

Annex 4: Measurement diagrams
to
PARTIAL TEST REPORT
No.: 2-0037-12-1-1m

According to:
FCC Regulations
Part 15.225

IC-Regulations
RSS-Gen, Issue 3
RSS-210, Issue 8

for
Research In Motion Limited

Mobile Phone RFG81UW

FCC-ID: L6ARFG80UW
IC: 2503A-RFG80UW

Laboratory Accreditation and Listings			
 Deutsche Akkreditierungsstelle D-PL-12047-01-01	 Reg. No.: 736496 MRA US-EU 0003	 Industry Canada Reg. No.: 3462D-1 Reg. No.: 3462D-2 Reg. No.: 3462D-3	 Voluntary Controls for Electromagnetic Emissions Reg. No.: R-2665, R-2666 C-2914, T-1967, G-301
 AUTHORIZED RF LABORATORY	 Authorized Test Lab LAB CODE 20011130-00		
accredited according to DIN EN ISO/IEC 17025			
CETECOM GmbH Laboratory Radio Communications & Electromagnetic Compatibility Im Teelbruch 116 • 45219 Essen • Germany Registered in Essen, Germany, Reg. No.: HRB Essen 8984 Tel.: + 49 (0) 20 54 / 95 19-954 • Fax: + 49 (0) 20 54 / 95 19-964 E-mail: info@cetecom.com • Internet: www.cetecom.com			



Table of contents

1. CONDUCTED EMI MEASUREMENTS ON AC-MAINS PORT ACCORDING 15.2073

2. RADIATED FIELD STRENGTH MEASUREMENTS ACCORD. §15.2259

3. RADIATED FIELD STRENGTH MEASUREMENTS ACCORD. §15.209&15.20515

1. Conducted EMI measurements on AC-mains port according 15.207

Diagram No. 1.10

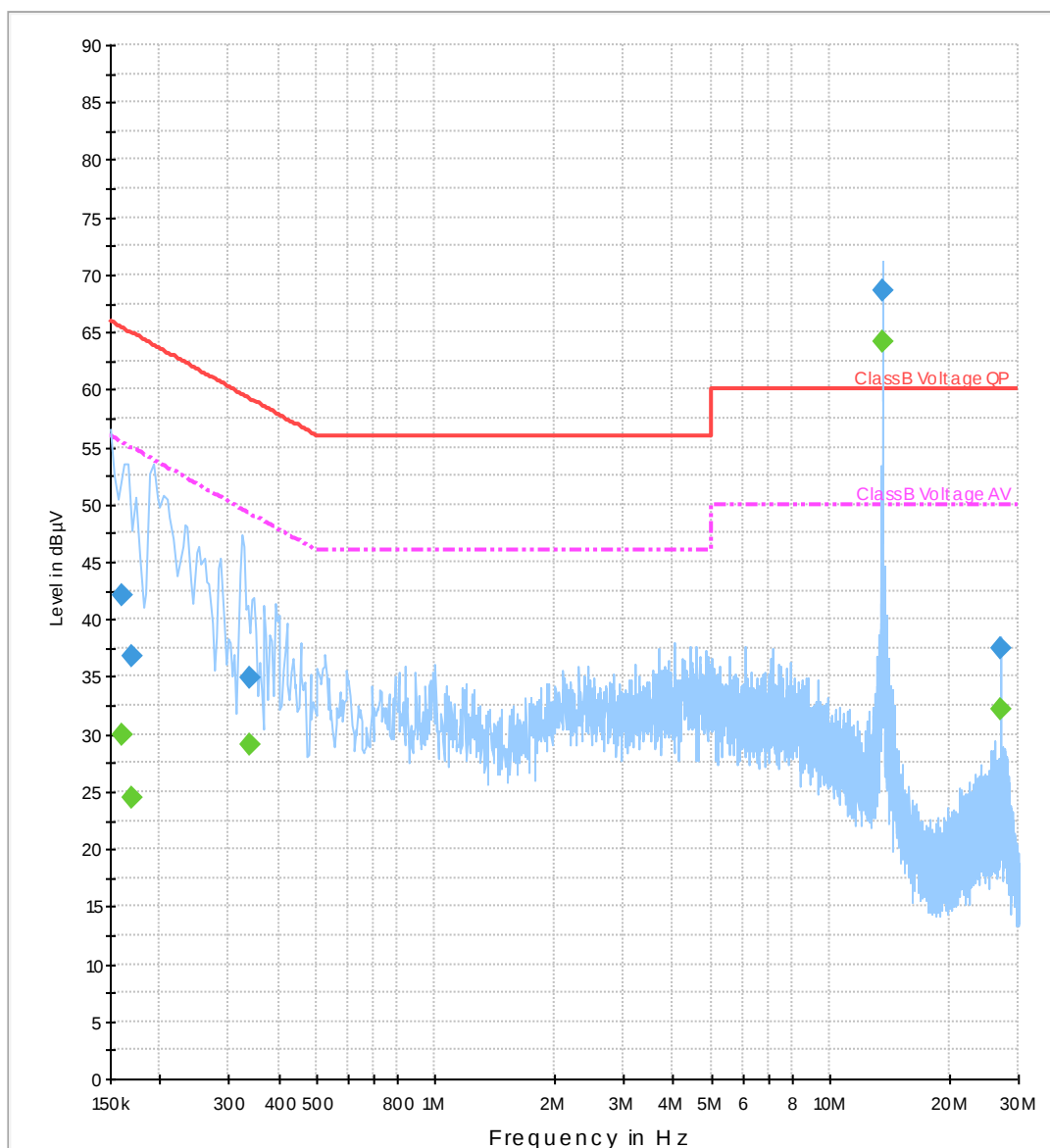
Test Description:
 Testspezifikation:
 Technical Data:
 Diagram:
 Operator name:
 Report.- Nr.

Date: 13.09.2012 Page 1 of 3
 Conducted Voltage Measurement Class B
 FCC 15.207
 Please see next page for detailed information
 Shows the peak values as a sum of measured ports (N+L1) in maxhold mode
 Lor
 2-0037-12-1m

EUT:
 Manufacturer:
 Operating mode:
 Measured on line:
 Power during test:
 Comment 1:
 Comment 2:

RFG81UW (Sample5) + CH1+ HS1 + USB1
 RIM
 NFC On , 15693 Modulation
 Mains AC L1 and N
 110 V AC 60 Hz

01b_FCC_107_207_Class B_Voltage_PK_QPAV_N_L1



Date: 13.09.2012 Page 2 of 3

Final Result 1

Frequency (MHz)	QuasiPeak (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.160000	42.1	1000.0	9.000	GN	L1	0.0	23.4	65.5
0.170469	36.9	1000.0	9.000	GN	L1	0.0	28.1	64.9
0.339375	34.9	1000.0	9.000	GN	L1	0.0	24.3	59.2
13.562656	68.6	1000.0	9.000	GN	N	0.2	-8.6	60.0
27.121250	37.5	1000.0	9.000	GN	N	0.2	22.5	60.0

Final Result 2

Frequency (MHz)	CAverage (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.160000	30.0	1000.0	9.000	GN	L1	0.0	25.5	55.5
0.170469	24.4	1000.0	9.000	GN	L1	0.0	30.5	54.9
0.339375	29.0	1000.0	9.000	GN	L1	0.0	20.2	49.2
13.562656	64.2	1000.0	9.000	GN	N	0.2	-14.2	50.0
27.121250	32.2	1000.0	9.000	GN	N	0.2	17.8	50.0

Technical Data of Measurements with R&S EMC32 V8.52.0**EMI Auto Test Template: 01b_FCC_107_207_Class B_Voltage_PK_QPAV_N_L1**

Hardware Setup: ESH2-Z5
 Measurement Type: 4 Line LISN
 Frequency Range: 150 kHz - 30 MHz
 Graphics Level Range: 0 dBμV - 90 dBμV

Preview Measurements:
 Scan Test Template: 02_Class B pre_PK_fast

Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
9 kHz - 150 kHz	61.035 Hz	PK+	200 Hz	0,00005 s	0 dB
150 kHz - 30 MHz	3.906 kHz	PK+	9 kHz	0,00005 s	0 dB

Receiver: [ESCS 30]

Data Reduction:
 Limit Line #1: Class B Voltage QP
 Limit Line #2: Class B Voltage AV
 Peak Search: 6 dB , Maximum Results: 10
 Subrange Maxima: 25 Subranges , Maxima per Subrange: 1
 Acceptance Offset: -13 dB
 Maximum Number of Results: 30
 After Data Reduction: Interactive data reduction

Frequency Zoom:
 Zoom Scan Template: 08_Class B maxZoom_PK100mS

Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
9 kHz - 150 kHz	5 kHz	PK+	200 Hz	0,1 s	0 dB
150 kHz - 30 MHz	5 kHz	PK+	9 kHz	0,1 s	0 dB

Receiver: [ESCS 30]

Final Measurements:
 Template for Single Meas.: 07a_FCC Class B fin AV QP 1sek

Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
150 kHz - 30 MHz	4.5 kHz	QPK; CAV	9 kHz	1 s	0 dB

Receiver: [ESCS 30]

Report Settings:
 Report Template: Ctc_Standard_class_B_FCC
 Create Electronic Report: RTF PDF
 Document Name: EMI Report

Diagram No. 1.11

Test Description:

Testspezifikation:

Technical Data:

Diagram:

Operator name:

Report.- Nr.

Date: 13.09.2012 Page 1 of 3

Conducted Voltage Measurement Class B

FCC 15.207

Please see next page for detailed information

Shows the peak values as a sum of measured ports (N+L1) in maxhold mode

Lor

2-0037-12-1m

EUT:

Manufacturer:

Operating mode:

Measured on line:

Power during test:

Comment 1:

Comment 2:

RFG81UW (Sample5) + CH1+ HS1 + USB1

RIM

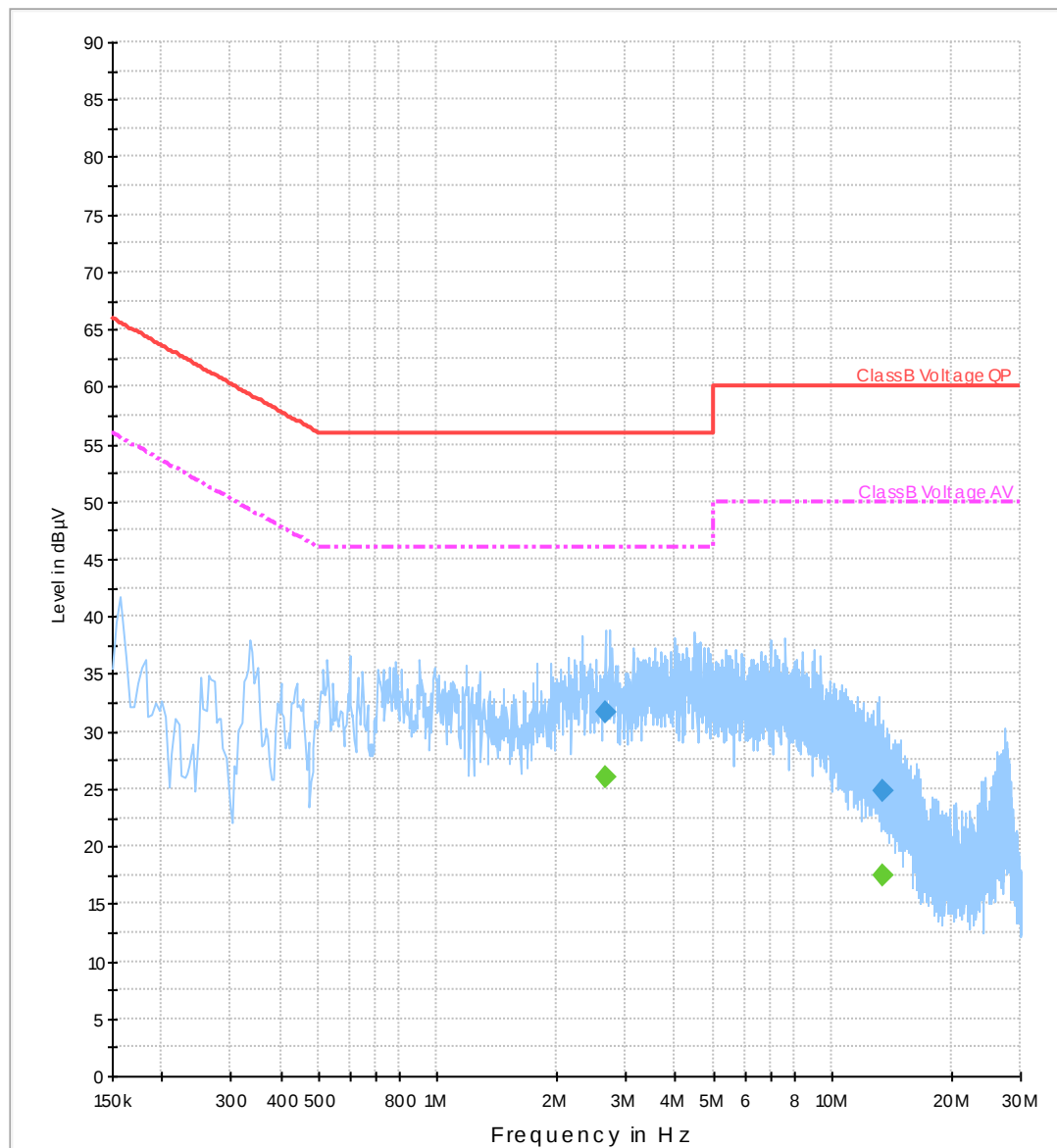
NFC On , 15693 Modulation

Mains AC L1 and N

110 V AC 60 Hz

NFC cover removed

01b_FCC_107_207_Class B_Voltage_PK_QPAV_N_L1



Date: 13.09.2012 Page 2 of 3

Final Result 1

Frequency (MHz)	QuasiPeak (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
2.656406	31.7	1000.0	9.000	GN	L1	0.1	24.3	56.0
13.492813	24.8	1000.0	9.000	GN	N	0.2	35.2	60.0

Final Result 2

Frequency (MHz)	CAverage (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
2.656406	26.0	1000.0	9.000	GN	L1	0.1	20.0	46.0
13.492813	17.4	1000.0	9.000	GN	N	0.2	32.6	50.0

Technical Data of Measurements with R&S EMC32 V8.52.0**EMI Auto Test Template: 01b_FCC_107_207_Class B_Voltage_PK_QPAV_N_L1**

Hardware Setup: ESH2-Z5
 Measurement Type: 4 Line LISN
 Frequency Range: 150 kHz - 30 MHz
 Graphics Level Range: 0 dBμV - 90 dBμV

Preview Measurements:
 Scan Test Template: 02_Class B pre_PK_fast

Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
9 kHz - 150 kHz	61.035 Hz	PK+	200 Hz	0,00005 s	0 dB
150 kHz - 30 MHz	3.906 kHz	PK+	9 kHz	0,00005 s	0 dB

Receiver: [ESCS 30]

Data Reduction:
 Limit Line #1: Class B Voltage QP
 Limit Line #2: Class B Voltage AV
 Peak Search: 6 dB , Maximum Results: 10
 Subrange Maxima: 25 Subranges , Maxima per Subrange: 1
 Acceptance Offset: -13 dB
 Maximum Number of Results: 30
 After Data Reduction: Interactive data reduction

Frequency Zoom:
 Zoom Scan Template: 08_Class B maxZoom_PK100mS

Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
9 kHz - 150 kHz	5 kHz	PK+	200 Hz	0,1 s	0 dB
150 kHz - 30 MHz	5 kHz	PK+	9 kHz	0,1 s	0 dB

Receiver: [ESCS 30]

Final Measurements:
 Template for Single Meas.: 07a_FCC Class B fin AV QP 1sek

Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
150 kHz - 30 MHz	4.5 kHz	QPK; CAV	9 kHz	1 s	0 dB

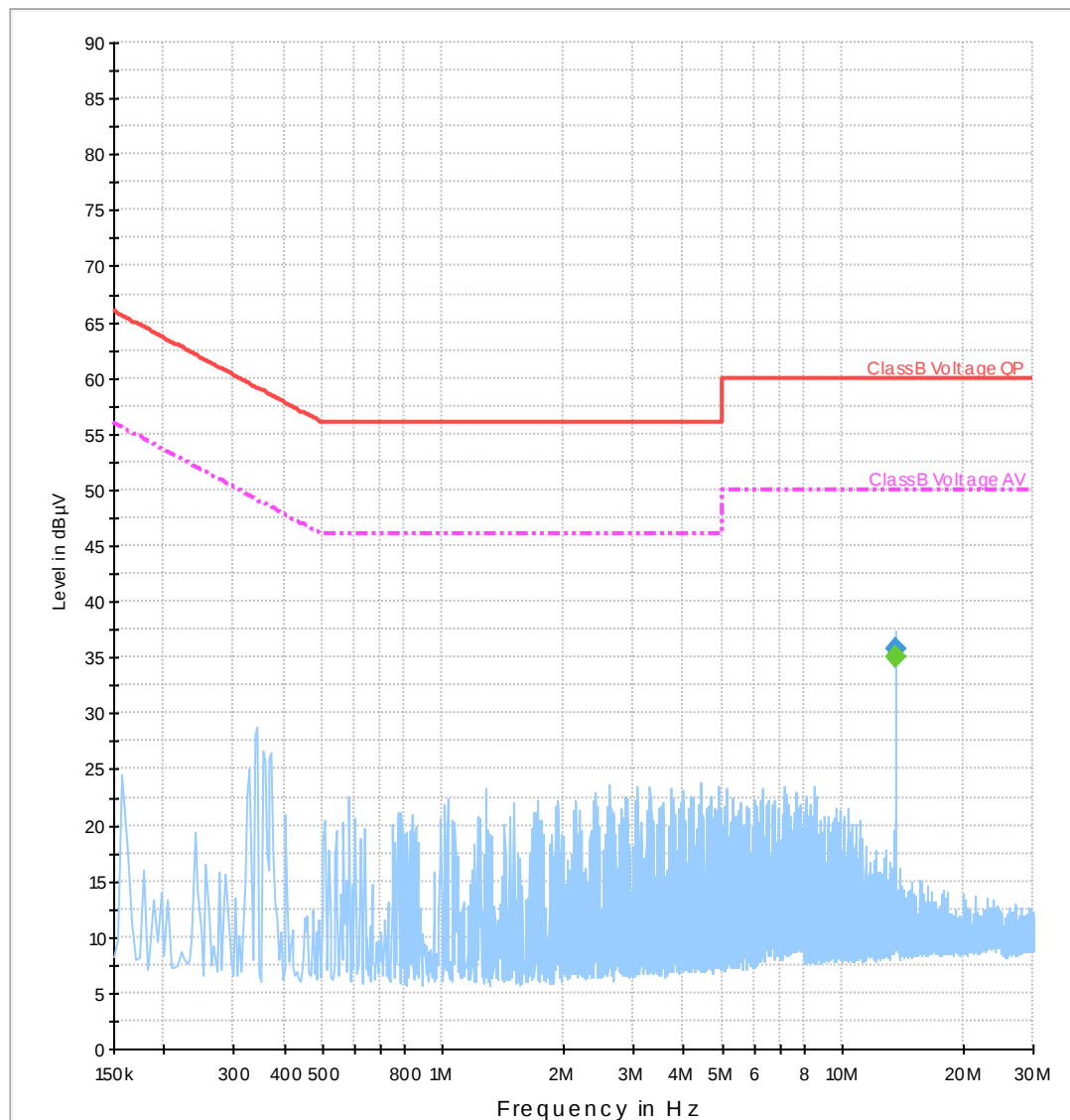
Receiver: [ESCS 30]

Report Settings:
 Report Template: Ctc_Standard_class_B_FCC
 Create Electronic Report: RTF PDF
 Document Name: EMI Report

Diagram No. 1.12

Test Description:	Date: 13.09.2012 Page 1 of 3
Testspezifikation:	Conducted Voltage Measurement Class B
Technical Data:	FCC 15.207
Diagram:	Please see next page for detailed information
Operator name:	Shows the peak values as a sum of measured ports (N+L1) in maxhold mode
Report.- Nr.	Lor 2-0037-12-1m
EUT:	RFG81UW (Sample5) + CH1+ HS1 + USB1
Manufacturer:	RIM
Operating mode:	NFC On , 15693 Modulation
Measured on line:	Mains AC L1 and N
Power during test:	110 V AC 60 Hz
Comment 1:	NFC cover on
Comment 2:	USB1 laying near EUT

01b_FCC_107_207_Class B_Voltage_PK_QPAV_N_L1



Date: 13.09.2012 Page 2 of 3

Final Result 1

Frequency (MHz)	QuasiPeak (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
13.562656	35.8	1000.0	9.000	GN	N	0.2	24.2	60.0

Final Result 2

Frequency (MHz)	CAverage (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
13.562656	35.0	1000.0	9.000	GN	N	0.2	15.0	50.0

Technical Data of Measurements with R&S EMC32 V8.52.0**EMI Auto Test Template: 01b_FCC_107_207_Class B_Voltage_PK_QPAV_N_L1**

Hardware Setup: ESH2-Z5
 Measurement Type: 4 Line LISN
 Frequency Range: 150 kHz - 30 MHz
 Graphics Level Range: 0 dBμV - 90 dBμV

Preview Measurements:
 Scan Test Template: 02_Class B pre_PK_fast

Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
9 kHz - 150 kHz	61.035 Hz	PK+	200 Hz	0,00005 s	0 dB
150 kHz - 30 MHz	3.906 kHz	PK+	9 kHz	0,00005 s	0 dB

Receiver: [ESCS 30]

Data Reduction:
 Limit Line #1: Class B Voltage QP
 Limit Line #2: Class B Voltage AV
 Peak Search: 6 dB , Maximum Results: 10
 Subrange Maxima: 25 Subranges , Maxima per Subrange: 1
 Acceptance Offset: -13 dB
 Maximum Number of Results: 30
 After Data Reduction: Interactive data reduction

Frequency Zoom:
 Zoom Scan Template: 08_Class B maxZoom_PK100mS

Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
9 kHz - 150 kHz	5 kHz	PK+	200 Hz	0,1 s	0 dB
150 kHz - 30 MHz	5 kHz	PK+	9 kHz	0,1 s	0 dB

Receiver: [ESCS 30]

Final Measurements:
 Template for Single Meas.: 07a_FCC Class B fin AV QP 1sek

Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
150 kHz - 30 MHz	4.5 kHz	QPK; CAV	9 kHz	1 s	0 dB

Receiver: [ESCS 30]

Report Settings:
 Report Template: Ctc_Standard_class_B_FCC
 Create Electronic Report: RTF PDF
 Document Name: EMI Report

Actions:
 Test stop
 Notify: "End of Test"

2. Radiated field strength measurements accord. §15.225

Diagram No. 3.01a

Test description:
Test site and distance:
Distance correction:
Used filter:
Technical Data:
Test specification.:

29.06.2012 Page 1 of 2
Magnetic Field Strength Measurement related to 30 m distance
Semi Anechoic Room covered with absorbers (SAR) with 3 m measurement distance used
not used
please see page 2 for detailed data of measurement setup
FCC 15.209; RSS-210: Issue 8

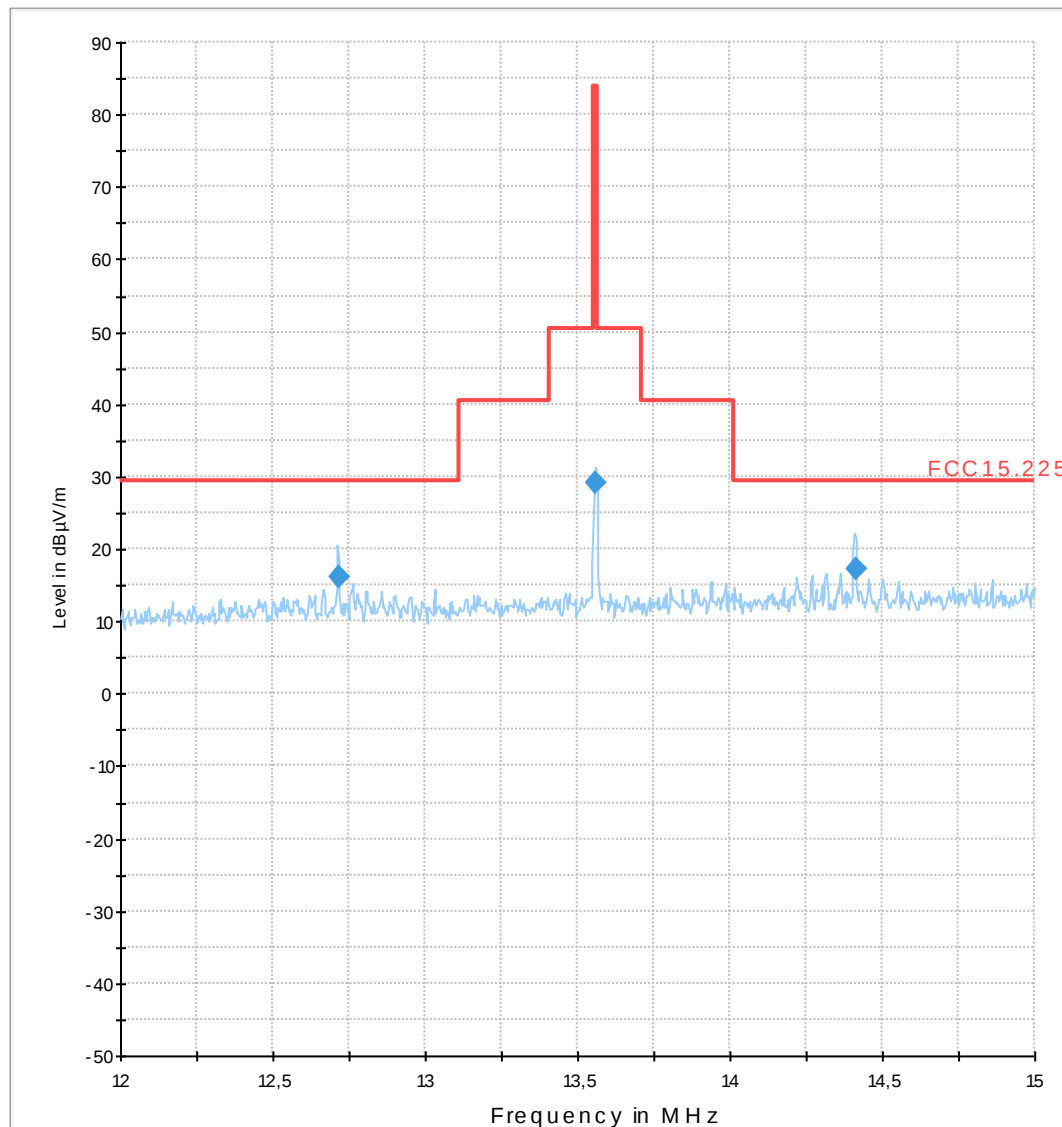
Operator:
Operating conditions:
Power during tests:
Comment 1:

Lor
NFC Mode 13.56MHz active, continuous TX
full battery
EUT standing (defined normal position)

EUT Information

EUT Name:	RFG81UW
Manufacturer:	RIM
S/N:	004401138946435
NFC-cover:	London NFC(mflex) ASY-4809-932

FCC15.209_magn hor+vert_In_Band_13.56MHz



Date: 29.06.2012 Page 2 of 2

Final Result 1

Frequency (MHz)	QuasiPeak (dBμV/m)	Meas. Time (ms)	Bandwidth (kHz)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBμV/m)
12.716000	16.1	1000.0	10.000	H	217.0	-0.3	13.40	29.50
13.560000	29.2	1000.0	10.000	H	207.0	0.4	54.80	84.00
14.412000	17.3	1000.0	10.000	H	189.0	1.1	12.20	29.50

Technical Data of measurement with EMC32 V8.51.1

EMI Auto Test Template: FCC15.209_magn hor+vert_In_Band_13.56MHz

Hardware Setup: HW25_FCC15109_ESCS_MgFeld_ohne_SAR_MATRIX
 Measurement Type: Open-Area-Test-Site
 Frequency Range: 12 MHz - 15 MHz
 Graphics Level Range: -50 dBμV/m - 90 dBμV/m

Preview Measurements:
 Antenna height: 1000 - 1000 cm , Step Size = 0 cm , Positioning Speed = 1
 Polarization: H + V
 Turntable position: 35 - 305 deg , Step Size = 90 deg , Positioning Speed = 8
 Scan Test Template: 01_FCC_MG_FELD_PK_FAST_H&V_EUT

Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
9 kHz - 150 kHz	100 Hz	PK+	200 Hz	0,01 s	0 dB
150 kHz - 500 kHz	4 kHz	PK+	10 kHz	0,01 s	0 dB
500 kHz - 30 MHz	4 kHz	PK+	10 kHz	0,01 s	0 dB

Receiver: [ESS]

Data Reduction:
 Limit Line #1: FCC15.225
 Peak Search: 20 dB , Maximum Results: 10
 Subrange Maxima: 10 Subranges , Maxima per Subrange: 1
 Acceptance Offset: -10 dB
 Maximum Number of Results: 10
 After Data Reduction: Interactive data reduction

Adjustment:
 Antenna height: Adjustment with full Range , Measuring Speed = 1
 Turntable position: Adjustment with full Range , Measuring Speed = 3
 Template for Single Meas.: 01_FCC_MG_FELD_PK_FAST_H&V_EUT

Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
9 kHz - 150 kHz	100 Hz	PK+	200 Hz	0,01 s	0 dB
150 kHz - 500 kHz	4 kHz	PK+	10 kHz	0,01 s	0 dB
500 kHz - 30 MHz	4 kHz	PK+	10 kHz	0,01 s	0 dB

Receiver: [ESS]

Final Measurements:
 Template for Single Meas.: 02_FCC_MG_FELD_QP_final_H&V_EUT

Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
9 kHz - 150 kHz	100 Hz	QPK	200 Hz	1 s	0 dB
150 kHz - 30 MHz	5 kHz	QPK	10 kHz	1 s	0 dB

Receiver: [ESS]

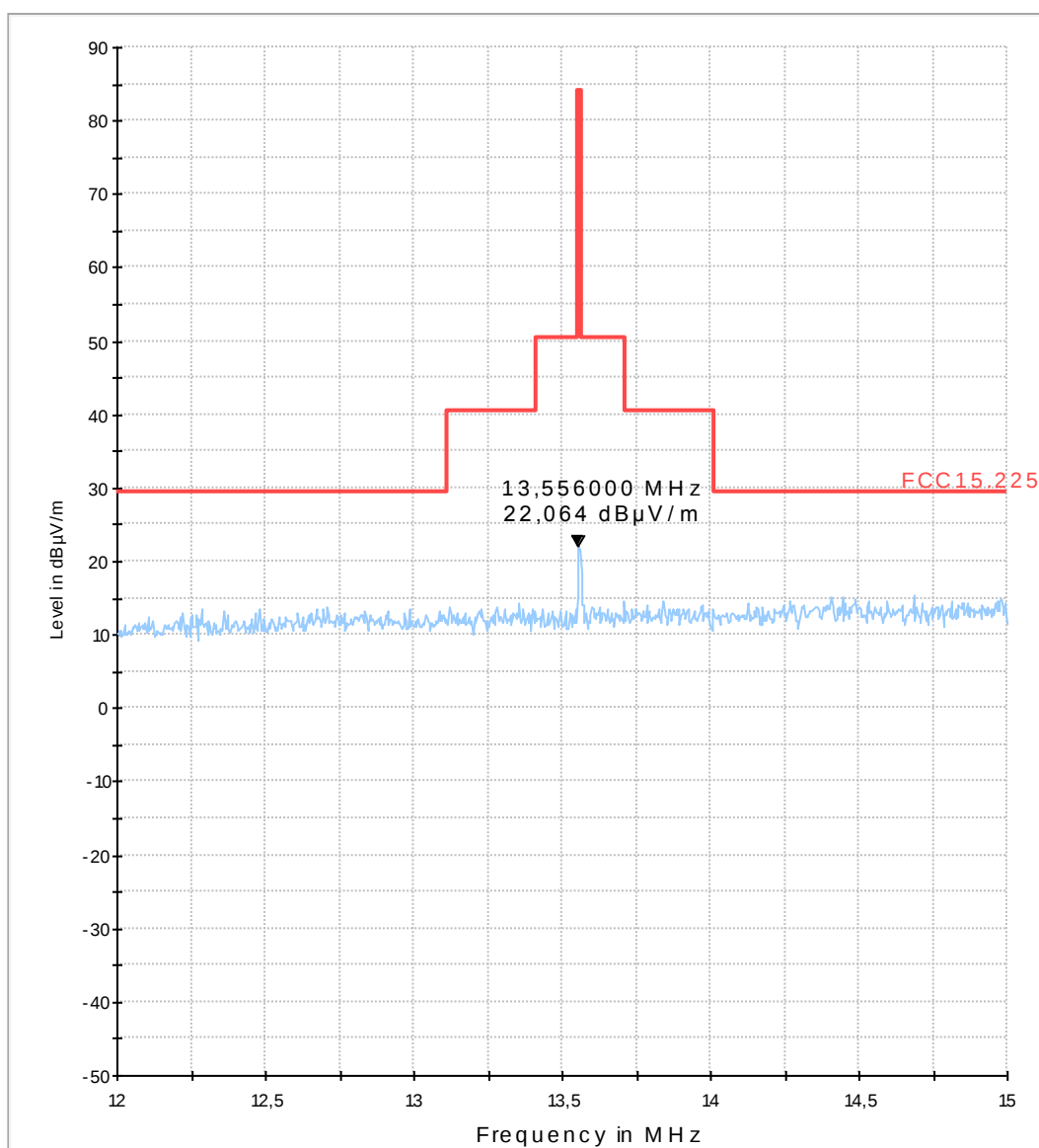
Report Settings:
 Report Template: FCC15_209_magn_vert_hor
 Create Electronic Report: RTF PDF
 Document Name: EMI Report

Actions:
 Data Reduction: Before
 Notify: Sound (WAV file) 'tada.wav'
 Final Measurements: After
 Notify: Sound (WAV file) 'tada.wav'

3.01b (Carrier)

Date:	29.06.2012	Page 1 of 2
Test description:	Magnetic Field Strength Measurement related to 30 m distance	
Test site and distance:	Semi Anechoic Room covered with absorbers (SAR) with 3 m measurement distance used	
Distance correction:	used	
User filter:	not used	
Technical Data:	Please see page 2 for detailed data of measurement setup	
Test specification:	FCC 15.209; RSS-210: Issue 8	
Operator:	LOR	
EUT:	RFG81UW - London NFC(mflex) ASY-4809-932 cover	
S/N	004401138946435	
Manufacturer	RIM	
Operating conditions:	NFC (13.56 MHz) Tx	
Power during tests:	full loaded batteries	
Comment 1:		
Comment 2:		

FCC15.209_magn hor+vert_In_Band_13.56MHz



EMI Auto Test Template: FCC15.209_magn hor+vert_In_Band_13.56MHz

Hardware Setup: HW25_FCC15109_ESCS_MgFeld_ohne_SAR_MATRIX
 Measurement Type: Open-Area-Test-Site
 Frequency Range: 12 MHz - 15 MHz
 Graphics Level Range: -50 dBµV/m - 90 dBµV/m

Preview Measurements:
 Antenna height: 1000 - 1000 cm , Step Size = 0 cm , Positioning Speed = 1
 Polarization: H + V
 Turntable position: 35 - 305 deg , Step Size = 90 deg , Positioning Speed = 8
 Scan Test Template: 01_FCC_MG_FELD_PK_FAST_H&V_EUT

Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
9 kHz - 150 kHz	100 Hz	PK+	200 Hz	0,01 s	0 dB
150 kHz - 500 kHz	4 kHz	PK+	10 kHz	0,01 s	0 dB
500 kHz - 30 MHz	4 kHz	PK+	10 kHz	0,01 s	0 dB

Receiver: [ESS]

Data Reduction:
 Limit Line #1: FCC15.225
 Peak Search: 20 dB , Maximum Results: 10
 Subrange Maxima: 10 Subranges , Maxima per Subrange: 1
 Acceptance Offset: -10 dB
 Maximum Number of Results: 10
 After Data Reduction: Interactive data reduction

Adjustment:
 Antenna height: Adjustment with full Range , Measuring Speed = 1
 Turntable position: Adjustment with full Range , Measuring Speed = 3
 Template for Single Meas.: 01_FCC_MG_FELD_PK_FAST_H&V_EUT

Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
9 kHz - 150 kHz	100 Hz	PK+	200 Hz	0,01 s	0 dB
150 kHz - 500 kHz	4 kHz	PK+	10 kHz	0,01 s	0 dB
500 kHz - 30 MHz	4 kHz	PK+	10 kHz	0,01 s	0 dB

Receiver: [ESS]

Final Measurements:
 Template for Single Meas.: 02_FCC_MG_FELD_QP_final_H&V_EUT

Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
9 kHz - 150 kHz	100 Hz	QPK	200 Hz	1 s	0 dB
150 kHz - 30 MHz	5 kHz	QPK	10 kHz	1 s	0 dB

Receiver: [ESS]

Report Settings:
 Report Template: FCC15_209_magn_vert_hor
 Create Electronic Report: RTF PDF
 Document Name: EMI Report

Actions:
 Data Reduction: Before
 Notify: Sound (WAV file) 'tada.wav'
 Final Measurements: After
 Notify: Sound (WAV file) 'tada.wav'

Diagram No. 3.01c

Test description:
Test site and distance:
Distance correction:
Technical Data:
Rec. antenna (pre-scan):
Used filter:
Test specification:

Date: 29.06.2012 Page 1 of 2
Magnetic Field Strength Measurement related to 30 m distance
Semi Anechoic Room covered with absorbers (SAR) with 3 m measurement distance used
Please see page 2 for detailed data of measurement setup
height 1.00 m, parallel and 90° to EUT polarisation
bypass
FCC 15.209; RSS-210: Issue 8

Operator:
Operating conditions:
Power during tests:
Comment 1:

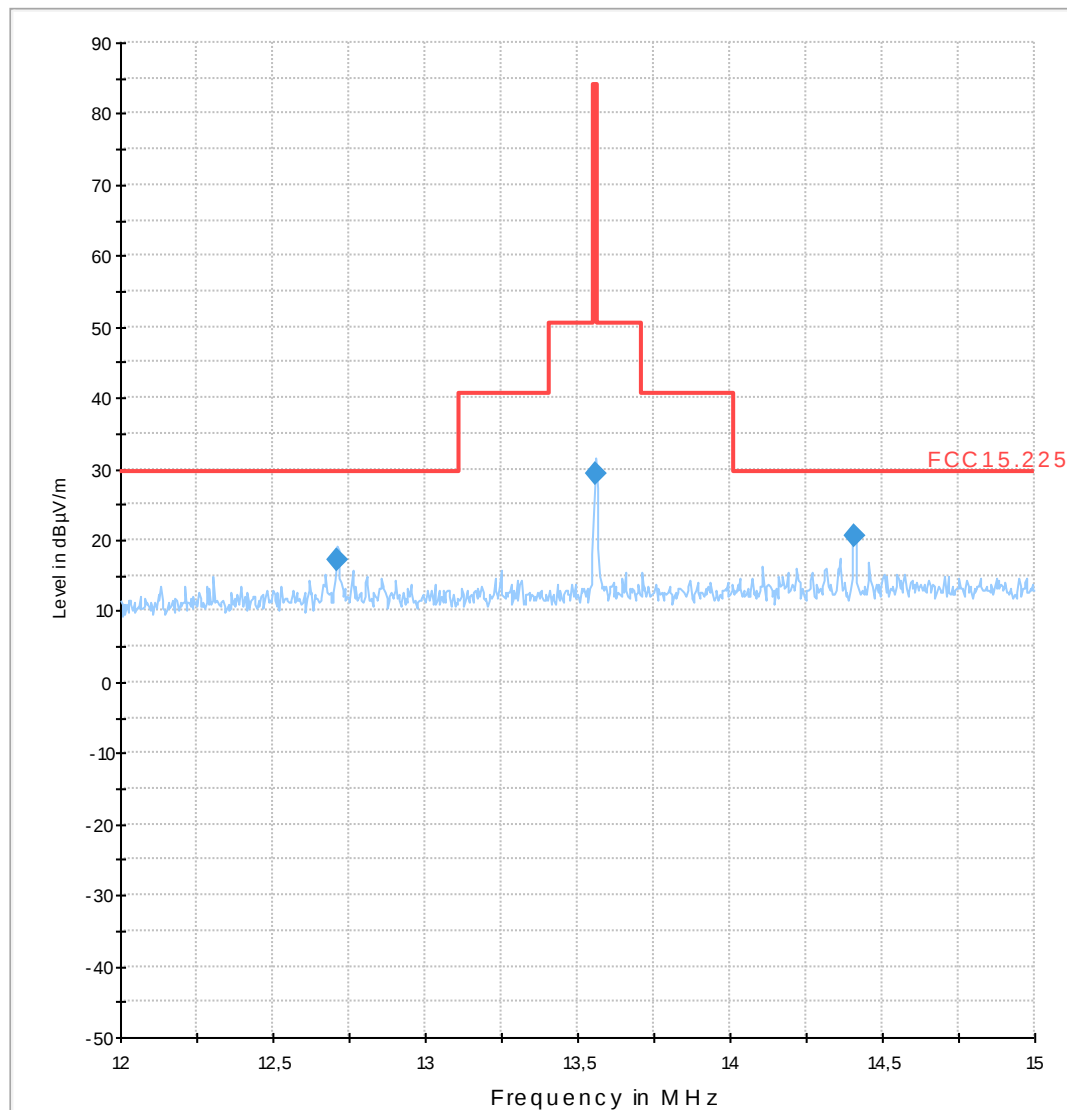
Lor
NFC 13.56MHz, continuous on
full loaded batteries
EUT standing, 90degree left rotated

EUT Information

EUT Name:
Manufacturer:
S/N:
NFC-cover:

RFG81UW
RIM
004401138946435
London NFC(mflex) ASY-4809-932

FCC15.209_magn hor+vert_In_Band_13.56MHz



Date: 29.06.2012 Page 2 of 2

Final Result 1

Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
12.712000	17.1	1000.0	10.000	H	188.0	-0.3	12.50	29.50
13.560000	29.3	1000.0	10.000	H	217.0	0.4	54.70	84.00
14.408000	20.6	1000.0	10.000	H	209.0	1.1	8.90	29.50

Technical Data of measurement with EMC32 V8.51.1

EMI Auto Test Template: FCC15.209_magn hor+vert_In_Band_13.56MHz

Hardware Setup: HW25_FCC15109_ESCS_MgFeld_ohne_SAR_MATRIX
 Measurement Type: Open-Area-Test-Site
 Frequency Range: 12 MHz - 15 MHz
 Graphics Level Range: -50 dBµV/m - 90 dBµV/m

Preview Measurements:
 Antenna height: 1000 - 1000 cm , Step Size = 0 cm , Positioning Speed = 1
 Polarization: H + V
 Turntable position: 35 - 305 deg , Step Size = 90 deg , Positioning Speed = 8
 Scan Test Template: 01_FCC_MG_FELD_PK_FAST_H&V_EUT

Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
9 kHz - 150 kHz	100 Hz	PK+	200 Hz	0,01 s	0 dB
150 kHz - 500 kHz	4 kHz	PK+	10 kHz	0,01 s	0 dB
500 kHz - 30 MHz	4 kHz	PK+	10 kHz	0,01 s	0 dB

Receiver: [ESS]

Data Reduction:
 Limit Line #1: FCC15.225
 Peak Search: 20 dB , Maximum Results: 10
 Subrange Maxima: 10 Subranges , Maxima per Subrange: 1
 Acceptance Offset: -10 dB
 Maximum Number of Results: 10
 After Data Reduction: Interactive data reduction

Adjustment:
 Antenna height: Adjustment with full Range , Measuring Speed = 1
 Turntable position: Adjustment with full Range , Measuring Speed = 3
 Template for Single Meas.: 01_FCC_MG_FELD_PK_FAST_H&V_EUT

Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
9 kHz - 150 kHz	100 Hz	PK+	200 Hz	0,01 s	0 dB
150 kHz - 500 kHz	4 kHz	PK+	10 kHz	0,01 s	0 dB
500 kHz - 30 MHz	4 kHz	PK+	10 kHz	0,01 s	0 dB

Receiver: [ESS]

Final Measurements:
 Template for Single Meas.: 02_FCC_MG_FELD_QP_final_H&V_EUT

Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
9 kHz - 150 kHz	100 Hz	QPK	200 Hz	1 s	0 dB
150 kHz - 30 MHz	5 kHz	QPK	10 kHz	1 s	0 dB

Receiver: [ESS]

Report Settings:
 Report Template: FCC15_209_magn_vert_hor
 Create Electronic Report: RTF PDF
 Document Name: EMI Report

Actions:
 Data Reduction: Before
 Notify: Sound (WAV file) 'tada.wav'
 Final Measurements: After
 Notify: Sound (WAV file) 'tada.wav'

3. Radiated field strength measurements accord. §15.209&15.205

Diagram No. 3.01d_RSE

Test description: Date: 29.06.2012 Page 1 of 2
 Test site and distance: Magnetic Field Strength Measurement related to 300/30 m distance
 Distance correction: Semi Anechoic Room covered with absorbers (SAR) with 3 m measurement distance used
 Technical Data: Please see page 2 for detailed data of measurement setup
 Rec. antenna (pre-scan): height 1.00 m, parallel and 90° to EUT polarisation
 Used filter: bypass
 Test specification.: FCC 15.209; RSS-210: Issue 8

Operator: Lor
 Operating conditions: NFC 13.56MHz, continuous on
 Power during tests: full loaded batteries
 Comment 1: --

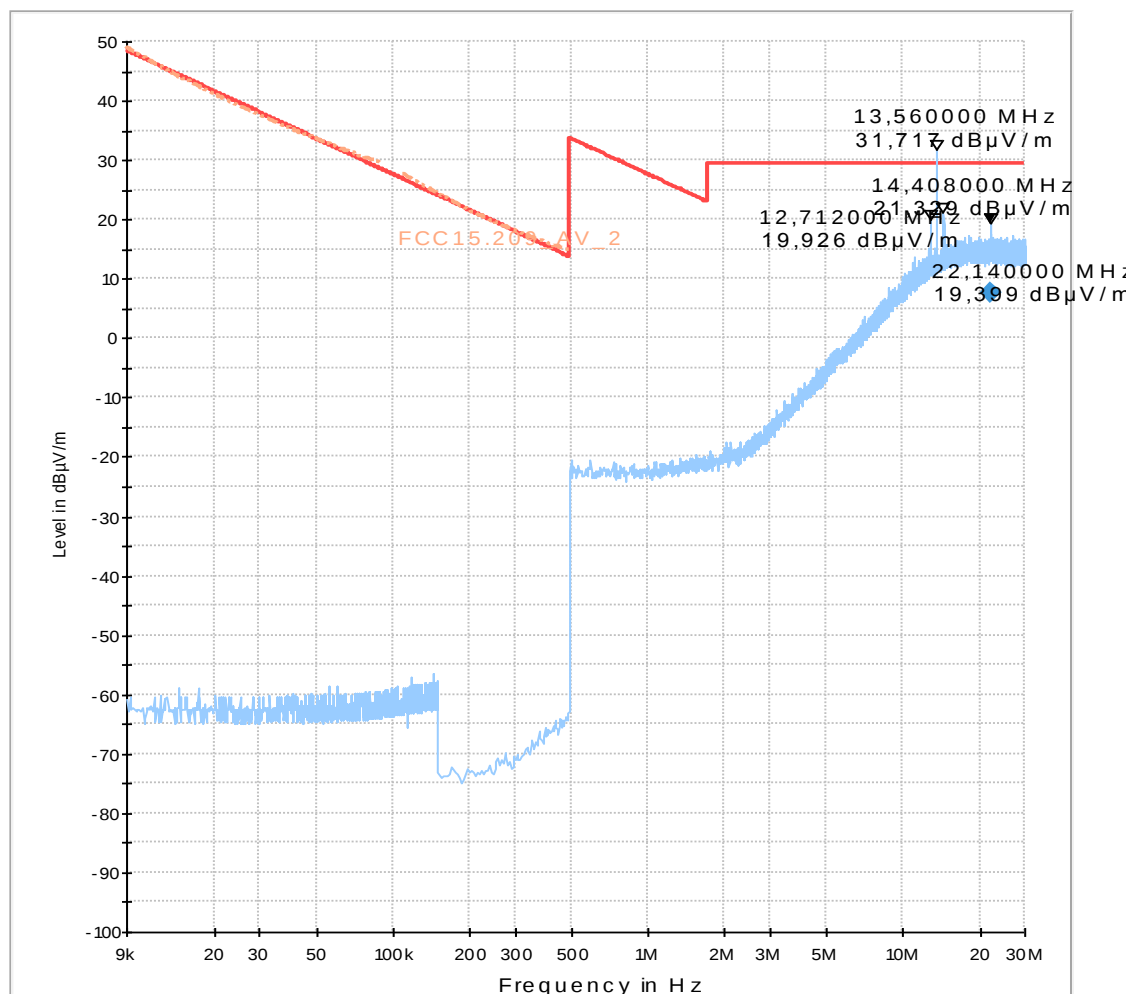
EUT Information

EUT Name: RFG81UW
 Manufacturer: RIM
 S/N: 004401138946435
 NFC-cover: London NFC(mflex) ASY-4809-932

Final Result 1

Frequency (MHz)	QuasiPeak (dBμV/m)	Meas. Time (ms)	Bandwidth (kHz)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBμV/m)
22.140000	7.8	1000.0	10.000	V	238.0	2.9	21.80	29.50

FCC15.209_magn hor+vert



Date: 29.06.2012 Page 2 of 2

Technical Data of measurement with EMC32 V8.51.1

EMI Auto Test Template: FCC15.209_magn hor+vert

Hardware Setup: HW25_FCC15109_ESCS_MgFeld_ohne_SAR_MATRIX
 Measurement Type: Open-Area-Test-Site
 Frequency Range: 9 kHz - 30 MHz
 Graphics Level Range: -100 dBµV/m - 50 dBµV/m

Preview Measurements:
 Antenna height: 1000 - 1000 cm , Step Size = 0 cm , Positioning Speed = 1
 Polarization: H + V
 Turntable position: 35 - 305 deg , Step Size = 90 deg , Positioning Speed = 8
 Scan Test Template: 01_FCC_MG_FELD_PK_FAST_H&V_EUT

Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
9 kHz - 150 kHz	100 Hz	PK+	200 Hz	0,01 s	0 dB
150 kHz - 500 kHz	4 kHz	PK+	10 kHz	0,01 s	0 dB
500 kHz - 30 MHz	4 kHz	PK+	10 kHz	0,01 s	0 dB

Receiver: [ESS]

Data Reduction:
 Limit Line #1: FCC15.209_Magnetic_Field
 Limit Line #2: FCC15.209_AV_2
 Peak Search: 20 dB , Maximum Results: 10
 Subrange Maxima: 10 Subranges , Maxima per Subrange: 1
 Acceptance Offset: -10 dB
 Maximum Number of Results: 10
 After Data Reduction: Interactive data reduction

Adjustment:
 Antenna height: Adjustment with full Range , Measuring Speed = 1
 Turntable position: Adjustment with full Range , Measuring Speed = 3
 Template for Single Meas.: 01_FCC_MG_FELD_PK_FAST_H&V_EUT

Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
9 kHz - 150 kHz	100 Hz	PK+	200 Hz	0,01 s	0 dB
150 kHz - 500 kHz	4 kHz	PK+	10 kHz	0,01 s	0 dB
500 kHz - 30 MHz	4 kHz	PK+	10 kHz	0,01 s	0 dB

Receiver: [ESS]

Final Measurements:
 Template for Single Meas.: 02_FCC_MG_FELD_QP_final_H&V_EUT

Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
9 kHz - 150 kHz	100 Hz	QPK	200 Hz	1 s	0 dB
150 kHz - 30 MHz	5 kHz	QPK	10 kHz	1 s	0 dB

Receiver: [ESS]

Report Settings:
 Report Template: FCC15_209_magn_vert_hor
 Create Electronic Report: RTF PDF
 Document Name: EMI Report

Actions:
 Preview Measurements: Before
 Notify: "Achtung: es gibt Frequenzbereich mit AVERAGE detector als Ergebniss..."
 Data Reduction: Before
 Notify: Sound (WAV file) 'tada.wav'
 Frequency Zoom 1: Before
 Notify: "EUT funktioniert noch ?"
 Final Measurements: After
 Notify: Sound (WAV file) 'tada.wav'

Diagram No. 2.01

Test description:
Test site and distance:
Distance correction:
Used filter:
Technical Data:
Test specification.:

29.06.2012 Page 1 of 2
Electric Field Strength Measurement
Semi Anechoic Room (SAR) with 3 m measurement distance
not used
not used
please see page 2 for detailed data of measurement setup
FCC 15.209; RSS-210: Issue 8; RSS-Gen. Issue 3

Operator:
Operating conditions:
Power during tests:
Comment 1:

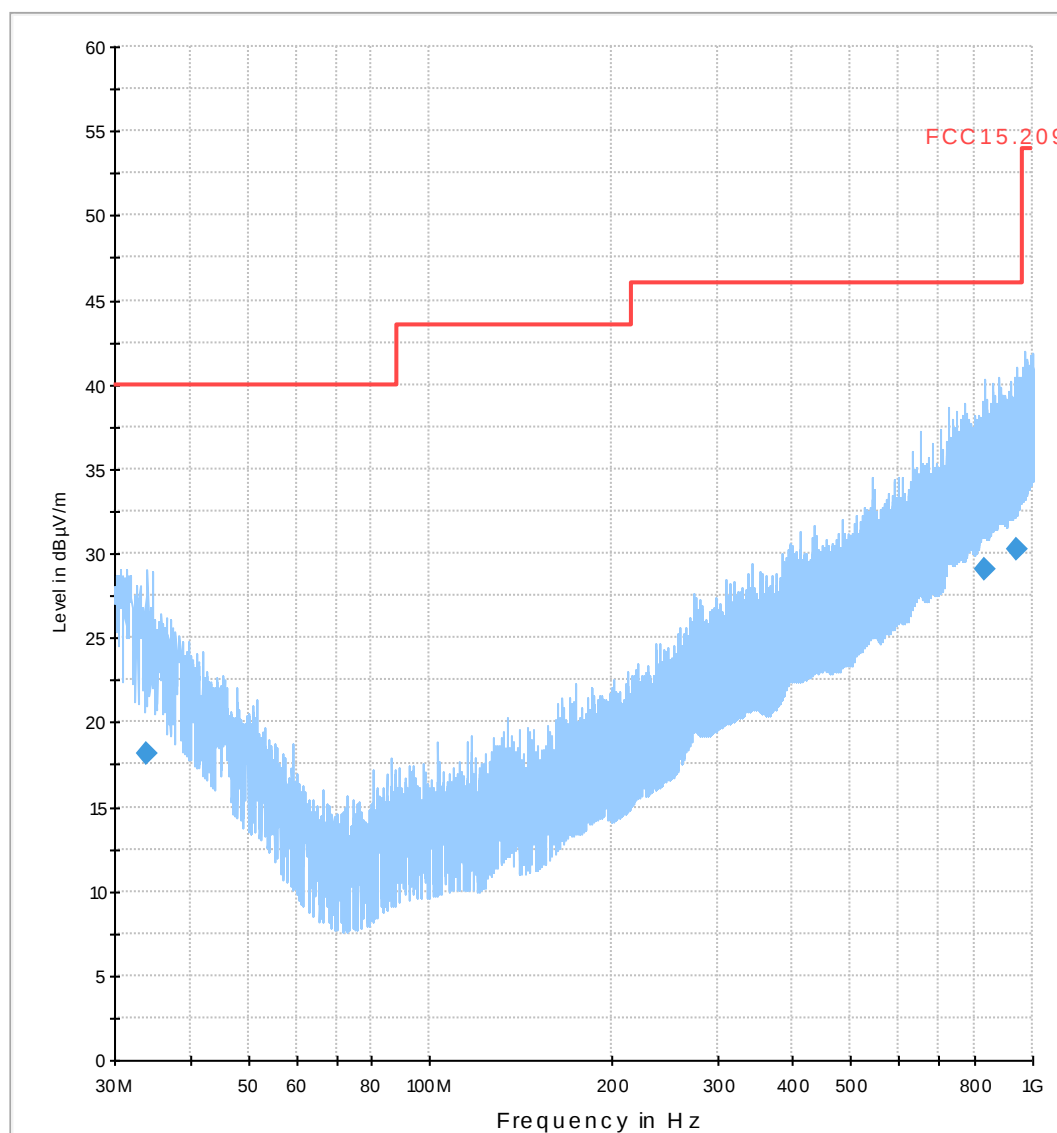
Lor
NFC Mode 13.56MHz active, continuous TX
full battery
--

EUT Information

EUT Name:
Manufacturer:
S/N:
NFC-cover:

RFG81UW
RIM
004401138946435
London NFC(mflex) ASY-4809-932

01_FCC15.209_hor+vert_kipp



Date: 29.06.2012 Page 2 of 2

Final Result 1

Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Elevation (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
34.010000	18.1	1000.0	120.000	350.0	H	66.0	90.0	20.0	21.90	40.00
829.690000	29.0	1000.0	120.000	368.0	H	0.0	90.0	25.5	17.00	46.00
942.950000	30.3	1000.0	120.000	170.0	V	177.0	90.0	26.7	15.70	46.00

Technical Data of measurement with EMC32 V8.51.1

EMI Auto Test Template: 01_FCC15.209_hor+vert_kipp

Hardware Setup: HW11_FCC_ESCS30_TP1200_EUTkipp
 Measurement Type: E(I)RP
 Frequency Range: 30 MHz - 1 GHz
 Graphics Level Range: 0 dBµV/m - 60 dBµV/m

Preview Measurements:
 Turntable position: 0 - 270 deg , Step Size = 90 deg , Positioning Speed = 8
 Elevation: 0 - 90 deg , Step Size = 90 deg , Positioning Speed = 5
 Polarization: H + V
 Scan Test Template: EMI Scan 01_fast_FCC_15_209 B

Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
30 MHz - 1 GHz	40 kHz	PK+	120 kHz	0,00005 s	0 dB

Receiver: [ESS]

Data Reduction:
 Limit Line #1: FCC15.209
 Peak Search: 6 dB , Maximum Results: 10
 Subrange Maxima: 25 Subranges , Maxima per Subrange: 1
 Acceptance Offset: -6 dB
 Maximum Number of Results: 20
 After Data Reduction: Interactive data reduction

Frequency Zoom:
 Zoom Scan Template: EMI Scan 02_20ms_zoom_15_209 B

Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
30 MHz - 1 GHz	10 kHz	PK+	120 kHz	0,02 s	0 dB

Receiver: [ESS]

Adjustment:
 Turntable position: Adjustment with full Range , Measuring Speed = 3
 Elevation: Adjustment with full Range , Measuring Speed = 5
 Template for Single Meas.: EMI Scan 02_20ms_FCC_15_209B

Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
30 MHz - 1 GHz	100 kHz	PK+	120 kHz	0,02 s	0 dB

Receiver: [ESS]

Final Measurements:
 Template for Single Meas.: EMI Scan 03_1s_FCC_15_209 B

Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
30 MHz - 1 GHz	100 kHz	QPK	120 kHz	1 s	0 dB

Receiver: [ESS]

Report Settings:
 Report Template: FCC15_209_vert_hor-30MHz-1GHz
 Create Electronic Report: RTF PDF
 Document Name: EMI Report

Actions:
 Test start
 Notify: "EUT auf ersten/zweiten/dritten Sendekanal stellen !!!"
 Notify: "bitte beachten: es gibt Frequenzbereiche von strenger Grenzwert gil..."
 Data Reduction: Before
 Notify: Sound (WAV file) 'tada.wav'
 Frequency Zoom 2: Before
 Notify: "EUT sendet noch ?"
 Final Measurements: After
 Notify: Sound (WAV file) 'tada.wav'