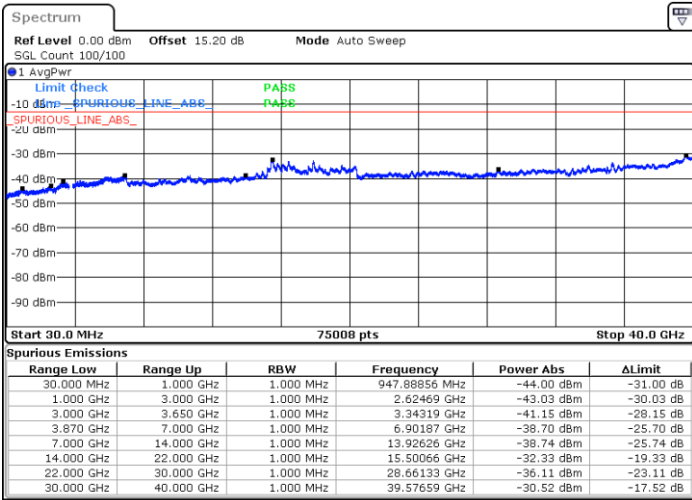




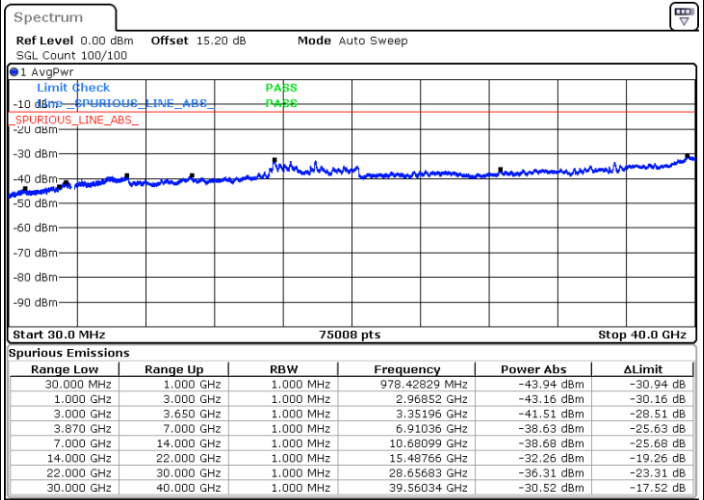
FR1 UL-MIMO n78 / 15MHz / CP-OFDM QPSK (M2)

Lowest Channel / 1RB

Middle Channel / 1RB

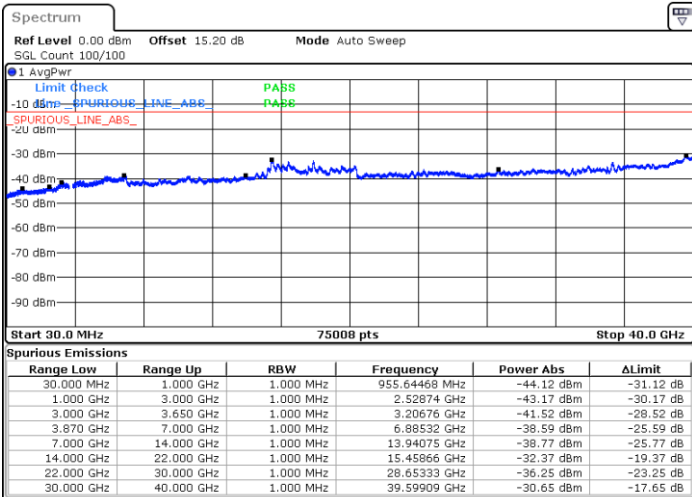


Date: 4.FEB.2021 22:48:36



Date: 4.FEB.2021 22:44:59

Highest Channel / 1RB



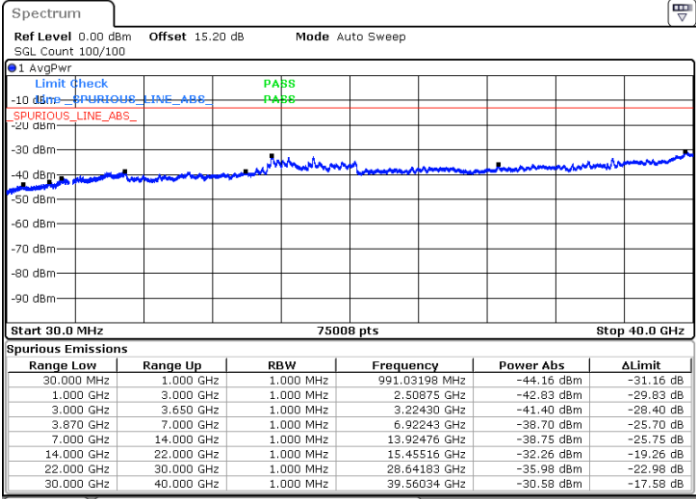
Date: 4.FEB.2021 22:49:40



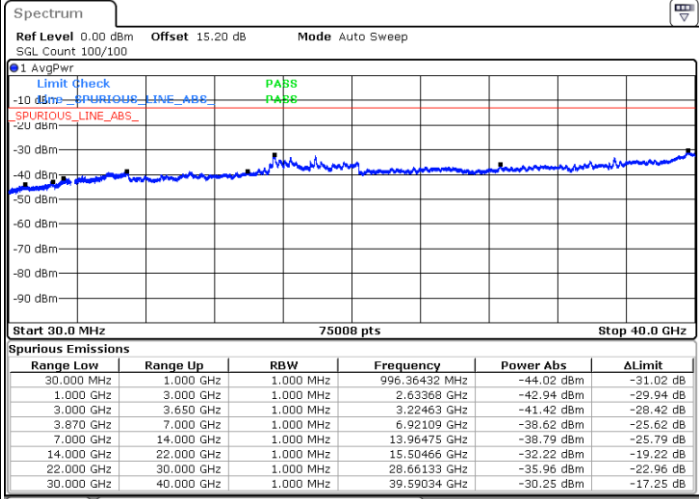
FR1 UL-MIMO n78 / 15MHz / CP-OFDM QPSK (M)

Lowest Channel / 1RB

Middle Channel / 1RB

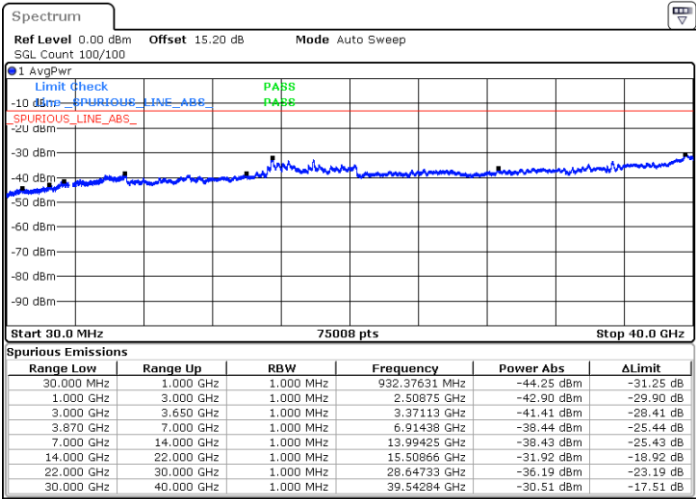


Date: 3.FEB.2021 07:37:32



Date: 3.FEB.2021 07:33:37

Highest Channel / 1RB



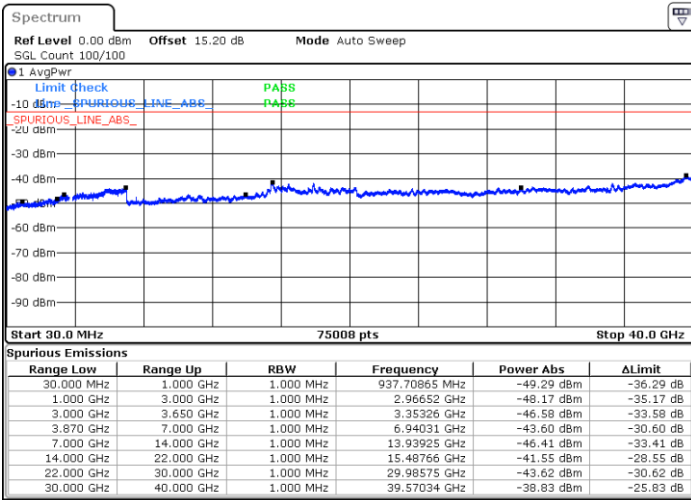
Date: 3.FEB.2021 07:39:17



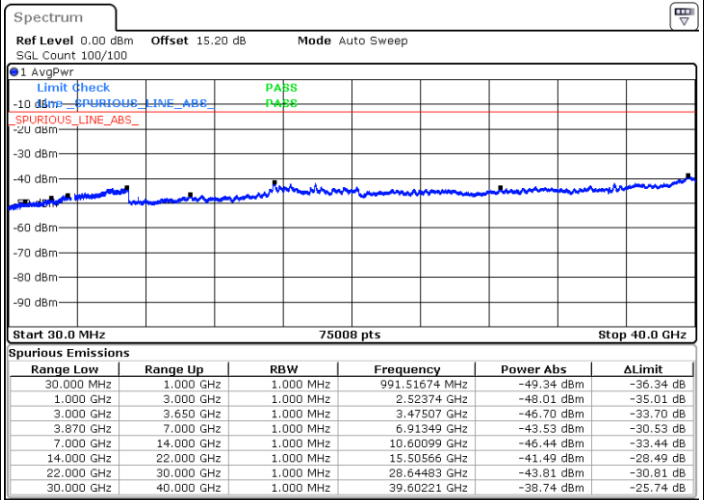
FR1 UL-MIMO n78 / 20MHz / CP-OFDM QPSK (M2)

Lowest Channel / 1RB

Middle Channel / 1RB

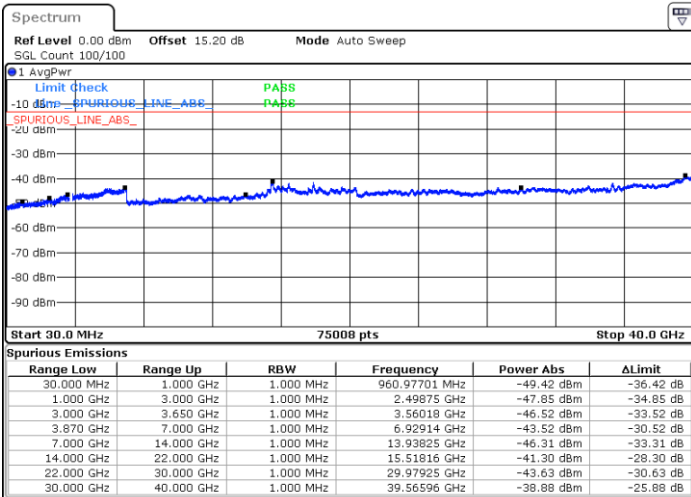


Date: 4.FEB.2021 22:03:00



Date: 4.FEB.2021 22:01:51

Highest Channel / 1RB



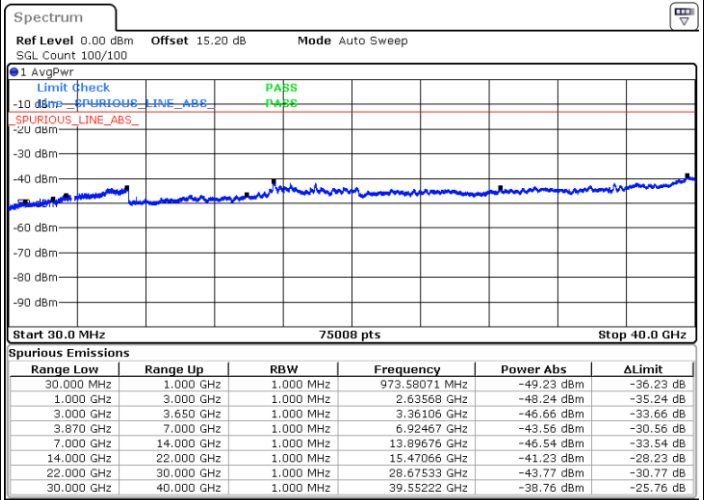
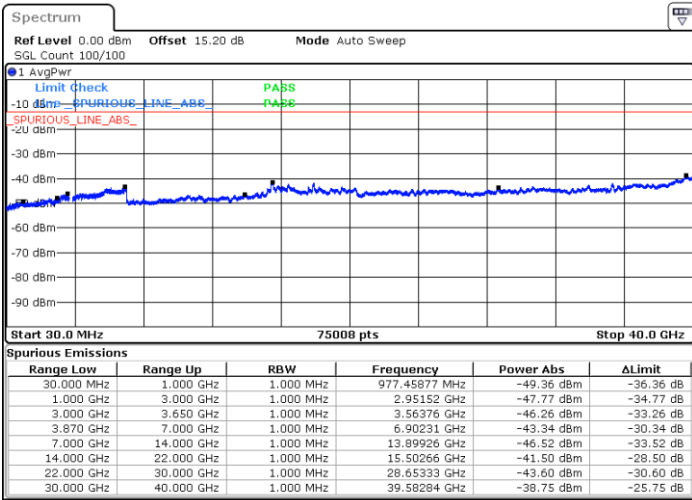
Date: 4.FEB.2021 21:54:03



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

Lowest Channel / 1RB

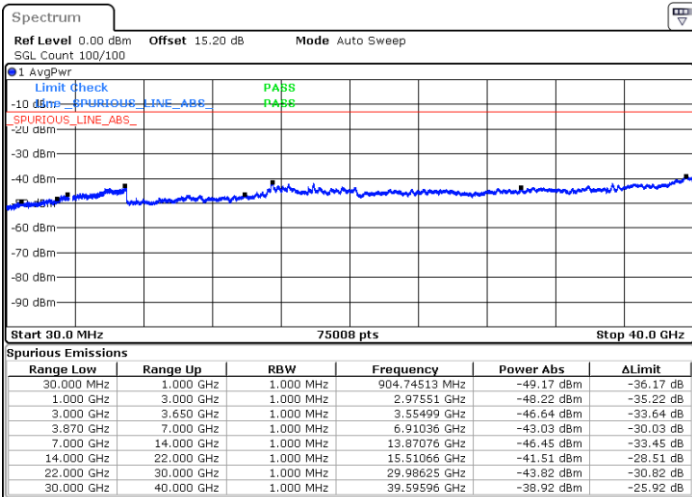
Middle Channel / 1RB



Date: 3.FEB.2021 06:30:49

Date: 3.FEB.2021 06:23:49

Highest Channel / 1RB



Date: 3.FEB.2021 06:47:08



Frequency Stability

Test Conditions		NR UL-MIMO n78 (QPSK) / Middle Channel	Limit
Temperature (°C)	Voltage (Volt)	BW 20MHz	Within Band
		Deviation (ppm)	Result
50	Normal Voltage	0.0016	PASS
40	Normal Voltage	0.0020	
30	Normal Voltage	0.0021	
20(Ref.)	Normal Voltage	0.0015	
10	Normal Voltage	0.0006	
0	Normal Voltage	0.0013	
-10	Normal Voltage	0.0027	
-20	Normal Voltage	0.0010	
-30	Normal Voltage	0.0015	
20	Maximum Voltage	0.0010	
20	Normal Voltage	0.0027	
20	Battery End Point	0.0022	

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 30K

Peak-to-Average Ratio

Mode	FR1 UL-MIMO n78 / 10MHz / CP-OFDM (M2)				
Mod.	QPSK	QPSK			Limit: 13dB
RB Size	1RB	Full RB			Result
Lowest CH	7.86	8.17			PASS
Middle CH	8.49	8.52			
Highest CH	7.94	8.32			

Mode	FR1 UL-MIMO n78 / 10MHz / CP-OFDM (M)				
Mod.	QPSK	QPSK			Limit: 13dB
RB Size	1RB	Full RB			Result
Lowest CH	7.65	8.32			PASS
Middle CH	7.57	8.12			
Highest CH	7.45	7.94			



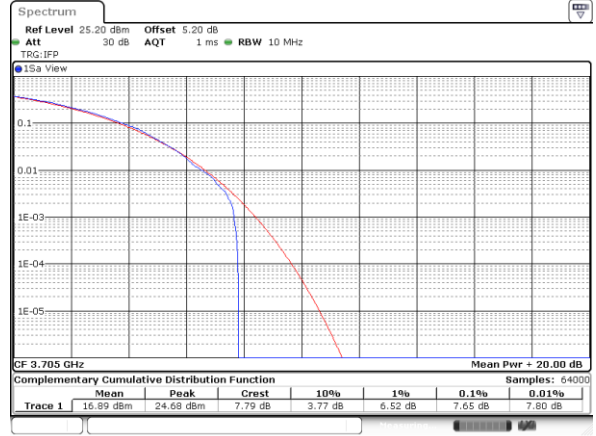
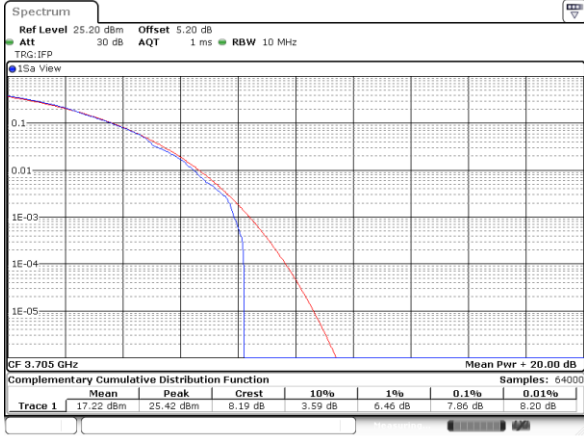
FR1 UL-MIMO n78 / 20MHz / CP-OFDM

QPSK(M2)

QPSK(M)

Lowest Channel / 1RB

Lowest Channel / 1RB

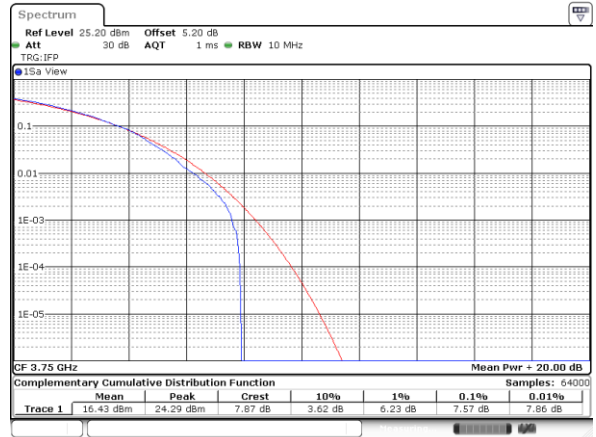
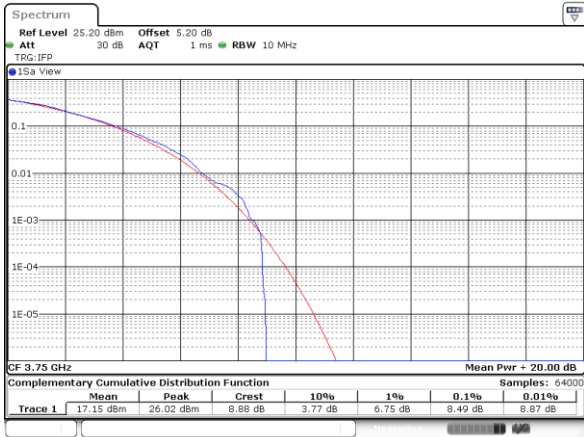


Date: 2.FEB.2021 14:58:02

Date: 3.FEB.2021 05:42:24

Middle Channel / 1 RB

Middle Channel / 1 RB

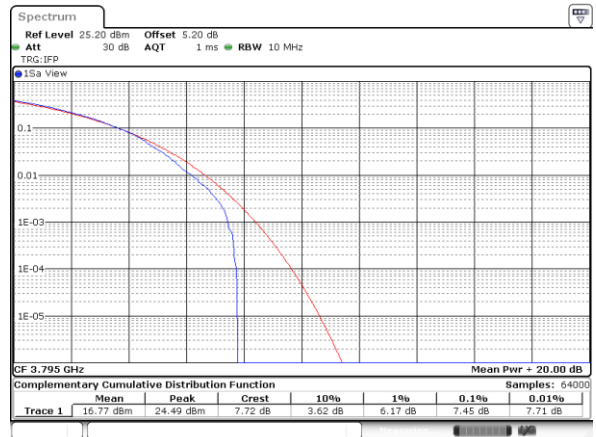
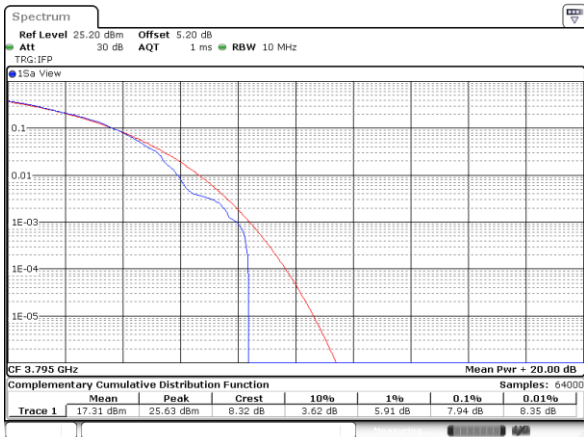


Date: 2.FEB.2021 15:09:15

Date: 3.FEB.2021 05:37:43

Highest Channel / 1 RB

Highest Channel / 1 RB



Date: 2.FEB.2021 15:35:33

Date: 3.FEB.2021 06:02:18



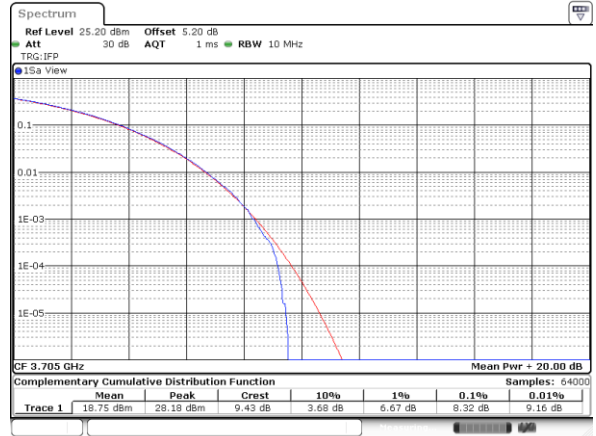
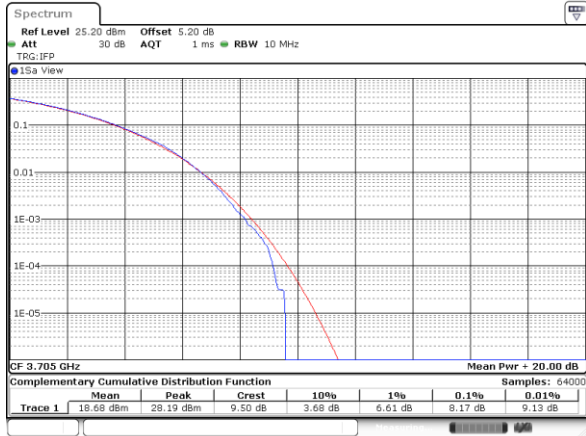
FR1 UL-MIMO n78 / 20MHz / CP-OFDM

QPSK(M2)

QPSK(M)

Lowest Channel / Full RB

Lowest Channel / Full RB

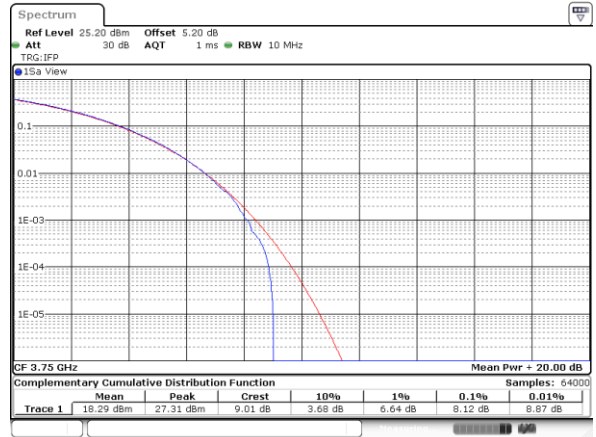
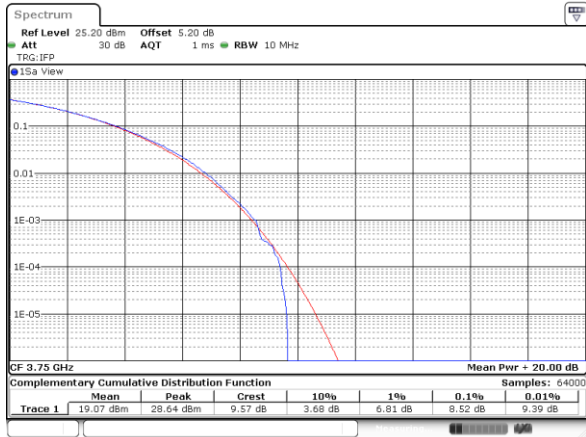


Date: 2.FEB.2021 15:00:58

Date: 3.FEB.2021 05:40:30

Middle Channel / Full RB

Middle Channel / Full RB

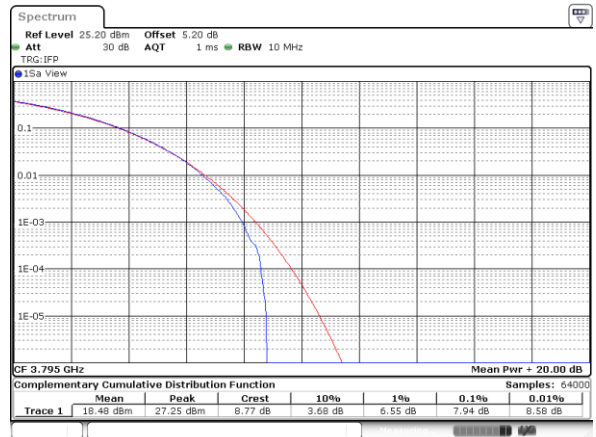
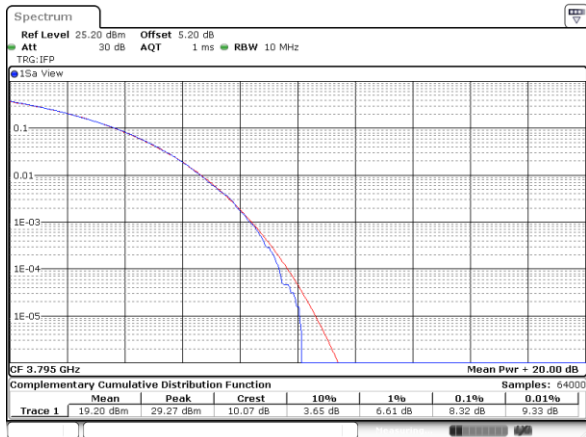


Date: 2.FEB.2021 15:13:57

Date: 3.FEB.2021 05:39:16

Highest Channel / Full RB

Highest Channel / Full RB



Date: 2.FEB.2021 15:30:27

Date: 3.FEB.2021 06:05:36



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	8.97	9.07	9.15	9.15	9.25	8.97	9.19	9.27

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	14.29	14.32	14.32	14.32	14.38	14.41	14.44	14.29

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	19.18	19.14	19.10	18.98	19.34	19.26	19.06	18.94

Mode	FR1 UL-MIMO n78 : 26dB BW(MHz) / CP-OFDM							
	M2				M			
BW	40MHz	40MHz	40MHz	40MHz	40MHz	40MHz	40MHz	40MHz
Mod.	QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM
Middle CH	40.2	40.36	40.44	40.28	40.2	40.519	40.36	40.59

Mode	FR1 UL-MIMO n78 : 26dB BW(MHz) / CP-OFDM							
	M2				M			
BW	50MHz	50MHz	50MHz	50MHz	50MHz	50MHz	50MHz	50MHz
Mod.	QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM
Middle CH	49.75	49.65	49.75	49.75	49.75	49.75	49.55	49.75

Mode	FR1 UL-MIMO n78 : 26dB BW(MHz) / CP-OFDM							
	M2				M			
BW	60MHz	60MHz	60MHz	60MHz	60MHz	60MHz	60MHz	60MHz
Mod.	QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM
Middle CH	60.18	60.54	60.3	60.42	60.54	60.42	60.42	60.42



Mode	FR1 UL-MIMO n78 : 26dB BW(MHz) / CP-OFDM							
	M2				M			
BW	80MHz	80MHz	80MHz	80MHz	80MHz	80MHz	80MHz	80MHz
Mod.	QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM
Middle CH	79.92	79.92	79.92	79.76	79.92	79.92	79.92	79.92

Mode	FR1 UL-MIMO n78 : 26dB BW(MHz) / CP-OFDM							
	M2				M			
BW	100MHz	100MHz	100MHz	100MHz	100MHz	100MHz	100MHz	100MHz
Mod.	QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM
Middle CH	100.3	100.5	100.3	100.5	100.9	100.3	100.5	100.3



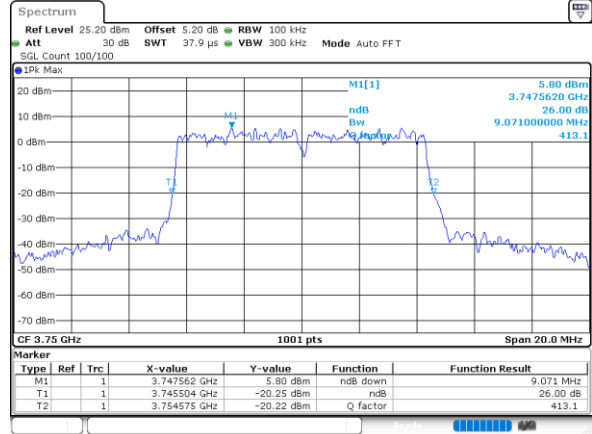
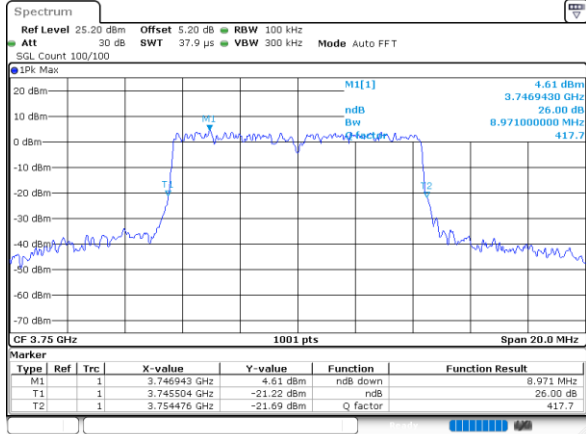
FR1 UL-MIMO n78 / 10MHz / CP-OFDM (M2)

QPSK

16QAM

Middle Channel

Middle Channel



Date: 30_JAN.2021 07:13:59

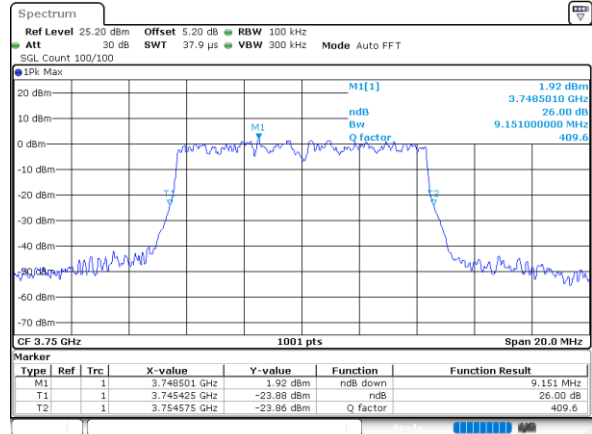
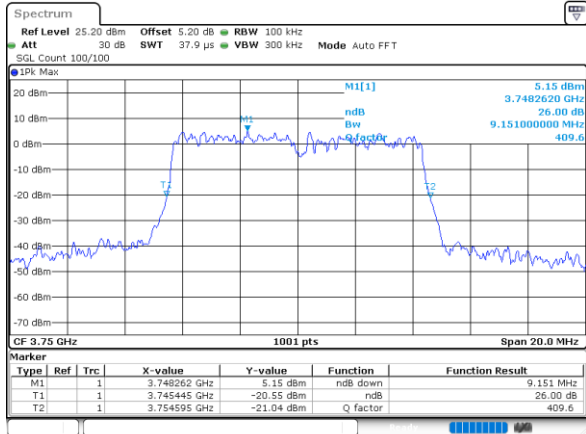
Date: 30_JAN.2021 07:13:51

64QAM

256QAM

Middle Channel

Middle Channel



Date: 30_JAN.2021 07:14:10

Date: 30_JAN.2021 07:14:22



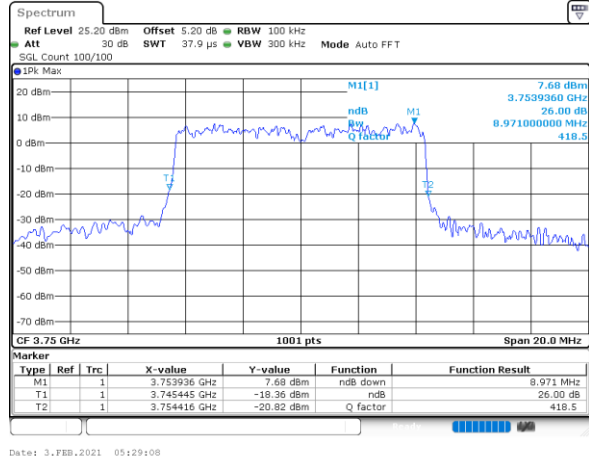
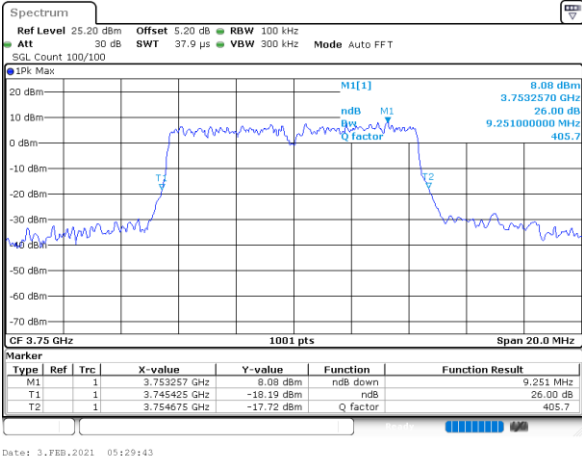
FR1 UL-MIMO n78 / 10MHz / CP-OFDM (M)

QPSK

16QAM

Middle Channel

Middle Channel

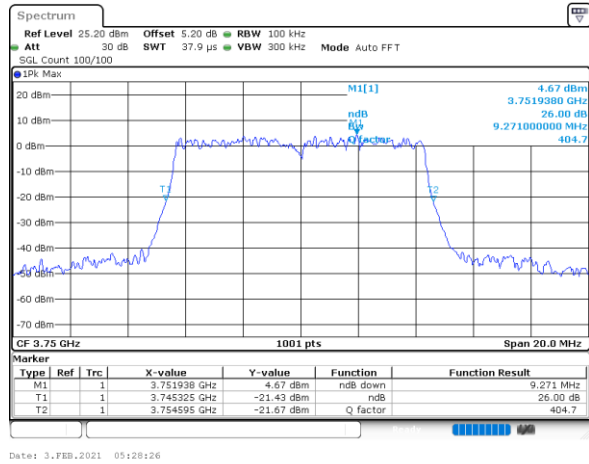
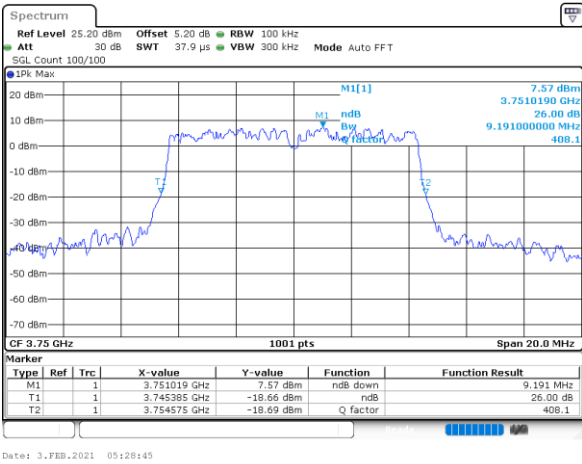


64QAM

256QAM

Middle Channel

Middle Channel





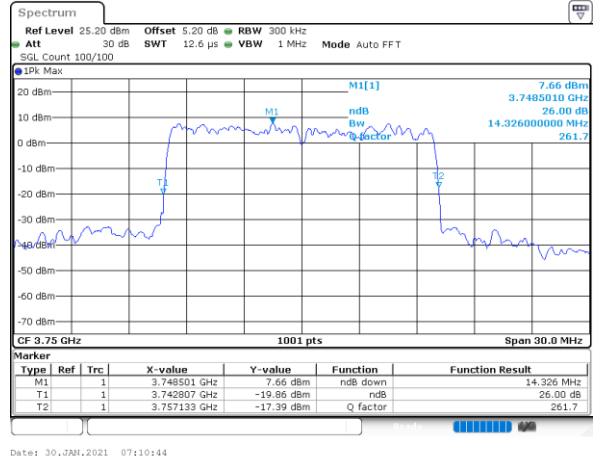
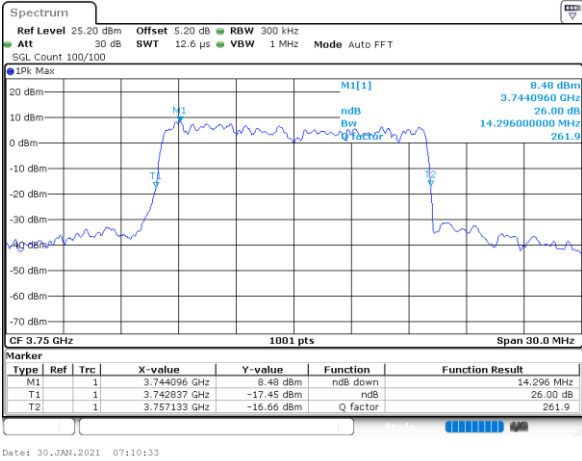
FR1 UL-MIMO n78 / 15MHz / CP-OFDM (M2)

QPSK

16QAM

Middle Channel

Middle Channel



Date: 30_JAN,2021 07:10:33

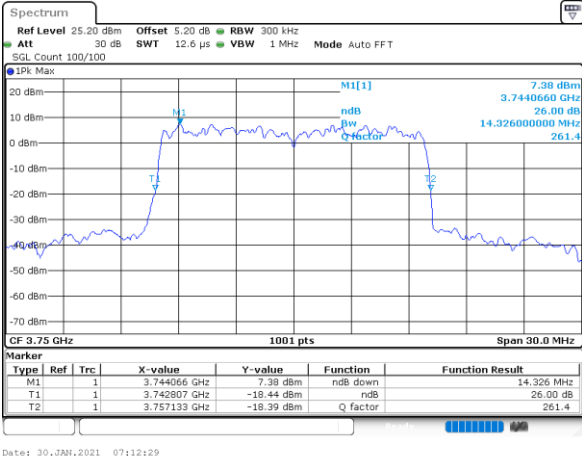
Date: 30_JAN,2021 07:10:44

64QAM

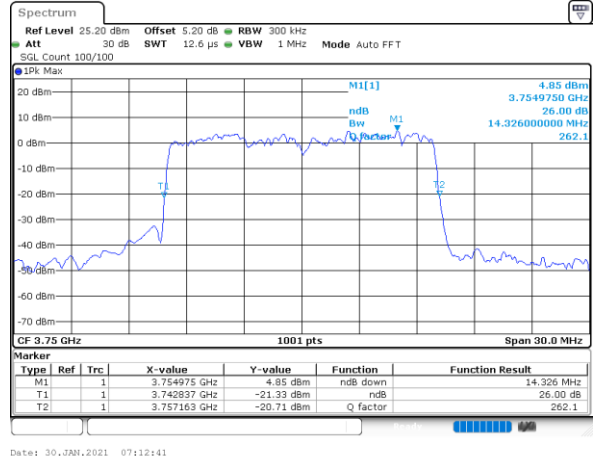
256QAM

Middle Channel

Middle Channel



Date: 30_JAN,2021 07:12:29



Date: 30_JAN,2021 07:12:41



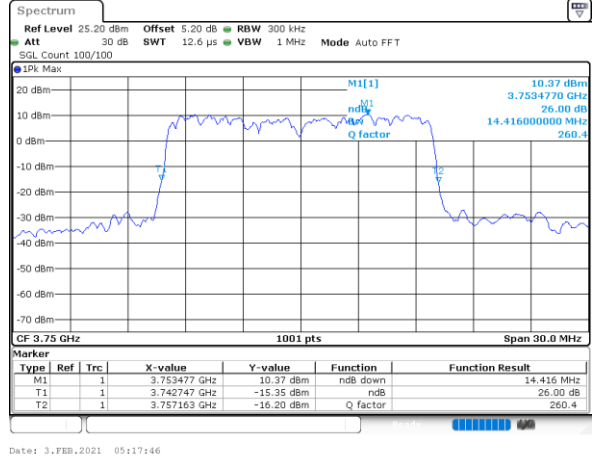
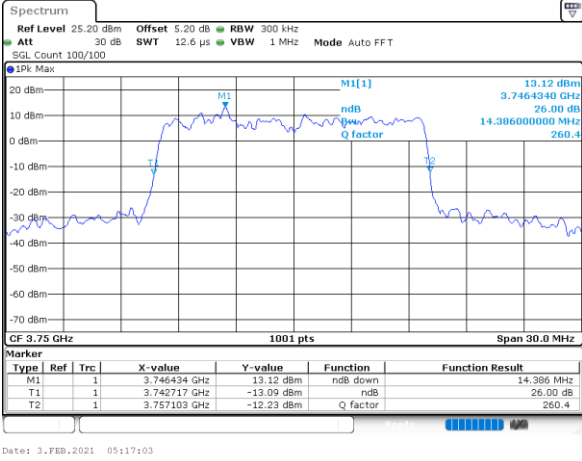
FR1 UL-MIMO n78 / 15MHz / CP-OFDM (M)

QPSK

16QAM

Middle Channel

Middle Channel

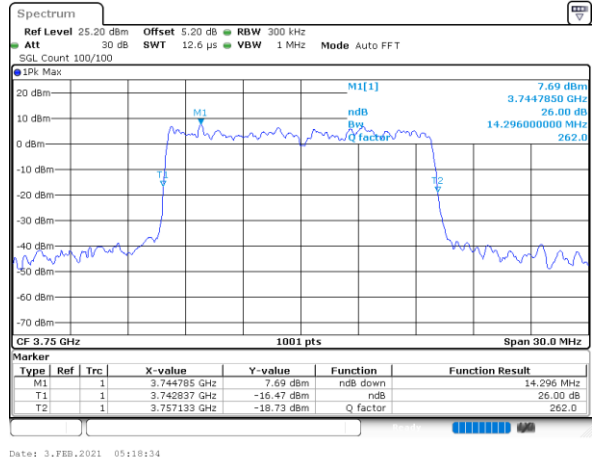
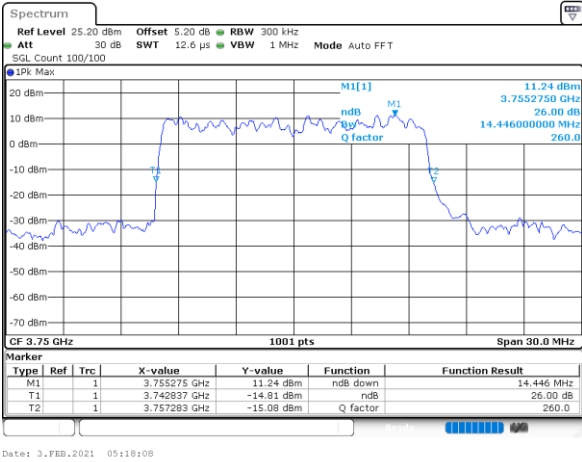


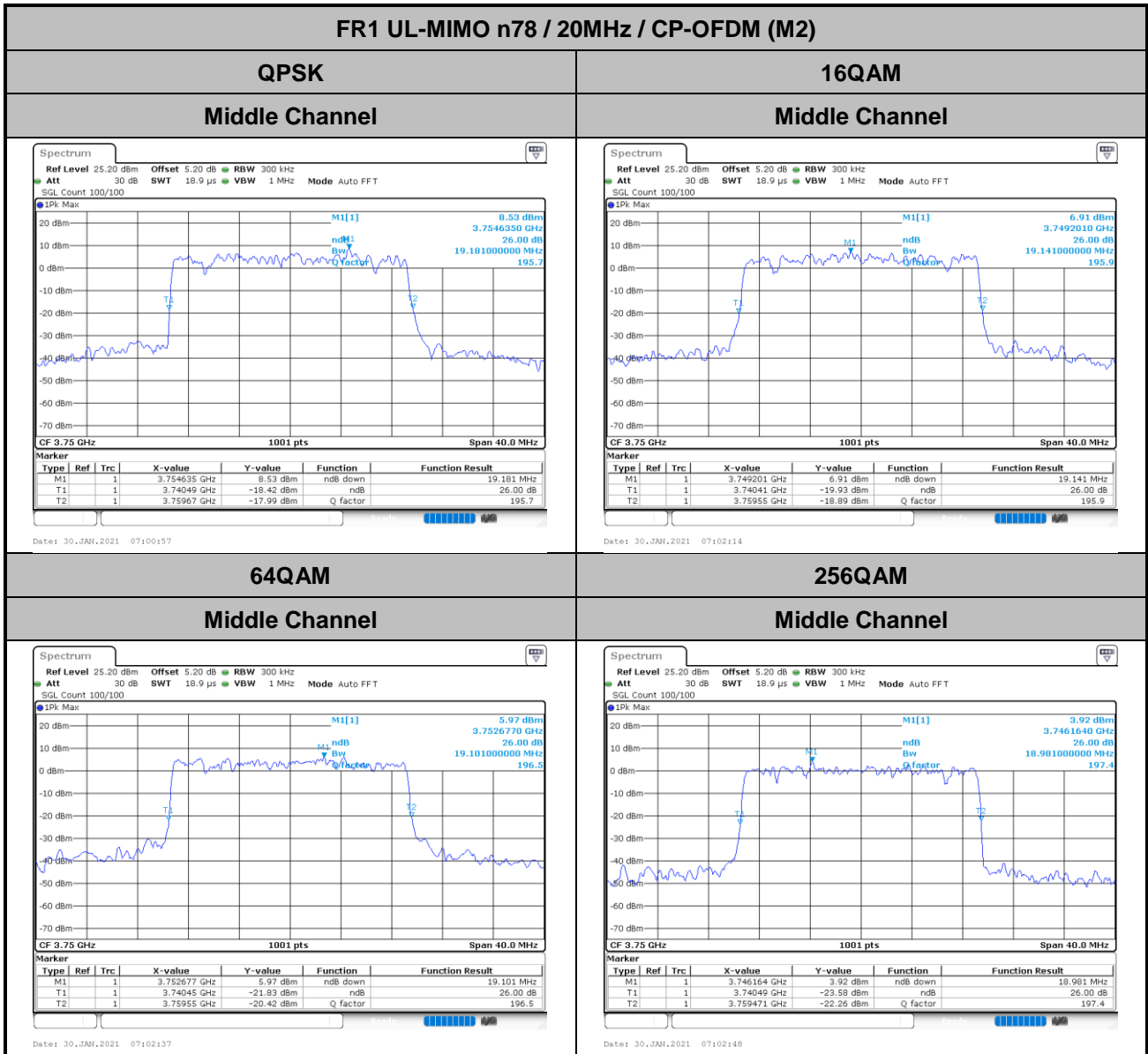
64QAM

256QAM

Middle Channel

Middle Channel







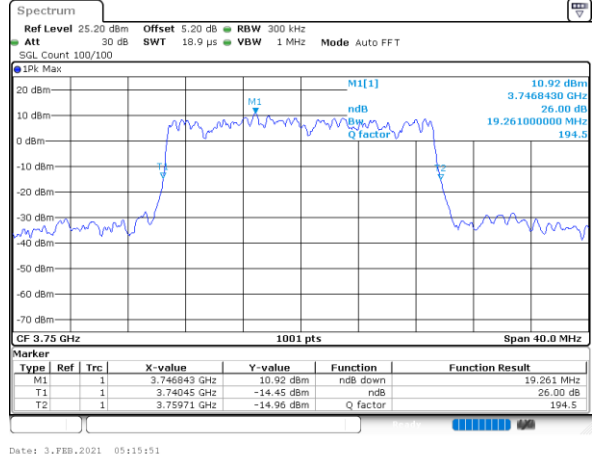
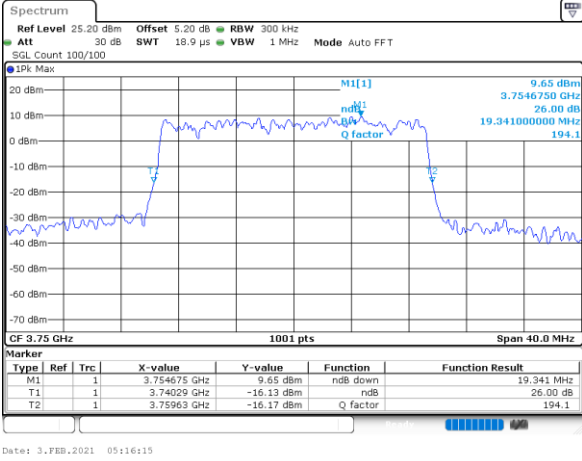
FR1 UL-MIMO n78 / 20MHz / CP-OFDM (M)

QPSK

16QAM

Middle Channel

Middle Channel

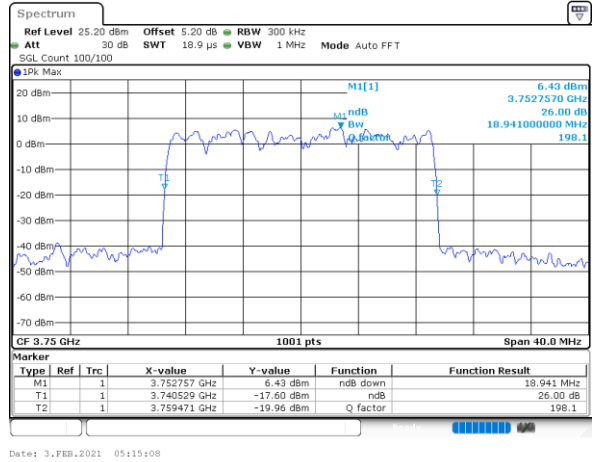
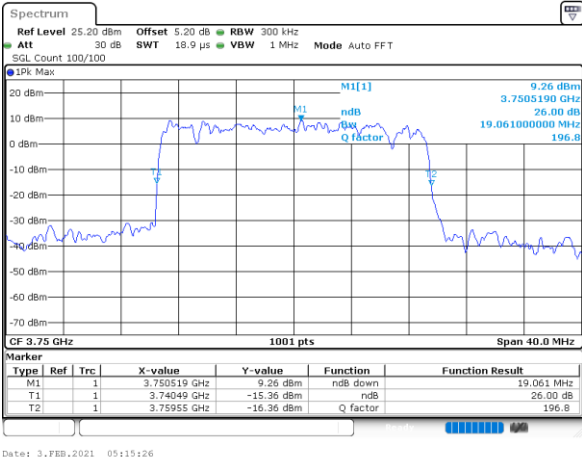


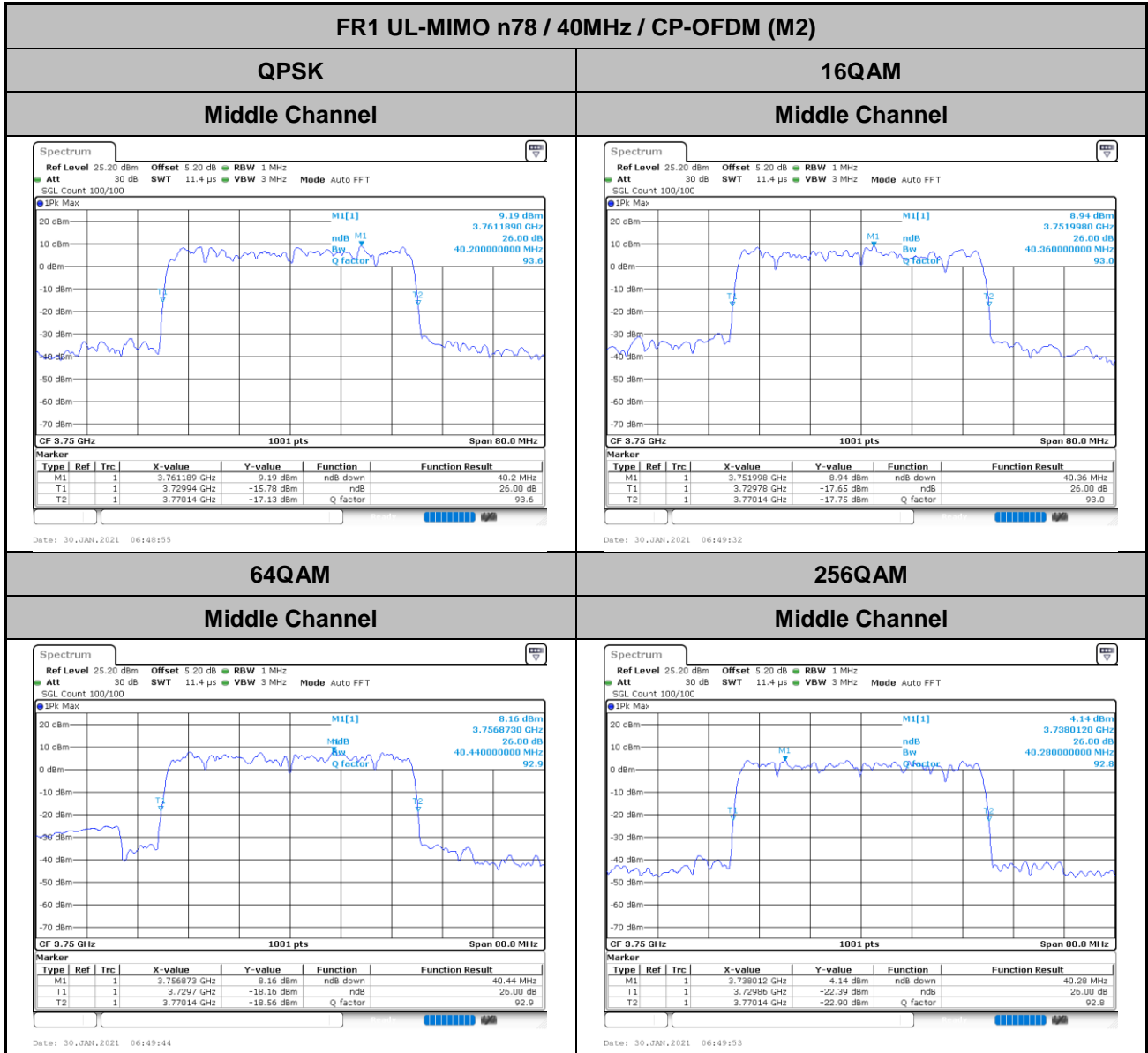
64QAM

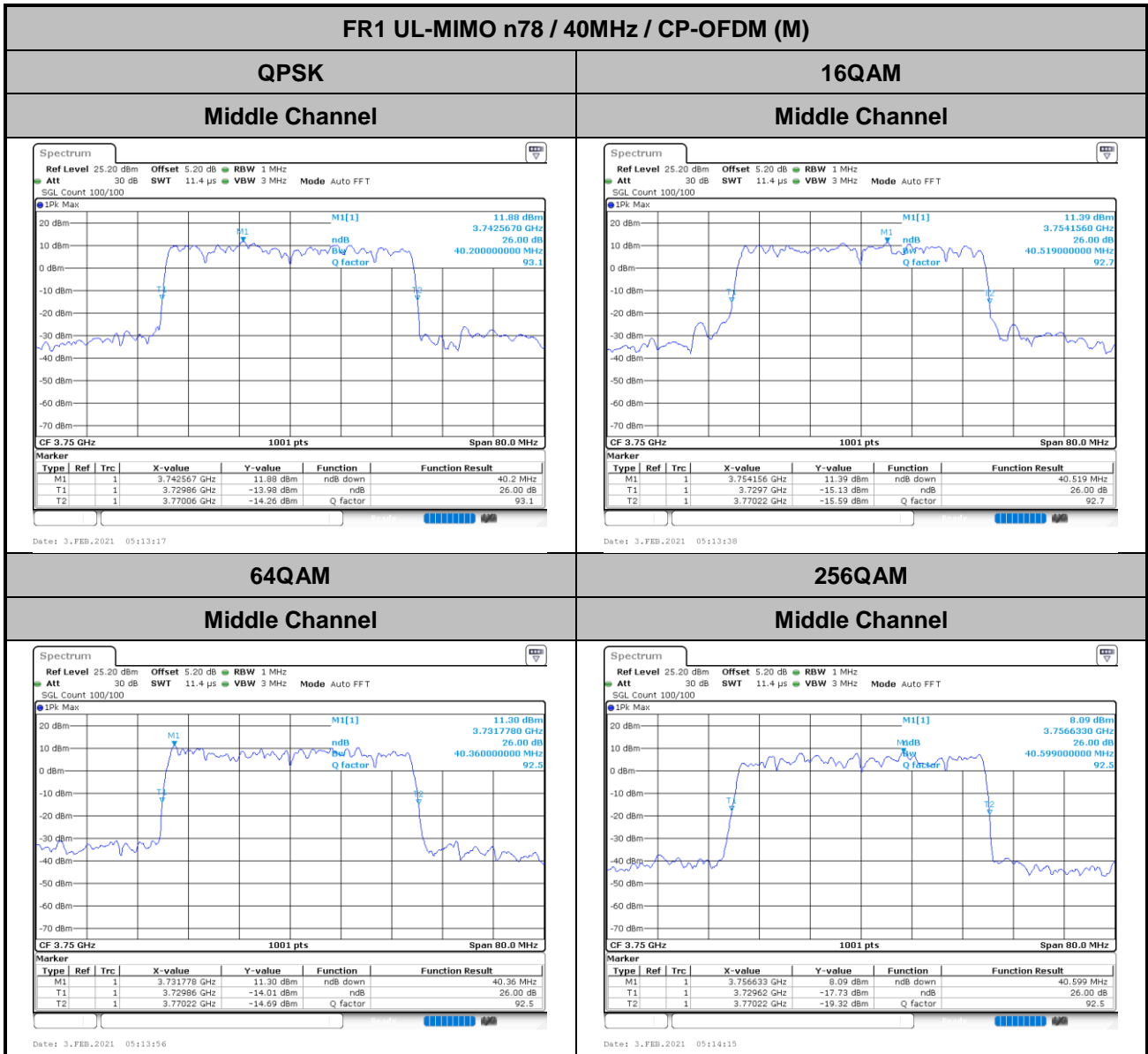
256QAM

Middle Channel

Middle Channel









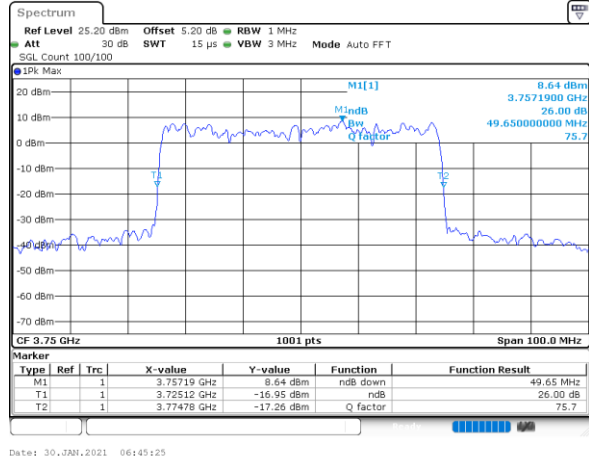
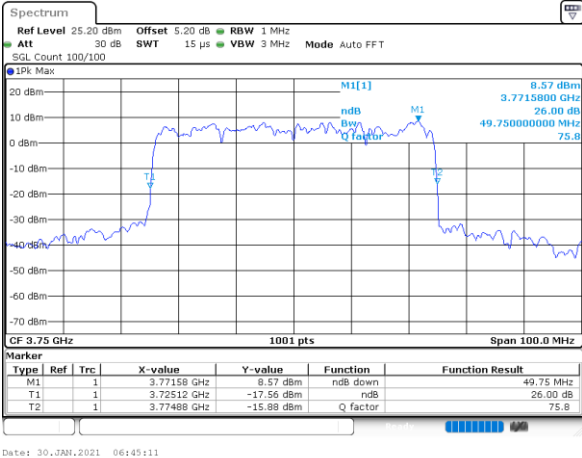
FR1 UL-MIMO n78 / 50MHz / CP-OFDM (M2)

QPSK

16QAM

Middle Channel

Middle Channel



Date: 30, JAN, 2021 06:45:11

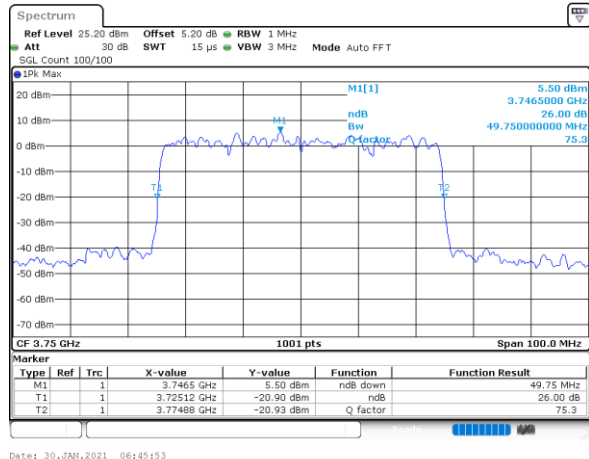
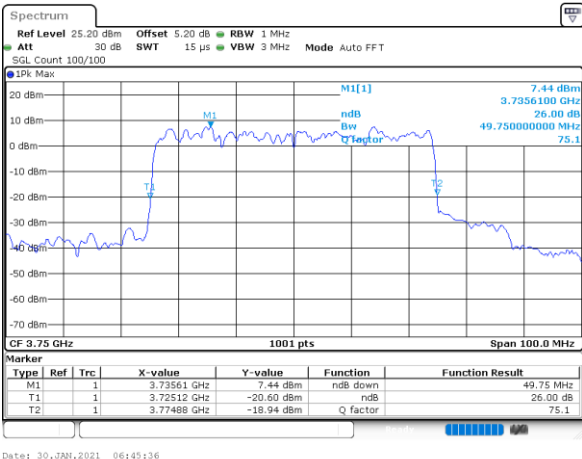
Date: 30, JAN, 2021 06:45:125

64QAM

256QAM

Middle Channel

Middle Channel



Date: 30, JAN, 2021 06:45:36

Date: 30, JAN, 2021 06:45:153



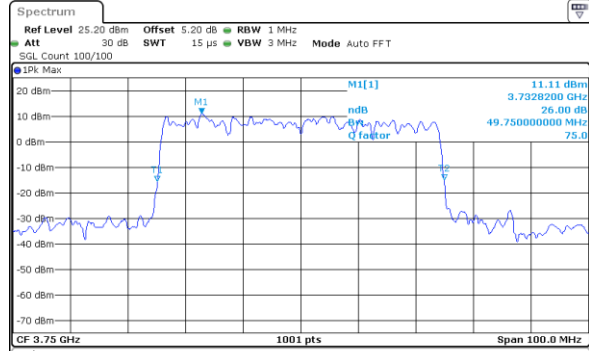
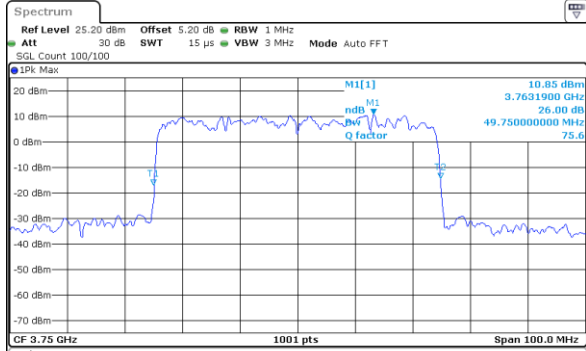
FR1 UL-MIMO n78 / 50MHz / CP-OFDM (M)

QPSK

16QAM

Middle Channel

Middle Channel



Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1	1		3.76319 GHz	10.85 dBm	ndB down	49.75 MHz
T1	1		3.72502 GHz	-16.77 dBm	ndB	26.00 dB
T2	1		3.77478 GHz	-14.19 dBm	Q factor	75.6

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1	1		3.73282 GHz	11.11 dBm	ndB down	49.75 MHz
T1	1		3.72512 GHz	-15.29 dBm	ndB	26.00 dB
T2	1		3.77488 GHz	-14.83 dBm	Q factor	75.0

Date: 3.FEB.2021 04:44:34

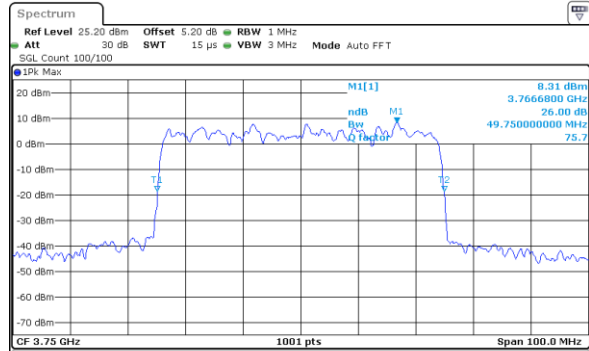
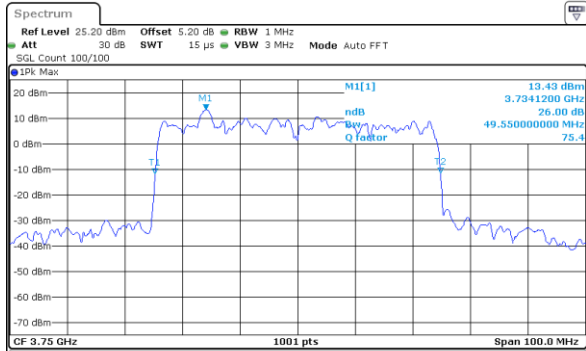
Date: 3.FEB.2021 04:45:11

64QAM

256QAM

Middle Channel

Middle Channel



Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1	1		3.73412 GHz	13.43 dBm	ndB down	49.55 MHz
T1	1		3.72522 GHz	-11.77 dBm	ndB	26.00 dB
T2	1		3.77478 GHz	-11.35 dBm	Q factor	75.4

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1	1		3.76668 GHz	8.31 dBm	ndB down	49.75 MHz
T1	1		3.72512 GHz	-18.51 dBm	ndB	26.00 dB
T2	1		3.77488 GHz	-18.55 dBm	Q factor	75.7

Date: 3.FEB.2021 04:45:34

Date: 3.FEB.2021 04:45:55



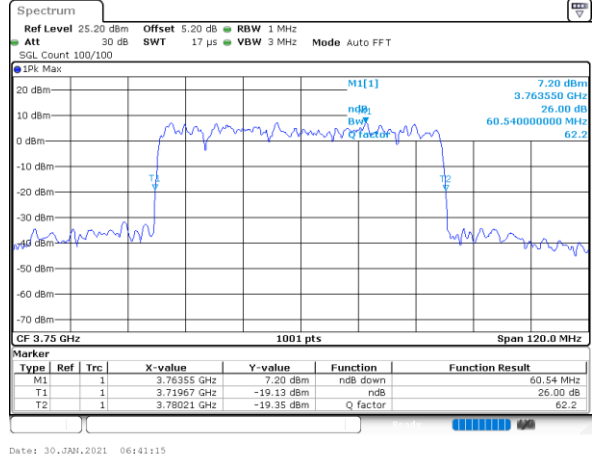
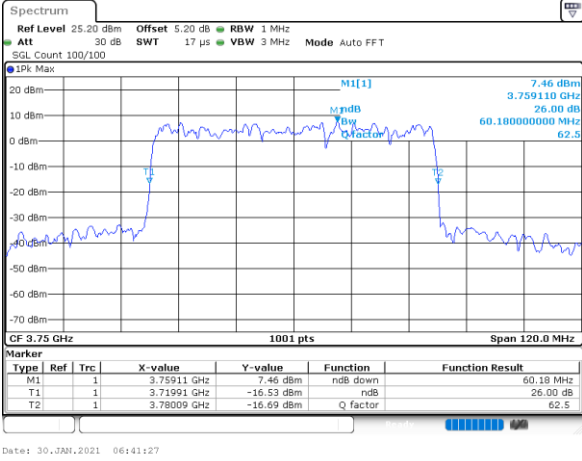
FR1 UL-MIMO n78 / 60MHz / CP-OFDM (M2)

QPSK

16QAM

Middle Channel

Middle Channel

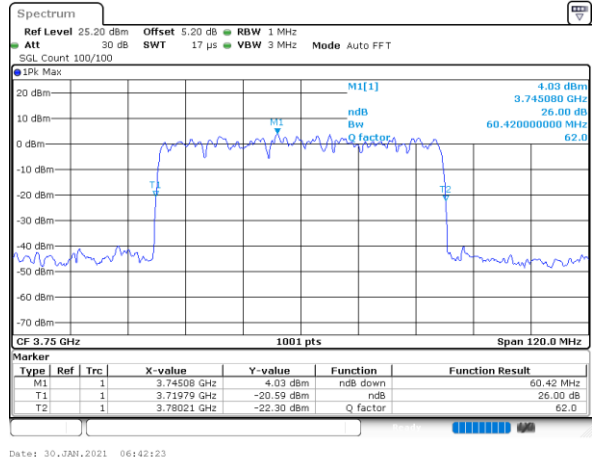
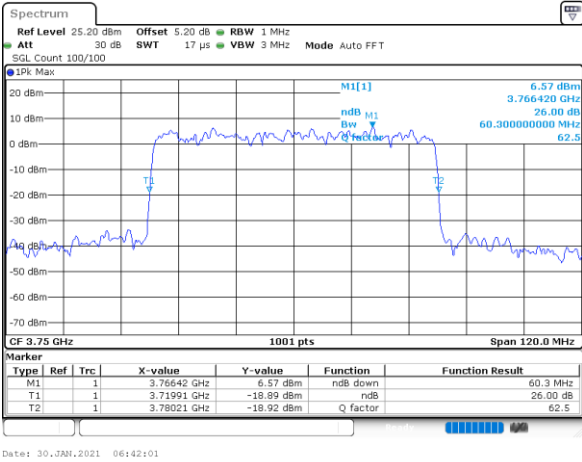


64QAM

256QAM

Middle Channel

Middle Channel





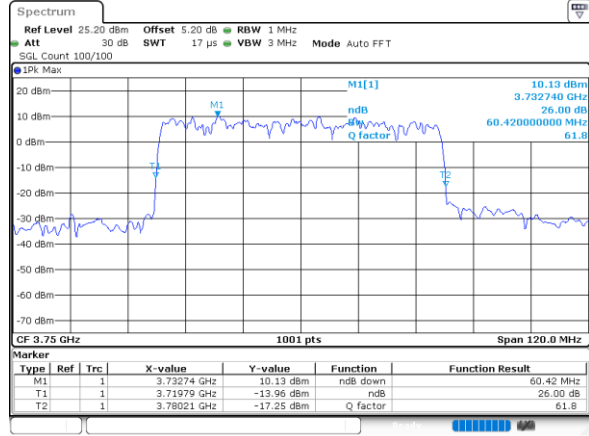
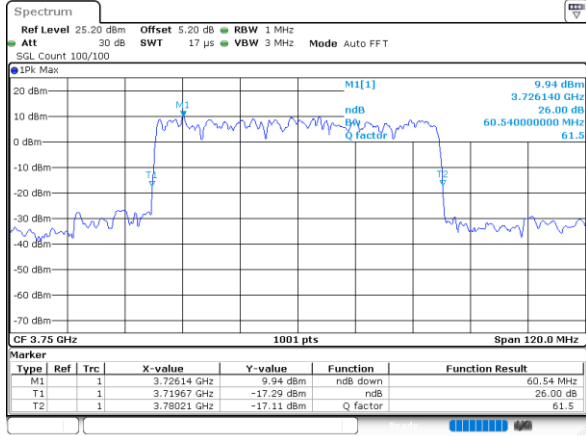
FR1 UL-MIMO n78 / 60MHz / CP-OFDM (M)

QPSK

16QAM

Middle Channel

Middle Channel



Date: 3.FEB.2021 04:43:13

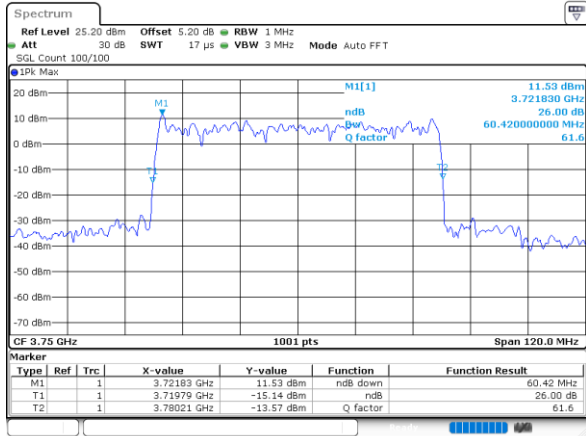
Date: 3.FEB.2021 04:42:32

64QAM

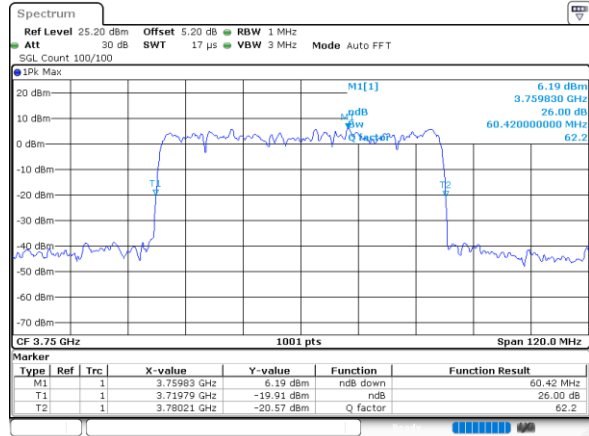
256QAM

Middle Channel

Middle Channel



Date: 3.FEB.2021 04:42:12



Date: 3.FEB.2021 04:41:50



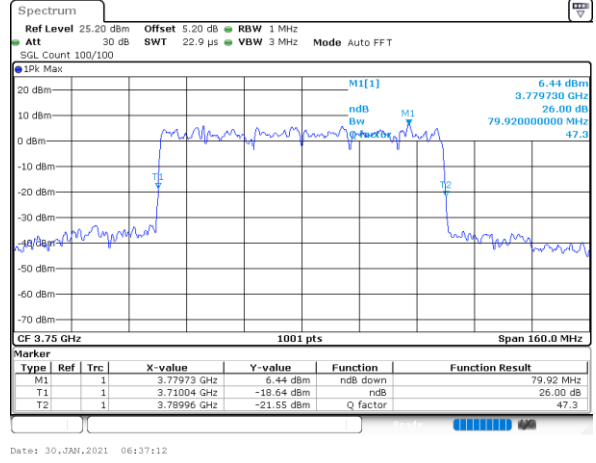
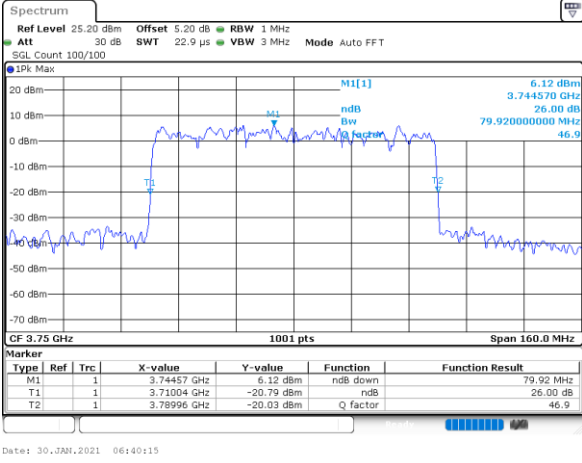
FR1 UL-MIMO n78 / 80MHz / CP-OFDM (M2)

QPSK

16QAM

Middle Channel

Middle Channel

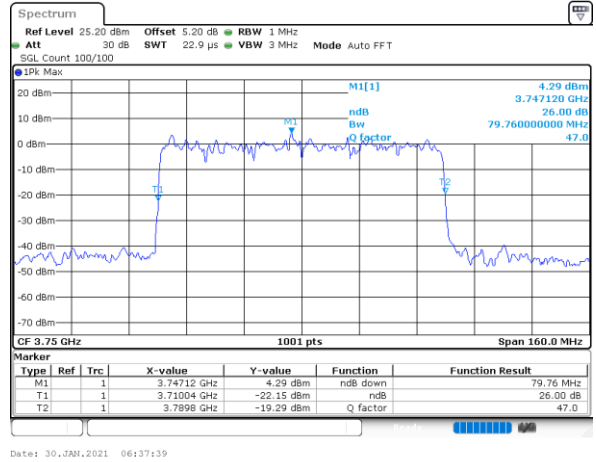
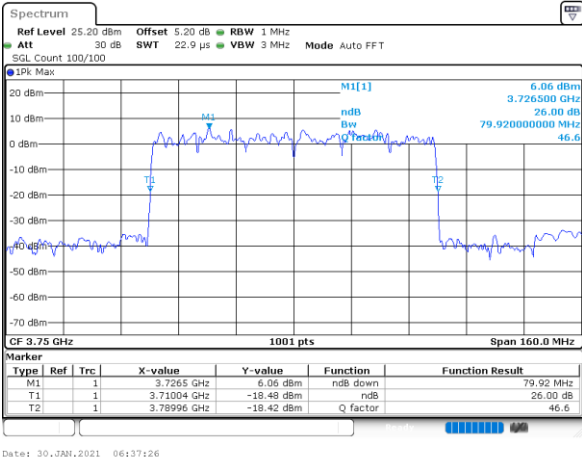


64QAM

256QAM

Middle Channel

Middle Channel





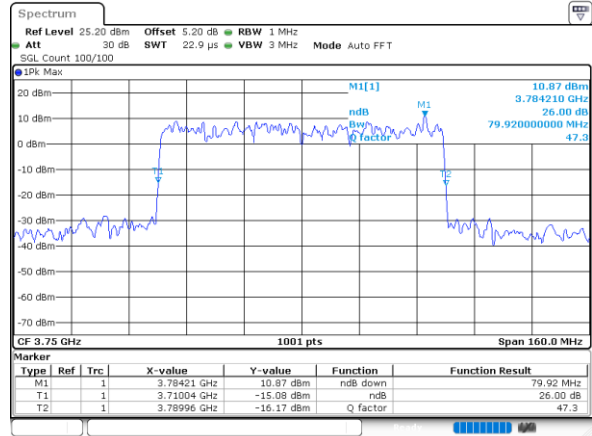
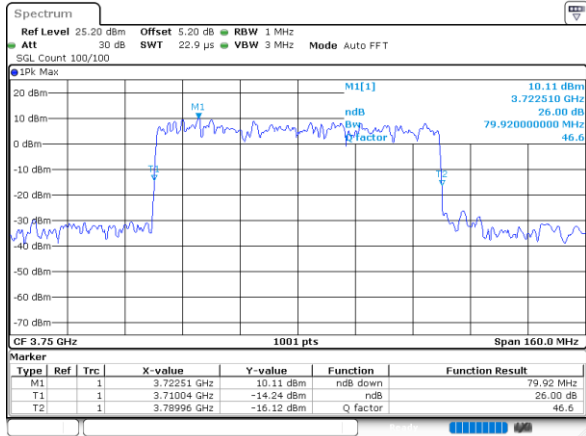
FR1 UL-MIMO n78 / 80MHz / CP-OFDM (M)

QPSK

16QAM

Middle Channel

Middle Channel



Date: 3.FEB.2021 04:39:48

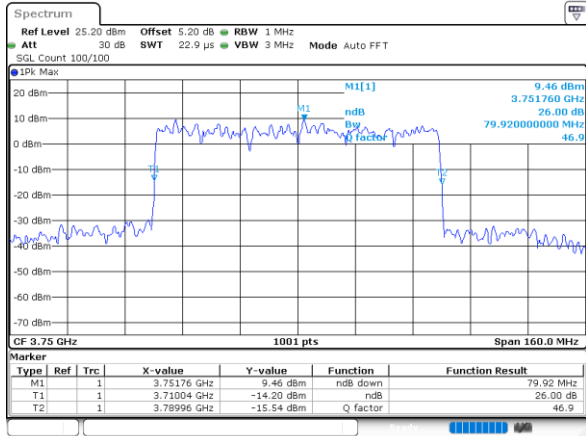
Date: 3.FEB.2021 04:40:12

64QAM

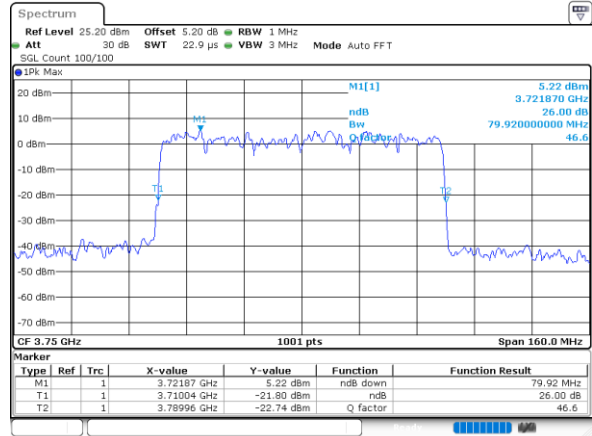
256QAM

Middle Channel

Middle Channel



Date: 3.FEB.2021 04:40:31



Date: 3.FEB.2021 04:41:00



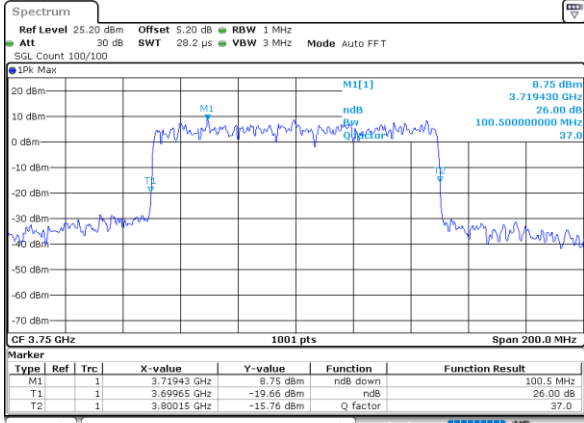
FR1 UL-MIMO n78 / 100MHz / CP-OFDM (M2)

QPSK

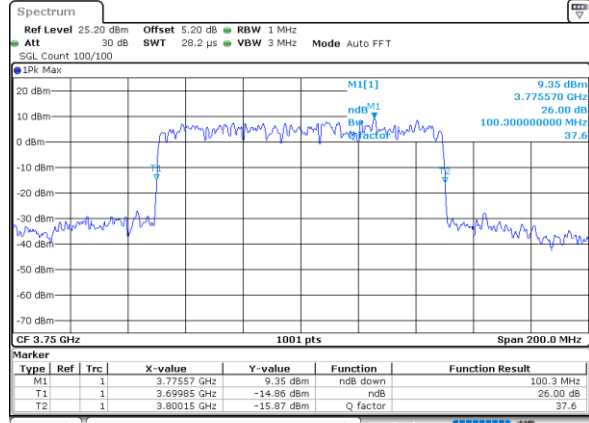
16QAM

Middle Channel

Middle Channel



Date: 30.JAN.2021 06:17:28



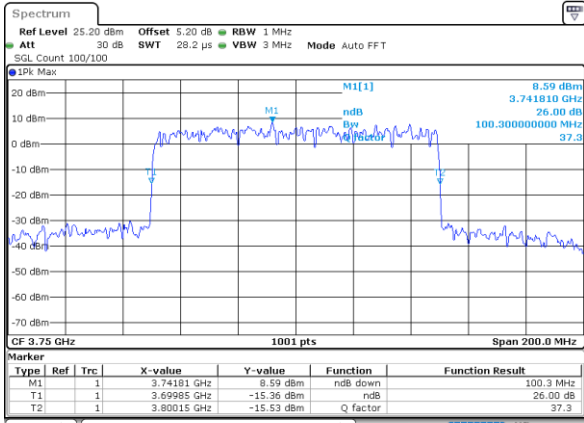
Date: 30.JAN.2021 06:27:06

64QAM

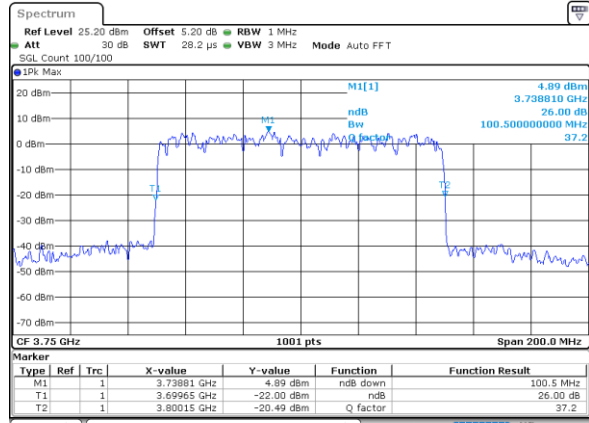
256QAM

Middle Channel

Middle Channel



Date: 30.JAN.2021 06:27:19



Date: 30.JAN.2021 06:27:48



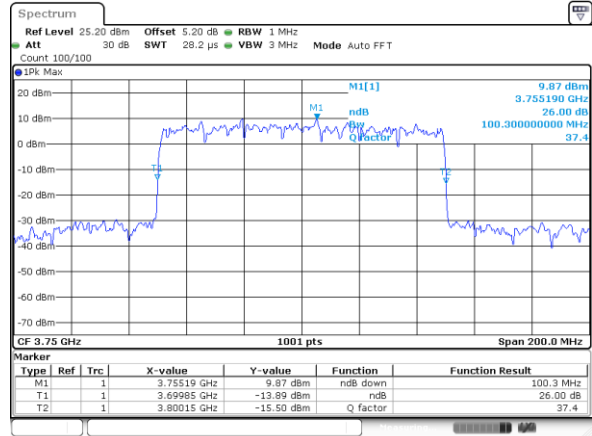
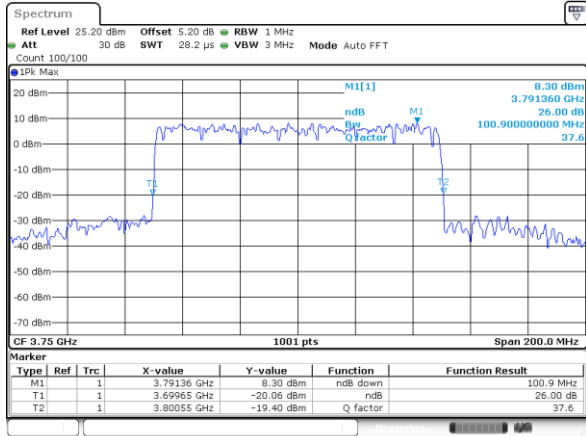
FR1 UL-MIMO n78 / 100MHz / CP-OFDM (M)

QPSK

16QAM

Middle Channel

Middle Channel

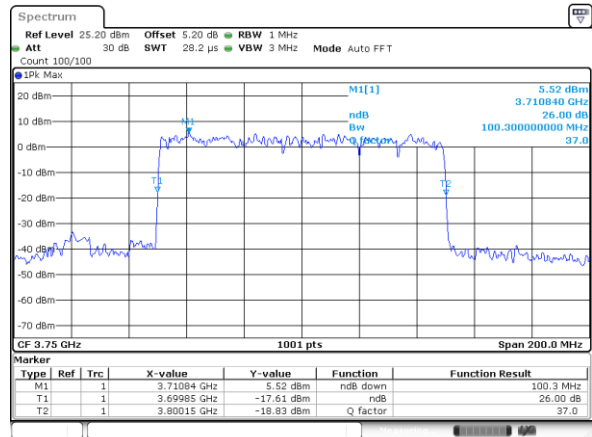
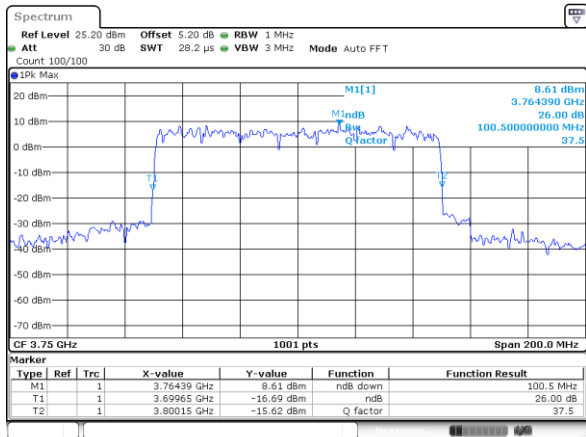


64QAM

256QAM

Middle Channel

Middle Channel





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	8.57	8.57	8.57	8.57	8.53	8.59	8.59	8.55

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	13.55	13.58	13.61	13.64	13.58	13.52	13.61	13.64

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	18.22	18.14	18.30	18.22	18.26	18.30	18.46	18.34

Mode	FR1 UL-MIMO n78 : OBW(MHz) / CP-OFDM							
	M2				M			
BW	40MHz	40MHz	40MHz	40MHz	40MHz	40MHz	40MHz	40MHz
Mod.	QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM
Middle CH	37.88	37.96	37.96	38.12	38.12	38.04	38.04	38.04

Mode	FR1 UL-MIMO n78 : OBW(MHz) / CP-OFDM							
	M2				M			
BW	50MHz	50MHz	50MHz	50MHz	50MHz	50MHz	50MHz	50MHz
Mod.	QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM
Middle CH	47.15	47.45	47.55	47.25	47.95	47.65	47.55	47.05

Mode	FR1 UL-MIMO n78 : OBW(MHz) / CP-OFDM							
	M2				M			
BW	60MHz	60MHz	60MHz	60MHz	60MHz	60MHz	60MHz	60MHz
Mod.	QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM
Middle CH	57.54	57.66	57.78	57.66	57.90	57.54	57.78	57.78



Mode	FR1 UL-MIMO n78 : OBW(MHz) / CP-OFDM							
	M2				M			
BW	80MHz	80MHz	80MHz	80MHz	80MHz	80MHz	80MHz	80MHz
Mod.	QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM
Middle CH	77.52	77.04	77.52	77.52	77.52	77.52	77.68	77.52

Mode	FR1 UL-MIMO n78 : OBW(MHz) / CP-OFDM							
	M2				M			
BW	100MHz	100MHz	100MHz	100MHz	100MHz	100MHz	100MHz	100MHz
Mod.	QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM
Middle CH	97.10	97.30	96.90	96.90	97.50	96.70	97.30	97.30



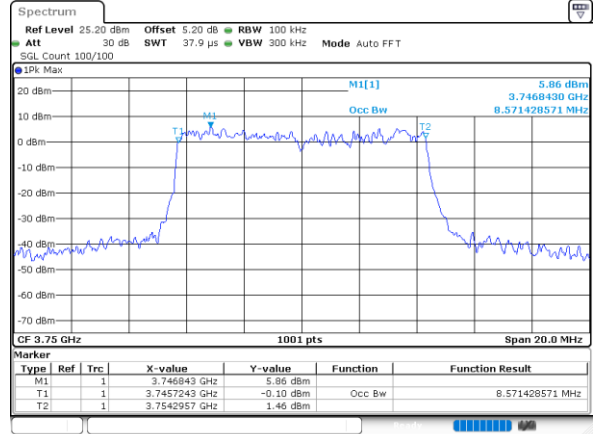
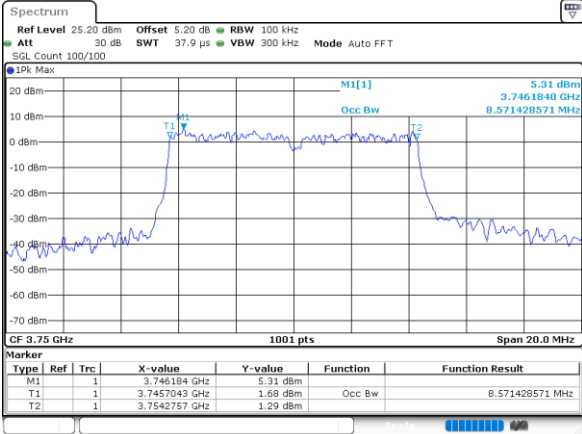
FR1 UL-MIMO n78 / 10MHz / CP-OFDM (M2)

QPSK

16QAM

Middle Channel

Middle Channel



Date: 30_JAN_2021 07:13:56

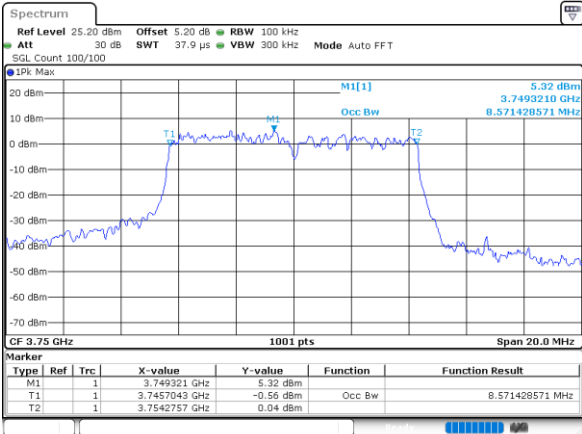
Date: 30_JAN_2021 07:13:48

64QAM

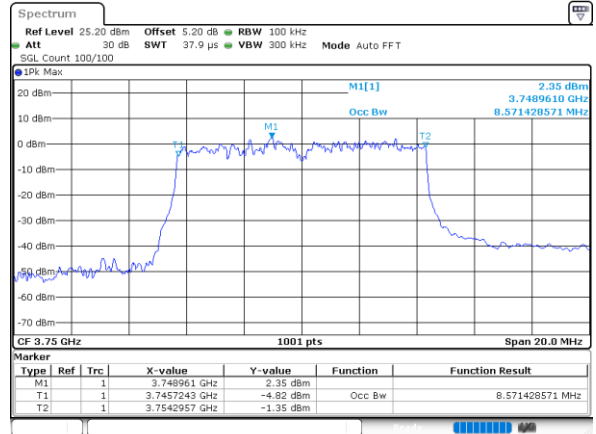
256QAM

Middle Channel

Middle Channel



Date: 30_JAN_2021 07:14:07



Date: 30_JAN_2021 07:14:18



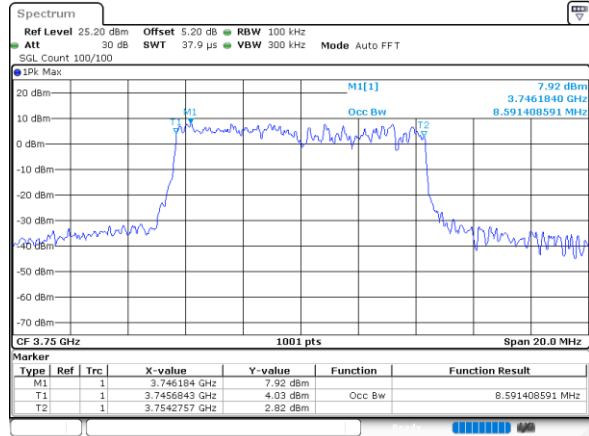
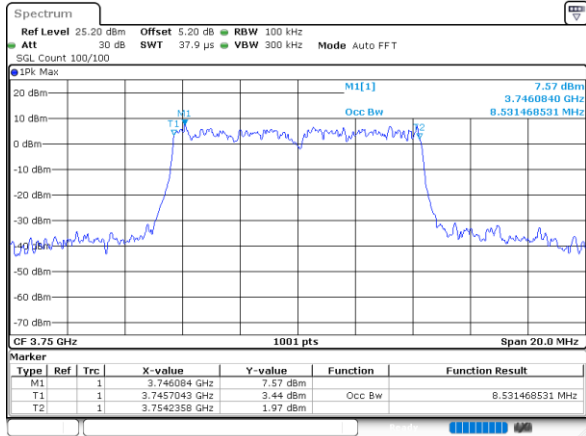
FR1 UL-MIMO n78 / 10MHz / CP-OFDM (M)

QPSK

16QAM

Middle Channel

Middle Channel



Date: 3.FEB.2021 05:29:36

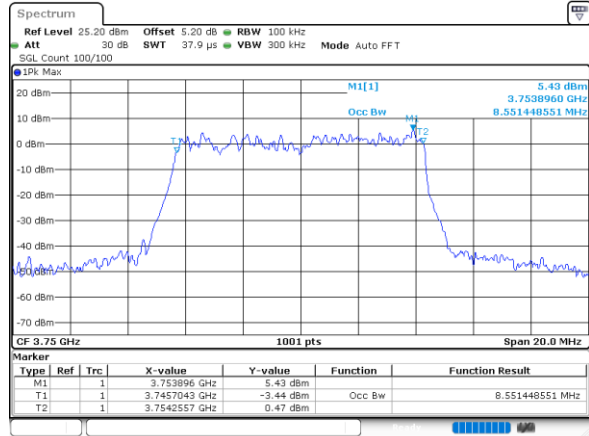
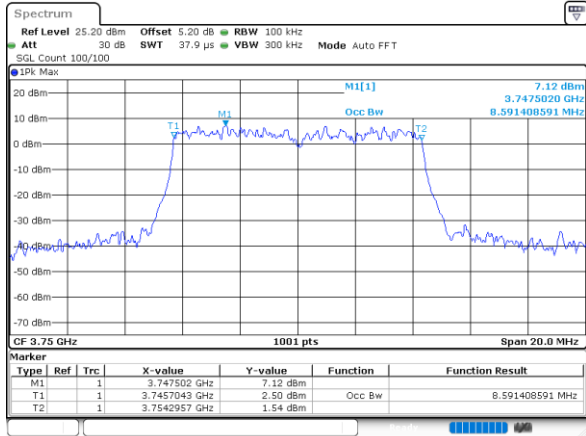
Date: 3.FEB.2021 05:29:03

64QAM

256QAM

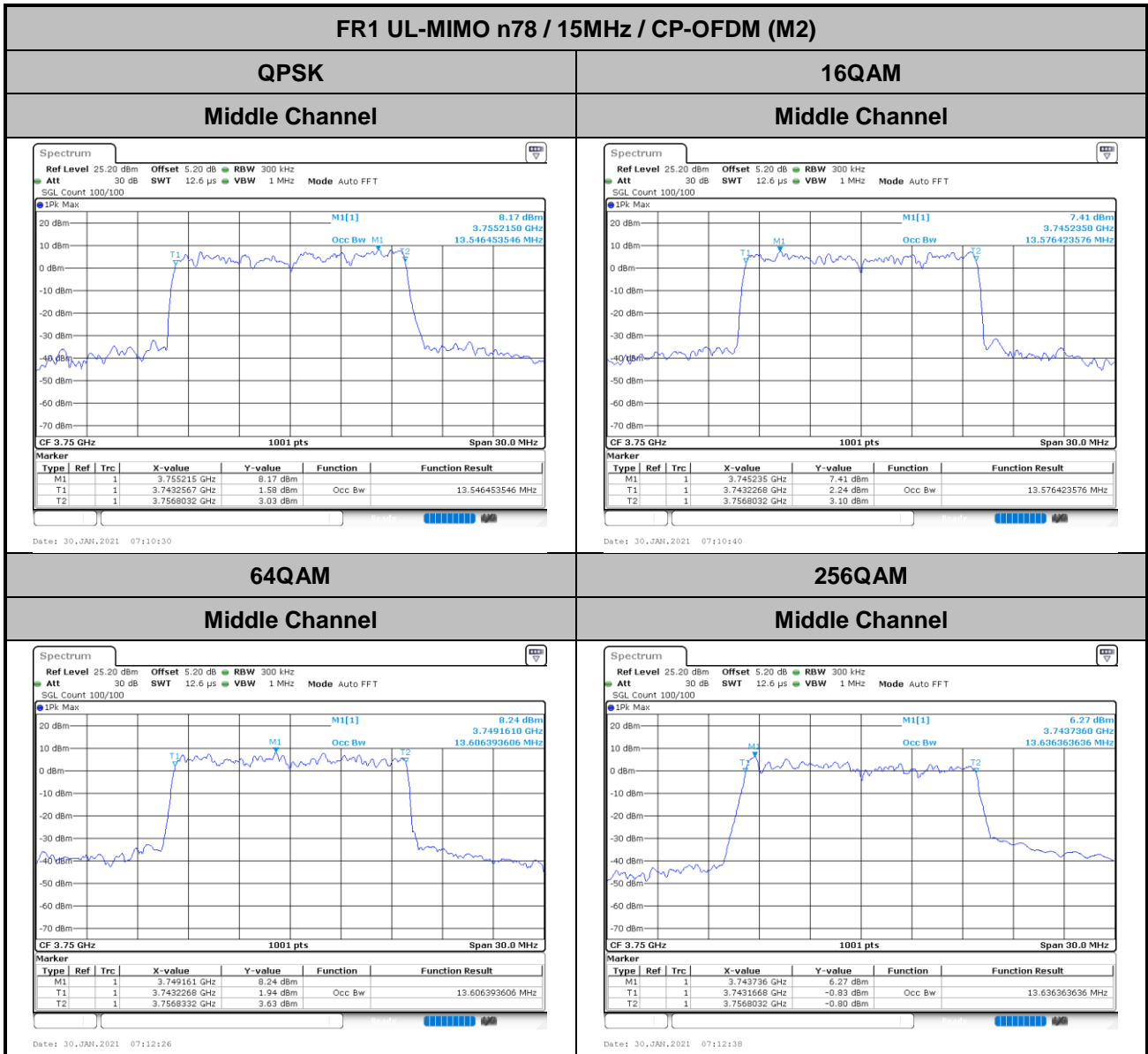
Middle Channel

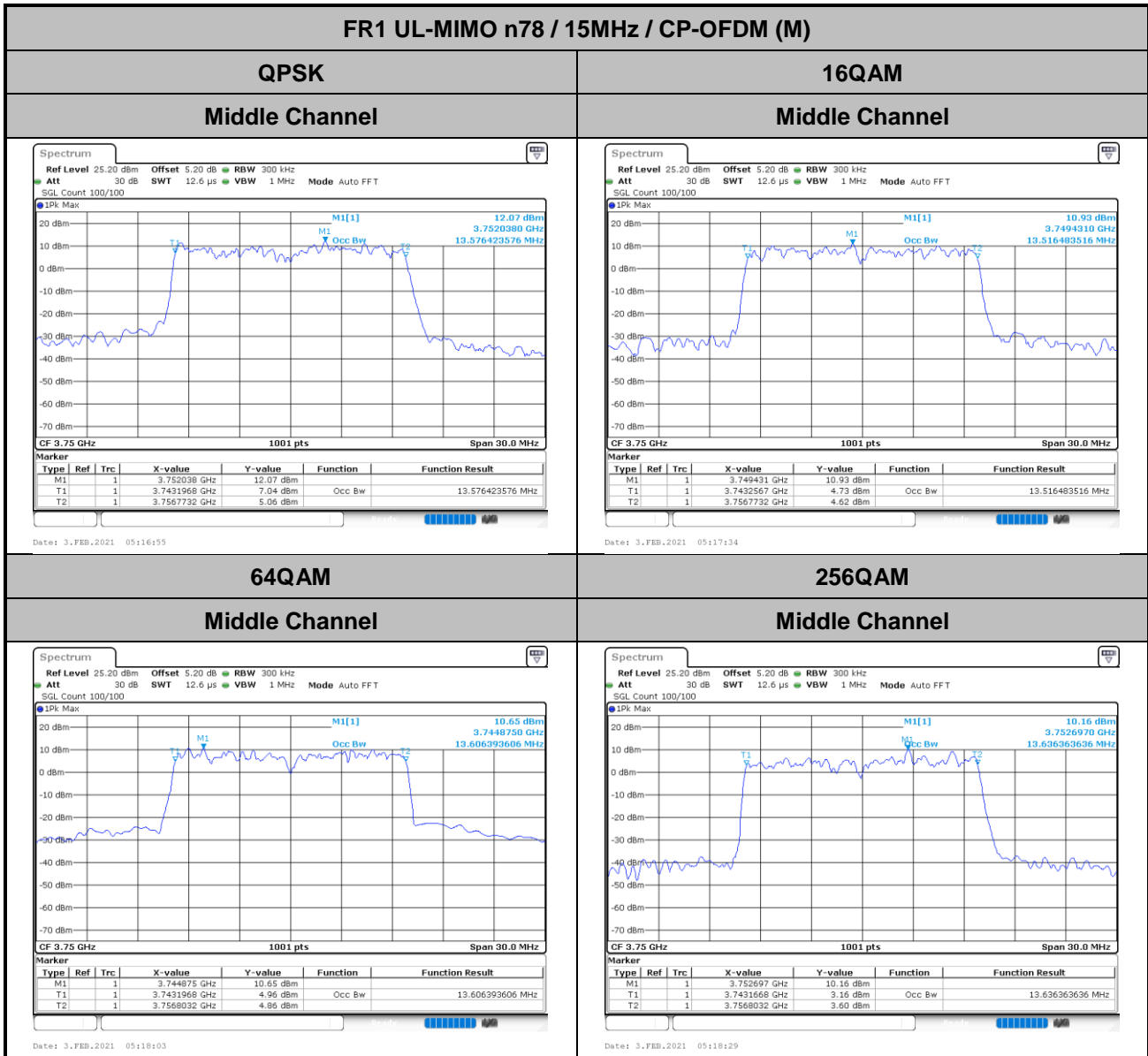
Middle Channel



Date: 3.FEB.2021 05:28:41

Date: 3.FEB.2021 05:28:19







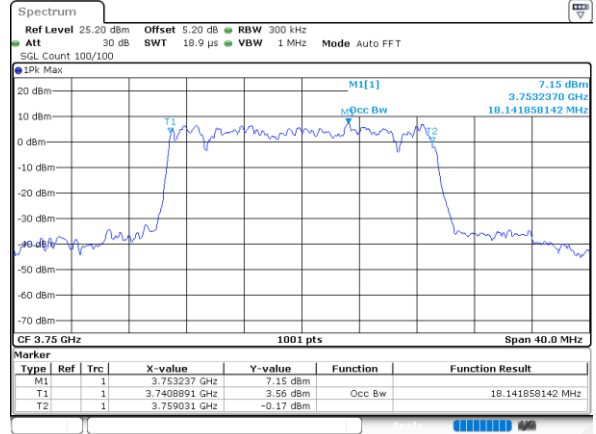
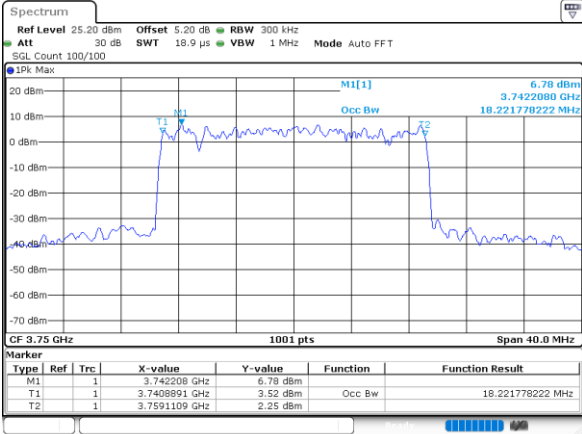
FR1 UL-MIMO n78 / 20MHz / CP-OFDM (M2)

QPSK

16QAM

Middle Channel

Middle Channel



Date: 30_JAN_2021 07:00:53

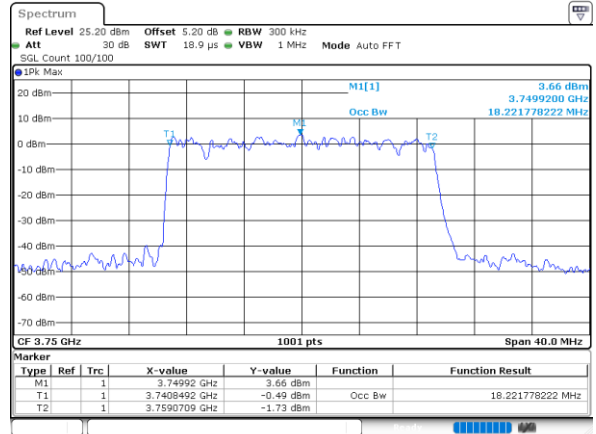
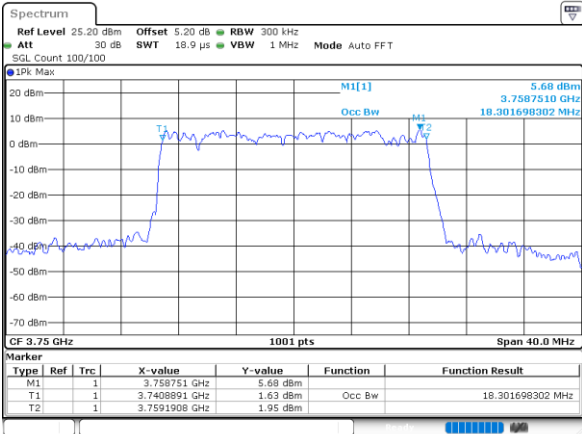
Date: 30_JAN_2021 07:02:10

64QAM

256QAM

Middle Channel

Middle Channel



Date: 30_JAN_2021 07:02:31

Date: 30_JAN_2021 07:02:42