

TEST REPORT

Test report no.: 1-6234/13-08-04



Testing laboratory

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Accredited Testing Laboratory:

The testing laboratory (area of testing) is accredited according to DIN EN ISO/IEC 17025 (2005) by the Deutsche Akkreditierungsstelle GmbH (DAkkS). The accreditation is valid for the scope of testing procedures as stated in the accreditation certificate with the registration number: D-PL-12076-01-01
 Area of Testing: Radio/Satellite Communications

Applicant

Research In Motion Limited
 305 Phillip Street
 Waterloo, ON N2L 3W8 / CANADA
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 Fax: +1 51 98 88 69 06
 Contact: Masud Attayi
 e-mail: mattayi@rim.com

Manufacturer

Research In Motion Limited
 305 Phillip Street
 Waterloo, ON N2L 3W8 / CANADA

Test standard/s

47 CFR Part 24	Title 47 of the Code of Federal Regulations; Chapter I; Part 24 - Personal communications services
RSS - 133 Issue 6	Spectrum Management and Telecommunications Policy - Radio Standards Specifications, 2 GHz Personal Communication Services

For further applied test standards please refer to section 3 of this test report.

Test Item

Kind of test item: Blackberry GSM Phones
Model name: RGF111LW
FCC ID: L6ARGF110LW
IC: 2503A-RGF110LW
Frequency: LTE E-UTRA band 2 – 1850 MHz to 1910 MHz
Technology tested: LTE
Antenna: Integrated antenna
Power supply: 3.80 V DC by Li - polymer battery

This test report is electronically signed and valid without handwriting signature. For verification of the electronic signatures, the public keys can be requested at the testing laboratory.

Test report authorised:

Andreas Luckenbill
 Expert

Test performed:

Marco Bertolino
 Testing Manager

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2 General information

2.1 Notes and disclaimer

The test results of this test report relate exclusively to the test item specified in this test report. CETECOM ICT Services GmbH does not assume responsibility for any conclusions and generalizations drawn from the test results with regard to other specimens or samples of the type of the equipment represented by the test item.

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2.2 Application details

Date of receipt of order:	2013-08-19
Date of receipt of test item:	2013-08-23
Start of test:	2013-08-23
End of test:	2013-09-03
Person(s) present during the test:	-/-

3 Test standard/s

Test standard	Date	Test standard description
47 CFR Part 24	01.10.2012	Title 47 of the Code of Federal Regulations; Chapter I; Part 24 - Personal communications services
RSS - 133 Issue 6	01.01.2013	Spectrum Management and Telecommunications Policy - Radio Standards Specifications, 2 GHz Personal Communication Services

4 Test environment

Temperature:	T_{nom}	+22 °C during room temperature tests
	T_{max}	No tests under extreme conditions!
	T_{min}	No tests under extreme conditions!
Relative humidity content:		50 %
Barometric pressure:		not relevant for this kind of testing
Power supply:	V_{nom}	3.80 V DC by Li - polymer battery
	V_{max}	No tests under extreme conditions!
	V_{min}	No tests under extreme conditions!

5 Test item

Kind of test item	:	Blackberry GSM Phones
Type identification	:	RGF111LW
S/N serial number	:	Radiated units: IMEI EUT 1: 004402242479081 IMEI EUT 2: 004402242479065
HW hardware status	:	CER-57711-001 Rev. 2
SW software status	:	10.2.0.1155
Frequency band [MHz]	:	LTE E-UTRA band 2 – 1850 MHz to 1910 MHz
Type of radio transmission	:	OFDM
Use of frequency spectrum	:	
Type of modulation	:	QPSK & 16 – QAM
Antenna	:	Integrated antenna
Power supply	:	3.80 V DC by Li - polymer battery

5.1 Additional information

Test setup- and EUT-photos are included in test reports: 1-6234/13-08-01_AnnexA
1-6234/13-08-01_AnnexC

6 Test laboratories sub-contracted

None

7 Additional comments

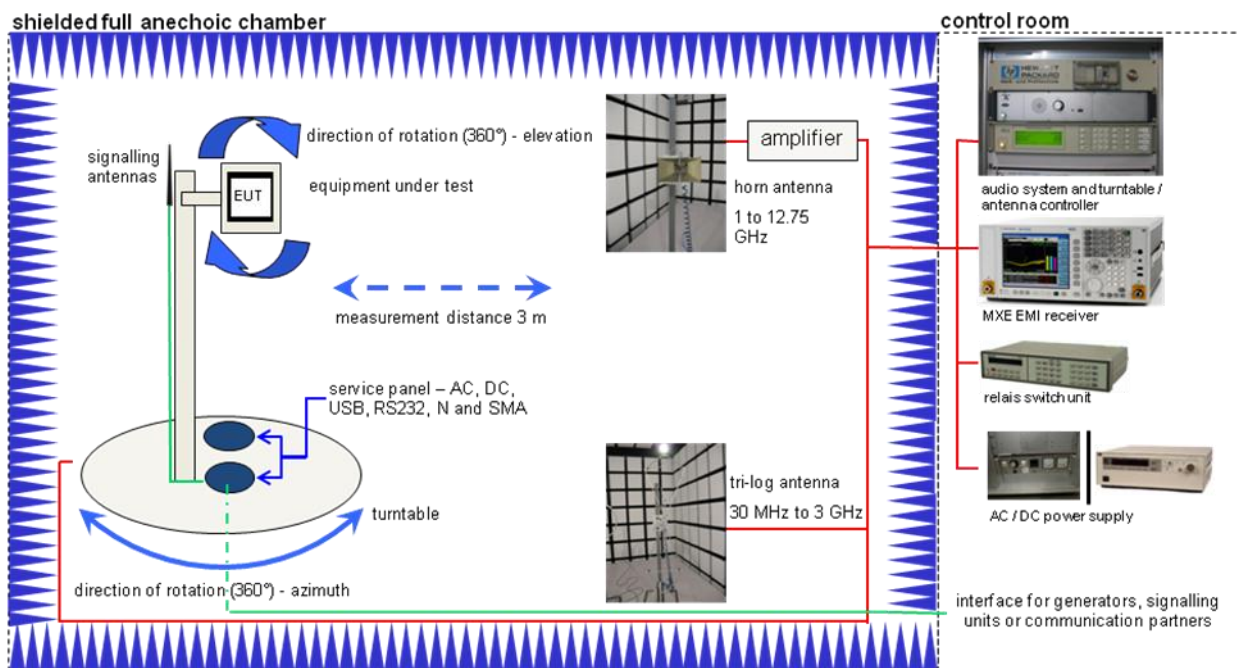
Reference documents: RIM_EMI_Matrix for Cetecom_King_RGF111LW (Aug-12-2013)

Special test descriptions: Tests according to manufacturer test plan.

Configuration descriptions: None

8 Description of the test setup

8.1 Radiated measurements chamber C



Equipment table:

Equipment	Type	Manufacturer	Serial No.	INV. No Cetecom
Double-Ridged Waveguide Horn Antenna 1-18.0GHz	3115	EMCO	8812-3088	300001032
Anechoic chamber	FAC 3/5m	MWB / TDK	87400/02	300000996
Three-Way Power Splitter. 50 Ohm	11850C	HP Meßtechnik		300000997
Amplifier	js42-00502650-28-5a	Parzich GMBH	928979	300003143
Highpass Filter	WHKX7.0/18G-8SS	Wainwright	18	300003789
TRILOG Broadband Test-Antenna 30 MHz - 3 GHz	VULB9163	Schwarzbeck	371	300003854
MXE EMI Receiver 20 Hz bis 26.5 GHz	N9038A	Agilent Technologies	MY51210197	300004405

8.2 Radiated measurements 12.75 GHz to 20 GHz



Equipment table:

Equipment	Type	Manufacturer	Serial No.	INV. No Cetecom
Microwave System Amplifier. 0.5-26.5 GHz	83017A	HP Meßtechnik	00419	300002268
Std. Gain Horn Antenna 12.4 to 18.0 GHz	639	Narda		300000786
Std. Gain Horn Antenna 18.0 to 26.5 GHz	638	Narda		300000486
Signal Analyzer 40 GHz	FSV40	R&S	101042	300004517

9 Summary of measurement results

- No deviations from the technical specifications were ascertained
- There were deviations from the technical specifications ascertained

TC identifier	Description	verdict	date	Remark
RF-Testing	CFR Part 24 RSS 133	passed	2013-09-04	Tests according to manufacturer test plan.

9.1 LTE band II

Test Case	temperature conditions	power source voltages	Pass	Fail	NA	NP	Remark
RF Output Power	Nominal	Nominal	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	complies
Frequency Stability	Nominal	Nominal	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	-/-
Spurious Emissions Radiated	Nominal	Nominal	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	complies
Spurious Emissions Conducted	Nominal	Nominal	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	-/-
Block Edge Compliance	Nominal	Nominal	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	-/-
Occupied Bandwidth	Nominal	Nominal	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	-/-

Note: NA = Not applicable; NP = Not performed

9.2 LTE technologies supported by EUT

Channel bandwidth

	Band 2
[MHz]	
1.4	<input checked="" type="checkbox"/>
3	<input checked="" type="checkbox"/>
5	<input checked="" type="checkbox"/>
10	<input checked="" type="checkbox"/>
15	<input checked="" type="checkbox"/>
20	<input checked="" type="checkbox"/>

Antenna

SISO	<input checked="" type="checkbox"/>
SIMO	<input type="checkbox"/>
MISO	<input type="checkbox"/>
MIMO	<input type="checkbox"/>

9.3 Results LTE band II

The EUT was set to transmit the maximum power.

9.3.1 RF output power

Description:

This paragraph contains average power, peak output power and EIRP measurements for the mobile station. In all cases, the peak output power is within the required mask (this mask is specified in the JTC standards, TIA PN3389 Vol. 1 Chap 7, and is no FCC requirement).

Measurement:

The mobile was set up for the maximum output power with pseudo random data modulation.

To determine the Peak-To-Average Power Ratio (PAPR) the measurement was performed with the Power Complementary Cumulative Distribution Function (CCDF).

Measurement parameters	
Detector:	Measured with CMW500
Sweep time:	
Video bandwidth:	
Resolution bandwidth:	
Span:	
Trace-Mode:	

Limits:

FCC	IC
CFR Part 24.232 CFR Part 2.1046	RSS 133, Issue 5, Section 6.4
Nominal Peak Output Power	
+33.00 dBm	
In measuring transmissions in this band using an average power technique, the peak-to-average ratio (PAR) of the transmission may not exceed 13 dB.	

Results:

Output Power (conducted)						
Bandwidth (MHz)	Frequency (MHz)	Resource block allocation	Average Output Power (dBm) QPSK	Peak to Average Ratio (dB)	Average Output Power (dBm) 16-QAM	Peak to Average Ratio (dB)
1.4	1850.7	1 RB low	22.1	3.83	21.6	4.33
		1 RB high	22.3	3.78	21.7	4.31
		50% RB mid	22.1	3.67	21.2	4.85
		100% RB	21.1	5.35	19.9	6.12
	1880.0	1 RB low	22.1	5.35	21.0	4.23
		1 RB high	22.1	5.35	21.0	4.22
		50% RB mid	22.1	5.45	21.3	4.70
		100% RB	21.2	6.17	20.3	5.82
	1909.3	1 RB low	21.8	3.95	20.8	5.21
		1 RB high	21.8	3.96	20.5	5.33
		50% RB mid	21.7	4.50	21.1	5.10
		100% RB	20.9	6.10	20.1	6.19
3	1851.5	1 RB low	22.1	4.32	21.7	3.82
		1 RB high	22.2	4.28	21.8	3.86
		50% RB mid	21.0	5.76	19.8	4.81
		100% RB	21.1	5.84	20.2	5.18
	1880.0	1 RB low	22.0	4.27	21.0	5.35
		1 RB high	22.1	4.27	20.9	5.45
		50% RB mid	21.1	5.38	20.2	5.96
		100% RB	21.3	5.78	20.3	6.47
	1908.5	1 RB low	21.7	5.55	20.9	4.29
		1 RB high	21.7	5.51	20.5	4.18
		50% RB mid	20.9	5.86	20.0	5.06
		100% RB	21.0	6.04	20.1	5.37
5	1852.5	1 RB low	22.2	3.67	21.4	4.73
		1 RB high	22.2	3.85	21.6	4.74
		50% RB mid	21.3	4.48	20.5	5.31
		100% RB	21.3	5.27	20.3	6.30
	1880.0	1 RB low	22.2	4.59	21.6	4.25
		1 RB high	22.2	4.63	21.8	4.42
		50% RB mid	21.4	6.10	20.4	5.33
		100% RB	21.4	6.57	20.4	5.77
	1907.5	1 RB low	21.8	4.25	20.8	5.30
		1 RB high	21.7	4.14	20.8	5.14
		50% RB mid	21.2	5.02	20.2	5.90
		100% RB	21.1	5.57	20.3	6.56

10	1855	1 RB low	22.2	4.45	21.6	3.88
		1 RB high	22.1	4.68	21.7	4.20
		50% RB mid	21.3	5.73	20.4	4.83
		100% RB	21.3	6.28	20.3	5.38
	1880	1 RB low	21.9	4.22	20.9	5.33
		1 RB high	22.1	4.43	21.0	5.63
		50% RB mid	21.4	5.31	20.5	6.32
		100% RB	21.4	5.80	20.3	6.67
	1905	1 RB low	21.9	5.53	20.7	4.30
		1 RB high	21.8	5.31	20.9	4.21
		50% RB mid	21.2	6.14	20.3	5.01
		100% RB	21.1	6.55	20.3	5.66
15	1857.5	1 RB low	22.2	3.91	21.7	4.47
		1 RB high	22.2	4.28	21.7	4.78
		50% RB mid	21.3	5.05	20.3	6.05
		100% RB	21.3	5.60	20.3	6.31
	1880.0	1 RB low	22.2	5.68	21.1	4.28
		1 RB high	22.2	5.84	21.3	4.58
		50% RB mid	21.3	6.43	20.3	5.29
		100% RB	21.4	6.78	20.4	5.82
	1902.5	1 RB low	21.8	4.41	20.8	5.67
		1 RB high	21.8	4.31	20.6	5.61
		50% RB mid	21.2	5.15	20.2	6.18
		100% RB	21.2	6.16	20.2	6.73
20	1860	1 RB low	22.3	4.92	21.6	3.91
		1 RB high	22.1	5.24	21.6	4.34
		50% RB mid	21.2	6.04	20.3	5.08
		100% RB	21.2	6.11	20.3	5.51
	1880	1 RB low	22.1	4.43	21.4	5.10
		1 RB high	22.0	4.61	21.4	5.32
		50% RB mid	21.4	5.39	20.3	6.35
		100% RB	21.4	5.95	20.3	6.73
	1900	1 RB low	21.9	4.70	21.5	4.68
		1 RB high	21.9	4.53	21.4	4.35
		50% RB mid	21.1	6.20	20.2	5.28
		100% RB	21.2	6.63	20.3	5.80
Measurement uncertainty			± 0.5 dB			

The output power was measured with the lowest supported channel bandwidth and with the maximum number of resource blocks.

All other bandwidths were calculated with the corresponding antenna gain (with full resource blocks).

Output Power (radiated)			
Bandwidth (MHz)	Frequency (MHz)	Average Output Power (dBm)	Average Output Power (dBm)
		QPSK	16-QAM
1.4	1850.7	25.5	24.3
	1880.0	23.7	22.8
	1909.3	25.1	24.3
3	1851.5	25.5 *)	24.6 *)
	1880.0	23.8 *)	22.8 *)
	1908.5	25.2 *)	24.3 *)
5	1852.5	25.7 *)	24.7 *)
	1880.0	23.9 *)	22.9 *)
	1907.5	25.3 *)	24.5 *)
10	1855.0	25.7 *)	24.7 *)
	1880.0	23.9 *)	22.8 *)
	1905.0	25.3 *)	24.5 *)
15	1857.5	25.7 *)	24.7 *)
	1880.0	23.9 *)	22.9 *)
	1902.5	25.4 *)	24.4 *)
20	1860.0	25.6 *)	24.7 *)
	1880.0	23.9 *)	22.8 *)
	1900.0	25.4 *)	24.5 *)
Measurement uncertainty		± 3.0 dB	

*) calculated with antenna gain

	Gain (dBi)
low channel	4.41
mid channel	2.52
high channel	4.16

Result: Passed

9.3.2 Frequency stability

Not performed – tests according to manufacturer test plan.

9.3.3 Spurious emissions radiated

Description:

The following steps outline the procedure used to measure the radiated emissions from the mobile station. The site is constructed in accordance with ANSI C63.4:2009 requirements and is recognized by the FCC to be in compliance for a 3 and a 10 meter site. The spectrum was scanned from 30 MHz to the 10th harmonic of the highest frequency generated within the equipment, which is the transmitted carrier that can be as high as 1910 MHz. This was rounded up to 20 GHz. The resolution bandwidth is set as outlined in Part 24.238. The spectrum was scanned with the mobile station transmitting at carrier frequencies that pertain to low, mid and high channels of the LTE band II.

The final open field emission (here 10m semi-anechoic chamber listed by FCC) test procedure is as follows:

- a) The test item was placed on a 0.8 meter high non-conductive stand at a 3 meter test distance from the receive antenna.
- b) The antenna output was terminated in a 50 ohm load (if possible).
- c) A double ridged wave guide antenna was placed on an adjustable height antenna mast 3 meters from the test item for emission measurements.
- d) Detected emissions were maximized at each frequency by rotating the test item and adjusting the receive antenna height and polarization. The maximum meter reading was recorded. The radiated emission measurements of the harmonics of the transmit frequency through the 10th harmonic were measured with peak detector and 1 MHz bandwidth. If the harmonic could not be detected above the noise floor, the ambient level was recorded. The equivalent power into a dipole antenna was calculated from the field intensity levels measured at 3 meters.
- e) Now each detected emissions were substituted by the substitution method, in accordance with the TIA/EIA 603.

Measurement:

Measurement parameters	
Detector:	Peak
Sweep time:	2 sec.
Video bandwidth:	Below 1 GHz: 100 kHz Above 1 GHz: 1 MHz
Resolution bandwidth:	Below 1 GHz: 100 kHz Above 1 GHz: 1 MHz
Span:	100 MHz Steps
Trace-Mode:	Max Hold

Limits:

FCC	IC
CFR Part 24.238 CFR Part 2.1053	RSS 133
Spurious Emissions Radiated	
Attenuation $\geq 43 + 10\log(P)$ (P, Power in Watts)	
-13 dBm	

Results:

Radiated emissions measurements were made only with 1.4 MHz bandwidth and 1 resource block in QPSK and 5 MHz bandwidth and 1 resource block in 16-QAM. It was decided that measurements at this carrier frequency would be sufficient to demonstrate compliance with emissions limits because it was seen that all the significant spurs occur well outside the band and no radiation was seen from a carrier in one block of the LTE band II into any of the other blocks. The equipment must still, however, meet emissions requirements with the carrier at all frequencies over which it is capable of operating and it is the manufacturer's responsibility to verify this.

The final open field radiated levels are presented on the next pages. All measurements were done in horizontal and vertical polarization; the plots show the worst case. The plots show only the middle channel. If spurious were detected, the lowest and highest channel were checked too. The found values are stated in the table below.

As can be seen from this data, the emissions from the test item were within the specification limit.

QPSK:

Spurious Emission Level (dBm)								
Harmonic	Lowest channel Freq. (MHz)	Level [dBm]	Harmonic	Middle channel Freq. (MHz)	Level [dBm]	Harmonic	Highest channel Freq. (MHz)	Level [dBm]
2	3710.0	-/-	2	3760.0	-/-	2	3810.0	-/-
3	5565.0	-/-	3	5640.0	-/-	3	5715.0	-/-
4	7420.0	-/-	4	7520.0	-/-	4	7620.0	-/-
5	9275.0	-/-	5	9400.0	-/-	5	9525.0	-/-
6	11130.0	-/-	6	11280.0	-/-	6	11430.0	-/-
7	12985.0	-/-	7	13160.0	-/-	7	13335.0	-/-
8	14840.0	-/-	8	15040.0	-/-	8	15240.0	-/-
9	16695.0	-/-	9	16920.0	-/-	9	17145.0	-/-
10	18550.0	-/-	10	18800.0	-/-	10	19050.0	-/-
Measurement uncertainty					± 3dB			

Note: All detected emissions are more than 20 dB below the limit.

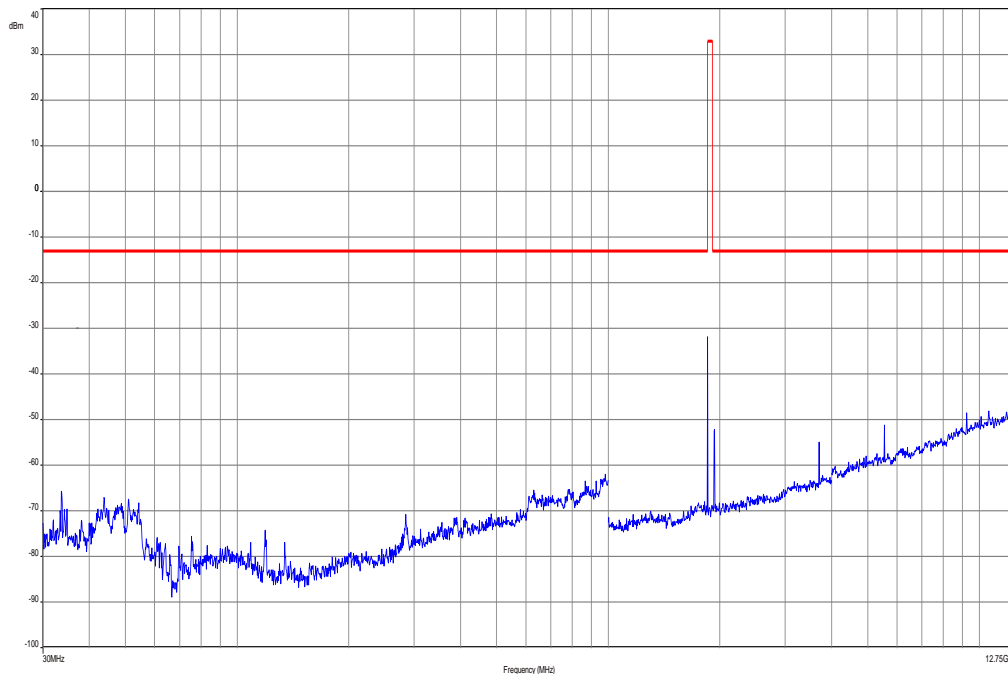
16 – QAM:

Spurious Emission Level (dBm)								
Harmonic	Lowest channel Freq. (MHz)	Level [dBm]	Harmonic	Middle channel Freq. (MHz)	Level [dBm]	Harmonic	Highest channel Freq. (MHz)	Level [dBm]
2	3710.0	-/-	2	3760.0	-/-	2	3810.0	-/-
3	5565.0	-/-	3	5640.0	-/-	3	5715.0	-/-
4	7420.0	-/-	4	7520.0	-/-	4	7620.0	-/-
5	9275.0	-/-	5	9400.0	-/-	5	9525.0	-/-
6	11130.0	-/-	6	11280.0	-/-	6	11430.0	-/-
7	12985.0	-/-	7	13160.0	-/-	7	13335.0	-/-
8	14840.0	-/-	8	15040.0	-/-	8	15240.0	-/-
9	16695.0	-/-	9	16920.0	-/-	9	17145.0	-/-
10	18550.0	-/-	10	18800.0	-/-	10	19050.0	-/-
Measurement uncertainty					± 3dB			

Note: All detected emissions are more than 20 dB below the limit.

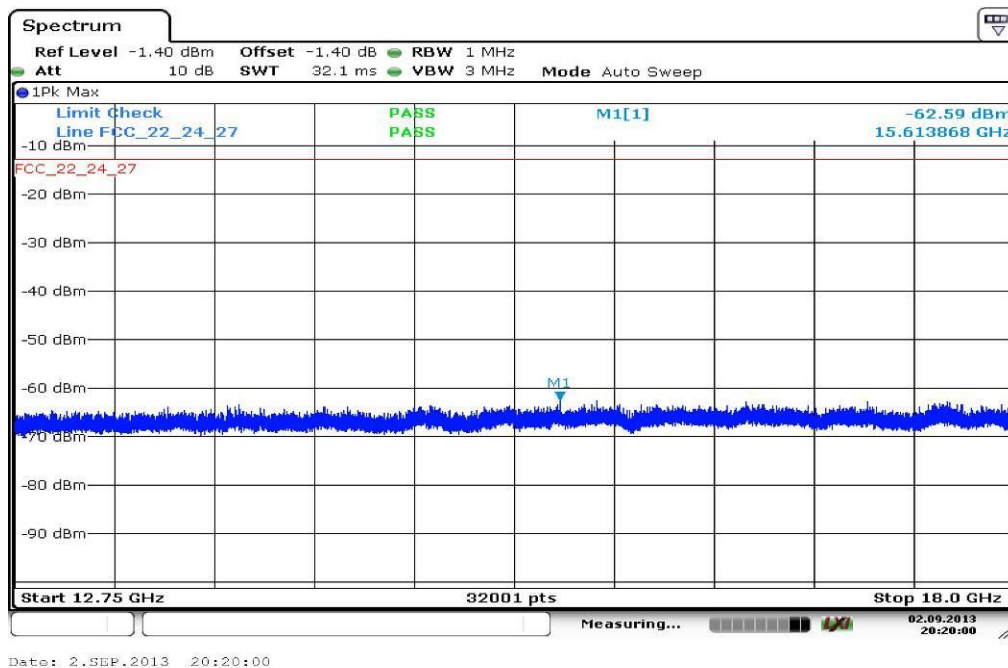
Plots: QPSK with 1.4 MHz channel bandwidth

Plot 1: Lowest channel (30 MHz – 12.75 GHz)

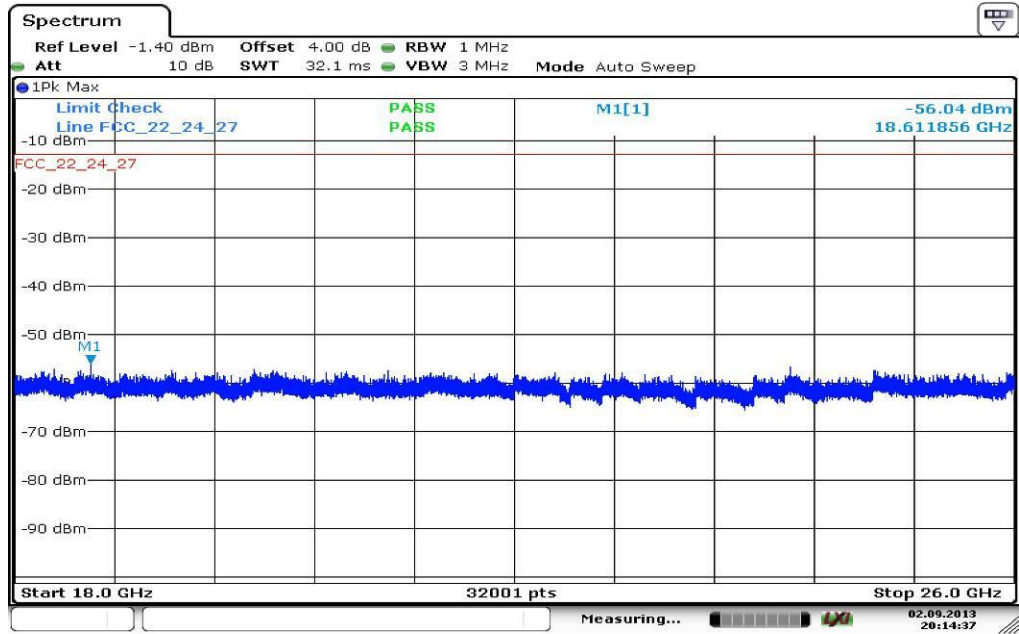


The carrier signal is notched with a 1.9 GHz band rejection filter.

Plot 2: Lowest channel (12.75 GHz – 18 GHz)

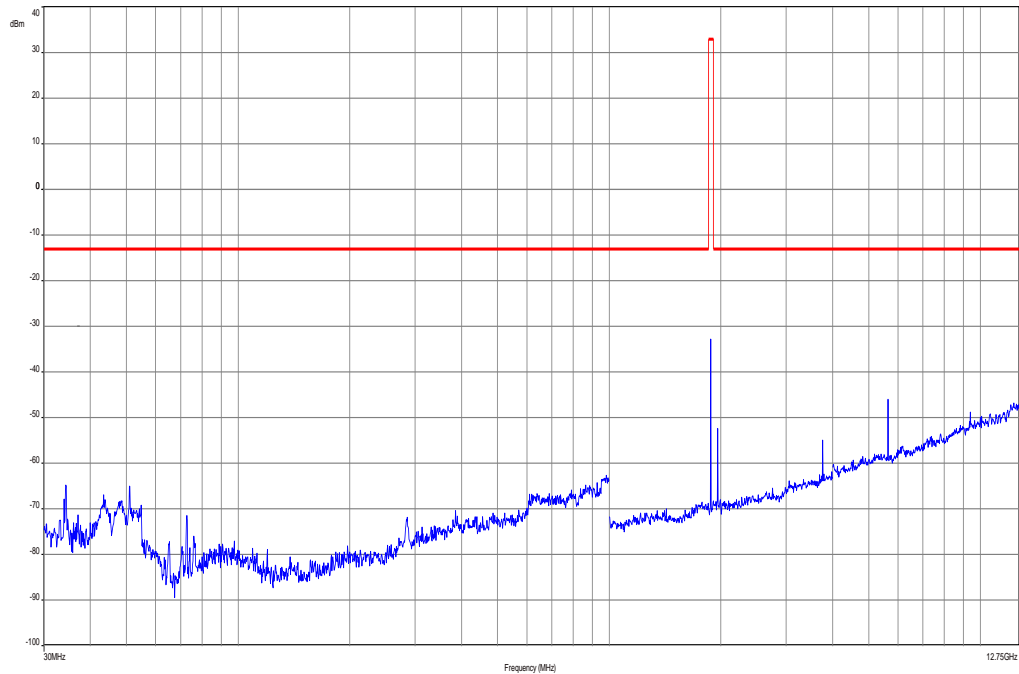


Plot 3: Lowest channel (18 GHz – 26 GHz)



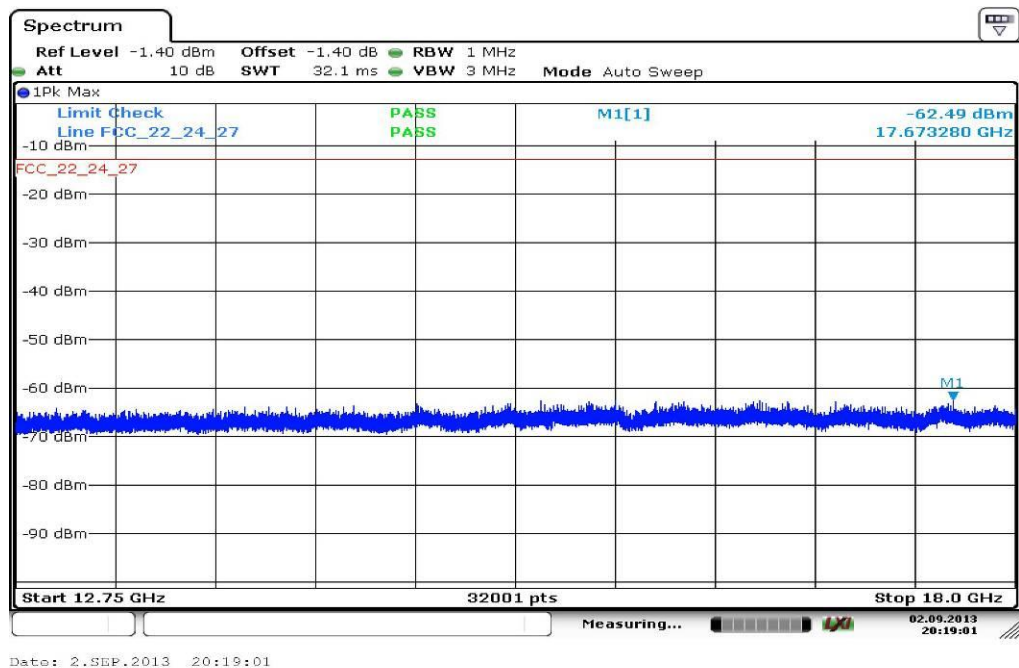
Date: 2.SEP.2013 20:14:37

Plot 4: Middle channel (30 MHz – 12.75 GHz)

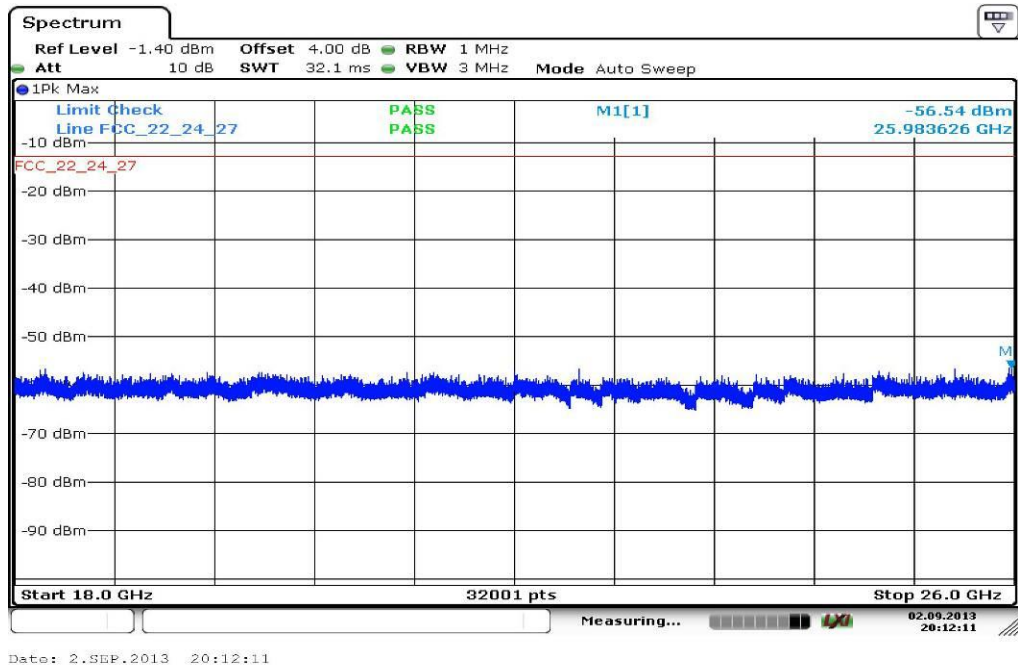


The carrier signal is notched with a 1.9 GHz band rejection filter.

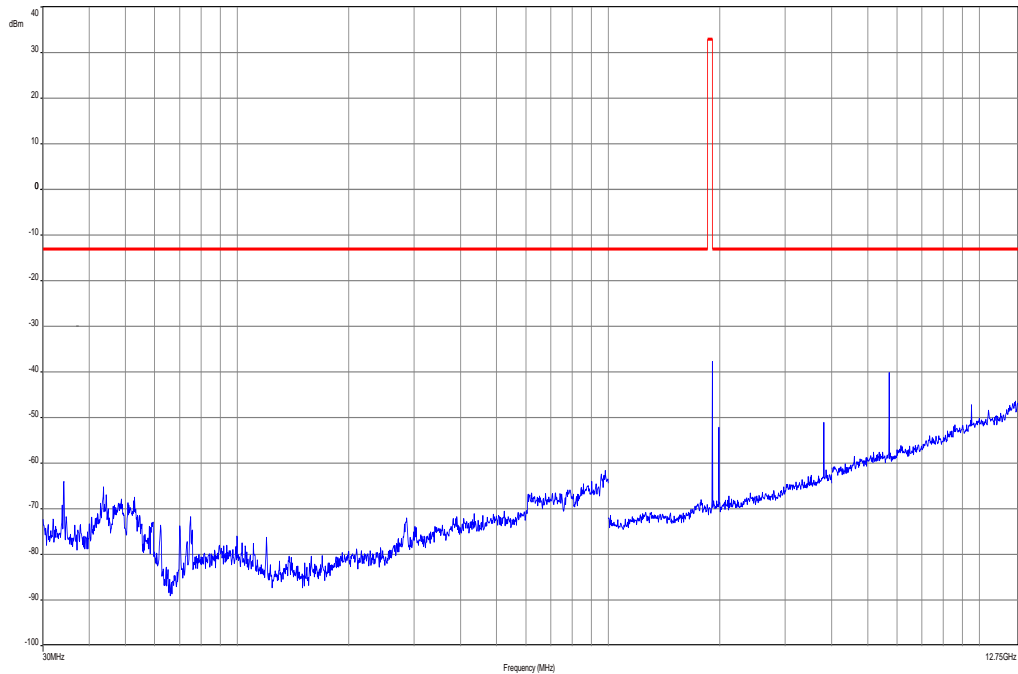
Plot 5: Middle channel (12.75 GHz – 18 GHz)



Plot 6: Middle channel (18 GHz – 26 GHz)

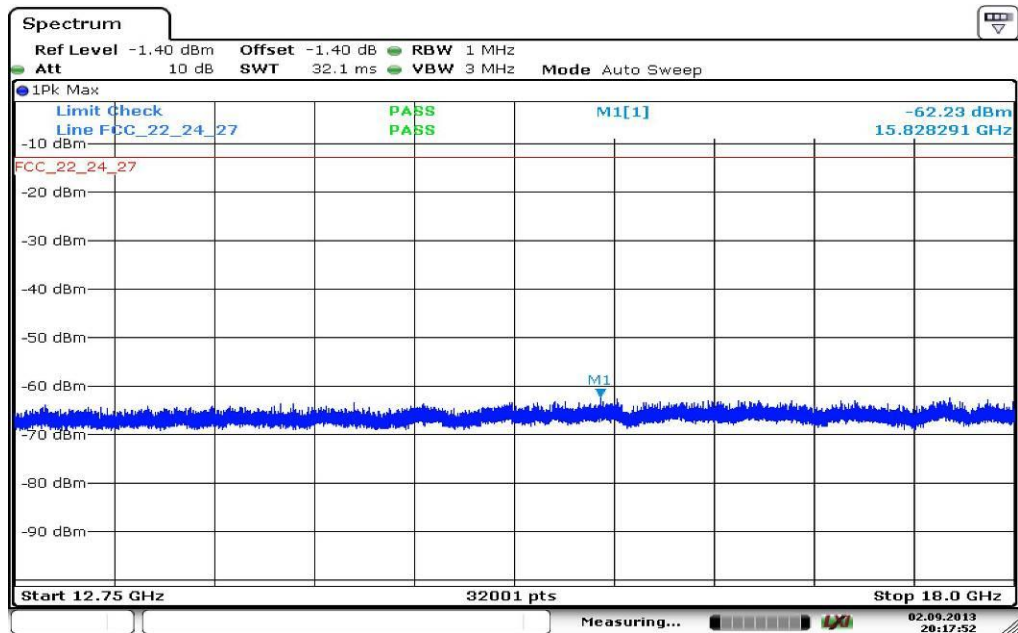


Plot 7: highest channel (30 MHz – 12.75 GHz)



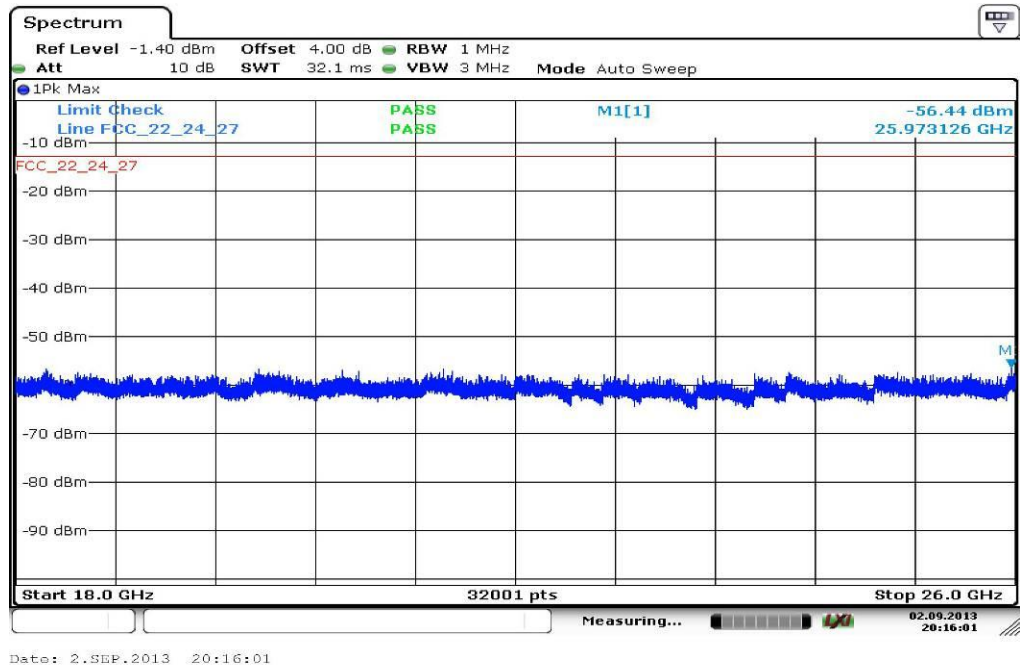
The carrier signal is notched with a 1.9 GHz band rejection filter.

Plot 8: highest channel (12.75 GHz – 18 GHz)



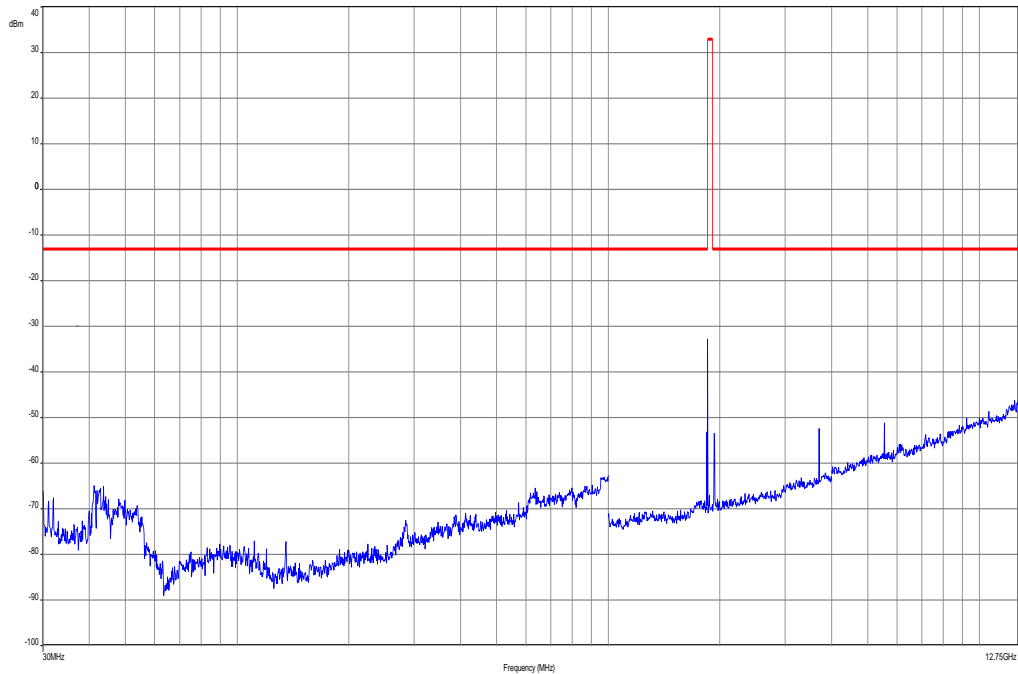
Date: 2.SEP.2013 20:17:52

Plot 9: highest channel (18 GHz – 26 GHz)



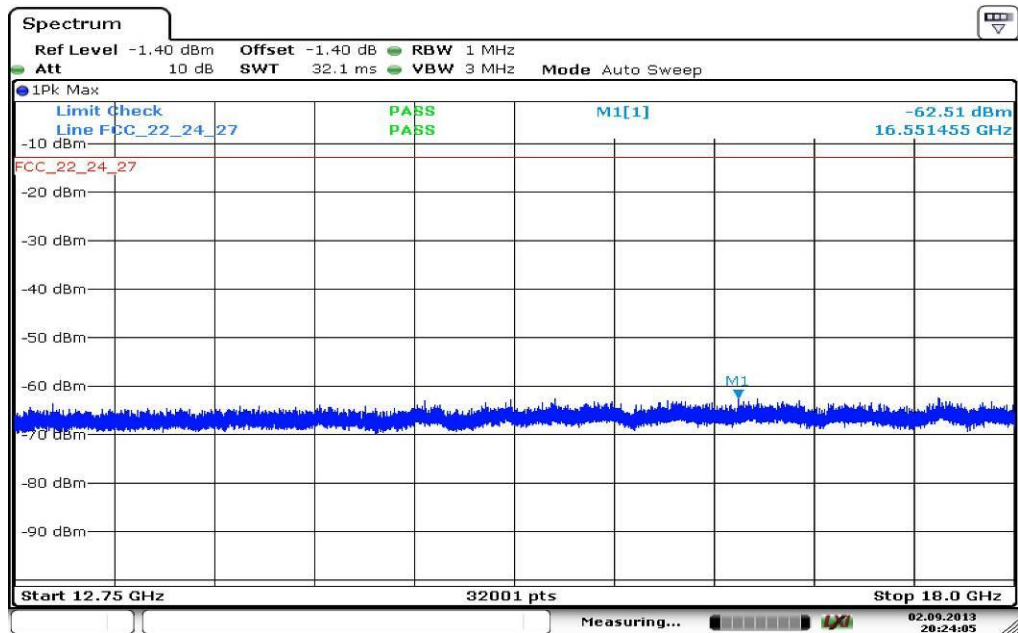
Plots: 16 – QAM with 5 MHz channel bandwidth

Plot 1: lowest channel (30 MHz – 12.75 GHz)



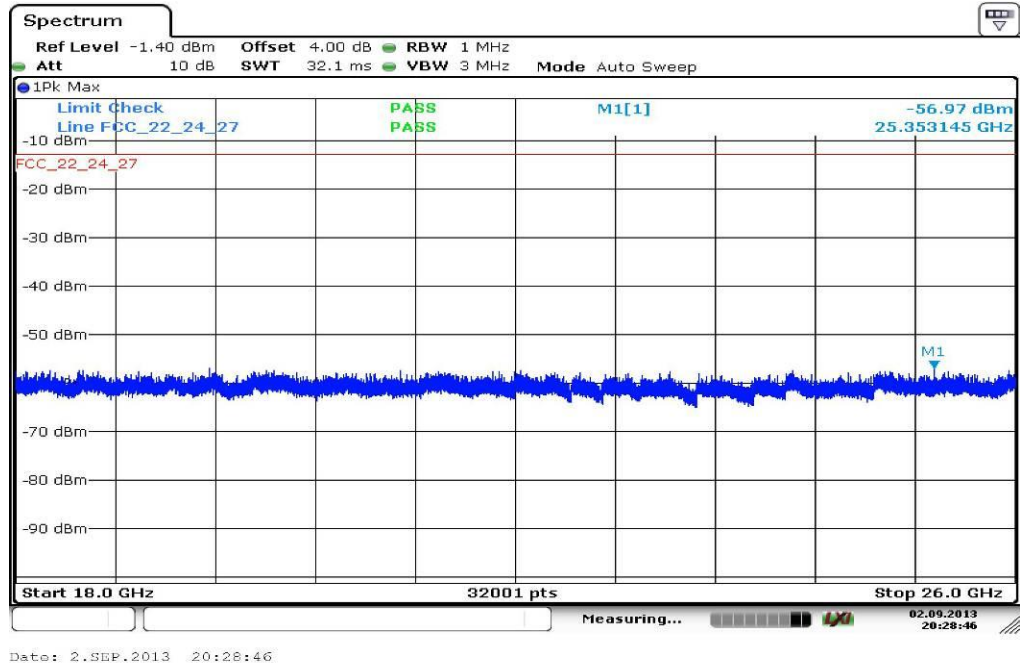
The carrier signal is notched with a 1.9 GHz band rejection filter.

Plot 2: lowest channel (12.75 GHz – 18 GHz)

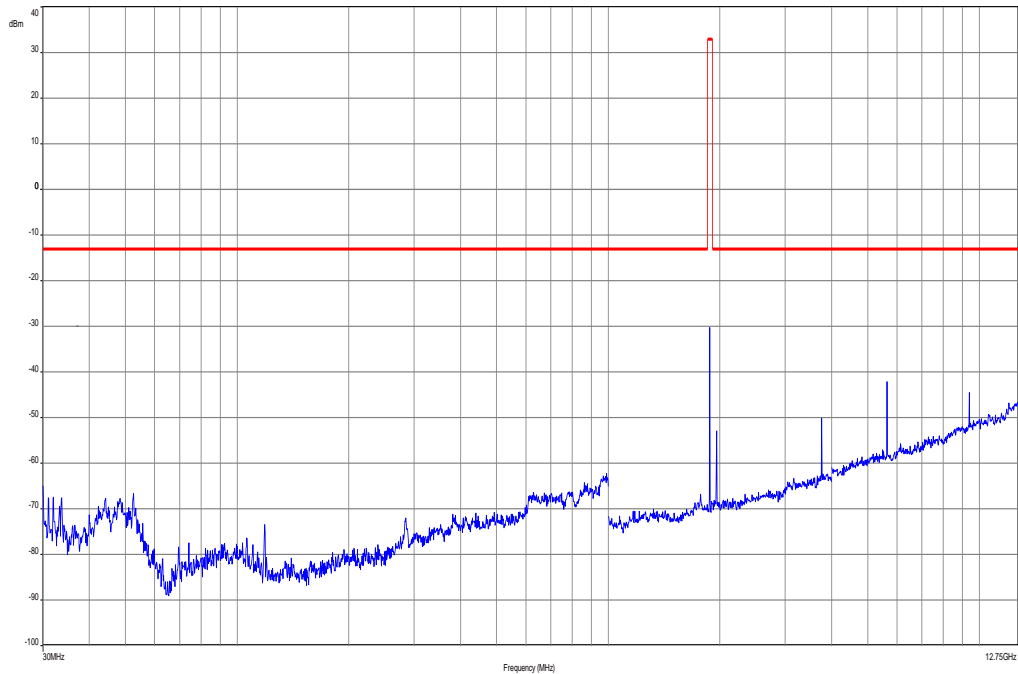


Date: 2.SEP.2013 20:24:05

Plot 3: lowest channel (18 GHz – 26 GHz)

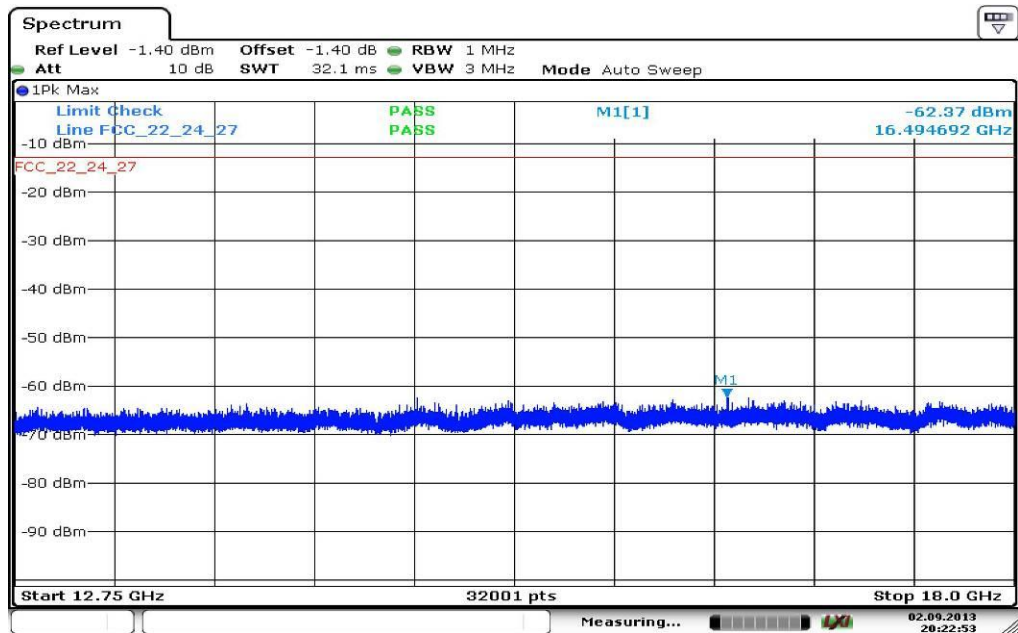


Plot 4: middle channel (30 MHz – 12.75 GHz)



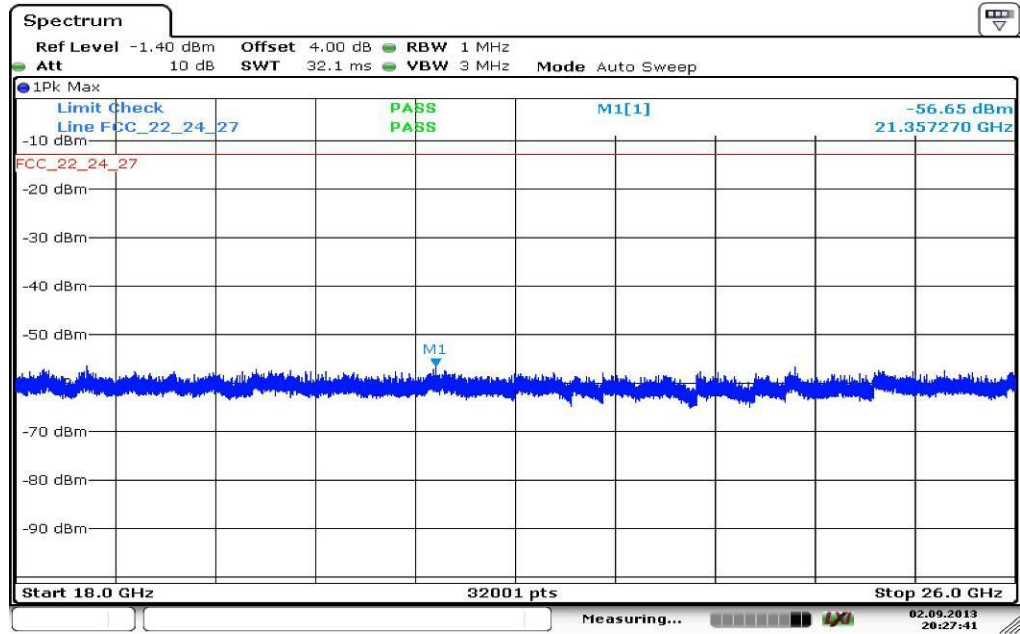
The carrier signal is notched with a 1.9 GHz band rejection filter.

Plot 5: middle channel (12.75 GHz – 18 GHz)



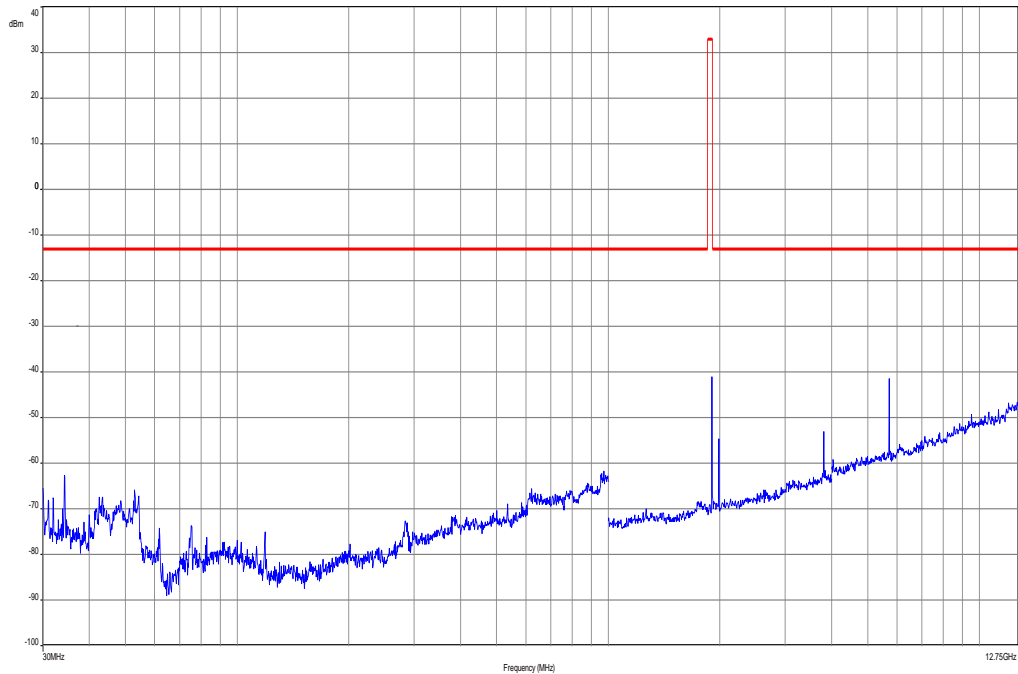
Date: 2.SEP.2013 20:22:53

Plot 6: middle channel (18 GHz – 26 GHz)



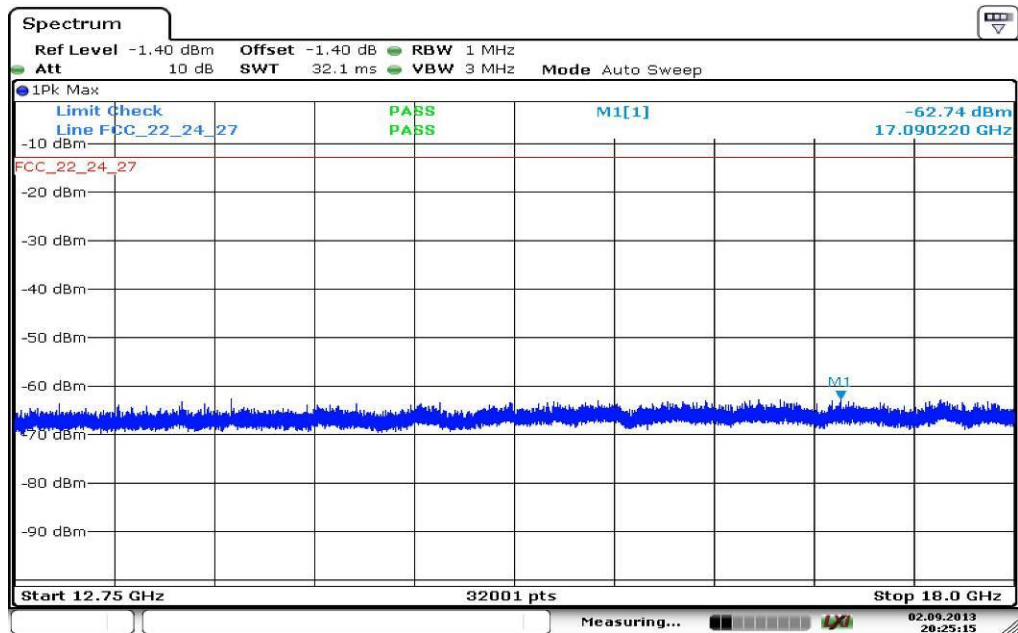
Date: 2.SEP.2013 20:27:41

Plot 7: highest channel (30 MHz – 12.75 GHz)



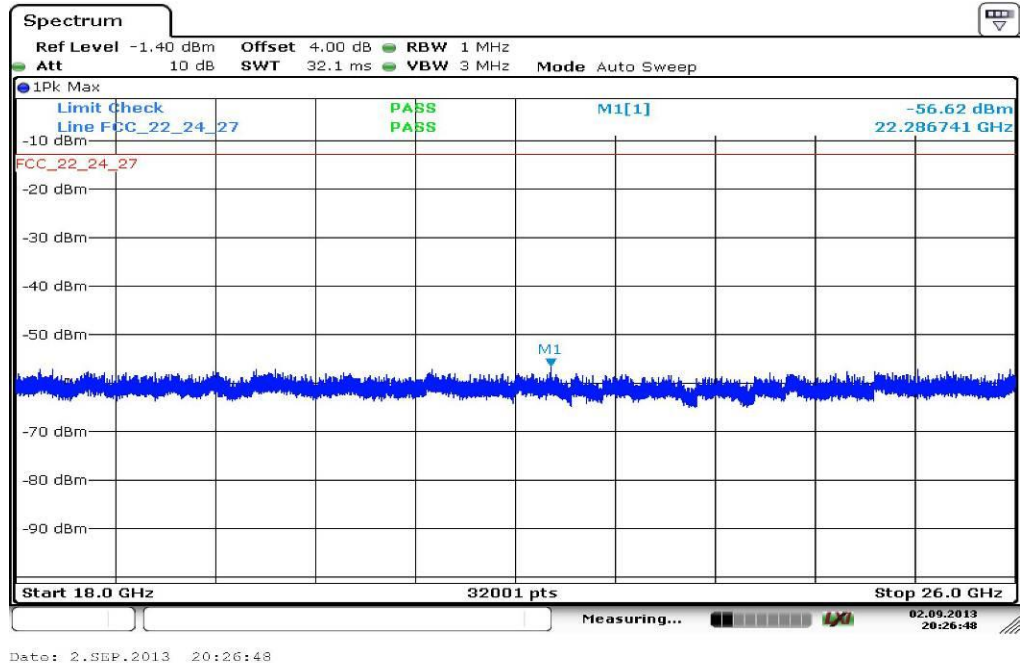
The carrier signal is notched with a 1.9 GHz band rejection filter.

Plot 8: highest channel (12.75 GHz – 18 GHz)



Date: 2.SEP.2013 20:25:15

Plot 9: highest channel (18 GHz – 26 GHz)



9.3.4 Spurious emissions conducted

Not performed – tests according to manufacturer test plan.

9.3.5 Block edge compliance

Not performed – tests according to manufacturer test plan.

9.3.6 Occupied bandwidth

Not performed – tests according to manufacturer test plan.

10 Test equipment and ancillaries used for tests

Typically, the calibrations of the test apparatus are commissioned to and performed by an accredited calibration laboratory. The calibration intervals are determined in accordance with the DIN EN ISO/IEC 17025. In addition to the external calibrations, the laboratory executes comparison measurements with other calibrated test systems or effective verifications. Weekly chamber inspections and range calibrations are performed. Where possible, rf-generating and signalling equipment as well as measuring receivers and analyzers are connected to an external high-precision 10 MHz reference (GPS-based or rubidium frequency standard).

In order to simplify the identification of the equipment used at some special tests, some items of test equipment and ancillaries can be provided with an identifier or number in the equipment list below (Labor/Item).

No.	Lab / Item	Equipment	Type	Manufact.	Serial No.	INV. No Cetecom	Kind of Calibration	Last Calibration	Next Calibration
1	n. a.	Double-Ridged Waveguide Horn Antenna 1-18.0GHz	3115	EMCO	8812-3088	300001032	vIKI!	08.05.2013	08.05.2015
2	n. a.	Anechoic chamber	FAC 3/5m	MWB / TDK	87400/02	300000996	ev		
3	n. a.	Three-Way Power Splitter, 50 Ohm	11850C	HP Meßtechnik		300000997	ne		
4	n. a.	Amplifier	js42-00502650-28-5a	Parzich GMBH	928979	300003143	ne		
5	n. a.	TRILOG Broadband Test-Antenna 30 MHz - 3 GHz	VULB9163	Schwarzbeck	371	300003854	vIKI!	14.10.2011	14.10.2014
6	n. a.	MXE EMI Receiver 20 Hz bis 26,5 GHz	N9038A	Agilent Technologies	MY51210197	300004405	k	21.02.2013	21.02.2014
7	11b	Microwave System Amplifier, 0.5-26.5 GHz	83017A	HP Meßtechnik	00419	300002268	ev		
8	A025	Std. Gain Horn Antenna 12.4 to 18.0 GHz	639	Narda		300000786	ne		
9	A027	Std. Gain Horn Antenna 18.0 to 26.5 GHz	638	Narda		300000486	ne		
10	n. a.	Signal Analyzer 40 GHz	FSV40	R&S	101042	300004517	k	22.10.2012	22.10.2013

Agenda: Kind of Calibration

k	calibration / calibrated	EK	limited calibration
ne	not required (k, ev, izw, zw not required)	zw	cyclical maintenance (external cyclical maintenance)
ev	periodic self verification	izw	internal cyclical maintenance
Ve	long-term stability recognized	g	blocked for accredited testing
vIKI!	Attention: extended calibration interval	*	next calibration ordered / currently in progress
NK!	Attention: not calibrated		

11 Observations

No observations exceeding those reported with the single test cases have been made.

Annex A Document history

Version	Applied changes	Date of release
1.0	Initial release	2013-09-04

Annex B Further information**Glossary**

AVG	-	Average
DUT	-	Device under test
EMC	-	Electromagnetic Compatibility
EN	-	European Standard
EUT	-	Equipment under test
ETSI	-	European Telecommunications Standard Institute
FCC	-	Federal Communication Commission
FCC ID	-	Company Identifier at FCC
HW	-	Hardware
IC	-	Industry Canada
Inv. No.	-	Inventory number
N/A	-	Not applicable
PP	-	Positive peak
QP	-	Quasi peak
S/N	-	Serial number
SW	-	Software

Annex C Accreditation Certificate

Front side of certificate

DAkKS
Deutsche
Akkreditierungsstelle

Deutsche Akkreditierungsstelle GmbH
Befehlene gemäß § 8 Absatz 1 AkkStelleG i.V.m. § 1 Absatz 1 AkkStelleGBV
Unterzeichnerin der Multilateralen Abkommen
von EA, ILAC und IAF zur gegenseitigen Anerkennung

Akkreditierung

Die Deutsche Akkreditierungsstelle GmbH bestätigt hiermit, dass das Prüflaboratorium
CETECOM ICT Services GmbH
Untertürkheimer Straße 6-10, 66117 Saarbrücken

die Kompetenz nach DIN EN ISO/IEC 17025:2005 besitzt, Prüfungen in folgenden Bereichen durchzuführen:

- Drahtgebundene Kommunikation einschließlich xDSL
- VoIP und DECT
- Akustik
- Funk einschließlich WLAN
- Short Range Devices (SRD)
- RFID
- WiFiMax und Richtfunk
- Mobilfunk (GSM / DCS, Over the Air (OTA) Performance)
- Elektromagnetische Verträglichkeit (EMV) einschließlich Automotive
- Produktsicherheit
- SAR und Hearing Aid Compatibility (HAC)
- Umweltsimulation
- Smart Card Terminals
- Bluetooth
- Wi-Fi-Services

Die Akkreditierungskunde gilt nur in Verbindung mit dem Bescheid vom 18.01.2013 mit der Akkreditierungsnummer D-PL-12076-01 und ist gültig 17.01.2018. Sie besteht aus diesem Deckblatt, der Rückseite des Deckblatts und der folgenden Anlage mit insgesamt 80 Seiten.

Registrierungsnummer der Urkunde: D-PL-12076-01-01

Frankfurt am Main, 18.01.2013

Im Auftrag
Dirk J. P. J. Egner
Abteilungsleiter

Sehe Hinweis auf der Rückseite

Back side of certificate

Deutsche Akkreditierungsstelle GmbH

Standort Berlin Spittelmarkt 10 10117 Berlin	Standort Frankfurt am Main Gartenstraße 6 60594 Frankfurt am Main	Standort Braunschweig Rundeschaue 100 38116 Braunschweig
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Die auszugsweise Veröffentlichung der Akkreditierungskunde bedarf der vorherigen schriftlichen Zustimmung der Deutsche Akkreditierungsstelle GmbH (DAkKS). Ausgenommen davon ist die separate Weiterverbreitung des Deckblattes durch die umseitig genannte Konformitätsbewertungsstelle in unveränderter Form.

Es darf nicht der Anschein erweckt werden, dass sich die Akkreditierung auch auf Bereiche erstreckt, die über den durch die DAkKS bestätigten Akkreditierungsbereich hinausgehen.

Die Akkreditierung erfolgte gemäß des Gesetzes über die Akkreditierungsstelle (AkkStelleG) vom 31. Juli 2009 (BGBl. I S. 2625) sowie der Verordnung (EG) Nr. 765/2008 des Europäischen Parlaments und des Rates vom 9. Juli 2008 über die Vorschriften für die Akkreditierung und Marktüberwachung im Zusammenhang mit der Vermarktung von Produkten (Abt. L 218 vom 9. Juli 2008, S. 30). Die DAkKS ist Unterzeichnerin der Multilateralen Abkommen zur gegenseitigen Anerkennung der European co-operation for Accreditation (EA), des International Accreditation Forum (IAF) und der International Laboratory Accreditation Cooperation (ILAC). Die Unterzeichner dieser Abkommen erkennen ihre Akkreditierungen gegenseitig an.

Der aktuelle Stand der Mitgliedschaft kann folgenden Webseiten entnommen werden:
EA: www.european-accreditation.org
ILAC: www.ilac.org
IAF: www.iaf.nu

Note:

The current certificate including annex is published on our website (see link below) or may be received from CETECOM ICT Services on request.

<http://www.cetecom.com/eu/de/cetecom-group/europa/deutschland-saarbruecken/akkreditierungen.html>