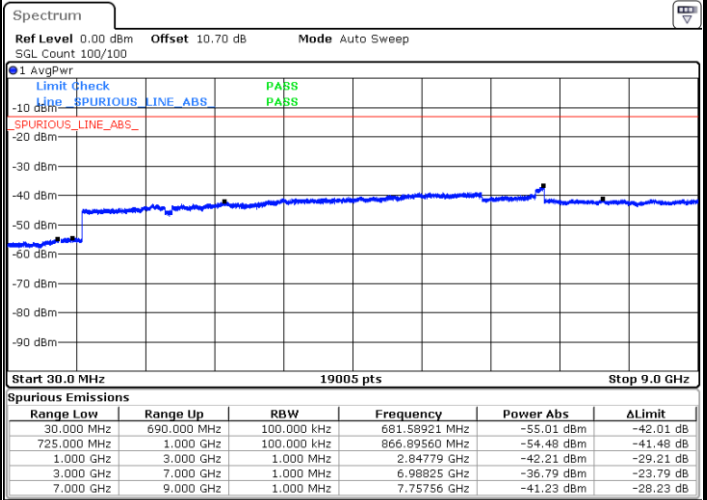
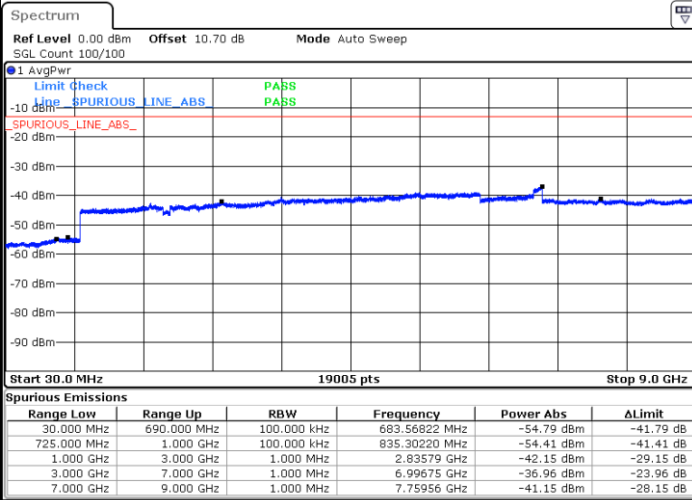




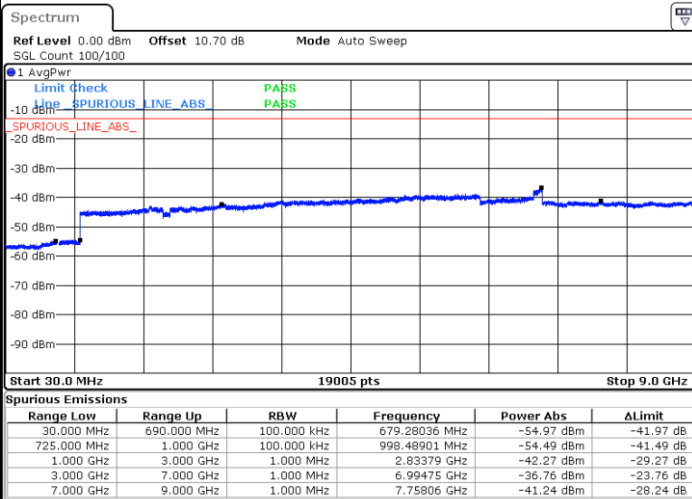
LTE Band 12 / 10MHz

Lowest Channel / 64QAM

Middle Channel / 64QAM



Highest Channel / 64QAM





Frequency Stability

Test Conditions		LTE Band 12 (QPSK) / Middle Channel	Limit
Temperature (°C)	Voltage (Volt)	BW 10MHz	Note 2.
		Deviation (ppm)	Result
50	Normal Voltage	0.0031	PASS
40	Normal Voltage	0.0027	
30	Normal Voltage	0.0090	
20(Ref.)	Normal Voltage	0.0000	
10	Normal Voltage	0.0016	
0	Normal Voltage	0.0030	
-10	Normal Voltage	0.0004	
-20	Normal Voltage	0.0025	
-30	Normal Voltage	0.0092	
20	Maximum Voltage	0.0007	
20	Normal Voltage	0.0000	
20	Battery End Point	0.0006	

Note:

1. Normal Voltage =3.85 V. ; Battery End Point (BEP) =3.65 V. ; Maximum Voltage =4.25 V.
2. The frequency fundamental emissions stay within the authorized frequency block.



# LTE Band 13

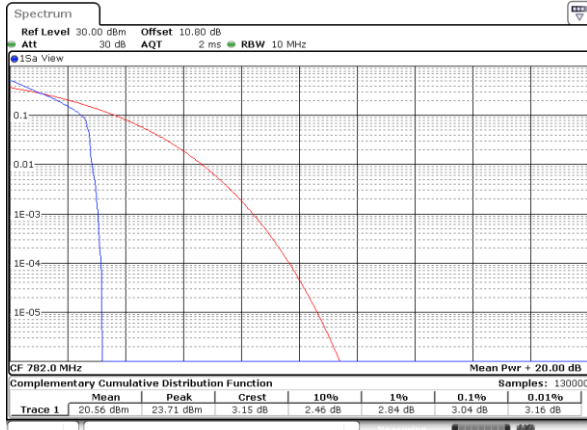
## Peak-to-Average Ratio

Mode	LTE Band 13 / 10MHz				
Mod.	QPSK		16QAM		Limit: 13dB
RB Size	1RB	Full RB	1RB	Full RB	Result
Lowest CH	-	-	-	-	PASS
Middle CH	3.04	4.78	4.20	5.71	
Highest CH	-	-	-	-	
Mode	LTE Band 13 / 10MHz				
Mod.	64QAM				Limit: 13dB
RB Size	1RB	Full RB			Result
Lowest CH	-	-	-	-	PASS
Middle CH	5.13	6.12	-	-	
Highest CH	-	-	-	-	



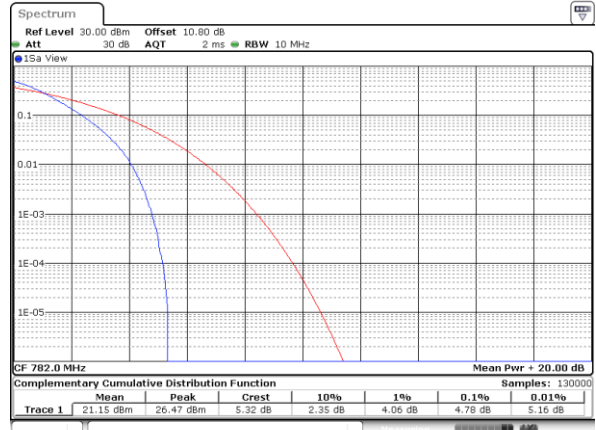
LTE Band 13 / 10MHz / QPSK

Middle Channel / 1RB



Date: 28 DEC 2019 16:30:01

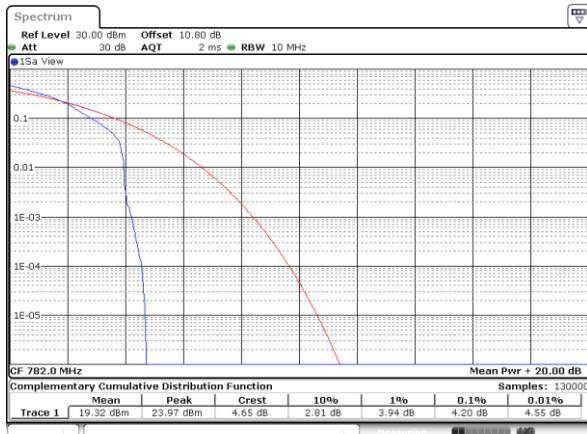
Middle Channel / Full RB



Date: 28 DEC 2019 16:30:11

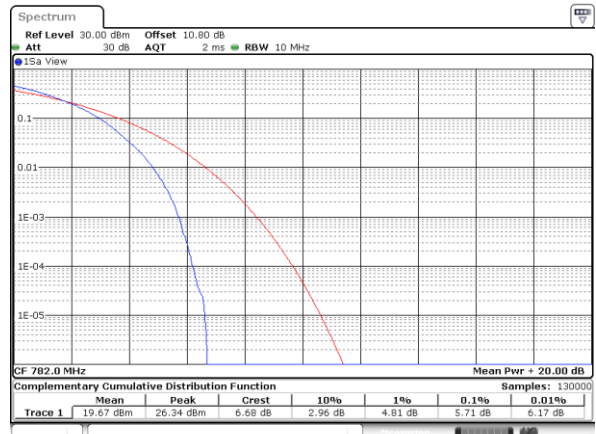
LTE Band 13 / 10MHz / 16QAM

Middle Channel / 1RB



Date: 28 DEC 2019 16:29:40

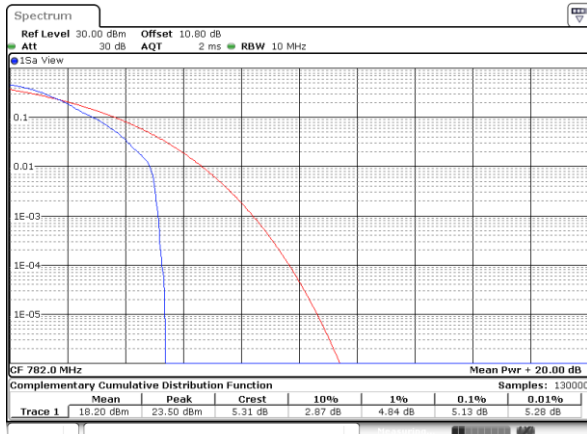
Middle Channel / Full RB



Date: 28 DEC 2019 16:29:50

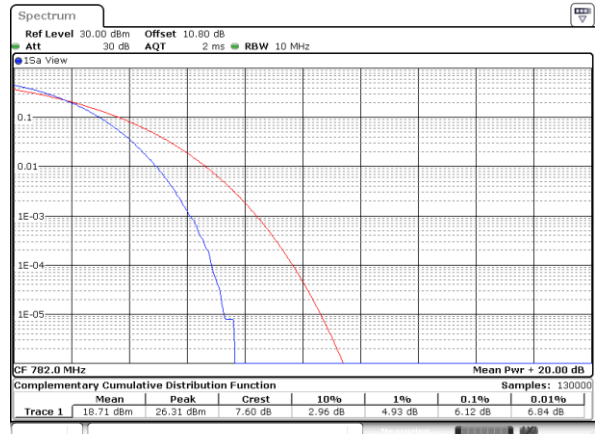
LTE Band 13 / 10MHz / 64QAM

Middle Channel / 1RB



Date: 28 DEC 2019 16:29:11

Middle Channel / Full RB



Date: 28 DEC 2019 16:29:22



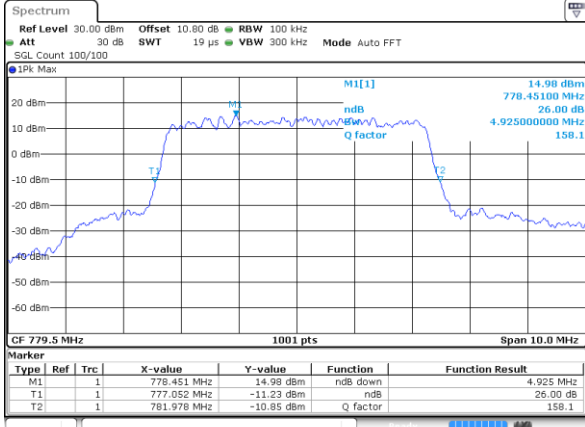
**26dB Bandwidth**

Mode	LTE Band 13 : 26dB BW(MHz)											
BW	1.4MHz		3MHz		5MHz		10MHz		15MHz		20MHz	
Mod.	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM
Lowest CH	-	-	-	-	4.93	4.87	-	-	-	-	-	-
Middle CH	-	-	-	-	4.93	4.95	9.77	9.75	-	-	-	-
Highest CH	-	-	-	-	4.94	4.94	-	-	-	-	-	-
Mode	LTE Band 13 : 26dB BW(MHz)											
BW	1.4MHz		3MHz		5MHz		10MHz		15MHz		20MHz	
Mod.	64QAM		64QAM		64QAM		64QAM		64QAM		64QAM	
Lowest CH	-	-	-	-	4.96	-	-	-	-	-	-	-
Middle CH	-	-	-	-	4.86	-	9.89	-	-	-	-	-
Highest CH	-	-	-	-	4.94	-	-	-	-	-	-	-



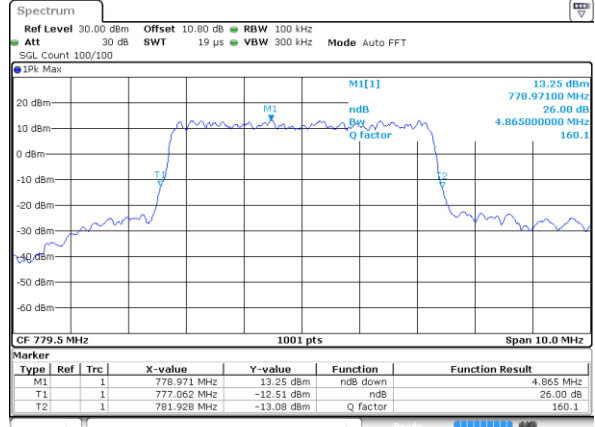
LTE Band 13

Lowest Channel / 5MHz / QPSK



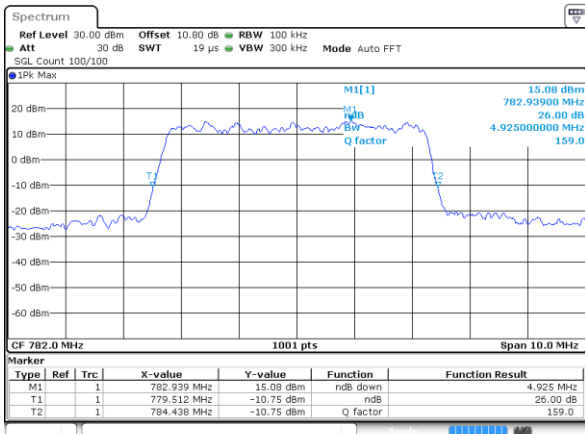
Date: 28 DEC 2019 15:41:50

Lowest Channel / 5MHz / 16QAM



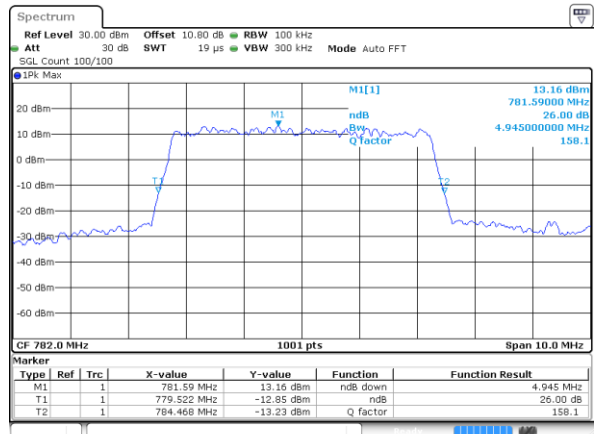
Date: 28 DEC 2019 15:41:38

Middle Channel / 5MHz / QPSK



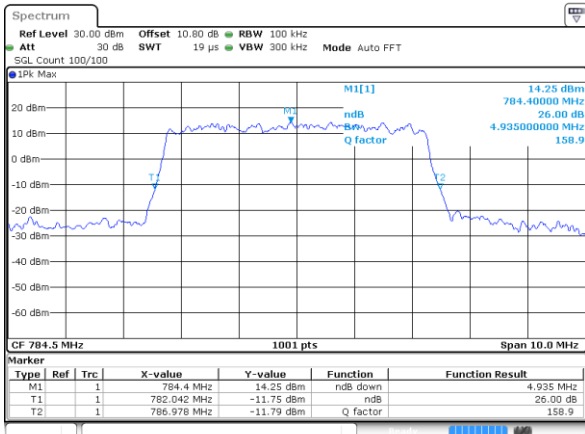
Date: 28 DEC 2019 15:51:28

Middle Channel / 5MHz / 16QAM



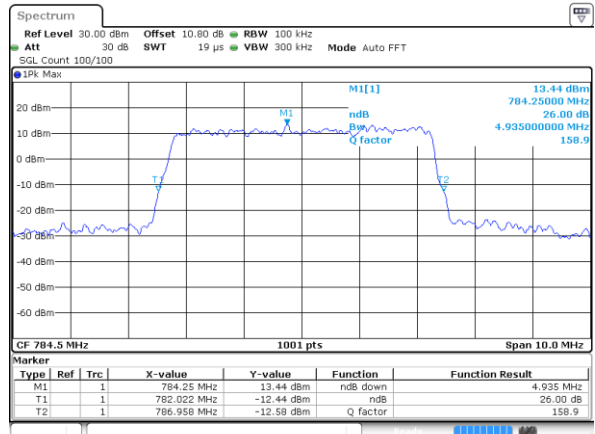
Date: 28 DEC 2019 15:51:38

Highest Channel / 5MHz / QPSK



Date: 28 DEC 2019 15:52:48

Highest Channel / 5MHz / 16QAM

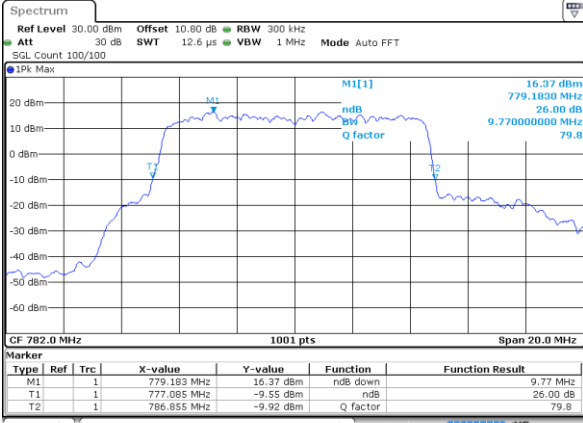


Date: 28 DEC 2019 15:52:36



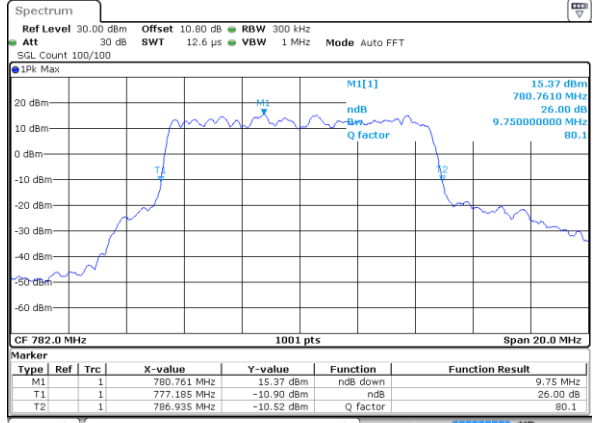
LTE Band 13

Middle Channel / 10MHz / QPSK



Date: 28 DEC 2019 16:11:35

Middle Channel / 10MHz / 16QAM

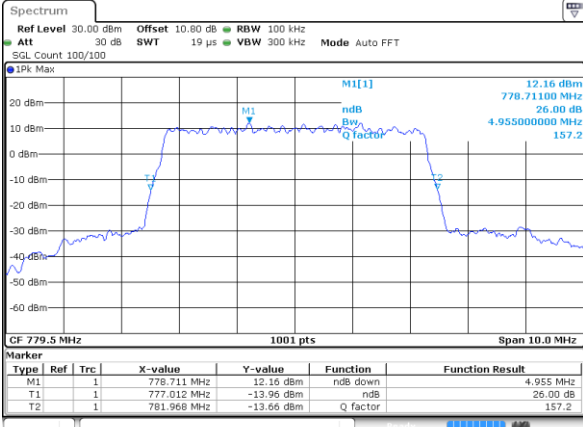


Date: 28 DEC 2019 16:11:23



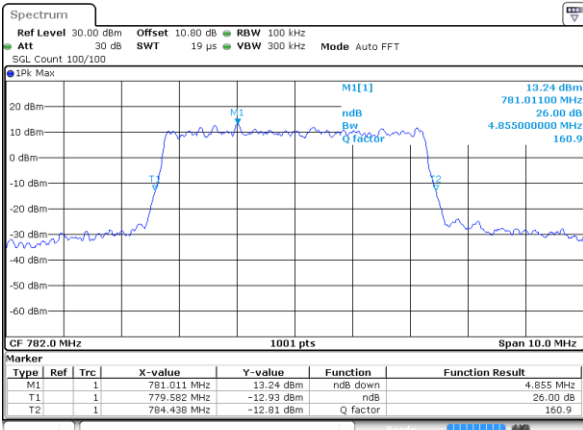
LTE Band 13

Lowest Channel / 5MHz / 64QAM



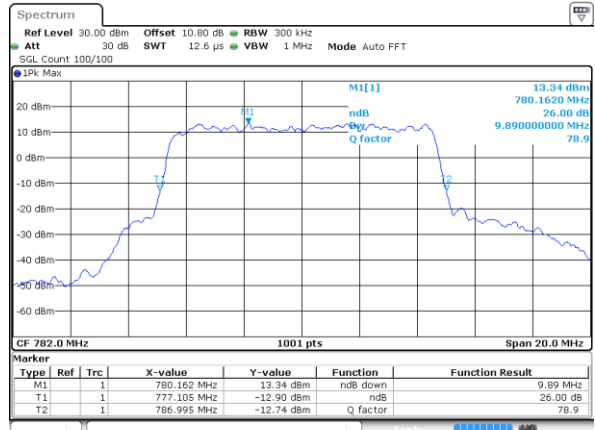
Date: 28 DEC 2019 16:01:17

Middle Channel / 5MHz / 64QAM



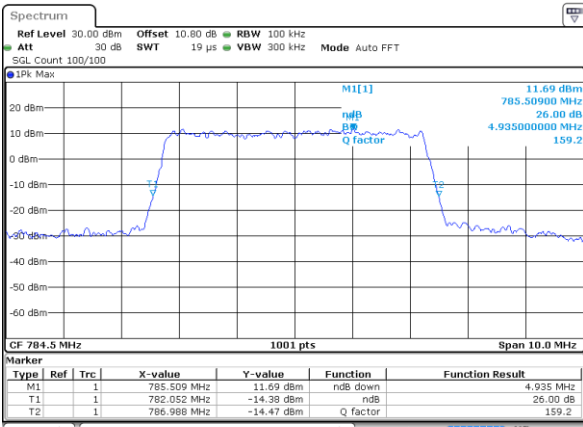
Date: 28 DEC 2019 16:06:11

Middle Channel / 10MHz / 64QAM



Date: 28 DEC 2019 16:23:19

Highest Channel / 5MHz / 64QAM



Date: 28 DEC 2019 16:06:46





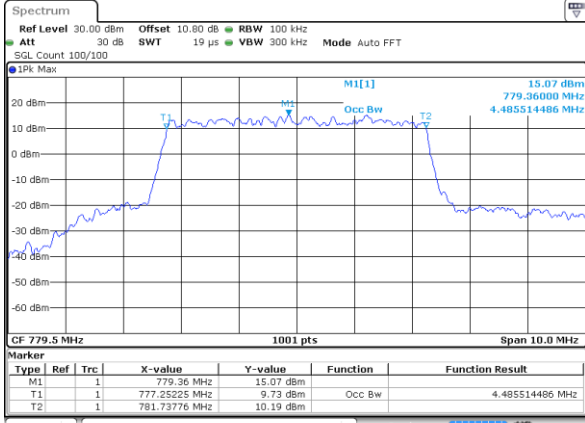
**Occupied Bandwidth**

Mode	LTE Band 13 : 99%OBW(MHz)											
BW	1.4MHz		3MHz		5MHz		10MHz		15MHz		20MHz	
Mod.	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM
Lowest CH	-	-	-	-	4.49	4.48	-	-	-	-	-	-
Middle CH	-	-	-	-	4.50	4.50	9.03	9.03	-	-	-	-
Highest CH	-	-	-	-	4.50	4.50	-	-	-	-	-	-
Mode	LTE Band 13 : 99%OBW(MHz)											
BW	1.4MHz		3MHz		5MHz		10MHz		15MHz		20MHz	
Mod.	64QAM		64QAM		64QAM		64QAM		64QAM		64QAM	
Lowest CH	-	-	-	-	4.52	-	-	-	-	-	-	-
Middle CH	-	-	-	-	4.49	-	9.01	-	-	-	-	-
Highest CH	-	-	-	-	4.51	-	-	-	-	-	-	-



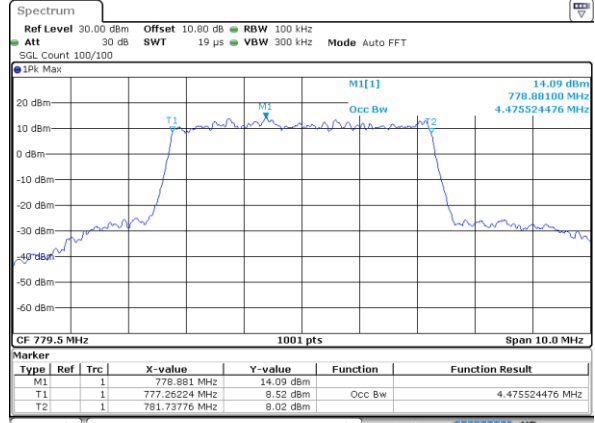
LTE Band 13

Lowest Channel / 5MHz / QPSK



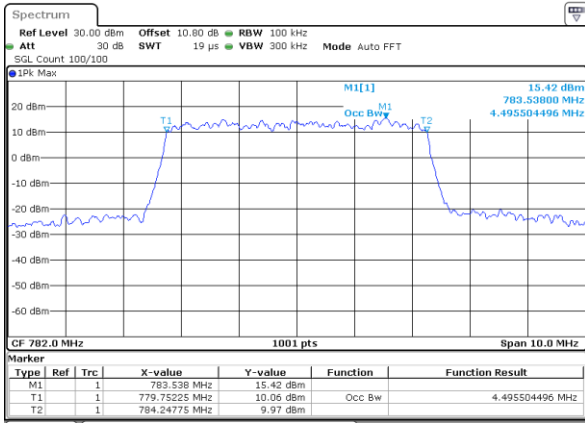
Date: 28 DEC 2019 15:41:14

Lowest Channel / 5MHz / 16QAM



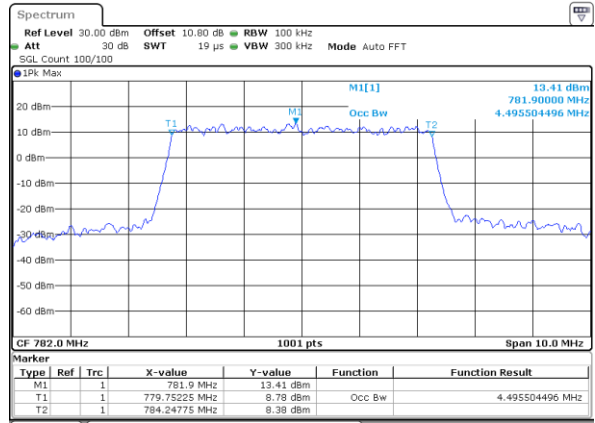
Date: 28 DEC 2019 15:41:26

Middle Channel / 5MHz / QPSK



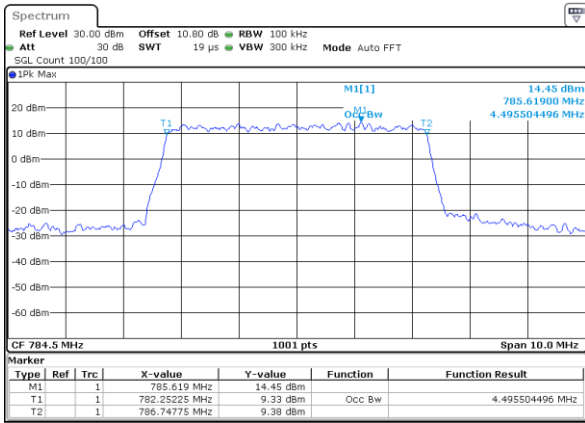
Date: 28 DEC 2019 15:52:00

Middle Channel / 5MHz / 16QAM



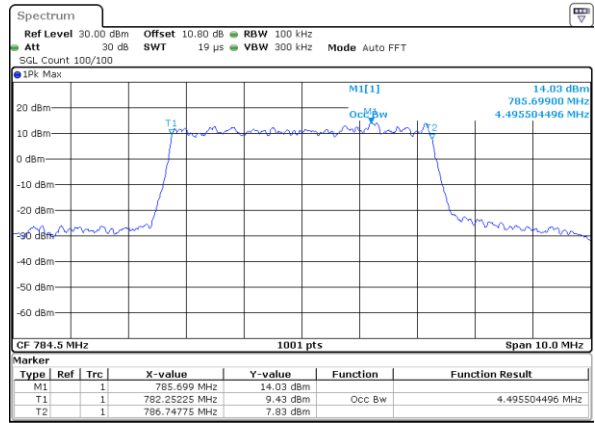
Date: 28 DEC 2019 15:51:49

Highest Channel / 5MHz / QPSK



Date: 28 DEC 2019 15:52:12

Highest Channel / 5MHz / 16QAM

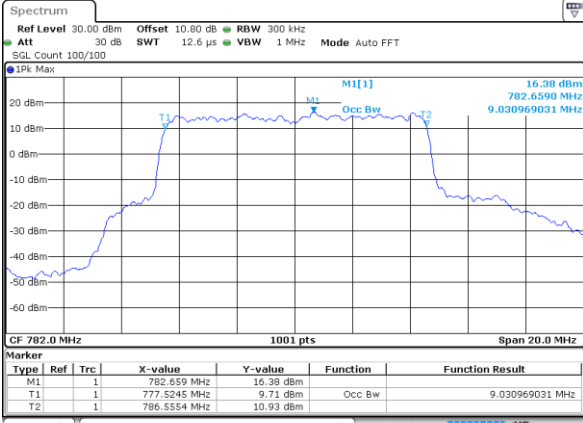


Date: 28 DEC 2019 15:52:24



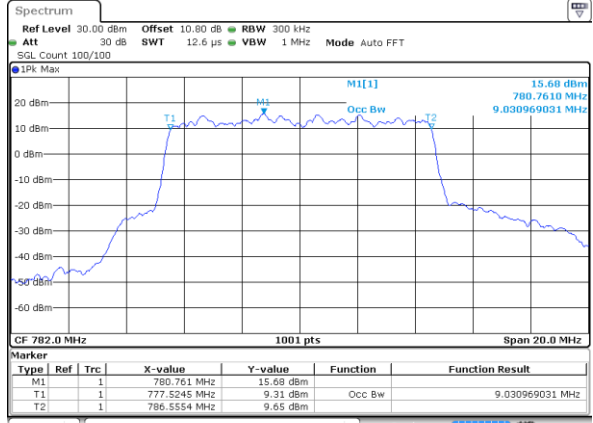
LTE Band 13

Middle Channel / 10MHz / QPSK



Date: 28 DEC 2019 16:11:00

Middle Channel / 10MHz / 16QAM

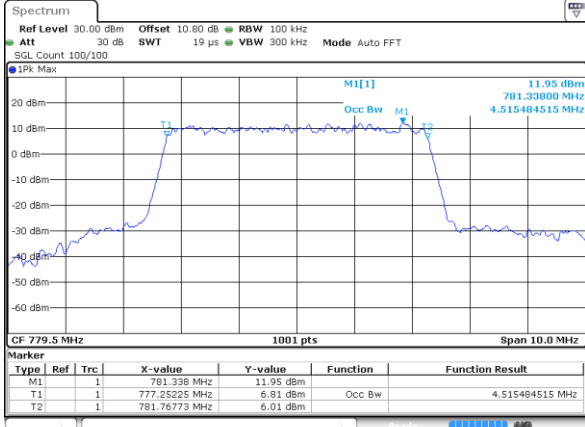


Date: 28 DEC 2019 16:11:12



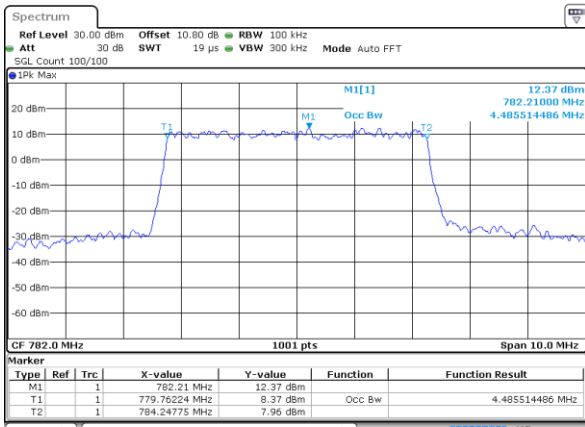
LTE Band 13

Lowest Channel / 5MHz / 64QAM



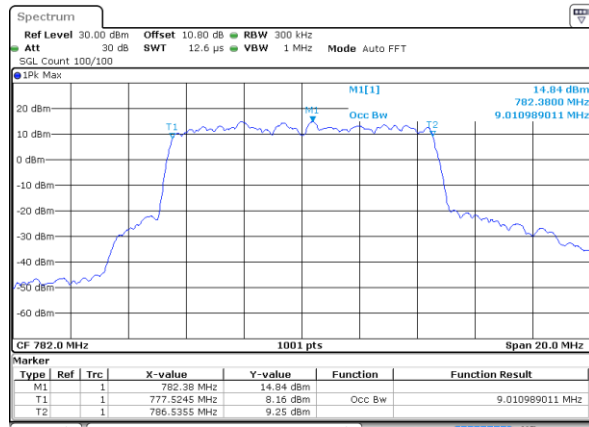
Date: 28 DEC 2019 16:01:05

Middle Channel / 5MHz / 64QAM



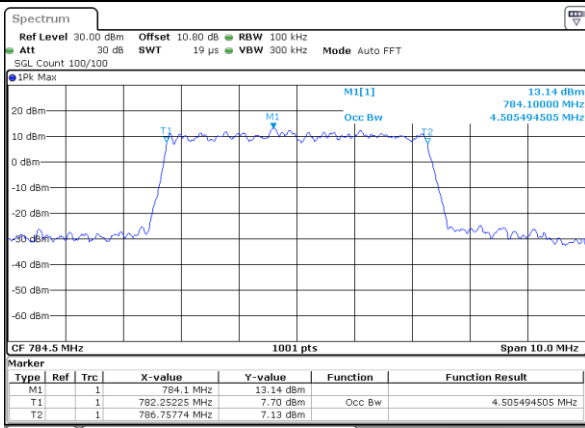
Date: 28 DEC 2019 16:06:22

Middle Channel / 10MHz / 64QAM



Date: 28 DEC 2019 16:23:08

Highest Channel / 5MHz / 64QAM



Date: 28 DEC 2019 16:06:34

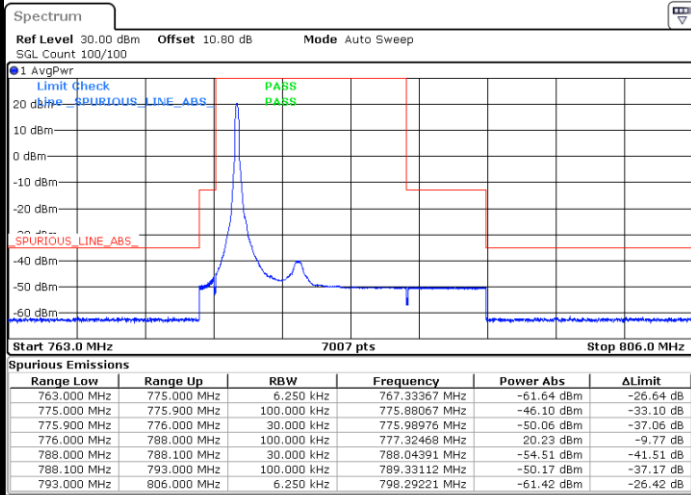


Conducted Band Edge

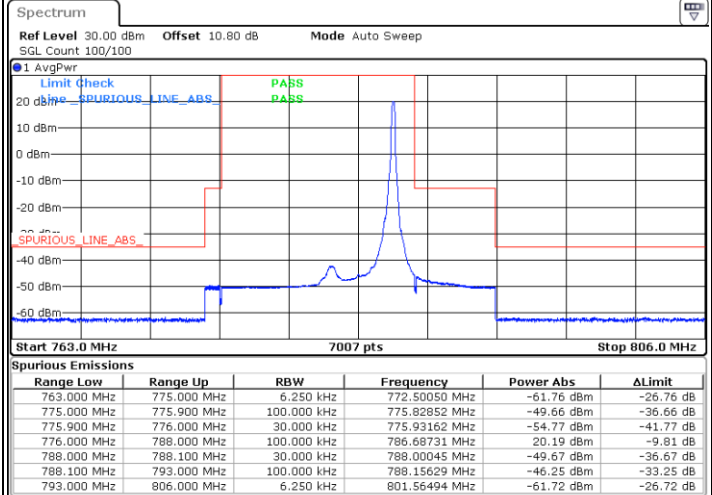
LTE Band 13 / 5MHz / QPSK

Lowest Band Edge / 1 RB

Highest Band Edge / 1 RB



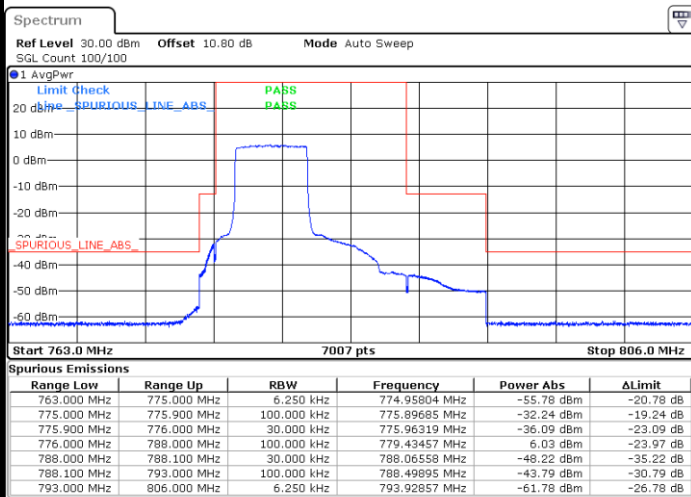
Date: 28 DEC 2019 15:48:33



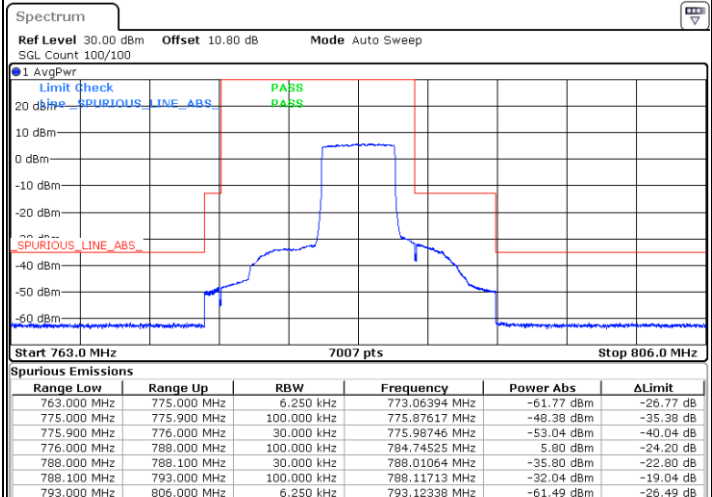
Date: 28 DEC 2019 15:59:31

Lowest Band Edge / Full RB

Highest Band Edge / Full RB



Date: 28 DEC 2019 15:43:31



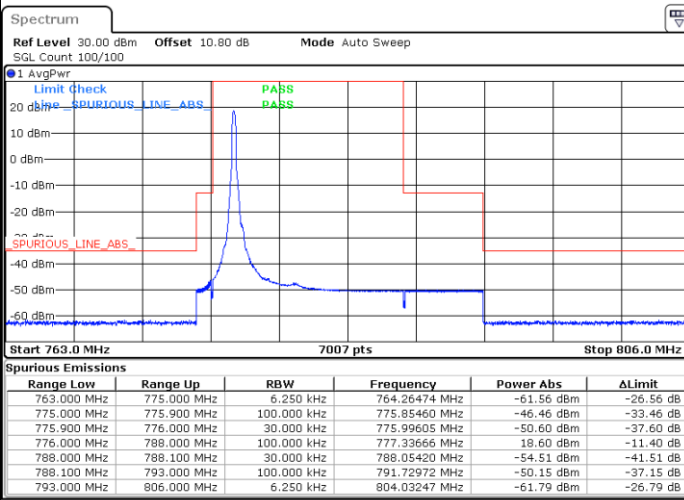
Date: 28 DEC 2019 15:54:29



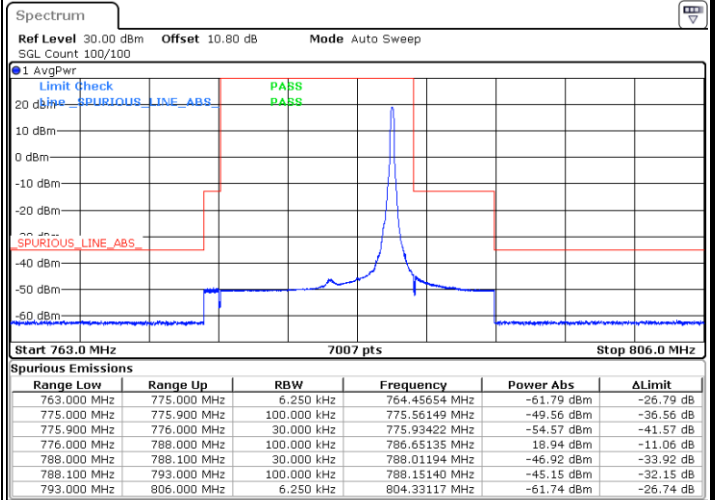
LTE Band 13 / 5MHz / 16QAM

Lowest Band Edge / 1 RB

Highest Band Edge / 1 RB



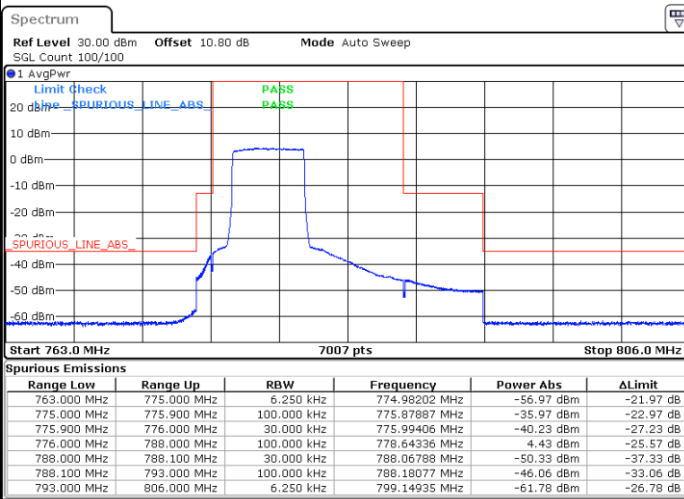
Date: 28 DEC 2019 15:46:53



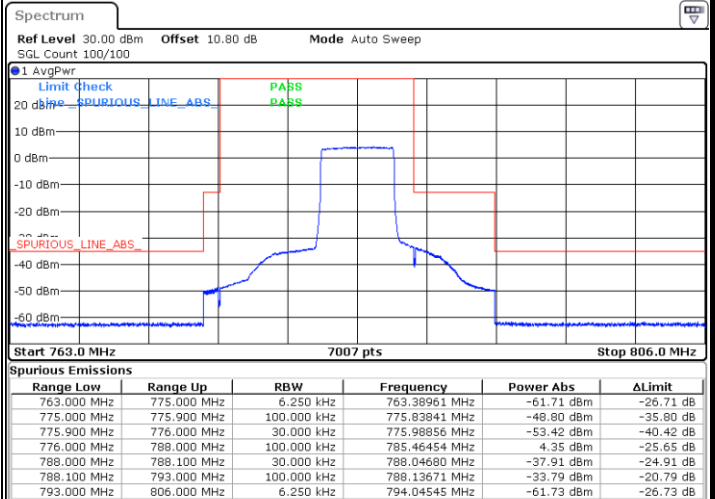
Date: 28 DEC 2019 15:57:50

Lowest Band Edge / Full RB

Highest Band Edge / Full RB



Date: 28 DEC 2019 15:45:12



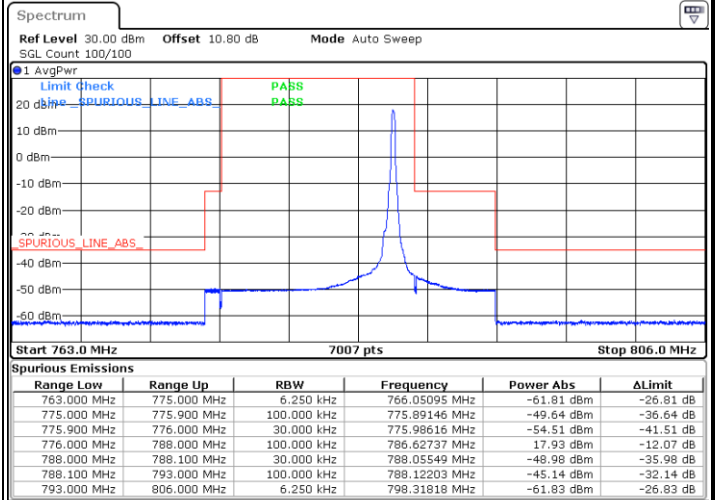
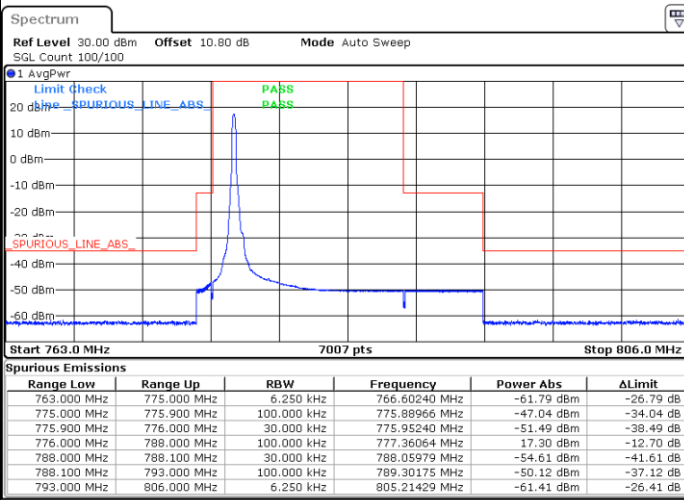
Date: 28 DEC 2019 15:56:09



LTE Band 13 / 5MHz / 64QAM

Lowest Band Edge / 1 RB

Highest Band Edge / 1 RB

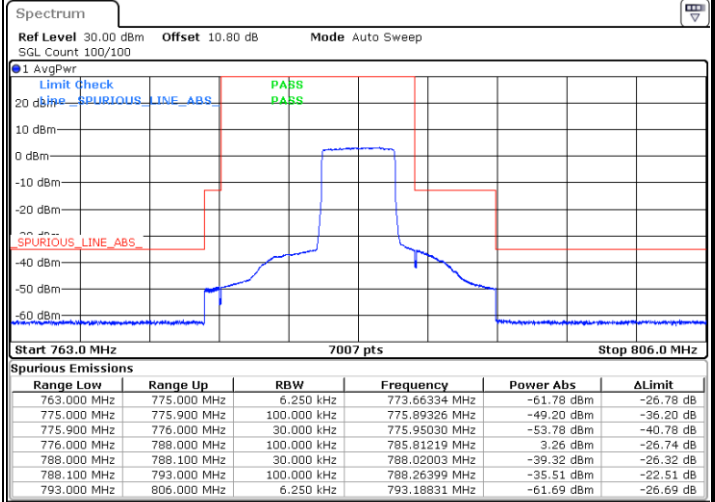
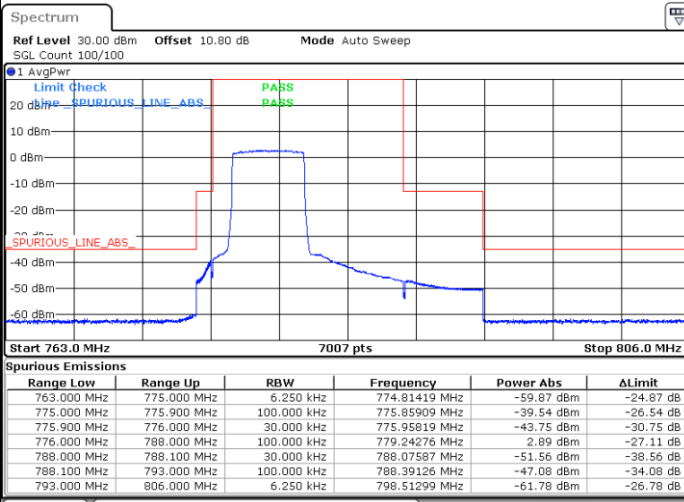


Date: 28 DEC 2019 16:04:38

Date: 28 DEC 2019 16:10:07

Lowest Band Edge / Full RB

Highest Band Edge / Full RB



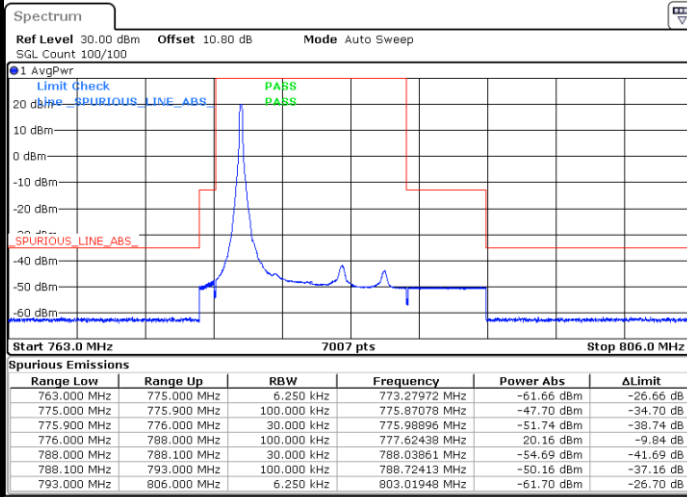
Date: 28 DEC 2019 16:02:57

Date: 28 DEC 2019 16:08:26



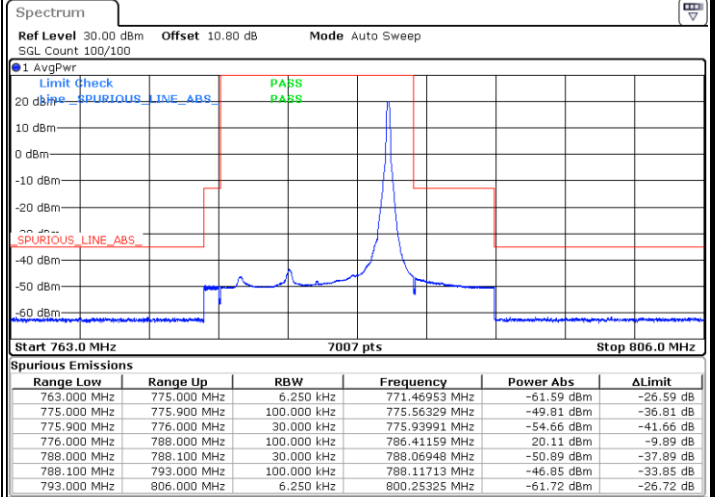
LTE Band 13 / 10MHz / QPSK

Lowest Band Edge / 1 RB



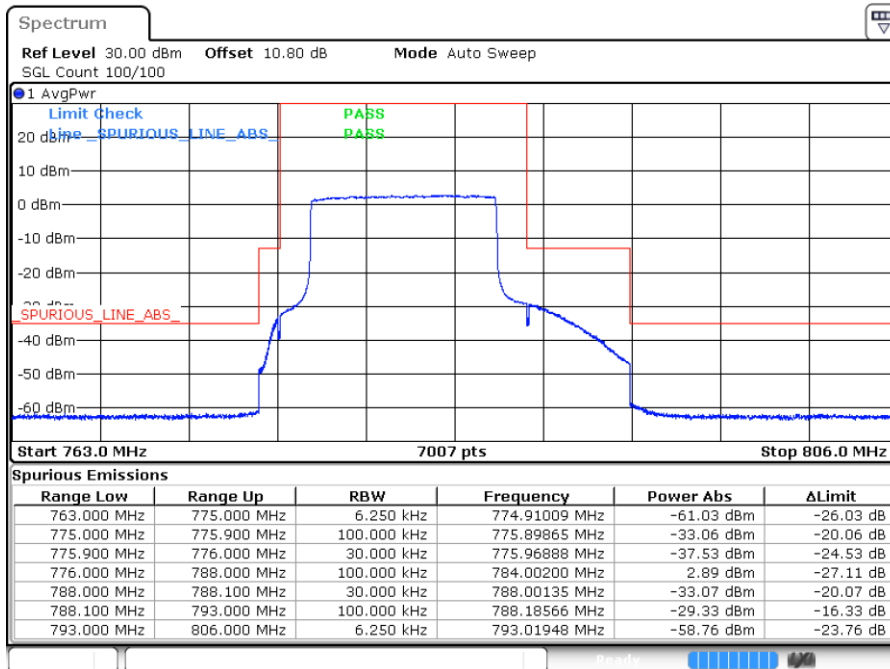
Date: 28 DEC 2019 16:18:16

Highest Band Edge / 1 RB



Date: 28 DEC 2019 16:19:56

Band Edge / Full RB



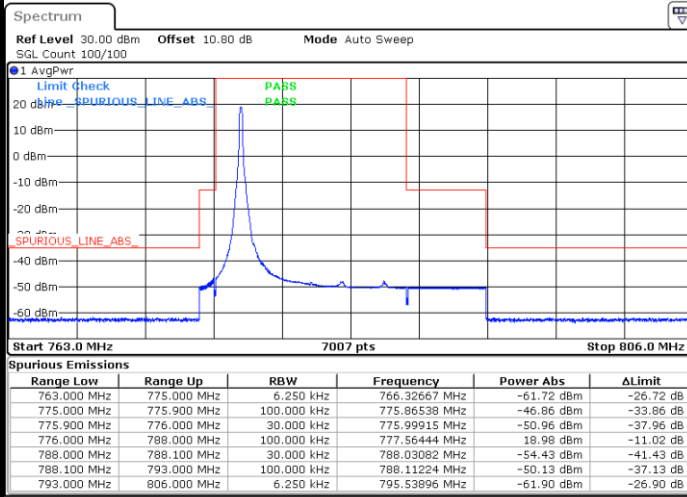
Date: 28 DEC 2019 16:13:15





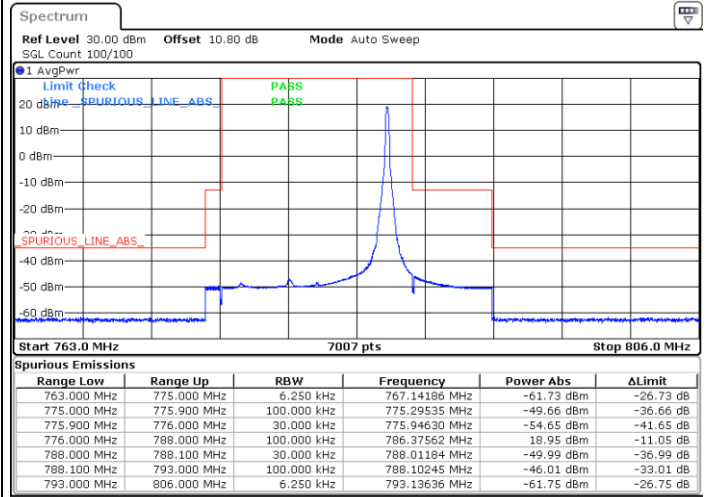
LTE Band 13 / 10MHz / 16QAM

Lowest Band Edge / 1 RB



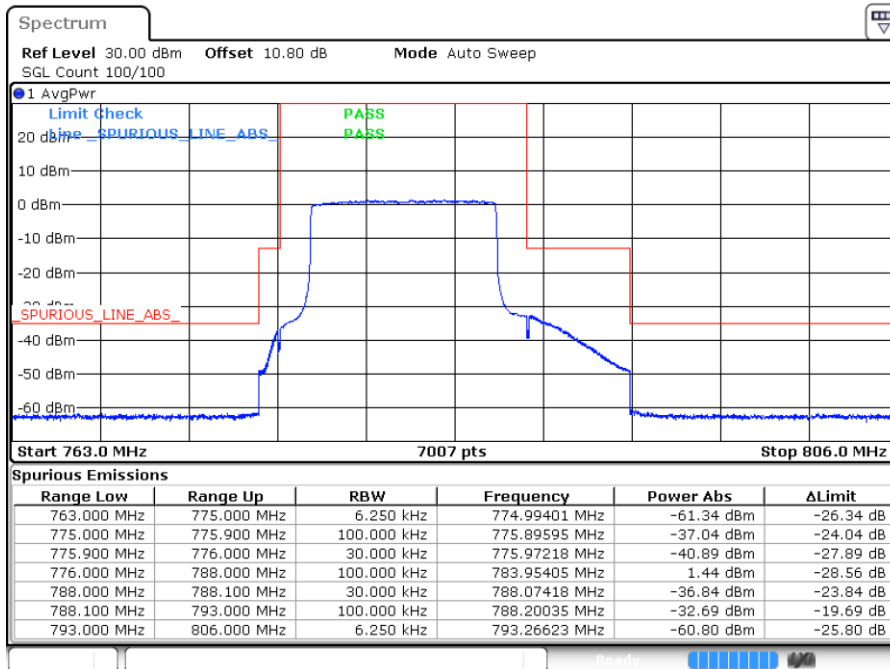
Date: 28 DEC 2019 16:16:35

Highest Band Edge / 1 RB



Date: 28 DEC 2019 16:21:36

Band Edge / Full RB

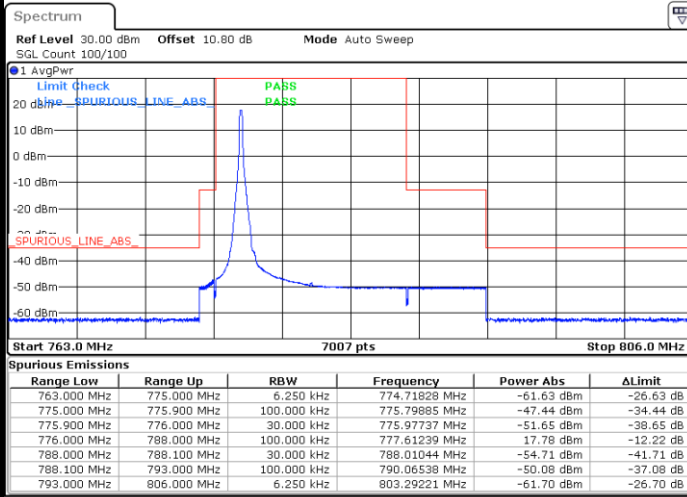


Date: 28 DEC 2019 16:14:55



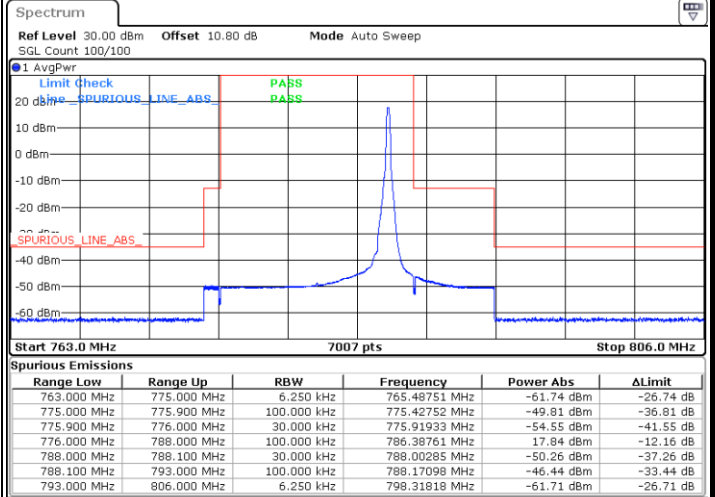
LTE Band 13 / 10MHz / 64QAM

Lowest Band Edge / 1 RB



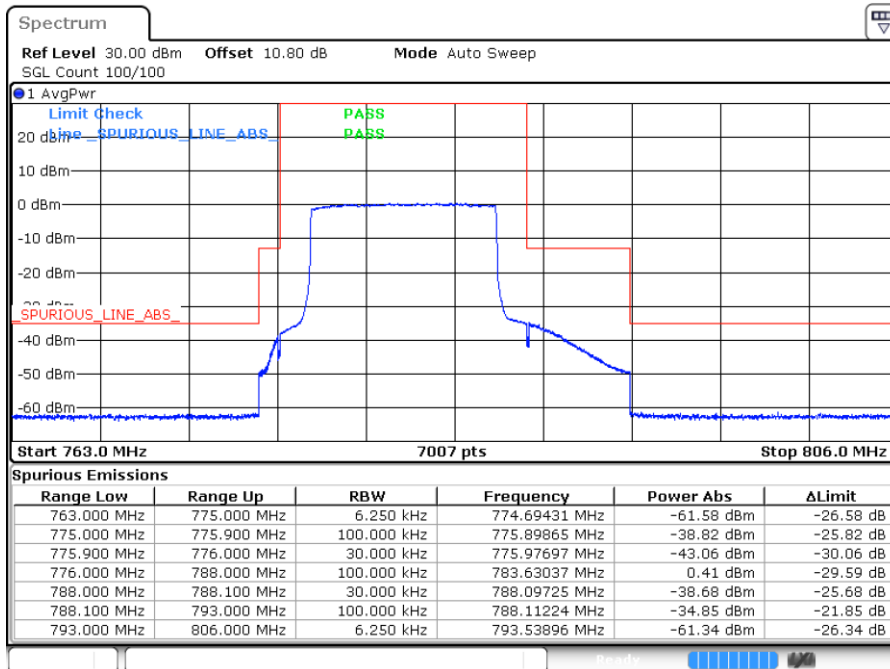
Date: 28 DEC 2019 16:28:39

Highest Band Edge / 1 RB



Date: 28 DEC 2019 16:28:20

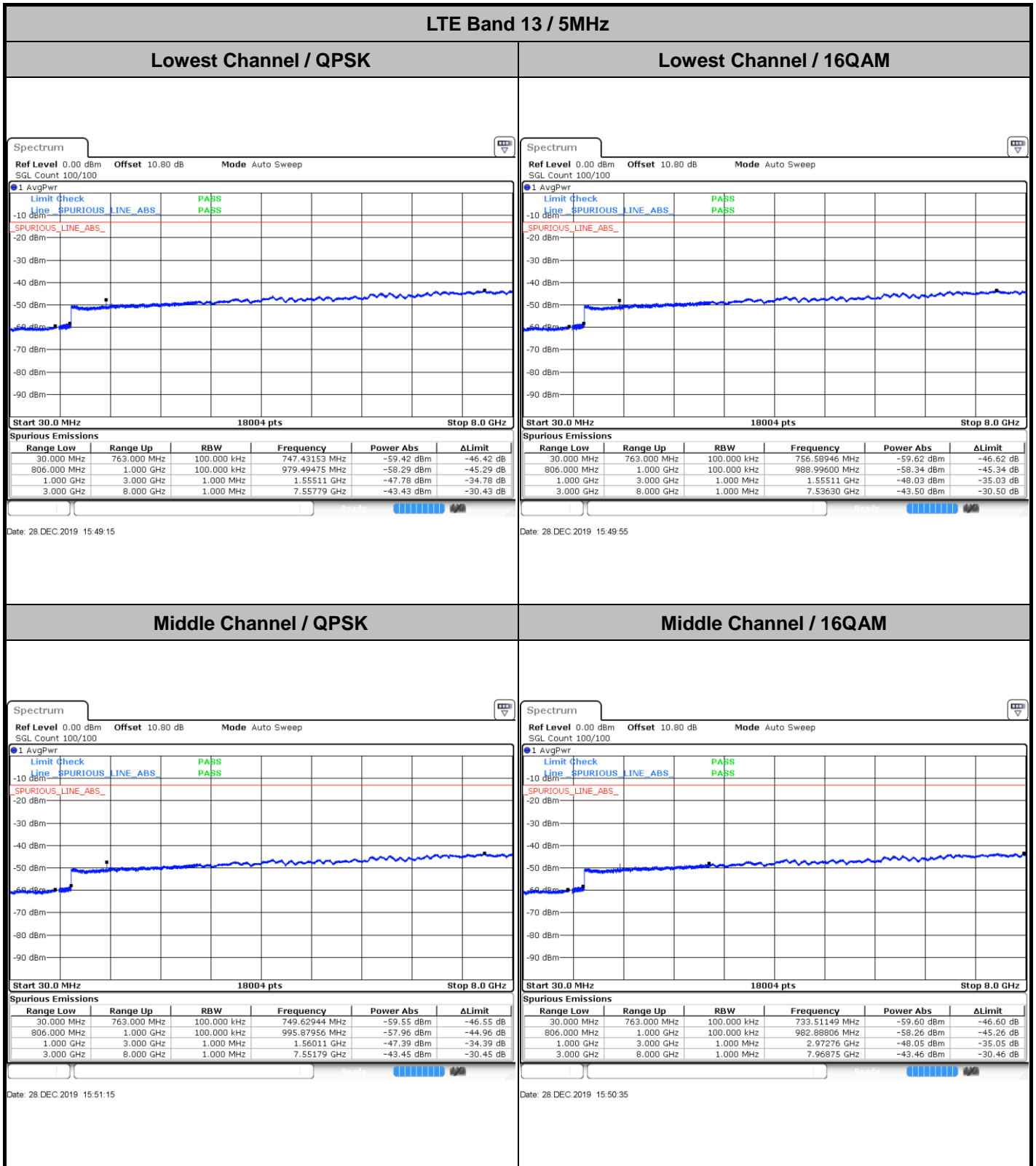
Band Edge / Full RB



Date: 28 DEC 2019 16:24:59



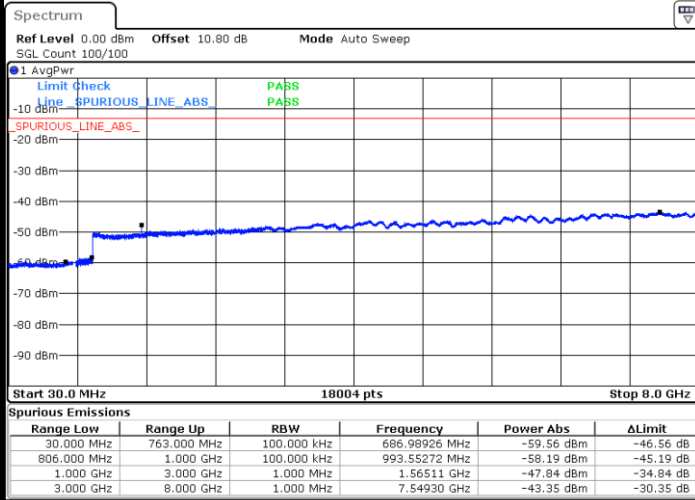
# Conducted Spurious Emission





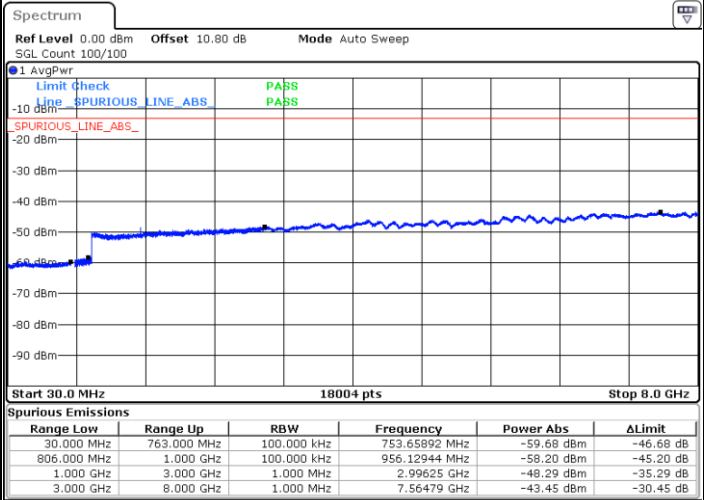
LTE Band 13 / 5MHz

Highest Channel / QPSK



Date: 28 DEC 2019 16:00:12

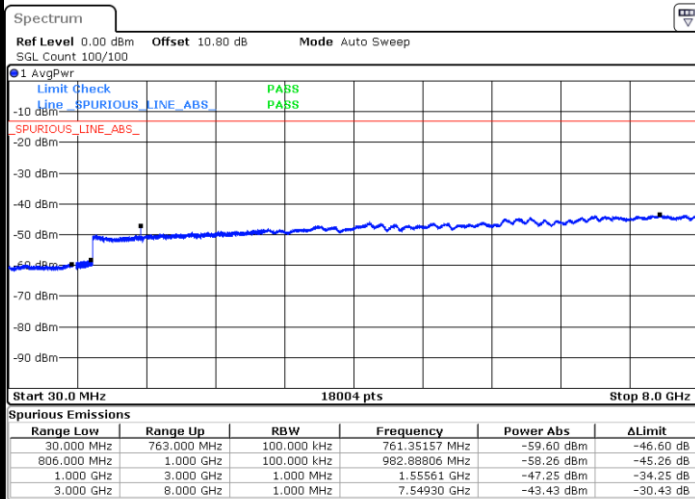
Highest Channel / 16QAM



Date: 28 DEC 2019 16:00:53

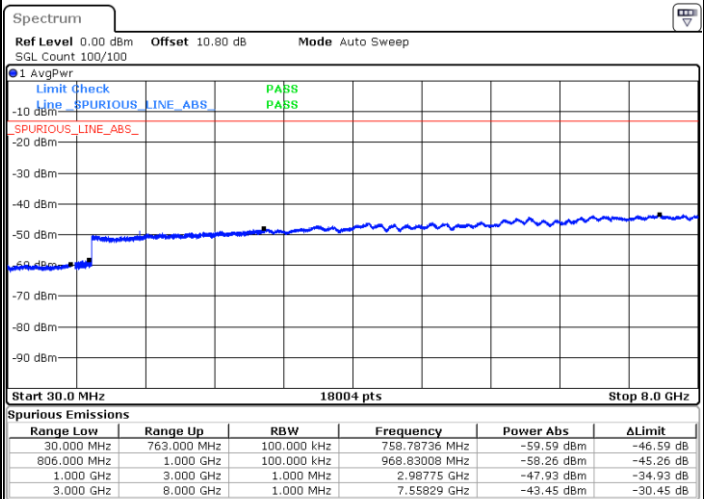
LTE Band 13 / 10MHz

Middle Channel / QPSK



Date: 28 DEC 2019 16:22:57

Middle Channel / 16QAM



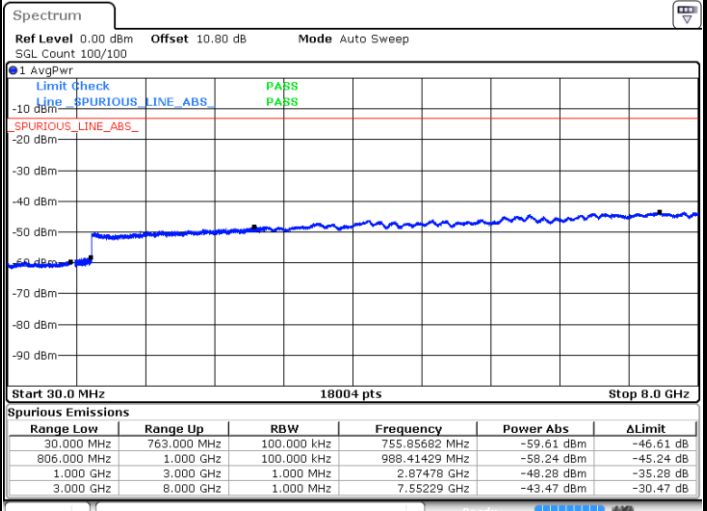
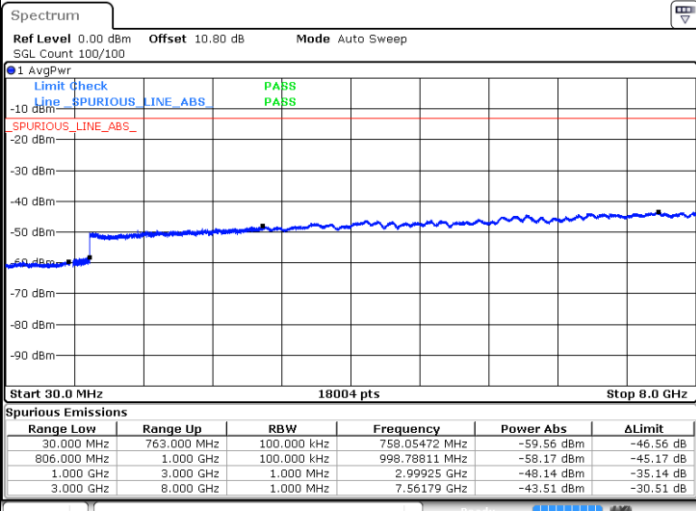
Date: 28 DEC 2019 16:22:17



LTE Band 13 / 5MHz

Lowest Channel / 64QAM

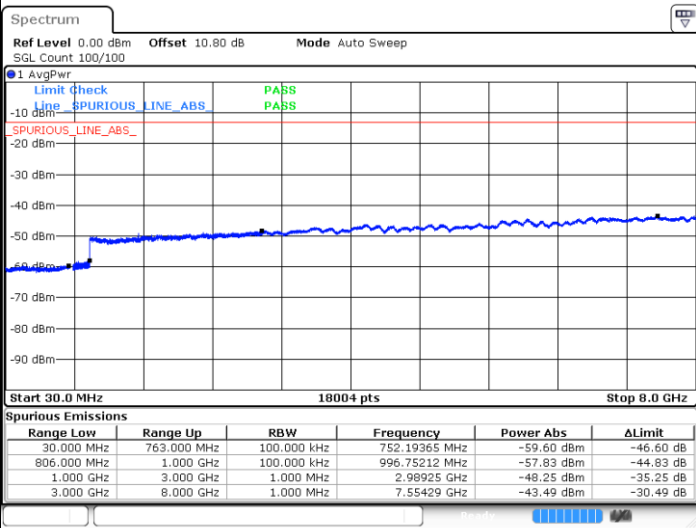
Middle Channel / 64QAM



Date: 28 DEC.2019 16:05:19

Date: 28 DEC.2019 16:06:00

Highest Channel / 64QAM

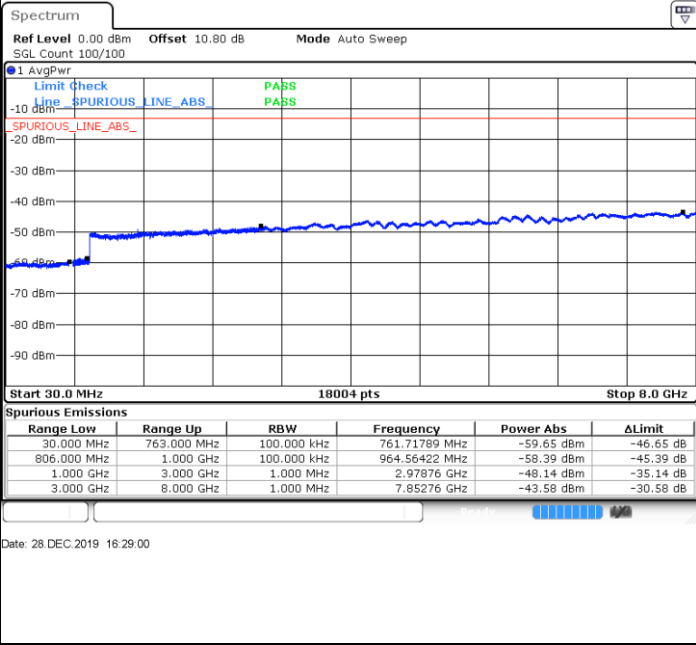


Date: 28 DEC.2019 16:10:48



LTE Band 13 / 10MHz

Middle Channel / 64QAM





Frequency Stability

Test Conditions		LTE Band 13 (QPSK) / Middle Channel	Limit
Temperature (°C)	Voltage (Volt)	BW 10MHz	Note 2.
		Deviation (ppm)	Result
50	Normal Voltage	0.0018	PASS
40	Normal Voltage	0.0036	
30	Normal Voltage	0.0001	
20(Ref.)	Normal Voltage	0.0000	
10	Normal Voltage	0.0005	
0	Normal Voltage	0.0020	
-10	Normal Voltage	0.0004	
-20	Normal Voltage	0.0008	
-30	Normal Voltage	0.0065	
20	Maximum Voltage	0.0000	
20	Normal Voltage	0.0000	
20	Battery End Point	0.0006	

Note:

1. Normal Voltage =3.85 V. ; Battery End Point (BEP) =3.65 V. ; Maximum Voltage =4.25 V.
2. The frequency fundamental emissions stay within the authorized frequency block.



# LTE Band 41

## Peak-to-Average Ratio

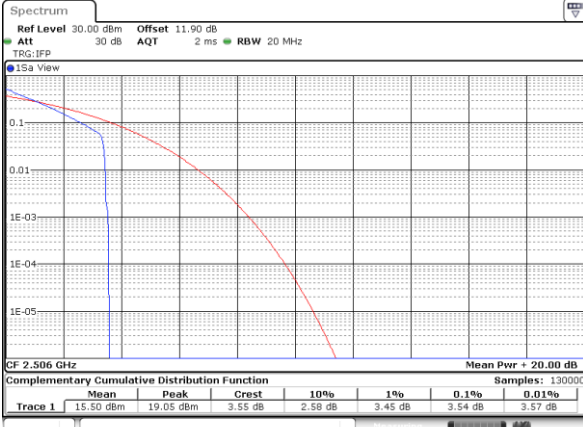
Mode	LTE Band 41 / 20MHz				
Mod.	QPSK		16QAM		Limit: 13dB
RB Size	1RB	Full RB	1RB	Full RB	Result
Lowest CH	3.54	4.55	4.20	5.77	PASS
Middle CH	4.03	4.78	6.14	6.06	
Highest CH	4.06	5.07	5.62	6.00	
Mode	LTE Band 41 / 20MHz				
Mod.	64QAM				Limit: 13dB
RB Size	1RB	Full RB			Result
Lowest CH	5.97	6.35	-	-	PASS
Middle CH	7.04	6.55	-	-	
Highest CH	7.25	6.43	-	-	





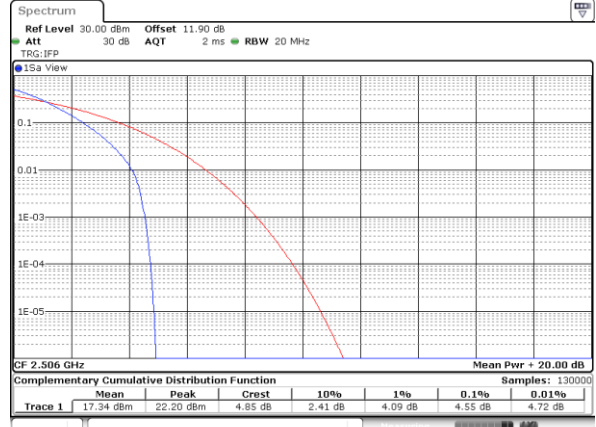
LTE Band 41 / 20MHz / QPSK

Lowest Channel / 1RB



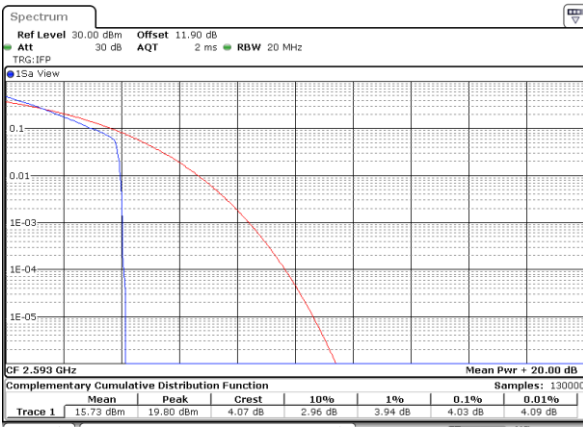
Date: 28 DEC 2019 10:13:06

Lowest Channel / Full RB



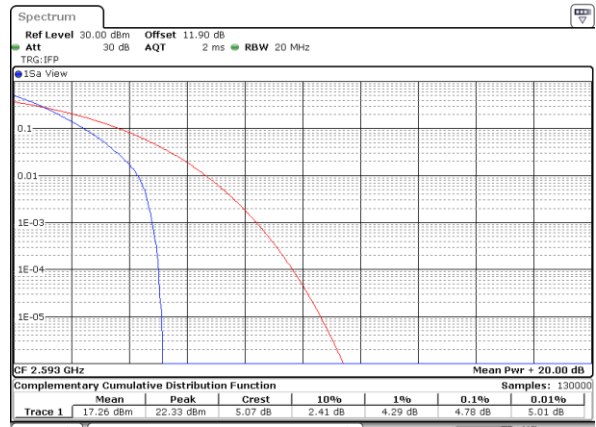
Date: 28 DEC 2019 10:13:25

Middle Channel / 1RB



Date: 28 DEC 2019 10:14:17

Middle Channel / Full RB



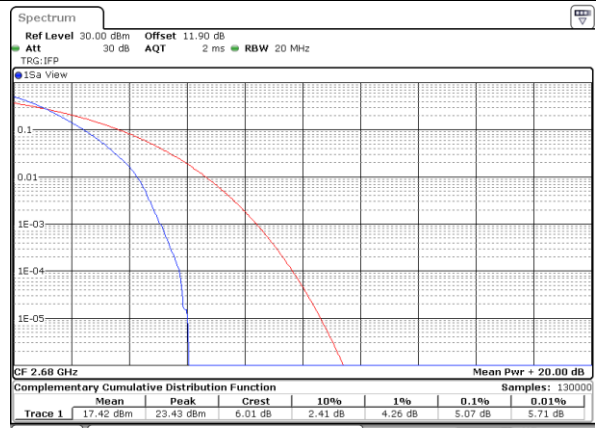
Date: 28 DEC 2019 10:14:35

Highest Channel / 1RB



Date: 28 DEC 2019 10:14:56

Highest Channel / Full RB

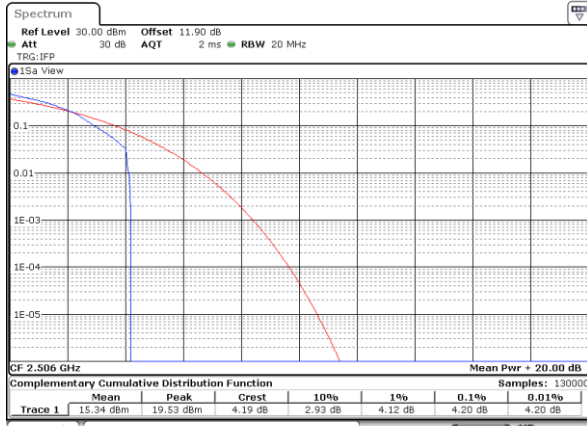


Date: 28 DEC 2019 10:15:21



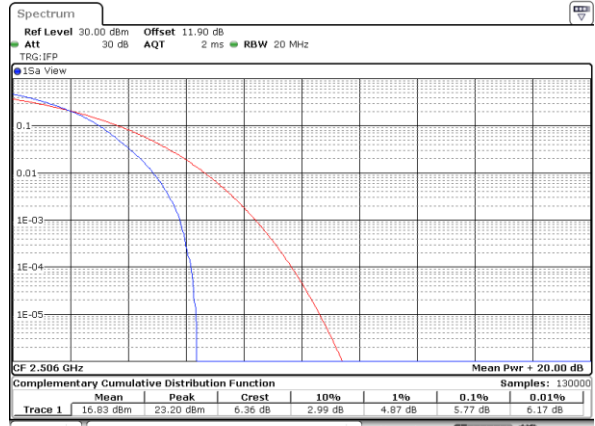
LTE Band 41 / 20MHz / 16QAM

Lowest Channel / 1RB



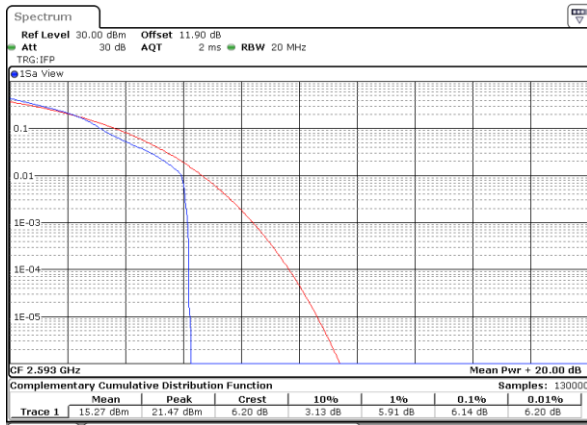
Date: 28 DEC 2019 10:11:08

Lowest Channel / Full RB



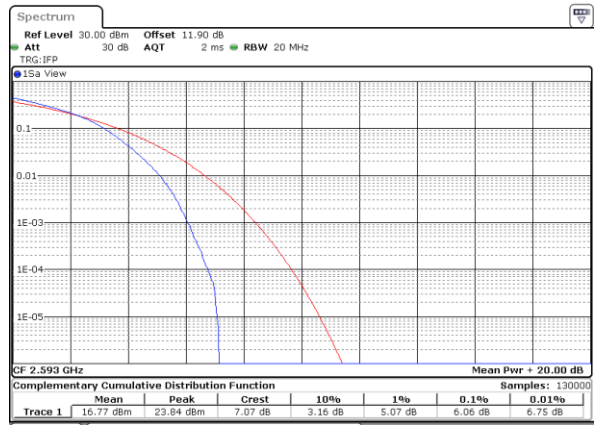
Date: 28 DEC 2019 10:11:27

Middle Channel / 1RB



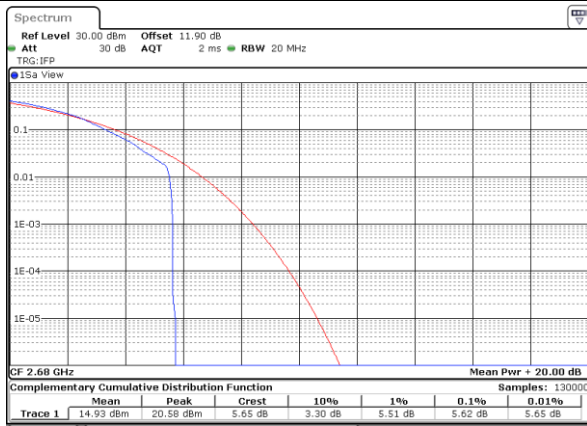
Date: 28 DEC 2019 10:11:45

Middle Channel / Full RB



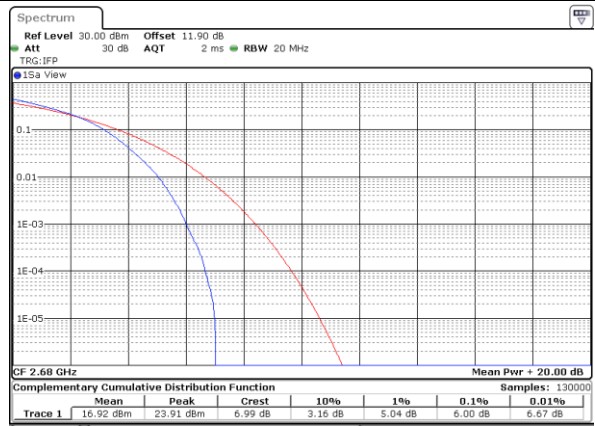
Date: 28 DEC 2019 10:12:08

Highest Channel / 1RB



Date: 28 DEC 2019 10:12:27

Highest Channel / Full RB

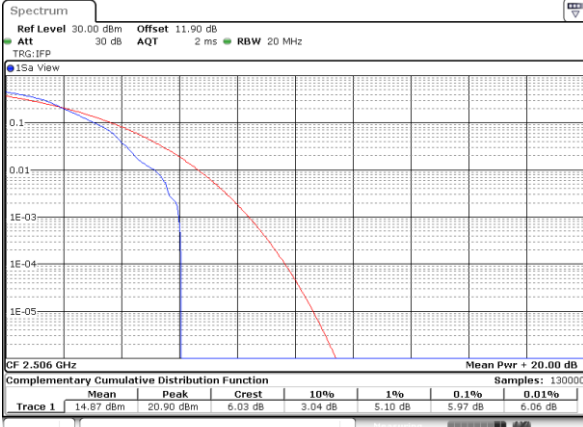


Date: 28 DEC 2019 10:12:46



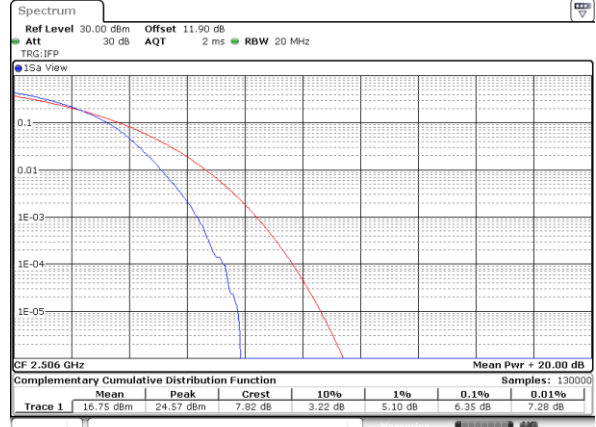
LTE Band 41 / 20MHz / 64QAM

Lowest Channel / 1RB



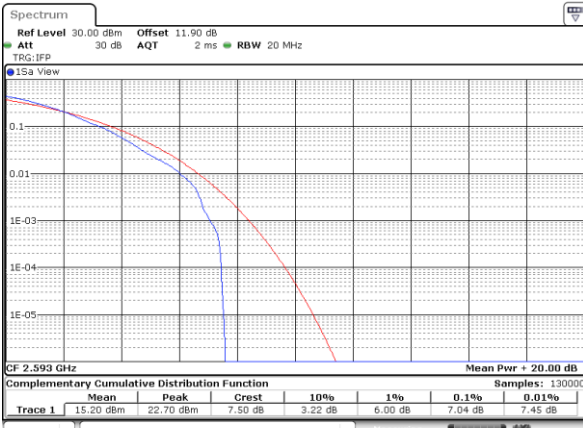
Date: 28 DEC 2019 10:05:47

Lowest Channel / Full RB



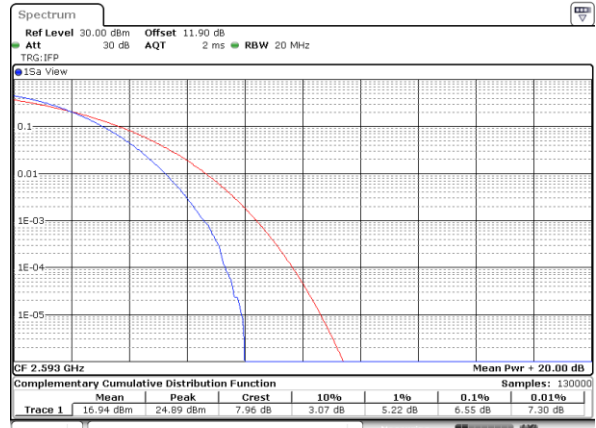
Date: 28 DEC 2019 10:06:07

Middle Channel / 1RB



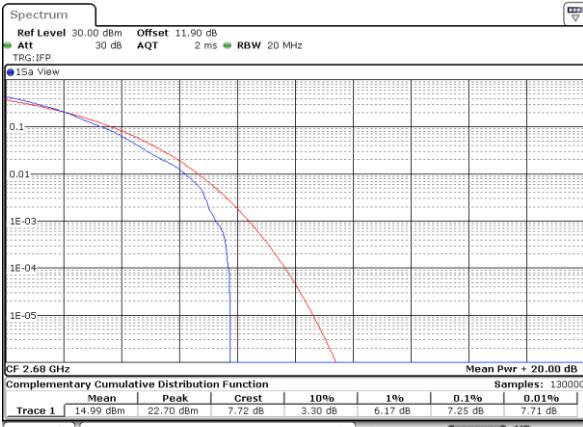
Date: 28 DEC 2019 10:06:26

Middle Channel / Full RB



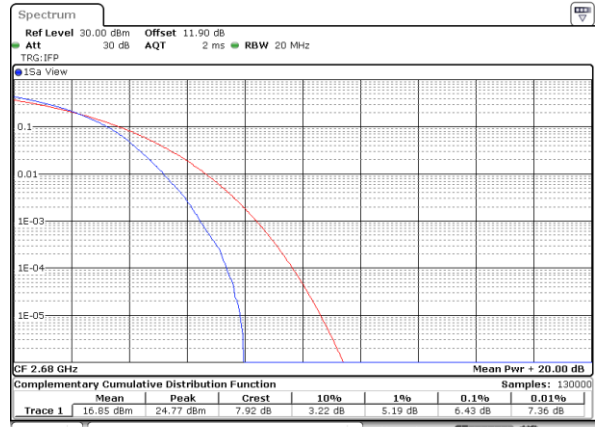
Date: 28 DEC 2019 10:10:09

Highest Channel / 1RB



Date: 28 DEC 2019 10:10:30

Highest Channel / Full RB



Date: 28 DEC 2019 10:10:48



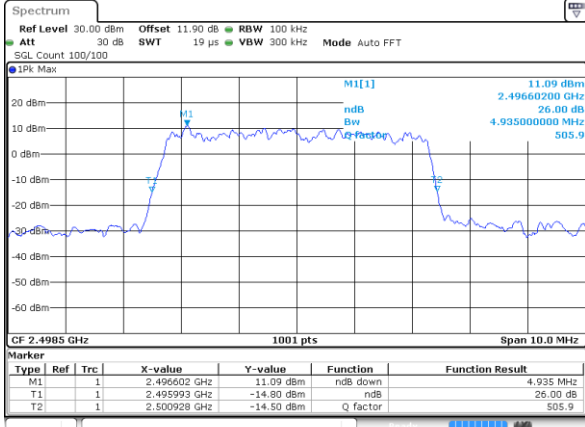
**26dB Bandwidth**

Mode	LTE Band 41 : 26dB BW(MHz)											
BW	1.4MHz		3MHz		5MHz		10MHz		15MHz		20MHz	
Mod.	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM
Lowest CH	-	-	-	-	4.94	4.81	9.65	9.63	14.30	14.33	18.86	19.02
Middle CH	-	-	-	-	4.95	4.94	9.71	9.67	14.27	14.42	18.74	18.62
Highest CH	-	-	-	-	4.92	4.89	9.73	9.61	14.45	14.54	18.94	18.78
Mode	LTE Band 41 : 26dB BW(MHz)											
BW	1.4MHz		3MHz		5MHz		10MHz		15MHz		20MHz	
Mod.	64QAM		64QAM		64QAM		64QAM		64QAM		64QAM	
Lowest CH	-	-	-	-	4.82	-	9.83	-	14.21	-	18.70	-
Middle CH	-	-	-	-	4.91	-	9.71	-	14.15	-	18.70	-
Highest CH	-	-	-	-	4.89	-	9.73	-	14.15	-	18.78	-



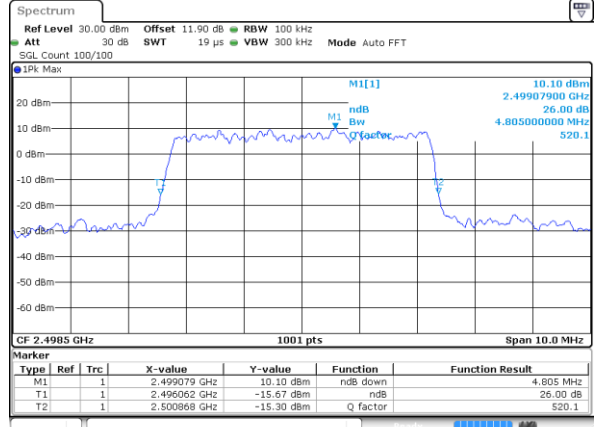
LTE Band 41

Lowest Channel / 5MHz / QPSK



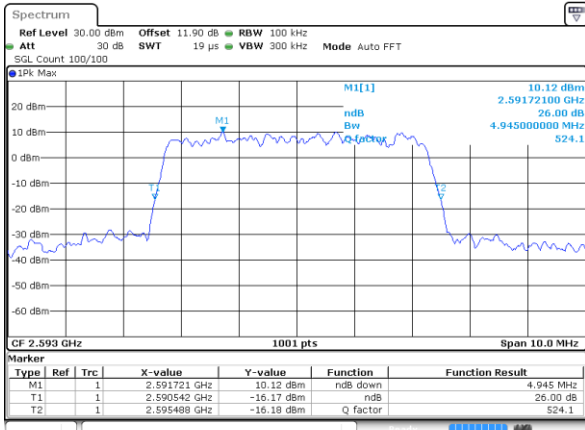
Date: 28 DEC 2019 09:51:43

Lowest Channel / 5MHz / 16QAM



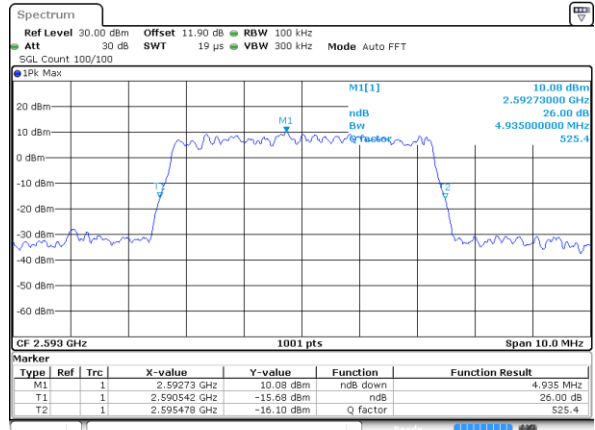
Date: 28 DEC 2019 09:51:55

Middle Channel / 5MHz / QPSK



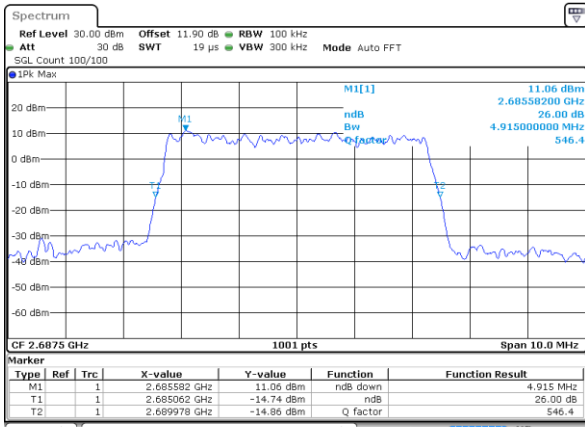
Date: 28 DEC 2019 09:52:30

Middle Channel / 5MHz / 16QAM



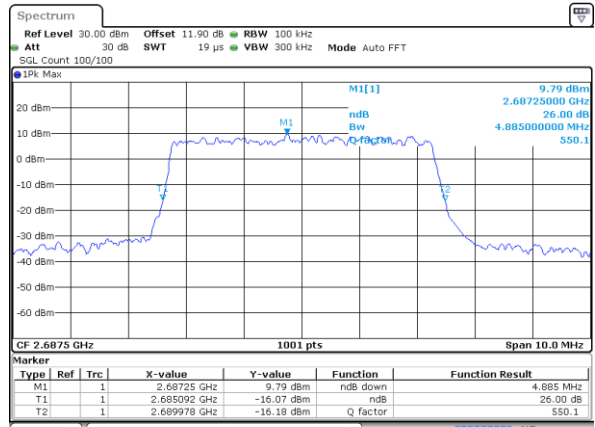
Date: 28 DEC 2019 09:52:41

Highest Channel / 5MHz / QPSK



Date: 28 DEC 2019 09:53:17

Highest Channel / 5MHz / 16QAM

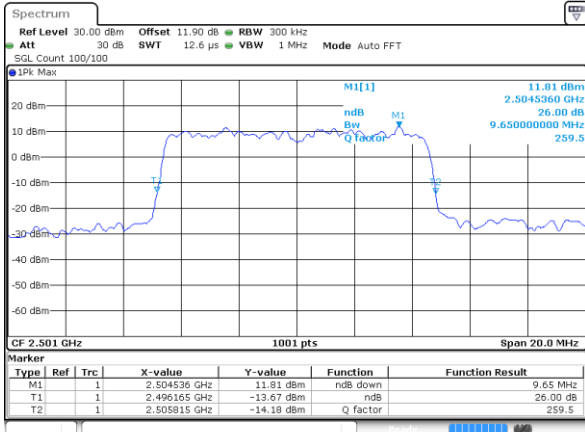


Date: 28 DEC 2019 09:53:29



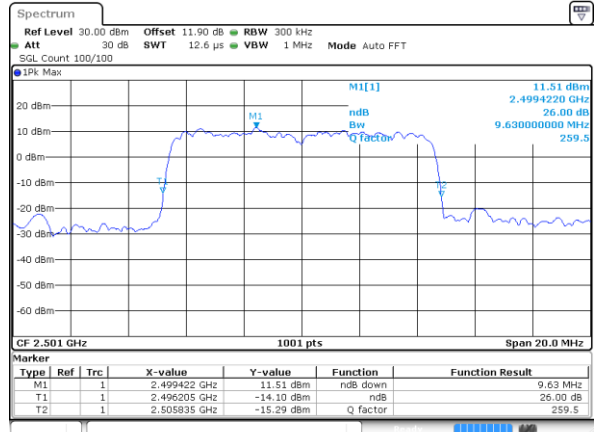
LTE Band 41

Lowest Channel / 10MHz / QPSK



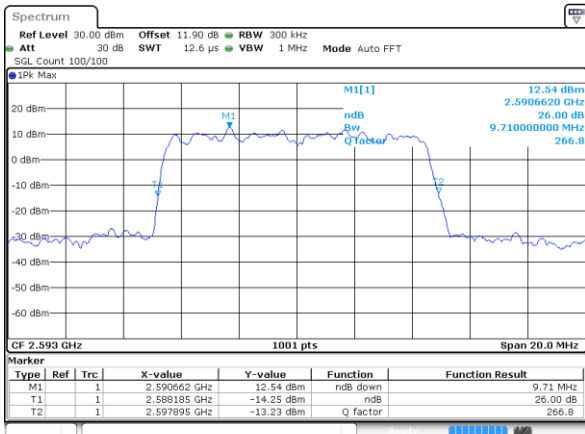
Date: 28 DEC 2019 09:54:06

Lowest Channel / 10MHz / 16QAM



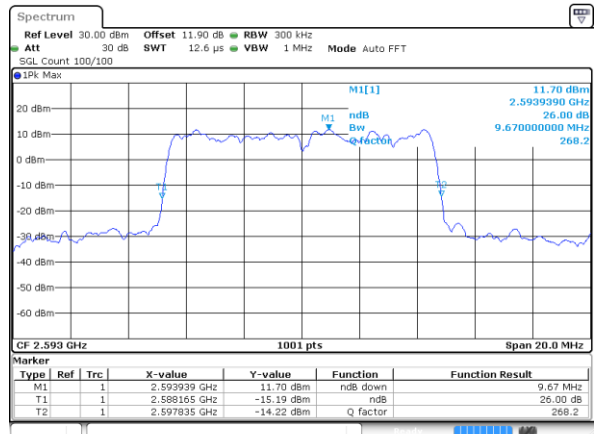
Date: 28 DEC 2019 09:54:18

Middle Channel / 10MHz / QPSK



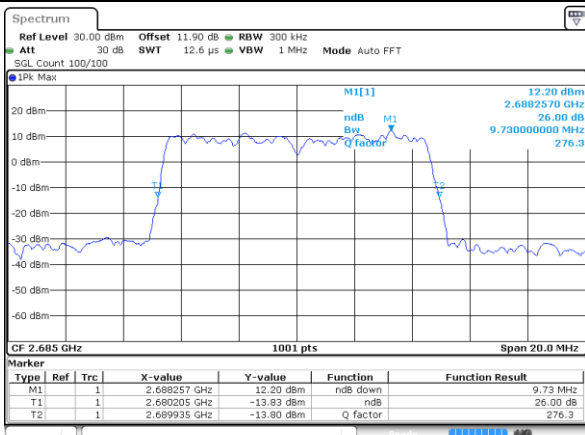
Date: 28 DEC 2019 09:54:52

Middle Channel / 10MHz / 16QAM



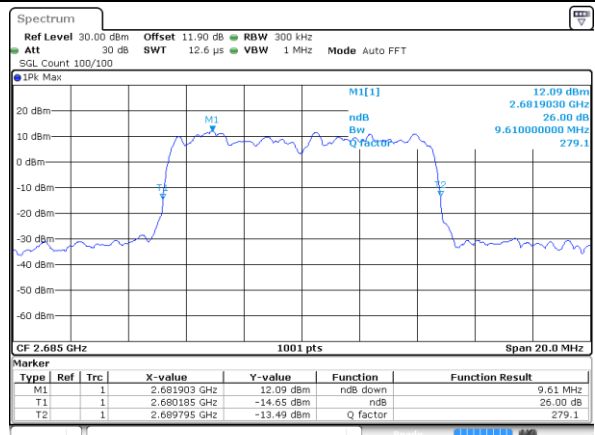
Date: 28 DEC 2019 09:55:04

Highest Channel / 10MHz / QPSK



Date: 28 DEC 2019 09:55:40

Highest Channel / 10MHz / 16QAM



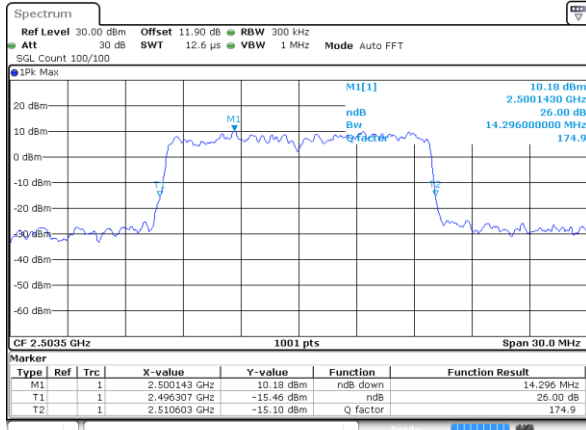
Date: 28 DEC 2019 09:55:52





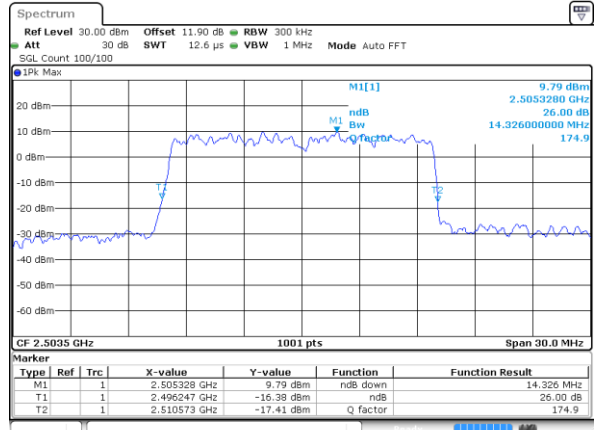
LTE Band 41

Lowest Channel / 15MHz / QPSK



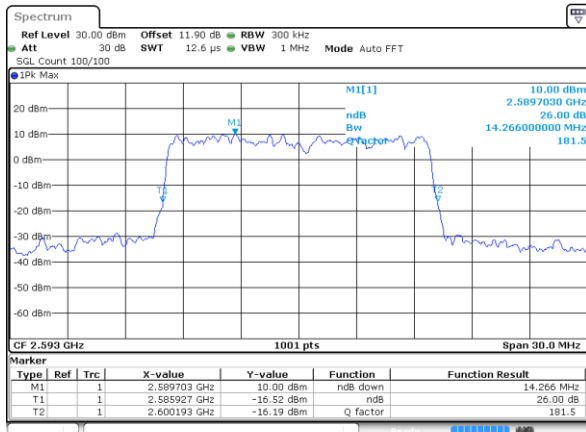
Date: 28 DEC 2019 09:56:29

Lowest Channel / 15MHz / 16QAM



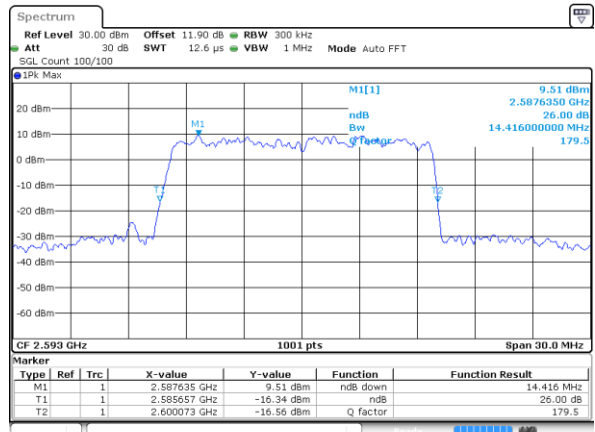
Date: 28 DEC 2019 09:56:41

Middle Channel / 15MHz / QPSK



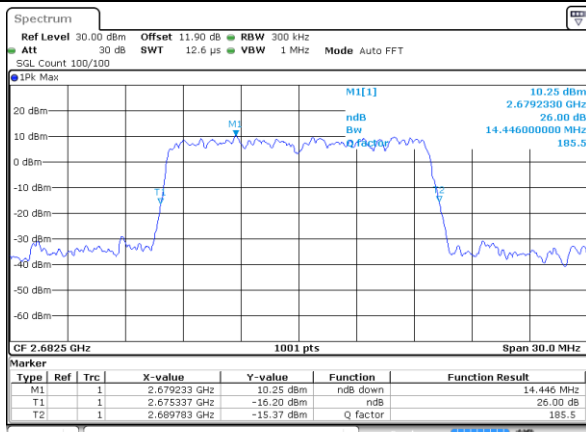
Date: 28 DEC 2019 09:57:15

Middle Channel / 15MHz / 16QAM



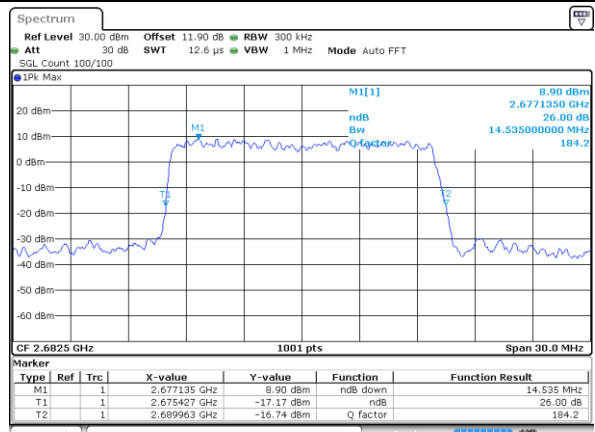
Date: 28 DEC 2019 09:57:27

Highest Channel / 15MHz / QPSK



Date: 28 DEC 2019 09:58:03

Highest Channel / 15MHz / 16QAM

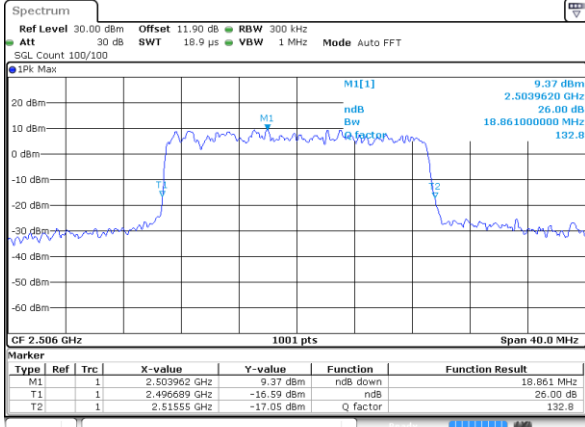


Date: 28 DEC 2019 09:58:15



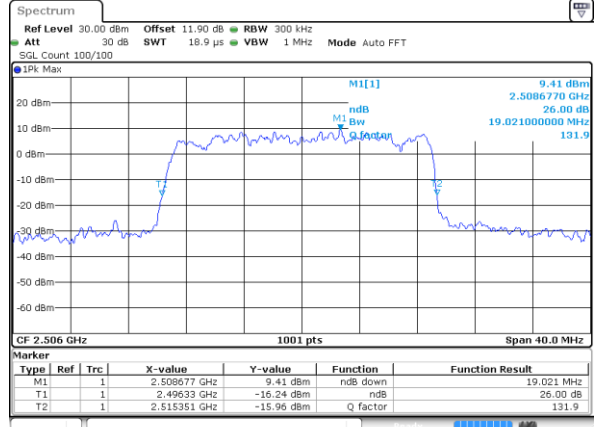
LTE Band 41

Lowest Channel / 20MHz / QPSK



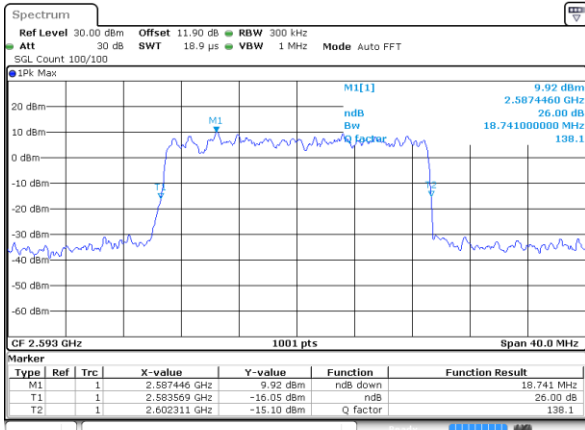
Date: 28 DEC 2019 09:58:51

Lowest Channel / 20MHz / 16QAM



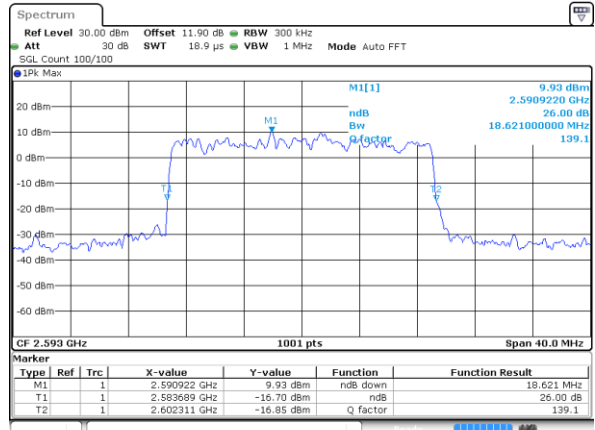
Date: 28 DEC 2019 09:59:03

Middle Channel / 20MHz / QPSK



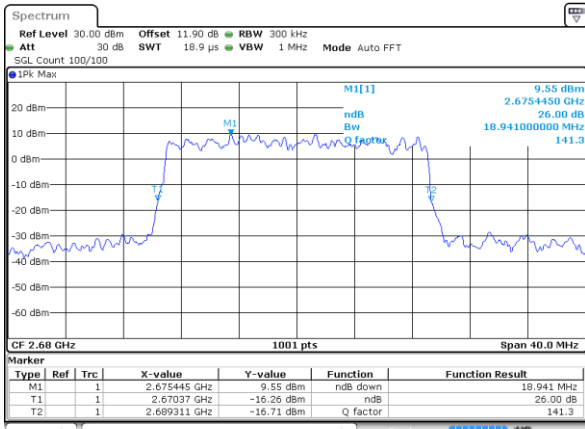
Date: 28 DEC 2019 09:59:38

Middle Channel / 20MHz / 16QAM



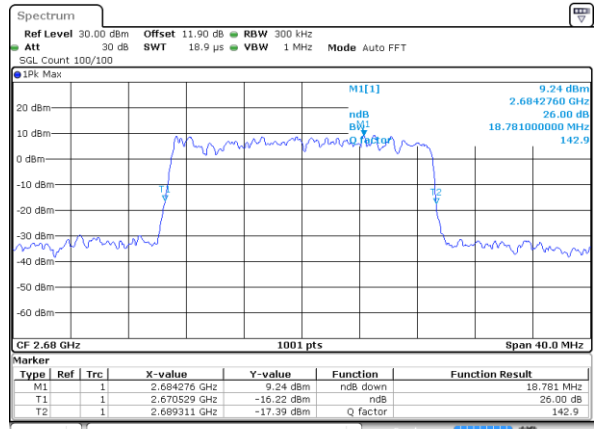
Date: 28 DEC 2019 09:59:50

Highest Channel / 20MHz / QPSK



Date: 28 DEC 2019 10:00:26

Highest Channel / 20MHz / 16QAM



Date: 28 DEC 2019 10:00:38