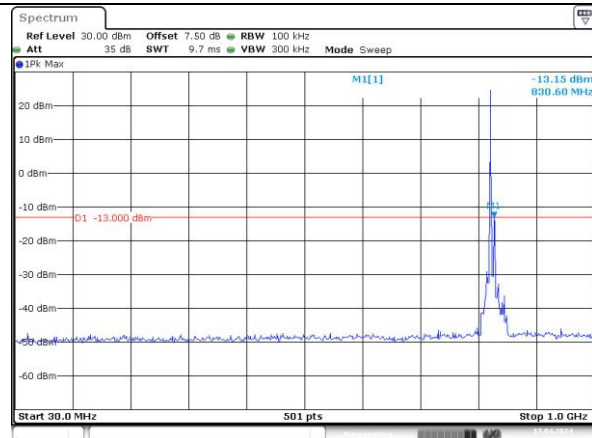
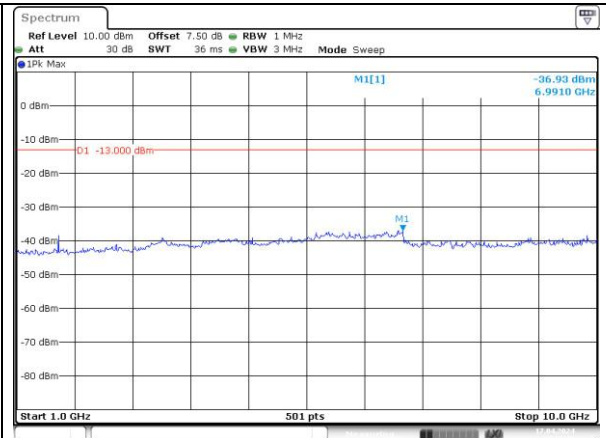
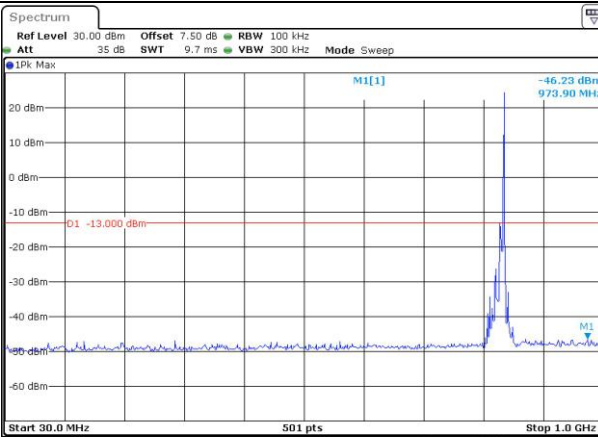
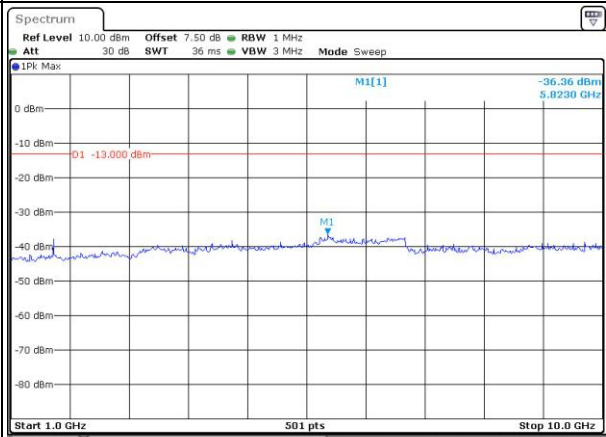
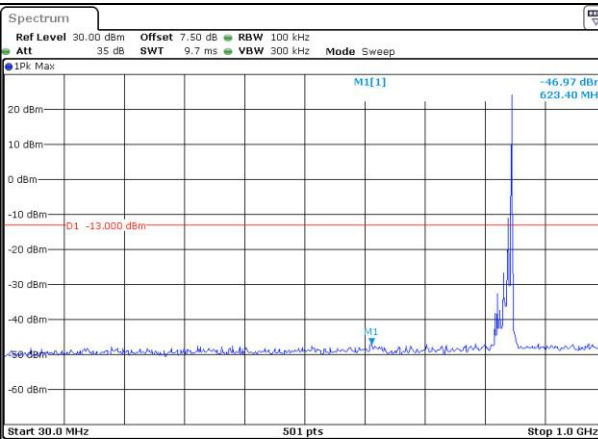
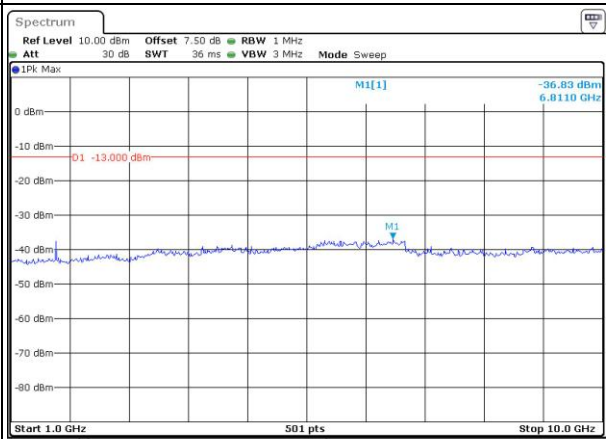


Spurious Emissions at Antenna Terminal

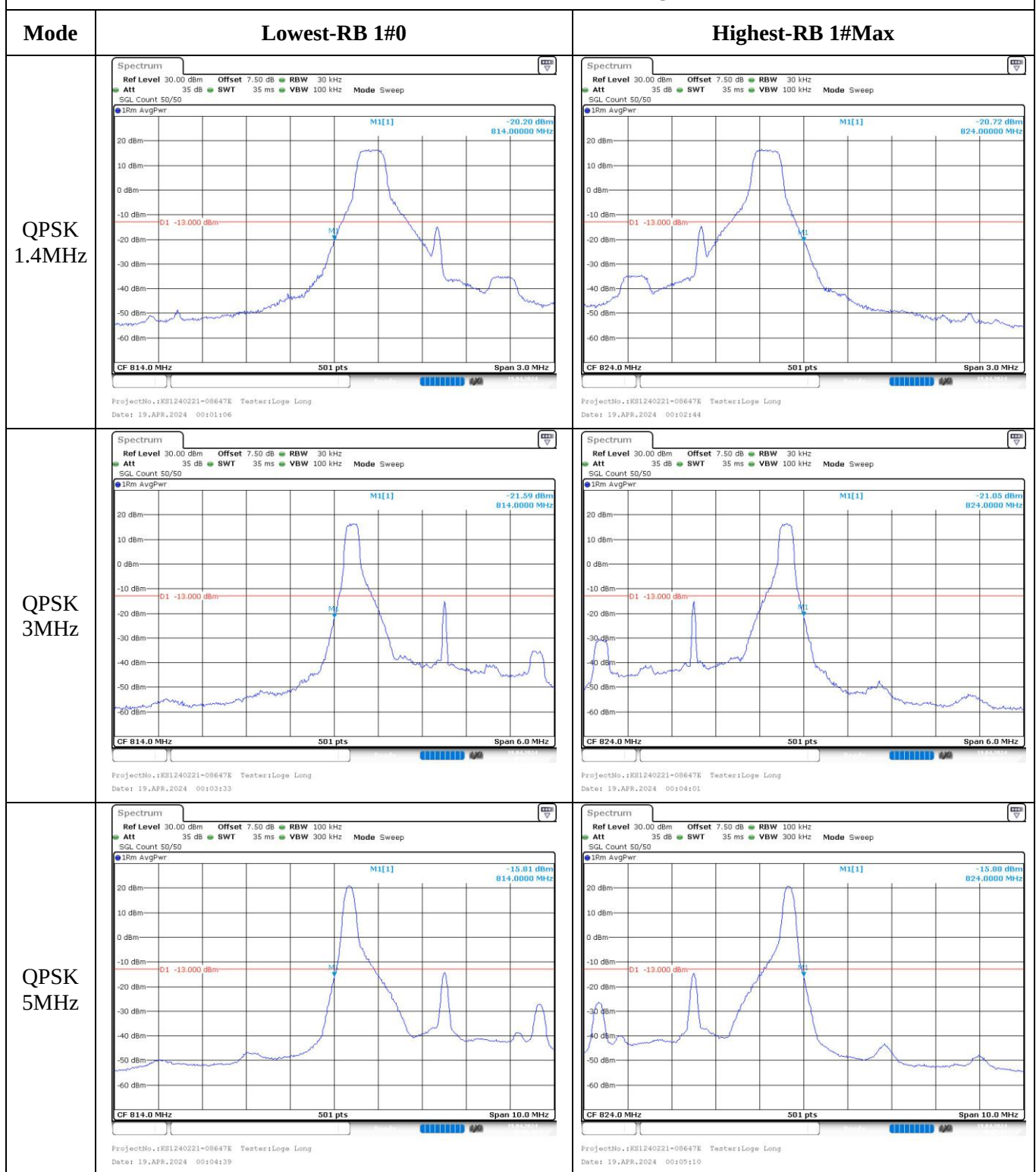
Channel

15MHz Bandwidth QPSK

Lowest
For
22HProjectNo.:KS1240221-08647E Tester:Loge Long
Date: 17.APR.2024 23:15:08ProjectNo.:KS1240221-08647E Tester:Loge Long
Date: 17.APR.2024 23:15:30Middle
For
22HProjectNo.:KS1240221-08647E Tester:Loge Long
Date: 18.APR.2024 01:00:05ProjectNo.:KS1240221-08647E Tester:Loge Long
Date: 17.APR.2024 23:16:38Highest
For
22HProjectNo.:KS1240221-08647E Tester:Loge Long
Date: 18.APR.2024 01:00:56ProjectNo.:KS1240221-08647E Tester:Loge Long
Date: 17.APR.2024 23:17:51

814-824MHz:

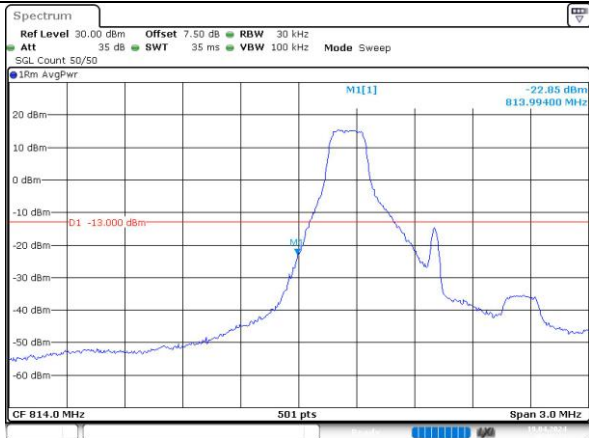
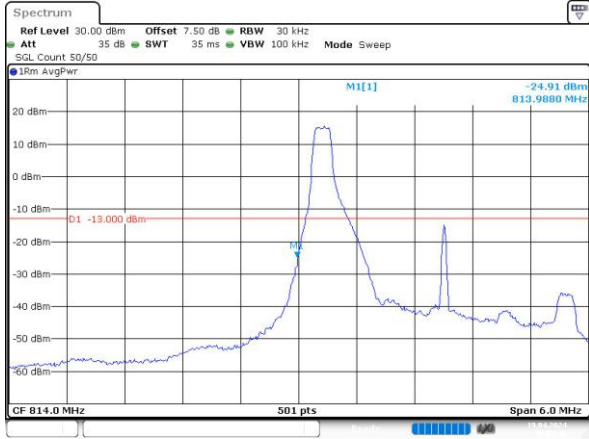
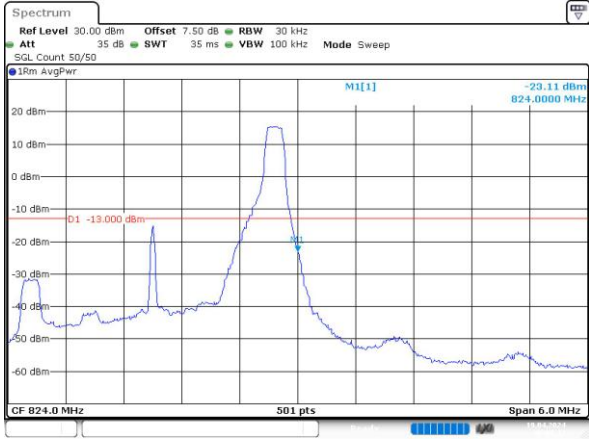
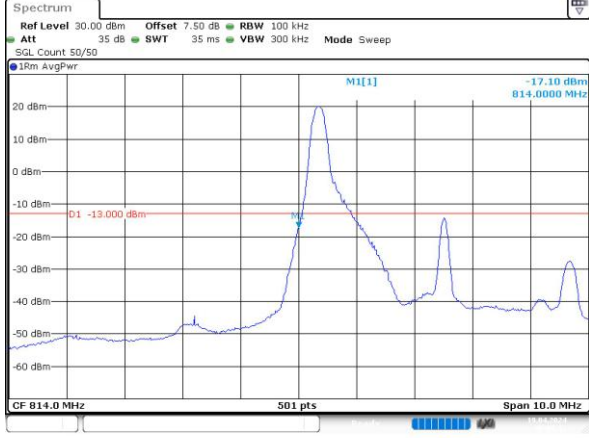
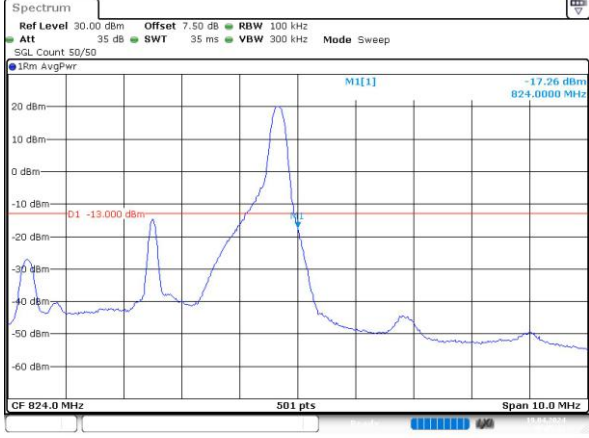
Out of band emission, Band Edge



Out of band emission, Band Edge

Mode	Lowest-RB 1#0	Highest-RB 1#Max
QPSK 10MHz	Spectrum Ref Level 30.00 dBm Offset 7.50 dB RBW 100 kHz Att 35 dB SWT 35 ms VBW 300 kHz Mode Sweep SQL Count 50/50 1Rm AvgPwr CF 814.0 MHz 501 pts Span 20.0 MHz ProjectNo.:KS1240221-08647E Tester:Loge Long Date: 19,APR,2024 00:13:13B	Spectrum Ref Level 30.00 dBm Offset 7.50 dB RBW 100 kHz Att 35 dB SWT 35 ms VBW 300 kHz Mode Sweep SQL Count 50/50 1Rm AvgPwr CF 824.0 MHz 501 pts Span 20.0 MHz ProjectNo.:KS1240221-08647E Tester:Loge Long Date: 19,APR,2024 23:11:4B
QPSK 15MHz	Spectrum Ref Level 30.00 dBm Offset 7.50 dB RBW 300 kHz Att 35 dB SWT 35 ms VBW 1 MHz Mode Sweep SQL Count 50/50 1Rm AvgPwr CF 814.0 MHz 501 pts Span 30.0 MHz ProjectNo.:KS1240221-08647E Tester:Loge Long Date: 19,APR,2024 00:37:02	

Out of band emission, Band Edge

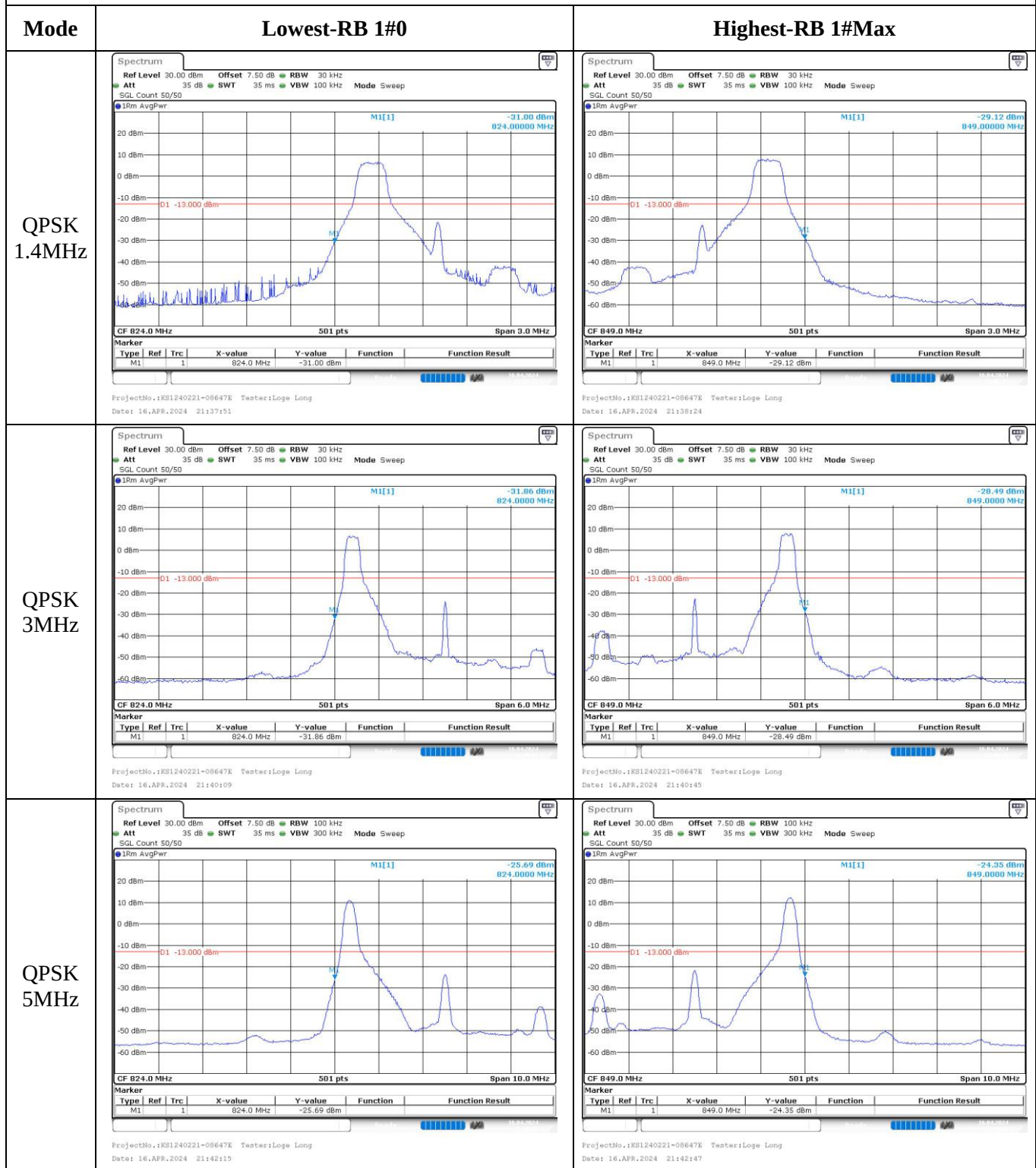
Mode	Lowest-RB 1#0	Highest-RB 1#Max
16QAM 1.4MHz	 ProjectNo.:KS1240221-08647E Tester:Loge Long Date: 19.APR.2024 00:02:23	 ProjectNo.:KS1240221-08647E Tester:Loge Long Date: 19.APR.2024 00:03:15
16QAM 3MHz	 ProjectNo.:KS1240221-08647E Tester:Loge Long Date: 19.APR.2024 00:03:45	 ProjectNo.:KS1240221-08647E Tester:Loge Long Date: 19.APR.2024 00:04:17
16QAM 5MHz	 ProjectNo.:KS1240221-08647E Tester:Loge Long Date: 19.APR.2024 00:04:53	 ProjectNo.:KS1240221-08647E Tester:Loge Long Date: 19.APR.2024 00:05:23

Out of band emission, Band Edge

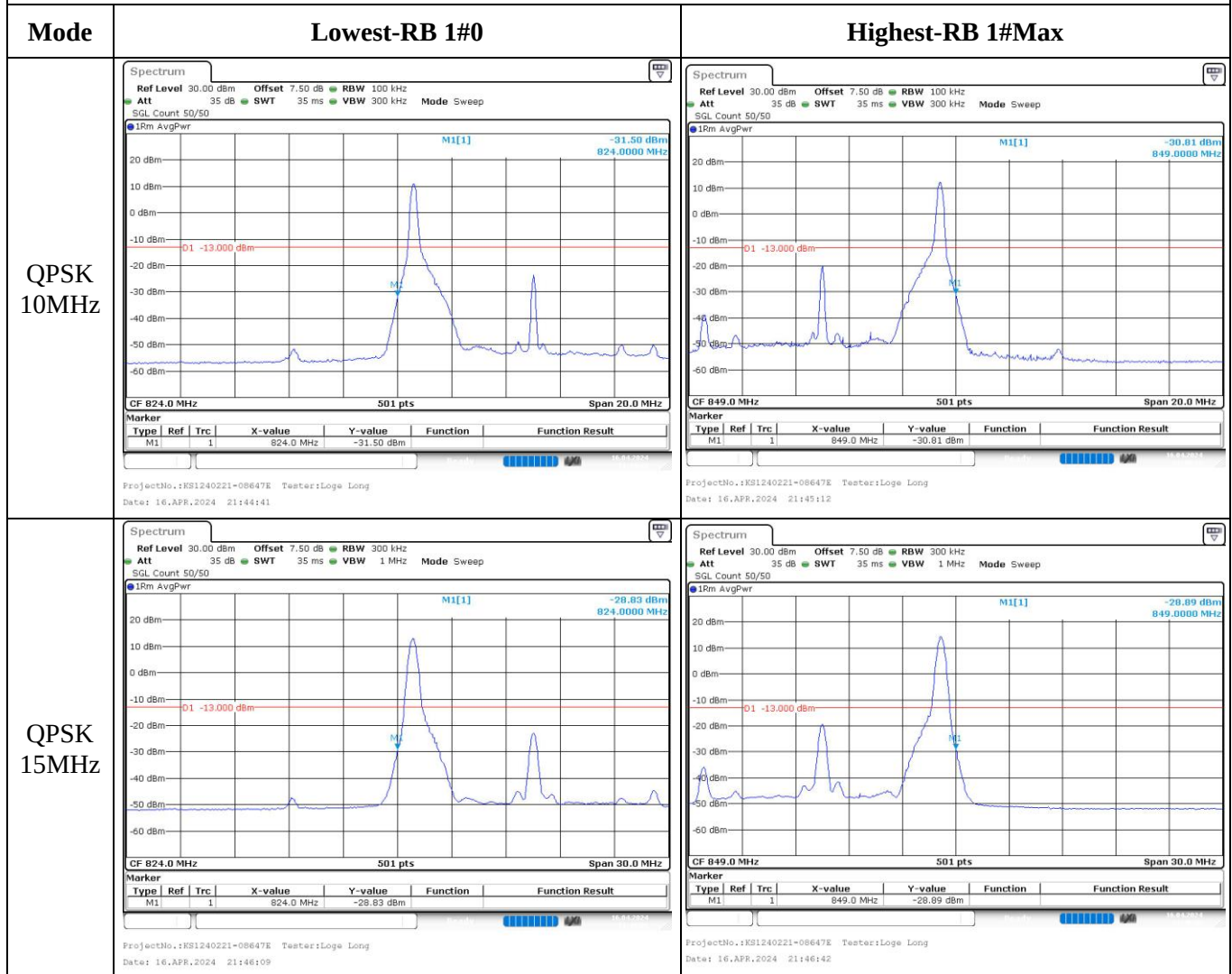
Mode	Lowest-RB 1#0	Highest-RB 1#Max
16QAM 10MHz	Spectrum Ref Level 30.00 dBm Offset 7.50 dB RBW 100 kHz Att 35 dB SWT 35 ms VBW 300 kHz Mode Sweep SQL Count 50/50 1Rm AvgPwr CF 014.0 MHz 501 pts Span 20.0 MHz ProjectNo.:KS1240221-08647E Tester:Loge Long Date: 19,APR,2024 00:35:14	Spectrum Ref Level 30.00 dBm Offset 7.50 dB RBW 100 kHz Att 35 dB SWT 35 ms VBW 300 kHz Mode Sweep SQL Count 50/50 1Rm AvgPwr CF 024.0 MHz 501 pts Span 20.0 MHz ProjectNo.:KS1240221-08647E Tester:Loge Long Date: 19,APR,2024 23:12:25
16QAM 15MHz	Spectrum Ref Level 30.00 dBm Offset 7.50 dB RBW 300 kHz Att 35 dB SWT 35 ms VBW 1 MHz Mode Sweep SQL Count 50/50 1Rm AvgPwr CF 014.0 MHz 501 pts Span 30.0 MHz ProjectNo.:KS1240221-08647E Tester:Loge Long Date: 19,APR,2024 00:37:19	

824-849MHz:

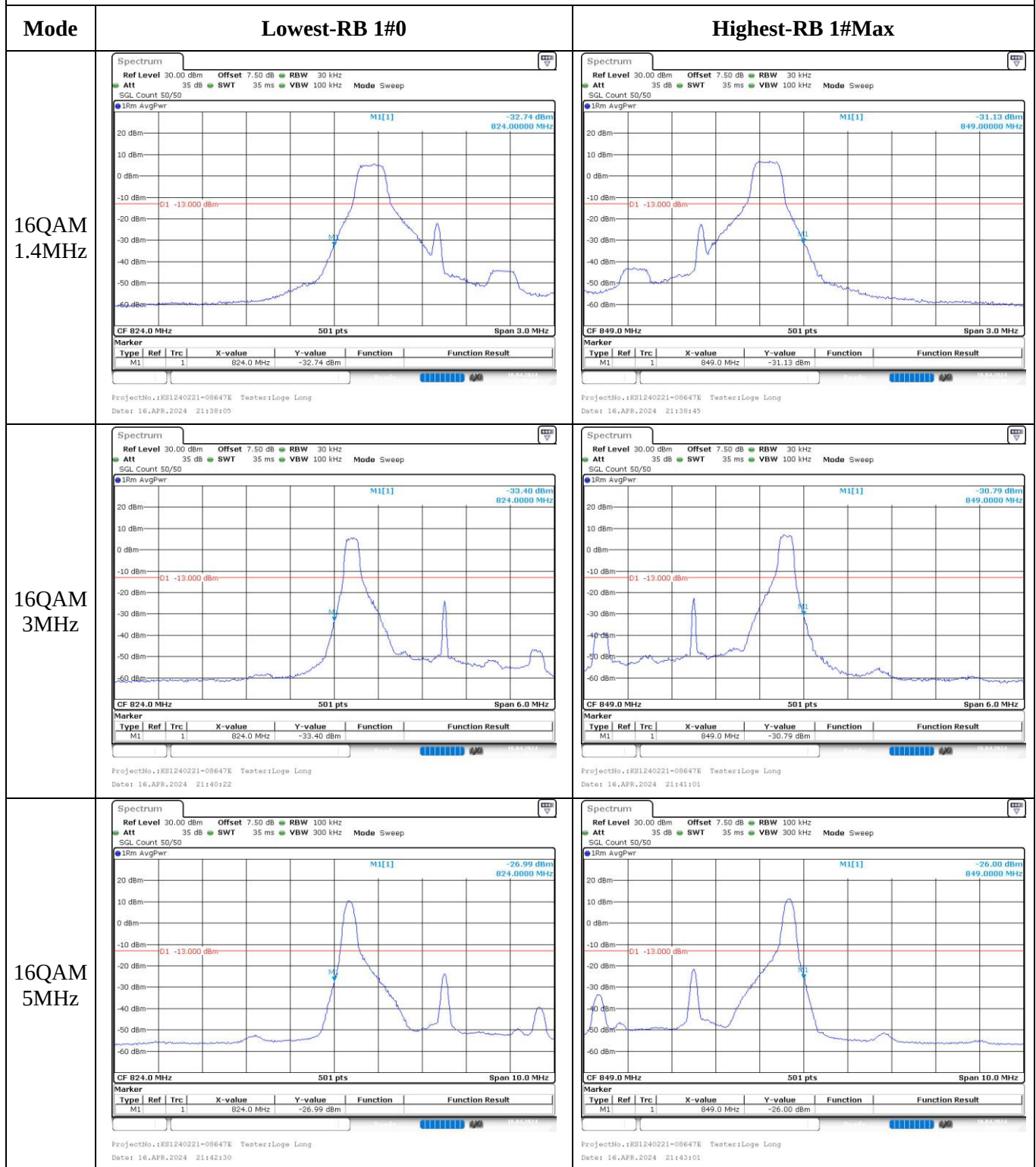
Out of band emission, Band Edge



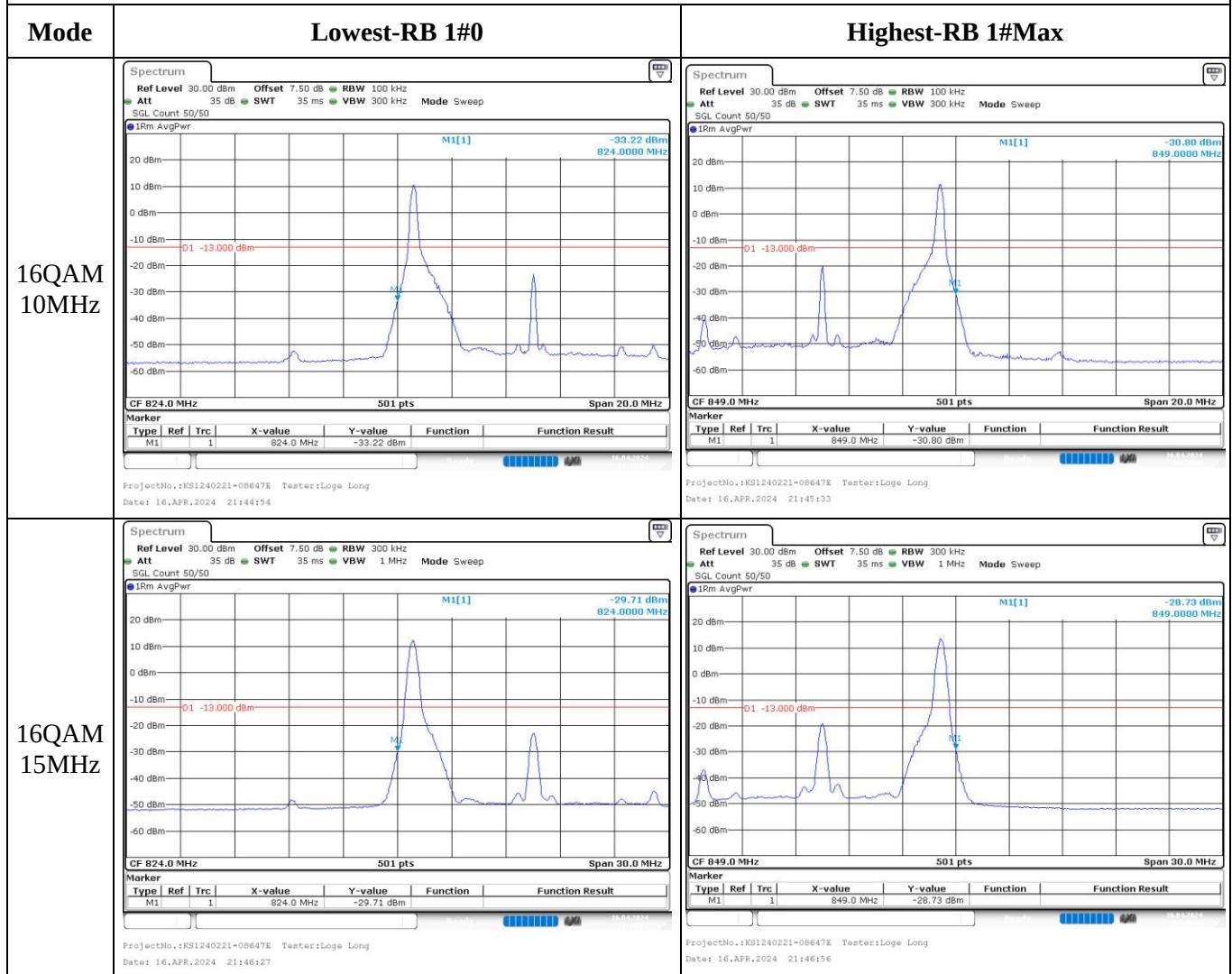
Out of band emission, Band Edge



Out of band emission, Band Edge

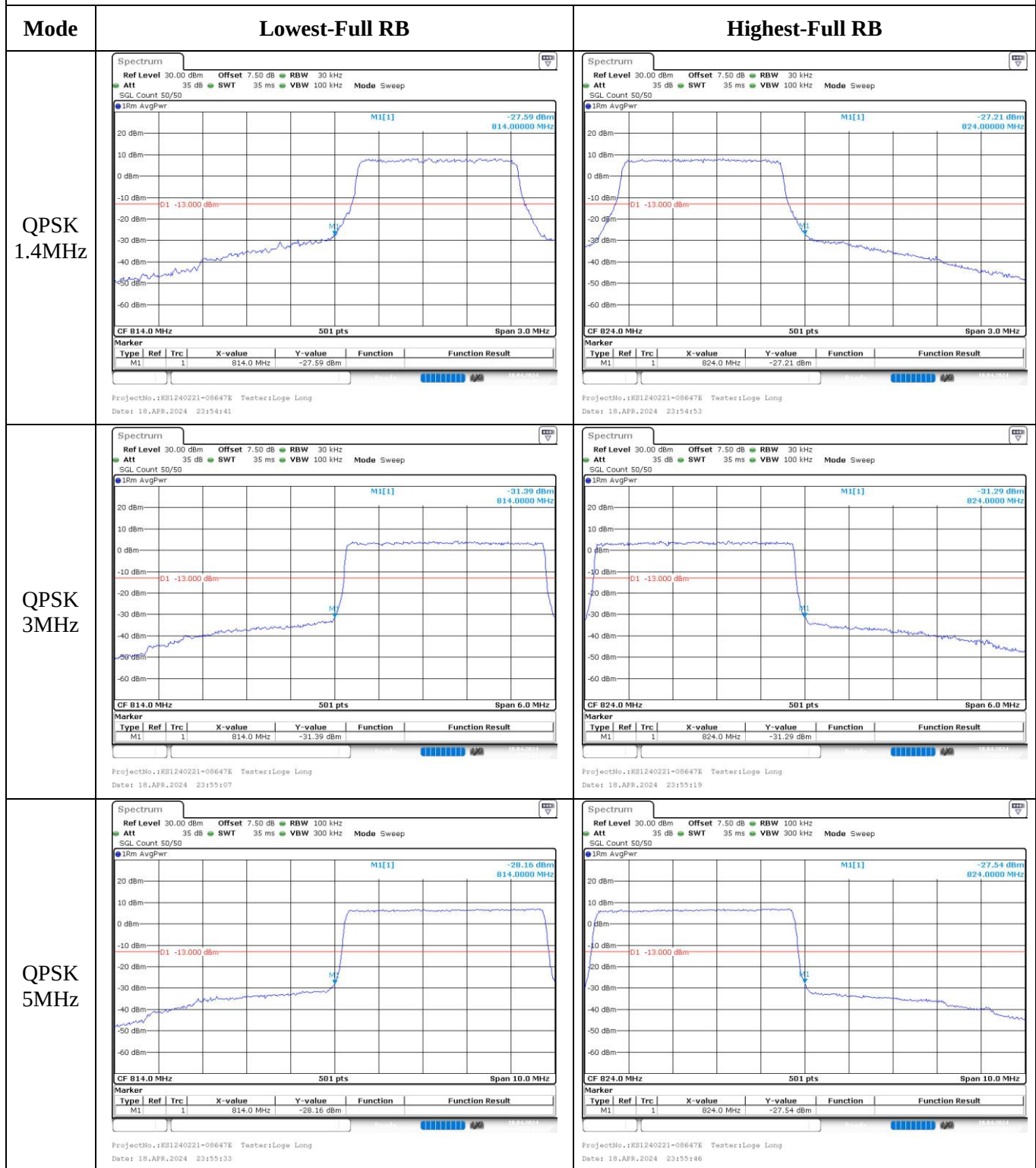


Out of band emission, Band Edge



814-824MHz:

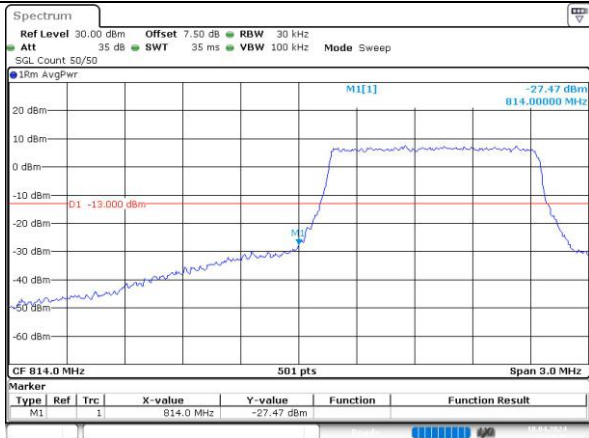
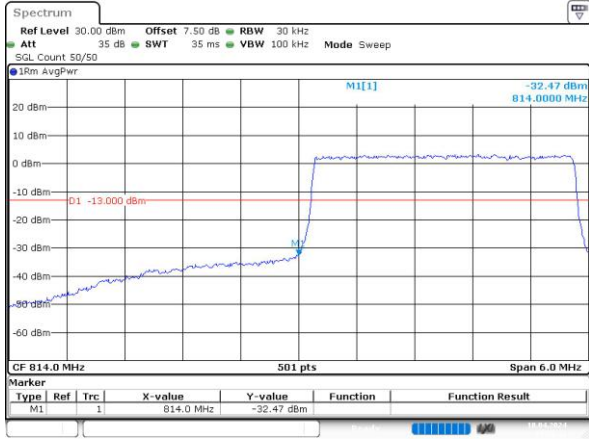
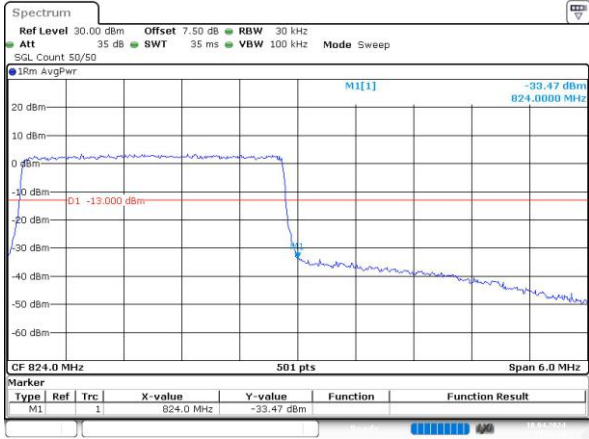
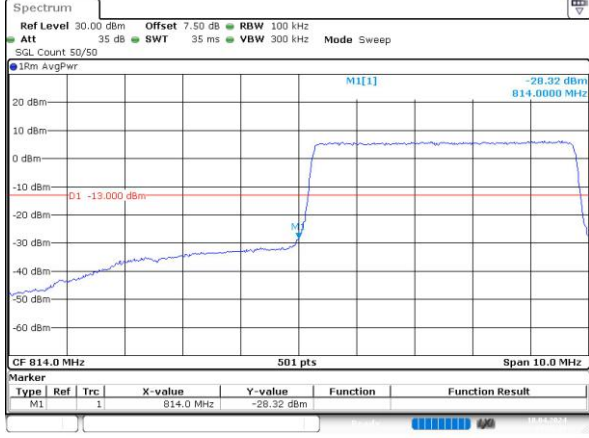
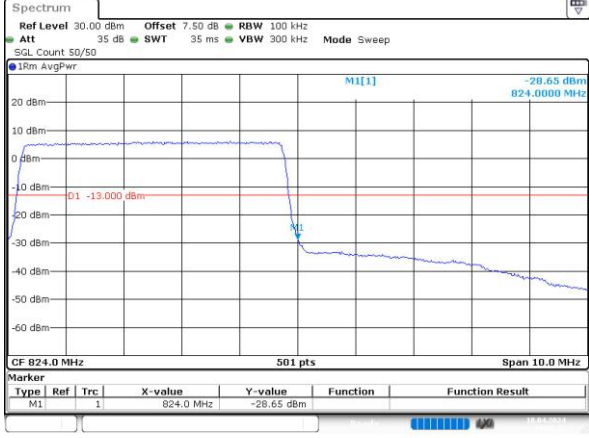
Out of band emission, Band Edge



Out of band emission, Band Edge

Mode	Lowest-Full RB	Highest-Full RB
QPSK 10MHz	Spectrum Ref Level 30.00 dBm Offset 7.50 dB RBW 100 kHz Att 35 dB SWT 35 ms VBW 300 kHz Mode Sweep SQL Count 50/50 CF 814.0 MHz 501 pts Span 20.0 MHz ProjectNo.:KS1240221-08647E Tester:Loge Long Date: 19.APR.2024 00:31:53	Spectrum Ref Level 30.00 dBm Offset 7.50 dB RBW 100 kHz Att 35 dB SWT 35 ms VBW 300 kHz Mode Sweep SQL Count 50/50 CF 824.0 MHz 501 pts Span 20.0 MHz ProjectNo.:KS1240221-08647E Tester:Loge Long Date: 19.APR.2024 23:14:18
QPSK 15MHz	Spectrum Ref Level 30.00 dBm Offset 7.50 dB RBW 300 kHz Att 35 dB SWT 35 ms VBW 1 MHz Mode Sweep SQL Count 50/50 CF 814.0 MHz 501 pts Span 30.0 MHz ProjectNo.:KS1240221-08647E Tester:Loge Long Date: 19.APR.2024 00:32:42	

Out of band emission, Band Edge

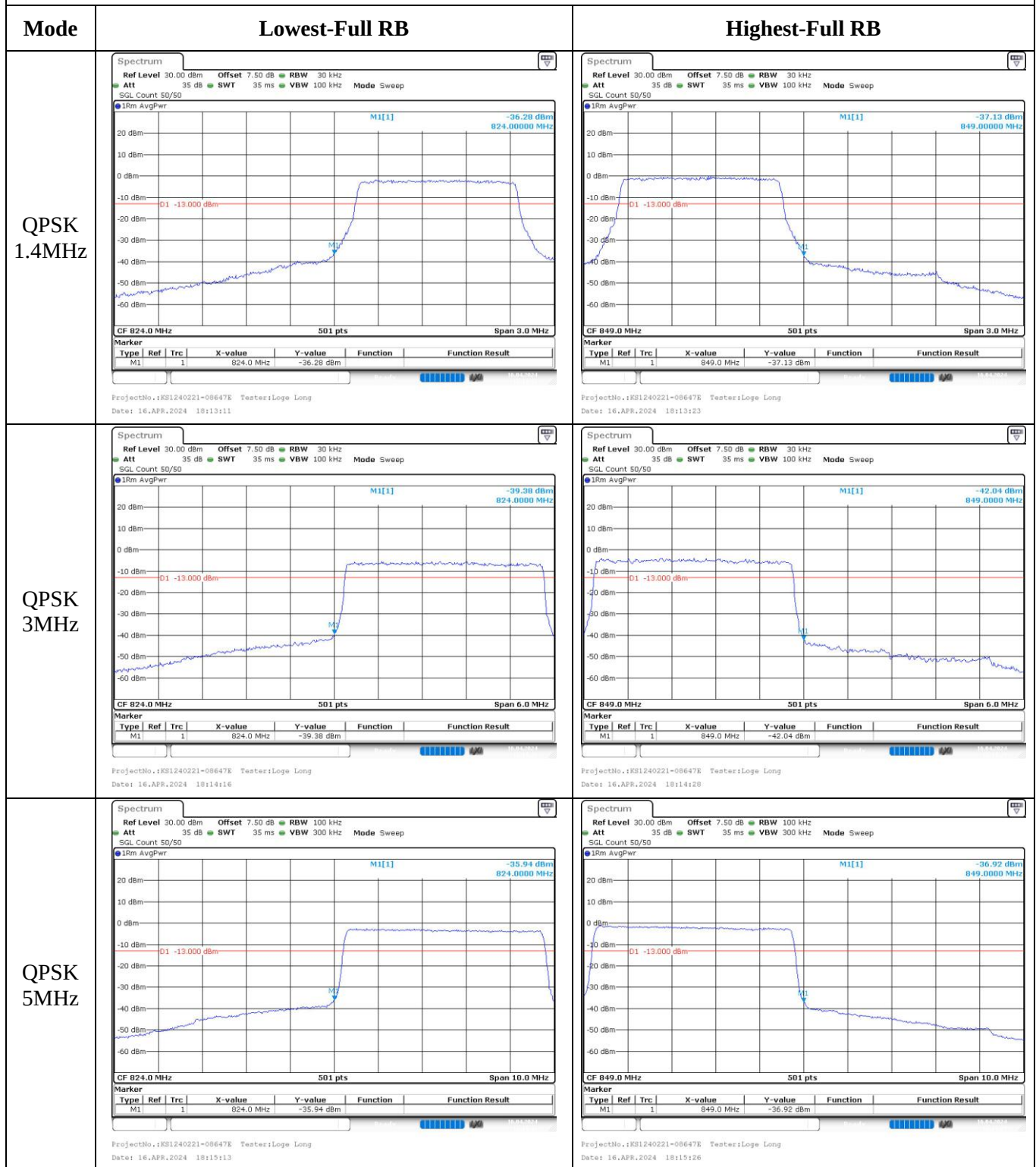
Mode	Lowest-Full RB	Highest-Full RB
16QAM 1.4MHz	 ProjectNo.:KS1240221-08647E Tester:Loge Long Date: 18.APR.2024 23:54:46	 ProjectNo.:KS1240221-08647E Tester:Loge Long Date: 18.APR.2024 23:54:58
16QAM 3MHz	 ProjectNo.:KS1240221-08647E Tester:Loge Long Date: 18.APR.2024 23:55:13	 ProjectNo.:KS1240221-08647E Tester:Loge Long Date: 18.APR.2024 23:55:25
16QAM 5MHz	 ProjectNo.:KS1240221-08647E Tester:Loge Long Date: 18.APR.2024 23:55:39	 ProjectNo.:KS1240221-08647E Tester:Loge Long Date: 18.APR.2024 23:55:51

Out of band emission, Band Edge

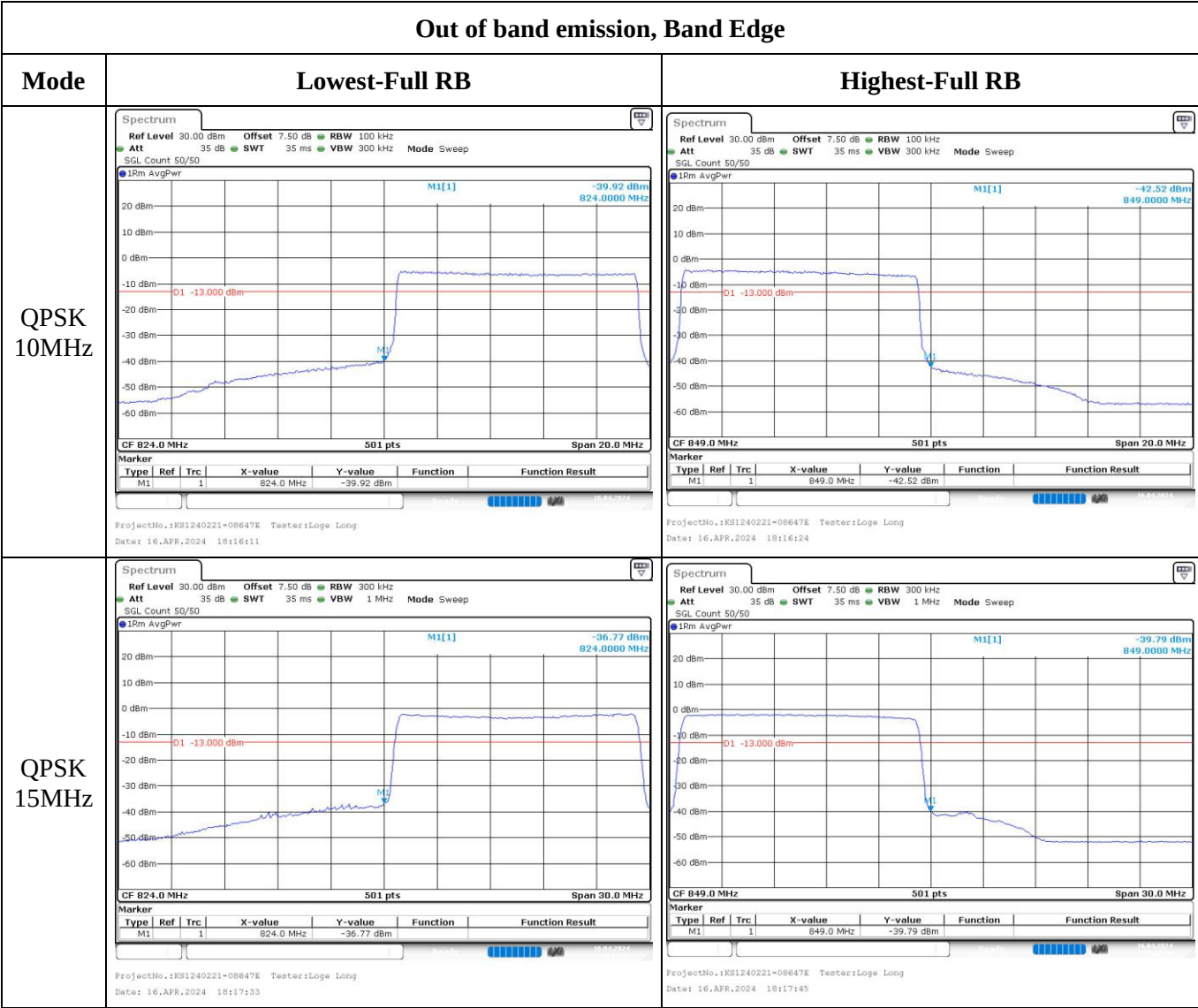
Mode	Lowest-Full RB	Highest-Full RB
16QAM 10MHz	Spectrum Ref Level 30.00 dBm Offset 7.50 dB RBW 100 kHz Att 35 dB SWT 35 ms VBW 300 kHz Mode Sweep SQL Count 50/50 1Rm AvgPwr CF 814.0 MHz 501 pts Span 20.0 MHz ProjectNo.:KS1240221-08647E Tester:Loge Long Date: 19.APR.2024 00:31:59	Spectrum Ref Level 30.00 dBm Offset 7.50 dB RBW 100 kHz Att 35 dB SWT 35 ms VBW 300 kHz Mode Sweep SQL Count 50/50 1Rm AvgPwr CF 824.0 MHz 501 pts Span 20.0 MHz ProjectNo.:KS1240221-08647E Tester:Loge Long Date: 19.APR.2024 23:13:49
16QAM 15MHz	Spectrum Ref Level 30.00 dBm Offset 7.50 dB RBW 300 kHz Att 35 dB SWT 35 ms VBW 1 MHz Mode Sweep SQL Count 50/50 1Rm AvgPwr CF 814.0 MHz 501 pts Span 30.0 MHz ProjectNo.:KS1240221-08647E Tester:Loge Long Date: 19.APR.2024 00:32:47	

824-849MHz:

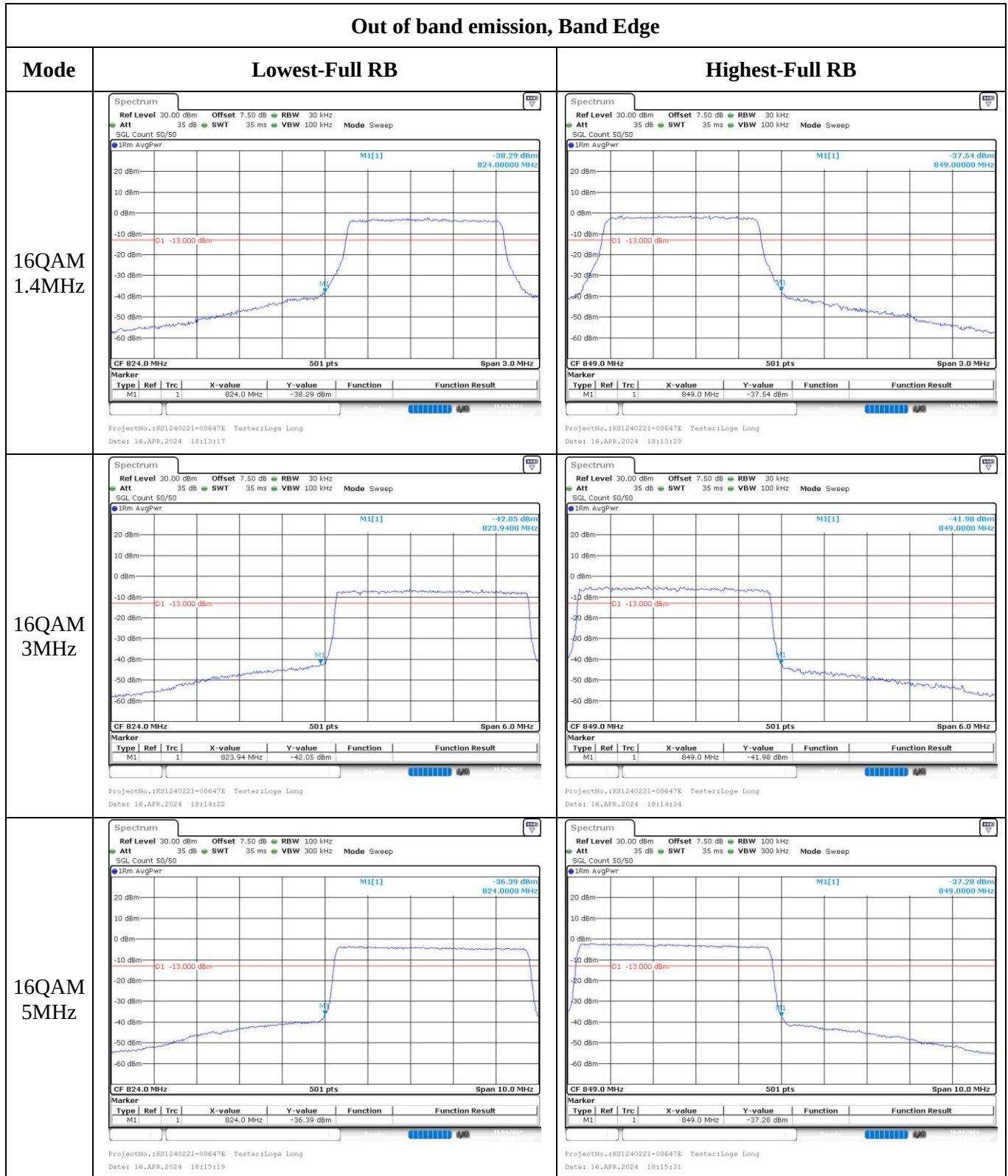
Out of band emission, Band Edge



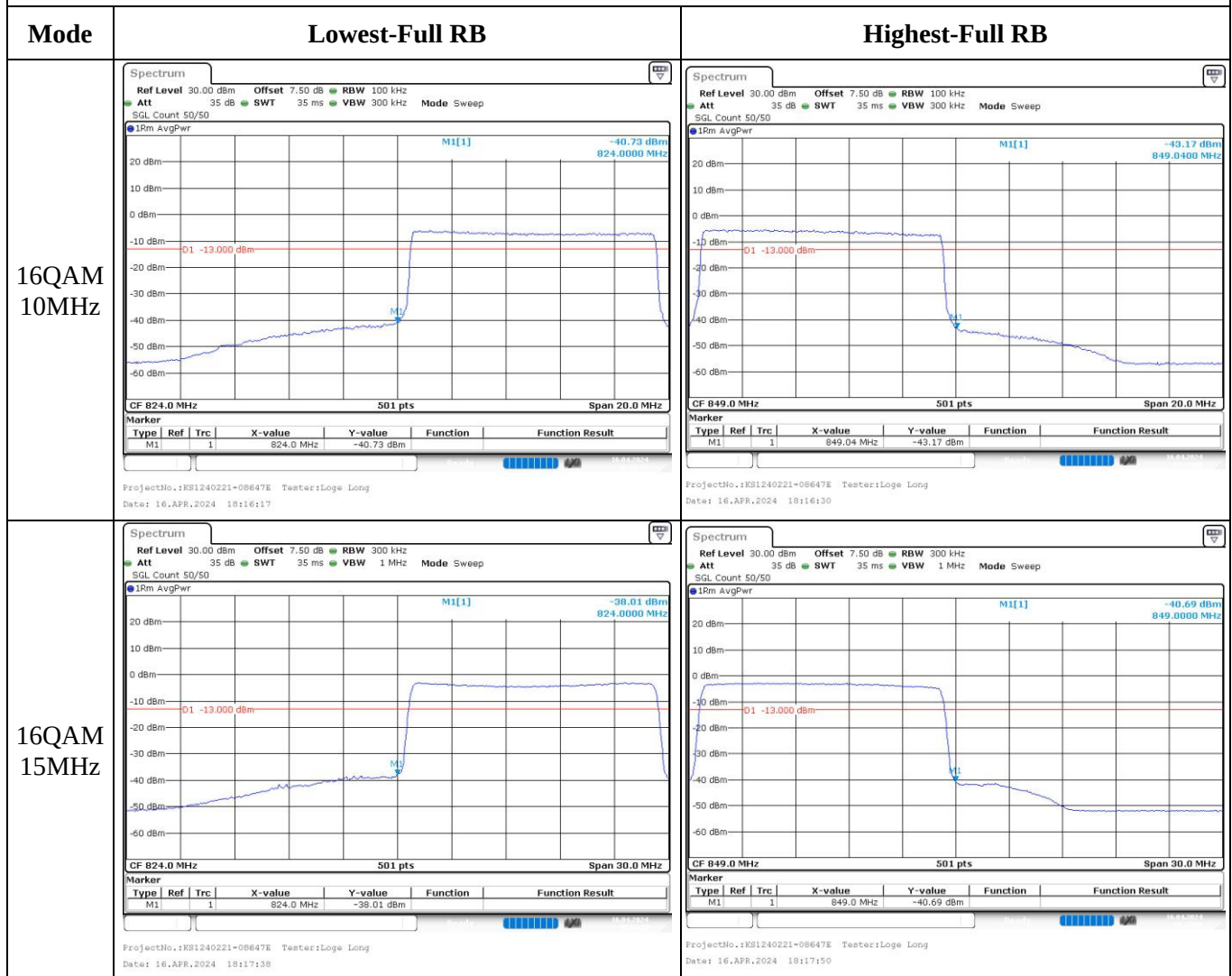
Out of band emission, Band Edge



Out of band emission, Band Edge



Out of band emission, Band Edge



5.14 Antenna Port Test Data and Results for LTE Band 38

Serial Number:	2HV7-2	Test Date:	2024/4/16~2024/4/19
Test Site:	RF	Test Mode:	Transmitting
Tester:	Loge Long	Test Result:	Pass

Environmental Conditions:					
Temperature: (°C)	26.4~28.1	Relative Humidity: (%)	46~61	ATM Pressure: (kPa)	100.1~100.5

Test Equipment List and Details:					
Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	Spectrum Analyzer	FSV40	101461	2023/11/27	2024/11/26
Minl-Circuits	Coaxial Power Splitters & Combiner	ZFRSC-183-S+	SF448201614	2024/2/25	2025/2/24
R&S	Wideband Radio Communication Tester	CMW500	110479	2023/10/18	2024/10/17
BACL	TEMP&HUMI Test Chamber	BTH-150-40	30173	2023/10/18	2024/10/17
All-sun	Clamp Meter	EM305A	8348897	2023/8/3	2024/8/2
Micro-Coax	Coaxial Cable	UFB205A	323308-024	2024/1/2	2025/1/1
TDK-Lambda	DC Power Supply	Z+60-14	F-08-EM038-1	N/A	N/A

Test Frequency For Each Mode:			
Operation Bandwidth	Lowest Frequency (MHz)	Middle Frequency (MHz)	Highest Frequency (MHz)
5MHz	2572.5	2595	2617.5
10MHz	2575	2595	2615
15MHz	2577.5	2595	2612.5
20MHz	2580	2595	2610

Test Data:**FCC §2.1046; § 27.50(h)(2)****RF Output Power:**

Test Bandwidth & Modulation	Resource Block & RB offset	Conducted Average Output Power(dBm)			Maximum EIRP (dBm)	EIRP Limit (dBm)
		Lowest Channel	Middle Channel	Highest Channel		
5MHz QPSK	RB1#0	22.16	22.58	22.71	25.63	33
	RB1#13	22.32	22.73	22.84		
	RB1#24	22.21	22.62	22.74		
	RB15#0	21.26	21.70	21.75		
	RB15#10	21.24	21.70	21.78		
	RB25#0	21.23	21.64	21.79		
5MHz 16QAM	RB1#0	21.39	21.55	21.73	24.67	33
	RB1#13	21.49	21.72	21.88		
	RB1#24	21.41	21.57	21.76		
	RB15#0	20.28	20.60	20.78		
	RB15#10	20.31	20.58	20.83		
	RB25#0	20.22	20.62	20.83		
10MHz QPSK	RB1#0	22.19	22.68	22.85	25.94	33
	RB1#25	22.57	23.01	23.15		
	RB1#49	22.42	22.72	22.87		
	RB25#0	21.29	21.76	21.87		
	RB25#25	21.38	21.73	21.93		
	RB50#0	21.32	21.70	21.87		
10MHz 16QAM	RB1#0	21.37	21.48	21.91	24.98	33
	RB1#25	21.70	21.83	22.19		
	RB1#49	21.55	21.63	21.94		
	RB25#0	20.28	20.74	20.85		
	RB25#25	20.33	20.73	20.96		
	RB50#0	20.31	20.71	20.94		
15MHz QPSK	RB1#0	21.78	22.47	22.78	25.67	33
	RB1#38	22.13	22.70	22.88		
	RB1#74	22.22	22.68	22.78		
	RB36#0	21.25	21.78	21.92		
	RB36#39	21.41	21.81	21.94		
	RB75#0	21.37	21.80	21.90		
15MHz 16QAM	RB1#0	21.19	21.41	21.92	24.86	33
	RB1#38	21.42	21.58	22.07		
	RB1#74	21.47	21.56	21.99		
	RB36#0	20.29	20.66	20.90		
	RB36#39	20.41	20.69	20.95		
	RB75#0	20.38	20.75	20.87		
20MHz QPSK	RB1#0	21.72	22.18	22.32	25.73	33
	RB1#50	22.44	22.89	22.94		
	RB1#99	22.21	22.56	22.47		

20MHz 16QAM	RB50#0	21.12	21.63	21.69	24.7	33
	RB50#50	21.18	21.64	21.70		
	RB100#0	21.21	21.67	21.73		
	RB1#0	21.15	21.23	21.37		
	RB1#50	21.76	21.85	21.91		
	RB1#99	21.42	21.50	21.41		
	RB50#0	20.20	20.51	20.68		
	RB50#50	20.26	20.47	20.75		
	RB100#0	20.22	20.50	20.66		

Note: EIRP=Conducted Power(dBm) - Lc(dB) + G_T(dBi)

Result:**Pass****Peak-to-average Ratio(PAR)**

Test Bandwidth & Modulation	Resource Block & RB offset	Peak-to-average Ratio(dB)			Limit (dB)
		Lowest Channel	Middle Channel	Highest Channel	
20MHz QPSK	RB1#0	8.41	7.91	8.03	13
	RB100#0	8.14	8.06	8.29	13
20MHz 16QAM	RB1#0	9.33	8.72	8.87	13
	RB100#0	9.83	9.71	9.86	13
				Result:	Pass

FCC §2.1049, §27.53:Occupied Bandwidth

Operation Mode	99% Occupied Bandwidth (MHz)			26 dB Occupied Bandwidth (MHz)		
	Low Channel	Middle channel	High Channel	Low Channel	Middle Channel	High Channel
5MHz QPSK	4.511	4.491	4.491	5.500	5.120	4.940
5MHz 16QAM	4.491	4.511	4.491	5.420	5.100	5.160
10MHz QPSK	8.942	8.942	8.942	9.760	9.840	9.520
10MHz 16QAM	8.942	8.942	8.982	9.600	9.640	10.240
15MHz QPSK	13.533	13.533	13.473	17.340	15.360	15.840
15MHz 16QAM	13.533	13.533	13.593	15.960	16.200	16.740
20MHz QPSK	17.884	17.884	17.964	19.920	20.400	19.840
20MHz 16QAM	17.964	17.884	17.964	21.200	19.520	20.480

Note: The test plots please refer to the Plots of Occupied Bandwidth

FCC §2.1051, §27.53:Spurious Emissions at Antenna Terminal

Result:	Pass, Please refer to the test plots of Spurious Emissions at Antenna Terminal.
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FCC §2.1051, §27.53:Out of band emission, Band Edge

Result:	Pass, Please refer to the test plots of Out of band emission, Band Edge.
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FCC §2.1055, §27.54: Frequency Stability						
Test Mode:	20M QPSK	Test Channel: Lowest for Lower Edge,Highest for Upper Edge				
Test Item	Temperature (°C)	Voltage (V _{DC})	Lower Edge (MHz)		Upper Edge (MHz)	
			Result	Limit	Result	Limit
Frequency Stability vs. Temperature	-30	3.8	2571.034	2570.00	2619.001	2620
	-20	3.8	2571.034	2570.00	2619.016	2620
	-10	3.8	2571.034	2570.00	2619.004	2620
	0	3.8	2571.049	2570.00	2619.019	2620
	10	3.8	2571.031	2570.00	2619.010	2620
	20	3.8	2571.058	2570.00	2619.022	2620
	30	3.8	2571.061	2570.00	2619.037	2620
	40	3.8	2571.064	2570.00	2619.031	2620
	50	3.8	2571.067	2570.00	2619.049	2620
Frequency Stability vs. Voltage	20	3.4	2571.073	2570.00	2619.028	2620
	20	4.35	2571.082	2570.00	2619.028	2620
					Result:	Pass

Test Mode:	20M 16QAM	Test Channel: Lowest for Lower Edge,Highest for Upper Edge				
Test Item	Temperature (°C)	Voltage (V _{DC})	Lower Edge (MHz)		Upper Edge (MHz)	
			Result	Limit	Result	Limit
Frequency Stability vs. Temperature	-30	3.8	2570.966	2570.00	2619.016	2620
	-20	3.8	2570.963	2570.00	2618.995	2620
	-10	3.8	2570.969	2570.00	2619.007	2620
	0	3.8	2570.957	2570.00	2619.016	2620
	10	3.8	2570.963	2570.00	2619.013	2620
	20	3.8	2570.978	2570.00	2619.022	2620
	30	3.8	2570.996	2570.00	2619.031	2620
	40	3.8	2570.999	2570.00	2619.049	2620
	50	3.8	2571.005	2570.00	2619.028	2620
Frequency Stability vs. Voltage	20	3.4	2570.981	2570.00	2619.028	2620
	20	4.35	2571.002	2570.00	2619.043	2620
					Result:	Pass

Test Plots:

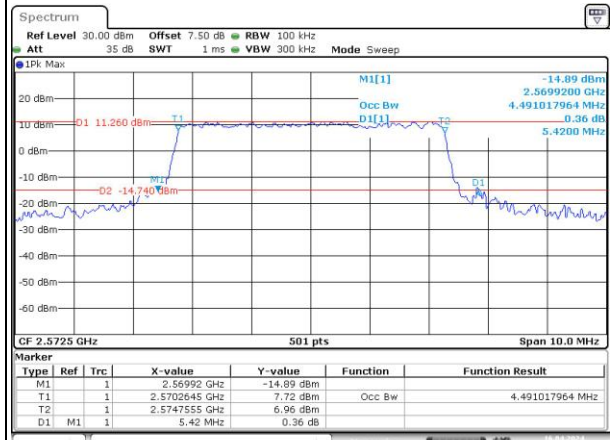
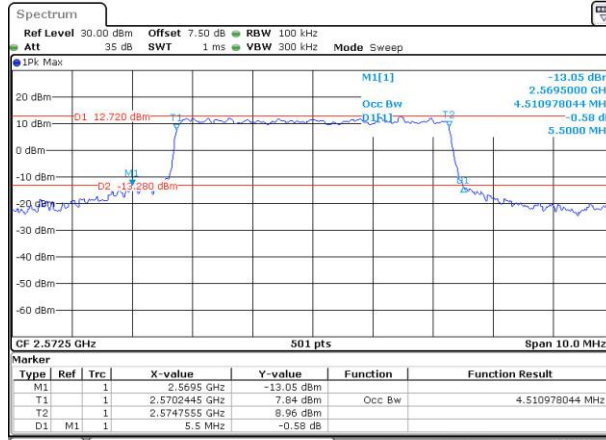
Occupied Bandwidth

Channel

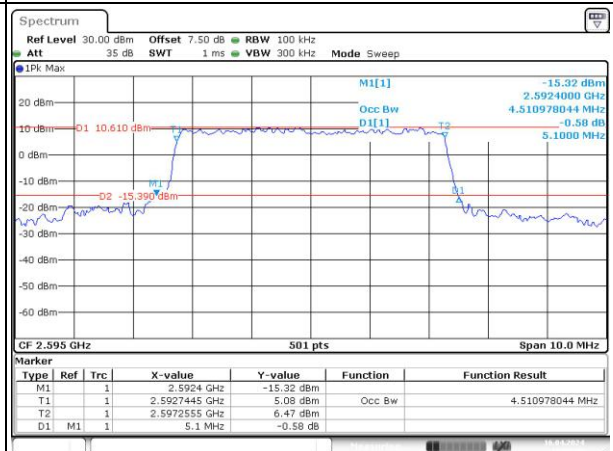
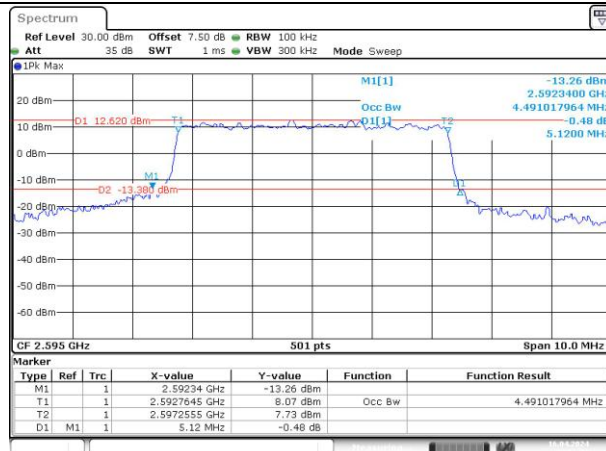
5MHz Bandwidth QPSK

5MHz Bandwidth 16QAM

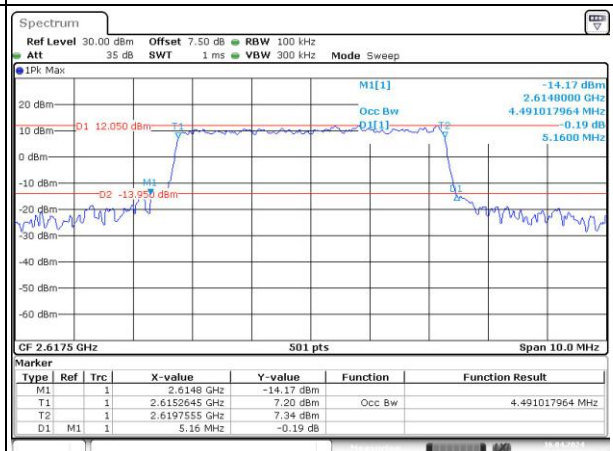
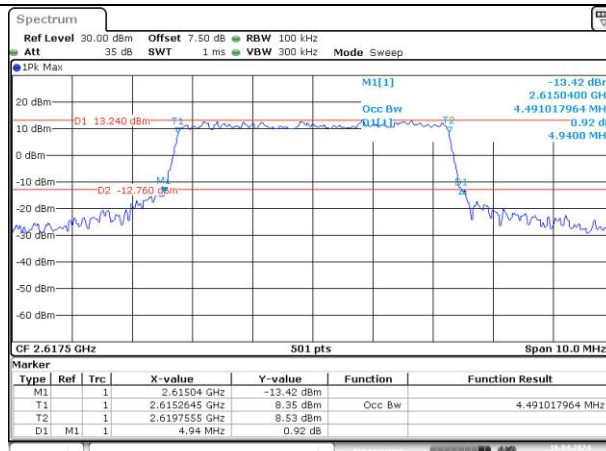
Lowest



Middle



Highest



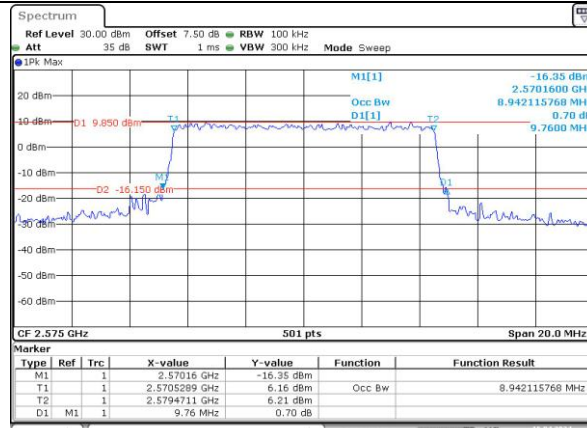
Occupied Bandwidth

Channel

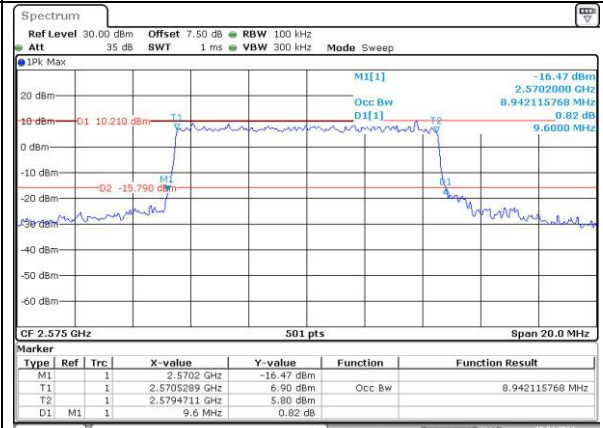
10MHz Bandwidth QPSK

10MHz Bandwidth 16QAM

Lowest

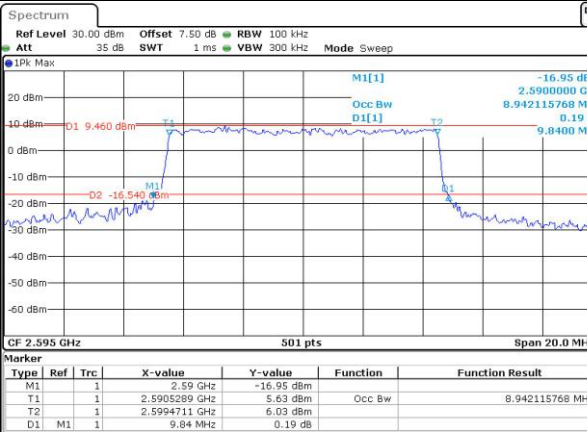


ProjectNo.:KS1240221-08647E Tester:Loge Long
Date: 16.APR.2024 10:11:05

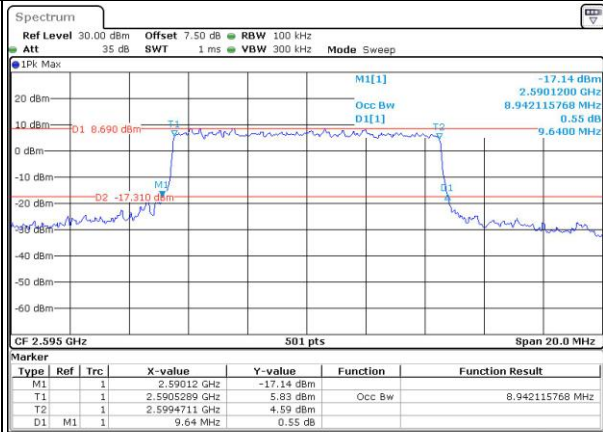


ProjectNo.:KS1240221-08647E Tester:Loge Long
Date: 16.APR.2024 10:11:43

Middle

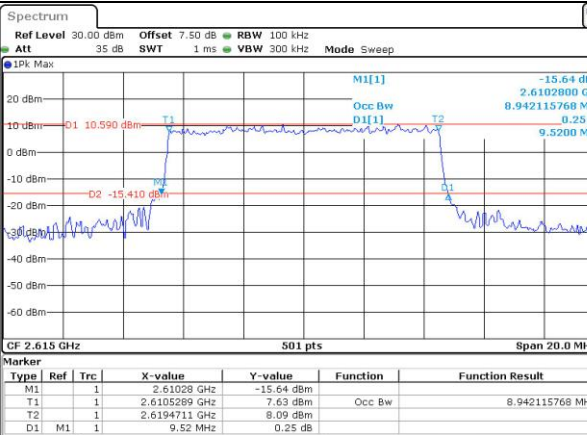


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Date: 16.APR.2024 10:12:15

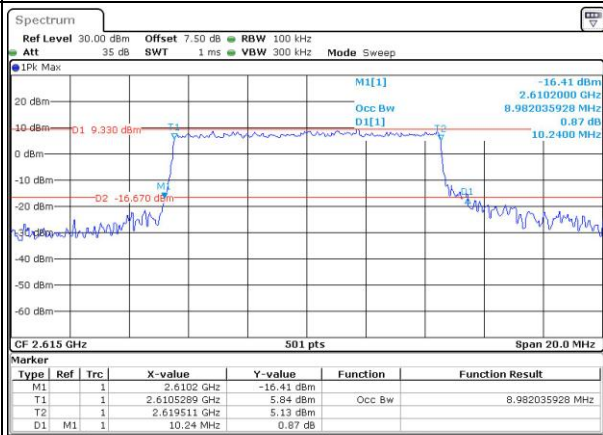


ProjectNo.:KS1240221-08647E Tester:Loge Long
Date: 16.APR.2024 10:12:53

Highest



ProjectNo.:KS1240221-08647E Tester:Loge Long
Date: 16.APR.2024 10:13:31



ProjectNo.:KS1240221-08647E Tester:Loge Long
Date: 16.APR.2024 10:14:19

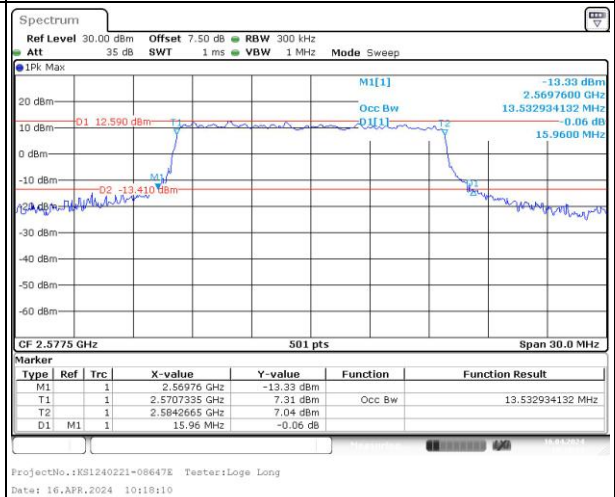
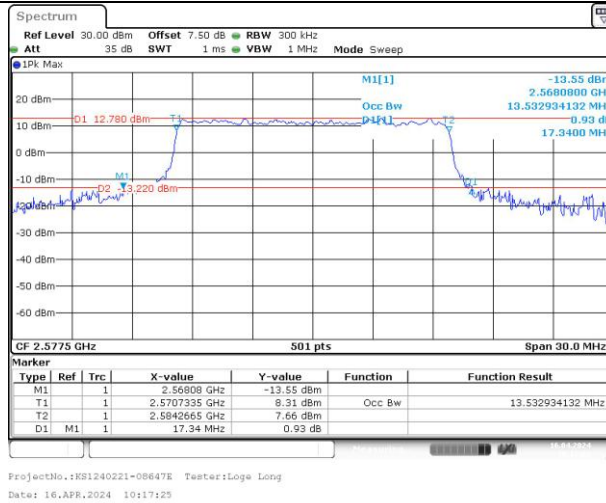
Occupied Bandwidth

Channel

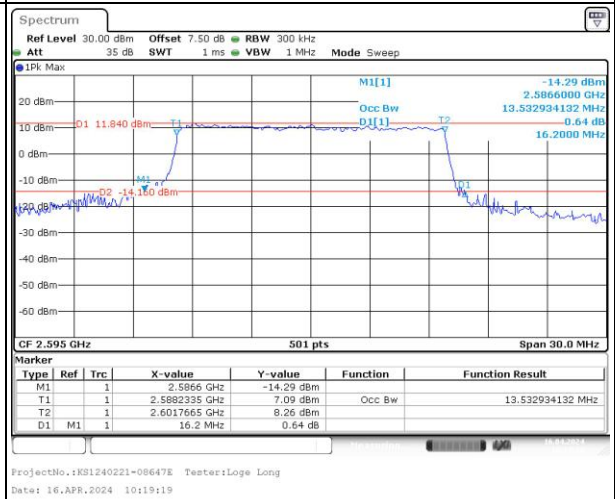
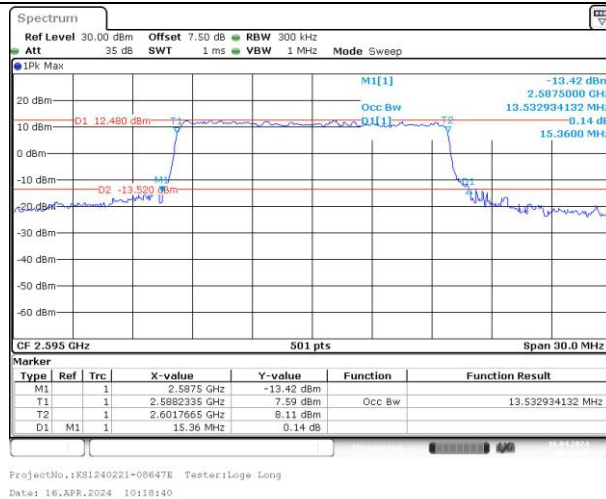
15MHz Bandwidth QPSK

15MHz Bandwidth 16QAM

Lowest



Middle



Highest

