

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

According to:
FCC Regulations
Part 15.107, Part 15.109

IC-Regulations
RSS-Gen, Issue 3

for

Research In Motion Limited
Mobile Phone RFG81UW

FCC-ID: L6ARFG80UW
IC: 2503A-RFG80UW

Laboratory Accreditation and Listings			
 DAkkS Deutsche Akkreditierungsstelle D-PL-12047-01-01	 FEDERAL COMMUNICATIONS COMMISSION USA 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
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1. Conducted EMI measurements on AC-mains port according 15.207, class B

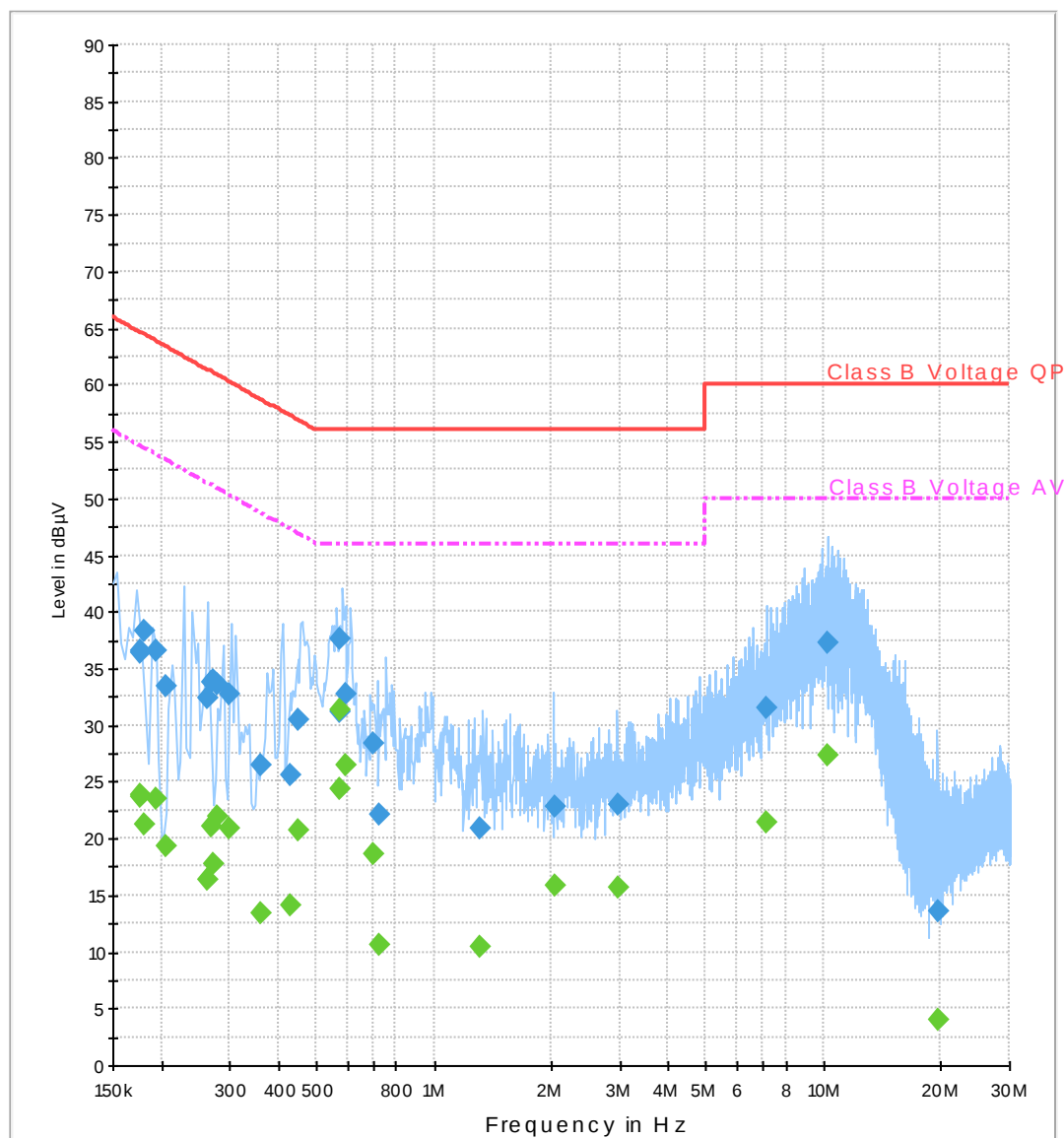
Diagram No. 1.1

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

Date: 04.06.2012 Page 1 of 3
 Conducted Voltage Measurement Class B
 FCC 15.107
 Please see next page for detailed information
 Shows the peak values as a sum of measured ports (N+L1) in maxhold mode
 OOU
 2-0037-12-1-1i

EUT: RFG81UW + HS1(HDW-44306-001) + CH1(HDW-24481-001) + USB1(HDW-28109-003)
 Manufacturer: RIM
 Operating mode: GSM 850 RX + charging
 Measured on line: Mains AC L1 and N
 Power during test: 110 V AC 60 Hz

01b_FCC_107_207_Class B_Voltage_PK_QPAV_N_L1



Date: 04.06.2012 Page 2 of 3

Final Result 1

Frequency (MHz)	QuasiPeak (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.176406	36.3	1000.0	9.000	GN	L1	0.0	28.3	64.7
0.176563	36.6	1000.0	9.000	GN	L1	0.0	28.1	64.6
0.180938	38.2	1000.0	9.000	GN	N	0.0	26.2	64.4
0.195000	36.6	1000.0	9.000	GN	L1	0.0	27.3	63.8
0.205625	33.5	1000.0	9.000	GN	L1	0.0	29.9	63.4
0.262344	32.4	1000.0	9.000	GN	N	0.0	29.0	61.4
0.269219	33.8	1000.0	9.000	GN	L1	0.1	27.3	61.1
0.270781	34.0	1000.0	9.000	GN	N	0.1	27.1	61.1
0.279844	33.6	1000.0	9.000	GN	L1	0.0	27.2	60.8
0.297656	32.8	1000.0	9.000	GN	L1	0.0	27.5	60.3
0.361875	26.4	1000.0	9.000	GN	N	0.0	32.2	58.7
0.430313	25.5	1000.0	9.000	GN	N	0.0	31.7	57.2
0.451094	30.4	1000.0	9.000	GN	L1	0.0	26.4	56.9
0.576094	37.6	1000.0	9.000	GN	L1	0.0	18.4	56.0
0.576563	31.1	1000.0	9.000	GN	N	0.0	24.9	56.0
0.593438	32.7	1000.0	9.000	GN	L1	0.0	23.3	56.0
0.698906	28.4	1000.0	9.000	GN	L1	0.0	27.6	56.0
0.729063	22.2	1000.0	9.000	GN	L1	0.0	33.8	56.0
1.320000	20.9	1000.0	9.000	GN	L1	0.1	35.1	56.0
2.037500	22.8	1000.0	9.000	GN	L1	0.1	33.2	56.0
2.962188	23.1	1000.0	9.000	GN	L1	0.1	33.0	56.0
7.106250	31.5	1000.0	9.000	GN	L1	0.1	28.5	60.0
10.229063	37.3	1000.0	9.000	GN	L1	0.1	22.7	60.0
19.598906	13.6	1000.0	9.000	GN	N	0.2	46.4	60.0

Final Result 2

Frequency (MHz)	CAverage (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.176406	23.8	1000.0	9.000	GN	L1	0.0	30.9	54.7
0.176563	23.8	1000.0	9.000	GN	L1	0.0	30.8	54.6
0.180938	21.2	1000.0	9.000	GN	N	0.0	33.3	54.4
0.195000	23.5	1000.0	9.000	GN	L1	0.0	30.4	53.8
0.205625	19.3	1000.0	9.000	GN	L1	0.0	34.1	53.4
0.262344	16.4	1000.0	9.000	GN	N	0.0	34.9	51.4
0.269219	21.0	1000.0	9.000	GN	L1	0.1	30.1	51.1
0.270781	17.8	1000.0	9.000	GN	N	0.1	33.3	51.1
0.279844	21.9	1000.0	9.000	GN	L1	0.0	28.9	50.8
0.297656	21.0	1000.0	9.000	GN	L1	0.0	29.3	50.3
0.361875	13.4	1000.0	9.000	GN	N	0.0	35.3	48.7
0.430313	14.1	1000.0	9.000	GN	N	0.0	33.2	47.2
0.451094	20.8	1000.0	9.000	GN	L1	0.0	26.1	46.9
0.576094	31.3	1000.0	9.000	GN	L1	0.0	14.7	46.0
0.576563	24.3	1000.0	9.000	GN	N	0.0	21.7	46.0
0.593438	26.4	1000.0	9.000	GN	L1	0.0	19.6	46.0
0.698906	18.6	1000.0	9.000	GN	L1	0.0	27.4	46.0
0.729063	10.6	1000.0	9.000	GN	L1	0.0	35.4	46.0
1.320000	10.4	1000.0	9.000	GN	L1	0.1	35.6	46.0
2.037500	15.8	1000.0	9.000	GN	L1	0.1	30.2	46.0
2.962188	15.7	1000.0	9.000	GN	L1	0.1	30.3	46.0
7.106250	21.4	1000.0	9.000	GN	L1	0.1	28.6	50.0
10.229063	27.3	1000.0	9.000	GN	L1	0.1	22.7	50.0
19.598906	4.0	1000.0	9.000	GN	N	0.2	46.0	50.0

Technical Data of Measurements with R&S EMC32 V8.51.1

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: 50 Subranges , Maxima per Subrange: 2
 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"

Diagram No. 1.2

Test Description:

Testspezifikation:

Technical Data:

Diagram:

Operator name:

Report.- Nr.

Date: 04.06.2012 Page 1 of 3

Conducted Voltage Measurement Class B

FCC 15.107

Please see next page for detailed information

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

OOu

2-0037-12-1-3i

EUT:

RFG81UW + HS2(HDW-44306-001) + CH3(HDW-47725-001) + USB2(HDW-48415-001)

Manufacturer:

RIM

Operating mode:

PCS1900 RX + charging

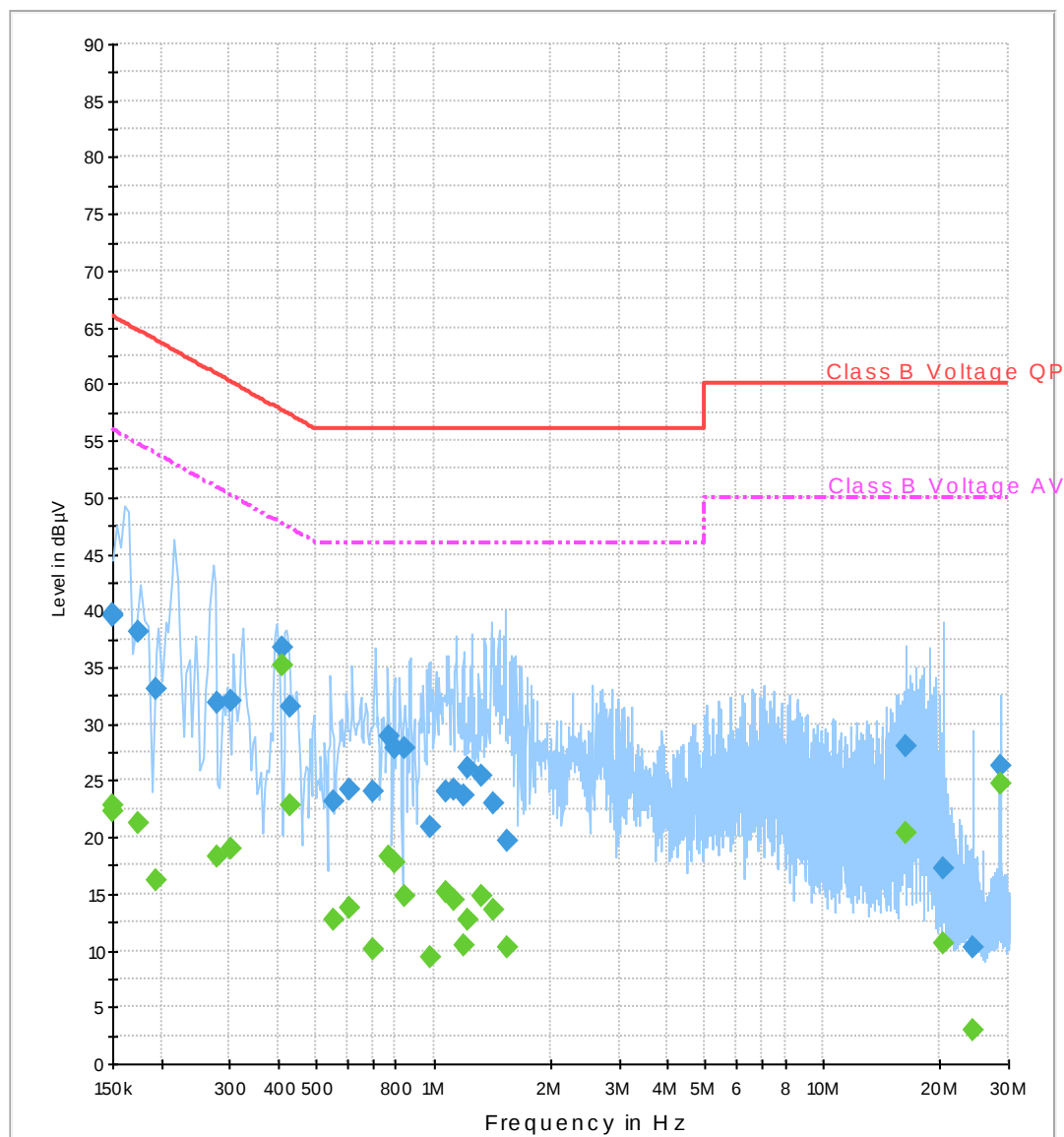
Measured on line:

Mains AC L1 and N

Power during test:

110 V AC 60 Hz

01b_FCC_107_207_Class B_Voltage_PK_QPAV_N_L1



Date: 04.06.2012 Page 2 of 3

Final Result 1

Frequency (MHz)	QuasiPeak (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.150000	39.8	1000.0	9.000	GN	L1	0.0	26.2	66.0
0.150000	39.6	1000.0	9.000	GN	L1	0.0	26.4	66.0
0.174844	38.2	1000.0	9.000	GN	L1	0.0	26.5	64.7
0.193906	33.2	1000.0	9.000	GN	L1	0.0	30.7	63.9
0.278594	31.9	1000.0	9.000	GN	L1	0.0	28.9	60.9
0.303281	32.1	1000.0	9.000	GN	L1	0.0	28.1	60.2
0.408594	36.8	1000.0	9.000	GN	N	0.0	20.9	57.7
0.428125	31.5	1000.0	9.000	GN	N	0.0	25.8	57.3
0.557031	23.2	1000.0	9.000	GN	L1	0.0	32.8	56.0
0.611250	24.2	1000.0	9.000	GN	L1	0.1	31.8	56.0
0.696094	24.1	1000.0	9.000	GN	L1	0.0	31.9	56.0
0.766875	28.8	1000.0	9.000	GN	L1	0.0	27.2	56.0
0.791563	27.8	1000.0	9.000	GN	L1	0.1	28.2	56.0
0.847344	27.9	1000.0	9.000	GN	L1	0.0	28.1	56.0
0.980625	21.0	1000.0	9.000	GN	L1	0.1	35.0	56.0
1.076094	24.0	1000.0	9.000	GN	L1	0.1	32.0	56.0
1.124688	24.2	1000.0	9.000	GN	L1	0.1	31.8	56.0
1.194375	23.7	1000.0	9.000	GN	L1	0.1	32.3	56.0
1.229063	26.1	1000.0	9.000	GN	L1	0.1	29.9	56.0
1.330625	25.4	1000.0	9.000	GN	L1	0.1	30.6	56.0
1.419219	23.0	1000.0	9.000	GN	L1	0.1	33.0	56.0
1.540313	19.7	1000.0	9.000	GN	L1	0.1	36.3	56.0
16.278594	28.1	1000.0	9.000	GN	L1	0.2	32.0	60.0
20.345000	17.2	1000.0	9.000	GN	L1	0.2	42.8	60.0
...	...	...	...	...	...	...	...	...

Final Result 2

Frequency (MHz)	CAverage (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.150000	22.4	1000.0	9.000	GN	L1	0.0	33.6	56.0
0.150000	22.8	1000.0	9.000	GN	L1	0.0	33.2	56.0
0.174844	21.3	1000.0	9.000	GN	L1	0.0	33.4	54.7
0.193906	16.1	1000.0	9.000	GN	L1	0.0	37.7	53.9
0.278594	18.3	1000.0	9.000	GN	L1	0.0	32.5	50.9
0.303281	18.9	1000.0	9.000	GN	L1	0.0	31.2	50.2
0.408594	35.1	1000.0	9.000	GN	N	0.0	12.6	47.7
0.428125	22.8	1000.0	9.000	GN	N	0.0	24.5	47.3
0.557031	12.8	1000.0	9.000	GN	L1	0.0	33.2	46.0
0.611250	13.7	1000.0	9.000	GN	L1	0.1	32.3	46.0
0.696094	10.0	1000.0	9.000	GN	L1	0.0	36.0	46.0
0.766875	18.3	1000.0	9.000	GN	L1	0.0	27.7	46.0
0.791563	17.7	1000.0	9.000	GN	L1	0.1	28.3	46.0
0.847344	14.7	1000.0	9.000	GN	L1	0.0	31.3	46.0
0.980625	9.4	1000.0	9.000	GN	L1	0.1	36.6	46.0
1.076094	15.1	1000.0	9.000	GN	L1	0.1	30.9	46.0
1.124688	14.5	1000.0	9.000	GN	L1	0.1	31.5	46.0
1.194375	10.5	1000.0	9.000	GN	L1	0.1	35.5	46.0
1.229063	12.7	1000.0	9.000	GN	L1	0.1	33.3	46.0
1.330625	14.8	1000.0	9.000	GN	L1	0.1	31.2	46.0
1.419219	13.7	1000.0	9.000	GN	L1	0.1	32.4	46.0
1.540313	10.4	1000.0	9.000	GN	L1	0.1	35.6	46.0
16.278594	20.3	1000.0	9.000	GN	L1	0.2	29.7	50.0
20.345000	10.6	1000.0	9.000	GN	L1	0.2	39.4	50.0
...	...	...	...	...	...	...	...	...

Technical Data of Measurements with R&S EMC32 V8.51.1

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: 50 Subranges , Maxima per Subrange: 2
 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"

Diagram No. 1.3

Date: 19.07.2012 Page 1 of 2
 Test Description: Conducted Voltage Measurement Class B
 Testspezifikation: FCC 15.107, class B
 Technical Data: Please see next page for detailed information
 Diagram: Shows the peak values as a sum of measured ports (N+L1) in maxhold mode
 Operator name: Lor
 Operating mode: RX FDDII + charging battery
 Measured on line: Mains AC L1 and N
 Power during test: 110 V AC 60 Hz
 Comment 1:

EUT-Information

EUT Name: RFG81UW + HS1 + CH5
 Applicant: RIM
 Seriennummer: #757
 Hardware version:
 Software version: 10.0.6.300
 Comment:

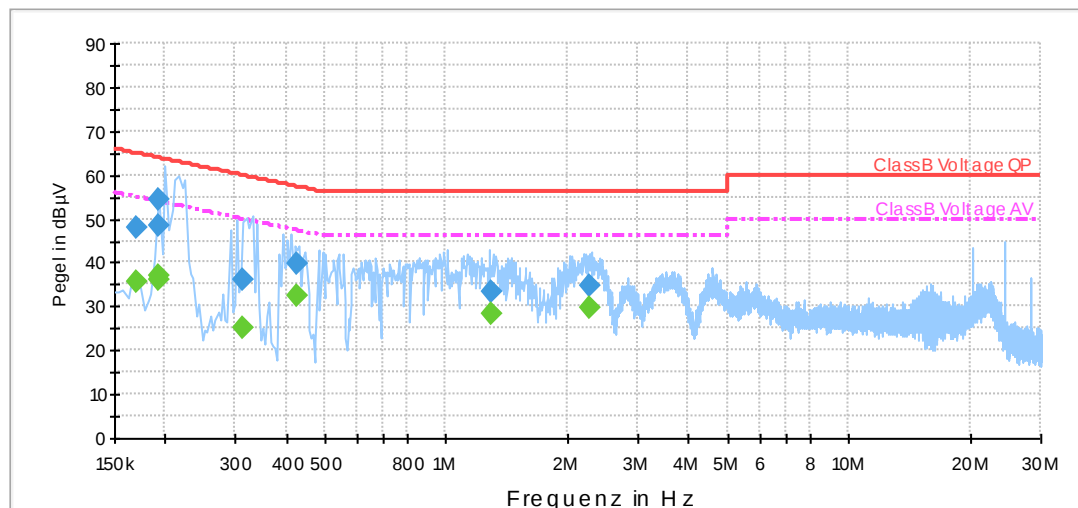
Endmessergebnis 1

Frequenz (MHz)	QuasiPeak (dBμV)	Messzeit (ms)	Bandbreite (kHz)	PE	Leiter	Korr. (dB)	Margin (dB)	Grenzwert (dBμV)
0.170469	48.2	1000.0	9.000	GN	N	0.0	16.7	64.9
0.193281	54.4	1000.0	9.000	GN	L1	0.0	9.5	63.9
0.193906	48.6	1000.0	9.000	GN	L1	0.0	15.2	63.9
0.312188	36.3	1000.0	9.000	GN	L1	0.1	23.6	59.9
0.424219	39.7	1000.0	9.000	GN	L1	0.0	17.6	57.4
1.290313	33.5	1000.0	9.000	GN	N	0.1	22.5	56.0
2.280938	34.6	1000.0	9.000	GN	N	0.0	21.4	56.0

Endmessergebnis 2

Frequenz (MHz)	CAverage (dBμV)	Messzeit (ms)	Bandbreite (kHz)	PE	Leiter	Korr. (dB)	Margin (dB)	Grenzwert (dBμV)
0.170469	35.6	1000.0	9.000	GN	N	0.0	19.4	54.9
0.193281	36.0	1000.0	9.000	GN	L1	0.0	17.9	53.9
0.193906	37.0	1000.0	9.000	GN	L1	0.0	16.9	53.9
0.312188	25.2	1000.0	9.000	GN	L1	0.1	24.7	49.9
0.424219	32.4	1000.0	9.000	GN	L1	0.0	15.0	47.4
1.290313	28.5	1000.0	9.000	GN	N	0.1	17.5	46.0
2.280938	29.5	1000.0	9.000	GN	N	0.0	16.5	46.0

01b_FCC_107_207_Class B_Voltage_PK_QPAV_N_L1



Date: 19.07.2012 Page 2 of 2

Technical Data of Measurements with R&S EMC32 V8.52.0

EMI Autotestvorlage: 01b_FCC_107_207_Class B_Voltage_PK_QPAV_N_L1

Gerätekonfiguration: ESH2-Z5
 Messart: 4-Leiter-Netznachbildung
 Frequenzbereich: 150 kHz - 30 MHz
 Grafikpegelbereich: 0 dBµV - 90 dBµV

Vormessung:
 Scan Testvorlage: 02_Class B pre_PK_fast

Teilbereich	Schrittweite	Detektoren	ZF-Bandbreite	Messzeit	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

Empfänger: [ESCS 30]

Datenreduktion:
 Grenzwertlinie #1: Class B Voltage QP
 Grenzwertlinie #2: Class B Voltage AV
 Peaksuche: 6 dB , Maximale Ergebnisse: 10
 Teilbereichsmaxima: 25 Teilbereiche , Maxima pro Teilbereich: 1
 Akzeptanzoffset: -13 dB
 Maximale Anzahl der Ergebnisse: 30
 Nach der Datenreduktion: Interaktive Datenreduktion

Frequenzzoom:
 Zoom-Scanvorlage: 08_Class B maxZoom_PK100mS

Teilbereich	Schrittweite	Detektoren	ZF-Bandbreite	Messzeit	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

Empfänger: [ESCS 30]

Endmessung:
 Vorlage für Einzelmessung: 07a_FCC Class B fin AV QP 1sek

Teilbereich	Schrittweite	Detektoren	ZF-Bandbreite	Messzeit	Preamp
150 kHz - 30 MHz	4.5 kHz	QPK; CAV	9 kHz	1 s	0 dB

Empfänger: [ESCS 30]

Report Einstellungen:
 Reportvorlage: Ctc_Standard_class_B_FCC
 Elektronischen Report erzeugen: RTF PDF
 Dokumentname: EMI Report

Aktionen:
 Testende
 Nachricht: "End of Test"

Diagram No. 1.4

Test Description:

Test specification:

Technical Data:

Diagram:

Operator name:

Report.- Nr.

Date: 04.06.2012 Page 1 of 3

Conducted Voltage Measurement Class B

FCC 15.107

Please see next page for detailed information

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

OOu

2-0037-12-1-3i

EUT:

RFG81UW + HS2(HDW-44306-001) + CH6(HDW-44303-001) + USB1(HDW-28109-001)

Manufacturer:

RIM

Operating mode:

FDDV RX + charging

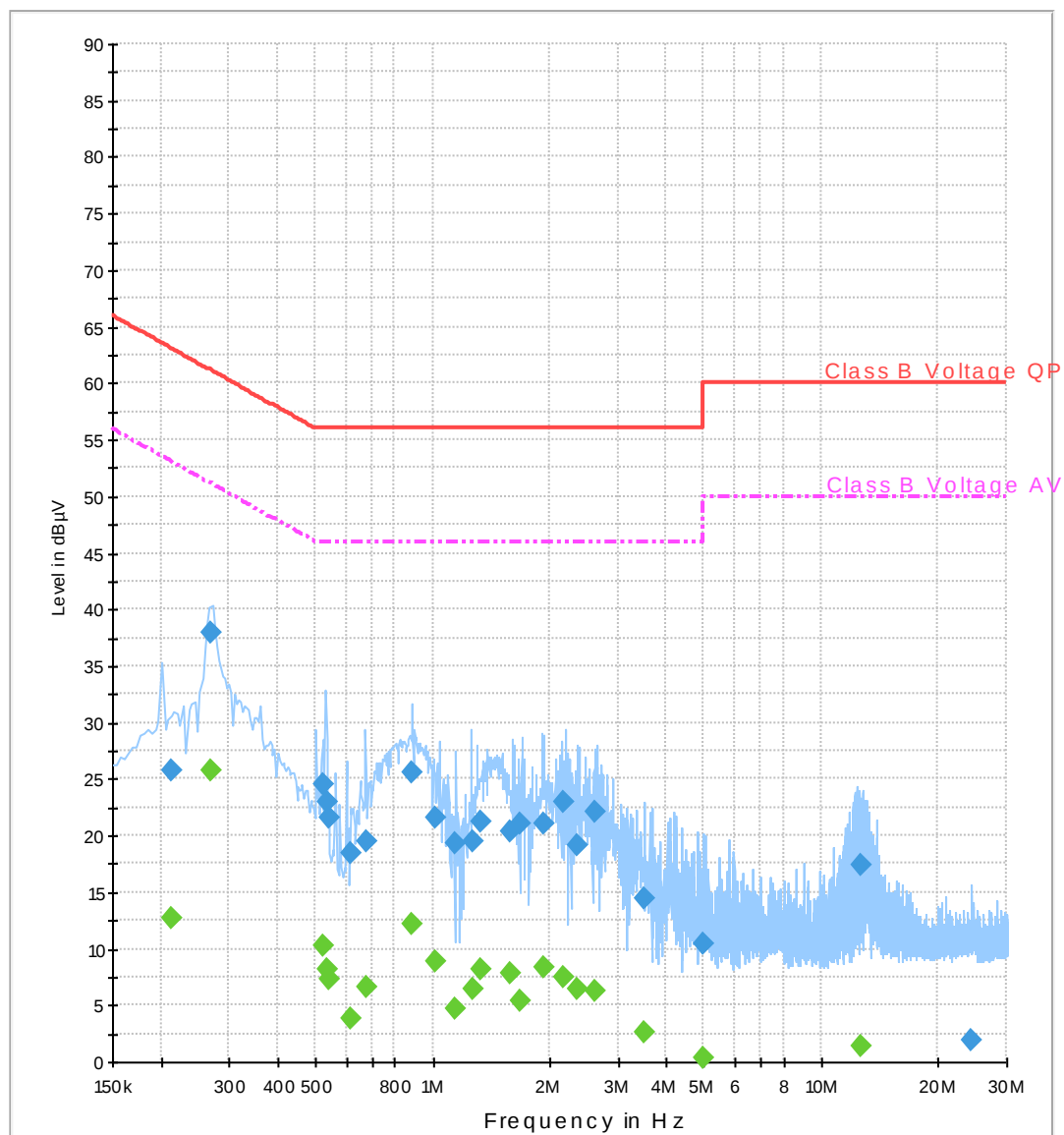
Measured on line:

Mains AC L1 and N

Power during test:

110 V AC 60 Hz

01b_FCC_107_207_Class B_Voltage_PK_QPAV_N_L1



Date: 04.06.2012 Page 2 of 3

Final Result 1

Frequency (MHz)	QuasiPeak (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.213281	25.8	1000.0	9.000	GN	N	0.0	37.3	63.1
0.269688	38.0	1000.0	9.000	GN	L1	0.1	23.1	61.1
0.524063	24.6	1000.0	9.000	GN	L1	0.0	31.4	56.0
0.536406	23.1	1000.0	9.000	GN	N	0.0	33.0	56.0
0.541563	21.5	1000.0	9.000	GN	N	0.0	34.5	56.0
0.616719	18.4	1000.0	9.000	GN	N	0.1	37.6	56.0
0.672031	19.5	1000.0	9.000	GN	N	0.1	36.5	56.0
0.881875	25.6	1000.0	9.000	GN	L1	0.0	30.4	56.0
1.018125	21.5	1000.0	9.000	GN	N	0.1	34.5	56.0
1.138594	19.4	1000.0	9.000	GN	L1	0.1	36.6	56.0
1.274063	19.5	1000.0	9.000	GN	N	0.1	36.5	56.0
1.324844	21.3	1000.0	9.000	GN	N	0.1	34.7	56.0
1.584531	20.4	1000.0	9.000	GN	N	0.1	35.6	56.0
1.689375	21.1	1000.0	9.000	GN	L1	0.1	34.9	56.0
1.942031	21.1	1000.0	9.000	GN	N	0.1	34.9	56.0
2.174375	22.9	1000.0	9.000	GN	L1	0.1	33.1	56.0
2.361875	19.1	1000.0	9.000	GN	N	0.0	36.9	56.0
2.627500	22.1	1000.0	9.000	GN	L1	0.1	33.9	56.0
3.509688	14.5	1000.0	9.000	GN	N	0.1	41.5	56.0
4.985625	10.4	1000.0	9.000	GN	N	0.1	45.6	56.0
12.584375	17.4	1000.0	9.000	GN	L1	0.1	42.6	60.0
24.456563	2.0	1000.0	9.000	GN	L1	0.3	58.0	60.0

Final Result 2

Frequency (MHz)	CAverage (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.213281	12.8	1000.0	9.000	GN	N	0.0	40.3	53.1
0.269688	25.8	1000.0	9.000	GN	L1	0.1	25.4	51.1
0.524063	10.3	1000.0	9.000	GN	L1	0.0	35.7	46.0
0.536406	8.2	1000.0	9.000	GN	N	0.0	37.8	46.0
0.541563	7.2	1000.0	9.000	GN	N	0.0	38.8	46.0
0.616719	3.9	1000.0	9.000	GN	N	0.1	42.1	46.0
0.672031	6.6	1000.0	9.000	GN	N	0.1	39.4	46.0
0.881875	12.3	1000.0	9.000	GN	L1	0.0	33.7	46.0
1.018125	8.9	1000.0	9.000	GN	N	0.1	37.1	46.0
1.138594	4.8	1000.0	9.000	GN	L1	0.1	41.2	46.0
1.274063	6.4	1000.0	9.000	GN	N	0.1	39.6	46.0
1.324844	8.2	1000.0	9.000	GN	N	0.1	37.8	46.0
1.584531	7.9	1000.0	9.000	GN	N	0.1	38.1	46.0
1.689375	5.5	1000.0	9.000	GN	L1	0.1	40.5	46.0
1.942031	8.3	1000.0	9.000	GN	N	0.1	37.7	46.0
2.174375	7.6	1000.0	9.000	GN	L1	0.1	38.4	46.0
2.361875	6.5	1000.0	9.000	GN	N	0.0	39.5	46.0
2.627500	6.2	1000.0	9.000	GN	L1	0.1	39.8	46.0
3.509688	2.7	1000.0	9.000	GN	N	0.1	43.3	46.0
4.985625	0.4	1000.0	9.000	GN	N	0.1	45.6	46.0
12.584375	1.5	1000.0	9.000	GN	L1	0.1	48.5	50.0
24.456563	-2.2	1000.0	9.000	GN	L1	0.3	52.2	50.0

Technical Data of Measurements with R&S EMC32 V8.51.1**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:	50 Subranges , Maxima per Subrange: 2
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"

Diagram No. 1.5a

Test Description:

Test specification:

Technical Data:

Diagram:

Operator name:

Report.- Nr.

Date: 10.08.2012 Page 1 of 2

Conducted Voltage Measurement Class B

FCC 15.107, class B

Please see next page for detailed information

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

Lor

2-0037/12-1i

Operating mode:

Measured on line:

Power during test:

Comment 1:

RX850 + charging battery

Mains AC L1 and N

110 V AC 60 Hz

EUT Information

EUT Name:

Applicant

RFG81UW (Sample 4) + HS1 + CH13 + ACC1

RIM

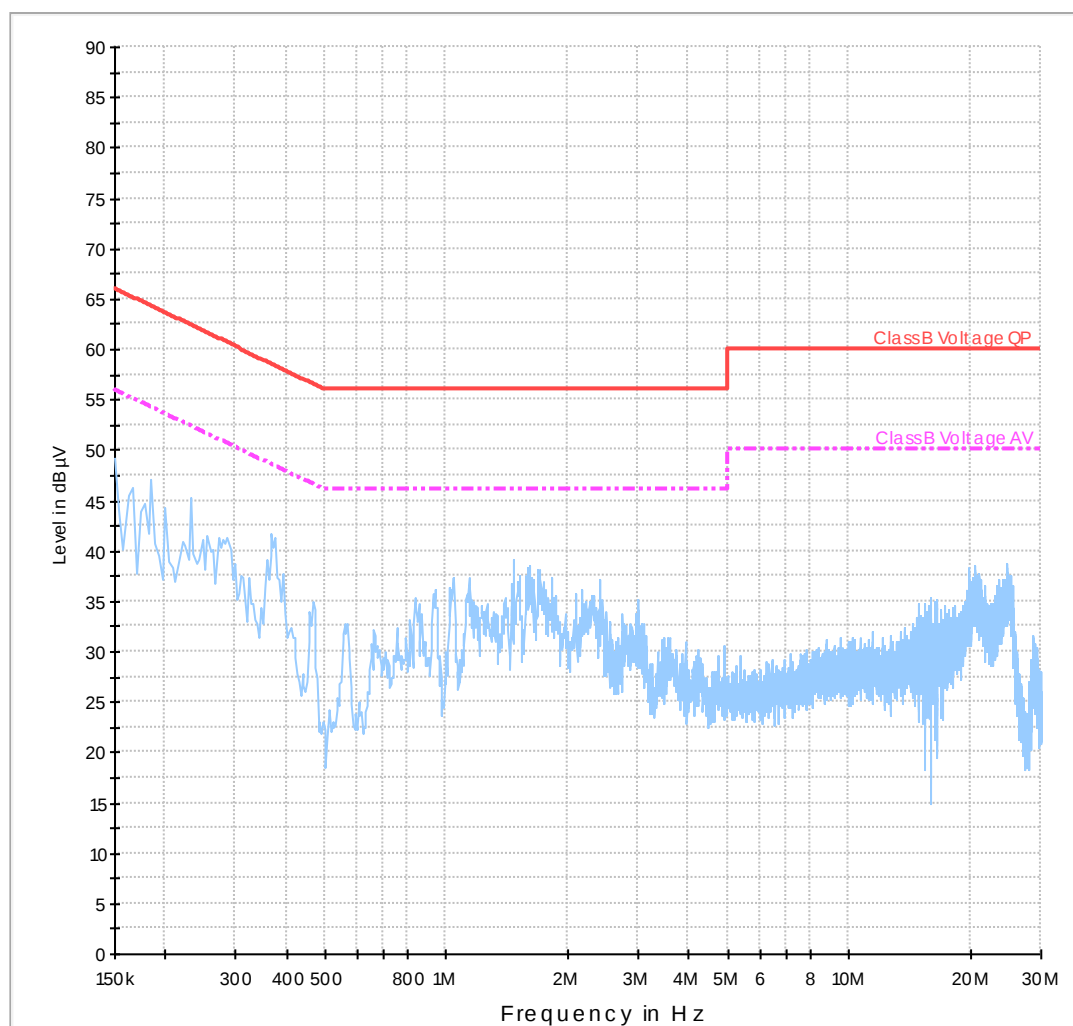
Hardware version:

Software version:

Comment:

10.0.6.300

01b_FCC_107_207_Class B_Voltage_PK_QPAV_N_L1



Date: 10.08.2012 Page 2 of 2

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"

Diagram No. 1.6

Test Description:

Test specification:

Technical Data:

Diagram:

Operator name:

Report - Nr.

Date: 11.08.2012 Page 1 of 3

Conducted Voltage Measurement Class B

FCC 15.107, class B

Please see next page for detailed information

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

OOu

2-0037/12-1i

EUT:

Manufacturer:

Operating mode:

Measured on line:

Power during test:

RFG81UW (sample 5) + HS2 + CH14 + HDMI cable + CTC monitor

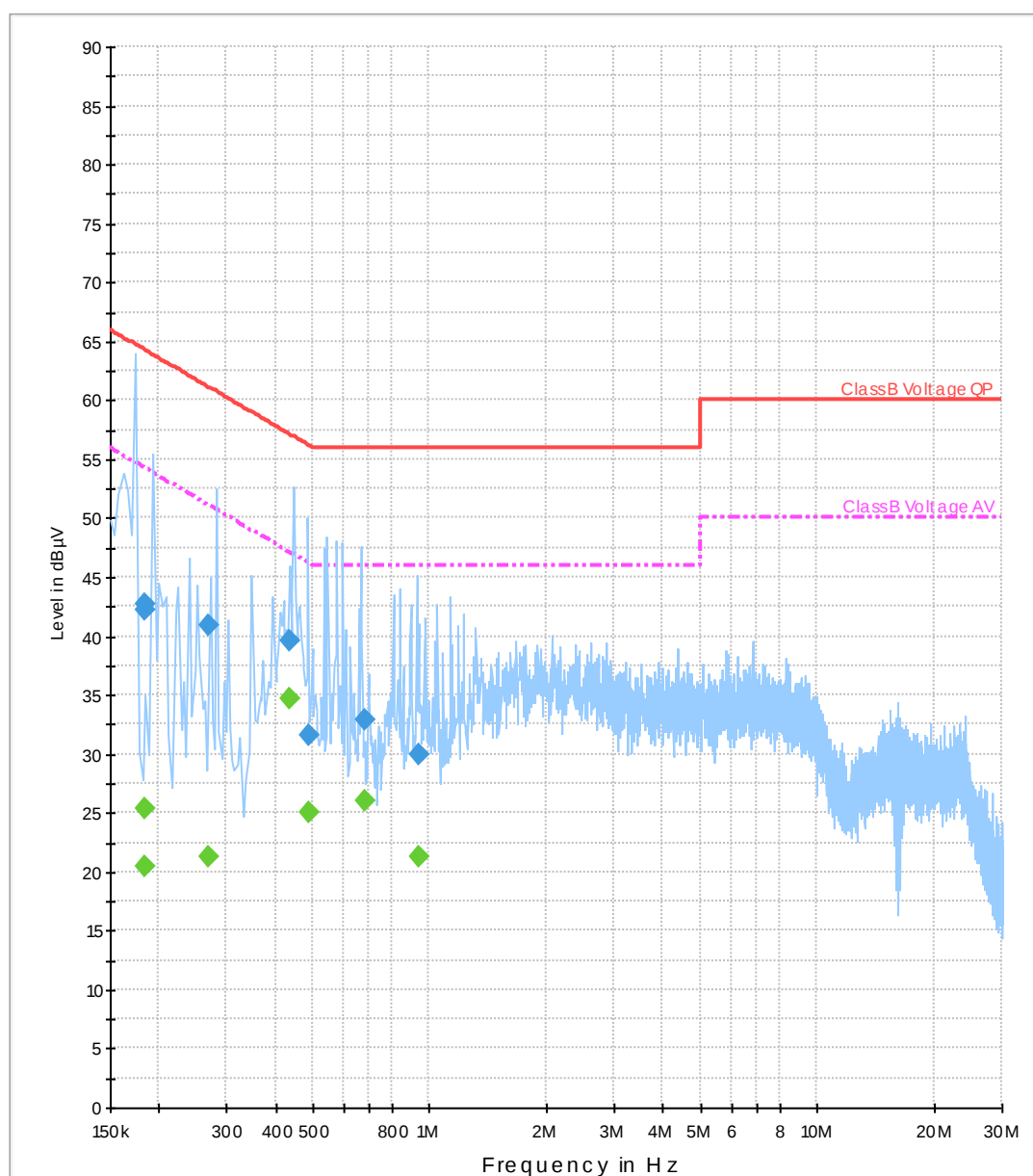
RIM

PCS 1900 IDLE + HDMI

Mains AC L1 and N

110 V AC 60 Hz

01_Class B_Voltage_PK_QPAV_N_L1



Date: 11.08.2012 Page 2 of 3

Final Result 1

Frequency (MHz)	QuasiPeak (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.184469	42.7	15000.0	9.000	GND	N	0.0	21.6	64.3
0.184938	42.3	15000.0	9.000	GND	L1	0.0	22.0	64.3
0.269313	40.8	15000.0	9.000	GND	L1	0.1	20.3	61.1
0.433375	39.7	15000.0	9.000	GND	N	0.0	17.5	57.2
0.487438	31.5	15000.0	9.000	GND	N	0.0	24.7	56.2
0.679125	32.8	15000.0	9.000	GND	N	0.1	23.2	56.0
0.940844	29.9	15000.0	9.000	GND	N	0.0	26.1	56.0

Final Result 2

Frequency (MHz)	CAverage (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.184469	20.4	15000.0	9.000	GND	N	0.0	33.9	54.3
0.184938	25.3	15000.0	9.000	GND	L1	0.0	28.9	54.3
0.269313	21.3	15000.0	9.000	GND	L1	0.1	29.9	51.1
0.433375	34.6	15000.0	9.000	GND	N	0.0	12.5	47.2
0.487438	25.0	15000.0	9.000	GND	N	0.0	21.2	46.2
0.679125	26.0	15000.0	9.000	GND	N	0.1	20.0	46.0
0.940844	21.2	15000.0	9.000	GND	N	0.0	24.8	46.0

Technical Data of Measurements with R&S EMC32 V8.52.0**EMI Auto Test Template: 01_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.: 07_Class B fin AV QP

Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
9 kHz - 150 kHz	4.5 kHz	QPK; CAV	200 Hz	15 s	0 dB
150 kHz - 30 MHz	4.5 kHz	QPK; CAV	9 kHz	15 s	0 dB

Receiver: [ESCS 30]

Report Settings:

Report Template: Ctc_Standard_class_B
Create Electronic Report: RTF PDF
Document Name: EMI Report

Actions:

Test stop
Notify: "End of Test"

2. Radiated field strength measurements accord. §15.109, class B

2.1. Frequency range 30MHz to 1000MHz

Diagram No. 2.01a

Test description: 24.07.2012 Page 1 of 2
 Test site and distance: Electric Fieldstrength Measurement
 Distance correction: Semi Anechoic Room (SAR) with 3 m measurement distance
 Used filter: not used
 Technical Data: please see page 2 for detailed data of measurement setup
 Test specification.: FCC 15.109 Class B; RSS-Gen

Operator: Lor
 Operating conditions: Idle 850 + charging battery
 Power during tests: 110V/60Hz
 Comment 1: --

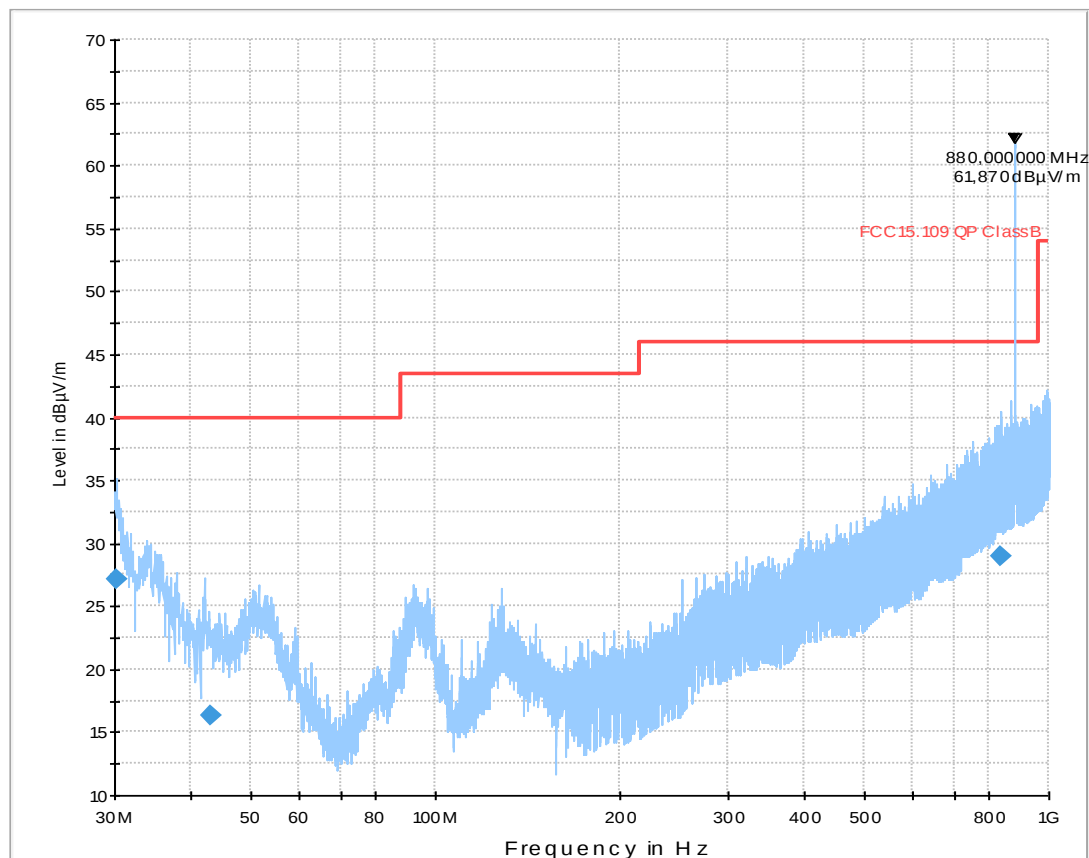
EUT Information

EUT Name: RFG81UW + HS1 + CH1+ USB1
 Manufacturer: RIM
 Serial Number: #004401139037010
 Hardware Rev: new (sample 5)
 Software Rev: new
 Comment:

Final Result 1

Frequency (MHz)	QuasiPeak (dBμV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Elevation (deg)	Corr. (dB)	Limit (dBμV/m)
30.190000	27.2	1000.0	120.000	112.0	H	48.0	0.0	21.7	40.0
42.910000	16.3	1000.0	120.000	291.0	H	82.0	0.0	16.1	40.0
832.190000	29.0	1000.0	120.000	100.0	H	24.0	90.0	25.4	46.0

18_FCC15.109_Class B_hor+vert_kipp



Date: 24.07.2012 Page 2 of 2

Technical Data of measurement with EMC32 V8.52.0

EMI Auto Test Template: 18_FCC15.109_Class B_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: FCC15.109 QP Class B
 Peak Search: 6 dB , Maximum Results: 10
 Subrange Maxima: 25 Subranges , Maxima per Subrange: 1
 Acceptance Offset: -6 dB
 Maximum Number of Results: 10
 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_109_vert_hor_classB
 Create Electronic Report: RTF PDF
 Document Name: EMI Report

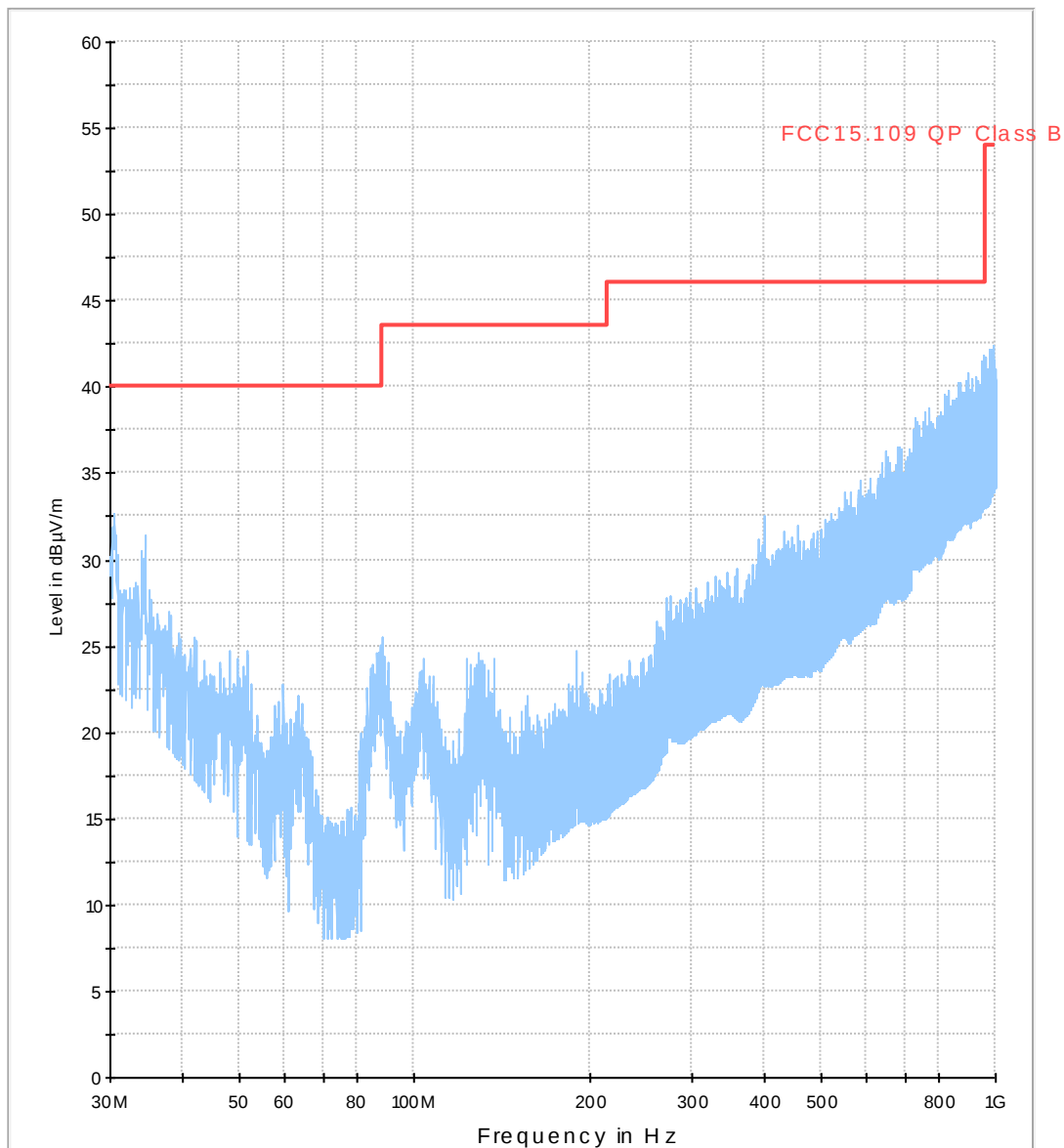
Actions:
 Data Reduction: Before
 Notify: Sound (WAV file) 'tada.wav'
 Frequency Zoom 2: Before
 Notify: "EUT sendet noch ?"
 Final Measurements: After
 Notify: Sound (WAV file) 'tada.wav'

Diagram No. 2.02a_PCS1900_RX

Test description: 10.08.2012 Page 1 of 2
Test site and distance: Electric Fieldstrength Measurement
Distance correction: Semi Anechoic Room (SAR) with 3 m measurement distance
Used filter: not used
Technical Data: please see page 2 for detailed data of measurement setup
Test specification.: FCC 15.209 Class B; RSS-Gen

Operator: HLa
Operating conditions: PCS1900 + charging

FCC15.109_hor+vert



EMI Auto Test Template: FCC15.109_hor+vert

Hardware Setup: HW11_FCC_ESCS30_TP1200
 Measurement Type: Open-Area-Test-Site
 Frequency Range: 30 MHz - 1 GHz
 Graphics Level Range: 0 dBμV/m - 60 dBμV/m

Preview Measurements:
 Antenna height: 100 - 182 cm , Step Size = 82 cm , Positioning Speed = 8
 Polarization: H + V
 Turntable position: 0 - 270 deg , Step Size = 90 deg , Positioning Speed = 8
 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: FCC15.109 QP Class B
 Peak Search: 6 dB , Maximum Results: 10
 Subrange Maxima: 25 Subranges , Maxima per Subrange: 1
 Acceptance Offset: -6 dB
 Maximum Number of Results: 10
 After Data Reduction: Interactive data reduction

Frequency Zoom:
 Zoom Scan Template: EMI Scan 02_20ms_zoom_FCC 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:
 Antenna height: Adjustment with full Range , Measuring Speed = 8
 Turntable position: Adjustment with full Range , Measuring Speed = 4
 Template for Single Meas.: EMI Scan 02_20ms_FCC 15_209 B

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
 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'

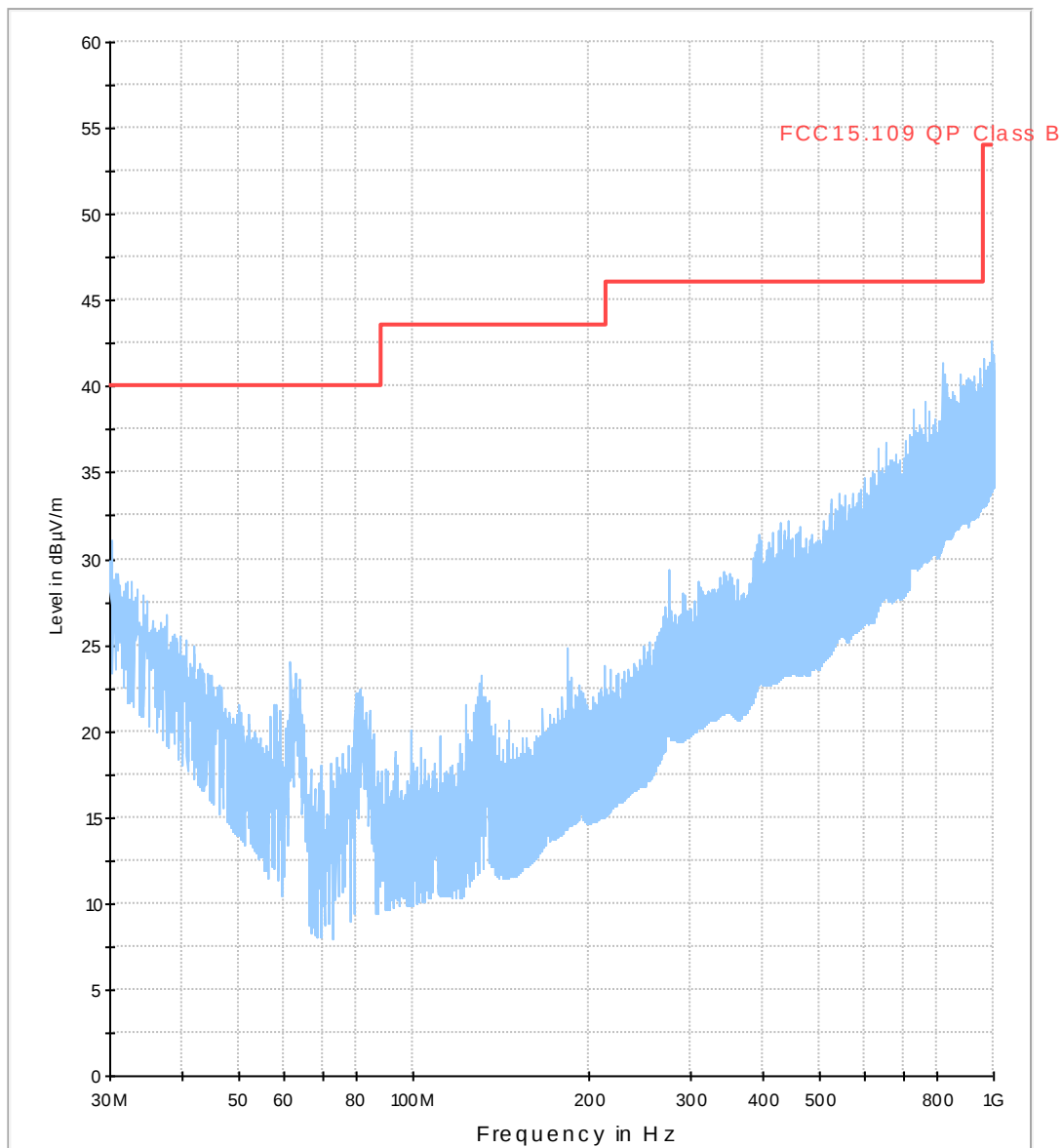
Diagram No. 2.03a_FDDII_RX

Test description: 10.08.2012 Page 1 of 2
Test site and distance: Electric Fieldstrength Measurement
Distance correction: Semi Anechoic Room (SAR) with 3 m measurement distance
Used filter: not used
Technical Data: please see page 2 for detailed data of measurement setup
Test specification: FCC 15.209 Class B; RSS-Gen

Operator: HLa
Operating conditions: FDD II + charging

EUT Information

EUT Name: RFG81UW (Sample 4)+ HS1 + CH5
Manufacturer: Research in Motion

FCC15.109_hor+vert

EMI Auto Test Template: FCC15.109_hor+vert

Hardware Setup: HW11_FCC_ESCS30_TP1200
 Measurement Type: Open-Area-Test-Site
 Frequency Range: 30 MHz - 1 GHz
 Graphics Level Range: 0 dBμV/m - 60 dBμV/m

Preview Measurements:
 Antenna height: 100 - 182 cm , Step Size = 82 cm , Positioning Speed = 8
 Polarization: H + V
 Turntable position: 0 - 270 deg , Step Size = 90 deg , Positioning Speed = 8
 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: FCC15.109 QP Class B
 Peak Search: 6 dB , Maximum Results: 10
 Subrange Maxima: 25 Subranges , Maxima per Subrange: 1
 Acceptance Offset: -6 dB
 Maximum Number of Results: 10
 After Data Reduction: Interactive data reduction

Frequency Zoom:
 Zoom Scan Template: EMI Scan 02_20ms_zoom_FCC 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:
 Antenna height: Adjustment with full Range , Measuring Speed = 8
 Turntable position: Adjustment with full Range , Measuring Speed = 4
 Template for Single Meas.: EMI Scan 02_20ms_FCC 15_209 B

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
 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. 2.04a_FDD5_RX

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

10.08.2012 Page 1 of 2
Electric Fieldstrength 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 Class B; RSS-Gen

Operator:
Operating conditions:

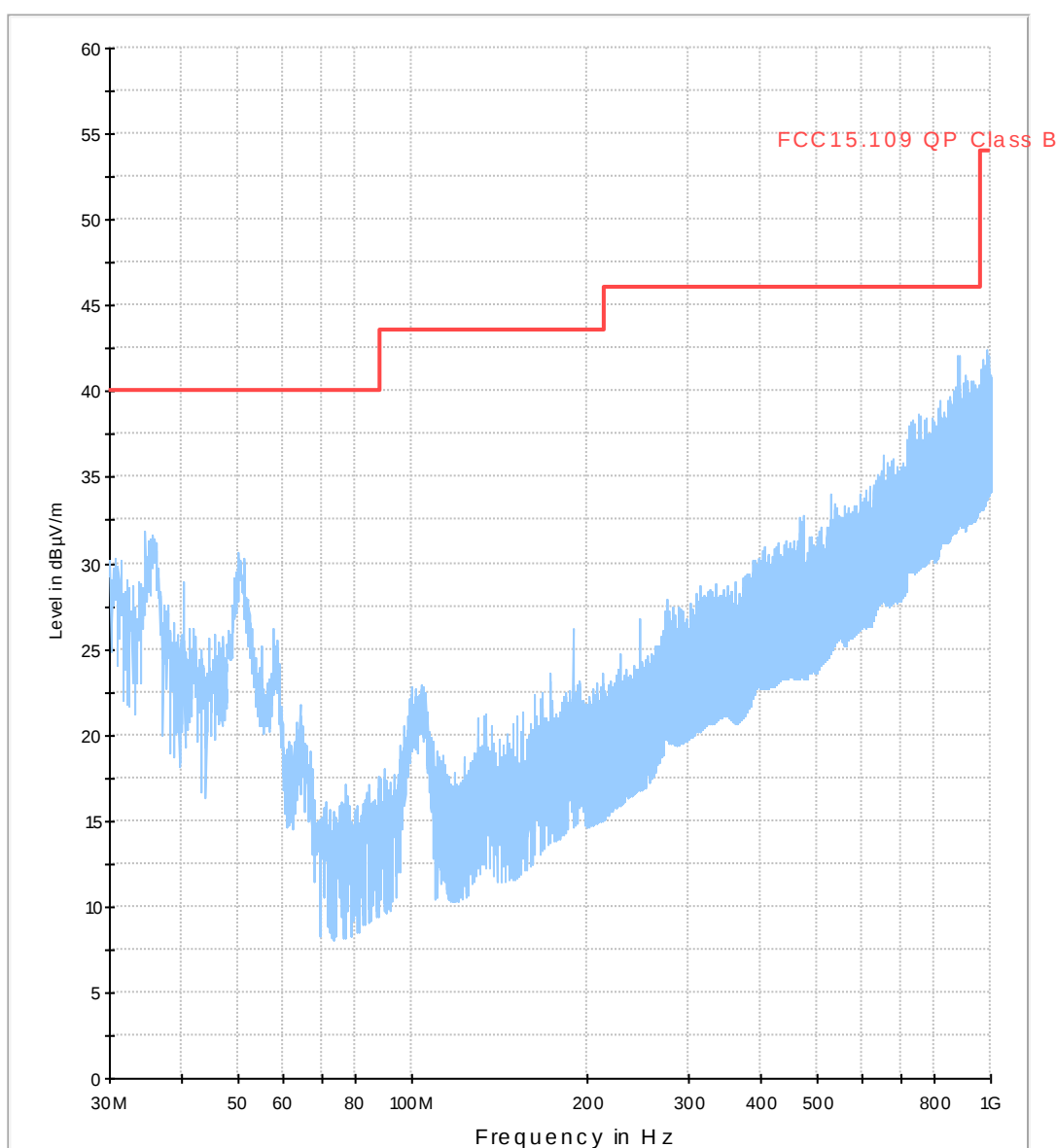
HLA
FDD V + charging

EUT Information

EUT Name:
Manufacturer:

RFG81UW (Sample 4)+ HS2 + CH6 + USB1
Research in Motion

FCC15.109_hor+vert



EMI Auto Test Template: FCC15.109_hor+vert

Hardware Setup: HW11_FCC_ESCS30_TP1200
 Measurement Type: Open-Area-Test-Site
 Frequency Range: 30 MHz - 1 GHz
 Graphics Level Range: 0 dBμV/m - 60 dBμV/m

Preview Measurements:
 Antenna height: 100 - 182 cm , Step Size = 82 cm , Positioning Speed = 8
 Polarization: H + V
 Turntable position: 0 - 270 deg , Step Size = 90 deg , Positioning Speed = 8
 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: FCC15.109 QP Class B
 Peak Search: 6 dB , Maximum Results: 10
 Subrange Maxima: 25 Subranges , Maxima per Subrange: 1
 Acceptance Offset: -6 dB
 Maximum Number of Results: 10
 After Data Reduction: Interactive data reduction

Frequency Zoom:
 Zoom Scan Template: EMI Scan 02_20ms_zoom_FCC 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:
 Antenna height: Adjustment with full Range , Measuring Speed = 8
 Turntable position: Adjustment with full Range , Measuring Speed = 4
 Template for Single Meas.: EMI Scan 02_20ms_FCC 15_209 B

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
 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 2.05_ad

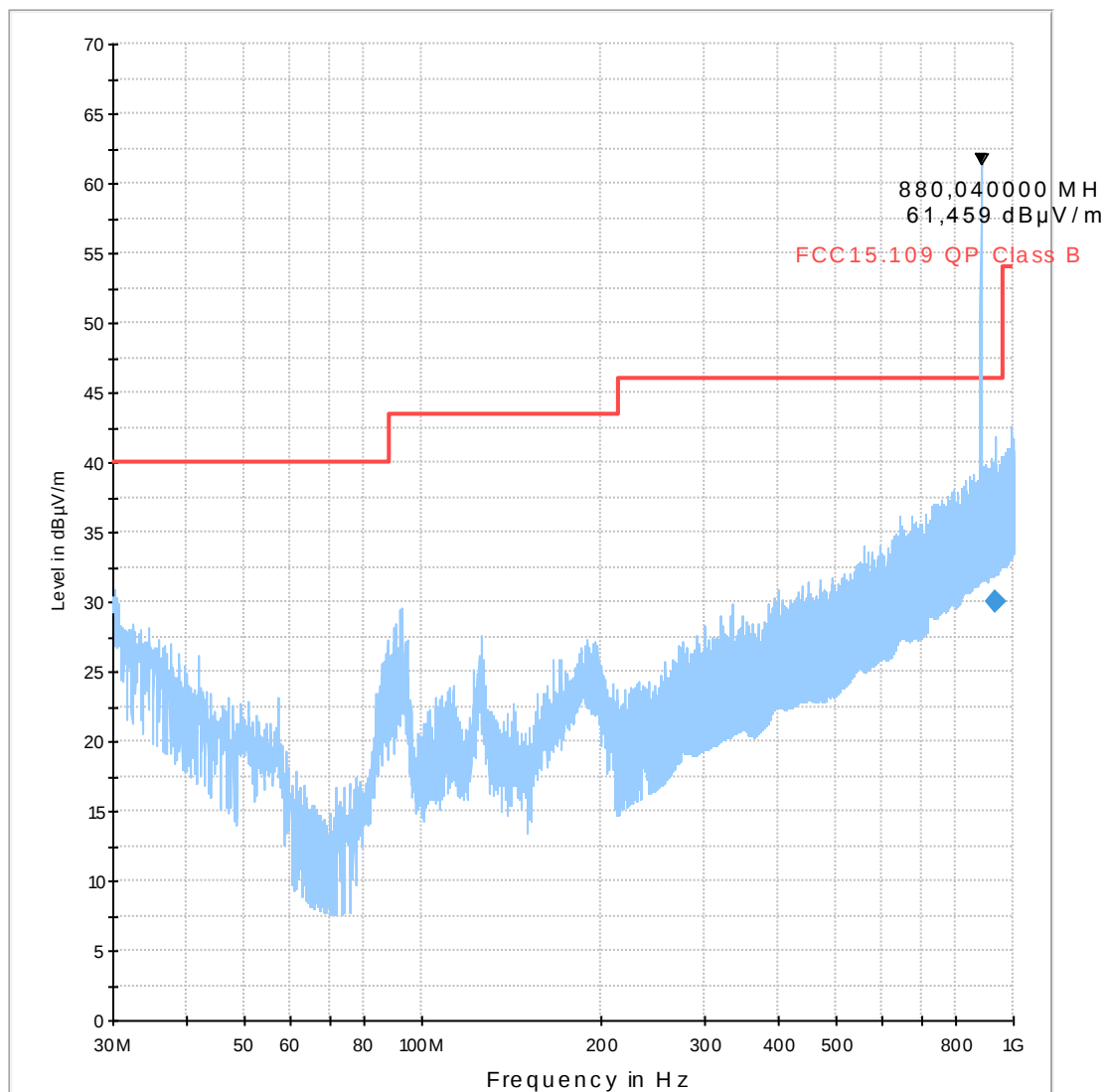
Test description: 28.08.2012 Page 1 of 2
Test site and distance: Electric Fieldstrength Measurement
Distance correction: Semi Anechoic Room (SAR) with 3 m measurement distance
Used filter: not used
Technical Data: please see page 2 for detailed data of measurement setup
Test specification.: FCC 15.209 Class B; RSS-Gen

Operator: dpa
Operating conditions: GSM 850 Idle + Charging

EUT Information

EUT Name: RFG81UW (Sample 3) + HS1 + Ch13
Manufacturer: RIM
IMEI: 004401139036988
HW:
Add. Info: Sample 3
Setup: used ORGA 3G Sim-card, full battery (type: BAT-47277-001)

FCC15.109_hor+vert



Final Result 1

Frequency (MHz)	QuasiPeak (dBμV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin - QPK (dB)
931.520000	30.0	1000.0	120.000	246.0	V	46.0	26.5	16.0

EMI Auto Test Template: FCC15.109_hor+vert

Hardware Setup: HW11_FCC_ESCS30_TP1200
 Measurement Type: Open-Area-Test-Site
 Frequency Range: 30 MHz - 1 GHz
 Graphics Level Range: 0 dBμV/m - 60 dBμV/m

Preview Measurements:
 Antenna height: 100 - 182 cm , Step Size = 82 cm , Positioning Speed = 8
 Polarization: H + V
 Turntable position: 0 - 270 deg , Step Size = 90 deg , Positioning Speed = 8
 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: FCC15.109 QP Class B
 Peak Search: 6 dB , Maximum Results: 10
 Subrange Maxima: 25 Subranges , Maxima per Subrange: 1
 Acceptance Offset: -6 dB
 Maximum Number of Results: 10
 After Data Reduction: Interactive data reduction

Frequency Zoom:
 Zoom Scan Template: EMI Scan 02_20ms_zoom_FCC 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:
 Antenna height: Adjustment with full Range , Measuring Speed = 8
 Turntable position: Adjustment with full Range , Measuring Speed = 4
 Template for Single Meas.: EMI Scan 02_20ms_FCC 15_209 B

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
 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. 2.06a

Test description: 24.07.2012 Page 1 of 2
 Test site and distance: Electric Fieldstrength Measurement
 Distance correction: Semi Anechoic Room (SAR) with 3 m measurement distance
 Used filter: not used
 Technical Data: not used
 Test specification.: please see page 2 for detailed data of measurement setup
 FCC 15.109 Class B; RSS-Gen

Operator: Lor
 Operating conditions: IDLE GSM1900 + integrated video camera HDMI mirror screen on HDMI-external monitor + charging battery
 Power during tests: 110V/60Hz
 Comment 1: --

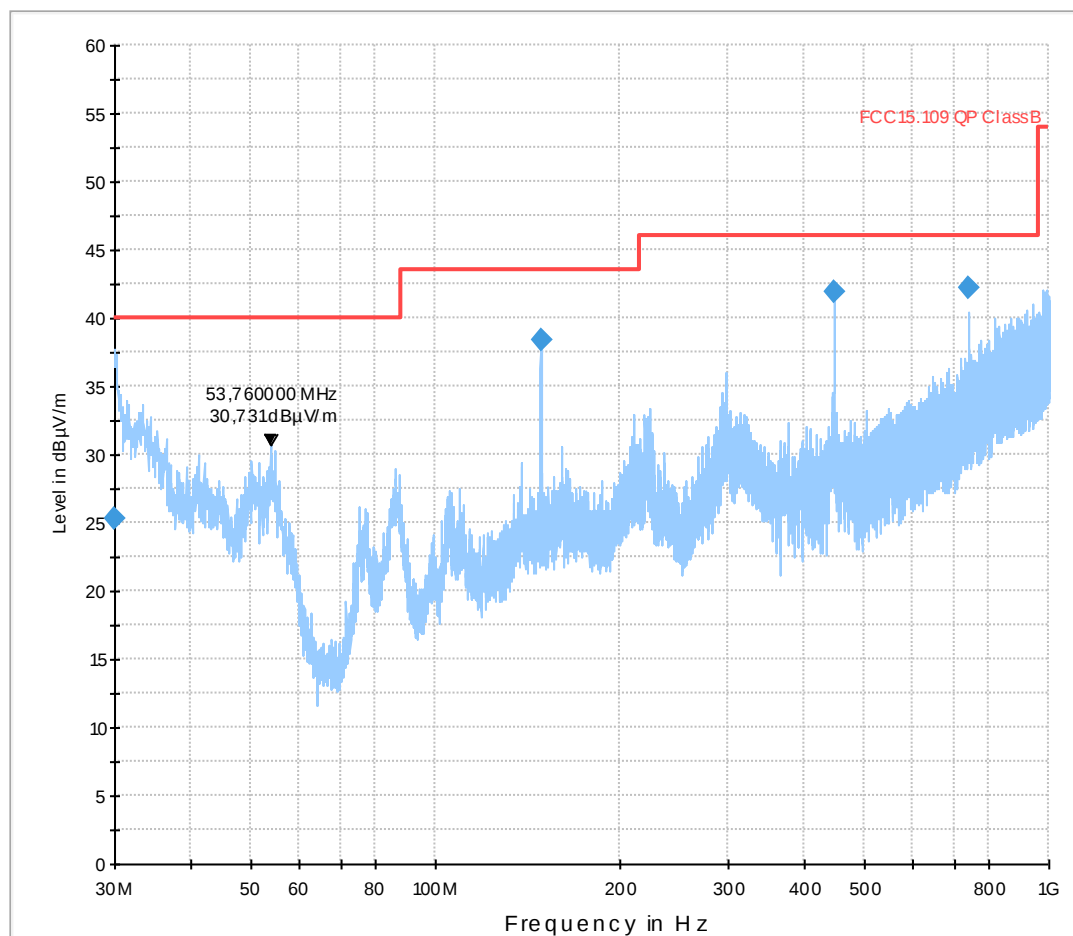
EUT Information

EUT Name: RFG81UW + HS2 + CH14+ HDMI cable
 Manufacturer: RIM
 Serial Number: #004401139037010
 Hardware Rev: new (sample 5)
 Software Rev: new
 Comment: --

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)
30.100000	25.2	1000.0	120.000	182.0	H	149.0	0.0	21.8	14.8	40.0
148.490000	38.4	1000.0	120.000	100.0	V	318.0	90.0	8.7	5.1	43.5
445.500000	41.9	1000.0	120.000	100.0	H	173.0	90.0	19.5	4.1	46.0
742.490000	42.3	1000.0	120.000	100.0	H	98.0	90.0	24.0	3.7	46.0

18_FCC15.109_Class B_hor+vert_kipp



Date: 24.07.2012 Page 2 of 2

Technical Data of measurement with EMC32 V8.52.0

EMI Auto Test Template: 18_FCC15.109_Class B_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: FCC15.109 QP Class B
 Peak Search: 6 dB , Maximum Results: 10
 Subrange Maxima: 25 Subranges , Maxima per Subrange: 1
 Acceptance Offset: -6 dB
 Maximum Number of Results: 10
 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_109_vert_hor_classB
 Create Electronic Report: RTF PDF
 Document Name: EMI Report

Actions:
 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'

2.2. Frequency range 1000MHz to 5000MHz

Diagram 8.01

Common Information

Test Description:	Radiated Field Strength Emission
Test Site Location:	CETECOM GmbH Essen
Test Site:	Fully Anechoic Room (FAR)
Test Standard:	FCC Part 15.109
Section:	15.109
Operating Mode:	GSM850 RX + Charging (110V /60Hz)
Equipment Class:	Class B
Environmental Conditions:	Humidity: 49 %rH; Temperature: 20°C
Operator:	OOu
Report nr:	2-0037-12-1-3i
Setup:	RFG81UW + HS1(HDW-44306-001) + CH1(HDW-24481-001) + USB1(HDW-28109-003)

EUT Information

EUT Name:	RFG81UW
Manufacturer:	RIM
Serial Number:	004401138946757
Hardware Rev:	CPR 21957
Add. Info:	ASY-46297-001 Rev K
SW Rev:	
Comment:	used ORGA 3G Sim-card, full battery (type: BAT-47277-001), Smartphone

030445_FCC_Part15.109_Unintentional_Radiator_Class_B_1G-20G_FSEK

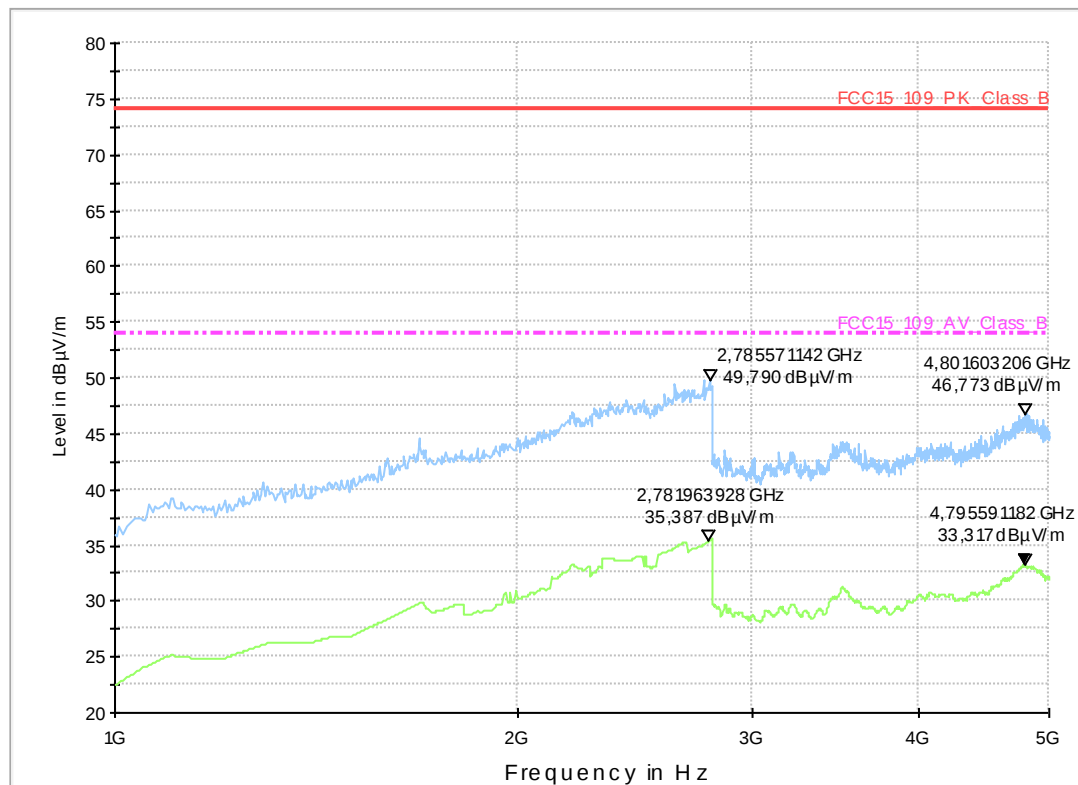


Diagram 8.02_RX_PCS1900

Common Information

Test Description:	Radiated Field Strength Emission
Test Site Location:	CETECOM GmbH Essen
Test Site:	Fully Anechoic Room (FAR)
Test Standard:	FCC Part 15.109
Section:	15.109
Operating Mode:	PCS1900 RX + Charging (110V/60Hz)
Equipment Class:	Class B
Environmental Conditions:	Humidity: 49 %rH; Temperature: 20°C
Operator:	OOu
Report nr:	2-0037-12-1-3i
Setup:	RFG81UW + HS2(HDW-44306-001) + CH3(HDW-47725-001) + USB2(HDW-48415-001)

EUT Information

EUT Name:	RFG81UW
Manufacturer:	RIM
Serial Number:	004401138946757
Hardware Rev:	CPR 21957
Add. Info:	ASY-46297-001 Rev K
SW Rev:	
Comment:	used ORGA 3G Sim-card, full battery (type: BAT-47277-001), Smartphone

030445_FCC_Part15.109_Unintentional_Radiator_Class_B_1G-20G_FSEK

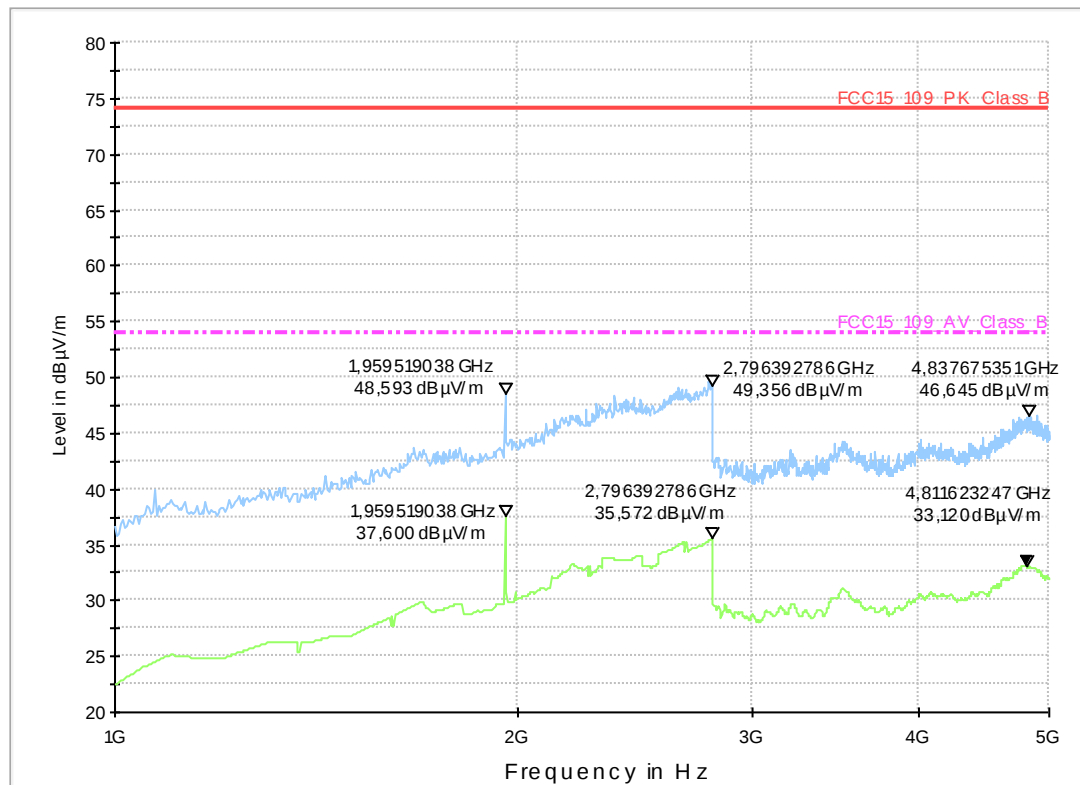


Diagram 8.03

Common Information

Test Description:	Radiated Field Strength Emission
Test Site Location:	CETECOM GmbH Essen
Test Site:	Fully Anechoic Room (FAR)
Test Standard:	FCC Part 15.109
Section:	15.109
Operating Mode:	UMTS FDD2 Idle + Charging
Equipment Class:	Class B
Environmental Conditions:	Humidity: 75%rH; Temperature: 21°C
Operator:	HLA

EUT Information

Manufacturer:	RIM
Model:	GSM/WCDMA/LTE Mobile Terminal
Type:	

EUT:	RFG81UW + HS1 + CH5
EUT additional information:	CER-48928-001 Rev2 17-Jul-12
HW version:	new
SW version:	tbd
Serial number:	004401139037010
Power Supply:	110V/60Hz
Comments:	-

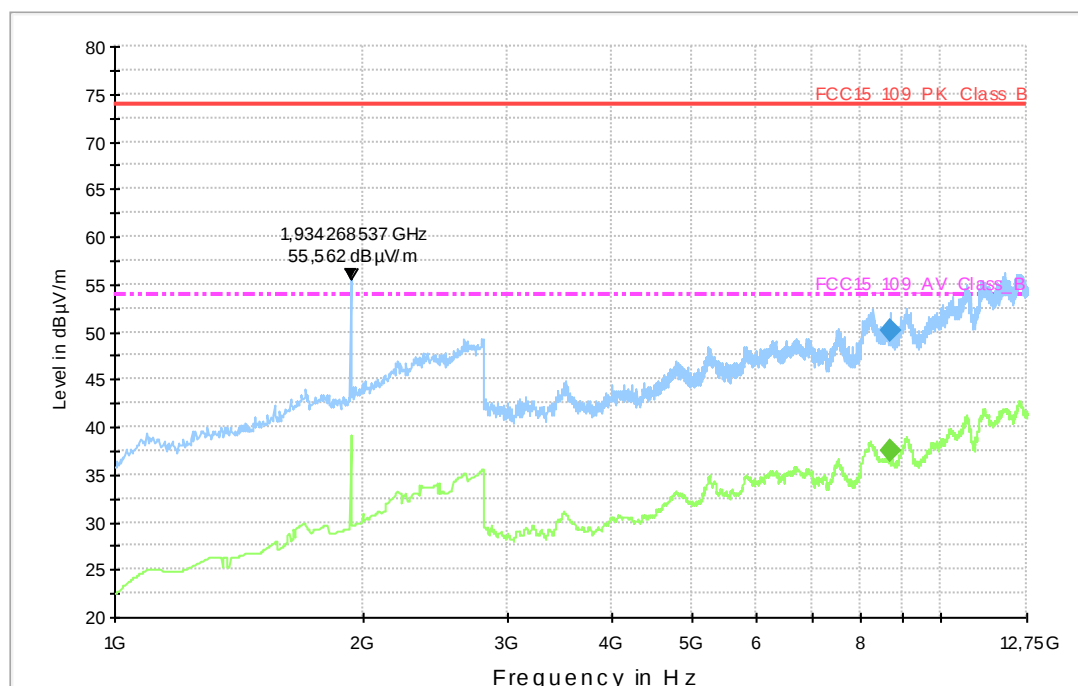
Final Result 1

Frequency (MHz)	MaxPeak (dBμV/m)	Meas. Time (ms)	Bandwidth (kHz)	Polarization	Azimuth (deg)	Elevation (deg)	Corr. (dB)	Margin (dB)	Limit (dBμV/m)
8702.094189	50.2	100.0	1000.000	V	21.0	0.0	12.4	23.8	74.0

Final Result 2

Frequency (MHz)	Average (dBμV/m)	Meas. Time (ms)	Bandwidth (kHz)	Polarization	Azimuth (deg)	Elevation (deg)	Corr. (dB)	Margin (dB)	Limit (dBμV/m)
8696.402806	37.5	100.0	1000.000	V	341.0	90.0	12.4	16.5	54.0

030445_FCC_Part15.109_Unintentional_Radiator_Class_B_1G-20G_FSEK



Hardware Setup: EMI radiated\00432_FCC_Part15_Unintentional_Radiator_1G-22G_dBuV_FSEK - [EMI radiated]

Subrange 1

Frequency Range: 1 GHz - 3 GHz

Receiver: FSEK [FSEK]
@ GPIB0 (ADR 30), SN 826939/005, FW 3.20, CAL 21.03.2012

Signal Path: 00121_HL025_Through1_Amp_Out3
FW 1.0
Correction Table: 00121_HL025_Through1_Amp_Out3

Antenna: 00113_HL025_1G-26G_dBuV_AF_FCC_3m
Correction Table (vertical): 00113_HL025_1G-26G_dBuV_AF_FCC_3m
Correction Table (horizontal): 00113_HL025_1G-26G_dBuV_AF_FCC_3m

Antenna Tower: Mast_2 PSN Horn [Generic Tripod]
@ GPIB0 (ADR 21), SN ?

Turntable: EMCO2090 Turntable [EMCO Turntable]
@ GPIB0 (ADR 9), FW REV 3.21

Subrange 2

Frequency Range: 3 GHz - 22 GHz

Receiver: FSEK [FSEK]
@ GPIB0 (ADR 30), SN 826939/005, FW 3.20, CAL 21.03.2012

Signal Path: 00122_HL025_HP2.8-18G_Amp18G_Through3_Out3
FW 1.0
Correction Table: 00122_HL025_HP2.8-18G_Amp18G_Through3_Out3

Antenna: 00113_HL025_1G-26G_dBuV_AF_FCC_3m
Correction Table (vertical): 00113_HL025_1G-26G_dBuV_AF_FCC_3m
Correction Table (horizontal): 00113_HL025_1G-26G_dBuV_AF_FCC_3m

Antenna Tower: Mast_2 PSN Horn [Generic Tripod]
@ GPIB0 (ADR 21), SN ?

Turntable: EMCO2090 Turntable [EMCO Turntable]
@ GPIB0 (ADR 9), FW REV 3.21

EMI Auto Test Template: 030445_FCC_Part15.109_Unintentional_Radiator_Class_B_1G-20G_FSEK

Hardware Setup: 00432_FCC_Part15_Unintentional_Radiator_1G-22G_dBuV_FSEK

Measurement Type: E(I)RP

Frequency Range: 1 GHz - 12,75 GHz

Graphics Level Range: 20 dB μ V/m - 80 dB μ V/m

Preview Measurements:

Sweep Test Template: 010451_FCC_Part15.109_Unintentional_Radiator_Class_B_FSEK_1G-20G

Data Reduction:

Limit Line #1: FCC15_109_PK_Class_B

Limit Line #2: FCC15_109_AV_Class_B

Peak Search: 6 dB , Maximum Results: 10

Subrange Maxima: 10 Subranges , Maxima per Subrange: 1

Maximum Number of Results: 5

After Data Reduction: Interactive data reduction

Frequency Zoom:

Zoom Sweep Template: 010451_FCC_Part15.109_Unintentional_Radiator_Class_B_FSEK_1G-20G

Adjustment:

Template for Single Meas.: 020451_FCC_Part15.109_Unintentional_Radiator_FSEK_Prescan

Final Measurements:

Template for Single Meas.: 020452_FCC_Part15.109_Unintentional_Radiator_FSEK_Finalsean

Template for Single Meas.:(>1GHz) 020452_FCC_Part15.109_Unintentional_Radiator_FSEK_Finalsean

Report Settings:

Report Template: Report Setup FCC Part15.109 Class B

Create Electronic Report: PDF

Document Name: EMI Report

Actions:

Test start

Notify: "Please be sure that the matrix output is connected to FSEK!"

Test stop

Park Accessories

Diagram 8.04

Common Information

Test Description:	Radiated Filed Strength Emission
Test Site Location:	CETECOM GmbH Essen
Test Site:	Fully Anechoic Room (FAR)
Test Standard:	FCC Part 15.109
Section	15.109
Operating Mode:	FDDV RX + Charging (110V/60Hz)
Equipment Class:	Class B
Environmental Conditions:	Humidity: 54%rH; Temperature: 21°C
Operator:	OOu
Setup:	RFG81UW + HS2 (HDW-44306-001) + CH6 (HDW-44303-001) + USB1 (HDW-28109-003)
Report nr:	2-0037-12-1-3i

EUT Information

EUT Name:	RFG81UW
Manufacturer:	RIM
Serial Number:	004401138946757
Hardware Rev:	CPR 21957
Add. Info:	ASY-46297-001 Rev K
SW Rev:	
Comment:	used ORGA 3G Sim-card, full battery (type: BAT-47277-001), Smartphone

030445_FCC_Part15.109_Unintentional_Radiator_Class_B_1G-20G_FSEK

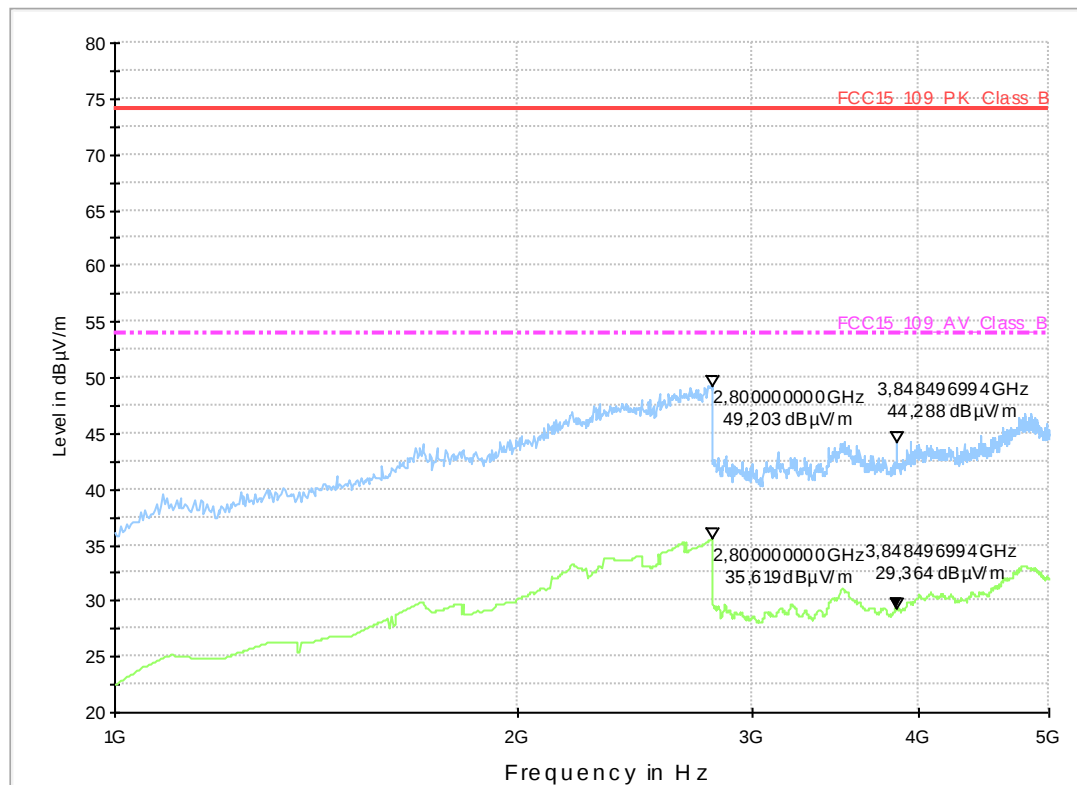


Diagram No.: 8.05_a**Common Information**

Test Description:	Radiated field strength emission in 3m distance
Test Site:	CETECOM GmbH Essen
Test Standard:	FCC 15.109 Unintentional Radiator
Antenna polarisation:	horizontal/vertical
Operation mode:	G850 RX + charging (110 V / 60 Hz)
Operator Name:	dpa
Setup:	EUT (Sample 3)+ HS1+ CH13 2-0037-12-1i

EUT Information

EUT Name:	RFG81UW
Manufacturer:	RIM
Serial Number:	Sample 3
Hardware Rev:	
Add. Info:	
SW Rev:	
Comment:	full battery (type: BAT-47277-001)

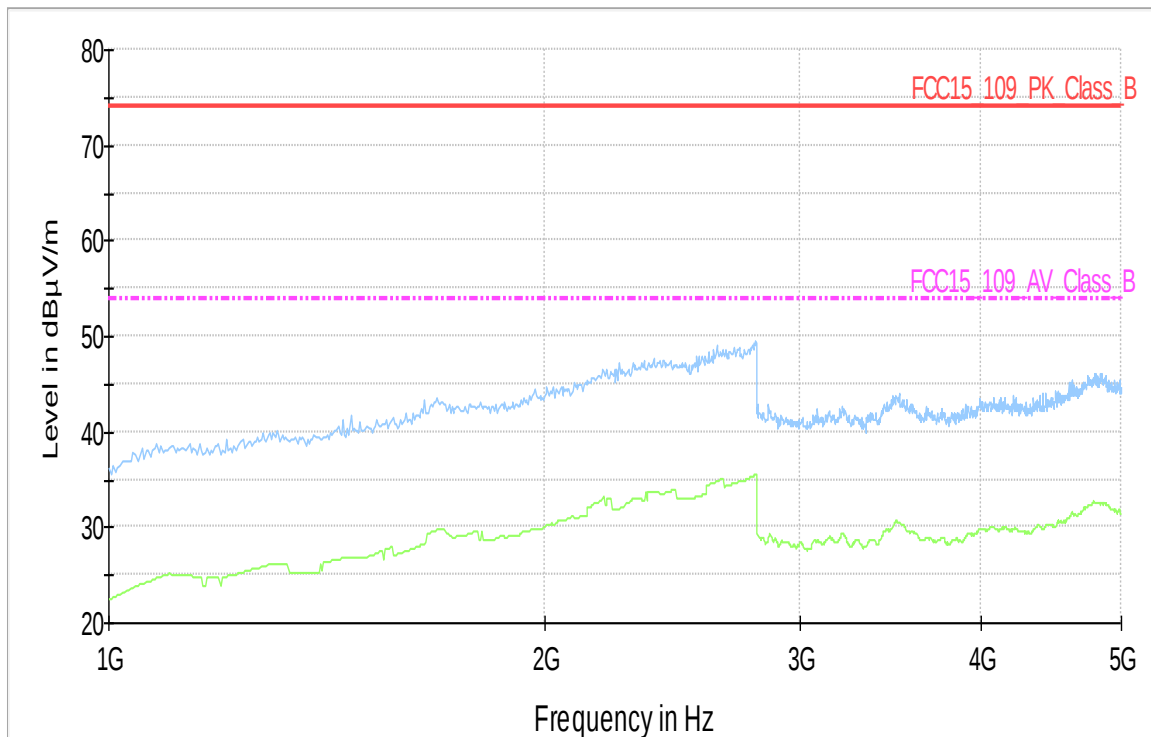


Diagram 8.06_1

Common Information

Test Description:	Radiated Field Strength Emission
Test Site Location:	CETECOM GmbH Essen
Test Site:	Fully Anechoic Room (FAR)
Test Standard:	FCC Part 15.109
Section:	15.109
Operating Mode:	PCS 1900 Idle + Charging battery + mirror display/camera video on HDMI
Equipment Class:	Class B
Environmental Conditions:	Humidity: 48%rH; Temperature: 19,2°C
Operator:	Lor

EUT Information

Manufacturer:	RIM
Model:	GSM/WCDMA/LTE Mobile Terminal
Type:	
EUT:	RFG81UW + HS2 + CH14 + External monitor + HDMI cable
EUT additional information:	CER-48928-001 Rev2 17-Jul-12
HW version:	new
SW version:	tbd
Serial number:	004401139037010
Power Supply:	110V/60Hz
Comments:	-

030445_FCC_Part15.109_Unintentional_Radiator_Class_B_1G-20G_FSEK

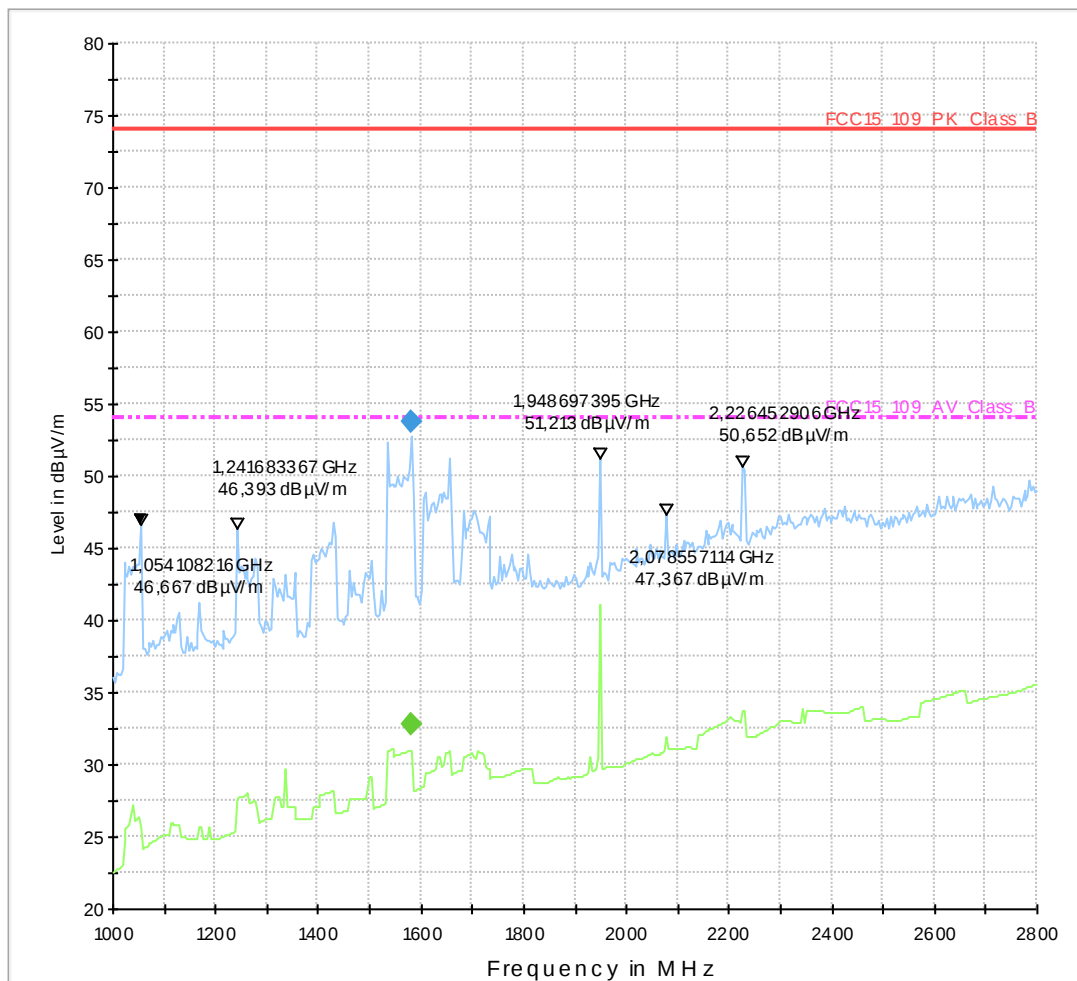


Diagram 8.06_2

Common Information

Test Description:	Radiated Field Strength Emission
Test Site Location:	CETECOM GmbH Essen
Test Site:	Fully Anechoic Room (FAR)
Test Standard:	FCC Part 15.109
Operating Mode:	IDLE RX GSM1900 + charging battery+ mirror display/camera video on HDMI monitor
Equipment Class:	Class B
Environmental Conditions:	Humidity: 48%rH; Temperature: 19,2°C
Operator:	Lor

EUT Information

Manufacturer:	Research In Motion Limited
Type:	GSM/WCDMA/LTE Mobile Terminal
EUT:	RFG81UW + HS2 + CH14+HDMI cable+External monitor
EUT additional information:	CER-48928-001 Rev2 17-Jul-12
HW version:	new
SW version:	tbd
Serial number:	004401139037010
Power Supply:	110V/60Hz
Comments:	--

030445_FCC_Part15.109_Unintentional_Radiator_Class_B_1G-20G_FSEK

