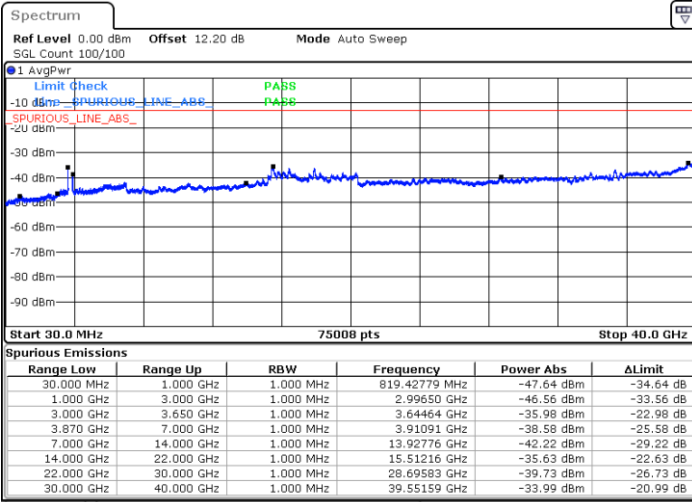




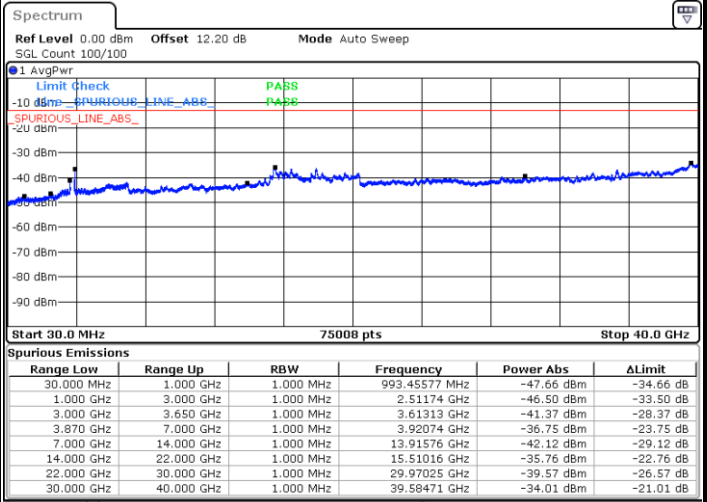
FR1 n78 / 50MHz / DFT-S OFDM / BPSK

Lowest Channel / 1RB

Middle Channel / 1RB

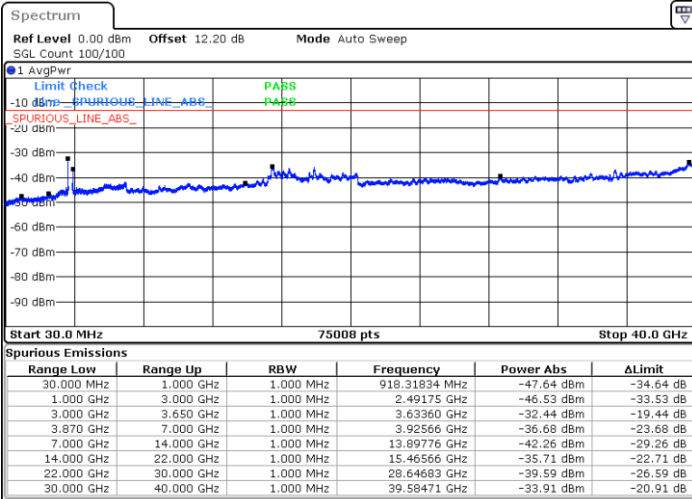


Date: 30.JAN.2021 02:48:18



Date: 30.JAN.2021 02:56:24

Highest Channel / 1RB



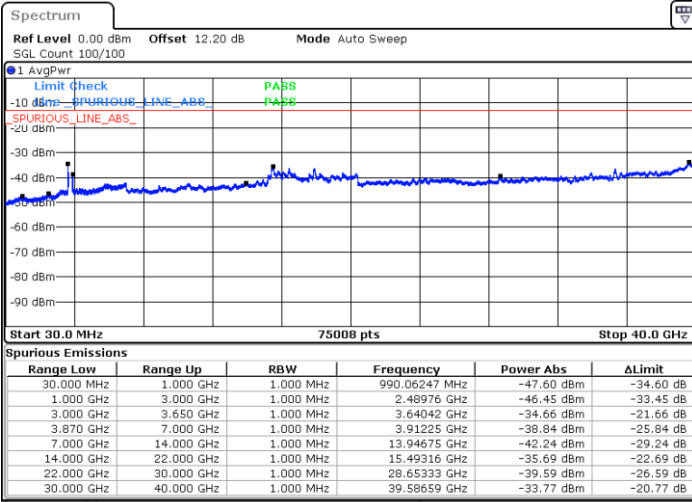
Date: 30.JAN.2021 03:00:11



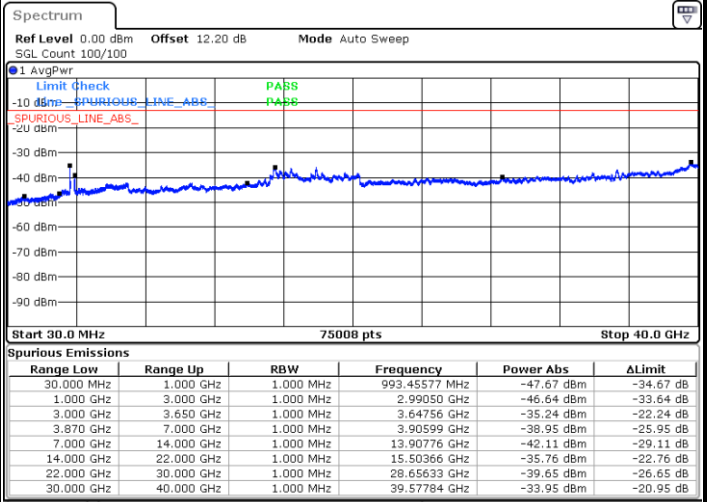
FR1 n78 / 50MHz / DFT-S OFDM / QPSK

Lowest Channel / 1RB

Middle Channel / 1RB

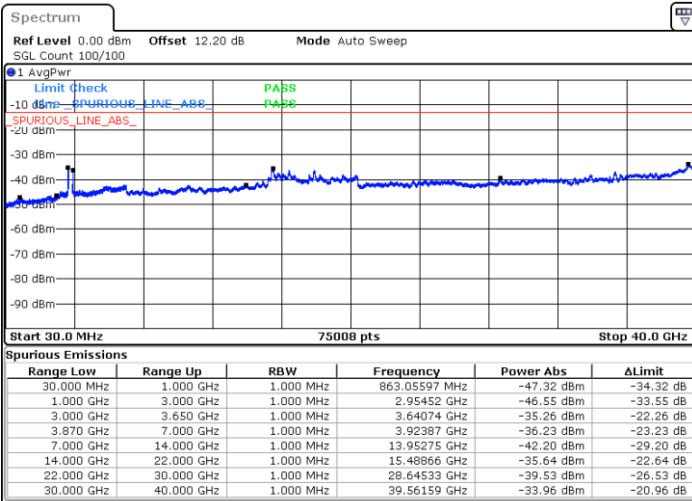


Date: 30.JAN.2021 02:49:34



Date: 30.JAN.2021 02:52:10

Highest Channel / 1RB

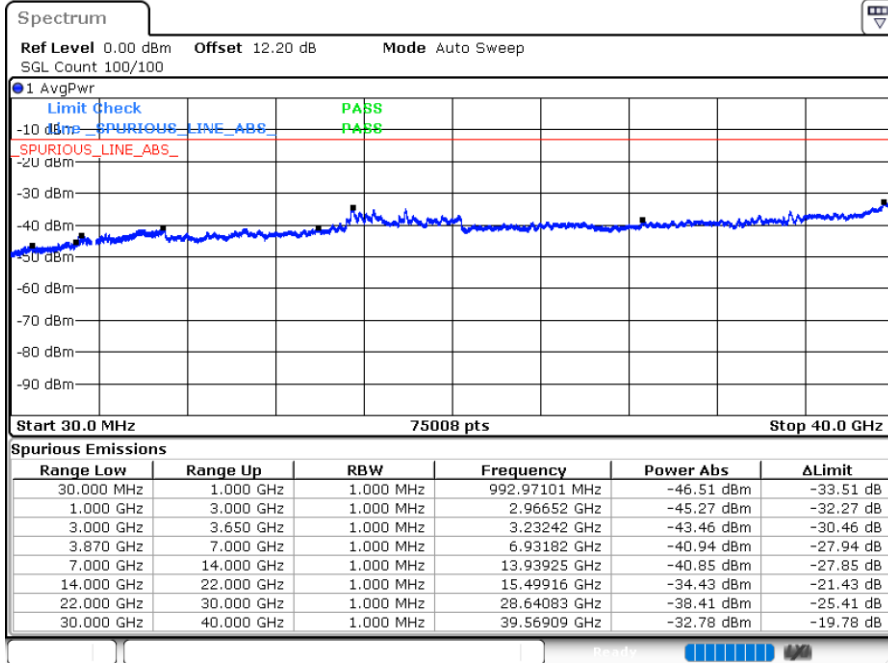


Date: 30.JAN.2021 03:01:30



FR1 n78 / 100MHz / DFT-S OFDM / BPSK

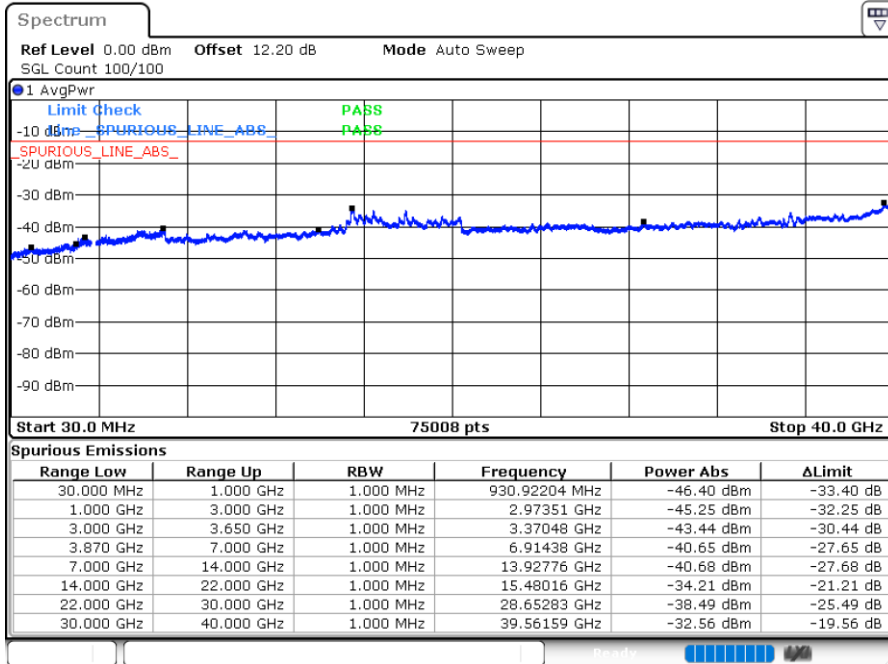
Middle Channel / 1RB



Date: 11.FEB.2021 00:25:07

FR1 n78 / 100MHz / DFT-S OFDM / QPSK

Middle Channel / 1RB



Date: 11.FEB.2021 00:26:24



Frequency Stability

Test Conditions		NR n78 (BPSK) / Middle Channel	Limit
Temperature (°C)	Voltage (Volt)	BW 20MHz	Within Band
		Deviation (ppm)	Result
50	Normal Voltage	0.0018	PASS
40	Normal Voltage	0.0022	
30	Normal Voltage	0.0012	
20(Ref.)	Normal Voltage	0.0013	
10	Normal Voltage	0.0035	
0	Normal Voltage	0.0012	
-10	Normal Voltage	0.0019	
-20	Normal Voltage	0.0025	
-30	Normal Voltage	0.0017	
20	Maximum Voltage	0.0019	
20	Normal Voltage	0.0013	
20	Battery End Point	0.0018	

Note:

1. Normal Voltage =3.3 V. ; Battery End Point (BEP) =3.14 V. ; Maximum Voltage =4.4 V.
2. Note: The frequency fundamental emissions stay within the authorized frequency block.



5G NR n78 UL_MIMO HPUE -SCS 15K

Peak-to-Average Ratio

Mode	FR1 UL-MIMO n78 / 20MHz / CP-OFDM (M2)				
Mod.	QPSK	QPSK			Limit: 13dB
RB Size	1RB	Full RB			Result
Lowest CH	6.58	8.46			PASS
Middle CH	6.58	8.38			
Highest CH	6.52	8.38			

Mode	FR1 UL-MIMO n78 / 20MHz / CP-OFDM (M)				
Mod.	QPSK	QPSK			Limit: 13dB
RB Size	1RB	Full RB			Result
Lowest CH	6.36	8.32			PASS
Middle CH	7.30	8.26			
Highest CH	7.30	8.09			



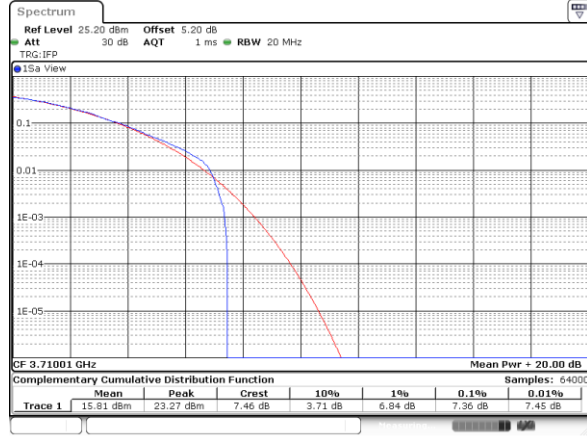
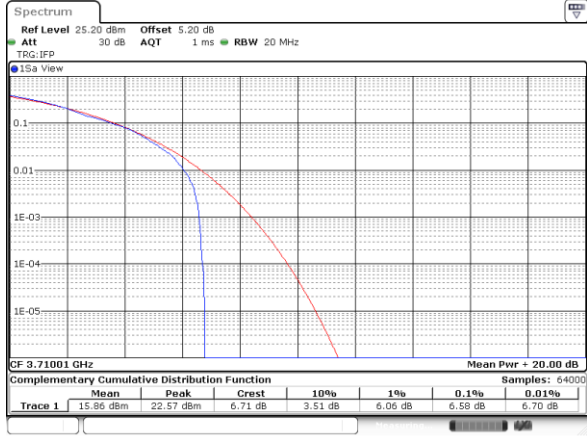
FR1 UL-MIMO n78 / 20MHz / CP-OFDM

QPSK(M2)

QPSK(M)

Lowest Channel / 1RB

Lowest Channel / 1RB

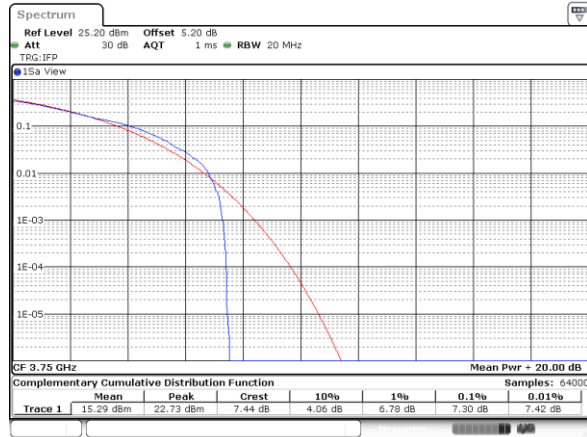
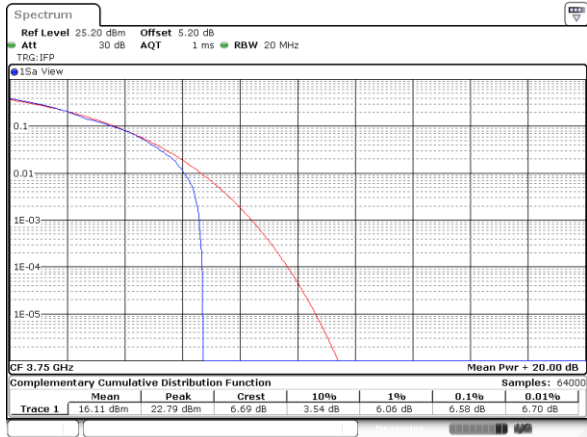


Date: 4.FEB.2021 21:09:37

Date: 3.FEB.2021 06:37:49

Middle Channel / 1 RB

Middle Channel / 1 RB

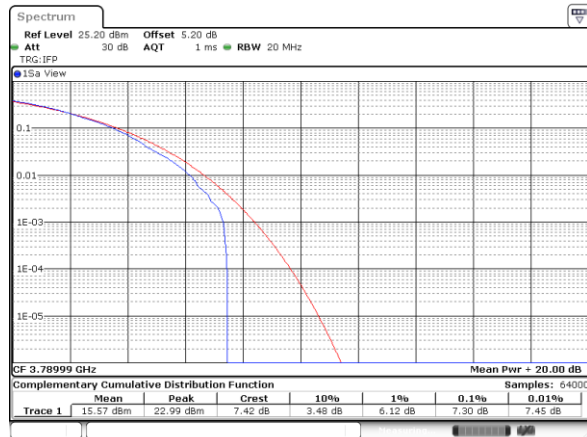
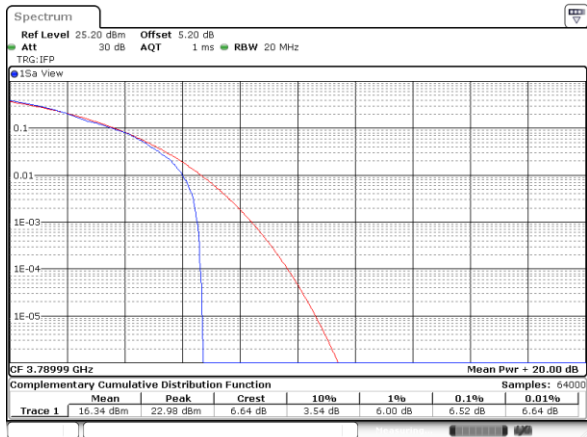


Date: 4.FEB.2021 21:08:17

Date: 3.FEB.2021 06:15:35

Highest Channel / 1 RB

Highest Channel / 1 RB



Date: 4.FEB.2021 21:49:05

Date: 3.FEB.2021 06:41:55



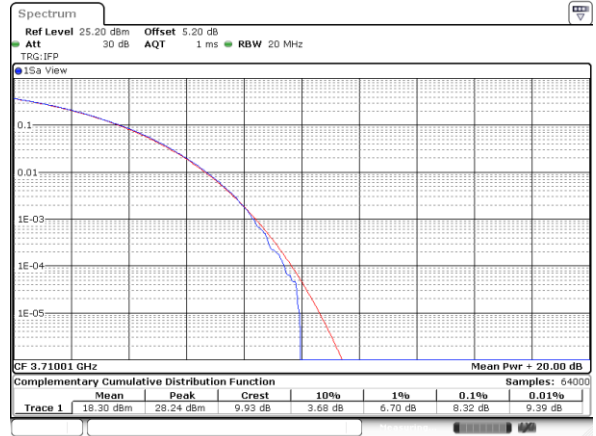
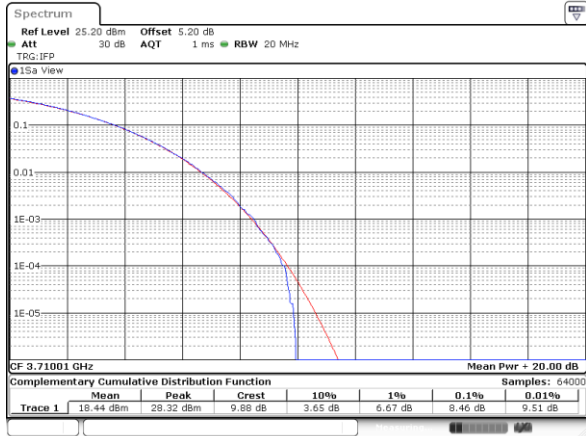
FR1 UL-MIMO n78 / 20MHz / CP-OFDM

QPSK(M2)

QPSK(M)

Lowest Channel / Full RB

Lowest Channel / Full RB

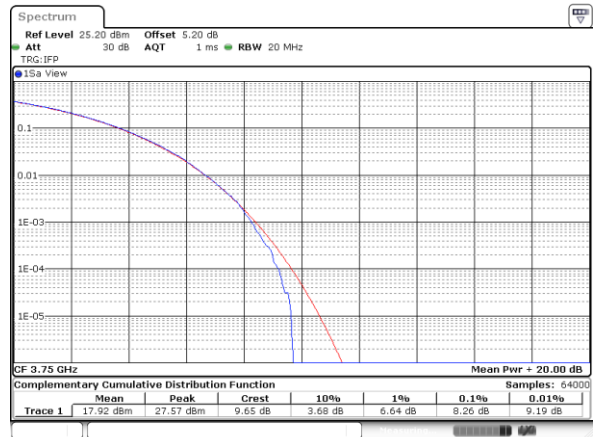
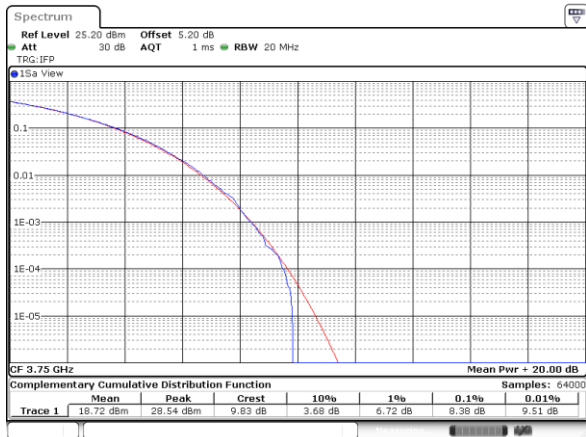


Date: 4.FEB.2021 21:13:38

Date: 3.FEB.2021 06:37:03

Middle Channel / Full RB

Middle Channel / Full RB

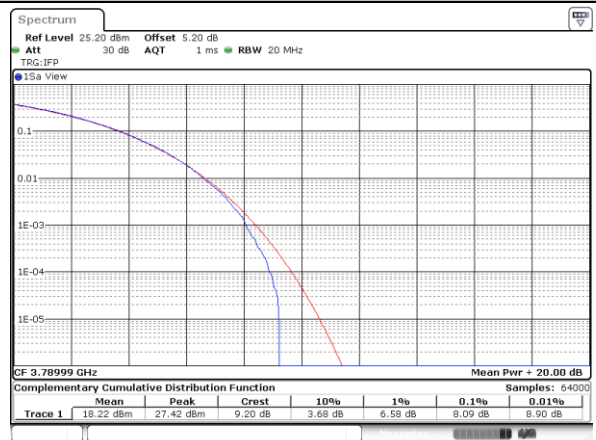
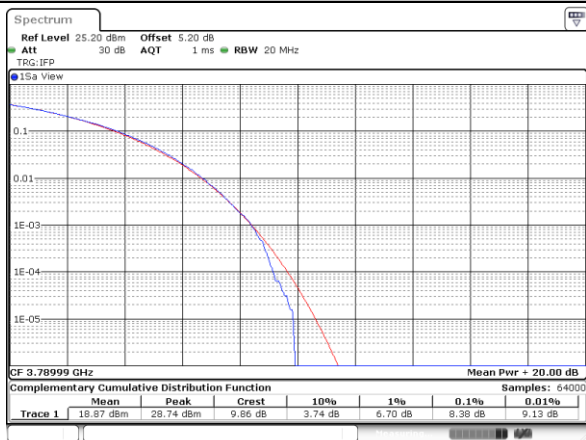


Date: 4.FEB.2021 21:05:21

Date: 3.FEB.2021 06:13:32

Highest Channel / Full RB

Highest Channel / Full RB



Date: 4.FEB.2021 21:48:40

Date: 3.FEB.2021 06:42:50



26dB Bandwidth

Mode	FR1 UL-MIMO n78 : 26dB BW(MHz) / CP-OFDM							
	M2				M			
BW	10MHz	10MHz	10MHz	10MHz	10MHz	10MHz	10MHz	10MHz
Mod.	QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM
Middle CH	9.69	9.65	9.77	9.69	9.71	9.67	9.75	9.75

Mode	FR1 UL-MIMO n78 : 26dB BW(MHz) / CP-OFDM							
	M2				M			
BW	15MHz	15MHz	15MHz	15MHz	15MHz	15MHz	15MHz	15MHz
Mod.	QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM
Middle CH	14.83	14.86	14.83	14.83	14.92	14.83	14.80	14.86

Mode	FR1 UL-MIMO n78 : 26dB BW(MHz) / CP-OFDM							
	M2				M			
BW	20MHz	20MHz	20MHz	20MHz	20MHz	20MHz	20MHz	20MHz
Mod.	QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM
Middle CH	19.66	19.7	19.74	19.94	19.74	19.7	19.94	19.7



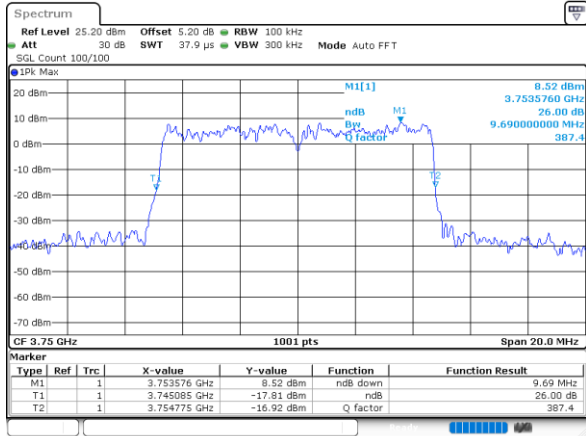
FR1 UL-MIMO n78 / 10MHz / CP-OFDM (M2)

QPSK

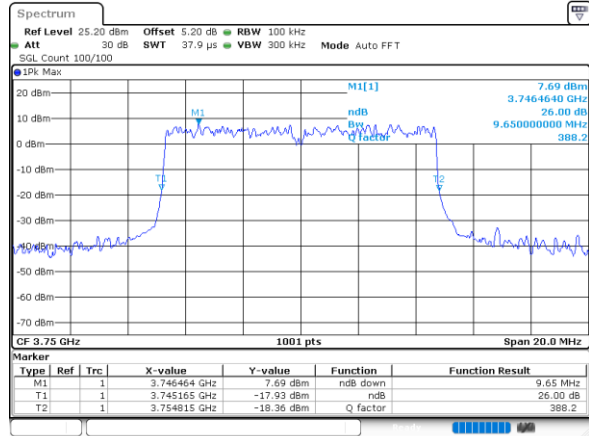
16QAM

Middle Channel

Middle Channel



Date: 4.FEB.2021 22:58:20



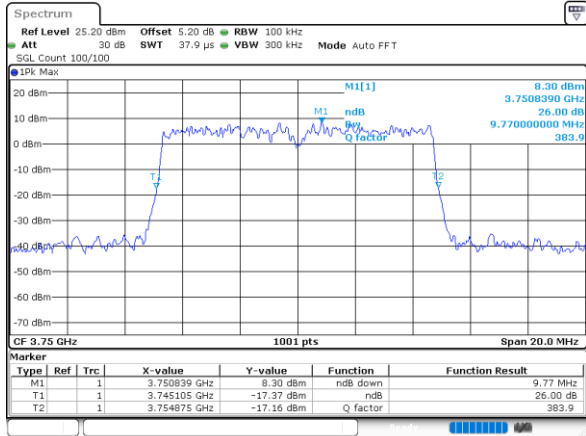
Date: 4.FEB.2021 22:58:37

64QAM

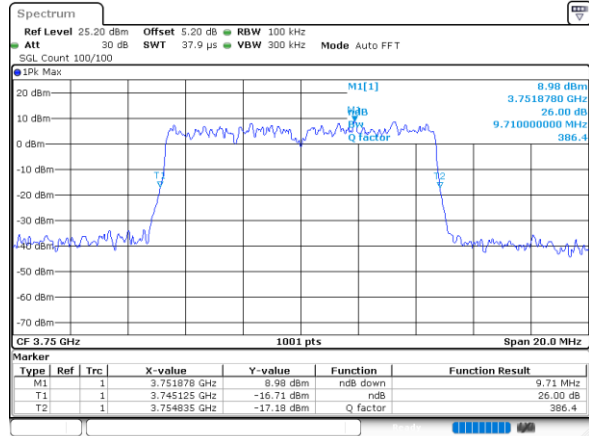
256QAM

Middle Channel

Middle Channel



Date: 5.FEB.2021 08:23:24



Date: 5.FEB.2021 08:23:53



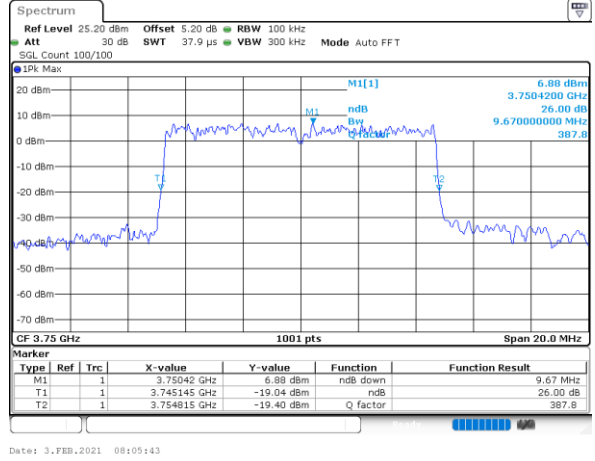
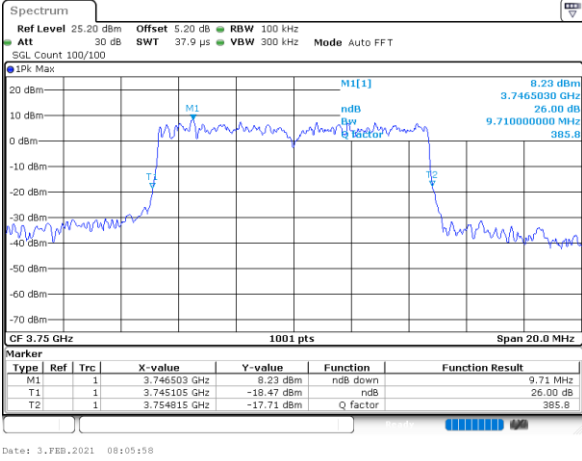
FR1 UL-MIMO n78 / 10MHz / CP-OFDM (M)

QPSK

16QAM

Middle Channel

Middle Channel

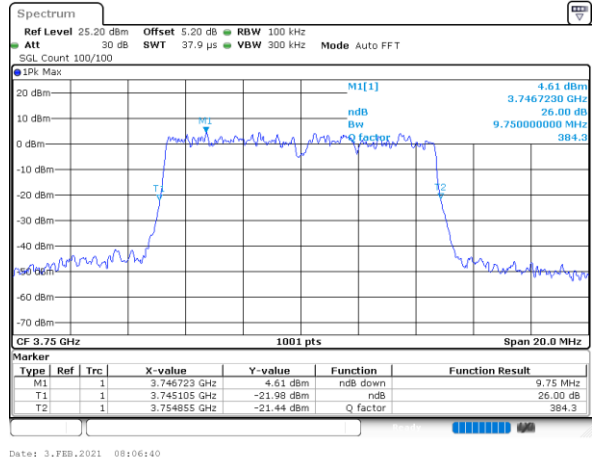
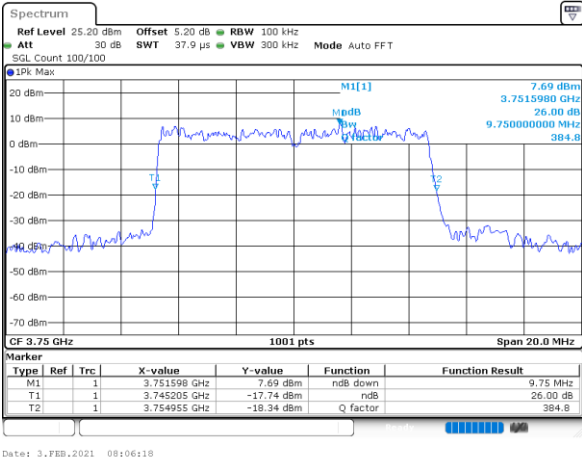


64QAM

256QAM

Middle Channel

Middle Channel





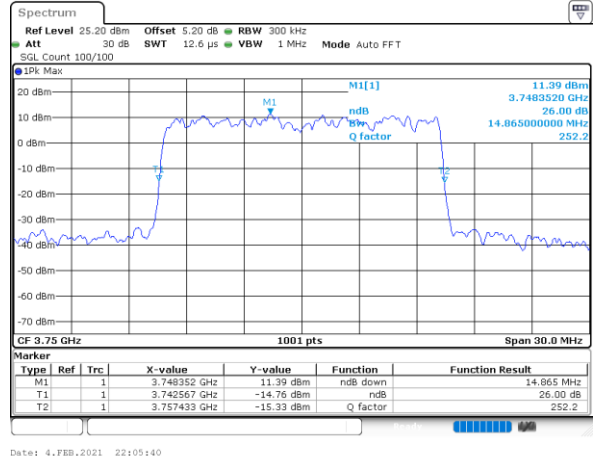
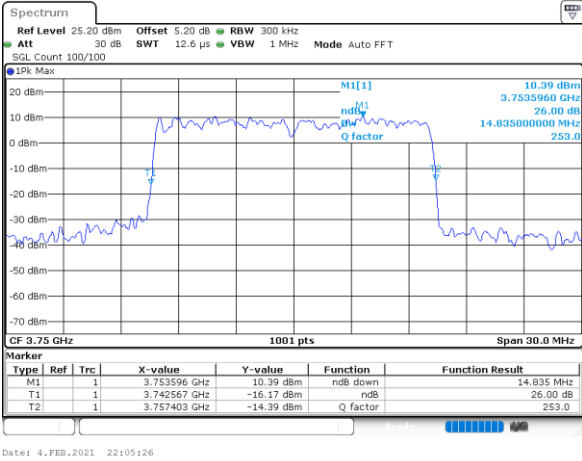
FR1 UL-MIMO n78 / 15MHz / CP-OFDM (M2)

QPSK

16QAM

Middle Channel

Middle Channel

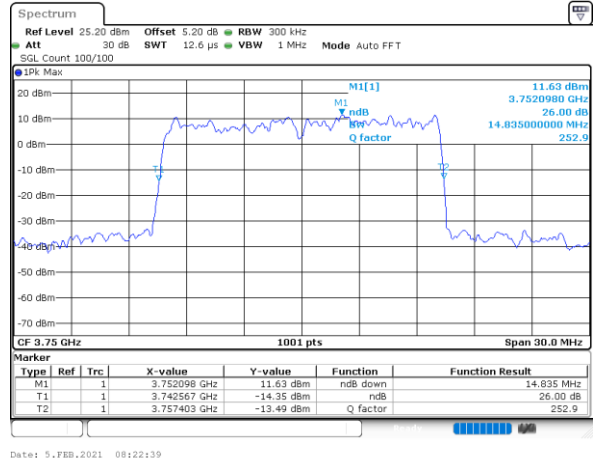
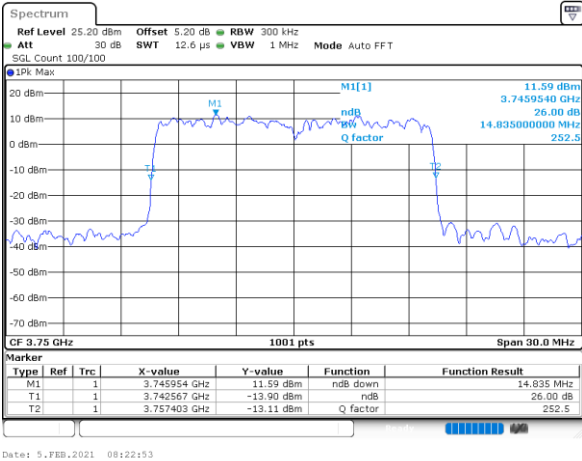


64QAM

256QAM

Middle Channel

Middle Channel





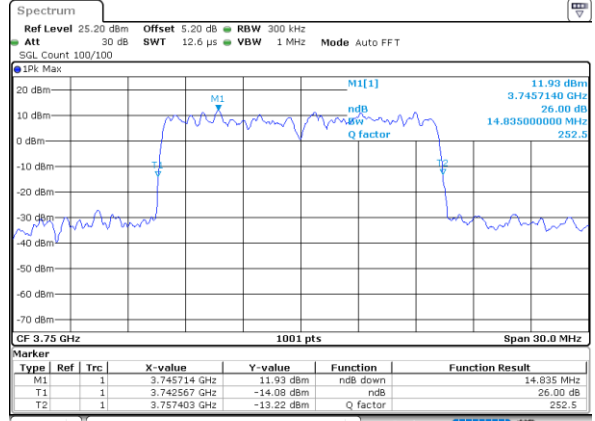
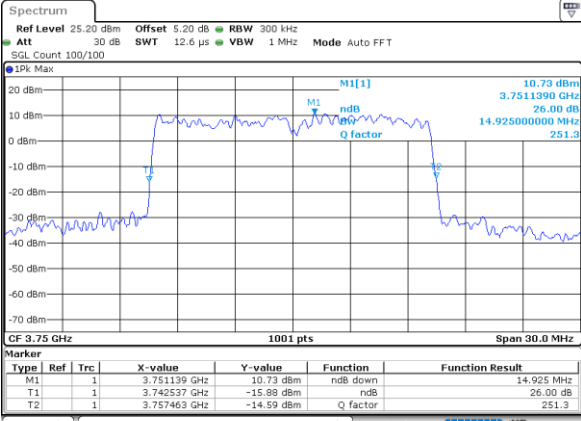
FR1 UL-MIMO n78 / 15MHz / CP-OFDM (M)

QPSK

16QAM

Middle Channel

Middle Channel



Date: 3.FEB.2021 07:50:17

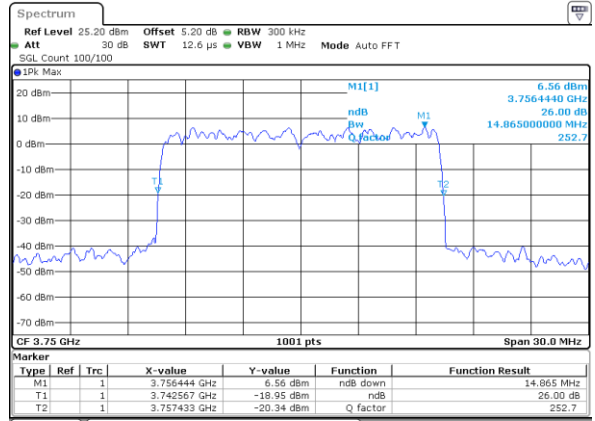
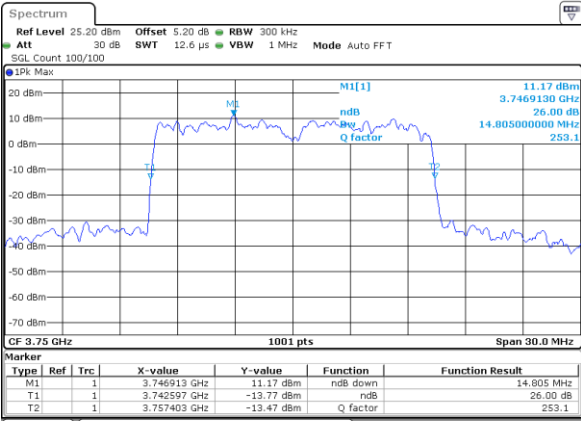
Date: 3.FEB.2021 07:50:28

64QAM

256QAM

Middle Channel

Middle Channel



Date: 3.FEB.2021 07:51:08

Date: 3.FEB.2021 07:51:22



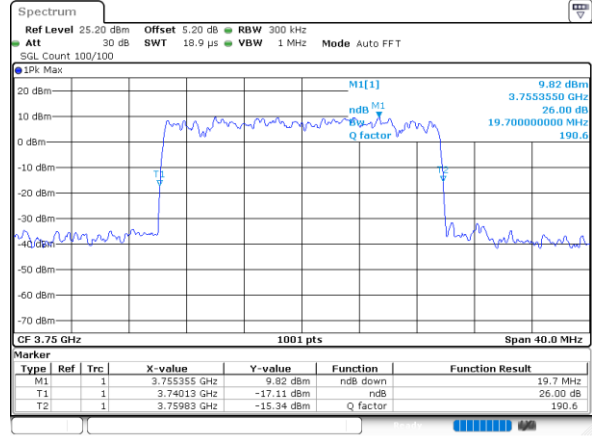
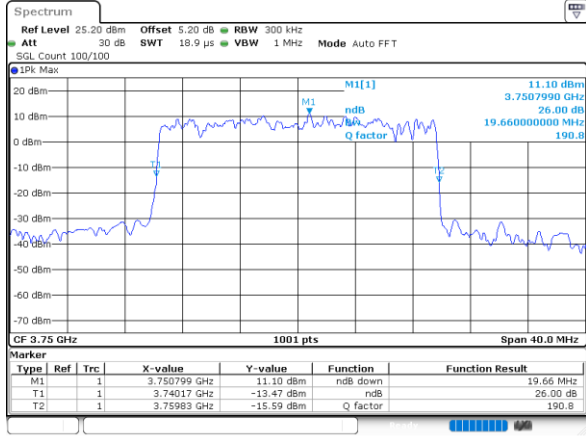
FR1 UL-MIMO n78 / 20MHz / CP-OFDM (M2)

QPSK

16QAM

Middle Channel

Middle Channel



Date: 4.FEB.2021 21:06:08

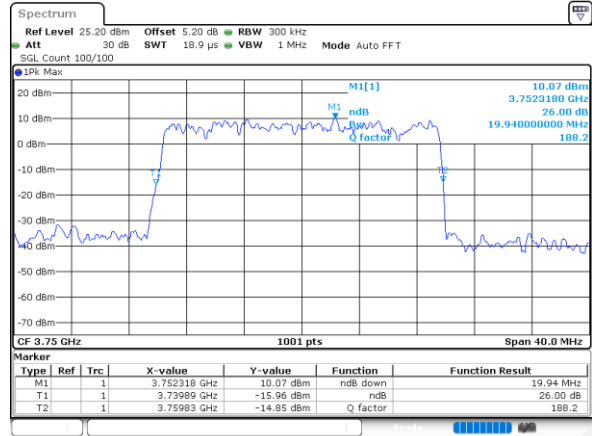
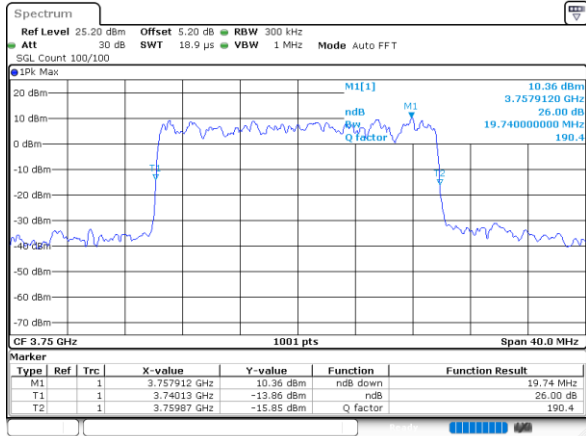
Date: 4.FEB.2021 21:06:22

64QAM

256QAM

Middle Channel

Middle Channel



Date: 5.FEB.2021 08:21:50

Date: 5.FEB.2021 08:22:04



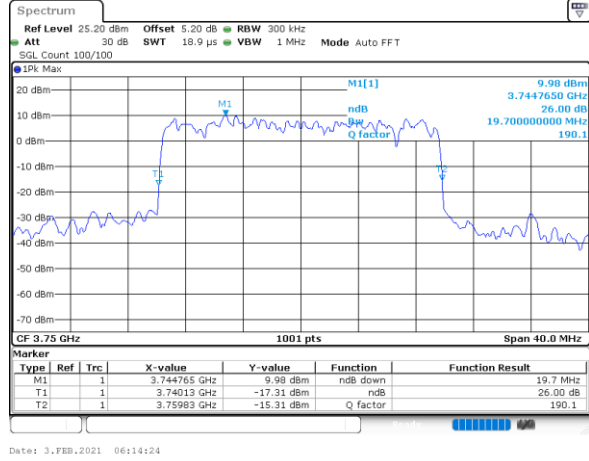
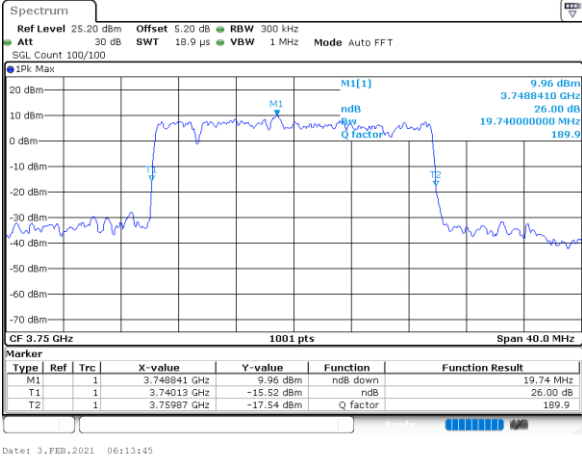
FR1 UL-MIMO n78 / 20MHz / CP-OFDM (M)

QPSK

16QAM

Middle Channel

Middle Channel



Date: 3.FEB.2021 06:13:45

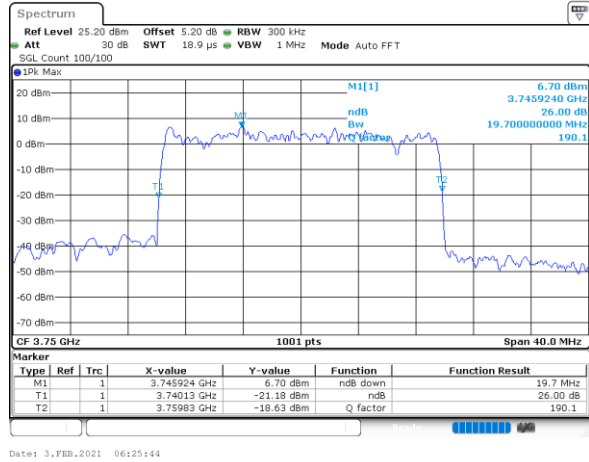
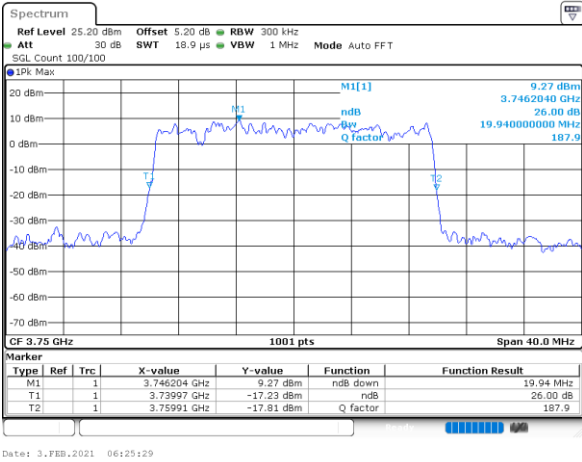
Date: 3.FEB.2021 06:14:24

64QAM

256QAM

Middle Channel

Middle Channel



Date: 3.FEB.2021 06:25:29

Date: 3.FEB.2021 06:25:44

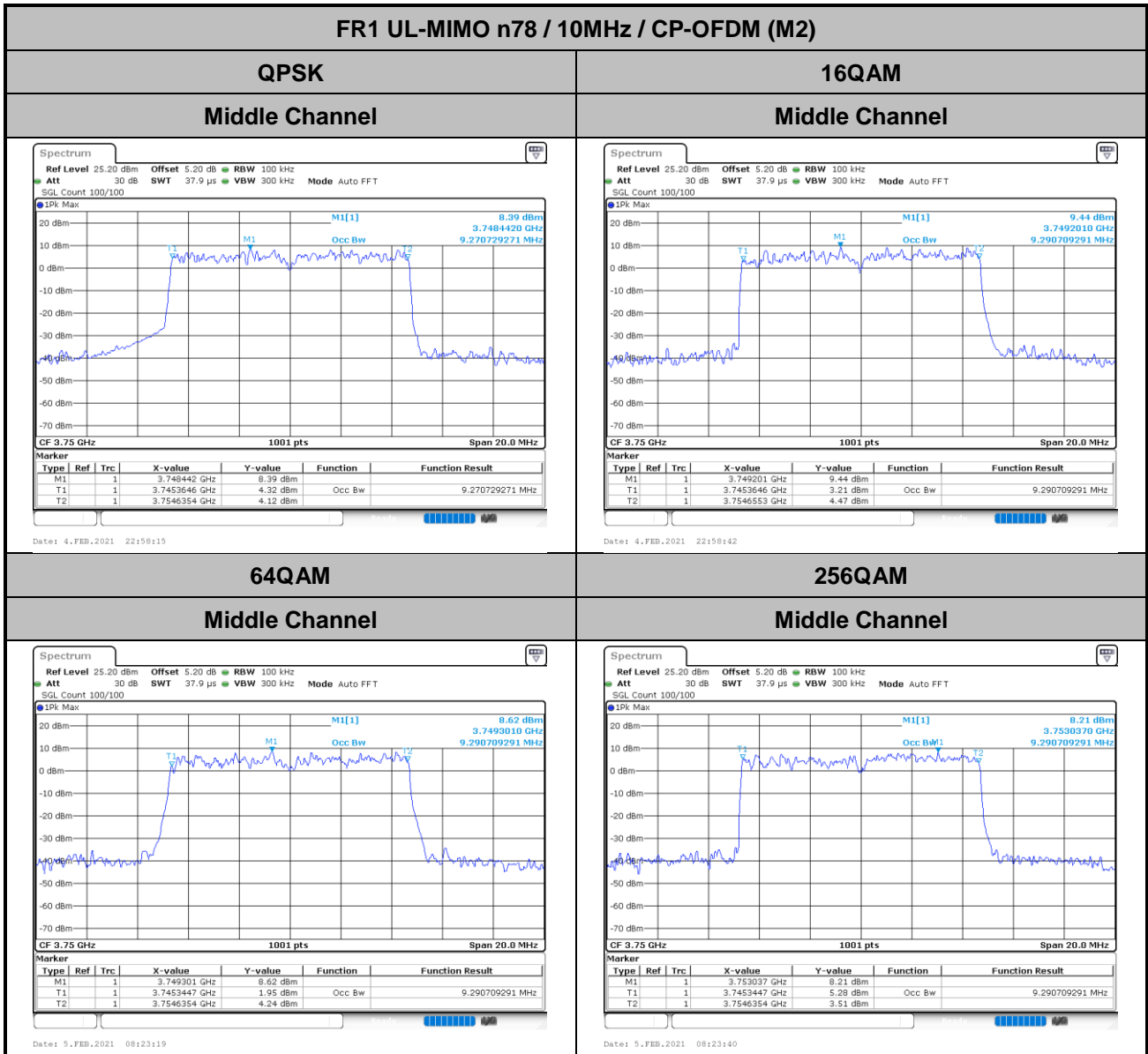


Occupied Bandwidth

Mode	FR1 UL-MIMO n78 : OBW(MHz) / CP-OFDM							
	M2				M			
BW	10MHz	10MHz	10MHz	10MHz	10MHz	10MHz	10MHz	10MHz
Mod.	QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM
Middle CH	9.27	9.29	9.29	9.29	9.27	9.29	9.29	9.31

Mode	FR1 UL-MIMO n78 : OBW(MHz) / CP-OFDM							
	M2				M			
BW	15MHz	15MHz	15MHz	15MHz	15MHz	15MHz	15MHz	15MHz
Mod.	QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM
Middle CH	14.15	14.18	14.15	14.15	14.18	14.12	14.15	14.12

Mode	FR1 UL-MIMO n78 : OBW(MHz) / CP-OFDM							
	M2				M			
BW	20MHz	20MHz	20MHz	20MHz	20MHz	20MHz	20MHz	20MHz
Mod.	QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM
Middle CH	18.78	18.98	18.98	18.94	18.94	18.98	18.98	18.90





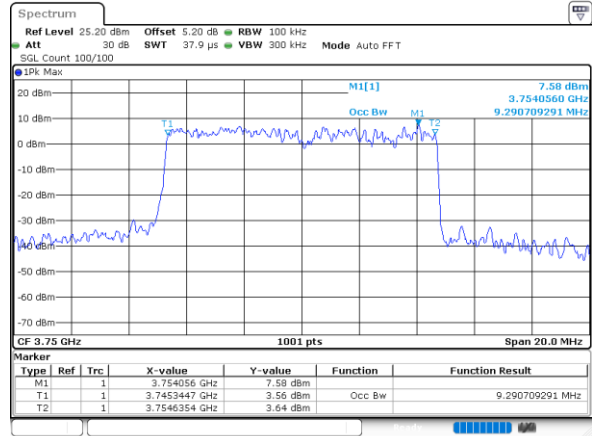
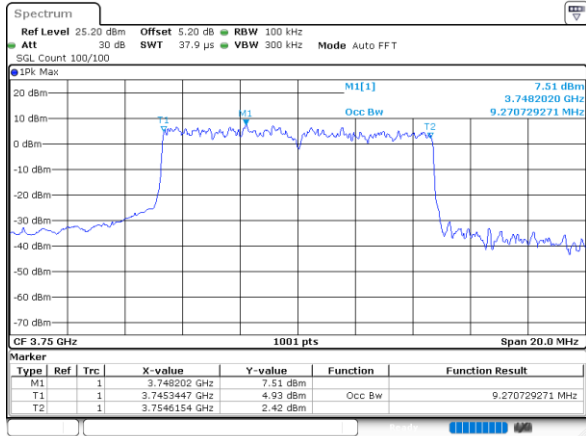
FR1 UL-MIMO n78 / 10MHz / CP-OFDM (M)

QPSK

16QAM

Middle Channel

Middle Channel



Date: 3.FEB.2021 08:05:54

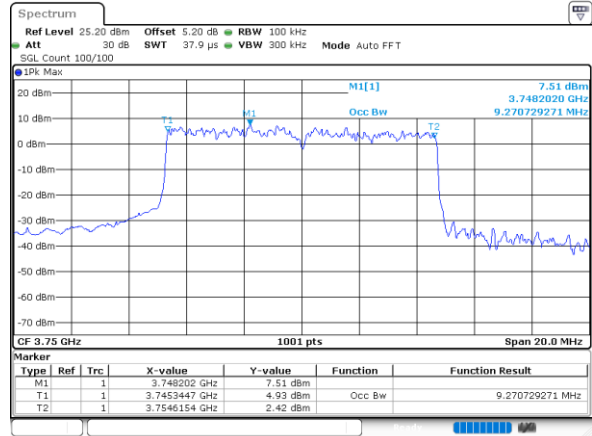
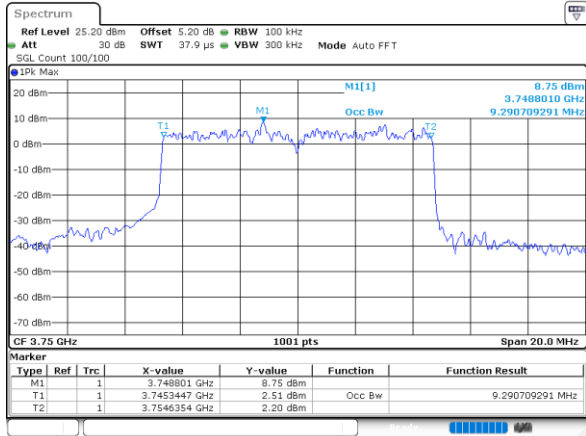
Date: 3.FEB.2021 08:05:38

64QAM

256QAM

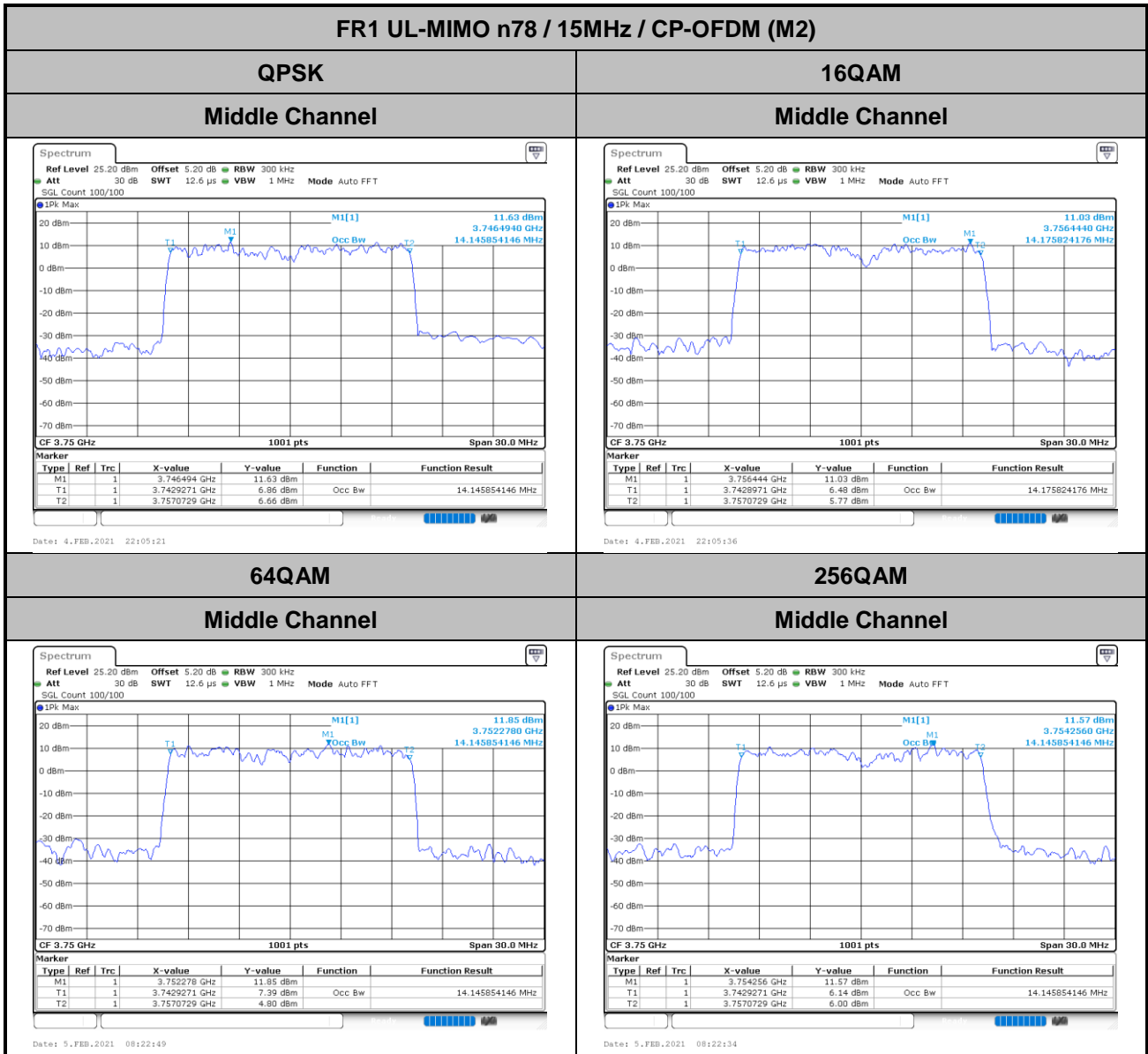
Middle Channel

Middle Channel



Date: 3.FEB.2021 08:06:09

Date: 3.FEB.2021 08:05:54





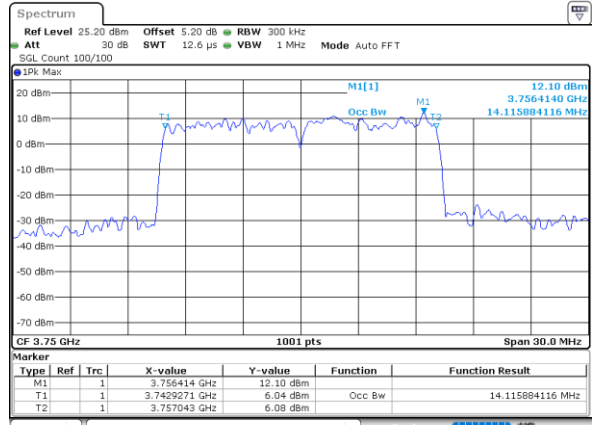
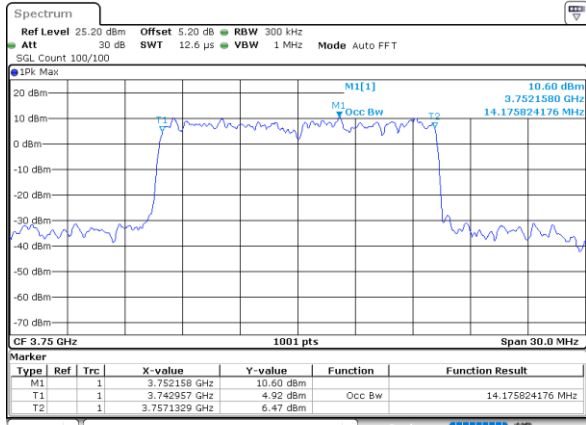
FR1 UL-MIMO n78 / 15MHz / CP-OFDM (M)

QPSK

16QAM

Middle Channel

Middle Channel



Date: 3.FEB.2021 07:50:42

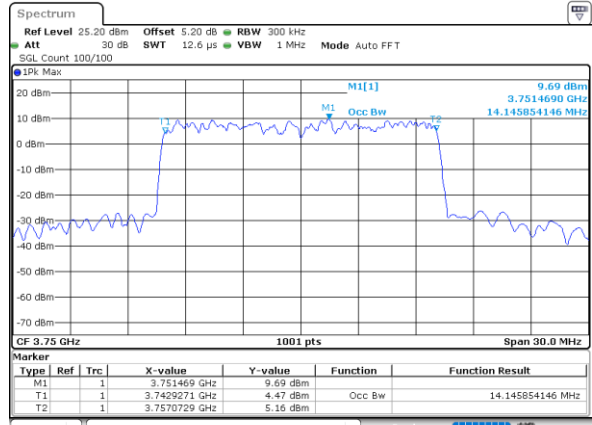
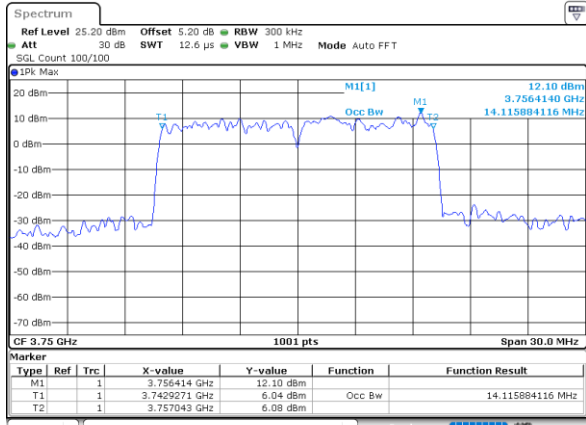
Date: 3.FEB.2021 07:50:24

64QAM

256QAM

Middle Channel

Middle Channel



Date: 3.FEB.2021 07:50:24

Date: 3.FEB.2021 07:51:02



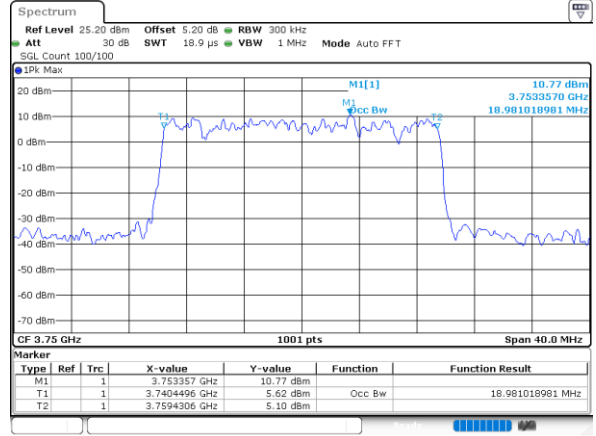
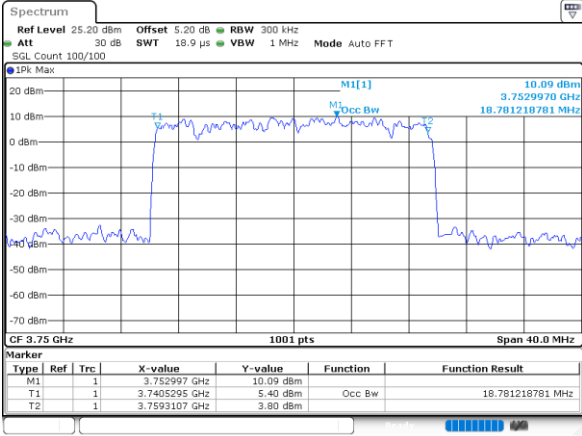
FR1 UL-MIMO n78 / 20MHz / CP-OFDM (M2)

QPSK

16QAM

Middle Channel

Middle Channel



Date: 4.FEB.2021 21:06:03

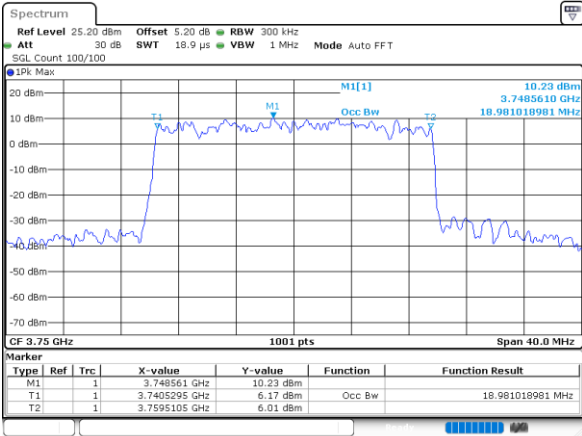
Date: 4.FEB.2021 21:06:17

64QAM

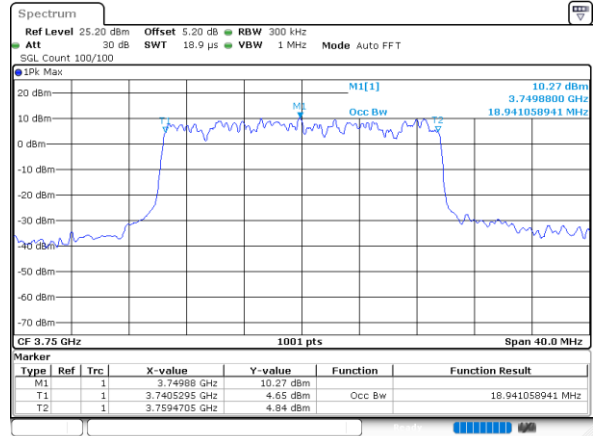
256QAM

Middle Channel

Middle Channel



Date: 5.FEB.2021 08:21:45



Date: 5.FEB.2021 08:21:59



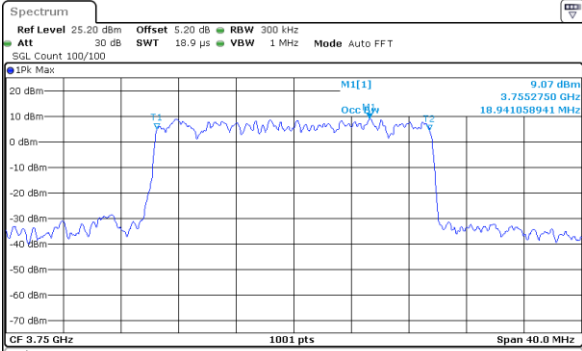
FR1 UL-MIMO n78 / 20MHz / CP-OFDM (M)

QPSK

16QAM

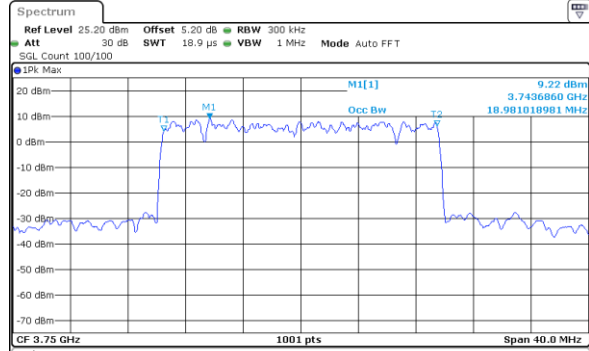
Middle Channel

Middle Channel



Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1	1		3.755275 GHz	9.07 dBm		
T1	1		3.7404995 GHz	5.13 dBm	Occ Bw	18.941058941 MHz
T2	1		3.7594306 GHz	4.67 dBm		

Date: 3.FEB.2021 06:13:41



Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1	1		3.743686 GHz	9.22 dBm		
T1	1		3.7404895 GHz	4.24 dBm	Occ Bw	18.981018981 MHz
T2	1		3.7594705 GHz	6.24 dBm		

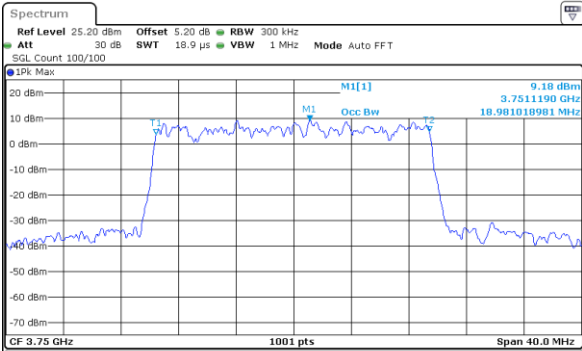
Date: 3.FEB.2021 06:14:16

64QAM

256QAM

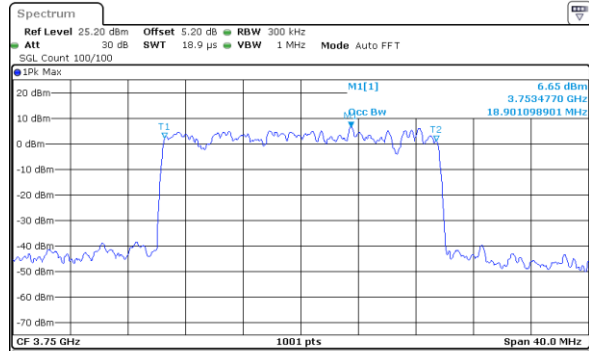
Middle Channel

Middle Channel



Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1	1		3.751119 GHz	9.18 dBm		
T1	1		3.7404496 GHz	3.82 dBm	Occ Bw	18.981018981 MHz
T2	1		3.7594306 GHz	4.86 dBm		

Date: 3.FEB.2021 06:25:24

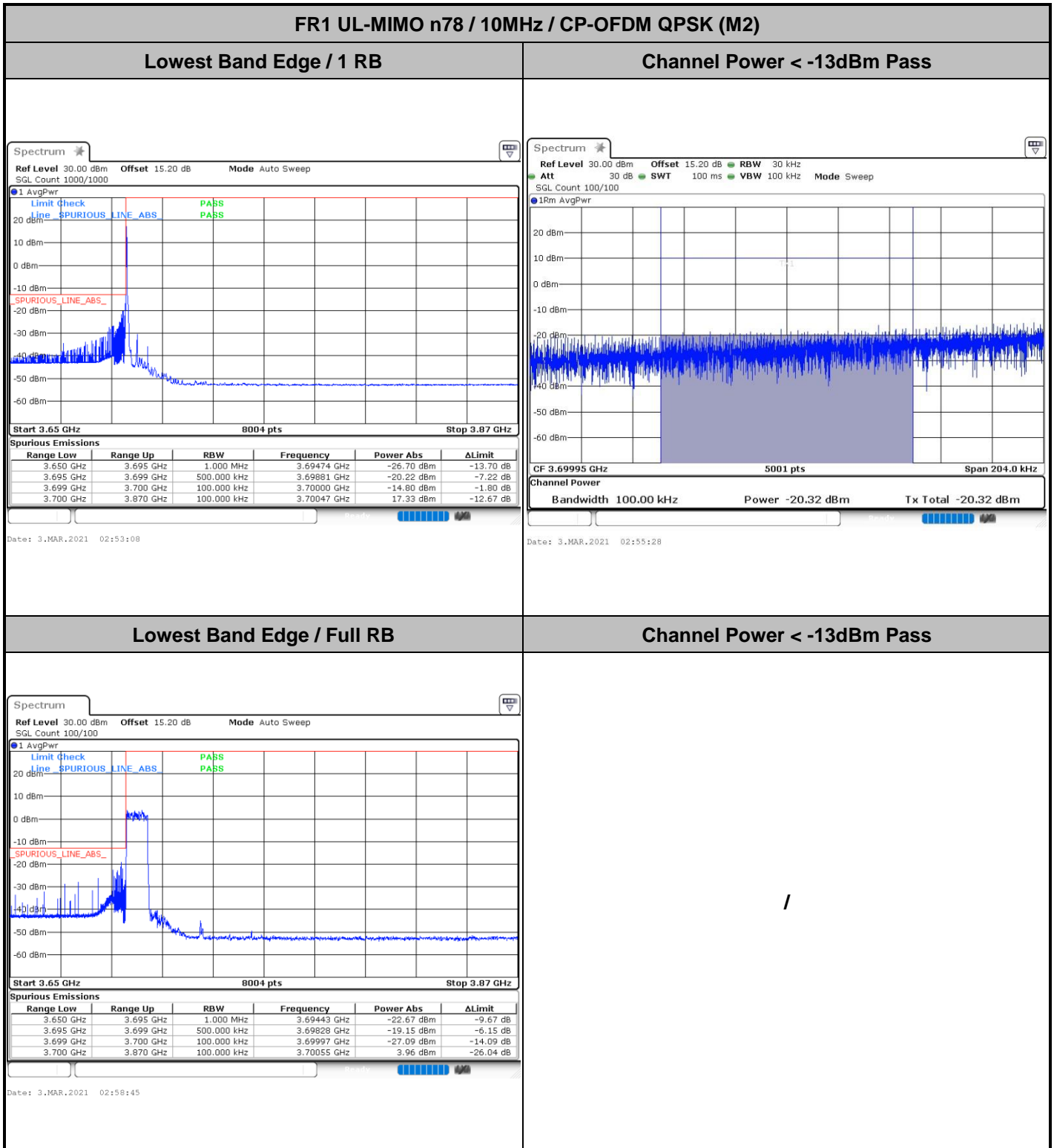


Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1	1		3.753477 GHz	6.65 dBm		
T1	1		3.7405295 GHz	2.25 dBm	Occ Bw	18.901098901 MHz
T2	1		3.7594306 GHz	1.17 dBm		

Date: 3.FEB.2021 06:25:39



Conducted Band Edge

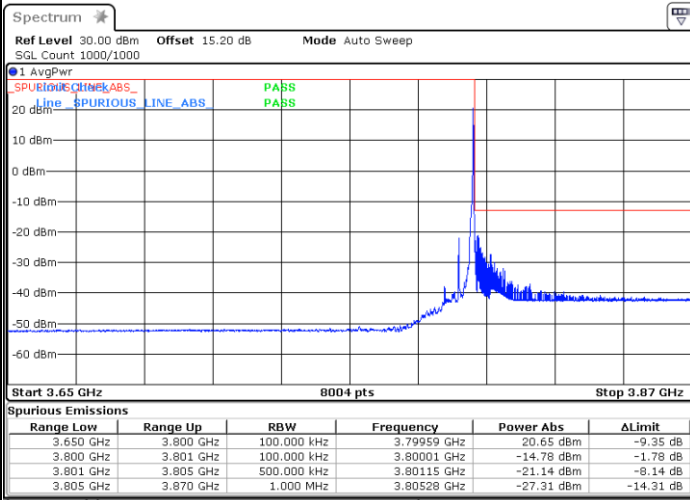




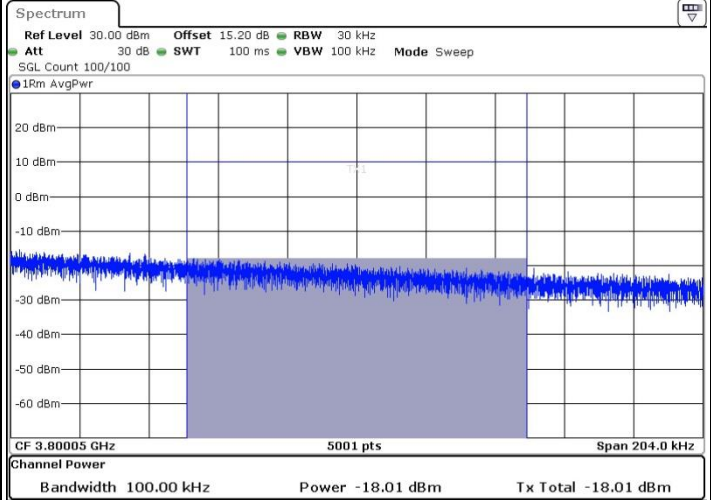
FR1 UL-MIMO n78 / 10MHz / CP-OFDM QPSK (M2)

Highest Band Edge / 1 RB

Channel Power < -13dBm Pass



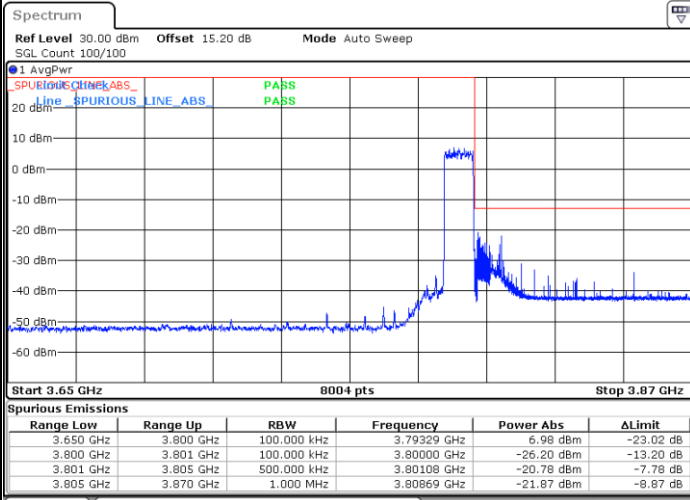
Date: 11.FEB.2021 01:53:19



Date: 11.FEB.2021 01:57:28

Highest Band Edge / Full RB

Channel Power < -13dBm Pass



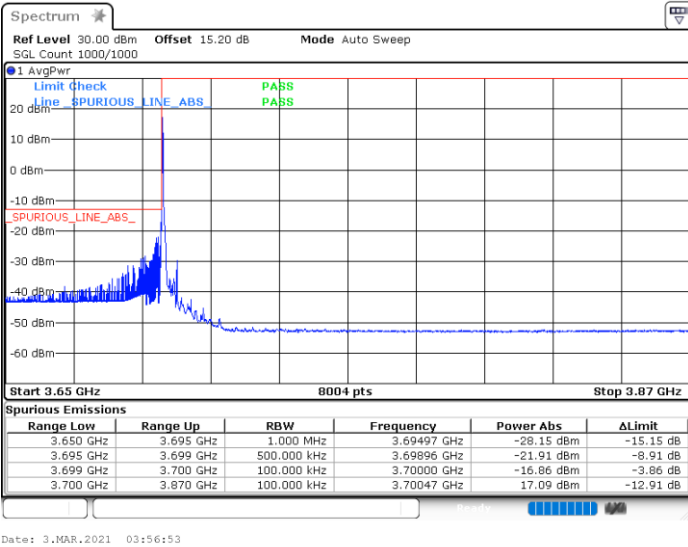
Date: 11.FEB.2021 01:51:00



FR1 UL-MIMO n78 / 10MHz / CP-OFDM QPSK (M)

Lowest Band Edge / 1 RB

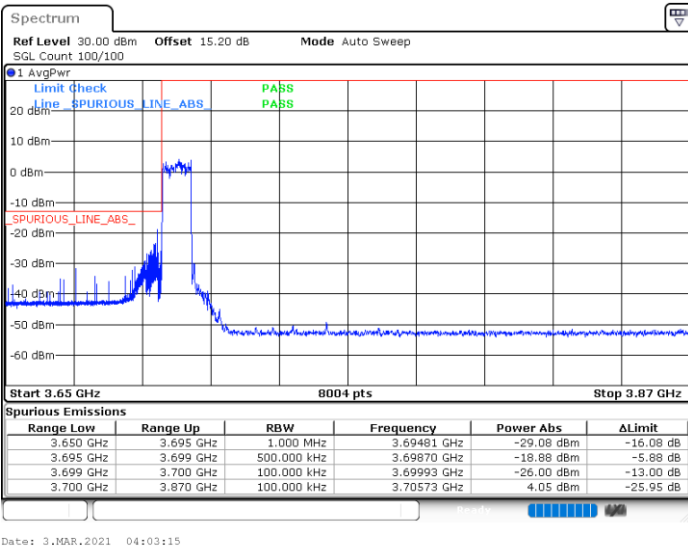
Channel Power < -13dBm Pass



/

Lowest Band Edge / Full RB

Channel Power < -13dBm Pass

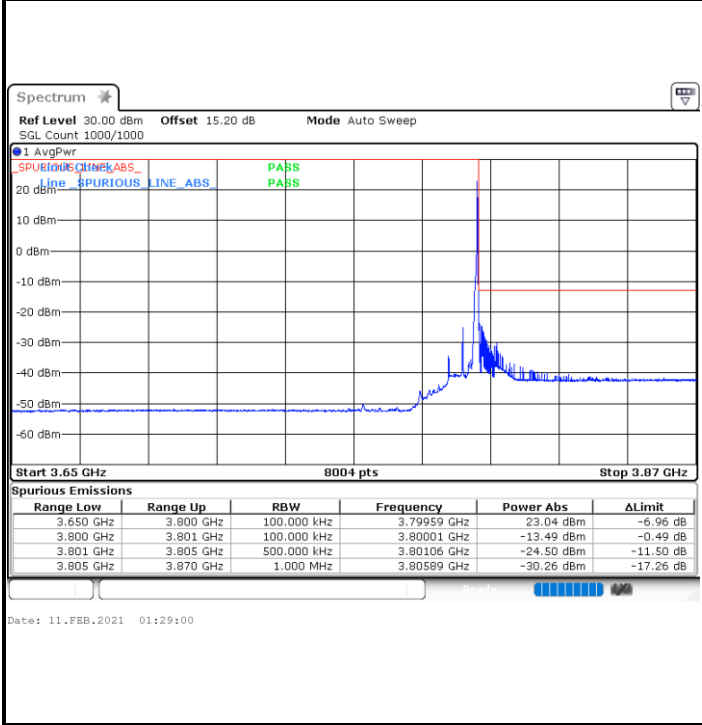


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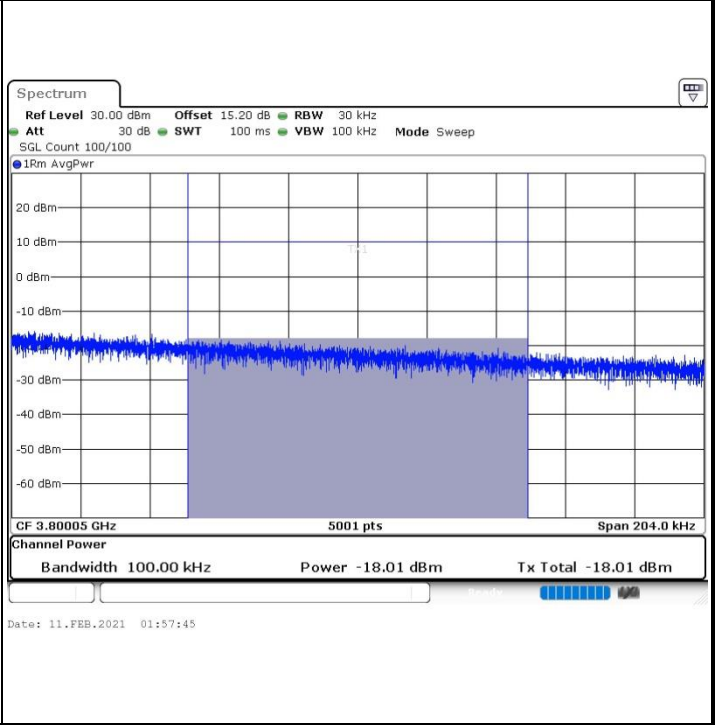


FR1 UL-MIMO n78 / 10MHz / CP-OFDM QPSK (M)

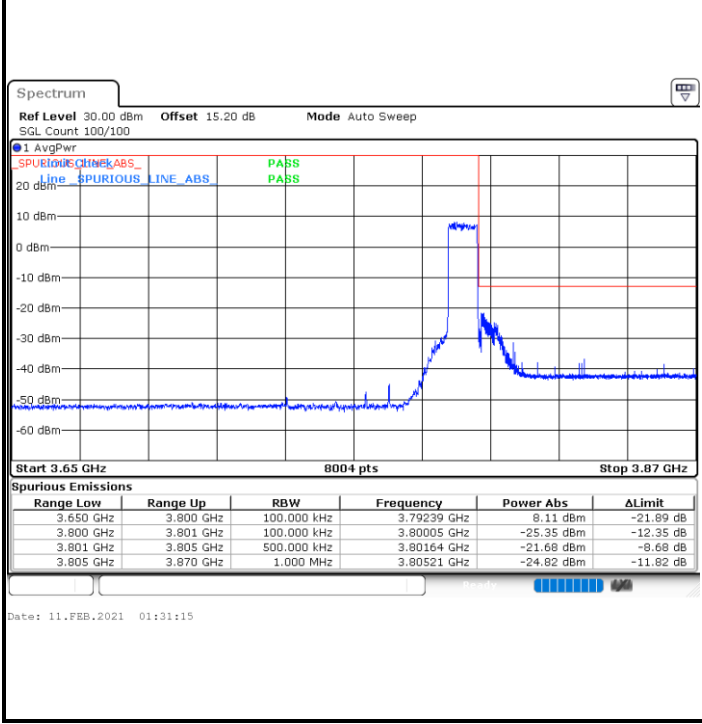
Highest Band Edge / 1 RB



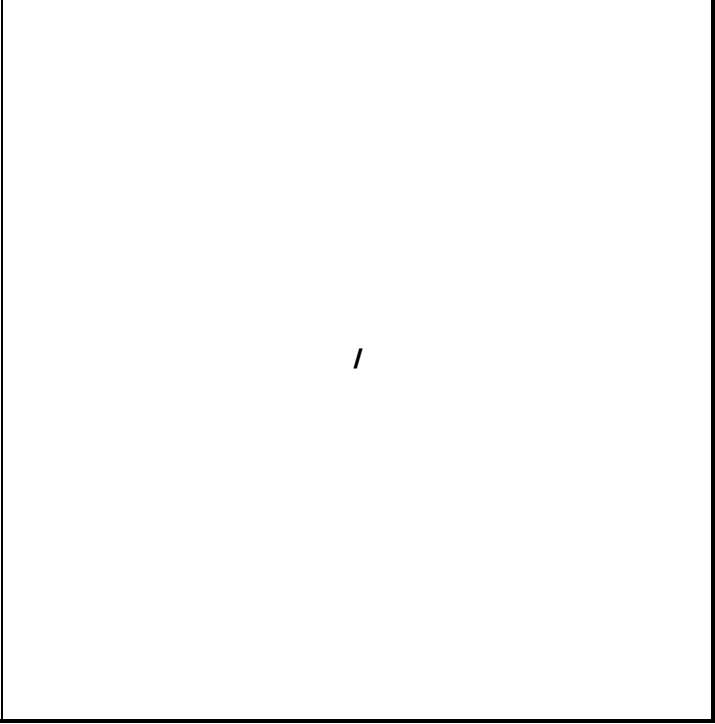
Channel Power < -13dBm Pass



Highest Band Edge / Full RB



Channel Power < -13dBm Pass

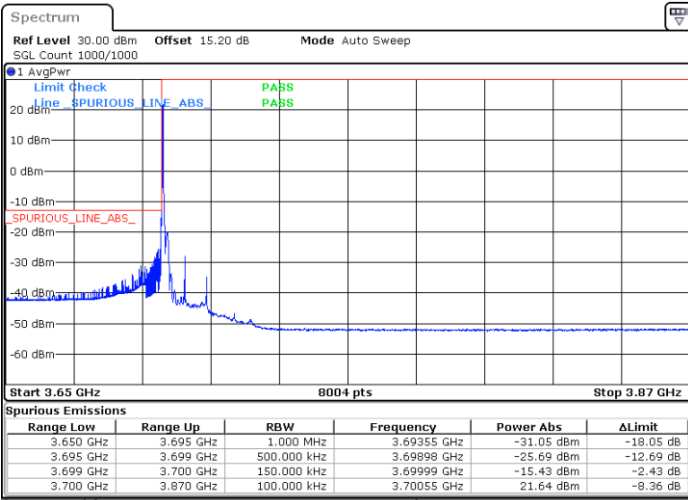




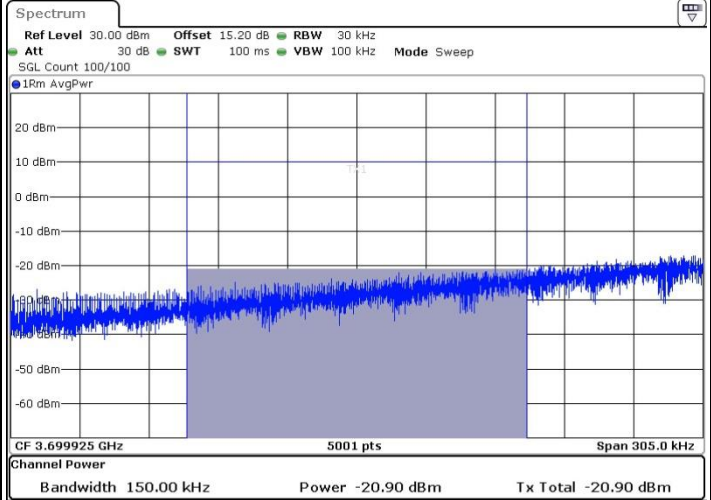
FR1 UL-MIMO n78 / 15MHz / CP-OFDM QPSK (M2)

Lowest Band Edge / 1 RB

Channel Power < -13dBm Pass



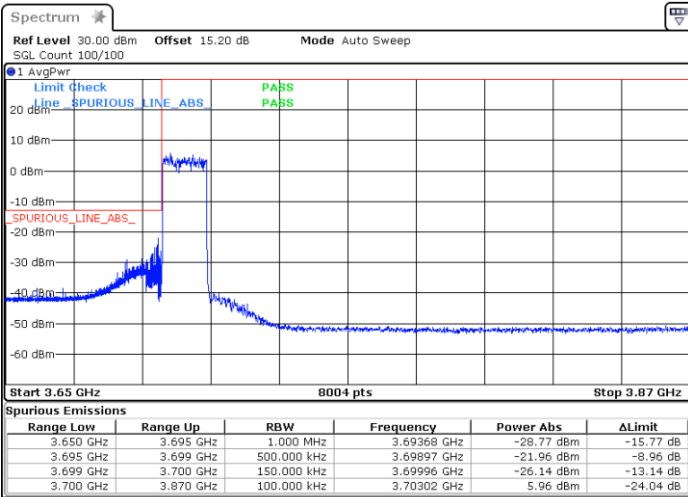
Date: 12.MAR.2021 05:16:02



Date: 12.MAR.2021 05:22:54

Lowest Band Edge / Full RB

Channel Power < -13dBm Pass



Date: 12.MAR.2021 05:13:20

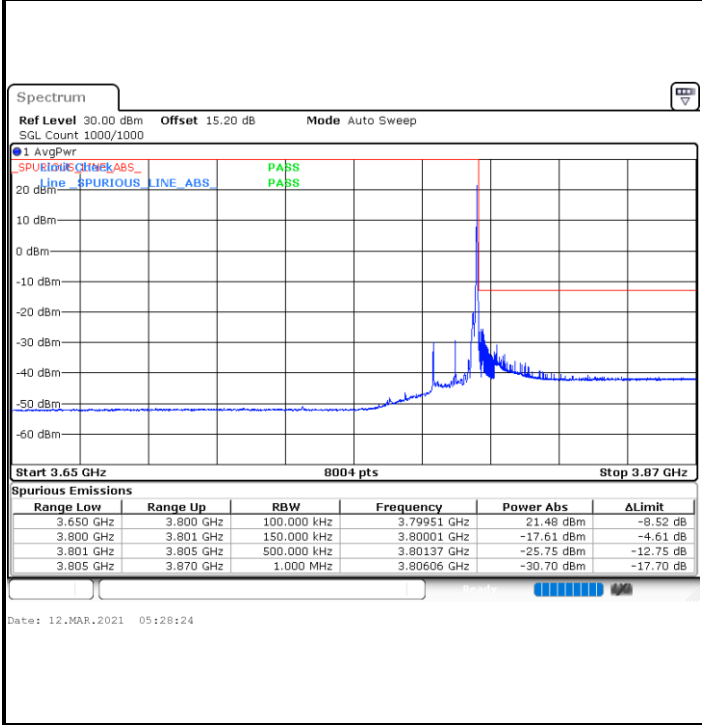
/



FR1 UL-MIMO n78 /15MHz / CP-OFDM QPSK (M2)

Highest Band Edge / 1 RB

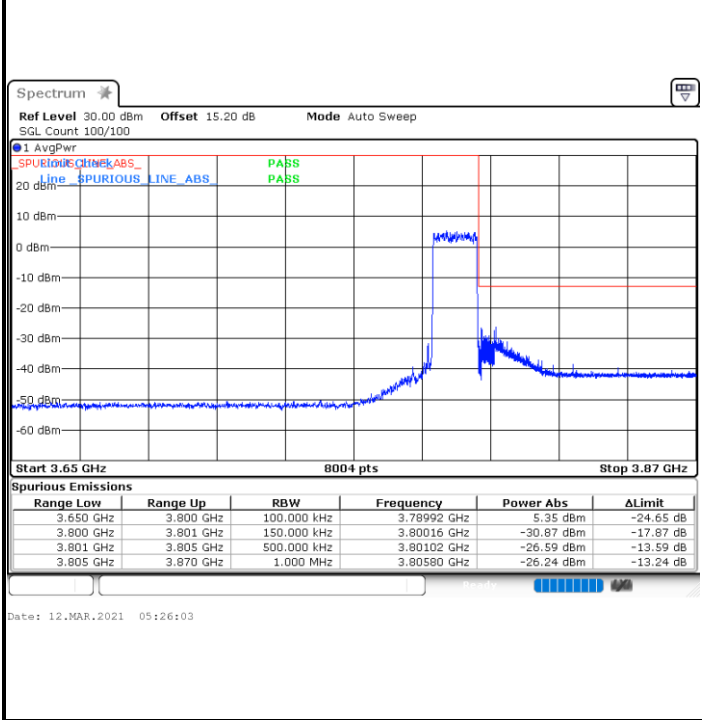
Channel Power < -13dBm Pass



/

Highest Band Edge / Full RB

Channel Power < -13dBm Pass



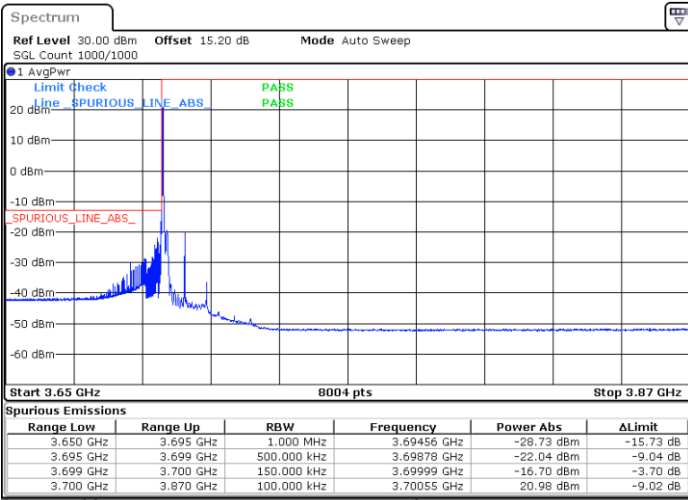
/



FR1 UL-MIMO n78 / 15MHz / CP-OFDM QPSK (M)

Lowest Band Edge / 1 RB

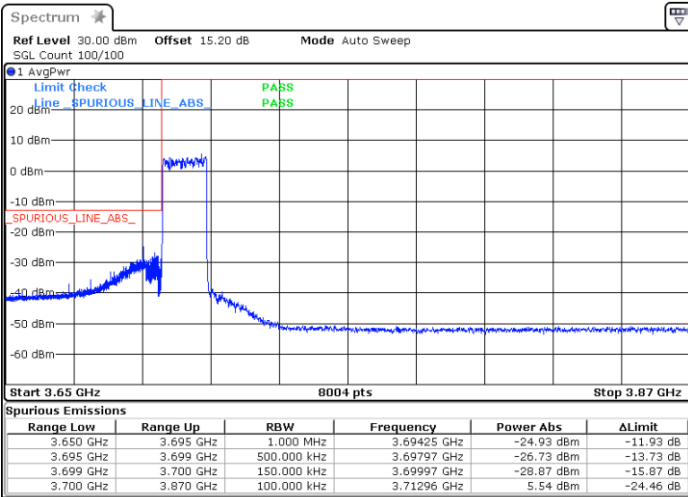
Channel Power < -13dBm Pass



Date: 12.MAR.2021 11:24:02

Lowest Band Edge / Full RB

Channel Power < -13dBm Pass



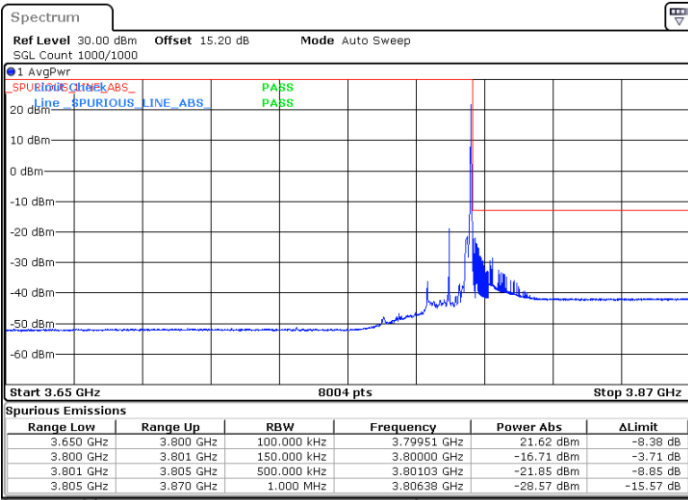
Date: 12.MAR.2021 11:24:26



FR1 UL-MIMO n78 /15MHz / CP-OFDM QPSK (M)

Highest Band Edge / 1 RB

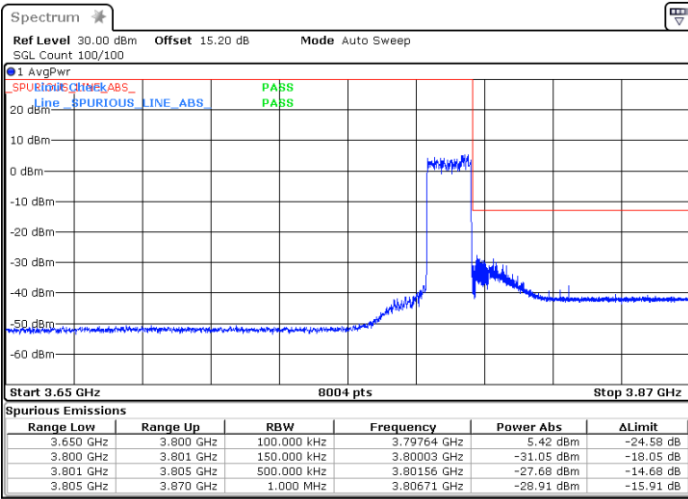
Channel Power < -13dBm Pass



Date: 12.MAR.2021 11:19:18

Highest Band Edge / Full RB

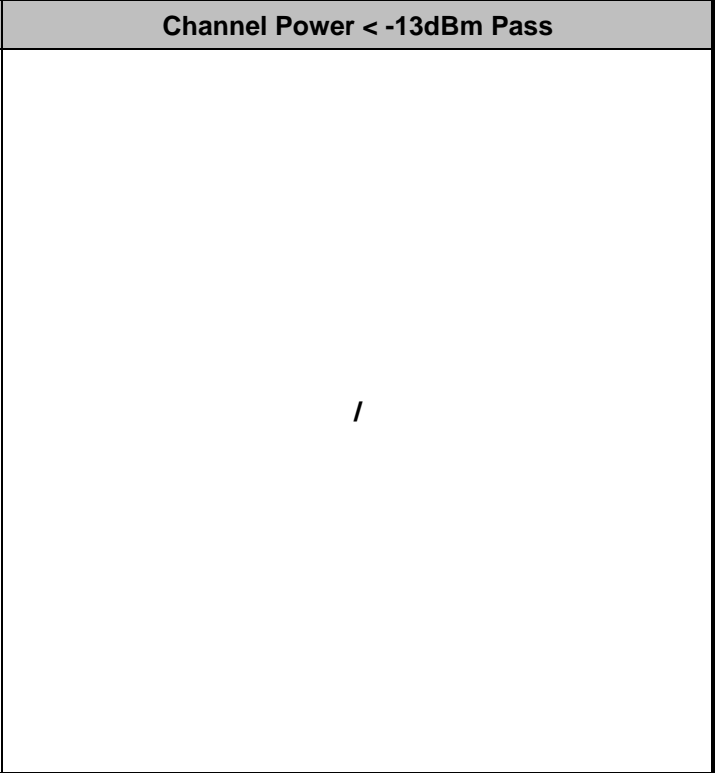
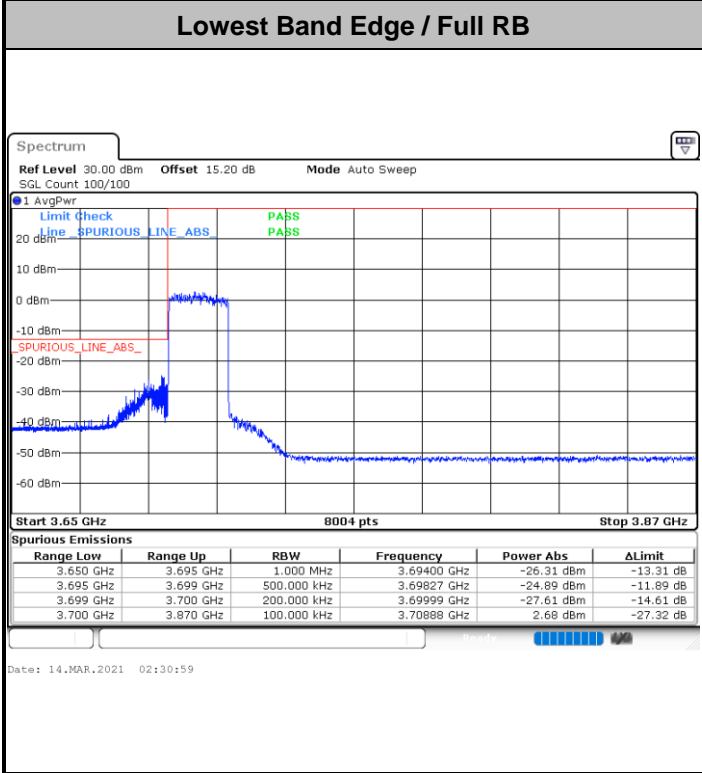
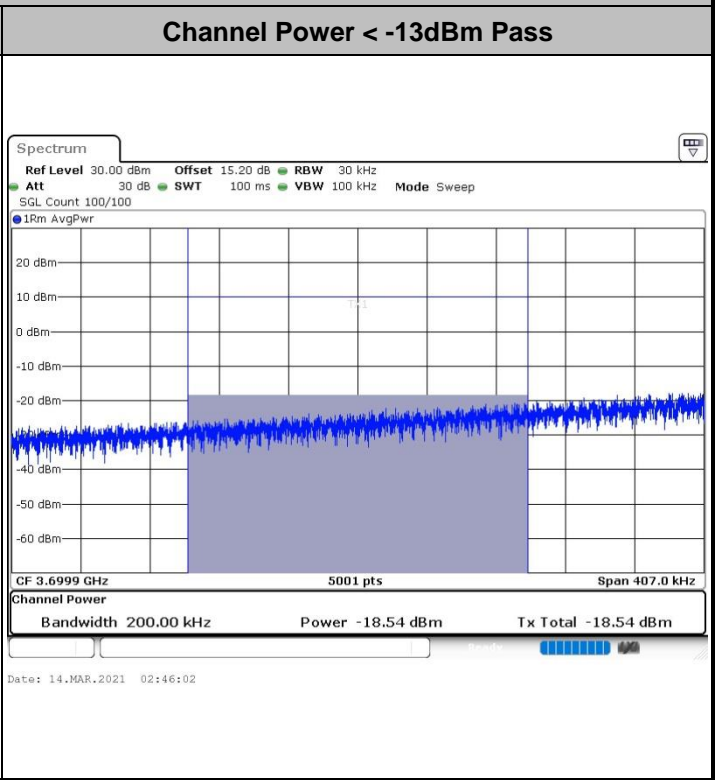
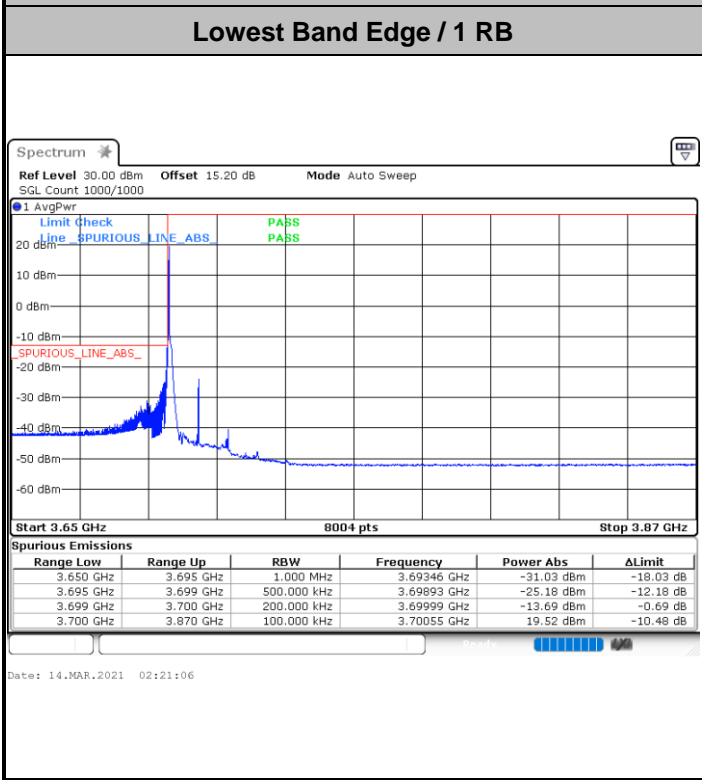
Channel Power < -13dBm Pass



Date: 12.MAR.2021 11:18:21



FR1 UL-MIMO n78 / 20MHz / CP-OFDM QPSK (M2)

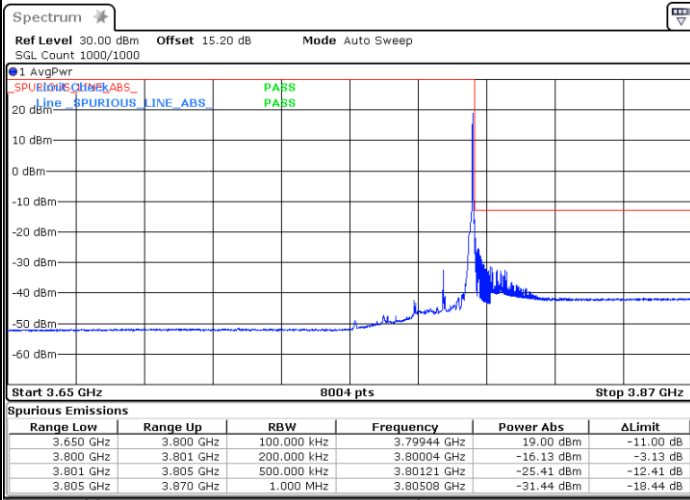




FR1 UL-MIMO n78 / 20MHz / CP-OFDM QPSK (M2)

Highest Band Edge / 1 RB

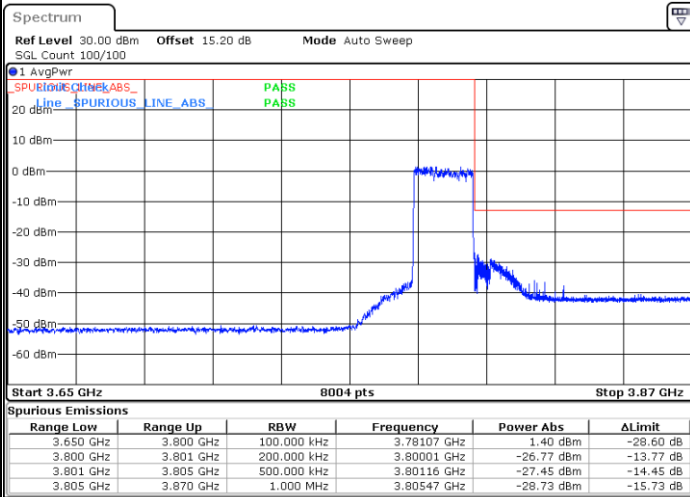
Channel Power < -13dBm Pass



Date: 14.MAR.2021 02:43:57

Highest Band Edge / Full RB

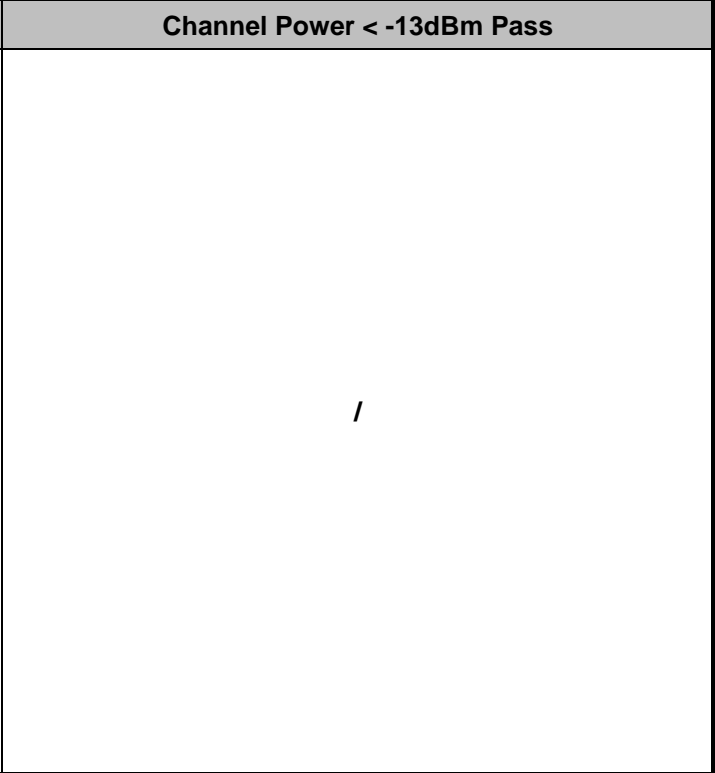
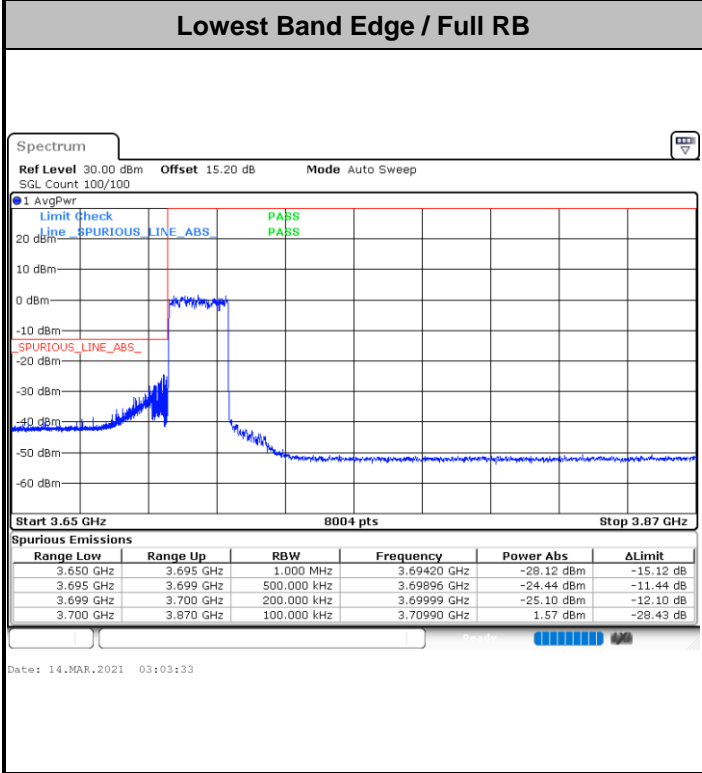
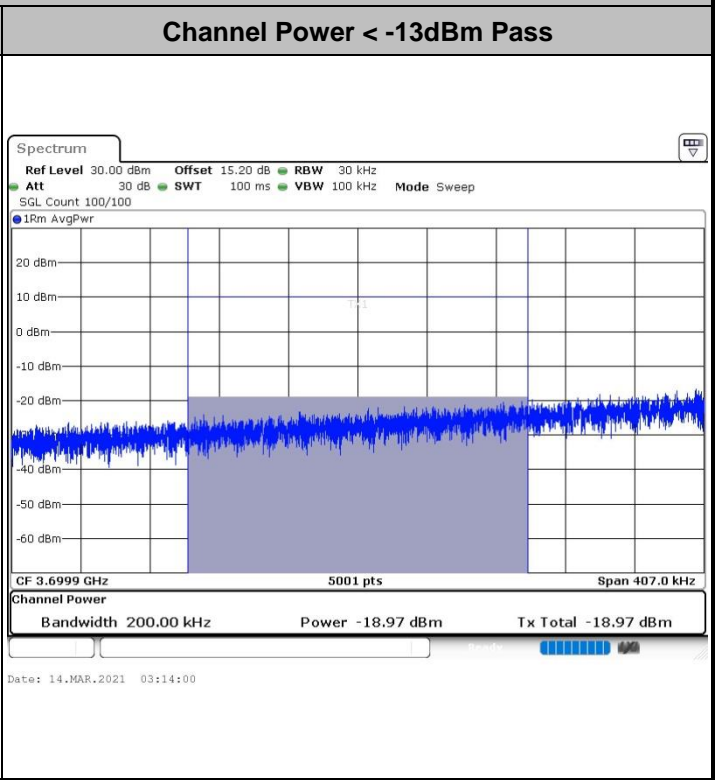
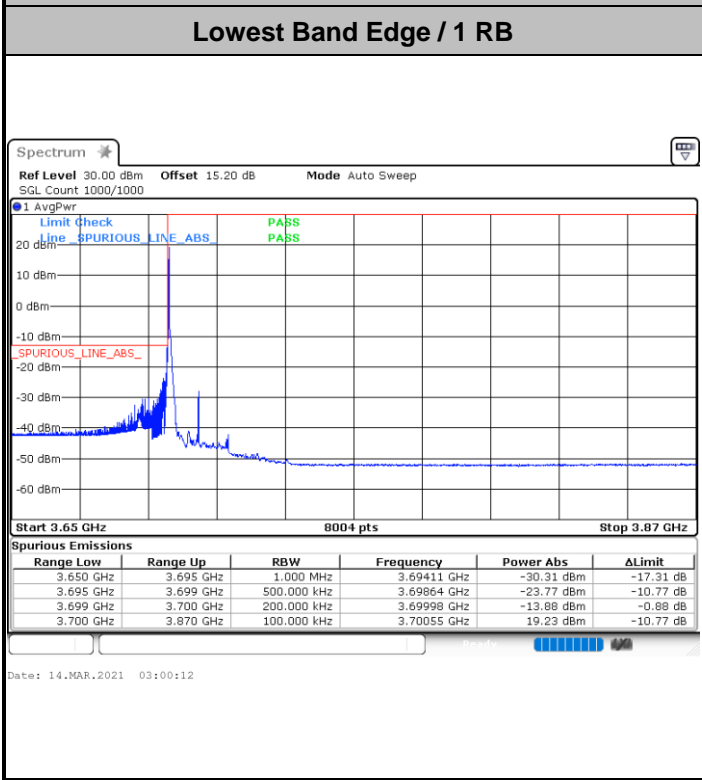
Channel Power < -13dBm Pass



Date: 14.MAR.2021 02:33:22



FR1 UL-MIMO n78 / 20MHz / CP-OFDM QPSK (M)

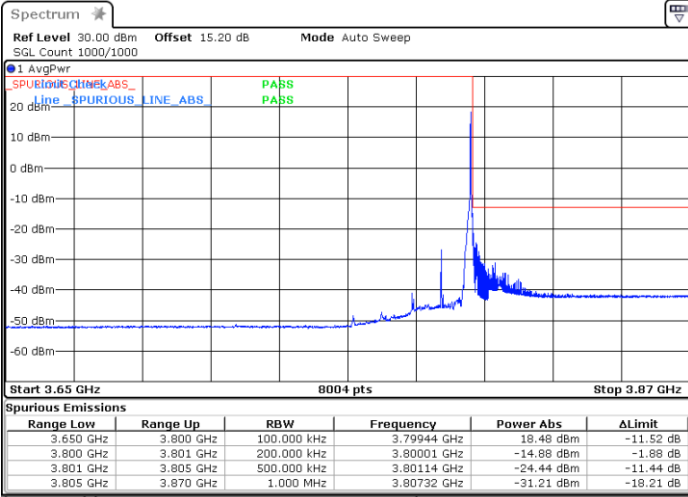




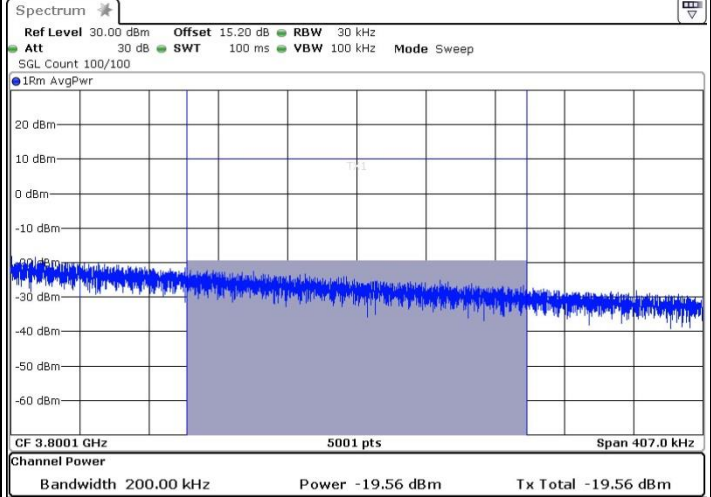
FR1 UL-MIMO n78 / 20MHz / CP-OFDM QPSK (M)

Highest Band Edge / 1 RB

Channel Power < -13dBm Pass



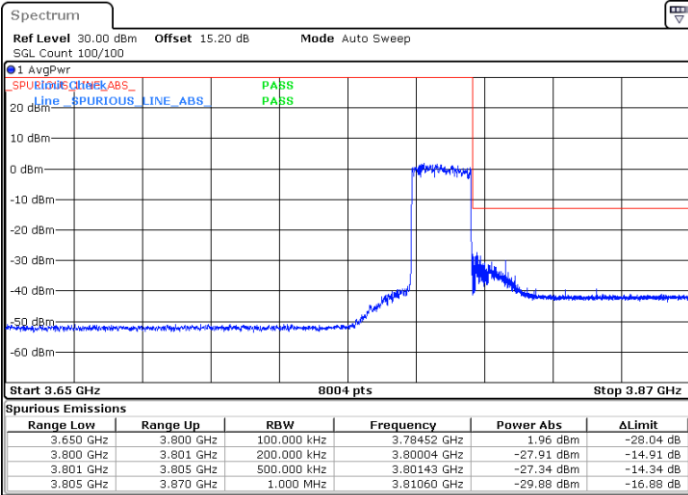
Date: 14.MAR.2021 03:09:38



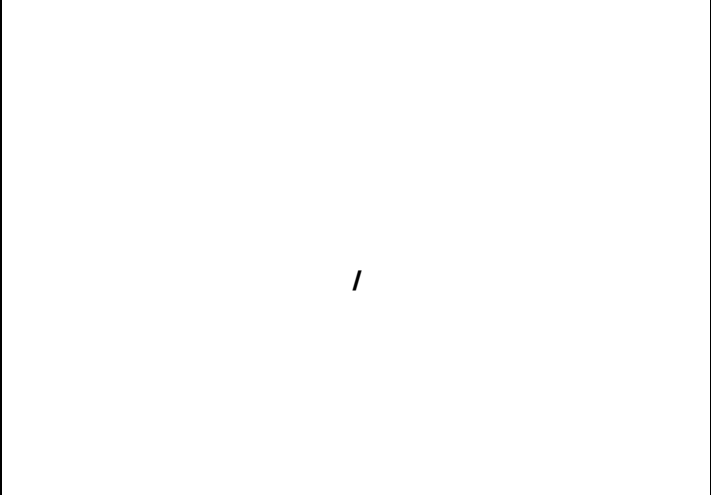
Date: 14.MAR.2021 03:10:47

Highest Band Edge / Full RB

Channel Power < -13dBm Pass



Date: 14.MAR.2021 03:03:55



Date: 14.MAR.2021 03:10:47

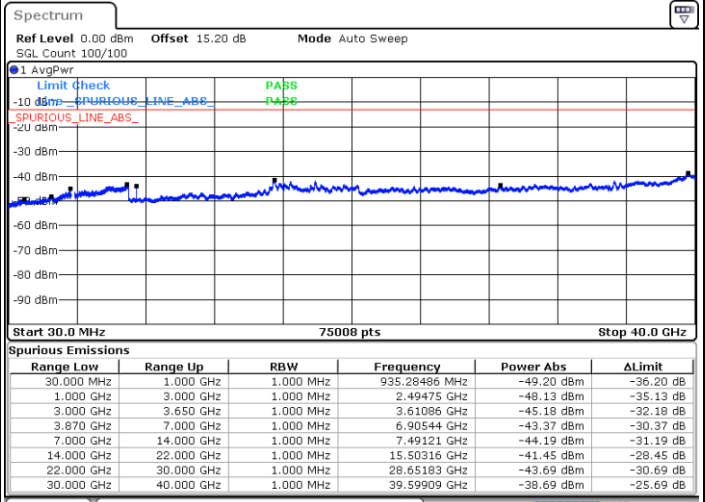
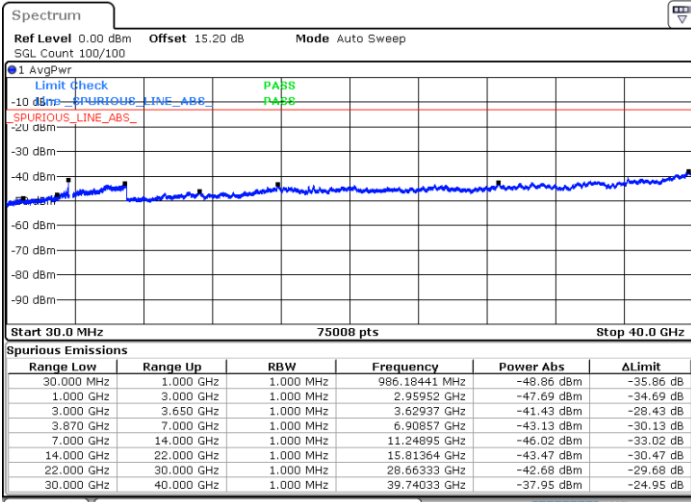


Conducted Spurious Emission

FR1 UL-MIMO n78 / 10MHz / CP-OFDM QPSK (M2)

Lowest Channel / 1RB

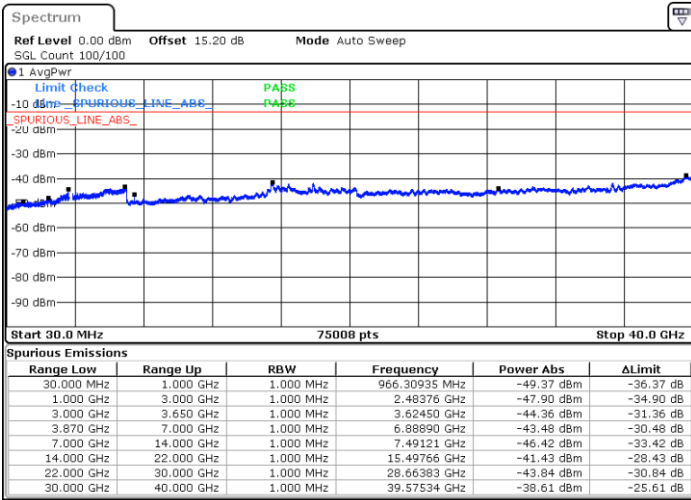
Middle Channel / 1RB



Date: 3.MAR.2021 03:04:56

Date: 4.FEB.2021 22:53:06

Highest Channel / 1RB



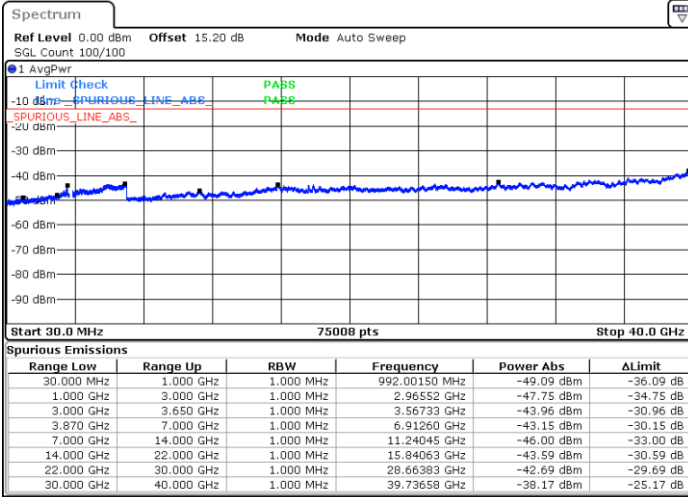
Date: 4.FEB.2021 22:57:38



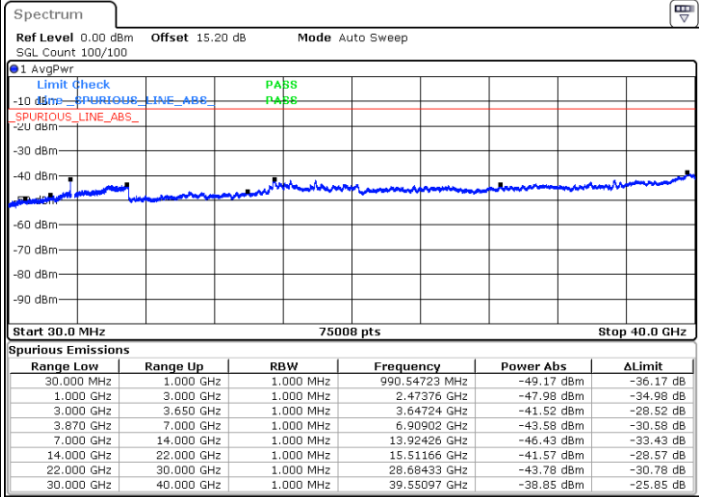
FR1 UL-MIMO n78 / 10MHz / CP-OFDM QPSK (M)

Lowest Channel / 1RB

Middle Channel / 1RB

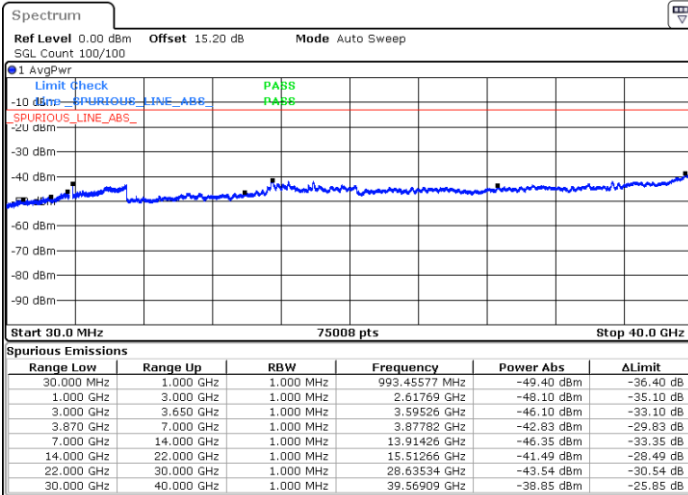


Date: 3.MAR.2021 04:05:25



Date: 3.FEB.2021 07:56:21

Highest Channel / 1RB



Date: 3.FEB.2021 07:58:07