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Report On

FCC and IC Testing of the
Ericsson AB (1700MHz/2100 MHz) RBS 6501 B4 KRD 901 050/x*
Radio Base Station In accordance with FCC CFR 47 Part 27 and
Industry Canada RSS-139: Issue 2

See Note* in page 3

COMMERCIAL-IN-CONFIDENCE

FCC ID: TA8AKRD901050

IC ID: 287AB-AS901050

PREPARED BY

Guangdi Dong
Project Engineer

APPROVED BY

Simon Bennett
Authorised Signatory

DATED

29 November 2013

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Product Service

SECTION 1

REPORT INFORMATION

1.1 REPORT DETAILS

Manufacturer	Ericsson AB
Address	Isafjordsgatan 10 SE-164 80 Stockholm 16480 Sweden
Product Name	RBS 6501 B4
Product Number	KRD 901 050/x*
IC Model Number	AS901050x*
Serial Number(s)	CB4R911974 CB4R886371
Software Version	CXP 902 3291 Rev R1N18 for WCDMA CXP 102 051/19 Rev R29V for LTE
Hardware Version	R1B
Test Specification/Issue/Date	FCC CFR 47 Part 27: 2012 Industry Canada RSS-139 Issue 2: 2009
Start of Test	24 October 2013
Finish of Test	16 November 2013
Name of Engineer(s)	Guangdi Dong
Related Document(s)	ANSI C63.4: 2009 FCC CFR 47 Part 2: 2012 Industry Canada RSS-GEN Issue 3: 2010

Note*: X can be 1 to 4.

RBS 6501 B4 is available in the following four variants with the listed product numbers and IC Model Numbers. The differences between them are as follows:

Product Number	IC Model Number	Description
KRD 901 050/1	AS9010501	100 - 250 VAC power feed with integrated antenna
KRD 901 050/2	AS9010502	-48 VDC power feed with integrated antenna
KRD 901 050/3	AS9010503	100 - 250 VAC power feed without integrated antenna
KRD 901 050/4	AS9010504	-48 VDC power feed without integrated antenna

1.2 BRIEF SUMMARY OF RESULTS

A brief summary of results for each configuration, in accordance with FCC CFR 47 Part 2, Part 27 and RSS-139 is shown below.

Section	Spec Clause			Test Description	Result
	Part 2	Part 27	RSS 139		
2.1	2.1046	27.50 (d)	6.4	Maximum Peak Output Power and Peak to Average Ratio – Conducted	Pass
2.2	-	27.50 (d)	6.4	Maximum Peak Output Power – Radiated	Pass
2.3	2.1049	27.53 (h)	RSS-Gen 4.6.1	Occupied Bandwidth	Pass
2.4	2.1051	27.53 (h)	6.5	Spurious Emissions at Band Edge	Pass
2.5	2.1053	27.53 (h)	6.5	Radiated Spurious Emissions	Pass
2.6	2.1051	27.53 (h)	6.5	Conducted Spurious Emissions	Pass
2.7	2.1055	27.54	6.3	Frequency Stability	Pass
-	-	-	6.6	Receiver Spurious Emissions	N/A

N/A – Not Applicable

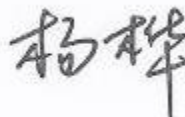
1.3 CONFIGURATION DESCRIPTION

Configuration Code	Carrier(s)	Configuration Description
W-SC	1C	WCDMA Single Antenna, Single Carrier
W-MC 1	2C	WCDMA Single Antenna, Multi Carrier x2
W-MC 2	4C	WCDMA Single Antenna, Multi Carrier x4
W-MIMO-SC	1C	WCDMA MIMO, Single Carrier
W-MIMO-MC 1	2C	WCDMA MIMO, Multi Carrier x2
W-MIMO-MC 2	4C	WCDMA MIMO, Multi Carrier x4
L-MIMO-SC	1C	LTE MIMO, Single Carrier
L-MIMO-MC 1	2C	LTE MIMO, Multi Carrier x2

1.4 DECLARATION OF BUILD STATUS

MAIN EUT	
MANUFACTURING DESCRIPTION	Radio Base Station
MANUFACTURER	Ericsson AB
PRODUCT NAME	RBS 6501 B4
PRODUCT NUMBER	KRD 901 050/1 KRD 901 050/2 KRD 901 050/3 KRD 901 050/4
IC Model Number	AS9010501 AS9010502 AS9010503 AS9010504
TRANSMITTER OPERATING RANGE	TX: 2110MHz - 2155MHz RX: 1710MHz - 1755MHz
MODULATIONS	WCDMA: QPSK, 16QAM, 64QAM LTE: QPSK, 16QAM, 64QAM
INTERMEDIATE FREQUENCIES	-
ITU DESIGNATION OF EMISSION	WCDMA: 5M00F9W LTE: 1M40F9W, 3M00F9W, 5M00F9W, 10M0F9W, 15M0F9W, 20M0F9W
SUPPORTED CHANNEL BANDWIDTH CONFIGURATION	WCDMA: 4.2 to 5MHz (configurable in steps of 100/200kHz) LTE: 1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz and 20MHz
OUTPUT POWER (RMS) (W or dBm)	Single Antenna: 37dBm (5W) MIMO: 2 x 37dBm (2 x 5W)
Antenna Gain	Internal antenna KRE 101 2141/1: >5dBi Semi-integrated Omni antenna KRE 101 2024/1: 2dBi
INSTANTANEOUS BANDWIDTH	25MHz
FCC ID	TA8AKRD901050
IC ID	287AB-AS901050
AC Power source	100-250 V AC
DC Power source	-48V DC
TECHNICAL DESCRIPTION (a brief description of the intended use and operation)	The equipment is a WCDMA and LTE Radio Base Station

Signature



Date

16 November 2013

D of B S Serial No

75924587/01

No responsibility will be accepted by TÜV SÜD Product Service UK Limited as to the accuracy of the information declared in this document by the manufacturer.

1.5 PRODUCT INFORMATION

1.5.1 Technical Description

The Equipment Under Test (EUT) RBS 6501 B4 KRD 901 050/x is an Ericsson Radio Base Station working in the public mobile service 1710/2110 MHz band which provides communication connections to 1700/2100MHz network in WCDMA/LTE Modes. The RBS 6501 B4 Radio Base Station supports 100 - 250 VAC and -48 VDC power supply.

The RBS 6501 B4 KRD 901 050/x Radio Base Station is likely to use integrated wide Sector antenna or Semi-integrated Omni antenna.

The Equipment Under Test (EUT) is shown in the photograph below. A full technical description can be found in the Manufacturer's documentation.

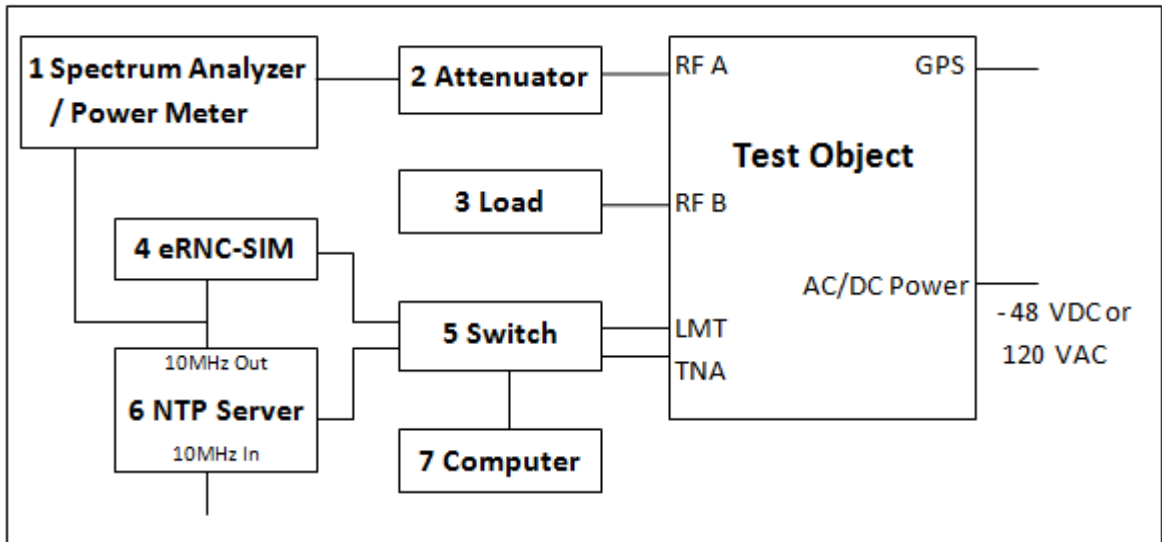


Equipment Under Test

1.6 TEST SETUP

Test Setup, Conducted Measurement:

WCDMA Configuration set up:

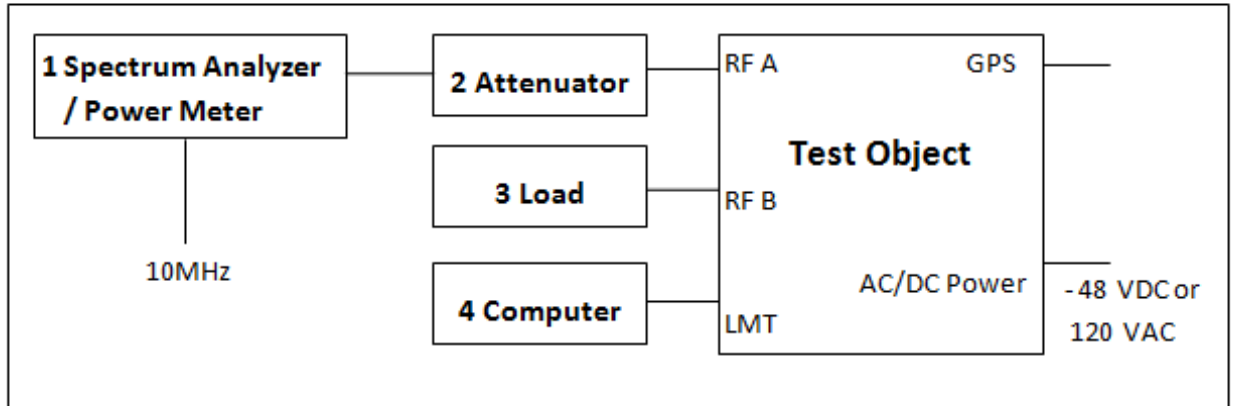


Product Name	Product Number	Version	Serial Number
RBS 6501 B4	KRD 901 050/1	R1B	CB4R911974
RBS 6501 B4	KRD 901 050/2	R1B	CB4R886371

No.	Auxiliary Equipment	Part Number / Model Type	Version	Serial Number
1	Spectrum Analyzer	FSQ26	--	201122
	Power Meter	NRP	--	101283
	Power Sensor	NRP-Z51	--	102303
2	Attenuator	48-40-43-LIM	--	BR5020
3	Load	TFE100	--	09121647
4	eRNC-SIM	LPA 108 214	--	ETD/L171
5	Switch	1000 Base-X	--	ETE/L593
6	NTP Server	SyncServer S250	--	ETE/L581
7	Computer	Advantech-610H	--	ETD/L913

Test Setup, Conducted Measurement:

LTE Configuration set up:

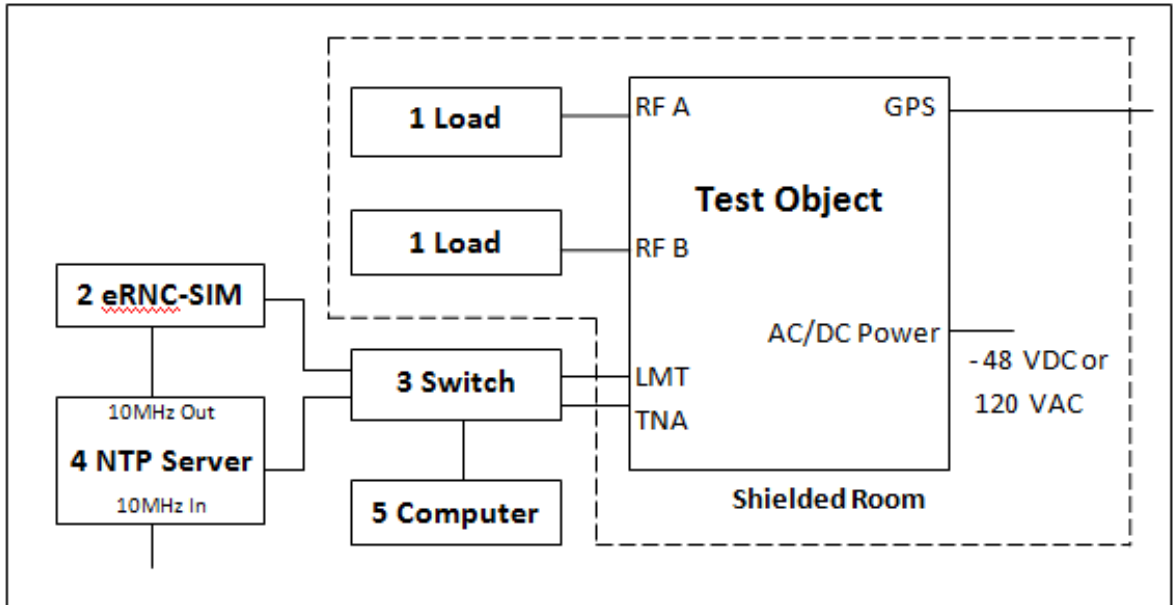


Product Name	Product Number	Version	Serial Number
RBS 6501 B4	KRD 901 050/1	R1B	CB4R911974
RBS 6501 B4	KRD 901 050/2	R1B	CB4R886371

No.	Auxiliary Equipment	Part Number / Model Type	Version	Serial Number
1	Spectrum Analyzer	FSQ26	--	201122
	Power Meter	NRP	--	101283
	Power Sensor	NRP-Z51	--	102303
2	Attenuator	48-40-43-LIM	--	BR5020
3	Load	TFE100	--	09121647
4	Computer	Advantech-610H	--	ETD/L913

Test Setup, Radiated Measurement:

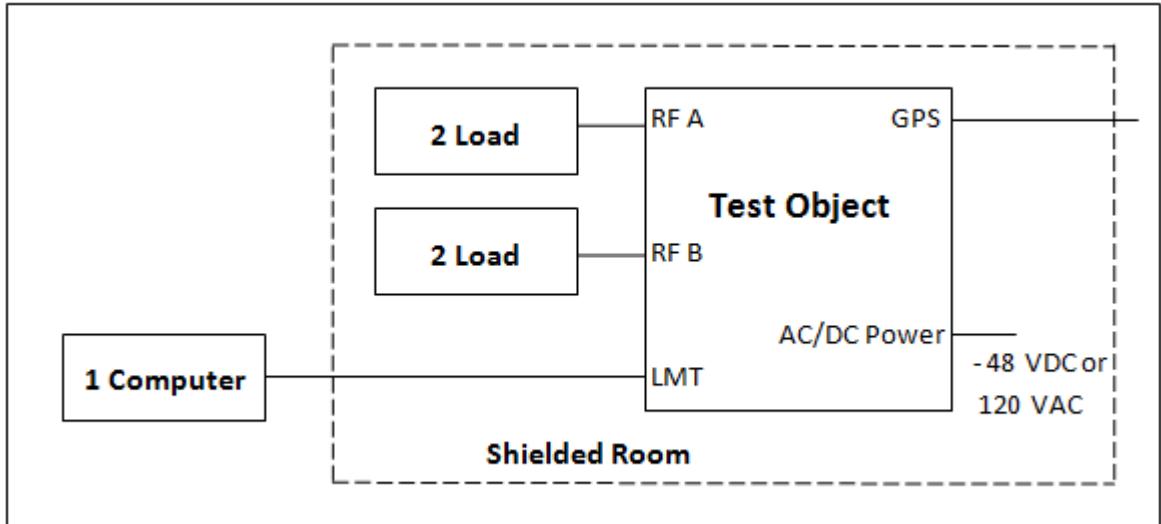
WCDMA Base Station set up:



Product Name	Product Number	Version	Serial Number
RBS 6501 B4	KRD 901 050/1	R1B	CB4R911974
RBS 6501 B4	KRD 901 050/2	R1B	CB4R886371

No.	Auxiliary Equipment	Part Number / Model Type	Version	Serial Number
1	Load	TFE100	--	09121647
	Load	TFZ10-3R	--	20100908079
2	eRNC-SIM	LPA 108 214	--	ETD/L171
3	Switch	1000 Base-X	--	ETE/L593
4	NTP Server	SyncServer S250	--	ETE/L581
5	Computer	Advantech-610H	--	ETD/L913

LTE Base Station set up:



Product Name	Product Number	Version	Serial Number
RBS 6501 B4	KRD 901 050/1	R1B	CB4R911974
RBS 6501 B4	KRD 901 050/2	R1B	CB4R886371

No.	Auxiliary Equipment	Part Number / Model Type	Version	Serial Number
1	Computer	Advantech-610H	--	ETD/L913
2	Load	TFE100	--	09121647
	Load	TFZ10-3R	--	20100908079

1.7 TEST CONDITIONS

For all tests the EUT was set up in accordance with the relevant test standard and to represent typical operating conditions. Tests were applied with the EUT situated in a shielded enclosure, test laboratories or a chamber as appropriate.

All test cases were tested with the EUT supplied with -48V DC by an external power supply. Frequency stability measurements were tested using both -48V DC and 120V AC.

1.8 DEVIATION FROM THE STANDARD

No deviations from the applicable test standards or test plan were made during testing.

1.9 MODIFICATION RECORD

Modification State 0 - No modifications were made to the EUT during testing.

1.10 ALTERNATIVE TEST SITE

Under our group UKAS Accreditation, TÜV SÜD Product Service conducted the following tests at Ericsson in Beijing, China:

- Maximum Average Output Power and Peak to Average Ratio – Conducted
- Occupied Bandwidth
- Band Edge
- Conducted Spurious Emissions
- Frequency Stability

Radiated Spurious Emissions and Maximum Average Output Power Radiated testing have been performed under the following site registrations:

FCC Accreditation 910917:

The State Radio Monitoring Centre, No.80 Beilishi Road, Xicheng District, Beijing, China.

Industry Canada Accreditation 7308A-1:

The State Radio Monitoring Centre, No.80 Beilishi Road, Xicheng District, Beijing, China.



Product Service

SECTION 2

TEST DETAILS

2.1 MAXIMUM PEAK OUTPUT POWER AND PEAK TO AVERAGE RATIO - CONDUCTED

2.1.1 Specification Reference

FCC CFR 47 Part 2, Clause 2.1046
 FCC CFR 47 Part 27, Clause 27.50 (d)
 Industry Canada RSS-139, Clause 6.4

2.1.2 Equipment Under Test

RBS 6501 B4, KR D 901 050/1, S/N: CB4R911974
 RBS 6501 B4, KR D 901 050/2, S/N: CB4R886371

2.1.3 Date of Test and Modification State

24 and 25 October 2013 - Modification State 0

2.1.4 Test Equipment Used

The major items of test equipment used for the above tests are identified in Section 3.1.

2.1.5 Environmental Conditions

Ambient Temperature 24.5 – 26.7°C
 Relative Humidity 22.5 – 24.5%

2.1.6 Test Method

The path loss between the EUT and the power sensor was measured and recorded for the test band. The path loss was entered as an offset into the Power Meter and Spectrum Analyzer. The EUT was configured to transmit on Maximum Power on the configurations defined in the tables below. The Average Power and Peak to Average Ratio was measured and recorded with the results being compared with the limits. In the case of MIMO devices, the power was measured from each antenna port and the results summed in accordance with FCC KDB 662911 D01.

2.1.7 Test Results

Configuration W-SC

Maximum Output Power 37.0dBm per carrier

Modulation	Average Output Power / Peak to Average Ratio (PAR)					
	Channel Position B 2112.4MHz		Channel Position M 2132.6MHz		Channel Position T 2152.6MHz	
	Power (dBm)	PAR (dB)	Power (dBm)	PAR (dB)	Power (dBm)	PAR (dB)
QPSK	36.81	6.78	36.88	6.79	36.75	6.74

Configuration W-MC 1 (2C)

Maximum Output Power 34.0dBm per carrier

Modulation	Average Output Power / Peak to Average Ratio (PAR)					
	Channel Position B _{RFBW} 2112.4MHz + 2132.6MHz		Channel Position M _{RFBW} 2122.4MHz + 2142.6MHz		Channel Position T _{RFBW} 2132.4MHz + 2152.6MHz	
	Power (dBm)	PAR (dB)	Power (dBm)	PAR (dB)	Power (dBm)	PAR (dB)
QPSK	36.83	-	36.83	-	36.86	-

Configuration W-MC 2 (4C)

Maximum Output Power 31.0dBm per carrier

Modulation	Average Output Power / Peak to Average Ratio (PAR)					
	Channel Position B _{RFBW} 2112.4MHz + 2117.4MHz + 2127.6MHz + 2132.6MHz		Channel Position M _{RFBW} 2122.4MHz + 2127.4MHz + 2137.6MHz + 2142.6MHz		Channel Position T _{RFBW} 2132.4MHz + 2137.4MHz + 2147.6MHz + 2152.6MHz	
	Power (dBm)	PAR (dB)	Power (dBm)	PAR (dB)	Power (dBm)	PAR (dB)
QPSK	36.54	-	36.81	-	36.74	-

Configuration W-MIMO-SC

Maximum Output Power 37.0dBm per carrier

Antenna	Modulation	Average Output Power / Peak to Average Ratio (PAR)					
		Channel Position B 2112.4MHz		Channel Position M 2132.6MHz		Channel Position T 2152.6MHz	
		Power (dBm)	PAR (dB)	Power (dBm)	PAR (dB)	Power (dBm)	PAR (dB)
A	16QAM	36.98	6.77	37.07	6.78	36.91	6.76
B	16QAM	37.17	6.90	37.16	6.78	37.11	6.78
Total		40.09	-	40.12	-	40.02	-

Configuration W-MIMO-MC 1 (2C)

Maximum Output Power 34.0dBm per carrier

Antenna	Modulation	Average Output Power / Peak to Average Ratio (PAR)					
		Channel Position B _{RFBW} 2112.4MHz + 2132.6MHz		Channel Position M _{RFBW} 2122.4MHz + 2142.6MHz		Channel Position T _{RFBW} 2132.4MHz + 2152.6MHz	
		Power (dBm)	PAR (dB)	Power (dBm)	PAR (dB)	Power (dBm)	PAR (dB)
A	16QAM	36.85	-	36.93	-	36.83	-
B	16QAM	36.95	-	36.68	-	36.88	-
Total		39.91	-	39.82	-	39.86	-

Configuration W-MIMO-MC 2 (4C)

Maximum Output Power 31.0dBm per carrier

Antenna	Modulation	Average Output Power / Peak to Average Ratio (PAR)					
		Channel Position B _{RFBW} 2112.4MHz + 2117.4MHz + 2127.6MHz + 2132.6MHz		Channel Position M _{RFBW} 2122.4MHz + 2127.4MHz + 2137.6MHz + 2142.6MHz		Channel Position T _{RFBW} 2132.4MHz + 2137.4MHz + 2147.6MHz + 2152.6MHz	
		Power (dBm)	PAR (dB)	Power (dBm)	PAR (dB)	Power (dBm)	PAR (dB)
A	16QAM	36.98	-	36.92	-	36.85	-
B	16QAM	36.85	-	36.85	-	36.84	-
Total		39.93	-	39.89	-	39.85	-

Configuration L-MIMO-SC

Maximum Output Power 37.0dBm per carrier

Antenna	Modulation / Carrier Bandwidth (MHz)	Average Output Power / Peak to Average Ratio (PAR)					
		Channel Position B 2110.7MHz		Channel Position M 2132.5MHz		Channel Position T 2154.3MHz	
		Power (dBm)	PAR (dB)	Power (dBm)	PAR (dB)	Power (dBm)	PAR (dB)
A	QPSK / 1.4 MHz	36.94	7.23	36.82	6.94	36.72	7.12
B		36.84	7.16	36.73	7.17	36.68	6.90
Total		39.90	-	39.79	-	39.71	-

Antenna	Modulation / Carrier Bandwidth (MHz)	Average Output Power / Peak to Average Ratio (PAR)					
		Channel Position B 2111.5MHz		Channel Position M 2132.5MHz		Channel Position T 2153.5MHz	
		Power (dBm)	PAR (dB)	Power (dBm)	PAR (dB)	Power (dBm)	PAR (dB)
A	QPSK / 3.0 MHz	37.01	6.90	36.89	6.98	36.88	6.86
B		36.92	6.88	36.82	6.85	36.75	6.87
Total		39.97	-	39.86	-	39.83	-

Antenna	Modulation / Carrier Bandwidth (MHz)	Average Output Power / Peak to Average Ratio (PAR)					
		Channel Position B 2112.5MHz		Channel Position M 2132.5MHz		Channel Position T 2152.5MHz	
		Power (dBm)	PAR (dB)	Power (dBm)	PAR (dB)	Power (dBm)	PAR (dB)
A	QPSK / 5.0 MHz	37.03	6.84	36.91	6.87	36.94	6.89
B		36.93	6.84	36.84	6.82	36.78	6.84
Total		39.99	-	39.88	-	39.87	-

Antenna	Modulation / Carrier Bandwidth (MHz)	Average Output Power / Peak to Average Ratio (PAR)					
		Channel Position B 2115.0MHz		Channel Position M 2132.5MHz		Channel Position T 2150.0MHz	
		Power (dBm)	PAR (dB)	Power (dBm)	PAR (dB)	Power (dBm)	PAR (dB)
A	QPSK / 10.0 MHz	37.00	6.90	36.92	6.89	36.98	6.99
B		36.90	6.86	36.85	6.89	36.84	7.05
Total		39.96	-	39.89	-	39.92	-

Antenna	Modulation / Carrier Bandwidth (MHz)	Average Output Power / Peak to Average Ratio (PAR)					
		Channel Position B 2117.5MHz		Channel Position M 2132.5MHz		Channel Position T 2147.5MHz	
		Power (dBm)	PAR (dB)	Power (dBm)	PAR (dB)	Power (dBm)	PAR (dB)
A	QPSK / 15.0 MHz	36.99	6.98	36.92	6.93	36.95	7.20
B		36.90	6.92	36.86	6.87	36.81	7.12
Total		39.95	-	39.90	-	39.89	-

Antenna	Modulation / Carrier Bandwidth (MHz)	Average Output Power / Peak to Average Ratio (PAR)					
		Channel Position B 2120.0MHz		Channel Position M 2132.5MHz		Channel Position T 2145.0MHz	
		Power (dBm)	PAR (dB)	Power (dBm)	PAR (dB)	Power (dBm)	PAR (dB)
A	QPSK / 20.0 MHz	36.96	7.01	36.95	6.99	36.96	7.24
B		36.85	6.96	36.85	6.95	36.86	7.12
Total		39.96	-	39.91	-	39.92	-

Configuration L-MIMO-MC 1 (2C)

Maximum Output Power 34.0dBm per carrier

Antenna	Carrier Bandwidth (MHz)	Average Output Power / Peak to Average Ratio (PAR)					
		Channel Position B _{RFBW} 2110.7MHz + 2134.3MHz		Channel Position M _{RFBW} 2120.7MHz + 2144.3MHz		Channel Position T _{RFBW} 2130.7MHz + 2154.3MHz	
		Power (dBm)	PAR (dB)	Power (dBm)	PAR (dB)	Power (dBm)	PAR (dB)
A	QPSK / 1.4 MHz	36.83	-	36.89	-	36.72	-
B		36.77	-	36.73	-	36.64	-
Total		39.81	-	39.82	-	39.69	-

Antenna	Carrier Bandwidth (MHz)	Average Output Power / Peak to Average Ratio (PAR)					
		Channel Position B _{RFBW} 2111.5MHz + 2133.5MHz		Channel Position M _{RFBW} 2121.5MHz + 2143.5MHz		Channel Position T _{RFBW} 2131.5MHz + 2153.5MHz	
		Power (dBm)	PAR (dB)	Power (dBm)	PAR (dB)	Power (dBm)	PAR (dB)
A	QPSK / 3.0 MHz	36.90	-	36.98	-	36.81	-
B		36.84	-	36.83	-	36.76	-
Total		39.88	-	39.92	-	39.79	-

Antenna	Carrier Bandwidth (MHz)	Average Output Power / Peak to Average Ratio (PAR)					
		Channel Position B _{RFBW} 2112.5MHz + 2132.5MHz		Channel Position M _{RFBW} 2122.5MHz + 2142.5MHz		Channel Position T _{RFBW} 2132.5MHz + 2152.5MHz	
		Power (dBm)	PAR (dB)	Power (dBm)	PAR (dB)	Power (dBm)	PAR (dB)
A	QPSK / 5.0 MHz	36.91	-	37.01	-	36.85	-
B		36.83	-	36.84	-	36.81	-
Total		39.88	-	39.94	-	39.84	-

Antenna	Carrier Bandwidth (MHz)	Average Output Power / Peak to Average Ratio (PAR)					
		Channel Position B _{RFBW} 2115.0MHz + 2130.0MHz		Channel Position M _{RFBW} 2125.0MHz + 2140.0MHz		Channel Position T _{RFBW} 2135.0MHz + 2150.0MHz	
		Power (dBm)	PAR (dB)	Power (dBm)	PAR (dB)	Power (dBm)	PAR (dB)
A	QPSK / 10.0 MHz	36.92	-	37.01	-	36.91	-
B		36.82	-	36.87	-	36.90	-
Total		39.88	-	39.95	-	39.92	-

Limit	
Peak Power	FCC / IC: ≤ 1640 W / MHz or ≤ 62.15 dBm
Peak to Average Ratio	13 dB

2.2 MAXIMUM PEAK OUTPUT POWER - RADIATED

2.2.1 Specification Reference

FCC CFR 47 Part 27, Clause 27.50 (d)
Industry Canada RSS-139, Clause 6.4

2.2.2 Equipment Under Test

RBS 6501 B4 , KRD 901 050/1, S/N: CB4R911974
RBS 6501 B4 , KRD 901 050/2, S/N: CB4R886371

2.2.3 Date of Test and Modification State

05, 06, and 07 November 2013 - Modification State 0

2.2.4 Test Equipment Used

The major items of test equipment used for the above tests are identified in Section 3.1.

2.2.5 Environmental Conditions

Ambient Temperature	27.3 – 28.4°C
Relative Humidity	25.3 – 31.0%

2.2.6 Test Method

The measurements were performed according to ANSI C63.4: 2009.

The EUT was set to transmit at maximum power and testing was carried out on Bottom, Middle and Top Channels. The test of radiated emission was performed in a semi anechoic chamber. The measurements were performed with both horizontal and vertical polarizations of the antennas. The antenna distance was 3.0 m.

The fundamental was scanned with Peak detector with the antenna height was varied between 1-4 m and the turntable was rotated between 0-360 degrees for maximum response. The carrier power was measured with RMS detector activated with a RBW of 1MHz. The output power was verified with the substitution method. The antenna distance during the measurements was 3.0 m.

2.2.7 Test Results

Configuration W-MIMO-SC

Maximum Output Power 37.0dBm per carrier

Internal antenna KRE 101 2141/1, upright mounted

Bandwidth Configuration (MHz)	Channel Position B	Vertical/Horizontal RMS power	
		dBm/MHz	W/MHz
5	2112.4MHz	44.13/43.70	25.88/23.44

Bandwidth Configuration (MHz)	Channel Position M	Vertical/Horizontal RMS power	
		dBm/MHz	W/MHz
5	2132.6MHz	44.99/43.92	31.55/24.66

Bandwidth Configuration (MHz)	Channel Position T	Vertical/Horizontal RMS power	
		dBm/MHz	W/MHz
5	2152.6MHz	45.06/43.44	32.06/22.08

Internal antenna KRE 101 2141/1, side mounted

Bandwidth Configuration (MHz)	Channel Position B	Vertical/Horizontal RMS power	
		dBm/MHz	W/MHz
5	2112.4MHz	44.94/42.63	31.19/18.32

Bandwidth Configuration (MHz)	Channel Position M	Vertical/Horizontal RMS power	
		dBm/MHz	W/MHz
5	2132.6MHz	44.71/44.49	29.58/28.11

Bandwidth Configuration (MHz)	Channel Position T	Vertical/Horizontal RMS power	
		dBm/MHz	W/MHz
5	2152.6MHz	44.34/44.57	27.16/28.64

Semi-integrated Omni antenna KRE 101 2024/1, upright mounted

Bandwidth Configuration (MHz)	Channel Position B	Vertical/Horizontal RMS power	
		dBm/MHz	W/MHz
5	2112.4MHz	43.01/35.23	19.99/3.33

Bandwidth Configuration (MHz)	Channel Position M	Vertical/Horizontal RMS power	
		dBm/MHz	W/MHz
5	2132.6MHz	43.81/36.48	24.04/4.45

Bandwidth Configuration (MHz)	Channel Position T	Vertical/Horizontal RMS power	
		dBm/MHz	W/MHz
5	2152.6MHz	44.17/37.17	26.12/5.21

Semi-integrated Omni antenna KRE 101 2024/1, side mounted

Bandwidth Configuration (MHz)	Channel Position B	Vertical/Horizontal RMS power	
		dBm/MHz	W/MHz
5	2112.4MHz	45.86/34.85	38.55/3.05

Bandwidth Configuration (MHz)	Channel Position M	Vertical/Horizontal RMS power	
		dBm/MHz	W/MHz
5	2132.6MHz	44.32/33.89	27.04/2.45

Bandwidth Configuration (MHz)	Channel Position T	Vertical/Horizontal RMS power	
		dBm/MHz	W/MHz
5	2152.6MHz	44.45/33.61	27.86/2.30

Configuration L-MIMO-SC

Maximum Output Power 37.0dBm per carrier

Internal antenna KRE 101 2141/1, upright mounted

Bandwidth Configuration (MHz)	Channel Position B	Vertical/Horizontal RMS power	
		dBm/MHz	W/MHz
1.4	2110.7MHz	45.13/44.58	32.58/28.71

Bandwidth Configuration (MHz)	Channel Position M	Vertical/Horizontal RMS power	
		dBm/MHz	W/MHz
1.4	2132.5MHz	45.05/43.86	31.99/24.32
3	2132.5MHz	45.12/43.44	32.51/22.08
5	2132.5MHz	44.77/44.34	29.99/27.16
10	2132.5MHz	45.13/43.57	32.58/22.75
15	2132.5MHz	45.19/43.25	33.04/21.13
20	2132.5MHz	45.21/43.38	33.19/21.78

Bandwidth Configuration (MHz)	Channel Position T	Vertical/Horizontal RMS power	
		dBm/MHz	W/MHz
1.4	2154.3MHz	44.87/43.53	30.69/22.54

Internal antenna KRE 101 2141/1, side mounted

Bandwidth Configuration (MHz)	Channel Position B	Vertical/Horizontal RMS power	
		dBm/MHz	W/MHz
1.4	2110.7MHz	45.08/43.24	32.21/21.09

Bandwidth Configuration (MHz)	Channel Position M	Vertical/Horizontal RMS power	
		dBm/MHz	W/MHz
1.4	2132.5MHz	44.51/43.92	28.25/24.66

Bandwidth Configuration (MHz)	Channel Position T	Vertical/Horizontal RMS power	
		dBm/MHz	W/MHz
1.4	2154.3MHz	44.34/44.57	27.16/22.75

Semi-integrated Omni antenna KRE 101 2024/1, upright mounted

Bandwidth Configuration (MHz)	Channel Position B	Vertical/Horizontal RMS power	
		dBm/MHz	W/MHz
1.4	2110.7MHz	40.63/31.76	11.56/1.50

Bandwidth Configuration (MHz)	Channel Position M	Vertical/Horizontal RMS power	
		dBm/MHz	W/MHz
1.4	2132.5MHz	41.30/33.23	13.49/2.10
3	2132.5MHz	41.71/33.40	14.82/2.19
5	2132.5MHz	42.34/33.71	17.14/2.35
10	2132.5MHz	41.75/34.58	14.96/2.87
15	2132.5MHz	42.09/33.73	16.18/2.36
20	2132.5MHz	42.15/35.10	16.41/3.24

Bandwidth Configuration (MHz)	Channel Position T	Vertical/Horizontal RMS power	
		dBm/MHz	W/MHz
1.4	2154.3MHz	40.21/32.82	10.49/1.91

Semi-integrated Omni antenna KRE 101 2024/1, side mounted

Bandwidth Configuration (MHz)	Channel Position B	Vertical/Horizontal RMS power	
		dBm/MHz	W/MHz
1.4	2110.7MHz	41.57/31.72	14.35/1.49

Bandwidth Configuration (MHz)	Channel Position M	Vertical/Horizontal RMS power	
		dBm/MHz	W/MHz
1.4	2132.5MHz	41.81/31.93	15.17/1.56

Bandwidth Configuration (MHz)	Channel Position T	Vertical/Horizontal RMS power	
		dBm/MHz	W/MHz
1.4	2154.3MHz	40.44/31.34	11.07/1.36

Limit	
e.i.r.p.	FCC / IC: ≤ 1640 W / MHz

2.3 OCCUPIED BANDWIDTH

2.3.1 Specification Reference

FCC CFR 47 Part 2, Clause 2.1049 (h)
 FCC CFR 47 Part 27, Clause 27.53 (h)
 Industry Canada RSS-GEN, Clause 4.6.1

2.3.2 Equipment Under Test

RBS 6501 B4, KRD 901 050/1, S/N: CB4R911974
 RBS 6501 B4, KRD 901 050/2, S/N: CB4R886371

2.3.3 Date of Test and Modification State

24 and 28 October 2013 - Modification State 0

2.3.4 Test Equipment Used

The major items of test equipment used for the above tests are identified in Section 3.1.

2.3.5 Environmental Conditions

Ambient Temperature 24.3 – 26.4°C
 Relative Humidity 24.4 – 28.0%

2.3.6 Test Method

The EUT was set to transmit at maximum power and testing was carried out on Bottom, Middle and Top Channels. Using the Occupied Bandwidth measurement function in the Spectrum Analyser, the 99% Occupied Bandwidth was measured.

The results are shown in the plots below.

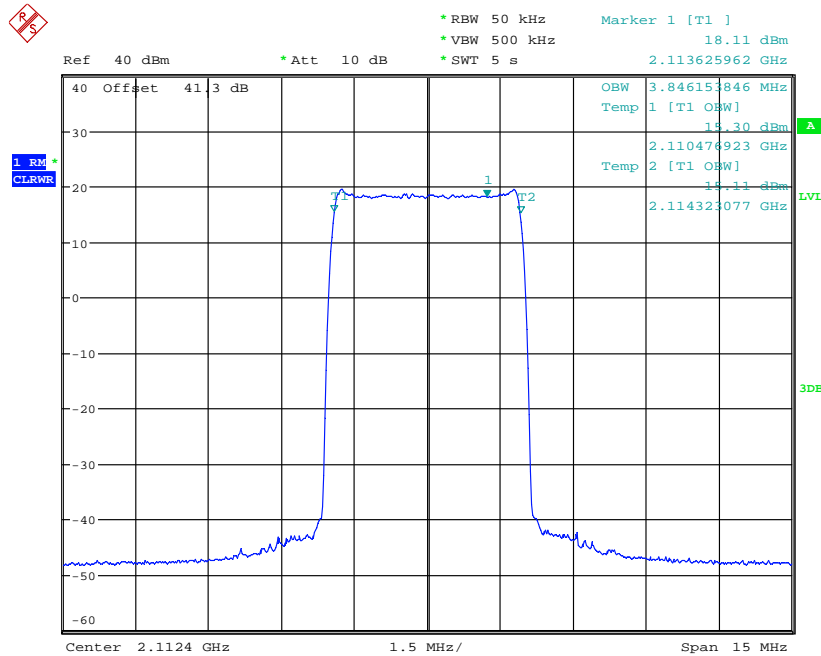
2.3.7 Test Results

Configuration W-SC

Maximum Output Power 37.0dBm per carrier

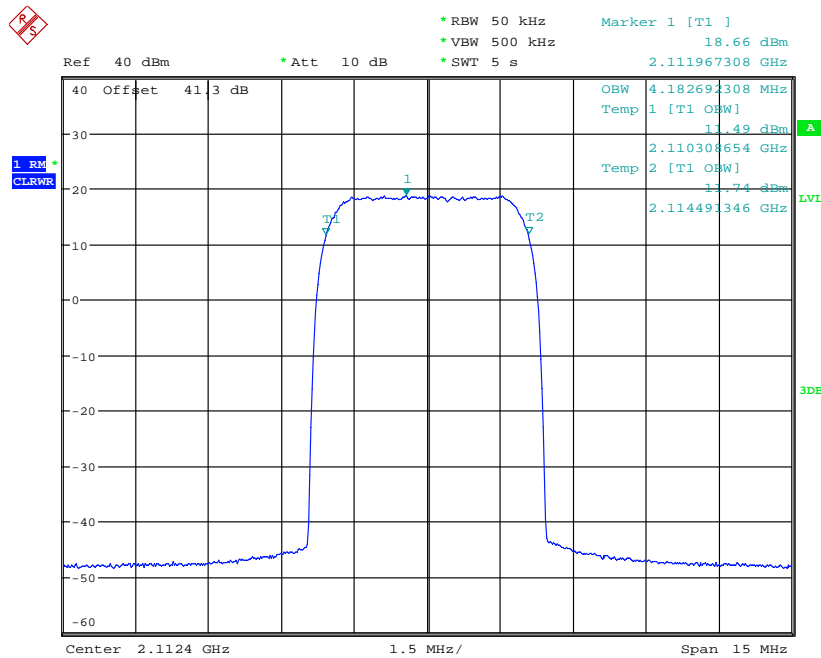
Modulation / Bandwidth	Occupied Bandwidth (MHz)		
	Channel Position B 2112.4MHz	Channel Position M 2132.6MHz	Channel Position T 2152.6MHz
QPSK / 4.2 MHz	3.84	3.84	3.84
QPSK / 5.0 MHz	4.18	4.18	4.18

Channel Position B - QPSK / Bandwidth 4.2 MHz



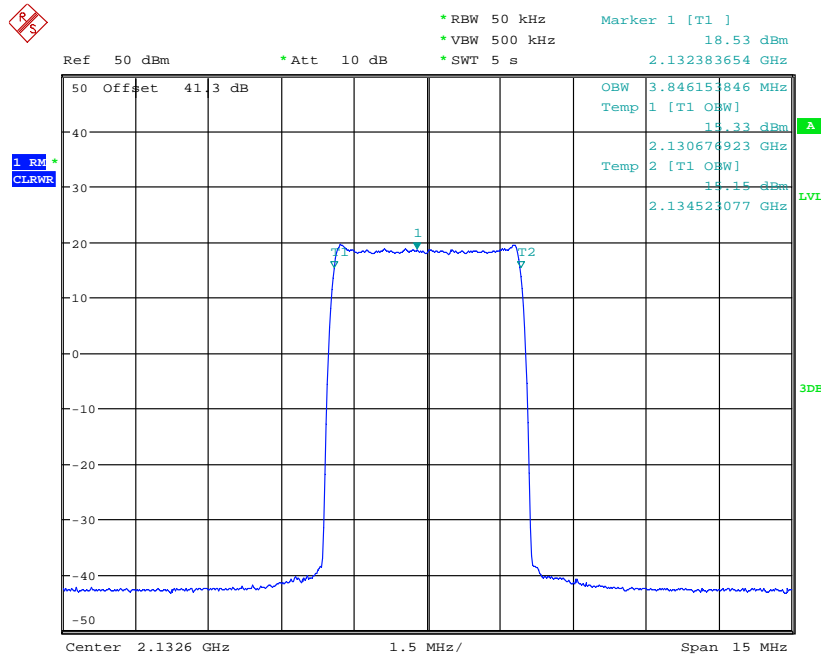
Date: 28.OCT.2013 09:19:36

Channel Position B - QPSK / Bandwidth 5.0 MHz



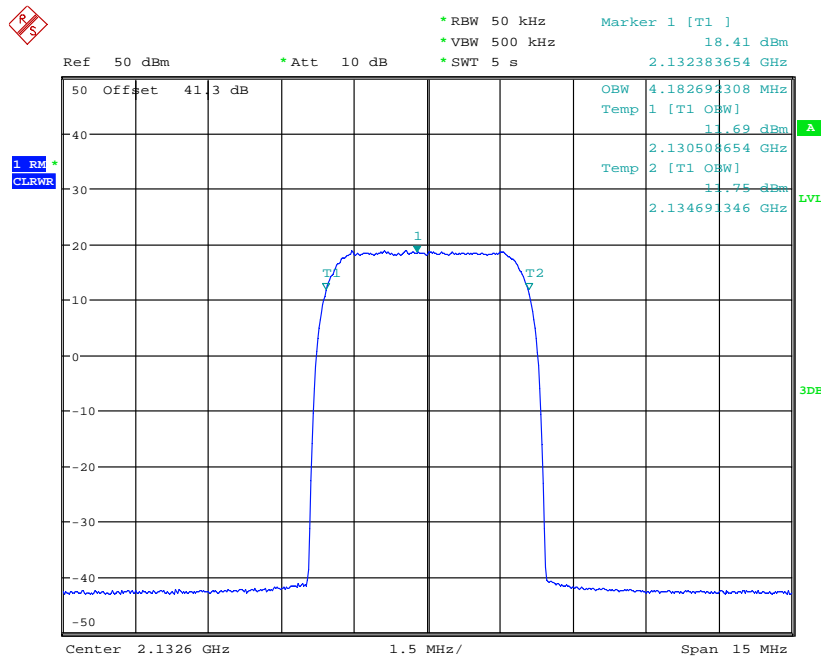
Date: 28.OCT.2013 08:40:02

Channel Position M - QPSK / Bandwidth 4.2 MHz



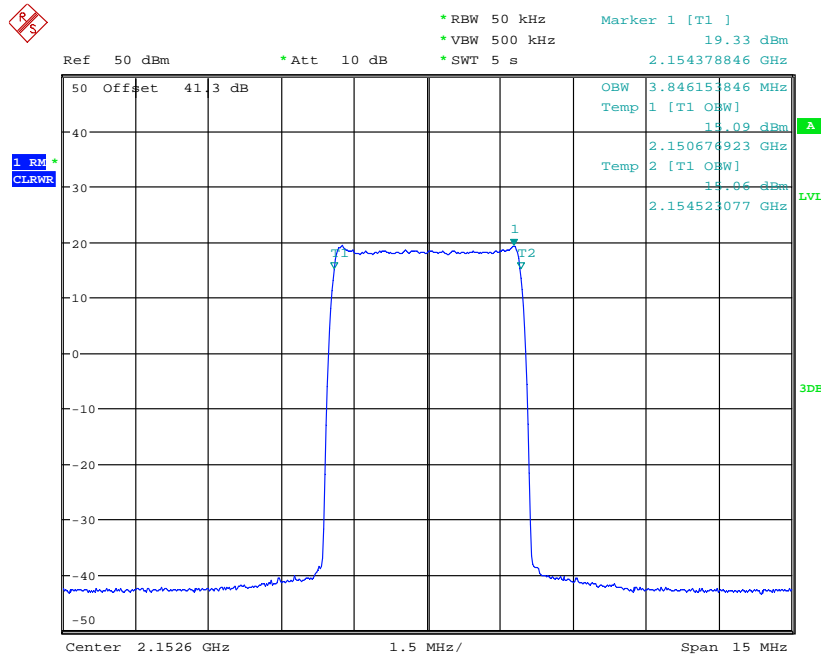
Date: 28.OCT.2013 08:56:44

Channel Position M - QPSK / Bandwidth 5.0 MHz



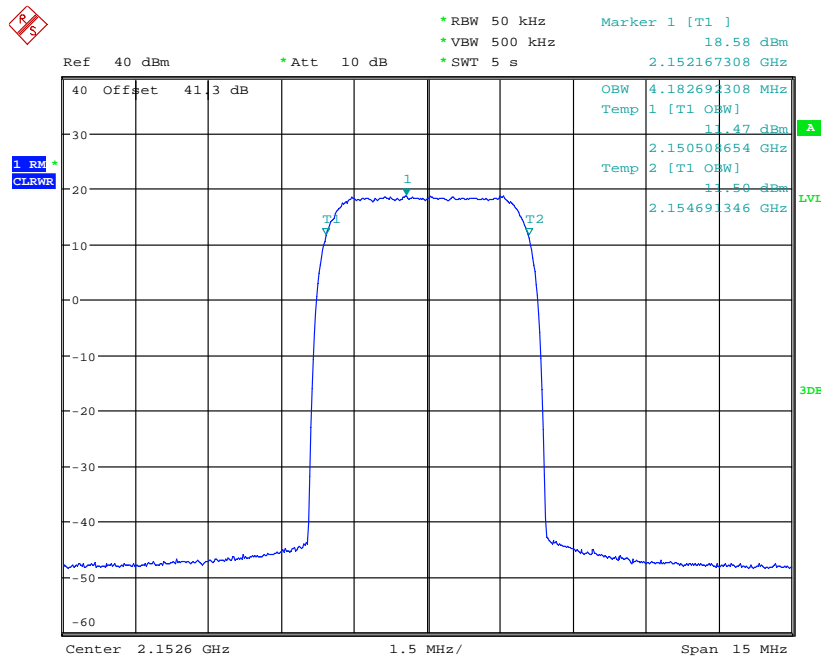
Date: 28.OCT.2013 08:50:59

Channel Position T - QPSK / Bandwidth 4.2 MHz



Date: 28.OCT.2013 09:03:55

Channel Position T - QPSK / Bandwidth 5.0 MHz



Date: 28.OCT.2013 09:09:43

Configuration L-MIMO-SC

Maximum Output Power 37.0dBm per carrier

Modulation / Bandwidth	Occupied Bandwidth (MHz)		
	Channel Position B 2110.7MHz	Channel Position M 2132.5MHz	Channel Position T 2154.3MHz
QPSK / 1.4 MHz	1.09	1.09	1.09

Modulation / Bandwidth	Occupied Bandwidth (MHz)		
	Channel Position B 2111.5MHz	Channel Position M 2132.5MHz	Channel Position T 2153.5MHz
QPSK / 3.0 MHz	2.68	2.68	2.68

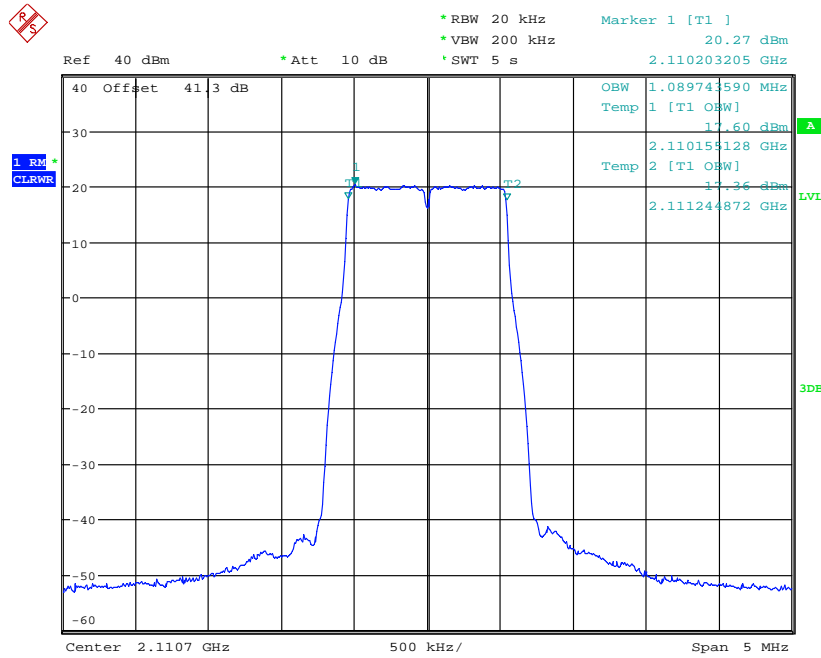
Modulation / Bandwidth	Occupied Bandwidth (MHz)		
	Channel Position B 2112.5MHz	Channel Position M 2132.5MHz	Channel Position T 2152.5MHz
QPSK / 5.0 MHz	4.47	4.47	4.47

Modulation / Bandwidth	Occupied Bandwidth (MHz)		
	Channel Position B 2115.0MHz	Channel Position M 2132.5MHz	Channel Position T 2150.0MHz
QPSK / 10.0 MHz	8.94	8.94	8.94

Modulation / Bandwidth	Occupied Bandwidth (MHz)		
	Channel Position B 2117.5MHz	Channel Position M 2132.5MHz	Channel Position T 2147.5MHz
QPSK / 15.0 MHz	13.41	13.41	13.41

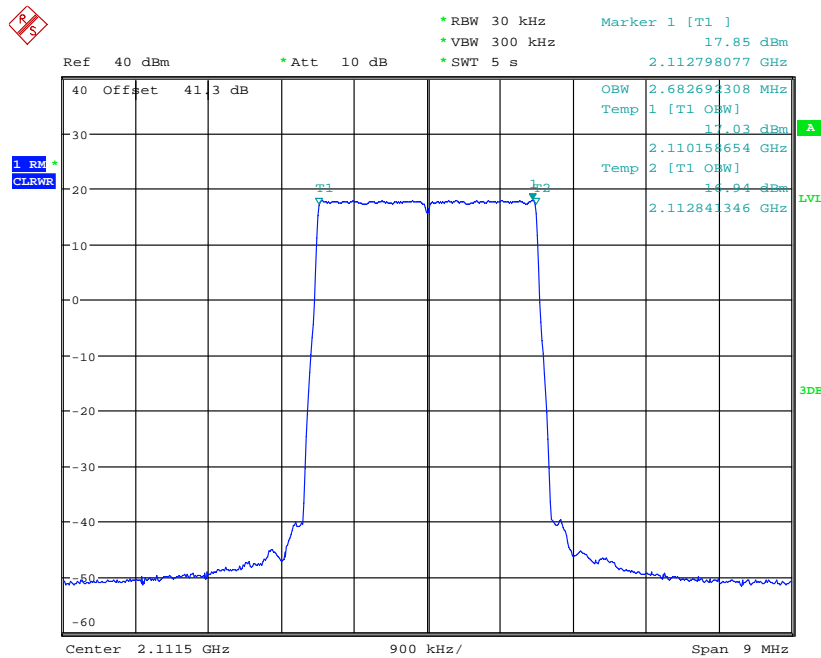
Modulation / Bandwidth	Occupied Bandwidth (MHz)		
	Channel Position B 2120.0MHz	Channel Position M 2132.5MHz	Channel Position T 2145.0MHz
QPSK / 20.0 MHz	17.88	17.88	17.88

Channel Position B - QPSK / Bandwidth 1.4 MHz



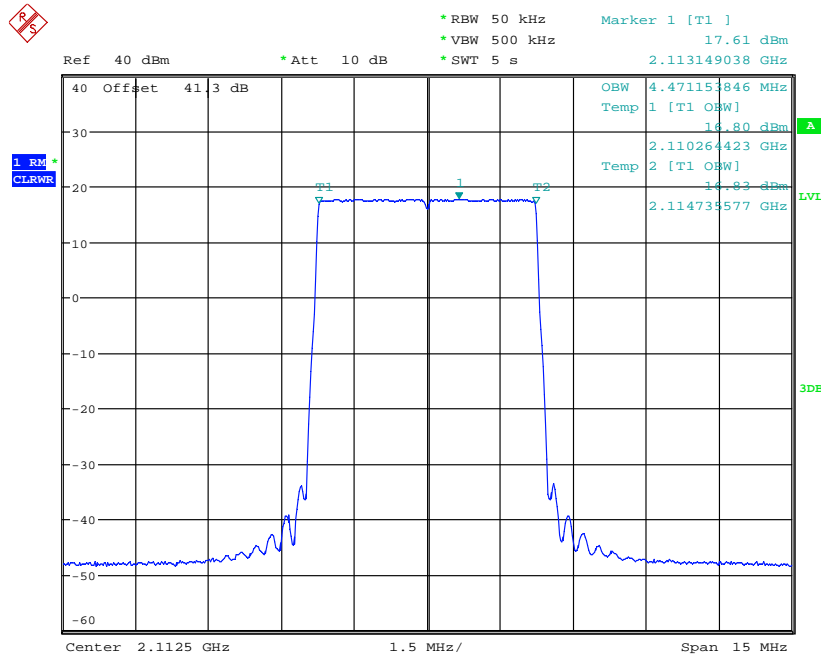
Date: 24.OCT.2013 15:16:29

Channel Position B - QPSK / Bandwidth 3.0 MHz



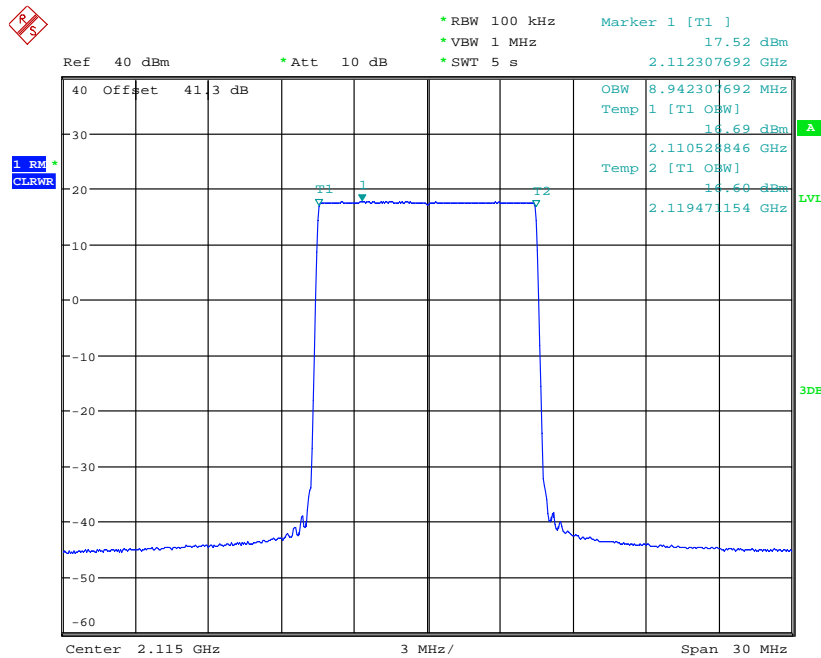
Date: 24.OCT.2013 15:37:34

Channel Position B - QPSK / Bandwidth 5.0 MHz



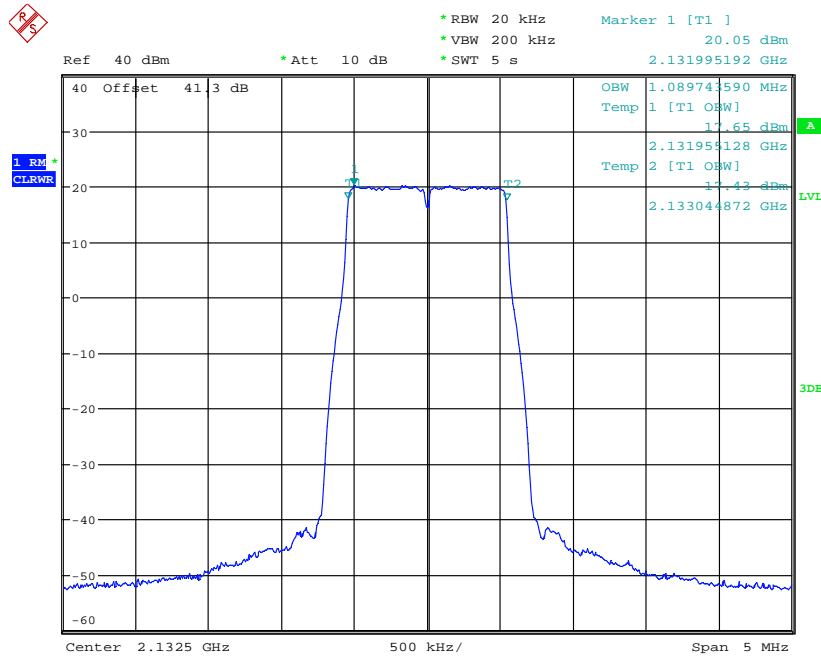
Date: 24.OCT.2013 15:57:16

Channel Position B - QPSK / Bandwidth 10.0 MHz



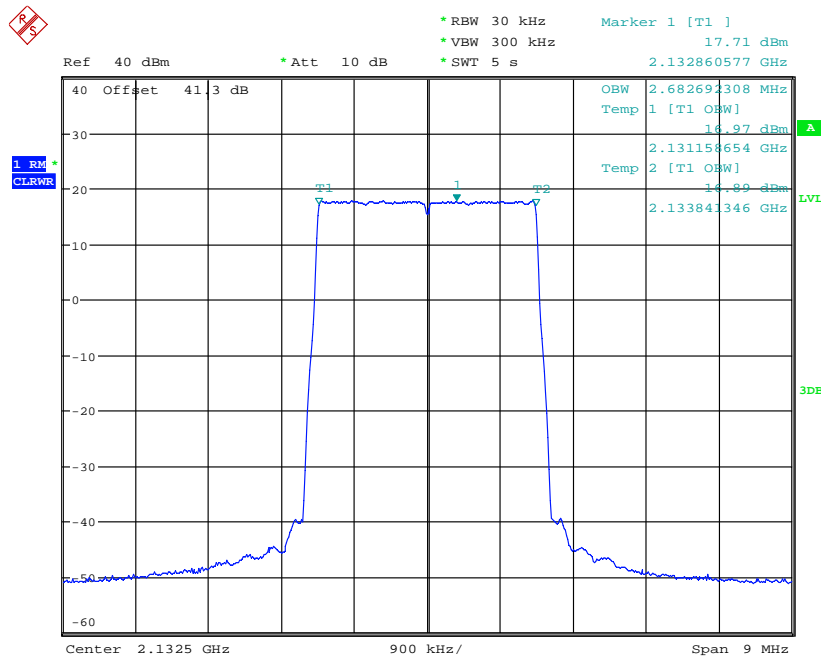
Date: 24.OCT.2013 16:12:48

Channel Position M - QPSK / Bandwidth 1.4 MHz



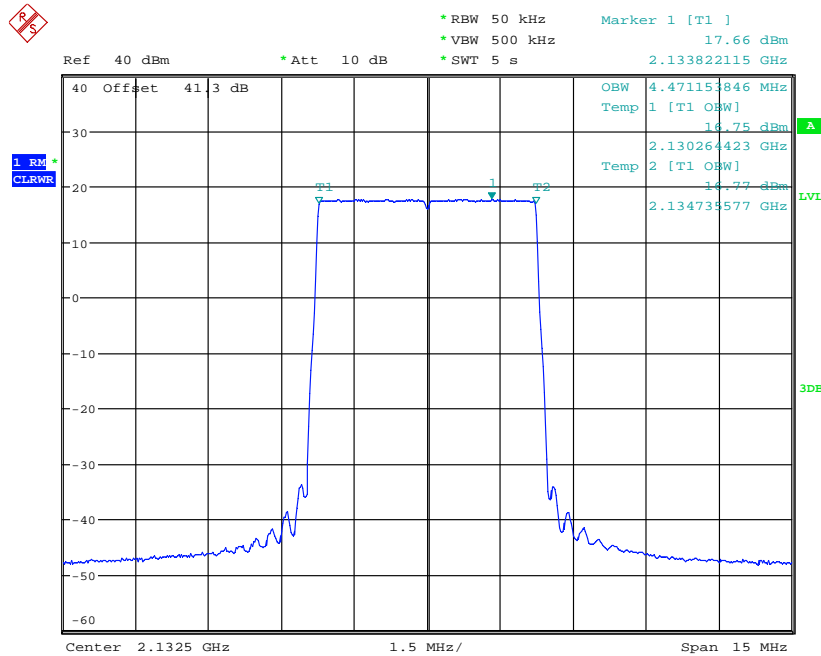
Date: 24.OCT.2013 15:18:14

Channel Position M - QPSK / Bandwidth 3.0 MHz



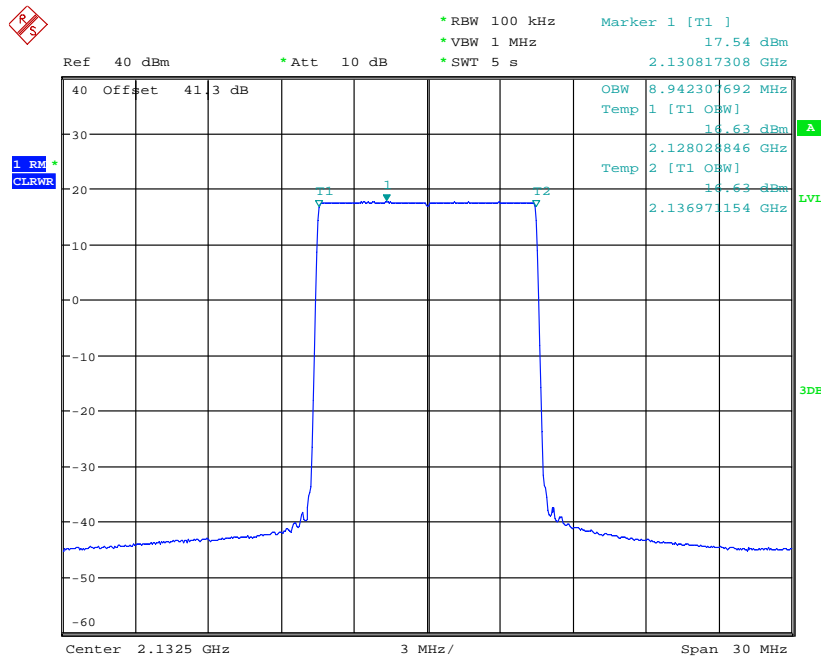
Date: 24.OCT.2013 15:39:14

Channel Position M - QPSK / Bandwidth 5.0 MHz



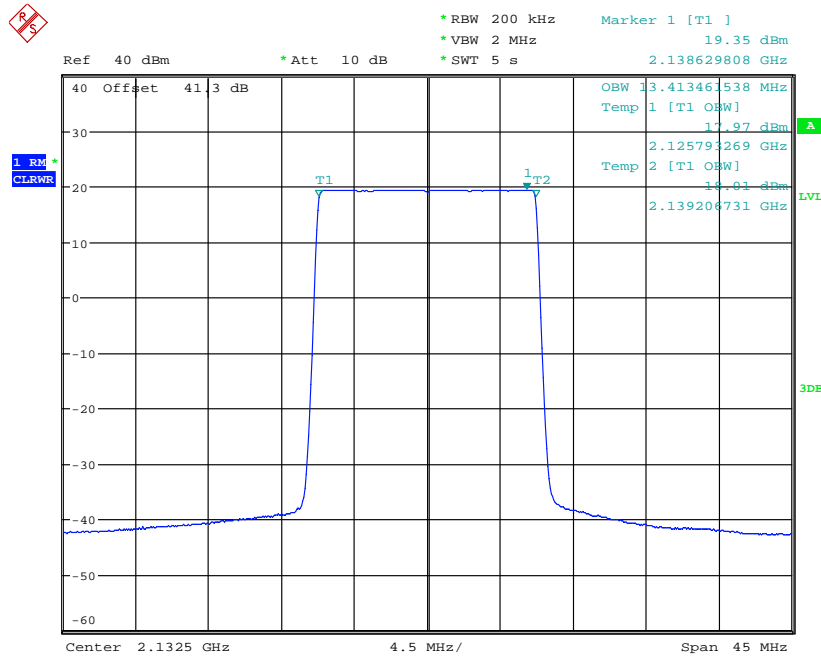
Date: 24.OCT.2013 15:53:03

Channel Position M - QPSK / Bandwidth 10.0 MHz



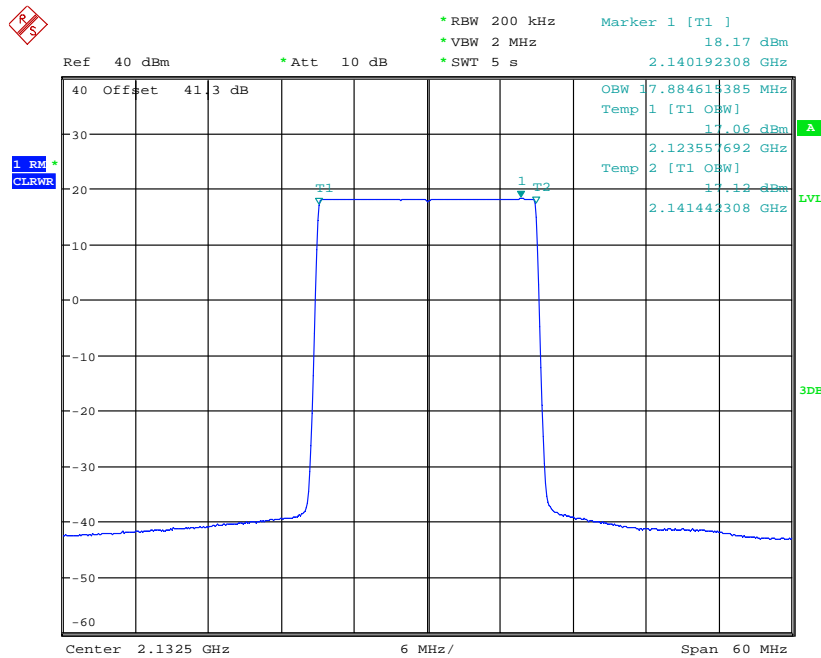
Date: 24.OCT.2013 16:13:55

Channel Position M - QPSK / Bandwidth 15.0 MHz



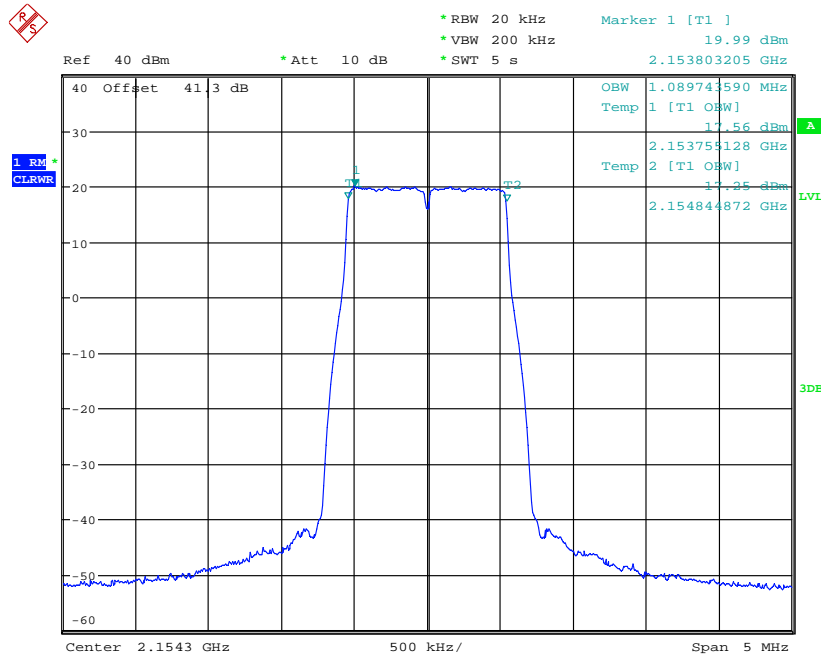
Date: 24.OCT.2013 16:38:45

Channel Position M - QPSK / Bandwidth 20.0 MHz



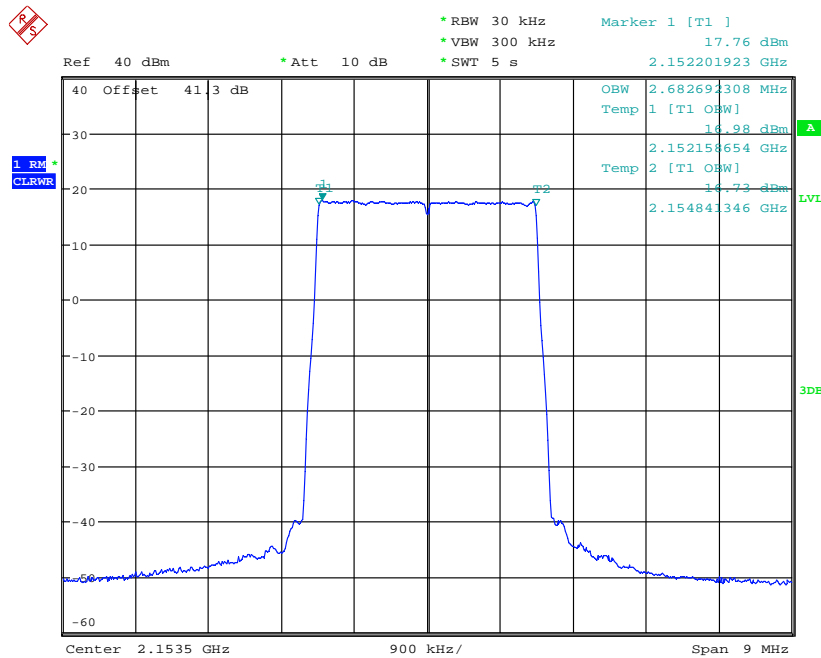
Date: 24.OCT.2013 16:53:55

Channel Position T - QPSK / Bandwidth 1.4 MHz



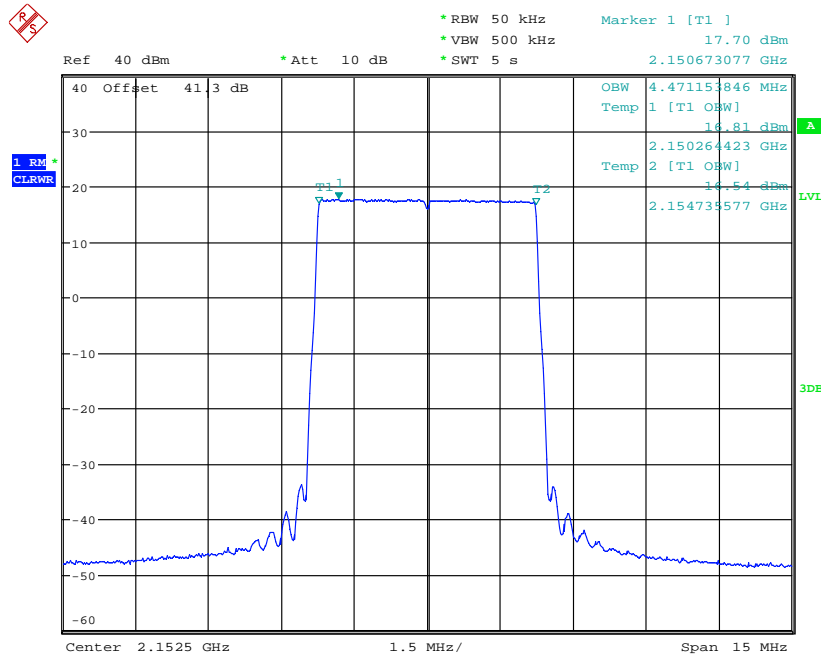
Date: 24.OCT.2013 15:23:30

Channel Position T - QPSK / Bandwidth 3.0 MHz



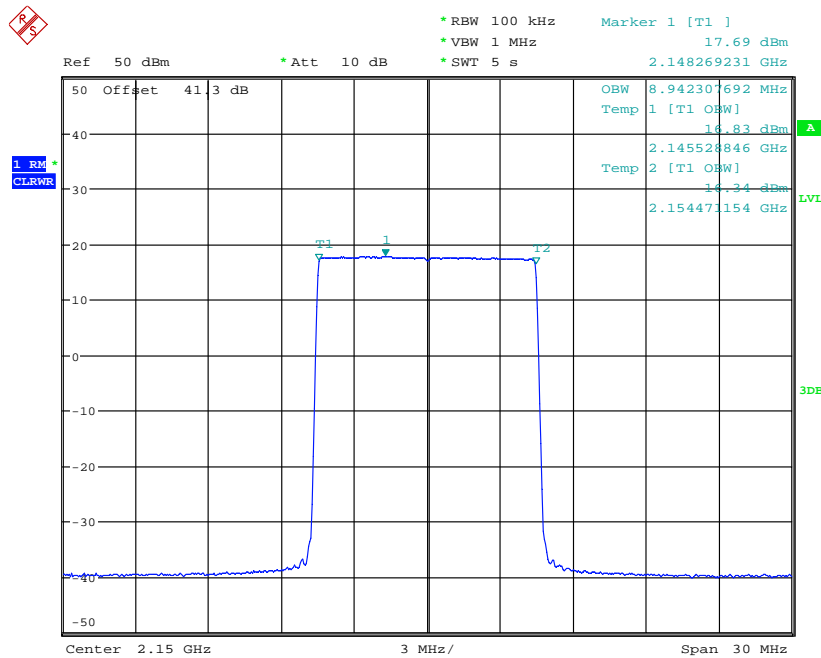
Date: 24.OCT.2013 15:43:19

Channel Position T - QPSK / Bandwidth 5.0 MHz



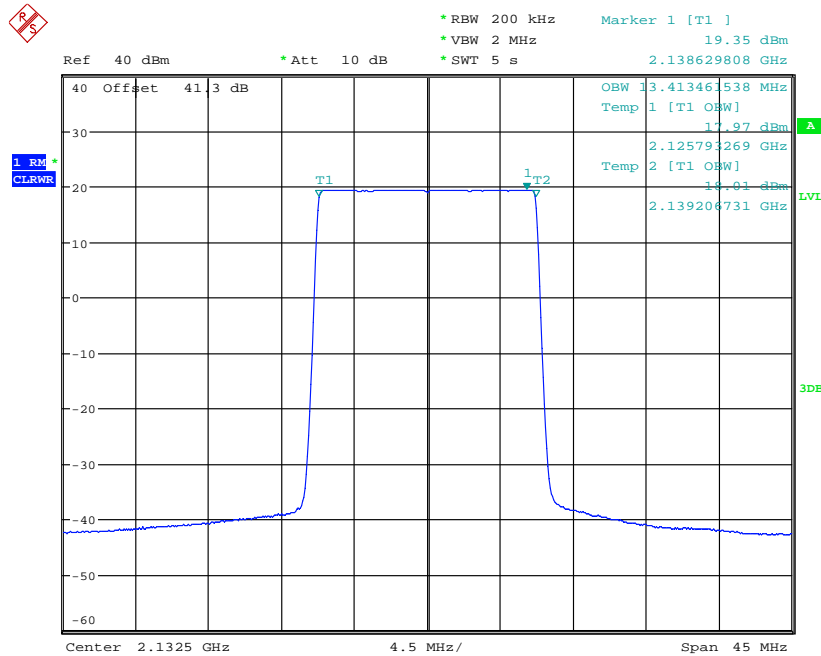
Date: 24.OCT.2013 15:51:30

Channel Position T - QPSK / Bandwidth 10.0 MHz



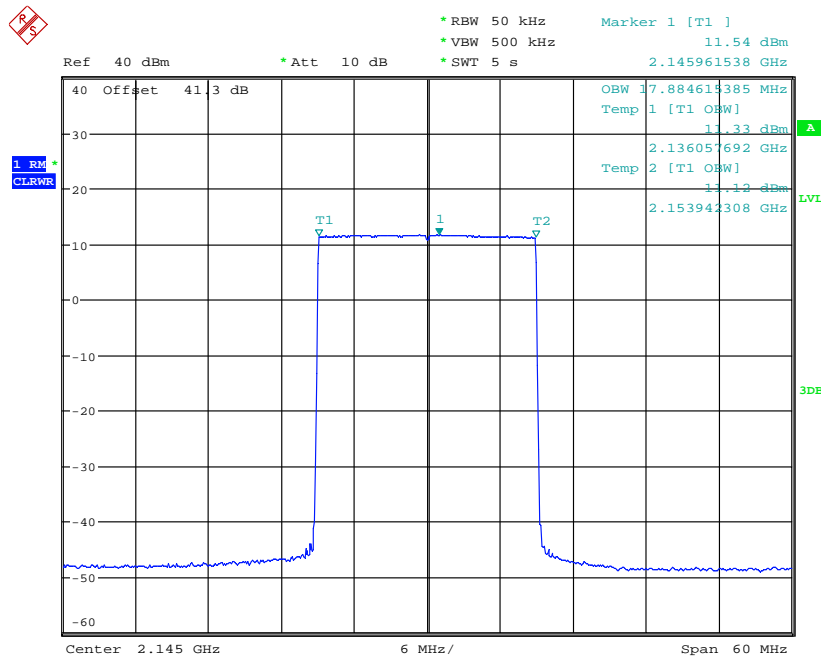
Date: 24.OCT.2013 16:18:38

Channel Position T - QPSK / Bandwidth 15.0 MHz



Date: 24.OCT.2013 16:38:45

Channel Position T - QPSK / Bandwidth 20.0 MHz



Date: 24.OCT.2013 16:48:52

2.4 SPURIOUS EMISSION AT BAND EDGE

2.4.1 Specification Reference

FCC CFR 47 Part 2, Clause 2.1051
FCC CFR 47 Part 27, Clause 27.53 (h)
Industry Canada RSS-139, Clause 6.5

2.4.2 Equipment Under Test

RBS 6501 B4, KR D 901 050/1, S/N: CB4R911974
RBS 6501 B4, KR D 901 050/2, S/N: CB4R886371

2.4.3 Date of Test and Modification State

24, 25 and 28 October 2013 - Modification State 0

2.4.4 Test Equipment Used

The major items of test equipment used for the above tests are identified in Section 3.1.

2.4.5 Environmental Conditions

Ambient Temperature	24.5 - 26.6°C
Relative Humidity	22.4 - 24.3%

2.4.6 Test Method

In accordance with FCC CFR 47 Part 27, Clause 27.53 (h) and Industry Canada RSS-139, Clause 6.5, any emissions outside of the block edges shall be attenuated by at least $43 + 10 \log(P)$. In the 1MHz bands immediately outside and adjacent to the frequency block, a resolution bandwidth of at least 1% of the emission bandwidth should be used.

For measurements of emissions > 1MHz away from the band edges, a RBW is 1MHz or greater should be used. A resolution bandwidth of 50kHz was used between 1MHz to 6MHz from the band edge. to compensate for the reduced measurement bandwidth, the limit was adjusted with -13dB to -26dBm.

For MIMO mode configurations, the limit was adjusted with a correction of -3dB $[10\log(2)]$ by using the Measure and Add $10\log(N)$ dB technique according to FCC KDB662911 D01 accounting for simultaneous transmission from antennas port RF A and RF B.

The path loss measured and entered as a reference level offset. The EUT was set to transmit at its maximum rated output power in the configurations described in the tables below. Measurements were made at the Top and Bottom of the band.

The results are shown in the plots below.

2.4.7 Test Results

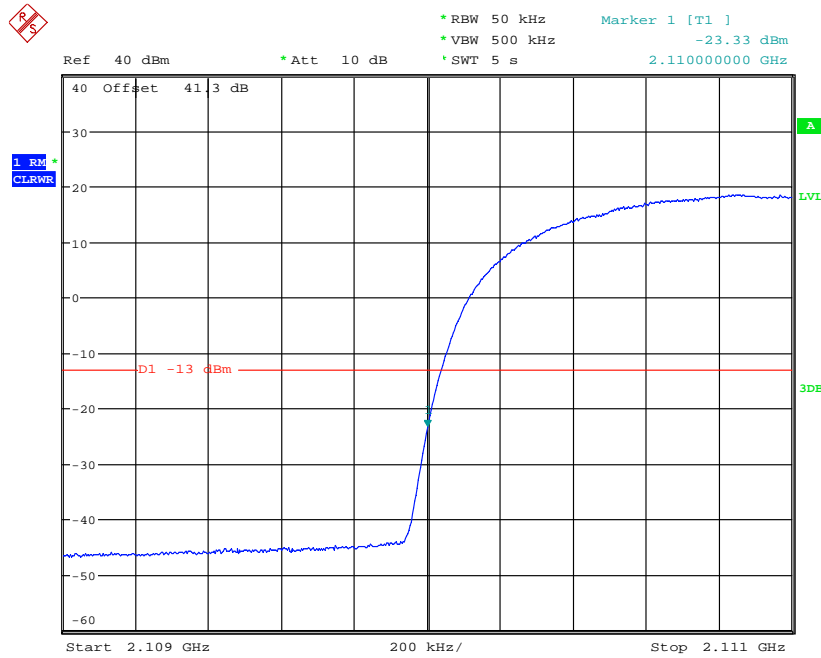
Configuration W-SC

Maximum Output Power 37.0dBm per carrier

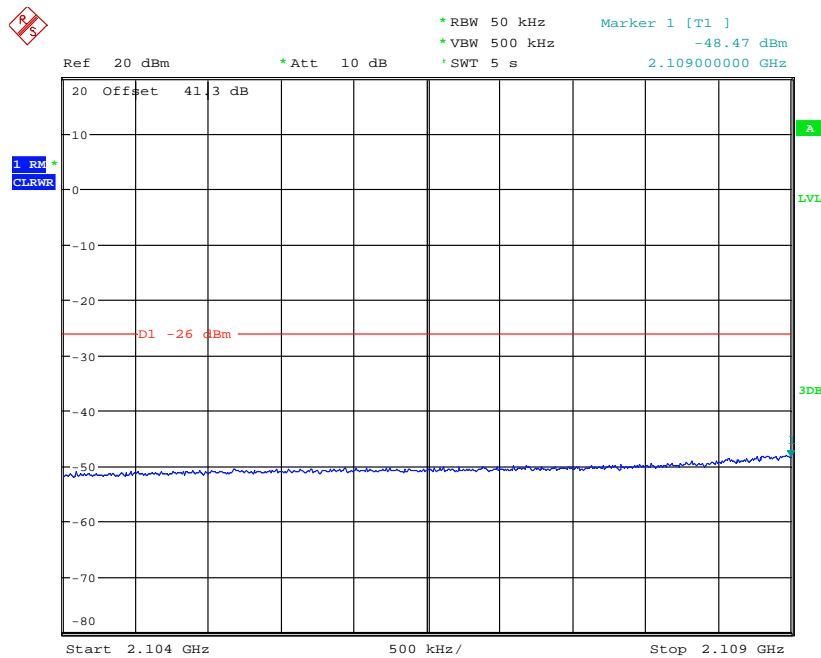
Band Edge Frequency	Edge Test with modulation QPSK Channel Frequencies
Channel Position B 2110.0 MHz	Port A: 2112.4MHz
Channel Position T 2155.0 MHz	Port A: 2152.6MHz

Note: The channels shown in the table above are the minimum and maximum channels that can be used in the authorised frequency ranges to maintain compliance. Channels outside of the ranges shown in the above tables shall not be made available to the end user.

Channel Position B - QPSK

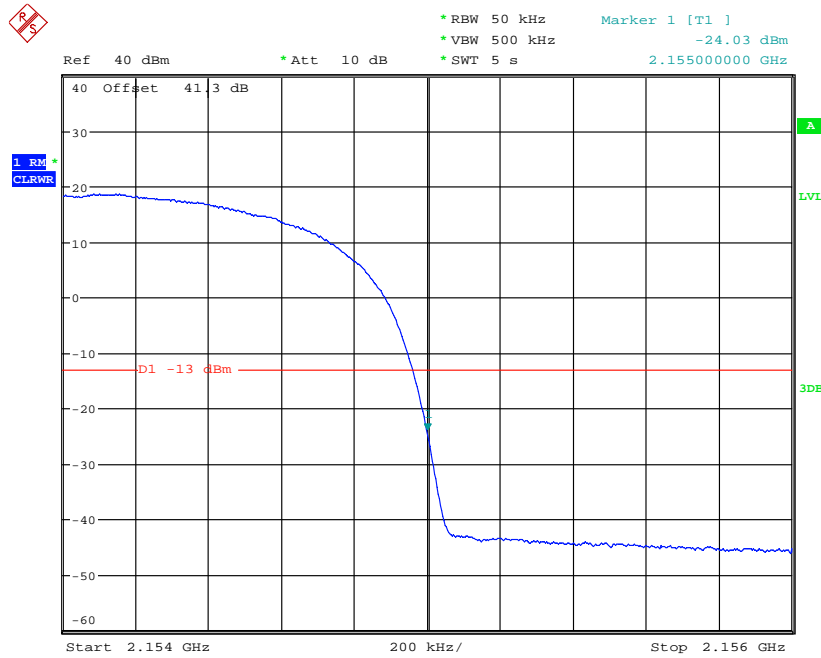


Date: 28.OCT.2013 08:43:18

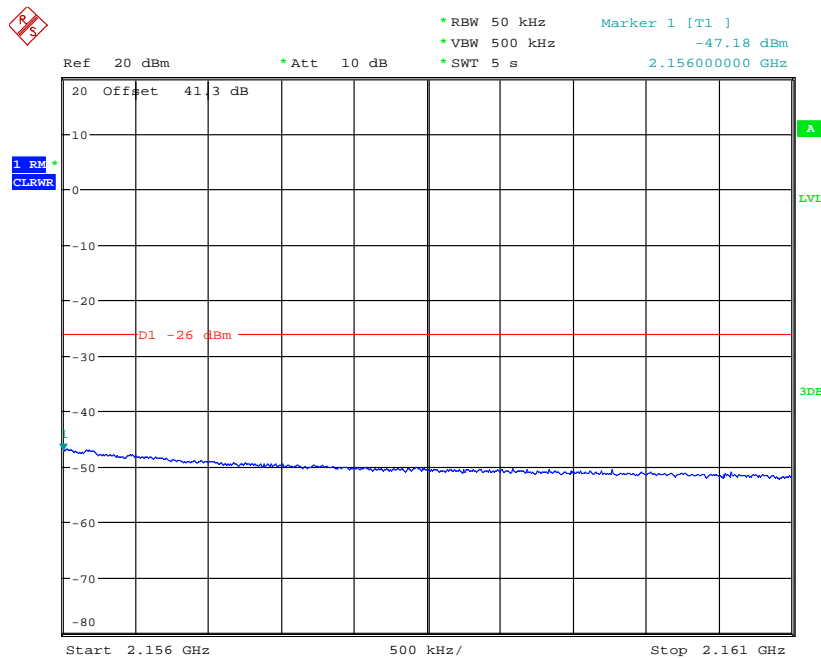


Date: 28.OCT.2013 08:44:32

Channel Position T - QPSK



Date: 28.OCT.2013 09:12:22



Date: 28.OCT.2013 09:14:35

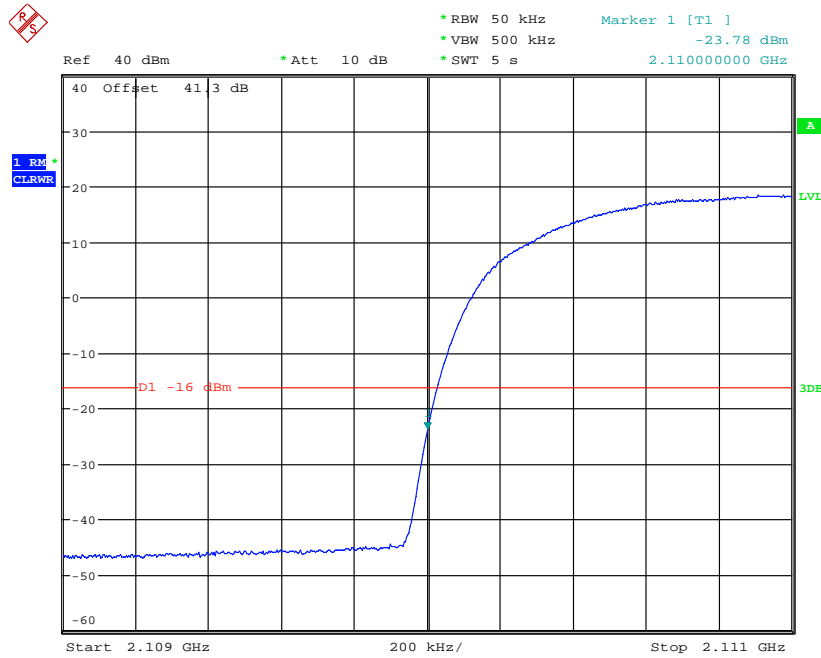
Configuration W-MIMO-SC

Maximum Output Power 37.0dBm per carrier

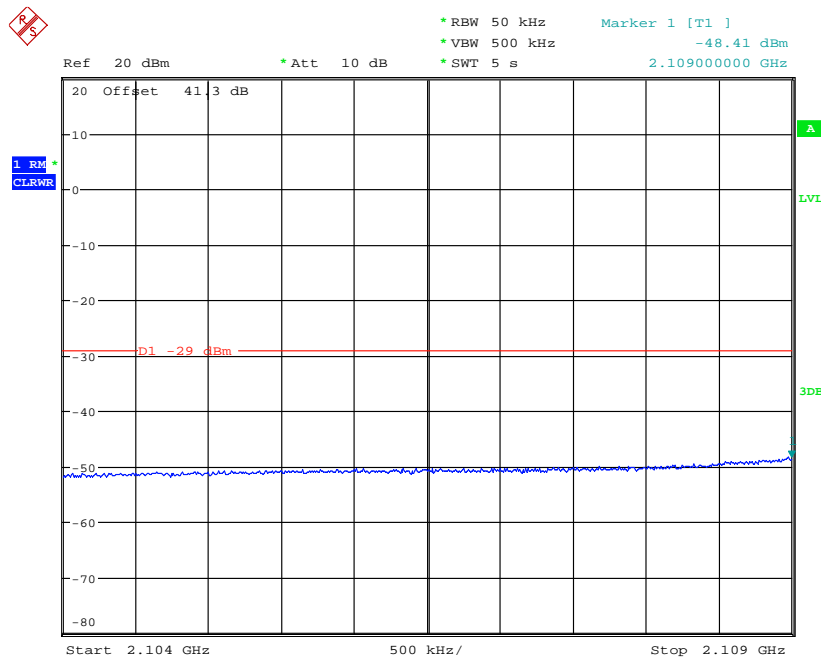
Band Edge Frequency	Edge Test with modulation 16QAM Channel Frequencies
Channel Position B 2110.0 MHz	Port A: 2112.4MHz
Channel Position T 2155.0 MHz	Port A: 2152.6MHz

Note: The channels shown in the table above are the minimum and maximum channels that can be used in the authorised frequency ranges to maintain compliance. Channels outside of the ranges shown in the above tables shall not be made available to the end user.

Channel Position B - 16QAM

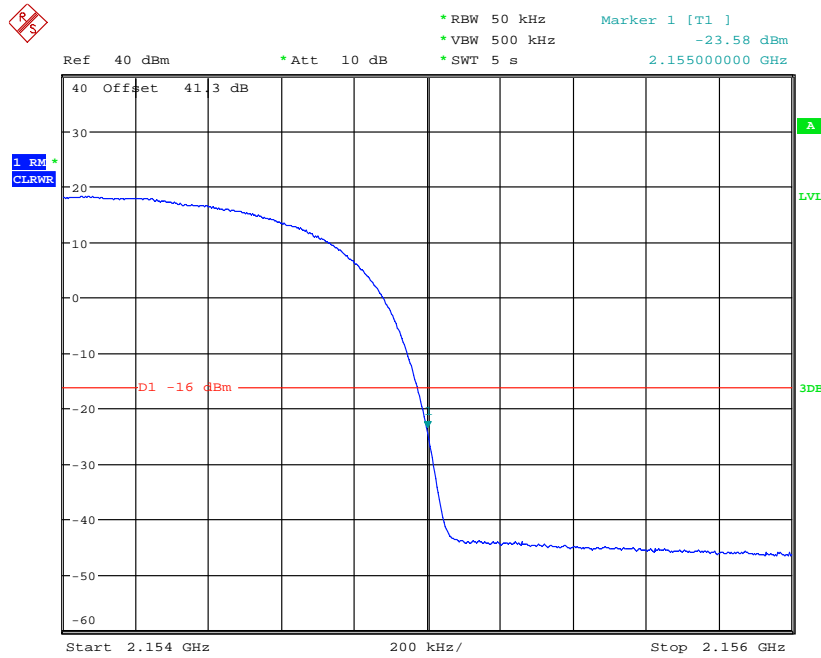


Date: 28.OCT.2013 09:28:51

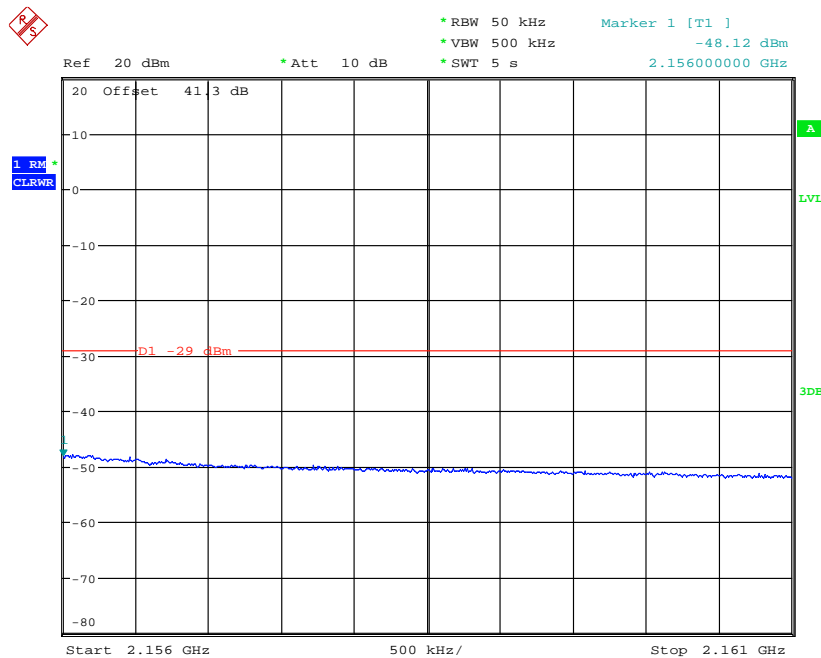


Date: 28.OCT.2013 09:29:39

Channel Position T - 16QAM



Date: 28.OCT.2013 09:40:57



Date: 28.OCT.2013 09:40:17

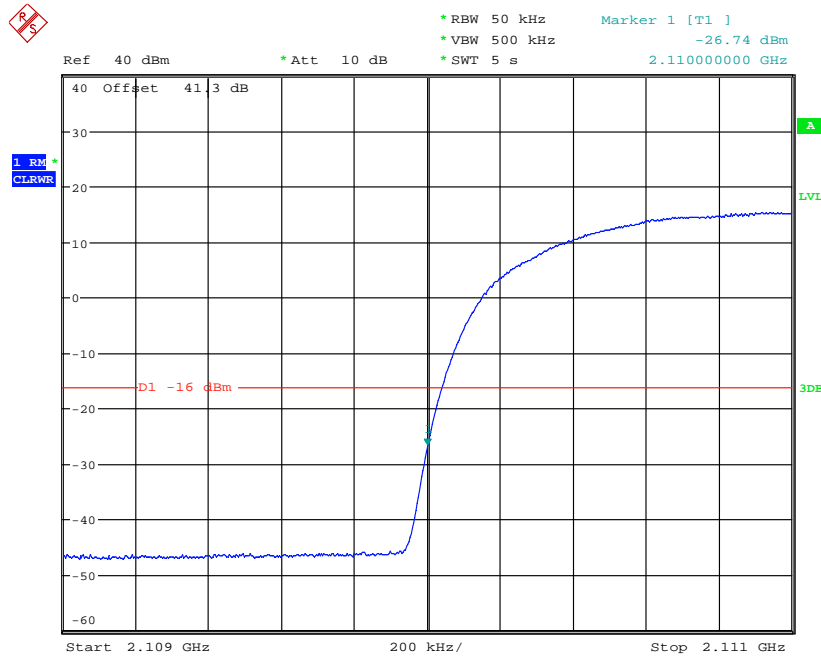
Configuration W-MIMO-MC 1 (2C)

Maximum Output Power 34.0dBm per carrier

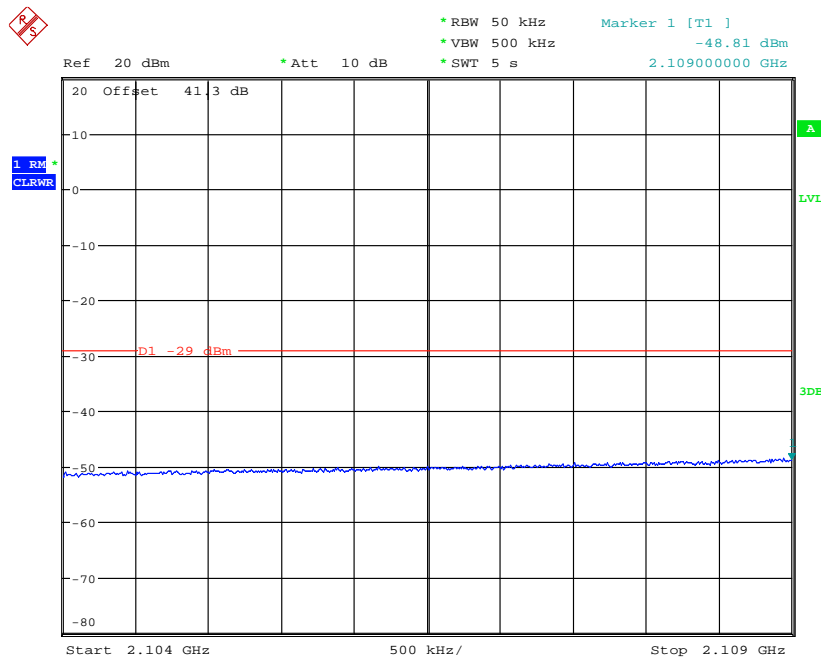
Band Edge Frequency	Edge Test with modulation 16QAM Channel Frequencies
Channel Position B_{RFBW} 2110.0 MHz	2112.4MHz + 2117.4MHz
Channel Position T_{RFBW} 2155.0 MHz	2147.6MHz + 2152.6MHz

Note: The channels shown in the table above are the minimum and maximum channels that can be used in the authorised frequency ranges to maintain compliance. Channels outside of the ranges shown in the above tables shall not be made available to the end user.

Channel Position B_{RFBW} - 16QAM

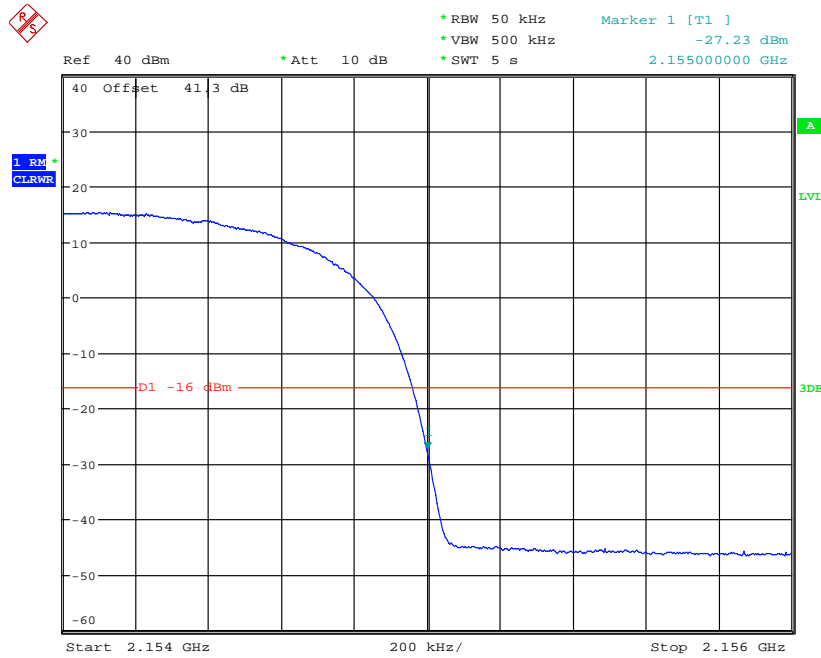


Date: 28.OCT.2013 10:22:56

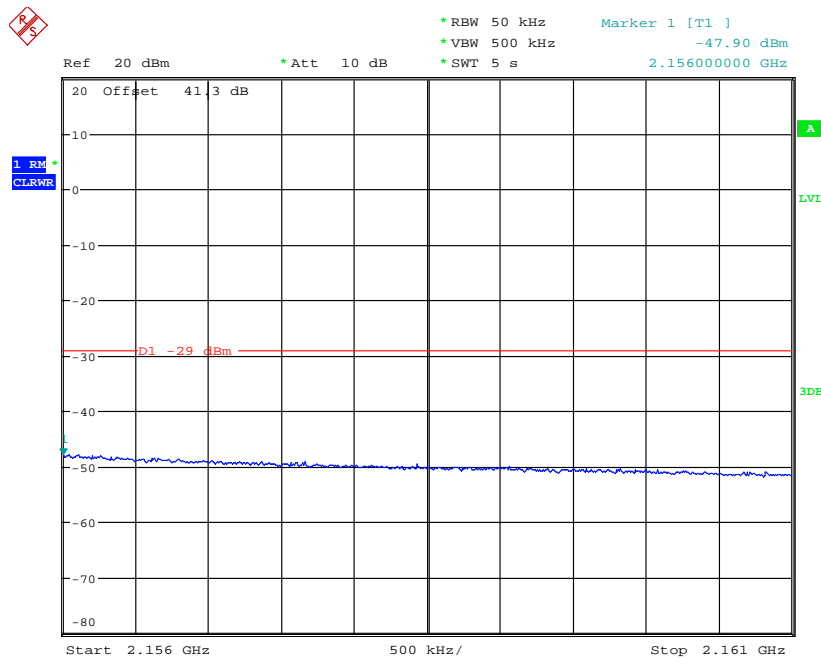


Date: 28.OCT.2013 10:22:13

Channel Position T_{RFBW} - 16QAM



Date: 28.OCT.2013 11:52:39



Date: 28.OCT.2013 11:53:32

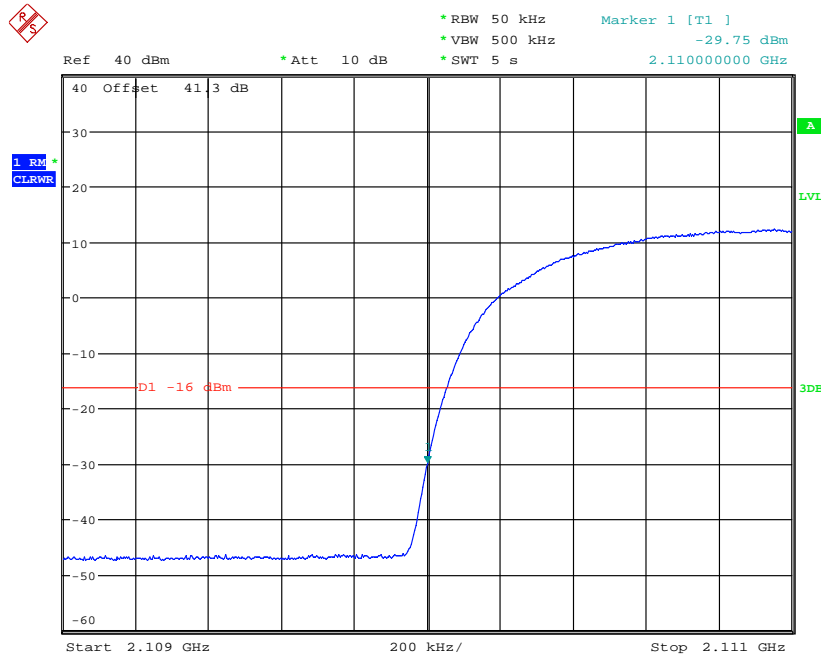
Configuration W-MIMO-MC 2 (4C)

Maximum Output Power 31.0dBm per carrier

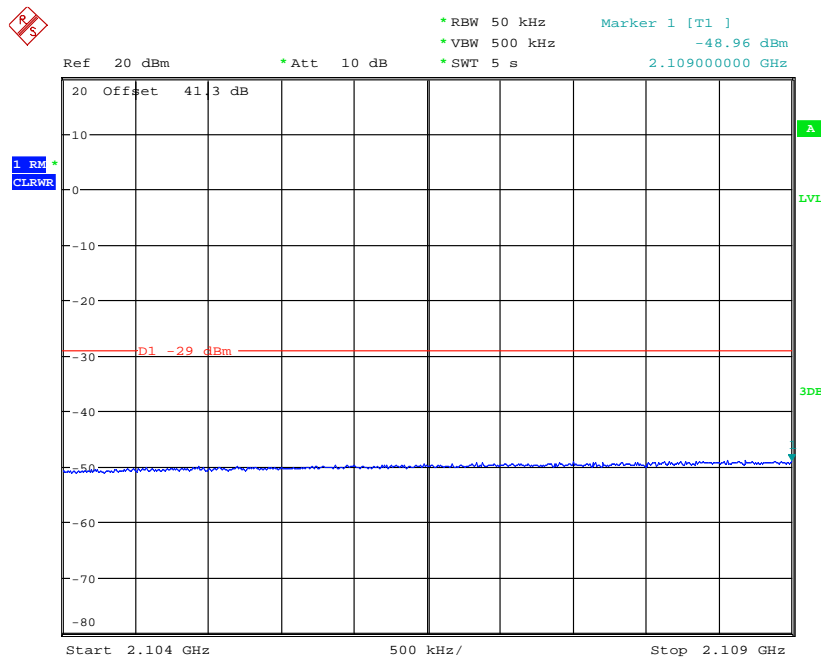
Band Edge Frequency	Edge Test with modulation 16QAM Channel Frequencies
Channel Position B_{RFBW} 2110.0 MHz	2112.4MHz + 2117.4MHz + 2122.4MHz + 2127.4MHz
Channel Position T_{RFBW} 2155.0 MHz	2137.6MHz + 2142.6MHz + 2147.6MHz + 2152.6MHz

Note: The channels shown in the table above are the minimum and maximum channels that can be used in the authorised frequency ranges to maintain compliance. Channels outside of the ranges shown in the above tables shall not be made available to the end user.

Channel Position B_{RFBW} - 16QAM

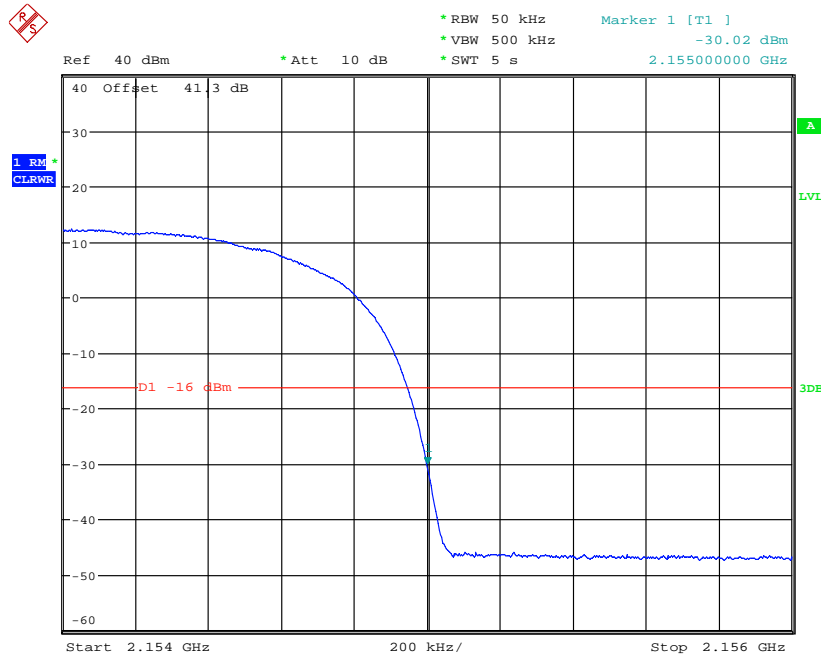


Date: 28.OCT.2013 12:45:55

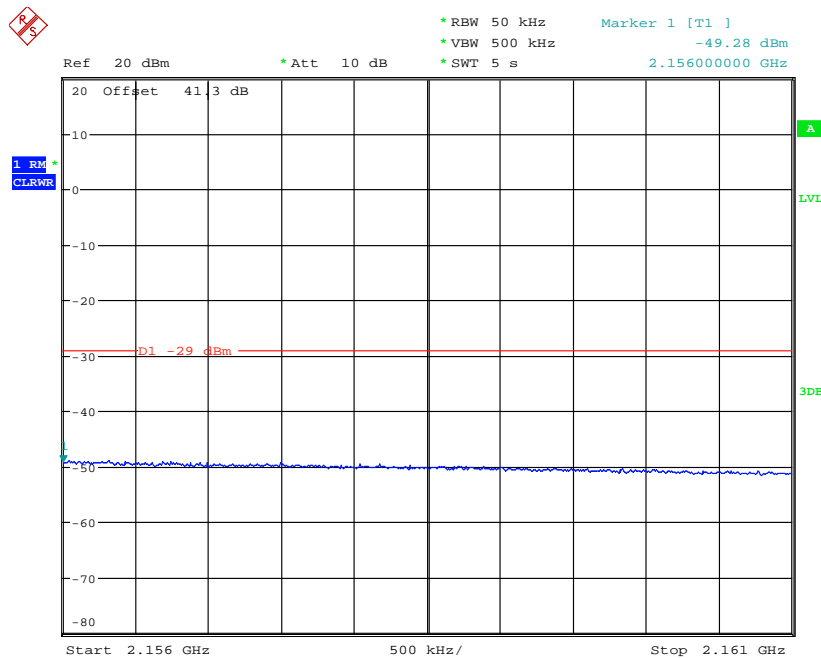


Date: 28.OCT.2013 12:45:08

Channel Position T_{RFBW} - 16QAM



Date: 28.OCT.2013 13:36:08



Date: 28.OCT.2013 13:35:12

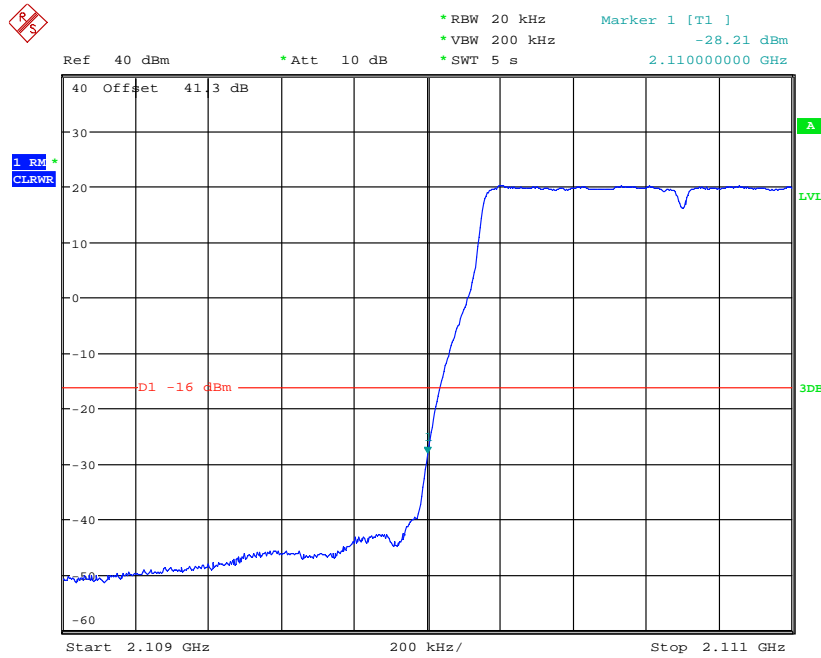
Configuration L-MIMO-SC

Maximum Output Power 37.0dBm per carrier

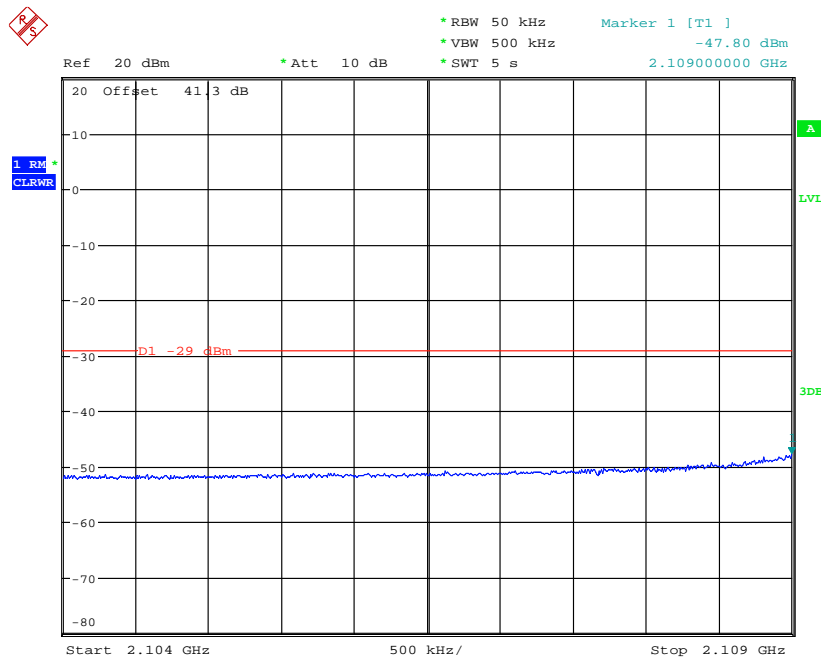
Band Edge Frequency	Channel Bandwidth	Edge Test with modulation QPSK Channel Frequencies
Channel Position B 2110.0 MHz	1.4 MHz	2110.7MHz
	3.0 MHz	2111.5MHz
	5.0 MHz	2112.5MHz
	10.0 MHz	2115.0MHz
	15.0 MHz	2117.5MHz
	20.0 MHz	2120.0MHz
Channel Position T 2155.0 MHz	1.4 MHz	2154.3MHz
	3.0 MHz	2153.5MHz
	5.0 MHz	2152.5MHz
	10.0 MHz	2150.0MHz
	15.0 MHz	2147.5MHz
	20.0 MHz	2145.0MHz

Note: The channels shown in the table above are the minimum and maximum channels that can be used in the authorised frequency ranges to maintain compliance. Channels outside of the ranges shown in the above tables shall not be made available to the end user.

Channel Position B - QPSK / Bandwidth 1.4 MHz

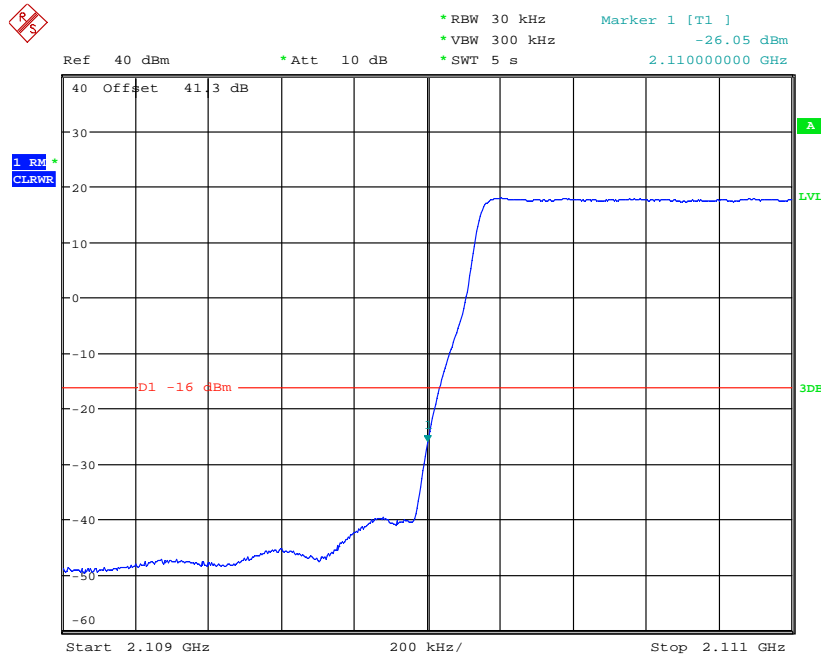


Date: 24.OCT.2013 16:56:46

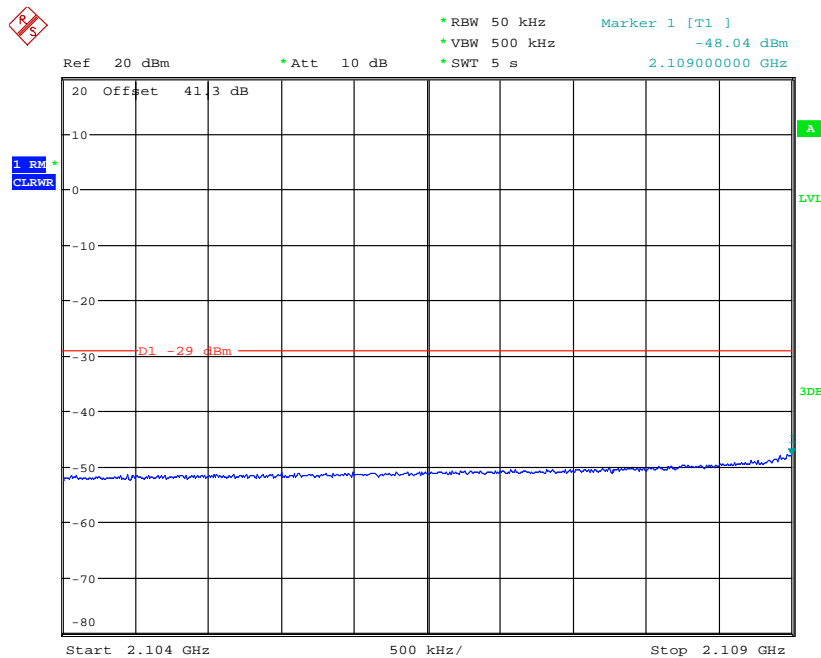


Date: 24.OCT.2013 16:57:37

Channel Position B - QPSK / Bandwidth 3.0 MHz

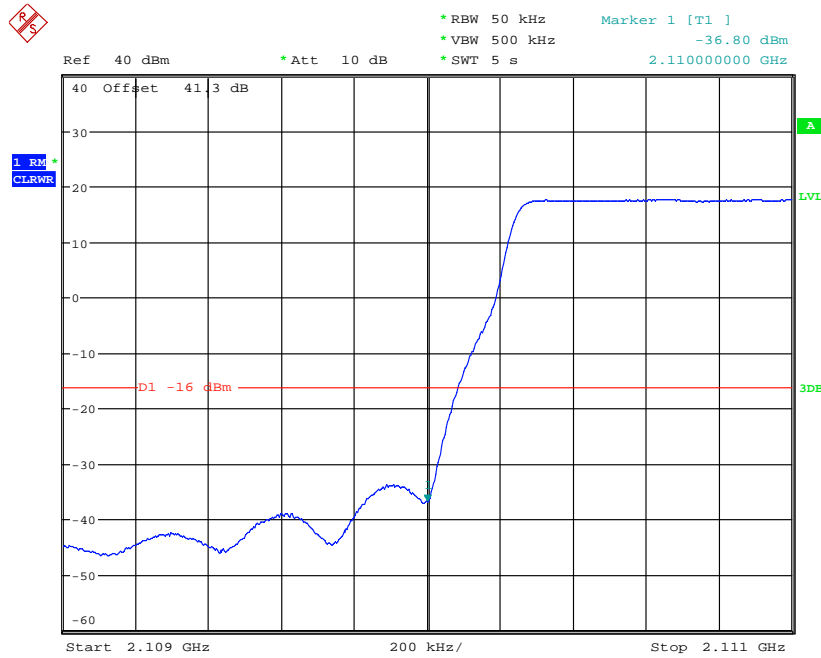


Date: 28.OCT.2013 15:16:12

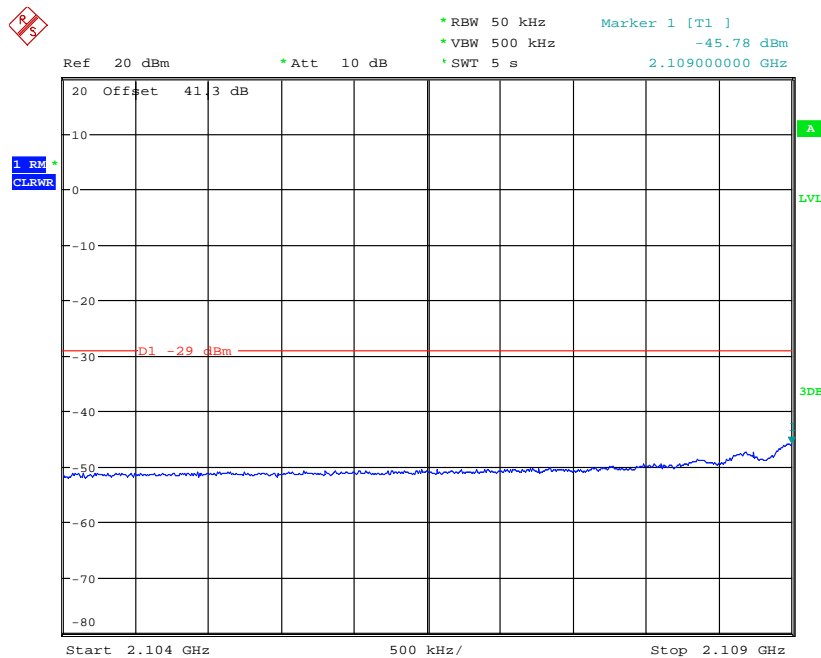


Date: 28.OCT.2013 15:17:22

Channel Position B - QPSK / Bandwidth 5.0 MHz

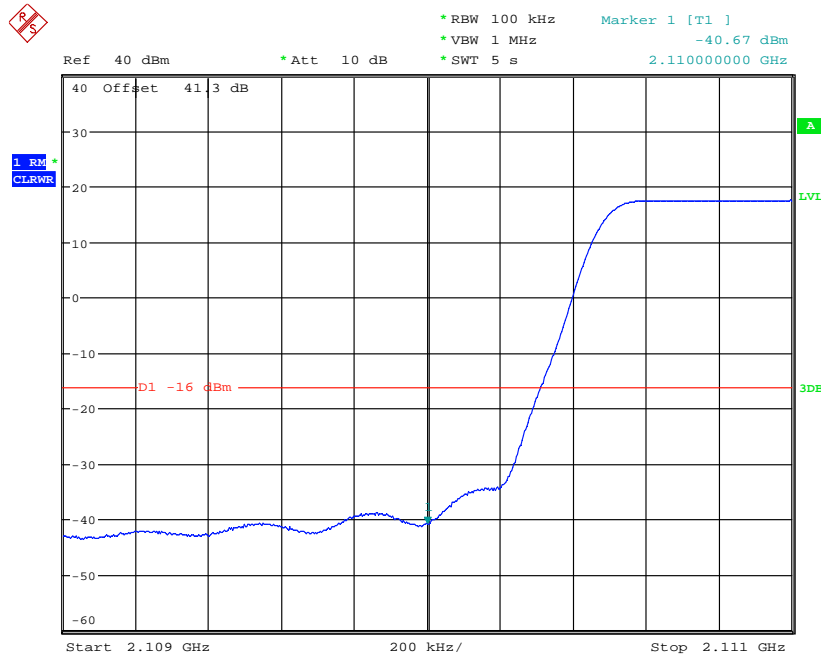


Date: 24.OCT.2013 15:58:05

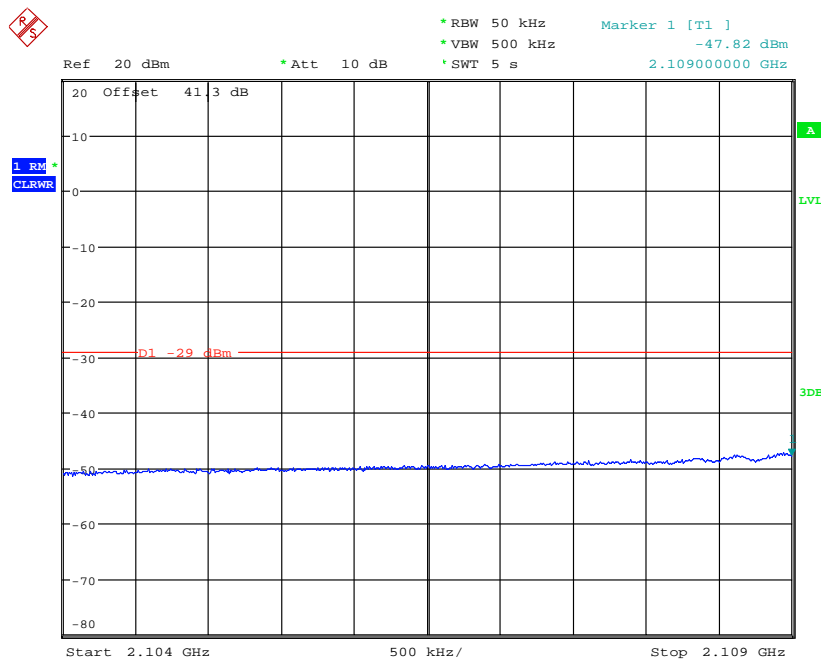


Date: 24.OCT.2013 15:59:10

Channel Position B - QPSK / Bandwidth 10.0 MHz

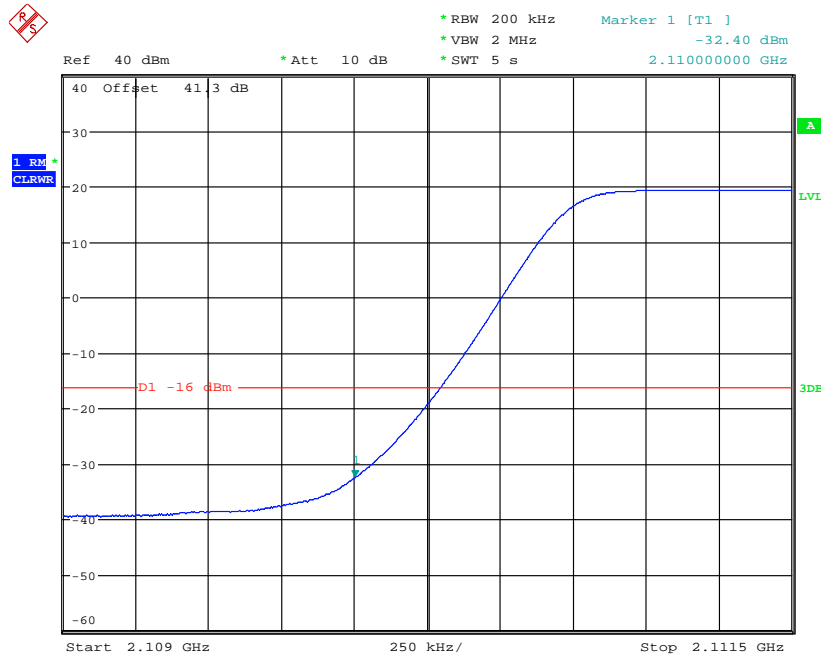


Date: 24.OCT.2013 16:10:42

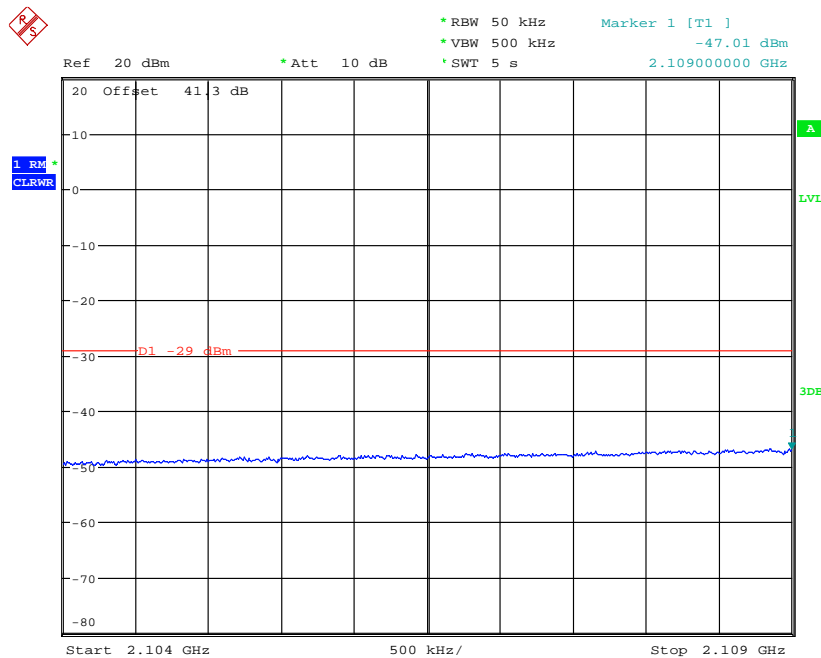


Date: 24.OCT.2013 16:09:32

Channel Position B - QPSK / Bandwidth 15.0 MHz

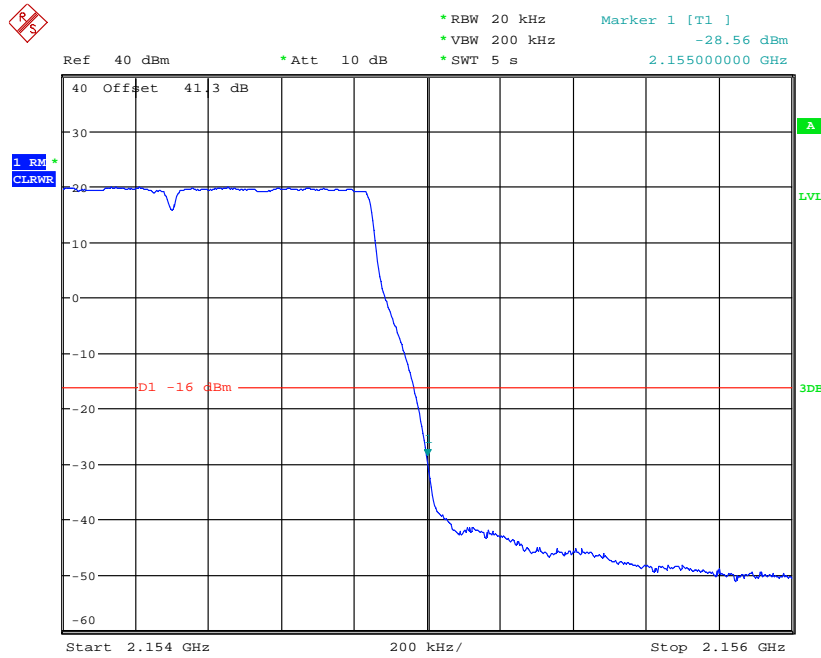


Date: 24.OCT.2013 16:32:57

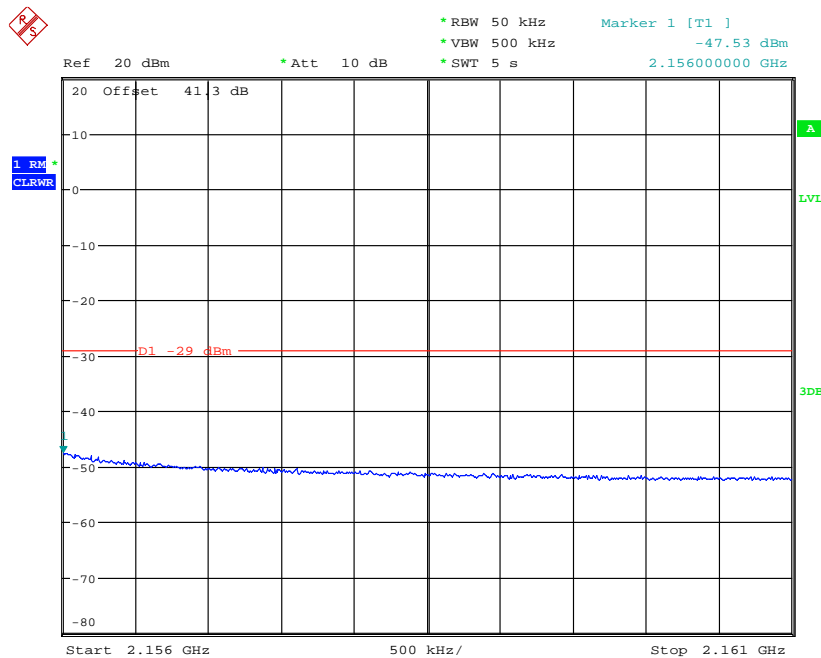


Date: 24.OCT.2013 16:35:02

Channel Position T - QPSK / Bandwidth 1.4 MHz

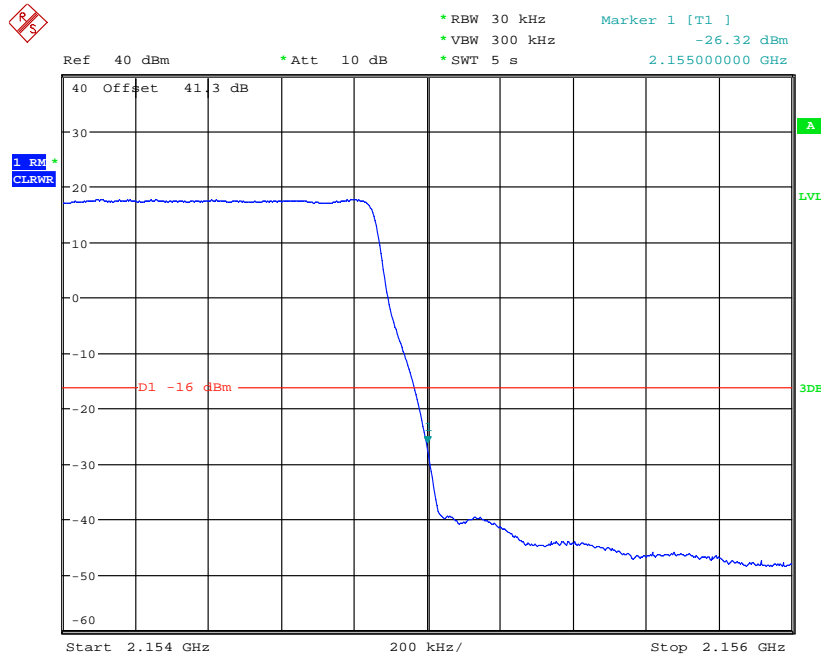


Date: 24.OCT.2013 16:58:59

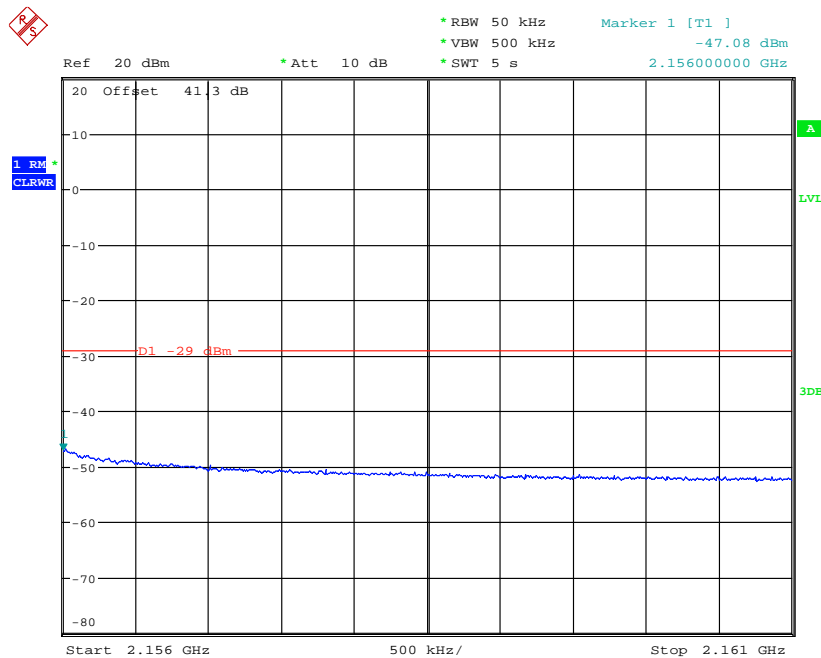


Date: 24.OCT.2013 17:00:24

Channel Position T - QPSK / Bandwidth 3.0 MHz

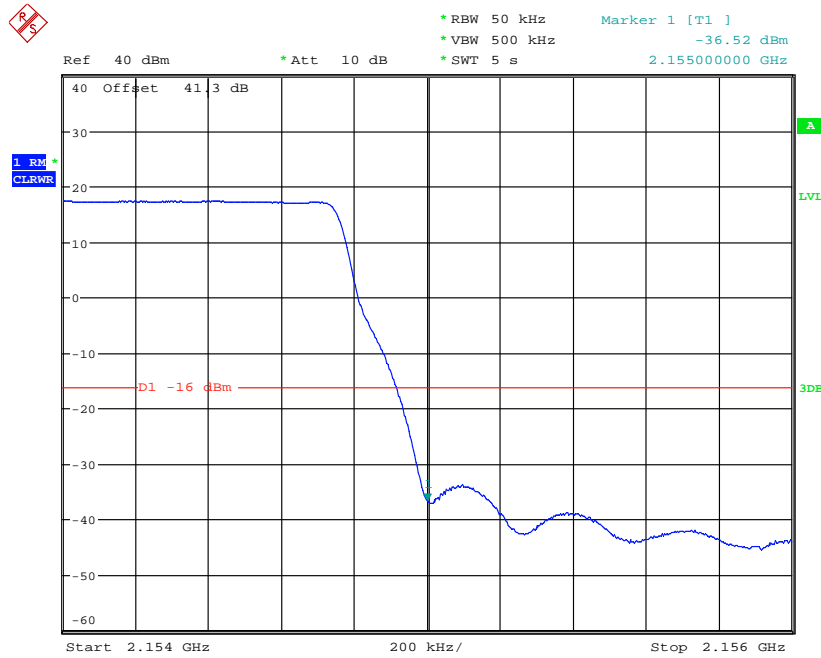


Date: 24.OCT.2013 15:44:10

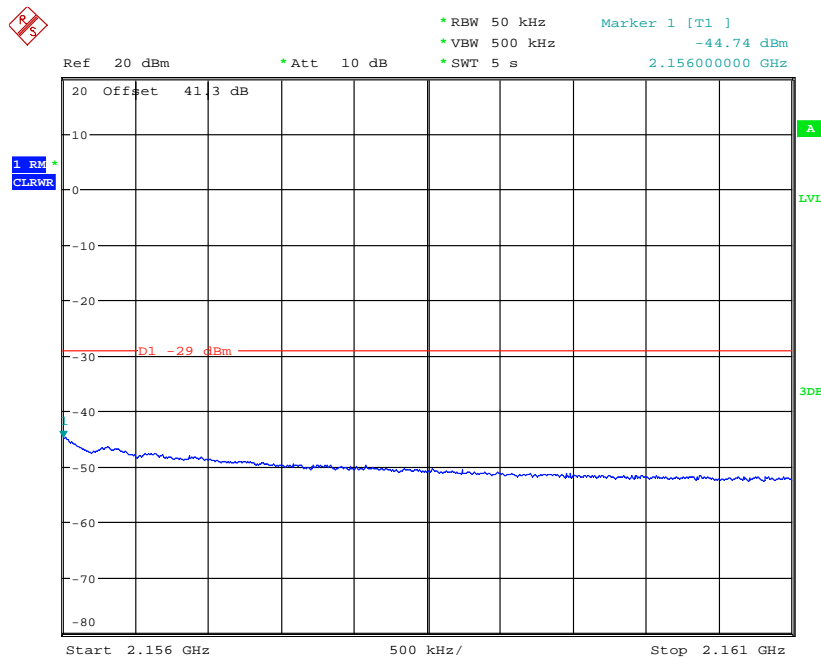


Date: 24.OCT.2013 15:45:13

Channel Position T - QPSK / Bandwidth 5.0 MHz

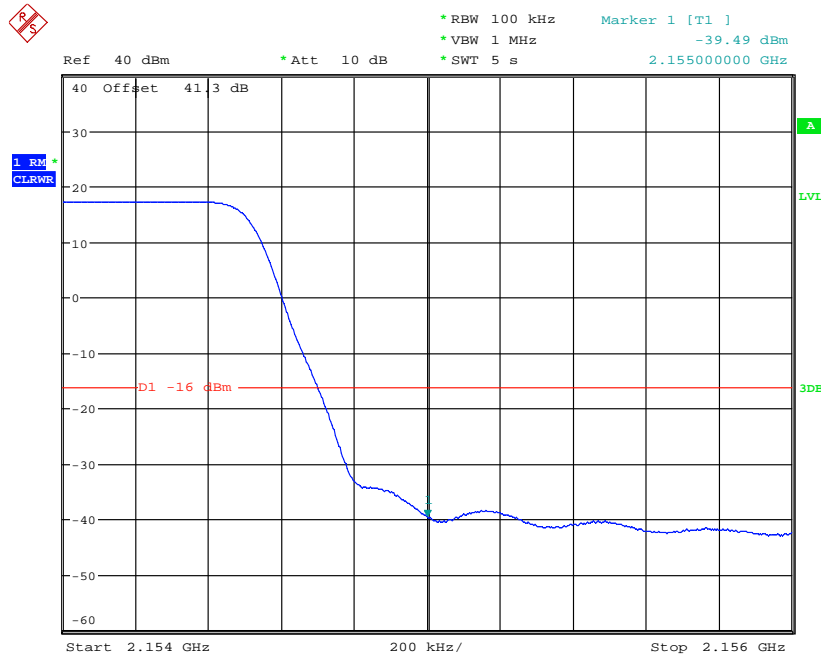


Date: 24.OCT.2013 15:49:26

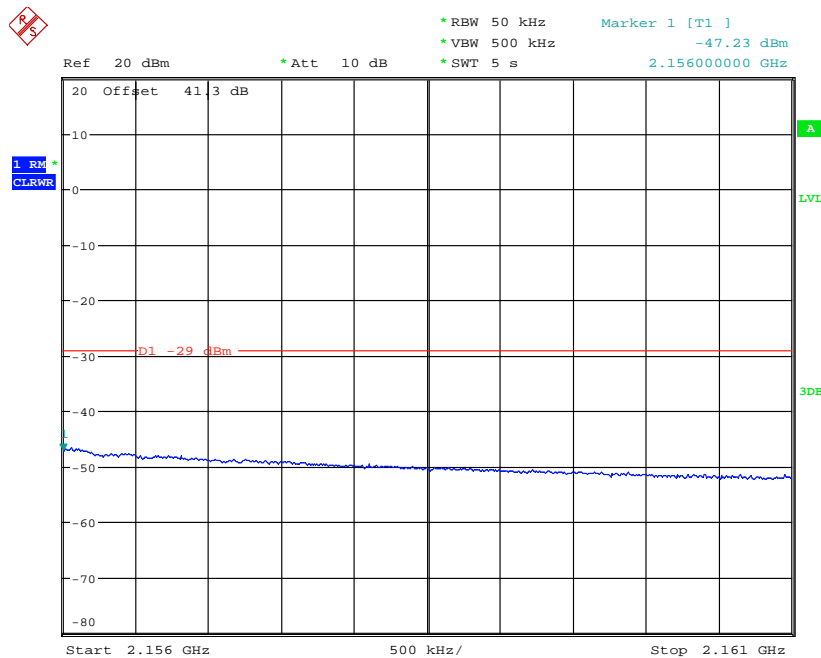


Date: 24.OCT.2013 15:48:26

Channel Position T - QPSK / Bandwidth 10.0 MHz

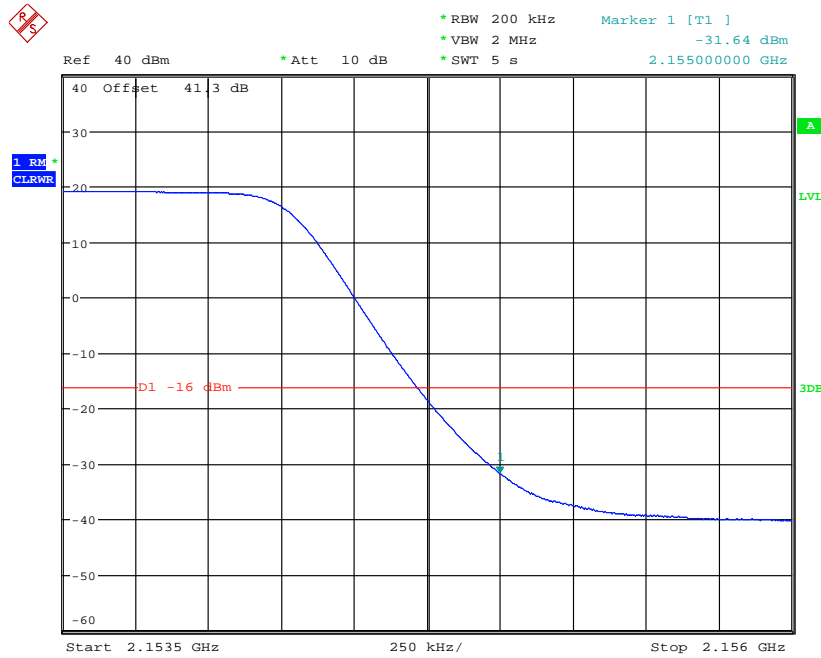


Date: 24.OCT.2013 16:19:36

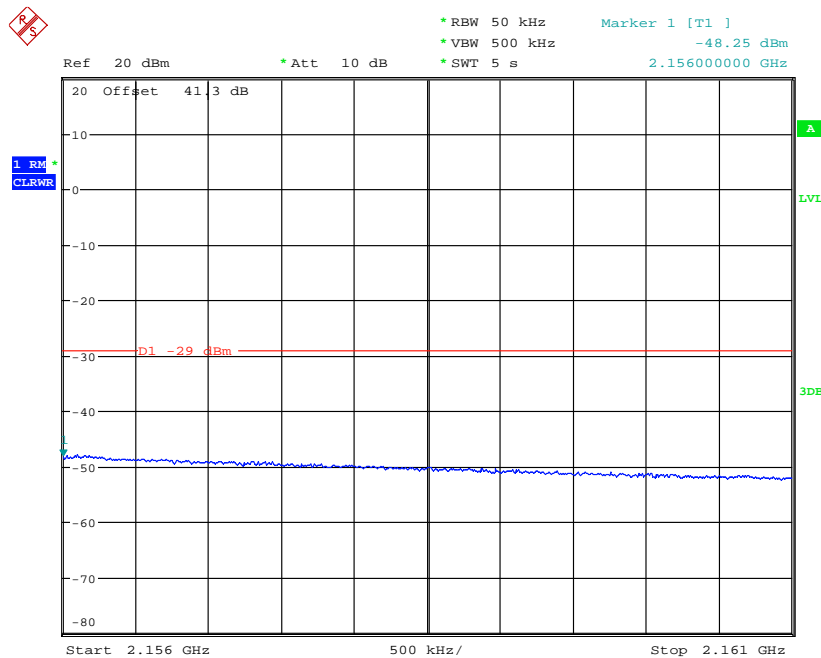


Date: 24.OCT.2013 16:20:34

Channel Position T - QPSK / Bandwidth 15.0 MHz

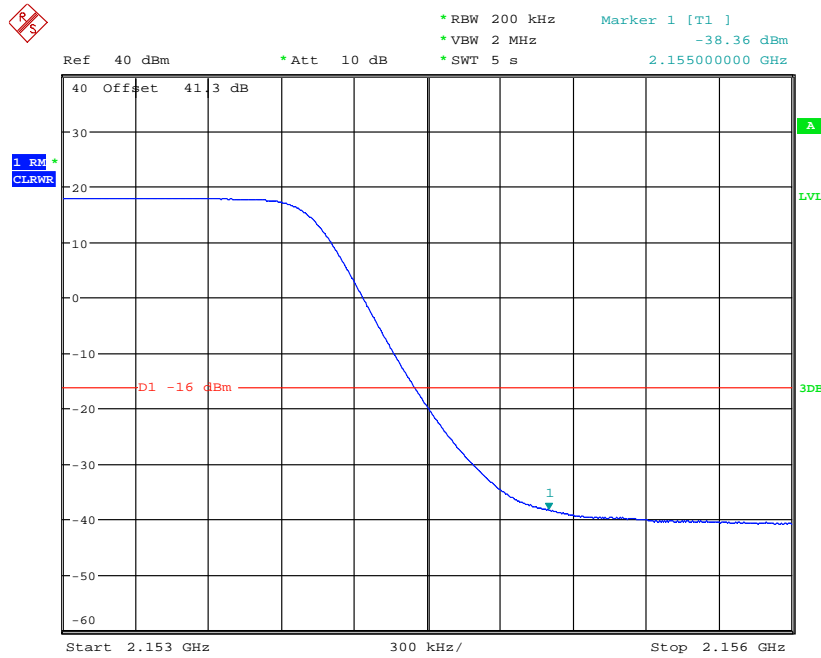


Date: 24.OCT.2013 16:25:54

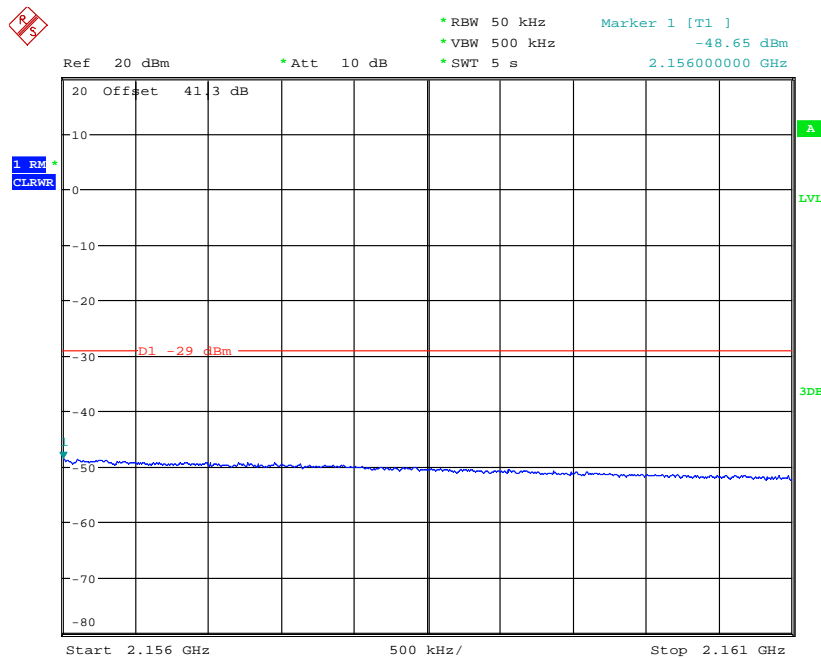


Date: 24.OCT.2013 16:23:16

Channel Position T - QPSK / Bandwidth 20.0 MHz



Date: 24.OCT.2013 16:51:02



Date: 24.OCT.2013 16:52:31

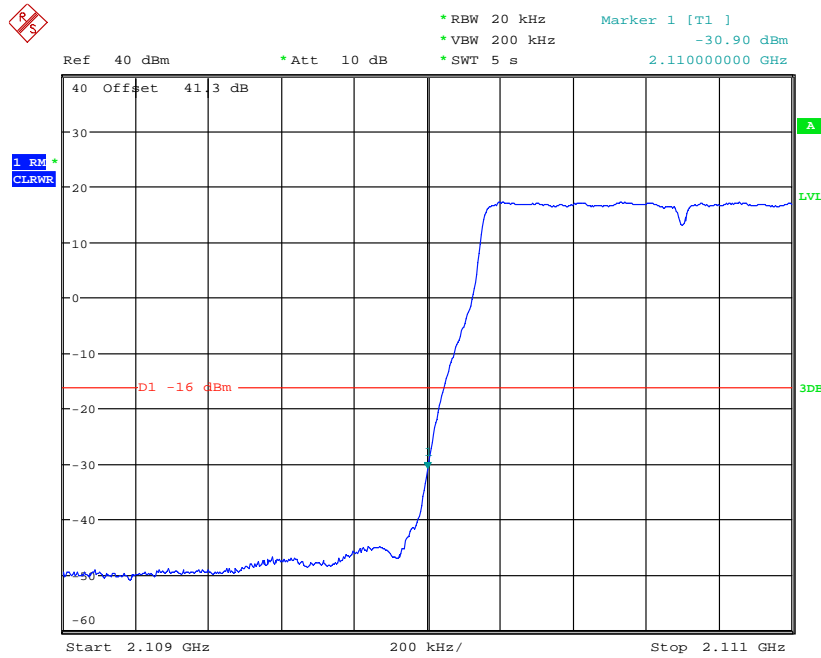
Configuration L-MIMO-MC 1 (2C)

Maximum Output Power 34.0dBm per carrier

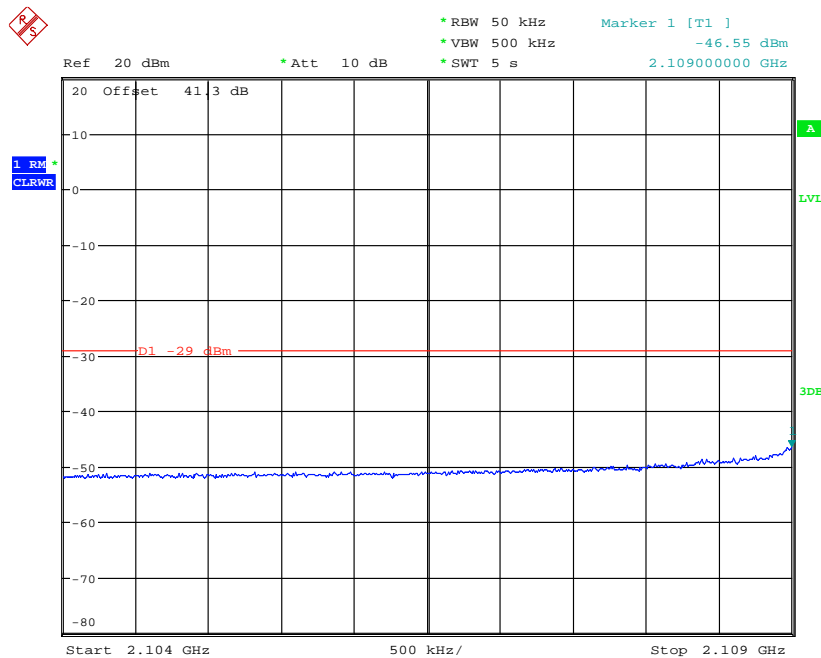
Band Edge Frequency	Channel Bandwidth	Edge Test with modulation QPSK Channel Frequencies
Channel Position B_{RFBW} 2110.0 MHz	1.4 MHz	2110.7MHz + 2112.1MHz
	3.0 MHz	2111.5MHz + 2114.5MHz
	5.0 MHz	2112.5MHz + 2117.5MHz
	10.0 MHz	2115.0MHz + 2125.0MHz
	15.0 MHz	-
	20.0 MHz	-
Channel Position T_{RFBW} 2155.0 MHz	1.4 MHz	2152.9MHz + 2154.3MHz
	3.0 MHz	2150.5MHz + 2153.5MHz
	5.0 MHz	2147.5MHz + 2152.5MHz
	10.0 MHz	2140.0MHz + 2150.0MHz
	15.0 MHz	-
	20.0 MHz	-

Note: The channels shown in the table above are the minimum and maximum channels that can be used in the authorised frequency ranges to maintain compliance. Channels outside of the ranges shown in the above tables shall not be made available to the end user.

Channel Position B_{RFBW} - QPSK / Bandwidth 1.4 MHz

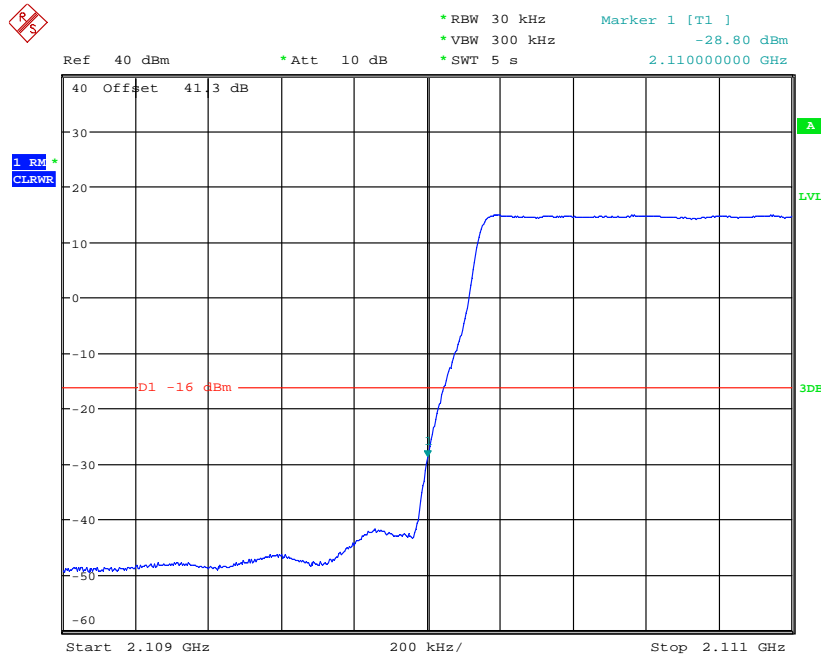


Date: 25.OCT.2013 11:15:47

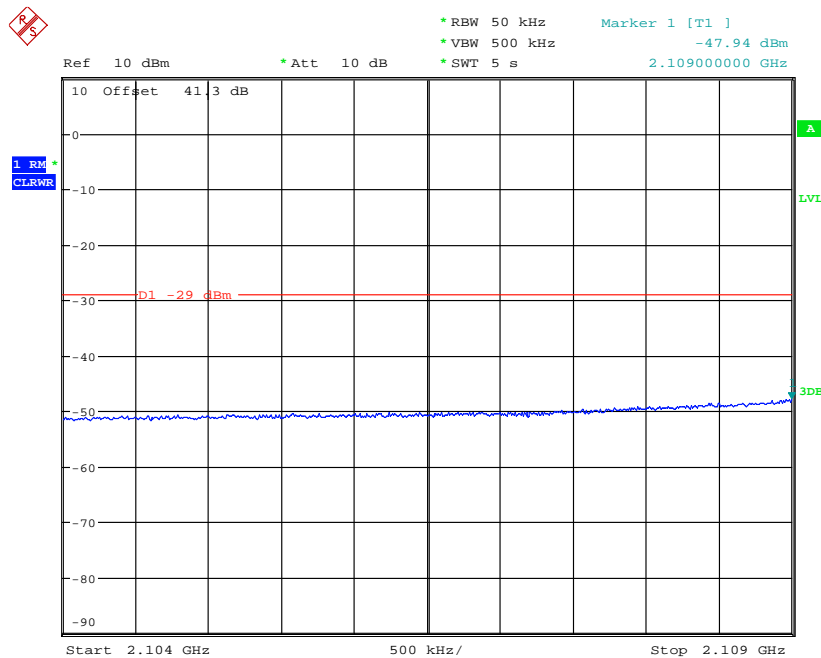


Date: 25.OCT.2013 11:16:43

Channel Position B_{RFBW} – Modulation QPSK / Bandwidth 3.0 MHz

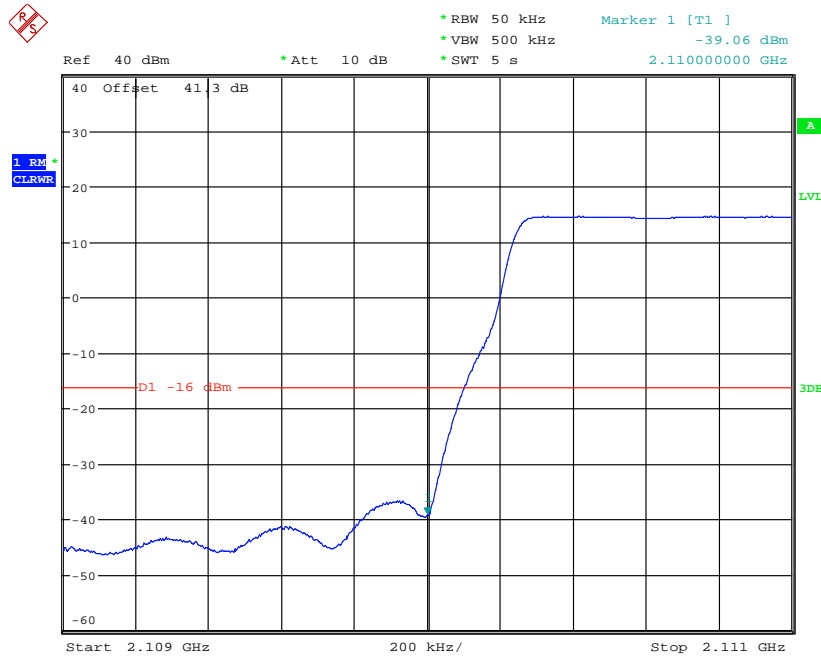


Date: 25.OCT.2013 13:38:41

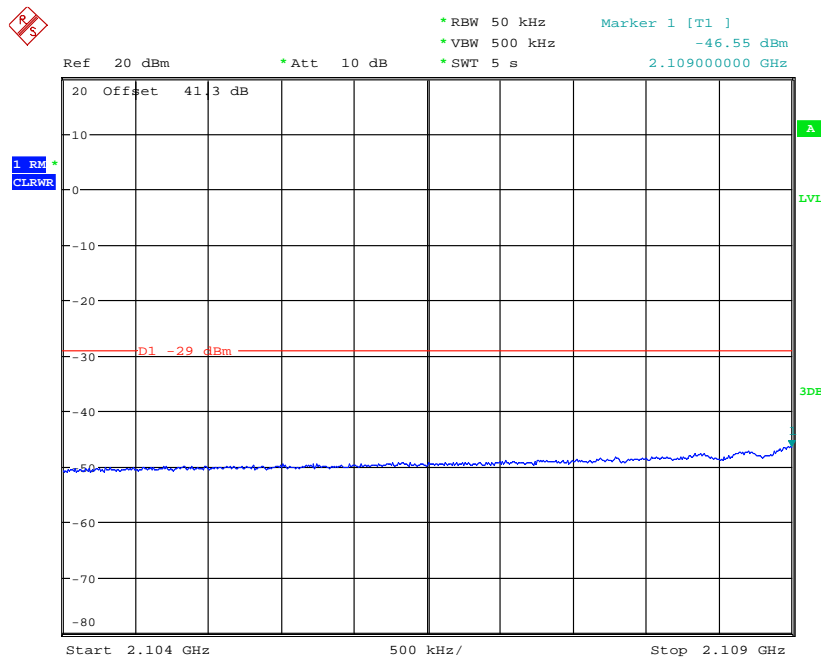


Date: 25.OCT.2013 13:39:33

Channel Position B_{RFBW} - QPSK / Bandwidth 5.0 MHz

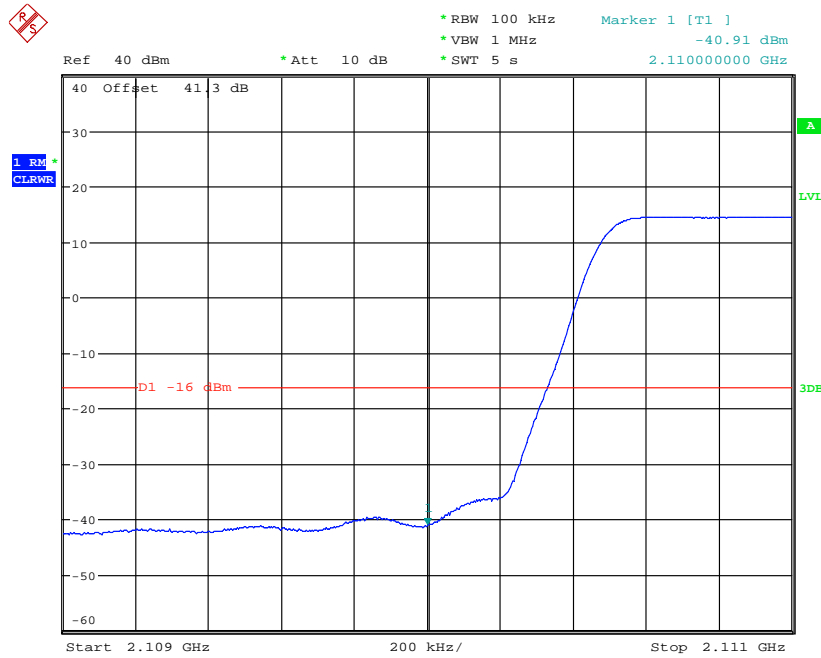


Date: 25.OCT.2013 13:27:33

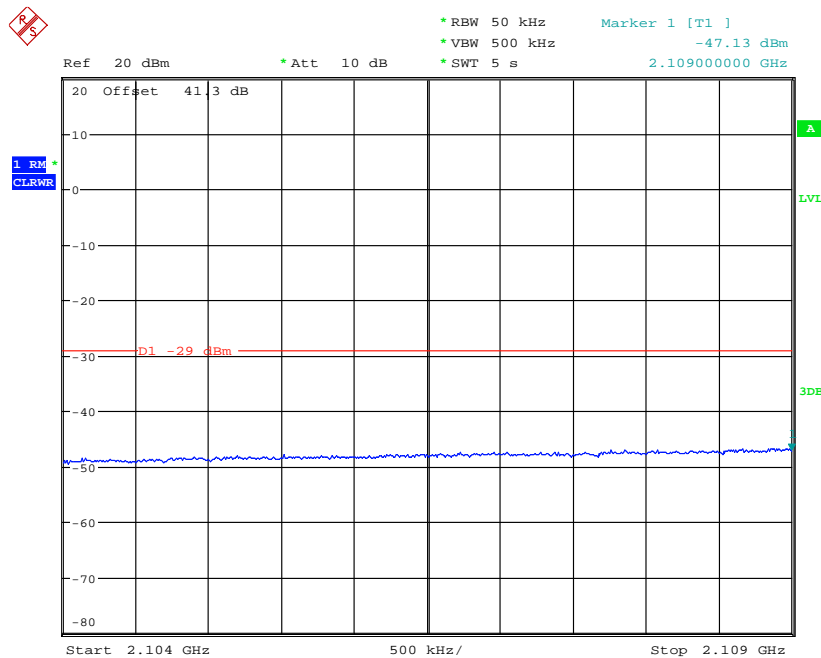


Date: 25.OCT.2013 13:28:32

Channel Position B_{RFBW} - QPSK / Bandwidth 10.0 MHz

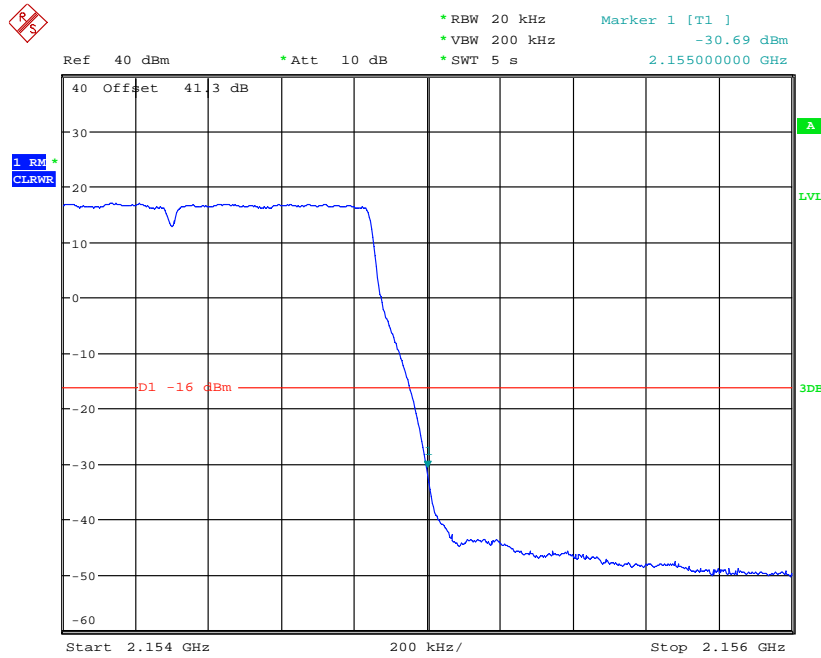


Date: 25.OCT.2013 13:43:16

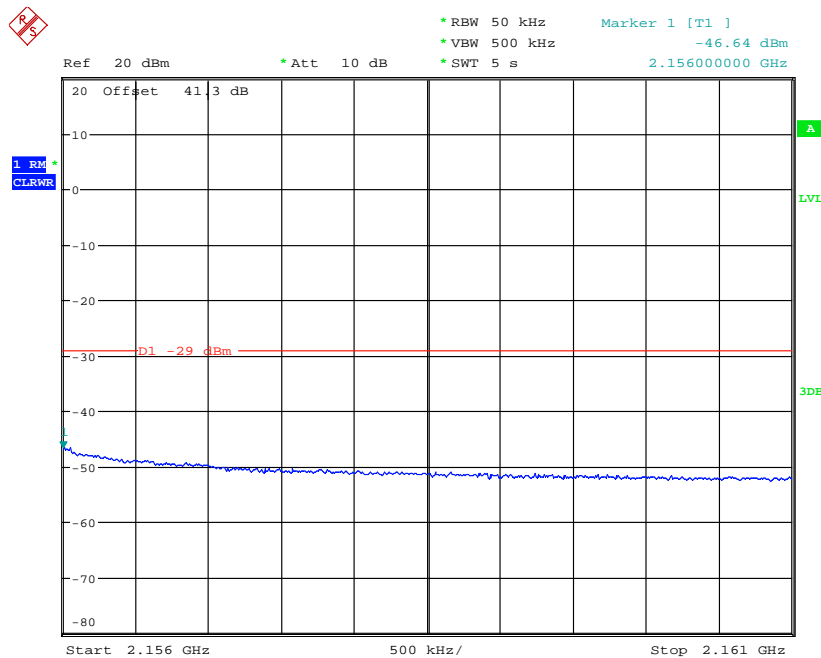


Date: 25.OCT.2013 13:41:44

Channel Position T_{RFBW} - QPSK / Bandwidth 1.4 MHz

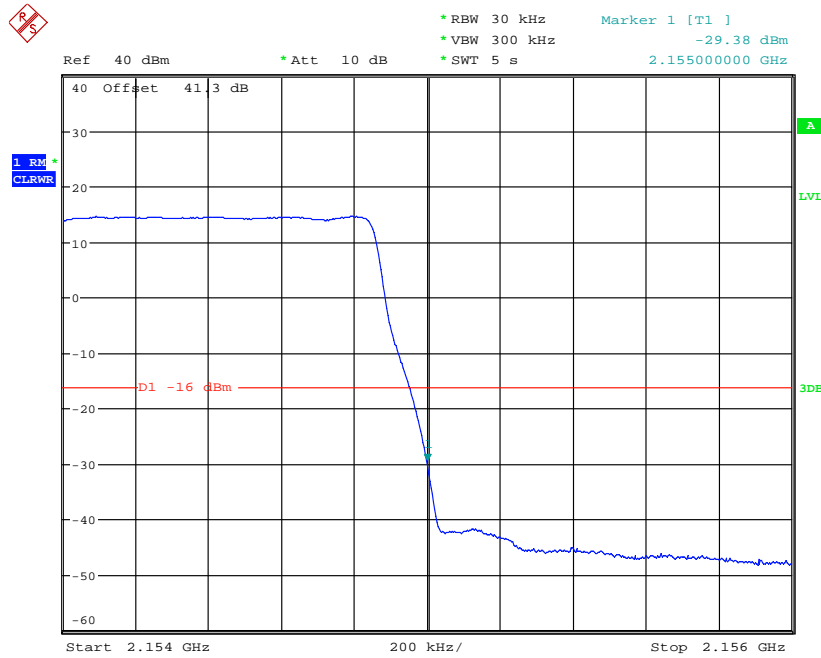


Date: 25.OCT.2013 11:19:31

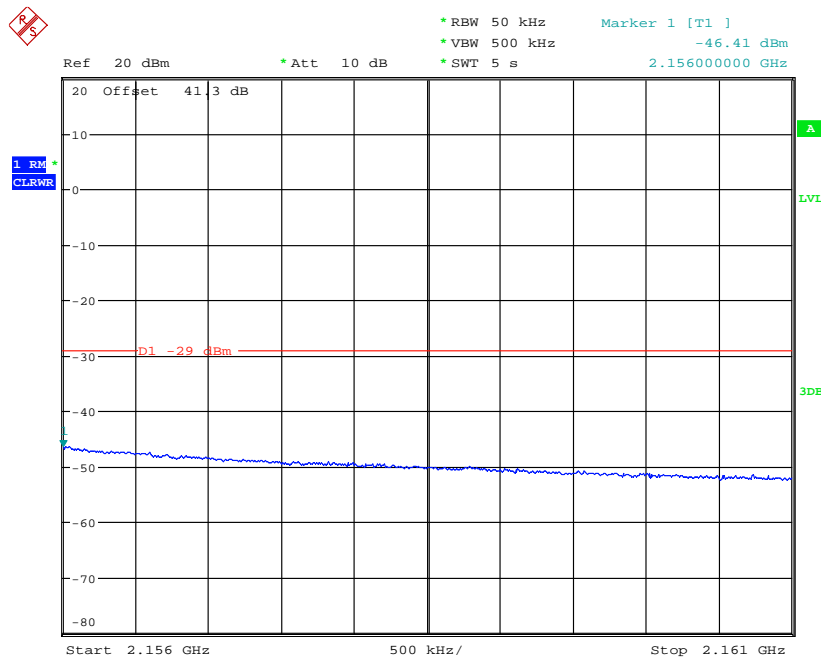


Date: 25.OCT.2013 11:18:36

Channel Position T_{RFBW} - QPSK / Bandwidth 3.0 MHz

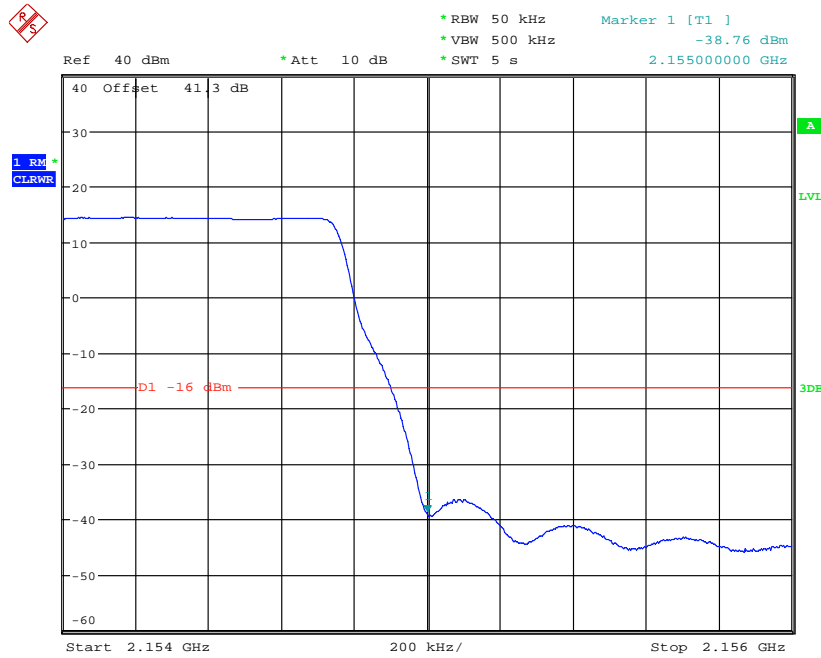


Date: 25.OCT.2013 13:36:27

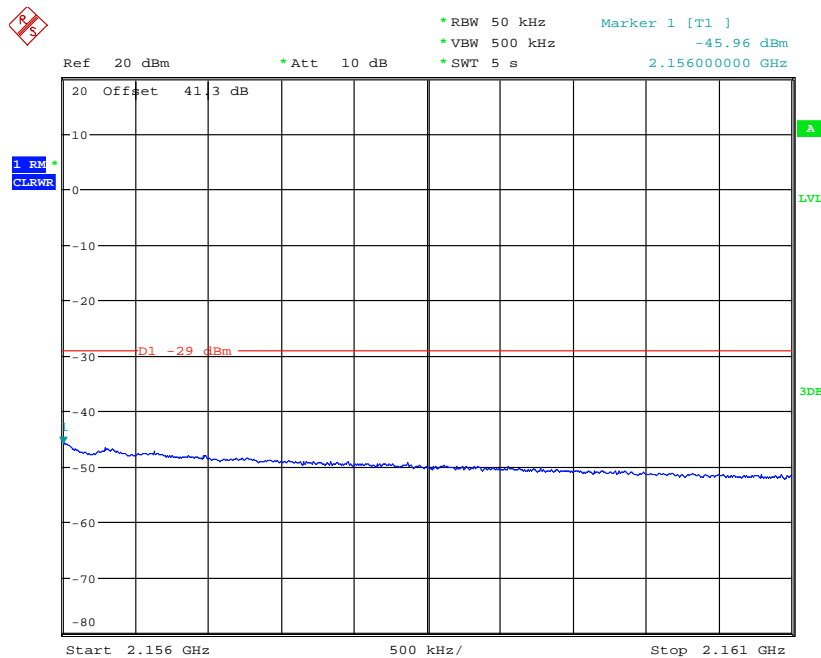


Date: 25.OCT.2013 13:35:22

Channel Position T_{RFBW} - QPSK / Bandwidth 5.0 MHz

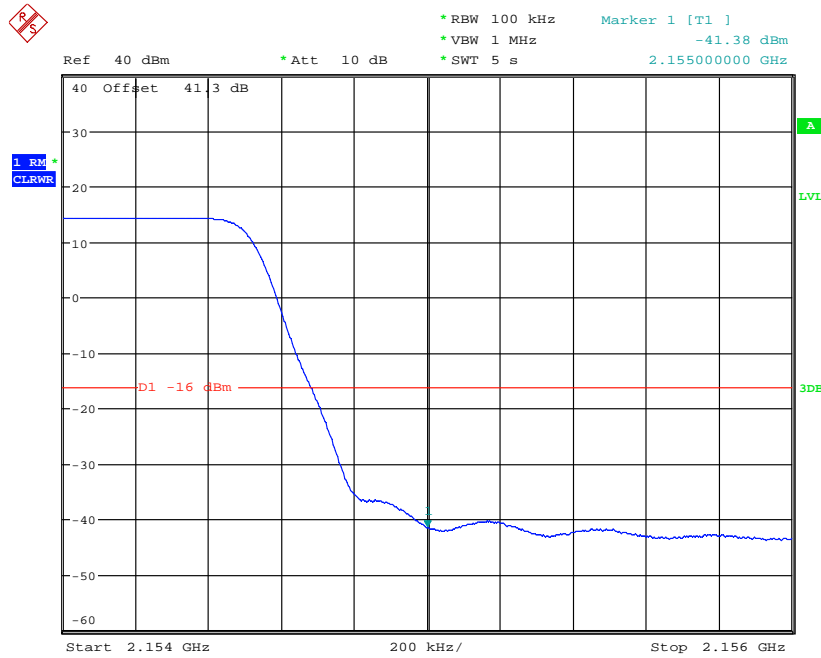


Date: 25.OCT.2013 13:30:29

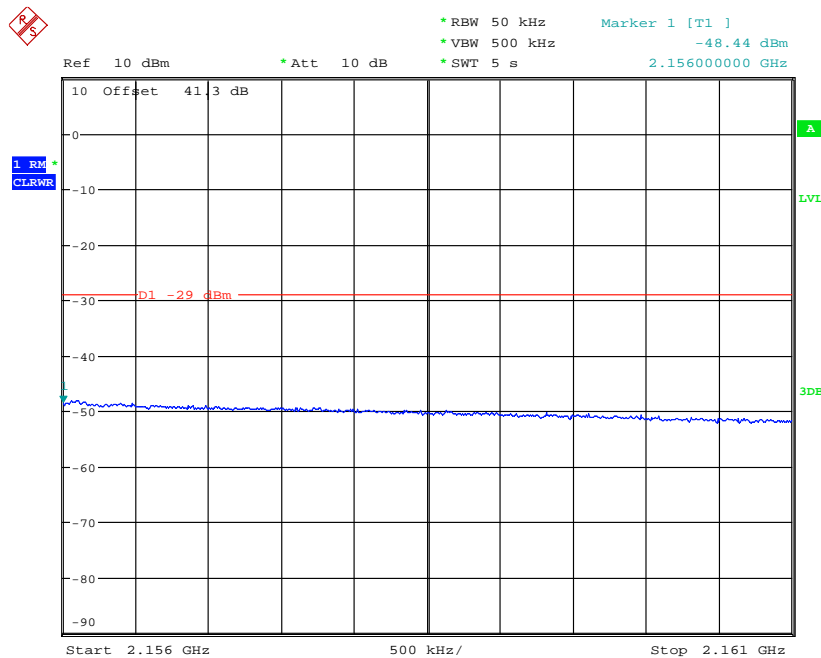


Date: 25.OCT.2013 13:31:11

Channel Position T_{RFBW} - QPSK / Bandwidth 10.0 MHz



Date: 25.OCT.2013 13:44:59



Date: 25.OCT.2013 13:45:55

Limit	-13 dBm
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2.5 RADIATED SPURIOUS EMISSIONS

2.5.1 Specification Reference

FCC CFR 47 Part 2, Clause 2.1053
FCC CFR 47 Part 27, Clause 27.53 (h)
Industry Canada RSS-139, Clause 6.5

2.5.2 Equipment Under Test

RBS 6501 B4, KRD 901 050/1, S/N: CB4R911974
RBS 6501 B4, KRD 901 050/2, S/N: CB4R886371

2.5.3 Date of Test and Modification State

30 October and 01 November 2013 - Modification State 0

2.5.4 Test Equipment Used

The major items of test equipment used for the above tests are identified in Section 3.1.

2.5.5 Environmental Conditions

Ambient Temperature	23.0 – 24.5°C
Relative Humidity	22.1 – 24.6%

2.5.6 Test Method

A preliminary profile of the Spurious Radiated Emissions was obtained by operating the EUT on a remotely controlled turntable within the chamber. Measurements of emissions from the EUT were obtained with the Measurement Antenna in both Horizontal and Vertical Polarizations.

Emissions identified within the range 30MHz – 26GHz were then formally measured using a Peak detector as the worst case.

In the frequency Range 30MHz – 26GHz, the measurement was performed with a resolution bandwidth of 1MHz.

The measurements were performed at a 3m distance unless otherwise stated.

The limits for Spurious Emissions have been calculated, as shown below using the following formula:

Field Strength of Carrier - $(43 + 10\text{Log}(P))$ dB

Where:

Field Strength is measured in dB μ V/m

P is measured Transmitter Power in Watts

Determination of Spurious Emission Limit

As the EUT does not have an integral antenna, the field strength of the carrier has been calculated assuming that the power is to be fed to a half-wave tuned dipoles as per 2.1053 (a).

$$E_{(v/m)} = (30 \times G_i \times P_o)^{0.5} / d$$

Where G_i is the antenna gain of ideal half-wave dipoles,
 P_o is the power out of the transceiver in W,
 d is the measurement distance in meter.

Therefore at 3m measurement distance the field strength using the lowest transceiver output power would be:

$$E_{(v/m)} = (30 \times 1.64 \times 4.51)^{0.5} / 3 = 4.97V/m = 133.93dB\mu V/m$$

As per 27.53 (h) the spurious emission must be attenuated by $43 + 10\log(P_o)$ dB this gives:

$$43 + 10\log(4.51) = 49.54dB$$

Therefore the limit at 3m measurement distance is:

$$133.93 - 49.54 = 84.4 \text{ dB}\mu V/m$$

This limit has been used to determine Pass or Fail for the harmonics measured and detailed in the following results.

The results are shown in the plots below.

2.5.7 Test Results

Note: Only the worst case results plots have been included as all of the emissions are greater than 20dB below the limit. A set of plots have been included to show the measurement system noise floor.

Configuration W-SC (1C)

Maximum Output Power 37.0dBm per carrier

Channel Position	Channel Frequencies
Channel Position B	2112.4MHz
Channel Position M	2132.6MHz
Channel Position T	2152.6MHz

Channel Position B - QPSK

No emissions were detected within 20dB of the limit.

Channel Position M - QPSK

No emissions were detected within 20dB of the limit.

Channel Position T - QPSK

No emissions were detected within 20dB of the limit.

Configuration W-MIMO-SC (1C)

Maximum Output Power 37.0dBm per carrier

Channel Position	Channel Frequencies
Channel Position M	2132.6MHz

Channel Position M – 16QAM

No emissions were detected within 20dB of the limit.

Configuration W-MC 1(2C)

Maximum Output Power 34.0dBm per carrier

Channel Position	Channel Frequencies
Channel Position B _{RFBW}	2112.4MHz + 2132.6MHz

Channel Position B_{RFBW} - QPSK

No emissions were detected within 20dB of the limit.

Configuration W-MC 2 (4C)

Maximum Output Power 31.0dBm per carrier

Channel Position	Channel Frequencies
Channel Position B _{RFBW}	2112.4MHz + 2117.4MHz + 2127.6MHz + 2132.6MHz

Channel Position B_{RFBW} - QPSK

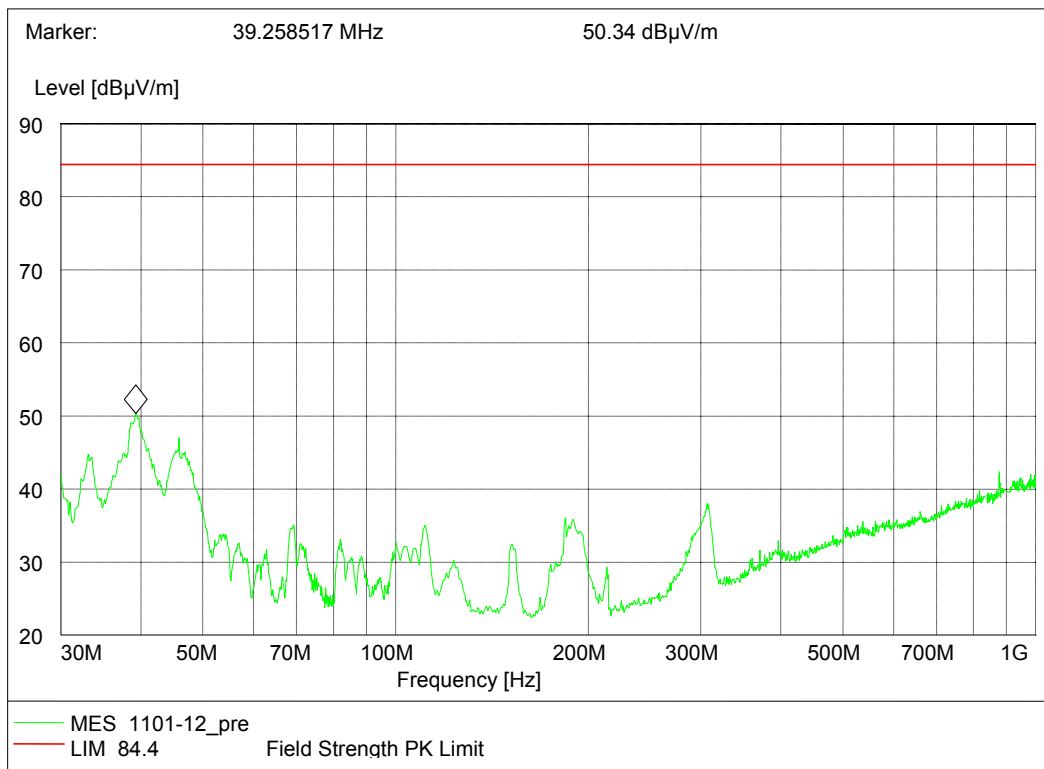
No emissions were detected within 20dB of the limit.

Configuration L-MIMO-SC (1C)

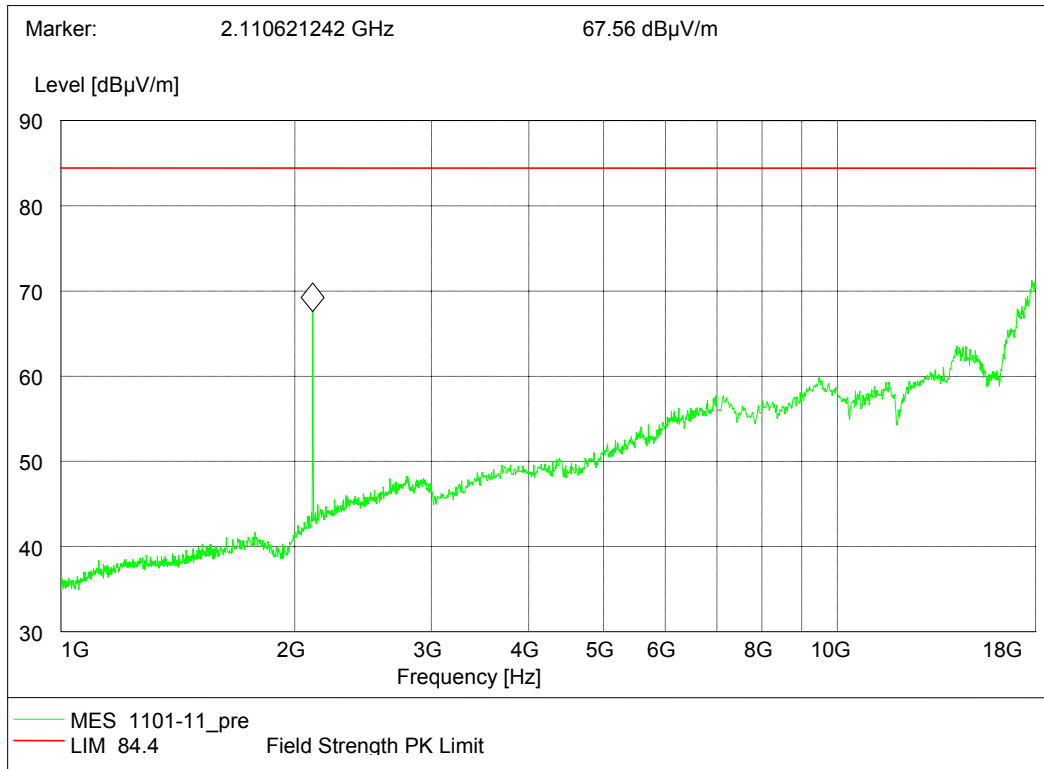
Maximum Output Power 37.0dBm per carrier, LTE Bandwidth 1.4MHz

Channel Position	Channel Frequencies
Channel Position B	2110.7MHz
Channel Position M	2132.5MHz
Channel Position T	2154.3MHz

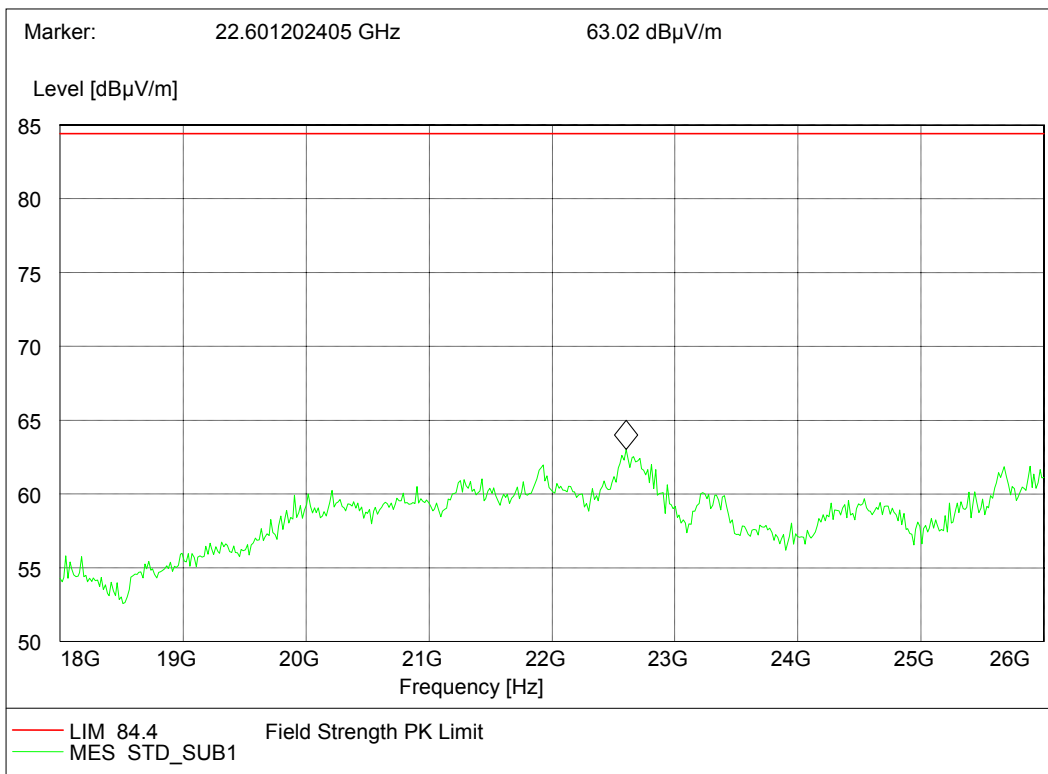
Channel Position B - QPSK / Bandwidth 1.4MHz - 30MHz – 1GHz



Channel Position B – QPSK / Bandwidth 1.4MHz - 1GHz - 18GHz



Channel Position B – QPSK / Bandwidth 1.4MHz - 18GHz -26GHz



Channel Position M - QPSK

No emissions were detected within 20dB of the limit.

Channel Position T - QPSK

No emissions were detected within 20dB of the limit.

Configuration L-MIMO-SC (1C)

Maximum Output Power 37.0dBm per carrier, LTE Bandwidth 3.0MHz, 5.0MHz, 10MHz, 15 MHz, 20MHz

Channel Position	Channel Frequencies
Channel Position M	2132.5MHz

Channel Position M - QPSK

No emissions were detected within 20dB of the limit.

Configuration L-MIMO-MC 1(2C)

Maximum Output Power 34.0dBm per carrier, LTE Bandwidth 1.4MHz

Channel Position	Channel Frequencies
Channel Position B _{RFBW}	2110.7MHz + 2134.3MHz

Channel Position B_{RFBW} - QPSK

No emissions were detected within 20dB of the limit.

Limit	-13dBm / 84.4dBμV/m

Remarks

The EUT does not exceed -13dBm / 84.4dBμV/m at the measured frequencies.

2.6 CONDUCTED SPURIOUS EMISSIONS

2.6.1 Specification Reference

FCC CFR 47 Part 2, Clause 2.1051
FCC CFR 47 Part 27, Clause 27.53 (h)
Industry Canada RSS-139, Clause 6.5

2.6.2 Equipment Under Test

RBS 6501 B4, KRD 901 050/1, S/N: CB4R911974
RBS 6501 B4, KRD 901 050/2, S/N: CB4R886371

2.6.3 Date of Test and Modification State

11 November 2013 - Modification State 0

2.6.4 Test Equipment Used

The major items of test equipment used for the above tests are identified in Section 3.1.

2.6.5 Environmental Conditions

Ambient Temperature	23.4 °C
Relative Humidity	21.6 %

2.6.6 Test Method

In accordance with FCC CFR 47 Part 2, Clause 2.1051, the spurious emissions from the antenna terminal were measured. In accordance with FCC CFR 47 Part 27, Clause 27.53(h) and Industry Canada RSS-139, Clause 6.5, any emissions outside of the block edges shall be attenuated by at least $43 + 10 \log (P)$.

The EUT was set to transmit at its maximum rated output power. The path loss between the Spectrum Analyser and the EUT was measured with the worst case level being entered as a Reference Level Offset. In accordance with 27.53 (h), the RBW was set to 1MHz and a Peak detector with the trace set to Max Hold was used. The frequency spectrum was then investigated between 9kHz and 22GHz. Testing was carried out on the Bottom, Middle and Top channels.

For MIMO mode configurations, the limit was adjusted with a correction of -3dB $[10\log 2]$ by using the Measure and Add $10\log(N)$ dB technique according to FCC KDB662911 D01 accounting for simultaneous transmission from antenna ports RF A and RF B.

The measurements were performed on the output connector RF A. Limited complementary measurement were done at output connector RF B to verify identical performance for both transmitter chains in MIMO mode

The results are shown in the plots below.

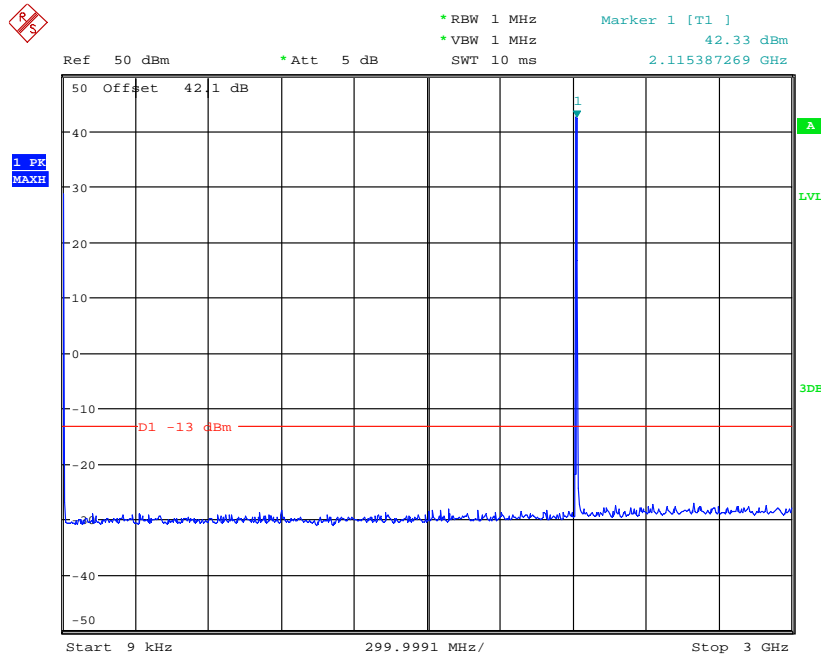
2.6.7 Test Results

Configuration W-SC

Maximum Output Power 37.0dBm per carrier

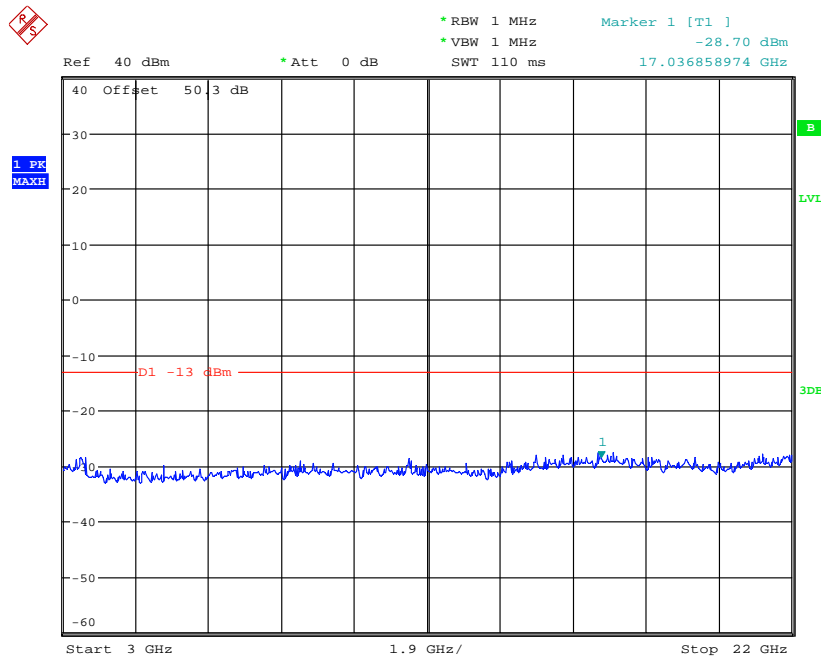
Channel Position	Channel Frequency
Channel Position B	2112.4MHz
Channel Position M	2132.6MHz
Channel Position T	2152.6MHz

Channel Position B - QPSK - 9kHz – 3GHz



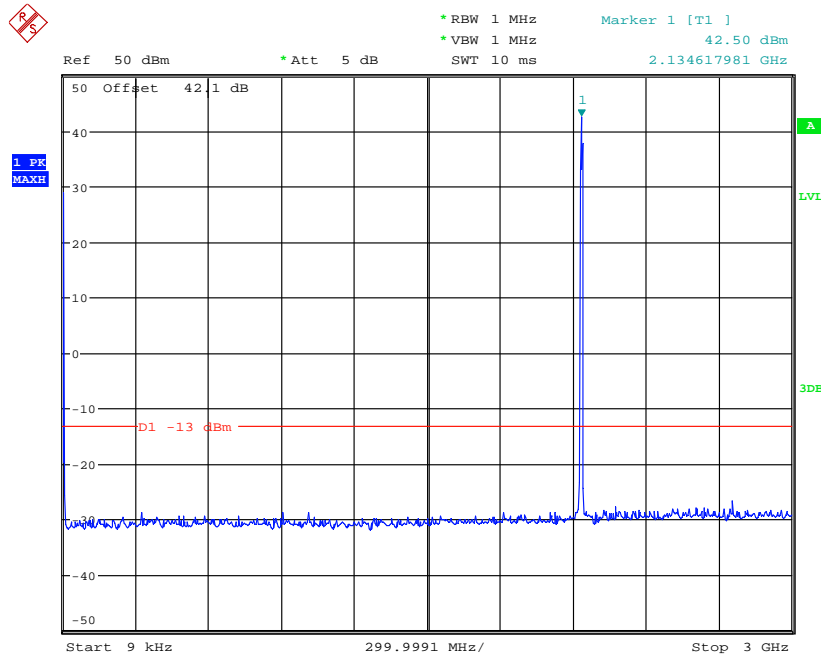
Date: 11.NOV.2013 14:36:46

Channel Position B - QPSK - 3GHz – 22GHz



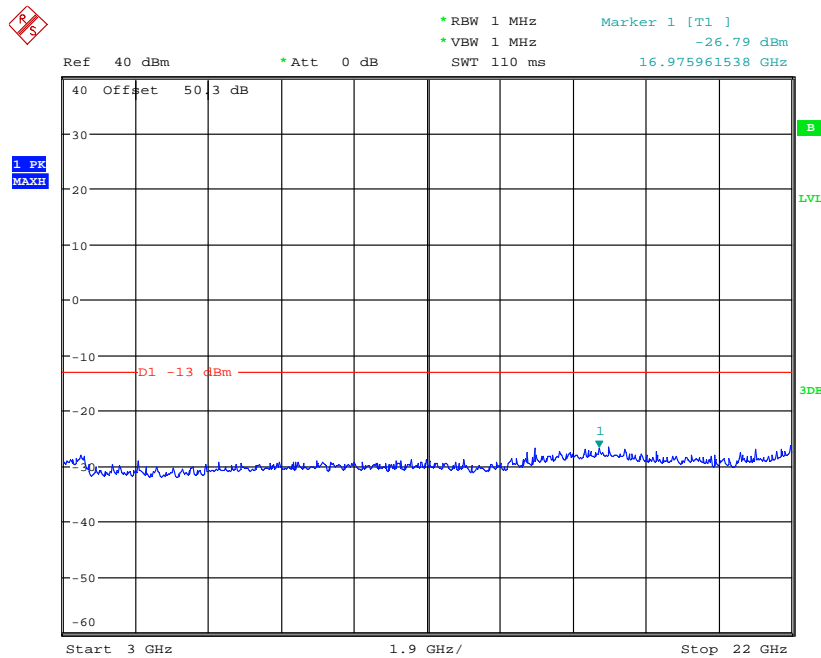
Date: 11.NOV.2013 14:37:01

Channel Position M - QPSK - 9kHz – 3GHz



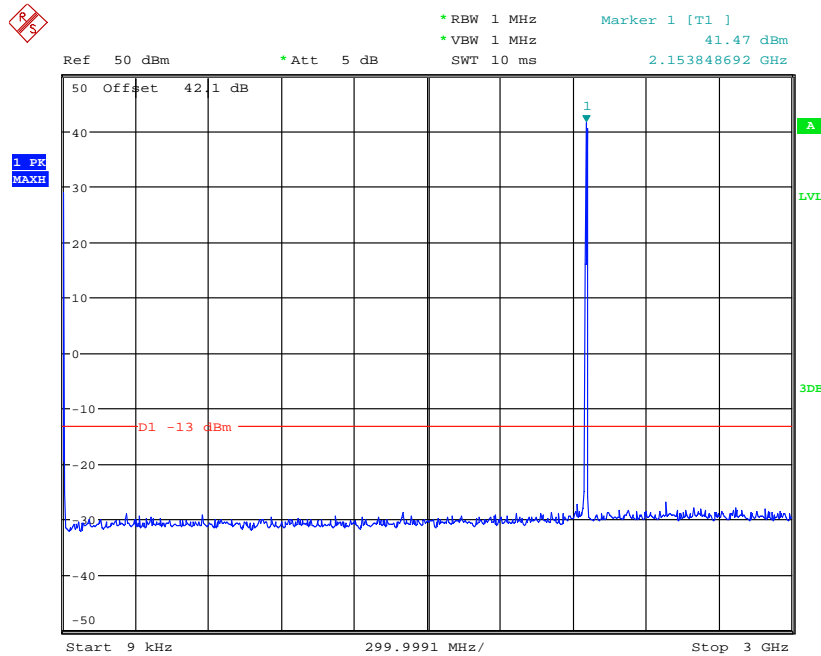
Date: 11.NOV.2013 14:28:14

Channel Position M - QPSK - 3GHz – 22GHz



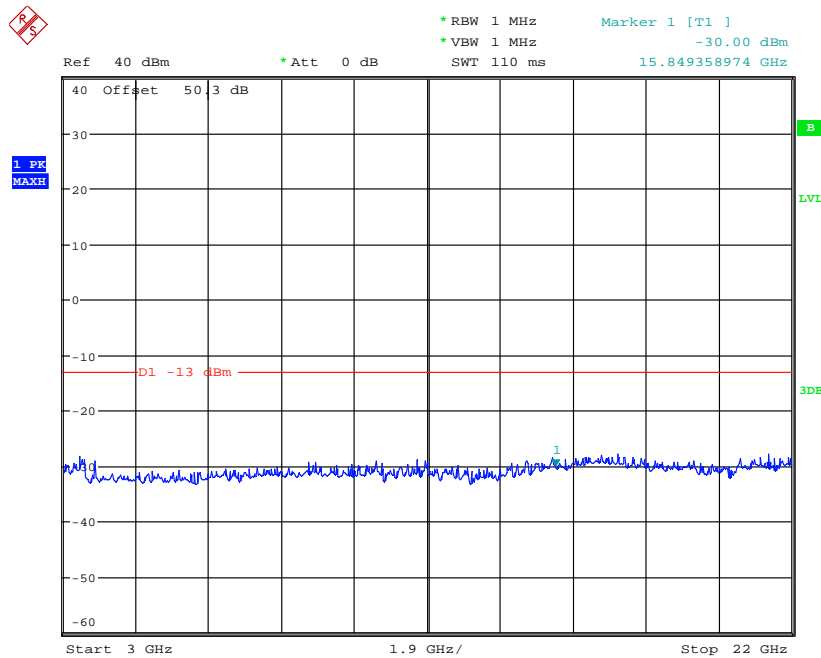
Date: 11.NOV.2013 14:29:26

Channel Position T - QPSK - 9kHz – 3GHz



Date: 11.NOV.2013 14:23:10

Channel Position T - QPSK - 3GHz – 22GHz



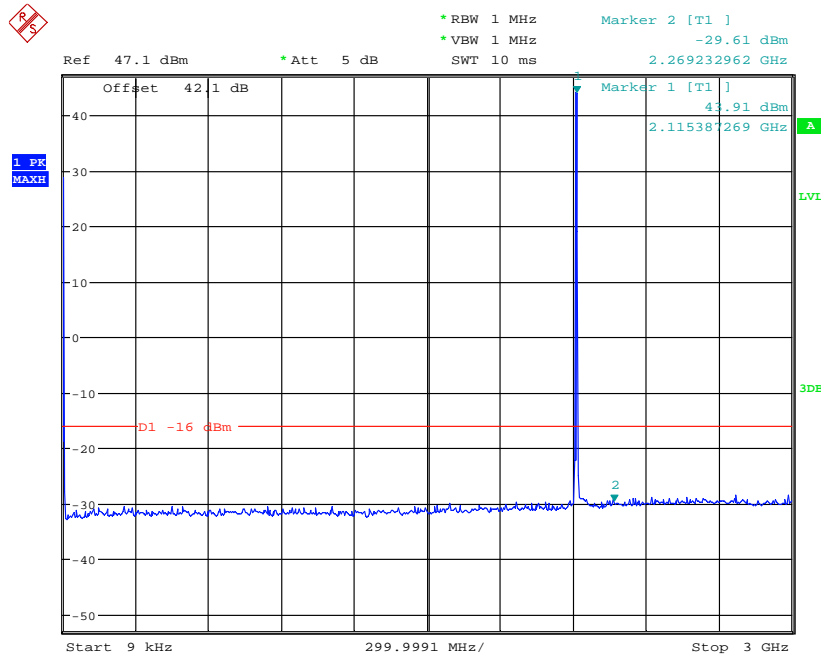
Date: 11.NOV.2013 14:23:16

Configuration W-MIMO-SC

Maximum Output Power 37.0dBm per carrier

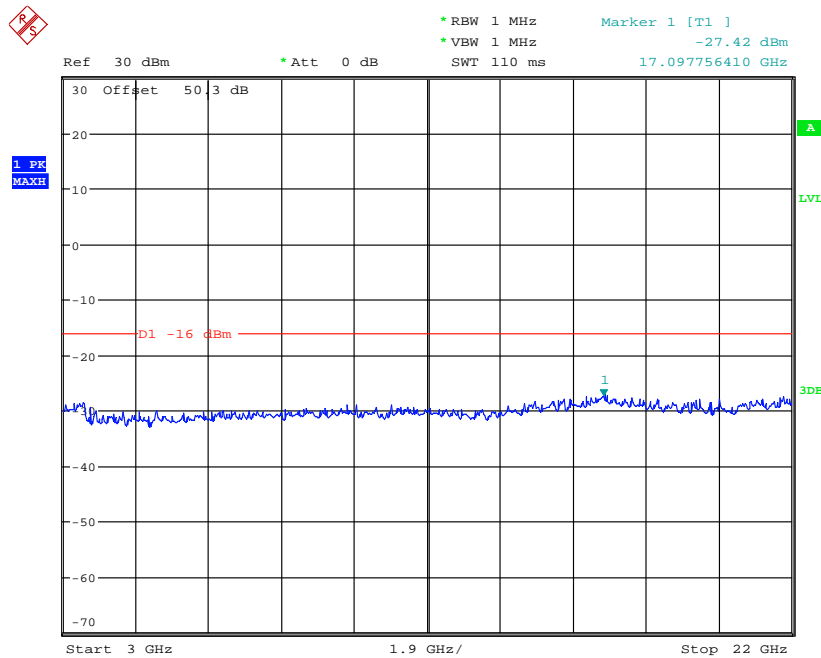
Channel Position	Channel Frequency
Channel Position B	2112.4MHz
Channel Position M	2132.6MHz
Channel Position T	2152.6MHz

Channel Position B - 16QAM - 9kHz – 3GHz



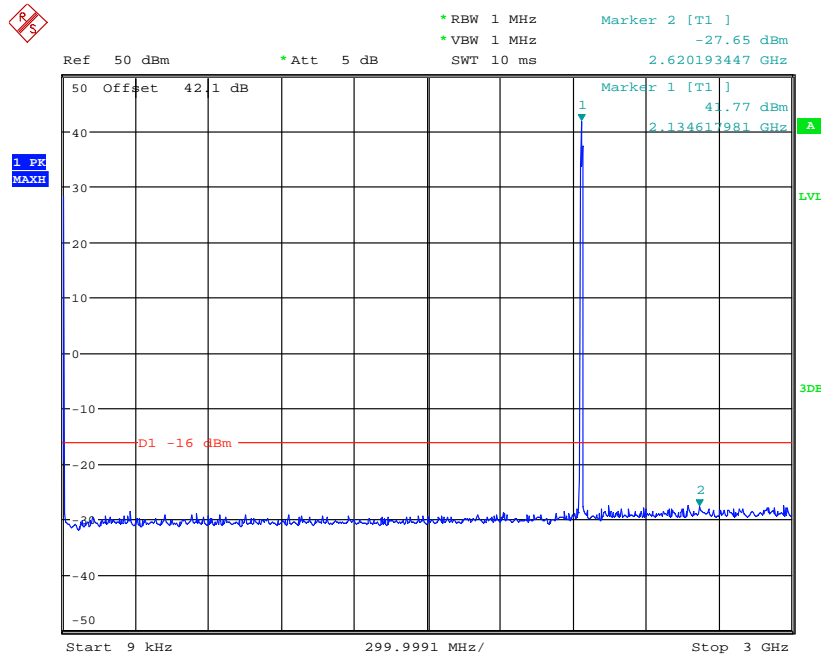
Date: 11.NOV.2013 10:18:07

Channel Position B - 16QAM - 3GHz – 22GHz



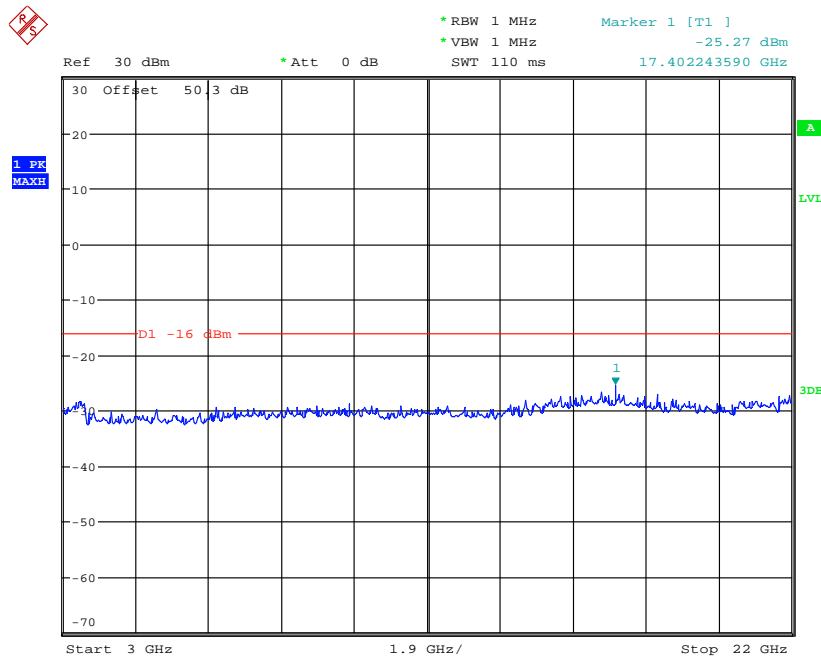
Date: 11.NOV.2013 10:21:28

Channel Position M - 16QAM - 9kHz – 3GHz



Date: 11.NOV.2013 10:29:37

Channel Position M - 16QAM - 3GHz – 22GHz



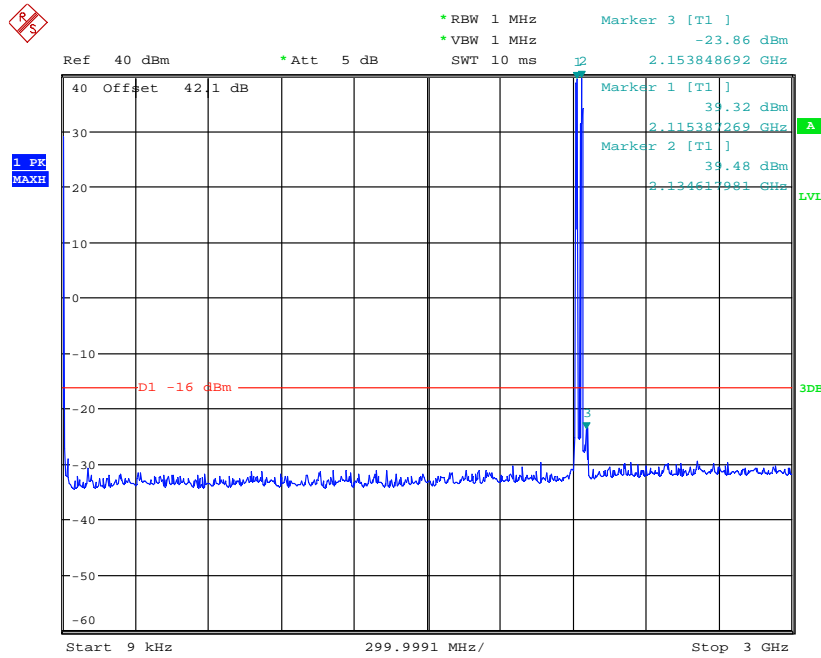
Date: 11.NOV.2013 10:30:56

Configuration W-MIMO-MC 1 (2C)

Maximum Output Power 34.0dBm per carrier

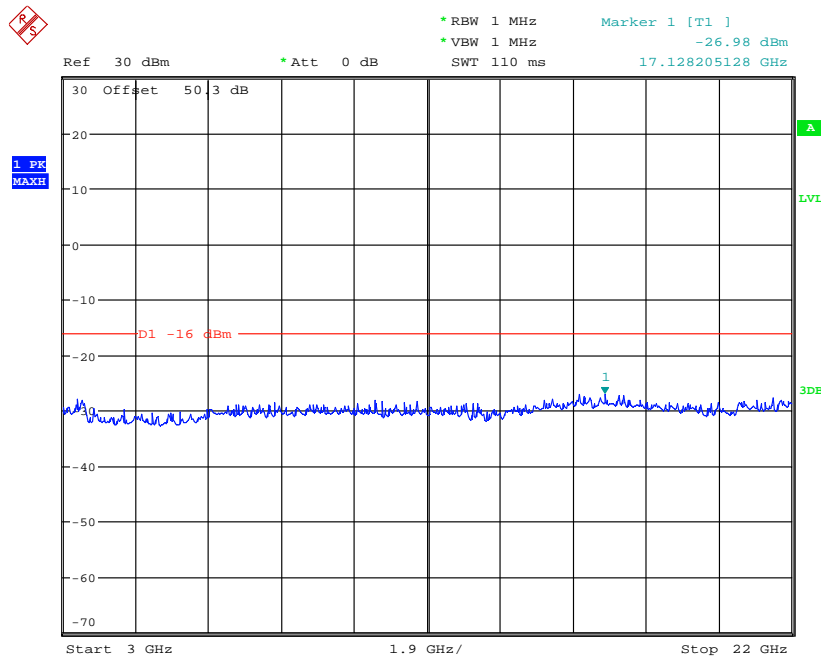
Channel Position	Channel Frequencies
Channel Position B_{RFBW}	2112.4MHz + 2132.6MHz
Channel Position M_{RFBW}	2122.4MHz + 2142.6MHz
Channel Position T_{RFBW}	2132.4MHz + 2152.6MHz

Channel Position B_{RFBW} - 16QAM - 9kHz – 3GHz



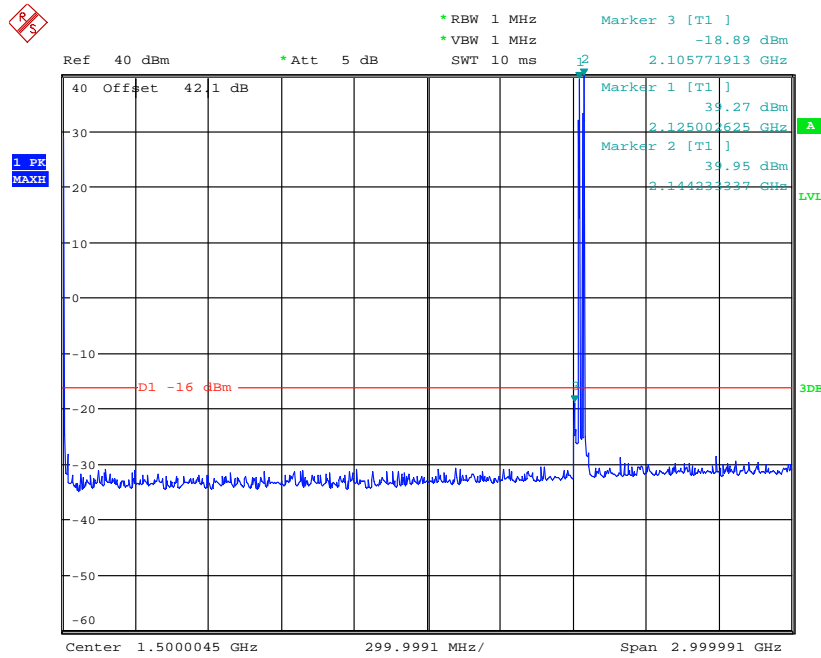
Date: 11.NOV.2013 12:46:22

Channel Position B_{RFBW} - 16QAM - 3GHz – 22GHz



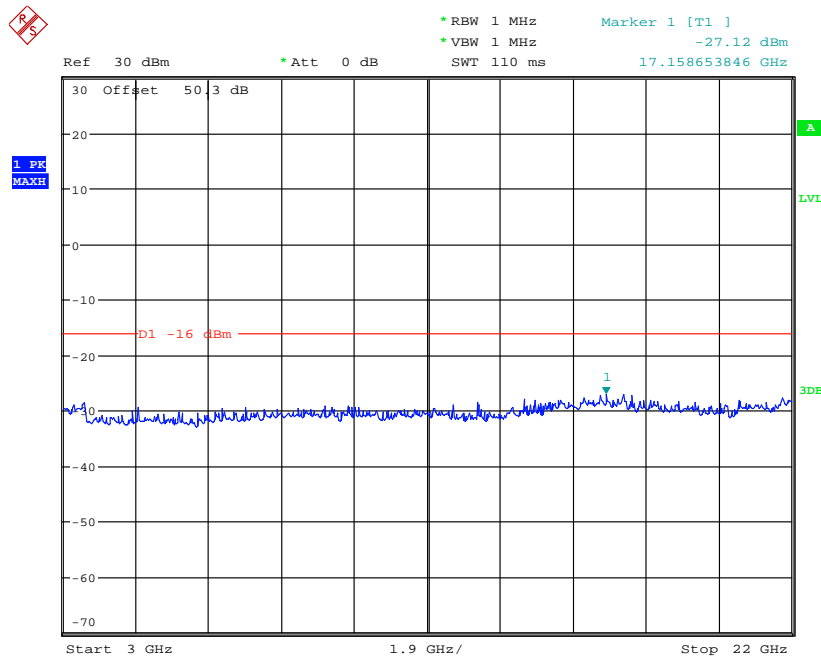
Date: 11.NOV.2013 12:46:58

Channel Position M_{RFBW} - 16QAM - 9kHz – 3GHz



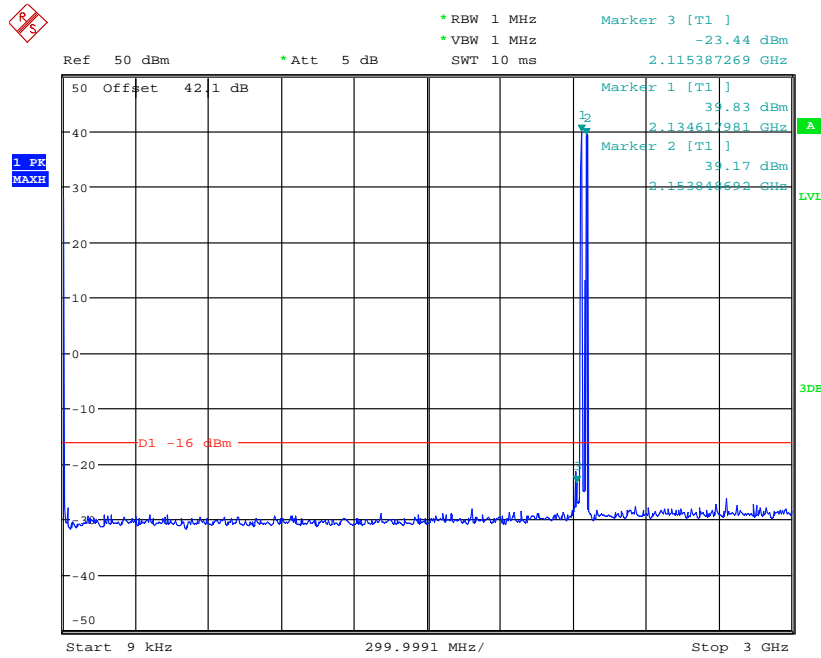
Date: 11.NOV.2013 12:19:52

Channel Position M_{RFBW} - 16QAM - 3GHz – 22GHz



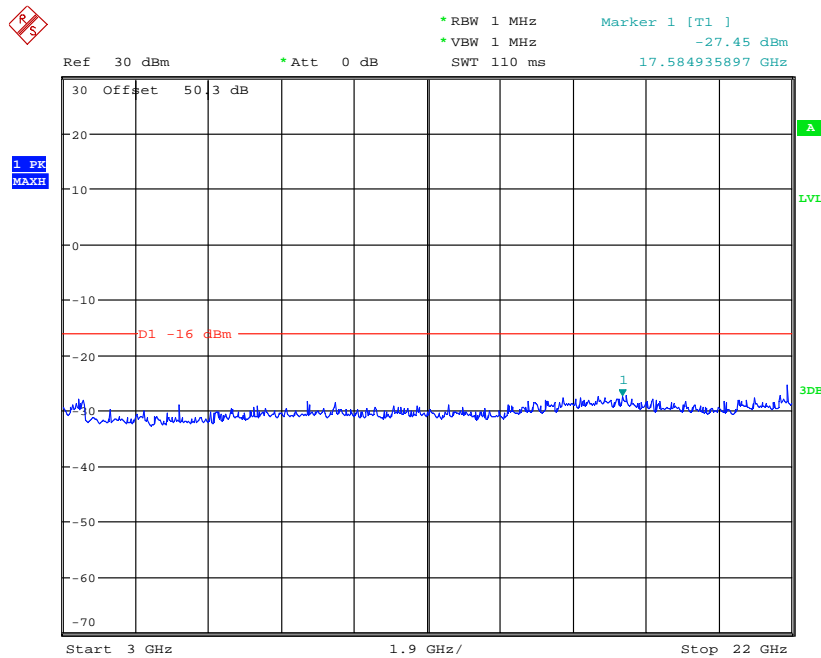
Date: 11.NOV.2013 12:20:51

Channel Position T_{RFBW} - 16QAM - 9kHz – 3GHz



Date: 11.NOV.2013 12:53:23

Channel Position T_{RFBW} - 16QAM - 3GHz – 22GHz



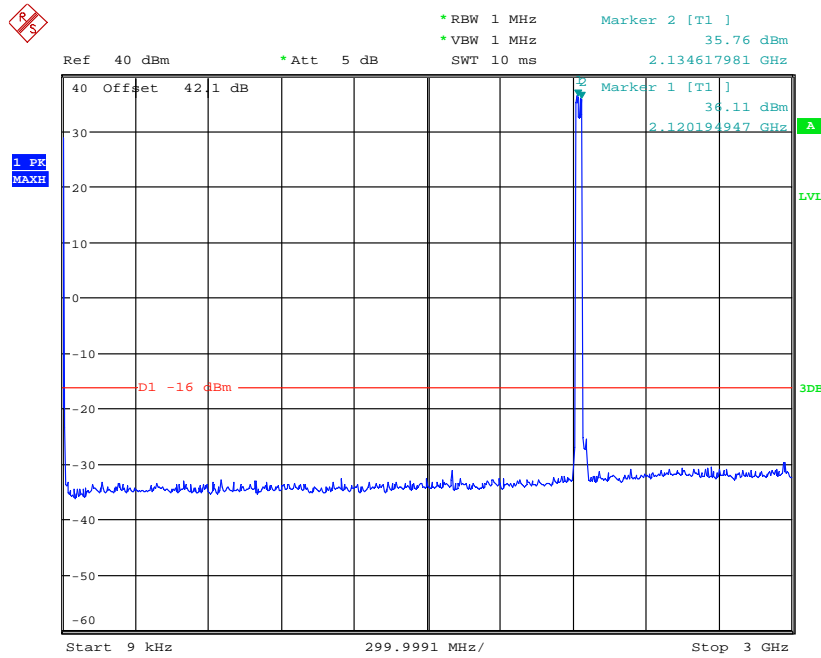
Date: 11.NOV.2013 12:54:42

Configuration W-MIMO-MC 2 (4C)

Maximum Output Power 31.0dBm per carrier

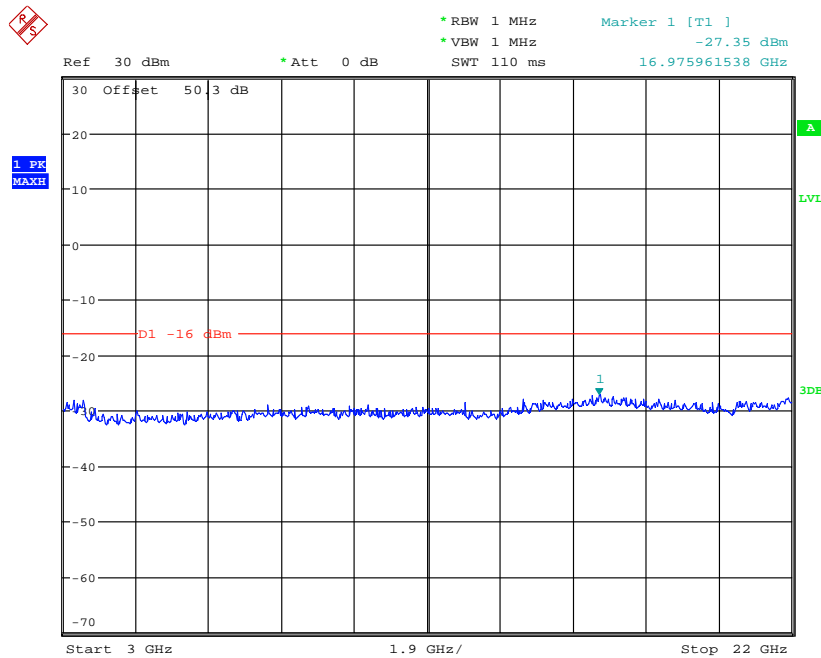
Channel Position	Channel Frequencies
Channel Position B_{RFBW}	2112.4MHz + 2117.4MHz + 2127.6MHz + 2132.6MHz
Channel Position M_{RFBW}	2122.4MHz + 2127.4MHz + 2137.6MHz + 2142.6MHz
Channel Position T_{RFBW}	2132.4MHz + 2137.4MHz + 2147.6MHz + 2152.6MHz

Channel Position B_{RFBW} - 16QAM - 9kHz – 3GHz



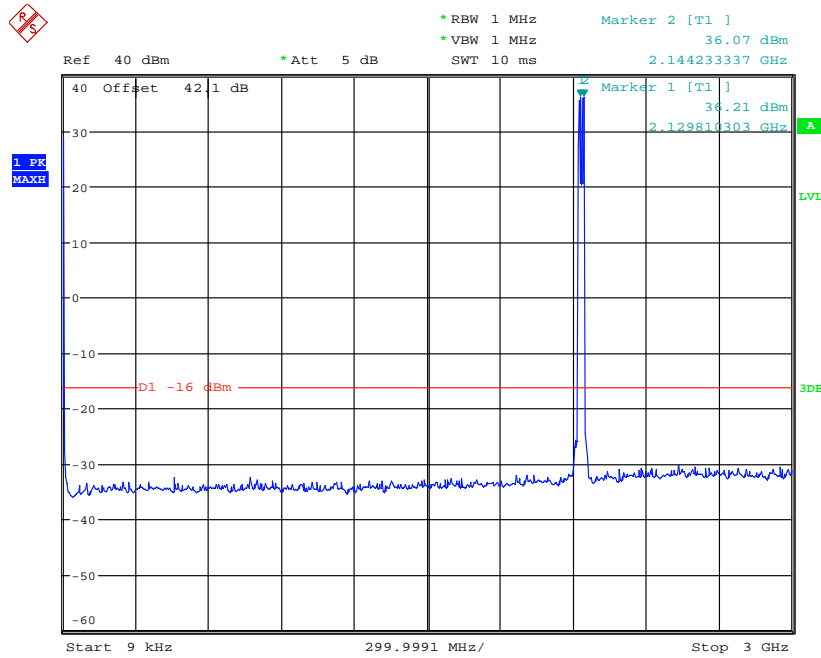
Date: 11.NOV.2013 13:39:42

Channel Position B_{RFBW} - 16QAM - 3GHz – 22GHz



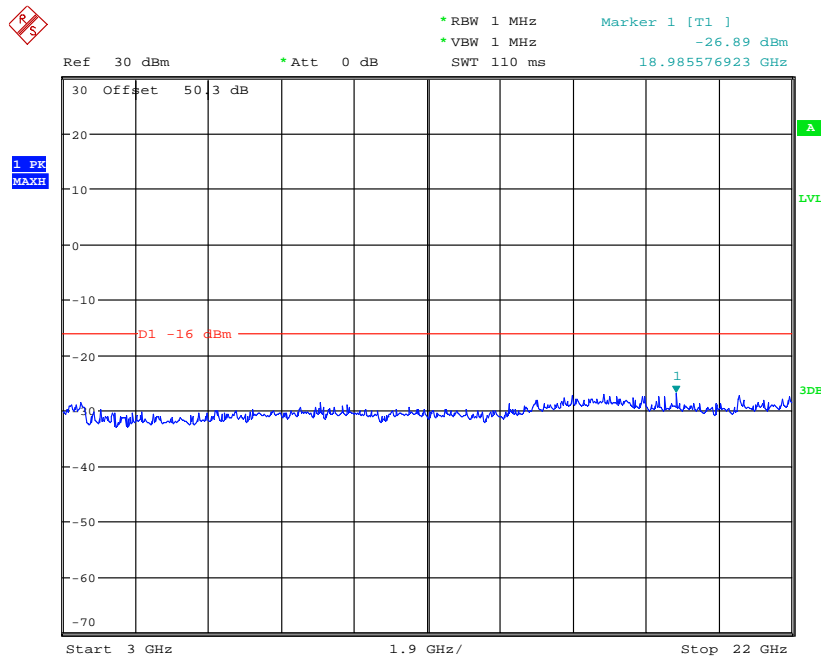
Date: 11.NOV.2013 13:38:18

Channel Position M_{RFBW} - 16QAM - 9kHz – 3GHz



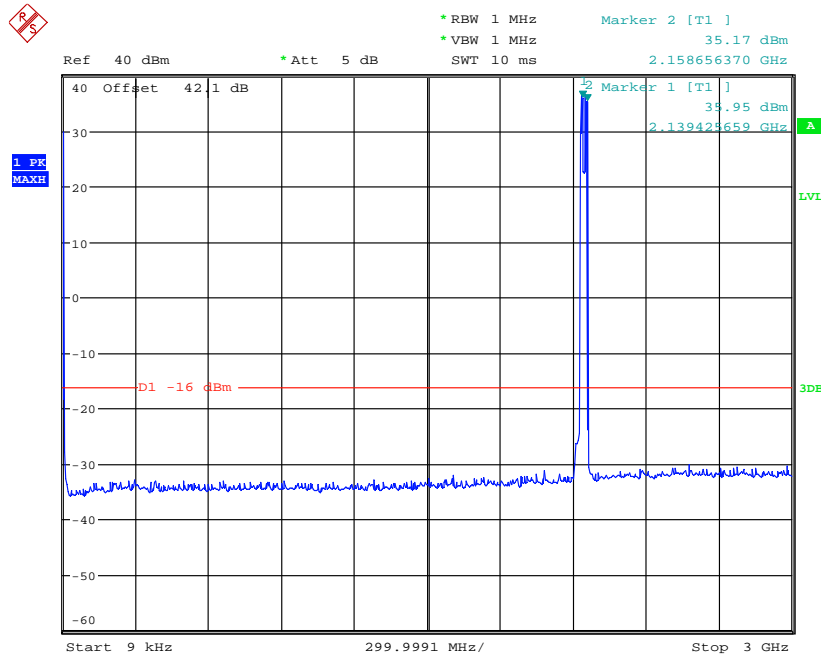
Date: 11.NOV.2013 13:16:10

Channel Position M_{RFBW} - 16QAM - 3GHz – 22GHz



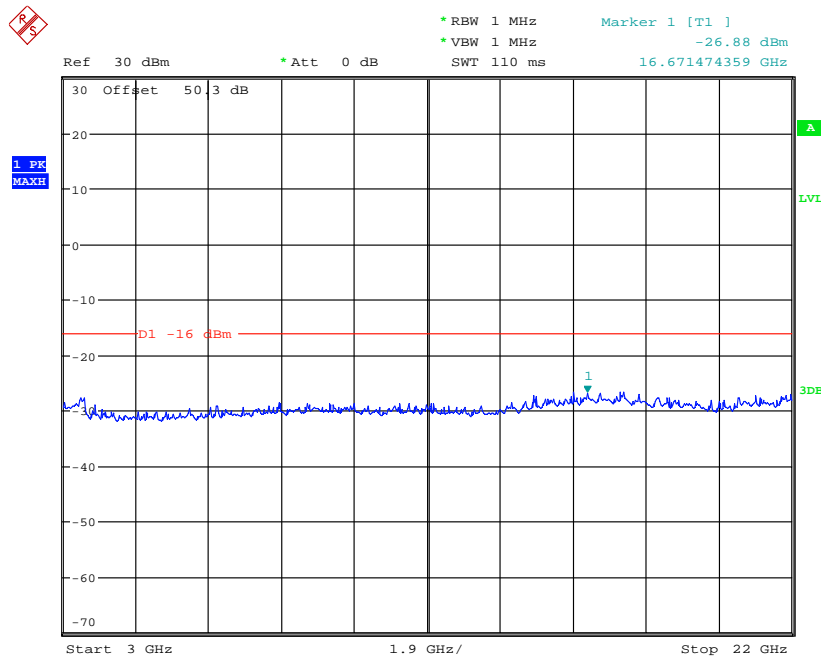
Date: 11.NOV.2013 13:17:17

Channel Position T_{RFBW} - 16QAM - 9kHz – 3GHz



Date: 11.NOV.2013 13:07:07

Channel Position T_{RFBW} - 16QAM - 3GHz – 22GHz



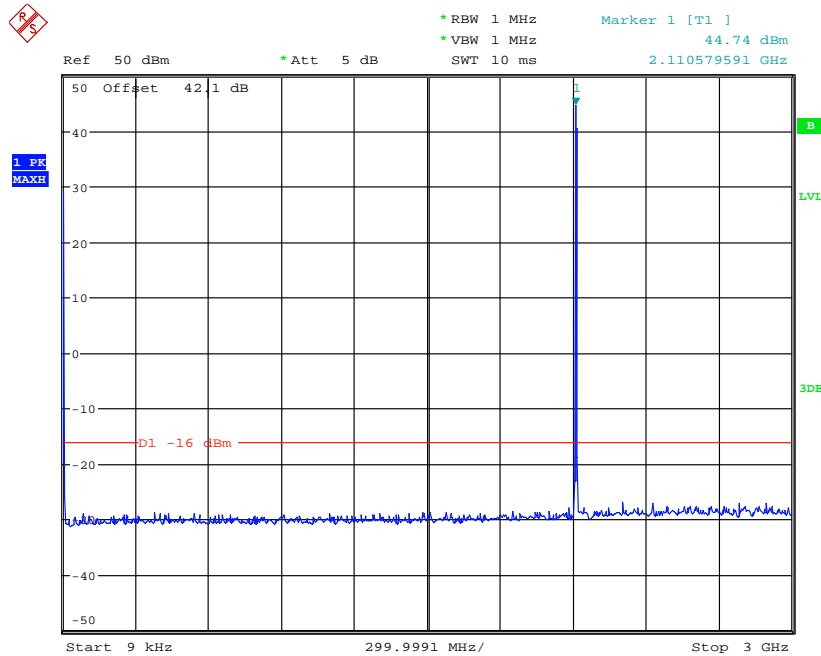
Date: 11.NOV.2013 13:05:57

Configuration L-MIMO-SC

Maximum Output Power 37.0dBm per carrier

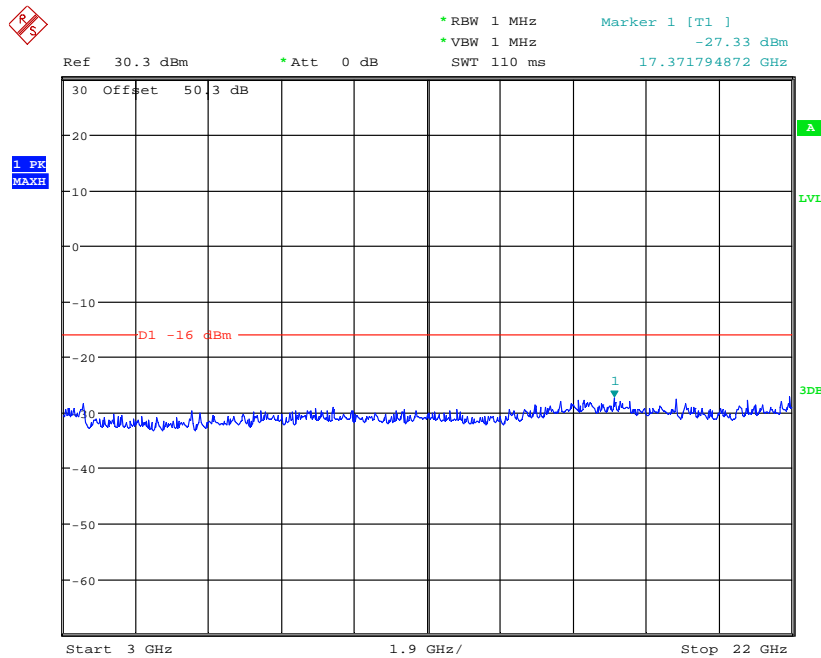
Channel Position	Bandwidth	Channel Frequency
Channel Position B	1.4MHz	2110.7MHz
	20.0MHz	2120.0MHz
Channel Position M	1.4MHz	2132.5MHz
	20.0MHz	
Channel Position T	1.4MHz	2154.3MHz
	20.0MHz	2145.0MHz

Channel Position B - QPSK / Bandwidth 1.4MHz - 9kHz – 3GHz



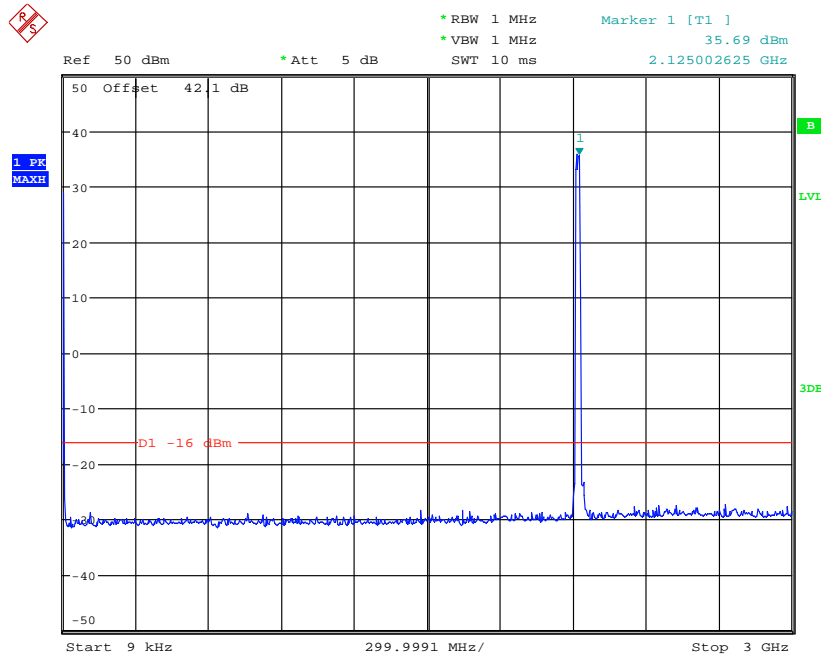
Date: 11.NOV.2013 15:05:32

Channel Position B - QPSK / Bandwidth 1.4MHz - 3GHz – 22GHz



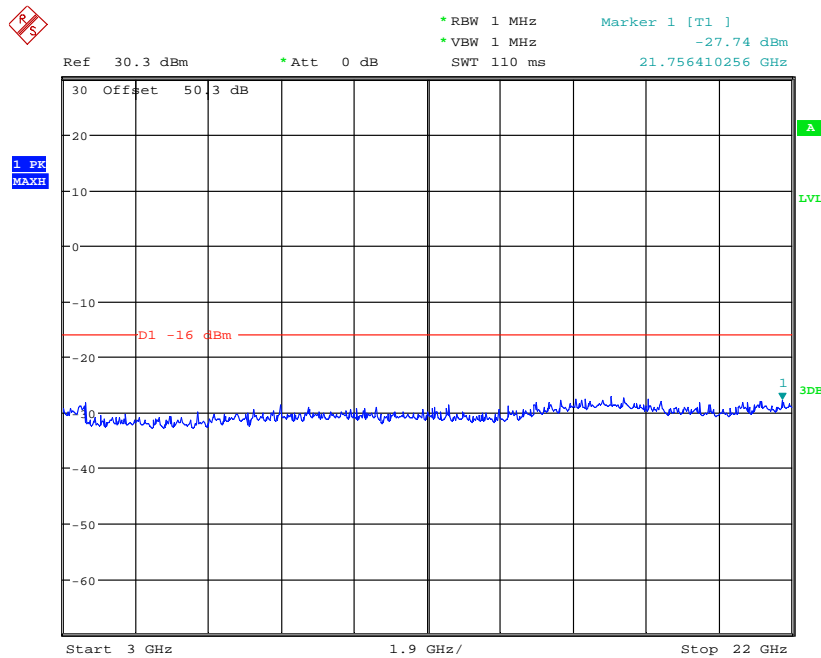
Date: 11.NOV.2013 15:05:52

Channel Position B - QPSK / Bandwidth 20.0MHz - 9kHz – 3GHz



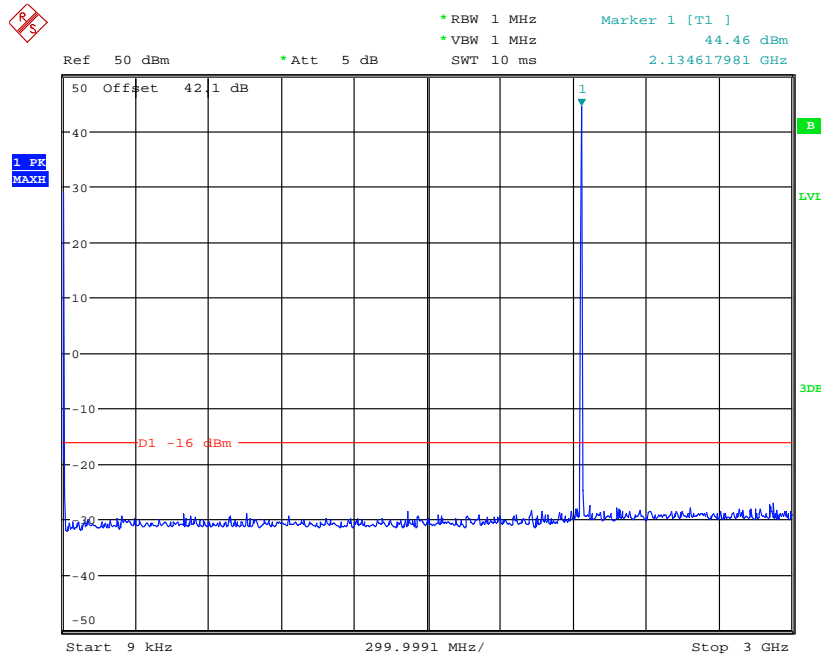
Date: 11.NOV.2013 15:15:19

Channel Position B - QPSK / Bandwidth 20.0MHz - 3GHz – 22GHz



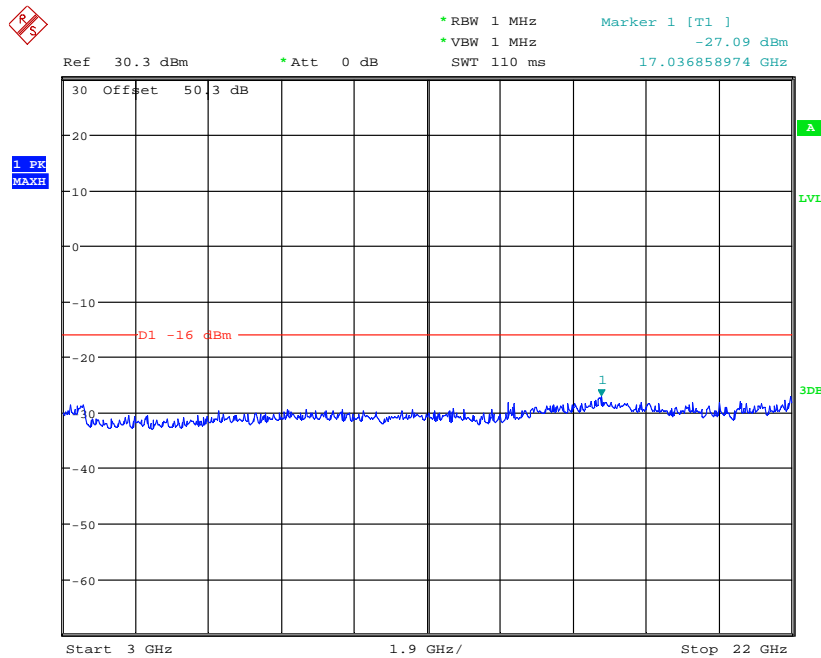
Date: 11.NOV.2013 15:15:39

Channel Position M - QPSK / Bandwidth 1.4MHz - 9kHz – 3GHz



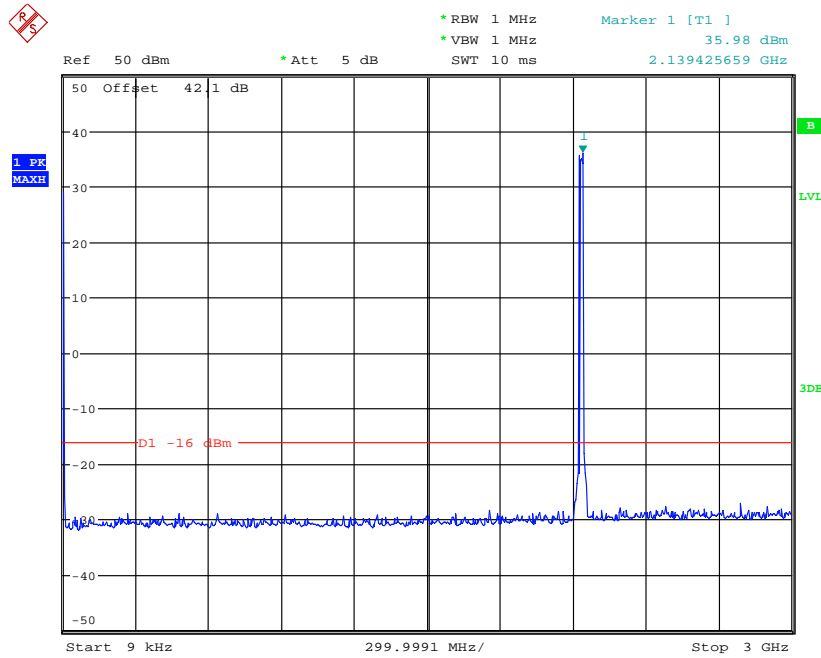
Date: 11.NOV.2013 15:06:59

Channel Position M - QPSK / Bandwidth 1.4MHz - 3GHz – 22GHz



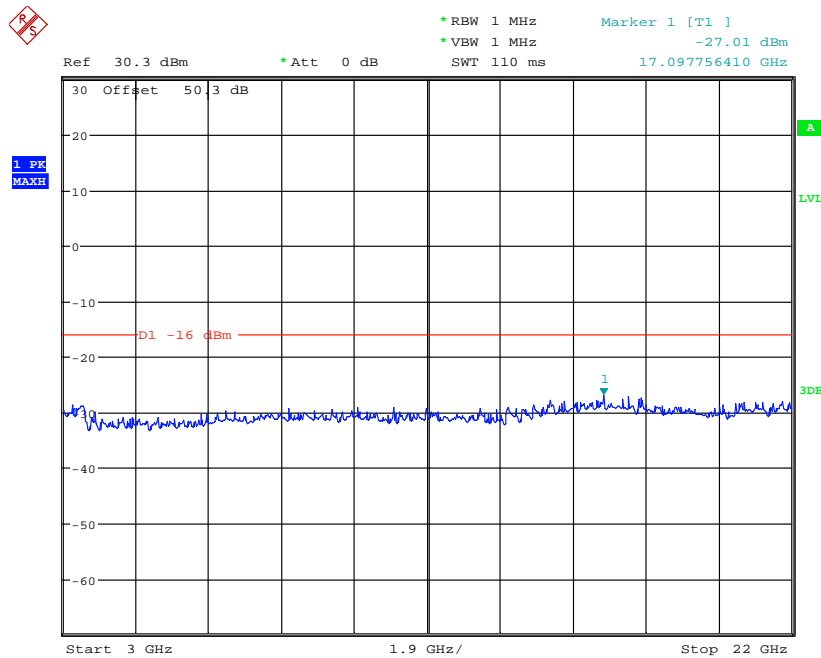
Date: 11.NOV.2013 15:07:16

Channel Position M - QPSK / Bandwidth 20.0MHz - 9kHz – 3GHz



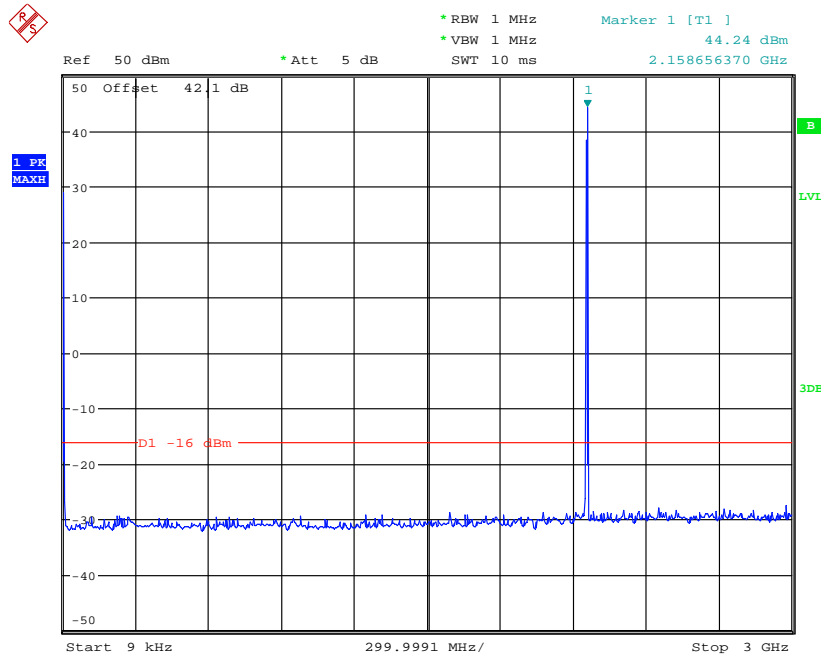
Date: 11.NOV.2013 15:16:27

Channel Position M - QPSK / Bandwidth 20.0MHz - 3GHz – 22GHz



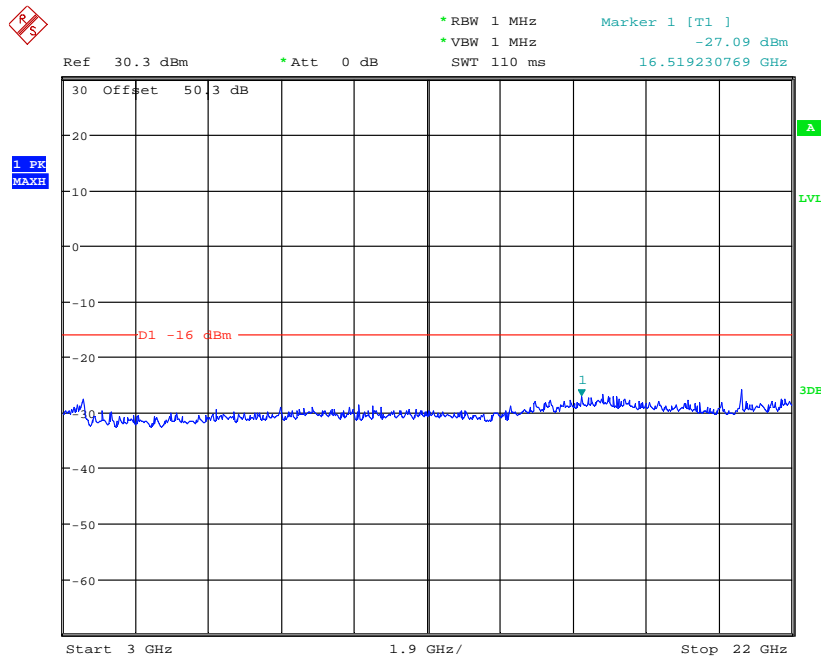
Date: 11.NOV.2013 15:16:45

Channel Position T - QPSK / Bandwidth 1.4MHz - 9kHz – 3GHz



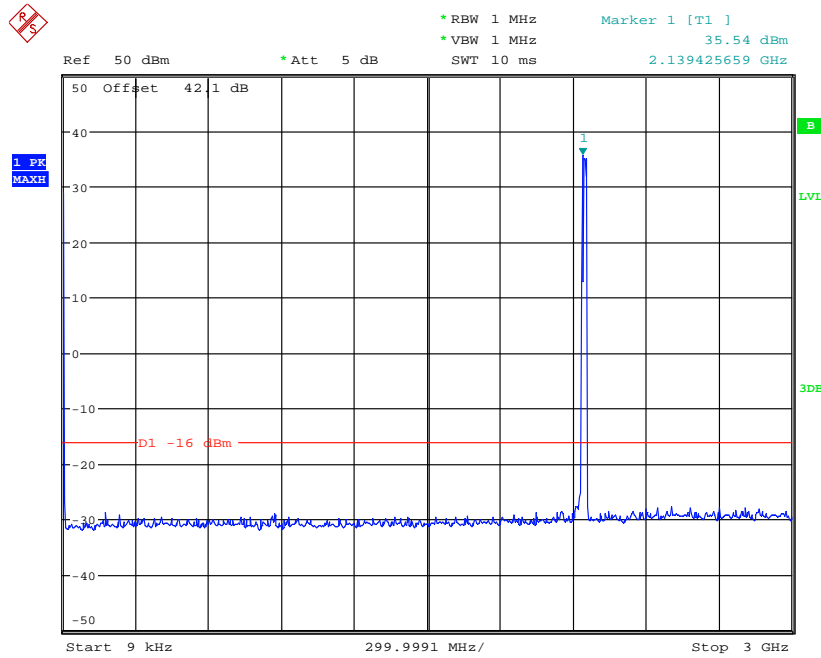
Date: 11.NOV.2013 15:08:04

Channel Position T - QPSK / Bandwidth 1.4MHz - 3GHz – 22GHz



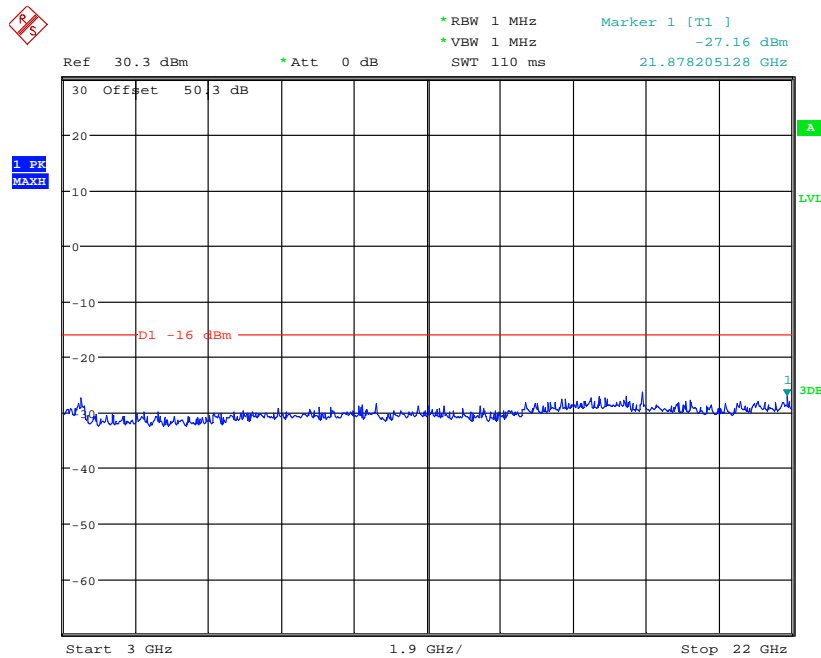
Date: 11.NOV.2013 15:08:31

Channel Position T - QPSK / Bandwidth 20.0MHz - 9kHz – 3GHz



Date: 11.NOV.2013 15:17:33

Channel Position T - QPSK / Bandwidth 20.0MHz - 3GHz – 22GHz



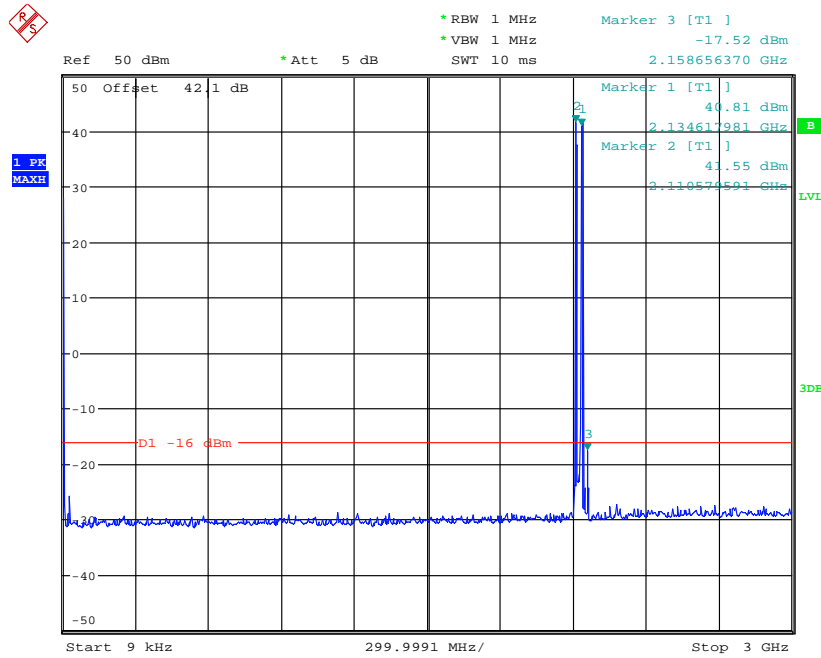
Date: 11.NOV.2013 15:17:59

Configuration L-MIMO-MC 1 (2C)

Maximum Output Power 34.0dBm per carrier

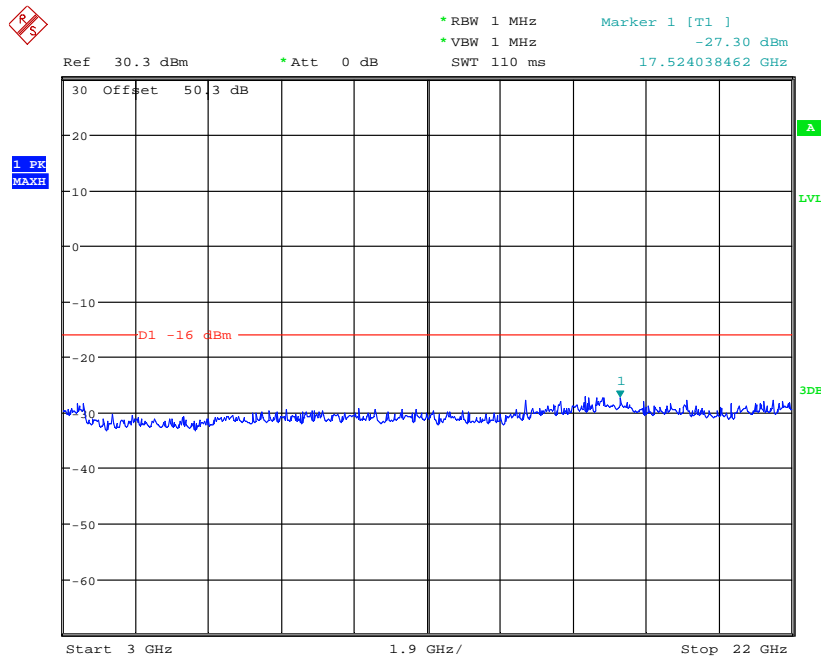
Channel Position	Bandwidth	Channel Frequency
Channel Position B_{RFBW}	1.4MHz	2110.7MHz + 2134.3MHz
	10.0MHz	2115.0MHz + 2130.0MHz
Channel Position M_{RFBW}	1.4MHz	2120.7MHz + 2144.3MHz
	10.0MHz	2125.0MHz + 2140.0MHz
Channel Position T_{RFBW}	1.4MHz	2130.7MHz + 2154.3MHz
	10.0MHz	2135.0MHz + 2150.0MHz

Channel Position B_{RFBW} - QPSK / Bandwidth 1.4MHz - 9kHz - 3GHz



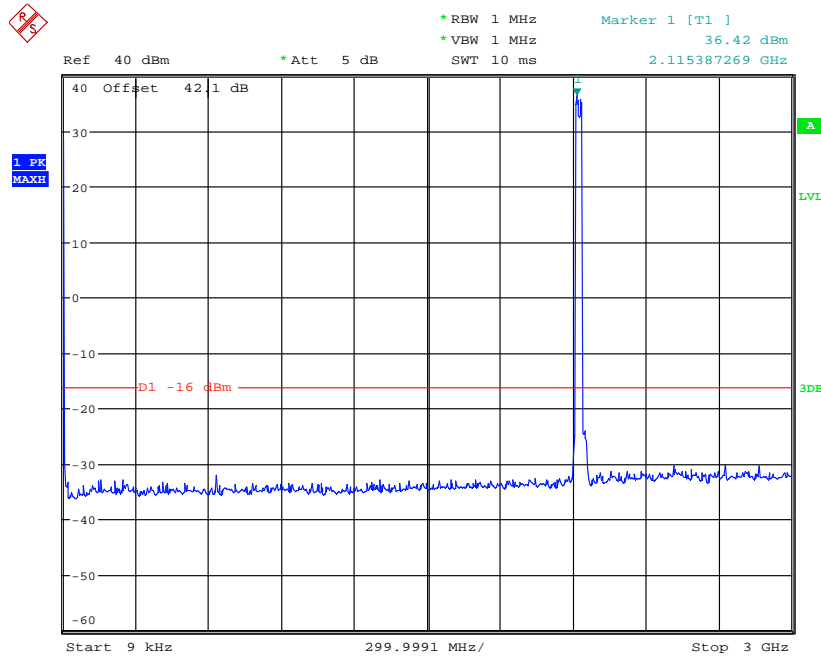
Date: 11.NOV.2013 15:35:41

Channel Position B_{RFBW} - QPSK / Bandwidth 1.4MHz - 3GHz - 22GHz



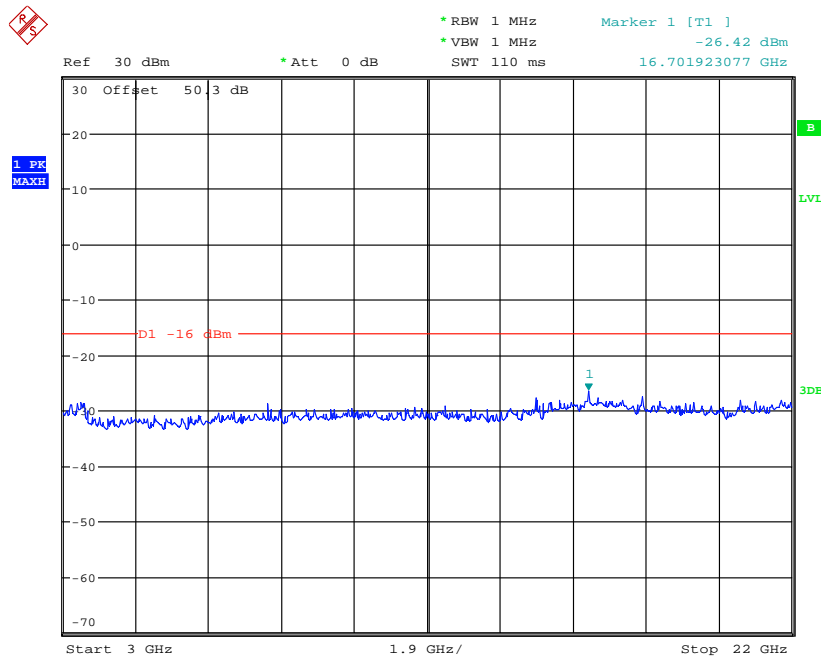
Date: 11.NOV.2013 15:36:23

Channel Position B_{RFBW} - QPSK / Bandwidth 10.0MHz - 9kHz – 3GHz



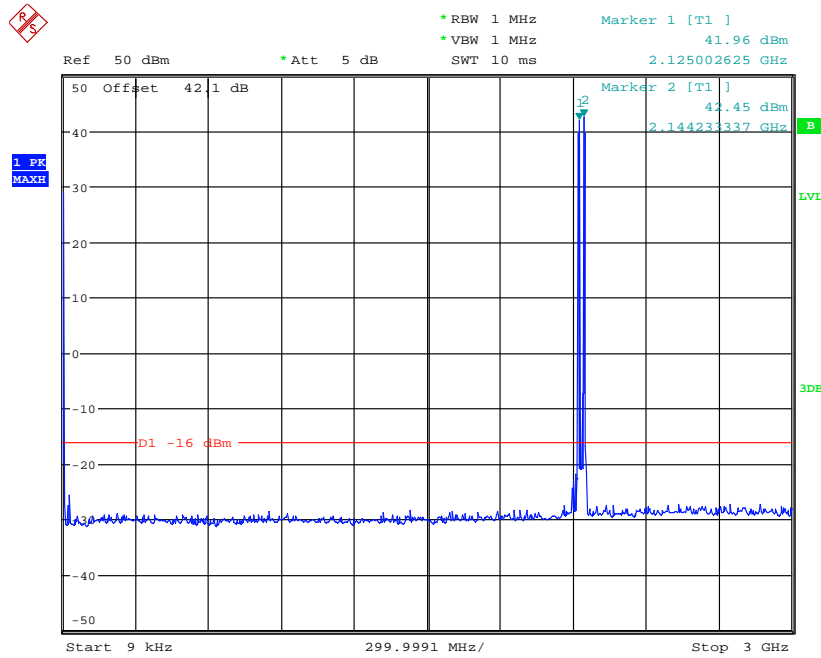
Date: 11.NOV.2013 16:06:52

Channel Position B_{RFBW} - QPSK / Bandwidth 10.0MHz - 3GHz – 22GHz



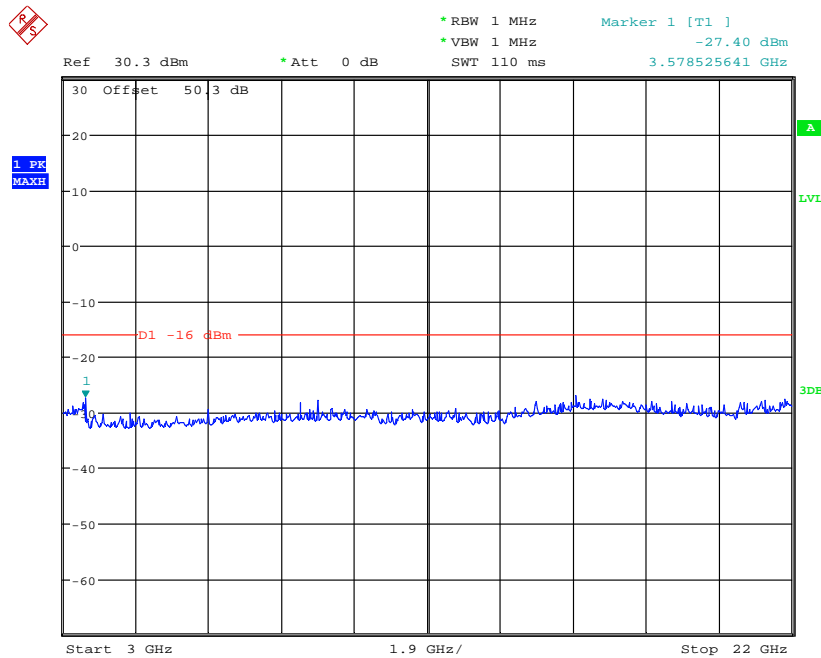
Date: 11.NOV.2013 16:07:23

Channel Position M_{RFBW} - QPSK / Bandwidth 1.4MHz - 9kHz - 3GHz



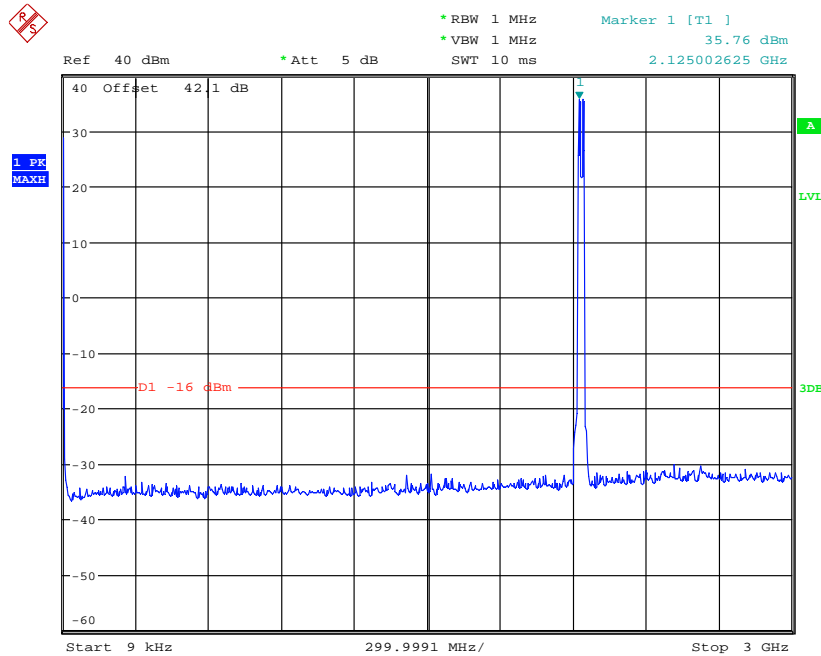
Date: 11.NOV.2013 15:38:08

Channel Position M_{RFBW} - QPSK / Bandwidth 1.4MHz - 3GHz - 22GHz



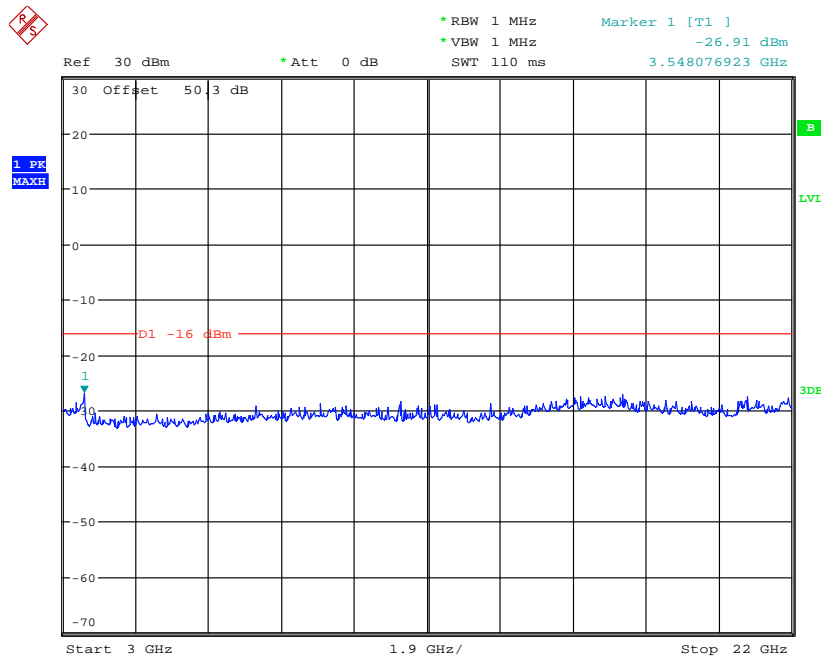
Date: 11.NOV.2013 15:38:35

Channel Position M_{RFBW} - QPSK / Bandwidth 10.0MHz - 9kHz - 3GHz



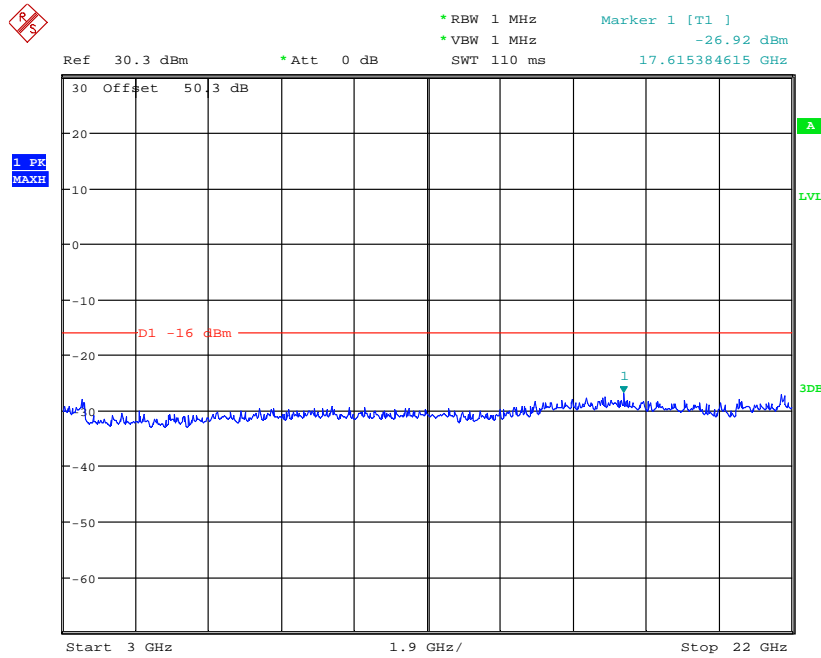
Date: 11.NOV.2013 16:10:26

Channel Position M_{RFBW} - QPSK / Bandwidth 10.0MHz - 3GHz - 22GHz



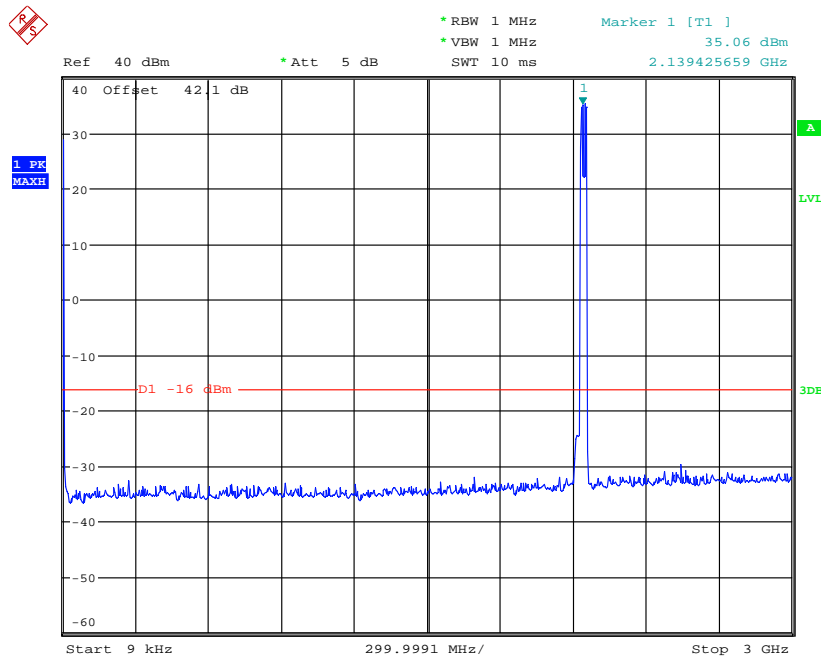
Date: 11.NOV.2013 16:10:42

Channel Position T_{RFBW} - QPSK / Bandwidth 1.4MHz - 3GHz – 22GHz



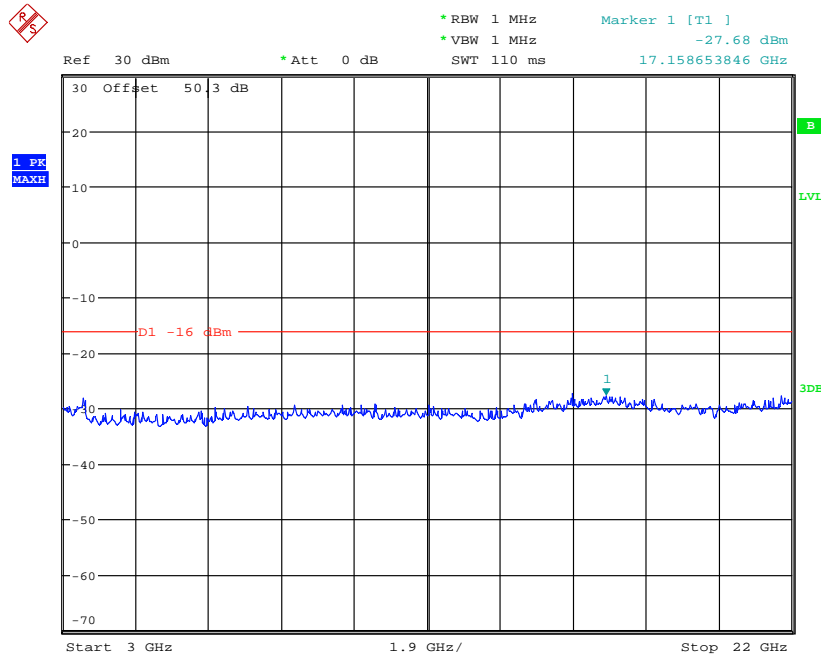
Date: 11.NOV.2013 15:41:18

Channel Position T_{RFBW} - QPSK / Bandwidth 10.0MHz - 9kHz – 3GHz



Date: 11.NOV.2013 16:12:22

Channel Position T_{RFBW} - QPSK / Bandwidth 10.0MHz - 3GHz – 22GHz



Date: 11.NOV.2013 16:12:38

Limit	-13dBm
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2.7 FREQUENCY STABILITY

2.7.1 Specification Reference

FCC CFR 47 Part 2, Clause 2.1055
FCC CFR 47 Part 27, Clause 27.54
Industry Canada RSS-139, Clause 6.3

2.7.2 Equipment Under Test

RBS 6501 B4, KR D 901 050/1, S/N: CB4R911974
RBS 6501 B4, KR D 901 050/2, S/N: CB4R886371

2.7.3 Date of Test and Modification State

11 to 15 November 2013 - Modification State 0

2.7.4 Test Equipment Used

The major items of test equipment used for the above tests are identified in Section 3.1.

2.7.5 Environmental Conditions

Ambient Temperature	25.3 - 25.8°C
Relative Humidity	25.8 - 23.7%

2.7.6 Test Method

Frequency Error – Temperature Variation

The EUT was tested over the temperature range -30°C to +50°C in 10°C steps with -48 VDC Power Supply. At each temperature step, the Base Station was configured to transmit an [RAT]* at maximum power on the middle channel of the operating band. After achieving thermal balance, the averages of 200 transmission bursts were measured and the result recorded.

Frequency Error – Voltage Variation

The EUT was tested at the supplied voltages varied from 85 to 115 percent of the nominal values of both -48 VDC and 120 VAC power supplies. At +20°C, the Base Station was configured to transmit an [RAT]* at maximum power on the middle channel of the operating band. The average of 200 transmission bursts was measured and the result recorded.

[RAT]* WCDMA – Single Carrier with QPSK modulation
LTE (5.0 MHz OBW) – Single Carrier with QPSK modulation

Test Results

Configuration W-SC

Maximum Output Power 37.0dBm per carrier

Supply Voltage DC (V)	Temperature	Frequency Stability (Hz)
		Channel Position M (2132.6MHz)
-48.0	-30°C	+2.41
	-20°C	-2.47
	-10°C	-1.99
	0°C	-3.02
	+10°C	+2.45
	+20°C	-2.76
	+30°C	-3.01
	+40°C	-2.08
	+50°C	+3.36

Configuration LTE-SC

Maximum Output Power 37.0dBm per carrier, Channel Bandwidth 5MHz

Supply Voltage DC (V)	Temperature	Frequency Stability (Hz)
		Channel Position M (2132.5MHz)
-48.0	-30°C	+1.12
	-20°C	+2.83
	-10°C	-1.75
	0°C	+1.51
	+10°C	-1.34
	+20°C	+1.74
	+30°C	-1.78
	+40°C	-2.18
	+50°C	-1.38

Configuration W-SC

Maximum Output Power 37.0dBm per carrier

Supply Voltage DC (V)	Temperature	Frequency Stability (Hz)
		Channel Position M (2132.6MHz)
-40.8 V	+20°C	+1.89
-48.0 V		-2.76
-55.2 V		+2.69

Supply Voltage AC (V)	Temperature	Frequency Stability (Hz)
		Channel Position M (2132.6MHz)
-102.0 V	+20°C	-3.81
-120.0 V		+3.65
-138.0 V		-3.19

Configuration LTE-SC

Maximum Output Power 37.0dBm per carrier, Channel Bandwidth 5MHz

Supply Voltage DC (V)	Temperature	Frequency Stability (Hz)
		Channel Position M (2132.5MHz)
-40.8 V	+20°C	-1.21
-48.0 V		+1.74
-55.2 V		-1.77

Supply Voltage AC (V)	Temperature	Frequency Stability (Hz)
		Channel Position M (2132.5MHz)
-102.0 V	+20°C	-2.51
-120.0 V		-2.21
-138.0 V		-3.17

Limit	$\pm (0.05\text{ppm or } +12 \text{ Hz})$ or $\pm 118.625 \text{ Hz}^1$ for LTE $\pm (0.05\text{ppm or } +12 \text{ Hz})$ or $\pm 118.63 \text{ Hz}^2$ for WCDMA
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Remarks

¹ Limit according to 3GPP TS 36.141 V9.6.0.

² Limit according to 3GPP TS 25.141 V9.8.0.

The frequency stability of the EUT is sufficient to keep it within the authorised frequency ranges at any temperature and voltage interval across the measured range.



Product Service

SECTION 3

TEST EQUIPMENT USED

3.1 TEST EQUIPMENT USED

List of absolute measuring and other principal items of test equipment.

Instrument	Manufacturer	Type No.	TE No.	Calibration Period (months)	Calibration Due
Maximum Average Output Power and Peak to Average Ratio - Conducted					
Network Analyzer	Agilent	8720D	US36140166	12	17-Nov-2014
Power Meter	Rohde & Schwarz	NRP	101593	12	04-Aug-2014
Power Sensor	Rohde & Schwarz	NRP-Z51	102303	12	06-Aug-2014
Spectrum Analyser	Rohde & Schwarz	FSQ26	201122	12	07-Apr-2014
40dB Attenuator	Aeroflex / Weinschel	48-40-43-LIM	BR5020	-	O/P MON
Load	Shanghai Huaxiang	TFE100	09121647	-	O/P MON
DC Power Supply	Dahua	DH1716A-10	1000303181	-	O/P MON
Maximum Average Output Power - Radiated					
EMI Receiver	Rohde & Schwarz	ESI 40	100015	12	19-Aug-2014
Ultra log test antenna	Rohde & Schwarz	HL562	100167	12	19-Aug-2014
Double-Ridged Wave-guide Horn Antenna	Rohde & Schwarz	HF 906	100029	12	19-Aug-2014
Antenna master	Frankonia	MA 260	-	-	19-Aug-2014
Semi Anechoic Chamber	Frankonia	23.18m×16.88m×9.60m	-	12	19-Aug-2014
Single Generator	Rohde & Schwarz	SMR40	100152	12	19-Aug-2014
40dB Attenuator	Aeroflex / Weinschel	48-40-43-LIM	BR5020	-	O/P MON
DC Power Supply	Dahua	DH1716-5D	2007060047	-	O/P MON
Digital Multimeter	FLUKE	179	91820401	12	13-Dec-2013
Thermo-hygrometer	AZ Instruments	8705	9151655	12	16-Dec-2013
Occupied Bandwidth					
Network Analyzer	Agilent	8720D	US36140166	12	17-Nov-2014
Spectrum Analyser	Rohde & Schwarz	FSQ26	201123	12	24-Mar-2014
40dB Attenuator	Aeroflex / Weinschel	48-40-43-LIM	BR5020	-	O/P MON
Load	Shanghai Huaxiang	TFE100	09121647	-	O/P MON
DC Power Supply	Dahua	DH1716A-10	1000303181	-	O/P MON
Band Edge					
Network Analyzer	Agilent	8720D	US36140166	12	17-Nov-2014
Spectrum Analyser	Rohde & Schwarz	FSQ26	201122	12	07-Apr-2014
40dB Attenuator	Aeroflex / Weinschel	48-40-43-LIM	BR5020	-	O/P MON
Load	Shanghai Huaxiang	TFE100	09121647	-	O/P MON
DC Power Supply	Dahua	DH1716A-10	1000303181	-	O/P MON
Conducted Spurious Emission					
Network Analyzer	Agilent	8720D	US36140166	12	17-Nov-2014
Spectrum Analyser	Rohde & Schwarz	FSQ26	201122	12	07-Apr-2014
40dB Attenuator	Aeroflex / Weinschel	48-40-43-LIM	BR5020	-	O/P MON
Load	Shanghai Huaxiang	TFE100	09121647	-	O/P MON
DC Power Supply	Dahua	DH1716A-10	1000303181	-	O/P MON

Radiated Spurious Emissions					
Load	Shanghai Huaxiang	TF150-3	06081410	-	O/P MON
Load	Shanghai Huaxiang	TF100	09121614	-	O/P MON
EMI Receiver	Rohde & Schwarz	ESI 40	100015	12	19-Aug-2014
Ultra log test antenna	Rohde & Schwarz	HL562	100167	12	19-Aug-2014
Double-Ridged Wave-guide Horn Antenna	Rohde & Schwarz	HF 906	100029	12	19-Aug-2014
Pyramidal Horn Antenna	EMCO	3160-09	760840	12	19-Aug-2014
Pyramidal Horn Antenna	EMCO	3160-10	808234	12	19-Aug-2014
Antenna master	Frankonia	MA 260	-	-	19-Aug-2014
Relay Switch Unit	Rohde & Schwarz	331.1601.31	338965002	-	TU
Semi Anechoic Chamber	Frankonia	23.18m×16.88m×9.60m	-	12	19-Aug-2014
DC Power Supply	Dahua	DH1716-5D	2007060047	-	O/P MON
Digital Multimeter	FLUKE	179	91820401	12	13-Dec-2013
Thermo-hygrometer	AZ Instruments	8705	9151655	12	16-Dec-2013
Frequency Stability					
Network Analyzer	Agilent	8720D	US36140166	12	17-Nov-2014
Spectrum Analyser	Rohde & Schwarz	FSQ26	201123	12	24-Mar-2014
40dB Attenuator	Aeroflex / Weinschel	48-40-43-LIM	BR5020	-	O/P MON
Climate Chamber	Shang Hai Zenda	ZTH100U	10080065	-	O/P MON
Load	Shanghai Huaxiang	TFE100	09121647	-	O/P MON
DC Power Supply	Dahua	DH1716A-10	1000303181	-	O/P MON
AC Power Supply	Chroma	6530	ETD/L710	12	O/P MON
Digital Multimeter	FLUKE	179	91820401	12	13-Dec-2013
Thermo-hygrometer	AZ Instruments	8705	9151655	12	16-Dec-2013

N/A – Not Applicable

OP MON – Output Monitored with Calibrated Equipment

3.2 MEASUREMENT UNCERTAINTY

For a 95% confidence level, the measurement uncertainties for defined systems are:-

Test Discipline	Frequency / Parameter	MU
Conducted Maximum Peak Output Power	30MHz to 10GHz Amplitude	0.5dB*
Conducted Emissions	30MHz to 40GHz Amplitude	3.0dB*
Radiated Emissions, Bilog Antenna, AOATS	30MHz to 1GHz Amplitude	5.1dB*
Radiated Emissions, Horn Antenna, AOATS	1GHz to 40GHz Amplitude	6.3dB*
Worst case error for both Time and Frequency measurement 12 parts in 10 ⁶		

* In accordance with CISPR 16-4



Product Service

SECTION 5

ACCREDITATION, DISCLAIMERS AND COPYRIGHT

4.1 ACCREDITATION, DISCLAIMERS AND COPYRIGHT



This report relates only to the actual item/items tested.

Our UKAS Accreditation does not cover opinions and interpretations and any expressed are outside the scope of our UKAS Accreditation.

Results of tests not covered by our UKAS Accreditation Schedule are marked NUA (Not UKAS Accredited).

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