



Accredited testing-laboratory

DAR registration number: DGA-PL-176/94-D1

**Federal Motor Transport Authority (KBA)
DAR registration number: KBA-P 00070-97**

Recognized by the Federal Communications Commission

Anechoic chamber registration no.: 90462 (FCC)

Anechoic chamber registration no.: 3462C-1 (IC)

Certification ID: DE 0001

Accreditation ID: DE 0002

Accredited Bluetooth® Test Facility (BQTF)

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Test report no. : 1-2190-01-04/10
Type identification : RDB71UW
Applicant : Research In Motion Limited
FCC ID : L6ARDB70UW
IC Certification No : 2503A-RDB70UW
Test standards : 47 CFR Part 15
RSS - 210 Issue 7

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1 General information

1.1 Notes

The test results of this test report relate exclusively to the test item specified in 3.1.1. The CETECOM ICT Services GmbH does not assume responsibility for any conclusions and generalisations drawn from the test results with regard to other specimens or samples of the type of the equipment represented by the test item. The test report may only be reproduced or published in full. Reproduction or publication of extracts from the report requires the prior written approval of the CETECOM ICT Services GmbH.

Test laboratory manager:

2010-05-04	Andreas Keller	
Date	Name	Signature (i.A. Marco Bertolino)

Technical responsibility for area of testing:

2010-05-04	Stefan Bös	
Date	Name	Signature

1.2 Testing laboratory

CETECOM ICT Services GmbH

Untertürkheimer Straße 6 - 10

66117 Saarbrücken

Germany

Phone: + 49 681 5 98 - 0

Fax: + 49 681 5 98 - 9075

e-mail: info@ICT.cetecom.de

Internet: http://www.cetecom-ict.de

State of accreditation: The test laboratory (area of testing) is accredited according to
DIN EN ISO/IEC 17025
DAR registration number: DGA-PL-176/94-D1

Accredited by: Federal Motor Transport Authority (KBA)
DAR registration number: KBA-P 00070-97

Testing location, if different from CETECOM ICT Services GmbH:

Name :
Street :
Town :
Country :
Phone :
Fax :

1.3 Details of applicant

Name:	Research In Motion Limited
Street:	305 Phillip Street
Town:	Waterloo, ON N2L 3W8
Country:	Canada
Telephone:	+1-519-888-7465
Fax:	+1-519-888-6906
Contact:	Masud Attayi
E-mail:	mattayi@rim.com
Telephone:	+1-519-888-7465

1.4 Application details

Date of receipt of order:	2010-04-15
Date of receipt of test item:	2010-04-15
Date of start test:	2010-04-21
Date of end test	2010-05-04
Persons(s) who have been present during the test:	-/-

2 Test standard/s

47 CFR Part 15	2008-07	Title 47 of the Code of Federal Regulations; Chapter I- Federal Communications Commission subchapter A - general, Part 15-Radio frequency devices
RSS - 210 Issue 7	2007-06	Spectrum Management and Telecommunications - Radio Standards Specification Low-power Licence-exempt Radiocommunication Devices (All Frequency Bands): Category I Equipment

3 Technical tests

3.1 Details of manufacturer

Name:	Research In Motion Limited
Street:	305 Phillip Street
Town:	Waterloo, ON N2L 3W8
Country:	Canada

3.1.1 Test item

Kind of test item	:	Blackberry GSM Phone
Type identification	:	RDB71UW
S/N serial number	:	IMEI004401136104755, IMEI004401136104904
HW hardware status	:	CER-31896-001 Rev 1
SW software status	:	V5.0.0.606 (Bundle 1019, Platform: 6.3.0.1)
Frequency Band [MHz]	:	ISM 2.400 - 2.483,5
Type of Modulation	:	BPSK (DSSS) & 64-QAM* (OFDM)
Number of channels	:	11
Antenna	:	Integrated antenna
Power Supply	:	3.7 V Li-ion battery
Temperature Range	:	-10 °C to +55 °C

*Note: Pilot carrier QPSK

FCC ID: L6ARDB70UW
IC: 2503A-RDB70UW

3.1.2 Additional EUT information For IC Canada (appendix 2)

IC Registration Number:	2503A-RDB70UW
Model Name:	RDB71UW
Manufacturer (complete Address):	Research In Motion Limited 305 Phillip Street Waterloo, ON N2L 3W8 Canada
Tested to Radio Standards Specification (RSS) No.:	RSS-210 Issue 7
Open Area Test Site Industry Canada Number:	IC 3462C-1
Frequency Range (or fixed frequency) [MHz]:	2400 – 2483.5 MHz
RF: Power [W] (max):	Not performed
Antenna Type:	Integrated antenna
Field Strength [dBμV/m in 3m]:	Not performed
Occupied Bandwidth (99% BW) [kHz]:	Not performed
Type of Modulation:	BPSK (DSSS) & 64-QAM* (OFDM)
Emission Designator (TRC-43):	Not performed
Transmitter Spurious (worst case) [dBμV/m in 3m]:	50.7 (noise floor)
Receiver Spurious (worst case) [μV/m in 3m]:	Not performed

ATTESTATION: I attest that the testing was performed or supervised by me; that the test measurements were made in accordance with the above-mentioned departmental standard(s), and that the radio equipment identified in this application has been subject to all applicable test conditions specified in the departmental standards and all of the requirements of the standards have been met.

Signature:

Test engineer: Andreas Keller
(i.A. Marco Bertolino)

Date: 2010-05-04

3.1.3 EUT operating modes

EUT operating mode no. *)	Description of operating modes	Additional information
Op. 0	Normal mode	Normal temperature and power source conditions
Op. 1		low temperature, low power source conditions
Op. 2		low temperature, high power source conditions
Op. 3		high temperature, low power source conditions
Op. 4		high temperature, high power source conditions

*) EUT operating mode no. is used to simplify the test plan

3.1.4 Extreme conditions testing values

Description	Shortcut	Unit	Value
Nominal Temperature	T _{nom}	°C	24
Nominal Humidity	H _{nom}	%	42
Nominal Power Source	V _{nom}	V	3.7

Type of power source: Li-ion battery

4 Summary of Measurement Results and list of all performed test cases

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

TC identifier	Description	verdict	date	Remark
RF-Testing	FCC Part 15 §15.247 - CANADA RSS-210	PASS	2010-05-04	-/-

Test Specification Clause	Test Case	Pass	Fail	Not applicable	Not performed
None	Antenna Gain				X
§15.247 (e)	Peak power spectral density				X
§15.247(a)(2)	Spectrum Bandwidth of a DSSS System / 6dB BW				X
§15.247(a)(2)	Spectrum Bandwidth of a DSSS System / 20dB BW				X
§ 15.247 (b)(3)	Maximum output power (conducted)				X
§ 15.247 (b)(3)	Max. peak output power (radiated)				X
§15.247 (d)	Band-edge compliance of conducted emissions				X
§15.205	Band-edge compliance of radiated emissions	Yes			
§15.247 (d)	Spurious Emission - conducted (Transmitter)				X
§ 15.209	Spurious Emission - radiated (Transmitter)	Yes			
§ 15.109	Spurious Emissions - radiated (Receiver)				X
§ 15.209	Spurious Emissions - radiated <30 MHz	Yes			
§ 15.107/207	Conducted Emissions <30 MHz				X

5 RF measurement testing

5.1 Description of test set-up

5.1.1 Radiated measurements

The radiated measurements are performed in vertical and horizontal plane in the frequency range from 9 kHz to 20 GHz in semi-anechoic chambers. The EUT is positioned on a non-conductive support with a height of 0.80 m above a conductive ground plane that covers the whole chamber. The receiving antennas are confirmed with specifications ANSI C63.2-1996 clause 15 and ANSI C63.4-2003 clause 4.1.5. These antennas can be moved over the height range between 1.0 m and 4.0 m in order to search for maximum field strength emitted from EUT. The measurement distances between EUT and receiving antennas are indicated in the test set-ups for the various frequency ranges. For each measurement, the EUT is rotated in all three axes until the maximum field strength is received.

The wanted and unwanted emissions are received by spectrum analysers where the detector modes and resolution bandwidths over various frequency ranges are set according to requirement ANSI C63.4-2003 clause 4.2.

Antennas are confirmed with ANSI C63.2-1996 item 15.

9 kHz - 150 kHz: Quasi Peak measurement, 200 Hz Bandwidth, active loop antenna.

150 kHz - 30 MHz: Quasi Peak measurement, 9 kHz Bandwidth, active loop antenna.

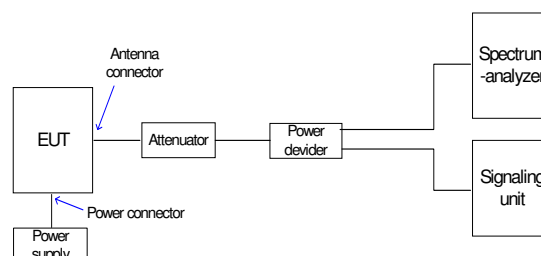
30 MHz - 1GHz: Quasi Peak measurement, 120 kHz Bandwidth, Trilog antenna

>1GHz: Average, RBW 1MHz, VBW 10 Hz, waveguide horn

All measurement settings are according to FCC 15.209 and 15.207

5.1.2 Conducted measurements

The EUT's RF signal is coupled out by the antenna connector which is supplied by the manufacturer. The signal is connected to the spectrum analyzer. The specific losses for signal path are first checked within a calibration. The measurement readings on the spectrum analyzer are corrected by the specific test set-up loss. The attenuator, power divider, signalling unit and the spectrum analyzer are impedance matched on 50 Ohm.



5.2 Referenced Documents

None

5.3 Additional comments

Measurements performed according to test plan

5.4 Antenna gain

Not performed

5.5 Peak Power Spectral density (digitally modulated systems) §15.247(e)

Not performed

5.6 Spectrum Bandwidth of a DSSS System / 6 dB Bandwidth §15.247(a)(2)

Not performed

5.7 Spectrum Bandwidth of a DSSS System / 20 dB Bandwidth

Not performed

5.8 Maximum output power (conducted) §15.247 (b)(3)

Not performed

5.9 Max. peak output power (radiated) §15.247 (b)(3)

Not performed

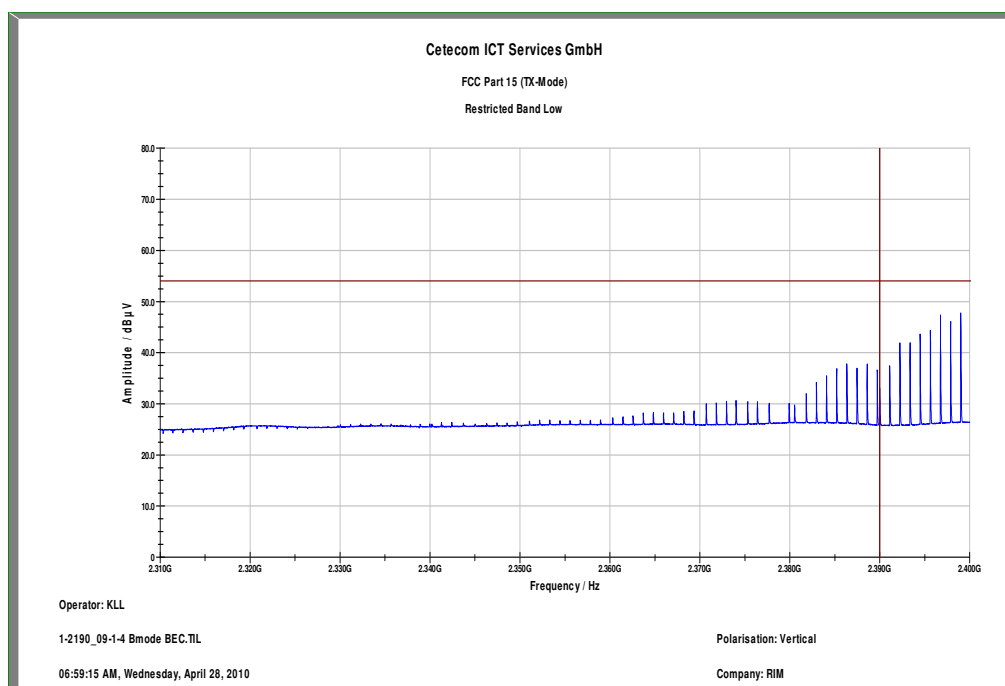
5.10 Band-edge compliance of conducted emissions §15.247 (d)

Not performed

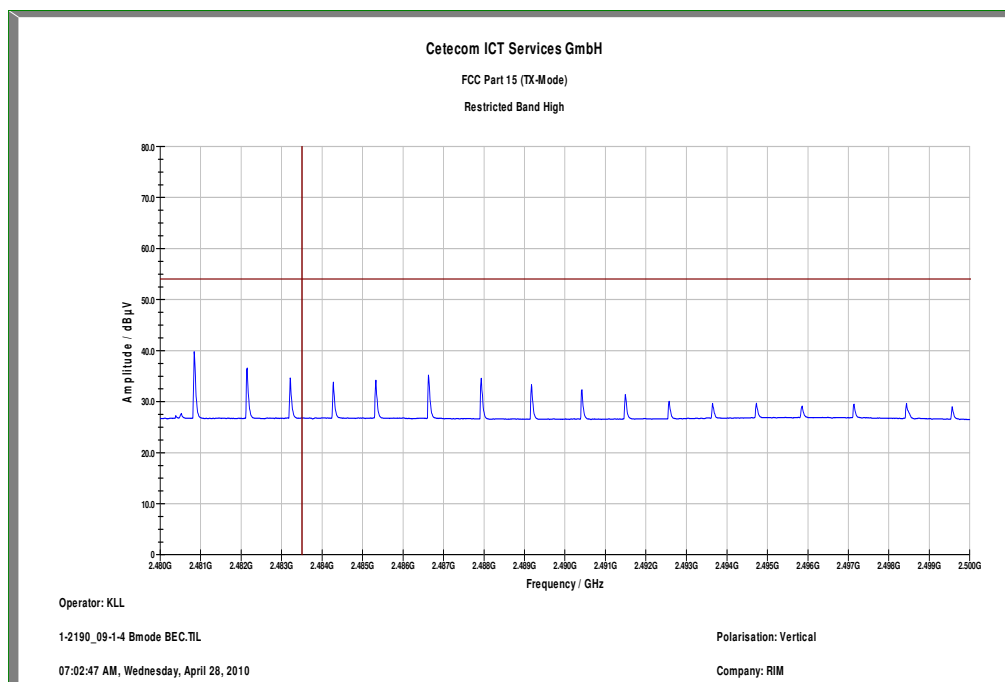
5.11 Band-edge compliance of radiated emissions §15.205

B-mode

Plot 1: Restricted band low

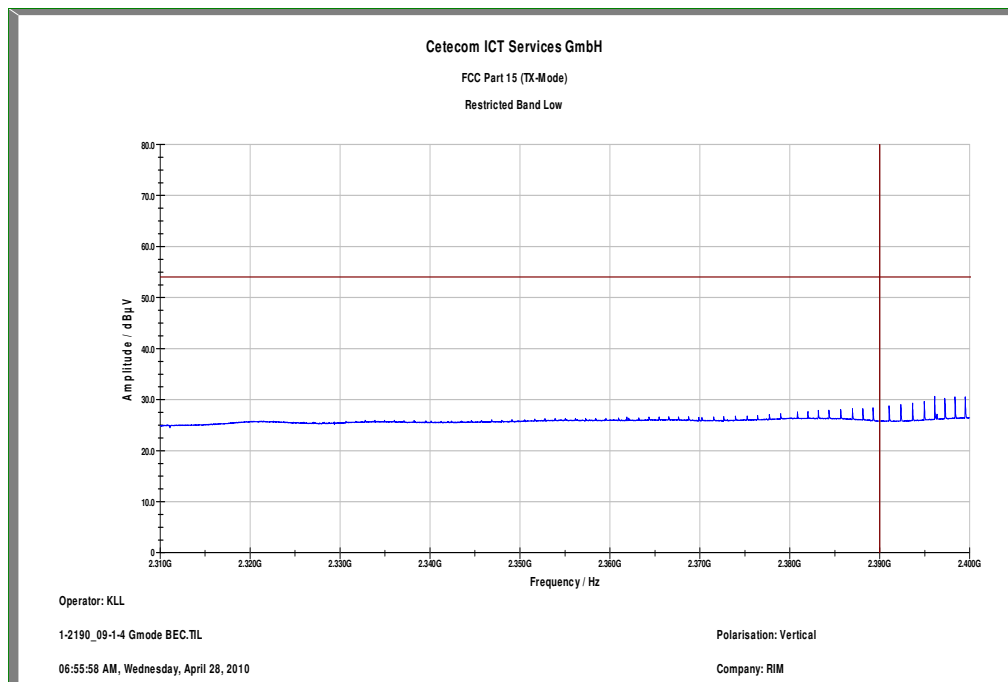


Plot 2 : Restricted band high

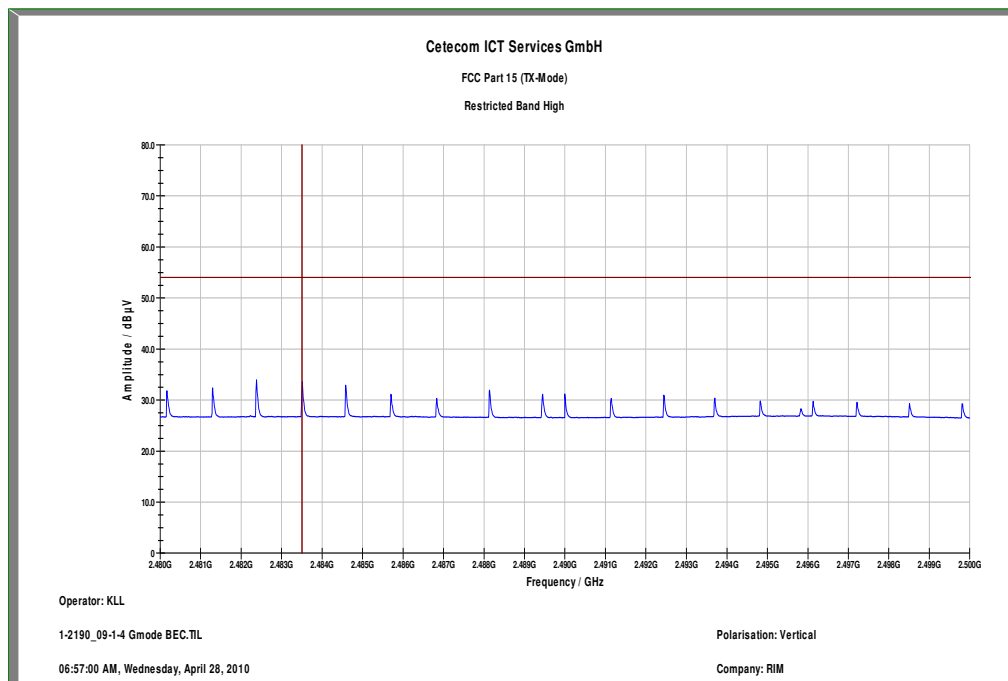


G-mode

Plot 1: Restricted band low

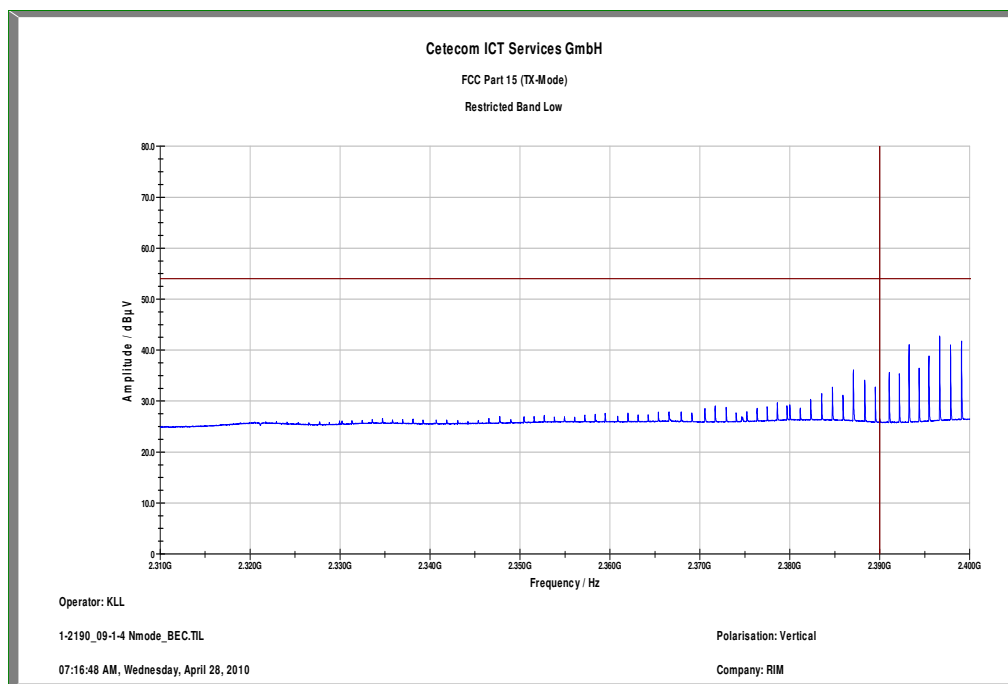


Plot 2 : Restricted band high

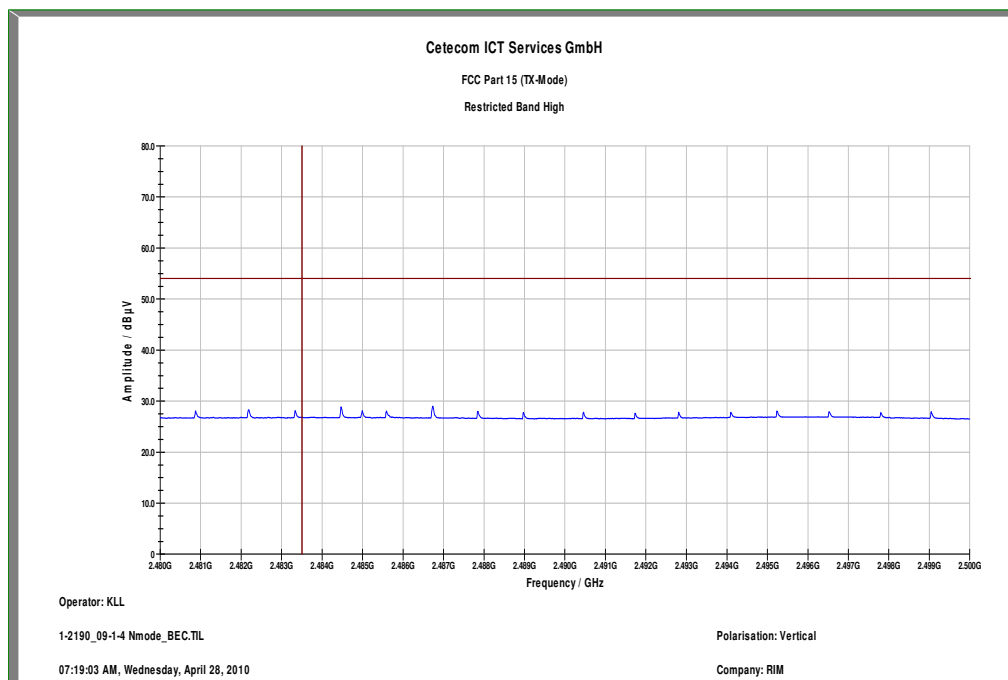


N-mode

Plot 1: Restricted band low



Plot 2 : Restricted band high



5.12 Spurious Emissions - conducted (Transmitter) §15.247 (c)

Not performed

5.13 Spurious Emissions - radiated (Transmitter) §15.209

B-mode

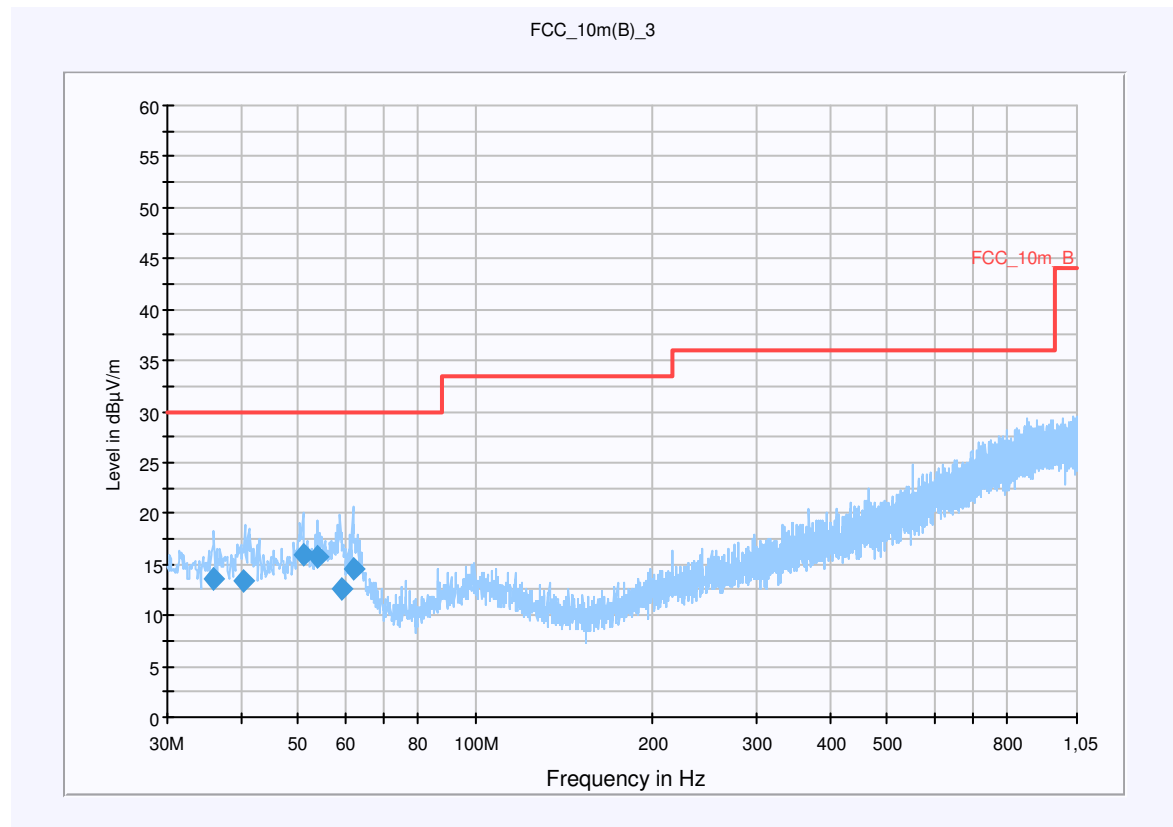
Plot 1: 0.03 - 1 GHz (lowest channel), B-mode

EUT: RDB71UW
 Serial Number: IMEI: 004401.13.610490.4
 Test Description: FCC part 15 B class B @ 10 m
 Operating Conditions: TX WLAN B mode channel 1
 Operator Name: Hennemann
 Comment: - / -

Scan Setup: STAN_Fin [EMI radiated]

Hardware Setup: Electric Field (NOS)
 Level Unit: dBμV/m

Subrange	Detectors	IF Bandwidth	Meas. Time	Receiver
30 MHz - 1,05 GHz	QuasiPeak	120 kHz	15 s	Receiver



Final Result 1

Frequency (MHz)	QuasiPeak (dBμV/m)	Meas. Time (ms)	Bandwidth (kHz)	Antenna height (cm)	Polarity	Turntable position (deg)	Corr. (dB)	Margin (dB)	Limit (dBμV/m)	Comment
36.007350	13.7	15000.000	120.000	220.0	V	165.0	13.1	16.3	30.0	
40.519200	13.3	15000.000	120.000	98.0	V	-3.0	13.4	16.7	30.0	
50.956950	16.0	15000.000	120.000	105.0	V	3.0	13.3	14.0	30.0	
53.987100	15.7	15000.000	120.000	116.0	V	214.0	13.0	14.3	30.0	
59.269050	12.7	15000.000	120.000	208.0	V	243.0	11.8	17.3	30.0	
62.216700	14.5	15000.000	120.000	106.0	V	34.0	11.1	15.5	30.0	

Hardware Setup: EMI radiated\Electric Field (NOS) - [EMI radiated]

Subrange 1

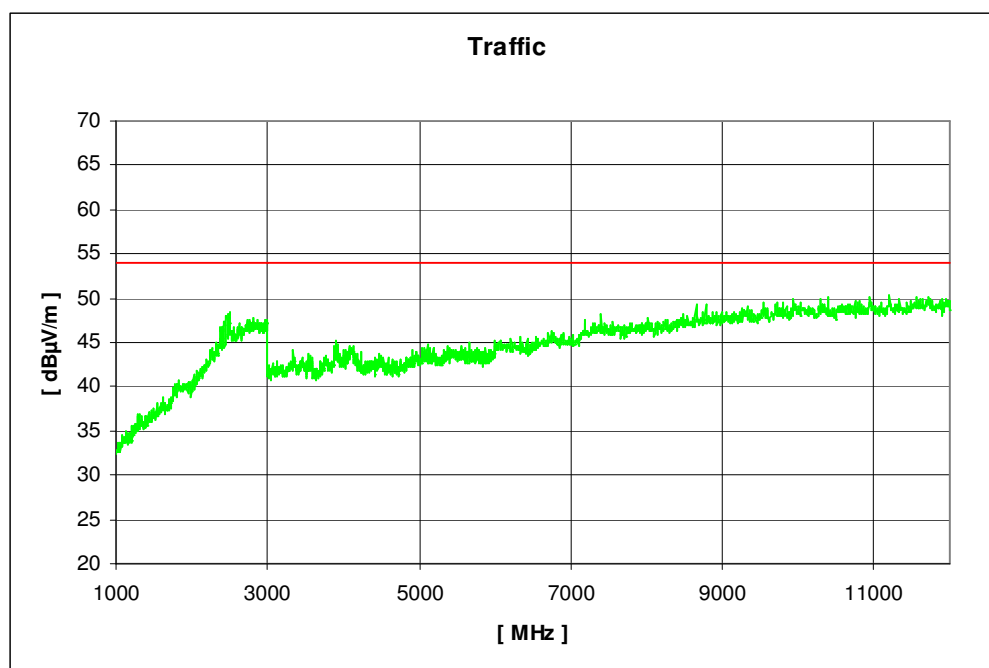
Frequency Range:	30 MHz - 2 GHz
Receiver:	Receiver [ESCI 3] @ GPIB0 (ADR 20), SN 100083/003, FW 4.32
Signal Path:	without Notch FW 1.0
Antenna:	VULB 9163 SN 9163-295, FW --- Correction Table (vertical): VULP6113 Correction Table (horizontal): VULP6113 Correction Table: Cable_EN_1GHz (0909)
Antenna Tower:	Tower [EMCO 2090 Antenna Tower] @ GPIB0 (ADR 8), FW REV 3.12
Turntable:	Turntable [EMCO Turntable] @ GPIB0 (ADR 9), FW REV 3.12

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Plot 2: 1 - 12 GHz, antenna vertical (lowest channel), B-mode

EUT:	RDB71UW	Polarisation:	vertical
Manufacturer:	Research In Motion	Battery:	AC/DC power supply
IMEI:	004401136104750	HW:	
Operator:	KLL	SW:	
Start of Test :	22.04.2010 15:24:10	Vmin:	
Standard:	FCC_15_407_2400	Vnom:	3,7V
Signalling Unit:	CMU200	Vmax:	
Transducer-File:	C:\Spurious_neu\Messparameter\FCC_15_407_2400\Transducer_FCC_15_407_2400.xls		

Start Freq. [MHz]: 1000 Stop Freq. [MHz] 12000

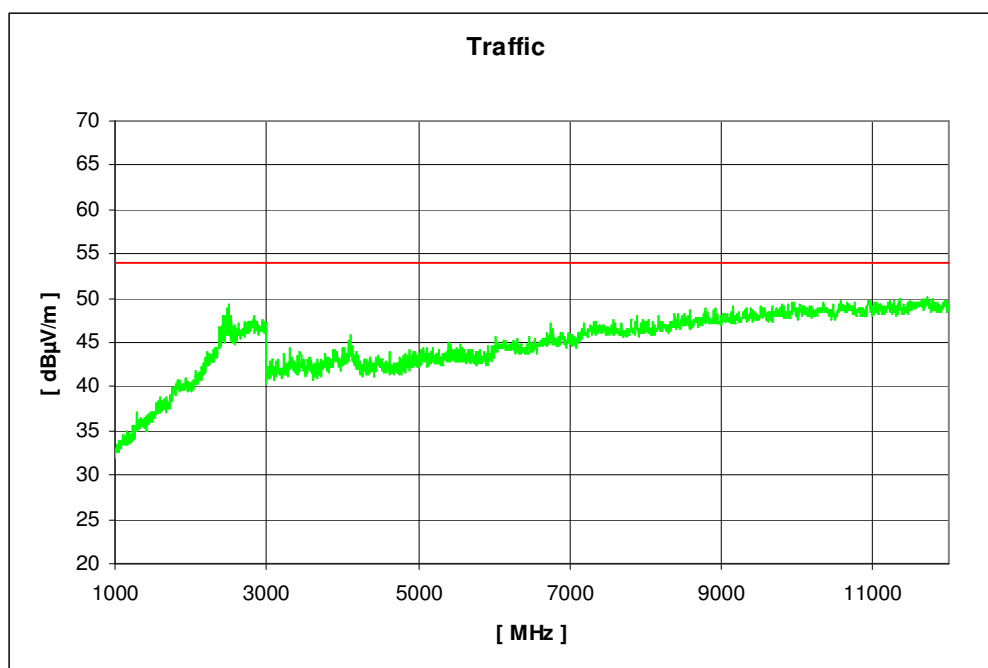


Carrier suppressed with a band rejection filter.

Plot 3: 1 - 12 GHz, antenna horizontal (lowest channel), B-mode

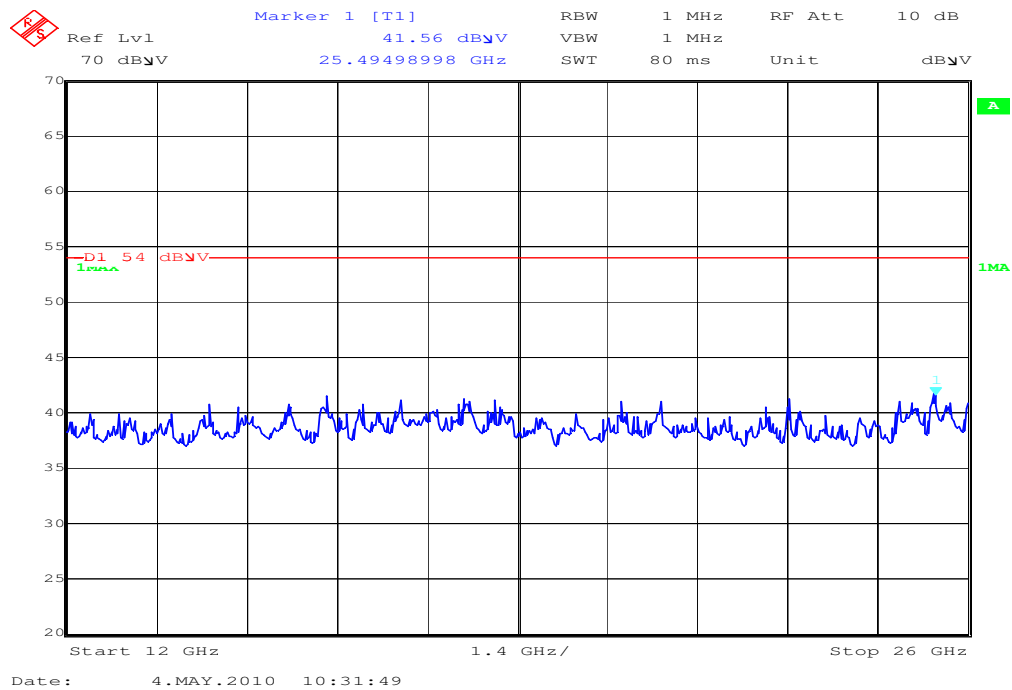
EUT:	RDB71UW	Polarisation:	horizontal
Manufacturer:	Research In Motion	Battery:	AC/DC power supply
IMEI:	004401136104750	HW:	
Operator:	KLL	SW:	
Start of Test :	22.04.2010 15:16:15	Vmin:	
Standard:	FCC_15_407_2400	Vnom:	3,7V
Signalling Unit:	CMU200	Vmax:	
Transducer-File:	C:\Spurious_neu\Messparameter\FCC_15_407_2400\Transducer_FCC_15_407_2400.xls		

Start Freq. [MHz]: 1000 Stop Freq. [MHz] 12000



Carrier suppressed with a band rejection filter.

Plot 4: 12- 25 GHz (valid for all channels), B-mode



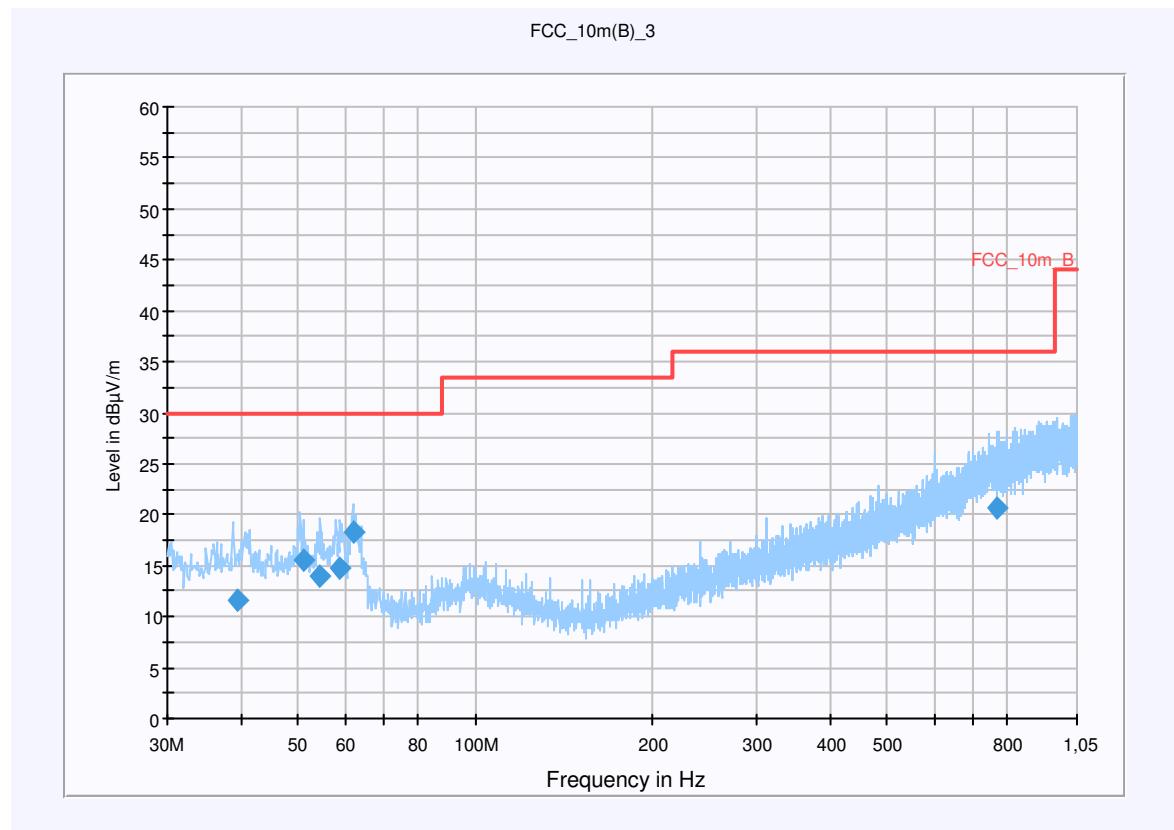
Plot 5: 0.03 - 1 GHz (middle channel), B-mode

EUT: RDB71UW
 Serial Number: IMEI: 004401.13.610490.4
 Test Description: FCC part 15 B class B @ 10 m
 Operating Conditions: TX WLAN B mode channel 6
 Operator Name: Hennemann
 Comment: - / -

Scan Setup: STAN_Fin [EMI radiated]

Hardware Setup: Electric Field (NOS)
 Level Unit: dBμV/m

Subrange	Detectors	IF Bandwidth	Meas. Time	Receiver
30 MHz - 1,05 GHz	QuasiPeak	120 kHz	15 s	Receiver



Final Result 1

Frequency (MHz)	QuasiPeak (dBμV/m)	Meas. Time (ms)	Bandwidth (kHz)	Antenna height (cm)	Polarity	Turntable position (deg)	Corr. (dB)	Margin (dB)	Limit (dBμV/m)	Comment
39.361350	11.7	15000.000	120.000	98.0	V	131.0	13.4	18.3	30.0	
50.953200	15.5	15000.000	120.000	98.0	V	148.0	13.3	14.5	30.0	
54.438450	13.9	15000.000	120.000	220.0	V	142.0	12.9	16.1	30.0	
58.959000	14.8	15000.000	120.000	129.0	V	114.0	11.9	15.2	30.0	
61.991550	18.3	15000.000	120.000	108.0	V	111.0	11.1	11.7	30.0	
769.041450	20.7	15000.000	120.000	120.0	H	163.0	23.7	15.3	36.0	

Hardware Setup: EMI radiated\Electric Field (NOS) - [EMI radiated]

Subrange 1

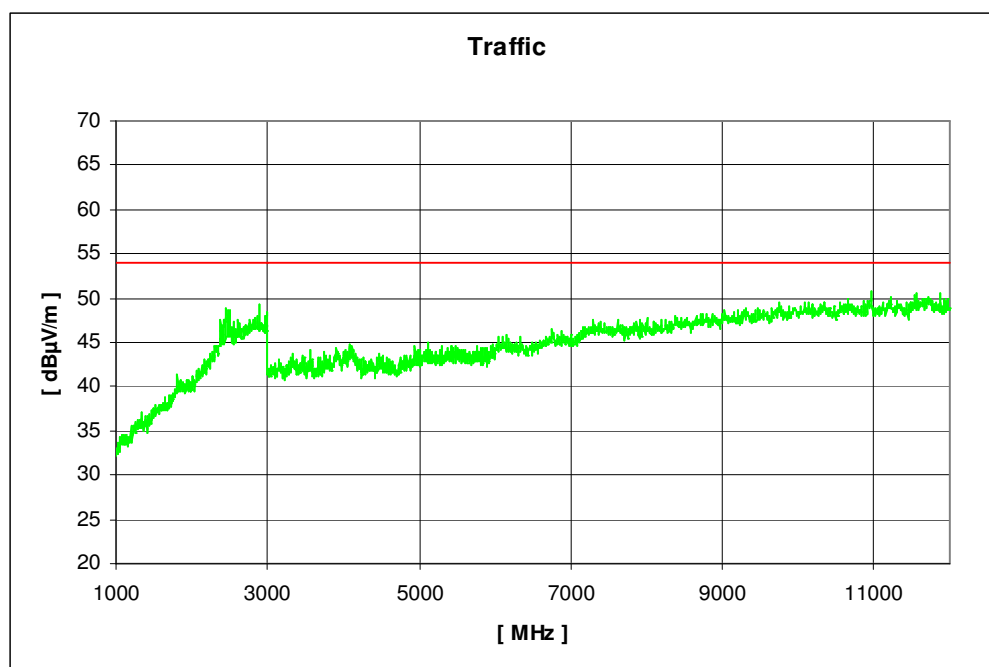
Frequency Range:	30 MHz - 2 GHz
Receiver:	Receiver [ESCI 3] @ GPIB0 (ADR 20), SN 100083/003, FW 4.32
Signal Path:	without Notch FW 1.0
Antenna:	VULB 9163 SN 9163-295, FW --- Correction Table (vertical): VULP6113 Correction Table (horizontal): VULP6113 Correction Table: Cable_EN_1GHz (0909)
Antenna Tower:	Tower [EMCO 2090 Antenna Tower] @ GPIB0 (ADR 8), FW REV 3.12
Turntable:	Turntable [EMCO Turntable] @ GPIB0 (ADR 9), FW REV 3.12

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Plot 6: 1 - 12 GHz, antenna vertical (middle channel), B-mode

EUT:	RDB71UW	Polarisation:	vertical
Manufacturer:	Research In Motion	Battery:	AC/DC power supply
IMEI:	004401136104750	HW:	
Operator:	KLL	SW:	
Start of Test :	23.04.2010 10:11:34	Vmin:	
Standard:	FCC_15_407_2400	Vnom:	3,7V
Signalling Unit:	CMU200	Vmax:	
Transducer-File:	C:\Spurious_neu\Messparameter\FCC_15_407_2400\Transducer_FCC_15_407_2400.xls		

Start Freq. [MHz]: 1000 Stop Freq. [MHz] 12000

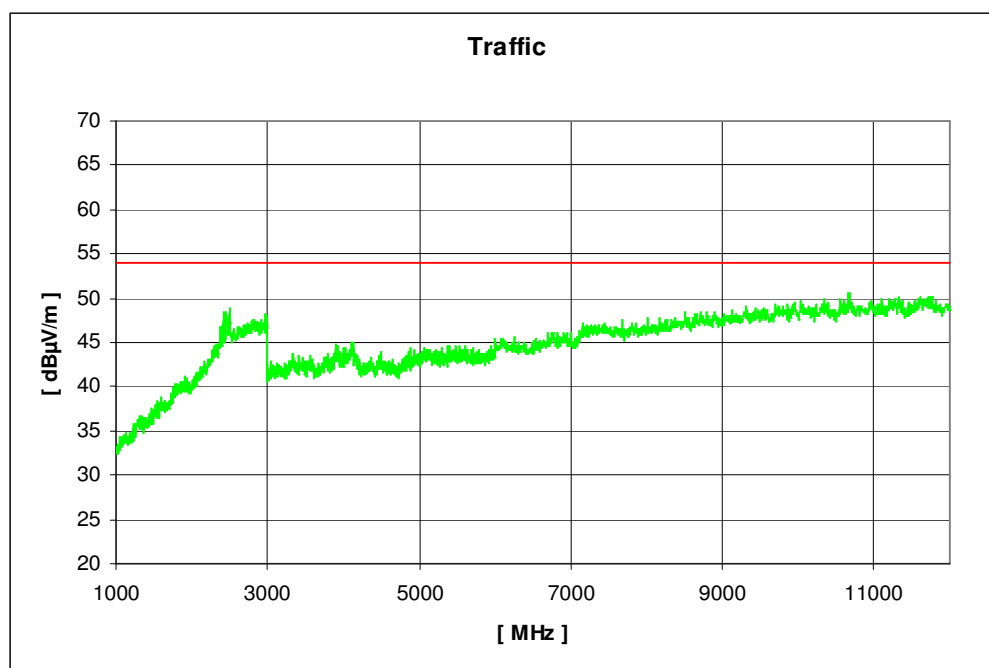


Carrier suppressed with a band rejection filter.

Plot 7: 1 - 12 GHz, antenna horizontal (middle channel), B-mode

EUT:	RDB71UW	Polarisation:	horizontal
Manufacturer:	Research In Motion	Battery:	AC/DC power supply
IMEI:	004401136104750	HW:	
Operator:	KLL	SW:	
Start of Test :	23.04.2010 10:17:26	Vmin:	
Standard:	FCC_15_407_2400	Vnom:	3,7V
Signalling Unit:	CMU200	Vmax:	
Transducer-File:	C:\Spurious_neu\Messparameter\FCC_15_407_2400\Transducer_FCC_15_407_2400.xls		

Start Freq. [MHz]: 1000 Stop Freq. [MHz] 12000



Carrier suppressed with a band rejection filter.

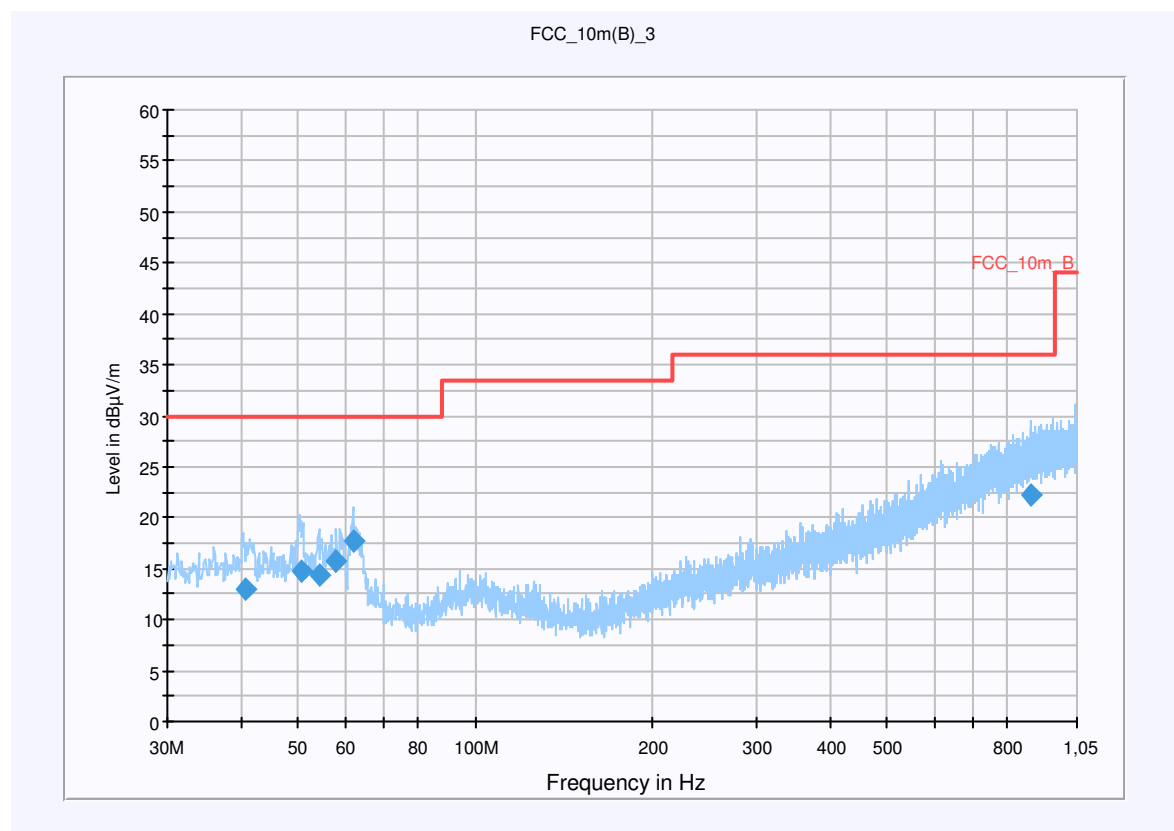
Plot 8: 0.03 - 1 GHz (highest channel), B-mode

EUT: RDB71UW
 Serial Number: IMEI: 004401.13.610490.4
 Test Description: FCC part 15 B class B @ 10 m
 Operating Conditions: TX WLAN B mode channel 11
 Operator Name: Hennemann
 Comment: - / -

Scan Setup: STAN_Fin [EMI radiated]

Hardware Setup: Electric Field (NOS)
 Level Unit: dBμV/m

Subrange	Detectors	IF Bandwidth	Meas. Time	Receiver
30 MHz - 1,05 GHz	QuasiPeak	120 kHz	15 s	Receiver



Final Result 1

Frequency (MHz)	QuasiPeak (dBμV/m)	Meas. Time (ms)	Bandwidth (kHz)	Antenna height (cm)	Polarity	Turntable position (deg)	Corr. (dB)	Margin (dB)	Limit (dBμV/m)	Comment
40.569150	13.0	15000.000	120.000	98.0	V	23.0	13.4	17.0	30.0	
50.553750	14.7	15000.000	120.000	98.0	V	146.0	13.3	15.3	30.0	
54.564750	14.5	15000.000	120.000	220.0	V	227.0	12.9	15.5	30.0	
57.984900	15.7	15000.000	120.000	116.0	V	160.0	12.1	14.3	30.0	
61.996800	17.8	15000.000	120.000	220.0	V	187.0	11.1	12.2	30.0	
875.762250	22.2	15000.000	120.000	220.0	V	184.0	24.9	13.8	36.0	

Hardware Setup: EMI radiated\Electric Field (NOS) - [EMI radiated]

Subrange 1

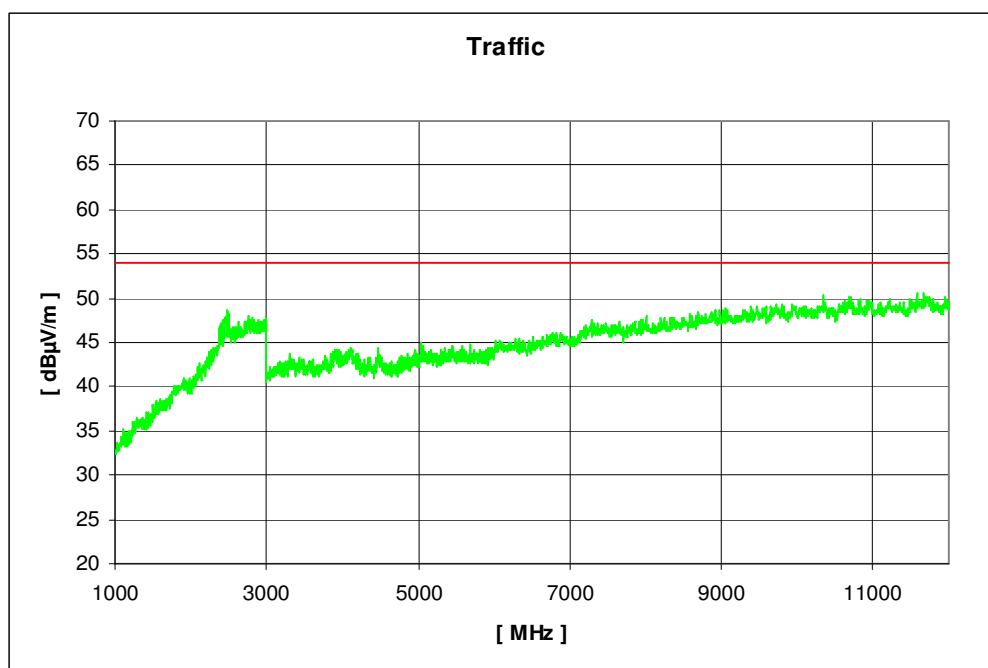
Frequency Range:	30 MHz - 2 GHz
Receiver:	Receiver [ESCI 3] @ GPIB0 (ADR 20), SN 100083/003, FW 4.32
Signal Path:	without Notch FW 1.0
Antenna:	VULB 9163 SN 9163-295, FW --- Correction Table (vertical): VULP6113 Correction Table (horizontal): VULP6113 Correction Table: Cable_EN_1GHz (0909)
Antenna Tower:	Tower [EMCO 2090 Antenna Tower] @ GPIB0 (ADR 8), FW REV 3.12
Turntable:	Turntable [EMCO Turntable] @ GPIB0 (ADR 9), FW REV 3.12

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Plot 9: 1 - 12 GHz, antenna vertical (highest channel), B-mode

EUT:	RDB71UW	Polarisation:	vertical
Manufacturer:	Research In Motion	Battery:	AC/DC power supply
IMEI:	004401136104750	HW:	
Operator:	KLL	SW:	
Start of Test :	23.04.2010 10:47:03	Vmin:	
Standard:	FCC_15_407_2400	Vnom:	3,7V
Signalling Unit:	CMU200	Vmax:	
Transducer-File:	C:\Spurious_neu\Messparameter\FCC_15_407_2400\Transducer_FCC_15_407_2400.xls		

Start Freq. [MHz]: 1000 Stop Freq. [MHz] 12000

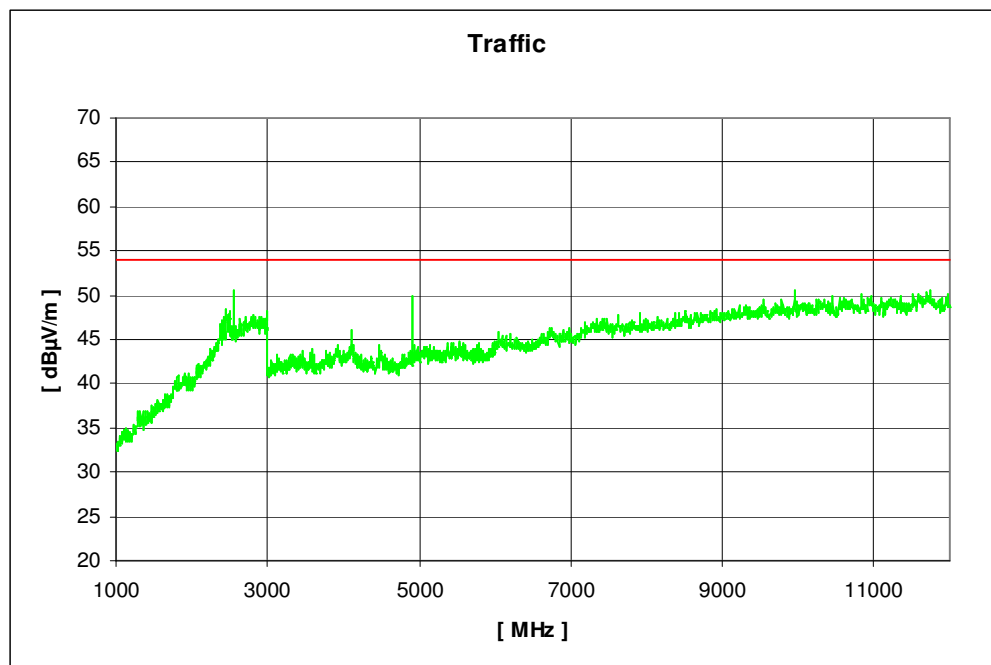


Carrier suppressed with a band rejection filter.

Plot 10: 1 - 12 GHz, antenna horizontal (highest channel), B-mode

EUT:	RDB71UW	Polarisation:	horizontal
Manufacturer:	Research In Motion	Battery:	AC/DC power supply
IMEI:	004401136104750	HW:	
Operator:	KLL	SW:	
Start of Test :	23.04.2010 10:27:14	Vmin:	
Standard:	FCC_15_407_2400	Vnom:	3,7V
Signalling Unit:	CMU200	Vmax:	
Transducer-File:	C:\Spurious_neu\Messparameter\FCC_15_407_2400\Transducer_FCC_15_407_2400.xls		

Start Freq. [MHz]: 1000 Stop Freq. [MHz] 12000



Carrier suppressed with a band rejection filter.

B-mode

Results:

SPURIOUS EMISSIONS LEVEL §15.209								
2412 MHz			2437 MHz			2462 MHz		
F [MHz]	Detector	Level [dBμ V/m]	F [MHz]	Detector	Level [dBμ V/m]	F [MHz]	Detector	Level [dBμ V/m]
No critical peaks detected			No critical peaks detected			4921	Pk	42.5 (h)
Measurement uncertainty			±3 dB					

f < 1 GHz : RBW/VBW: 100 kHz

f ≥ 1GHz : RBW:1MHz/VBW: 10Hz

Limits: § 15.247 (c)

In any 100 kHz bandwidth outside the frequency band at least 20dB below the highest level of the desired power. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).

Limits: § 15.109

Frequency (MHz)	Field strength (dBμ V/m)	Measurement distance (m)
30 - 88	30.0	10
88 - 216	33.5	10
216 - 960	36.0	10
above 960	54.0	3

N-mode

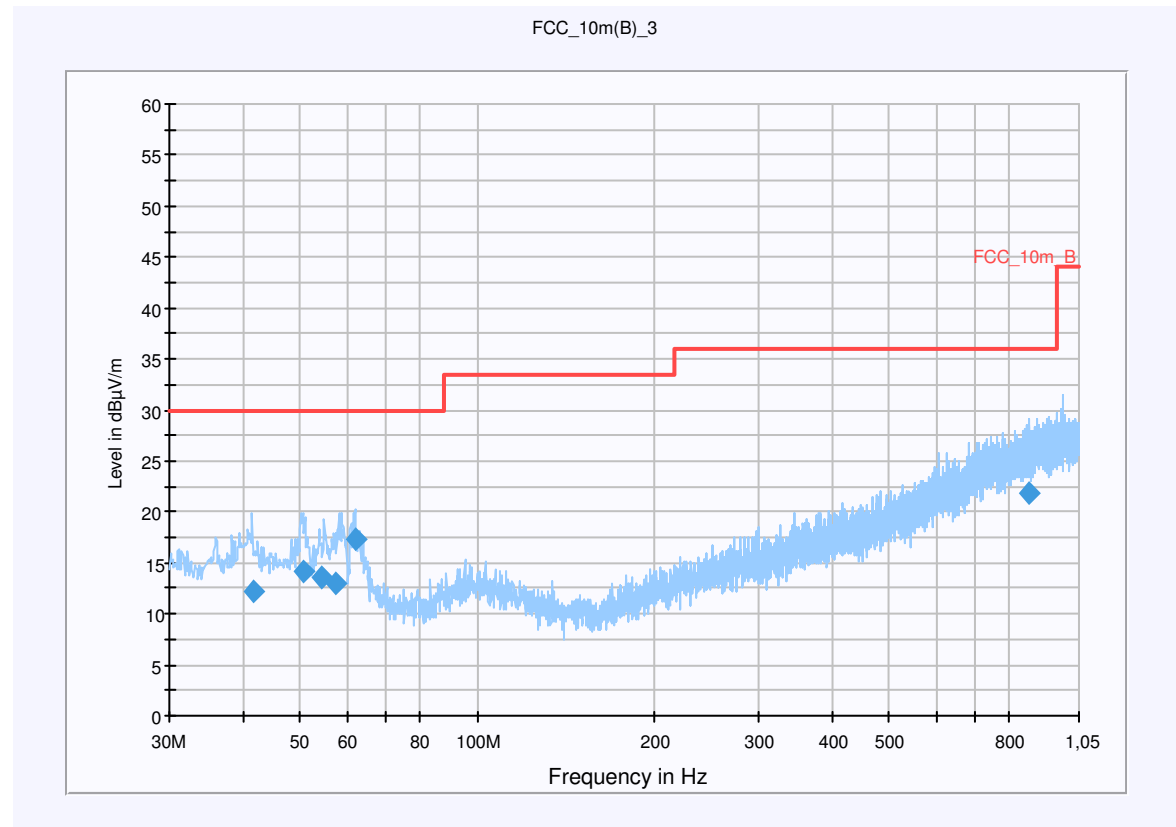
Plot 1: 0.03 - 1 GHz (lowest channel), N-mode

EUT: RDB71UW
 Serial Number: IMEI: 004401.13.610490.4
 Test Description: FCC part 15 B class B @ 10 m
 Operating Conditions: TX WLAN N mode channel 1
 Operator Name: Hennemann
 Comment: - / -

Scan Setup: STAN_Fin [EMI radiated]

Hardware Setup: Electric Field (NOS)
 Level Unit: dBμV/m

Subrange	Detectors	IF Bandwidth	Meas. Time	Receiver
30 MHz - 1,05 GHz	QuasiPeak	120 kHz	15 s	Receiver



Final Result 1

Frequency (MHz)	QuasiPeak (dBμV/m)	Meas. Time (ms)	Bandwidth (kHz)	Antenna height (cm)	Polarity	Turntable position (deg)	Corr. (dB)	Margin (dB)	Limit (dBμV/m)	Comment
41.655300	12.2	15000.000	120.000	116.0	V	310.0	13.4	17.8	30.0	
50.606550	14.2	15000.000	120.000	122.0	V	151.0	13.3	15.8	30.0	
54.498450	13.5	15000.000	120.000	220.0	V	248.0	12.9	16.5	30.0	
57.658500	12.9	15000.000	120.000	104.0	V	236.0	12.2	17.1	30.0	
61.985550	17.3	15000.000	120.000	142.0	V	142.0	11.1	12.7	30.0	
860.220150	21.8	15000.000	120.000	165.0	V	302.0	24.7	14.2	36.0	

Hardware Setup: EMI radiated\Electric Field (NOS) - [EMI radiated]

Subrange 1

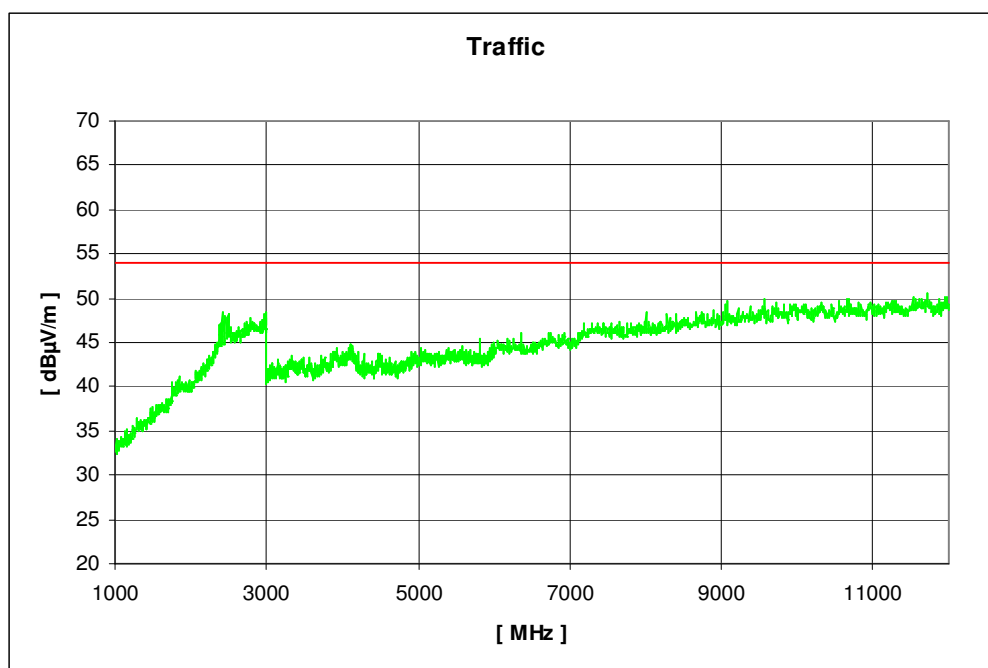
Frequency Range:	30 MHz - 2 GHz
Receiver:	Receiver [ESCI 3] @ GPIB0 (ADR 20), SN 100083/003, FW 4.32
Signal Path:	without Notch FW 1.0
Antenna:	VULB 9163 SN 9163-295, FW --- Correction Table (vertical): VULP6113 Correction Table (horizontal): VULP6113 Correction Table: Cable_EN_1GHz (0909)
Antenna Tower:	Tower [EMCO 2090 Antenna Tower] @ GPIB0 (ADR 8), FW REV 3.12
Turntable:	Turntable [EMCO Turntable] @ GPIB0 (ADR 9), FW REV 3.12

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Plot 2: 1 - 12 GHz, antenna vertical (lowest channel), N-mode

EUT:	RDB71UW	Polarisation:	vertical
Manufacturer:	Research In Motion	Battery:	AC/DC power supply
IMEI:	004401136104750	HW:	
Operator:	KLL	SW:	
Start of Test :	26.04.2010 13:40:19	Vmin:	
Standard:	FCC_15_407_2400	Vnom:	3,7V
Signalling Unit:	CMU200	Vmax:	
Transducer-File:	C:\Spurious_neu\Messparameter\FCC_15_407_2400\Transducer_FCC_15_407_2400.xls		

Start Freq. [MHz]: 1000 Stop Freq. [MHz] 12000

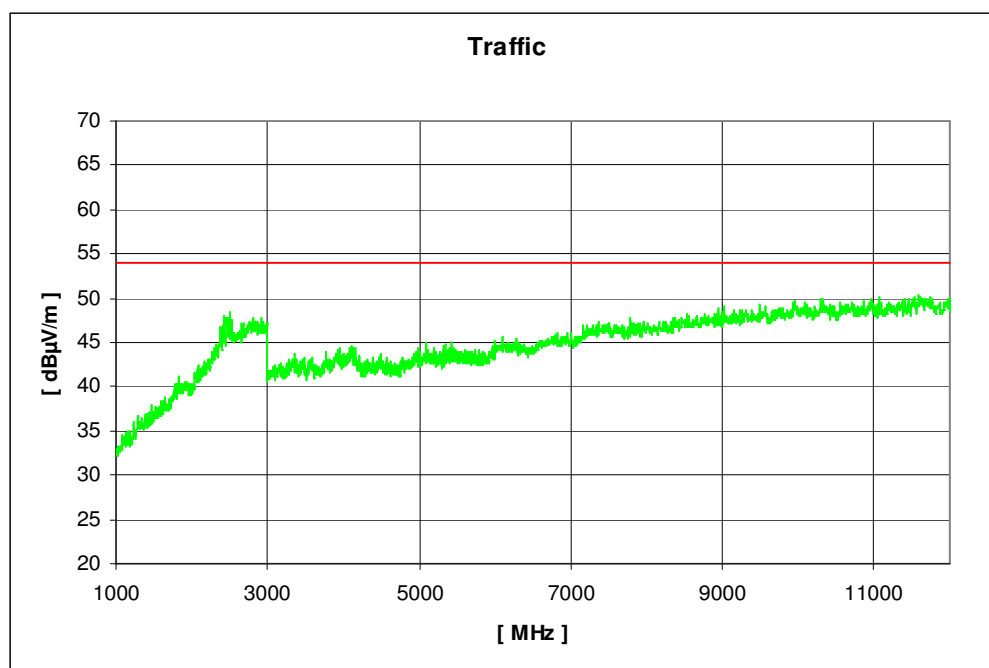


Carrier suppressed with a band rejection filter.

Plot 3: 1 - 12 GHz, antenna horizontal (lowest channel), N-mode

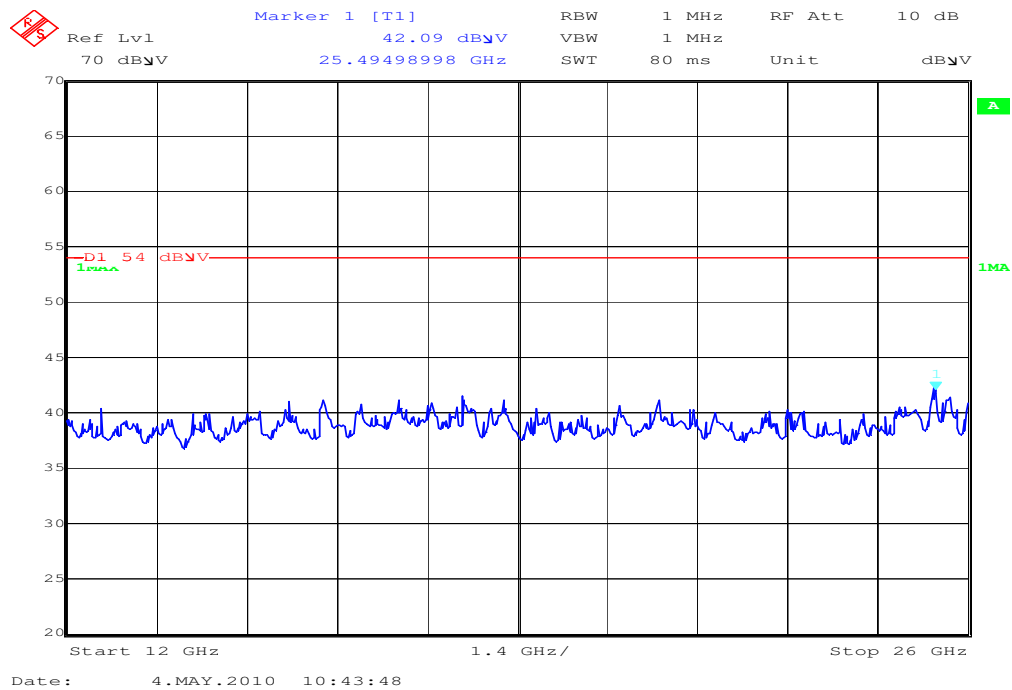
EUT:	RDB71UW	Polarisation:	horizontal
Manufacturer:	Research In Motion	Battery:	AC/DC power supply
IMEI:	004401136104750	HW:	
Operator:	KLL	SW:	
Start of Test :	26.04.2010 13:46:32	Vmin:	
Standard:	FCC_15_407_2400	Vnom:	3,7V
Signalling Unit:	CMU200	Vmax:	
Transducer-File:	C:\Spurious_neu\Messparameter\FCC_15_407_2400\Transducer_FCC_15_407_2400.xls		

Start Freq. [MHz]: 1000 Stop Freq. [MHz] 12000



Carrier suppressed with a band rejection filter.

Plot 4: 12- 25 GHz (valid for all channels), N-mode



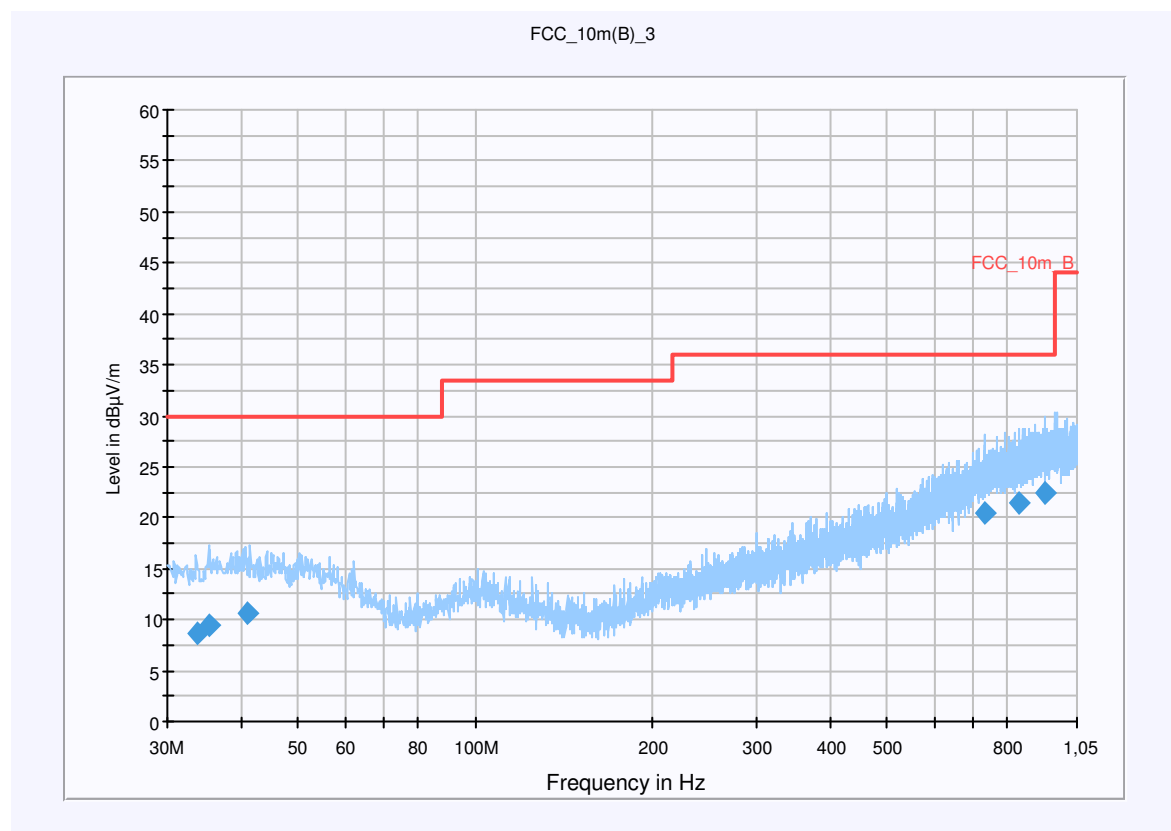
Plot 5: 0.03 - 1 GHz (middle channel), N-mode

EUT: RDB71UW
 Serial Number: IMEI: 004401.13.610490.4
 Test Description: FCC part 15 B class B @ 10 m
 Operating Conditions: TX WLAN N mode channel 6
 Operator Name: STP
 Comment: - / -

Scan Setup: STAN_Fin [EMI radiated]

Hardware Setup: Electric Field (NOS)
 Level Unit: dB μ V/m

Subrange	Detectors	IF Bandwidth	Meas. Time	Receiver
30 MHz - 1,05 GHz	QuasiPeak	120 kHz	15 s	Receiver



Final Result 1

Frequency (MHz)	QuasiPeak (dB μ V/m)	Meas. Time (ms)	Bandwidth (kHz)	Antenna height (cm)	Polarity	Turntable position (deg)	Corr. (dB)	Margin (dB)	Limit (dB μ V/m)	Comment
33.644700	8.6	15000.000	120.000	112.0	H	138.0	12.9	21.4	30.0	
35.343000	9.4	15000.000	120.000	179.0	V	66.0	13.1	20.6	30.0	
40.909800	10.6	15000.000	120.000	158.0	V	61.0	13.4	19.4	30.0	
732.787050	20.4	15000.000	120.000	220.0	H	52.0	23.2	15.6	36.0	
838.938000	21.4	15000.000	120.000	214.0	V	295.0	24.4	14.6	36.0	
925.055400	22.5	15000.000	120.000	143.0	H	57.0	25.3	13.5	36.0	

Hardware Setup: EMI radiated\Electric Field (NOS) - [EMI radiated]

Subrange 1

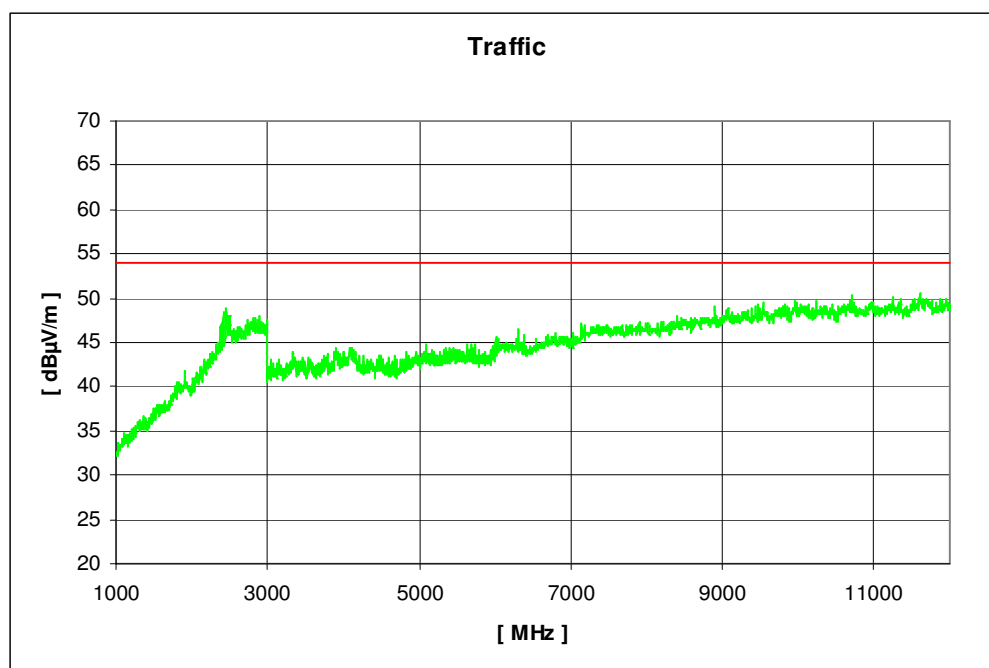
Frequency Range:	30 MHz - 2 GHz
Receiver:	Receiver [ESCI 3] @ GPIB0 (ADR 20), SN 100083/003, FW 4.32
Signal Path:	without Notch FW 1.0
Antenna:	VULB 9163 SN 9163-295, FW --- Correction Table (vertical): VULP6113 Correction Table (horizontal): VULP6113 Correction Table: Cable_EN_1GHz (0909)
Antenna Tower:	Tower [EMCO 2090 Antenna Tower] @ GPIB0 (ADR 8), FW REV 3.12
Turntable:	Turntable [EMCO Turntable] @ GPIB0 (ADR 9), FW REV 3.12

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Plot 6: 1 - 12 GHz, antenna vertical (middle channel), N-mode

EUT:	RDB71UW	Polarisation:	vertical
Manufacturer:	Research In Motion	Battery:	AC/DC power supply
IMEI:	004401136104750	HW:	
Operator:	KLL	SW:	
Start of Test :	26.04.2010 14:00:57	Vmin:	
Standard:	FCC_15_407_2400	Vnom:	3,7V
Signalling Unit:	CMU200	Vmax:	
Transducer-File:	C:\Spurious_neu\Messparameter\FCC_15_407_2400\Transducer_FCC_15_407_2400.xls		

Start Freq. [MHz]: 1000 Stop Freq. [MHz] 12000

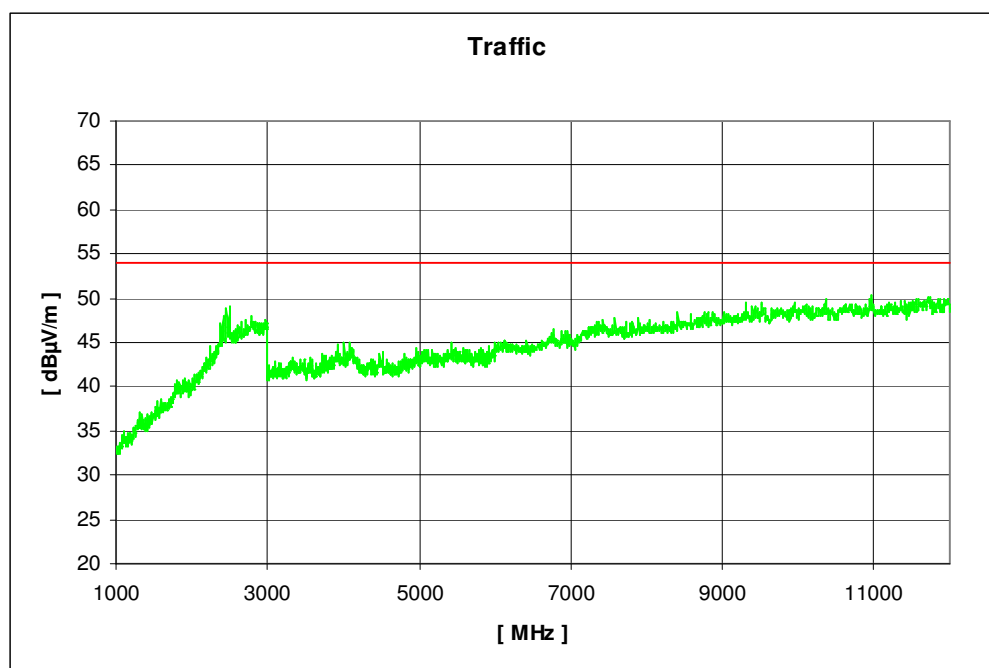


Carrier suppressed with a band rejection filter.

Plot 7: 1 - 12 GHz, antenna horizontal (middle channel), N-mode

EUT:	RDB71UW	Polarisation:	horizontal
Manufacturer:	Research In Motion	Battery:	AC/DC power supply
IMEI:	004401136104750	HW:	
Operator:	KLL	SW:	
Start of Test :	26.04.2010 13:54:12	Vmin:	
Standard:	FCC_15_407_2400	Vnom:	3,7V
Signalling Unit:	CMU200	Vmax:	
Transducer-File:	C:\Spurious_neu\Messparameter\FCC_15_407_2400\Transducer_FCC_15_407_2400.xls		

Start Freq. [MHz]: 1000 Stop Freq. [MHz] 12000



Carrier suppressed with a band rejection filter.

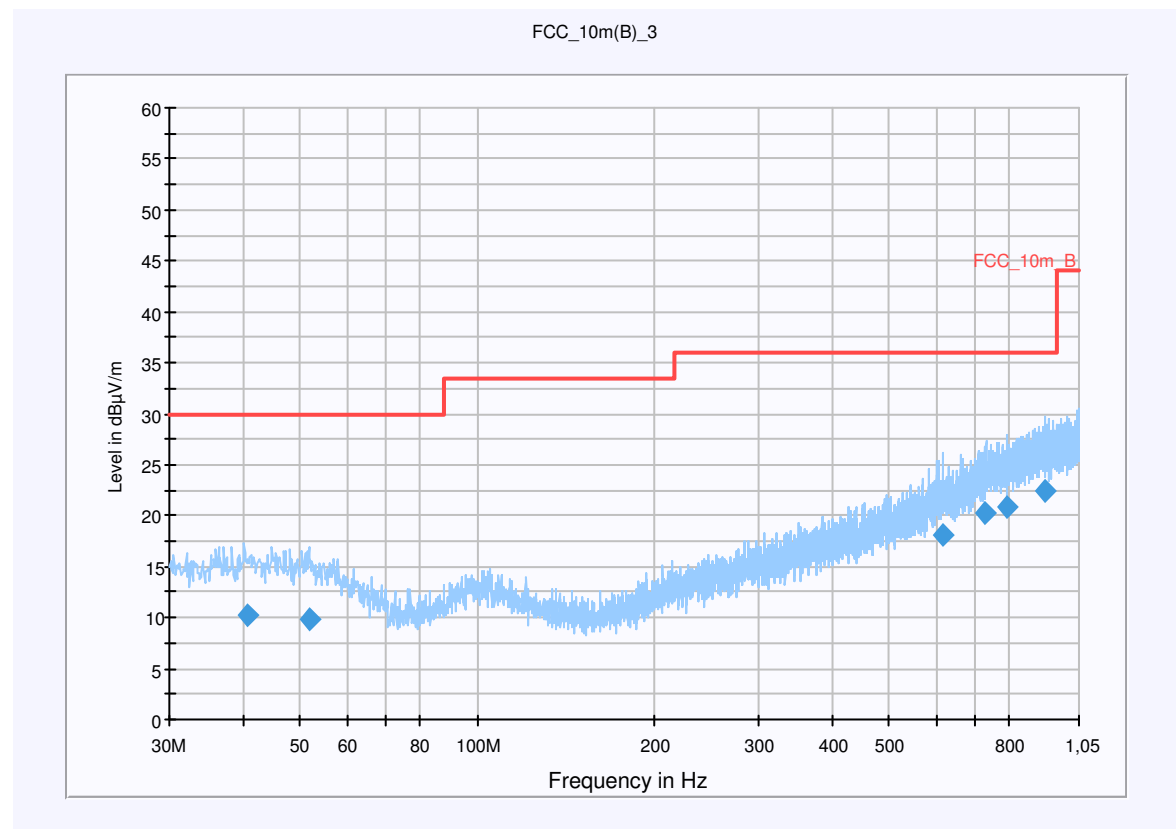
Plot 8: 0.03 - 1 GHz (highest channel), N-mode

EUT: RDB71UW
 Serial Number: IMEI: 004401.13.610490.4
 Test Description: FCC part 15 B class B @ 10 m
 Operating Conditions: TX WLAN N mode channel 11
 Operator Name: Hennemann
 Comment: - / -

Scan Setup: STAN_Fin [EMI radiated]

Hardware Setup: Electric Field (NOS)
 Level Unit: dBµV/m

Subrange	Detectors	IF Bandwidth	Meas. Time	Receiver
30 MHz - 1,05 GHz	QuasiPeak	120 kHz	15 s	Receiver



Final Result 1

Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Antenna height (cm)	Polarity	Turntable position (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)	Comment
40.736550	10.3	15000.000	120.000	220.0	V	304.0	13.4	19.7	30.0	
52.080150	9.9	15000.000	120.000	112.0	V	14.0	13.2	20.1	30.0	
614.836350	18.1	15000.000	120.000	150.0	H	121.0	20.9	17.9	36.0	
729.019350	20.3	15000.000	120.000	220.0	V	48.0	23.1	15.7	36.0	
793.216050	20.8	15000.000	120.000	155.0	H	28.0	23.8	15.2	36.0	
917.451000	22.4	15000.000	120.000	220.0	V	28.0	25.3	13.6	36.0	

Hardware Setup: EMI radiated\Electric Field (NOS) - [EMI radiated]

Subrange 1

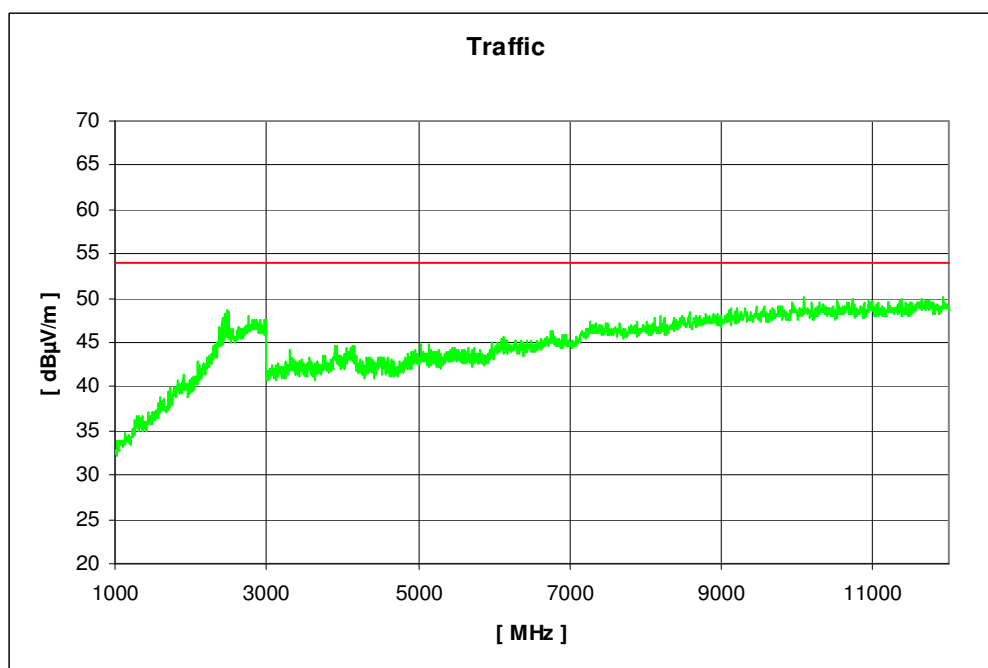
Frequency Range:	30 MHz - 2 GHz
Receiver:	Receiver [ESCI 3] @ GPIB0 (ADR 20), SN 100083/003, FW 4.32
Signal Path:	without Notch FW 1.0
Antenna:	VULB 9163 SN 9163-295, FW --- Correction Table (vertical): VULP6113 Correction Table (horizontal): VULP6113 Correction Table: Cable_EN_1GHz (0909)
Antenna Tower:	Tower [EMCO 2090 Antenna Tower] @ GPIB0 (ADR 8), FW REV 3.12
Turntable:	Turntable [EMCO Turntable] @ GPIB0 (ADR 9), FW REV 3.12

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Plot 9: 1 - 12 GHz, antenna vertical (highest channel), N-mode

EUT:	RDB71UW	Polarisation:	vertical
Manufacturer:	Research In Motion	Battery:	AC/DC power supply
IMEI:	004401136104750	HW:	
Operator:	KLL	SW:	
Start of Test :	26.04.2010 14:08:14	Vmin:	
Standard:	FCC_15_407_2400	Vnom:	3,7V
Signalling Unit:	CMU200	Vmax:	
Transducer-File:	C:\Spurious_neu\Messparameter\FCC_15_407_2400\Transducer_FCC_15_407_2400.xls		

Start Freq. [MHz]: 1000 Stop Freq. [MHz] 12000

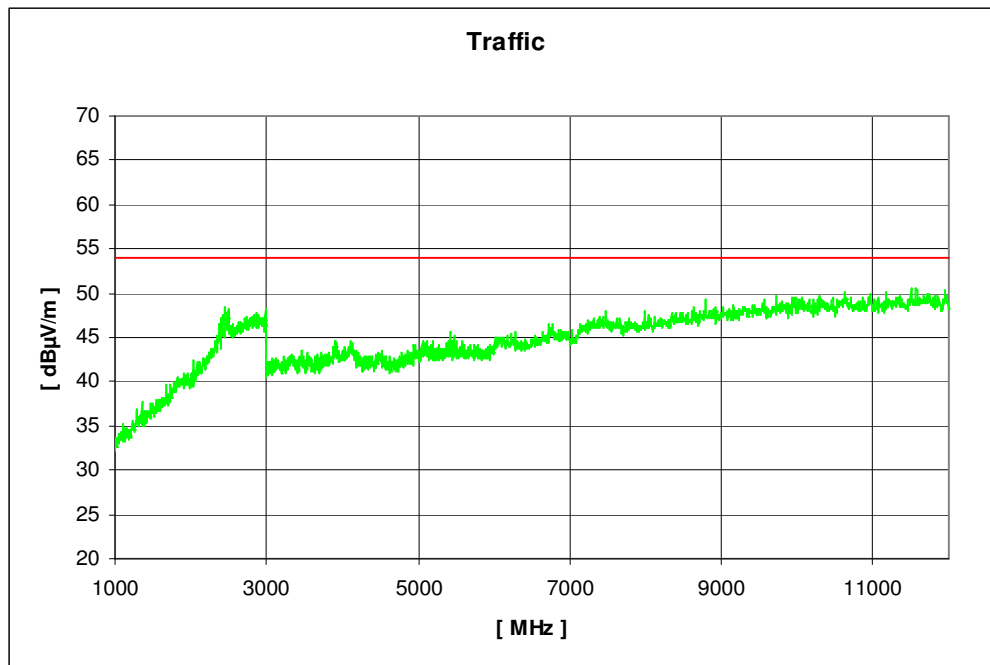


Carrier suppressed with a band rejection filter.

Plot 10: 1 - 12 GHz, antenna horizontal (highest channel), N-mode

EUT:	RDB71UW	Polarisation:	horizontal
Manufacturer:	Research In Motion	Battery:	AC/DC power supply
IMEI:	004401136104750	HW:	
Operator:	KLL	SW:	
Start of Test :	26.04.2010 14:30:21	Vmin:	
Standard:	FCC_15_407_2400	Vnom:	3,7V
Signalling Unit:	CMU200	Vmax:	
Transducer-File:	C:\Spurious_neu\Messparameter\FCC_15_407_2400\Transducer_FCC_15_407_2400.xls		

Start Freq. [MHz]: 1000 Stop Freq. [MHz] 12000



Carrier suppressed with a band rejection filter.

N-mode

Results:

SPURIOUS EMISSIONS LEVEL §15.209								
2412 MHz			2437 MHz			2462 MHz		
F [MHz]	Detector	Level [dBμV/m]	F [MHz]	Detector	Level [dBμV/m]	F [MHz]	Detector	Level [dBμV/m]
No critical peaks detected			No critical peaks detected			No critical peaks detected		
Measurement uncertainty			±3 dB					

f < 1 GHz : RBW/VBW: 100 kHz

f ≥ 1GHz : RBW:1MHz/VBW: 10Hz

Limits: § 15.247 (c)

In any 100 kHz bandwidth outside the frequency band at least 20dB below the highest level of the desired power. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).

Limits: § 15.109

Frequency (MHz)	Field strength (dBμV/m)	Measurement distance (m)
30 - 88	30.0	10
88 - 216	33.5	10
216 - 960	36.0	10
above 960	54.0	3

5.14 Spurious Emissions - radiated (Receiver) §15.109 / 209

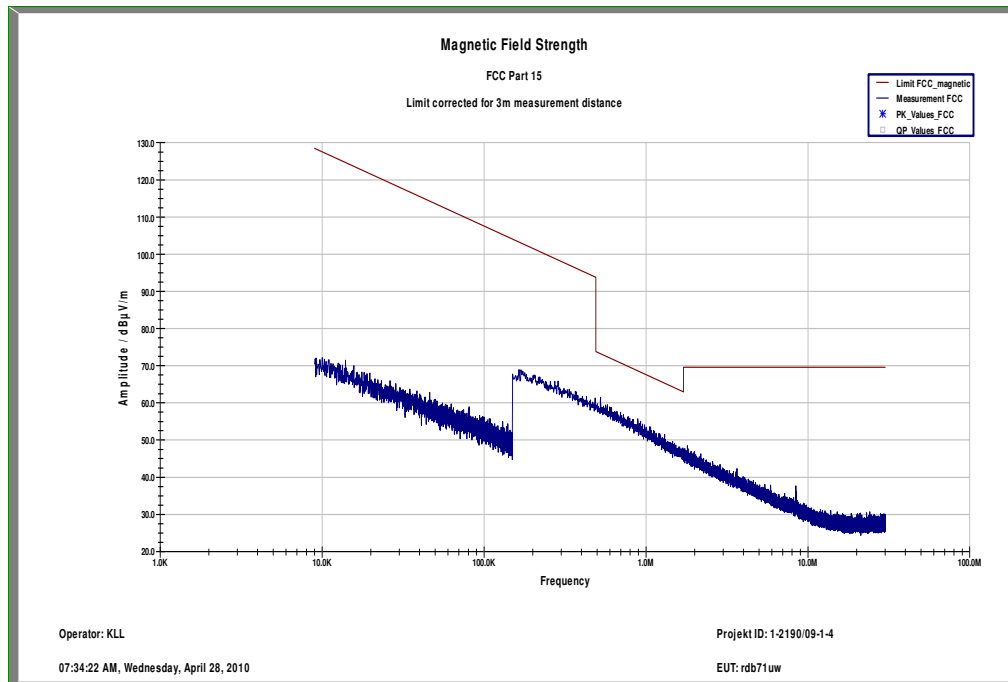
Not performed

5.15 Spurious Emissions - radiated <30 MHz §15.209

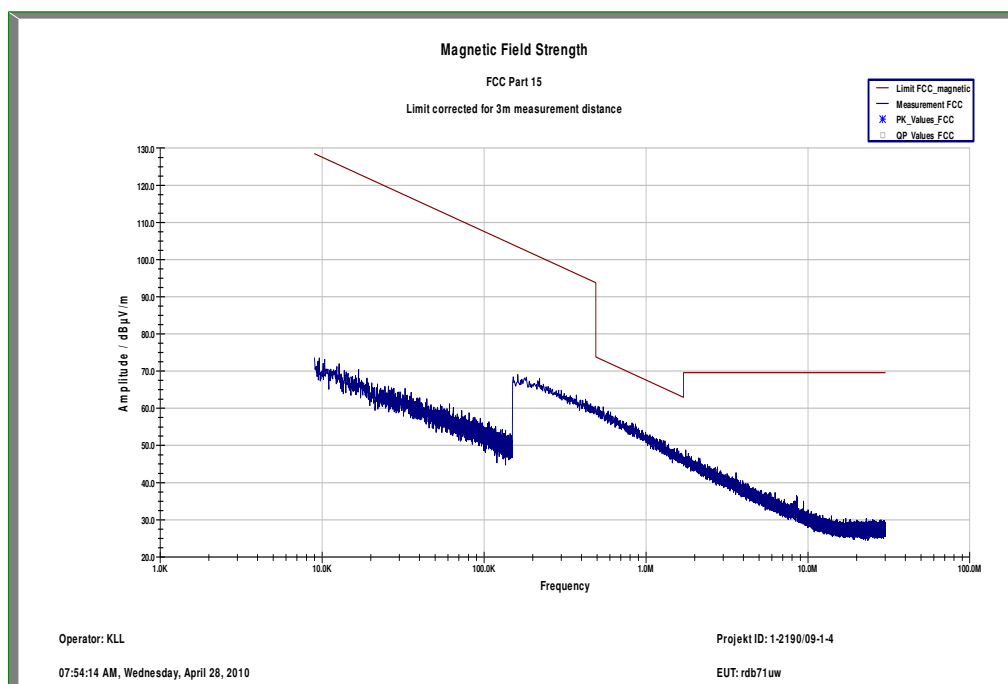
Measured at 3 m distance.

Values recalculated with 40 dB/decade according to FCC rules.

Plot 1: B-mode



Plot 2: N-mode



Limits:

Frequency (MHz)	Field strength ($\mu\text{V/m}$)	Measurement distance (m)
0.009 – 0.490	2400/F(kHz)	300
0.490 – 1.705	24000/F(kHz)	30
1.705 – 30.0	30 / 29.5 dB $\mu\text{V/m}$	30
30 - 88	100 / 40 dB $\mu\text{V/m}$	3
88 - 216	150 / 43.5 dB $\mu\text{V/m}$	3
216 - 960	200 / 46 dB $\mu\text{V/m}$	3
above 960	54 dB $\mu\text{V/m}$	3

5.16 Conducted Emissions <30 MHz §15.107/207

Not performed

6 Test equipment and ancillaries used for tests

In order to simplify the identification of the equipment used at each specific test, each item of test equipment and ancillaries are provided with an identifier or number in the equipment list below.

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).

No.	Labor / Item	Equipment	Type	Manufact.	Serial No.	INV. No Cetecom	Kal. Art	Last Calibr.	Next Calibr.
1	45	Switch-Unit	3488A	HP Meßtechnik	2719A1 4505	3000003 68	g		
2	50	System Autoranging DC power supply, 60Vdc, 50A, 1200 W	6032A	HP Meßtechnik	2920A0 4466	3000005 80	k	06.01 .2009	06.01 .2011
3	n. a.	software	SPS_PH E 1.4f	Spitzberger & Spieß	B5981; 5D1081; B5979	3000002 10	k		
4	n. a.	EMI Test Receiver	ESCI 1166.59 50.03	R&S	100083	3000033 12	k	08.01 .2010	08.01 .2012
5	n. a.	Amplifier	JS42- 0050265 0-28-5A	MITEQ	1084532	3000033 79	ev		
6	n. a.	Antenna Tower	Model 2175	ETS- LINDGREN	64762	3000037 45	izw		
7	n. a.	Positioning Controller	Model 2090	ETS- LINDGREN	64672	3000037 46	izw		
8	n. a.	Turntable Interface- Box	Model 105637	ETS- LINDGREN	44583	3000037 47	izw		
9	n. a.	TRILOG Broadband Test-Antenna 30 MHz - 3 GHz	VULB9 163	Schwarzbeck	295	3000037 87	k		
10	n. a.	Spectrum-Analyzer	FSU26	R&S	200809	3000038 74	k	08.01 .2010	08.01 .2012
11	n. a.	Horn Antenne 1- 26.5GHz	3115	EMCO	9005- 3440	3000021 90	ev		
12	n. a.	Netzgerät 0-20V	6632A	HP Meßtechnik	2851A0 1814	3000009 24	k		
13	n. a.	Horn Antenne 1- 26.5GHz	3115	EMCO Elektronik	9709- 5290	3000002 12	k	12.01 .2010	12.01 .2011
14	n. a.	Universal Communication Tester	CMU 200	R&S	106826	3000033 46	k	12.01 .2010	12.01 .2011
15	n. a.	Software Option für CMU 200	CMU- Kxx	R&S	100251	3000033 45	k	12.01 .2010	12.01 .2011
16	n. a.	Ultra Stable Notch Filter	WRCD1 887.82/ 1889.55 -5EE	Schwarzbeck	1	3000001 15	ne		
17	n. a.	Funkstörmesempfan- ger 20Hz- 26,5GHz	ESU26	R&S	100037	3000035 55	k	08.01 .2010	08.01 .2011
18	n. a.	HF- Schaltmatrixgrundger- ät	TS-RSP 1144.15 00K03	R&S	100300	3000035 56	ev		

CETECOM ICT Services GmbH

Test report no.: 1-2190-01-04/10

19	n. a.	Spiral Antenne	3102L	EMCO	51924	3000033 85	ne		
20	n. a.	Spiral Antenne	3102L	EMCO	51918	3000033 84	k		
21	n. a.	Signalgenerator 1-20 GHz	SMR20	R&S	101697/ 020	3000035 93	k	08.01 .2010	08.01 .2012
22	n. a.	Turnable Band Reject	WRCT1 850/217 0-5/40- 10EEK	Wainwright	7	3000033 86	ev		
23	n. a.	Software Option für CMU 200	CMU- K62	R&S	103288	3000036 00	k	12.01 .2010	12.01 .2011
24	n. a.	Software Option für CMU 200	CMU- K61	R&S	103354	3000036 12	k	12.01 .2010	12.01 .2011
25	n. a.	Software Option für CMU 200	CMU- K64	R&S	102017	3000036 13	k	12.01 .2010	12.01 .2011
26	n. a.	Software Option für CMU 200	CMU- K56	R&S	100251	3000036 14	k	12.01 .2010	12.01 .2011
27	n. a.	TRILOG Broadband Test-Antenna 30 MHz - 3 GHz	VULB9 163	Schwarzbeck	318	3000036 96	k		
28	n. a.	Tunable Band Reject	WRCT1 850/217 0-5/40- 10EEK	Wainwright	40	3000038 72	ne		
29	n. a.	Tunable Band Reject	WRCT8 24/894- 5/40- 8EEK	Wainwright	27	3000038 73	ne		
30	n. a.	System Autoranging DC power supply, 60Vdc, 50A, 1200 W	6032A	HP Meßtechnik	2818A0 3450	3000010 40	Ve	08.01 .2009	08.01 .2012
31	n. a.	PowerAttenuator	8325	Byrd	1530	3000015 95			
32	n. a.	Biconical Antenna, 20 MHz - 200 MHz	3104	EMCO	3758	3000016 02	g		
33	n. a.	Log. Period. Antenna	3146	EMCO	2130	3000016 03	g		
34	n. a.	Double-Ridged Waveguide Horn Antenna 1-26.5GHz	3115	EMCO	8812- 3088	3000010 32	vIK I!	05.03 .2009	05.03 .2011
35	n. a.	Active Loop Antenna	6502	EMCO	2210	3000010 15	ne		
36	n. a.	VDE/FCC ANTENNA KIT	HP1196 5B	HP		3000022 98	ne		
37	n. a.	Monitor	35731	HP		3000022 94			
38	n. a.	Workstation	9000/30 0	HP		3000022 95			
39	n. a.	SRM-Laufwerk	9144A	HP	2823e46 556	3000010 44	g		
40	n. a.	Software	EMI Halle C	HP		3000009 83			
41	n. a.	Vectra	4	HP	fr64068 117	3000009 74			
42	n. a.	Monitor	ultra vga 1280	HP	kr63253 592	3000009 77			
43	n. a.	Drucker	1600C	HP	USB671 4700	3000009 84			
44	n. a.	Drucker	Laserjet	HP	2602j57 007	3000016 32			
45	n. a.	Busisolator		Kontron		3000010 56	g		

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46	n. a.	Anechoic chamber		MWB	87400/0 2	3000009 96			
47	n. a.	Pillar of salt (Salzsäule)		Kontron		3000010 55			
48	n. a.	Pillar of salt (Salzsäule)				3000013 41	ne		
49	n. a.	Drucker	Paintjet 3630A	HP I.V.	3040a98 124	3000016 34	g		
50	n. a.	Drucker	Laserjet IIIp	HP I.V.	3128juc 1qc	3000016 35	g		
51	n. a.	Antenna mast	AM910 4	Schwarzbeck		3000012 78			
52	n. a.	Antenna mast	UAAIp9 107	Schwarzbeck		3000024 78			
53	n. a.	Triple Loop Antenna 9 kHz to 30 MHz	HM020	R&S	832211/ 003	3000022 43	ne		
54	62	Inductive Probe for ESH2/ESH3 100 kHz - 30 MHz	HFH2- Z4	R&S	881468/ 026	3000014 64	ne		
55	Spec.A. 2_2e	System rack for EMI measurement solution	85900	HP I.V.	*	3000002 22	ne		
56	Spec.A. 2_2a	Spectrum Analyzer 2_2a	8566B	HP Meßtechnik	2747A0 5275	3000002 19	NK !	18.01 .2008	
57	Spec.A. 2_2d	Quasi-Peak-Adapter	85650A	HP Meßtechnik	2811A0 1135	3000002 16	NK !	23.01 .2008	
58	EMV Sys. 2/5	RF-Preselector	85685A	HP Meßtechnik	2837A0 0779	3000002 18	vk		
59	Spec.A. 1_1a	Spectrum Analyzer	85660B	HP Meßtechnik	3138A0 7614	3000012 07	NK !	13.12 .2007	
60	Spec.A. 1_1b	Spectrum Analyzer Display 1	85662A	HP Meßtechnik	3144A2 8627	3000012 08	NK !	13.12 .2007	
61	n. a.	Loop Antenna 9 KHz - 30 MHz	HFH2- Z2	R&S	891847- 35	3000011 69	ne		
62	Spec.A. 1_1d	Quasi-Peak Adapter	85650A	HP Meßtechnik	2811A0 1204	3000023 08	NK !	13.12 .2007	
63	n. a.	Relaismatrix (FTA)	HP3488 A	HP Meßtechnik	2719A1 5013	3000001 51	ne		
64	n. a.	NF PCM Tester	PCM 23	W&G	P-0049	3000001 96	NK !		
65	n. a.	Three-Way Power Splitter, 50 Ohm	11850C	HP Meßtechnik		3000009 97	ne		
66	n. a.	Broadband Horn Antenna EMI	35155P	HP Meßtechnik		3000023 00	ne		
67	n. a.	Arbeitsplatzrechner	Vectra VL	HP Meßtechnik		3000016 88			
68	n. a.	VHF Measurement antenna	VHA 9103	Schwarzbeck		3000017 78	ne		
69	Spec.A. 2_2b	Spectrum Analyzer Display 2_2b	85662A	HP Meßtechnik	2816A1 6497	3000016 90	NK !	23.01 .2008	
70	Spec.A. 1_1c	RF-Preselector	85685A	HP Meßtechnik	2837A0 0778	3000024 48	NK !	13.12 .2007	
71	n. a.	VHF Measurement antenna	VHA 9103	Schwarzbeck		3000017 80	NK !	01.07 .2004	
72	Spec.A. 2_2c	RF-Preselector	85685A	HP Meßtechnik	2833A0 0768	4000000 81	NK !	18.01 .2008	
73	n. a.	Biconical Antenna, 20 MHz - 200 MHz	3104 C	EMCO	9909- 4868	3000025 90	ne		
74	n. a.	Band Reject filter	WRCG1 855/191 0- 1835/19 25- 40/8SS	Wainwright	7	3000033 50	ev		

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75	n. a.	Band Reject filter	WRCG2 400/248 3- 2375/25 05- 50/10SS	Wainwright	11	3000033 51	ev		
76	n. a.	Software Option for CMU 200	CMU- K69	R&S	100109	3000031 98	ne		
77	n. a.	USB/GPIB Interface	82357A	Meilhaus	MY454 68646	3000034 28	ne		
78	n. a.	EGPRS-Treiber	EGPRS- Treiber für EMQ- 100 Softwar e	EMCO	none	3000034 41	ne		
79	n. a.	TILE-Software Emission	Quantu m Change, Modell TILE- ICS/FU LL	EMCO	none	3000034 51	ne		
80	n. a.	Highpass Filter	WHKX 2.9/18G -12SS	Wainwright	1	3000034 92	ev		
81	n. a.	Software Option für CMU 200	CMU- K56	R&S	100504	3000037 65	ne		
82	n. a.	Software Option for CMU 200	CMU- K62	R&S	103402	3000036 06	ne		
83	n. a.	Software Option for CMU 200	CMU- K64	R&S	102001	3000036 07	ne		
84	n. a.	Highpass Filter	WHK1. 1/15G- 10SS	Wainwright	3	3000032 55	ev		
85	n. a.	Highpass Filter	WHKX 7.0/18G -8SS	Wainwright	18	3000037 89	ne		
86	n. a.	PSA Spectrum Analyzer 3 Hz - 26.5 GHz	E4440A	Agilent Technologies	MY482 50080	3000038 12	k	05.08 .2008	05.08 .2010
87	n. a.	MXG Microwave Analog Signal Generator	N5183A	Agilent Technologies	MY474 20220	3000038 13	k	06.08 .2008	06.08 .2010
88	n. a.	RF Filter Section 9kHz - 1GHz	N9039A	Agilent Technologies	MY482 60003	3000038 25	vIK I!	19.08 .2008	19.08 .2010
89	n. a.	Conical Log-Spiral Antenna	3102	ETS- LINDGREN	0009182 3	3000038 49	NK !	30.10 .2008	
90	n. a.	TRILOG Broadband Test-Antenna 30 MHz - 3 GHz	VULB9 163	Schwarzbeck	371	3000038 54	vIK I!	17.12 .2008	17.12 .2010
91	n. a.	High Pass Filter	VHF- 3500+	Mini Circuits	-/-	4000001 93	ne		
92	n. a.	Digital Multimeter	VC 820	Voltcraft	1090451 771	4000002 58	ne		

7 Photographs of the Test Set-up

Photo 1:



Photo 2:

