



## LTE Band 7

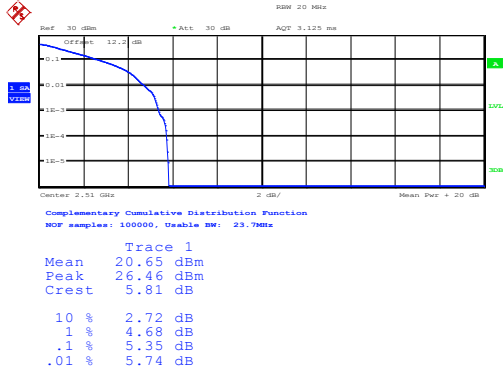
### Peak-to-Average Ratio

Mode	LTE Band 7 / 20MHz				
Mod.	QPSK		16QAM		Limit: 13dB
RB Size	1RB	Full RB	1RB	RB Size	Result
Lowest CH	5.35	5.51	5.03	6.41	<b>PASS</b>
Middle CH	4.2	5.83	5	6.38	
Highest CH	5.67	5.48	5.71	6.47	



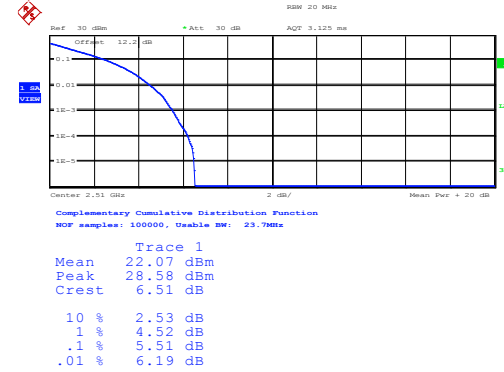
LTE Band 7 / 20MHz / QPSK

Lowest Channel / 1RB



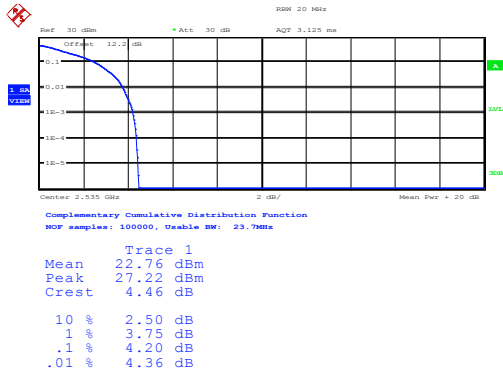
Date: 14.JAN.2015 00:07:23

Lowest Channel / Full RB



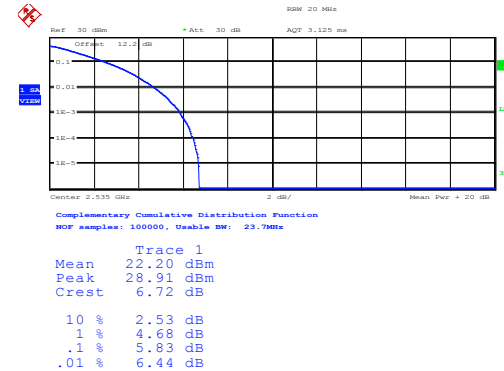
Date: 14.JAN.2015 00:07:36

Middle Channel / 1RB



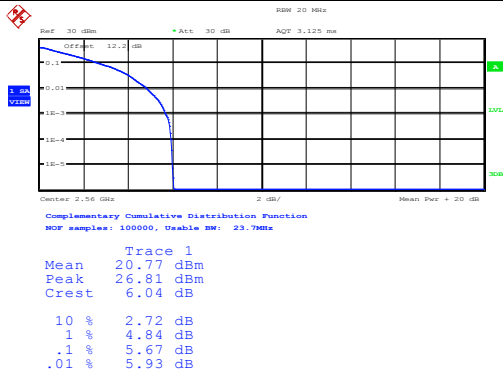
Date: 14.JAN.2015 00:07:51

Middle Channel / Full RB



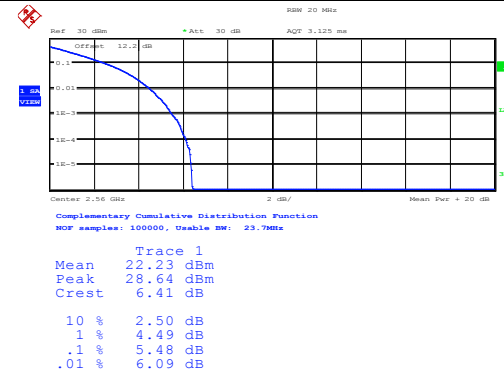
Date: 14.JAN.2015 00:08:06

Highest Channel / 1RB



Date: 14.JAN.2015 00:08:20

Highest Channel / Full RB

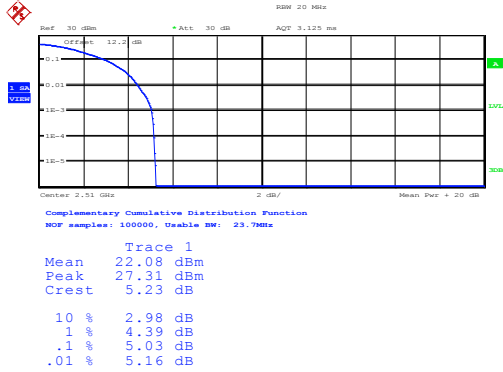


Date: 14.JAN.2015 00:08:35



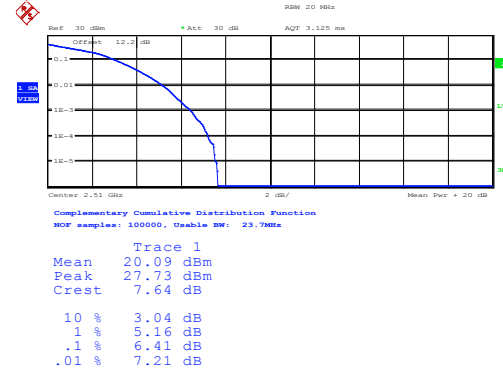
LTE Band 7 / 20MHz / 16QAM

Lowest Channel / 1RB



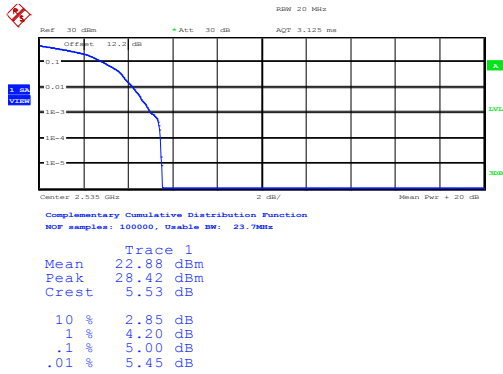
Date: 14.JAN.2015 00:06:03

Lowest Channel / Full RB



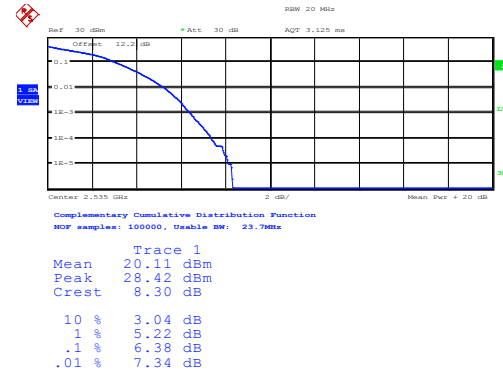
Date: 14.JAN.2015 00:06:17

Middle Channel / 1RB



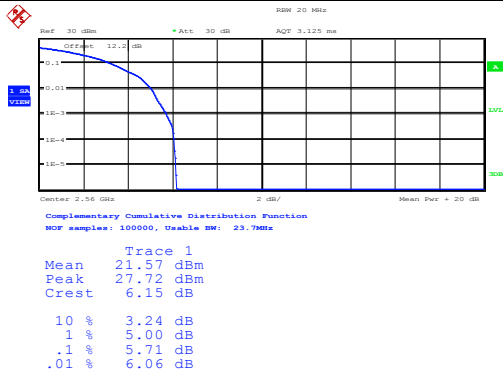
Date: 14.JAN.2015 00:06:30

Middle Channel / Full RB



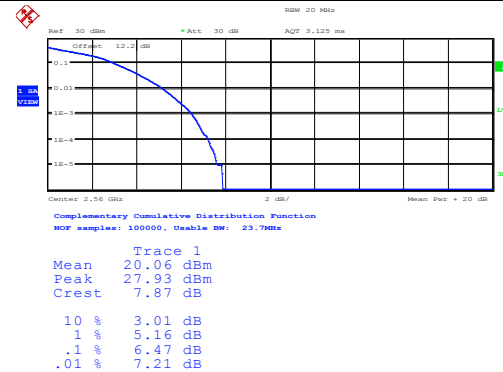
Date: 14.JAN.2015 00:06:44

Highest Channel / 1RB



Date: 14.JAN.2015 00:06:57

Highest Channel / Full RB



Date: 14.JAN.2015 00:07:10



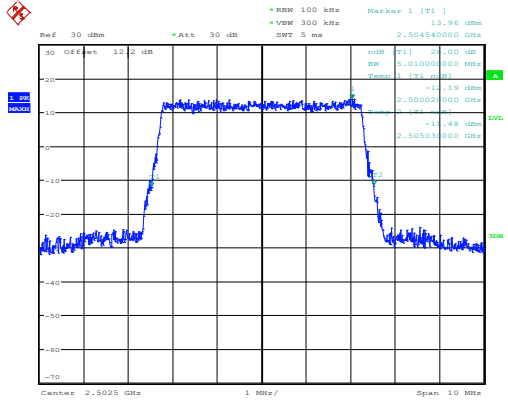
**26dB Bandwidth**

Mode	LTE Band 7 : 26dB BW(MHz)											
	1.4MHz		3MHz		5MHz		10MHz		15MHz		20MHz	
BW												
Mod.	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM
Lowest CH	-	-	-	-	5.01	4.98	10	9.98	14.67	14.55	21.04	21
Middle CH	-	-	-	-	4.96	4.96	10.02	10.1	14.67	14.73	20.88	21.08
Highest CH	-	-	-	-	4.94	4.93	10	9.98	14.64	14.73	20.92	21



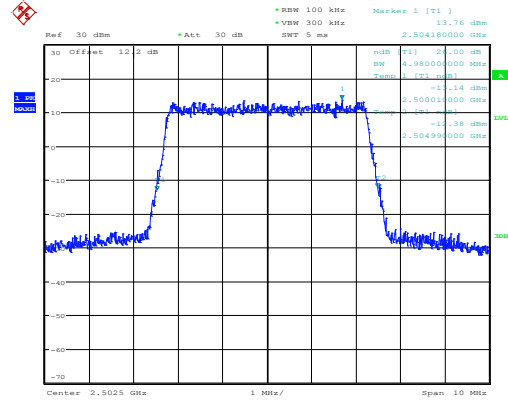
LTE Band 7

Lowest Channel / 5MHz / QPSK



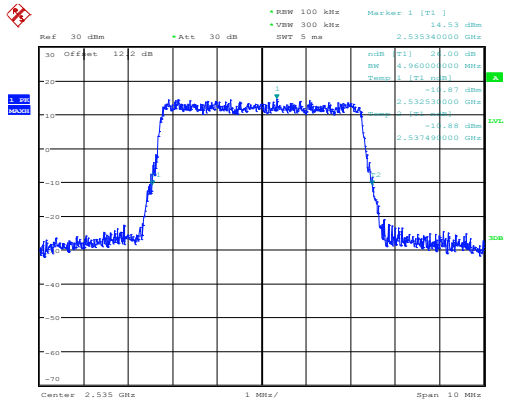
Date: 13.JAN.2015 22:49:10

Lowest Channel / 5MHz / 16QAM



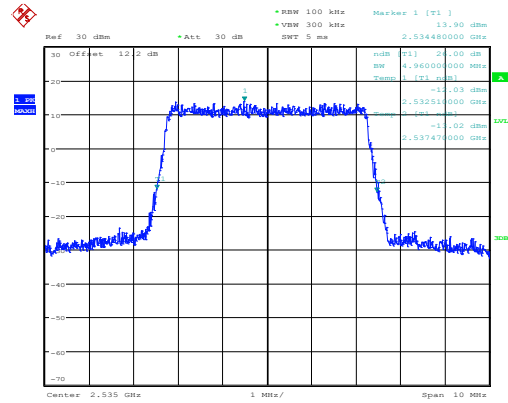
Date: 13.JAN.2015 22:49:22

Middle Channel / 5MHz / QPSK



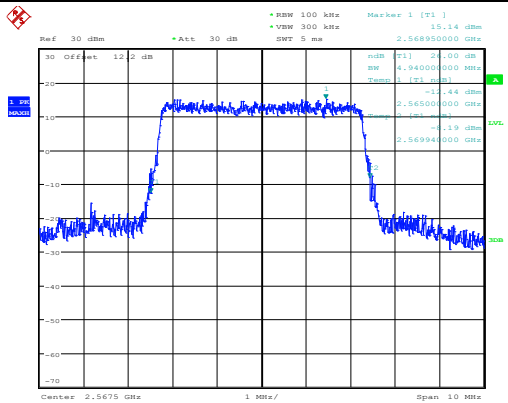
Date: 13.JAN.2015 22:56:53

Middle Channel / 5MHz / 16QAM



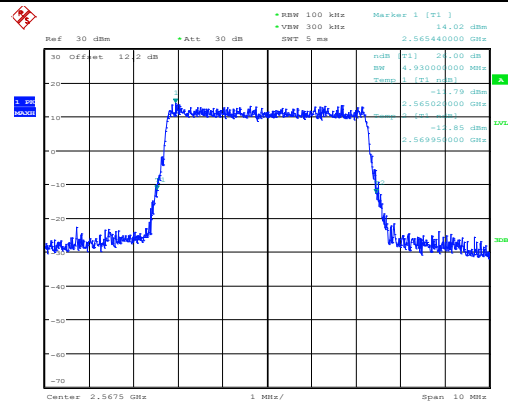
Date: 13.JAN.2015 22:57:06

Highest Channel / 5MHz / QPSK



Date: 13.JAN.2015 22:59:59

Highest Channel / 5MHz / 16QAM

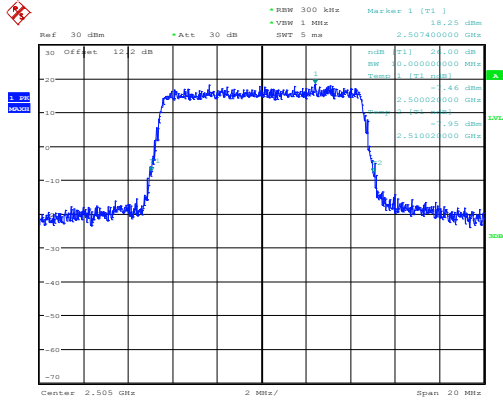


Date: 13.JAN.2015 23:00:12



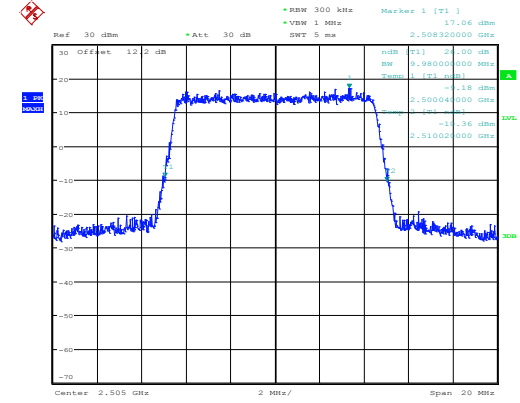
LTE Band 7

Lowest Channel / 10MHz / QPSK



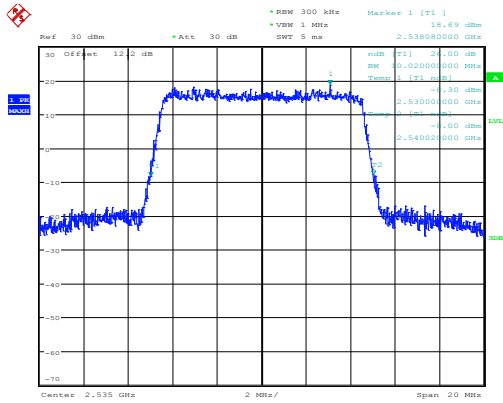
Date: 14.JAN.2015 00:11:02

Lowest Channel / 10MHz / 16QAM



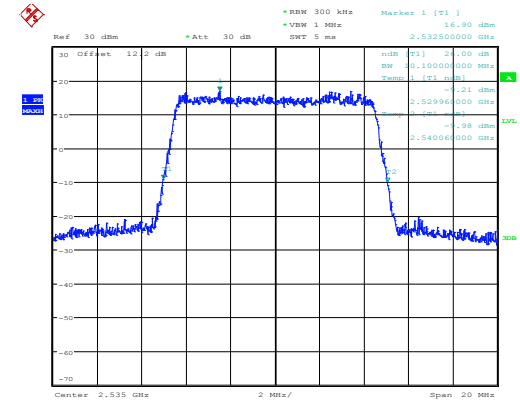
Date: 13.JAN.2015 23:09:00

Middle Channel / 10MHz / QPSK



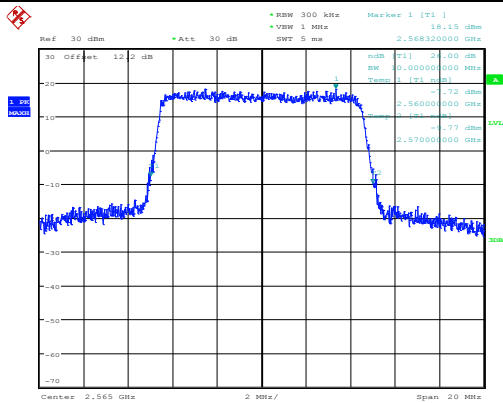
Date: 13.JAN.2015 23:15:32

Middle Channel / 10MHz / 16QAM



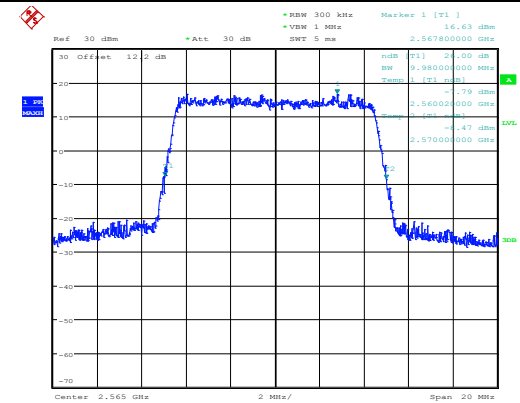
Date: 13.JAN.2015 23:15:45

Highest Channel / 10MHz / QPSK



Date: 13.JAN.2015 23:19:00

Highest Channel / 10MHz / 16QAM

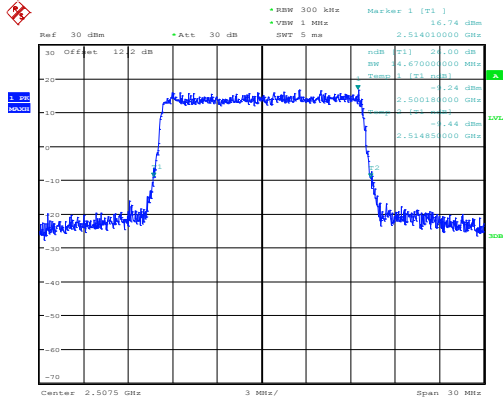


Date: 13.JAN.2015 23:19:13



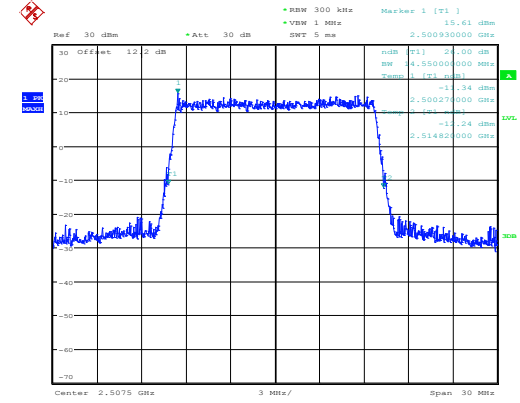
LTE Band 7

Lowest Channel / 15MHz / QPSK



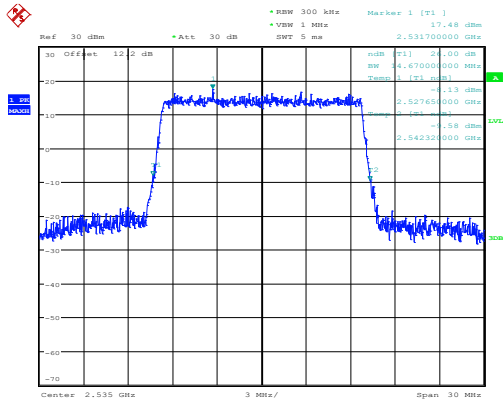
Date: 13.JAN.2015 23:26:48

Lowest Channel / 15MHz / 16QAM



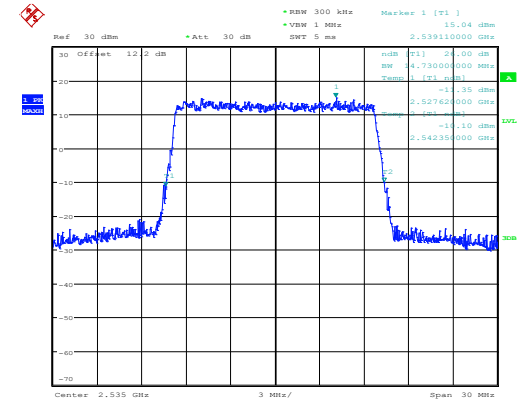
Date: 13.JAN.2015 23:27:01

Middle Channel / 15MHz / QPSK



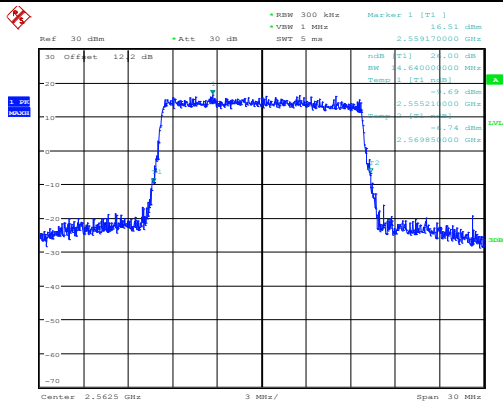
Date: 13.JAN.2015 23:34:32

Middle Channel / 15MHz / 16QAM



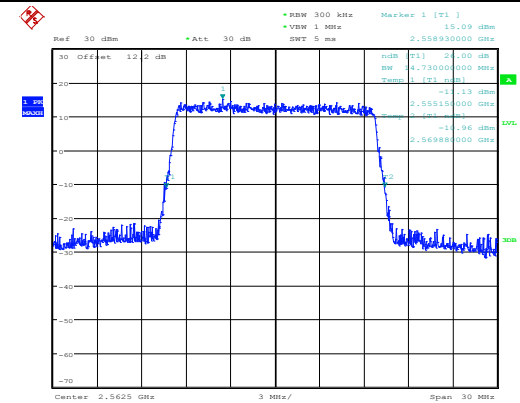
Date: 13.JAN.2015 23:34:45

Highest Channel / 15MHz / QPSK



Date: 14.JAN.2015 00:10:28

Highest Channel / 15MHz / 16QAM

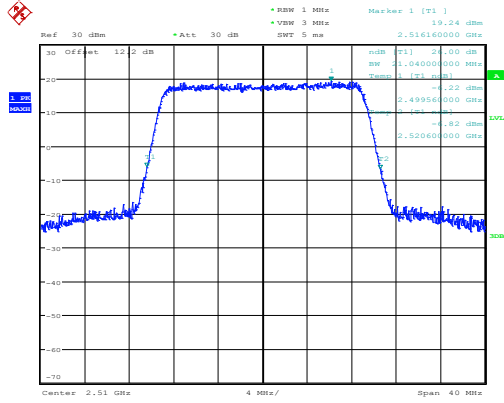


Date: 13.JAN.2015 23:37:51



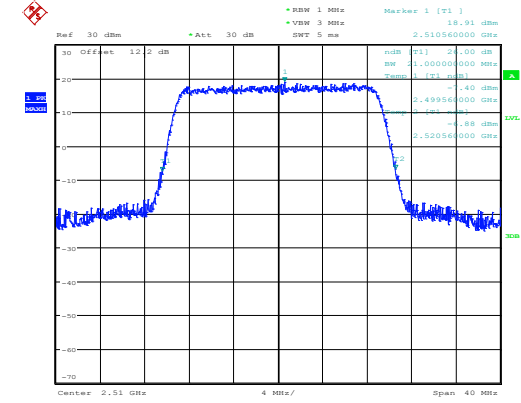
LTE Band 7

Lowest Channel / 20MHz / QPSK



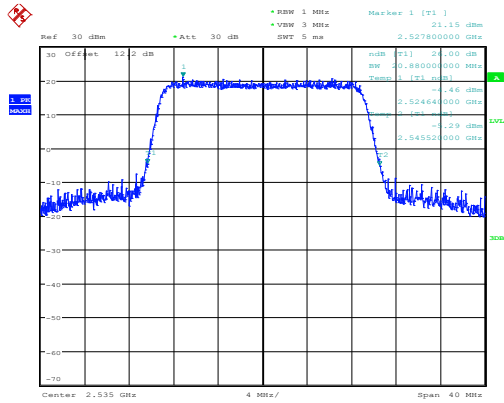
Date: 13.JAN.2015 23:47:30

Lowest Channel / 20MHz / 16QAM



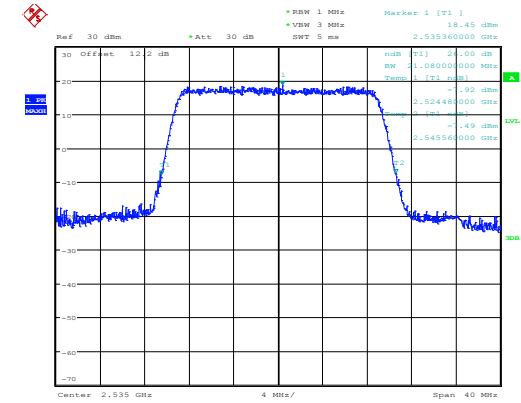
Date: 13.JAN.2015 23:47:43

Middle Channel / 20MHz / QPSK



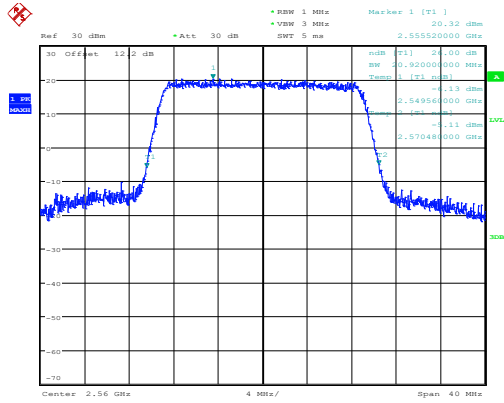
Date: 13.JAN.2015 23:55:13

Middle Channel / 20MHz / 16QAM



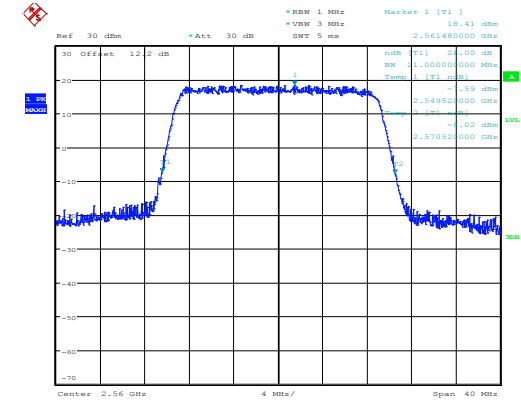
Date: 13.JAN.2015 23:55:26

Highest Channel / 20MHz / QPSK



Date: 13.JAN.2015 23:58:20

Highest Channel / 20MHz / 16QAM



Date: 13.JAN.2015 23:58:33





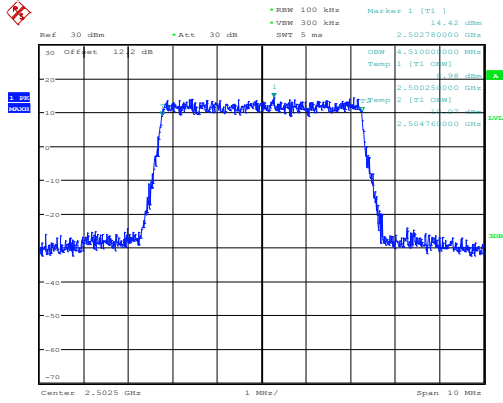
### Occupied Bandwidth

Mode	LTE Band 7 : 99%OBW(MHz)											
	1.4MHz		3MHz		5MHz		10MHz		15MHz		20MHz	
BW	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM
Lowest CH	-	-	-	-	4.51	4.51	9.04	9.04	13.5	13.5	18.56	18.56
Middle CH	-	-	-	-	4.52	4.51	9.04	9.04	13.47	13.5	18.56	18.56
Highest CH	-	-	-	-	4.49	4.5	9.06	9.02	13.47	13.47	18.52	18.48

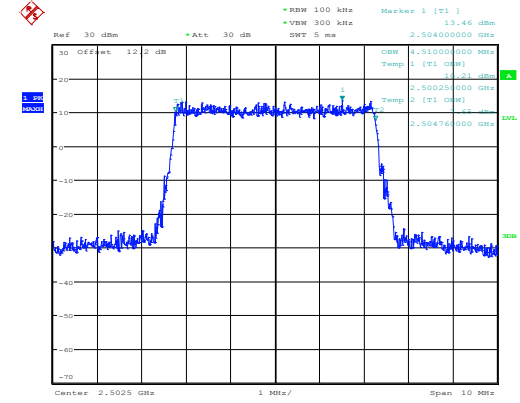


LTE Band 7

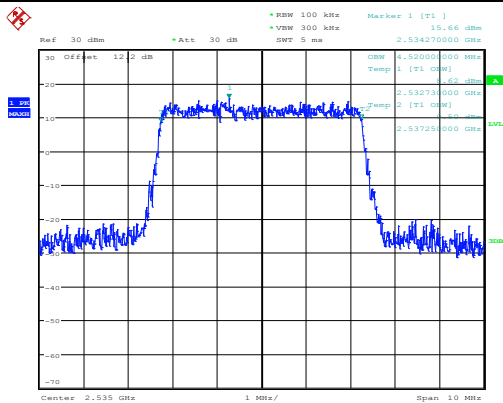
Lowest Channel / 5MHz / QPSK



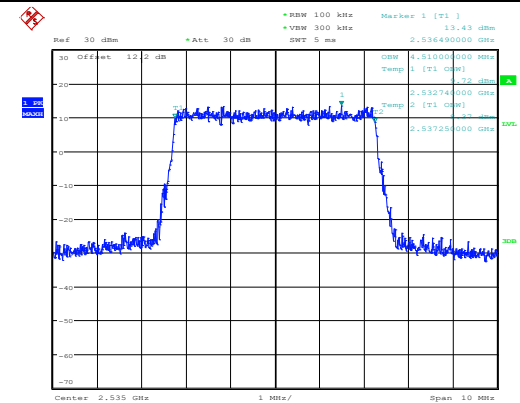
Lowest Channel / 5MHz / 16QAM



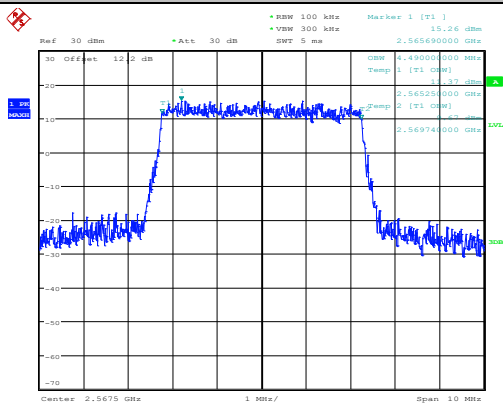
Middle Channel / 5MHz / QPSK



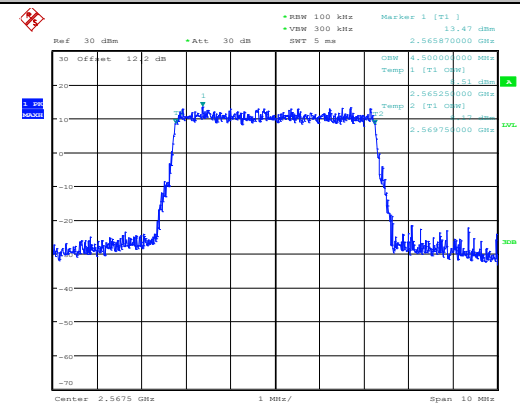
Middle Channel / 5MHz / 16QAM



Highest Channel / 5MHz / QPSK



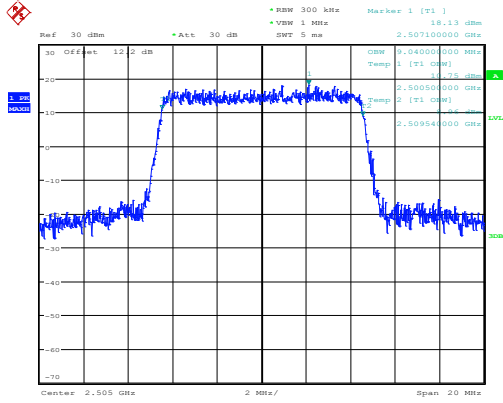
Highest Channel / 5MHz / 16QAM





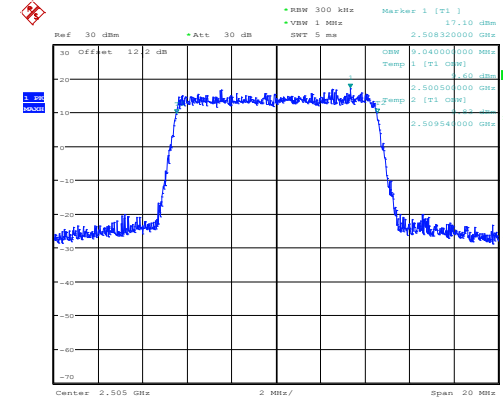
LTE Band 7

Lowest Channel / 10MHz / QPSK



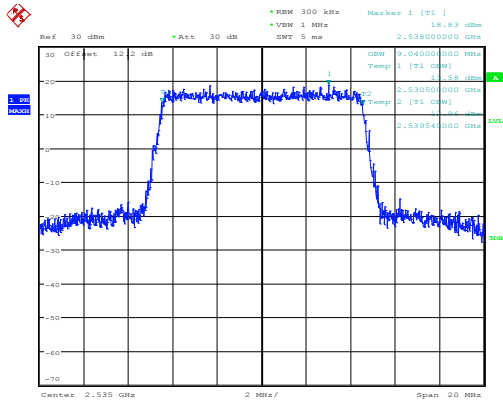
Date: 14.JAN.2015 00:11:41

Lowest Channel / 10MHz / 16QAM



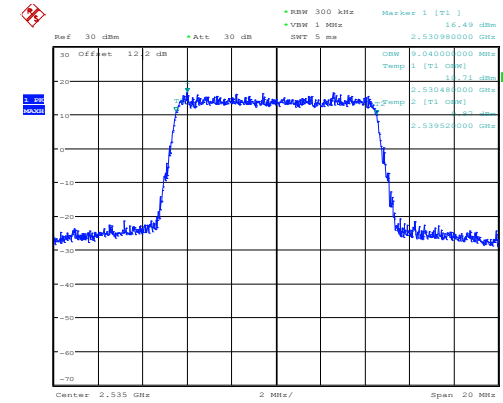
Date: 13.JAN.2015 23:07:34

Middle Channel / 10MHz / QPSK



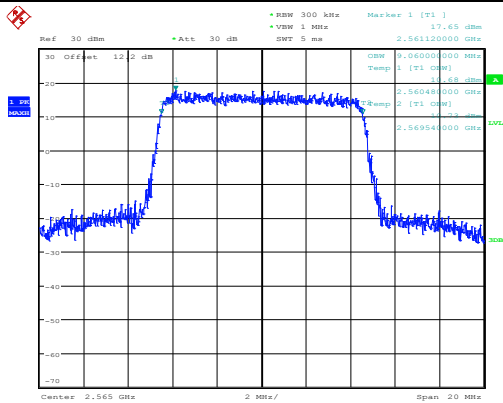
Date: 13.JAN.2015 23:15:08

Middle Channel / 10MHz / 16QAM



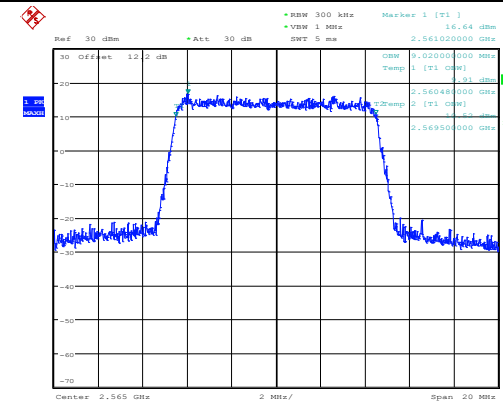
Date: 13.JAN.2015 23:15:19

Highest Channel / 10MHz / QPSK



Date: 13.JAN.2015 23:18:36

Highest Channel / 10MHz / 16QAM

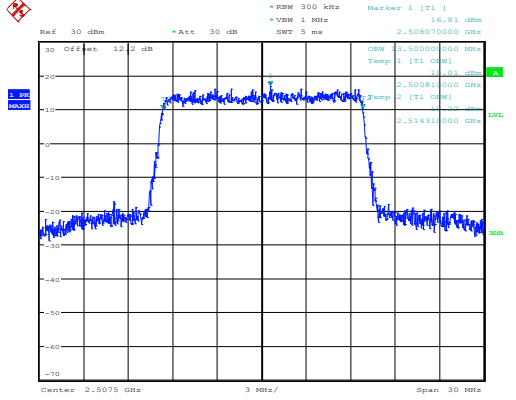


Date: 13.JAN.2015 23:18:47



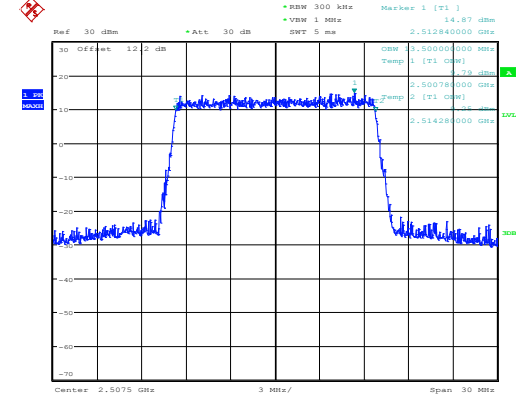
LTE Band 7

Lowest Channel / 15MHz / QPSK



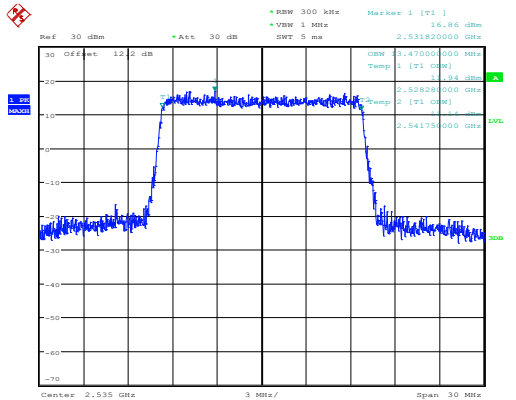
Date: 13.JAN.2015 23:26:24

Lowest Channel / 15MHz / 16QAM



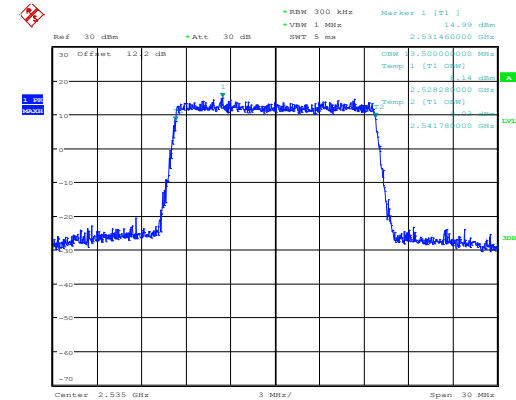
Date: 13.JAN.2015 23:26:35

Middle Channel / 15MHz / QPSK



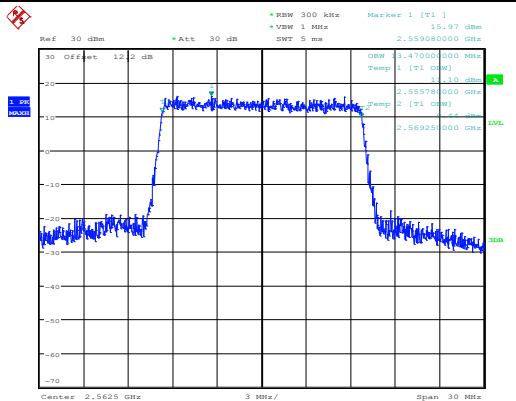
Date: 13.JAN.2015 23:34:08

Middle Channel / 15MHz / 16QAM



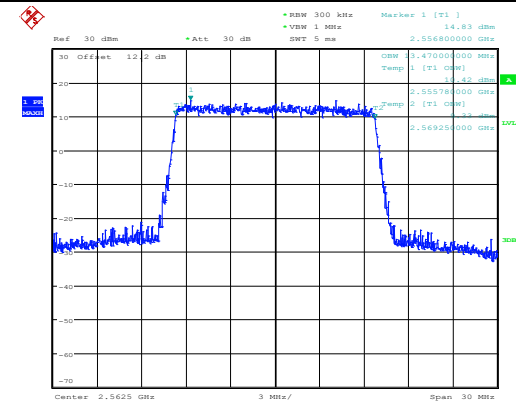
Date: 13.JAN.2015 23:34:19

Highest Channel / 15MHz / QPSK



Date: 13.JAN.2015 23:37:15

Highest Channel / 15MHz / 16QAM

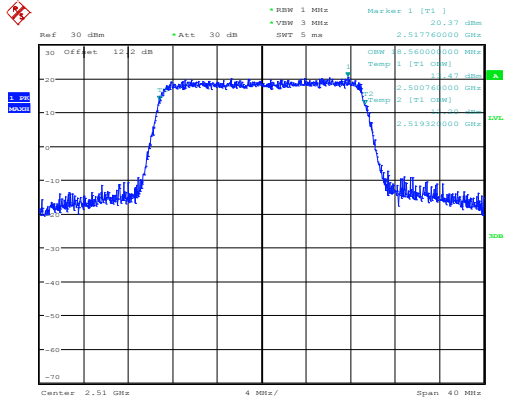


Date: 13.JAN.2015 23:37:26



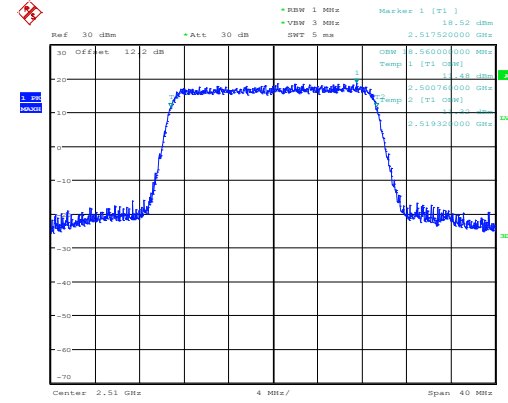
LTE Band 7

Lowest Channel / 20MHz / QPSK



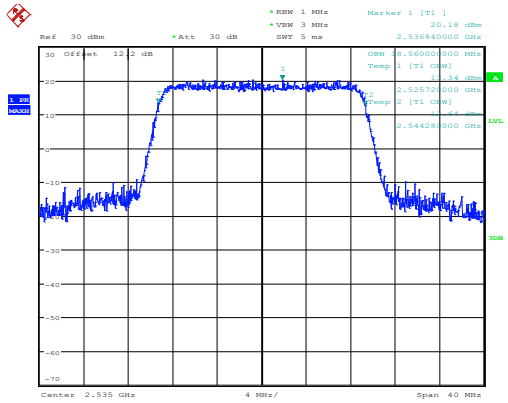
Date: 14.JAN.2015 00:09:22

Lowest Channel / 20MHz / 16QAM



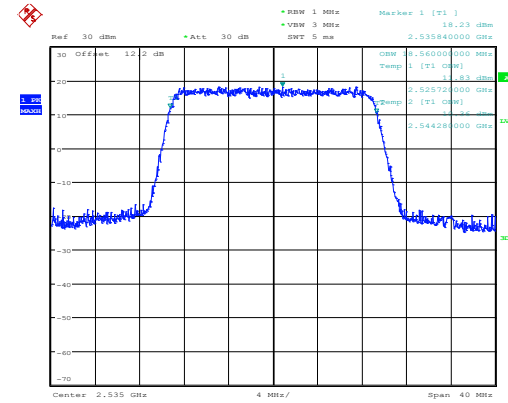
Date: 13.JAN.2015 23:47:17

Middle Channel / 20MHz / QPSK



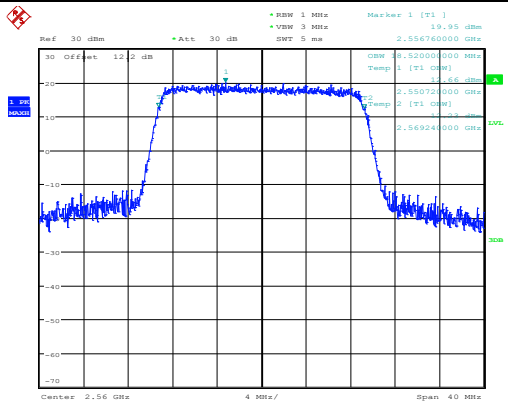
Date: 13.JAN.2015 23:54:50

Middle Channel / 20MHz / 16QAM



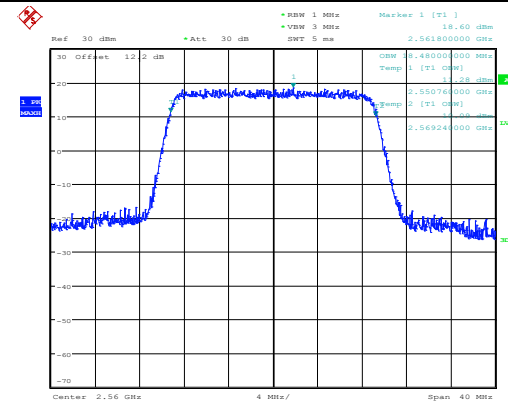
Date: 13.JAN.2015 23:55:00

Highest Channel / 20MHz / QPSK



Date: 13.JAN.2015 23:57:56

Highest Channel / 20MHz / 16QAM



Date: 13.JAN.2015 23:58:07

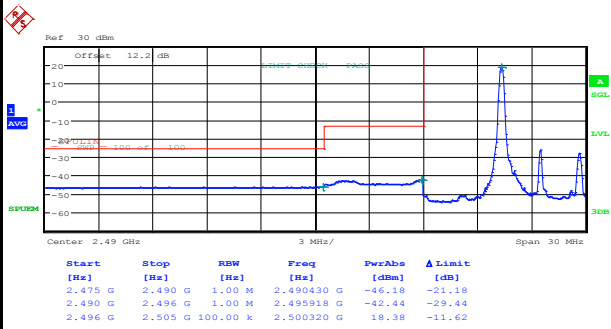


**Conducted Band Edge**



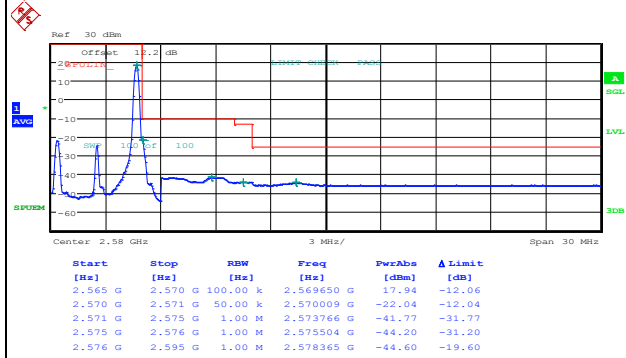
LTE Band 7 / 5MHz / QPSK

Lowest Band Edge / 1 RB



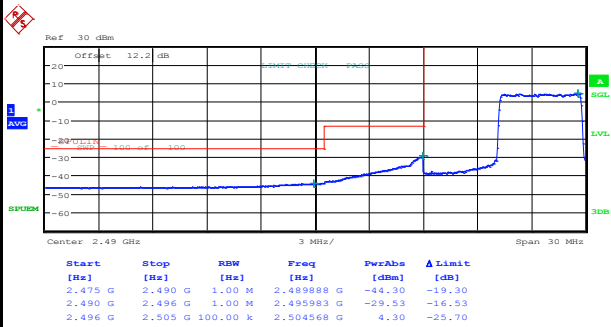
Date: 14.JAN.2015 00:15:08

Highest Band Edge / 1 RB



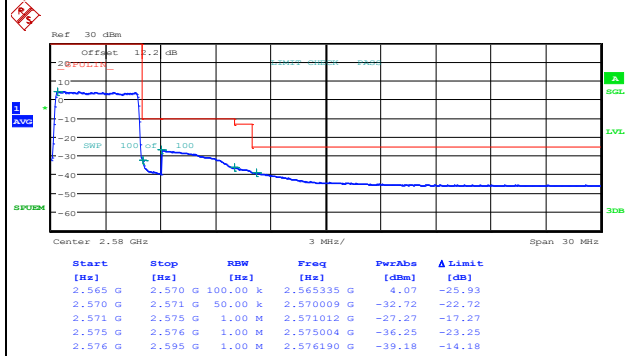
Date: 14.JAN.2015 00:20:00

Lowest Band Edge / Full RB



Date: 14.JAN.2015 00:17:34

Highest Band Edge / Full RB

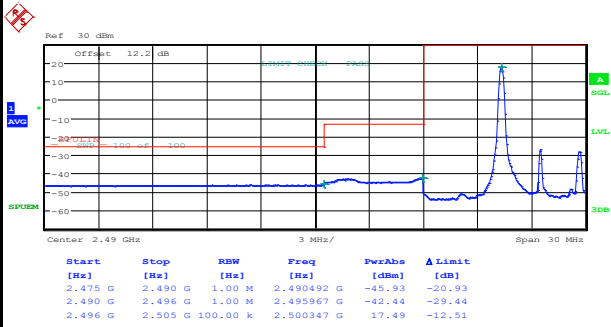


Date: 14.JAN.2015 00:22:27



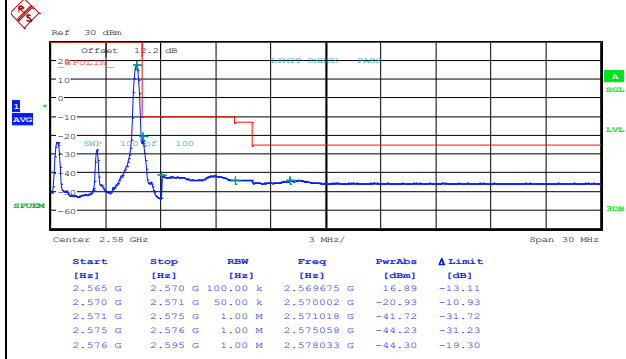
LTE Band 7 / 5MHz / 16QAM

Lowest Band Edge / 1 RB



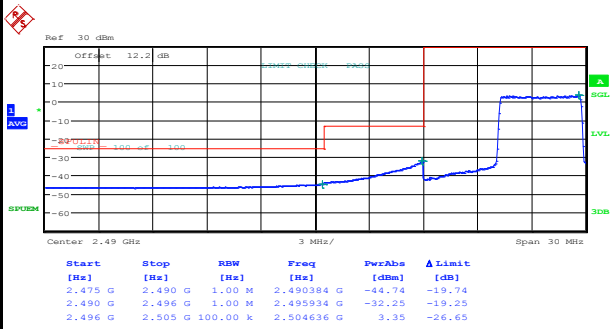
Date: 14.JAN.2015 00:16:21

Highest Band Edge / 1 RB



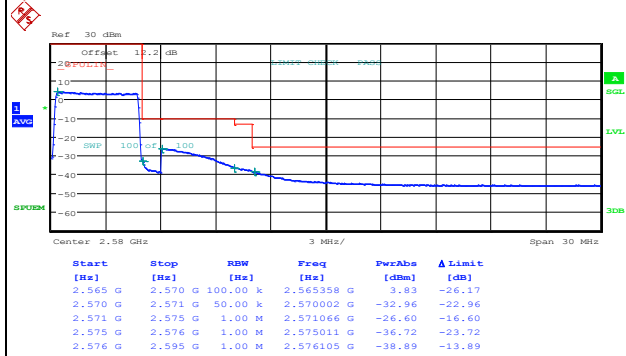
Date: 14.JAN.2015 00:21:13

Lowest Band Edge / Full RB



Date: 14.JAN.2015 00:18:47

Highest Band Edge / Full RB



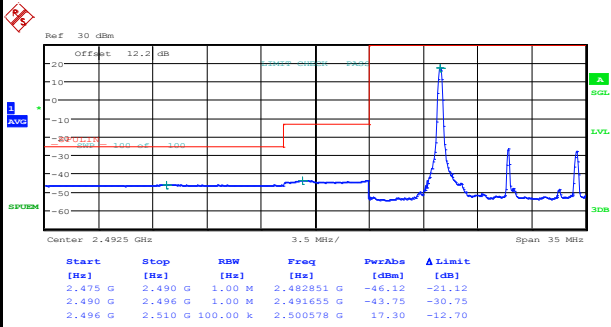
Date: 14.JAN.2015 00:23:40





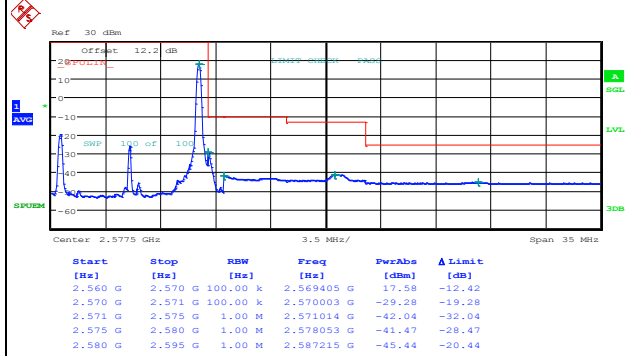
LTE Band 7 / 10MHz / QPSK

Lowest Band Edge / 1 RB



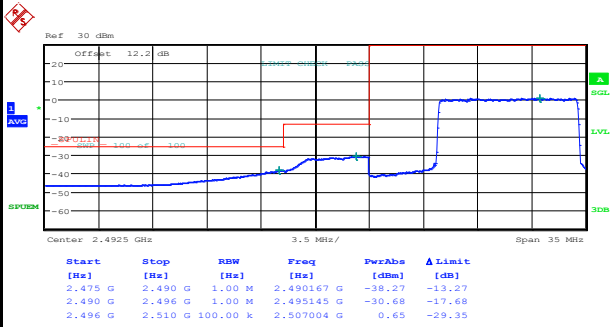
Date: 14.JAN.2015 00:24:58

Highest Band Edge / 1 RB



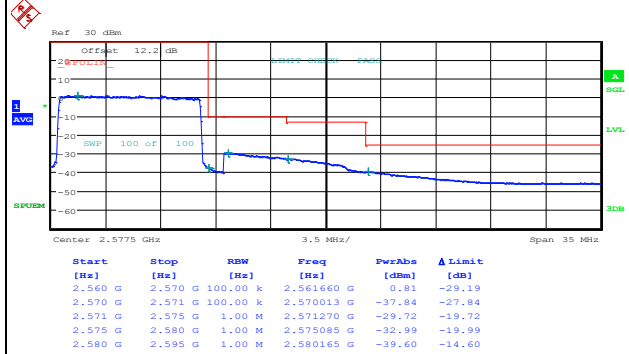
Date: 14.JAN.2015 00:29:55

Lowest Band Edge / Full RB



Date: 14.JAN.2015 00:27:26

Highest Band Edge / Full RB

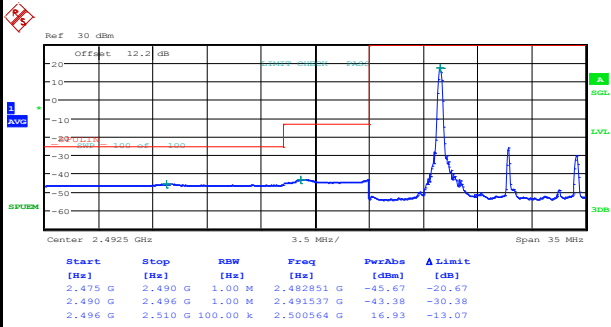


Date: 14.JAN.2015 00:32:24



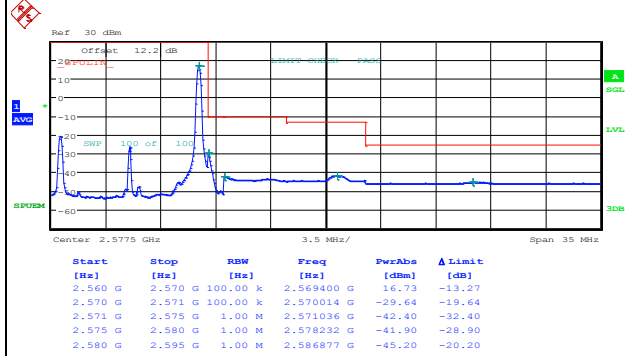
LTE Band 7 / 10MHz / 16QAM

Lowest Band Edge / 1 RB



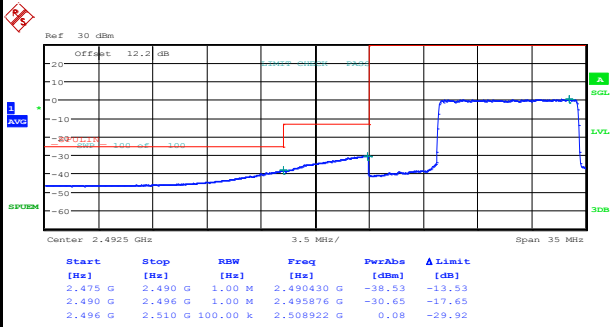
Date: 14.JAN.2015 00:26:12

Highest Band Edge / 1 RB



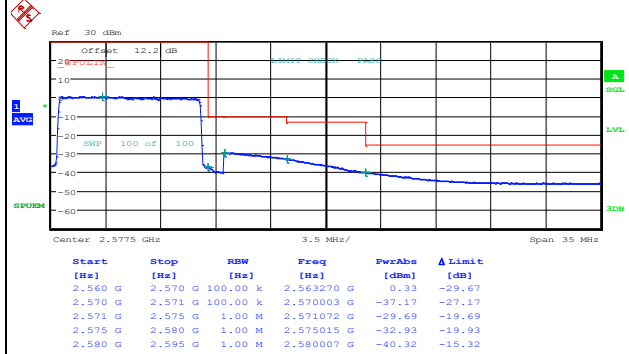
Date: 14.JAN.2015 00:31:09

Lowest Band Edge / Full RB



Date: 14.JAN.2015 00:28:40

Highest Band Edge / Full RB

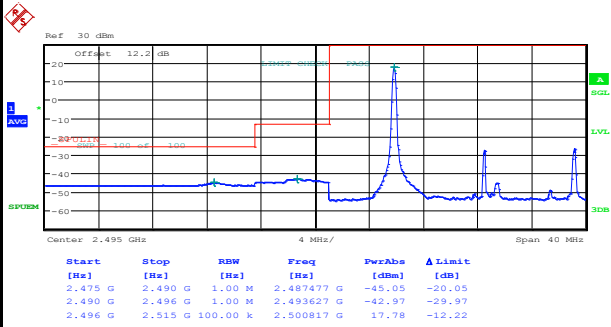


Date: 14.JAN.2015 00:33:38



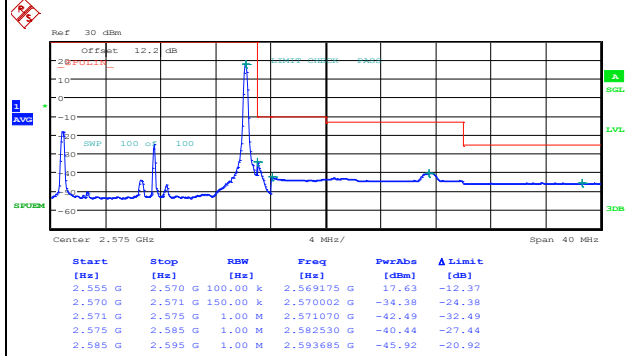
LTE Band 7 / 15MHz / QPSK

Lowest Band Edge / 1 RB



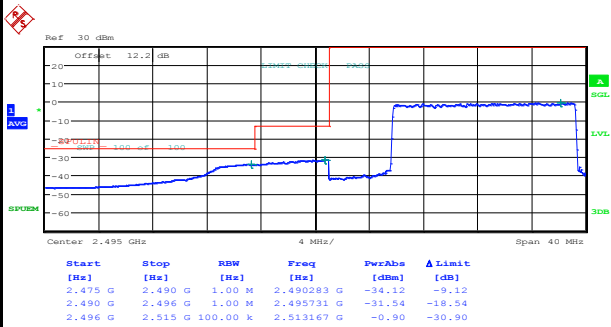
Date: 14.JAN.2015 00:34:57

Highest Band Edge / 1 RB



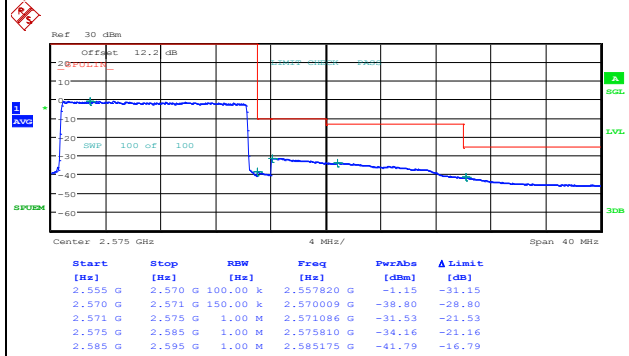
Date: 14.JAN.2015 00:39:58

Lowest Band Edge / Full RB



Date: 14.JAN.2015 00:37:27

Highest Band Edge / Full RB

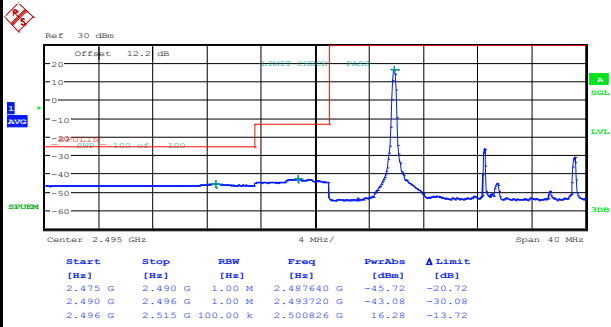


Date: 14.JAN.2015 00:42:29



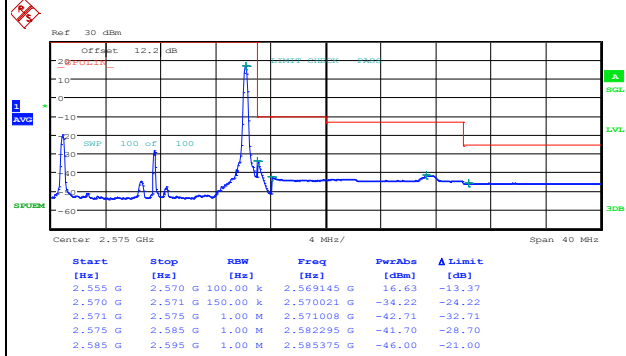
LTE Band 7 / 15MHz / 16QAM

Lowest Band Edge / 1 RB



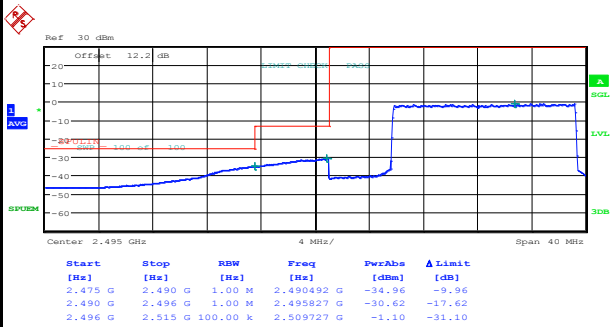
Date: 14.JAN.2015 00:36:12

Highest Band Edge / 1 RB



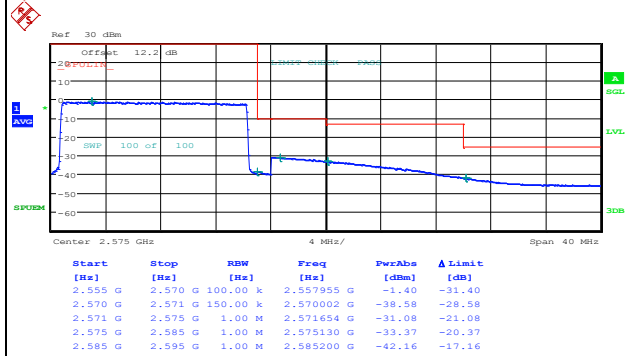
Date: 14.JAN.2015 00:41:14

Lowest Band Edge / Full RB



Date: 14.JAN.2015 00:38:43

Highest Band Edge / Full RB

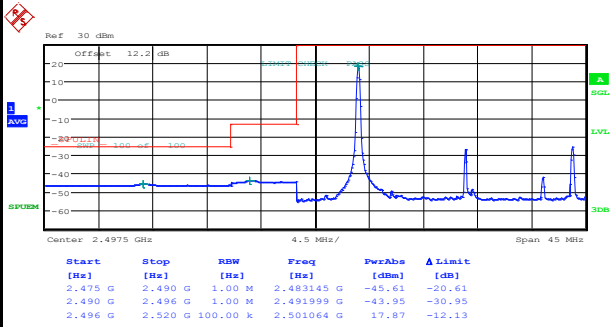


Date: 14.JAN.2015 00:43:45



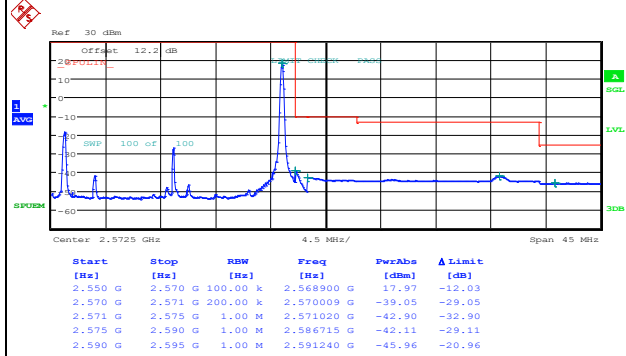
LTE Band 7 / 20MHz / QPSK

Lowest Band Edge / 1 RB



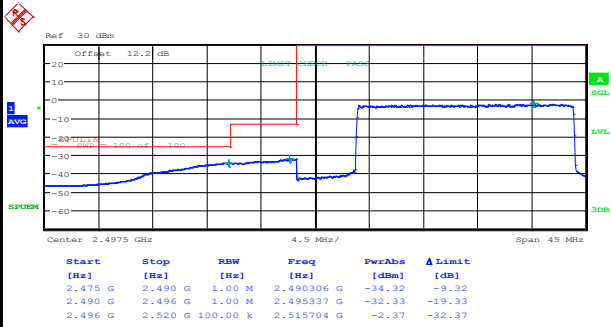
Date: 14.JAN.2015 00:45:05

Highest Band Edge / 1 RB



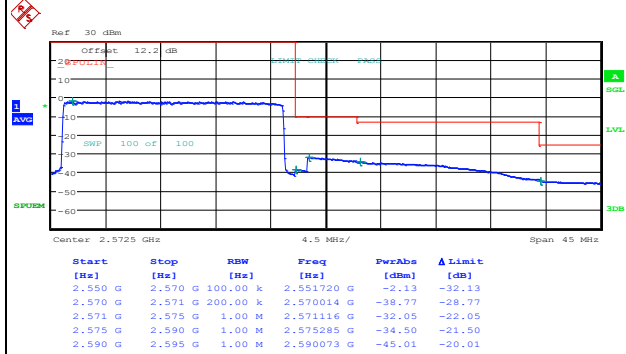
Date: 14.JAN.2015 00:50:10

Lowest Band Edge / Full RB



Date: 14.JAN.2015 00:47:37

Highest Band Edge / Full RB

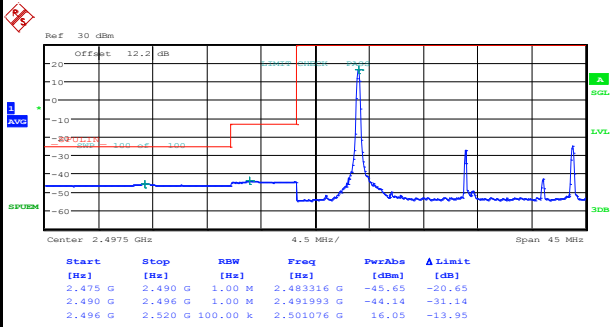


Date: 14.JAN.2015 00:53:59



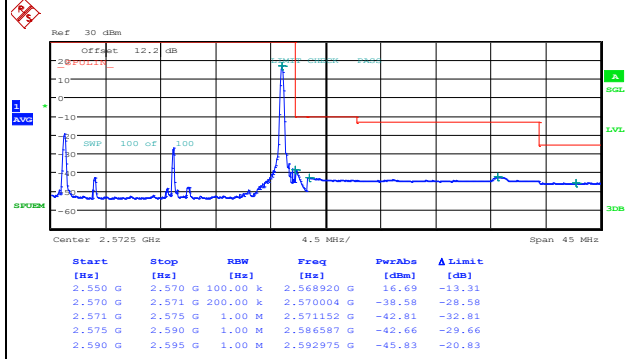
LTE Band 7 / 20MHz / 16QAM

Lowest Band Edge / 1 RB



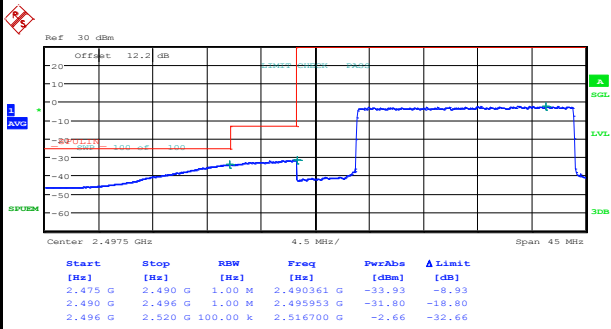
Date: 14.JAN.2015 00:46:21

Highest Band Edge / 1RB



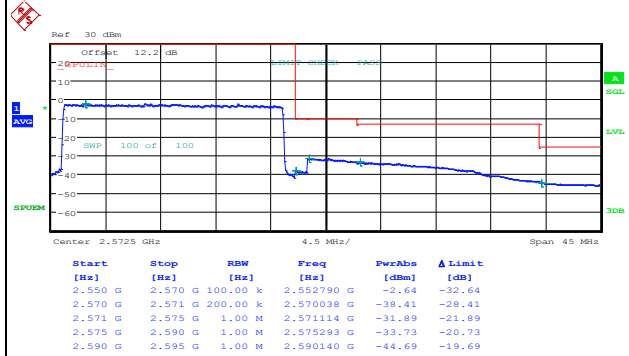
Date: 14.JAN.2015 00:51:26

Lowest Band Edge / Full RB



Date: 14.JAN.2015 00:48:54

Highest Band Edge / Full RB

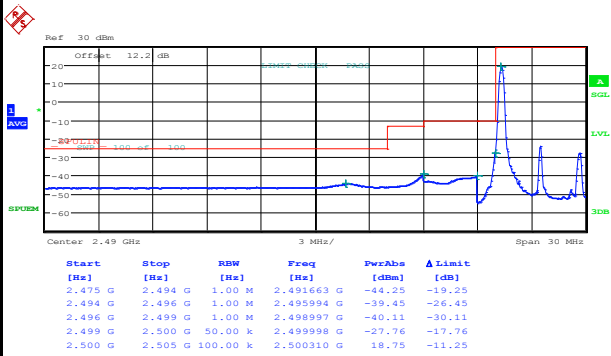


Date: 14.JAN.2015 00:52:43



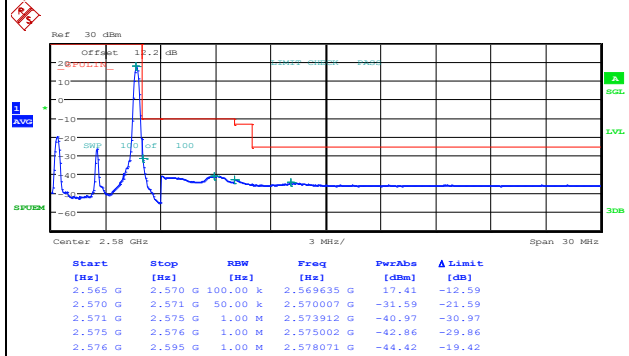
LTE Band 7 / 5MHz / QPSK (IC)

Lowest Band Edge / 1 RB



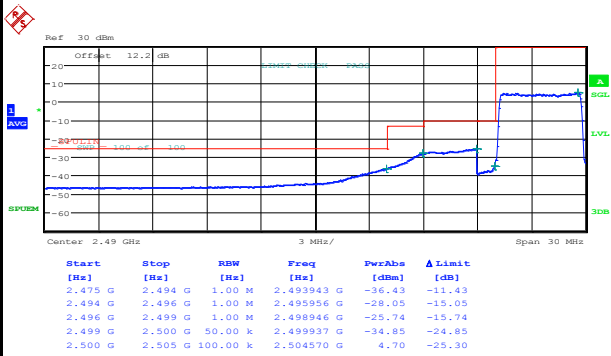
Date: 13.JAN.2015 22:50:32

Highest Band Edge / 1 RB



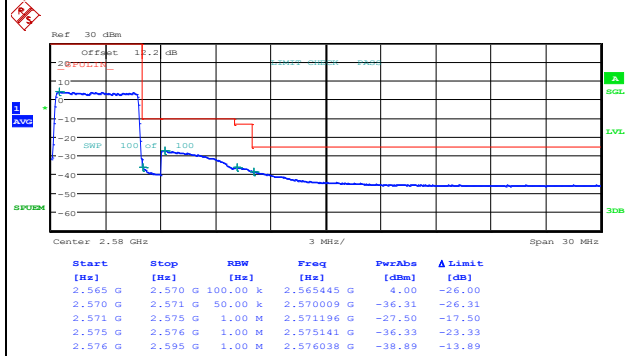
Date: 13.JAN.2015 23:01:21

Lowest Band Edge / Full RB



Date: 13.JAN.2015 22:52:50

Highest Band Edge / Full RB

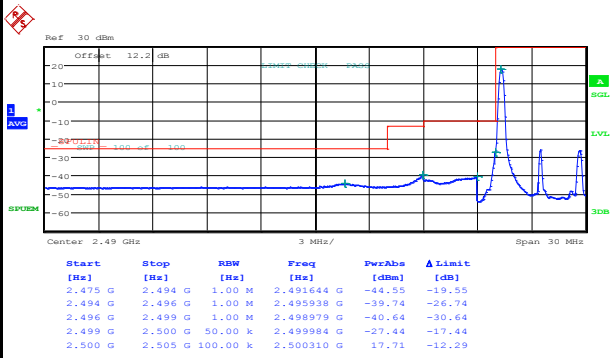


Date: 13.JAN.2015 23:03:40



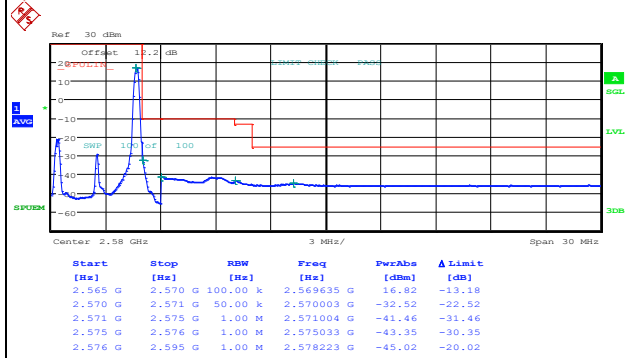
LTE Band 7 / 5MHz / 16QAM (IC)

Lowest Band Edge / 1 RB



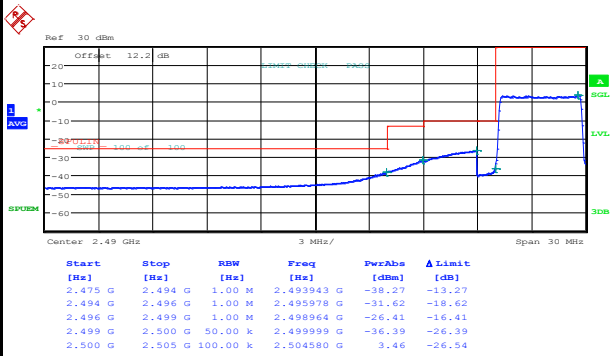
Date: 13.JAN.2015 22:51:41

Highest Band Edge / 1 RB



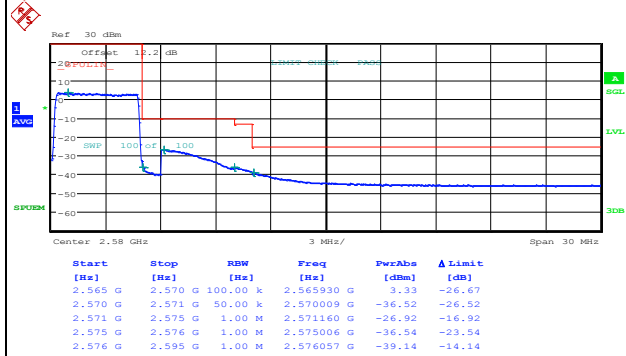
Date: 13.JAN.2015 23:02:31

Lowest Band Edge / Full RB



Date: 13.JAN.2015 22:54:00

Highest Band Edge / Full RB



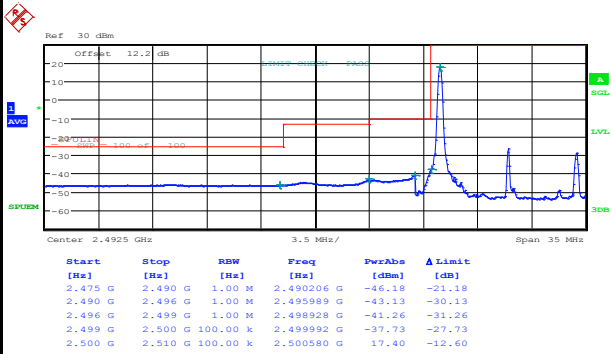
Date: 13.JAN.2015 23:04:49





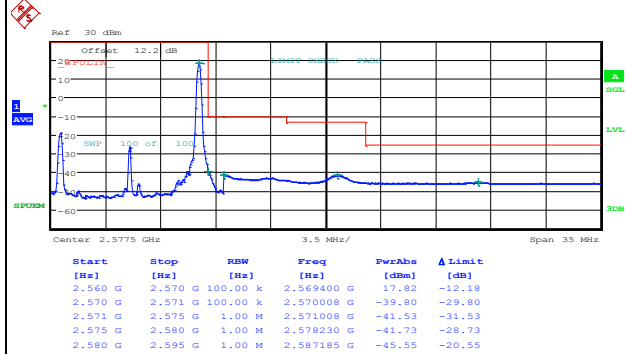
LTE Band 7 / 10MHz / QPSK (IC)

Lowest Band Edge / 1 RB



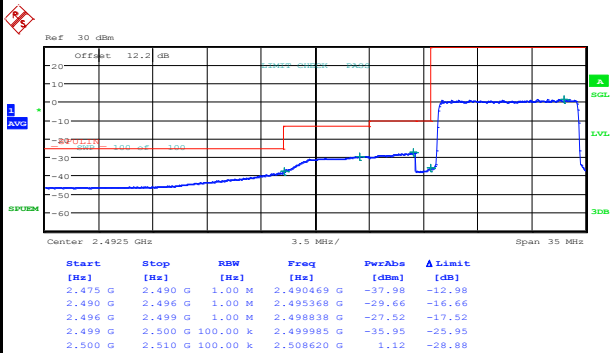
Date: 13.JAN.2015 23:09:09

Highest Band Edge / 1 RB



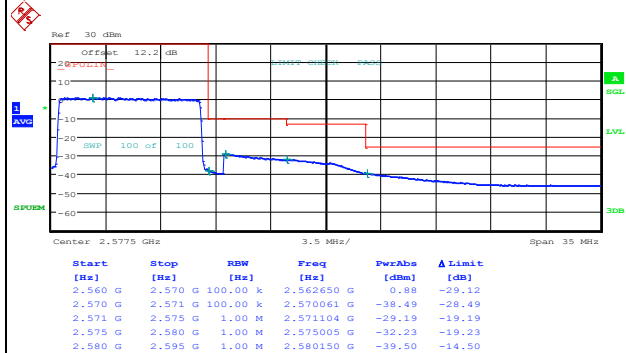
Date: 13.JAN.2015 23:20:22

Lowest Band Edge / Full RB



Date: 13.JAN.2015 23:11:28

Highest Band Edge / Full RB

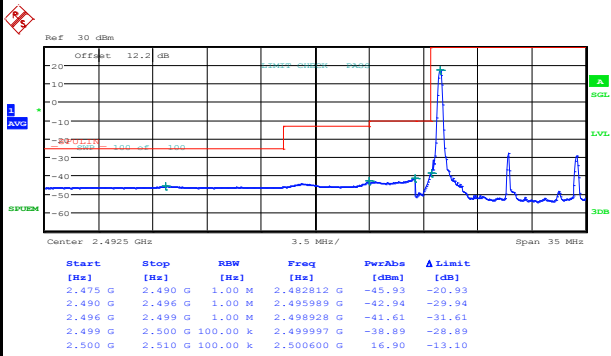


Date: 13.JAN.2015 23:22:41



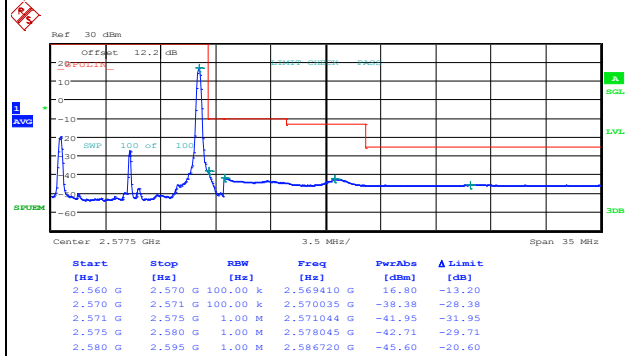
LTE Band 7 / 10MHz / 16QAM (IC)

Lowest Band Edge / 1 RB



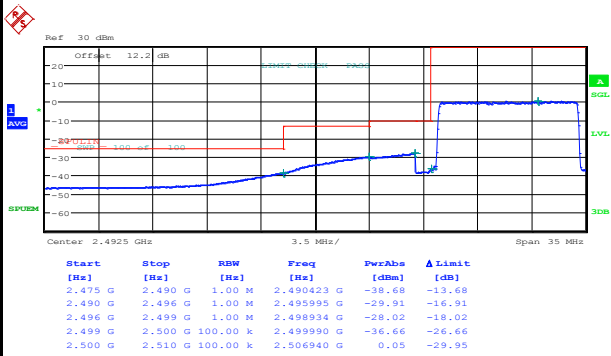
Date: 13.JAN.2015 23:10:19

Highest Band Edge / 1 RB



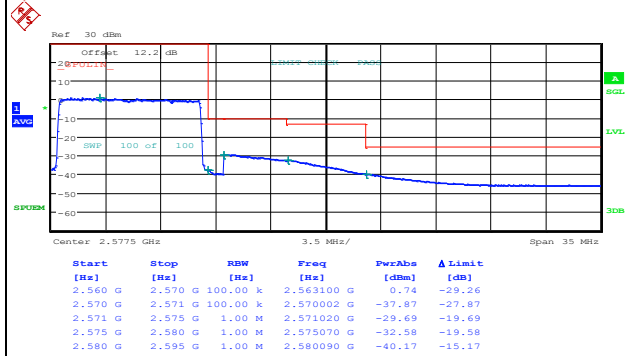
Date: 13.JAN.2015 23:21:32

Lowest Band Edge / Full RB



Date: 13.JAN.2015 23:12:37

Highest Band Edge / Full RB

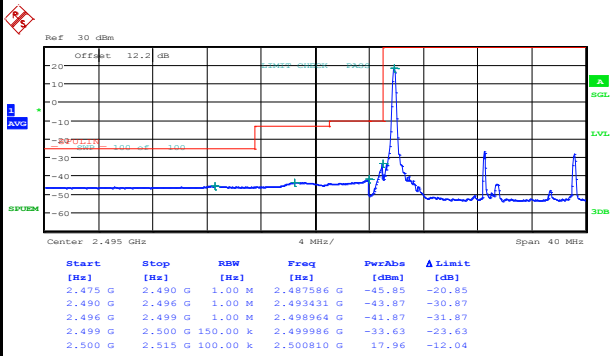


Date: 13.JAN.2015 23:23:50



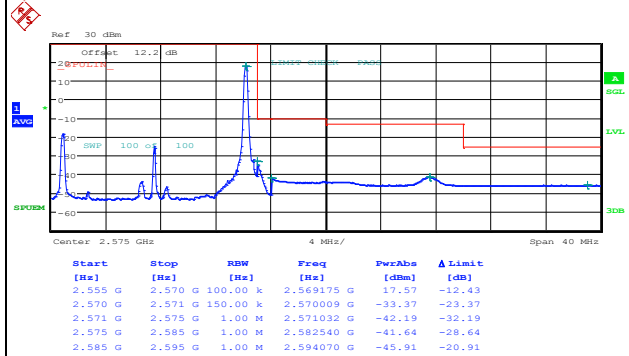
LTE Band 7 / 15MHz / QPSK (IC)

Lowest Band Edge / 1 RB



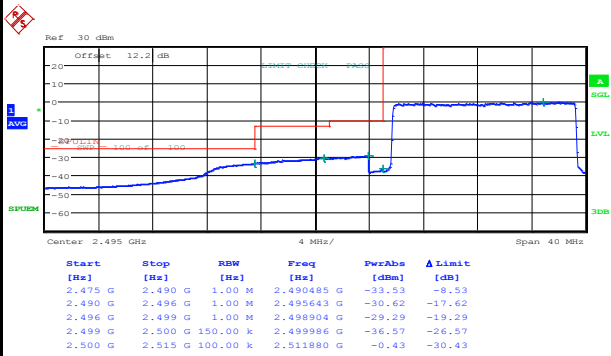
Date: 13.JAN.2015 23:28:10

Highest Band Edge / 1 RB



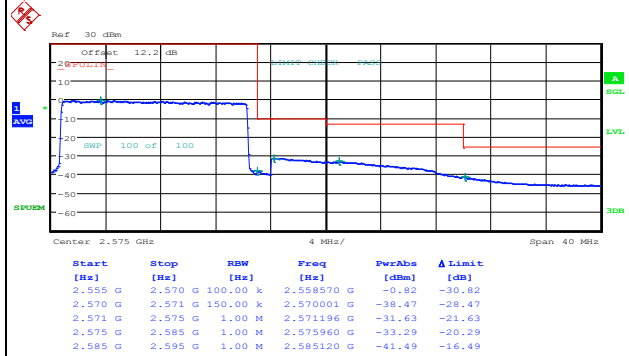
Date: 13.JAN.2015 23:39:00

Lowest Band Edge / Full RB



Date: 13.JAN.2015 23:30:29

Highest Band Edge / Full RB

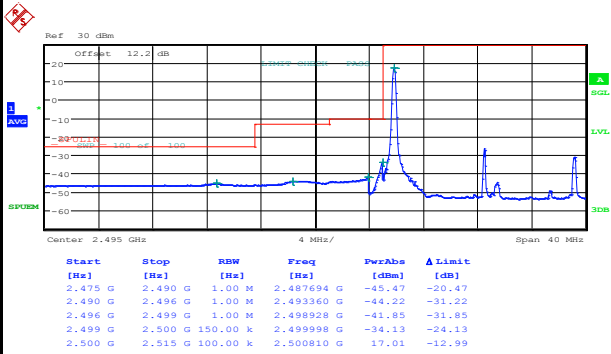


Date: 13.JAN.2015 23:41:19



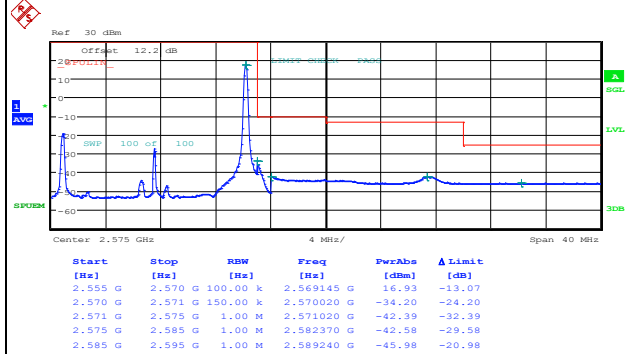
LTE Band 7 / 15MHz / 16QAM (IC)

Lowest Band Edge / 1 RB



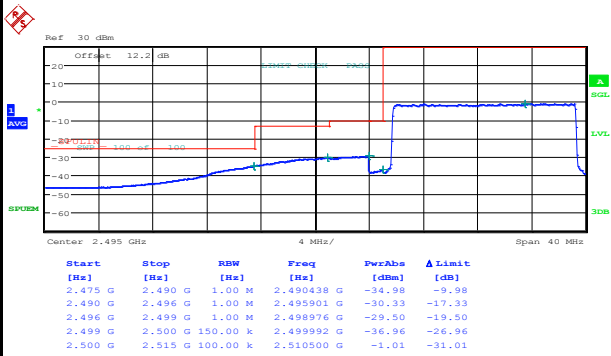
Date: 13.JAN.2015 23:29:20

Highest Band Edge / 1 RB



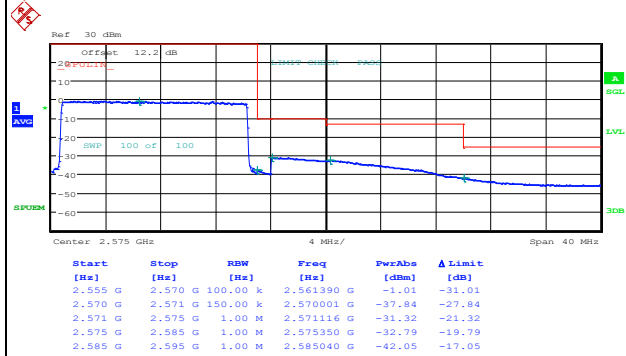
Date: 13.JAN.2015 23:40:10

Lowest Band Edge / Full RB



Date: 13.JAN.2015 23:31:38

Highest Band Edge / Full RB

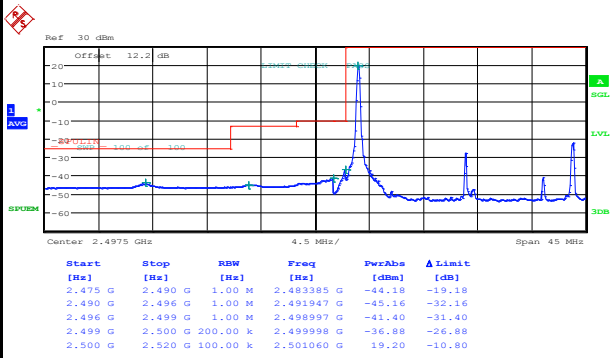


Date: 13.JAN.2015 23:42:29



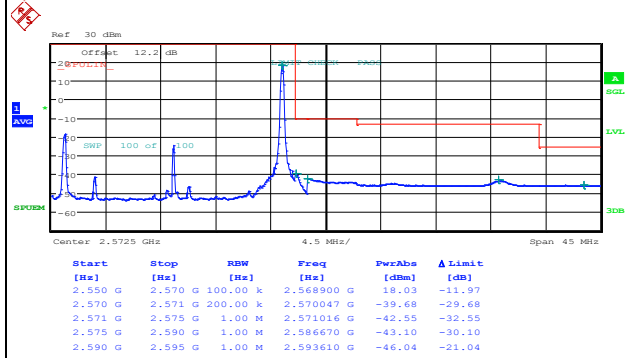
LTE Band 7 / 20MHz / QPSK (IC)

Lowest Band Edge / 1 RB



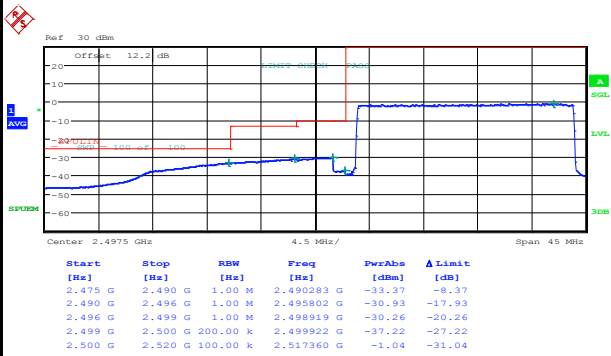
Date: 13.JAN.2015 23:48:52

Highest Band Edge / 1 RB



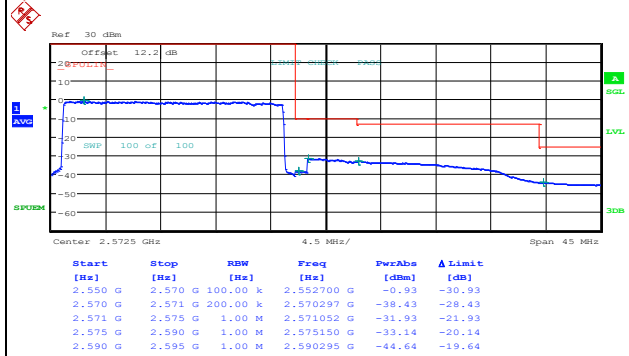
Date: 13.JAN.2015 23:59:42

Lowest Band Edge / Full RB



Date: 13.JAN.2015 23:51:11

Highest Band Edge / Full RB

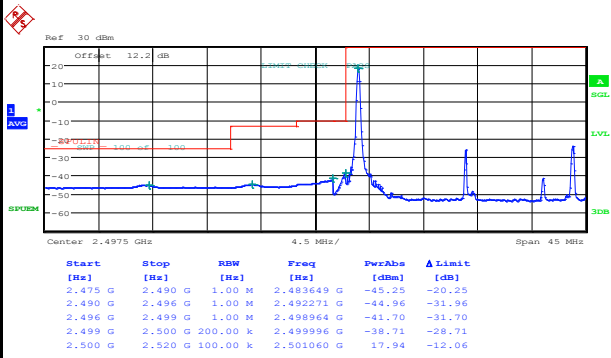


Date: 14.JAN.2015 00:03:12



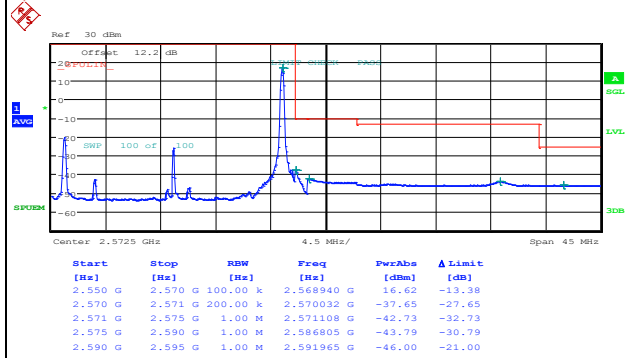
LTE Band 7 / 20MHz / 16QAM (IC)

Lowest Band Edge / 1 RB



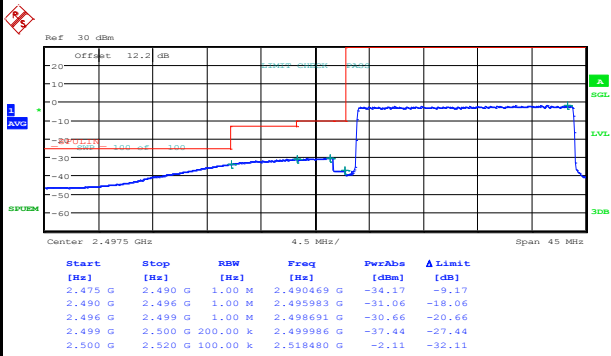
Date: 13.JAN.2015 23:50:01

Highest Band Edge / 1 RB



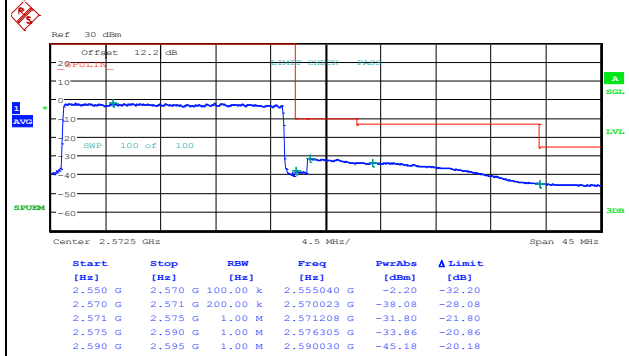
Date: 14.JAN.2015 00:00:52

Lowest Band Edge / Full RB



Date: 13.JAN.2015 23:52:20

Highest Band Edge / Full RB



Date: 14.JAN.2015 00:02:02



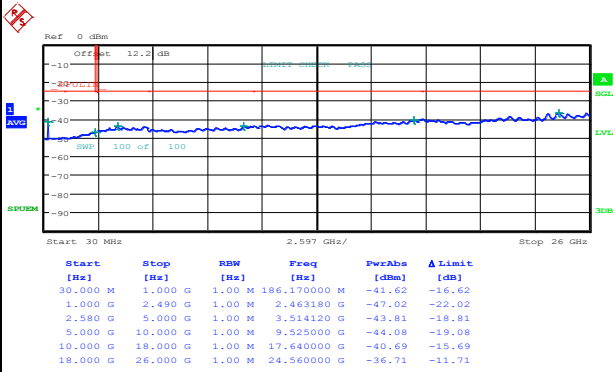
**Conducted Spurious Emission**



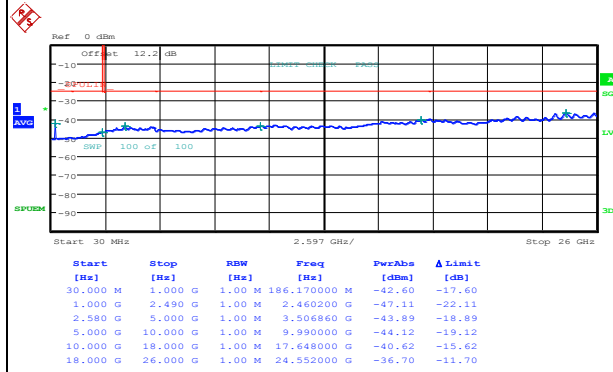
LTE Band 7 / 5MHz

Lowest Channel / QPSK

Lowest Channel / 16QAM



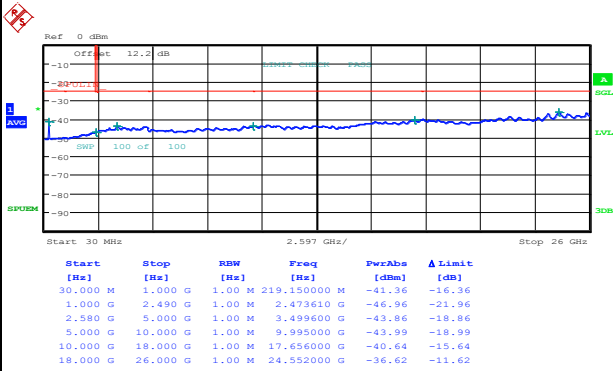
Date: 13.JAN.2015 22:55:09



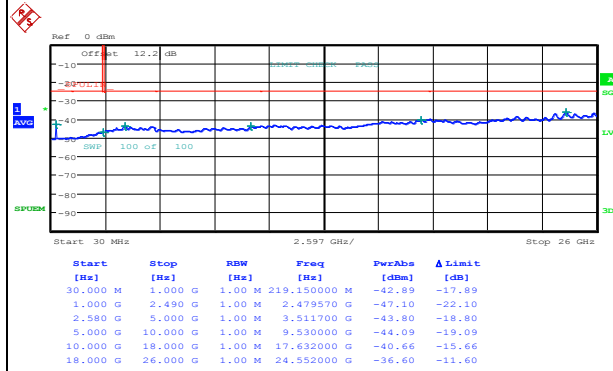
Date: 13.JAN.2015 22:56:19

Middle Channel / QPSK

Middle Channel / 16QAM



Date: 13.JAN.2015 22:58:15



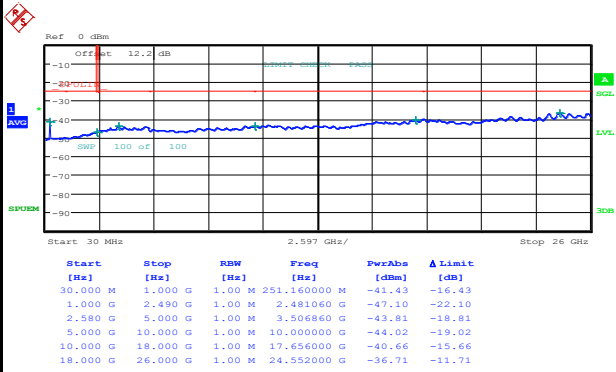
Date: 13.JAN.2015 22:59:25





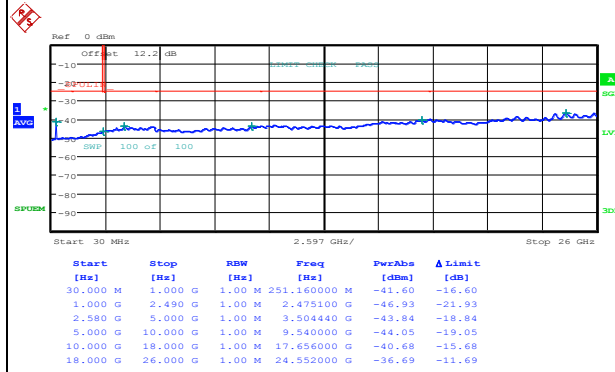
LTE Band 7 / 5MHz

Highest Channel / QPSK



Date: 13.JAN.2015 23:05:59

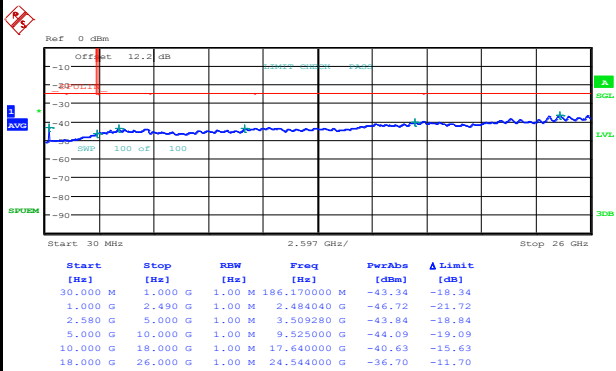
Highest Channel / 16QAM



Date: 13.JAN.2015 23:07:08

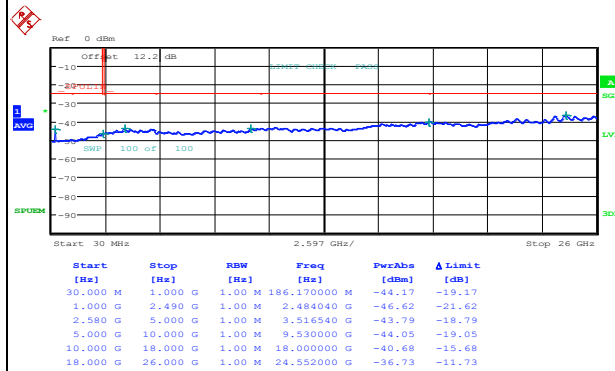
LTE Band 7 / 10MHz

Lowest Channel / QPSK



Date: 13.JAN.2015 23:13:47

Lowest Channel / 16QAM



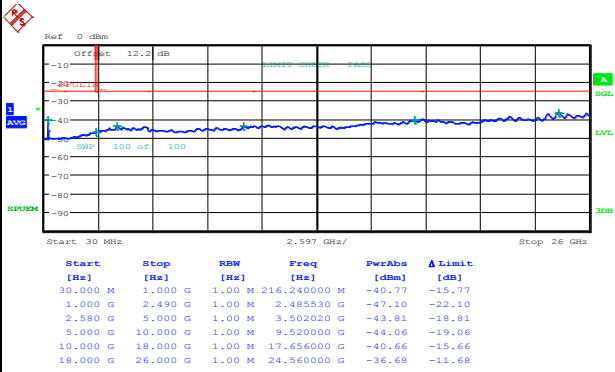
Date: 13.JAN.2015 23:14:56



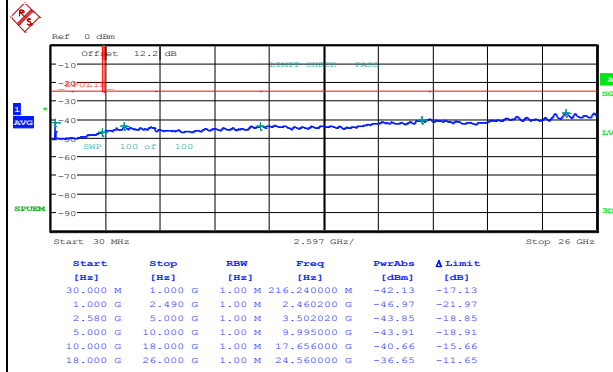
LTE Band 7 / 10MHz

Middle Channel / QPSK

Middle Channel / 16QAM



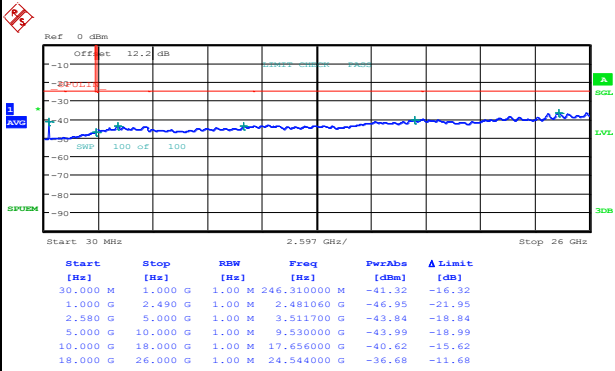
Date: 13.JAN.2015 23:17:16



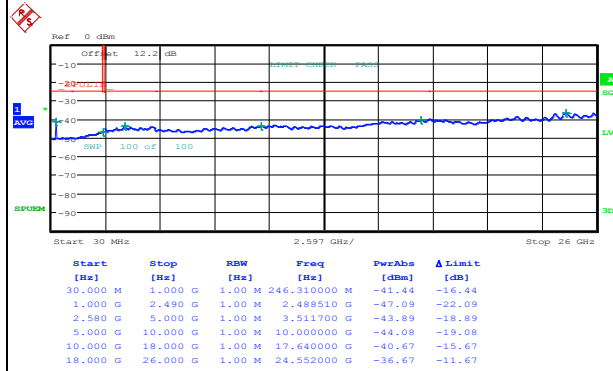
Date: 13.JAN.2015 23:18:25

Highest Channel / QPSK

Highest Channel / 16QAM



Date: 13.JAN.2015 23:24:59



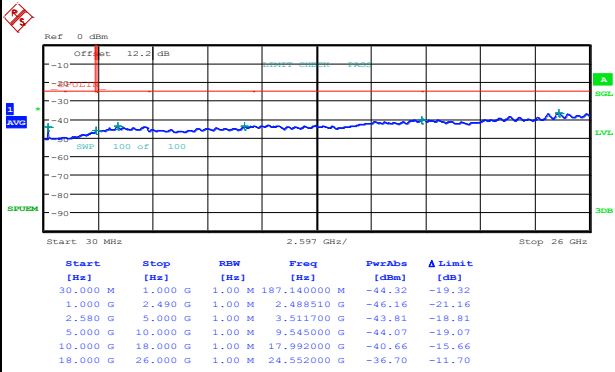
Date: 13.JAN.2015 23:26:09



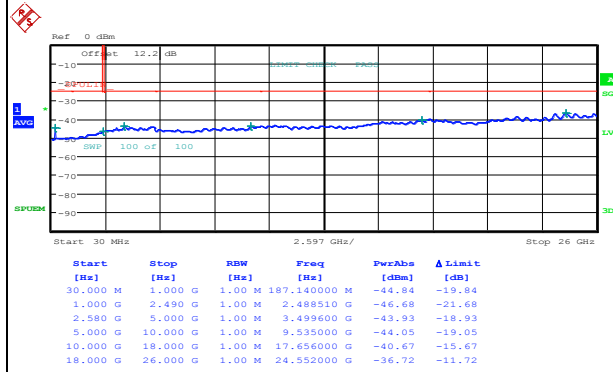
LTE Band 7 / 15MHz

Lowest Channel / QPSK

Lowest Channel / 16QAM



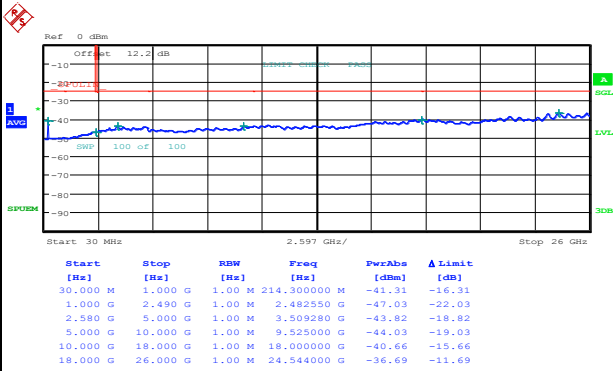
Date: 13.JAN.2015 23:32:48



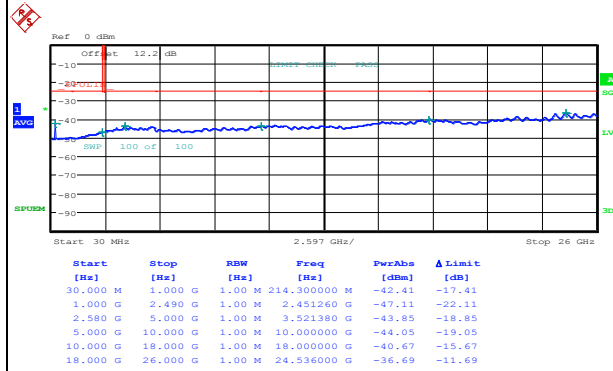
Date: 13.JAN.2015 23:33:57

Middle Channel / QPSK

Middle Channel / 16QAM



Date: 13.JAN.2015 23:35:54

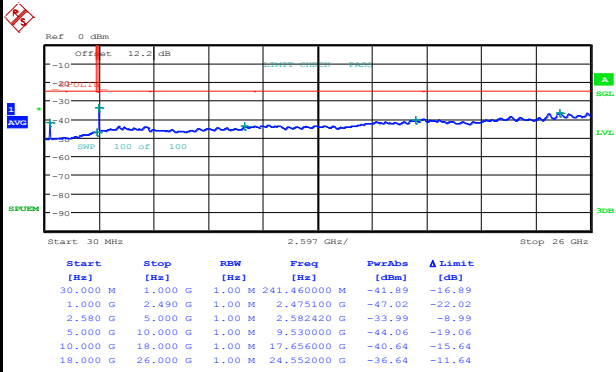


Date: 13.JAN.2015 23:37:04



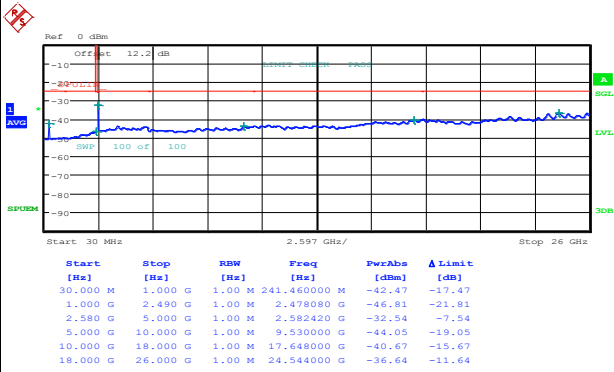
LTE Band7 / 15MHz

Highest Channel / QPSK



Date: 13.JAN.2015 23:43:38

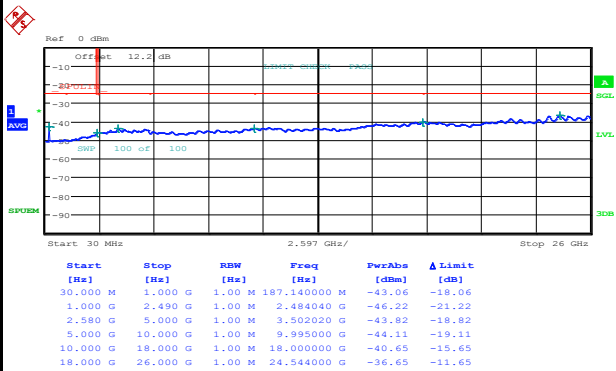
Highest Channel / 16QAM



Date: 13.JAN.2015 23:44:48

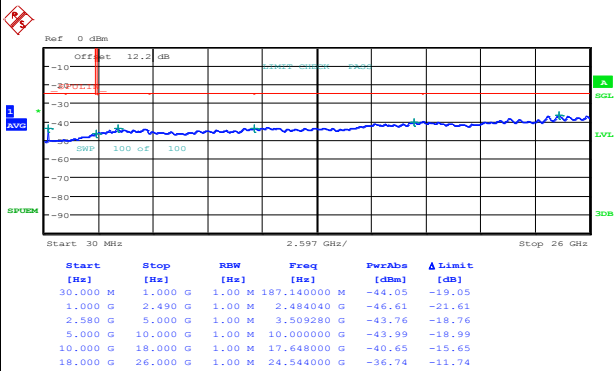
LTE Band 7 / 20MHz

Lowest Channel / QPSK



Date: 13.JAN.2015 23:53:29

Lowest Channel / 16QAM



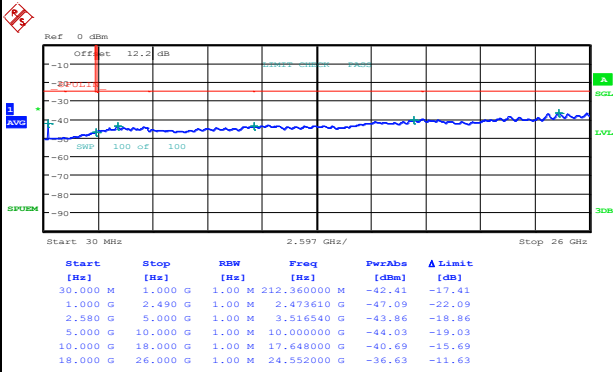
Date: 13.JAN.2015 23:54:39



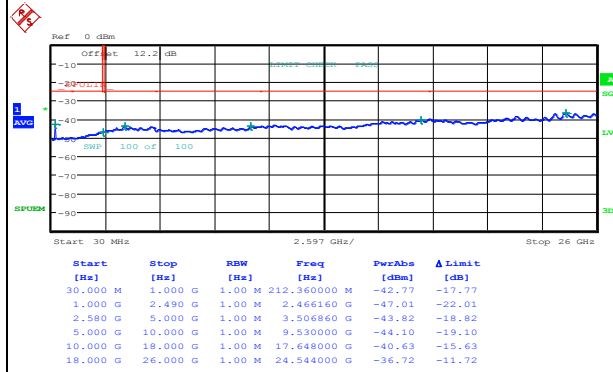
LTE Band 7 / 20MHz

Middle Channel / QPSK

Middle Channel / 16QAM



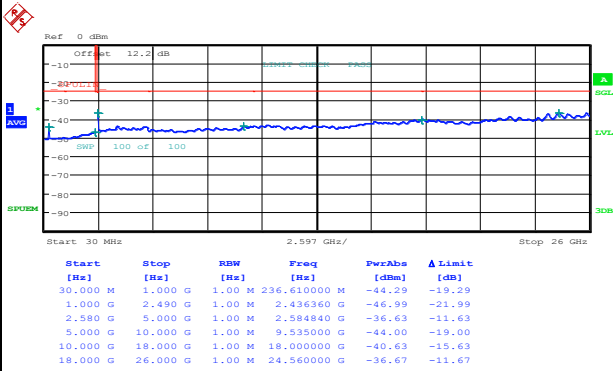
Date: 13.JAN.2015 23:56:35



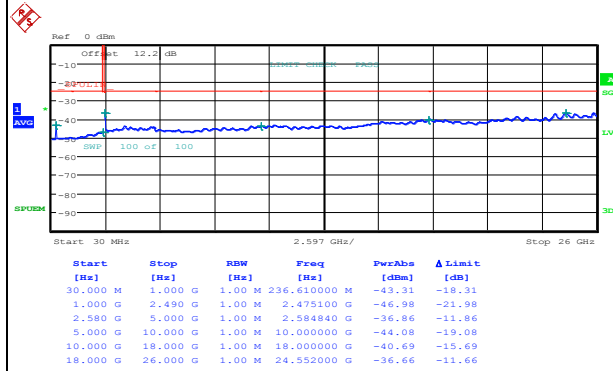
Date: 13.JAN.2015 23:57:45

Highest Channel / QPSK

Highest Channel / 16QAM



Date: 14.JAN.2015 00:04:22



Date: 14.JAN.2015 00:05:32



**Frequency Stability**

Test Conditions		LTE Band 7 (QPSK) / Middle Channel	Limit
Temperature (°C)	Voltage (Volt)	BW 10MHz	Note 2.
		Deviation (ppm)	Result
50	Normal Voltage	0.0088	PASS
40	Normal Voltage	0.0103	
30	Normal Voltage	0.0100	
20(Ref.)	Normal Voltage	0.0000	
10	Normal Voltage	0.0001	
0	Normal Voltage	0.0006	
-10	Normal Voltage	0.0002	
-20	Normal Voltage	0.0011	
-30	Normal Voltage	0.0007	
20	Maximum Voltage	0.0098	
20	Normal Voltage	0.0000	
20	Battery End Point	0.0005	

**Note:**

1. Normal Voltage = 3.7V. ; Battery End Point (BEP) = 3.5 V. ; Maximum Voltage = 4.1 V
2. Note: The frequency fundamental emissions stay within the authorized frequency block based on the frequency deviation measured is small.



Test Conditions		LTE Band 7 (QPSK) / Middle Channel	Limit
Temperature (°C)	Voltage (Volt)	BW 5MHz	Within Band
		Frequency Offset ( $\Delta f$ ) (Hz)	Result
50	Normal Voltage	-22.2	PASS
40	Normal Voltage	-26.1	
30	Normal Voltage	-25.3	
20(Ref.)	Normal Voltage	0	
10	Normal Voltage	-0.3	
0	Normal Voltage	-1.4	
-10	Normal Voltage	0.4	
-20	Normal Voltage	-2.9	
-30	Normal Voltage	1.9	
20	Maximum Voltage	-24.8	
20	Normal Voltage	0	
20	Battery End Point	1.2	

$|\text{MAX}(\Delta f)| = 26.1\text{Hz}$

Frequency Stability	Frequency (MHz)	Limit Line	Result
$f_L -  \text{MAX}(\Delta f) $	2500.149986	$\geq 2500\text{ MHz}$	PASS
$f_H +  \text{MAX}(\Delta f) $	2569.834015	$\leq 2570\text{ MHz}$	



## LTE Band 12

### Peak-to-Average Ratio

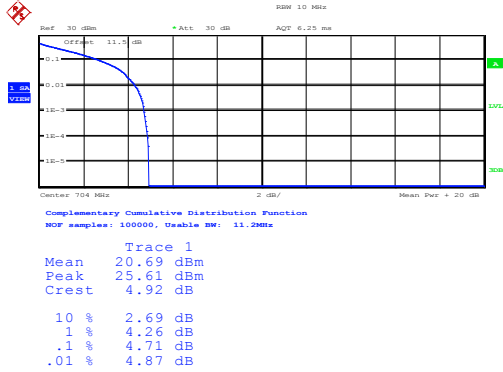
Mode	LTE Band 12 / 10MHz				
Mod.	QPSK		16QAM		Limit: 13dB
RB Size	1RB	Full RB	1RB	RB Size	Result
Lowest CH	4.71	6.19	5.96	6.92	<b>PASS</b>
Middle CH	5.38	6.25	6.63	7.08	
Highest CH	5.61	6.12	6.7	6.79	





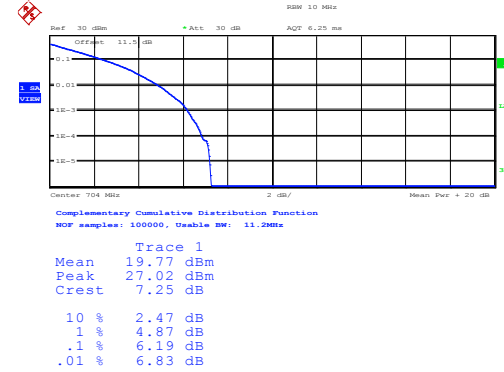
LTE Band 12 / 10MHz / QPSK

Lowest Channel / 1RB



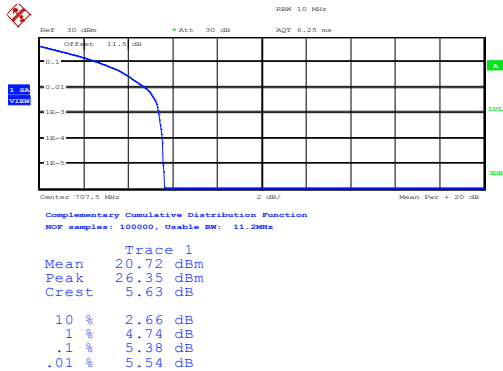
Date: 14.JAN.2015 13:48:57

Lowest Channel / Full RB



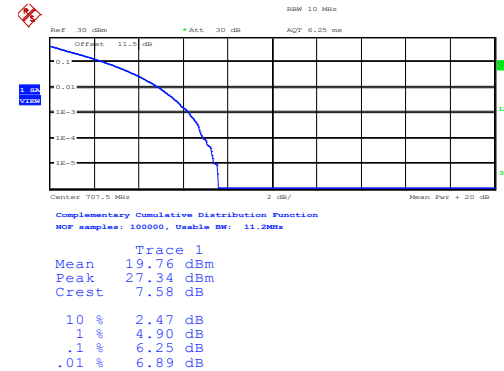
Date: 14.JAN.2015 13:48:38

Middle Channel / 1RB



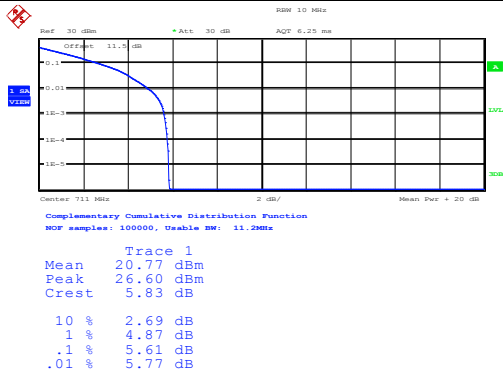
Date: 14.JAN.2015 13:49:17

Middle Channel / Full RB



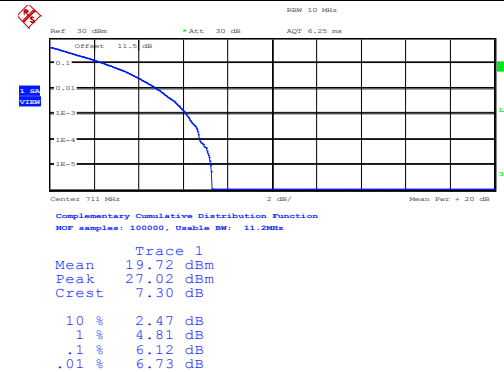
Date: 14.JAN.2015 13:49:34

Highest Channel / 1RB



Date: 14.JAN.2015 13:50:12

Highest Channel / Full RB

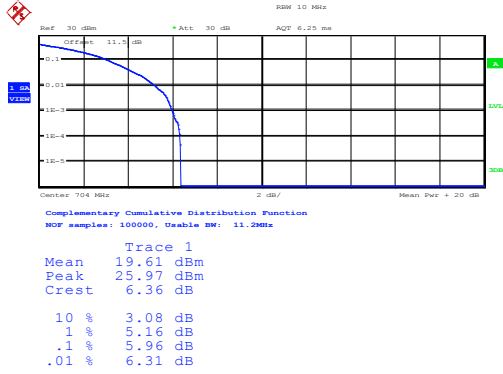


Date: 14.JAN.2015 13:49:52



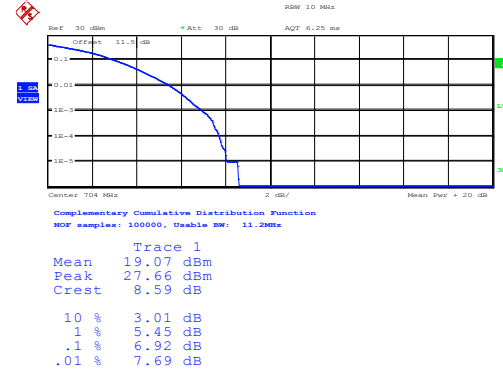
LTE Band 12 / 10MHz / 16QAM

Lowest Channel / 1RB



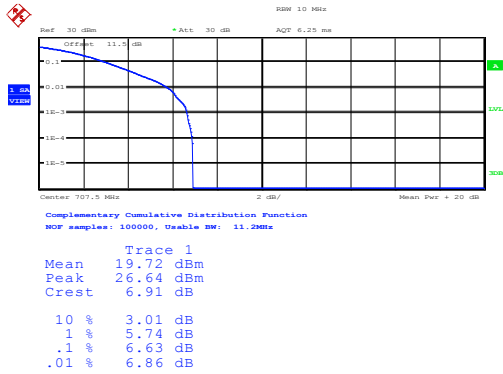
Date: 14.JAN.2015 13:44:27

Lowest Channel / Full RB



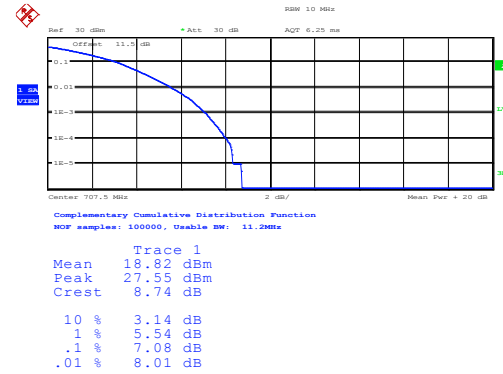
Date: 14.JAN.2015 13:44:08

Middle Channel / 1RB



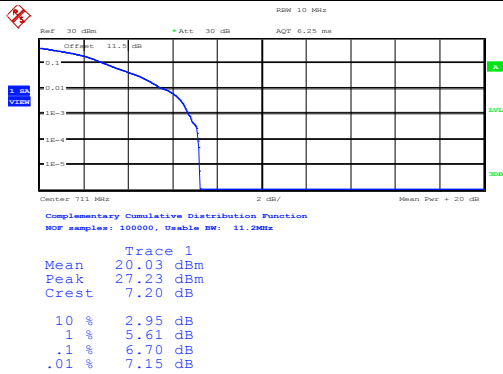
Date: 14.JAN.2015 13:44:54

Middle Channel / Full RB



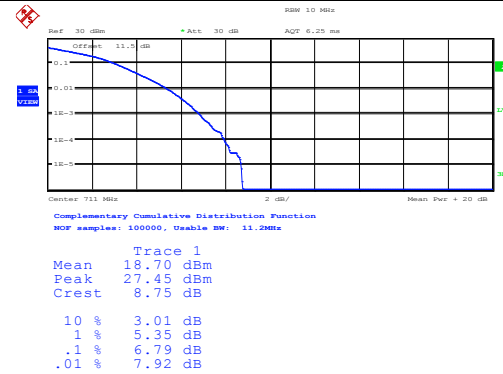
Date: 14.JAN.2015 13:45:19

Highest Channel / 1RB



Date: 14.JAN.2015 13:48:14

Highest Channel / Full RB



Date: 14.JAN.2015 13:47:50



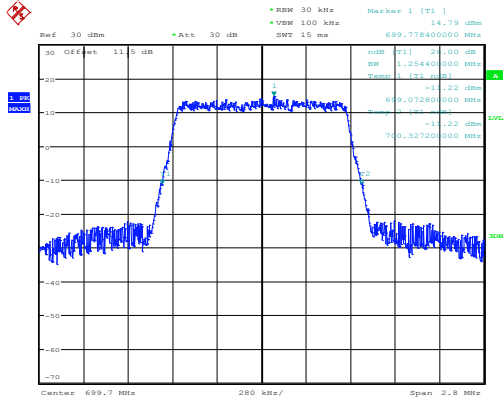
**26dB Bandwidth**

Mode	LTE Band 12 : 26dB BW(MHz)											
	1.4MHz		3MHz		5MHz		10MHz		15MHz		20MHz	
BW	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM
Mod.	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM
Lowest CH	1.25	1.28	3.01	2.97	4.97	4.98	10.12	10	-	-	-	-
Middle CH	1.26	1.26	2.98	3.02	5.04	5	10.06	10.06	-	-	-	-
Highest CH	1.25	1.27	3.02	3.02	5.04	5.01	10.04	10.06	-	-	-	-



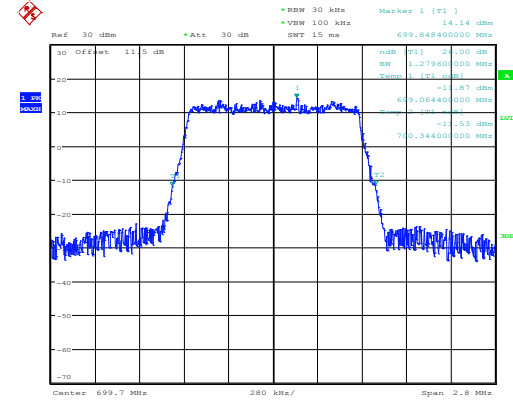
LTE Band 12

Lowest Channel / 1.4MHz / QPSK



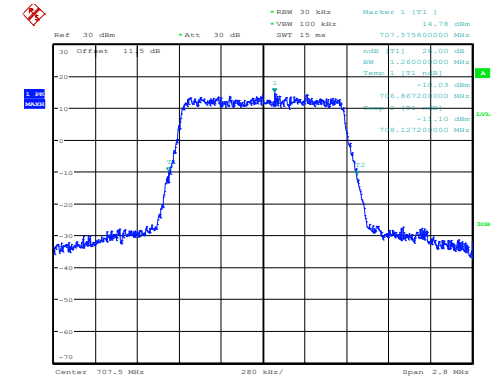
Date: 14.JAN.2015 12:12:24

Lowest Channel / 1.4MHz / 16QAM



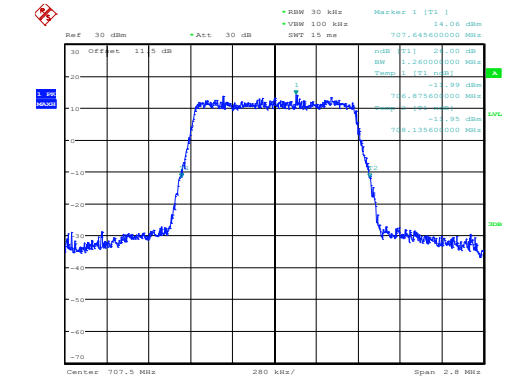
Date: 14.JAN.2015 12:12:05

Middle Channel / 1.4MHz / QPSK



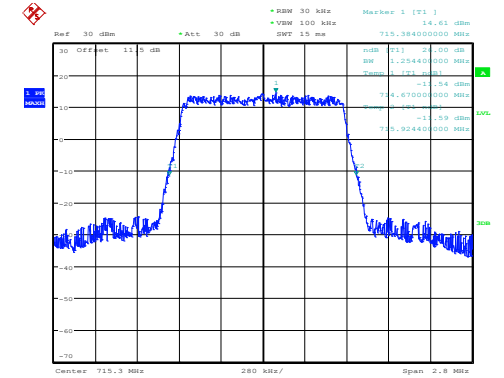
Date: 14.JAN.2015 12:21:49

Middle Channel / 1.4MHz / 16QAM



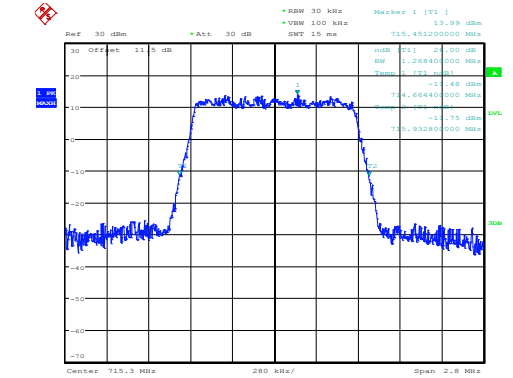
Date: 14.JAN.2015 12:22:09

Highest Channel / 1.4MHz / QPSK



Date: 14.JAN.2015 12:25:55

Highest Channel / 1.4MHz / 16QAM

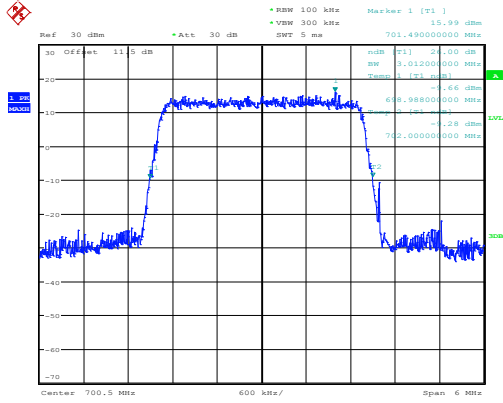


Date: 14.JAN.2015 12:25:35



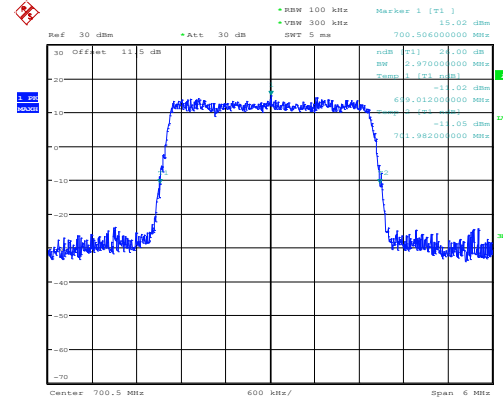
LTE Band 12

Lowest Channel / 3MHz / QPSK



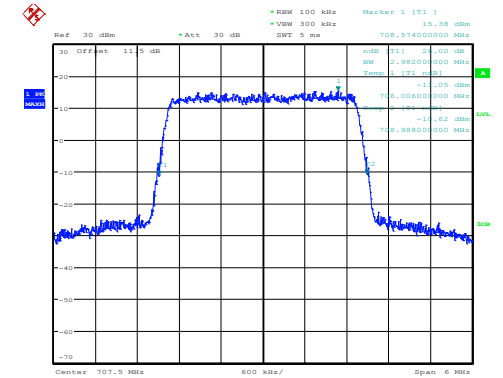
Date: 14.JAN.2015 10:19:14

Lowest Channel / 3MHz / 16QAM



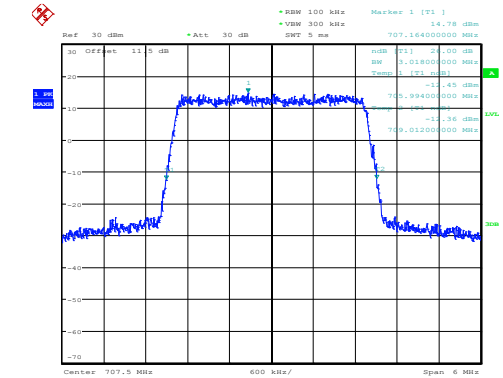
Date: 14.JAN.2015 10:19:55

Middle Channel / 3MHz / QPSK



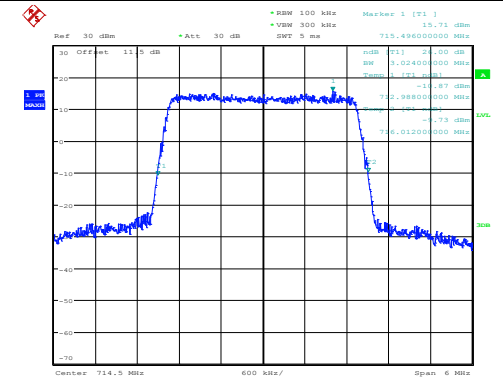
Date: 14.JAN.2015 10:31:38

Middle Channel / 3MHz / 16QAM



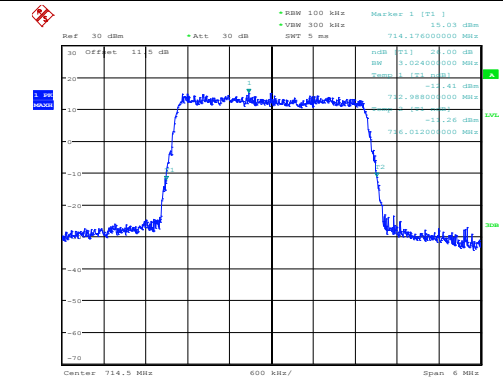
Date: 14.JAN.2015 10:31:58

Highest Channel / 3MHz / QPSK



Date: 14.JAN.2015 10:35:44

Highest Channel / 3MHz / 16QAM

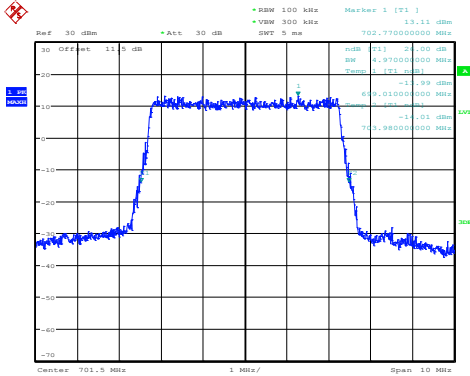


Date: 14.JAN.2015 10:35:24



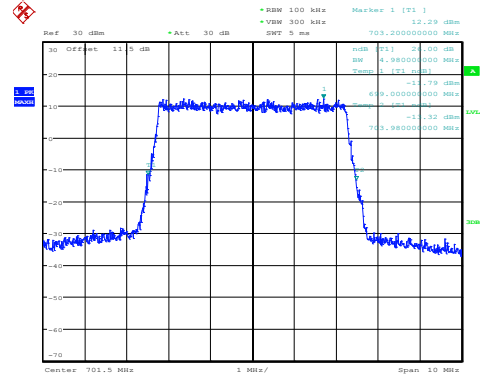
LTE Band 12

Lowest Channel / 5MHz / QPSK



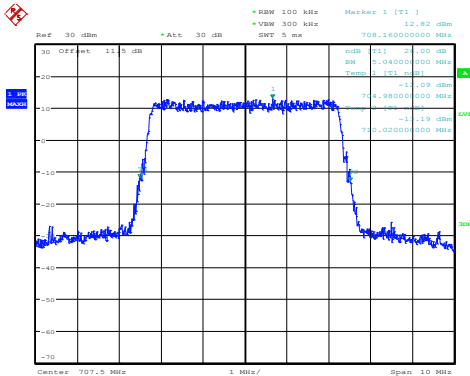
Date: 14.JAN.2015 10:44:40

Lowest Channel / 5MHz / 16QAM



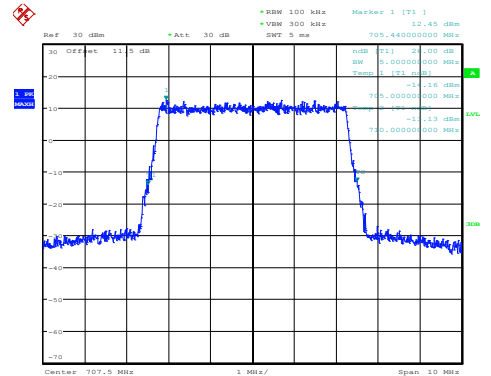
Date: 14.JAN.2015 10:44:21

Middle Channel / 5MHz / QPSK



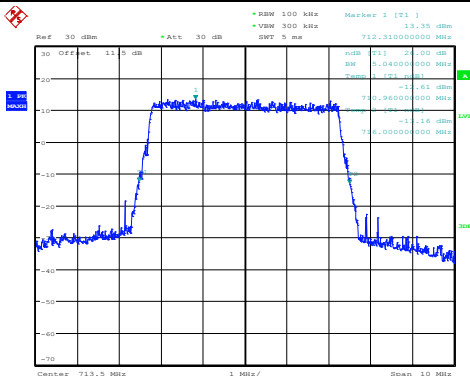
Date: 14.JAN.2015 10:53:11

Middle Channel / 5MHz / 16QAM



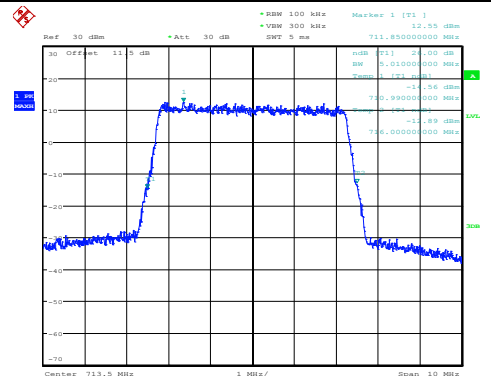
Date: 14.JAN.2015 10:53:01

Highest Channel / 5MHz / QPSK



Date: 14.JAN.2015 10:57:16

Highest Channel / 5MHz / 16QAM

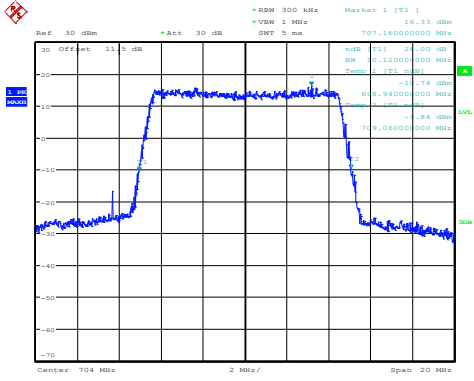


Date: 14.JAN.2015 10:56:57



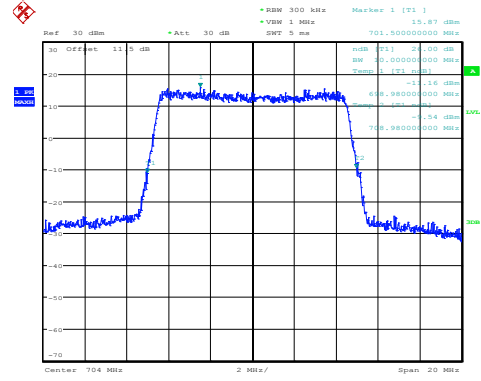
LTE Band 12

Lowest Channel / 10MHz / QPSK



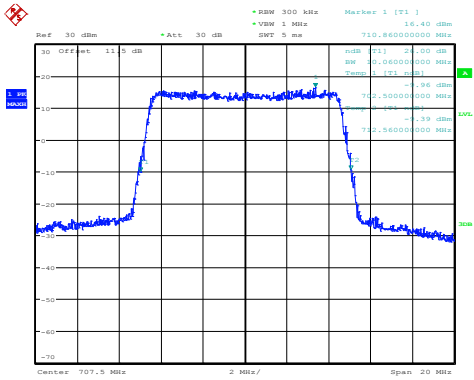
Date: 14.JAN.2015 11:06:13

Lowest Channel / 10MHz / 16QAM



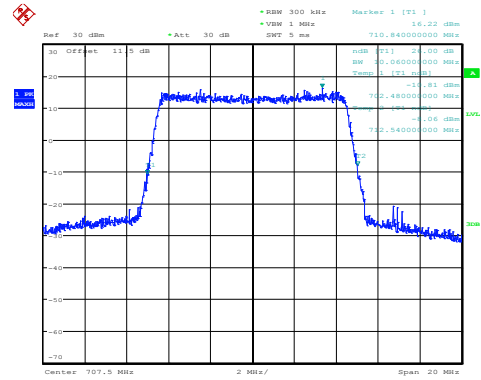
Date: 14.JAN.2015 11:05:53

Middle Channel / 10MHz / QPSK



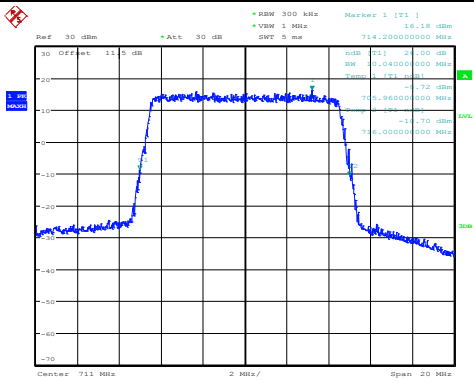
Date: 14.JAN.2015 11:15:16

Middle Channel / 10MHz / 16QAM



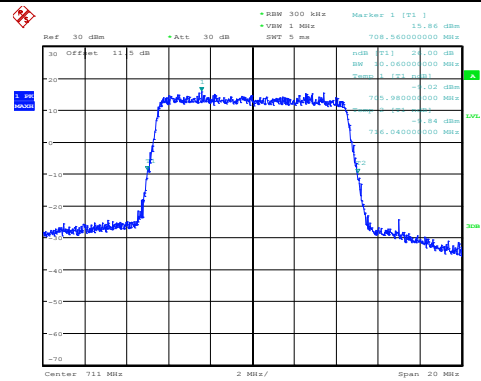
Date: 14.JAN.2015 11:16:05

Highest Channel / 10MHz / QPSK



Date: 14.JAN.2015 11:19:52

Highest Channel / 10MHz / 16QAM



Date: 14.JAN.2015 11:19:33



### Occupied Bandwidth

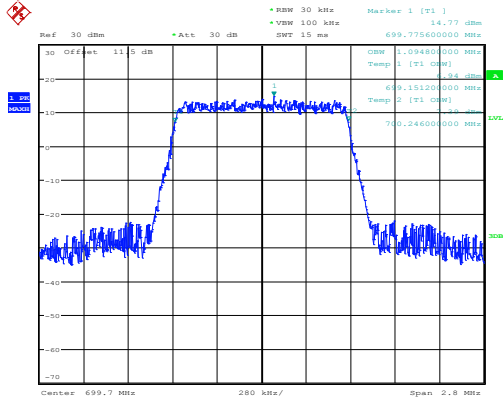
Mode	LTE Band 12 : 99%OBW(MHz)											
	1.4MHz		3MHz		5MHz		10MHz		15MHz		20MHz	
BW	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM
Lowest CH	1.09	1.09	2.72	2.72	4.51	4.51	9.1	9.06	-	-	-	-
Middle CH	1.1	1.1	2.72	2.72	4.51	4.51	9.1	9.06	-	-	-	-
Highest CH	1.1	1.1	2.72	2.72	4.5	4.51	9.06	9.04	-	-	-	-





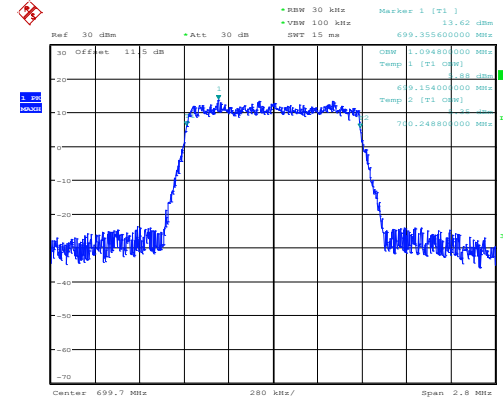
LTE Band 12

Lowest Channel / 1.4MHz / QPSK



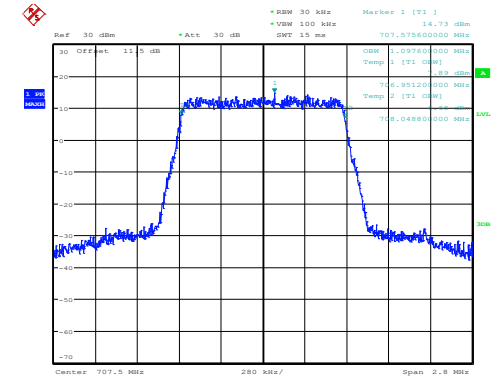
Date: 14.JAN.2015 12:11:28

Lowest Channel / 1.4MHz / 16QAM



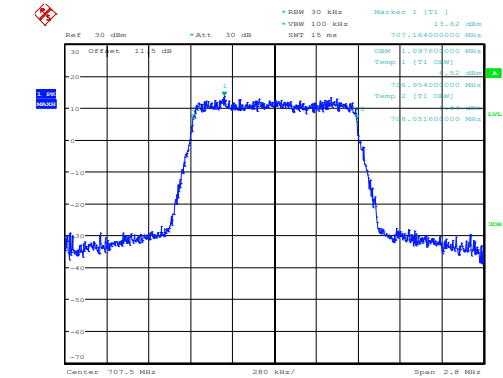
Date: 14.JAN.2015 12:11:45

Middle Channel / 1.4MHz / QPSK



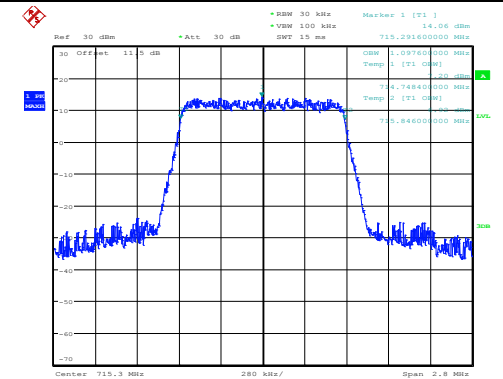
Date: 14.JAN.2015 12:21:29

Middle Channel / 1.4MHz / 16QAM



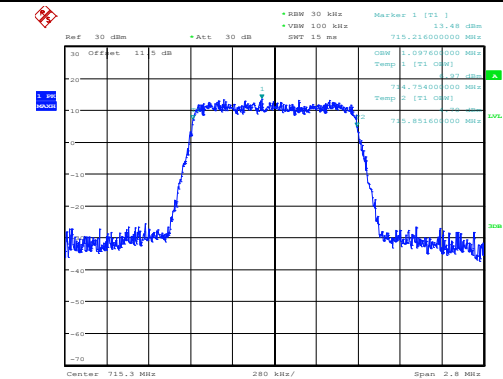
Date: 14.JAN.2015 12:21:11

Highest Channel / 1.4MHz / QPSK



Date: 14.JAN.2015 12:24:59

Highest Channel / 1.4MHz / 16QAM

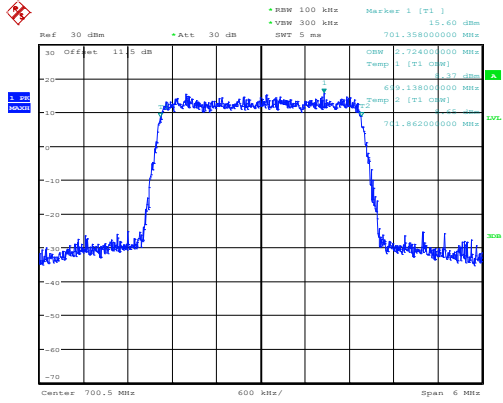


Date: 14.JAN.2015 12:25:16



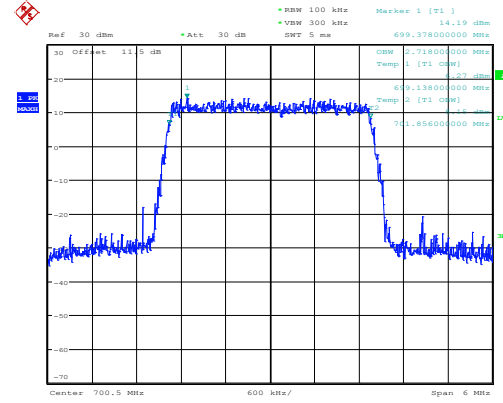
LTE Band 12

Lowest Channel / 3MHz / QPSK



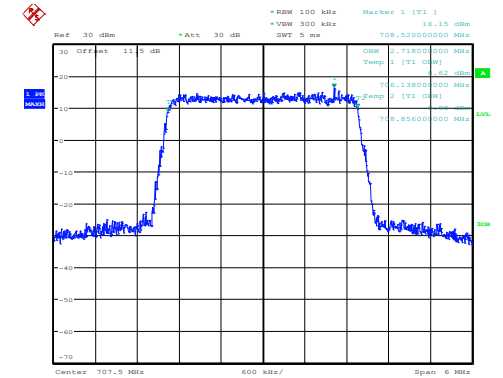
Date: 14.JAN.2015 10:17:25

Lowest Channel / 3MHz / 16QAM



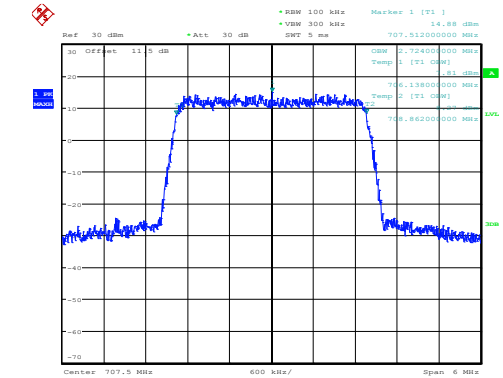
Date: 14.JAN.2015 10:18:31

Middle Channel / 3MHz / QPSK



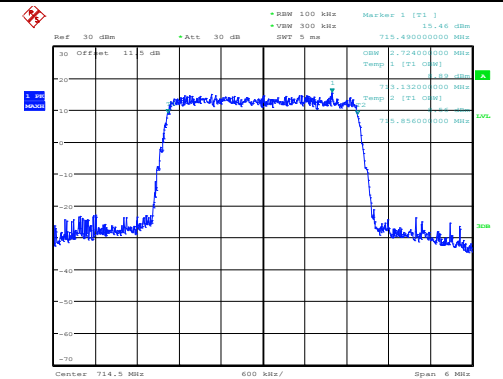
Date: 14.JAN.2015 10:31:19

Middle Channel / 3MHz / 16QAM



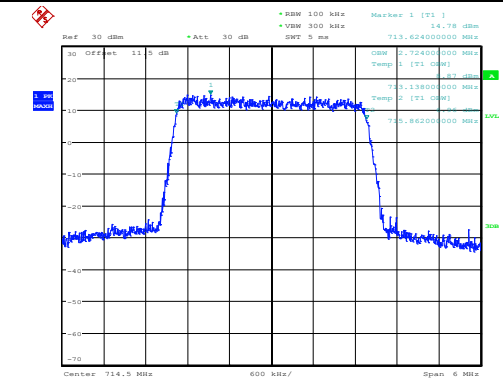
Date: 14.JAN.2015 10:31:02

Highest Channel / 3MHz / QPSK



Date: 14.JAN.2015 10:34:47

Highest Channel / 3MHz / 16QAM

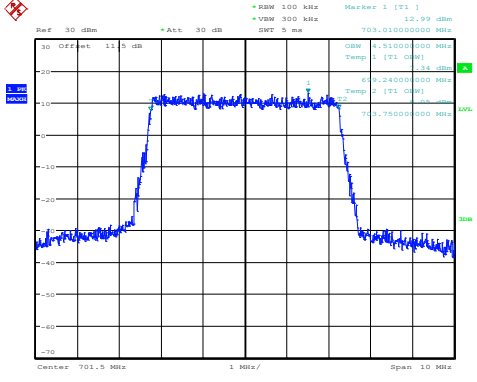


Date: 14.JAN.2015 10:35:05



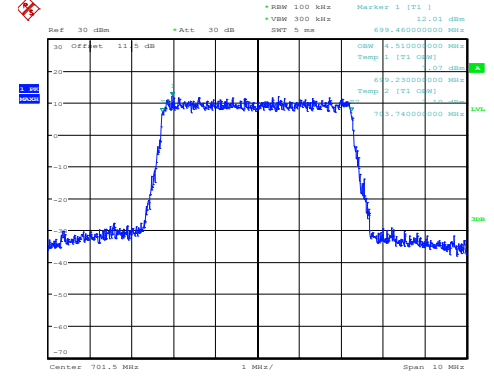
LTE Band 12

Lowest Channel / 5MHz / QPSK



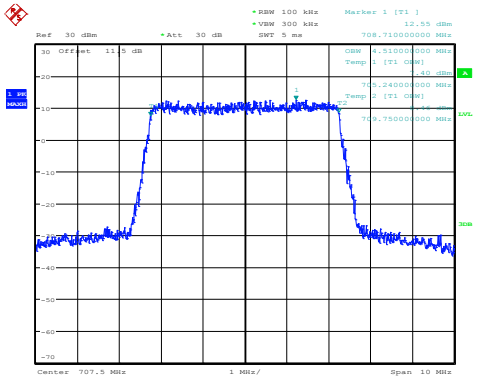
Date: 14.JAN.2015 10:43:44

Lowest Channel / 5MHz / 16QAM



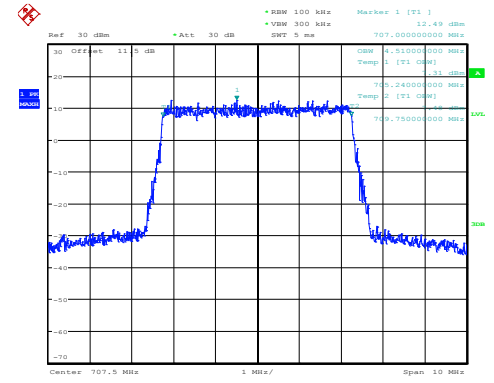
Date: 14.JAN.2015 10:44:01

Middle Channel / 5MHz / QPSK



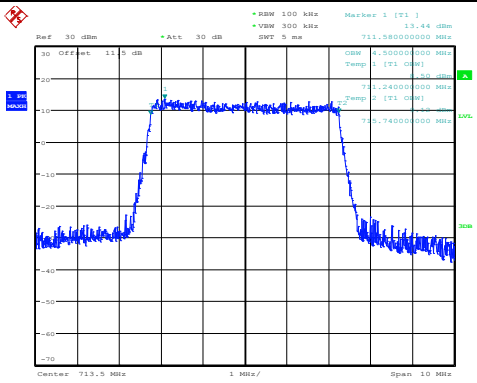
Date: 14.JAN.2015 10:52:52

Middle Channel / 5MHz / 16QAM



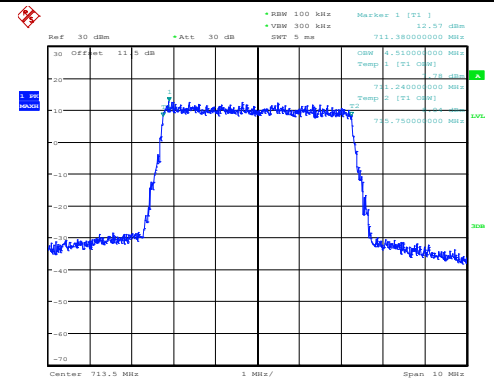
Date: 14.JAN.2015 10:52:55

Highest Channel / 5MHz / QPSK



Date: 14.JAN.2015 10:56:21

Highest Channel / 5MHz / 16QAM

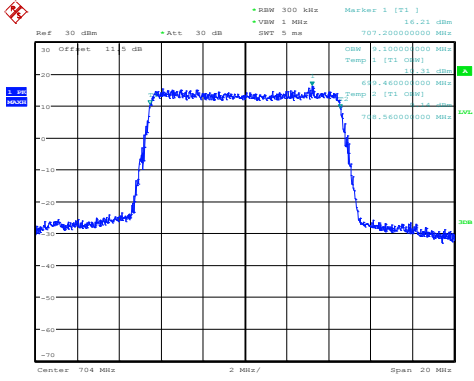


Date: 14.JAN.2015 10:56:38



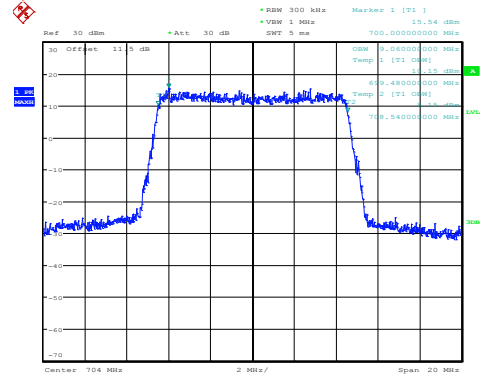
LTE Band 12

Lowest Channel / 10MHz / QPSK



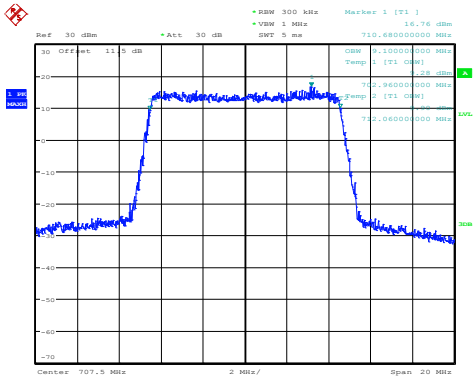
Date: 14.JAN.2015 11:05:15

Lowest Channel / 10MHz / 16QAM



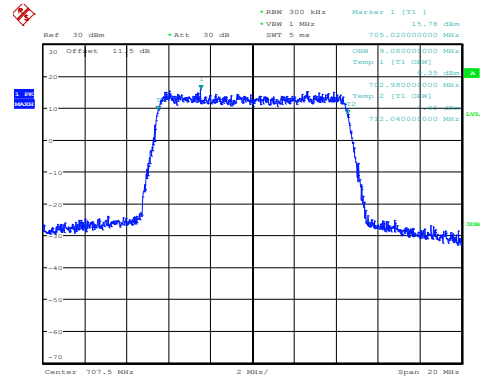
Date: 14.JAN.2015 11:05:33

Middle Channel / 10MHz / QPSK



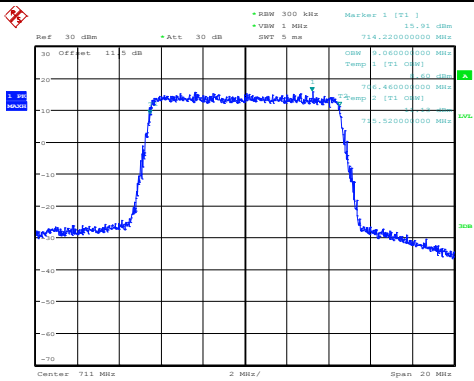
Date: 14.JAN.2015 11:15:27

Middle Channel / 10MHz / 16QAM



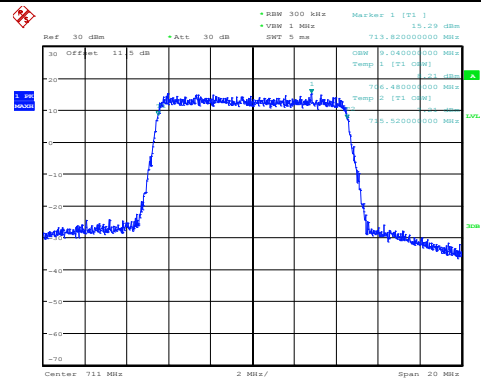
Date: 14.JAN.2015 11:15:10

Highest Channel / 10MHz / QPSK



Date: 14.JAN.2015 11:18:55

Highest Channel / 10MHz / 16QAM



Date: 14.JAN.2015 11:19:13

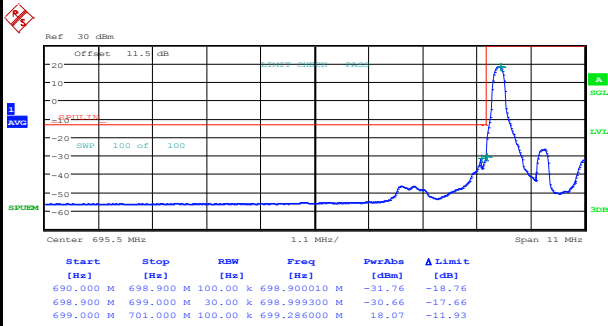


**Conducted Band Edge**



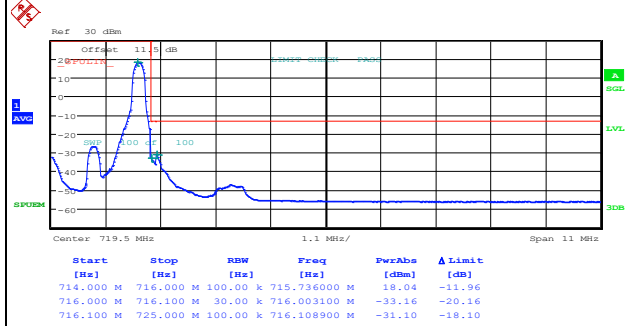
LTE Band 12 / 1.4MHz / QPSK

Lowest Band Edge / 1 RB



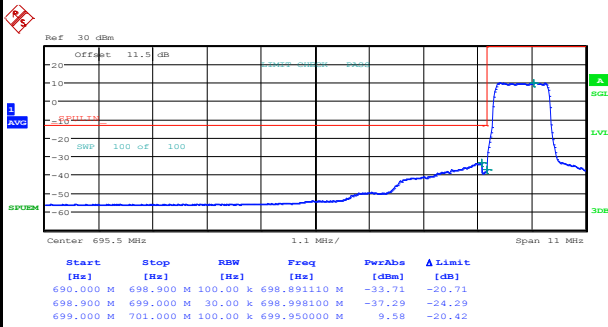
Date: 14.JAN.2015 12:17:58

Highest Band Edge / 1RB



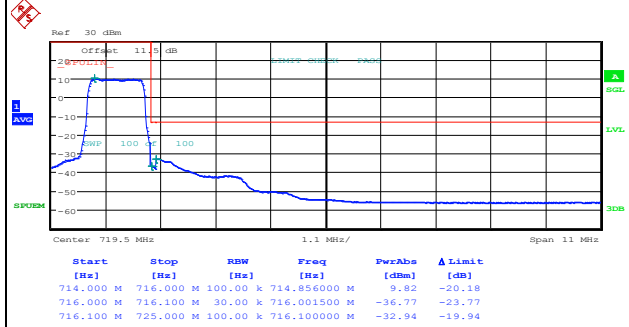
Date: 14.JAN.2015 12:30:59

Lowest Band Edge / Full RB



Date: 14.JAN.2015 12:13:40

Highest Band Edge / Full RB

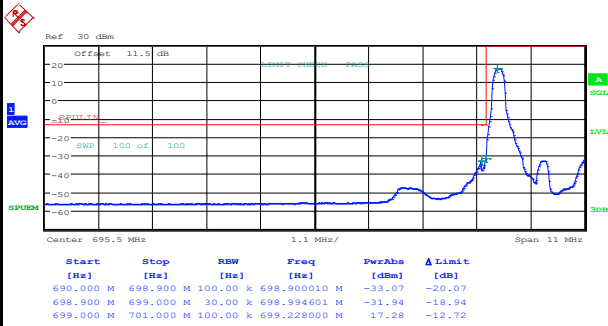


Date: 14.JAN.2015 12:27:11



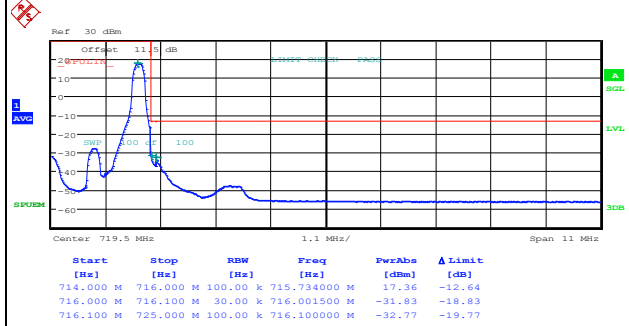
LTE Band 12 / 1.4MHz / 16QAM

Lowest Band Edge / 1 RB



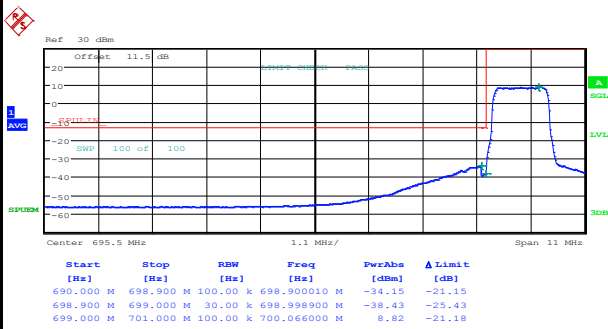
Date: 14. JAN. 2015 12:16:35

Highest Band Edge / 1 RB



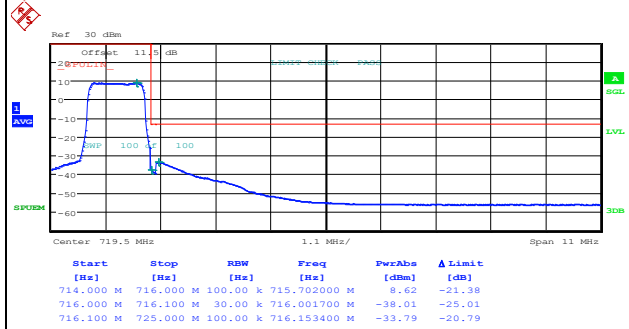
Date: 14. JAN. 2015 12:29:43

Lowest Band Edge / Full RB



Date: 14. JAN. 2015 12:14:57

Highest Band Edge / Full RB

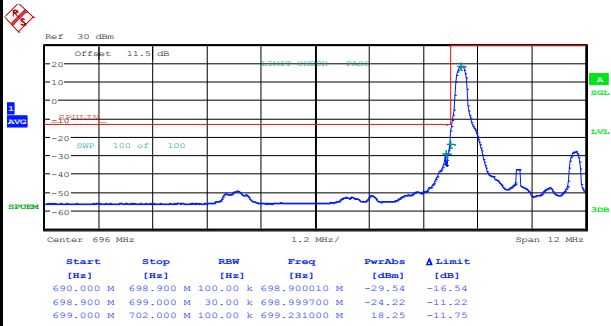


Date: 14. JAN. 2015 12:28:27



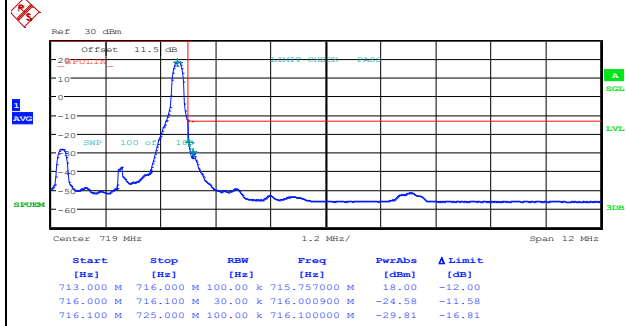
LTE Band 12 / 3MHz / QPSK

Lowest Band Edge / 1RB



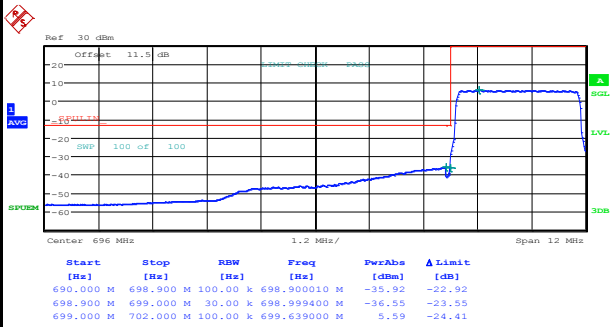
Date: 14.JAN.2015 10:24:26

Highest Band Edge / 1 RB



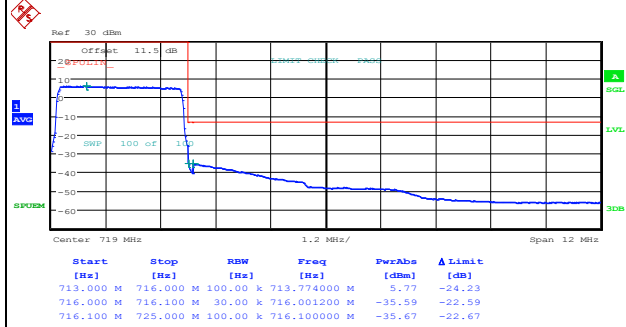
Date: 14.JAN.2015 10:40:49

Lowest Band Edge / Full RB



Date: 14.JAN.2015 10:20:32

Highest Band Edge / Full RB



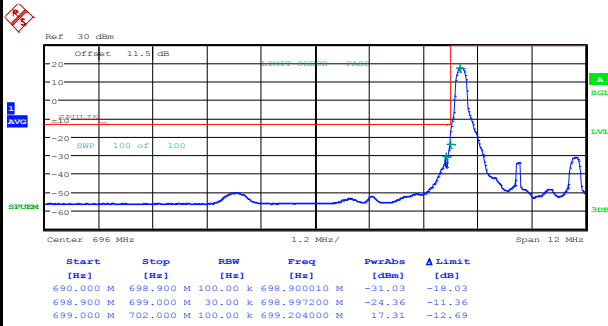
Date: 14.JAN.2015 10:37:00





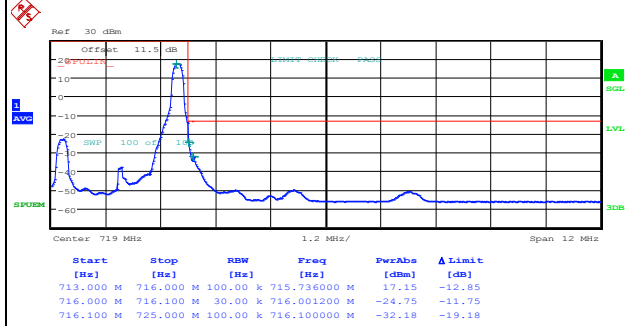
LTE Band 12 / 3MHz / 16QAM

Lowest Band Edge / 1 RB



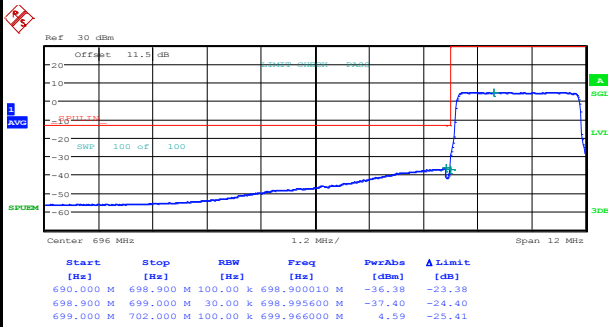
Date: 14.JAN.2015 10:23:06

Highest Band Edge / 1 RB



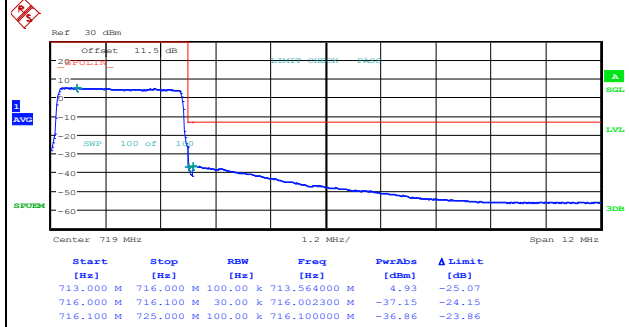
Date: 14.JAN.2015 10:39:33

Lowest Band Edge / Full RB



Date: 14.JAN.2015 10:21:49

Highest Band Edge / Full RB

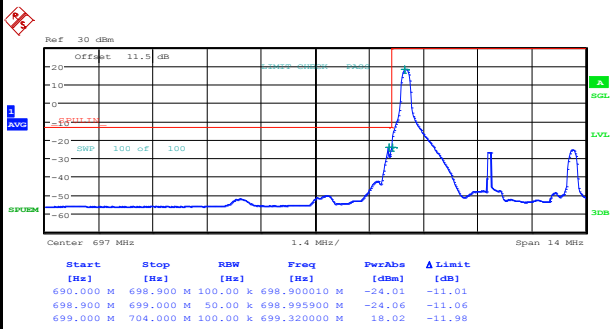


Date: 14.JAN.2015 10:38:17



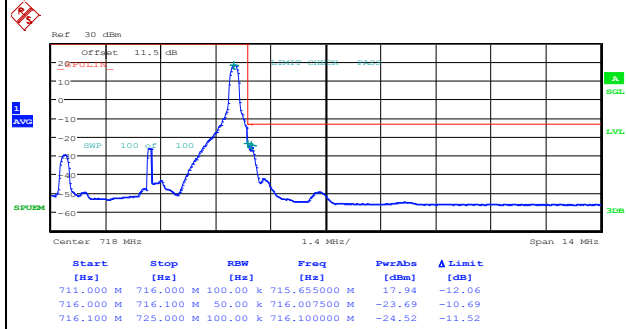
LTE Band 12 / 5MHz / QPSK

Lowest Band Edge / 1 RB



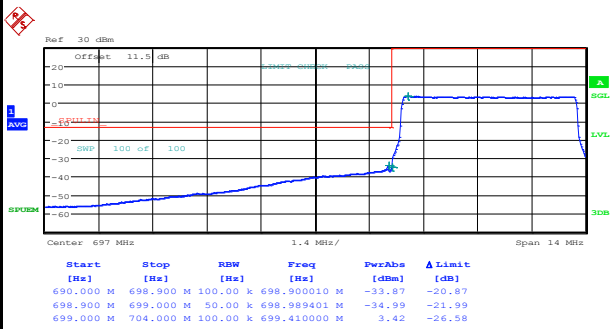
Date: 14.JAN.2015 10:49:45

Highest Band Edge / 1 RB



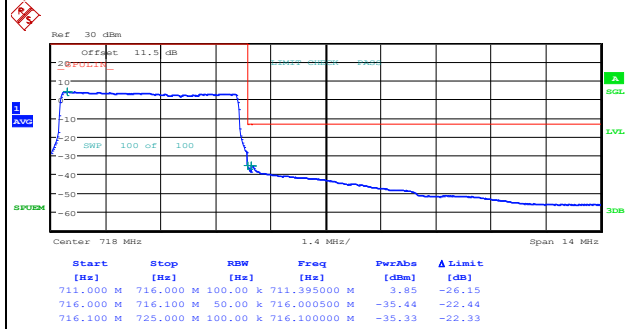
Date: 14.JAN.2015 11:01:04

Lowest Band Edge / Full RB



Date: 14.JAN.2015 10:45:56

Highest Band Edge / Full RB

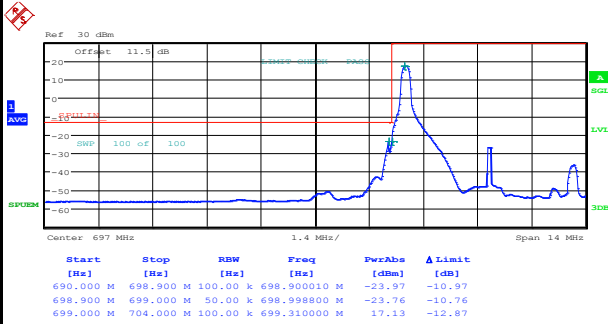


Date: 14.JAN.2015 10:58:32



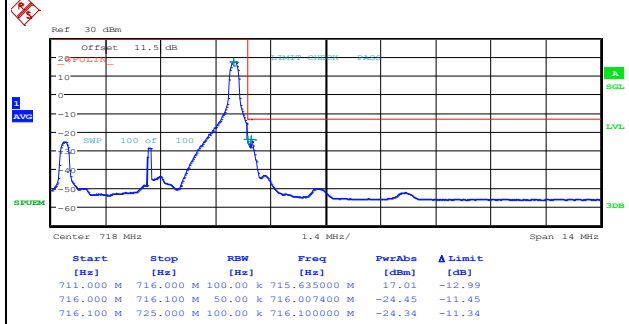
LTE Band 12 / 5MHz / 16QAM

Lowest Band Edge / 1RB



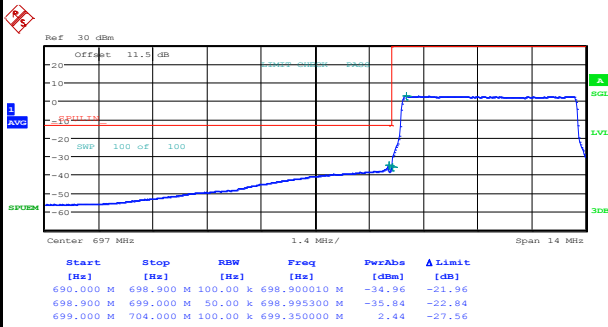
Date: 14.JAN.2015 10:48:29

Highest Band Edge / 1 RB



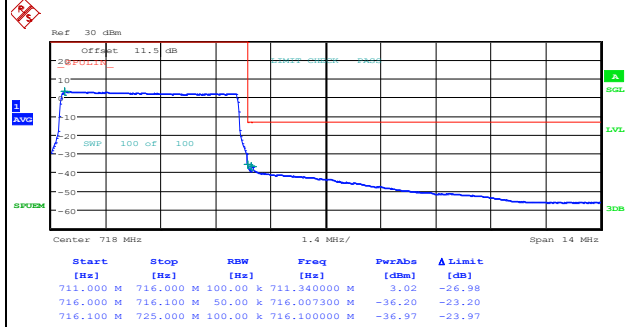
Date: 14.JAN.2015 11:02:21

Lowest Band Edge / Full RB



Date: 14.JAN.2015 10:47:13

Highest Band Edge / Full RB

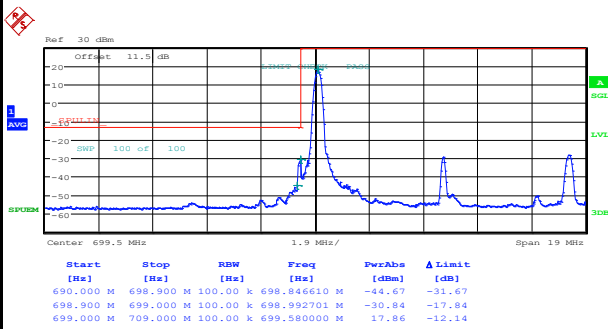


Date: 14.JAN.2015 10:59:49



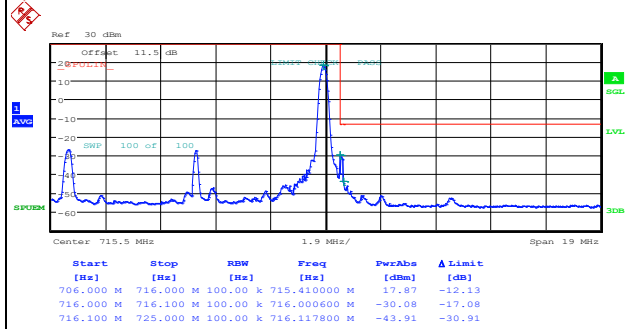
LTE Band 12 / 10MHz / QPSK

Lowest Band Edge / 1 RB



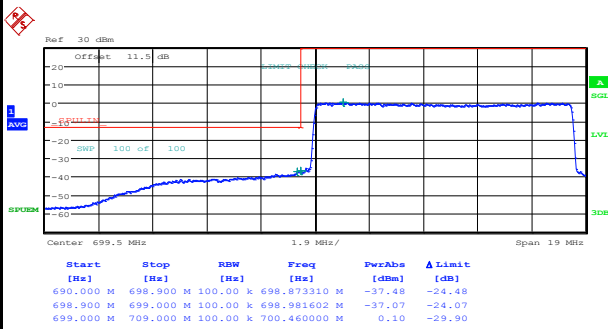
Date: 14.JAN.2015 11:11:19

Highest Band Edge / 1 RB



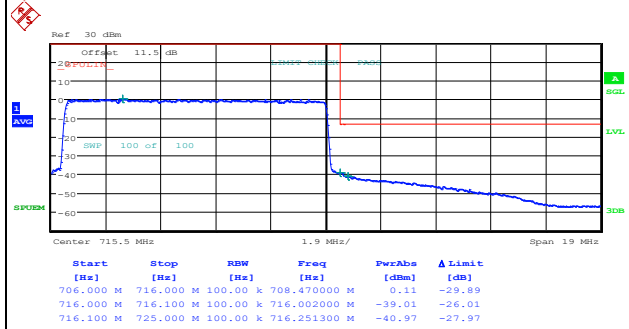
Date: 14.JAN.2015 11:27:24

Lowest Band Edge / Full RB



Date: 14.JAN.2015 11:07:29

Highest Band Edge / Full RB

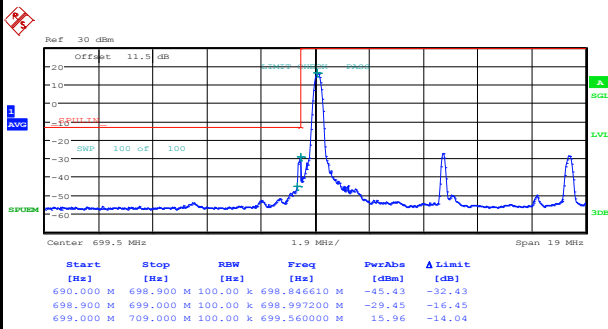


Date: 14.JAN.2015 13:53:32



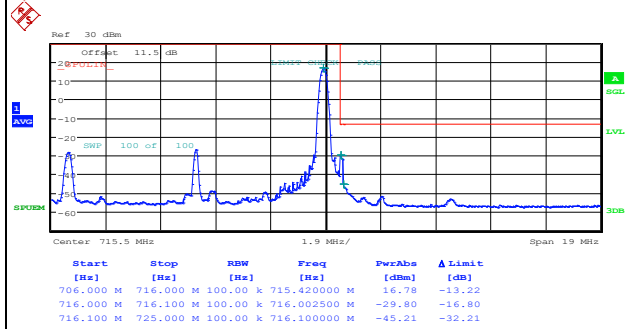
LTE Band 12 / 10MHz / 16QAM

Lowest Band Edge / 1 RB



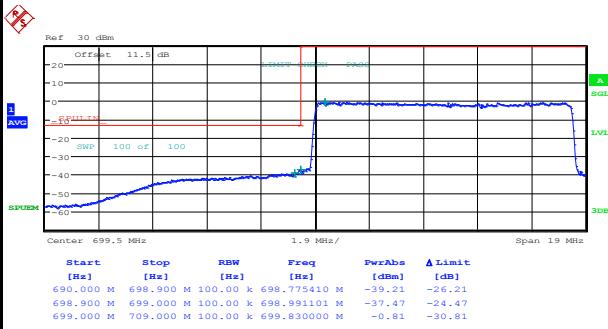
Date: 14.JAN.2015 11:10:02

Highest Band Edge / 1 RB



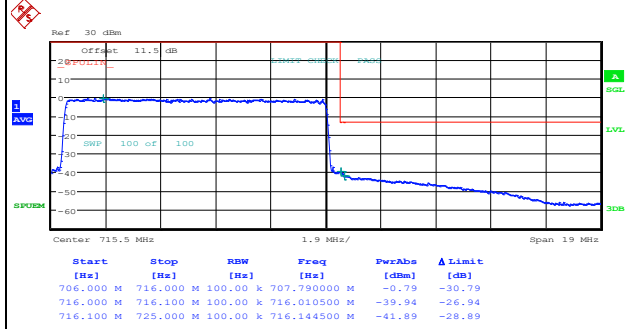
Date: 14.JAN.2015 11:26:07

Lowest Band Edge / Full RB



Date: 14.JAN.2015 11:08:46

Highest Band Edge / Full RB



Date: 14.JAN.2015 11:24:50



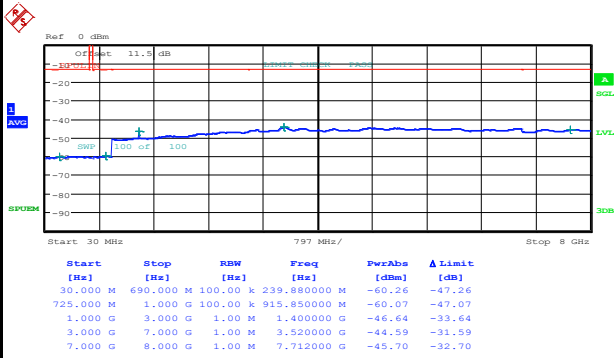
**Conducted Spurious Emission**



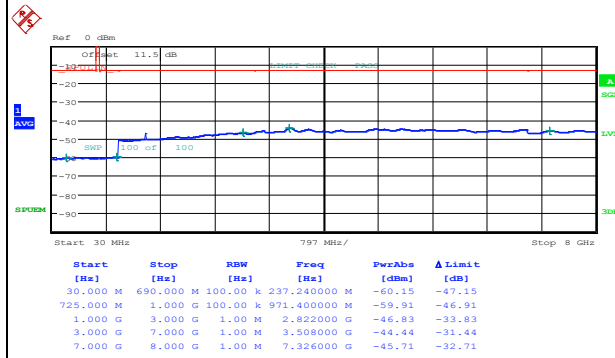
LTE Band 12 / 1.4MHz

Lowest Channel / QPSK

Lowest Channel / 16QAM



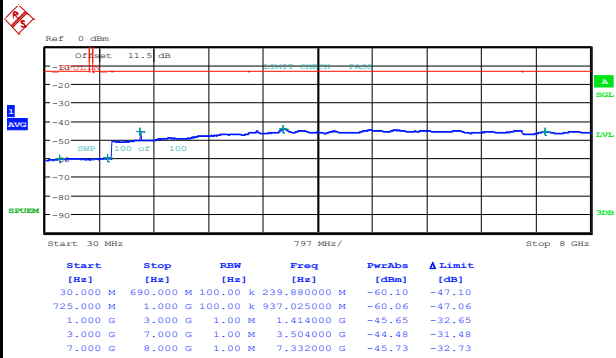
Date: 14.JAN.2015 12:19:21



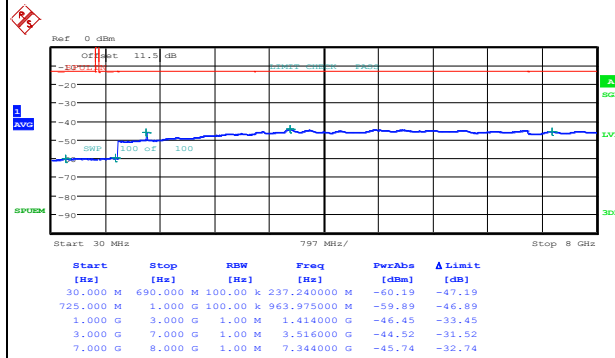
Date: 14.JAN.2015 12:20:42

Middle Channel / QPSK

Middle Channel / 16QAM



Date: 14.JAN.2015 12:24:41

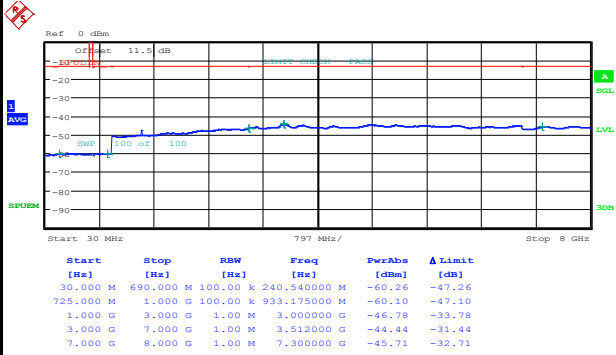


Date: 14.JAN.2015 12:23:25



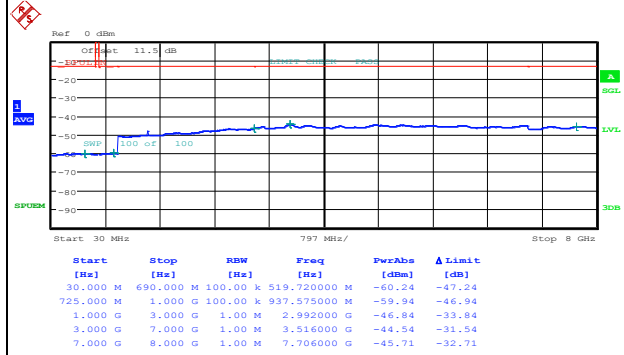
LTE Band 12 / 1.4MHz

Highest Channel / QPSK



Date: 14.JAN.2015 12:32:16

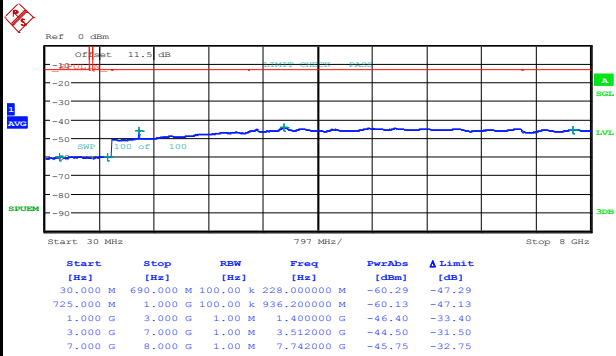
Highest Channel / 16QAM



Date: 14.JAN.2015 12:33:32

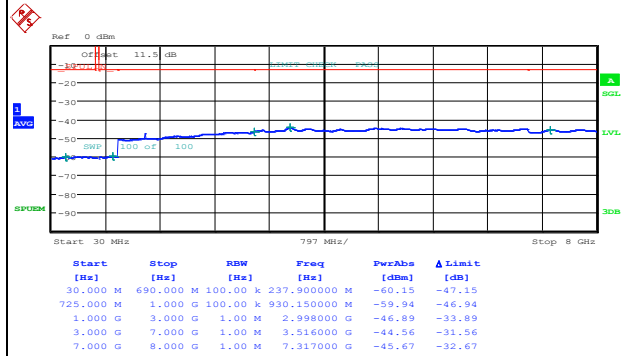
LTE Band 12 / 3MHz

Lowest Channel / QPSK



Date: 14.JAN.2015 13:52:11

Lowest Channel / 16QAM



Date: 14.JAN.2015 10:30:44

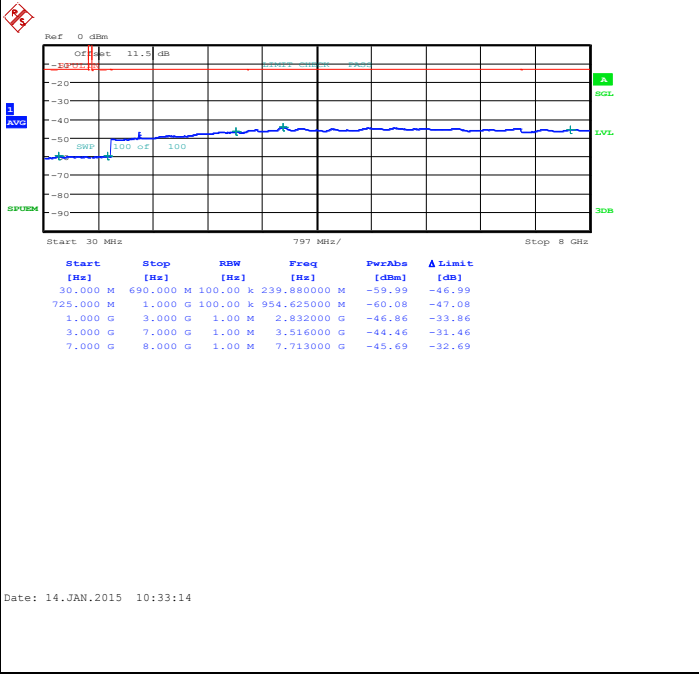
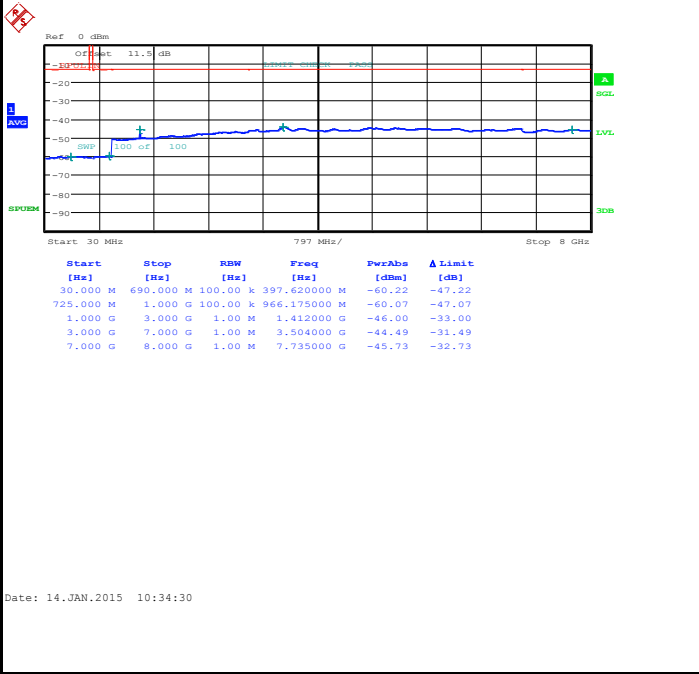




LTE Band 12 / 3MHz

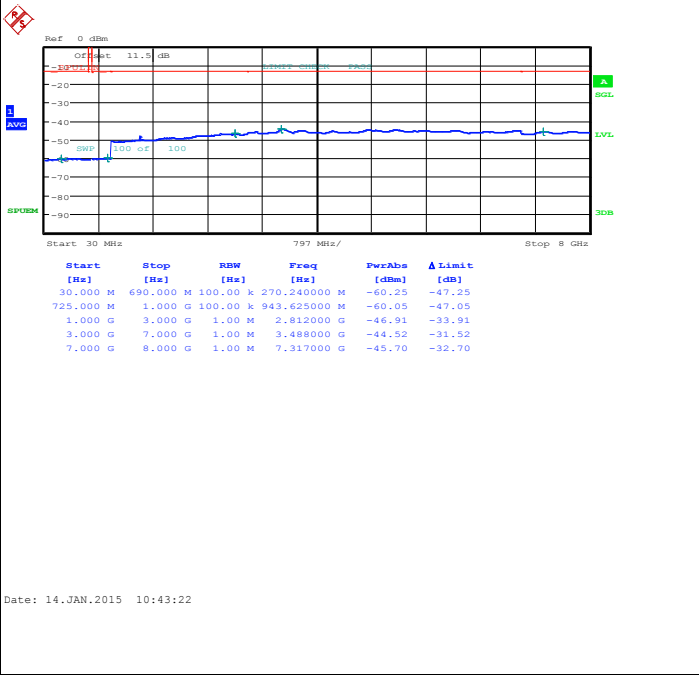
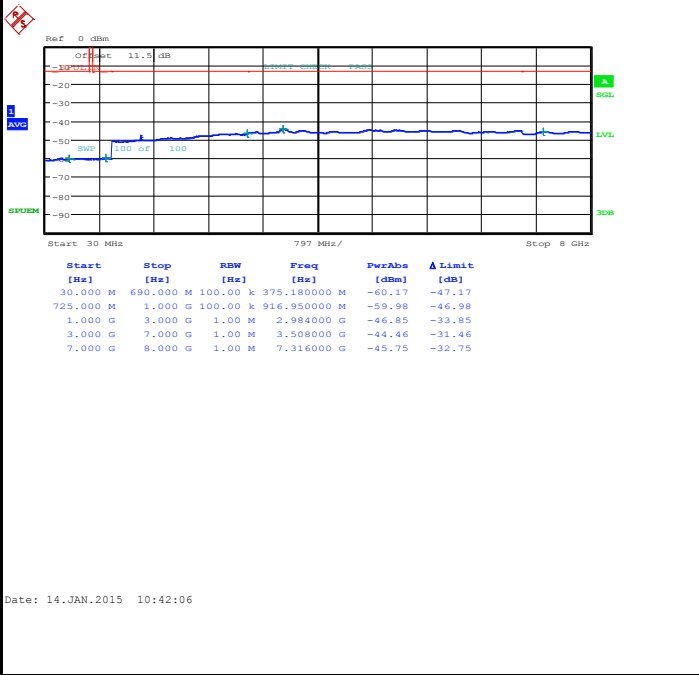
Middle Channel / QPSK

Middle Channel / 16QAM



Highest Channel / QPSK

Highest Channel / 16QAM

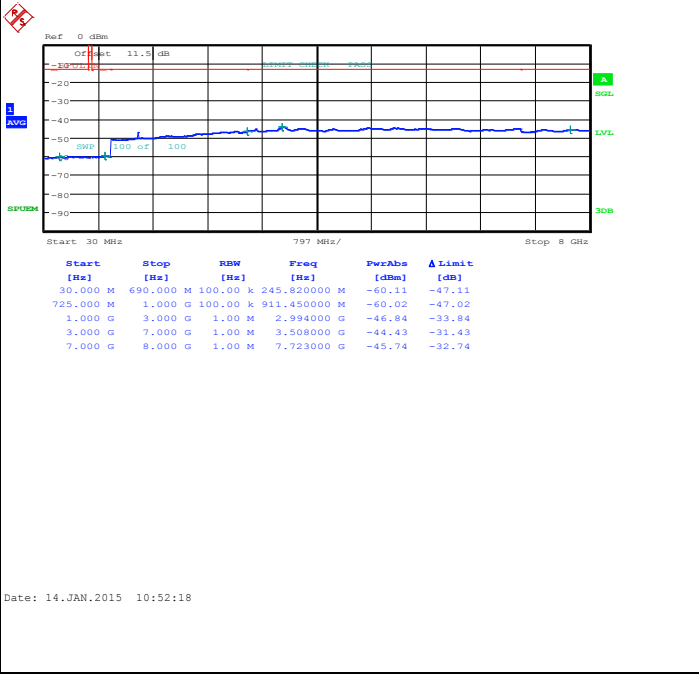
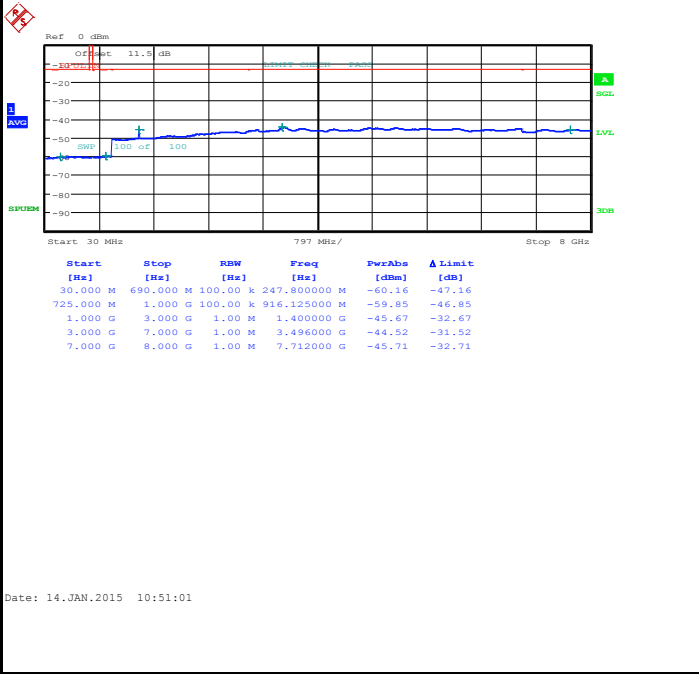




LTE Band 12 / 5MHz

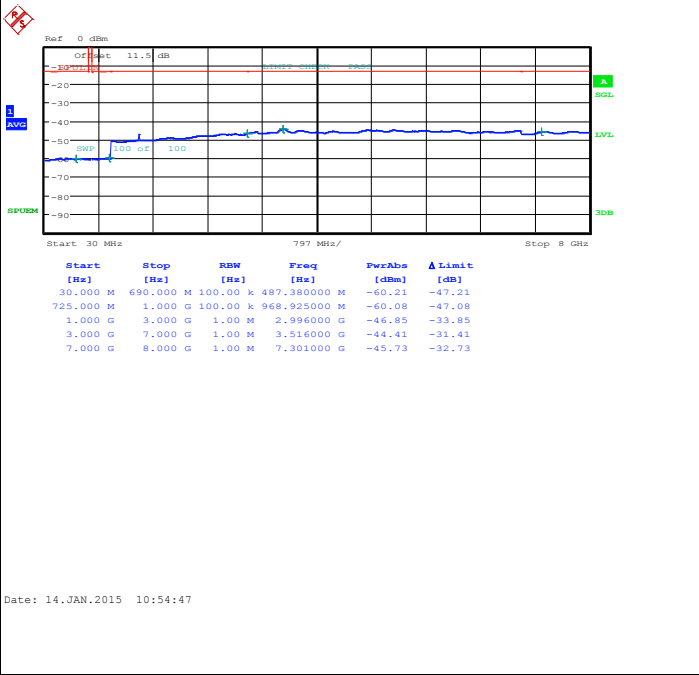
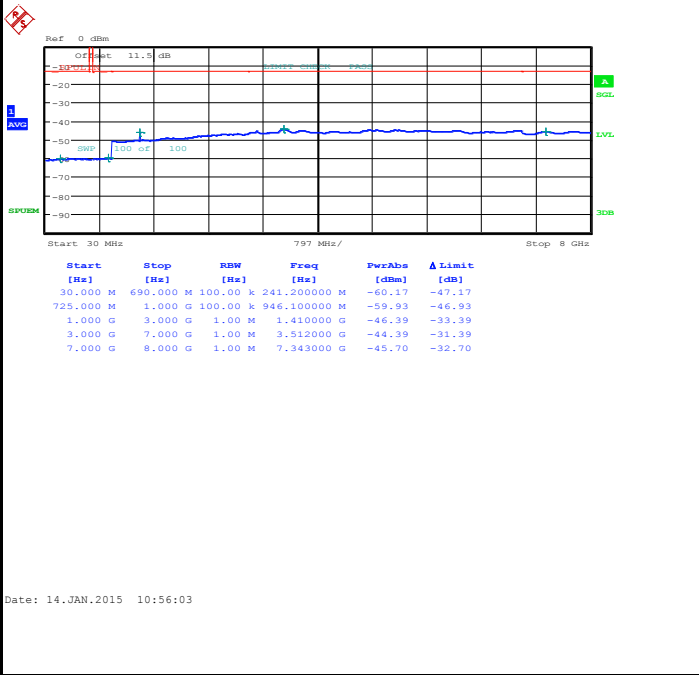
Lowest Channel / QPSK

Lowest Channel / 16QAM



Middle Channel / QPSK

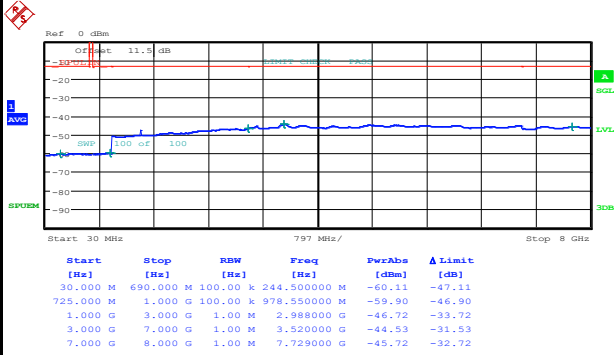
Middle Channel / 16QAM





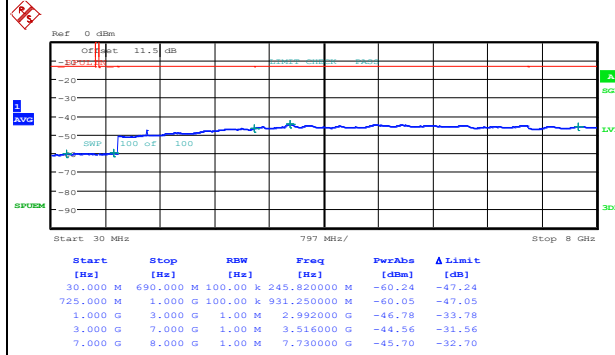
LTE Band 12 / 5MHz

Highest Channel / QPSK



Date: 14.JAN.2015 11:04:53

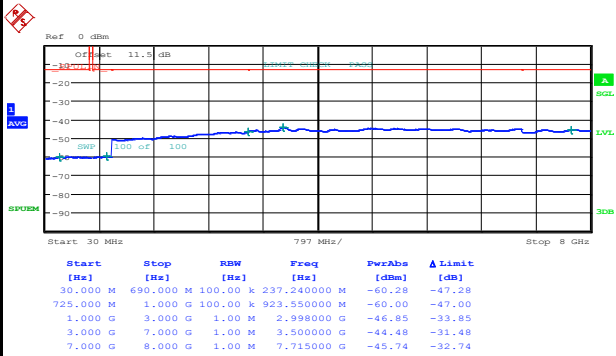
Highest Channel / 16QAM



Date: 14.JAN.2015 11:03:37

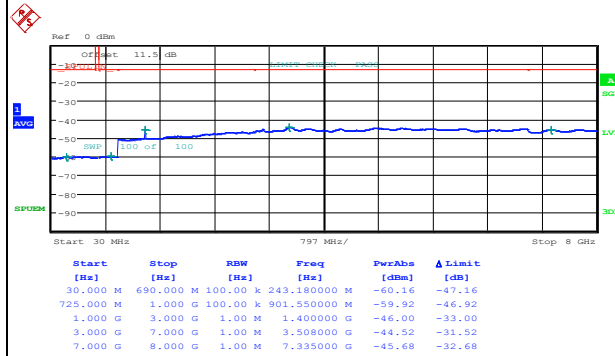
LTE Band 12 / 10MHz

Lowest Channel / QPSK



Date: 14.JAN.2015 11:12:36

Lowest Channel / 16QAM

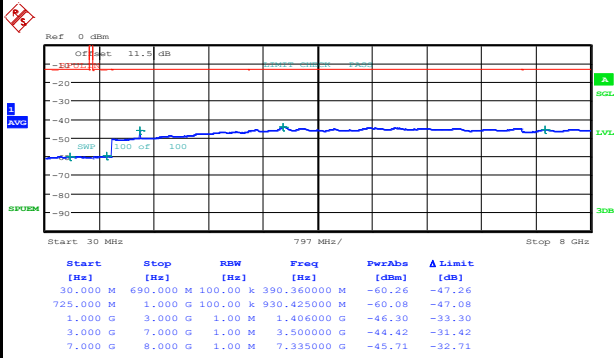


Date: 14.JAN.2015 11:14:52



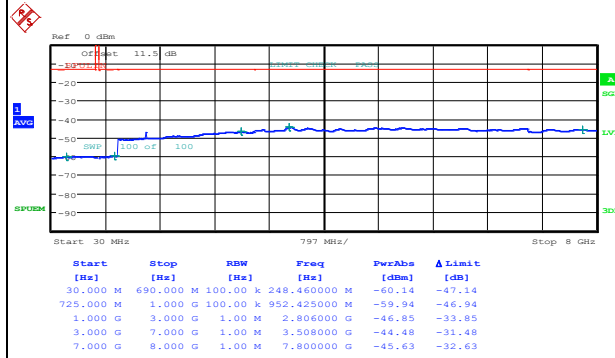
LTE Band 12 / 10MHz

Middle Channel / QPSK



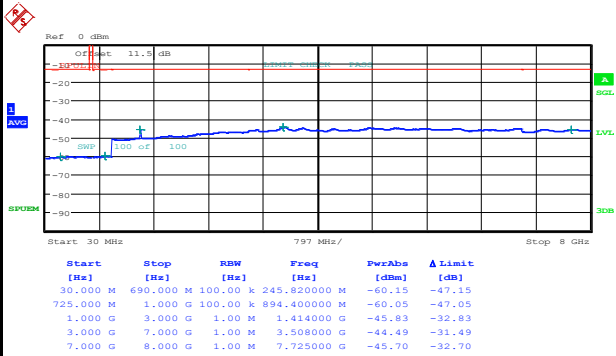
Date: 14.JAN.2015 11:18:37

Middle Channel / 16QAM



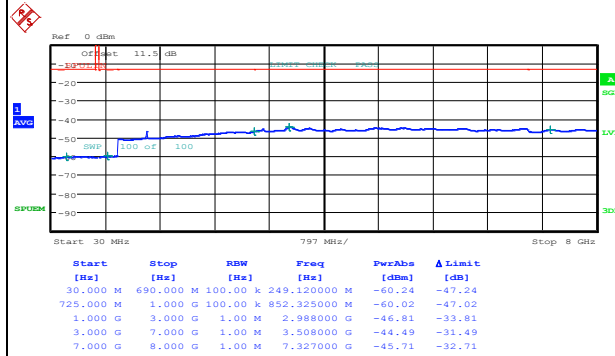
Date: 14.JAN.2015 11:17:21

Highest Channel / QPSK



Date: 14.JAN.2015 11:28:41

Highest Channel / 16QAM



Date: 14.JAN.2015 11:29:57



**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	0.0006	PASS
40	Normal Voltage	0.0124	
30	Normal Voltage	0.0117	
20(Ref.)	Normal Voltage	0.0000	
10	Normal Voltage	0.0105	
0	Normal Voltage	0.0000	
-10	Normal Voltage	0.0007	
-20	Normal Voltage	0.0013	
-30	Normal Voltage	0.0134	
20	Maximum Voltage	0.0004	
20	Normal Voltage	0.0000	
20	Battery End Point	0.0004	

**Note:**

1. Normal Voltage = 3.7V. ; Battery End Point (BEP) = 3.5 V. ; Maximum Voltage = 4.1 V
2. Note: The frequency fundamental emissions stay within the authorized frequency block based on the frequency deviation measured is small.



Test Conditions		LTE Band 12 (QPSK) / Middle Channel	Limit
Temperature (°C)	Voltage (Volt)	BW 5MHz	Within Band
		Frequency Offset ( $\Delta f$ ) (Hz)	Result
50	Normal Voltage	-0.4	PASS
40	Normal Voltage	8.8	
30	Normal Voltage	8.3	
20(Ref.)	Normal Voltage	0	
10	Normal Voltage	7.4	
0	Normal Voltage	0	
-10	Normal Voltage	0.5	
-20	Normal Voltage	0.9	
-30	Normal Voltage	9.5	
20	Maximum Voltage	-0.3	
20	Normal Voltage	0	
20	Battery End Point	0.3	

$|\text{MAX}(\Delta f)| = 9.5\text{Hz}$

Frequency Stability	Frequency (MHz)	Limit Line	Result
$f_L -  \text{MAX}(\Delta f) $	699.119994	$\geq 698 \text{ MHz}$	PASS
$f_H +  \text{MAX}(\Delta f) $	715.875006	$\leq 716 \text{ MHz}$	



## LTE Band 13

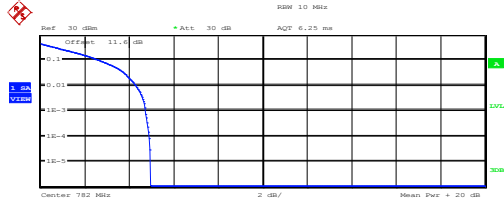
### Peak-to-Average Ratio

Mode	LTE Band 13 / 10MHz				
Mod.	QPSK		16QAM		Limit: 13dB
RB Size	1RB	Full RB	1RB	RB Size	Result
Lowest CH	-	-	-	-	<b>PASS</b>
Middle CH	4.74	5.42	5	5.71	
Highest CH	-	-	-	-	



LTE Band 13 / 10MHz / QPSK

Middle Channel/ 1RB



Complementary Cumulative Distribution Function

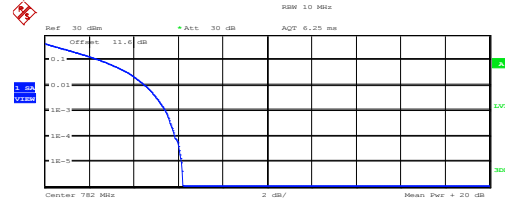
NOF samples: 100000, Usable BW: 11.2MHz

Trace 1  
 Mean 21.84 dBm  
 Peak 26.78 dBm  
 Crest 4.95 dB

10 % 2.63 dB  
 1 % 4.26 dB  
 .1 % 4.74 dB  
 .01 % 4.90 dB

Date: 12.JAN.2015 17:00:41

Middle Channel / Full RB



Complementary Cumulative Distribution Function

NOF samples: 100000, Usable BW: 11.2MHz

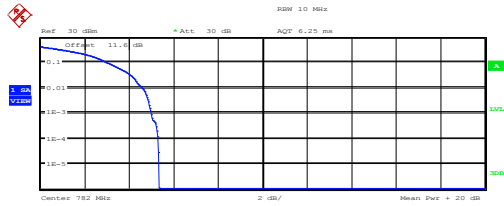
Trace 1  
 Mean 21.99 dBm  
 Peak 28.19 dBm  
 Crest 6.20 dB

10 % 2.47 dB  
 1 % 4.49 dB  
 .1 % 5.42 dB  
 .01 % 5.83 dB

Date: 12.JAN.2015 17:02:27

LTE Band 13 / 10MHz / 16QAM

Middle Channel/ 1RB



Complementary Cumulative Distribution Function

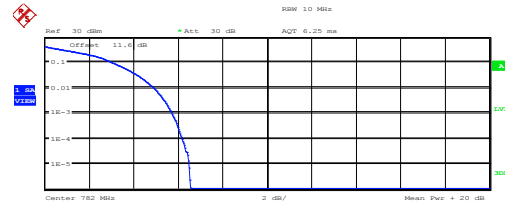
NOF samples: 100000, Usable BW: 11.2MHz

Trace 1  
 Mean 22.02 dBm  
 Peak 27.35 dBm  
 Crest 5.32 dB

10 % 3.01 dB  
 1 % 4.55 dB  
 .1 % 5.00 dB  
 .01 % 5.29 dB

Date: 12.JAN.2015 16:59:59

Middle Channel / Full RB



Complementary Cumulative Distribution Function

NOF samples: 100000, Usable BW: 11.2MHz

Trace 1  
 Mean 22.00 dBm  
 Peak 28.55 dBm  
 Crest 6.54 dB

10 % 3.04 dB  
 1 % 4.87 dB  
 .1 % 5.71 dB  
 .01 % 6.15 dB

Date: 12.JAN.2015 17:00:23





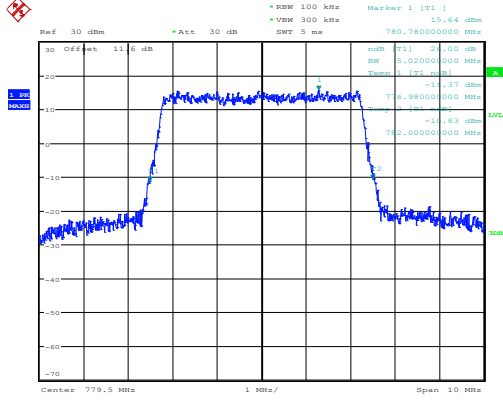
**26dB Bandwidth**

Mode	LTE Band 13 : 26dB BW(MHz)											
	1.4MHz		3MHz		5MHz		10MHz		15MHz		20MHz	
BW												
Mod.	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM
Lowest CH	-	-	-	-	5.02	4.97	-	-	-	-	-	-
Middle CH	-	-	-	-	4.97	4.99	10.1	10	-	-	-	-
Highest CH	-	-	-	-	4.95	4.96	-	-	-	-	-	-



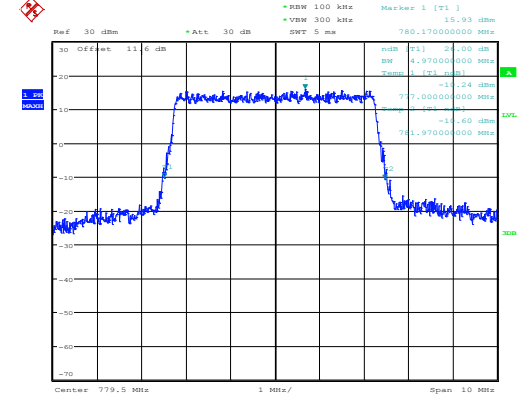
LTE Band 13

Lowest Channel / 5MHz / QPSK



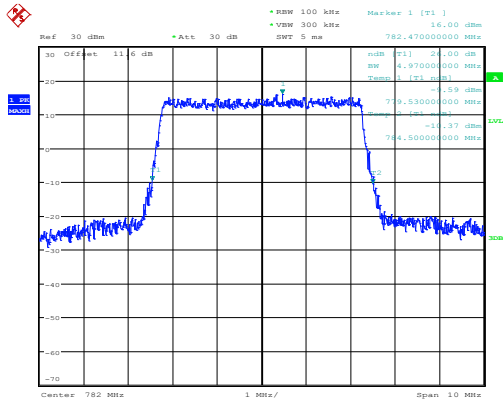
Date: 12.JAN.2015 16:47:30

Lowest Channel / 5MHz / 16QAM



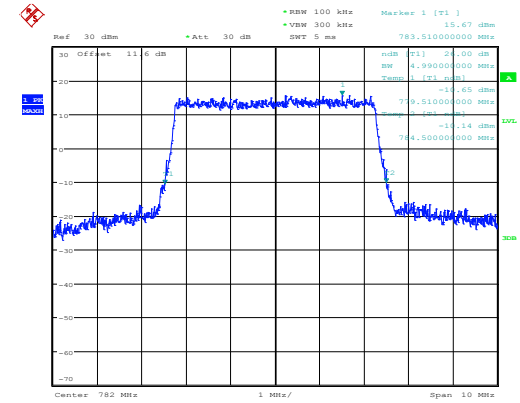
Date: 12.JAN.2015 16:47:18

Middle Channel / 5MHz / QPSK



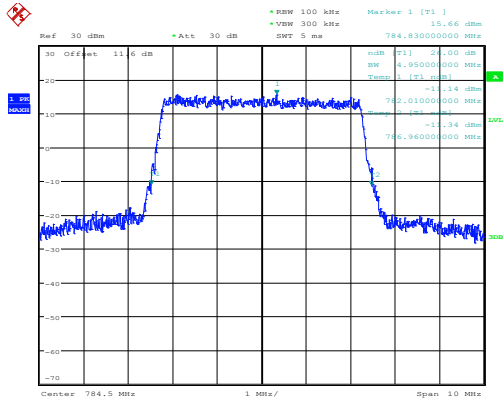
Date: 12.JAN.2015 16:52:24

Middle Channel / 5MHz / 16QAM



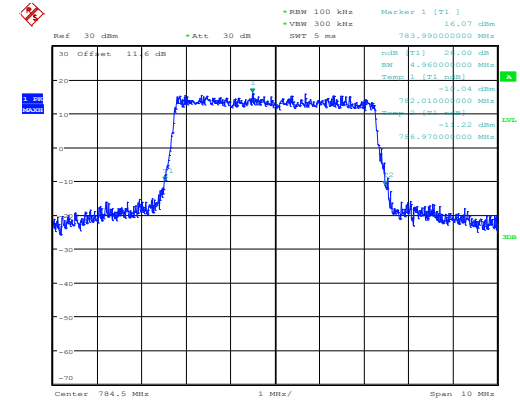
Date: 12.JAN.2015 16:52:36

Highest Channel / 5MHz / QPSK



Date: 12.JAN.2015 16:53:45

Highest Channel / 5MHz / 16QAM

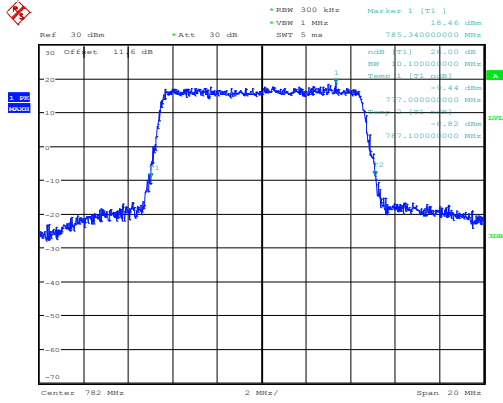


Date: 12.JAN.2015 16:53:32



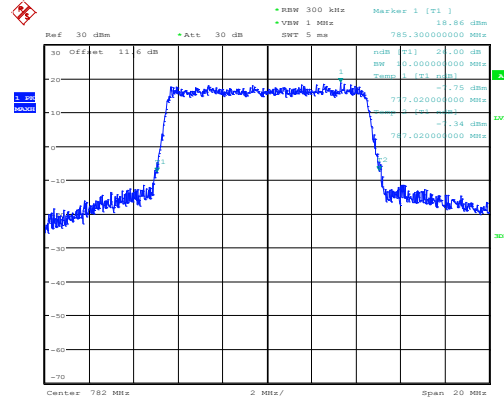
LTE Band 13

Middle Channel / 10MHz / QPSK



Date: 12.JAN.2015 16:56:56

Middle Channel / 10MHz / 16QAM



Date: 12.JAN.2015 16:56:43



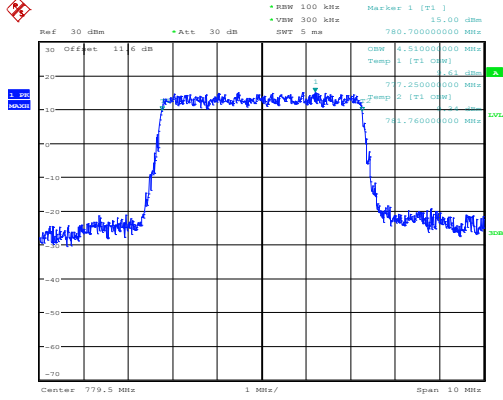
### Occupied Bandwidth

Mode	LTE Band 13 : 99%OBW(MHz)											
	1.4MHz		3MHz		5MHz		10MHz		15MHz		20MHz	
BW	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM
Mod.	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM
Lowest CH	-	-	-	-	4.51	4.51	-	-	-	-	-	-
Middle CH	-	-	-	-	4.5	4.51	9.08	9.04	-	-	-	-
Highest CH	-	-	-	-	4.51	4.51	-	-	-	-	-	-



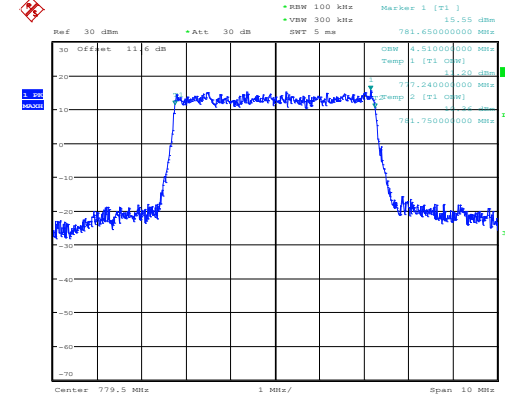
LTE Band 13

Lowest Channel / 5MHz / QPSK



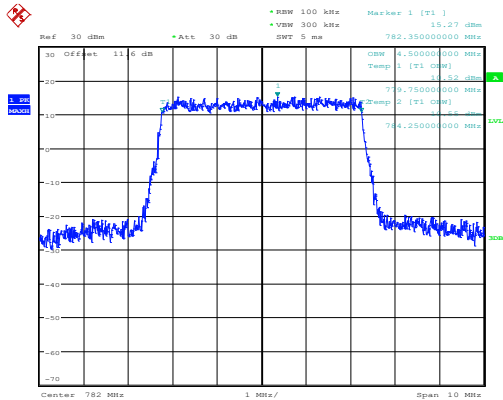
Date: 12.JAN.2015 16:46:54

Lowest Channel / 5MHz / 16QAM



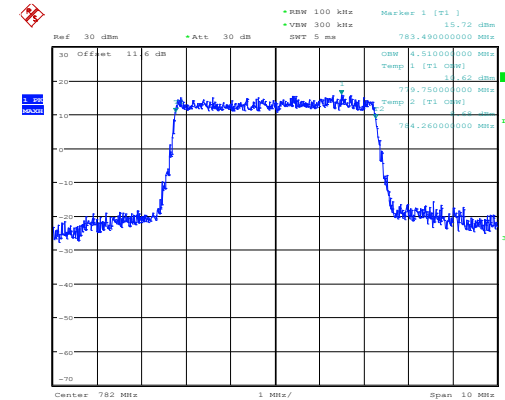
Date: 12.JAN.2015 16:47:05

Middle Channel / 5MHz / QPSK



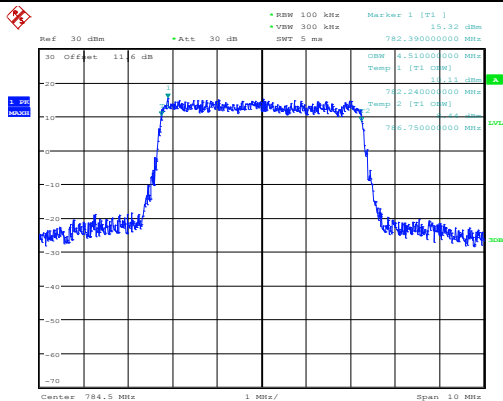
Date: 12.JAN.2015 16:52:58

Middle Channel / 5MHz / 16QAM



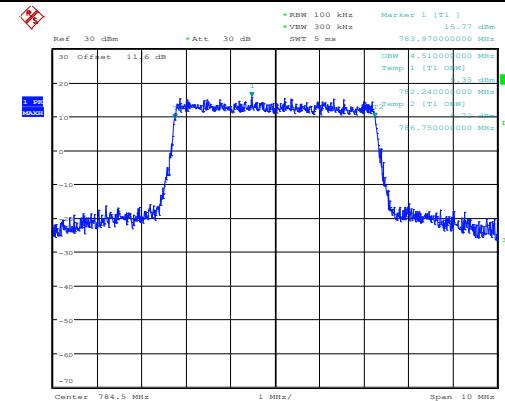
Date: 12.JAN.2015 16:52:47

Highest Channel / 5MHz / QPSK



Date: 12.JAN.2015 16:53:09

Highest Channel / 5MHz / 16QAM

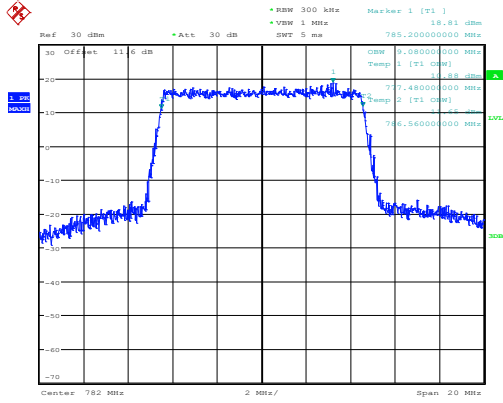


Date: 12.JAN.2015 16:53:19



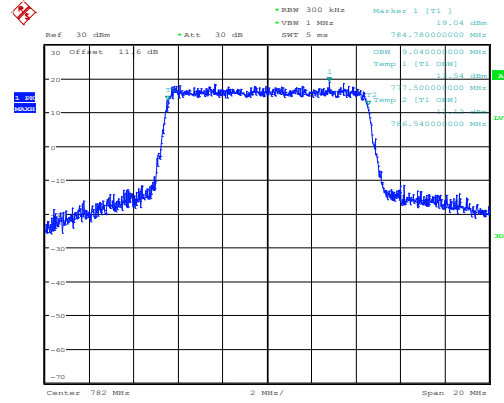
LTE Band 13

Middle Channel / 10MHz / QPSK



Date: 12.JAN.2015 16:56:20

Middle Channel / 10MHz / 16QAM



Date: 12.JAN.2015 16:56:30