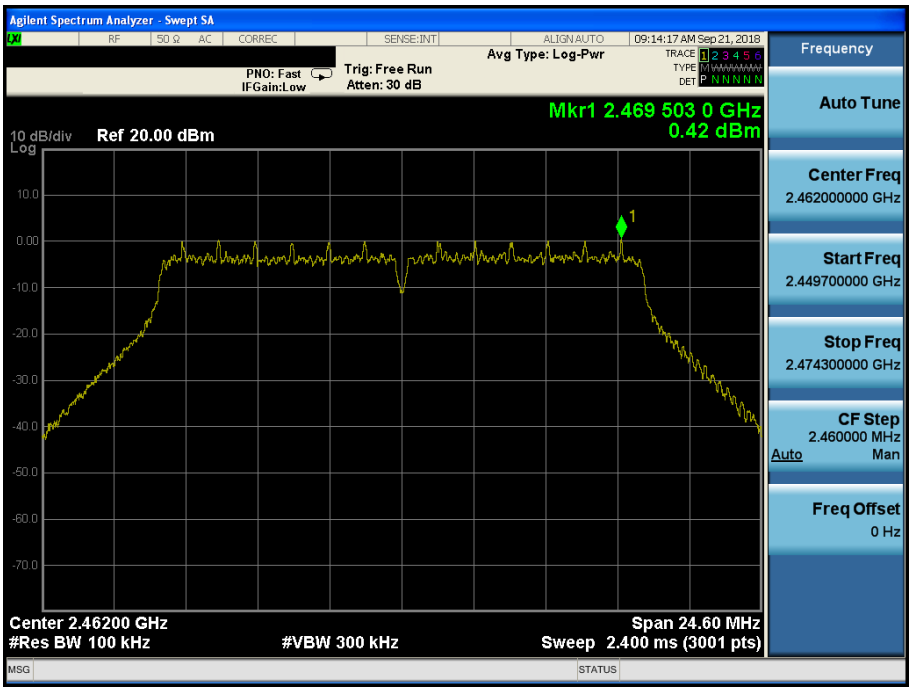
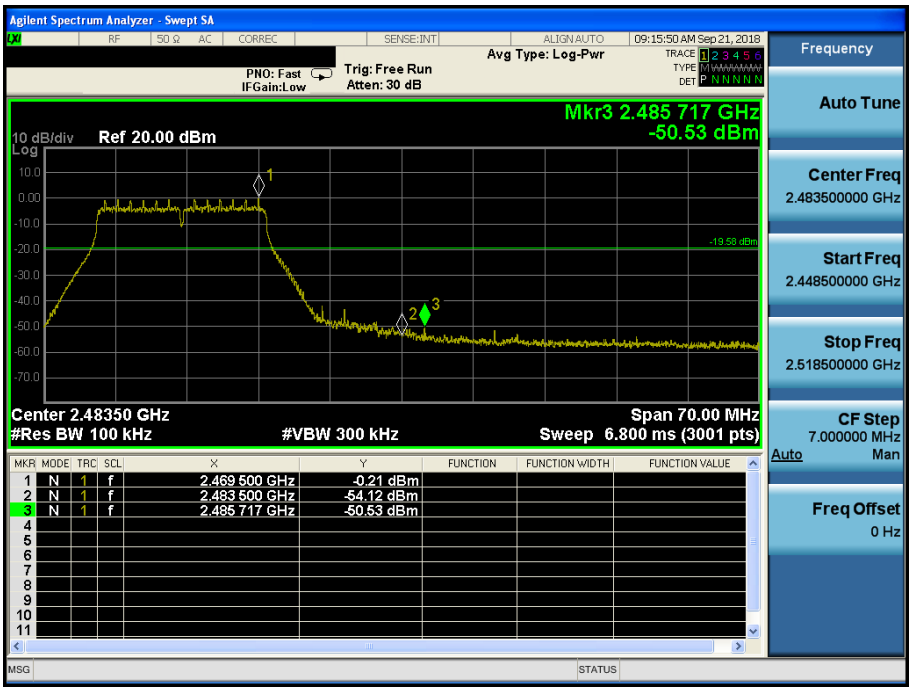
TM 2 & Highest

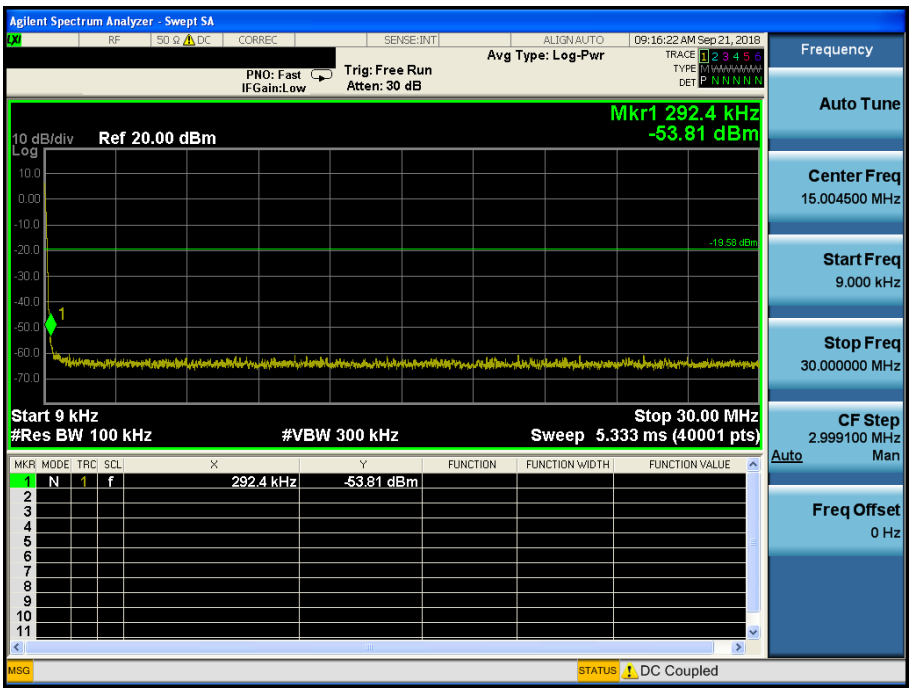
Reference

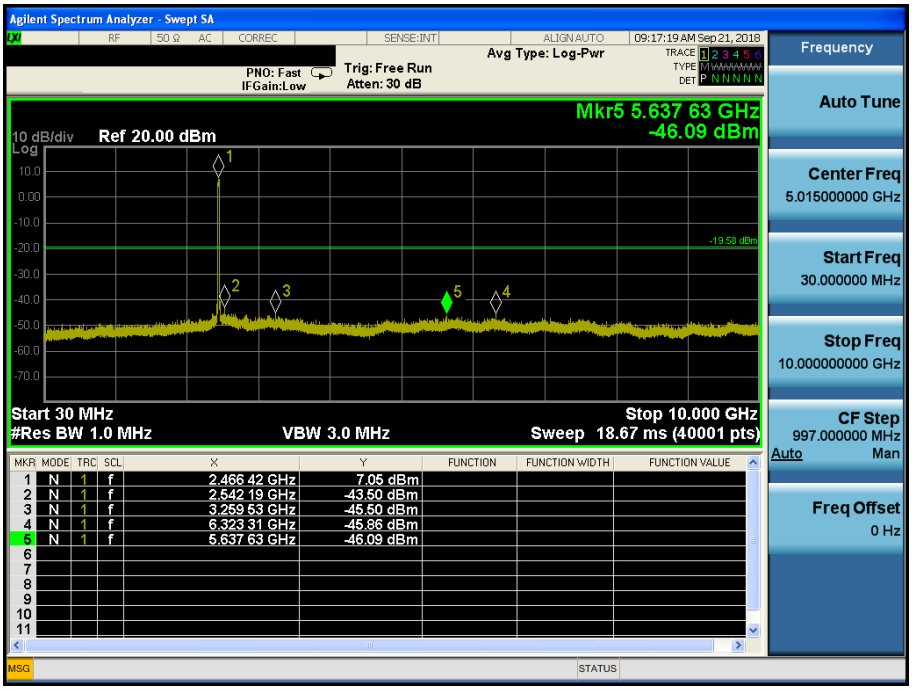


High Band-edge

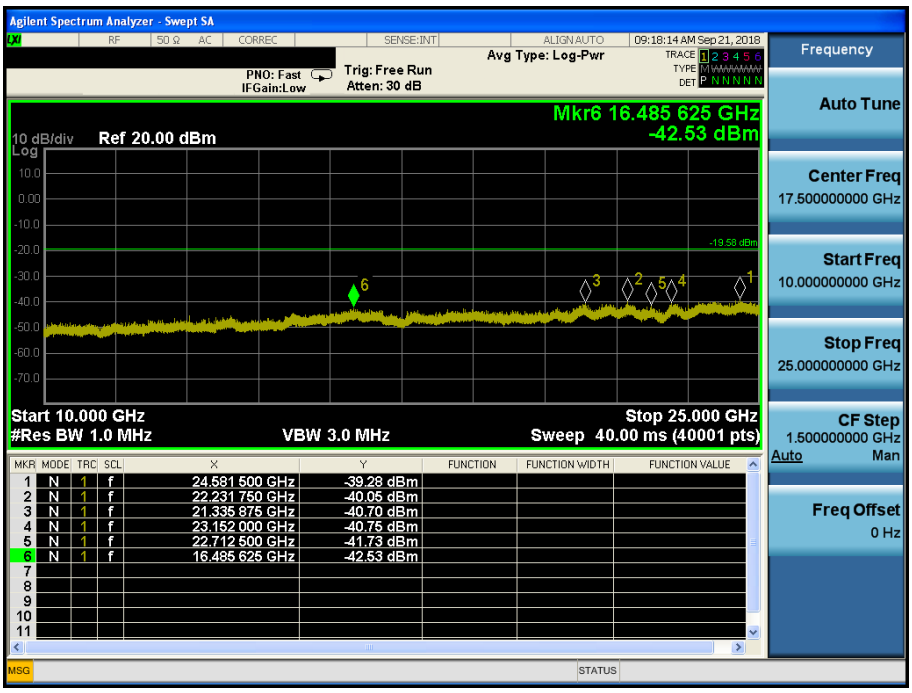


Conducted Spurious Emissions



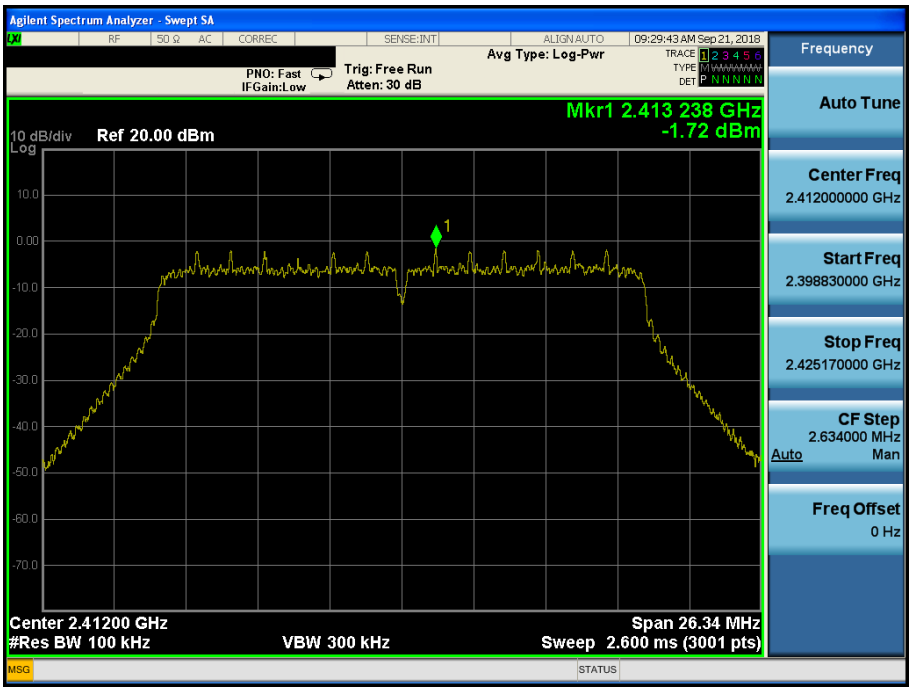


Conducted Spurious Emissions

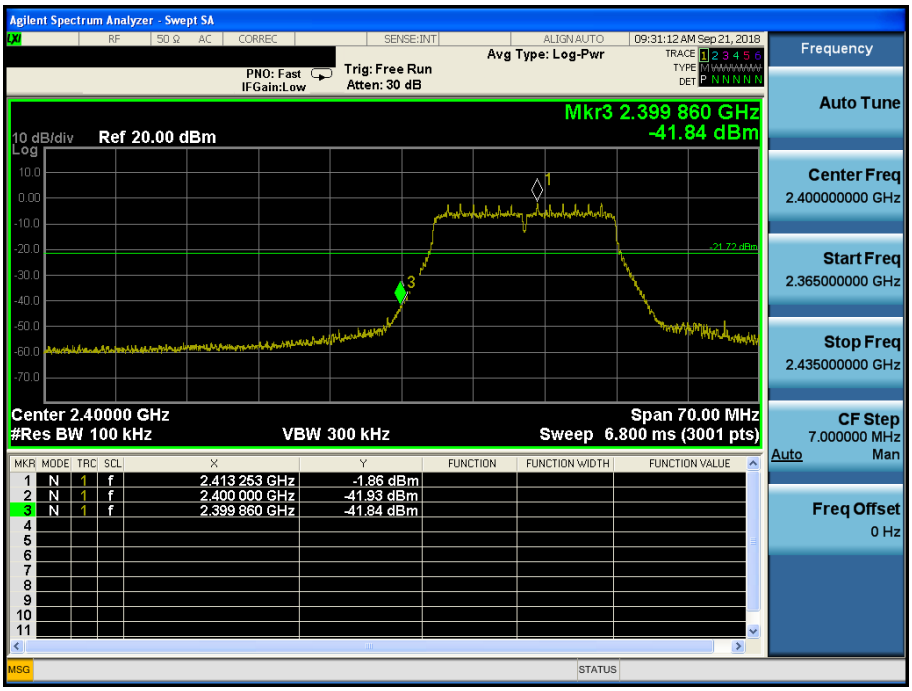


TM 3 & Lowest

Reference



Low Band-edge



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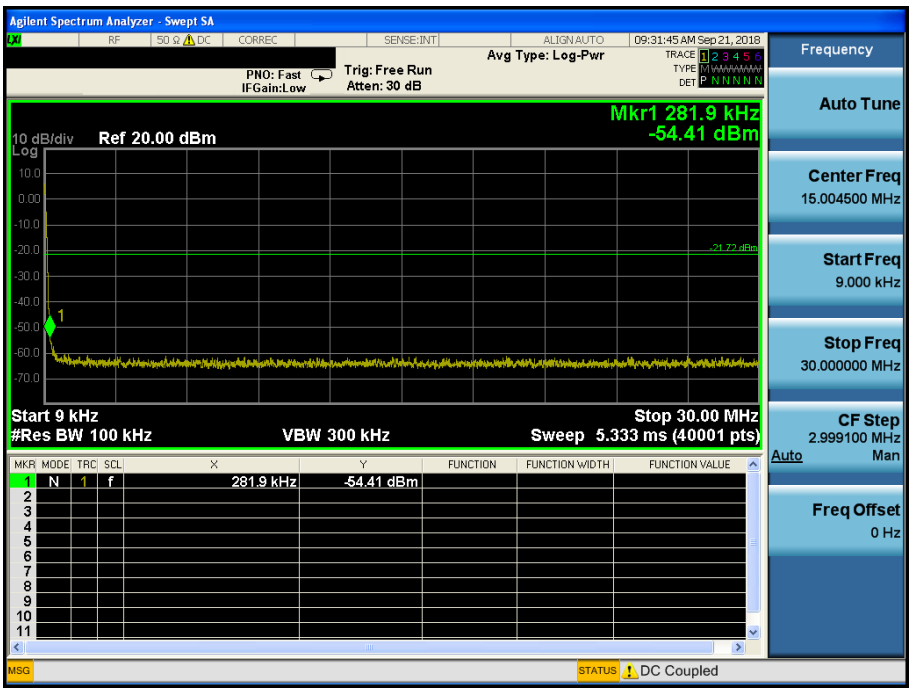

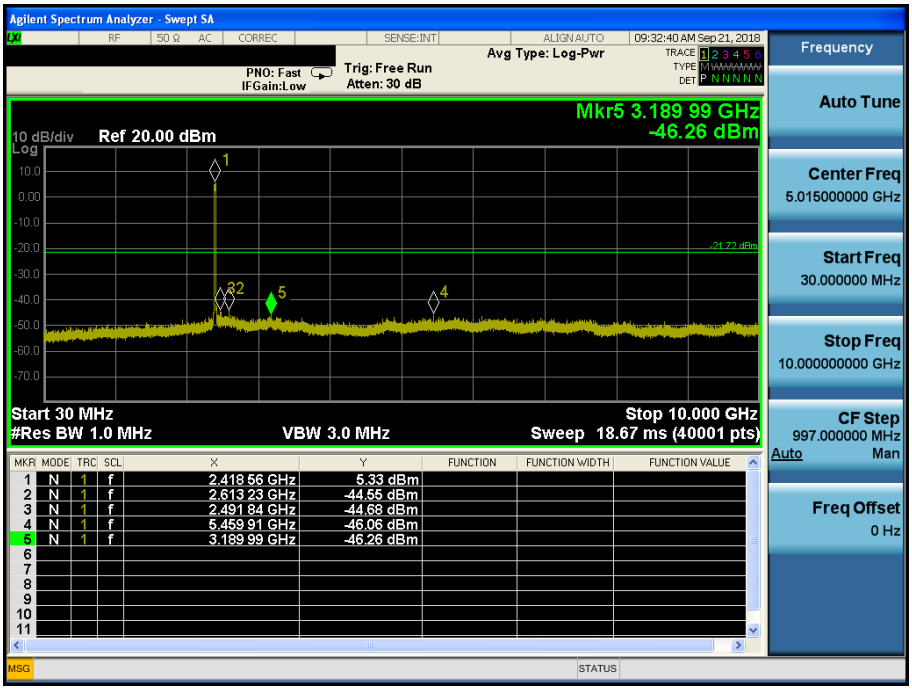

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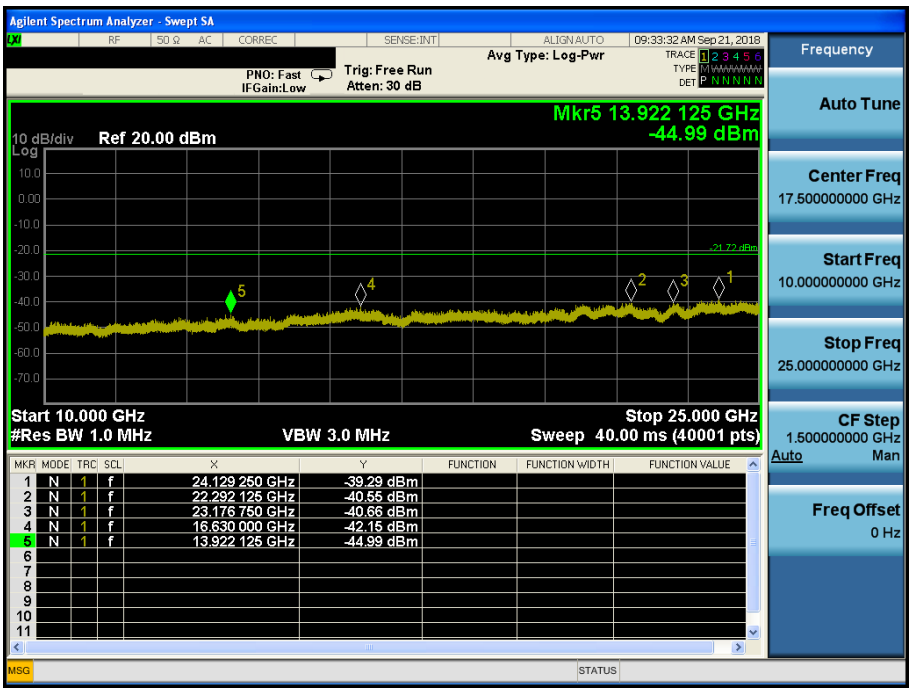
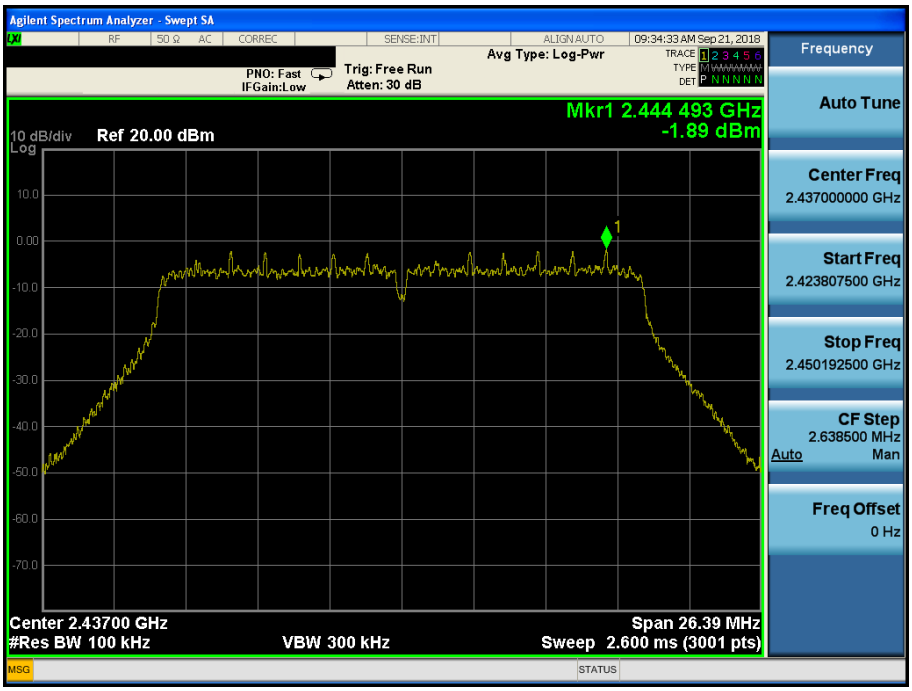
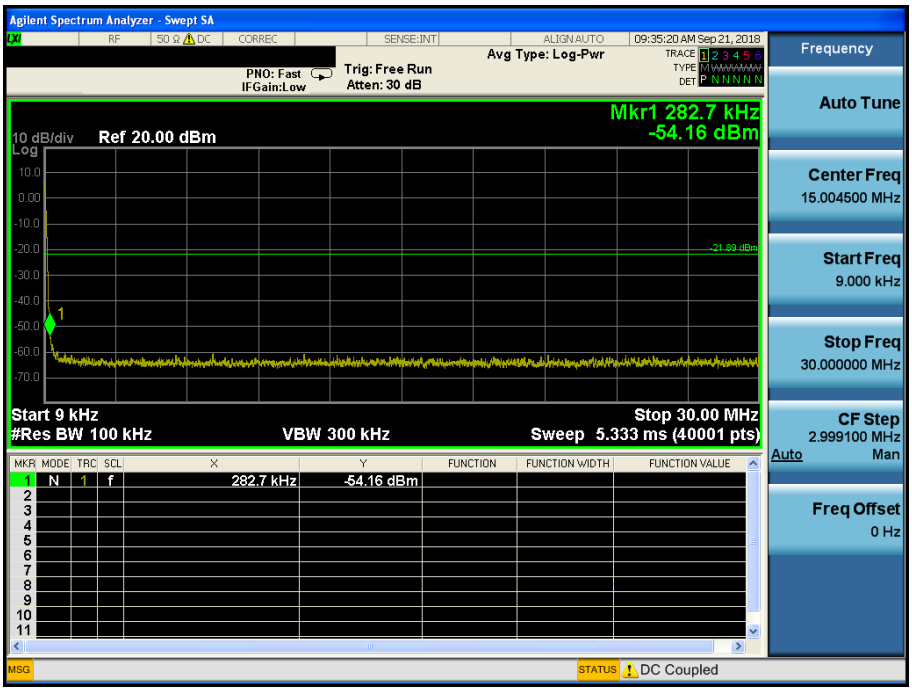


TM 3 & Middle

Reference



Conducted Spurious Emissions



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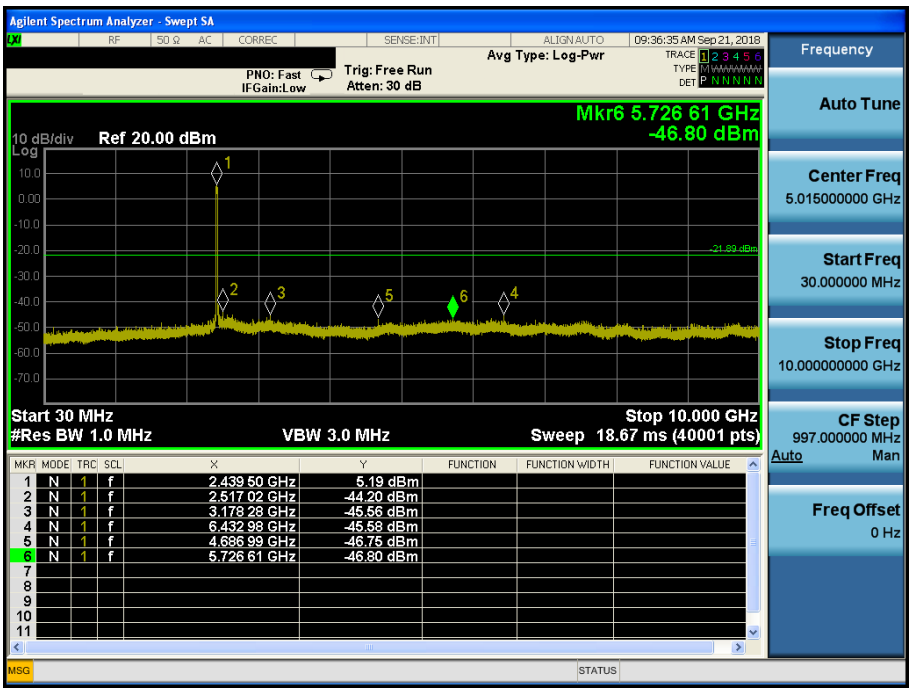
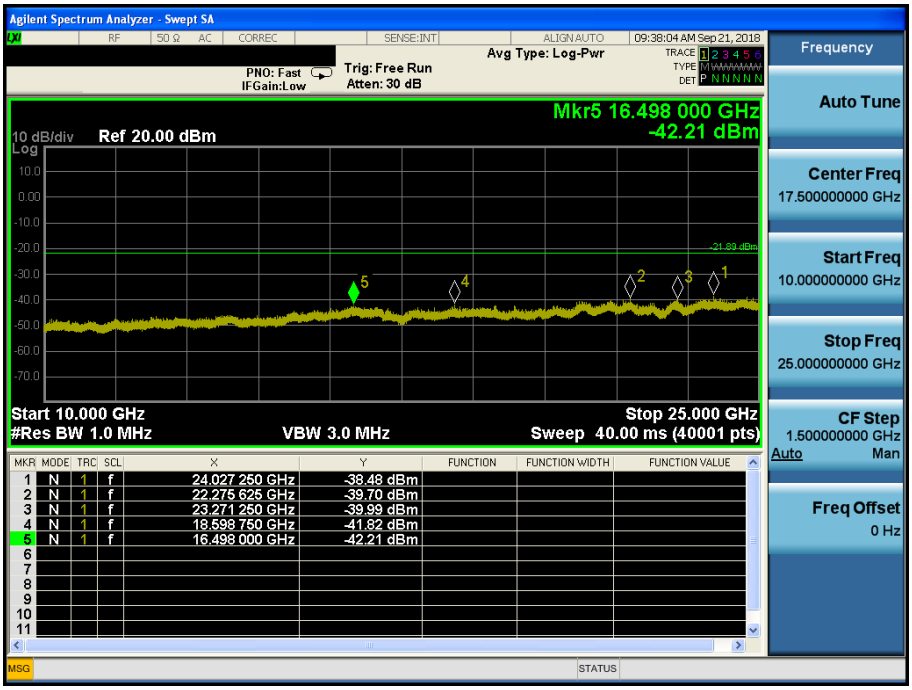
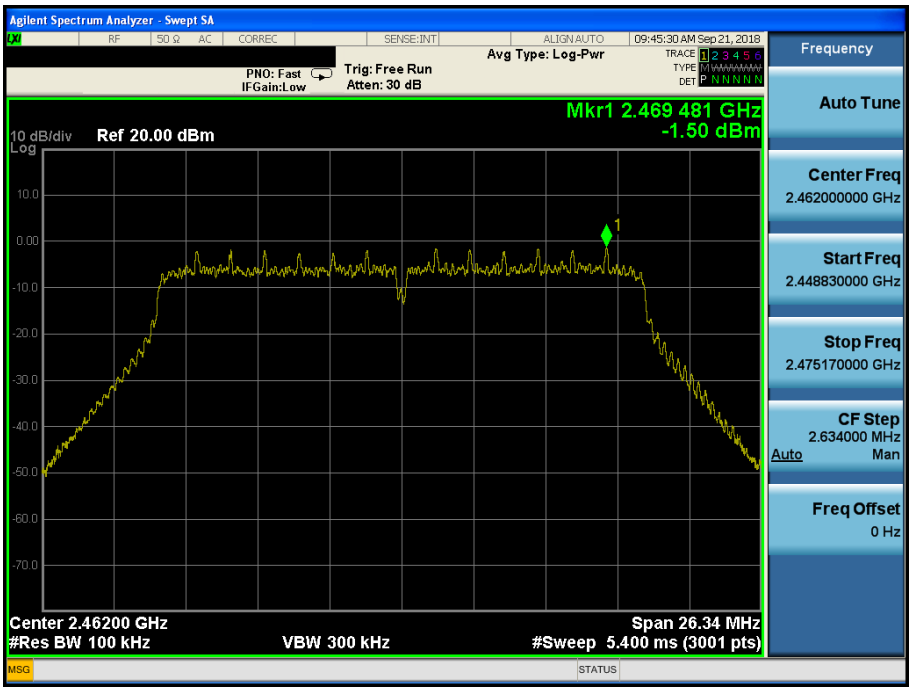


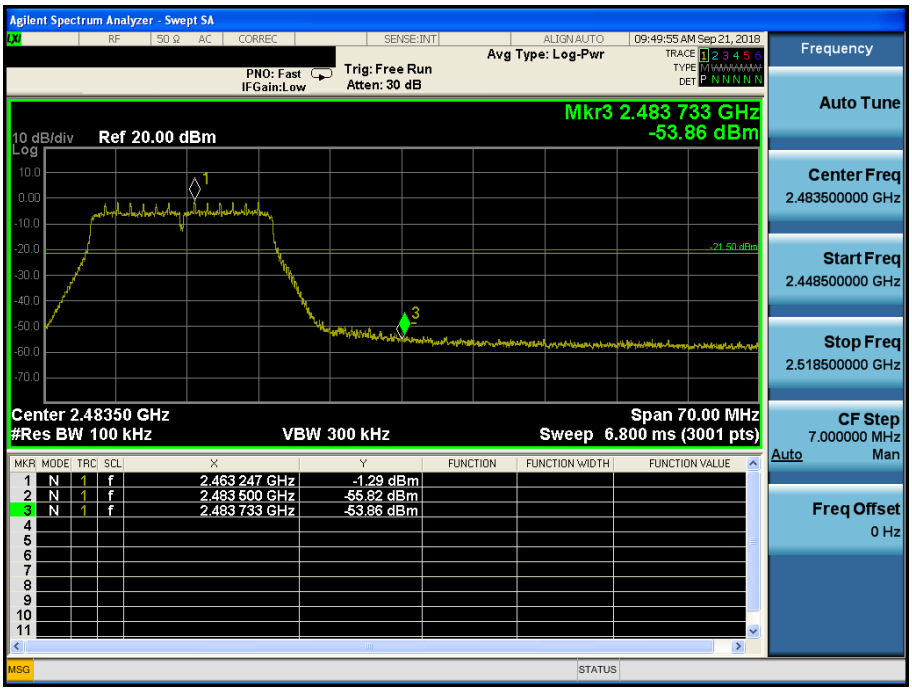


TM 3 & Highest

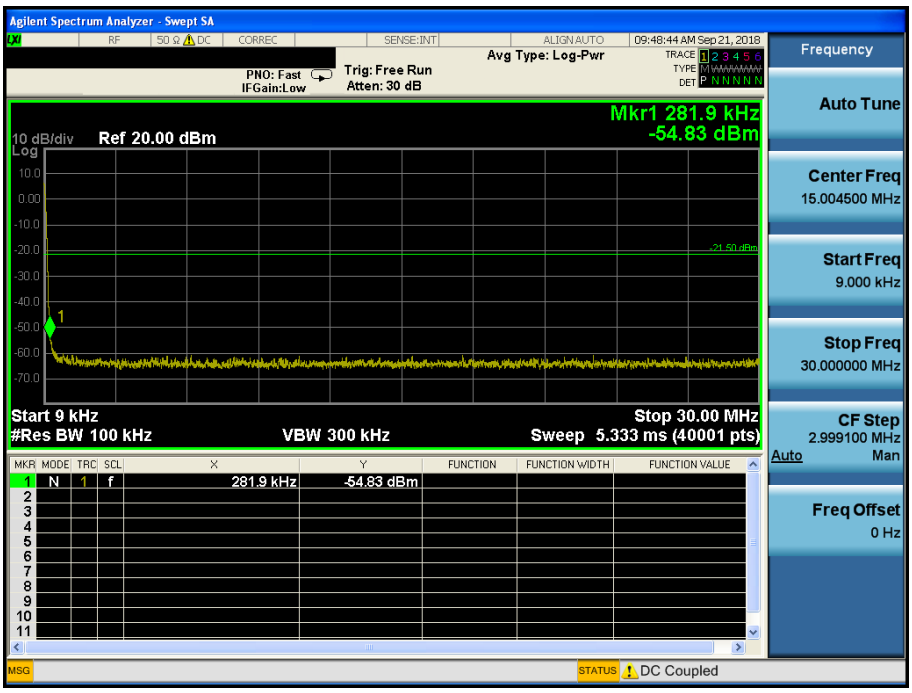
Reference

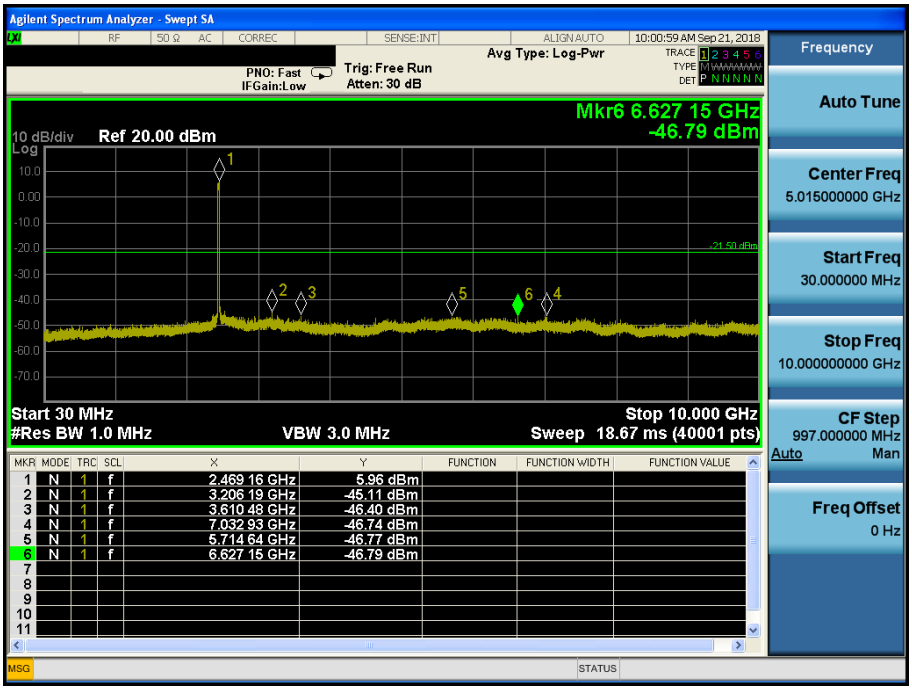


High Band-edge

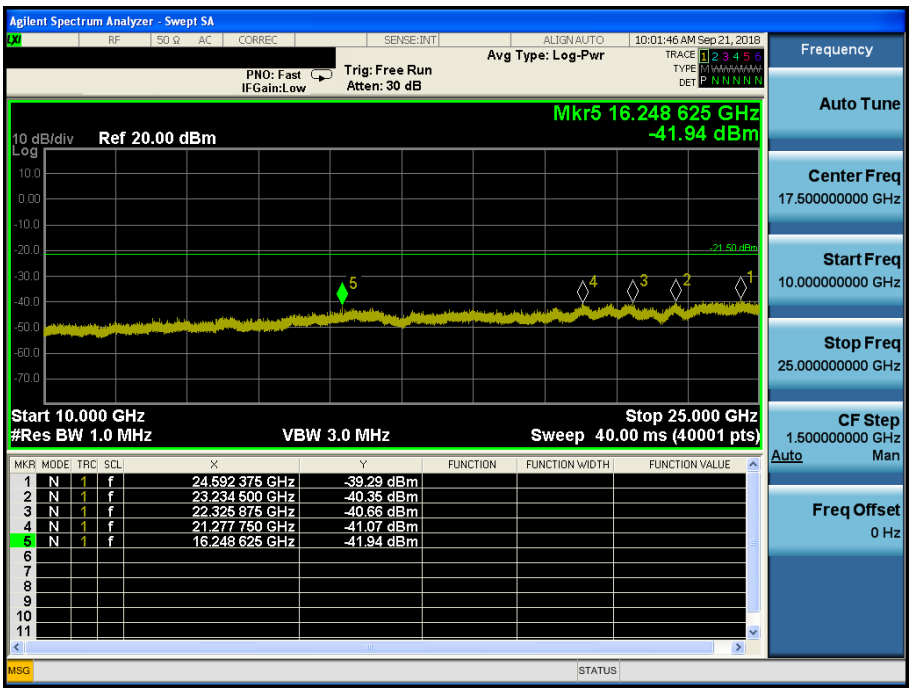


Conducted Spurious Emissions



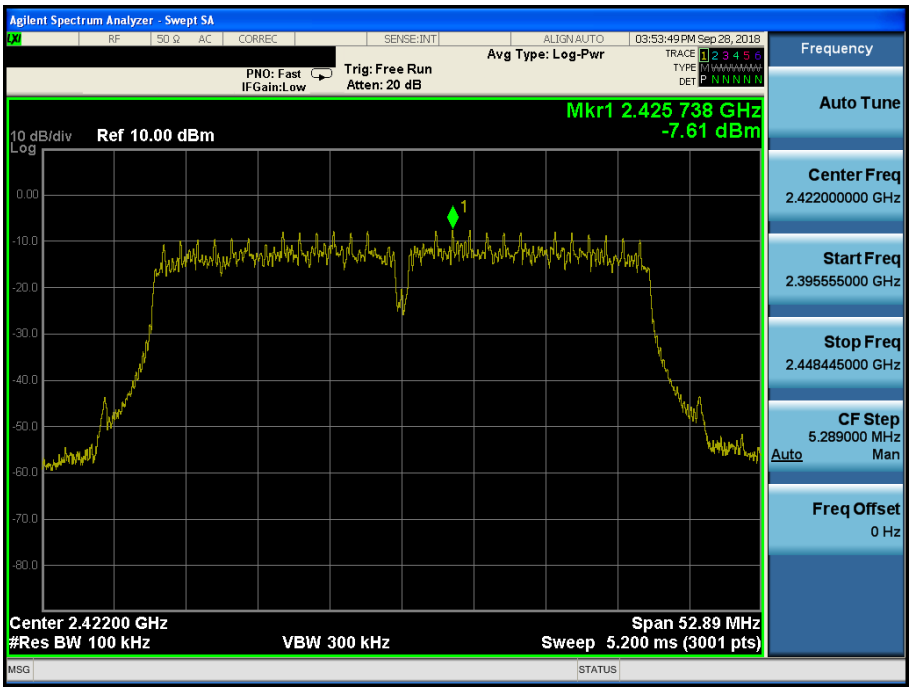


Conducted Spurious Emissions

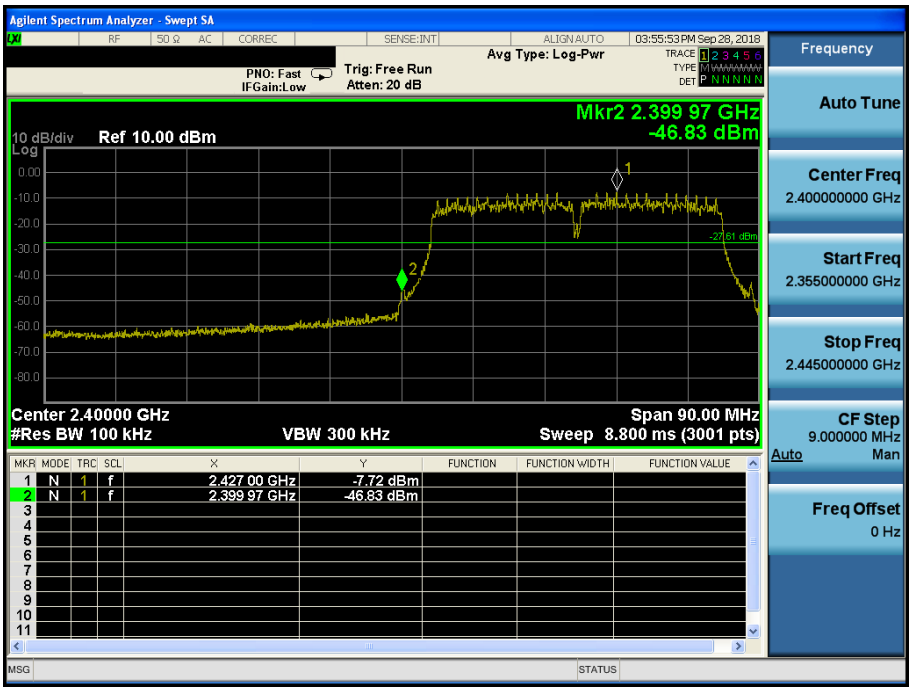


TM 4 & Lowest

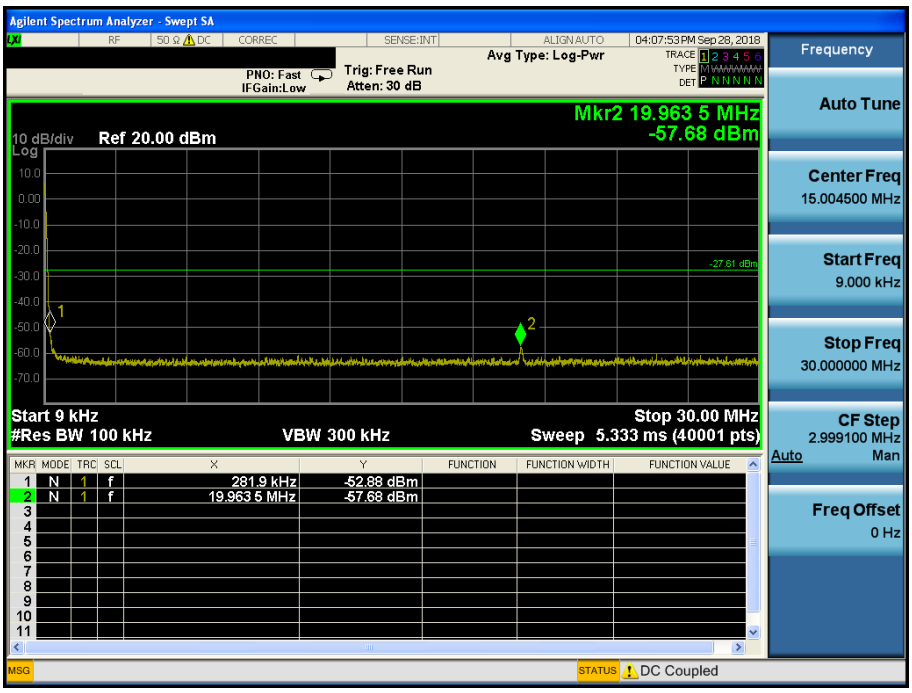
Reference

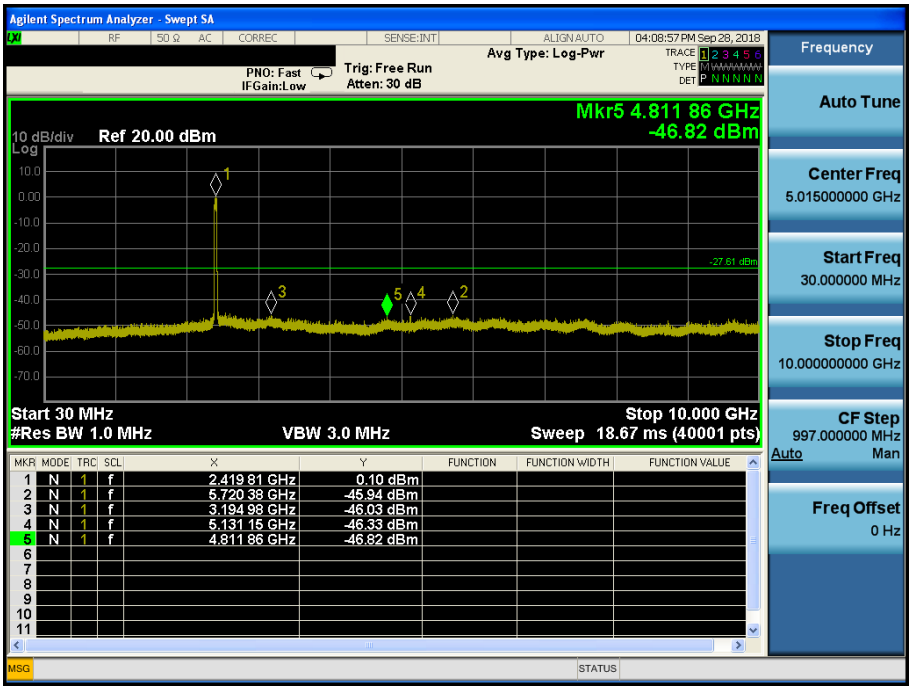


Low Band-edge

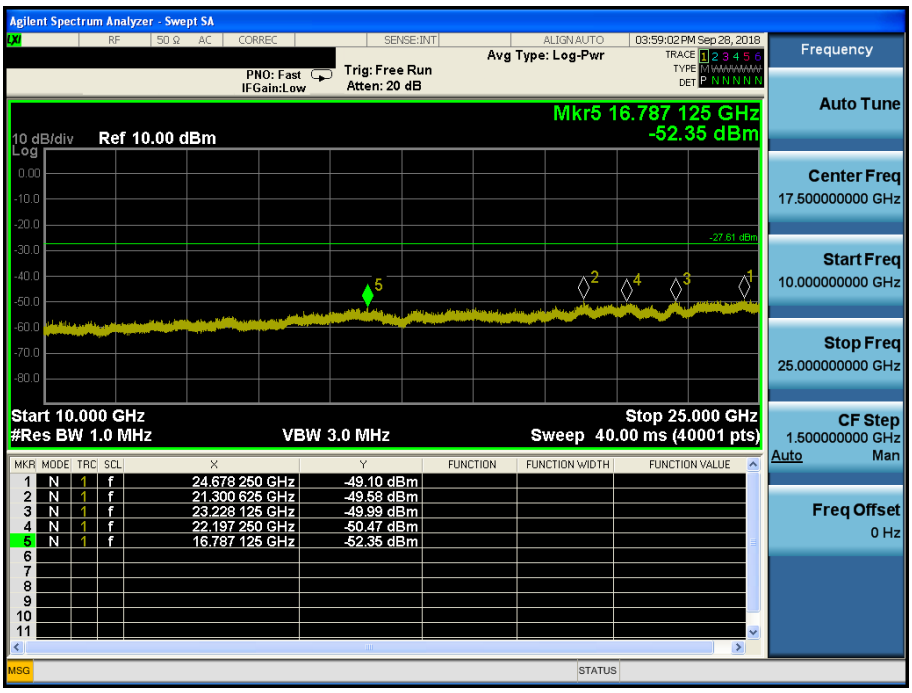


Conducted Spurious Emissions



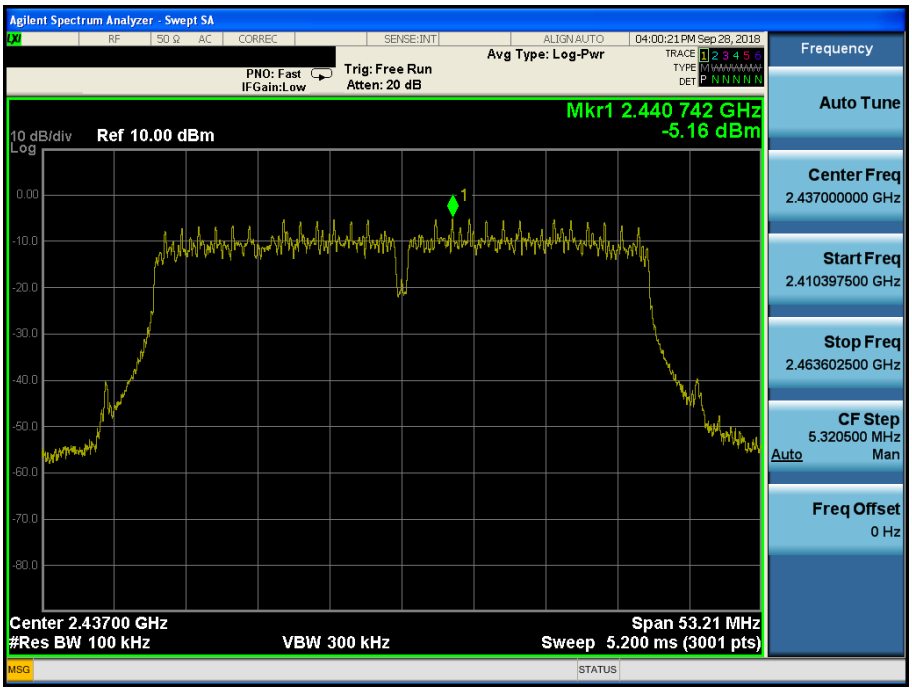


Conducted Spurious Emissions



TM 4 & Middle

Reference



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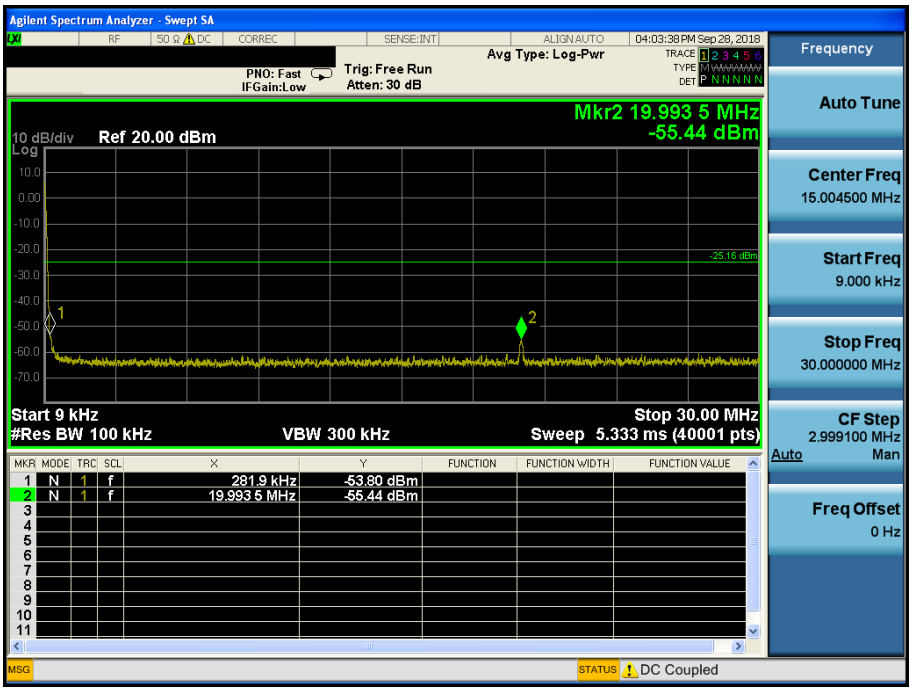
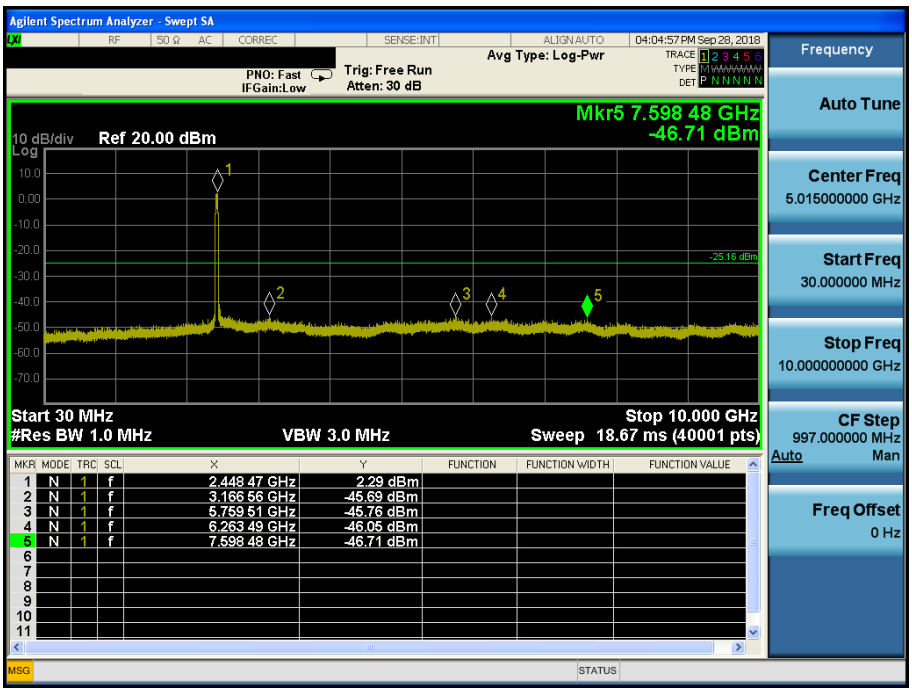
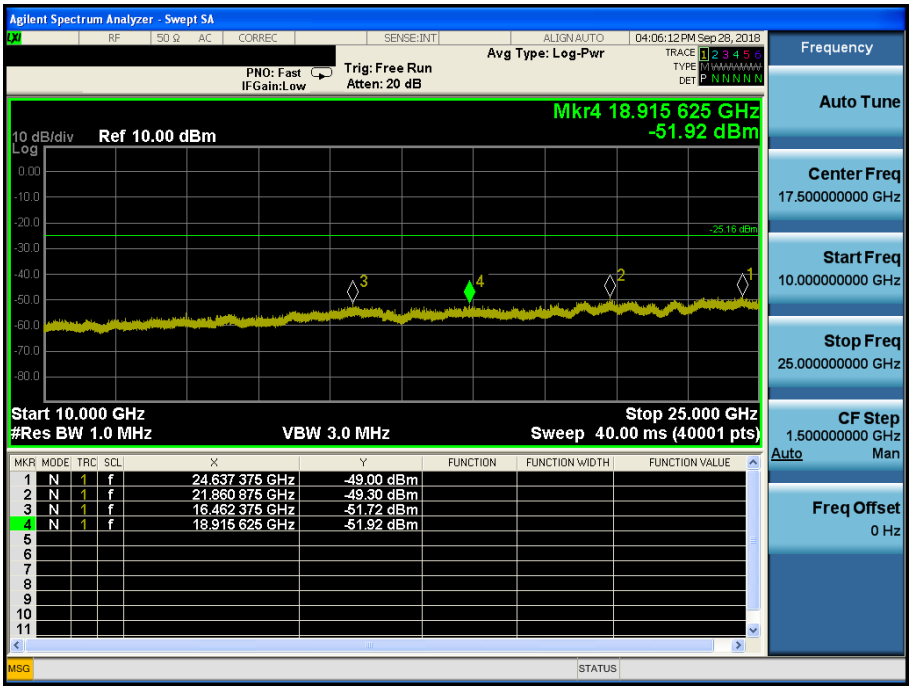


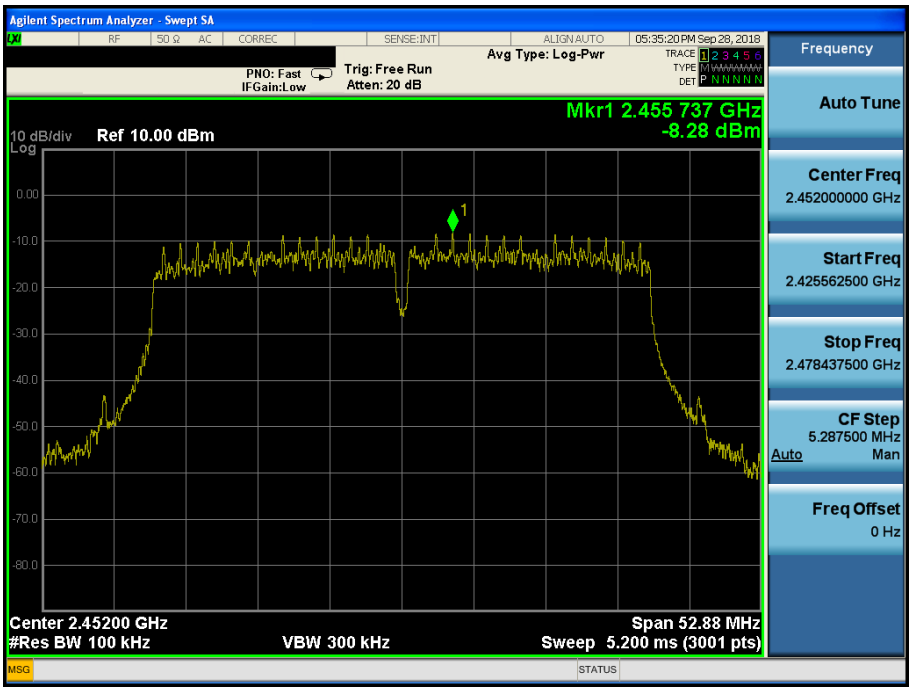
Conducted Spurious Emissions



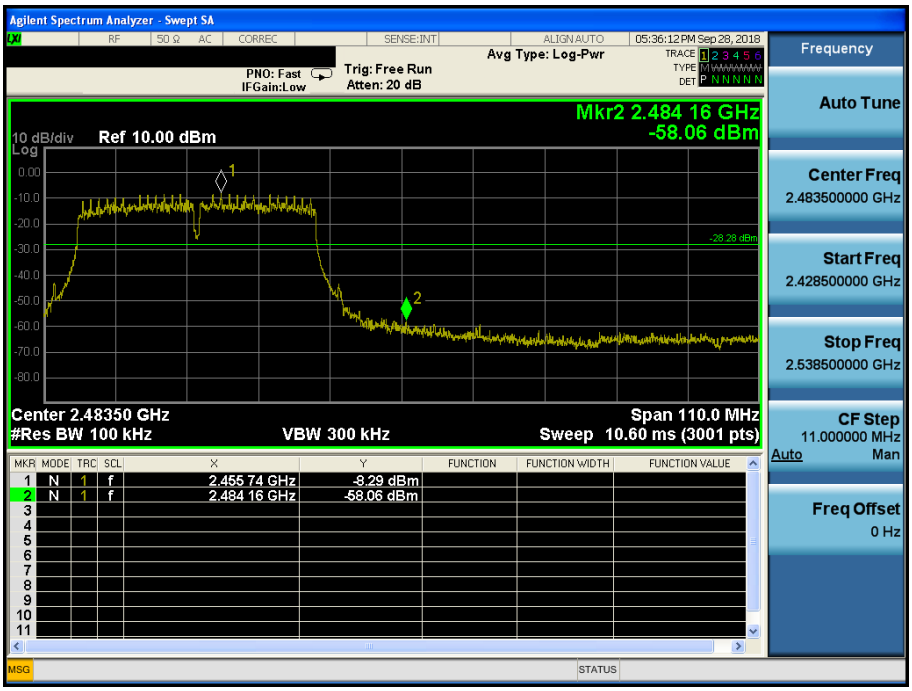


TM 4 & Highest

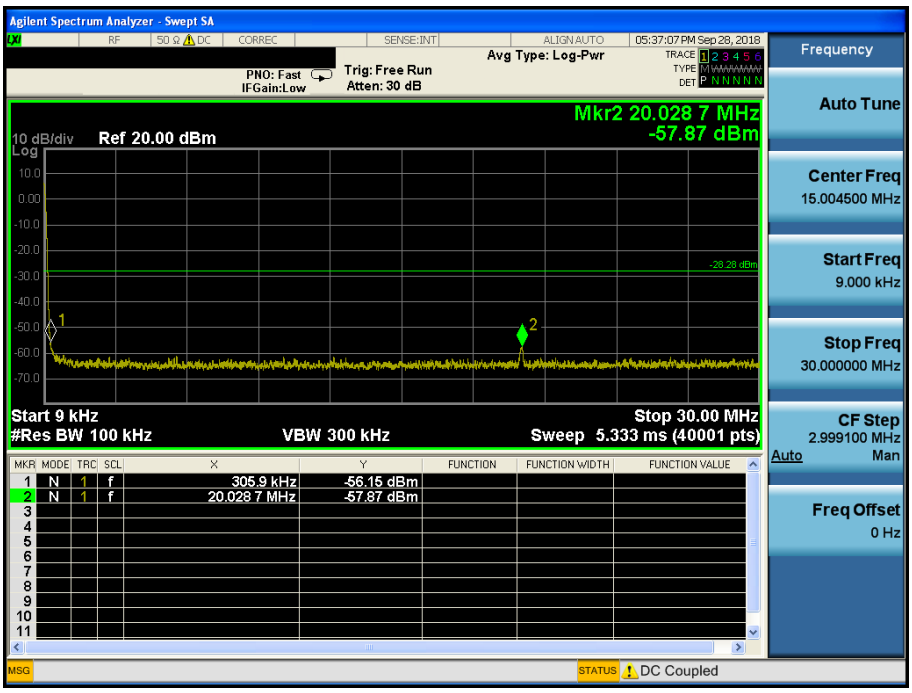
Reference

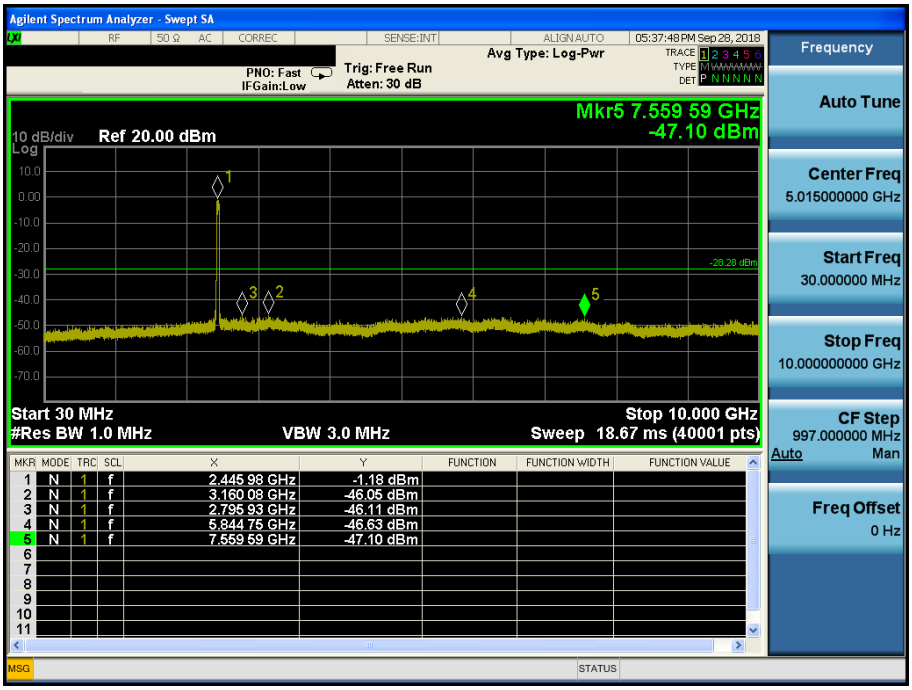


High Band-edge

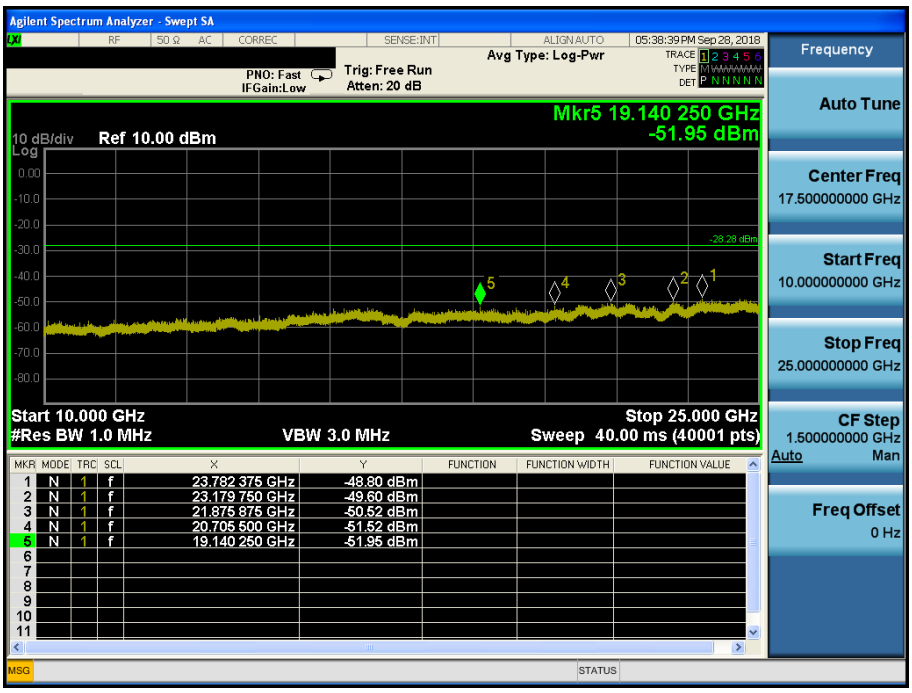


Conducted Spurious Emissions





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

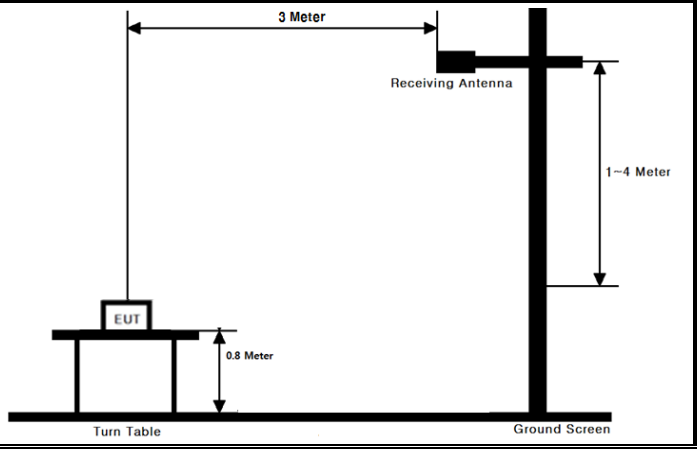
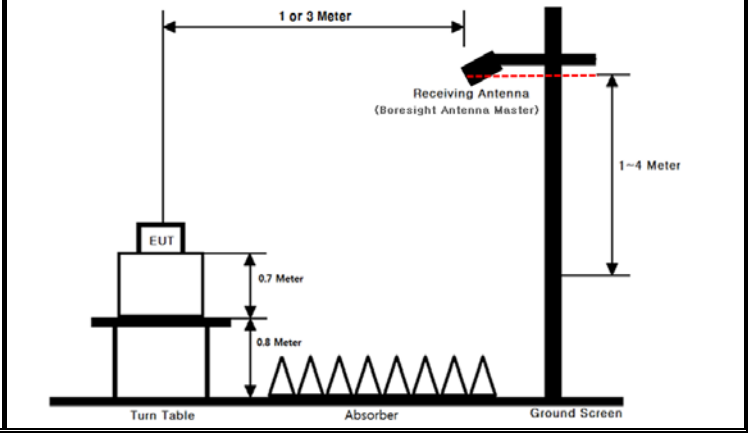
** Except as provided in 15.209(g), fundamental emissions from intentional radiators operating under this Section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this Part,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

Below 1GHz	Above 1GHz
	

▣ 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.

- **KDB558074 D01v05 - Section 8.6**
- **ANSI C63.10-2013 – Section 11.12**

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
2. VBW ≥ 1/T
3. Video bandwidth mode or display mode
   1) The instrument shall be set to ensure that video filtering is applied in the power domain. Typically, this requires setting the detector mode to RMS and setting the Average-VBW Type to Power (RMS).
   2) As an alternative, the instrument may be set to linear detector mode. Ensure that video filtering is applied in linear voltage domain (rather than in a log or dB domain). Some instruments require linear display mode in order to accomplish this. Others have a setting for Average-VBW Type, which can be set to “Voltage” regardless of the display mode.
3. Detector = Peak (Number of points ≥ 2 x Span / RBW)
4. Sweep time = auto.
5. Trace mode = Max Hold
6. Allow max hold to run for at least 50 x (1/duty cycle) traces.

Note: Duty cycle is not constant. Refer to the APPENDIX II.

▣ **Test Results: Comply**

Radiated Spurious Emissions data(9 kHz ~ 1 GHz) : *Test Mode 1(TM 1)*

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	30.73	V	X	PK	36.80	-10.96	N/A	N/A	25.84	40.00	14.16
	79.96	V	X	PK	36.30	-13.96	N/A	N/A	22.34	40.00	17.66
	84.08	V	X	PK	37.20	-14.24	N/A	N/A	22.96	40.00	17.04
	122.88	H	X	PK	36.70	-9.22	N/A	N/A	27.48	43.50	16.02
	160.71	H	X	PK	43.00	-7.76	N/A	N/A	35.24	43.50	8.26
	167.62	H	X	PK	43.30	-7.93	N/A	N/A	35.37	43.50	8.13
	239.52	H	X	PK	40.90	-8.57	N/A	N/A	32.33	46.00	13.67
	399.92	H	X	PK	36.80	-3.30	N/A	N/A	33.50	46.00	12.50
	479.95	H	X	PK	44.10	-1.11	N/A	N/A	42.99	46.00	3.01
	479.95	H	X	QP	41.62	-1.11	N/A	N/A	40.51	46.00	5.49
	799.99	H	X	PK	23.70	6.75	N/A	N/A	30.45	46.00	15.55
	-	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-	-

Note.

1. Exploratory testing has been performed to determine the emissions characteristic of this EUT.
   And middle channel of 802.11b(TM1) was selected for final testing and reported.
2. No other unwanted emissions were found above listed frequencies.
3. All data were recorded using a spectrum analyzer employing a peak detector.
   If PK results were meet Quasi-peak limit, Quasi-peak measurements were omitted.
4. Information of Distance Factor
   For finding emissions, the test distance might be reduced from 3 m to 1 m. In this case, the distance factor (-9.54 dB) is applied to the result.
   - Calculation of distance factor = 20 log(applied distance / required distance) = 20 log(1 m / 3 m) = -9.54 dB
   When distance factor is “N/A”, the distance is 3 m and distance factor is not applied.
5. Sample Calculation.
   Margin = Limit – Result / Result = Reading + T.F+ DCCF + DCF / T.F = AF + CL – AG
   Where, T.F = Total Factor, AF = Antenna Factor, CL = Cable Loss, AG = Amplifier Gain,
   DCCF = Duty Cycle Correction Factor, DCF = Distance Correction Factor

Radiated Spurious Emissions data(1 ~ 25 GHz) : *Test Mode 1(TM 1)*

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	2386.90	H	X	PK	54.20	2.68	N/A	N/A	56.88	74.00	17.12
	2388.53	H	X	AV	43.24	2.69	N/A	N/A	45.93	54.00	8.07
	4823.78	H	Z	PK	50.87	1.49	N/A	N/A	52.36	74.00	21.64
	4823.80	H	Z	AV	40.53	1.49	N/A	N/A	42.02	54.00	11.98
Middle	4874.04	H	Z	PK	50.36	1.62	N/A	N/A	51.98	74.00	22.02
	4874.08	H	Z	AV	41.18	1.62	N/A	N/A	42.80	54.00	11.20
Highest	2484.71	H	X	PK	55.45	3.10	N/A	N/A	58.55	74.00	15.45
	2485.09	H	X	AV	44.09	3.10	N/A	N/A	47.19	54.00	6.81
	4923.84	H	Z	PK	51.19	1.78	N/A	N/A	52.97	74.00	21.03
	4923.93	H	Z	AV	41.42	1.78	N/A	N/A	43.20	54.00	10.80

Note.

1. The radiated emissions were investigated up to 25GHz. And no other spurious and harmonic emissions were found above listed frequencies.
2. Information of Distance Factor

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

- Calculation of distance factor = 20 log(applied distance / required distance) = 20 log(1 m / 3 m) = -9.54 dB

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

3. Sample Calculation.

Margin = Limit – Result / Result = Reading + T.F+ DCCF + DCF / T.F = AF + CL – AG

Where, T.F = Total Factor, AF = Antenna Factor, CL = Cable Loss, AG = Amplifier Gain,

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

Radiated Spurious Emissions data(1 ~ 25 GHz) : ***Test Mode 2(TM 2)***

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	2389.93	H	X	PK	54.46	2.70	N/A	N/A	57.16	74.00	16.84
	2389.63	H	X	AV	43.10	2.70	N/A	N/A	45.80	54.00	8.20
	4823.69	H	Z	PK	50.90	1.49	N/A	N/A	52.39	74.00	21.61
	4823.96	H	Z	AV	40.28	1.49	N/A	N/A	41.77	54.00	12.23
Middle	4873.95	H	Z	PK	50.89	1.62	N/A	N/A	52.51	74.00	21.49
	4874.06	H	Z	AV	40.56	1.62	N/A	N/A	42.18	54.00	11.82
Highest	2483.59	H	X	PK	56.18	3.10	N/A	N/A	59.28	74.00	14.72
	2483.59	H	X	AV	44.03	3.10	N/A	N/A	47.13	54.00	6.87
	4923.87	H	Z	PK	50.75	1.78	N/A	N/A	52.53	74.00	21.47
	4923.99	H	Z	AV	40.25	1.78	N/A	N/A	42.03	54.00	11.97

Note.

1. The radiated emissions were investigated up to 25GHz. And no other spurious and harmonic emissions were found above listed frequencies.
2. Information of Distance Factor

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

- Calculation of distance factor = 20 log(applied distance / required distance) = 20 log(1 m / 3 m) = -9.54 dB

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

3. Sample Calculation.

Margin = Limit – Result / Result = Reading + T.F+ DCCF + DCF / T.F = AF + CL – AG

Where, T.F = Total Factor, AF = Antenna Factor, CL = Cable Loss, AG = Amplifier Gain,

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

Radiated Spurious Emissions data(1 ~ 25 GHz) : ***Test Mode 3(TM 3)***

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	2388.67	H	X	PK	54.83	2.69	N/A	N/A	57.52	74.00	16.48
	2389.98	H	X	AV	43.10	2.70	N/A	N/A	45.80	54.00	8.20
	4824.20	H	Z	PK	50.79	1.49	N/A	N/A	52.28	74.00	21.72
	4823.87	H	Z	AV	40.28	1.49	N/A	N/A	41.77	54.00	12.23
Middle	4873.84	H	Z	PK	50.78	1.62	N/A	N/A	52.40	74.00	21.60
	4874.01	H	Z	AV	40.04	1.62	N/A	N/A	41.66	54.00	12.34
Highest	2483.87	H	X	PK	55.58	3.10	N/A	N/A	58.68	74.00	15.32
	2484.06	H	X	AV	43.99	3.10	N/A	N/A	47.09	54.00	6.91
	4924.26	H	Z	PK	50.19	1.78	N/A	N/A	51.97	74.00	22.03
	4924.01	H	Z	AV	39.88	1.78	N/A	N/A	41.66	54.00	12.34

Note.

1. The radiated emissions were investigated up to 25GHz. And no other spurious and harmonic emissions were found above listed frequencies.
2. Information of Distance Factor

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

- Calculation of distance factor = 20 log(applied distance / required distance) = 20 log(1 m / 3 m) = -9.54 dB

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

3. Sample Calculation.

Margin = Limit – Result / Result = Reading + T.F+ DCCF + DCF / T.F = AF + CL – AG

Where, T.F = Total Factor, AF = Antenna Factor, CL = Cable Loss, AG = Amplifier Gain,

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

Radiated Spurious Emissions data(1 ~ 25 GHz) : ***Test Mode 4(TM 4)***

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	2386.85	H	X	PK	53.77	2.68	N/A	N/A	56.45	74.00	17.55
	2388.42	H	X	AV	44.26	2.69	N/A	N/A	46.95	54.00	7.05
	4843.73	H	Z	PK	50.62	1.54	N/A	N/A	52.16	74.00	21.84
	4844.15	H	Z	AV	41.91	1.54	N/A	N/A	43.45	54.00	10.55
Middle	4873.81	H	Z	PK	51.92	1.62	N/A	N/A	53.54	74.00	20.46
	4873.84	H	Z	AV	42.10	1.62	N/A	N/A	43.72	54.00	10.28
Highest	2486.90	H	X	PK	52.35	3.10	N/A	N/A	55.45	74.00	18.55
	2486.03	H	X	AV	43.72	3.10	N/A	N/A	46.82	54.00	7.18
	4903.85	H	Z	PK	51.71	1.73	N/A	N/A	53.44	74.00	20.56
	4903.84	H	Z	AV	41.48	1.73	N/A	N/A	43.21	54.00	10.79

Note.

1. The radiated emissions were investigated up to 25GHz. And no other spurious and harmonic emissions were found above listed frequencies.
2. Information of Distance Factor

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

- Calculation of distance factor = 20 log(applied distance / required distance) = 20 log(1 m / 3 m) = -9.54 dB

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

3. Sample Calculation.

Margin = Limit – Result / Result = Reading + T.F+ DCCF + DCF / T.F = AF + CL – AG

Where, T.F = Total Factor, AF = Antenna Factor, CL = Cable Loss, AG = Amplifier Gain,

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

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

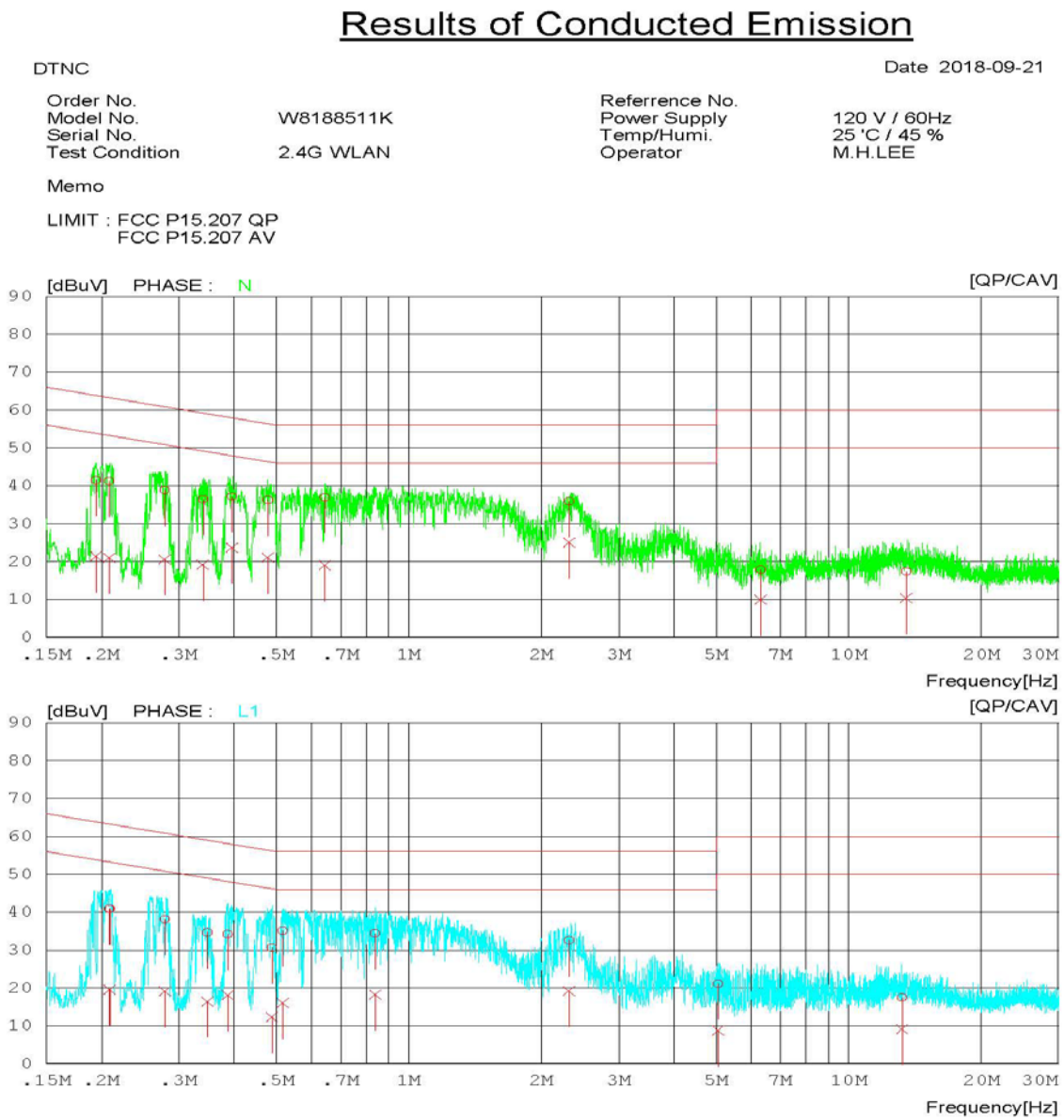
1. The EUT is placed on a wooden table 80 cm above the reference ground plane.
2. The EUT is connected via LISN to the test power supply.
3. The measurement results are obtained as described below:
4. Detectors – Quasi Peak and Average Detector.

▣ Test Results: Comply(Refer to next page.)

The worst data was reported.

▣ Result Plots

AC Line Conducted Emissions (Graph)



AC Line Conducted Emissions (List)

Results of Conducted Emission

DTNC Date 2018-09-21

Order No.		Referrence No.	
Model No.	W8188511K	Power Supply	120 V / 60Hz
Serial No.		Temp/Humi.	25 'C / 45 %
Test Condition	2.4G WLAN	Operator	M.H.LEE

Memo

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

NO	FREQ	READING QP	READING CAV	C.FACTOR	RESULT QP	RESULT CAV	LIMIT QP	LIMIT CAV	MARGIN QP	MARGIN CAV	PHASE
	[MHz]	[dBuV]	[dBuV]	[dB]	[dBuV]	[dBuV]	[dBuV]	[dBuV]	[dBuV]	[dBuV]	
1	0.19452	31.42	11.42	10.02	41.44	21.44	63.84	53.84	22.40	32.40	N
2	0.20859	31.27	10.98	9.99	41.26	20.97	63.26	53.26	22.00	32.29	N
3	0.27854	28.90	10.54	10.01	38.91	20.55	60.86	50.86	21.95	30.31	N
4	0.34042	26.52	9.16	10.01	36.53	19.17	59.19	49.19	22.66	30.02	N
5	0.39625	27.16	13.73	10.01	37.17	23.74	57.93	47.93	20.76	24.19	N
6	0.47770	26.28	11.10	10.01	36.29	21.11	56.38	46.38	20.09	25.27	N
7	0.64371	26.93	8.96	10.03	36.96	18.99	56.00	46.00	19.04	27.01	N
8	2.31440	25.84	14.96	10.12	35.96	25.08	56.00	46.00	20.04	20.92	N
9	6.30560	7.56	-0.30	10.24	17.80	9.94	60.00	50.00	42.20	40.06	N
10	13.51580	6.97	-0.07	10.44	17.41	10.37	60.00	50.00	42.59	39.63	N
11	0.20865	30.94	9.61	9.97	40.91	19.58	63.26	53.26	22.35	33.68	L1
12	0.20860	30.95	9.61	9.97	40.92	19.58	63.26	53.26	22.34	33.68	L1
13	0.27891	28.17	9.13	9.97	38.14	19.10	60.85	50.85	22.71	31.75	L1
14	0.34832	24.61	6.45	9.97	34.58	16.42	59.00	49.00	24.42	32.58	L1
15	0.38729	24.17	8.09	9.98	34.15	18.07	58.12	48.12	23.97	30.05	L1
16	0.48777	20.62	2.29	9.99	30.61	12.28	56.21	46.21	25.60	33.93	L1
17	0.51642	25.08	6.03	9.99	35.07	16.02	56.00	46.00	20.93	29.98	L1
18	0.83789	24.44	8.17	9.99	34.43	18.16	56.00	46.00	21.57	27.84	L1
19	2.31120	22.52	9.17	10.08	32.60	19.25	56.00	46.00	23.40	26.75	L1
20	5.04700	10.97	-1.43	10.16	21.13	8.73	60.00	50.00	38.87	41.27	L1
21	13.21480	7.11	-1.26	10.39	17.50	9.13	60.00	50.00	42.50	40.87	L1

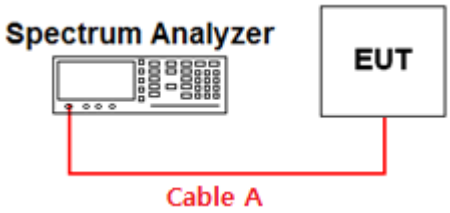
9. LIST OF TEST EQUIPMENT

Type	Manufacturer	Model	Cal.Date (yy/mm/dd)	Next.Cal.Date (yy/mm/dd)	S/N
Spectrum Analyzer	Agilent Technologies	N9020A	18/07/09	19/07/09	MY50200834
Spectrum Analyzer	Agilent Technologies	N9020A	18/01/03	19/01/03	MY48011700
Multimeter	FLUKE	17B	17/12/26	18/12/26	26030065WS
Signal Generator	Rohde Schwarz	SMBV100A	17/12/27	18/12/27	255571
Signal Generator	ANRITSU	MG3695C	18/02/12	19/02/12	173501
Thermohygrometer	BODYCOM	BJ5478	1801/03	19/01/03	120612-1
Thermohygrometer	BODYCOM	BJ5478	18/07/09	19/07/09	N/A
IN/OUT Thermohygrometer	SATO	PC-5000TRH-II	18/07/18	19/07/18	N/A
HYGROMETER	TESTO	608-H1	18/02/10	19/02/10	34862883
Loop Antenna	Schwarzbeck	FMZB1513	18/01/30	20/01/30	1513-128
BILOG ANTENNA	Schwarzbeck	VULB 9160	18/07/13	20/07/13	3359
Horn Antenna	ETS-Lindgren	3115	17/01/13	19/01/13	9202-3820
Horn Antenna	Schwarzbeck	BBHA 9120C	17/12/04	19/12/04	9120C-561
Horn Antenna	A.H.Systems Inc.	SAS-574	17/07/31	19/07/31	155
PreAmplifier	tsj	MLA-10K01-B01-27	18/01/11	19/01/11	2005354
PreAmplifier	tsj	MLA-0118-J01-45	18/02/08	19/02/08	17138
PreAmplifier	tsj	MLA-1840-J02-45	18/07/06	19/07/06	16966-10728
Attenuator	SMAJK	SMAJK-2-3	18/07/02	19/07/02	3
Attenuator	Aeroflex/Weinschel	56-3	18/07/02	19/07/02	Y2370
Attenuator	SRTechnology	F01-B0606-01	18/07/02	19/07/02	13092403
Attenuator	Hefei Shunze	SS5T2.92-10-40	18/07/03	19/07/03	16012202
High Pass Filter	Wainwright Instruments	WHNX8.0/26.5-6SS	18/07/02	19/07/02	3
High Pass Filter	Wainwright Instruments	WHKX12-935-1000-15000-40SS	18/07/02	19/07/02	8
High Pass Filter	Wainwright Instruments	WHKX10-2838-3300-18000-60SS	18/07/02	19/07/02	1
Power Meter & Wide Bandwidth Sensor	Anritsu	ML2496A MA2411B	17/12/27	18/12/27	1338004 1249303
Attenuator	SMAJK	SMAJK-50-10	18/07/04	19/07/04	2-50-10
EMI Test Receiver	Rohde Schwarz	ESR7	18/02/13	19/02/13	101061
EMI Test Receiver	Rohde Schwarz	ESCI7	18/02/12	19/02/12	100910
PULSE LIMITER	Rohde Schwarz	ESH3-Z2	17/09/29	18/09/29	101333
			18/09/27	19/09/27	
Cable	DT&C	CABLE	18/07/06	19/07/06	G-13
Cable	DT&C	CABLE	18/07/06	19/07/06	G-14
Cable	Junkosha	MWX241	18/06/25	19/06/25	G-04
Cable	Junkosha	MWX241	18/06/25	19/06/25	G-07
Cable	DT&C	CABLE	18/07/05	19/07/05	RF-82
Cable	HUBER+SUHNER	SUCOFLEX	17/12/22	18/12/22	C-1
Cable	HUBER+SUHNER	SUCOFLEX	17/12/22	18/12/22	C-2
Cable	HUBER+SUHNER	SUCOFLEX	17/12/22	18/12/22	C-3
Cable	HUBER+SUHNER	SUCOFLEX	17/12/22	18/12/22	C-4

Note: The measurement antennas were calibrated in accordance to the requirements of ANSI C63.5-2017
Note: The cable is not a regular calibration item, so it has been calibrated by DT & C itself.

APPENDIX I

- **Conducted Measurement**



Path loss information

Frequency (GHz)	Path Loss (dB)	Frequency (GHz)	Path Loss (dB)
0.03	0.21	15	0.94
1	0.43	20	1.12
2.412 & 2.437 & 2.462 2.422 & 2.452	0.50	25	1.25
5	0.67	-	-
10	0.80	-	-

Note 1: The path loss from EUT to Spectrum analyzer was measured and used for test.
Path loss (S/A's correction factor) = Cable A
(Attenuator, Applied only when it was used externally)

APPENDIX II

Duty cycle plots

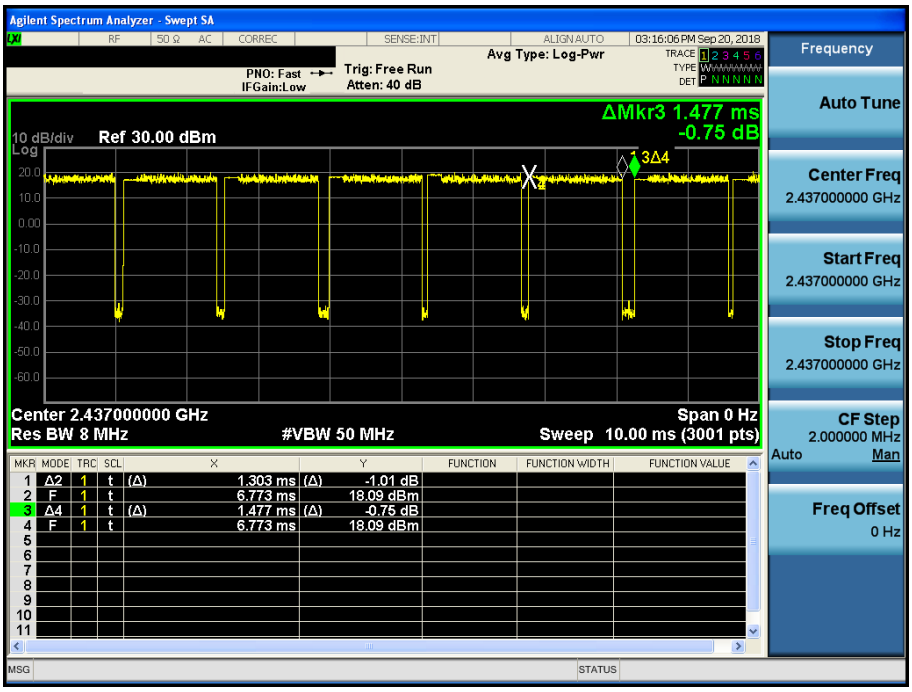
▪ Test Procedure

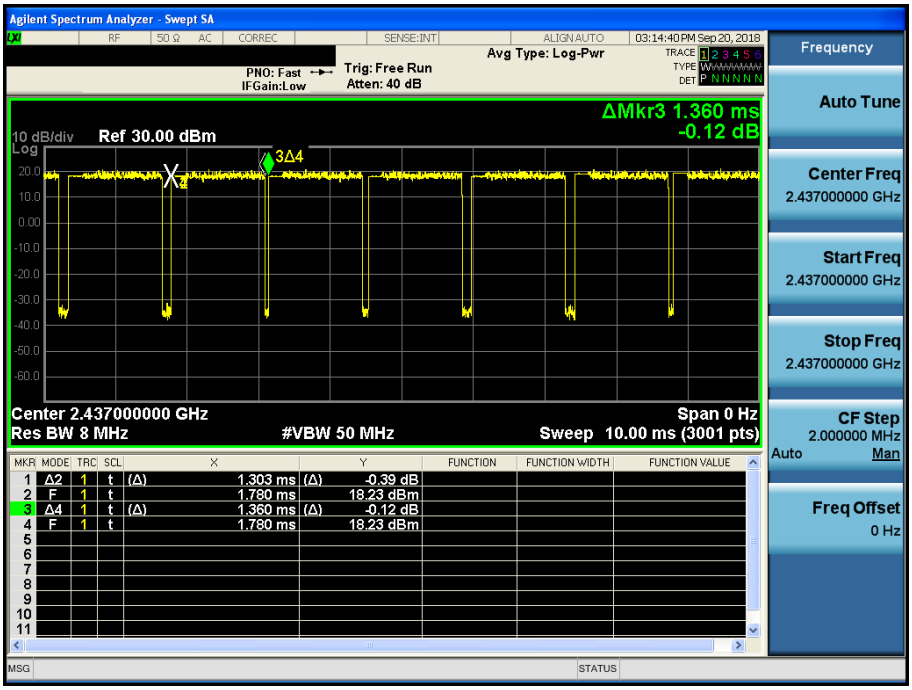
Duty Cycle was measured using **section 6.0 b) of KDB558074 D01V04 :**

The zero-span mode on a spectrum analyzer or EMI receiver if the response time and spacing between bins on the sweep are sufficient to permit accurate measurements of the on and off times of the transmitted signal. Set the center frequency of the instrument to the center frequency of the transmission. Set RBW ≥ OBW if possible; otherwise, set RBW to the largest available value. Set VBW ≥ RBW. Set detector = peak or average.

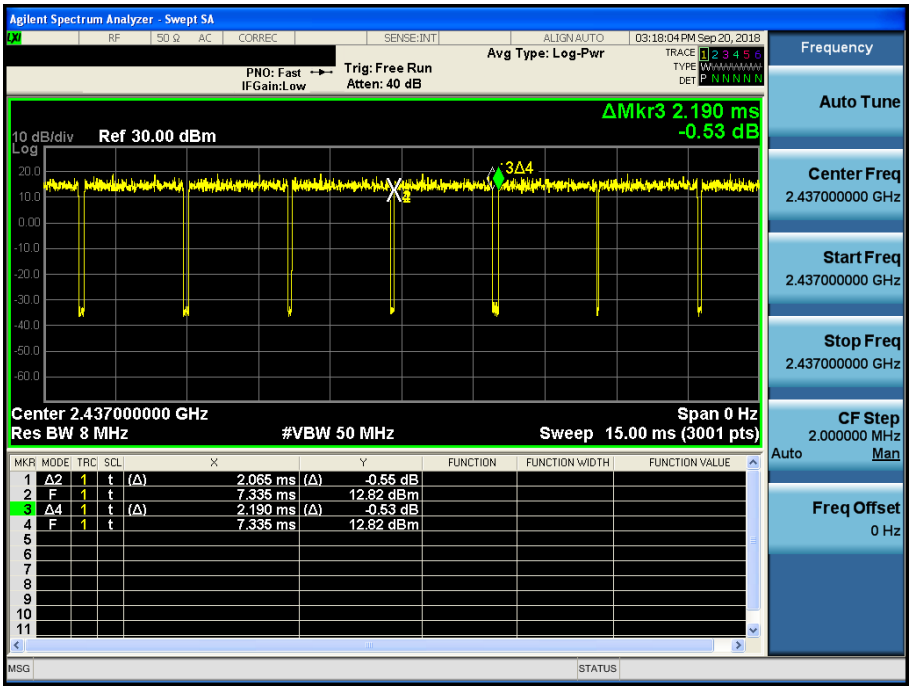
The zero-span measurement method shall not be used unless both RBW and VBW are > 50/T and the number of sweep points across duration T exceeds 100. (For example, if VBW and/or RBW are limited to 3 MHz, then the zero-span method of measuring duty cycle shall not be used if T ≤ 16.7 microseconds.)

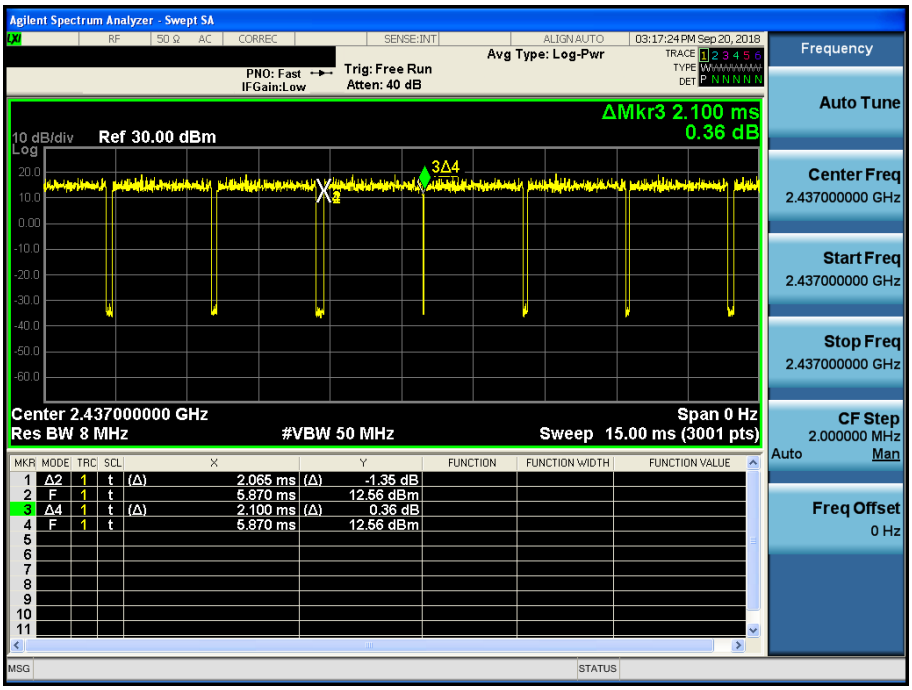
Duty Cycle TM 1 & Middle



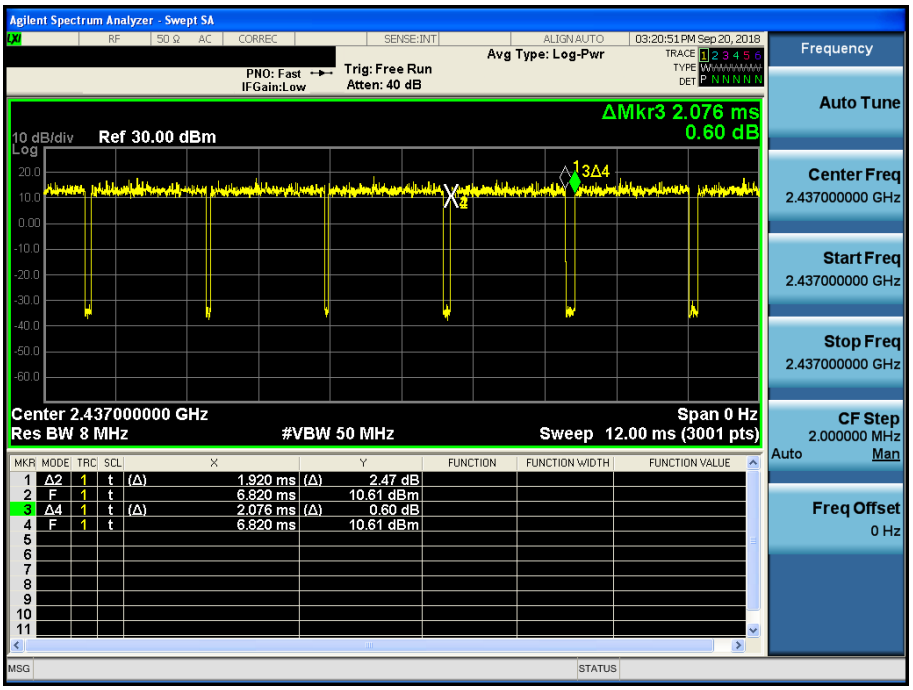


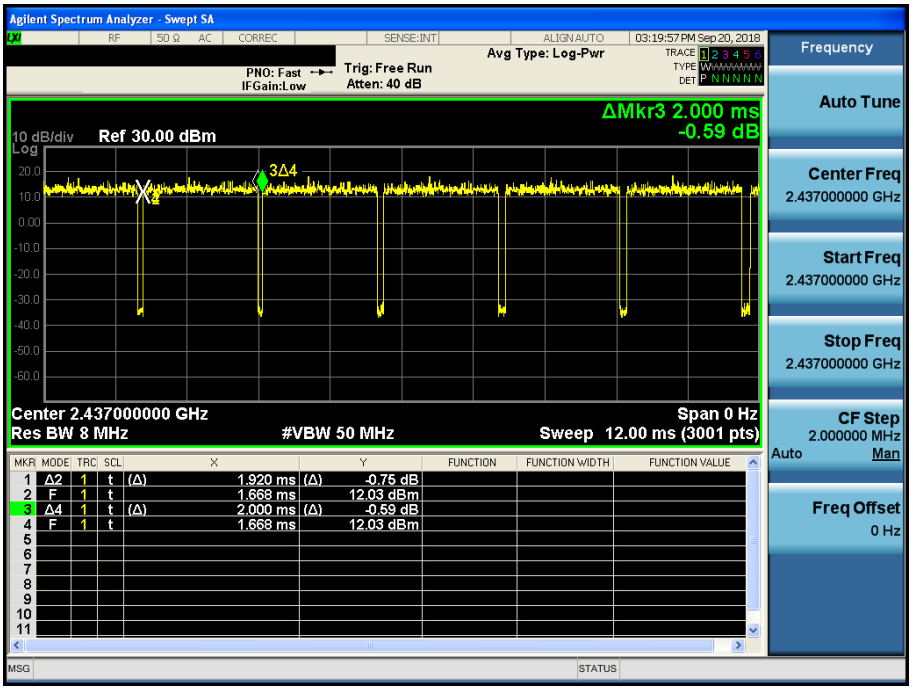
Duty Cycle TM 2 & Middle



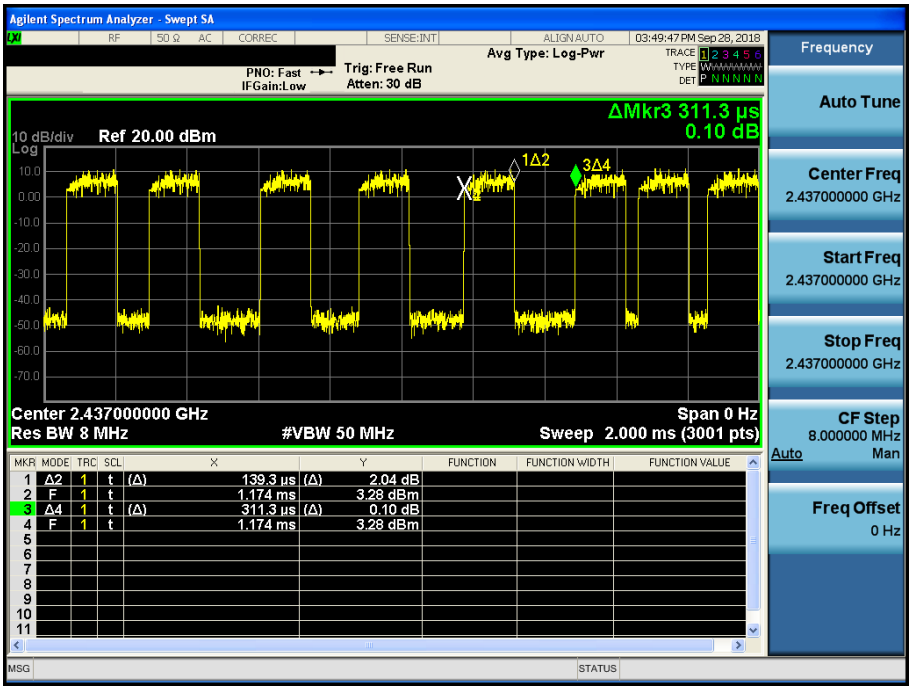


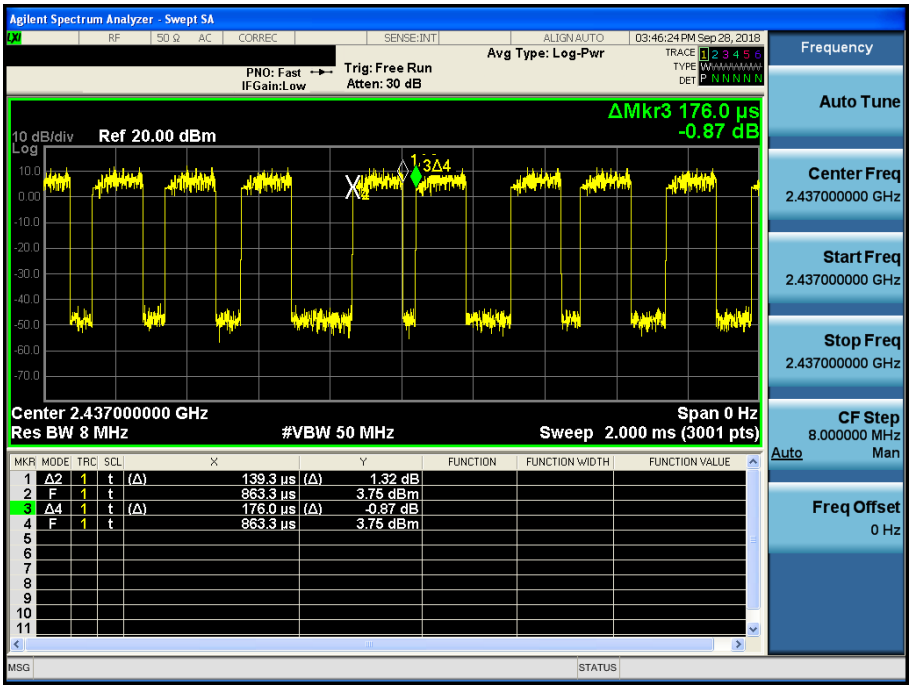
Duty Cycle TM 3 & Middle





Duty Cycle TM 4 & Middle

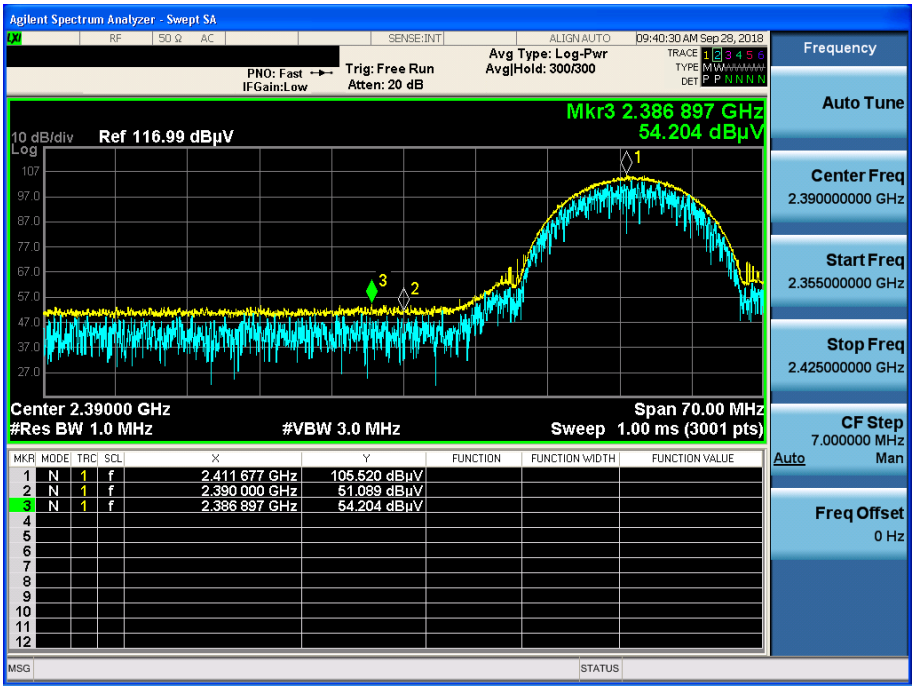




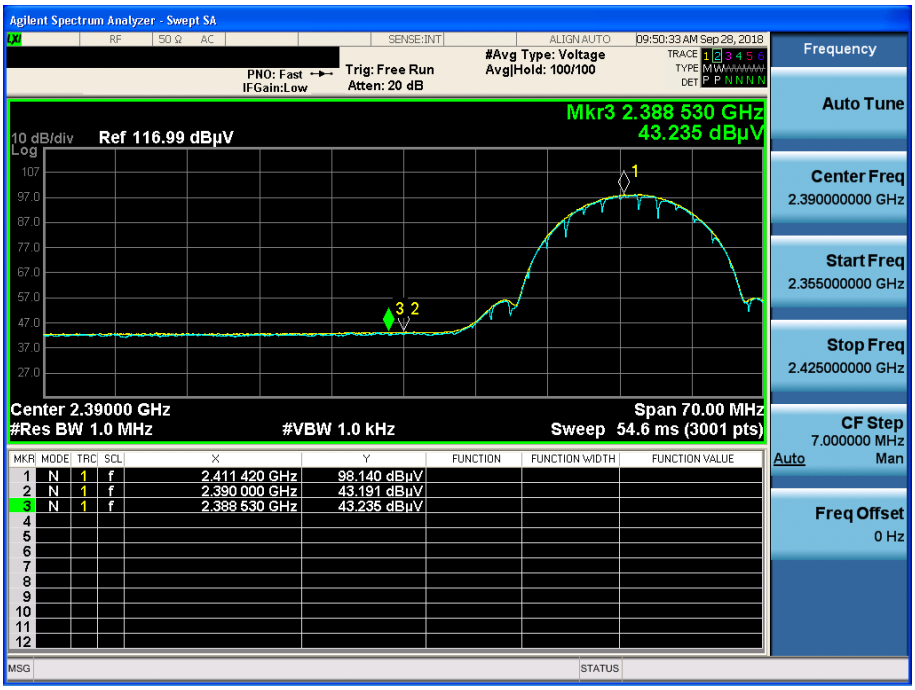
APPENDIX III

Unwanted Emissions (Radiated) Test Plot

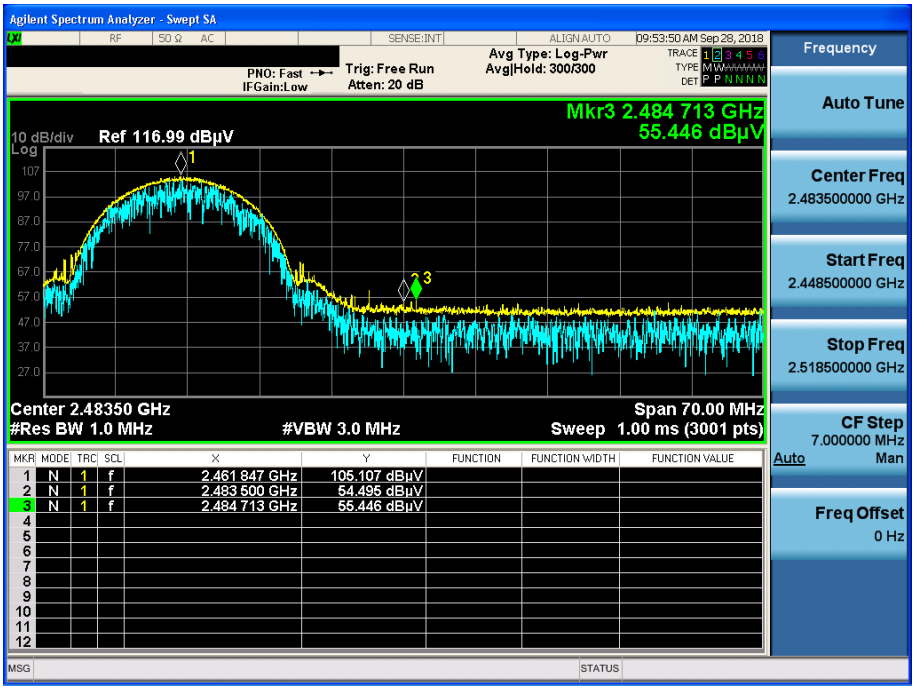
TM 1 & Lowest & X axis & Hor **Detector Mode : PK**



TM 1 & Lowest & X axis & Hor **Detector Mode : AV**

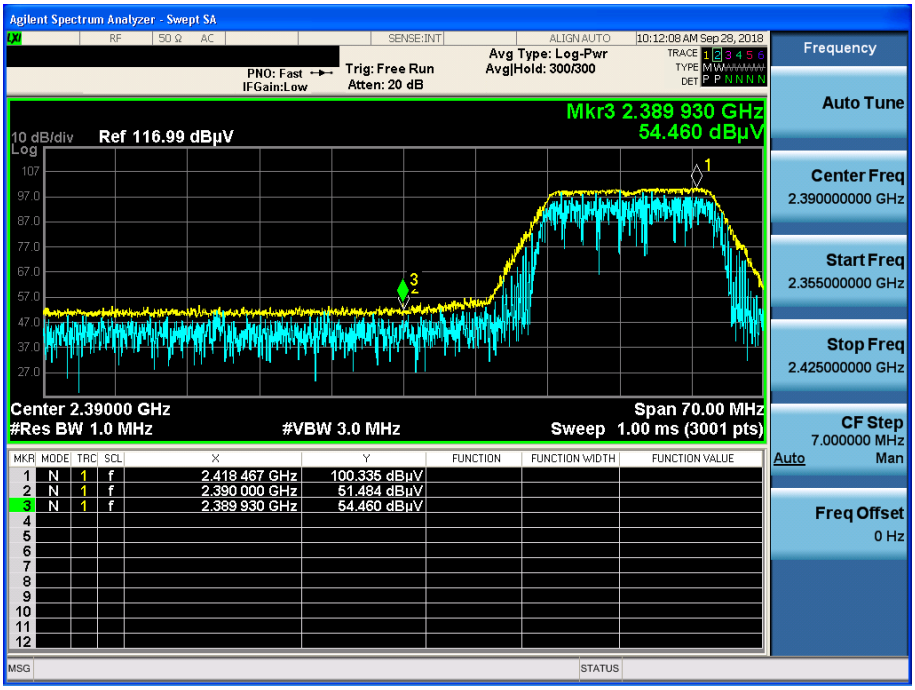


TM 1 & Highest & X axis & Hor **Detector Mode : PK**

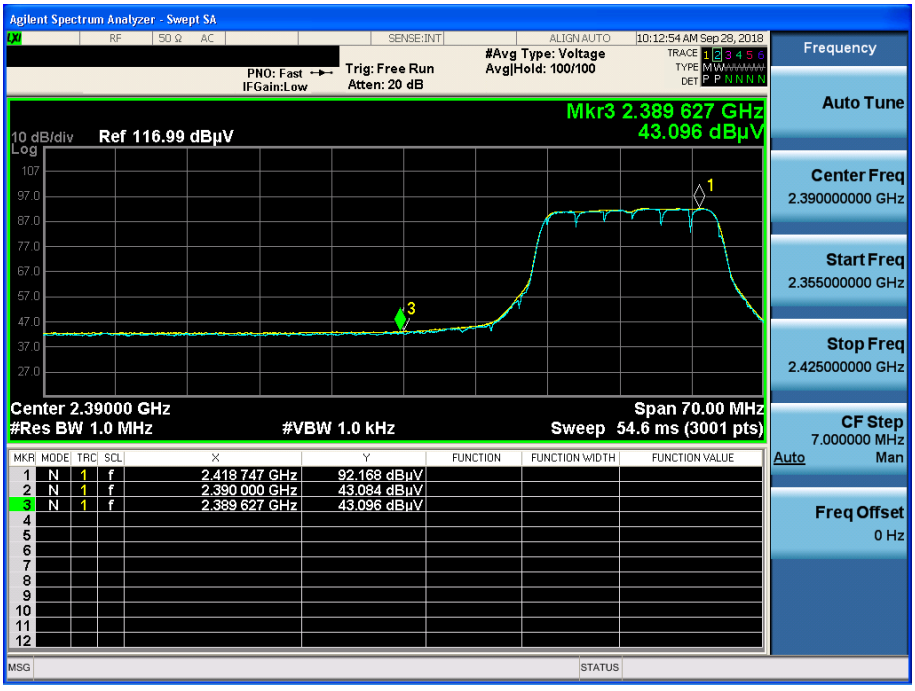


TM 1 & Highest & X axis & Hor **Detector Mode : AV**

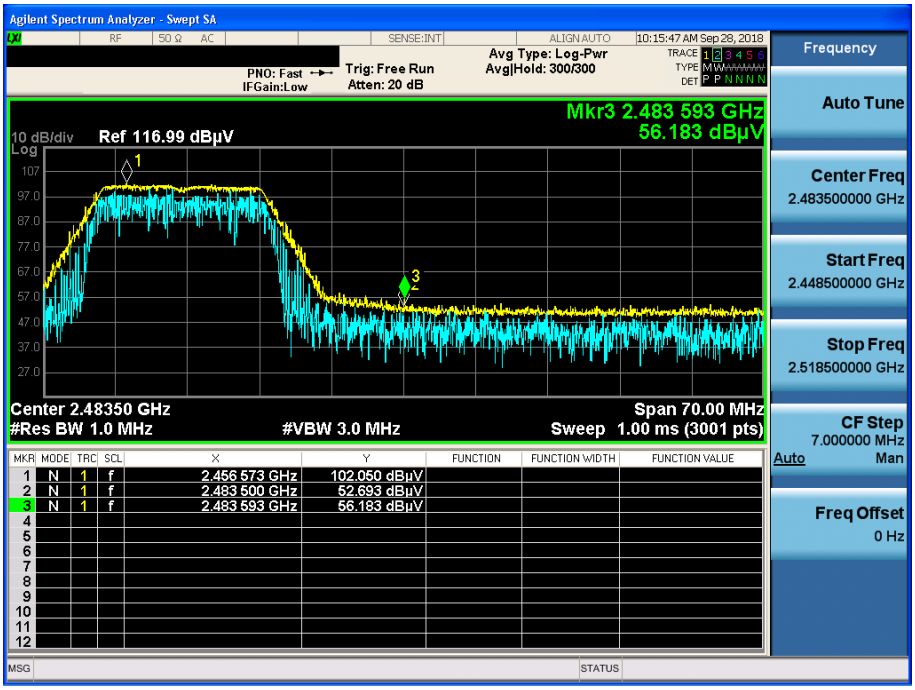
TM 2 & Lowest & X axis & Hor **Detector Mode : PK**



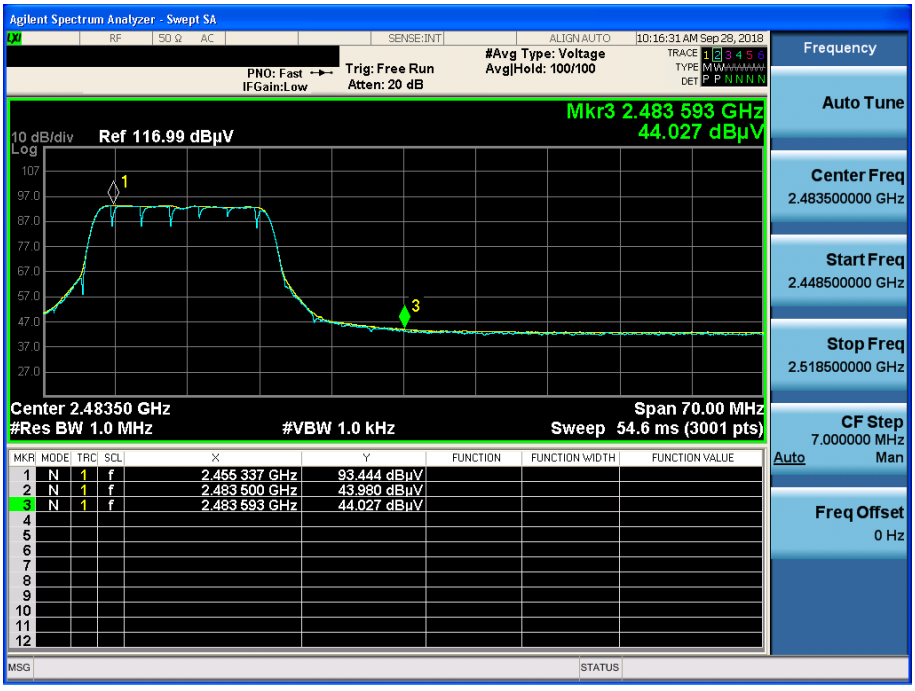
TM 2 & Lowest & X axis & Hor **Detector Mode : AV**



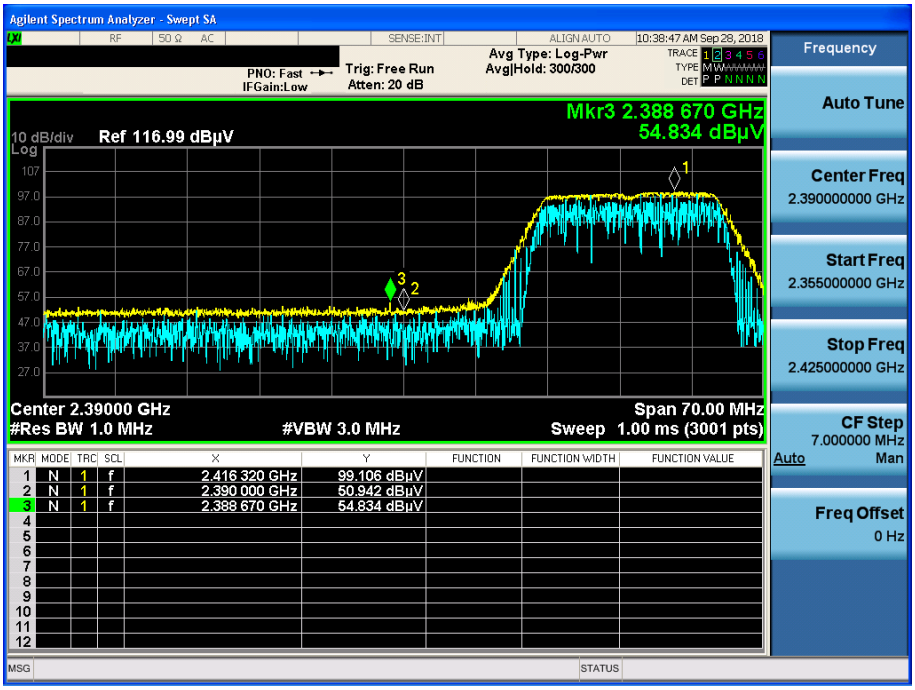
TM 2 & Highest & X axis & Hor **Detector Mode : PK**



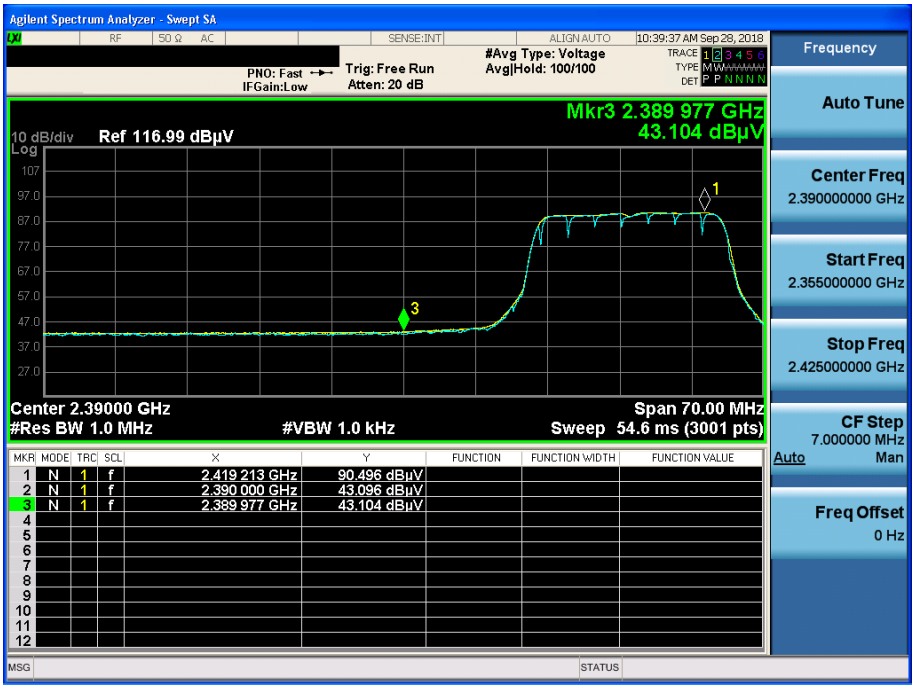
TM 2 & Highest & X axis & Hor **Detector Mode : AV**



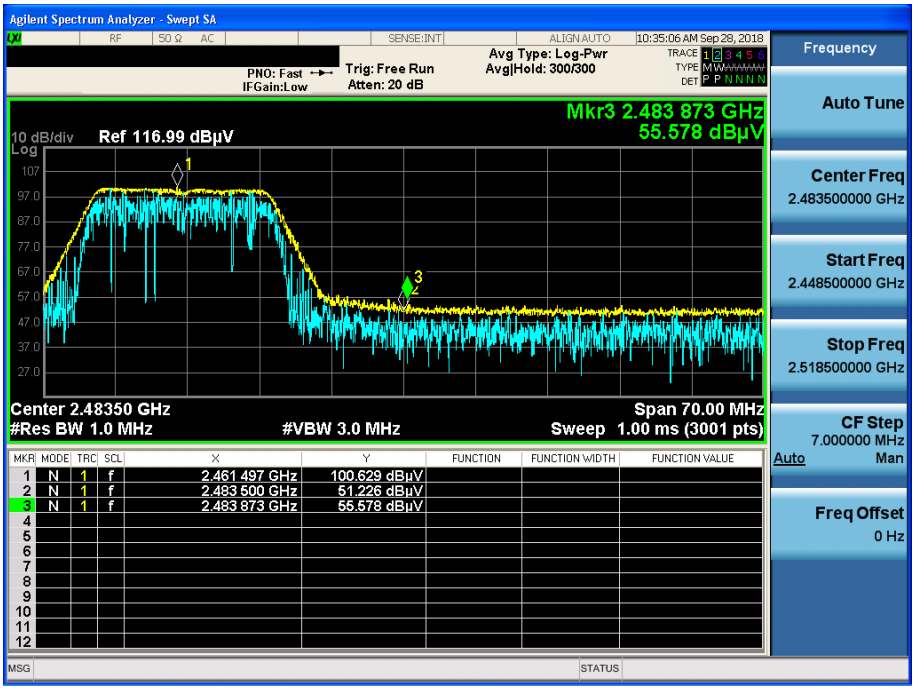
TM 3 & Lowest & X axis & Hor **Detector Mode : PK**



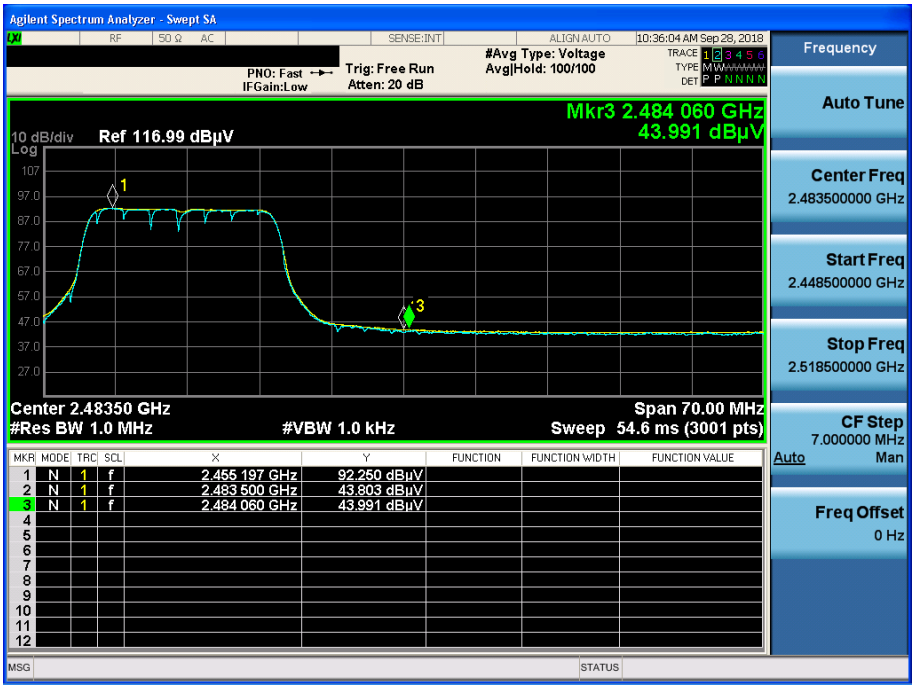
TM 3 & Lowest & X axis & Hor **Detector Mode : AV**



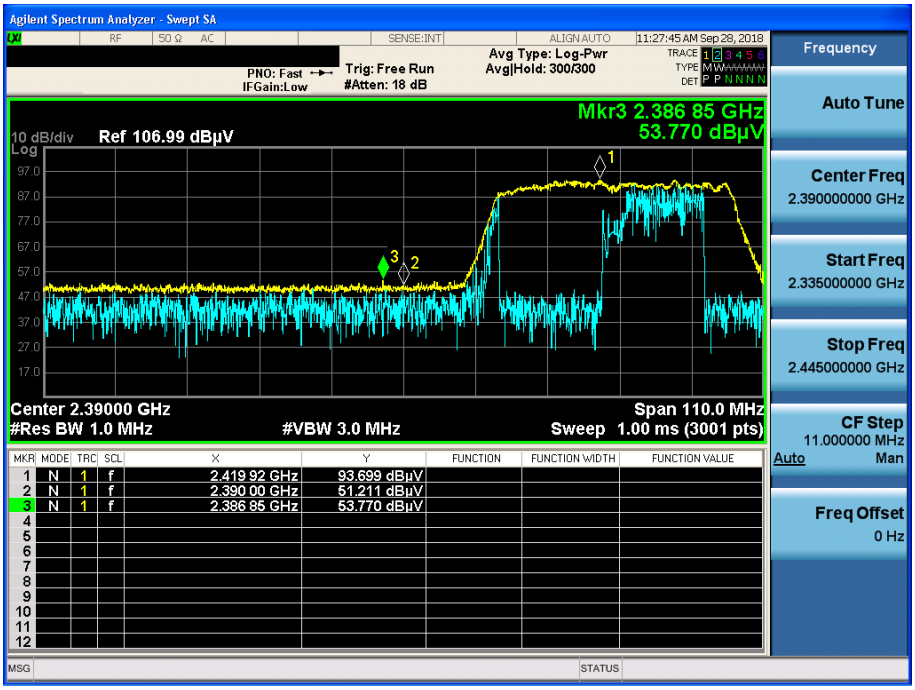
TM 3 & Highest & X axis & Hor **Detector Mode : PK**



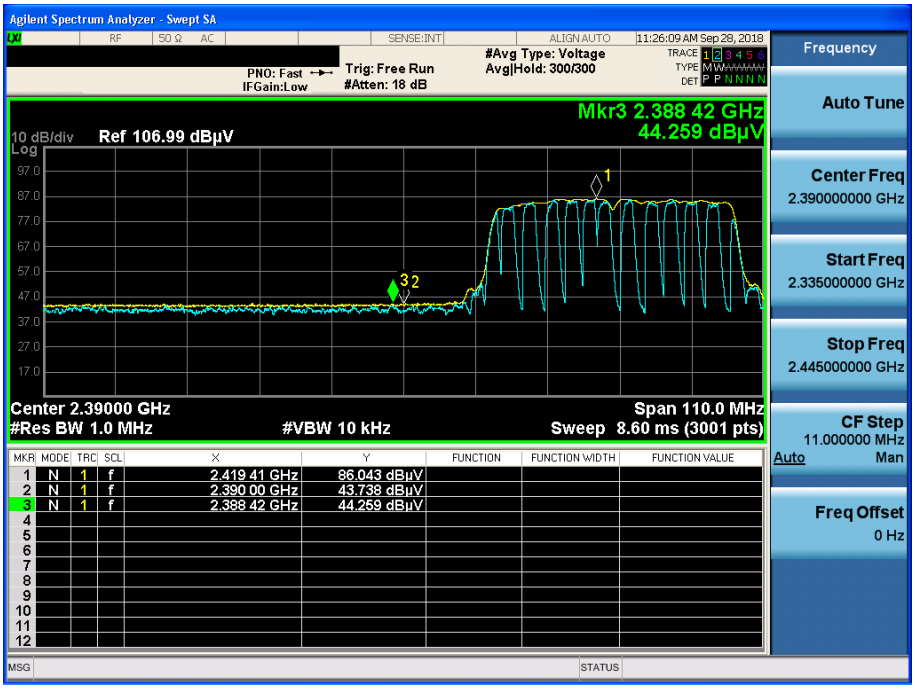
TM 3 & Highest & X axis & Hor **Detector Mode : AV**



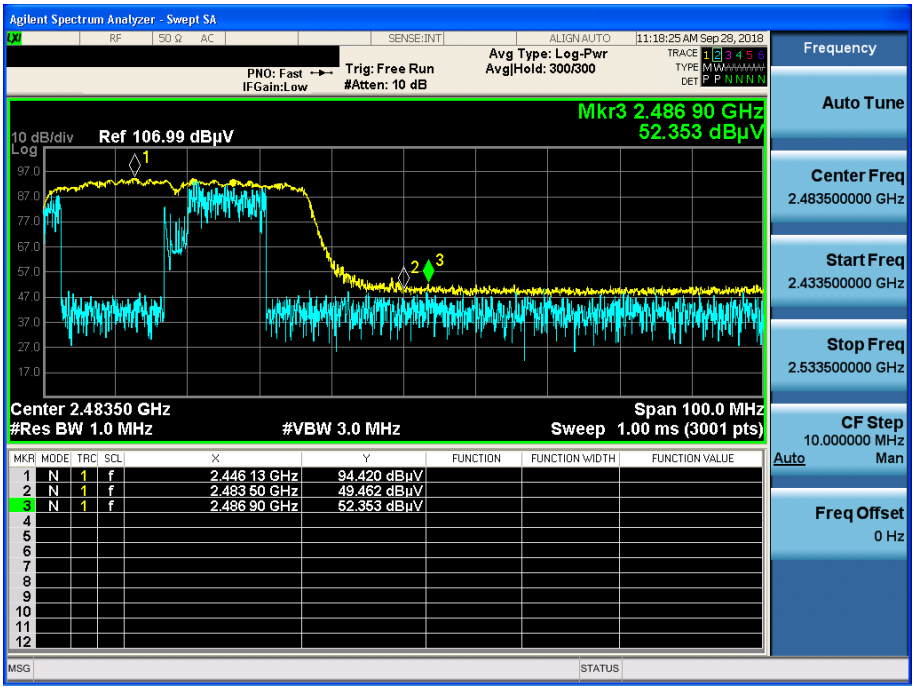
TM 4 & Lowest & X axis & Hor **Detector Mode : PK**



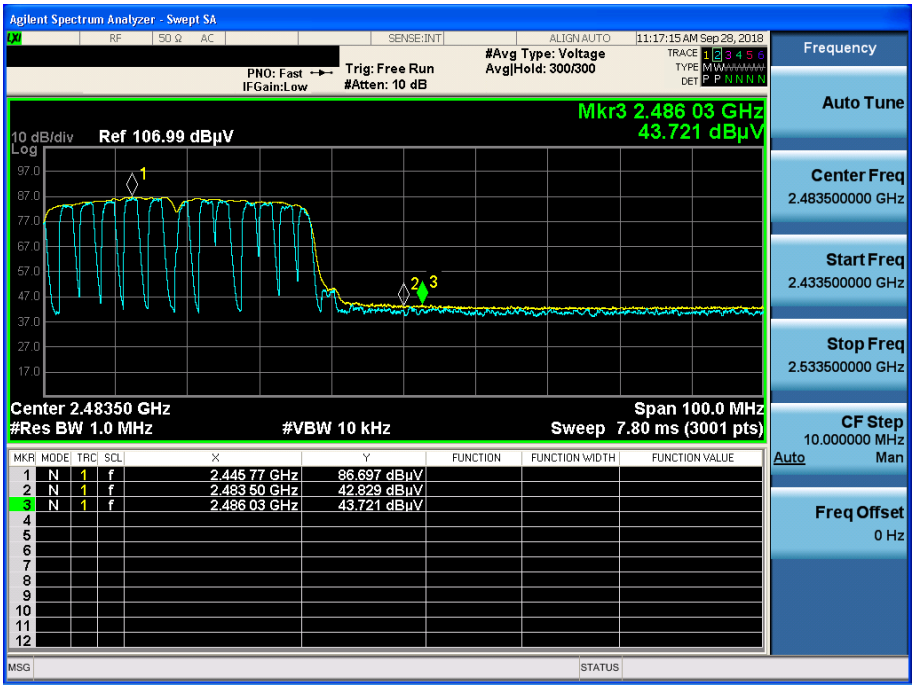
TM 4 & Lowest & X axis & Hor **Detector Mode : AV**



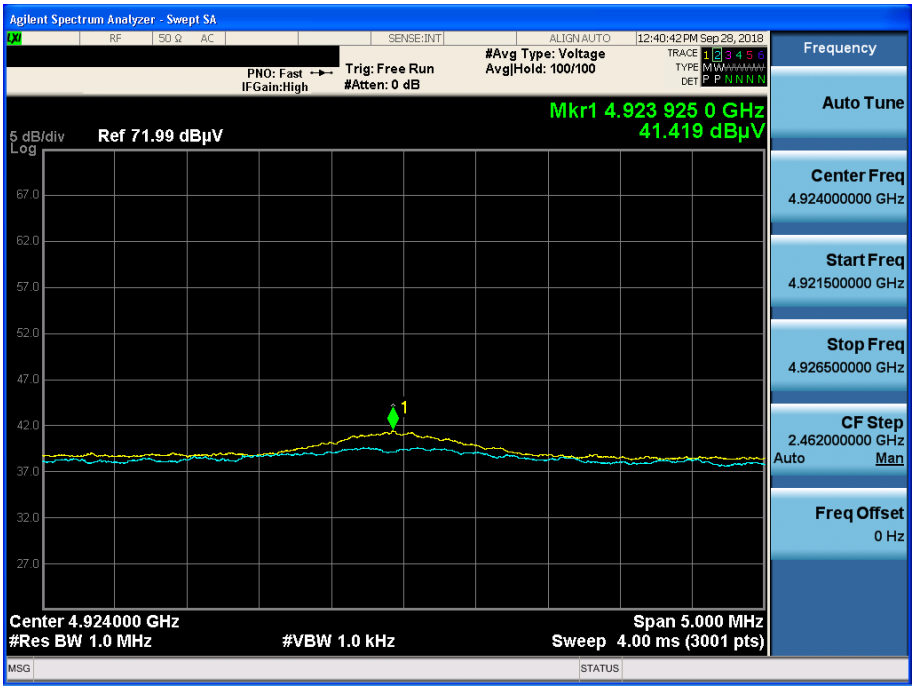
TM 4 & Highest & X axis & Hor **Detector Mode : PK**



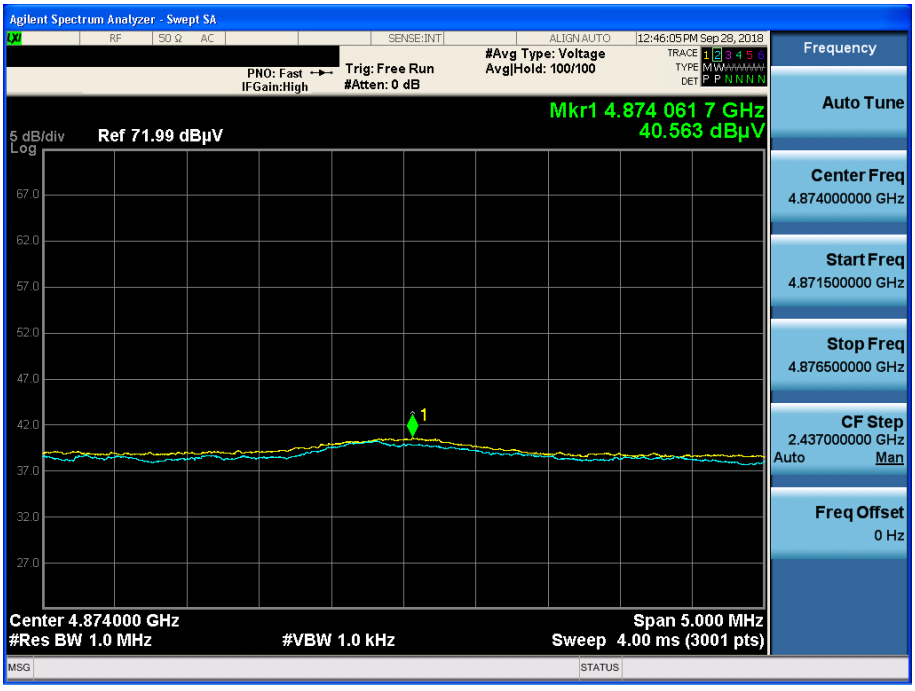
TM 4 & Highest & X axis & Hor **Detector Mode : AV**



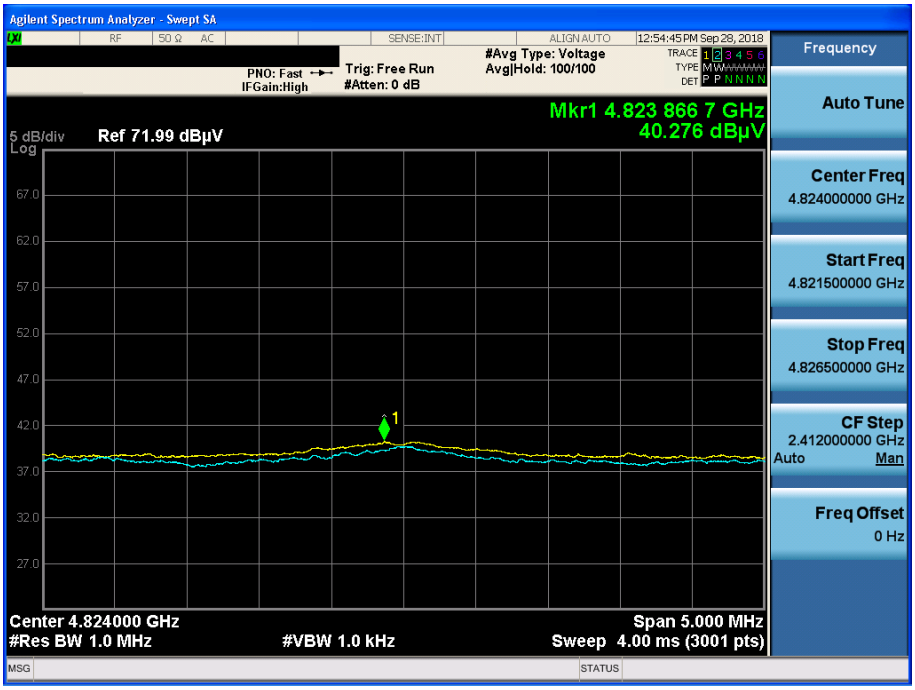
TM 1 & Highest & Z axis & Hor **Detector Mode : AV**



TM 2 & Middle & Z axis & Hor **Detector Mode : AV**



TM 3 & Lowest & Z axis & Hor **Detector Mode : AV**



TM 4 & Middle & Z axis & Hor **Detector Mode : AV**