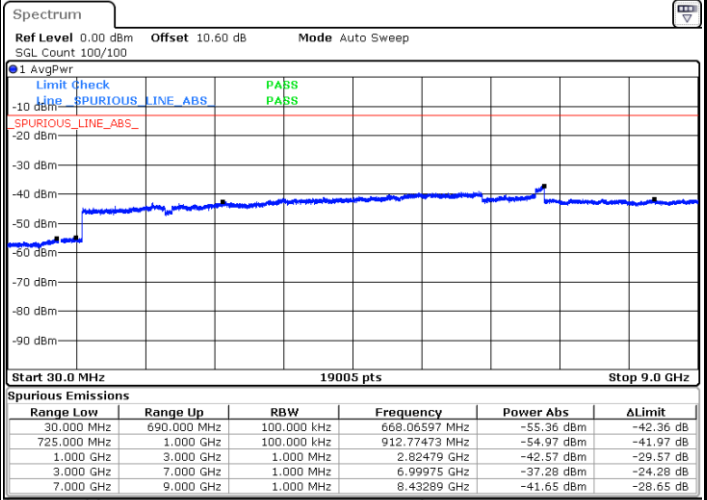
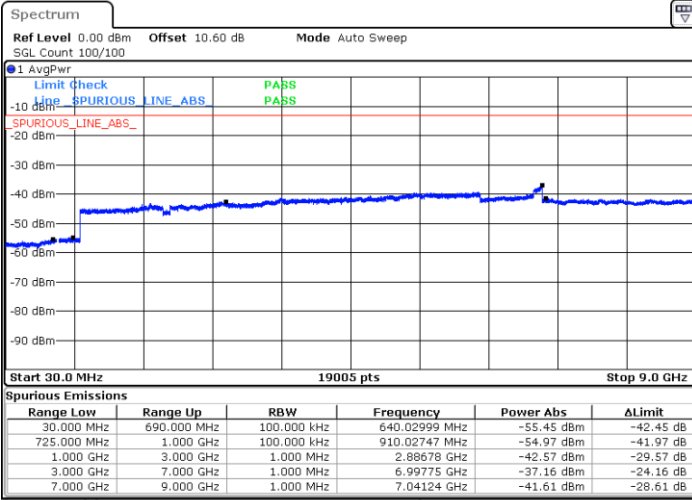




LTE Band 12 / 1.4MHz

Highest Channel / QPSK

Highest Channel / 16QAM



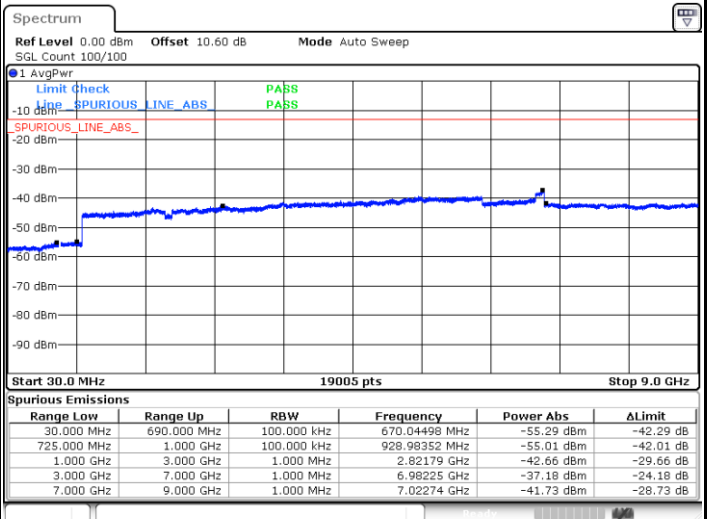
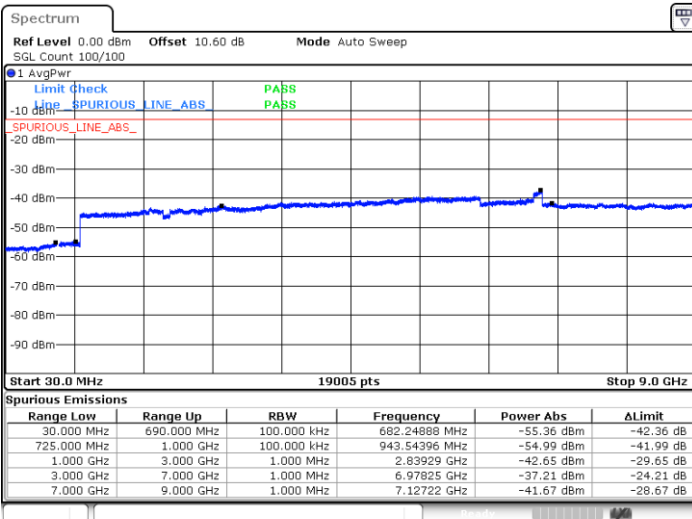
Date: 14.JAN.2020 20:50:37

Date: 14.JAN.2020 20:51:30

LTE Band 12 / 3MHz

Lowest Channel / QPSK

Lowest Channel / 16QAM



Date: 14.JAN.2020 21:05:30

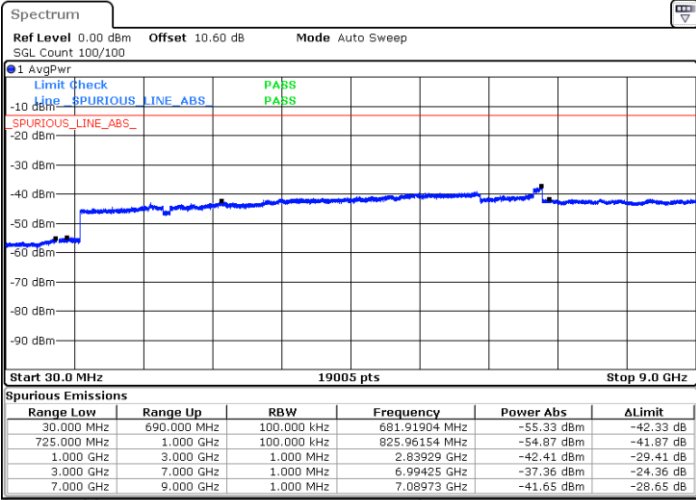
Date: 14.JAN.2020 21:06:23



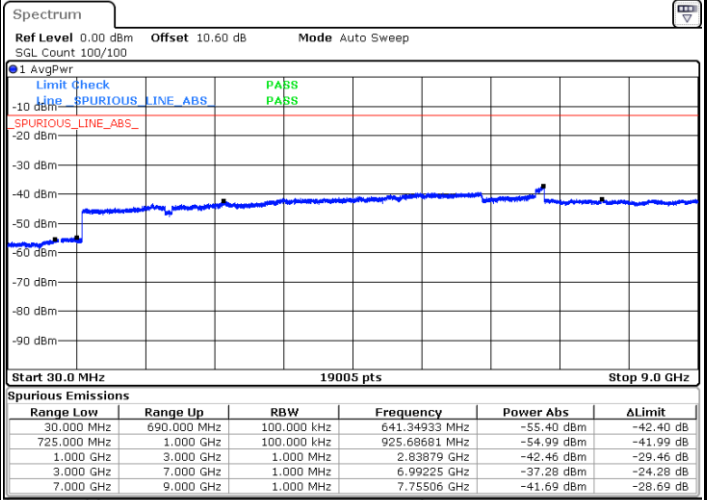
LTE Band 12 / 3MHz

Middle Channel / QPSK

Middle Channel / 16QAM



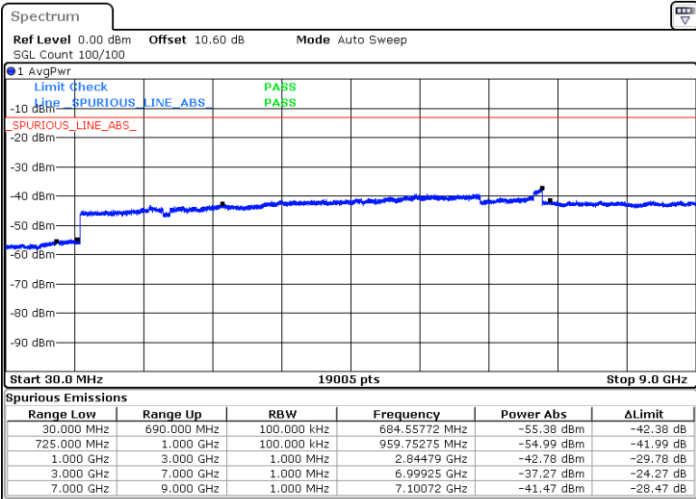
Date: 14.JAN.2020 21:09:03



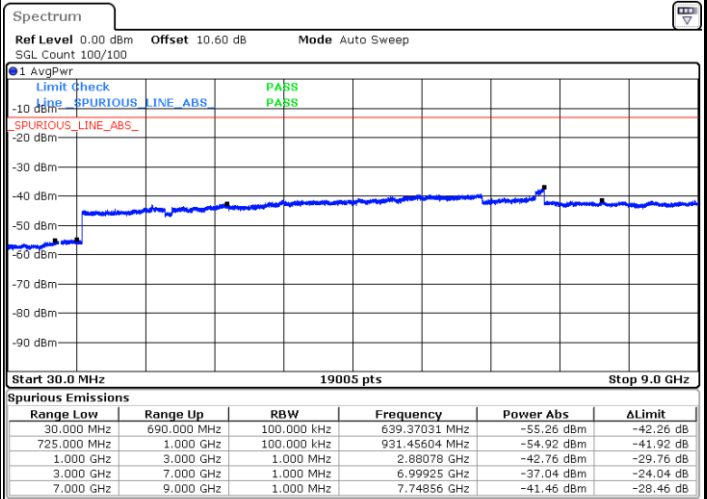
Date: 14.JAN.2020 21:08:10

Highest Channel / QPSK

Highest Channel / 16QAM



Date: 14.JAN.2020 21:14:56



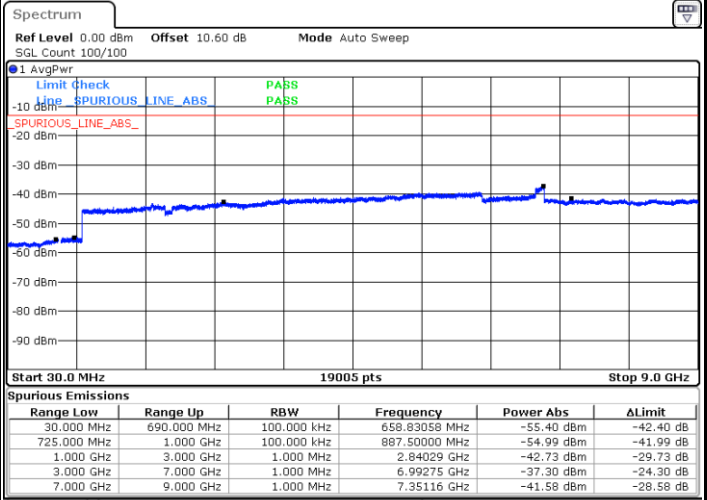
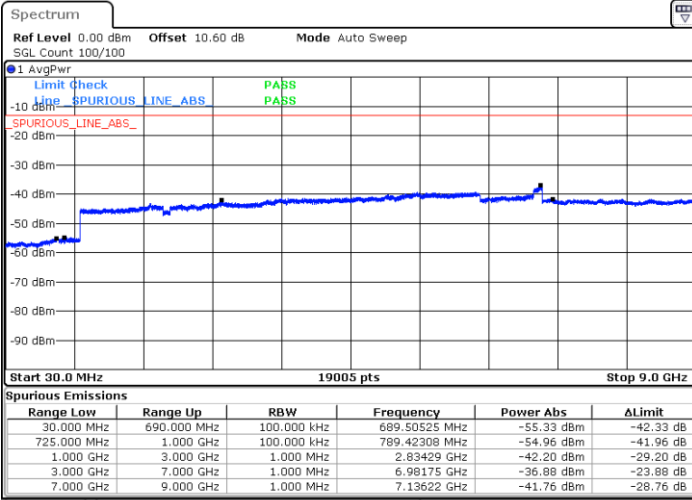
Date: 14.JAN.2020 21:15:50



LTE Band 12 / 5MHz

Lowest Channel / QPSK

Lowest Channel / 16QAM

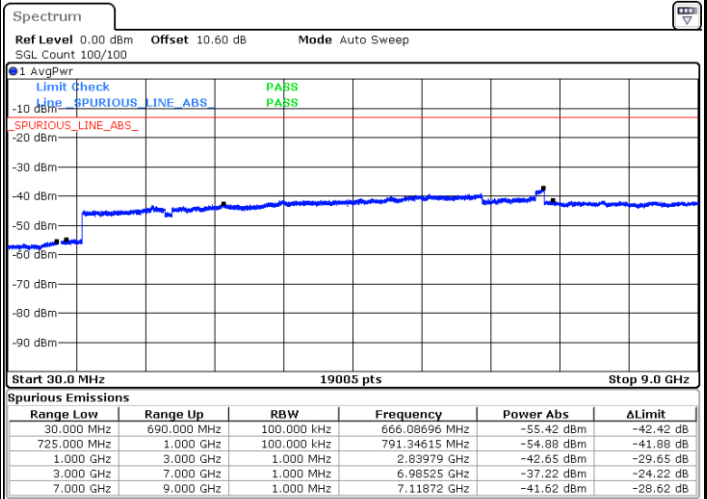
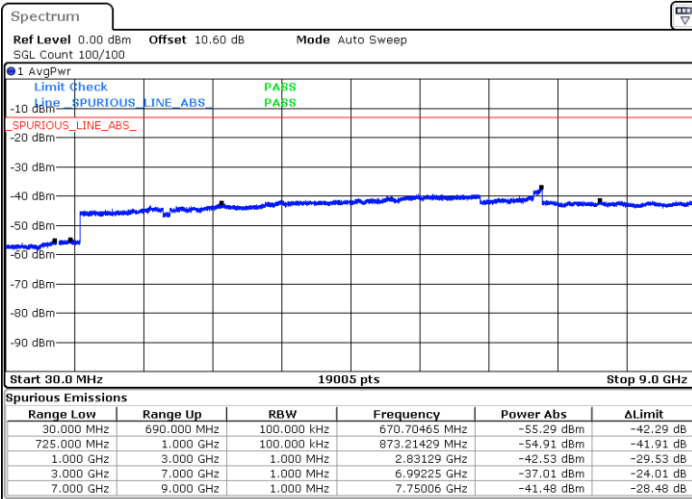


Date: 14.JAN.2020 21:40:35

Date: 14.JAN.2020 21:41:28

Middle Channel / QPSK

Middle Channel / 16QAM



Date: 14.JAN.2020 21:44:07

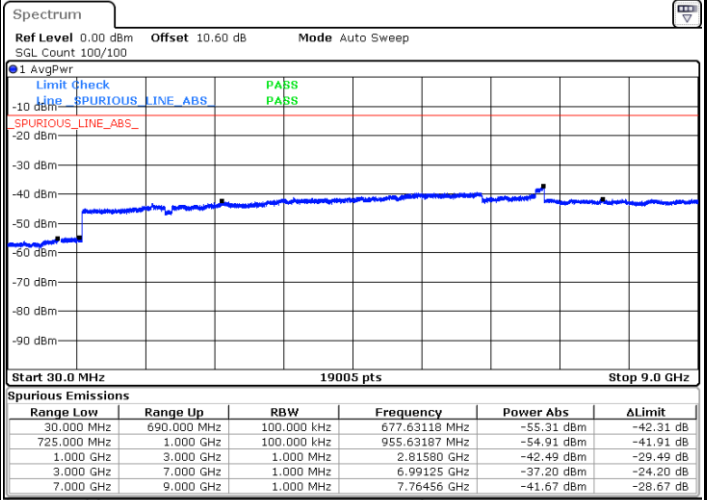
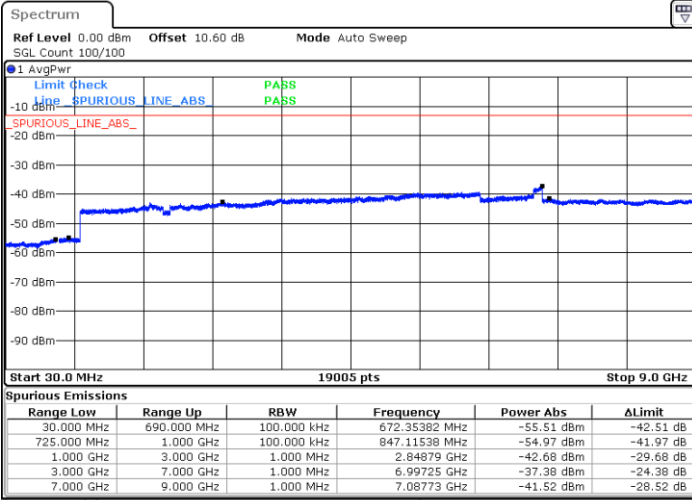
Date: 14.JAN.2020 21:43:14



LTE Band 12 / 5MHz

Highest Channel / QPSK

Highest Channel / 16QAM



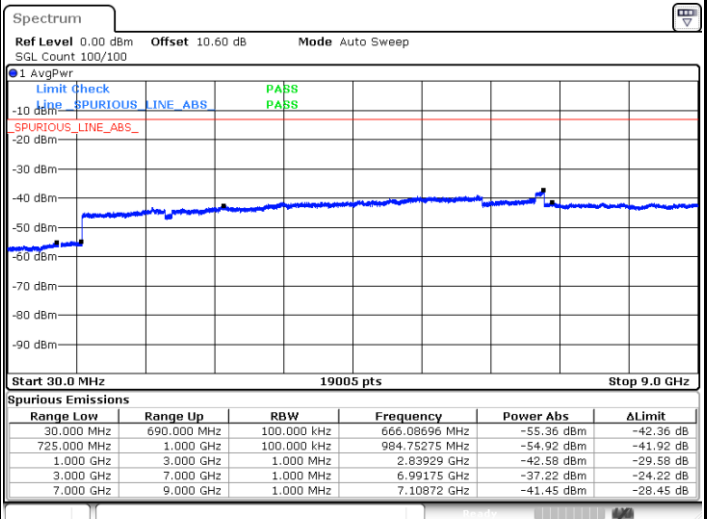
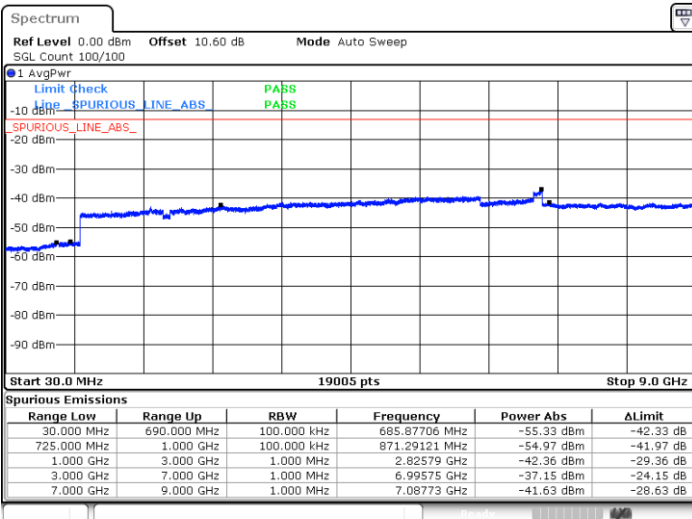
Date: 14.JAN.2020 21:50:52

Date: 14.JAN.2020 21:49:59

LTE Band 12 / 10MHz

Lowest Channel / QPSK

Lowest Channel / 16QAM



Date: 14.JAN.2020 21:56:48

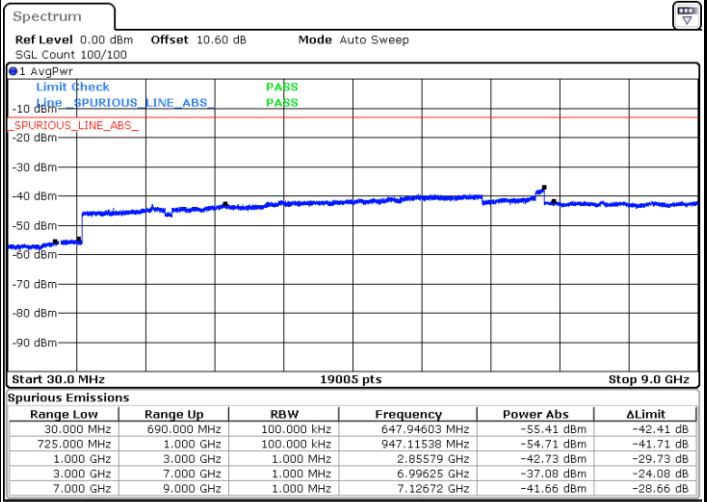
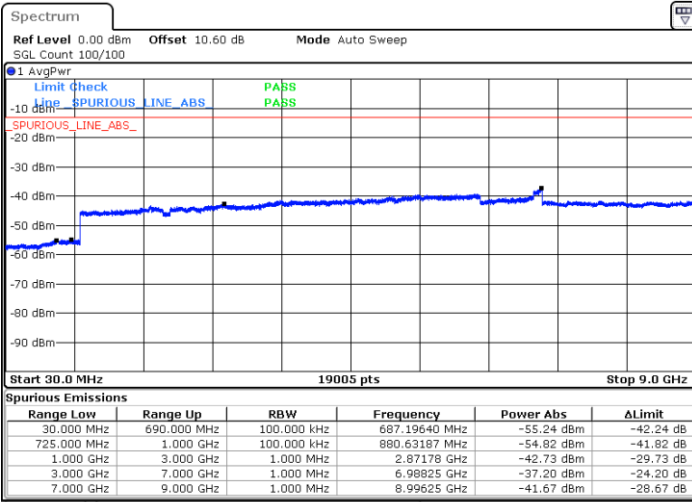
Date: 14.JAN.2020 21:57:41



LTE Band 12 / 10MHz

Middle Channel / QPSK

Middle Channel / 16QAM

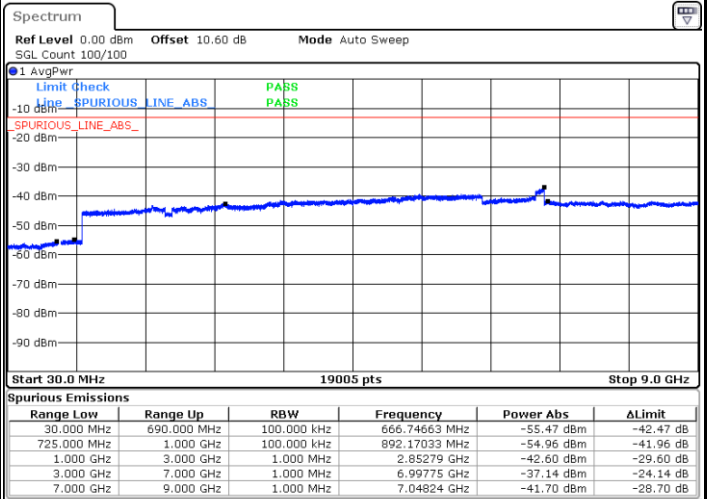
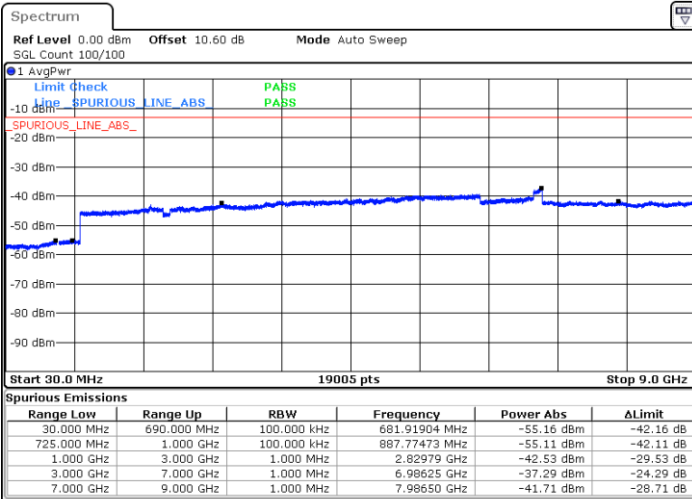


Date: 14.JAN.2020 22:00:20

Date: 14.JAN.2020 21:59:27

Highest Channel / QPSK

Highest Channel / 16QAM



Date: 14.JAN.2020 22:06:13

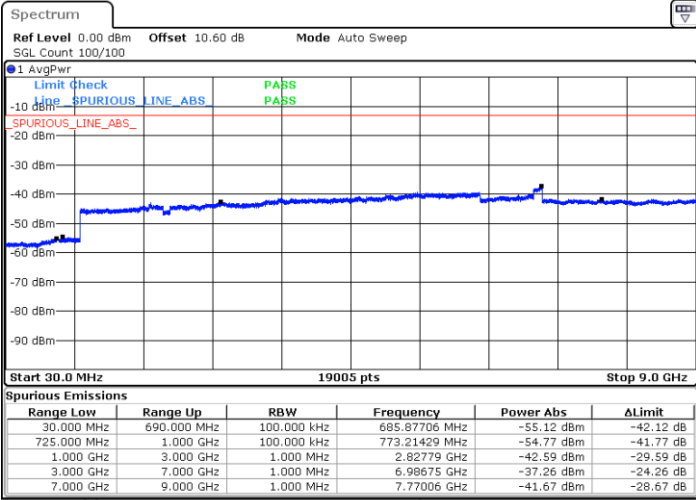
Date: 14.JAN.2020 22:07:06



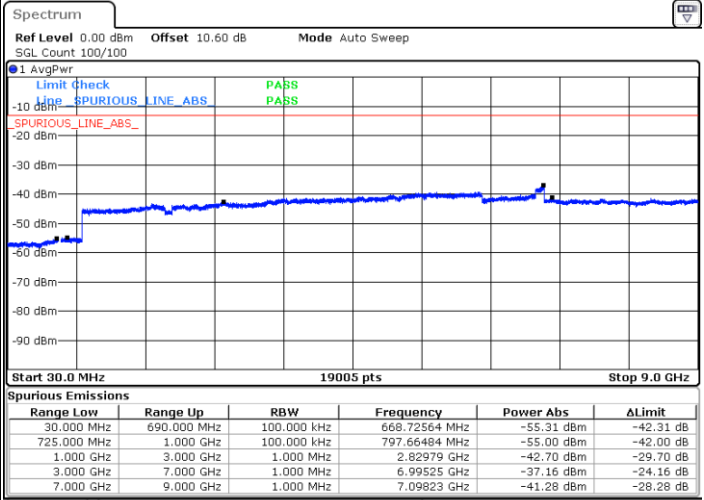
LTE Band 12 / 1.4MHz

Lowest Channel / 64QAM

Middle Channel / 64QAM

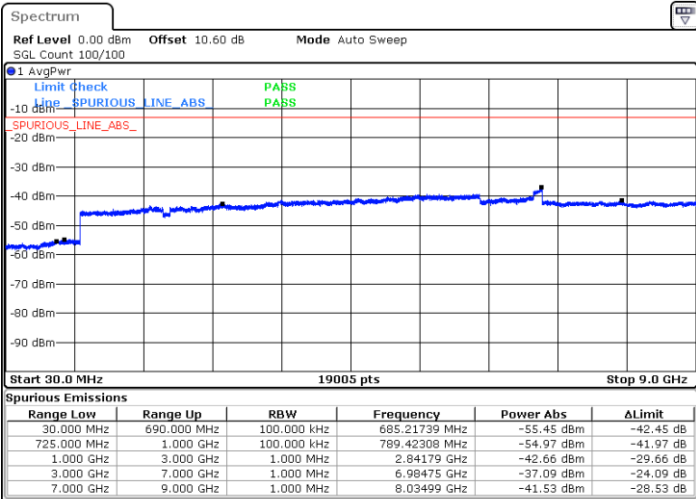


Date: 14.JAN.2020 20:54:53



Date: 14.JAN.2020 20:56:14

Highest Channel / 64QAM



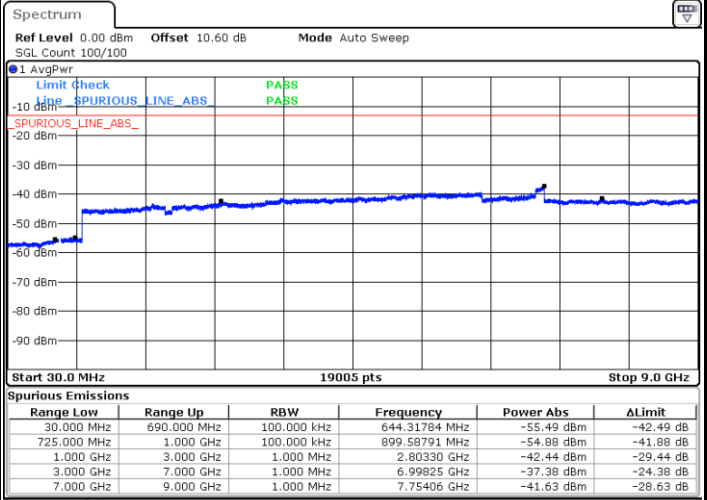
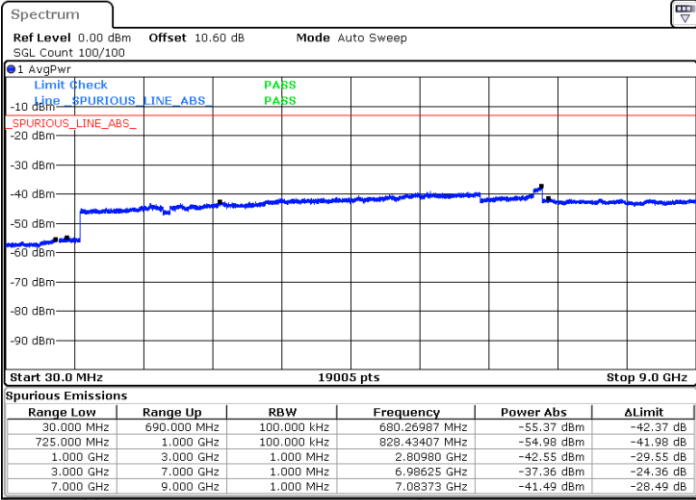
Date: 14.JAN.2020 20:59:37



LTE Band 12 / 3MHz

Lowest Channel / 64QAM

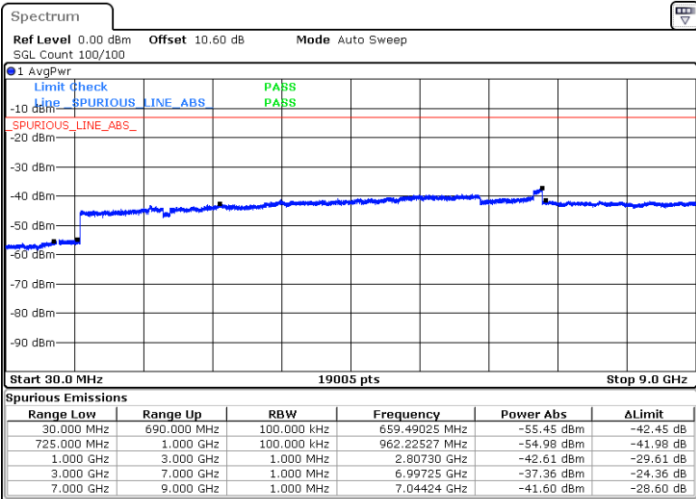
Middle Channel / 64QAM



Date: 14.JAN.2020 21:19:12

Date: 14.JAN.2020 21:20:32

Highest Channel / 64QAM



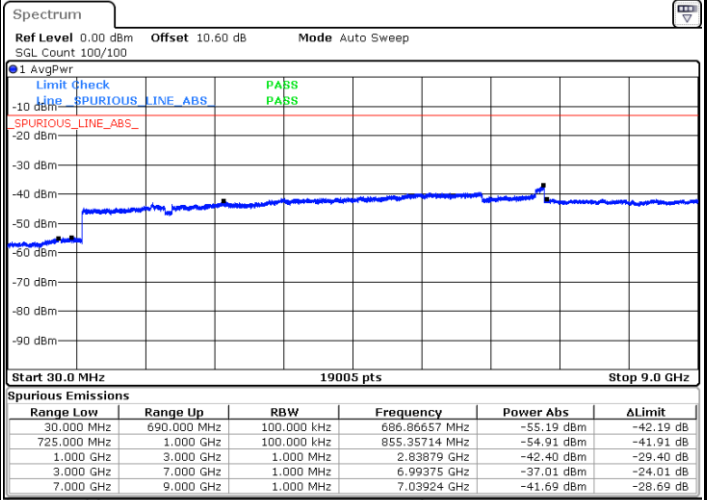
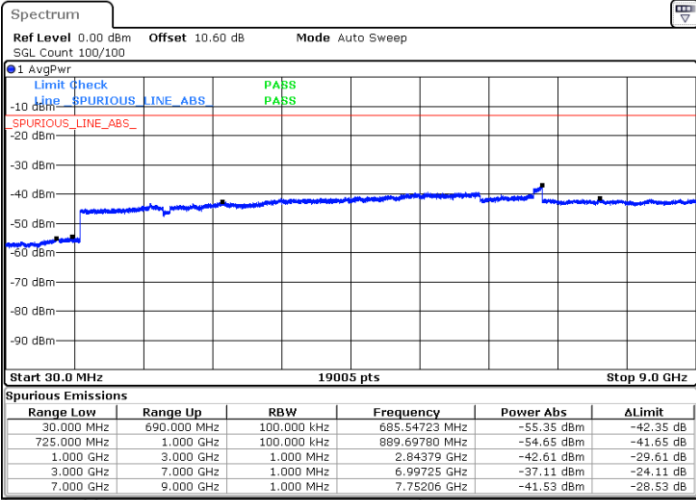
Date: 14.JAN.2020 21:23:54



LTE Band 12 / 5MHz

Lowest Channel / 64QAM

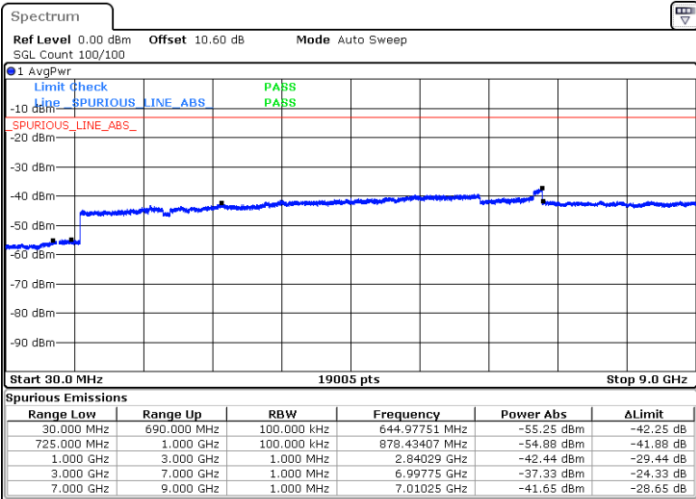
Middle Channel / 64QAM



Date: 14.JAN.2020 21:27:18

Date: 14.JAN.2020 21:28:38

Highest Channel / 64QAM



Date: 14.JAN.2020 21:32:00

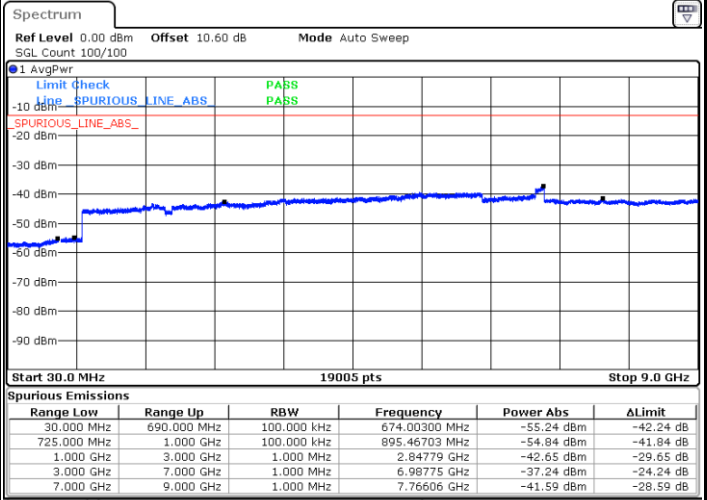
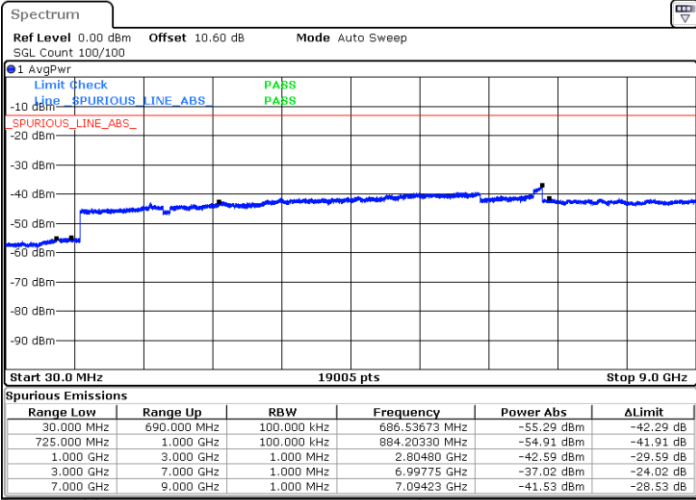




LTE Band 12 / 10MHz

Lowest Channel / 64QAM

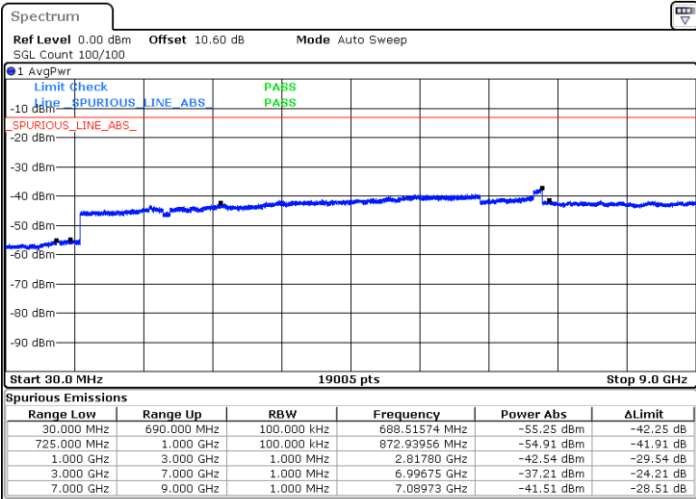
Middle Channel / 64QAM



Date: 14.JAN.2020 22:10:29

Date: 14.JAN.2020 22:11:48

Highest Channel / 64QAM



Date: 14.JAN.2020 22:22:36



**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	0.0085	PASS
40	Normal Voltage	0.0035	
30	Normal Voltage	0.0096	
20(Ref.)	Normal Voltage	0.0000	
10	Normal Voltage	0.0034	
0	Normal Voltage	0.0086	
-10	Normal Voltage	0.0044	
-20	Normal Voltage	0.0059	
-30	Normal Voltage	0.0045	
20	Maximum Voltage	0.0023	
20	Normal Voltage	0.0034	
20	Battery End Point	0.0001	

**Note:**

1. Normal Voltage =3.9 V. : Battery End Point (BEP) =3.4 V. : Maximum Voltage =4.35 V.
2. Note: The frequency fundamental emissions stay within the authorized frequency block.



# LTE Band 13

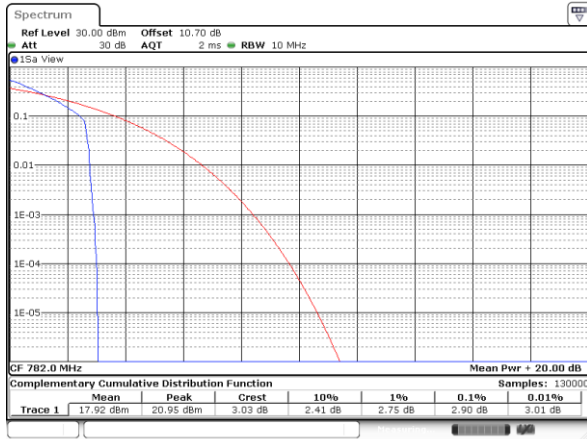
## Peak-to-Average Ratio

Mode	LTE Band 13 / 10MHz				
Mod.	QPSK		16QAM		Limit: 13dB
RB Size	1RB	Full RB	1RB	Full RB	Result
Lowest CH	-	-	-	-	PASS
Middle CH	2.90	4.87	3.39	5.71	
Highest CH	-	-	-	-	
Mode	LTE Band 13 / 10MHz				
Mod.	64QAM				Limit: 13dB
RB Size	1RB	Full RB			Result
Lowest CH	-	-	-	-	PASS
Middle CH	4.75	6.14	-	-	
Highest CH	-	-	-	-	



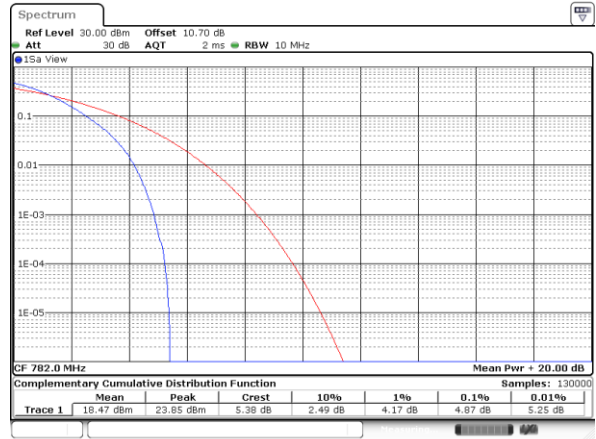
LTE Band 13 / 10MHz / QPSK

Middle Channel / 1RB



Date: 15\_JAN.2020 17:24:59

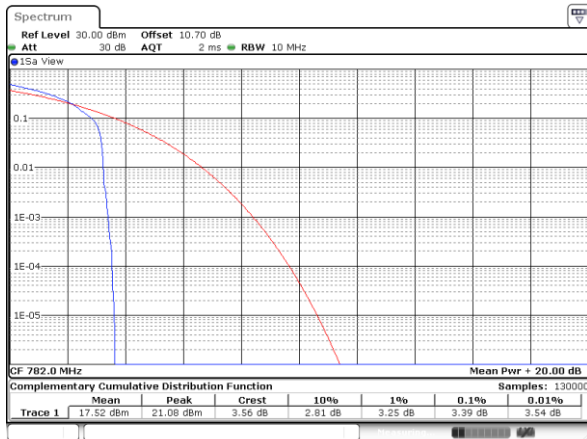
Middle Channel / Full RB



Date: 15\_JAN.2020 17:25:11

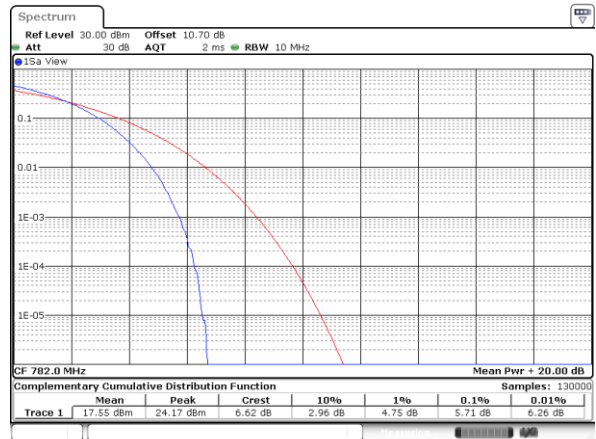
LTE Band 13 / 10MHz / 16QAM

Middle Channel / 1RB



Date: 15\_JAN.2020 17:24:52

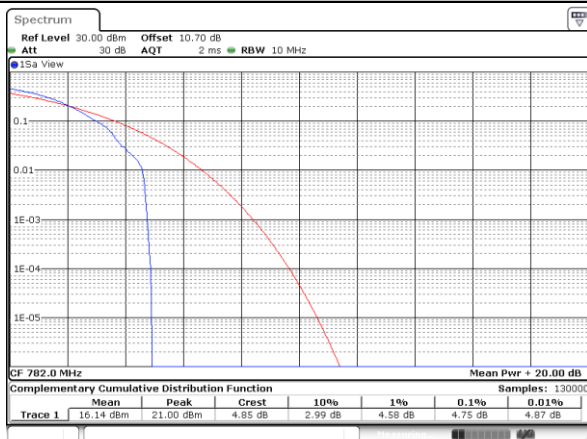
Middle Channel / Full RB



Date: 15\_JAN.2020 17:24:44

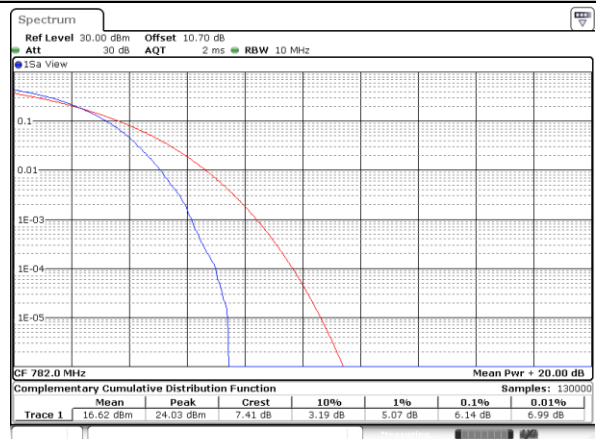
LTE Band 13 / 10MHz / 64QAM

Middle Channel / 1RB



Date: 15\_JAN.2020 17:23:59

Middle Channel / Full RB



Date: 15\_JAN.2020 17:24:13



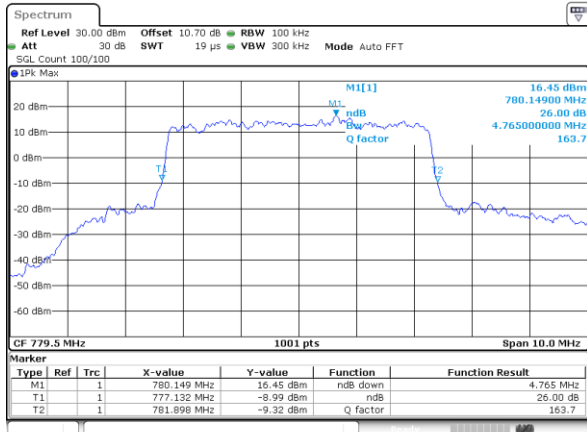
**26dB Bandwidth**

Mode BW	LTE Band 13 : 26dB BW(MHz)											
	1.4MHz		3MHz		5MHz		10MHz		15MHz		20MHz	
Mod.	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM
Lowest CH	-	-	-	-	4.77	4.83	-	-	-	-	-	-
Middle CH	-	-	-	-	4.91	4.88	9.81	9.71	-	-	-	-
Highest CH	-	-	-	-	5.04	4.85	-	-	-	-	-	-
Mode	LTE Band 13 : 26dB BW(MHz)											
BW	1.4MHz		3MHz		5MHz		10MHz		15MHz		20MHz	
Mod.	64QAM		64QAM		64QAM		64QAM		64QAM		64QAM	
Lowest CH	-	-	-	-	4.87	-	-	-	-	-	-	-
Middle CH	-	-	-	-	4.86	-	9.81	-	-	-	-	-
Highest CH	-	-	-	-	4.93	-	-	-	-	-	-	-



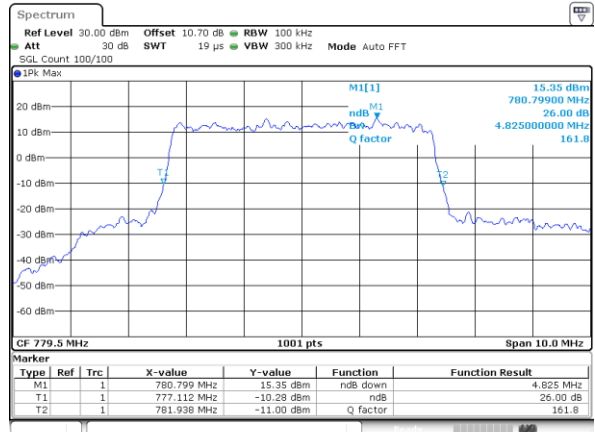
LTE Band 13

Lowest Channel / 5MHz / QPSK



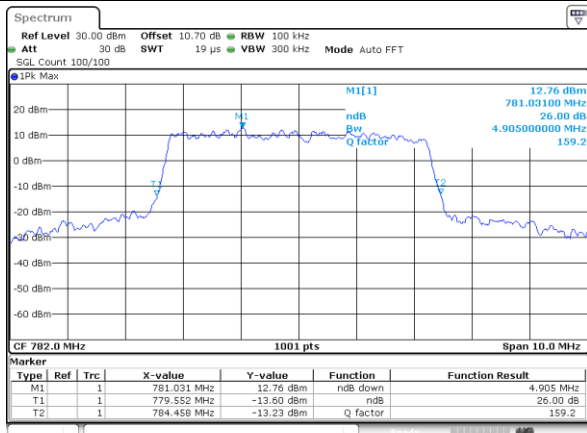
Date: 15\_JAN\_2020 16:27:53

Lowest Channel / 5MHz / 16QAM



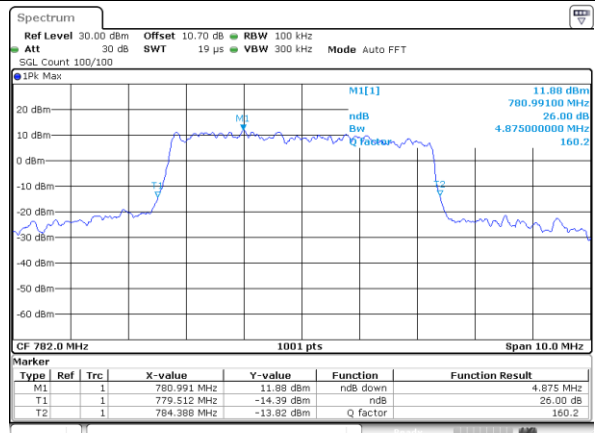
Date: 15\_JAN\_2020 16:27:39

Middle Channel / 5MHz / QPSK



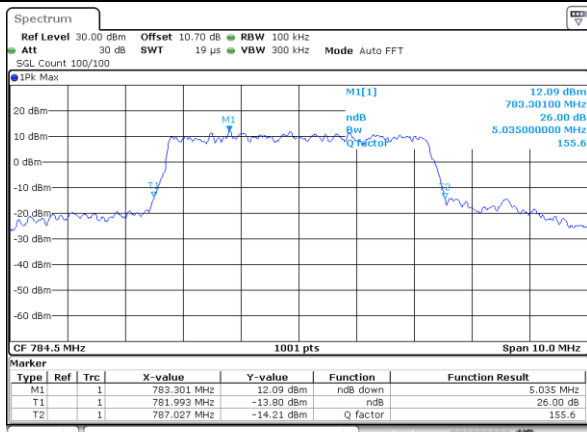
Date: 15\_JAN\_2020 16:38:22

Middle Channel / 5MHz / 16QAM



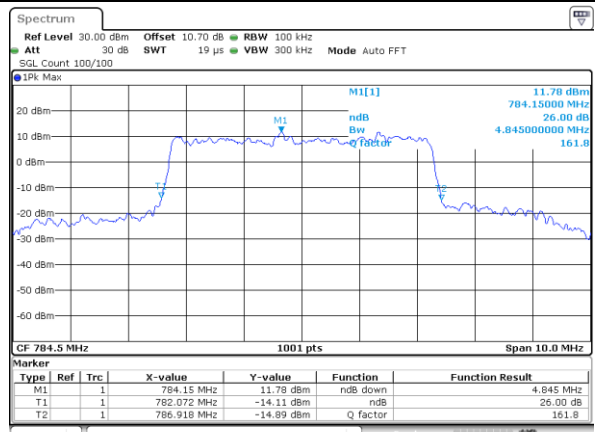
Date: 15\_JAN\_2020 16:38:36

Highest Channel / 5MHz / QPSK



Date: 15\_JAN\_2020 16:39:57

Highest Channel / 5MHz / 16QAM

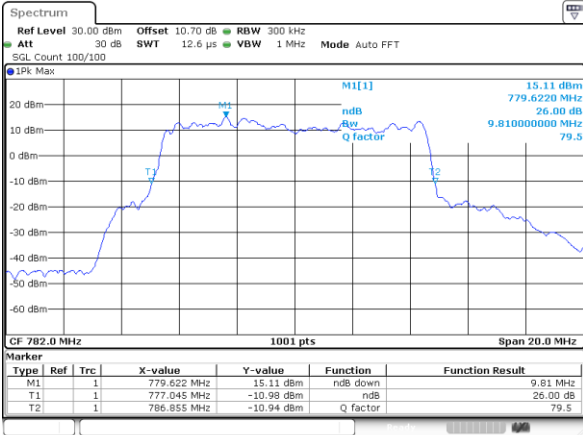


Date: 15\_JAN\_2020 16:39:43



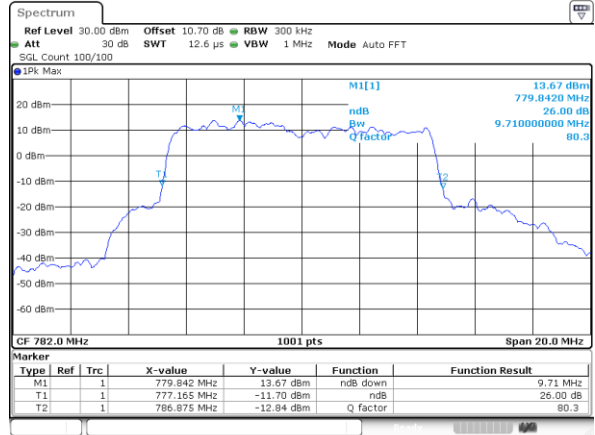
LTE Band 13

Middle Channel / 10MHz / QPSK



Date: 15 JAN 2020 17:05:06

Middle Channel / 10MHz / 16QAM

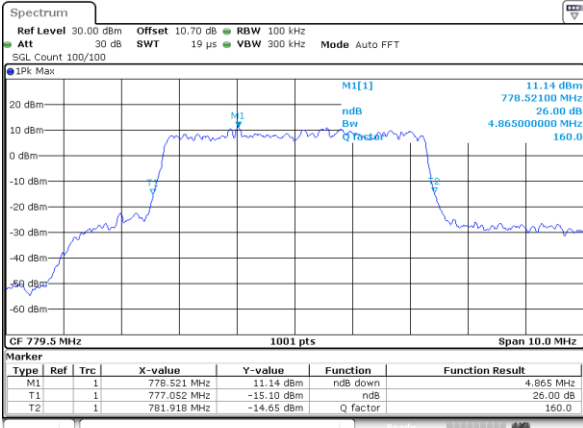


Date: 15 JAN 2020 17:03:11



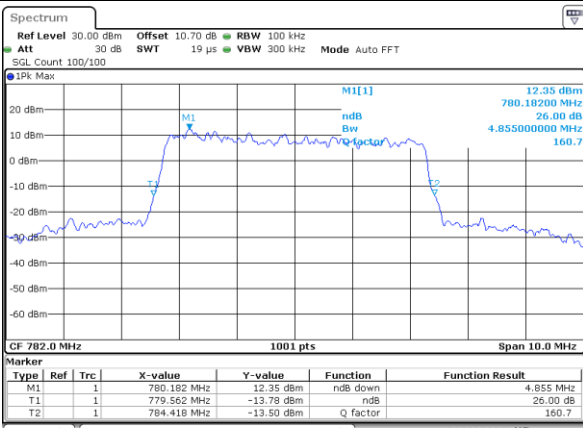
LTE Band 13

Lowest Channel / 5MHz / 64QAM



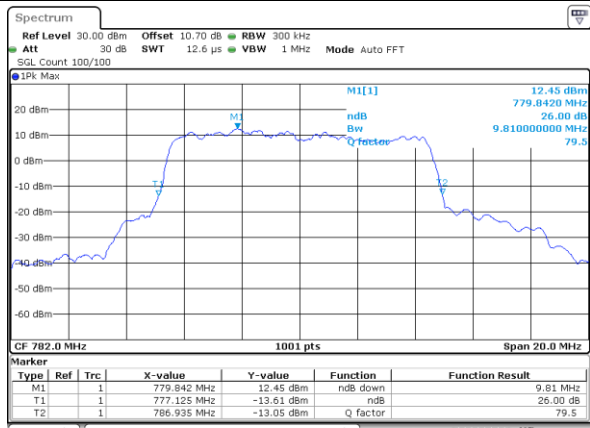
Date: 15\_JAN\_2020 16:48:54

Middle Channel / 5MHz / 64QAM



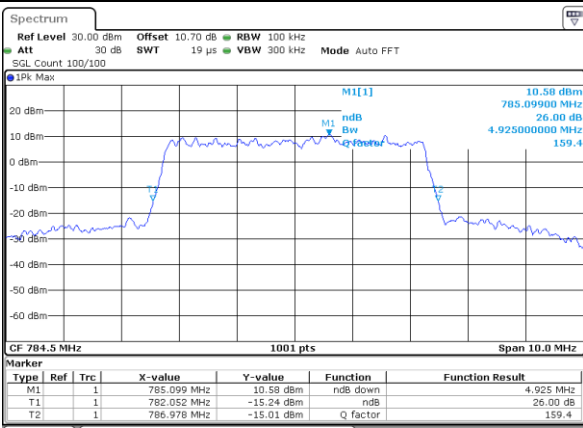
Date: 15\_JAN\_2020 16:57:35

Middle Channel / 10MHz / 64QAM



Date: 15\_JAN\_2020 17:17:20

Highest Channel / 5MHz / 64QAM



Date: 15\_JAN\_2020 16:58:15





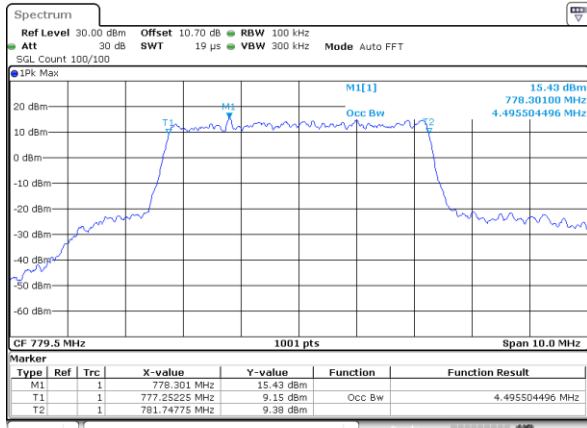
**Occupied Bandwidth**

Mode BW	LTE Band 13 : 99%OBW(MHz)											
	1.4MHz		3MHz		5MHz		10MHz		15MHz		20MHz	
Mod.	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM
Lowest CH	-	-	-	-	4.50	4.47	-	-	-	-	-	-
Middle CH	-	-	-	-	4.49	4.49	9.01	9.03	-	-	-	-
Highest CH	-	-	-	-	4.51	4.51	-	-	-	-	-	-
Mode	LTE Band 13 : 99%OBW(MHz)											
BW	1.4MHz		3MHz		5MHz		10MHz		15MHz		20MHz	
Mod.	64QAM		64QAM		64QAM		64QAM		64QAM		64QAM	
Lowest CH	-	-	-	-	4.49	-	-	-	-	-	-	-
Middle CH	-	-	-	-	4.54	-	9.05	-	-	-	-	-
Highest CH	-	-	-	-	4.51	-	-	-	-	-	-	-



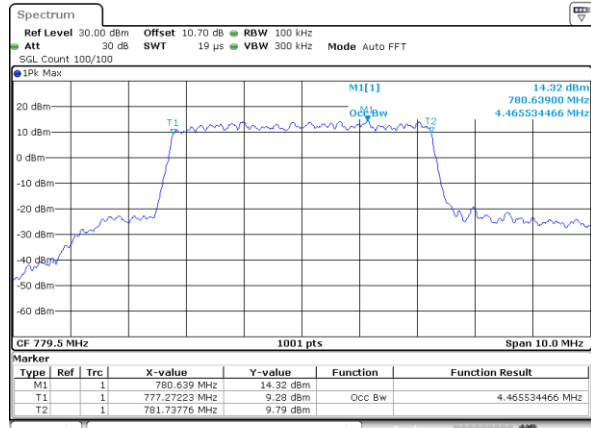
LTE Band 13

Lowest Channel / 5MHz / QPSK



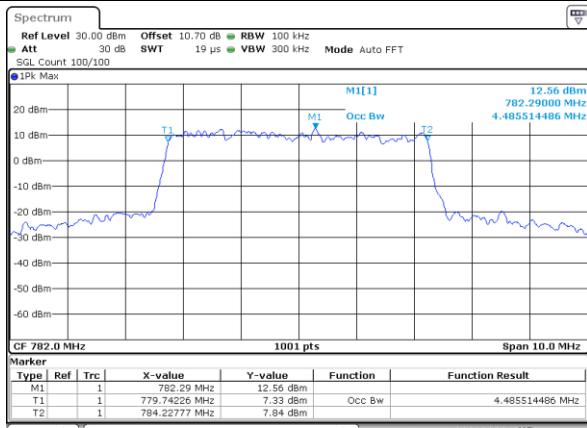
Date: 15\_JAN\_2020 16:27:11

Lowest Channel / 5MHz / 16QAM



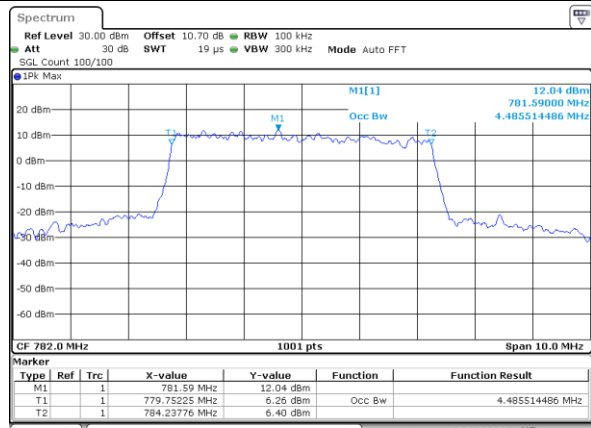
Date: 15\_JAN\_2020 16:27:25

Middle Channel / 5MHz / QPSK



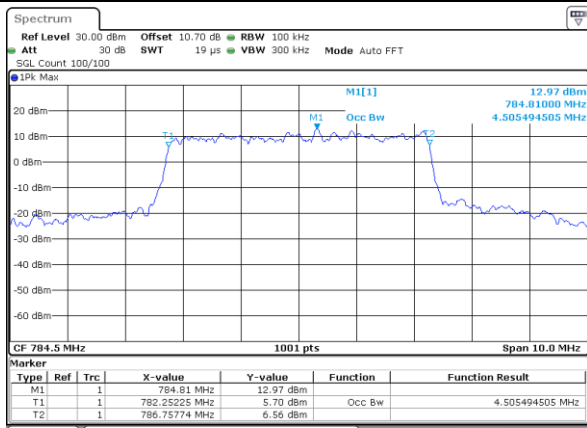
Date: 15\_JAN\_2020 16:39:02

Middle Channel / 5MHz / 16QAM



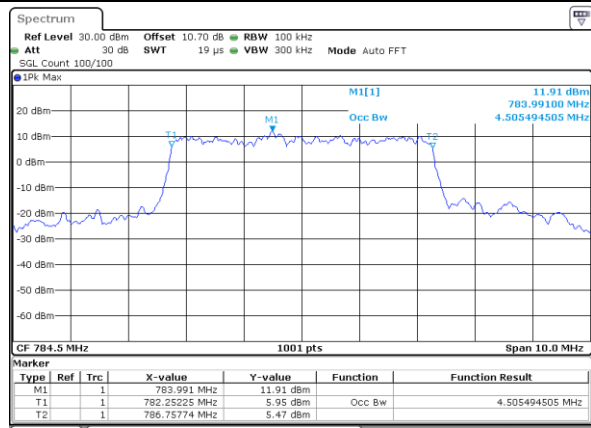
Date: 15\_JAN\_2020 16:38:49

Highest Channel / 5MHz / QPSK



Date: 15\_JAN\_2020 16:39:16

Highest Channel / 5MHz / 16QAM

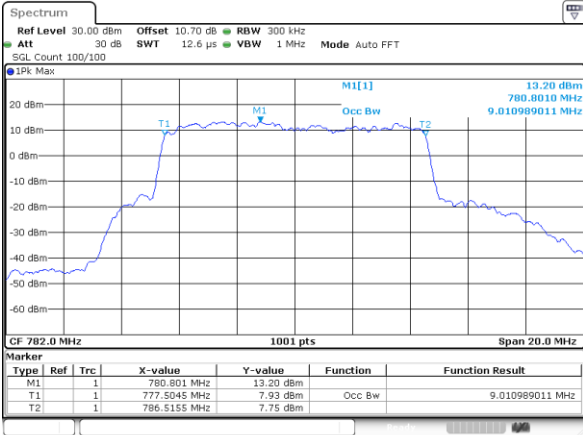


Date: 15\_JAN\_2020 16:39:30



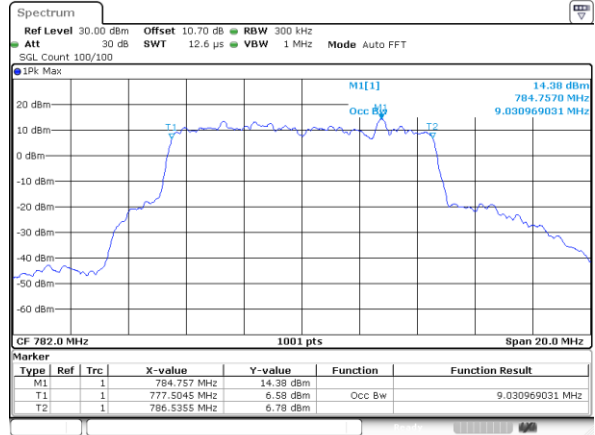
LTE Band 13

Middle Channel / 10MHz / QPSK



Date: 15 JAN 2020 17:02:44

Middle Channel / 10MHz / 16QAM

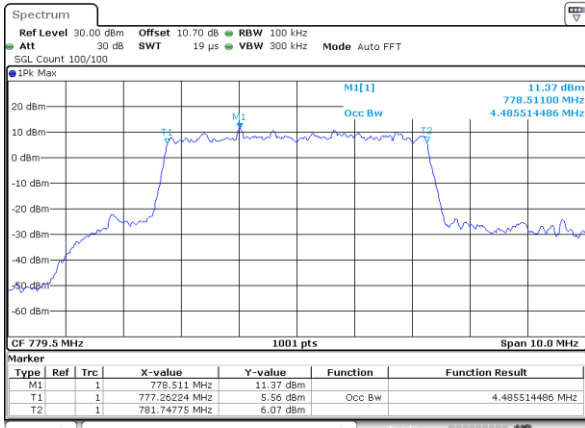


Date: 15 JAN 2020 17:02:58



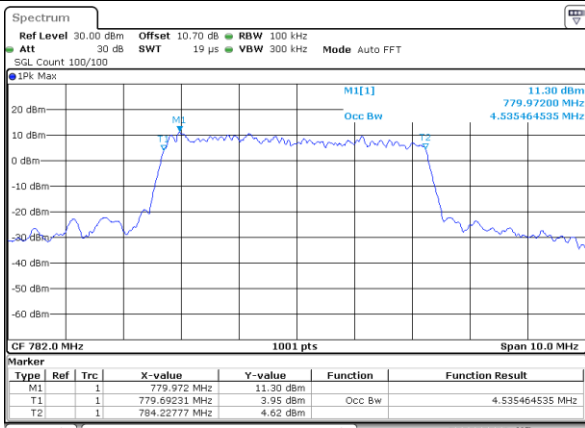
LTE Band 13

Lowest Channel / 5MHz / 64QAM



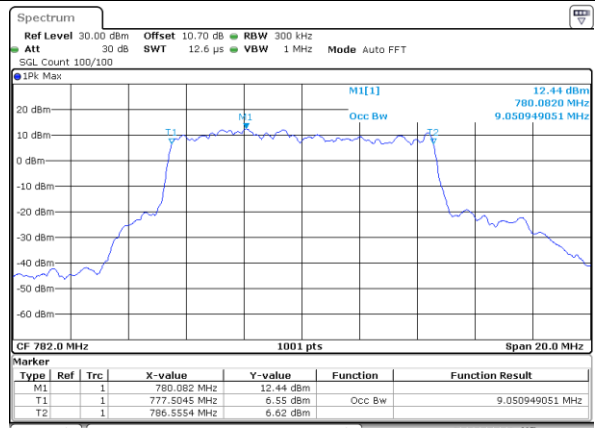
Date: 15\_JAN\_2020 16:48:41

Middle Channel / 5MHz / 64QAM



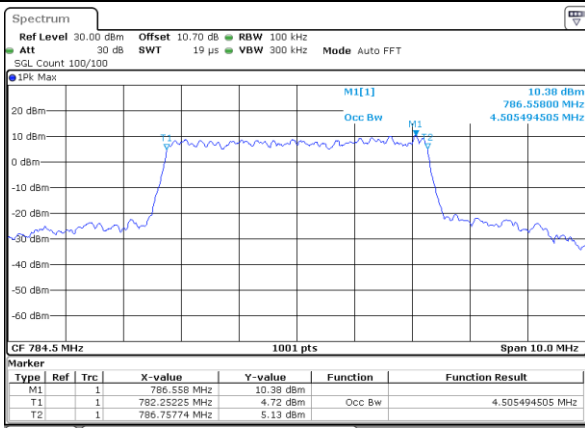
Date: 15\_JAN\_2020 16:57:48

Middle Channel / 10MHz / 64QAM



Date: 15\_JAN\_2020 17:17:06

Highest Channel / 5MHz / 64QAM



Date: 15\_JAN\_2020 16:58:02

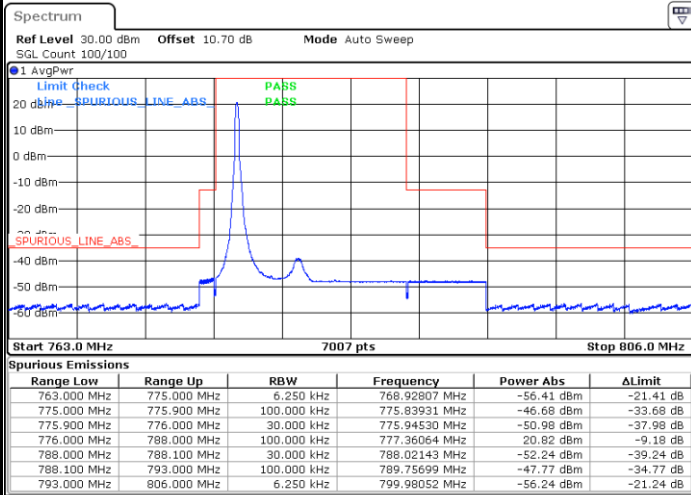


Conducted Band Edge

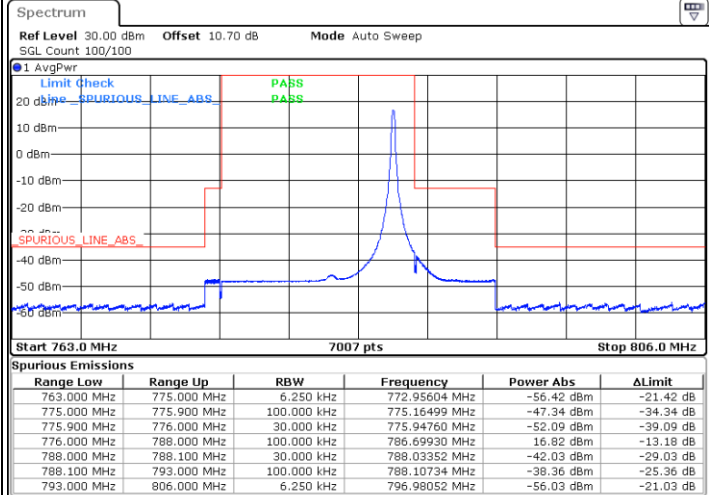
LTE Band 13 / 5MHz / QPSK

Lowest Band Edge / 1 RB

Highest Band Edge / 1 RB



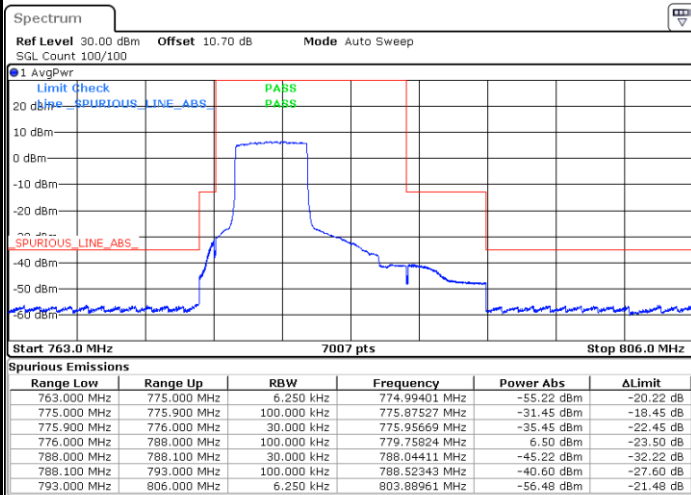
Date: 15.JAN.2020 16:34:37



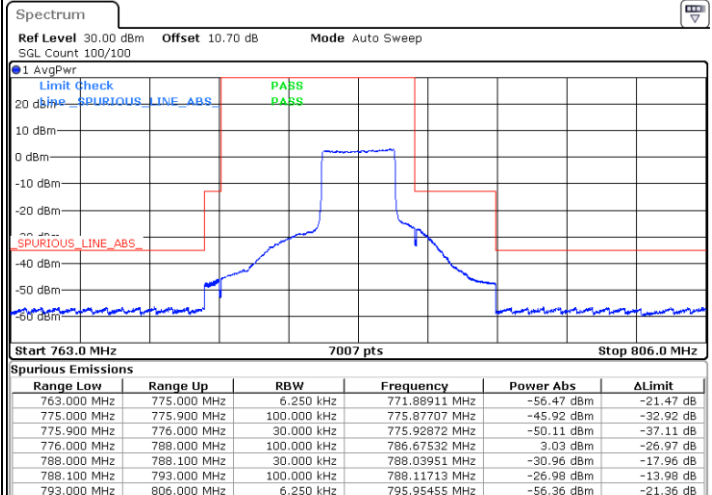
Date: 15.JAN.2020 16:46:42

Lowest Band Edge / Full RB

Highest Band Edge / Full RB



Date: 15.JAN.2020 16:29:34

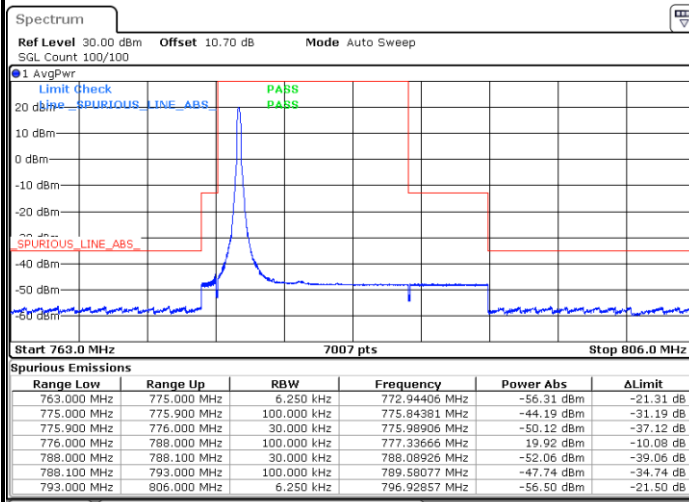


Date: 15.JAN.2020 16:41:39



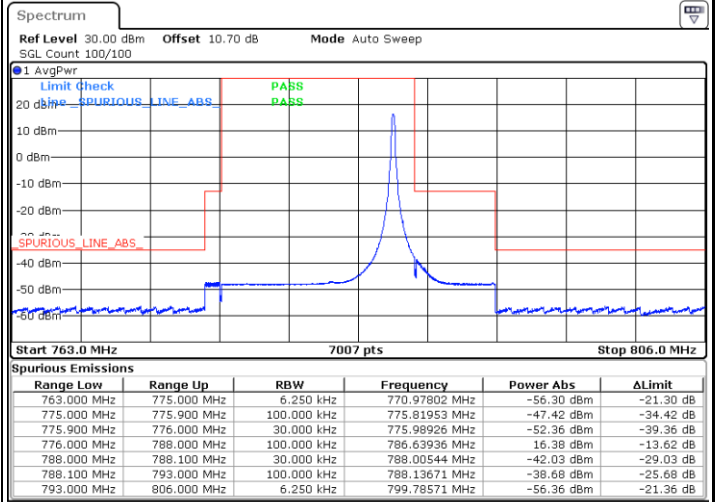
LTE Band 13 / 5MHz / 16QAM

Lowest Band Edge / 1 RB



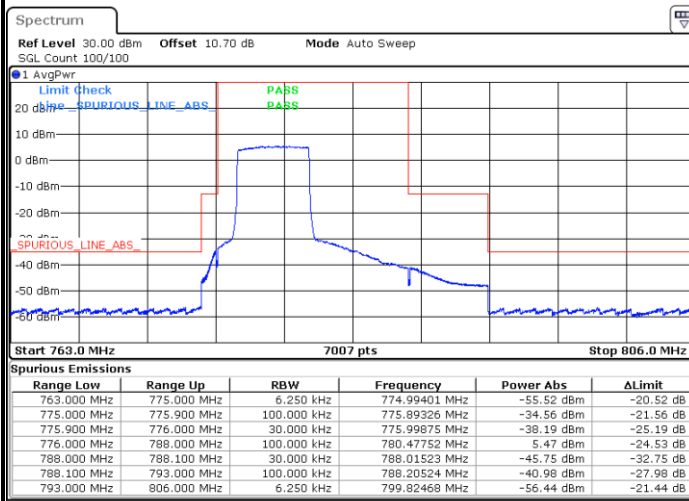
Date: 15.JAN.2020 16:32:56

Highest Band Edge / 1 RB



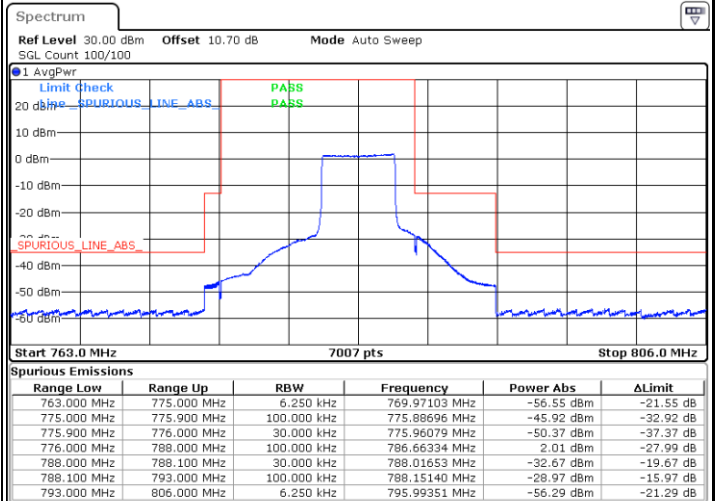
Date: 15.JAN.2020 16:45:01

Lowest Band Edge / Full RB



Date: 15.JAN.2020 16:31:15

Highest Band Edge / Full RB

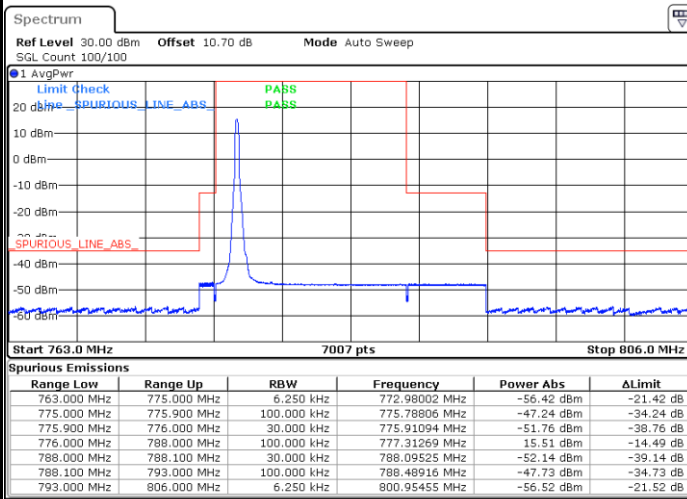


Date: 15.JAN.2020 16:43:20



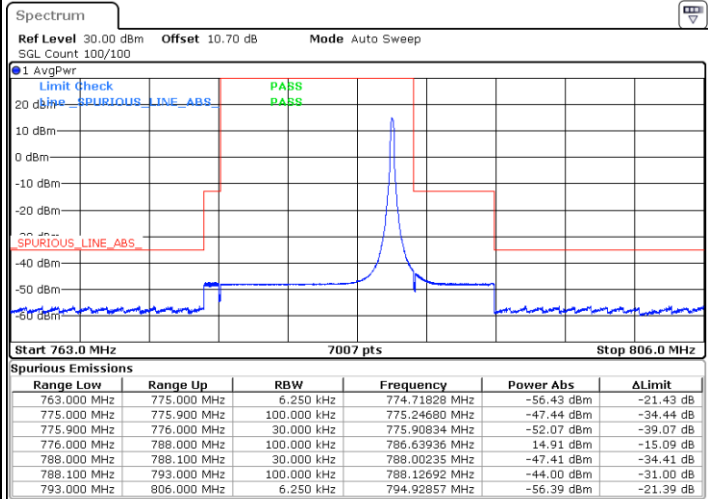
LTE Band 13 / 5MHz / 64QAM

Lowest Band Edge / 1 RB



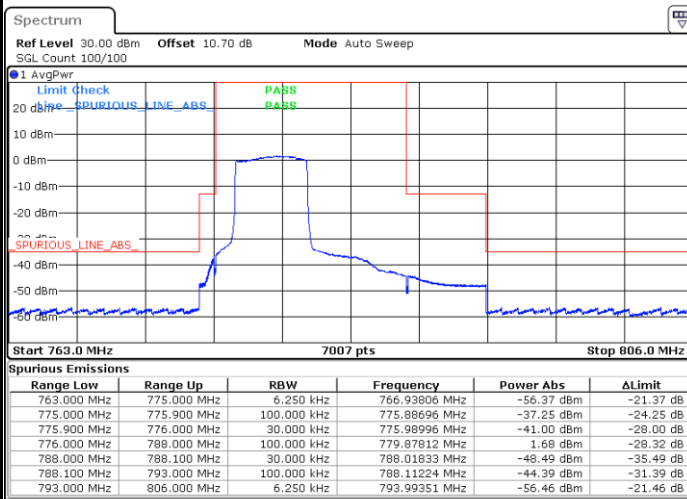
Date: 15, JAN. 2020 16:55:37

Highest Band Edge / 1 RB



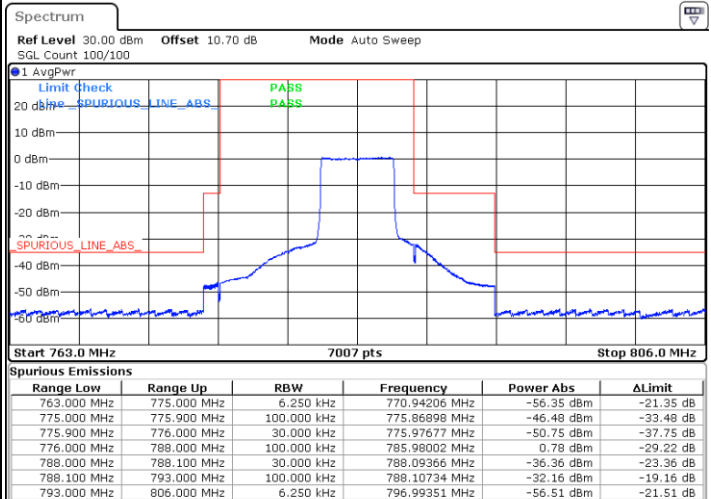
Date: 15, JAN. 2020 17:01:38

Lowest Band Edge / Full RB



Date: 15, JAN. 2020 16:50:36

Highest Band Edge / Full RB

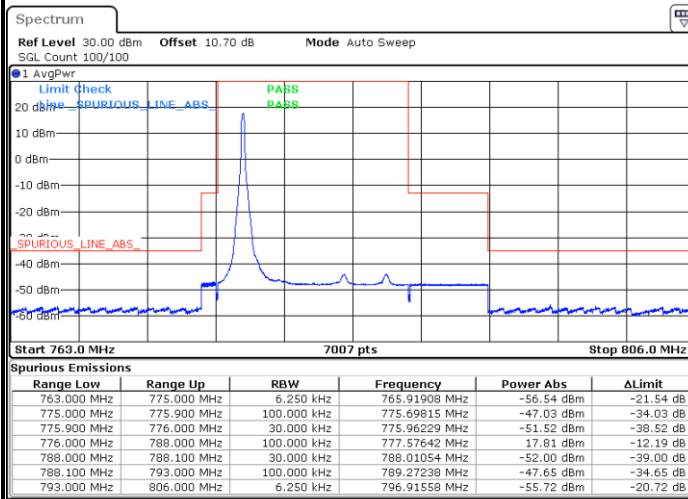


Date: 15, JAN. 2020 16:59:57



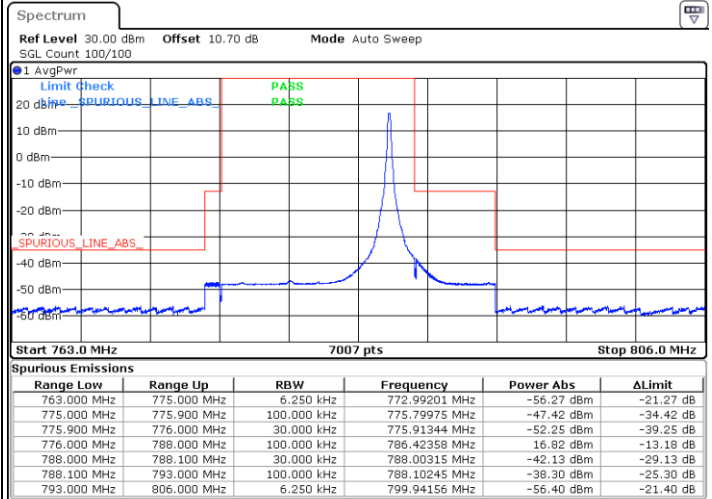
LTE Band 13 / 10MHz / QPSK

Lowest Band Edge / 1 RB



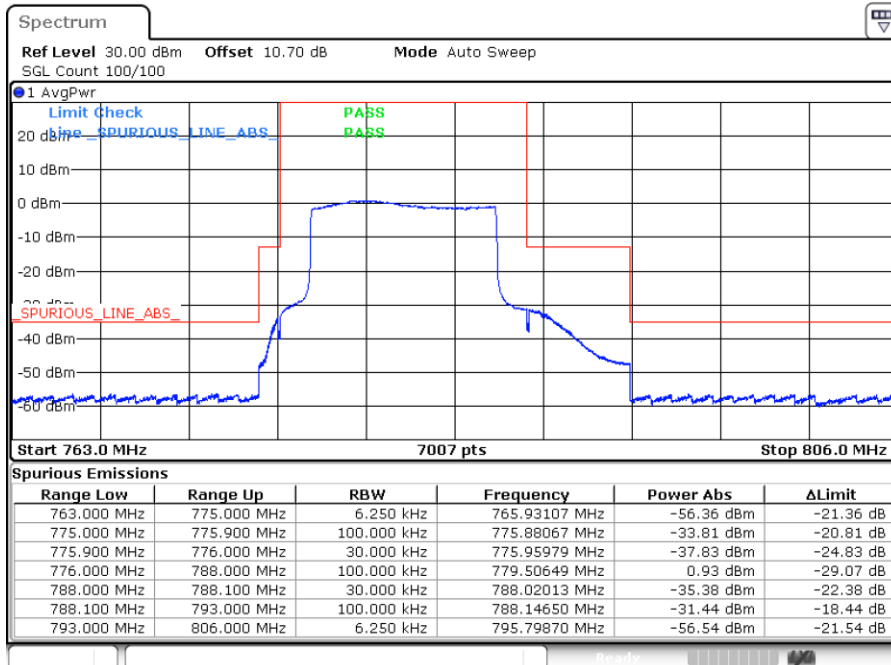
Date: 15.JAN.2020 17:11:48

Highest Band Edge / 1 RB



Date: 15.JAN.2020 17:13:29

Band Edge / Full RB



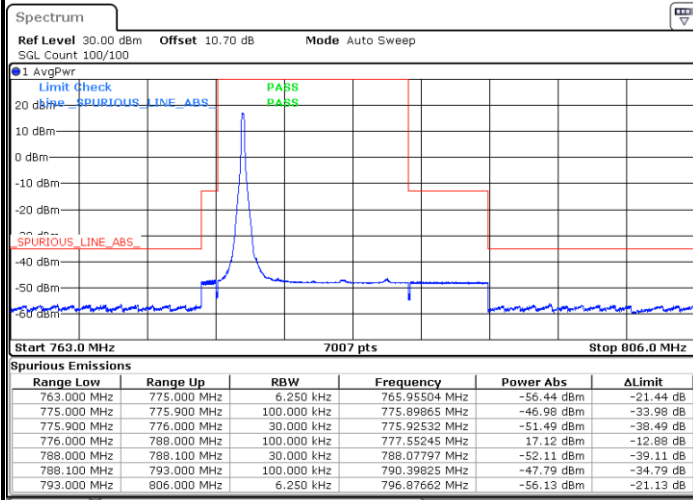
Date: 15.JAN.2020 17:06:47





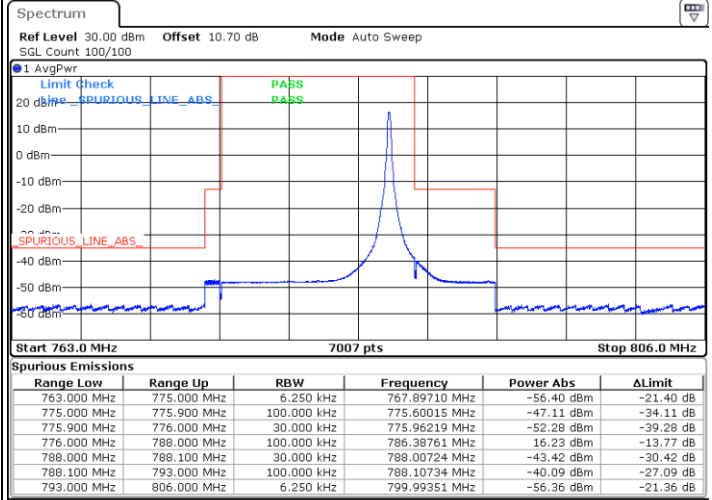
LTE Band 13 / 10MHz / 16QAM

Lowest Band Edge / 1 RB



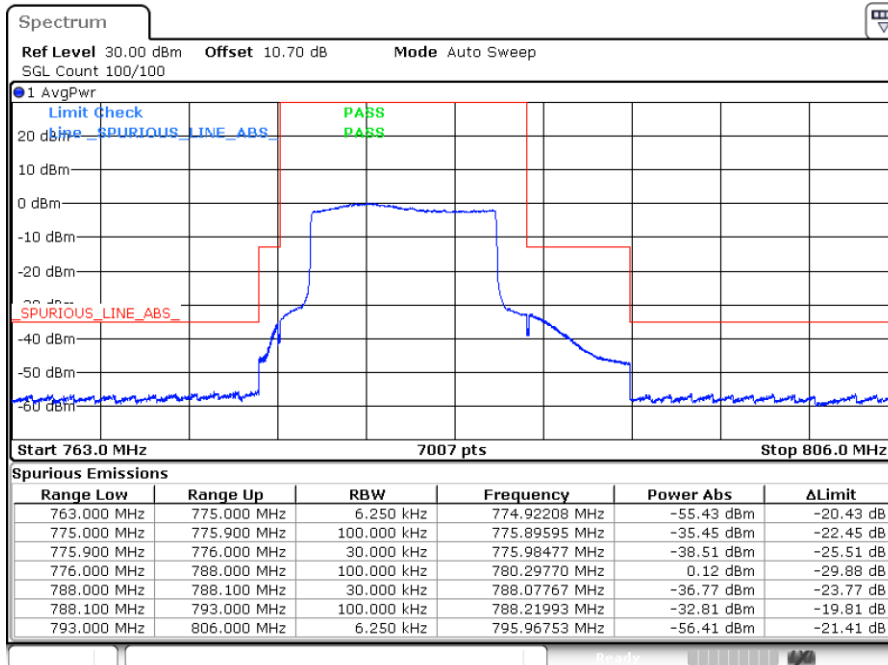
Date: 15.JAN.2020 17:10:08

Highest Band Edge / 1 RB



Date: 15.JAN.2020 17:15:09

Band Edge / Full RB

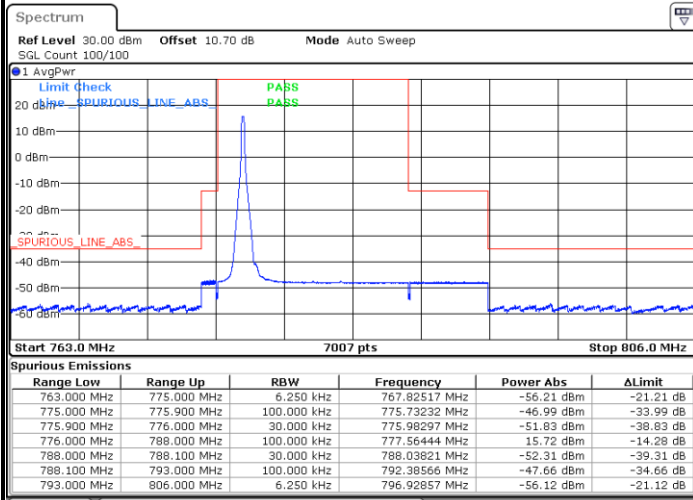


Date: 15.JAN.2020 17:08:27



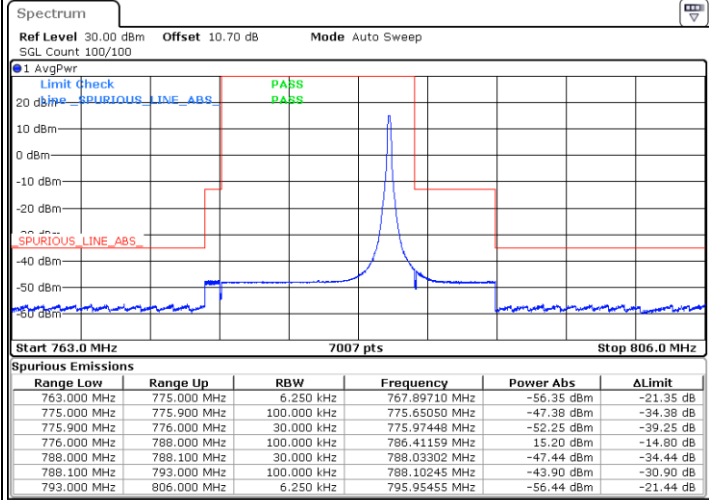
LTE Band 13 / 10MHz / 64QAM

Lowest Band Edge / 1 RB



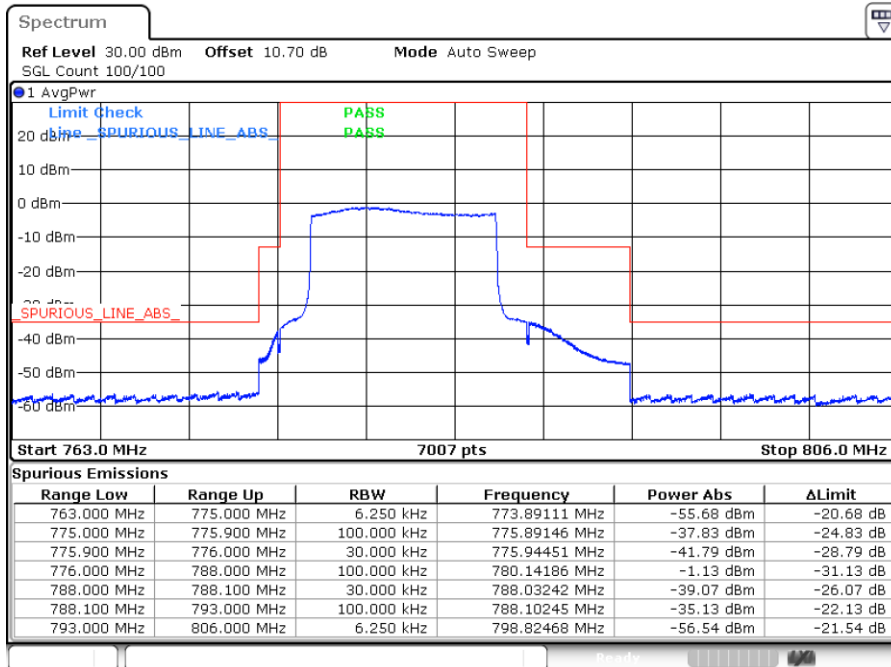
Date: 15, JAN. 2020 17:20:44

Highest Band Edge / 1 RB



Date: 15, JAN. 2020 17:22:24

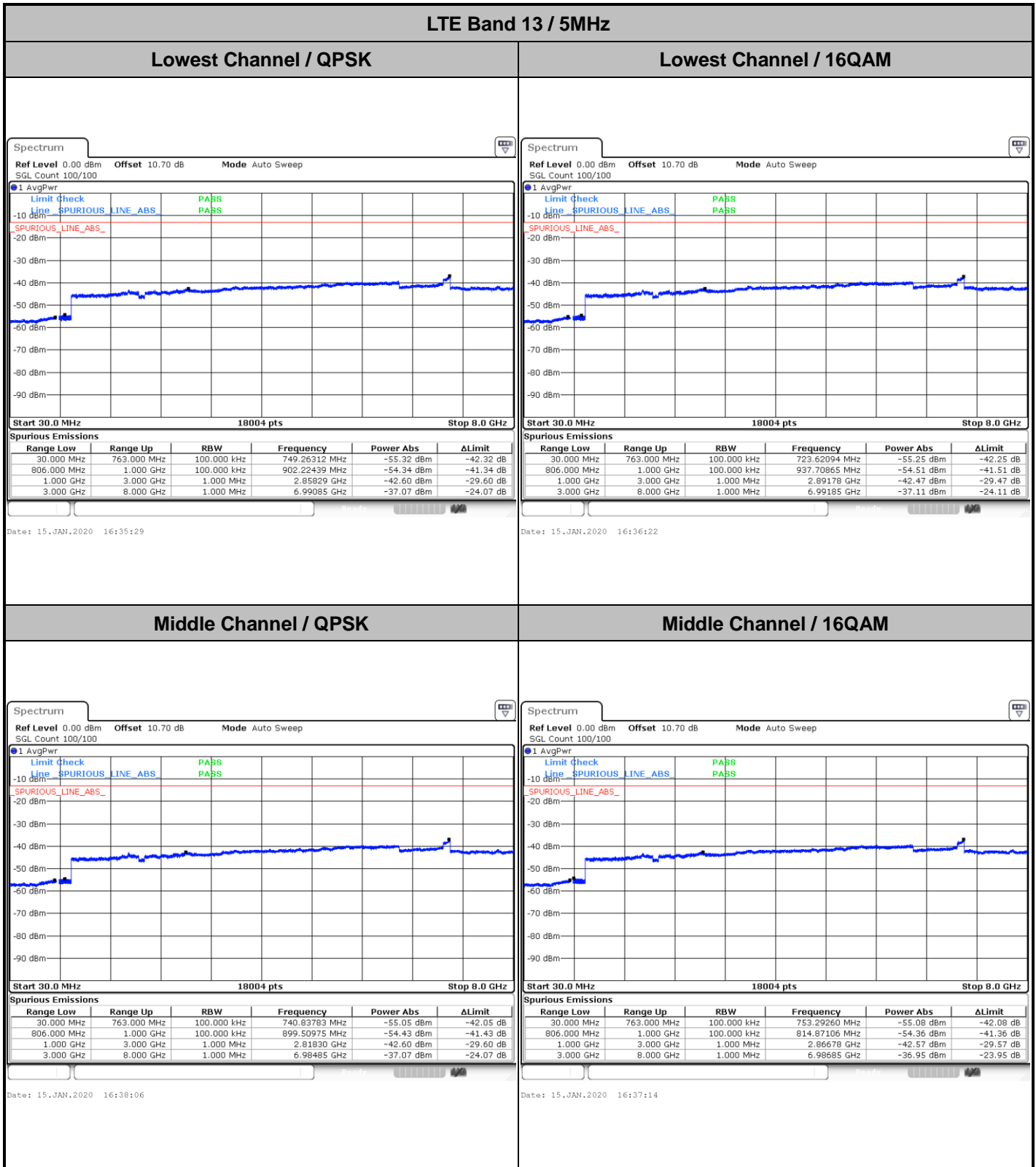
Band Edge / Full RB



Date: 15, JAN. 2020 17:19:03



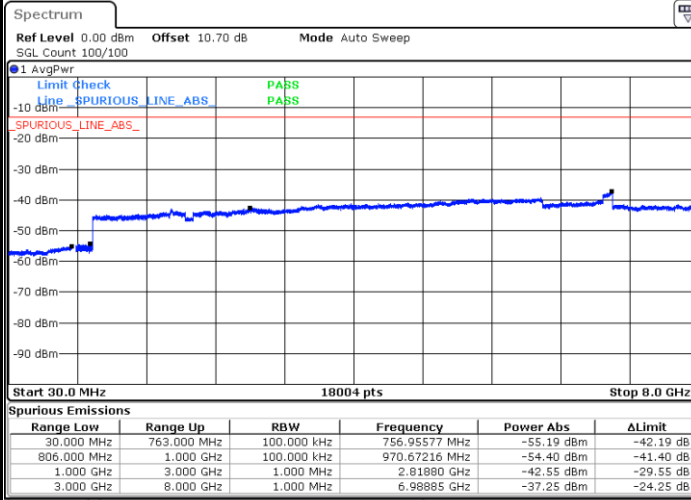
# Conducted Spurious Emission





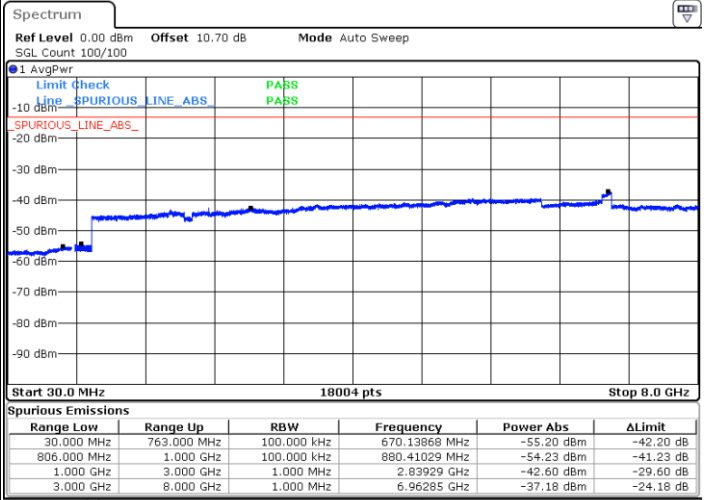
LTE Band 13 / 5MHz

Highest Channel / QPSK



Date: 15.JAN.2020 16:47:34

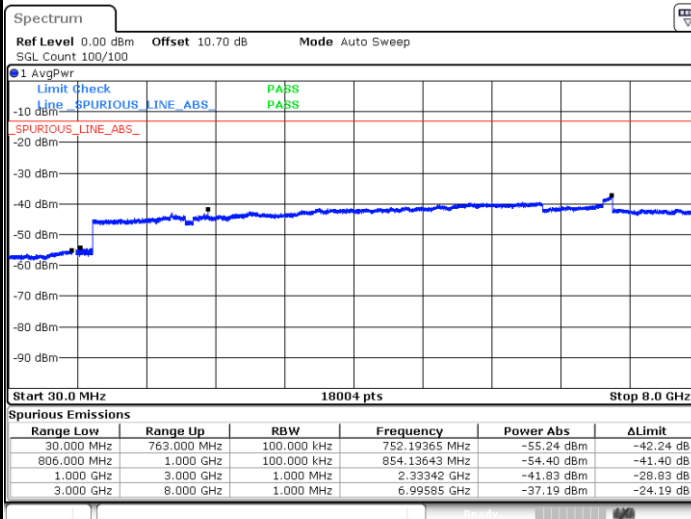
Highest Channel / 16QAM



Date: 15.JAN.2020 16:48:26

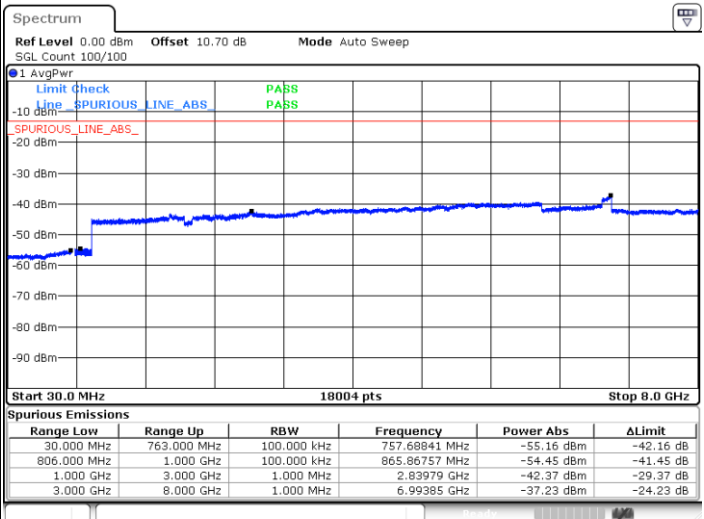
LTE Band 13 / 10MHz

Middle Channel / QPSK



Date: 15.JAN.2020 17:16:53

Middle Channel / 16QAM



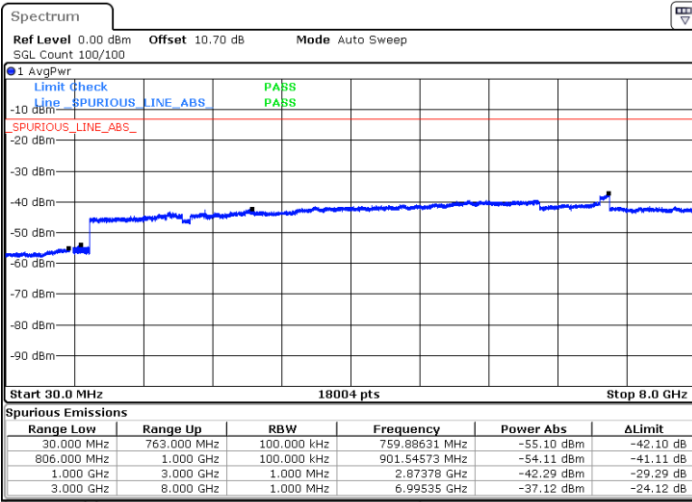
Date: 15.JAN.2020 17:16:01



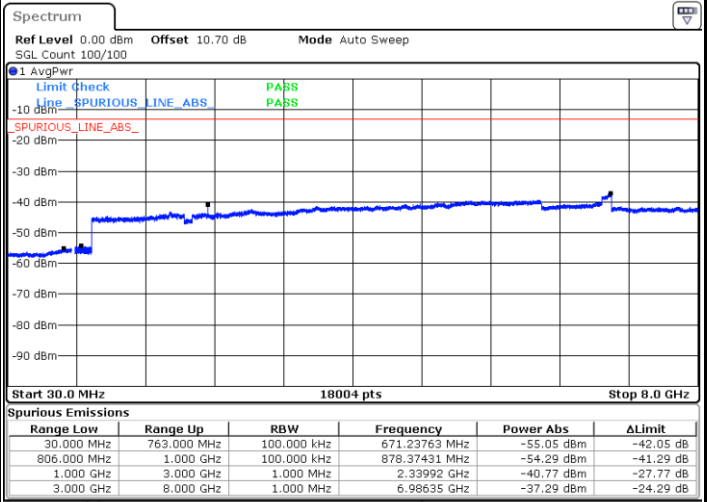
LTE Band 13 / 5MHz

Lowest Channel / 64QAM

Middle Channel / 64QAM

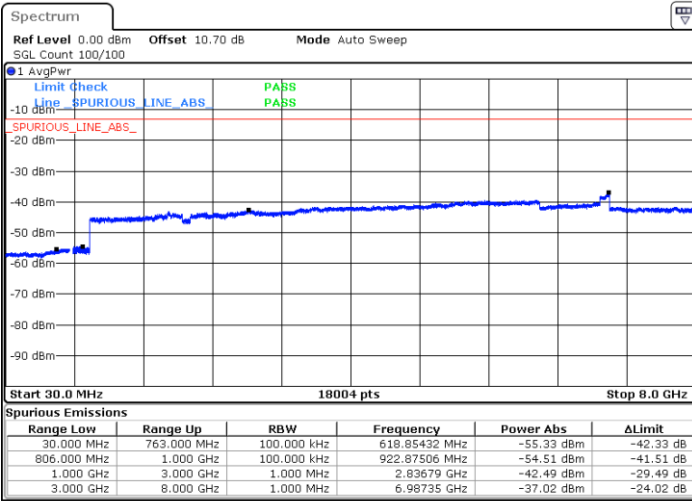


Date: 15.JAN.2020 16:56:29



Date: 15.JAN.2020 16:57:21

Highest Channel / 64QAM

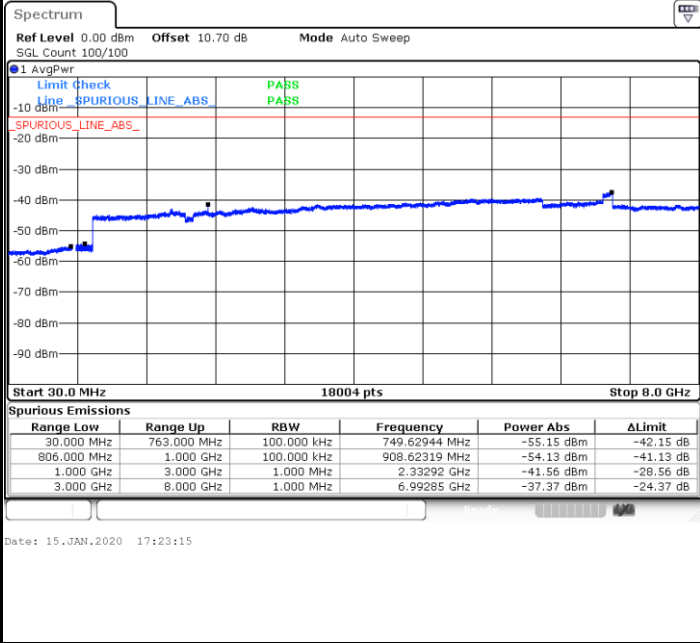


Date: 15.JAN.2020 17:02:30



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	0.0090	PASS
40	Normal Voltage	0.0032	
30	Normal Voltage	0.0086	
20(Ref.)	Normal Voltage	0.0000	
10	Normal Voltage	0.0090	
0	Normal Voltage	0.0107	
-10	Normal Voltage	0.0033	
-20	Normal Voltage	0.0066	
-30	Normal Voltage	0.0032	
20	Maximum Voltage	0.0017	
20	Normal Voltage	0.0000	
20	Battery End Point	0.0019	

**Note:**

1. Normal Voltage =3.9 V. ; Battery End Point (BEP) =3.4 V. ; Maximum Voltage =4.35 V.
2. Note: The frequency fundamental emissions stay within the authorized frequency block.



# LTE Band 17

## Peak-to-Average Ratio

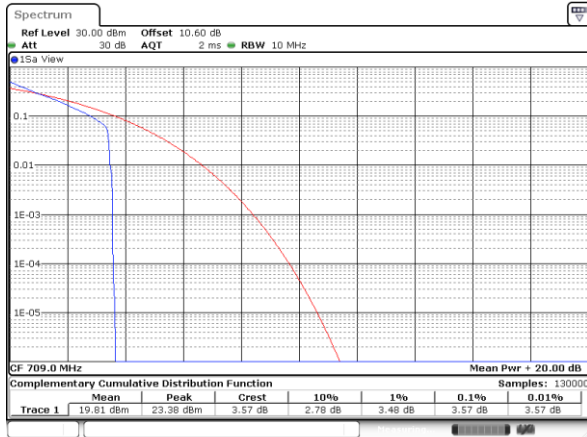
Mode	LTE Band 17 / 10MHz				
Mod.	QPSK		16QAM		Limit: 13dB
RB Size	1RB	Full RB	1RB	Full RB	Result
Lowest CH	3.57	4.93	4.64	5.80	PASS
Middle CH	3.45	4.87	4.78	5.77	
Highest CH	3.42	4.84	4.46	5.83	
Mode	LTE Band 17 / 10MHz				
Mod.	64QAM				Limit: 13dB
RB Size	1RB	Full RB			Result
Lowest CH	6.03	6.32	-	-	PASS
Middle CH	5.88	6.32	-	-	
Highest CH	6.09	6.35	-	-	





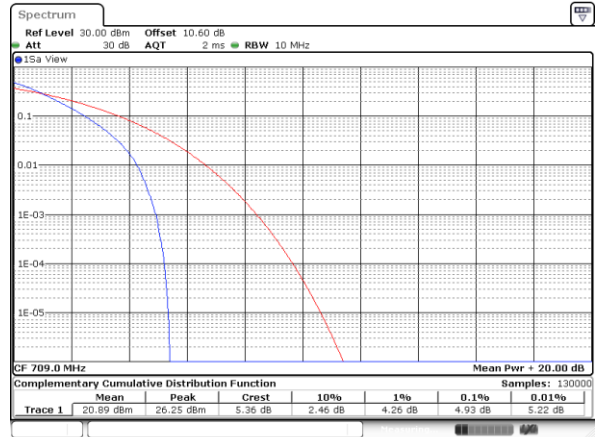
LTE Band 17 / 10MHz / QPSK

Lowest Channel / 1RB



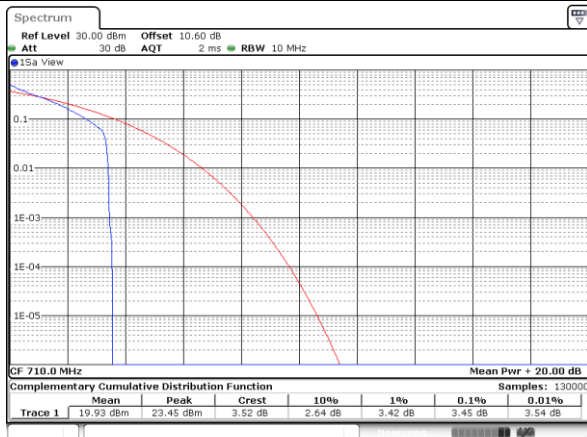
Date: 16, JAN, 2020 10:06:22

Lowest Channel / Full RB



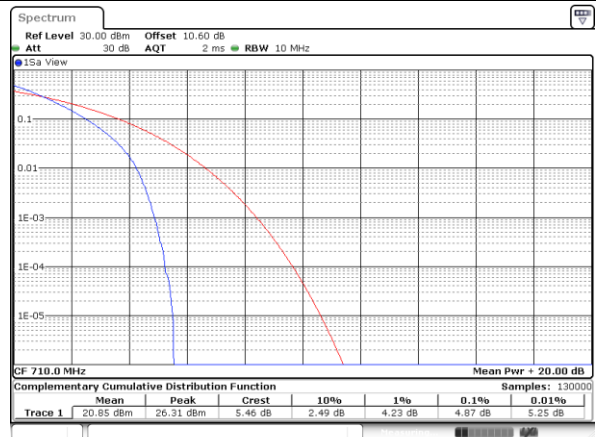
Date: 16, JAN, 2020 10:06:36

Middle Channel / 1RB



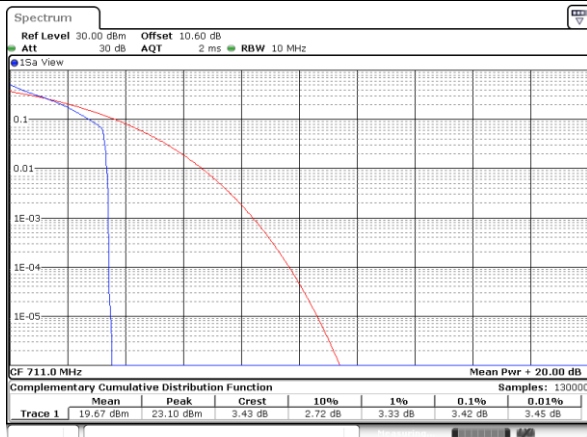
Date: 16, JAN, 2020 10:06:49

Middle Channel / Full RB



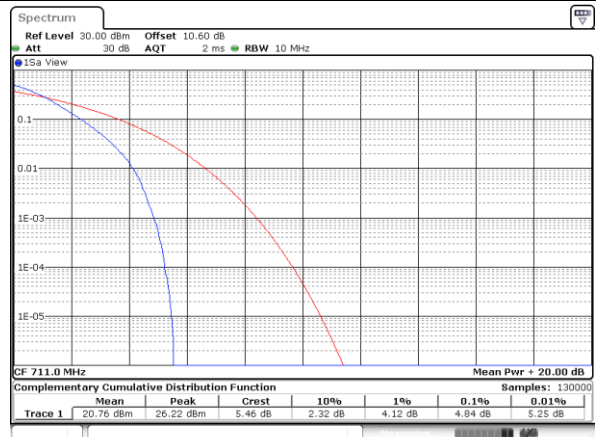
Date: 16, JAN, 2020 10:07:02

Highest Channel / 1RB



Date: 16, JAN, 2020 10:07:15

Highest Channel / Full RB



Date: 16, JAN, 2020 10:07:28