

FCC Part 15B Compliance Test Report

Test Report no.:	Cph_FCC_0727_15.doc	Date of Report:	06-07-2007
Number of pages:	11	Customer's Contact person:	Ernest Mayer
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FCC listing no.:	99059		
IC recognition no.:	661AD-1		
Tested devices/ accessories:	Phone; RM-123 (HW 1013) & Battery; BP-6M & AC Charger; AC-4U & Data Cable; CA-53		
FCC ID:	QTKRM-123B	IC:	661AD-RM123
Supplement reports:			
Testing has been carried out in accordance with:	CFR 47, FCC rules Part 15 Subpart B, ANSI C63.4 (2003), ICES-003, CISPR 22 and IC standards RSS-132, RSS-133 and RSS-210. Deviations, modifications or clarifications (if any) to above mentioned documents are written in each section under "Test method and limit".		
Documentation:	The test report must always be reproduced in full; reproduction of an excerpt only is subject to written approval of the testing laboratory. The documentation of the testing performed on the tested devices is archived for 15 years at TCC Nokia.		
Test Results:	The EUT complies with the requirements in respect of all parameters subject to the test. The test results relate only to devices specified in this document.		
Date and signature for the contents:			

Niels Christian Andersen, Engineer

1. Summary for FCC Part 15B Compliance Test Report

Date of receipt	05-07-2007
Testing completed	06-07-2007
The customer's contact person	Ernest Mayer
Test Plan referred to	T:\Projects\RM-123\TestPlan_RS\RS_Testplan_RM-123_CR_59_Black_covers_NEW.xls
Notes	None
Document name	\\satcc01nmp\tcc_salo\Projects\RM-123\EMC\Results\FCC\Cph_FCC_0727_15.doc

1.1. EUT and Accessory Information

The EUT is a 4-band (GSM900/1800/1900 and WCDMA Band I) mobile phone with GPRS, EGPRS and Bluetooth. GSM band is tested in idle mode. Bluetooth is tested with maximum rated TX power.

Product	Type	SN	HW	MV	SW	DUT
Phone	RM-123	354544/01/452105/7	1013	-	V 05.10	11992
Battery	BP-6M	0670505393213N202920218880	-	-	-	11991
AC-Charger	AC-4U	3997915245061102926;0675379	1.1	-	-	27486
Data Cable	CA-53	EM2008882A	-	4.0	-	28401

1.2. Summary of Test Results

GSM 1900:

Section in CFR 47	Section in ICES-003 (RSS-133)	Name of the test	Result
15.107, a	5.3	AC powerline conducted emissions	NP
15.109, a	5.5 (9)	Radiated emissions	Passed

Bluetooth:

Section in CFR 47	Section in ICES-003	Name of the test	Result
15.107, a	5.3	AC powerline conducted emissions	NP
15.109, a	5.5	Radiated emissions	Passed

PASSED
FAILED
NP

The EUT complies with the essential requirements in the standard.
The EUT does not comply with the essential requirements in the standard.
The test was not performed by the TCC Nokia Copenhagen Laboratory.

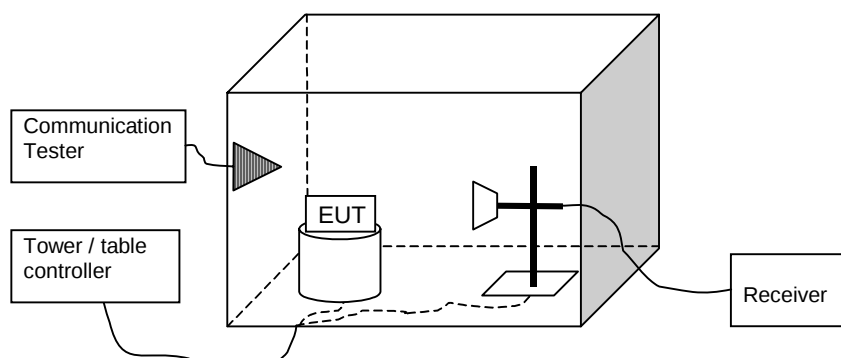
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2. Radiated emissions (FCC §15.109, ICES-003 section 5.5, RSS-132 6.6, RSS-133 9)

EUT with DUT number	RM-123 Dut#11992
Accessories with DUT numbers	BP-6M Dut#11991, AC-4U Dut#27486, CA-53 Dut#28401
Operation Voltage [V] / [Hz]	230 / 50
Result	Passed
Remarks	None
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	22 / 50 / 100
Date of measurements	06-07-2007
Measured by	Christian Andersen

2.1. Test setup



2.2. Test method and limit

The measurement is made according to ANSI C63.4-2003as follows:

The measurement is performed in the Semi-Anechoic Chamber with conducting metal floor.

The measurement distance is 3 m.

The EUT is placed on a nonconductive plate at 80 cm height.

For each suspected frequency, the turntable is rotated 360 degrees and antenna is scanned from 1 to 4 m. This is repeated for both horizontal and vertical receive antenna polarizations.

The emissions less than 20 dB below the permissible value are reported.

The measurement results are obtained as described below:

$$E [\mu\text{V/m}] = U_{RX} + A_{TOT}$$

Where U_{RX} is receiver reading and A_{TOT} is total correction factor including cable loss, antenna factor and preamplifier gain ($A_{TOT} = L_{CABLES} + AF - G_{PREAMP}$).

CISPR 22 and FCC Part 15 Class B limits (3 m measurement distance)

Frequency range [MHz]	Quasi peak limit [dBμV/m]	Average limit [dBμV/m]	Peak limit [dBμV/m]
30 – 230	40	-	-
230 – 1000	47	-	-
Above 1000	-	54	74

2.3. GSM 1900 Test results

RX mode, channel 512 / 1930.2 MHz

Peak (RBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
3860.000000	40.80	109.65	41.10	-0.30	VERTICAL	Passed
7720.000000	42.20	128.82	33.70	8.50	VERTICAL	Passed

Average (RBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
3860.000000	27.40	23.44	27.70	-0.30	VERTICAL	Passed
7720.000000	29.30	29.17	20.80	8.50	VERTICAL	Passed

RX mode, channel 661 / 1960.0 MHz

Quasi peak (RBW: 120 kHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
38.816834	35.10	56.89	53.50	-18.40	VERTICAL	Passed
62.545892	24.30	16.41	54.60	-30.30	VERTICAL	Passed
86.693988	18.90	8.81	45.00	-26.10	VERTICAL	Passed
105.030060	31.80	38.90	57.40	-25.60	VERTICAL	Passed
128.135271	28.00	25.12	53.70	-25.70	HORIZONTAL	Passed
688.676754	18.60	8.51	32.90	-14.30	VERTICAL	Passed

Peak (RBW: 1 MHz, VBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
1959.919840	64.50	1678.80	67.10	-2.60	VERTICAL	Passed
3919.839679	41.90	124.45	42.30	-0.40	VERTICAL	Passed
7840.179359	48.50	266.07	39.60	8.90	VERTICAL	Passed
7840.181363	48.80	275.42	39.90	8.90	VERTICAL	Passed

*1960 MHz frequency is coming from communication tester and thus ignored.

Average (RBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
1959.919840	63.60	1513.56	66.20	-2.60	VERTICAL	Passed
2294.589178	33.10	45.19	33.10	0.00	VERTICAL	Passed
2982.467936	34.40	52.48	28.80	5.60	VERTICAL	Passed
3919.839679	27.80	24.55	28.20	-0.40	VERTICAL	Passed
7840.179359	33.30	46.24	24.40	8.90	VERTICAL	Passed
7840.181363	33.30	46.24	24.40	8.90	VERTICAL	Passed

*1960 MHz frequency is coming from communication tester and thus ignored.

RX mode, channel 810 / 1989.8 MHz

Peak (RBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
3980.000000	40.70	108.39	41.10	-0.40	VERTICAL	Passed
7960.000000	46.50	211.35	37.40	9.10	VERTICAL	Passed

Average (RBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
3980.000000	27.10	22.65	27.50	-0.40	VERTICAL	Passed
7960.000000	29.90	31.26	20.80	9.10	VERTICAL	Passed

2.4. Bluetooth Test results

GFSK modulation

TX mode, channel 0 / 2402 MHz

Peak (RBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
4804.000000	52.10	402.72	51.40	0.70	HORIZONTAL	Passed
7206.000000	44.60	169.82	37.50	7.10	HORIZONTAL	Passed

Average (RBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
4804.000000	40.90	110.92	40.20	0.70	HORIZONTAL	Passed
7206.000000	31.70	38.46	24.60	7.10	HORIZONTAL	Passed

TX mode, channel 40 / 2442 MHz

Quasi peak (RBW: 120 kHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
38.076353	26.50	21.13	44.40	-17.90	VERTICAL	Passed
116.973146	27.20	22.91	52.20	-25.00	VERTICAL	Passed
121.623246	25.60	19.05	50.20	-24.60	HORIZONTAL	Passed
123.066132	24.70	17.18	49.50	-24.80	HORIZONTAL	Passed
128.175752	27.40	23.44	53.00	-25.60	HORIZONTAL	Passed
134.990180	31.30	36.73	57.40	-26.10	HORIZONTAL	Passed

Peak (RBW: 1 MHz, VBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
1947.895792	65.70	1927.52	67.60	-1.90	VERTICAL	Passed
4883.767535	52.10	402.72	51.20	0.90	HORIZONTAL	Passed
4883.769539	52.30	412.10	51.40	0.90	HORIZONTAL	Passed
7325.651303	45.00	177.83	37.80	7.20	VERTICAL	Passed
7325.653307	45.40	186.21	38.20	7.20	VERTICAL	Passed
17422.343687	52.90	441.57	29.60	23.30	VERTICAL	Passed
17852.199399	59.50	944.06	30.50	29.00	VERTICAL	Passed

*1947.8 MHz frequency is coming from communication tester and thus ignored.

Average (RBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
1947.895792	64.90	1757.92	66.80	-1.90	VERTICAL	Passed
4883.767535	39.80	97.72	38.90	0.90	HORIZONTAL	Passed
4883.769539	39.90	98.86	39.00	0.90	HORIZONTAL	Passed
7325.651303	31.50	37.58	24.30	7.20	VERTICAL	Passed
7326.153307	31.60	38.02	24.40	7.20	VERTICAL	Passed
17424.843687	40.00	100.00	16.60	23.40	VERTICAL	Passed
17850.199399	46.90	221.31	17.90	29.00	VERTICAL	Passed

*1947.8 MHz frequency is coming from communication tester and thus ignored.

TX mode, channel 78 / 2480 MHz

Peak (RBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
4960.000000	53.90	495.45	52.60	1.30	HORIZONTAL	Passed
7440.000000	45.00	177.83	36.80	8.20	VERTICAL	Passed

Average (RBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
4960.000000	42.00	125.89	40.70	1.30	HORIZONTAL	Passed
7440.000000	31.30	36.73	23.10	8.20	VERTICAL	Passed

8DPSK modulation

TX mode, channel 0 / 2402 MHz

Peak (RBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
4804.000000	45.30	184.08	44.60	0.70	HORIZONTAL	Passed
7206.000000	40.10	101.16	33.00	7.10	VERTICAL	Passed

Average (RBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
4804.000000	30.30	32.73	29.60	0.70	HORIZONTAL	Passed
7206.000000	27.40	23.44	20.30	7.10	VERTICAL	Passed

TX mode, channel 40 / 2442 MHz

Quasi peak (RBW: 120 kHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
38.176353	21.40	11.75	39.30	-17.90	VERTICAL	Passed
121.263727	21.10	11.35	45.70	-24.60	HORIZONTAL	Passed
127.194790	22.50	13.34	48.00	-25.50	VERTICAL	Passed
266.030862	22.80	13.80	46.60	-23.80	VERTICAL	Passed
284.969940	25.80	19.50	48.90	-23.10	VERTICAL	Passed

Peak (RBW: 1 MHz, VBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
4884.267535	44.90	175.79	44.00	0.90	HORIZONTAL	Passed
4884.269539	44.80	173.78	43.90	0.90	HORIZONTAL	Passed
7335.669339	42.90	139.64	35.30	7.60	VERTICAL	Passed
7340.185371	41.80	123.03	34.00	7.80	VERTICAL	Passed
17488.985972	53.30	462.38	29.40	23.90	HORIZONTAL	Passed
17856.709419	60.00	1000.00	31.00	29.00	HORIZONTAL	Passed

Average (RBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
4883.767535	30.50	33.50	29.60	0.90	HORIZONTAL	Passed
4883.769539	30.70	34.28	29.80	0.90	HORIZONTAL	Passed
7334.669339	28.70	27.23	21.10	7.60	VERTICAL	Passed
7341.685371	28.70	27.23	20.80	7.90	VERTICAL	Passed
17493.485972	40.20	102.33	16.20	24.00	HORIZONTAL	Passed
17853.709419	46.90	221.31	17.90	29.00	HORIZONTAL	Passed

TX mode, channel 78 / 2480 MHz

Peak (RBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
4960.000000	46.90	221.31	45.60	1.30	HORIZONTAL	Passed
7440.000000	42.10	127.35	33.90	8.20	VERTICAL	Passed

Average (RBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
4960.000000	29.20	28.84	27.90	1.30	HORIZONTAL	Passed
7440.000000	29.00	28.18	20.80	8.20	VERTICAL	Passed

3. Test Equipment

3.1. Conducted measurements

Eq. No	Equipment	Type	Manufacturer	Used in
13037	Power Supply 0-15V 10A	EA3012	LP Instruments	15C, 15B
13513	Pulse Limiter 9KHz-30MHz	ESH3Z2	Rohde&Schwarz	15C, 15B
13666	EMI Test Reciever 9KHz-2,5GHz	ESPC	Rohde&Schwarz	15C, 15B
13935	Two Lines Artificial Mains Network	ESH3-Z5	Rohde&Schwarz	15C, 15B
16995	Directional Coupler 20dB 0,5-2,0 GHz SMA Conn.	1538RA-20	Weinschel	15C, 15B
18772	Shielded Chamber	RFD-100	ETS-Lindgren	15C, 15B
19171	Universal Radio Communication Tester	CMU200	Rohde&Schwarz	15C, 15B
11386	System DC Power Supply	HP6632A	Hewlett Packard	22/24, 15C, 15B
19678	Spectrum Analyzer 26 GHz	FSP	Rohde&Schwarz	22/24, 15C, 15B
16601	Universal Radio Communication Tester	CMU200	Rohde&Schwarz	22/24, 15C, 15B
19625	Vötsch Climatic Chamber	VT4002EMC	Vötsch	22/24, 15C, 15B
13357	Rohde & Schwartz Signal Generator	SMP02	Rohde&Schwarz	22/24, 15C, 15B

3.2. Radiated measurements

Eq. No	Equipment	Type	Manufacturer	Used in
18416	Universal Radio Communication Tester	CMU200	Rohde&Schwarz	22/24, 15C, 15B
	Programmable Relay Switching System	-----	Pickering	22/24, 15C, 15B
15742	Programmable Relay Switching System	-----	Pickering	22/24, 15C, 15B
14020	Power Supply Module Relay Switching System 45W	10-910-002	Pickering	22/24, 15C, 15B
15743	Power Supply Module Relay Switching System 50W	10-910L-001	Pickering	22/24, 15C, 15B
16490	RS-232/IEEE-488.2 Interface	10-921-001	Pickering	22/24, 15C, 15B
	RS-232/IEEE-488.2 Interface	10-921-001	Pickering	22/24, 15C, 15B
20078	Relay 2x6 Chnl μ Wave Mux	10-785B-522	Pickering	22/24, 15C, 15B
14021	Relay Dual 6 Chnl μ Wave Mux	10-785-522		22/24, 15C, 15B
	Relay Dual 6 Chnl μ Wave Mux	10-785-522		22/24, 15C, 15B
17644	Dual 6 Channel MUX Microwave Relay SMA 50 Ohm	10-785-522	Pickering	22/24, 15C, 15B
16948	Dual 6 Channel MUX Microwave Relay SMA 50 Ohm	10-785-522	Pickering	22/24, 15C, 15B
16949	Dual 6 Channel MUX Microwave Relay SMA 50 Ohm	10-785-522	Pickering	22/24, 15C, 15B
18792	Multi Device Controller	2090	ETS-EMCO	22/24, 15C, 15B
14963	RF Preampifier 100MHz-4GHz (Metal Chassis)	AFS3-00100400	Miteq/NMP Cph	22/24, 15C, 15B
18861	EMI Test Receiver 20Hz-26,5GHz	ESI	Rohde&Schwarz	22/24, 15C, 15B

Eq. No	Equipment	Type	Manufacturer	Used in
18860	Ultra Broadband Antenna Ultralog 30-3000MHz	HL562	Rohde&Schwarz	22/24, 15C, 15B
19830	Ultra Broadband Antenna Ultralog 30-3000MHz	HL562	Rohde&Schwarz	22/24, 15C, 15B
18773	Shielded Chamber	RFD-100	ETS-Lindgren	22/24, 15C, 15B
18774	Shielded Chamber	RFSD-F/A-100	ETS-Lindgren	22/24, 15C, 15B
19151	High Pass Filter 3GHz WHK3.0/18G-10ss	WHJS3000-10SS	Wainwright	22/24, 15C, 15B
13937	Ultra Stable Notch Filter 850MHz	WRCA902.4-0.2/40-6SS	Wainwright Instruments	22/24, 15C, 15B
13936	Ultra Stable Notch Filter 1747,5MHz	WRCD1747.5-0.2/40- 10SS	Wainwright Instruments	22/24, 15C, 15B
13917	Highpass Filter 1000-3000MHz 50OHM SMA Conn	WHKS1000-10SS	Wainwright Instruments	22/24, 15C, 15B
14188	Ultra Stable Notch Filter 902,4MHz	WRCA902.4-0.2/40-6SS	Wainwright	22/24, 15C, 15B
14187	Ultra Stable Notch Filter 1747,5MHz	WRCD1747.5-0.2/40- 10SS	Wainwright	22/24, 15C, 15B
16633	Ultra Stable Notch Filter 1880,0MHz	WRCD1880.0-0.2/40- 10SS	Wainwright	22/24, 15C, 15B
19587	BT/WLAN Band Reject Filter	WRCG2400/2483- 2390/2493-35/10SS	Wainwright	22/24, 15C, 15B
	WDCMA Band 4 filter	WRCG1737/1743- 1733/1747-40/6SS	Wainwright	22/24, 15C, 15B
	WDCMA Band 5&6 filter	WRCG832/83/-825/845- 40/5SS	Wainwright	22/24, 15C, 15B
	WDCMA Band 8 filter	WRCG894.6/900.6- 890.6/904.6-40/80SS	Wainwright	22/24, 15C, 15B
18323	Band reject filter 1947-1953MHz 40dB	WRCG1947/1953- 1940/1960-40/6SS	Wainwright	22/24, 15C, 15B
20031	Double Ridged Broadband Horn	BBHA 9120 D	SCHWARZBECK	22/24, 15C, 15B
15190	Infra Red Remote Control Unit	4630	Emco	22/24, 15C, 15B
14993	EMI Test Receiver 9KHz- 2750MHz	ESCS30	Rohde&Schwarz	22/24, 15C, 15B
15191	Turntable Contoller Unit	G-800SDX	YAESU	22/24, 15C, 15B
14900	Antenna Controller	HD100	HD GmbH	22/24, 15C, 15B
15105	Attenuator 30dB DC-1000MHz 50 Ohm Nf - Nm	NAT-30	Mini-Circuits	22/24, 15C, 15B
13302	Spectrum Analyzer 9KHz- 12.8GHz	HP8596E	Hewlett Packard	22/24, 15C, 15B
11584	Spectrum analyzer 50Hz- 6,5GHz	HP8561B	Hewlett Packard	22/24, 15C, 15B
13134	Tracking generator	HP85645A	Hewlett Packard	22/24, 15C, 15B
19374	Resonant Dipole Antenna 850MHz SMA m Conn.	-----	NMP Cph	22/24, 15C, 15B
19375	Resonant Dipole Antenna 1900MHz SMA m Conn.	-----	NMP Cph	22/24, 15C, 15B
11487	Network analyzer 300KHz- 3,0GHz	HP8753A	Hewlett Packard	22/24, 15C, 15B
14807	S - Parameter Test Set 300KHz- 6GHz	HP85047A	Hewlett Packard	22/24, 15C, 15B
17277	Multimeter Digital 6 1/2 Digit	AT34401A	Agilent Technologies	22/24, 15C, 15B