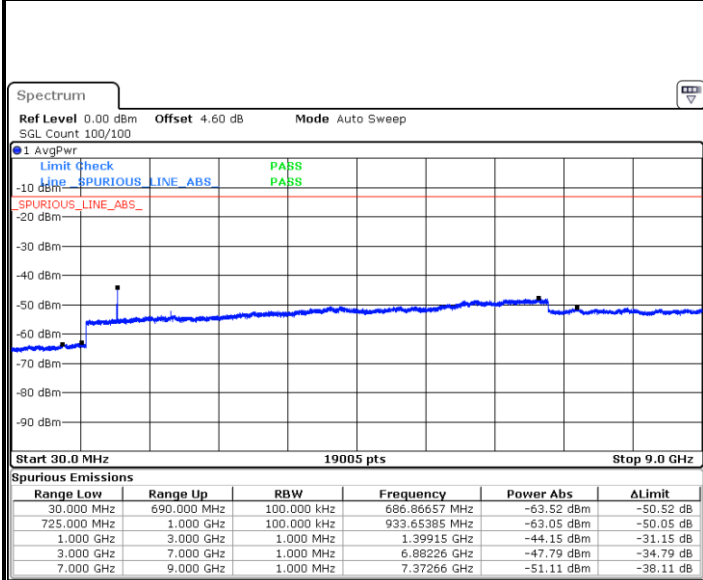




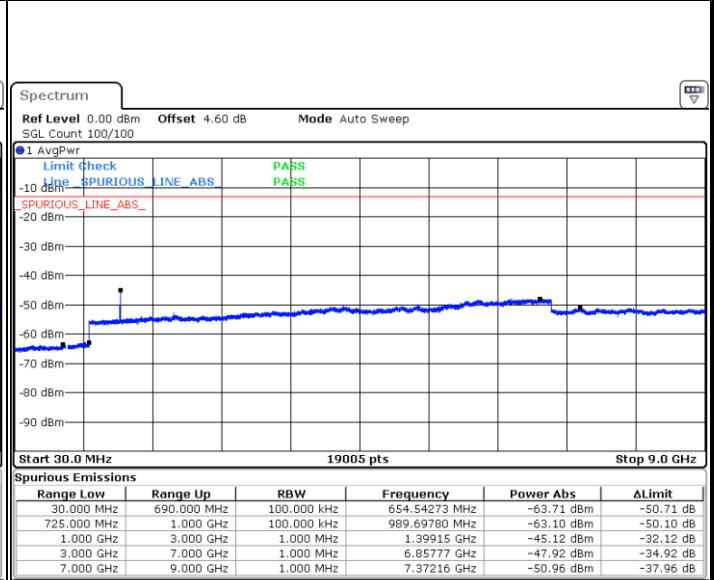
LTE Band 12 / 5MHz

Lowest Channel / QPSK



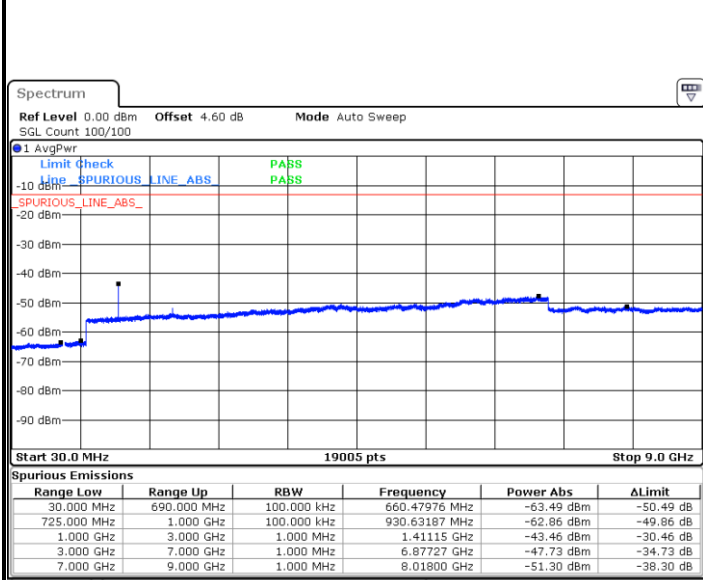
Date: 10 JUN.2020 22:52:55

Lowest Channel / 16QAM



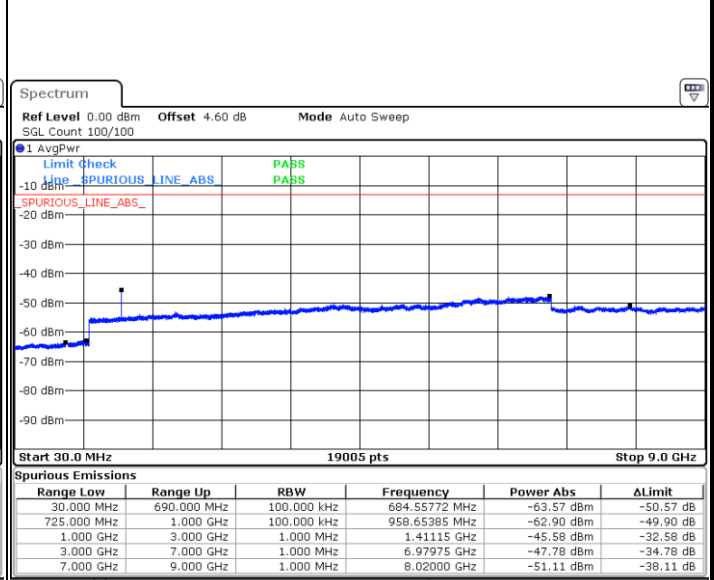
Date: 10 JUN.2020 22:53:50

Middle Channel / QPSK



Date: 10 JUN.2020 22:55:39

Middle Channel / 16QAM

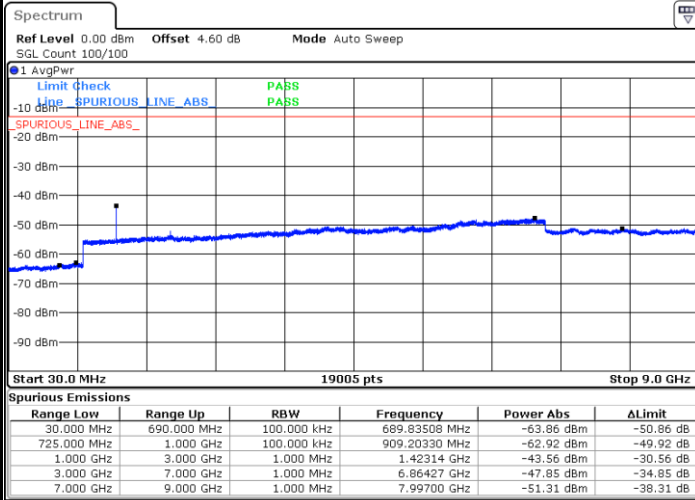


Date: 10 JUN.2020 22:54:44



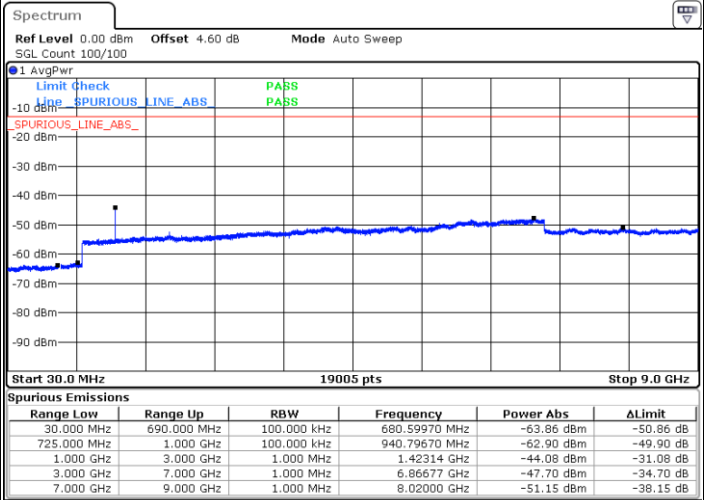
LTE Band 12 / 5MHz

Highest Channel / QPSK



Date: 10 JUN.2020 22:56:33

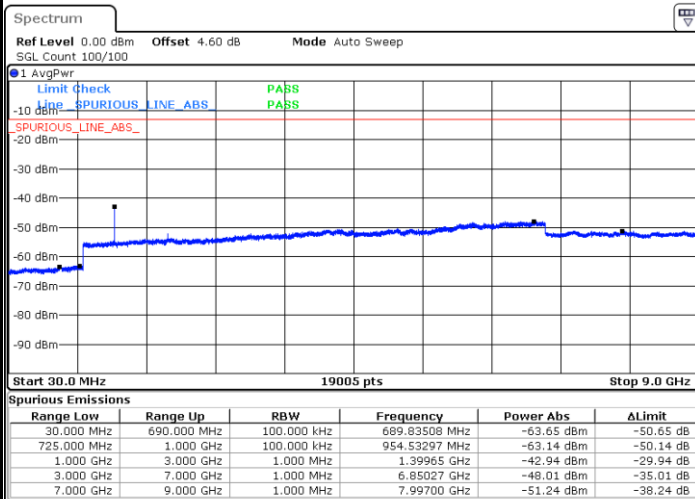
Highest Channel / 16QAM



Date: 10 JUN.2020 22:57:28

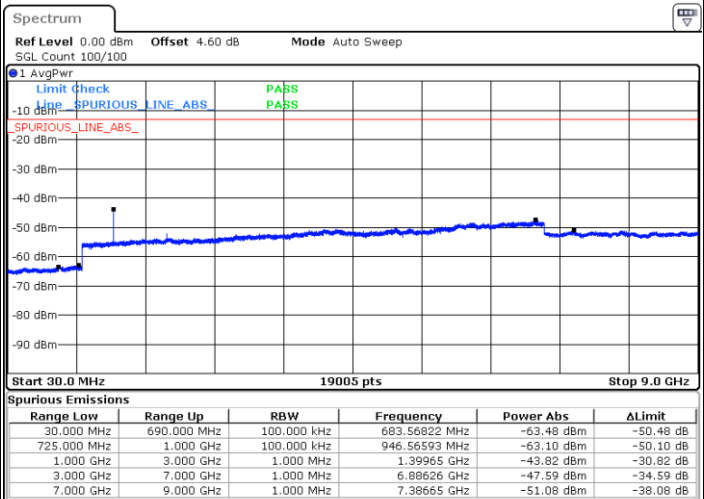
LTE Band 12 / 10MHz

Lowest Channel / QPSK



Date: 10 JUN.2020 23:09:24

Lowest Channel / 16QAM

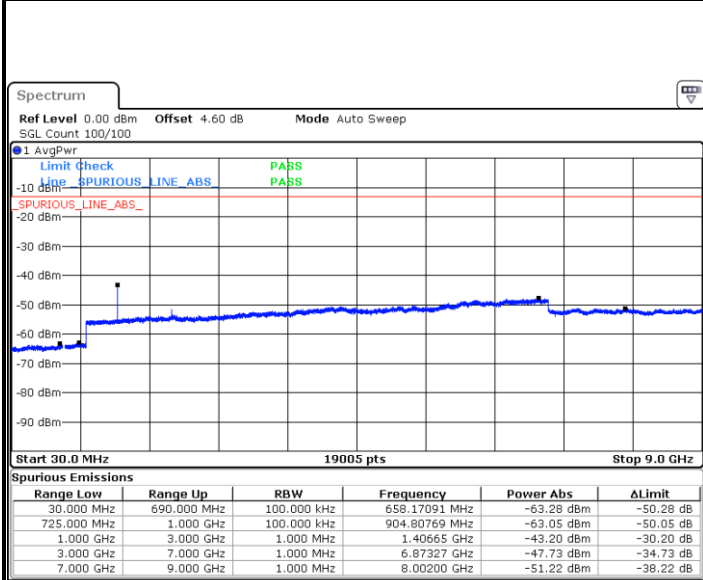


Date: 10 JUN.2020 23:10:18



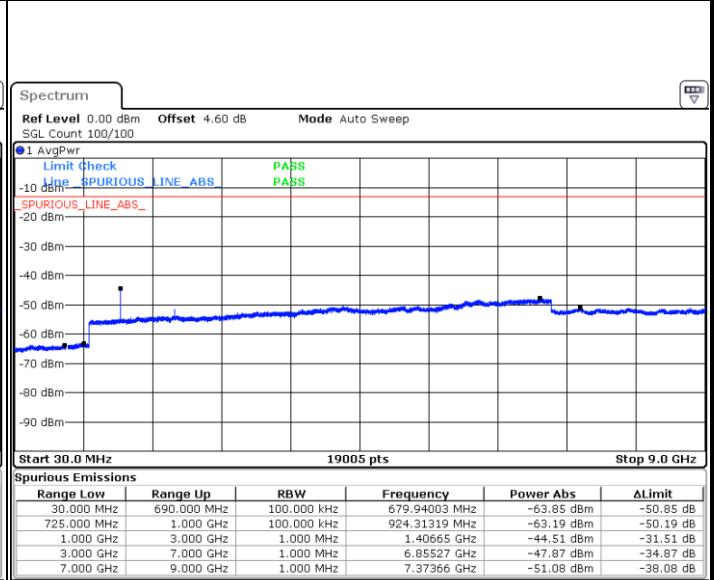
LTE Band 12 / 10MHz

Middle Channel / QPSK



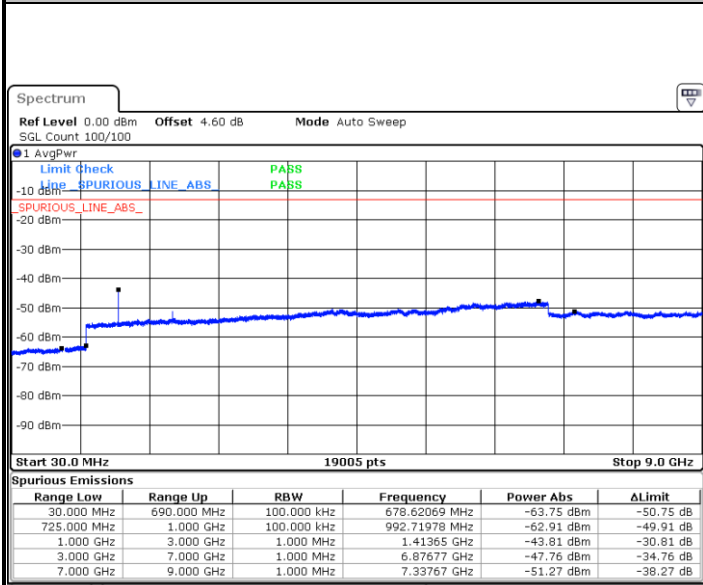
Date: 10 JUN.2020 23:12:07

Middle Channel / 16QAM



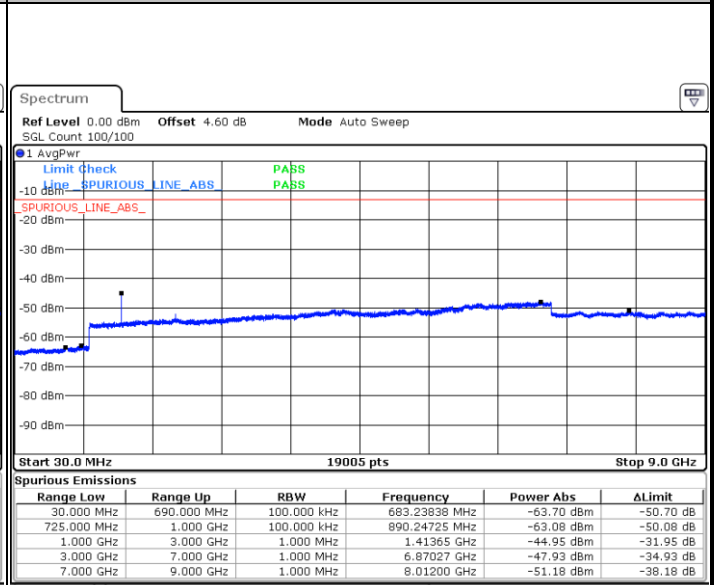
Date: 10 JUN.2020 23:11:13

Highest Channel / QPSK



Date: 10 JUN.2020 23:13:02

Highest Channel / 16QAM

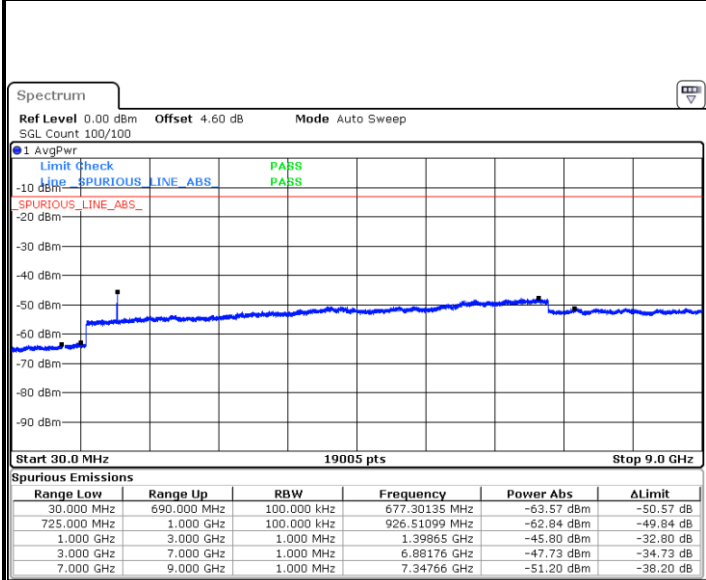


Date: 10 JUN.2020 23:13:56



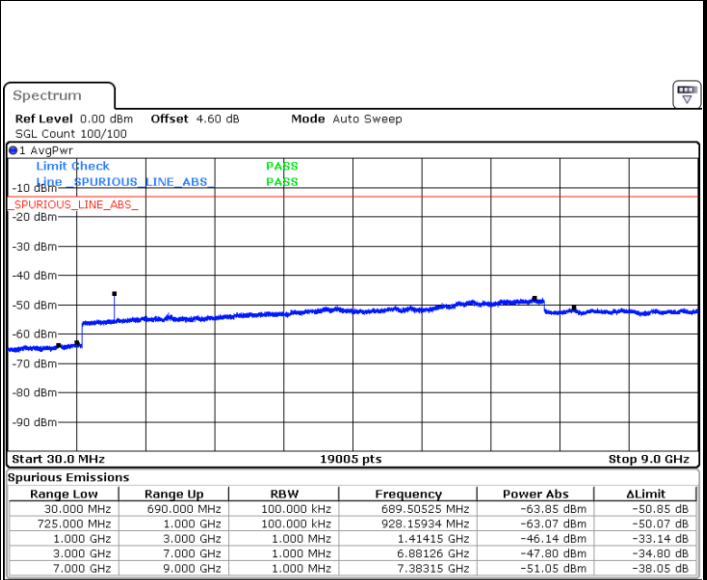
LTE Band 12 / 1.4MHz

Lowest Channel / 64QAM



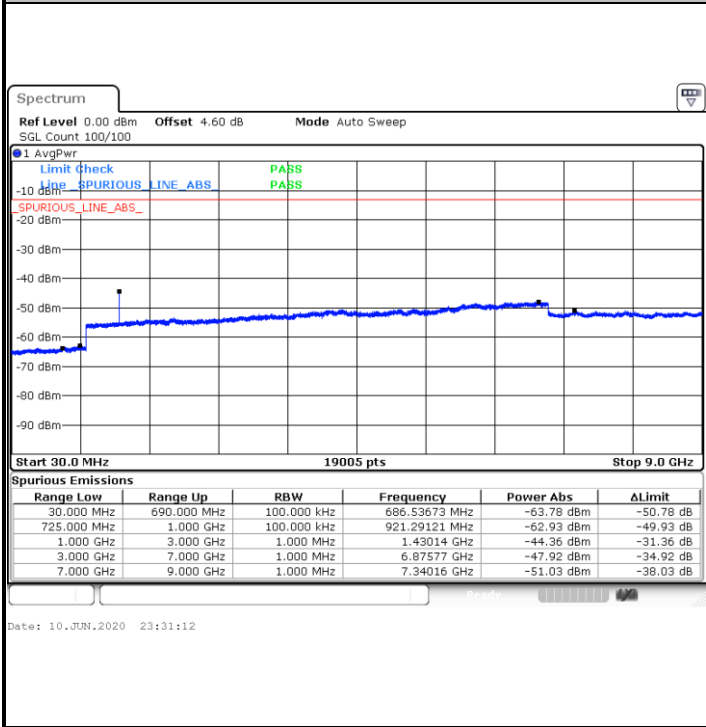
Date: 10 JUN.2020 23:29:23

Middle Channel / 64QAM



Date: 10 JUN.2020 23:30:17

Highest Channel / 64QAM



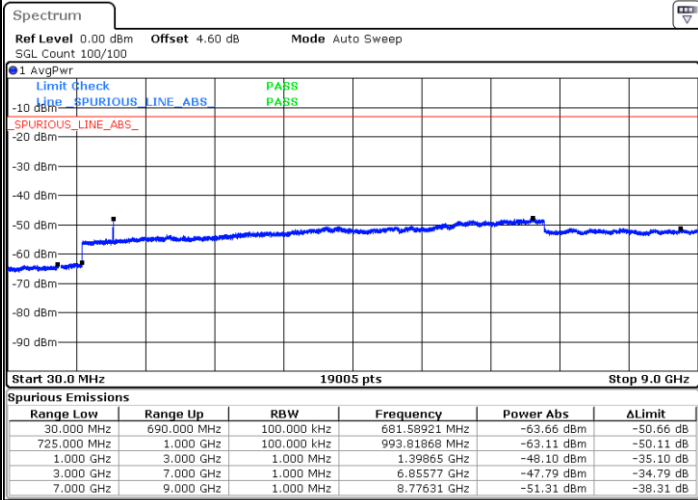
Date: 10 JUN.2020 23:31:12



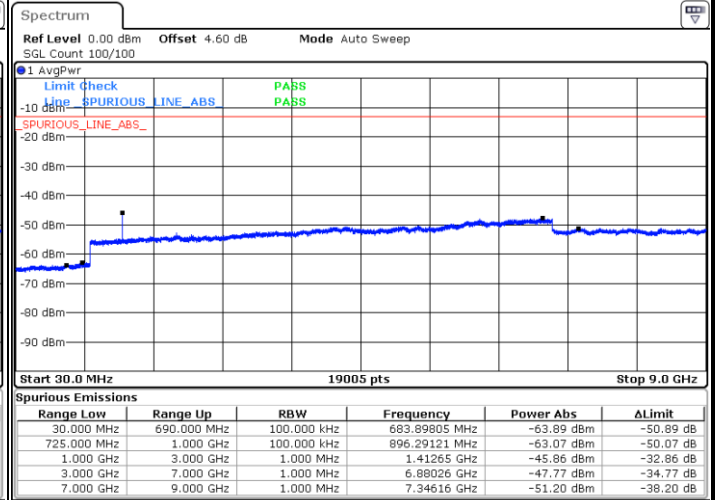
LTE Band 12 / 3MHz

Lowest Channel / 64QAM

Middle Channel / 64QAM

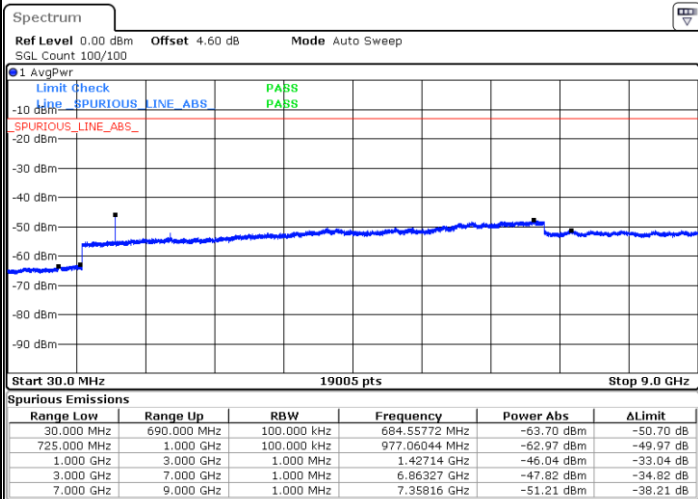


Date: 10 JUN.2020 23:32:07



Date: 10 JUN.2020 23:33:01

Highest Channel / 64QAM



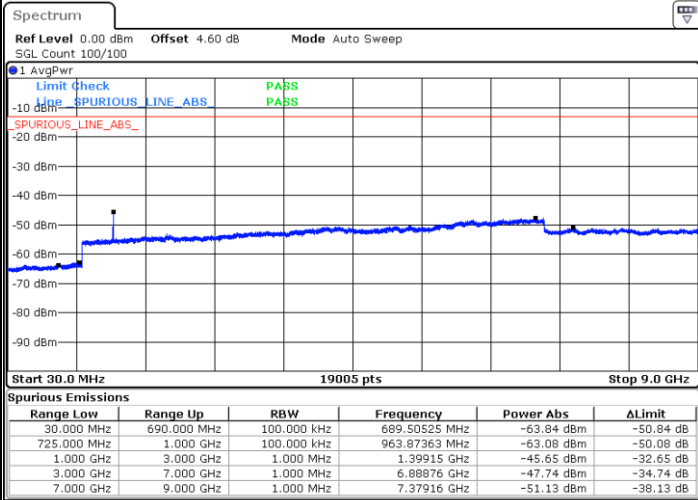
Date: 10 JUN.2020 23:33:56



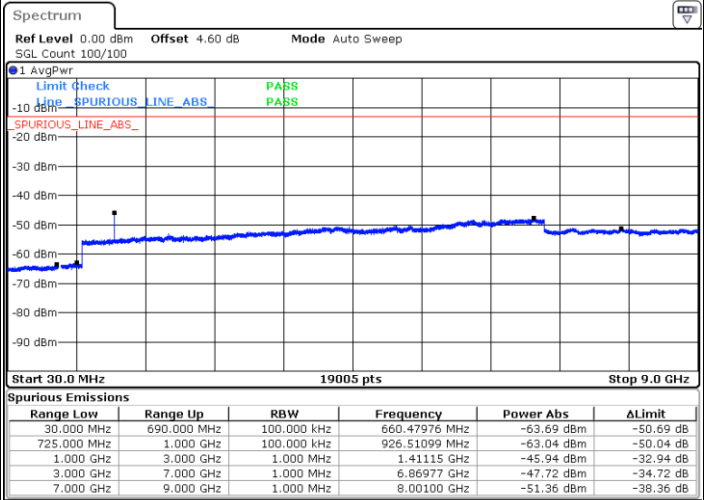
LTE Band 12 / 5MHz

Lowest Channel / 64QAM

Middle Channel / 64QAM

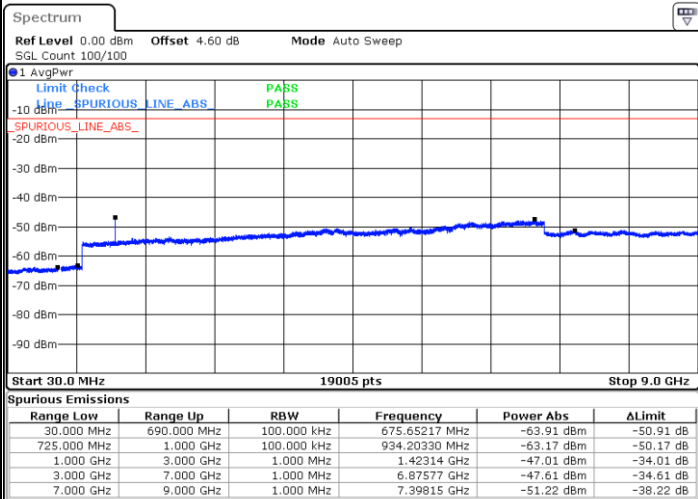


Date: 10 JUN.2020 23:45:52



Date: 10 JUN.2020 23:46:46

Highest Channel / 64QAM



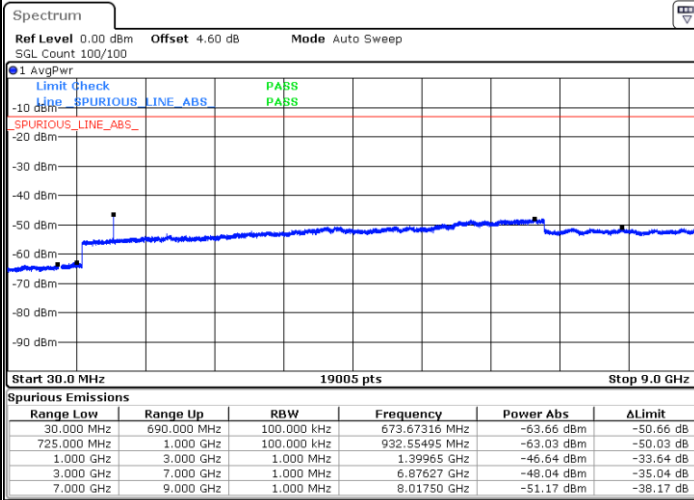
Date: 10 JUN.2020 23:47:41



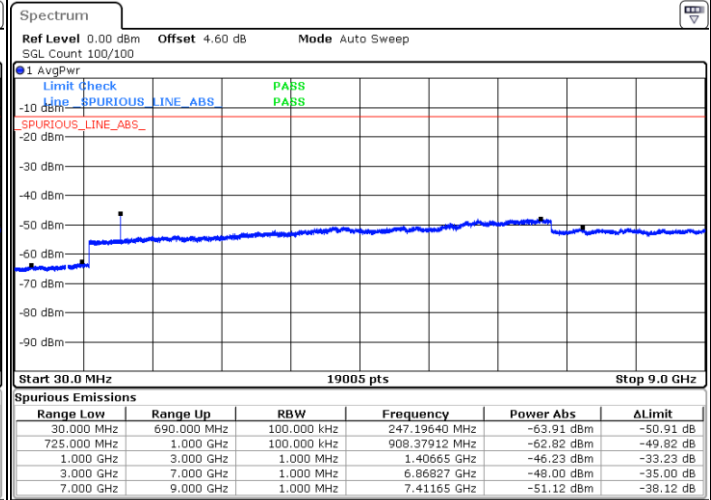
LTE Band 12 / 10MHz

Lowest Channel / 64QAM

Middle Channel / 64QAM

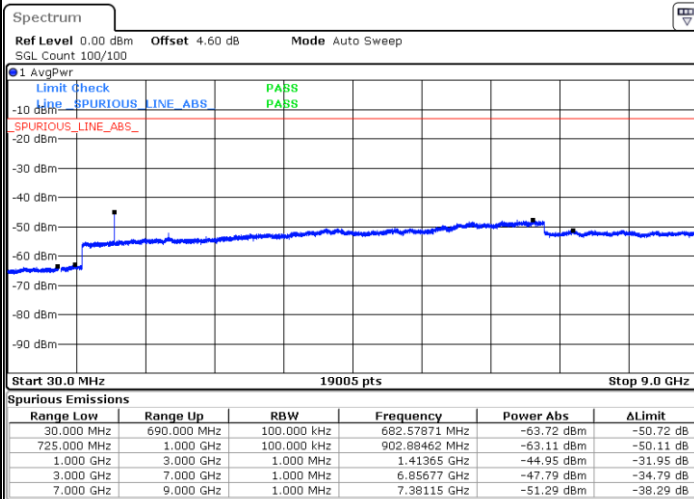


Date: 10 JUN.2020 23:48:36



Date: 10 JUN.2020 23:49:31

Highest Channel / 64QAM



Date: 10 JUN.2020 23:50:25



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	0.0011	PASS
40	Normal Voltage	0.0024	
30	Normal Voltage	0.0090	
20(Ref.)	Normal Voltage	0.0000	
10	Normal Voltage	0.0102	
0	Normal Voltage	0.0006	
-10	Normal Voltage	0.0023	
-20	Normal Voltage	0.0076	
-30	Normal Voltage	0.0068	
20	Maximum Voltage	0.0011	
20	Normal Voltage	0.0007	
20	Battery End Point	0.0106	

Note:

1. Normal Voltage =3.8 V. ; Battery End Point (BEP) =3.4 V. ; Maximum Voltage =4.45 V.
2. Note: The frequency fundamental emissions stay within the authorized frequency block.





# LTE Band 13

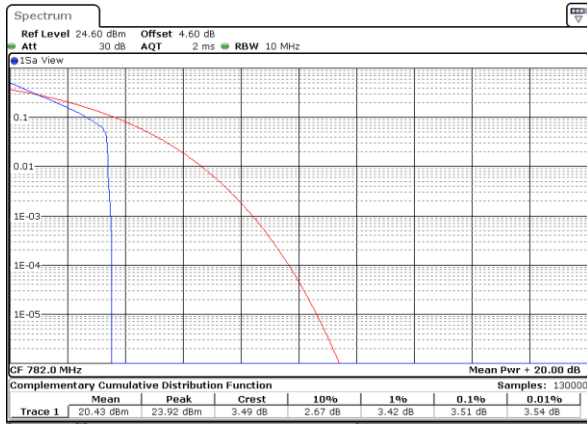
## Peak-to-Average Ratio

Mode	LTE Band 13 / 10MHz				
Mod.	QPSK		16QAM		Limit: 13dB
RB Size	1RB	Full RB	1RB	Full RB	Result
Lowest CH	-	-	-	-	PASS
Middle CH	3.51	4.87	5.25	5.68	
Highest CH	-	-	-	-	
Mode	LTE Band 13 / 10MHz				
Mod.	64QAM				Limit: 13dB
RB Size	1RB	Full RB			Result
Lowest CH	-	-	-	-	PASS
Middle CH	6.87	6.23	-	-	
Highest CH	-	-	-	-	



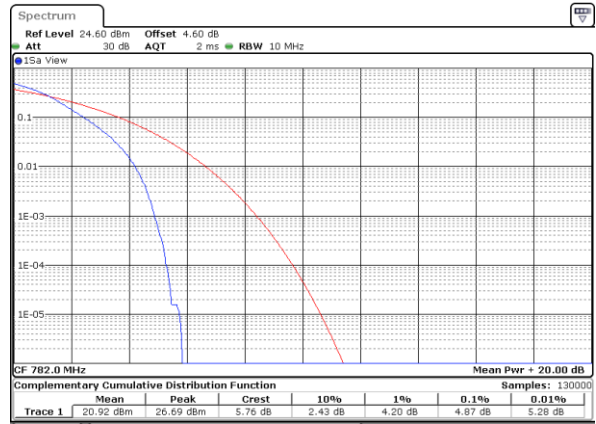
LTE Band 13 / 10MHz / QPSK

Middle Channel / 1RB



Date: 11 JUN 2020 21:22:45

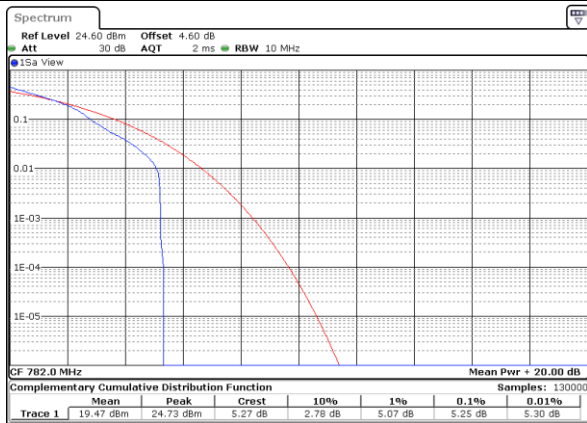
Middle Channel / Full RB



Date: 11 JUN 2020 21:23:13

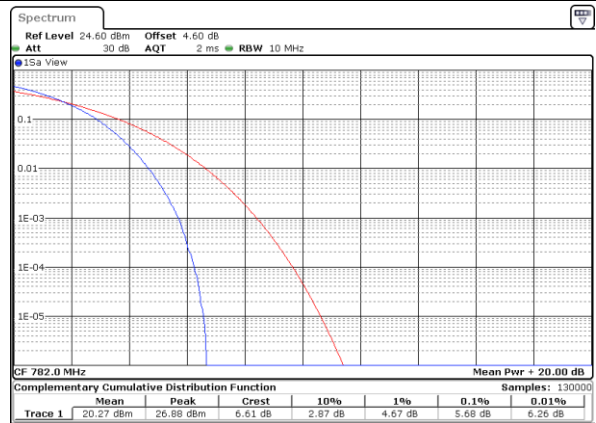
LTE Band 13 / 10MHz / 16QAM

Middle Channel / 1RB



Date: 11 JUN 2020 21:22:54

Middle Channel / Full RB



Date: 11 JUN 2020 21:23:03

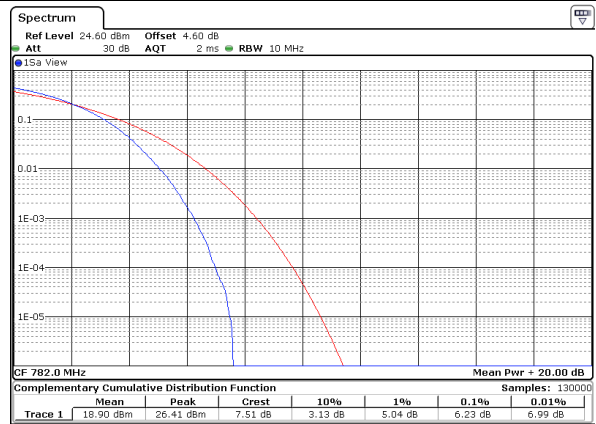
LTE Band 13 / 10MHz / 64QAM

Middle Channel / 1RB



Date: 15 JUN 2020 17:33:53

Middle Channel / Full RB



Date: 15 JUN 2020 17:34:39



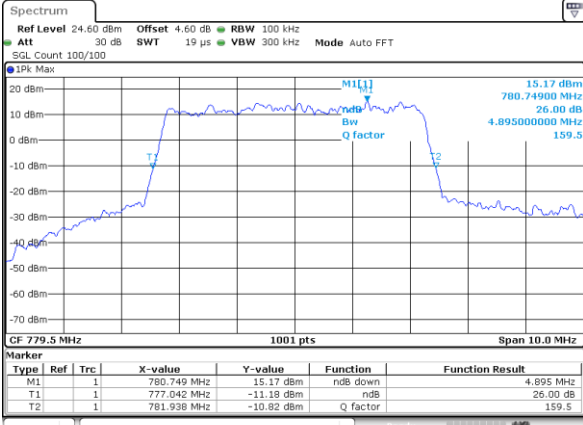
**26dB Bandwidth**

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	-	-	-	-	4.90	4.85	-	-	-	-	-	-
Middle CH	-	-	-	-	4.92	4.88	9.77	9.67	-	-	-	-
Highest CH	-	-	-	-	4.95	4.84	-	-	-	-	-	-
Mode	LTE Band 13 : 26dB BW(MHz)											
BW	1.4MHz		3MHz		5MHz		10MHz		15MHz		20MHz	
Mod.	64QAM		64QAM		64QAM		64QAM		64QAM		64QAM	
Lowest CH	-	-	-	-	4.84	-	-	-	-	-	-	-
Middle CH	-	-	-	-	4.88	-	9.81	-	-	-	-	-
Highest CH	-	-	-	-	4.90	-	-	-	-	-	-	-



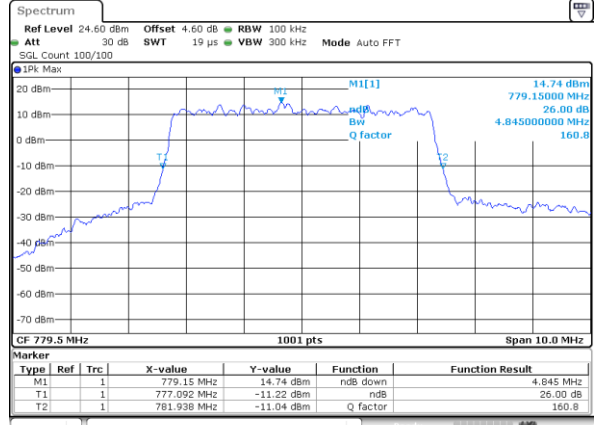
LTE Band 13

Lowest Channel / 5MHz / QPSK



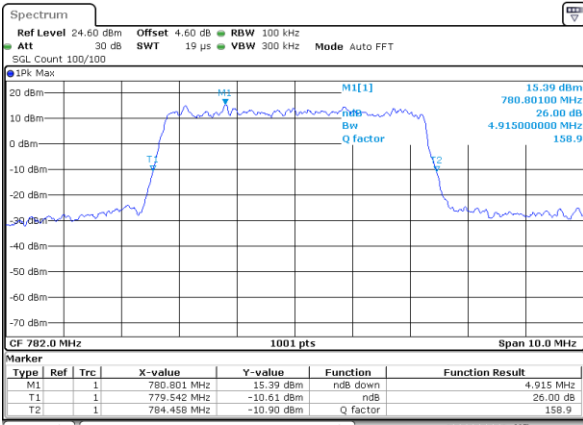
Date: 11 JUN 2020 20:46:34

Lowest Channel / 5MHz / 16QAM



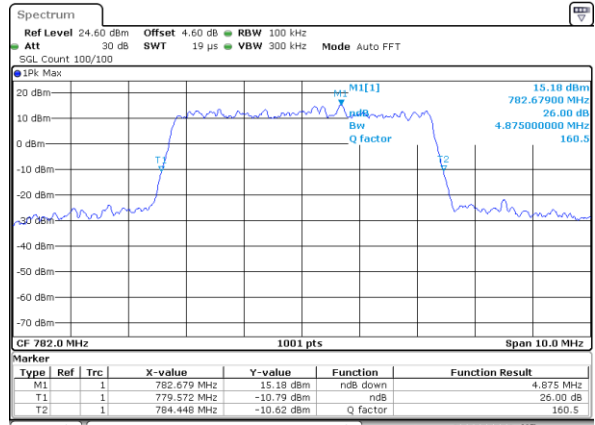
Date: 11 JUN 2020 20:46:44

Middle Channel / 5MHz / QPSK



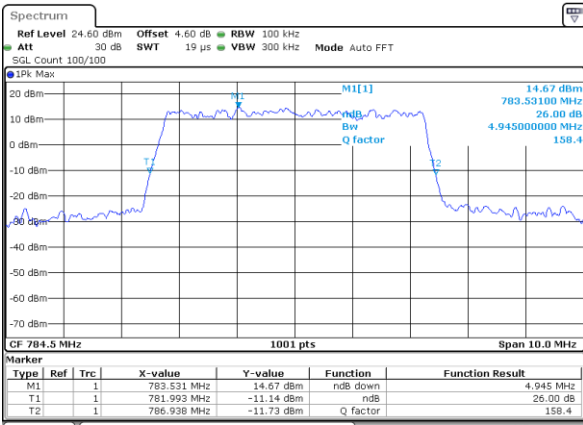
Date: 11 JUN 2020 20:55:39

Middle Channel / 5MHz / 16QAM



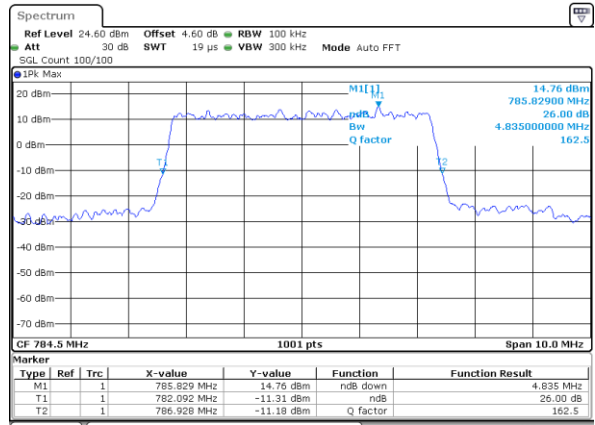
Date: 11 JUN 2020 20:55:49

Highest Channel / 5MHz / QPSK



Date: 11 JUN 2020 20:58:22

Highest Channel / 5MHz / 16QAM



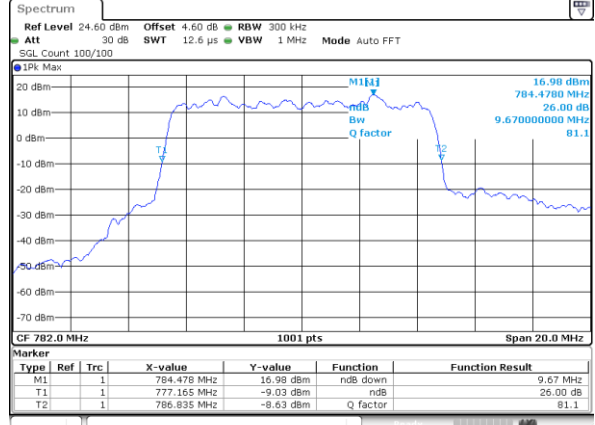
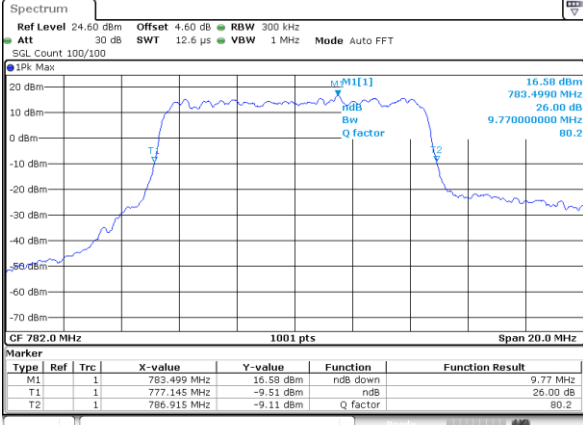
Date: 11 JUN 2020 20:58:11



LTE Band 13

Middle Channel / 10MHz / QPSK

Middle Channel / 10MHz / 16QAM



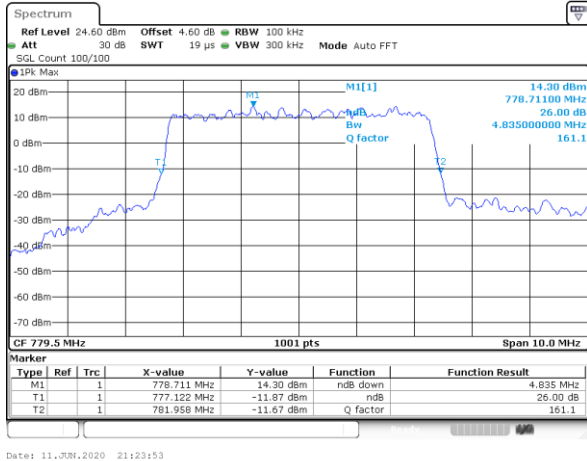
Date: 11 JUN 2020 21:09:23

Date: 11 JUN 2020 21:09:13



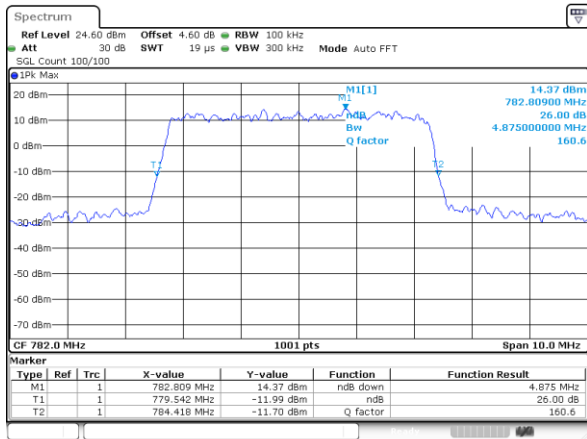
LTE Band 13

Lowest Channel / 5MHz / 64QAM



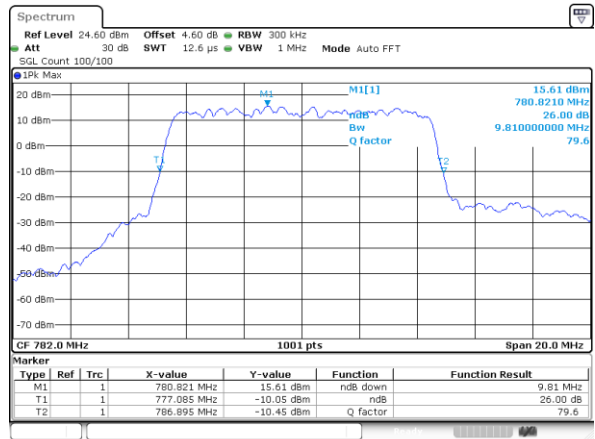
Date: 11 JUN 2020 21:23:53

Middle Channel / 5MHz / 64QAM



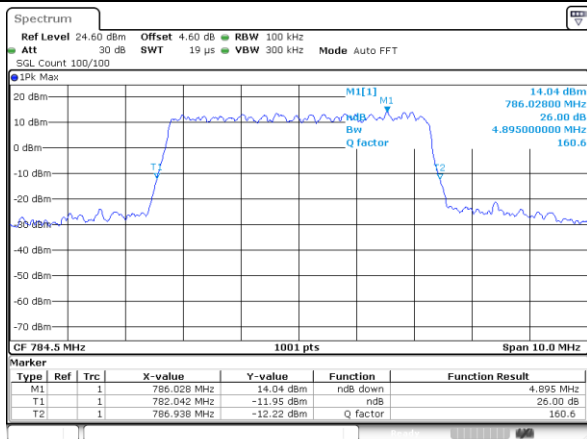
Date: 11 JUN 2020 21:24:03

Middle Channel / 10MHz / 64QAM



Date: 11 JUN 2020 21:33:58

Highest Channel / 5MHz / 64QAM



Date: 11 JUN 2020 21:24:13



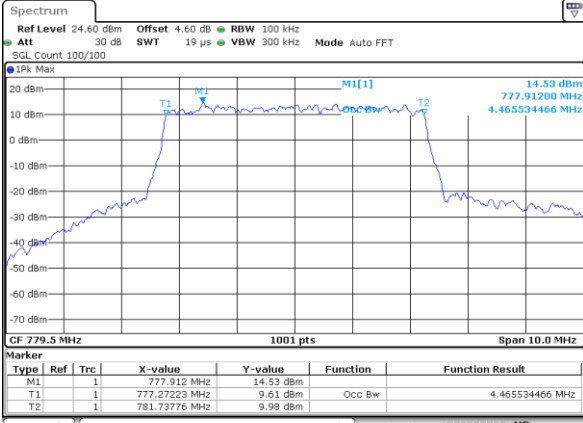
### Occupied Bandwidth

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	-	-	-	-	4.47	4.49	-	-	-	-	-	-
Middle CH	-	-	-	-	4.48	4.50	8.97	9.01	-	-	-	-
Highest CH	-	-	-	-	4.52	4.49	-	-	-	-	-	-
Mode	LTE Band 13 : 99%OBW(MHz)											
BW	1.4MHz		3MHz		5MHz		10MHz		15MHz		20MHz	
Mod.	64QAM		64QAM		64QAM		64QAM		64QAM		64QAM	
Lowest CH	-	-	-	-	4.48	-	-	-	-	-	-	-
Middle CH	-	-	-	-	4.47	-	9.01	-	-	-	-	-
Highest CH	-	-	-	-	4.49	-	-	-	-	-	-	-



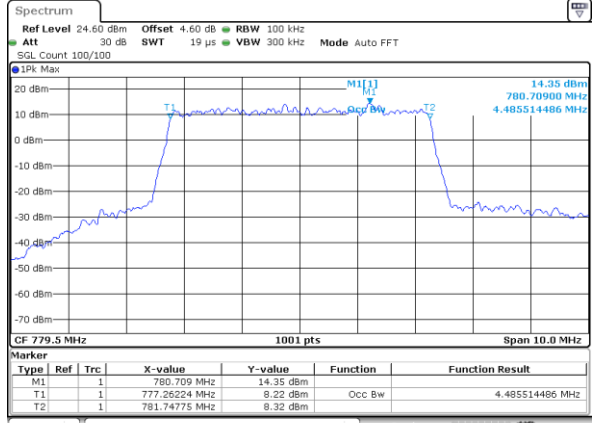
LTE Band 13

Lowest Channel / 5MHz / QPSK



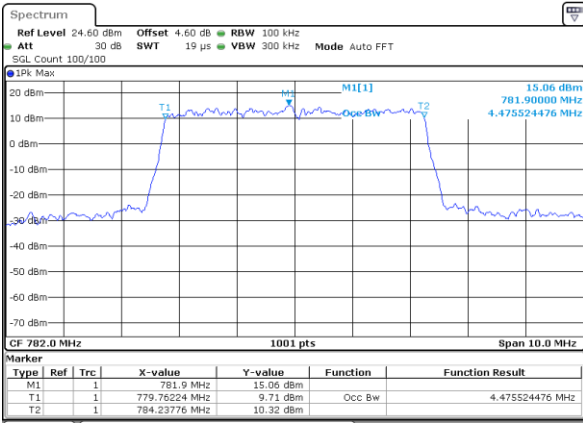
Date: 11 JUN 2020 20:47:04

Lowest Channel / 5MHz / 16QAM



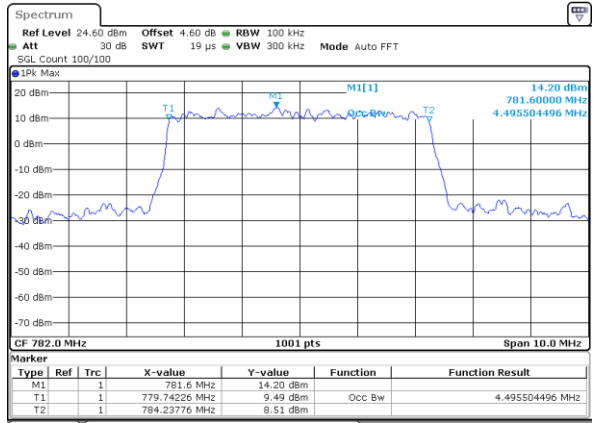
Date: 11 JUN 2020 20:46:54

Middle Channel / 5MHz / QPSK



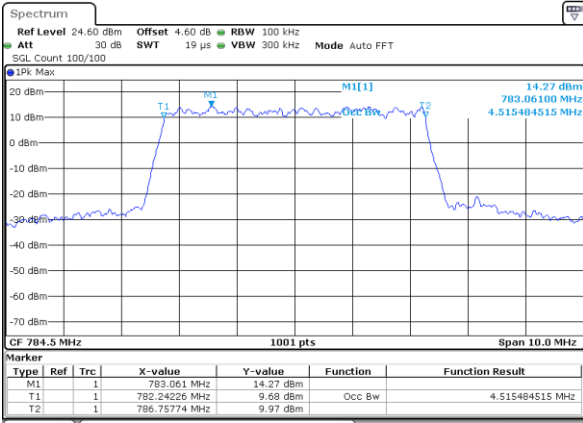
Date: 11 JUN 2020 20:55:59

Middle Channel / 5MHz / 16QAM



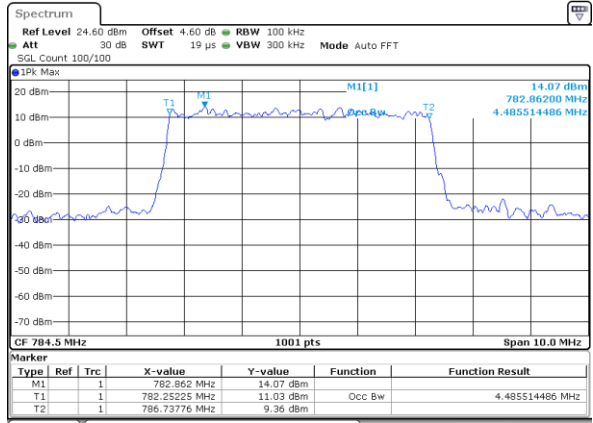
Date: 11 JUN 2020 20:56:09

Highest Channel / 5MHz / QPSK



Date: 11 JUN 2020 20:58:32

Highest Channel / 5MHz / 16QAM



Date: 11 JUN 2020 20:58:42

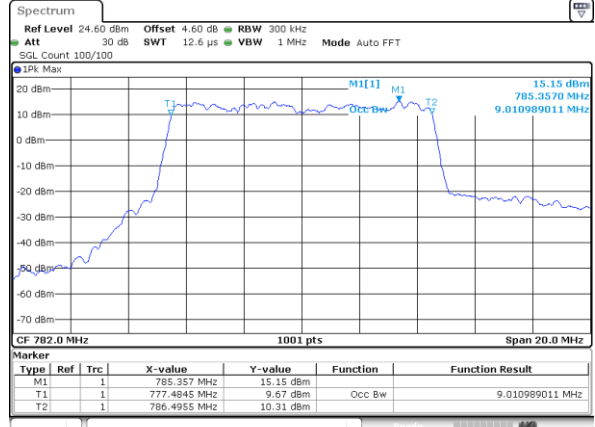
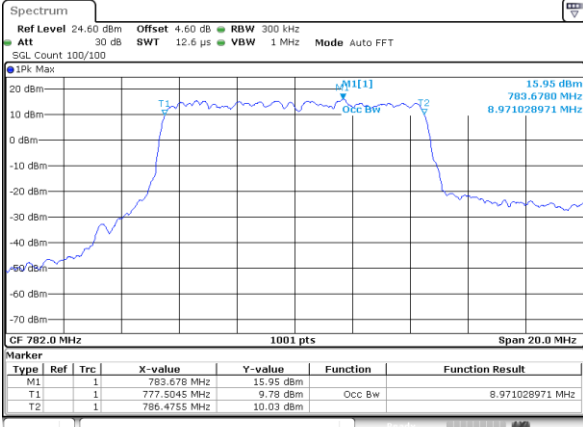




LTE Band 13

Middle Channel / 10MHz / QPSK

Middle Channel / 10MHz / 16QAM



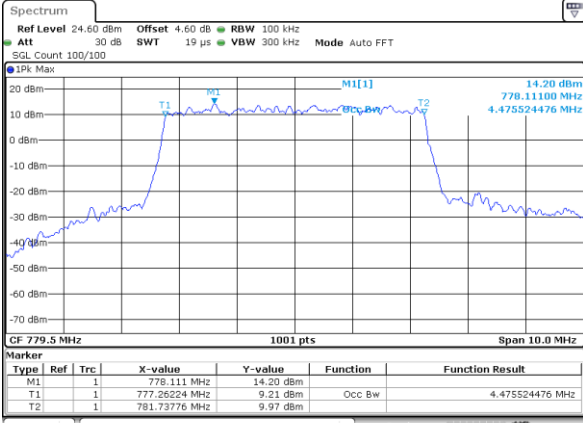
Date: 11 JUN 2020 21:09:33

Date: 11 JUN 2020 21:09:43



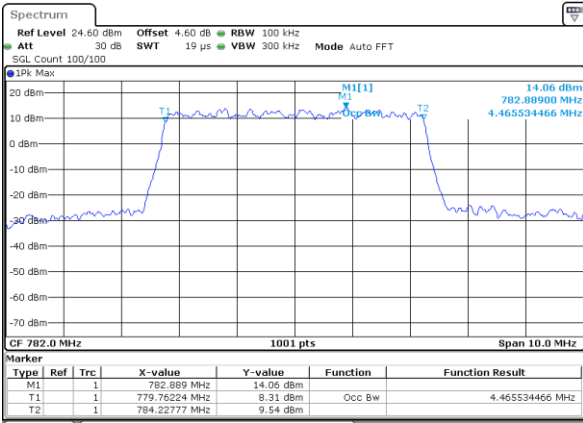
LTE Band 13

Lowest Channel / 5MHz / 64QAM



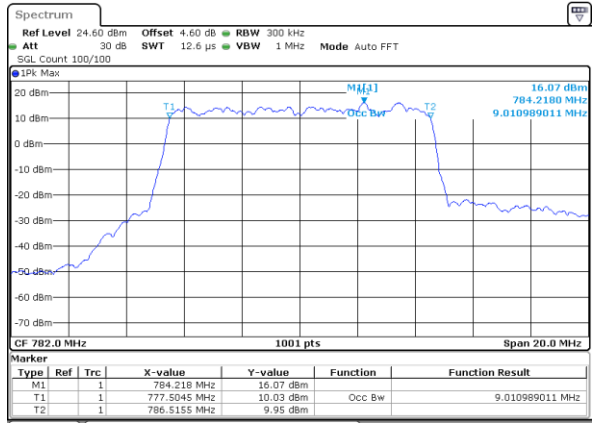
Date: 11 JUN 2020 21:23:23

Middle Channel / 5MHz / 64QAM



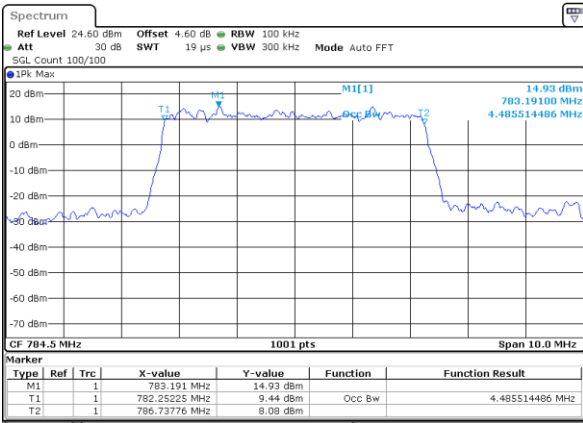
Date: 11 JUN 2020 21:23:33

Middle Channel / 10MHz / 64QAM



Date: 11 JUN 2020 21:33:48

Highest Channel / 5MHz / 64QAM



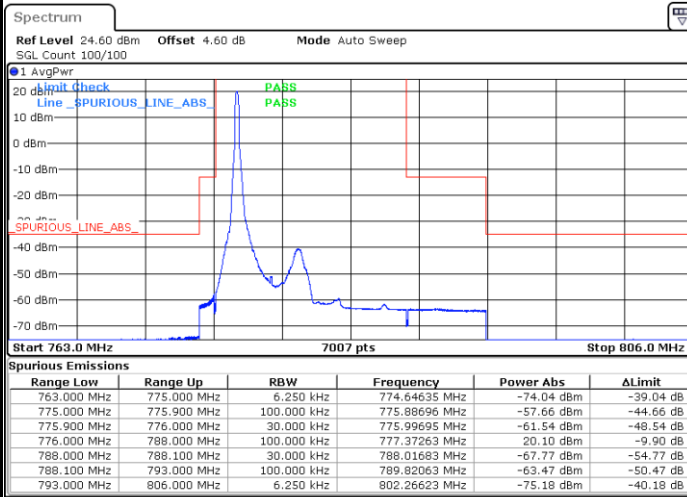
Date: 11 JUN 2020 21:23:43



# Conducted Band Edge

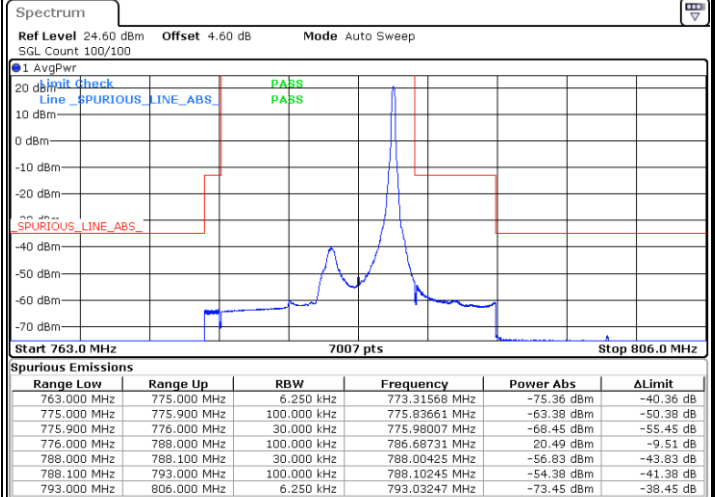
## LTE Band 13 / 5MHz / QPSK

### Lowest Band Edge / 1 RB



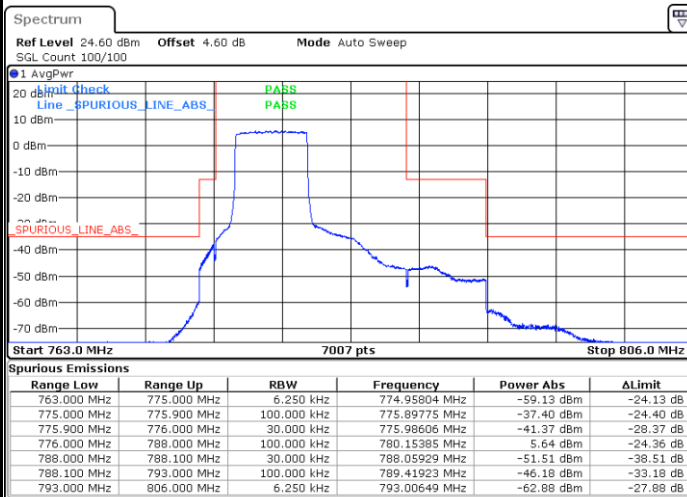
Date: 11.JUN.2020 20:51:59

### Highest Band Edge / 1 RB



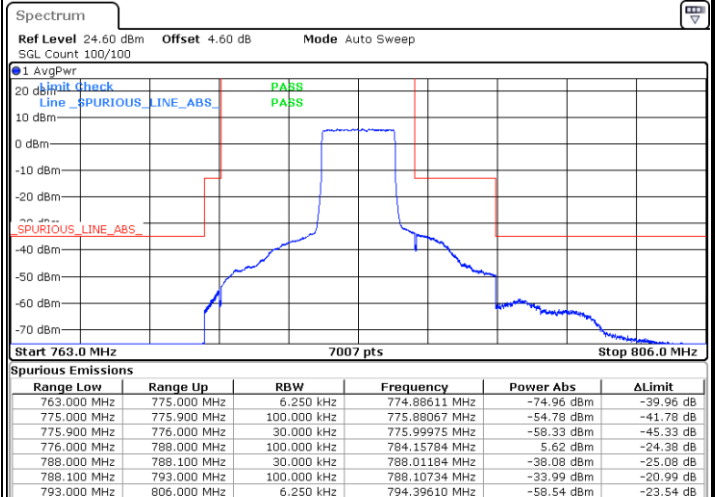
Date: 11.JUN.2020 21:03:38

### Lowest Band Edge / Full RB



Date: 11.JUN.2020 20:50:21

### Highest Band Edge / Full RB



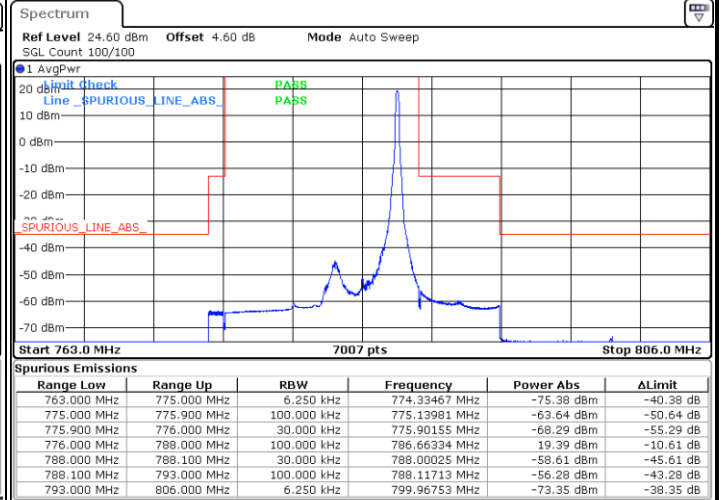
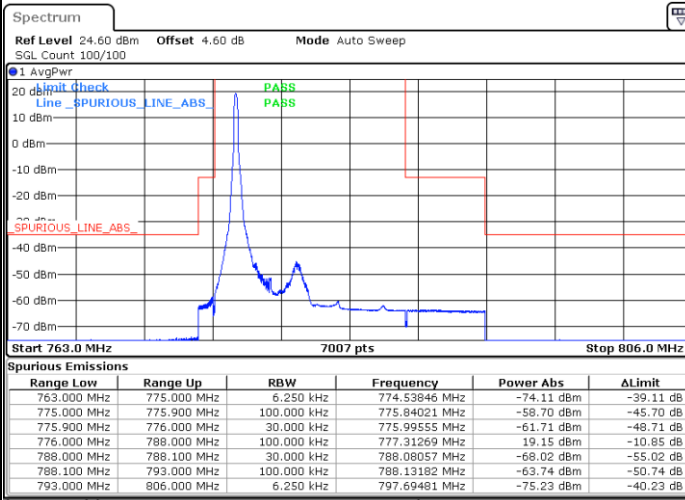
Date: 11.JUN.2020 21:01:59



LTE Band 13 / 5MHz / 16QAM

Lowest Band Edge / 1 RB

Highest Band Edge / 1 RB

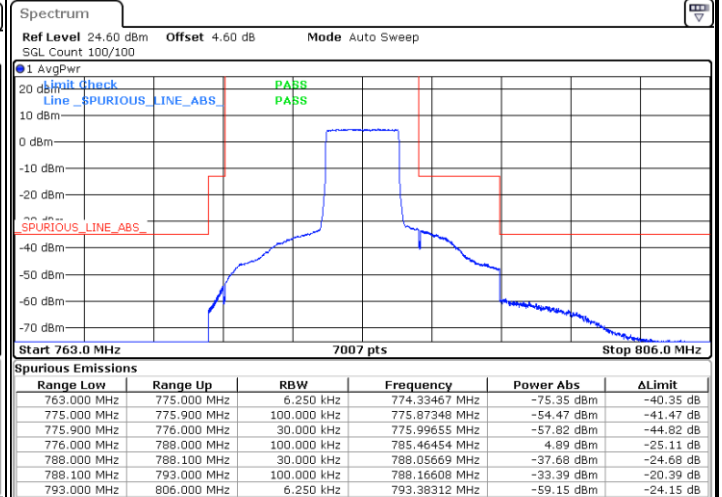
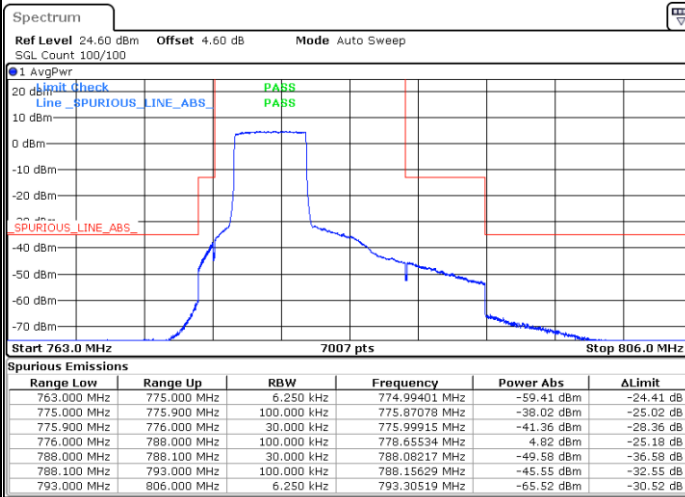


Date: 11.JUN.2020 20:53:38

Date: 11.JUN.2020 21:05:17

Lowest Band Edge / Full RB

Highest Band Edge / Full RB



Date: 11.JUN.2020 20:48:43

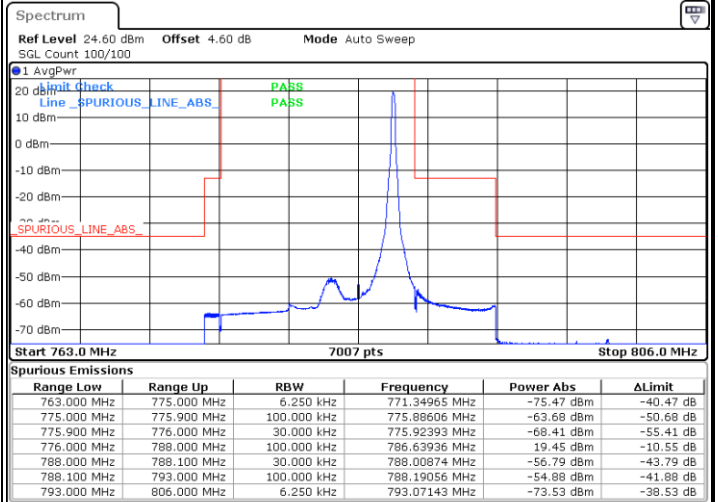
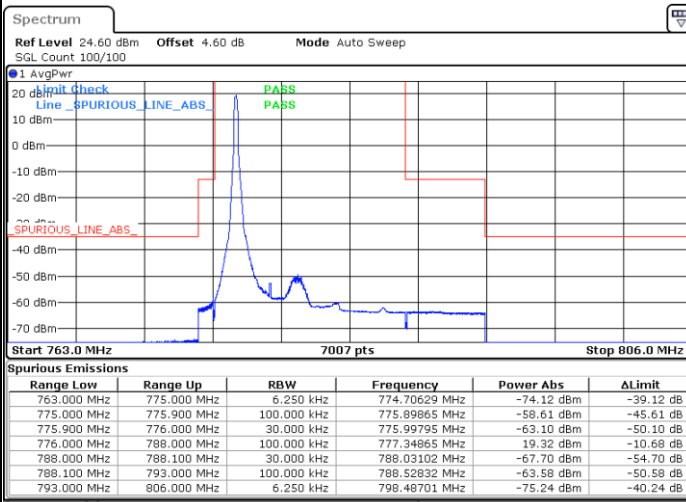
Date: 11.JUN.2020 21:00:21



LTE Band 13 / 5MHz / 64QAM

Lowest Band Edge / 1 RB

Highest Band Edge / 1 RB

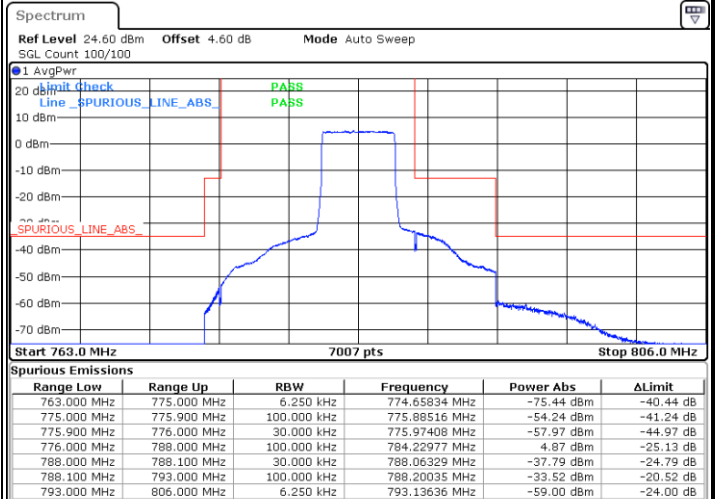
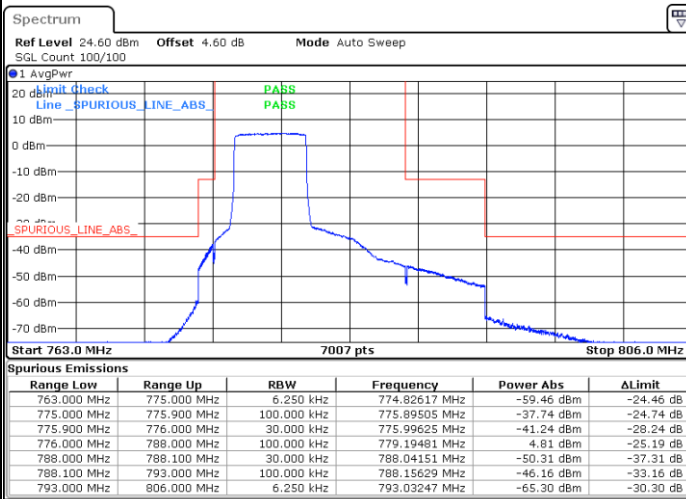


Date: 11.JUN.2020 21:25:52

Date: 11.JUN.2020 21:30:49

Lowest Band Edge / Full RB

Highest Band Edge / Full RB



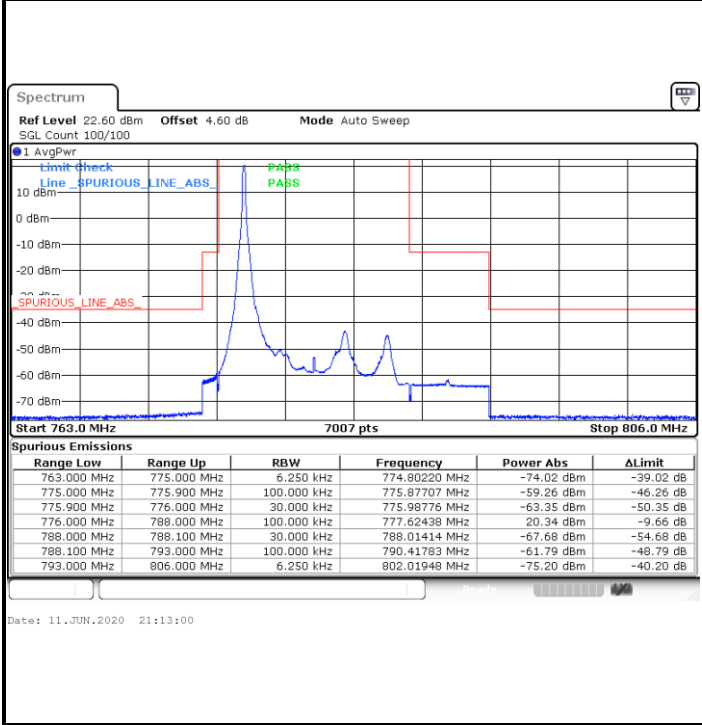
Date: 11.JUN.2020 21:27:31

Date: 11.JUN.2020 21:29:10

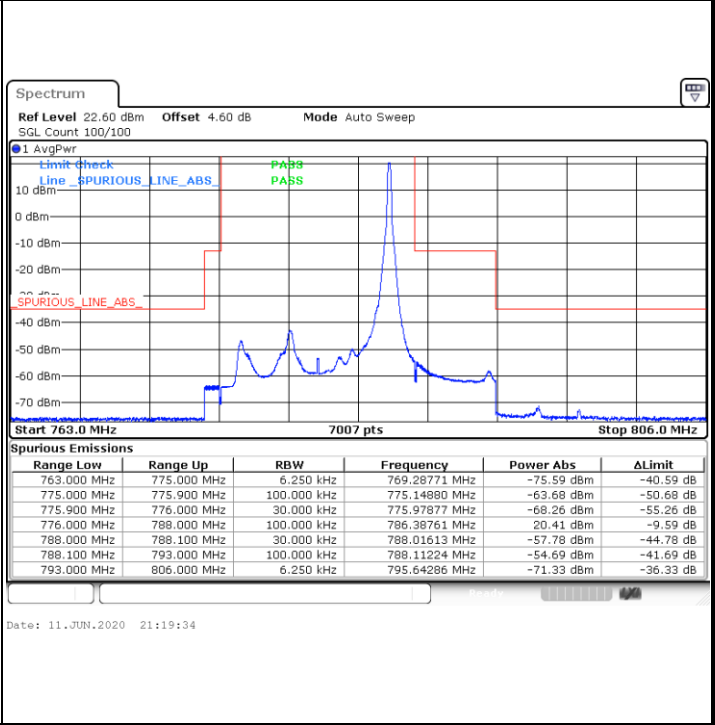


**LTE Band 13 / 10MHz / QPSK**

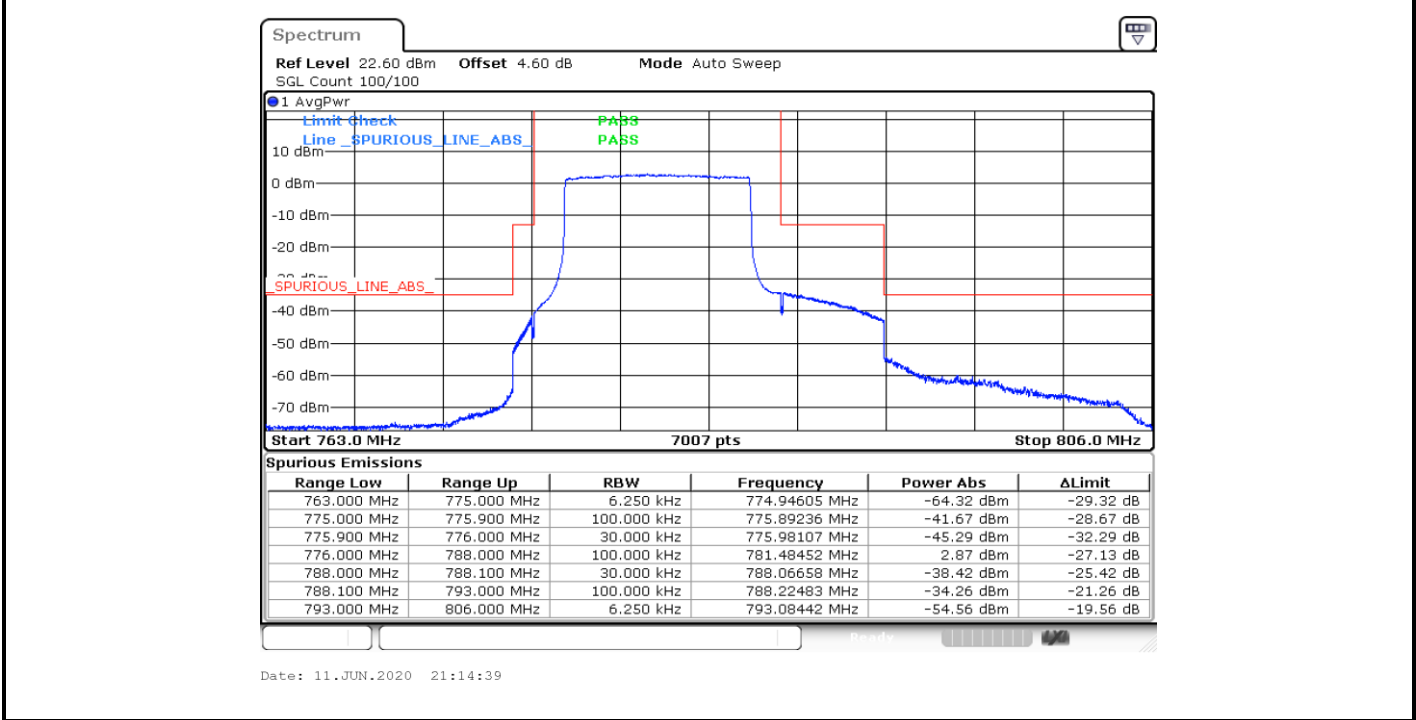
**Lowest Band Edge / 1 RB**



**Highest Band Edge / 1 RB**



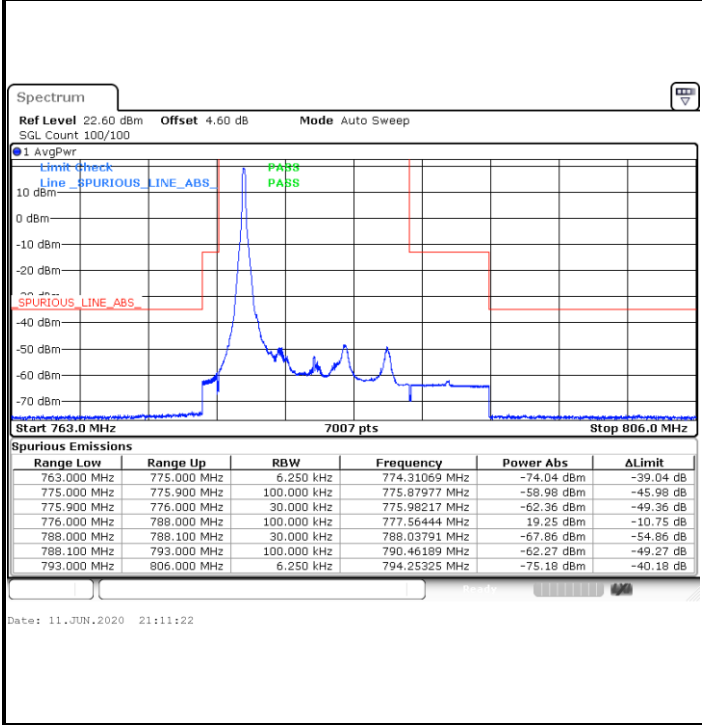
**Band Edge / Full RB**



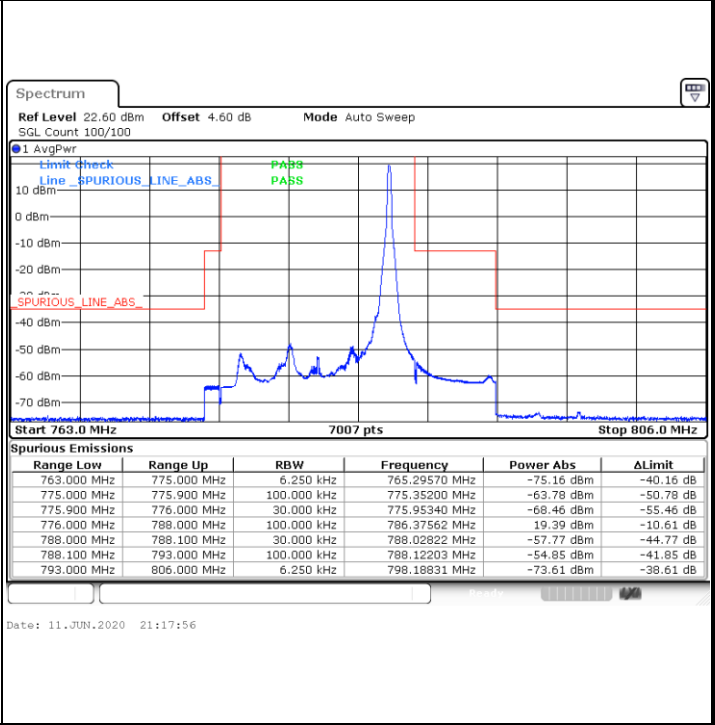


**LTE Band 13 / 10MHz / 16QAM**

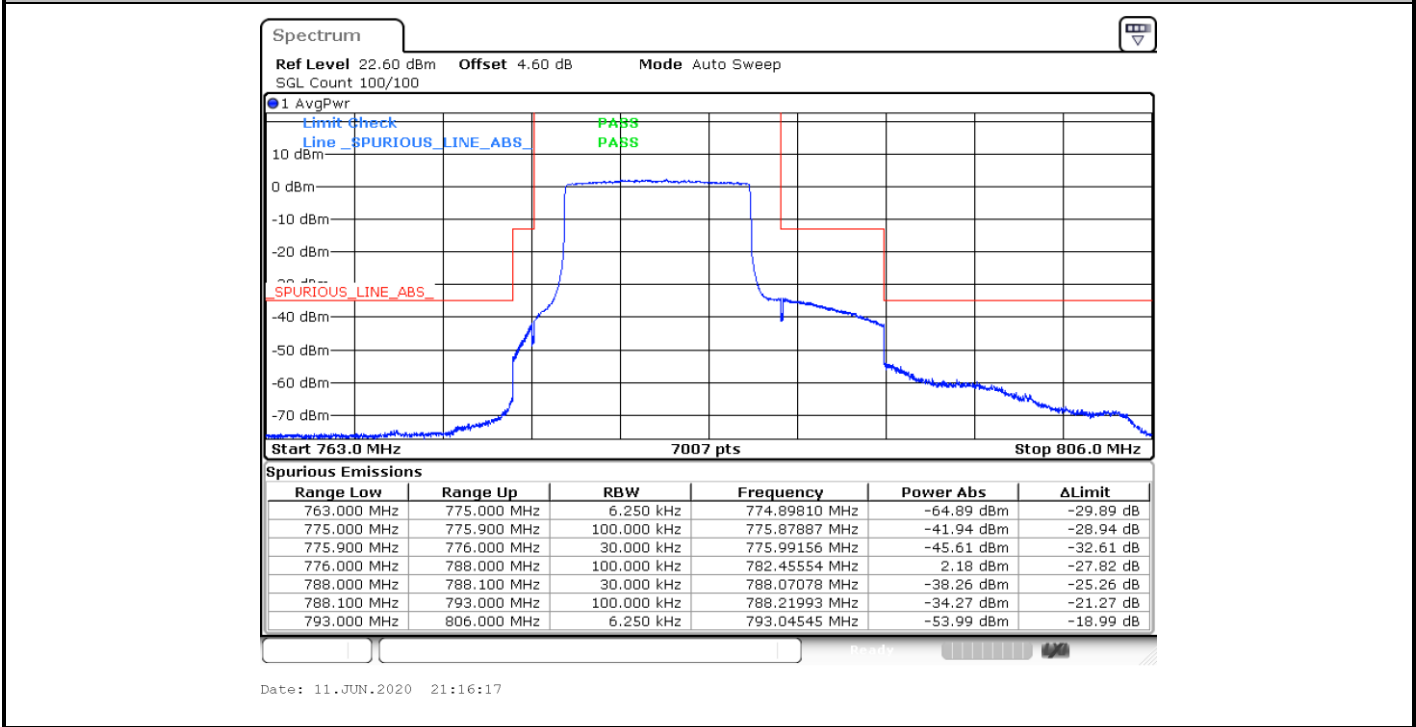
**Lowest Band Edge / 1 RB**



**Highest Band Edge / 1 RB**



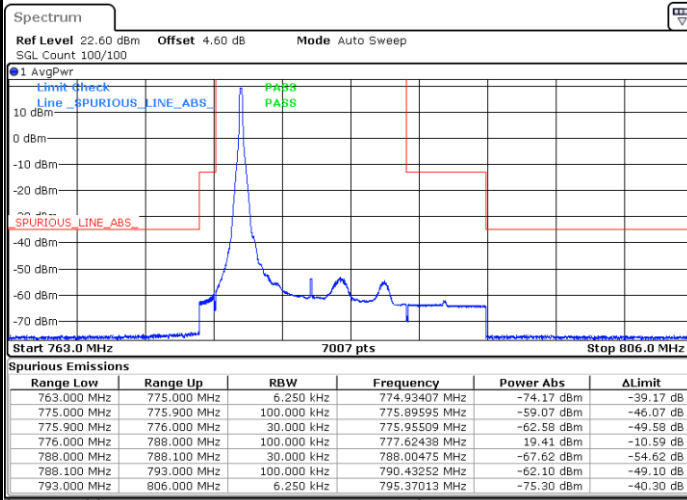
**Band Edge / Full RB**





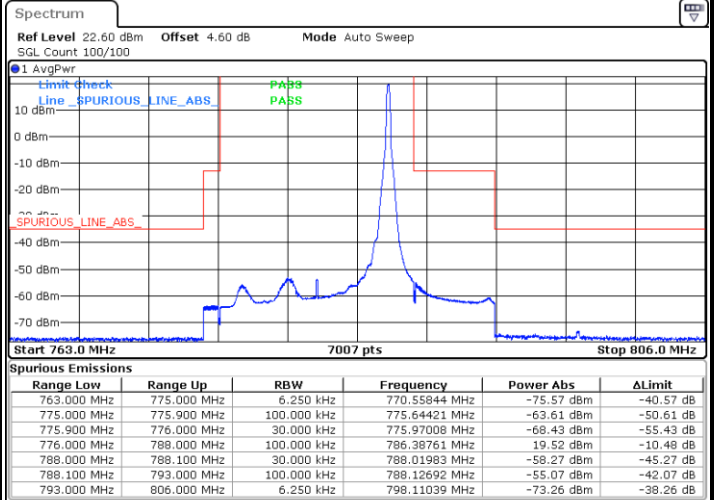
LTE Band 13 / 10MHz / 64QAM

Lowest Band Edge / 1 RB



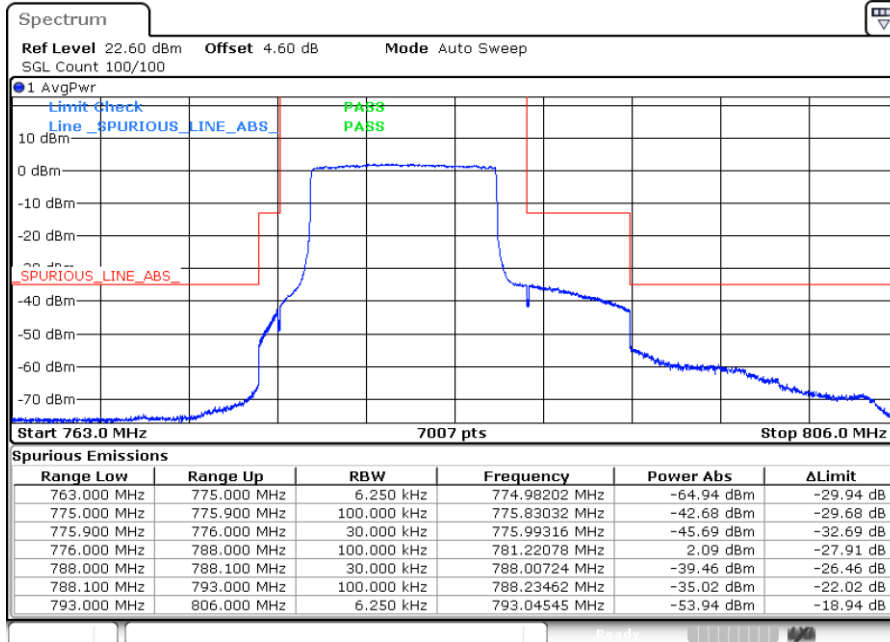
Date: 11.JUN.2020 21:35:36

Highest Band Edge / 1 RB



Date: 11.JUN.2020 21:37:15

Band Edge / Full RB

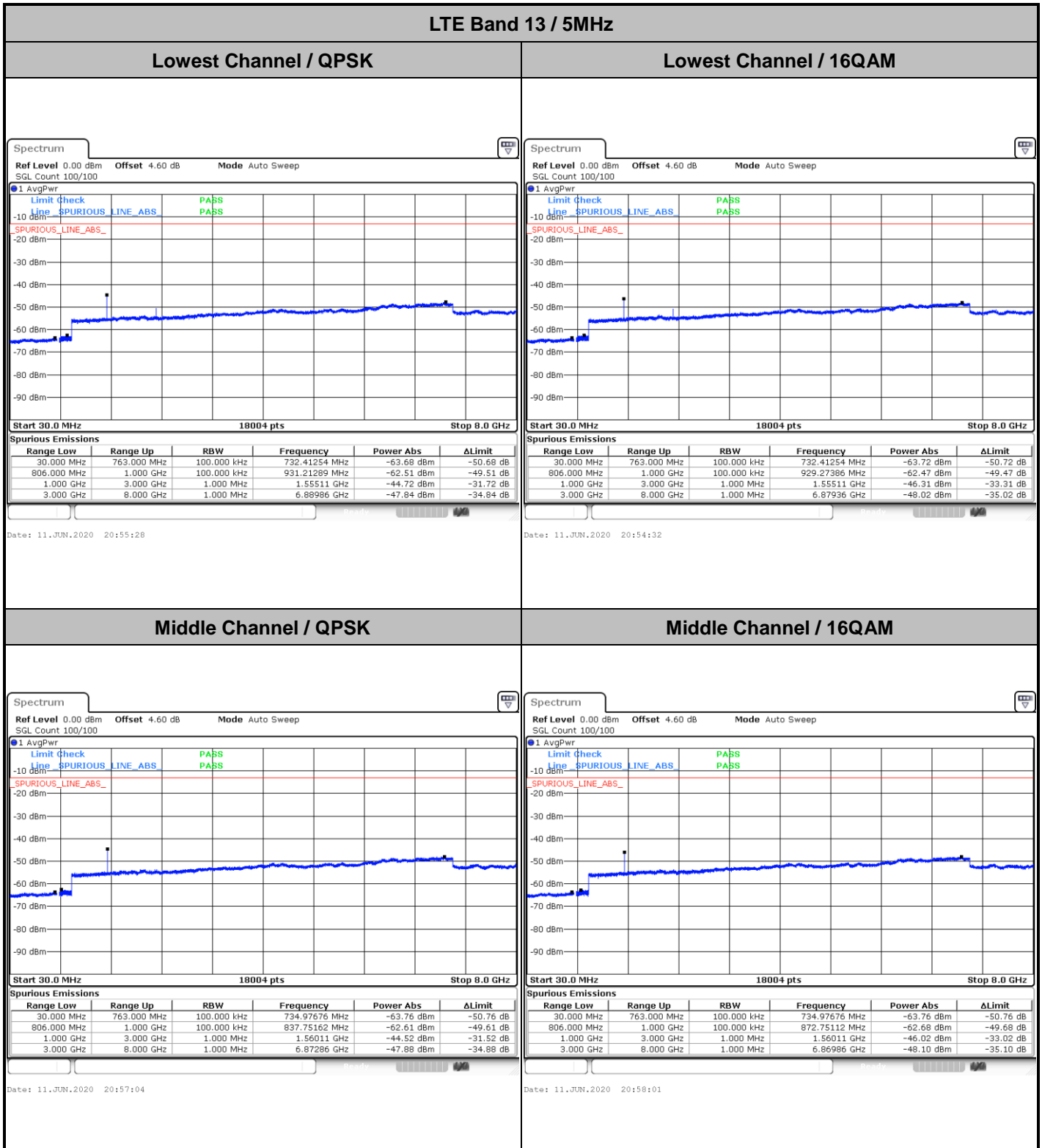


Date: 11.JUN.2020 21:38:53





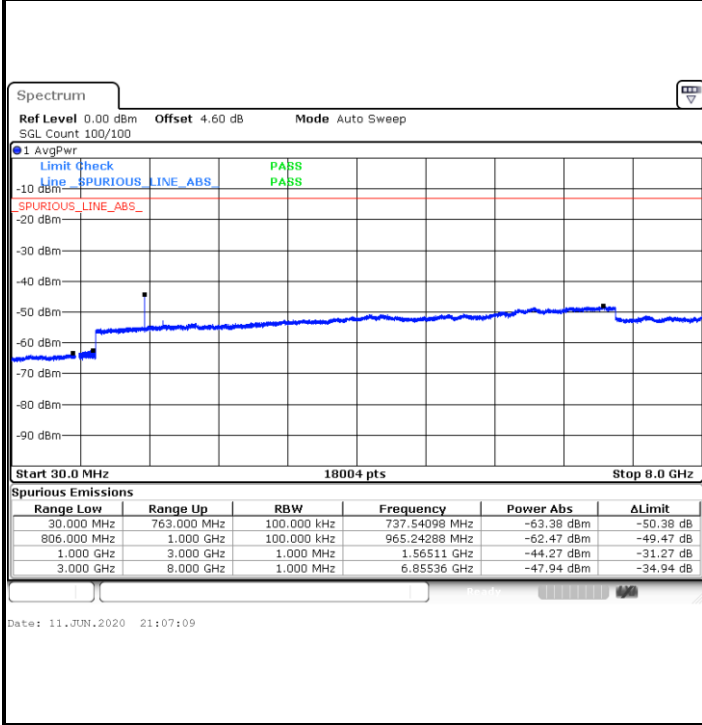
# Conducted Spurious Emission



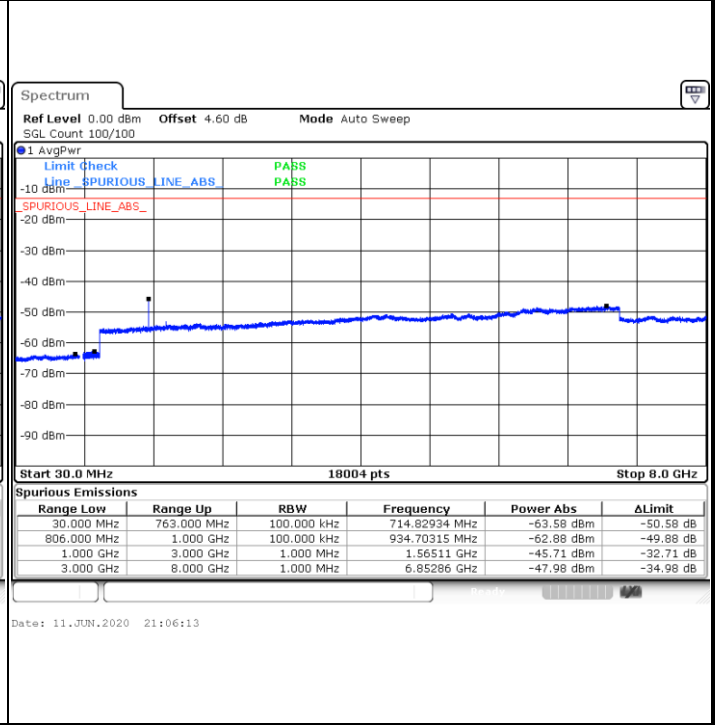


LTE Band 13 / 5MHz

Highest Channel / QPSK

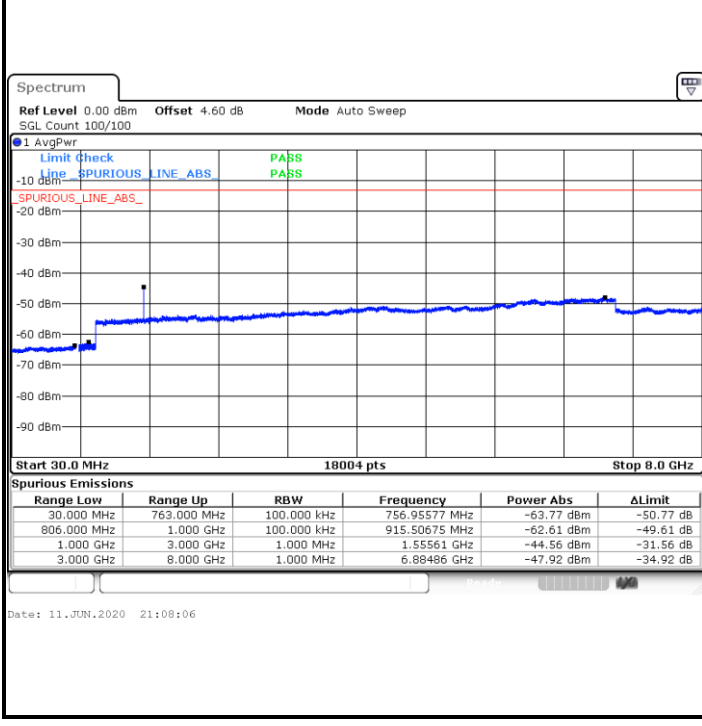


Highest Channel / 16QAM

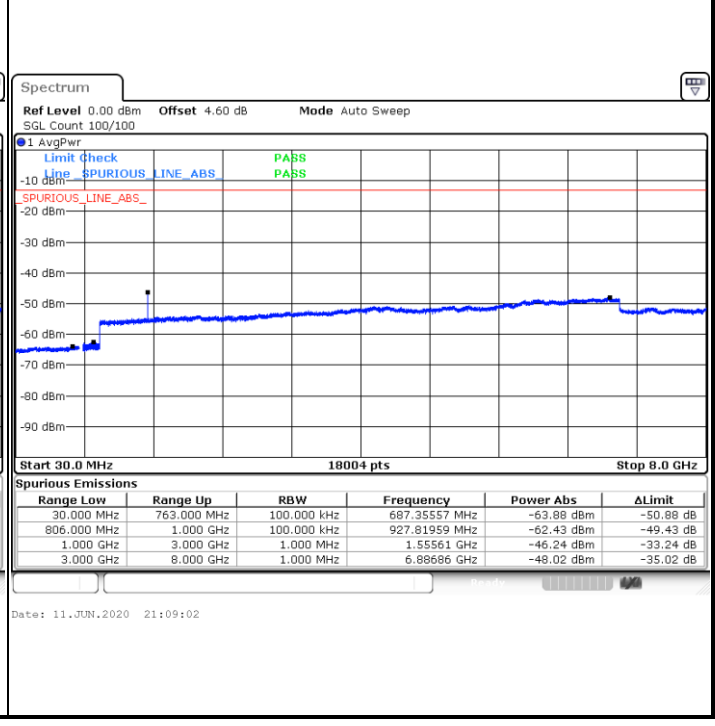


LTE Band 13 / 10MHz

Middle Channel / QPSK



Middle Channel / 16QAM

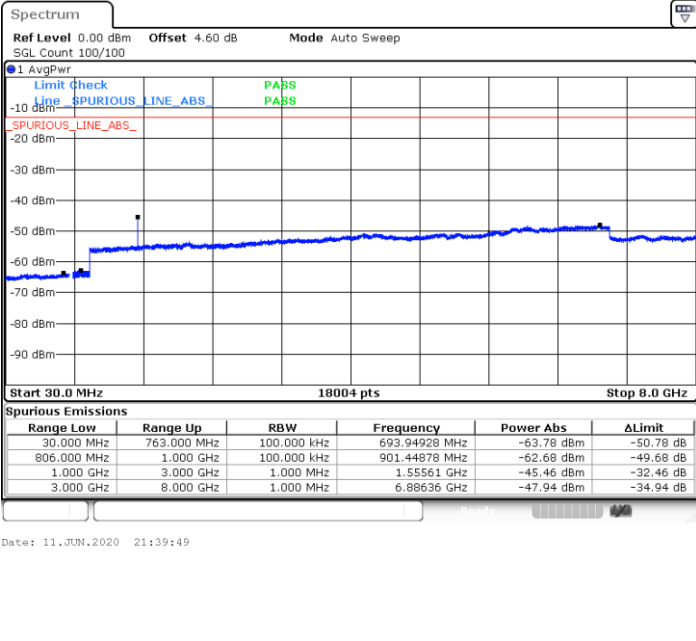






LTE Band 13 / 10MHz

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	0.0013	PASS
40	Normal Voltage	0.0008	
30	Normal Voltage	0.0001	
20(Ref.)	Normal Voltage	0.0002	
10	Normal Voltage	0.0015	
0	Normal Voltage	0.0008	
-10	Normal Voltage	0.0024	
-20	Normal Voltage	0.0017	
-30	Normal Voltage	0.0027	
20	Maximum Voltage	0.0013	
20	Normal Voltage	0.0001	
20	Battery End Point	0.0003	

Note:

- 3. Normal Voltage =3.8 V. ; Battery End Point (BEP) =3.4 V. ; Maximum Voltage =4.45 V.
- 4. Note: The frequency fundamental emissions stay within the authorized frequency block.



# LTE Band 38

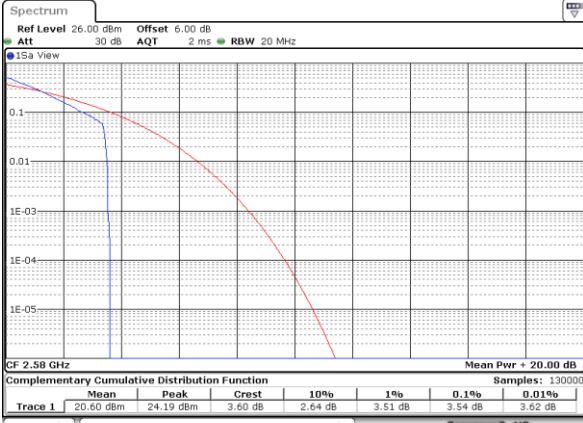
## Peak-to-Average Ratio

Mode	LTE Band 38 / 20MHz				
Mod.	QPSK		16QAM		Limit: 13dB
RB Size	1RB	Full RB	1RB	Full RB	Result
Lowest CH	3.54	5.51	5.74	6.35	<b>PASS</b>
Middle CH	4.67	5.71	5.74	6.00	
Highest CH	6.46	6.64	6.84	6.20	
Mode	LTE Band 38 / 20MHz				
Mod.	64QAM				Limit: 13dB
RB Size	1RB	Full RB			Result
Lowest CH	6.32	6.46	-	-	<b>PASS</b>
Middle CH	6.17	6.12	-	-	
Highest CH	5.94	6.84	-	-	



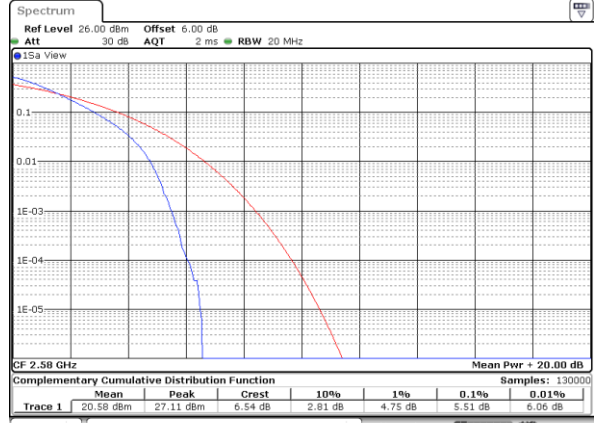
LTE Band 38 / 20MHz / QPSK

Lowest Channel / 1RB



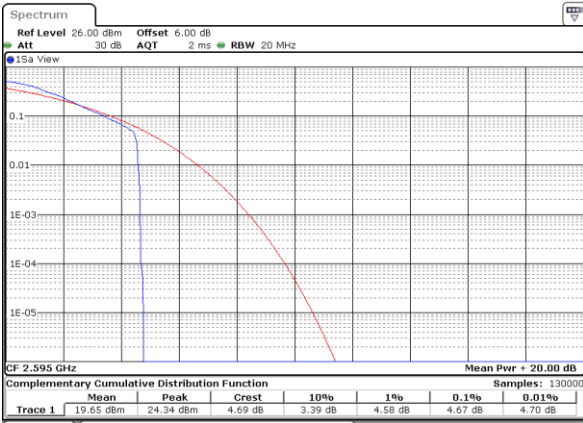
Date: 22 JUN 2020 23 07 56

Lowest Channel / Full RB



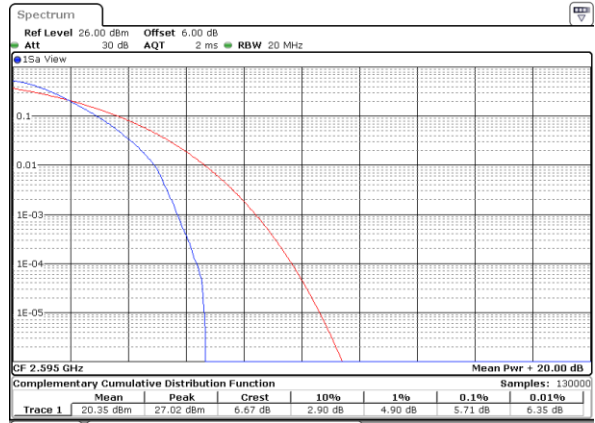
Date: 22 JUN 2020 23 08 09

Middle Channel / 1RB



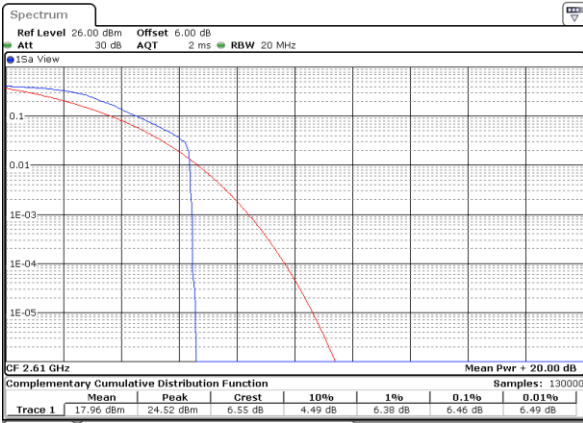
Date: 22 JUN 2020 23 09 22

Middle Channel / Full RB



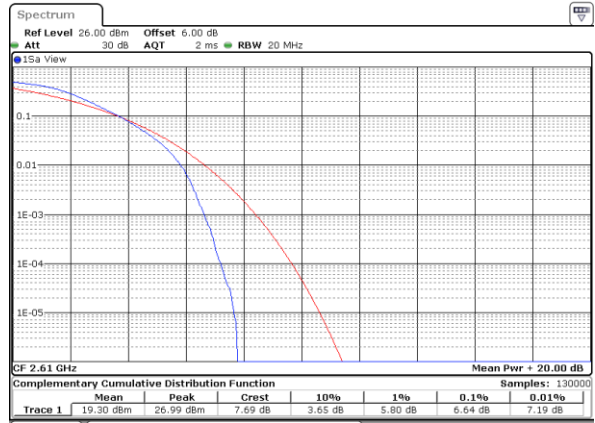
Date: 22 JUN 2020 23 09 30

Highest Channel / 1RB



Date: 22 JUN 2020 23 10 36

Highest Channel / Full RB

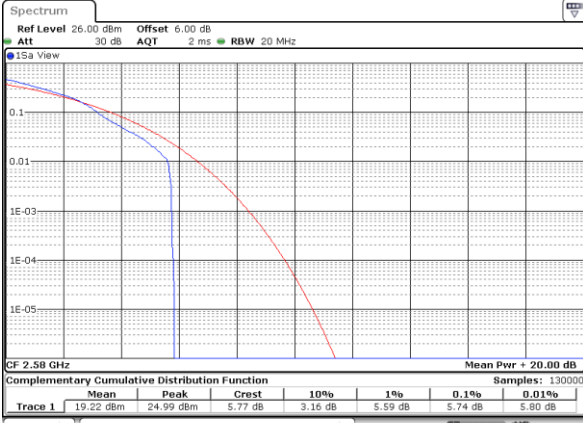


Date: 22 JUN 2020 23 10 50



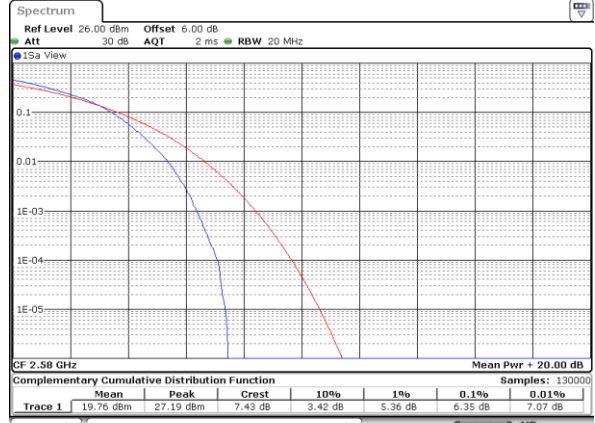
LTE Band 38 / 20MHz / 16QAM

Lowest Channel / 1RB



Date: 22 JUN 2020 23 08 36

Lowest Channel / Full RB



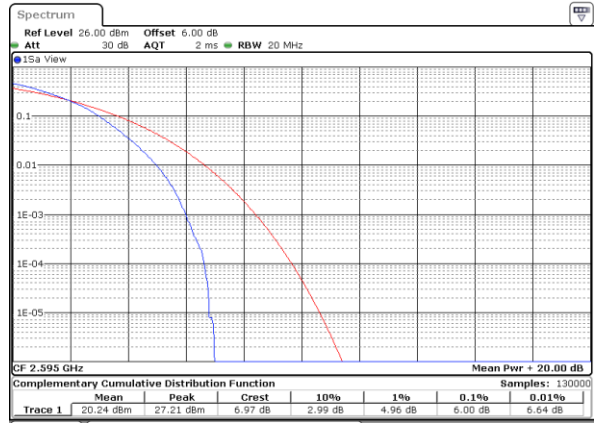
Date: 22 JUN 2020 23 08 22

Middle Channel / 1RB



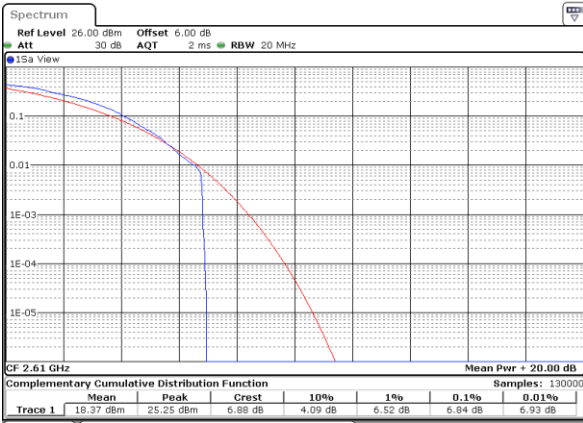
Date: 22 JUN 2020 23 09 51

Middle Channel / Full RB



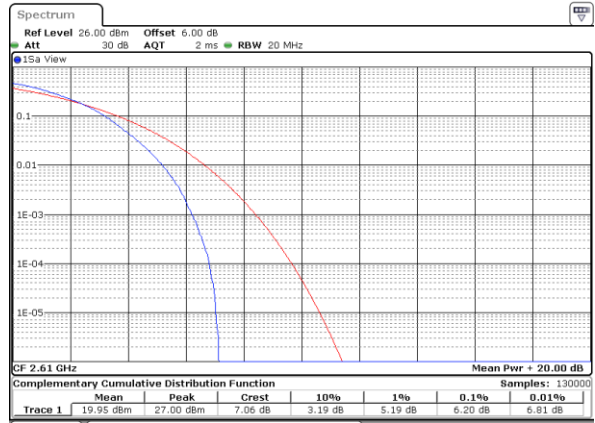
Date: 22 JUN 2020 23 09 42

Highest Channel / 1RB



Date: 22 JUN 2020 23 11 17

Highest Channel / Full RB



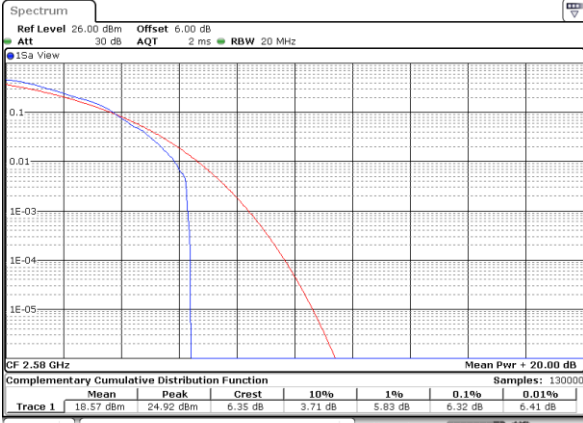
Date: 22 JUN 2020 23 11 03





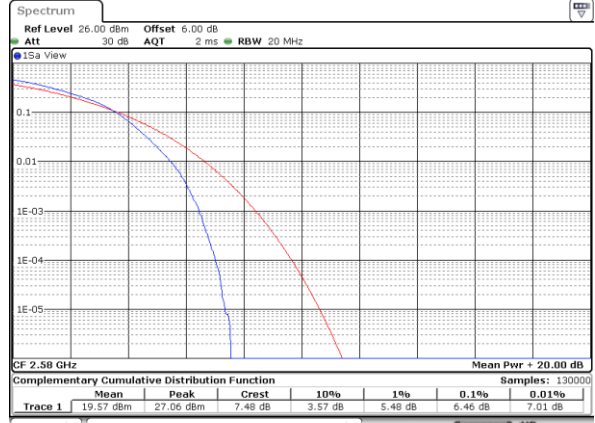
LTE Band 38 / 20MHz / 64QAM

Lowest Channel / 1RB



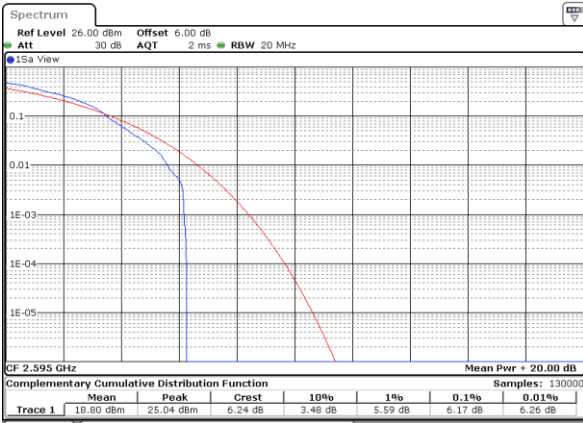
Date: 22 JUN 2020 23:09:03

Lowest Channel / Full RB



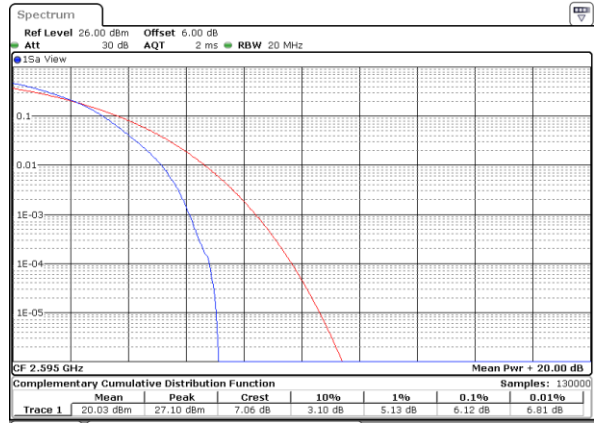
Date: 22 JUN 2020 23:08:51

Middle Channel / 1RB



Date: 22 JUN 2020 23:10:27

Middle Channel / Full RB



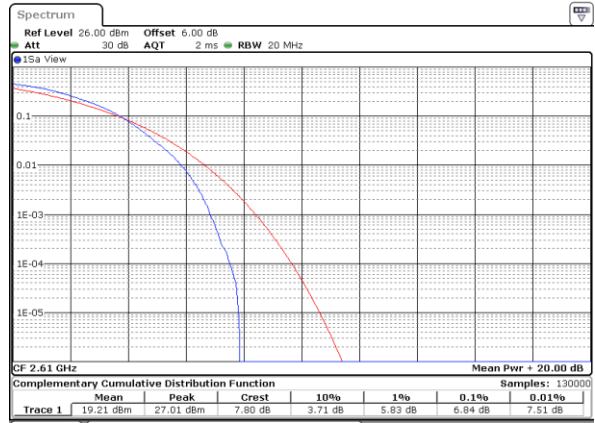
Date: 22 JUN 2020 23:10:07

Highest Channel / 1RB



Date: 22 JUN 2020 23:11:30

Highest Channel / Full RB



Date: 22 JUN 2020 23:11:40



26dB Bandwidth

Mode	LTE Band 38 : 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	-	-	-	-	4.91	4.72	9.79	9.73	14.24	14.12	20.14	20.06
Middle CH	-	-	-	-	4.79	4.93	9.61	9.65	14.15	14.12	20.06	20.14
Highest CH	-	-	-	-	4.77	4.88	9.85	9.81	14.39	14.15	20.26	20.18
Mode	LTE Band 38 : 26dB BW(MHz)											
BW	1.4MHz		3MHz		5MHz		10MHz		15MHz		20MHz	
Mod.	64QAM		64QAM		64QAM		64QAM		64QAM		64QAM	
Lowest CH	-	-	-	-	4.91	-	9.73	-	14.30	-	20.18	-
Middle CH	-	-	-	-	4.72	-	9.79	-	14.42	-	20.14	-
Highest CH	-	-	-	-	4.85	-	9.67	-	14.21	-	20.06	-