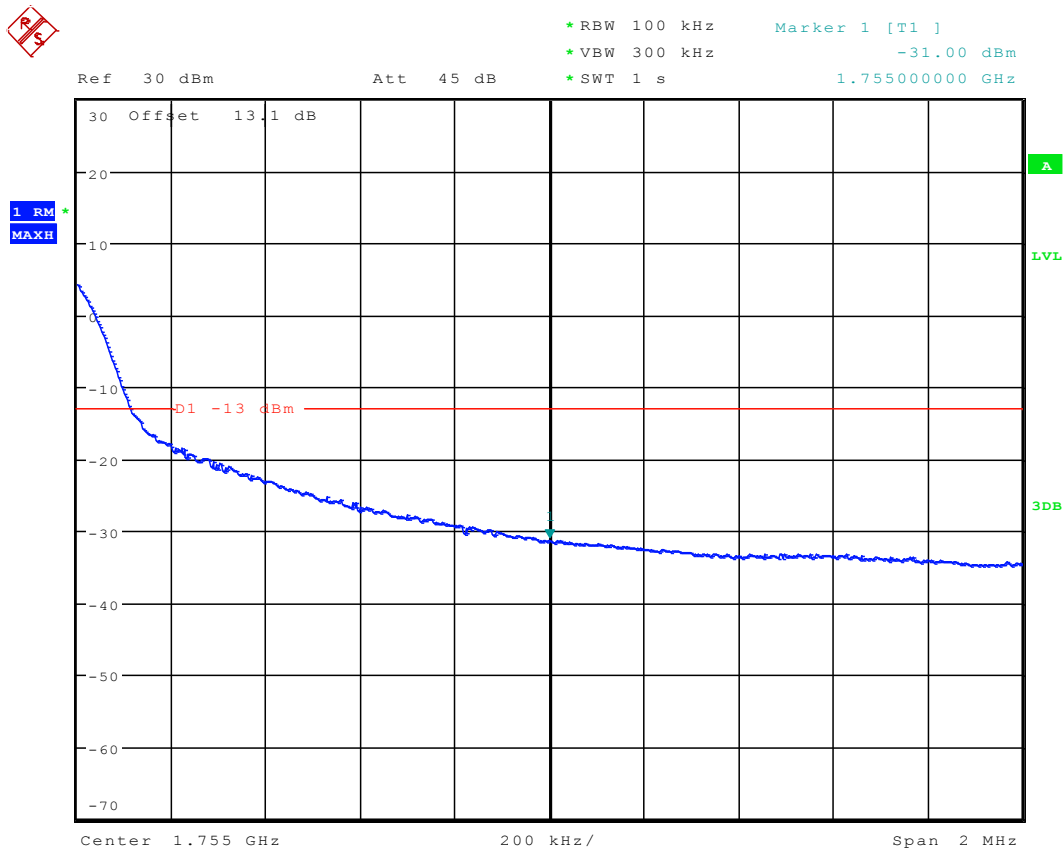


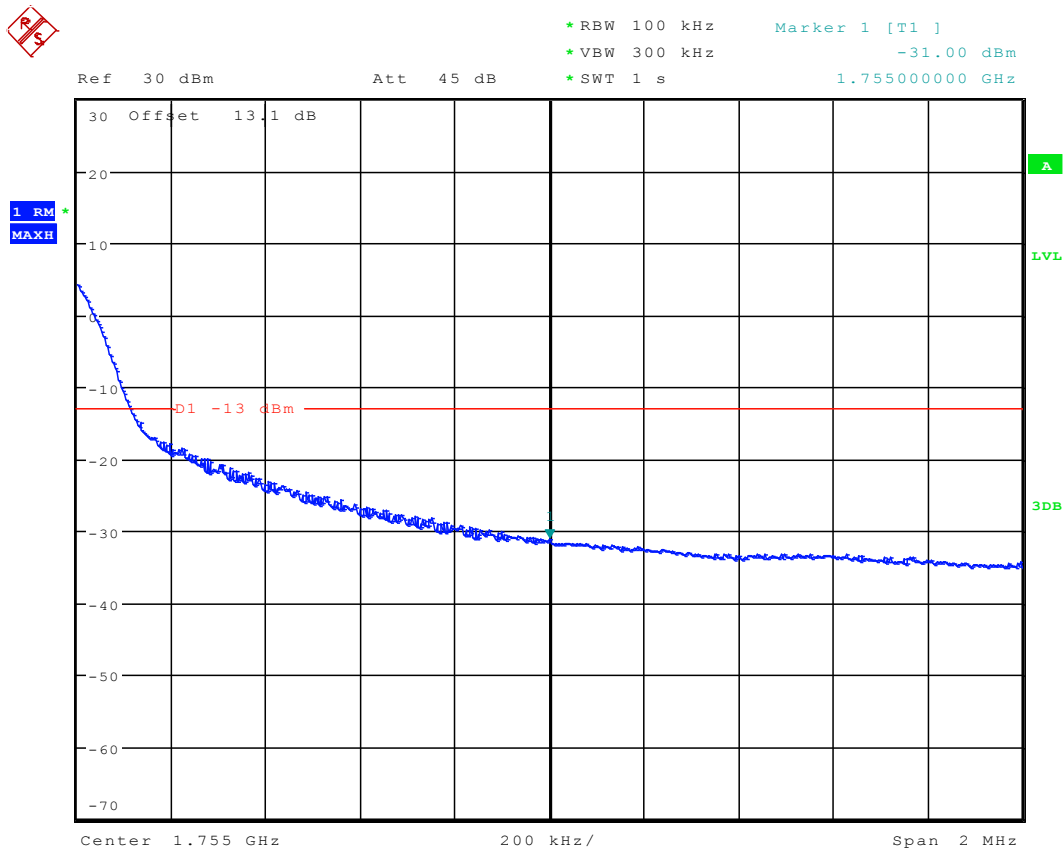
1.1.4.2.2 QPSK/Partial RBs /RB #max



Date: 9.JUL.2012 23:11:35



1.1.4.2.3 QPSK/full RBs



Date: 9.JUL.2012 23:11:30

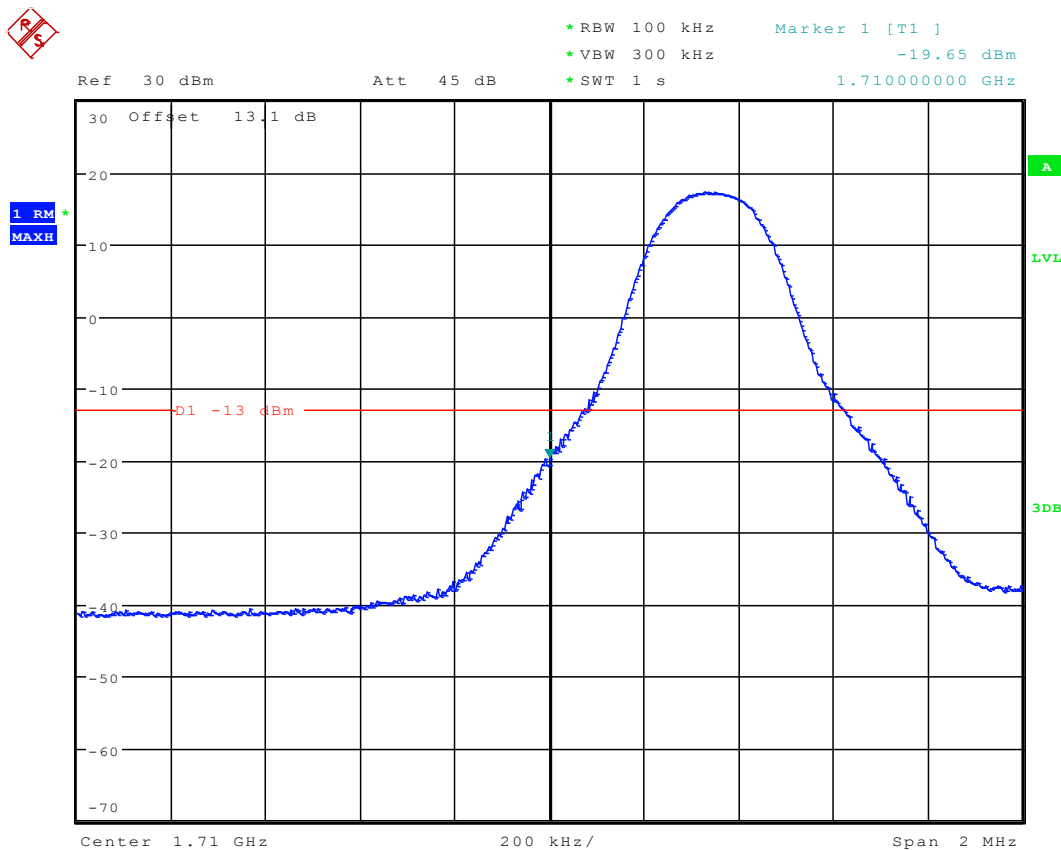


1.2 Test Mode=TM7

1.2.1 Channel Bandwidth = Lowest (5 MHz)

1.2.1.1 Channel= L

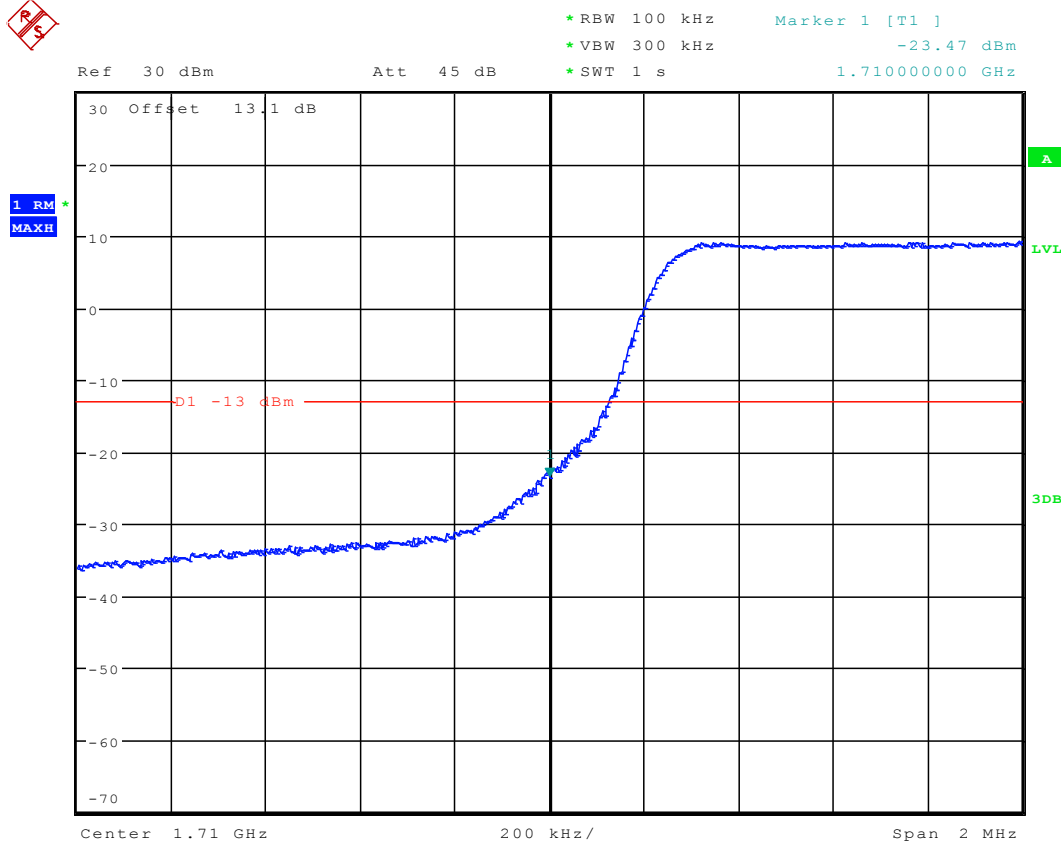
1.2.1.1.1 QPSK/1RB #0



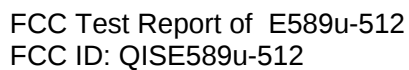
Date: 9.JUL.2012 22:52:04



1.2.1.1.2 QPSK/Partial RBs /RB #0



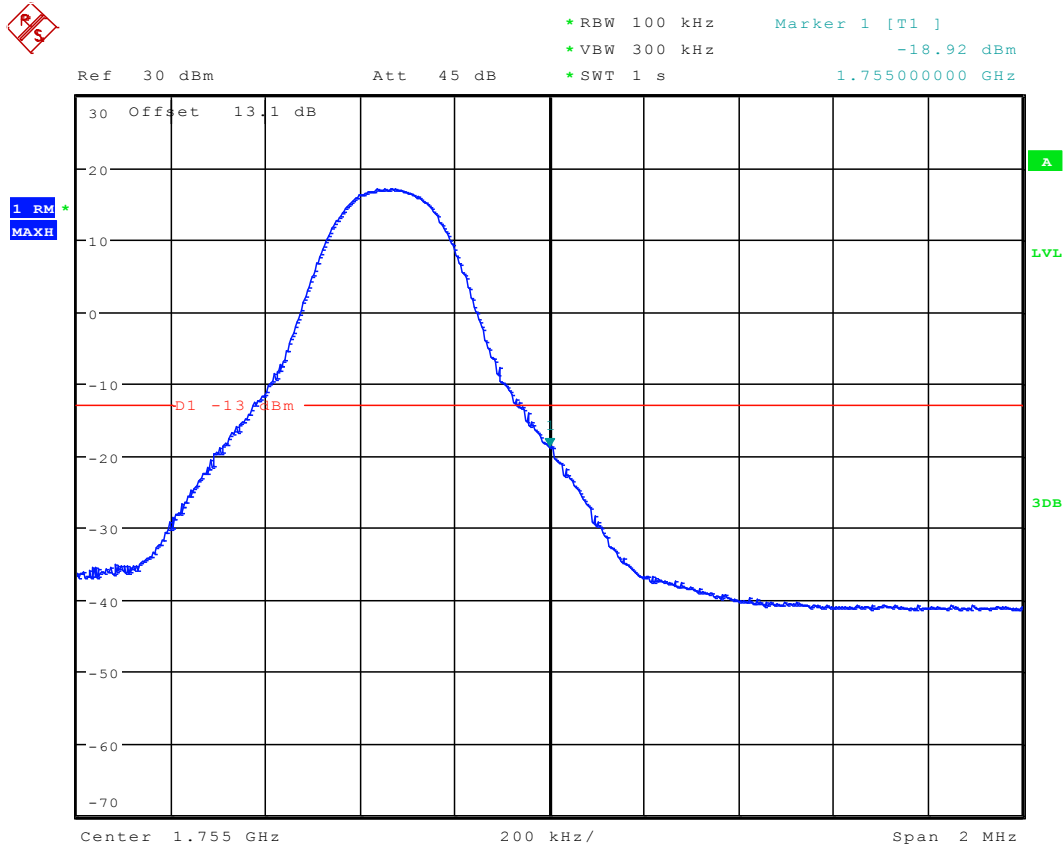
Date: 9.JUL.2012 22:51:49





1.2.1.2 Channel= H

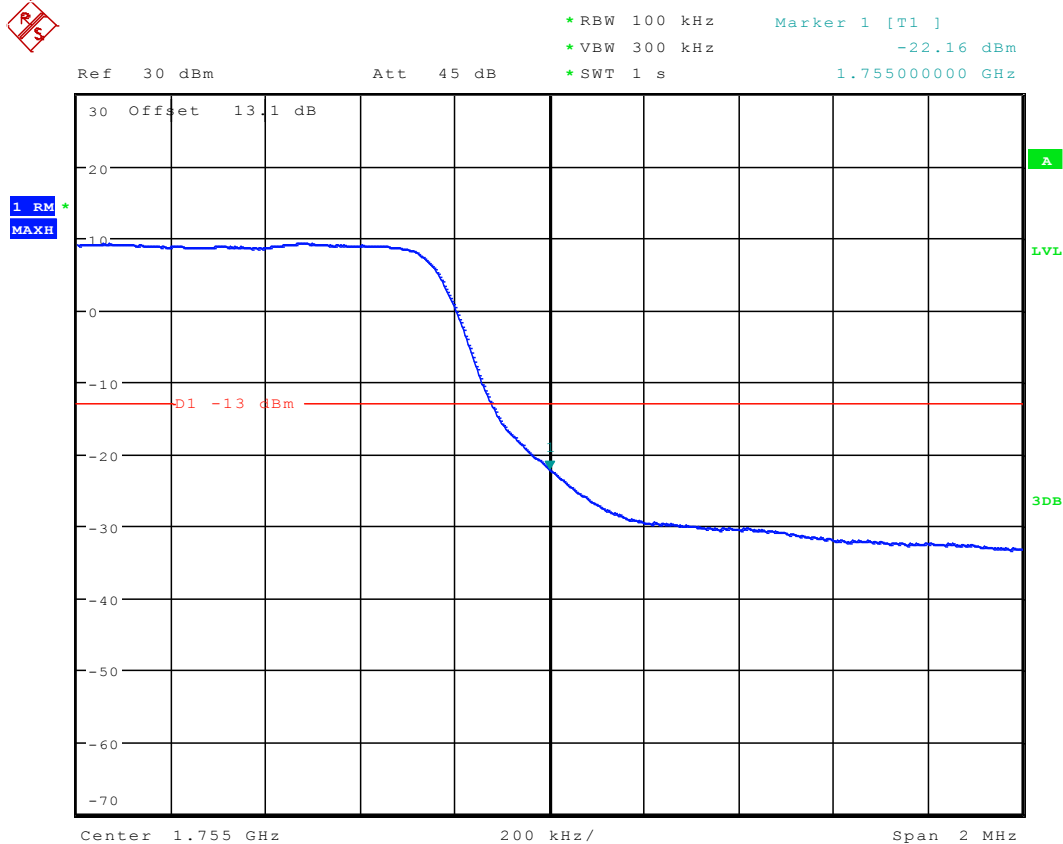
1.2.1.2.1 QPSK/1RB #max



Date: 9.JUL.2012 22:53:36



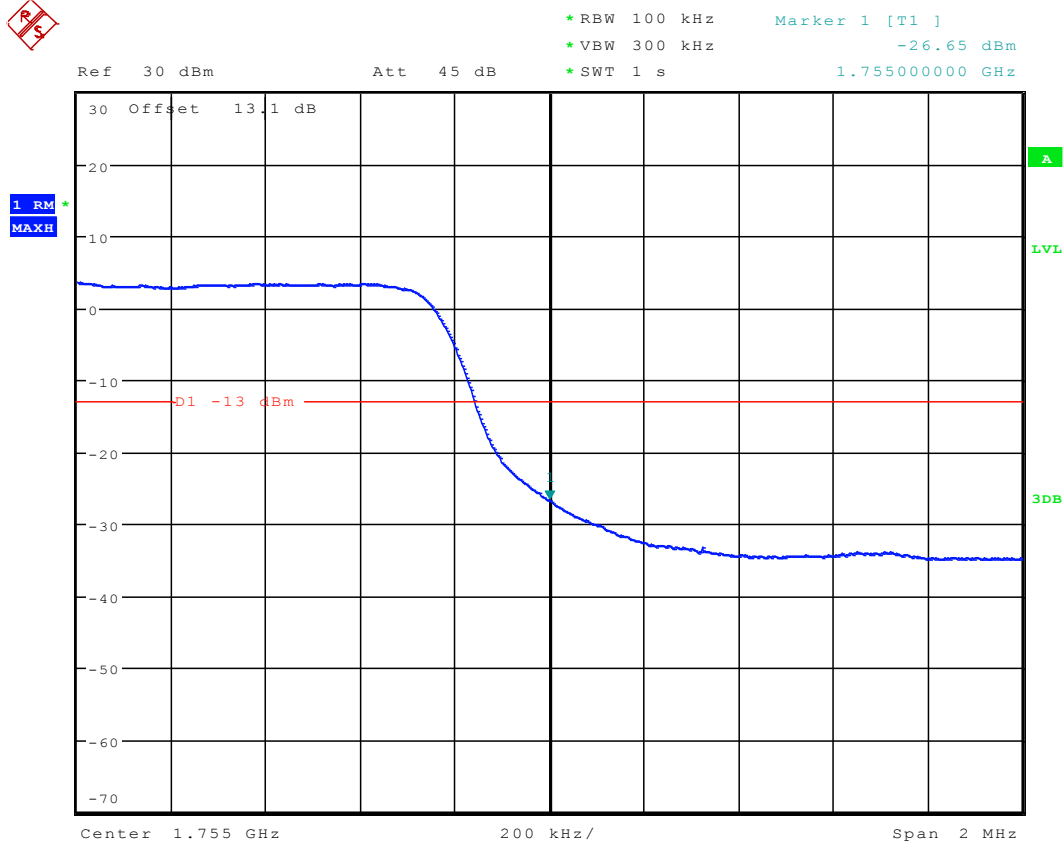
1.2.1.2.2 QPSK/Partial RBs /RB #max



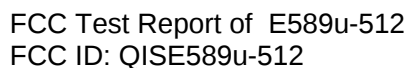
Date: 9.JUL.2012 22:54:19



1.2.1.2.3 QPSK/full RBs

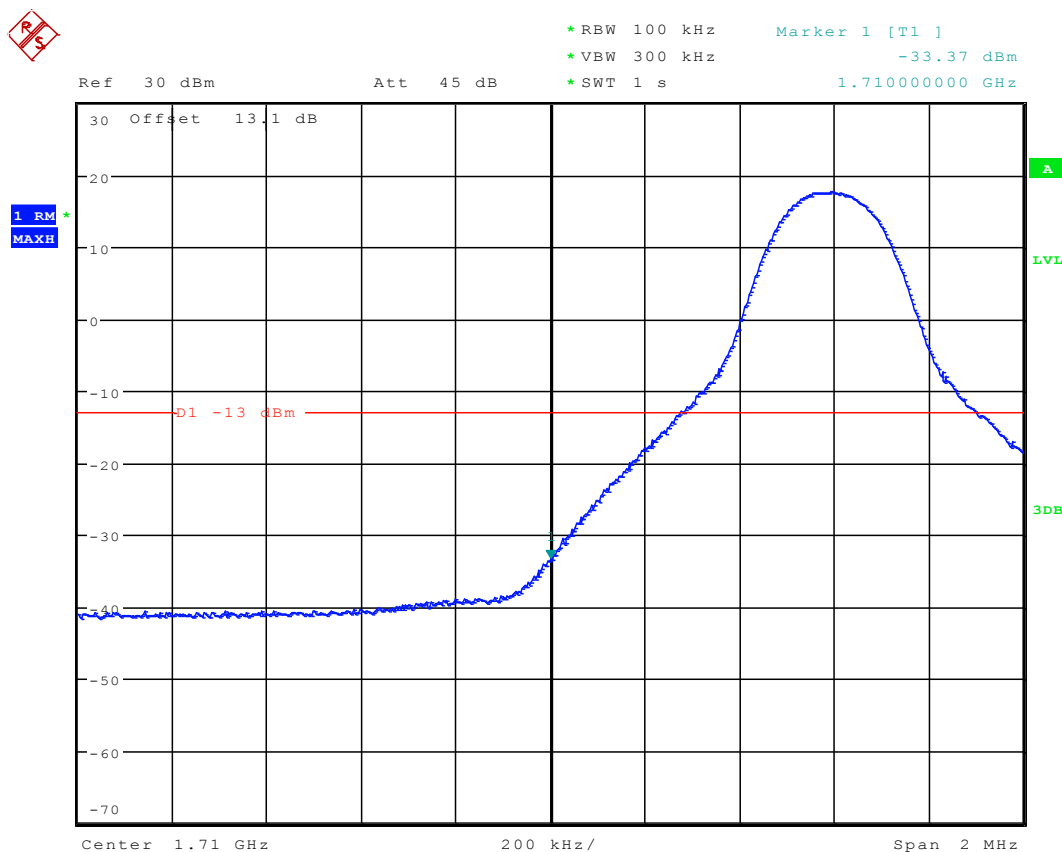


Date: 9.JUL.2012 22:55:06



1.2.2.1 Channel= L

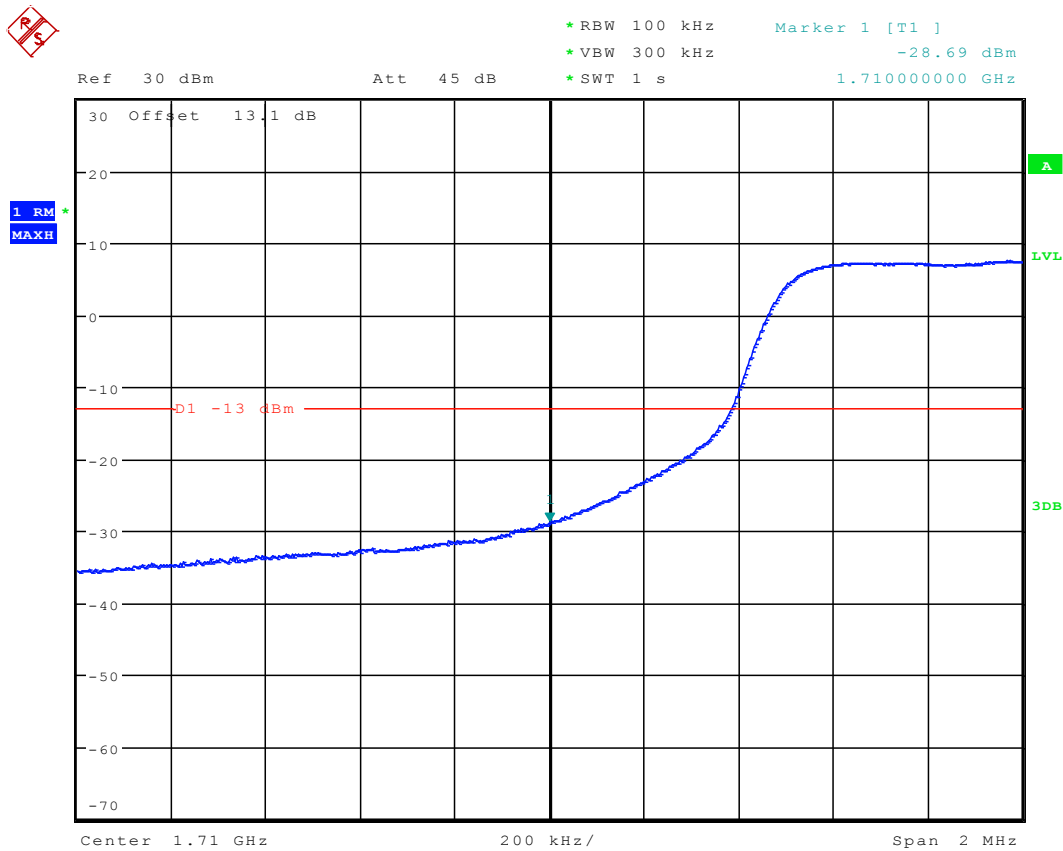
1.2.2.1.1 QPSK/1RB #0



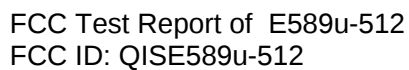
Date: 9.JUL.2012 23:01:49



1.2.2.1.2 QPSK/Partial RBs /RB #0



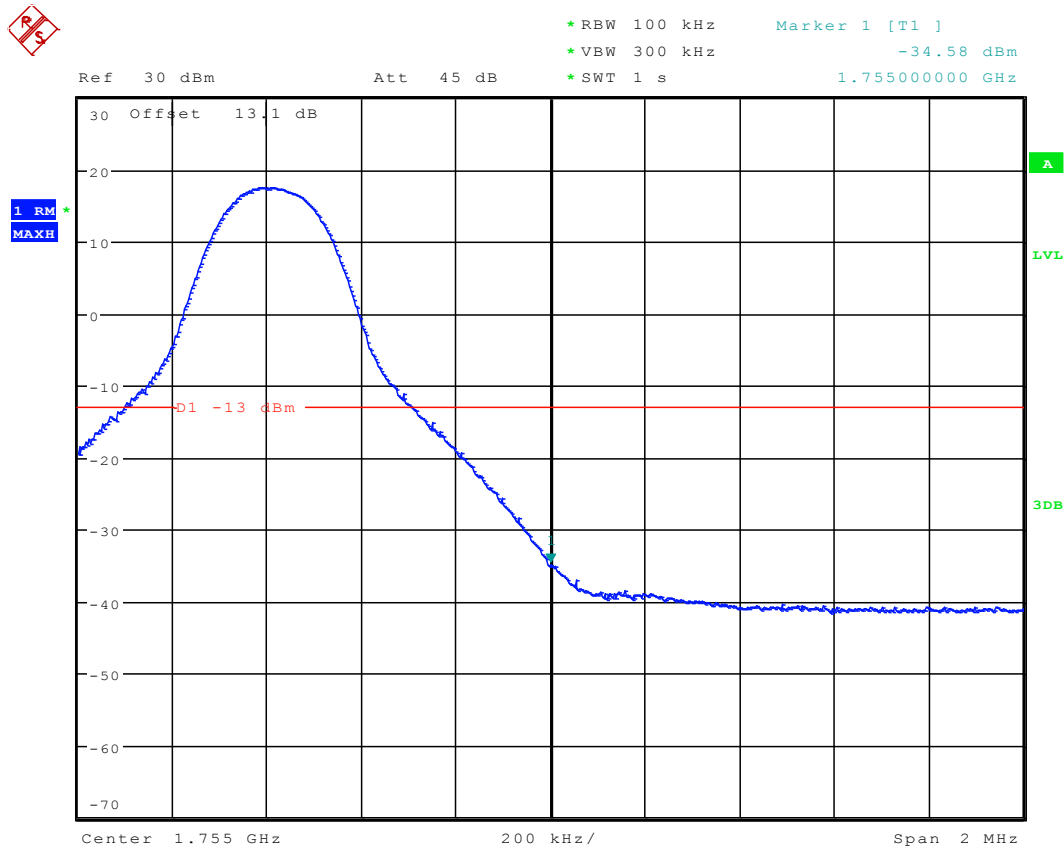
Date: 9.JUL.2012 23:02:20





1.2.2.2 Channel= H

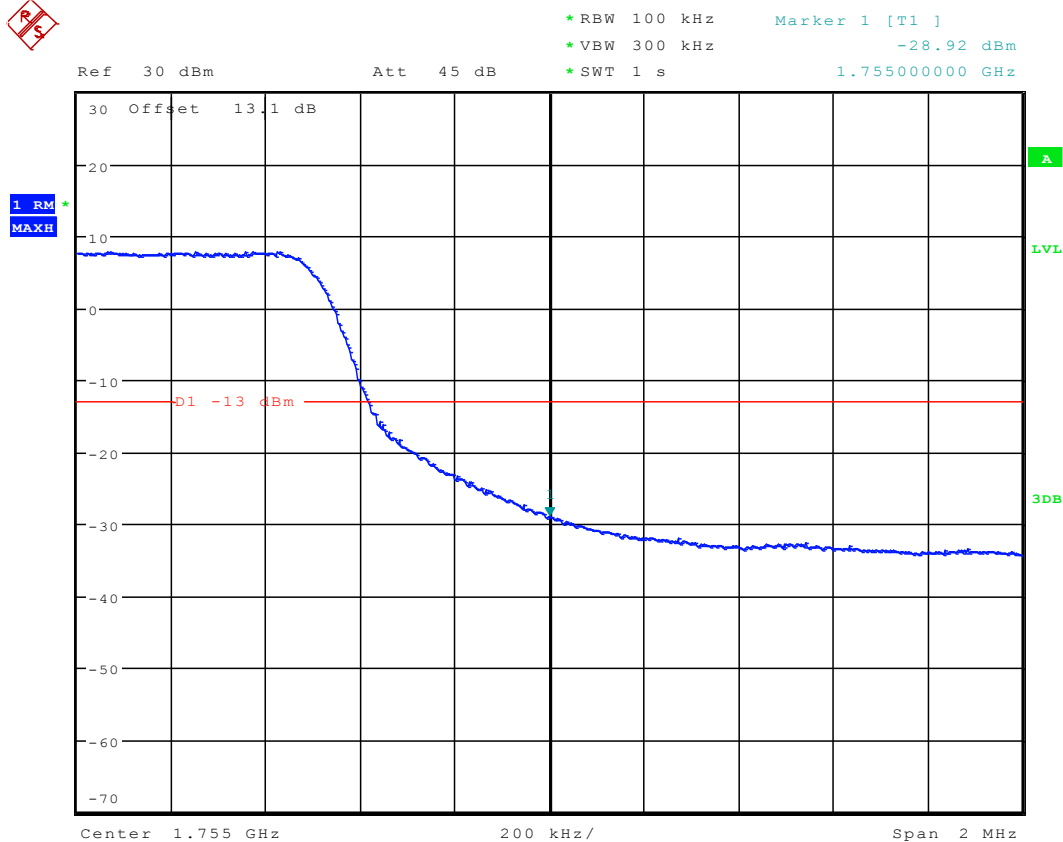
1.2.2.2.1 QPSK/1RB #max



Date: 9.JUL.2012 22:58:36

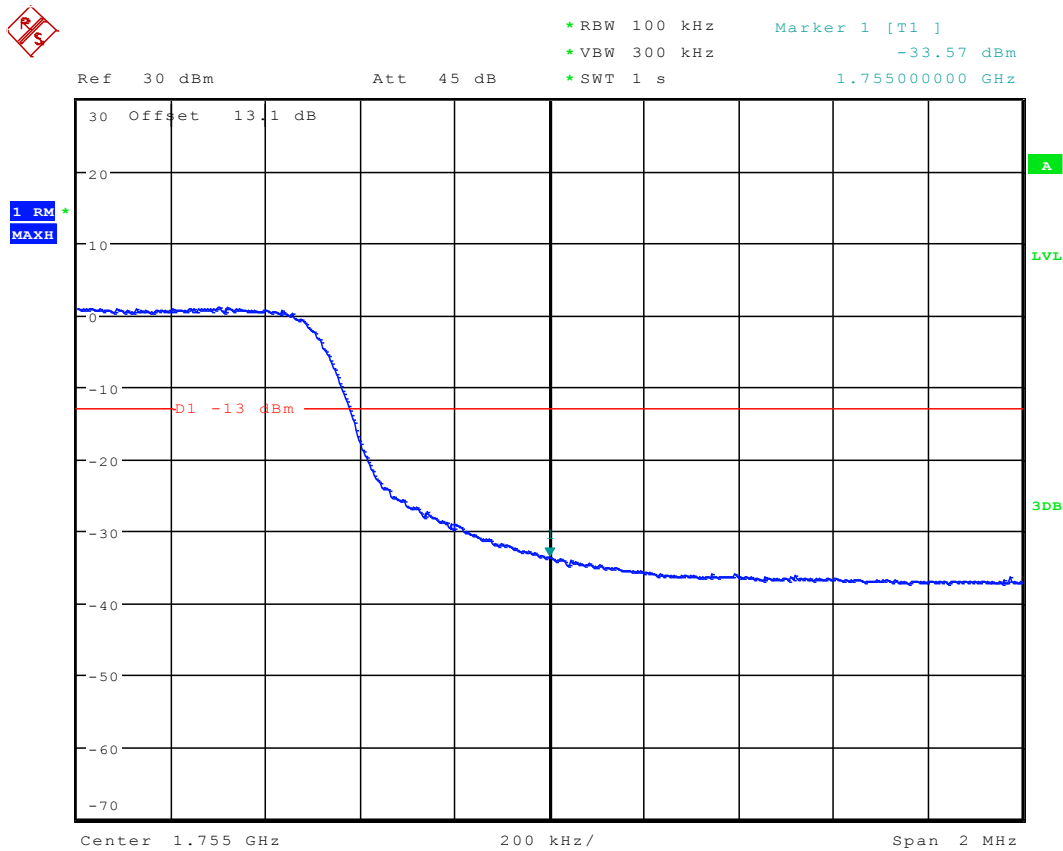


1.2.2.2.2 QPSK/Partial RBs /RB #max



Date: 9.JUL.2012 22:59:27

1.2.2.2.3 QPSK/full RBs



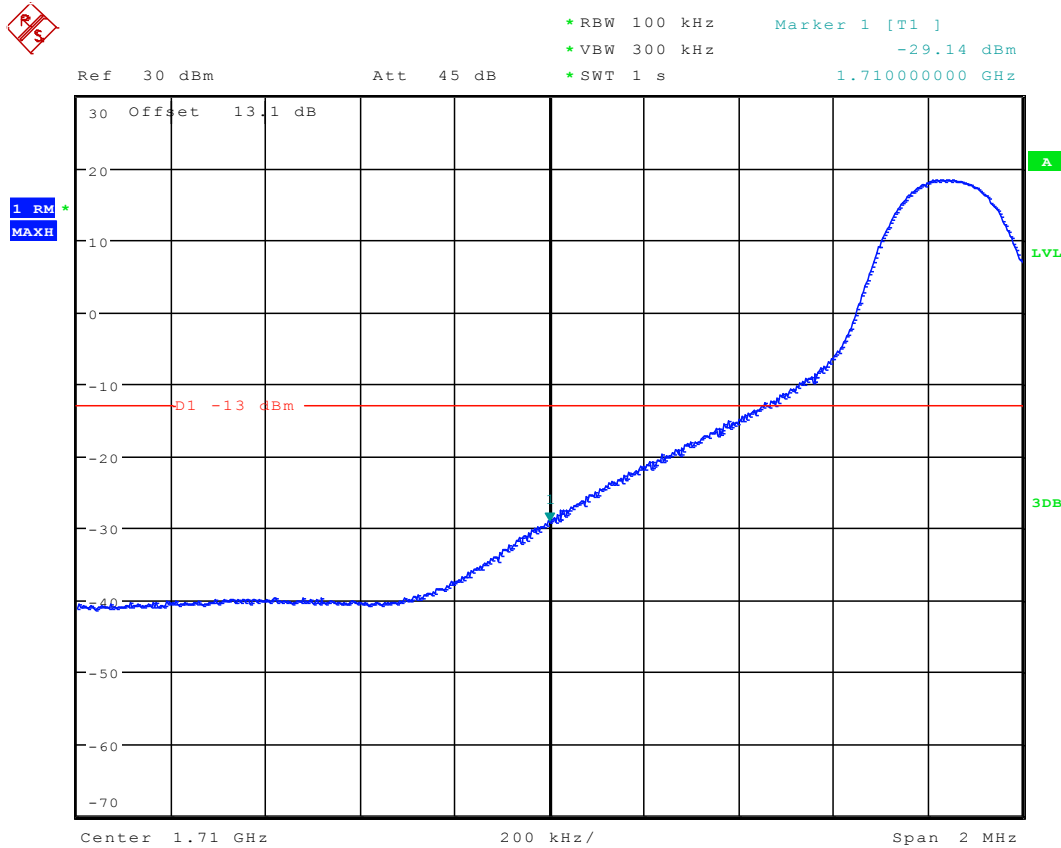
Date: 9.JUL.2012 22:59:44



1.2.3 Channel Bandwidth = 15 MHz

1.2.3.1 Channel= L

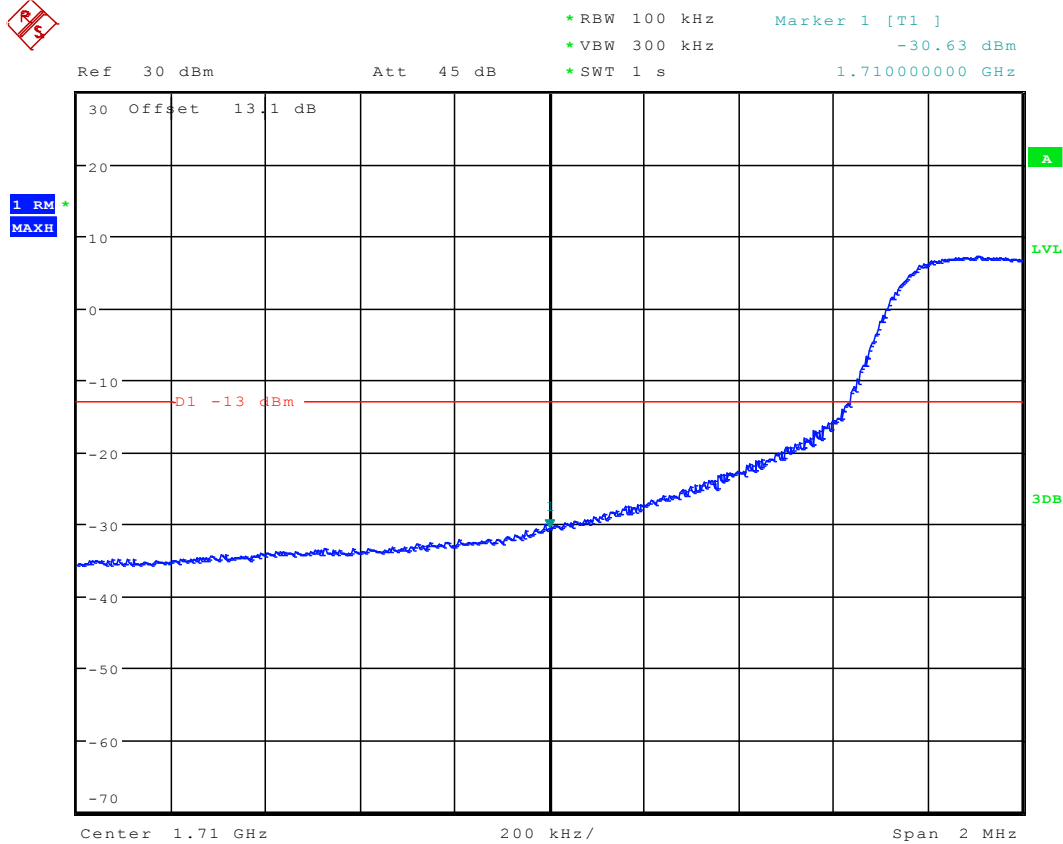
1.2.3.1.1 QPSK/1RB #0



Date: 9.JUL.2012 23:05:24



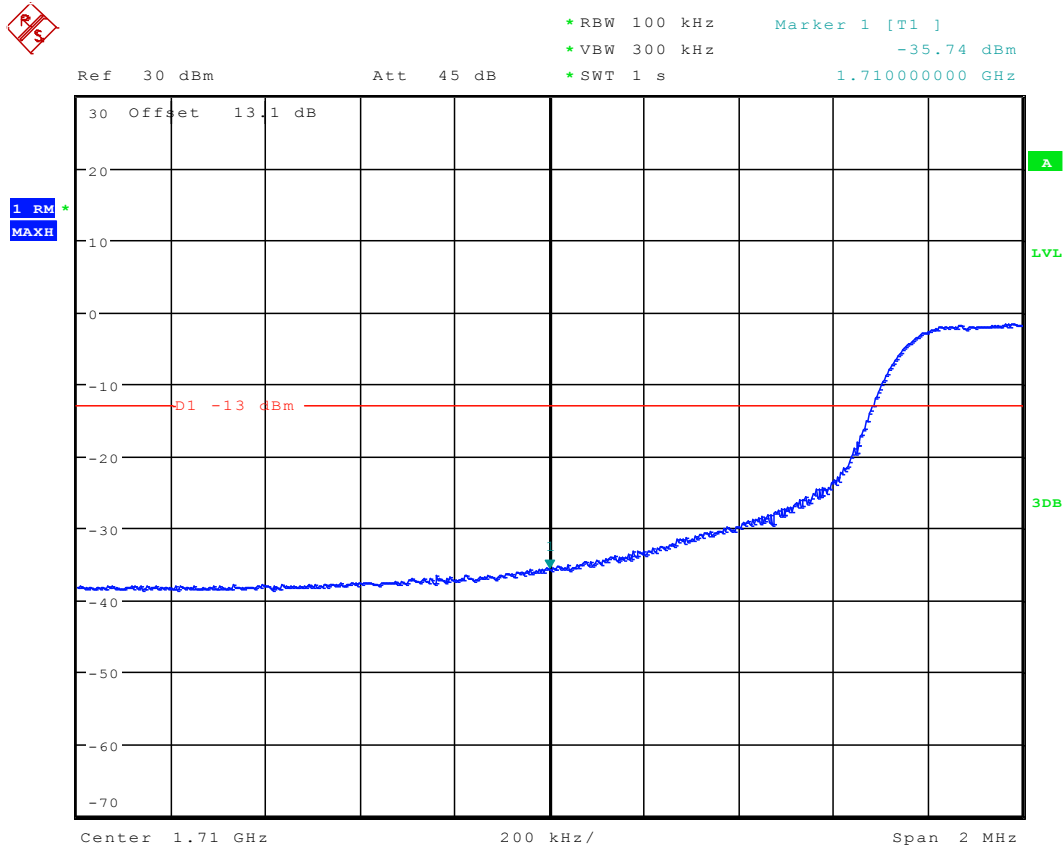
1.2.3.1.2 QPSK/Partial RBs /RB #0



Date: 9.JUL.2012 23:05:55



1.2.3.1.3 QPSK/full RBs

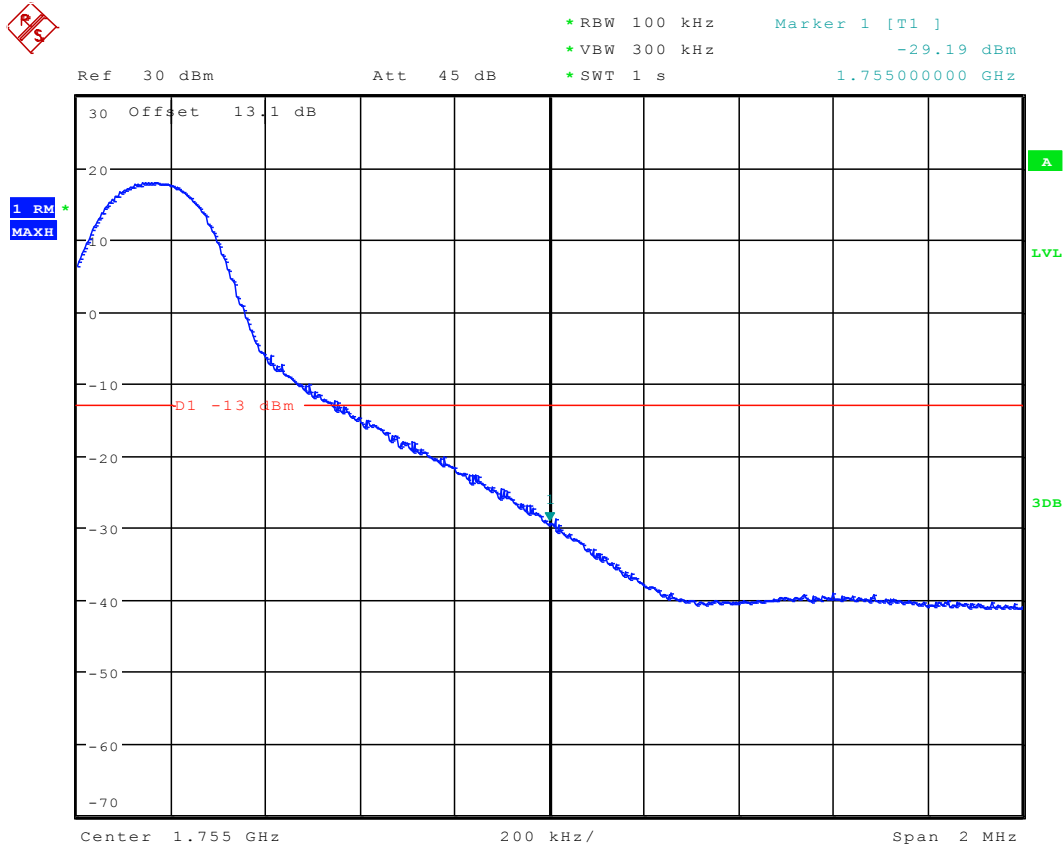


Date: 9.JUL.2012 23:06:15



1.2.3.2 Channel= H

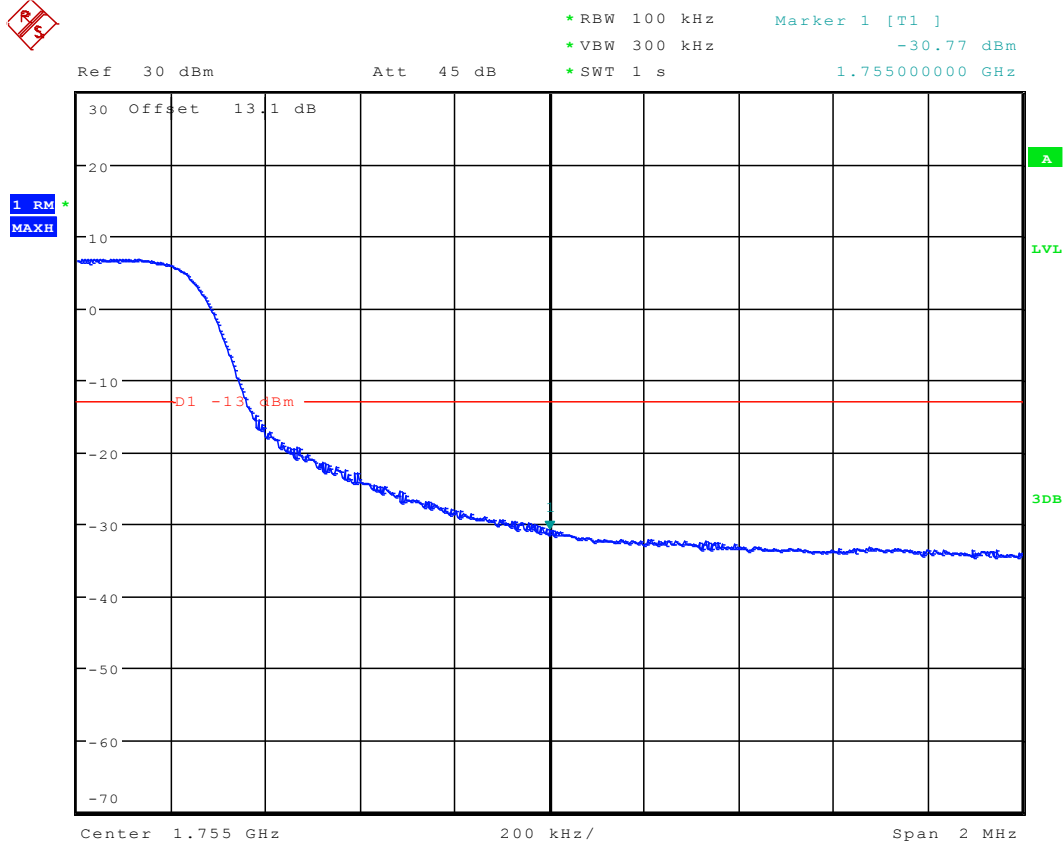
1.2.3.2.1 QPSK/1RB #max



Date: 9.JUL.2012 23:08:00



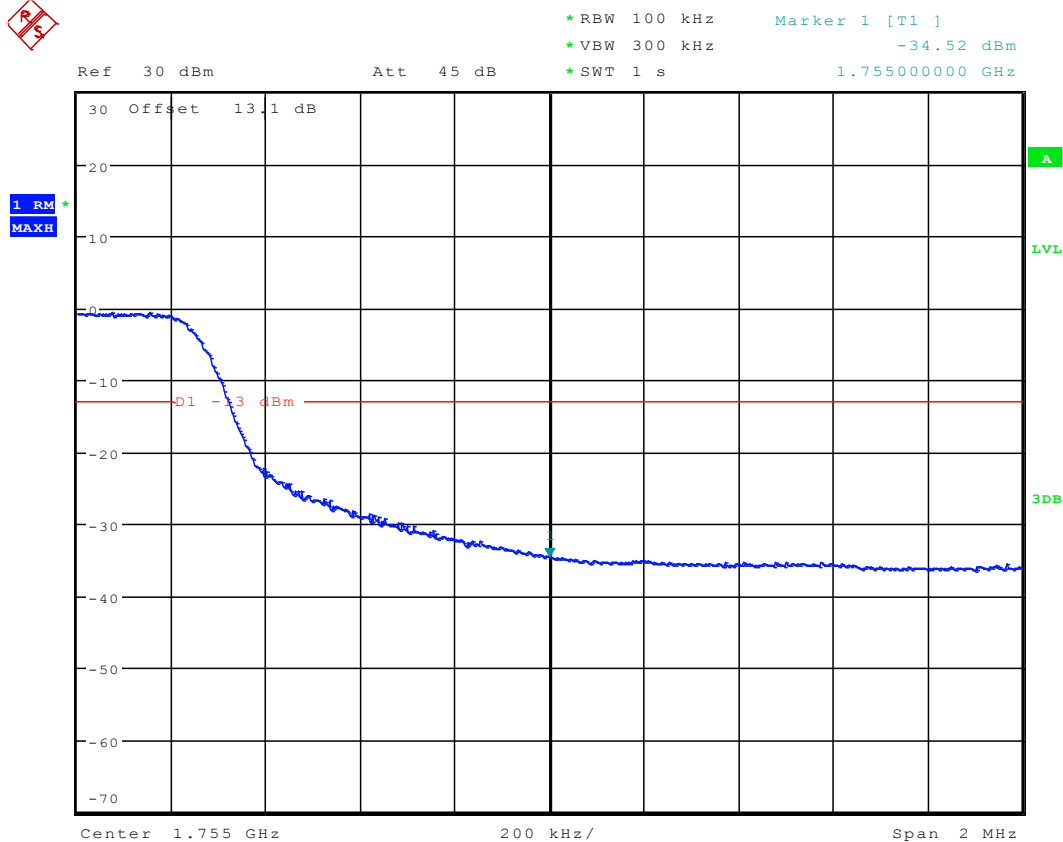
1.2.3.2.2 QPSK/Partial RBs /RB #max



Date: 9.JUL.2012 23:07:31



1.2.3.2.3 QPSK/full RBs



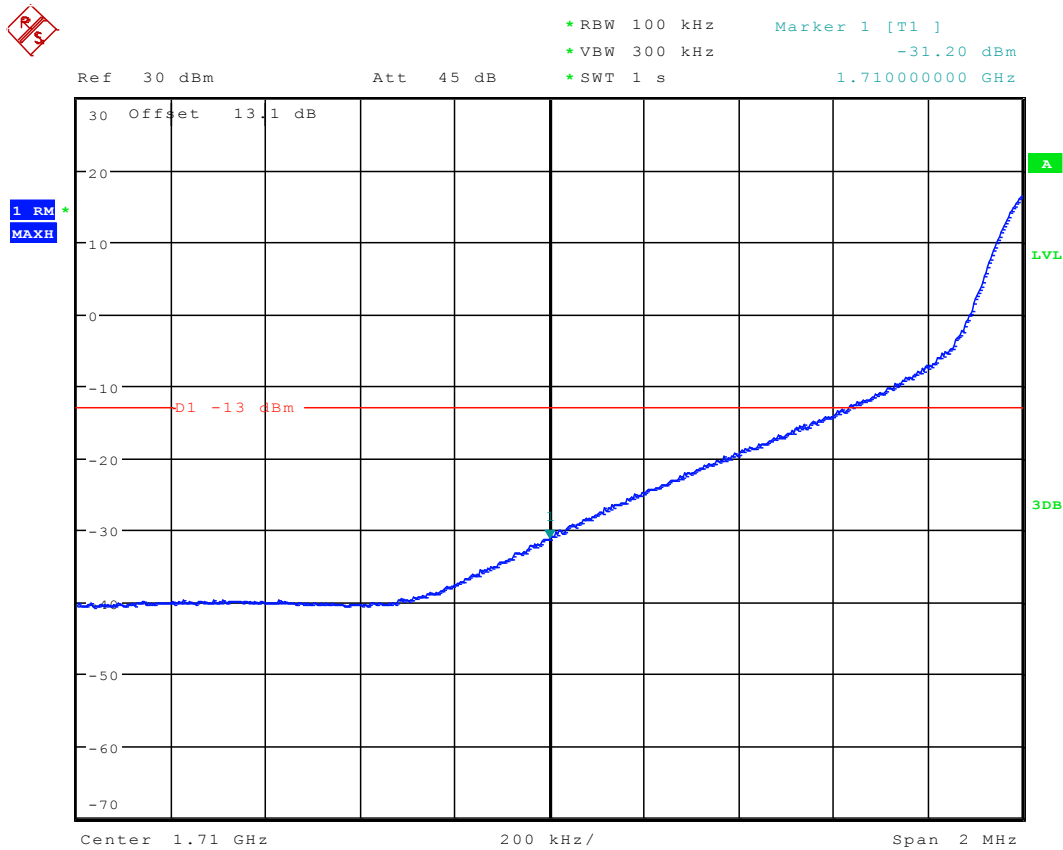
Date: 9.JUL.2012 23:07:10



1.2.4 Channel Bandwidth = Highest (20 MHz)

1.2.4.1 Channel= L

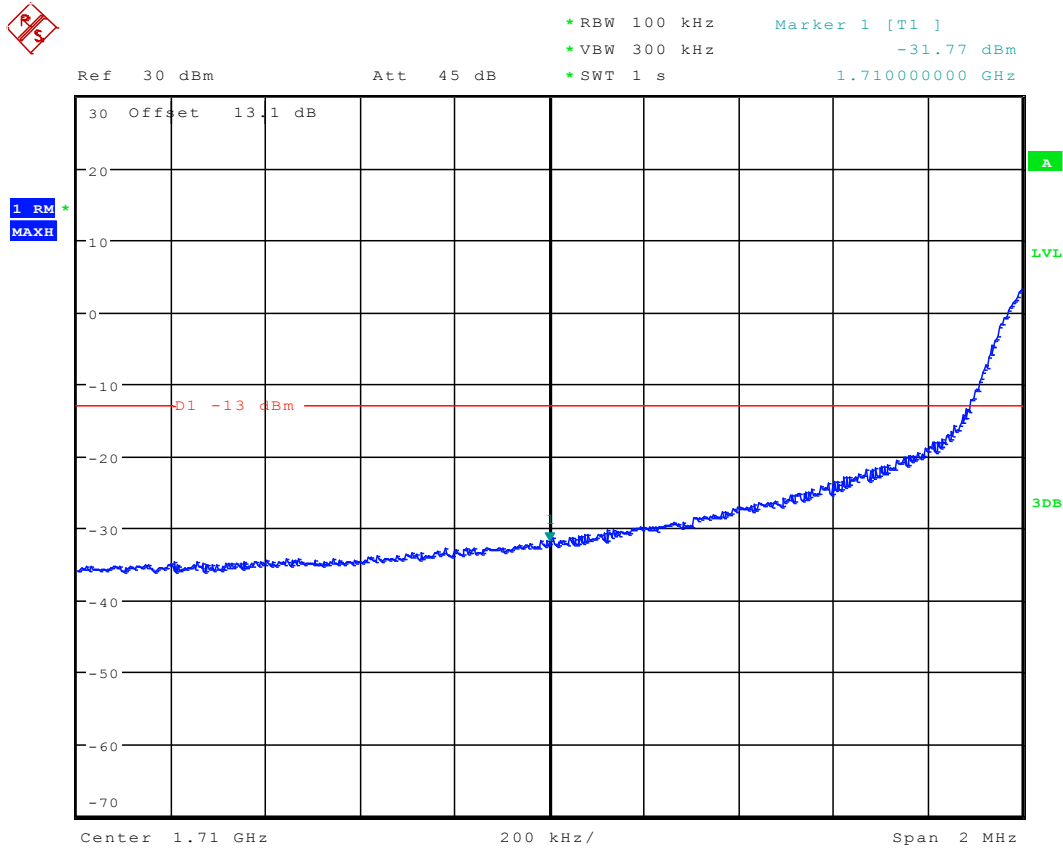
1.2.4.1.1 QPSK/1RB #0



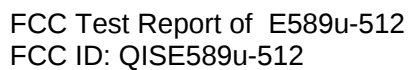
Date: 9.JUL.2012 23:23:40



1.2.4.1.2 QPSK/Partial RBs /RB #0



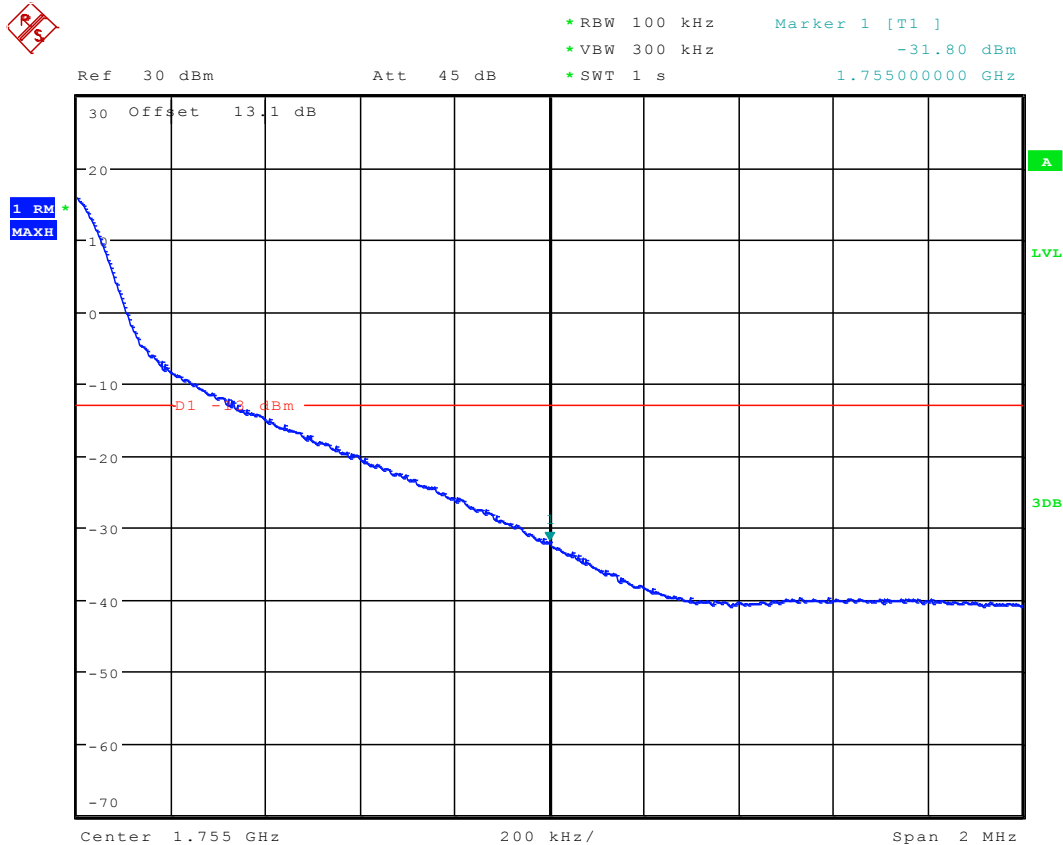
Date: 9.JUL.2012 23:22:34





1.2.4.2 Channel= H

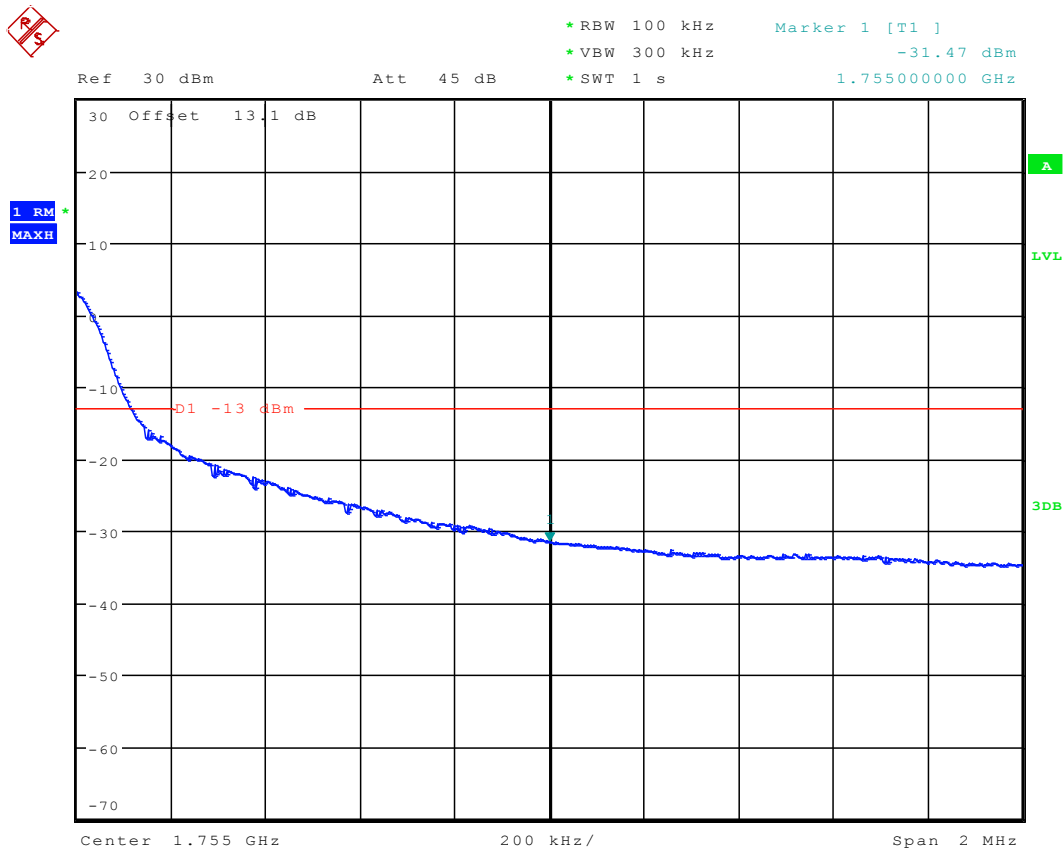
1.2.4.2.1 QPSK/1RB #max



Date: 9.JUL.2012 23:12:11



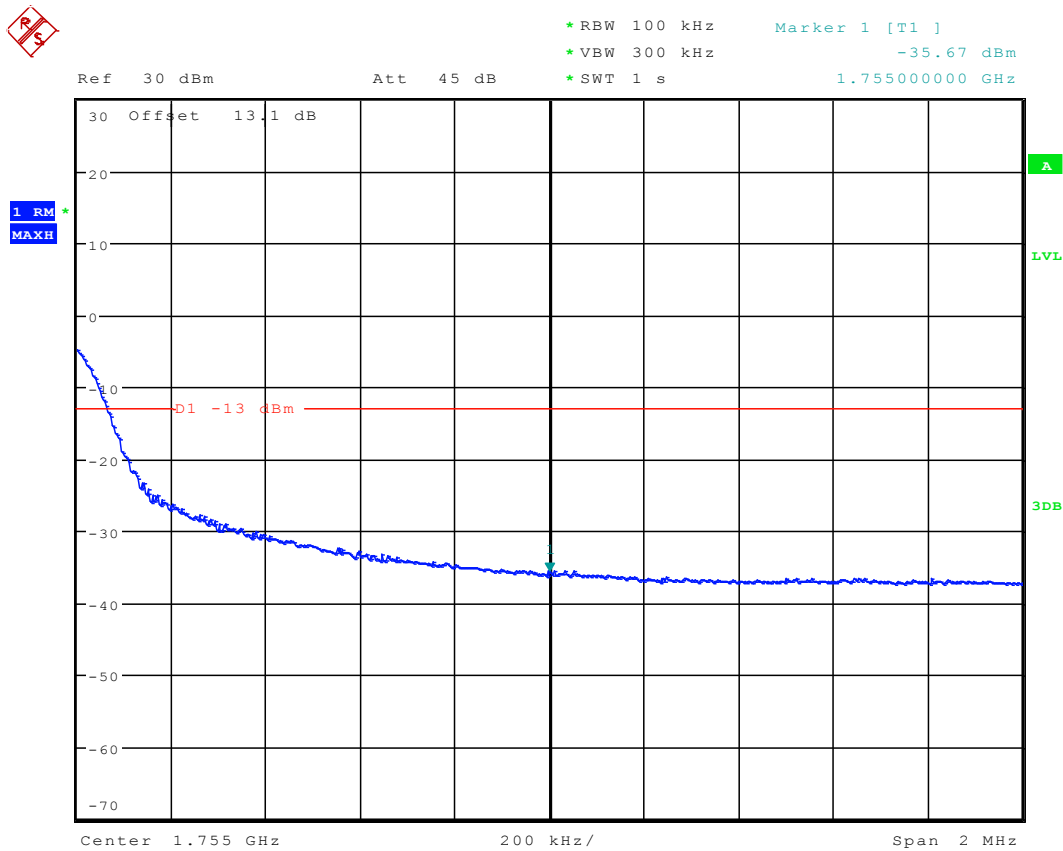
1.2.4.2.2 QPSK/Partial RBs /RB #max



Date: 9.JUL.2012 23:12:45



1.2.4.2.3 QPSK/full RBs



Date: 9.JUL.2012 23:13:03

-----END-----



Appendix E

Spurious Emission at Antenna Terminal

According to FCC Part 2.1051 & Part 27 Subpart C&L



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1 For Band 4

NOTE1: QPSK output power higher than 16QAM, so only test the QPSK mode.

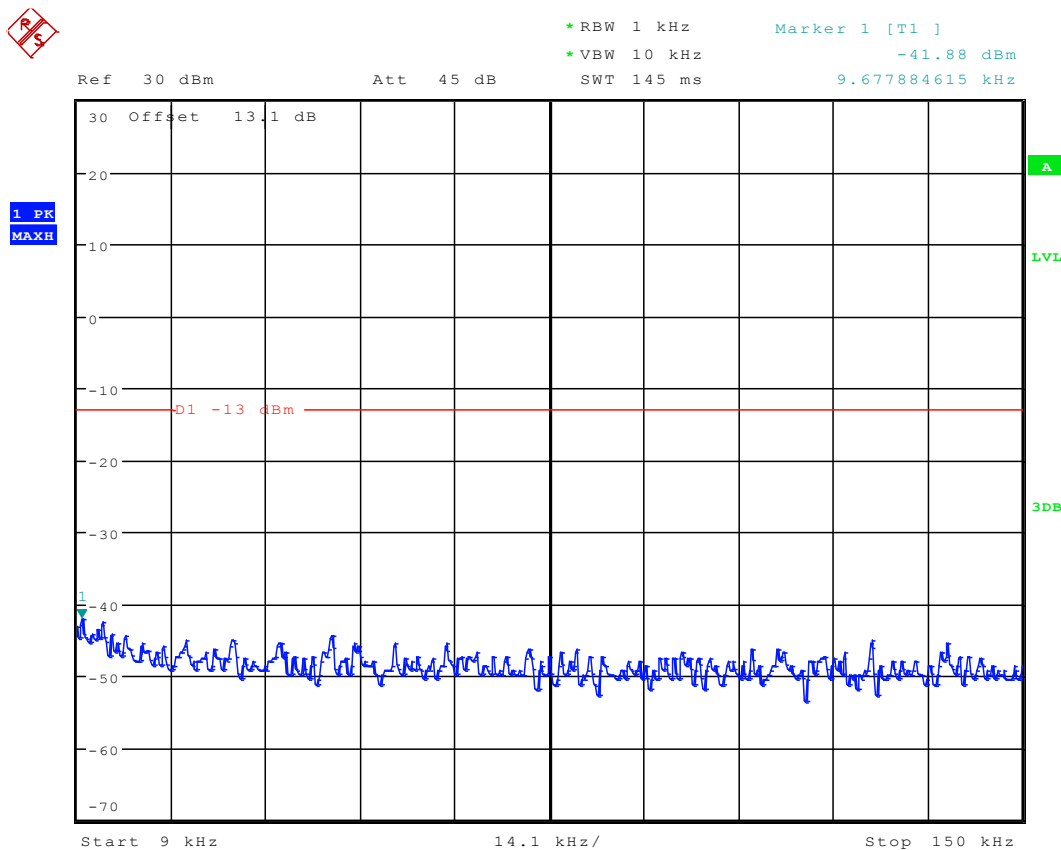
NOTE2: All relevant operation modes have been tested, and the 1RB&full RB case data is included in this report.

1.1 Test Mode=TM6

1.1.1 Channel Bandwidth = Lowest (5 MHz)

1.1.1.1 Channel = L

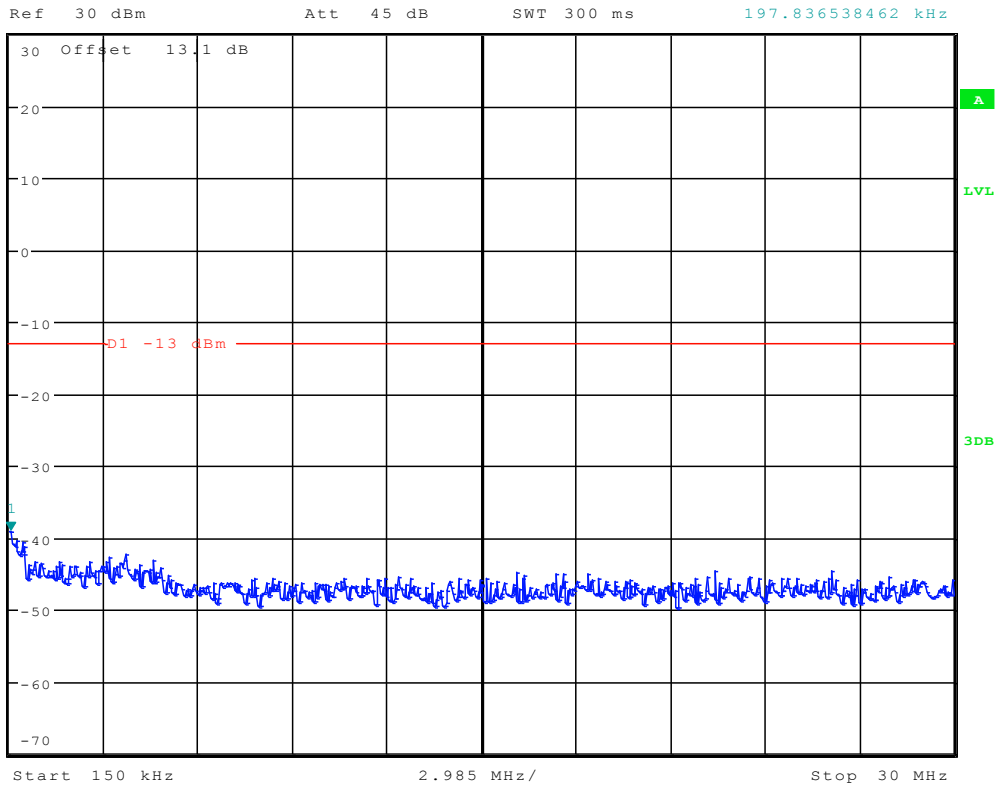
1.1.1.1.1 QPSK/1RBs /RB #0



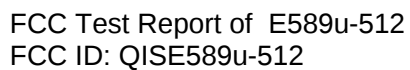
Date: 6.JUL.2012 23:41:43



*RBW 10 kHz Marker 1 [T1]
*VBW 30 kHz -38.92 dBm
SWT 300 ms 197.836538462 kHz



Date: 6.JUL.2012 23:42:13



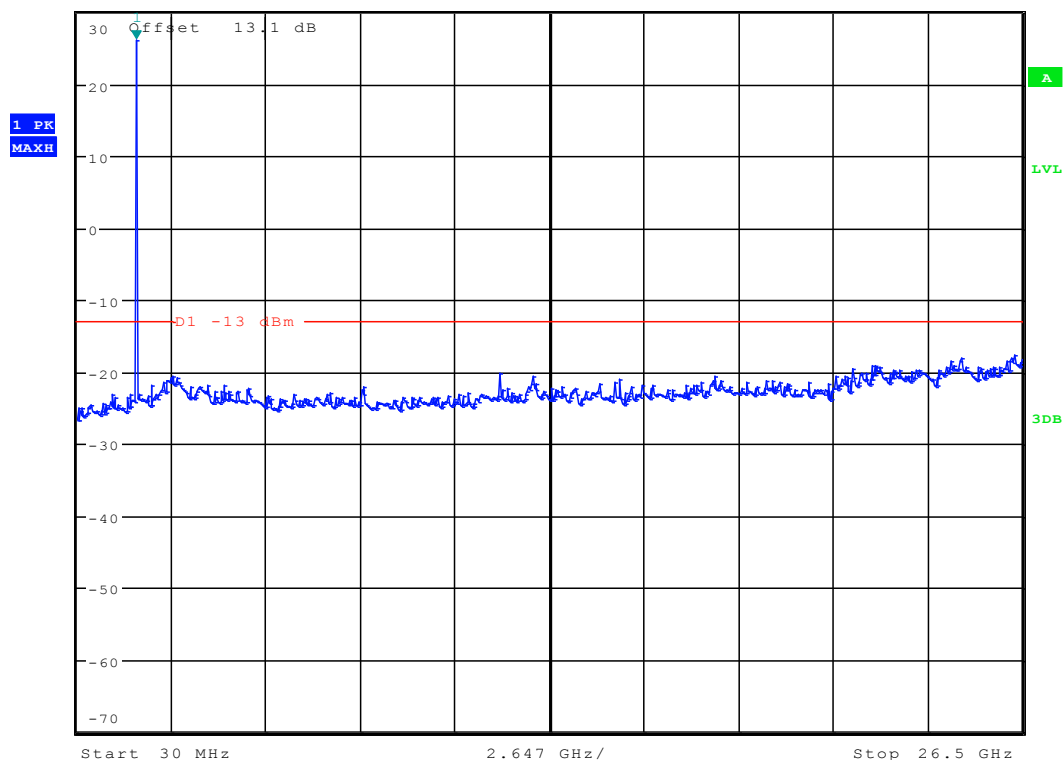
```
*RBW 1 MHz           Marker 1 [T1 ]
*VBW 3 MHz           26.13 dBm
SWT 155 ms           1.684375000 GHz
```

Ref 30 dBm

Att 45 dB

SWT 155 ms

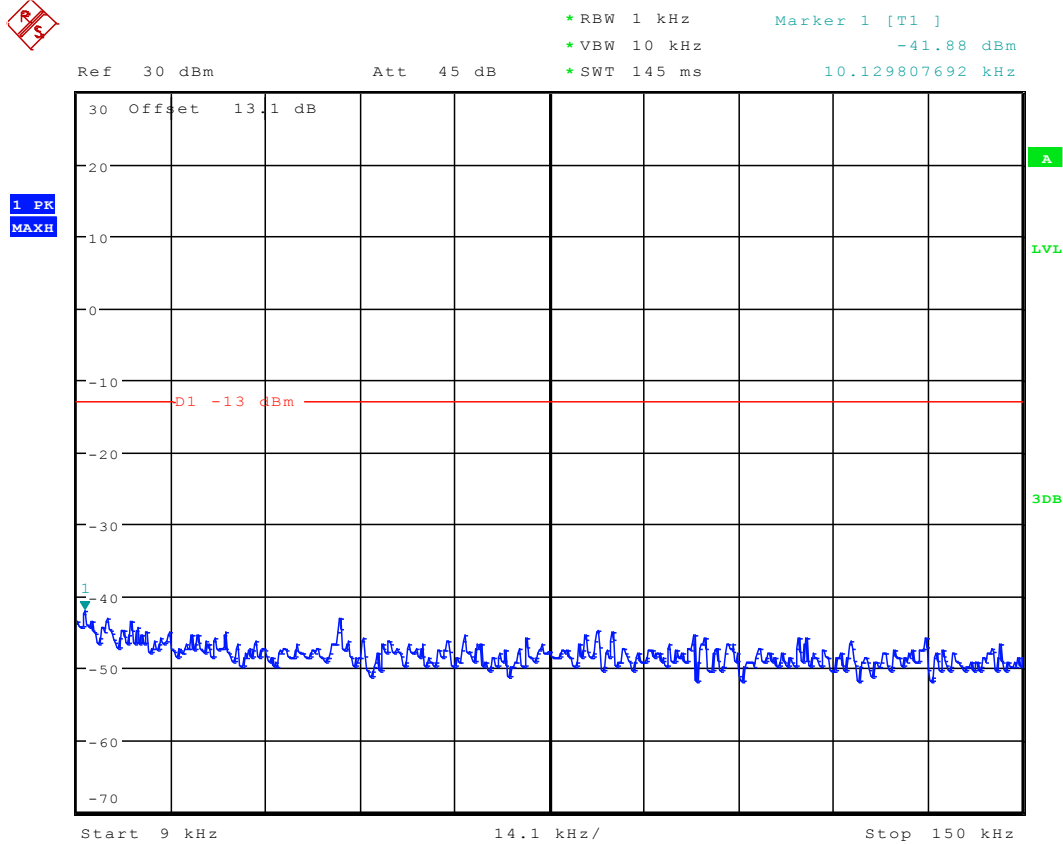
1.684375000 GHz



Date: 6.JUL.2012 23:42:31



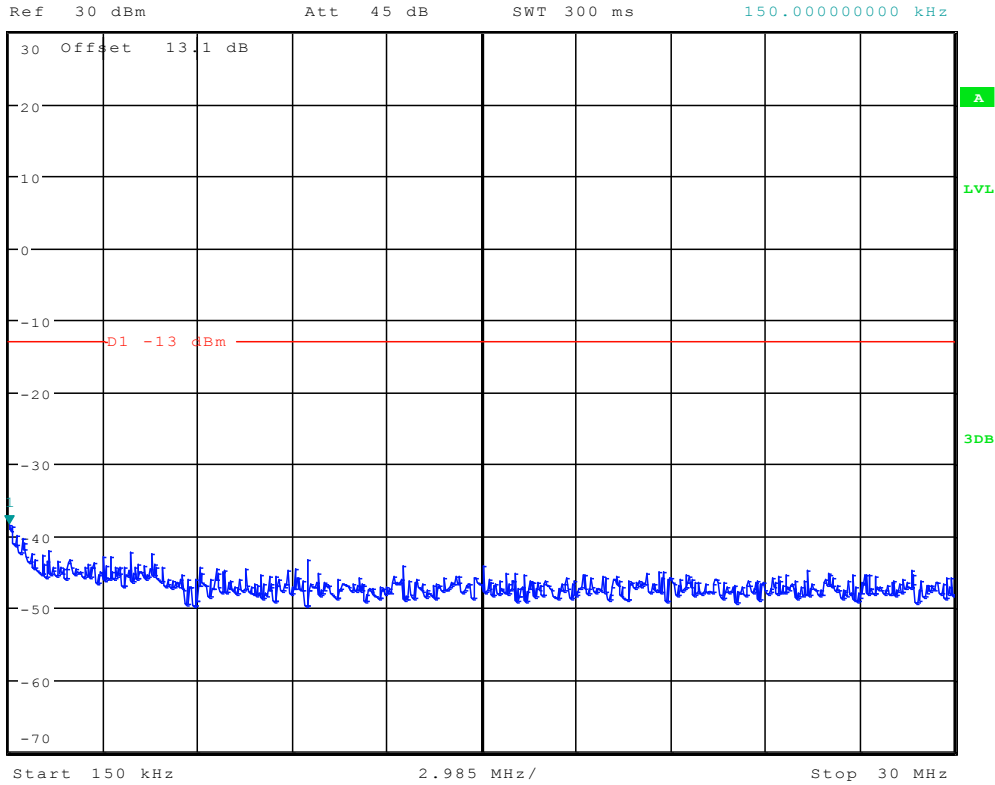
1.1.1.1.2 QPSK/1RBs /RB #max



Date: 6.JUL.2012 23:43:41



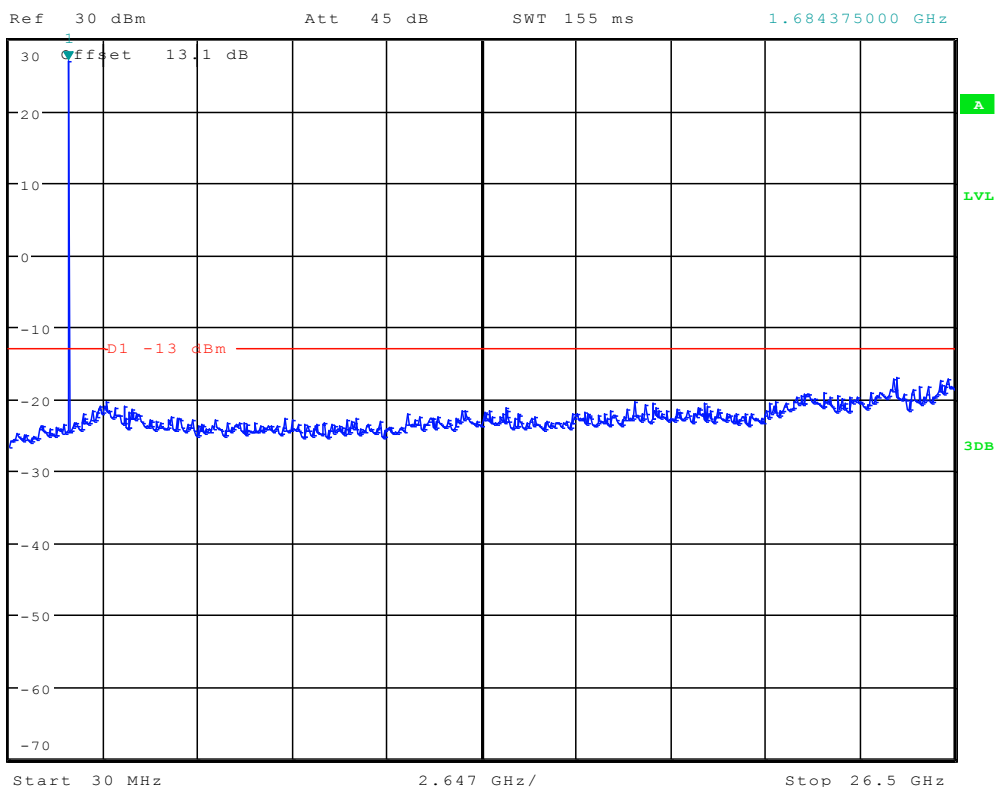
*RBW 10 kHz Marker 1 [T1]
*VBW 30 kHz -38.29 dBm
SWT 300 ms 150.00000000 kHz



Date: 6.JUL.2012 23:43:15



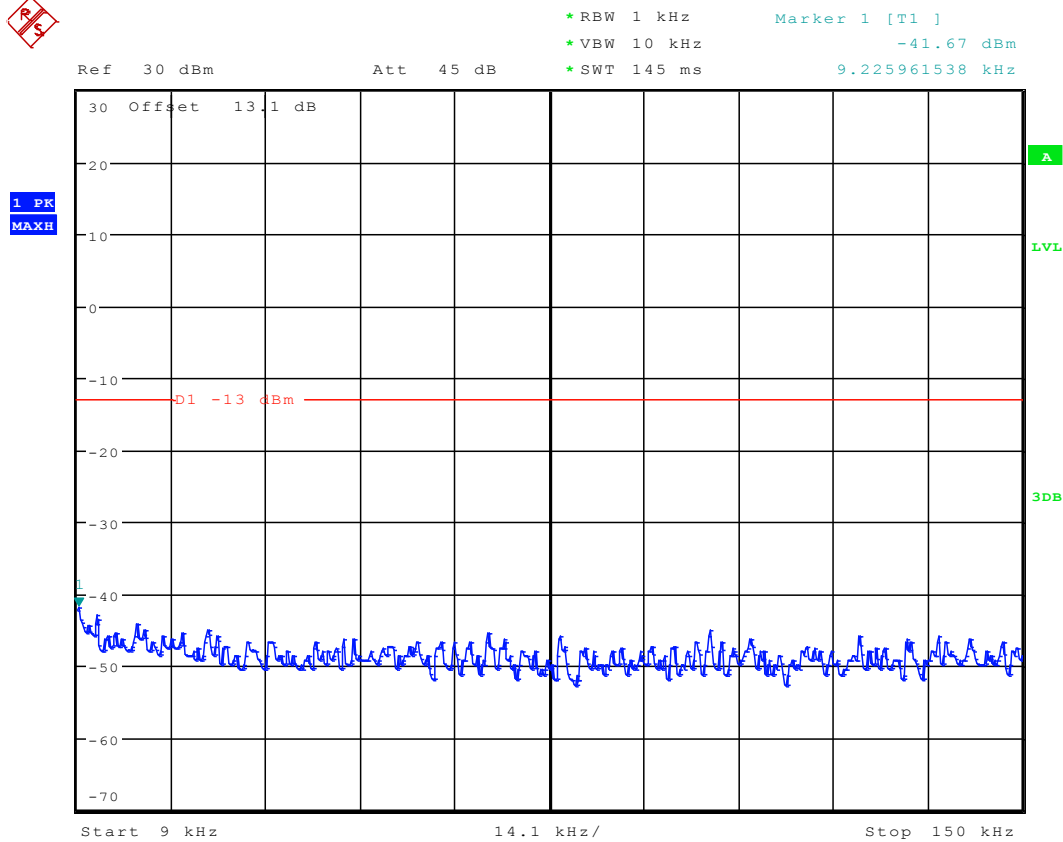
* RBW 1 MHz
* VBW 3 MHz
Marker 1 [T1]
26.92 dBm
1.684375000 GHz



Date: 6.JUL.2012 23:42:53



1.1.1.1.3 QPSK/full RBs



Date: 6.JUL.2012 23:44:00



*RBW 10 kHz Marker 1 [T1]
*VBW 30 kHz -37.02 dBm
SWT 300 ms 150.00000000 kHz

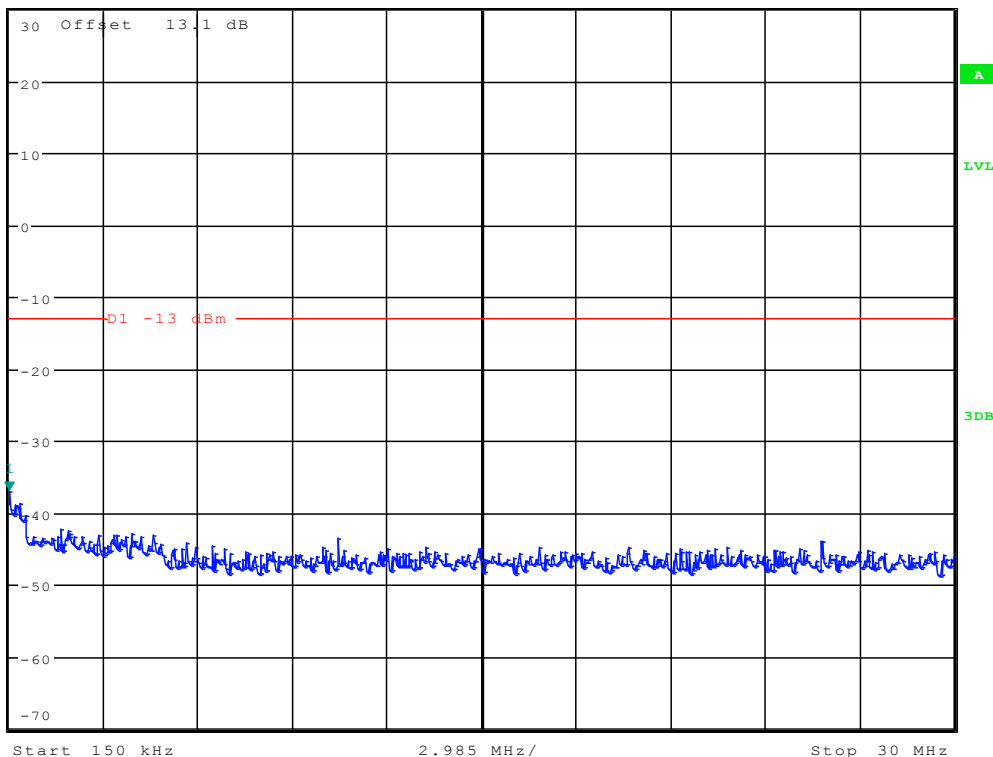
Ref 30 dBm

Att 45 dB

SWT 300 ms

150.00000000 kHz

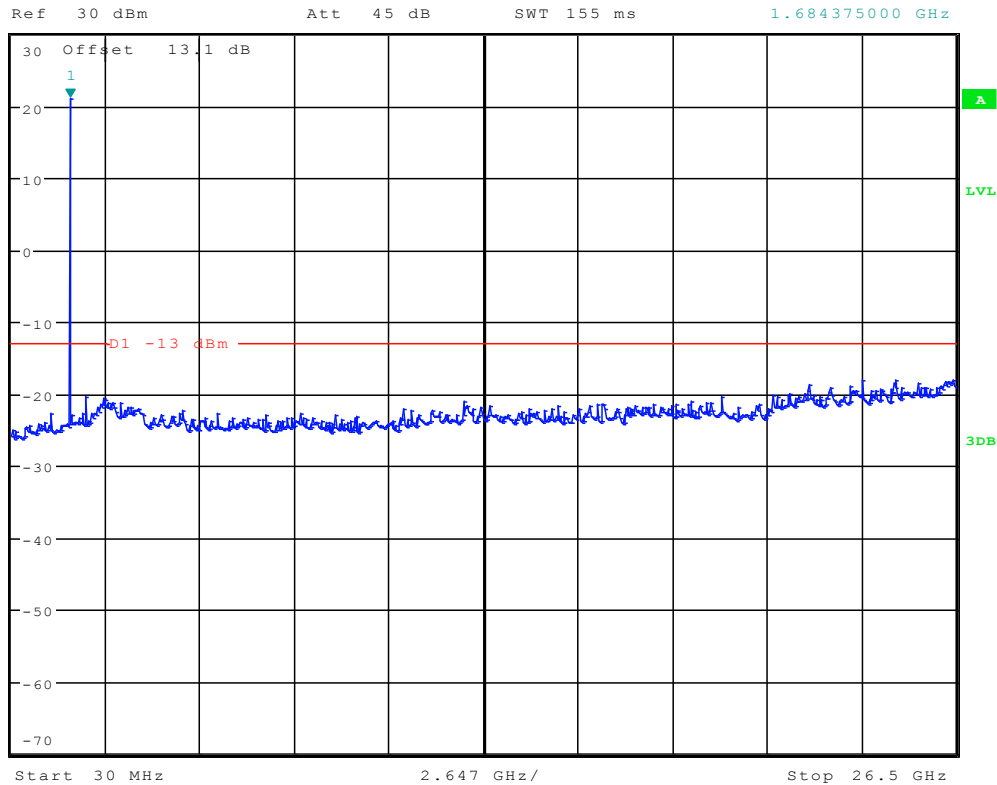
1 PK
MAXH



Date: 6.JUL.2012 23:44:36



* RBW 1 MHz
* VBW 3 MHz
Marker 1 [T1]
21.00 dBm
1.684375000 GHz

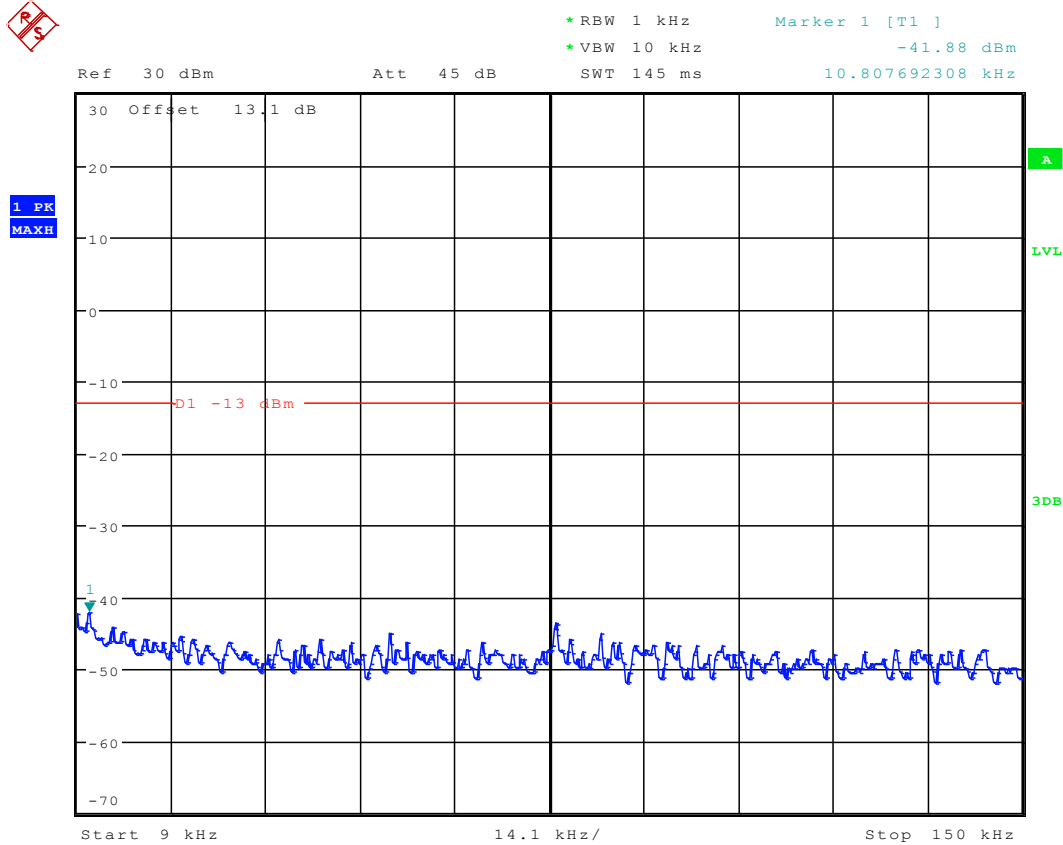


Date: 6.JUL.2012 23:44:55



1.1.1.2 Channel = M

1.1.1.2.1 QPSK/1RBs /RB #0



Date: 6.JUL.2012 23:48:53



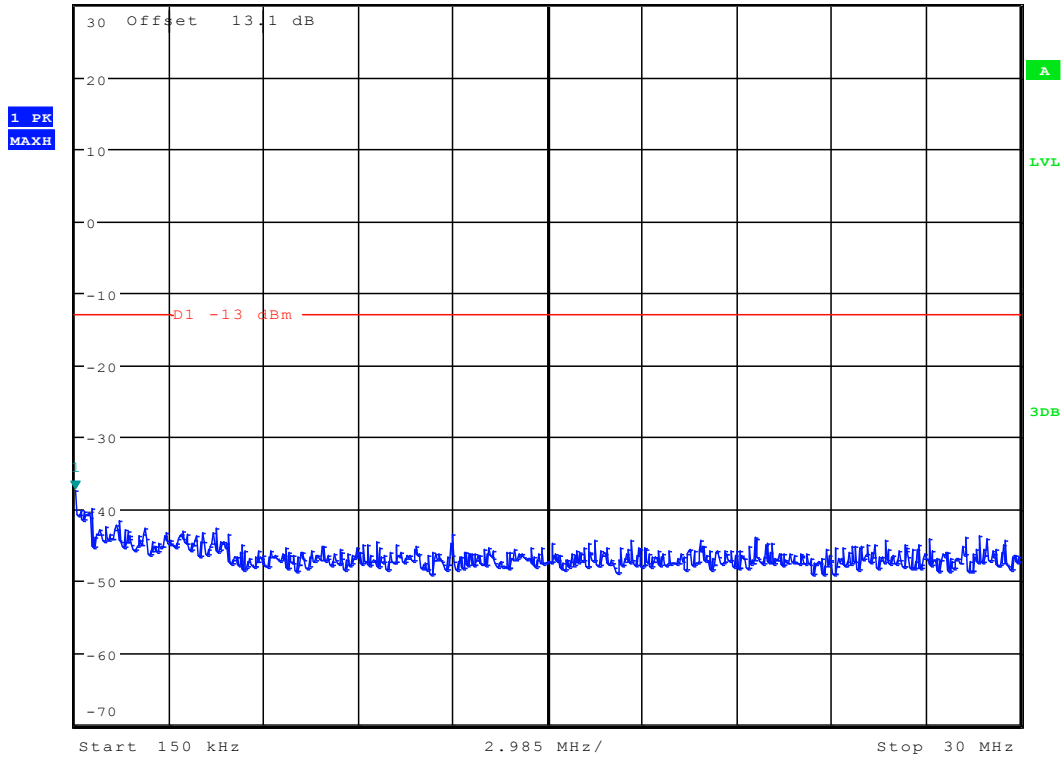
*RBW 10 kHz Marker 1 [T1]
*VBW 30 kHz -37.32 dBm
SWT 300 ms 150.00000000 kHz

Ref 30 dBm

Att 45 dB

SWT 300 ms

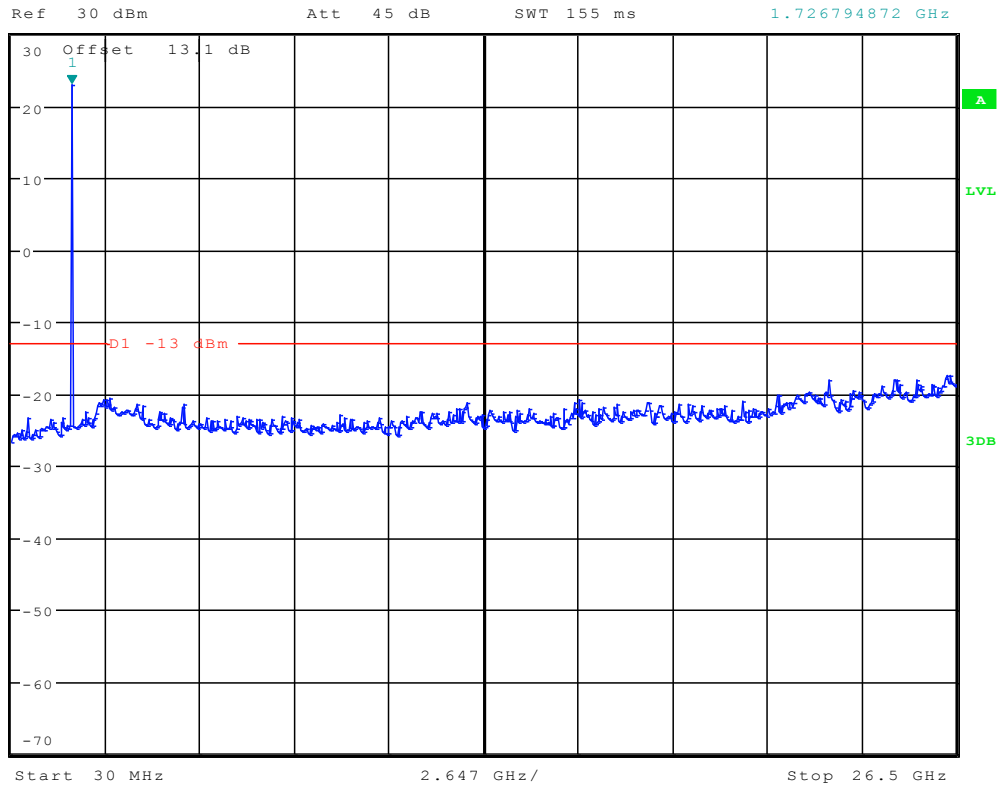
150.00000000 kHz



Date: 6.JUL.2012 23:48:29



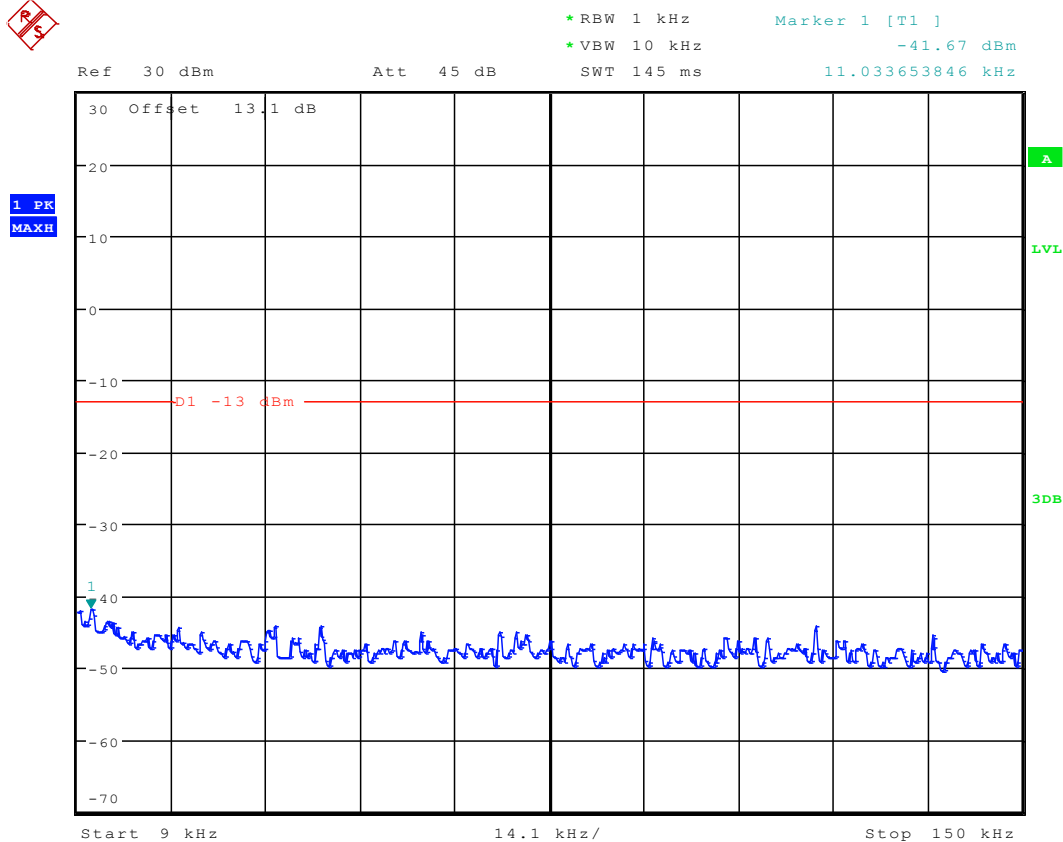
* RBW 1 MHz
* VBW 3 MHz
Marker 1 [T1]
22.89 dBm
1.726794872 GHz



Date: 6.JUL.2012 23:47:56



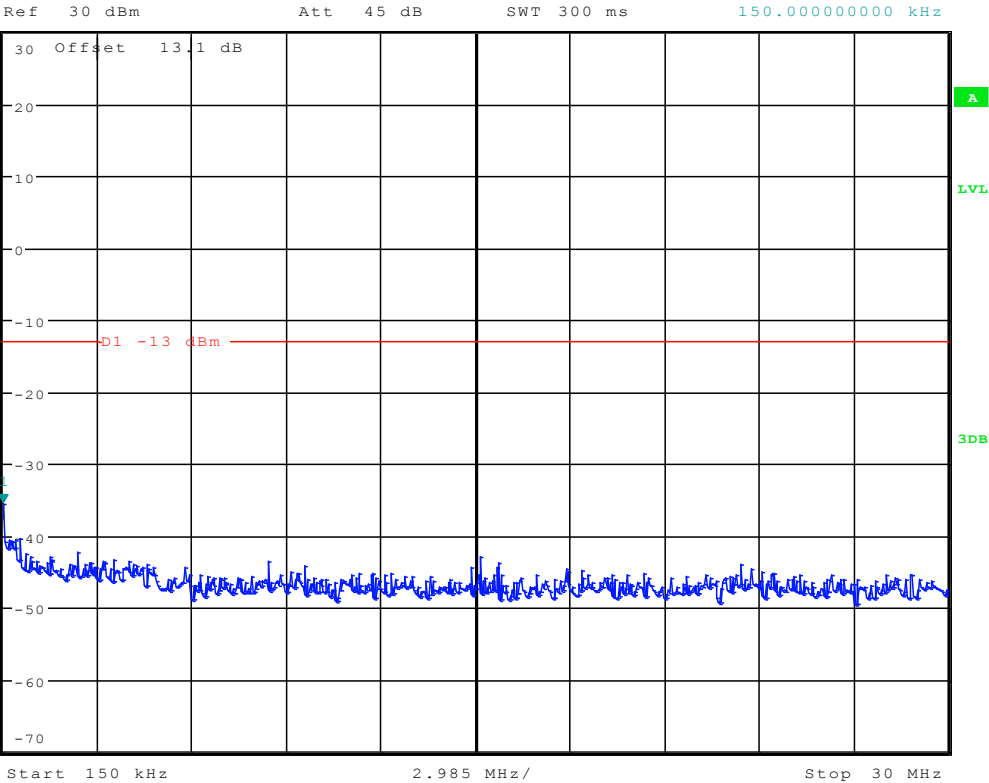
1.1.1.2.2 QPSK/1RBs /RB #max



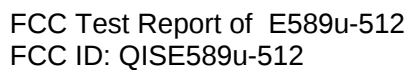
Date: 6.JUL.2012 23:46:48



*RBW 10 kHz Marker 1 [T1]
*VBW 30 kHz -35.40 dBm
SWT 300 ms 150.00000000 kHz



Date: 6.JUL.2012 23:47:11



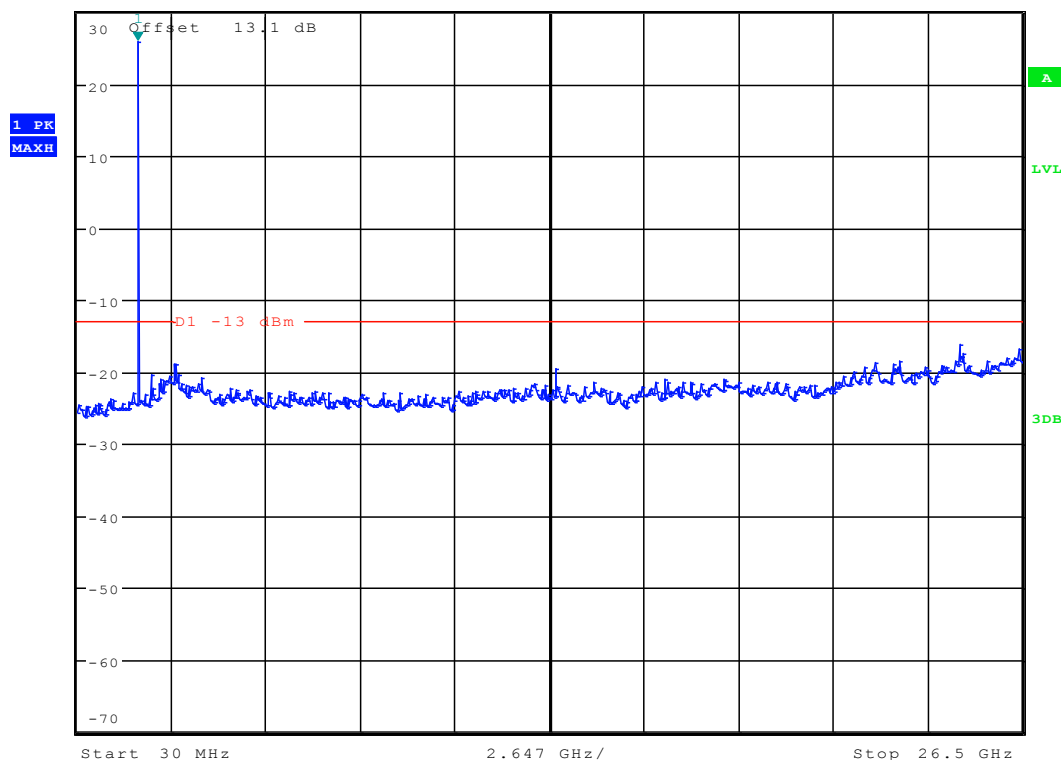
```
*RBW 1 MHz           Marker 1 [T1 ]
*VBW 3 MHz           25.92 dBm
SWT 155 ms          1.726794872 GHz
```

Ref 30 dBm

Att 45 dB

SWT 155 ms

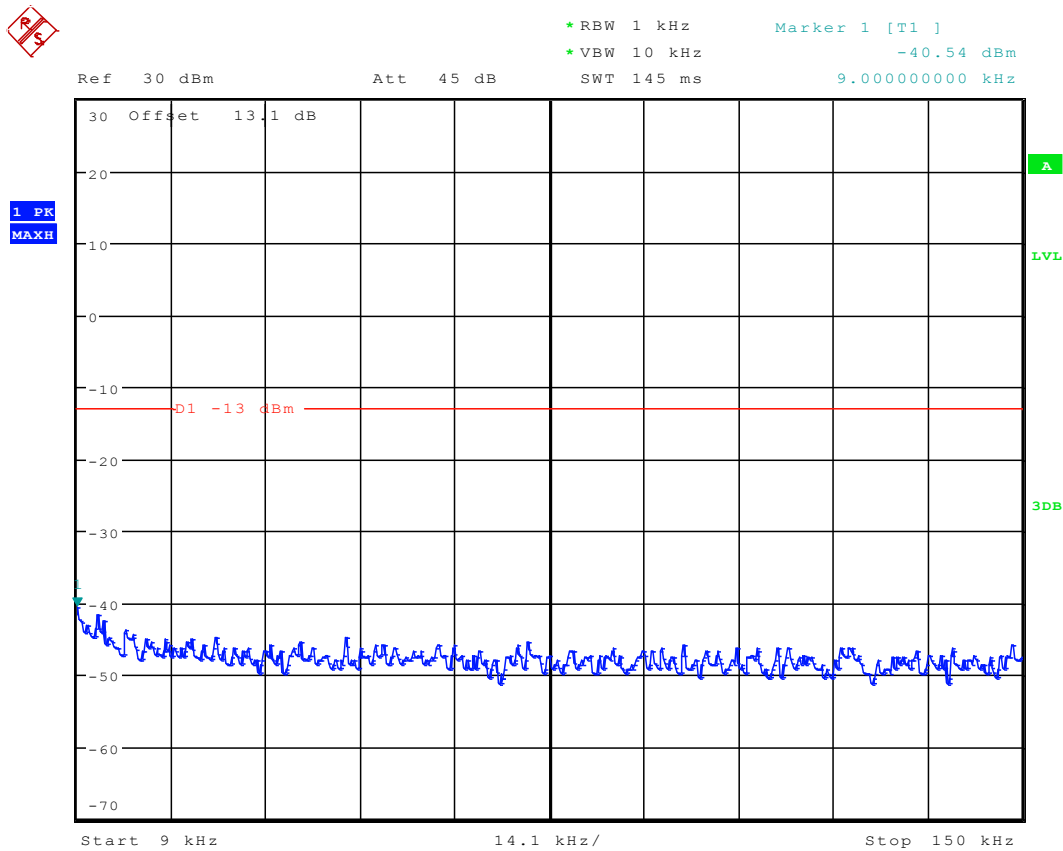
1.726794872 GHz



Date: 6.JUL.2012 23:47:39



1.1.1.2.3 QPSK/full RBs



Date: 6.JUL.2012 23:46:14



*RBW 10 kHz Marker 1 [T1]
*VBW 30 kHz -37.69 dBm
SWT 300 ms 150.00000000 kHz

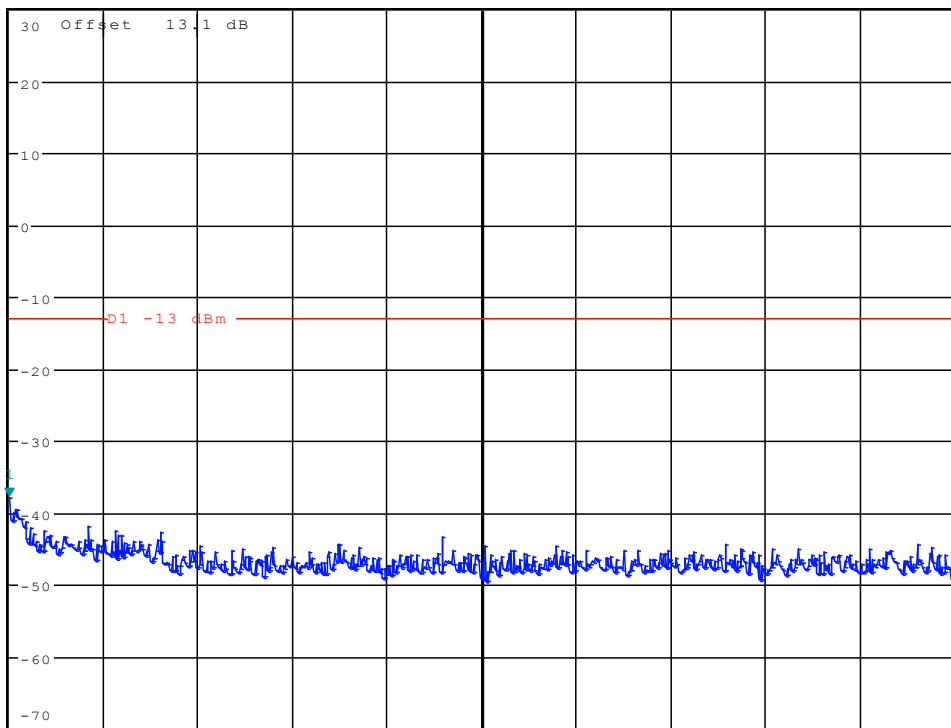
Ref 30 dBm

Att 45 dB

SWT 300 ms

150.00000000 kHz

1 PK
MAXH



Start 150 kHz

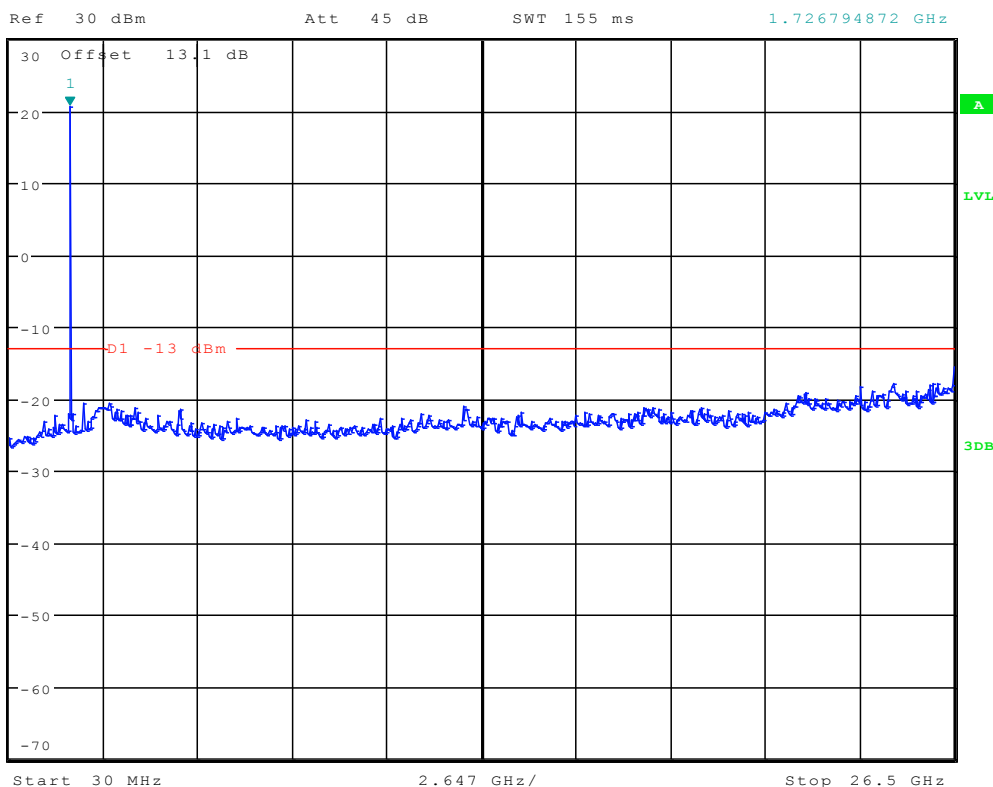
2.985 MHz/

Stop 30 MHz

Date: 6.JUL.2012 23:45:48



*RBW 1 MHz Marker 1 [T1]
*VBW 3 MHz 20.70 dBm
SWT 155 ms 1.726794872 GHz

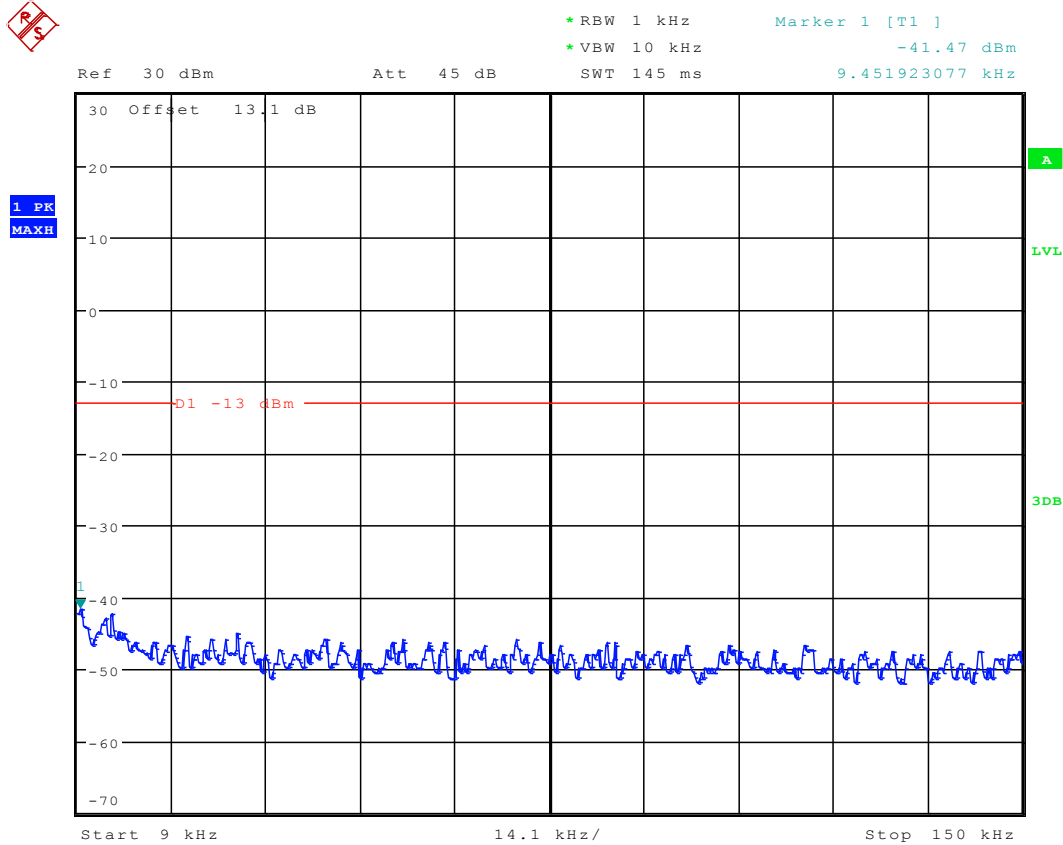


Date: 6.JUL.2012 23:45:21



1.1.1.3 Channel = H

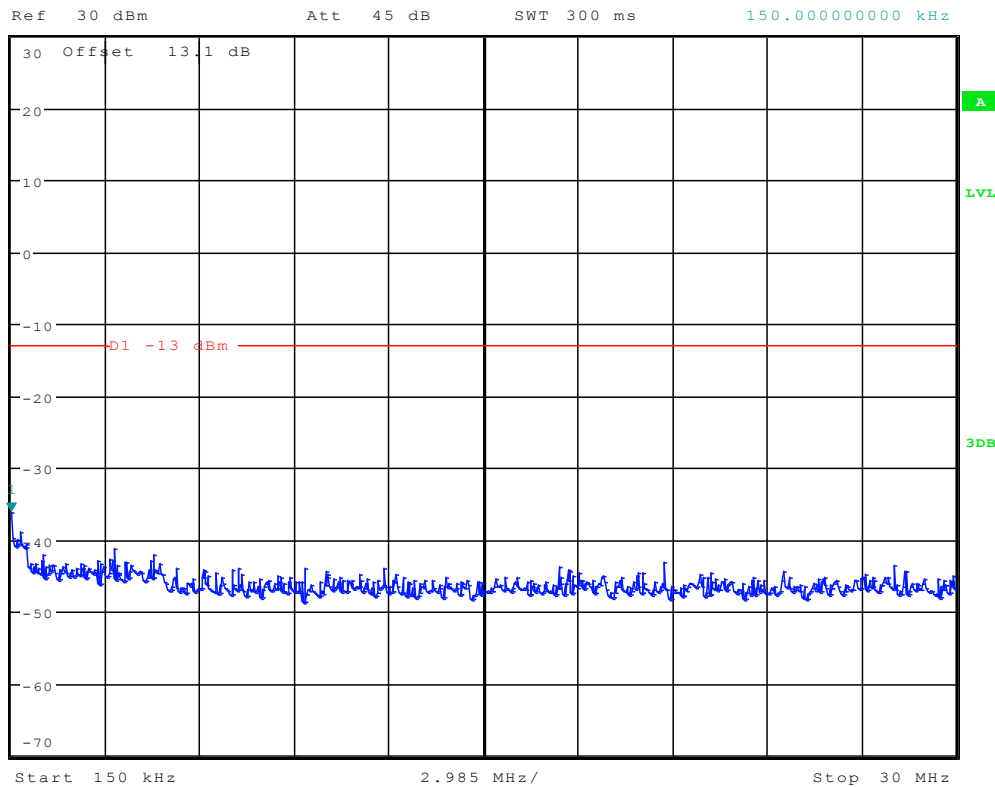
1.1.1.3.1 QPSK/1RBs /RB #0



Date: 6.JUL.2012 23:49:18



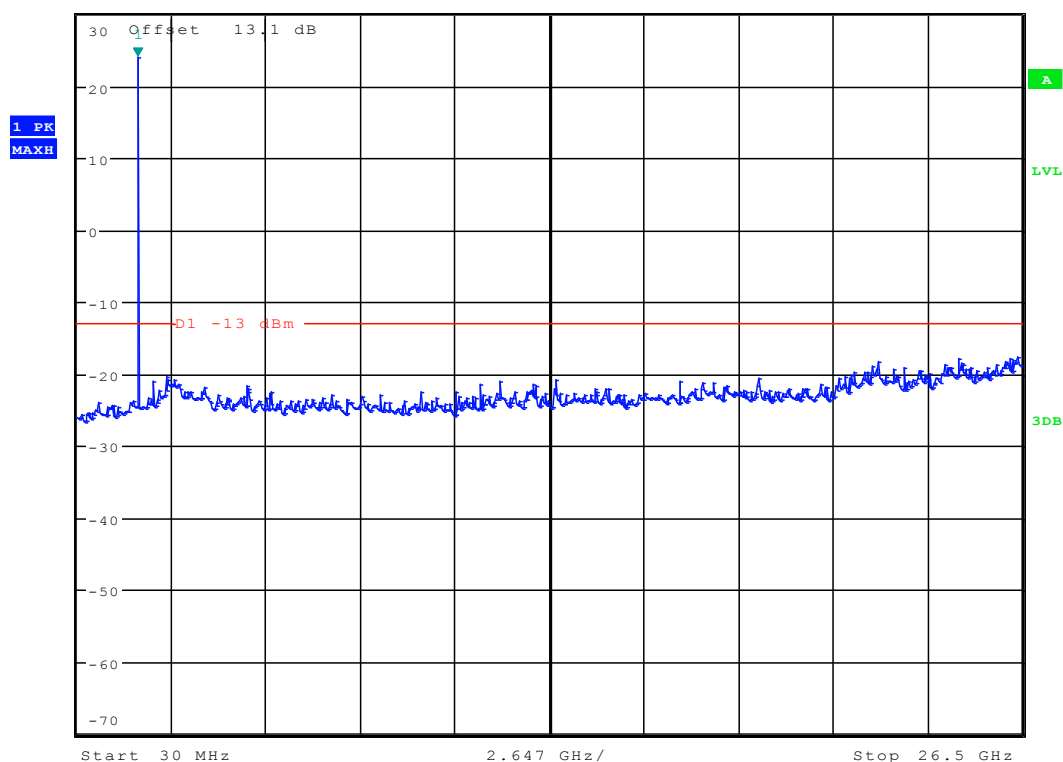
*RBW 10 kHz Marker 1 [T1]
*VBW 30 kHz -36.07 dBm
SWT 300 ms 150.00000000 kHz



Date: 6.JUL.2012 23:49:43



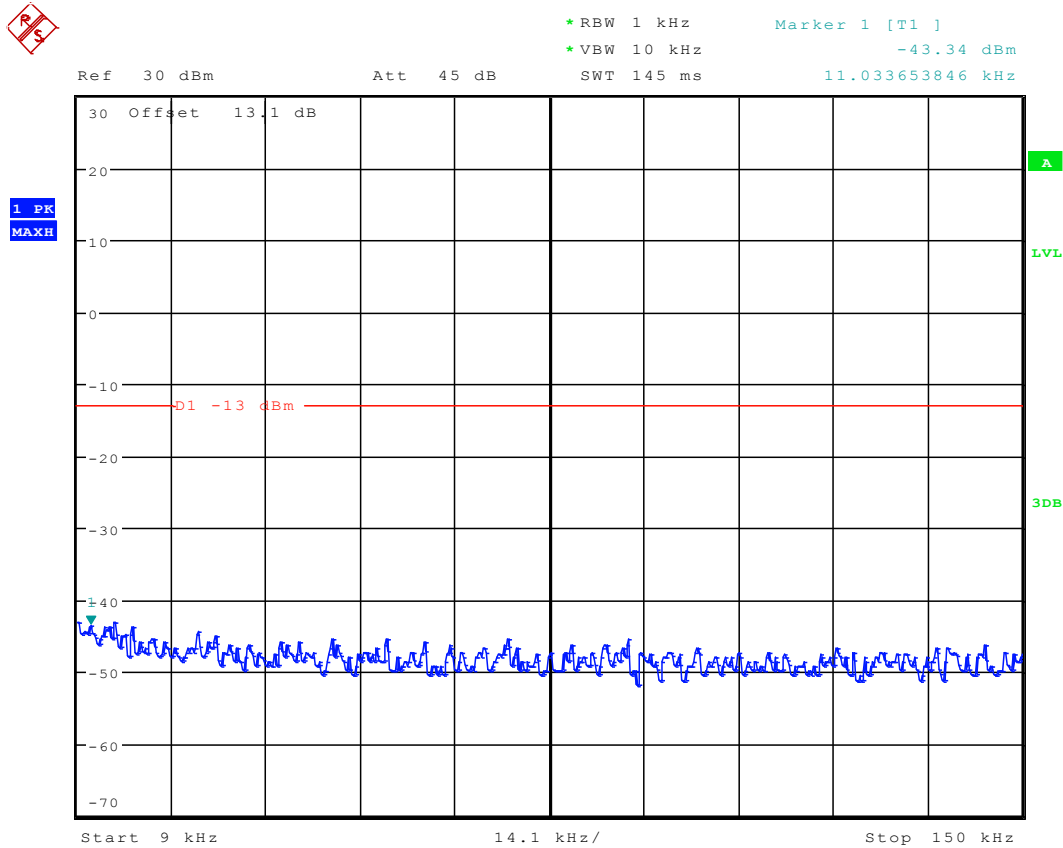
* RBW 1 MHz Marker 1 [T1]
* VBW 3 MHz 23.95 dBm
Ref 30 dBm Att 45 dB SWT 155 ms 1.726794872 GHz



Date: 6.JUL.2012 23:50:03



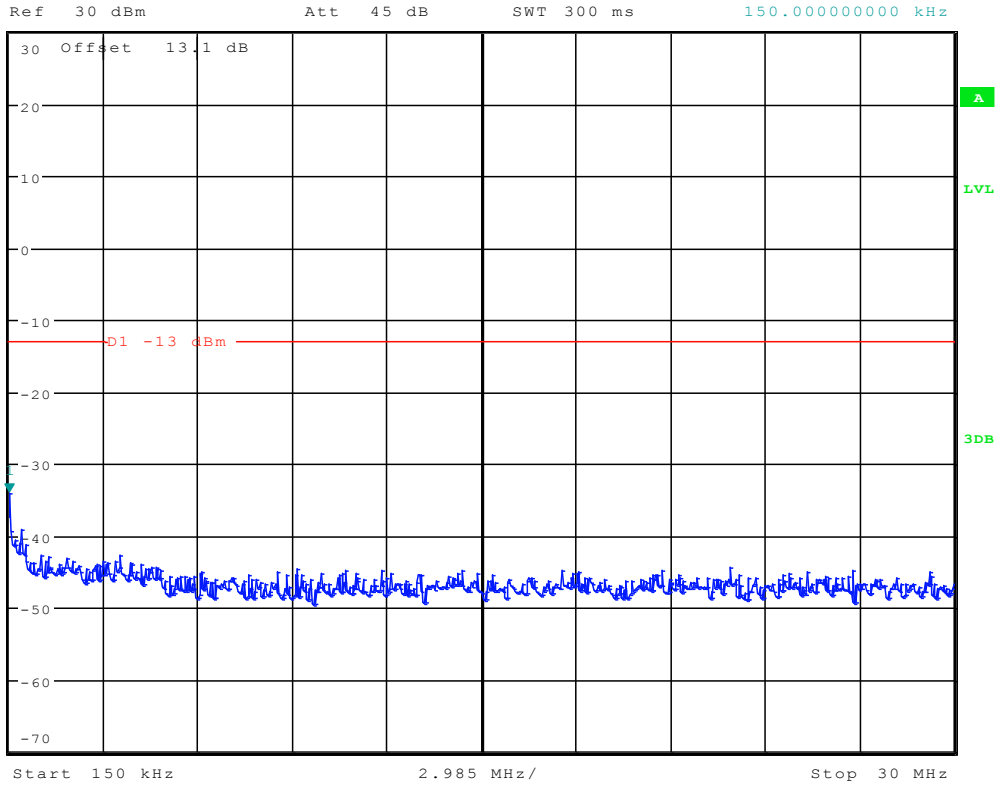
1.1.1.3.2 QPSK/1RBs /RB #max



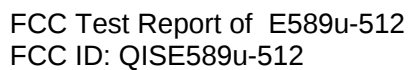
Date: 6.JUL.2012 23:51:09



*RBW 10 kHz Marker 1 [T1]
*VBW 30 kHz -33.96 dBm
SWT 300 ms 150.00000000 kHz



Date: 6.JUL.2012 23:50:51



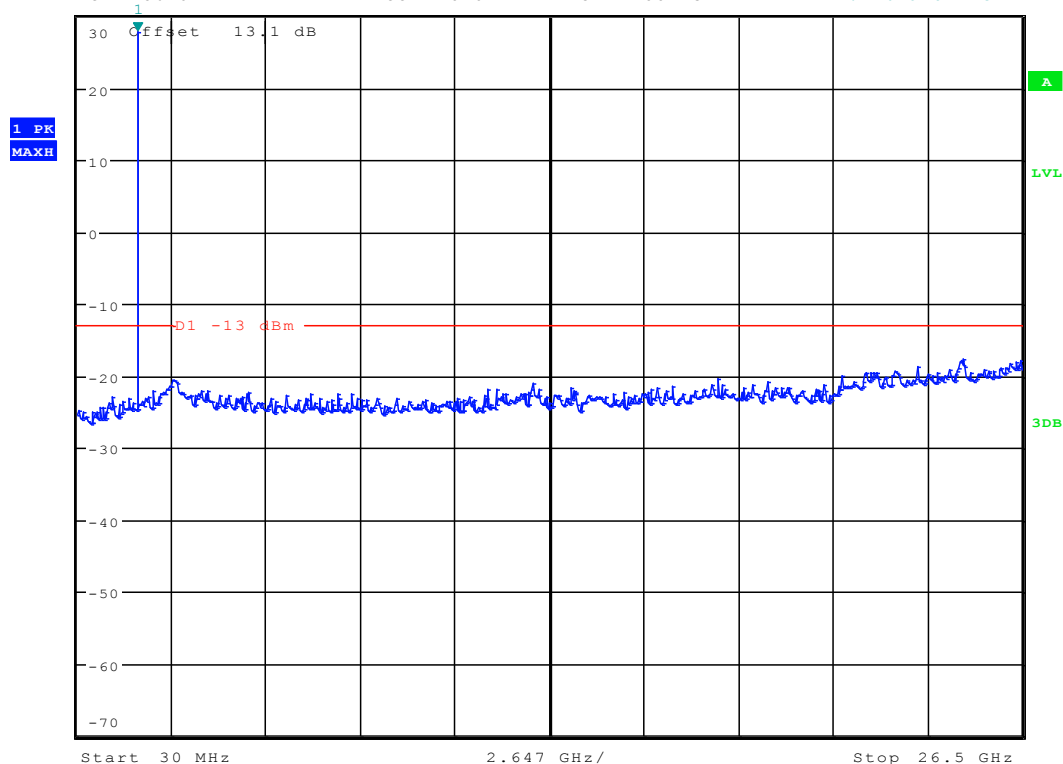
```
*RBW 1 MHz           Marker 1 [T1 ]
*VBW 3 MHz           27.85 dBm
SWT 155 ms           1.726794872 GHz
```

Ref 30 dBm

Att 45 dB

SWT 155 ms

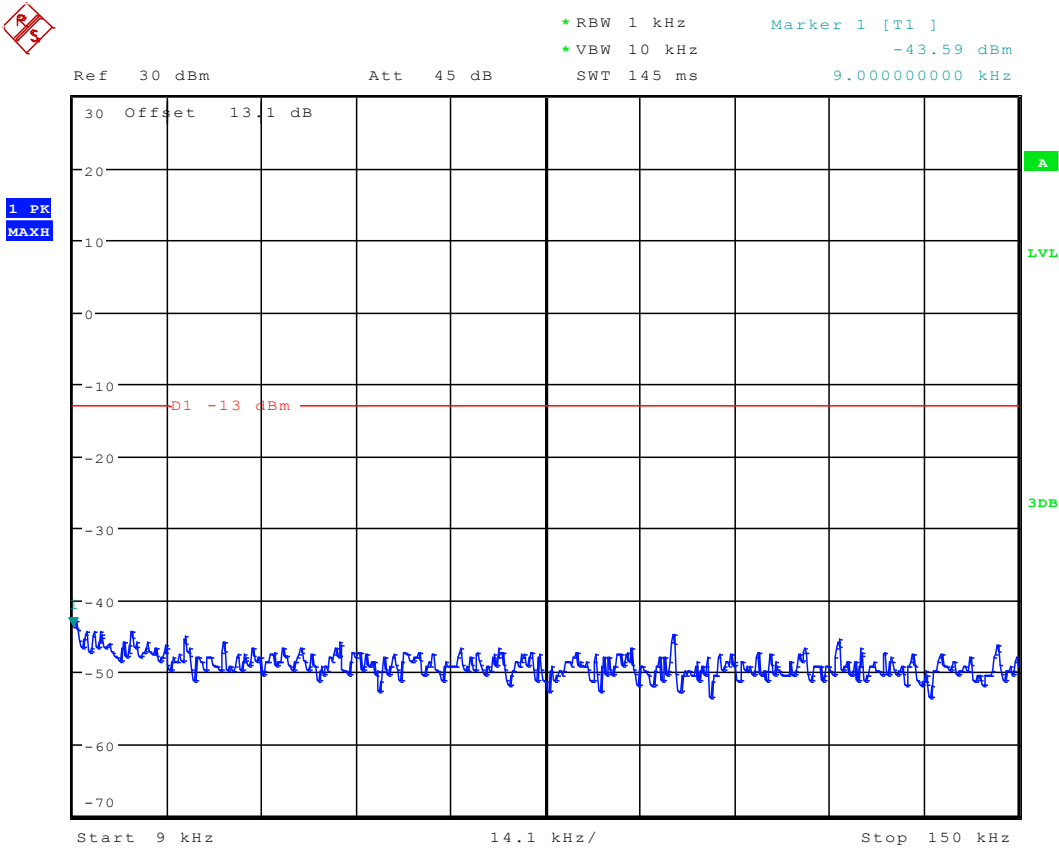
1.726794872 GHz



Date: 6.JUL.2012 23:50:27



1.1.1.3.3 QPSK/full RBs



Date: 6.JUL.2012 23:51:36



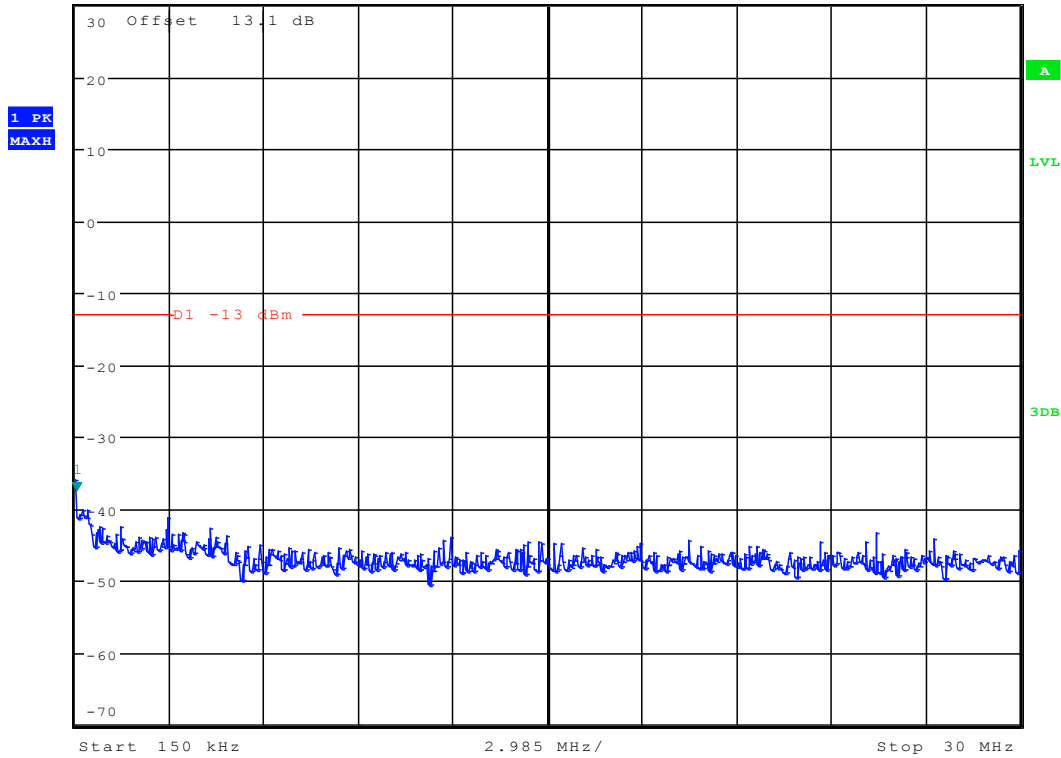
*RBW 10 kHz Marker 1 [T1]
*VBW 30 kHz -37.63 dBm
SWT 300 ms 197.836538462 kHz

Ref 30 dBm

Att 45 dB

SWT 300 ms

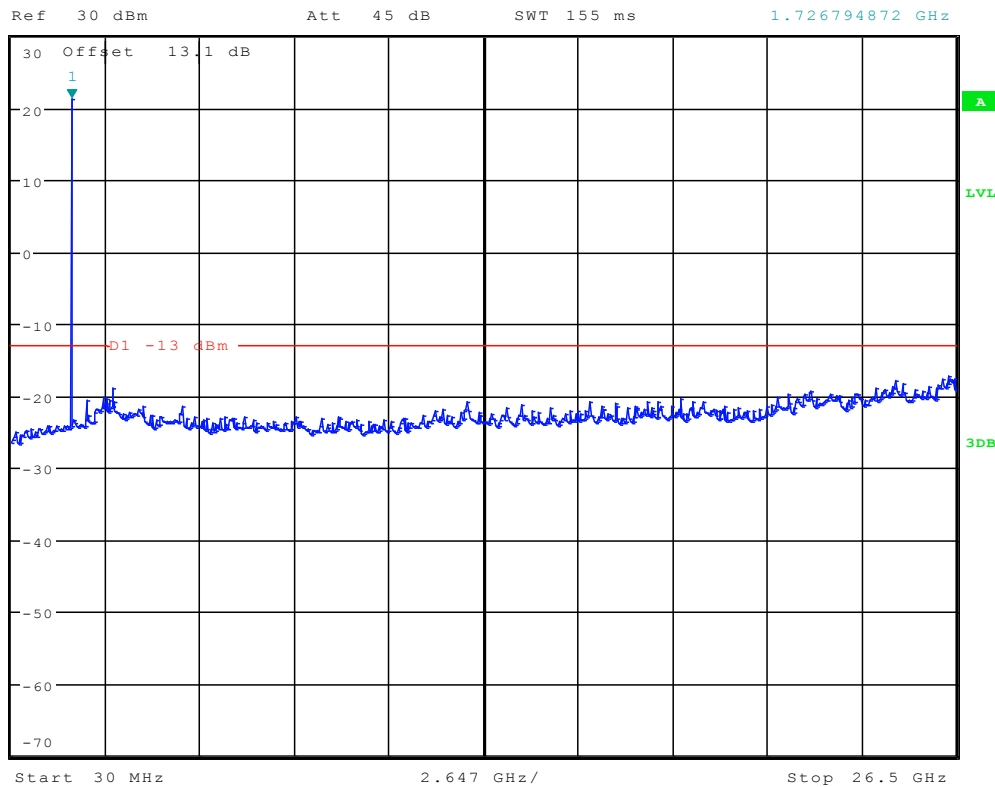
197.836538462 kHz



Date: 6.JUL.2012 23:51:55



* RBW 1 MHz
* VBW 3 MHz
Marker 1 [T1]
21.32 dBm
1.726794872 GHz



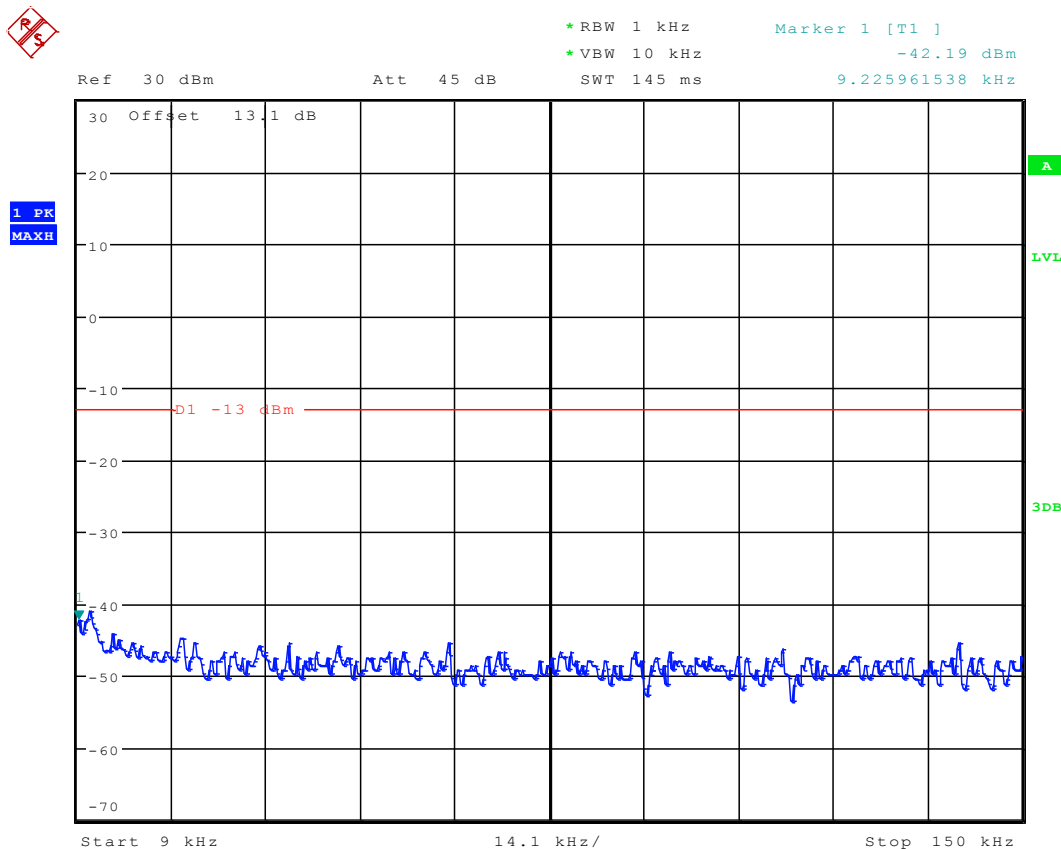
Date: 6.JUL.2012 23:52:12



1.1.2 Channel Bandwidth = Highest (20 MHz)

1.1.2.1 Channel = L

1.1.2.1.1 QPSK/1RBs /RB #0



Date: 6.JUL.2012 23:56:08



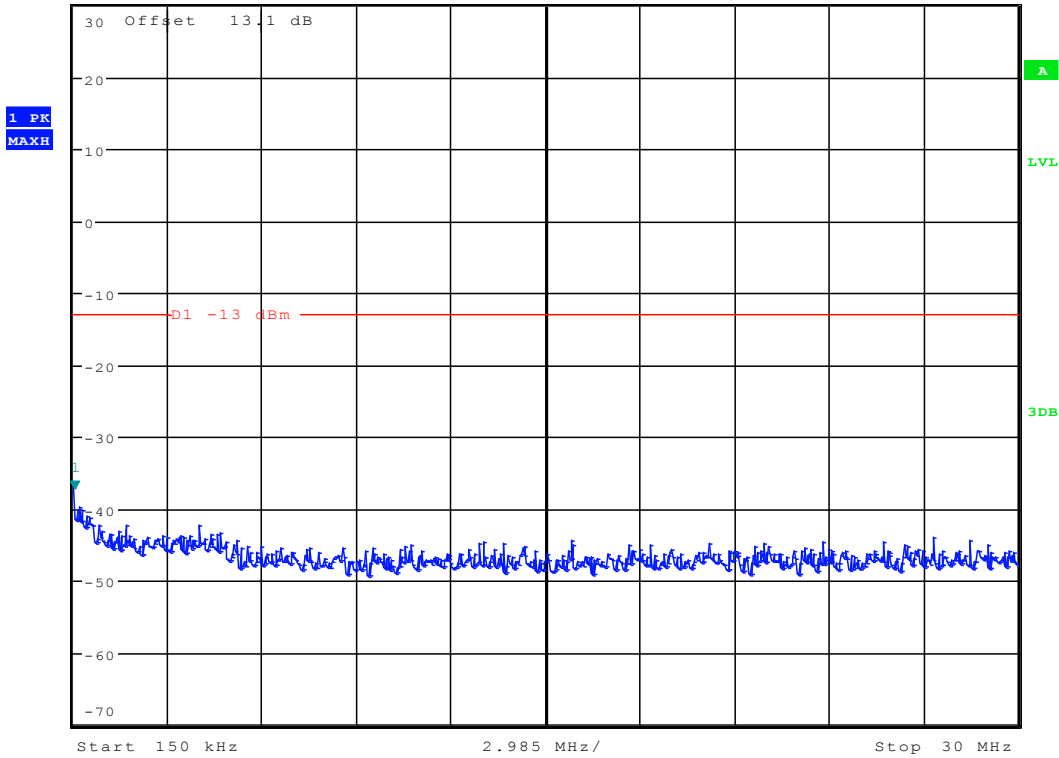
*RBW 10 kHz Marker 1 [T1]
*VBW 30 kHz -37.38 dBm
SWT 300 ms 197.836538462 kHz

Ref 30 dBm

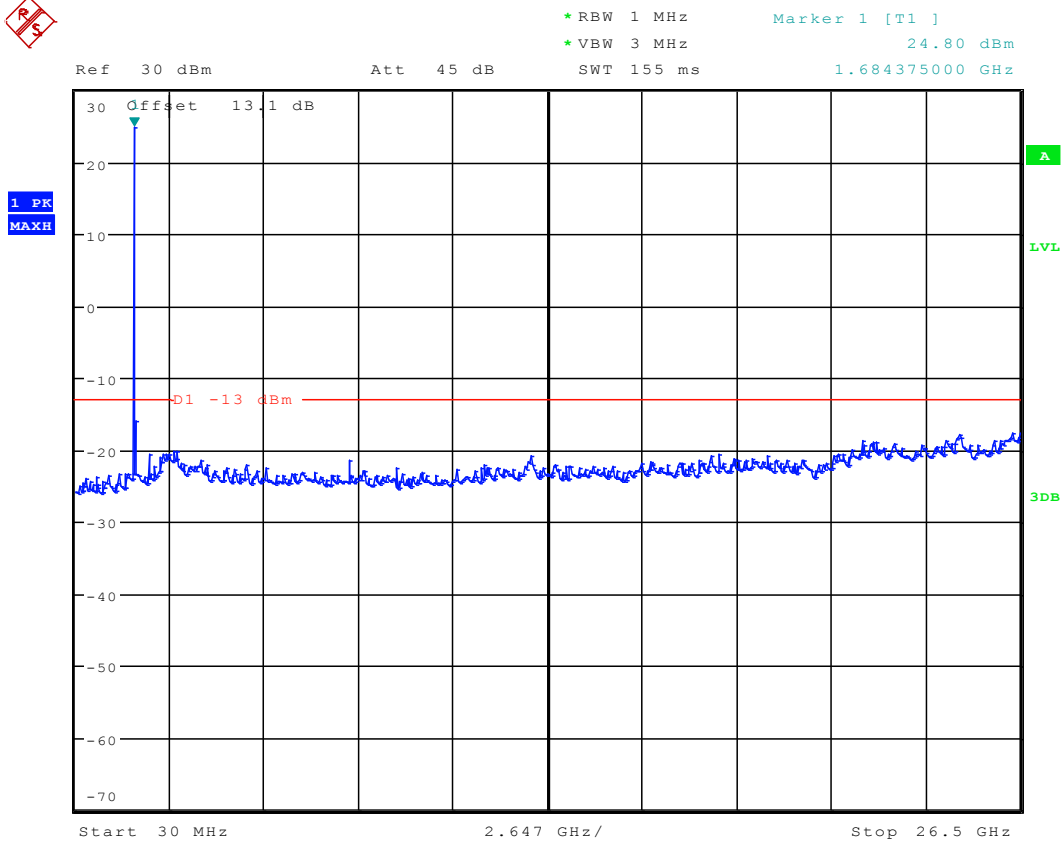
Att 45 dB

SWT 300 ms

197.836538462 kHz



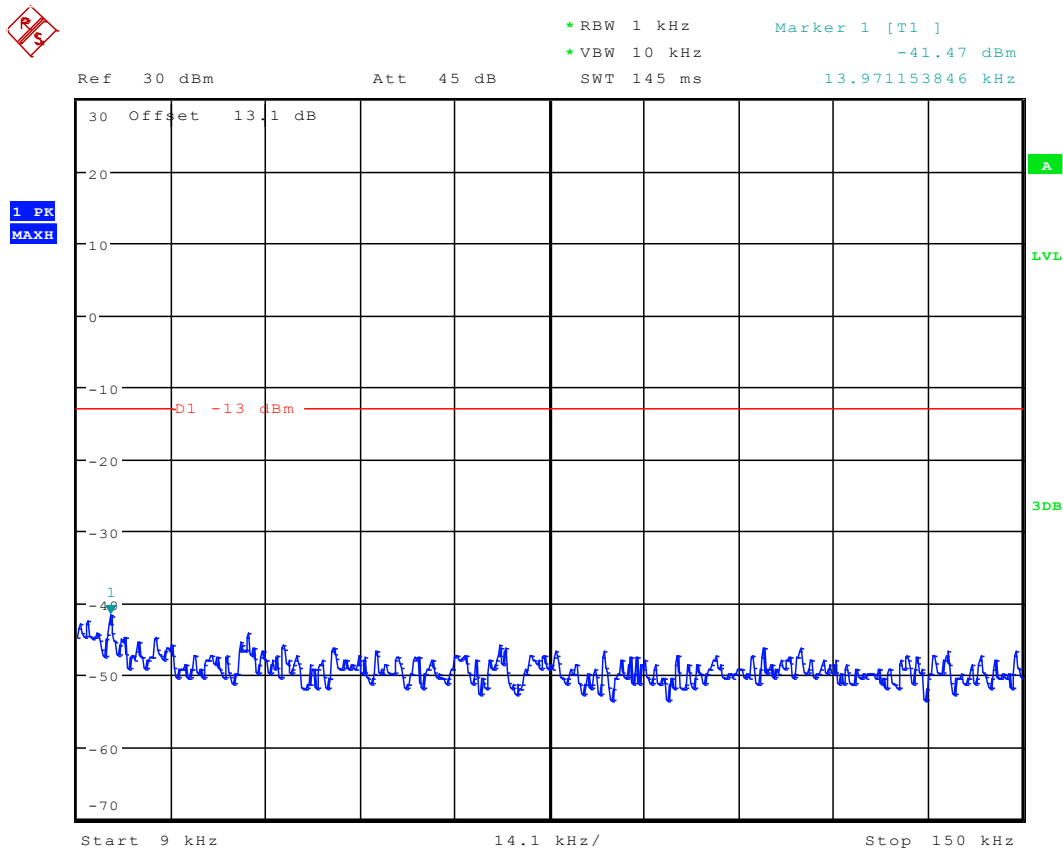
Date: 6.JUL.2012 23:55:52



Date: 6.JUL.2012 23:55:32



1.1.2.1.2 QPSK/1RBs /RB #max



Date: 6.JUL.2012 23:54:15



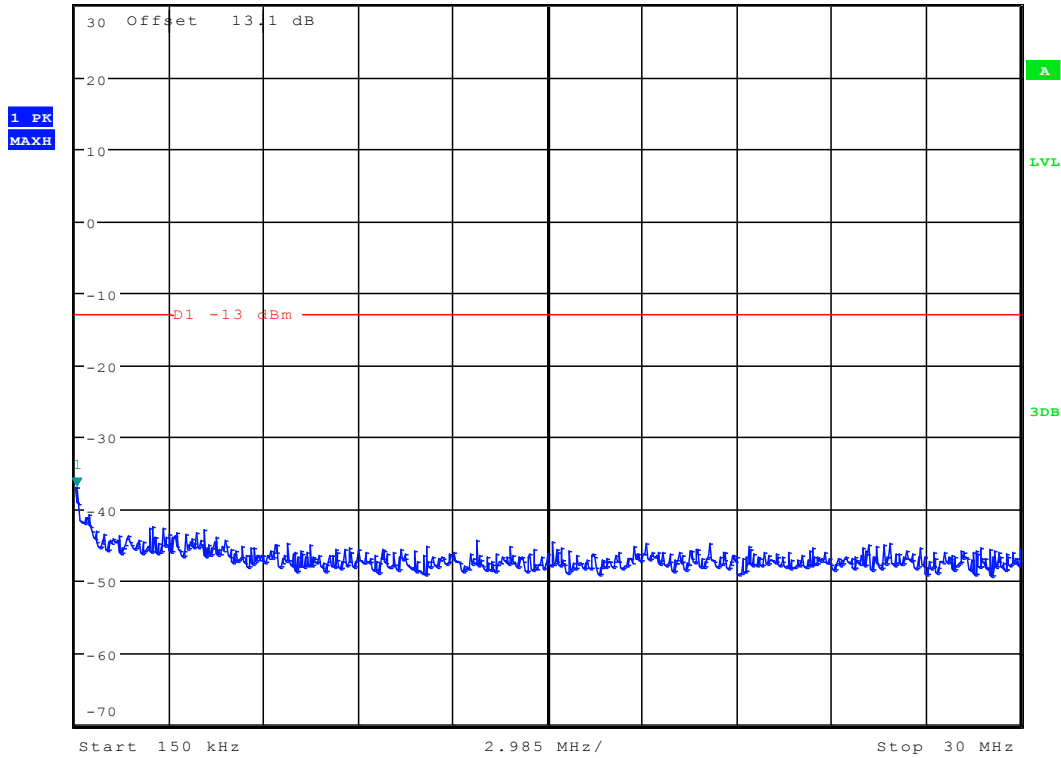
*RBW 10 kHz Marker 1 [T1]
*VBW 30 kHz -36.84 dBm
SWT 300 ms 197.836538462 kHz

Ref 30 dBm

Att 45 dB

SWT 300 ms

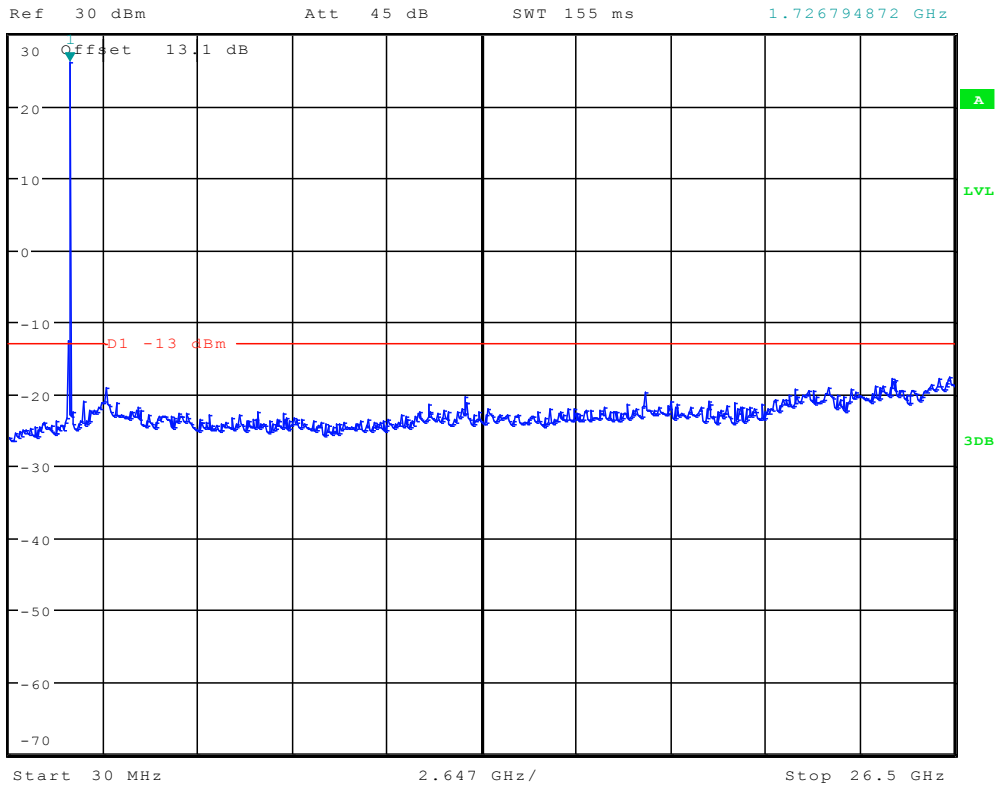
197.836538462 kHz



Date: 6.JUL.2012 23:54:57



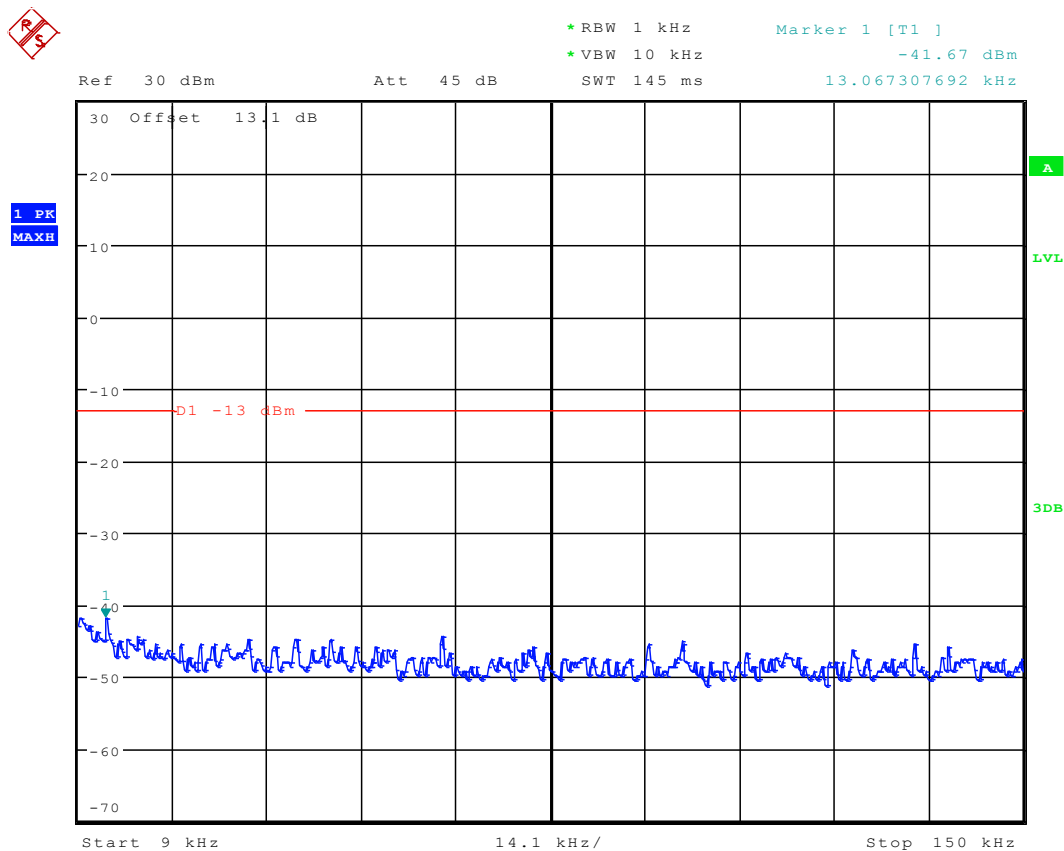
* RBW 1 MHz
* VBW 3 MHz
Marker 1 [T1]
26.20 dBm
1.726794872 GHz



Date: 6.JUL.2012 23:55:13



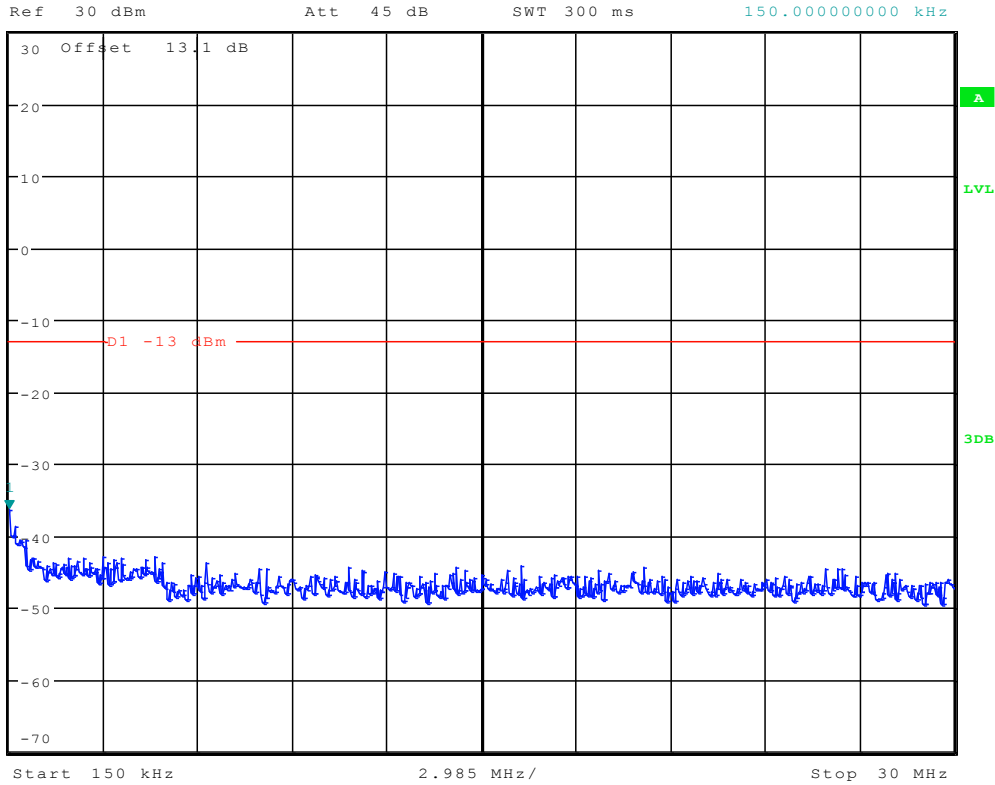
1.1.2.1.3 QPSK/full RBs



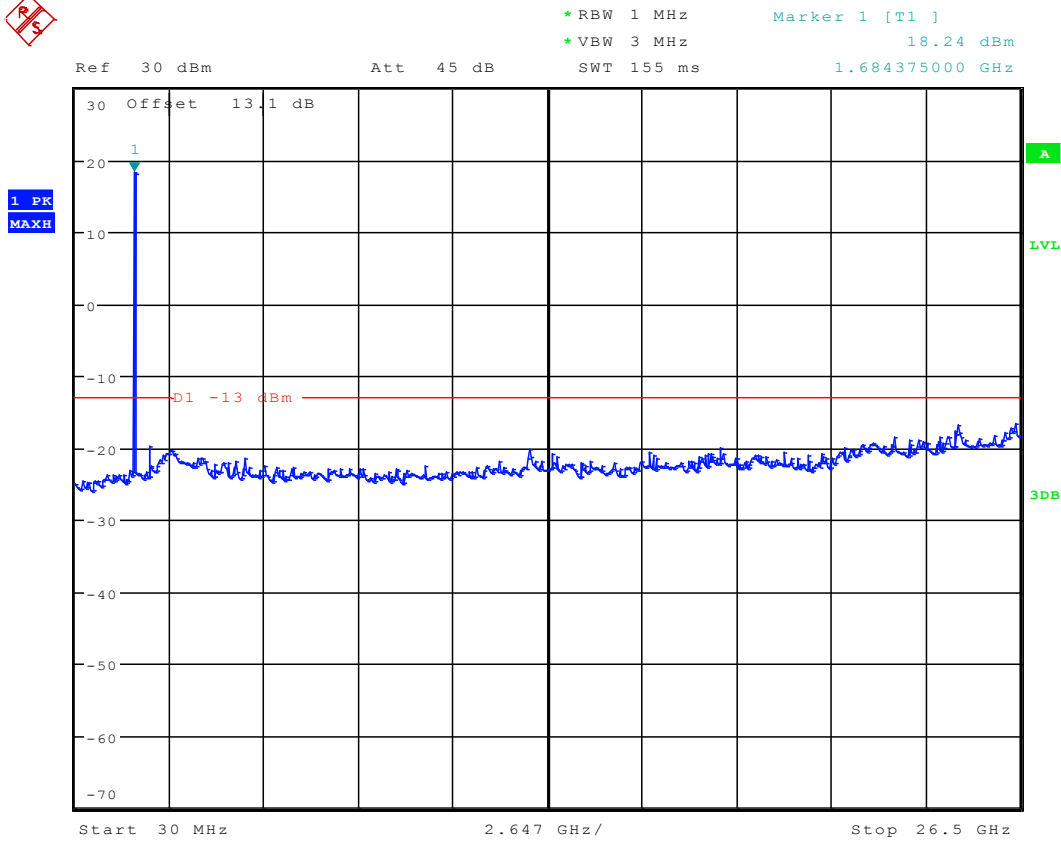
Date: 6.JUL.2012 23:53:55



*RBW 10 kHz Marker 1 [T1]
*VBW 30 kHz -36.28 dBm
SWT 300 ms 150.00000000 kHz



Date: 6.JUL.2012 23:53:32

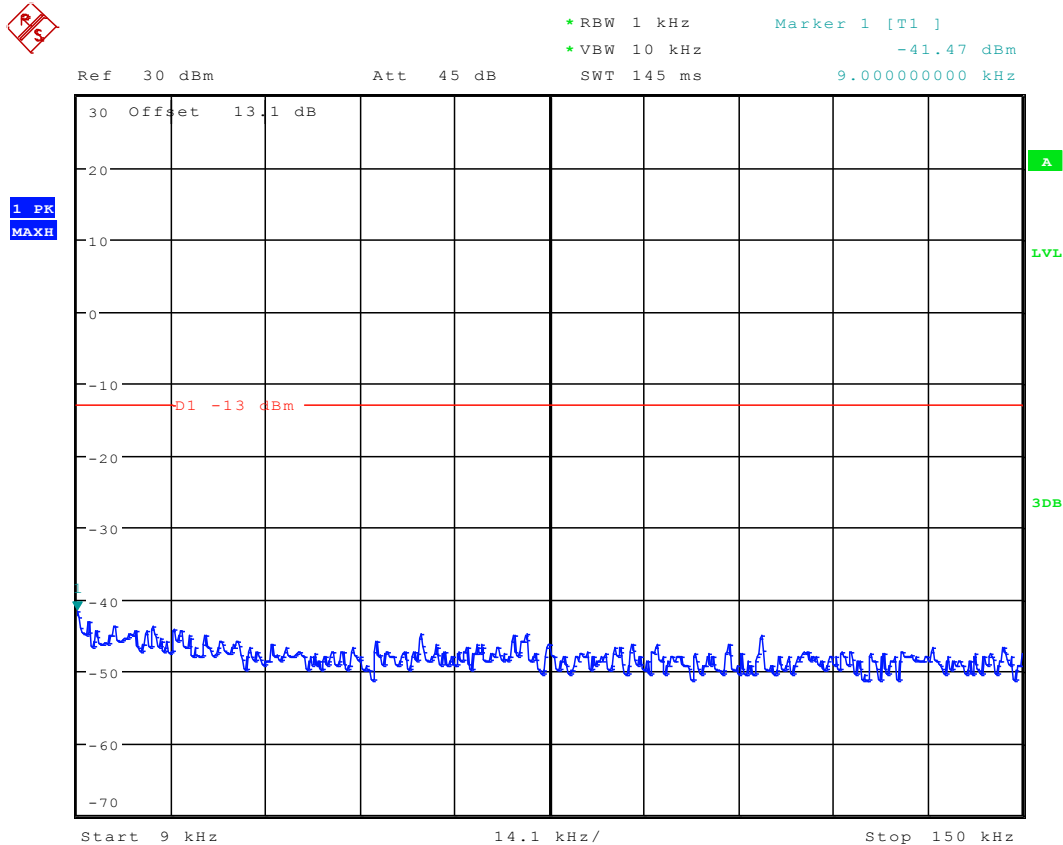


Date: 6.JUL.2012 23:53:04



1.1.2.2 Channel = M

1.1.2.2.1 QPSK/1RBs /RB #0



Date: 6.JUL.2012 23:56:39



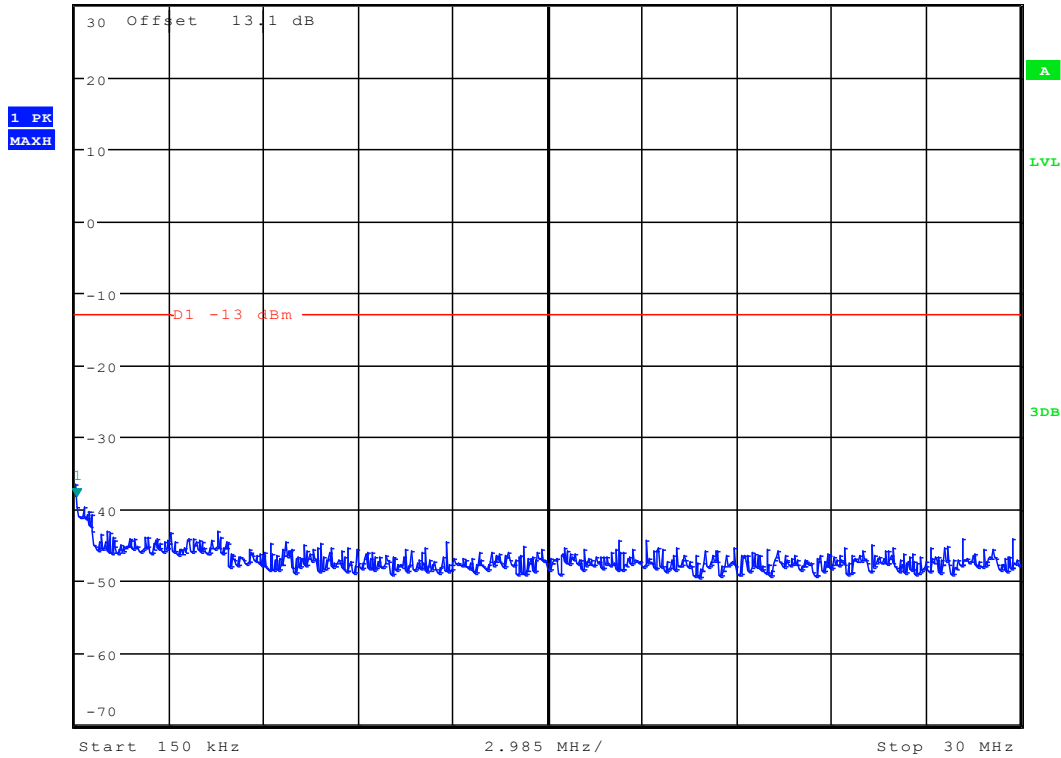
*RBW 10 kHz Marker 1 [T1]
*VBW 30 kHz -38.29 dBm
SWT 300 ms 197.836538462 kHz

Ref 30 dBm

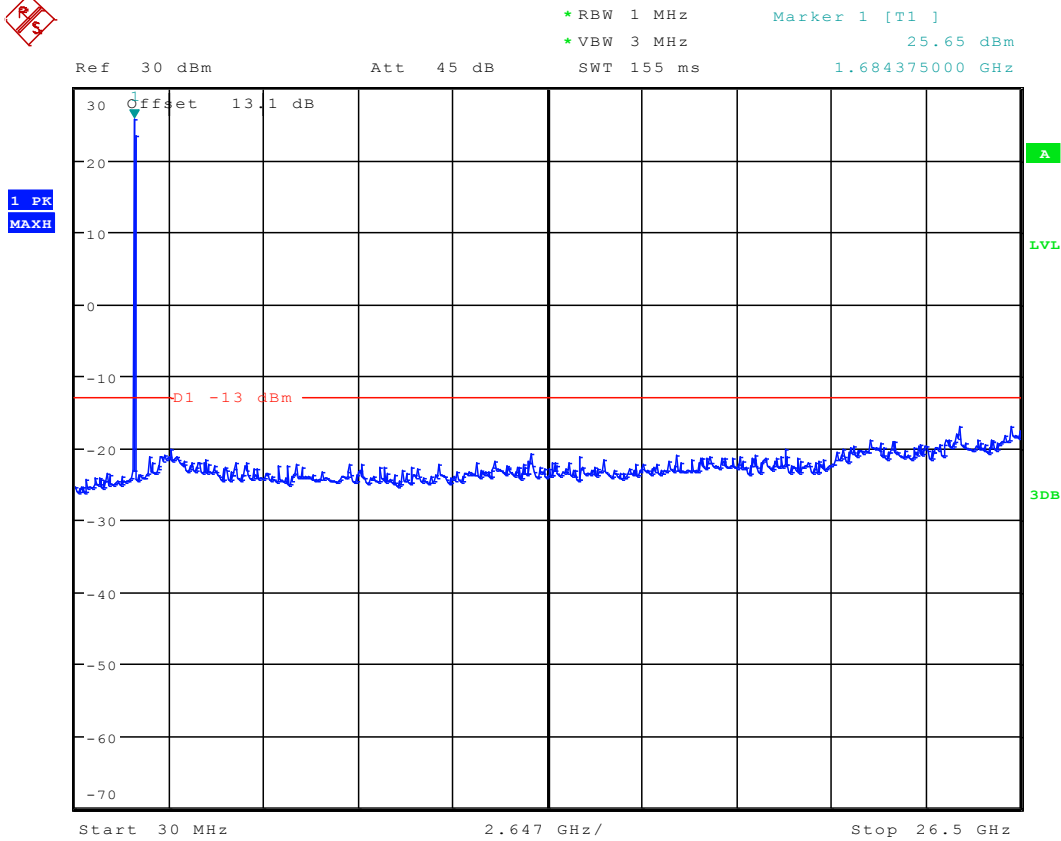
Att 45 dB

SWT 300 ms

197.836538462 kHz



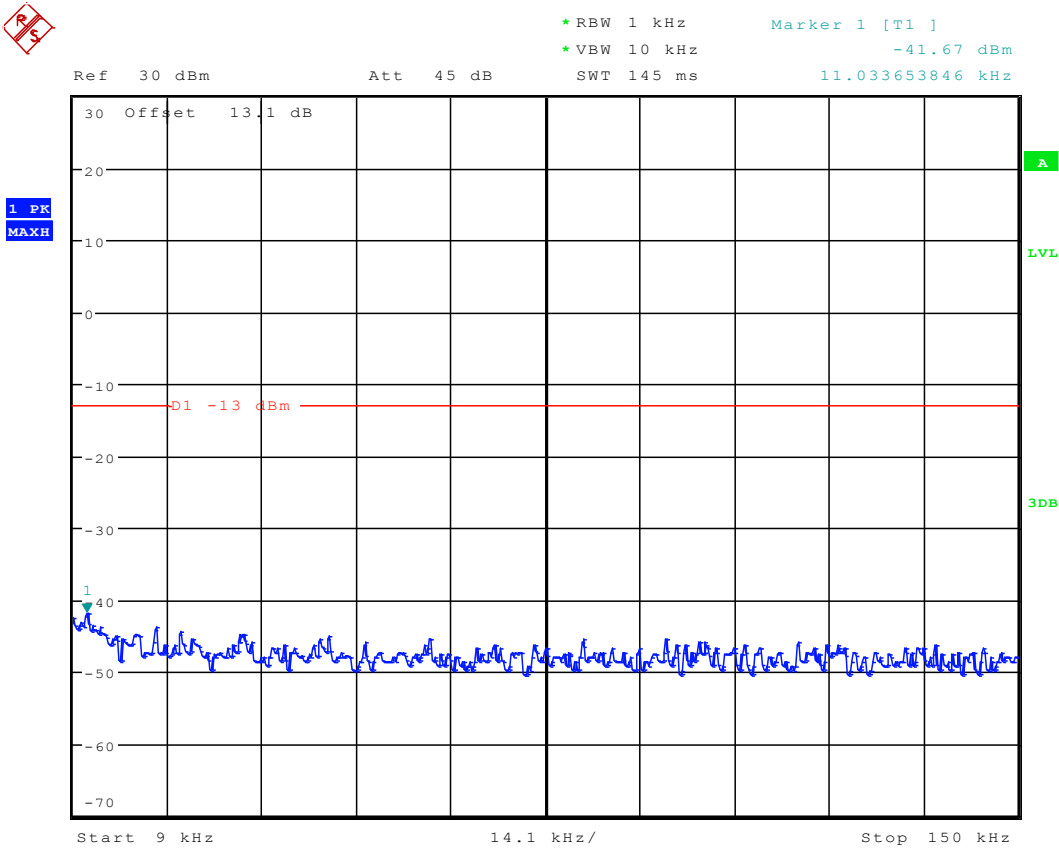
Date: 6.JUL.2012 23:56:58



Date: 6.JUL.2012 23:58:54



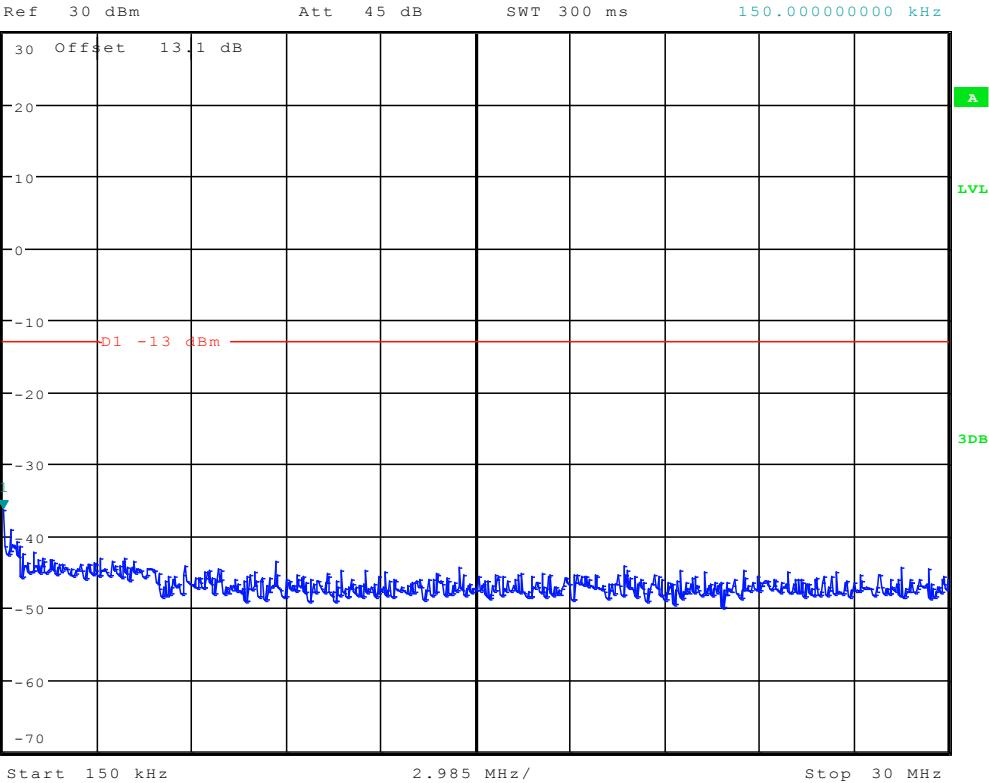
1.1.2.2.2 QPSK/1RBs /RB #max



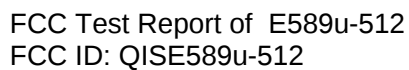
Date: 7.JUL.2012 00:00:31



*RBW 10 kHz Marker 1 [T1]
*VBW 30 kHz -36.23 dBm
SWT 300 ms 150.00000000 kHz



Date: 7.JUL.2012 00:00:10



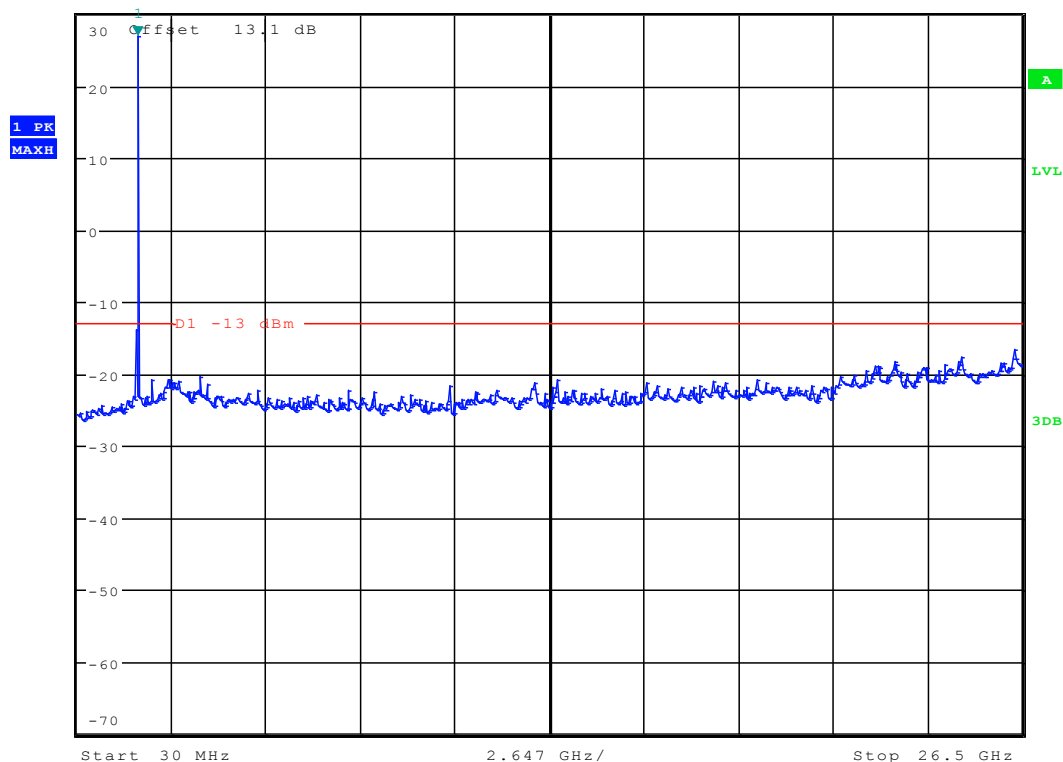
```
*RBW 1 MHz           Marker 1 [T1 ]
*VBW 3 MHz           27.05 dBm
SWT 155 ms           1.726794872 GHz
```

Ref 30 dBm

Att 45 dB

SWT 155 ms

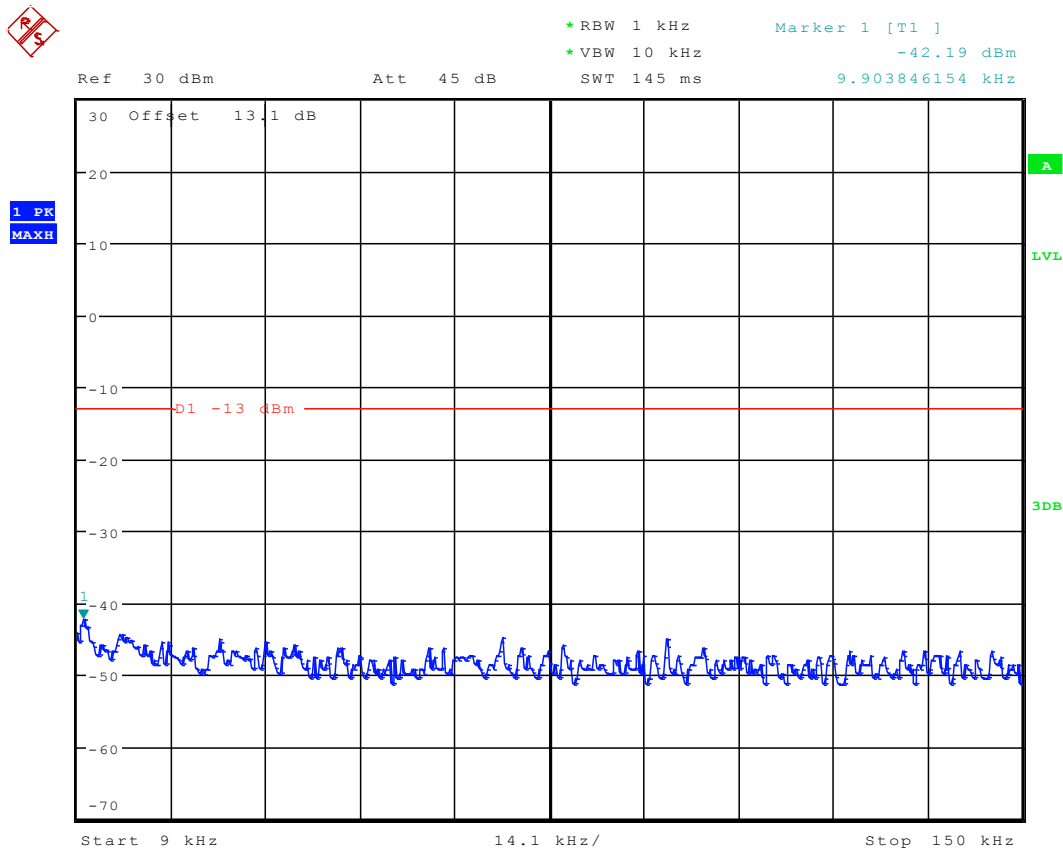
1.726794872 GHz



Date: 6.JUL.2012 23:59:45



1.1.2.2.3 QPSK/full RBs



Date: 7.JUL.2012 00:00:48



*RBW 10 kHz Marker 1 [T1]
*VBW 30 kHz -38.02 dBm
SWT 300 ms 150.00000000 kHz

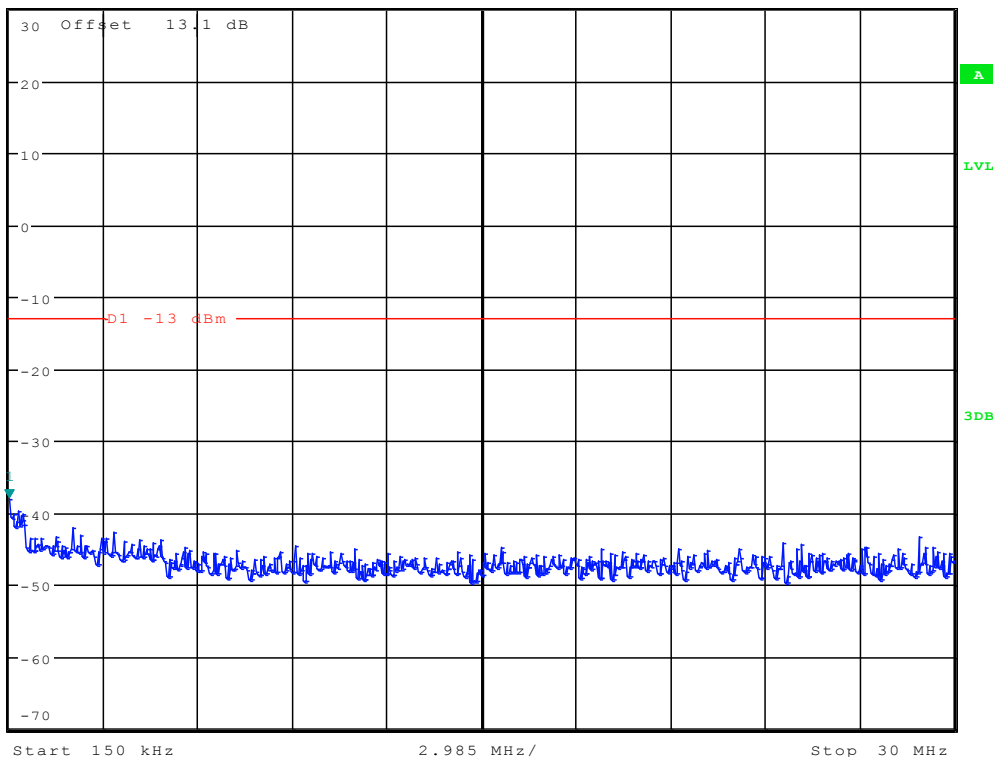
Ref 30 dBm

Att 45 dB

SWT 300 ms

150.00000000 kHz

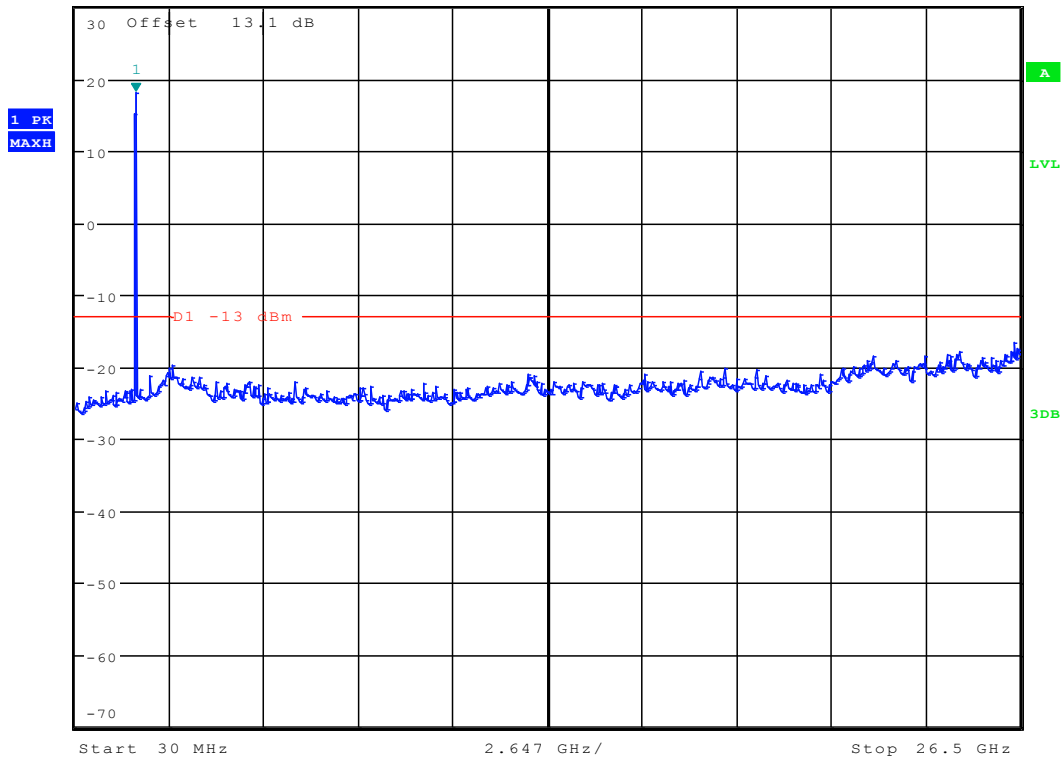
1 PK
MAXH



Date: 7.JUL.2012 00:01:09



* RBW 1 MHz Marker 1 [T1]
* VBW 3 MHz 18.05 dBm
Ref 30 dBm Att 45 dB SWT 155 ms 1.726794872 GHz

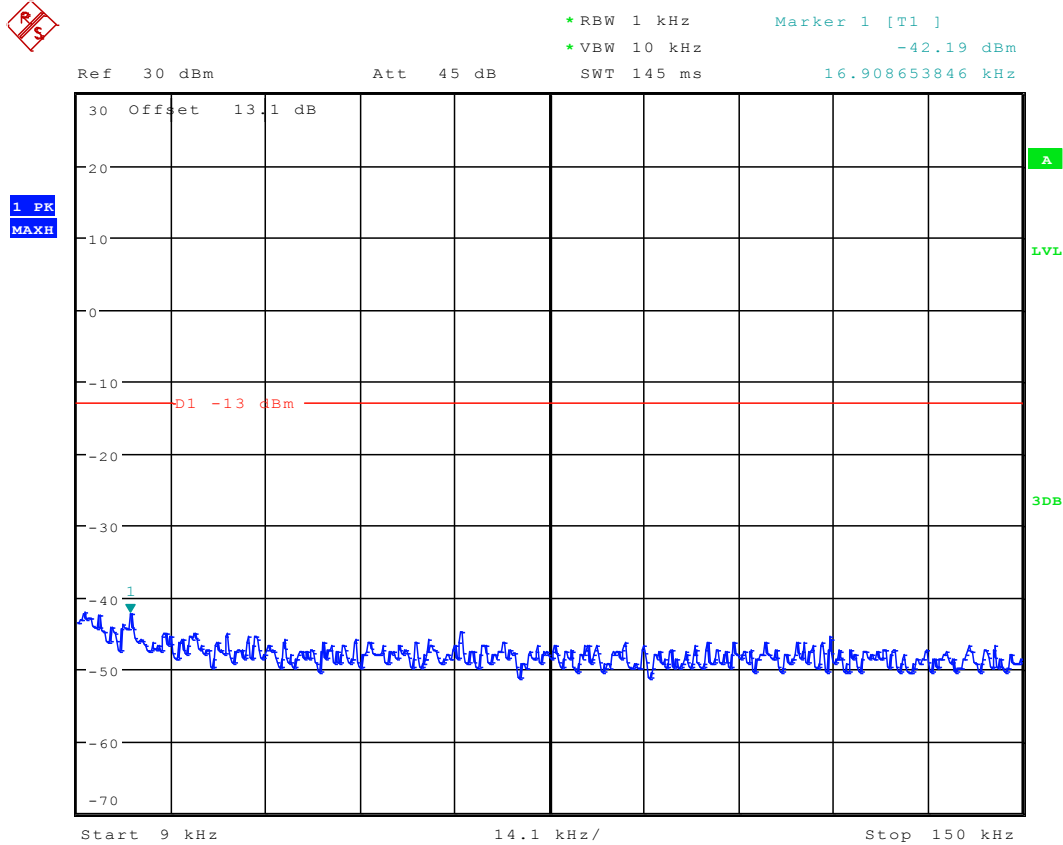


Date: 7.JUL.2012 00:01:28



1.1.2.3 Channel = H

1.1.2.3.1 QPSK/1RBs /RB #0



Date: 7.JUL.2012 00:05:43



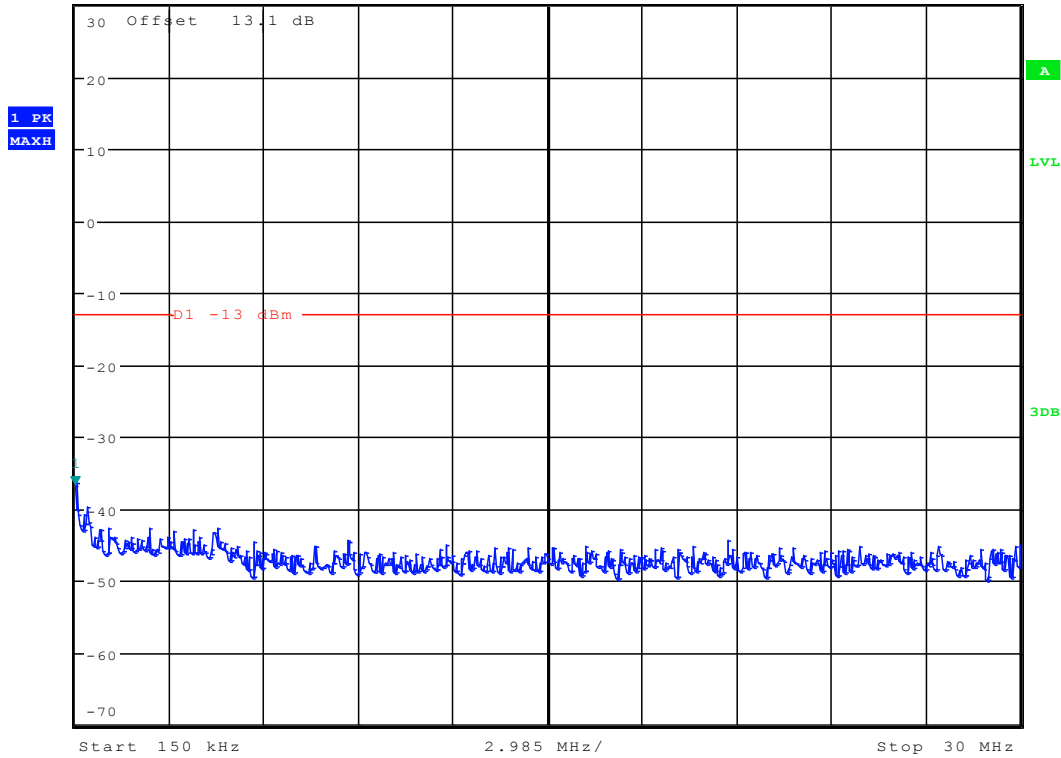
*RBW 10 kHz Marker 1 [T1]
*VBW 30 kHz -36.61 dBm
SWT 300 ms 150.00000000 kHz

Ref 30 dBm

Att 45 dB

SWT 300 ms

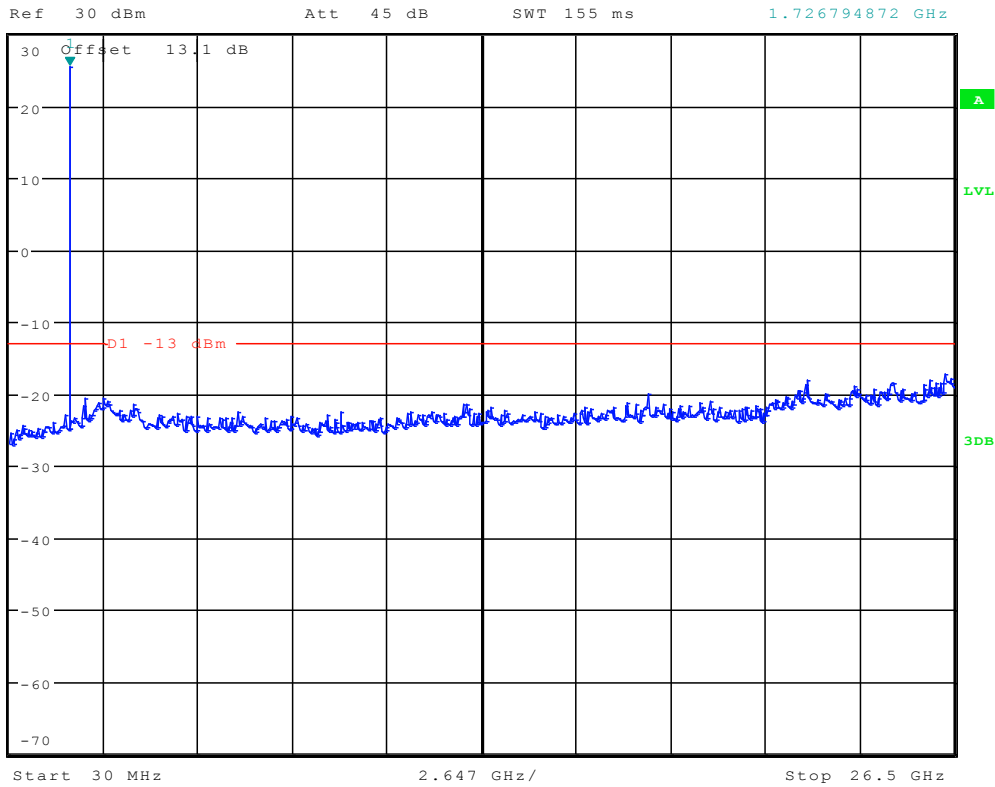
150.00000000 kHz



Date: 7.JUL.2012 00:05:29



* RBW 1 MHz
* VBW 3 MHz
Marker 1 [T1]
25.41 dBm
1.726794872 GHz



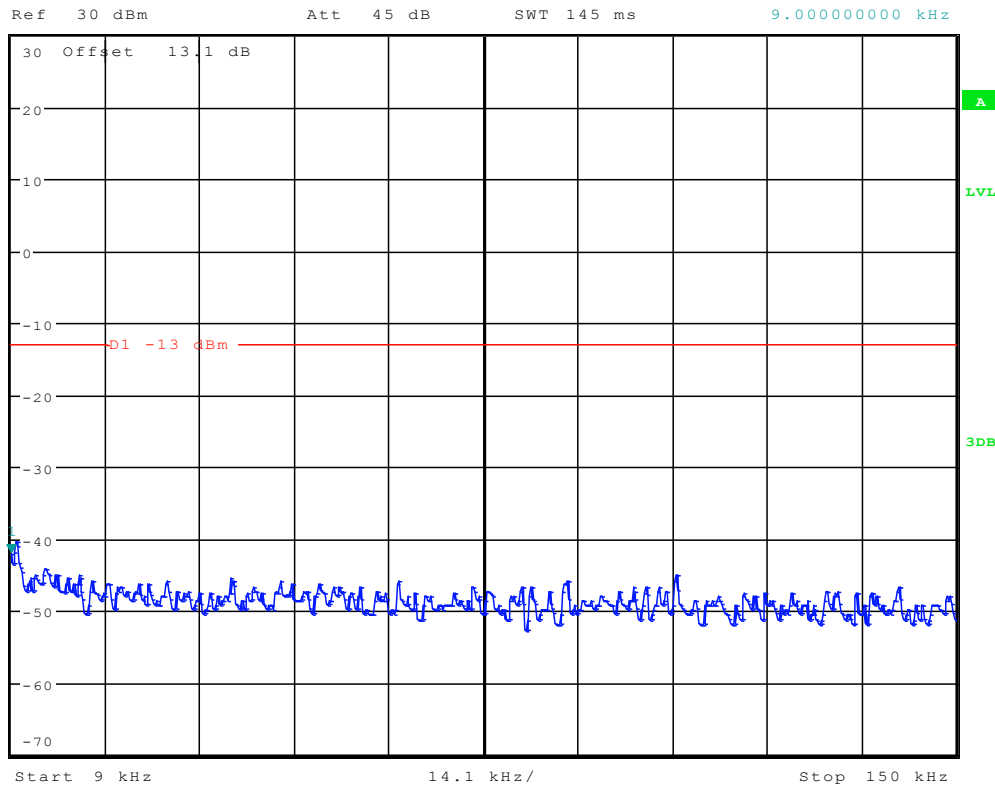
Date: 7.JUL.2012 00:05:14



1.1.2.3.2 QPSK/1RBs /RB #max



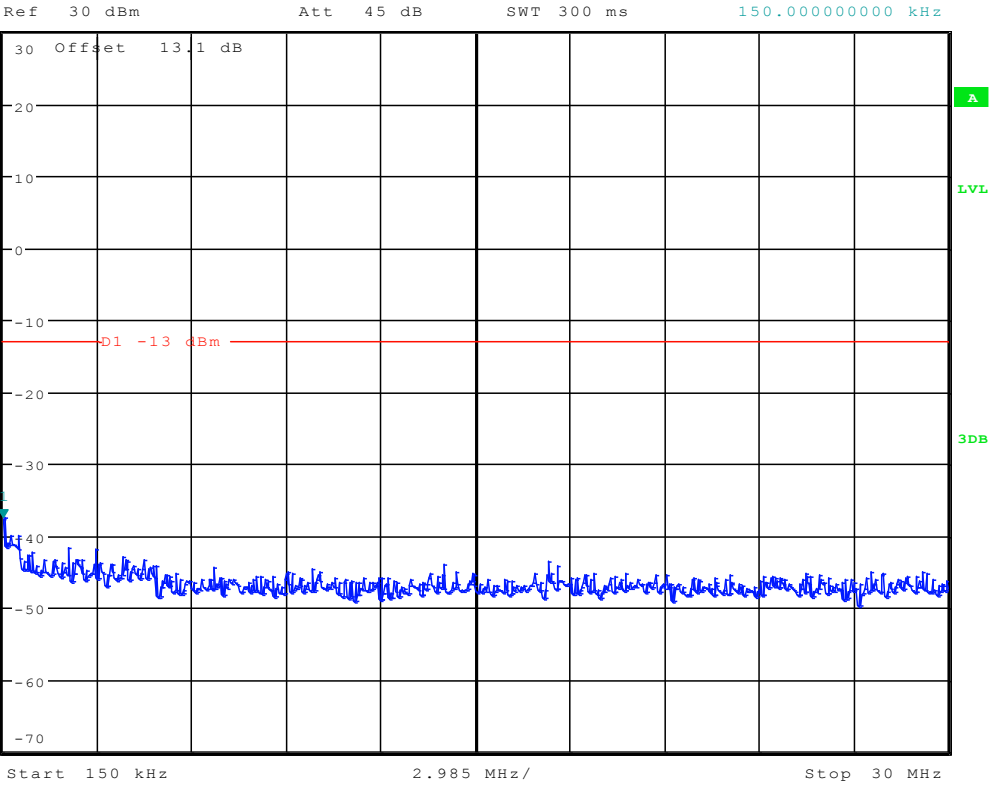
*RBW 1 kHz Marker 1 [T1]
*VBW 10 kHz -41.88 dBm
SWT 145 ms 9.000000000 kHz



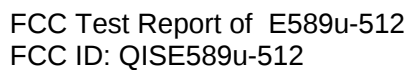
Date: 7.JUL.2012 00:04:14



*RBW 10 kHz Marker 1 [T1]
*VBW 30 kHz -37.63 dBm
SWT 300 ms 150.00000000 kHz



Date: 7.JUL.2012 00:04:37



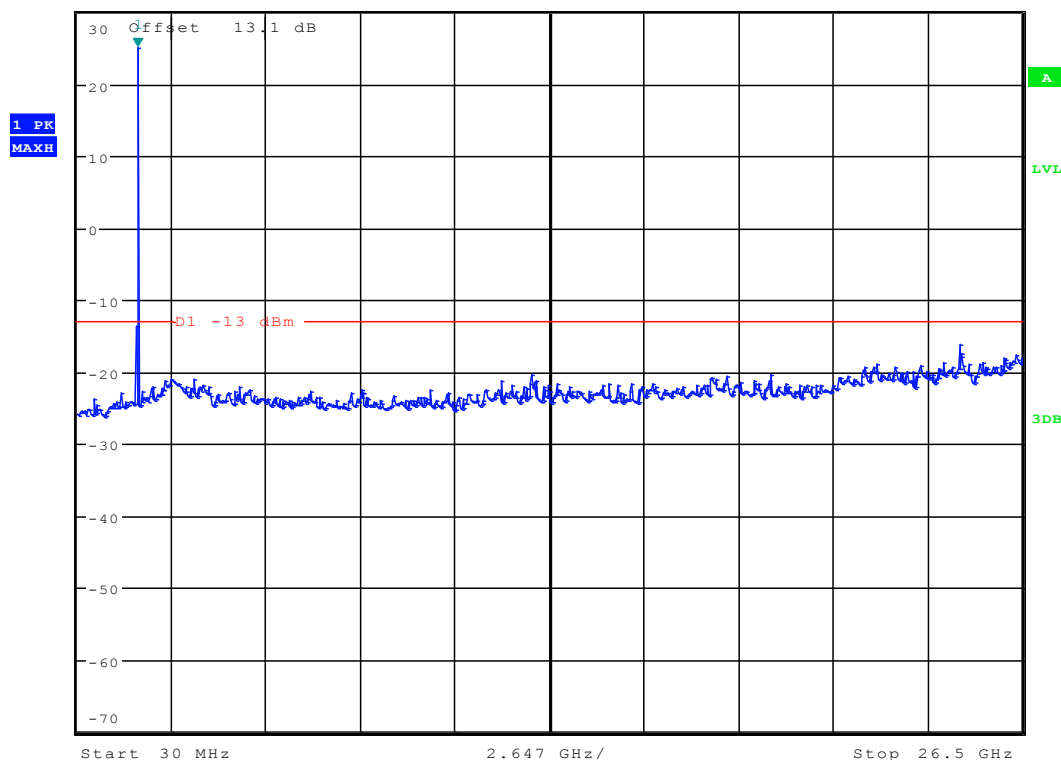
```
*RBW 1 MHz           Marker 1 [T1 ]
*VBW 3 MHz           24.97 dBm
SWT 155 ms           1.726794872 GHz
```

Ref 30 dBm

Att 45 dB

SWT 155 ms

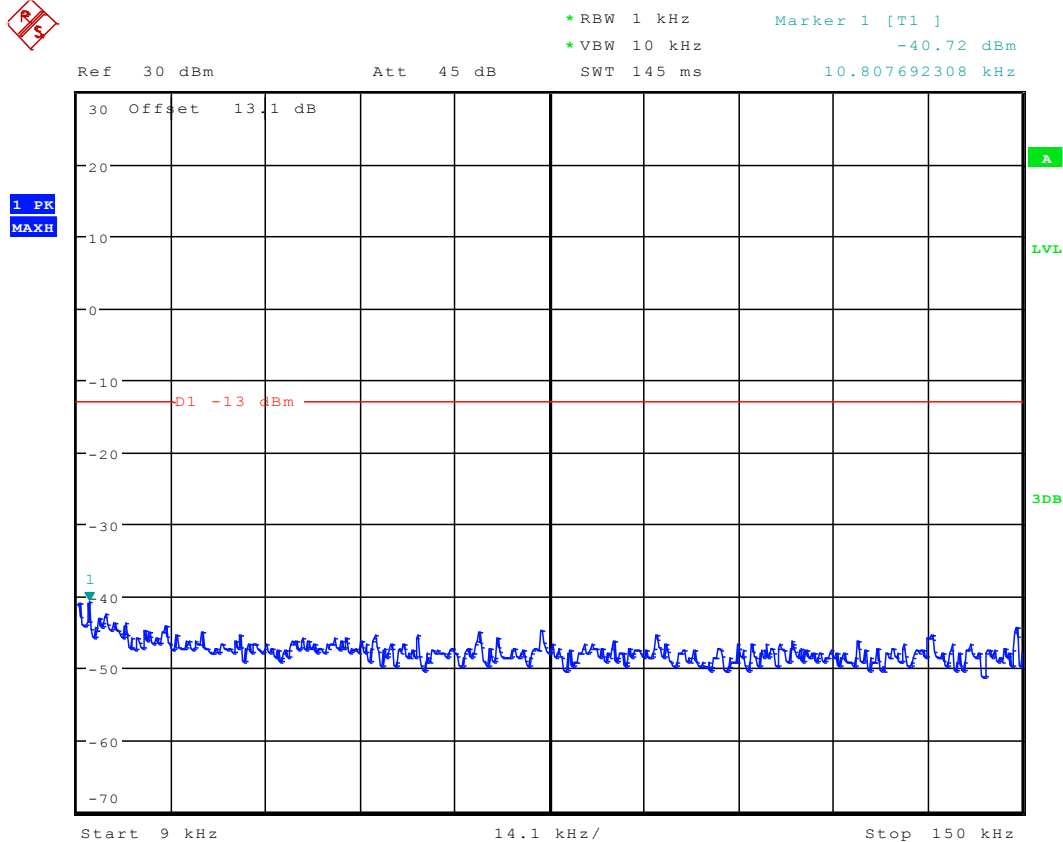
1.726794872 GHz



Date: 7.JUL.2012 00:04:58



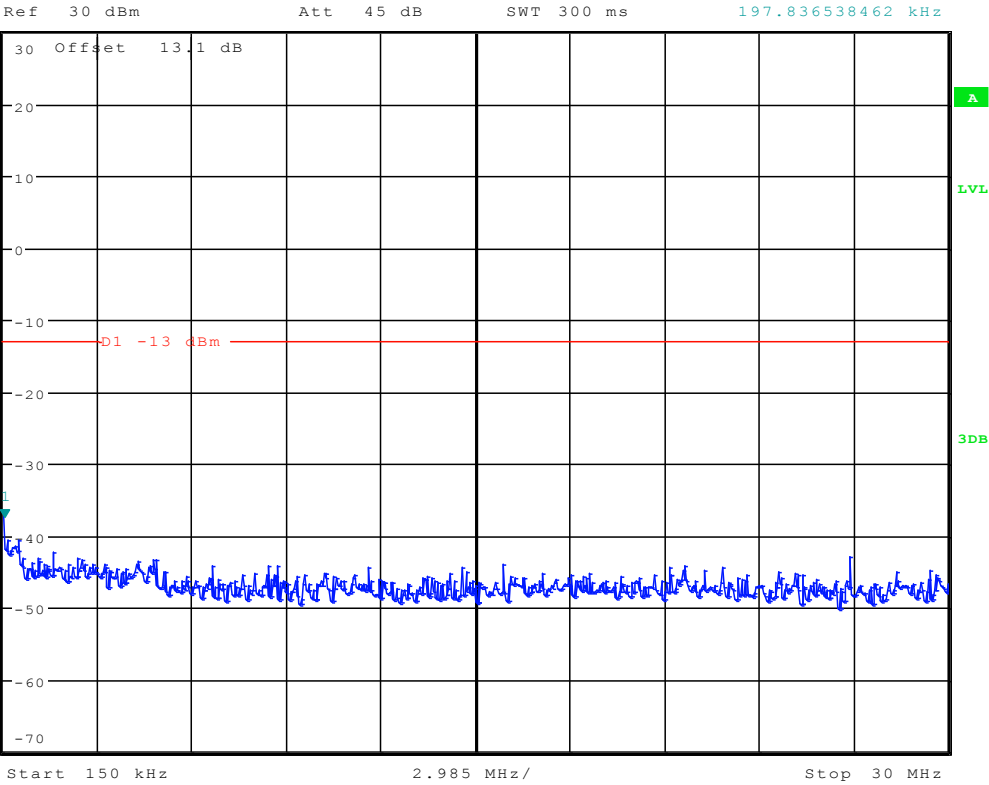
1.1.2.3.3 QPSK/full RBs



Date: 7.JUL.2012 00:03:53



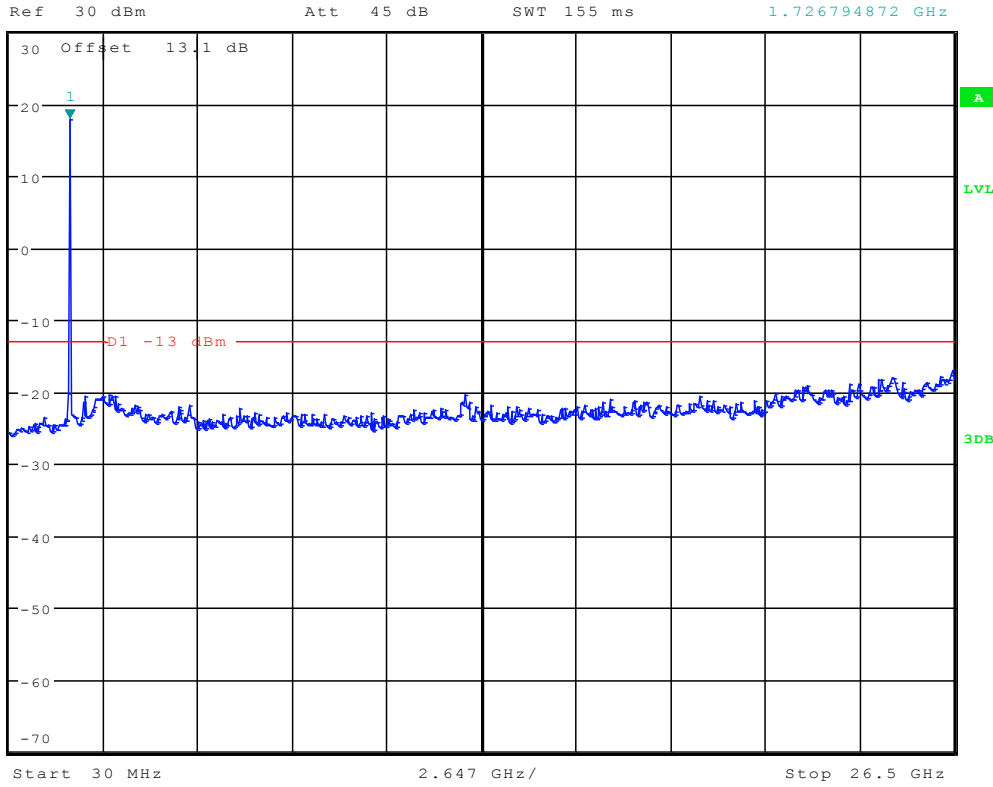
*RBW 10 kHz Marker 1 [T1]
*VBW 30 kHz -37.50 dBm
SWT 300 ms 197.836538462 kHz



Date: 7.JUL.2012 00:03:26



* RBW 1 MHz
* VBW 3 MHz
Marker 1 [T1]
17.90 dBm
1.726794872 GHz



Date: 7.JUL.2012 00:02:48

-----END-----



Appendix F

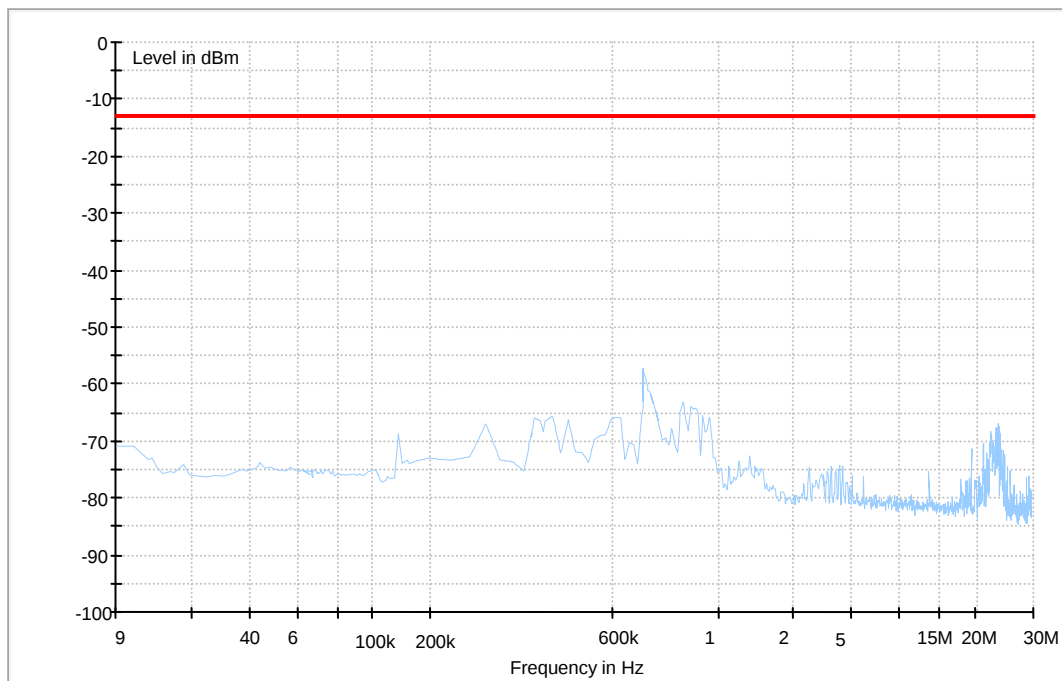
Radiated spurious emission



- Note: 1. Simultaneous transmission was investigated and no new emissions were found.
2. $RBW \geq 100 \text{ KHz}$, $VBW > 3 \times RBW$.
3. This device was tested in all configurations and the mid channel test data in this report.

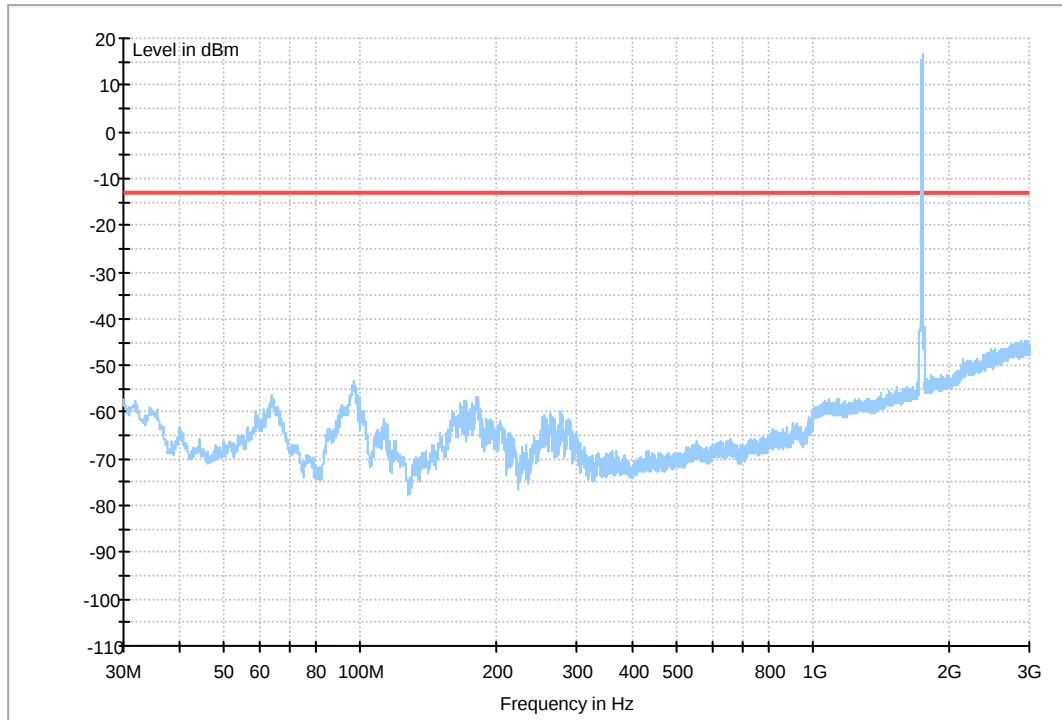
LTE Band IV (BW=5MHz Channel 20175 1RB/#RB MAX)

Traffic Mode (9kHz-30MHz)



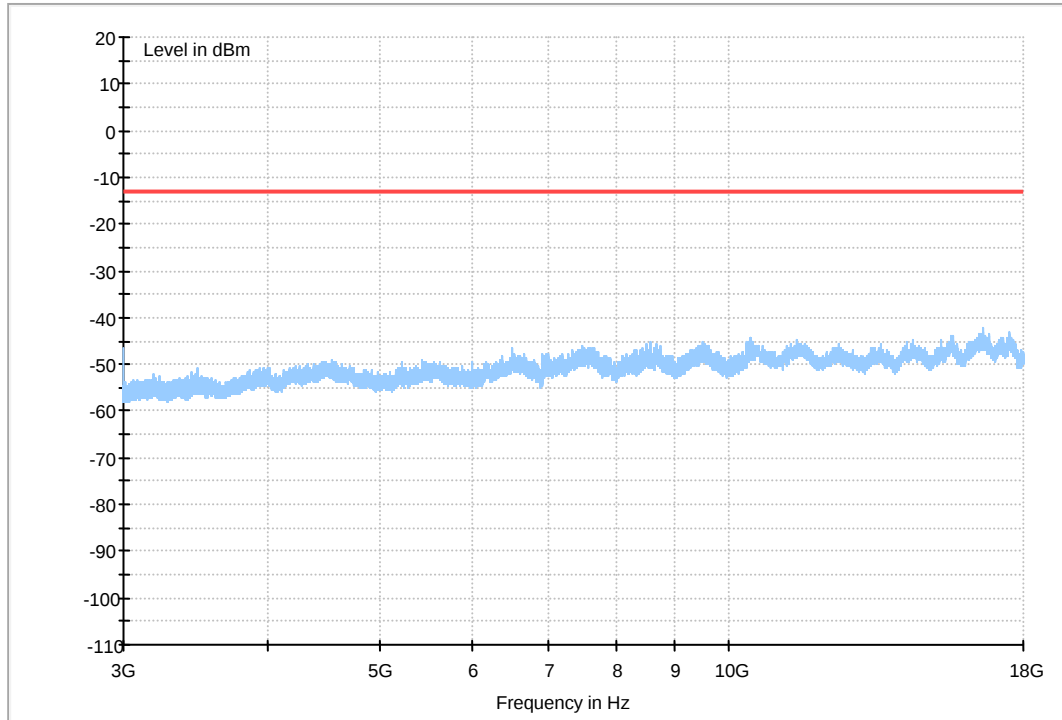


Traffic Mode (30MHz-3GHz)





Traffic Mode (3GHz-18GHz)

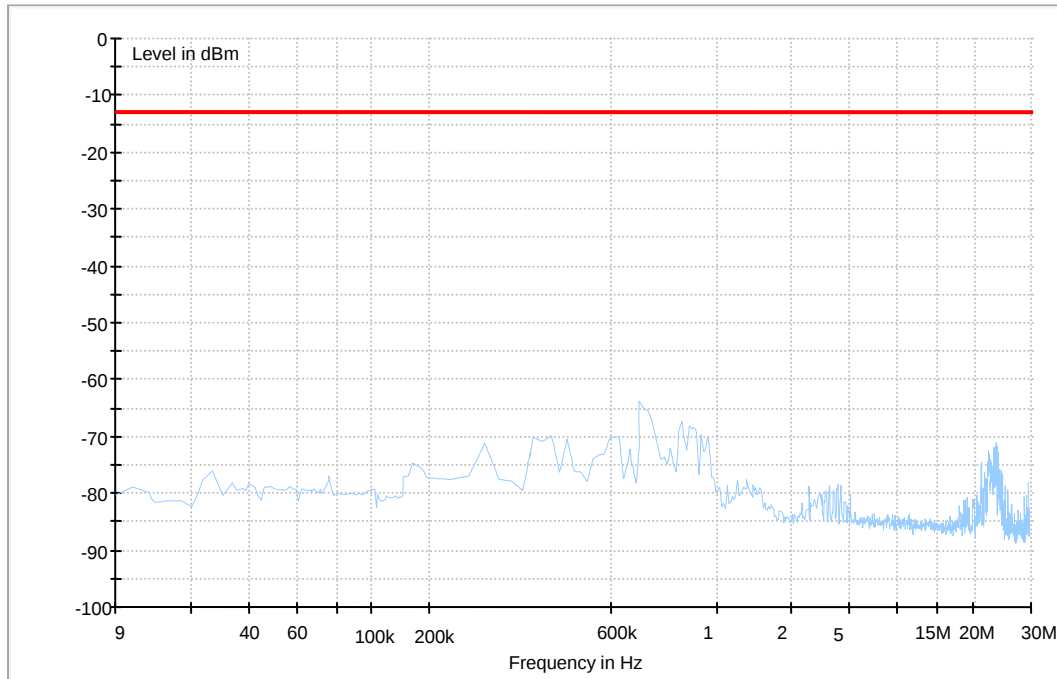




LTE Band IV

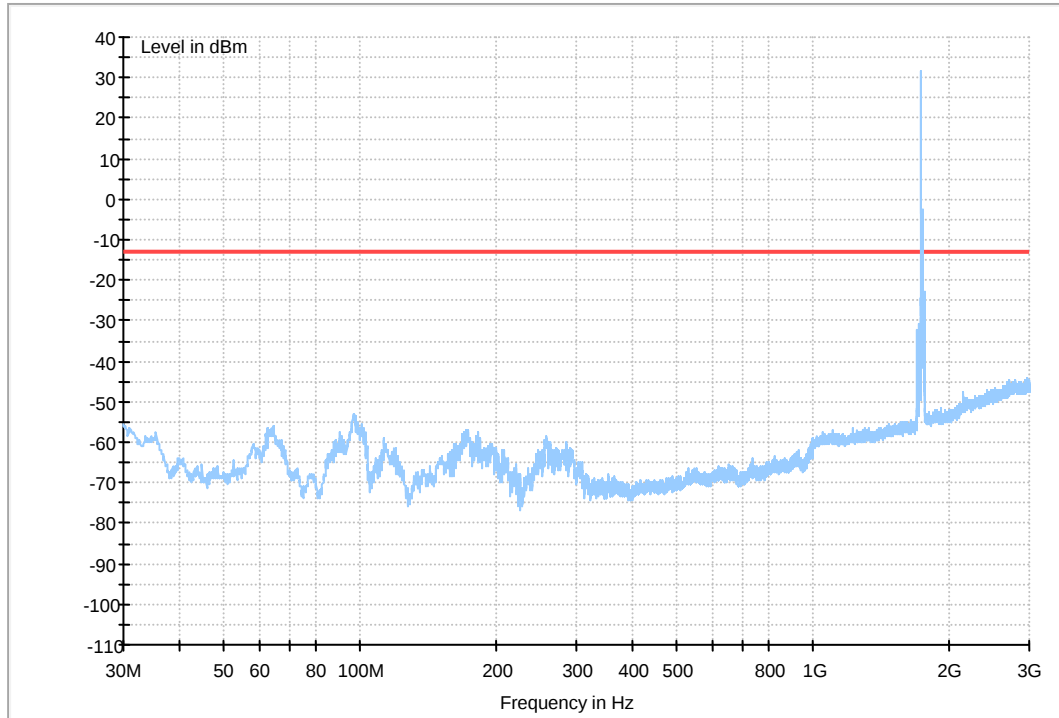
(BW=20MHz Channel 20175 1RB/#RB MAX)

Traffic Mode (9kHz-30MHz)



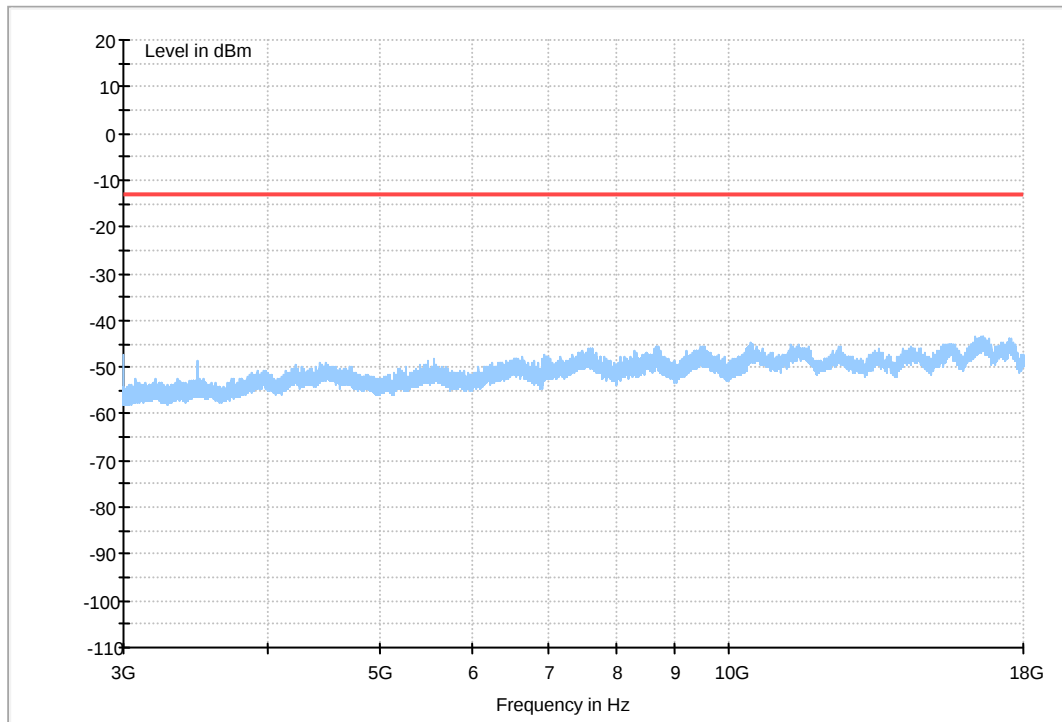


Traffic Mode (30MHz-3GHz)





Traffic Mode (3GHz-18GHz)



-----END-----



Appendix G

Frequency Stability

According to FCC Part 2.1051 & Part 27 Subpart C&L



Frequency Error vs. Temperature:

NOTE: All relevant operation modes have been tested, and the worst case data is included in this report.

Table 1 Measurement Results (LTE) BAND 4

Test Mode	RF Ch.	Volt.	Temp.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Freq. vs. 20 °C [ppm]	Limit [ppm]	Verdict
TM 6(5M)	M	VN	-30 °C	-14	-0.00808	---	±2.5	Pass
			-20 °C	-18	-0.01039	---	±2.5	Pass
			-10 °C	-15	-0.00866	---	±2.5	Pass
			0 °C	-12	-0.00693	---	±2.5	Pass
			10 °C	-15	-0.00866	---	±2.5	Pass
			20 °C	14	0.00808	---	±2.5	Pass
			30 °C	29	0.01674	---	±2.5	Pass
			40 °C	-18	-0.01039	---	±2.5	Pass
TM 6(10M)	M	VN	50 °C	9	0.00519	---	±2.5	Pass
			-30 °C	27	0.01558	---	±2.5	Pass
			-20 °C	17	0.00981	---	±2.5	Pass
			-10 °C	26	0.01501	---	±2.5	Pass
			0 °C	16	0.00924	---	±2.5	Pass
			10 °C	-16	-0.00924	---	±2.5	Pass
			20 °C	-18	-0.01039	---	±2.5	Pass
			30 °C	16	0.00924	---	±2.5	Pass
TM 6(15M)	M	VN	40 °C	26	0.01501	---	±2.5	Pass
			50 °C	13	0.00750	---	±2.5	Pass
			-30 °C	-23	-0.01328	---	±2.5	Pass
			-20 °C	-9	-0.00519	---	±2.5	Pass
			-10 °C	-15	-0.00866	---	±2.5	Pass
			0 °C	21	0.01212	---	±2.5	Pass
			10 °C	27	0.01558	---	±2.5	Pass
			20 °C	-23	-0.01328	---	±2.5	Pass
TM 6(20M)	M	VN	30 °C	25	0.01443	---	±2.5	Pass
			40 °C	-13	-0.00750	---	±2.5	Pass
			50 °C	-14	-0.00808	---	±2.5	Pass
			-30 °C	-9	-0.00519	---	±2.5	Pass
			-20 °C	-22	-0.01270	---	±2.5	Pass
			-10 °C	16	0.00924	---	±2.5	Pass
			0 °C	15	0.00866	---	±2.5	Pass
			10 °C	17	0.00981	---	±2.5	Pass
			20 °C	28	0.01616	---	±2.5	Pass
			30 °C	12	0.00693	---	±2.5	Pass
			40 °C	16	0.00924	---	±2.5	Pass
			50 °C	-21	-0.01212	---	±2.5	Pass



Frequency Error vs. Voltage:

Table 2 Measurement Results (LTE) BAND 4

Test Mode	RF Ch.	Temp.	Volt.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Freq. vs. 20 °C [ppm]	Limit [ppm]	Verdict
TM6(5M)	M	20 °C	VL	24	0.01385	---	±2.5	Pass
			VN	12	0.00693	---	±2.5	Pass
			VH	19	0.01097	---	±2.5	Pass
TM6(10M)	M	20 °C	VL	-19	-0.01097	---	±2.5	Pass
			VN	-21	-0.01212	---	±2.5	Pass
			VH	-13	-0.00750	---	±2.5	Pass
TM6(15M)	M	20 °C	VL	29	0.01674	---	±2.5	Pass
			VN	21	0.01212	---	±2.5	Pass
			VH	9	0.00519	---	±2.5	Pass
TM6(20M)	M	20 °C	VL	-20	-0.01154	---	±2.5	Pass
			VN	13	0.00750	---	±2.5	Pass
			VH	19	0.01097	---	±2.5	Pass

-----END-----