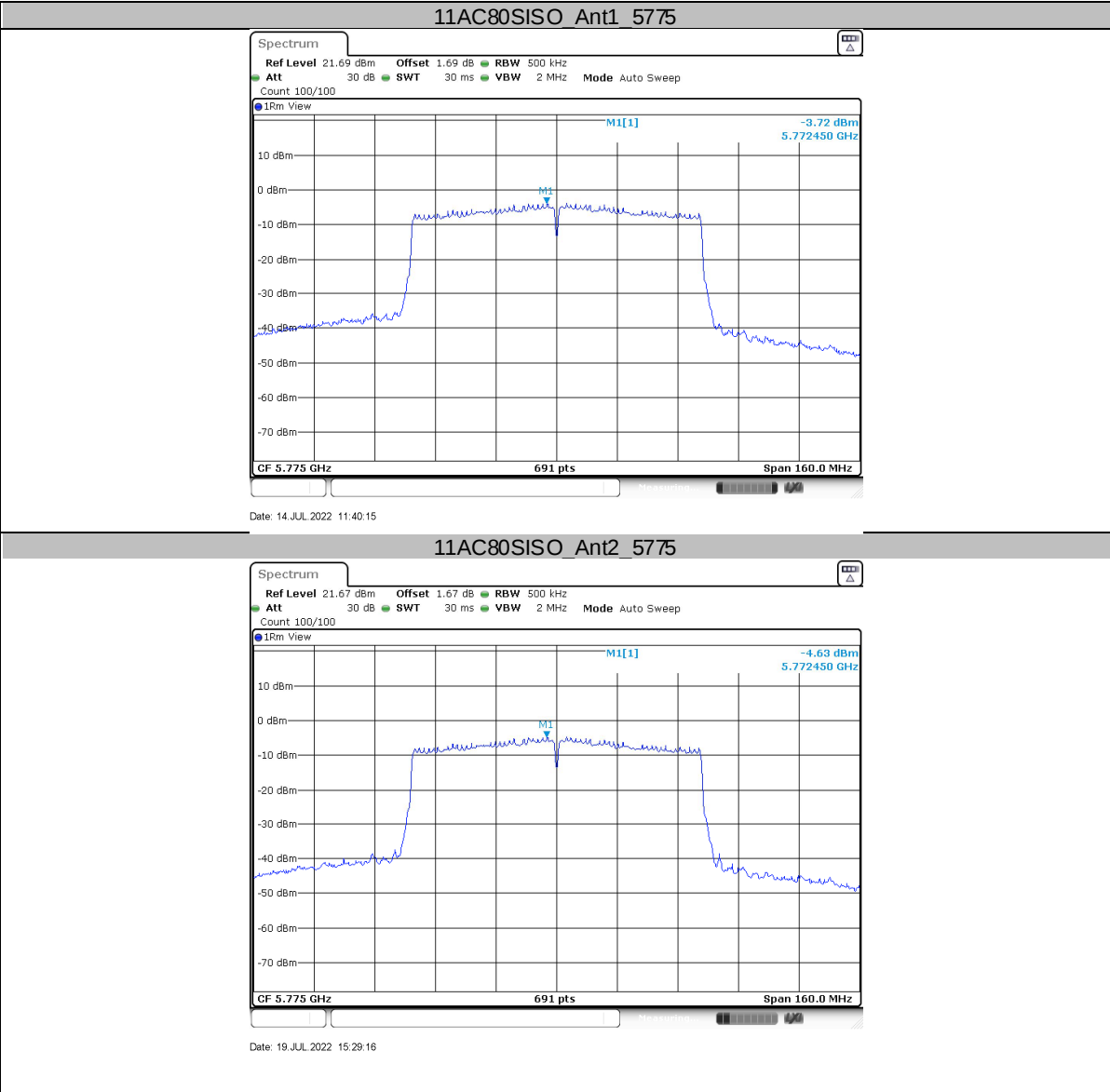












9.5 Unwanted emissions

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:

For Below 1GHz

Use the following spectrum analyzer settings:

Span = wide enough to capture the peak level of the in-band emission and all spurious

RBW = 100 KHz to 120KHz, VBW ≥ RBW for peak measurement, Sweep = auto,

Detector function = peak, Trace = max hold. For Peak unwanted emissions

For Above 1GHz:

Span = wide enough to capture the peak level of the in-band emission and all spurious

RBW = 1MHz, VBW ≥ RBW for peak measurement, Sweep = auto, Detector function = peak, Trace = max hold.

Procedures for Average Unwanted Emissions Measurements above 1000 MHz

a) Follow the requirements in II.G.3. "General Requirements for Unwanted Emissions Measurements."

b) Average emission levels shall be measured using one of the following two methods. c) Method AD (Average Detection): Primary method

(i) RBW = 1 MHz.

(ii) VBW ≥ 3 MHz.

(iii) Detector = power averaging (rms), if $\text{span}/(\# \text{ of points in sweep}) \leq \text{RBW}/2$.

Satisfying this condition may require increasing the number of points in the sweep or reducing the span. If the condition is not satisfied, the detector mode shall be set to peak. As an alternative, the detector and averaging type may be set for linear voltage averaging. Some instruments require linear display mode in order to use linear voltage averaging. Log or dB averaging shall not be used.

(v) Sweep time = auto.

(vi) Perform a trace average of at least 100 traces if the transmission is continuous. If the transmission is not continuous, the number of traces shall be increased by a factor of $1/x$, where x 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—rather than turning on and off with the transmit cycle, at least 100 traces shall be averaged.)

(vii) If tests are performed with the EUT transmitting at a duty cycle less than 98%, a correction factor shall be added to the measurement results prior to comparing to the emission limit in order 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:

If power averaging (rms) mode was used in II.G.6.c)(iv), the correction factor is $10 \log (1/x)$, where x is the duty cycle. For example, if the transmit duty cycle was 50%, then 3 dB must be added to the measured emission levels. If linear voltage averaging mode was used in II.G.6.c)(iv), the correction factor is $20 \log (1/x)$, where x is the duty cycle. For example, if the transmit duty cycle was 50%, then 6 dB must 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, no duty cycle correction is required for that emission.

Limit

According to RSS-247 section 6.2, 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 RSS-Gen section 8.10, must comply with the radiated emission limits specified in RSS-Gen section 8.9.

Frequency MHz	Field Strength uV/m	Field Strength dBμV/m	Detector
30-88	100	40	QP
88-216	150	43.5	QP
216-960	200	46	QP
960-1000	500	54	QP
Above 1000	500	54	AV
Above 1000	5000	74	PK

For transmitters with operating frequencies in the band 5150-5250 MHz, all emissions outside the band 5150-5350 MHz shall not exceed -27 dBm/MHz e.i.r.p. Any unwanted emissions that fall into the band 5250-5350 MHz shall be attenuated below the channel power by at least 26 dB, when measured using a resolution bandwidth between 1 and 5% of the occupied bandwidth (i.e. 99% bandwidth), above 5250 MHz. The 26 dB bandwidth may fall into the 5250-5350 MHz band; however, if the occupied bandwidth also falls within the 5250-5350 MHz band, the transmission is considered as intentional and the devices shall comply with all requirements in the band 5250-5350 MHz including implementing dynamic frequency selection (DFS) and TPC, on the portion of the emission that resides in the 5250-5350 MHz band.

For transmitters operating in the 5.25-5.35 GHz band: All emissions outside the band 5250-5350 MHz shall not exceed -27 dBm/MHz e.i.r.p.

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 -27 dBm/MHz e.i.r.p.

For transmitters operating in the 5.725-5.85 GHz band: shall have e.i.r.p. of unwanted emissions comply with the following:

- 27 dBm/MHz at frequencies from the band edges decreasing linearly to 15.6 dBm/MHz at 5 MHz above or below the band edges;
- 15.6 dBm/MHz at 5 MHz above or below the band edges decreasing linearly to 10 dBm/MHz at 25 MHz above or below the band edges;

- c) 10 dBm/MHz at 25 MHz above or below the band edges decreasing linearly to -27 dBm/MHz at 75 MHz above or below the band edges; and
d) -27 dBm/MHz at frequencies more than 75 MHz above or below the band edges.

Note: According to C63.10, the Conversion Factors between E[dBμV/m] and EIRP[dBm] as below:

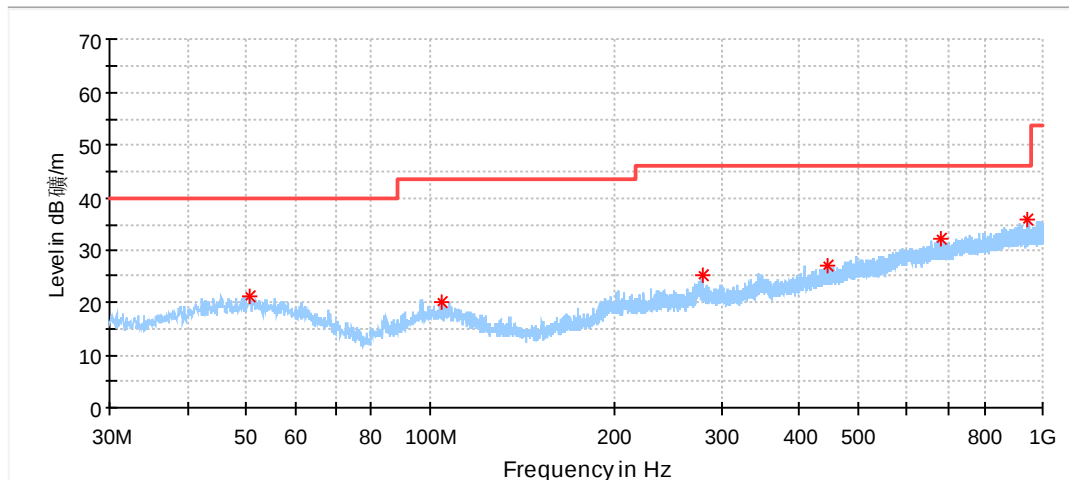
$$E[\text{dB}\mu\text{V/m}] = \text{EIRP}[\text{dBm}] + 95.2, \text{ for } d = 3 \text{ meters.}$$

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.

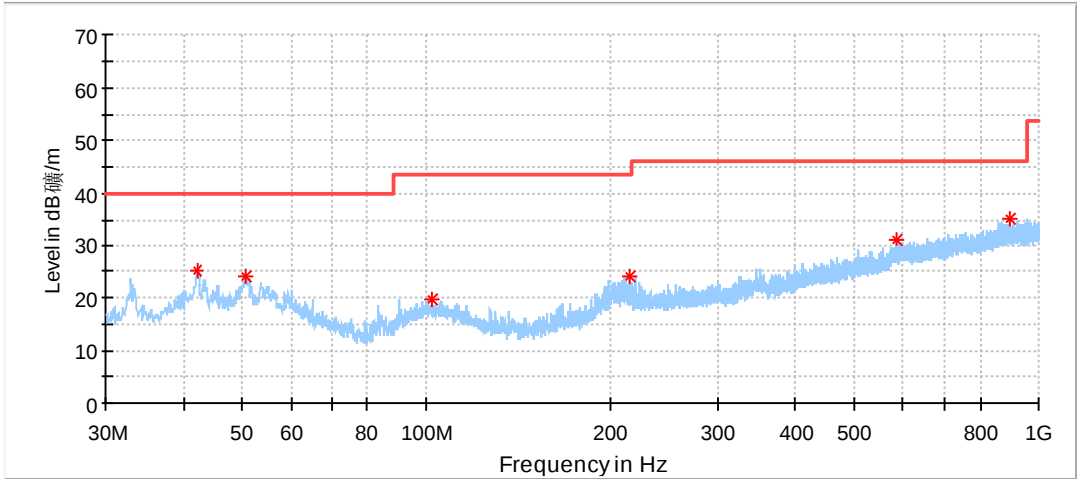
The only worse case (802.11N20 modulation) test result is listed in the report.

Transmitting spurious emission test result as below:

Below 1G:



Frequency (MHz)	MaxPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
50.801111	21.20	40.00	18.80	200.0	H	30.0	20.56
104.690000	20.28	43.50	23.22	200.0	H	267.0	18.78
279.721111	25.11	46.00	20.89	100.0	H	206.0	20.38
444.405556	26.87	46.00	19.13	200.0	H	194.0	24.21
683.833889	32.29	46.00	13.71	200.0	H	0.0	28.31
945.248889	36.02	46.00	9.98	100.0	H	132.0	31.43

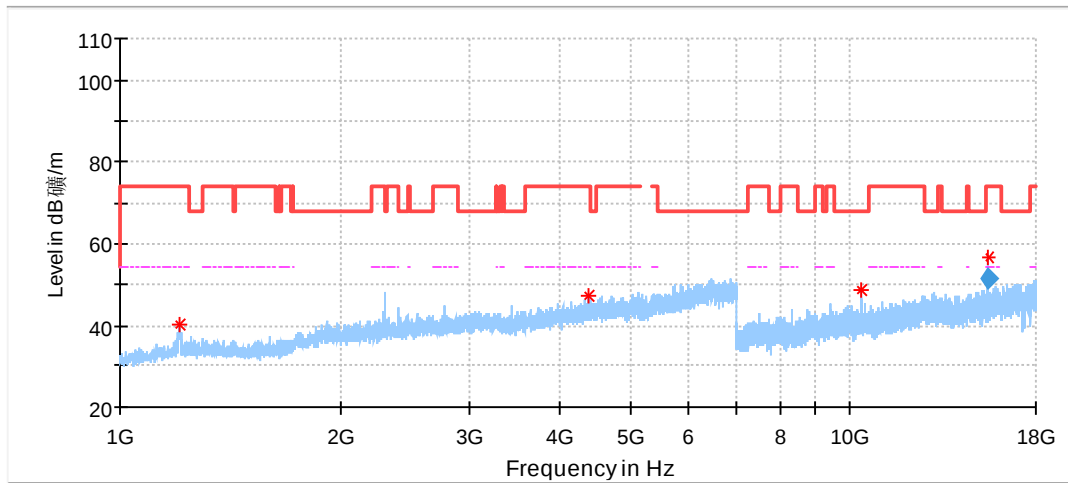


Critical Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
42.017222	25.30	40.00	14.70	100.0	V	354.0	19.88
50.639444	24.03	40.00	15.97	100.0	V	166.0	20.57
102.426667	19.81	43.50	23.69	100.0	V	348.0	18.94
214.677222	24.07	43.50	19.43	100.0	V	111.0	18.33
589.851667	31.22	46.00	14.78	100.0	V	221.0	27.50
900.305556	35.17	46.00	10.83	100.0	V	276.0	31.23

Above 1GHz:

802.11N Modulation 5180MHz Test Result

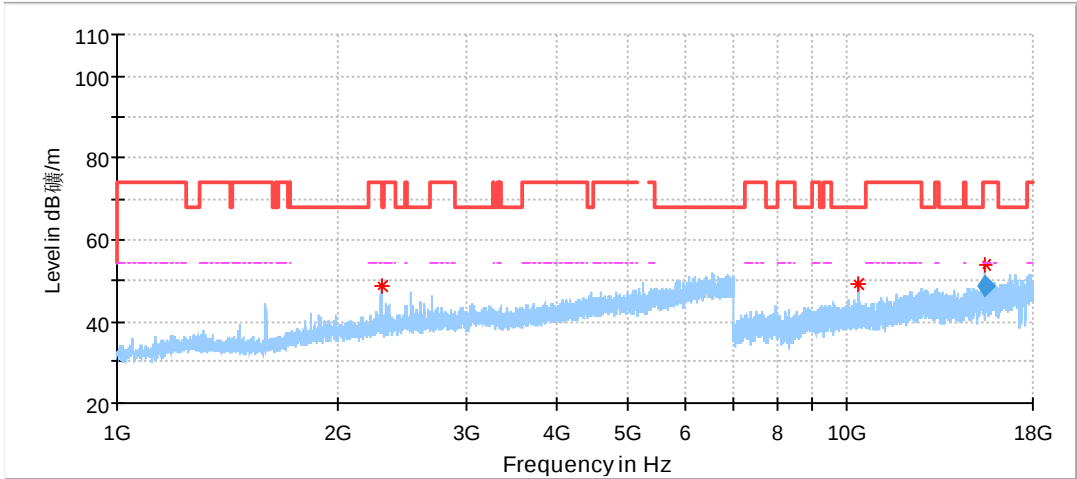


Critical Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
1204.500000	40.08	74.00	33.92	150.0	H	47.0	-8.54
4372.500000	47.06	74.00	26.94	150.0	H	47.0	2.70
10361.500000	48.74	68.20	19.46	150.0	H	298.0	12.54
15538.500000	56.34	74.00	17.66	150.0	H	272.0	17.96

Final Result

Frequency (MHz)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
15538.500000	51.27	54.00	2.73	150.0	H	272.0	17.96

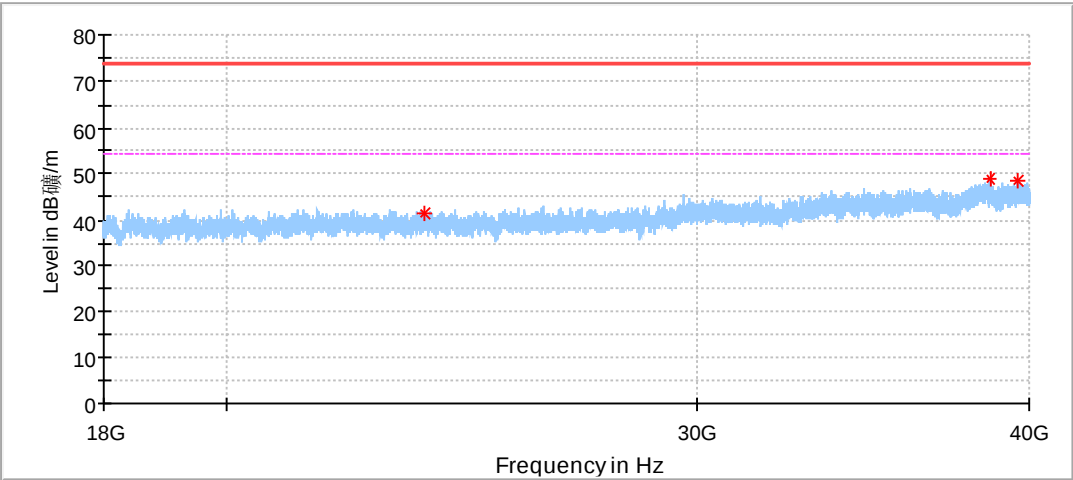


Critical Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
2293.000000	48.43	74.00	25.57	150.0	V	248.0	-2.98
10354.500000	49.21	68.20	18.99	150.0	V	85.0	12.58
15534.500000	53.72	74.00	20.28	150.0	V	192.0	17.95

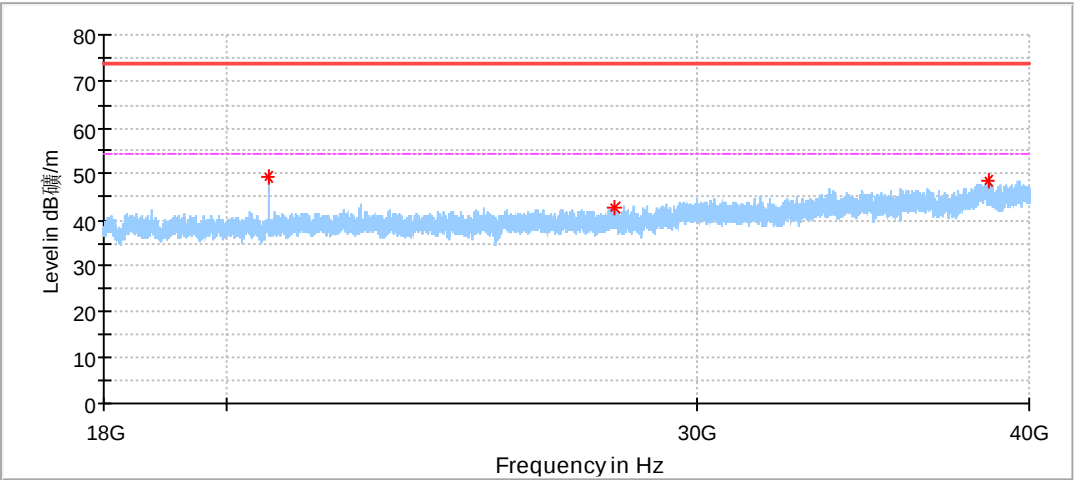
Final Result

Frequency (MHz)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
15534.500000	48.76	54.00	5.24	150.0	V	192.0	17.95



Critical Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
23733.062500	41.43	74.00	32.57	150.0	H	232.0	0.53
38629.812500	48.63	74.00	25.37	150.0	H	139.0	6.07
39634.937500	48.25	74.00	25.75	150.0	H	179.0	7.46

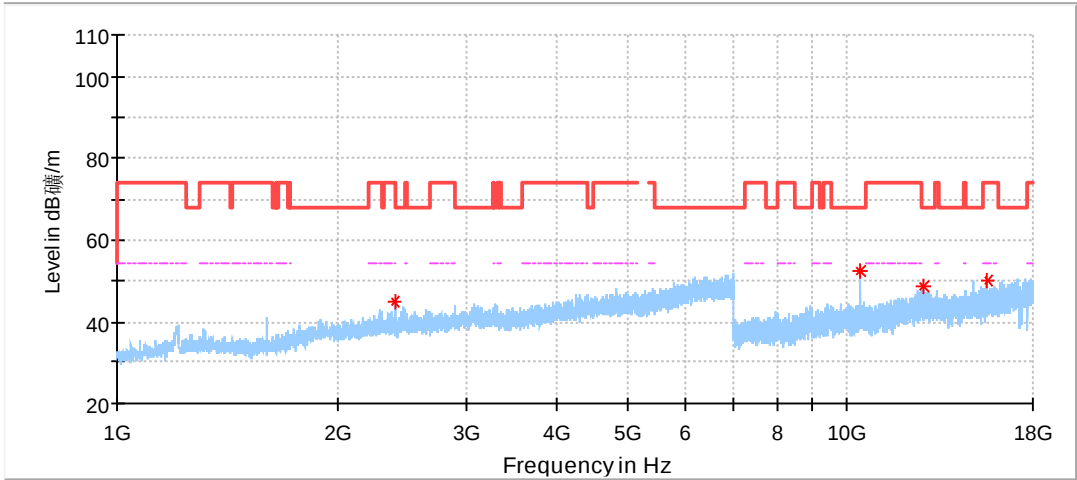


Critical Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
20719.750000	49.40	74.00	24.60	150.0	V	359.0	-1.30
27941.937500	42.69	74.00	31.31	150.0	V	291.0	1.24
38589.937500	48.45	74.00	25.55	150.0	V	157.0	6.20

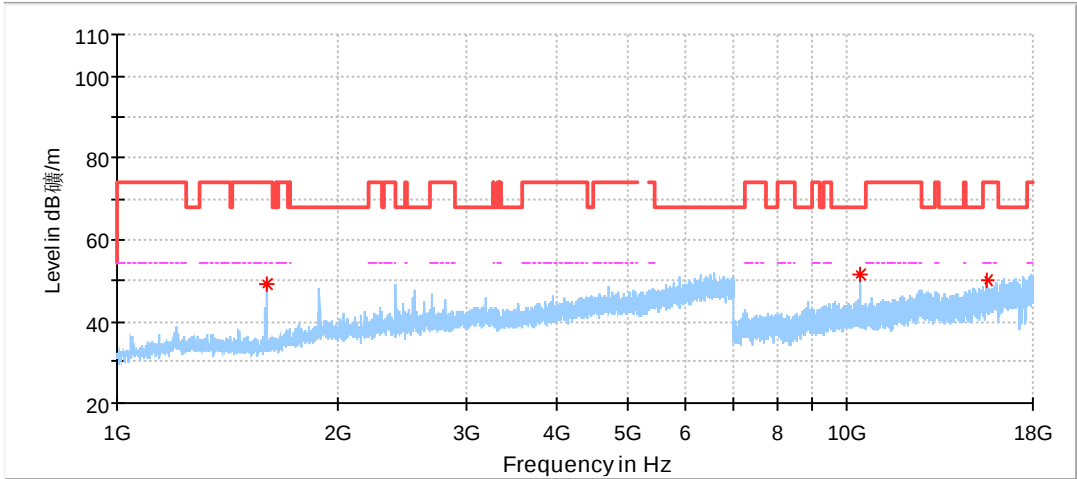


802.11N20 Modulation 5200MHz Test Result



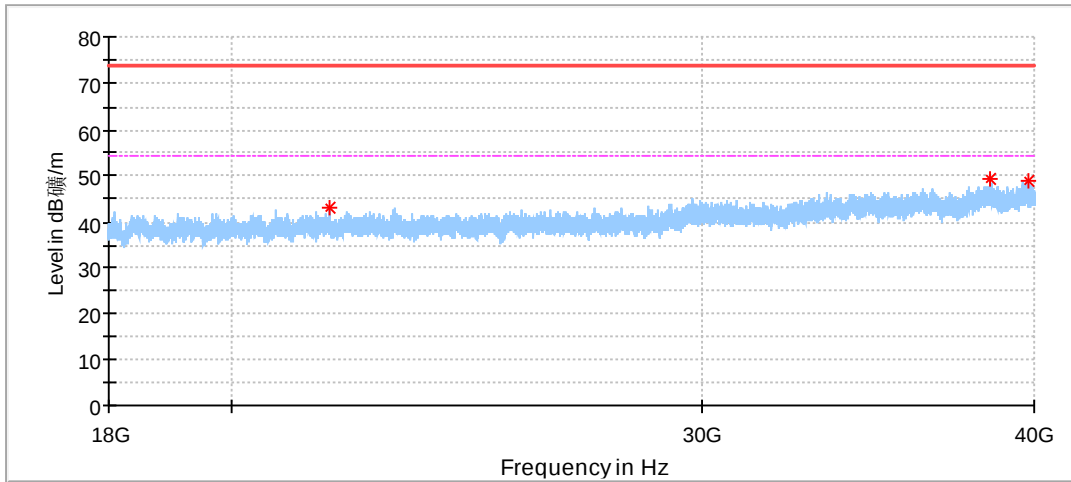
Critical Freqs

Frequency (MHz)	MaxPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
2397.000000	44.70	68.20	23.50	150.0	H	0.0	-2.65
10396.000000	52.36	68.20	15.84	150.0	H	302.0	12.60
12717.500000	48.45	68.20	19.75	150.0	H	0.0	15.84
15607.500000	49.95	74.00	24.05	150.0	H	223.0	18.17



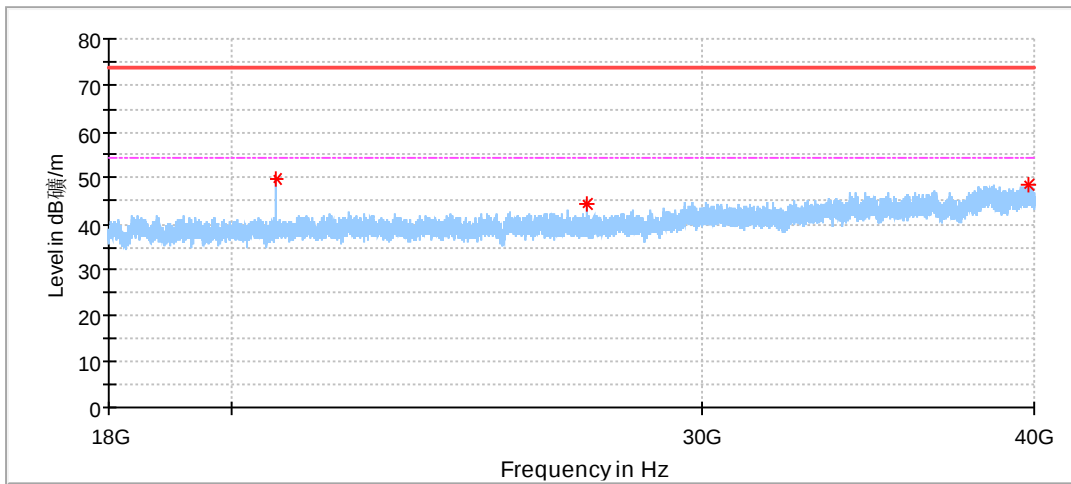
Critical Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
1599.000000	49.27	74.00	24.73	150.0	V	237.0	-8.18
10403.000000	51.33	68.20	16.87	150.0	V	4.0	12.61
15603.000000	49.97	74.00	24.03	150.0	V	29.0	18.16



Critical Freqs

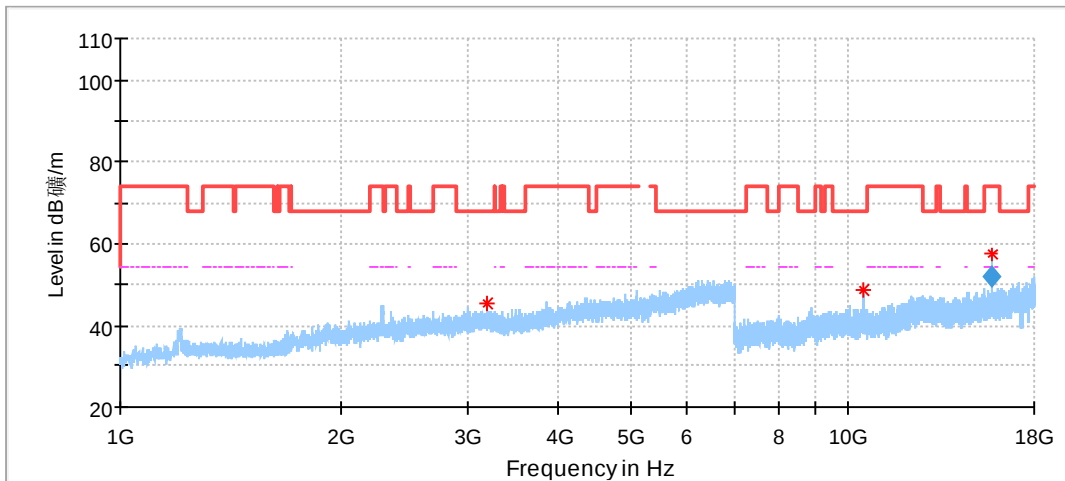
Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
21769.562500	43.24	74.00	30.76	150.0	H	0.0	-0.20
38489.562500	49.07	74.00	24.93	150.0	H	291.0	6.57
39804.750000	48.70	74.00	25.30	150.0	H	144.0	7.94



Critical Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
20799.500000	49.67	74.00	24.33	150.0	V	0.0	-1.05
27163.000000	44.14	74.00	29.86	150.0	V	6.0	1.65
39815.062500	48.32	74.00	25.68	150.0	V	315.0	7.97

802.11N20 Modulation 5240MHz Test Result

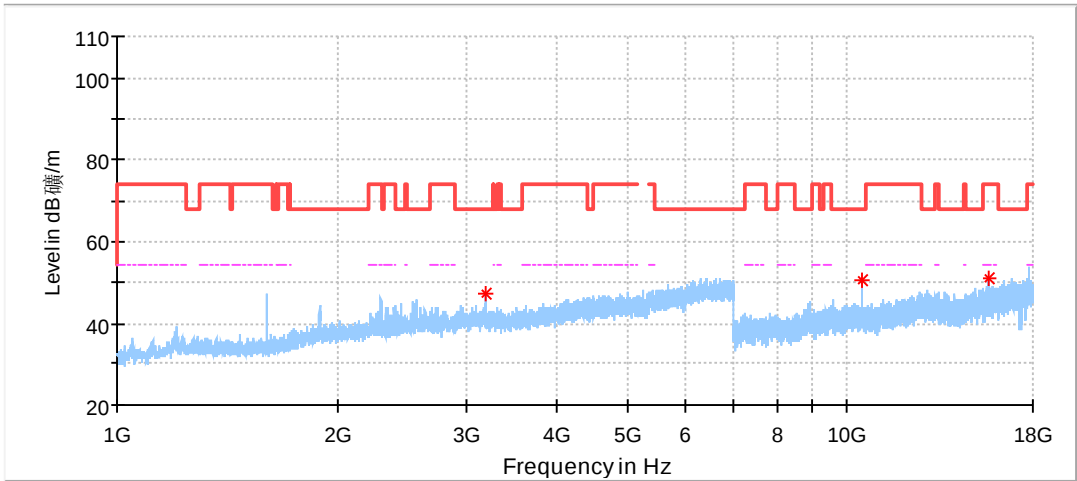


Critical_Freqs

Frequency (MHz)	MaxPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
3195.500000	45.20	68.20	23.00	150.0	H	319.0	-0.38
10484.500000	48.39	68.20	19.81	150.0	H	85.0	12.58
15711.000000	57.33	74.00	16.67	150.0	H	271.0	18.41

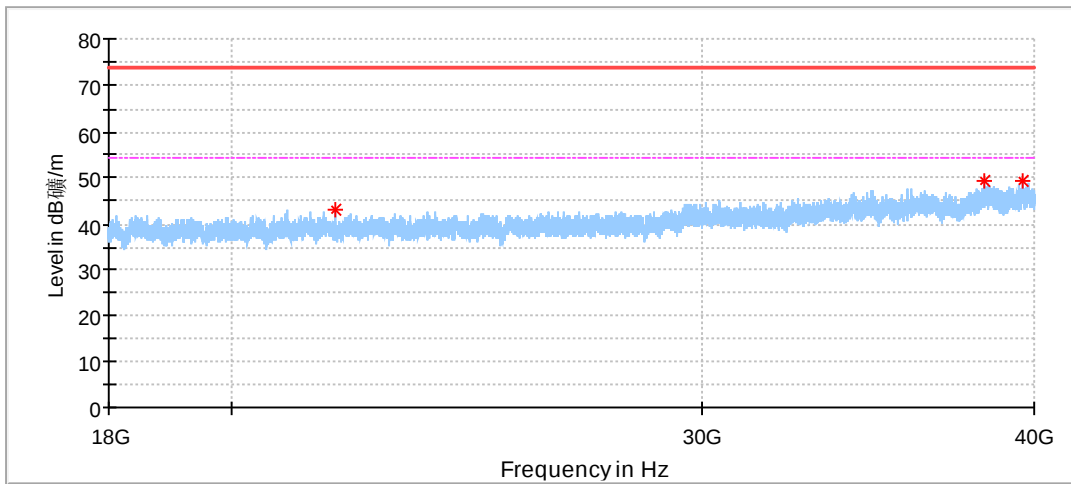
Final_Result

Frequency (MHz)	Average (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
15711.000000	51.63	54.00	2.37	150.0	H	271.0	18.41



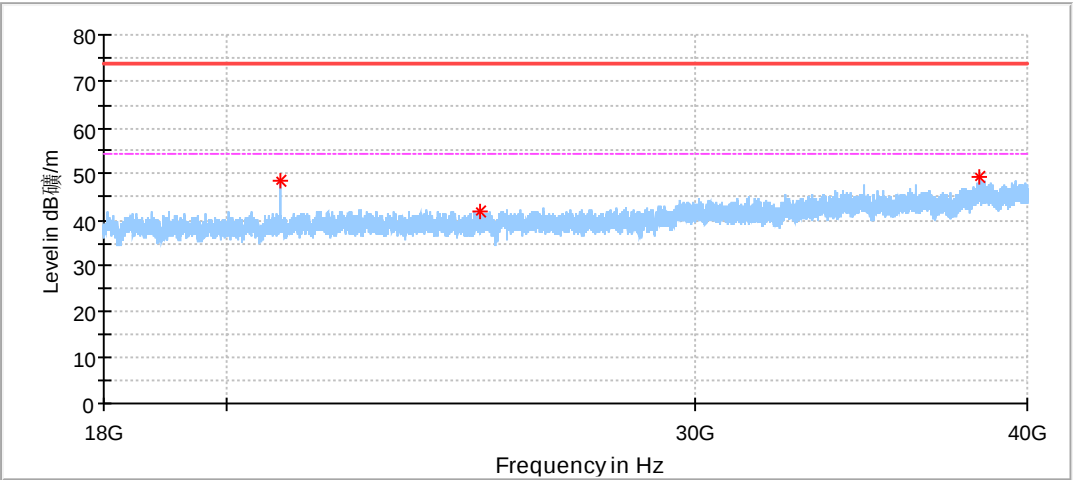
Critical Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
3195.000000	47.38	68.20	20.82	150.0	V	295.0	-0.38
10477.500000	50.50	68.20	17.70	150.0	V	35.0	12.62
15726.000000	50.88	74.00	23.12	150.0	V	88.0	18.46



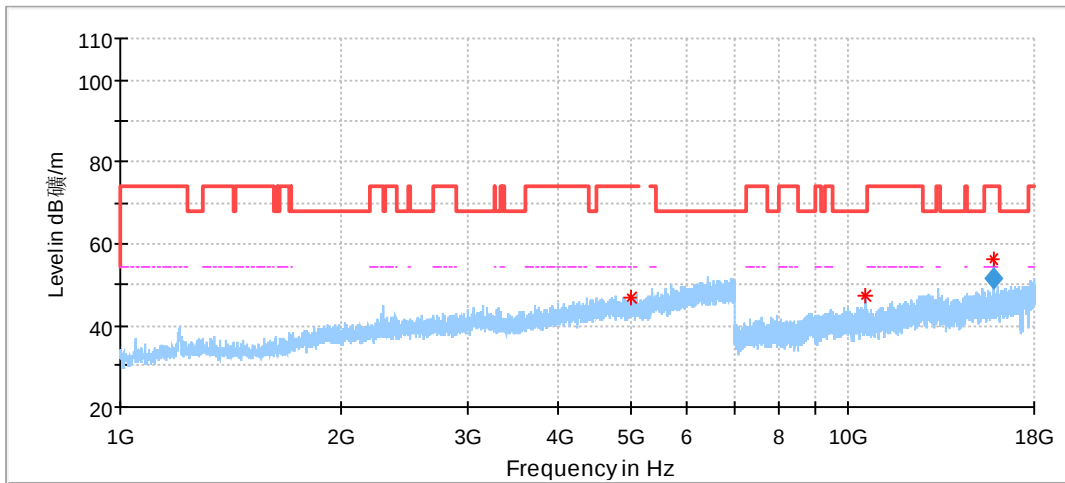
Critical Freqs

Frequency (MHz)	MaxPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
21883.687500	43.12	74.00	30.88	150.0	H	72.0	-0.16
38279.187500	49.22	74.00	24.78	150.0	H	192.0	6.35
39617.062500	49.03	74.00	24.97	150.0	H	126.0	7.43



Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
20959.687500	48.38	74.00	25.62	150.0	V	0.0	-0.74
24912.812500	41.92	74.00	32.08	150.0	V	86.0	1.03
38377.500000	49.20	74.00	24.80	150.0	V	166.0	6.55

802.11N20 Modulation 5260MHz Test Result

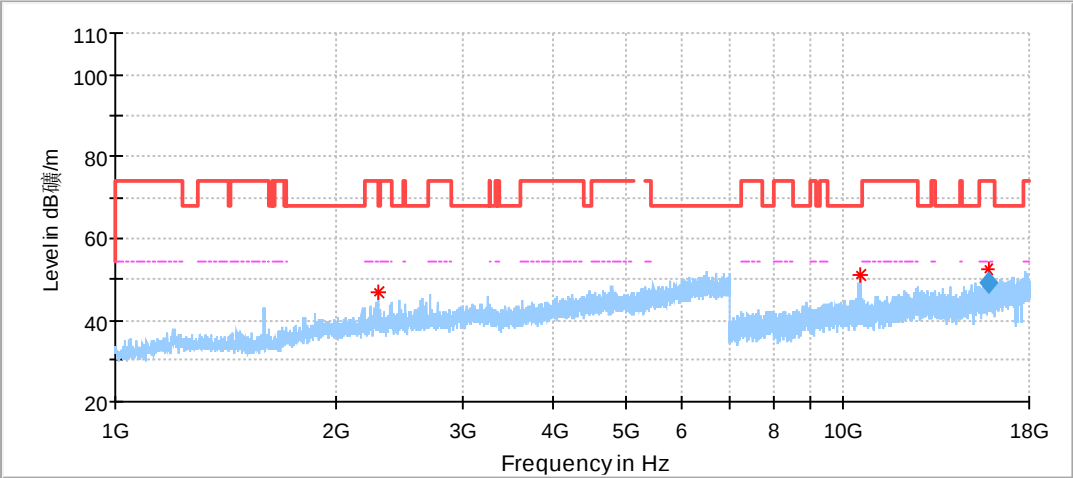


Critical_Freqs

Frequency (MHz)	MaxPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
5004.000000	46.55	74.00	27.45	150.0	H	263.0	4.08
10525.500000	47.06	68.20	21.14	150.0	H	297.0	12.37
15773.500000	56.21	74.00	17.79	150.0	H	271.0	18.64

Final Result

Frequency (MHz)	Average (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
15773.500000	51.54	54.00	2.46	150.0	H	271.0	18.64



Critical_Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
2296.500000	46.65	74.00	27.35	150.0	V	201.0	-2.96
10514.500000	51.14	68.20	17.06	150.0	V	331.0	12.42
15769.500000	52.44	74.00	21.56	150.0	V	221.0	18.63

Final_Result

Frequency (MHz)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
15769.500000	49.28	54.00	4.72	150.0	V	221.0	18.63