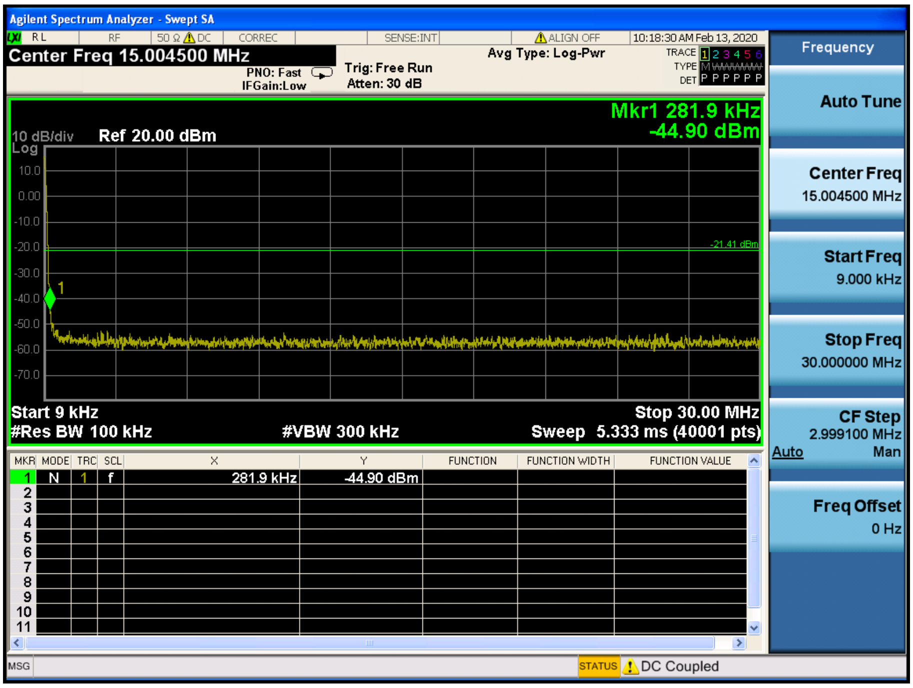
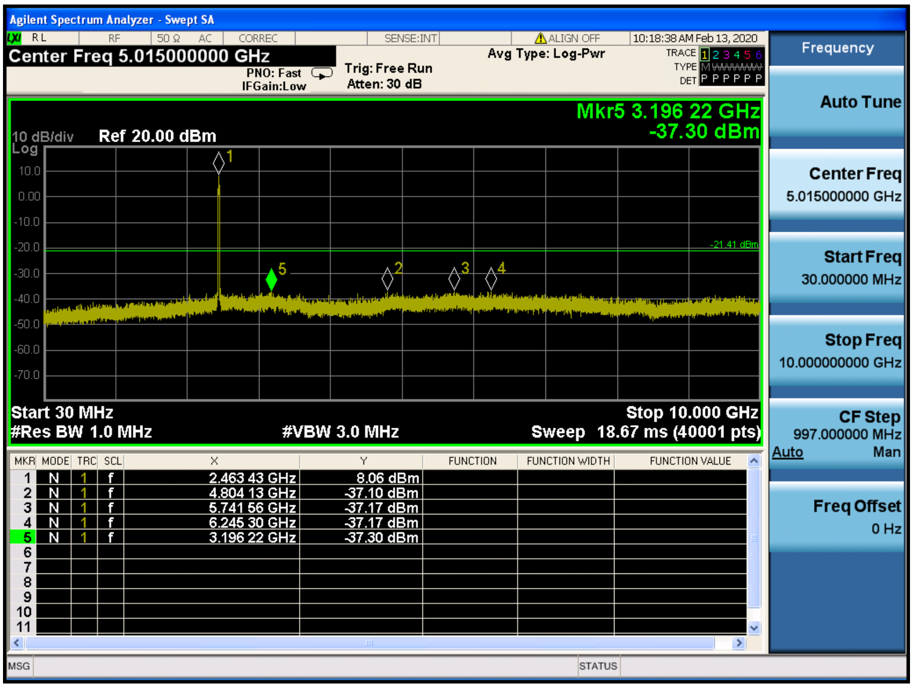
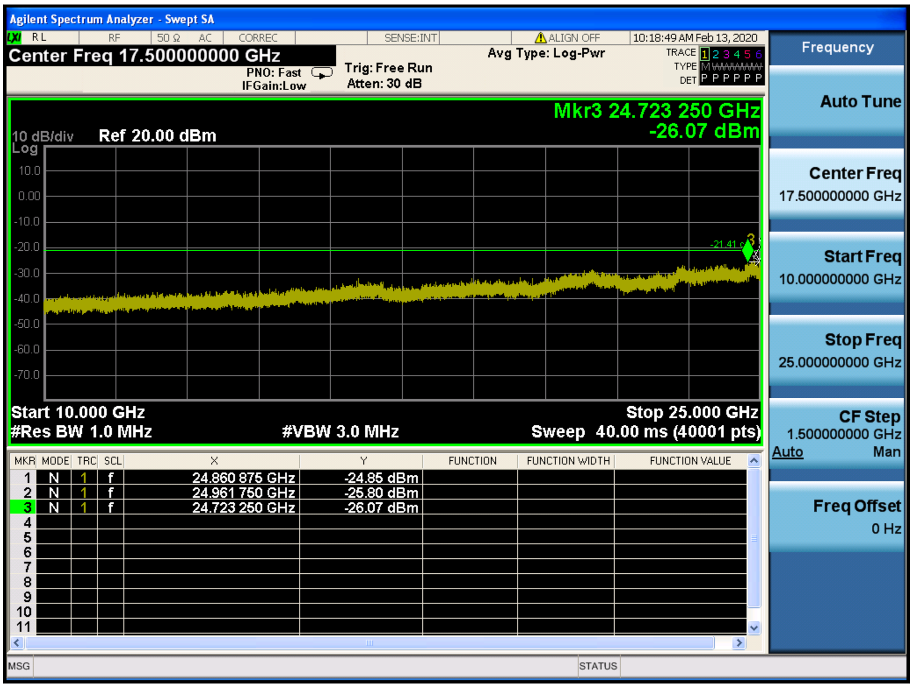
Conducted Spurious Emissions



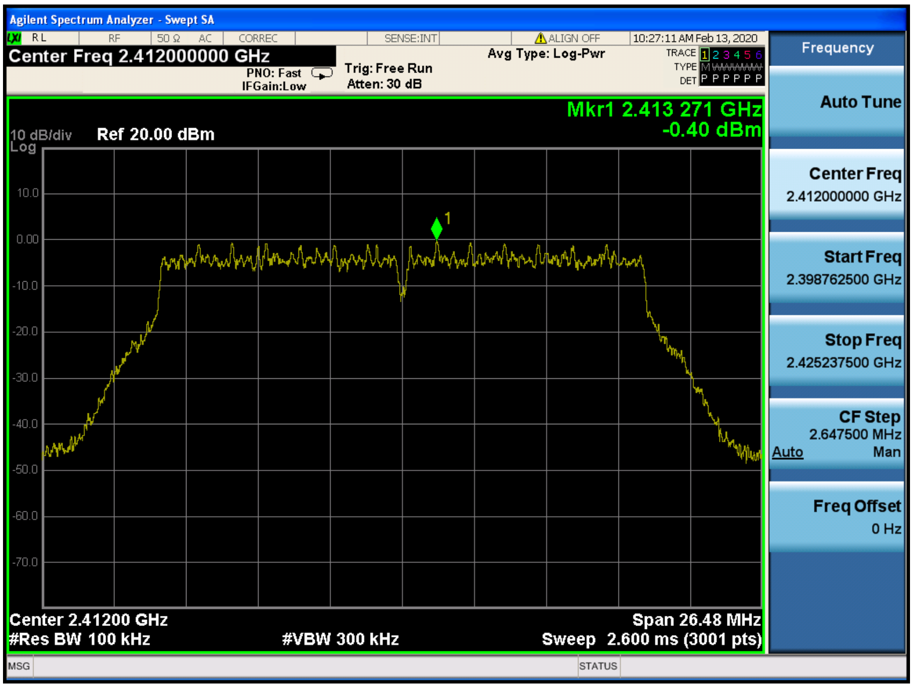


Conducted Spurious Emissions

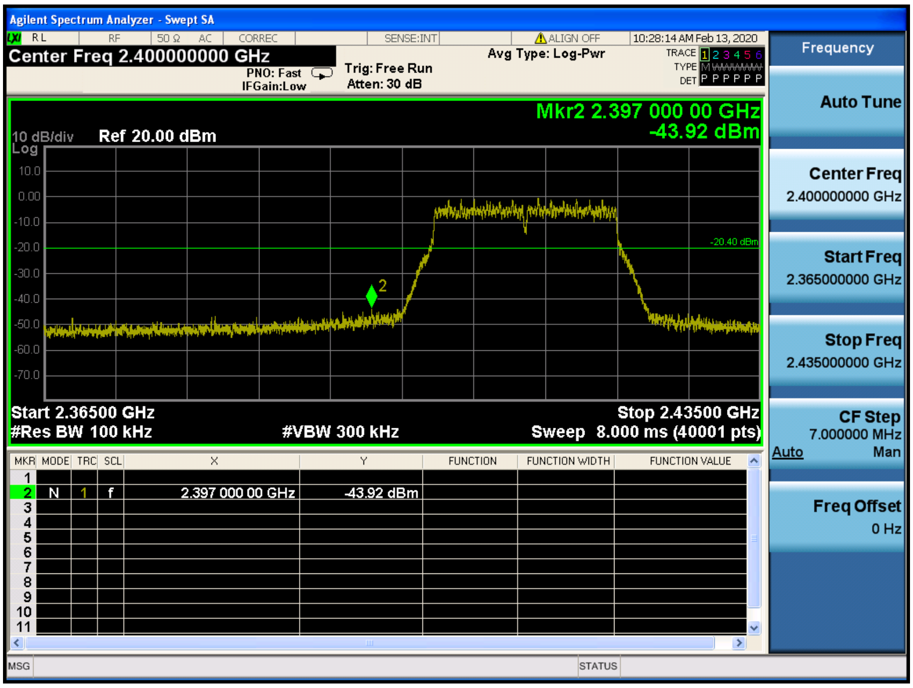


TM 3 & Lowest

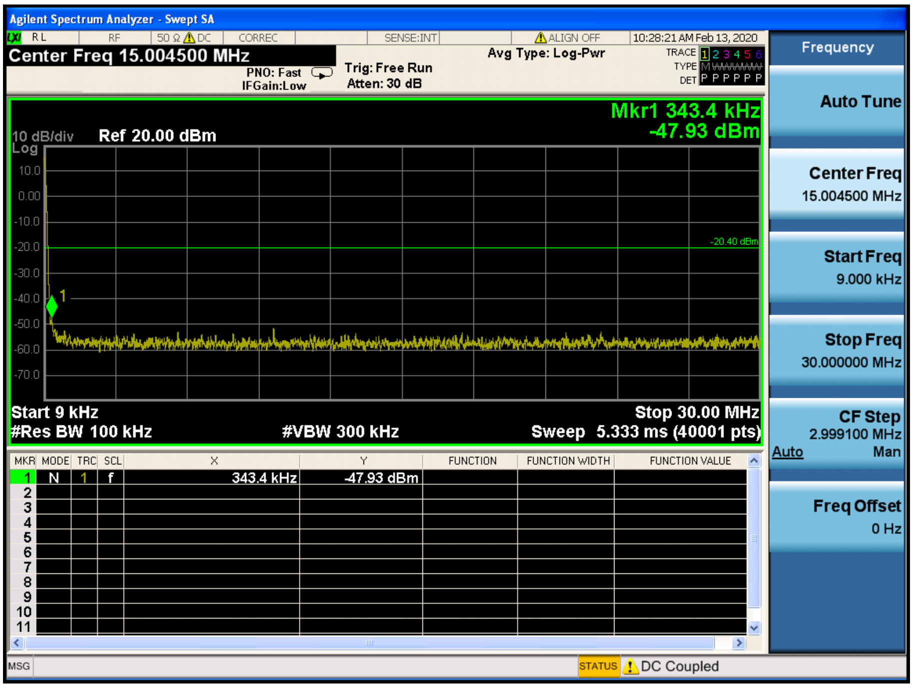
Reference

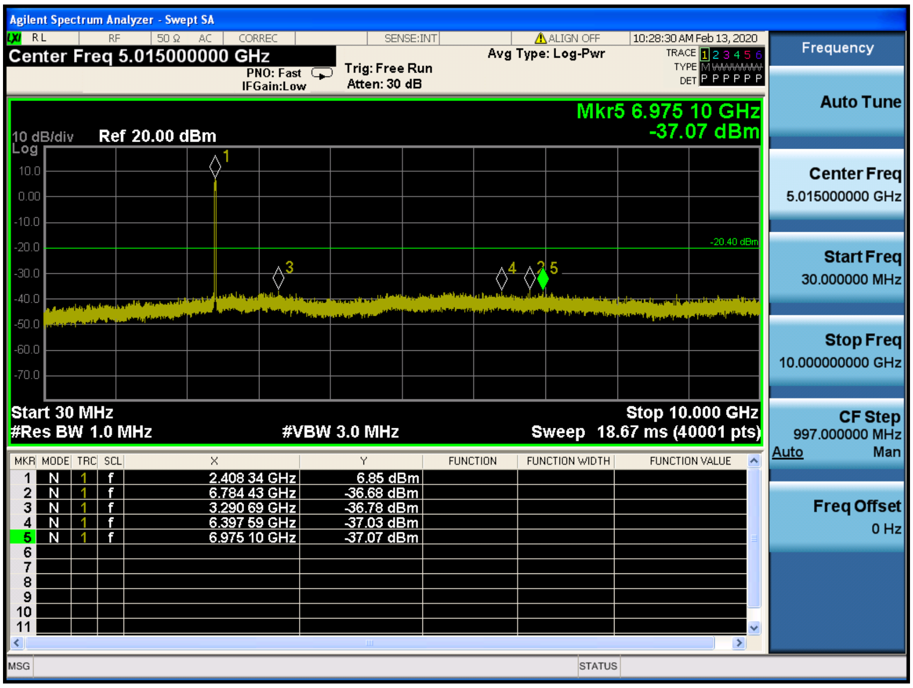


Low Band-edge

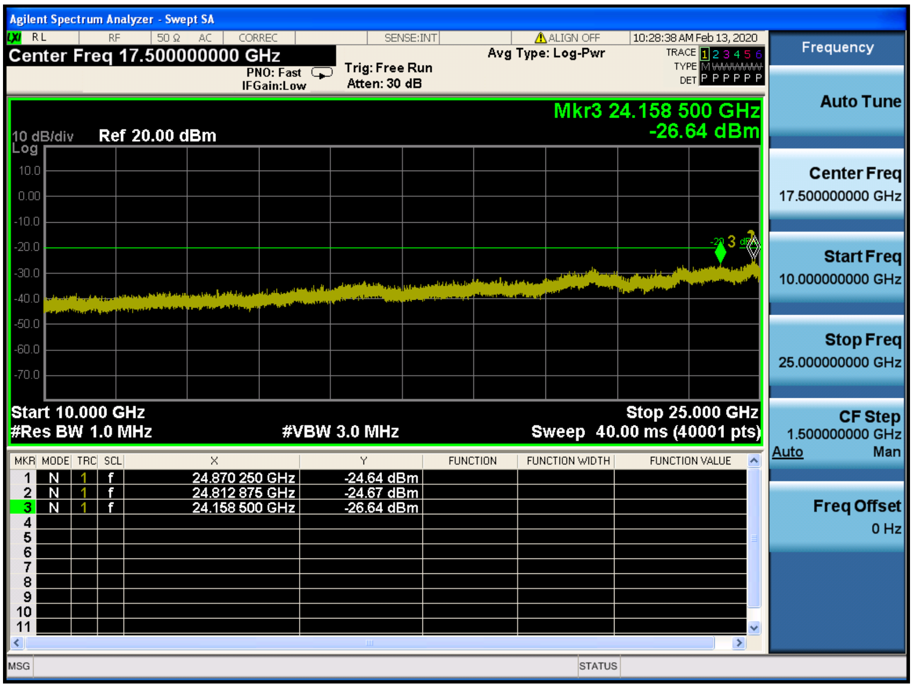


Conducted Spurious Emissions



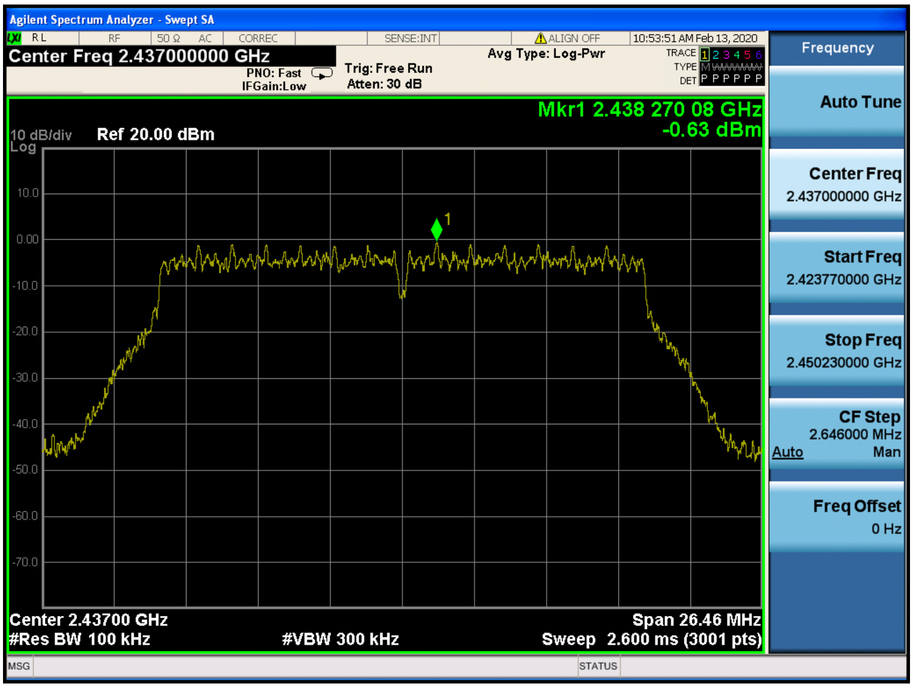


Conducted Spurious Emissions



TM 3 & Middle

Reference



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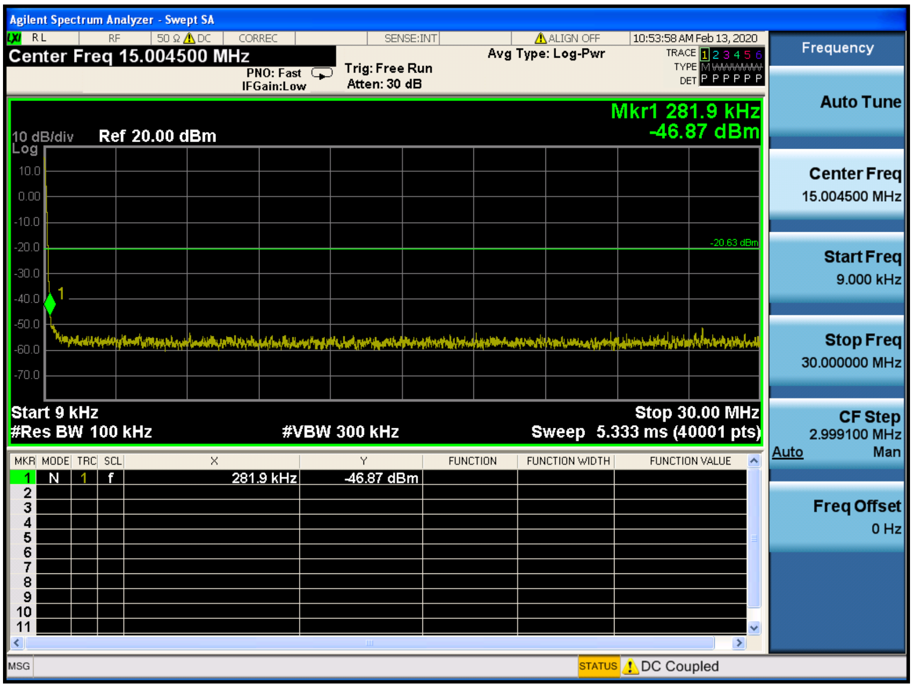

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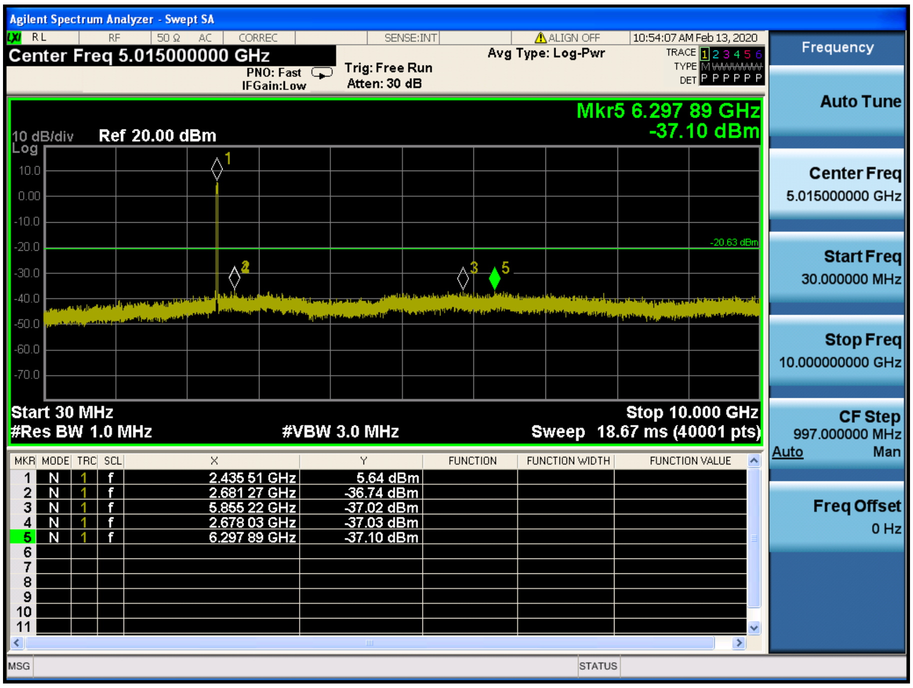
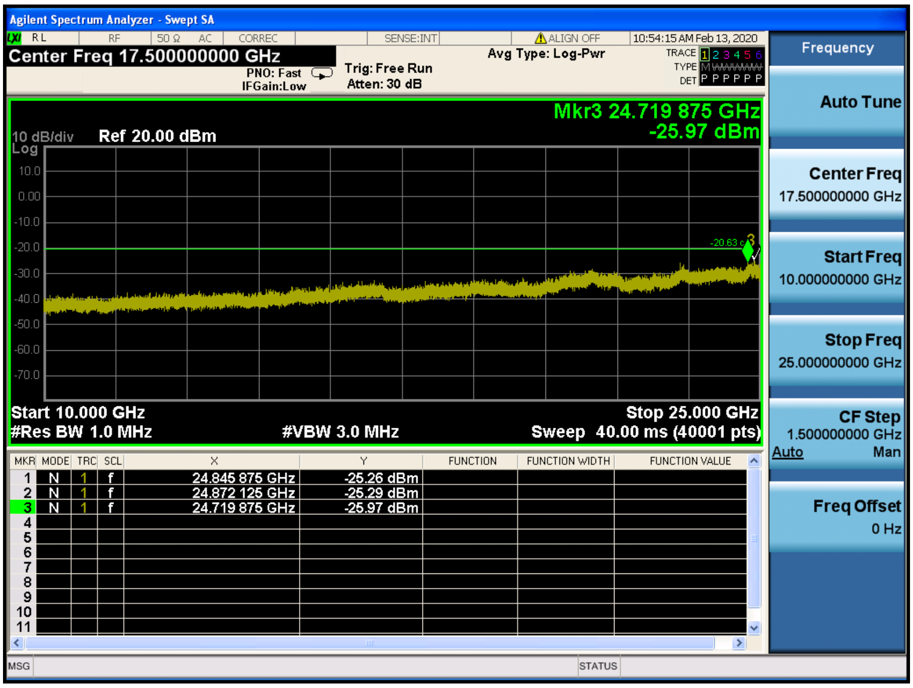
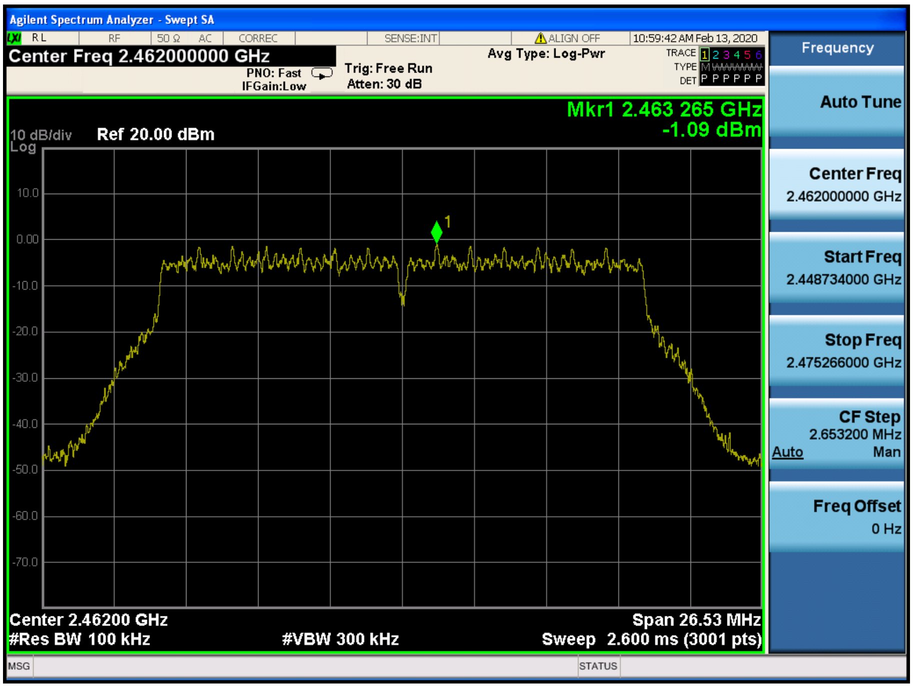


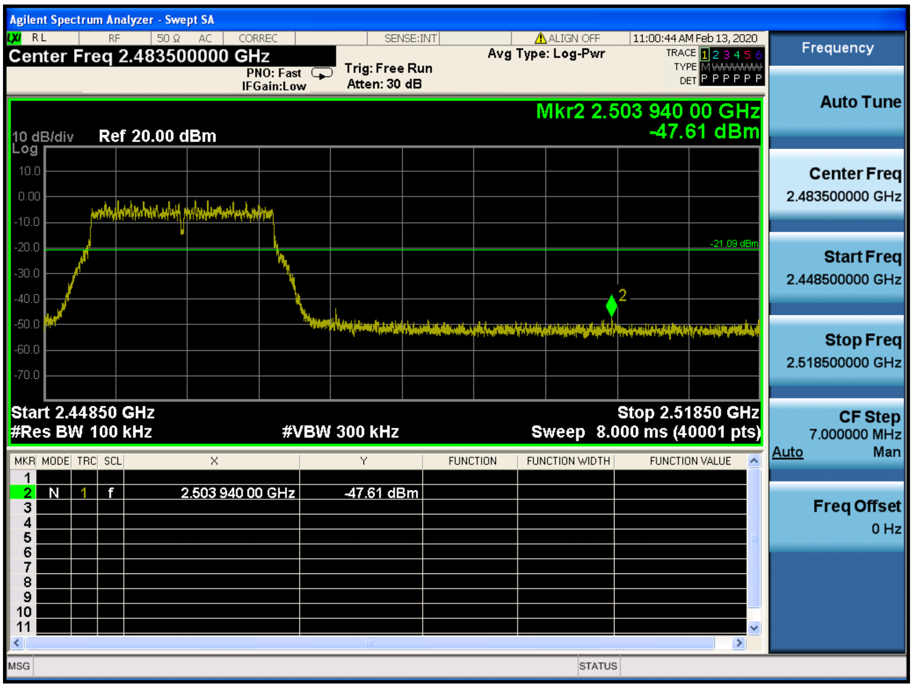


TM 3 & Highest

Reference



High Band-edge



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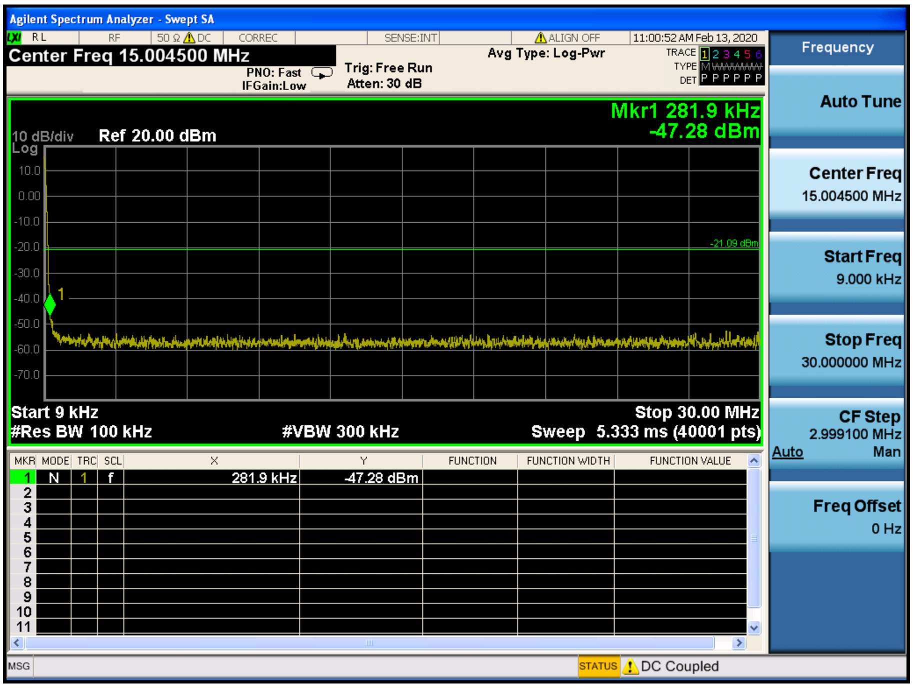

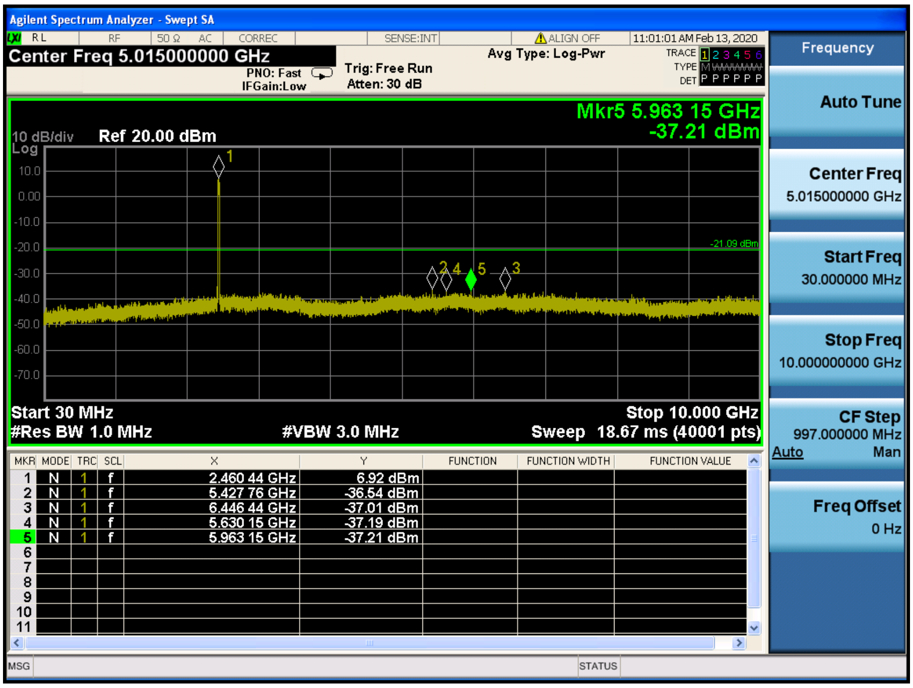

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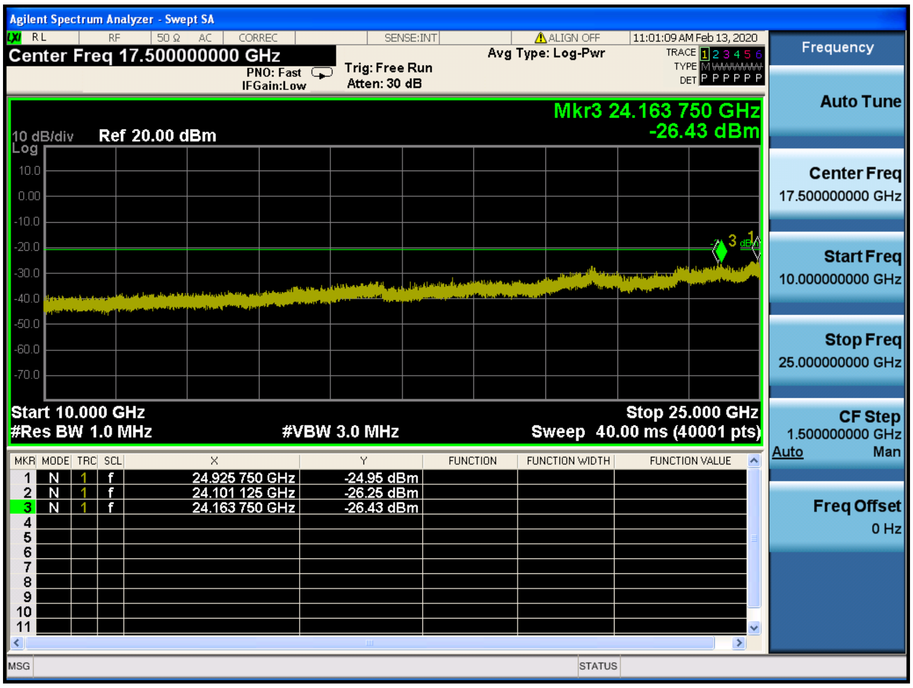


8.5 Radiated spurious emissions

▣ 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

Refer to the APPENDIX I.

▣ 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 D01v05r02 - 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 (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/D), where D is the duty cycle.
2) If linear voltage averaging mode was used in step 4, then the applicable correction factor is 20 log(1/D), where D 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	T_{on}(ms)	T_{on+off} (ms)	D = T_{on} / (T_{on+off})	DCCF = 10 log(1/D) (dB)
TM 1	1Mbps	12.420	12.510	0.9928	N/A
TM 2	6Mbps	2.064	2.165	0.9533	0.21
TM 3	MCS 0	0.249	0.350	0.7122	1.47

Note1: Where, T= Transmission duration / D= Duty cycle
Note2: Please refer to the appendix I for duty cycle plots.

▣ **Test Results: Comply**

Radiated Spurious Emissions data(9 kHz ~ 25 GHz) : *TM 1* & *MN: ADB10S2AN0*

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	2389.32	V	X	PK	50.00	5.23	N/A	N/A	55.23	74.00	18.77
	2388.91	V	X	AV	39.57	5.23	N/A	N/A	44.80	54.00	9.20
	4824.31	V	X	PK	49.82	1.59	N/A	N/A	51.41	74.00	22.59
	4823.76	V	X	AV	39.02	1.58	N/A	N/A	40.60	54.00	13.40
	7234.68	V	X	PK	49.94	8.97	N/A	N/A	58.91	74.00	15.09
	7234.77	V	X	AV	41.23	8.97	N/A	N/A	50.20	54.00	3.80
Middle	4873.74	V	X	PK	46.88	1.82	N/A	N/A	48.70	74.00	25.30
	4873.58	V	X	AV	36.71	1.82	N/A	N/A	38.53	54.00	15.47
	7309.47	V	X	PK	48.05	9.72	N/A	N/A	57.77	74.00	16.23
	7309.75	V	X	AV	39.31	9.73	N/A	N/A	49.04	54.00	4.96
Highest	2484.03	V	X	PK	49.64	5.79	N/A	N/A	55.43	74.00	18.57
	2483.86	V	X	AV	38.88	5.79	N/A	N/A	44.67	54.00	9.33
	4923.76	V	X	PK	50.29	2.10	N/A	N/A	52.39	74.00	21.61
	4923.53	V	X	AV	39.77	2.10	N/A	N/A	41.87	54.00	12.13
	7385.03	V	X	PK	48.91	9.78	N/A	N/A	58.69	74.00	15.31
	7384.68	V	X	AV	40.43	9.78	N/A	N/A	50.21	54.00	3.79

Note.

1. The radiated emissions were investigated up to 25GHz. And no other spurious and harmonic emissions were found above listed frequencies.
2. 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
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(applied distance / required distance) = 20 log(1 m / 3 m) = -9.54 dB

Radiated Spurious Emissions data(9 kHz ~ 25 GHz) : *TM 2* & *MN: ADB10S2AN0*

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	2389.32	V	X	PK	52.40	5.23	N/A	N/A	57.63	74.00	16.37
	2389.59	V	X	AV	41.82	5.24	0.21	N/A	47.27	54.00	6.73
	4823.67	V	X	PK	49.49	1.58	N/A	N/A	51.07	74.00	22.93
	4823.82	V	X	AV	39.37	1.58	0.21	N/A	41.16	54.00	12.84
	7235.63	V	X	PK	54.44	8.98	N/A	N/A	63.42	74.00	10.58
	7235.95	V	X	AV	38.75	8.99	0.21	N/A	47.95	54.00	6.05
Middle	4873.82	V	X	PK	50.10	1.82	N/A	N/A	51.92	74.00	22.08
	4874.16	V	X	AV	39.52	1.83	0.21	N/A	41.56	54.00	12.44
	7311.36	V	X	PK	51.51	9.74	N/A	N/A	61.25	74.00	12.75
	7311.13	V	X	AV	36.63	9.74	0.21	N/A	46.58	54.00	7.42
Highest	2483.67	V	X	PK	49.13	5.79	N/A	N/A	54.92	74.00	19.08
	2484.12	V	X	AV	39.86	5.79	0.21	N/A	45.86	54.00	8.14
	4923.69	V	X	PK	50.10	2.10	N/A	N/A	52.20	74.00	21.80
	4924.19	V	X	AV	39.54	2.10	0.21	N/A	41.85	54.00	12.15
	7386.15	V	X	PK	53.00	9.78	N/A	N/A	62.78	74.00	11.22
	7386.10	V	X	AV	37.53	9.78	0.21	N/A	47.52	54.00	6.48

Note.

1. The radiated emissions were investigated up to 25GHz. And no other spurious and harmonic emissions were found above listed frequencies.
2. 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
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(applied distance / required distance) = 20 log(1 m / 3 m) = -9.54 dB

Radiated Spurious Emissions data(9 kHz ~ 25 GHz) : *TM 3* & *MN: ADB10S2AN0*

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	2389.05	V	X	PK	50.84	5.23	N/A	N/A	56.07	74.00	17.93
	2389.45	V	X	AV	40.66	5.23	1.47	N/A	47.36	54.00	6.64
	4824.47	V	X	PK	50.07	1.59	N/A	N/A	51.66	74.00	22.34
	4823.51	V	X	AV	39.14	1.58	1.47	N/A	42.19	54.00	11.81
	7236.36	V	X	PK	50.30	8.99	N/A	N/A	59.29	74.00	14.71
	7236.03	V	X	AV	36.74	8.99	1.47	N/A	47.20	54.00	6.80
Middle	4873.82	V	X	PK	49.86	1.82	N/A	N/A	51.68	74.00	22.32
	4874.43	V	X	AV	39.44	1.83	1.47	N/A	42.74	54.00	11.26
	7310.99	V	X	PK	50.27	9.74	N/A	N/A	60.01	74.00	13.99
	7310.55	V	X	AV	35.97	9.73	1.47	N/A	47.17	54.00	6.83
Highest	2483.84	V	X	PK	50.42	5.79	N/A	N/A	56.21	74.00	17.79
	2483.74	V	X	AV	39.63	5.79	1.47	N/A	46.89	54.00	7.11
	4923.86	V	X	PK	49.99	2.10	N/A	N/A	52.09	74.00	21.91
	4923.97	V	X	AV	39.47	2.10	1.47	N/A	43.04	54.00	10.96
	7385.76	V	X	PK	50.14	9.78	N/A	N/A	59.92	74.00	14.08
	7386.14	V	X	AV	36.37	9.78	1.47	N/A	47.62	54.00	6.38

Note.

1. The radiated emissions were investigated up to 25GHz. And no other spurious and harmonic emissions were found above listed frequencies.
2. 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
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(applied distance / required distance) = 20 log(1 m / 3 m) = -9.54 dB

Radiated Spurious Emissions data(9 kHz ~ 25 GHz) : *TM 1* & *MN: ADB40S2AN*

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	2388.98	V	X	PK	48.99	5.23	N/A	N/A	54.22	74.00	19.78
	2389.63	V	X	AV	39.11	5.24	N/A	N/A	44.35	54.00	9.65
	4824.32	V	X	PK	49.05	1.56	N/A	N/A	50.61	74.00	23.39
	4824.08	V	X	AV	38.70	1.56	N/A	N/A	40.26	54.00	13.74
	7234.57	V	X	PK	48.60	8.97	N/A	N/A	57.57	74.00	16.43
	7234.82	V	X	AV	39.54	8.97	N/A	N/A	48.51	54.00	5.49
Middle	4874.24	V	X	PK	49.60	1.80	N/A	N/A	51.40	74.00	22.60
	4874.31	V	X	AV	38.95	1.80	N/A	N/A	40.75	54.00	13.25
	7309.91	V	X	PK	48.33	9.73	N/A	N/A	58.06	74.00	15.94
	7309.41	V	X	AV	39.34	9.72	N/A	N/A	49.06	54.00	4.94
Highest	2484.62	V	X	PK	48.56	5.81	N/A	N/A	54.37	74.00	19.63
	2484.27	V	X	AV	38.89	5.81	N/A	N/A	44.70	54.00	9.30
	4923.54	V	X	PK	49.75	2.07	N/A	N/A	51.82	74.00	22.18
	4924.45	V	X	AV	39.08	2.07	N/A	N/A	41.15	54.00	12.85
	7384.45	V	X	PK	48.59	9.78	N/A	N/A	58.37	74.00	15.63
	7384.38	V	X	AV	39.29	9.78	N/A	N/A	49.07	54.00	4.93

Note.

4. The radiated emissions were investigated up to 25GHz. And no other spurious and harmonic emissions were found above listed frequencies.
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
6. 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(applied distance / required distance) = 20 log(1 m / 3 m) = -9.54 dB

Radiated Spurious Emissions data(9 kHz ~ 25 GHz) : *TM 2* & *MN: ADB40S2AN*

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	2389.75	V	X	PK	50.28	5.24	N/A	N/A	55.52	74.00	18.48
	2389.29	V	X	AV	40.32	5.23	0.21	N/A	45.76	54.00	8.24
	4823.62	V	X	PK	49.28	1.56	N/A	N/A	50.84	74.00	23.16
	4824.44	V	X	AV	38.76	1.56	0.21	N/A	40.53	54.00	13.47
	7235.56	V	X	PK	53.27	8.98	N/A	N/A	62.25	74.00	11.75
	7236.35	V	X	AV	37.39	8.99	0.21	N/A	46.59	54.00	7.41
Middle	4874.06	V	X	PK	49.70	1.80	N/A	N/A	51.50	74.00	22.50
	4874.23	V	X	AV	39.11	1.80	0.21	N/A	41.12	54.00	12.88
	7311.00	V	X	PK	53.21	9.74	N/A	N/A	62.95	74.00	11.05
	7310.61	V	X	AV	37.08	9.74	0.21	N/A	47.03	54.00	6.97
Highest	2483.68	V	X	PK	48.83	5.80	N/A	N/A	54.63	74.00	19.37
	2483.76	V	X	AV	39.59	5.80	0.21	N/A	45.60	54.00	8.40
	4923.56	V	X	PK	50.09	2.07	N/A	N/A	52.16	74.00	21.84
	4924.03	V	X	AV	39.03	2.07	0.21	N/A	41.31	54.00	12.69
	7385.56	V	X	PK	53.79	9.78	N/A	N/A	63.57	74.00	10.43
	7386.34	V	X	AV	37.20	9.78	0.21	N/A	47.19	54.00	6.81

Note.

4. The radiated emissions were investigated up to 25GHz. And no other spurious and harmonic emissions were found above listed frequencies.
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
6. 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(applied distance / required distance) = 20 log(1 m / 3 m) = -9.54 dB

Radiated Spurious Emissions data(9 kHz ~ 25 GHz) : ***TM 3*** & ***MN: ADB40S2AN***

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	2388.68	V	X	PK	50.87	5.23	N/A	N/A	56.10	74.00	17.90
	2389.16	V	X	AV	40.03	5.23	1.47	N/A	46.73	54.00	7.27
	4823.81	V	X	PK	48.89	1.56	N/A	N/A	50.45	74.00	23.55
	4824.12	V	X	AV	38.95	1.56	1.47	N/A	41.98	54.00	12.02
	7235.94	V	X	PK	52.96	8.98	N/A	N/A	61.94	74.00	12.06
	7236.02	V	X	AV	36.97	8.99	1.47	N/A	47.43	54.00	6.57
Middle	4873.94	V	X	PK	49.51	1.80	N/A	N/A	51.31	74.00	22.69
	4874.31	V	X	AV	39.77	1.80	1.47	N/A	43.04	54.00	10.96
	7311.07	V	X	PK	52.85	9.74	N/A	N/A	62.59	74.00	11.41
	7310.84	V	X	AV	37.98	9.74	1.47	N/A	49.19	54.00	4.81
Highest	2485.46	V	X	PK	50.62	5.82	N/A	N/A	56.44	74.00	17.56
	2484.39	V	X	AV	39.42	5.81	1.47	N/A	46.70	54.00	7.30
	4923.62	V	X	PK	50.86	2.07	N/A	N/A	52.93	74.00	21.07
	4923.67	V	X	AV	39.73	2.07	1.47	N/A	43.27	54.00	10.73
	7385.94	V	X	PK	53.93	9.78	N/A	N/A	63.71	74.00	10.29
	7386.17	V	X	AV	37.59	9.78	1.47	N/A	48.84	54.00	5.16

Note.

4. The radiated emissions were investigated up to 25GHz. And no other spurious and harmonic emissions were found above listed frequencies.
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
6. 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(applied distance / required distance) = 20 log(1 m / 3 m) = -9.54 dB

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: NA

9. LIST OF TEST EQUIPMENT

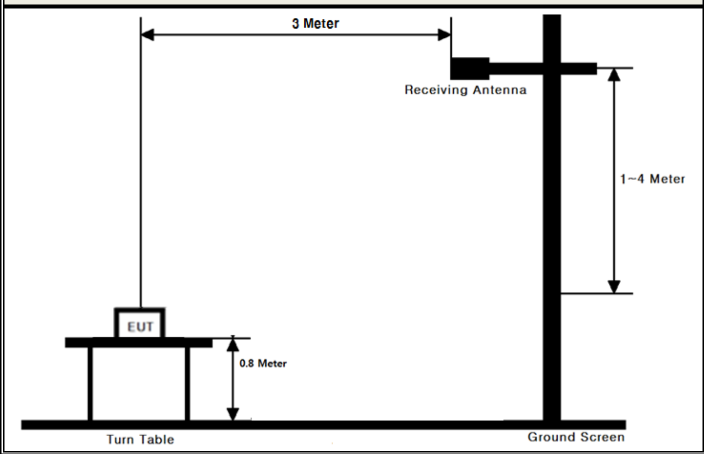
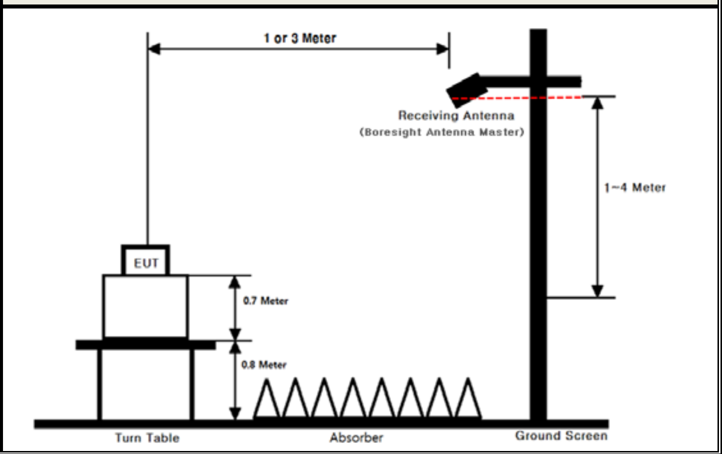
Type	Manufacturer	Model	Cal.Date (yy/mm/dd)	Next.Cal.Date (yy/mm/dd)	S/N
Spectrum Analyzer	Agilent Technologies	N9020A	19/12/16	20/12/16	MY49060056
Spectrum Analyzer	Agilent Technologies	N9020A	19/12/16	20/12/16	MY48011700
Spectrum Analyzer	Agilent Technologies	N9020A	19/12/16	20/12/16	MY48010133
DC Power Supply	Agilent Technologies	66332A	19/12/16	20/12/16	US37476998
DC Power Supply	SM techno	SDP30-5D	19/06/24	20/06/24	305DMG305
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	19/06/25	20/06/25	N/A
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	19/01/11	21/01/11	9202-3820
Horn Antenna	A.H.Systems Inc.	SAS-574	19/07/03	21/07/03	155
PreAmplifier	tsj	MLA-0118-B01-40	19/12/16	20/12/16	1852267
PreAmplifier	tsj	MLA-1840-J02-45	19/06/27	20/06/27	16966-10728
PreAmplifier	H.P	8447D	19/12/16	20/12/16	2944A07774
High Pass Filter	Wainwright Instruments	WHKX12-935-1000-15000-40SS	19/06/26	20/06/26	8
High Pass Filter	Wainwright Instruments	WHKX10-2838-3300-18000-60SS	19/06/26	20/06/26	1
High Pass Filter	Wainwright Instruments	WHNX8.0/26.5-6SS	19/06/27	20/06/27	3
Attenuator	Hefei Shunze	SS5T2.92-10-40	19/06/27	20/06/27	16012202
Attenuator	SRTechnology	F01-B0606-01	19/06/27	20/06/27	13092403
Attenuator	Aeroflex/Weinschel	20515	19/06/27	20/06/27	Y2370
Attenuator	SMAJK	SMAJK-2-3	19/06/27	20/06/27	2
Attenuator	SMAJK	SMAJK-50-10	19/06/25	20/06/25	15081903
Power Meter & Wide Bandwidth Sensor	Anritsu	ML2495A MA2490A	19/06/24	20/06/24	1306007 1249001
EMI Receiver	ROHDE&SCHWARZ	ESW44	19/07/30	20/07/30	101645
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	Radiall	TESTPRO3	20/01/15	21/01/15	RF-65

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.

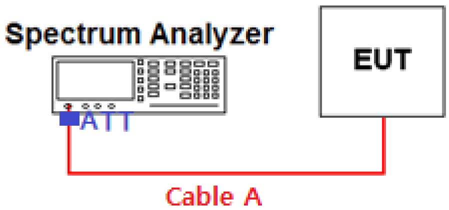
APPENDIX I

Test set up diagrams

▪ Radiated Measurement

Below 1GHz	Above 1GHz
	

▪ Conducted Measurement



Path loss information

Frequency (GHz)	Path Loss (dB)	Frequency (GHz)	Path Loss (dB)
0.03	9.63	15	11.67
1	9.91	20	12.46
2.412 & 2.437 & 2.462	10.41	25	12.8
5	10.48	-	-
10	10.60	-	-

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

APPENDIX II

Duty cycle plots

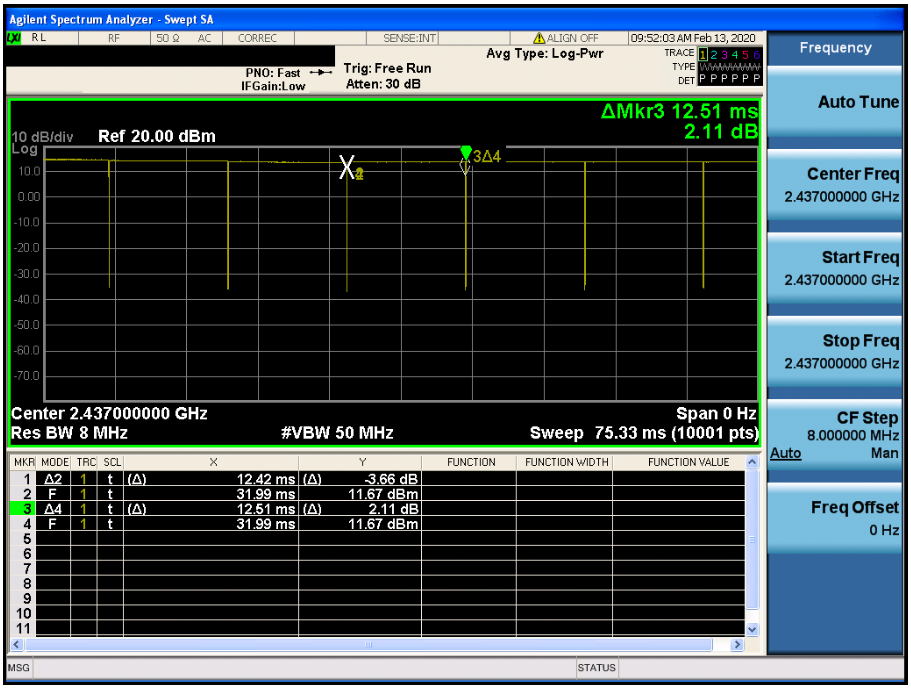
▪ Test Procedure

Duty Cycle was measured using **section 6.0 b) of KDB558074 D01v05r02 :**

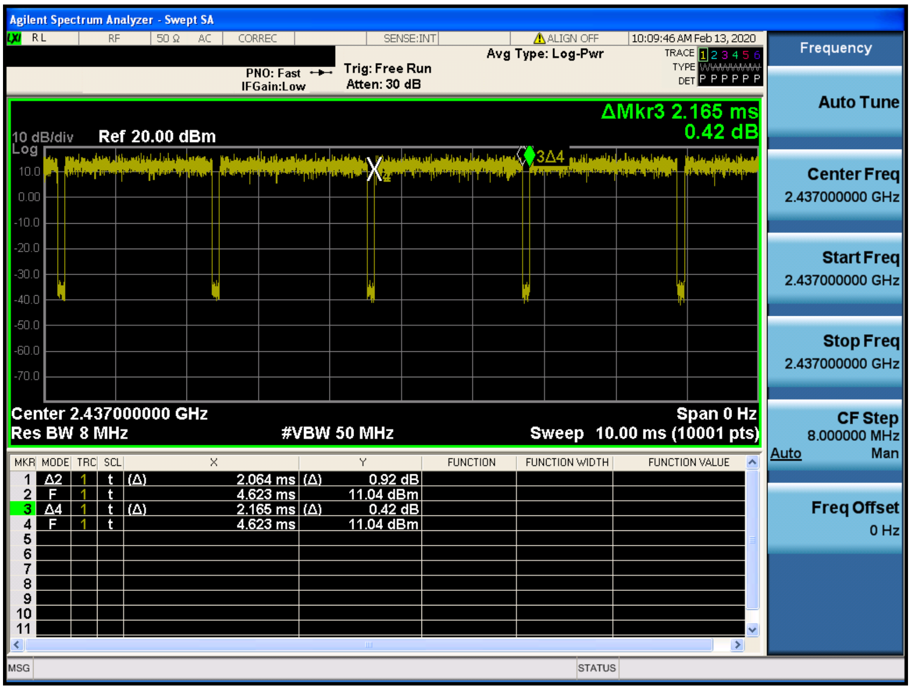
The zero-span mode on a spectrum analyzer or EMI receiver if the response time and spacing between bins on the sweep are sufficient to permit accurate measurements of the on and off times of the transmitted signal. Set the center frequency of the instrument to the center frequency of the transmission. 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.)

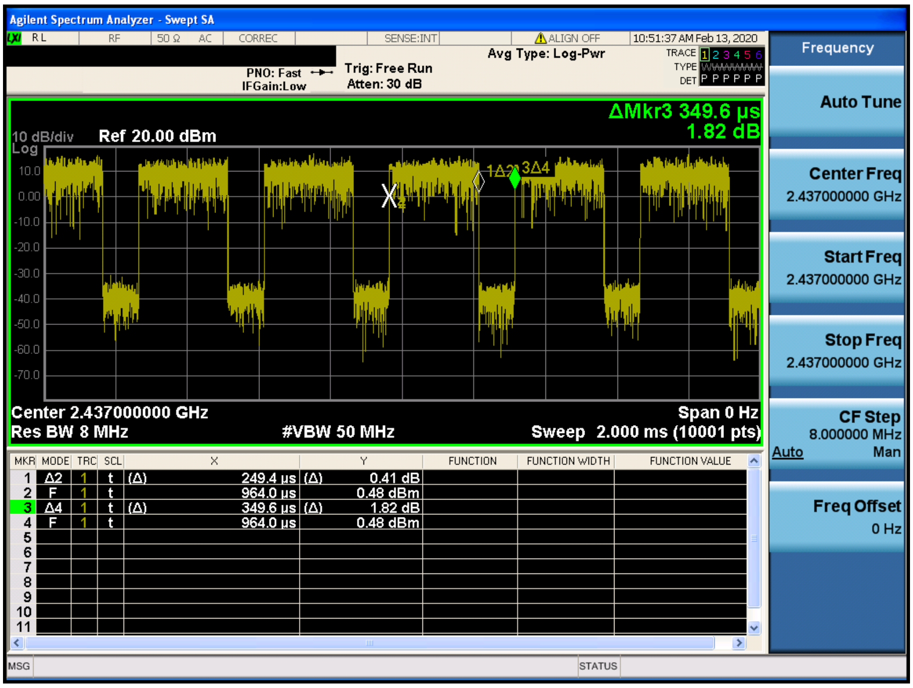
Duty Cycle TM 1 & Middle



Duty Cycle TM 2 & Middle



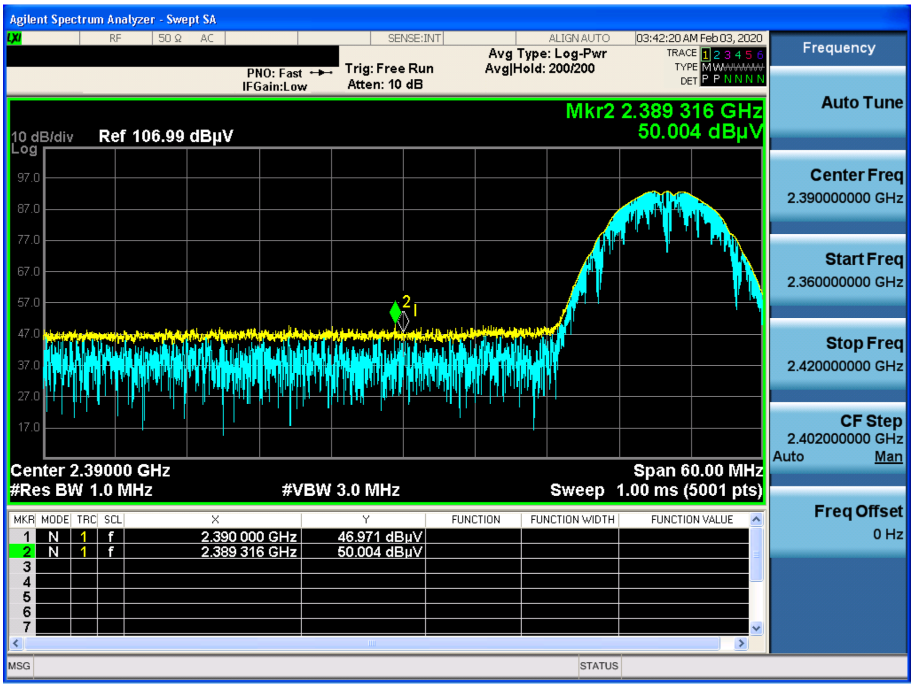
Duty Cycle TM 3 & Middle



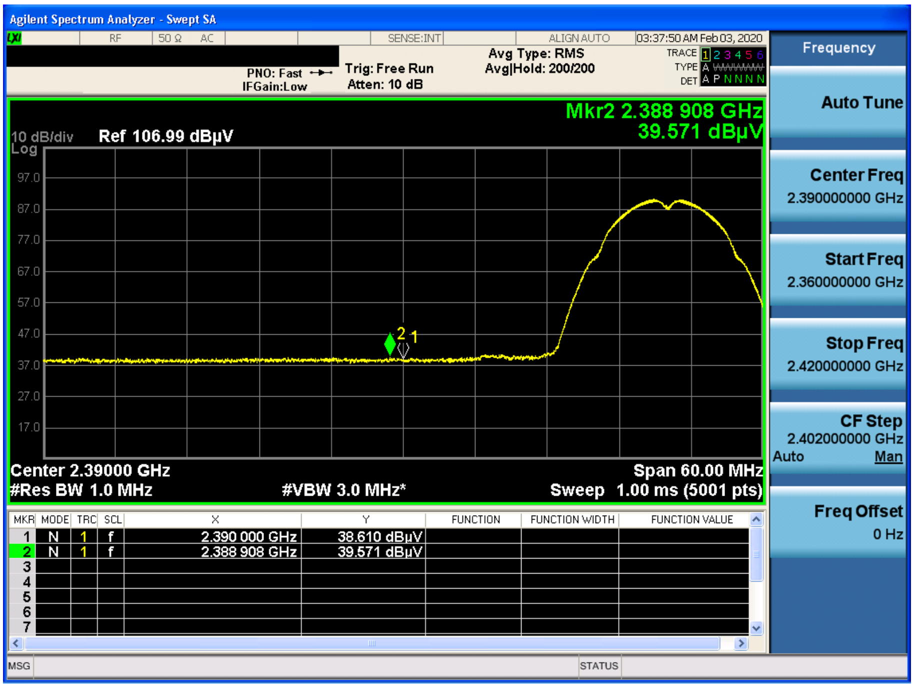
APPENDIX III

Unwanted Emissions (Radiated) Test Plot _ MN: ADB10S2AN0

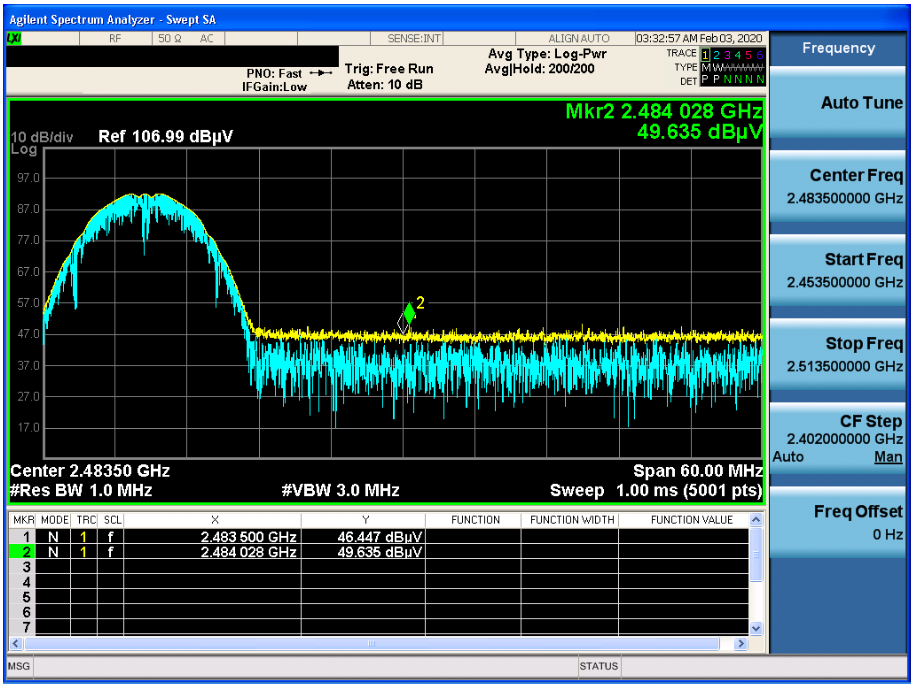
TM 1 & Lowest & X axis & Ver **Detector Mode : PK**



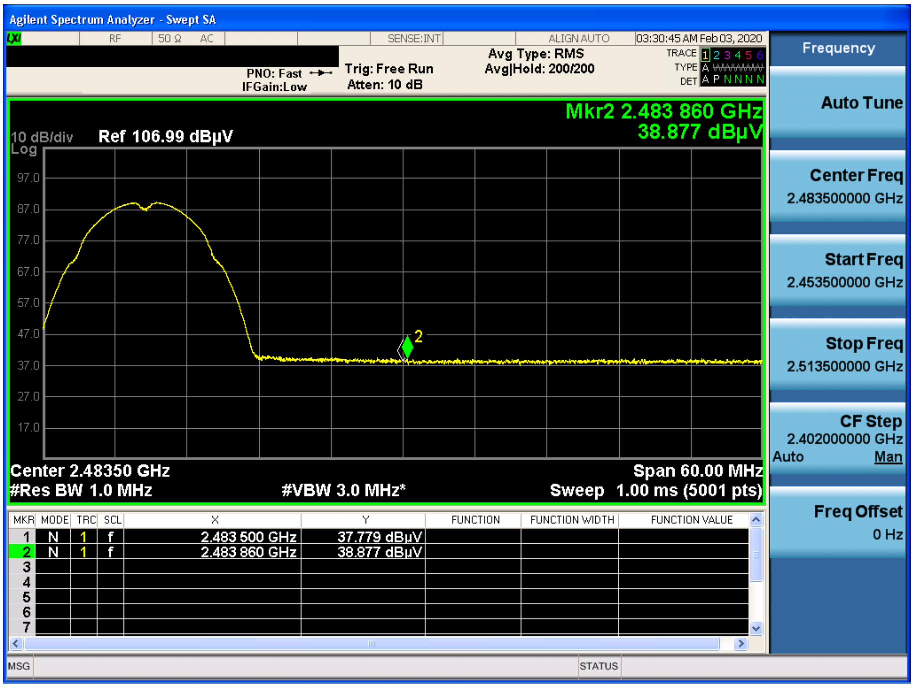
TM 1 & Lowest & X axis & Ver **Detector Mode : AV**



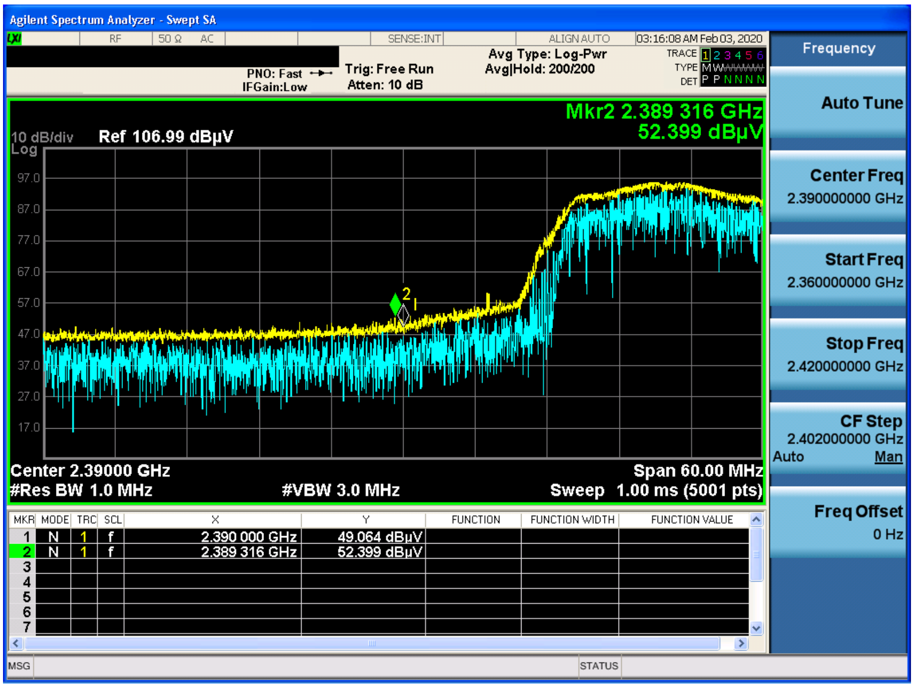
TM 1 & Highest & X axis & Ver **Detector Mode : PK**



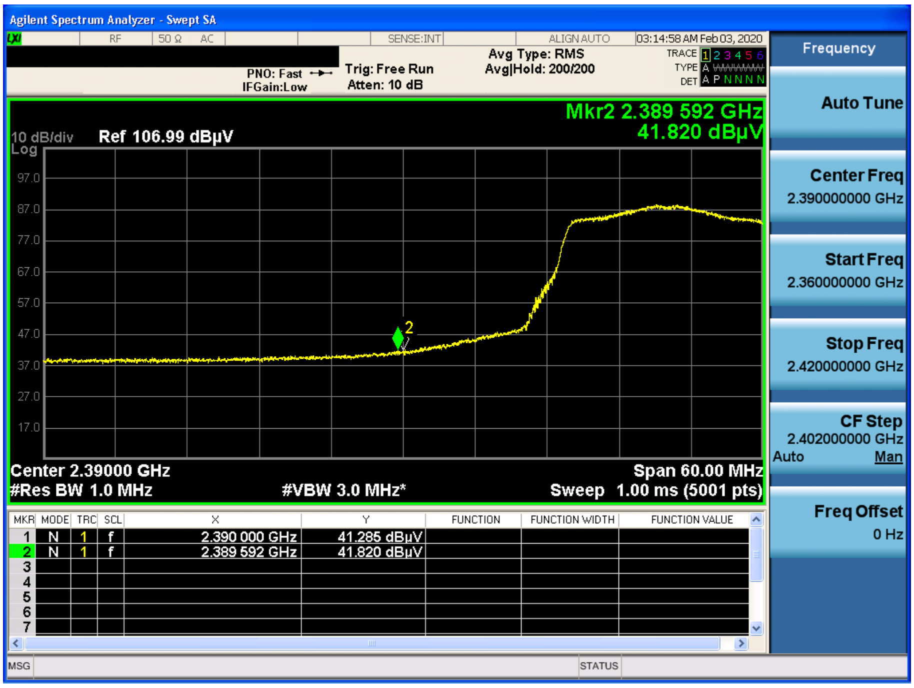
TM 1 & Highest & X axis & Ver **Detector Mode : AV**



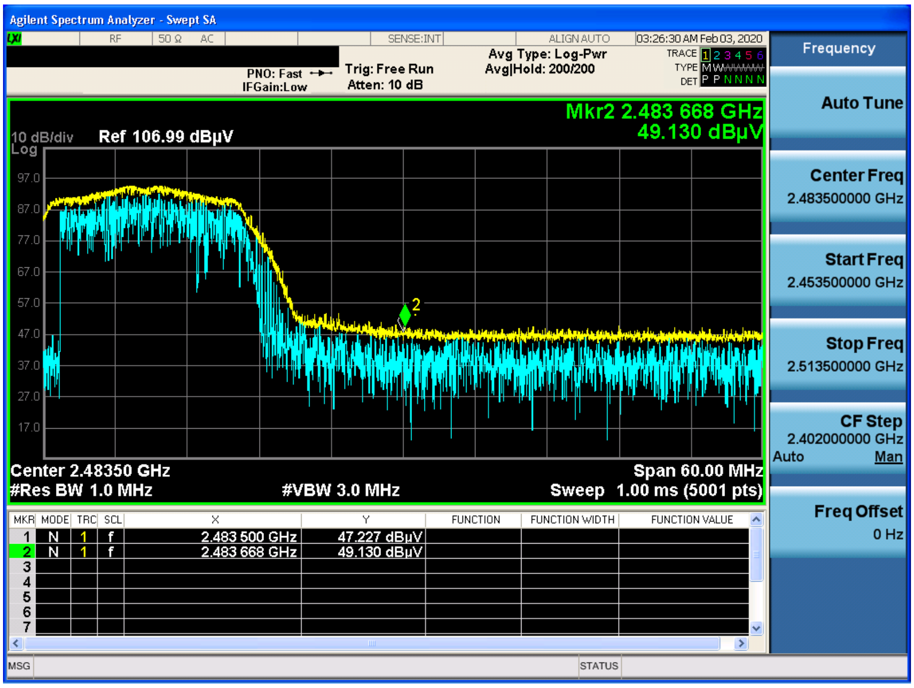
TM 2 & Lowest & X axis & Ver **Detector Mode : PK**



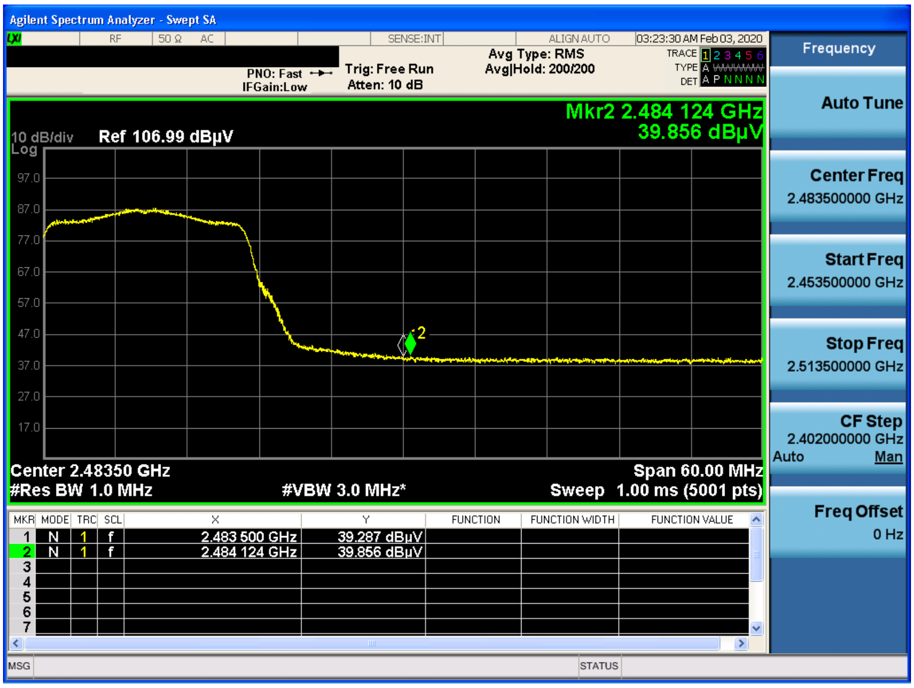
TM 2 & Lowest & X axis & Ver **Detector Mode : AV**



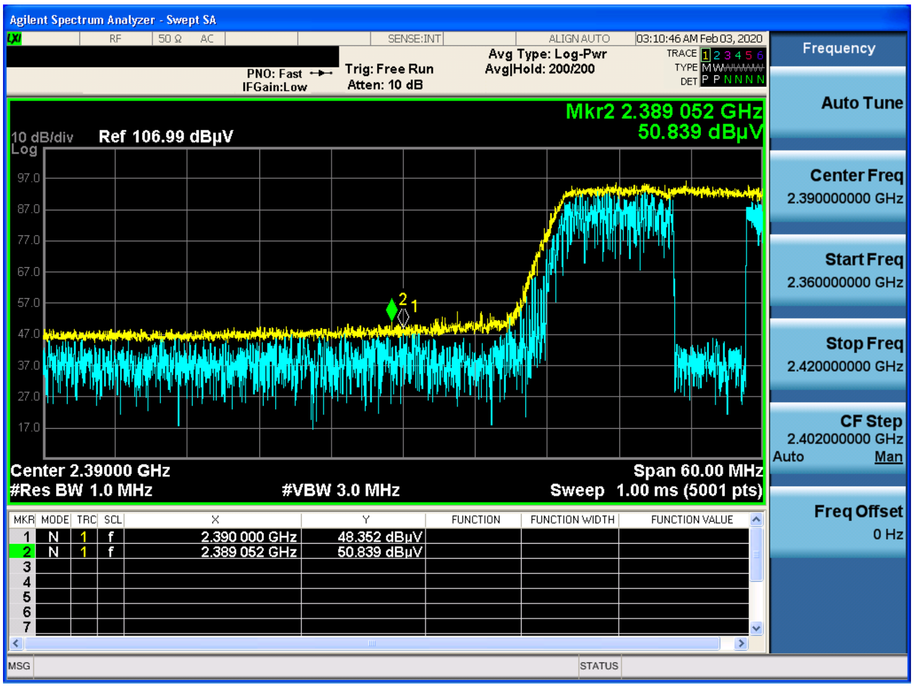
TM 2 & Highest & X axis & Ver **Detector Mode : PK**



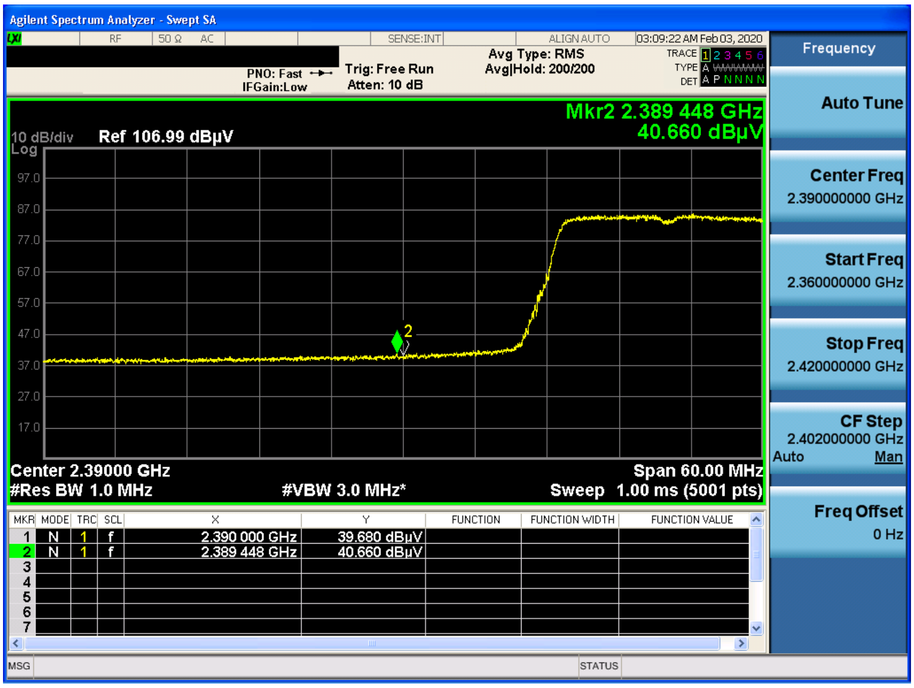
TM 2 & Highest & X axis & Ver **Detector Mode : AV**



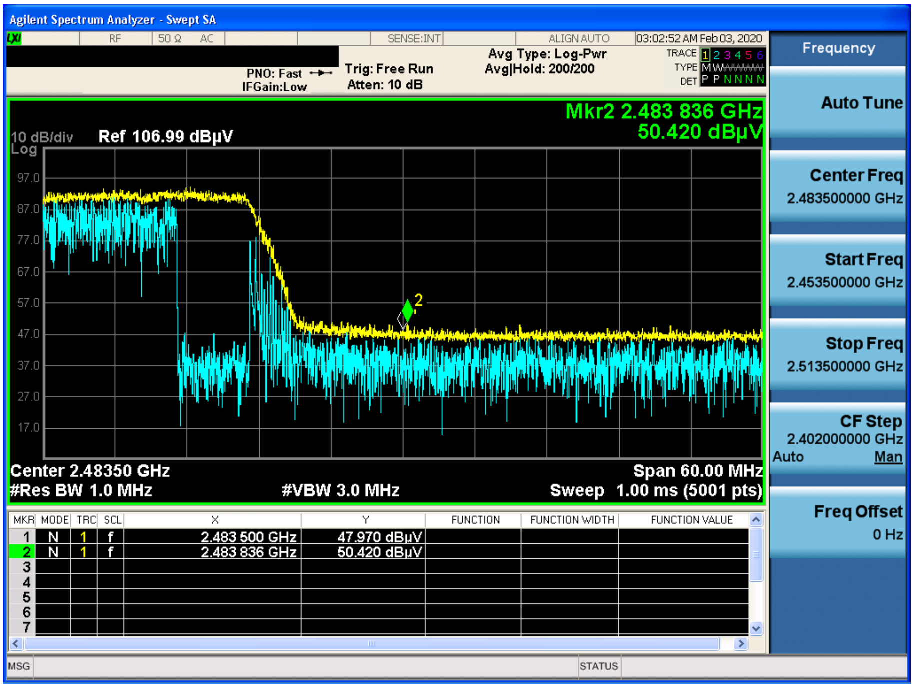
TM 3 & Lowest & X axis & Ver Detector Mode : PK



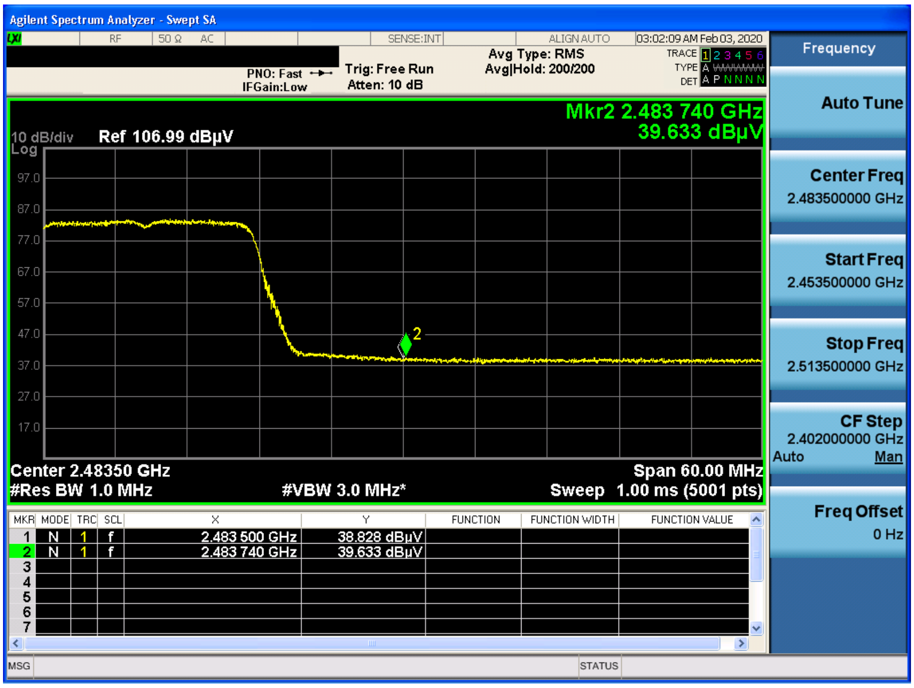
TM 3 & Lowest & X axis & Ver Detector Mode : AV



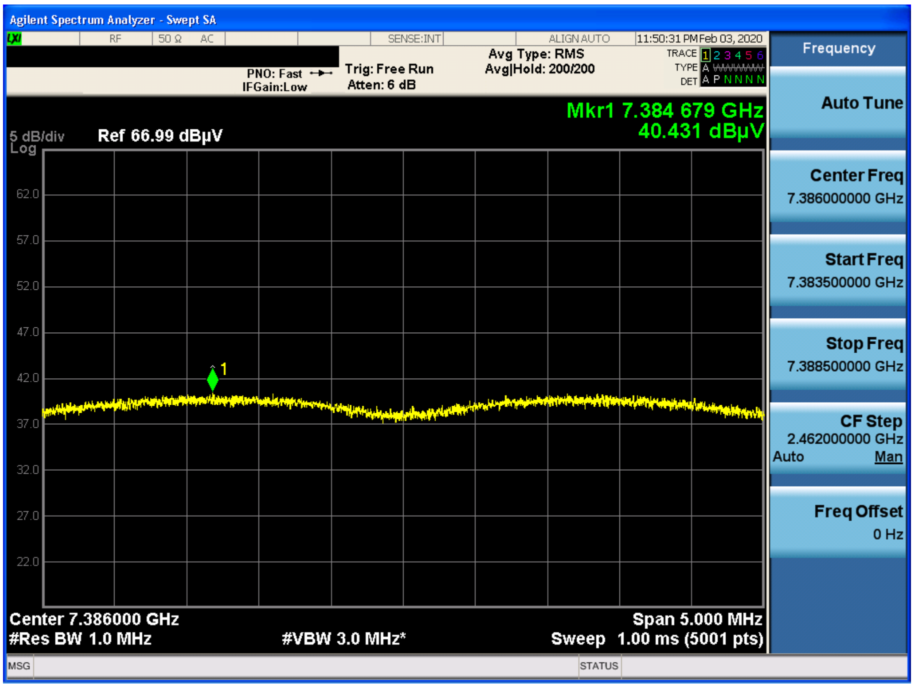
TM 3 & Highest & X axis & Ver **Detector Mode : PK**



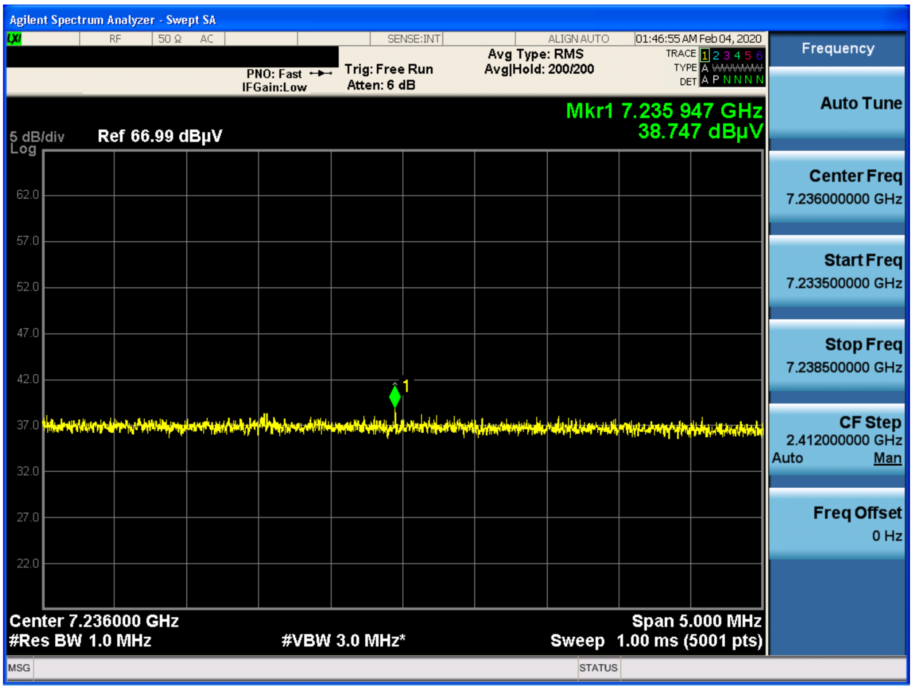
TM 3 & Highest & X axis & Ver **Detector Mode : AV**



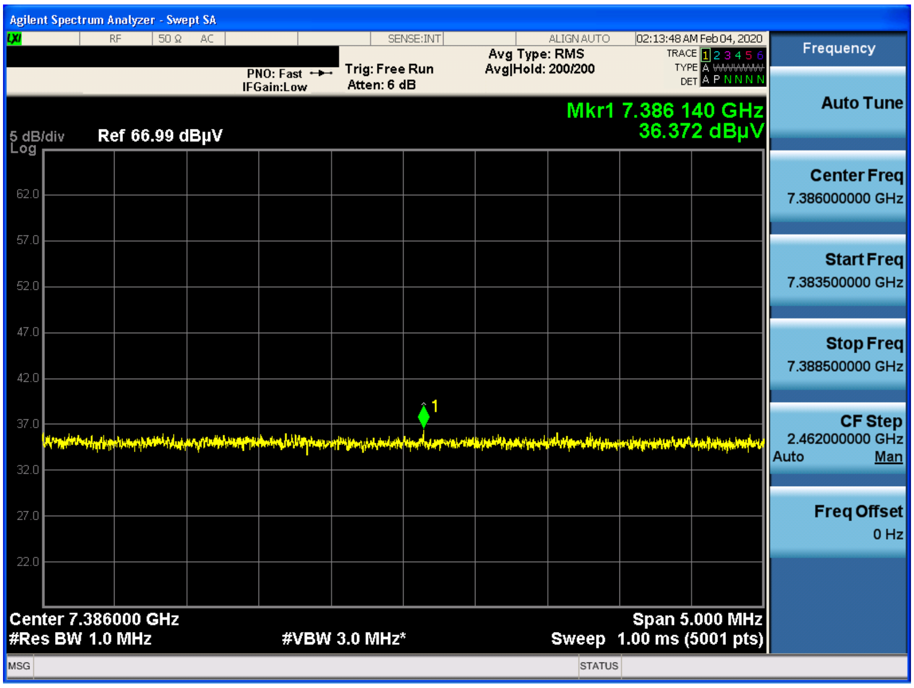
TM 1 & Highest & X axis & Ver **Detector Mode : AV**



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

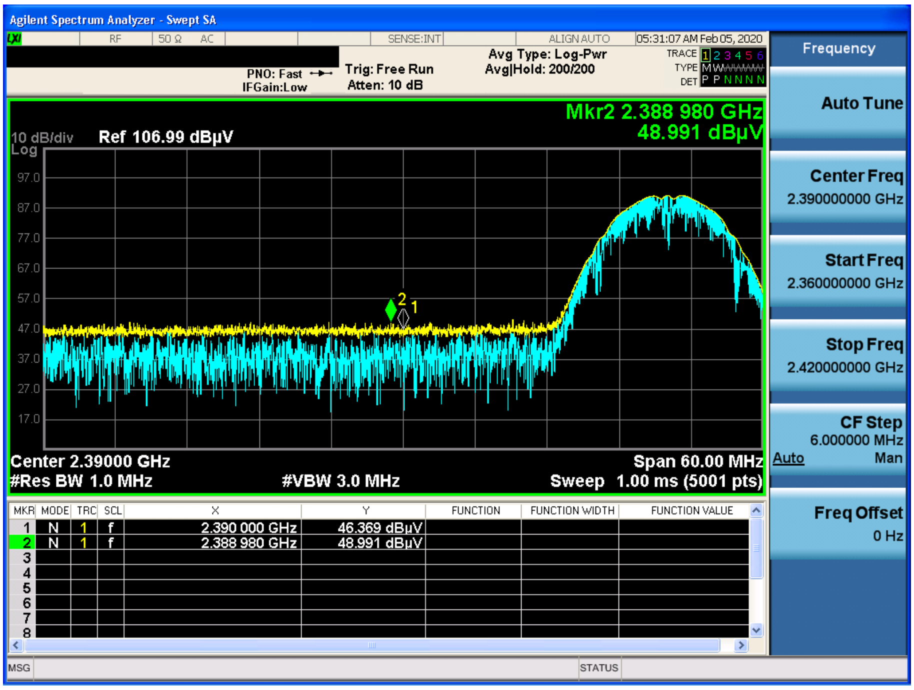


TM 3 & Highest & X axis & Ver **Detector Mode : AV**

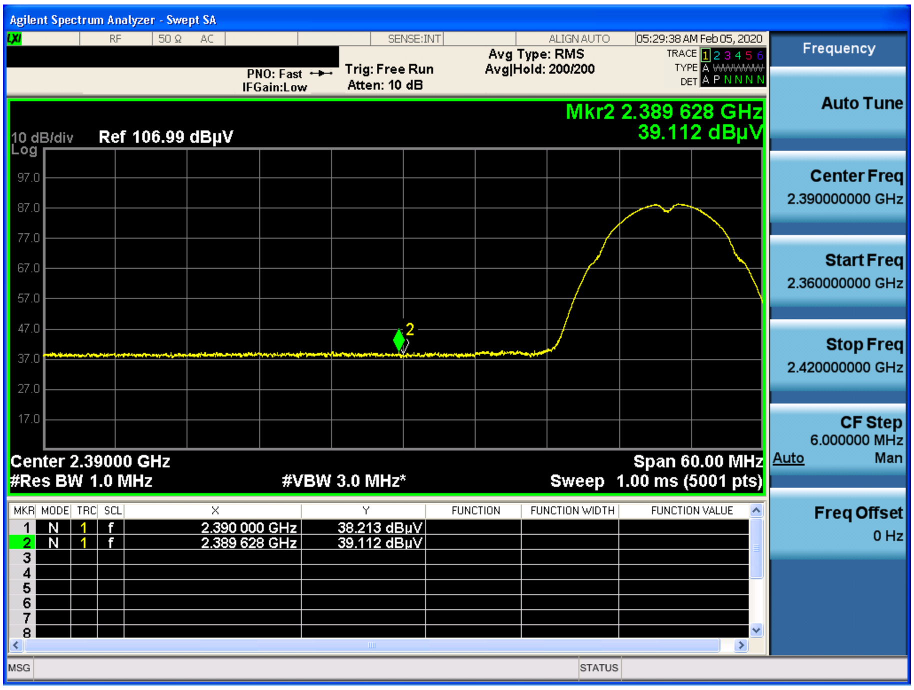


Unwanted Emissions (Radiated) Test Plot _ MN: ADB40S2AN

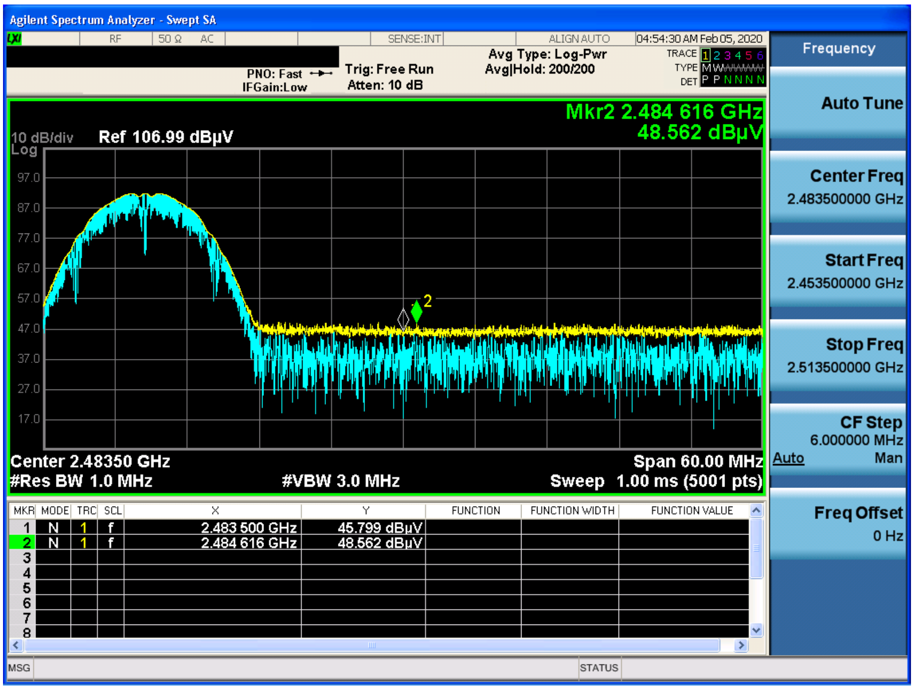
TM 1 & Lowest & X axis & Ver **Detector Mode : PK**



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

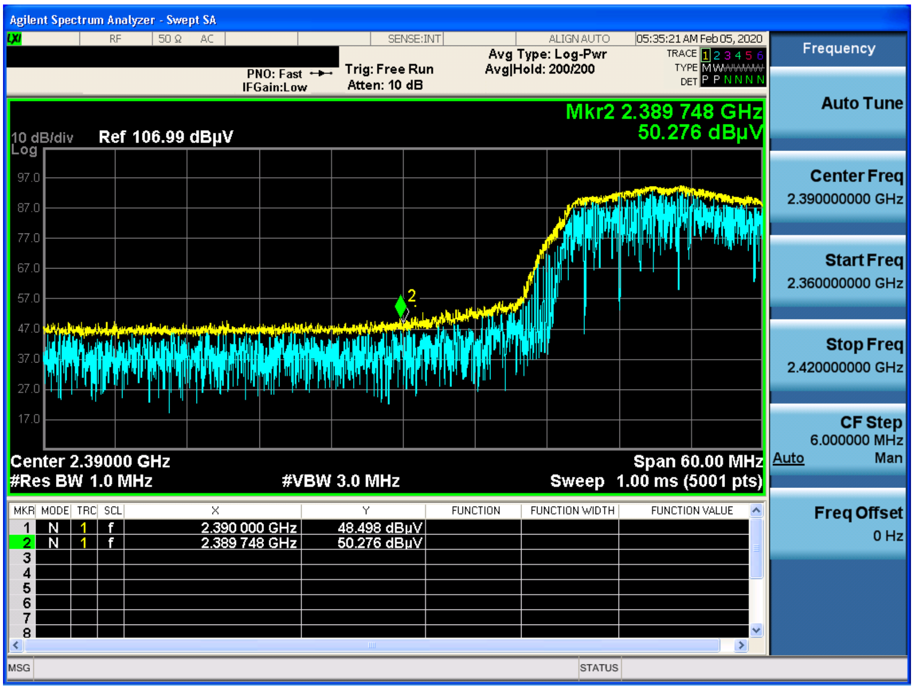


TM 1 & Highest & X axis & Ver **Detector Mode : PK**



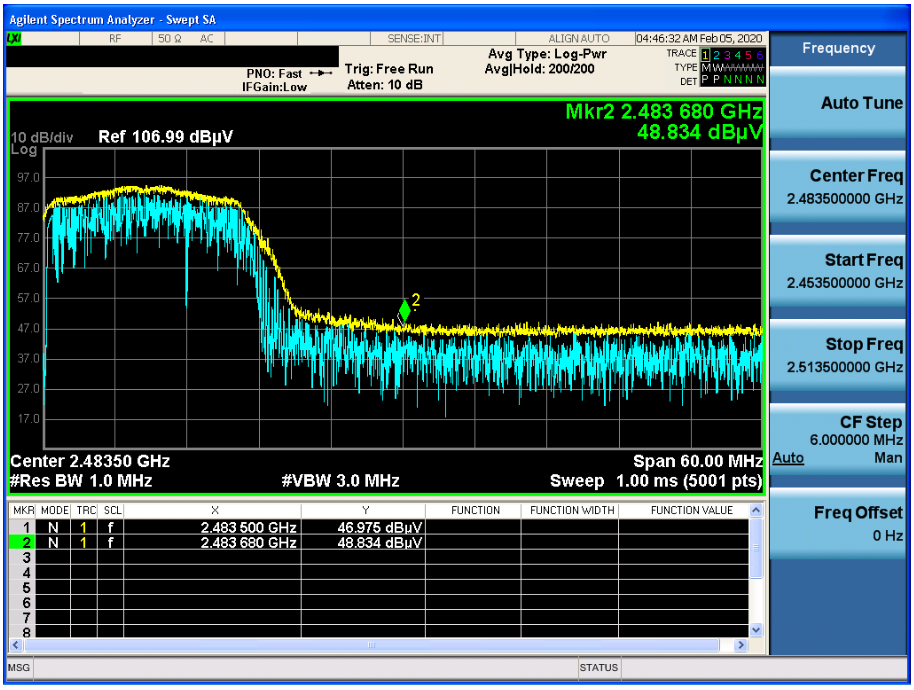
TM 1 & Highest & X axis & Ver **Detector Mode : AV**

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

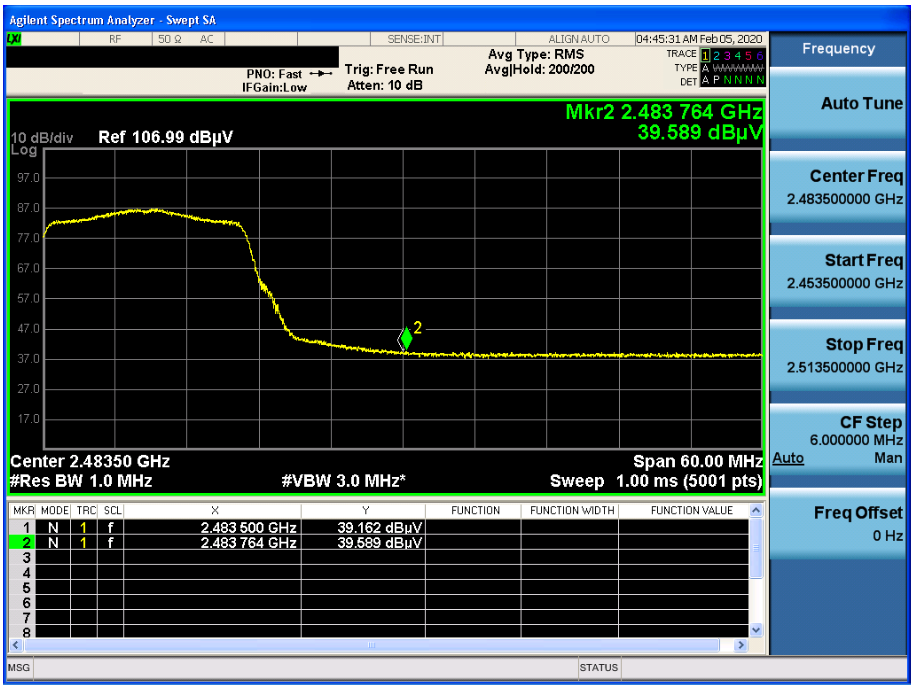


TM 2 & Lowest & X axis & Ver **Detector Mode : AV**

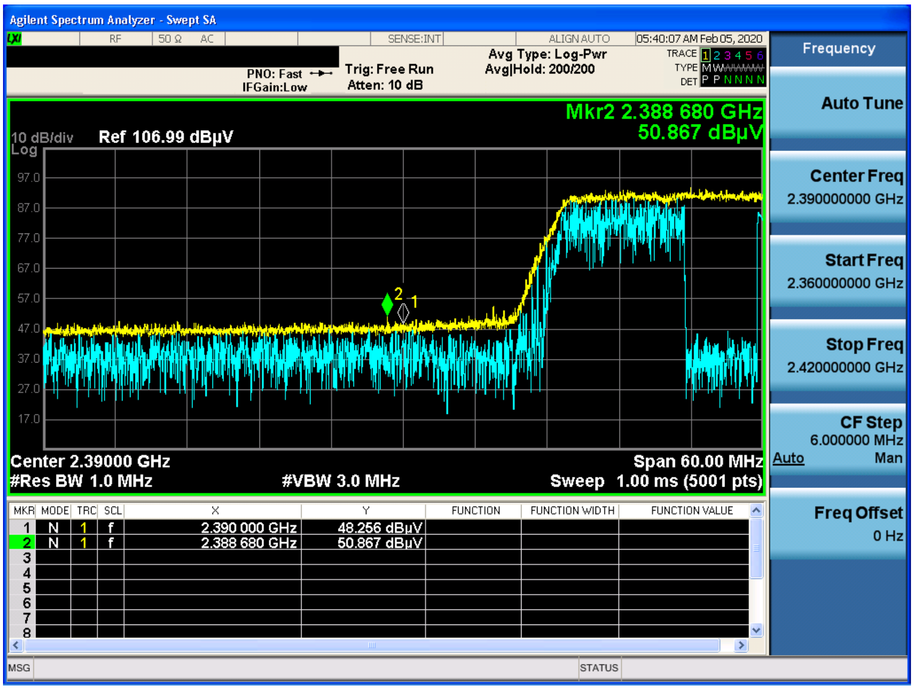
TM 2 & Highest & X axis & Ver Detector Mode : PK



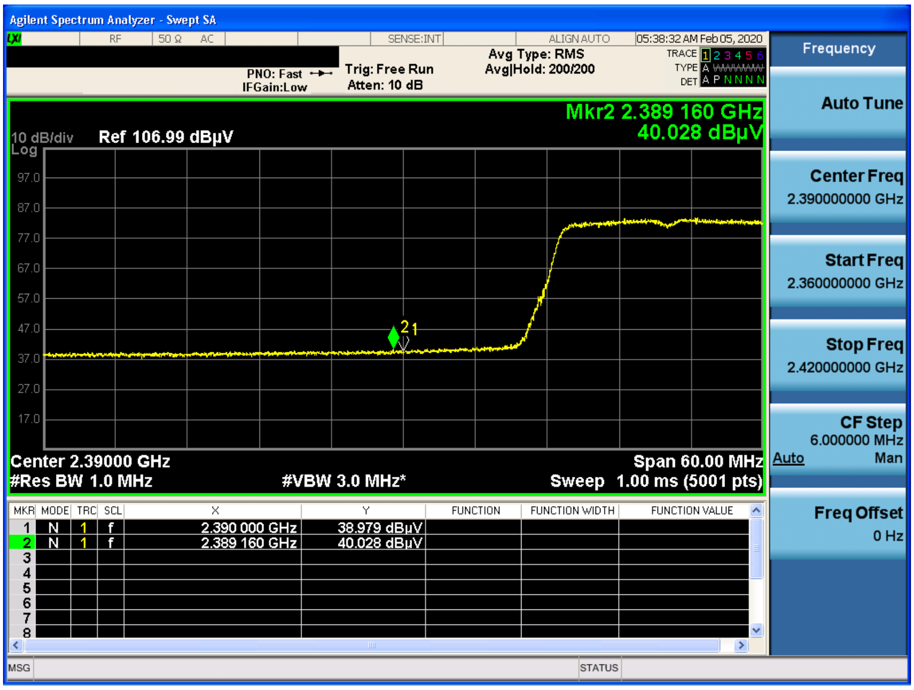
TM 2 & Highest & X axis & Ver Detector Mode : AV



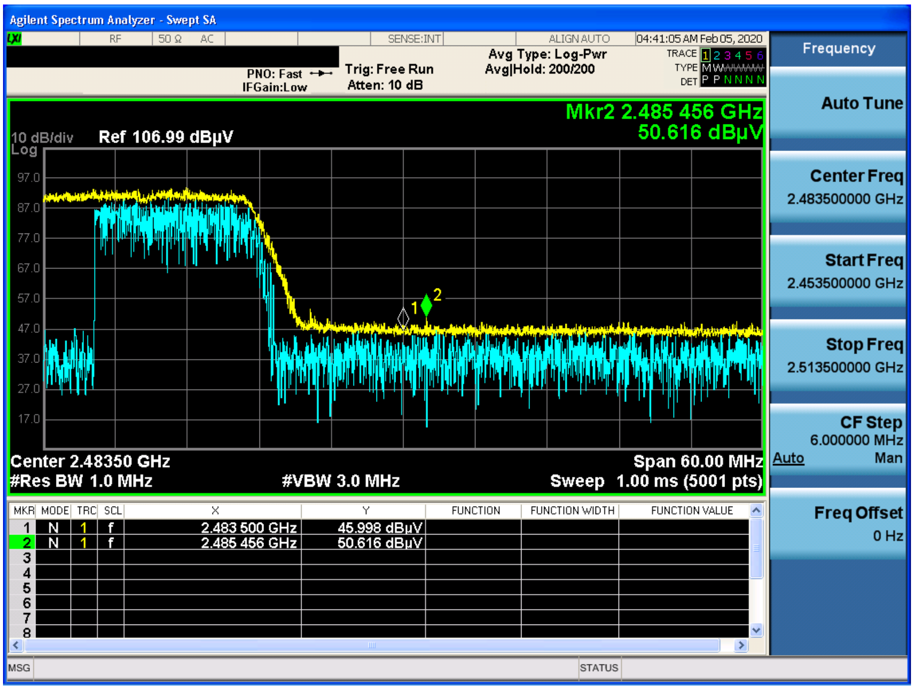
TM 3 & Lowest & X axis & Ver Detector Mode : PK



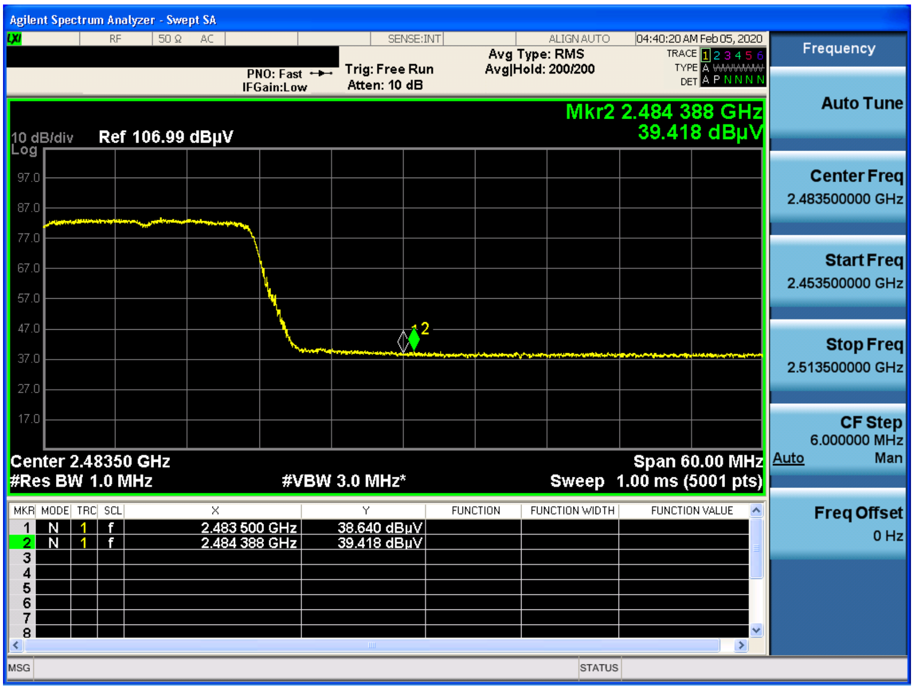
TM 3 & Lowest & X axis & Ver Detector Mode : AV



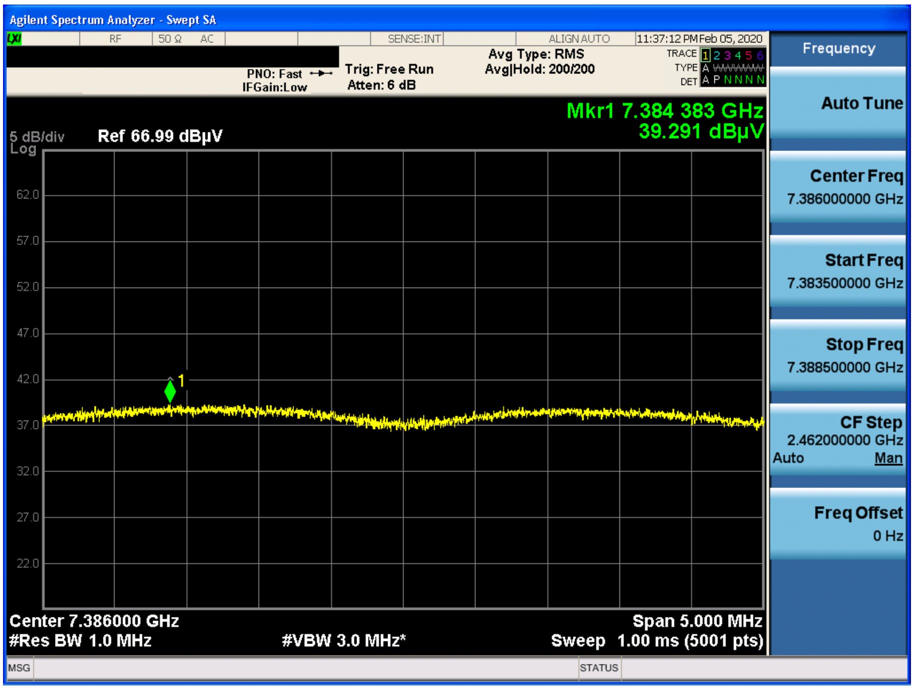
TM 3 & Highest & X axis & Ver **Detector Mode : PK**



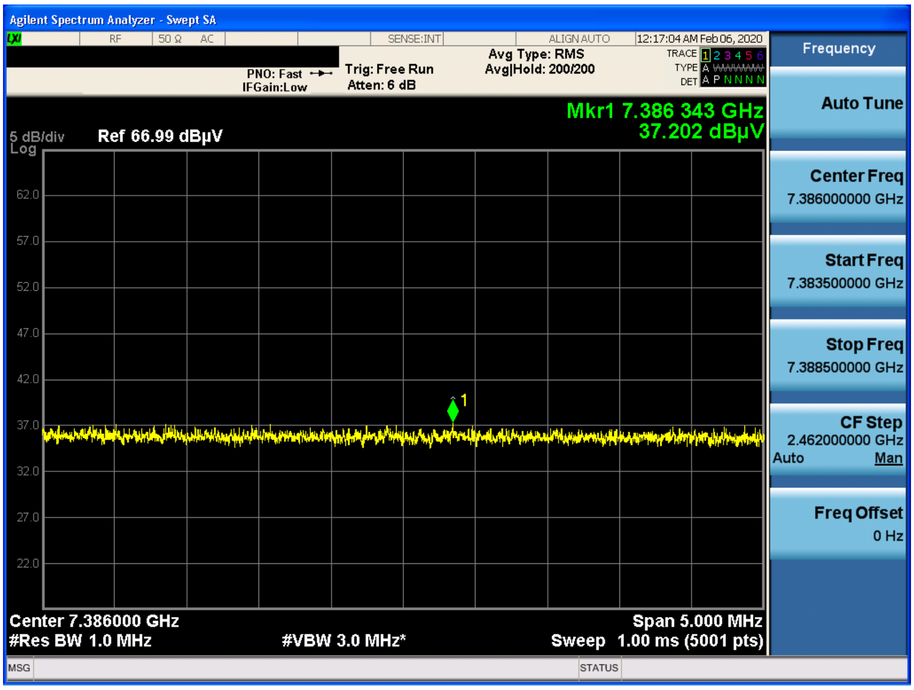
TM 3 & Highest & X axis & Ver **Detector Mode : AV**



TM 1 & Highes & X axis & Ver **Detector Mode : AV**



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



TM 3 & Middle & X axis & Ver **Detector Mode : AV**