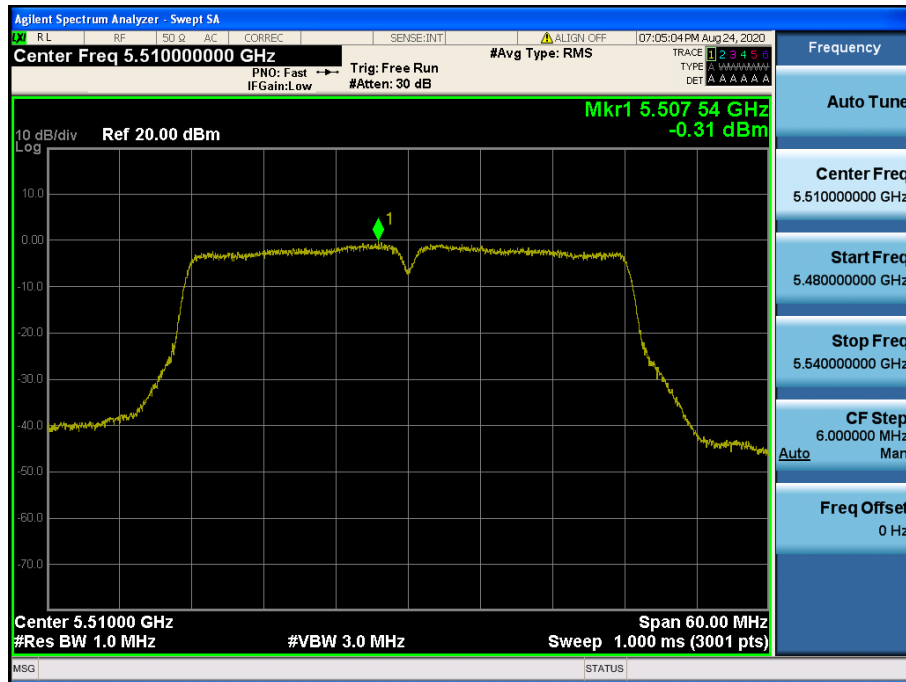


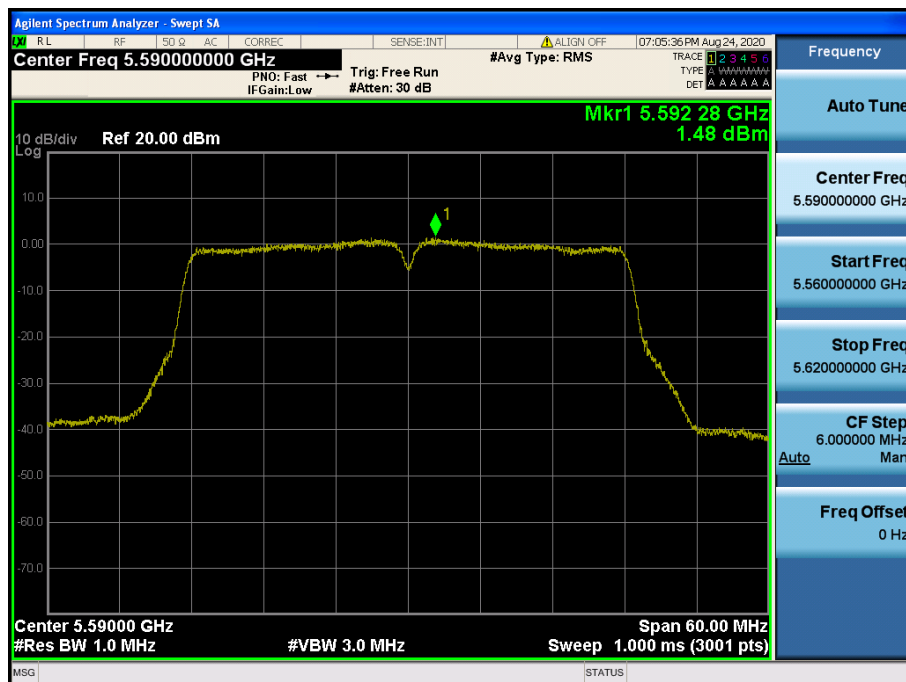
Maximum Power Spectral Density

Test Mode: TM 3 & ANT 1 & Ch.102



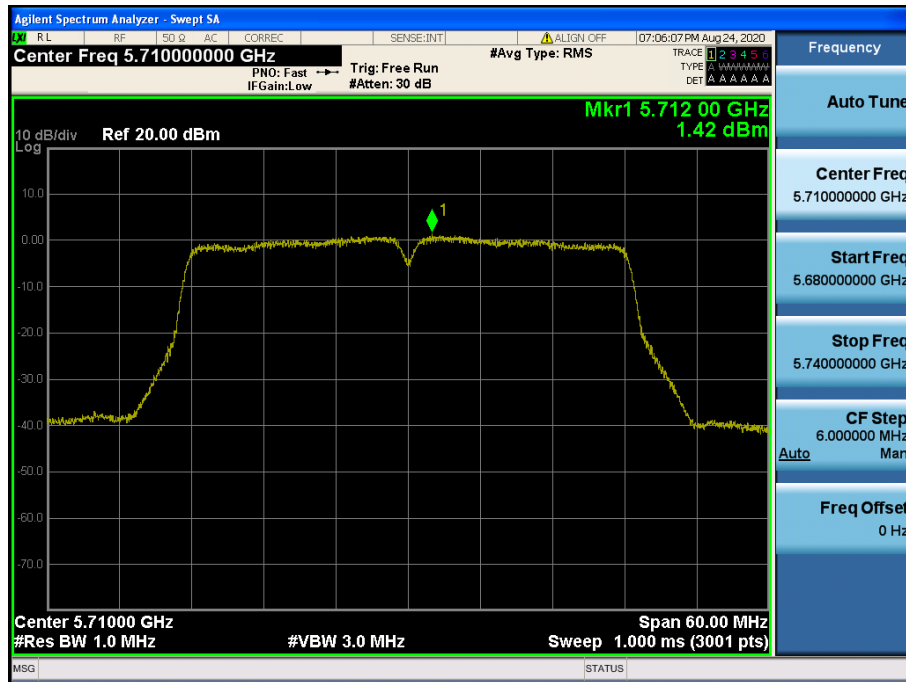
Maximum Power Spectral Density

Test Mode: TM 3 & ANT 1 & Ch.118



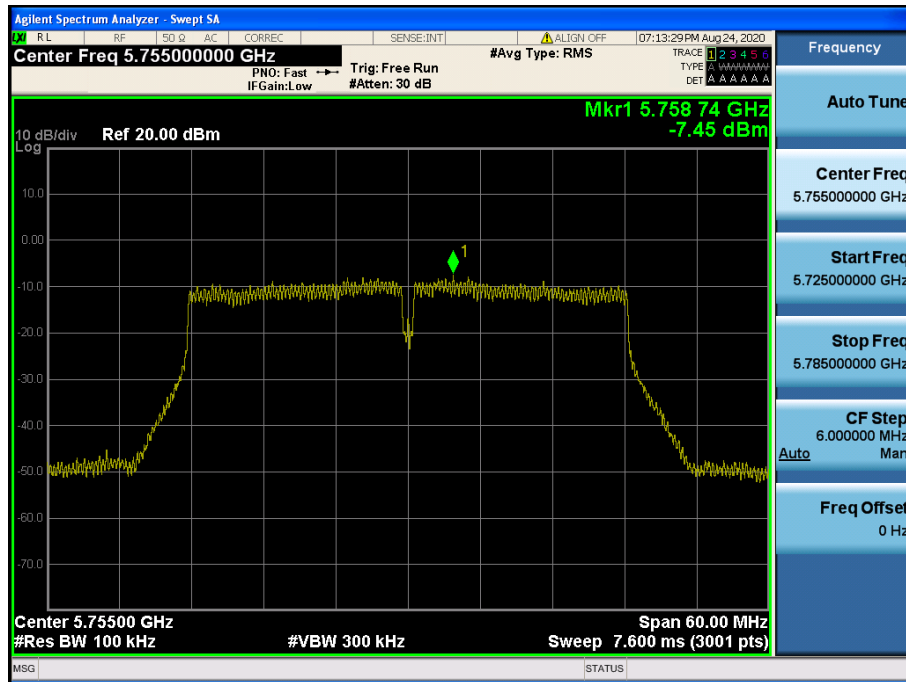
Maximum Power Spectral Density

Test Mode: TM 3 & ANT 1 & Ch.142



Maximum Power Spectral Density

Test Mode: TM 3 & ANT 1 & Ch.151



Maximum Power Spectral Density

Test Mode: TM 3 & ANT 1 & Ch.159



Maximum Power Spectral Density

Test Mode: TM 4 & ANT 1 & Ch.42



Maximum Power Spectral Density

Test Mode: TM 4 & ANT 1 & Ch.58



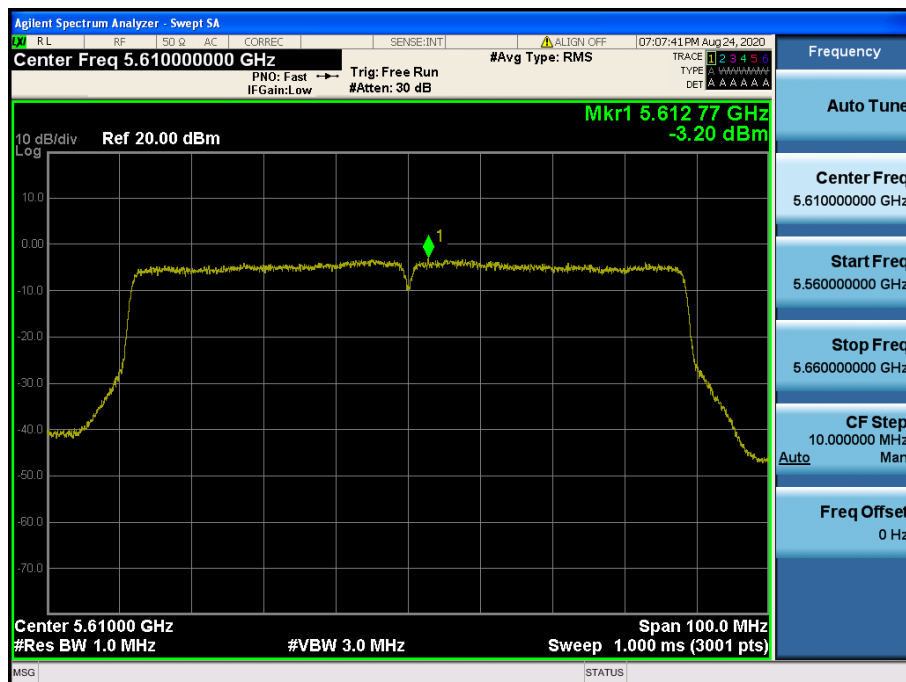
Maximum Power Spectral Density

Test Mode: TM 4 & ANT 1 & Ch.106



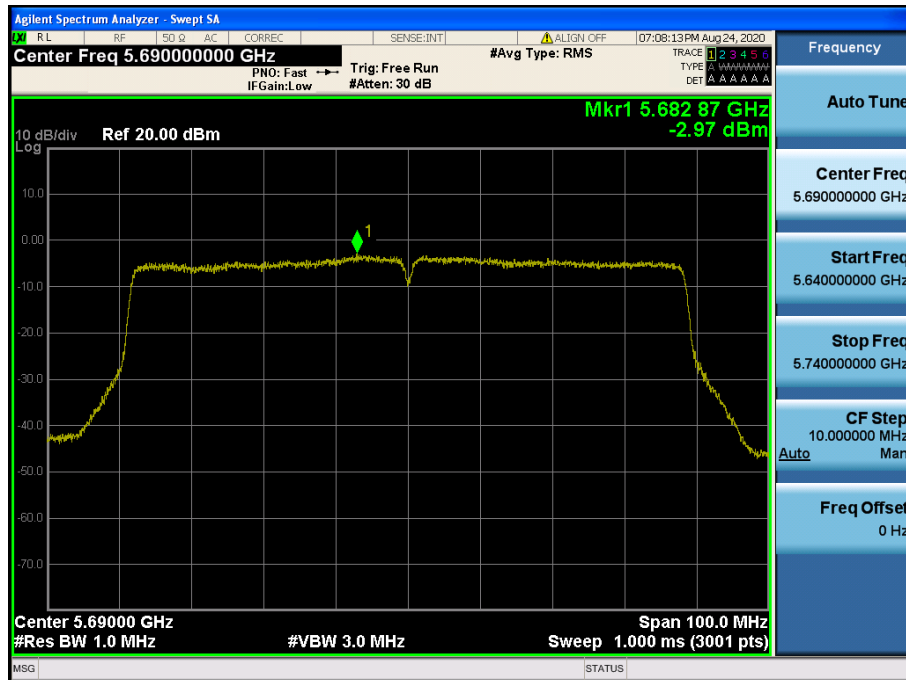
Maximum Power Spectral Density

Test Mode: TM 4 & ANT 1 & Ch.122



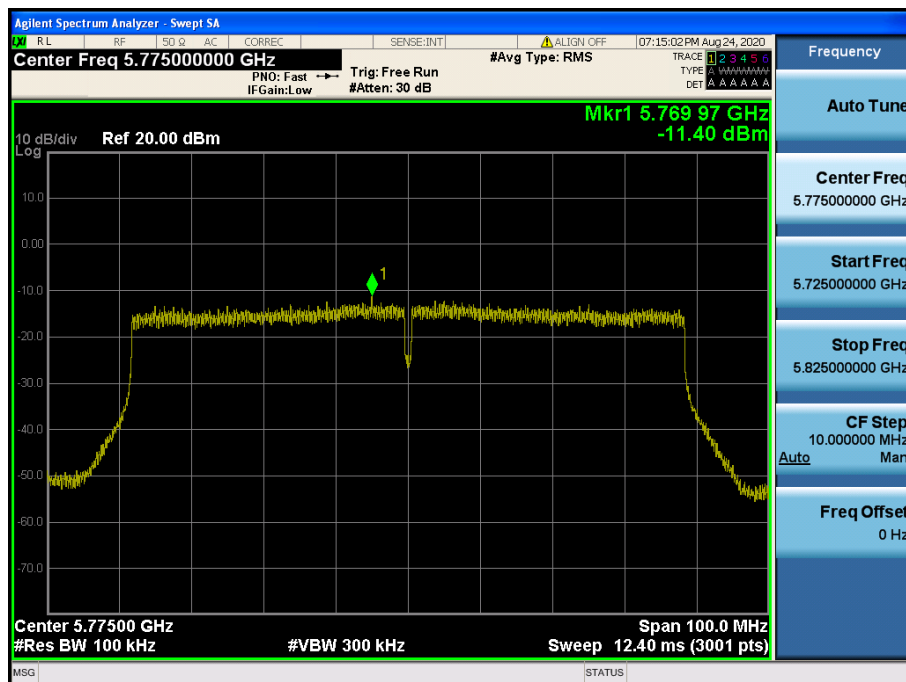
Maximum Power Spectral Density

Test Mode: TM 4 & ANT 1 & Ch.138



Maximum Power Spectral Density

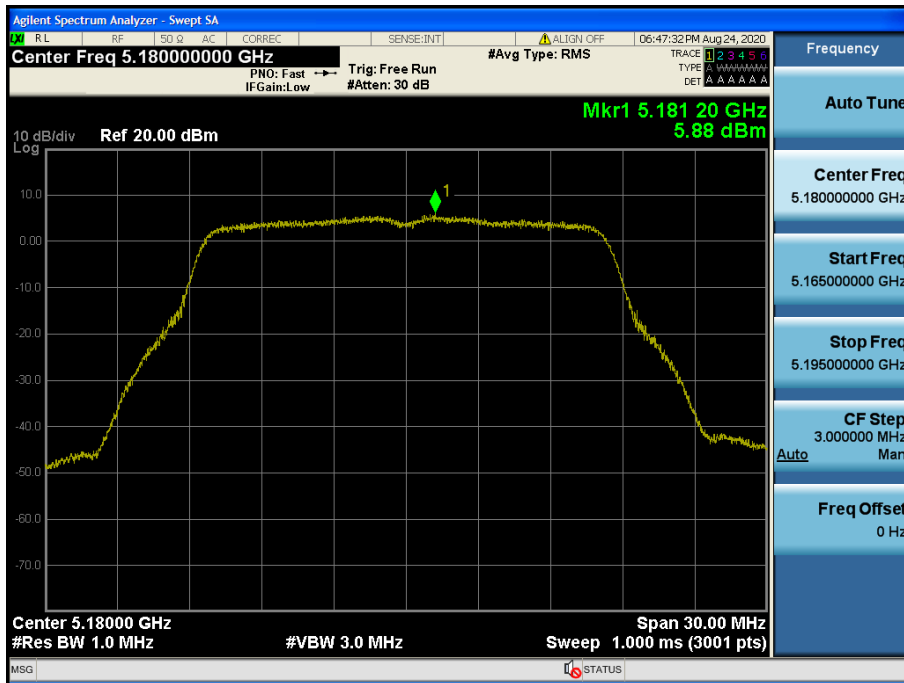
Test Mode: TM 4 & ANT 1 & Ch.155



- Power spectral density: Antenna 2

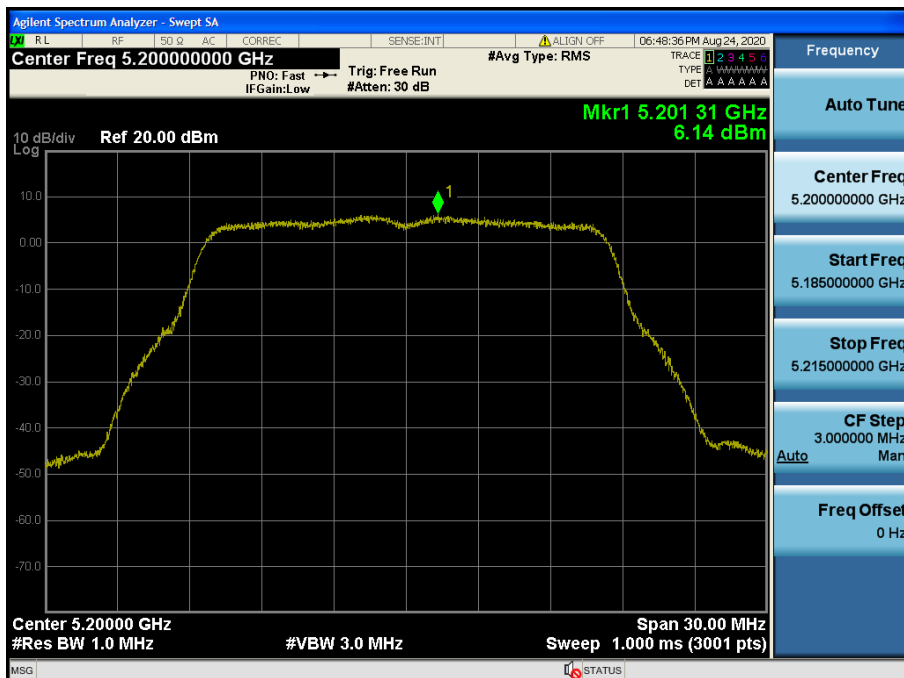
Maximum Power Spectral Density

Test Mode: TM 1 & ANT 2 & Ch.36



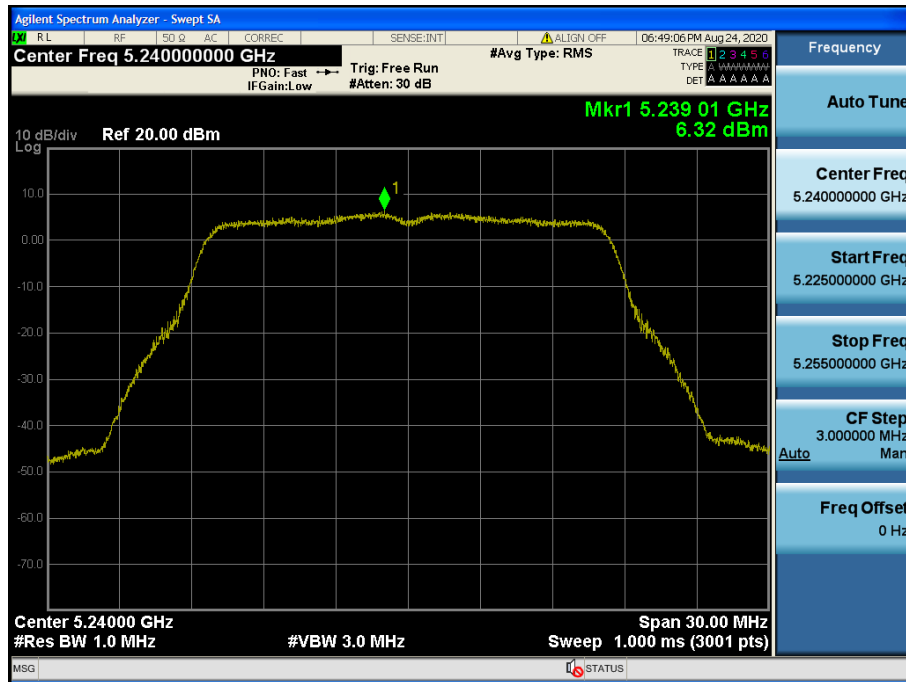
Maximum Power Spectral Density

Test Mode: TM 1 & ANT 2 & Ch.40



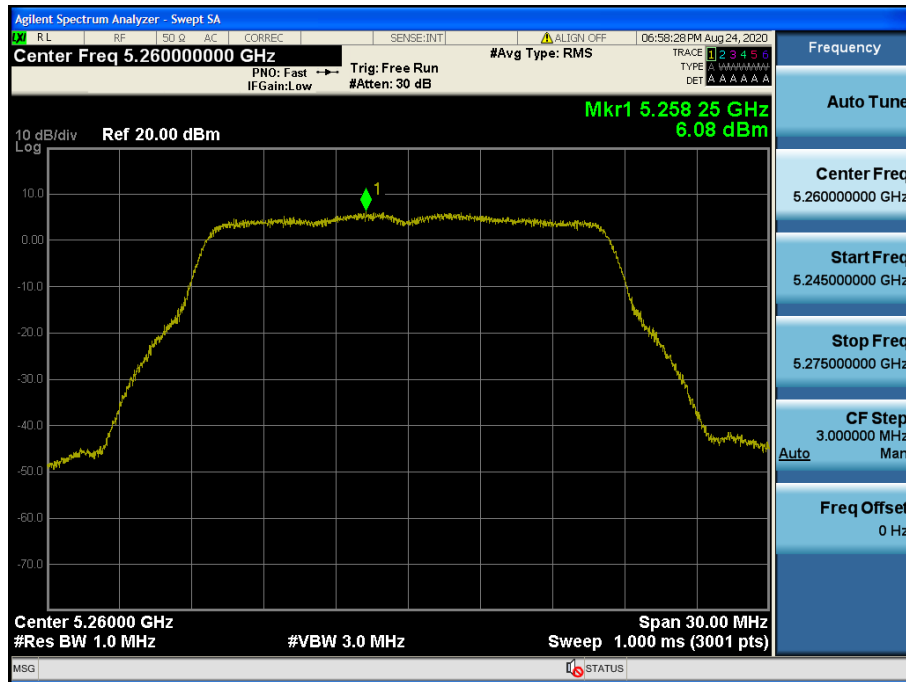
Maximum Power Spectral Density

Test Mode: TM 1 & ANT 2 & Ch.48



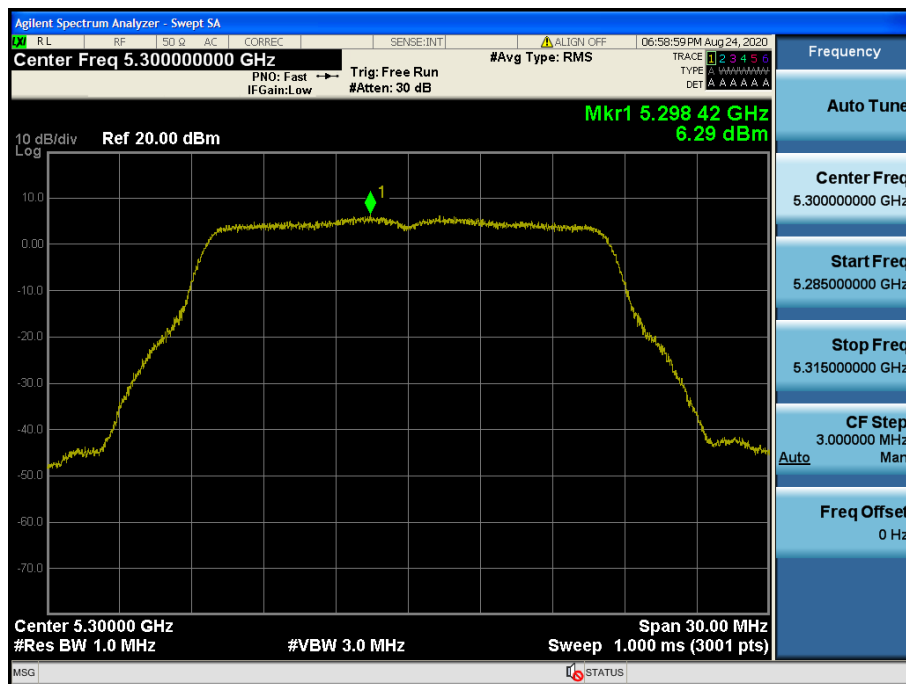
Maximum Power Spectral Density

Test Mode: TM 1 & ANT 2 & Ch.52



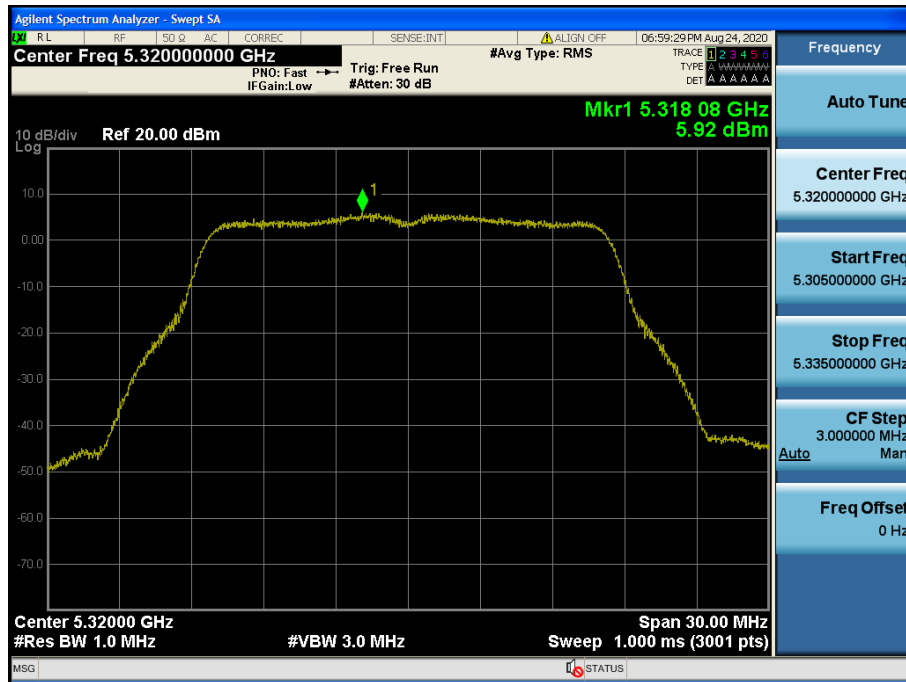
Maximum Power Spectral Density

Test Mode: TM 1 & ANT 2 & Ch.60



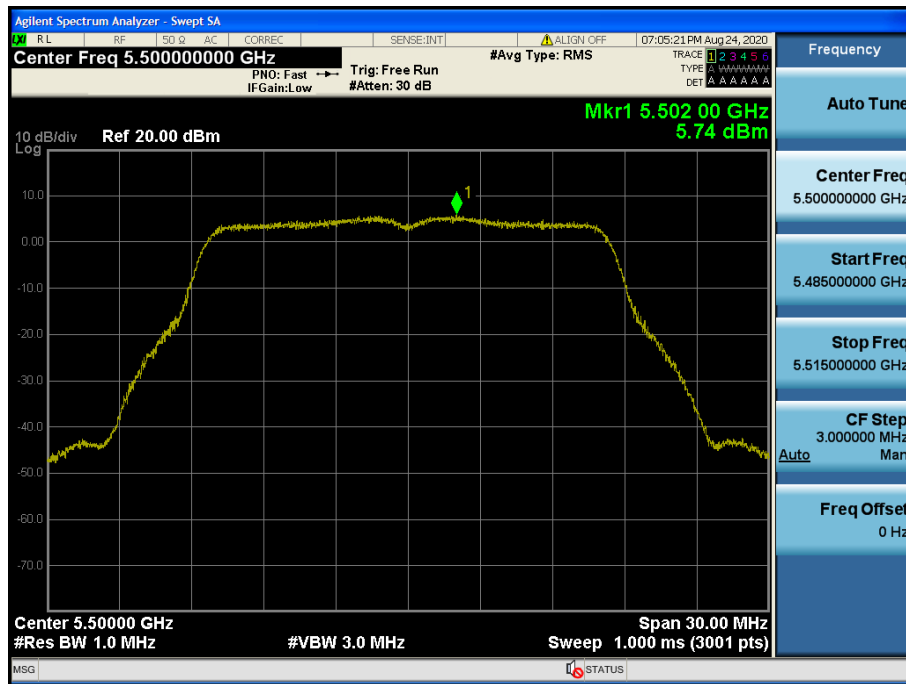
Maximum Power Spectral Density

Test Mode: TM 1 & ANT 2 & Ch.64



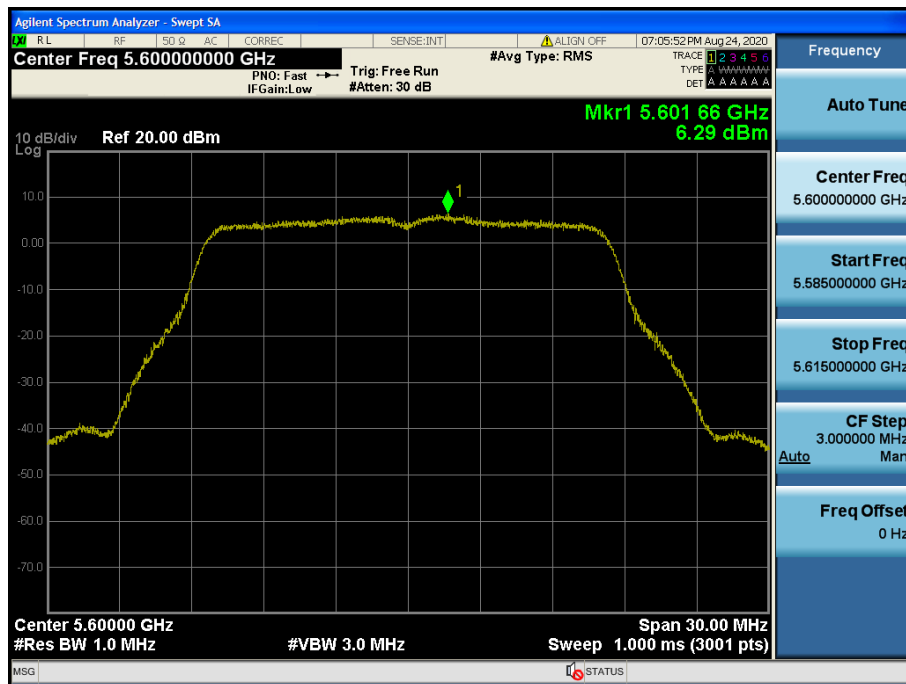
Maximum Power Spectral Density

Test Mode: TM 1 & ANT 2 & Ch.100



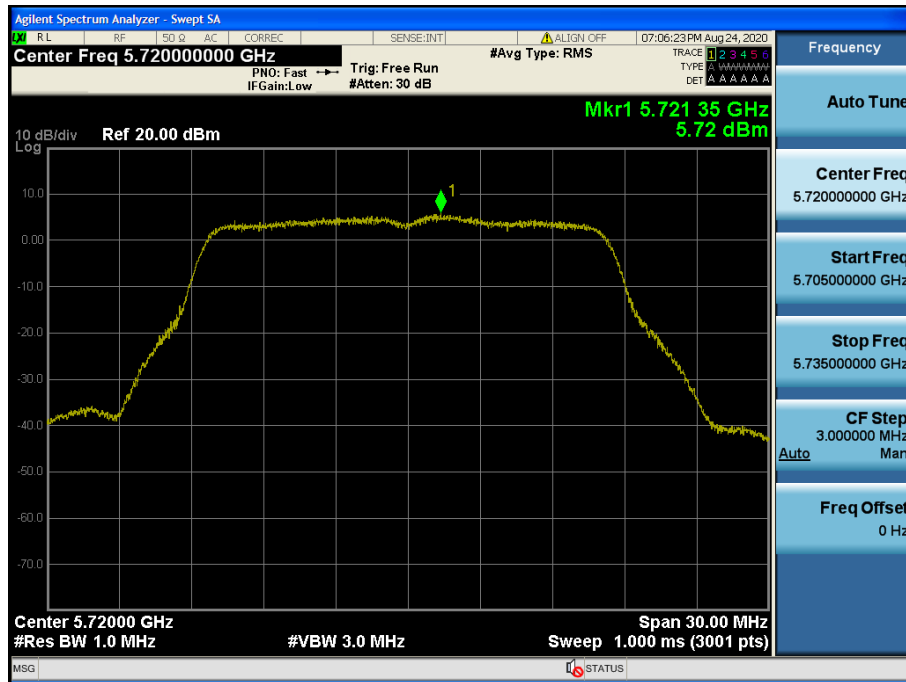
Maximum Power Spectral Density

Test Mode: TM 1 & ANT 2 & Ch.120



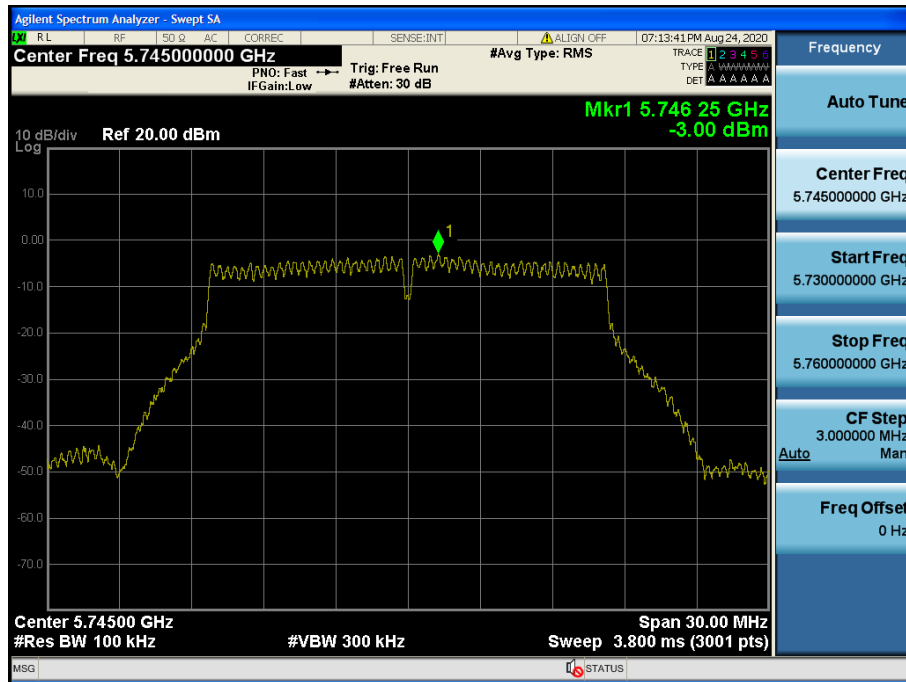
Maximum Power Spectral Density

Test Mode: TM 1 & ANT 2 & Ch.144



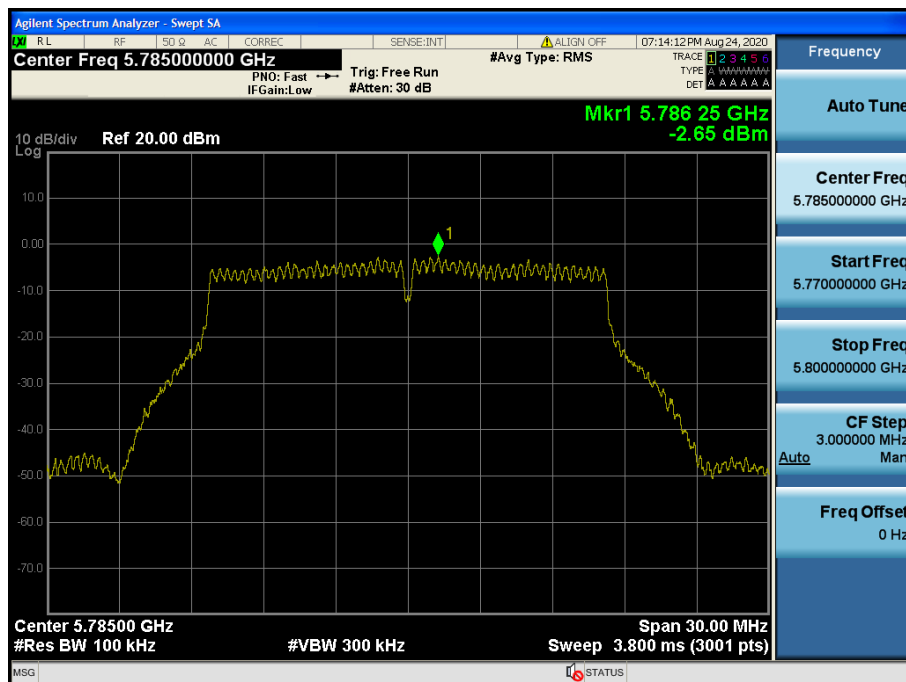
Maximum Power Spectral Density

Test Mode: TM 1 & ANT 2 & Ch.149



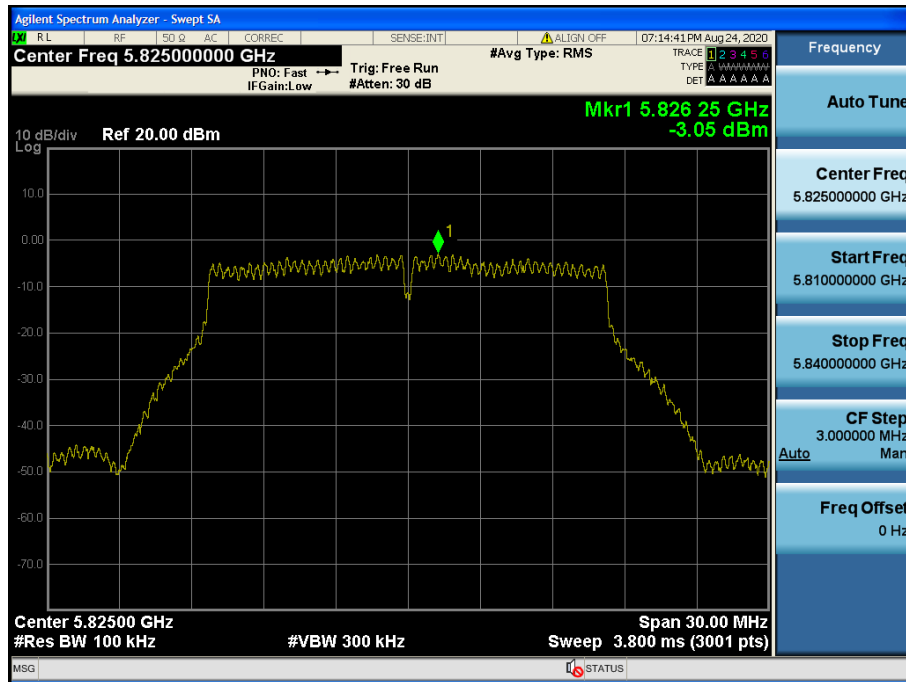
Maximum Power Spectral Density

Test Mode: TM 1 & ANT 2 & Ch.157



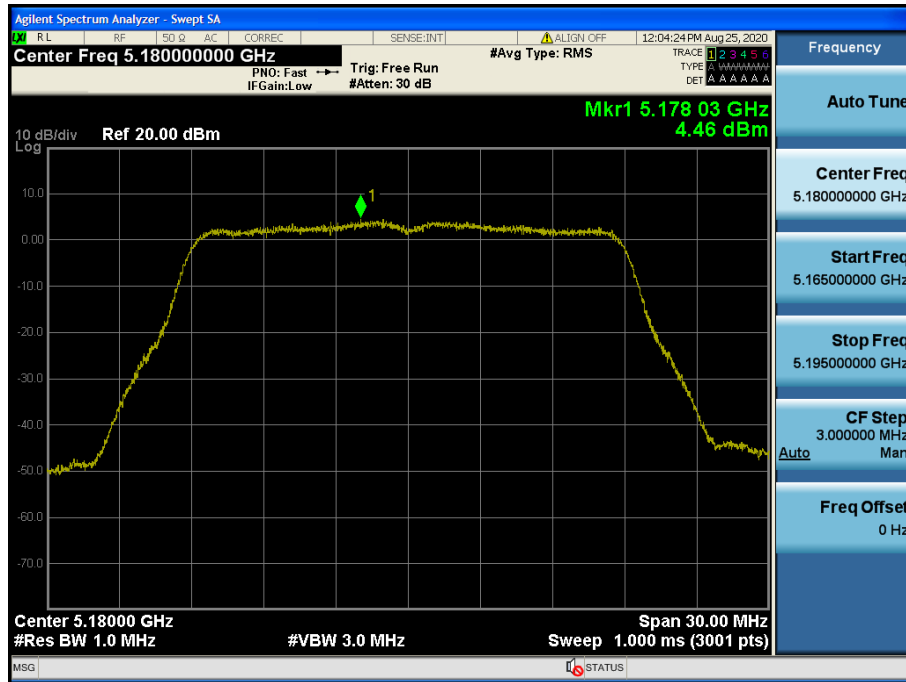
Maximum Power Spectral Density

Test Mode: TM 1 & ANT 2 & Ch.165



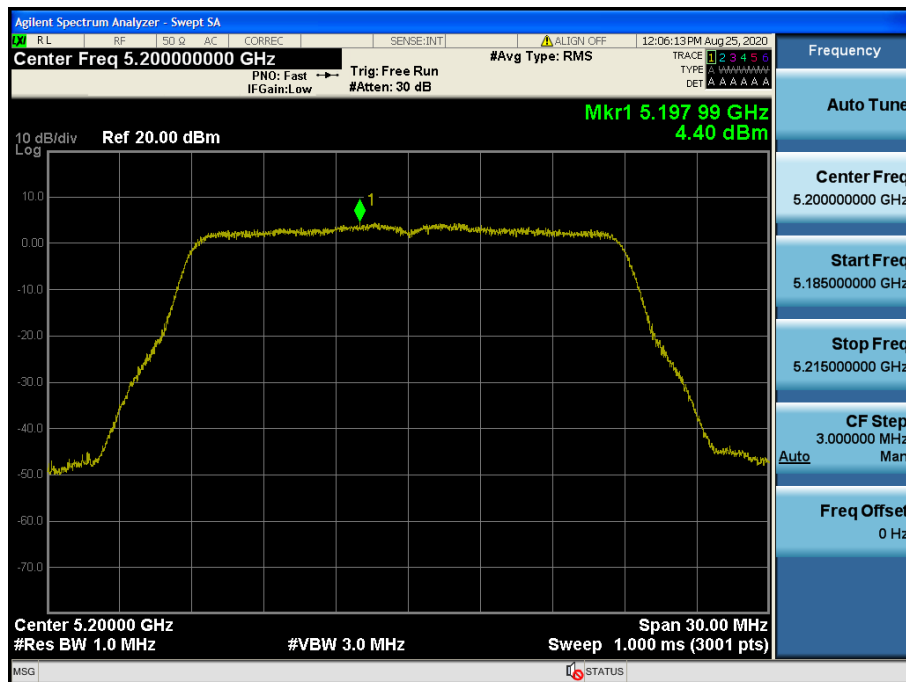
Maximum Power Spectral Density

Test Mode: TM 2 & ANT 2 & Ch.36



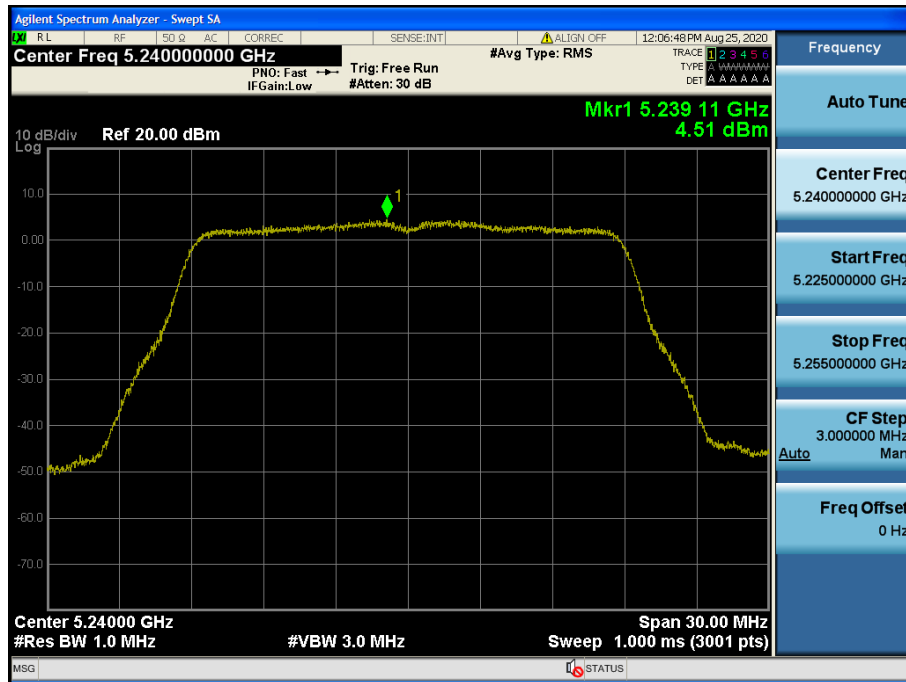
Maximum Power Spectral Density

Test Mode: TM 2 & ANT 2 & Ch.40



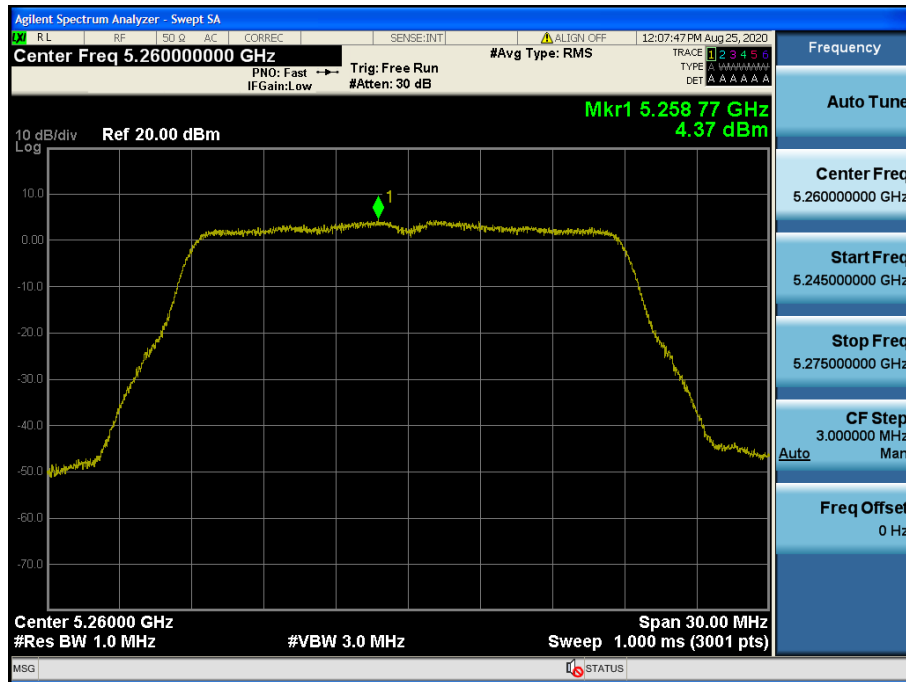
Maximum Power Spectral Density

Test Mode: TM 2 & ANT 2 & Ch.48



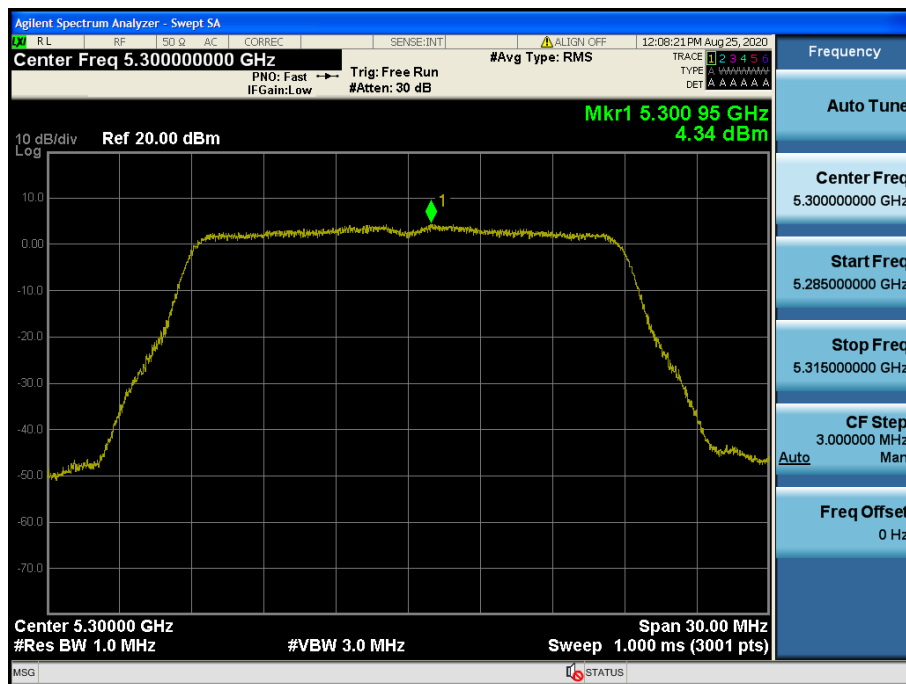
Maximum Power Spectral Density

Test Mode: TM 2 & ANT 2 & Ch.52



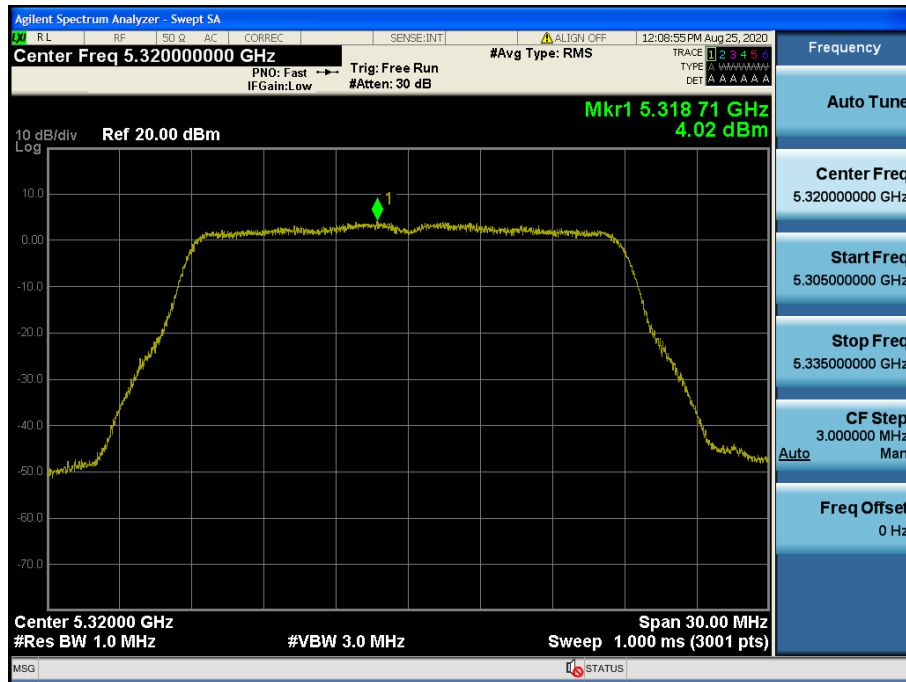
Maximum Power Spectral Density

Test Mode: TM 2 & ANT 2 & Ch.60



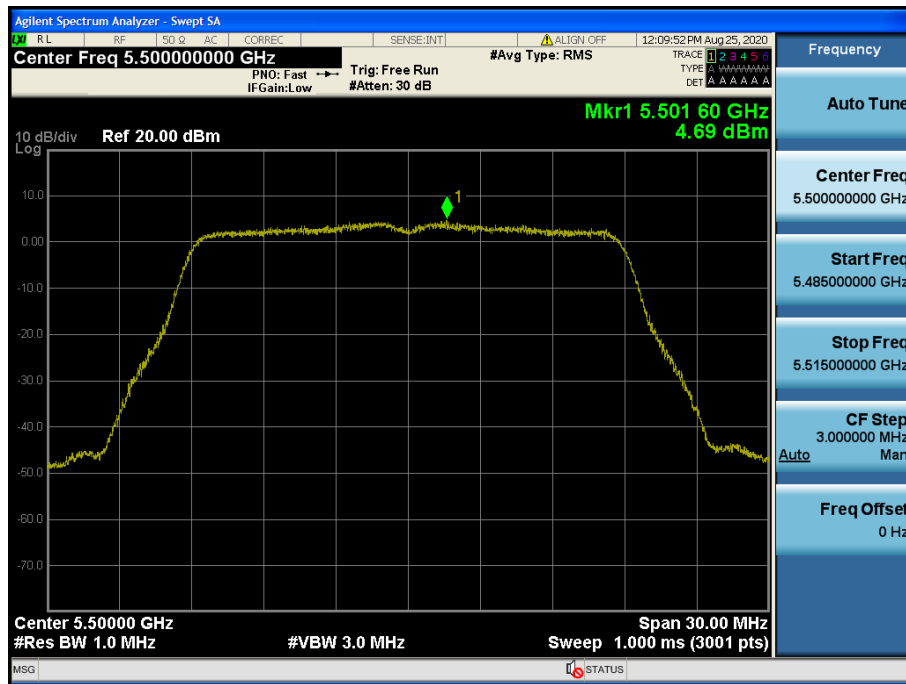
Maximum Power Spectral Density

Test Mode: TM 2 & ANT 2 & Ch.64



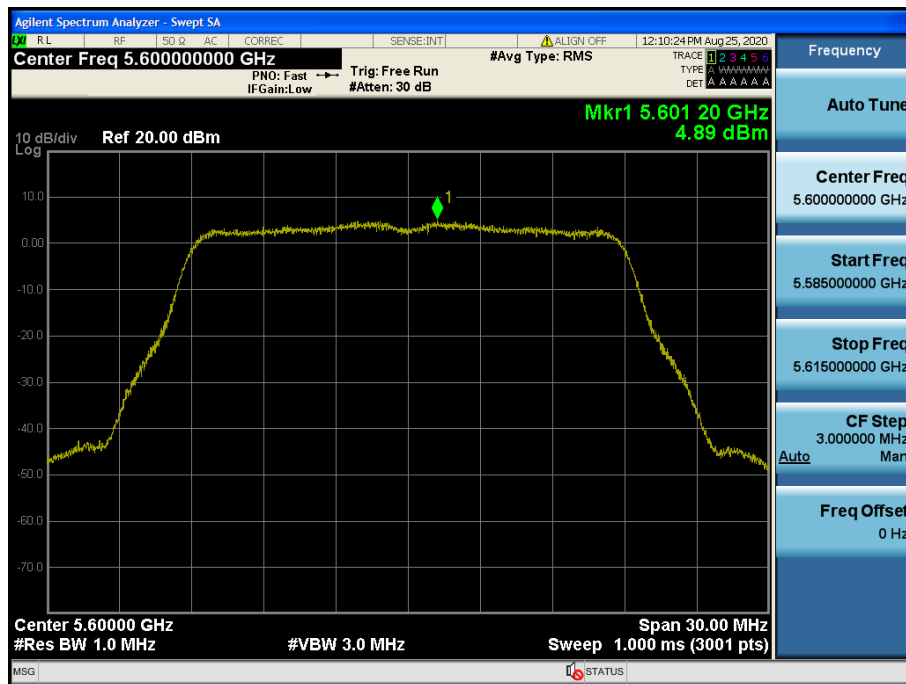
Maximum Power Spectral Density

Test Mode: TM 2 & ANT 2 & Ch.100



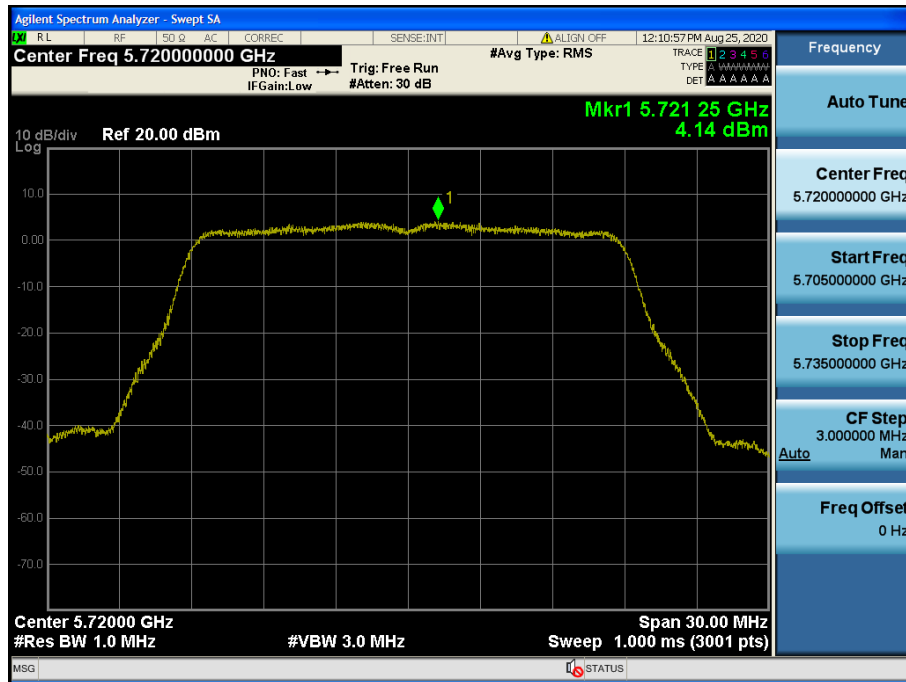
Maximum Power Spectral Density

Test Mode: TM 2 & ANT 2 & Ch.120



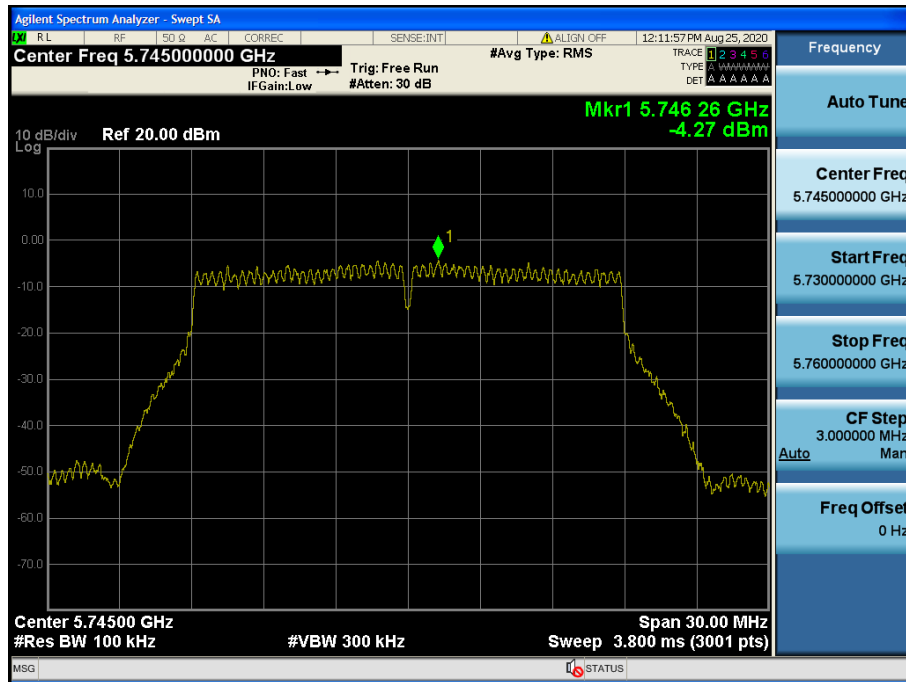
Maximum Power Spectral Density

Test Mode: TM 2 & ANT 2 & Ch.144



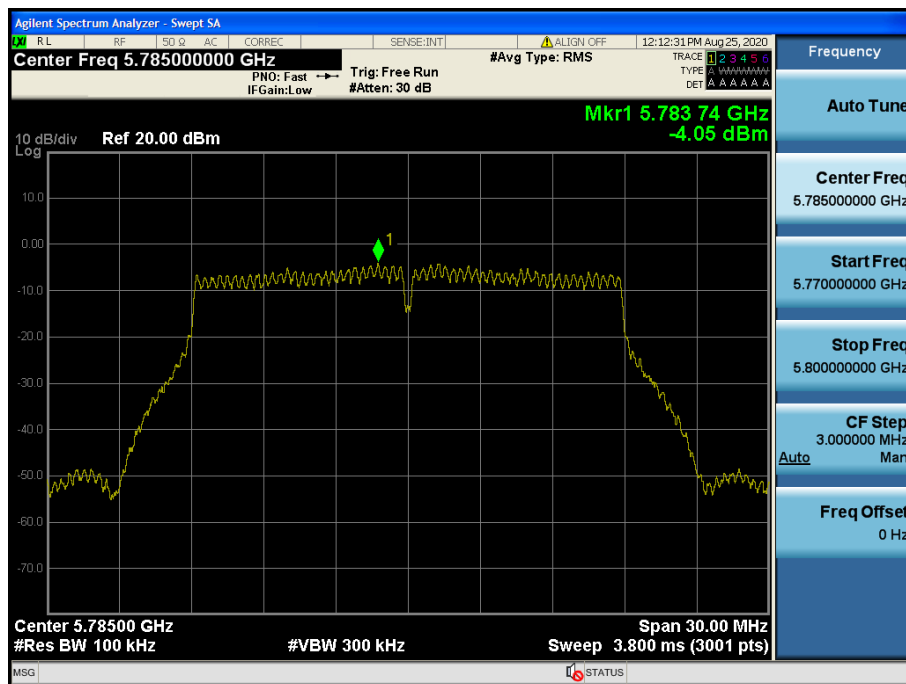
Maximum Power Spectral Density

Test Mode: TM 2 & ANT 2 & Ch.149



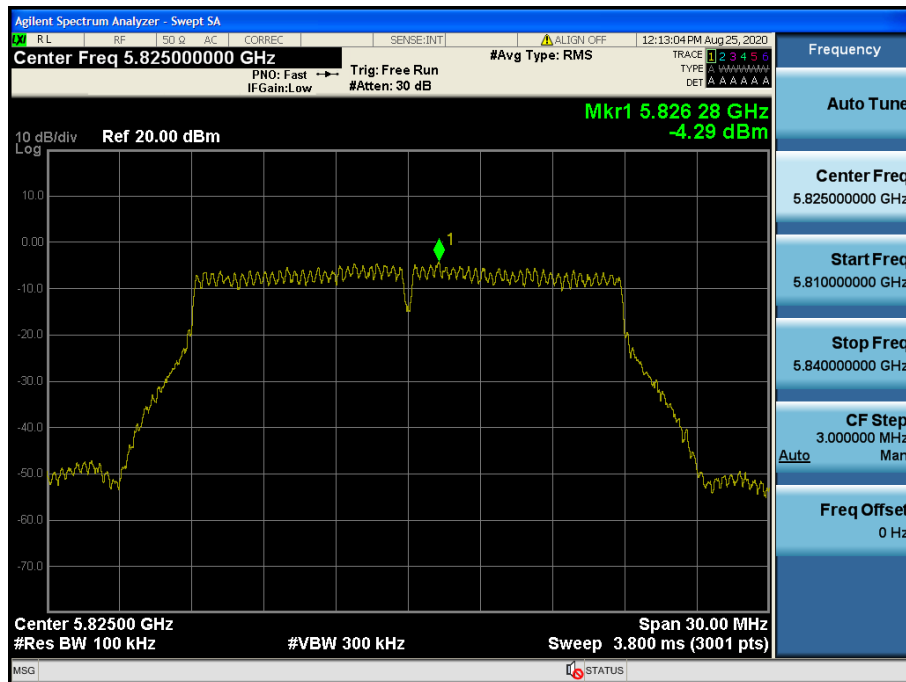
Maximum Power Spectral Density

Test Mode: TM 2 & ANT 2 & Ch.157



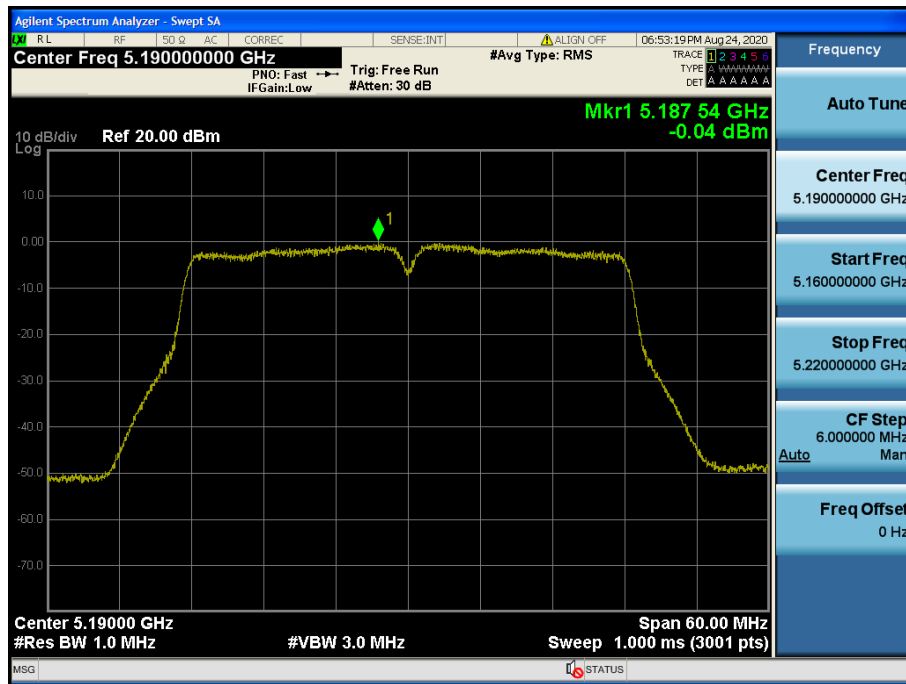
Maximum Power Spectral Density

Test Mode: TM 2 & ANT 2 & Ch.165



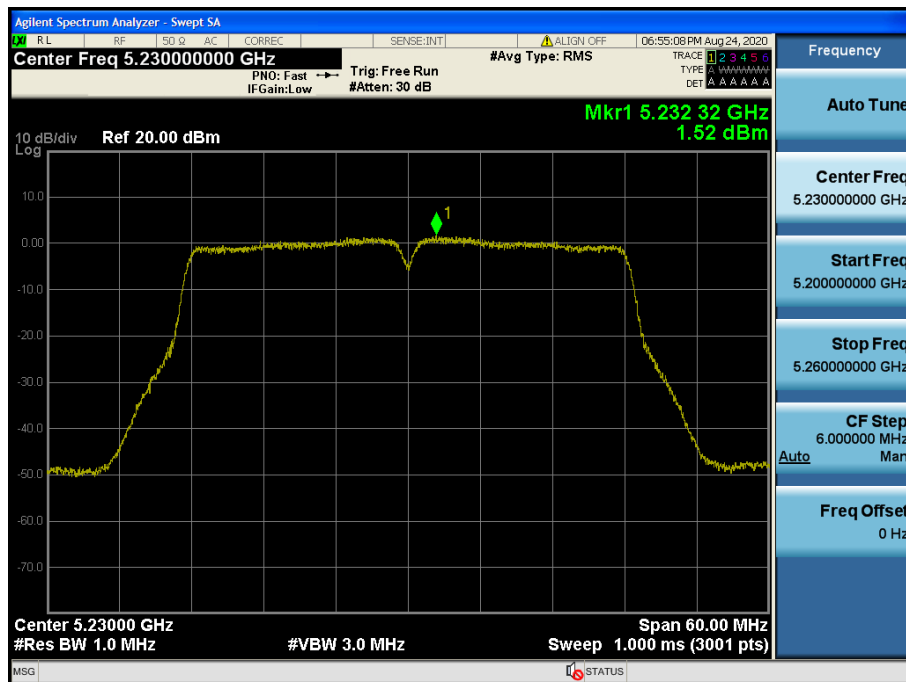
Maximum Power Spectral Density

Test Mode: TM 3 & ANT 2 & Ch.38



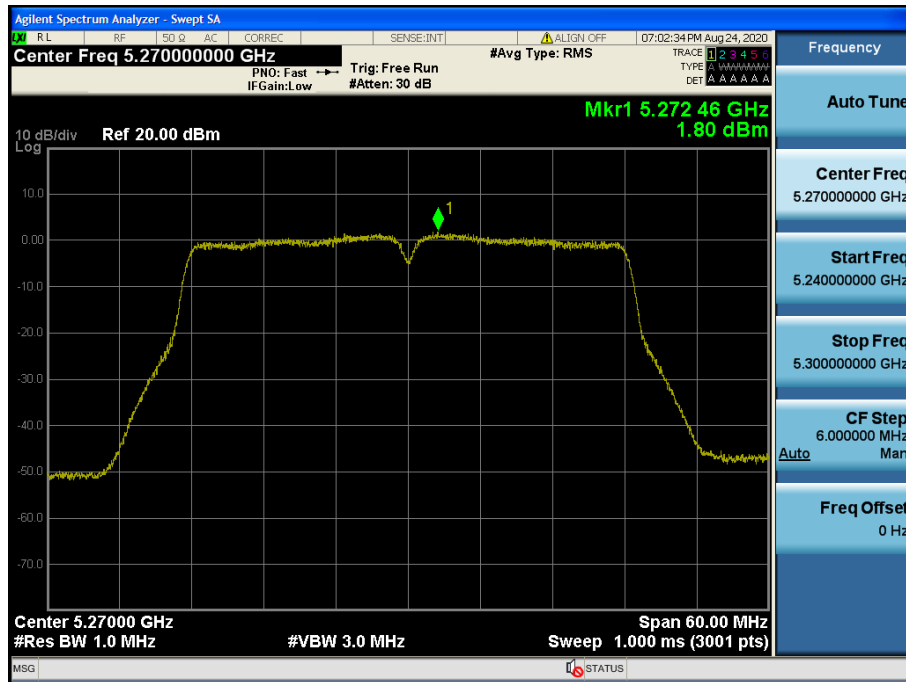
Maximum Power Spectral Density

Test Mode: TM 3 & ANT 2 & Ch.46



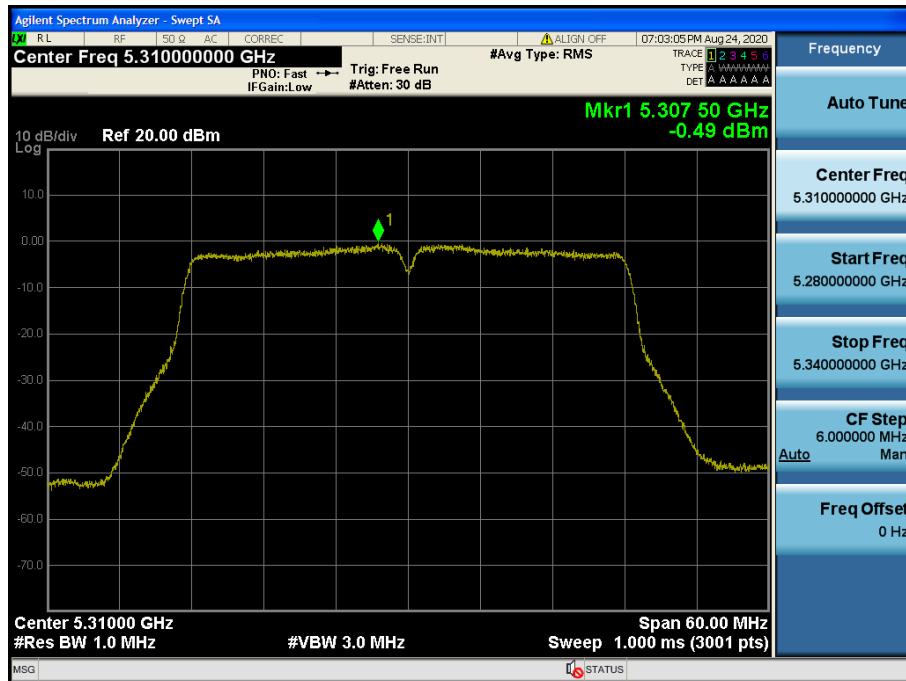
Maximum Power Spectral Density

Test Mode: TM 3 & ANT 2 & Ch.54



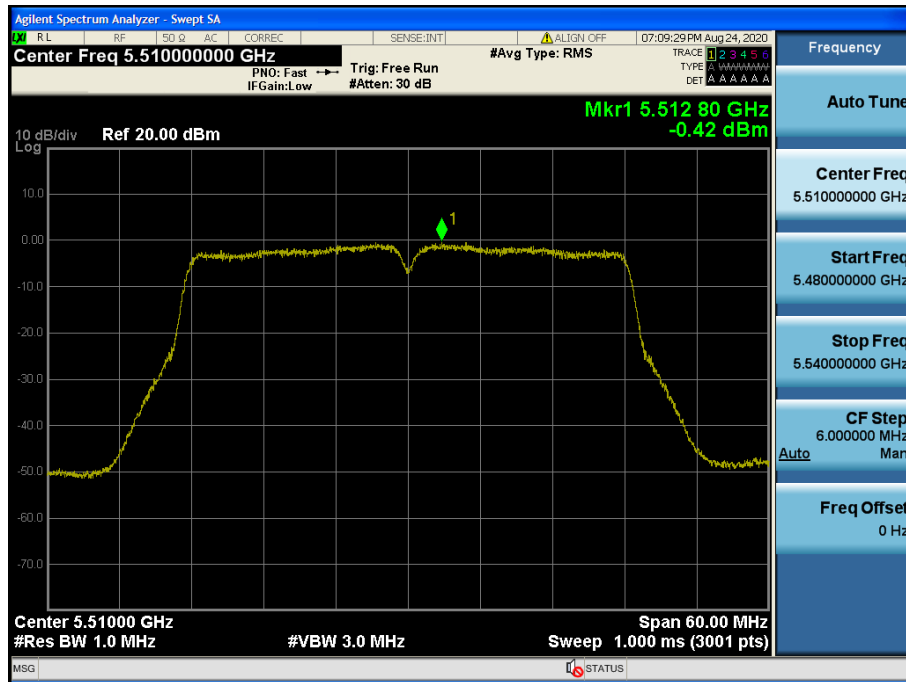
Maximum Power Spectral Density

Test Mode: TM 3 & ANT 2 & Ch.62



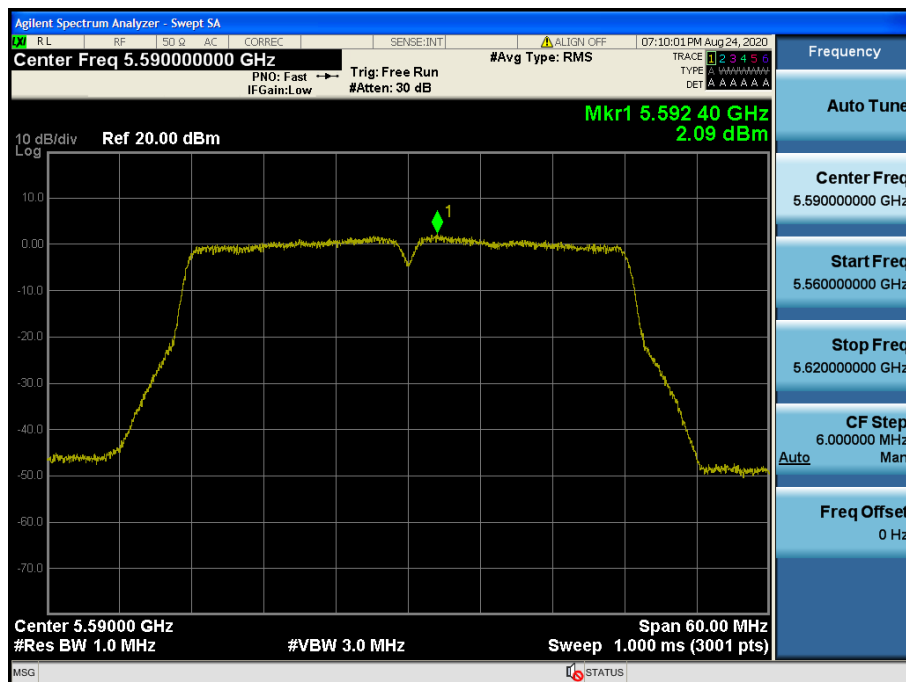
Maximum Power Spectral Density

Test Mode: TM 3 & ANT 2 & Ch.102



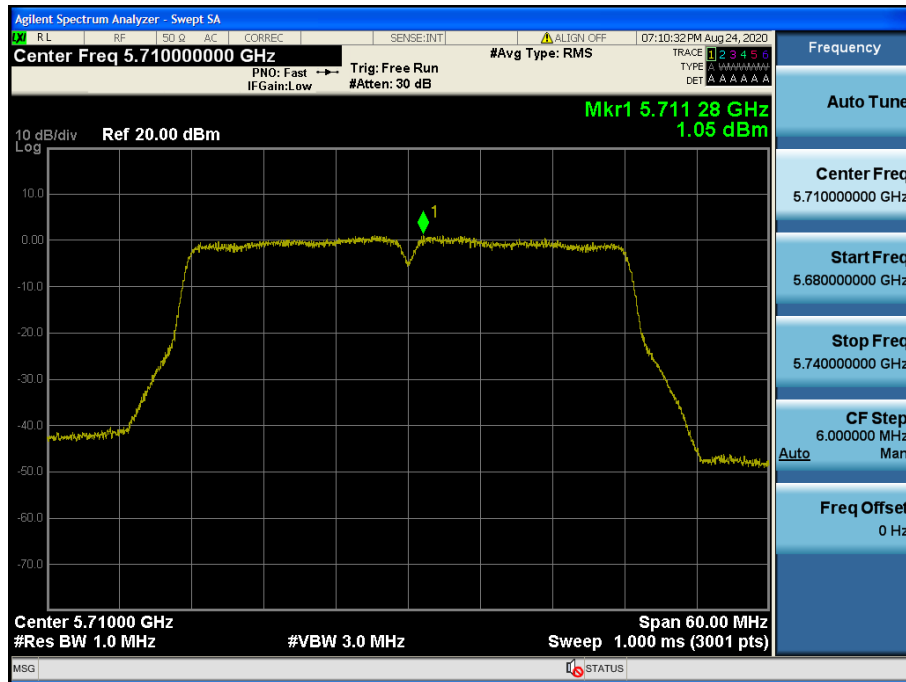
Maximum Power Spectral Density

Test Mode: TM 3 & ANT 2 & Ch.118



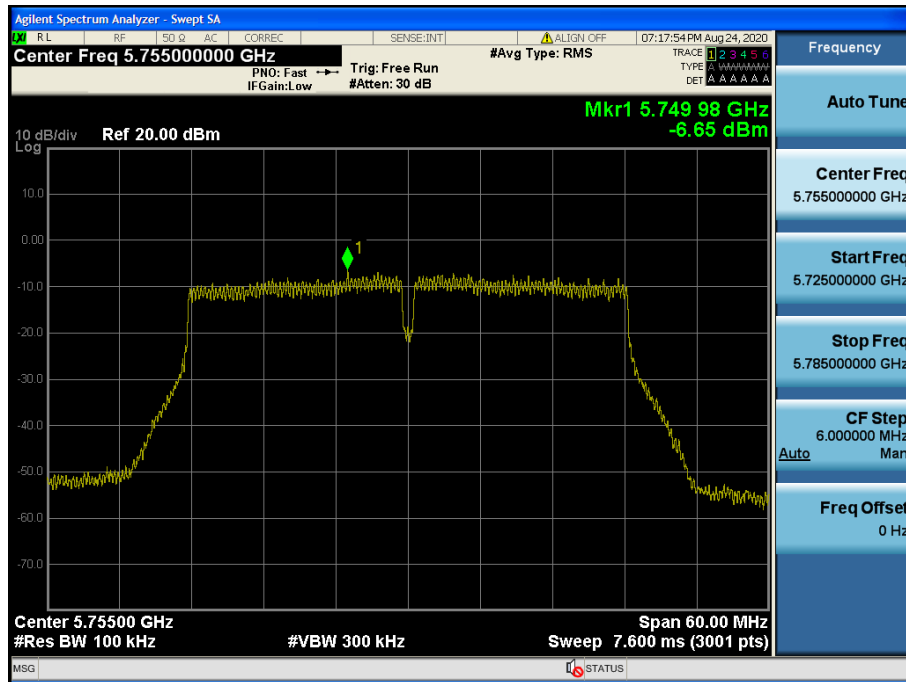
Maximum Power Spectral Density

Test Mode: TM 3 & ANT 2 & Ch.142



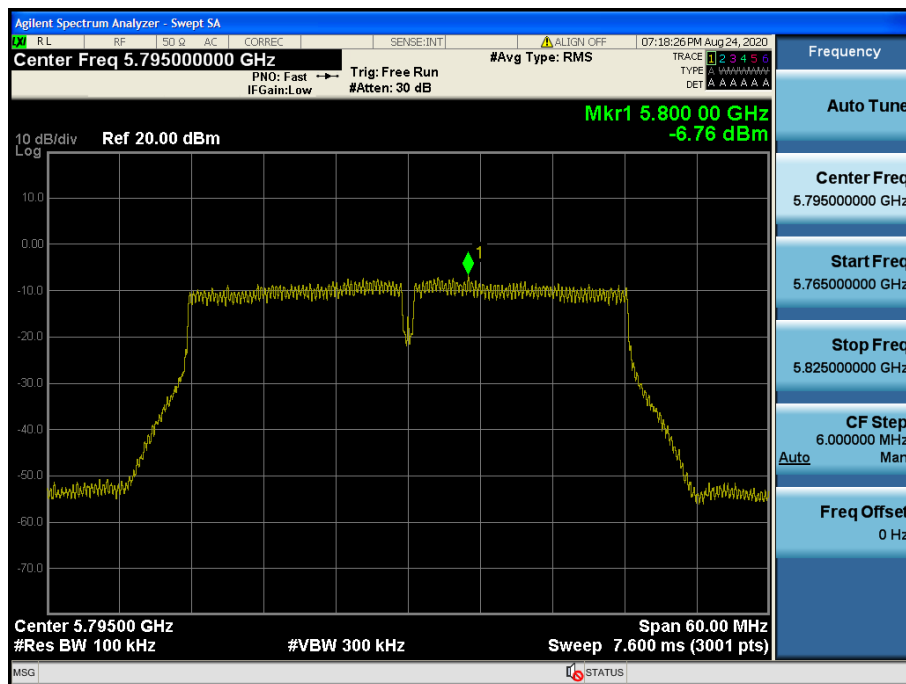
Maximum Power Spectral Density

Test Mode: TM 3 & ANT 2 & Ch.151



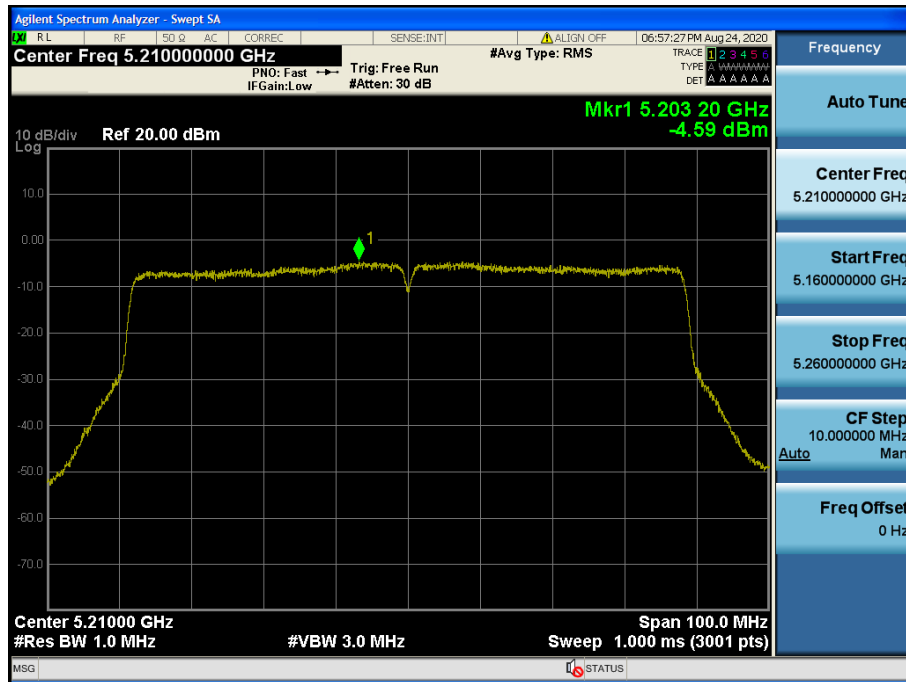
Maximum Power Spectral Density

Test Mode: TM 3 & ANT 2 & Ch.159



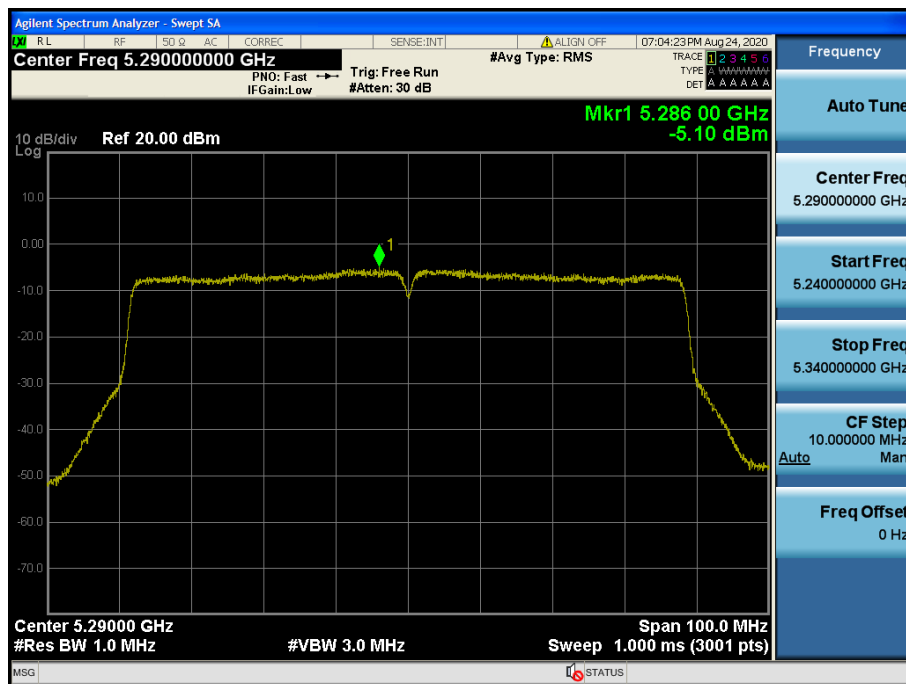
Maximum Power Spectral Density

Test Mode: TM 4 & ANT 2 & Ch.42



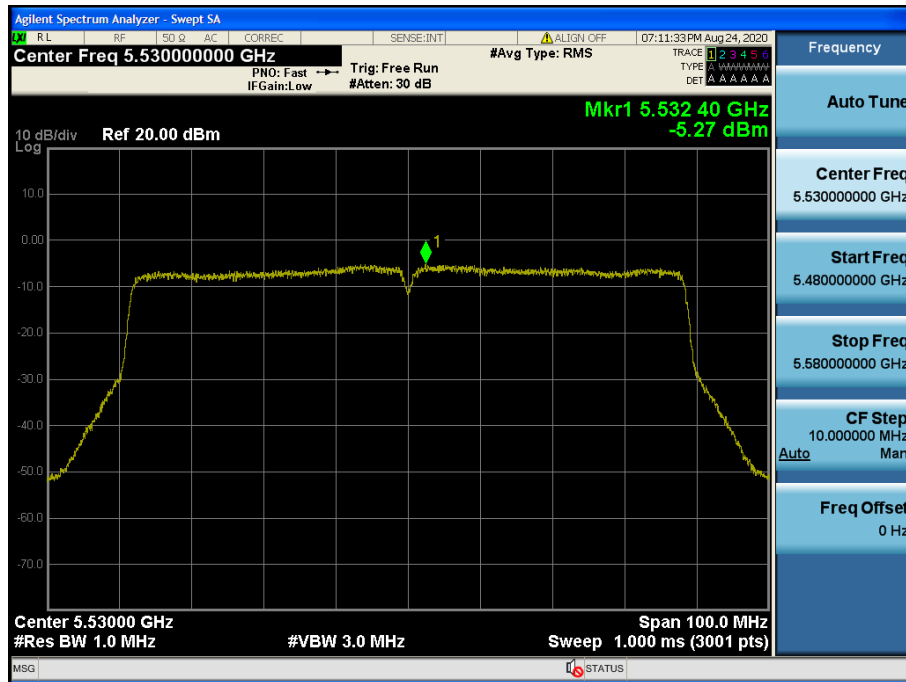
Maximum Power Spectral Density

Test Mode: TM 4 & ANT 2 & Ch.58



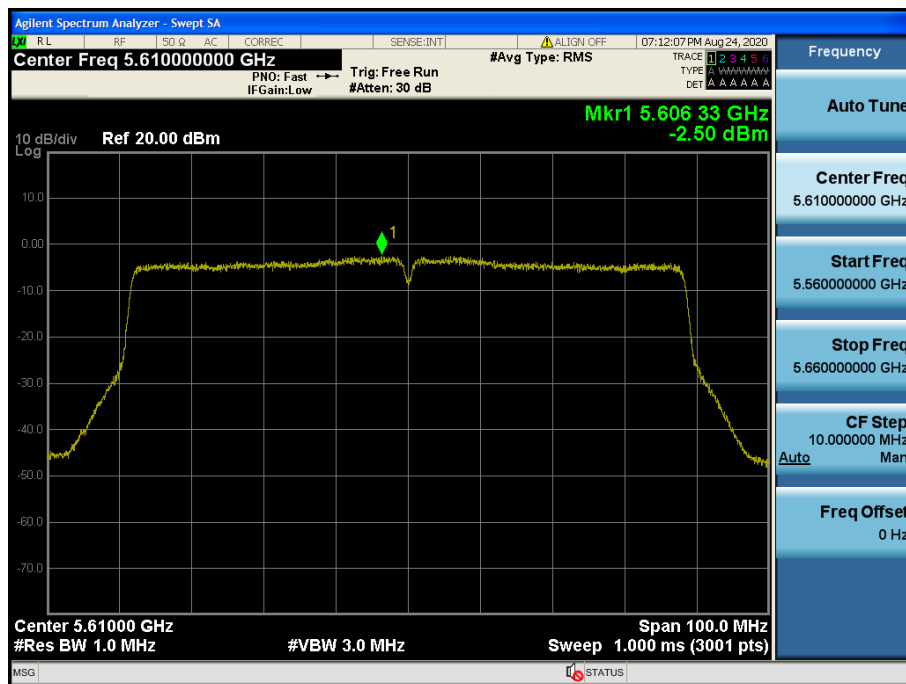
Maximum Power Spectral Density

Test Mode: TM 4 & ANT 2 & Ch.106



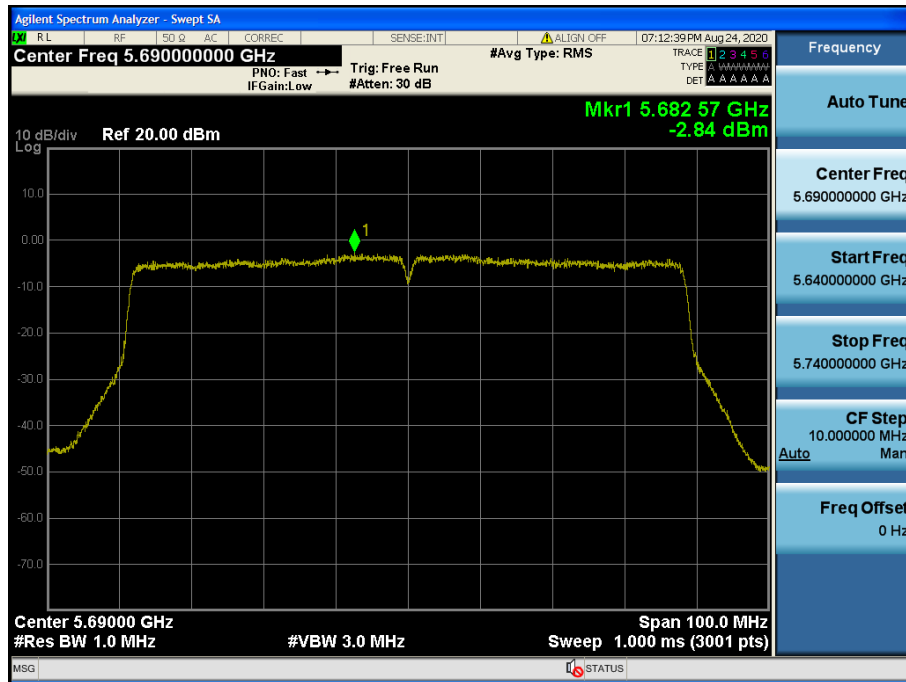
Maximum Power Spectral Density

Test Mode: TM 4 & ANT 2 & Ch.122



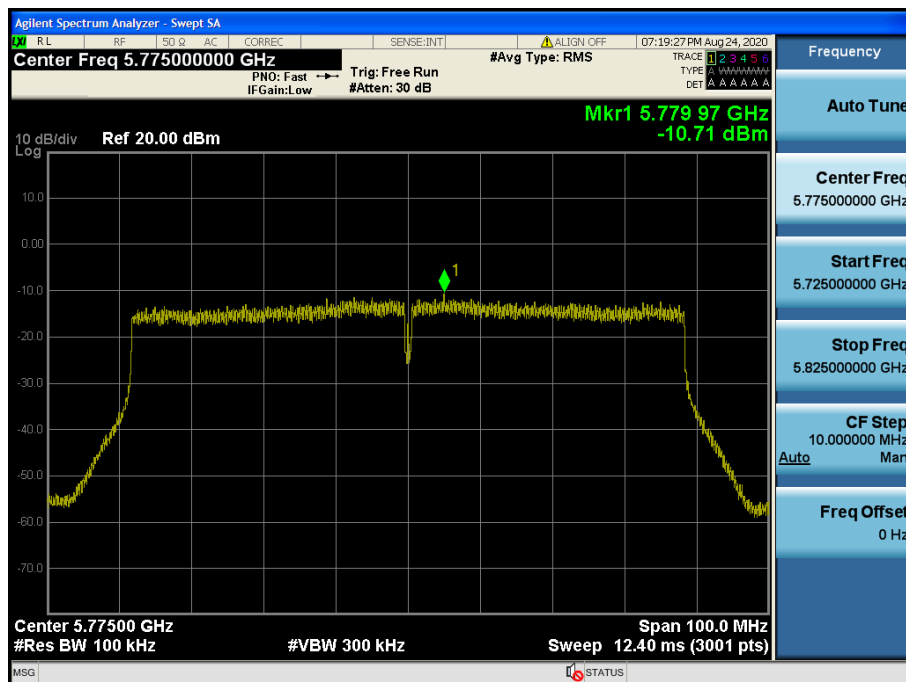
Maximum Power Spectral Density

Test Mode: TM 4 & ANT 2 & Ch.138



Maximum Power Spectral Density

Test Mode: TM 4 & ANT 2 & Ch.155



8.5 Radiated Spurious Emission Measurements

■ Test Requirements

■ FCC Part 15.209(a) and (b)

Frequency (MHz)	Limit (uV/m)	Measurement Distance (meter)
0.009 – 0.490	2 400 / F(KHz)	300
0.490 – 1.705	24 000 / F(KHz)	30
1.705 – 30.0	30	30
30 ~ 88	100 **	3
88 ~ 216	150 **	3
216 ~ 960	200 **	3
Above 960	500	3

** Except as provided in 15.209(g), fundamental emissions from intentional radiators operating under this Section shall not be located in the frequency bands 54 MHz - 72 MHz, 76 MHz - 88 MHz, 174 MHz - 216 MHz or 470 MHz - 806 MHz. However, operation within these frequency bands is permitted under other sections of this Part, e.g. 15.231 and 15.241.

■ FCC Part 15.205 (a): Only spurious emissions are permitted in any of the frequency bands listed below:

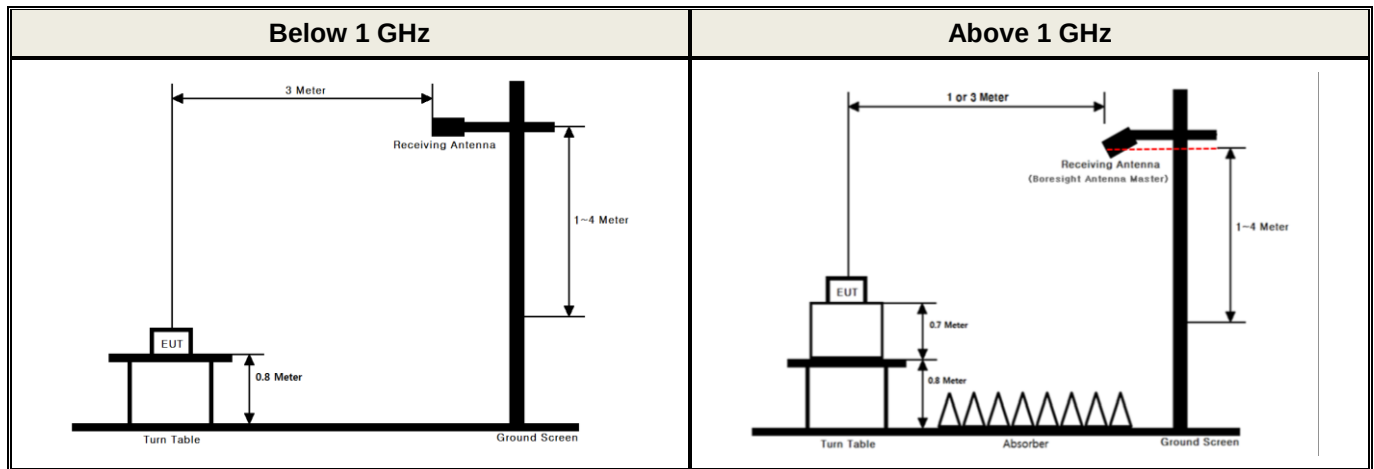
MHz	MHz	MHz	MHz	GHz	GHz
0.009 ~ 0.110	8.414 25 ~ 8.414 75	108 ~ 121.94	1 300 ~ 1 427	4.5 ~ 5.15	14.47 ~ 14.5
0.495 ~ 0.505	12.29 ~ 12.293	123 ~ 138	1 435 ~ 1 626.5	5.35 ~ 5.46	15.35 ~ 16.2
2.173 5 ~ 2.190 5	12.519 75 ~ 12.520 25	149.9 ~ 150.05	1 645.5 ~ 1 646.5	7.25 ~ 7.75	17.7 ~ 21.4
4.125 ~ 4.128	12.576 75 ~ 12.577 25	160.524 75 ~	1 660 ~ 1 710	8.025 ~ 8.5	22.01 ~ 23.12
4.177 25 ~ 4.177 75	13.36 ~ 13.41	160.525 25	1 718.8 ~ 1 722.2	9.0 ~ 9.2	23.6 ~ 24.0
4.207 25 ~ 4.207 75	16.42 ~ 16.423	160.7 ~ 160.9	2 200 ~ 2 300	9.3 ~ 9.5	31.2 ~ 31.8
6.215 ~ 6.218	16.694 75 ~ 16.695 25	162.012 5 ~	2 310 ~ 2 390	10.6 ~ 12.7	36.43 ~ 36.5
6.267 75 ~ 6.268 25	16.804 25 ~ 16.804 75	167.17	2 483.5 ~ 2 500	13.25 ~ 13.4	Above 38.6
6.311 75 ~ 6.312 25	25.5 ~ 25.67	167.72 ~ 173.2	2 655 ~ 2 900		
8.291 ~ 8.294	37.5 ~ 38.25	240 ~ 285	3 260 ~ 3 267		
8.362 ~ 8.366	73 ~ 74.6	322 ~ 335.4	3 332 ~ 3 339		
8.376 25 ~ 8.386 75	74.8 ~ 75.2	399.90 ~ 410	3 345.8 ~ 3 358		
		608 ~ 614	3 600 ~ 4 000		
		960 ~ 1240			

■ **FCC Part 15.205(b):** The field strength of emissions appearing within these frequency bands shall not exceed the limits shown in §15.209. At frequencies equal to or less than 1 000 MHz, compliance with the limits in §15.209 shall be demonstrated using measurement instrumentation employing a CISPR quasi-peak detector. Above 1 000 MHz, compliance with the emission limits in §15.209 shall be demonstrated based on the average value of the measured emissions. The provisions in §15.35 apply to these measurements.

■ **FCC Part 15.407 (b):** Undesirable emission limits. Except as shown in paragraph (b)(7) of this section, the maximum emissions outside of the frequency bands of operation shall be attenuated in accordance with the following limits:

- (1) For transmitters operating in the **5.150 GHz -5.250 GHz band**: all emissions outside of the **5.150 GHz -5.350 GHz band** shall not exceed an **EIRP of -27 dBm/MHz**.
- (2) For transmitters operating in the **5.250 GHz -5.350 GHz band**: all emissions outside of the **5.150 GHz -5.350 GHz band** shall not exceed an **EIRP of -27 dBm/MHz**.
- (3) For transmitters operating in the **5.470 GHz -5.725 GHz band**: all emissions outside of the **5.470 GHz -5.725 GHz band** shall not exceed an **EIRP of -27 dBm/MHz**.
- (4) For transmitters operating in the **5.725 GHz - 5.850 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.
- (5) The emission measurements shall be performed using a minimum resolution bandwidth of 1 MHz. A lower resolution bandwidth may be employed near the band edge, when necessary, provided the measured energy is integrated to show the total power over 1 MHz.
- (6) Unwanted emissions **below 1 GHz** must comply with the general field strength limits set forth in **Section 15.209**. Further, any U-NII devices using an **AC power line** are required to comply also with the conducted limits set forth in **Section 15.207**.
- (7) The provisions of §15.205 apply to intentional radiators operating under this section
- (8) When measuring the emission limits, the nominal carrier frequency shall be adjusted as close to the upper and lower frequency band edges as the design of the equipment permits.

■ Test Configuration



■ Test Procedure

1. The EUT is placed on a non-conductive table. For emission measurements at or below 1 GHz, the table height is 80 cm. For emission measurements above 1 GHz, the table height is 1.5 m.
2. The turn table shall be rotated for 360 degrees to determine the position of maximum emission level.
3. EUT is set 1 m or 3 m away from the receiving antenna, which is varied from 1m to 4 m to find out the highest emissions.
4. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
5. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
6. Repeat above procedures until the measurements for all frequencies are complete.

Radiated spurious emission measured using following Measurement Procedure of KDB789033 D02v02r01

► General Requirements for Unwanted Emissions Measurements

The following requirements apply to all unwanted emissions measurements, both in and outside of the restricted bands:

▪ EUT Duty Cycle

- (1) The EUT shall be configured or modified to **transmit continuously** except as stated in (ii), below. The intent is to test at 100 percent duty cycle; however a small reduction in duty cycle (**to no lower than 98 percent**) is permitted if required by the EUT for amplitude control purposes. Manufacturers are expected to provide software to the test lab to permit such continuous operation.
- (2) If **continuous transmission (or at least 98 percent duty cycle) cannot be achieved** due to hardware limitations of the EUT (e.g., overheating), the following additions to the measurement and reporting procedures are required:
 - The EUT shall be configured to operate at the maximum achievable duty cycle.
 - Measure the duty cycle, x, of the transmitter output signal.
 - Adjustments to measurement procedures (e.g., increasing test time and number of traces averaged) shall be performed as described in the procedures below.
 - The test report shall include the following additional information:
 - The reason for the duty cycle limitation.
 - The duty cycle achieved for testing and the associated transmit duration and interval between transmissions.
 - The sweep time and the amount of time used for trace stabilization during max-hold measurements for peak emission measurements.
- (3) Reduction of the measured emission amplitude levels to account for operational duty factor is not permitted. Compliance is based on emission levels occurring during transmission - not on an average across on and off times of the transmitter.

► **Measurements below 1 000 MHz**

- a) Follow the requirements in section II.G.3, “General Requirements for Unwanted Emissions Measurements”.
- b) Compliance shall be demonstrated using **CISPR quasi-peak detection**; however, **peak detection** is permitted as an alternative to quasi-peak detection.

► **Measurements Above 1 000 MHz (Peak)**

- a) Follow the requirements in section II.G.3, “General Requirements for Unwanted Emissions Measurements”.
- b) Peak emission levels are measured by setting the analyzer as follows:
 - (i) **RBW = 1 MHz.**
 - (ii) **VBW ≥ 3 MHz.**
 - (iii) **Detector = Peak.**
 - (iv) Sweep time = Auto.
 - (v) Trace mode = Max hold.
 - (vi) Allow sweeps to continue until the trace stabilizes. Note that if the transmission is not continuous, the time required for the trace to stabilize will increase by a factor of approximately 1/x, where x is the duty cycle. For example, at 50 percent duty cycle, the measurement time will increase by a factor of two relative to measurement time for continuous transmission.

► **Measurements Above 1 000 MHz (Method AD)**

- (i) **RBW = 1 MHz.**
- (ii) **VBW ≥ 3 MHz.**
- (iii) **Detector = 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.
- (iv) Averaging type = power (i.e., RMS)
 - As an alternative, the detector and averaging type may be set for linear voltage averaging. Some analyzers 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 percent duty cycle, at least 200 traces shall be averaged.
- (vii) If tests are performed with the EUT transmitting at a duty cycle less than 98 percent, 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 percent duty cycle. The correction factor is computed as follows:
 - **If power averaging (RMS) mode was used in step (iv) above, the correction factor is $10 \log(1/x)$, where x is the duty cycle.** For example, if the transmit duty cycle was 50 percent, then 3 dB must be added to the measured emission levels.
 - If linear voltage averaging mode was used in step (iv) above, the correction factor is $20 \log(1/x)$, where x is the duty cycle. For example, if the transmit duty cycle was 50 percent, then 6 dB must be added to the measured emission levels.
 - If a specific emission is demonstrated to be continuous (100 percent duty cycle) rather than turning on and off with the transmit cycle, no duty cycle correction is required for that emission.

Please refer to Appendix II for the duty correction factor

Test Results

Test Notes

1. No other spurious and harmonic emissions were found greater than listed emissions on below table.

2. Sample Calculation.

$$\text{Margin} = \text{Limit} - \text{Result} \quad / \quad \text{Result} = \text{Reading} + \text{T.F} + \text{DCCF} + \text{DCF} \quad / \quad \text{T.F} = \text{AF} + \text{CL} + \text{HL} + \text{AL} - \text{AG}$$

Where, T.F = Total Factor, AF = Antenna Factor, CL = Cable Loss, AG = Amplifier Gain, HL = High pass filter Loss, AL = Attenuator Loss,

DCCF = Duty Cycle Correction Factor, DCF = Distance Correction Factor

3. Information of Distance Factor
For finding emissions, the test distance might be reduced from 3m to 1m. In this case, the distance factor(-9.54dB) is applied to the result.

- Calculation of distance factor = $20 \log(\text{applied distance} / \text{required distance}) = 20 \log(1 \text{ m} / 3 \text{ m}) = -9.54 \text{ dB}$

When distance factor is "N/A", the distance is 3 m and distance factor is not applied.

4. The limit is converted to field strength.

$$E[\text{dBuV/m}] = \text{EIRP}[\text{dBm}] + 95.2 \text{ dB} = -27 \text{ dBm} + 95.2 = 68.2 \text{ dBuV/m}$$

5. Radiated tested was performed in swivel mode and non-swiveled position I mode, worst case data is reported

Swivel mode is worst case.

Radiated Spurious Emissions data(9 kHz ~ 40 GHz) : TM1

Band	Tested Channel	Freq. (MHz)	ANT Pol	EUT Position (Axis)	Detector Mode	Reading (dBuV)	T.F (dB/m)	DCCF (dB)	DCF (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
U-NII 1	36 (5 180 MHz)	5 148.33	H	Z	PK	54.41	1.78	N/A	N/A	56.19	74.00	17.81
		5 148.26	H	Z	AV	42.85	1.78	N/A	N/A	44.63	54.00	9.37
		10 358.57	H	Y	PK	46.94	7.98	N/A	N/A	54.92	68.20	13.28
	40 (5 200 MHz)	10 399.17	H	Y	PK	47.03	8.03	N/A	N/A	55.06	68.20	13.14
	48 (5 240 MHz)	10 478.66	H	Y	PK	47.48	8.17	N/A	N/A	55.65	68.20	12.55
U-NII 2A	52 (5 260 MHz)	10 520.26	H	Y	PK	48.46	8.28	N/A	N/A	56.74	68.20	11.46
	60 (5 300 MHz)	10 597.82	H	Y	PK	48.60	8.63	N/A	N/A	57.23	68.20	10.97
		10 601.35	H	Y	AV	36.80	8.65	N/A	N/A	45.45	54.00	8.55
	64 (5 320 MHz)	5 350.42	H	Z	PK	52.20	3.33	N/A	N/A	55.53	74.00	18.47
		5 350.69	H	Z	AV	42.40	3.33	N/A	N/A	45.73	54.00	8.27
		10 641.87	H	Y	PK	47.71	8.89	N/A	N/A	56.60	74.00	17.40
		10 641.06	H	Y	AV	36.11	8.89	N/A	N/A	45.00	54.00	9.00
U-NII 2C	100 (5 500 MHz)	5 459.71	H	Z	PK	52.11	3.43	N/A	N/A	55.54	74.00	18.46
		5 459.79	H	Z	AV	41.13	3.43	N/A	N/A	44.56	54.00	9.44
		5 468.46	H	Z	PK	53.76	3.43	N/A	N/A	57.19	68.20	11.01
		11 000.11	H	Y	PK	44.54	9.65	N/A	N/A	54.19	74.00	19.81
		11 000.19	H	Y	AV	34.32	9.65	N/A	N/A	43.97	54.00	10.03
	120 (5 600 MHz)	11 200.46	H	Y	PK	44.45	9.27	N/A	N/A	53.72	74.00	20.28
		11 199.94	H	Y	AV	34.02	9.27	N/A	N/A	43.29	54.00	10.71
	144 (5 720 MHz)	11 439.89	H	Y	PK	43.86	9.08	N/A	N/A	52.94	74.00	21.06
		11 439.66	H	Y	AV	33.38	9.08	N/A	N/A	42.46	54.00	11.54
U-NII 3	149 (5 745 MHz)	5 714.31	H	Z	PK	52.08	3.30	N/A	N/A	55.38	68.20	12.82
		5 723.55	H	Z	PK	59.81	3.15	N/A	N/A	62.96	78.20	15.24
		11 489.91	H	Y	PK	44.59	9.06	N/A	N/A	53.65	74.00	20.35
		11 490.00	H	Y	AV	34.01	9.06	N/A	N/A	43.07	54.00	10.93
	157 (5 785 MHz)	11 570.48	H	Y	PK	44.04	9.09	N/A	N/A	53.13	74.00	20.87
		11 570.09	H	Y	AV	34.25	9.09	N/A	N/A	43.34	54.00	10.66
	165 (5 825 MHz)	5 850.55	H	Z	PK	53.57	3.68	N/A	N/A	57.25	78.20	20.95
		5 862.51	H	Z	PK	52.73	3.71	N/A	N/A	56.44	68.20	11.76
		11 650.32	H	Y	PK	44.62	9.36	N/A	N/A	53.98	74.00	20.02
		11 650.07	H	Y	AV	33.70	9.36	N/A	N/A	43.06	54.00	10.94

Radiated Spurious Emissions data(9 kHz ~ 40 GHz) : TM2

Band	Tested Channel	Freq. (MHz)	ANT Pol	EUT Position (Axis)	Detector Mode	Reading (dBuV)	T.F (dB/m)	DCCF (dB)	DCF (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
U-NII 1	36 (5 180 MHz)	5 149.12	H	Z	PK	53.83	1.79	N/A	N/A	55.62	74.00	18.38
		5 148.56	H	Z	AV	42.22	1.78	0.15	N/A	44.15	54.00	9.85
		10 358.74	H	Y	PK	45.44	7.98	N/A	N/A	53.42	68.20	14.78
	40 (5 200 MHz)	10 398.76	H	Y	PK	46.01	8.02	N/A	N/A	54.03	68.20	14.17
	48 (5 240 MHz)	10 479.35	H	Y	PK	46.73	8.18	N/A	N/A	54.91	68.20	13.29
U-NII 2A	52 (5 260 MHz)	10 521.29	H	Y	PK	47.61	8.28	N/A	N/A	55.89	68.20	12.31
	60 (5 300 MHz)	10 598.44	H	Y	PK	46.91	8.63	N/A	N/A	55.54	68.20	12.66
		10 601.06	H	Y	AV	35.72	8.65	0.15	N/A	44.52	54.00	9.48
	64 (5 320 MHz)	5 350.69	H	Z	PK	52.55	3.33	N/A	N/A	55.88	74.00	18.12
		5 350.29	H	Z	AV	41.77	3.33	0.15	N/A	45.25	54.00	8.75
		10 641.23	H	Y	PK	46.22	8.89	N/A	N/A	55.11	74.00	18.89
		10 641.48	H	Y	AV	35.60	8.89	0.15	N/A	44.64	54.00	9.36
U-NII 2C	100 (5 500 MHz)	5 459.19	H	Z	PK	50.96	3.43	N/A	N/A	54.39	74.00	19.61
		5 459.39	H	Z	AV	40.86	3.43	0.15	N/A	44.44	54.00	9.56
		5 465.17	H	Z	PK	51.55	3.43	N/A	N/A	54.98	68.20	13.22
		11 000.08	H	Y	PK	45.24	9.65	N/A	N/A	54.89	74.00	19.11
		10 999.65	H	Y	AV	33.93	9.65	0.15	N/A	43.73	54.00	10.27
	120 (5 600 MHz)	11 200.14	H	Y	PK	44.29	9.27	N/A	N/A	53.56	74.00	20.44
		11 199.64	H	Y	AV	33.95	9.27	0.15	N/A	43.37	54.00	10.63
	144 (5 720 MHz)	11 439.55	H	Y	PK	43.67	9.08	N/A	N/A	52.75	74.00	21.25
		11 439.55	H	Y	AV	33.64	9.08	0.15	N/A	42.87	54.00	11.13
U-NII 3	149 (5 745 MHz)	5 714.45	H	Z	PK	51.55	3.30	N/A	N/A	54.85	68.20	13.35
		5 724.37	H	Z	PK	56.77	3.13	N/A	N/A	59.90	78.20	18.30
		11 490.46	H	Y	PK	44.43	9.06	N/A	N/A	53.49	74.00	20.51
		11 490.41	H	Y	AV	33.87	9.06	0.15	N/A	43.08	54.00	10.92
	157 (5 785 MHz)	11 570.02	H	Y	PK	44.61	9.09	N/A	N/A	53.70	74.00	20.30
		11 570.30	H	Y	AV	34.05	9.09	0.15	N/A	43.29	54.00	10.71
	165 (5 825 MHz)	5 852.34	H	Z	PK	54.06	3.70	N/A	N/A	57.76	78.20	20.44
		5 861.61	H	Z	PK	51.75	3.73	N/A	N/A	55.48	68.20	12.72
		11 649.81	H	Y	PK	45.10	9.35	N/A	N/A	54.45	74.00	19.55
		11 650.28	H	Y	AV	34.12	9.36	0.15	N/A	43.63	54.00	10.37

Radiated Spurious Emissions data(9 kHz ~ 40 GHz) : TM3

Band	Tested Channel	Freq. (MHz)	ANT Pol	EUT Position (Axis)	Detector Mode	Reading (dBuV)	T.F (dB/m)	DCCF (dB)	DCF (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
U-NII 1	38 (5 190 MHz)	5 148.24	H	Z	PK	57.32	1.78	N/A	N/A	59.10	74.00	14.90
		5 149.59	H	Z	AV	45.95	1.79	0.22	N/A	47.96	54.00	6.04
		10 380.04	H	Y	PK	44.31	8.00	N/A	N/A	52.31	68.20	15.89
	46 (5 230 MHz)	10 459.94	H	Y	PK	44.49	8.11	N/A	N/A	52.60	68.20	15.60
U-NII 2A	54 (5 270 MHz)	10 539.93	H	Y	PK	44.74	8.32	N/A	N/A	53.06	68.20	15.14
	62 (5 310 MHz)	5 350.53	H	Z	PK	53.12	3.33	N/A	N/A	56.45	74.00	17.55
		5 350.27	H	Z	AV	43.19	3.33	0.22	N/A	46.74	54.00	7.26
		10 620.49	H	Y	PK	45.24	8.77	N/A	N/A	54.01	74.00	19.99
		10 619.89	H	Y	AV	34.14	8.76	0.22	N/A	43.12	54.00	10.88
U-NII 2C	102 (5 510 MHz)	5 459.68	H	Z	PK	52.88	3.43	N/A	N/A	56.31	74.00	17.69
		5 459.61	H	Z	AV	41.88	3.43	0.22	N/A	45.53	54.00	8.47
		5 469.64	H	Z	PK	54.19	3.43	N/A	N/A	57.62	68.20	10.58
		11 019.65	H	Y	PK	45.00	9.60	N/A	N/A	54.60	74.00	19.40
		11 019.59	H	Y	AV	34.08	9.60	0.22	N/A	43.90	54.00	10.10
	118 (5 590 MHz)	11 179.74	H	Y	PK	43.97	9.24	N/A	N/A	53.21	74.00	20.79
		11 179.82	H	Y	AV	33.67	9.24	0.22	N/A	43.13	54.00	10.87
	142 (5 710 MHz)	11 420.40	H	Y	PK	44.69	9.09	N/A	N/A	53.78	74.00	20.22
		11 420.01	H	Y	AV	34.16	9.09	0.22	N/A	43.47	54.00	10.53
U-NII 3	151 (5 755 MHz)	5 714.64	H	Z	PK	51.47	3.30	N/A	N/A	54.77	68.20	13.43
		5 718.98	H	Z	PK	55.24	3.23	N/A	N/A	58.47	78.20	19.73
		11 510.02	H	Y	PK	43.97	9.05	N/A	N/A	53.02	74.00	20.98
		11 510.21	H	Y	AV	33.83	9.05	0.22	N/A	43.10	54.00	10.90
	159 (5 795 MHz)	5 851.62	H	Z	PK	49.62	3.69	N/A	N/A	53.31	78.20	24.89
		5 865.54	H	Z	PK	49.05	3.64	N/A	N/A	52.69	68.20	15.51
		11 589.92	H	Y	PK	43.92	9.16	N/A	N/A	53.08	74.00	20.92
		11 590.33	H	Y	AV	33.66	9.16	0.22	N/A	43.04	54.00	10.96

Radiated Spurious Emissions data(9 kHz ~ 40 GHz) : TM4

Band	Tested Channel	Freq. (MHz)	ANT Pol	EUT Position (Axis)	Detector Mode	Reading (dBuV)	T.F (dB/m)	DCCF (dB)	DCF (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
U-NII 1	42 (5 210 MHz)	5 146.67	H	Z	PK	55.59	1.78	N/A	N/A	57.37	74.00	16.63
		5 147.42	H	Z	AV	45.49	1.78	0.24	N/A	47.51	54.00	6.49
		10 419.66	H	Y	PK	43.46	8.05	N/A	N/A	51.51	68.20	16.69
U-NII 2A	58 (5 290 MHz)	5 350.42	H	Z	PK	51.94	3.33	N/A	N/A	55.27	74.00	18.73
		5 350.27	H	Z	AV	41.57	3.33	0.24	N/A	45.14	54.00	8.86
		10 580.38	H	Y	PK	43.69	8.52	N/A	N/A	52.21	68.20	15.99
U-NII 2C	106 (5 530 MHz)	5 459.51	H	Z	PK	52.63	3.43	N/A	N/A	56.06	74.00	17.94
		5 459.75	H	Z	AV	42.60	3.43	0.24	N/A	46.27	54.00	7.73
		5 466.15	H	Z	PK	54.47	3.43	N/A	N/A	57.90	68.20	10.30
		11 059.68	H	Y	PK	43.85	9.51	N/A	N/A	53.36	74.00	20.64
		11 059.87	H	Y	AV	33.70	9.51	0.24	N/A	43.45	54.00	10.55
	122 (5 610 MHz)	11 220.07	H	Y	PK	43.94	9.27	N/A	N/A	53.21	74.00	20.79
		11 219.69	H	Y	AV	33.47	9.27	0.24	N/A	42.98	54.00	11.02
	138 (5 690 MHz)	11 379.83	H	Y	PK	43.42	9.11	N/A	N/A	52.53	74.00	21.47
		11 380.40	H	Y	AV	33.55	9.11	0.24	N/A	42.90	54.00	11.10
U-NII 3	155 (5 775 MHz)	5 712.92	H	Z	PK	52.19	3.29	N/A	N/A	55.48	68.20	12.72
		5 719.02	H	Z	PK	54.73	3.23	N/A	N/A	57.96	78.20	20.24
		5 852.54	H	Z	PK	50.50	3.70	N/A	N/A	54.20	78.20	24.00
		5 867.56	H	Z	PK	51.72	3.59	N/A	N/A	55.31	68.20	12.89
		11 549.83	H	Y	PK	44.22	9.03	N/A	N/A	53.25	74.00	20.75
		11 549.53	H	Y	AV	33.68	9.03	0.24	N/A	42.95	54.00	11.05

Radiated Spurious Emissions data(9 kHz ~ 40 GHz) : TM 3 non-swiveled position

Band	Tested Channel	Freq. (MHz)	ANT Pol	EUT Position (Axis)	Detector Mode	Reading (dBuV)	T.F (dB/m)	DCCF (dB)	DCF (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
U-NII 1	38 (5 190 MHz)	5 149.38	H	Y	PK	54.94	1.79	N/A	N/A	56.73	74.00	17.27
		5 149.27	H	Y	AV	44.34	1.79	0.22	N/A	46.35	54.00	7.65
		10 380.46	V	X	PK	43.03	8.00	N/A	N/A	51.03	68.20	17.17

Radiated Spurious Emissions data(9 kHz ~ 40 GHz) : TM 3 non-swiveled position

Band	Tested Channel	Freq. (MHz)	ANT Pol	EUT Position (Axis)	Detector Mode	Reading (dBuV)	T.F (dB/m)	DCCF (dB)	DCF (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
U-NII 2A	62 (5 310 MHz)	5 350.90	H	Y	PK	52.07	3.33	N/A	N/A	55.40	74.00	18.60
		5 350.32	H	Y	AV	42.71	3.33	0.22	N/A	46.26	54.00	7.74
		10 619.98	V	X	PK	43.48	8.76	N/A	N/A	52.24	74.00	21.76
		10 619.74	V	X	AV	32.68	8.76	0.22	N/A	41.66	54.00	12.34

Radiated Spurious Emissions data(9 kHz ~ 40 GHz) : TM 4 non-swiveled position

Band	Tested Channel	Freq. (MHz)	ANT Pol	EUT Position (Axis)	Detector Mode	Reading (dBuV)	T.F (dB/m)	DCCF (dB)	DCF (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
U-NII 2C	106 (5 530 MHz)	5 459.83	H	Y	PK	53.33	3.43	N/A	N/A	56.76	74.00	17.24
		5 458.56	H	Y	AV	42.18	3.43	0.24	N/A	45.85	54.00	8.15
		5 465.90	H	Y	PK	52.47	3.43	N/A	N/A	55.90	68.20	12.30
		11 059.66	V	X	PK	44.13	9.51	N/A	N/A	53.64	74.00	20.36
		11 060.15	V	X	AV	33.55	9.51	0.24	N/A	43.30	54.00	10.70

Radiated Spurious Emissions data(9 kHz ~ 40 GHz) : TM 2 non-swiveled position

Band	Tested Channel	Freq. (MHz)	ANT Pol	EUT Position (Axis)	Detector Mode	Reading (dBuV)	T.F (dB/m)	DCCF (dB)	DCF (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
U-NII 3	165 (5 825 MHz)	5 850.53	H	Y	PK	52.07	3.68	N/A	N/A	55.75	78.20	22.45
		5 863.26	H	Y	PK	51.33	3.69	N/A	N/A	55.02	68.20	13.18
		11 650.35	V	X	PK	44.50	9.36	N/A	N/A	53.86	74.00	20.14
		11 649.67	V	X	AV	33.83	9.35	0.15	N/A	43.33	54.00	10.67

Radiated Spurious Emissions data(9 kHz ~ 40 GHz) : TM 3 With Wireless charging pad

Band	Tested Channel	Freq. (MHz)	ANT Pol	EUT Position (Axis)	Detector Mode	Reading (dBuV)	T.F (dB/m)	DCCF (dB)	DCF (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
U-NII 1	38 (5 190 MHz)	5 148.82	V	X	PK	54.39	1.79	N/A	N/A	56.18	74.00	17.82
		5 149.52	V	X	AV	43.36	1.79	0.22	N/A	45.37	54.00	8.63
		10 380.15	V	X	PK	44.26	8.00	N/A	N/A	52.26	68.20	15.94

Radiated Spurious Emissions data(9 kHz ~ 40 GHz) : TM 3 With Wireless charging pad

Band	Tested Channel	Freq. (MHz)	ANT Pol	EUT Position (Axis)	Detector Mode	Reading (dBuV)	T.F (dB/m)	DCCF (dB)	DCF (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
U-NII 2A	62 (5 310 MHz)	5 351.11	V	X	PK	51.34	3.33	N/A	N/A	54.67	74.00	19.33
		5 350.49	V	X	AV	40.93	3.33	0.22	N/A	44.48	54.00	9.52
		10 619.59	V	X	PK	43.76	8.76	N/A	N/A	52.52	74.00	21.48
		10 619.76	V	X	AV	32.76	8.76	0.22	N/A	41.74	54.00	12.26

Radiated Spurious Emissions data(9 kHz ~ 40 GHz) : TM 4 With Wireless charging pad

Band	Tested Channel	Freq. (MHz)	ANT Pol	EUT Position (Axis)	Detector Mode	Reading (dBuV)	T.F (dB/m)	DCCF (dB)	DCF (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
U-NII 2C	106 (5 530 MHz)	5 459.64	V	X	PK	49.81	3.43	N/A	N/A	53.24	74.00	20.76
		5 459.51	V	X	AV	40.08	3.43	0.24	N/A	43.75	54.00	10.25
		5 462.80	V	X	PK	49.81	3.43	N/A	N/A	53.24	68.20	14.96
		11 059.59	V	X	PK	44.18	9.51	N/A	N/A	53.69	74.00	20.31
		11 060.40	V	X	AV	33.47	9.51	0.24	N/A	43.22	54.00	10.78

Radiated Spurious Emissions data(9 kHz ~ 40 GHz) : TM 2 With Wireless charging pad

Band	Tested Channel	Freq. (MHz)	ANT Pol	EUT Position (Axis)	Detector Mode	Reading (dBuV)	T.F (dB/m)	DCCF (dB)	DCF (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
U-NII 3	165 (5 825 MHz)	5 856.58	V	X	PK	51.60	3.74	N/A	N/A	55.34	78.20	22.86
		5 861.64	V	X	PK	51.65	3.73	N/A	N/A	55.38	68.20	12.82
		11 650.10	V	X	PK	43.74	9.36	N/A	N/A	53.10	74.00	20.90
		11 649.99	V	X	AV	33.94	9.35	0.15	N/A	43.44	54.00	10.56

- WiFi DBS(Dual-Band Simultaneous) Test Results

Radiated Spurious Emissions data(9 kHz ~ 40 GHz) :

Simultaneously transmission – Swivel mode

	Antenna	Band	Mode	TX Frequency(MHz)
Transmitting Configuration	1	2.4 GHz	802.11n(HT20)	2 462 MHz
	2	U-NII 1	802.11n(HT40)	5 190 MHz

Freq. (MHz)	ANT Pol	EUT Position (Axis)	Detector Mode	Reading (dBUV)	T.F (dB/m)	DCCF (dB)	DCF (dB)	Result (dBUV/m)	Limit (dBUV/m)	Margin (dB)
2 485.03	H	Y	PK	50.54	5.27	N/A	N/A	55.81	74.00	18.19
2 483.77	H	Y	AV	40.68	5.25	0.42	N/A	46.35	54.00	7.65
4 924.36	V	Z	PK	49.17	1.45	N/A	N/A	50.62	74.00	23.38
4 923.61	V	Z	AV	38.87	1.44	0.42	N/A	40.73	54.00	13.27
5 149.62	H	Z	PK	55.01	1.79	N/A	N/A	56.80	74.00	17.20
5 149.57	H	Z	AV	44.51	1.79	0.22	N/A	46.52	54.00	7.48
10 380.14	H	Y	PK	43.73	8.00	N/A	N/A	51.73	68.20	16.47

Radiated Spurious Emissions data(9 kHz ~ 40 GHz) :

Simultaneously transmission - With Wireless charging pad

	Antenna	Band	Mode	TX Frequency(MHz)
Transmitting Configuration	1	2.4 GHz	802.11n(HT20)	2 462 MHz
	2	U-NII 1	802.11n(HT40)	5 190 MHz

Freq. (MHz)	ANT Pol	EUT Position (Axis)	Detector Mode	Reading (dBUV)	T.F (dB/m)	DCCF (dB)	DCF (dB)	Result (dBUV/m)	Limit (dBUV/m)	Margin (dB)
2 484.02	H	X	PK	53.31	5.26	N/A	N/A	58.57	74.00	15.43
2 483.65	H	X	AV	42.41	5.25	0.42	N/A	48.08	54.00	5.92
4 924.37	H	X	PK	49.67	1.45	N/A	N/A	51.12	74.00	22.88
4 923.87	H	X	AV	38.81	1.45	0.42	N/A	40.68	54.00	13.32
5 148.35	V	X	PK	52.92	1.78	N/A	N/A	54.70	74.00	19.30
5 148.24	V	X	AV	42.49	1.78	0.22	N/A	44.49	54.00	9.51
10 380.00	V	X	PK	43.57	8.00	N/A	N/A	51.57	68.20	16.63

8.6 AC Conducted Emissions

■ Test Requirements and limit, §15.207

For an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies, within the band 150 kHz to 30 MHz, shall not exceed the limits in the following table, as measured using a 50 μ H/50 ohms line impedance stabilization network (LISN).

Frequency Range (MHz)	Conducted Limit (dBuV)	
	Quasi-Peak	Average
0.15 ~ 0.50	66 to 56 *	56 to 46 *
0.5 ~ 5.0	56	46
5 ~ 30	60	50

* Decreases with the logarithm of the frequency

Compliance with this provision shall be based on the measurement of the radio frequency voltage between each power line (LINE and NEUTRAL) and ground at the power terminals.

■ Test Configuration

See test photographs for the actual connections between EUT and support equipment.

■ Test Procedure

Conducted emissions from the EUT were measured according to the ANSI C63.10-2013.

1. The test procedure is performed in a 6.5 m × 3.5 m × 3.5 m (L × W × H) shielded room. The EUT along with its peripherals were placed on a 1.0 m (W) × 1.5 m (L) and 0.8 m in height wooden table and the EUT was adjusted to maintain a 0.4 meter space from a vertical reference plane.
2. The EUT was connected to power mains through a line impedance stabilization network (LISN) which provides 50 ohm coupling impedance for measuring instrument and the chassis ground was bounded to the horizontal ground plane of shielded room.
3. All peripherals were connected to the second LISN and the chassis ground also bounded to the horizontal ground plane of shielded room.
4. The excess power cable between the EUT and the LISN was bundled. The power cables of peripherals were unbundled. All connecting cables of EUT and peripherals were moved to find the maximum emission.

■ Test Results: **Comply**

Note 1: See next pages for actual measured spectrum plots and data for worst case result.

AC Line Conducted Emissions (Graph)

Test Mode: U-NII 1 & TM 1 & MIMO(CDD) & 5 180 MHz

Results of Conducted Emission

DTNC

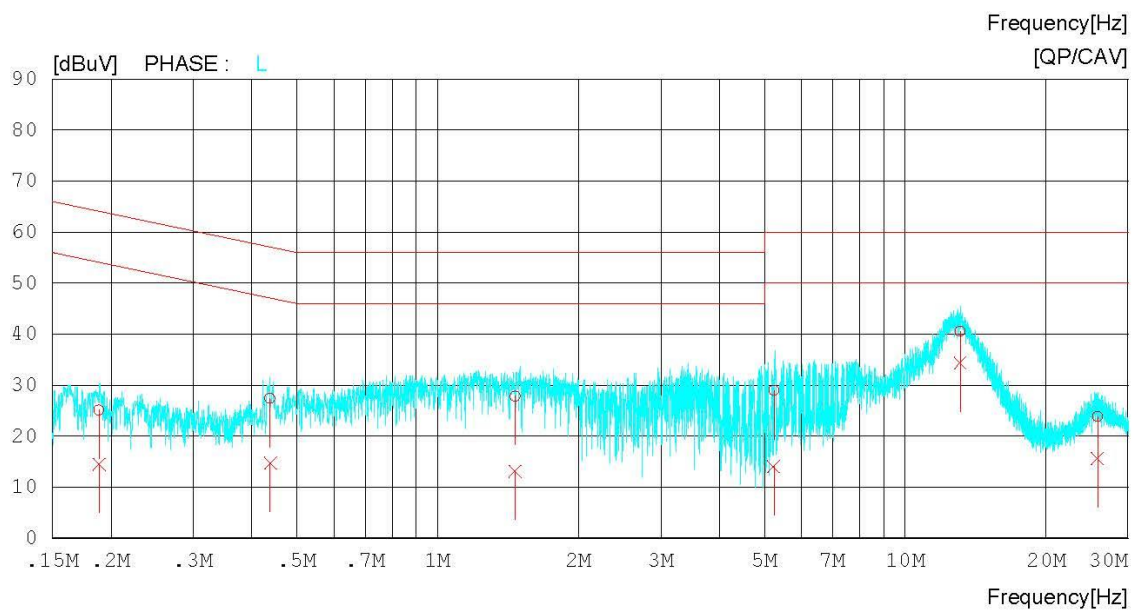
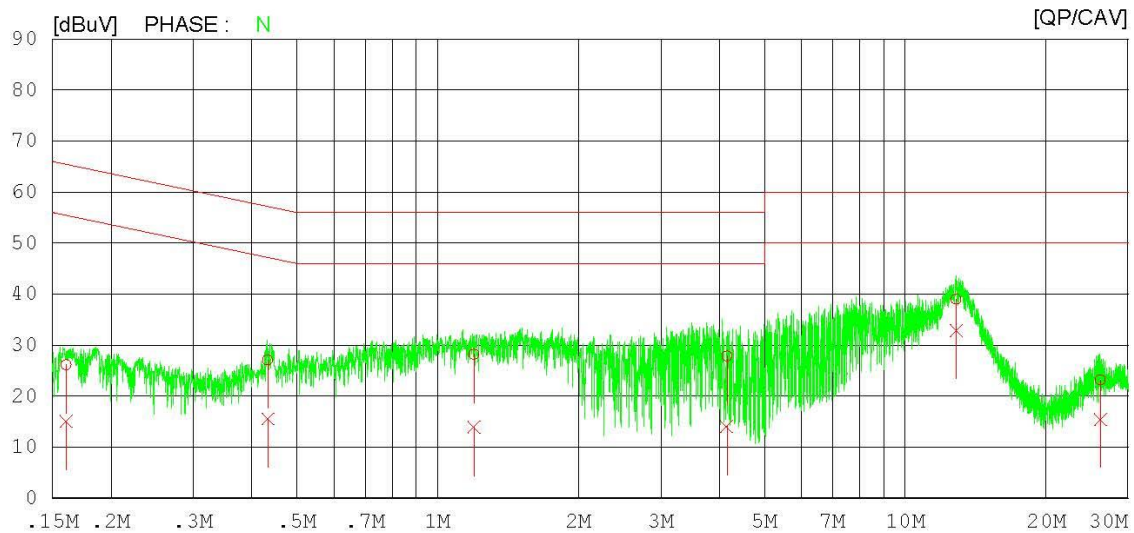
Date 2020-08-21

Order No.
Model No. LM-F100EMW
Serial No.
Test Condition 5.1G

Reference No.
Power Supply 120 V, 60 Hz
Temp/Humi. 23 'C / 42 %
Operator J.W. Kim

Memo

LIMIT : FCC P15.207 QP
FCC P15.207 AV



AC Line Conducted Emissions (Data List)

Test Mode: U-NII 1 & TM 1 & MIMO(CDD) & 5 180 MHz

Results of Conducted Emission

DTNC

Date 2020-08-21

Order No.
Model No. LM-F100EMW
Serial No.
Test Condition 5.1G

Reference No.
Power Supply 120 V, 60 Hz
Temp/Humi. 23 'C / 42 %
Operator J.W. Kim

Memo

LIMIT : FCC P15.207 QP
FCC P15.207 AV

NO	FREQ [MHz]	READING		C.FACTOR [dB]	RESULT		LIMIT		MARGIN		PHASE
		QP [dBuV]	CAV [dBuV]		QP [dBuV]	CAV [dBuV]	QP [dBuV]	CAV [dBuV]	QP [dBuV]	CAV [dBuV]	
1	0.16044	16.23	5.06	9.96	26.19	15.02	65.44	55.44	39.25	40.42	N
2	0.43350	17.13	5.58	9.97	27.10	15.55	57.19	47.19	30.09	31.64	N
3	1.19503	18.25	3.91	9.99	28.24	13.90	56.00	46.00	27.76	32.10	N
4	4.15038	17.74	3.94	10.12	27.86	14.06	56.00	46.00	28.14	31.94	N
5	12.85897	28.64	22.55	10.40	39.04	32.95	60.00	50.00	20.96	17.05	N
6	26.15303	12.56	4.83	10.60	23.16	15.43	60.00	50.00	36.84	34.57	N
7	0.18864	15.16	4.52	9.95	25.11	14.47	64.10	54.10	38.99	39.63	L
8	0.43800	17.37	4.71	9.95	27.32	14.66	57.10	47.10	29.78	32.44	L
9	1.46371	17.83	3.09	10.00	27.83	13.09	56.00	46.00	28.17	32.91	L
10	5.23571	18.74	3.86	10.16	28.90	14.02	60.00	50.00	31.10	35.98	L
11	13.10032	30.13	23.94	10.39	40.52	34.33	60.00	50.00	19.48	15.67	L
12	25.75803	13.25	4.97	10.56	23.81	15.53	60.00	50.00	36.19	34.47	L

AC Line Conducted Emissions (Graph)

Test Mode: U-NII 2A & TM 1 & MIMO(CDD) & 5 260 MHz

Results of Conducted Emission

DTNC

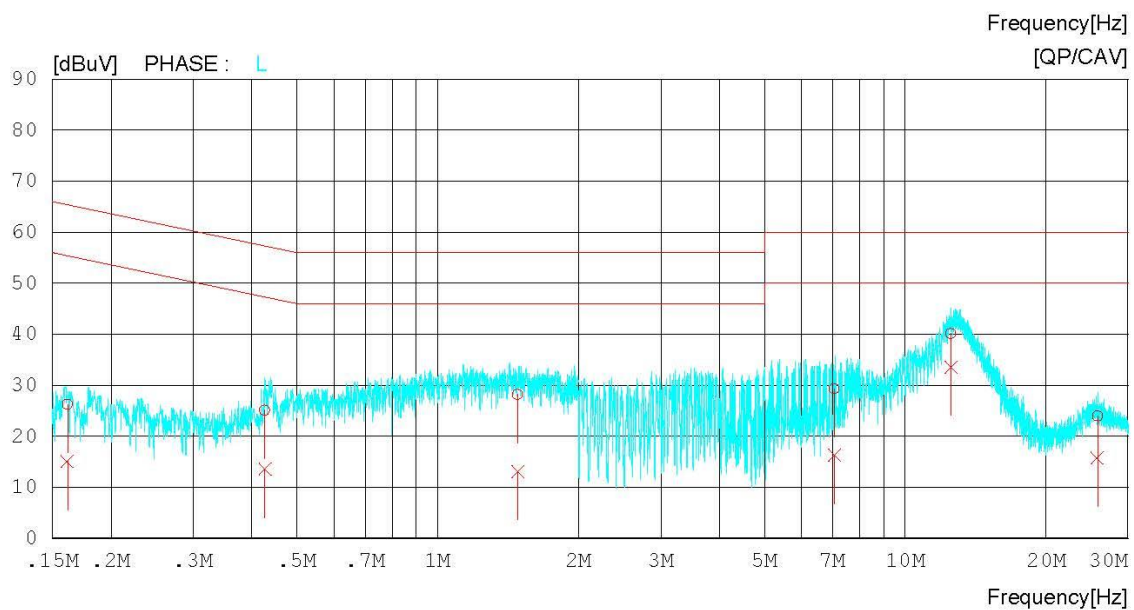
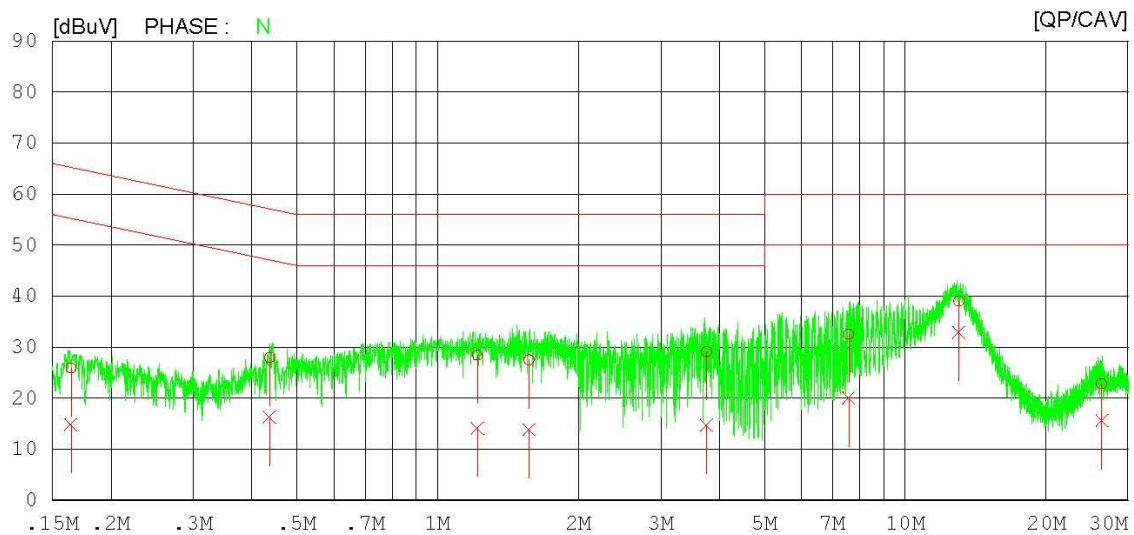
Date 2020-08-21

Order No.
Model No. LM-F100EMW
Serial No.
Test Condition 5.3G

Reference No.
Power Supply 120 V, 60 Hz
Temp/Humi. 23 'C / 42 %
Operator J.W. Kim

Memo

LIMIT : FCC P15.207 QP
FCC P15.207 AV



AC Line Conducted Emissions (Data List)

Test Mode: U-NII 2A & TM 1 & MIMO(CDD) & 5 260 MHz

Results of Conducted Emission

DTNC

Date 2020-08-21

Order No.
Model No. LM-F100EMW
Serial No.
Test Condition 5.3G

Reference No.
Power Supply 120 V, 60 Hz
Temp/Humi. 23 'C / 42 %
Operator J.W. Kim

Memo

LIMIT : FCC P15.207 QP
FCC P15.207 AV

NO	FREQ [MHz]	READING		C.FACTOR [dB]	RESULT		LIMIT		MARGIN		PHASE
		QP [dBuV]	CAV [dBuV]		QP [dBuV]	CAV [dBuV]	QP [dBuV]	CAV [dBuV]	QP [dBuV]	CAV [dBuV]	
1	0.16421	15.97	4.86	9.96	25.93	14.82	65.25	55.25	39.32	40.43	N
2	0.43748	18.02	6.32	9.97	27.99	16.29	57.11	47.11	29.12	30.82	N
3	1.21633	18.44	4.15	9.99	28.43	14.14	56.00	46.00	27.57	31.86	N
4	1.56831	17.52	3.84	10.01	27.53	13.85	56.00	46.00	28.47	32.15	N
5	3.75855	19.02	4.55	10.12	29.14	14.67	56.00	46.00	26.86	31.33	N
6	7.56409	22.25	9.85	10.24	32.49	20.09	60.00	50.00	27.51	29.91	N
7	13.01795	28.61	22.50	10.40	39.01	32.90	60.00	50.00	20.99	17.10	N
8	26.34173	12.24	5.04	10.60	22.84	15.64	60.00	50.00	37.16	34.36	N
9	0.16149	16.29	5.08	9.95	26.24	15.03	65.39	55.39	39.15	40.36	L
10	0.42716	15.09	3.58	9.95	25.04	13.53	57.31	47.31	32.27	33.78	L
11	1.48386	18.14	3.05	10.00	28.14	13.05	56.00	46.00	27.86	32.95	L
12	7.05631	19.07	6.01	10.21	29.28	16.22	60.00	50.00	30.72	33.78	L
13	12.52564	29.71	23.17	10.39	40.10	33.56	60.00	50.00	19.90	16.44	L
14	25.77928	13.41	5.14	10.56	23.97	15.70	60.00	50.00	36.03	34.30	L

AC Line Conducted Emissions (Graph)

Test Mode: U-NII 2C & TM 1 & MIMO(CDD) & 5 500 MHz

Results of Conducted Emission

DTNC

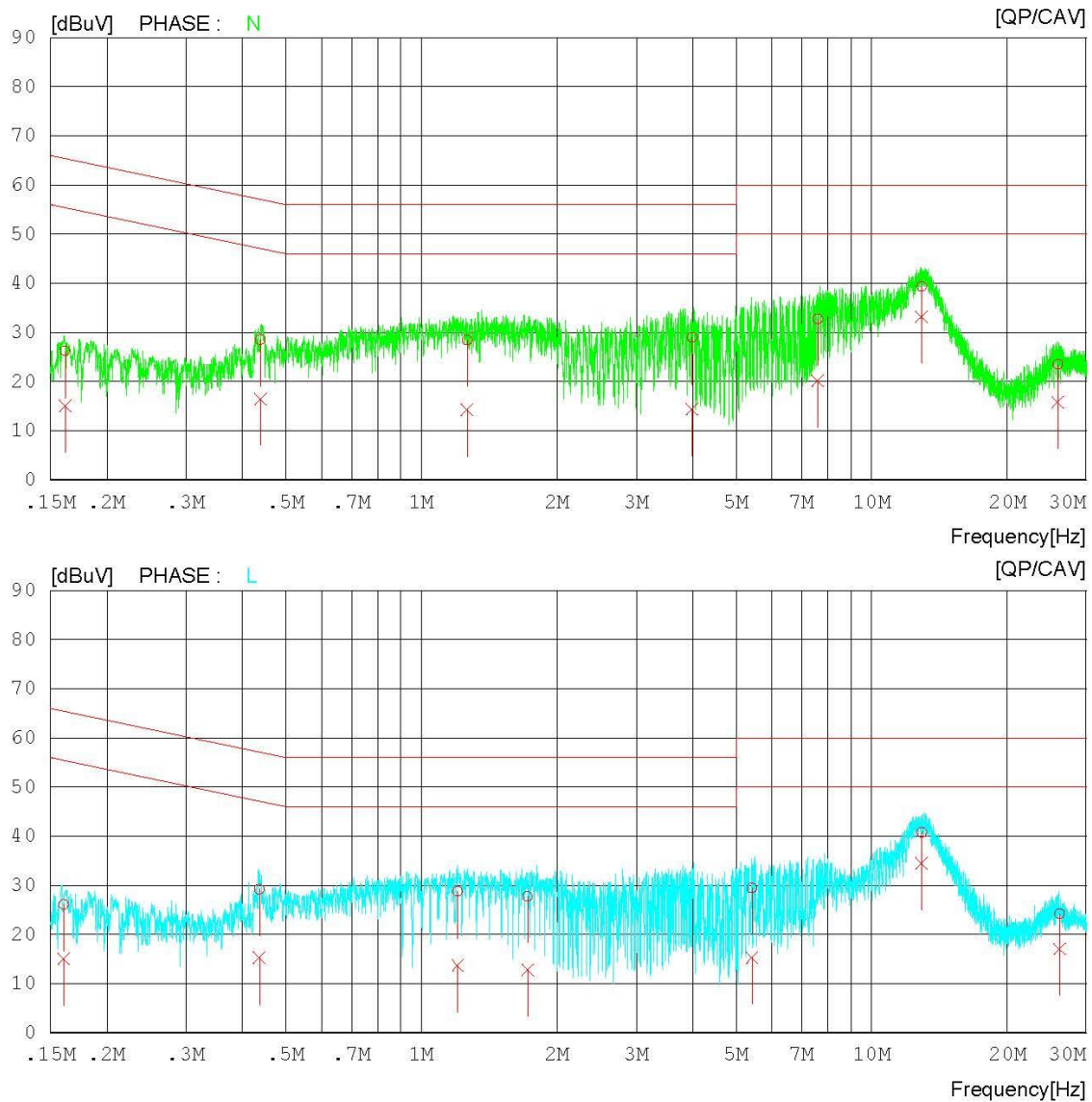
Date 2020-08-21

Order No.
Model No. LM-F100EMW
Serial No.
Test Condition 5.5G

Reference No.
Power Supply 120 V, 60 Hz
Temp/Humi. 23 °C / 42 %
Operator J.W. Kim

Memo

LIMIT : FCC P15.207 QP
FCC P15.207 AV



AC Line Conducted Emissions (Data List)

Test Mode: U-NII 2C & TM 1 & MIMO(CDD) & 5 500 MHz

Results of Conducted Emission

DTNC

Date 2020-08-21

Order No.		Reference No.	
Model No.	LM-F100EMW	Power Supply	120 V, 60 Hz
Serial No.		Temp/Humi.	23 'C / 42 %
Test Condition	5.5G	Operator	J.W. Kim

Memo

LIMIT : FCC P15.207 QP
FCC P15.207 AV

NO	FREQ [MHz]	READING		C.FACTOR [dB]	RESULT		LIMIT		MARGIN		PHASE
		QP [dBuV]	CAV [dBuV]		QP [dBuV]	CAV [dBuV]	QP [dBuV]	CAV [dBuV]	QP [dBuV]	CAV [dBuV]	
1	0.16177	16.26	5.05	9.96	26.22	15.01	65.37	55.37	39.15	40.36	N
2	0.43913	18.54	6.49	9.97	28.51	16.46	57.08	47.08	28.57	30.62	N
3	1.26292	18.40	4.30	9.99	28.39	14.29	56.00	46.00	27.61	31.71	N
4	3.98809	18.83	4.25	10.12	28.95	14.37	56.00	46.00	27.05	31.63	N
5	7.58705	22.52	9.97	10.24	32.76	20.21	60.00	50.00	27.24	29.79	N
6	12.89891	28.93	22.77	10.40	39.33	33.17	60.00	50.00	20.67	16.83	N
7	25.91400	12.89	5.24	10.60	23.49	15.84	60.00	50.00	36.51	34.16	N
8	0.16050	16.10	5.02	9.95	26.05	14.97	65.44	55.44	39.39	40.47	L
9	0.43599	19.17	5.31	9.95	29.12	15.26	57.14	47.14	28.02	31.88	L
10	1.20328	18.66	3.66	9.99	28.65	13.65	56.00	46.00	27.35	32.35	L
11	1.72103	17.72	2.75	10.02	27.74	12.77	56.00	46.00	28.26	33.23	L
12	5.42253	19.24	5.10	10.17	29.41	15.27	60.00	50.00	30.59	34.73	L
13	12.90692	30.39	24.10	10.39	40.78	34.49	60.00	50.00	19.22	15.51	L
14	26.13213	13.57	6.45	10.55	24.12	17.00	60.00	50.00	35.88	33.00	L

AC Line Conducted Emissions (Graph)

Test Mode: U-NII 2C & TM 1 & MIMO(CDD) & 5 745 MHz

Results of Conducted Emission

DTNC

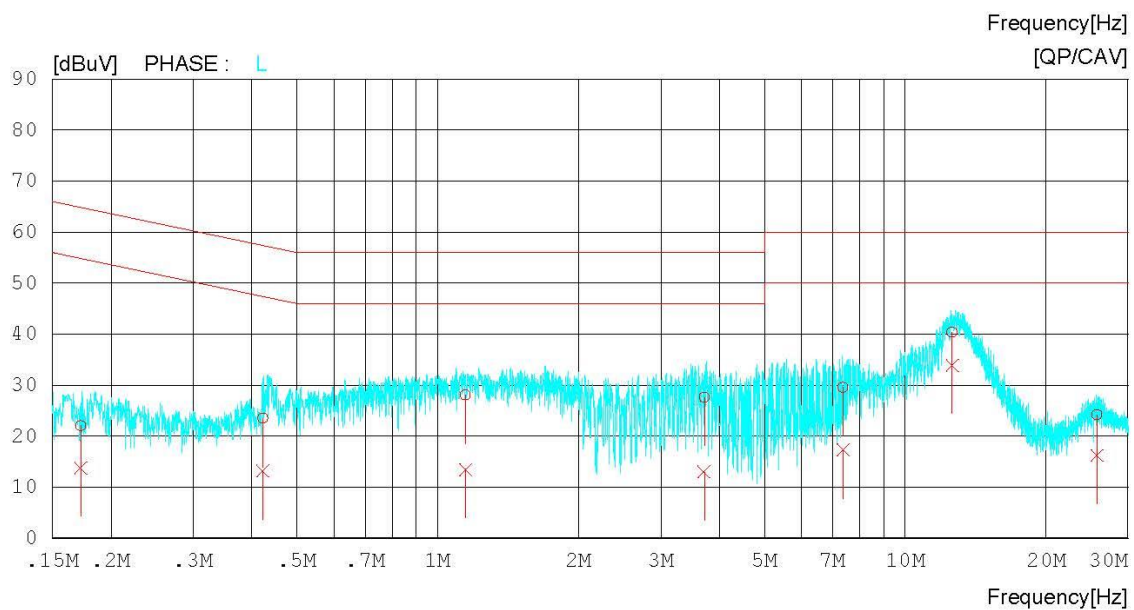
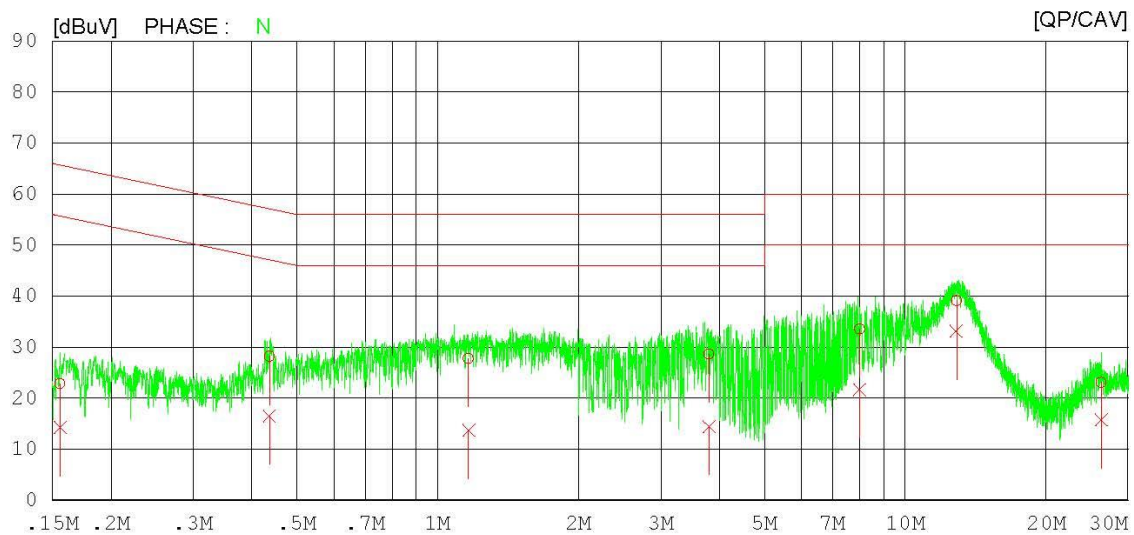
Date 2020-08-21

Order No.
Model No. LM-F100EMW
Serial No.
Test Condition 5.7G

Reference No.
Power Supply 120 V, 60 Hz
Temp/Humi. 23 'C / 42 %
Operator J.W. Kim

Memo

LIMIT : FCC P15.207 QP
FCC P15.207 AV



AC Line Conducted Emissions (Data List)

Test Mode: U-NII 2C & TM 1 & MIMO(CDD) & 5 745 MHz

Results of Conducted Emission

DTNC

Date 2020-08-21

Order No.
Model No. LM-F100EMW
Serial No.
Test Condition 5.7G

Reference No.
Power Supply 120 V, 60 Hz
Temp/Humi. 23 'C / 42 %
Operator J.W. Kim

Memo

LIMIT : FCC P15.207 QP
FCC P15.207 AV

NO	FREQ [MHz]	READING		C.FACTOR [dB]	RESULT		LIMIT		MARGIN		PHASE
		QP [dBuV]	CAV [dBuV]		QP [dBuV]	CAV [dBuV]	QP [dBuV]	CAV [dBuV]	QP [dBuV]	CAV [dBuV]	
1	0.15570	12.93	4.30	9.95	22.88	14.25	65.69	55.69	42.81	41.44	N
2	0.43650	18.27	6.50	9.97	28.24	16.47	57.13	47.13	28.89	30.66	N
3	1.16349	17.77	3.69	9.98	27.75	13.67	56.00	46.00	28.25	32.33	N
4	3.80468	18.51	4.31	10.12	28.63	14.43	56.00	46.00	27.37	31.57	N
5	7.99108	23.27	11.45	10.25	33.52	21.70	60.00	50.00	26.48	28.30	N
6	12.86603	28.75	22.73	10.40	39.15	33.13	60.00	50.00	20.85	16.87	N
7	26.26115	12.46	5.13	10.60	23.06	15.73	60.00	50.00	36.94	34.27	N
8	0.17235	12.04	3.79	9.95	21.99	13.74	64.85	54.85	42.86	41.11	L
9	0.42234	13.46	3.25	9.95	23.41	13.20	57.40	47.40	33.99	34.20	L
10	1.14721	17.99	3.46	9.98	27.97	13.44	56.00	46.00	28.03	32.56	L
11	3.71651	17.51	2.85	10.10	27.61	12.95	56.00	46.00	28.39	33.05	L
12	7.36260	19.34	7.07	10.22	29.56	17.29	60.00	50.00	30.44	32.71	L
13	12.60038	29.94	23.47	10.39	40.33	33.86	60.00	50.00	19.67	16.14	L
14	25.72041	13.66	5.64	10.56	24.22	16.20	60.00	50.00	35.78	33.80	L

9. LIST OF TEST EQUIPMENT

Type	Manufacturer	Model	Cal.Date (yy/mm/dd)	Next.Cal.Date (yy/mm/dd)	S/N
Spectrum Analyzer	Agilent Technologies	N9020A	20/06/24	21/06/24	US47360812
Spectrum Analyzer	Agilent Technologies	N9020A	19/12/16	20/12/16	MY48011700
Spectrum Analyzer	Agilent Technologies	N9020A	19/12/16	20/12/16	MY50410357
Spectrum Analyzer	Agilent Technologies	N9030A	19/12/16	20/12/16	MY53310140
DC Power Supply	Agilent Technologies	66332A	20/06/24	21/06/24	US37473422
Multimeter	FLUKE	17B	19/12/16	20/12/16	26030065WS
Signal Generator	Rohde Schwarz	SMBV100A	19/12/16	20/12/16	255571
Signal Generator	ANRITSU	MG3695C	19/12/16	20/12/16	173501
Thermohygrometer	BODYCOM	BJ5478	19/12/18	20/12/18	120612-1
Thermohygrometer	BODYCOM	BJ5478	19/12/18	20/12/18	120612-2
Thermohygrometer	BODYCOM	BJ5478	20/07/01	21/07/01	N/A
HYGROMETER	TESTO	608-H1	20/01/21	21/01/21	34862883
Loop Antenna	ETS-Lindgren	6502	19/09/18	21/09/18	00226186
BILOG ANTENNA	Schwarzbeck	VULB 9160	19/04/23	21/04/23	9160-3362
Horn Antenna	ETS-Lindgren	3115	20/01/30	21/01/30	6419
Horn Antenna	Schwarzbeck	BBHA 9120C	19/12/04	20/12/04	9120C-561
Horn Antenna	A.H.Systems Inc.	SAS-574	20/06/24	21/06/24	155
PreAmplifier	tsj	MLA-0118-B01-40	19/12/16	20/12/16	1852267
PreAmplifier	tsj	MLA-1840-J02-45	20/06/24	21/06/24	16966-10728
PreAmplifier	H.P	8447D	19/12/16	20/12/16	2944A07774
High Pass Filter	Wainwright Instruments	WHKX12-935-1000-15000-40SS	20/06/24	21/06/24	8
High Pass Filter	Wainwright Instruments	WHKX10-2838-3300-18000-60SS	20/06/24	21/06/24	1
High Pass Filter	Wainwright Instruments	WHNX8.0/26.5-6SS	20/06/24	21/06/24	3
Attenuator	Hefei Shunze	SS5T2.92-10-40	20/06/24	21/06/24	16012202
Attenuator	SRTechnology	F01-B0606-01	20/06/24	21/06/24	13092403
Attenuator	Aeroflex/Weinschel	56-3	20/06/24	21/06/24	Y2370
Attenuator	SMAJK	SMAJK-2-3	20/06/24	21/06/24	2
Attenuator	SMAJK	SMAJK-50-10	20/06/24	21/06/24	15081903
Power Meter & Wide Bandwidth Sensor	Anritsu	ML2495A MA2490A	20/06/24	21/06/24	1306007 1249001
EMI Test Receiver	ROHDE&SCHWARZ	ESR	19/12/17	20/12/17	101767
PULSE LIMITER	Rohde Schwarz	ESH3-Z2	19/09/17	20/09/17	101333
LISN	SCHWARZBECK	NSLK 8128 RC	19/11/04	20/11/04	8128 RC-387
Cable	Junkosha	MWX241	20/01/13	21/01/13	G-04
Cable	Junkosha	MWX241	20/01/13	21/01/13	G-07
Cable	DT&C	Cable	20/01/13	21/01/13	G-13
Cable	DT&C	Cable	20/01/13	21/01/13	G-14
Cable	HUBER+SUHNER	SUCOFLEX 104	20/01/13	21/01/13	G-15
Cable	Radiall	TESTPRO3	20/01/16	21/01/16	M-01
Cable	Junkosha	MWX315	20/01/16	21/01/16	M-05
Cable	Junkosha	MWX221	20/01/16	21/01/16	M-06
Cable	DT&C	Cable	20/01/16	21/01/16	RF-82
Test Software	tsj	Radiated Emission Measurement	N/A	N/A	Version 2.00.0177
Test Software	tsj	Noise Terminal Voltage Measurement	N/A	N/A	Version 2.00.0170

Note 1: The measurement antennas were calibrated in accordance to the requirements of ANSI C63.5-2017

Note 2: The cable is not a regular calibration item, so it has been calibrated by DT & C itself