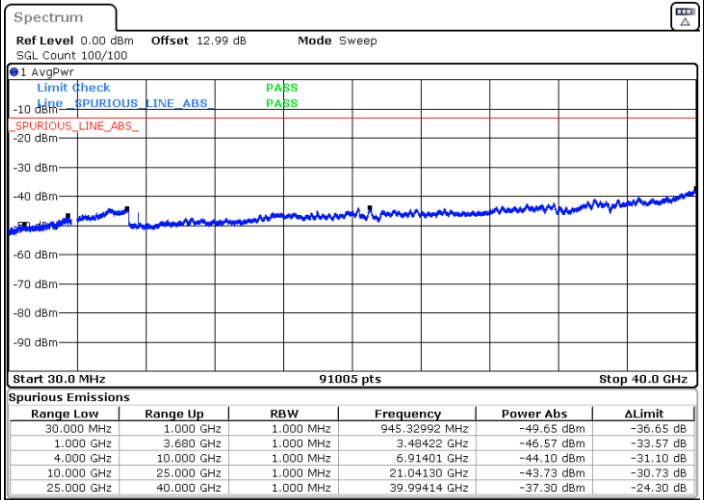
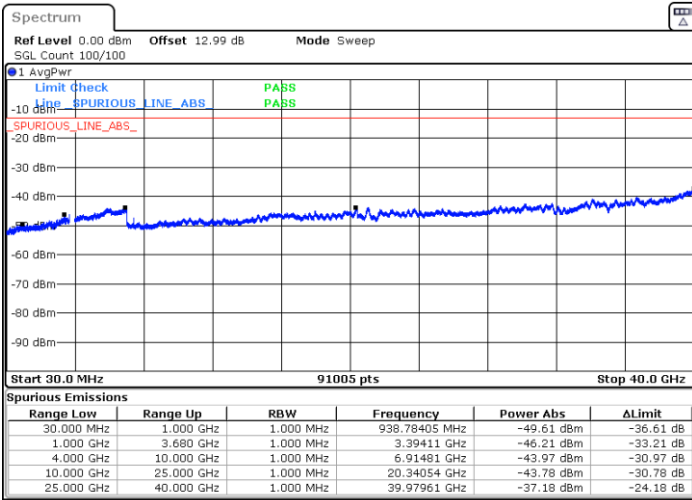




FR1 n78 / 90MHz / DFT-S OFDM / QPSK

Lowest Channel / 1RB1

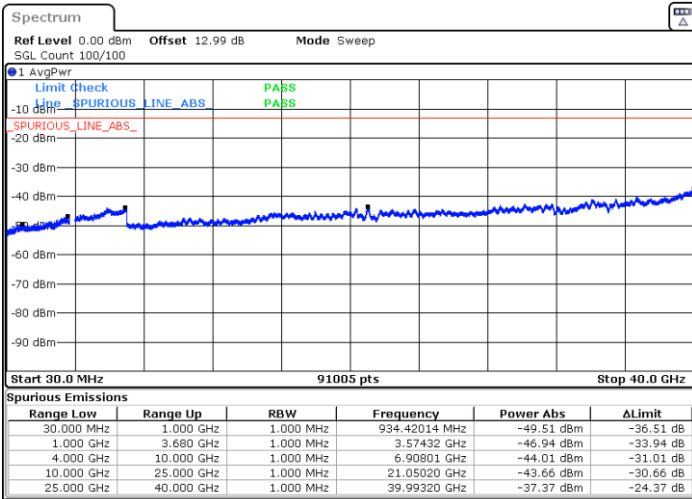
Middle Channel / 1RB1



Date: 30.MAY.2022 16:58:04

Date: 30.MAY.2022 16:59:32

Highest Channel / 1RB1



Date: 30.MAY.2022 17:00:51



Frequency Stability

Test Conditions		FR1 n77 (QPSK) / Middle Channel	Limit
Temperature (°C)	Voltage (Volt)	BW 20MHz	Note 2.
		Deviation (ppm)	Result
50	Normal Voltage	0.0012	PASS
40	Normal Voltage	0.0002	
30	Normal Voltage	0.0026	
20(Ref.)	Normal Voltage	0.0000	
10	Normal Voltage	0.0010	
0	Normal Voltage	0.0014	
-10	Normal Voltage	0.0021	
-20	Normal Voltage	0.0006	
-30	Normal Voltage	0.0030	
20	Maximum Voltage	0.0066	
20	Normal Voltage	0.0036	
20	Battery End Point	0.0031	

Note:

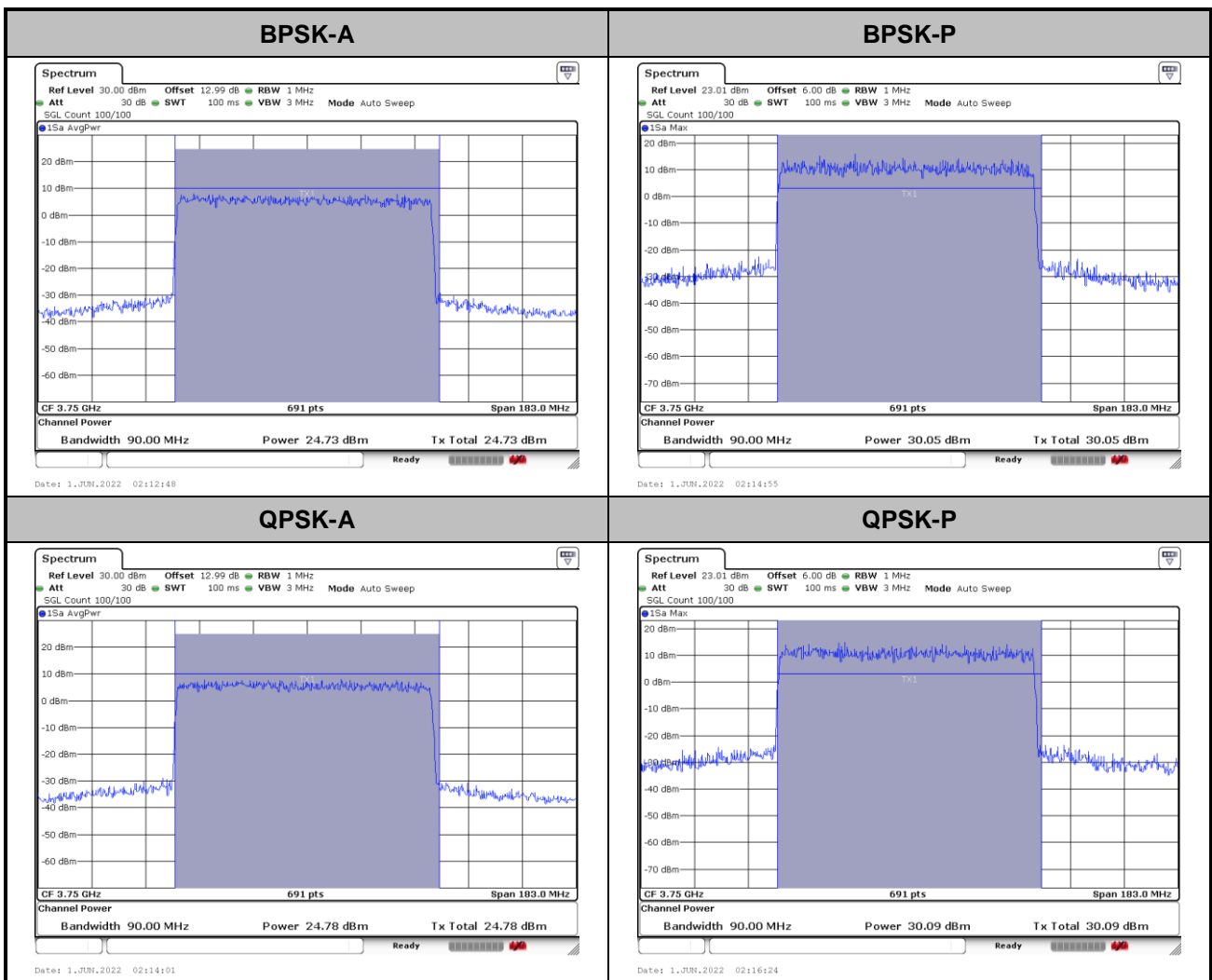
1. Normal Voltage =3.87 V. ; Battery End Point (BEP) =3.55 V. ; Maximum Voltage =4.45V.
2. Note: The frequency fundamental emissions stay within the authorized frequency block.



# FR1 n78

## Peak-to-Average Ratio

Mode	FR1 n78 / 100MHz / DFT-S OFDM		
Mod.	100M		Limit: 13dB
RB Size	BPSK	QPSK	Result
Middle CH	5.32	5.31	PASS





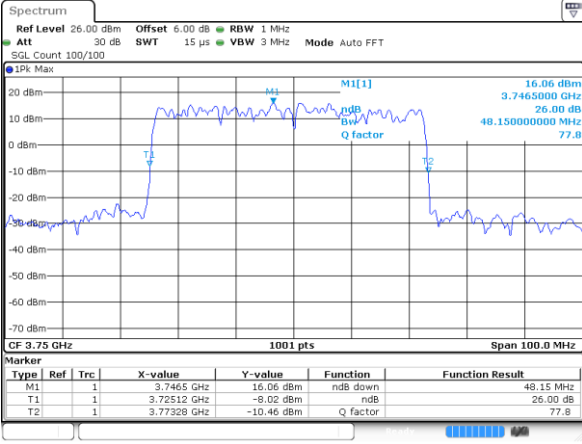
**26dB Bandwidth**

Mode	FR1 n78 : 26dB BW(MHz) / DFT-S OFDM				
<b>BW</b>	<b>50M</b>				
<b>Mod.</b>	-	<b>QPSK</b>	<b>16QAM</b>	<b>64QAM</b>	<b>256QAM</b>
<b>Middle CH</b>	-	48.15	48.15	48.05	48.15
<b>BW</b>	<b>70M</b>				
<b>Mod.</b>	-	<b>QPSK</b>	<b>16QAM</b>	<b>64QAM</b>	<b>256QAM</b>
<b>Middle CH</b>	-	68.93	68.45	69.05	68.69
<b>BW</b>	<b>90M</b>				
<b>Mod.</b>	-	<b>QPSK</b>	<b>16QAM</b>	<b>64QAM</b>	<b>256QAM</b>
<b>Middle CH</b>	-	91.35	91.17	91.35	91.71



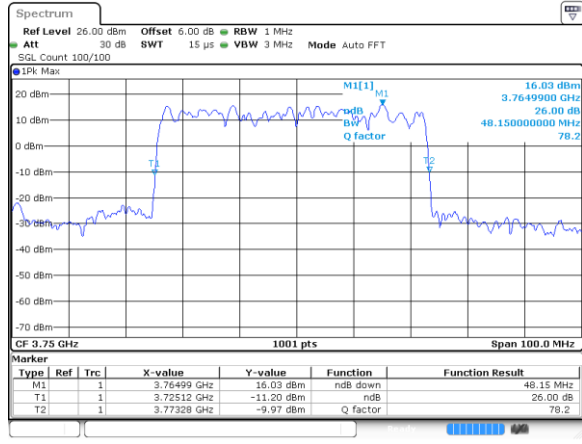
50M

QPSK



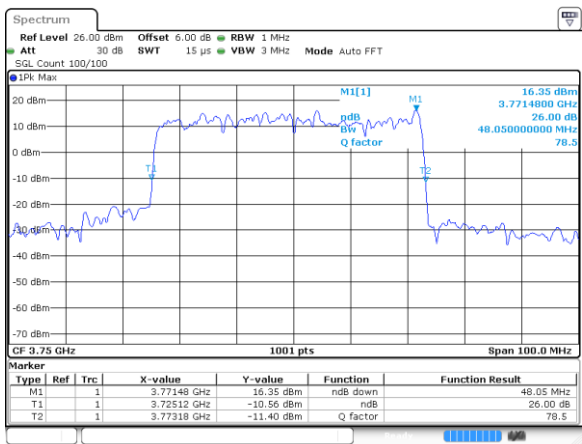
Date: 30 MAY 2022 17:54:19

16QAM



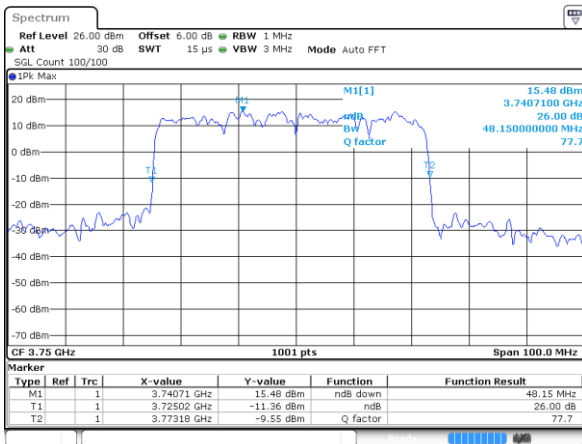
Date: 30 MAY 2022 17:55:48

64QAM



Date: 30 MAY 2022 17:56:13

256QAM

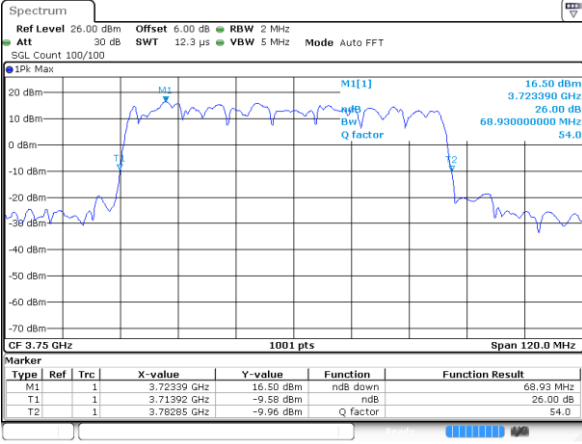


Date: 30 MAY 2022 17:58:22



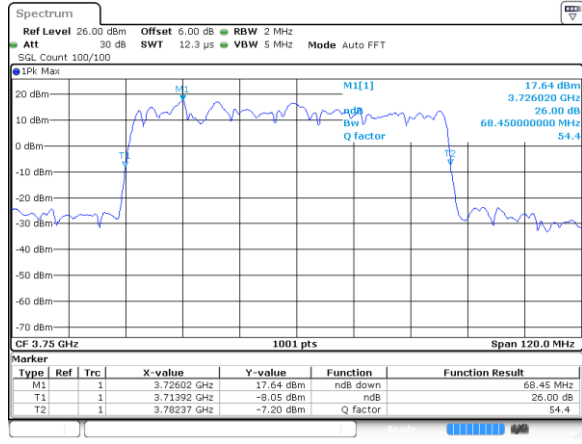
70M

QPSK



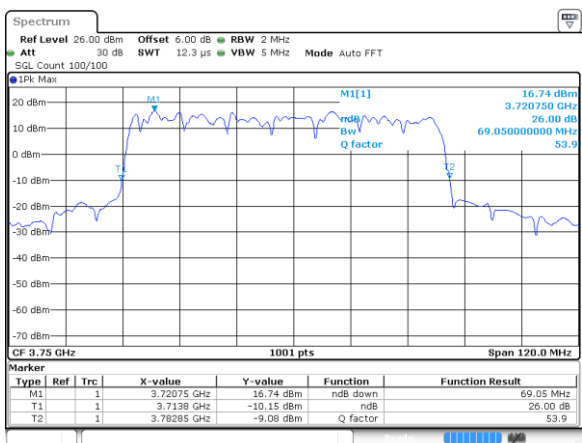
Date: 30 MAY 2022 18:03:44

16QAM



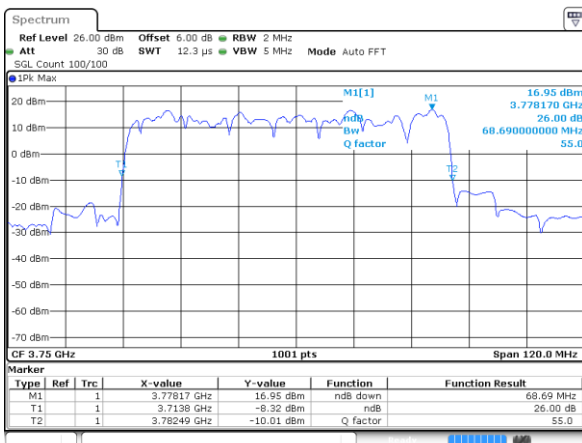
Date: 30 MAY 2022 18:05:17

64QAM



Date: 30 MAY 2022 18:05:46

256QAM

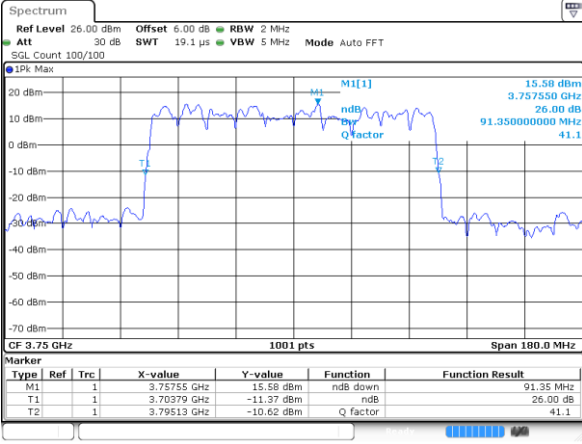


Date: 30 MAY 2022 18:06:23



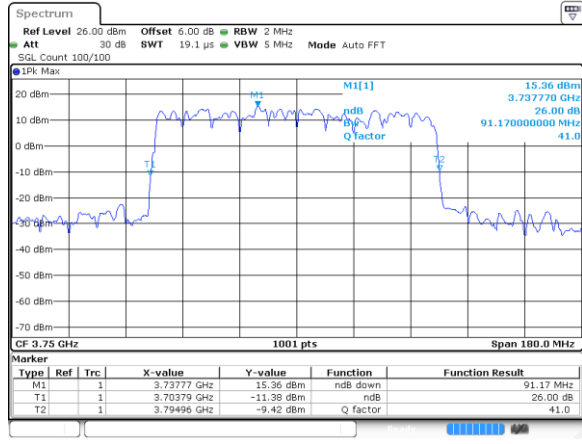
90M

QPSK



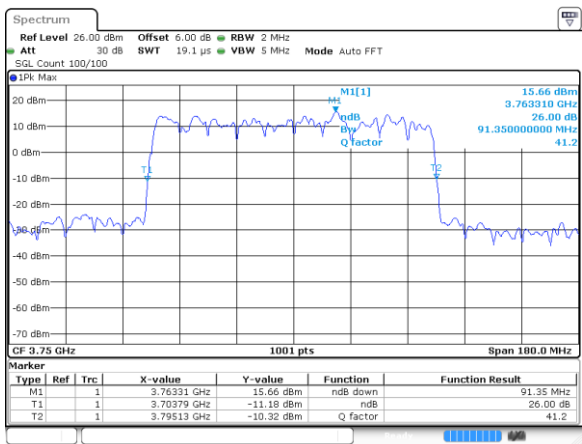
Date: 30 MAY 2022 18:12:14

16QAM



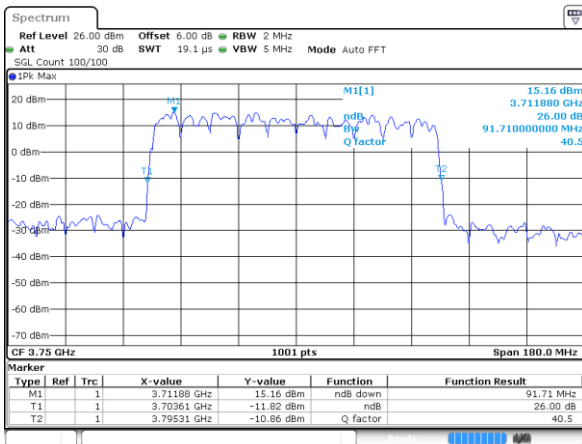
Date: 30 MAY 2022 18:12:52

64QAM



Date: 30 MAY 2022 18:13:37

256QAM



Date: 30 MAY 2022 18:15:28



**Occupied Bandwidth**

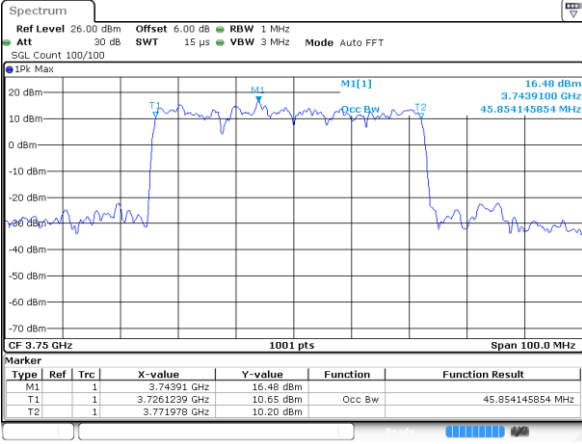
Mode	FR1 n78: OB BW(MHz) / DFT-S OFDM				
<b>BW</b>	<b>50M</b>				
<b>Mod.</b>	-	<b>QPSK</b>	<b>16QAM</b>	<b>64QAM</b>	<b>256QAM</b>
<b>Middle CH</b>	-	45.85	45.75	45.95	46.05
<b>BW</b>	<b>70M</b>				
<b>Mod.</b>	-	<b>QPSK</b>	<b>16QAM</b>	<b>64QAM</b>	<b>256QAM</b>
<b>Middle CH</b>	-	64.86	65.09	64.98	65.57
<b>BW</b>	<b>90M</b>				
<b>Mod.</b>	-	<b>QPSK</b>	<b>16QAM</b>	<b>64QAM</b>	<b>256QAM</b>
<b>Middle CH</b>	-	86.31	86.85	86.49	86.49





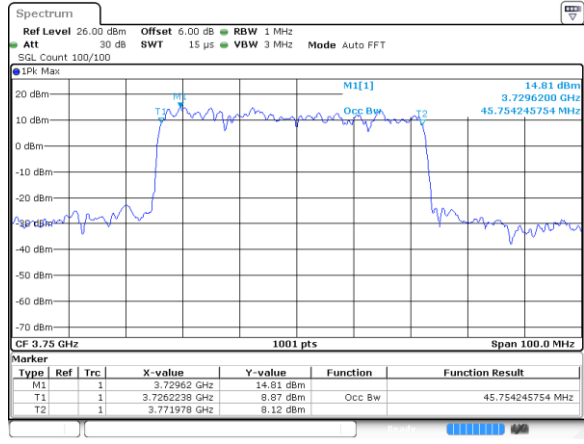
50M

QPSK



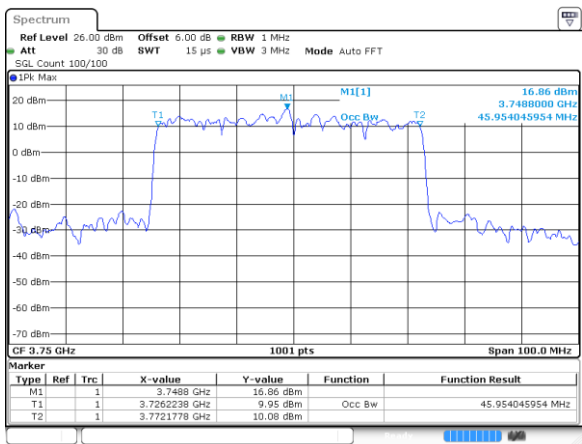
Date: 30 MAY 2022 17:55:04

16QAM



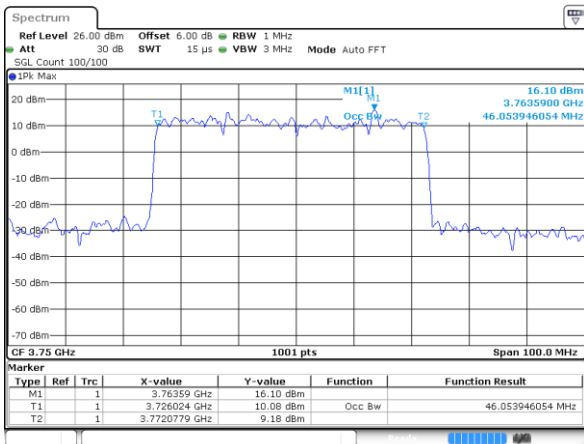
Date: 30 MAY 2022 17:55:57

64QAM



Date: 30 MAY 2022 17:58:03

256QAM

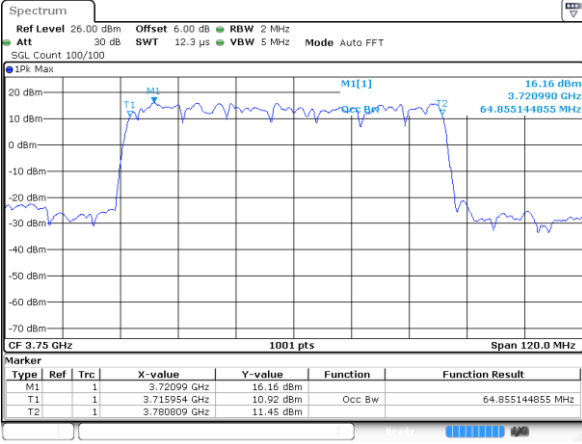


Date: 30 MAY 2022 17:58:31



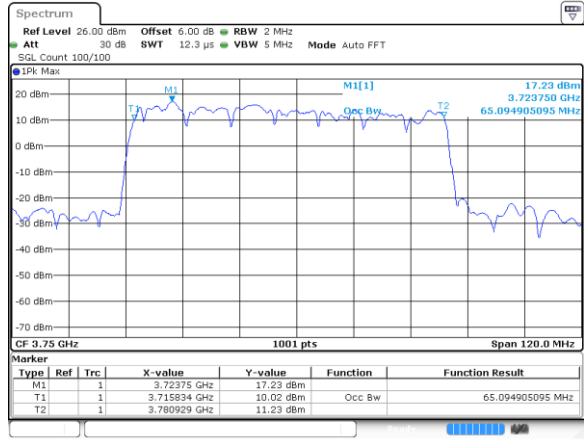
70M

QPSK



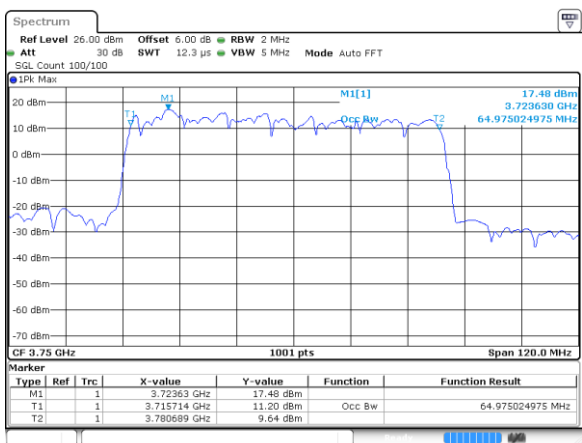
Date: 30 MAY 2022 18:04:57

16QAM



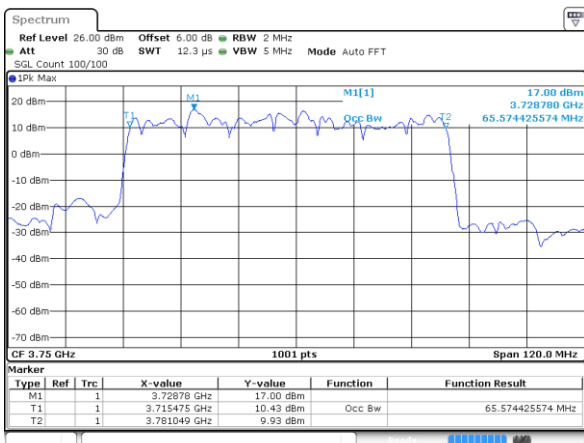
Date: 30 MAY 2022 18:05:26

64QAM



Date: 30 MAY 2022 18:05:57

256QAM

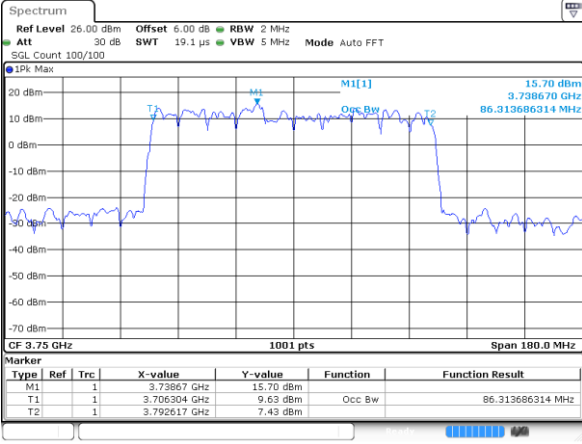


Date: 30 MAY 2022 18:06:31



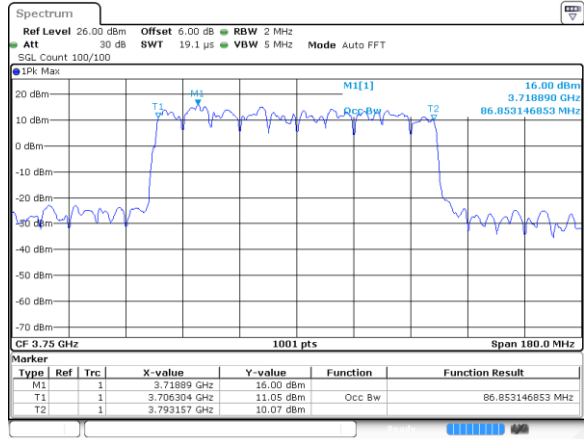
90M

QPSK



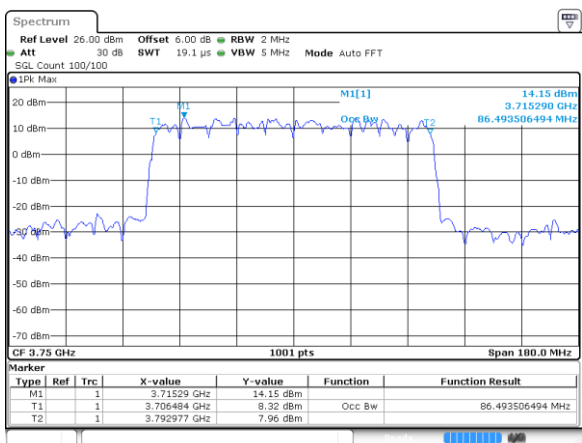
Date: 30 MAY 2022 18:12:35

16QAM



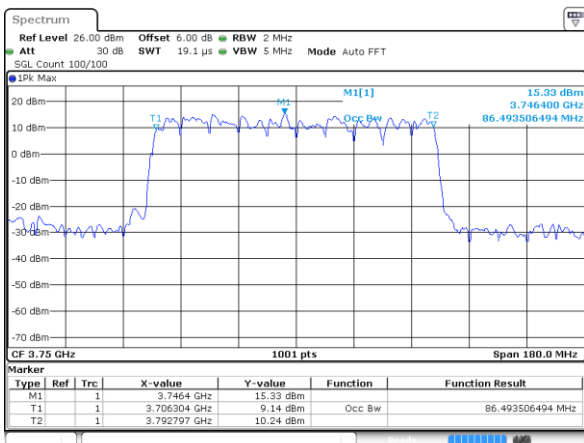
Date: 30 MAY 2022 18:13:03

64QAM



Date: 30 MAY 2022 18:13:50

256QAM



Date: 30 MAY 2022 18:15:39

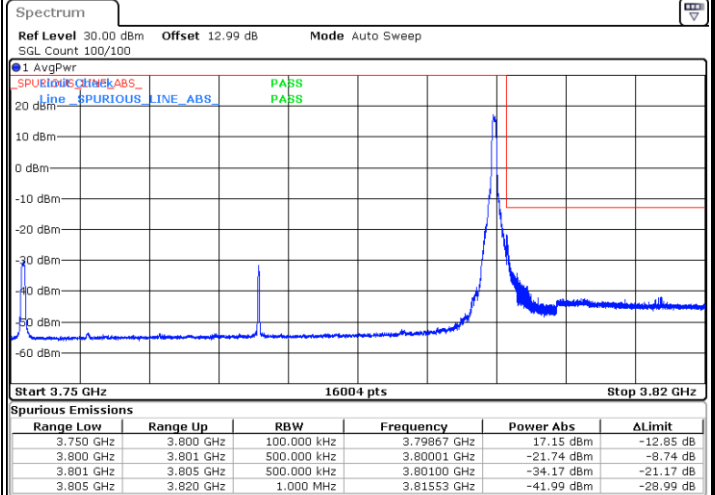
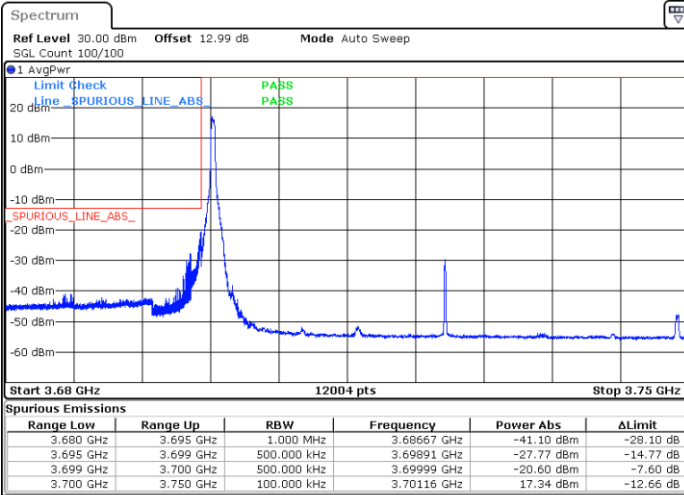


# Conducted Band Edge

FR1 n78/ 50MHz / DFT-S OFDM / PI/2 BPSK

Lowest Band Edge / 1RB0

Highest Band Edge / 1RBmax

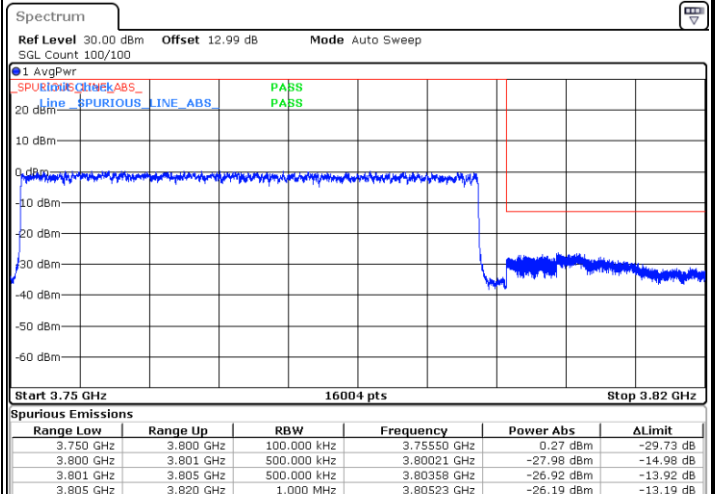
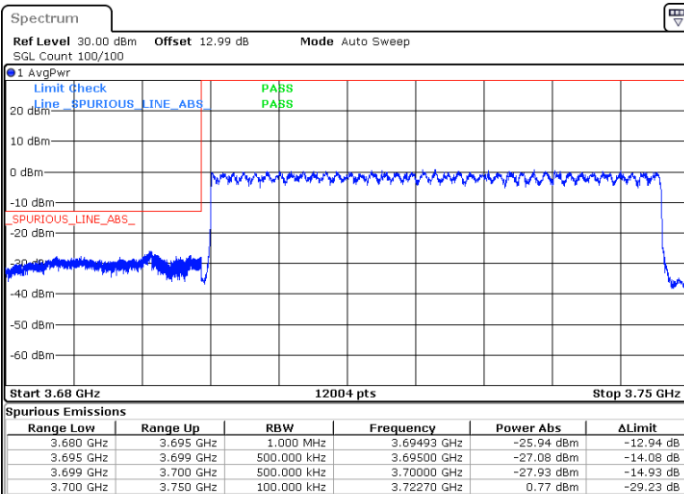


Date: 31.MAY.2022 11:46:17

Date: 31.MAY.2022 12:05:47

Lowest Band Edge / Full RB

Highest Band Edge / Full RB



Date: 31.MAY.2022 12:02:11

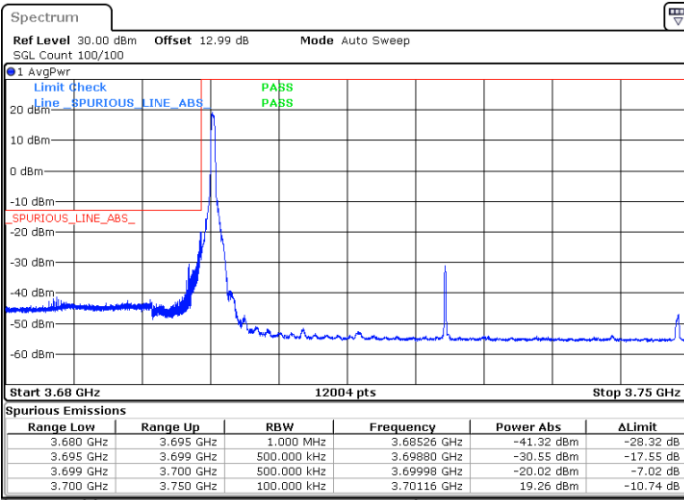
Date: 31.MAY.2022 12:08:24



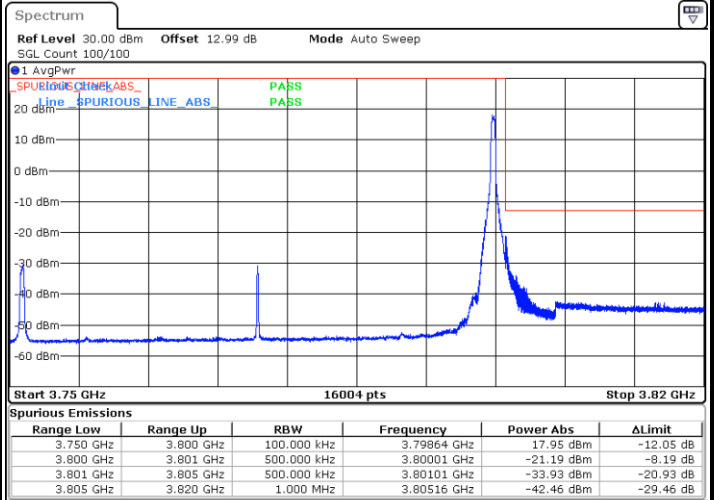
FR1 n78 / 50MHz / DFT-S OFDM / QPSK

Lowest Band Edge / 1RB0

Highest Band Edge / 1RBmax



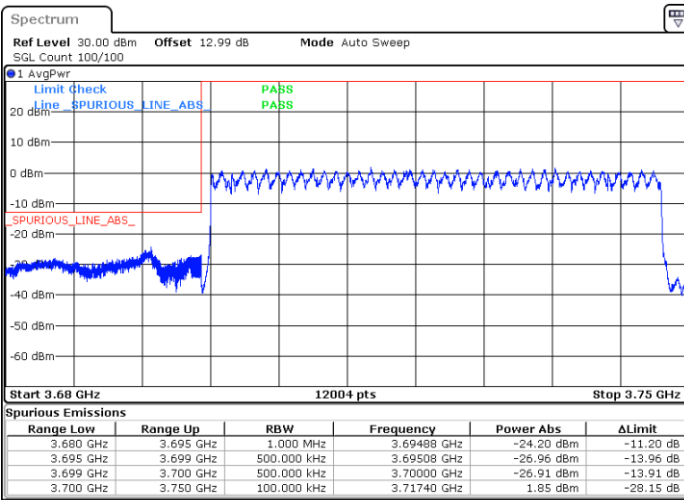
Date: 31.MAY.2022 11:53:56



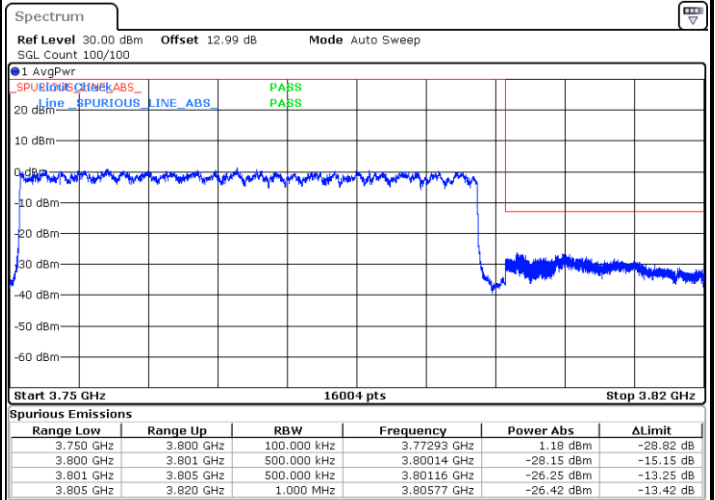
Date: 31.MAY.2022 12:06:31

Lowest Band Edge / Full RB

Highest Band Edge / Full RB



Date: 31.MAY.2022 11:56:38



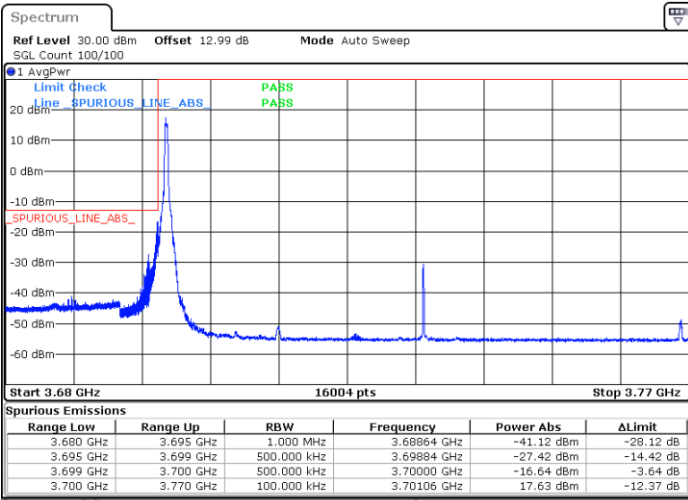
Date: 31.MAY.2022 12:07:33



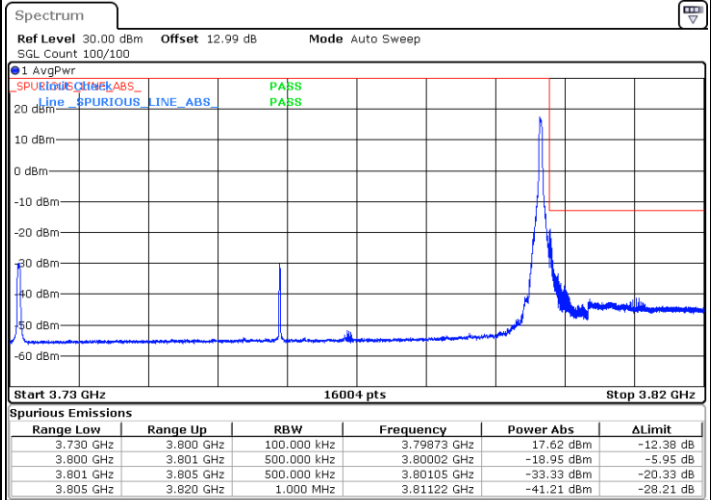
FR1 n78/ 70MHz / DFT-S OFDM / PI/2 BPSK

Lowest Band Edge / 1RB0

Highest Band Edge / 1RBmax



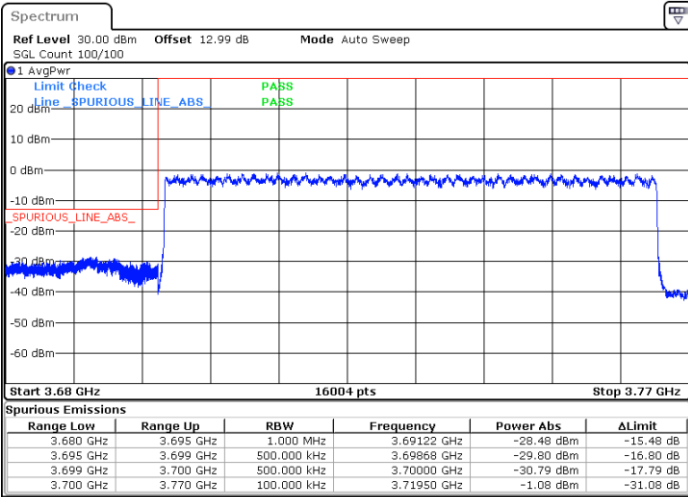
Date: 31.MAY.2022 12:26:13



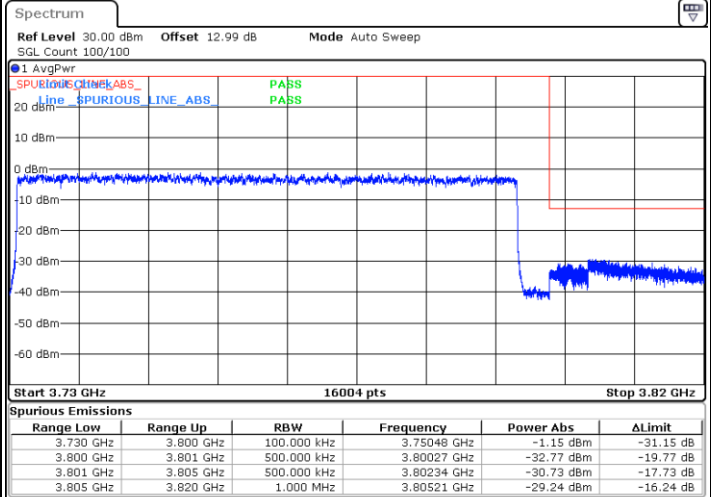
Date: 31.MAY.2022 12:30:17

Lowest Band Edge / Full RB

Highest Band Edge / Full RB



Date: 31.MAY.2022 12:28:59



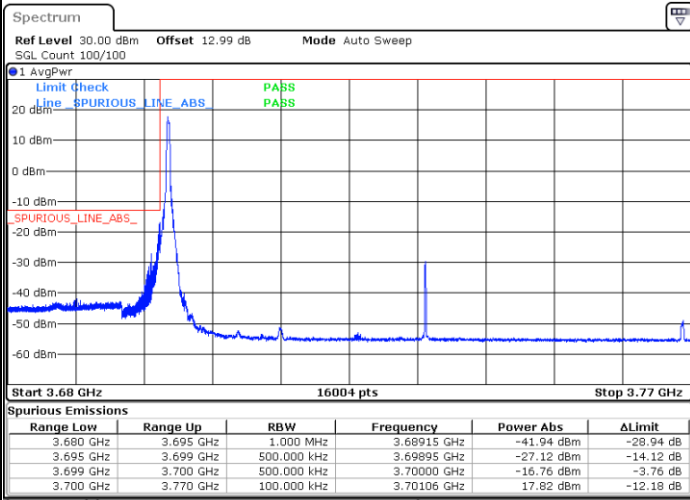
Date: 31.MAY.2022 12:31:51



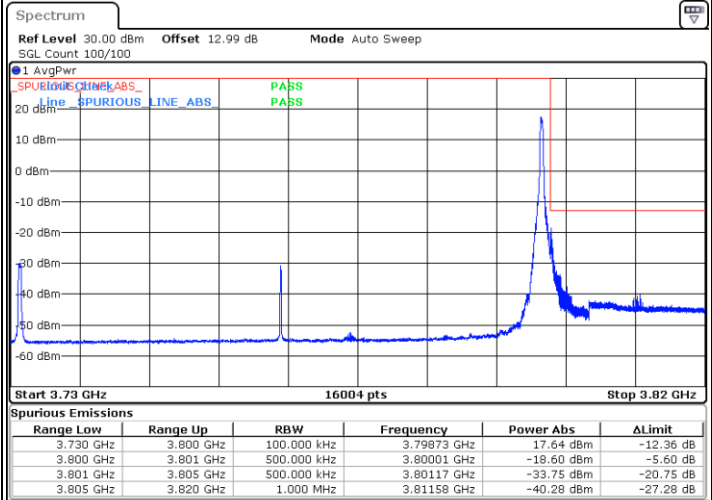
FR1 n78 / 70MHz / DFT-S OFDM / QPSK

Lowest Band Edge / 1RB0

Highest Band Edge / 1RBmax



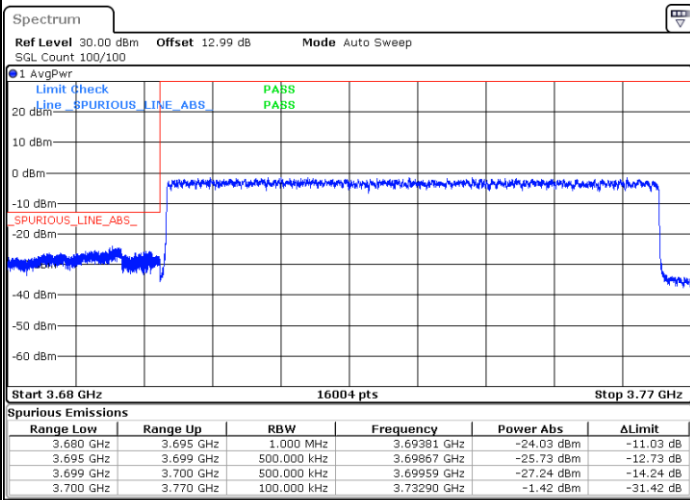
Date: 31.MAY.2022 12:26:54



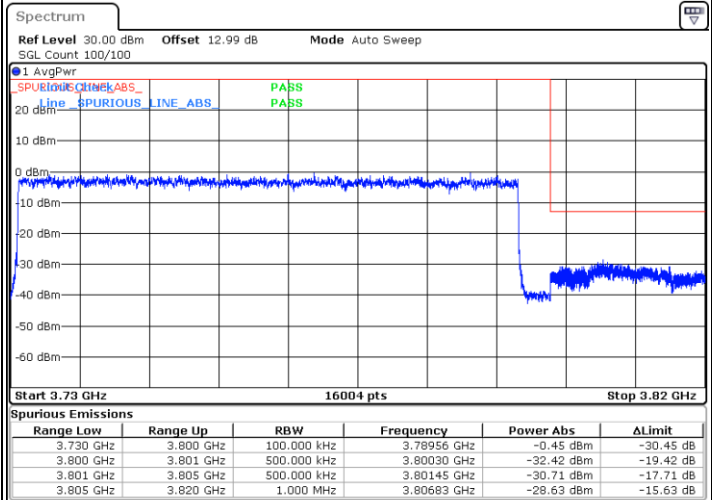
Date: 31.MAY.2022 12:30:57

Lowest Band Edge / Full RB

Highest Band Edge / Full RB



Date: 31.MAY.2022 12:28:16



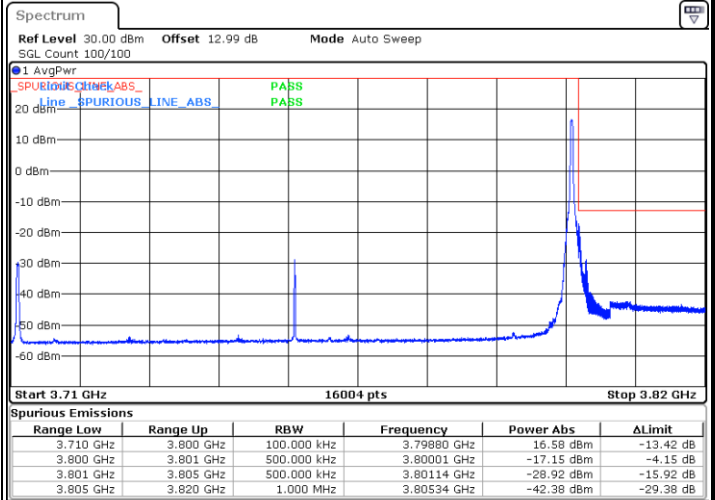
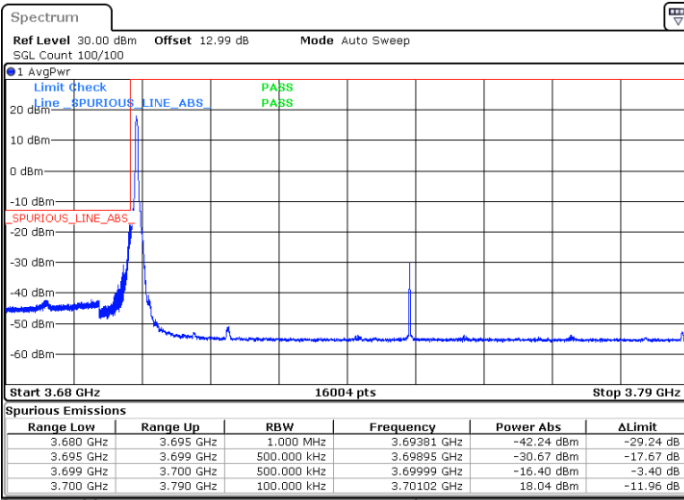
Date: 31.MAY.2022 12:32:33



FR1 n78 / 90MHz / DFT-S OFDM / PI/2 BPSK

Lowest Band Edge / 1RB0

Highest Band Edge / 1RBmax

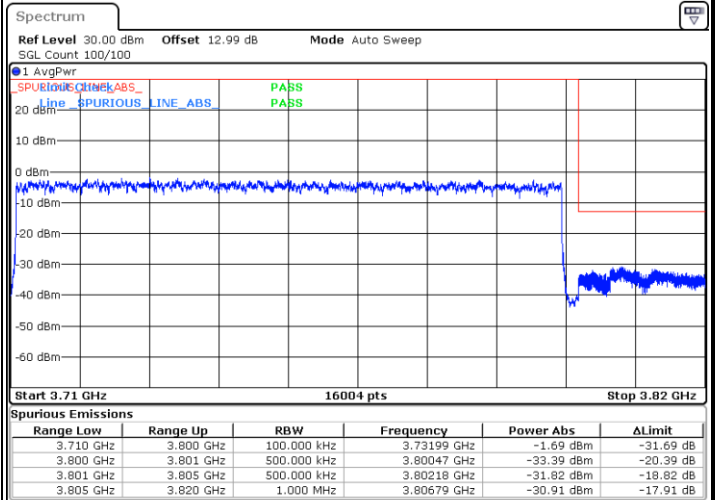
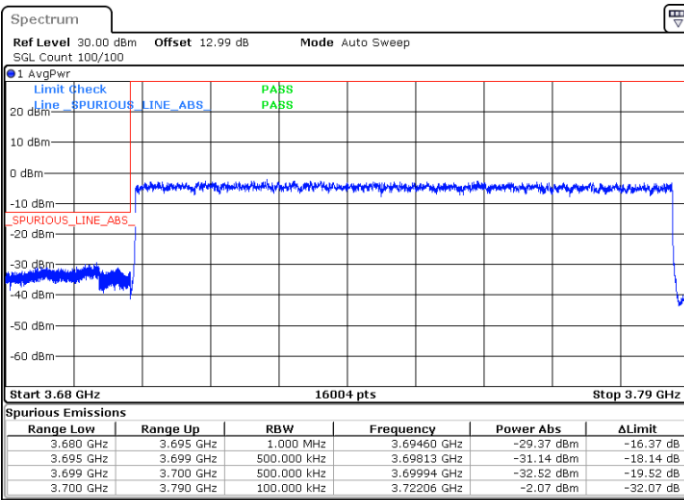


Date: 31.MAY.2022 12:34:07

Date: 31.MAY.2022 12:37:51

Lowest Band Edge / Full RB

Highest Band Edge / Full RB



Date: 31.MAY.2022 12:36:48

Date: 31.MAY.2022 12:40:05

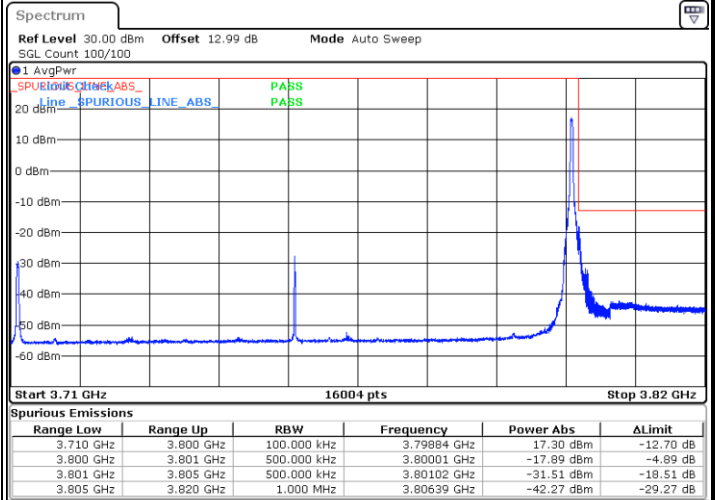
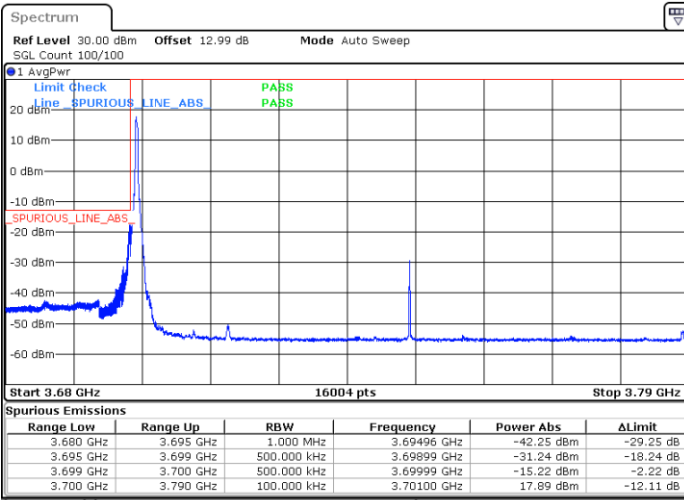




FR1 n78 / 90MHz / DFT-S OFDM / QPSK

Lowest Band Edge / 1RB0

Highest Band Edge / 1RBmax

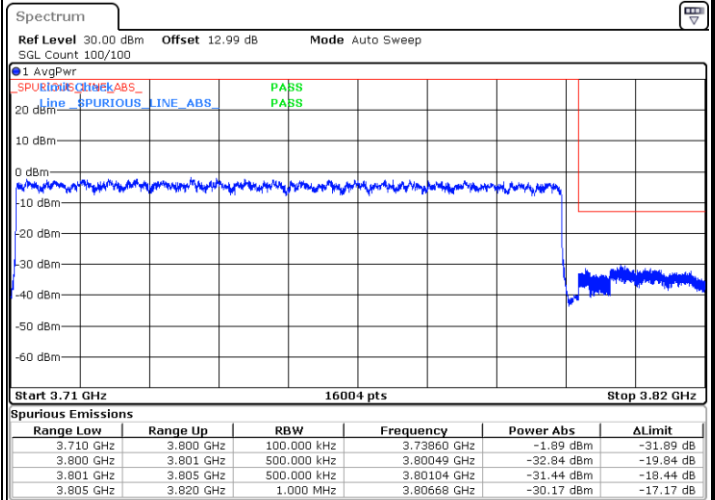
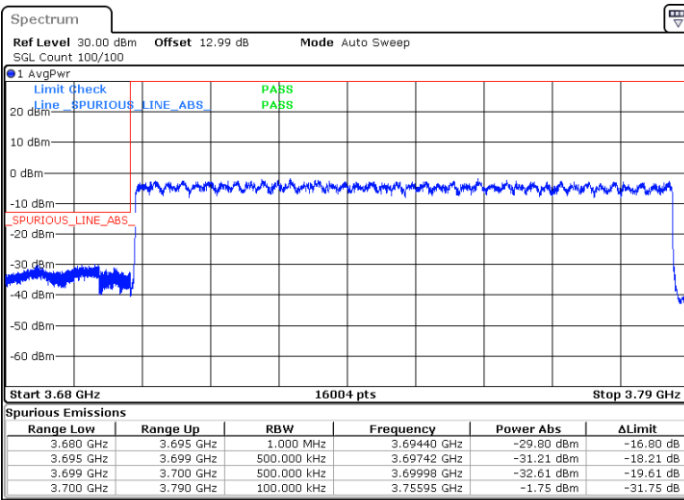


Date: 31.MAY.2022 12:34:46

Date: 31.MAY.2022 12:38:41

Lowest Band Edge / Full RB

Highest Band Edge / Full RB



Date: 31.MAY.2022 12:35:26

Date: 31.MAY.2022 12:39:26

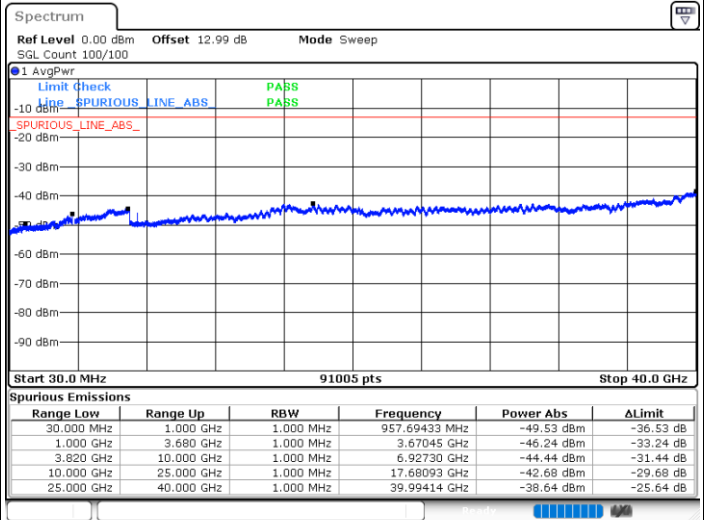
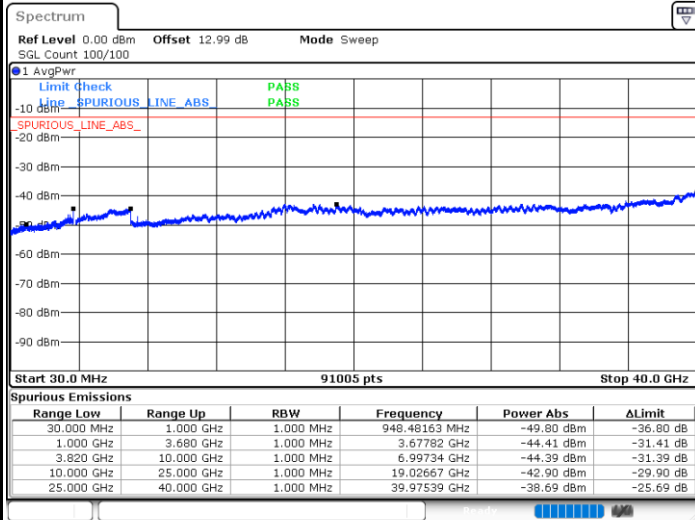


# Conducted Spurious Emission

FR1 n78 / 50MHz / DFT-S OFDM / BPSK

Lowest Channel / 1RB1

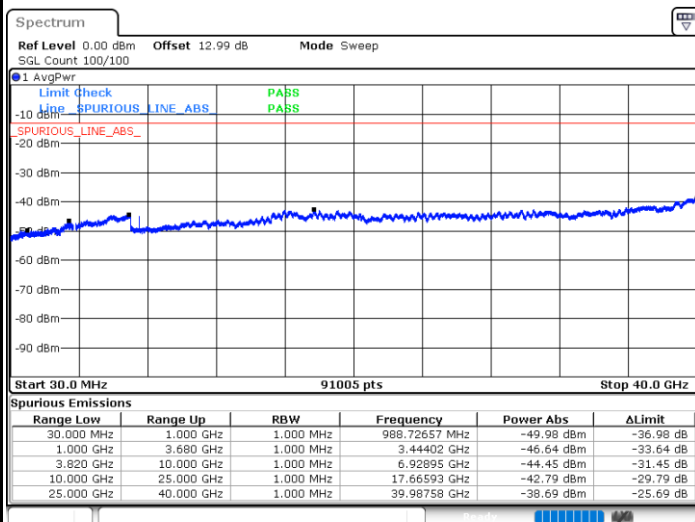
Middle Channel / 1RB1



Date: 1.JUN.2022 00:50:55

Date: 1.JUN.2022 00:54:37

Highest Channel / 1RB1



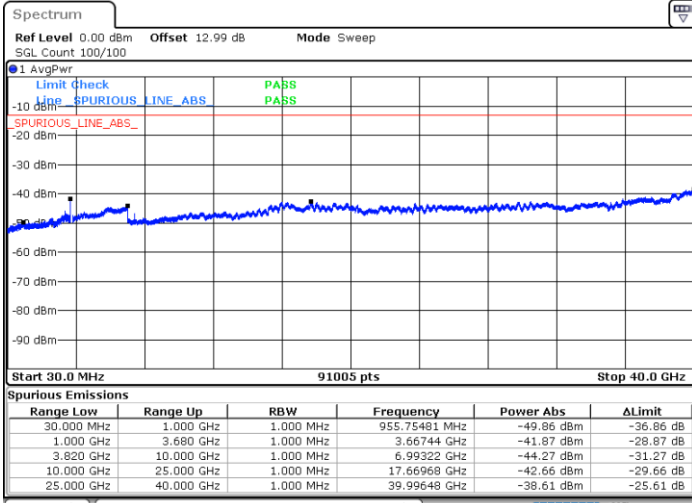
Date: 1.JUN.2022 00:55:59



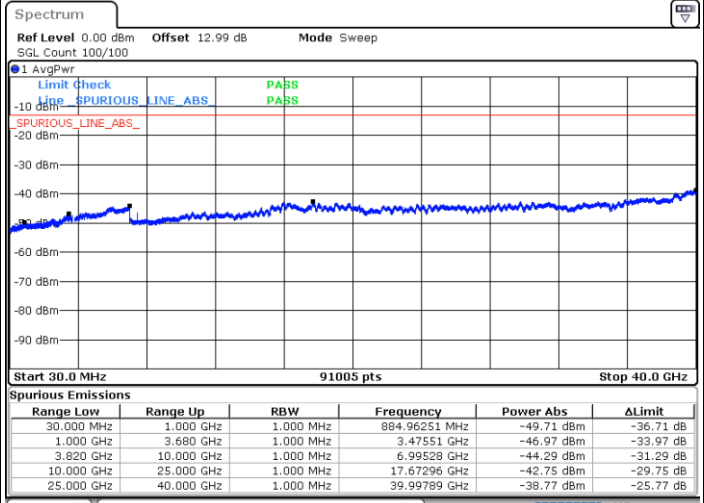
FR1 n78 / 50MHz / DFT-S OFDM / QPSK

Lowest Channel / 1RB1

Middle Channel / 1RB1

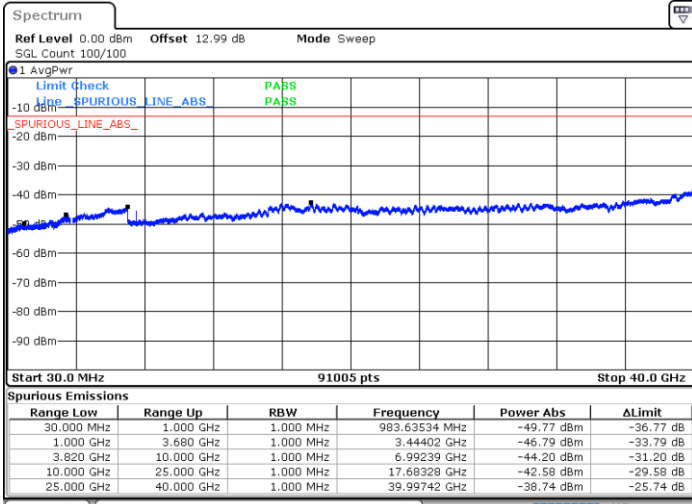


Date: 1 JUN 2022 00:52:06



Date: 1 JUN 2022 00:53:24

Highest Channel / 1RB1



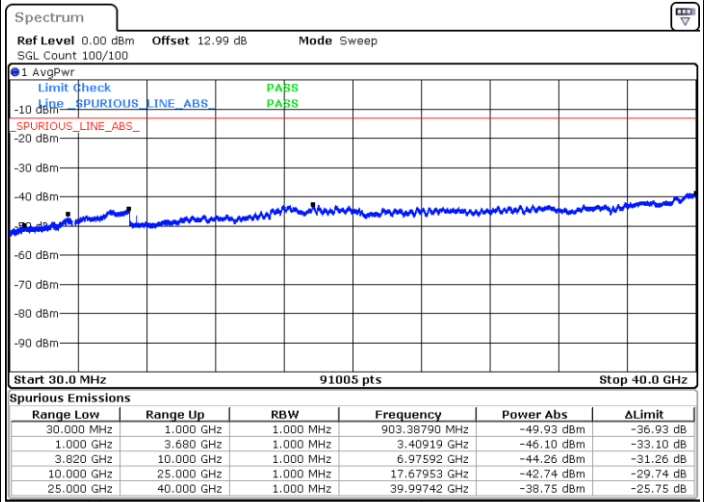
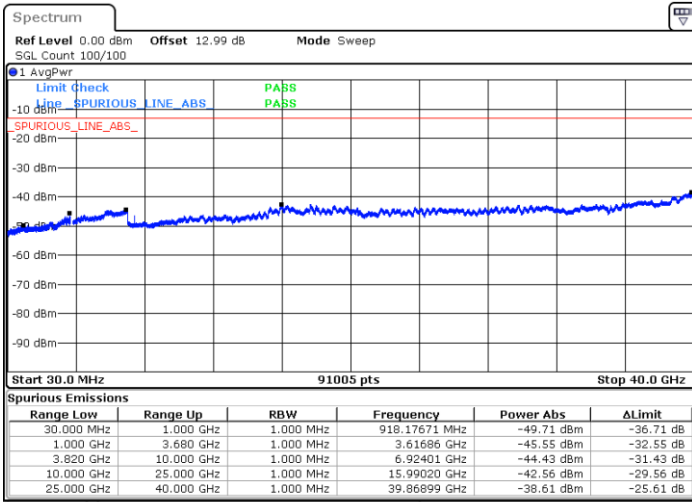
Date: 1 JUN 2022 00:58:07



FR1 n78 / 70MHz / DFT-S OFDM / BPSK

Lowest Channel / 1RB1

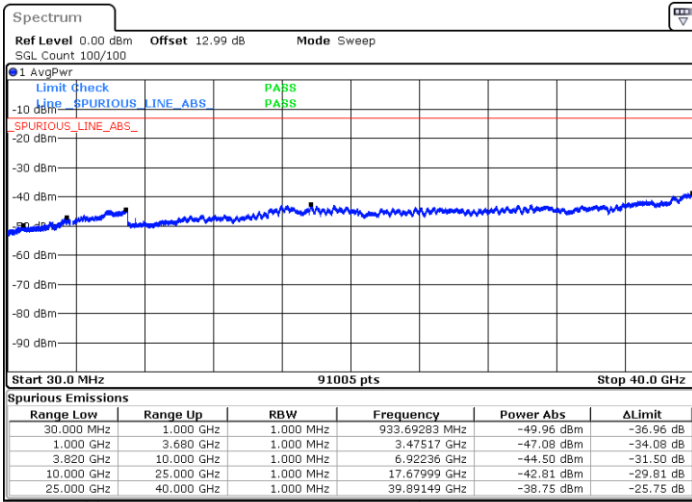
Middle Channel / 1RB1



Date: 1. JUN. 2022 00:40:22

Date: 1. JUN. 2022 00:43:12

Highest Channel / 1RB1



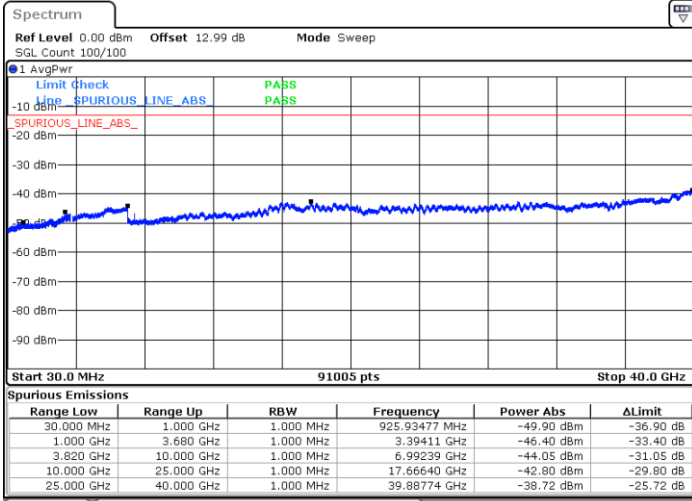
Date: 1. JUN. 2022 00:46:58



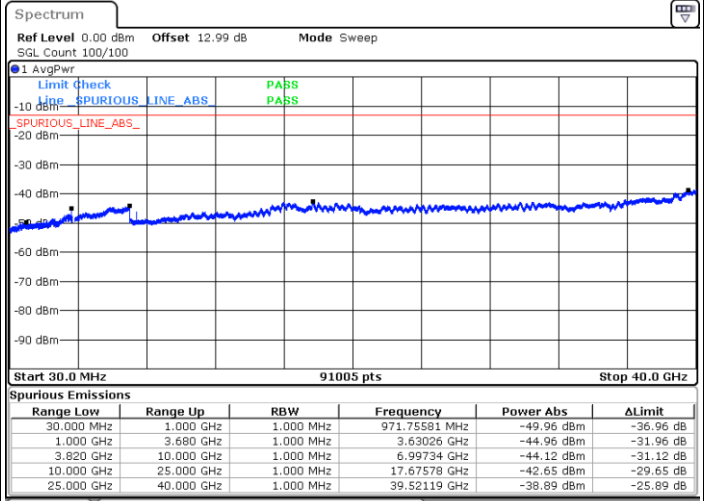
FR1 n78 / 70MHz / DFT-S OFDM / QPSK

Lowest Channel / 1RB1

Middle Channel / 1RB1

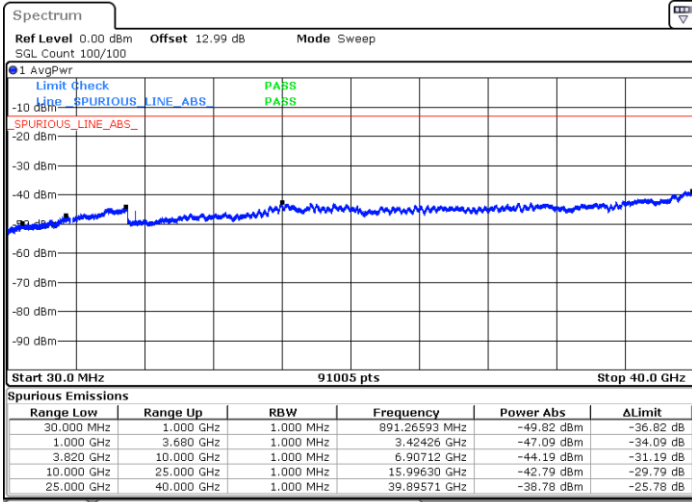


Date: 1. JUN. 2022 00:41:43



Date: 1. JUN. 2022 00:45:20

Highest Channel / 1RB1



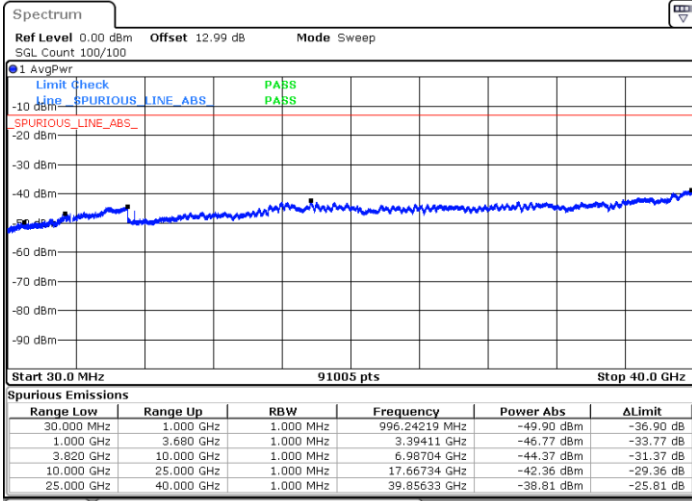
Date: 1. JUN. 2022 00:48:23



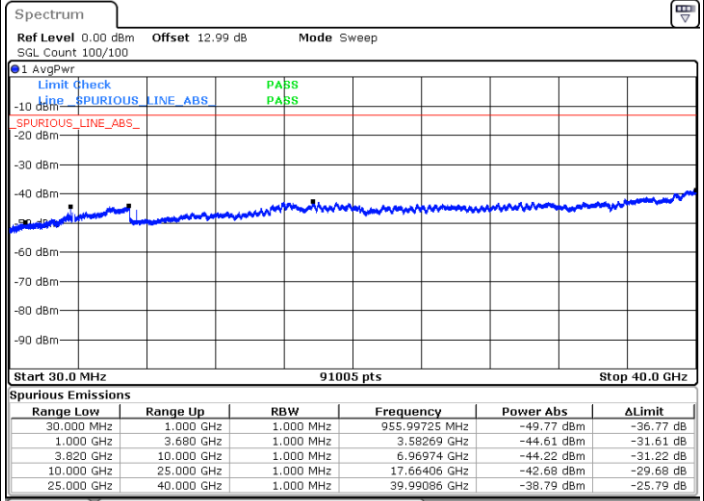
FR1 n78 / 90MHz / DFT-S OFDM / BPSK

Lowest Channel / 1RB1

Middle Channel / 1RB1

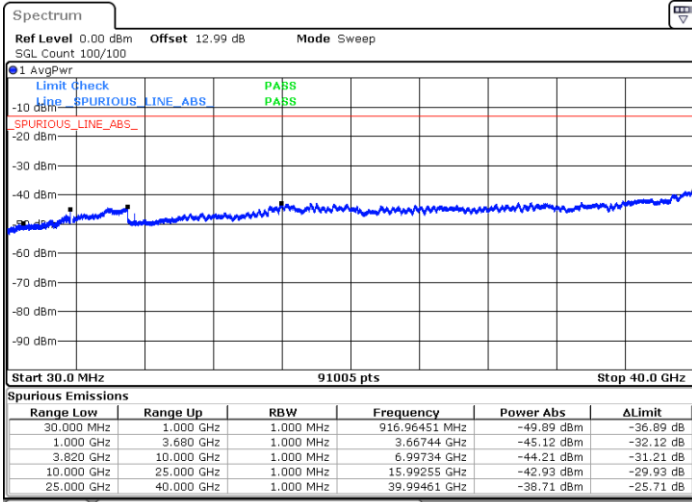


Date: 1. JUN. 2022 00:36:03



Date: 1. JUN. 2022 00:34:30

Highest Channel / 1RB1



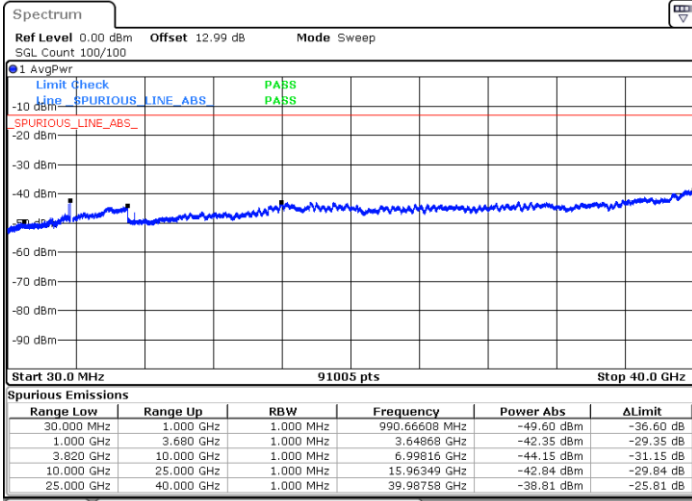
Date: 1. JUN. 2022 00:29:01



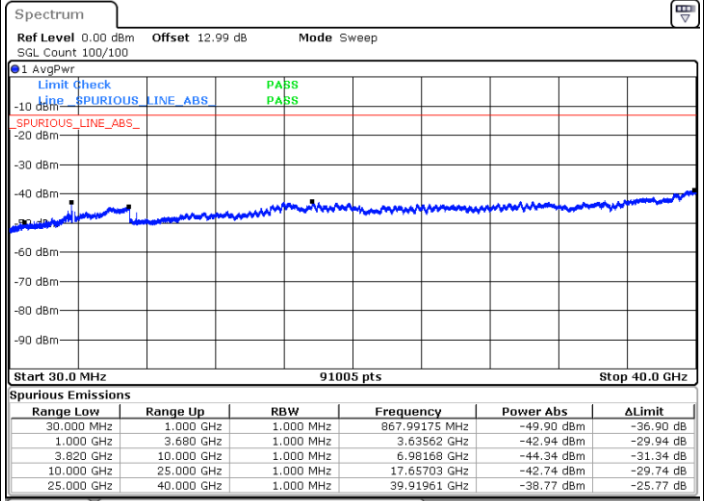
FR1 n78 / 90MHz / DFT-S OFDM / QPSK

Lowest Channel / 1RB1

Middle Channel / 1RB1

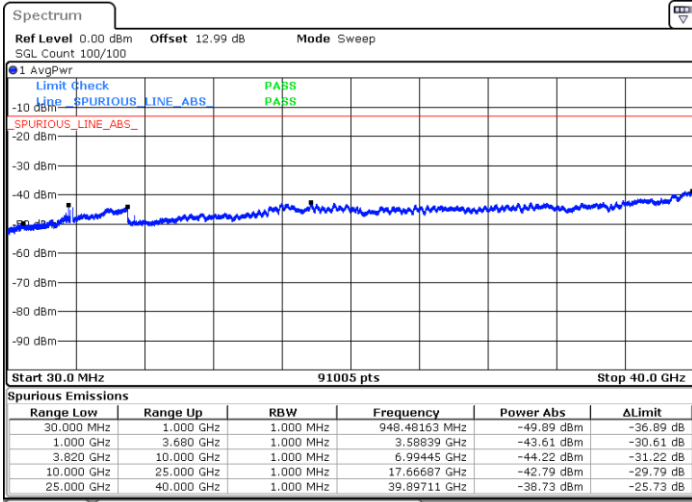


Date: 1 JUN 2022 00:37:23



Date: 1 JUN 2022 00:33:17

Highest Channel / 1RB1



Date: 1 JUN 2022 00:31:34



Frequency Stability

Test Conditions		FR1 n78 (QPSK) / Middle Channel	Limit
Temperature (°C)	Voltage (Volt)	BW 50MHz	Note 2.
		Deviation (ppm)	Result
50	Normal Voltage	0.0022	PASS
40	Normal Voltage	0.0032	
30	Normal Voltage	0.0016	
20(Ref.)	Normal Voltage	0.0000	
10	Normal Voltage	0.0027	
0	Normal Voltage	0.0024	
-10	Normal Voltage	0.0011	
-20	Normal Voltage	0.0026	
-30	Normal Voltage	0.0040	
20	Maximum Voltage	0.0066	
20	Normal Voltage	0.0026	
20	Battery End Point	0.0037	

Note:

1. Normal Voltage =3.87 V. ; Battery End Point (BEP) =3.55 V. ; Maximum Voltage =4.45V.
2. Note: The frequency fundamental emissions stay within the authorized frequency block.





## Appendix B. Test Results of Radiated Test

### Radiated Spurious Emission

Test Engineer :	Carry Xu	Temperature :	23~25°C
		Relative Humidity :	41~42%

Note: Pre-scanned harmonic for the different antenna combinations, we choose the worst antenna mode to perform final test.

n77 SA / NR 100MHz / QPSK / ANT3								
Channel	Frequency ( MHz )	EIRP ( dBm )	Limit ( dBm )	Over Limit ( dB )	S.G. Power ( dBm )	TX Cable loss ( dB )	TX Antenna Gain (dBi)	Polarization (H/V)
Lowest	7404	-28.20	-13	-15.20	-38.68	2.76	13.24	H
	11100	-48.00	-13	-35.00	-57.59	3.42	13.01	H
	14808	-42.81	-13	-29.81	-52.42	3.83	13.44	H
	7404	-44.45	-13	-31.45	-54.89	2.80	13.24	V
	11100	-46.78	-13	-33.78	-56.33	3.46	13.01	V
	14808	-50.41	-13	-37.41	-59.97	3.88	13.44	V
Middle	7584	-25.67	-13	-12.67	-36.15	2.76	13.24	H
	11376	-48.89	-13	-35.89	-58.48	3.42	13.01	H
	15168	-45.33	-13	-32.33	-54.94	3.83	13.44	H
	7584	-36.51	-13	-23.51	-46.95	2.80	13.24	V
	11376	-48.04	-13	-35.04	-57.59	3.46	13.01	V
	15168	-47.75	-13	-34.75	-57.31	3.88	13.44	V
Highest	7764	-23.25	-13	-10.25	-33.73	2.76	13.24	H
	11640	-44.62	-13	-31.62	-54.21	3.42	13.01	H
	15528	-46.78	-13	-33.78	-56.39	3.83	13.44	H
	7764	-23.80	-13	-10.80	-34.24	2.80	13.24	V
	11640	-41.17	-13	-28.17	-50.72	3.46	13.01	V
	15528	-50.75	-13	-37.75	-60.31	3.88	13.44	V

Remark: Spurious emissions within 30-1000MHz were found more than 20dB below limit line.



EN-DC 7A_n77A / LTE 20MHz + NR 100MHz / QPSK / ANT0(LTE) & ANT3(NR)								
Channel	Frequency ( MHz )	EIRP ( dBm )	Limit ( dBm )	Over Limit ( dB )	S.G. Power ( dBm )	TX Cable loss ( dB )	TX Antenna Gain (dBi)	Polarization (H/V)
Lowest	7404	-29.08	-13	-16.08	-39.56	2.76	13.24	H
	11100	-54.79	-13	-41.79	-64.38	3.42	13.01	H
	14808	-42.18	-13	-29.18	-51.79	3.83	13.44	H
	7404	-38.91	-13	-25.91	-49.35	2.80	13.24	V
	11100	-50.82	-13	-37.82	-60.37	3.46	13.01	V
	14808	-55.00	-13	-42.00	-64.56	3.88	13.44	V
Middle	7584	-26.34	-13	-13.34	-36.82	2.76	13.24	H
	11376	-59.70	-13	-46.70	-69.29	3.42	13.01	H
	15168	-52.36	-13	-39.36	-61.97	3.83	13.44	H
	7584	-42.27	-13	-29.27	-52.71	2.80	13.24	V
	11376	-47.22	-13	-34.22	-56.77	3.46	13.01	V
	15168	-51.39	-13	-38.39	-60.95	3.88	13.44	V
Highest	7764	-23.17	-13	-10.17	-33.65	2.76	13.24	H
	11640	-47.24	-13	-34.24	-56.83	3.42	13.01	H
	15528	-44.02	-13	-31.02	-53.63	3.83	13.44	H
	7764	-37.02	-13	-24.02	-47.46	2.80	13.24	V
	11640	-51.32	-13	-38.32	-60.87	3.46	13.01	V
	15528	-52.91	-13	-39.91	-62.47	3.88	13.44	V

Remark: Spurious emissions within 30-1000MHz were found more than 20dB below limit line.