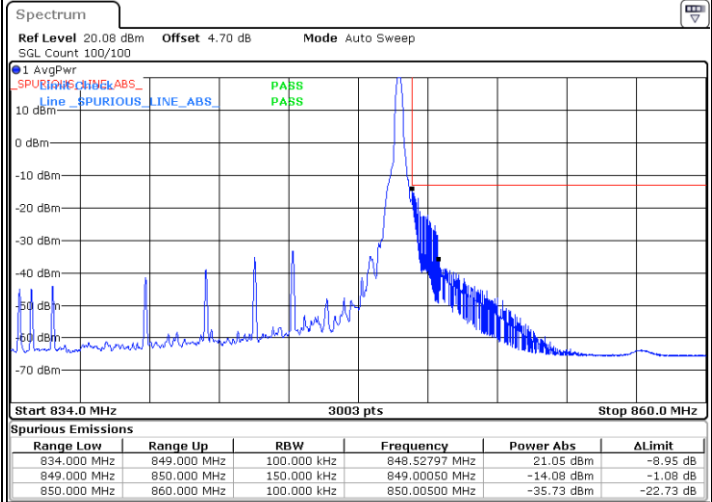
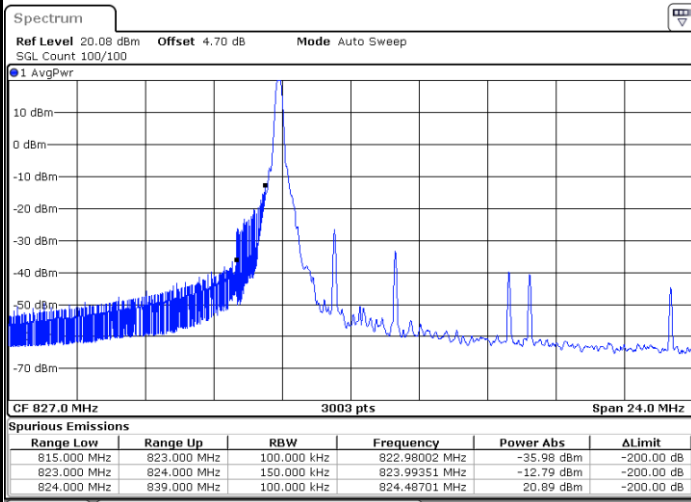




FR1 n5 / 15MHz / DFT-s-OFDM / QPSK

Lowest Band Edge / 1RB0

Highest Band Edge / 1RBmax

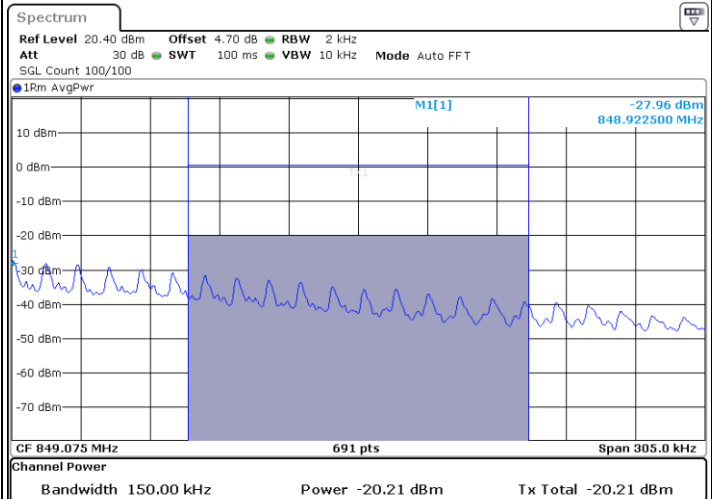
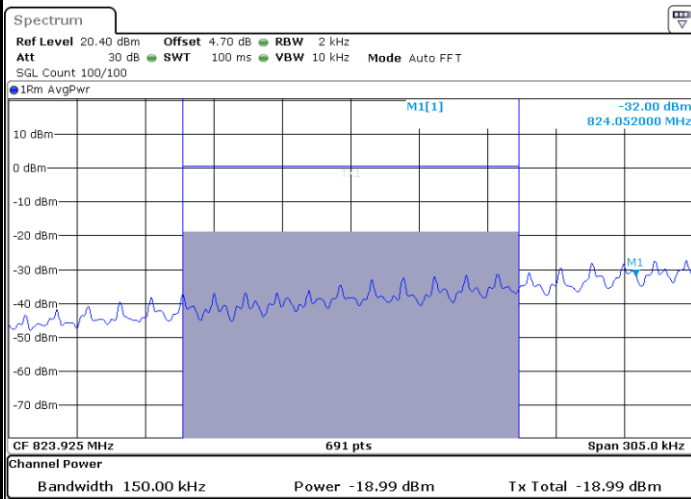


Date: 6.JUL.2020 11:40:03

Date: 6.JUL.2020 14:02:04

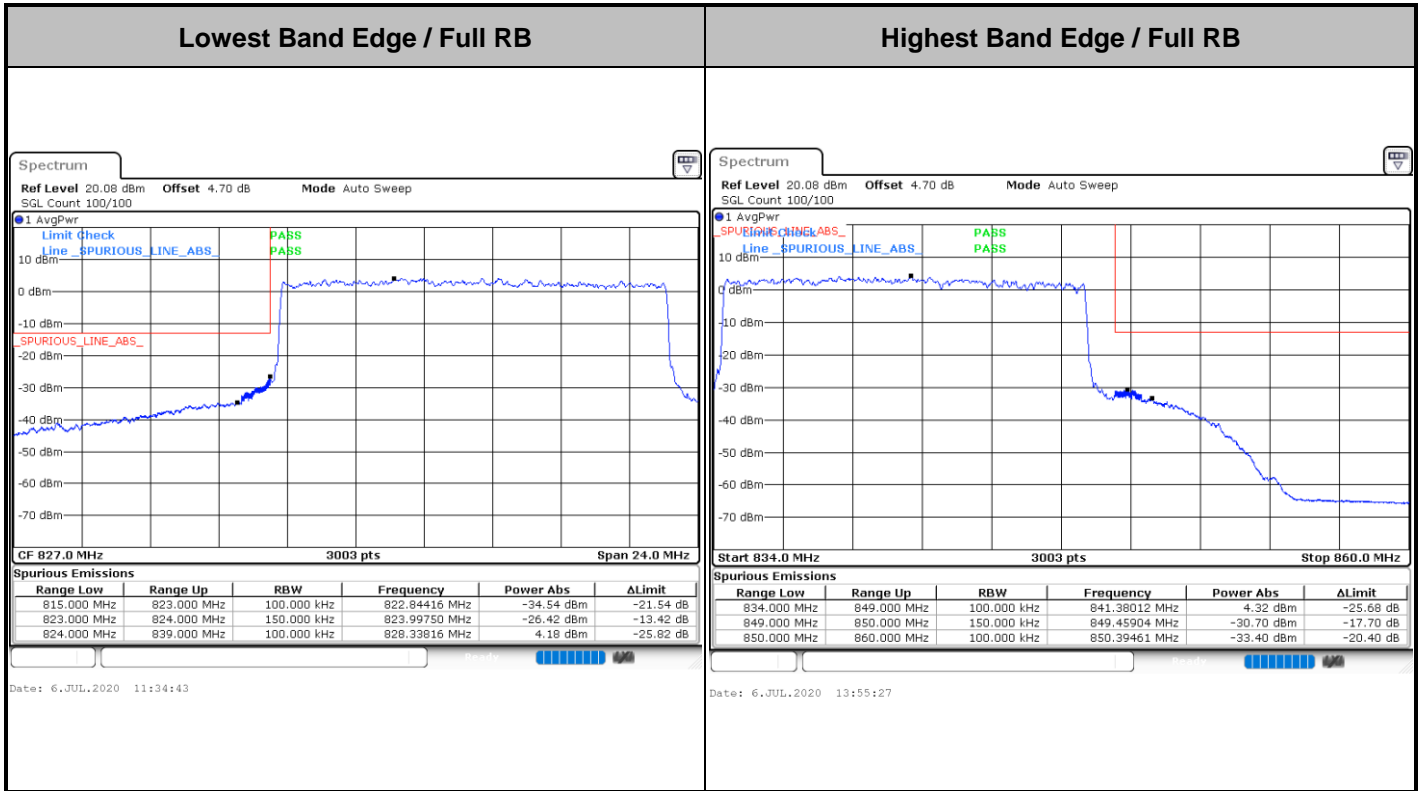
Channel Power -18.99dBm < -13dBm (Pass)

Channel Power -20.21dBm < -13dBm (Pass)



Date: 6.JUL.2020 11:44:14

Date: 6.JUL.2020 14:08:59

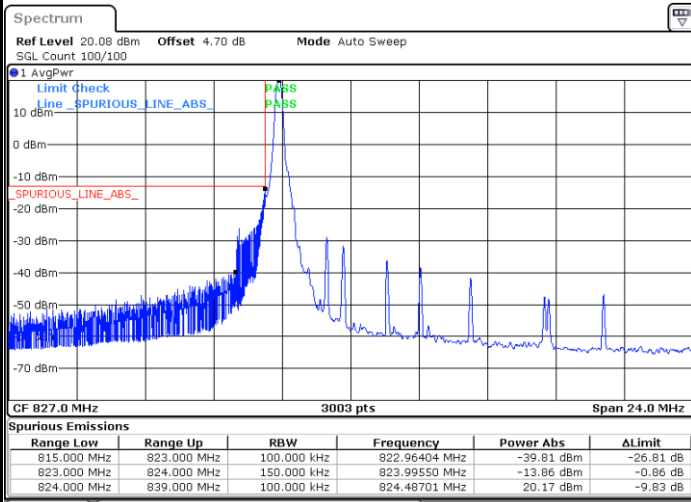




FR1 n5 / 15MHz / DFT-s-OFDM / 16QAM

Lowest Band Edge / 1RB0

Highest Band Edge / 1RBmax

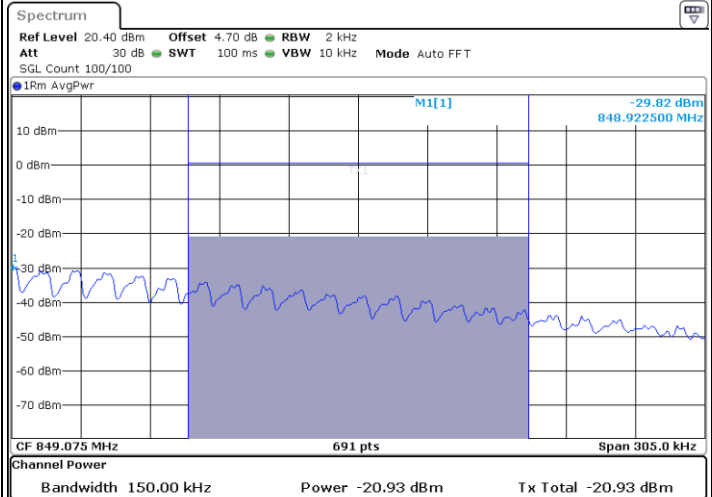
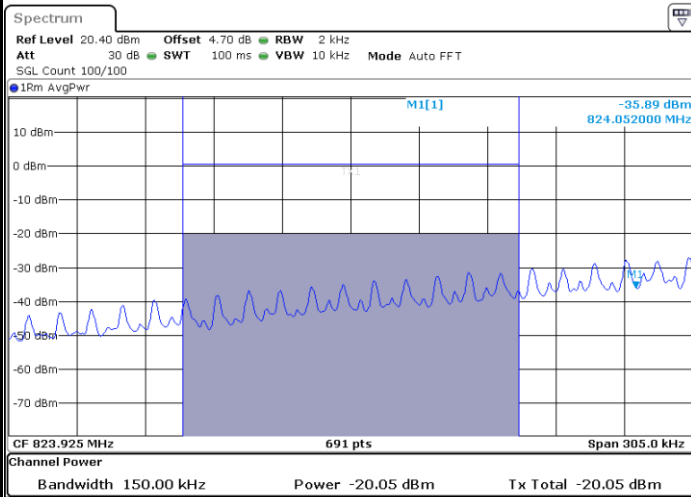


Date: 6.JUL.2020 11:38:49

Date: 6.JUL.2020 14:01:24

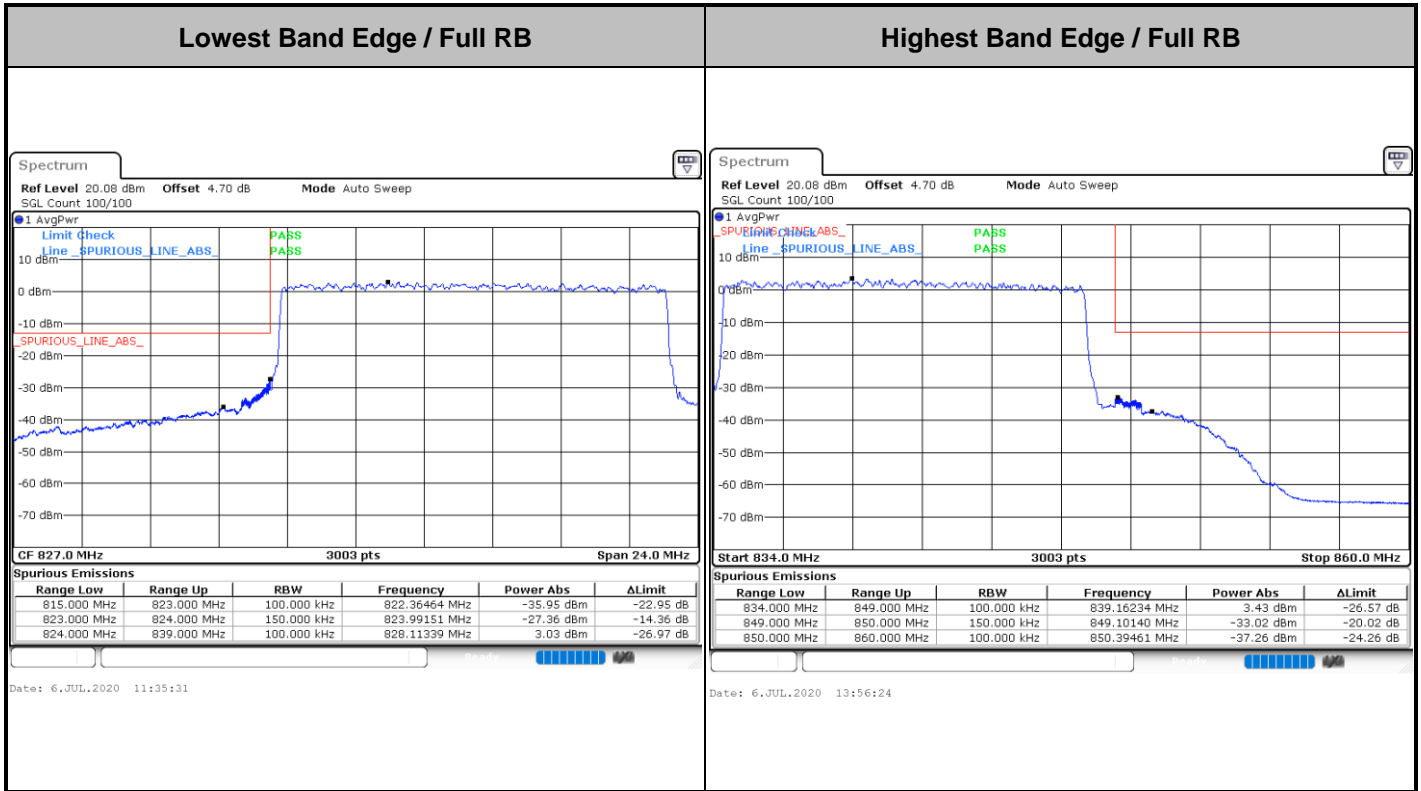
Channel Power -20.05dBm < -13dBm (Pass)

Channel Power -20.93dBm < -13dBm (Pass)



Date: 6.JUL.2020 11:45:26

Date: 6.JUL.2020 14:09:37

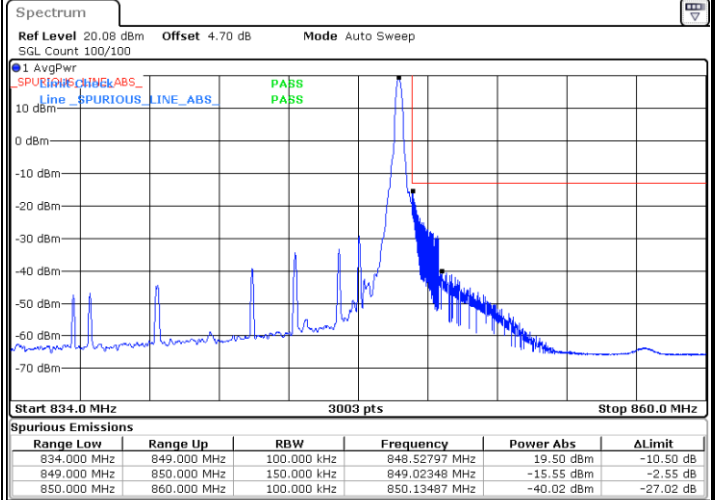
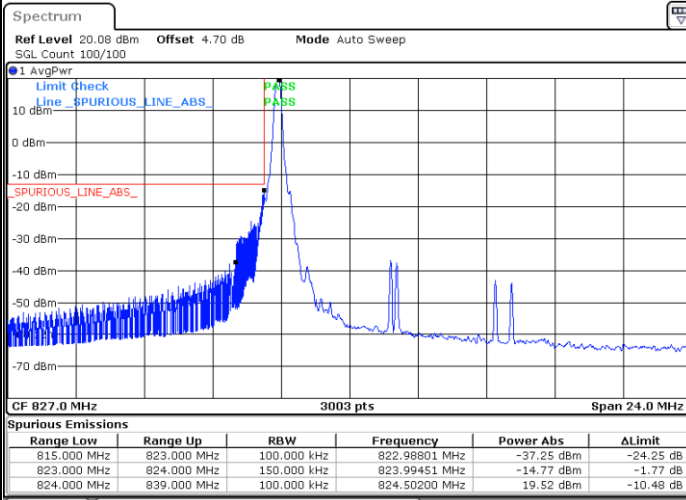




FR1 n5 / 15MHz / DFT-s-OFDM / 64QAM

Lowest Band Edge / 1RB0

Highest Band Edge / 1RBmax

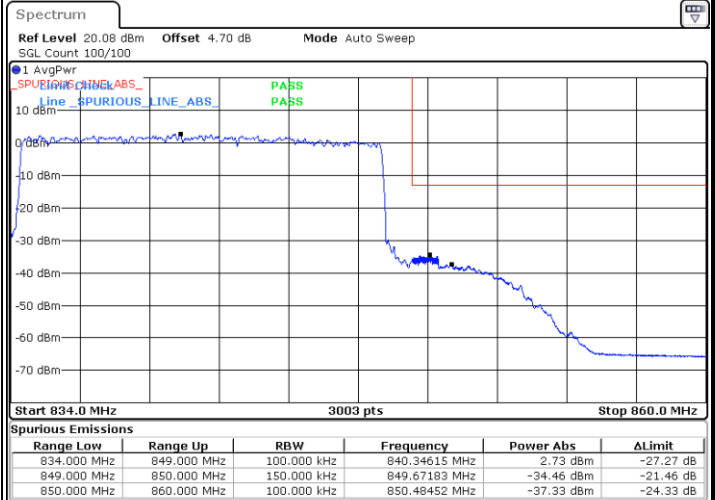
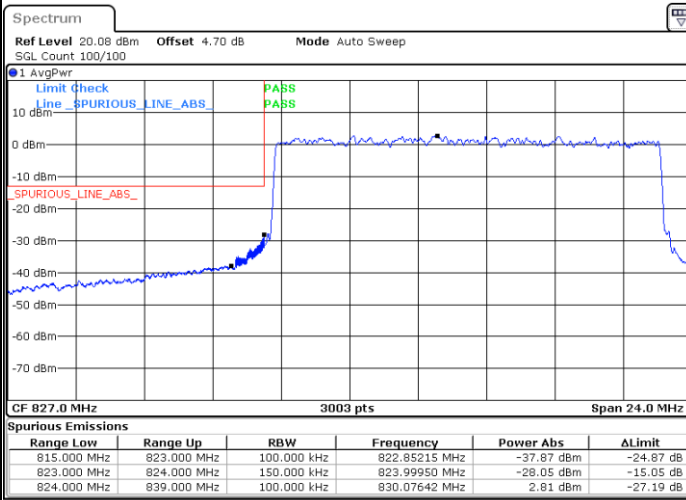


Date: 6.JUL.2020 11:36:43

Date: 6.JUL.2020 13:58:27

Lowest Band Edge / Full RB

Highest Band Edge / Full RB



Date: 6.JUL.2020 11:36:07

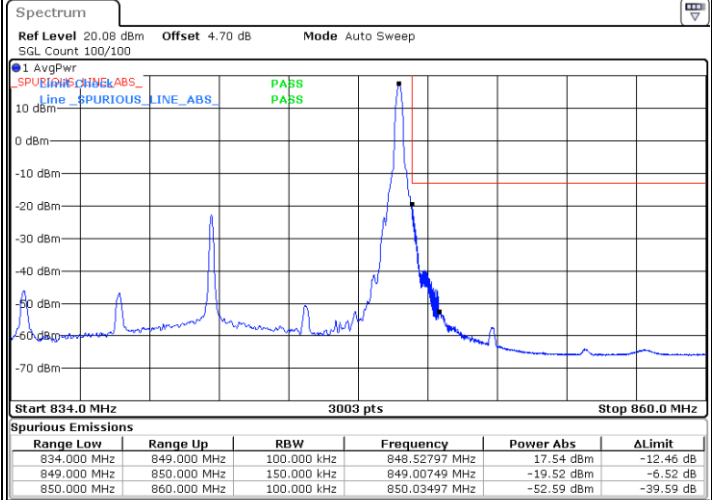
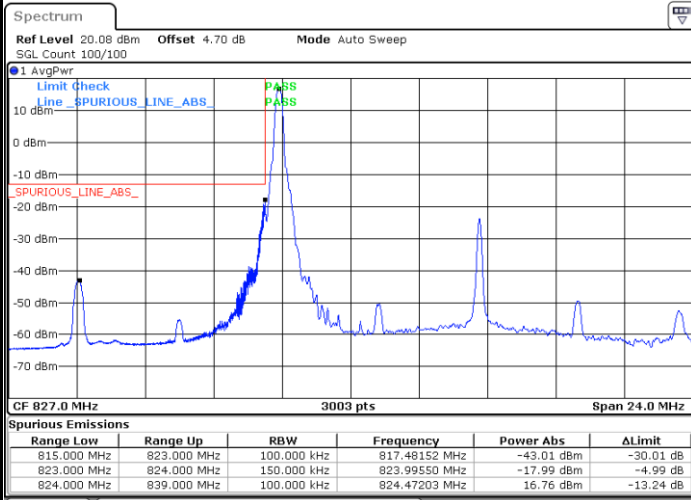
Date: 6.JUL.2020 13:57:06



FR1 n5 / 15MHz / DFT-s-OFDM / 256QAM

Lowest Band Edge / 1RB0

Highest Band Edge / 1RBmax

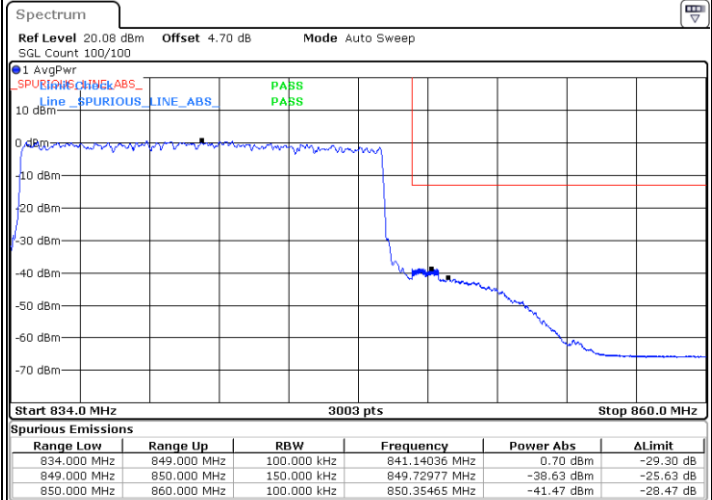
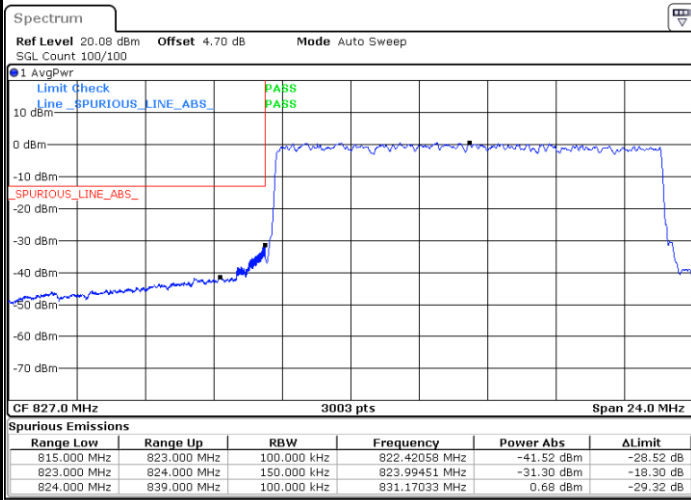


Date: 6.JUL.2020 11:46:24

Date: 6.JUL.2020 14:11:36

Lowest Band Edge / Full RB

Highest Band Edge / Full RB



Date: 6.JUL.2020 11:47:09

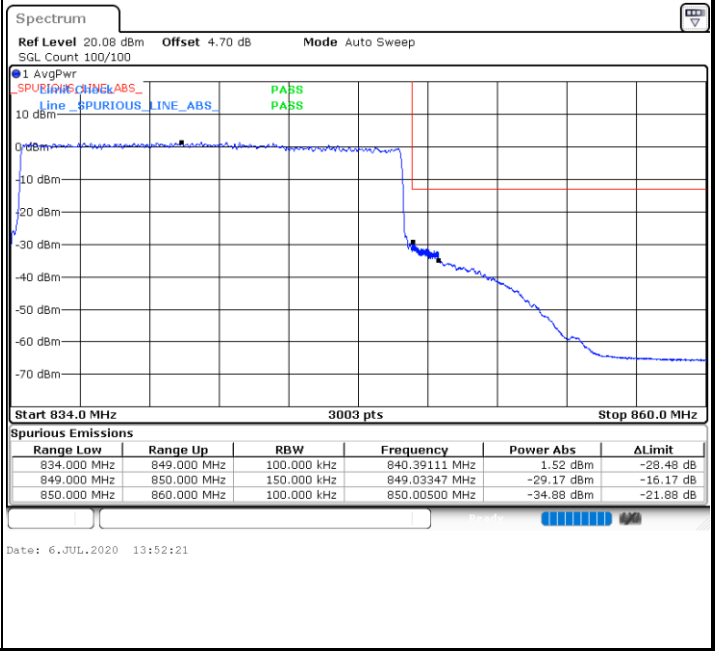
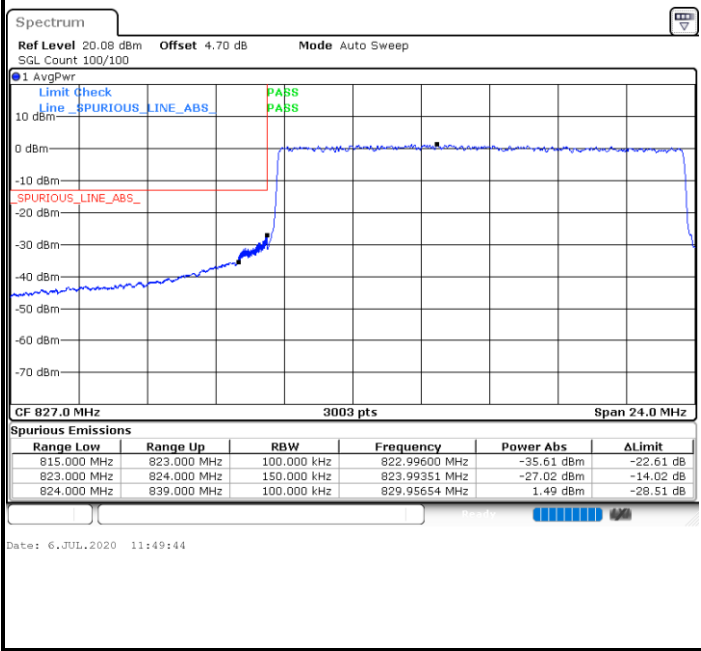
Date: 6.JUL.2020 14:12:49



FR1 n5 / 15MHz / CP OFDM / QPSK

Lowest Band Edge / Full RB

Highest Band Edge / Full RB

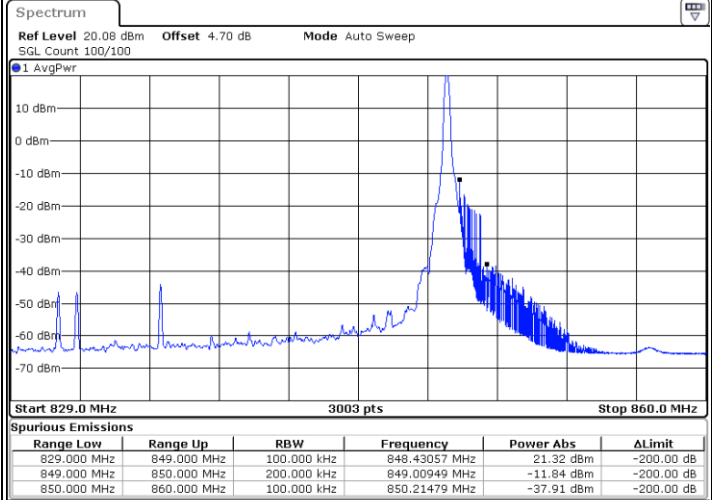
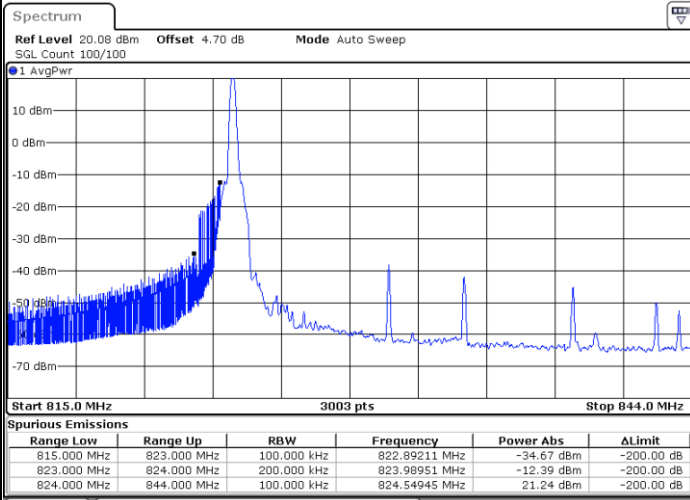




FR1 n5 / 20MHz / DFT-s-OFDM / PI/2 BPSK

Lowest Band Edge / 1RB0

Highest Band Edge / 1RBmax

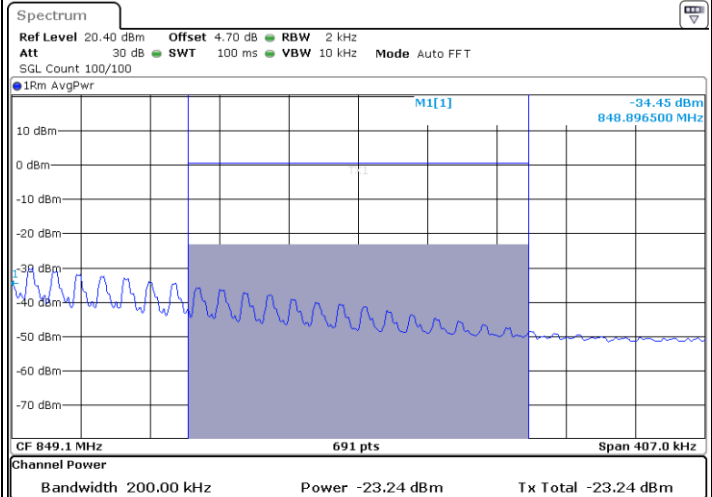
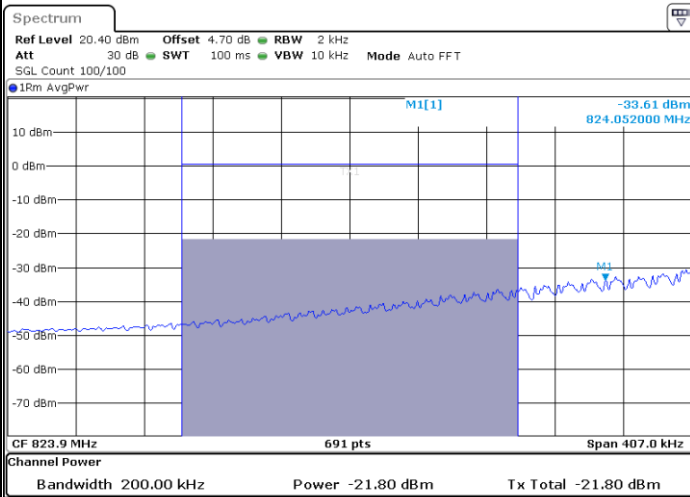


Date: 6.JUL.2020 10:12:16

Date: 6.JUL.2020 10:53:06

Channel Power -21.80dBm < -13dBm (Pass)

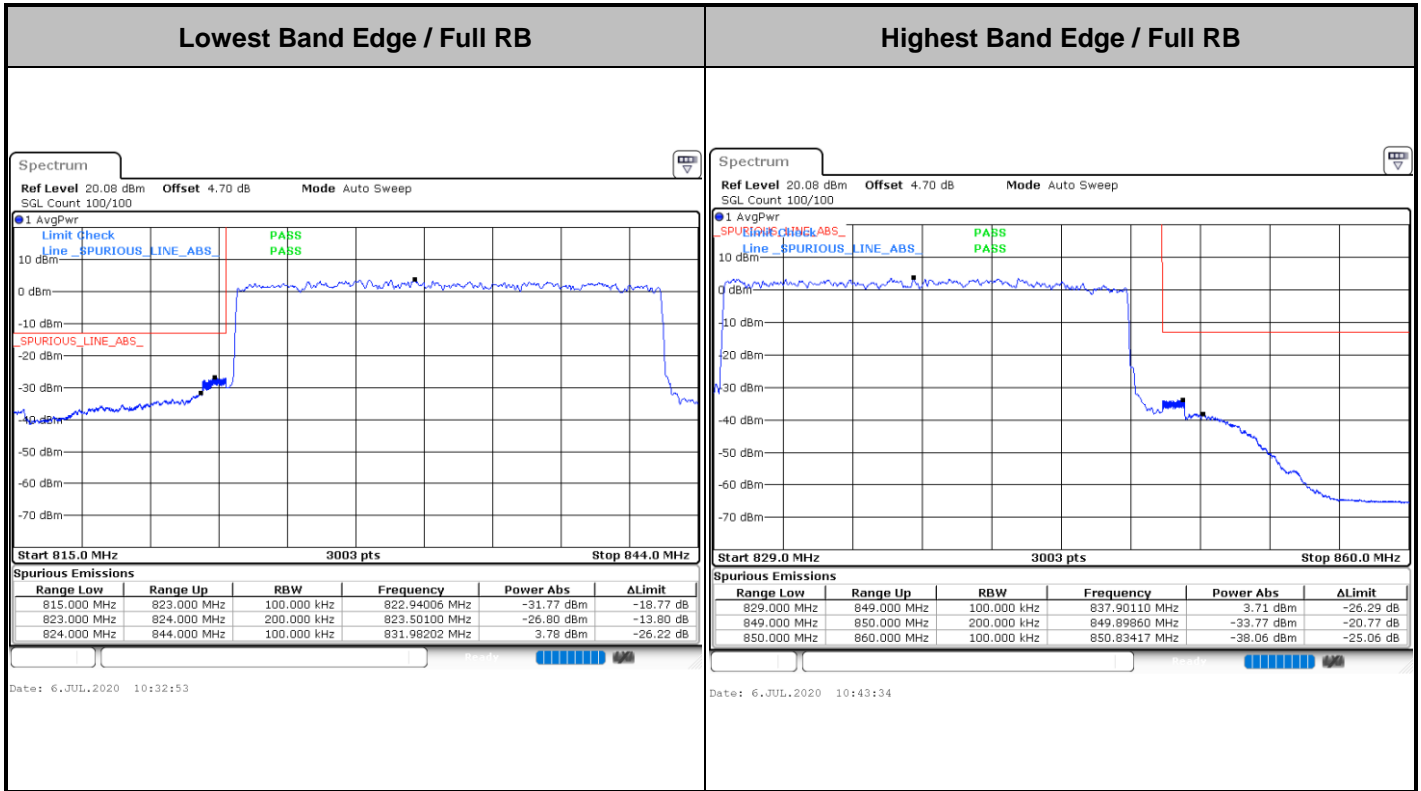
Channel Power -23.24dBm < -13dBm (Pass)



Date: 6.JUL.2020 10:26:40

Date: 6.JUL.2020 11:02:34



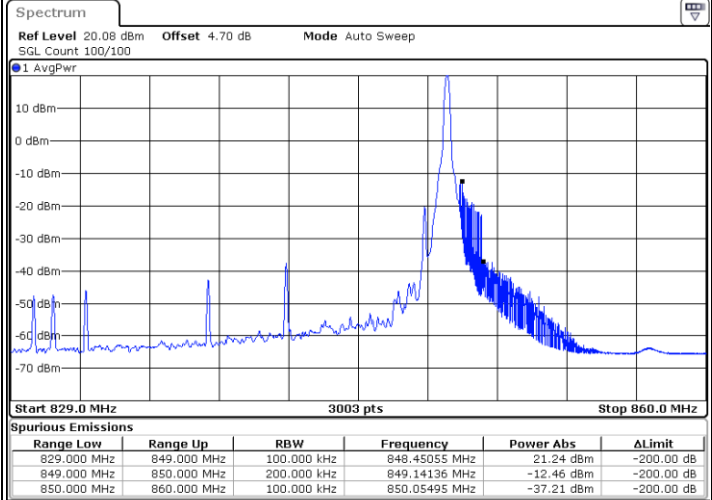
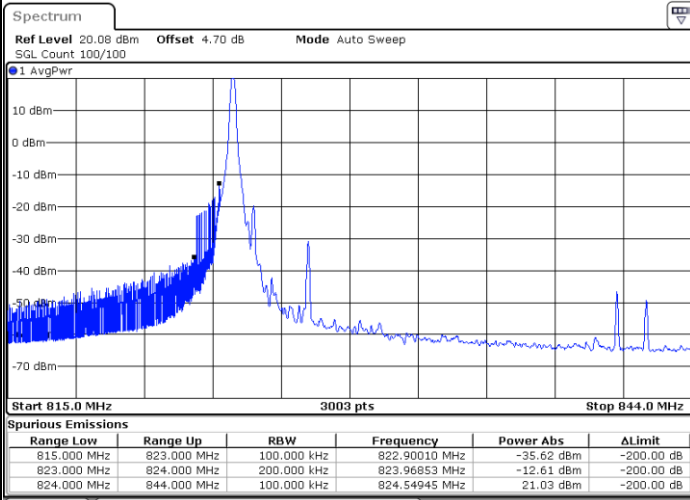




FR1 n5 / 20MHz / DFT-s-OFDM / QPSK

Lowest Band Edge / 1RB0

Highest Band Edge / 1RBmax

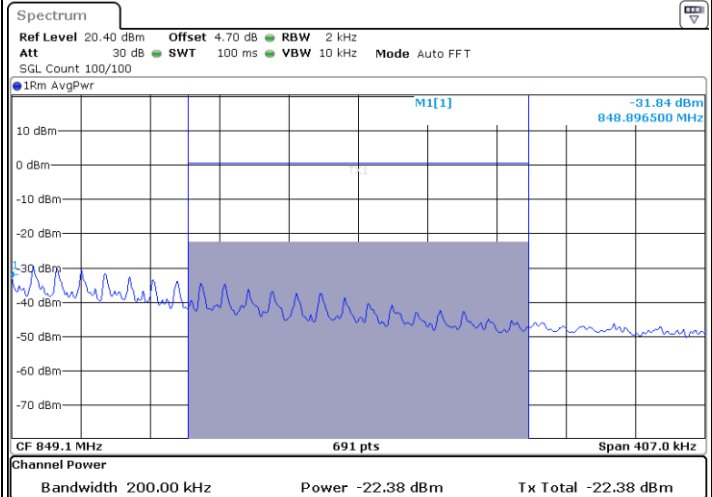
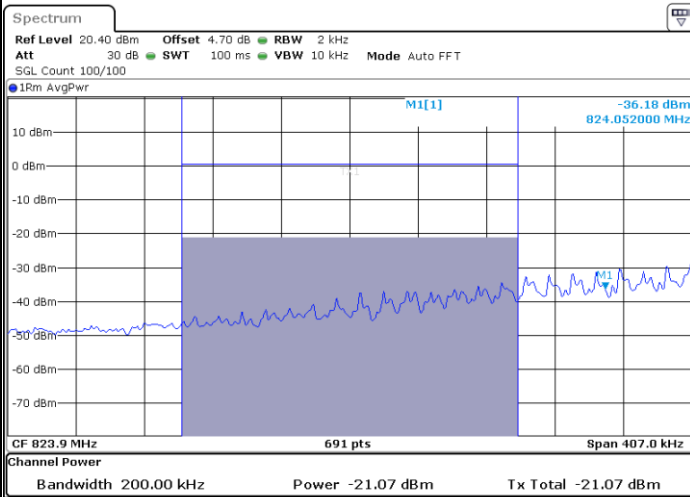


Date: 6.JUL.2020 10:12:46

Date: 6.JUL.2020 10:51:06

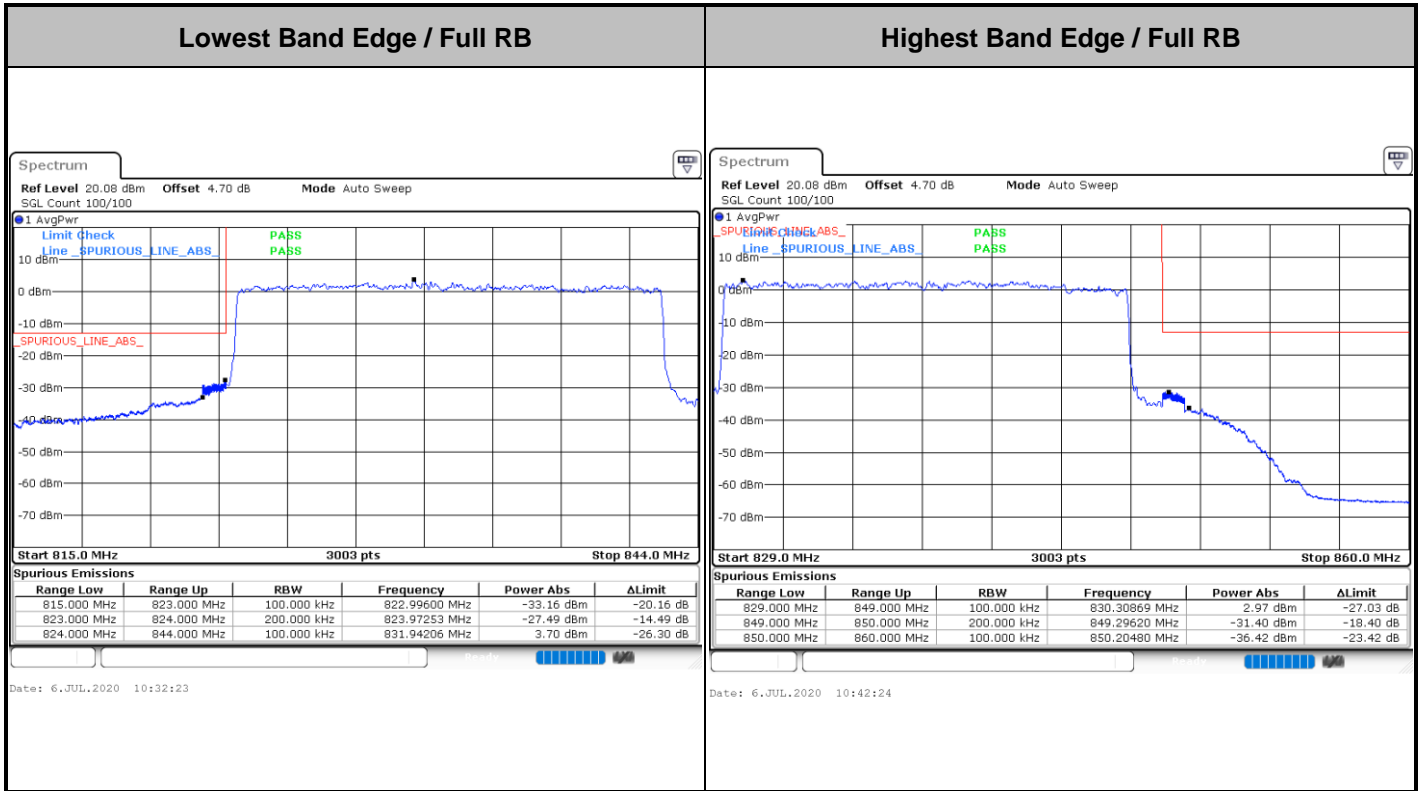
Channel Power -21.07dBm < -13dBm (Pass)

Channel Power -22.38dBm < -13dBm (Pass)



Date: 6.JUL.2020 10:27:42

Date: 6.JUL.2020 11:02:54

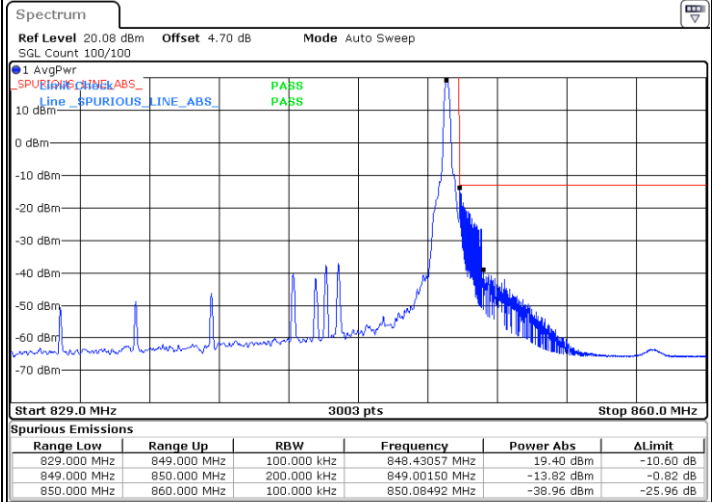
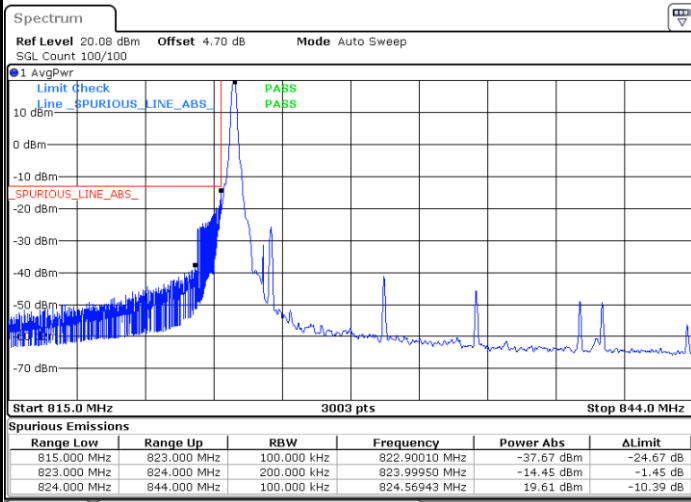




FR1 n5 / 20MHz / DFT-s-OFDM / 16QAM

Lowest Band Edge / 1RB0

Highest Band Edge / 1RBmax

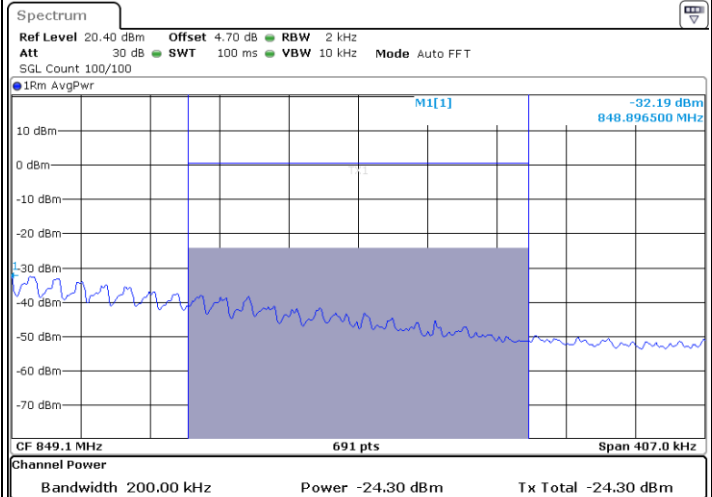
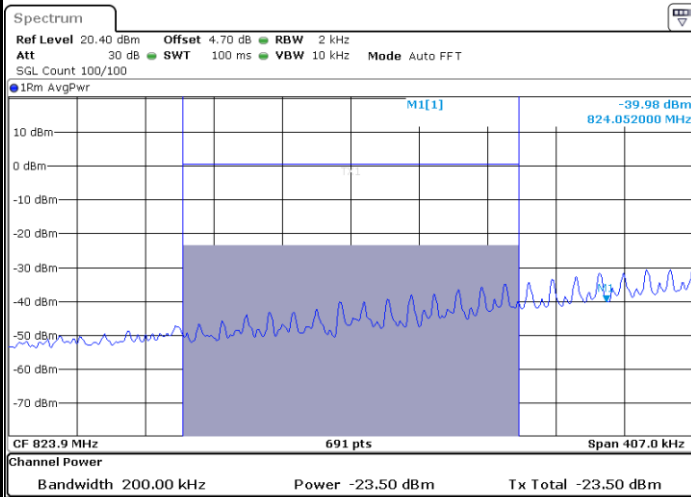


Date: 6.JUL.2020 10:14:11

Date: 6.JUL.2020 10:54:18

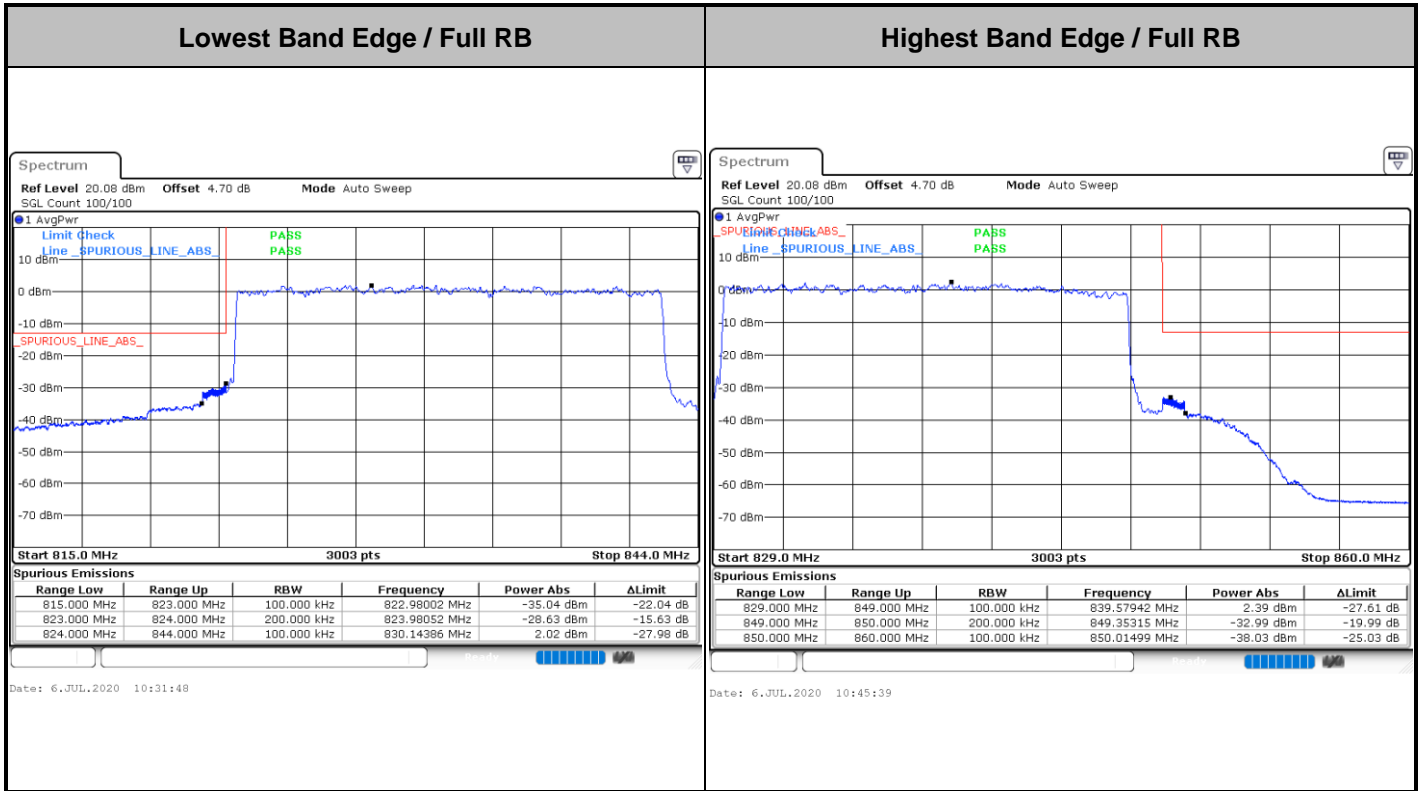
Channel Power -23.50dBm < -13dBm (Pass)

Channel Power -24.30dBm < -13dBm (Pass)



Date: 6.JUL.2020 10:28:03

Date: 6.JUL.2020 10:56:39

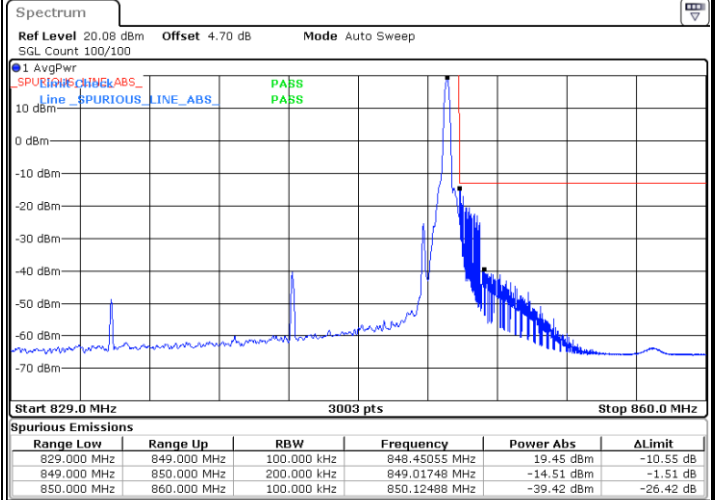
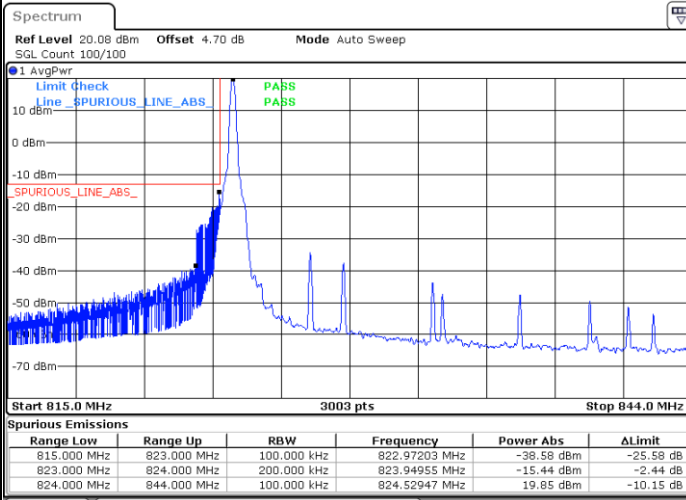




FR1 n5 / 20MHz / DFT-s-OFDM / 64QAM

Lowest Band Edge / 1RB0

Highest Band Edge / 1RBmax

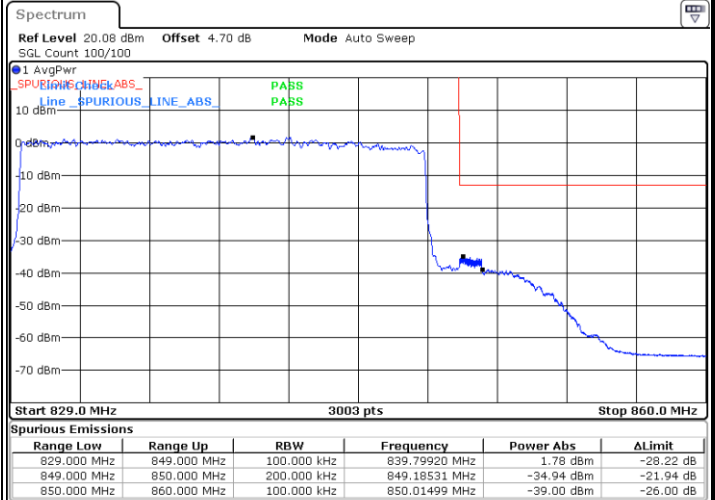
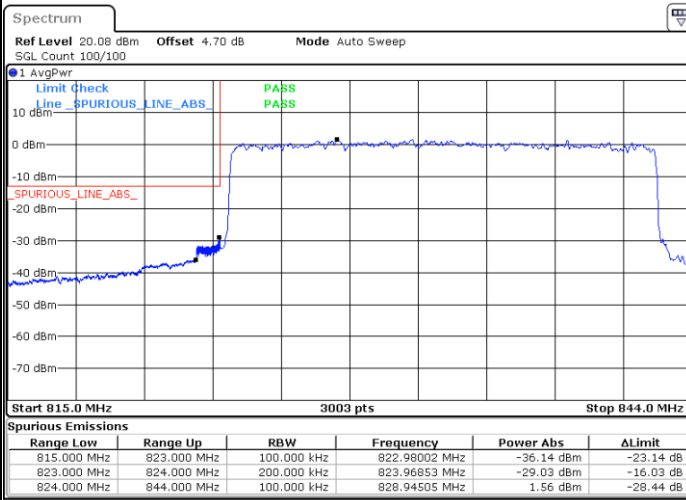


Date: 6.JUL.2020 10:15:45

Date: 6.JUL.2020 10:47:48

Lowest Band Edge / Full RB

Highest Band Edge / Full RB



Date: 6.JUL.2020 10:33:50

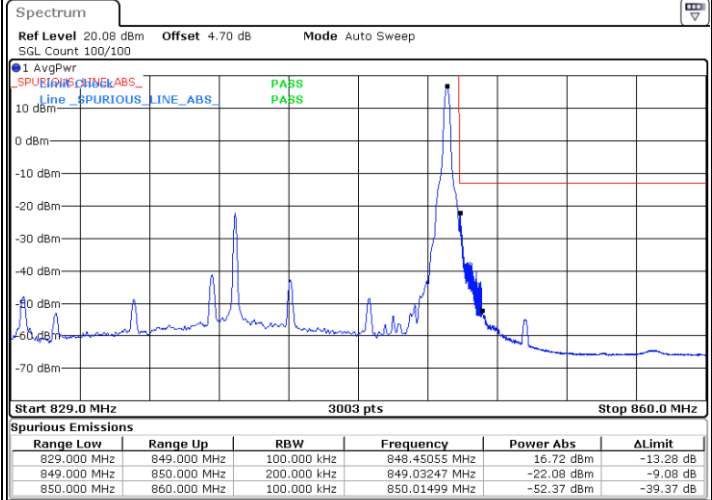
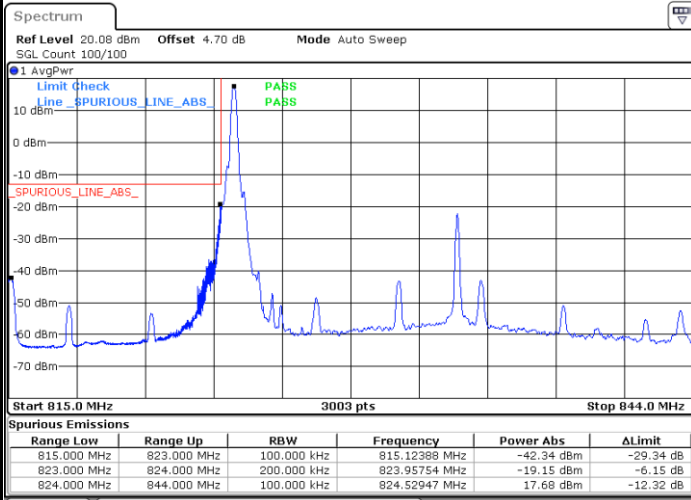
Date: 6.JUL.2020 10:46:46



FR1 n5 / 20MHz / DFT-s-OFDM / 256QAM

Lowest Band Edge / 1RB0

Highest Band Edge / 1RBmax

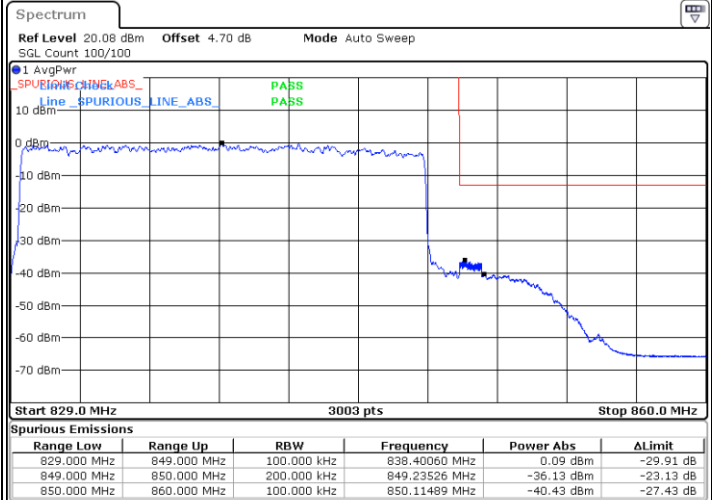
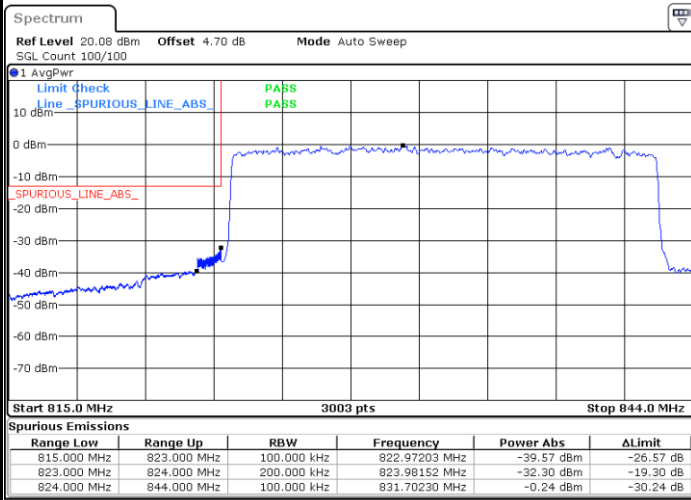


Date: 6.JUL.2020 10:36:41

Date: 6.JUL.2020 11:06:00

Lowest Band Edge / Full RB

Highest Band Edge / Full RB



Date: 6.JUL.2020 10:34:49

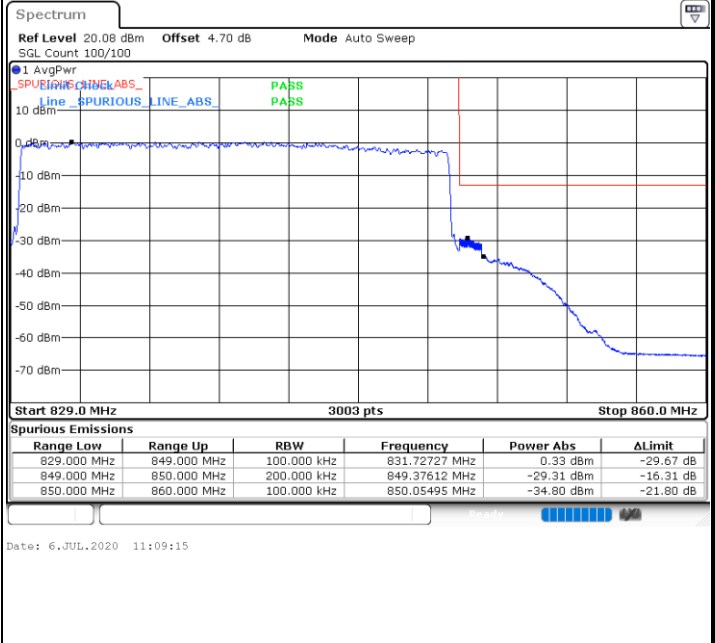
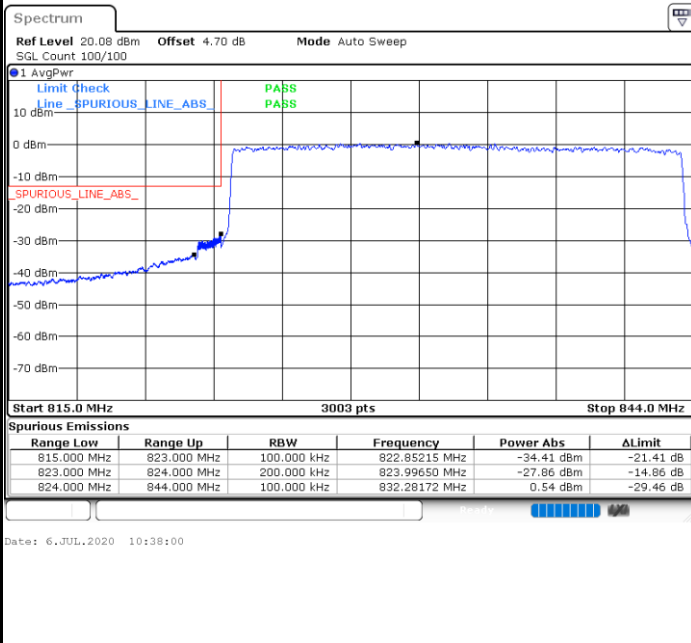
Date: 6.JUL.2020 11:08:31



FR1 n5 / 20MHz / CP OFDM / QPSK

Lowest Band Edge / Full RB

Highest Band Edge / Full RB





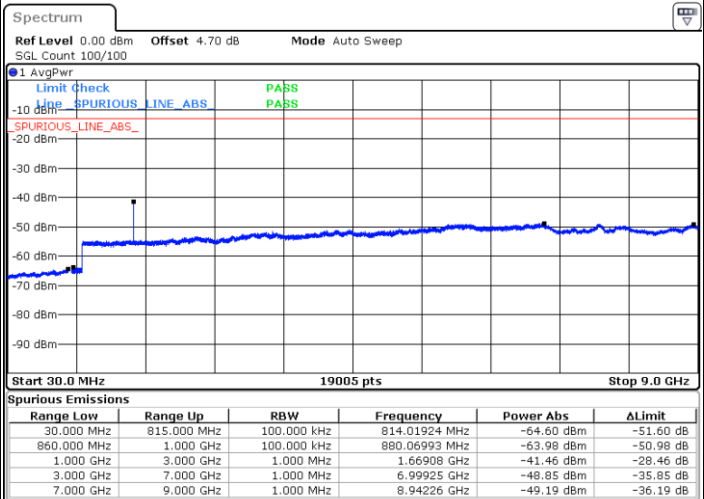
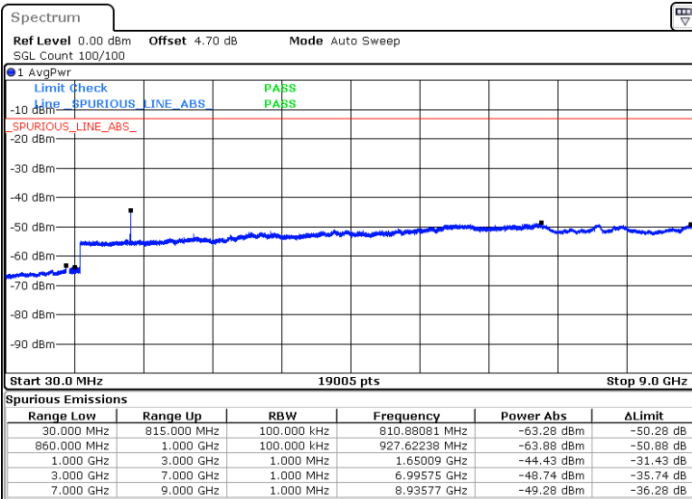


# Conducted Spurious Emission

FR1 n5 / 5MHz / DFT-S OFDM / QPSK

Lowest Channel / 1RB1

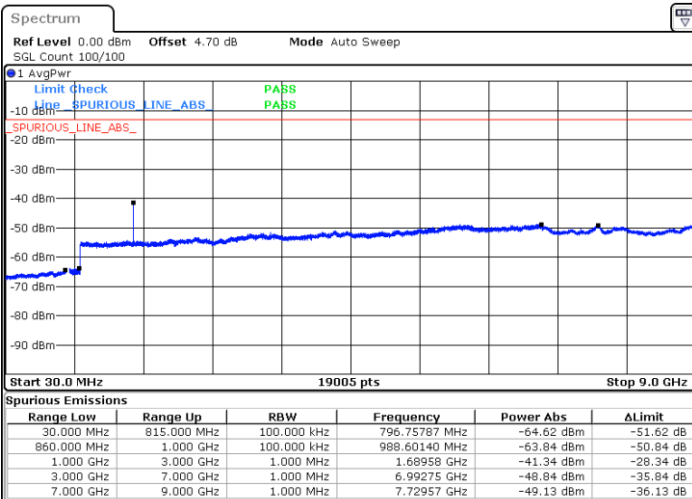
Middle Channel / 1RB1



Date: 7.JUL.2020 04:28:52

Date: 7.JUL.2020 04:55:27

Highest Channel / 1RB1



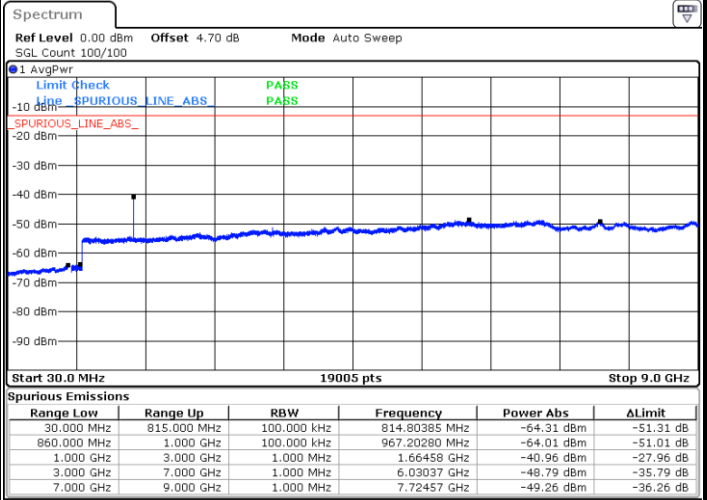
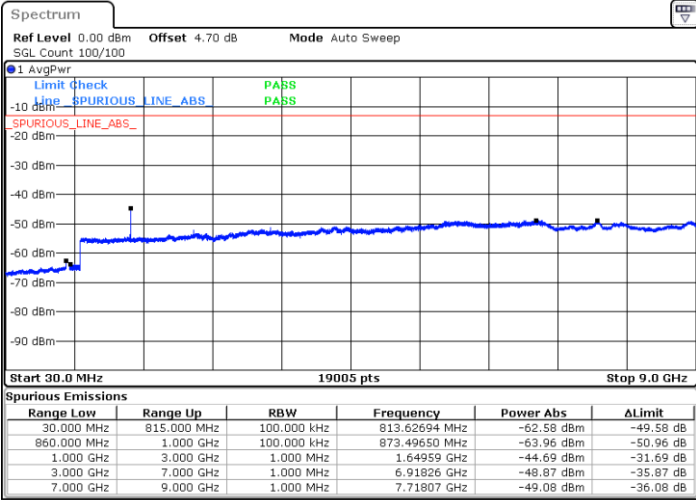
Date: 7.JUL.2020 05:40:51



FR1 n5 / 10MHz / DFT-S OFDM / QPSK

Lowest Channel / 1RB1

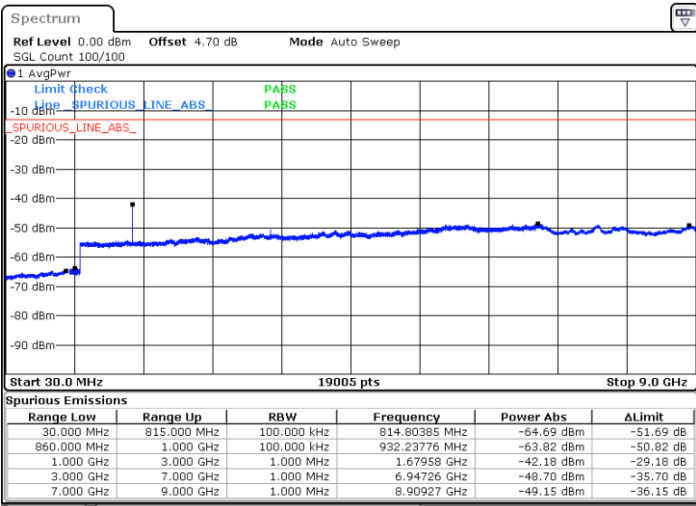
Middle Channel / 1RB1



Date: 7.JUL.2020 07:22:31

Date: 7.JUL.2020 06:34:55

Highest Channel / 1RB1



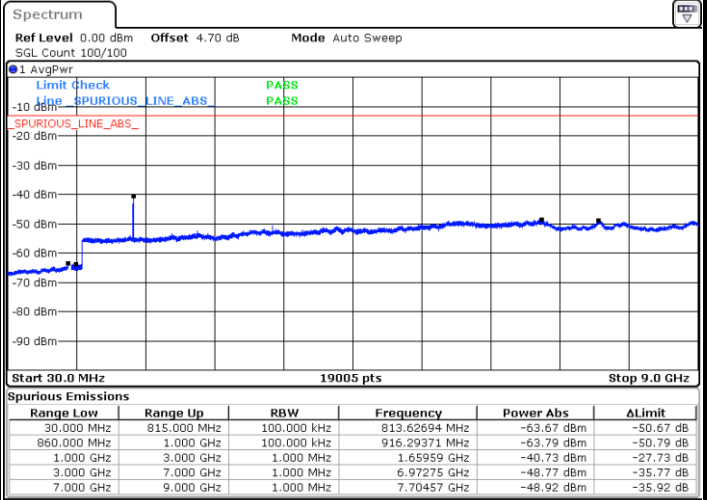
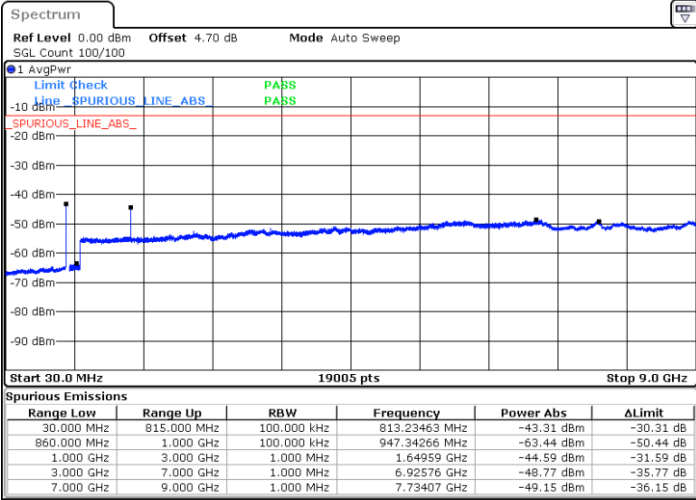
Date: 7.JUL.2020 06:03:46



FR1 n5 / 15MHz / DFT-S OFDM / QPSK

Lowest Channel / 1RB1

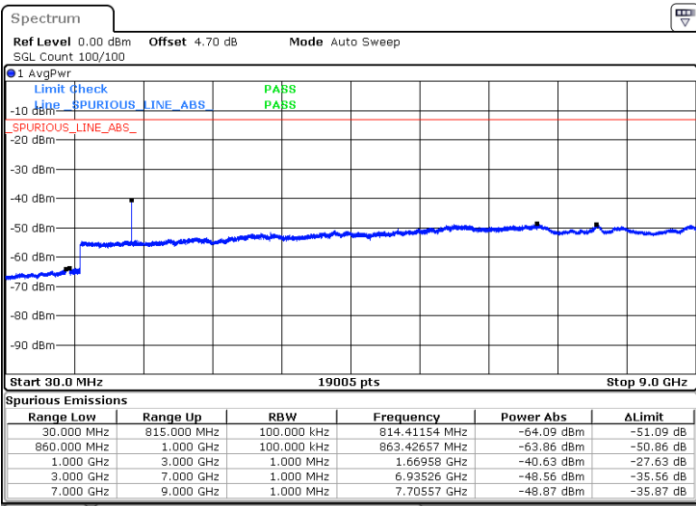
Middle Channel / 1RB1



Date: 6.JUL.2020 11:52:44

Date: 6.JUL.2020 13:41:15

Highest Channel / 1RB1



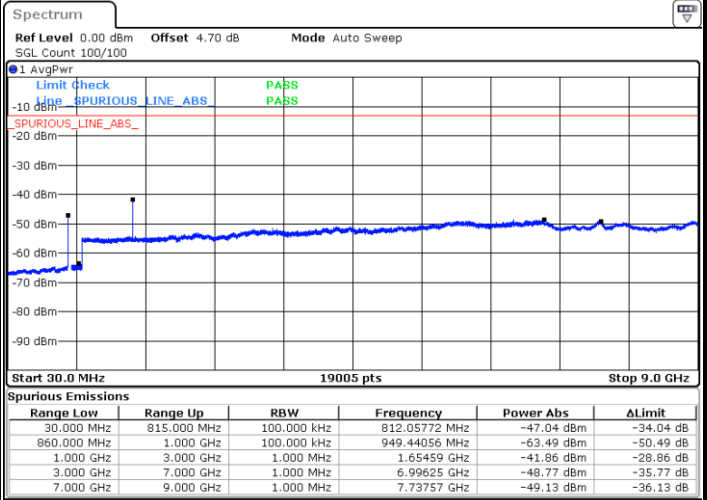
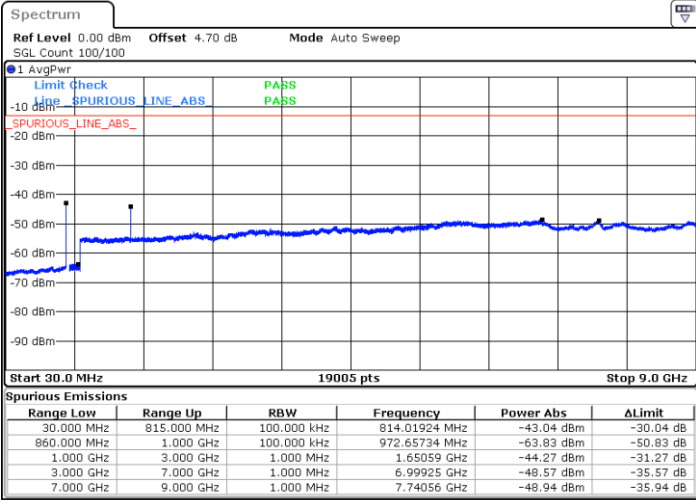
Date: 6.JUL.2020 14:10:29



FR1 n5 / 20MHz / DFT-S OFDM / QPSK

Lowest Channel / 1RB1

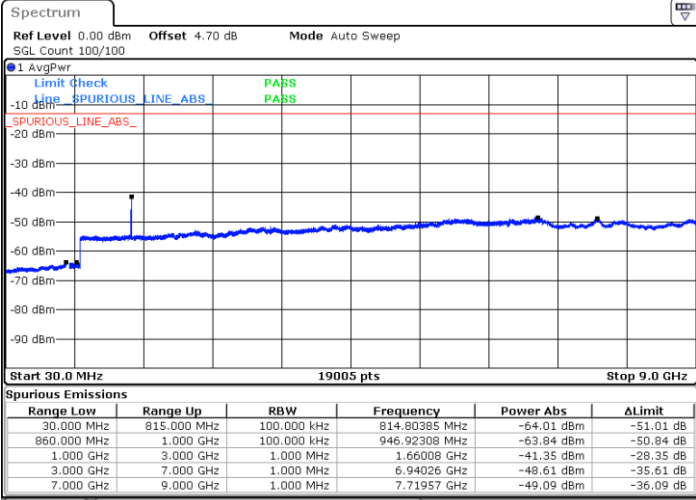
Middle Channel / 1RB1



Date: 6.JUL.2020 10:39:22

Date: 6.JUL.2020 10:40:32

Highest Channel / 1RB1



Date: 6.JUL.2020 10:41:24



### Frequency Stability

Test Conditions		FR1 n5 (QPSK) / Middle Channel	Limit
Temperature (°C)	Voltage (Volt)	BW 20MHz	Note 2.
		Deviation (ppm)	Result
50	Normal Voltage	0.0008	PASS
40	Normal Voltage	0.0017	
30	Normal Voltage	0.0023	
20(Ref.)	Normal Voltage	0.0000	
10	Normal Voltage	0.0020	
0	Normal Voltage	0.0004	
-10	Normal Voltage	0.0011	
-20	Normal Voltage	0.0006	
-30	Normal Voltage	0.0001	
20	Maximum Voltage	0.0014	
20	Normal Voltage	0.0033	
20	Battery End Point	0.0004	

**Note:**

- 1. Normal Voltage =3.87 V. ; Battery End Point (BEP) =3.60 V. ; Maximum Voltage =4.45 V.
- 2. The frequency fundamental emissions stay within the authorized frequency block.



# FR1 n12

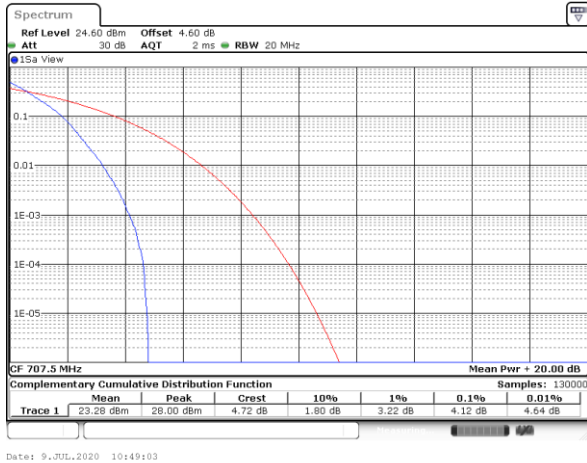
## Peak-to-Average Ratio

Mode	FR1 n12 / 15MHz / DFT-S OFDM				
Mod.	PI/2 BPSK	QPSK	16QAM	64QAM	Limit: 13dB
RB Size	Full RB	Full RB	Full RB	Full RB	Result
Middle CH	4.12	5.28	6.17	6.38	PASS
Mode	FR1 n12 / 15MHz / DFT-S OFDM				
Mod.	256QAM				Limit: 13dB
RB Size	Full RB				Result
Middle CH	6.64				PASS



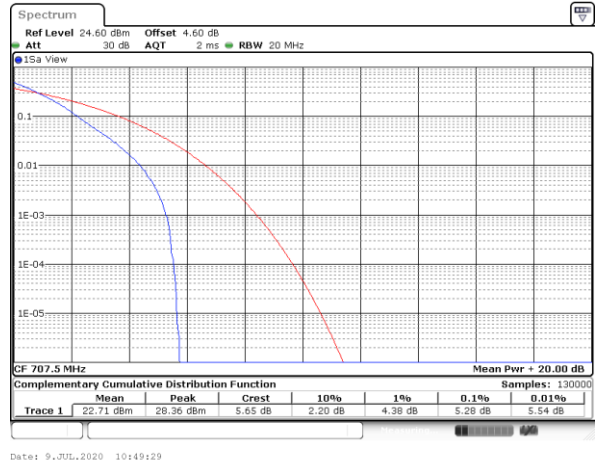
FR1 n12 / 15MHz / DFT-S OFDM / Middle Channel / Full RB

PI/2 BPSK



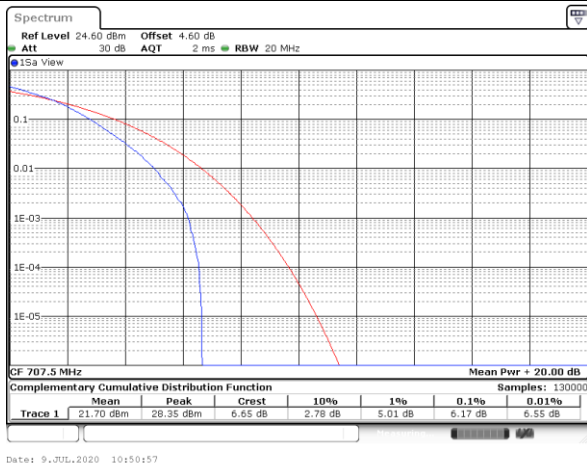
Date: 9 JUL 2020 10:49:03

QPSK



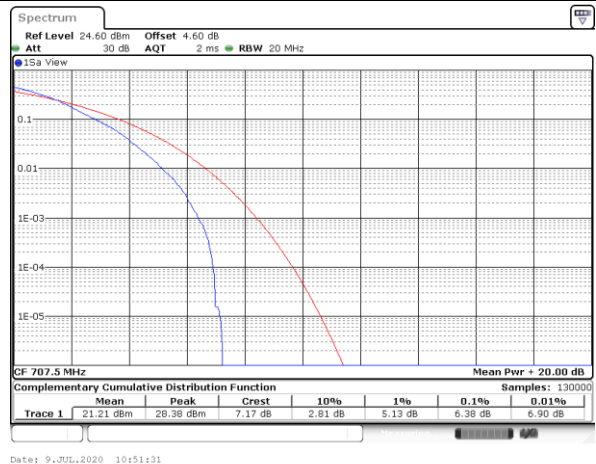
Date: 9 JUL 2020 10:49:29

16QAM



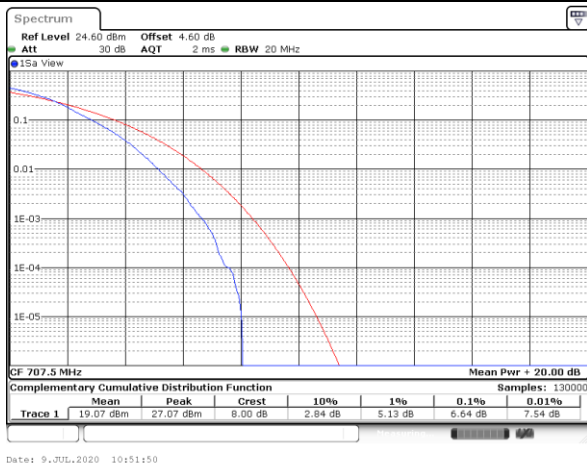
Date: 9 JUL 2020 10:50:57

64QAM



Date: 9 JUL 2020 10:51:31

256QAM



Date: 9 JUL 2020 10:51:50



**26dB Bandwidth**

Mode	FR1 n12 : 26dB BW(MHz) / DFT-S OFDM							
BW	5MHz		10MHz		15MHz			
Mod.	PI/2 BPSK		PI/2 BPSK		PI/2 BPSK			
Middle CH	5.07		9.45		14.33			

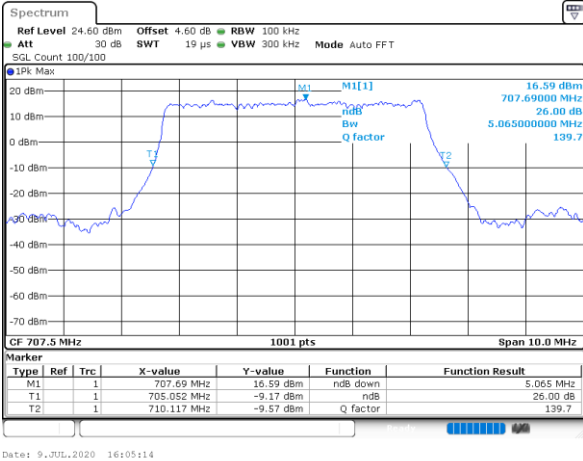
Mode	FR1 n12 : 26dB BW(MHz) / CP OFDM							
BW	5MHz		10MHz		15MHz			
Mod.	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM		
Middle CH	5.14	4.97	9.99	9.97	14.93	14.99		
Mod.	64QAM	256QAM	64QAM	256QAM	64QAM	256QAM		
Middle CH	5.18	5.20	9.99	9.95	14.99	14.84		





FR1 n12 / 5MHz / DFT-S OFDM / Middle Channel

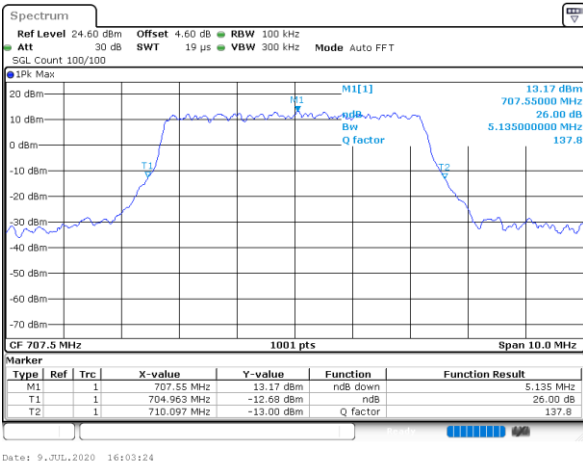
PI/2 BPSK



Date: 9 JUL 2020 16:05:14

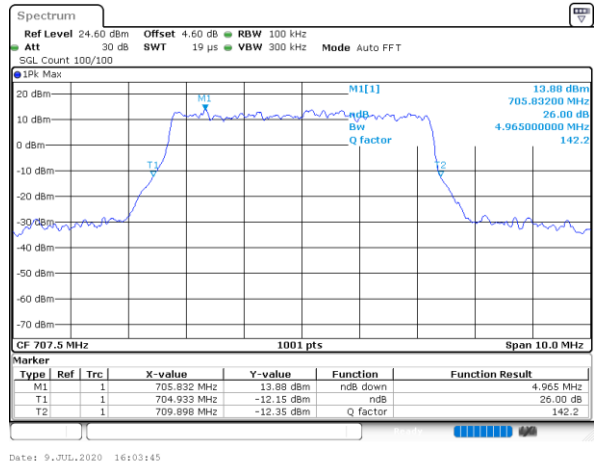
FR1 n12 / 5MHz / CP OFDM

QPSK



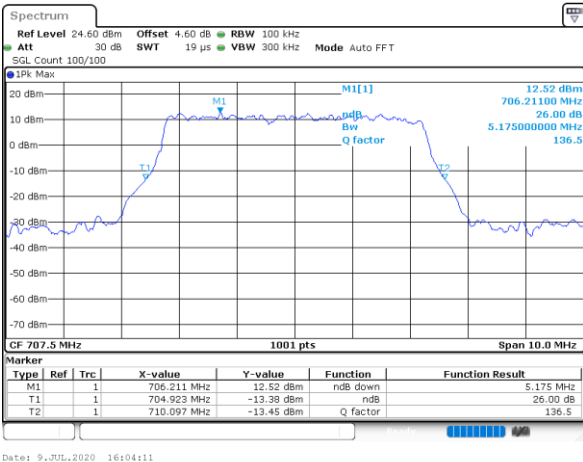
Date: 9 JUL 2020 16:03:24

16QAM



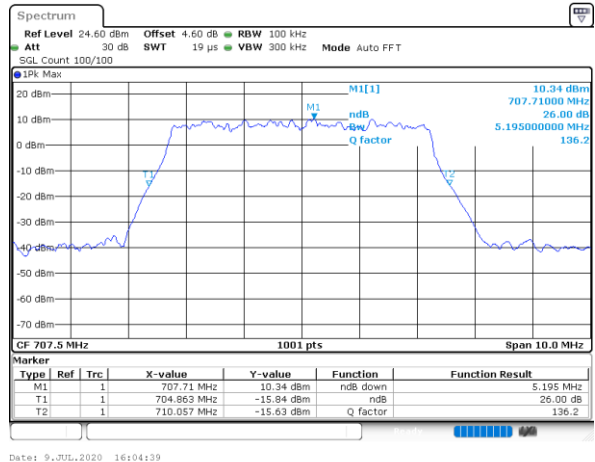
Date: 9 JUL 2020 16:03:45

64QAM



Date: 9 JUL 2020 16:04:11

256QAM

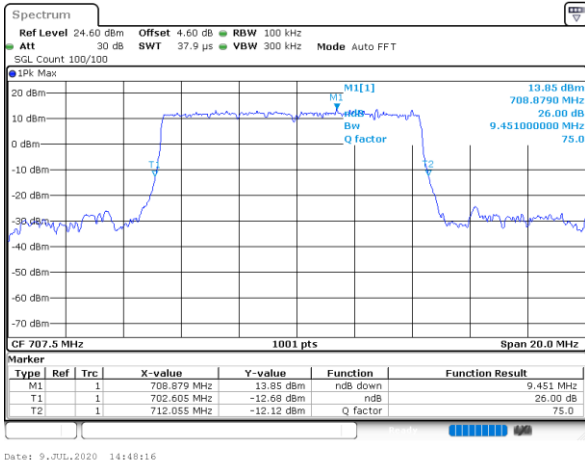


Date: 9 JUL 2020 16:04:39



FR1 n12 / 10MHz / DFT-S OFDM / Middle Channel

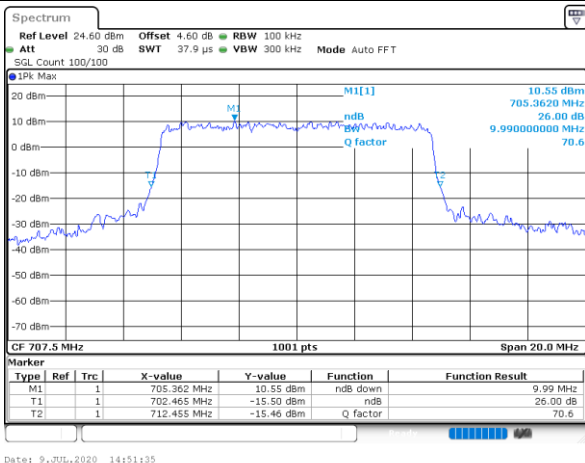
PI/2 BPSK



Date: 9 JUL 2020 14:48:16

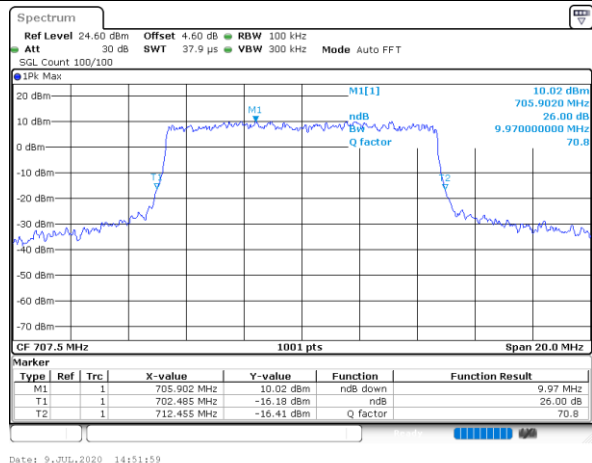
FR1 n12 / 10MHz / CP OFDM

QPSK



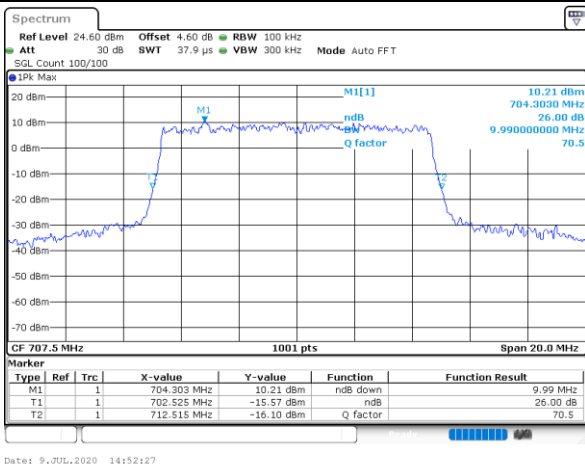
Date: 9 JUL 2020 14:51:35

16QAM



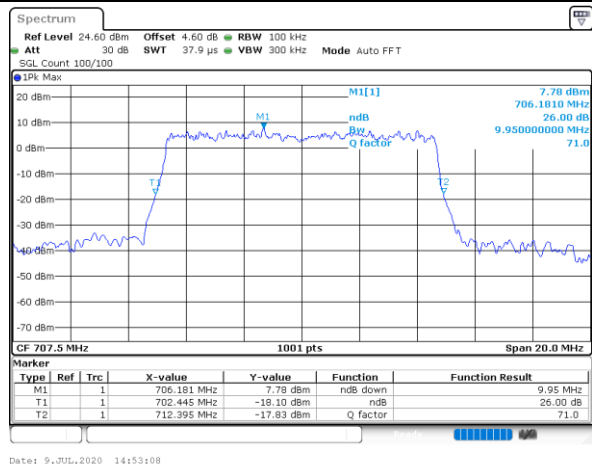
Date: 9 JUL 2020 14:51:59

64QAM



Date: 9 JUL 2020 14:52:27

256QAM

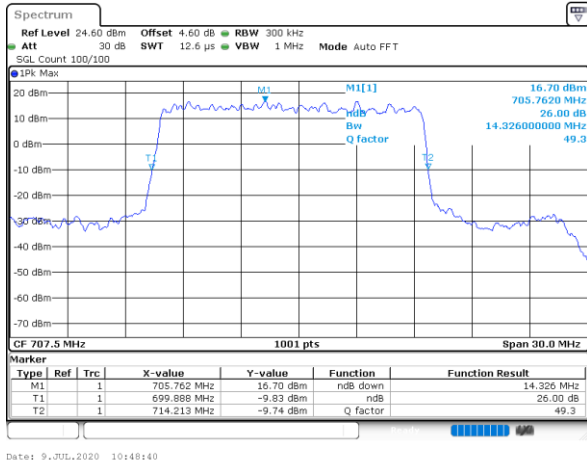


Date: 9 JUL 2020 14:53:08



FR1 n12 / 15MHz / DFT-S OFDM / Middle Channel

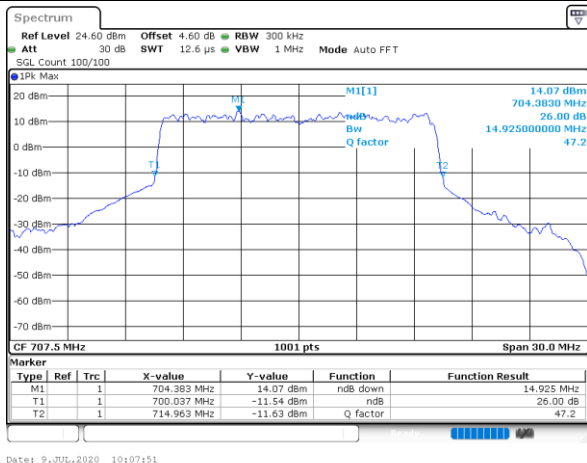
PI/2 BPSK



Date: 9 JUL 2020 10:48:40

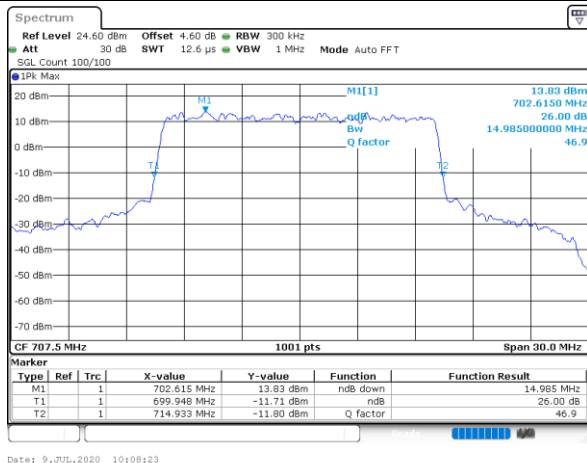
FR1 n12 / 15MHz / CP OFDM

QPSK



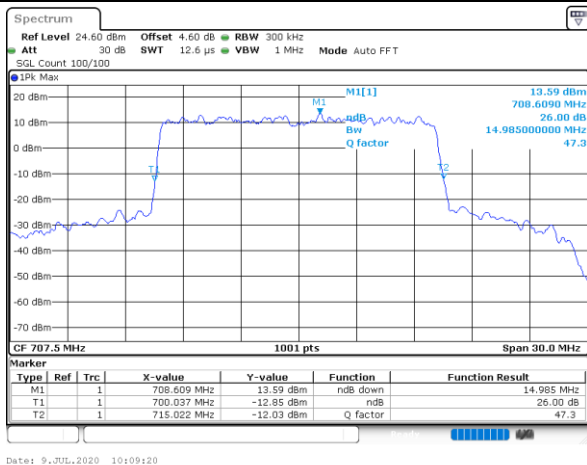
Date: 9 JUL 2020 10:07:51

16QAM



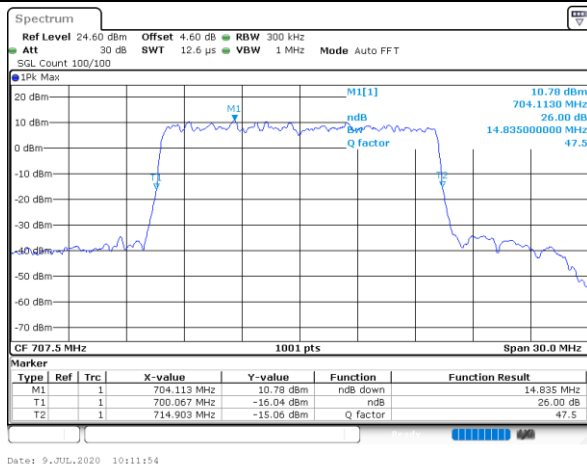
Date: 9 JUL 2020 10:08:23

64QAM



Date: 9 JUL 2020 10:09:20

256QAM



Date: 9 JUL 2020 10:11:54



**Occupied Bandwidth**

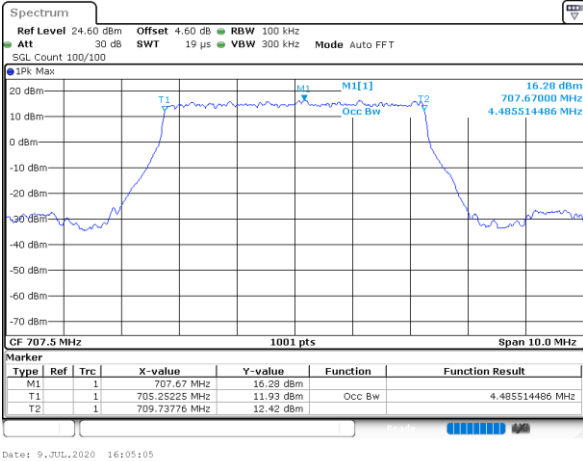
Mode	FR1 n12 : 99%OBW(MHz) / DFT-S OFDM							
BW	5MHz		10MHz		15MHz			
Mod.	PI/2 BPSK		PI/2 BPSK		PI/2 BPSK			
Middle CH	4.49		8.89		13.49			

Mode	FR1 n12 : 99%OBW (MHz) / CP OFDM							
BW	5MHz		10MHz		15MHz			
Mod.	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM		
Middle CH	4.54	4.55	9.25	9.23	14.12	14.09		
Mod.	64QAM	256QAM	64QAM	256QAM	64QAM	256QAM		
Middle CH	4.51	4.50	9.25	9.25	14.21	14.06		



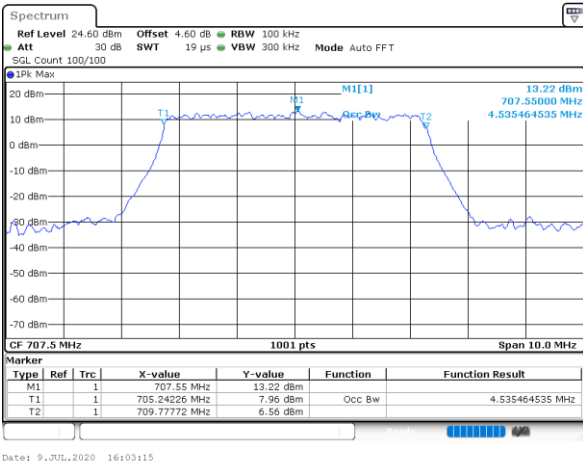
FR1 n12 / 5MHz / DFT-S OFDM / Middle Channel

PI/2 BPSK

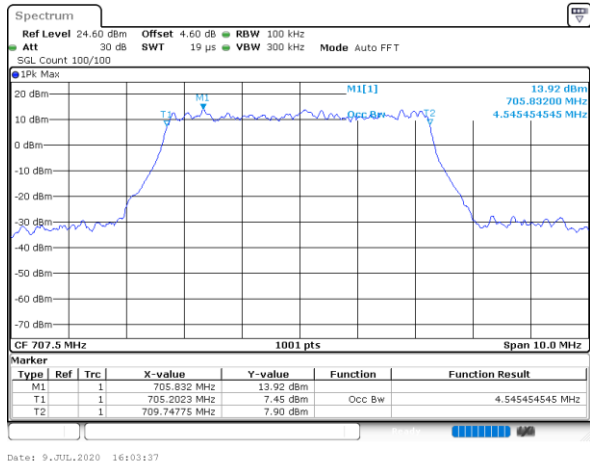


FR1 n12 / 5MHz / CP OFDM

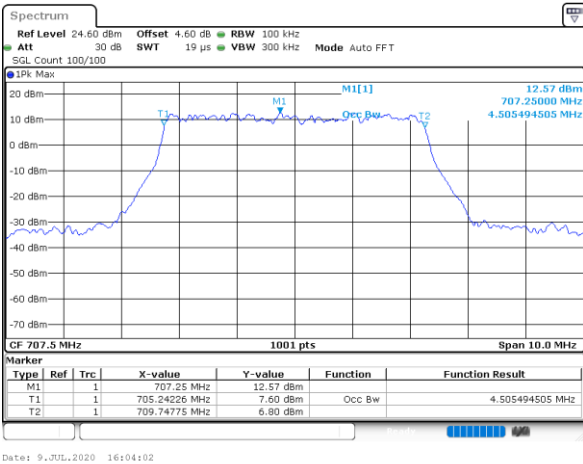
QPSK



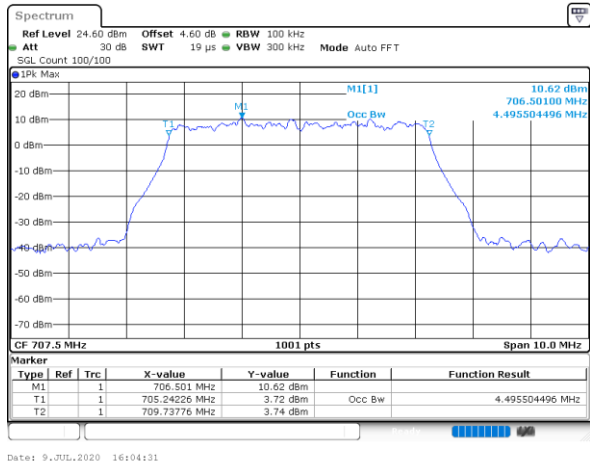
16QAM



64QAM



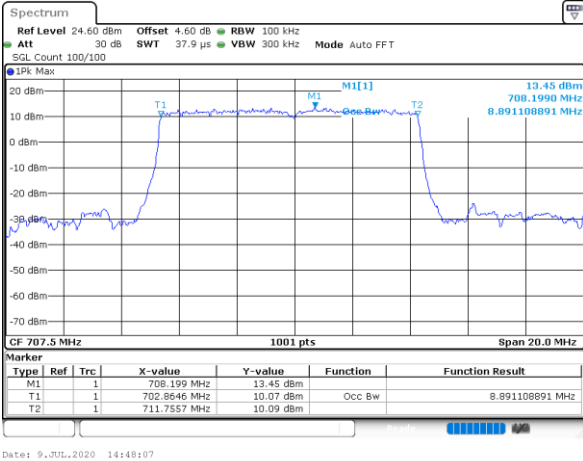
256QAM





FR1 n12 / 10MHz / DFT-S OFDM / Middle Channel

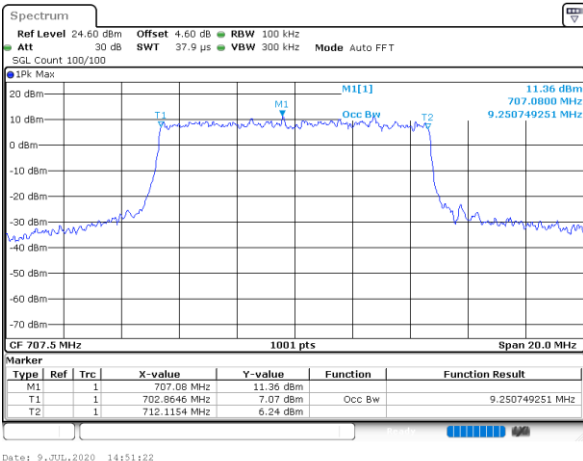
PI/2 BPSK



Date: 9 JUL 2020 14:48:07

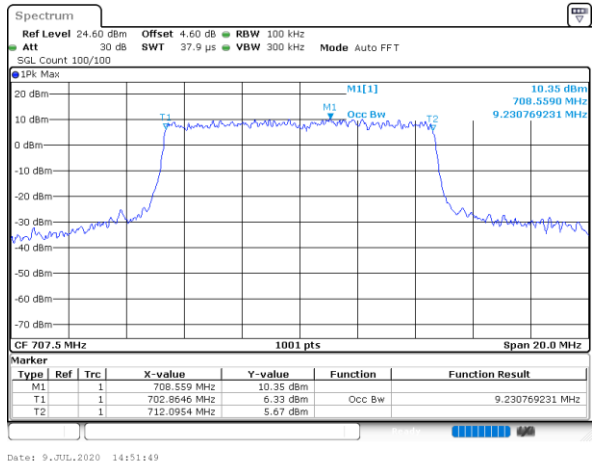
FR1 n12 / 10MHz / CP OFDM

QPSK



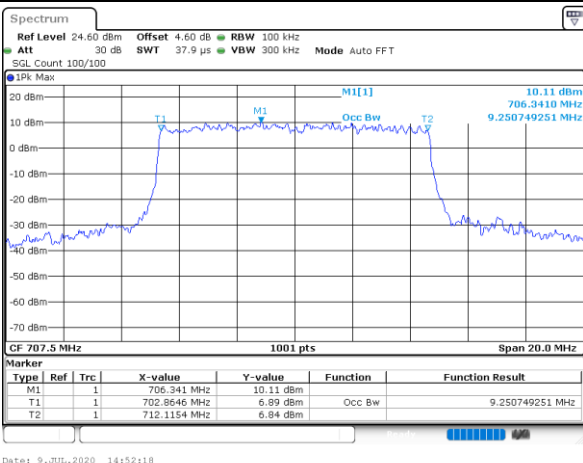
Date: 9 JUL 2020 14:51:22

16QAM



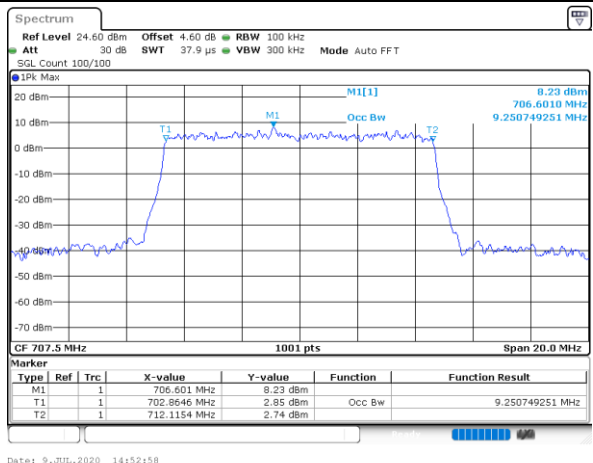
Date: 9 JUL 2020 14:51:49

64QAM



Date: 9 JUL 2020 14:52:18

256QAM

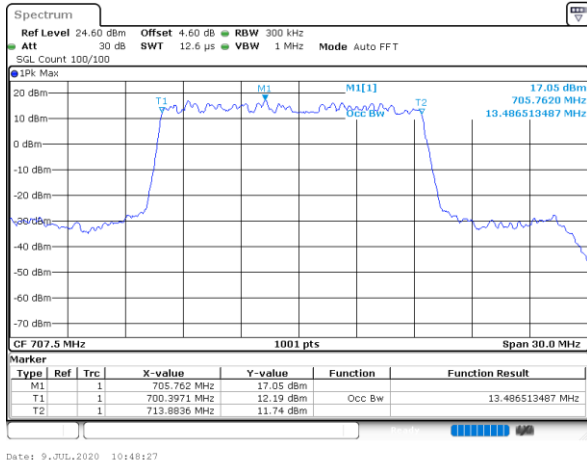


Date: 9 JUL 2020 14:52:58



FR1 n12 / 15MHz / DFT-S OFDM Middle Channel

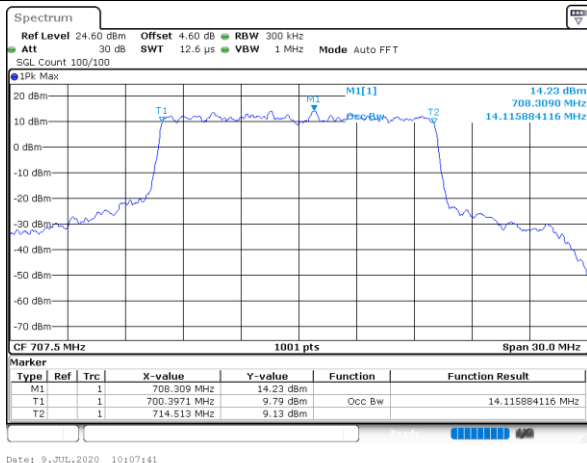
PI/2 BPSK



Date: 9 JUL 2020 10:48:27

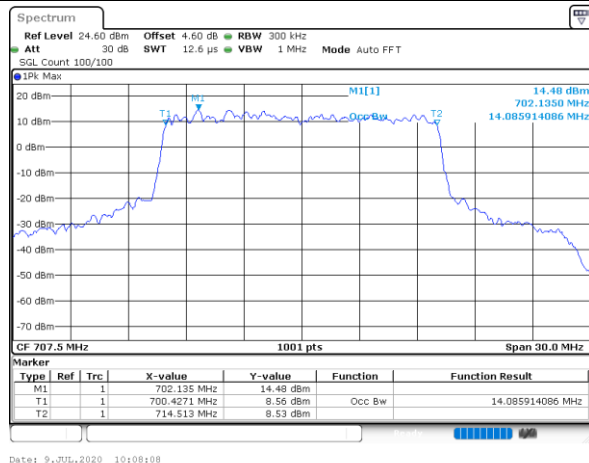
FR1 n12 / 15MHz / CP OFDM

QPSK



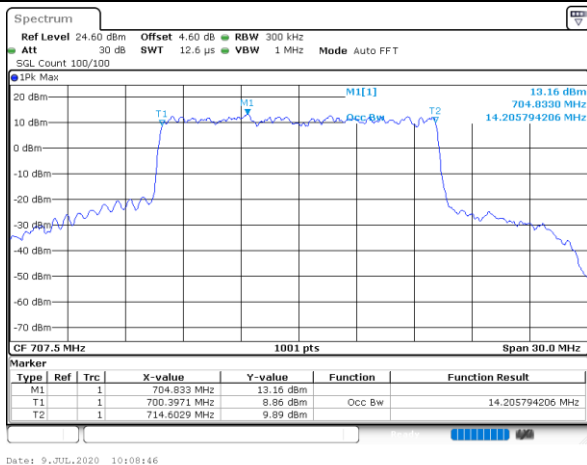
Date: 9 JUL 2020 10:07:41

16QAM



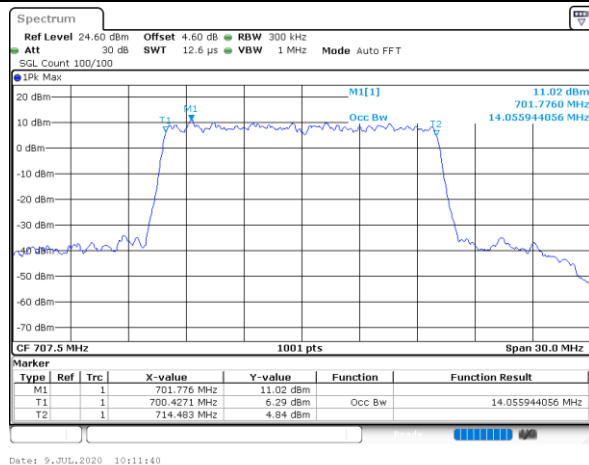
Date: 9 JUL 2020 10:08:08

64QAM



Date: 9 JUL 2020 10:08:46

256QAM



Date: 9 JUL 2020 10:11:40

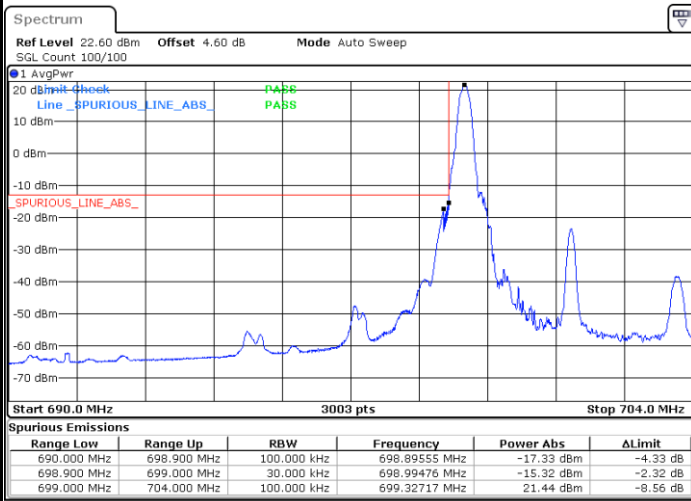


# Conducted Band Edge

FR1 n12 / 5MHz / DFT-S OFDM / PI/2 BPSK

Lowest Band Edge / 1RB0

Highest Band Edge / 1RBmax

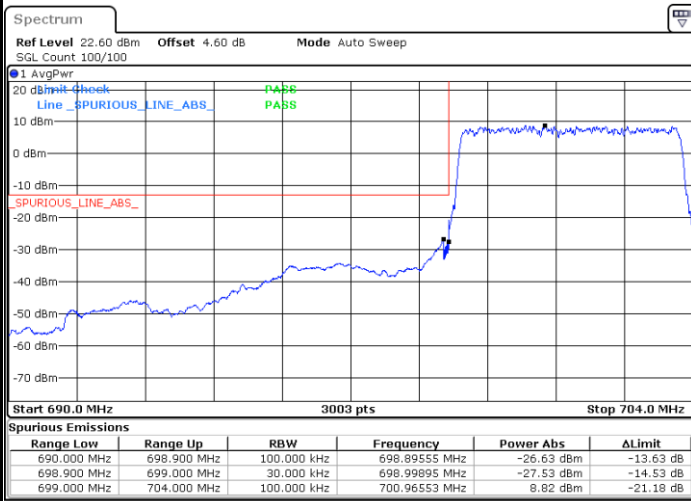


Date: 9.JUL.2020 15:54:55

Date: 9.JUL.2020 16:08:38

Lowest Band Edge / Full RB

Highest Band Edge / Full RB



Date: 9.JUL.2020 15:50:36

Date: 9.JUL.2020 16:09:35

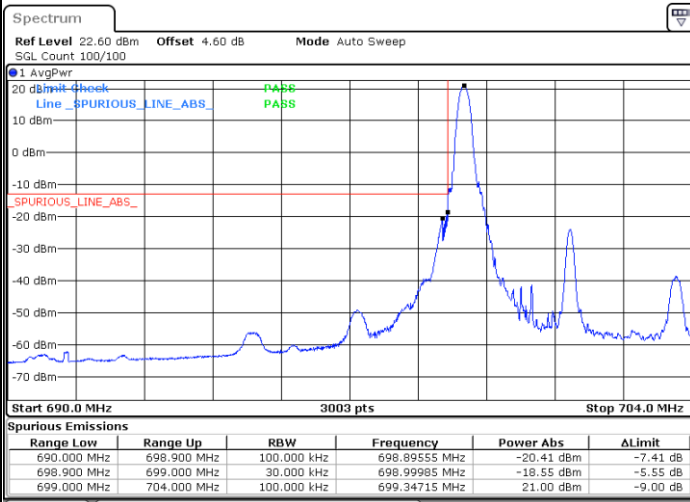




FR1 n12 / 5MHz / DFT-S OFDM / QPSK

Lowest Band Edge / 1RB0

Highest Band Edge / 1RBmax

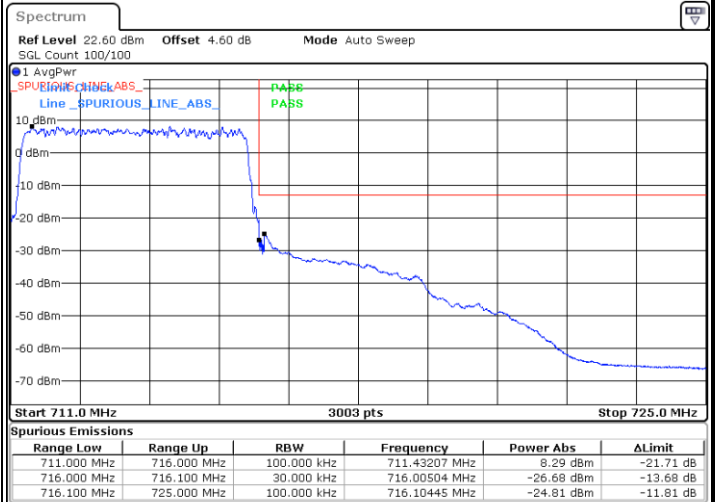
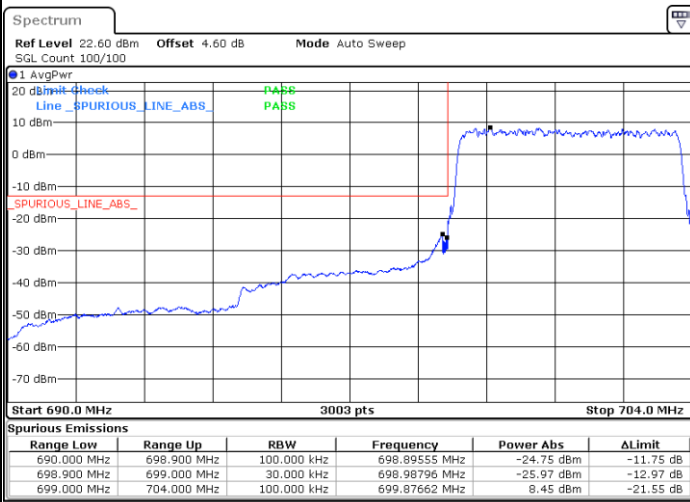


Date: 9.JUL.2020 15:56:09

Date: 9.JUL.2020 16:11:01

Lowest Band Edge / Full RB

Highest Band Edge / Full RB



Date: 9.JUL.2020 15:51:21

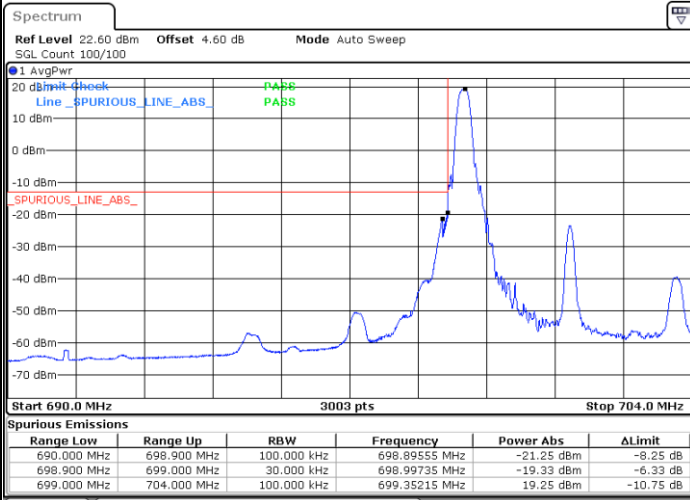
Date: 9.JUL.2020 16:10:18



FR1 n12 / 5MHz / DFT-S OFDM / 16QAM

Lowest Band Edge / 1RB0

Highest Band Edge / 1RBmax

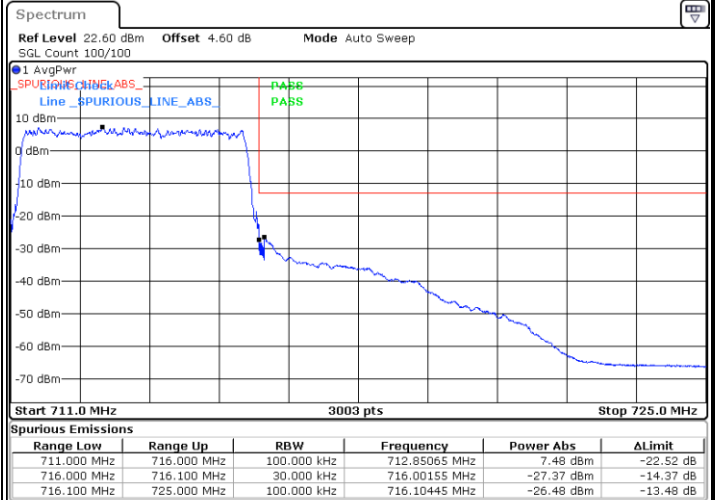
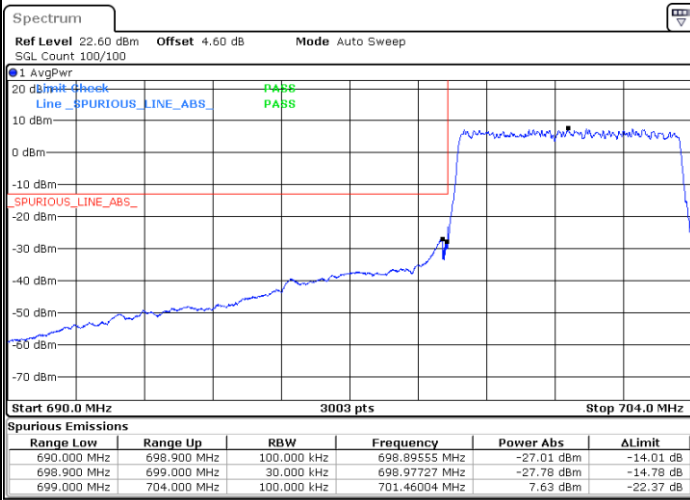


Date: 9.JUL.2020 15:57:28

Date: 9.JUL.2020 16:11:52

Lowest Band Edge / Full RB

Highest Band Edge / Full RB



Date: 9.JUL.2020 15:52:15

Date: 9.JUL.2020 16:15:35