

TEST REPORT

Test Report No.: 1-2166-01-10/10_A



Testing Laboratory

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Accredited Test Laboratory:

The test laboratory is accredited according to:
 DIN EN ISO/IEC 17025
 DAR registration number: DGA-PL-176/94-D1

The area of testing is recognized by the FCC and IC.
 Anechoic chamber registration no.: 90462 (FCC)
 Anechoic chamber registration no.: 3462C-1 (IC)
 Certification ID: DE 0001 (FCC)
 Accreditation ID: DE 0002 (IC)

Applicant

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 Phone: +1-519-888-7465
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 Contact: Masud Attayi
 e-mail: mattayi@rim.com

Manufacturer

Same as Applicant

Test Standard/s

47CFR15	2009-10	Subpart B - Unintentional Radiators
ICES-003, Issue 4	2004-02	Interference-Causing Equipment Standard Digital Apparatus

Test Item

Kind of test item:	Blackberry GSM Phone
Model name:	RCW41GW
FCC ID:	L6ARCW40GW
IC:	2503A-RCW40GW
S/N serial number:	IMEI: 004401.13.588929.9
HW hardware status:	CER-30952-001 Rev1
SW software status:	Bundle info: 917 OS: v5.0.0.541 Platform: 6.1.0.5
Power Supply:	115 V / 60 Hz

**pictures of the EUT see ANNEX B (document:
 1-2166-01-10_10_ANNEX_A_B**

Test performed:

Test Report authorised:

 Jörg Langer

 Bernd Rebmann



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2 General information

2.1 Notes

The test results of this test report relate exclusively to the test item specified in this test report. CETECOM ICT Services GmbH does not assume responsibility for any conclusions and 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 CETECOM ICT Services GmbH.

2.2 Application details

Date of receipt of order:	2010-03-29
Date of receipt of test item:	2010-04-06
Start of test:	2010-04-06
End of test:	2010-04-08
Person(s) present during the test:	---

3 Test standard/s:

Test Standard	Version	Test Standard Description
47CFR15: (FCC part 15 B)	2009-10	Subpart B - Unintentional Radiators
ICES-003, Issue 4	2004-03	Interference-Causing Equipment Standard Digital Aparatus

4 Test Environment

Temperature:	20°C – 25°C
Relative humidity content:	30 % - 50 %
Air pressure:	1020 hPa
Power supply:	230 V / 50 Hz

5 Test Laboratories sub-contracted

6 Information about Test Conditions

6.1 Test Item

Kind of test item	Blackberry GSM Phone		
Type identification	RCW41GW		
Equipment classification:	Equipment for portable use		
Environment classification:	Residential, commercial and light industry		
Supply voltage	AC 115 V/ 60 Hz		
Ports : (maximum cable lengths declared by manufacturer)	Description	Direction	Length
	USB	In / output	< 3m
	Headset port	In / output	< 3m
Is mounting position / usual operating position defined?			No
Additional information:	---		

6.2 EUT: Type, S/N etc. and Short Descriptions Used in this Test Report

short description*)	EUT	Type	S/N serial number	HW hardware status	SW software status
EUT A	mobile	RCW41GW	IMEI: 004401.13.588929.9 FCC ID:L6ARCW40GW IC: 2503A-RCW40GW	CER-30952-001 Rev1	Bundle info: 917 OS: v5.0.0.541 Platform: 6.1.0.5
EUT B	Stereo Headset	SHS (HDW-24529-001)	unknown	2010-04	2010-04
EUT C	Stereo Headset	SHS (HDW-14322-003)	unknown	2010-04	2010-04
EUT D	Stereo Headset	SHS (HDW-15766-005)	unknown	2010-04	2010-04
EUT E	Bluetooth Headset	BTHS (HDW-23439-001) HS-500	unknown FCC ID: BCE-HS500 IC: 2386C-H500	2010-04	2010-04
EUT F	Folding blade charger	HDW-17955-001	unknown	2010-04	2010-04
EUT G	Charging pod	HDW-24476-001	unknown	2010-04	2010-04
EUT H	Fixed blade charger	FBC (HDW-24481-001)	unknown	2010-04	2010-04
EUT I	USB cable	HDW-06610-005	unknown	2010-04	2010-04
EUT J	Visor Mount	VMO (HDW-23438-001)	911L103560376 FCC ID : TT2BHF700 IC : 6329A-BHF700	2010-04	2010-04

*) EUT short description is used to simplify the identification of the EUT in this test report.

6.3 Auxiliary Equipment (AE): Type, S/N etc. and Short Descriptions

6.4 EUT Set-up(s)

EUT set-up no.*)	Combination of EUT and AE	Remarks
set. 1	EUT A + EUT B	---
set. 2	EUT A + EUT E + EUT F + EUT G	---
set. 3	EUT A + EUT H + EUT C	---
set. 4	EUT A + EUT H + EUT D	---
set. 5	EUT A + EUT I + EUT J	---
set. 6	EUT A + EUT H	---
set. 7	EUT A + EUT F	---

*) EUT set-up no. is used to simplify the identification of the EUT set-up in this test report.

6.5 EUT Operating Modes

EUT operating mode no.*)	Description of operating modes	Additional information
op. 1	GSM 850 idle	The phone is logged in to the test network. no call established
op. 2	PCS 1900 idle	The phone is logged in to the test network. no call established
op. 3	GSM 850 idle	Call established to GSM 850 test network
op. 4	PCS 1900 idle	Call established to PCS 1900 test network
op. 5	GSM 850 idle / BT	The phone is logged in to the test network. no call established, Bluetooth device is paired
op. 6	PCS 1900 idle / BT	The phone is logged in to the test network. no call established Bluetooth device is paired

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

7 Summary of Test Results

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

7.1 Emission

7.1.1 Enclosure

EMI Phenomenon	Frequency range	Basic standard	Result
Radiated Interference Field Strength	30 - 1000 MHz	FCC Part 15 Class B	passed
Radiated Interference Field Strength	1-10 GHz	FCC Part 15 Class B	passed

7.1.2 AC Mains Power Input/Output Ports

EMI Phenomenon	Frequency range	Basic standard	Result
Conducted interference voltage	0,15– 30 MHz	FCC Part 15 Class B	passed

Remarks:

NA1	Not tested because not required by used standard
NA2	Test not applicable because port does not exists
NA3	Test not applicable because port only for services
NA4	Test not applicable because port lengths not longer than 3m
NA5	Not tested because not required by customer
NA6	Not tested because used frequency < 108 MHz

7.2 Measurement and Test Set-up

Note: The test configuration is in accordance with the requirements given in the standards in point 3

7.3 Measurement uncertainty

The uncertainty of the measurement equipment fulfils CISPR 16 and the related European and national standards.

The semi anechoic chamber fulfils the requirements of CISPR 16-1 (ANSI C63.4) for a test volume of 3m Ø.

Measurement uncertainty calculations are on file and available from the test laboratory upon request.

8 Detailed test results - Emission

8.1 Conducted Emission

8.1.1 Instrumentation for Test (see equipment list)

G 1	G 2	F 21	FG 18							
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8.1.2 Test Plan

EUT set-up	set.6		
Operating mode	Port / Line	Limit	Result
op.3	AC power line	47CFR15: (FCC part 15 B) Class B	passed

Remark : Powered by external power supply (115V / 60Hz)

8.1.3 Conducted Limits (Power-Line)

Frequency- range	FCC part 15 B Class B		FCC part 15 B Class A	
	Quasi-Peak (dB μ V)	Average (dB μ V)	Quasi-Peak (dB μ V)	Average (dB μ V)
0,15 MHz – 0,5 MHz	66-56	56-46	79	66
0,5 MHz -5 MHz	56	46	73	60
5 MHz -30 MHz	60	50	73	60

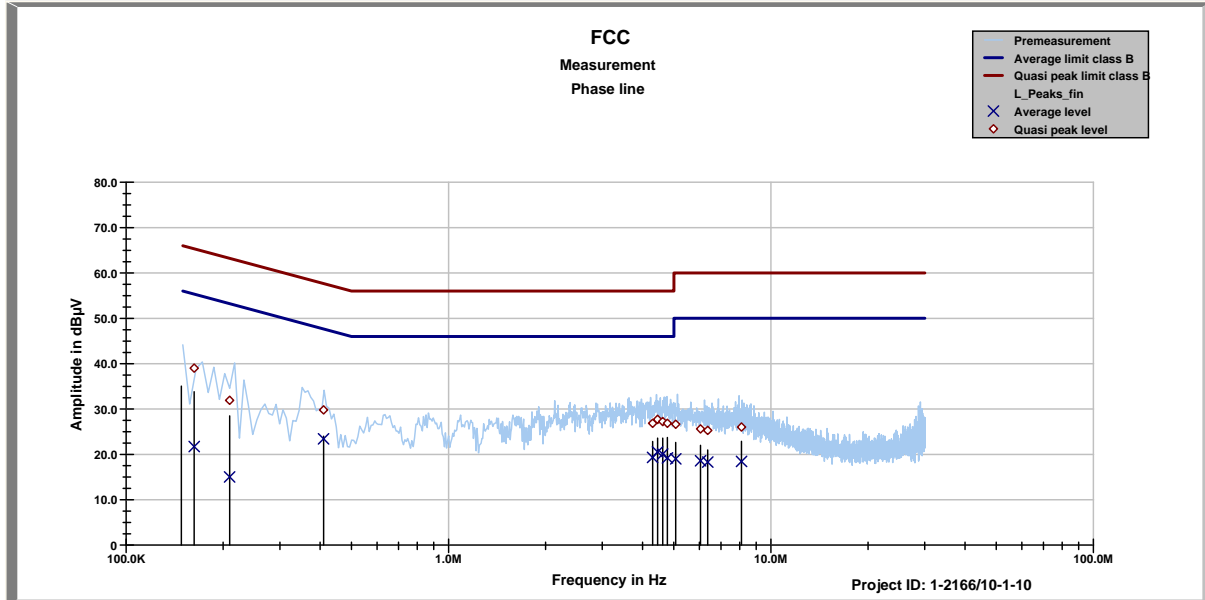
8.1.4 Calibration Information

Device	Serial number	ICT Number	Calibration valid until	Calibration interval
HP 8542 EMI Receiver with RF Filter Unit	3617A00170	300000568	01 / 2011	12 month
VISN ESH 3-Z5	892475/017	300002209	01 / 2012	24 month

Remarks: All emission components and the shielded room were checked weekly
Cable loss: 0.6 to 2.4 dB (150kHz to 30 MHz)

8.1.5 Test Results of Main

FCC_AC



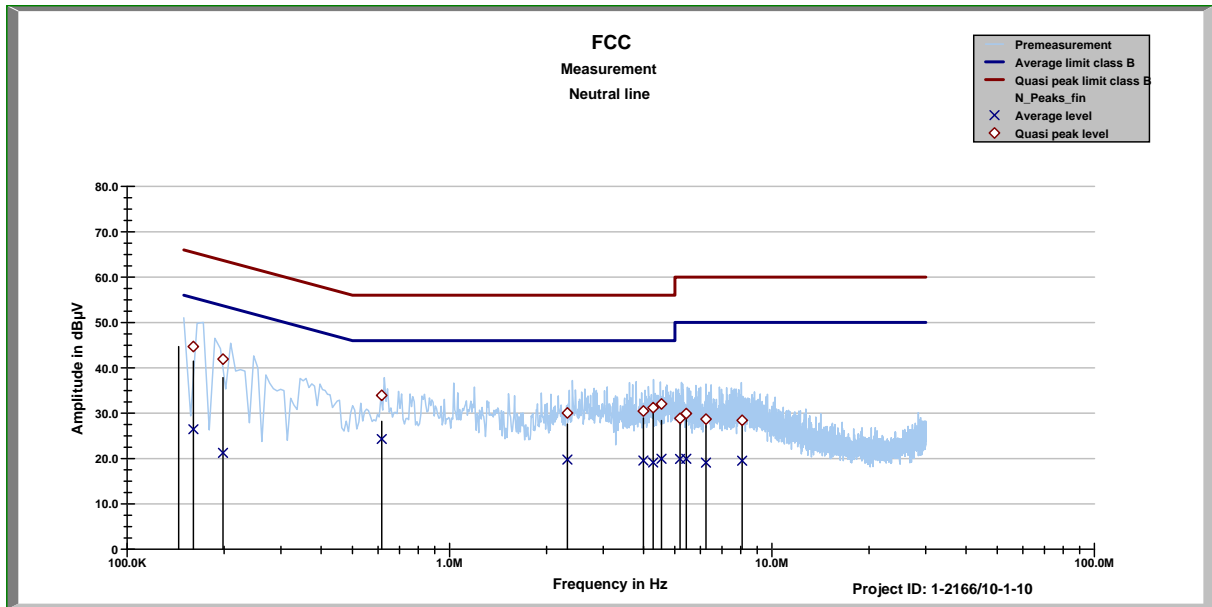
FCC
Phase line tbl

Project ID: 1-2166/10-1-10

08:27:15 AM, Thursday, April 08, 2010

Frequency	Quasi peak level	Margin quasi peak	Average level	Margin average
□				
MHz	dBµV	dBµV	dBµV	dBµV
0.16263	39.00	26.33	21.71	33.93
0.2095	31.91	31.31	15.02	39.28
0.4097	29.79	27.87	23.41	25.17
4.2946	26.83	29.17	19.32	26.68
4.4462	27.70	28.30	20.52	25.48
4.6124	27.23	28.77	20.06	25.94
4.7723	26.83	29.17	19.21	26.79
5.0633	26.63	33.37	19.01	30.99
6.0461	25.62	34.38	18.59	31.41
6.3636	25.28	34.72	18.29	31.71
8.0976	26.01	33.99	18.42	31.58

Project ID - 1-2166/10-1-10
 EUT - RCW41GW + HDW-24481-001
 Serial Number - IMEI: 004401.13.588929.9
 Operating mode - TCH850



FCC
Neutral line tbl

Project ID: 1-2166/10-1-10

08:27:15 AM, Thursday, April 08, 2010

Frequency	Quasi peak level	Margin quasi peak	Average level	Margin average
□				
MHz	dBµV	dBµV	dBµV	dBµV
0.1605	44.69	20.74	26.45	29.25
0.19836	41.91	21.77	21.25	33.37
0.61598	33.91	22.09	24.29	21.71
2.3203	30.04	25.96	19.77	26.23
3.9914	30.47	25.53	19.53	26.47
4.2797	31.20	24.80	19.14	26.86
4.5442	32.03	23.97	19.96	26.04
5.1851	28.86	31.14	19.91	30.09
5.4217	29.92	30.08	19.95	30.05
6.2391	28.69	31.31	19.09	30.91
8.0799	28.41	31.59	19.53	30.47

Project ID - 1-2166/10-1-10
 EUT - RCW41GW + HDW-24481-001
 Serial Number - IMEI: 004401.13.588929.9
 Operating mode - TCH850

8.1.6 Test Plan

EUT set-up	set.7		
Operating mode	Port / Line	Limit	Result
op.4	AC power line	47CFR15: (FCC part 15 B) Class B	passed

Remark : Powered by external power supply (115V / 60Hz)

8.1.7 Conducted Limits (Power-Line)

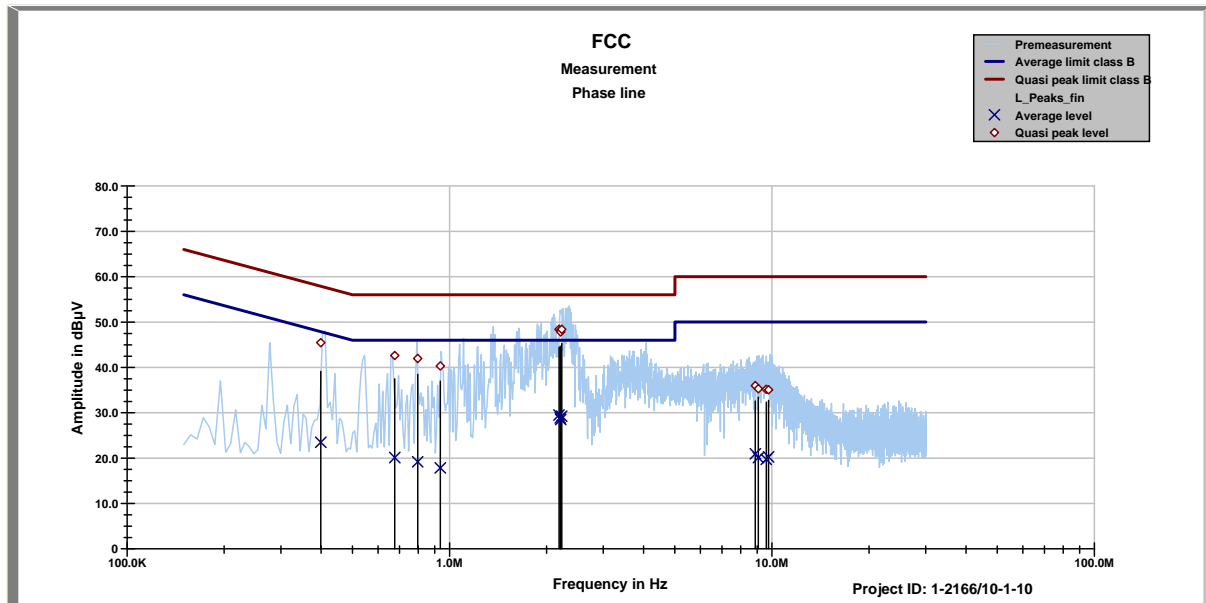
Frequency- range	FCC part 15 B Class B		FCC part 15 B Class A	
	Quasi-Peak (dB μ V)	Average (dB μ V)	Quasi-Peak (dB μ V)	Average (dB μ V)
0,15 MHz – 0,5 MHz	66-56	56-46	79	66
0,5 MHz -5 MHz	56	46	73	60
5 MHz -30 MHz	60	50	73	60

8.1.8 Calibration Information

Device	Serial number	ICT Number	Calibration valid until	Calibration interval
HP 8542 EMI Receiver with RF Filter Unit	3617A00170	300000568	01 / 2011	12 month
VISN ESH 3-Z5	892475/017	300002209	01 / 2012	24 month

Remarks: All emission components and the shielded room were checked weekly
Cable loss: 0.6 to 2.4 dB (150kHz to 30 MHz)

FCC_AC



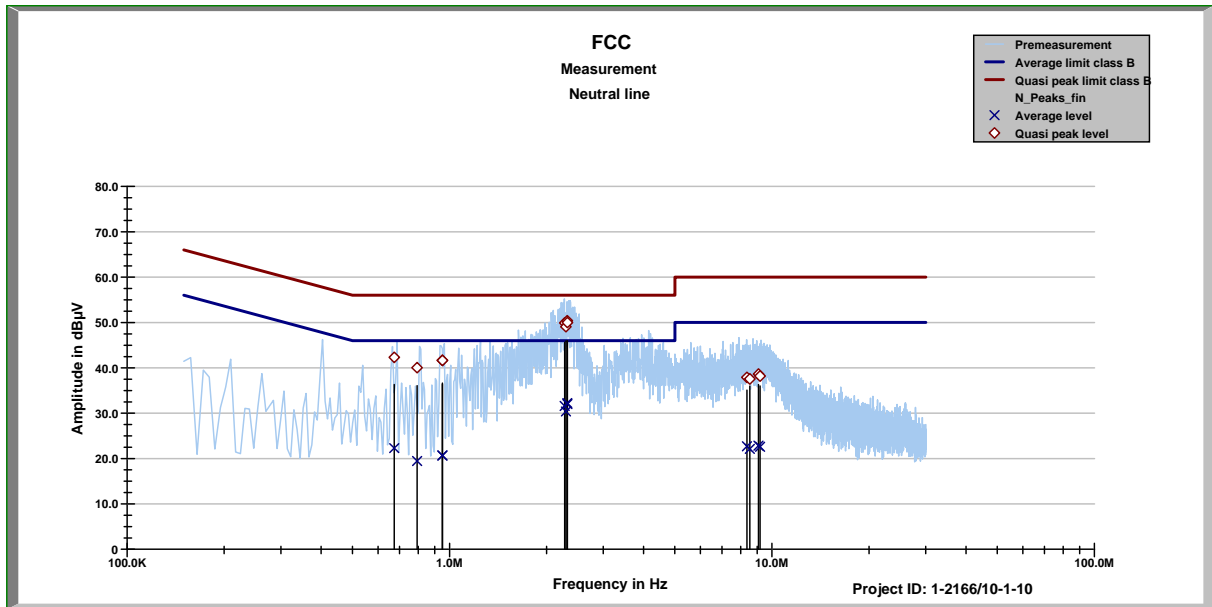
FCC
Phase line tbl

Project ID: 1-2166/10-1-10

08:59:23 AM, Thursday, April 08, 2010

Frequency	Quasi peak level	Margin quasi peak	Average level	Margin average
□				
MHz	dBµV	dBµV	dBµV	dBµV
0.39876	45.44	12.44	23.48	25.41
0.67624	42.62	13.38	20.11	25.89
0.7969	41.95	14.05	19.17	26.83
0.93638	40.32	15.68	17.84	28.16
2.1858	48.40	7.60	29.48	16.52
2.2034	48.12	7.88	28.84	17.16
2.2115	47.81	8.19	28.50	17.50
2.2282	48.40	7.60	29.23	16.77
8.8764	35.98	24.02	20.92	29.08
9.0687	35.28	24.72	20.09	29.91
9.5949	35.16	24.84	19.72	30.28
9.756	35.05	24.95	20.26	29.74

Project ID - 1-2166/10-1-10
 EUT - RCW41GW + HDW-17955-001
 Serial Number - IMEI: 004401.13.588929.9
 Operating mode - TCH1900



FCC
Neutral line tbl

Project ID: 1-2166/10-1-10

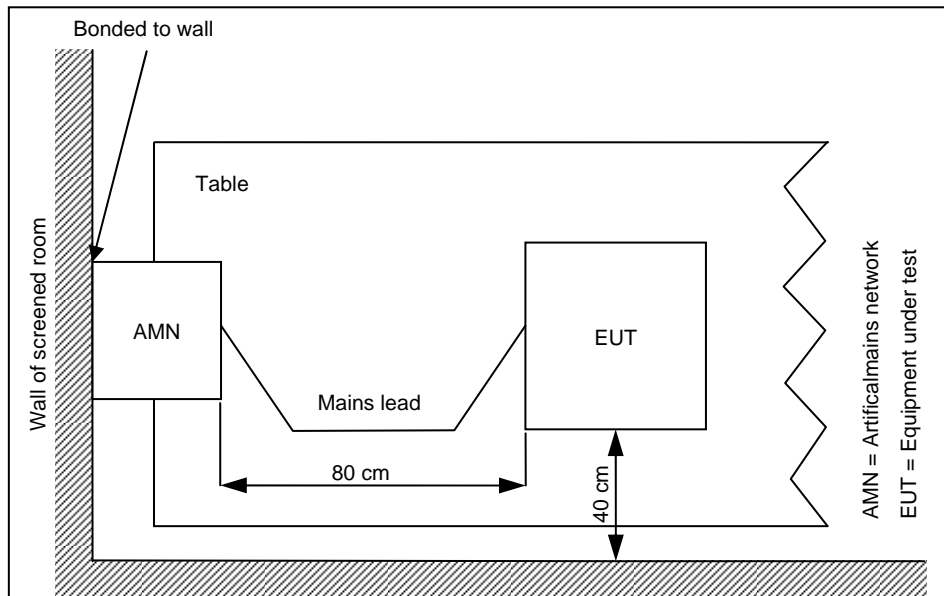
08:59:23 AM, Thursday, April 08, 2010

Frequency	Quasi peak level	Margin quasi peak	Average level	Margin average
MHz	dBµV	dBµV	dBµV	dBµV
0.67388	42.30	13.70	22.29	23.71
0.79288	40.02	15.98	19.44	26.56
0.95021	41.65	14.35	20.64	25.36
0.95062	41.64	14.36	20.68	25.32
2.2756	49.90	6.10	31.57	14.43
2.2956	49.06	6.94	30.37	15.63
2.3175	50.39	5.61	32.24	13.76
2.3192	49.97	6.03	32.01	13.99
8.3574	37.89	22.11	22.70	27.30
8.5325	37.55	22.45	22.13	27.87
9.0787	38.62	21.38	22.83	27.17
9.181	38.19	21.81	22.59	27.41

Project ID - 1-2166/10-1-10
 EUT - RCW41GW + HDW-17955-001
 Serial Number - IMEI: 004401.13.588929.9
 Operating mode - TCH1900

8.1.9 Test Set-up

According to EMC basic standard **ANSI 63.4**



8.2 Electromagnetic Radiated Emissions (Distance 10 m)

8.2.1 Instrumentation for Test (see equipment list)

F 1	F 2	F 4b	F 5	F 6	F 21	FG 18				
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8.2.2 Test Plan

EUT set-up	set.1		
Operating mode	Application	Limit	Result
op.1	Enclosure	FCC part 15 B Class B	passed

Remarks: Powered by external power supply (115V / 60Hz)

8.2.3 Radiated Limits

Frequency- range	FCC part 15 B Class B	FCC part 15 B Class A
30 MHz – 88 MHz	30 dB μ V/m	39,1 dB μ V/m
88 MHz – 216 MHz	33,5 dB μ V/m	43,5 dB μ V/m
216 MHz – 960 MHz	36 dB μ V/m	46,4 dB μ V/m
960 MHz – 40000 MHz	44 dB μ V/m	49,5 dB μ V/m
	* This values are recalculated from the class B limits at 3 m antenna distance in §15.109 (g 2) of the FCC rules	

8.2.4 Calibration Information

Device	Serial number	ICT Number	Calibration valid until	Calibration interval
ESCI 3 Receiver	100083/003	300003312	01/2011	12 month
Trilog Antenna	9163-295	---	04/2010	24 month

Remarks:

System check of all relevant devices and the chamber (weekly)

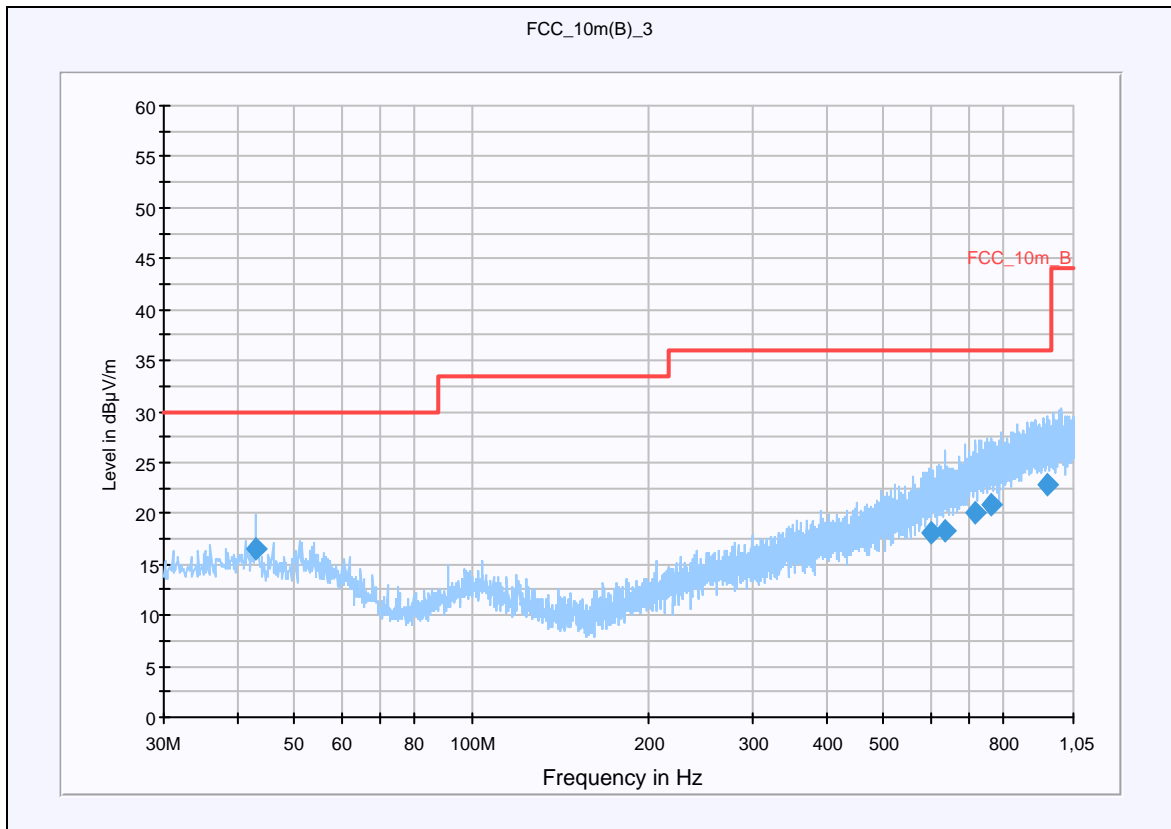
Cable loss: 0.5 to 4.2 dB (30 MHz to 2 GHz); the cable and connectors loss is re-measured every 3 month

8.2.5 Test Results

EUT: RCW41GW + SHS (HDW-24529-001)
 Serial Number: IMEI: 004401.13.588929.9
 Test Description: FCC part 15 B class B @ 10 m
 Operating Conditions: GSM 850 idle
 Operator Name: Lang
 Comment: battery powered

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
42.988500	16.4	15000.000	120.000	171.0	V	291.0	13.3	13.6	30.0	
601.240050	18.1	15000.000	120.000	220.0	V	149.0	20.8	17.9	36.0	
638.259750	18.2	15000.000	120.000	220.0	H	137.0	21.0	17.8	36.0	
716.863050	20.1	15000.000	120.000	130.0	V	48.0	22.8	15.9	36.0	
761.151150	20.8	15000.000	120.000	110.0	V	201.0	23.6	15.2	36.0	
951.457650	22.8	15000.000	120.000	124.0	H	136.0	25.4	13.2	36.0	

8.2.6 Test Plan

EUT set-up	set.2		
Operating mode	Application	Limit	Result
op.6	Enclosure	FCC part 15 B Class B	passed

Remarks: Powered by external power supply (115V / 60Hz)

8.2.7 Radiated Limits

Frequency- range	FCC part 15 B Class B	FCC part 15 B Class A
30 MHz – 88 MHz	30 dB μ V/m	39,1 dB μ V/m
88 MHz – 216 MHz	33,5 dB μ V/m	43,5 dB μ V/m
216 MHz – 960 MHz	36 dB μ V/m	46,4 dB μ V/m
960 MHz – 40000 MHz	44 dB μ V/m	49,5 dB μ V/m
	* This values are recalculated from the class B limits at 3 m antenna distance in §15.109 (g 2) of the FCC rules	

8.2.8 Calibration Information

Device	Serial number	ICT Number	Calibration valid until	Calibration interval
ESCI 3 Receiver	100083/003	300003312	01/2011	12 month
Trilog Antenna	9163-295	---	04/2010	24 month

Remarks:

System check of all relevant devices and the chamber (weekly)

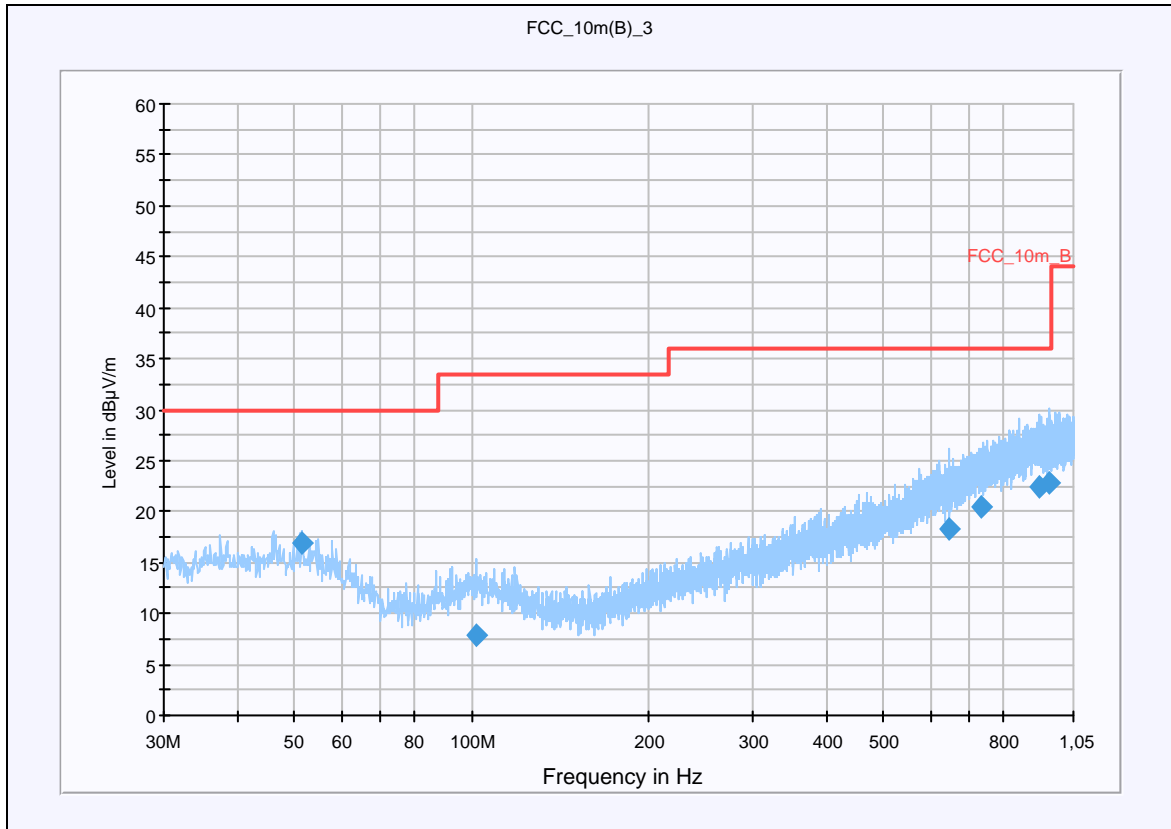
Cable loss: 0.5 to 4.2 dB (30 MHz to 2 GHz); the cable and connectors loss is re-measured every 3 month

EUT: RCW41GW + BTHS (HDW23439-001)
 + Folding B Charger (HDW-17955-001)
 + Charging Pod (HDW-24476-001)
 Serial Number: IMEI: 004401.13.588929.9
 Test Description: FCC part 15 B class B @ 10 m
 PCS 1900 idle; BT HS paired
 Operator Name: Lang
 Comment: AC: 115 V / 60 Hz

can Setup: STAN_Fin [EMI radiated]

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

Subrange 30 MHz - 1,05 GHz **Detectors** QuasiPeak **IF Bandwidth** 120 kHz **Meas. Time** 15 s **Receiver** 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
51.590100	16.9	15000.000	120.000	98.0	V	223.0	13.2	13.1	30.0	
101.683800	7.9	15000.000	120.000	173.0	V	196.0	11.7	25.6	33.5	
645.493350	18.2	15000.000	120.000	140.0	V	252.0	21.0	17.8	36.0	
732.244200	20.4	15000.000	120.000	220.0	V	80.0	23.2	15.6	36.0	
920.494350	22.5	15000.000	120.000	220.0	H	271.0	25.3	13.5	36.0	
953.870550	22.7	15000.000	120.000	220.0	V	286.0	25.4	13.3	36.0	

8.2.9 Test Plan

EUT set-up	set.3		
Operating mode	Application	Limit	Result
op.1	Enclosure	FCC part 15 B Class B	passed

Remarks: Powered by external power supply (115V / 60Hz)

8.2.10 Radiated Limits

Frequency- range	FCC part 15 B Class B	FCC part 15 B Class A
30 MHz – 88 MHz	30 dB μ V/m	39,1 dB μ V/m
88 MHz – 216 MHz	33,5 dB μ V/m	43,5 dB μ V/m
216 MHz – 960 MHz	36 dB μ V/m	46,4 dB μ V/m
960 MHz – 40000 MHz	44 dB μ V/m	49,5 dB μ V/m
	* This values are recalculated from the class B limits at 3 m antenna distance in §15.109 (g 2) of the FCC rules	

8.2.11 Calibration Information

Device	Serial number	ICT Number	Calibration valid until	Calibration interval
ESCI 3 Receiver	100083/003	300003312	01/2011	12 month
Trilog Antenna	9163-295	---	04/2010	24 month

Remarks:

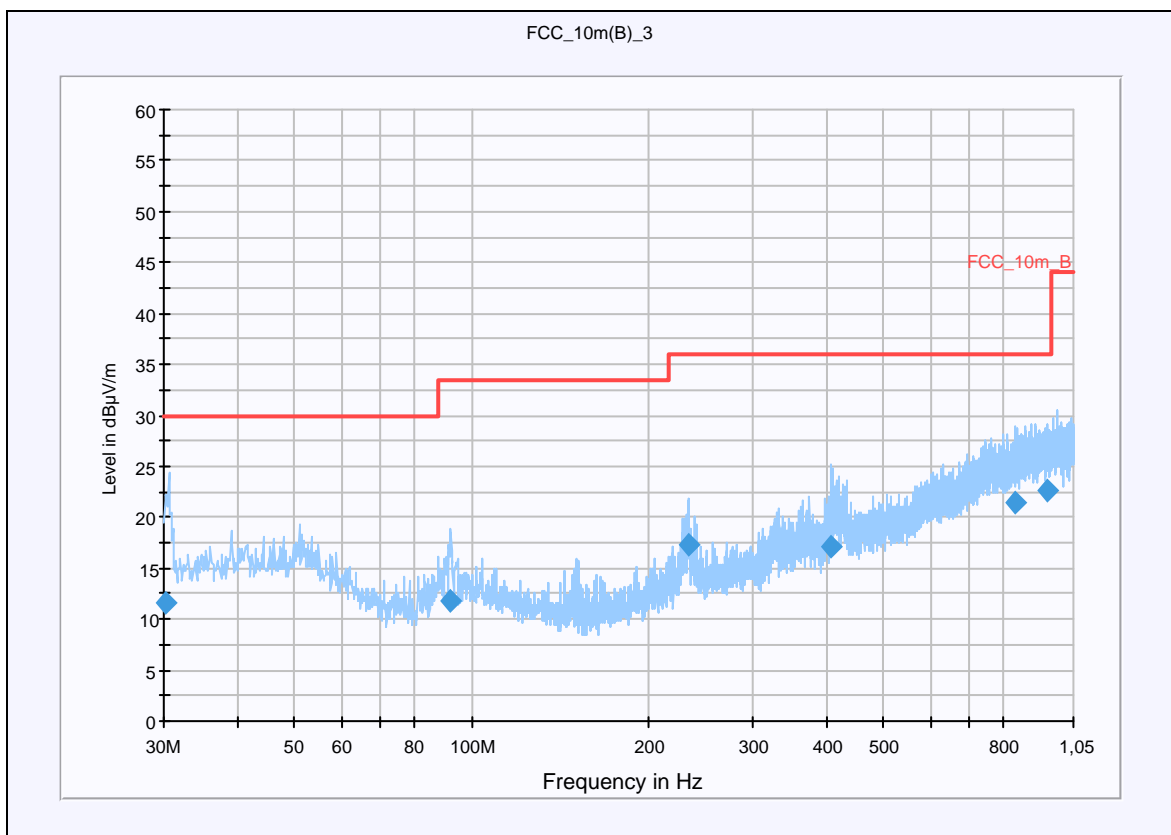
System check of all relevant devices and the chamber (weekly)

Cable loss: 0.5 to 4.2 dB (30 MHz to 2 GHz); the cable and connectors loss is re-measured every 3 month

EUT: RCW41GW + SHS (HDW-14322-003) + FBC (HDW-24481-001)
 Serial Number: IMEI: 004401.13.588929.9
 Test Description: FCC part 15 B class B @ 10 m
 Operating Conditions: GSM 850 idle
 Operator Name: Lang
 Comment: AC: 115 V / 60 Hz

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
30.222450	11.5	15000.000	120.000	170.0	V	325.0	12.5	18.5	30.0	
91.832250	11.8	15000.000	120.000	120.0	V	48.0	10.8	21.7	33.5	
232.637850	17.3	15000.000	120.000	98.0	V	42.0	12.7	18.7	36.0	
407.696850	17.0	15000.000	120.000	123.0	V	158.0	17.0	19.0	36.0	
838.678350	21.5	15000.000	120.000	220.0	V	48.0	24.4	14.5	36.0	
949.938450	22.6	15000.000	120.000	98.0	V	-7.0	25.4	13.4	36.0	

8.2.12 Test Plan

EUT set-up	set.4		
Operating mode	Application	Limit	Result
op.2	Enclosure	FCC part 15 B Class B	passed

Remarks: Powered by external power supply (115V / 60Hz)

8.2.13 Radiated Limits

Frequency- range	FCC part 15 B Class B	FCC part 15 B Class A
30 MHz – 88 MHz	30 dB μ V/m	39,1 dB μ V/m
88 MHz – 216 MHz	33,5 dB μ V/m	43,5 dB μ V/m
216 MHz – 960 MHz	36 dB μ V/m	46,4 dB μ V/m
960 MHz – 40000 MHz	44 dB μ V/m	49,5 dB μ V/m
	* This values are recalculated from the class B limits at 3 m antenna distance in §15.109 (g 2) of the FCC rules	

8.2.14 Calibration Information

Device	Serial number	ICT Number	Calibration valid until	Calibration interval
ESCI 3 Receiver	100083/003	300003312	01/2011	12 month
Trilog Antenna	9163-295	---	04/2010	24 month

Remarks:

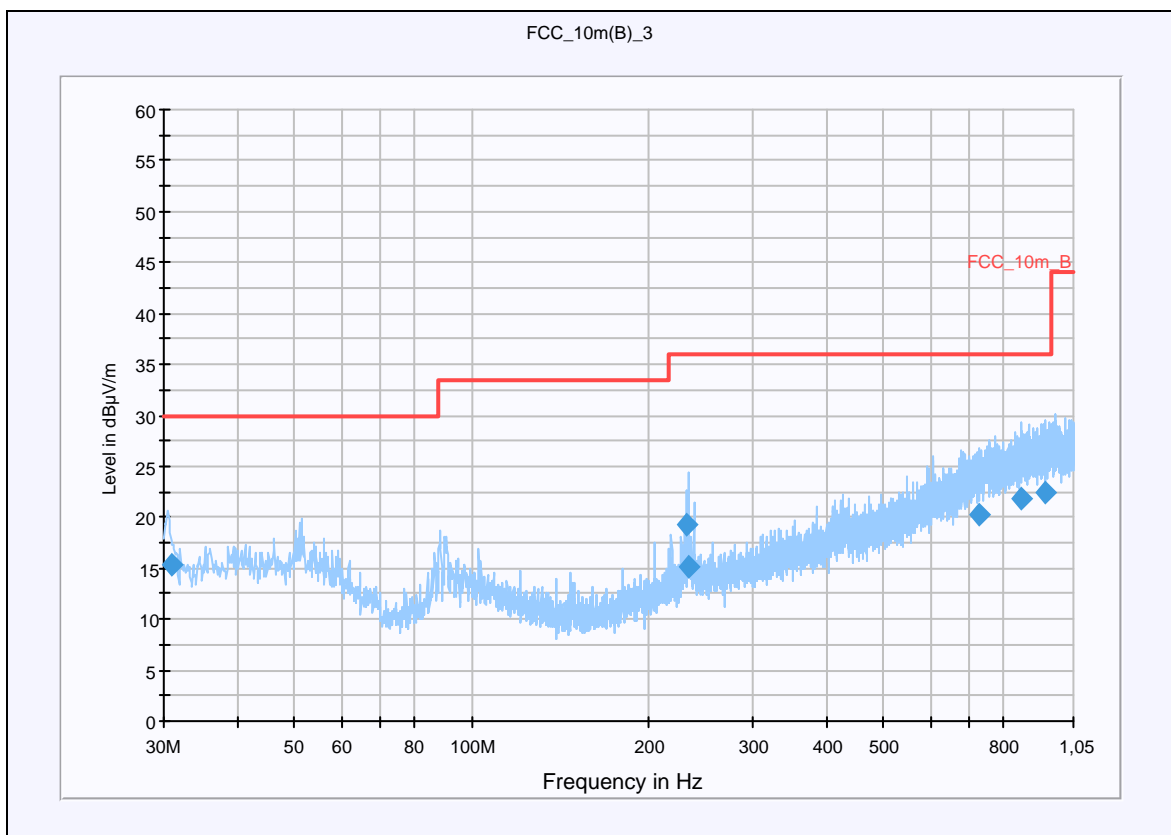
System check of all relevant devices and the chamber (weekly)

Cable loss: 0.5 to 4.2 dB (30 MHz to 2 GHz); the cable and connectors loss is re-measured every 3 month

EUT: RCW41GW + SHS (HDW-15766-005) + FBC (HDW-24481-001)
 Serial Number: IMEI: 004401.13.588929.9
 Test Description: FCC part 15 B class B @ 10 m
 Operating Conditions: GSM 850 idle
 Operator Name: Lang
 Comment: AC: 115 V / 60 Hz

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
30.859279	15.3	15000.000	120.000	98.0	V	26.0	12.6	14.7	30.0	
231.810600	19.2	15000.000	120.000	124.0	V	25.0	12.7	16.8	36.0	
234.189000	15.1	15000.000	120.000	124.0	V	48.0	12.7	20.9	36.0	
729.071100	20.3	15000.000	120.000	98.0	V	4.0	23.1	15.7	36.0	
858.366300	21.9	15000.000	120.000	220.0	V	48.0	24.7	14.1	36.0	
942.166350	22.4	15000.000	120.000	98.0	H	5.0	25.3	13.6	36.0	

8.2.15 Test Plan

EUT set-up	set.5		
Operating mode	Application	Limit	Result
op.5	Enclosure	FCC part 15 B Class B	passed

Remarks: Powered by external power supply (115V / 60Hz)

8.2.16 Radiated Limits

Frequency- range	FCC part 15 B Class B	FCC part 15 B Class A
30 MHz – 88 MHz	30 dB μ V/m	39,1 dB μ V/m
88 MHz – 216 MHz	33,5 dB μ V/m	43,5 dB μ V/m
216 MHz – 960 MHz	36 dB μ V/m	46,4 dB μ V/m
960 MHz – 40000 MHz	44 dB μ V/m	49,5 dB μ V/m
	* This values are recalculated from the class B limits at 3 m antenna distance in §15.109 (g 2) of the FCC rules	

8.2.17 Calibration Information

Device	Serial number	ICT Number	Calibration valid until	Calibration interval
ESCI 3 Receiver	100083/003	300003312	01/2011	12 month
Trilog Antenna	9163-295	---	04/2010	24 month

Remarks:

System check of all relevant devices and the chamber (weekly)

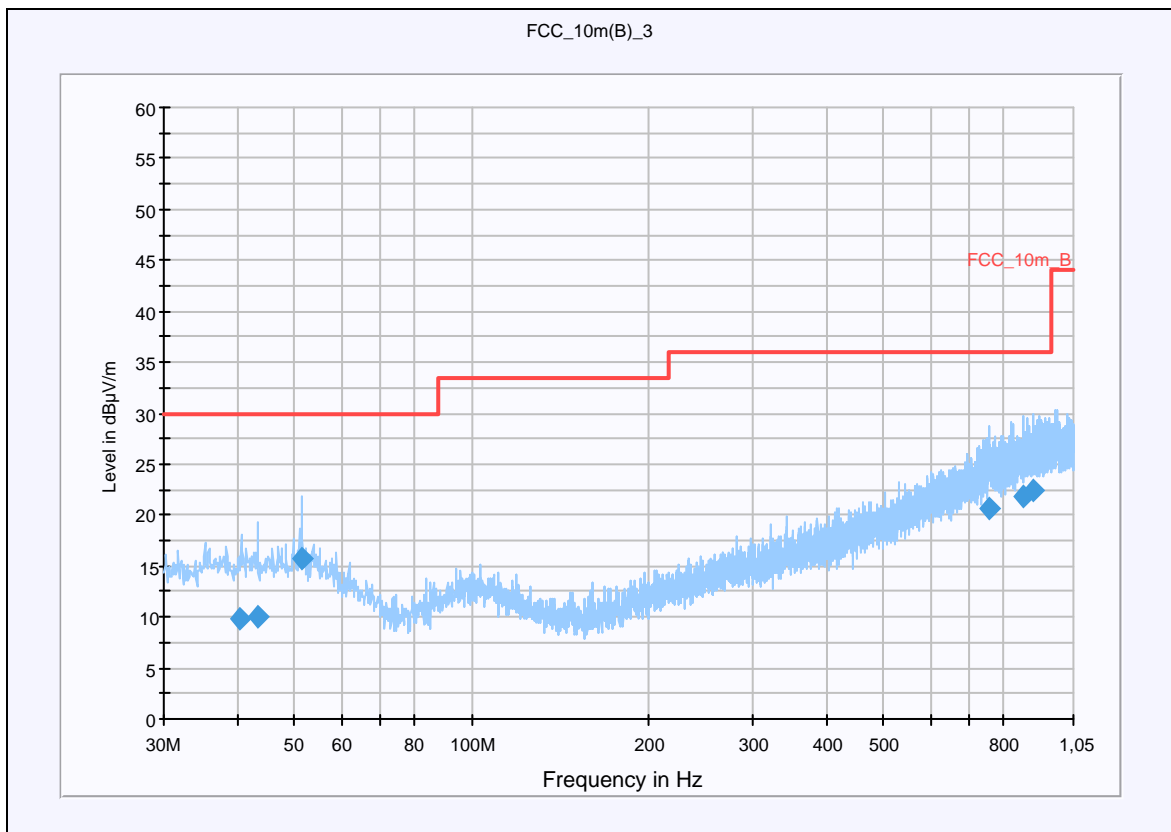
Cable loss: 0.5 to 4.2 dB (30 MHz to 2 GHz); the cable and connectors loss is re-measured every 3 month

EUT: RCW41GW + USB cable + VMO (HDW-23438-001)
 Serial Number: IMEI: 004401.13.588929.9
 Test Description: FCC part 15 B class B @ 10m
 Operating Conditions: GSM 850 idle
 Operator Name: STP
 Comment: battery powered

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



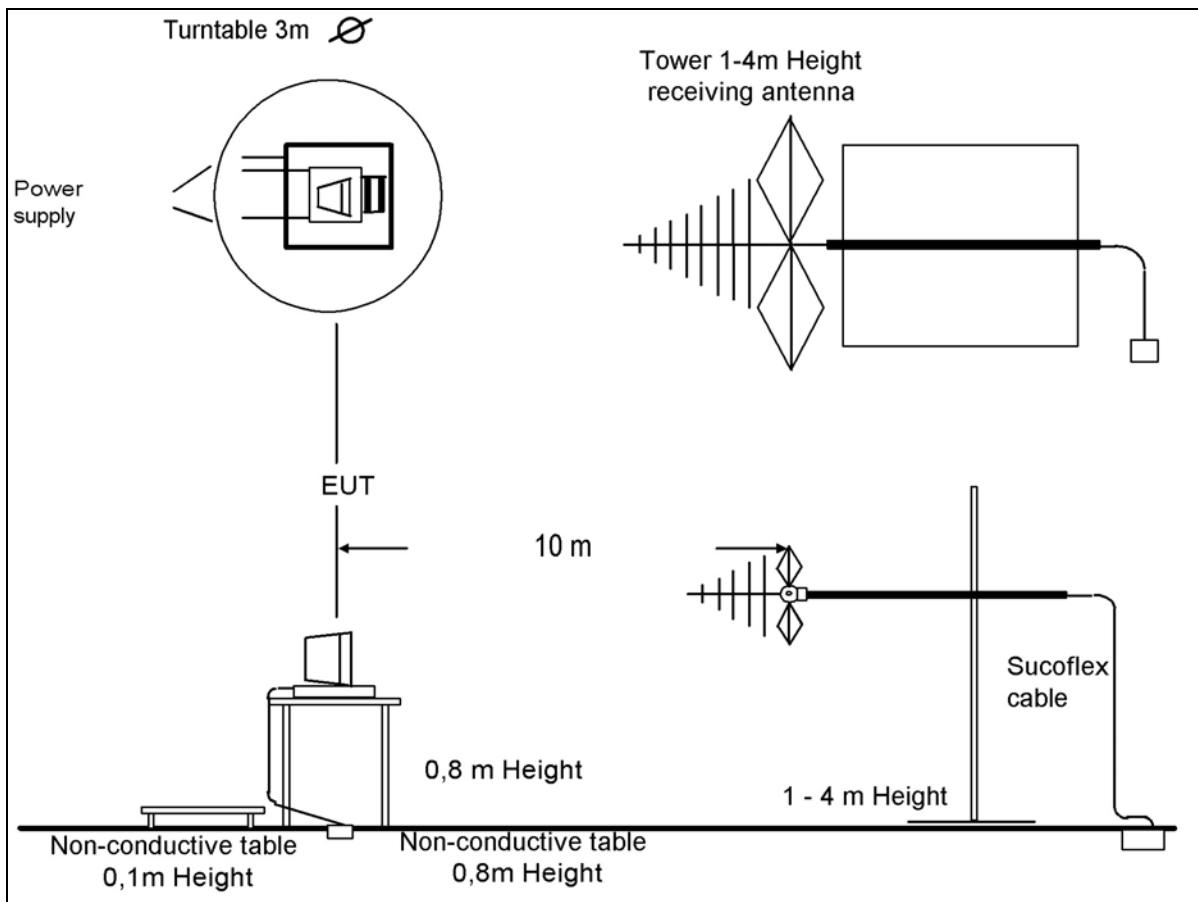
Final Result 1

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
40.543800	9.8	15000.000	120.000	164.0	H	186.0	13.4	20.2	30.0	
43.434450	10.0	15000.000	120.000	180.0	V	221.0	13.3	20.0	30.0	
51.644700	15.6	15000.000	120.000	98.0	V	214.0	13.2	14.4	30.0	
757.894350	20.7	15000.000	120.000	220.0	V	214.0	23.6	15.3	36.0	
862.634400	21.9	15000.000	120.000	112.0	V	215.0	24.7	14.1	36.0	
900.588150	22.4	15000.000	120.000	150.0	H	14.0	25.2	13.6	36.0	

8.2.18 Hardware Set-up 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
 EMC 32 Version 8.10.00

8.2.19 Test Set-up



8.2.20 Electromagnetic Radiated Emissions (Distance 5 m)

8.2.20.1 Instrumentation for Test (see equipment list)

F 1	F 6	F 29	F 30	F 33	FG 18						
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8.2.20.2 Test Plan

EUT set-up	set.1		
Operating mode	Application	Limit	Result
op.1	Enclosure	FCC part 15 B Class B	passed

Remarks: The measured values are recalculated from 5m to 3m distance
Powered by external power supply (115V / 60Hz)

8.2.20.3 Radiated Limits

Frequency- range	47CFR15: (FCC part 15 B) Class B	47CFR15: (FCC part 15 B) Class A *
30 MHz – 88 MHz	40 dB μ V/m	49,1 dB μ V/m
88 MHz – 216 MHz	43,5 dB μ V/m	53,5 dB μ V/m
216 MHz – 960 MHz	46 dB μ V/m	56,4 dB μ V/m
960 MHz – 18000 MHz	54 dB μ V/m	59,5 dB μ V/m
		* This values are recalculated from the class A limits at 10 m antenna distance in §15.109 (g 2) of the FCC rules.

8.2.20.4 Calibration Information

Device	Serial number	ICT Number	Calibration valid until	Calibration interval
FSU 26	200809	300003874	01/2011	12 month
Horn Antenna	9120B188	300003896	04/2010	24 month

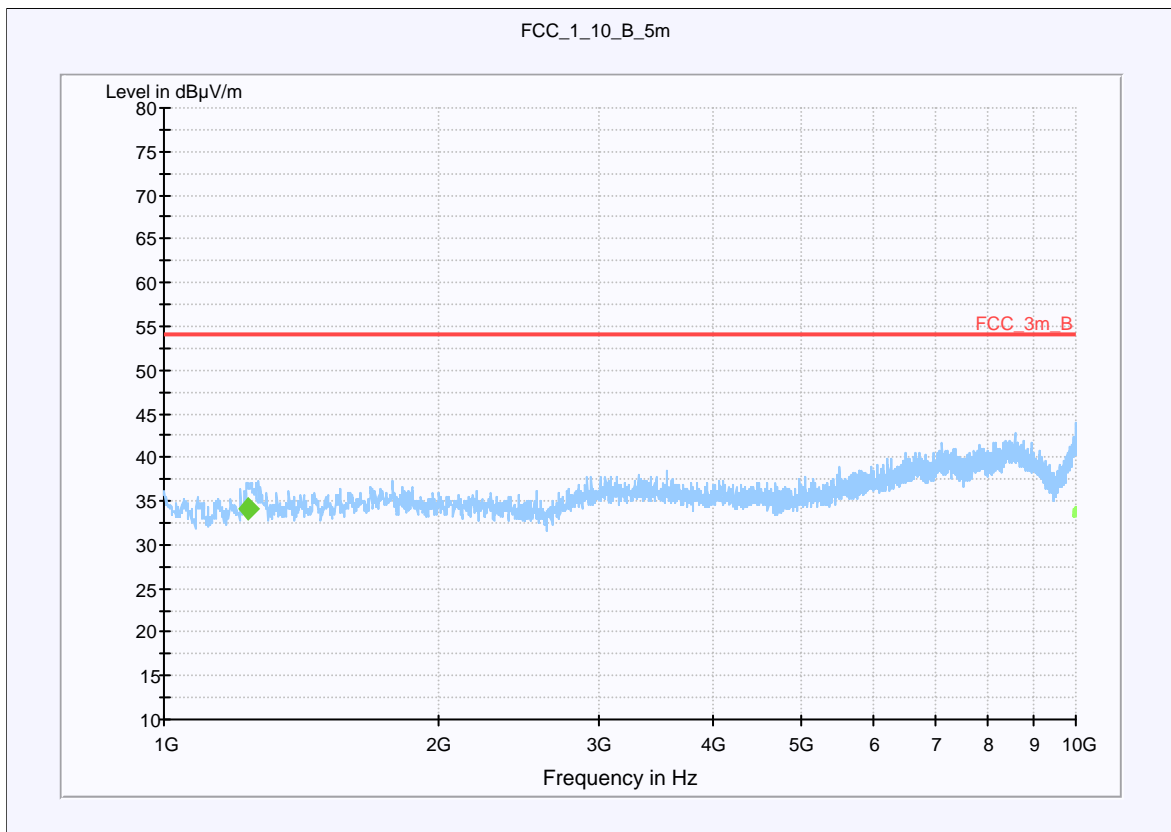
Remarks:

System check of all relevant devices and the chamber (weekly)

Cable loss: 0.5 to 4.2 dB (30 MHz to 2 GHz); the cable and connectors loss is re-measured every 3 month

8.2.20.5 Test Results

EUT: RCW41GW + SHS (HDW-24529-001)
 Serial Number: IMEI:004401.13.588929.9
 Test Description: FCC part 15 B class B
 Operating Conditions: GSM 850 idle
 Operator Name: STP
 Comment: battery powered



Final Result 1

Frequency (MHz)	Average (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Antenna height (cm)	Polarity	Turntable position (deg)	Corr. (dB)	Comment
1235.929759	34.0	1.000	1000.000	100.0	H	81.0	-2.8	

8.2.20.6 Test Plan

EUT set-up	set.2		
Operating mode	Application	Limit	Result
op.6	Enclosure	FCC part 15 B Class B	passed

Remarks: The measured values are recalculated from 5m to 3m distance
Powered by external power supply (115V / 60Hz)

8.2.20.7 Radiated Limits

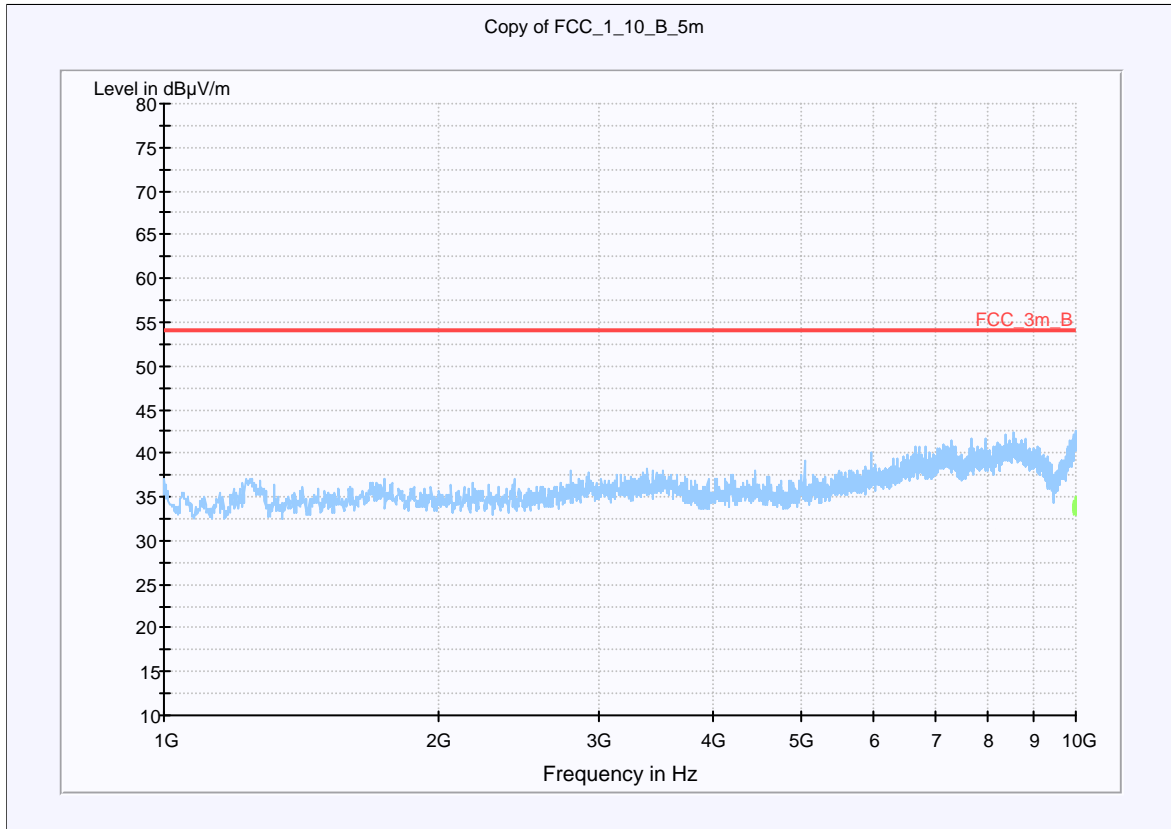
Frequency- range	47CFR15: (FCC part 15 B) Class B	47CFR15: (FCC part 15 B) Class A *
30 MHz – 88 MHz	40 dB μ V/m	49,1 dB μ V/m
88 MHz – 216 MHz	43,5 dB μ V/m	53,5 dB μ V/m
216 MHz – 960 MHz	46 dB μ V/m	56,4 dB μ V/m
960 MHz – 18000 MHz	54 dB μ V/m	59,5 dB μ V/m
		* This values are recalculated from the class A limits at 10 m antenna distance in §15.109 (g 2) of the FCC rules.

8.2.20.8 Calibration Information

Device	Serial number	ICT Number	Calibration valid until	Calibration interval
FSU 26	200809	300003874	01/2011	12 month
Horn Antenna	9120B188	300003896	04/2010	24 month

Remarks:
System check of all relevant devices and the chamber (weekly)
Cable loss: 0.5 to 4.2 dB (30 MHz to 2 GHz); the cable and connectors loss is re-measured every 3 month

EUT: RCW41GW + BTHS (HDW23439-001) + Folding B Charger (HDW-17955-001) + Charging Pod (HDW-24476-001)
Serial Number: IMEI: 004401.13.588929.9
Test Description: FCC part 15 B class B
Operating Conditions: PCS 1900 idle; BT HS paired
Operator Name: Lang
Comment: AC: 115 V / 60 Hz



8.2.20.9 Test Plan

EUT set-up	set.3		
Operating mode	Application	Limit	Result
op.1	Enclosure	FCC part 15 B Class B	passed

Remarks: The measured values are recalculated from 5m to 3m distance
Powered by external power supply (115V / 60Hz)

8.2.20.10 Radiated Limits

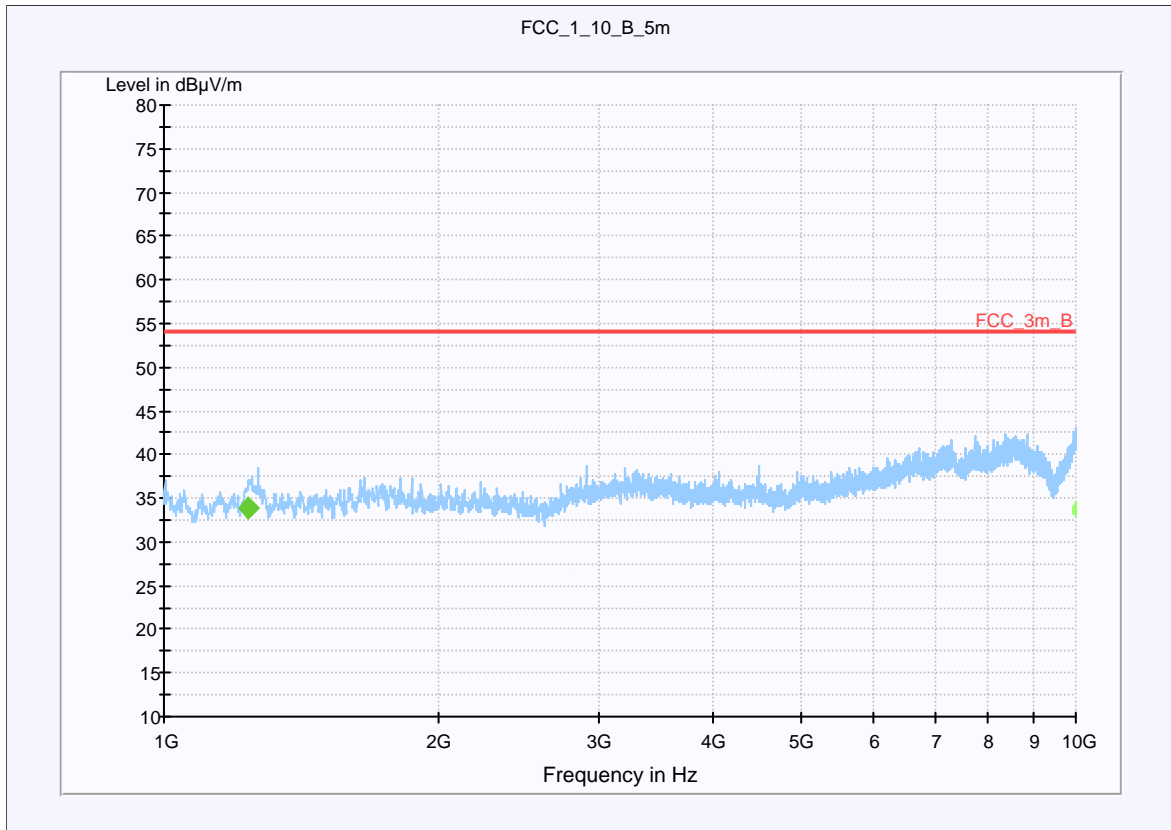
Frequency- range	47CFR15: (FCC part 15 B) Class B	47CFR15: (FCC part 15 B) Class A *
30 MHz – 88 MHz	40 dB μ V/m	49,1 dB μ V/m
88 MHz – 216 MHz	43,5 dB μ V/m	53,5 dB μ V/m
216 MHz – 960 MHz	46 dB μ V/m	56,4 dB μ V/m
960 MHz – 18000 MHz	54 dB μ V/m	59,5 dB μ V/m
		* This values are recalculated from the class A limits at 10 m antenna distance in §15.109 (g 2) of the FCC rules.

8.2.20.11 Calibration Information

Device	Serial number	ICT Number	Calibration valid until	Calibration interval
FSU 26	200809	300003874	01/2011	12 month
Horn Antenna	9120B188	300003896	04/2010	24 month

Remarks:
System check of all relevant devices and the chamber (weekly)
Cable loss: 0.5 to 4.2 dB (30 MHz to 2 GHz); the cable and connectors loss is re-measured every 3 month

EUT: RCW41GW + SHS (HDW-14322-003) + FBC (HDW-24481-001)
 Serial Number: IMEI: 004401.13.588929.9
 Test Description: FCC part 15 B class B @ 10m
 Operating Conditions: GSM 850 idle
 Operator Name: STP
 Comment: AC powered: 115V/60Hz



Final Result 1

Frequency (MHz)	Average (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Antenna height (cm)	Polarity	Turntable position (deg)	Corr. (dB)	Comment
1238.876973	33.8	1.000	1000.000	100.0	V	223.0	-2.6	

8.2.20.12 Test Plan

EUT set-up	set.4		
Operating mode	Application	Limit	Result
op.2	Enclosure		passed

Remarks: The measured values are recalculated from 5m to 3m distance
Powered by external power supply (115V / 60Hz)

8.2.20.13 Radiated Limits

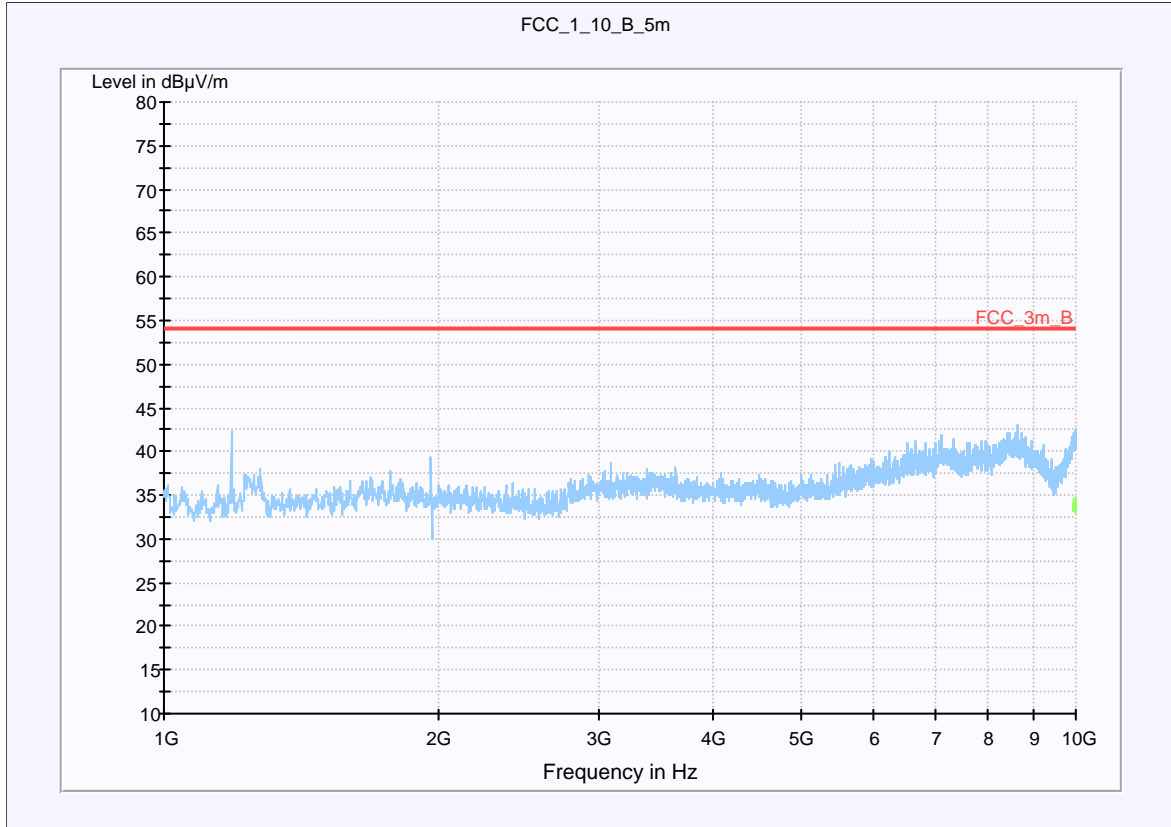
Frequency- range	47CFR15: (FCC part 15 B) Class B	47CFR15: (FCC part 15 B) Class A *
30 MHz – 88 MHz	40 dB μ V/m	49,1 dB μ V/m
88 MHz – 216 MHz	43,5 dB μ V/m	53,5 dB μ V/m
216 MHz – 960 MHz	46 dB μ V/m	56,4 dB μ V/m
960 MHz – 18000 MHz	54 dB μ V/m	59,5 dB μ V/m
		* This values are recalculated from the class A limits at 10 m antenna distance in §15.109 (g 2) of the FCC rules.

8.2.20.14 Calibration Information

Device	Serial number	ICT Number	Calibration valid until	Calibration interval
FSU 26	200809	300003874	01/2011	12 month
Horn Antenna	9120B188	300003896	04/2010	24 month

Remarks:
System check of all relevant devices and the chamber (weekly)
Cable loss: 0.5 to 4.2 dB (30 MHz to 2 GHz); the cable and connectors loss is re-measured every 3 month

EUT: RCW41GW + SHS (HDW-15766-005) + FBC (HDW-24481-001)
Serial Number: IMEI: 004401.13.588929.9
Test Description: FCC part 15 B class B
Operating Conditions: PCS 1900
Operator Name: STP
Comment: AC powered: 115V/60Hz



8.2.20.15 Test Plan

EUT set-up	set.5		
Operating mode	Application	Limit	Result
op.5	Enclosure	FCC part 15 B Class B	passed

Remarks: The measured values are recalculated from 5m to 3m distance
Powered by external power supply (115V / 60Hz)

8.2.20.16 Radiated Limits

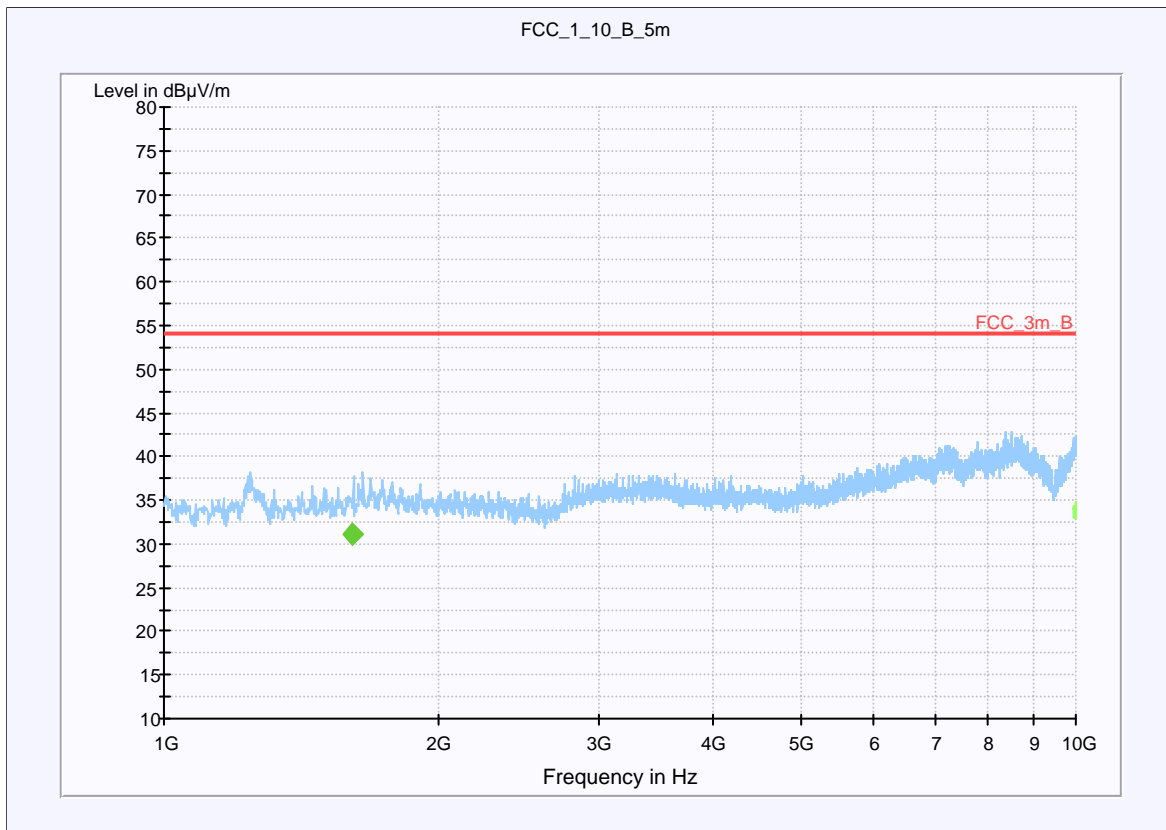
Frequency- range	47CFR15: (FCC part 15 B) Class B	47CFR15: (FCC part 15 B) Class A *
30 MHz – 88 MHz	40 dB μ V/m	49,1 dB μ V/m
88 MHz – 216 MHz	43,5 dB μ V/m	53,5 dB μ V/m
216 MHz – 960 MHz	46 dB μ V/m	56,4 dB μ V/m
960 MHz – 18000 MHz	54 dB μ V/m	59,5 dB μ V/m
		* This values are recalculated from the class A limits at 10 m antenna distance in §15.109 (g 2) of the FCC rules.

8.2.20.17 Calibration Information

Device	Serial number	ICT Number	Calibration valid until	Calibration interval
FSU 26	200809	300003874	01/2011	12 month
Horn Antenna	9120B188	300003896	04/2010	24 month

Remarks:
System check of all relevant devices and the chamber (weekly)
Cable loss: 0.5 to 4.2 dB (30 MHz to 2 GHz); the cable and connectors loss is re-measured every 3 month

EUT: RCW41GW + USB cable + VMO (HDW-23438-001)
 Serial Number: IMEI: 004401.13.588929.9
 Test Description: FCC part 15 B class B
 Operating Conditions: GSM 850 idle / BT paired
 Operator Name: STP
 Comment: battery powered



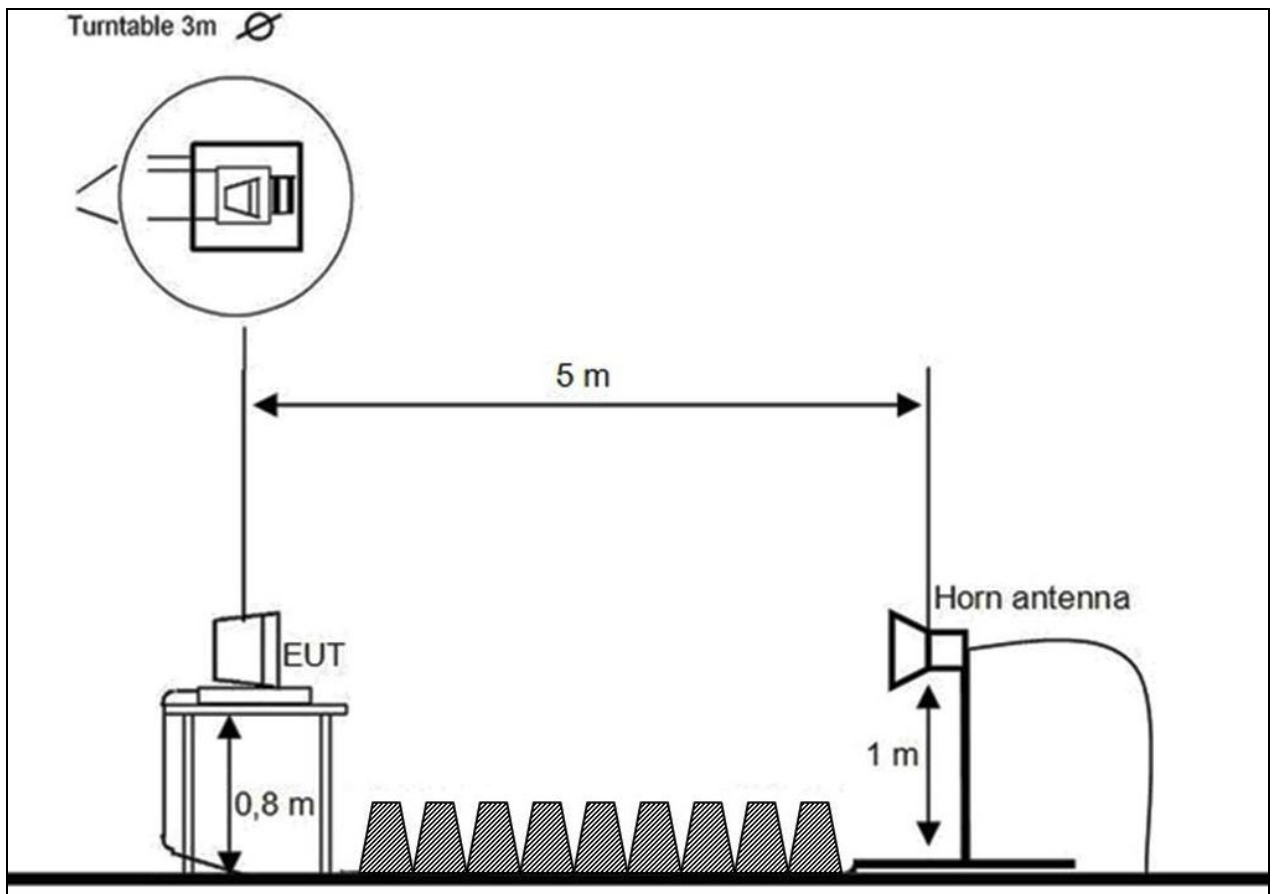
Final Result 1

Frequency (MHz)	Average (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Antenna height (cm)	Polarity	Turntable position (deg)	Corr. (dB)	Comment
1612.061937	31.0	1.000	1000.000	100.0	V	167.0	-4.0	

8.2.20.18 Hardware Set-up: EMI radiated\BBHA_5m - [EMI radiated]

Subrange 1
 Frequency Range: 1 GHz - 10 GHz
 Receiver: FSU 26 [FSU 26]
 @ GPIB0 (ADR 21), SN 200809/026, FW 4.41
 Signal Path: 1_6_EN
 FW 1.0
 Correction Table: 3_5m
 Correction Table: LNA_EN
 Antenna: BBHA 9120 B
 Correction Table (vertical): BBHA9120
 Correction Table (horizontal): BBHA9120
 Correction Table: Cable_Horn_EN (0909)
 Antenna Tower: Generic Tripod [Generic Tripod]
 @ GPIB0 (ADR 19), SN ?
 Turntable: Turntable [EMCO Turntable]
 @ GPIB0 (ADR 9), FW REV 3.12
 EMC 32 Version 8.10.00

8.2.20.19 Test Set-up



9 Test equipment and ancillaries used for tests

To simplify the identification of the test equipment and/or ancillaries which were used, the reporting of the relevant test cases only refer to the test item number as specified in the table below.

No.	Instrument/Ancillary	Manufacturer	Type	Serial-No.	Internal identification
Radiated emission in chamber F					
F-1	Control Computer	F+W		FW0502032	300003303
F-2	Trilog-Antenna	Schwarzbeck	VULB 9163	9163-295	---
F-3a	Amplifier	Veritech Microwave Inc.	0518C-138	- / -	- / -
F-4b	Switch	HP	3488A	- / -	300000368
F-5	EMI Test receiver	R&S	ESCI	100083	300003312
F-6	Turntable Interface-Box	EMCO / ETS-LINDGREN	Model 105637	44583	300003747
F-7	Tower/Turntable Controller	EMCO / ETS-LINDGREN	Model 2090	64672	300003746
F-8	Tower	EMCO / ETS-LINDGREN	Model 2175	64762	300003745
F-9	Ultra Notch-Filter Rejected band Ch. 62	WRCD		9	
Radiated immunity in chamber F					
F-10	Control Computer	F+W		FW0502032	300003303
F-11	Signal Generator	R&S	SML 03	102519	300003407
F-12	RF-Amplifier	ar	100W1000 M1	12951	300000529
F-13	Directional Coupler	ar	DC 3010	12708	300001428
F-14	Stacked Logper Antenna	Schwarzbeck	STLP9128 E	9128 E 013	300003408
F-15	RF-Amplifier	ar	60S1G3	313649	300003410
F-15b	RF-Amplifier 0.8 – 4 GHz	BONN	BLMA 0840-2000/100D	076820B	300003783
F-16	Directional Coupler	ar	DC7144A	312786	300003411
F-17	Horn Antenna	ar	AT 4002	19739	300000633
F-18	Power Meter	R&S	NRV	860327/024	F033
F-19	Power sensor	R&S	URV5-Z2	839080/005	300002844.02
F-20	Power sensor	R&S	URV5-Z2	830755/057	F032
Harmonics and flicker in front of chamber F					
F-21	Flicker and Harmonics Test System	Spitzenberger & Spies	PHE4500/B I PHE4500/B II	B5983 B5984	300000210
F-28	Power Supply	Hewlett Packard	6032 A	2920 A 04466	300000580
Radiated emission in chamber F > 1GHz					
F-29	Horn antenna	Schwarzbeck	BBHA 9120 B	9120B188	300003896
F-30	Amplifier	ProNova	0518C-138	005	F 024
F-31	Amplifier	Miteq	42-00502650-28-5A	1103782	300003379
F-32	Horn antenna	Emco	3115	9709-5289	300000213
F-33	Spectrum Analyzer	R&S	FSU 26	200809	300003874
F-34	Loop antenna	EMCO	6502	8905-2342	300000256
FG-18	Communication tester	R&S	CMU200	832221/0055	300002862

No.	Instrument/Ancillary	Manufacturer	Type	Serial-No.	Internal identification
Conducted emission in chamber G					
G-1	EMI Receiver	Hewlett Packard	8542 E	3617A0017 0	30000568
G-2	V-ISN	Rohde & Schwarz	ESH 3-Z5	892475/017	300002209
G-2a	V-ISN	Rohde & Schwarz	ESH 2-Z5	892602/024	30000587
G-3	2-Wire ISN	Schaffner	ISN T200	19075	300003422
G-4	4-Wire ISN	Schaffner	ISN T400	22325	300003423
G-5	Shielded wire ISN	Schaffner	ISN ST08	22583	300003433
G-6	Unshielded 8 wire ISN	Teseq	ISN T800	26113	300003833
G-7	Unshielded 8 wire ISN	Teseq	ISN T8-Cat. 6	26374	300003851
G-8	RF Current probe	FCC	F-33-4	46	300003257
G-9	V-ISN	Schaffner	ISN PLC-150	21579	300003318
G-10	V-ISN	Schaffner	ISN PLC-25-30	21584	300003319
G 10a	PLC Filter	TESEQ	Filter PLC	23436	300003598
G 10b	Coupling unit 75 Ohm	Fiedler	AC	----	300003272.04
Conducted immunity in chamber G					
G-11	Signal generator	HP	8657A	2838 A 00638	30000369
G-12	RF-Amplifier	BONN	BSA 0125-75	066502-01	300003545
G-13	Power Meter	R&S	URV 5	837723/025	300002844.01
G-14	Power Sensor	R&S	URV 5-Z2	832874/021	300002239
G-15	Directional coupler	emv	DC 2000	9401-1677	300000592
G-16	Attenuator 6dB	Alan	50HP6-100 N	121048 0348	300003148
G-17	EM-Injection Clamp	FCC	203i	232	300000626
G-18	CDN	FCC	FCC-801-M3-16	237	300000627
G-19	CDN	FCC	FCC-801-T2	78	300000629
G-20	CDN	FCC	FCC-801-AF 2	62	300000630
G-21	CDN	FCC	FCC-801-AF 4	61	300000631
G-22	CDN	FCC	FCC-801-M1	2027	300002761
G-23	CDN	Lüthi	CDN 801-M2/M3	9350105	300000534
G-24	Transformer for 50Hz Loop Antenna	EM-Test	MC2630	0200-10	300002659.01
G-25	50Hz Loop Antenna	EM-Test	MS 100	none	300002659
Surge, Burst, Dips and Interruptions in chamber G					
G-26	Hybrid-Generator	EM-Test	UCS 500M6	0399-07	300002599
G-27	Motor Variac	EM-Test	MV 2616	0600-01	300002658
G-28	Capacitive Coupling Clamp	MWB	KKS 100	---	300000589
G-29	Coupling Decoupling Network	EMC-Partner	CDN-UTP	00014	300003226
ESD in chamber G					
G-30	ESD generator	Schaffner	NSG 435	308	300002249
Emission on bench in chamber G					
G-31	Absorbing Clamp	R&S	MDS-21	832 231/006	300000527

10 Observations

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

Annex A: Photographs of the test set-up

pictures of the EUT see ANNEX A (document: 1-2166-01-10_10_ANNEX_A_B)

Annex B: Photographs of the EUT

pictures of the EUT see ANNEX B (document: 1-2166-01-10_10_ANNEX_A_B)

Annex C: Document history

Version	Applied changes	Date of release
	Initial release	2010-04-08
_A	1. Table of contents, 6.1 Test item, Equipment classification Information update (mobile): hardware status, software status	2010-04-21

Annex D: Further information

Glossary

DUT	-	Device under Test
EMC	-	Electromagnetic Compatibility
EUT	-	Equipment under Test
FCC	-	Federal Communication Commission
FCC ID	-	Company Identifier at FCC
HW	-	Hardware
IC	-	Industry Canada
Inv. No.	-	Inventory number
N/A	-	not applicable
S/N	-	Serial Number
SW	-	Software