



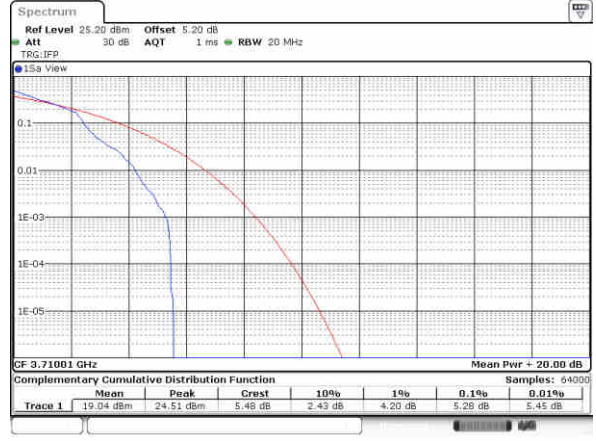
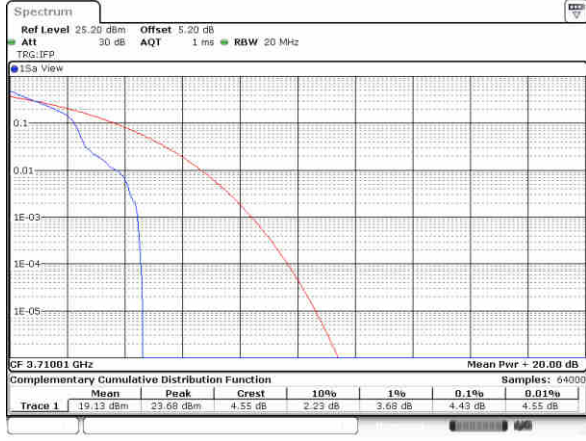
FR1 n78 / 20MHz / DFT-S OFDM

PI/2 BPSK

QPSK

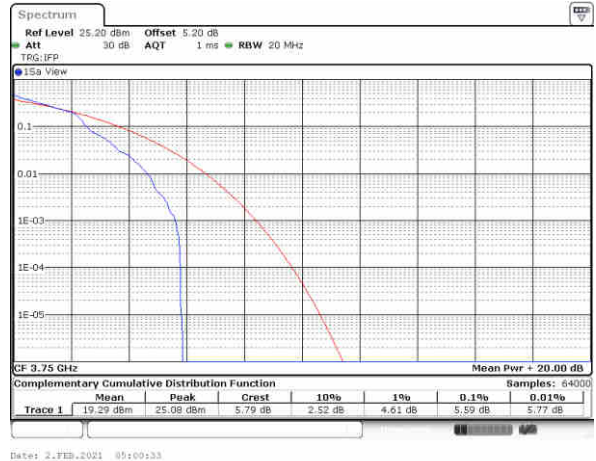
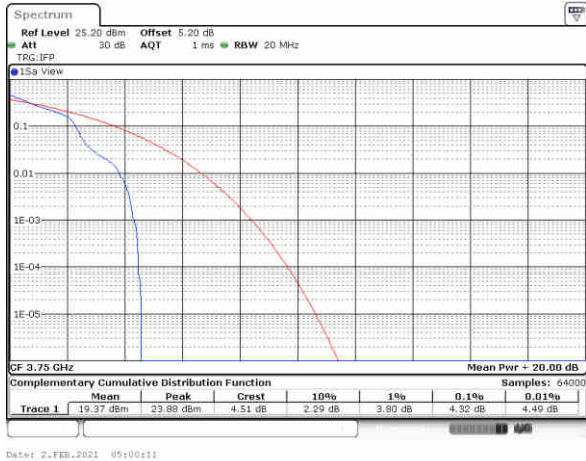
Lowest Channel / 1RB

Lowest Channel / 1RB



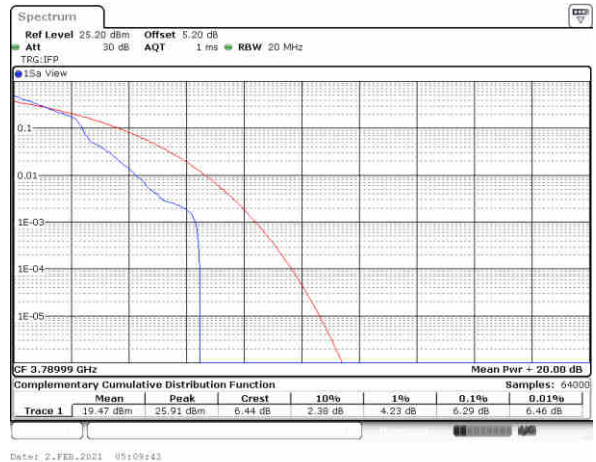
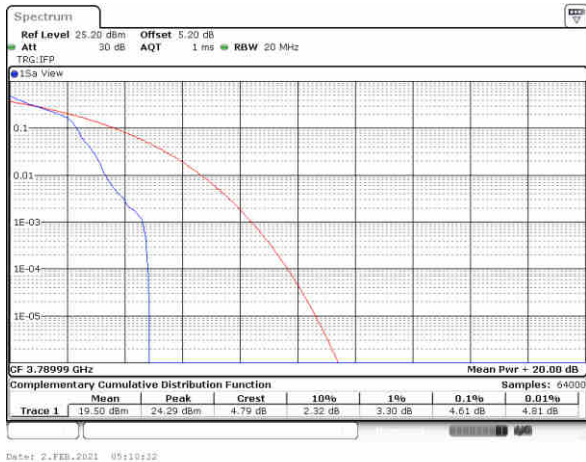
Middle Channel / 1 RB

Middle Channel / 1 RB



Highest Channel / 1 RB

Highest Channel / 1 RB





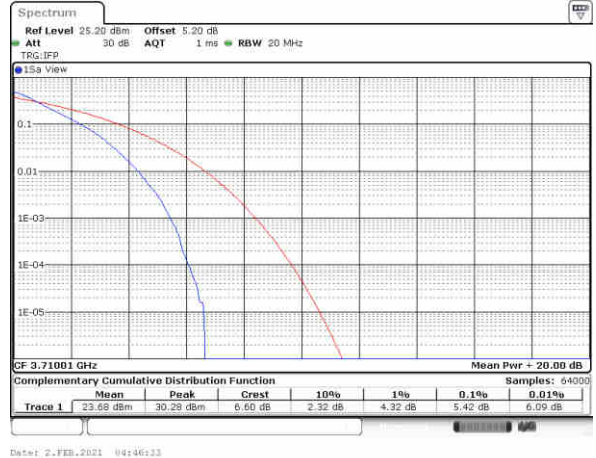
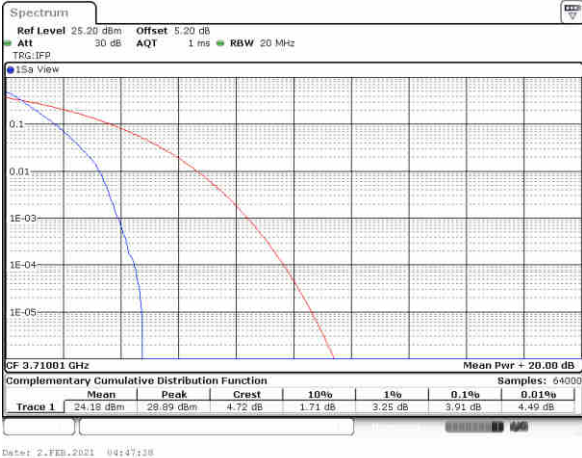
FR1 n78 / 20MHz / DFT-S OFDM

PI/2 BPSK

QPSK

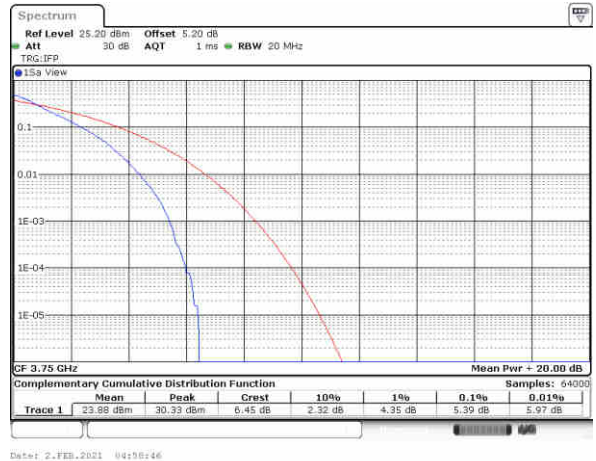
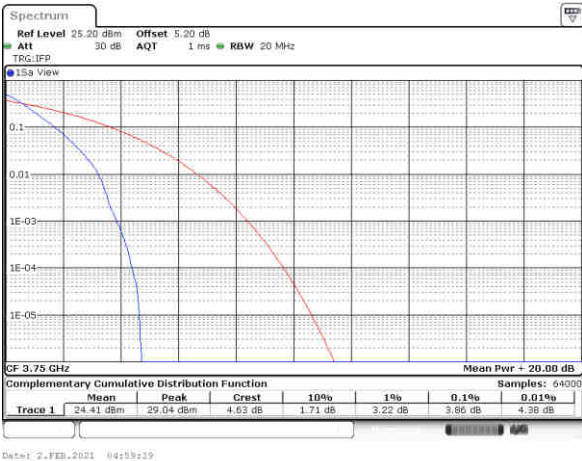
Lowest Channel / Full RB

Lowest Channel / Full RB



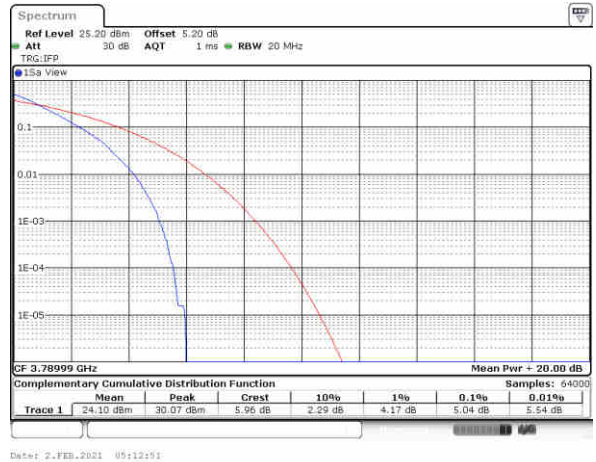
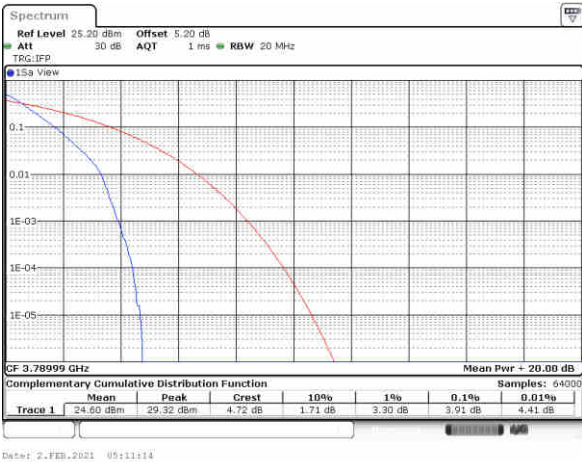
Middle Channel / Full RB

Middle Channel / Full RB



Highest Channel / Full RB

Highest Channel / Full RB



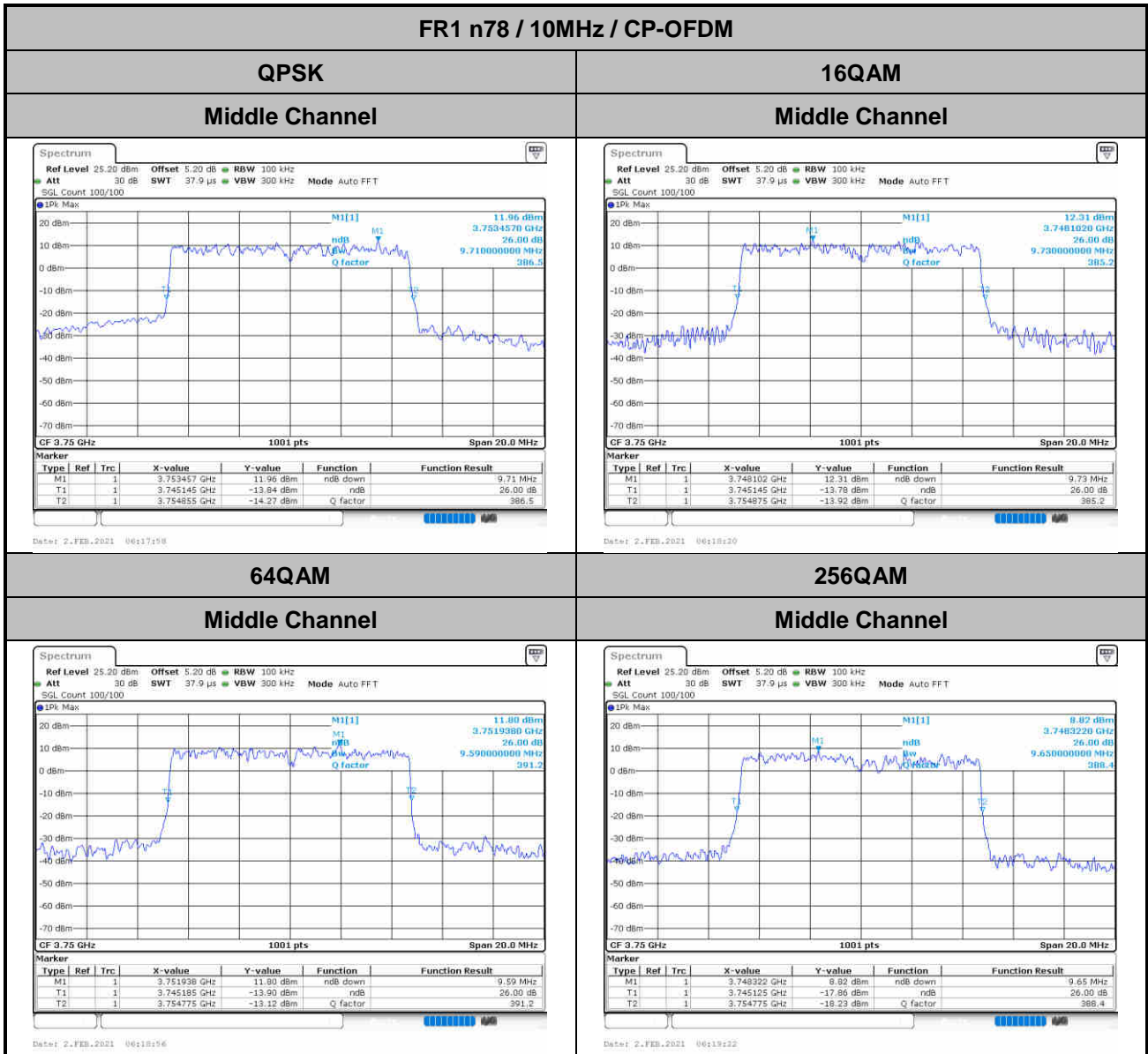


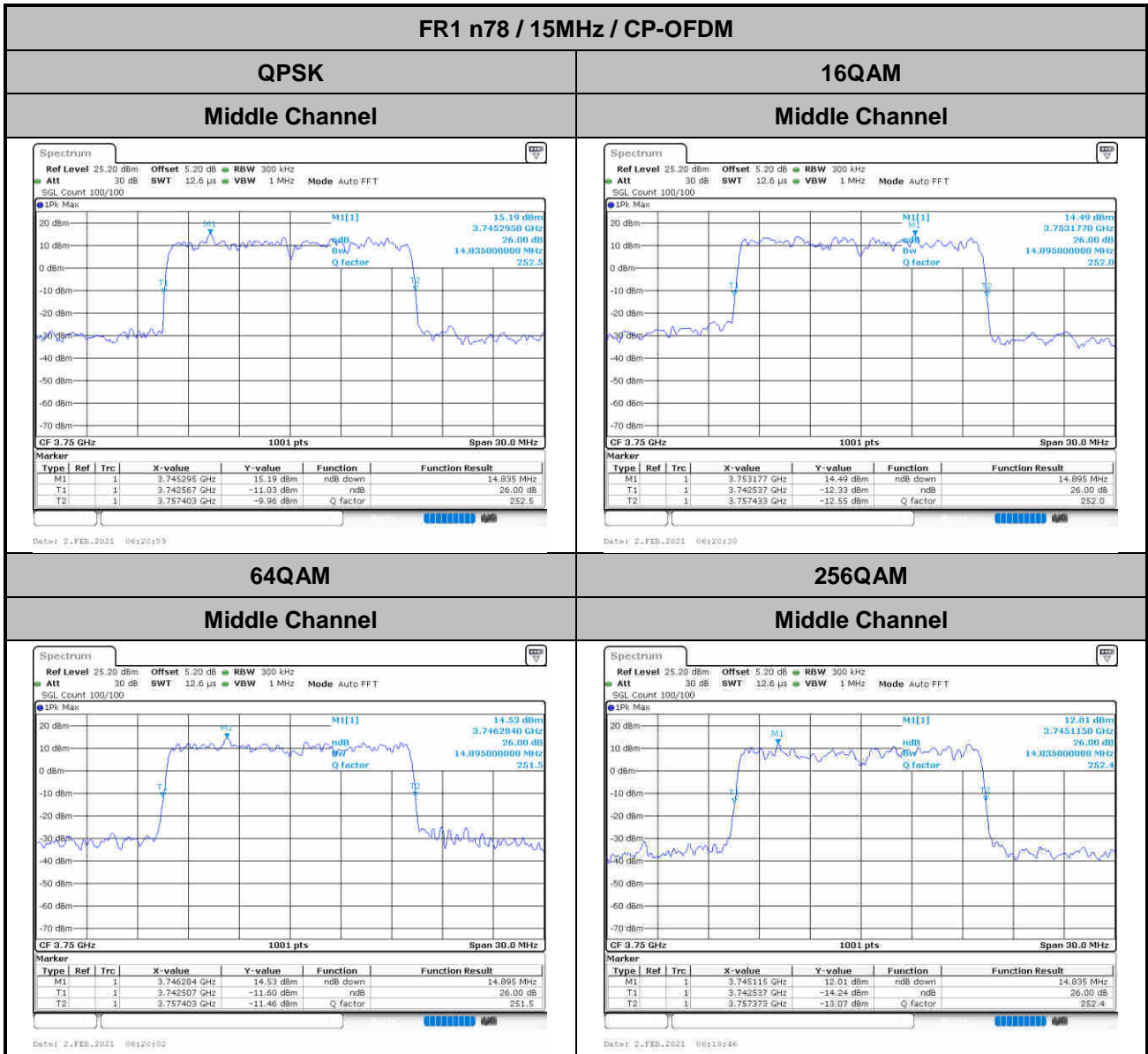
**26dB Bandwidth**

Mode	FR1 n78 : 26dB BW(MHz) / CP-OFDM							
BW	10MHz	10MHz	10MHz	10MHz				
Mod.	QPSK	16QAM	64QAM	256QAM				
Middle CH	9.71	9.73	9.59	9.65				

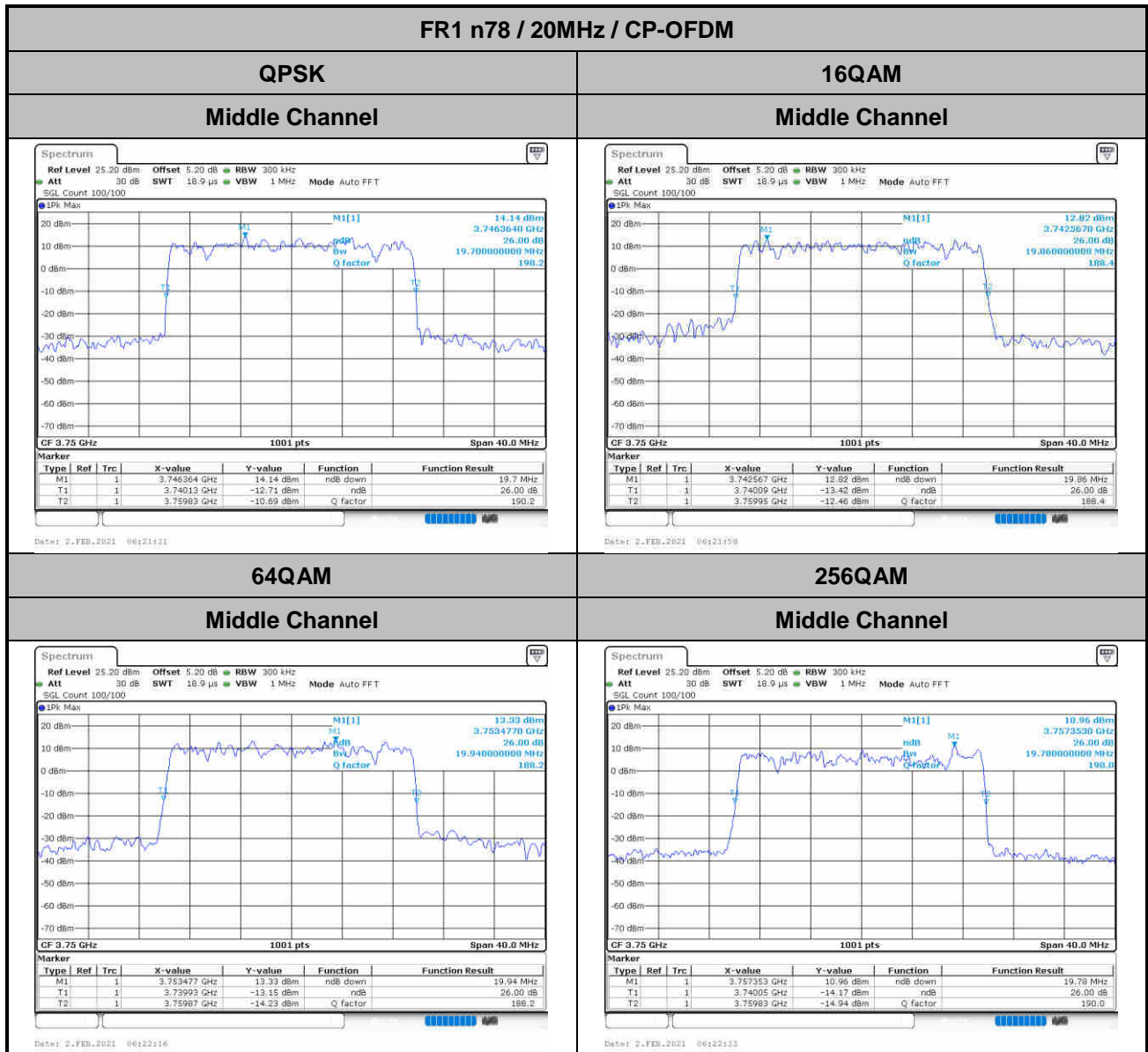
Mode	FR1 n78 : 26dB BW(MHz) / CP-OFDM							
BW	15MHz	15MHz	15MHz	15MHz				
Mod.	QPSK	16QAM	64QAM	256QAM				
Middle CH	14.84	14.90	14.90	14.84				

Mode	FR1 n78 : 26dB BW(MHz) / CP-OFDM							
BW	20MHz	20MHz	20MHz	20MHz				
Mod.	QPSK	16QAM	64QAM	256QAM				
Middle CH	19.7	19.86	19.94	19.78				









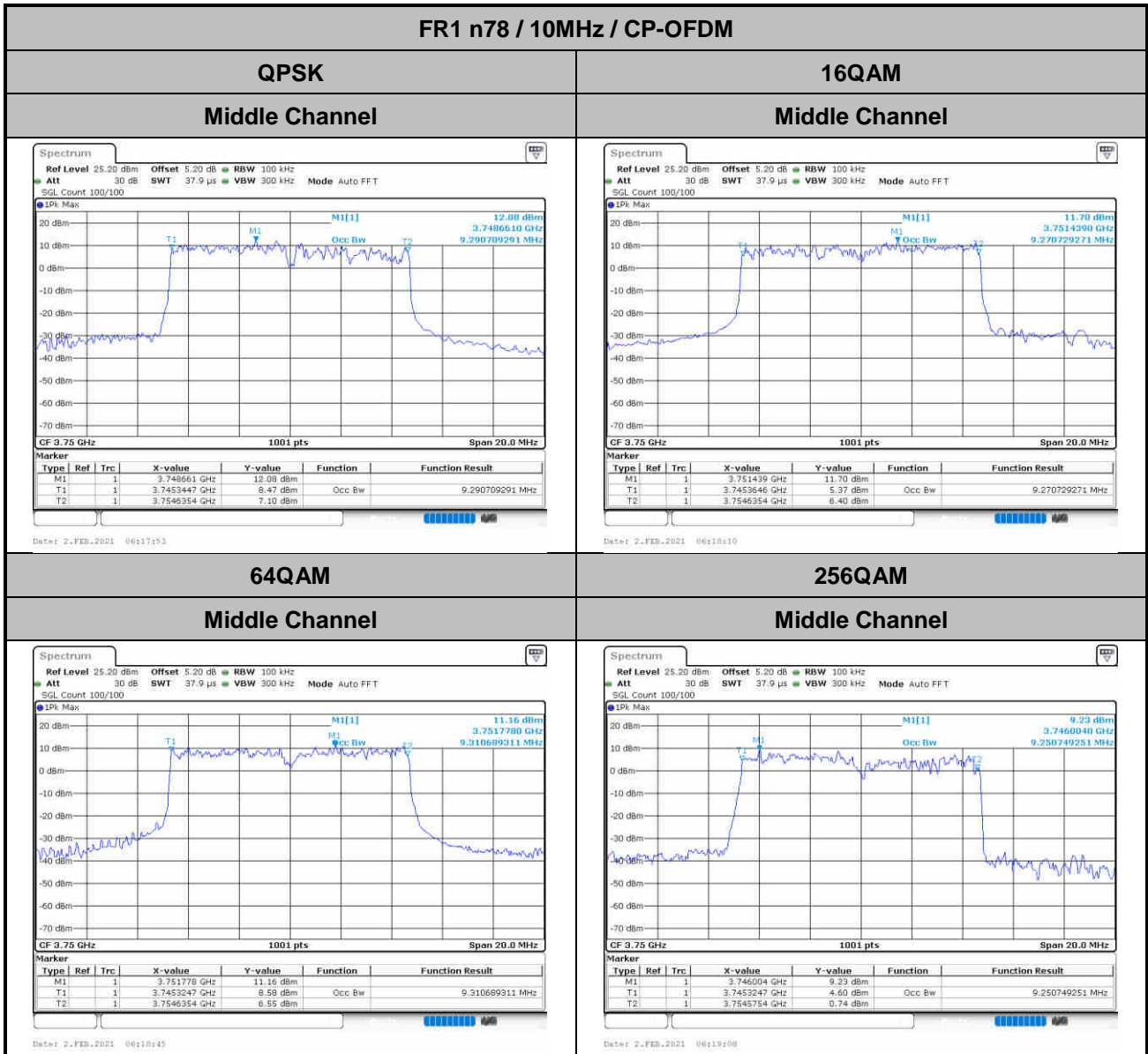


### Occupied Bandwidth

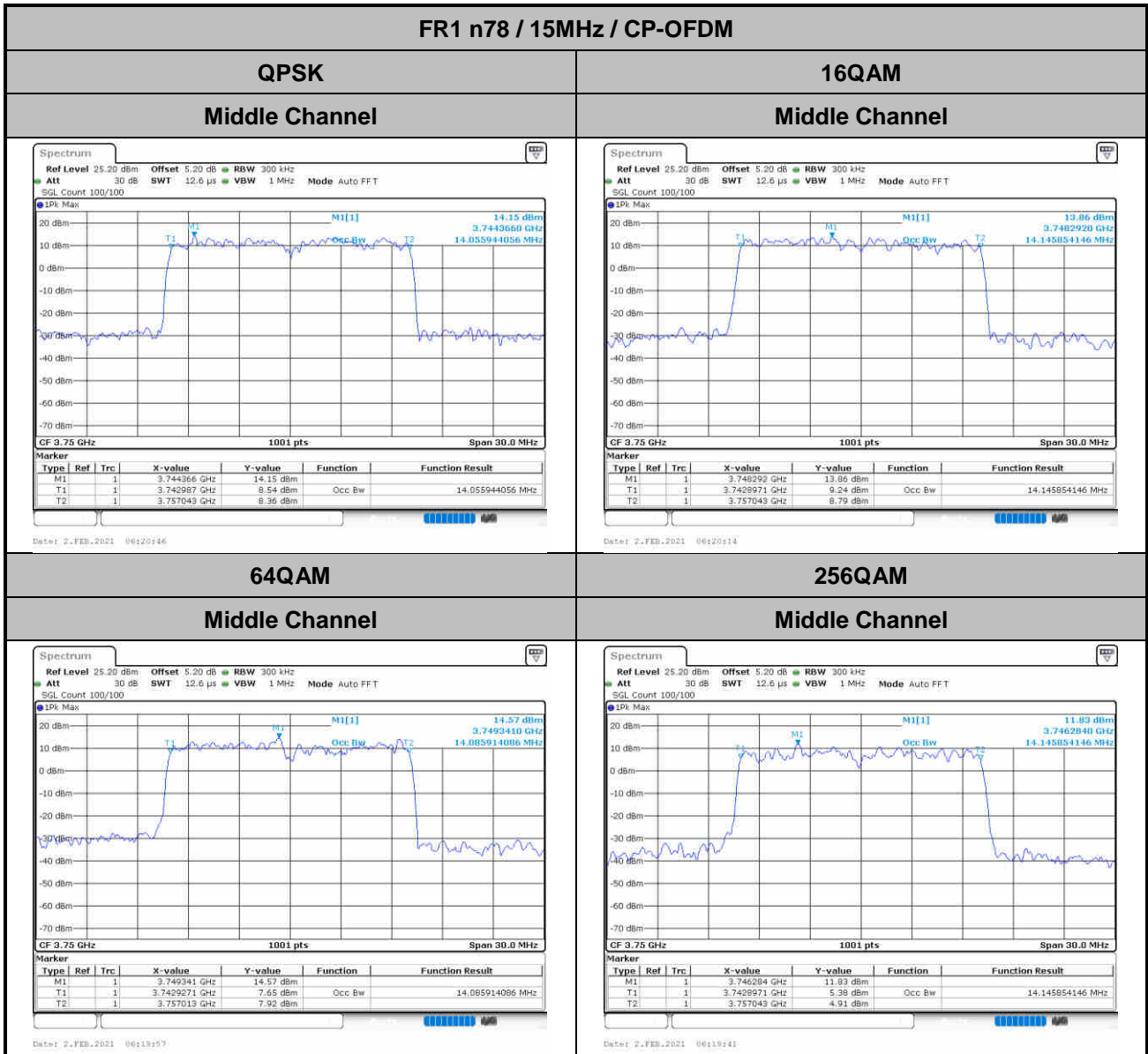
Mode	FR1 n78 : OBW(MHz) / CP-OFDM							
BW	10MHz	10MHz	10MHz	10MHz				
Mod.	QPSK	16QAM	64QAM	256QAM				
Middle CH	9.29	9.30	9.31	9.25				

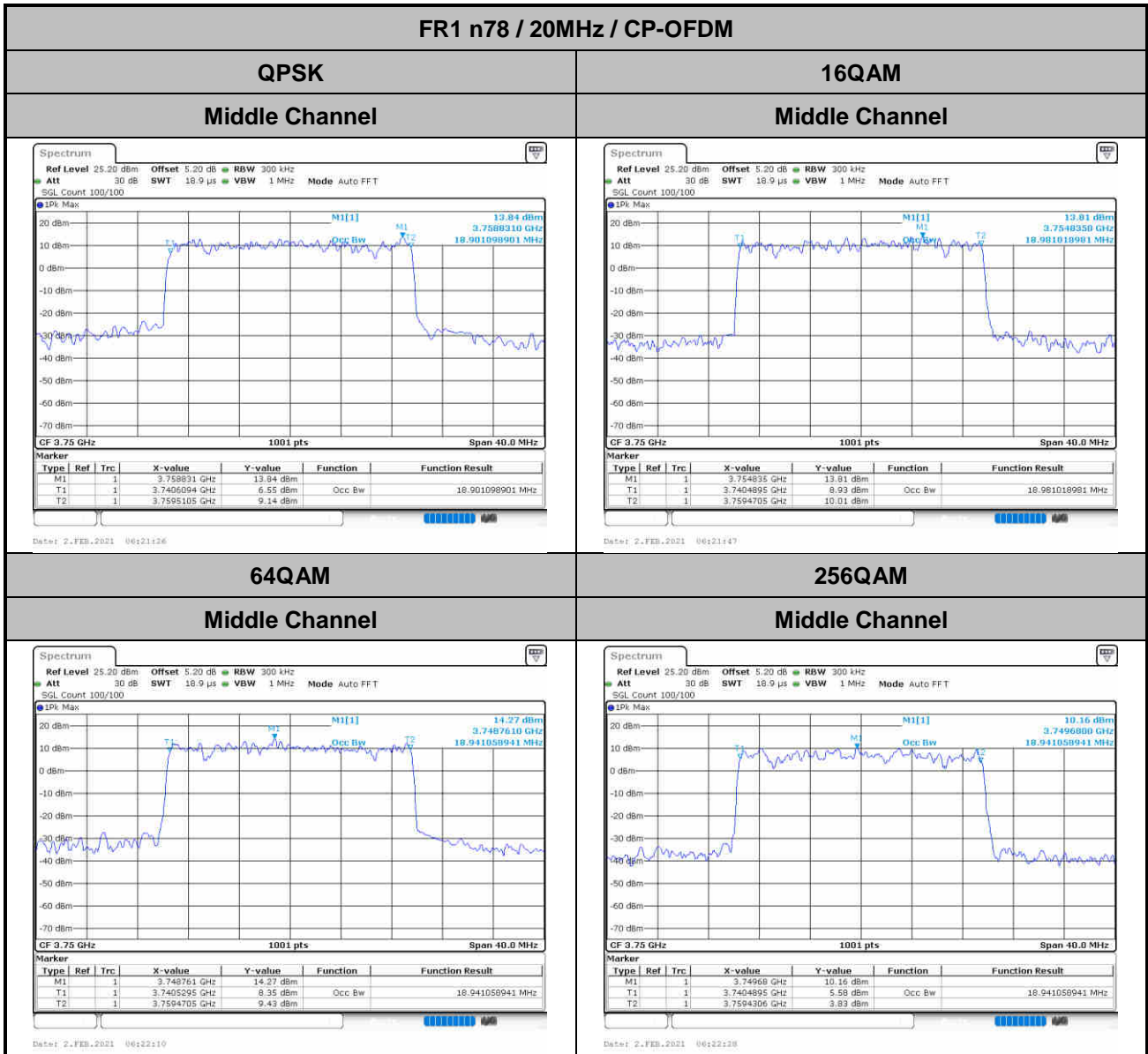
Mode	FR1 n78 : OBW(MHz) / CP-OFDM							
BW	15MHz	15MHz	15MHz	15MHz				
Mod.	QPSK	16QAM	64QAM	256QAM				
Middle CH	14.06	14.15	14.09	14.15				

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











# Conducted Band Edge

FR1 n78 / 10MHz / DFT-S OFDM BPSK

Lowest Band Edge / 1 RB

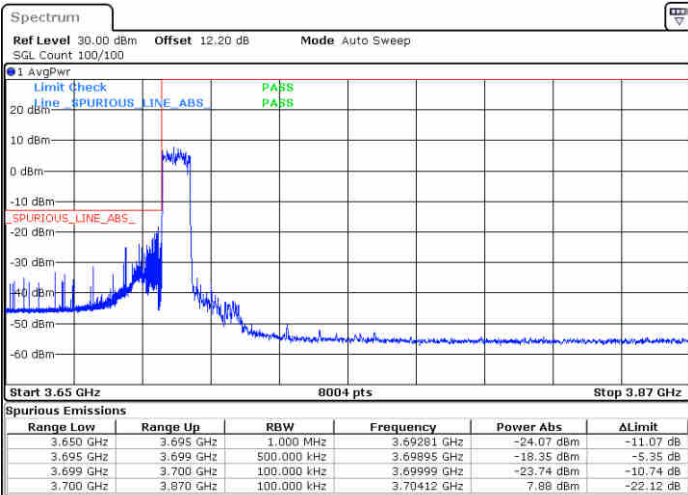
Channel Power < -13dBm Pass



/

Lowest Band Edge / Full RB

Channel Power < -13dBm Pass



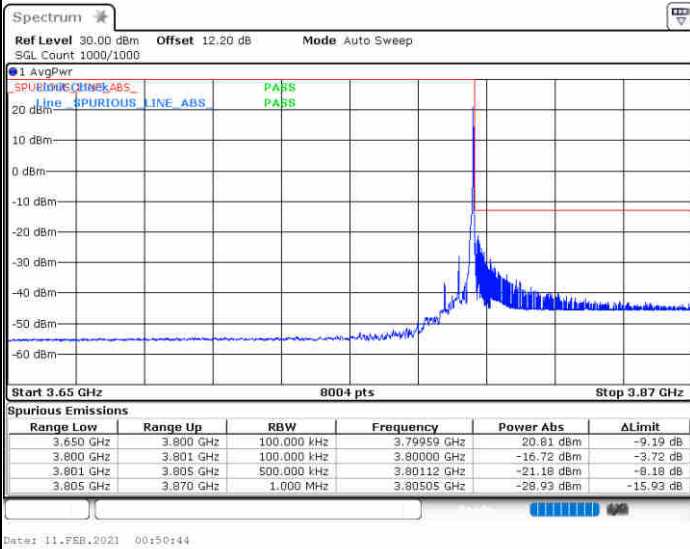
/



FR1 n78 / 10MHz / DFT-S OFDM BPSK

Highest Band Edge / 1 RB

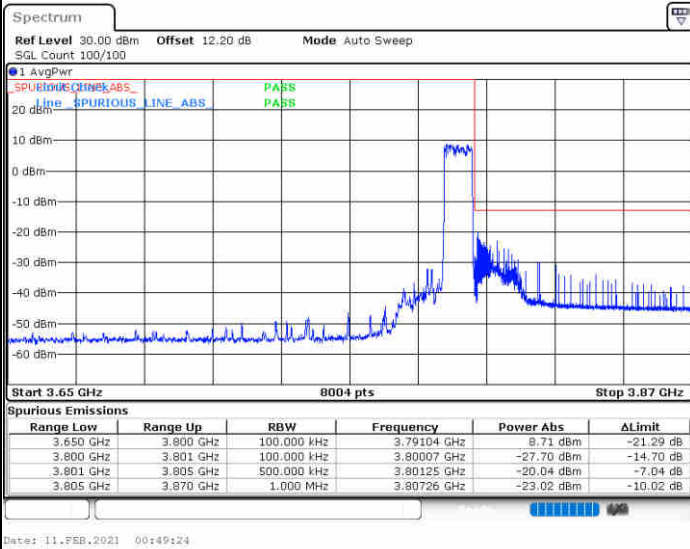
Channel Power < -13dBm Pass



/

Highest Band Edge / Full RB

Channel Power < -13dBm Pass



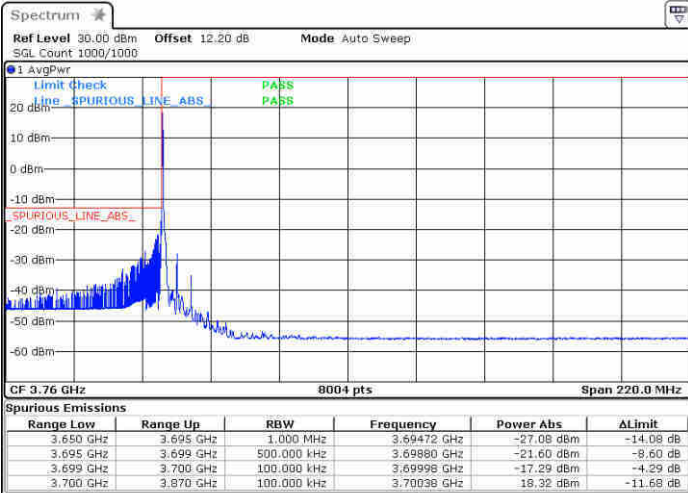
/



FR1 n78 / 10MHz / DFT-S OFDM QPSK

Lowest Band Edge / 1 RB

Channel Power < -13dBm Pass



Date: 4.MAR.2021 05:54:01

Lowest Band Edge / Full RB

Channel Power < -13dBm Pass



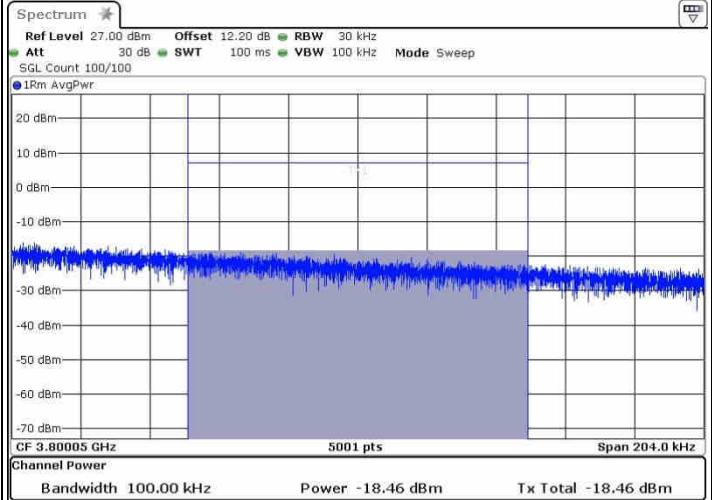
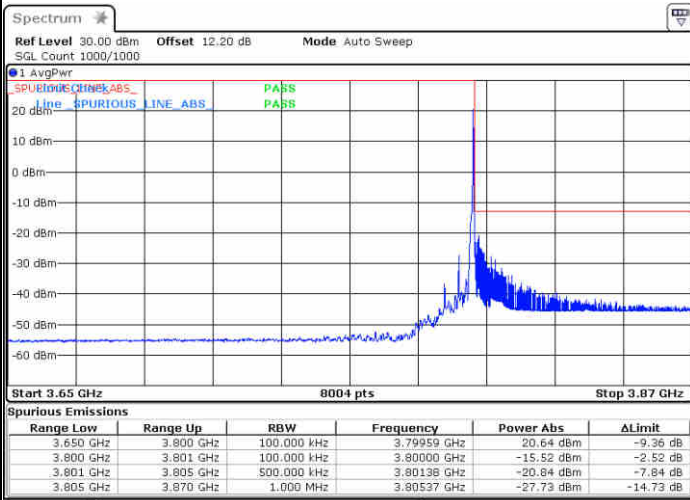
Date: 4.MAR.2021 05:52:38



FR1 n78 / 10MHz / DFT-S OFDM QPSK

Highest Band Edge / 1 RB

Channel Power < -13dBm Pass

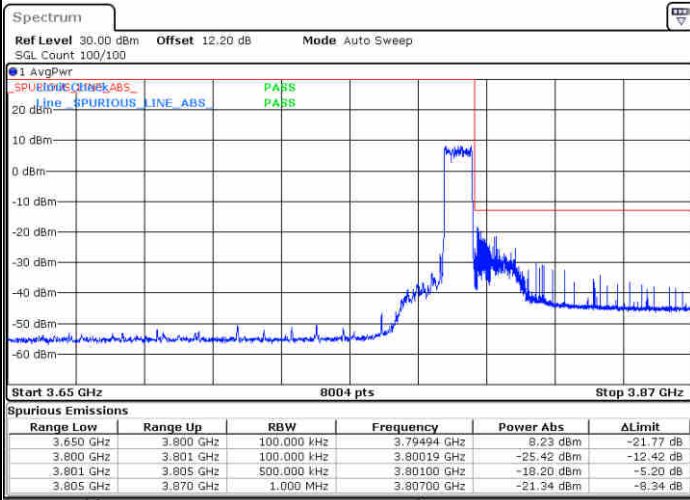


Date: 11.FEB.2021 00:51:50

Date: 11.FEB.2021 00:53:08

Highest Band Edge / Full RB

Channel Power < -13dBm Pass



Date: 11.FEB.2021 00:48:11

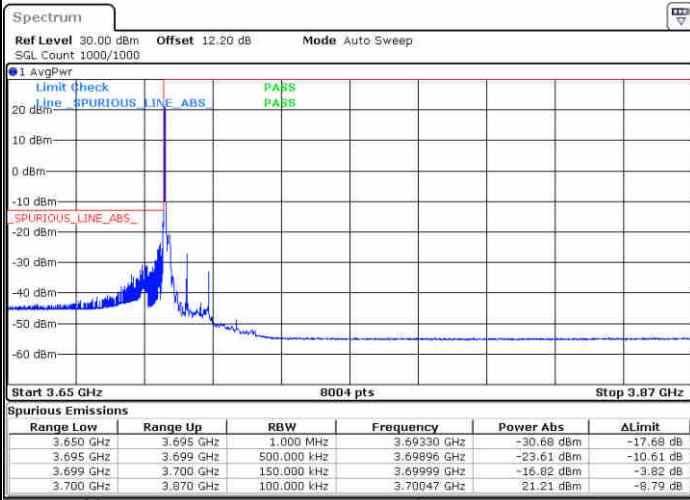




FR1 n78 / 15MHz / DFT-S OFDM BPSK

Lowest Band Edge / 1 RB

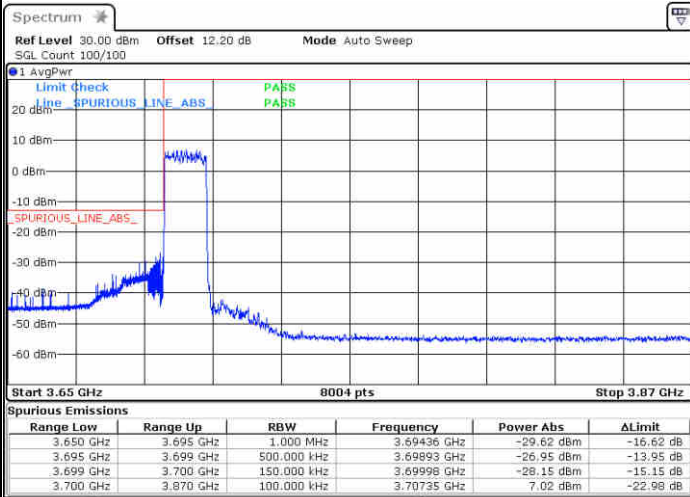
Channel Power < -13dBm Pass



Date: 12.MAR.2021 04:52:19

Lowest Band Edge / Full RB

Channel Power < -13dBm Pass



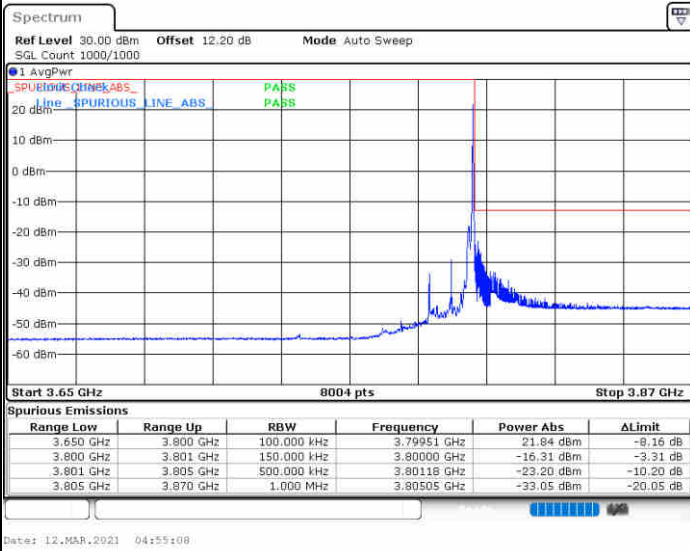
Date: 12.MAR.2021 04:52:53



FR1 n78 / 15MHz / DFT-S OFDM BPSK

Highest Band Edge / 1 RB

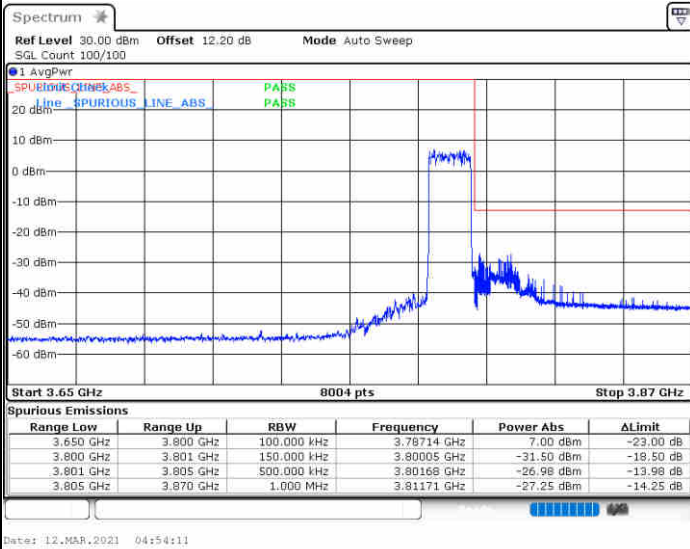
Channel Power < -13dBm Pass



/

Highest Band Edge / Full RB

Channel Power < -13dBm Pass



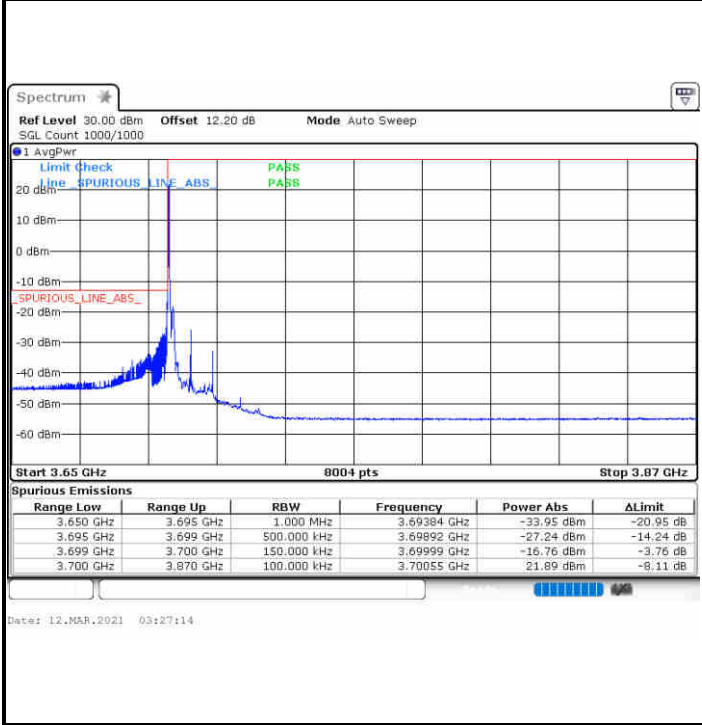
/



**FR1 n78 / 15MHz / DFT-S OFDM QPSK**

**Lowest Band Edge / 1 RB**

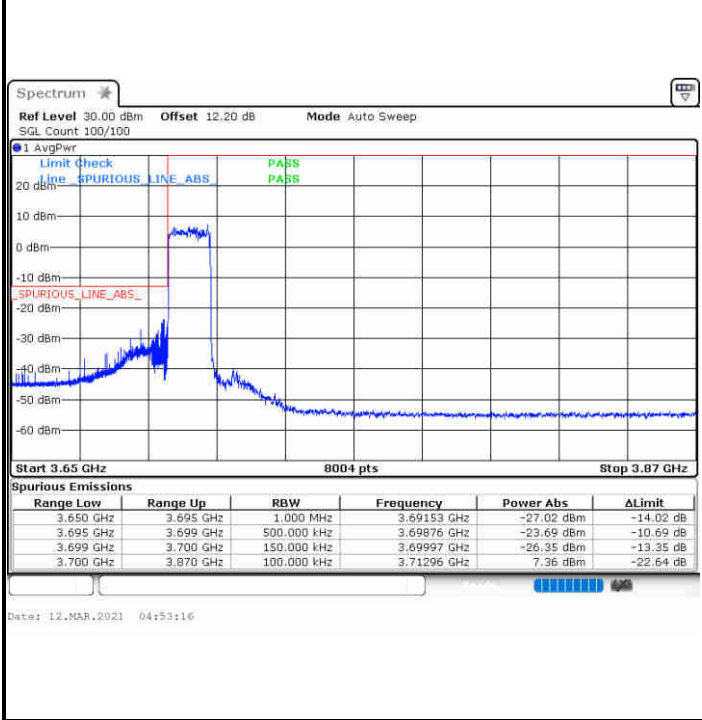
**Channel Power < -13dBm Pass**



/

**Lowest Band Edge / Full RB**

**Channel Power < -13dBm Pass**



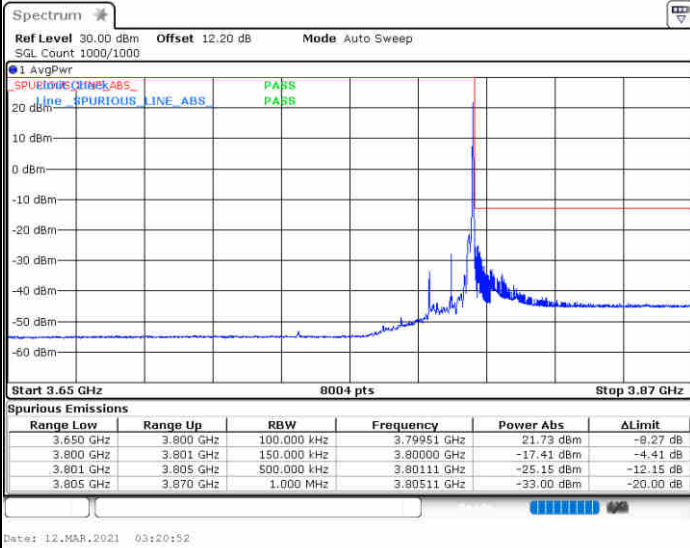
/



FR1 n78 / 15MHz / DFT-S OFDM QPSK

Highest Band Edge / 1 RB

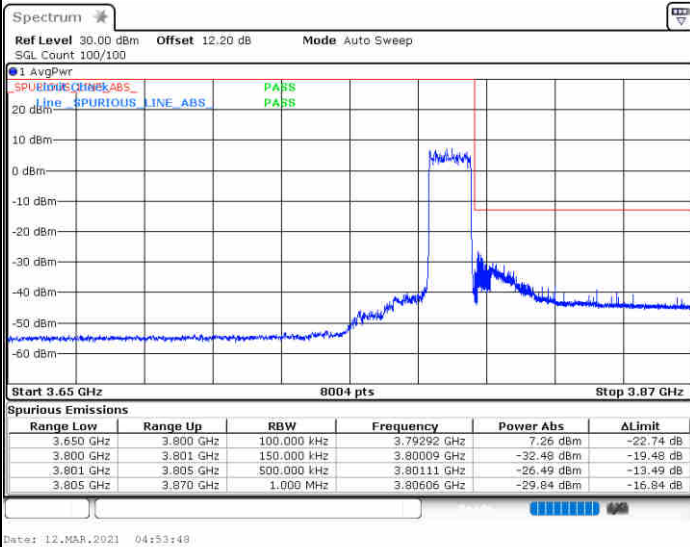
Channel Power < -13dBm Pass



/

Highest Band Edge / Full RB

Channel Power < -13dBm Pass



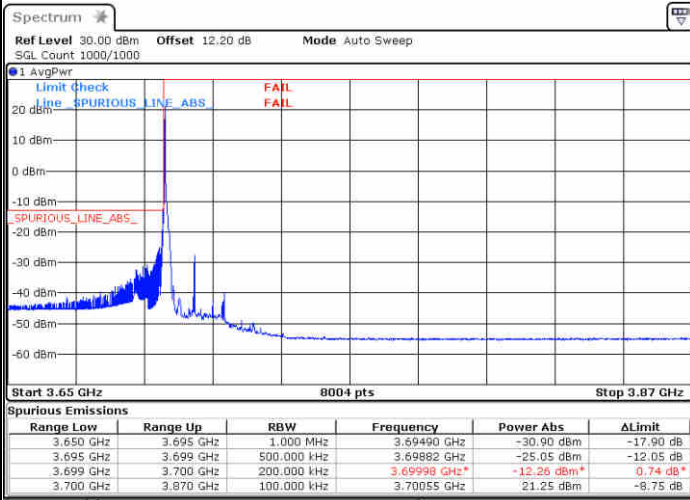
/



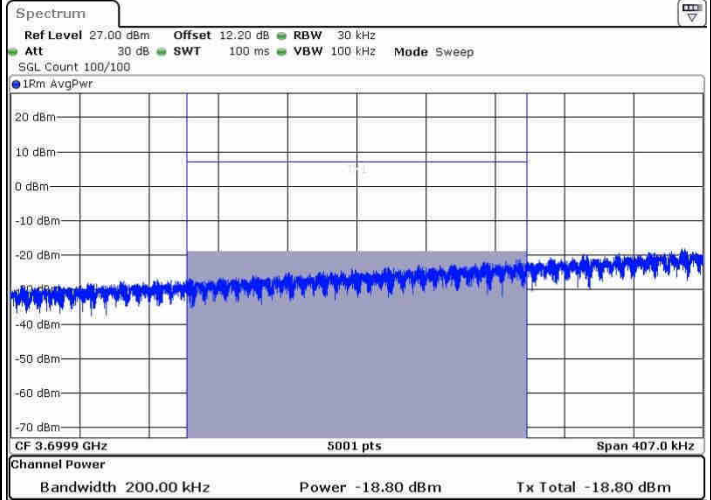
FR1 n78 / 20MHz / DFT-S OFDM BPSK

Lowest Band Edge / 1 RB

Channel Power < -13dBm Pass



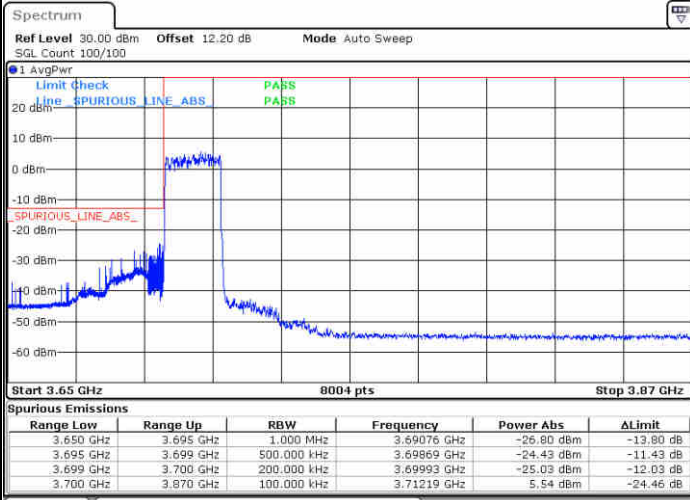
Date: 13.MAR.2021 07:19:30



Date: 13.MAR.2021 08:35:35

Lowest Band Edge / Full RB

Channel Power < -13dBm Pass



Date: 13.MAR.2021 07:26:29

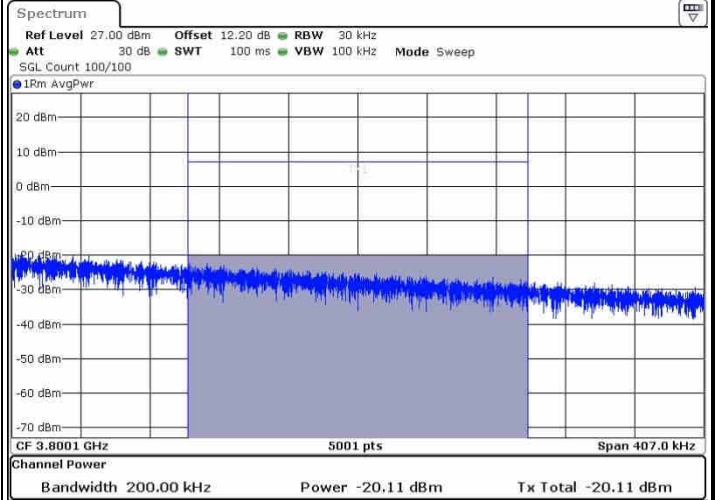
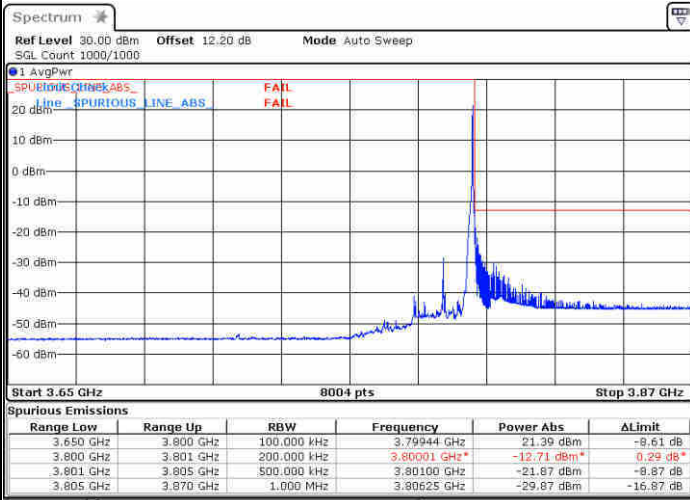
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FR1 n78 / 20MHz / DFT-S OFDM BPSK

Highest Band Edge / 1 RB

Channel Power < -13dBm Pass

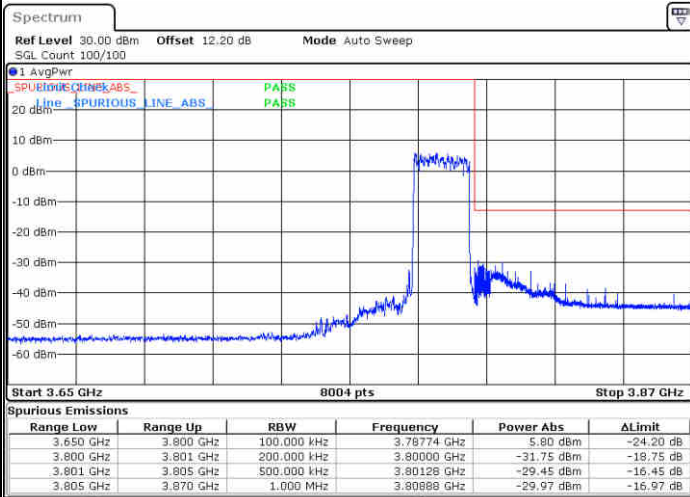


Date: 13.MAR.2021 07:33:21

Date: 13.MAR.2021 08:37:15

Highest Band Edge / Full RB

Channel Power < -13dBm Pass



Date: 13.MAR.2021 07:40:21

/

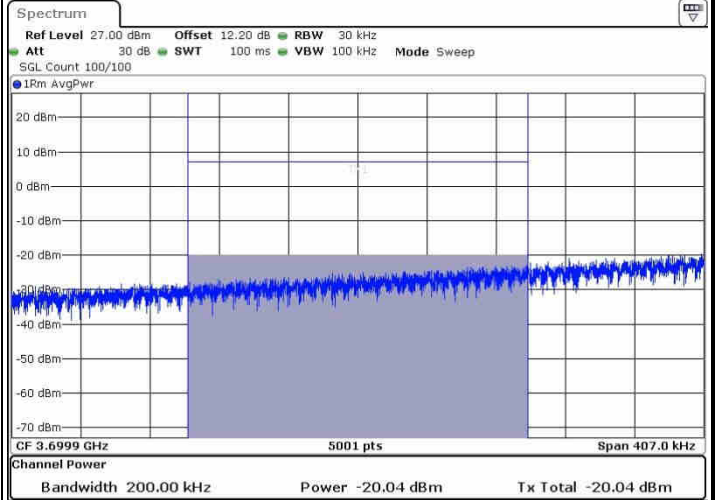
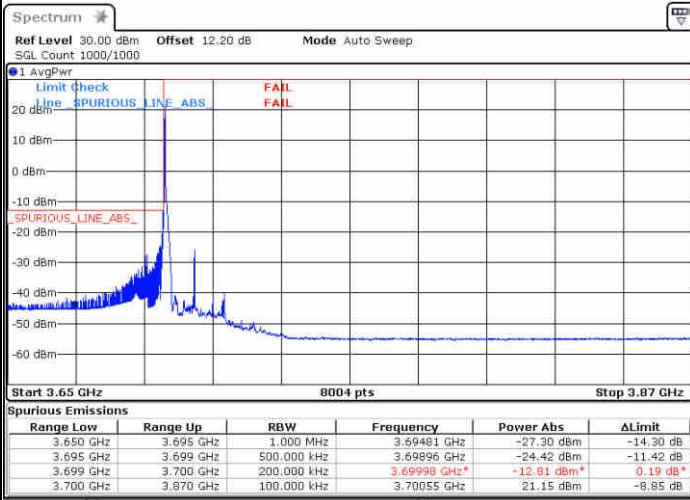




FR1 n78 / 20MHz / DFT-S OFDM QPSK

Lowest Band Edge / 1 RB

Channel Power < -13dBm Pass

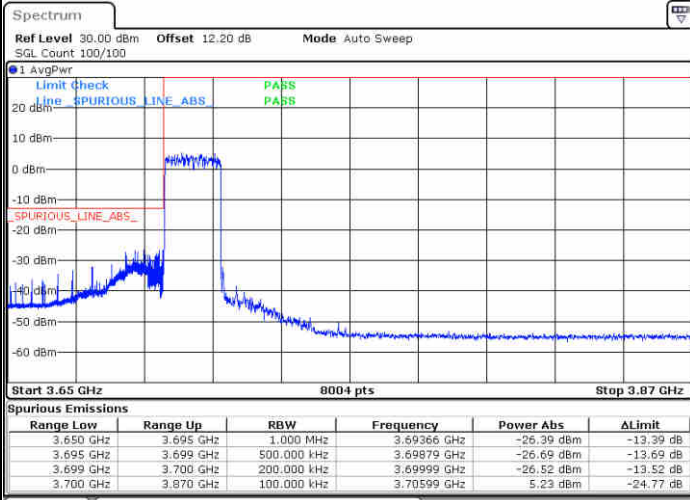


Date: 13.MAR.2021 07:23:07

Date: 13.MAR.2021 08:35:52

Lowest Band Edge / Full RB

Channel Power < -13dBm Pass



Date: 13.MAR.2021 07:25:06

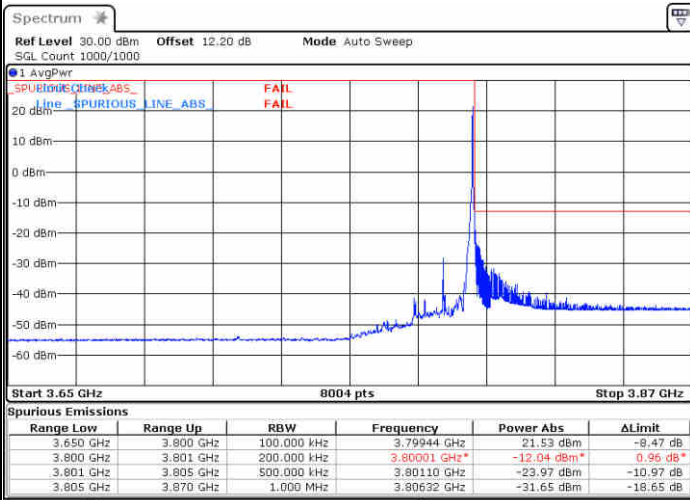
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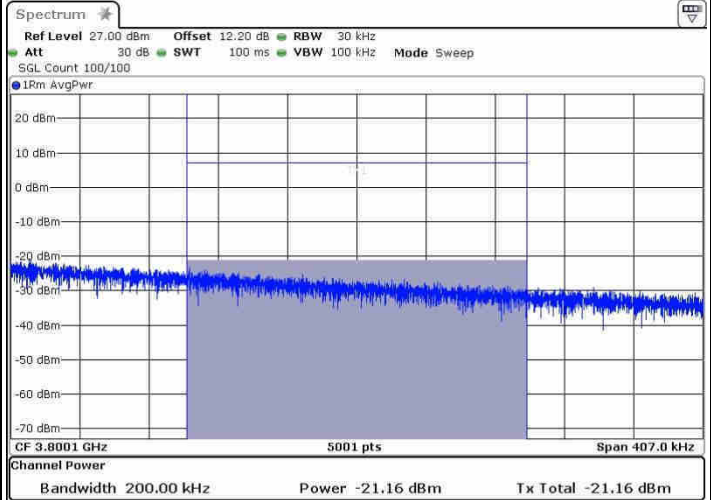
FR1 n78 / 20MHz / DFT-S OFDM QPSK

Highest Band Edge / 1 RB

Channel Power < -13dBm Pass



Date: 13.MAR.2021 07:38:23



Date: 13.MAR.2021 08:36:51

Highest Band Edge / Full RB

Channel Power < -13dBm Pass



Date: 13.MAR.2021 07:38:55

/

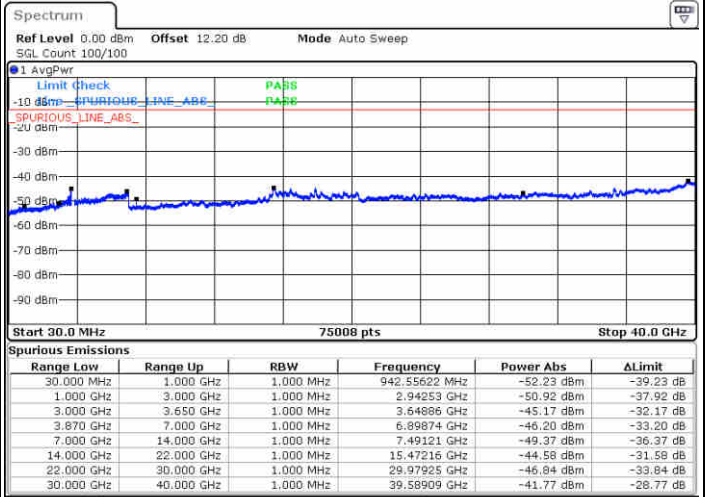
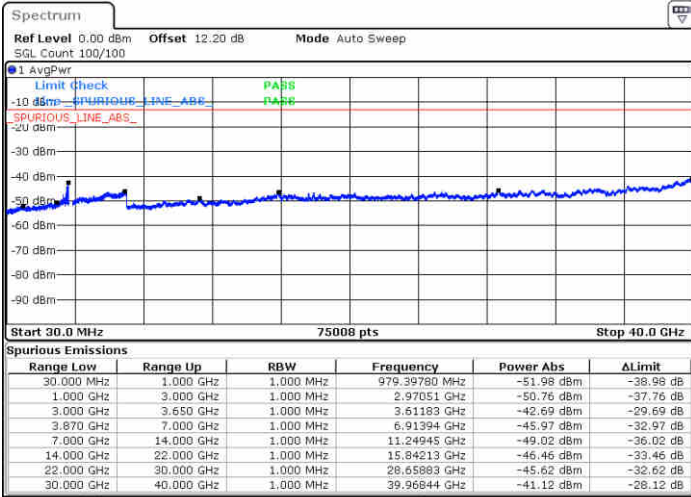


# Conducted Spurious Emission

FR1 n78 / 10MHz / DFT-S OFDM / BPSK

Lowest Channel / 1RB

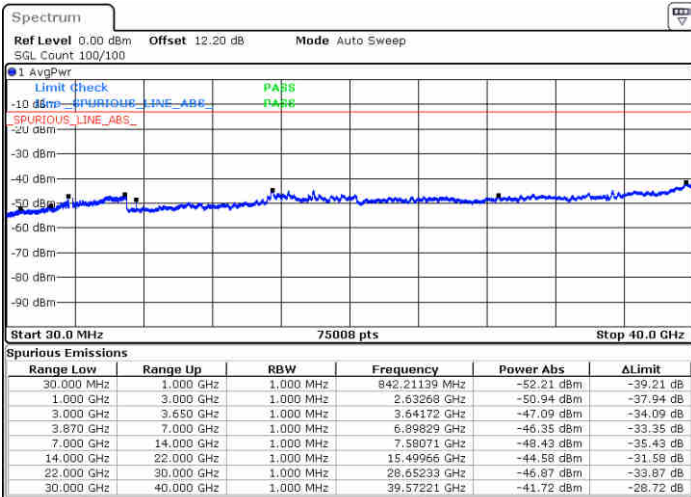
Middle Channel / 1RB



Date: 4.MAR.2021 05:56:26

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

Highest Channel / 1RB



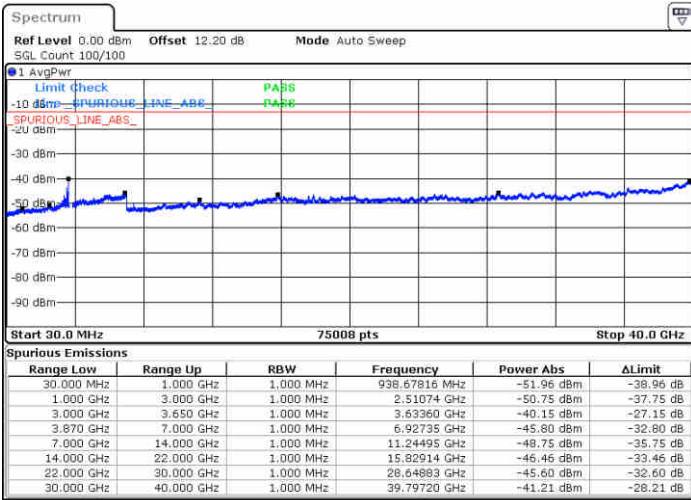
Date: 2.FEB.2021 06:15:34



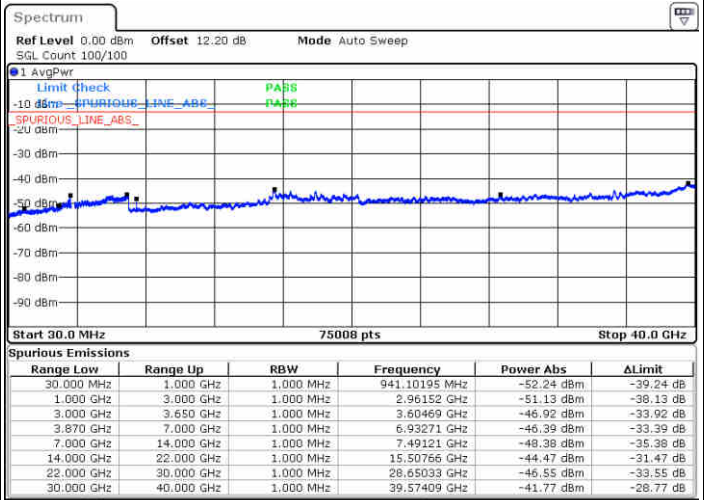
FR1 n78 / 10MHz / DFT-S OFDM / QPSK

Lowest Channel / 1RB

Middle Channel / 1RB

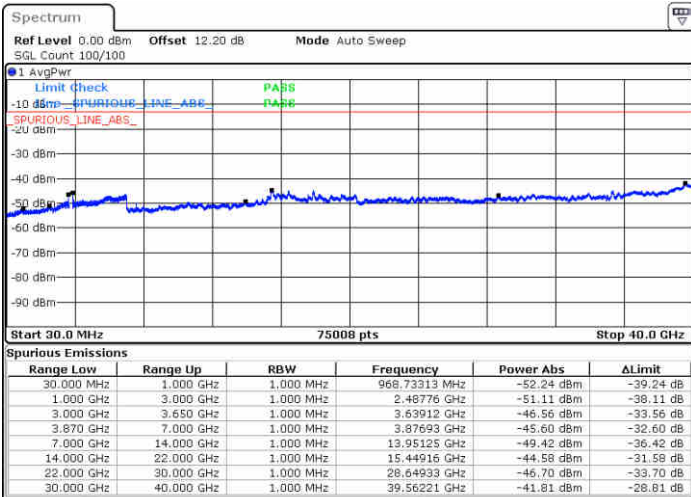


Date: 4.MAR.2021 05:57:44



Date: 2.FEB.2021 06:05:06

Highest Channel / 1RB



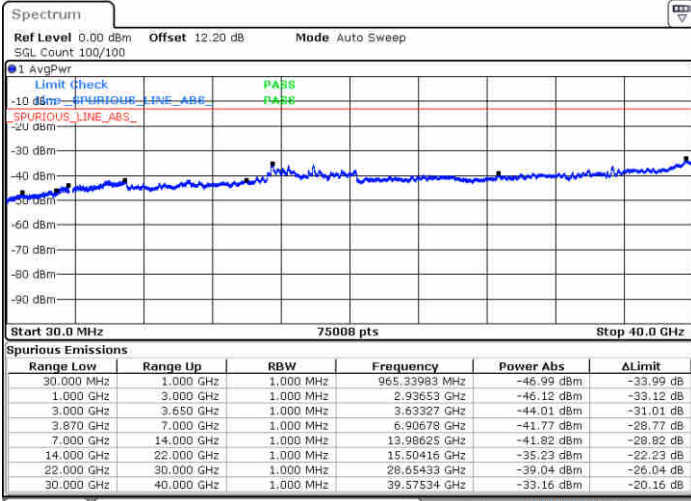
Date: 2.FEB.2021 06:14:25



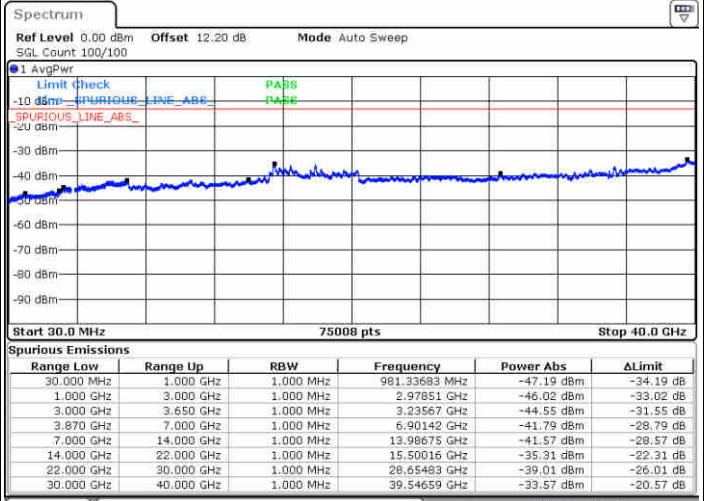
FR1 n78 / 15MHz / DFT-S OFDM / BPSK

Lowest Channel / 1RB

Middle Channel / 1RB

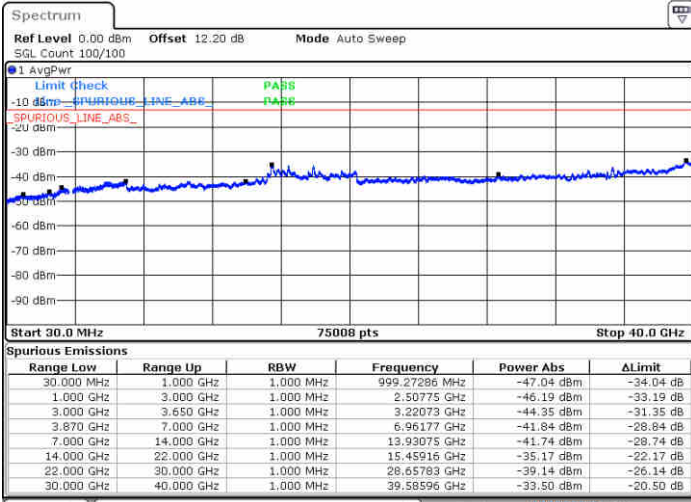


Date: 2.FEB.2021 05:25:10



Date: 2.FEB.2021 05:29:05

Highest Channel / 1RB



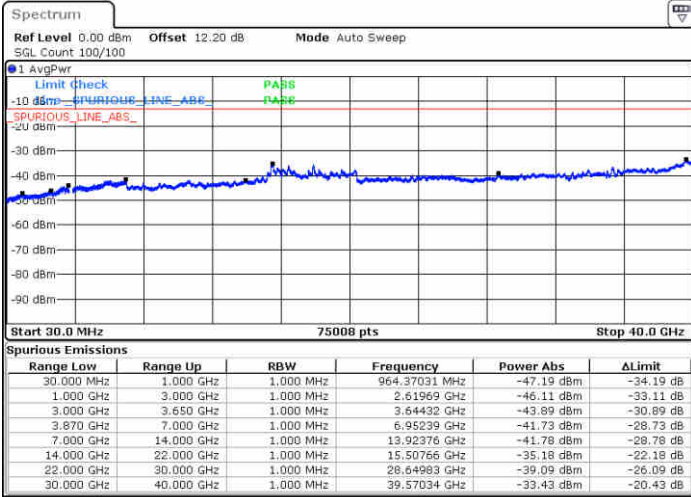
Date: 2.FEB.2021 05:48:13



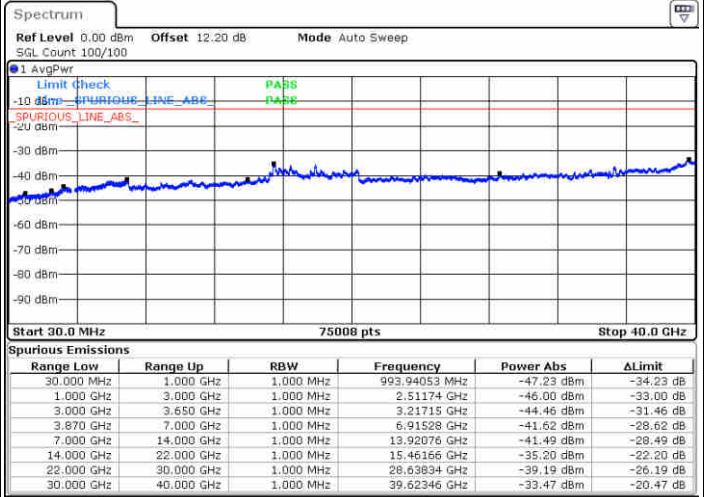
FR1 n78 / 15MHz / DFT-S OFDM / QPSK

Lowest Channel / 1RB

Middle Channel / 1RB

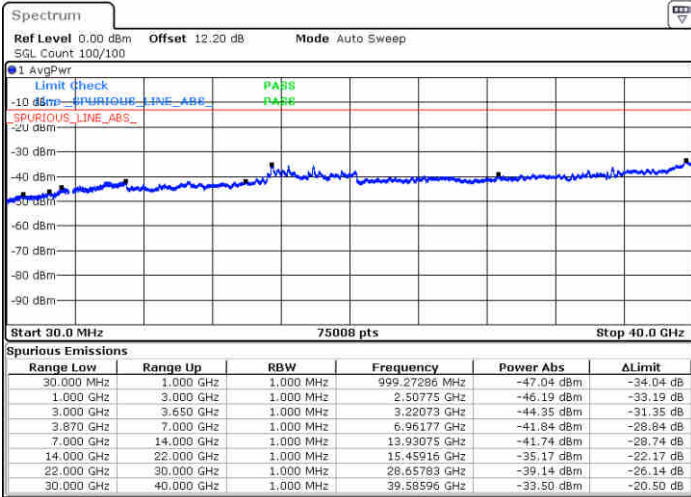


Date: 2.FEB.2021 05:26:21



Date: 2.FEB.2021 05:27:50

Highest Channel / 1RB



Date: 2.FEB.2021 05:48:13

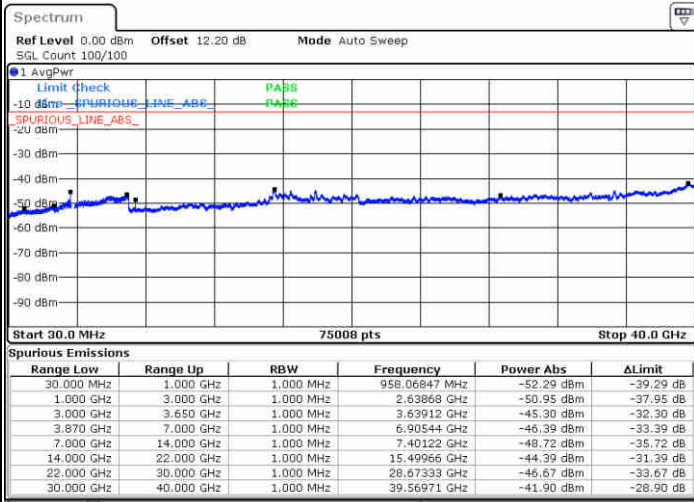




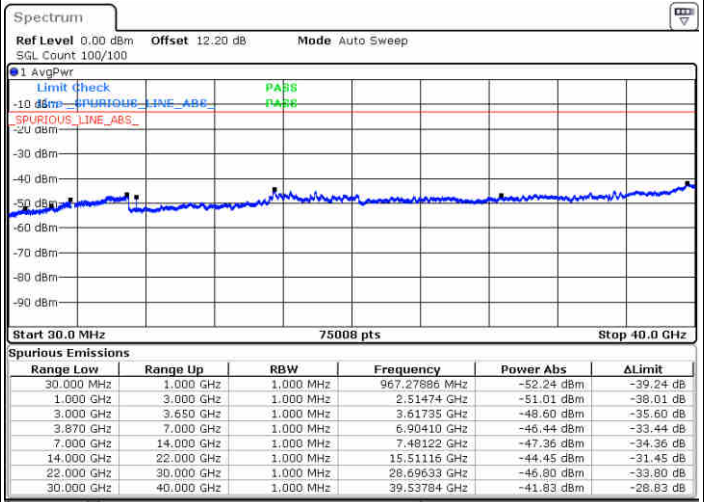
FR1 n78 / 20MHz / DFT-S OFDM / BPSK

Lowest Channel / 1RB

Middle Channel / 1RB

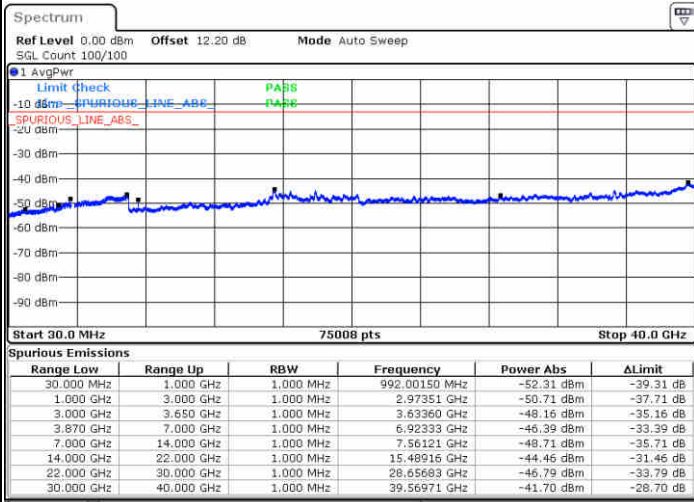


Date: 2.FEB.2021 04:52:52



Date: 2.FEB.2021 05:03:59

Highest Channel / 1RB



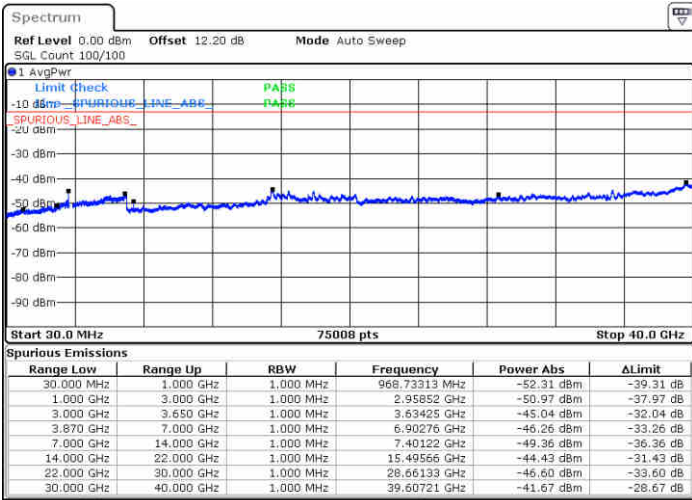
Date: 2.FEB.2021 05:07:42



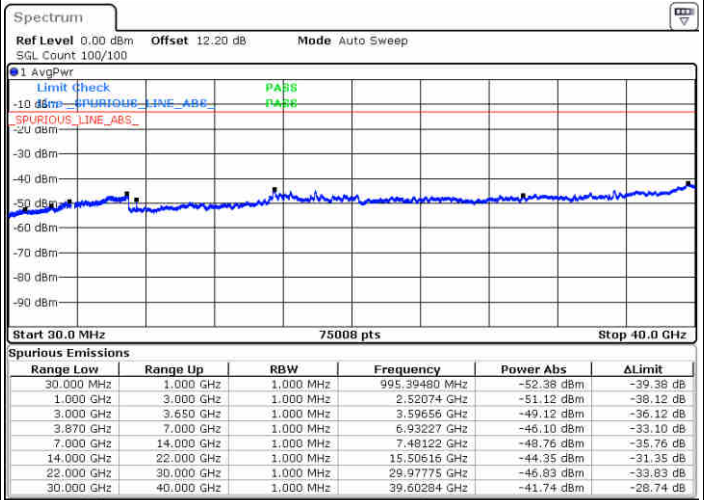
FR1 n78 / 20MHz / DFT-S OFDM / QPSK

Lowest Channel / 1RB

Middle Channel / 1RB

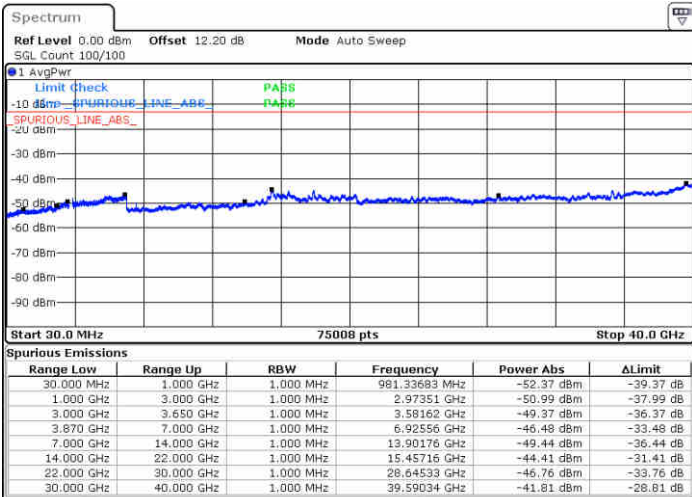


Date: 2.FEB.2021 04:50:25



Date: 2.FEB.2021 05:01:48

Highest Channel / 1RB



Date: 2.FEB.2021 05:09:09



Frequency Stability

Test Conditions		NR n78 (BPSK) / Middle Channel	Limit
Temperature (°C)	Voltage (Volt)	BW 20MHz	Within Band
		Deviation (ppm)	Result
50	Normal Voltage	0.0025	PASS
40	Normal Voltage	0.0007	
30	Normal Voltage	0.0019	
20(Ref.)	Normal Voltage	0.0013	
10	Normal Voltage	0.0019	
0	Normal Voltage	0.0015	
-10	Normal Voltage	0.0012	
-20	Normal Voltage	0.0021	
-30	Normal Voltage	0.0010	
20	Maximum Voltage	0.0014	
20	Normal Voltage	0.0016	
20	Battery End Point	0.0029	

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 NSA-SCS 30K

### Peak-to-Average Ratio

Mode	FR1 n78 / 10MHz / DFT-S OFDM				
Mod.	PI/2 BPSK	PI/2 BPSK	QPSK	QPSK	Limit: 13dB
RB Size	1RB	Full RB	1RB	Full RB	Result
Lowest CH	4.09	3.88	4.96	5.48	<b>PASS</b>
Middle CH	4.43	4.09	5.39	4.99	
Highest CH	4.00	3.83	5.07	4.99	



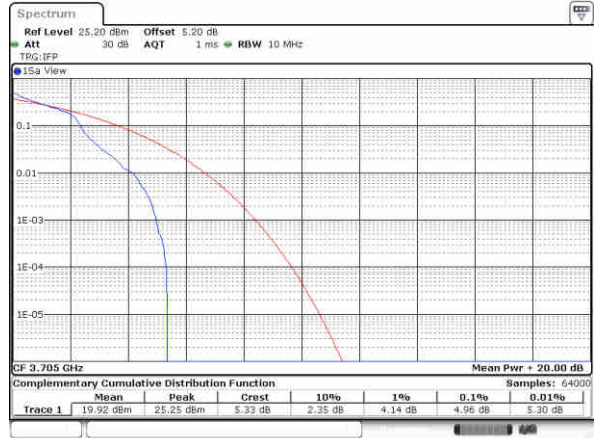
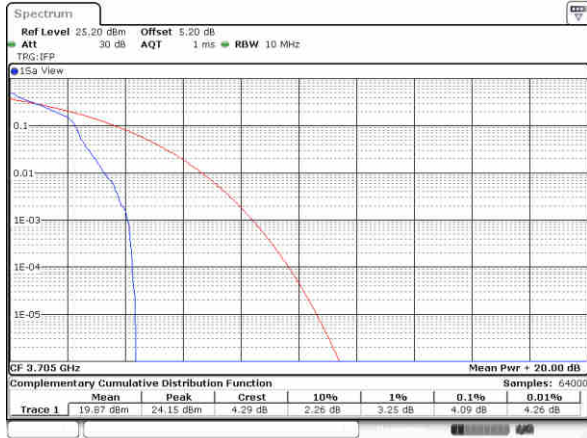
FR1 n78 / 10MHz / DFT-S OFDM

PI/2 BPSK

QPSK

Lowest Channel / 1RB

Lowest Channel / 1RB

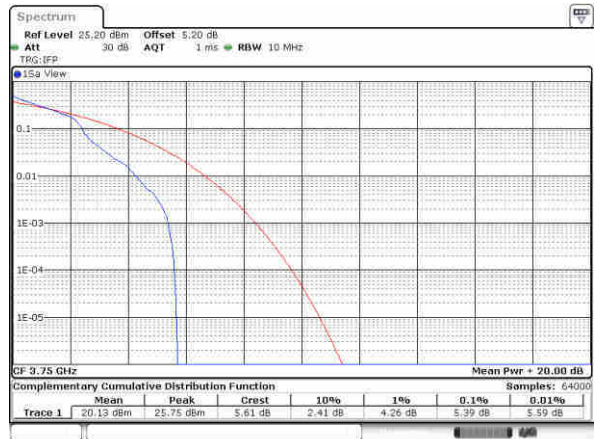
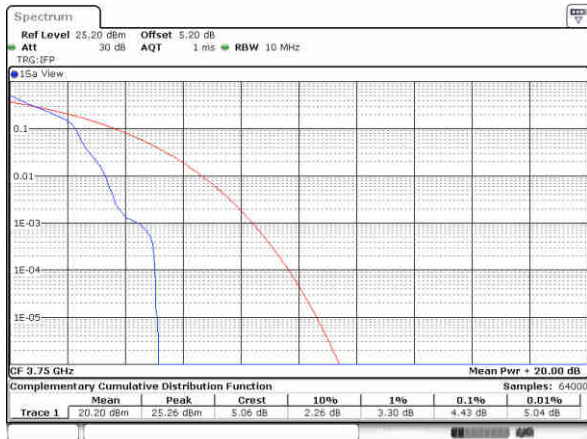


Date: 2.FEB.2021 07:28:36

Date: 2.FEB.2021 07:28:13

Middle Channel / 1 RB

Middle Channel / 1 RB

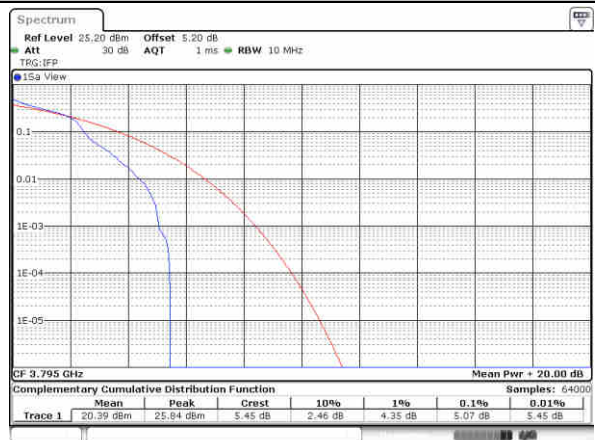
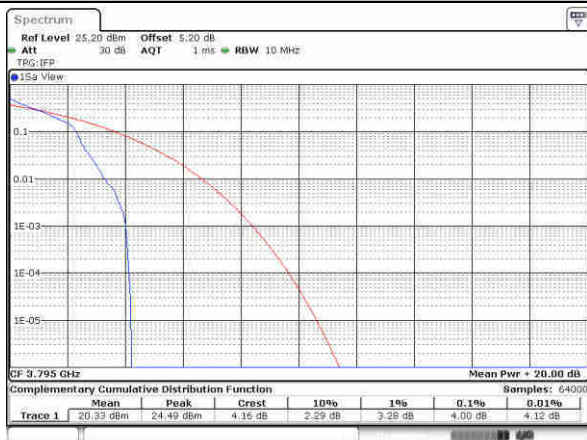


Date: 2.FEB.2021 06:46:01

Date: 2.FEB.2021 06:45:35

Highest Channel / 1 RB

Highest Channel / 1 RB



Date: 2.FEB.2021 07:32:11

Date: 2.FEB.2021 07:32:40





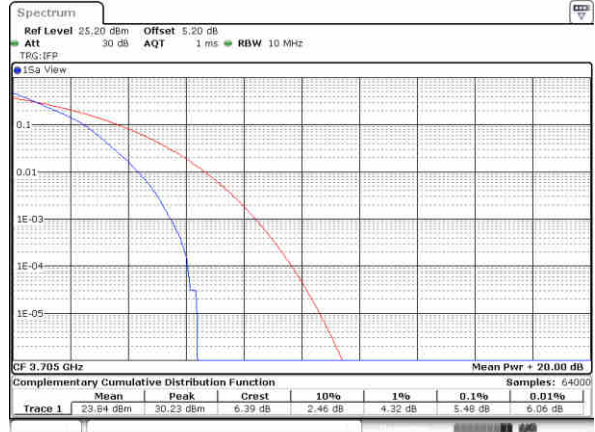
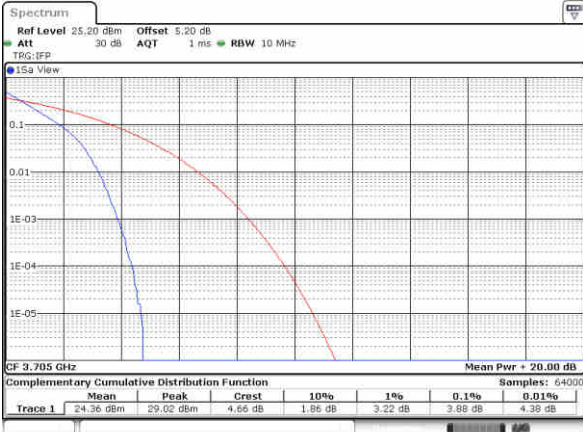
FR1 n78 / 10MHz / DFT-S OFDM

PI/2 BPSK

QPSK

Lowest Channel / Full RB

Lowest Channel / Full RB

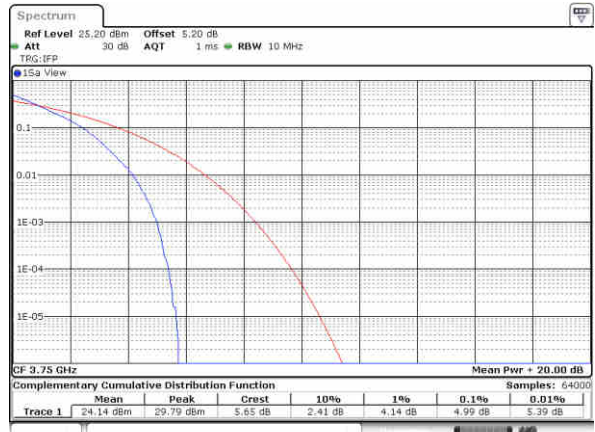
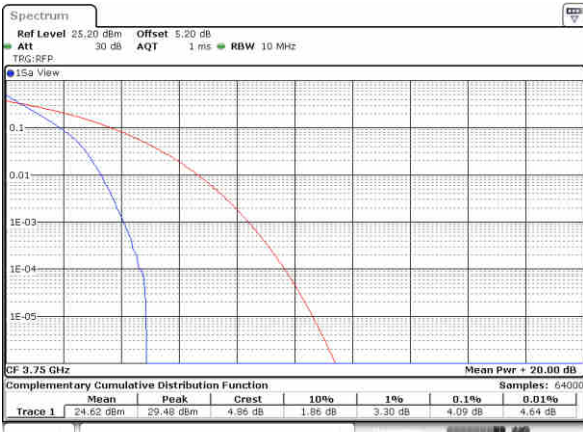


Date: 2.FEB.2021 07:26:51

Date: 2.FEB.2021 07:27:31

Middle Channel / Full RB

Middle Channel / Full RB

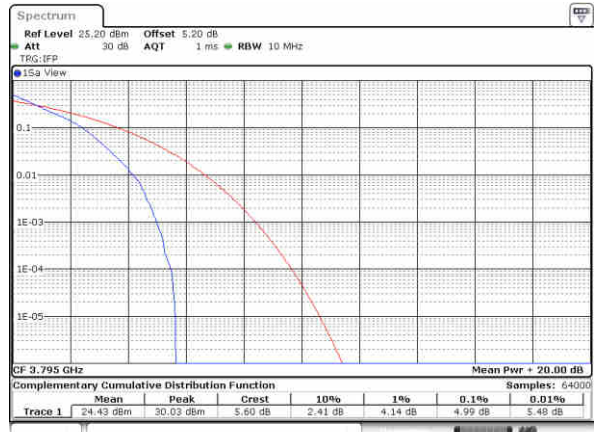
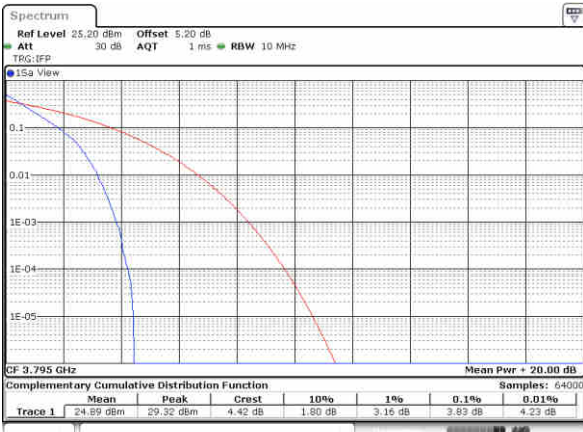


Date: 2.FEB.2021 06:42:46

Date: 2.FEB.2021 06:44:59

Highest Channel / Full RB

Highest Channel / Full RB



Date: 2.FEB.2021 07:33:38

Date: 2.FEB.2021 07:33:04





**26dB Bandwidth**

Mode	FR1 n78 : 26dB BW(MHz) / CP-OFDM							
BW	10MHz	10MHz	10MHz	10MHz				
Mod.	QPSK	16QAM	64QAM	256QAM				
Middle CH	9.37	9.13	9.27	8.99				

Mode	FR1 n78 : 26dB BW(MHz) / CP-OFDM							
BW	15MHz	15MHz	15MHz	15MHz				
Mod.	QPSK	16QAM	64QAM	256QAM				
Middle CH	14.42	14.54	14.42	14.45				

Mode	FR1 n78 : 26dB BW(MHz) / CP-OFDM							
BW	20MHz	20MHz	20MHz	20MHz				
Mod.	QPSK	16QAM	64QAM	256QAM				
Middle CH	18.98	18.94	19.58	19.18				

Mode	FR1 n78 : 26dB BW(MHz) / CP-OFDM							
BW	40MHz	40MHz	40MHz	40MHz				
Mod.	QPSK	16QAM	64QAM	256QAM				
Middle CH	40.28	40.36	40.12	40.20				

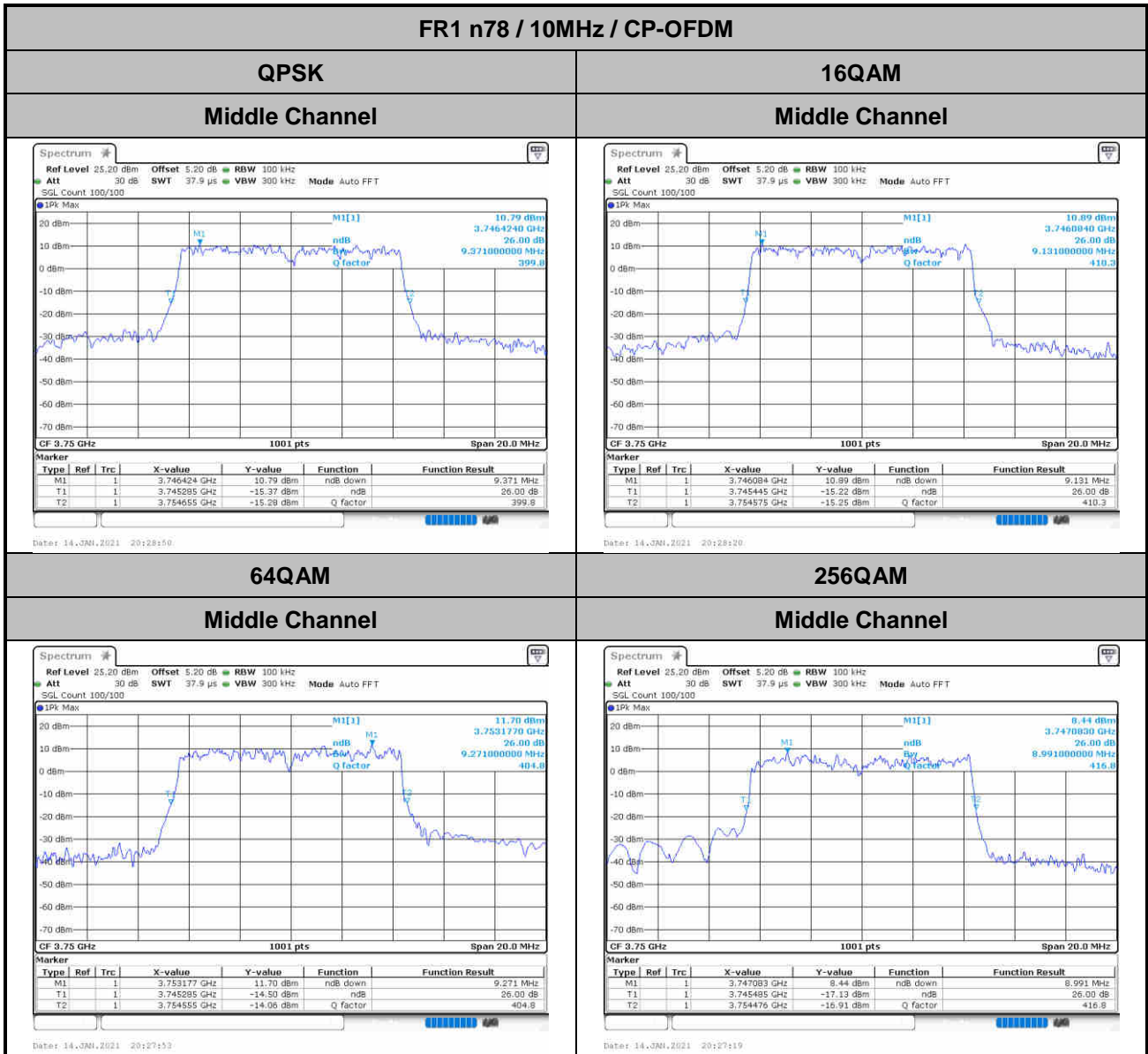
Mode	FR1 n78 : 26dB BW(MHz) / CP-OFDM							
BW	50MHz	50MHz	50MHz	50MHz				
Mod.	QPSK	16QAM	64QAM	256QAM				
Middle CH	49.75	49.65	49.75	49.75				

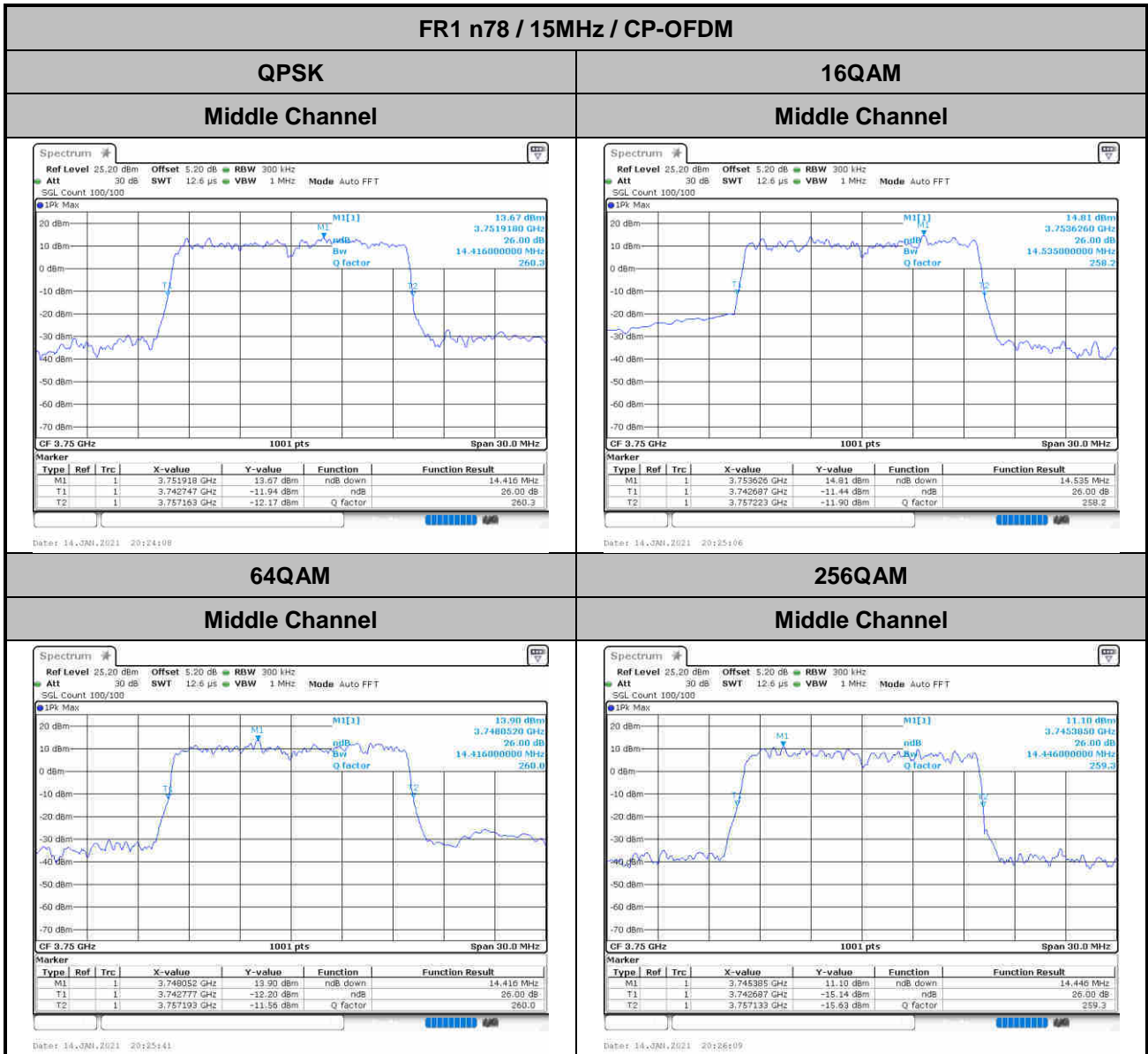
Mode	FR1 n78 : 26dB BW(MHz) / CP-OFDM							
BW	60MHz	60MHz	60MHz	60MHz				
Mod.	QPSK	16QAM	64QAM	256QAM				
Middle CH	60.42	60.42	60.42	60.42				

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



Mode	FR1 n78 : 26dB BW(MHz) / CP-OFDM							
BW	100MHz	100MHz	100MHz	100MHz				
Mod.	QPSK	16QAM	64QAM	256QAM				
Middle CH	100.30	100.30	100.50	100.70				







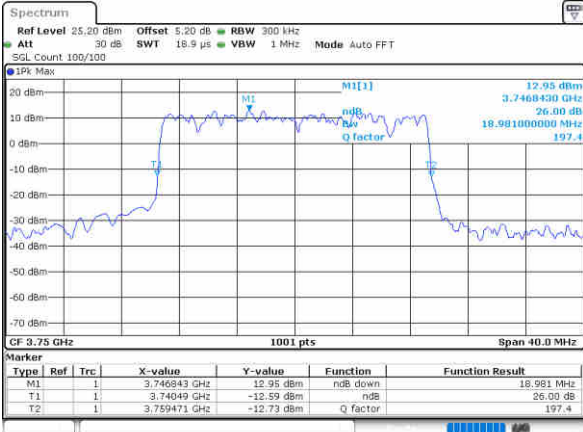
FR1 n78 / 20MHz / CP-OFDM

QPSK

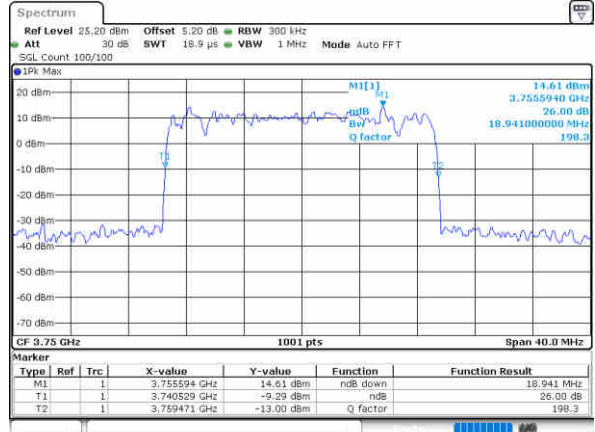
16QAM

Middle Channel

Middle Channel



Date: 14, JAN, 2021 20:23:25



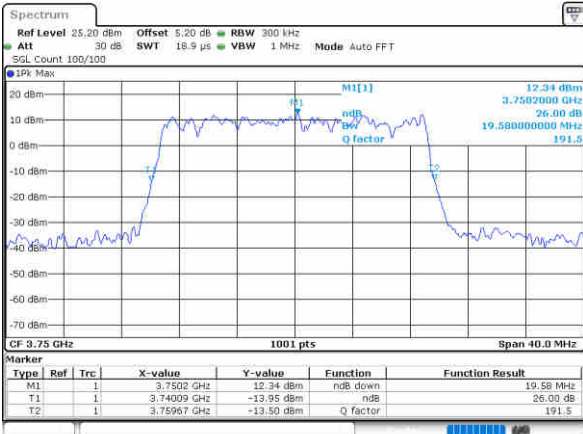
Date: 14, JAN, 2021 20:23:06

64QAM

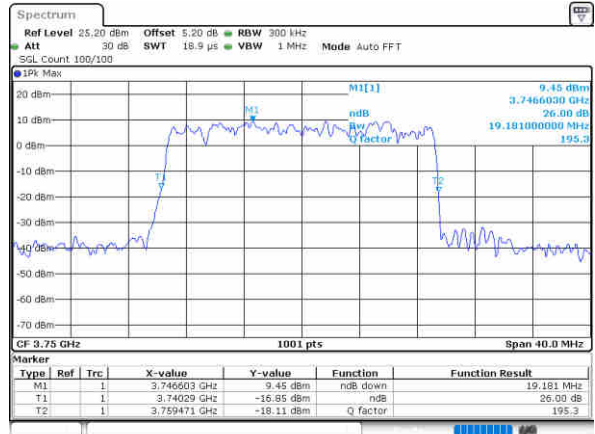
256QAM

Middle Channel

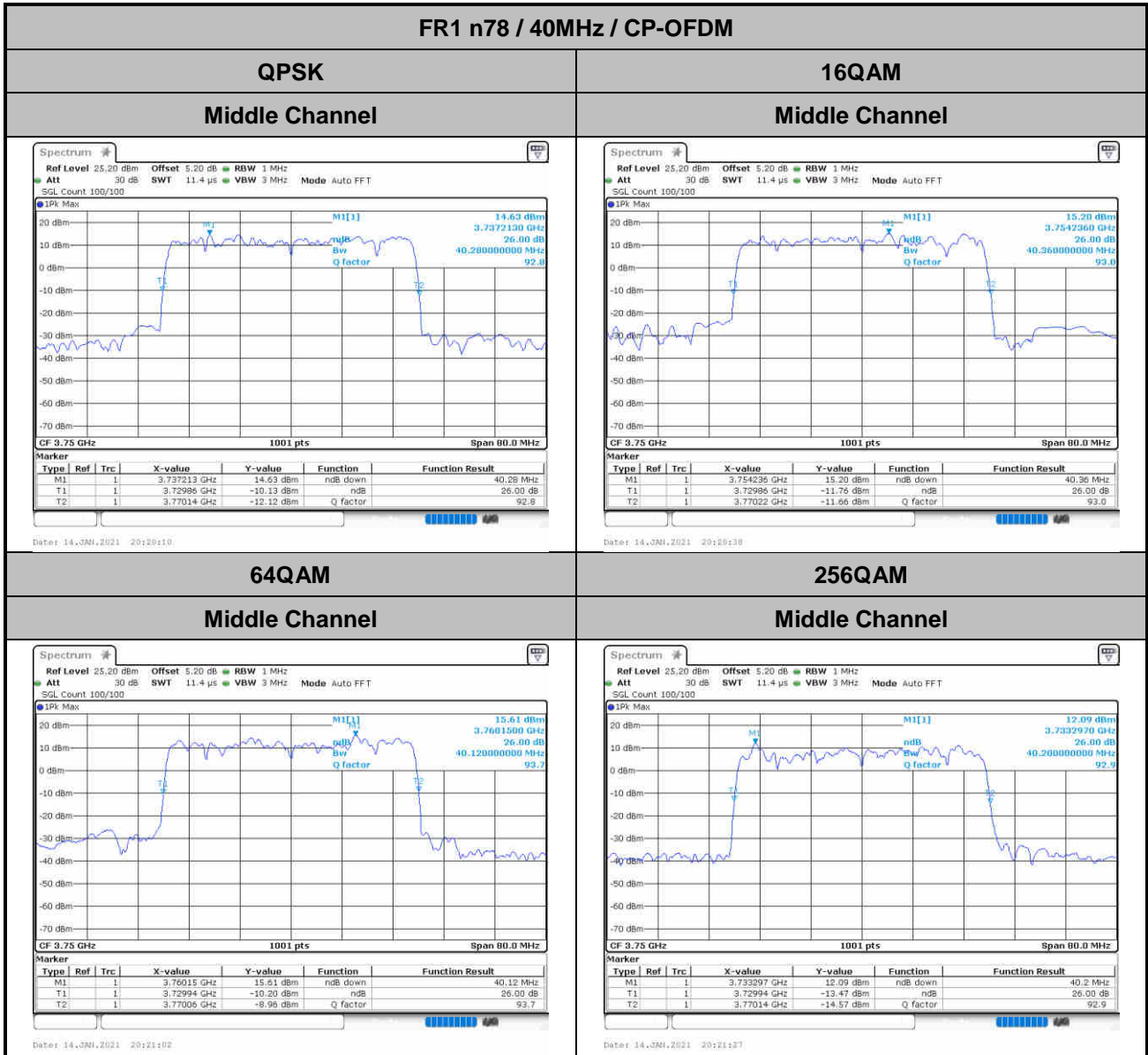
Middle Channel



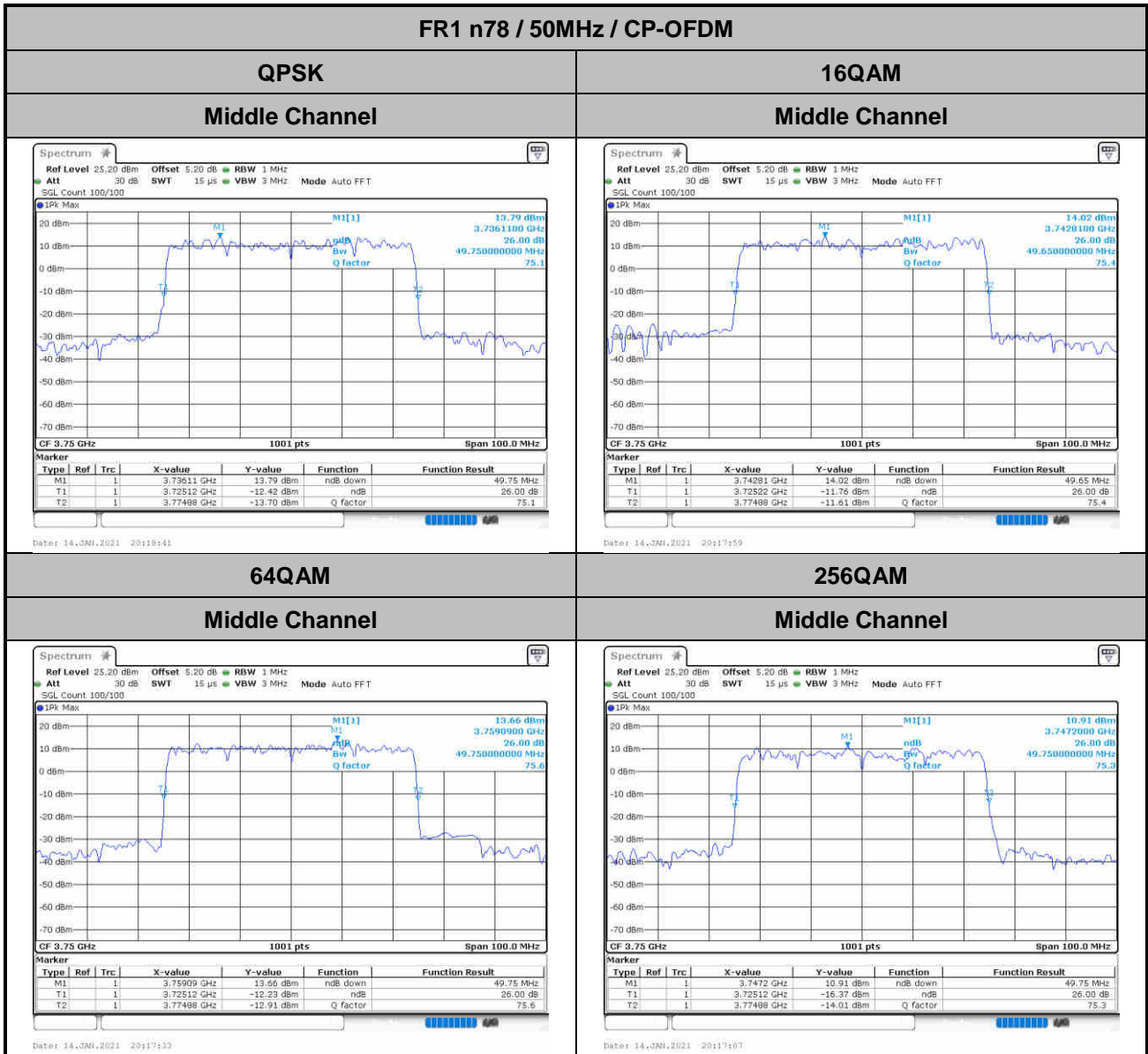
Date: 14, JAN, 2021 20:22:52

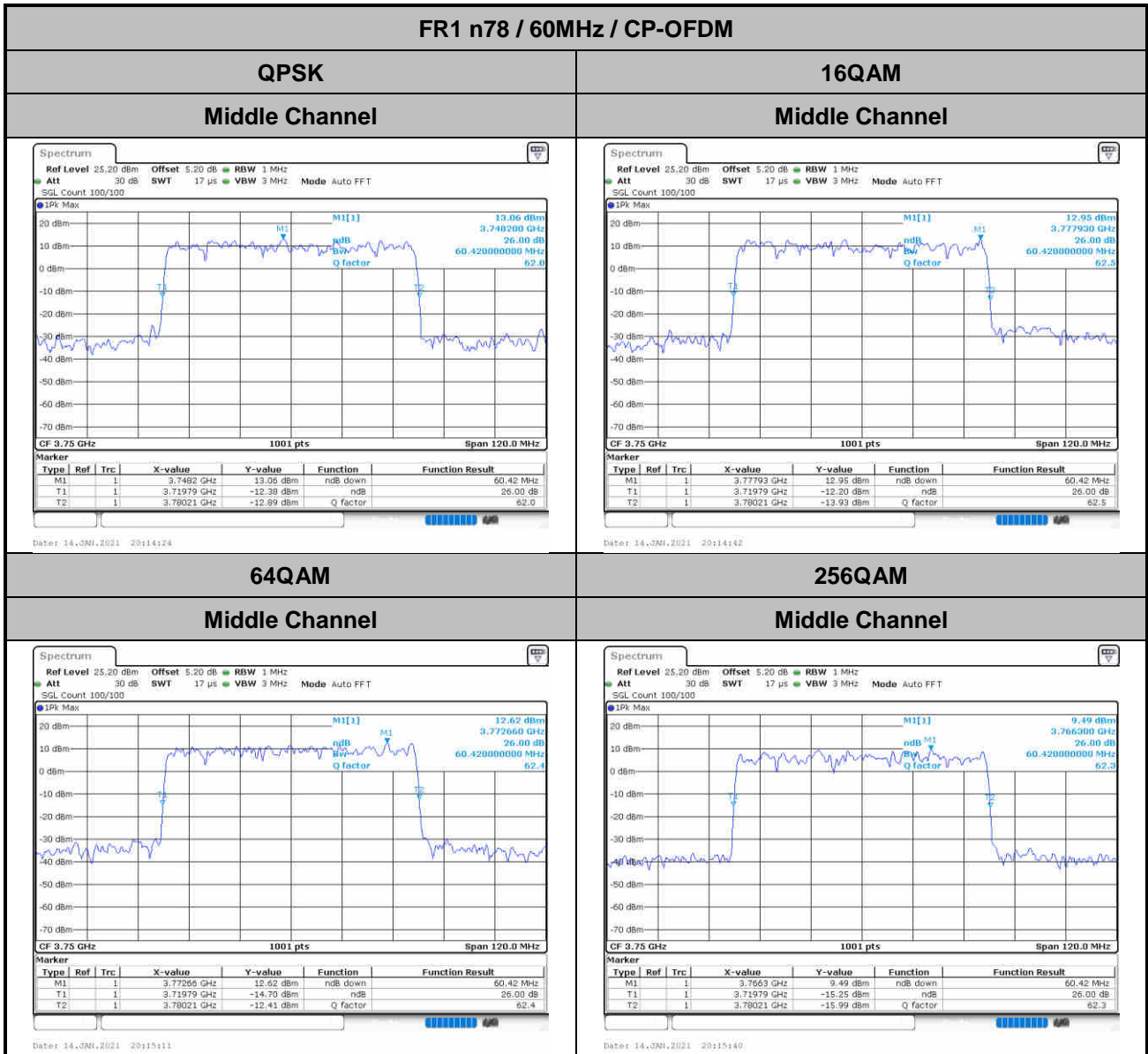


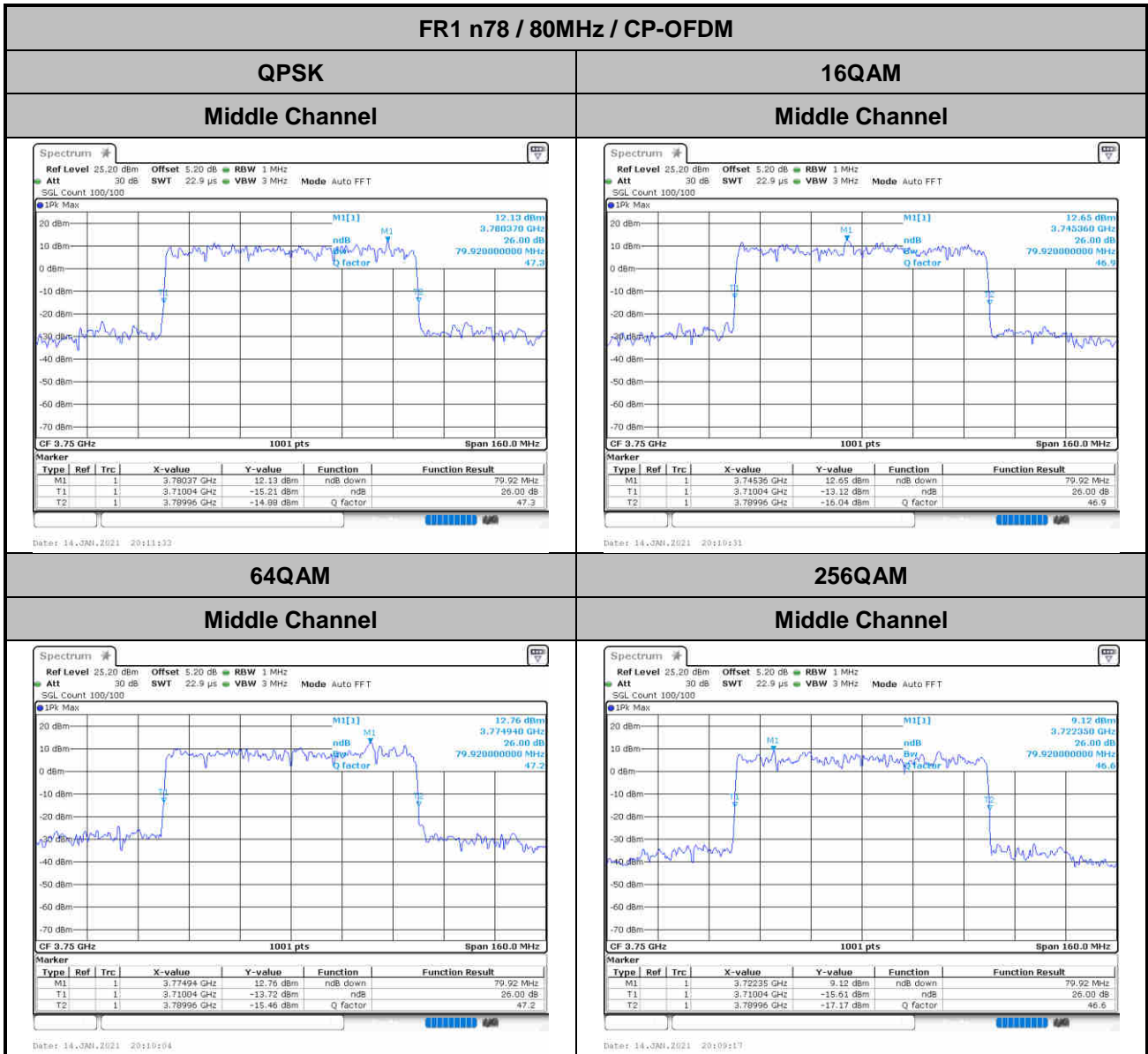
Date: 14, JAN, 2021 20:22:37













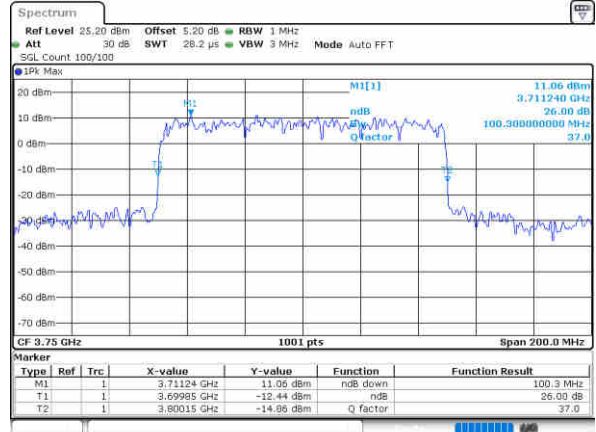
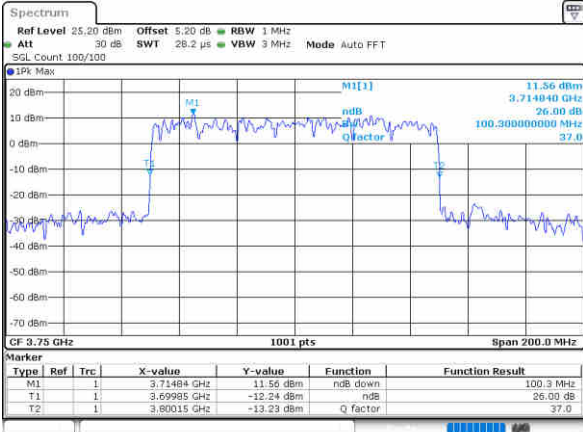
FR1 n78 / 100MHz / CP-OFDM

QPSK

16QAM

Middle Channel

Middle Channel



Date: 14, JAN, 2021 20:05:40

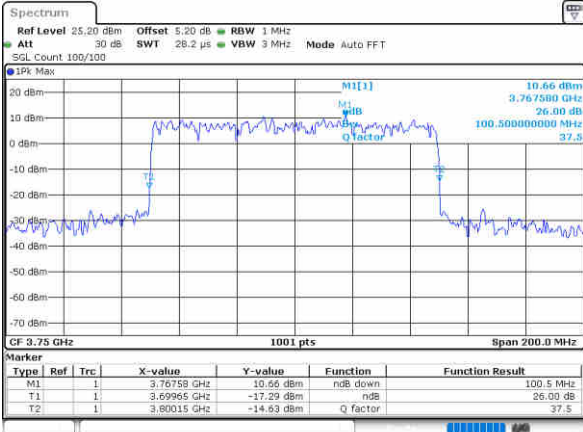
Date: 14, JAN, 2021 20:06:04

64QAM

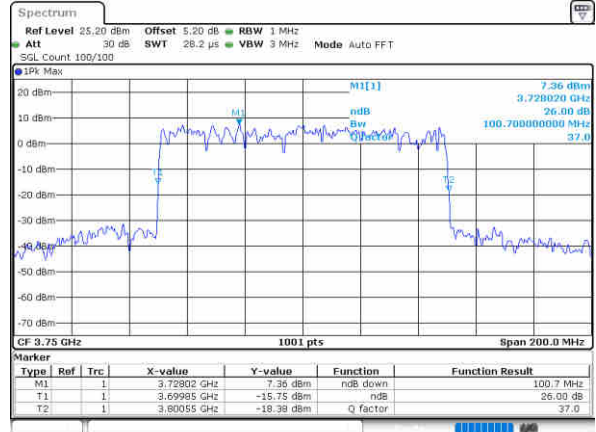
256QAM

Middle Channel

Middle Channel



Date: 14, JAN, 2021 20:06:23



Date: 14, JAN, 2021 20:06:41



### Occupied Bandwidth

Mode	FR1 n78 : OBW(MHz) / CP-OFDM							
BW	10MHz	10MHz	10MHz	10MHz				
Mod.	QPSK	16QAM	64QAM	256QAM				
Middle CH	8.61	8.59	8.51	8.51				

Mode	FR1 n78 : OBW(MHz) / CP-OFDM							
BW	15MHz	15MHz	15MHz	15MHz				
Mod.	QPSK	16QAM	64QAM	256QAM				
Middle CH	13.61	13.55	13.49	13.49				

Mode	FR1 n78 : OBW(MHz) / CP-OFDM							
BW	20MHz	20MHz	20MHz	20MHz				
Mod.	QPSK	16QAM	64QAM	256QAM				
Middle CH	18.26	18.14	18.26	18.18				

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

Mode	FR1 n78 : OBW(MHz) / CP-OFDM							
BW	50MHz	50MHz	50MHz	50MHz				
Mod.	QPSK	16QAM	64QAM	256QAM				
Middle CH	47.55	47.55	47.35	47.65				

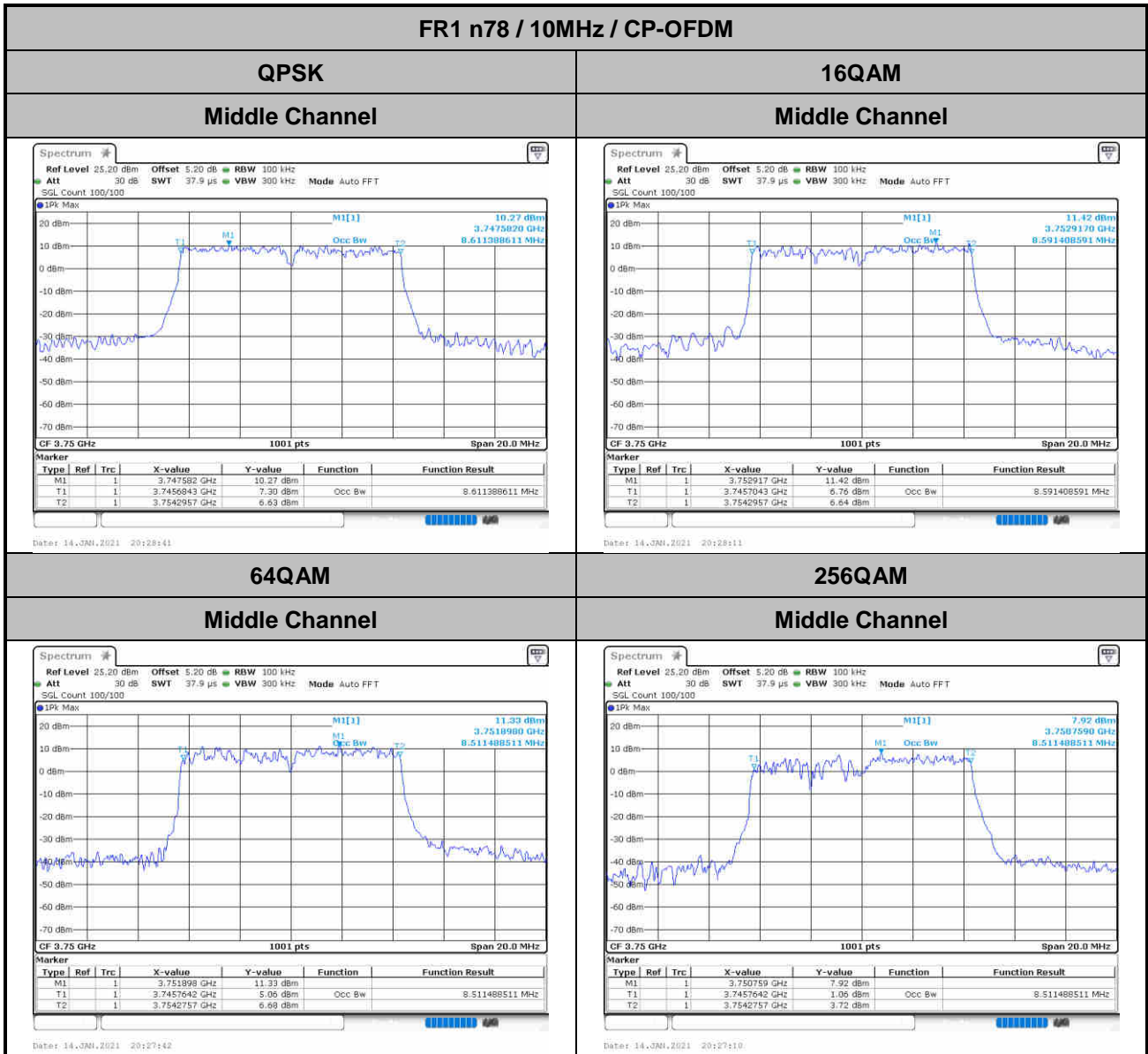
Mode	FR1 n78 : OBW(MHz) / CP-OFDM							
BW	60MHz	60MHz	60MHz	60MHz				
Mod.	QPSK	16QAM	64QAM	256QAM				
Middle CH	57.78	58.02	57.42	57.90				

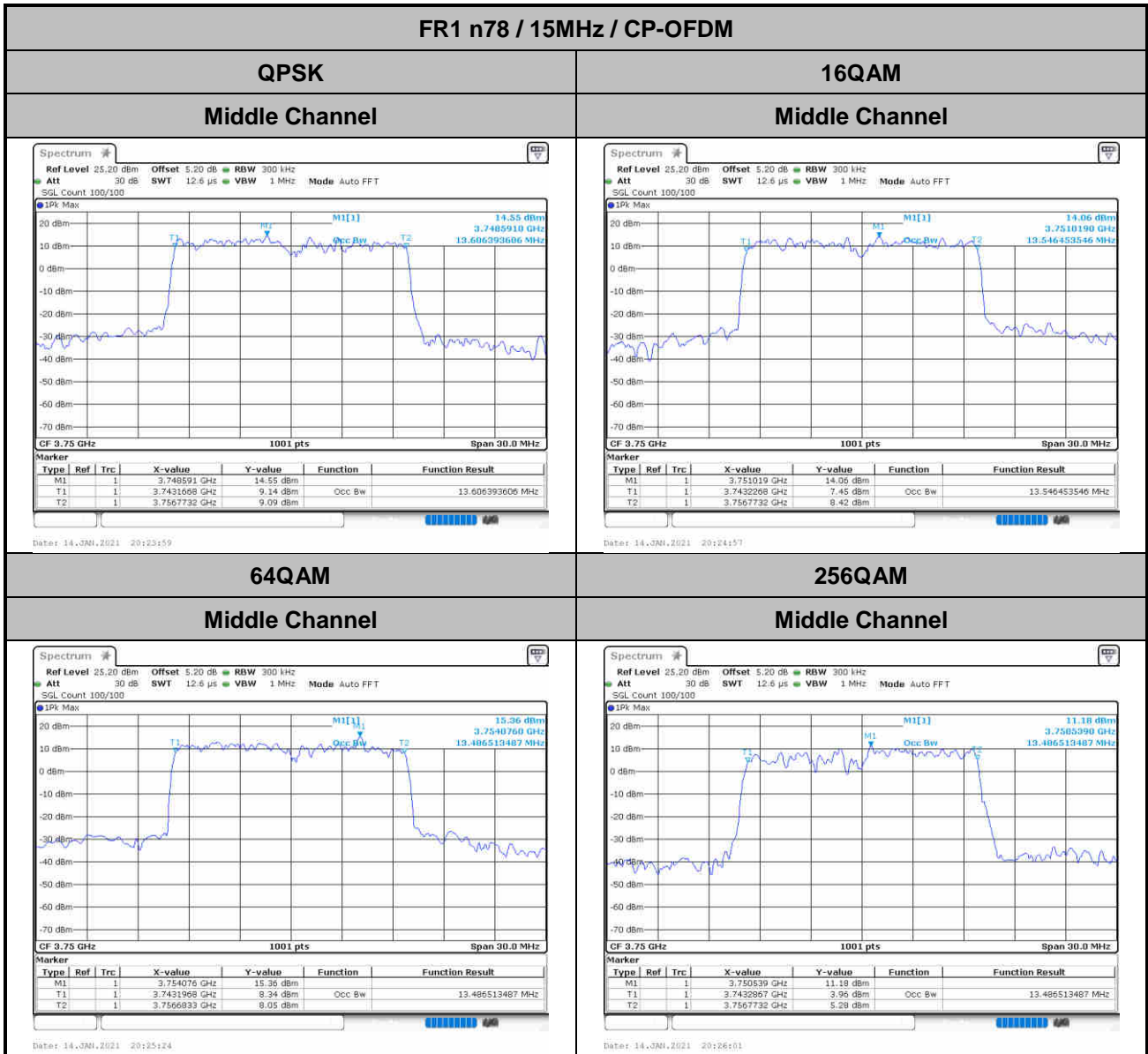
Mode	FR1 n78 : OBW(MHz) / CP-OFDM							
BW	80MHz	80MHz	80MHz	80MHz				
Mod.	QPSK	16QAM	64QAM	256QAM				
Middle CH	77.20	77.36	77.20	77.52				

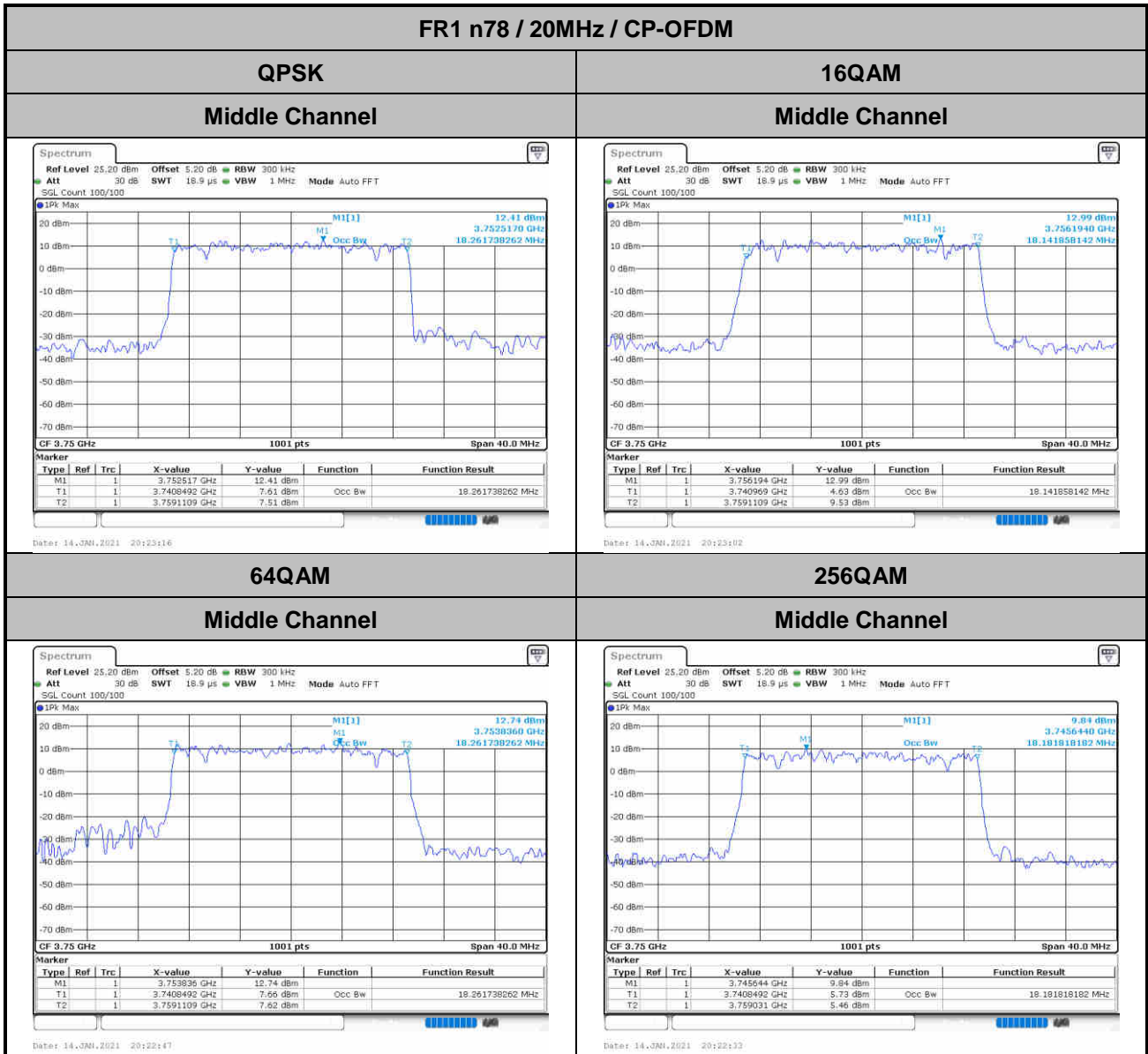


Mode	FR1 n78 : OBW(MHz) / CP-OFDM							
BW	100MHz	100MHz	100MHz	100MHz				
Mod.	QPSK	16QAM	64QAM	256QAM				
Middle CH	97.10	97.10	97.50	97.50				











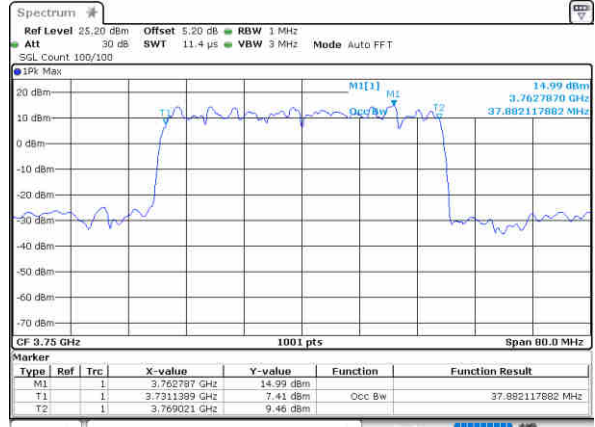
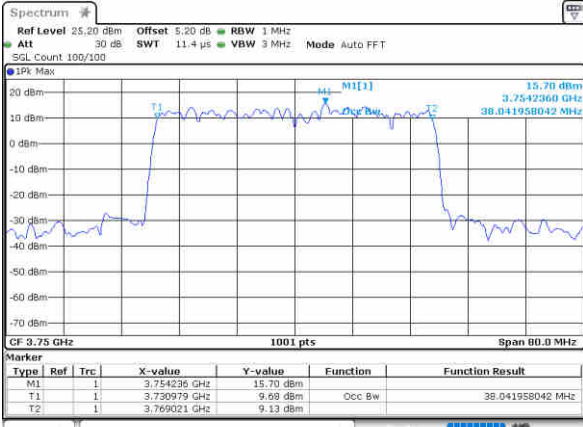
FR1 n78 / 40MHz / CP-OFDM

QPSK

16QAM

Middle Channel

Middle Channel



Date: 14, JAN, 2021 20:28:00

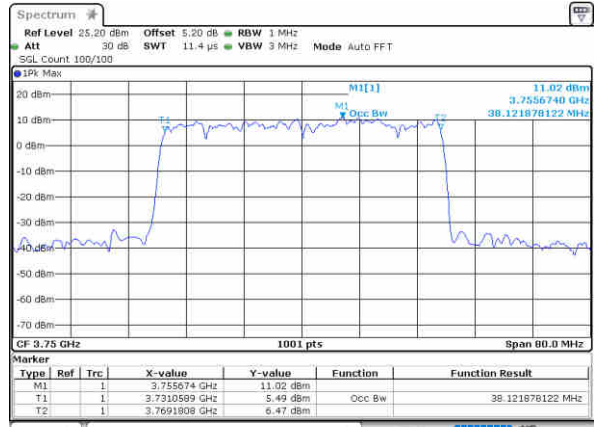
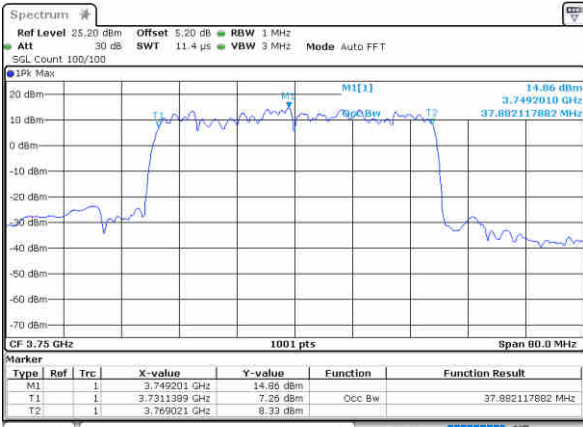
Date: 14, JAN, 2021 20:29:28

64QAM

256QAM

Middle Channel

Middle Channel



Date: 14, JAN, 2021 20:29:53

Date: 14, JAN, 2021 20:21:19

