

5.6. AC Power-Line Conducted Emissions

■ Test Requirements and limit, Part 15.207 & RSS-Gen [8.8]

An intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies, within the band 150 kHz to 30 MHz, shall not exceed the limits in the following table, as measured using a 50 μ H/50 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 ~ 5.0	56	46
5 ~ 30	60	50

* Decreases with the logarithm of the frequency

5.6.1. Test Setup

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

5.6.2. Test Procedures

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

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

5.6.3. Test Results

Refer to the next page. (The worst case data was reported. The worst data is TM 1 & Lowest)

AC Power-Line Conducted Emissions (Graph)

Results of Conducted Emission

DTNC

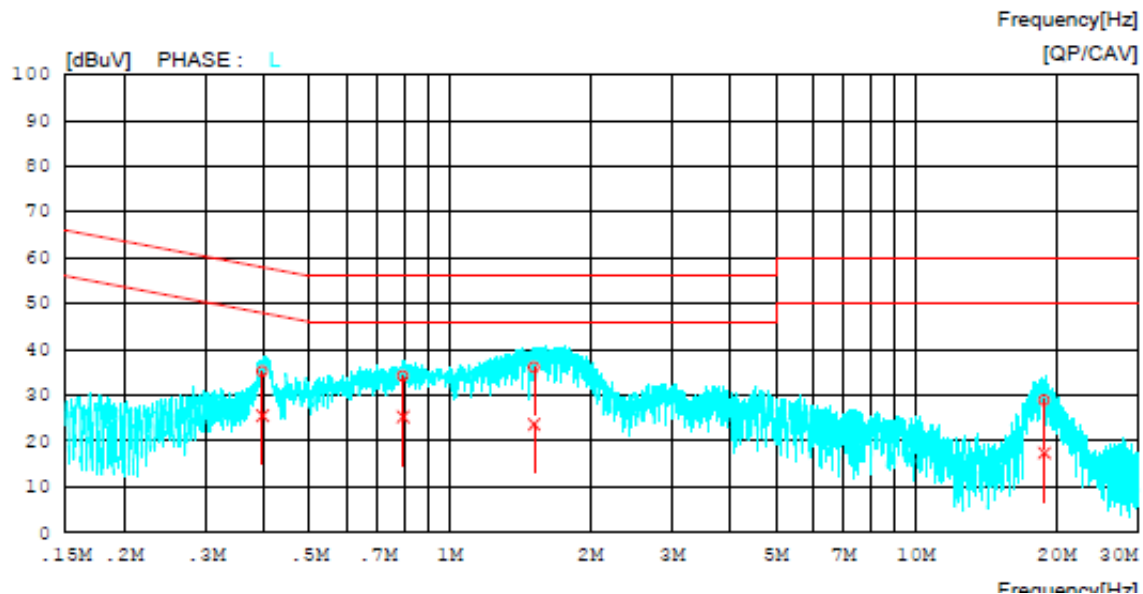
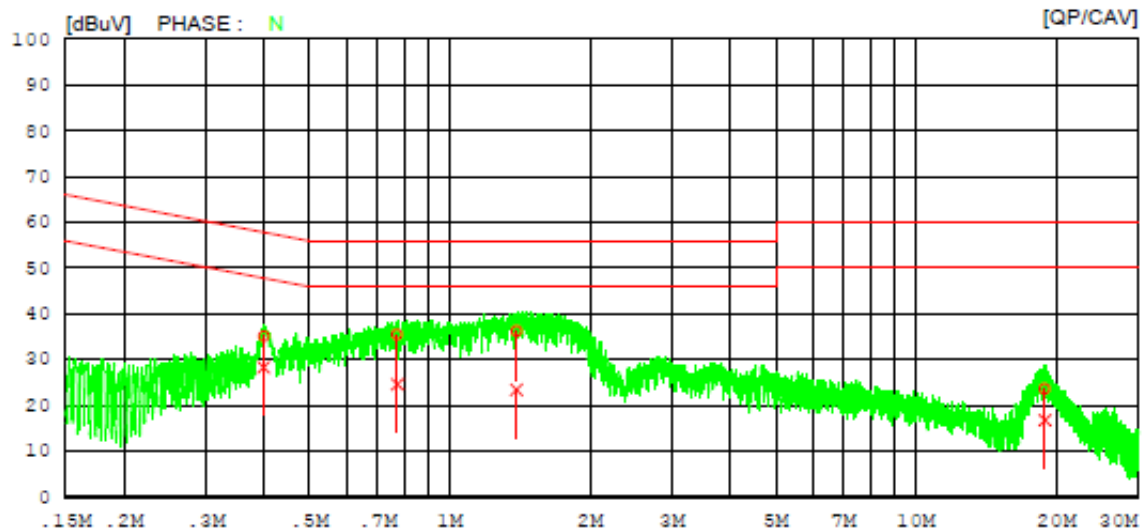
Date 2021-10-08

Order No.
Model No. PM75
Serial No.
Test Condition 2.4G_b_2412

Reference No.
Power Supply
Temp/Humi. 23 °C / 47 %
Operator S.M.Gil

Memo

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



AC Power-Line Conducted Emissions (List)

Results of Conducted Emission

DTNC

Date 2021-10-08

Order No.		Reference No.	
Model No.	PM75	Power Supply	
Serial No.		Temp/Humi.	23 'C / 47 %
Test Condition	2.4G_b_2412	Operator	S,M.Gil

Memo

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

NO	FREQ [MHz]	READING		C.FACTOR [dB]	RESULT		LIMIT		MARGIN		PHASE
		QP [dBuV]	CAV [dBuV]		QP [dBuV]	CAV [dBuV]	QP [dBuV]	CAV [dBuV]	QP [dBuV]	CAV [dBuV]	
1	0.39927	25.13	18.46	9.91	35.04	28.37	57.87	47.87	22.83	19.50	N
2	0.77118	25.53	14.70	9.92	35.45	24.62	56.00	46.00	20.55	21.38	N
3	1.39097	26.13	13.38	10.05	36.18	23.43	56.00	46.00	19.82	22.57	N
4	18.89414	13.20	6.34	10.44	23.64	16.78	60.00	50.00	36.36	33.22	N
5	0.39640	25.21	15.64	9.91	35.12	25.55	57.93	47.93	22.81	22.38	L
6	0.79320	24.29	15.36	9.92	34.21	25.28	56.00	46.00	21.79	20.72	L
7	1.51686	26.04	13.55	10.06	36.10	23.61	56.00	46.00	19.90	22.39	L
8	18.84074	18.46	6.93	10.44	28.90	17.37	60.00	50.00	31.10	32.63	L

5.7. 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.

5.7.1. Test Setup

Refer to the APPENDIX I.

5.7.2. Test Procedures

The 99 % power bandwidth was measured with a calibrated spectrum analyzer.

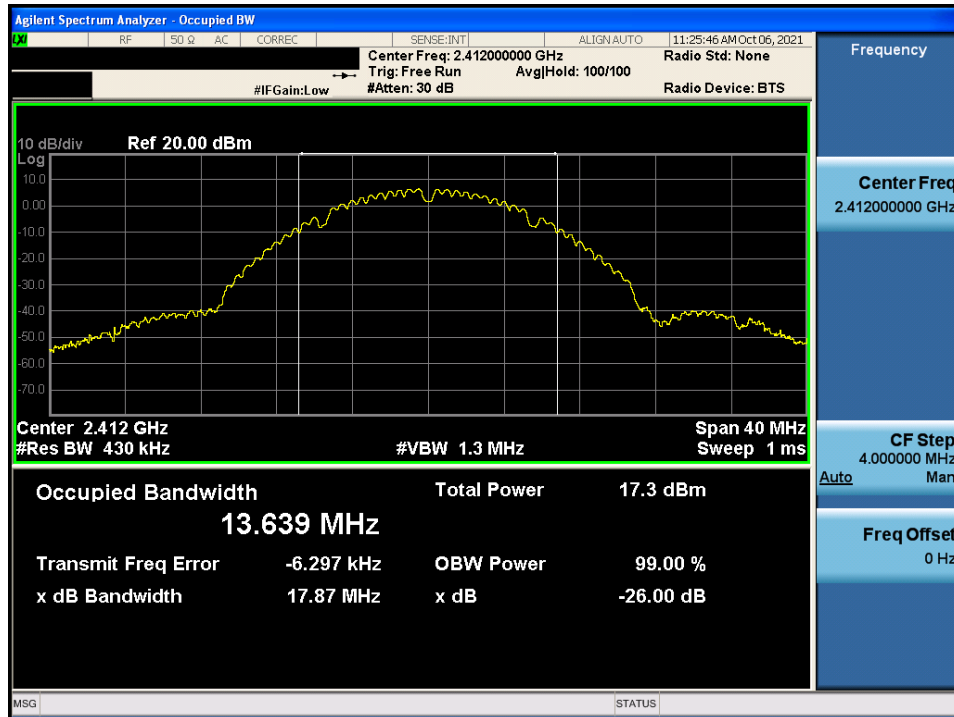
The resolution bandwidth (RBW) shall be in the range of 1 % to 5 % of the occupied bandwidth (OBW) and video bandwidth (VBW) shall be approximately $3 \times \text{RBW}$.

5.7.3. Test Results

Test Mode	Frequency	Test Results (MHz)
TM 1	2 412	13.64
	2 437	13.79
	2 462	13.53
TM 2	2 412	16.94
	2 437	17.03
	2 462	16.93
TM 3	2 412	18.08
	2 437	18.17
	2 462	17.96
TM 4	2 422	36.84
	2 437	37.05
	2 452	36.61

Occupied Bandwidth

TM 1 & 2 412



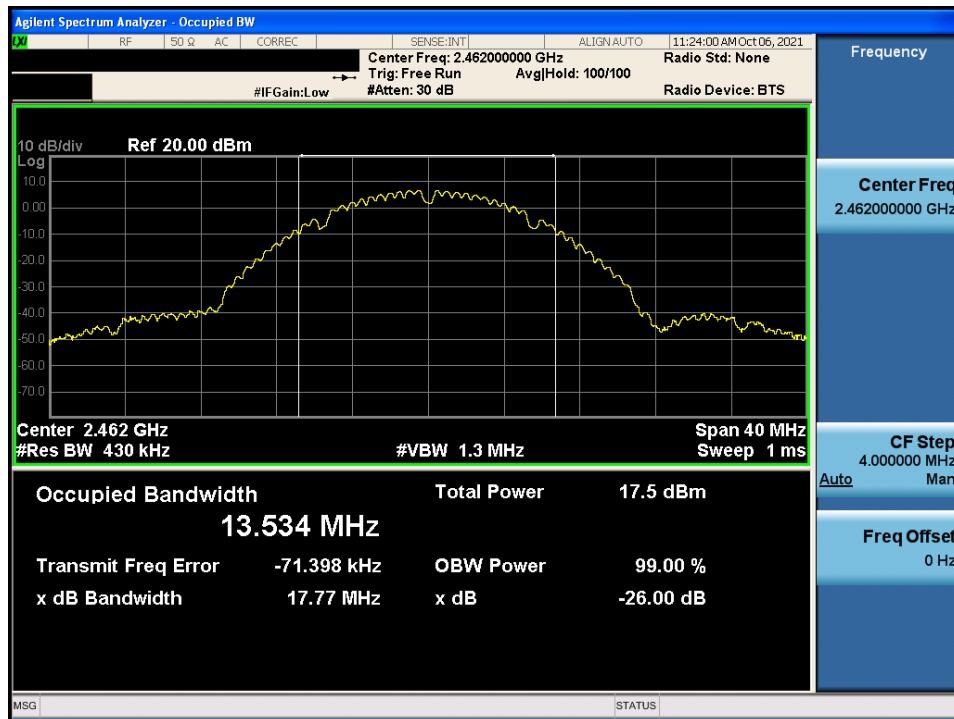
Occupied Bandwidth

TM 1 & 2 437



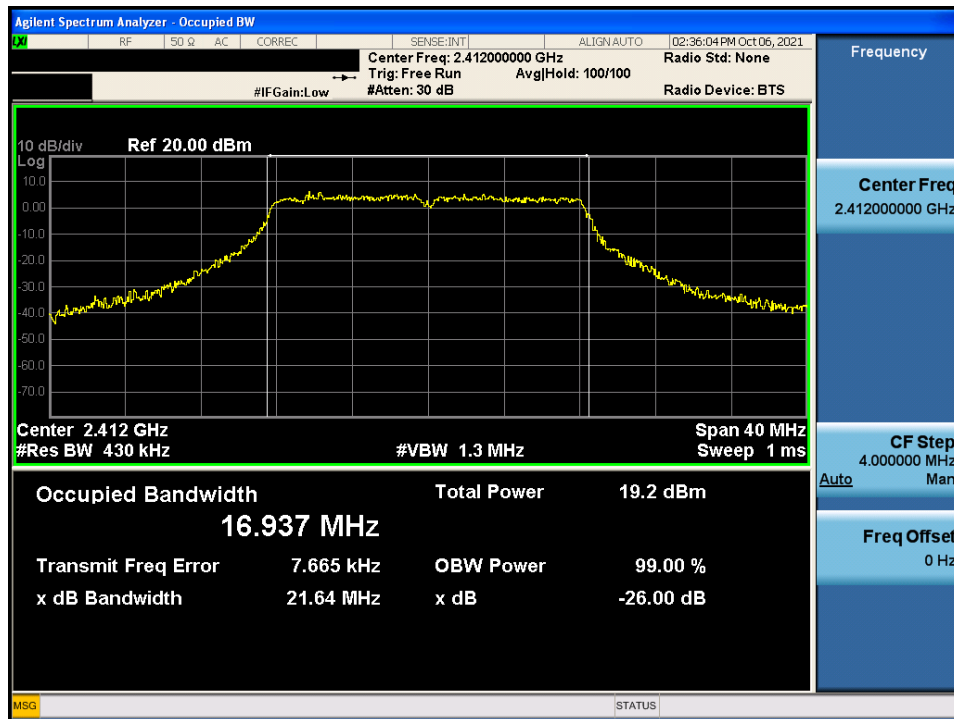
Occupied Bandwidth

TM 1 & 2 462



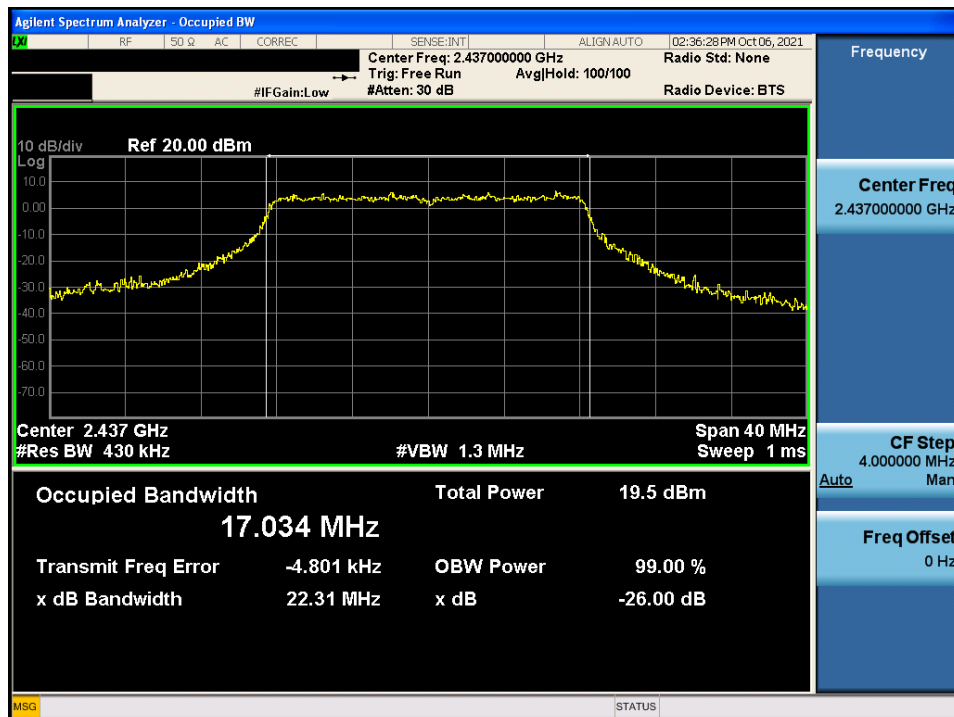
Occupied Bandwidth

TM 2 & 2 412



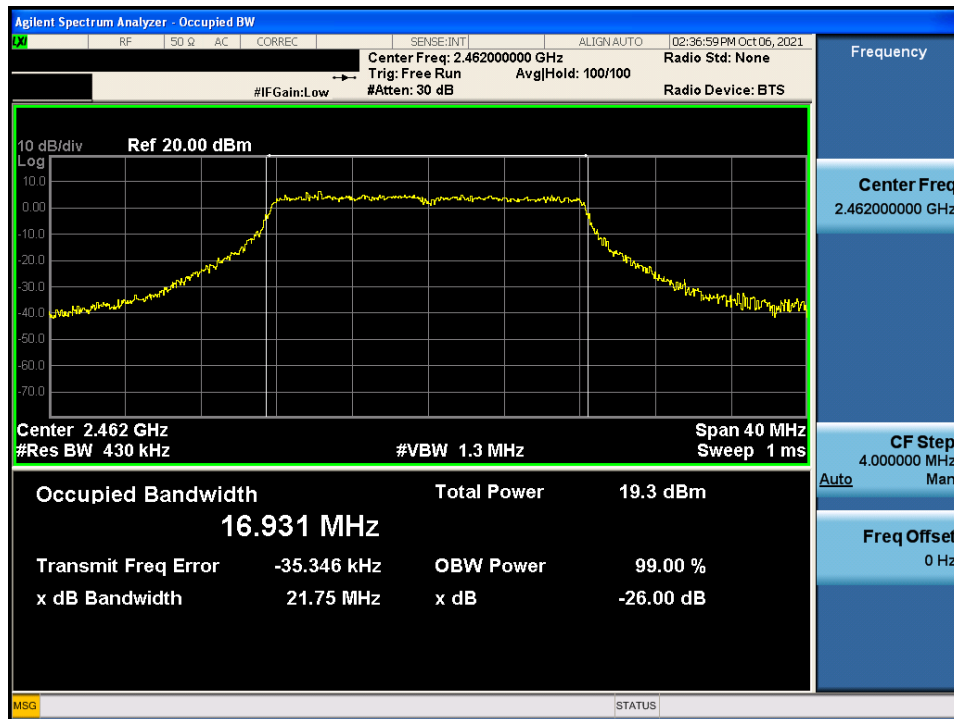
Occupied Bandwidth

TM 2 & 2 437



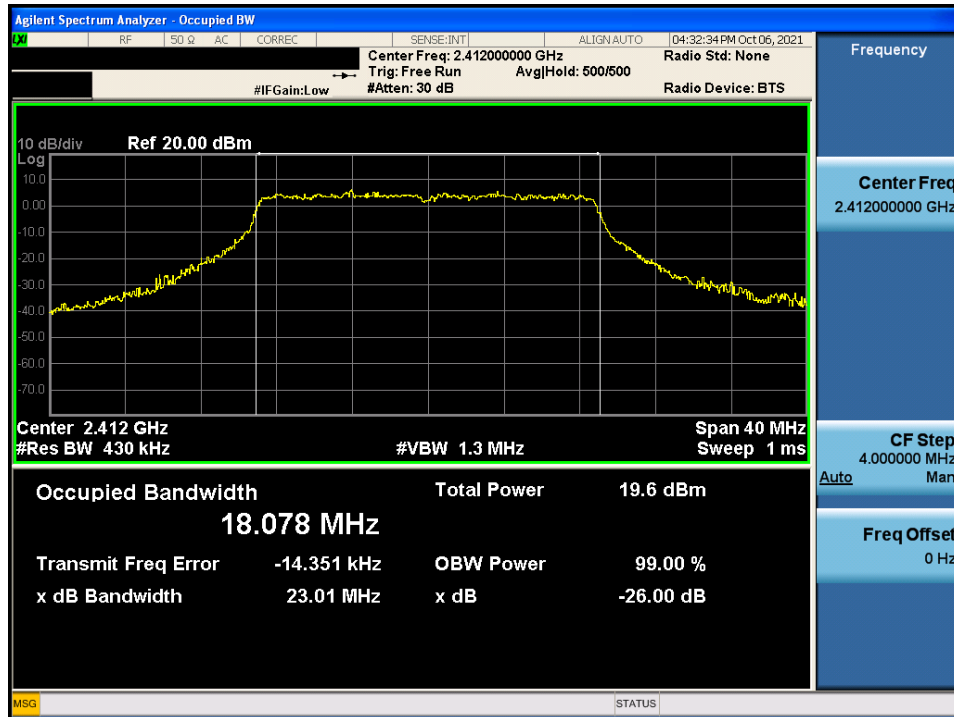
Occupied Bandwidth

TM 2 & 2 462



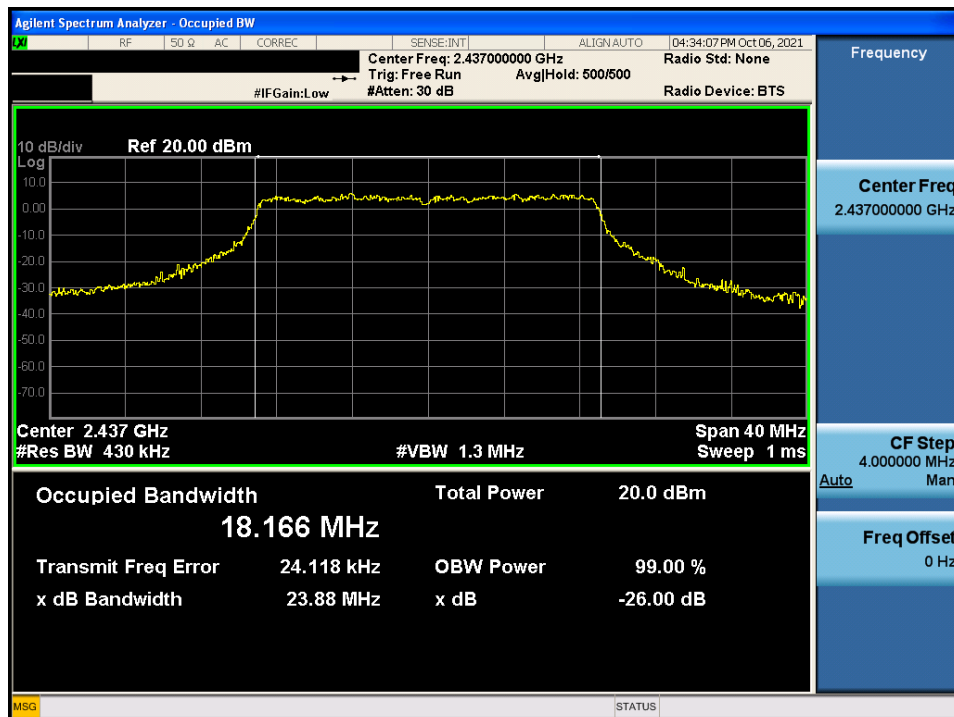
Occupied Bandwidth

TM 3 & 2 412



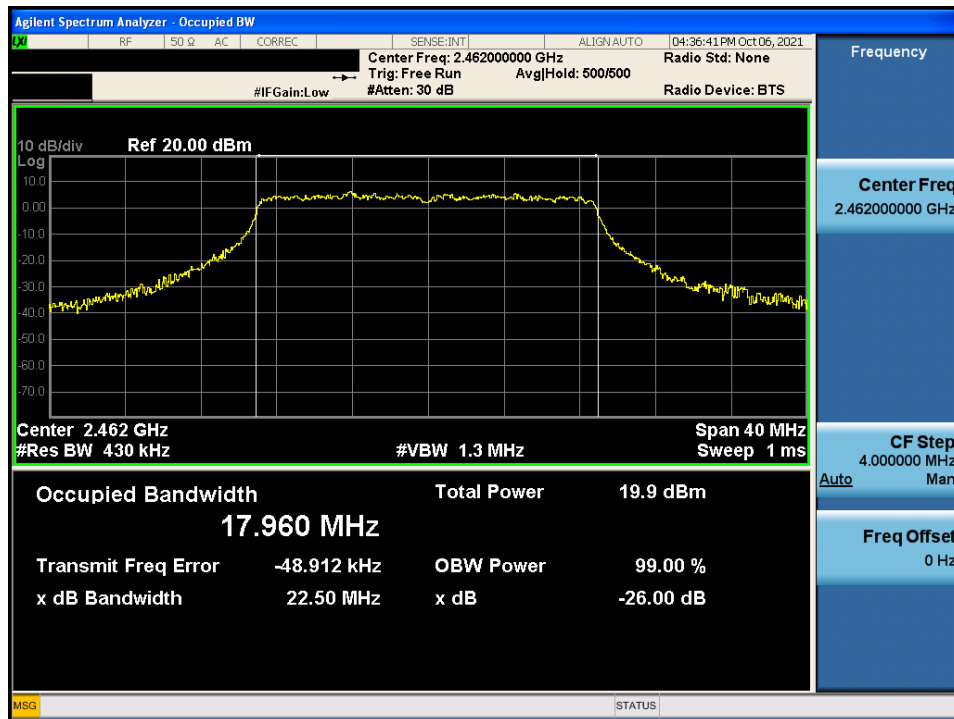
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TM 3 & 2 437



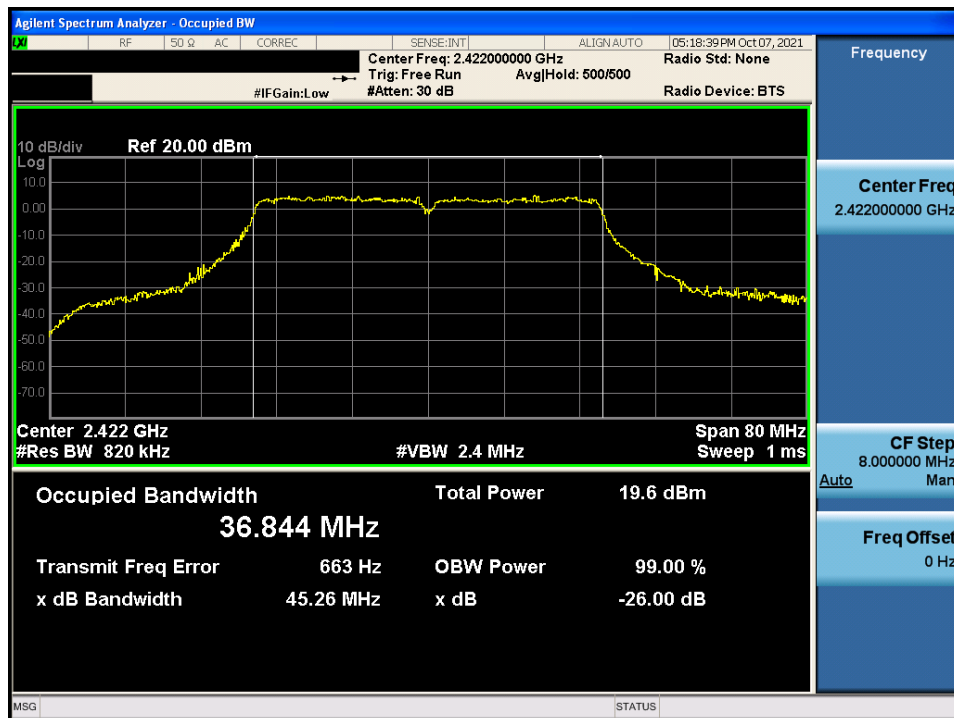
Occupied Bandwidth

TM 3 & 2 462



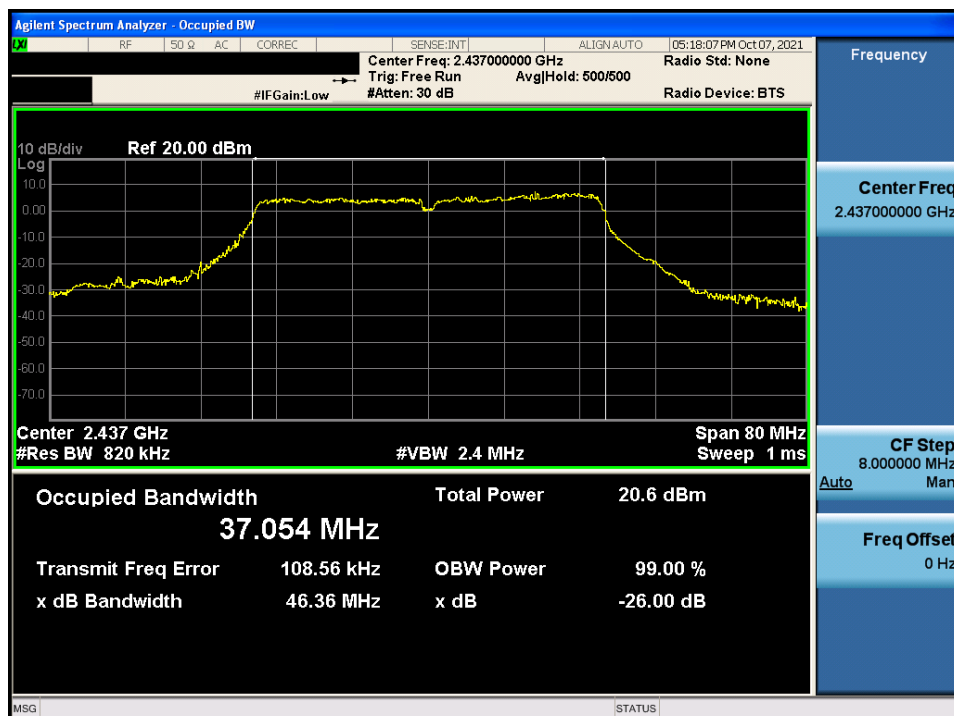
Occupied Bandwidth

TM 4 & 2422



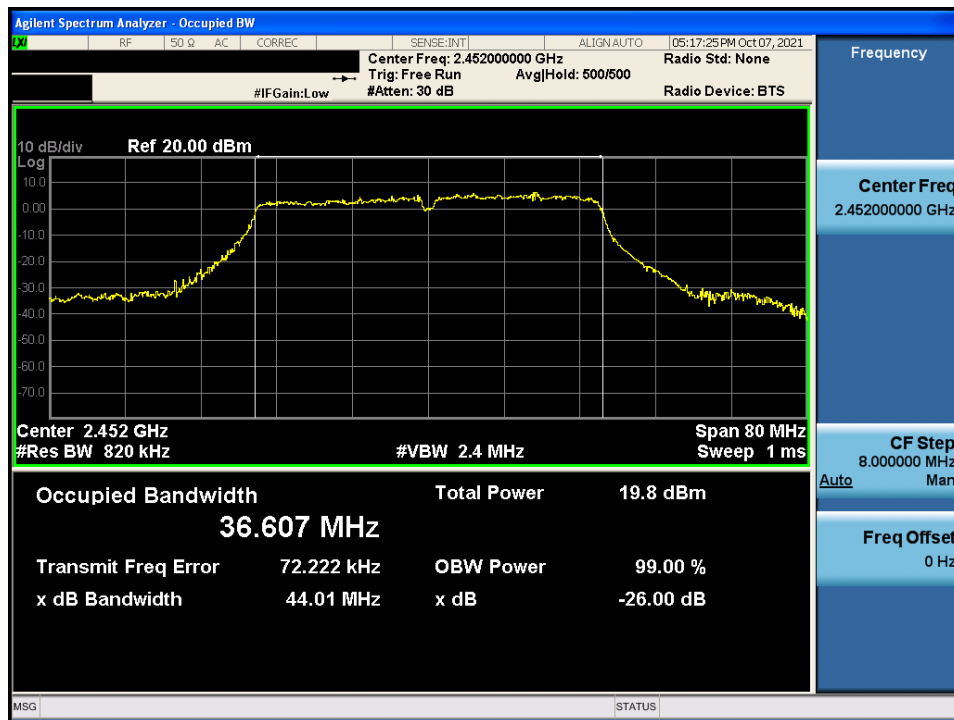
Occupied Bandwidth

TM 4 & 2437



Occupied Bandwidth

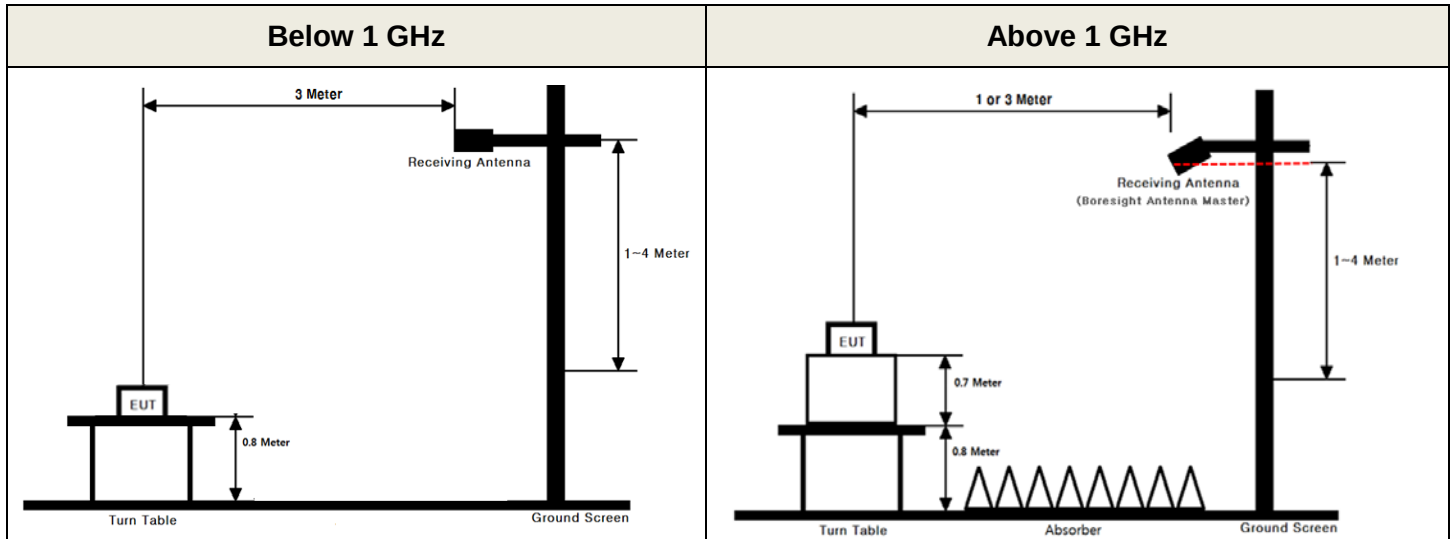
TM 4 & 2 452



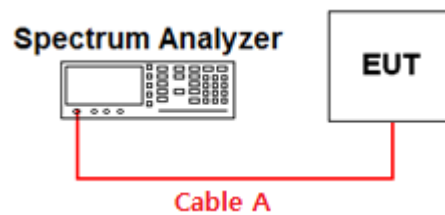
APPENDIX I

Test set up diagrams

▪ Radiated Measurement

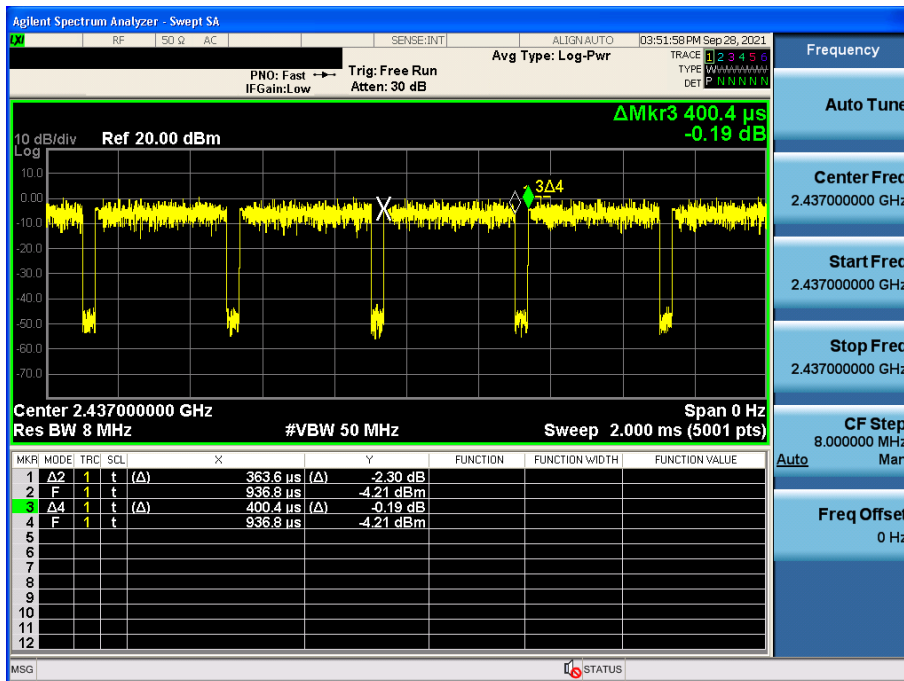


▪ Conducted Measurement



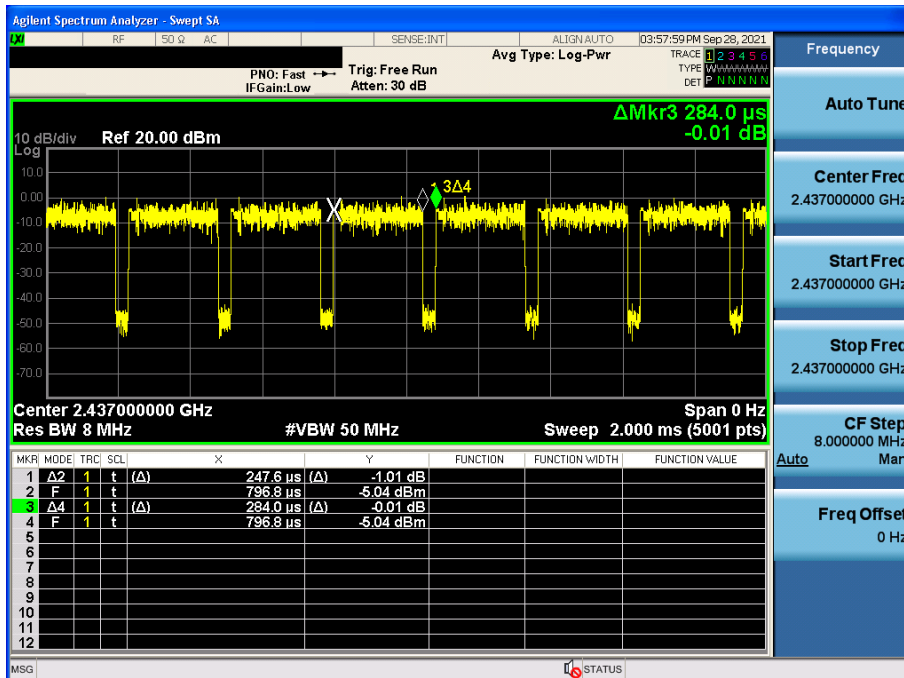
Duty Cycle

TM 2 & 2 437 MHz



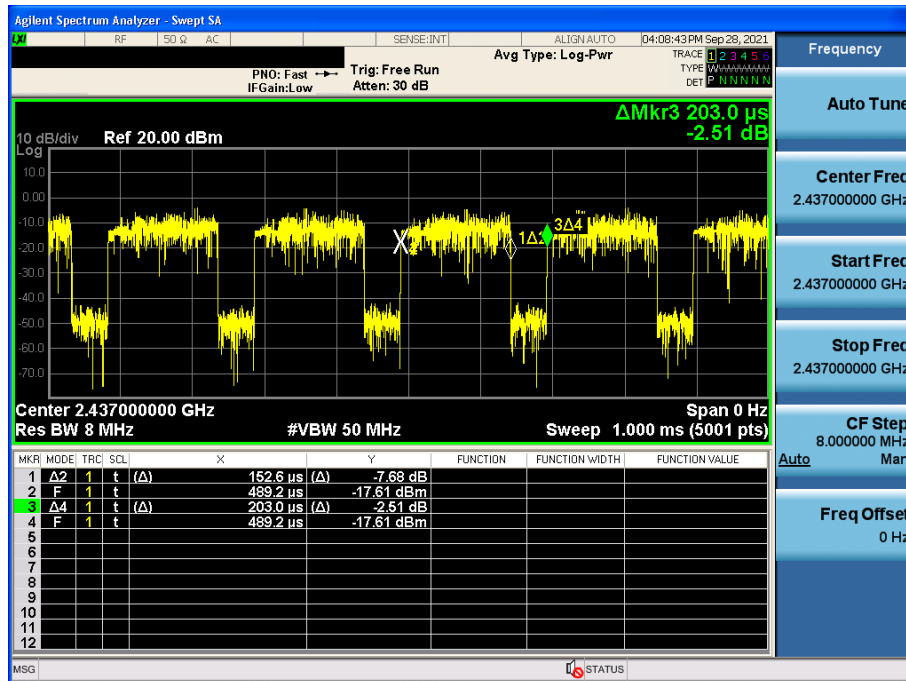
Duty Cycle

TM 3 & 2 437 MHz



Duty Cycle

TM 4 & 2 437 MHz

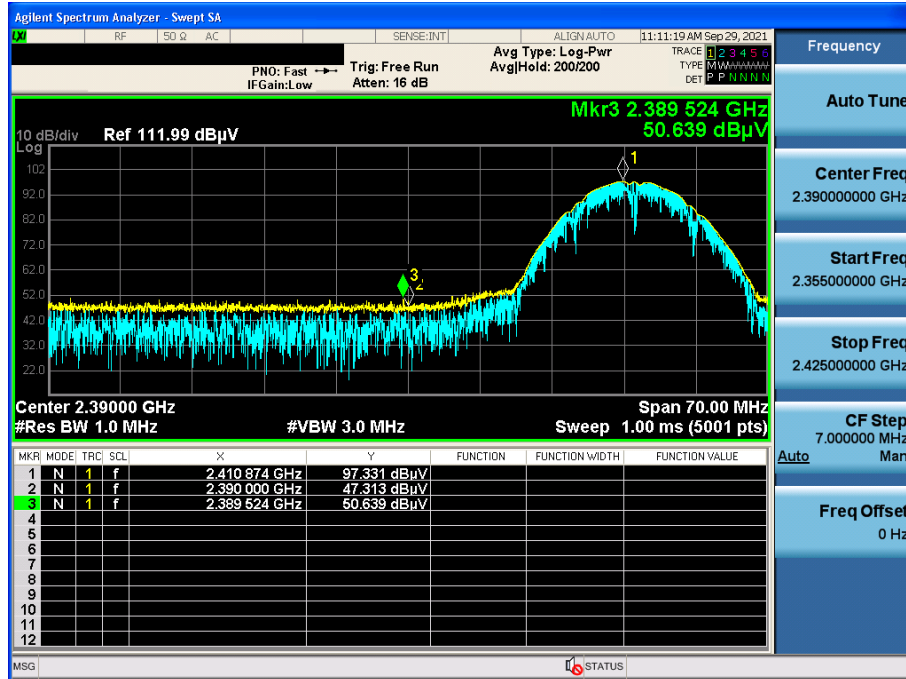


APPENDIX III

Unwanted Emissions (Radiated) Test Plot

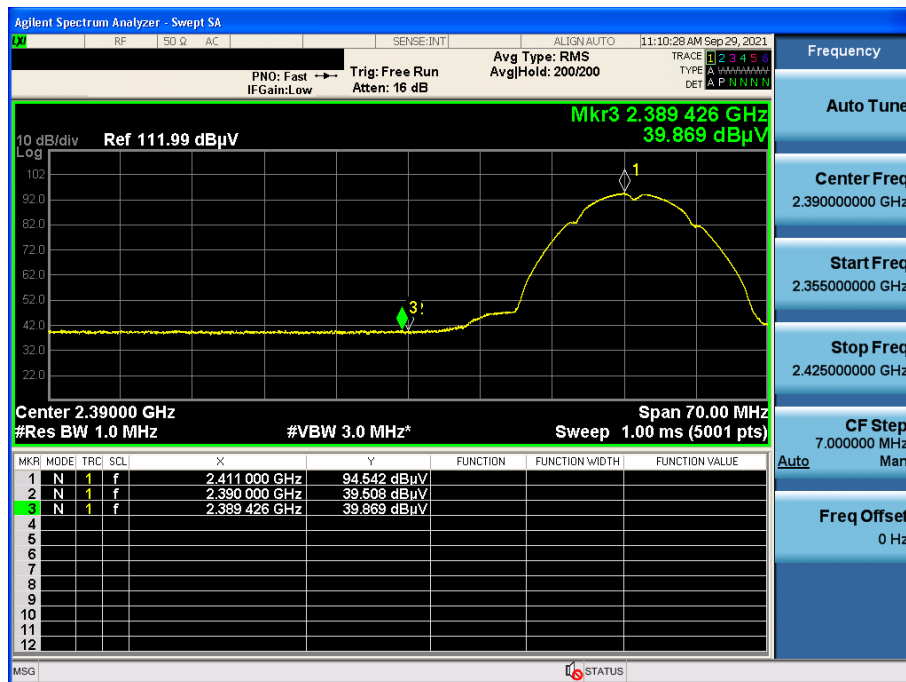
TM 1 & 2 412 & X axis & Hor

Detector Mode : PK



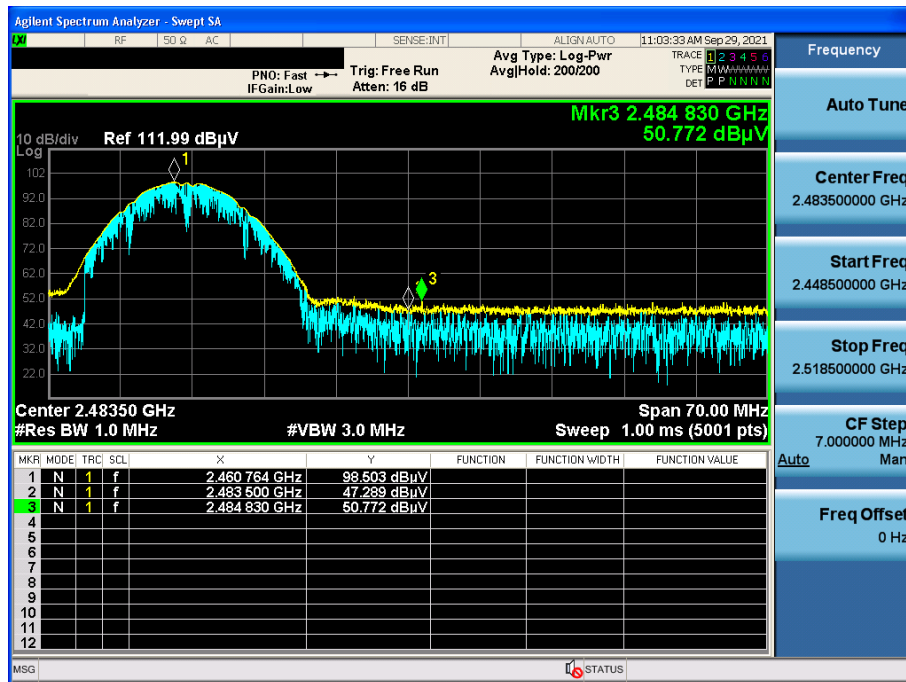
TM 1 & 2 412 & X axis & Hor

Detector Mode : AV



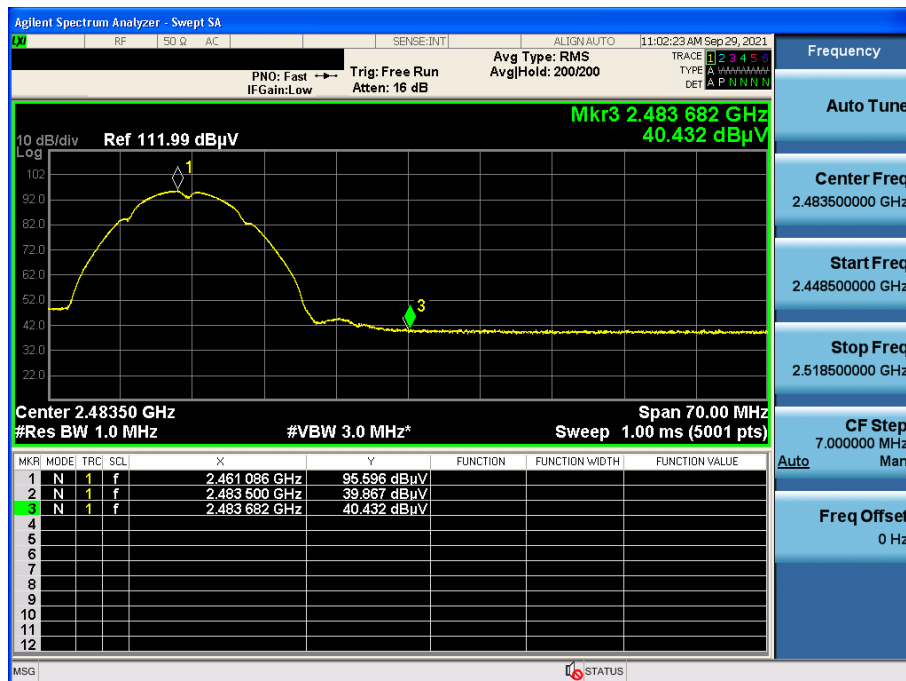
TM 1 & 2 462 & X axis & Hor

Detector Mode : PK



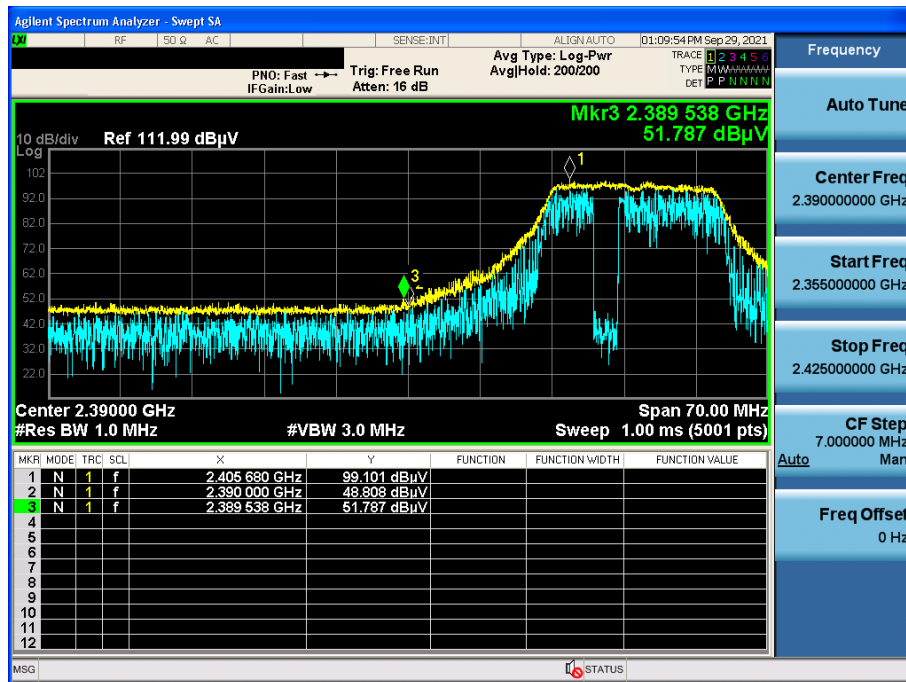
TM 1 & 2 462 & X axis & Hor

Detector Mode : AV



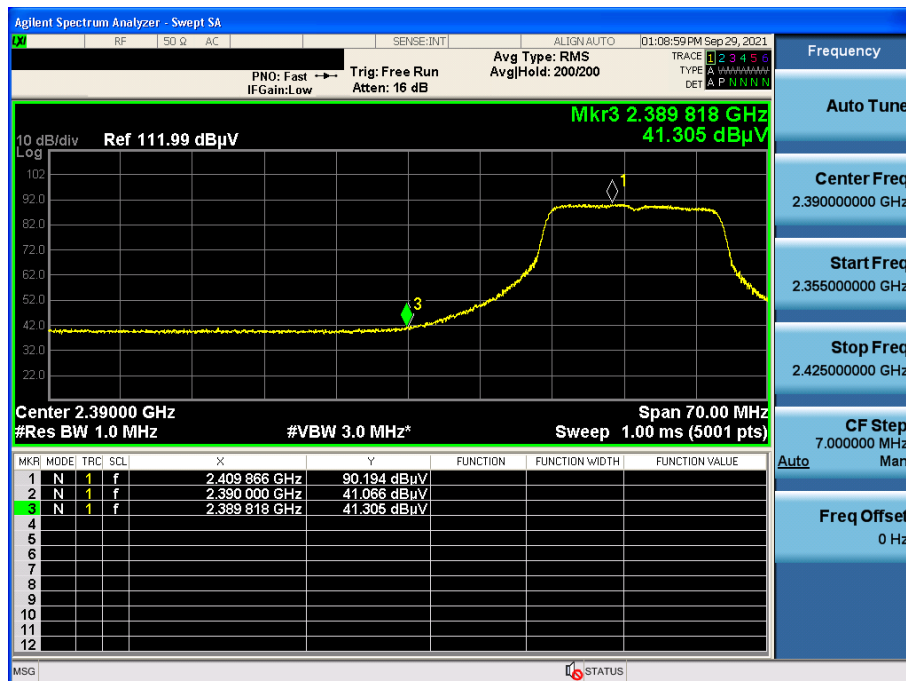
TM 2 & 2 412 & X axis & Hor

Detector Mode : PK



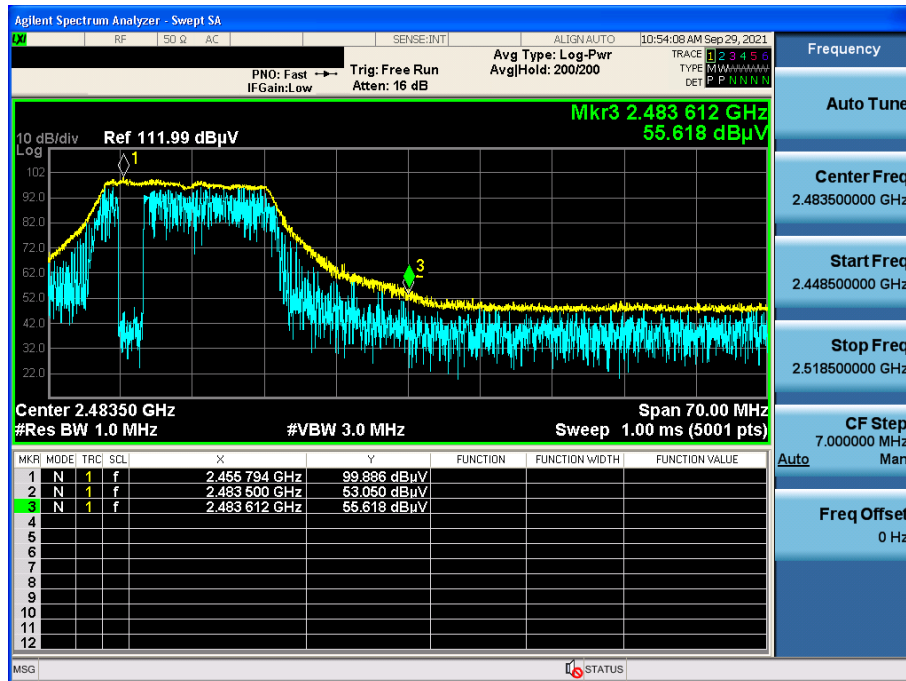
TM 2 & 2 412 & X axis & Hor

Detector Mode : AV



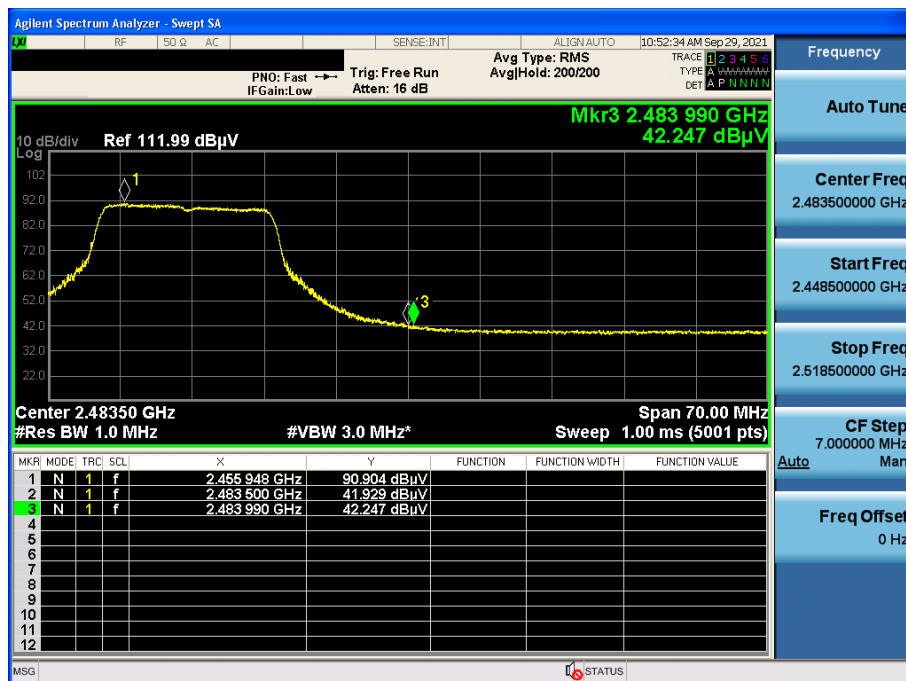
TM 2 & 2 462 & X axis & Hor

Detector Mode : PK



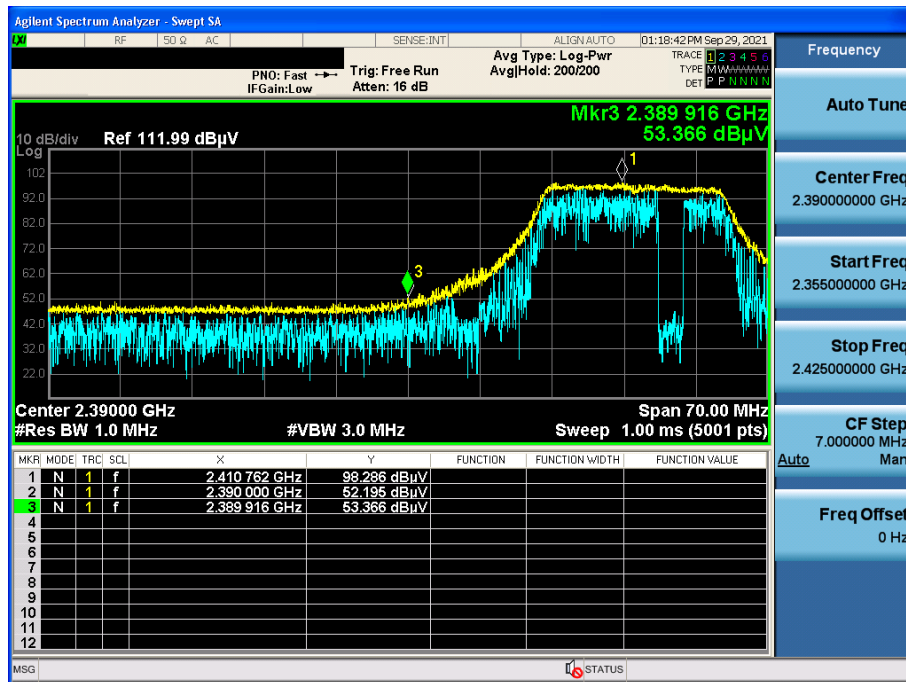
TM 2 & 2 462 & X axis & Hor

Detector Mode : AV



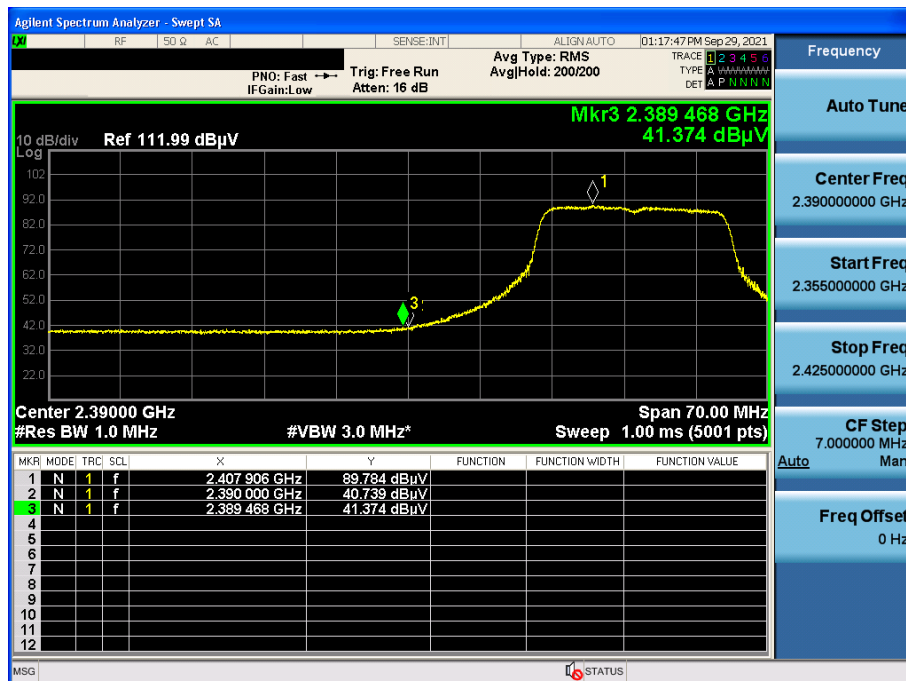
TM 3 & 2 412 & X axis & Hor

Detector Mode : PK



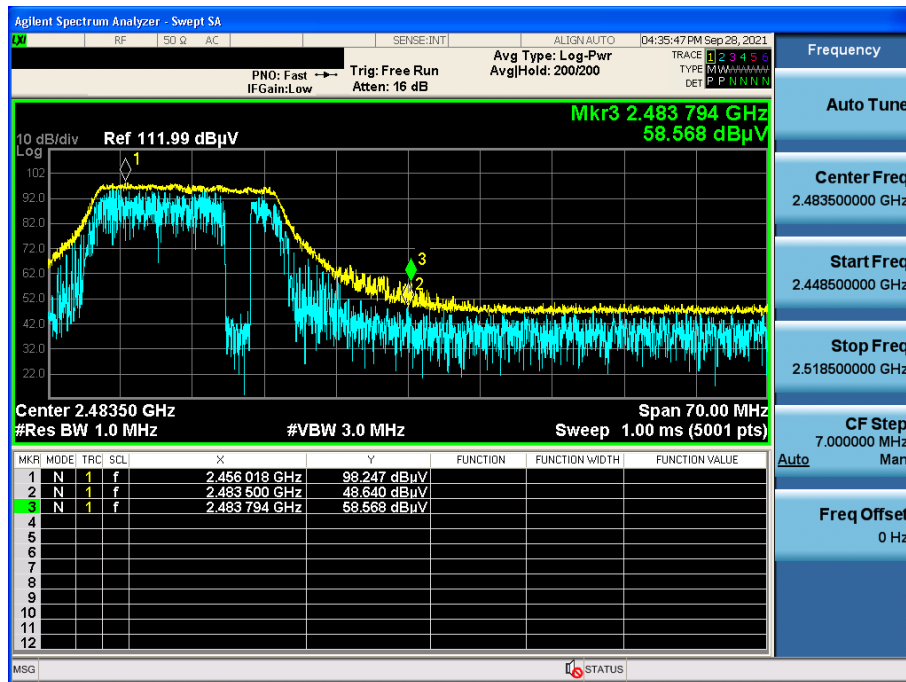
TM 3 & 2 412 & X axis & Hor

Detector Mode : AV



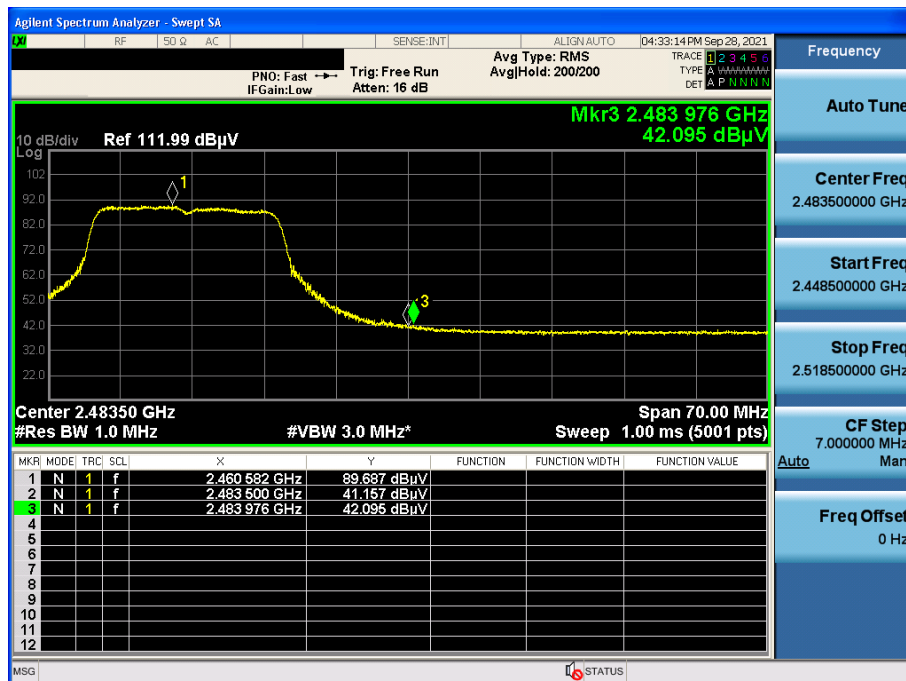
TM 3 & 2 462 & X axis & Hor

Detector Mode : PK



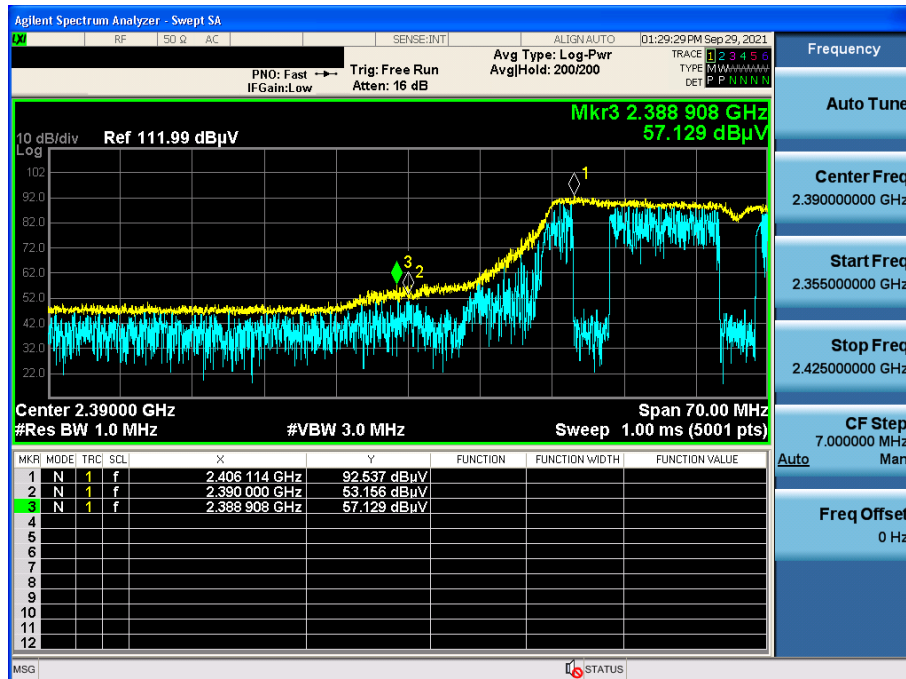
TM 3 & 2 462 & X axis & Hor

Detector Mode : AV



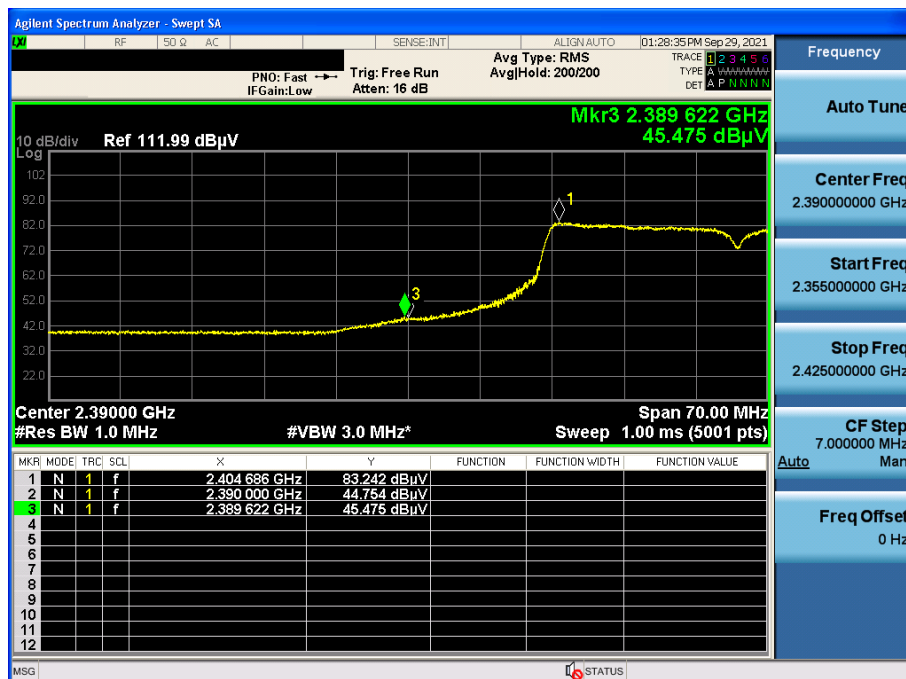
TM 4 & 2 422 & X axis & Hor

Detector Mode : PK



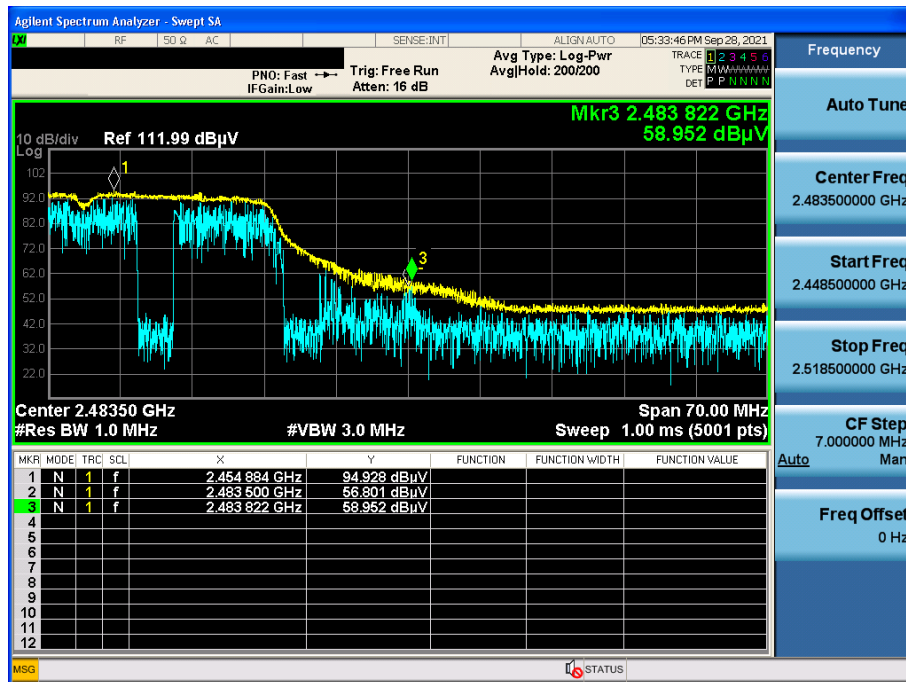
TM 4 & 2 422 & X axis & Hor

Detector Mode : AV



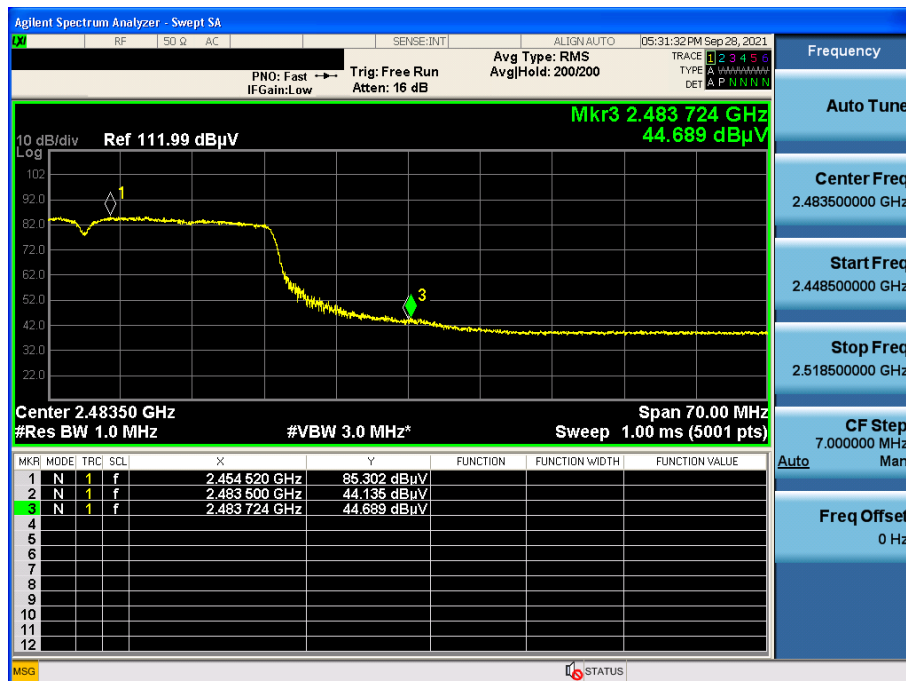
TM 4 & 2 452 & X axis & Hor

Detector Mode : PK



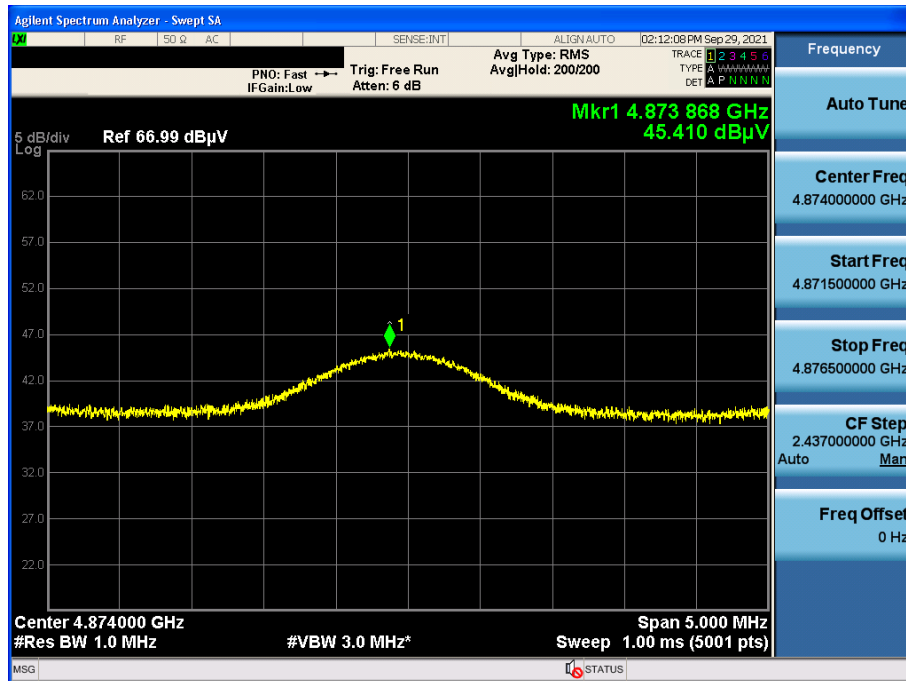
TM 4 & 2 452 & X axis & Hor

Detector Mode : AV



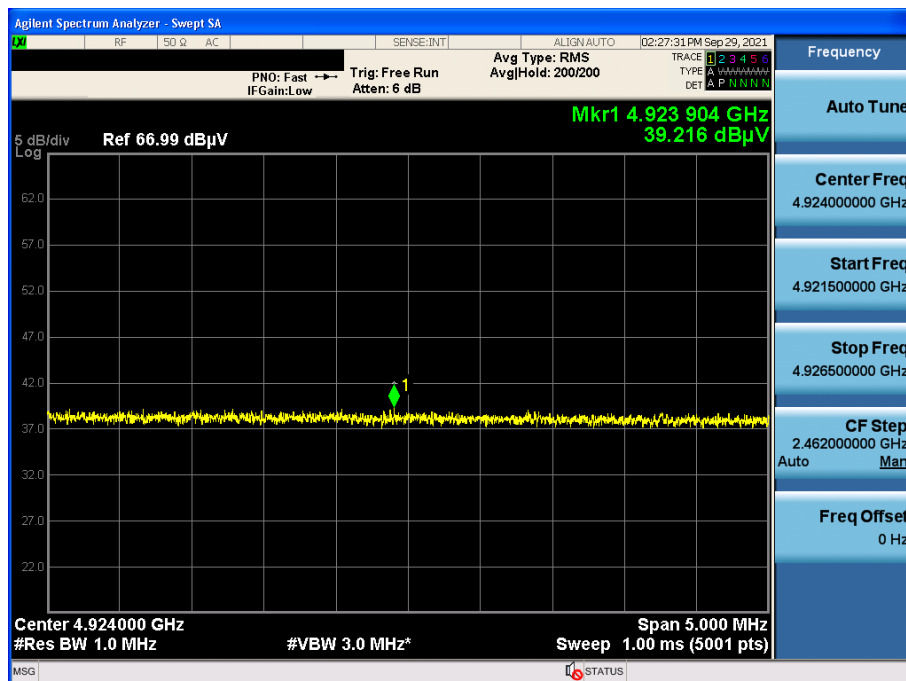
TM 1 & 2 437 & Z axis & Ver

Detector Mode : AV



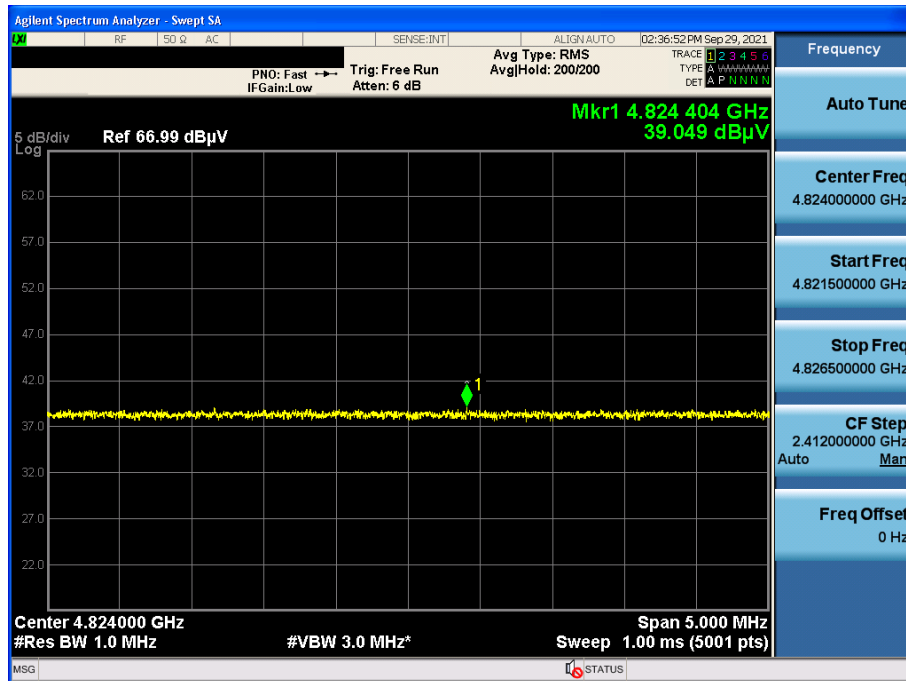
TM 2 & 2 462 & Z axis & Ver

Detector Mode : AV



TM 3 & 2 412 & Z axis & Ver

Detector Mode : AV



TM 4 & 2 452 & Z axis & Ver

Detector Mode : AV

