

## 9.5 Spurious RF conducted emissions

### Test Method

1. Use the following spectrum analyzer settings:  
Span = wide enough to capture the peak level of the in-band emission and all spurious emissions (e.g., harmonics) from the lowest frequency generated in the EUT up through the 10<sup>th</sup> harmonic. Typically, several plots are required to cover this entire span.  
RBW = 100 kHz, VBW ≥ RBW, Sweep = auto, Detector function = peak, Trace = max hold
2. Allow the trace to stabilize. Set the marker on the peak of any spurious emission recorded.
3. The level displayed must comply with the limit specified in this Section. Submit these plots.
4. Repeat above procedures until all frequencies measured were complete.

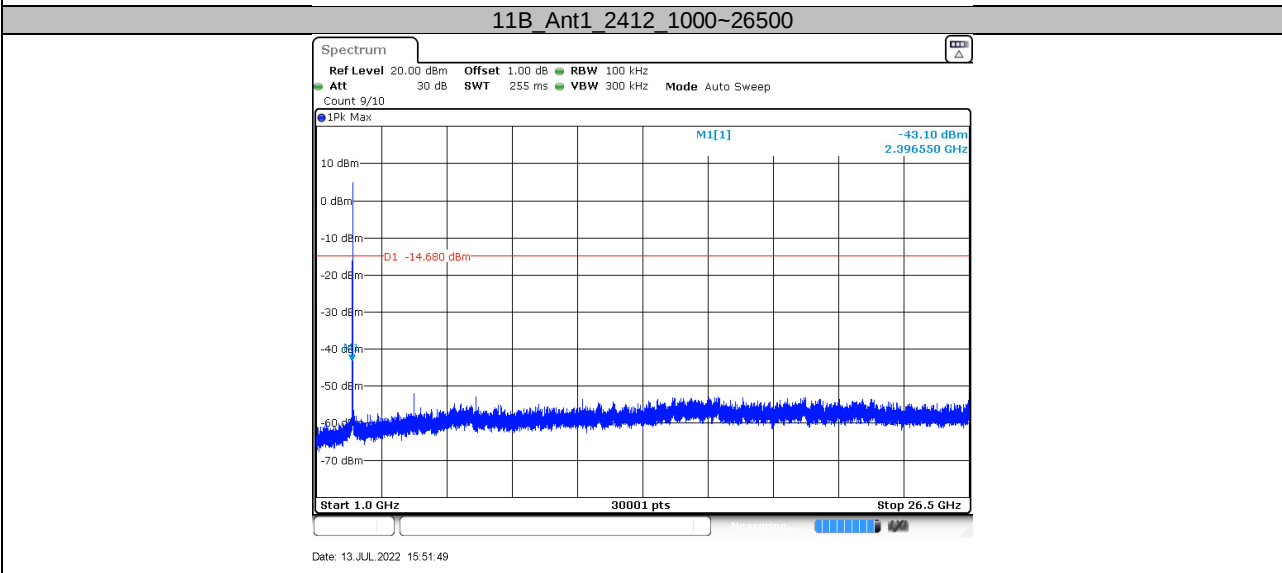
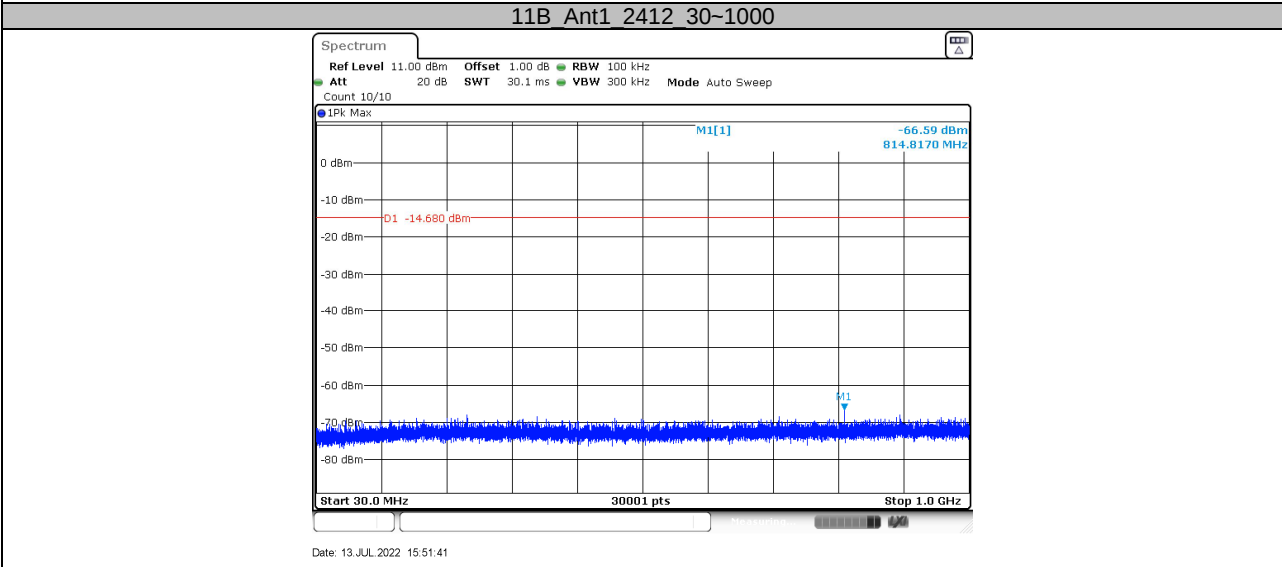
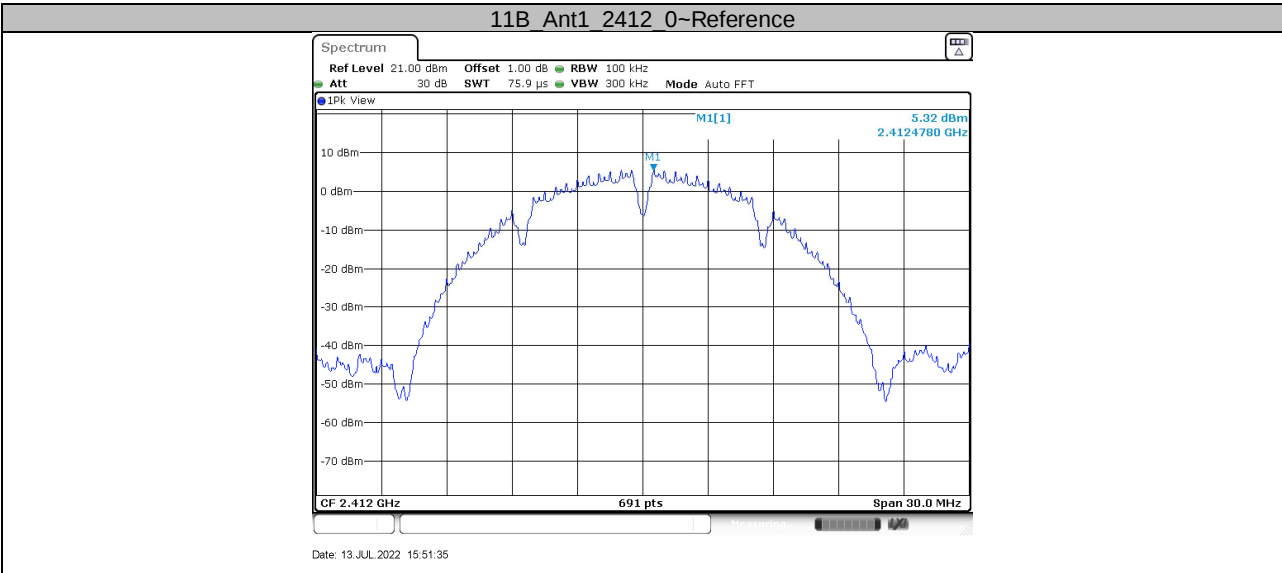
### Limit

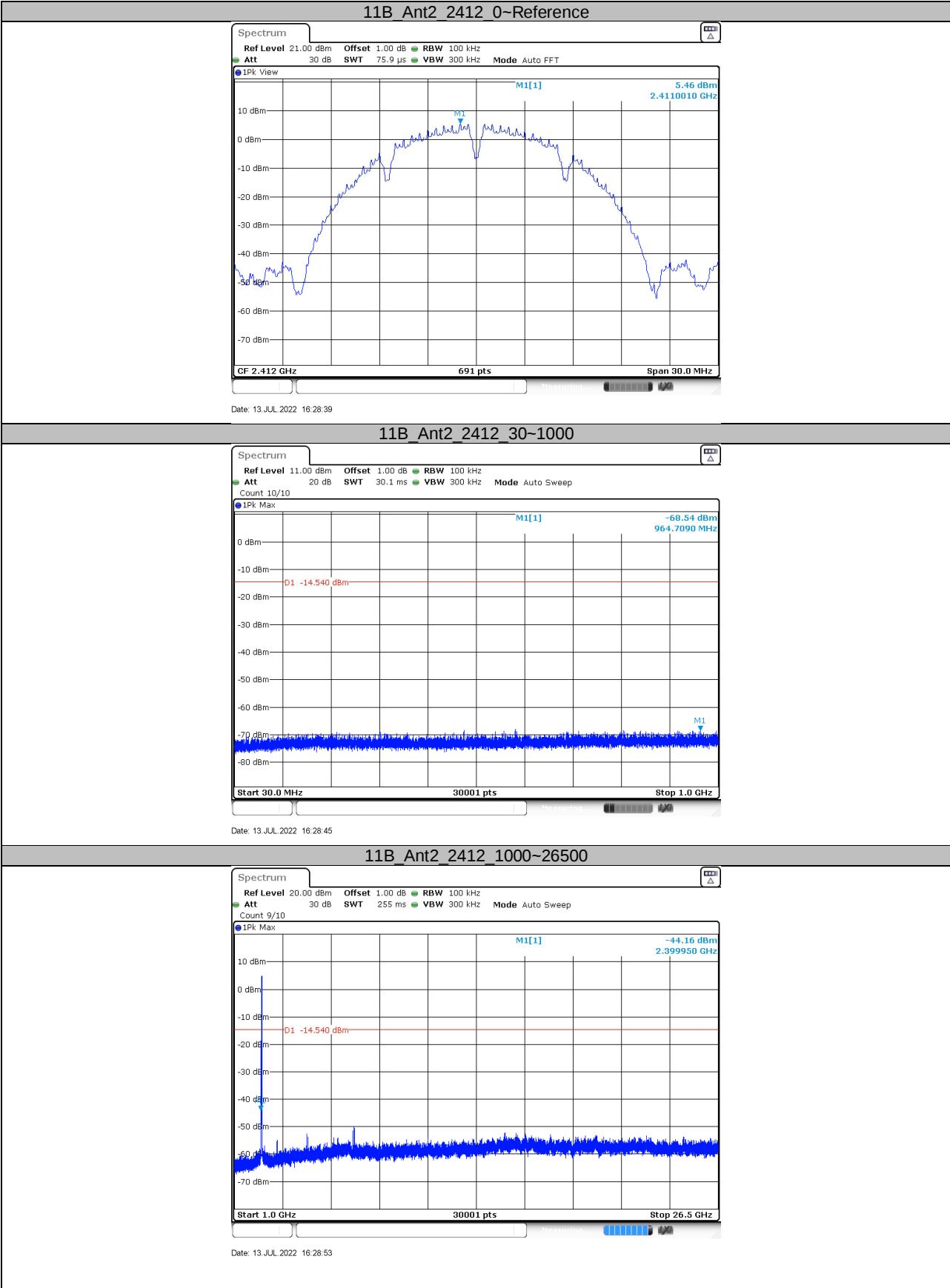
| Frequency Range<br>MHz | Limit (dBc) |
|------------------------|-------------|
| 30-25000               | -20         |

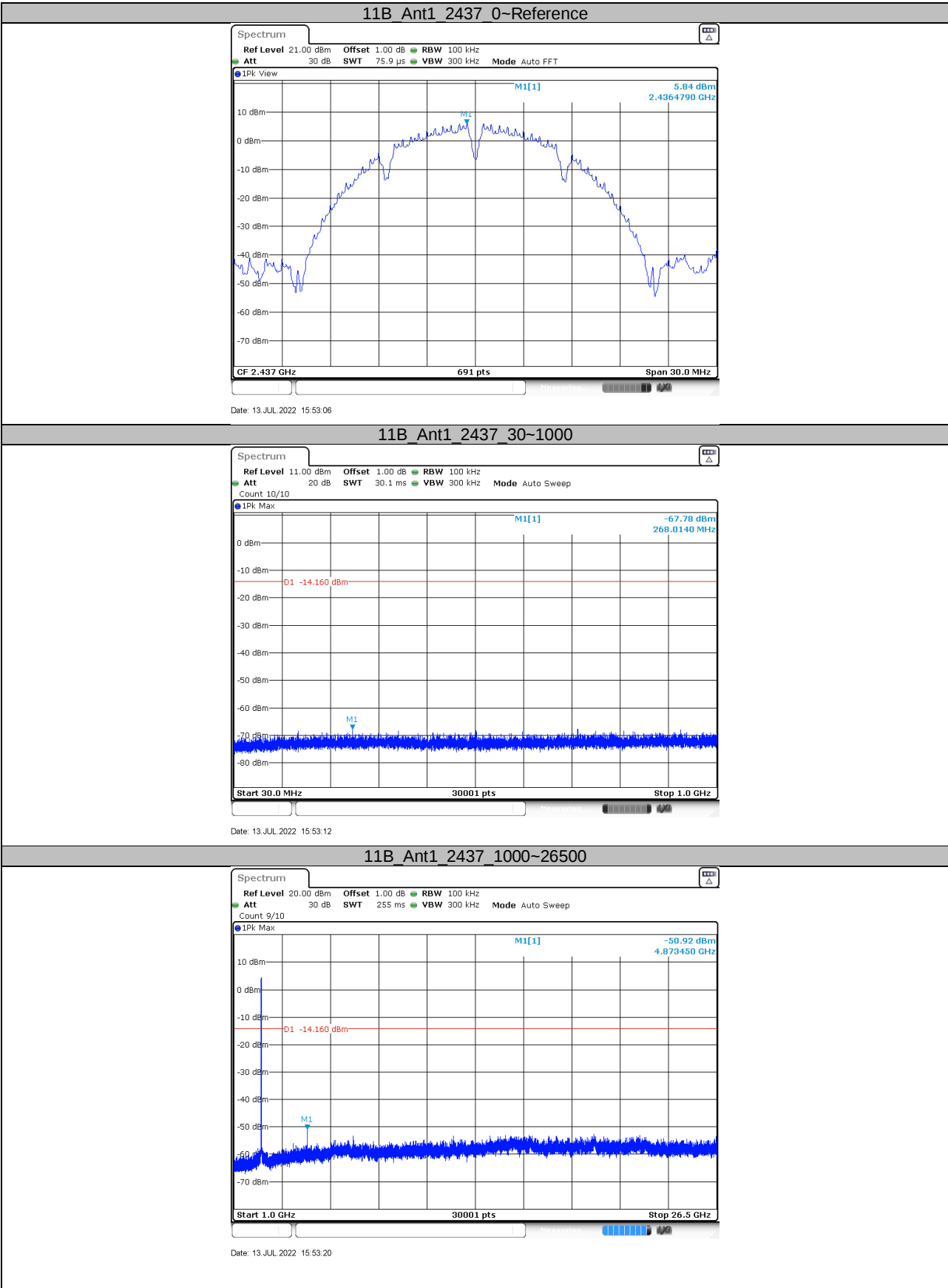
### Spurious RF conducted emissions

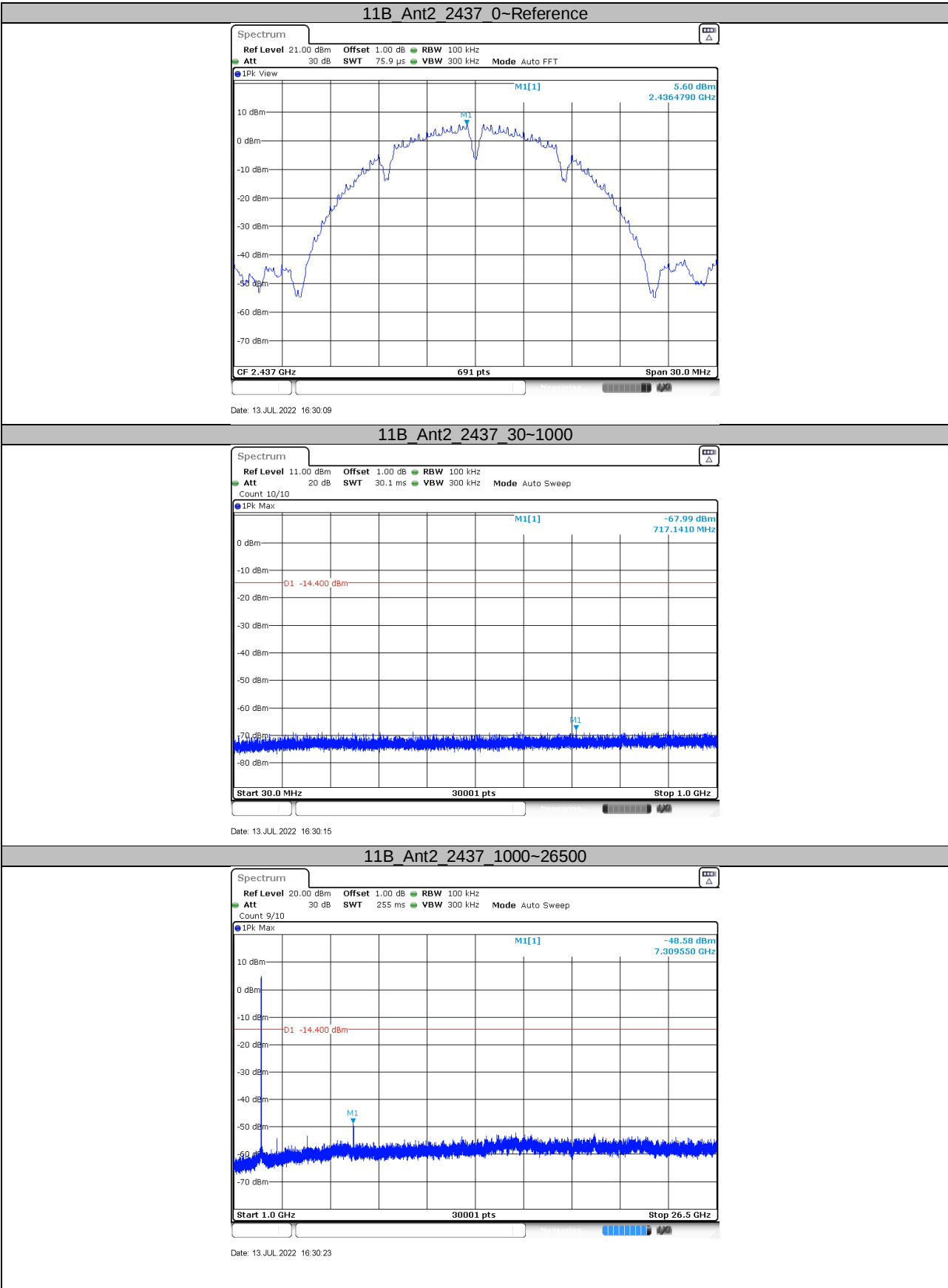
| Test Mode(MHz) | Antenna | Channel (MHz) | Freq Range (MHz) | RefLevel      | Result(dBm) | Limit(dBm) | Verdict |
|----------------|---------|---------------|------------------|---------------|-------------|------------|---------|
| 11B            | Ant1    | 2412          | Reference        | 5.32dBm       | 5.32        | ---        | PASS    |
|                |         |               | 30~1000          | 30~1000MHz    | -66.59      | <=-14.68   | PASS    |
|                |         |               | 1000~26500       | 1000~26500MHz | -43.1       | <=-14.68   | PASS    |
|                | Ant2    | 2412          | Reference        | 5.46dBm       | 5.46        | ---        | PASS    |
|                |         |               | 30~1000          | 30~1000MHz    | -68.54      | <=-14.54   | PASS    |
|                |         |               | 1000~26500       | 1000~26500MHz | -44.16      | <=-14.54   | PASS    |
|                | Ant1    | 2437          | Reference        | 5.84dBm       | 5.84        | ---        | PASS    |
|                |         |               | 30~1000          | 30~1000MHz    | -67.78      | <=-14.16   | PASS    |
|                |         |               | 1000~26500       | 1000~26500MHz | -50.92      | <=-14.16   | PASS    |
|                | Ant2    | 2437          | Reference        | 5.60dBm       | 5.60        | ---        | PASS    |
|                |         |               | 30~1000          | 30~1000MHz    | -67.99      | <=-14.4    | PASS    |
|                |         |               | 1000~26500       | 1000~26500MHz | -48.58      | <=-14.4    | PASS    |
| 11G            | Ant1    | 2412          | Reference        | 5.13dBm       | 5.13        | ---        | PASS    |
|                |         |               | 30~1000          | 30~1000MHz    | -68.01      | <=-14.87   | PASS    |
|                |         |               | 1000~26500       | 1000~26500MHz | -40.26      | <=-14.87   | PASS    |
|                | Ant2    | 2412          | Reference        | 5.18dBm       | 5.18        | ---        | PASS    |
|                |         |               | 30~1000          | 30~1000MHz    | -68.03      | <=-14.82   | PASS    |
|                |         |               | 1000~26500       | 1000~26500MHz | -40.88      | <=-14.82   | PASS    |
|                | Ant1    | 2437          | Reference        | 4.68dBm       | 4.68        | ---        | PASS    |
|                |         |               | 30~1000          | 30~1000MHz    | -67.4       | <=-15.32   | PASS    |
|                |         |               | 1000~26500       | 1000~26500MHz | -49.91      | <=-15.32   | PASS    |
|                | Ant2    | 2437          | Reference        | 4.28dBm       | 4.28        | ---        | PASS    |
|                |         |               | 30~1000          | 30~1000MHz    | -68.6       | <=-15.72   | PASS    |
|                |         |               | 1000~26500       | 1000~26500MHz | -50.7       | <=-15.72   | PASS    |
| 11N20SISO      | Ant1    | 2412          | Reference        | 5.05dBm       | 5.05        | ---        | PASS    |
|                |         |               | 30~1000          | 30~1000MHz    | -64.21      | <=-14.95   | PASS    |
|                |         |               | 1000~26500       | 1000~26500MHz | -51.92      | <=-14.95   | PASS    |
|                | Ant2    | 2462          | Reference        | 5.08dBm       | 5.08        | ---        | PASS    |
|                |         |               | 30~1000          | 30~1000MHz    | -68.14      | <=-14.92   | PASS    |
|                |         |               | 1000~26500       | 1000~26500MHz | -51.66      | <=-14.92   | PASS    |
|                | Ant1    | 2437          | Reference        | 5.19dBm       | 5.19        | ---        | PASS    |
|                |         |               | 30~1000          | 30~1000MHz    | -65.29      | <=-14.81   | PASS    |
|                |         |               | 1000~26500       | 1000~26500MHz | -42.61      | <=-14.81   | PASS    |
|                | Ant2    | 2412          | Reference        | 5.26dBm       | 5.26        | ---        | PASS    |
|                |         |               | 30~1000          | 30~1000MHz    | -63.95      | <=-14.74   | PASS    |
|                |         |               | 1000~26500       | 1000~26500MHz | -41.05      | <=-14.74   | PASS    |
| 11N40SISO      | Ant1    | 2422          | Reference        | 5.30dBm       | 5.30        | ---        | PASS    |
|                |         |               | 30~1000          | 30~1000MHz    | -68.22      | <=-14.7    | PASS    |
|                |         |               | 1000~26500       | 1000~26500MHz | -50.39      | <=-14.7    | PASS    |
|                | Ant2    | 2437          | Reference        | 5.20dBm       | 5.20        | ---        | PASS    |
|                |         |               | 30~1000          | 30~1000MHz    | -67.72      | <=-14.8    | PASS    |
|                |         |               | 1000~26500       | 1000~26500MHz | -52.34      | <=-14.8    | PASS    |
|                | Ant1    | 2462          | Reference        | 4.59dBm       | 4.59        | ---        | PASS    |
|                |         |               | 30~1000          | 30~1000MHz    | -67.99      | <=-15.41   | PASS    |
|                |         |               | 1000~26500       | 1000~26500MHz | -51.81      | <=-15.41   | PASS    |
|                | Ant2    | 2462          | Reference        | 5.04dBm       | 5.04        | ---        | PASS    |
|                |         |               | 30~1000          | 30~1000MHz    | -65.97      | <=-14.96   | PASS    |
|                |         |               | 1000~26500       | 1000~26500MHz | -49.91      | <=-14.96   | PASS    |
| 11N40SISO      | Ant1    | 2422          | Reference        | 2.26dBm       | 2.26        | ---        | PASS    |
|                |         |               | 30~1000          | 30~1000MHz    | -51.19      | <=-17.74   | PASS    |
|                |         |               | 1000~26500       | 1000~26500MHz | -41.39      | <=-17.74   | PASS    |
|                | Ant2    | 2422          | Reference        | 2.02dBm       | 2.02        | ---        | PASS    |
|                |         |               | 30~1000          | 30~1000MHz    | -57.13      | <=-17.98   | PASS    |
|                |         |               | 1000~26500       | 1000~26500MHz | -38.98      | <=-17.98   | PASS    |

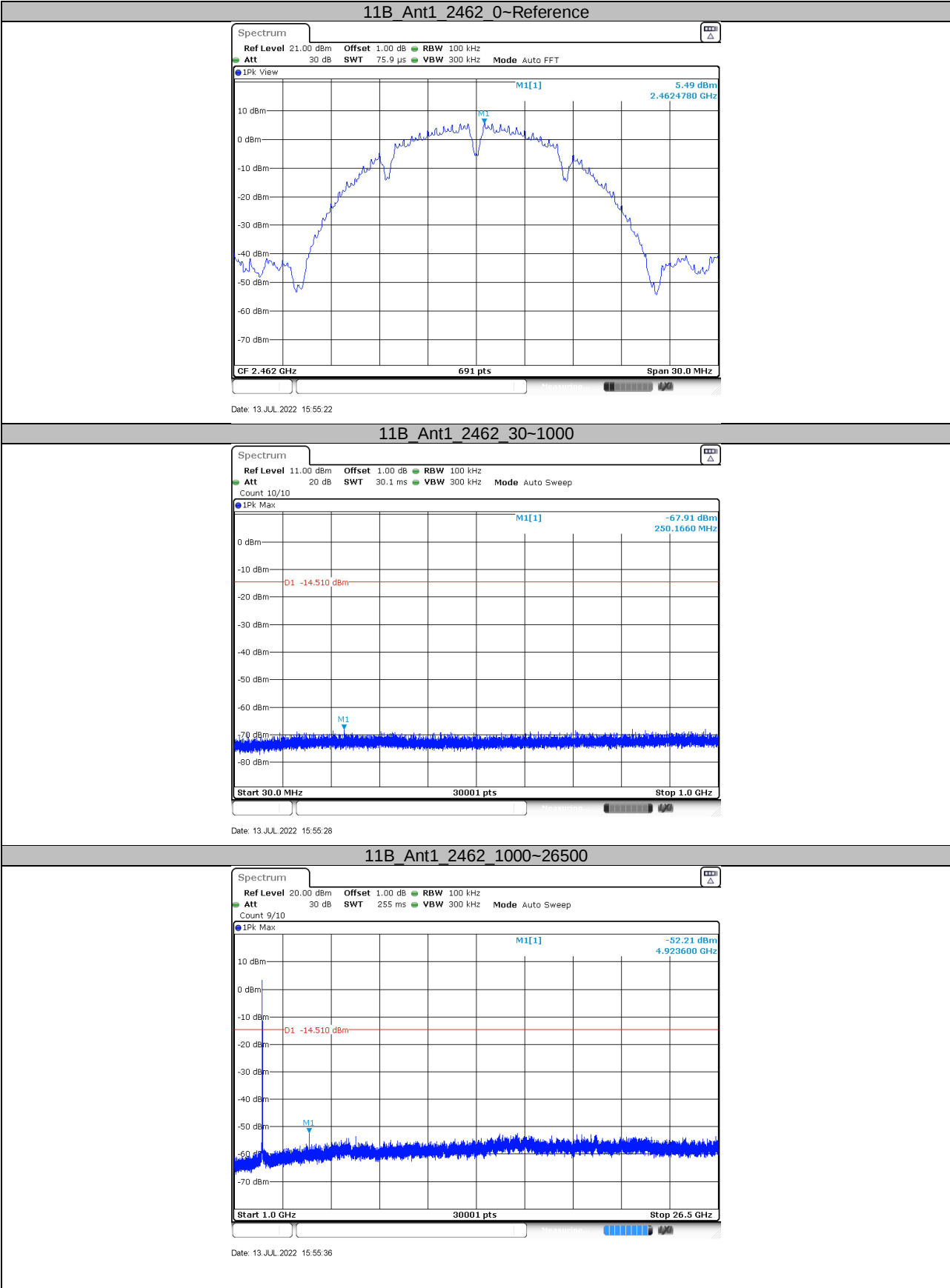
|  |      |      |            |               |        |          |      |
|--|------|------|------------|---------------|--------|----------|------|
|  | Ant1 | 2437 | Reference  | 2.79dBm       | 2.79   | ---      | PASS |
|  |      |      | 30~1000    | 30~1000MHz    | -47.35 | <=-17.21 | PASS |
|  |      |      | 1000~26500 | 1000~26500MHz | -47.2  | <=-17.21 | PASS |
|  | Ant2 | 2437 | Reference  | 2.32dBm       | 2.32   | ---      | PASS |
|  |      |      | 30~1000    | 30~1000MHz    | -57.28 | <=-17.68 | PASS |
|  |      |      | 1000~26500 | 1000~26500MHz | -45.31 | <=-17.68 | PASS |
|  | Ant1 | 2452 | Reference  | 2.54dBm       | 2.54   | ---      | PASS |
|  |      |      | 30~1000    | 30~1000MHz    | -50.2  | <=-17.46 | PASS |
|  |      |      | 1000~26500 | 1000~26500MHz | -49.19 | <=-17.46 | PASS |
|  | Ant2 | 2452 | Reference  | 2.75dBm       | 2.75   | ---      | PASS |
|  |      |      | 30~1000    | 30~1000MHz    | -53.53 | <=-17.25 | PASS |
|  |      |      | 1000~26500 | 1000~26500MHz | -38.36 | <=-17.25 | PASS |

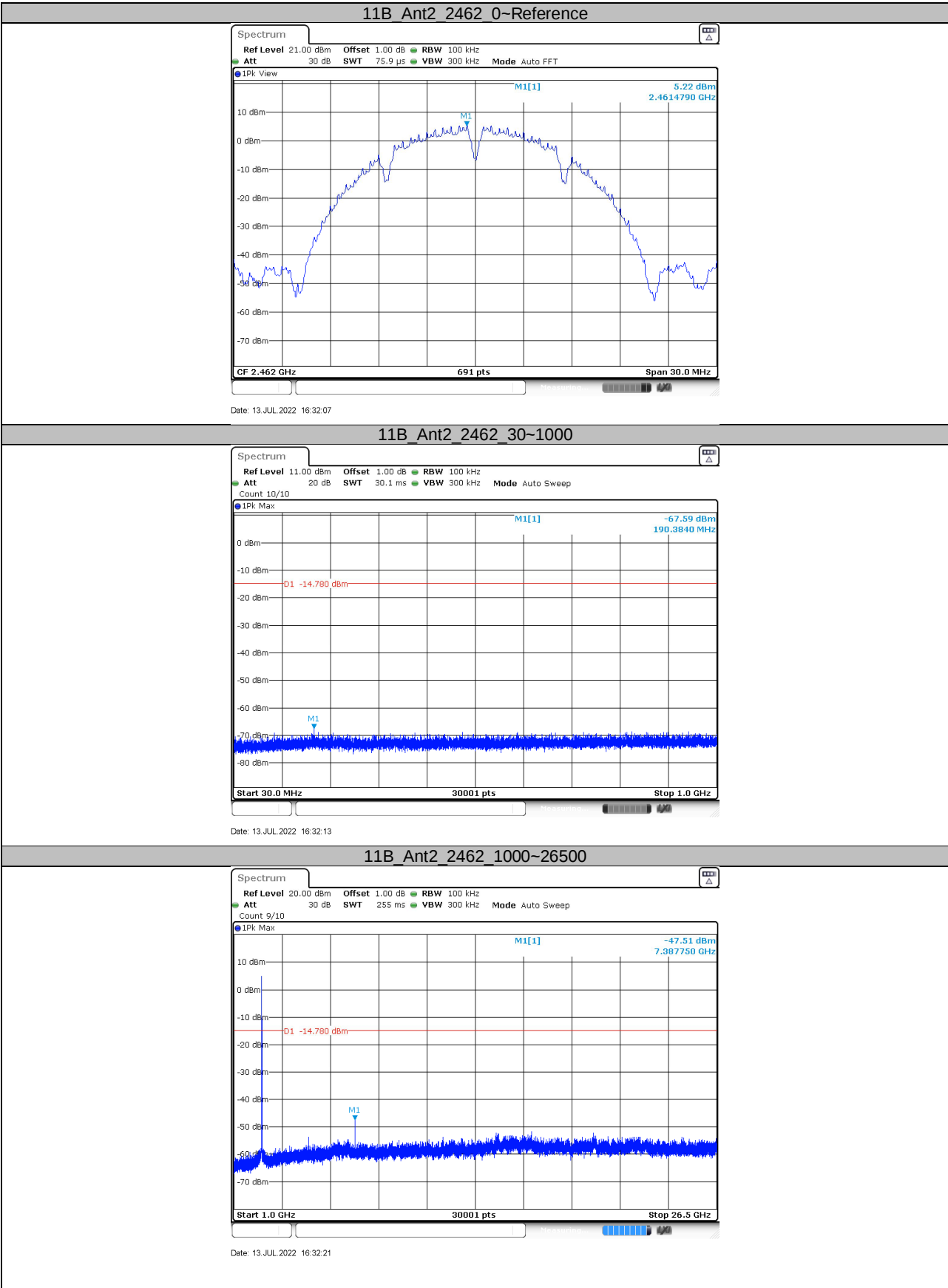


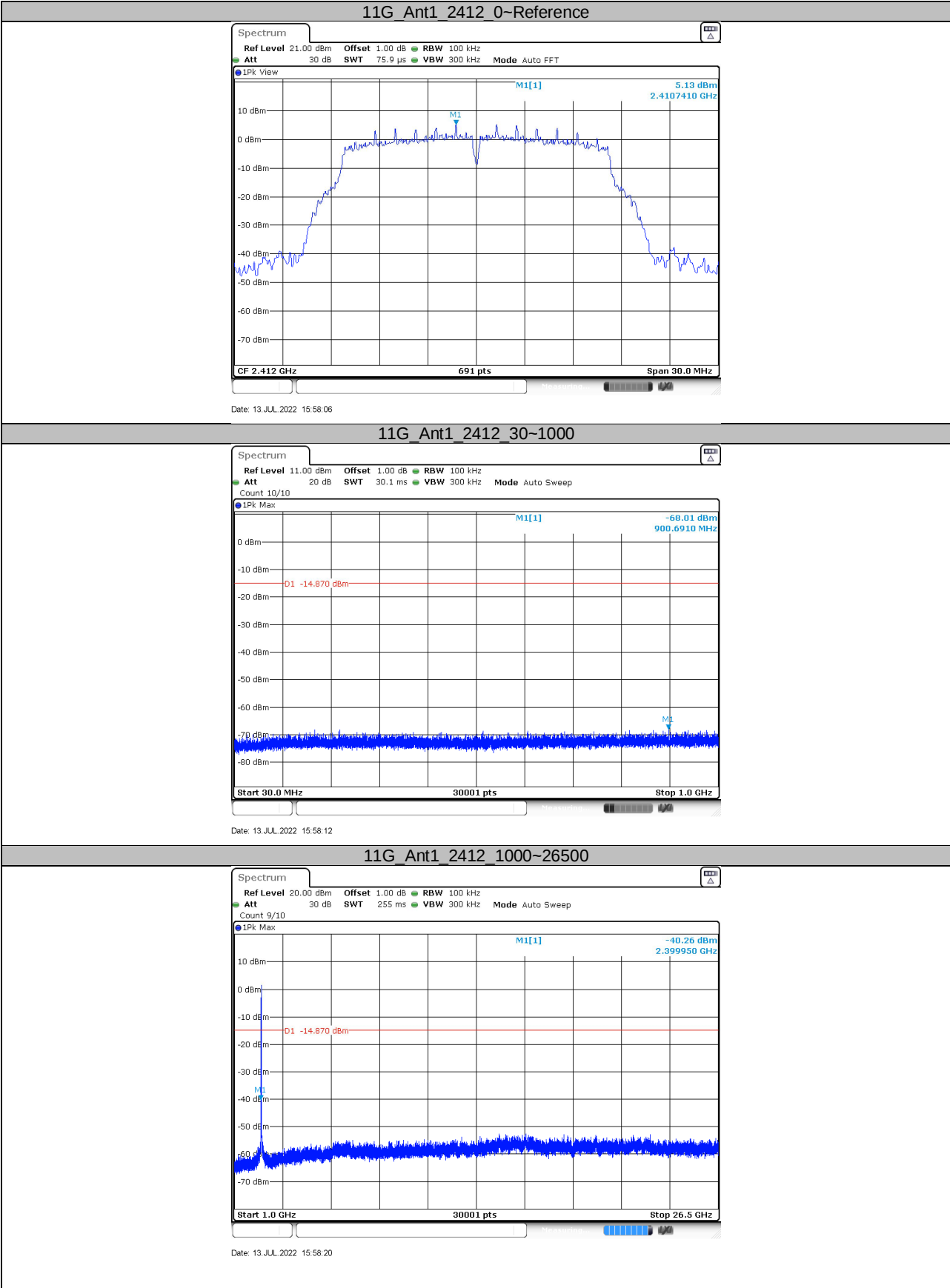


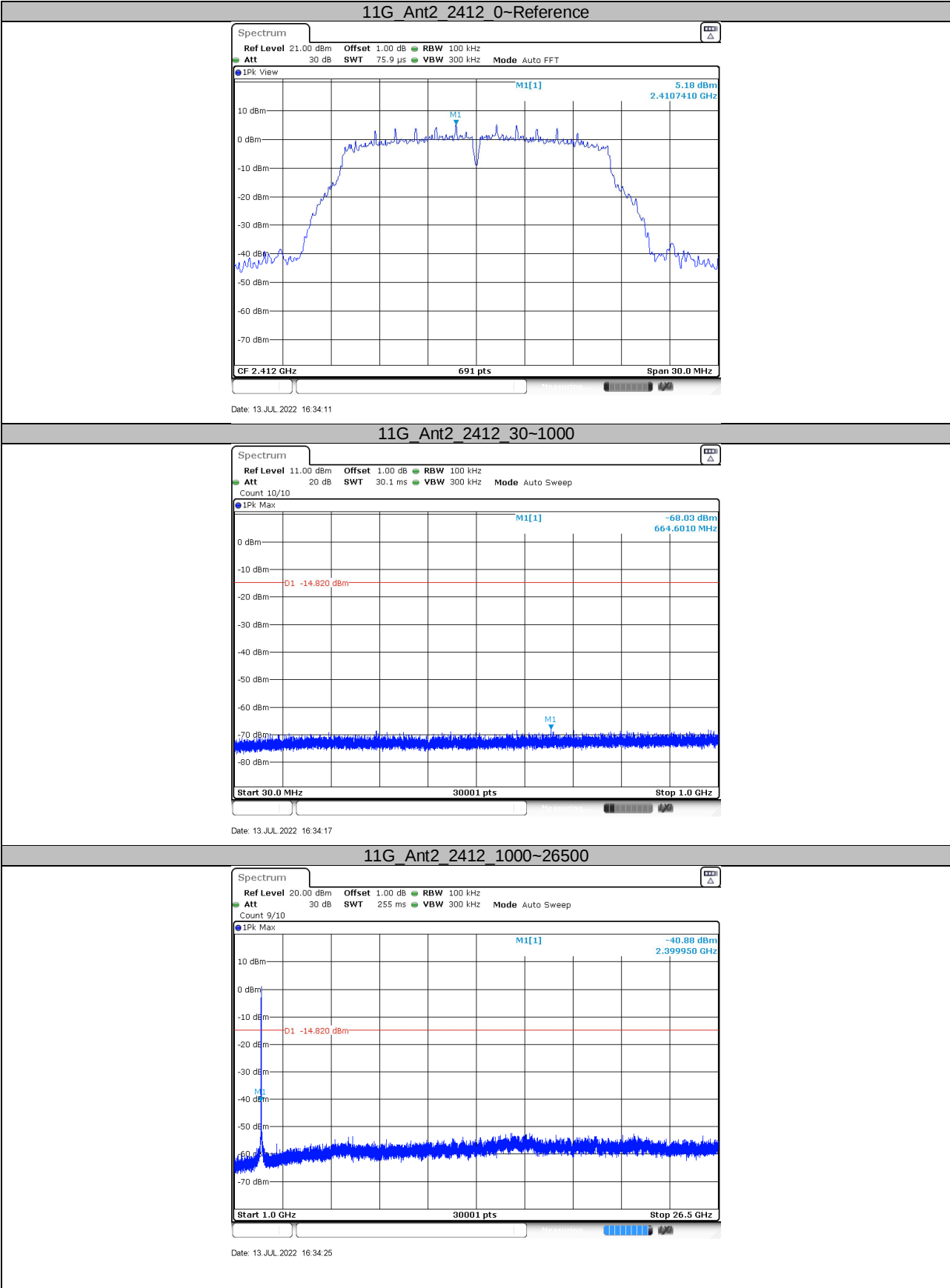


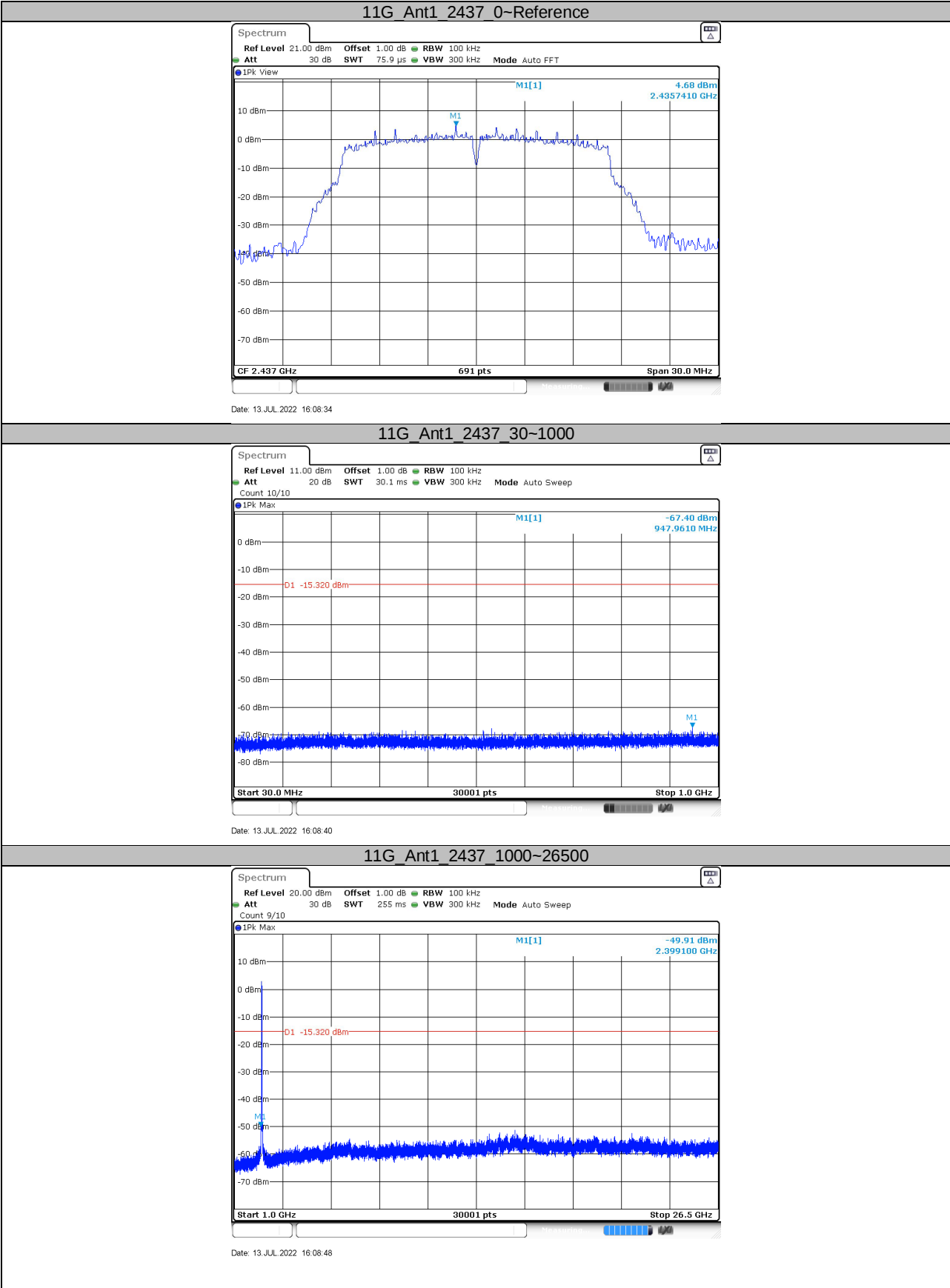


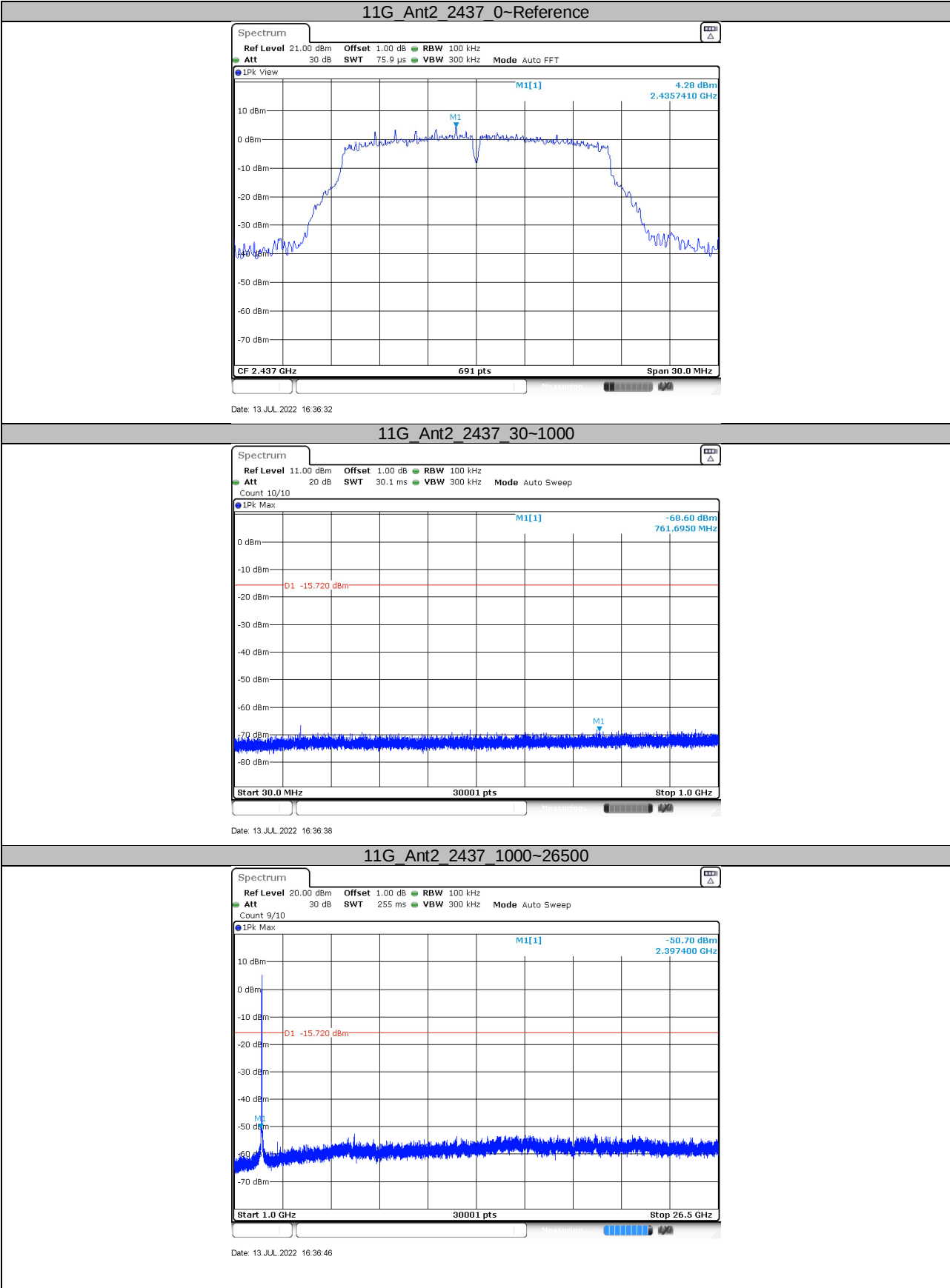


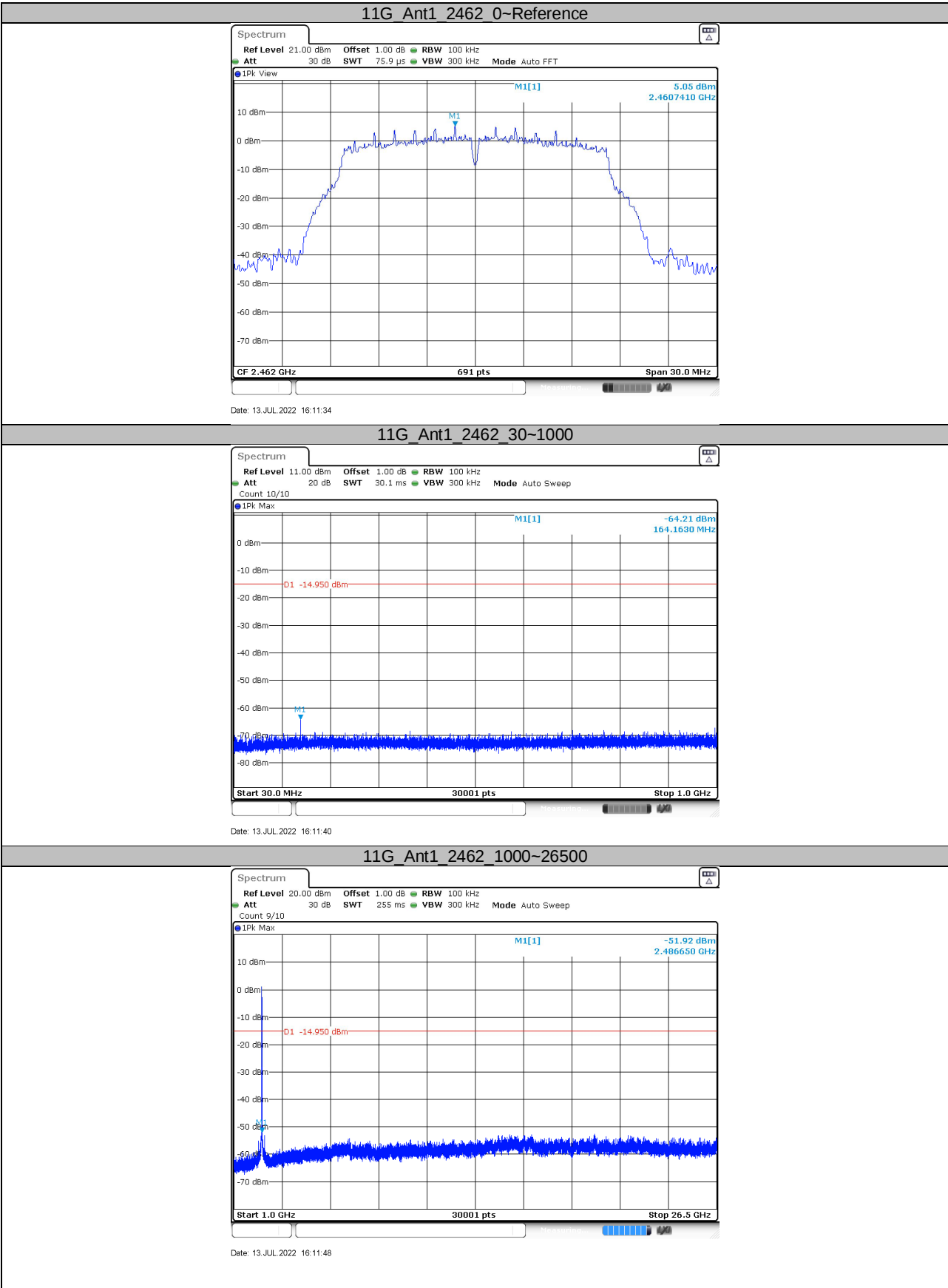


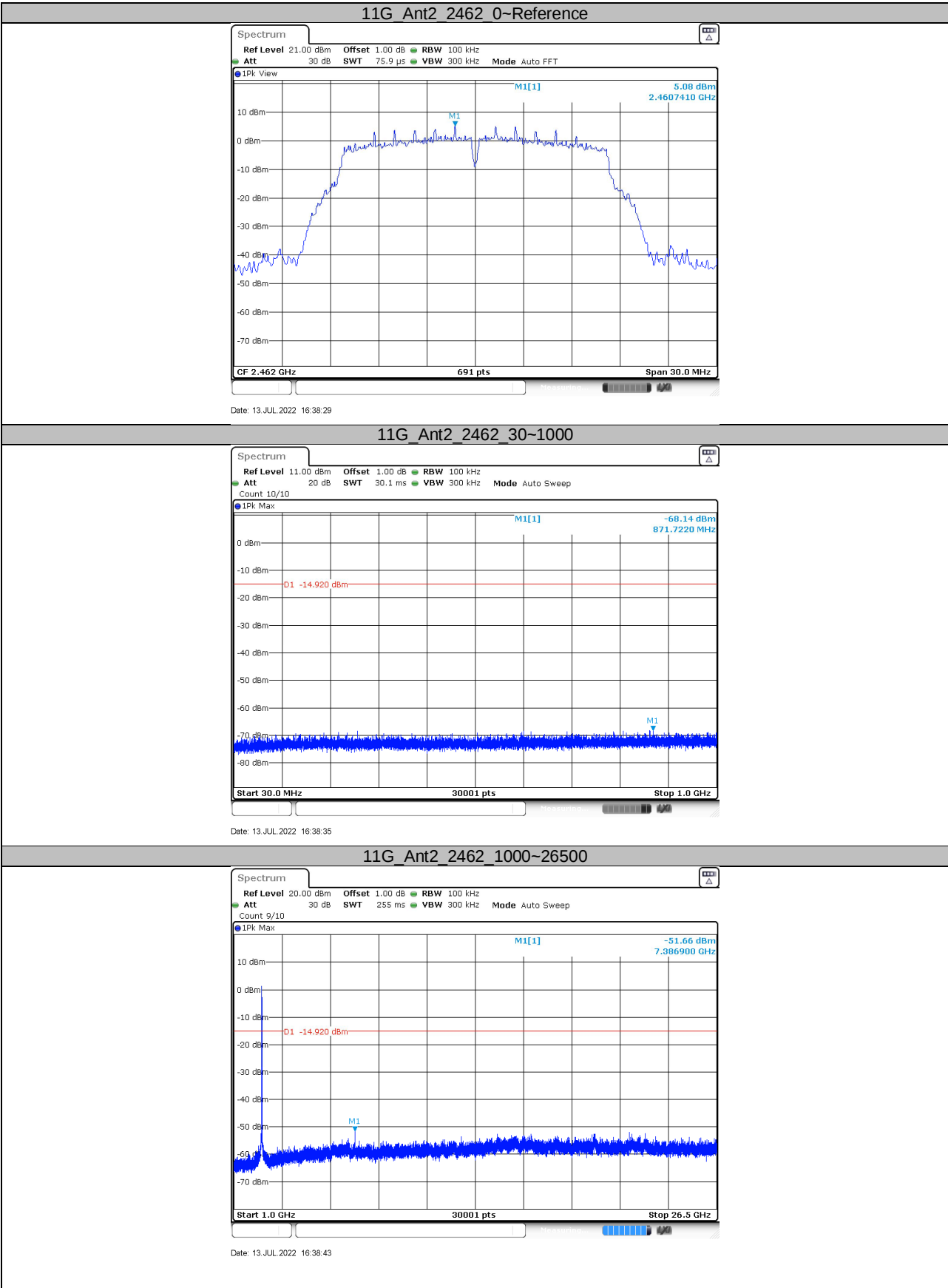


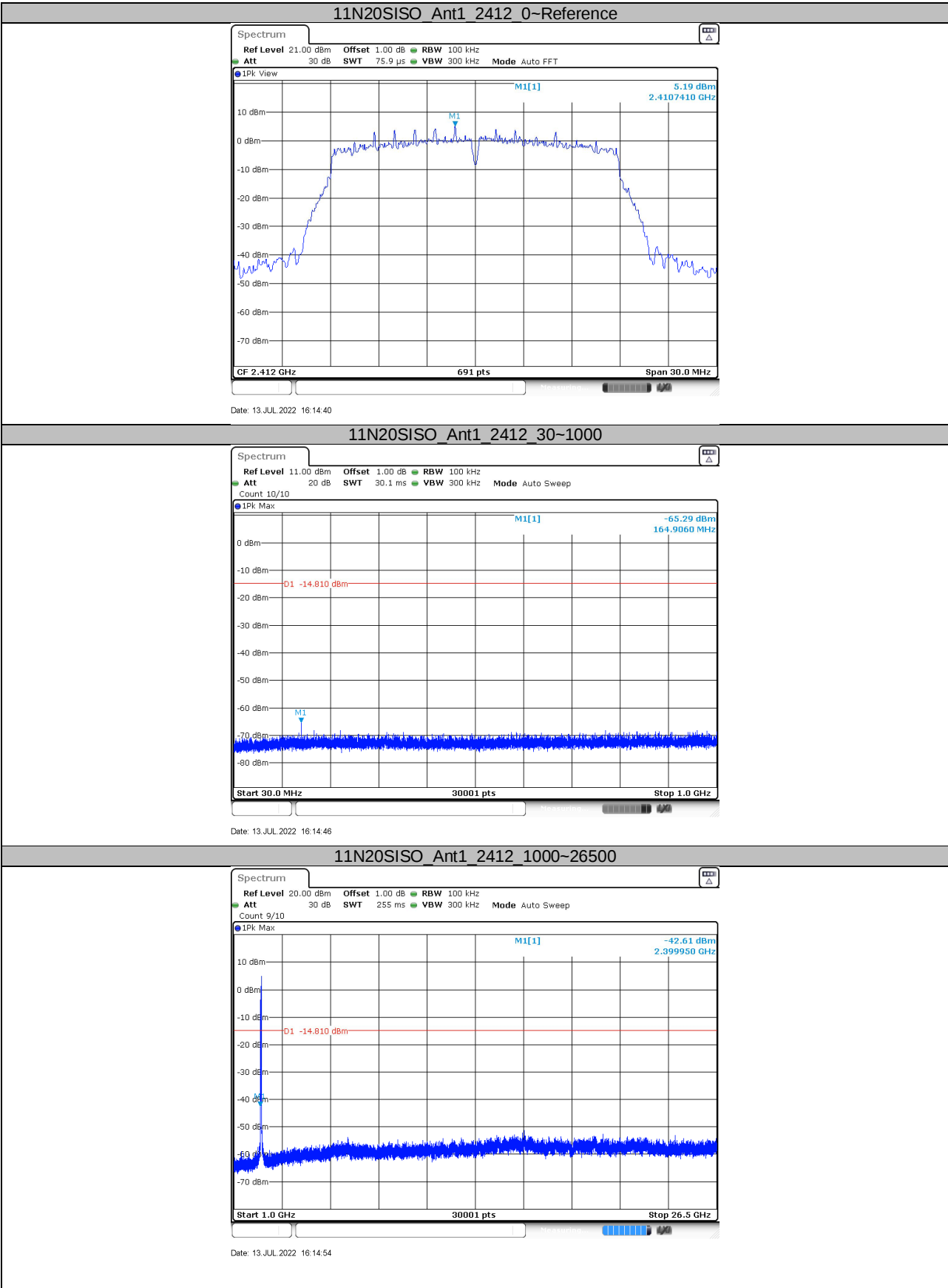


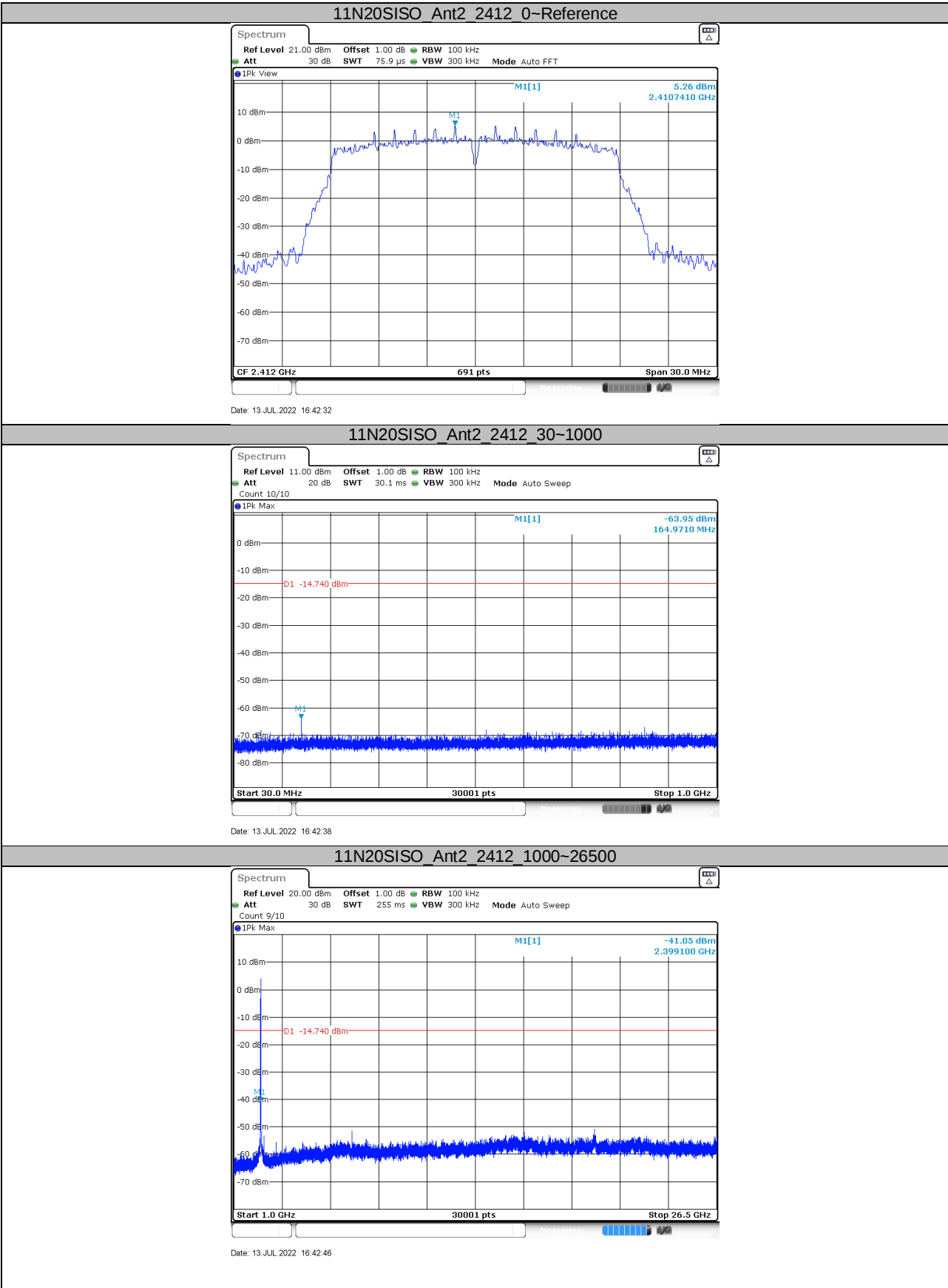


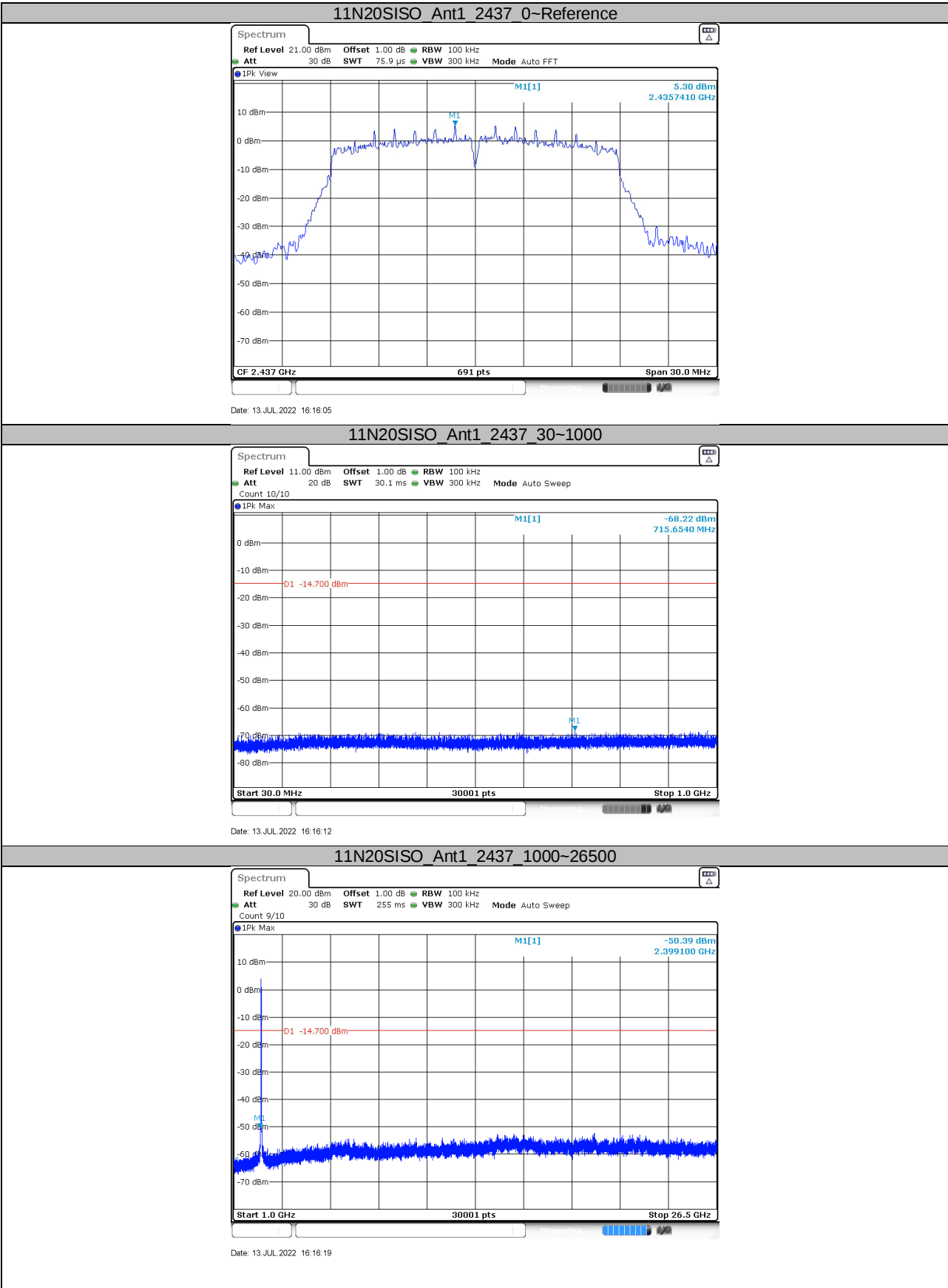


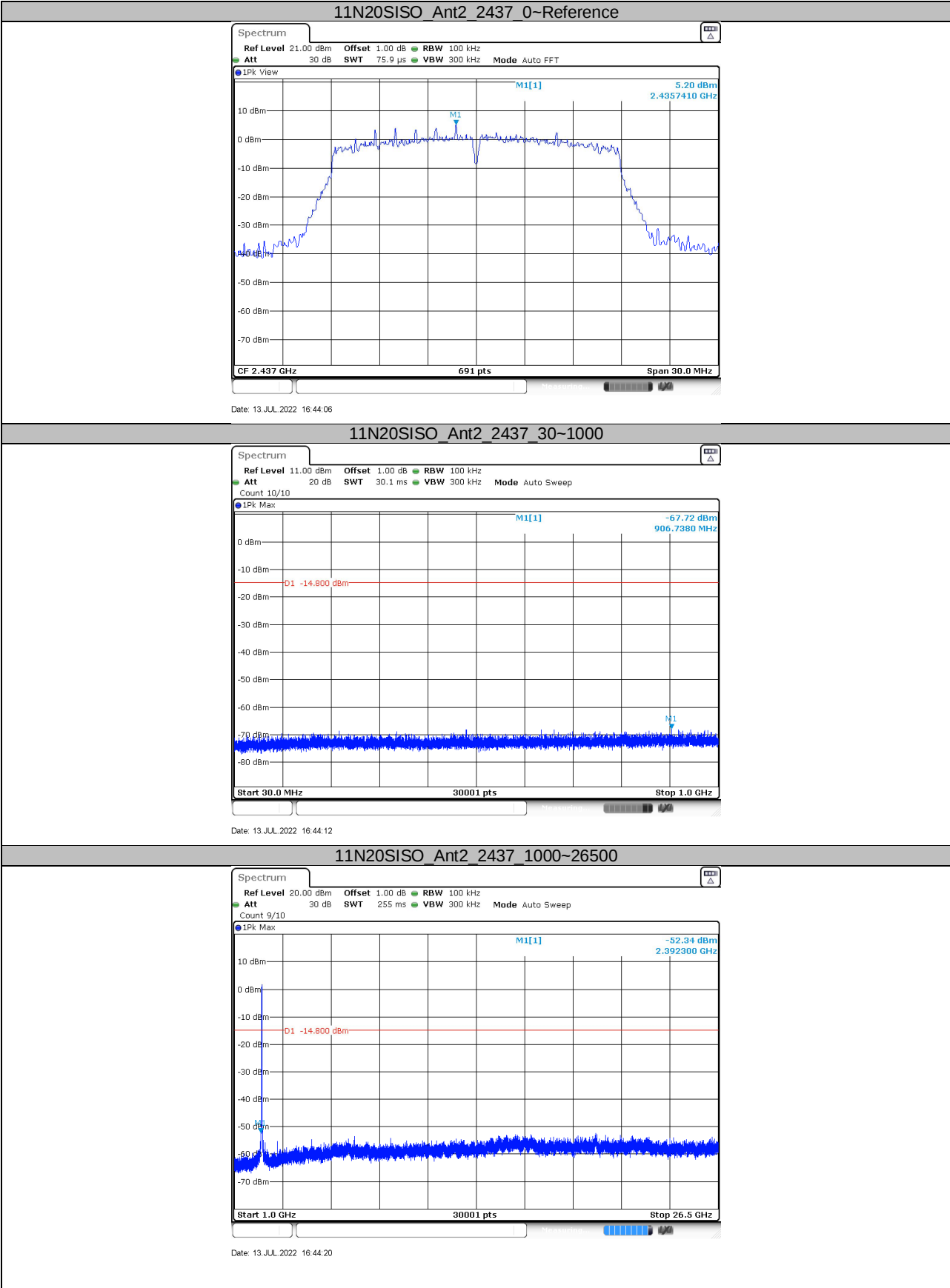


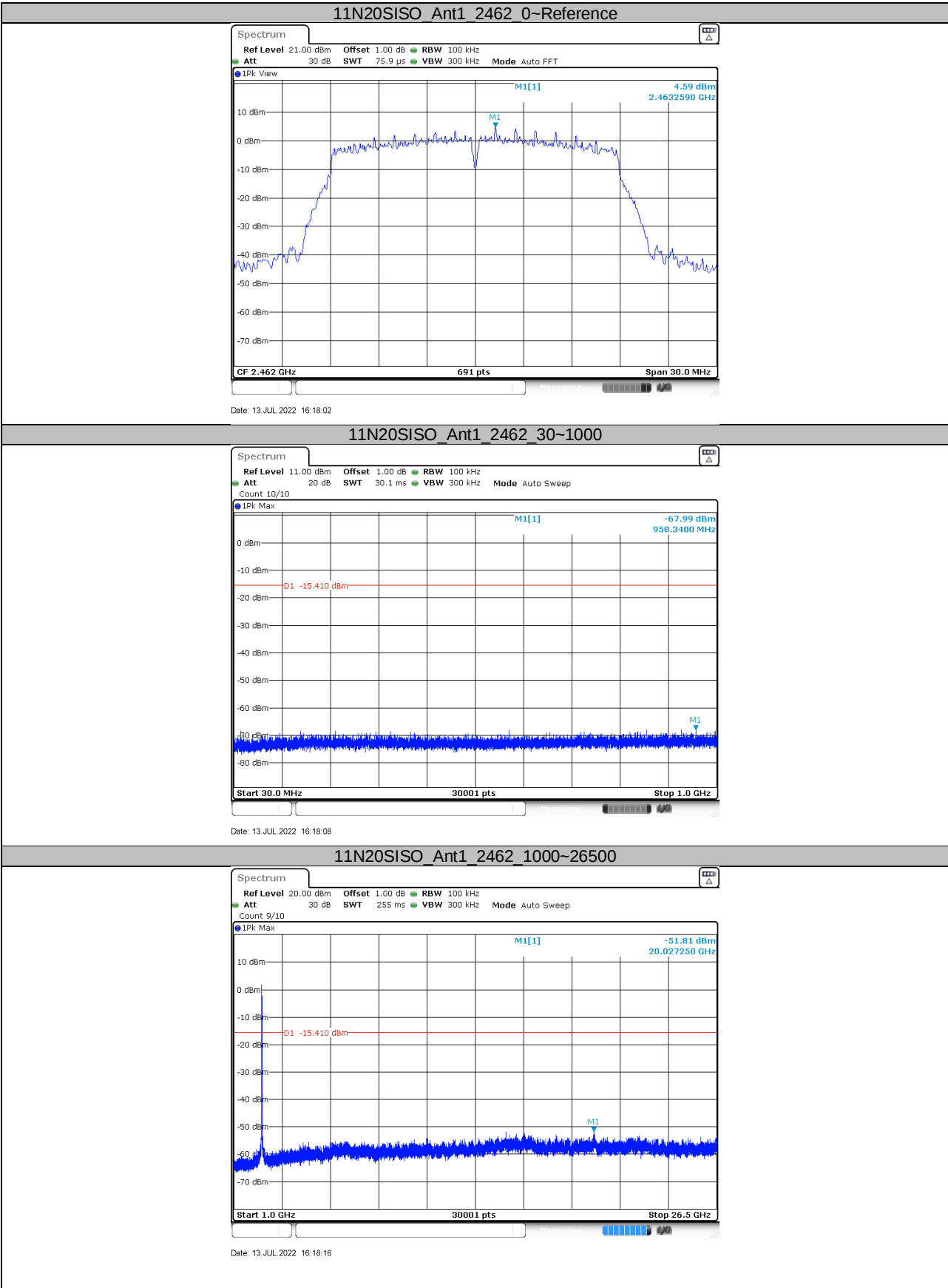


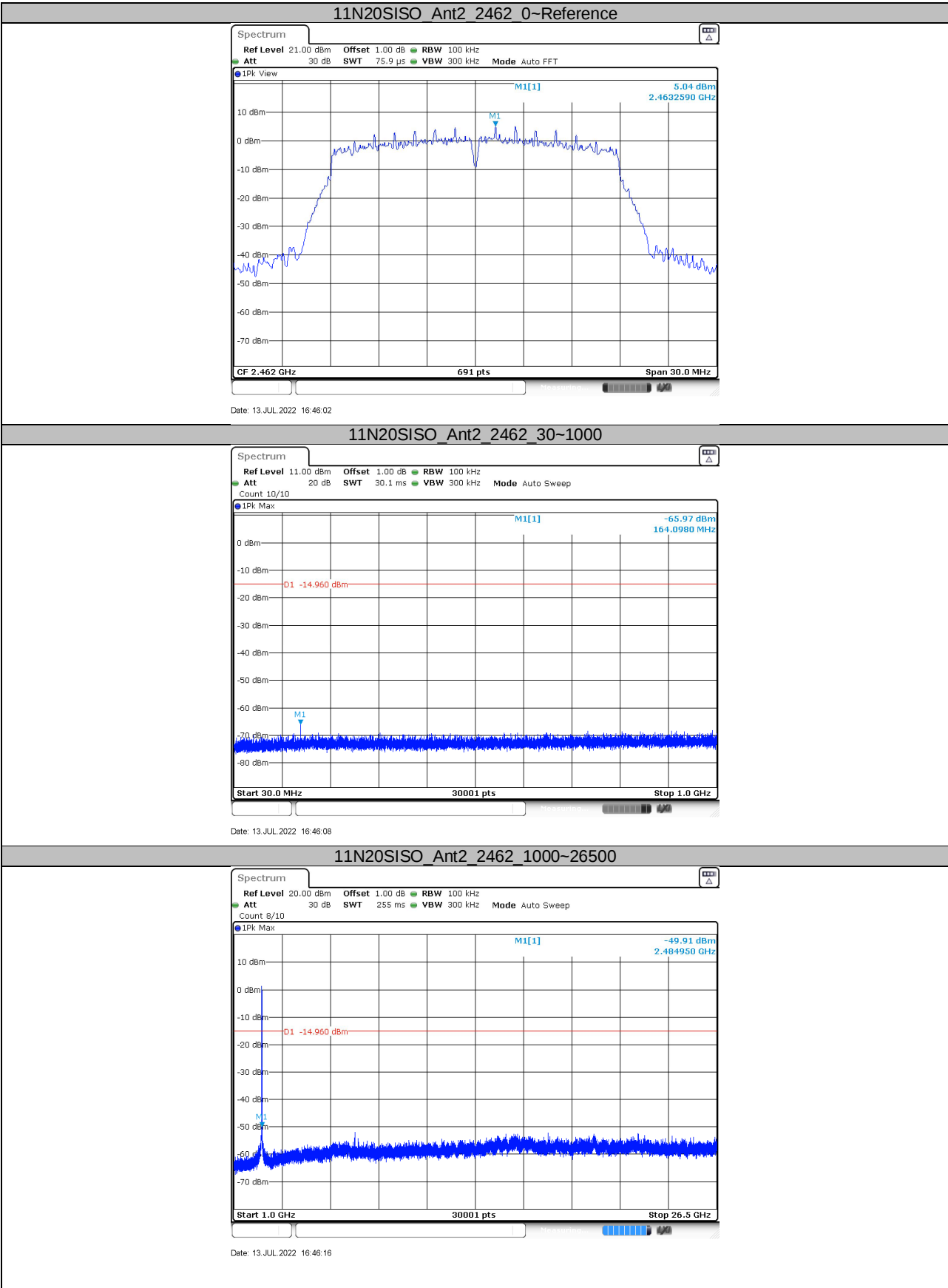


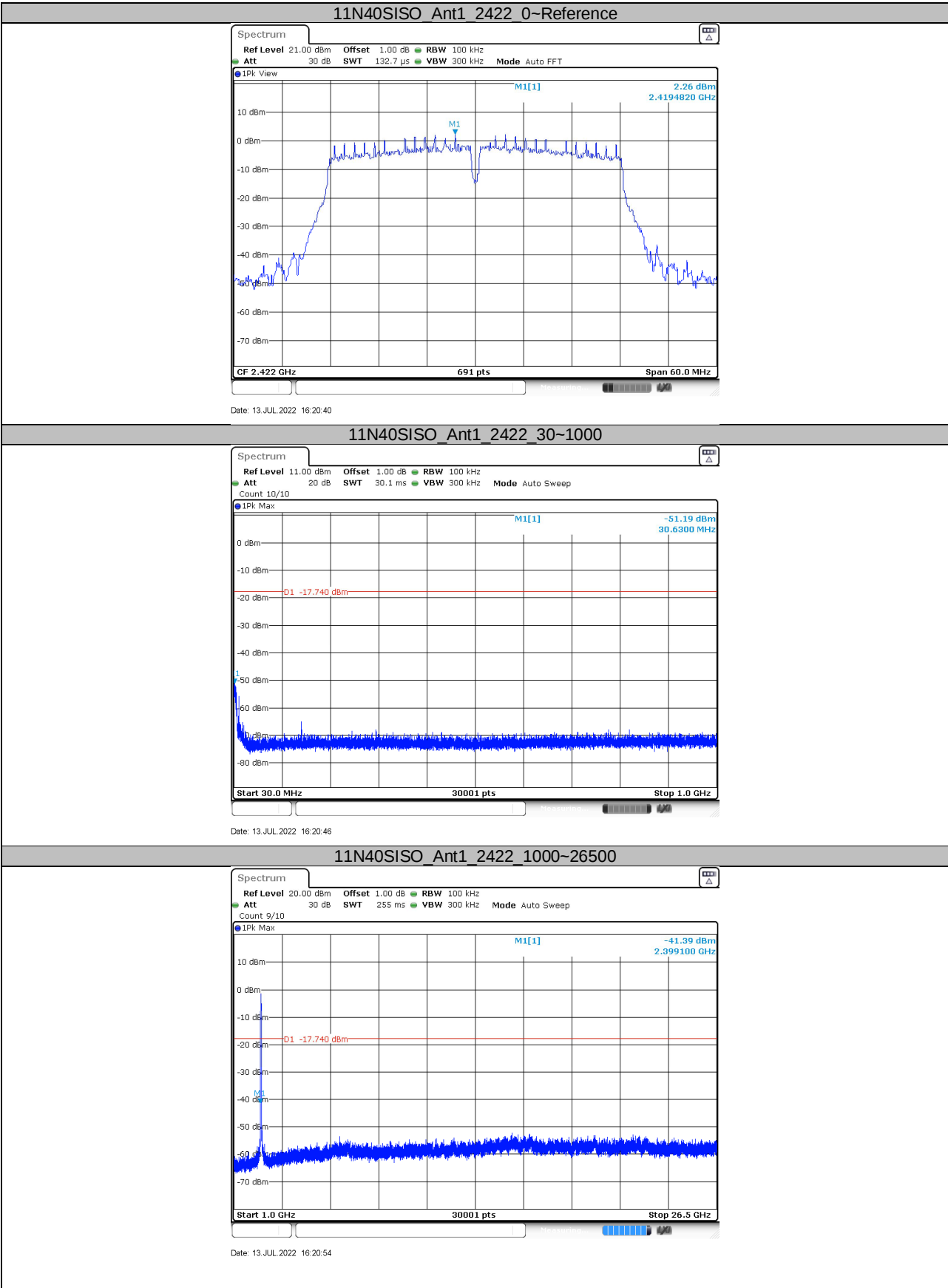


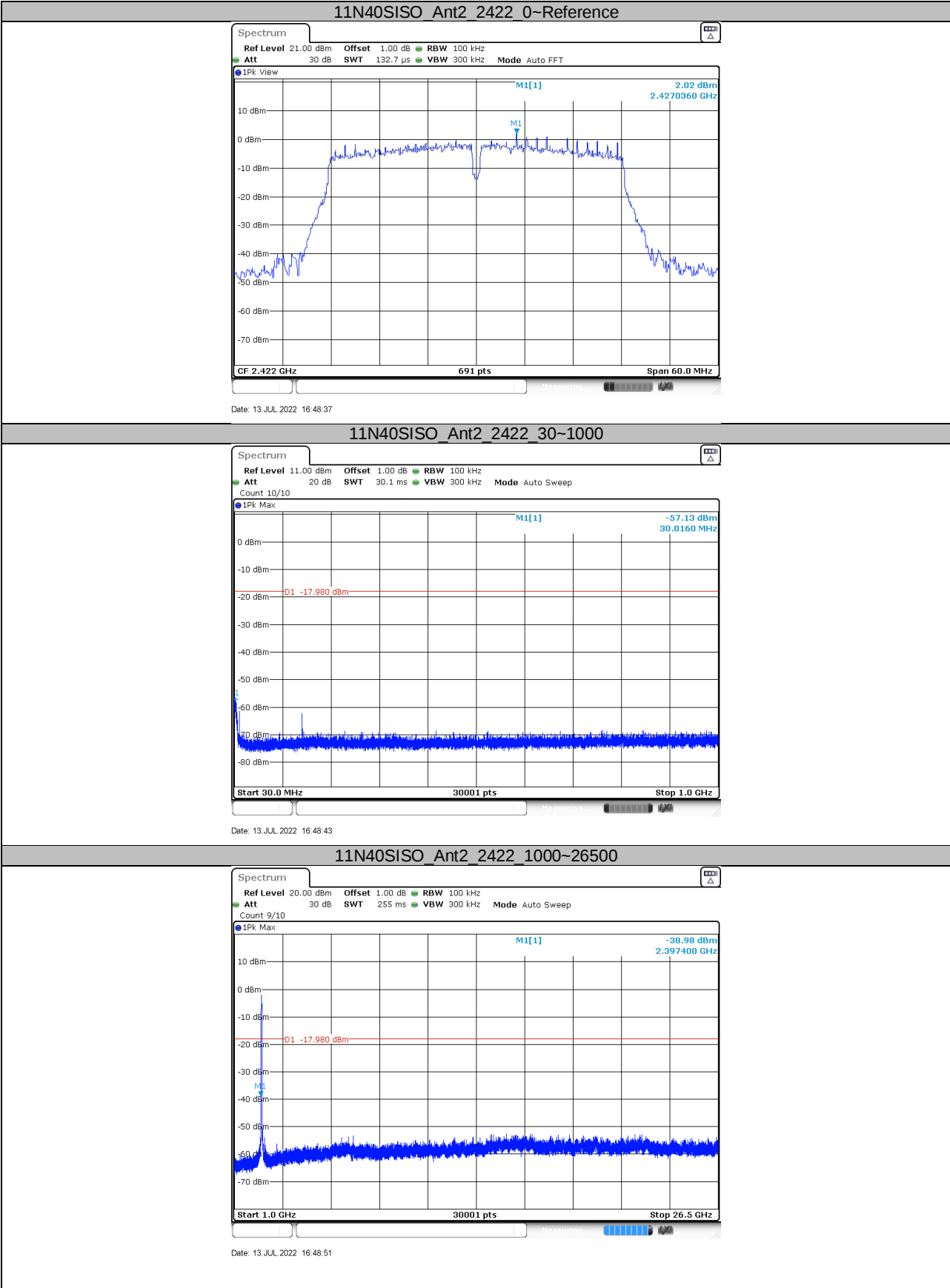


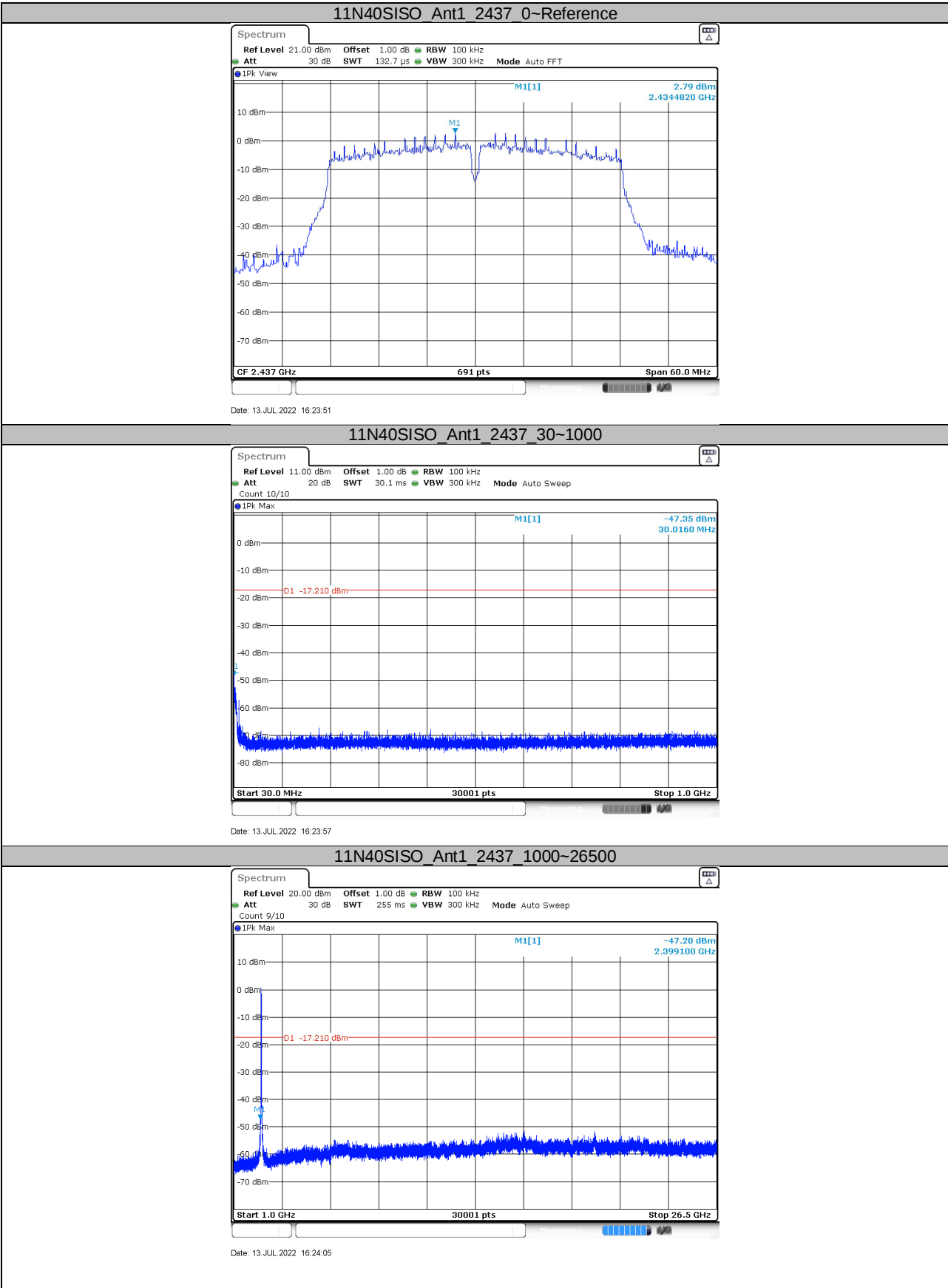


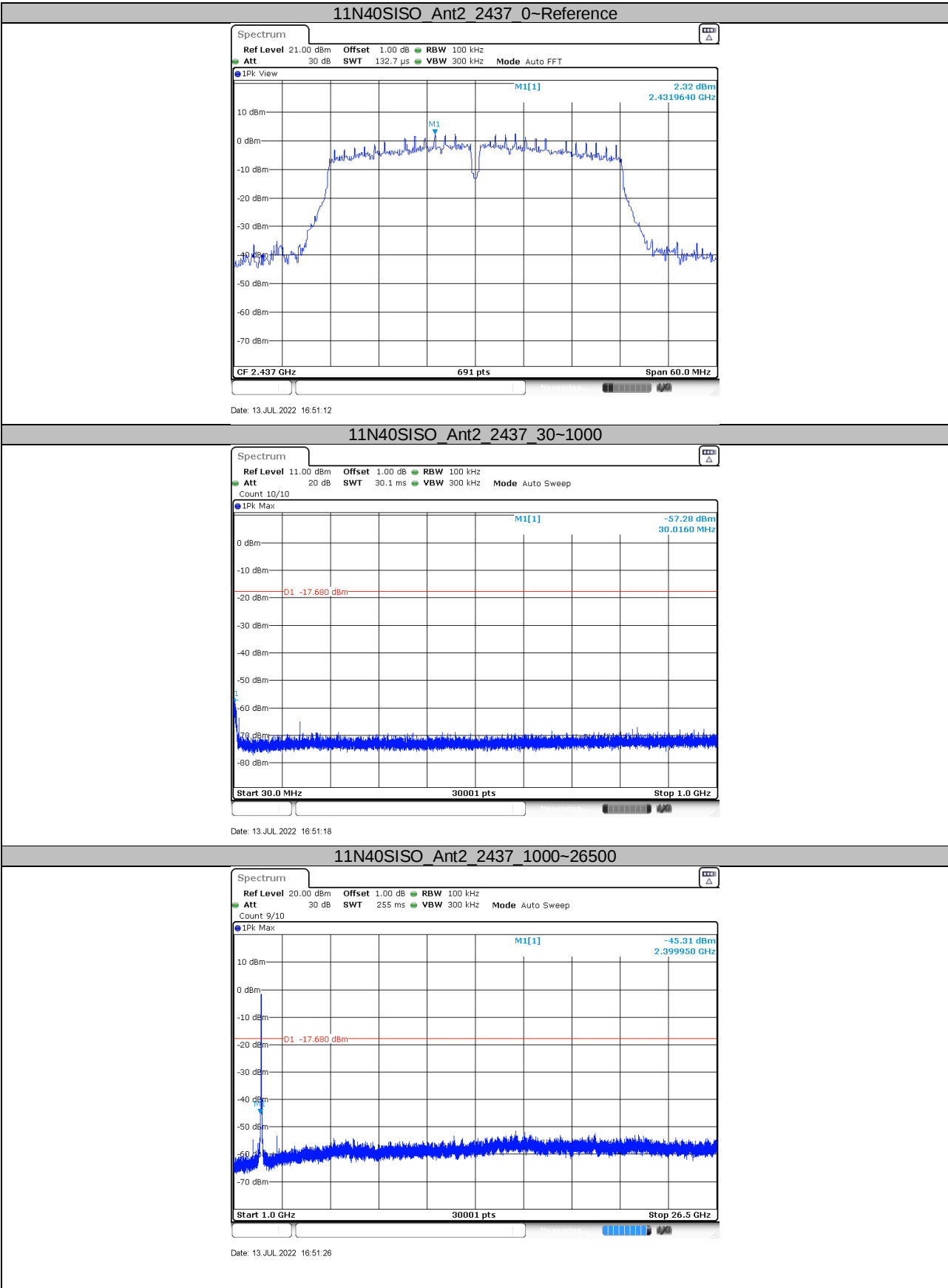


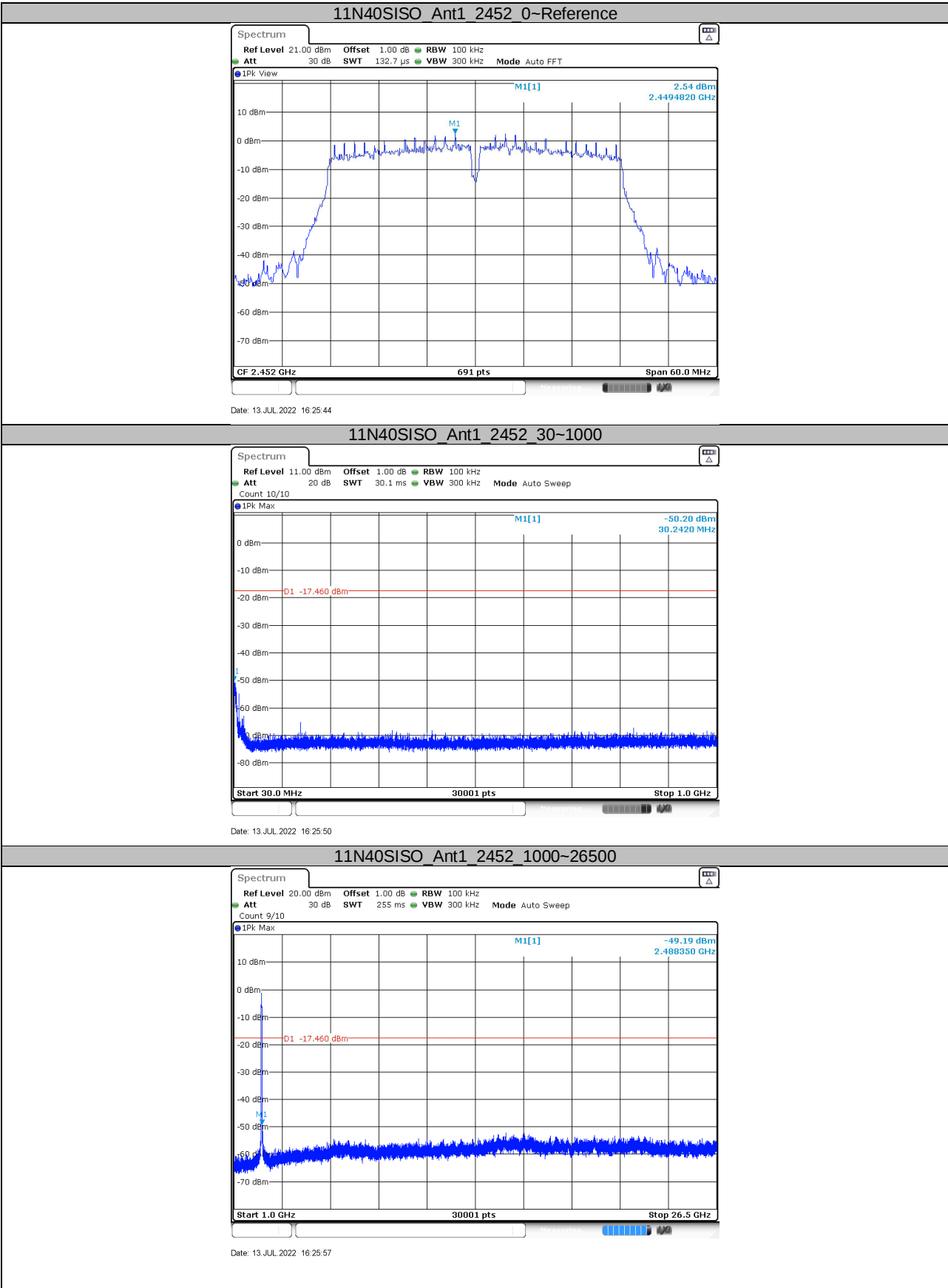


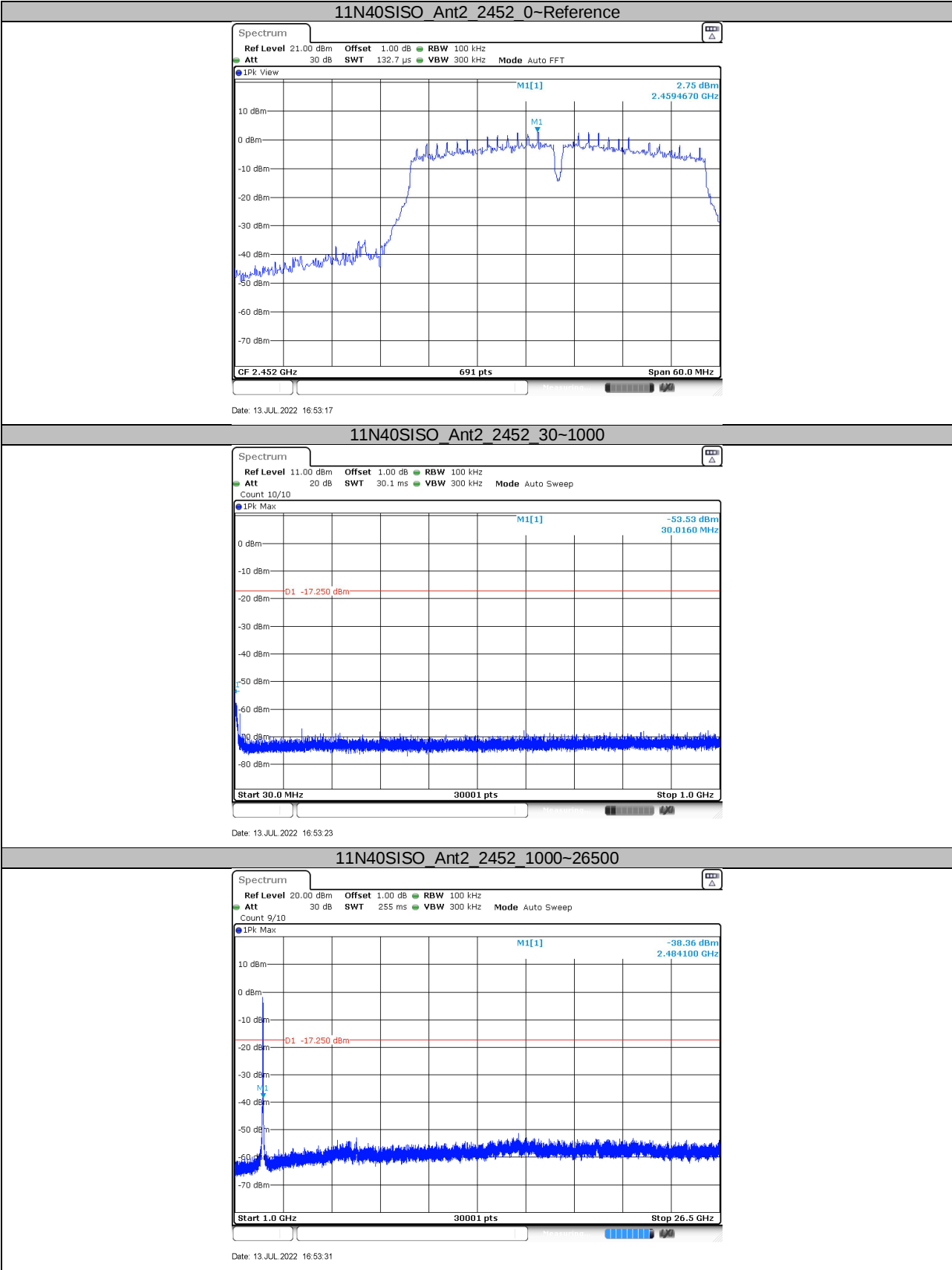












## 9.6 Band edge testing

### Test Method

- 1 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, VBW  $\geq$  RBW, Sweep = auto, Detector function = peak, Trace = max hold
- 2 Allow the trace to stabilize, use the peak and delta measurement to record the result.
- 3 The level displayed must comply with the limit specified in this Section. .
- 4 Repeat the test at the hopping off and hopping on mode, submit all the plots.

### Limit:

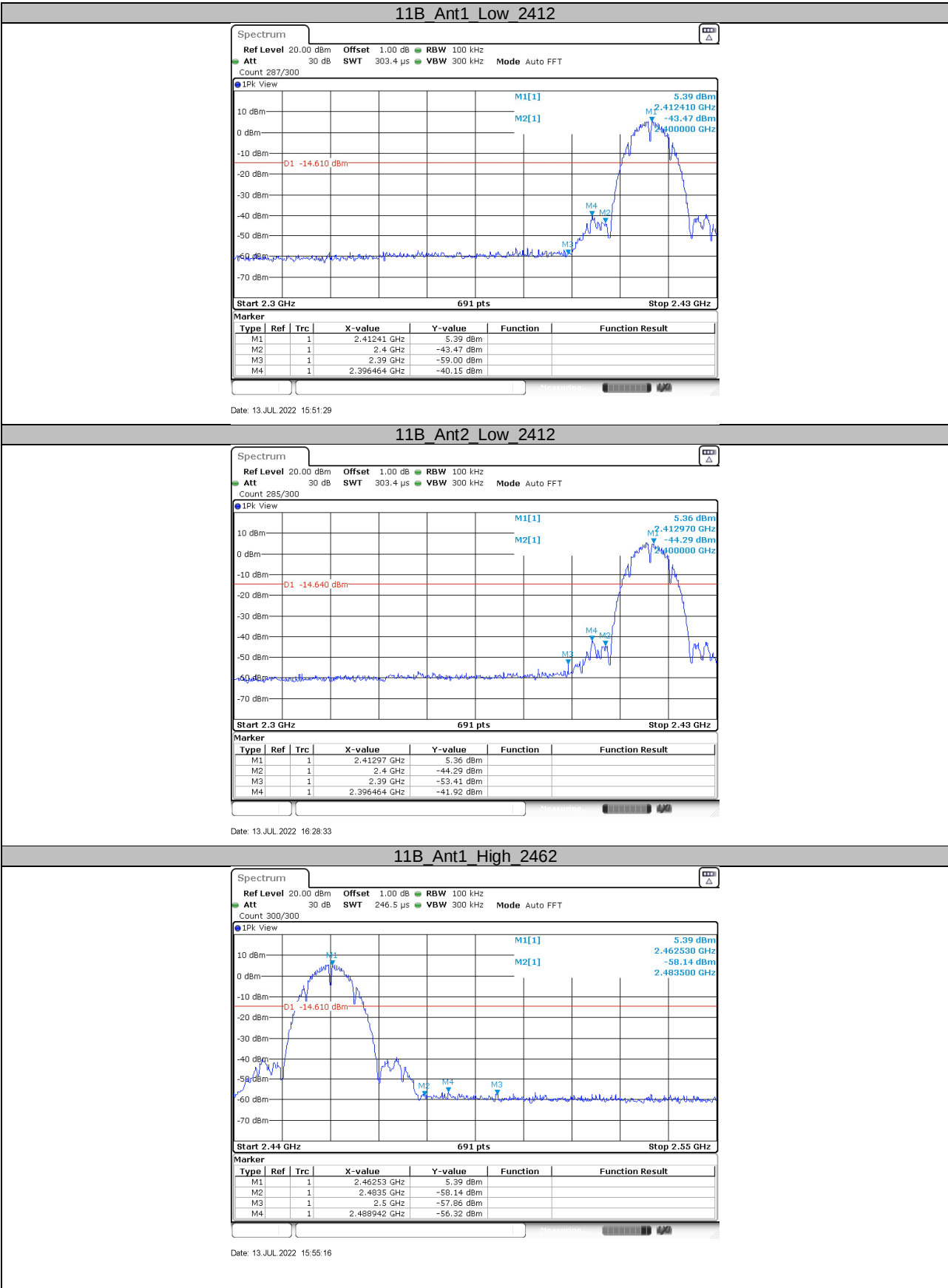
In any 100 kHz bandwidth outside the frequency bands in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. In addition, radiated emissions which fall in the restricted bands, as defined in RSS-Gen section 8.9, must also comply with the radiated emission limits specified in RSS-Gen section 8.10.

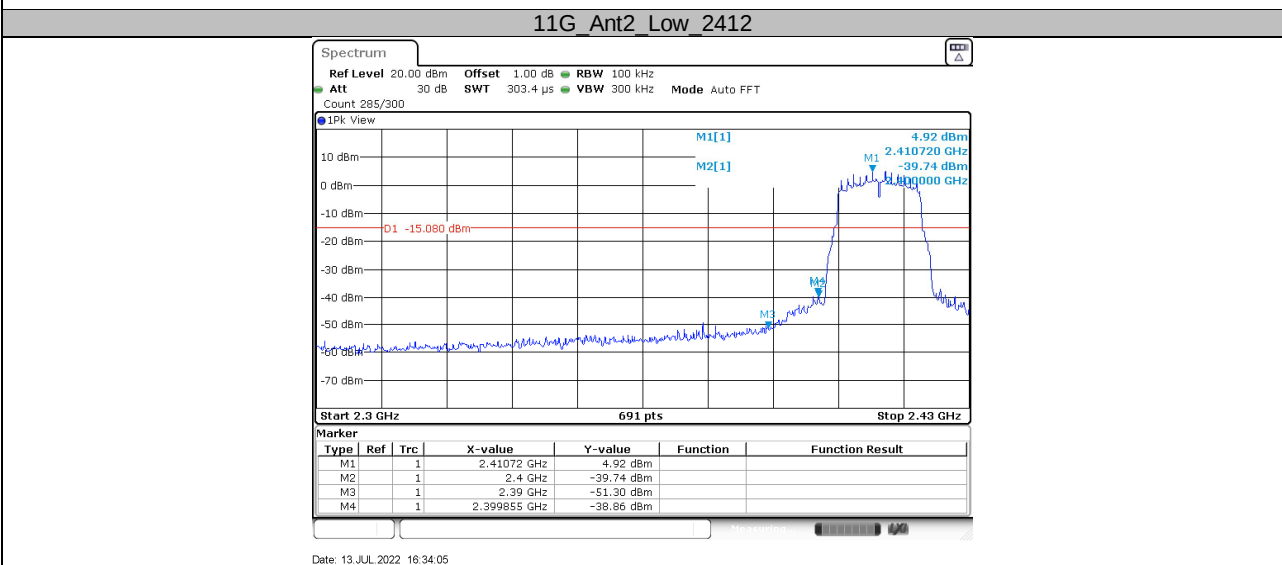
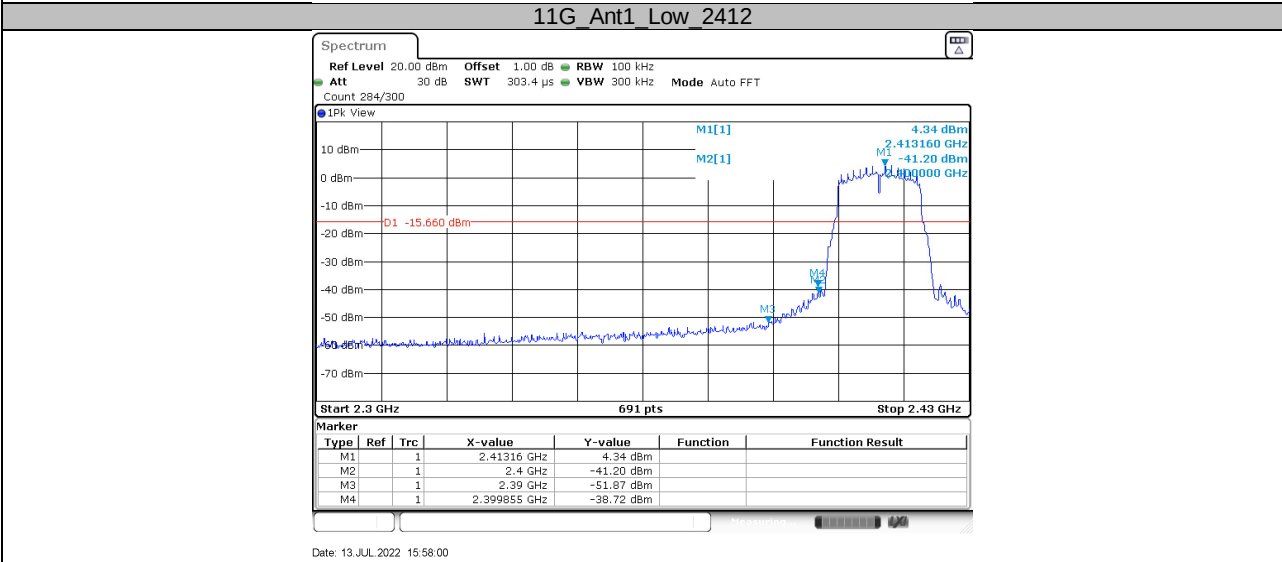
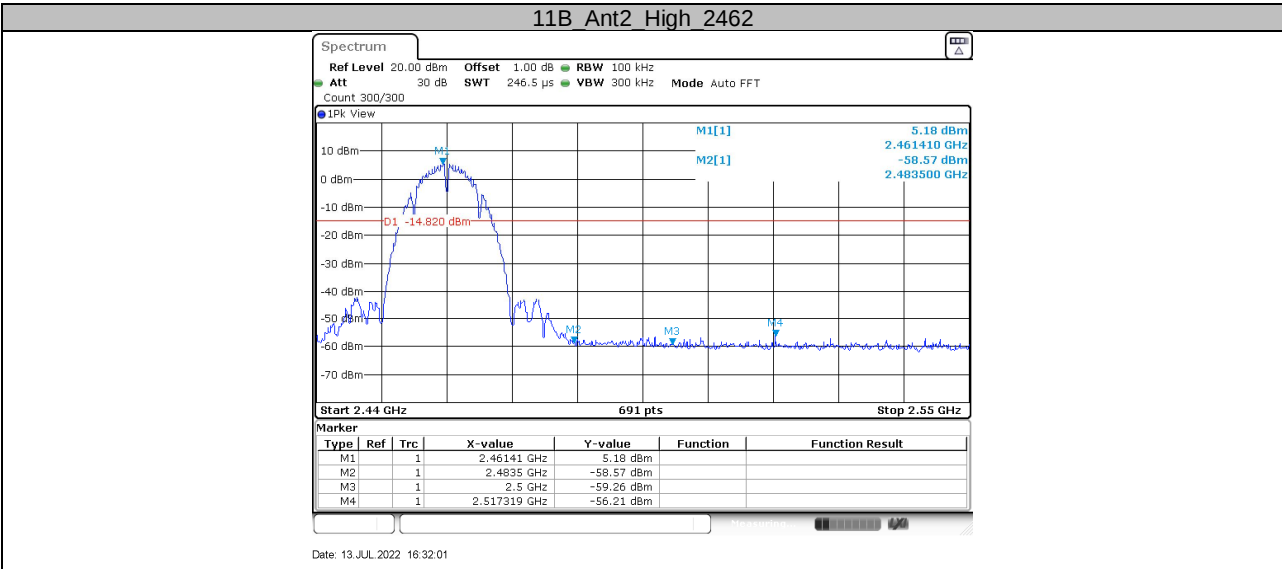
| Frequency Range<br>MHz | Limit (dBc) |
|------------------------|-------------|
| 30-25000               | -20         |

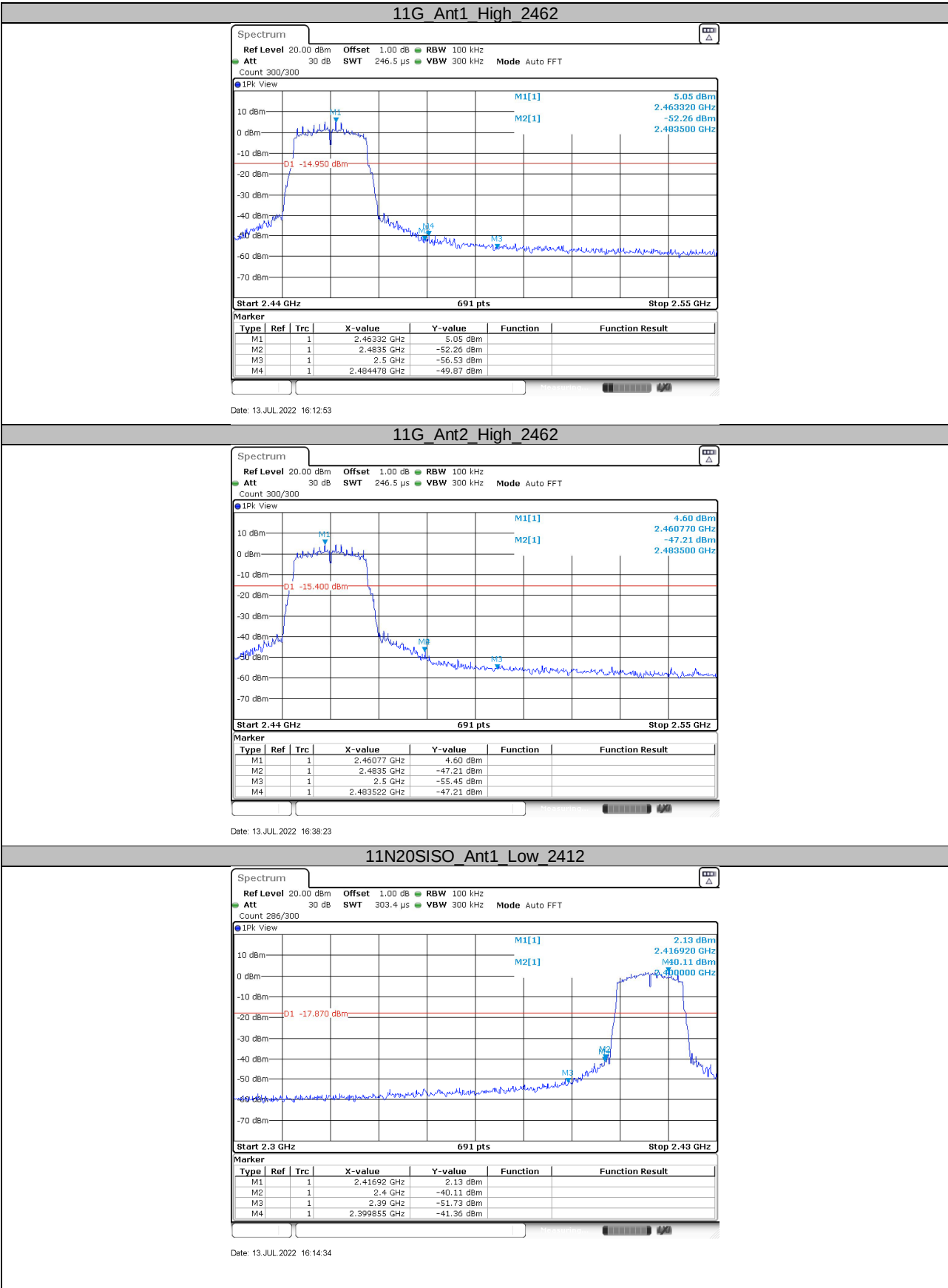
### Test result

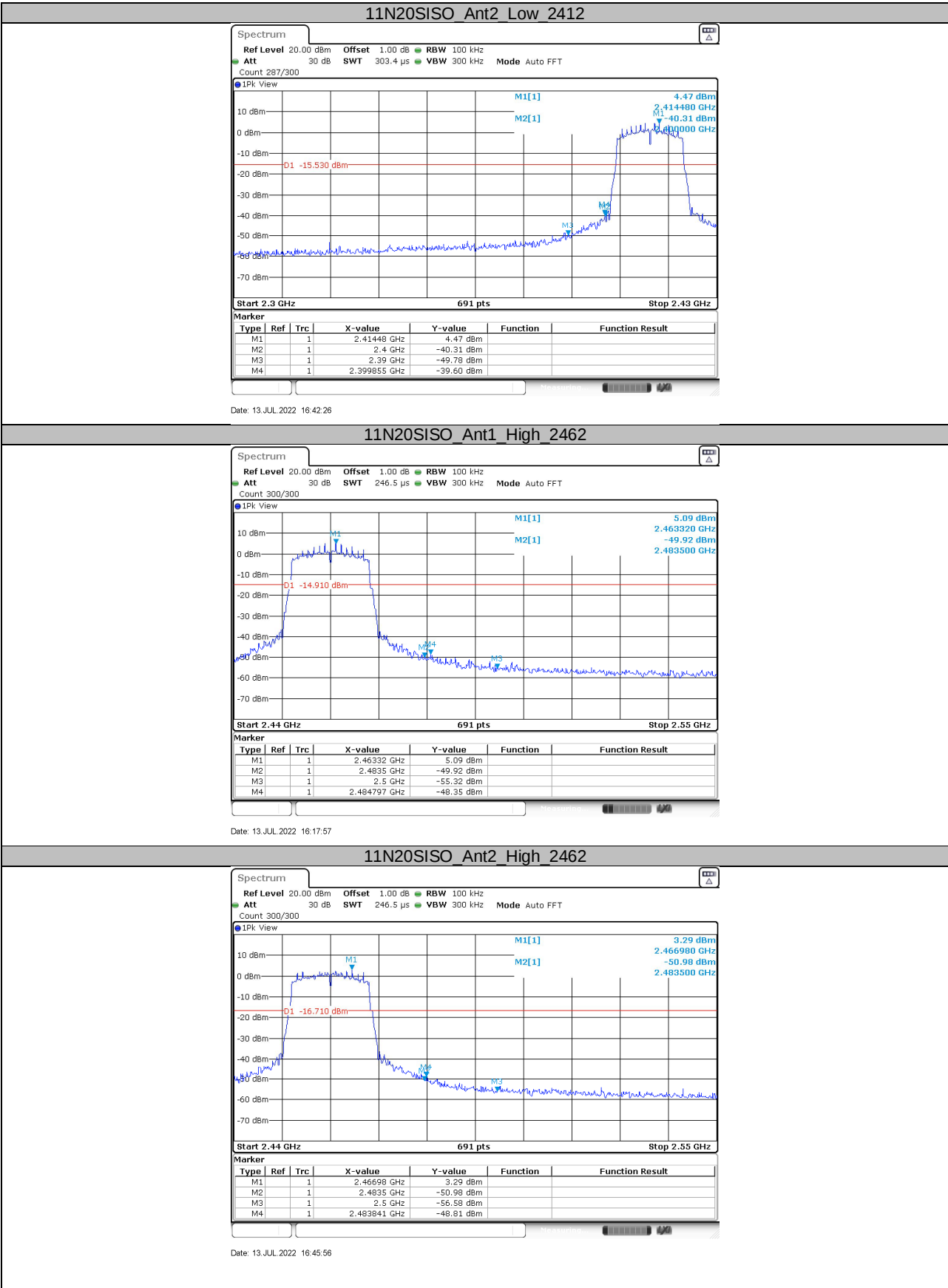
| TestMode | Antenna | ChName | Channel(MHz) | RefLevel(dBm) | Result(dBm) | Limit(dBm)    | Verdict |
|----------|---------|--------|--------------|---------------|-------------|---------------|---------|
| 11B      | Ant1    | Low    | 2412         | 5.39          | -40.15      | $\leq -14.61$ | PASS    |
|          | Ant2    | Low    | 2412         | 5.36          | -41.92      | $\leq -14.64$ | PASS    |
|          | Ant1    | High   | 2462         | 5.39          | -56.32      | $\leq -14.61$ | PASS    |
|          | Ant2    | High   | 2462         | 5.18          | -56.21      | $\leq -14.82$ | PASS    |
| 11G      | Ant1    | Low    | 2412         | 4.34          | -38.72      | $\leq -15.66$ | PASS    |
|          | Ant2    | Low    | 2412         | 4.92          | -38.86      | $\leq -15.08$ | PASS    |
|          | Ant1    | High   | 2462         | 5.05          | -49.87      | $\leq -14.95$ | PASS    |
|          | Ant2    | High   | 2462         | 4.60          | -47.21      | $\leq -15.4$  | PASS    |

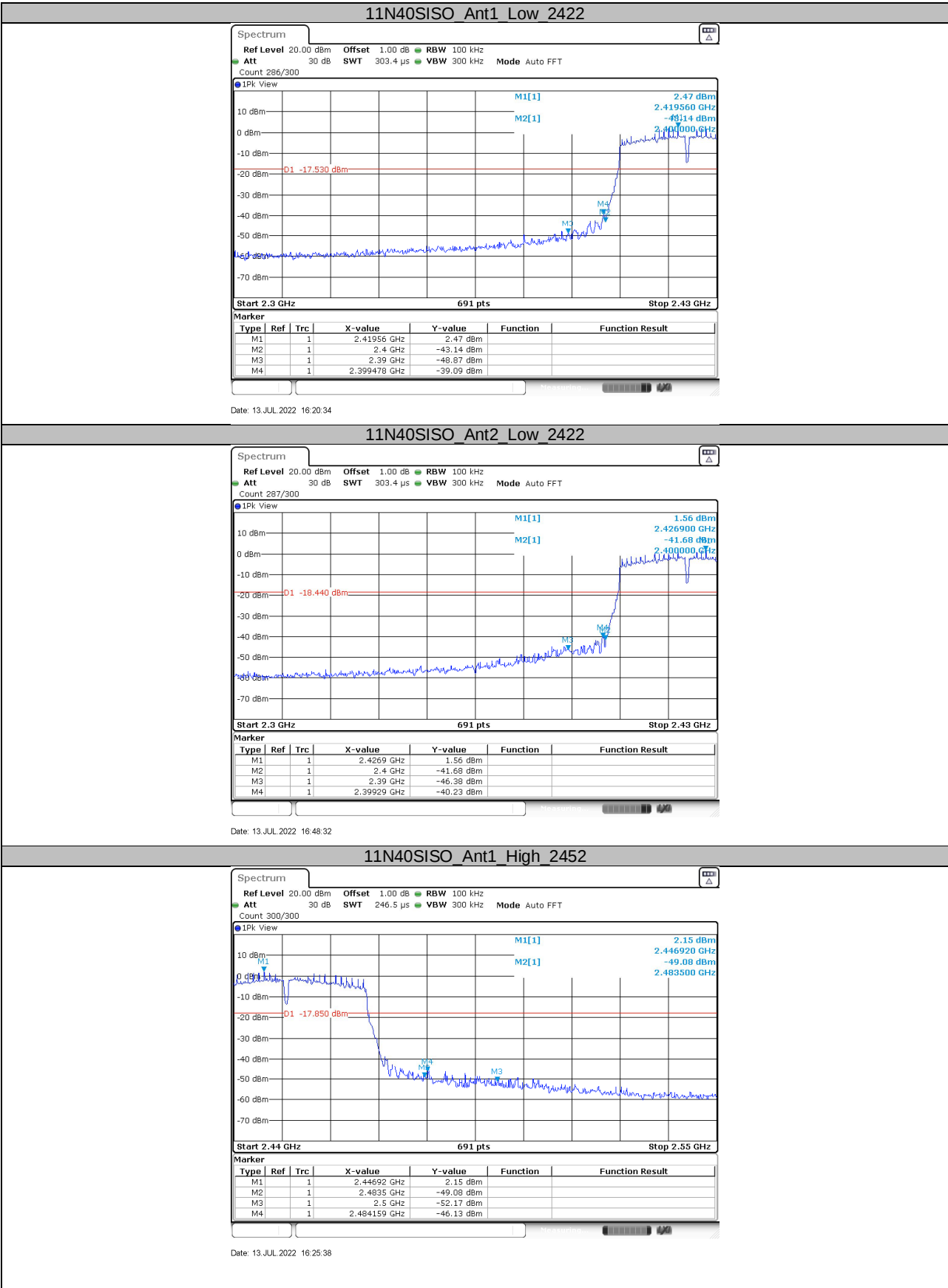
| TestMode  | Antenna | ChName | Channel(MHz) | RefLevel(dBm) | Result(dBm) | Limit(dBm)    | Verdict |
|-----------|---------|--------|--------------|---------------|-------------|---------------|---------|
| 11N20SISO | Ant1    | Low    | 2412         | 2.13          | -41.36      | $\leq -17.87$ | PASS    |
|           | Ant2    | Low    | 2412         | 4.47          | -39.6       | $\leq -15.53$ | PASS    |
|           | Ant1    | High   | 2462         | 5.09          | -48.35      | $\leq -14.91$ | PASS    |
|           | Ant2    | High   | 2462         | 3.29          | -48.81      | $\leq -16.71$ | PASS    |
| 11N40SISO | Ant1    | Low    | 2422         | 2.47          | -39.09      | $\leq -17.53$ | PASS    |
|           | Ant2    | Low    | 2422         | 1.56          | -40.23      | $\leq -18.44$ | PASS    |
|           | Ant1    | High   | 2452         | 2.15          | -46.13      | $\leq -17.85$ | PASS    |
|           | Ant2    | High   | 2452         | 2.75          | -35.72      | $\leq -17.25$ | PASS    |

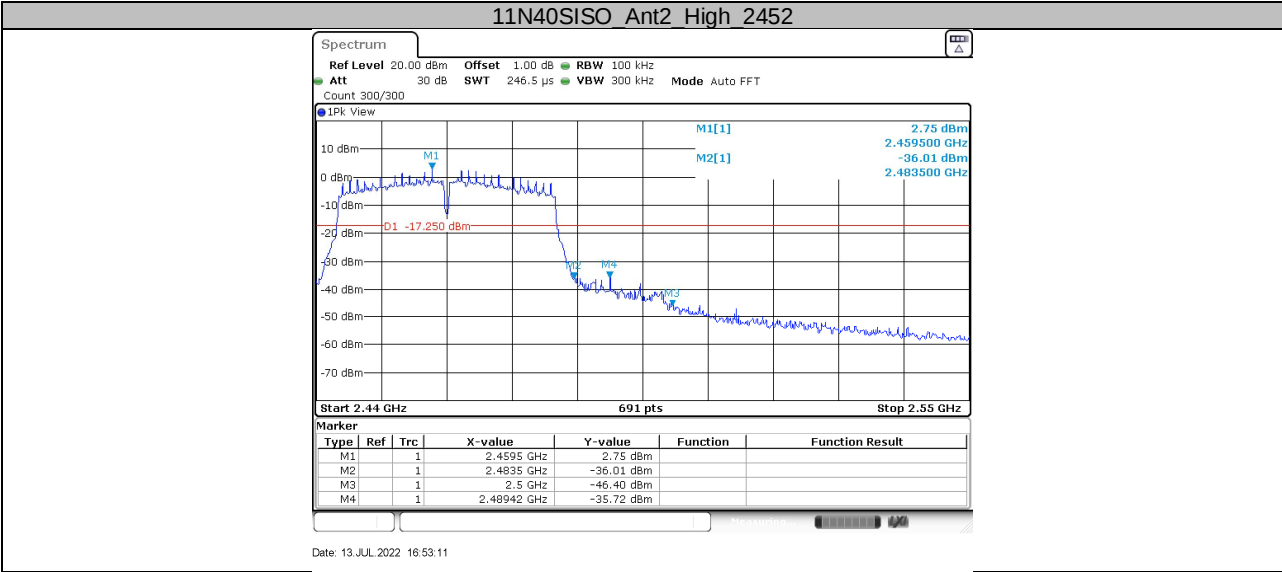












## 9.7 Radiated spurious emissions for transmitter

### Test Method

- 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 3 meter 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 from 0 degrees to 360 degrees to find the maximum reading.
- 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 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) RBW = 1 MHz.
- b) VBW  $\setminus$   $[3 \times \text{RBW}]$ .
- c) Detector = RMS (power averaging), if  $[\text{span} / (\# \text{ of points in sweep})] \setminus \text{RBW} / 2$ .  
 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.

3) If a specific emission is demonstrated to be continuous (100% duty cycle) rather than turning ON and OFF with the transmit cycle, then no duty cycle correction is required for that emission.

## Limit

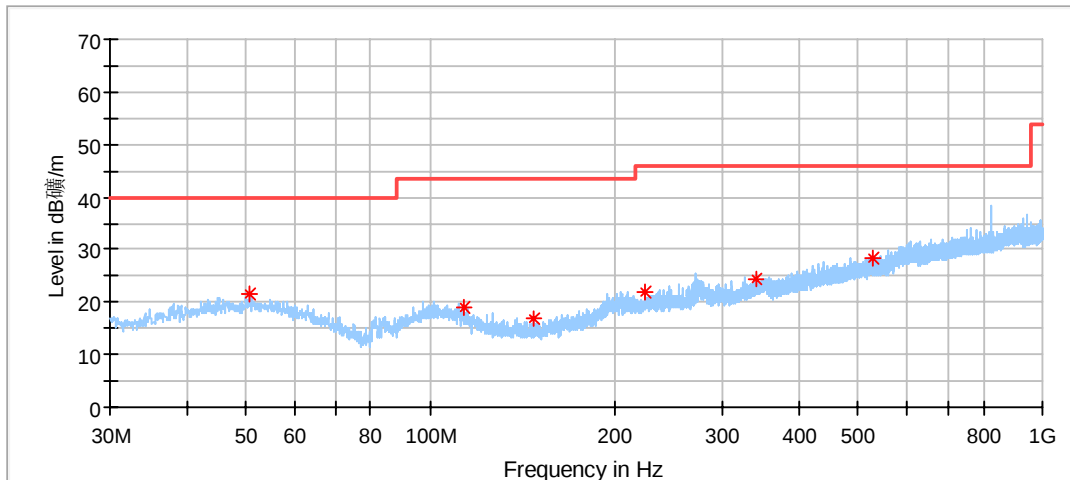
In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated device is operating, the RF power that is produced shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided that the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of root-mean-square averaging over a time interval, as permitted under RSS 247 section 5.4(d), the attenuation required shall be 30 dB instead of 20 dB. Attenuation below the general field strength limits specified in RSS-Gen is not required.

| Frequency<br>MHz | Field Strength<br>uV/m | Field Strength<br>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       |

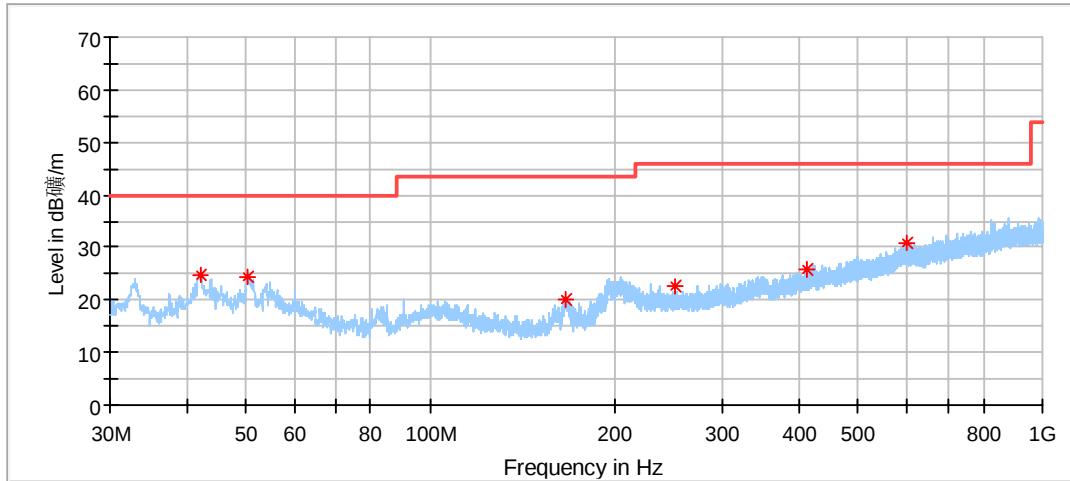
## Radiated spurious emissions for transmitter

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) |
|-----------------|------------------|----------------|-------------|-------------|-----|---------------|--------------|
| 50.801111       | 21.36            | 40.00          | 18.64       | 100.0       | H   | 231.0         | 20.56        |
| 113.689444      | 19.10            | 43.50          | 24.40       | 100.0       | H   | 102.0         | 17.63        |
| 147.316111      | 16.88            | 43.50          | 26.62       | 100.0       | H   | 249.0         | 14.93        |
| 224.916111      | 21.96            | 46.00          | 24.04       | 200.0       | H   | 293.0         | 18.98        |
| 340.669444      | 24.36            | 46.00          | 21.64       | 200.0       | H   | 303.0         | 22.44        |
| 528.580000      | 28.49            | 46.00          | 17.51       | 200.0       | H   | 165.0         | 25.73        |

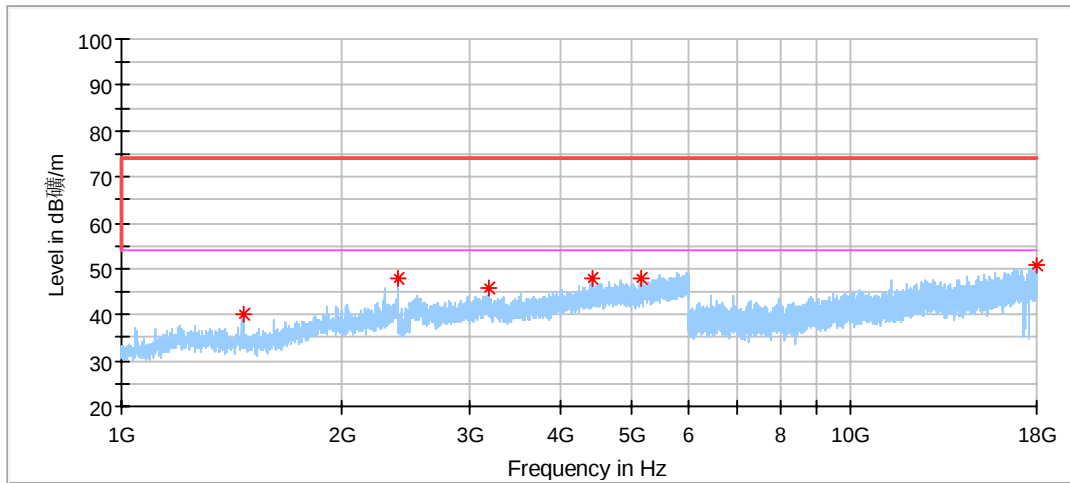


### Critical Freqs

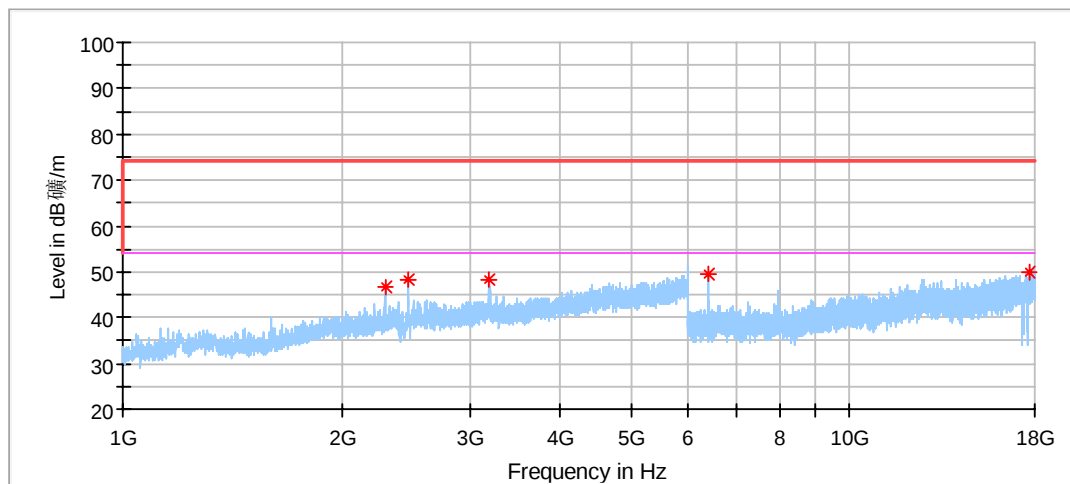
| Frequency (MHz) | MaxPeak (dBμV/m) | Limit (dBμV/m) | Margin (dB) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB/m) |
|-----------------|------------------|----------------|-------------|-------------|-----|---------------|--------------|
| 42.286667       | 24.94            | 40.00          | 15.06       | 100.0       | V   | 3.0           | 19.88        |
| 50.262222       | 24.36            | 40.00          | 15.64       | 100.0       | V   | 33.0          | 20.61        |
| 166.931667      | 20.03            | 43.50          | 23.47       | 100.0       | V   | 113.0         | 15.95        |
| 250.513333      | 22.78            | 46.00          | 23.22       | 100.0       | V   | 332.0         | 19.98        |
| 411.964444      | 25.93            | 46.00          | 20.07       | 100.0       | V   | 0.0           | 23.77        |
| 598.473889      | 30.81            | 46.00          | 15.19       | 100.0       | V   | 33.0          | 27.63        |

Above 1G:

## 802.11B Modulation 2412MHz Test Result

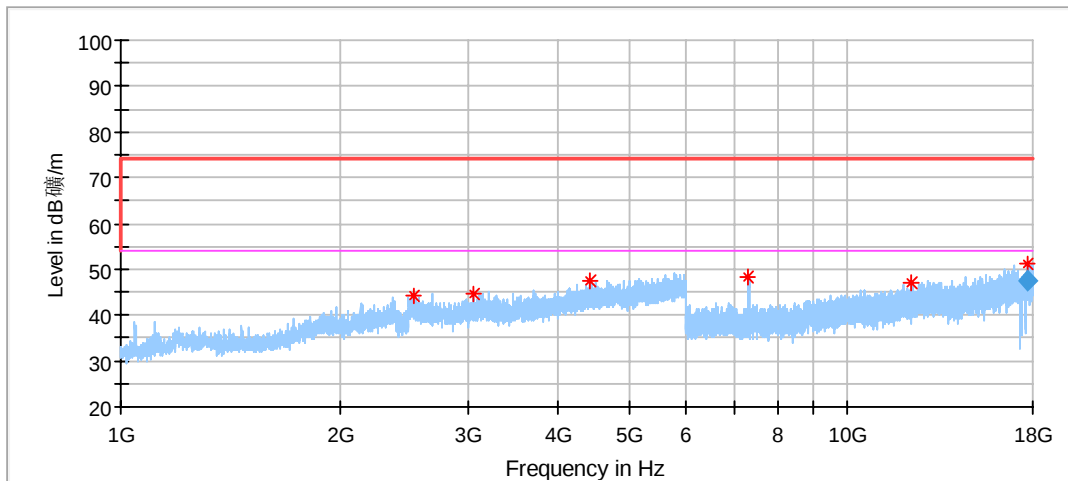


| Frequency (MHz) | MaxPeak (dBμV/m) | Limit (dBμV/m) | Margin (dB) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB/m) |
|-----------------|------------------|----------------|-------------|-------------|-----|---------------|--------------|
| 1469.500000     | 40.00            | 74.00          | 34.00       | 150.0       | H   | 252.0         | -8.74        |
| 2394.000000     | 47.97            | 74.00          | 26.03       | 150.0       | H   | 288.0         | -2.67        |
| 3186.500000     | 45.87            | 74.00          | 28.13       | 150.0       | H   | 259.0         | -0.34        |
| 4421.000000     | 47.94            | 74.00          | 26.06       | 150.0       | H   | 150.0         | 2.89         |
| 5158.500000     | 47.79            | 74.00          | 26.21       | 150.0       | H   | 8.0           | 4.88         |
| 17976.500000    | 50.71            | 74.00          | 23.29       | 150.0       | H   | 330.0         | 22.25        |

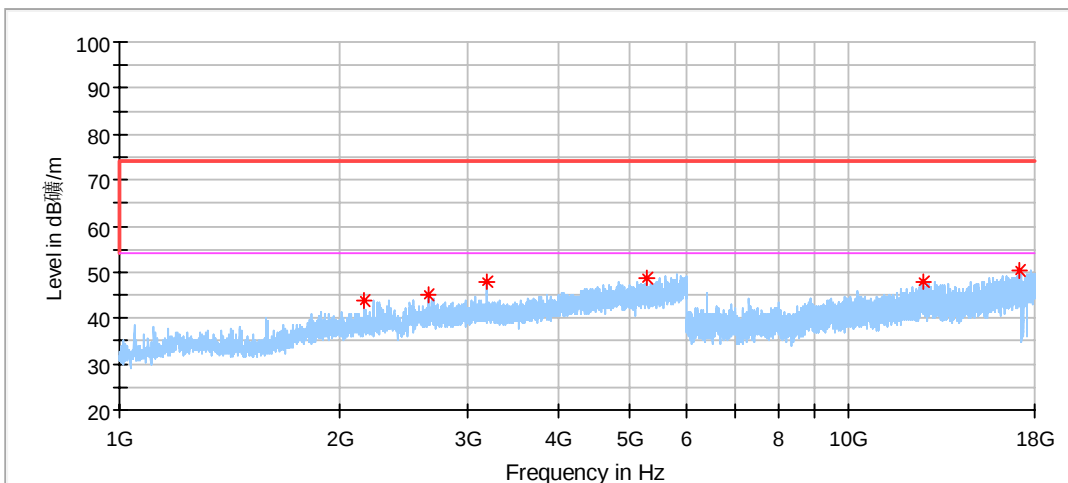


| Frequency (MHz) | MaxPeak (dBμV/m) | Limit (dBμV/m) | Margin (dB) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB/m) |
|-----------------|------------------|----------------|-------------|-------------|-----|---------------|--------------|
| 2293.500000     | 46.82            | 74.00          | 27.18       | 150.0       | V   | 128.0         | -2.98        |
| 2470.000000     | 48.34            | 74.00          | 25.66       | 150.0       | V   | 105.0         | -2.37        |
| 3198.500000     | 48.25            | 74.00          | 25.75       | 150.0       | V   | 228.0         | -0.39        |
| 6389.000000     | 49.36            | 74.00          | 24.64       | 150.0       | V   | 272.0         | 8.67         |
| 17696.000000    | 50.08            | 74.00          | 23.92       | 150.0       | V   | 180.0         | 22.11        |

## 802.11B Modulation 2437MHz Test Result

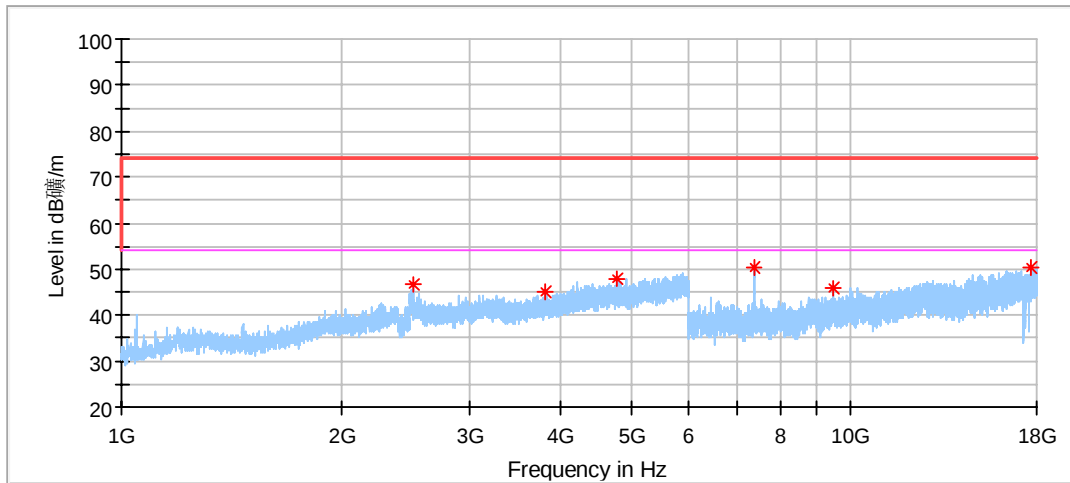


| Frequency (MHz) | MaxPeak (dBμV/m) | Limit (dBμV/m) | Margin (dB) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB/m) |
|-----------------|------------------|----------------|-------------|-------------|-----|---------------|--------------|
| 2527.500000     | 44.36            | 74.00          | 29.64       | 150.0       | H   | 310.0         | -2.20        |
| 3065.000000     | 44.47            | 74.00          | 29.53       | 150.0       | H   | 41.0          | -0.42        |
| 4431.500000     | 47.46            | 74.00          | 26.54       | 150.0       | H   | 337.0         | 2.87         |
| 7309.500000     | 48.21            | 74.00          | 25.79       | 150.0       | H   | 305.0         | 8.86         |
| 12230.500000    | 47.27            | 74.00          | 26.73       | 150.0       | H   | 331.0         | 14.96        |
| 17641.500000    | 51.14            | 74.00          | 22.86       | 150.0       | H   | 278.0         | 22.08        |
| Frequency (MHz) | Average (dBμV/m) | Limit (dBμV/m) | Margin (dB) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB/m) |
| 17641.500000    | 47.65            | 54.00          | 6.35        | 150.0       | H   | 278.0         | 22.08        |

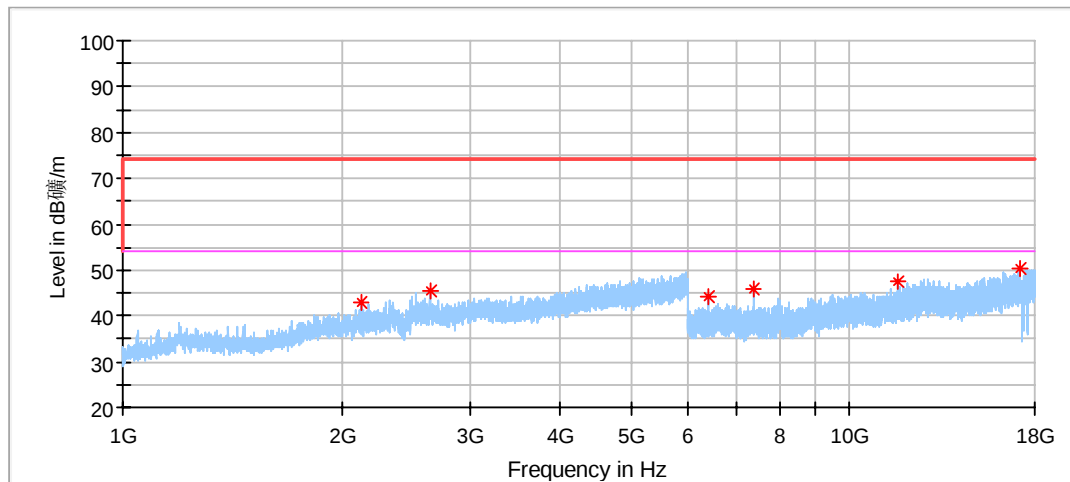


| Frequency (MHz) | MaxPeak (dBμV/m) | Limit (dBμV/m) | Margin (dB) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB/m) |
|-----------------|------------------|----------------|-------------|-------------|-----|---------------|--------------|
| 2163.500000     | 43.63            | 74.00          | 30.37       | 150.0       | V   | 228.0         | -3.69        |
| 2650.000000     | 45.16            | 74.00          | 28.84       | 150.0       | V   | 236.0         | -1.86        |
| 3188.500000     | 47.71            | 74.00          | 26.29       | 150.0       | V   | 291.0         | -0.35        |
| 5278.500000     | 48.83            | 74.00          | 25.17       | 150.0       | V   | 291.0         | 4.91         |
| 12684.500000    | 47.71            | 74.00          | 26.29       | 150.0       | V   | 107.0         | 16.26        |
| 17142.500000    | 50.28            | 74.00          | 23.72       | 150.0       | V   | 58.0          | 22.23        |

## 802.11B Modulation 2462MHz Test Result



| Frequency (MHz) | MaxPeak (dBμV/m) | Limit (dBμV/m) | Margin (dB) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB/m) |
|-----------------|------------------|----------------|-------------|-------------|-----|---------------|--------------|
| 2513.000000     | 46.63            | 74.00          | 27.37       | 150.0       | H   | 284.0         | -2.28        |
| 3821.000000     | 45.15            | 74.00          | 28.85       | 150.0       | H   | 177.0         | 0.69         |
| 4773.000000     | 48.05            | 74.00          | 25.95       | 150.0       | H   | 78.0          | 3.72         |
| 7385.000000     | 50.20            | 74.00          | 23.80       | 150.0       | H   | 303.0         | 8.84         |
| 9452.000000     | 45.66            | 74.00          | 28.34       | 150.0       | H   | 330.0         | 12.78        |
| 17695.000000    | 50.23            | 74.00          | 23.77       | 150.0       | H   | 303.0         | 22.11        |



| Frequency (MHz) | MaxPeak (dBμV/m) | Limit (dBμV/m) | Margin (dB) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB/m) |
|-----------------|------------------|----------------|-------------|-------------|-----|---------------|--------------|
| 2133.500000     | 43.03            | 74.00          | 30.97       | 150.0       | V   | 133.0         | -3.88        |
| 2644.500000     | 45.35            | 74.00          | 28.65       | 150.0       | V   | 244.0         | -1.88        |
| 6393.000000     | 44.18            | 74.00          | 29.82       | 150.0       | V   | 223.0         | 8.64         |
| 7385.000000     | 45.74            | 74.00          | 28.26       | 150.0       | V   | 269.0         | 8.84         |
| 11663.500000    | 47.36            | 74.00          | 26.64       | 150.0       | V   | 200.0         | 14.01        |
| 17145.000000    | 50.19            | 74.00          | 23.81       | 150.0       | V   | 79.0          | 22.23        |

Remark:

- (1) The report only shows the worst test data.
- (2) Data of measurement within frequency range 18-26GHz are the noise floor or attenuated more than 20dB below the permissible limits or the field strength is too small to be measured, so test data does not present in this report;
- (3) Level=Reading Level + Correction Factor  
Above 1GHz: Corrector factor = Antenna Factor + Cable Loss- Amplifier Gain  
Below 1GHz: Corrector factor = Antenna Factor + Cable Loss  
(The Reading Level is recorded by software which is not shown in the sheet)

## 10 Test Equipment List

### Conducted Emission Test

| Description        | Manufacturer      | Model no.      | Equipment ID       | Serial no.     | cal interval (year) | cal. due date |
|--------------------|-------------------|----------------|--------------------|----------------|---------------------|---------------|
| EMI Test Receiver  | Rohde & Schwarz   | ESR 3          | 68-4-74-14-001     | 101782         | 1                   | 2023-5-27     |
| LISN               | Rohde & Schwarz   | ENV4200        | 68-4-87-14-001     | 100249         | 1                   | 2023-5-27     |
| LISN               | Rohde & Schwarz   | ENV432         | 68-4-87-16-001     | 101318         | 1                   | 2023-5-27     |
| LISN               | Rohde & Schwarz   | ENV216         | 68-4-87-14-002     | 100326         | 1                   | 2023-5-27     |
| ISN                | Rohde & Schwarz   | ENY81          | 68-4-87-14-003     | 100177         | 1                   | 2023-5-27     |
| ISN                | Rohde & Schwarz   | ENY81-CA6      | 68-4-87-14-004     | 101664         | 1                   | 2023-5-27     |
| High Voltage Probe | Schwarzbeck       | TK9420(VT9420) | 68-4-27-14-001     | 9420-584       | 1                   | 2023-5-27     |
| RF Current Probe   | Rohde & Schwarz   | EZ-17          | 68-4-27-14-002     | 100816         | 1                   | 2023-5-31     |
| Attenuator         | Shanghai Huaxiang | TS2-26-3       | 68-4-81-16-003     | 080928189      | 1                   | 2023-5-27     |
| Test software      | Rohde & Schwarz   | EMC32          | 68-4-90-14-003-A10 | Version9.15.00 | N/A                 | N/A           |
| Shielding Room     | TDK               | CSR #1         | 68-4-90-19-004     | ----           | 3                   | 2022-11-07    |

### Radiated Emission 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                   | 2023-5-28     |
| Trilog Super Broadband Test Antenna | Schwarzbeck     | VULB 9162         | 68-4-80-19-003     | 284             | 1                   | 2023-1-17     |
| Wave Guide Antenna                  | ETS             | 3117              | 68-4-80-19-001     | 00218954        | 1                   | 2023-5-9      |
| Pre-amplifier                       | Rohde & Schwarz | SCU 18F           | 68-4-29-19-001     | 100745          | 1                   | 2023-5-28     |
| Pre-amplifier                       | Rohde & Schwarz | SCU 18F           | 68-4-29-19-002     | 100746          | 1                   | 2023-5-28     |
| Sideband Horn Antenna               | Q-PAR           | QWH-SL-18-40-K-SG | 68-4-80-14-008     | 12827           | 1                   | 2023-7-12     |
| Pre-amplifier                       | Rohde & Schwarz | SCU 40A           | 68-4-29-14-002     | 100432          | 1                   | 2023-7-27     |
| Attenuator                          | Mini-circuits   | UNAT-6+           | 68-4-81-21-002     | 15542           | 1                   | 2023-5-27     |
| 3m Semi-anechoic chamber            | TDK             | SAC-3 #2          | 68-4-90-19-006     | ----            | 2                   | 2023-5-28     |
| Test software                       | Rohde & Schwarz | EMC32             | 68-4-90-19-006-A01 | Version10.35.02 | N/A                 | N/A           |

### RF conducted test

| 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                   | 2023-5-27     |
| RF Switch Module | Rohde & Schwarz | OSP120/OSP-B157    | 68-4-93-14-003     | 101226/100851       | 1                   | 2023-5-27     |
| Power Splitter   | Weinschel       | 1580               | 68-4-85-14-001     | SC319               | 1                   | 2023-5-28     |
| Test software    | Tonscend        | System for BT/WIFI | 68-4-74-14-006-A13 | Version 2.6.77.0518 | N/A                 | N/A           |
| Shielding Room   | TDK             | TS8997             | 68-4-90-19-003     | ----                | 3                   | 2022-11-07    |

## 11 System Measurement Uncertainty

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 150kHz-30MHz<br>(for test using AMN ENV432 or ENV4200) | 3.62dB                                                                            |
| Uncertainty for Radiated Spurious Emission 25MHz-1000MHz                                  | Horizontal: 4.70dB;<br>Vertical: 4.67dB;                                          |
| Uncertainty for Radiated Spurious Emission 1000MHz-40000MHz                               | Horizontal: 4.65dB;<br>Vertical: 4.64dB;                                          |
| Uncertainty for Conducted RF test with TS 8997                                            | RF Power Conducted: 1.31dB<br>Frequency test involved: $0.6 \times 10^{-7}$ or 1% |