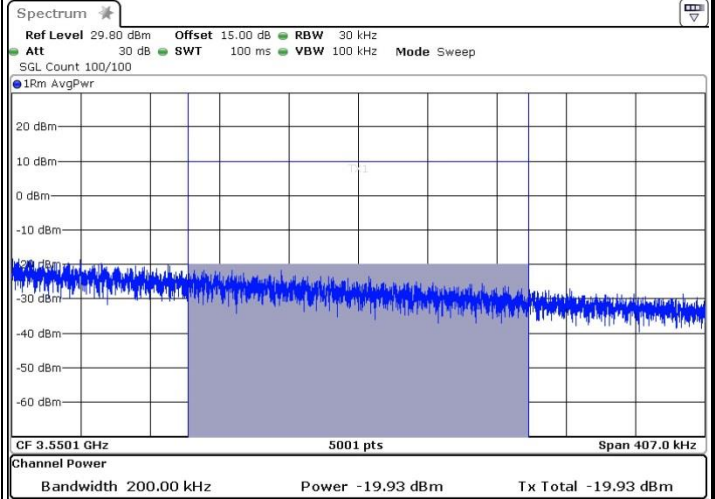
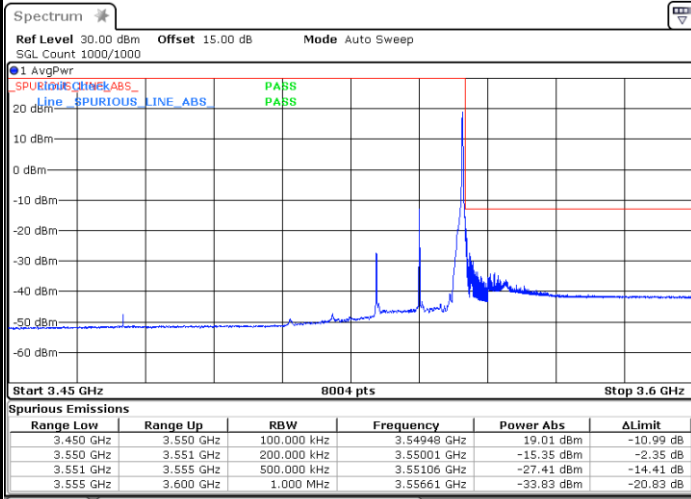




FR1 UL-MIMO n77 / 20MHz / CP-OFDM QPSK (Port 1)

Highest Band Edge / 1 RB

Channel Power < -13dBm Pass

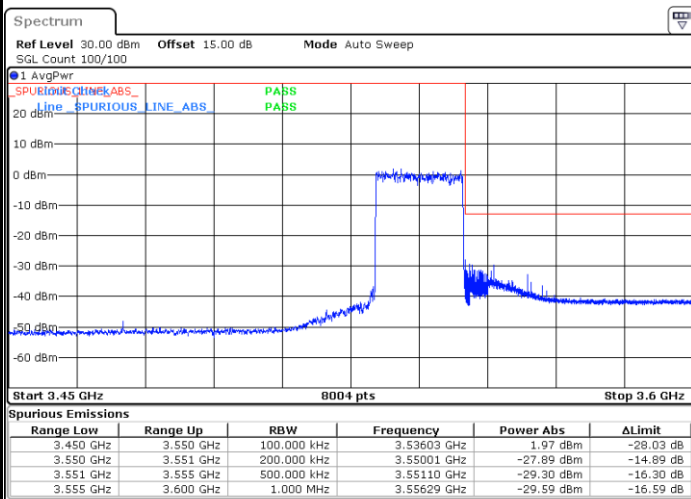


Date: 2.SEP.2021 00:45:28

Date: 2.SEP.2021 00:46:14

Highest Band Edge / Full RB

Channel Power < -13dBm Pass

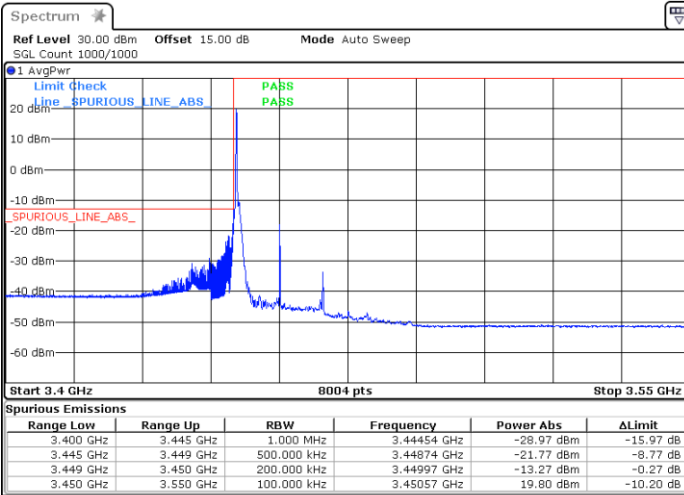


Date: 2.SEP.2021 00:43:41

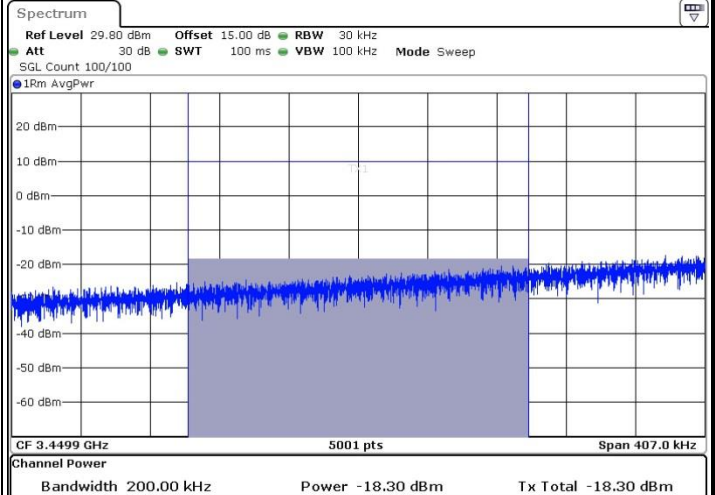


FR1 UL-MIMO n77 / 20MHz / CP-OFDM QPSK (Port 2)

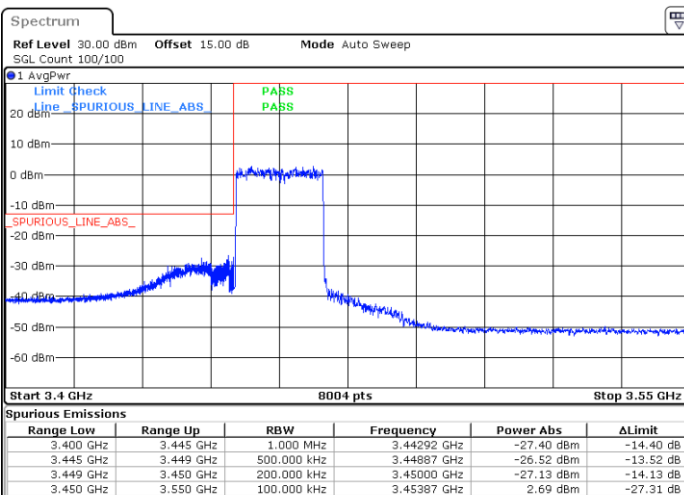
Lowest Band Edge / 1 RB



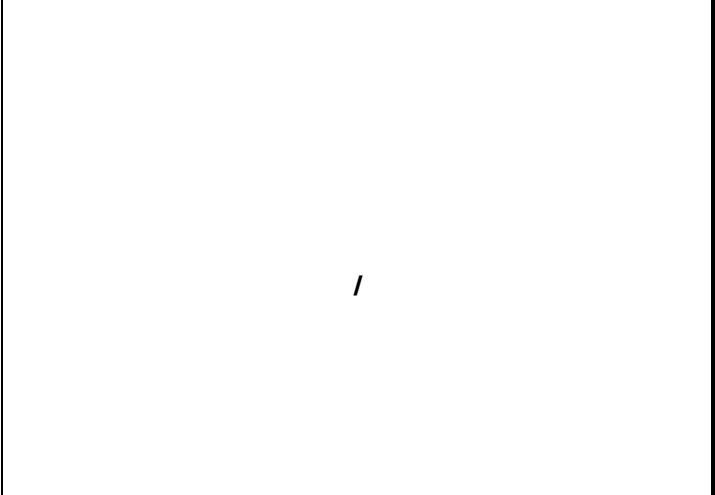
Channel Power < -13dBm Pass



Lowest Band Edge / Full RB



Channel Power < -13dBm Pass

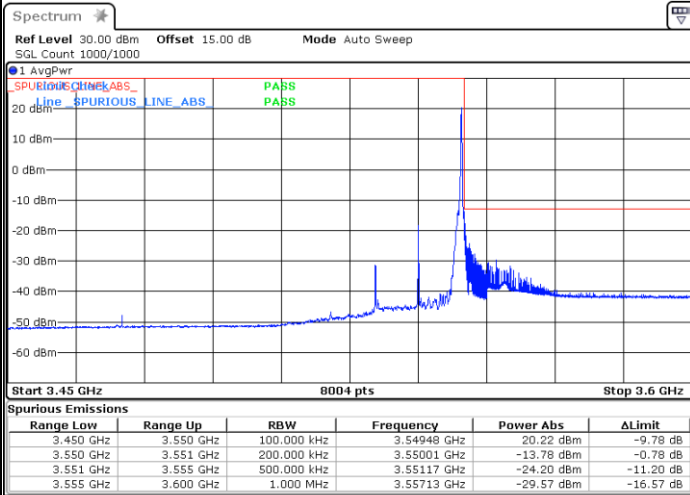




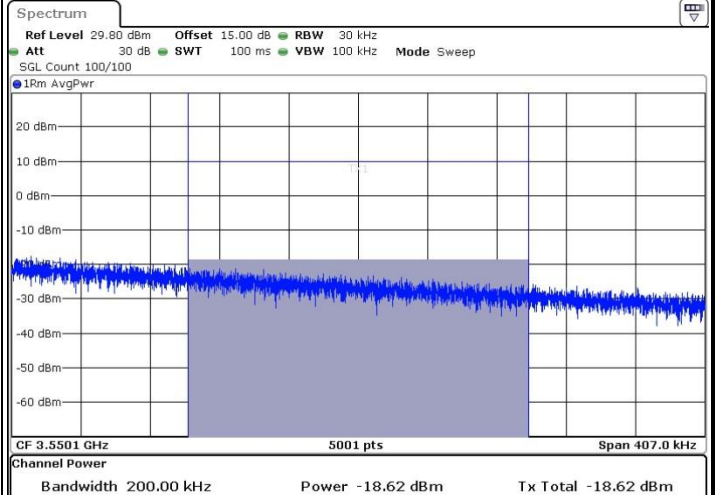
FR1 UL-MIMO n77 / 20MHz / CP-OFDM QPSK (Port 2)

Highest Band Edge / 1 RB

Channel Power < -13dBm Pass



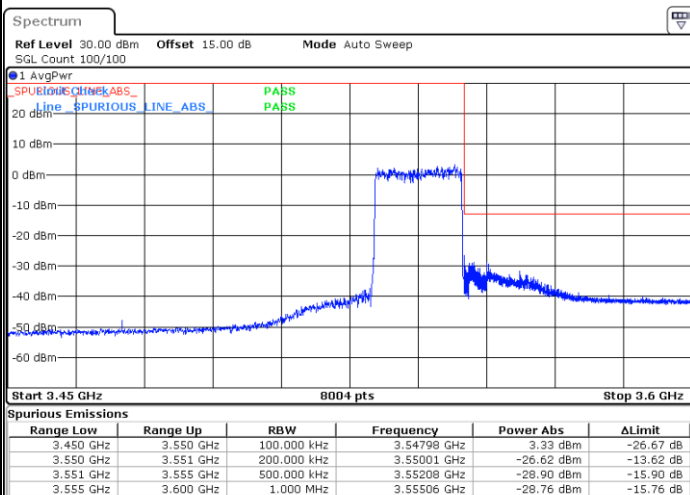
Date: 1.SEP.2021 22:53:16



Date: 1.SEP.2021 22:55:32

Highest Band Edge / Full RB

Channel Power < -13dBm Pass



Date: 1.SEP.2021 22:56:03

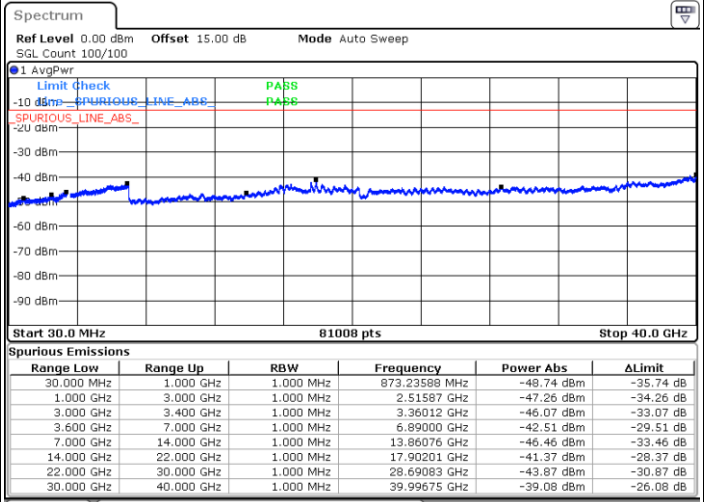
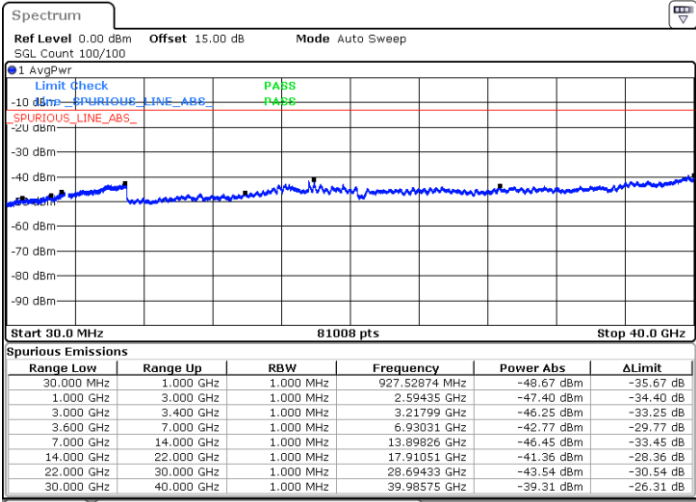


# Conducted Spurious Emission

## FR1 UL-MIMO n77 / 10MHz / CP-OFDM QPSK (Port 1)

### Lowest Channel / 1RB

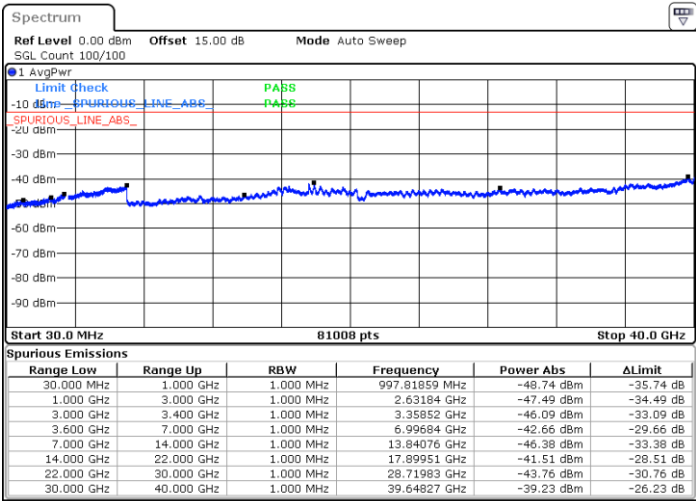
### Middle Channel / 1RB



Date: 27.SEP.2021 16:53:31

Date: 27.SEP.2021 17:06:46

### Highest Channel / 1RB



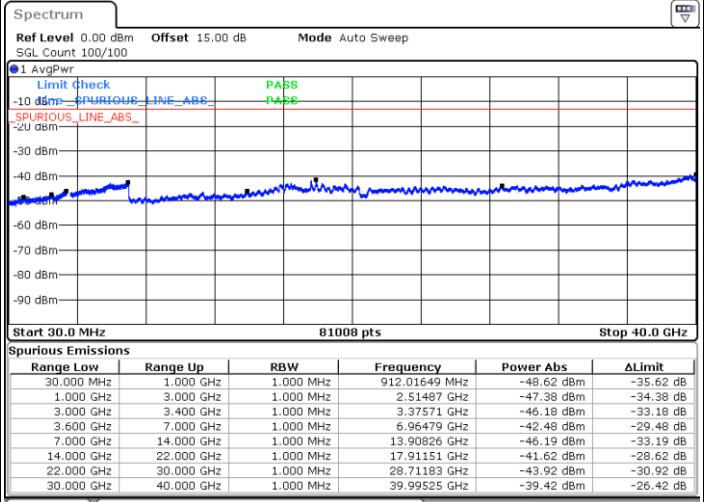
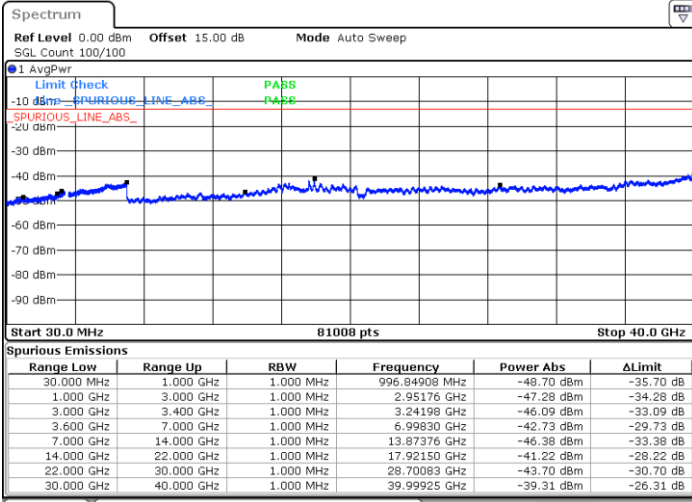
Date: 27.SEP.2021 17:10:22



FR1 UL-MIMO n77 / 10MHz / CP-OFDM QPSK (Port 2)

Lowest Channel / 1RB

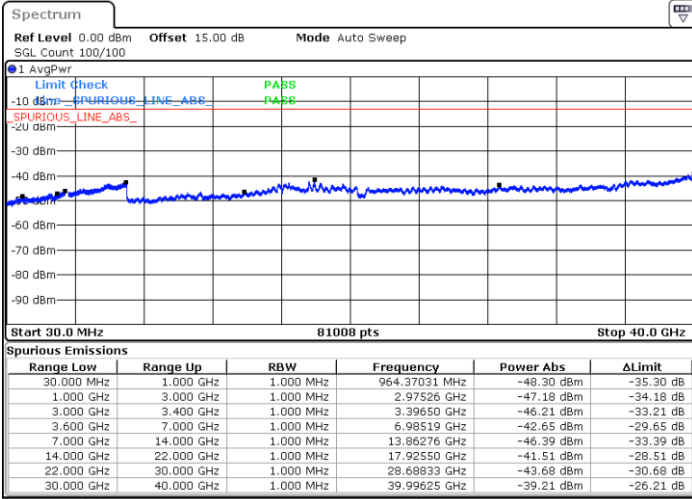
Middle Channel / 1RB



Date: 27.SEP.2021 16:58:48

Date: 27.SEP.2021 17:01:19

Highest Channel / 1RB



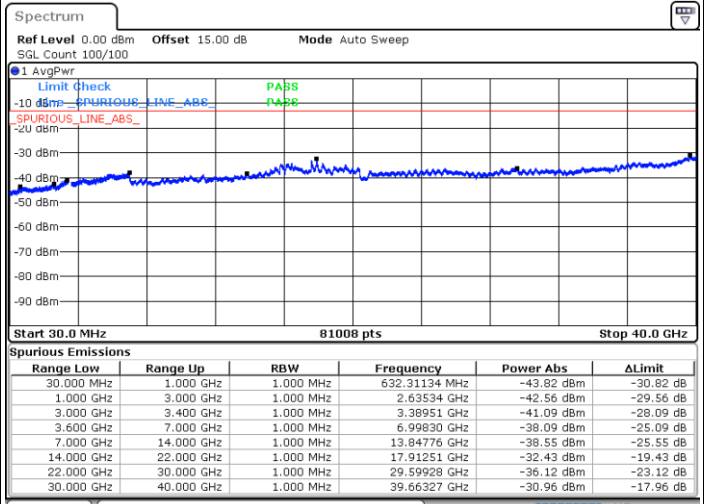
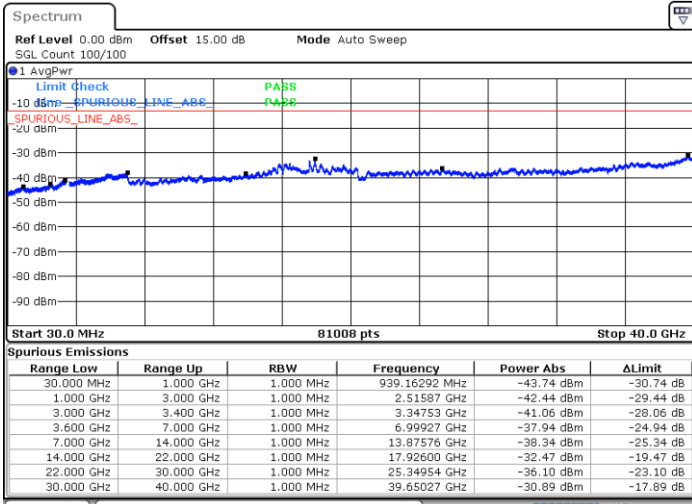
Date: 27.SEP.2021 17:09:16



FR1 UL-MIMO n77 / 15MHz / CP-OFDM QPSK (Port 1)

Lowest Channel / 1RB

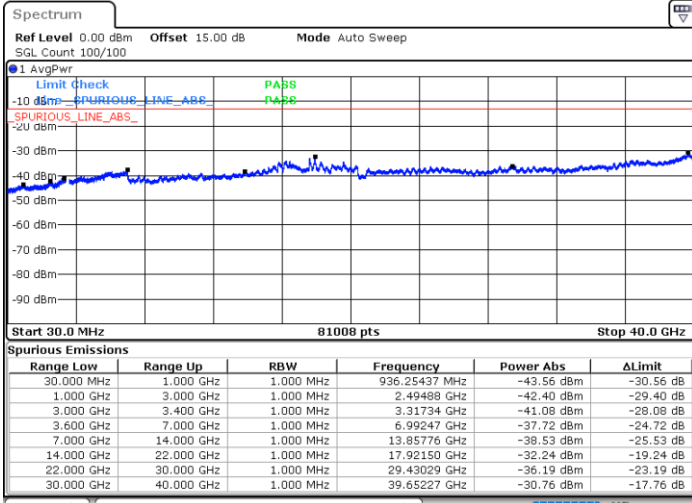
Middle Channel / 1RB



Date: 29.SEP.2021 11:44:13

Date: 29.SEP.2021 11:42:38

Highest Channel / 1RB



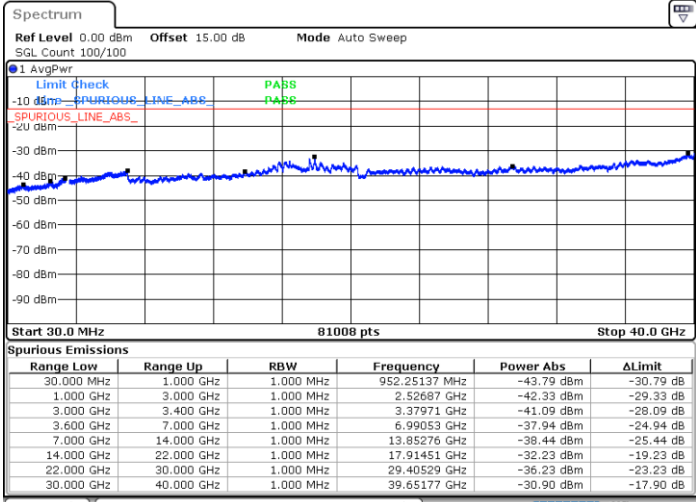
Date: 29.SEP.2021 11:34:23



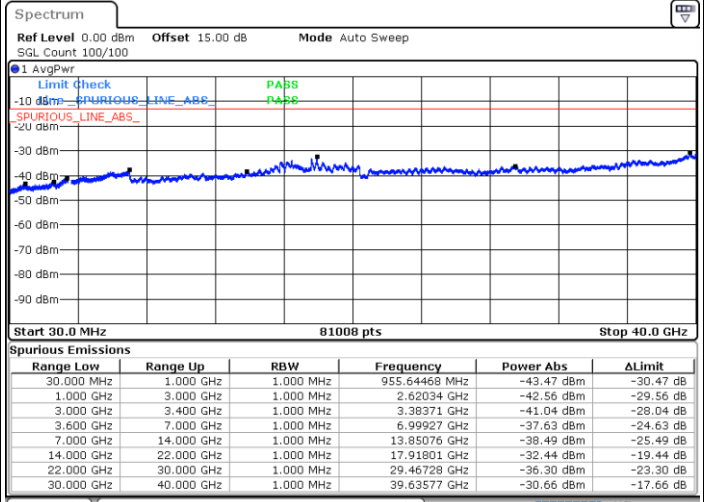
FR1 UL-MIMO n77 / 15MHz / CP-OFDM QPSK (Port 2)

Lowest Channel / 1RB

Middle Channel / 1RB

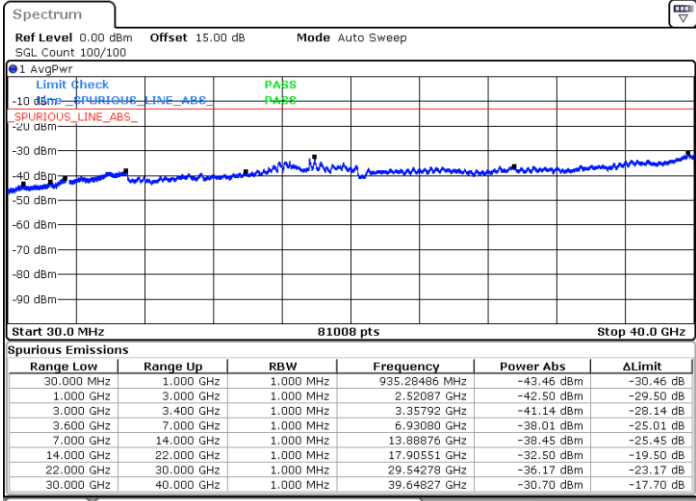


Date: 29.SEP.2021 11:45:48



Date: 29.SEP.2021 11:41:30

Highest Channel / 1RB



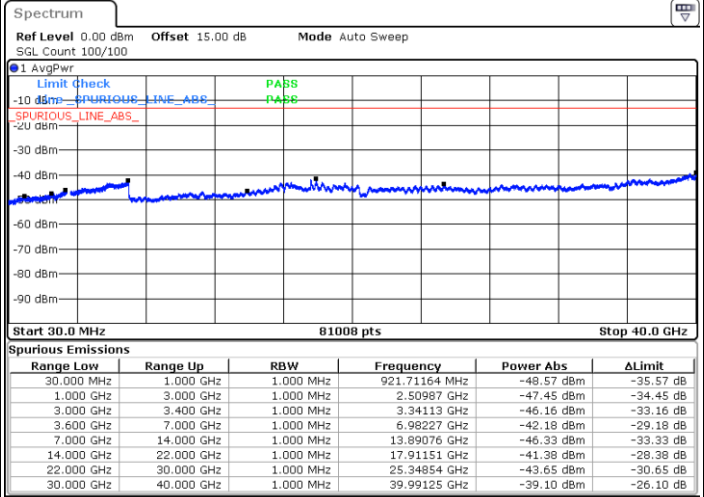
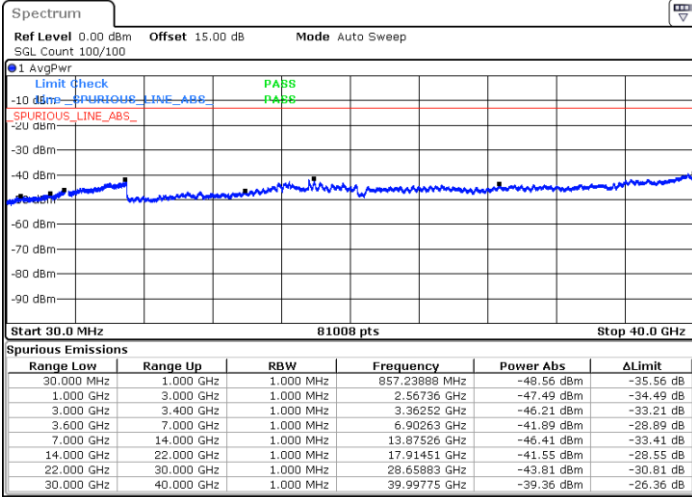
Date: 29.SEP.2021 11:39:53



FR1 UL-MIMO n77 / 20MHz / CP-OFDM QPSK (Port 1)

Lowest Channel / 1RB

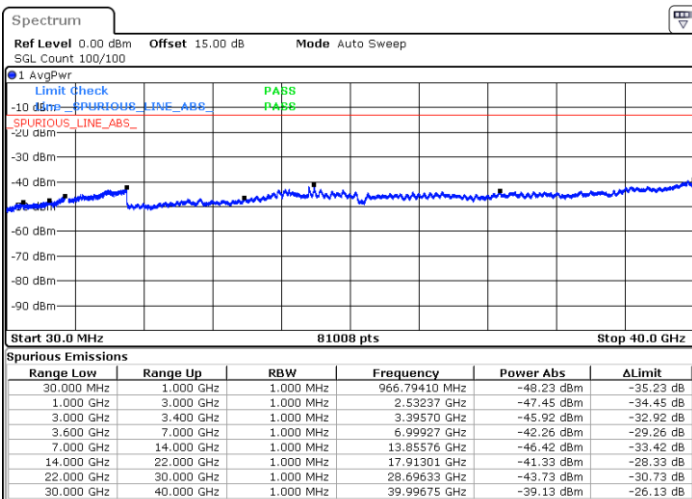
Middle Channel / 1RB



Date: 27.SEP.2021 16:46:21

Date: 27.SEP.2021 16:47:57

Highest Channel / 1RB



Date: 27.SEP.2021 16:52:19

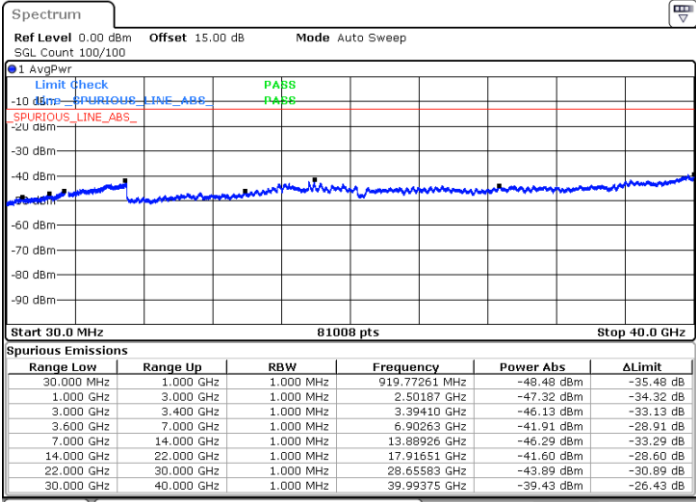




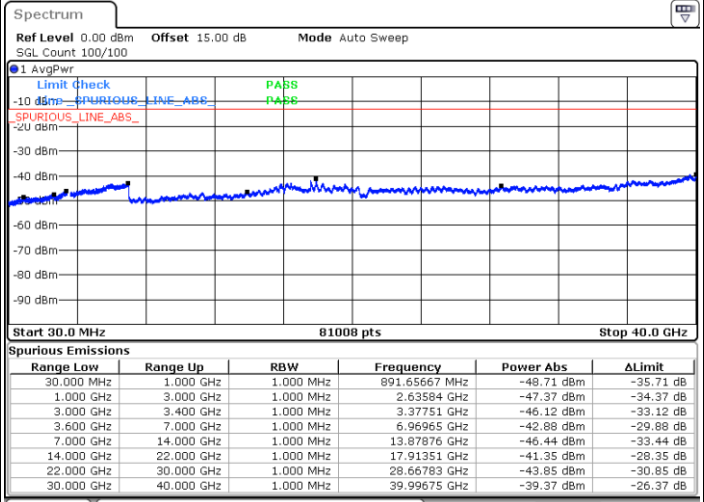
FR1 UL-MIMO n77 / 20MHz / CP-OFDM QPSK (Port 2)

Lowest Channel / 1RB

Middle Channel / 1RB

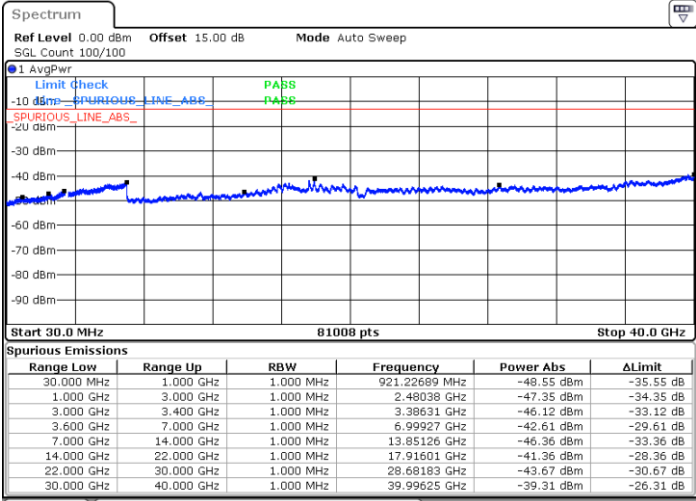


Date: 27.SEP.2021 16:45:14



Date: 27.SEP.2021 16:50:54

Highest Channel / 1RB



Date: 27.SEP.2021 16:49:48

## Frequency Stability

Test Conditions		NR UL-MIMO n77 (QPSK) / Middle Channel	Limit
Temperature (°C)	Voltage (Volt)	BW 20MHz	Within Band
		Deviation (ppm)	Result
50	Normal Voltage	0.0029	PASS
40	Normal Voltage	0.0047	
30	Normal Voltage	0.0043	
20(Ref.)	Normal Voltage	0.0000	
10	Normal Voltage	0.0099	
0	Normal Voltage	0.0054	
-10	Normal Voltage	0.0091	
-20	Normal Voltage	0.0015	
-30	Normal Voltage	0.0041	
20	Maximum Voltage	0.0088	
20	Normal Voltage	0.0000	
20	Battery End Point	0.0059	

**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.

## FR1 n77 UL-MIMO(30kHz)

### Peak-to-Average Ratio

Mode	FR1 UL-MIMO n77 / 10MHz / CP-OFDM (Port 1)				
Mod.	QPSK	QPSK			Limit: 13dB
RB Size	1RB	Full RB			Result
Lowest CH	8.29	8.46			PASS
Middle CH	7.39	8.43			
Highest CH	7.51	8.41			

Mode	FR1 UL-MIMO n77 / 10MHz / CP-OFDM (Port 2)				
Mod.	QPSK	QPSK			Limit: 13dB
RB Size	1RB	Full RB			Result
Lowest CH	7.30	7.97			PASS
Middle CH	7.42	8.32			
Highest CH	7.91	8.29			



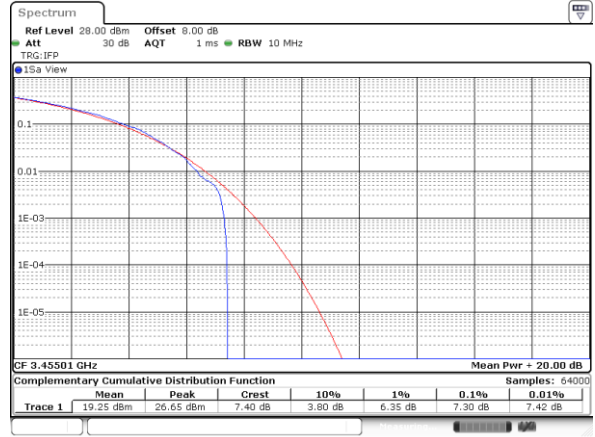
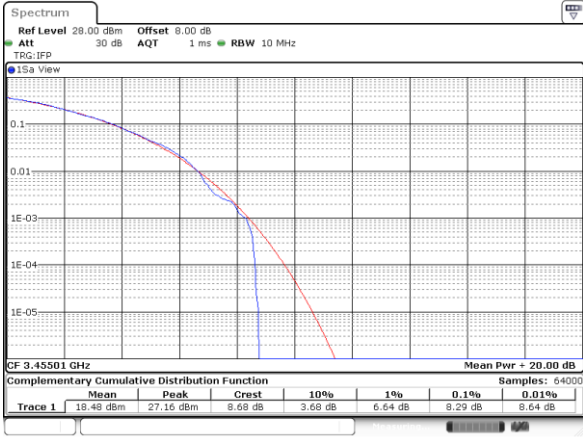
FR1 UL-MIMO n77 / 10MHz / CP-OFDM

QPSK(Port 1)

QPSK(Port 2)

Lowest Channel / 1RB

Lowest Channel / 1RB

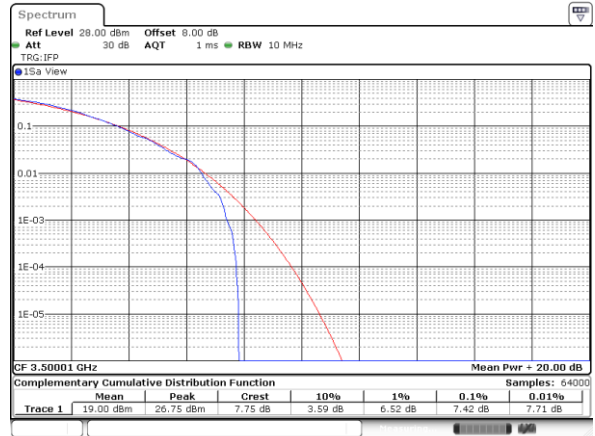
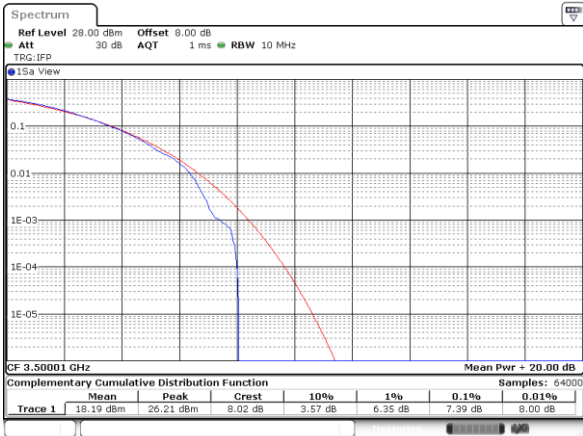


Date: 29\_AUG.2021 00:18:24

Date: 29\_AUG.2021 00:15:56

Middle Channel / 1 RB

Middle Channel / 1 RB

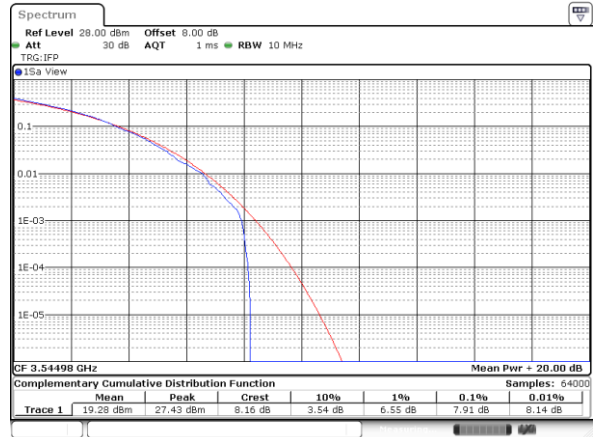
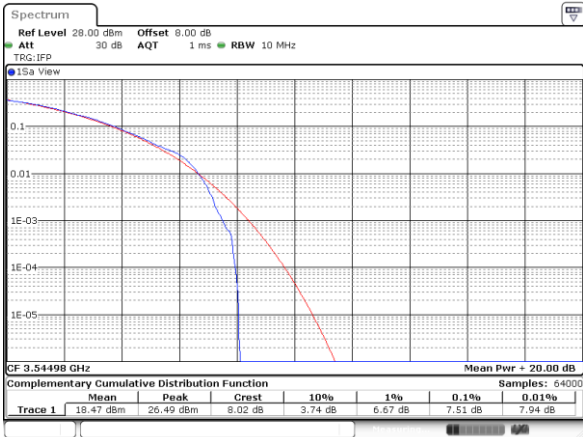


Date: 29\_AUG.2021 00:17:43

Date: 29\_AUG.2021 00:15:11

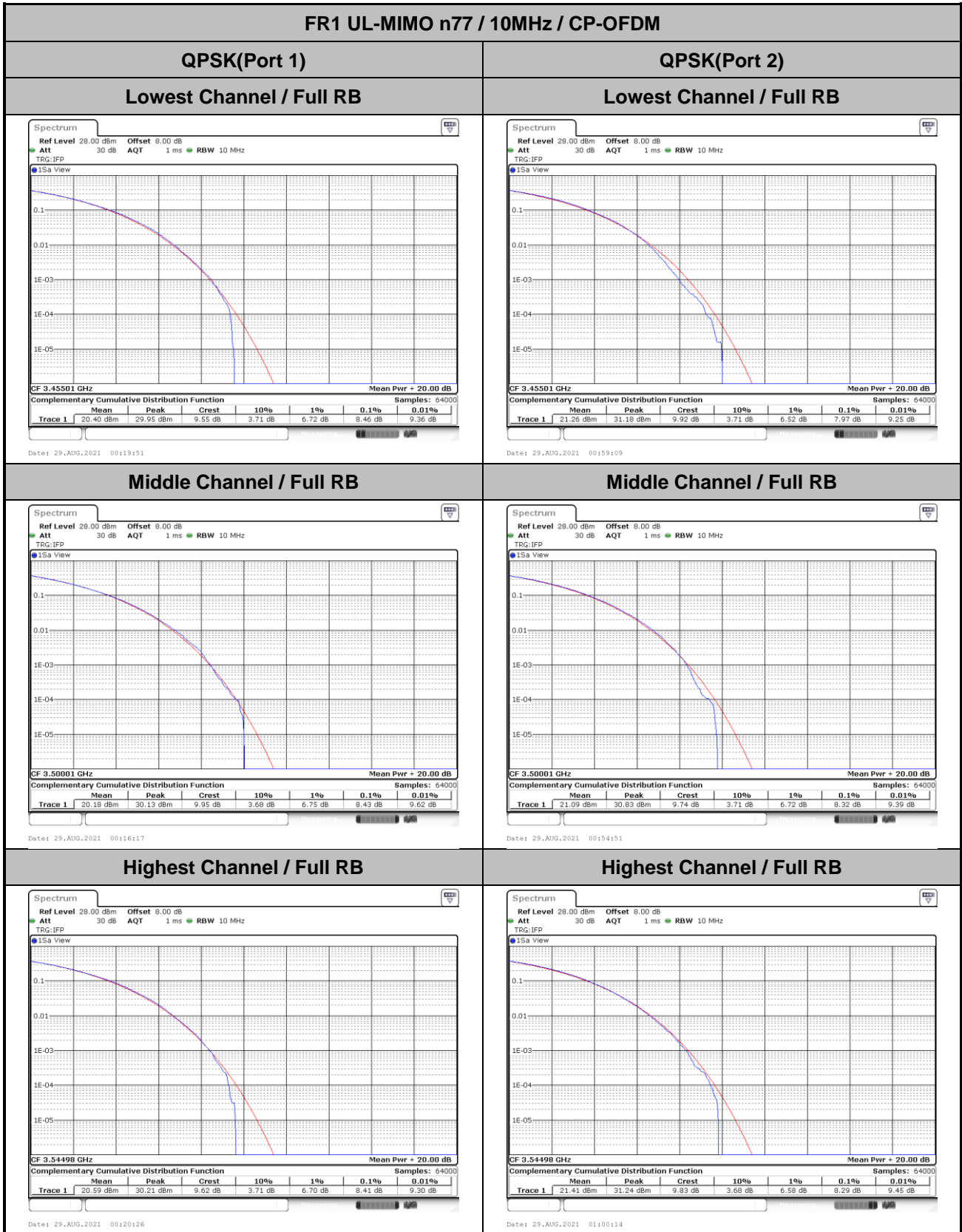
Highest Channel / 1 RB

Highest Channel / 1 RB



Date: 29\_AUG.2021 00:21:35

Date: 29\_AUG.2021 01:01:59





**26dB Bandwidth**

Mode	FR1 UL-MIMO n77 : 26dB BW(MHz) / CP-OFDM							
	Port 1				Port 2			
BW	10MHz	10MHz	10MHz	10MHz	10MHz	10MHz	10MHz	10MHz
Mod.	QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM
Middle CH	9.21	9.05	9.03	9.07	9.09	9.27	9.25	9.11

Mode	FR1 UL-MIMO n77 : 26dB BW(MHz) / CP-OFDM							
	Port 1				Port 2			
BW	15MHz	15MHz	15MHz	15MHz	15MHz	15MHz	15MHz	15MHz
Mod.	QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM
Middle CH	14.33	14.27	14.24	14.33	14.36	14.33	14.30	14.30

Mode	FR1 UL-MIMO n77 : 26dB BW(MHz) / CP-OFDM							
	Port 1				Port 2			
BW	20MHz	20MHz	20MHz	20MHz	20MHz	20MHz	20MHz	20MHz
Mod.	QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM
Middle CH	18.98	19.34	19.50	19.46	19.06	19.26	19.46	19.02

Mode	FR1 UL-MIMO n77 : 26dB BW(MHz) / CP-OFDM							
	Port 1				Port 2			
BW	40MHz	40MHz	40MHz	40MHz	40MHz	40MHz	40MHz	40MHz
Mod.	QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM
Middle CH	40.28	40.10	41.12	40.28	40.20	40.36	40.28	40.12

Mode	FR1 UL-MIMO n77 : 26dB BW(MHz) / CP-OFDM							
	Port 1				Port 2			
BW	50MHz	50MHz	50MHz	50MHz	50MHz	50MHz	50MHz	50MHz
Mod.	QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM
Middle CH	49.75	49.75	49.75	49.75	49.75	49.65	49.85	49.75

Mode	FR1 UL-MIMO n77 : 26dB BW(MHz) / CP-OFDM							
	Port 1				Port 2			
BW	60MHz	60MHz	60MHz	60MHz	60MHz	60MHz	60MHz	60MHz



Mod.	QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM
Middle CH	60.3	60.78	60.3	60.3	60.30	60.42	60.18	60.42

Mode	FR1 UL-MIMO n77 : 26dB BW(MHz) / CP-OFDM							
	Port 1				Port 2			
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	80.08	79.92	79.92	79.92	80.08

Mode	FR1 UL-MIMO n77 : 26dB BW(MHz) / CP-OFDM							
	Port 1				Port 2			
BW	100MHz	100MHz	100MHz	100MHz	100MHz	100MHz	100MHz	100MHz
Mod.	QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM
Middle CH	100.70	100.30	100.30	100.30	100.30	100.30	100.30	100.30



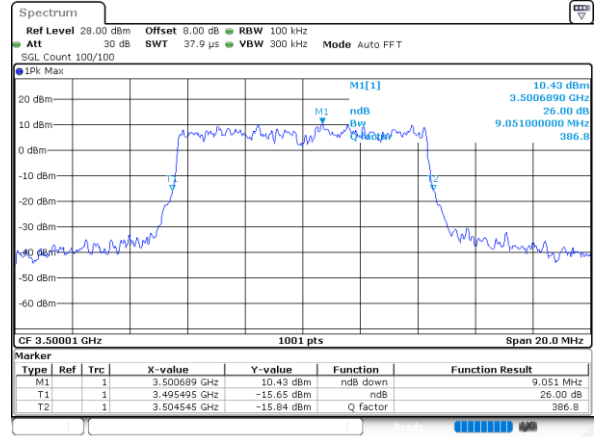
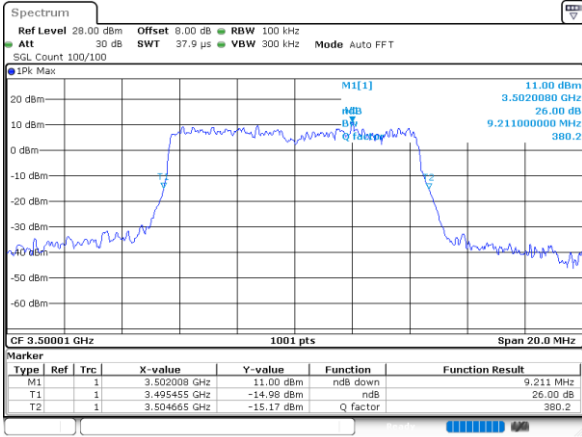
FR1 UL-MIMO n77 / 10MHz / CP-OFDM (Port 1)

QPSK

16QAM

Middle Channel

Middle Channel



Date: 29\_AUG.2021 00:06:26

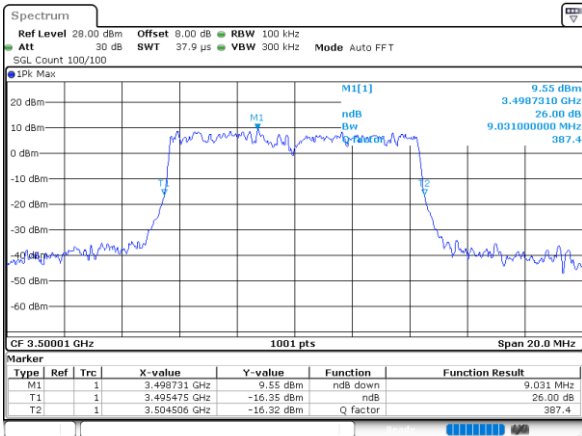
Date: 29\_AUG.2021 00:06:42

64QAM

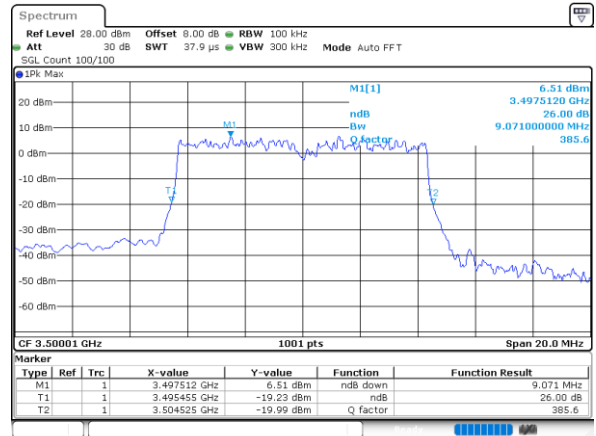
256QAM

Middle Channel

Middle Channel



Date: 29\_AUG.2021 00:07:09



Date: 29\_AUG.2021 00:07:22





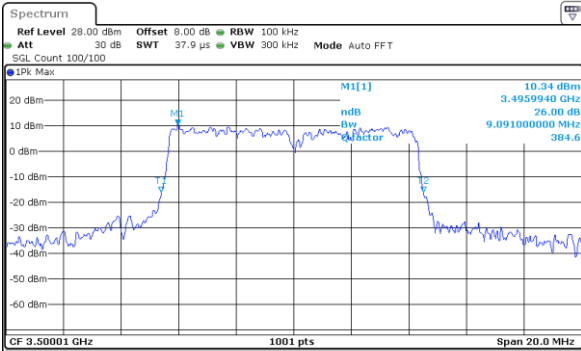
FR1 UL-MIMO n77 / 10MHz / CP-OFDM (Port 2)

QPSK

16QAM

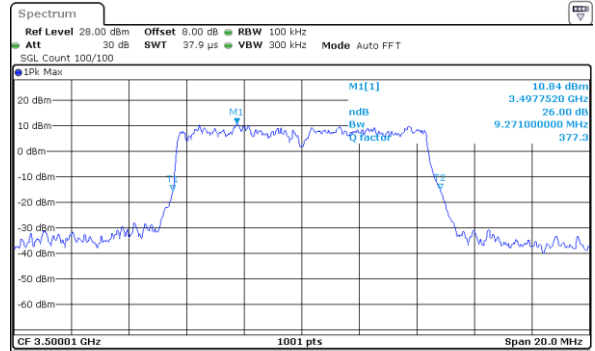
Middle Channel

Middle Channel



Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1	1		3.495994 GHz	10.34 dBm	ndB down	9.091 MHz
T1	1		3.495415 GHz	-16.00 dBm	ndB	26.00 dB
T2	1		3.504506 GHz	-16.10 dBm	Q factor	384.6

Date: 29\_AUG.2021 01:03:29



Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1	1		3.497752 GHz	10.84 dBm	ndB down	9.271 MHz
T1	1		3.495534 GHz	-15.34 dBm	ndB	26.00 dB
T2	1		3.504805 GHz	-14.94 dBm	Q factor	377.3

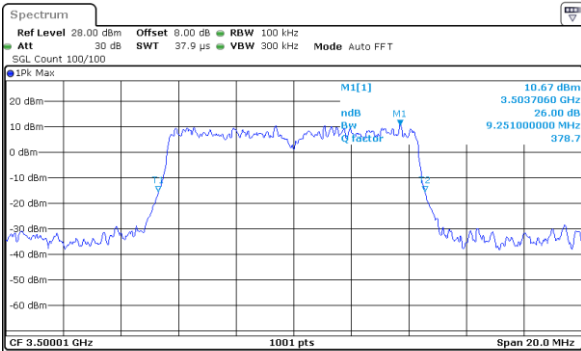
Date: 29\_AUG.2021 01:03:48

64QAM

256QAM

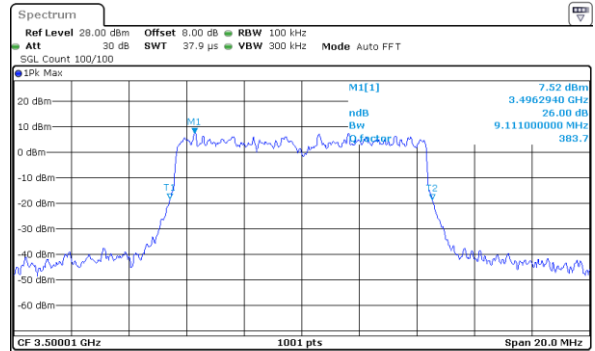
Middle Channel

Middle Channel



Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1	1		3.503706 GHz	10.67 dBm	ndB down	9.251 MHz
T1	1		3.495315 GHz	-15.29 dBm	ndB	26.00 dB
T2	1		3.504565 GHz	-15.54 dBm	Q factor	378.7

Date: 29\_AUG.2021 01:04:03



Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1	1		3.496294 GHz	7.52 dBm	ndB down	9.111 MHz
T1	1		3.495435 GHz	-18.34 dBm	ndB	26.00 dB
T2	1		3.504545 GHz	-18.65 dBm	Q factor	383.7

Date: 29\_AUG.2021 01:04:15



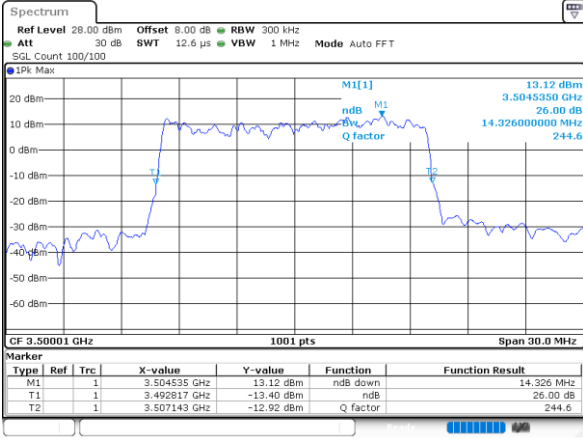
FR1 UL-MIMO n77 / 15MHz / CP-OFDM (Port 1)

QPSK

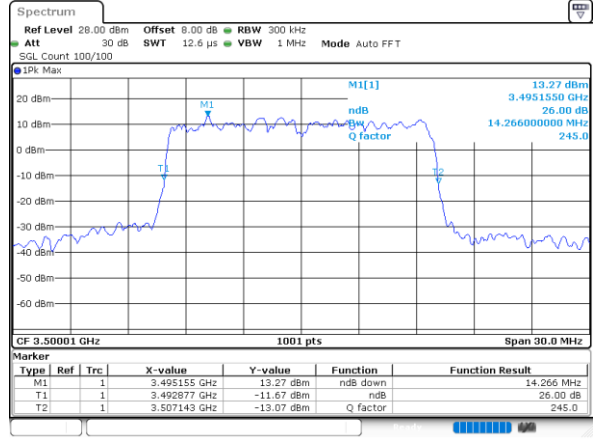
16QAM

Middle Channel

Middle Channel



Date: 29.AUG.2021 00:08:42



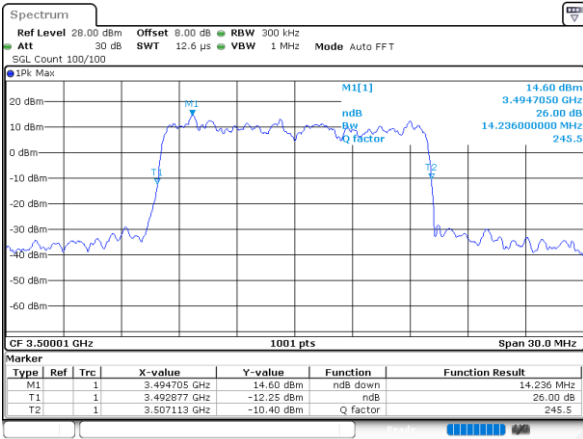
Date: 29.AUG.2021 00:08:23

64QAM

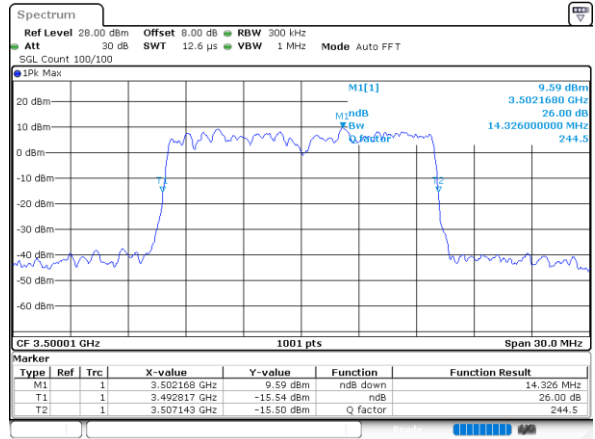
256QAM

Middle Channel

Middle Channel



Date: 29.AUG.2021 00:08:10



Date: 29.AUG.2021 00:07:56

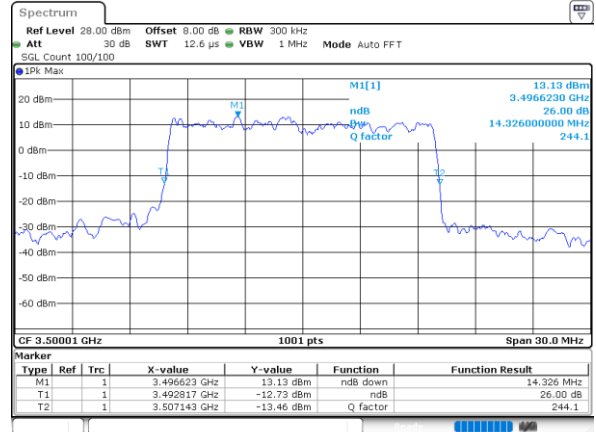
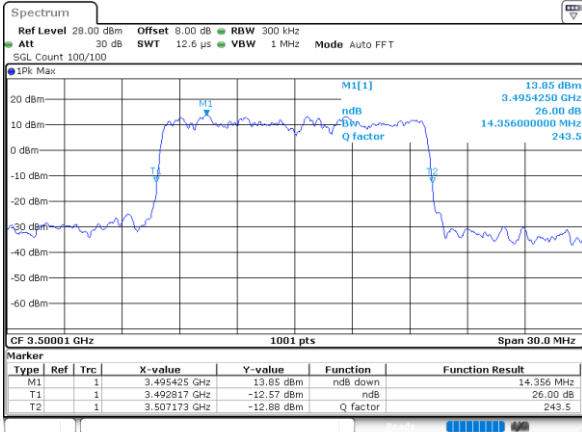
FR1 UL-MIMO n77 / 15MHz / CP-OFDM (Port 2)

QPSK

16QAM

Middle Channel

Middle Channel



Date: 29\_AUG.2021 01:05:25

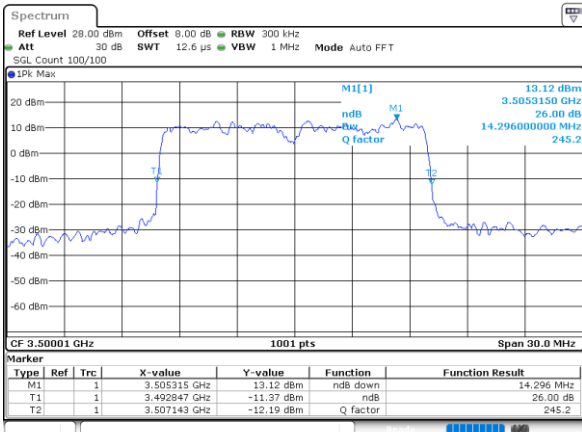
Date: 29\_AUG.2021 01:05:11

64QAM

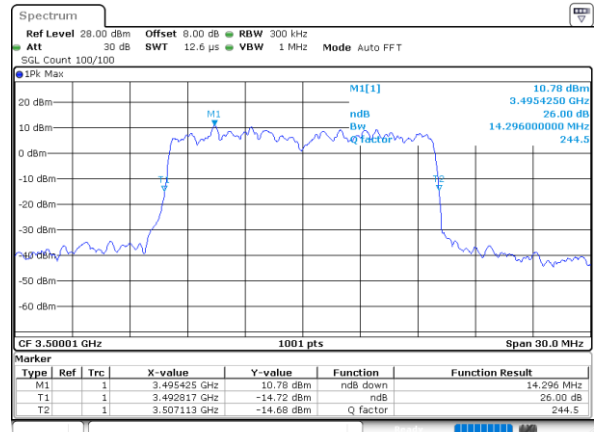
256QAM

Middle Channel

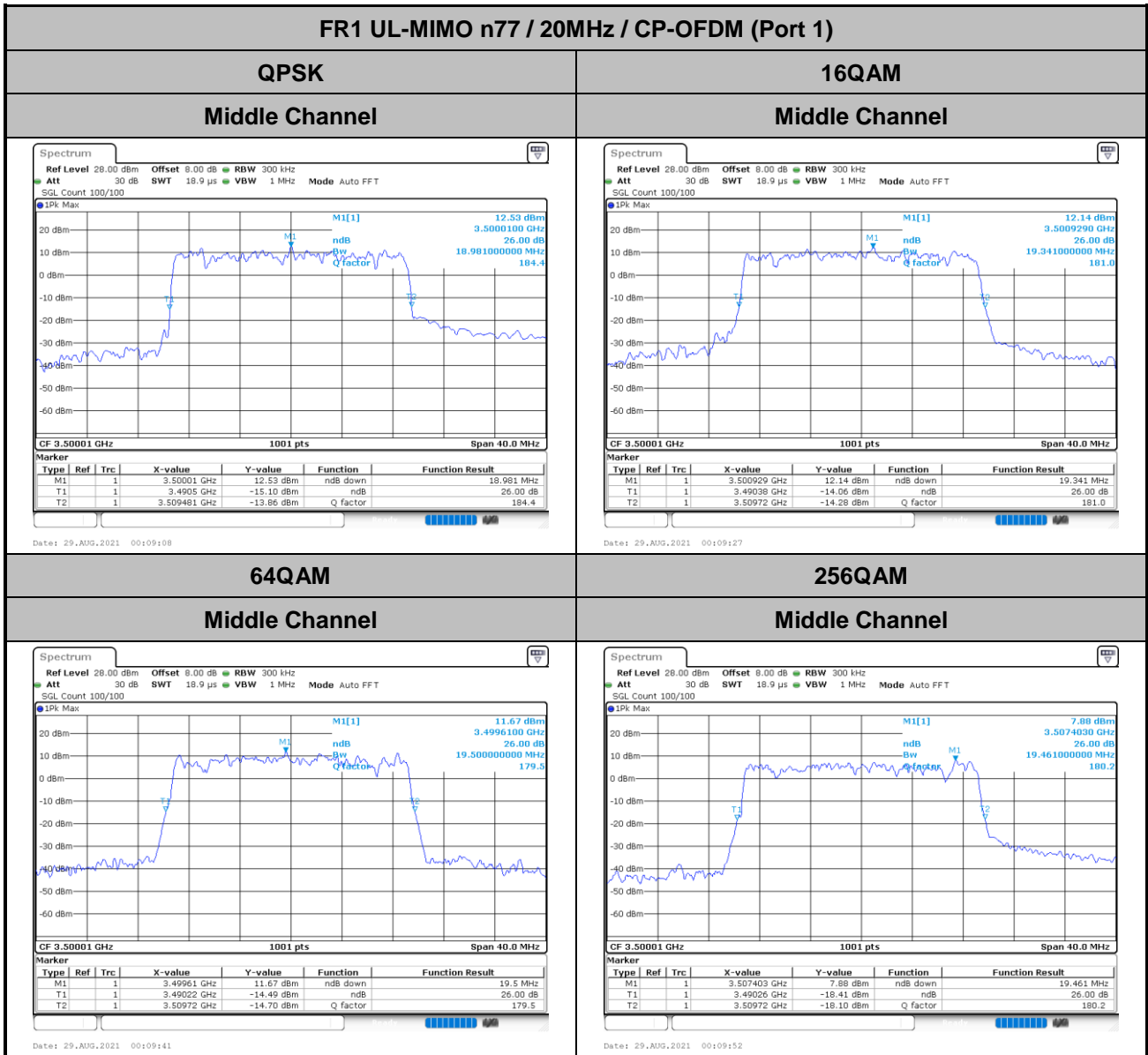
Middle Channel



Date: 29\_AUG.2021 01:04:53



Date: 29\_AUG.2021 01:04:39



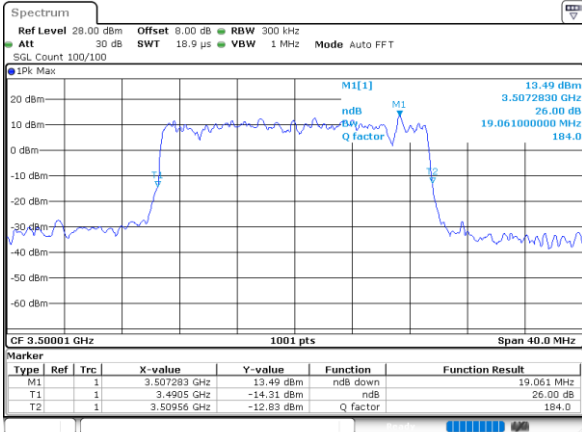
FR1 UL-MIMO n77 / 20MHz / CP-OFDM (Port 2)

QPSK

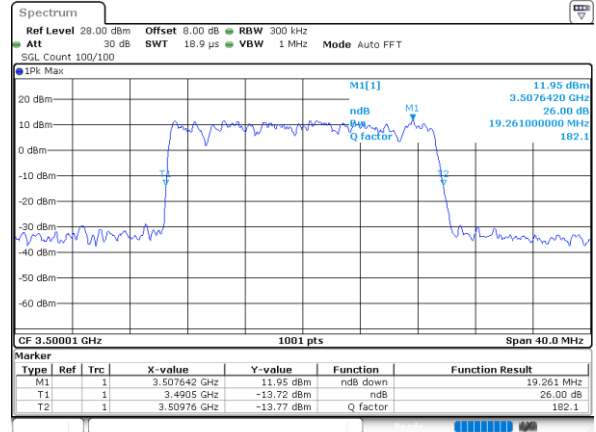
16QAM

Middle Channel

Middle Channel



Date: 29\_AUG.2021 01:05:44



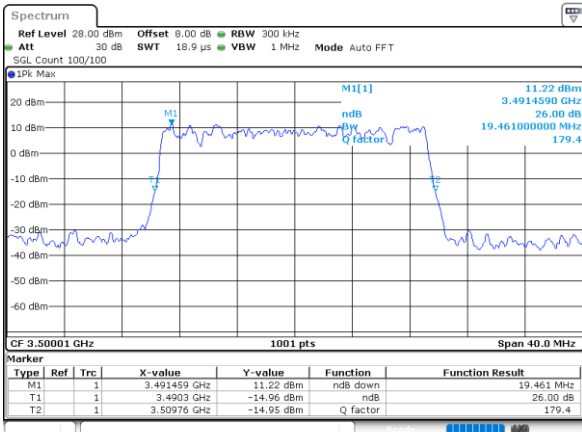
Date: 29\_AUG.2021 01:05:57

64QAM

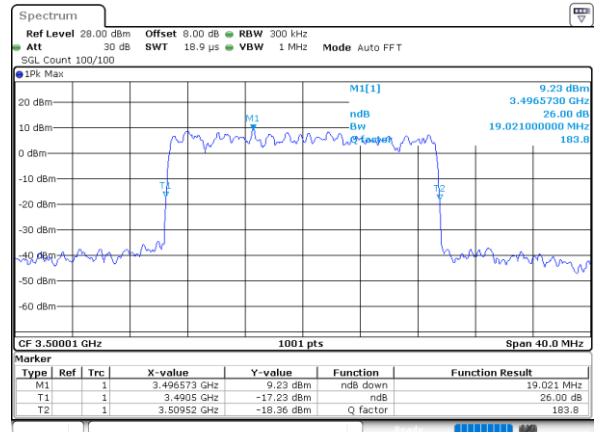
256QAM

Middle Channel

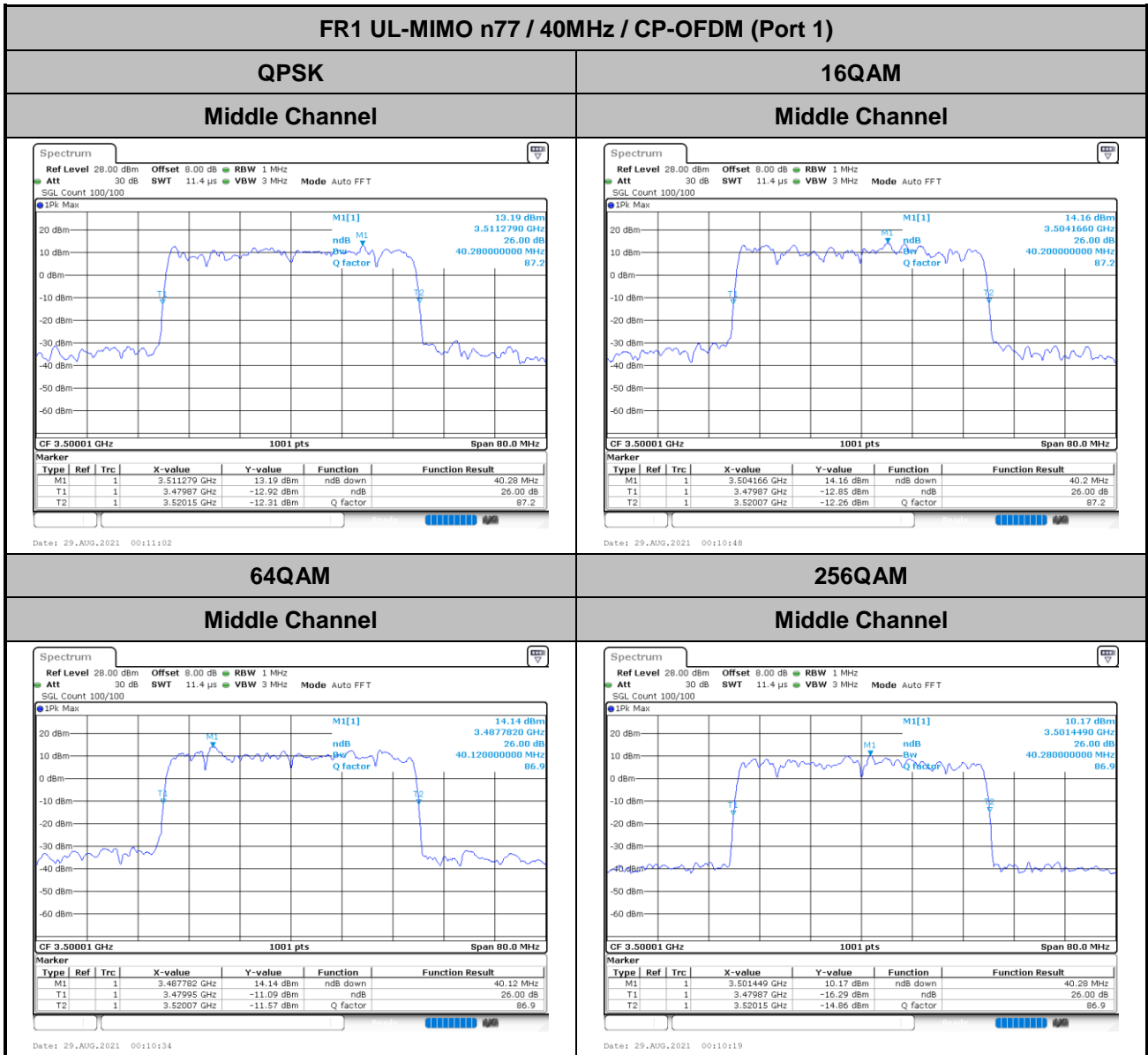
Middle Channel



Date: 29\_AUG.2021 01:06:10



Date: 29\_AUG.2021 01:06:23





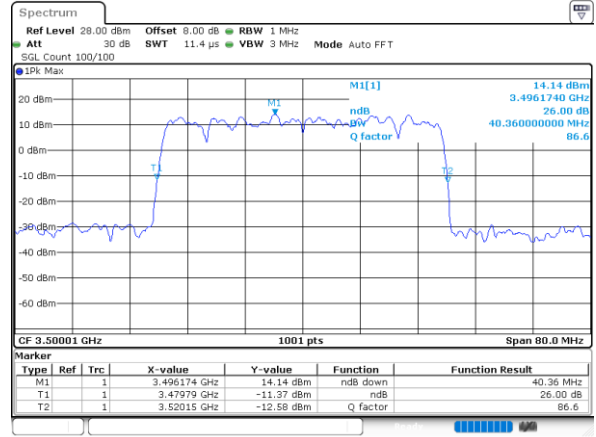
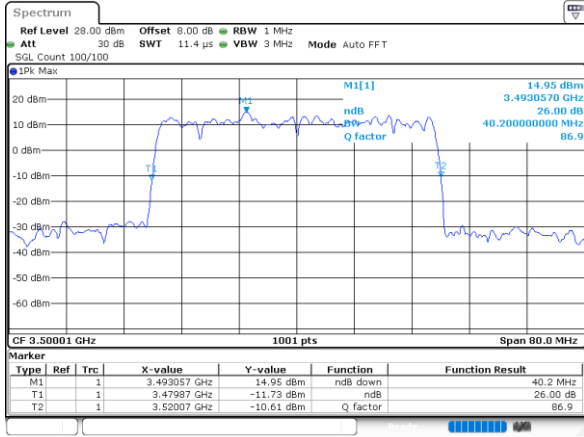
FR1 UL-MIMO n77 / 40MHz / CP-OFDM (Port 2)

QPSK

16QAM

Middle Channel

Middle Channel



Date: 29\_AUG.2021 01:08:14

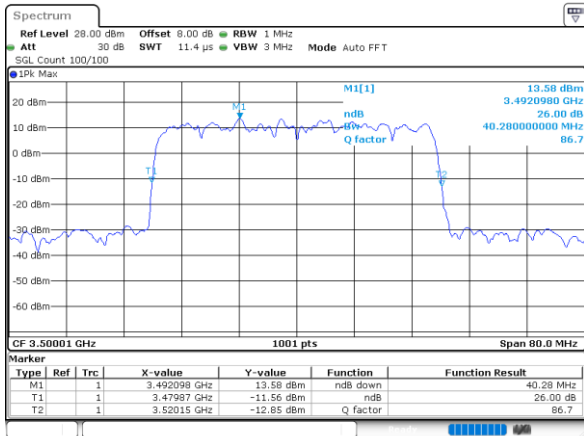
Date: 29\_AUG.2021 01:08:01

64QAM

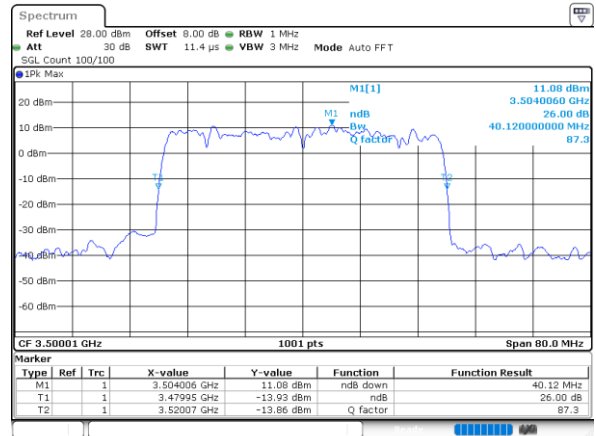
256QAM

Middle Channel

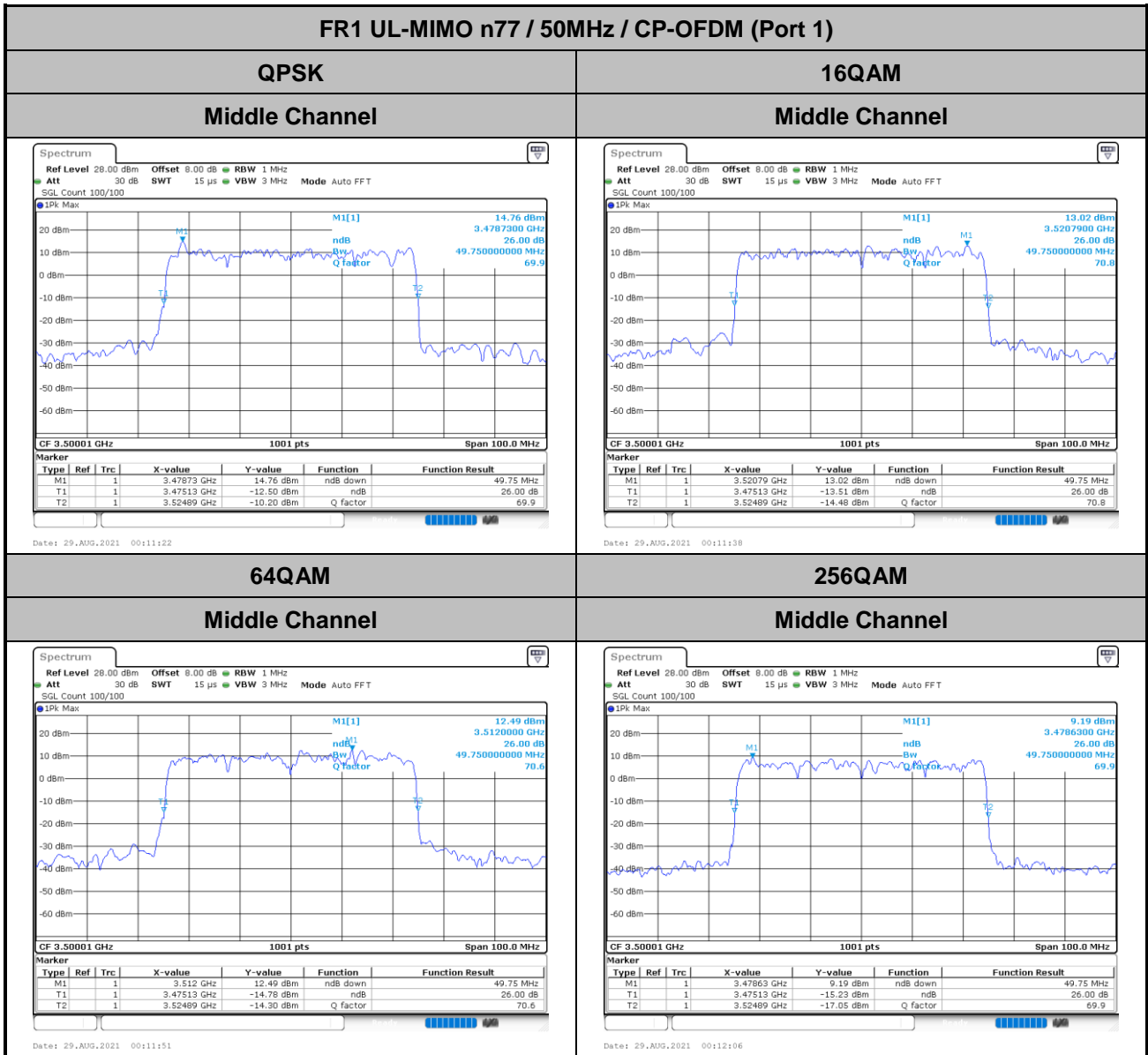
Middle Channel



Date: 29\_AUG.2021 01:07:48



Date: 29\_AUG.2021 01:07:30







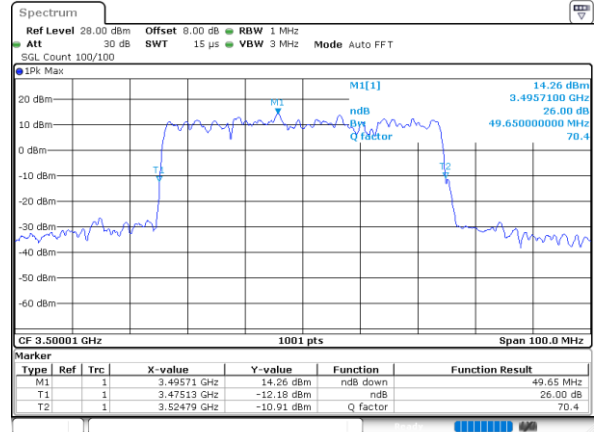
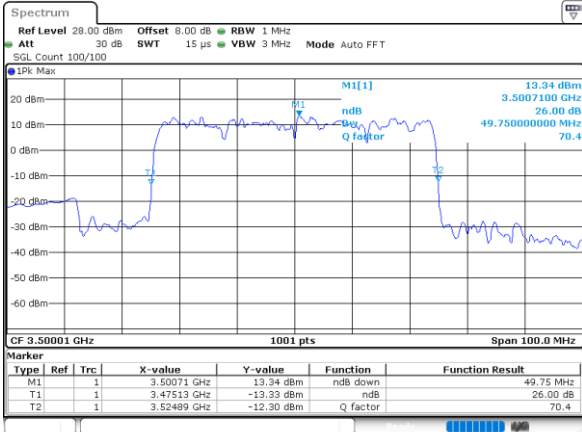
FR1 UL-MIMO n77 / 50MHz / CP-OFDM (Port 2)

QPSK

16QAM

Middle Channel

Middle Channel



Date: 29\_AUG.2021 01:08:36

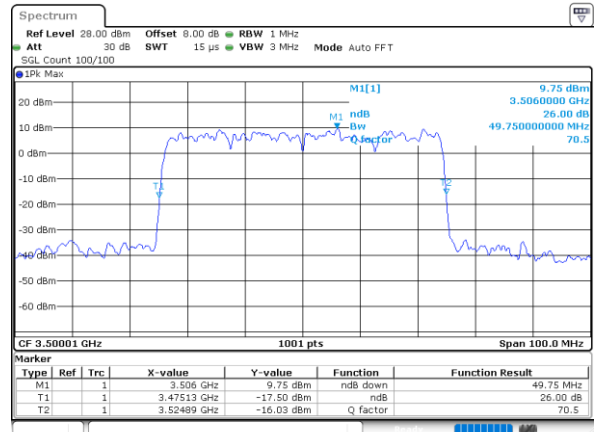
Date: 29\_AUG.2021 01:08:55

64QAM

256QAM

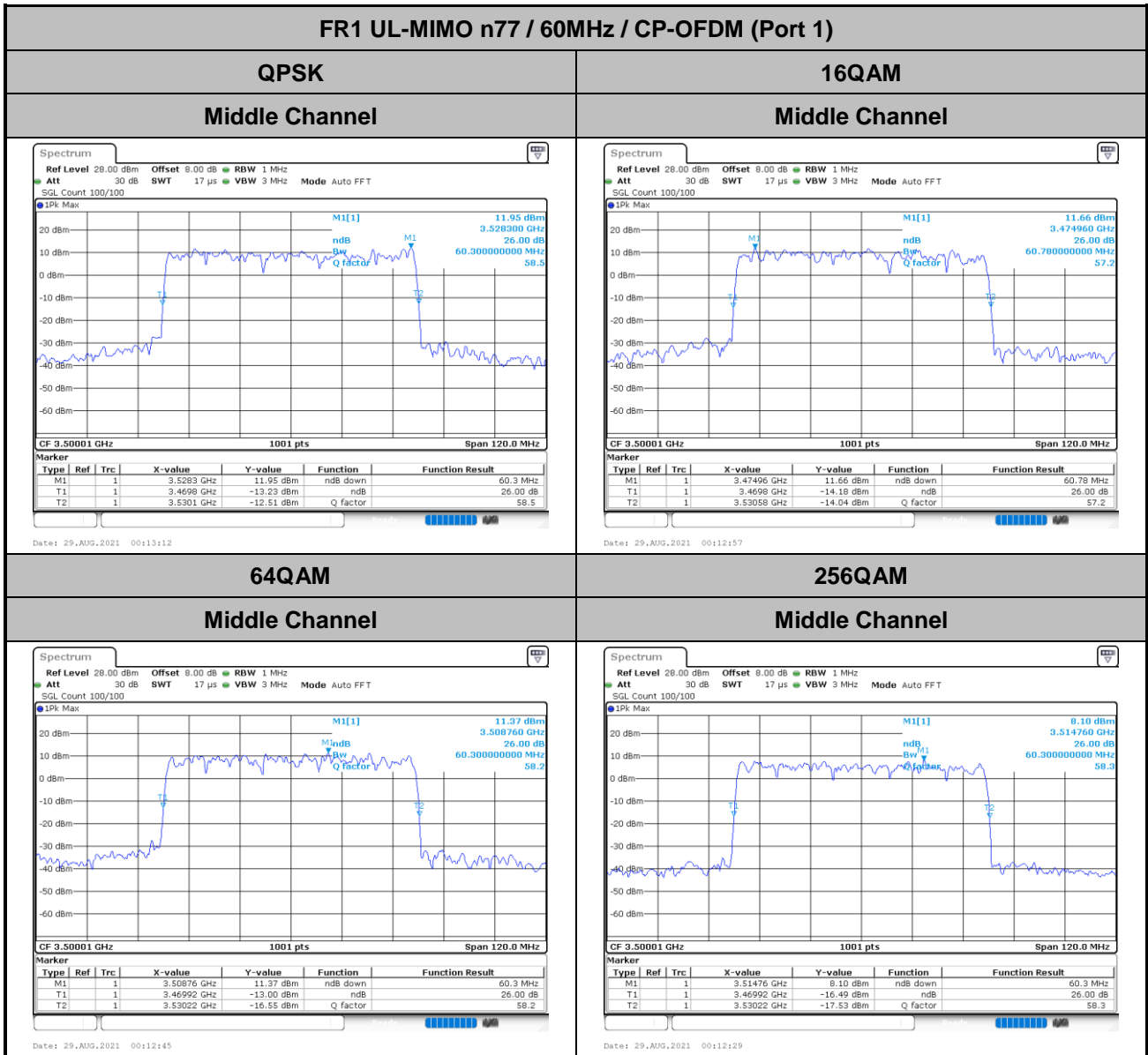
Middle Channel

Middle Channel



Date: 29\_AUG.2021 01:09:12

Date: 29\_AUG.2021 01:24:44





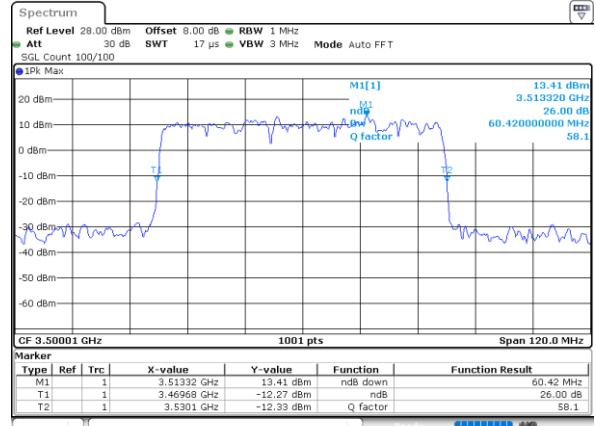
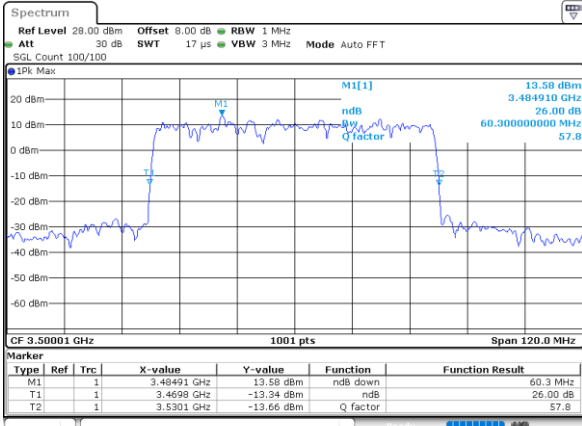
FR1 UL-MIMO n77 / 60MHz / CP-OFDM (Port 2)

QPSK

16QAM

Middle Channel

Middle Channel



Date: 29\_AUG.2021 01:26:07

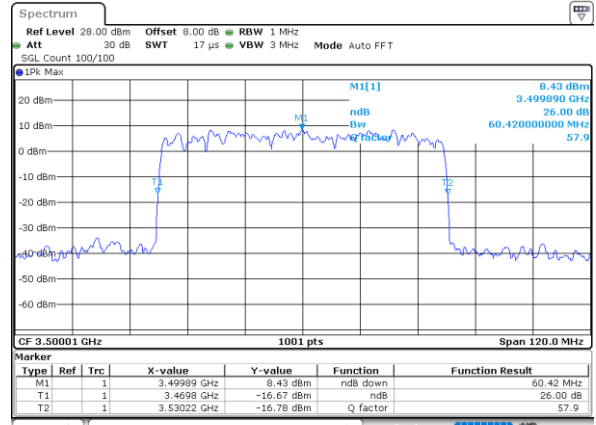
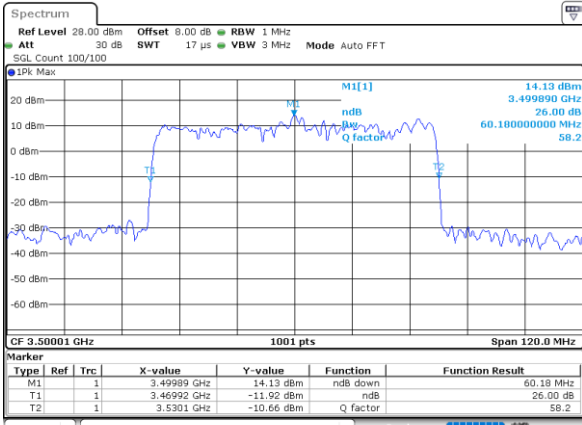
Date: 29\_AUG.2021 01:25:54

64QAM

256QAM

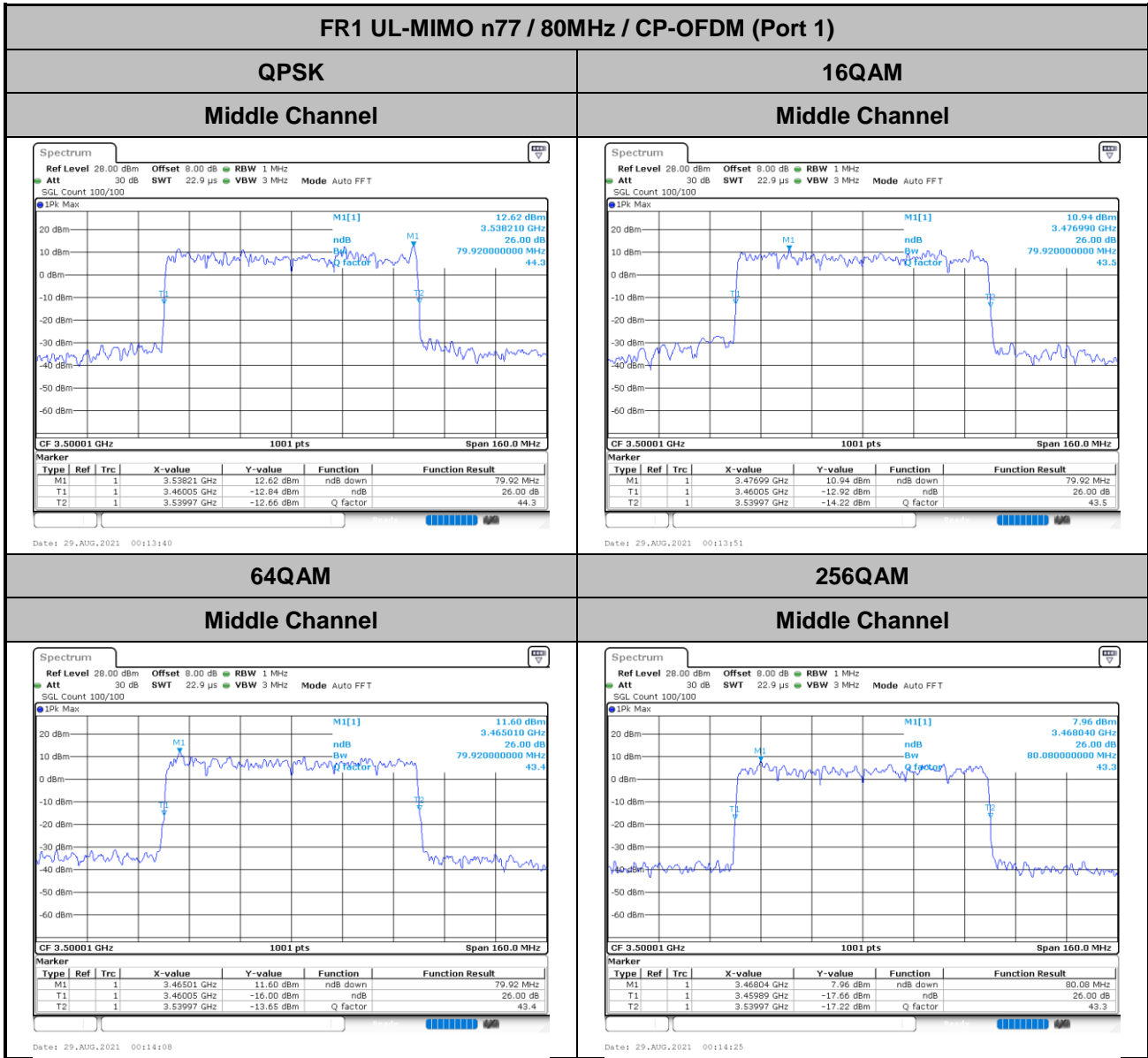
Middle Channel

Middle Channel



Date: 29\_AUG.2021 01:25:42

Date: 29\_AUG.2021 01:25:26





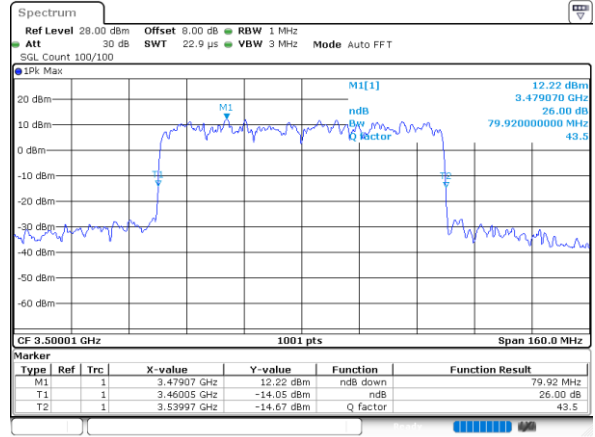
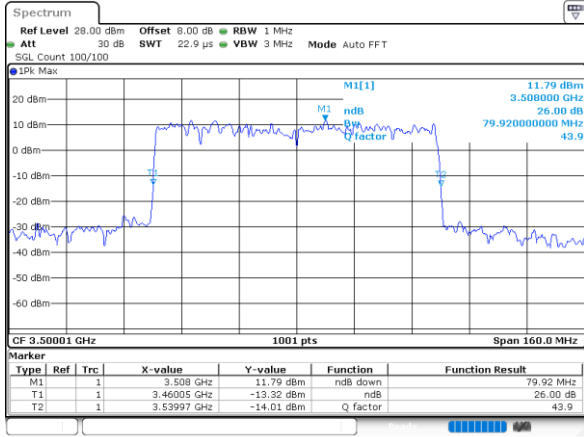
FR1 UL-MIMO n77 / 80MHz / CP-OFDM (Port 2)

QPSK

16QAM

Middle Channel

Middle Channel



Date: 29\_AUG.2021 01:26:25

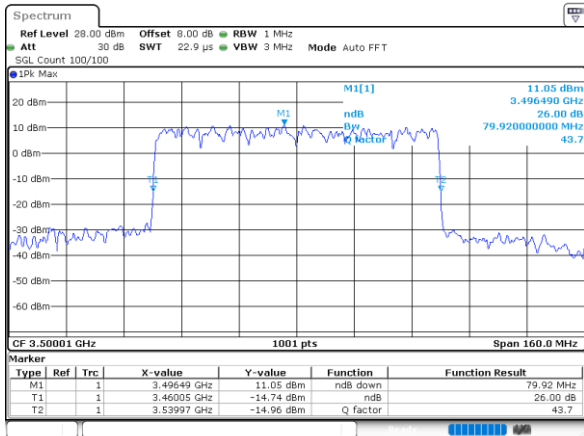
Date: 29\_AUG.2021 01:26:40

64QAM

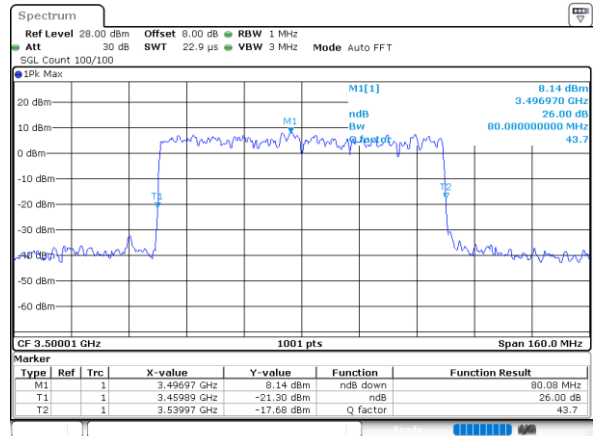
256QAM

Middle Channel

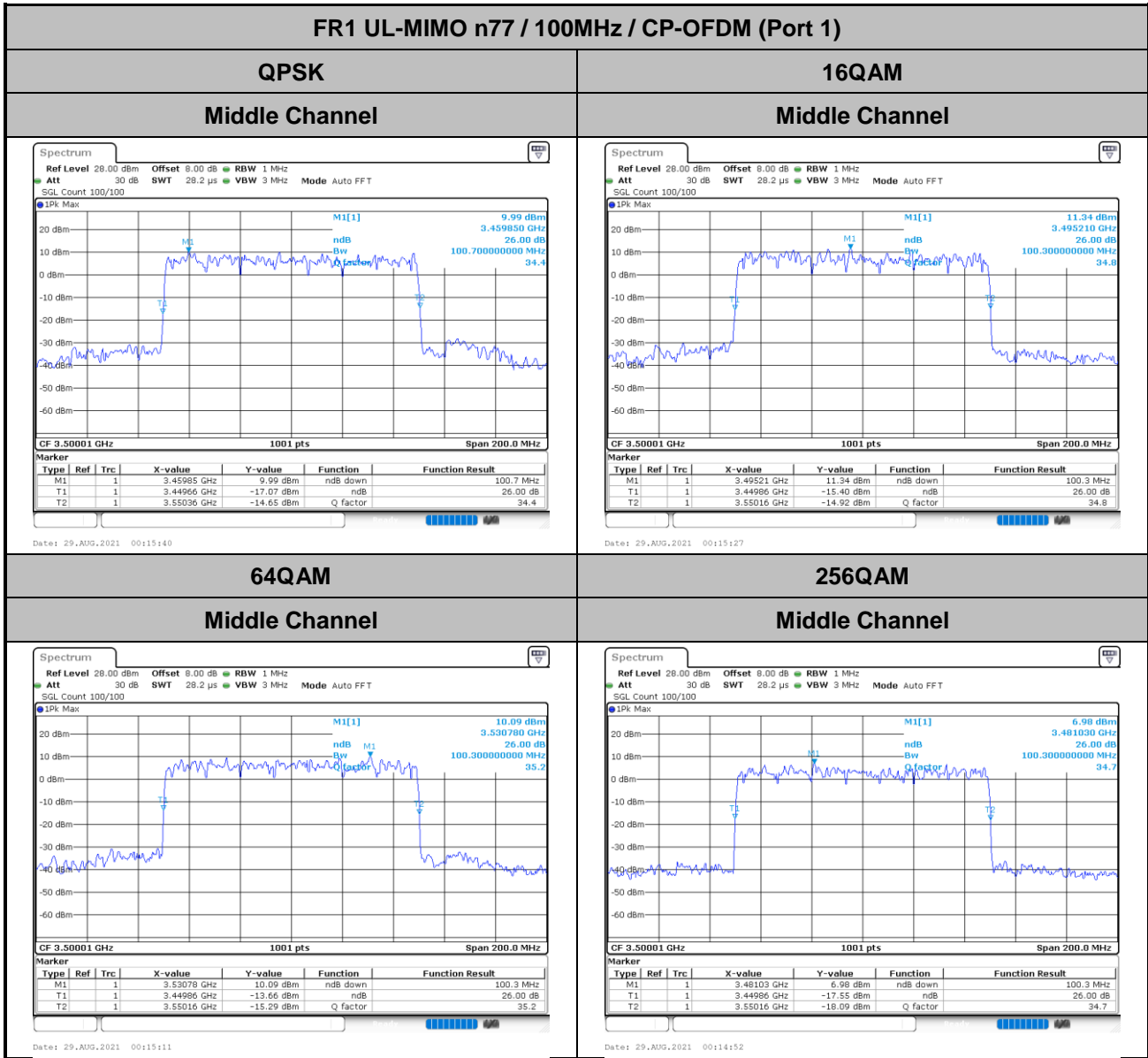
Middle Channel



Date: 29\_AUG.2021 01:26:55



Date: 29\_AUG.2021 01:27:08





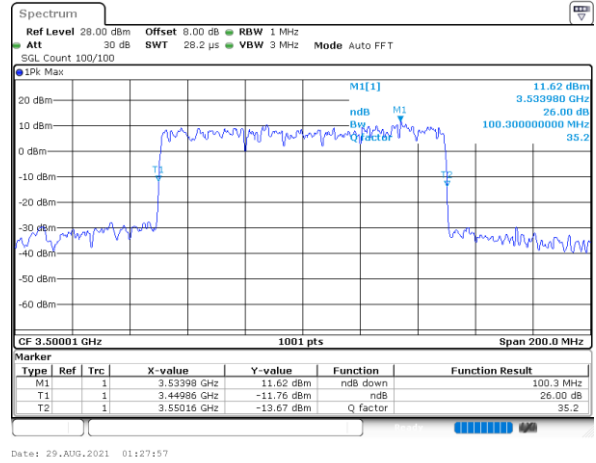
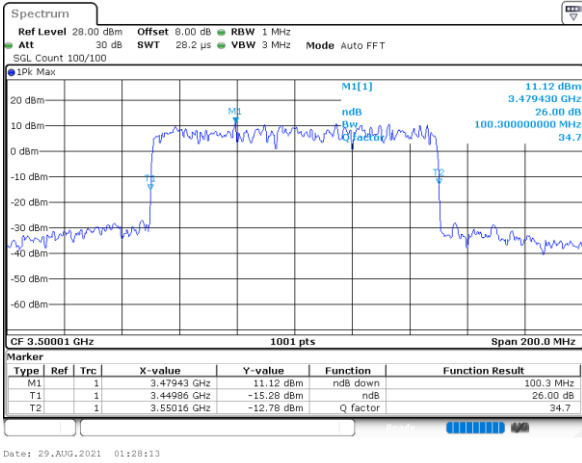
FR1 UL-MIMO n77 / 100MHz / CP-OFDM (Port 2)

QPSK

16QAM

Middle Channel

Middle Channel

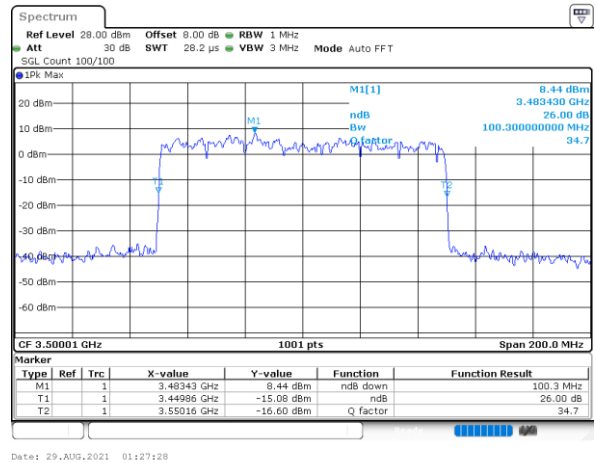
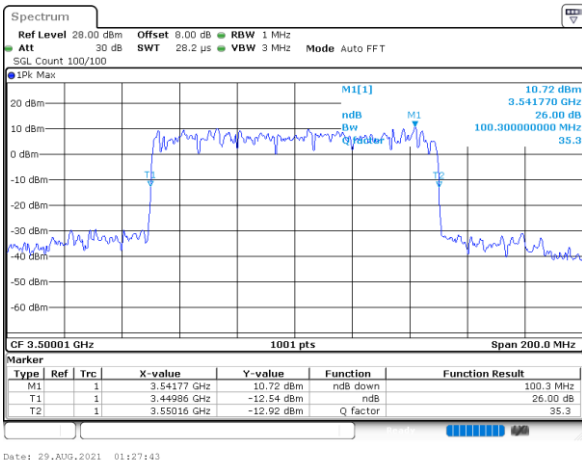


64QAM

256QAM

Middle Channel

Middle Channel





## Occupied Bandwidth

Mode	FR1 UL-MIMO n77 : OBW(MHz) / CP-OFDM							
	Port 1				Port 2			
BW	10MHz	10MHz	10MHz	10MHz	10MHz	10MHz	10MHz	10MHz
Mod.	QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM
Middle CH	8.57	8.59	8.57	8.57	8.57	8.57	8.59	8.59

Mode	FR1 UL-MIMO n77 : OBW(MHz) / CP-OFDM							
	Port 1				Port 2			
BW	15MHz	15MHz	15MHz	15MHz	15MHz	15MHz	15MHz	15MHz
Mod.	QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM
Middle CH	13.55	13.61	13.61	13.58	13.37	13.58	13.58	13.61

Mode	FR1 UL-MIMO n77 : OBW(MHz) / CP-OFDM							
	Port 1				Port 2			
BW	20MHz	20MHz	20MHz	20MHz	20MHz	20MHz	20MHz	20MHz
Mod.	QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM
Middle CH	18.18	18.22	18.22	18.22	18.34	18.18	18.22	18.30

Mode	FR1 UL-MIMO n77 : OBW(MHz) / CP-OFDM							
	Port 1				Port 2			
BW	40MHz	40MHz	40MHz	40MHz	40MHz	40MHz	40MHz	40MHz
Mod.	QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM
Middle CH	37.96	38.20	37.96	38.36	38.04	38.12	37.88	38.04

Mode	FR1 UL-MIMO n77 : OBW(MHz) / CP-OFDM							
	Port 1				Port 2			
BW	50MHz	50MHz	50MHz	50MHz	50MHz	50MHz	50MHz	50MHz
Mod.	QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM
Middle CH	47.15	47.85	47.65	47.65	47.65	46.95	47.75	47.55

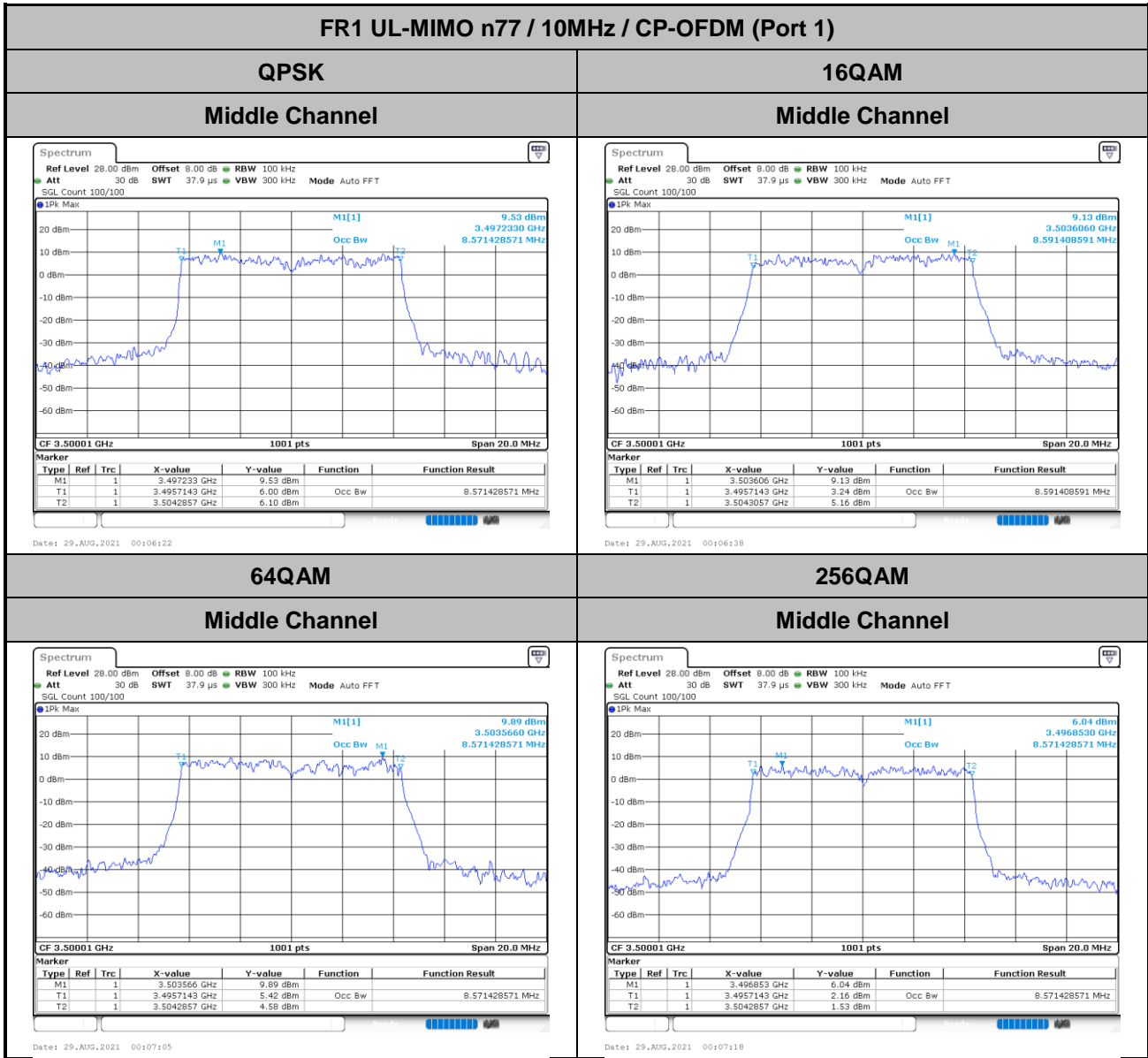
Mode	FR1 UL-MIMO n77 : OBW(MHz) / CP-OFDM							
	Port 1				Port 2			
BW	60MHz	60MHz	60MHz	60MHz	60MHz	60MHz	60MHz	60MHz
Mod.	QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM
Middle CH	57.90	58.02	58.14	58.14	58.02	57.90	57.78	58.38





Mode	FR1 UL-MIMO n77 : OBW(MHz) / CP-OFDM							
	Port 1				Port 2			
BW	80MHz	80MHz	80MHz	80MHz	80MHz	80MHz	80MHz	80MHz
Mod.	QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM
Middle CH	77.36	77.52	77.36	77.52	77.52	77.68	77.20	77.20

Mode	FR1 UL-MIMO n77 : OBW(MHz) / CP-OFDM							
	Port 1				Port 2			
BW	100MHz	100MHz	100MHz	100MHz	100MHz	100MHz	100MHz	100MHz
Mod.	QPSK	16QAM	64QAM	256QAM	QPSK	16QAM	64QAM	256QAM
Middle CH	97.10	97.30	97.50	97.50	97.10	97.10	96.70	96.90





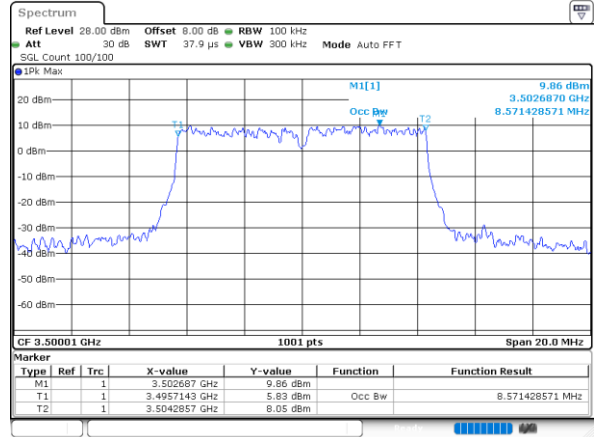
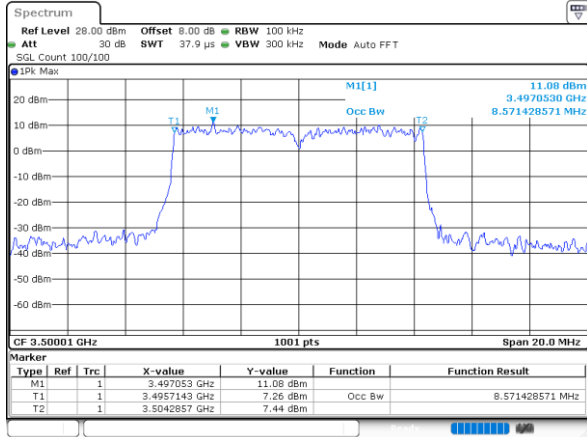
FR1 UL-MIMO n77 / 10MHz / CP-OFDM (Port 2)

QPSK

16QAM

Middle Channel

Middle Channel



Date: 29.AUG.2021 01:03:24

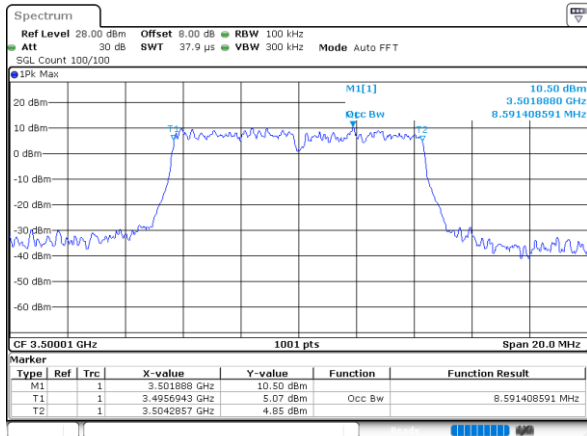
Date: 29.AUG.2021 01:03:39

64QAM

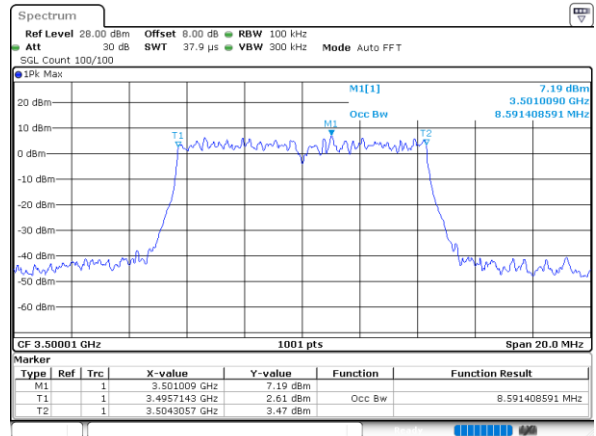
256QAM

Middle Channel

Middle Channel



Date: 29.AUG.2021 01:03:59



Date: 29.AUG.2021 01:04:11