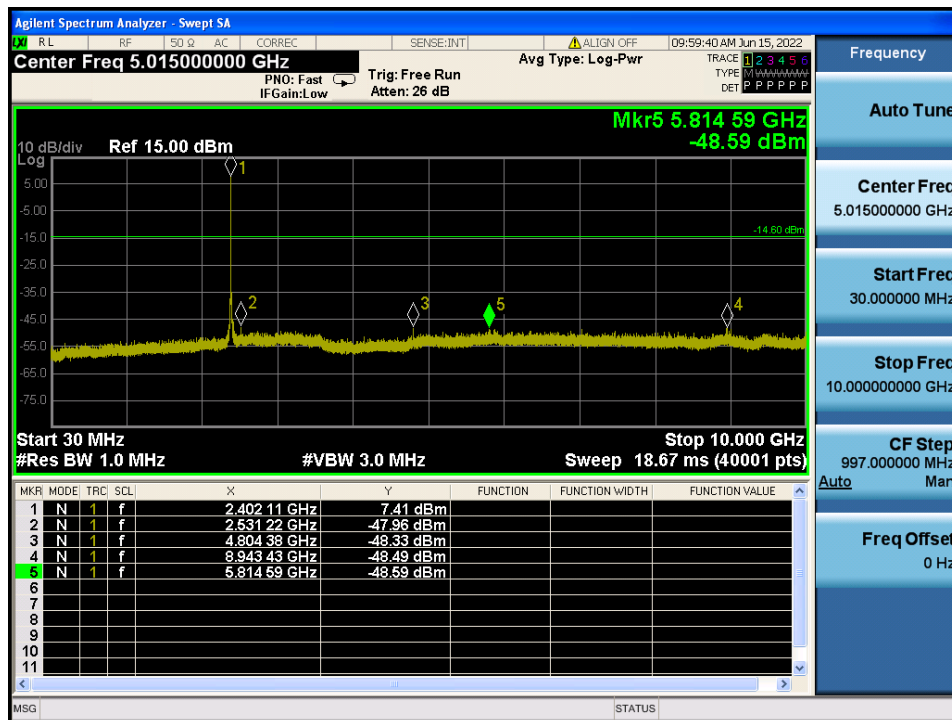
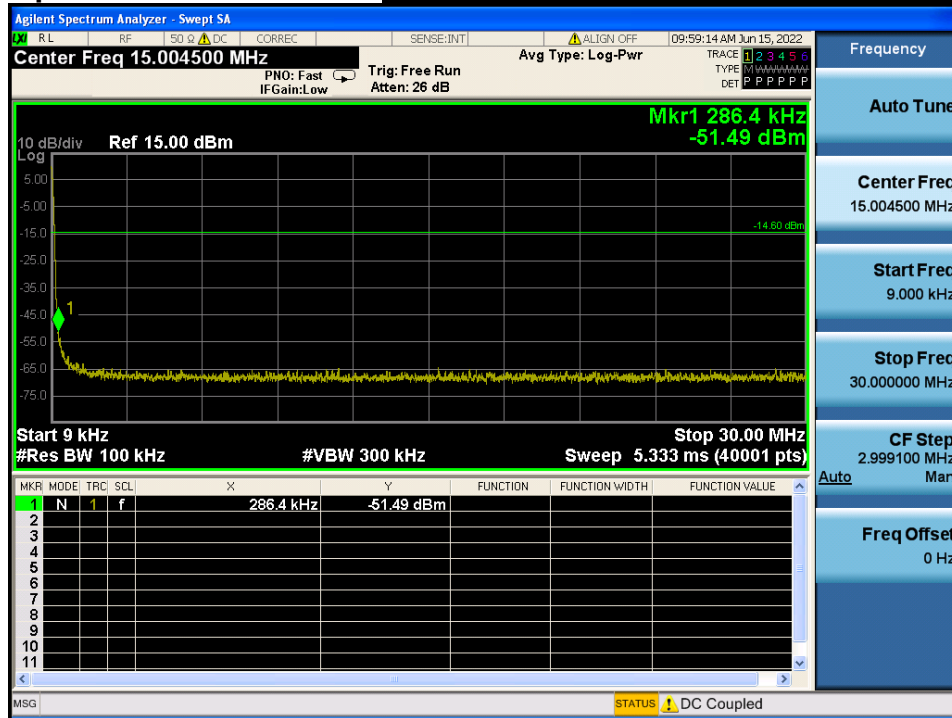
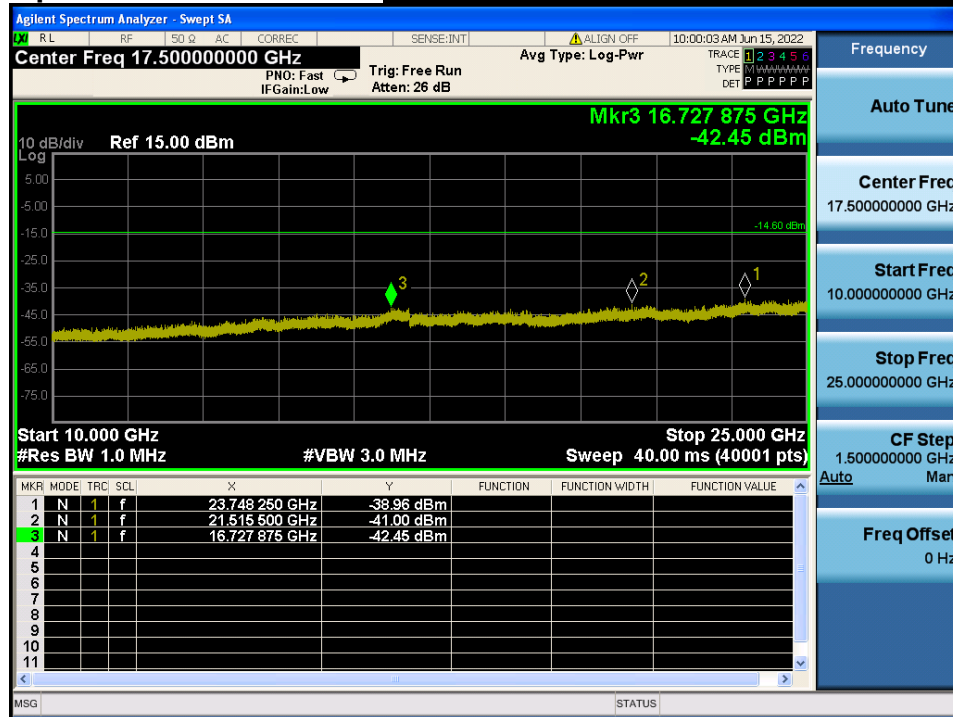


Conducted Spurious Emissions *Lowest Channel & Modulation : $\pi/4$ DQPSK*

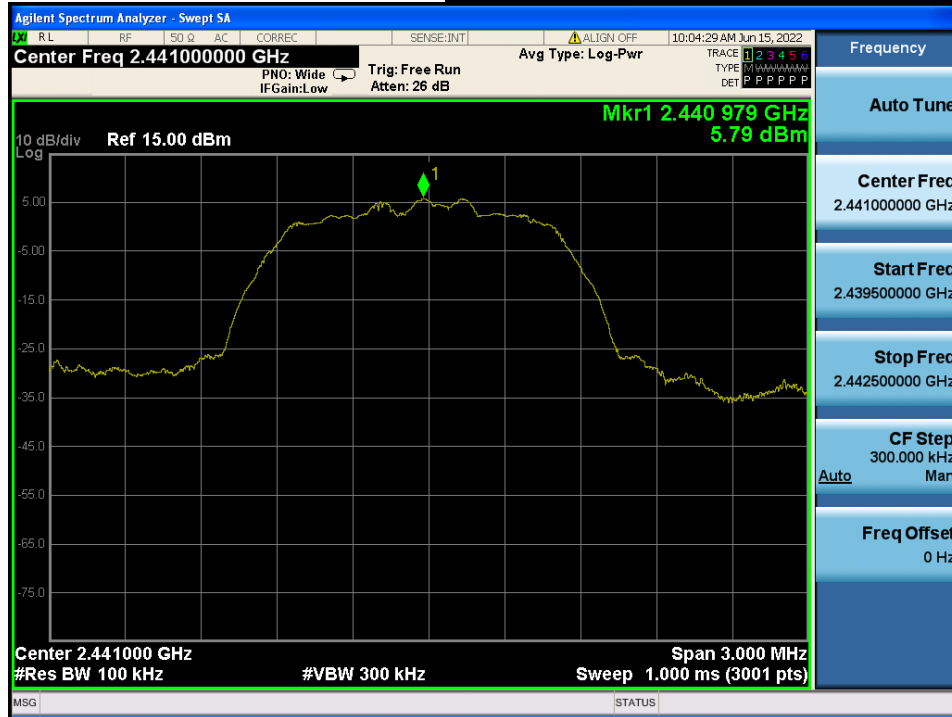


Conducted Spurious Emissions Lowest Channel & Modulation : $\pi/4$ DQPSK



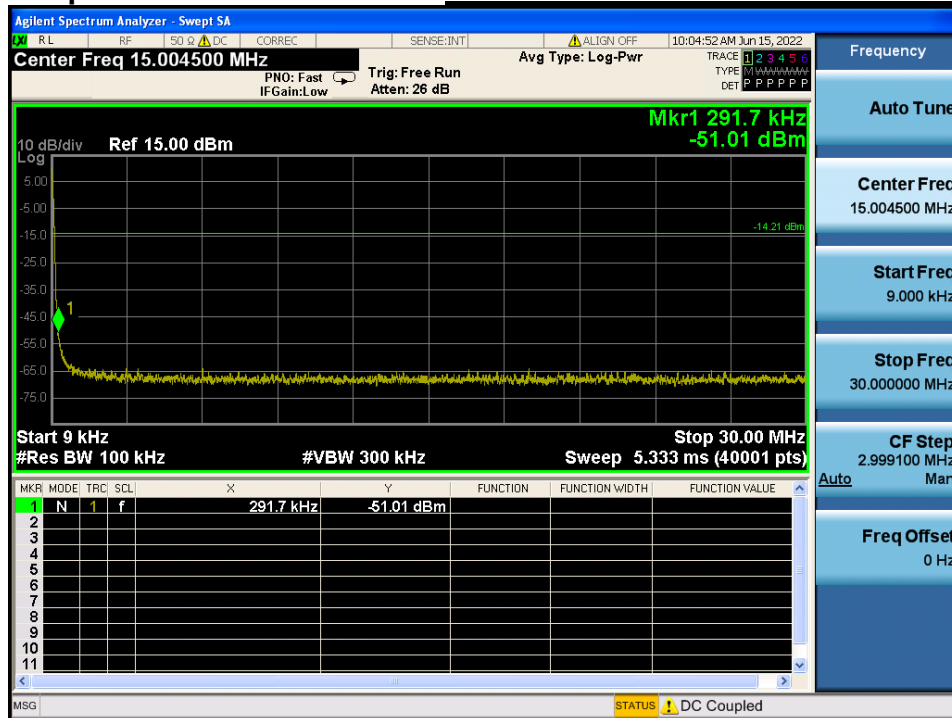
Reference for limit

Middle Channel & Modulation : $\pi/4$ DQPSK



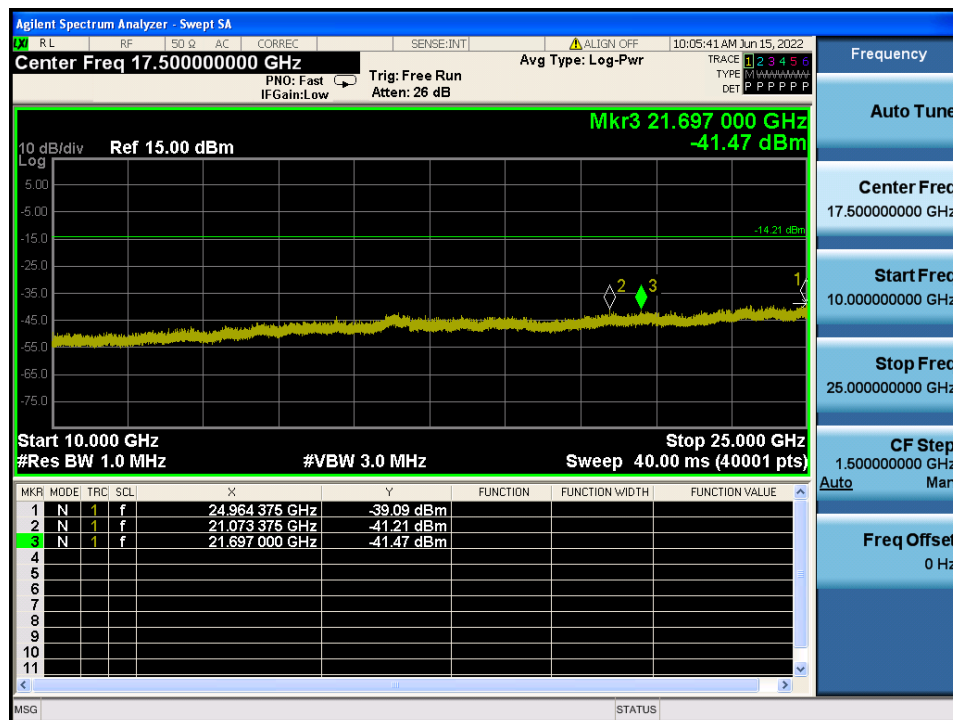
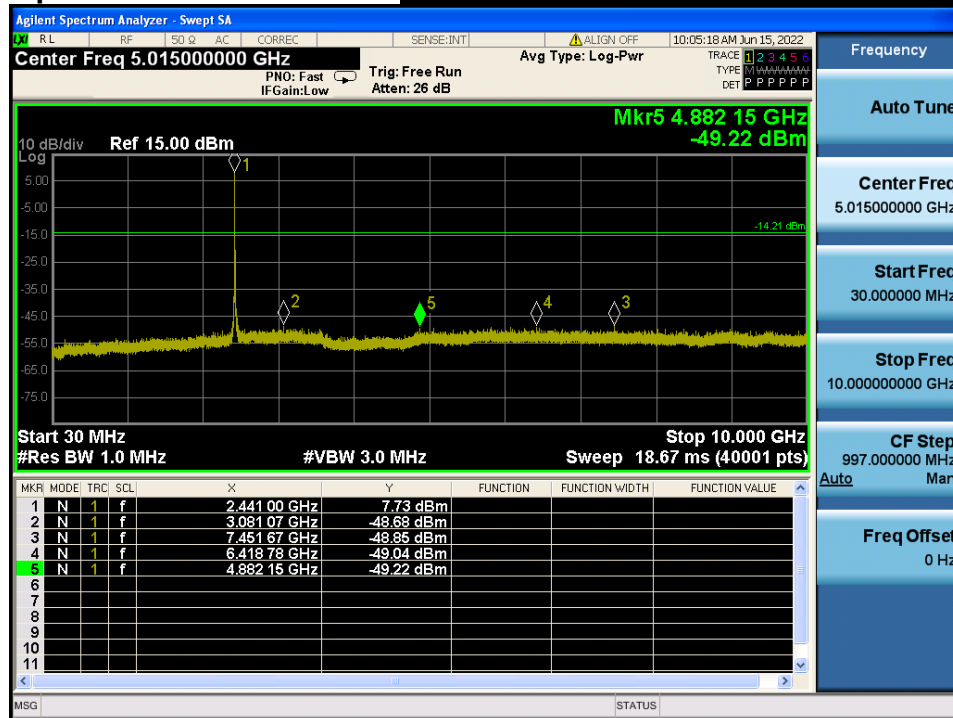
Conducted Spurious Emissions

Middle Channel & Modulation : $\pi/4$ DQPSK



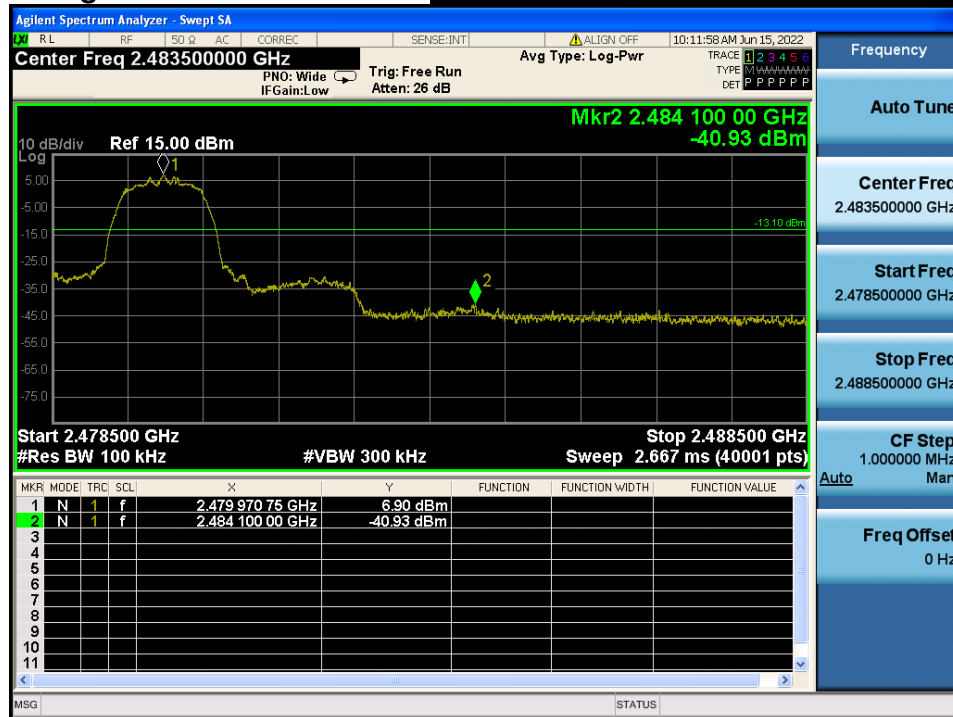
Conducted Spurious Emissions

Middle Channel & Modulation : $\pi/4$ DQPSK



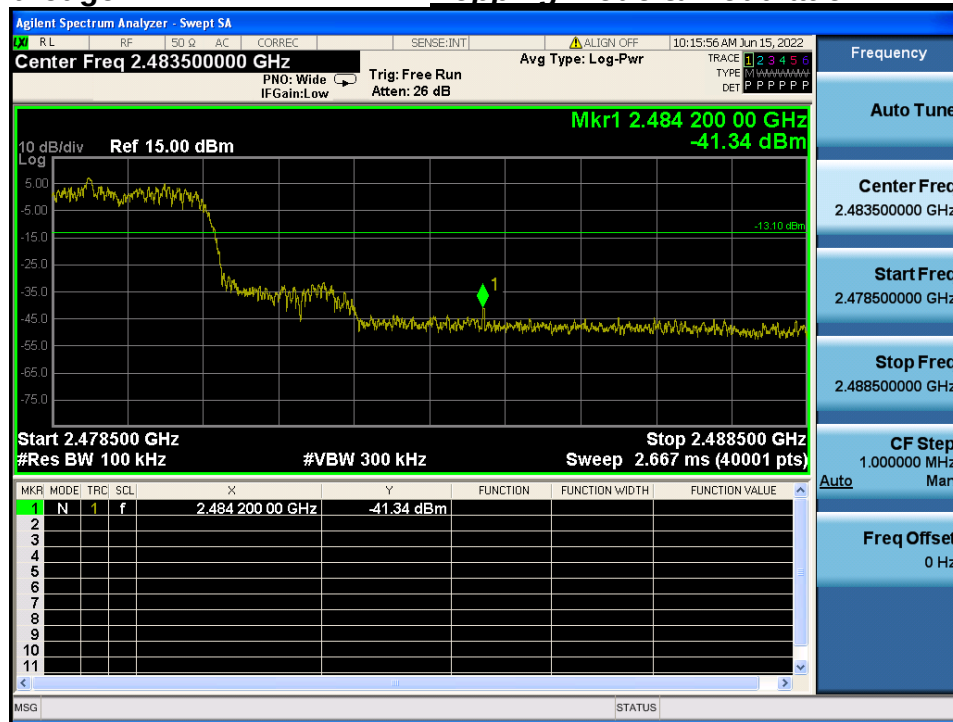
High Band-edge

Highest Channel & Modulation : $\pi/4$ DQPSK



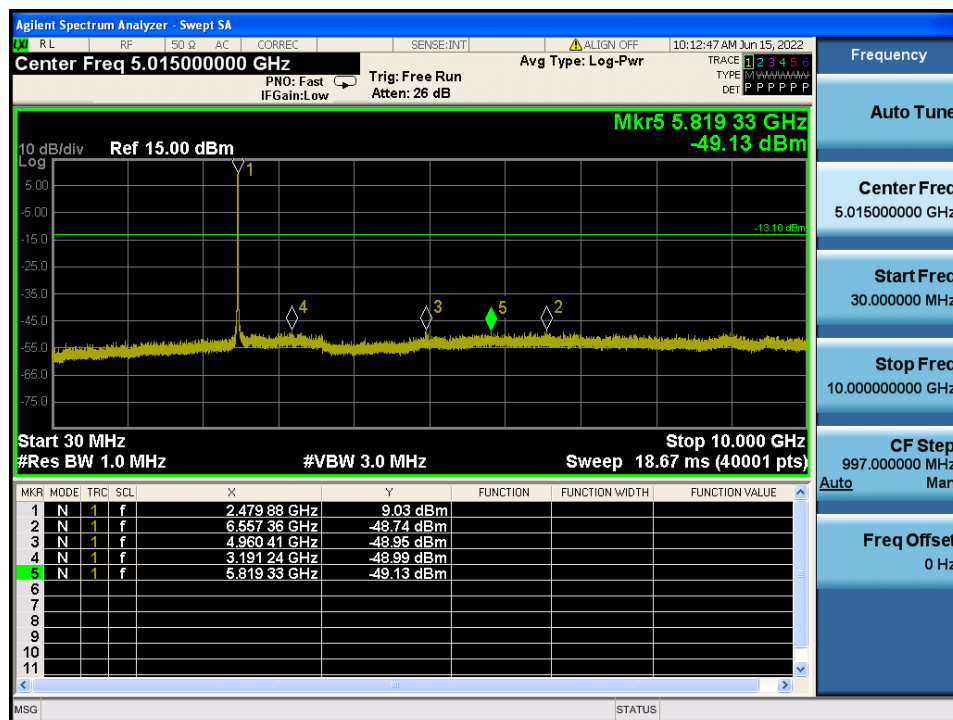
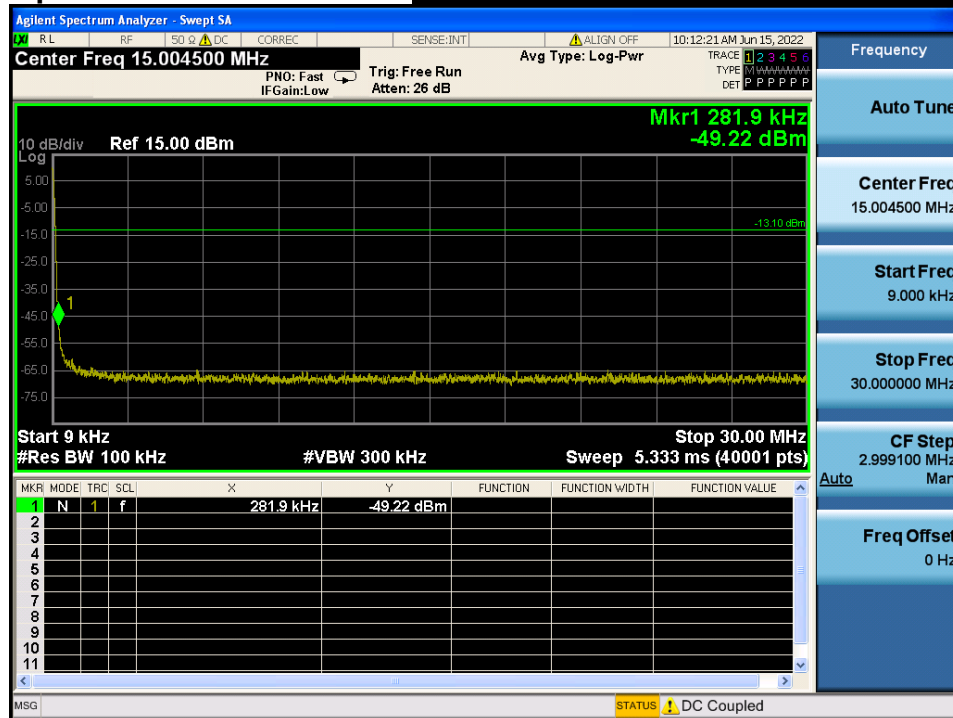
High Band-edge

Hopping mode & Modulation : $\pi/4$ DQPSK



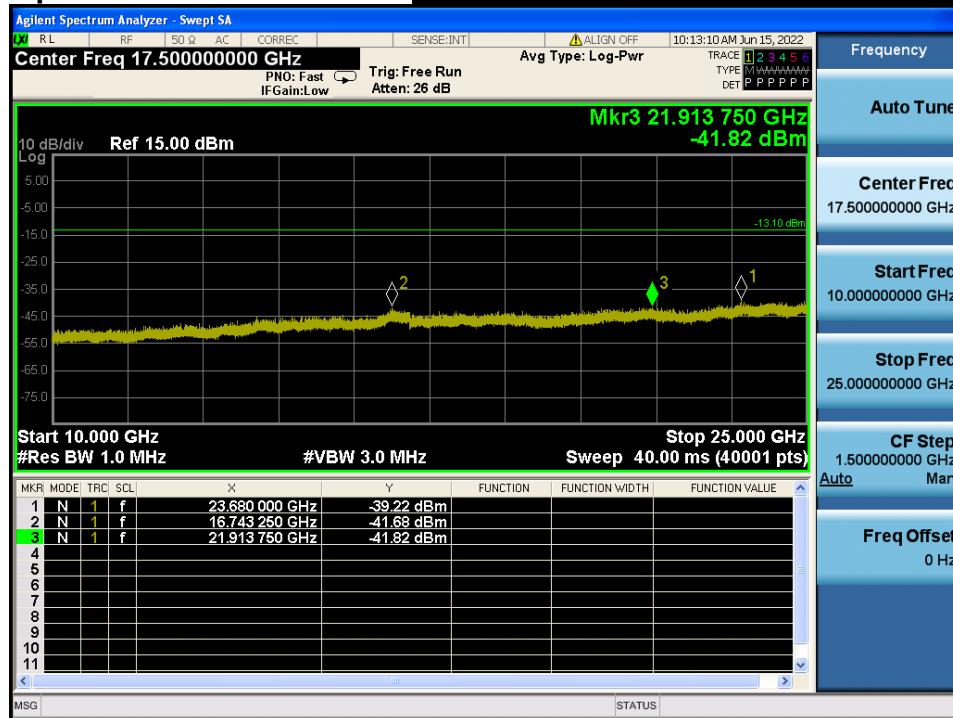
Conducted Spurious Emissions

Highest Channel & Modulation : $\pi/4$ DQPSK



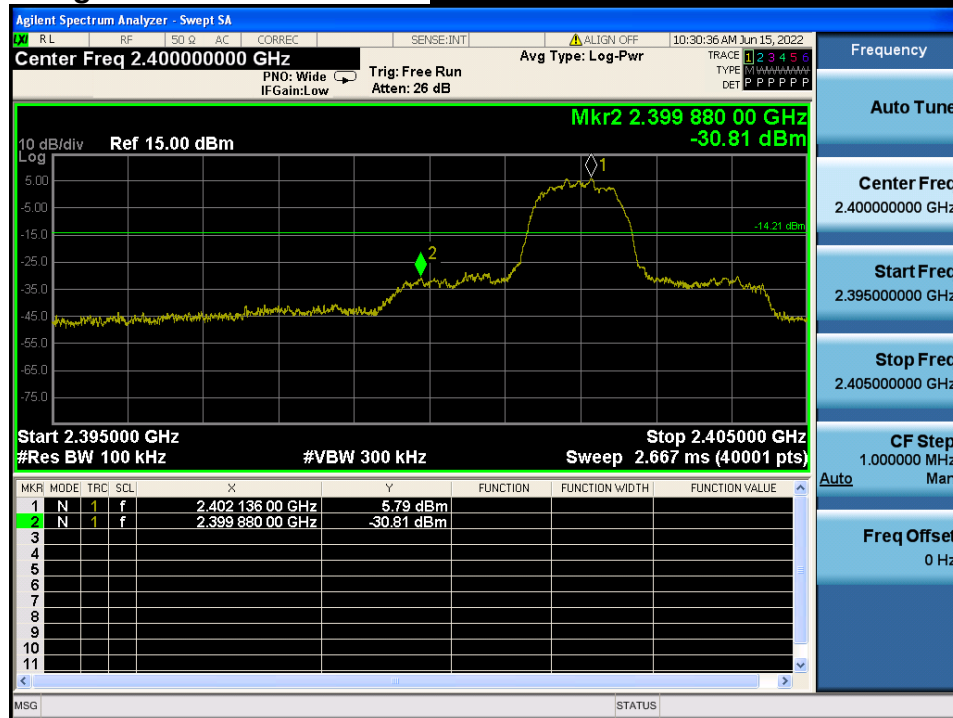
Conducted Spurious Emissions

Highest Channel & Modulation : $\pi/4$ DQPSK



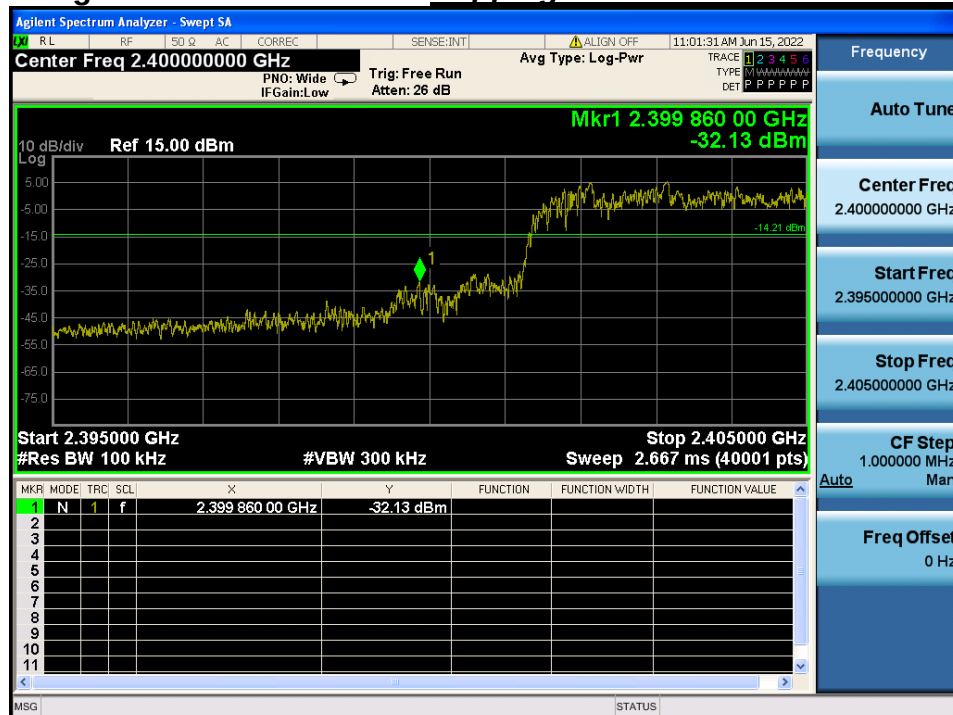
Low Band-edge

Lowest Channel & Modulation : 8DPSK



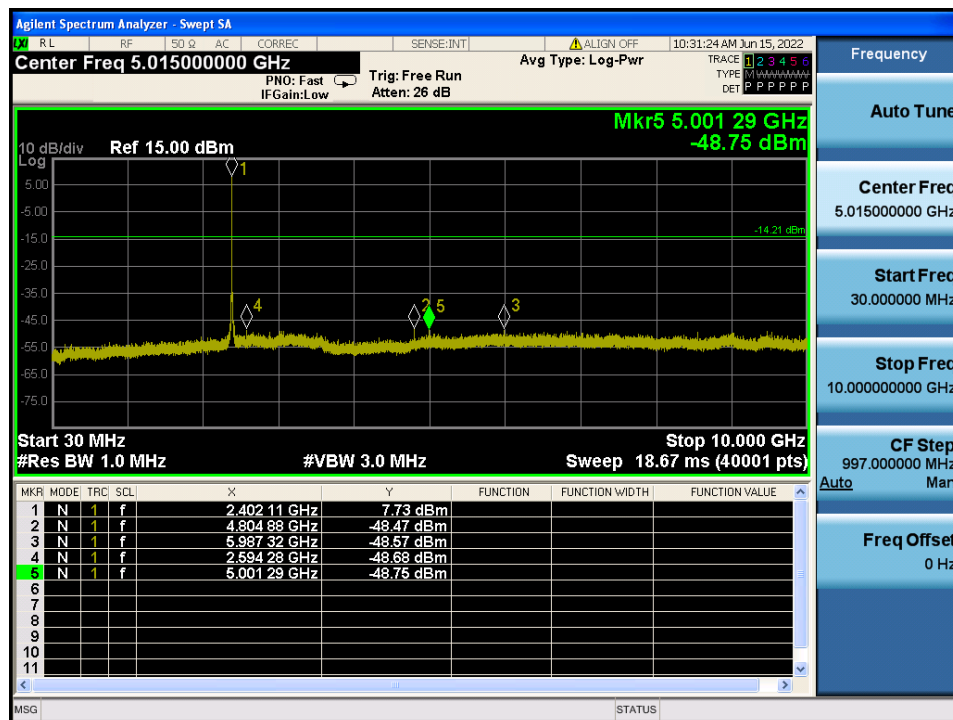
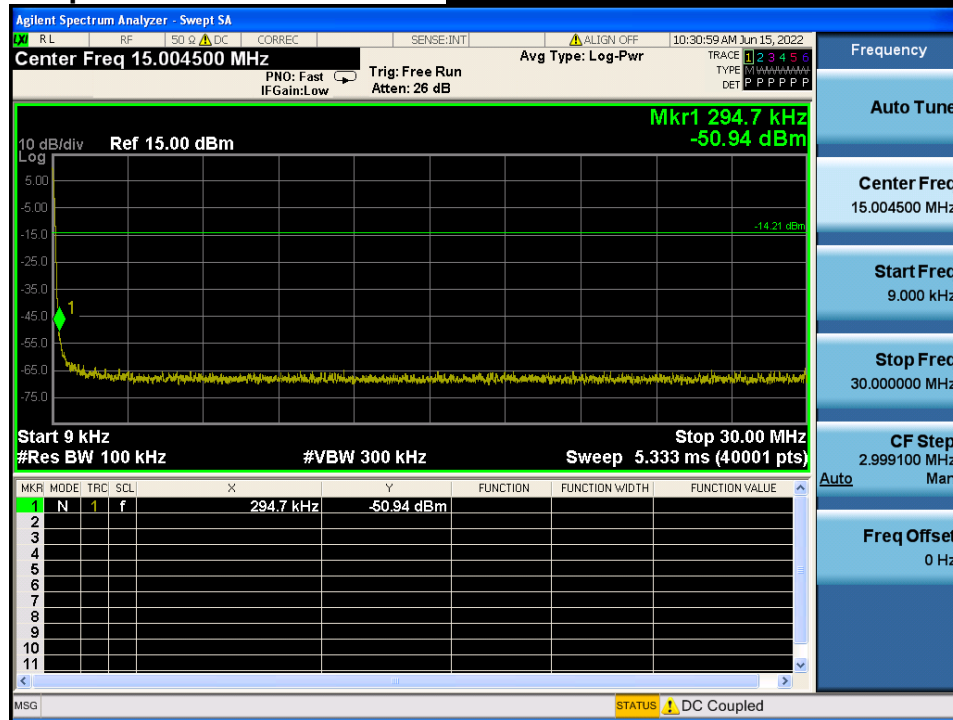
Low Band-edge

Hopping mode & Modulation : 8DPSK



Conducted Spurious Emissions

Lowest Channel & Modulation : 8DPSK

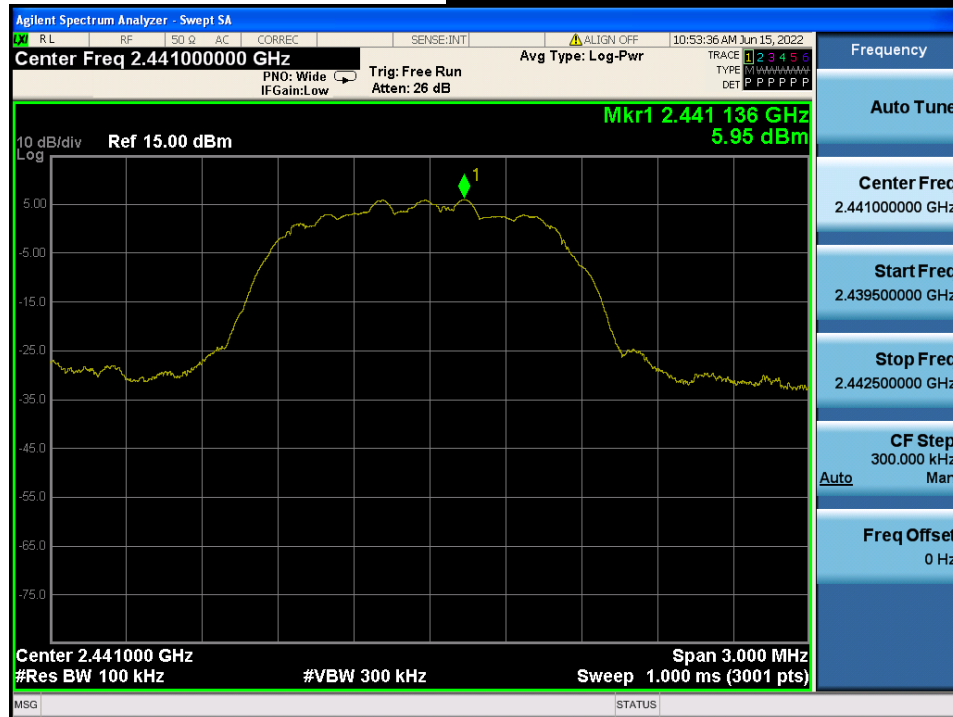


Conducted Spurious Emissions Lowest Channel & Modulation : 8DPSK



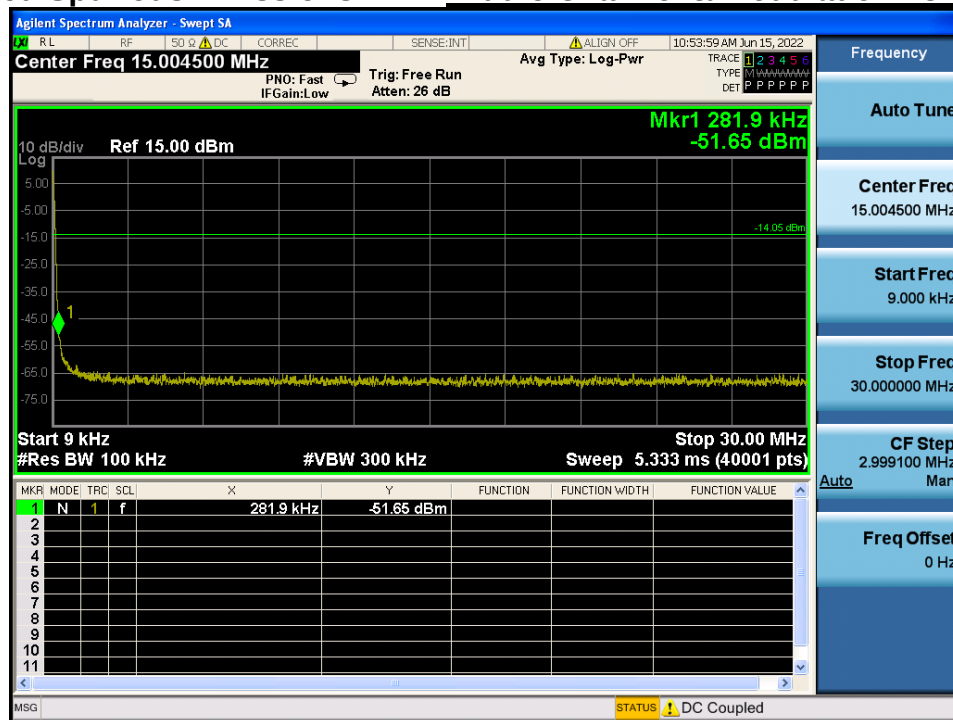
Reference for limit

Middle Channel & Modulation : 8DPSK

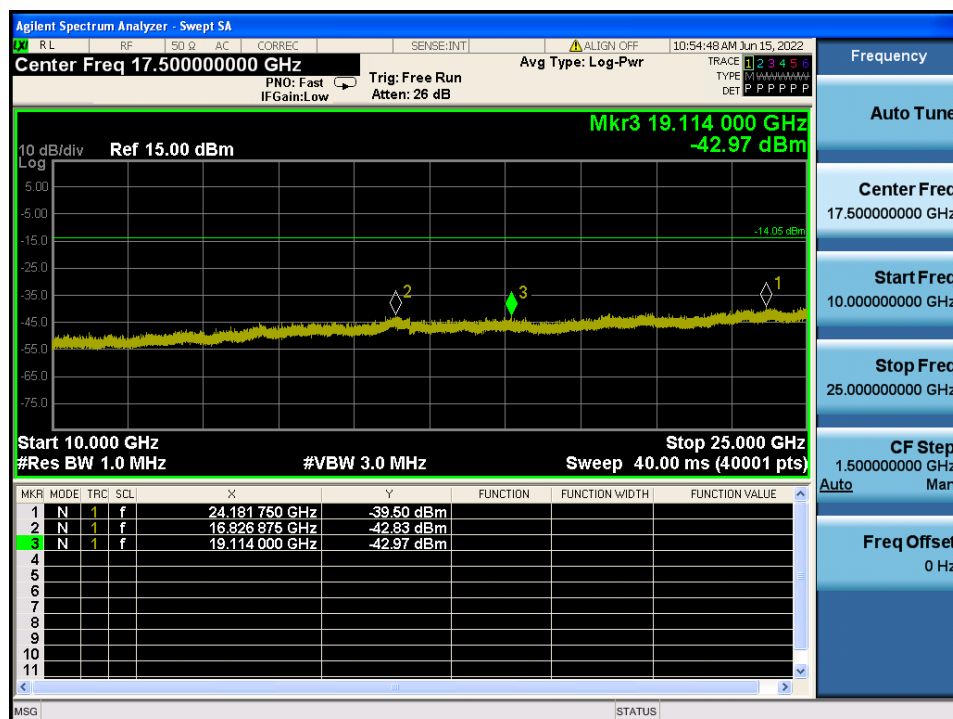
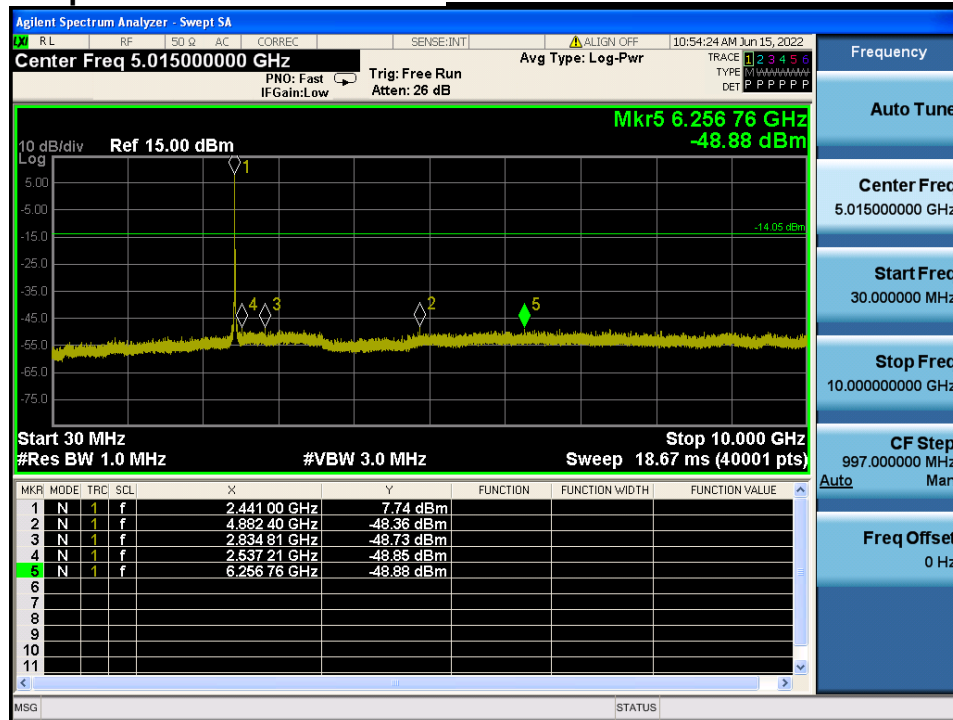


Conducted Spurious Emissions

Middle Channel & Modulation : 8DPSK

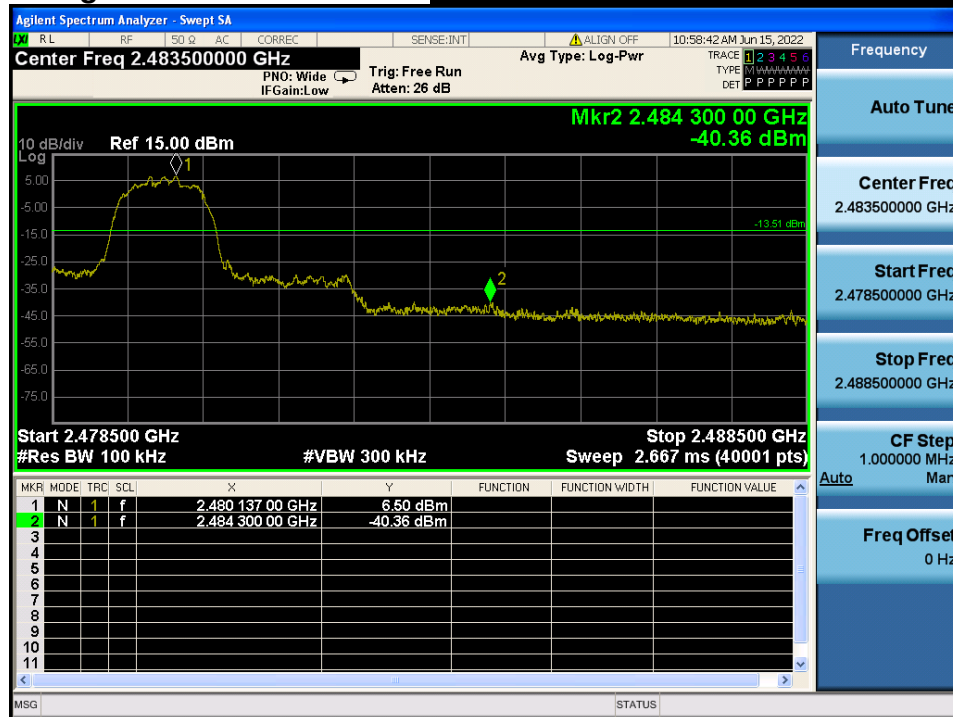


Conducted Spurious Emissions

Middle Channel & Modulation : 8DPSK

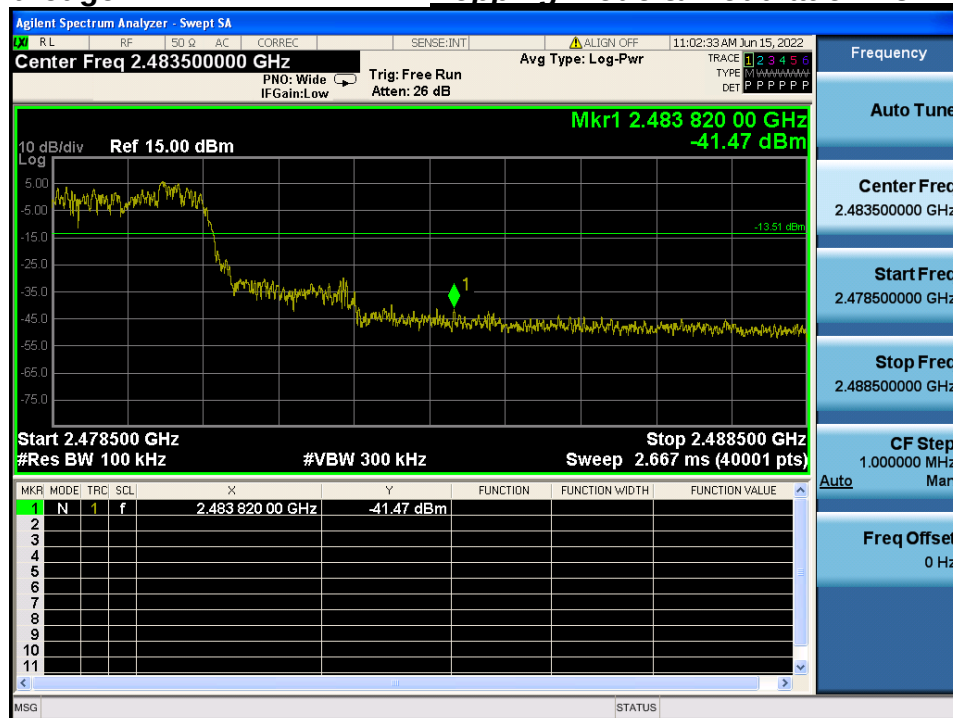
High Band-edge

Highest Channel & Modulation : 8DPSK



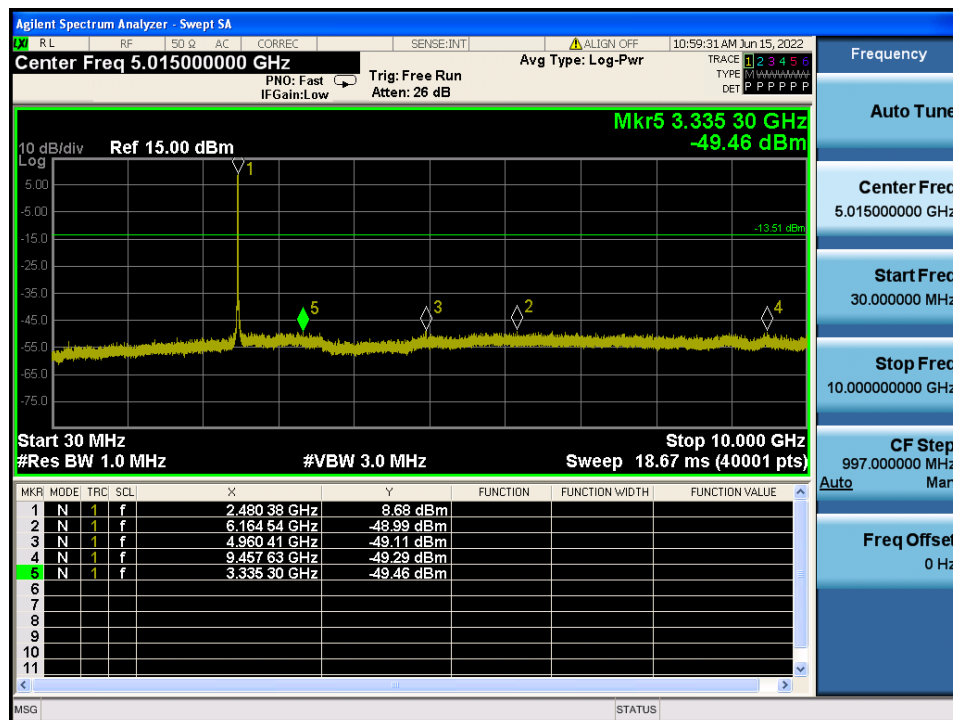
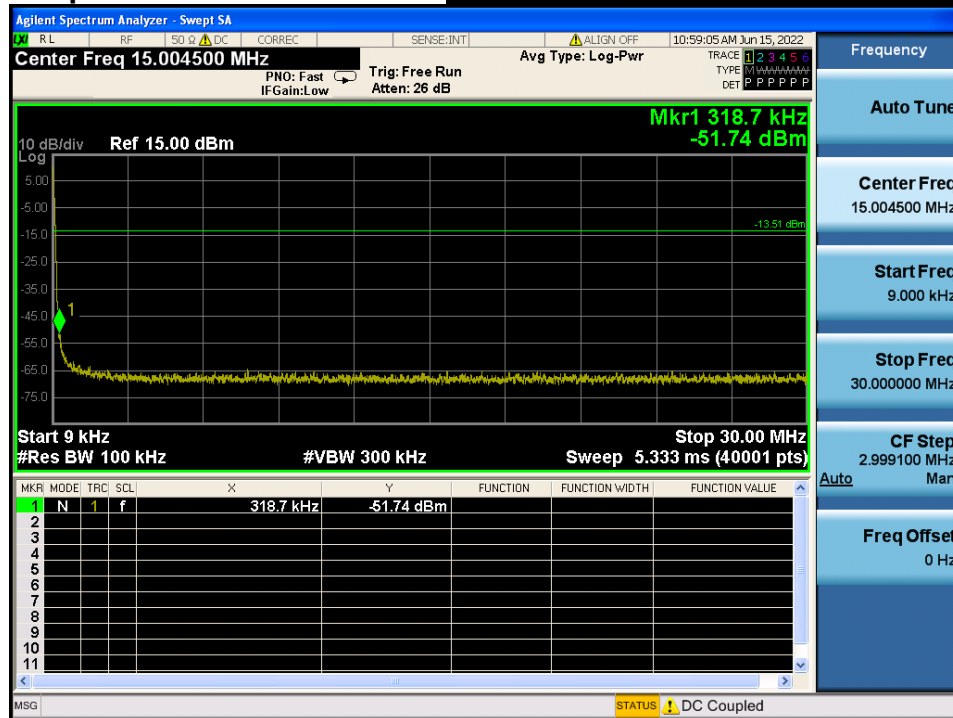
High Band-edge

Hopping mode & Modulation : 8DPSK



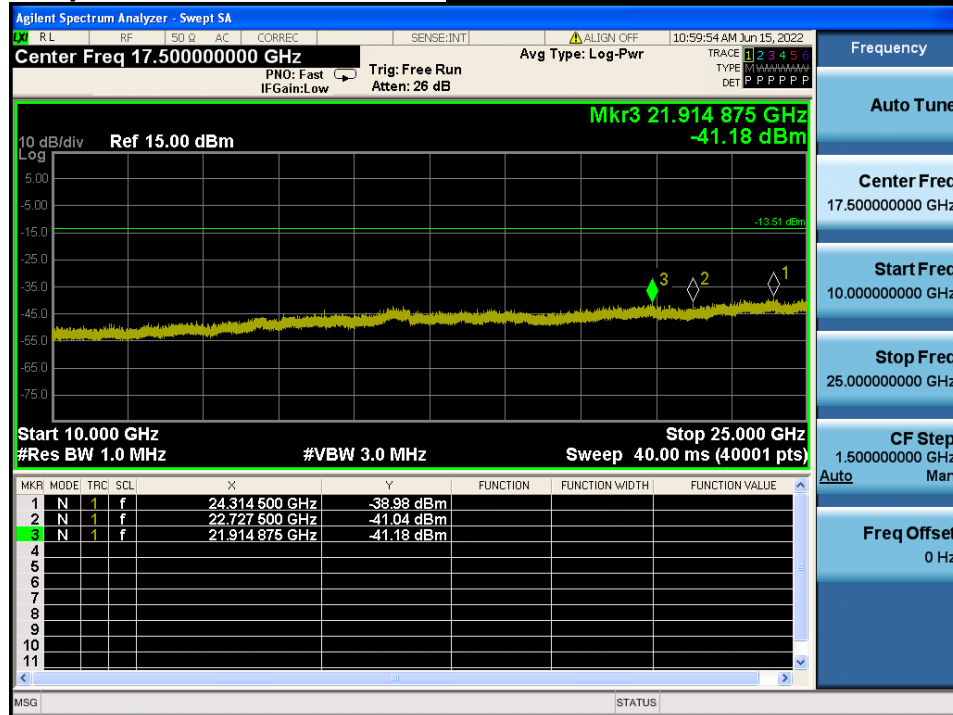
Conducted Spurious Emissions

Highest Channel & Modulation : 8DPSK



Conducted Spurious Emissions

Highest Channel & Modulation : 8DPSK



10. AC Power-Line Conducted Emissions

10.1. Test Setup

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

10.2. Limit

According to §15.207(a) for 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 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 ~ 0.50	66 to 56 *	56 to 46 *
0.5 ~ 5.0	56	46
5 ~ 30	60	50

* Decreases with the logarithm of the frequency

10.3. Test Procedure

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

1. The test procedure is performed in a 6.5 m × 3.5 m × 3.5 m (L × W × H) shielded room. The EUT along with its peripherals were placed on a 1.0 m (W) × 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.

10.4. Test Results

AC Power-Line Conducted Emissions (Graph) = Modulation : GFSK – Charging Mode

Results of Conducted Emission

DTNC

Date 2022-06-17

Order No.
Model No.
Serial No.
Test Condition

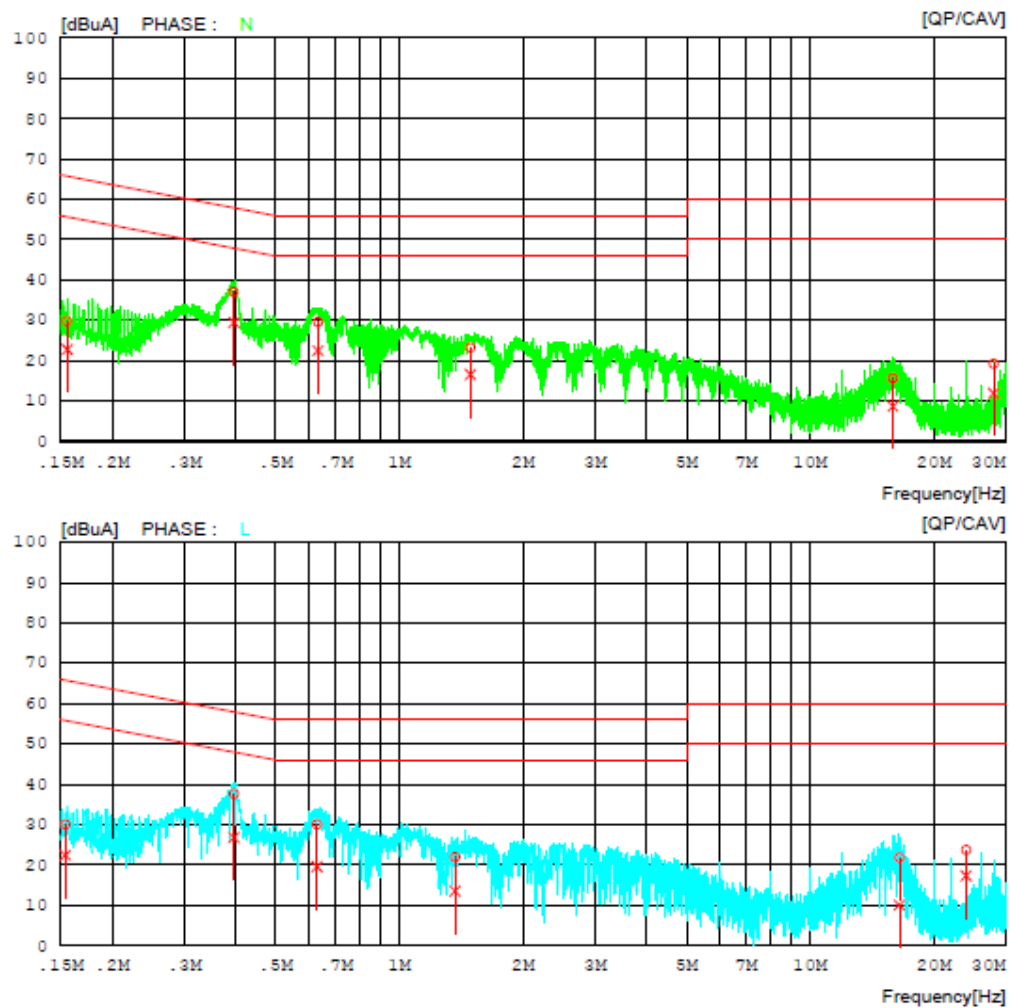
DTNC2203-01802
SP111
Charging

Reference No.
Power Supply
Temp/Humi.
Operator

21 °C / 41 %
J.H.Bang

Memo

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



AC Power-Line Conducted Emissions (List) = Modulation : GFSK – Charging Mode

Results of Conducted Emission

DTNC Date 2022-06-17

Order No.	DTNC2203-01802	Reference No.	
Model No.	SP111	Power Supply	
Serial No.		Temp/Humi.	21 °C / 41 %
Test Condition	Charging	Operator	J.H.Bang

Memo

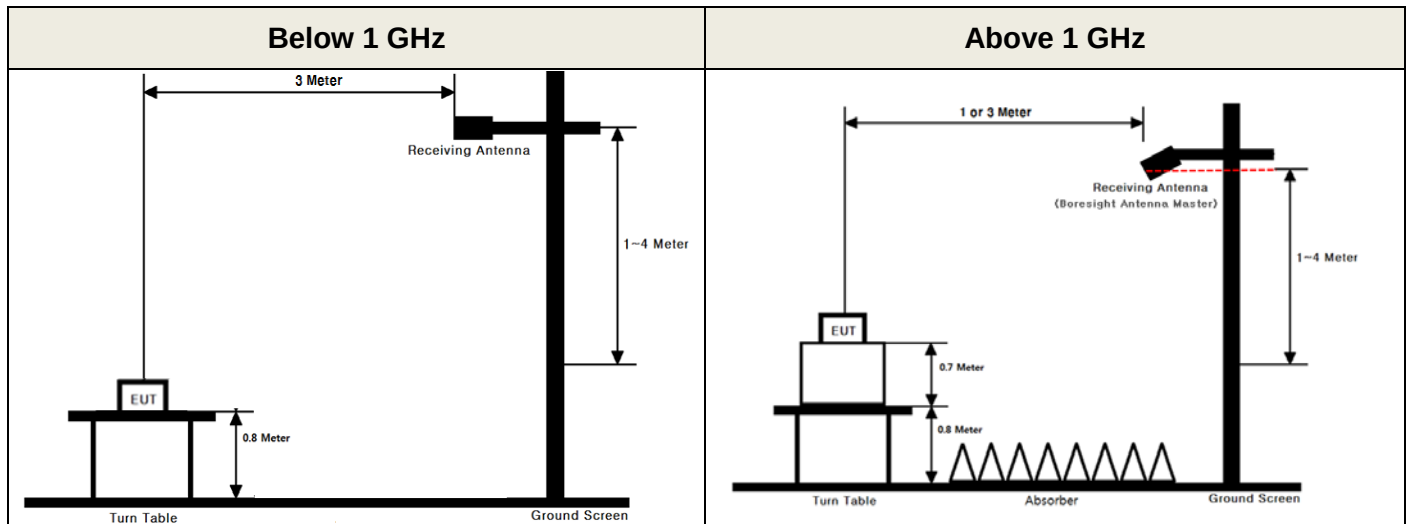
LIMIT : FCC P15.207 AV
FCC P15.207 QP

NO	FREQ [MHz]	READING		C. FACTOR [dB]	RESULT		LIMIT		MARGIN		PHASE
		QP [dBuA]	CAV [dBuA]		QP [dBuA]	CAV [dBuA]	QP [dBuA]	CAV [dBuA]	QP [dBuA]	CAV [dBuA]	
1	0.15529	19.85	12.83	9.99	29.84	22.82	65.71	55.71	35.87	32.89	N
2	0.39523	27.03	19.52	10.01	37.04	29.53	57.95	47.95	20.91	18.42	N
3	0.63415	19.60	12.45	10.01	29.61	22.46	56.00	46.00	26.39	23.54	N
4	1.48955	13.12	6.44	10.14	23.26	16.58	56.00	46.00	32.74	29.42	N
5	15.90647	8.09	-1.79	10.50	15.59	8.71	60.00	50.00	44.41	41.29	N
6	28.00115	8.73	1.49	10.49	19.22	11.98	60.00	50.00	40.78	38.02	N
7	0.15373	19.95	12.44	9.99	29.94	22.43	65.80	55.80	35.86	33.37	L
8	0.39560	27.62	16.74	10.01	37.63	26.75	57.95	47.95	20.32	21.20	L
9	0.63050	20.02	9.61	10.01	30.03	19.62	56.00	46.00	25.97	26.38	L
10	1.36755	11.85	3.40	10.13	21.98	13.53	56.00	46.00	34.02	32.47	L
11	16.49769	11.23	-0.44	10.50	21.73	10.06	60.00	50.00	38.27	39.94	L
12	23.99881	13.26	6.82	10.47	23.73	17.29	60.00	50.00	36.27	32.71	L

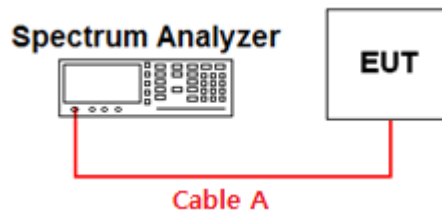
APPENDIX I

Test set up diagrams

▪ Radiated Measurement



▪ Conducted Measurement



Path loss information

Frequency (GHz)	Path Loss (dB)	Frequency (GHz)	Path Loss (dB)
0.03	0.75	15	4.14
1	1.03	20	4.28
2.402 & 2.441 & 2.480	1.32	25	4.39
5	1.71	-	-
10	2.07	-	-

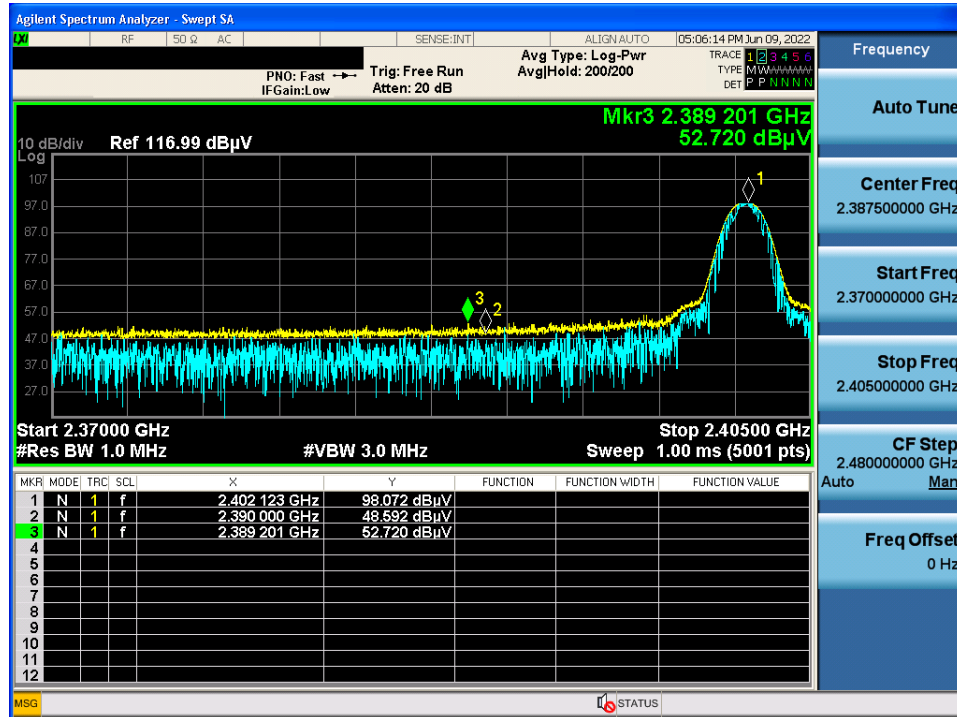
Note 1: The path loss from EUT to Spectrum analyzer was measured and used for test.
 Path loss (S/A's correction factor) = Cable A + Power Splitter

APPENDIX II

Unwanted Emissions (Radiated) Test Plot

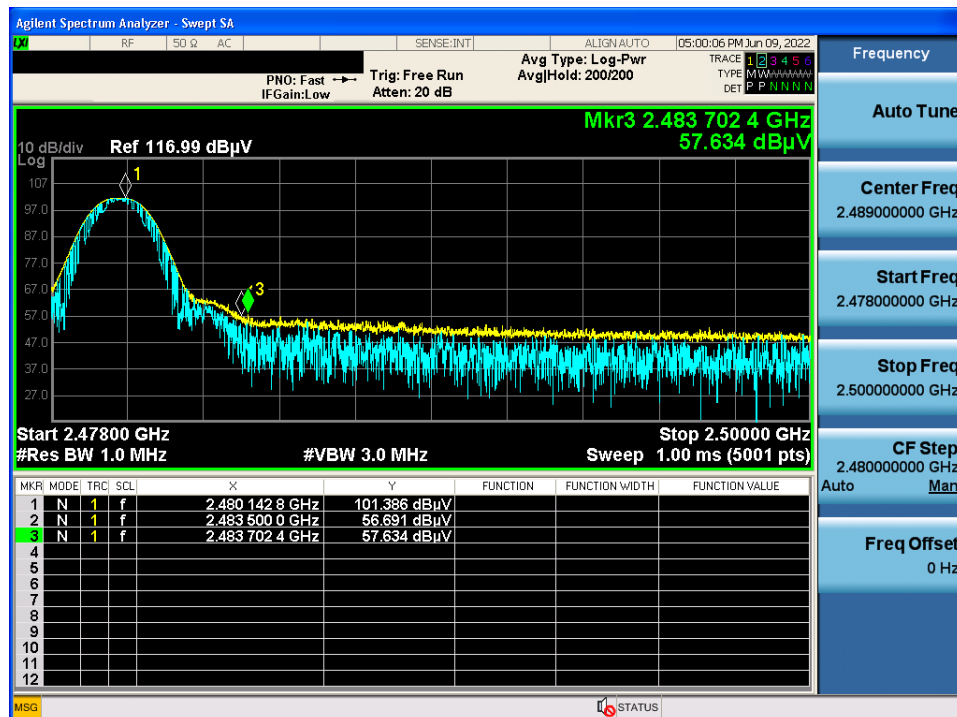
GFSK & Lowest & X & Hor

Detector Mode : PK



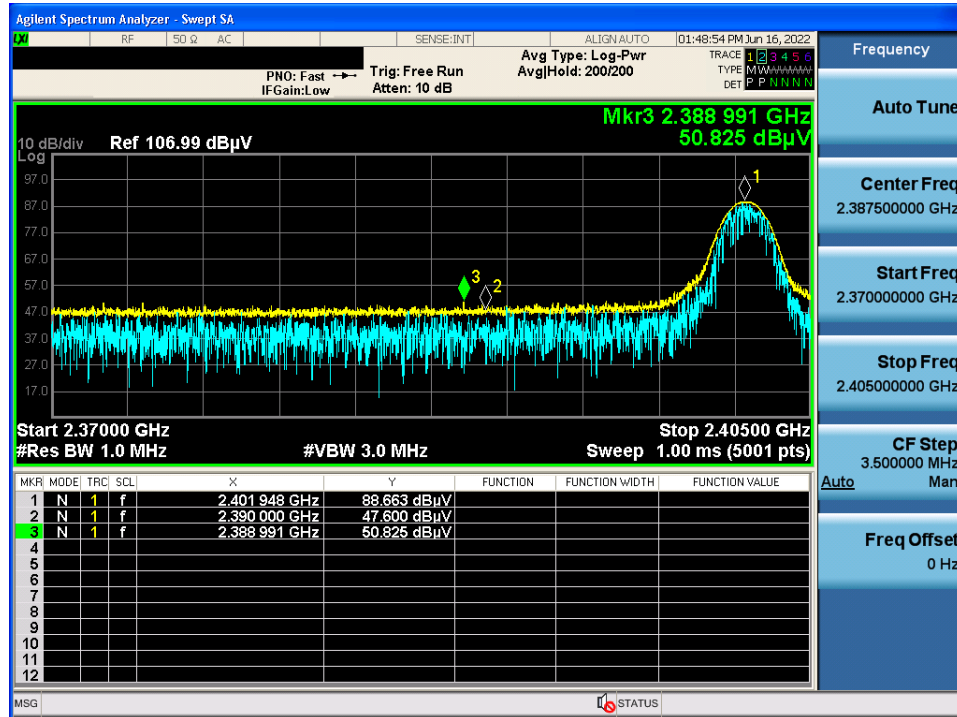
GFSK & Highest & X & Hor

Detector Mode : PK



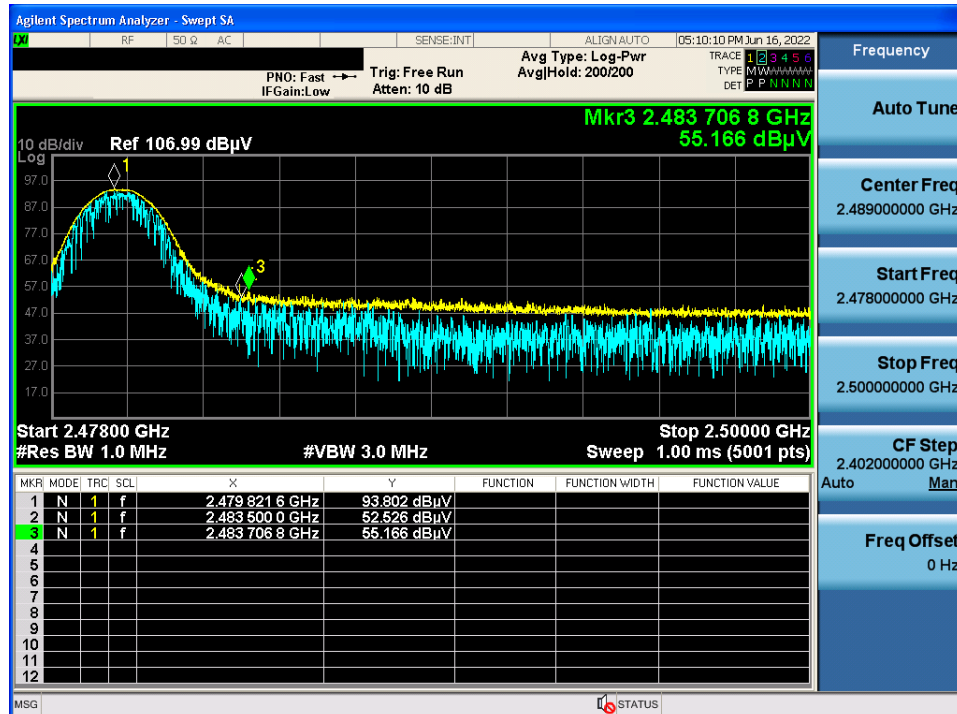
$\pi/4$ DQPSK & Lowest & X & Hor

Detector Mode : PK



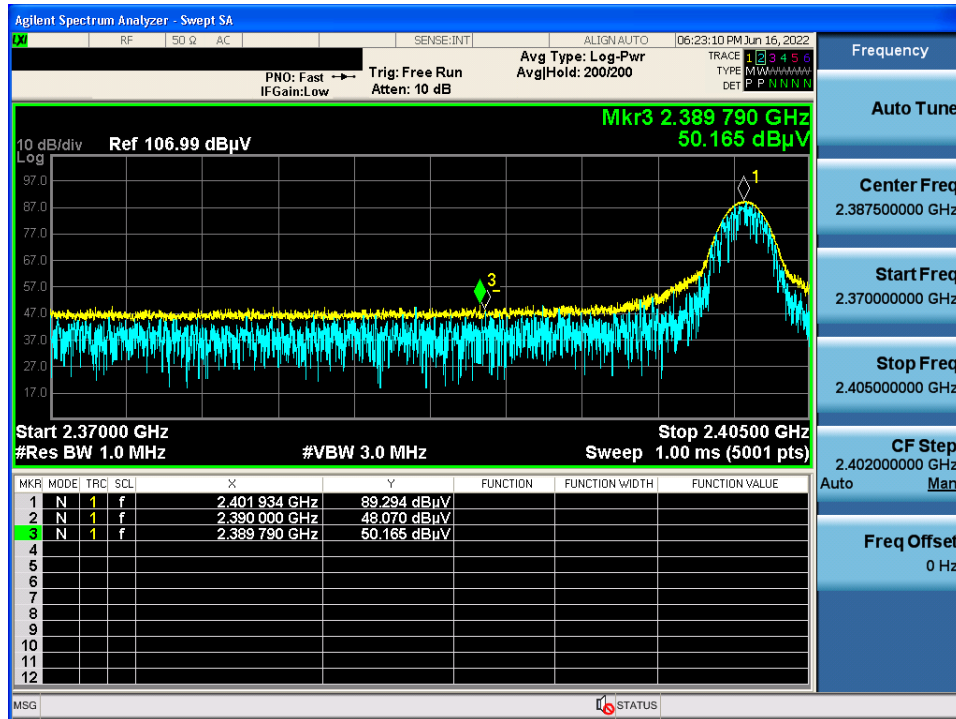
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Detector Mode : PK



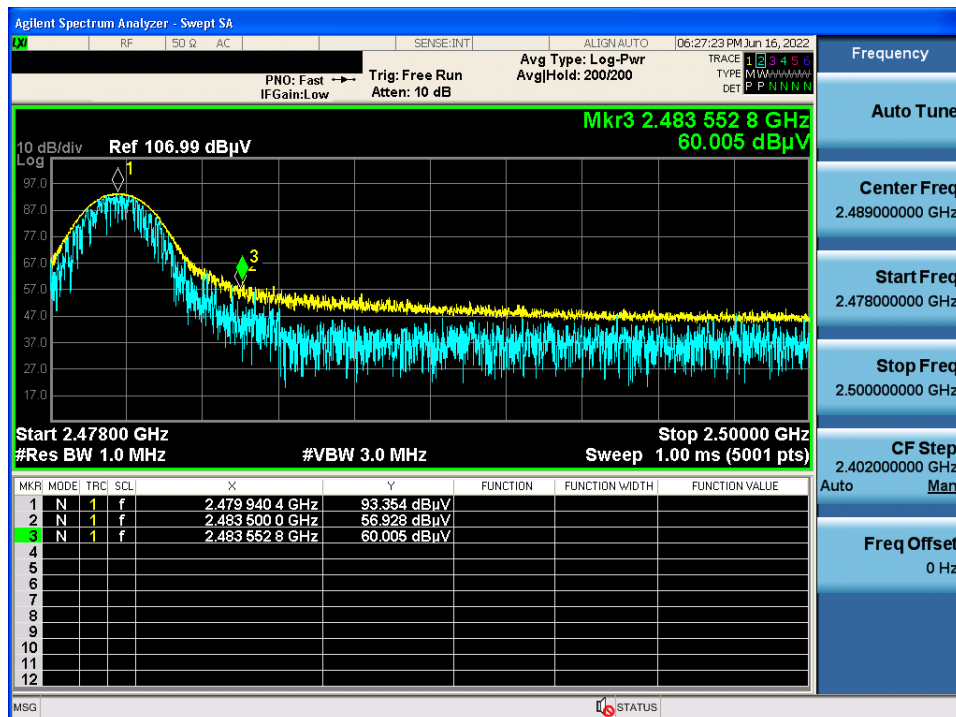
8DPSK & Lowest & X & Hor

Detector Mode : PK



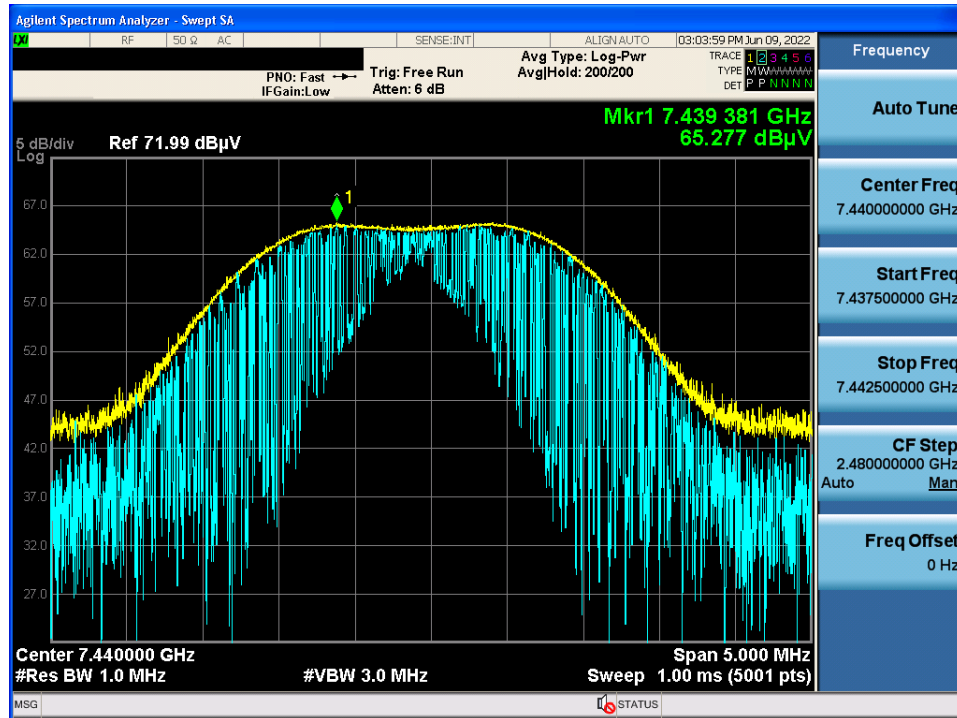
8DPSK & Highest & X & Hor

Detector Mode : PK



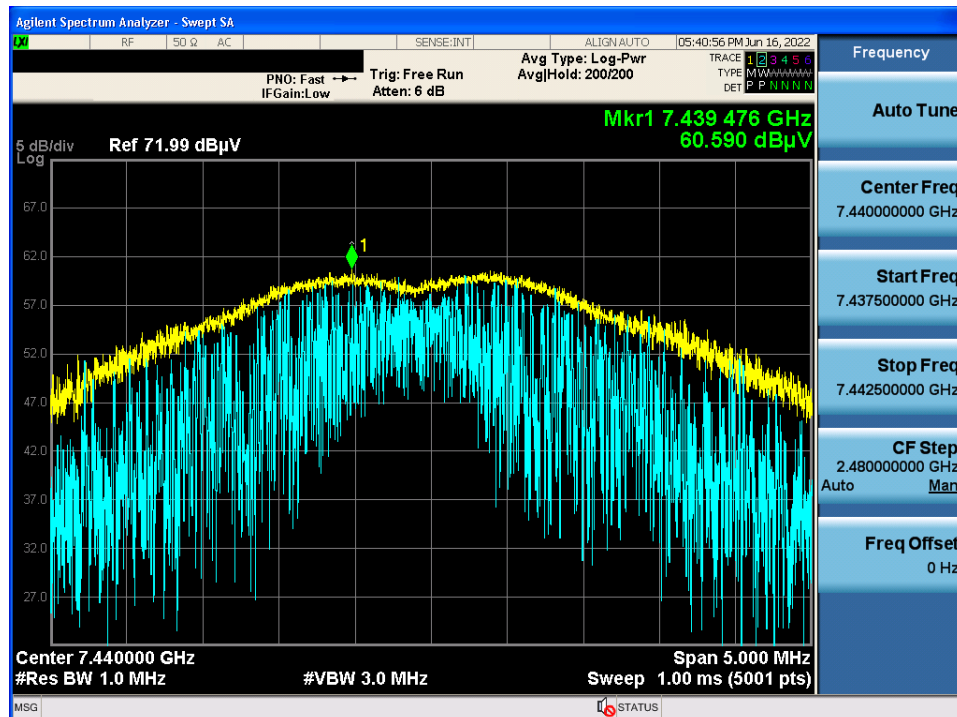
GFSK & Highest & Y & Ver

Detector Mode : PK



$\pi/4$ DQPSK & Highest & Y & Ver

Detector Mode : PK



8DPSK & Highest & Y & Ver

Detector Mode : PK

