▣ 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 ≥ 1/T
3. Detector = Peak
4. Trace mode = max hold
5. Averaging type = voltage
6. Sweep time = auto.
7. Perform a trace Max hold of at least [50 x (1/D) traces.

Duty Cycle Correction factor

Test Mode	Date rate	T_{on}(ms)	T_{on+off} (ms)	D = T_{on} / (T_{on+off})	1/T (kHz)
TM 1	11Mbps	0.946	1.401	0.6755	1.06
TM 2	54Mbps	0.176	1.248	0.1410	5.68
TM 3	MCS 7	0.163	1.408	0.1159	6.13
TM 4	MCS 7	0.100	1.886	0.0530	10.00

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

▣ **Test Results: Comply**

- Tested Power Supply: DC 12 V

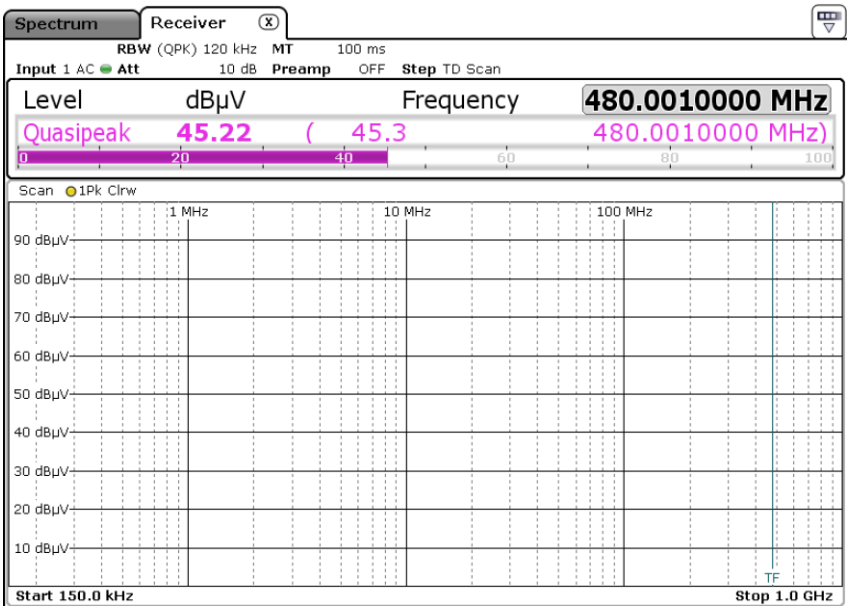
Radiated Spurious Emissions data(9 kHz ~ 1 GHz) : ***TM 1***

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 (Worst case)	45.52	V	X	QP	43.40	-8.30	N/A	N/A	35.10	40.00	4.90
	74.62	V	X	QP	42.90	-11.50	N/A	N/A	31.40	40.00	8.60
	80.44	V	X	QP	43.50	-12.70	N/A	N/A	30.80	40.00	9.20
	480.00	V	X	QP	45.30	-1.80	N/A	N/A	43.50	46.00	2.50

Note.

1. No other unwanted emissions were found above listed frequencies.
2. Information of Distance Factor
   For finding emissions, measurements may be performed at a distance closer than that specified in the regulations.
   In this case, the distance factor is applied to the result.
   - Calculation of distance factor
   At frequencies below 30 MHz = 40 log(tested distance / specified distance)
   At frequencies at or above 30 MHz = 20 log(tested distance / specified distance)
   When distance factor is “N/A”, the measurements were performed at the specified distance 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

802.11b & 2 412MHz & X axis & Ver **Detector Mode : QP**



Radiated Spurious Emissions data(1 GHz ~ 25 GHz) : *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	2 388.99	H	Z	PK	50.99	3.58	N/A	N/A	54.57	74.00	19.43
	2 388.99	H	Z	AV	42.54	3.58	N/A	N/A	46.12	54.00	7.88
	7 235.92	H	X	PK	47.54	10.18	N/A	N/A	57.72	74.00	16.28
	7 236.66	H	X	AV	39.17	10.18	N/A	N/A	49.35	54.00	4.65
	9 647.72	V	X	PK	45.08	12.45	N/A	N/A	57.53	74.00	16.47
	9 647.96	V	X	AV	37.92	12.45	N/A	N/A	50.37	54.00	3.63
Middle	7 311.44	H	X	PK	45.69	10.29	N/A	N/A	55.98	74.00	18.02
	7 309.92	H	X	AV	37.70	10.29	N/A	N/A	47.99	54.00	6.01
	9 748.13	V	X	PK	45.60	12.26	N/A	N/A	57.86	74.00	16.14
	9 747.94	V	X	AV	36.79	12.27	N/A	N/A	49.06	54.00	4.94
Highest	2 490.93	H	Z	PK	51.44	3.68	N/A	N/A	55.12	74.00	18.88
	2 490.67	H	Z	AV	44.94	3.68	N/A	N/A	48.62	54.00	5.38
	7 385.94	H	X	PK	46.40	10.23	N/A	N/A	56.63	74.00	17.37
	7 387.07	H	X	AV	37.61	10.23	N/A	N/A	47.84	54.00	6.16
	9 847.78	V	X	PK	46.03	12.54	N/A	N/A	58.57	74.00	15.43
	9 848.01	V	X	AV	36.75	12.54	N/A	N/A	49.29	54.00	4.71

Note.

1. The radiated emissions were investigated 1 GHz up to 25 GHz. 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(-9.54 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

Radiated Spurious Emissions data(1 GHz ~ 25 GHz) : *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	2 389.94	H	X	PK	54.22	3.58	N/A	N/A	57.80	74.00	16.20
	2 390.00	H	X	AV	43.55	3.58	N/A	N/A	47.13	54.00	6.87
	9 647.56	V	X	PK	45.16	12.45	N/A	N/A	57.61	74.00	16.39
	9 647.88	V	X	AV	38.22	12.45	N/A	N/A	50.67	54.00	3.33
Middle	9 748.21	V	X	PK	45.24	12.26	N/A	N/A	57.50	74.00	16.50
	9 747.88	V	X	AV	37.52	12.27	N/A	N/A	49.79	54.00	4.21
Highest	2 484.42	H	X	PK	58.40	3.67	N/A	N/A	62.07	74.00	11.93
	2 484.78	H	X	AV	45.28	3.67	N/A	N/A	48.95	54.00	5.05
	9 847.58	V	X	PK	45.44	12.53	N/A	N/A	57.97	74.00	16.03
	9 847.93	V	X	AV	37.88	12.54	N/A	N/A	50.42	54.00	3.58

Note.

1. The radiated emissions were investigated 1 GHz up to 25 GHz. 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(-9.54 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

Radiated Spurious Emissions data(1 GHz ~ 25 GHz) : *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	2 388.59	H	X	PK	52.72	3.58	N/A	N/A	56.30	74.00	17.70
	2 389.09	H	X	AV	43.63	3.58	N/A	N/A	47.21	54.00	6.79
	9 648.71	V	X	PK	44.88	12.45	N/A	N/A	57.33	74.00	16.67
	9 647.88	V	X	AV	37.80	12.45	N/A	N/A	50.25	54.00	3.75
Middle	9 748.44	V	X	PK	45.01	12.26	N/A	N/A	57.27	74.00	16.73
	9 748.10	V	X	AV	37.22	12.26	N/A	N/A	49.48	54.00	4.52
Highest	2 484.21	H	X	PK	60.92	3.67	N/A	N/A	64.59	74.00	9.41
	2 484.12	H	X	AV	45.67	3.66	N/A	N/A	49.33	54.00	4.67
	9 847.86	V	X	PK	44.93	12.54	N/A	N/A	57.47	74.00	16.53
	9 848.17	V	X	AV	36.64	12.54	N/A	N/A	49.18	54.00	4.82

Note.

1. The radiated emissions were investigated 1 GHz up to 25 GHz. 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(-9.54 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

Radiated Spurious Emissions data(1 GHz ~ 25 GHz) : *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	2 388.16	H	X	PK	58.22	3.58	N/A	N/A	61.80	74.00	12.20
	2 389.83	H	X	AV	47.31	3.58	N/A	N/A	50.89	54.00	3.11
	9 688.38	V	X	PK	45.64	12.41	N/A	N/A	58.05	74.00	15.95
	9 688.01	V	X	AV	37.20	12.41	N/A	N/A	49.61	54.00	4.39
Middle	9 748.31	V	X	PK	45.43	12.26	N/A	N/A	57.69	74.00	16.31
	9 747.91	V	X	AV	37.43	12.27	N/A	N/A	49.70	54.00	4.30
Highest	2 483.58	H	X	PK	56.55	3.66	N/A	N/A	60.21	74.00	13.79
	2 484.40	H	X	AV	45.94	3.67	N/A	N/A	49.61	54.00	4.39
	9 808.33	V	X	PK	44.67	12.40	N/A	N/A	57.07	74.00	16.93
	9 808.08	V	X	AV	37.15	12.40	N/A	N/A	49.55	54.00	4.45

Note.

1. The radiated emissions were investigated 1 GHz up to 25 GHz. 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(-9.54 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

- Tested Power Supply: DC 24 V

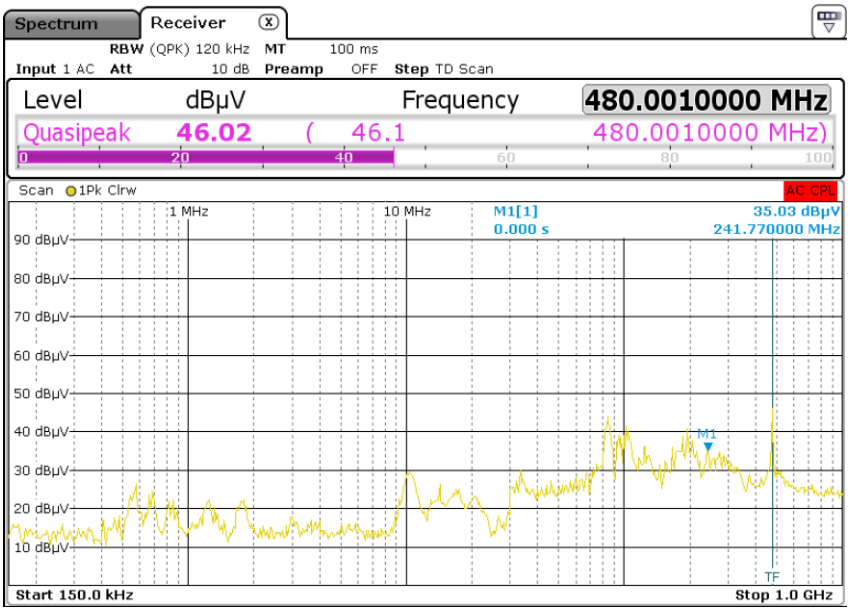
Radiated Spurious Emissions data(9 kHz ~ 1 GHz) : *TM 1*

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	45.52	V	X	QP	44.30	-8.30	N/A	N/A	36.00	40.00	4.00
	242.43	H	X	QP	39.50	-8.30	N/A	N/A	31.20	46.00	14.80
	244.37	V	X	QP	38.50	-8.20	N/A	N/A	30.30	46.00	15.70
	480.00	H	X	QP	46.10	-1.80	N/A	N/A	44.30	46.00	1.70

Note.

1. No other unwanted emissions were found above listed frequencies.
2. Information of Distance Factor
   For finding emissions, measurements may be performed at a distance closer than that specified in the regulations.
   In this case, the distance factor is applied to the result.
   - Calculation of distance factor
   At frequencies below 30 MHz = 40 log(tested distance / specified distance)
   At frequencies at or above 30 MHz = 20 log(tested distance / specified distance)
   When distance factor is “N/A”, the measurements were performed at the specified distance 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

802.11b & 2 412MHz & X axis & Ver **Detector Mode : QP**



Radiated Spurious Emissions data(1 GHz ~ 25 GHz) : *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	2 388.65	H	Z	PK	50.09	3.58	N/A	N/A	53.67	74.00	20.33
	2 388.92	H	Z	AV	41.87	3.58	N/A	N/A	45.45	54.00	8.55
	7 235.91	H	X	PK	48.54	10.18	N/A	N/A	58.72	74.00	15.28
	7 234.94	H	X	AV	40.99	10.17	N/A	N/A	51.16	54.00	2.84
	9 647.75	V	X	PK	44.85	12.45	N/A	N/A	57.30	74.00	16.70
	9 647.69	V	X	AV	37.21	12.45	N/A	N/A	49.66	54.00	4.34
Middle	7 310.80	H	X	PK	46.18	10.29	N/A	N/A	56.47	74.00	17.53
	7 309.40	H	X	AV	39.85	10.29	N/A	N/A	50.14	54.00	3.86
	9 747.98	V	X	PK	45.33	12.27	N/A	N/A	57.60	74.00	16.40
	9 747.97	V	X	AV	36.58	12.27	N/A	N/A	48.85	54.00	5.15
Highest	2 490.35	H	Z	PK	52.02	3.67	N/A	N/A	55.69	74.00	18.31
	2 490.33	H	Z	AV	44.34	3.67	N/A	N/A	48.01	54.00	5.99
	7 385.70	H	X	PK	45.24	10.23	N/A	N/A	55.47	74.00	18.53
	7 384.92	H	X	AV	37.41	10.23	N/A	N/A	47.64	54.00	6.36
	9 847.64	V	X	PK	44.56	12.53	N/A	N/A	57.09	74.00	16.91
	9 847.67	V	X	AV	35.90	12.53	N/A	N/A	48.43	54.00	5.57

Note.

1. The radiated emissions were investigated 1 GHz up to 25 GHz. 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(-9.54 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

Radiated Spurious Emissions data(1 GHz ~ 25 GHz) : *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	2 388.89	H	X	PK	53.14	3.58	N/A	N/A	56.72	74.00	17.28
	2 389.50	H	X	AV	42.51	3.58	N/A	N/A	46.09	54.00	7.91
	9 648.06	V	X	PK	46.12	12.45	N/A	N/A	58.57	74.00	15.43
	9 648.04	V	X	AV	37.04	12.45	N/A	N/A	49.49	54.00	4.51
Middle	9 747.60	V	X	PK	45.12	12.27	N/A	N/A	57.39	74.00	16.61
	9 748.10	V	X	AV	36.82	12.26	N/A	N/A	49.08	54.00	4.92
Highest	2 483.73	H	X	PK	59.97	3.66	N/A	N/A	63.63	74.00	10.37
	2 483.62	H	X	AV	45.21	3.66	N/A	N/A	48.87	54.00	5.13
	9 848.08	V	X	PK	44.25	12.54	N/A	N/A	56.79	74.00	17.21
	9 848.09	V	X	AV	36.46	12.54	N/A	N/A	49.00	54.00	5.00

Note.

1. The radiated emissions were investigated 1 GHz up to 25 GHz. 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(-9.54 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

Radiated Spurious Emissions data(1 GHz ~ 25 GHz) : *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	2 388.56	H	X	PK	55.86	3.58	N/A	N/A	59.44	74.00	14.56
	2 389.82	H	X	AV	44.87	3.58	N/A	N/A	48.45	54.00	5.55
	9 647.95	V	X	PK	45.16	12.45	N/A	N/A	57.61	74.00	16.39
	9 647.92	V	X	AV	37.08	12.45	N/A	N/A	49.53	54.00	4.47
Middle	9 747.76	V	X	PK	44.45	12.27	N/A	N/A	56.72	74.00	17.28
	9 748.02	V	X	AV	36.47	12.27	N/A	N/A	48.74	54.00	5.26
Highest	2 484.21	H	X	PK	64.87	3.67	N/A	N/A	68.54	74.00	5.46
	2 483.75	H	X	AV	45.24	3.66	N/A	N/A	48.90	54.00	5.10
	9 848.10	V	X	PK	44.54	12.54	N/A	N/A	57.08	74.00	16.92
	9 847.92	V	X	AV	36.66	12.54	N/A	N/A	49.20	54.00	4.80

Note.

1. The radiated emissions were investigated 1 GHz up to 25 GHz. 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(-9.54 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

Radiated Spurious Emissions data(1 GHz ~ 25 GHz) : *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	2 389.49	H	X	PK	54.33	3.58	N/A	N/A	57.91	74.00	16.09
	2 388.91	H	X	AV	46.83	3.58	N/A	N/A	50.41	54.00	3.59
	9 687.81	V	X	PK	45.11	12.41	N/A	N/A	57.52	74.00	16.48
	9 688.10	V	X	AV	36.65	12.41	N/A	N/A	49.06	54.00	4.94
Middle	9 747.92	V	X	PK	45.26	12.27	N/A	N/A	57.53	74.00	16.47
	9 748.02	V	X	AV	36.53	12.27	N/A	N/A	48.80	54.00	5.20
Highest	2 483.84	H	X	PK	56.49	3.66	N/A	N/A	60.15	74.00	13.85
	2 484.38	H	X	AV	45.99	3.67	N/A	N/A	49.66	54.00	4.34
	9 808.22	V	X	PK	44.07	12.40	N/A	N/A	56.47	74.00	17.53
	9 807.86	V	X	AV	36.92	12.40	N/A	N/A	49.32	54.00	4.68

Note.

1. The radiated emissions were investigated 1 GHz up to 25 GHz. 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(-9.54 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

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

8.7 Occupied Bandwidth

Test Requirements, RSS-Gen [6.7]

When an occupied bandwidth value is not specified in the applicable RSS, the transmitted signal bandwidth to be reported is to be its 99 % emission bandwidth, as calculated or measured.

▣ TEST CONFIGURATION

Refer to the APPENDIX I.

▣ TEST PROCEDURE

- The transmitter shall be operated at its maximum carrier power measured under normal test conditions.
- The span of the analyzer shall be set to capture all products of the modulation process, including the emission skirts.
- The resolution bandwidth (RBW) shall be in the range of 1% to 5% of the occupied bandwidth (OBW) and video bandwidth (VBW) shall be approximately 3x RBW.

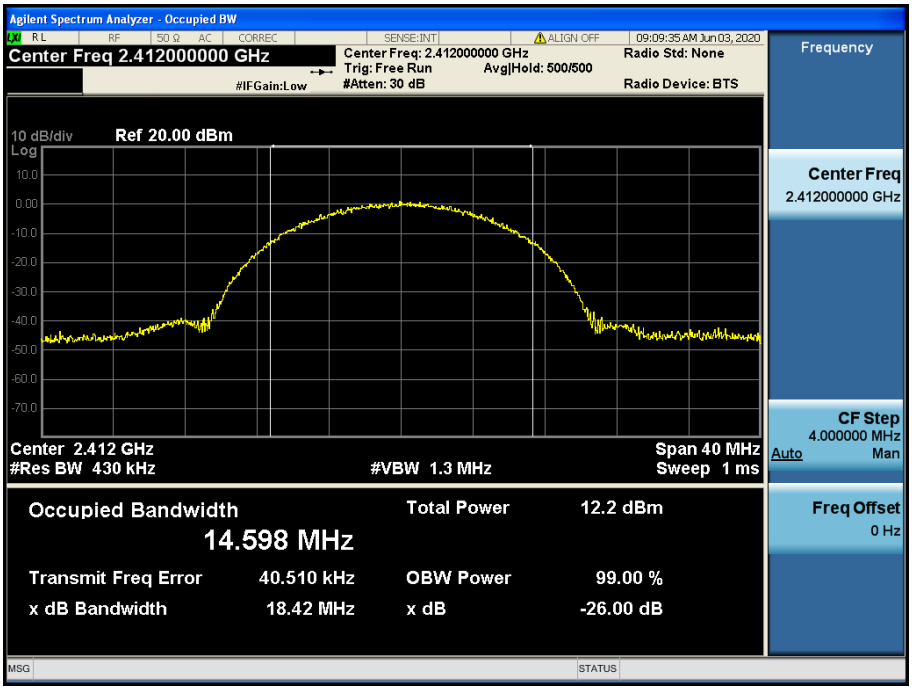
▣ TEST RESULTS: Comply

Test Mode	Frequency	Test Results[MHz]	
		12 V	24 V
TM 1	Lowest	14.60	14.65
	Middle	14.62	14.62
	Highest	14.62	14.60
TM 2	Lowest	16.87	16.93
	Middle	16.84	16.91
	Highest	16.80	16.83
TM 3	Lowest	17.98	17.84
	Middle	17.99	17.94
	Highest	17.94	17.93
TM 4	Lowest	36.09	36.12
	Middle	36.12	36.09
	Highest	36.08	36.04

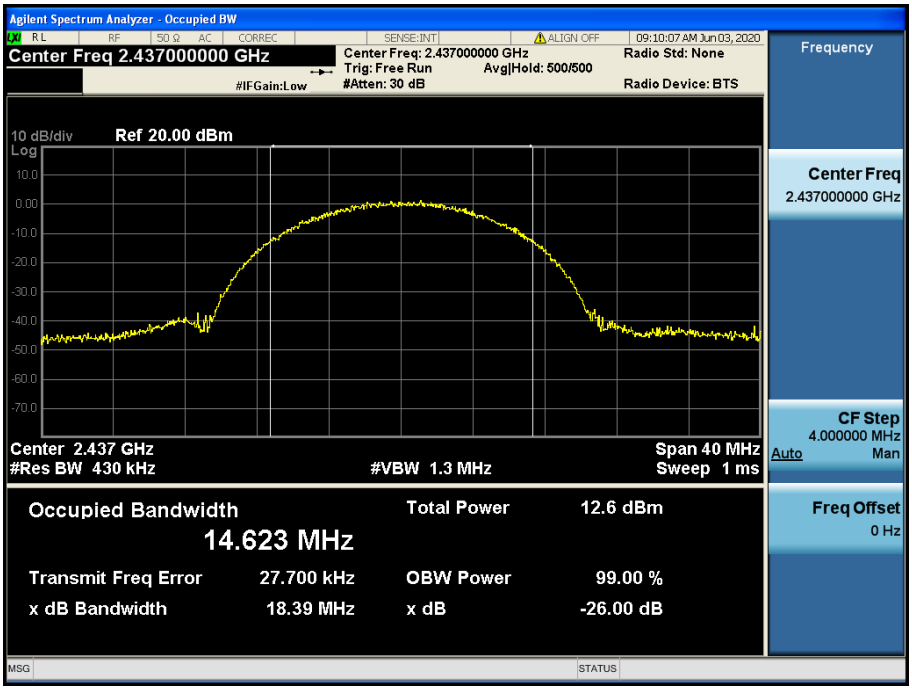
▣ RESULT PLOTS

- Tested Power Supply: 12 V

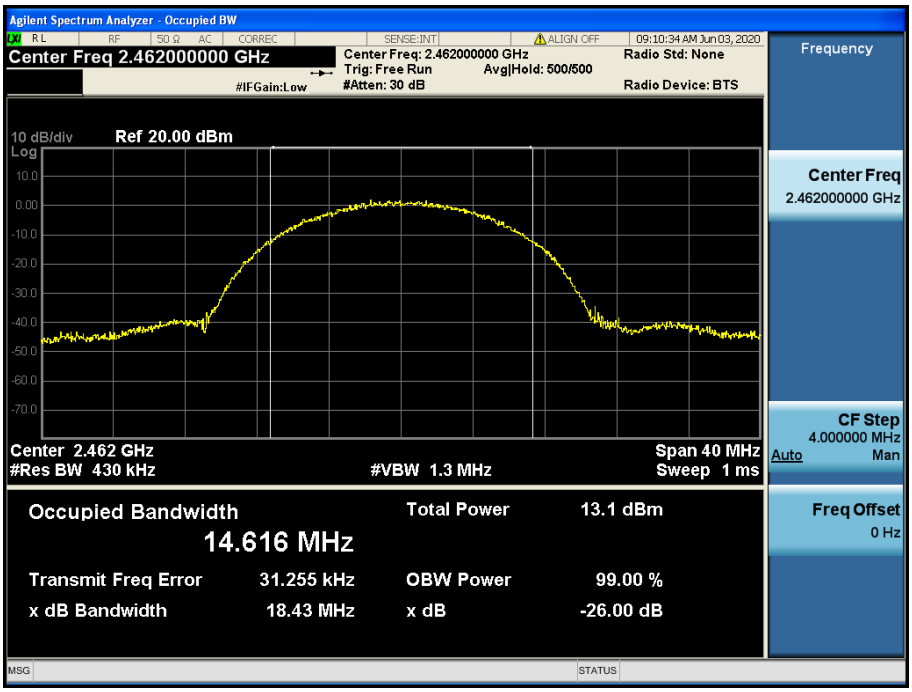
Occupied Bandwidth Test Mode: TM 1 & 2 412 MHz



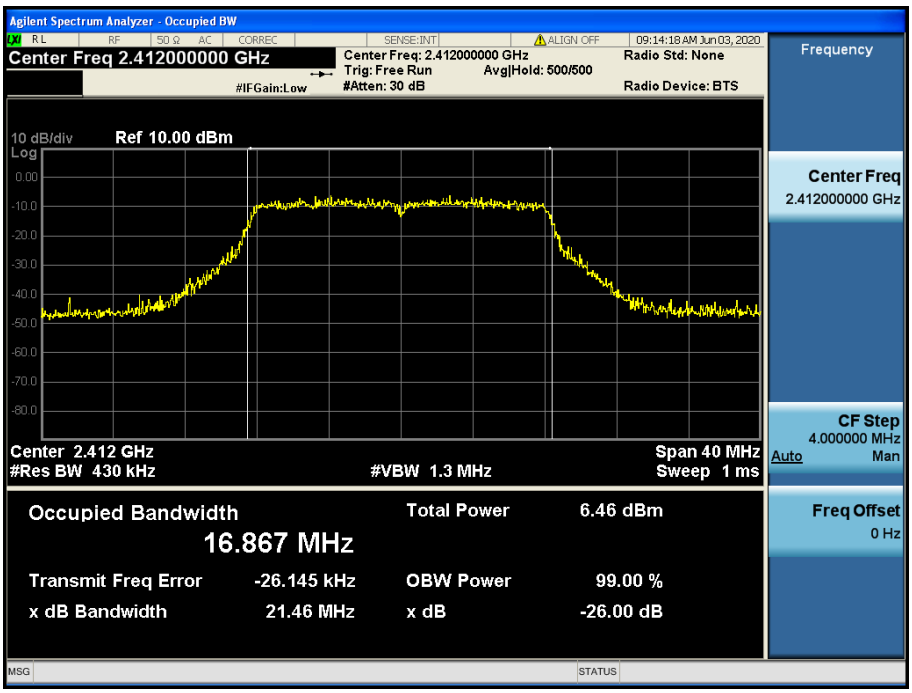
Occupied Bandwidth Test Mode: TM 1 & 2 437 MHz



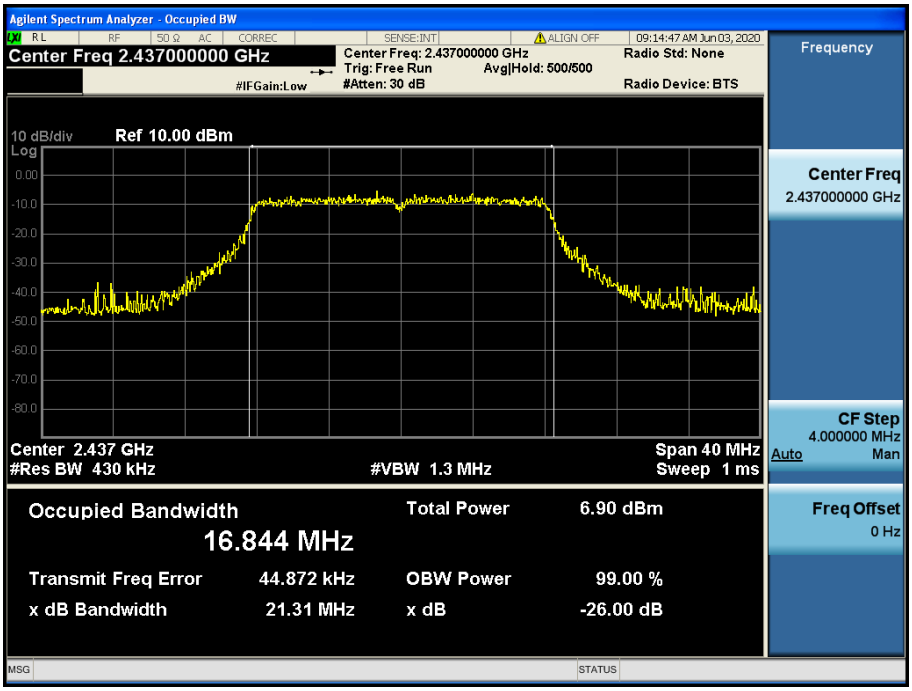
Occupied Bandwidth Test Mode: TM 1 & 2 462 MHz



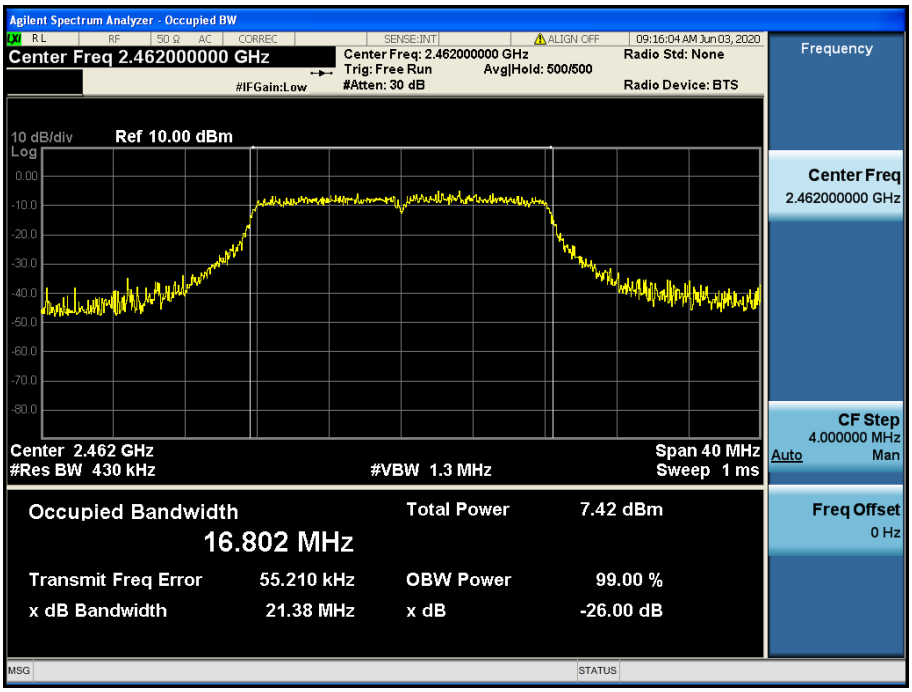
Occupied Bandwidth Test Mode: TM 2 & 2 412 MHz



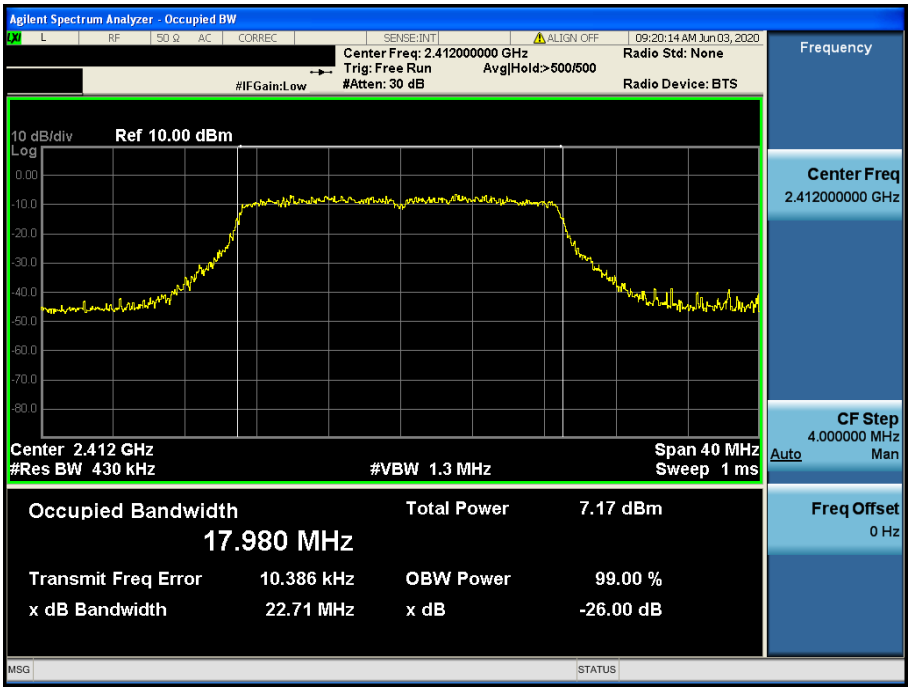
Occupied Bandwidth Test Mode: TM 2 & 2 437 MHz



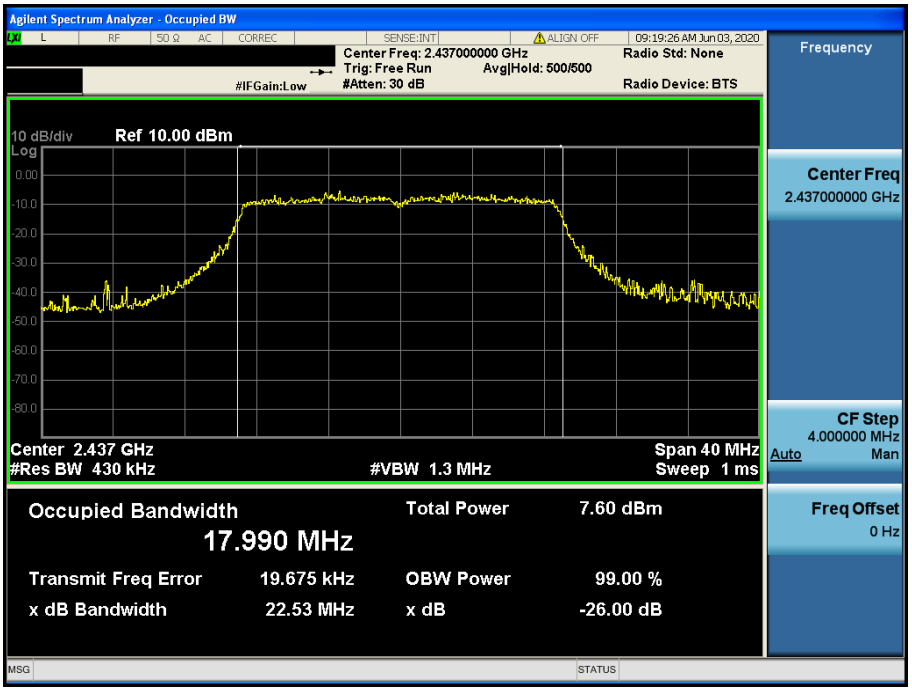
Occupied Bandwidth Test Mode: TM 2 & & 2 462 MHz



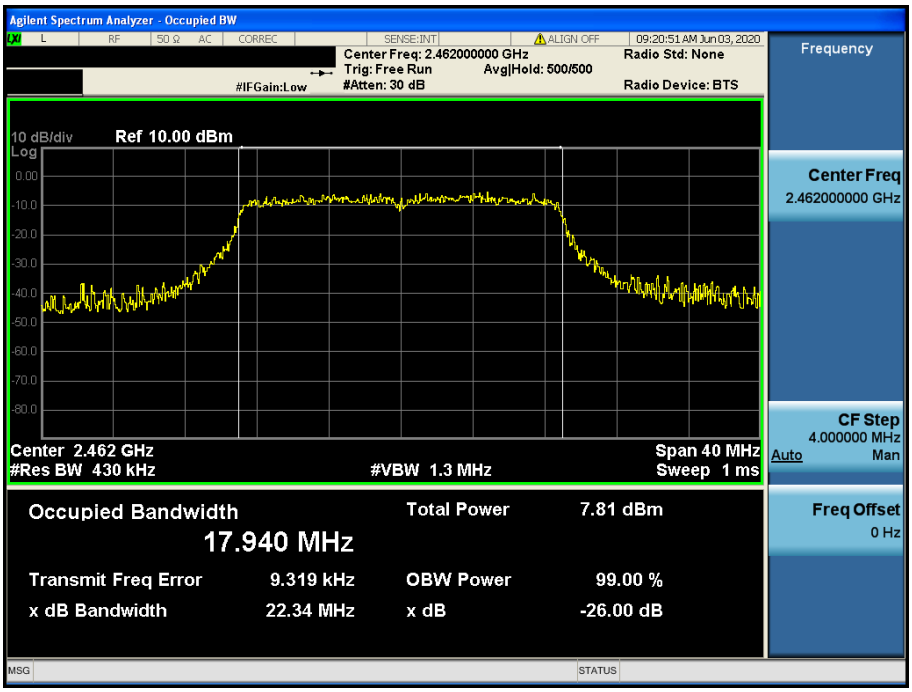
Occupied Bandwidth Test Mode: TM 3 & 2 412 MHz



Occupied Bandwidth Test Mode: TM 3 & 2 437 MHz

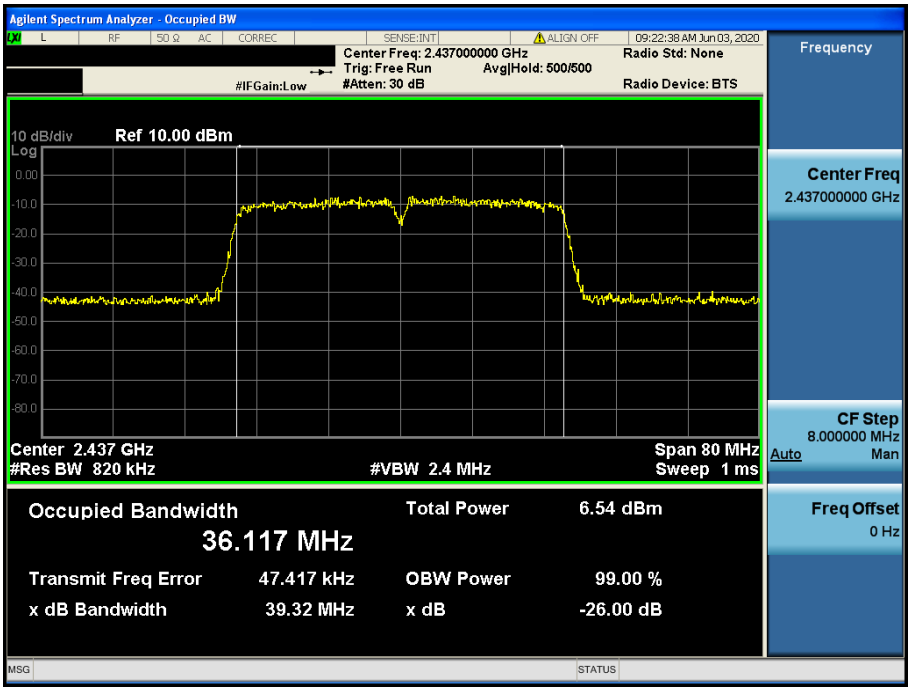


Occupied Bandwidth Test Mode: TM 3 & 2 462 MHz

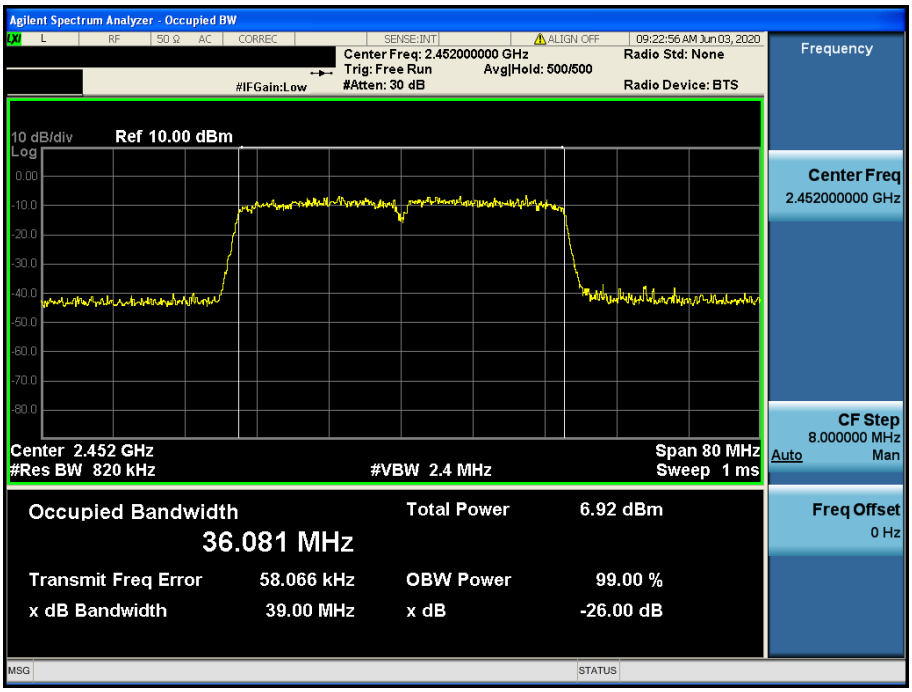


Occupied Bandwidth Test Mode: TM 4 & 2 422 MHz

Occupied Bandwidth Test Mode: TM 4 & 2 437 MHz

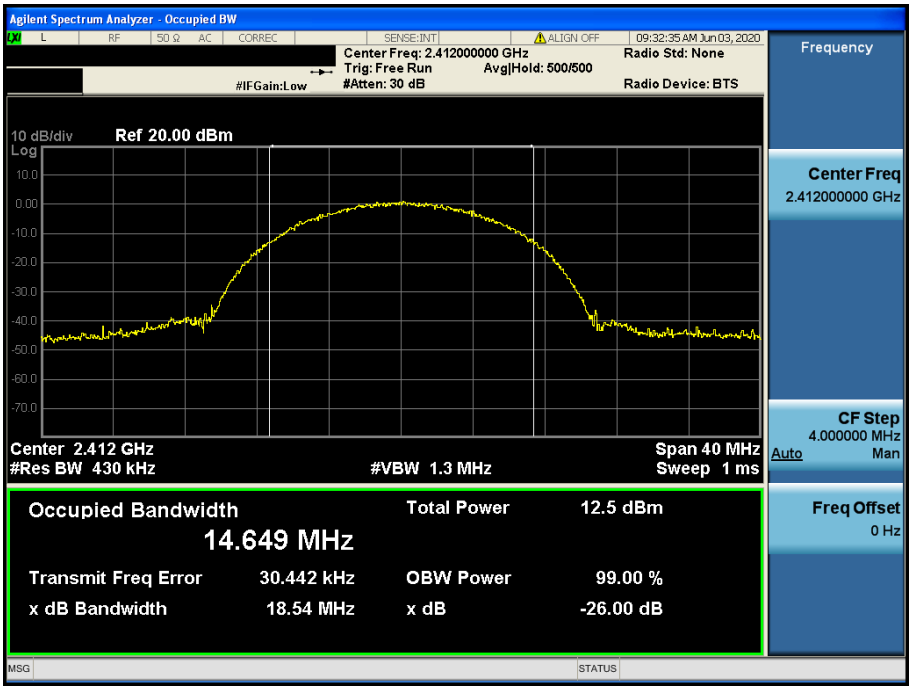


Occupied Bandwidth Test Mode: TM 4 & 2 452 MHz

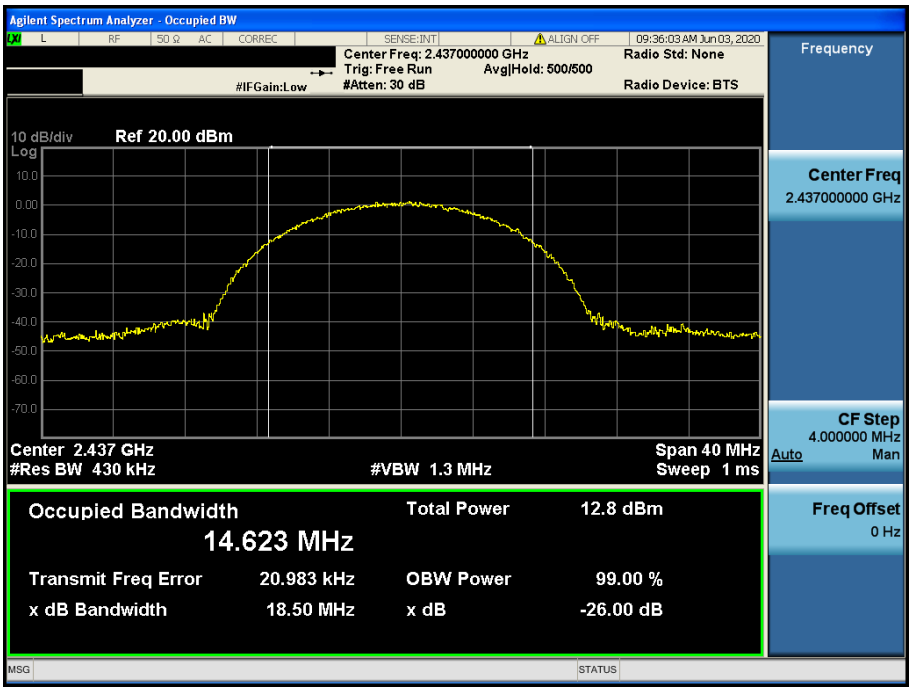


- Tested Power Supply: 24 V

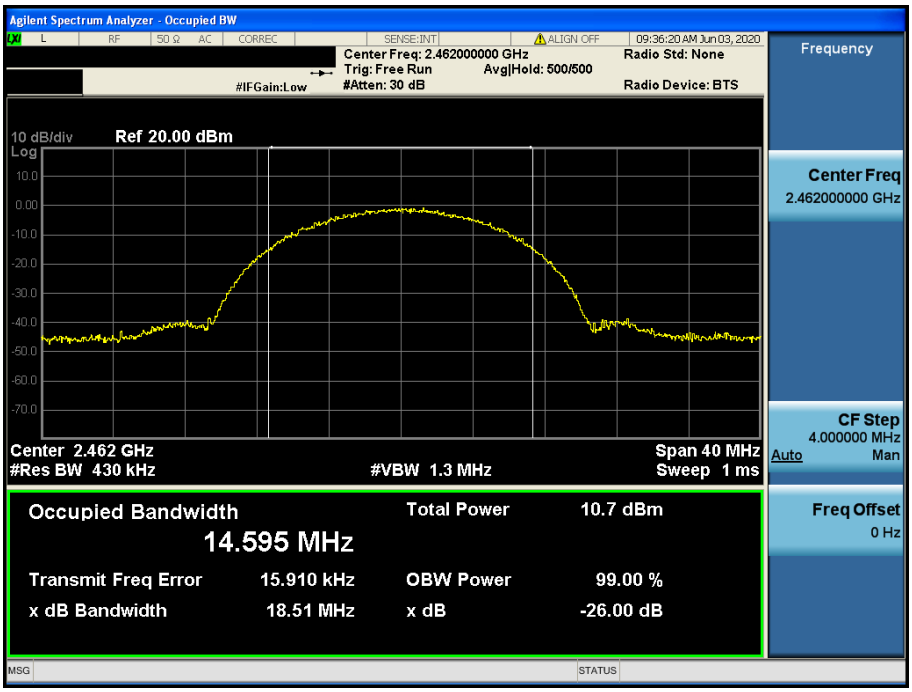
Occupied Bandwidth Test Mode: TM 1 & 2 412 MHz



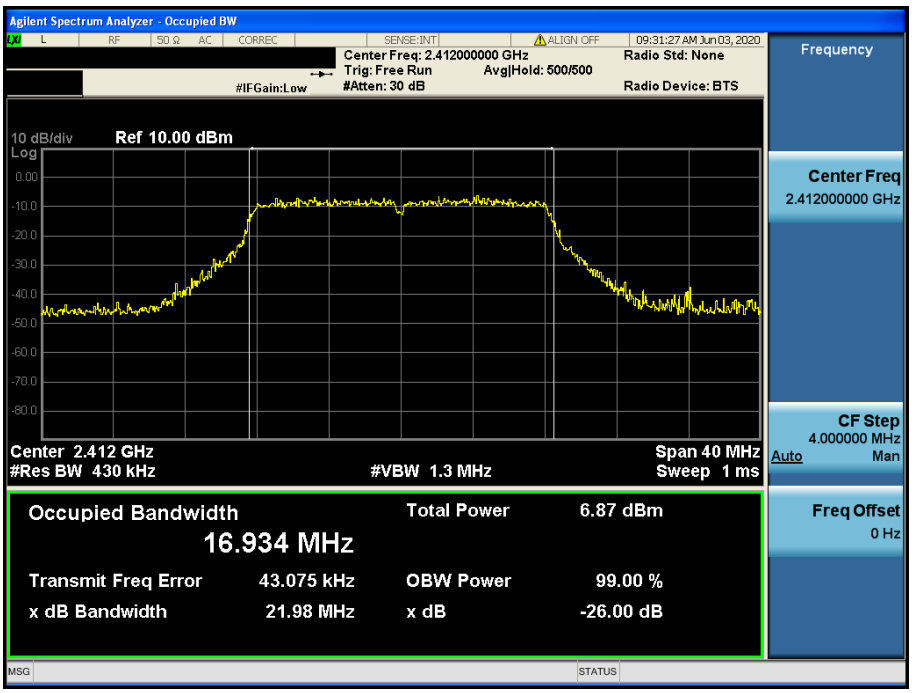
Occupied Bandwidth Test Mode: TM 1 & 2 437 MHz



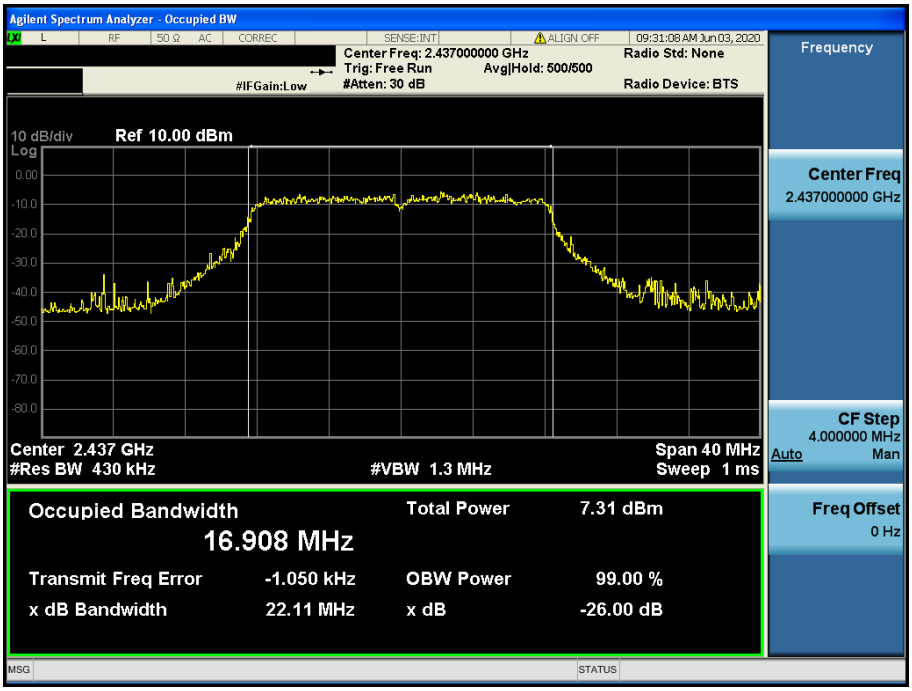
Occupied Bandwidth Test Mode: TM 1 & 2 462 MHz



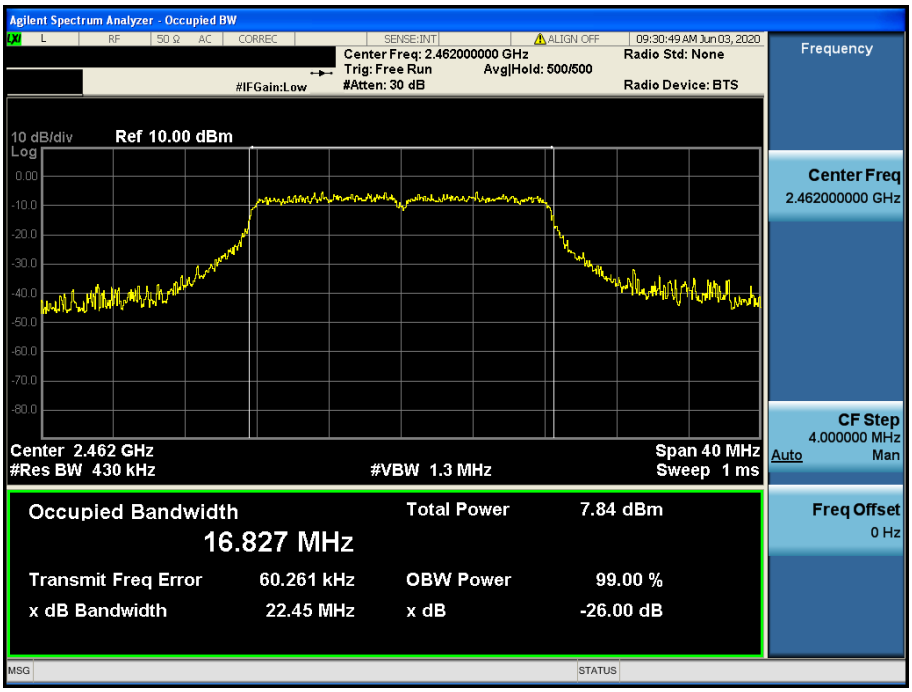
Occupied Bandwidth Test Mode: TM 2 & 2 412 MHz



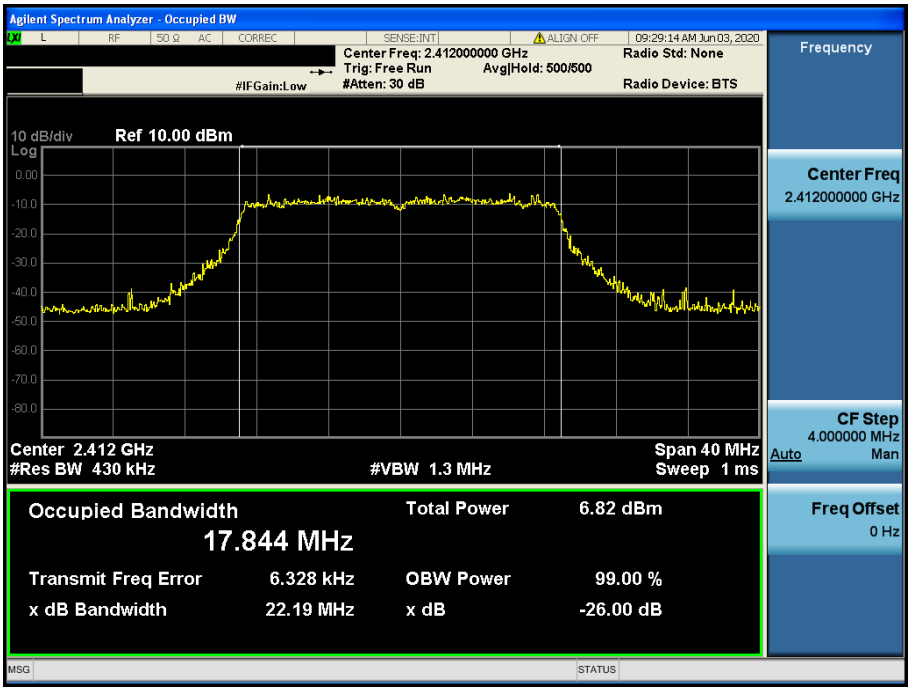
Occupied Bandwidth Test Mode: TM 2 & 2 437 MHz



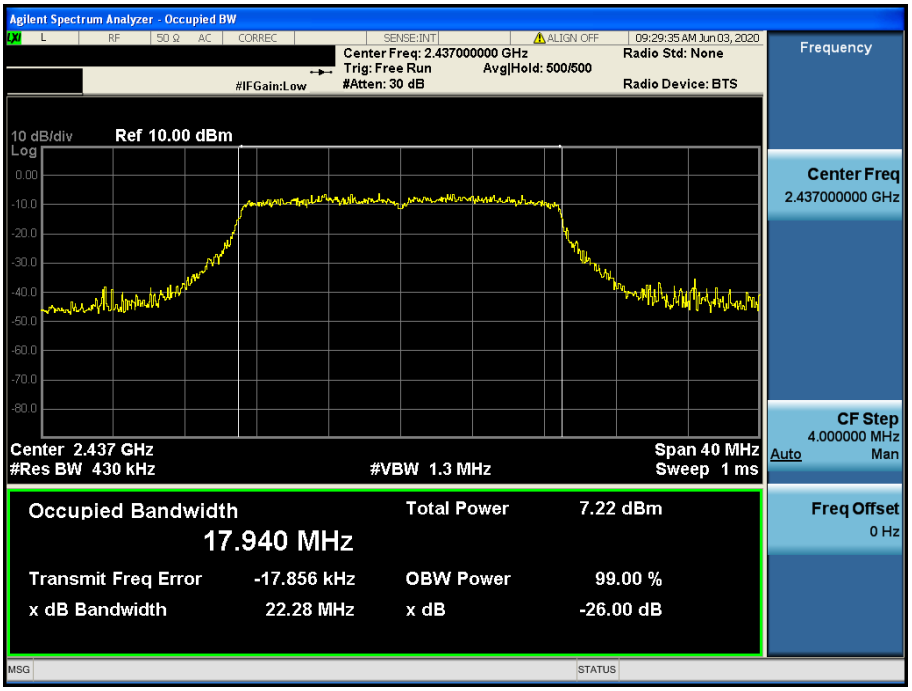
Occupied Bandwidth Test Mode: TM 2 & & 2 462 MHz



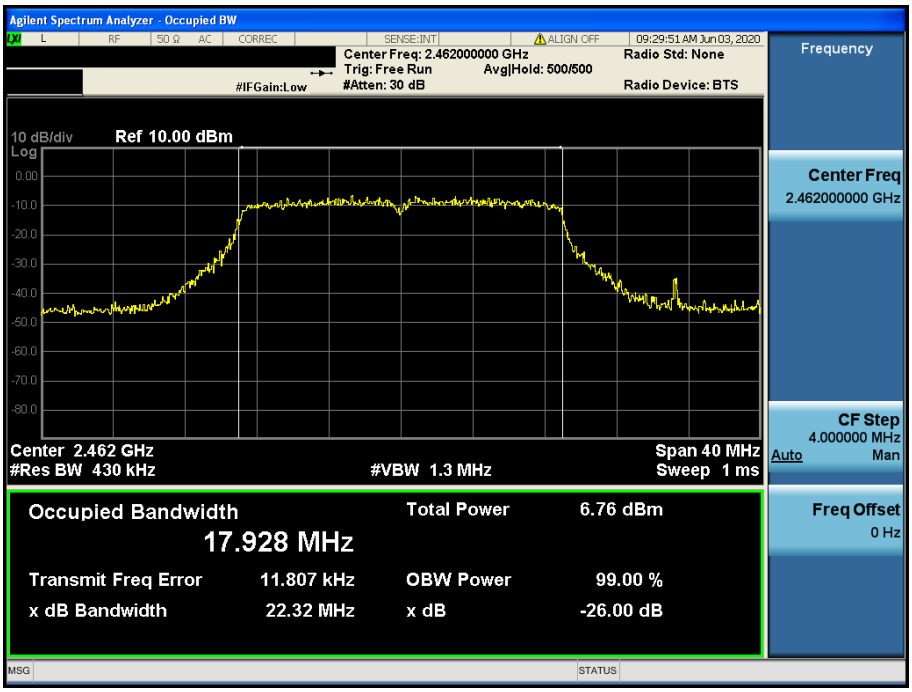
Occupied Bandwidth Test Mode: TM 3 & 2 412 MHz



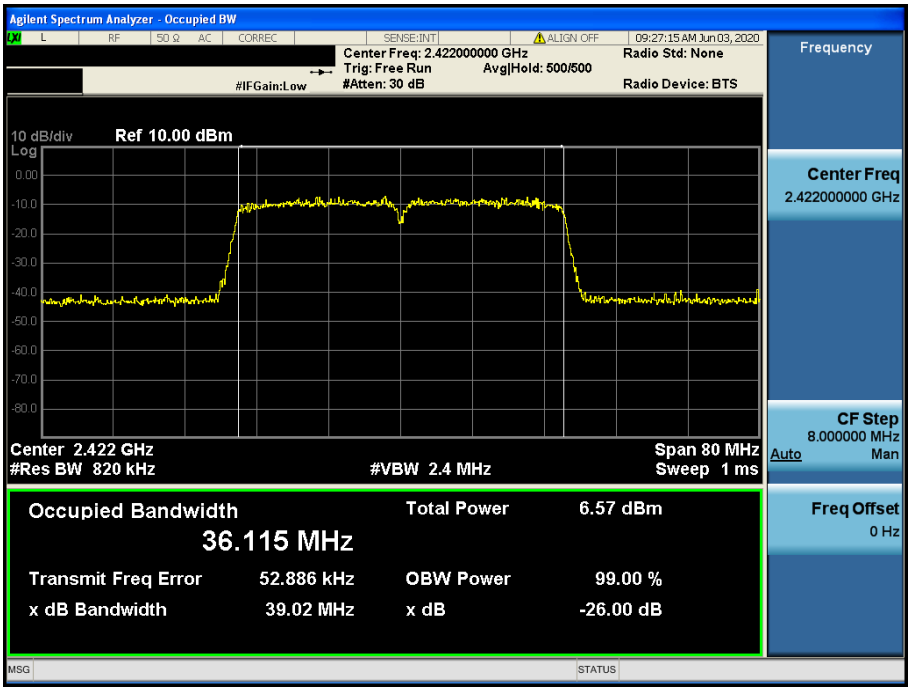
Occupied Bandwidth Test Mode: TM 3 & 2 437 MHz



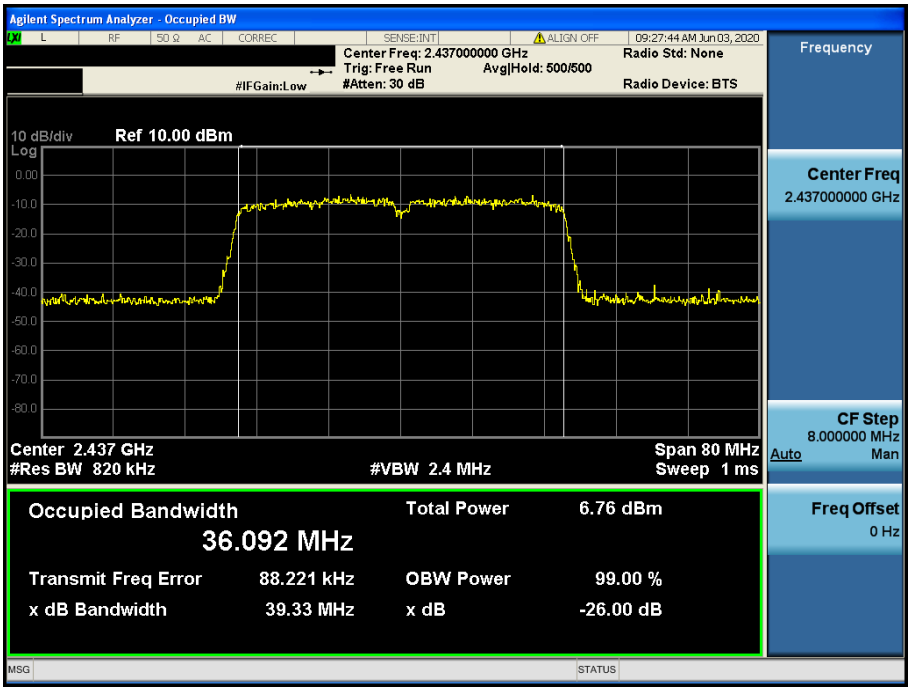
Occupied Bandwidth Test Mode: TM 3 & 2 462 MHz



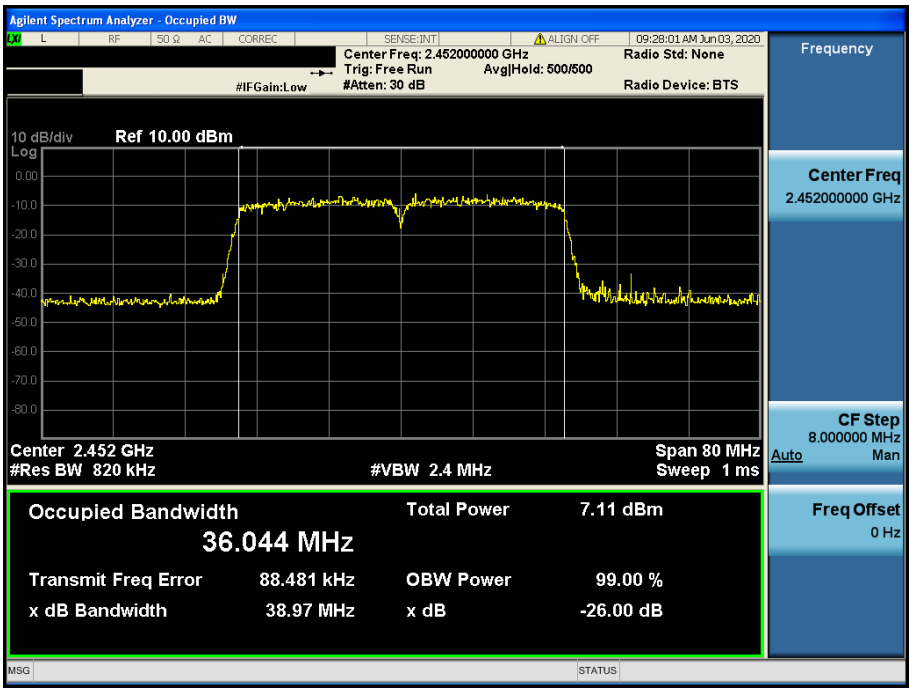
Occupied Bandwidth Test Mode: TM 4 & 2 422 MHz



Occupied Bandwidth Test Mode: TM 4 & 2 437 MHz



Occupied Bandwidth Test Mode: TM 4 & 2 452 MHz



9. LIST OF TEST EQUIPMENT

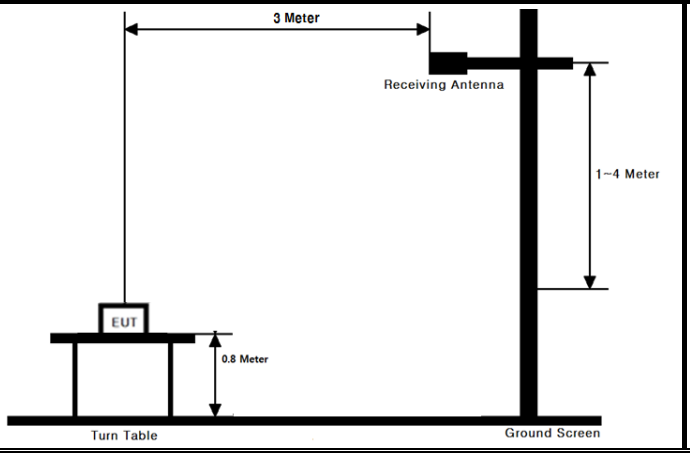
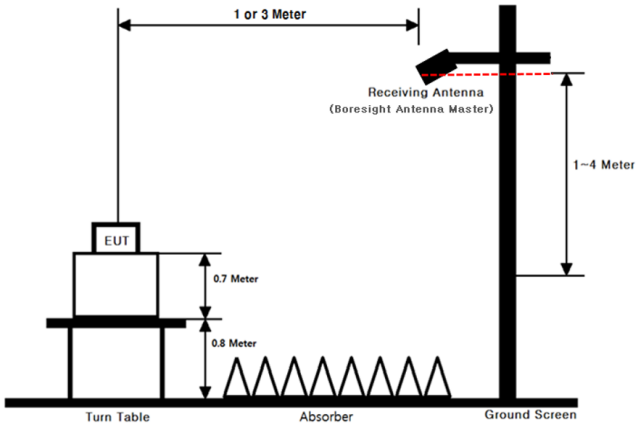
Type	Manufacturer	Model	Cal.Date (yy/mm/dd)	Next.Cal.Date (yy/mm/dd)	S/N
Spectrum Analyzer	Agilent Technologies	N9020A	19/12/16	20/12/16	MY50410357
Spectrum Analyzer	Agilent Technologies	N9020A	19/06/26	20/06/26	US47360812
			20/06/24	21/06/24	
Spectrum Analyzer	Agilent Technologies	N9020A	19/06/26	20/06/26	MY50200834
			20/06/24	21/06/24	
DC Power Supply	Agilent Technologies	6654A	19/06/27	20/06/27	MY40002935
			20/06/24	21/06/24	
DC Power Supply	SM techno	SDP30-5D	19/06/25	20/06/25	305DMG304
			20/06/24	21/06/24	
Multimeter	FLUKE	17B+	19/12/16	20/12/16	36390701WS
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
Loop Antenna	Schwarzbeck	FMZB1513	20/02/19	22/02/19	1513-128
BILOG ANTENNA	Schwarzbeck	VULB 9160	19/04/23	21/04/23	9160-3362
Horn Antenna	ETS-Lindgren	3117	20/04/24	22/04/24	00140394
Horn Antenna	A.H.Systems Inc.	SAS-574	19/07/03	21/07/03	155
PreAmplifier	H.P	8447D	19/12/16	20/12/16	2944A07774
High Pass Filter	Wainwright Instruments	WHKX12-935-1000-15000-40SS	19/06/24	20/06/24	7
			20/06/24	21/06/24	
High Pass Filter	Wainwright Instruments	WHKX10-2838-3300-18000-60SS	19/06/24	20/06/24	2
			20/06/24	21/06/24	
High Pass Filter	Wainwright Instruments	WHKX6-6320-8000-26500-40CC	19/06/25	20/06/25	2
			20/06/24	21/06/24	
Attenuator	Aeroflex/Weinschel	86-10-11	19/06/25	20/06/25	408
			20/06/24	21/06/24	
Power Meter & Wide Bandwidth Sensor	Anritsu	ML2488B MA2491A	20/01/02	21/01/02	0910025 0845333
Cable	Radiall	TESTPRO3	20/01/16	21/01/16	M-01
Cable	HUBER+SUHNER	SUCOFLEX 104	20/01/16	21/01/16	M-03
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	20/01/16	21/01/16	RF-65
Test Software	tsj	Radiated EmissionMeaseurement	NA	NA	Version 2.5.2

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.

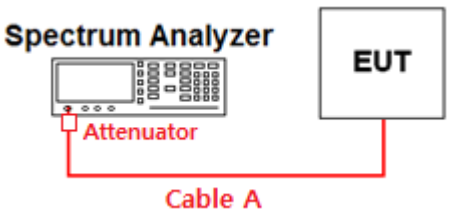
APPENDIX I

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	9.45	15	11.11
1	9.75	20	11.45
2.412 & 2.437 & 2.462	10.27	25	11.56
5	10.37	-	-
10	10.49	-	-

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

APPENDIX II

Duty cycle plots

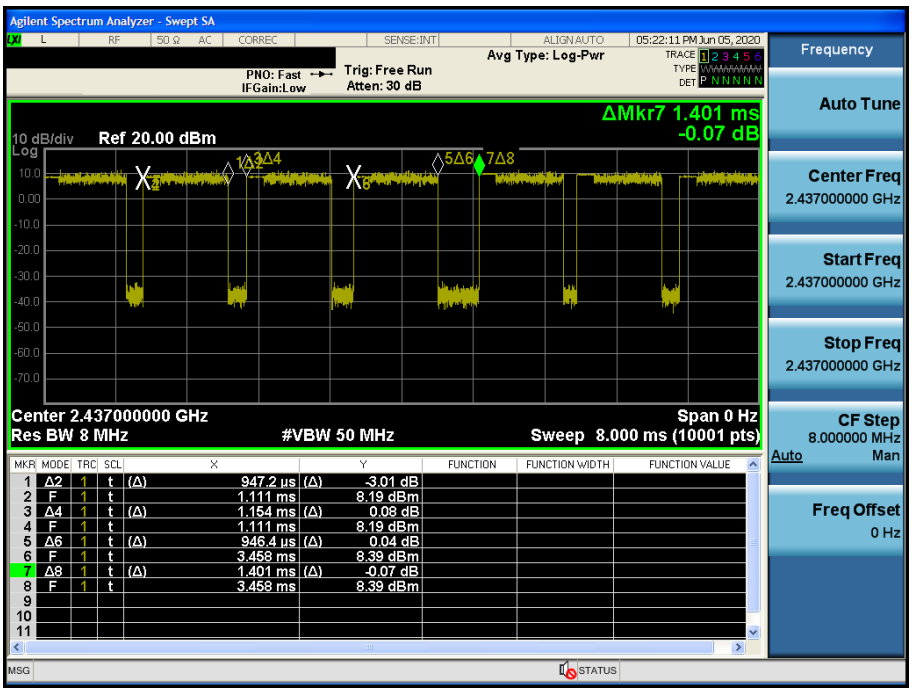
▪ Test Procedure

Duty Cycle was measured using **section 6.0 b) of KDB558074 D01V05R02 :**

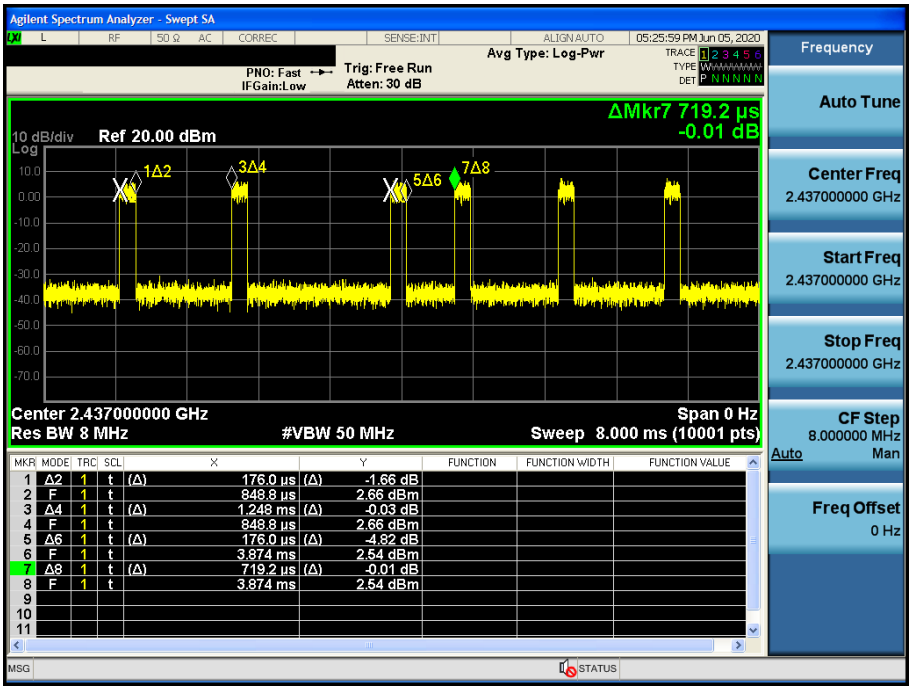
The zero-span mode on a spectrum analyzer or EMI receiver if the response time and spacing between bins on the sweep are sufficient to permit accurate measurements of the on and off times of the transmitted signal. Set the center frequency of the instrument to the center frequency of the transmission.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

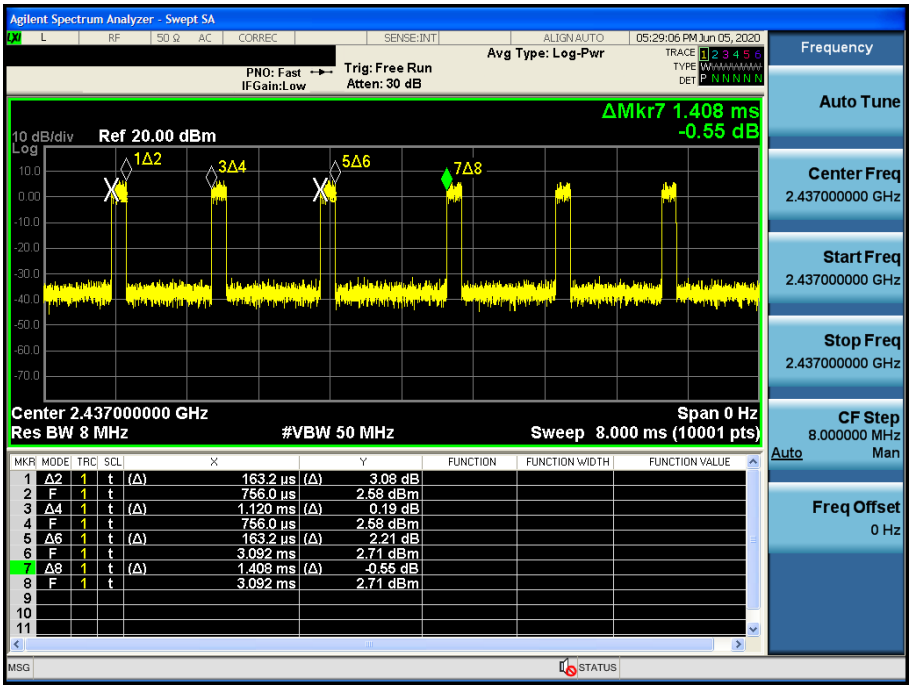
Duty Cycle TM 1 & Lowest



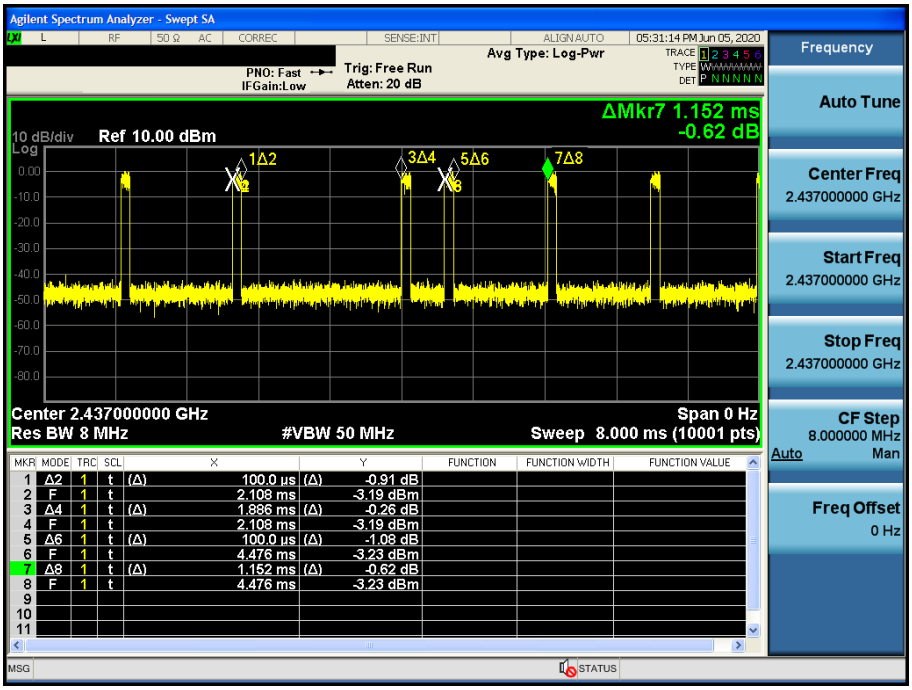
Duty Cycle TM 2 & Lowest



Duty Cycle TM 3 & Lowest



Duty Cycle TM 4 & Lowest

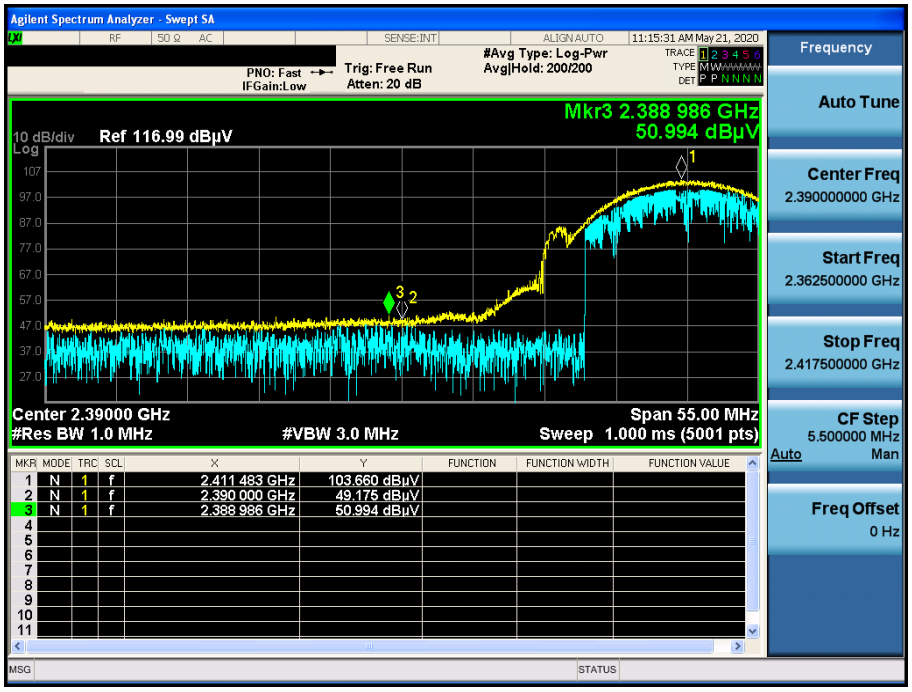


APPENDIX III

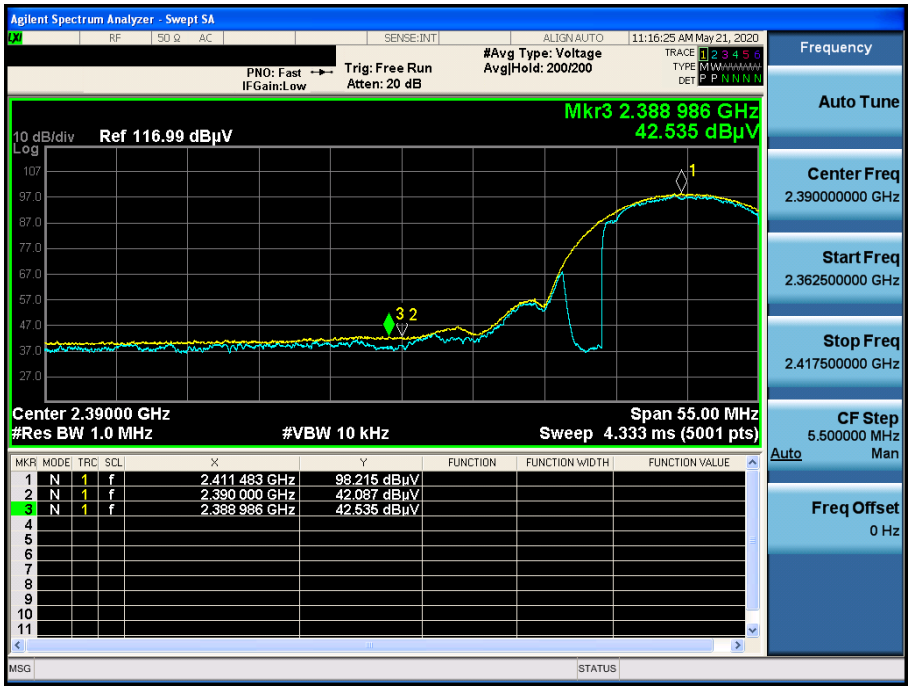
Unwanted Emissions (Radiated) Test Plot

- Tested Power Supply: 12 V

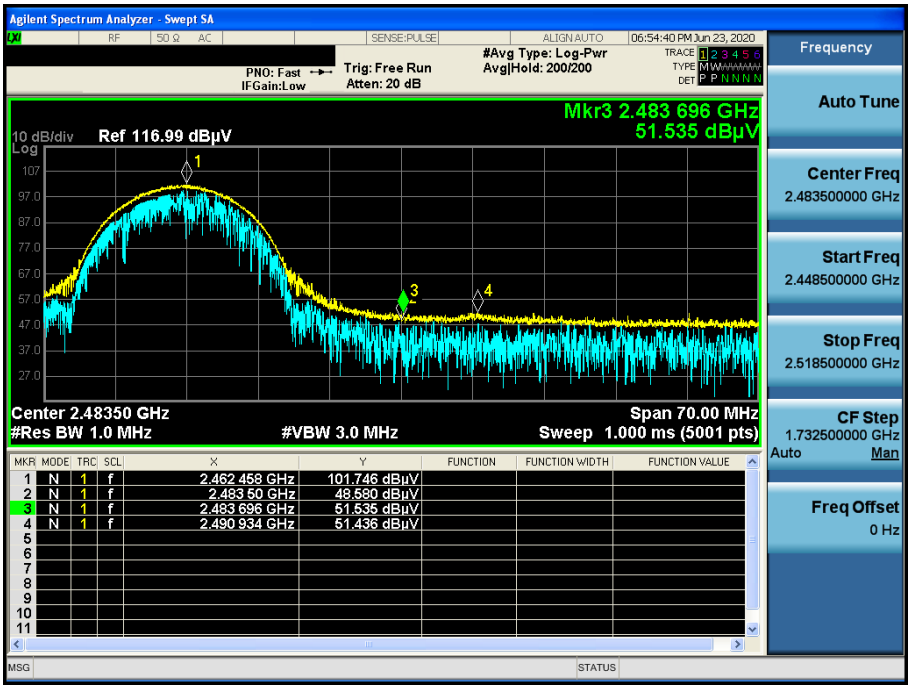
TM 1 & Lowest & Z axis & Hor **Detector Mode : PK**



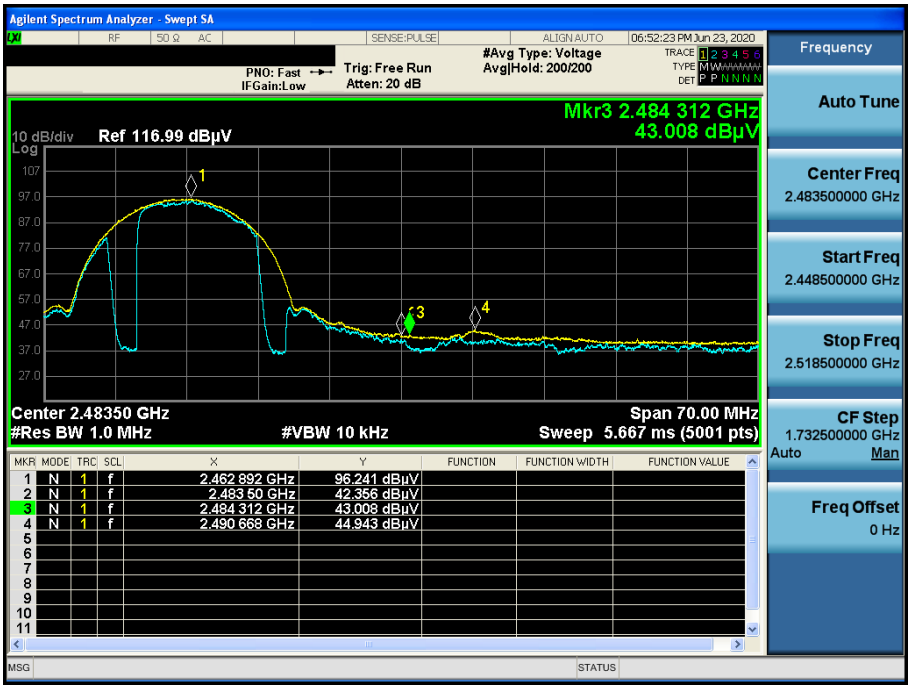
TM 1 & Lowest & Z axis & Hor **Detector Mode : AV**



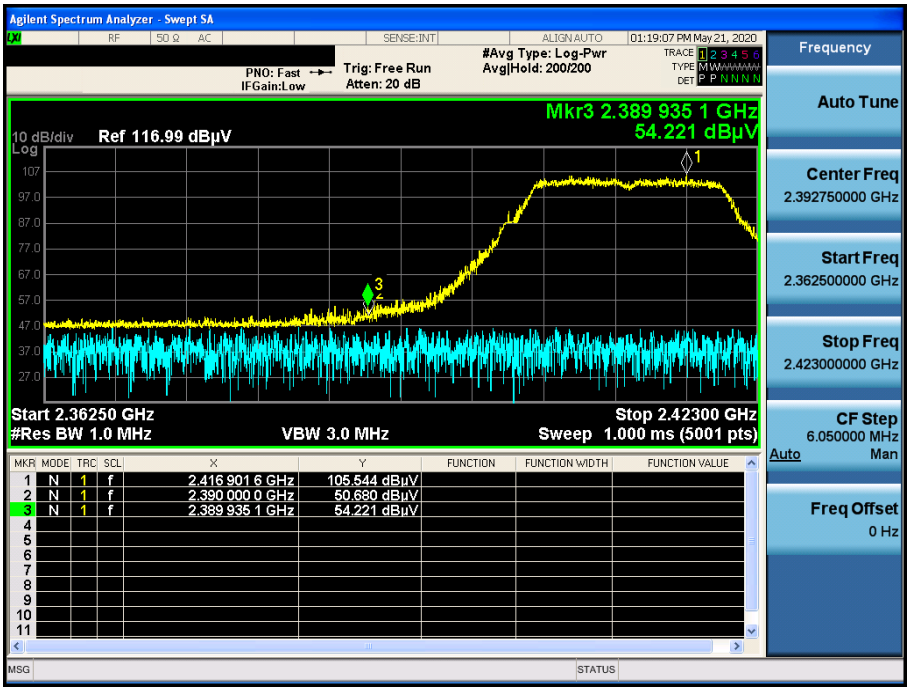
TM 1 & Highest & Z axis & Hor **Detector Mode : PK**



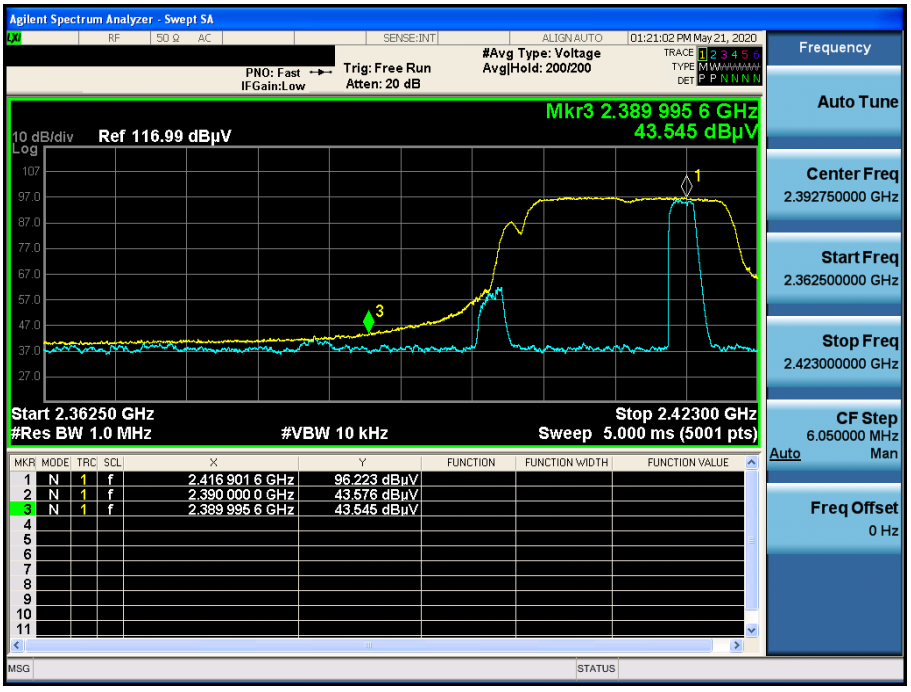
TM 1 & Highest & Z axis & Hor **Detector Mode : AV**



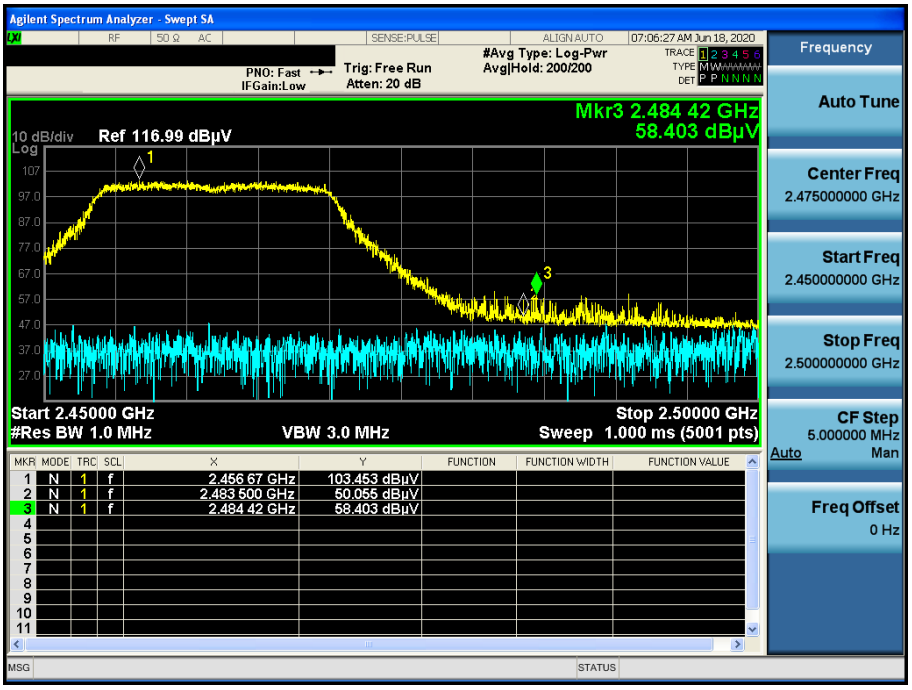
TM 2 & Lowest & X axis & Hor **Detector Mode : PK**



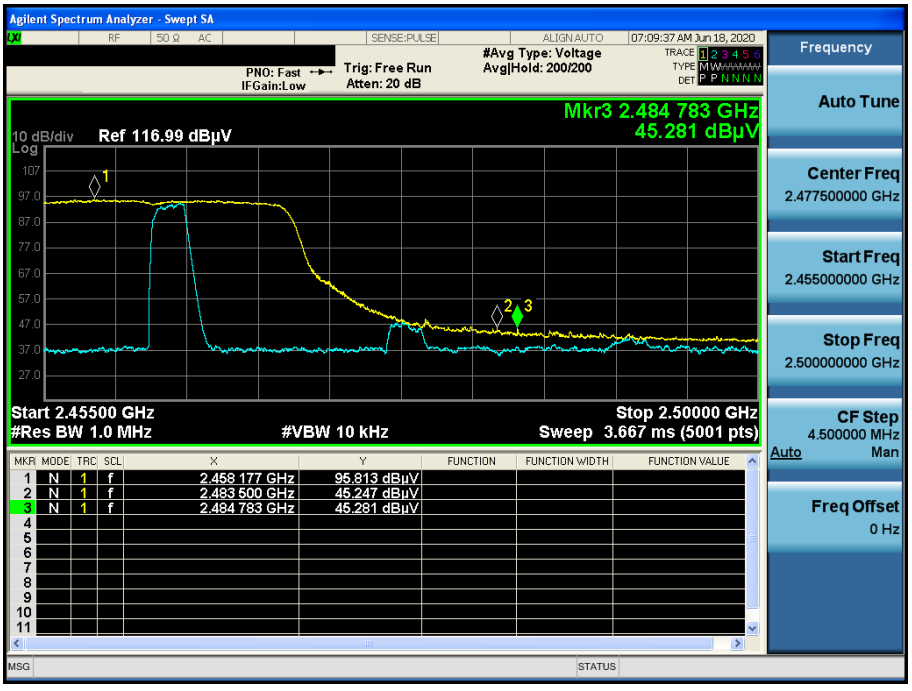
TM 2 & Lowest & X axis & Hor **Detector Mode : AV**



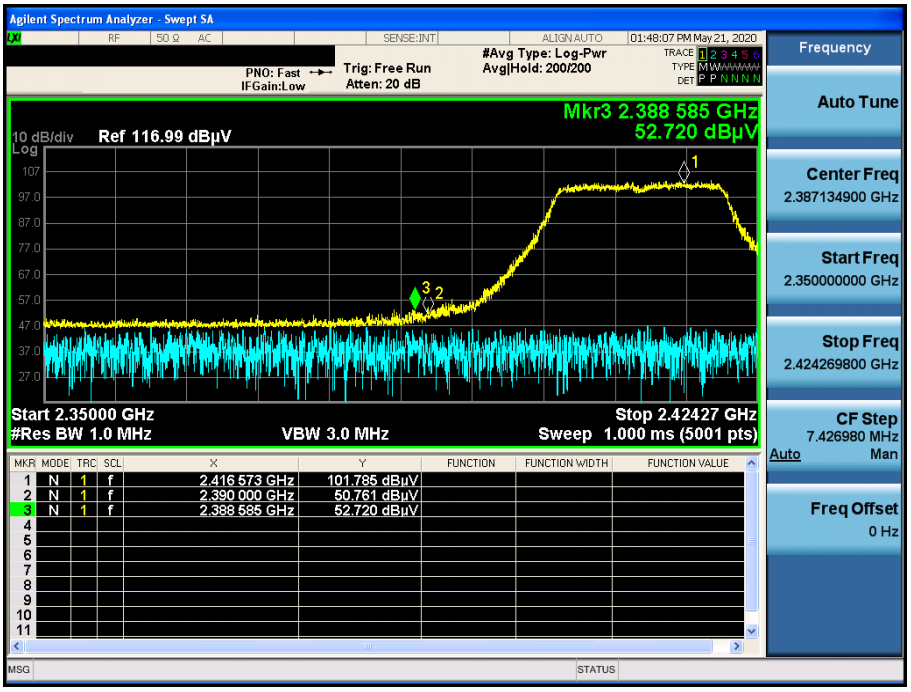
TM 2 & Highest & X axis & Hor **Detector Mode : PK**



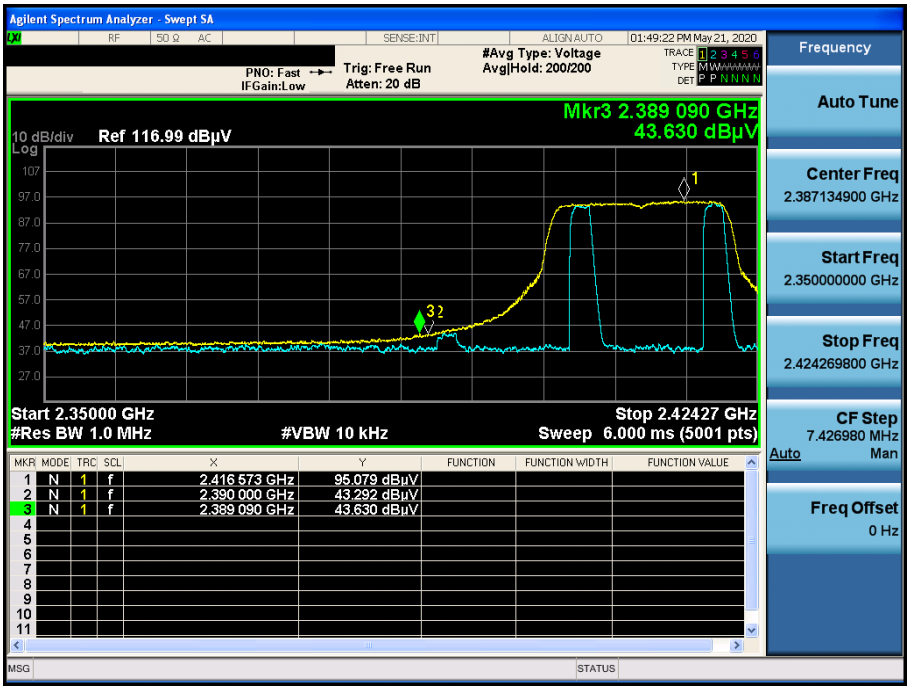
TM 2 & Highest & X axis & Hor **Detector Mode : AV**



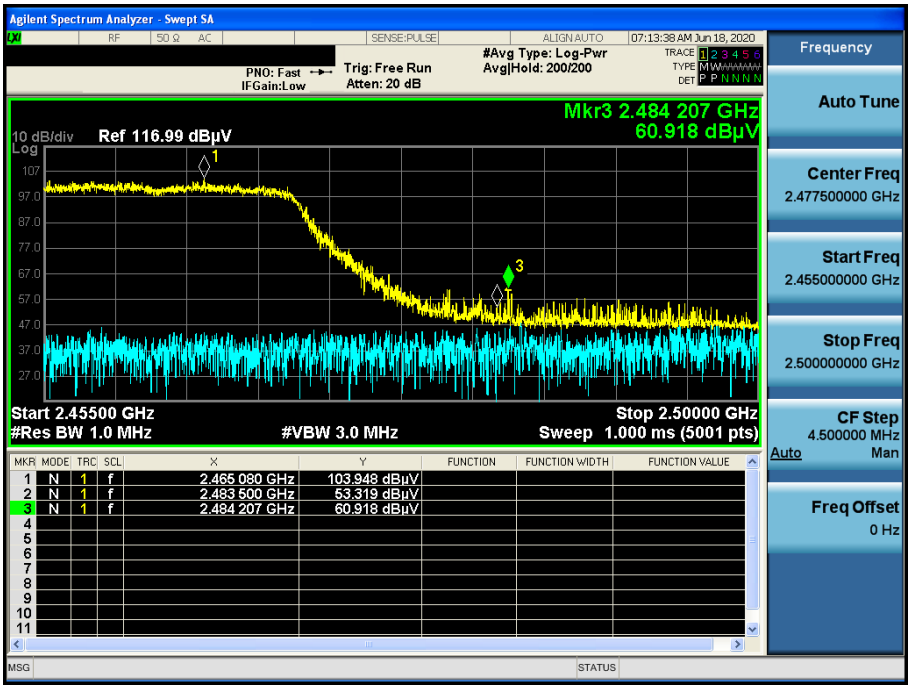
TM 3 & Lowest & X axis & Hor **Detector Mode : PK**



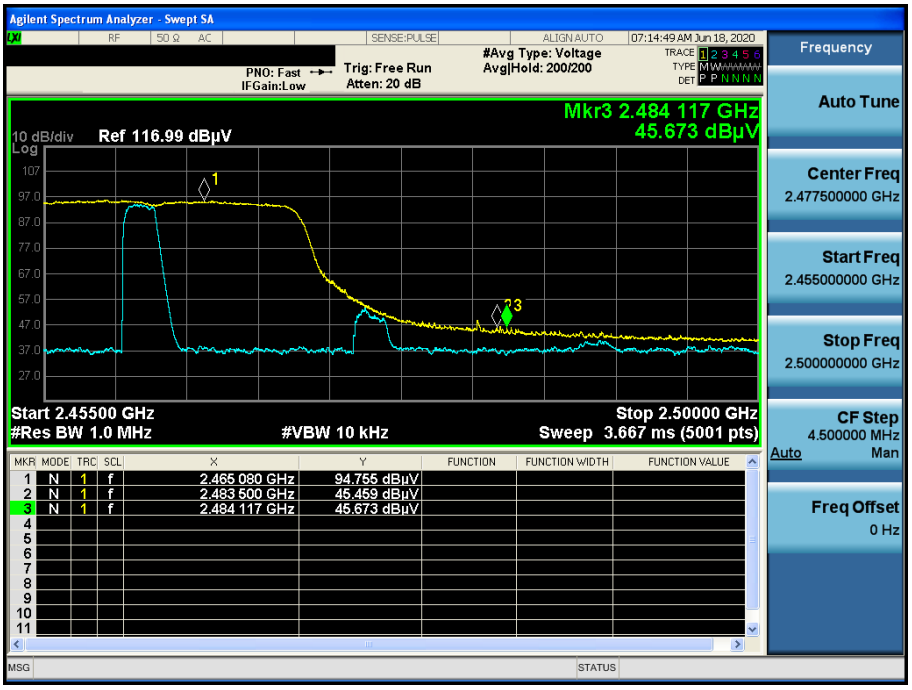
TM 3 & Lowest & X axis & Hor **Detector Mode : AV**



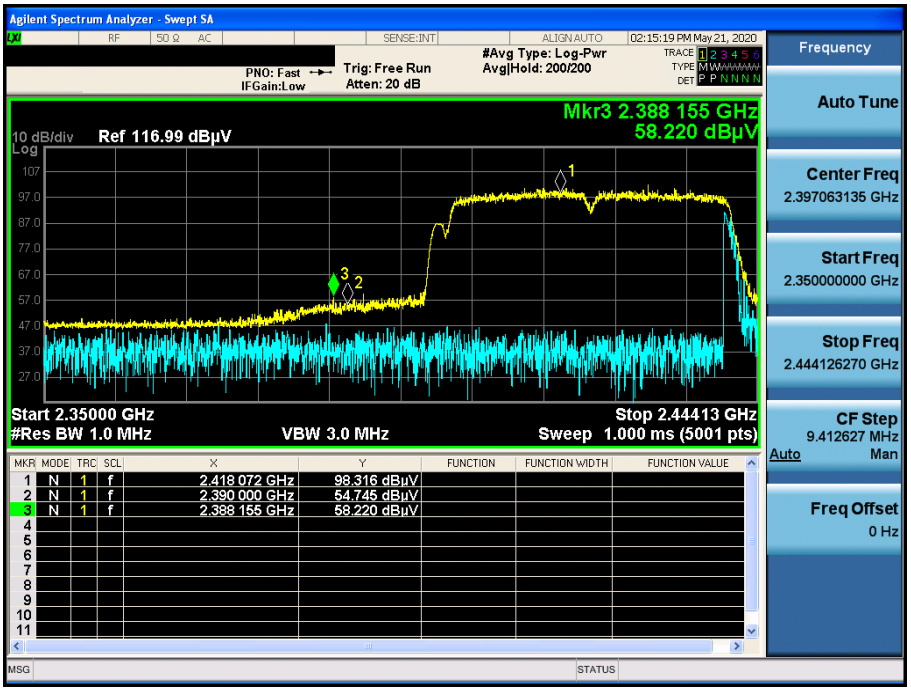
TM 3 & Highest & X axis & Hor **Detector Mode : PK**



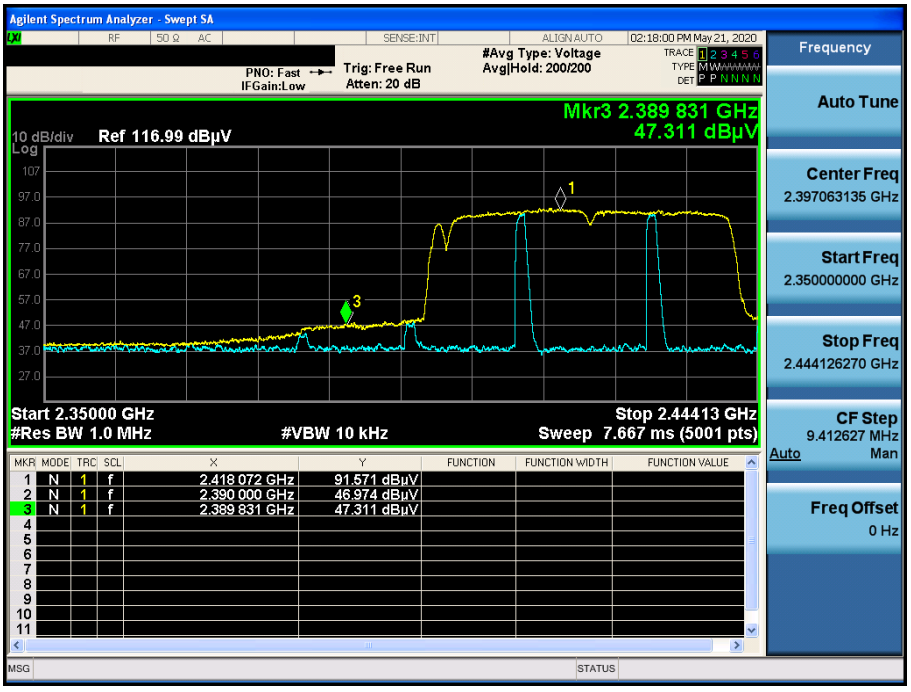
TM 3 & Highest & X axis & Hor **Detector Mode : AV**



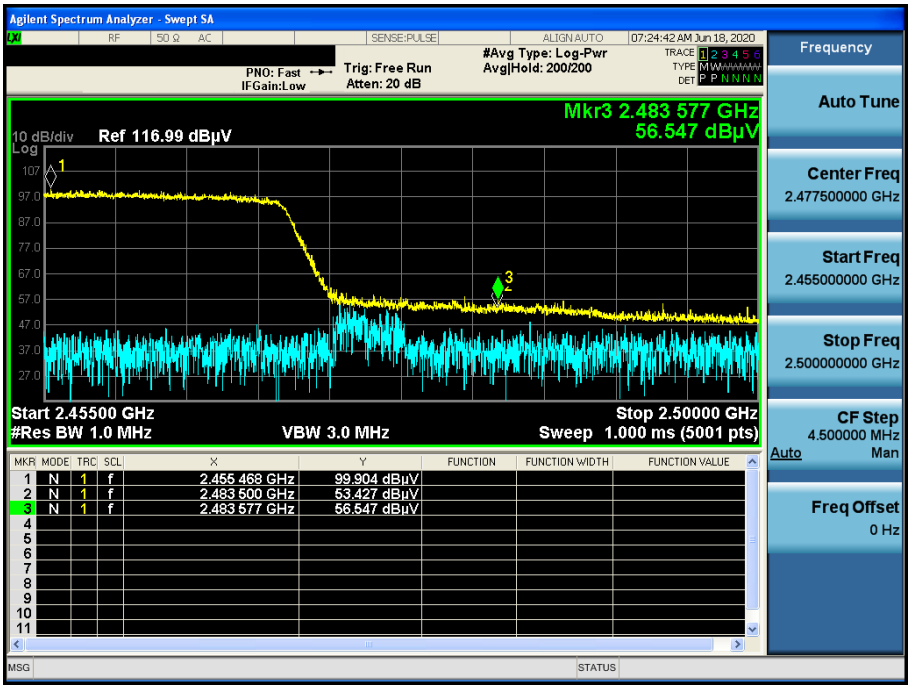
TM 4 & Lowest & X axis & Hor **Detector Mode : PK**



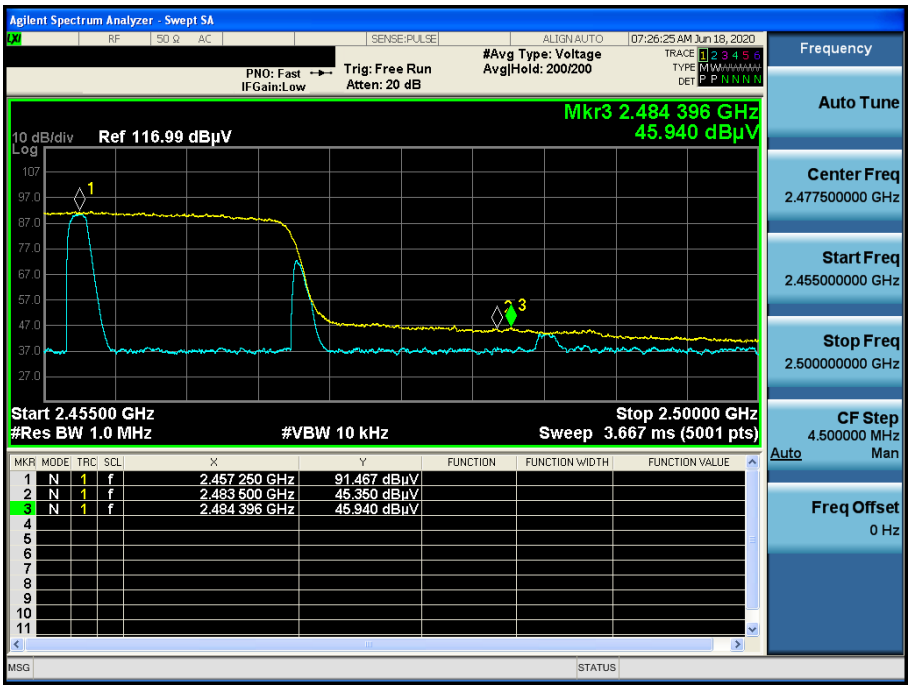
TM 4 & Lowest & X axis & Hor **Detector Mode : AV**



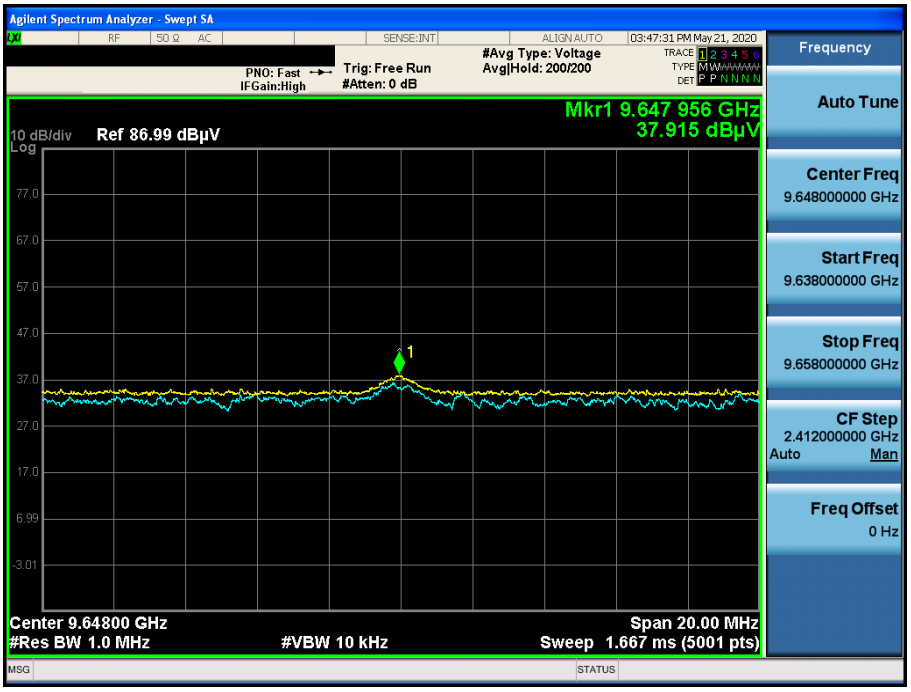
TM 4 & Highest & X axis & Hor **Detector Mode : PK**



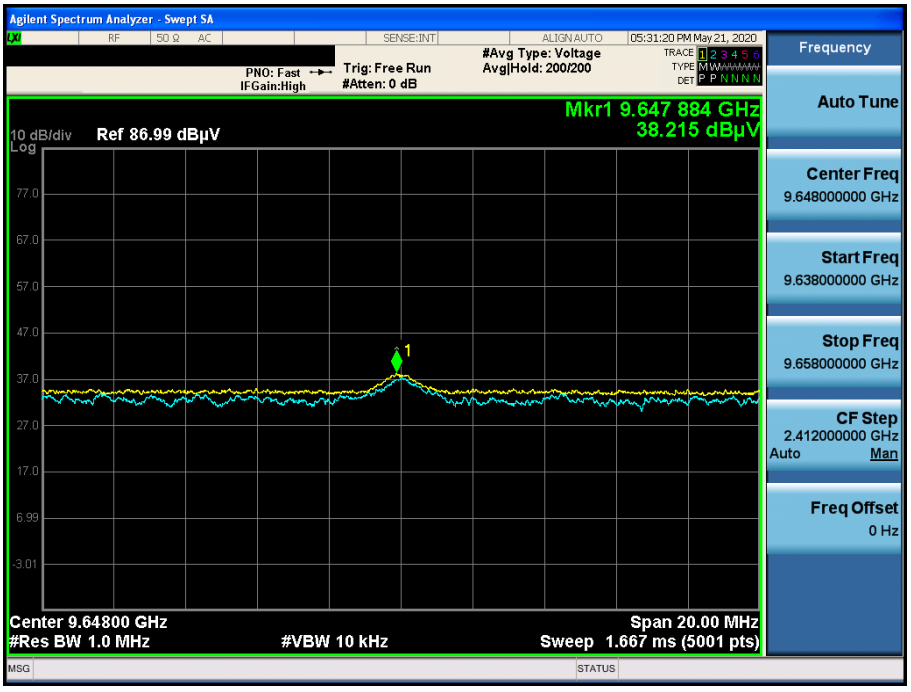
TM 4 & Highest & X axis & Hor **Detector Mode : AV**



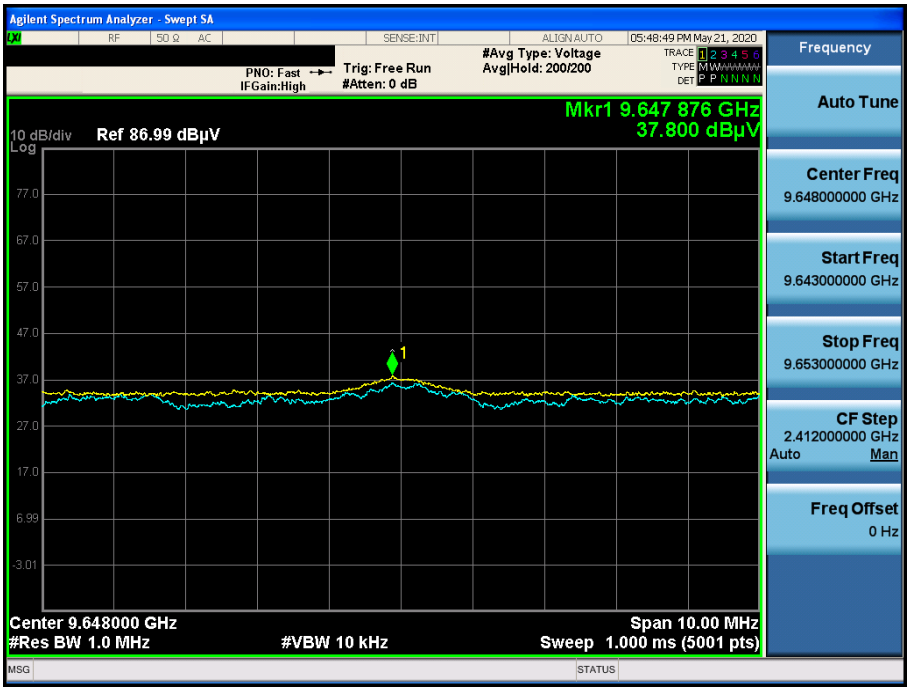
TM 1 & Lowest & X axis & Ver **Detector Mode : AV**



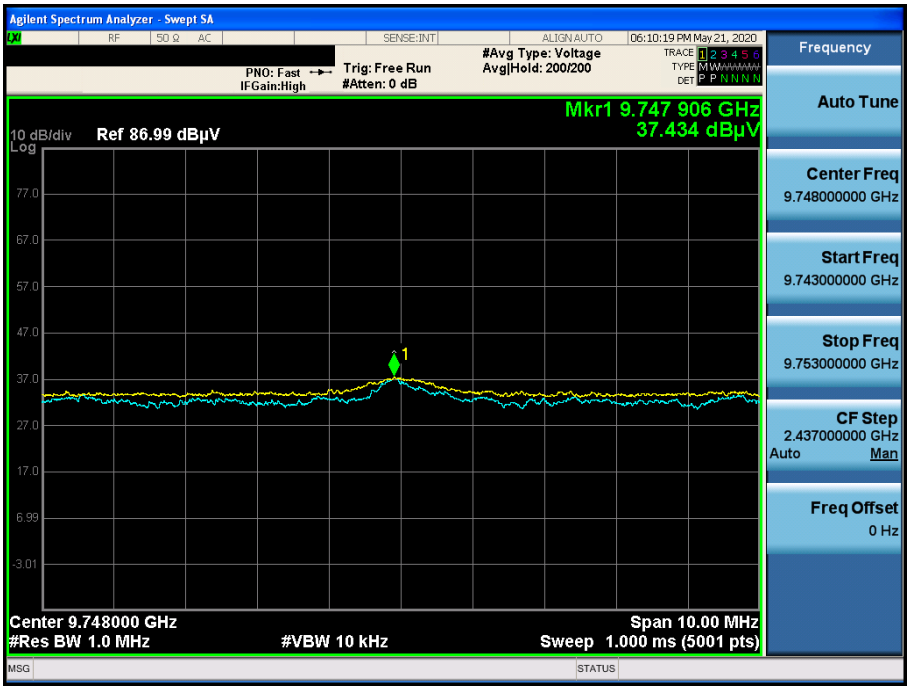
TM 2 & Lowest & X axis & Ver **Detector Mode : AV**



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

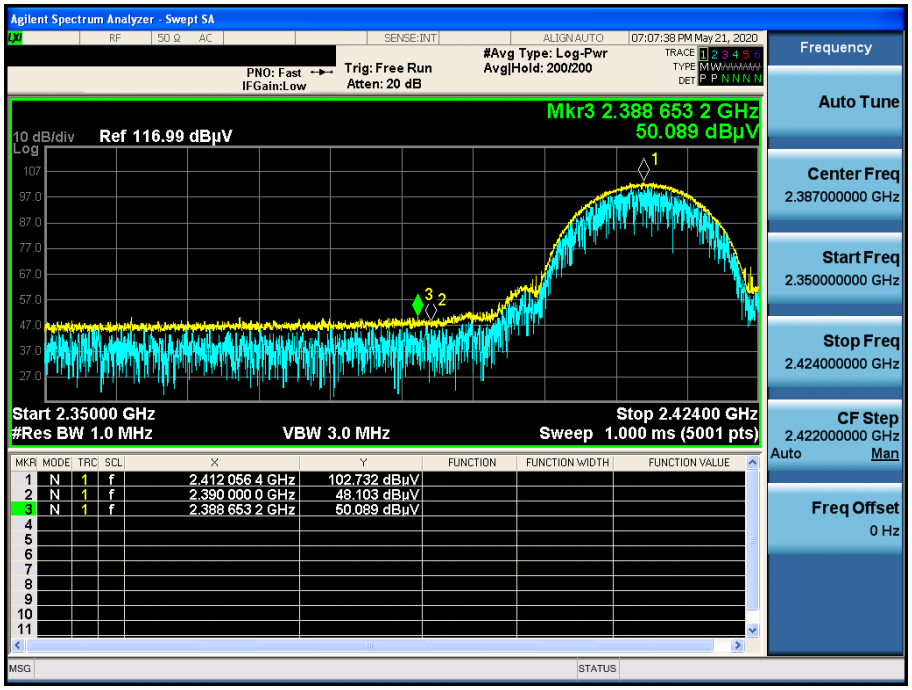


TM 4 & Middle & X axis & Ver **Detector Mode : AV**

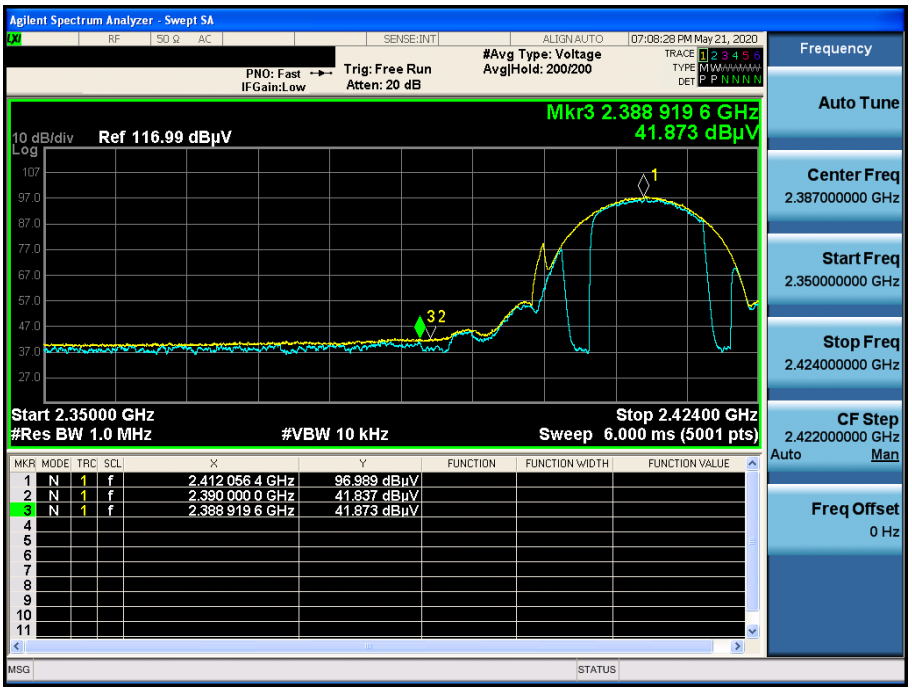


- Tested Power Supply: 24 V

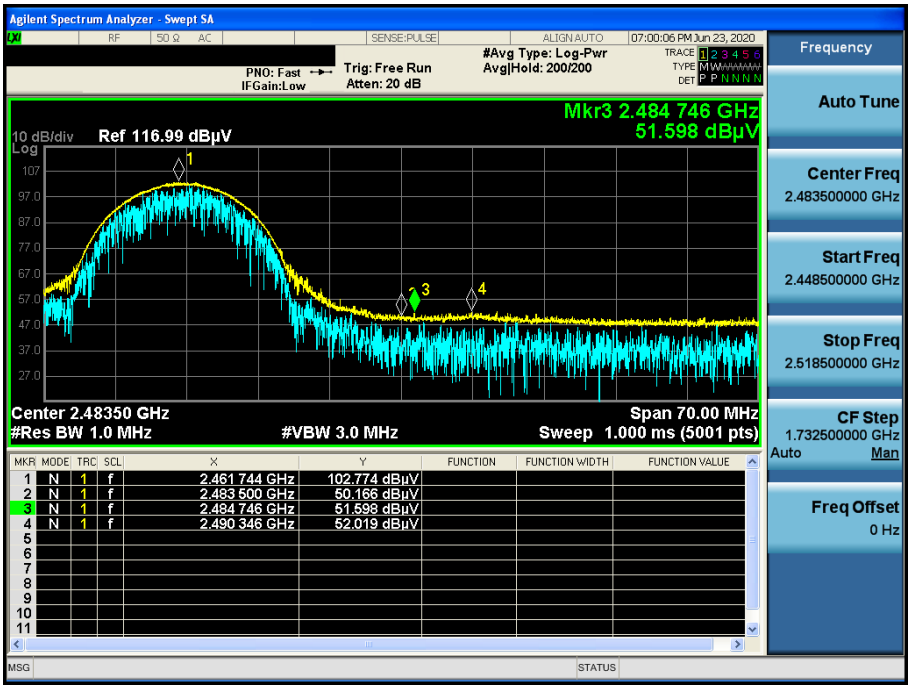
TM 1 & Lowest & Z axis & Hor **Detector Mode : PK**



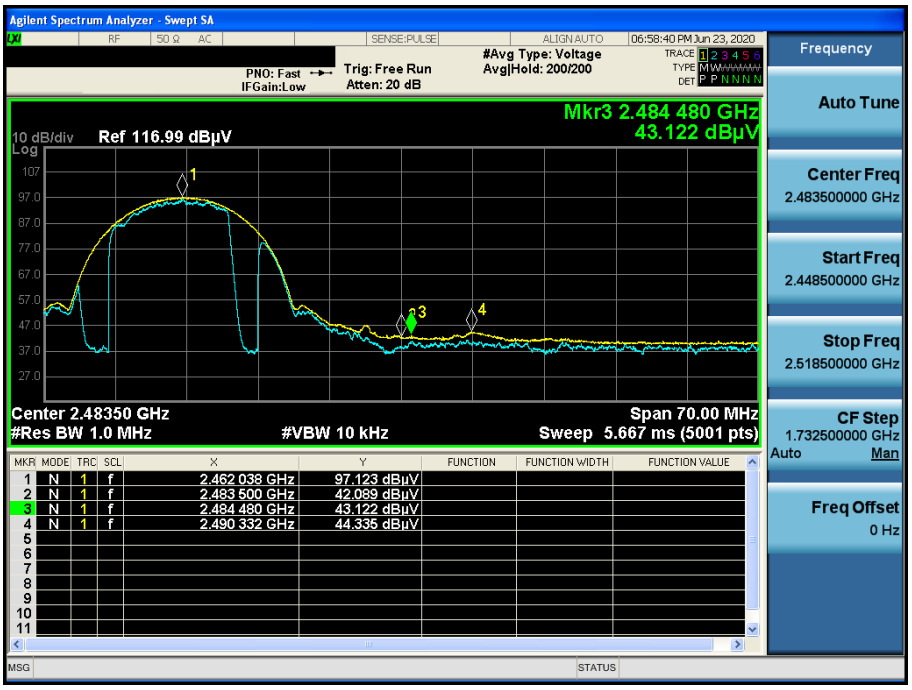
TM 1 & Lowest & Z axis & Hor **Detector Mode : AV**



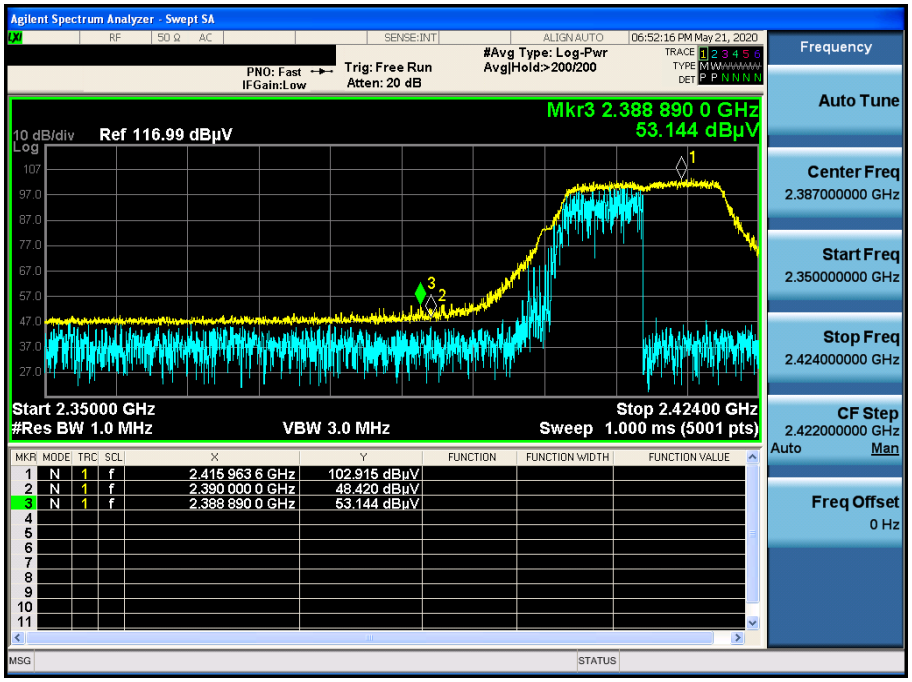
TM 1 & Highest & Z axis & Hor **Detector Mode : PK**



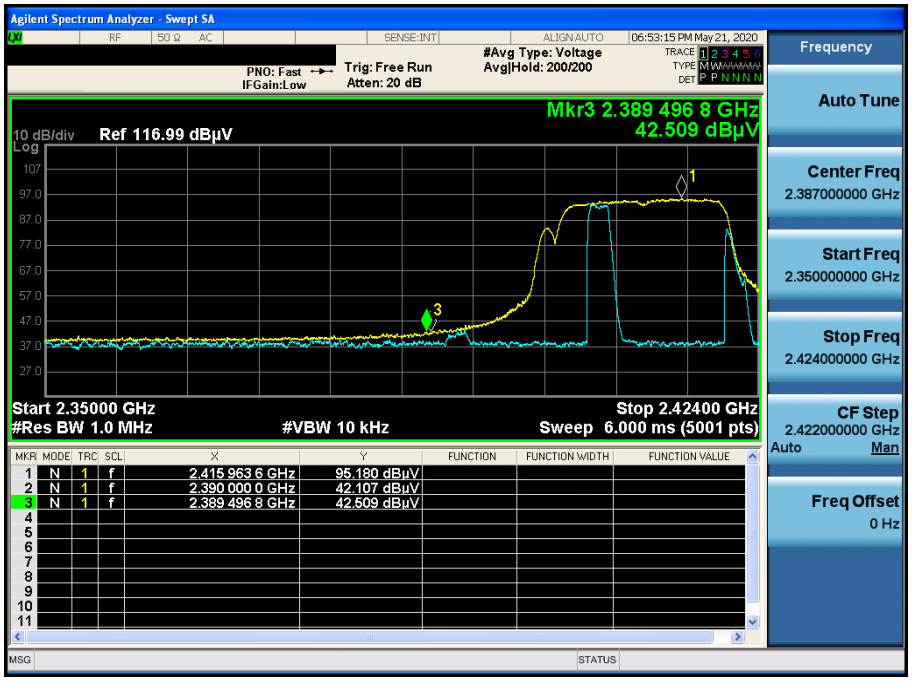
TM 1 & Highest & Z axis & Hor **Detector Mode : AV**



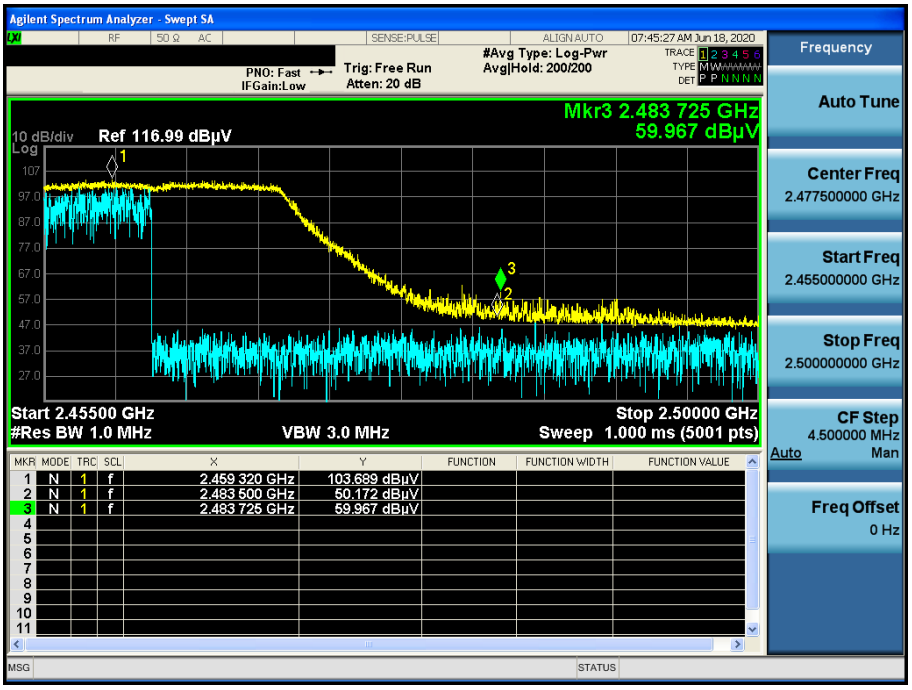
TM 2 & Lowest & X axis & Hor **Detector Mode : PK**



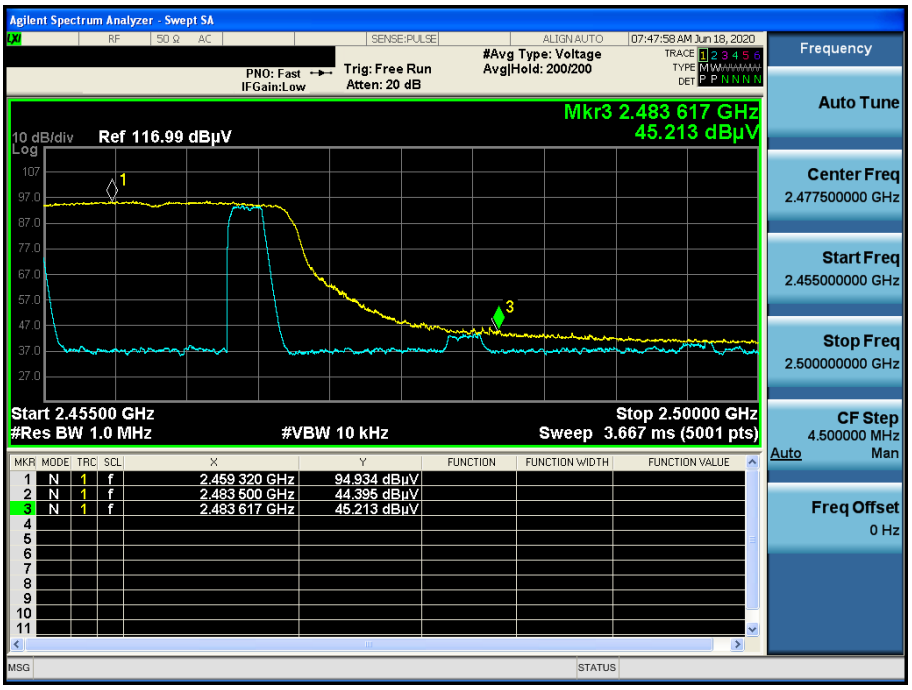
TM 2 & Lowest & X axis & Hor **Detector Mode : AV**



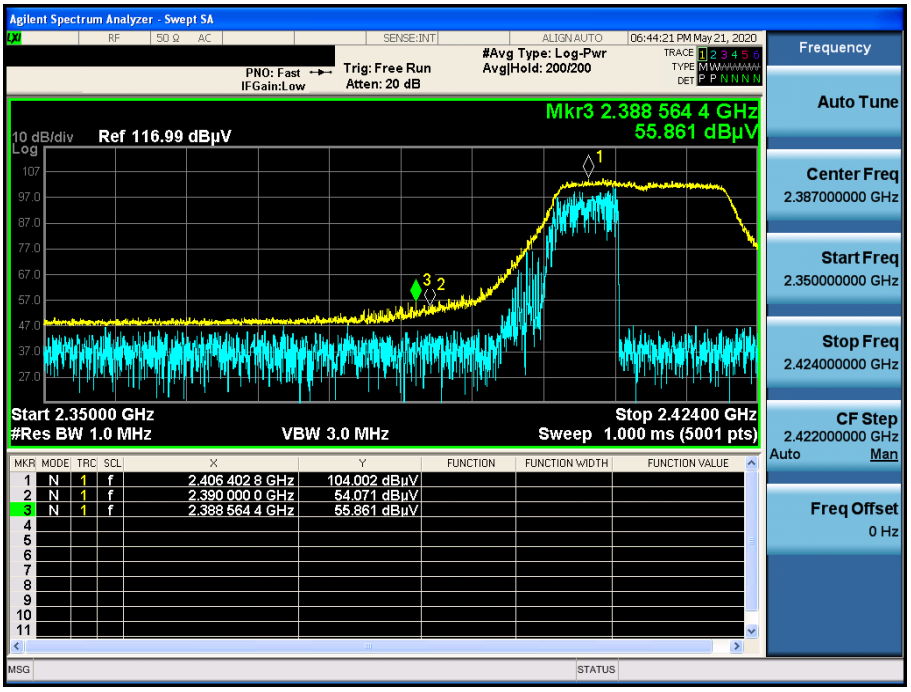
TM 2 & Highest & X axis & Hor **Detector Mode : PK**



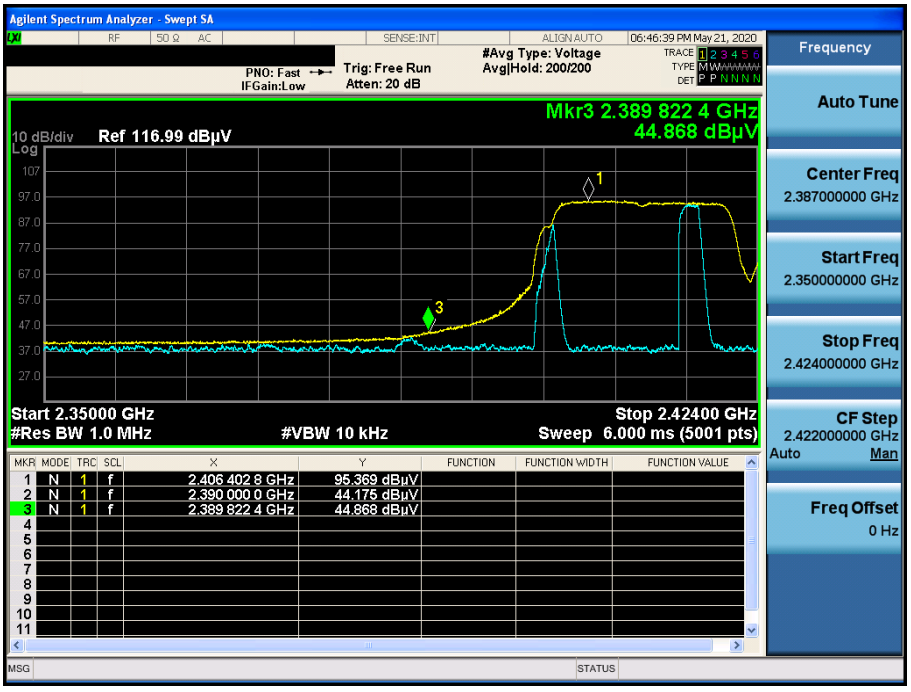
TM 2 & Highest & X axis & Hor **Detector Mode : AV**



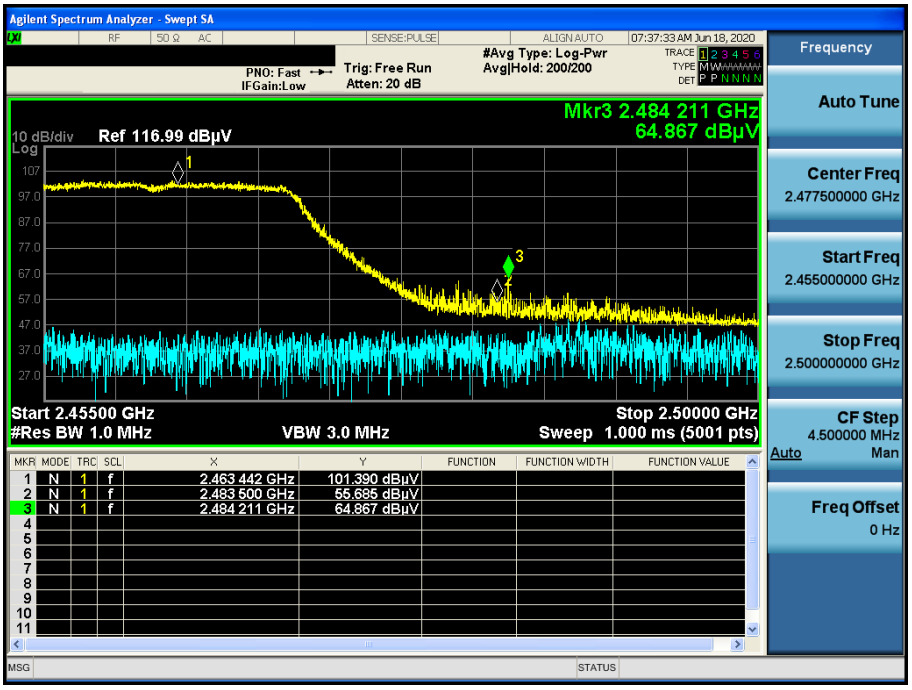
TM 3 & Lowest & X axis & Hor **Detector Mode : PK**



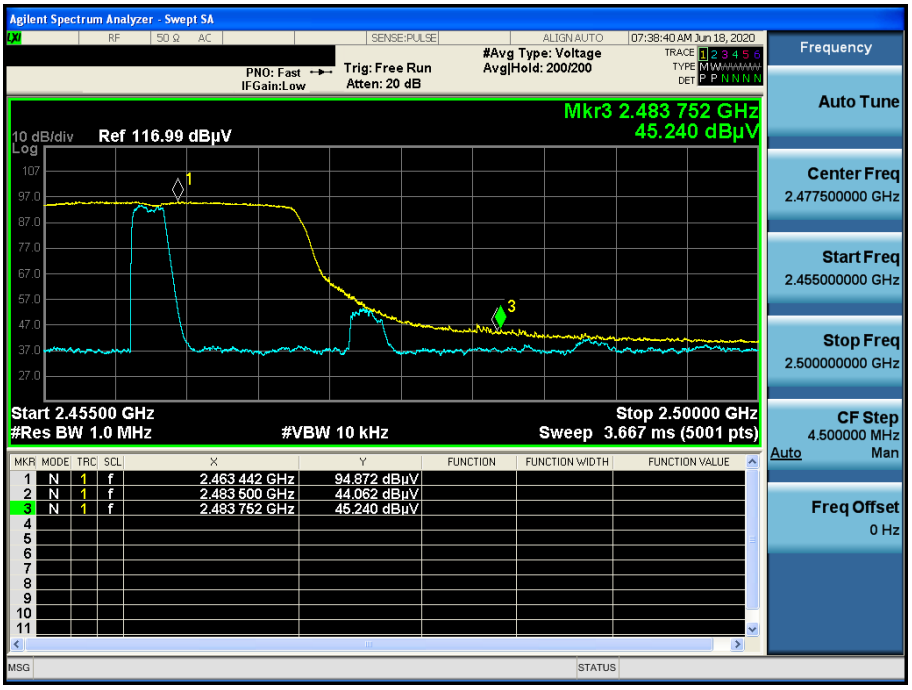
TM 3 & Lowest & X axis & Hor **Detector Mode : AV**



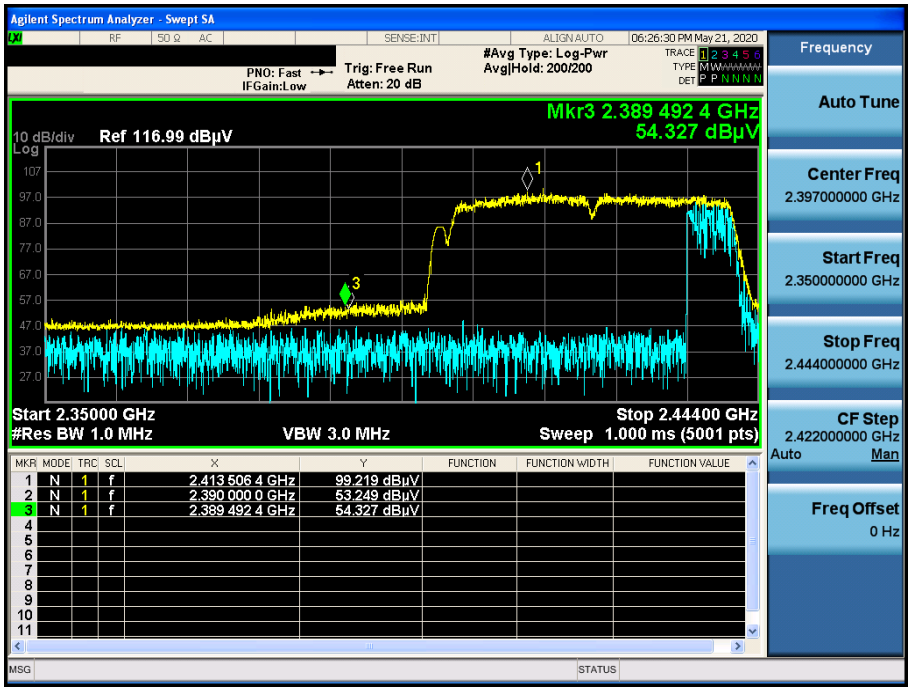
TM 3 & Highest & X axis & Hor **Detector Mode : PK**



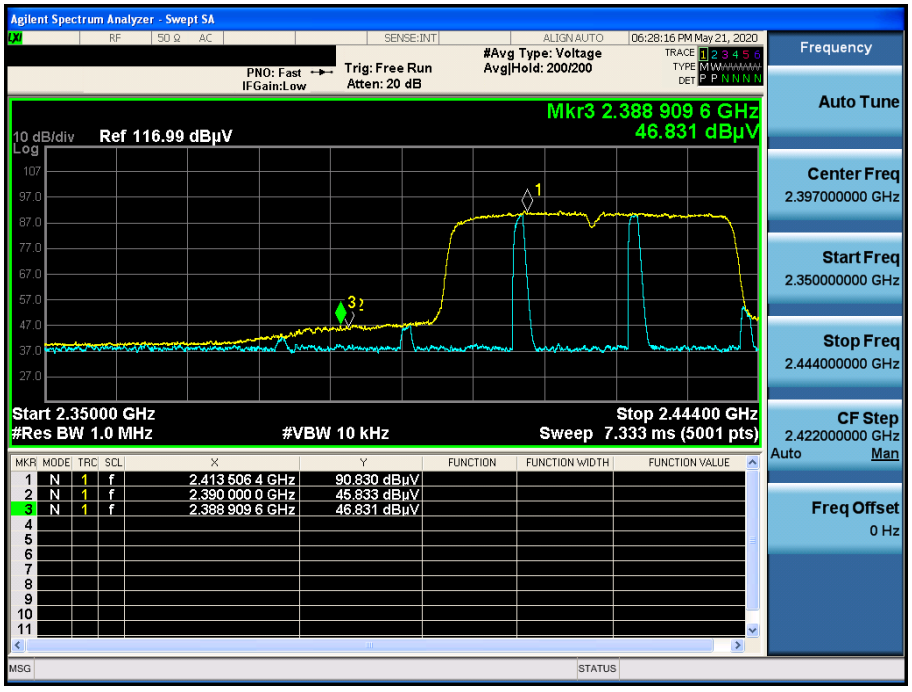
TM 3 & Highest & X axis & Hor **Detector Mode : AV**



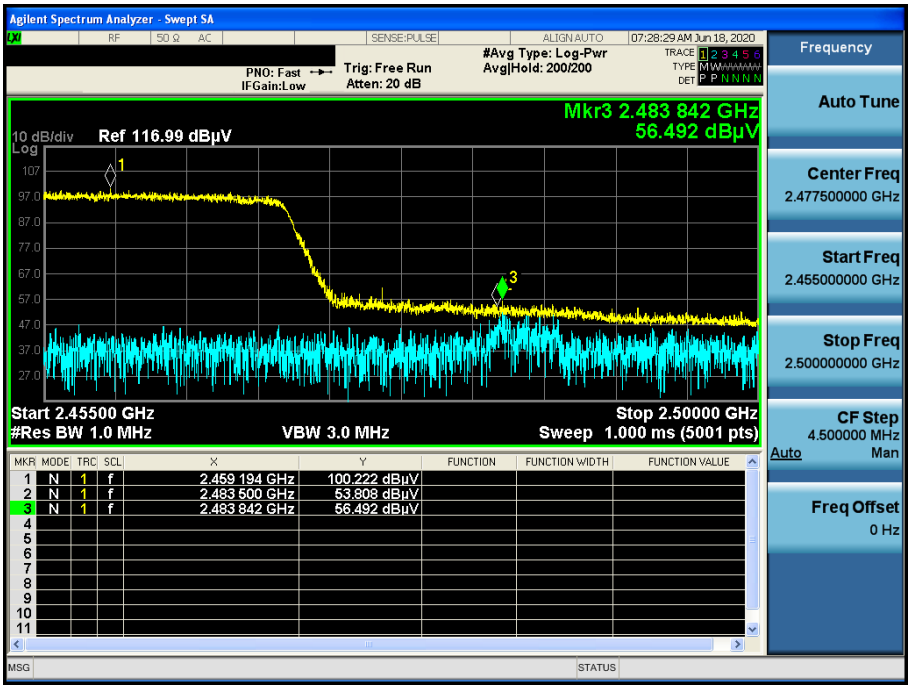
TM 4 & Lowest & X axis & Hor **Detector Mode : PK**



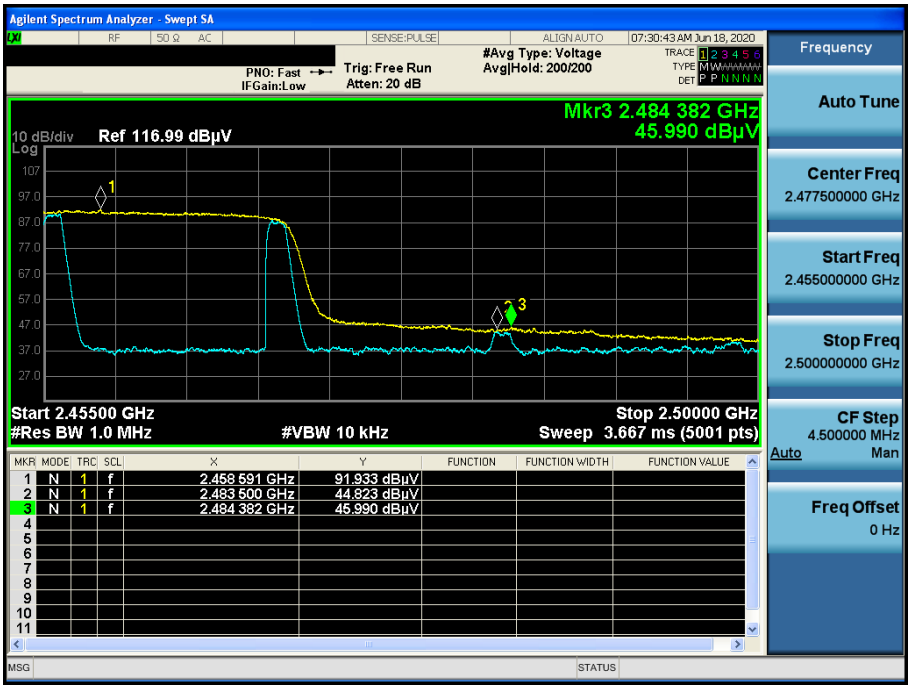
TM 4 & Lowest & X axis & Hor **Detector Mode : AV**



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



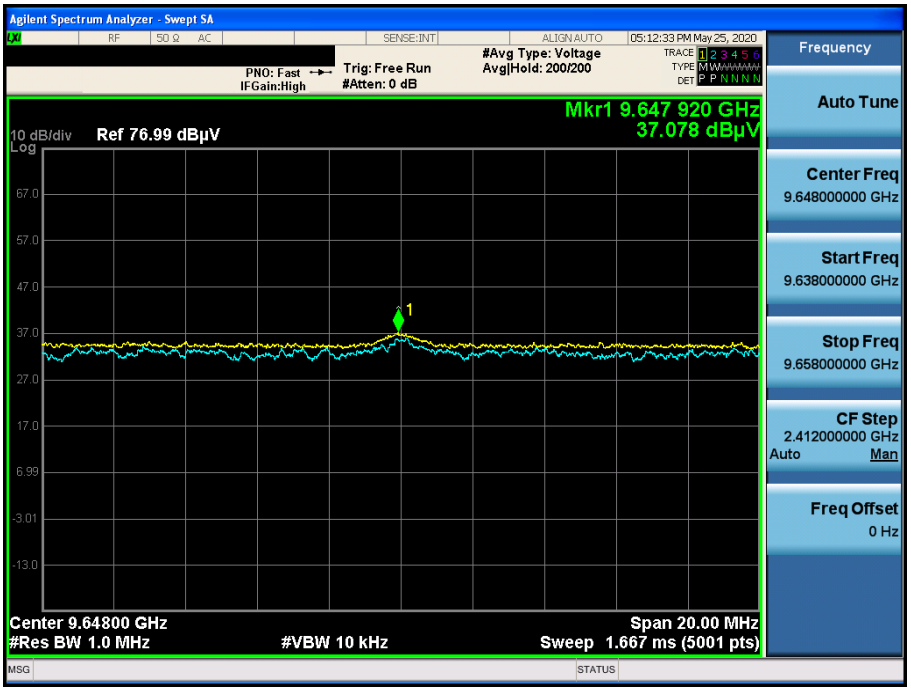
TM 4 & Highest & X axis & Hor **Detector Mode : AV**



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

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

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



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