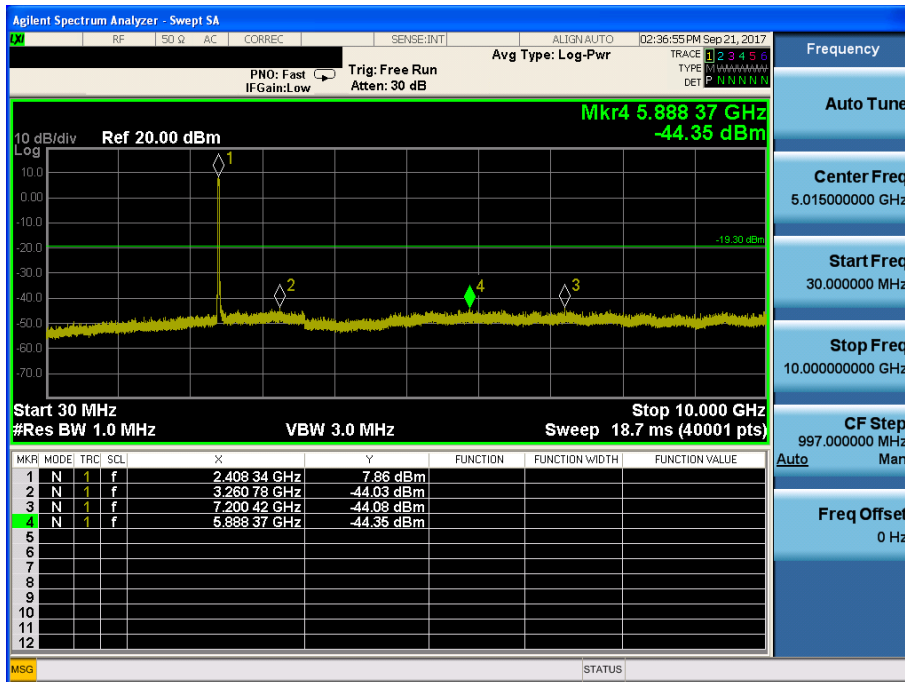
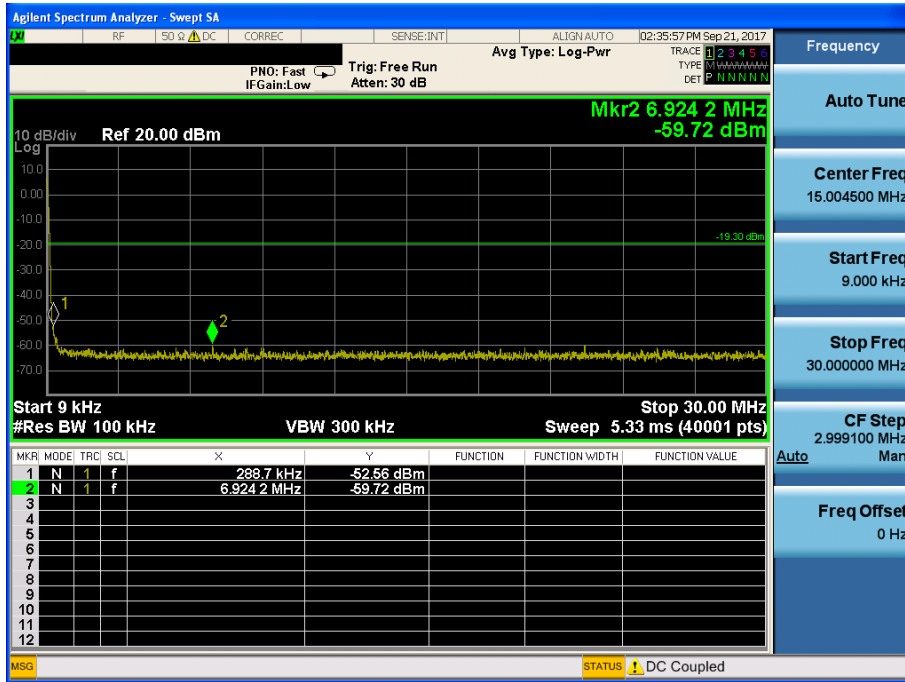
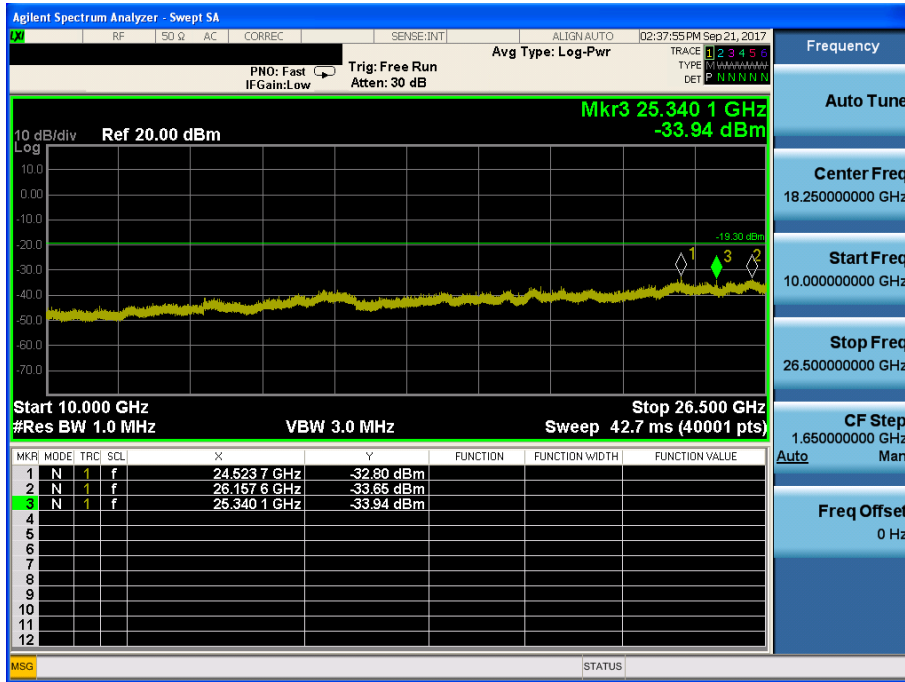


Conducted Spurious Emissions

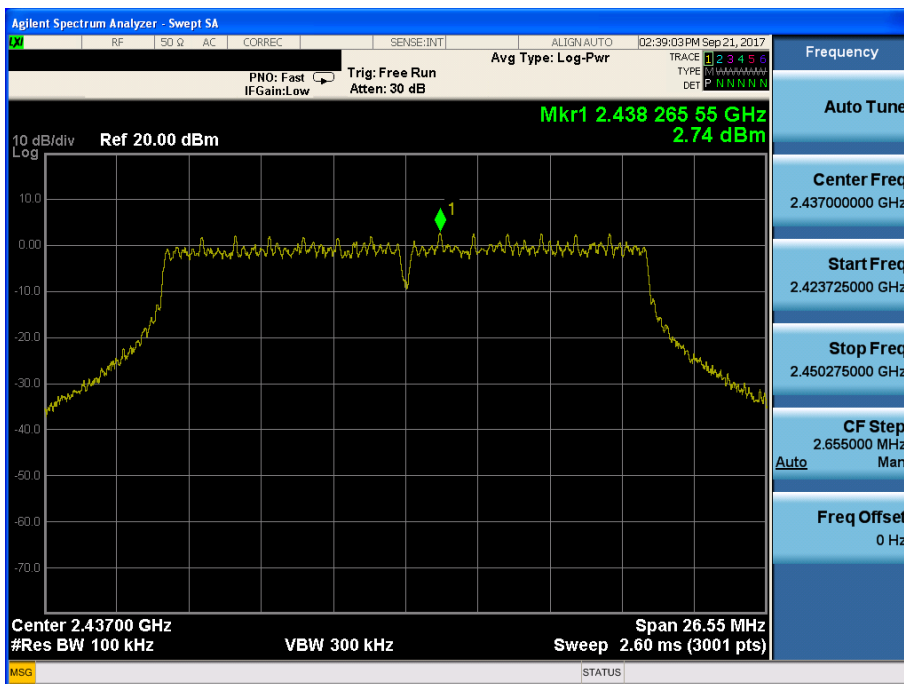


Conducted Spurious Emissions

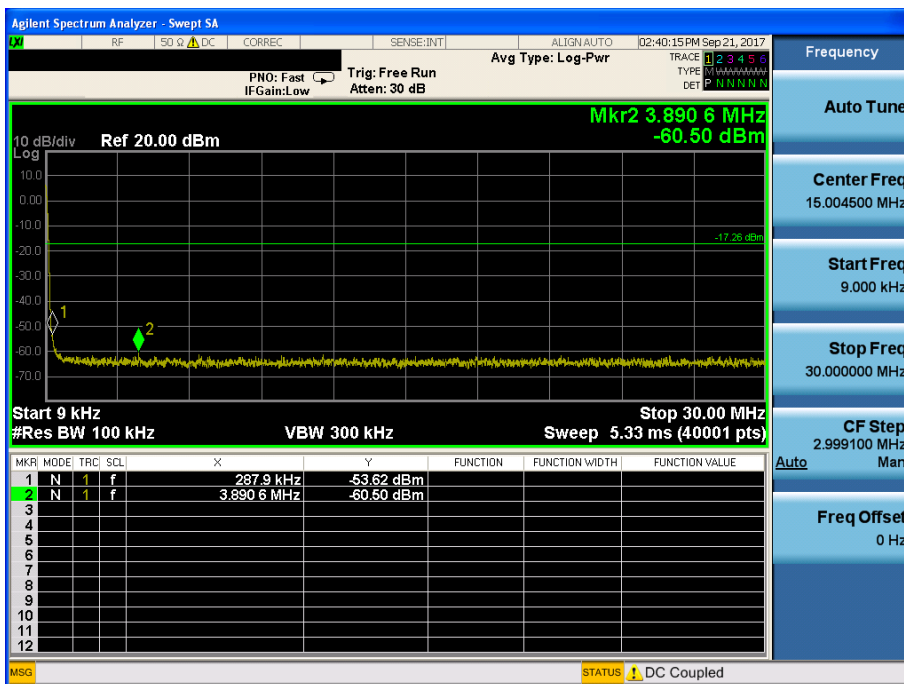


TM 7 & ANT 2 & Middle

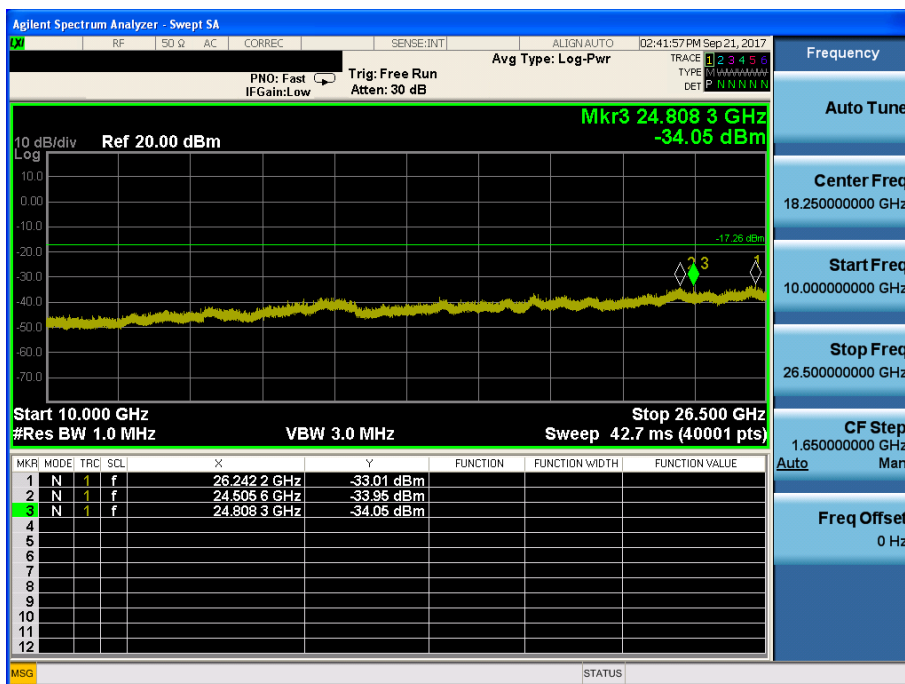
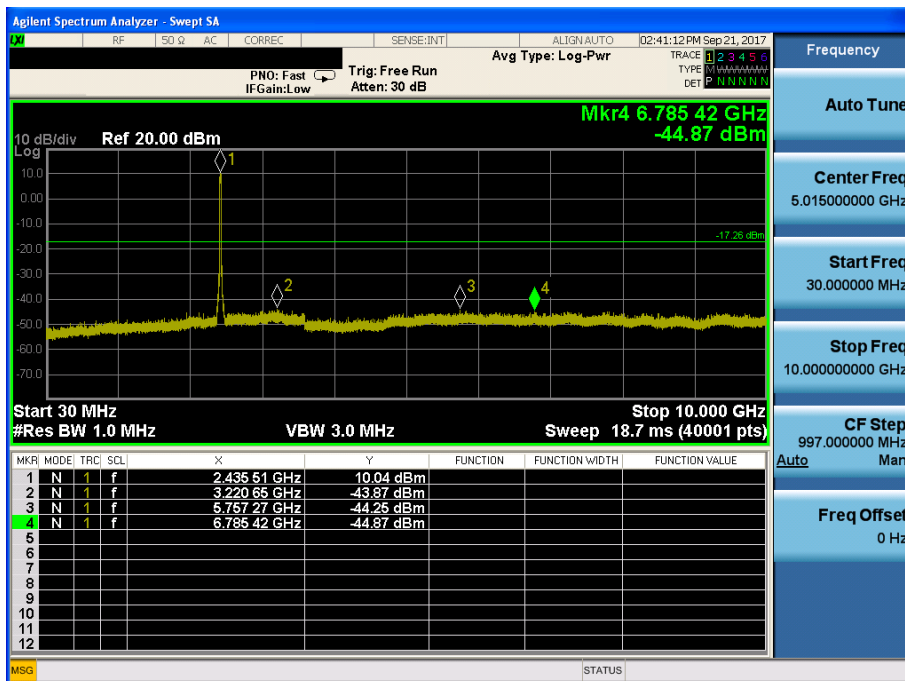
Reference



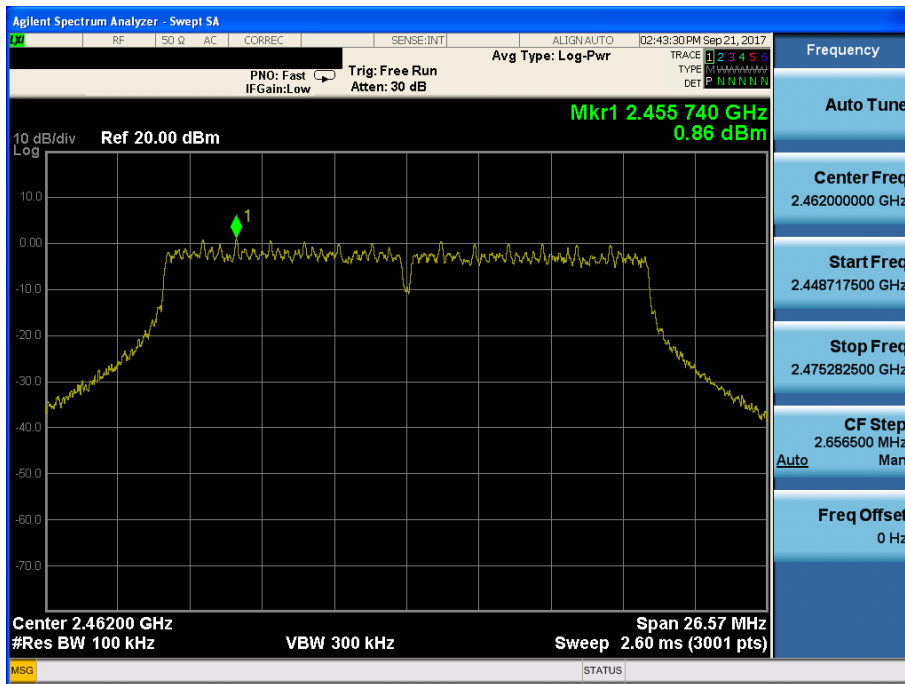
Conducted Spurious Emissions



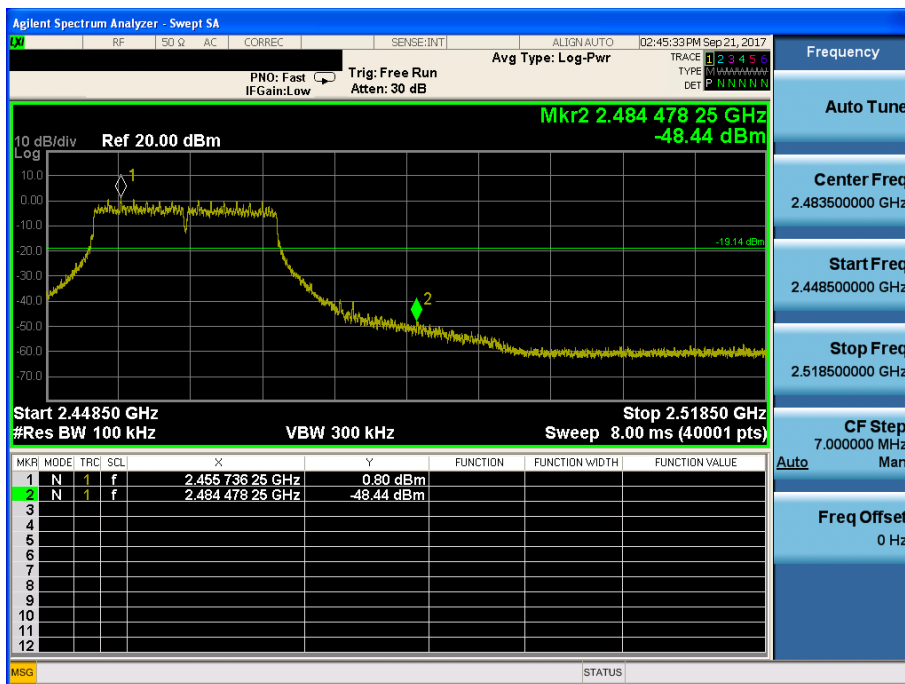
Conducted Spurious Emissions



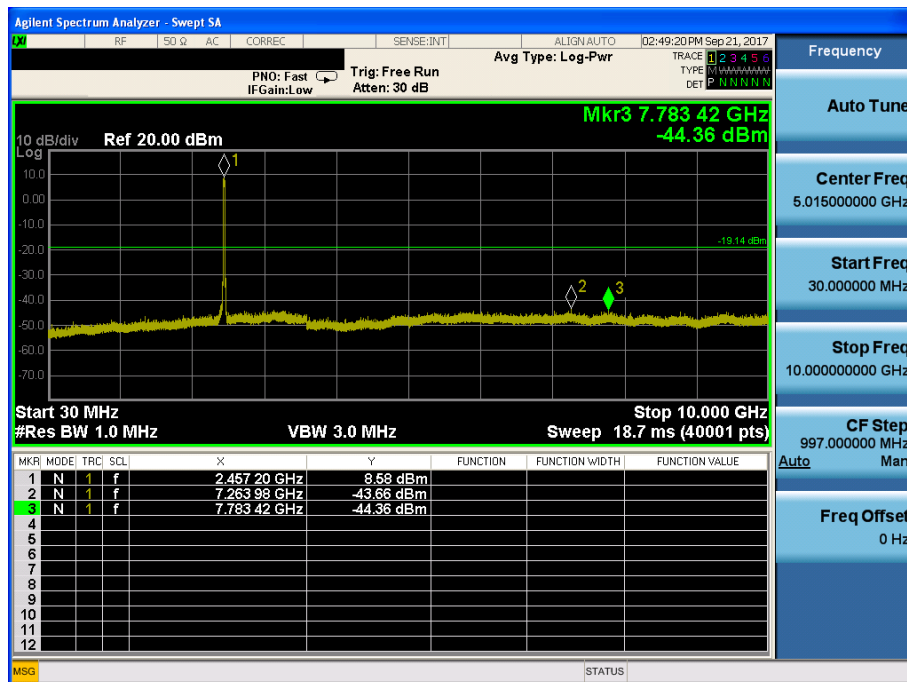
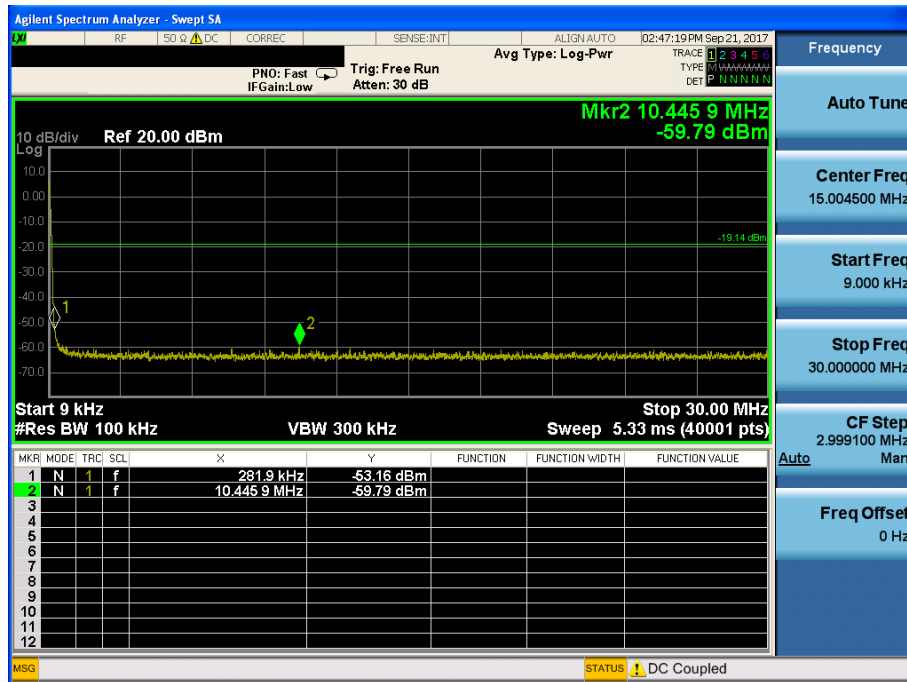
TM 7 & ANT 2 & Highest Reference



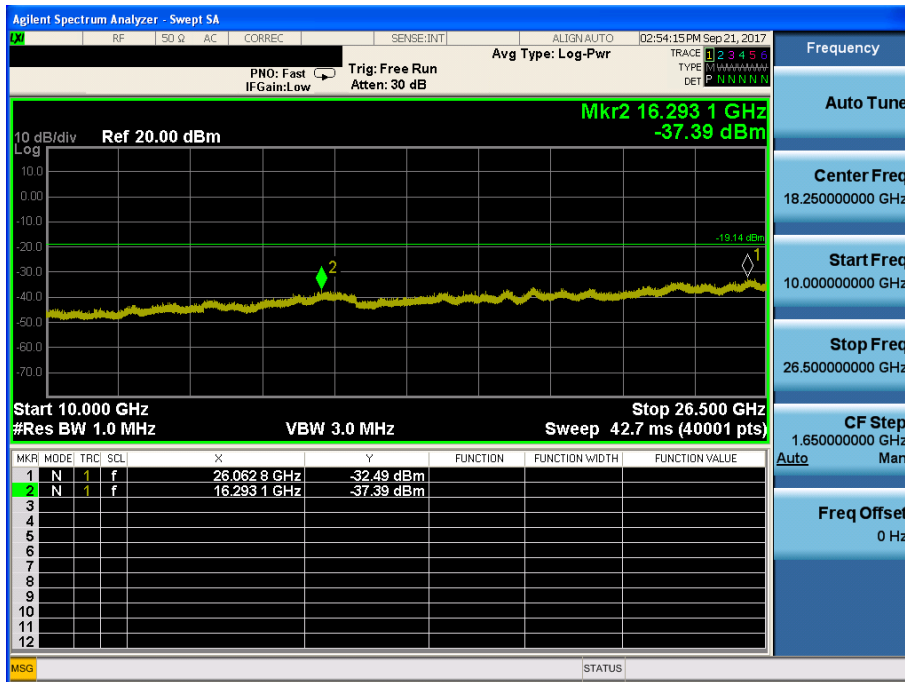
High Band-edge



Conducted Spurious Emissions

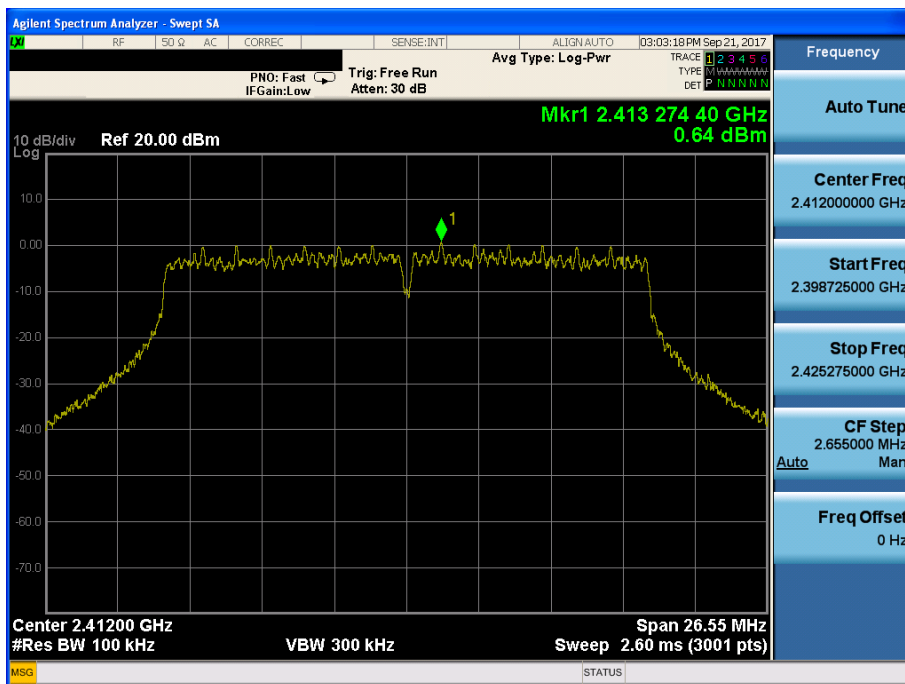


Conducted Spurious Emissions

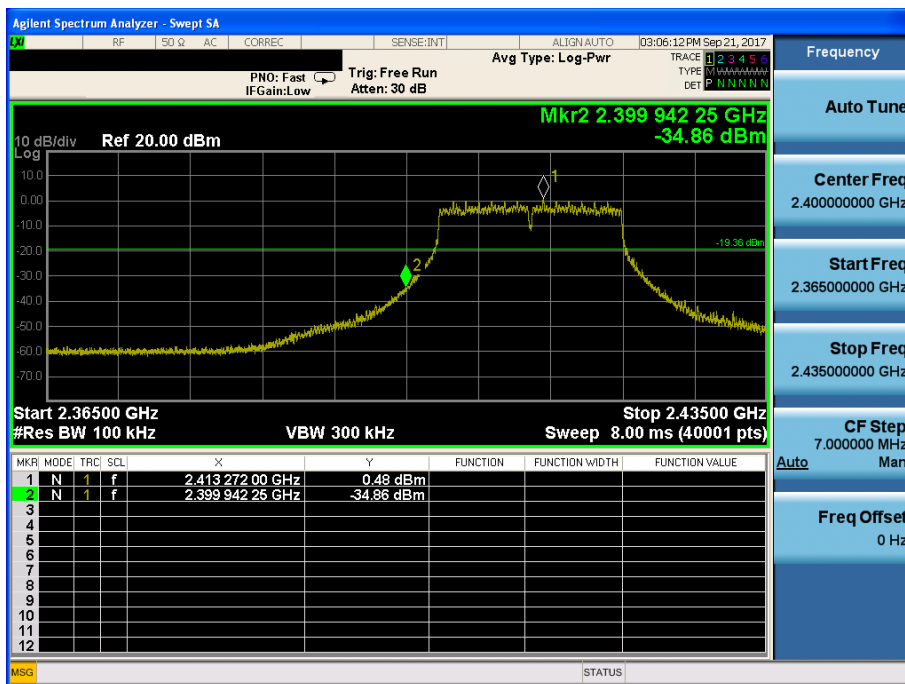


TM 8 & ANT 2 & Lowest

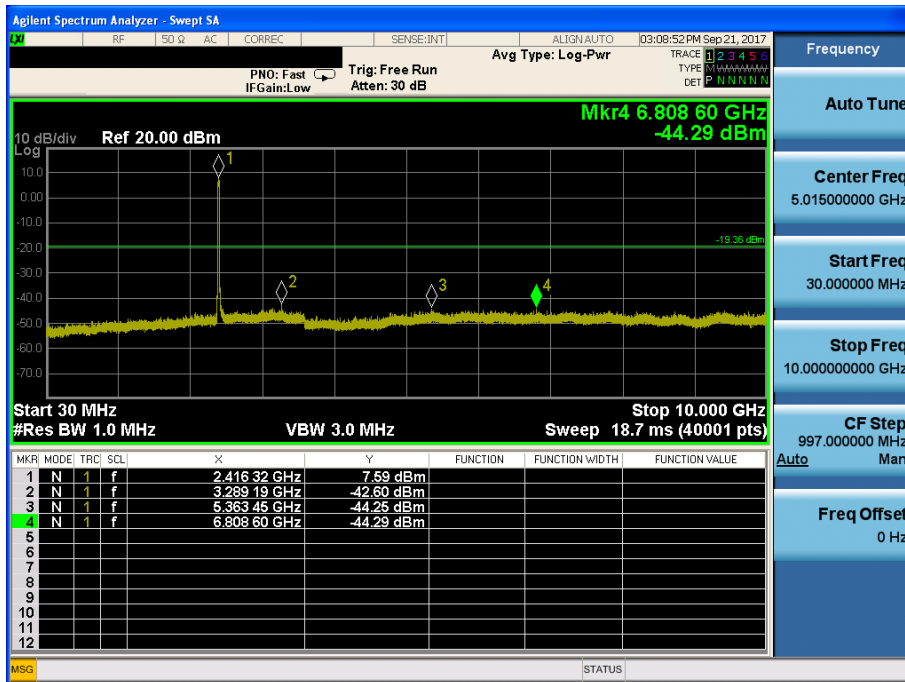
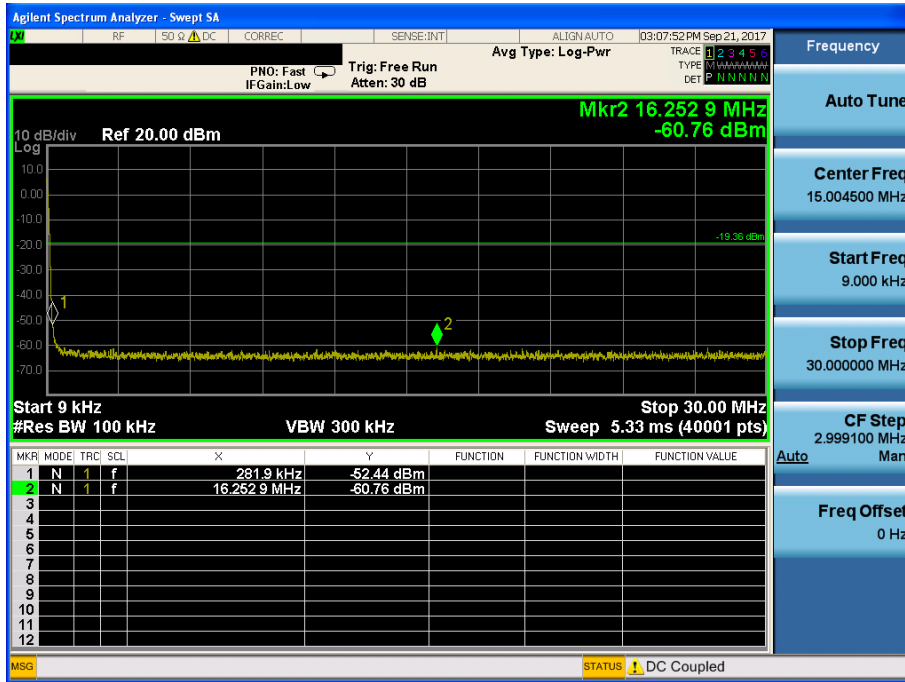
Reference



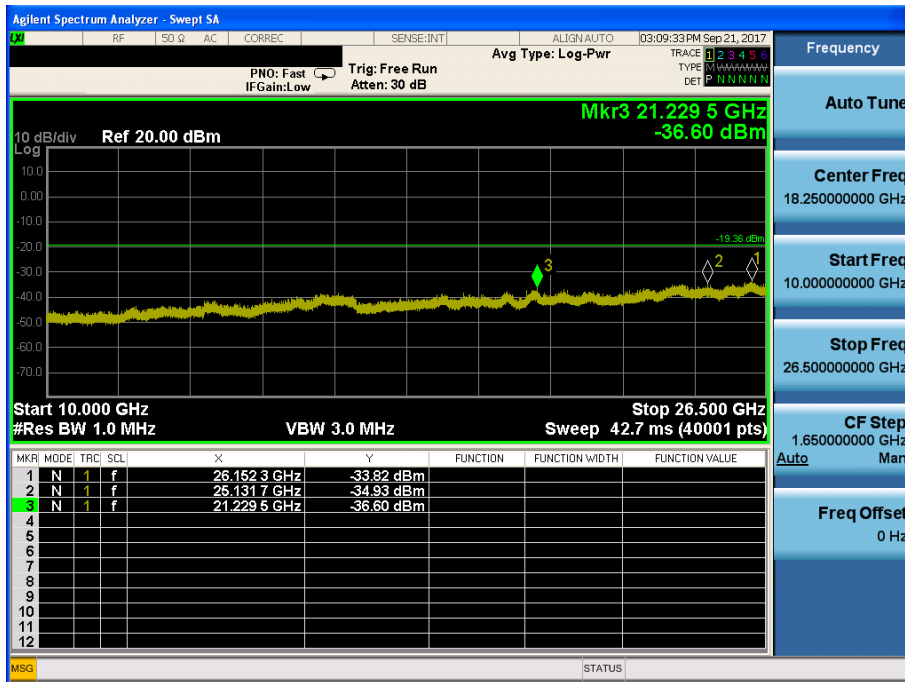
Low Band-edge



Conducted Spurious Emissions

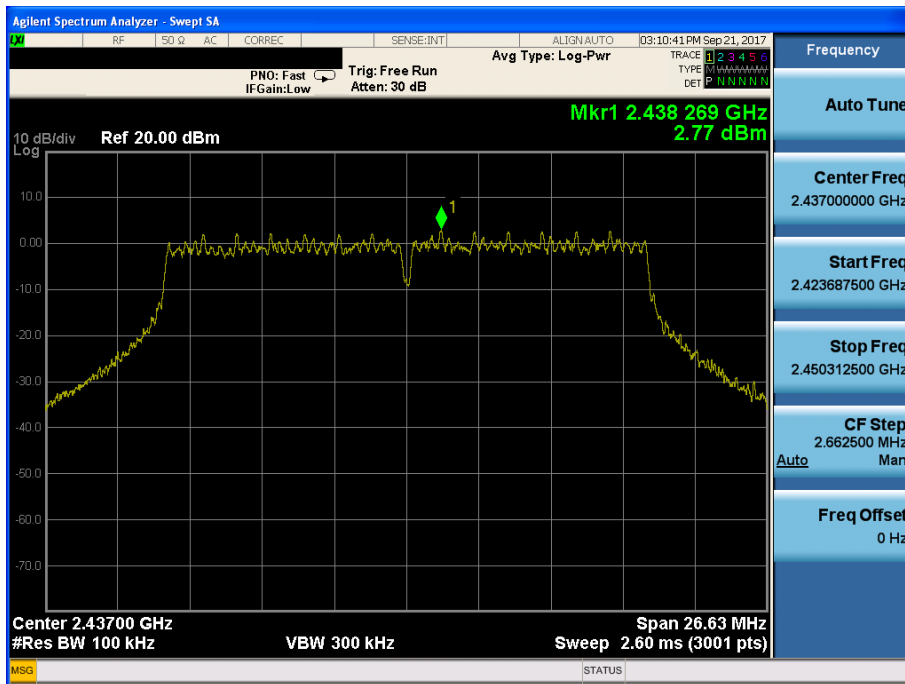


Conducted Spurious Emissions

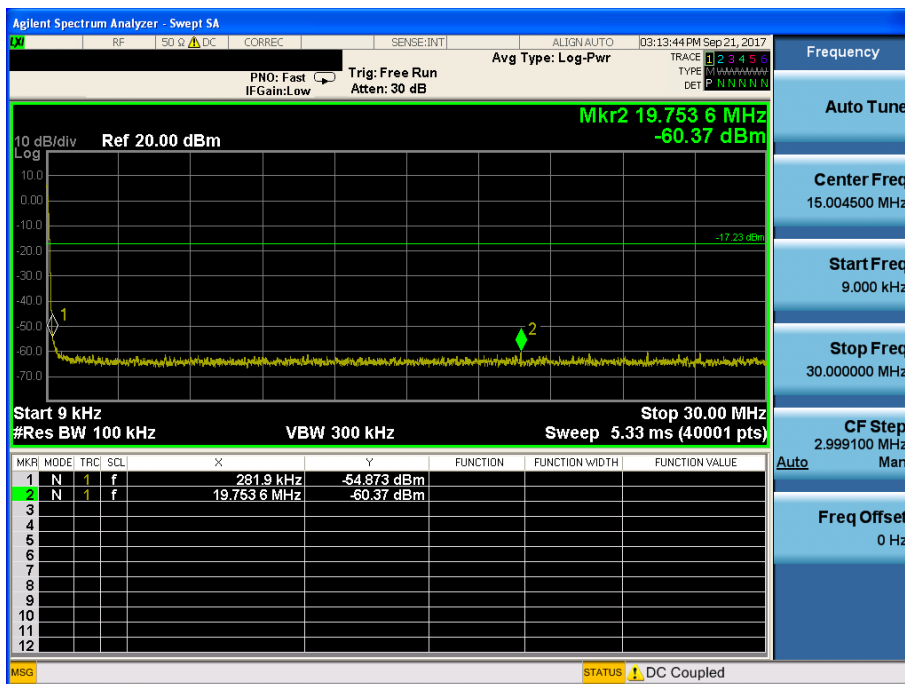


TM 8 & ANT 2 & Middle

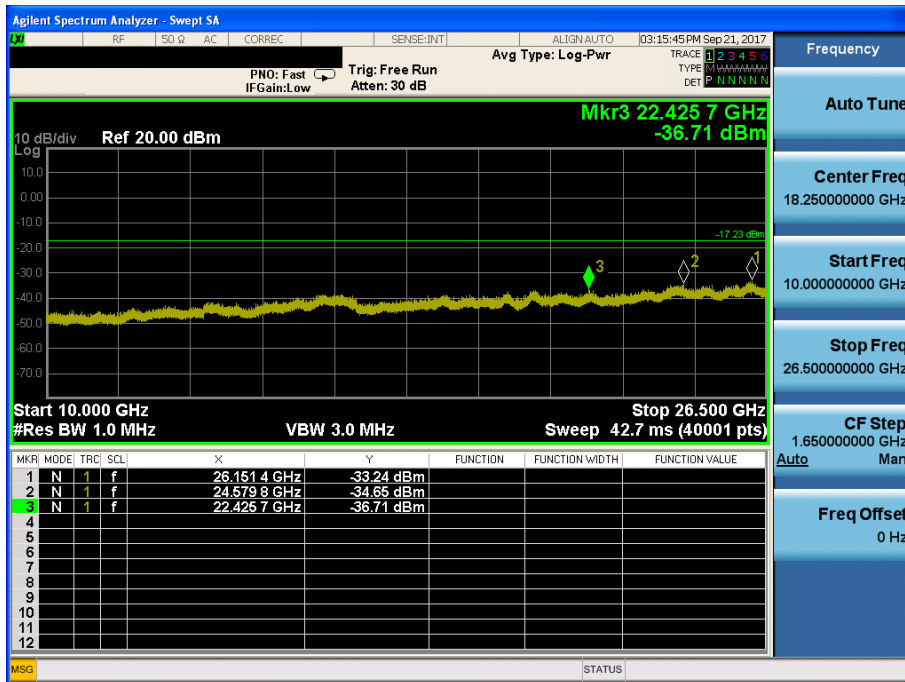
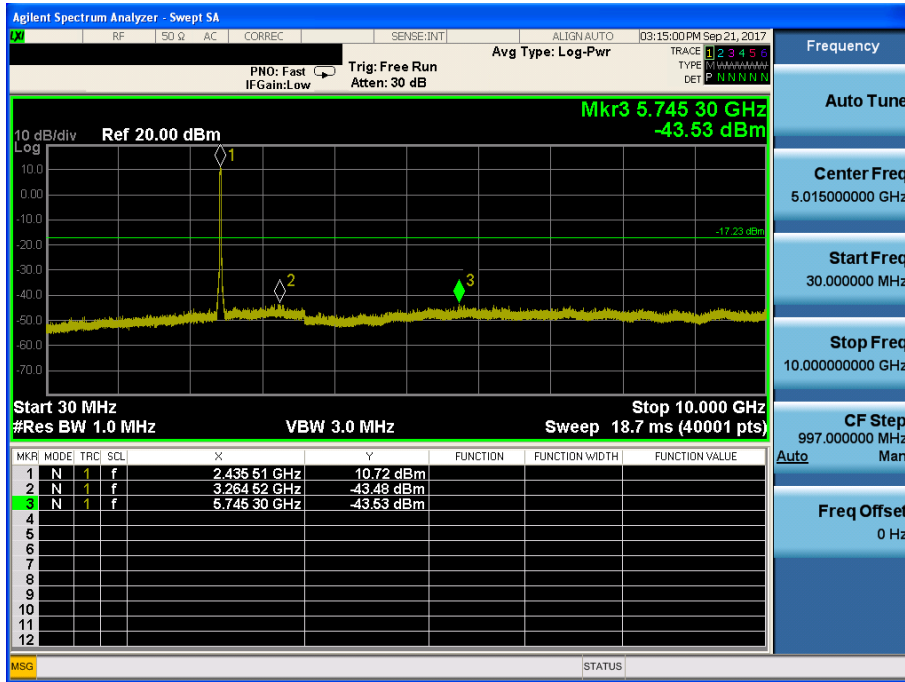
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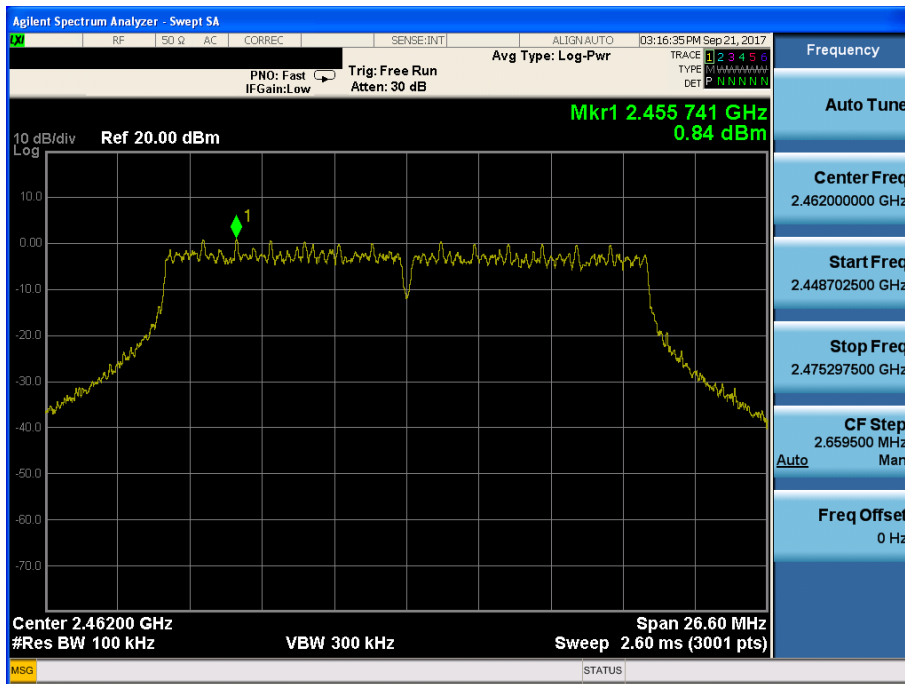
Conducted Spurious Emissions



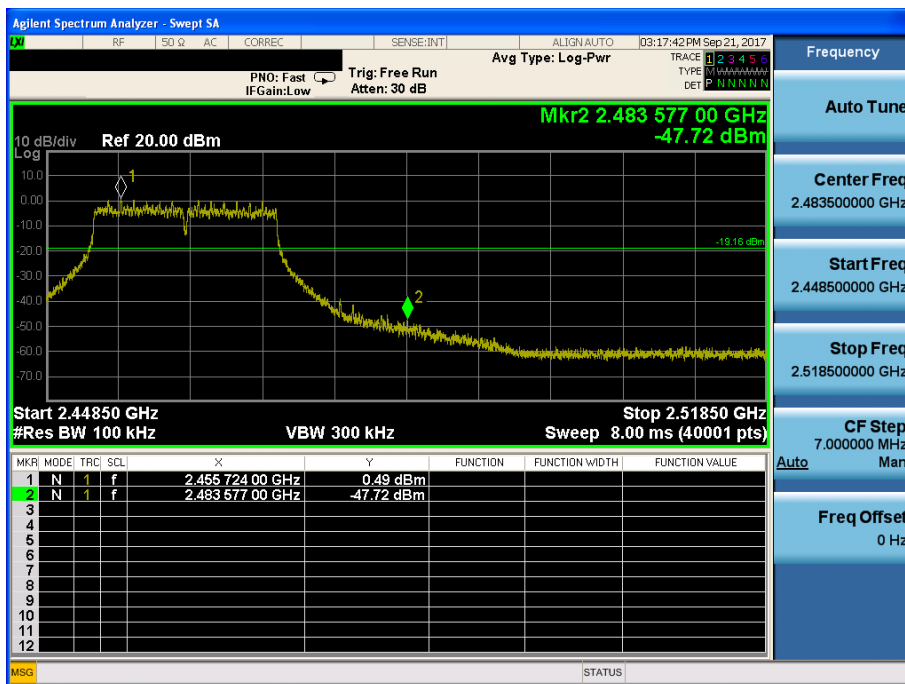
Conducted Spurious Emissions



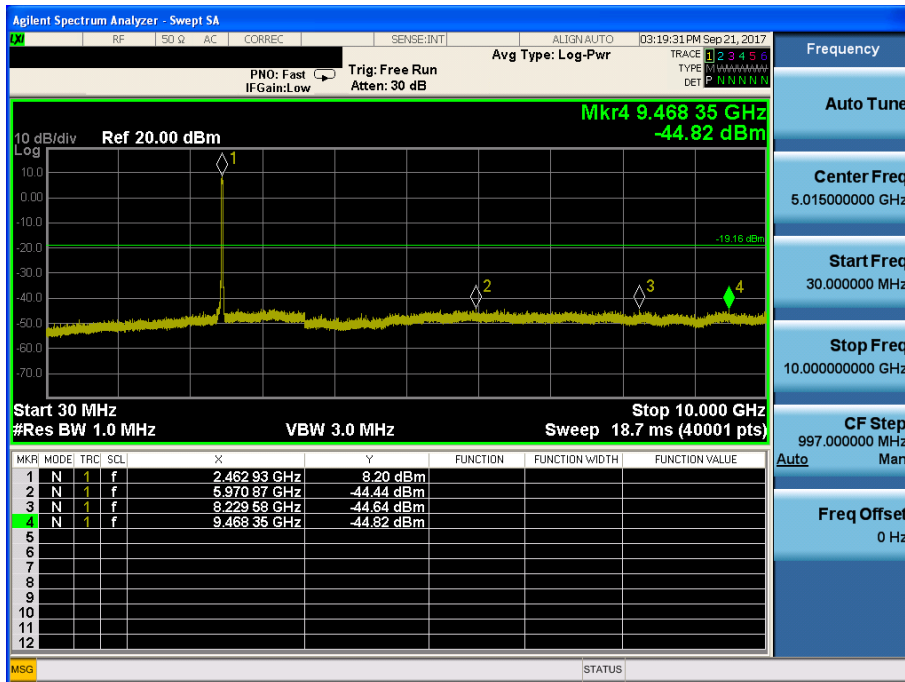
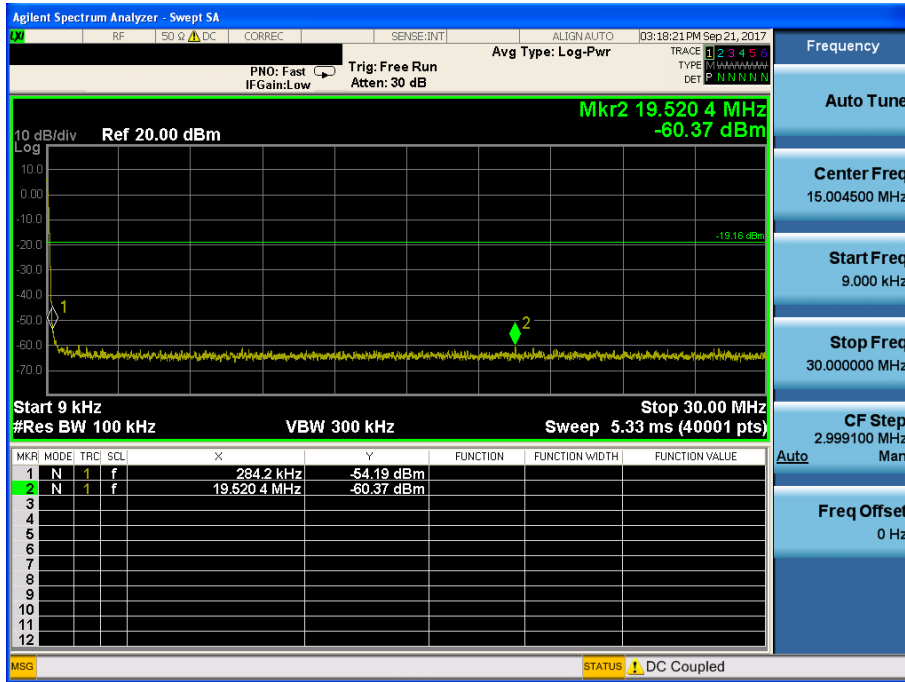
TM 8 & ANT 2 & Highest Reference



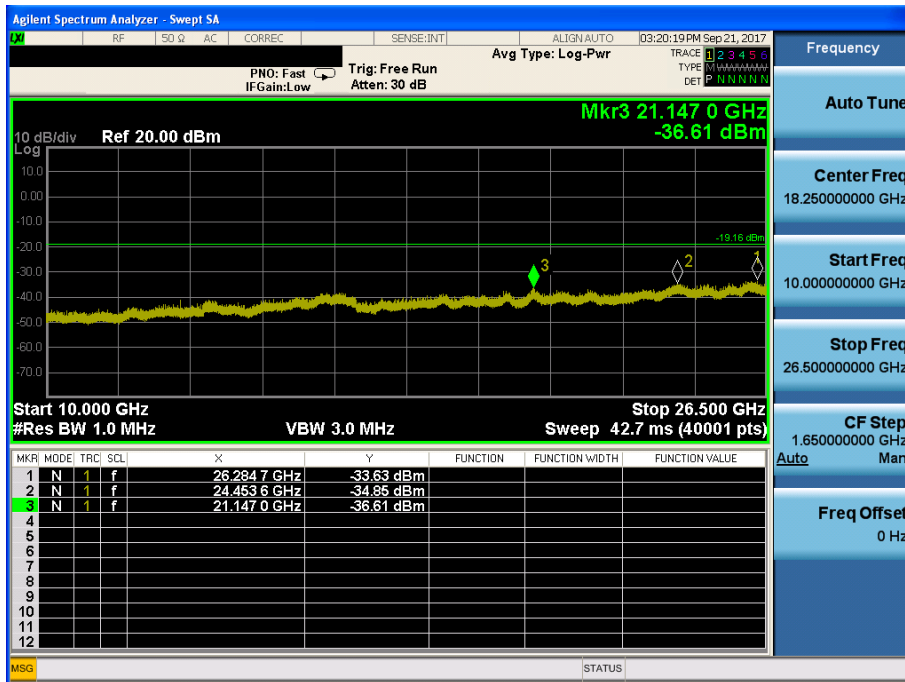
High Band-edge



Conducted Spurious Emissions

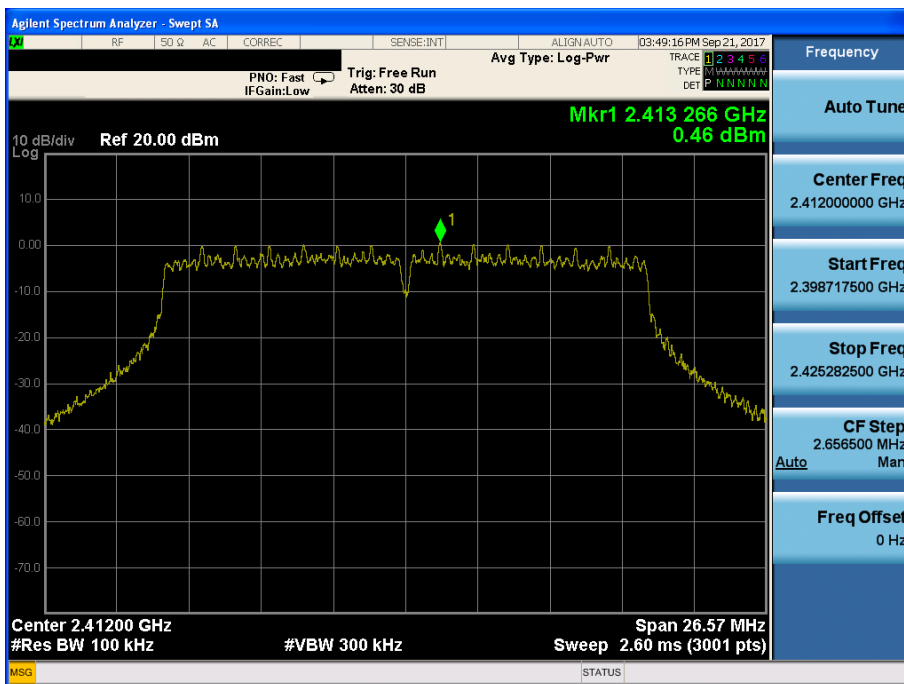


Conducted Spurious Emissions

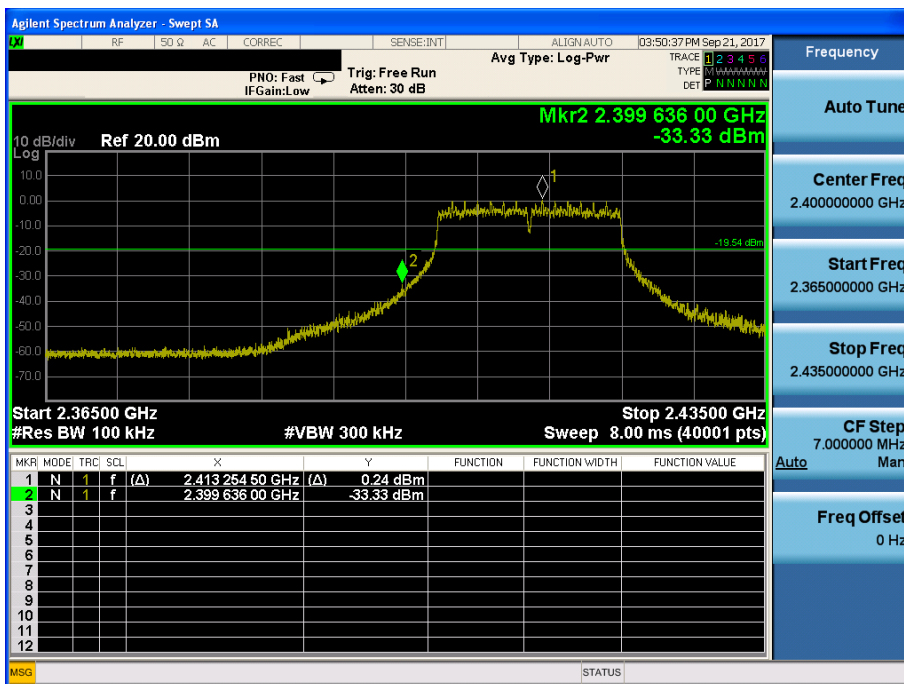


TM 9 & ANT 2 & Lowest

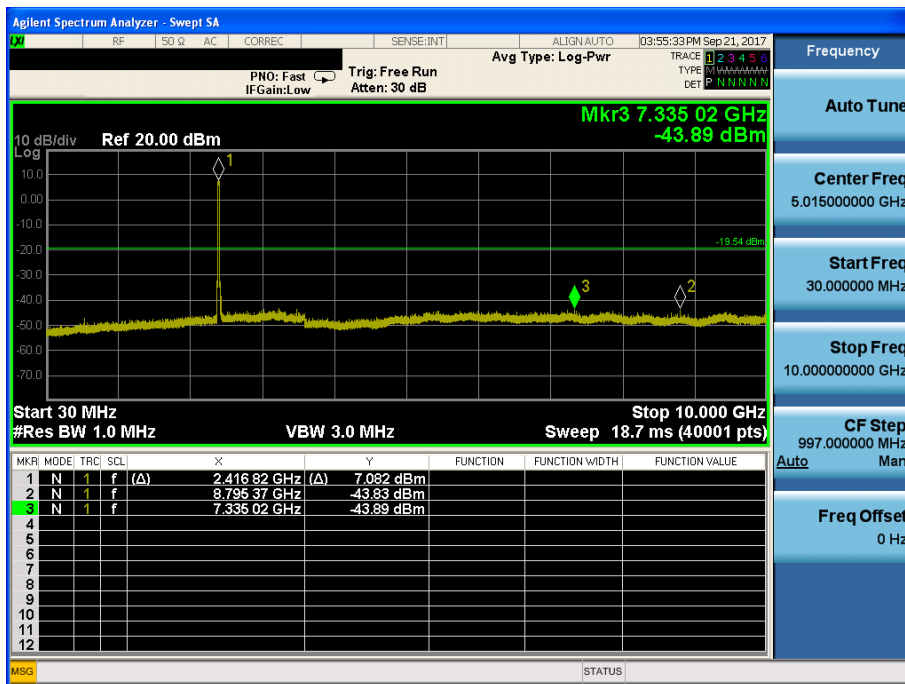
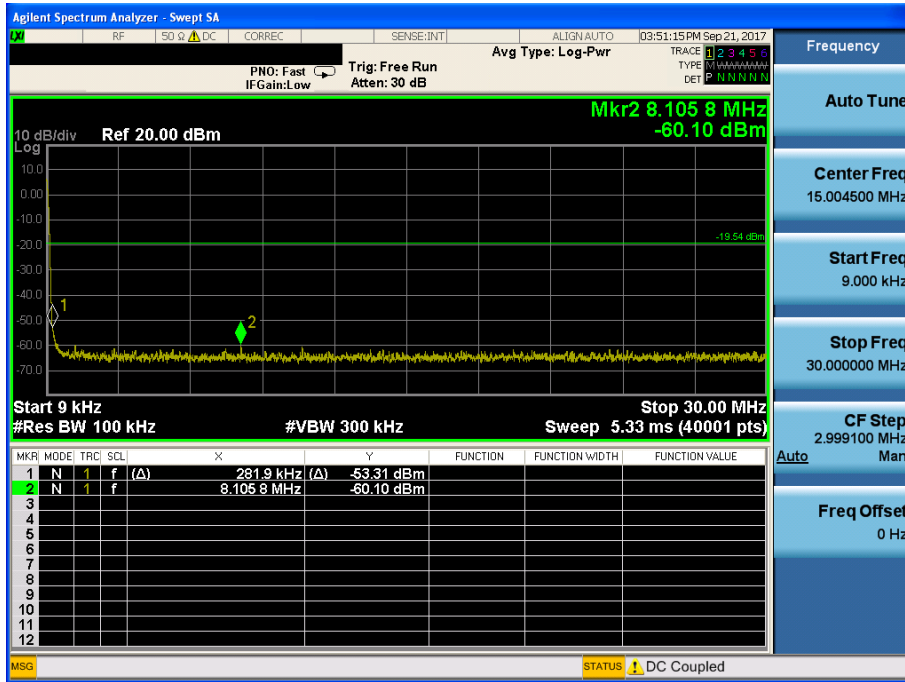
Reference



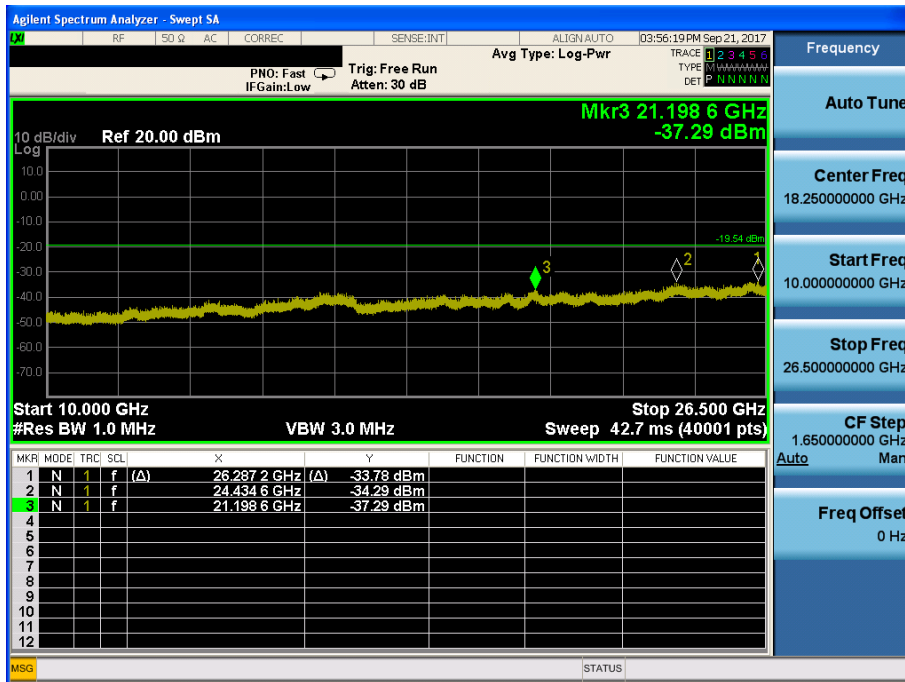
Low Band-edge



Conducted Spurious Emissions

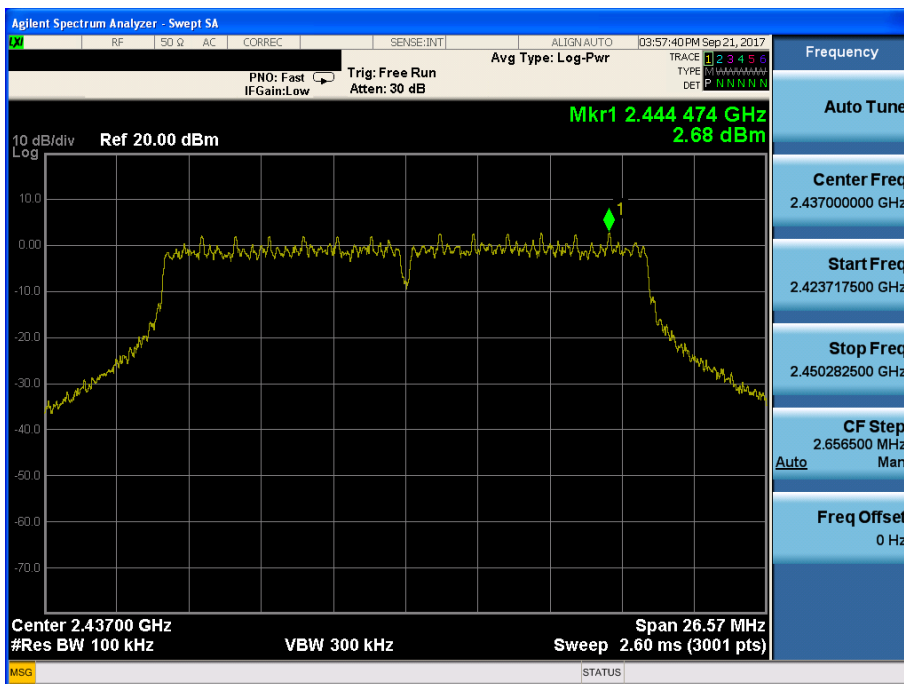


Conducted Spurious Emissions

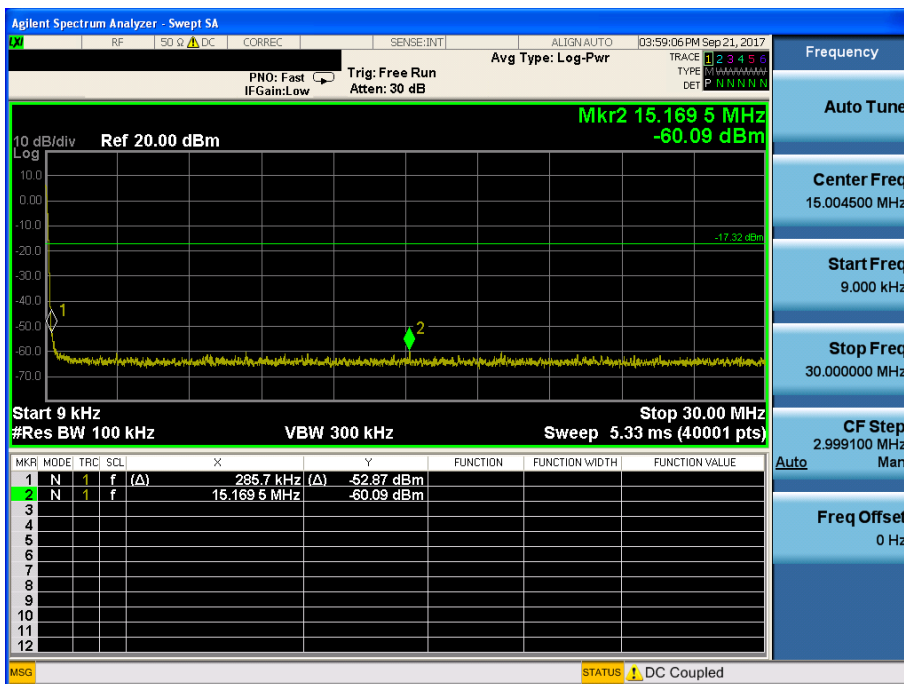


TM 9 & ANT 2 & Middle

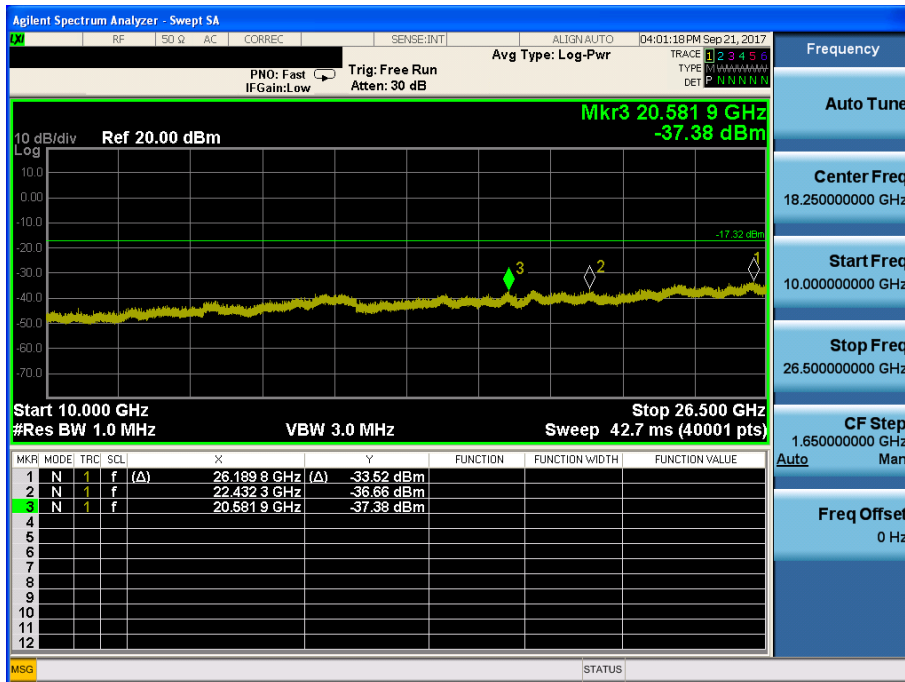
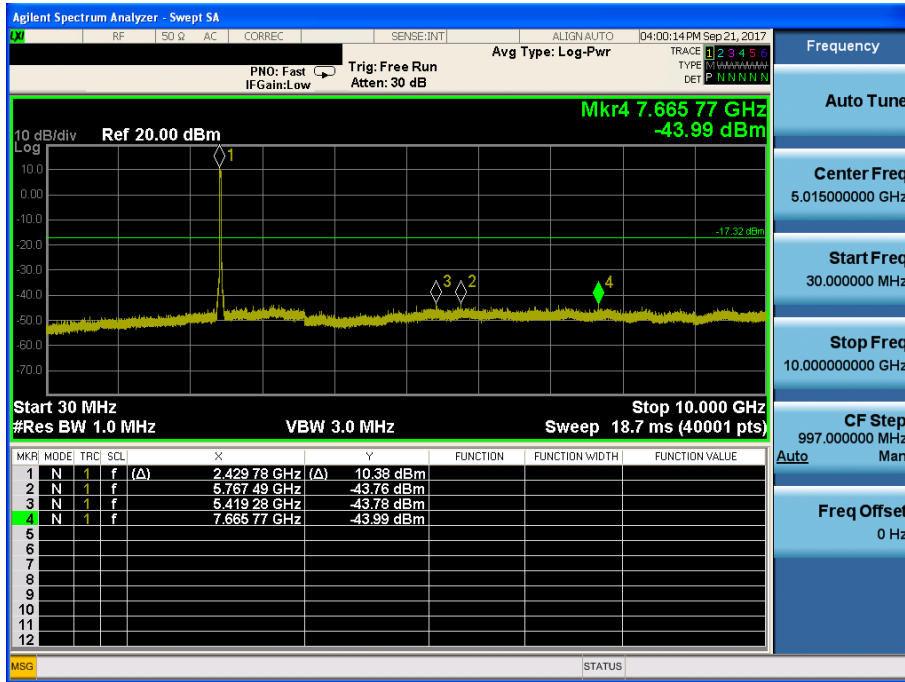
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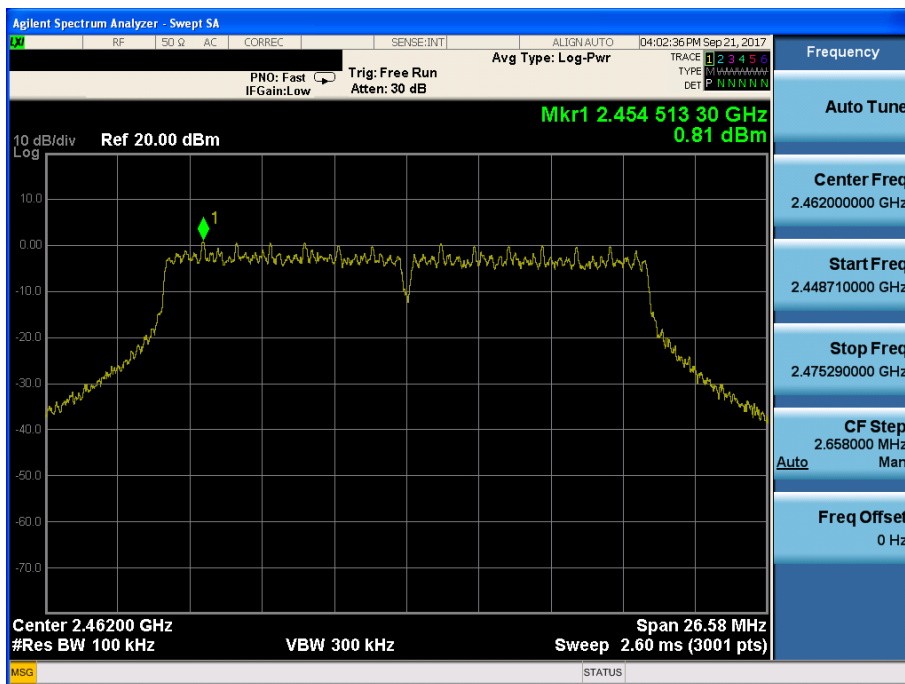
Conducted Spurious Emissions



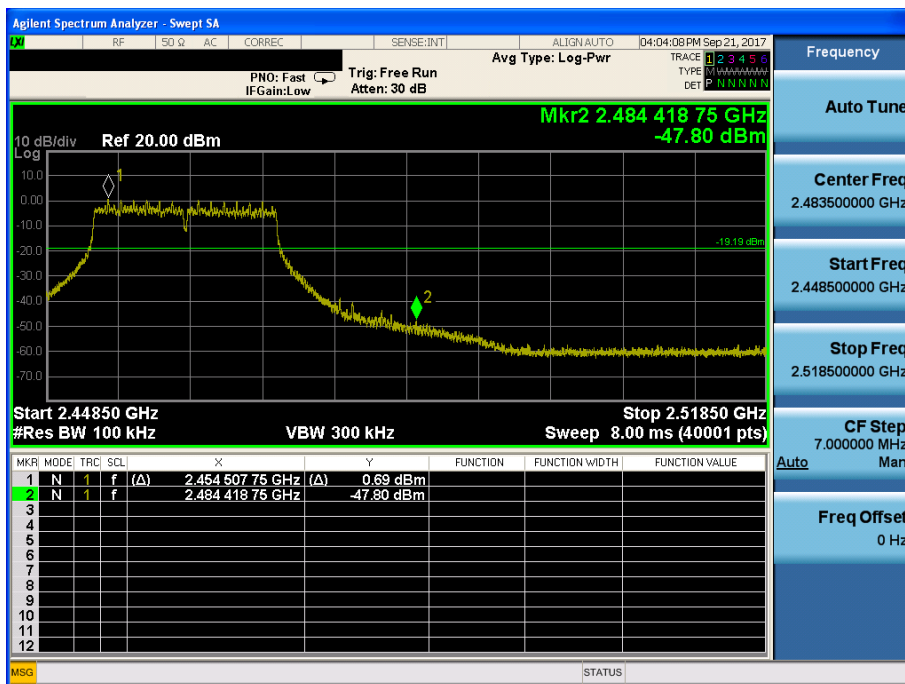
Conducted Spurious Emissions



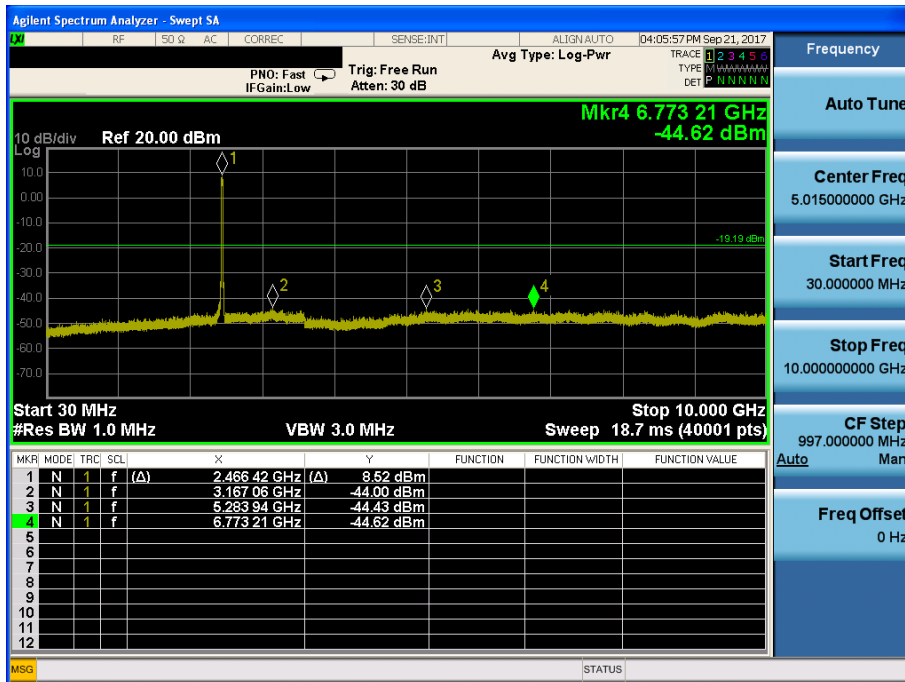
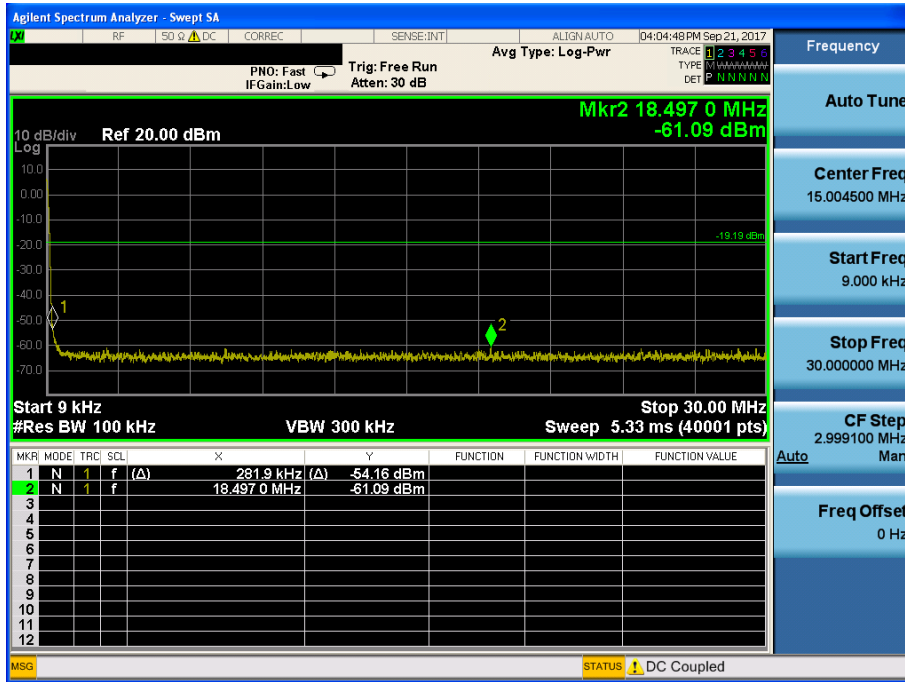
TM 9 & ANT 2 & Highest Reference



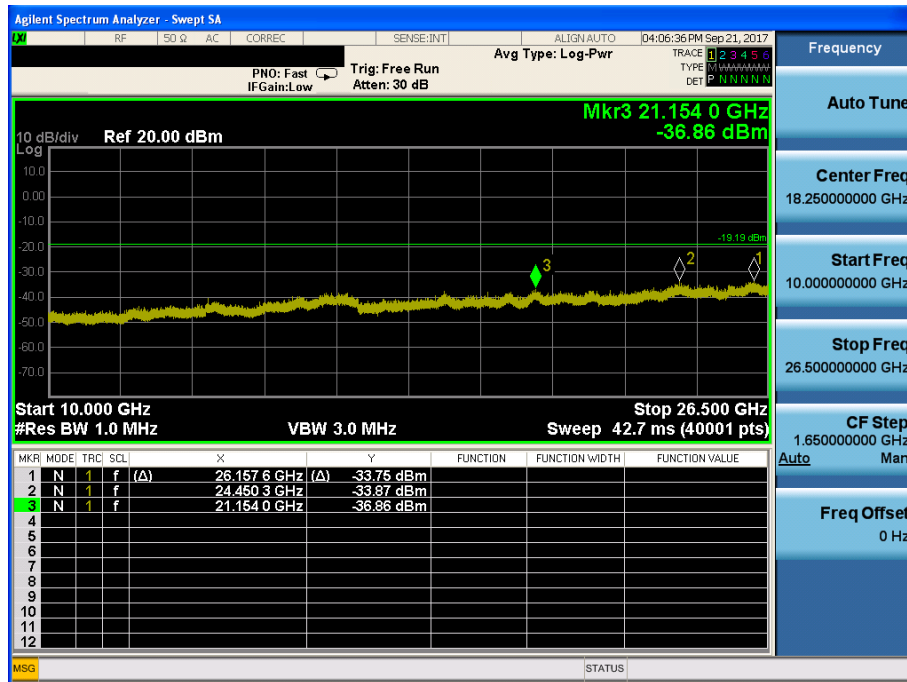
High Band-edge



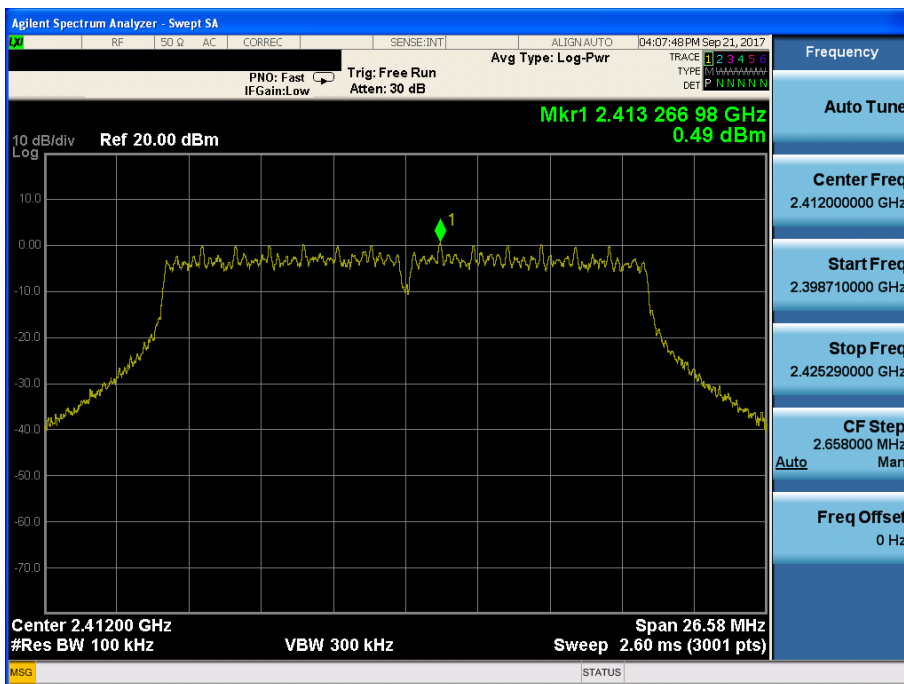
Conducted Spurious Emissions



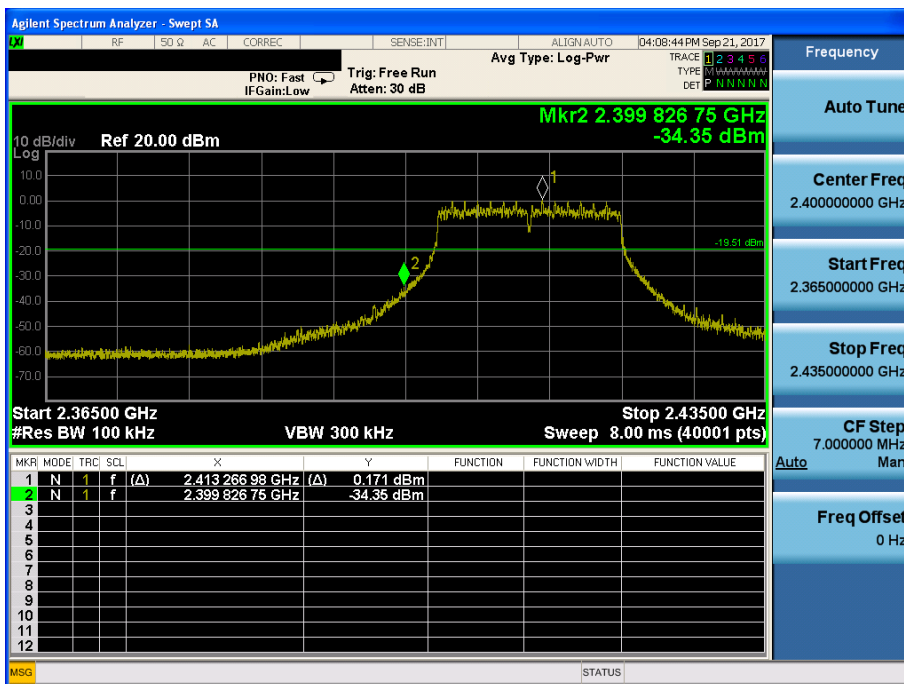
Conducted Spurious Emissions



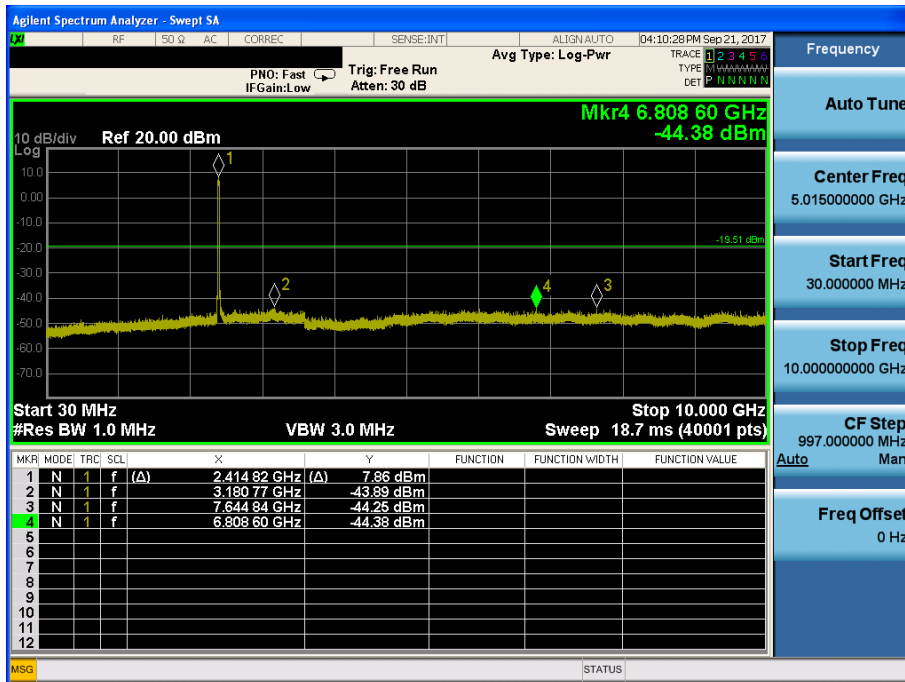
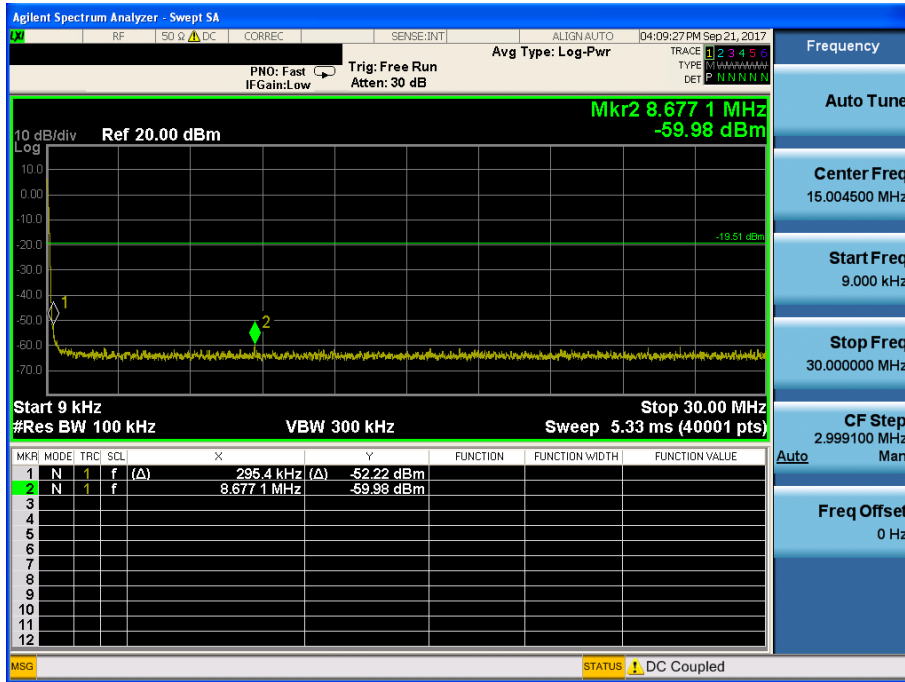
TM 10 & ANT 2 & Lowest Reference



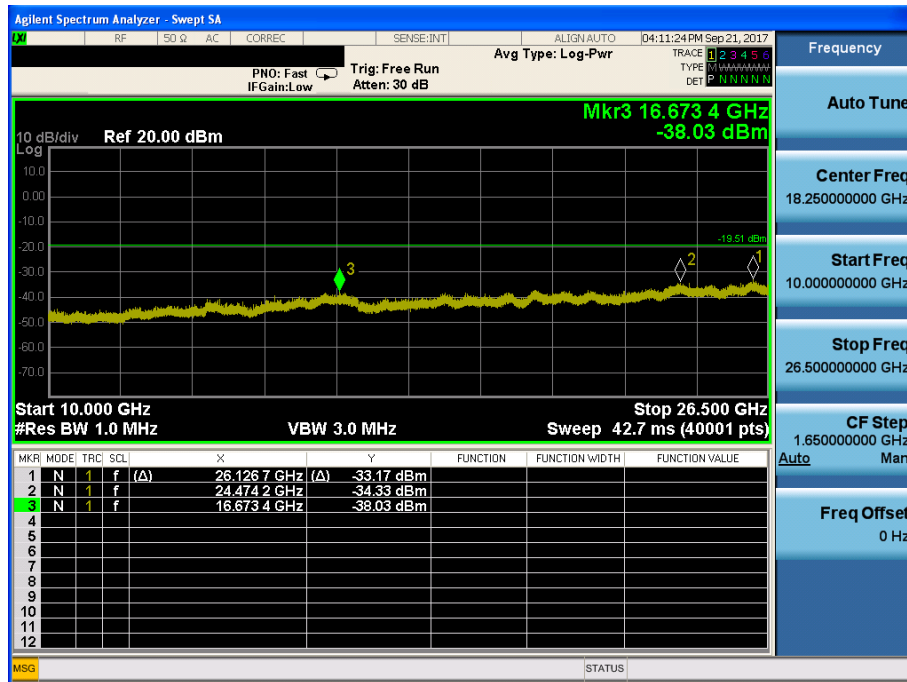
Low Band-edge



Conducted Spurious Emissions

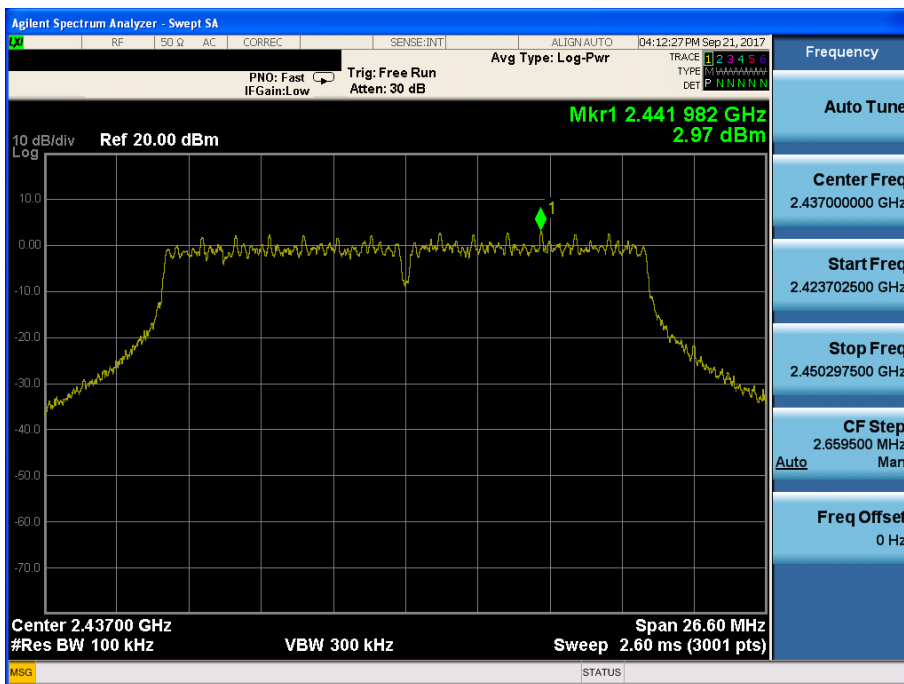


Conducted Spurious Emissions

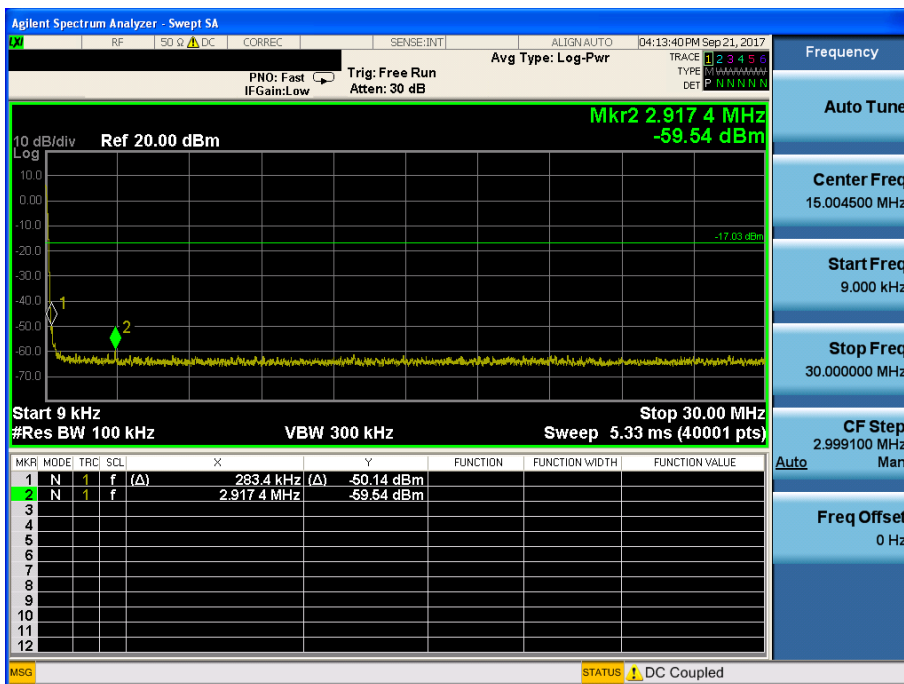


TM 10 & ANT 2 & Middle

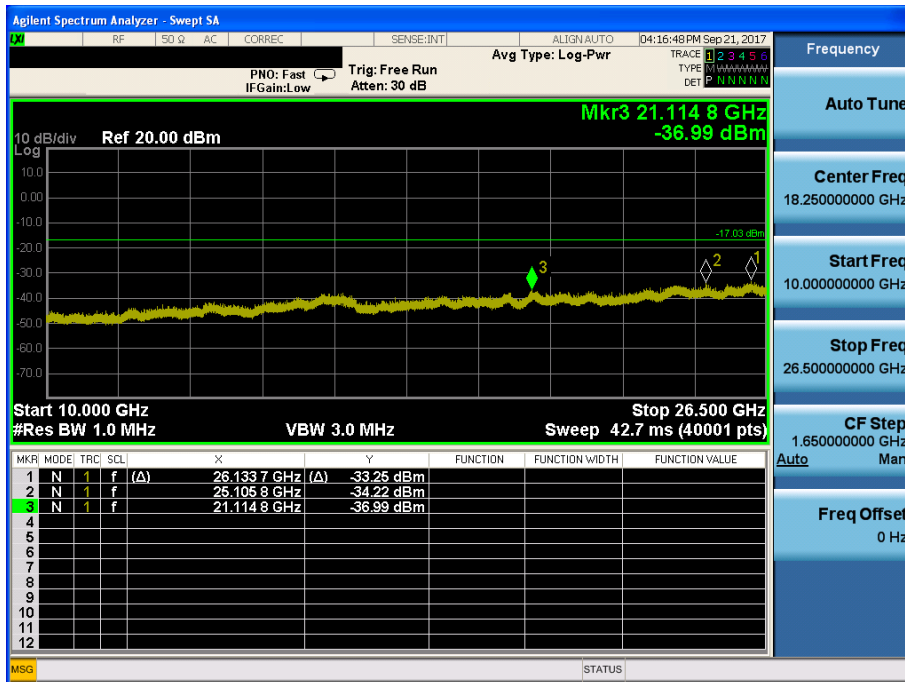
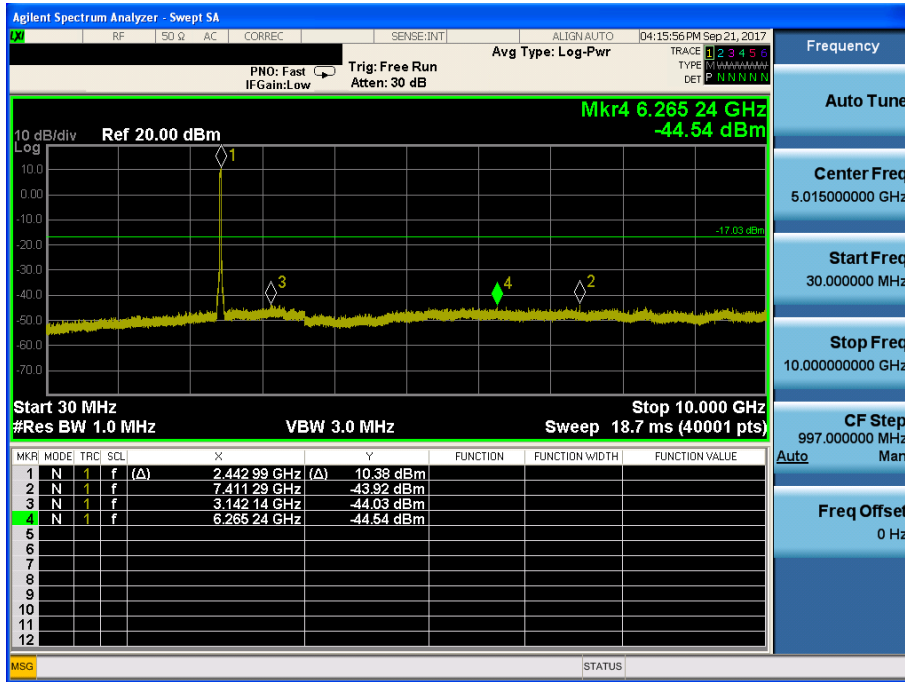
Reference



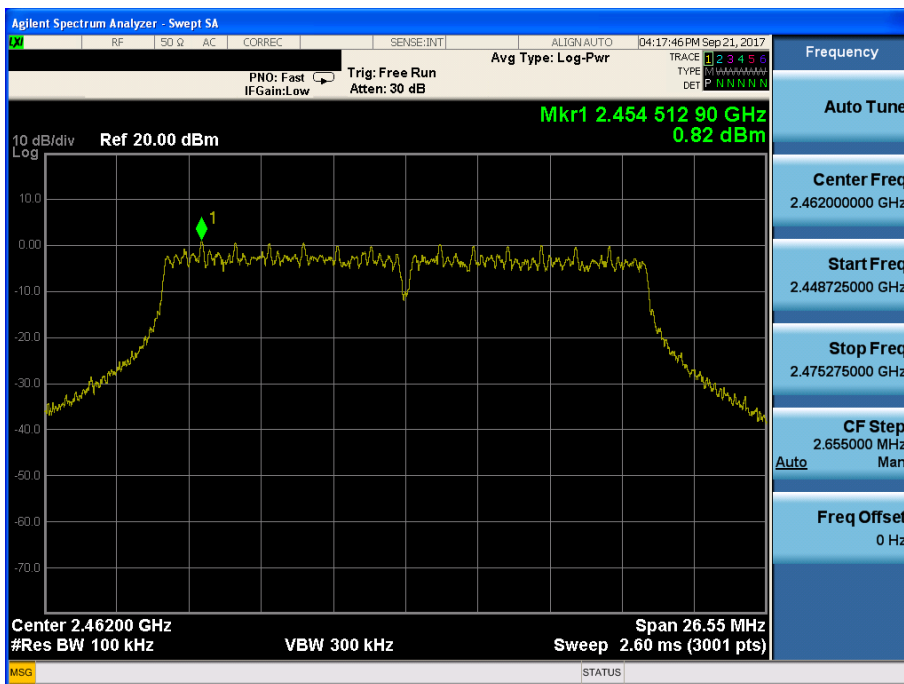
Conducted Spurious Emissions



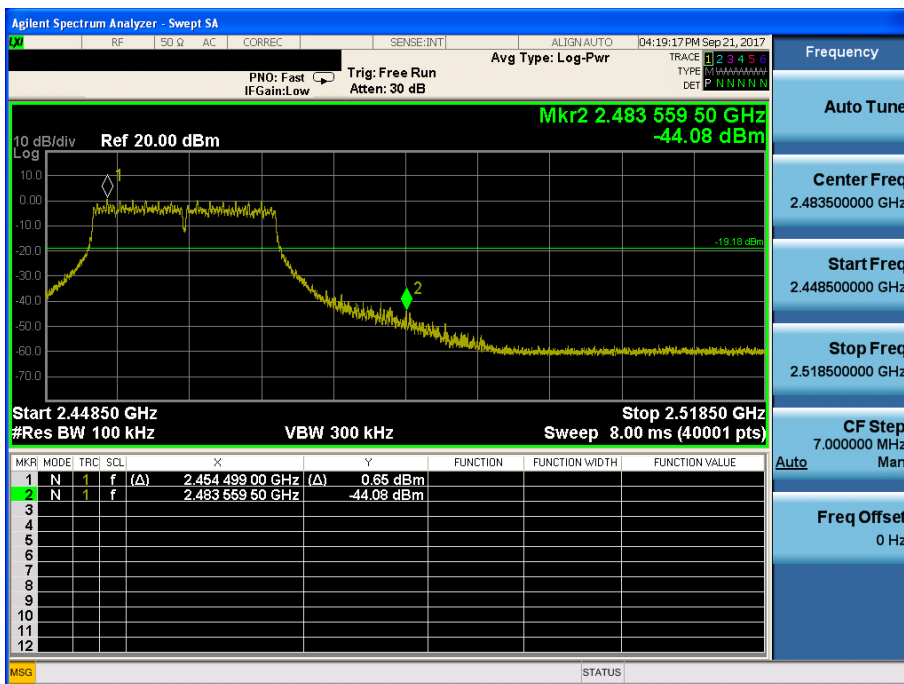
Conducted Spurious Emissions



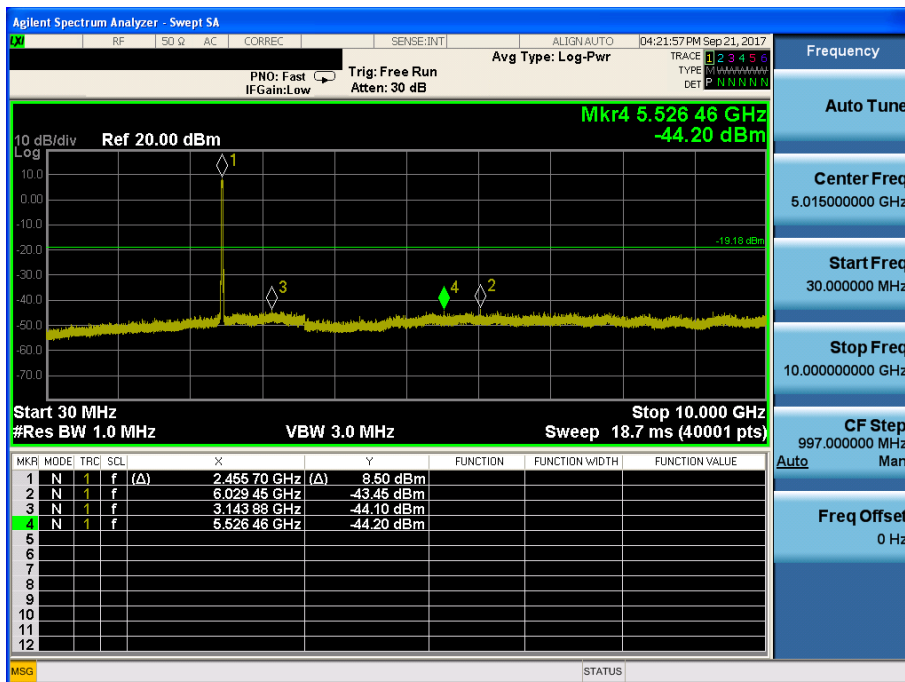
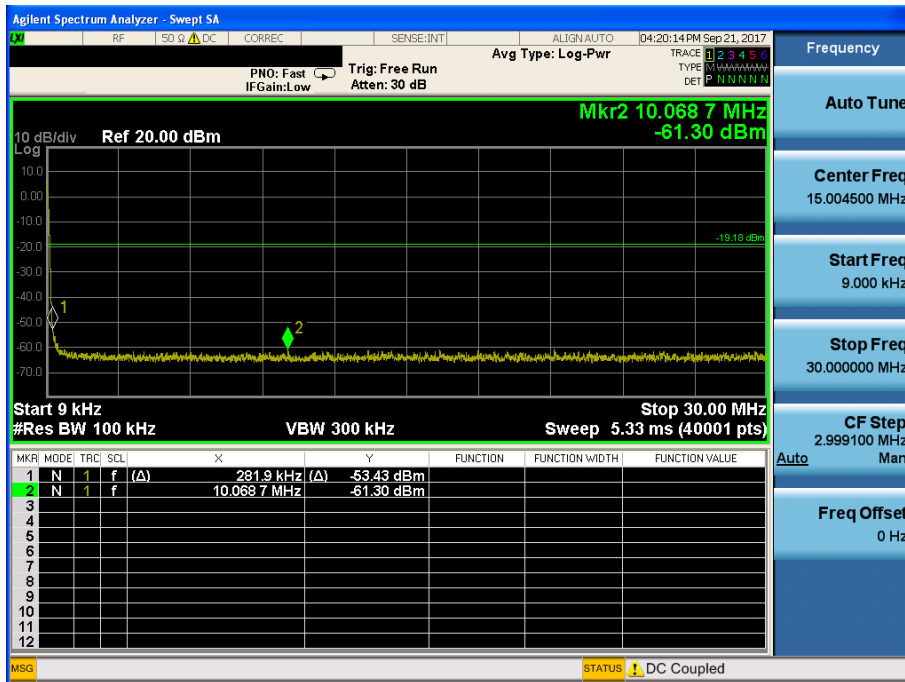
TM 10 & ANT 2 & Highest Reference



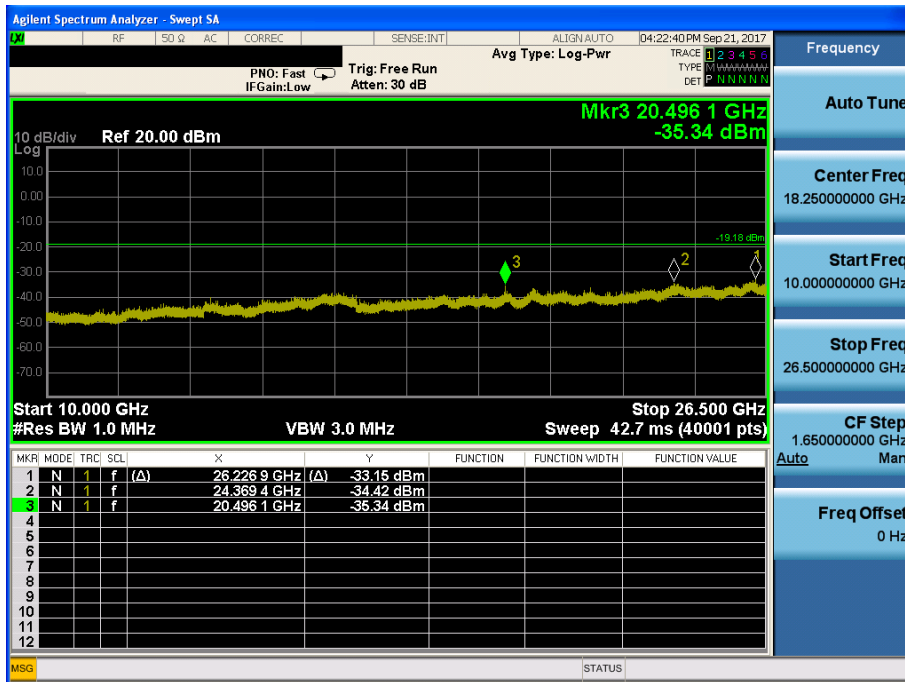
High Band-edge



Conducted Spurious Emissions



Conducted Spurious Emissions



8.5 Radiated spurious emissions

■ Test Requirements and limit, §15.247(d), §15.205, §15.209

In any 100 kHz bandwidth outside the operating frequency band, 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. In case the emission fall within the restricted band specified on 15.205(a) and (b), then the 15.209(a) limit in the table below has to be followed.

▪ FCC Part 15.209(a) and (b)

Frequency (MHz)	Limit (uV/m)	Measurement Distance (meter)
0.009 – 0.490	2400/F (kHz)	300
0.490 – 1.705	24000/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

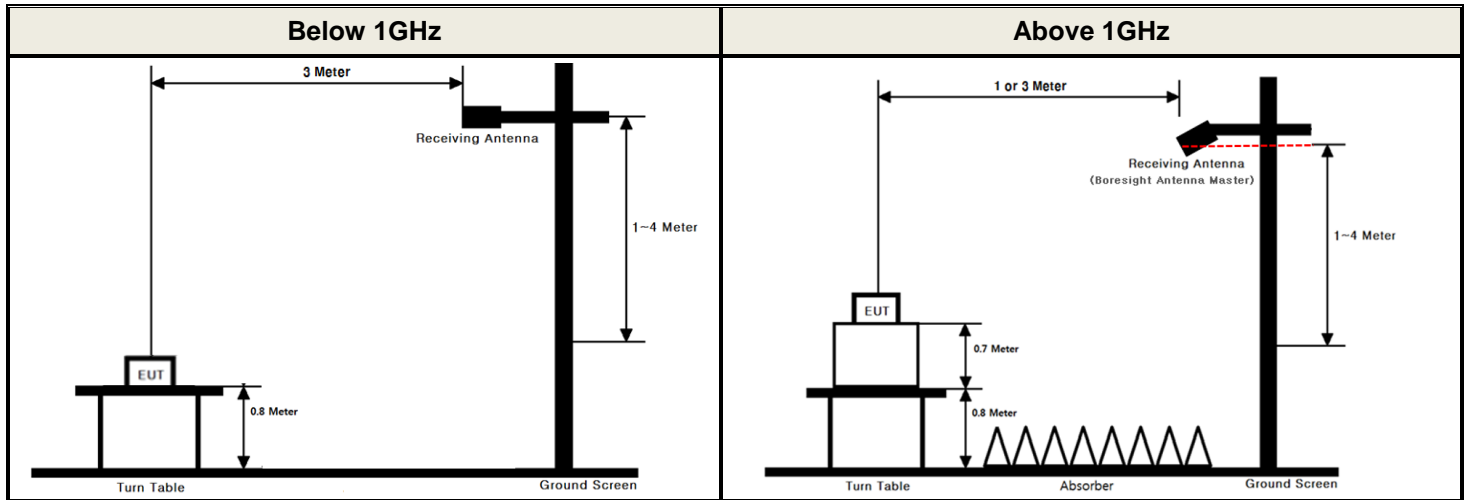
** Except as provided in 15.209(g), fundamental emissions from intentional radiators operating under this Section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this Part, 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	8.41425 ~ 8.41475	108 ~ 121.94	1300 ~ 1427	4.5 ~ 5.15	14.47 ~ 14.5
0.495 ~ 0.505	12.29 ~ 12.293	123 ~ 138	1435 ~ 1626.5	5.35 ~ 5.46	15.35 ~ 16.2
2.1735 ~ 2.1905	12.51975 ~ 12.52025	149.9 ~ 150.05	1645.5 ~ 1646.5	7.25 ~ 7.75	17.7 ~ 21.4
4.125 ~ 4.128	12.57675 ~ 12.57725	156.52475 ~	1660 ~ 1710	8.025 ~ 8.5	22.01 ~ 23.12
4.17725 ~ 4.17775	13.36 ~ 13.41	156.52525	1718.8 ~ 1722.2	9.0 ~ 9.2	23.6 ~ 24.0
4.20725 ~ 4.20775	16.42 ~ 16.423	156.7 ~ 156.9	2200 ~ 2300	9.3 ~ 9.5	31.2 ~ 31.8
6.215 ~ 6.218	16.69475 ~ 16.69525	162.0125 ~ 167.17	2310 ~ 2390	10.6 ~ 12.7	36.43 ~ 36.5
6.26775 ~ 6.26825	16.80425 ~ 16.80475	167.72 ~ 173.2	2483.5 ~ 2500	13.25 ~ 13.4	Above 38.6
6.31175 ~ 6.31225	25.5 ~ 25.67	240 ~ 285	2655 ~ 2900		
8.291 ~ 8.294	37.5 ~ 38.25	322 ~ 335.4	3260 ~ 3267		
8.362 ~ 8.366	73 ~ 74.6	399.90 ~ 410	3332 ~ 3339		
8.37625 ~ 8.38675	74.8 ~ 75.2	608 ~ 614	3345.8 ~ 3358		
		960 ~ 1240	3600 ~ 4400		

▪ **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 1000 MHz, compliance with the limits in §15.209 shall be demonstrated using measurement instrumentation employing a CISPR quasi-peak detector. Above 1000 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.

■ Test Configuration



■ Test Procedure

1. The EUT is placed on a non-conductive table, emission measurements at below 1 GHz, the table height is 80 cm and above 1 GHz, the table height is 1.5 m.
2. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
3. EUT is set 1 or 3 m away from the receiving antenna, which is varied from 1 m 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.

■ **Measurement Instrument Setting for Radiated Emission Measurements.**

The radiated emission was tested according to the section 6.3, 6.4, 6.5 and 6.6 of the ANSI C63.10-2013 with following settings.

Peak Measurement

RBW = As specified in below table, VBW ≥ 3 x RBW, Sweep = Auto, Detector = Peak, Trace mode = Max Hold until the trace stabilizes.

Frequency	RBW
9-150 kHz	200-300 Hz
0.15-30 MHz	9-10 kHz
30-1000 MHz	100-120 kHz
> 1000 MHz	1 MHz

Average Measurement:

1. RBW = 1 MHz (unless otherwise specified).
2. VBW ≥ 3 x RBW.
3. Detector = RMS (Number of points ≥ 2 x Span / RBW)
4. Averaging type = power. (i.e., RMS)
5. Sweep time = auto.
6. Perform a trace average of at least 100 traces.
7. 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:
 - 1) If power averaging (RMS) mode was used in step 4, then the applicable correction factor is $10 \log(1/x)$, where x is the duty cycle.
 - 2) If linear voltage averaging mode was used in step 4, then the applicable correction factor is $20 \log(1/x)$, where x is the duty cycle.
 - 3) If a specific emission is demonstrated to be continuous (≥ 98 percent duty cycle) rather than turning on and off with the transmit cycle, then no duty cycle correction is required for that emission.

Duty Cycle Correction factor

Test Mode	Date rate	Duty Cycle (%)	Duty Cycle Correction Factor (dB)
TM 1	1 Mbps	-	-
TM 2	6 Mbps	-	-
TM 3	MCS 0	-	-
TM 4	NSS1 MCS 0	-	-
TM 5	1 Mbps	97.54	0.11
TM 6	6 Mbps	87.14	0.60
TM 7	MCS 0	85.77	0.67
TM 8	NSS1 MCS 0	84.05	0.76
TM 9	MCS 8	78.49	1.06
TM 10	NSS2 MCS 0	77.50	1.11

Note: Please refer to the test report of the granted module.

■ **Test Results: Comply**

Please refer to next page for data table and the appendix I for worst data plots.

Radiated Spurious Emissions data(9 kHz ~ 25 GHz) : Test Mode 5(TM 5) _ Normal

Tested Frequency	Frequency (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)
Lowest	2387.37	H	Y	PK	48.11	2.19	N/A	N/A	50.30	74.00	23.70
	2387.68	H	Y	AV	37.96	2.19	0.11	N/A	40.26	54.00	13.74
	4824.14	H	Z	PK	46.09	6.36	N/A	N/A	52.45	74.00	21.55
	4823.70	H	Z	AV	35.91	6.36	0.11	N/A	42.38	54.00	11.62
Middle	4873.92	H	Z	PK	45.48	6.57	N/A	N/A	52.05	74.00	21.95
	4874.25	H	Z	AV	35.00	6.57	0.11	N/A	41.68	54.00	12.32
Highest	2483.86	H	Y	PK	47.53	2.47	N/A	N/A	50.00	74.00	24.00
	2483.75	H	Y	AV	38.09	2.47	0.11	N/A	40.67	54.00	13.33
	4923.90	H	Z	PK	45.84	6.73	N/A	N/A	52.57	74.00	21.43
	4923.90	H	Z	AV	35.69	6.73	0.11	N/A	42.53	54.00	11.47

Note.

- The radiated emissions were investigated up to 25GHz. And no other spurious and harmonic emissions were found above listed frequencies.
- This device was tested under MIMO Multiple transmitting (Ant 1, 2) and the worst case data are reported in the table above.
- Sample Calculation.

$$\text{Margin} = \text{Limit} - \text{Result} \quad / \quad \text{Result} = \text{Reading} + \text{T.F} + \text{DCCF} + \text{DCF} \quad / \quad \text{T.F} = \text{AF} + \text{CL} - \text{AG}$$
 Where, T.F = Total Factor, AF = Antenna Factor, CL = Cable Loss, AG = Amplifier Gain,
 DCCF = Duty Cycle Correction Factor, DCF = Distance Correction Factor
- Measurement Distance = 3 m for below 10 GHz, Measurement Distance = 1 m for above 10 GHz.
 Therefore Distance Correction Factor(DCF) : $- 9.54 \text{ dB} = 20 \cdot \log(1\text{m}/3\text{m})$

Radiated Spurious Emissions data(9 kHz ~ 25 GHz) : Test Mode 6(TM 6) _ Normal

Tested Frequency	Frequency (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)
Lowest	2389.50	H	Y	PK	56.51	2.20	N/A	N/A	58.71	74.00	15.29
	2389.77	H	Y	AV	41.81	2.20	0.60	N/A	44.61	54.00	9.39
	4824.78	H	Z	PK	45.02	6.36	N/A	N/A	51.38	74.00	22.62
	4824.68	H	Z	AV	33.54	6.36	0.60	N/A	40.50	54.00	13.50
Middle	4874.21	H	Z	PK	44.13	6.57	N/A	N/A	50.70	74.00	23.30
	4873.90	H	Z	AV	33.63	6.57	0.60	N/A	40.80	54.00	13.20
Highest	2483.56	H	Y	PK	60.97	2.44	N/A	N/A	63.41	74.00	10.59
	2483.50	H	Y	AV	45.05	2.44	0.60	N/A	48.09	54.00	5.91
	4924.72	H	Z	PK	43.96	6.73	N/A	N/A	50.69	74.00	23.31
	4924.71	H	Z	AV	33.67	6.73	0.60	N/A	41.00	54.00	13.00

Note.

- The radiated emissions were investigated up to 25GHz. And no other spurious and harmonic emissions were found above listed frequencies.
- This device was tested under MIMO Multiple transmitting (Ant 1, 2) and the worst case data are reported in the table above.
- Sample Calculation.

$$\text{Margin} = \text{Limit} - \text{Result} \quad / \quad \text{Result} = \text{Reading} + \text{T.F} + \text{DCCF} + \text{DCF} \quad / \quad \text{T.F} = \text{AF} + \text{CL} - \text{AG}$$
 Where, T.F = Total Factor, AF = Antenna Factor, CL = Cable Loss, AG = Amplifier Gain,
 DCCF = Duty Cycle Correction Factor, DCF = Distance Correction Factor
- Measurement Distance = 3 m for below 10 GHz, Measurement Distance = 1 m for above 10 GHz.
 Therefore Distance Correction Factor(DCF) : $- 9.54 \text{ dB} = 20 \cdot \log(1\text{m}/3\text{m})$

Radiated Spurious Emissions data(9 kHz ~ 25 GHz) : Test Mode 7(TM 7) _ Normal

Tested Frequency	Frequency (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)
Lowest	2389.74	H	Y	PK	51.75	2.20	N/A	N/A	53.95	74.00	20.05
	2389.99	H	Y	AV	40.73	2.20	0.67	N/A	43.60	54.00	10.40
	4823.49	H	Z	PK	44.08	6.36	N/A	N/A	50.44	74.00	23.56
	4823.81	H	Z	AV	33.71	6.36	0.67	N/A	40.74	54.00	13.26
Middle	4873.88	H	Z	PK	43.73	6.57	N/A	N/A	50.30	74.00	23.70
	4873.99	H	Z	AV	33.25	6.57	0.67	N/A	40.49	54.00	13.51
Highest	2483.58	H	Y	PK	58.27	2.44	N/A	N/A	60.71	74.00	13.29
	2483.59	H	Y	AV	46.38	2.44	0.67	N/A	49.49	54.00	4.51
	4923.73	H	Z	PK	44.07	6.73	N/A	N/A	50.80	74.00	23.20
	4923.69	H	Z	AV	33.64	6.73	0.67	N/A	41.04	54.00	12.96

Note.

- The radiated emissions were investigated up to 25GHz. And no other spurious and harmonic emissions were found above listed frequencies.
- This device was tested under MIMO Multiple transmitting (Ant 1, 2) and the worst case data are reported in the table above.
- Sample Calculation.

$$\text{Margin} = \text{Limit} - \text{Result} \quad / \quad \text{Result} = \text{Reading} + \text{T.F} + \text{DCCF} + \text{DCF} \quad / \quad \text{T.F} = \text{AF} + \text{CL} - \text{AG}$$
 Where, T.F = Total Factor, AF = Antenna Factor, CL = Cable Loss, AG = Amplifier Gain,
 DCCF = Duty Cycle Correction Factor, DCF = Distance Correction Factor
- Measurement Distance = 3 m for below 10 GHz, Measurement Distance = 1 m for above 10 GHz.
 Therefore Distance Correction Factor(DCF) : $- 9.54 \text{ dB} = 20 \cdot \log(1\text{m}/3\text{m})$

Radiated Spurious Emissions data(9 kHz ~ 25 GHz) : Test Mode 8(TM 8) _ Normal

Tested Frequency	Frequency (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)
Lowest	2389.65	H	Y	PK	55.62	2.20	N/A	N/A	57.82	74.00	16.18
	2389.95	H	Y	AV	39.83	2.20	0.76	N/A	42.79	54.00	11.21
	4824.89	H	Z	PK	44.02	6.36	N/A	N/A	50.38	74.00	23.62
	4824.90	H	Z	AV	33.62	6.36	0.76	N/A	40.74	54.00	13.26
Middle	4873.54	H	Z	PK	44.50	6.57	N/A	N/A	51.07	74.00	22.93
	4873.61	H	Z	AV	33.62	6.57	0.76	N/A	40.95	54.00	13.05
Highest	2483.96	H	Y	PK	59.62	2.44	N/A	N/A	62.06	74.00	11.94
	2483.52	H	Y	AV	44.87	2.44	0.76	N/A	48.07	54.00	5.93
	4924.50	H	Z	PK	44.42	6.73	N/A	N/A	51.15	74.00	22.85
	4924.39	H	Z	AV	33.57	6.73	0.76	N/A	41.06	54.00	12.94

Note.

- The radiated emissions were investigated up to 25GHz. And no other spurious and harmonic emissions were found above listed frequencies.
- This device was tested under MIMO Multiple transmitting (Ant 1, 2) and the worst case data are reported in the table above.
- Sample Calculation.

$$\text{Margin} = \text{Limit} - \text{Result} \quad / \quad \text{Result} = \text{Reading} + \text{T.F} + \text{DCCF} + \text{DCF} \quad / \quad \text{T.F} = \text{AF} + \text{CL} - \text{AG}$$
 Where, T.F = Total Factor, AF = Antenna Factor, CL = Cable Loss, AG = Amplifier Gain,
 DCCF = Duty Cycle Correction Factor, DCF = Distance Correction Factor
- Measurement Distance = 3 m for below 10 GHz, Measurement Distance = 1 m for above 10 GHz.
 Therefore Distance Correction Factor(DCF) : $-9.54 \text{ dB} = 20 \cdot \log(1\text{m}/3\text{m})$

Radiated Spurious Emissions data(9 kHz ~ 25 GHz) : Test Mode 9(TM 9) _ Normal

Tested Frequency	Frequency (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)
Lowest	2389.90	H	Y	PK	54.23	2.20	N/A	N/A	56.43	74.00	17.57
	2389.97	H	Y	AV	41.04	2.20	1.06	N/A	44.30	54.00	9.70
	4824.05	H	Z	PK	44.82	6.58	N/A	N/A	51.40	74.00	22.60
	4824.23	H	Z	AV	33.77	6.58	1.06	N/A	41.41	54.00	12.59
Middle	4874.31	H	Z	PK	43.79	6.57	N/A	N/A	50.36	74.00	23.64
	4874.28	H	Z	AV	33.27	6.57	1.06	N/A	40.90	54.00	13.10
Highest	2483.92	H	Y	PK	56.70	2.44	N/A	N/A	59.14	74.00	14.86
	2483.71	H	Y	AV	42.82	2.44	1.06	N/A	46.32	54.00	7.68
	4923.14	H	Z	PK	44.23	6.74	N/A	N/A	50.97	74.00	23.03
	4923.26	H	Z	AV	33.80	6.74	1.06	N/A	41.60	54.00	12.40

Note.

- The radiated emissions were investigated up to 25GHz. And no other spurious and harmonic emissions were found above listed frequencies.
- This device was tested under MIMO Multiple transmitting (Ant 1, 2) and the worst case data are reported in the table above.
- Sample Calculation.

$$\text{Margin} = \text{Limit} - \text{Result} \quad / \quad \text{Result} = \text{Reading} + \text{T.F} + \text{DCCF} + \text{DCF} \quad / \quad \text{T.F} = \text{AF} + \text{CL} - \text{AG}$$
 Where, T.F = Total Factor, AF = Antenna Factor, CL = Cable Loss, AG = Amplifier Gain,
 DCCF = Duty Cycle Correction Factor, DCF = Distance Correction Factor
- Measurement Distance = 3 m for below 10 GHz, Measurement Distance = 1 m for above 10 GHz.
 Therefore Distance Correction Factor(DCF) : $- 9.54 \text{ dB} = 20 \cdot \log(1\text{m}/3\text{m})$

Radiated Spurious Emissions data(9 kHz ~ 25 GHz) : Test Mode 10(TM 10) _ Normal

Tested Frequency	Frequency (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)
Lowest	2389.81	H	Y	PK	51.80	2.20	N/A	N/A	54.00	74.00	20.00
	2389.83	H	Y	AV	40.00	2.20	1.11	N/A	43.31	54.00	10.69
	4824.02	H	Z	PK	43.70	6.58	N/A	N/A	50.28	74.00	23.72
	4823.92	H	Z	AV	33.76	6.58	1.11	N/A	41.45	54.00	12.55
Middle	4874.11	H	Z	PK	44.93	6.57	N/A	N/A	51.50	74.00	22.50
	4873.54	H	Z	AV	34.12	6.57	1.11	N/A	41.80	54.00	12.20
Highest	2484.12	H	Y	PK	57.83	2.44	N/A	N/A	60.27	74.00	13.73
	2483.62	H	Y	AV	41.92	2.44	1.11	N/A	45.47	54.00	8.53
	4923.50	H	Z	PK	43.50	6.74	N/A	N/A	50.24	74.00	23.76
	4923.97	H	Z	AV	33.84	6.74	1.11	N/A	41.69	54.00	12.31

Note.

- The radiated emissions were investigated up to 25GHz. And no other spurious and harmonic emissions were found above listed frequencies.
- This device was tested under MIMO Multiple transmitting (Ant 1, 2) and the worst case data are reported in the table above.
- Sample Calculation.

$$\text{Margin} = \text{Limit} - \text{Result} \quad / \quad \text{Result} = \text{Reading} + \text{T.F} + \text{DCCF} + \text{DCF} \quad / \quad \text{T.F} = \text{AF} + \text{CL} - \text{AG}$$
 Where, T.F = Total Factor, AF = Antenna Factor, CL = Cable Loss, AG = Amplifier Gain,
 DCCF = Duty Cycle Correction Factor, DCF = Distance Correction Factor
- Measurement Distance = 3 m for below 10 GHz, Measurement Distance = 1 m for above 10 GHz.
 Therefore Distance Correction Factor(DCF) : $- 9.54 \text{ dB} = 20 \cdot \log(1\text{m}/3\text{m})$

Radiated Spurious Emissions data(9 kHz ~ 25 GHz) : Test Mode 5(TM 5) _ Wireless Charging

Tested Frequency	Frequency (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)
Lowest	2389.65	H	X	PK	46.89	2.19	N/A	N/A	49.08	74.00	24.92
	2389.99	H	X	AV	38.46	2.19	0.11	N/A	40.76	54.00	13.24
	4823.91	V	X	PK	45.96	6.36	N/A	N/A	52.32	74.00	21.68
	4824.27	V	X	AV	35.47	6.36	0.11	N/A	41.94	54.00	12.06
Middle	4874.51	V	X	PK	44.35	6.57	N/A	N/A	50.92	74.00	23.08
	4874.63	V	X	AV	35.12	6.57	0.11	N/A	41.80	54.00	12.20
Highest	2483.62	H	X	PK	46.49	2.47	N/A	N/A	48.96	74.00	25.04
	2483.63	H	X	AV	37.97	2.47	0.11	N/A	40.55	54.00	13.45
	4924.58	V	X	PK	44.00	6.73	N/A	N/A	50.73	74.00	23.27
	4924.32	V	X	AV	34.98	6.73	0.11	N/A	41.82	54.00	12.18

Note.

- The radiated emissions were investigated up to 25GHz. And no other spurious and harmonic emissions were found above listed frequencies.
- This device was tested under MIMO Multiple transmitting (Ant 1, 2) and the worst case data are reported in the table above.
- Sample Calculation.

$$\text{Margin} = \text{Limit} - \text{Result} \quad / \quad \text{Result} = \text{Reading} + \text{T.F} + \text{DCCF} + \text{DCF} \quad / \quad \text{T.F} = \text{AF} + \text{CL} - \text{AG}$$
 Where, T.F = Total Factor, AF = Antenna Factor, CL = Cable Loss, AG = Amplifier Gain,
 DCCF = Duty Cycle Correction Factor, DCF = Distance Correction Factor
- Measurement Distance = 3 m for below 10 GHz, Measurement Distance = 1 m for above 10 GHz.
 Therefore Distance Correction Factor(DCF) : $- 9.54 \text{ dB} = 20 \cdot \log(1\text{m}/3\text{m})$

Radiated Spurious Emissions data(9 kHz ~ 25 GHz) : Test Mode 6(TM 6) _ Wireless Charging

Tested Frequency	Frequency (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)
Lowest	2389.63	H	X	PK	53.28	2.20	N/A	N/A	55.48	74.00	18.52
	2389.81	H	X	AV	40.07	2.20	0.60	N/A	42.87	54.00	11.13
	4824.39	V	X	PK	44.14	6.36	N/A	N/A	50.50	74.00	23.50
	4824.48	V	X	AV	33.79	6.36	0.60	N/A	40.75	54.00	13.25
Middle	4874.12	V	X	PK	43.85	6.57	N/A	N/A	50.42	74.00	23.58
	4874.28	V	X	AV	33.41	6.57	0.60	N/A	40.58	54.00	13.42
Highest	2483.61	H	X	PK	56.59	2.44	N/A	N/A	59.03	74.00	14.97
	2483.60	H	X	AV	45.34	2.44	0.60	N/A	48.38	54.00	5.62
	4923.71	V	X	PK	44.23	6.73	N/A	N/A	50.96	74.00	23.04
	4923.81	V	X	AV	33.82	6.73	0.60	N/A	41.15	54.00	12.85

Note.

- The radiated emissions were investigated up to 25GHz. And no other spurious and harmonic emissions were found above listed frequencies.
- This device was tested under MIMO Multiple transmitting (Ant 1, 2) and the worst case data are reported in the table above.
- Sample Calculation.

$$\text{Margin} = \text{Limit} - \text{Result} \quad / \quad \text{Result} = \text{Reading} + \text{T.F} + \text{DCCF} + \text{DCF} \quad / \quad \text{T.F} = \text{AF} + \text{CL} - \text{AG}$$
 Where, T.F = Total Factor, AF = Antenna Factor, CL = Cable Loss, AG = Amplifier Gain,
 DCCF = Duty Cycle Correction Factor, DCF = Distance Correction Factor
- Measurement Distance = 3 m for below 10 GHz, Measurement Distance = 1 m for above 10 GHz.
 Therefore Distance Correction Factor(DCF) : $- 9.54 \text{ dB} = 20 \cdot \log(1\text{m}/3\text{m})$

Radiated Spurious Emissions data(9 kHz ~ 25 GHz) : Test Mode 7(TM 7) _ Wireless Charging

Tested Frequency	Frequency (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)
Lowest	2389.81	H	X	PK	56.28	2.20	N/A	N/A	58.48	74.00	15.52
	2389.83	H	X	AV	42.48	2.20	0.67	N/A	45.35	54.00	8.65
	4823.90	V	X	PK	43.77	6.36	N/A	N/A	50.13	74.00	23.87
	4824.38	V	X	AV	33.71	6.36	0.67	N/A	40.74	54.00	13.26
Middle	4873.81	V	X	PK	44.20	6.57	N/A	N/A	50.77	74.00	23.23
	4873.89	V	X	AV	33.33	6.57	0.67	N/A	40.57	54.00	13.43
Highest	2483.62	H	X	PK	60.10	2.44	N/A	N/A	62.54	74.00	11.46
	2483.62	H	X	AV	45.47	2.44	0.67	N/A	48.58	54.00	5.42
	4923.54	V	X	PK	44.51	6.73	N/A	N/A	51.24	74.00	22.76
	4923.61	V	X	AV	33.75	6.73	0.67	N/A	41.15	54.00	12.85

Note.

- The radiated emissions were investigated up to 25GHz. And no other spurious and harmonic emissions were found above listed frequencies.
- This device was tested under MIMO Multiple transmitting (Ant 1, 2) and the worst case data are reported in the table above.
- Sample Calculation.

$$\text{Margin} = \text{Limit} - \text{Result} \quad / \quad \text{Result} = \text{Reading} + \text{T.F} + \text{DCCF} + \text{DCF} \quad / \quad \text{T.F} = \text{AF} + \text{CL} - \text{AG}$$
 Where, T.F = Total Factor, AF = Antenna Factor, CL = Cable Loss, AG = Amplifier Gain,
 DCCF = Duty Cycle Correction Factor, DCF = Distance Correction Factor
- Measurement Distance = 3 m for below 10 GHz, Measurement Distance = 1 m for above 10 GHz.
 Therefore Distance Correction Factor(DCF) : $-9.54 \text{ dB} = 20 \cdot \log(1\text{m}/3\text{m})$

Radiated Spurious Emissions data(9 kHz ~ 25 GHz) : Test Mode 8(TM 8) _ Wireless Charging

Tested Frequency	Frequency (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)
Lowest	2389.85	H	X	PK	48.52	2.20	N/A	N/A	50.72	74.00	23.28
	2389.87	H	X	AV	39.54	2.20	0.76	N/A	42.50	54.00	11.50
	4824.13	V	X	PK	44.16	6.36	N/A	N/A	50.52	74.00	23.48
	4823.49	V	X	AV	33.75	6.36	0.76	N/A	40.87	54.00	13.13
Middle	4873.90	V	X	PK	43.84	6.57	N/A	N/A	50.41	74.00	23.59
	4874.60	V	X	AV	33.87	6.57	0.76	N/A	41.20	54.00	12.80
Highest	2483.58	H	X	PK	51.22	2.44	N/A	N/A	53.66	74.00	20.34
	2483.58	H	X	AV	39.43	2.44	0.76	N/A	42.63	54.00	11.37
	4923.29	V	X	PK	44.37	6.73	N/A	N/A	51.10	74.00	22.90
	4923.62	V	X	AV	33.75	6.73	0.76	N/A	41.24	54.00	12.76

Note.

- The radiated emissions were investigated up to 25GHz. And no other spurious and harmonic emissions were found above listed frequencies.
- This device was tested under MIMO Multiple transmitting (Ant 1, 2) and the worst case data are reported in the table above.
- Sample Calculation.

$$\text{Margin} = \text{Limit} - \text{Result} \quad / \quad \text{Result} = \text{Reading} + \text{T.F} + \text{DCCF} + \text{DCF} \quad / \quad \text{T.F} = \text{AF} + \text{CL} - \text{AG}$$
 Where, T.F = Total Factor, AF = Antenna Factor, CL = Cable Loss, AG = Amplifier Gain,
 DCCF = Duty Cycle Correction Factor, DCF = Distance Correction Factor
- Measurement Distance = 3 m for below 10 GHz, Measurement Distance = 1 m for above 10 GHz.
 Therefore Distance Correction Factor(DCF) : $- 9.54 \text{ dB} = 20 \cdot \log(1\text{m}/3\text{m})$

Radiated Spurious Emissions data(9 kHz ~ 25 GHz) : Test Mode 9(TM 9) _ Wireless Charging

Tested Frequency	Frequency (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)
Lowest	2389.79	H	X	PK	49.40	2.20	N/A	N/A	51.60	74.00	22.40
	2389.95	H	X	AV	39.87	2.20	1.06	N/A	43.13	54.00	10.87
	4823.81	V	X	PK	44.06	6.58	N/A	N/A	50.64	74.00	23.36
	4823.82	V	X	AV	33.57	6.58	1.06	N/A	41.21	54.00	12.79
Middle	4873.18	V	X	PK	44.22	6.57	N/A	N/A	50.79	74.00	23.21
	4873.43	V	X	AV	33.61	6.57	1.06	N/A	41.24	54.00	12.76
Highest	2483.55	H	X	PK	57.52	2.44	N/A	N/A	59.96	74.00	14.04
	2483.54	H	X	AV	43.92	2.44	1.06	N/A	47.42	54.00	6.58
	4923.55	V	X	PK	44.14	6.74	N/A	N/A	50.88	74.00	23.12
	4923.52	V	X	AV	33.65	6.74	1.06	N/A	41.45	54.00	12.55

Note.

- The radiated emissions were investigated up to 25GHz. And no other spurious and harmonic emissions were found above listed frequencies.
- This device was tested under MIMO Multiple transmitting (Ant 1, 2) and the worst case data are reported in the table above.
- Sample Calculation.

$$\text{Margin} = \text{Limit} - \text{Result} \quad / \quad \text{Result} = \text{Reading} + \text{T.F} + \text{DCCF} + \text{DCF} \quad / \quad \text{T.F} = \text{AF} + \text{CL} - \text{AG}$$
 Where, T.F = Total Factor, AF = Antenna Factor, CL = Cable Loss, AG = Amplifier Gain,
 DCCF = Duty Cycle Correction Factor, DCF = Distance Correction Factor
- Measurement Distance = 3 m for below 10 GHz, Measurement Distance = 1 m for above 10 GHz.
 Therefore Distance Correction Factor(DCF) : $- 9.54 \text{ dB} = 20 \cdot \log(1\text{m}/3\text{m})$

Radiated Spurious Emissions data(9 kHz ~ 25 GHz) : Test Mode 10(TM 10) _ Wireless Charging

Tested Frequency	Frequency (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)
Lowest	2390.01	H	X	PK	49.46	2.20	N/A	N/A	51.66	74.00	22.34
	2390.01	H	X	AV	40.52	2.20	1.11	N/A	43.83	54.00	10.17
	4824.26	V	X	PK	44.51	6.58	N/A	N/A	51.09	74.00	22.91
	4824.29	V	X	AV	33.70	6.58	1.11	N/A	41.39	54.00	12.61
Middle	4873.92	V	X	PK	44.43	6.57	N/A	N/A	51.00	74.00	23.00
	4874.45	V	X	AV	33.85	6.57	1.11	N/A	41.53	54.00	12.47
Highest	2483.73	H	X	PK	51.22	2.44	N/A	N/A	53.66	74.00	20.34
	2483.63	H	X	AV	41.62	2.44	1.11	N/A	45.17	54.00	8.83
	4923.83	V	X	PK	43.85	6.74	N/A	N/A	50.59	74.00	23.41
	4923.87	V	X	AV	33.57	6.74	1.11	N/A	41.42	54.00	12.58

Note.

- The radiated emissions were investigated up to 25GHz. And no other spurious and harmonic emissions were found above listed frequencies.
- This device was tested under MIMO Multiple transmitting (Ant 1, 2) and the worst case data are reported in the table above.
- Sample Calculation.

$$\text{Margin} = \text{Limit} - \text{Result} \quad / \quad \text{Result} = \text{Reading} + \text{T.F} + \text{DCCF} + \text{DCF} \quad / \quad \text{T.F} = \text{AF} + \text{CL} - \text{AG}$$
 Where, T.F = Total Factor, AF = Antenna Factor, CL = Cable Loss, AG = Amplifier Gain,
 DCCF = Duty Cycle Correction Factor, DCF = Distance Correction Factor
- Measurement Distance = 3 m for below 10 GHz, Measurement Distance = 1 m for above 10 GHz.
 Therefore Distance Correction Factor(DCF) : $- 9.54 \text{ dB} = 20 \cdot \log(1\text{m}/3\text{m})$

8.6 Power-line conducted emissions

■ Test Requirements and limit, §15.207

For an intentional radiator which 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 uH/50 ohm line impedance stabilization network(LISN).

Compliance with the provision of this paragraph shall on the measurement of the radio frequency voltage between each power line and ground at the power terminal. The lower applies at the boundary between the frequency ranges.

Frequency Range (MHz)	Conducted Limit (dBuV)	
	Quasi-Peak	Average
0.15 ~ 0.5	66 to 56 *	56 to 46 *
0.5 ~ 5	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 Procedure

1. The EUT is placed on a wooden table 80 cm above the reference ground plane.
2. The EUT is connected via LISN to the test power supply.
3. The measurement results are obtained as described below:
4. Detectors – Quasi Peak and Average Detector.

■ Test Results: **Comply**(Refer to next page.)

The worst data was reported.