

FCC Part 15B Compliance Test Report

Test Report no.:	FCC15B_RM-679_14.docx	Date of Report:	11-Apr-2011
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FCC listing no.:	975940		
IC recognition no.:	661AH-1		
Tested devices/ accessories:	Phone RM-679 / Battery BL-4D / AC-charger AC-10C / Charging data cable CA-100C / Headset WH-205		
FCC ID:	QTLRM-679	IC:	661AB-RM679
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, RSS-132 (Issue 2, September 2005), RSS-133 (Issue 5, February 2009), RSS-210 (Issue 8, December 2010). 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:			

Zou Ming, EMC Engineer

1. Summary for FCC Part 15B Compliance Test Report

Date of receipt	07-Mar-2011
Testing completed	06-Apr-2011
The customer's contact person	Li Hongwei-Henry
Test Plan referred to	T:\Projects\RM-679\TestPlan\RS_testplan_RM-679.xls
Notes	-
Document name	FCC15B_RM-679_14.docx

1.1. EUT and Accessory Information

The EUT is a 5-band (GSM850/900/1800/1900) and TD-SCDMA Band I&II mobile phone with GPRS, EGPRS, HSDPA and WLAN and Bluetooth and FM transmitter.

Product	Type	SN	HW	MV	SW	DUT
Phone	RM-679	008600080055923	0301	-	021.002	52100
Battery	BL-4D	4620401012N10312266;0670605	-	-	-	52101
AC-charger	AC-10C	3997910096012001230;0675412	-	-	-	52108
Charging data cable	CA-100C	07303390131L2605514	-	-	-	52109
Headset	WH-205	0694821030681R08469	-	-	-	52115

1.2. Summary of Test Results

Bluetooth:

Section in CFR 47	Section in ICES-003 (RSS-139)	Name of the test	Result
15.107, a	5.3	AC powerline conducted emissions	NP
15.109, a	5.5 (6.6)	Radiated emissions	PASSED

GSM850:

Section in CFR 47	Section in ICES-003 (RSS-132)	Name of the test	Result
15.107, a	5.3	AC powerline conducted emissions	NP
15.109, a	5.5 (4.6)	Radiated emissions	PASSED

GSM1900:

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 (6.6)	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 Laboratory.

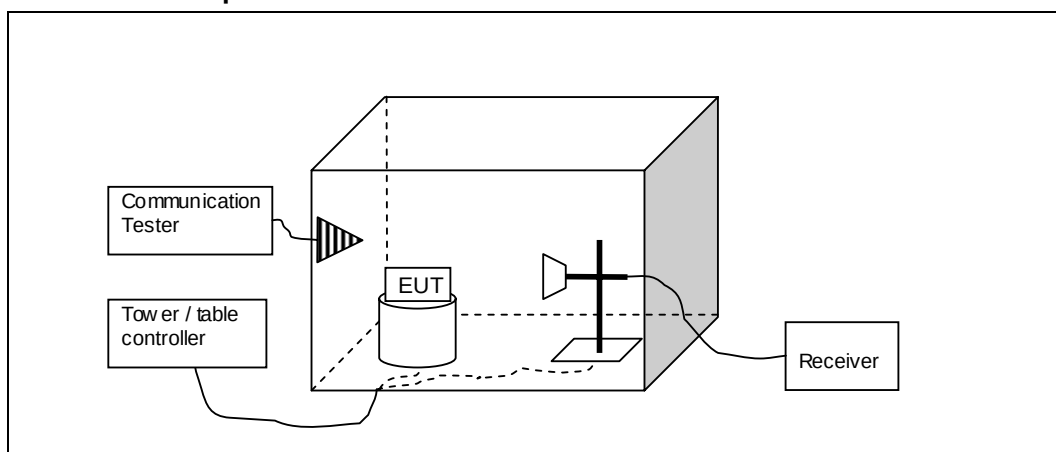
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2. Radiated emissions (FCC §15.109, ICES-003 section 5.5, RSS-132 4.6, RSS-133 6.6)

EUT with DUT number	RM-679, DUT 52106
Accessories with DUT numbers	BL-4D, DUT ; AC-10C, DUT 52108 ; CA-100C, DUT 52109
Operation Voltage [V] / [Hz]	115 / 60
Results	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	20 / 41 / 101.0
Date of measurements	06-Apr-2011
Measured by	Zou Ming

2.1.1 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:

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

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

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. Bluetooth Test results

2.3.1 GFSK modulation, PRBS packet type

TX mode, Channel 78 / 2480 MHz

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

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
4959.2	43.15	143.698	43.08	0.07	HORIZONTAL	PASSED
7441	46.67	215.452	41.61	5.06	VERTICAL	PASSED

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

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
4959.2	30.13	32.096	30.06	0.07	HORIZONTAL	PASSED
7441	33.45	47.038	28.39	5.06	VERTICAL	PASSED

TX mode, Channel 40 / 2442 MHz

Quasi peak (RBW: 120 kHz, VBW: 300 kHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
33.706	22.76	13.733	33.72	-10.96	VERTICAL	PASSED
40.431	25.77	19.436	41.88	-16.11	VERTICAL	PASSED
41.957	10.81	3.473	27.84	-17.03	VERTICAL	PASSED
898.768	23.09	14.269	31.75	-8.66	HORIZONTAL	PASSED
935.741	30.52	33.562	38.92	-8.4	HORIZONTAL	PASSED
935.834	30.13	32.107	38.53	-8.4	HORIZONTAL	PASSED
935.876	29.91	31.286	38.31	-8.4	VERTICAL	PASSED
940.641	31.18	36.224	39.54	-8.36	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
2498.456	53.41	468.004	48.22	5.19	HORIZONTAL	PASSED
7029.356	46.12	202.349	41.21	4.91	VERTICAL	PASSED
7419.537	52.28	411.339	47.19	5.09	HORIZONTAL	PASSED
7845.891	46.37	208.281	41.6	4.77	HORIZONTAL	PASSED
7855.809	45.57	189.911	40.81	4.76	VERTICAL	PASSED

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

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
2498.456	34.4	52.481	29.21	5.19	HORIZONTAL	PASSED
7029.356	32.95	44.407	28.04	4.91	VERTICAL	PASSED
7419.537	37.45	74.568	32.36	5.09	HORIZONTAL	PASSED
7845.891	32.95	44.412	28.18	4.77	HORIZONTAL	PASSED
7855.809	32.98	44.571	28.22	4.76	VERTICAL	PASSED

TX mode, Channel 0 / 2402 MHz

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

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
4805.2	42.02	126.212	42.27	-0.25	HORIZONTAL	PASSED
7204.7	45.7	192.819	40.68	5.02	VERTICAL	PASSED

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

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
4805.2	29	28.184	29.25	-0.25	HORIZONTAL	PASSED
7204.7	32.86	43.934	27.84	5.02	VERTICAL	PASSED

2.4. GSM850 Test results, FM radio on

RX mode, channel 128 / 869.2 MHz

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

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
3478.3	39.87	98.492	42.41	-2.54	VERTICAL	PASSED
6953.9	51.11	359.129	46.4	4.71	HORIZONTAL	PASSED

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

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
3478.3	27.21	22.935	29.75	-2.54	VERTICAL	PASSED
6953.9	37.83	77.92	33.12	4.71	HORIZONTAL	PASSED

RX mode, channel 190 / 881.6 MHz

Quasi peak (RBW: 120 kHz, VBW: 300 kHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
37.635	19	8.908	33.07	-14.07	VERTICAL	PASSED
41.662	17.82	7.784	34.64	-16.82	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
2918.436	48.83	276.471	41.87	6.96	VERTICAL	PASSED
7044.587	45.55	189.452	40.69	4.86	VERTICAL	PASSED
7049.999	45.82	195.321	40.95	4.87	VERTICAL	PASSED
7068.939	45.85	196.088	40.94	4.91	VERTICAL	PASSED
7072.744	45.95	198.472	41.07	4.88	VERTICAL	PASSED

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

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
2918.436	36.1	63.826	29.14	6.96	VERTICAL	PASSED
7044.587	32.84	43.833	27.98	4.86	VERTICAL	PASSED

7049.999	32.93	44.295	28.06	4.87	VERTICAL	PASSED
7068.939	33.05	44.9	28.14	4.91	VERTICAL	PASSED
7072.744	33.07	45.025	28.19	4.88	VERTICAL	PASSED

RX mode, channel 251 / 893.8 MHz

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

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
3574.6	40.43	105.063	43.22	-2.79	VERTICAL	PASSED
7148.8	48.04	252.435	43.08	4.96	VERTICAL	PASSED

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

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
3574.6	27.02	22.441	29.81	-2.79	VERTICAL	PASSED
7148.8	33.46	47.103	28.5	4.96	VERTICAL	PASSED

2.5. GSM1900 Test results, FM radio on

RX mode, channel 512 / 1930.2 MHz

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

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
3859.3	40.92	111.186	42.4	-1.48	VERTICAL	PASSED
7721.2	46.04	200.332	41.48	4.56	HORIZONTAL	PASSED

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

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
3859.3	28.1	25.413	29.58	-1.48	VERTICAL	PASSED
7721.2	32.57	42.486	28.01	4.56	HORIZONTAL	PASSED

RX mode, channel 661 / 1960.0 MHz

Quasi peak (RBW: 120 kHz, VBW: 300 kHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
31.38	15.55	5.994	25.02	-9.47	HORIZONTAL	PASSED
41.373	15.02	5.634	31.67	-16.65	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
7028.058	46.39	208.785	41.47	4.92	VERTICAL	PASSED
7069.443	46.78	218.147	41.88	4.9	HORIZONTAL	PASSED
7070.639	46.37	208.185	41.48	4.89	VERTICAL	PASSED
7849.803	45.72	193.286	40.94	4.78	VERTICAL	PASSED

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

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
7028.058	33.02	44.771	28.1	4.92	VERTICAL	PASSED
7069.443	33.13	45.342	28.23	4.9	HORIZONTAL	PASSED
7070.639	33.1	45.206	28.21	4.89	VERTICAL	PASSED
7849.803	32.96	44.473	28.18	4.78	VERTICAL	PASSED

RX mode, channel 810 / 1989.8 MHz

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

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
3978.1	40.29	103.431	42.27	-1.98	HORIZONTAL	PASSED
7959.3	46.4	209.002	41.6	4.8	VERTICAL	PASSED

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

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
3978.1	27.29	23.134	29.27	-1.98	HORIZONTAL	PASSED
7959.3	32.8	43.657	28	4.8	VERTICAL	PASSED

3. Test Equipment

3.1. Conducted measurements

Eq. No	Equipment	Type	Manufacturer	Used in
-	RF Emission Software	EMC32 Test Software	R&S	22/24/27, 15C, 15B
BJPCHW0020	DC Power supply	HP6632B	HP	22/24/27, 15C
BJPCPT0040	Receiver	ESCS30	R&S	15C,15B
BJPCPT0073	Signal Generator	SMR 20	R&S	22/24/27, 15C, 15B
BJPCPT0079	LISN 50 μ H	ESH3-Z5	R&S	15C,15B
BJPCPT0131	Communication Tester	CMU200	R&S	15C,15B
BJPCPT0191	Pulse Limiter	ESH3-Z2	R&S	15C,15B
BJPCTC0017	Communication Tester	CMU200	R&S	22/24/27, 15C, 15B
BJPCTC0067	Bluetooth Tester	CBT	R&S	22/24/27, 15C
BJPCTC0089	Temperature Test chamber	VT4002	Votsch industrietechnik	22/24/27, 15C
BJPCTC0090	FSP spectrum analyzer	FSP30	R&S	22/24/27, 15C
BJPCTC0094	GPIB-RS232 convertor	GPIB-RS232	NI	22/24/27, 15C
BJPCTC0112	Power Splitter	11667B	Agilent	22/24/27, 15C
BJPCTC0114	Signal Generator	E8357C	Agilent	22/24/27, 15C
BJPCTC0115	Communication Tester	CMU200	R&S	22/24/27, 15B, 15C

3.2. Radiated measurements

Eq. No	Equipment	Type	Manufacturer	Used in
-	BT / WLAN Antenna	SPA 2400/75/9/0/V	Huber-Suhner	15C, 15B
-	BT / WLAN Antenna	SPA 2400/75/9/0/V	Huber-Suhner	15C, 15B
-	RF Emission Software	EMC32 Test Software	R&S	22/24/27, 15C, 15B
BJPCPT0072	Receiver	ESI B26	R&S	22/24/27, 15C, 15B
BJPCPT0130	Relay Switch Unit	TS-RSP	R&S	22/24/27, 15C, 15B
BJPCPT0150	High Pass Filter	WHKS1200-10SS	Wainwright	22/24/27, 15C, 15B
BJPCPT0151	Band Reject Filter	WRCD1880/2000-0.2/40-5SSK	Wainwright	24, 15B
BJPCPT0154	Band Reject Filter	WRCT2402/2480-2400/2483.5-30-20SS	Wainwright	15C, 15B
BJPCPT0162	Antenna	HF906	R&S	22/24/27, 15C, 15B
BJPCTC0007	Antenna	HL562	R&S	22/24/27, 15C, 15B
BJPCTC0029	Antenna	HF906	R&S	22/24/27, 15C, 15B
BJPCTC0034	Band Reject Filter	WRCT 800/880-0.2/40-5SSK	Wainwright	22, 15B
BJPCTC0049	Preamplifier	Blma 0118-1A-Bt	Bonn	22/24/27, 15C, 15B
BJPCTC0055	Communication Tester	CMU200	R&S	22/24/27, 15C, 15B
BJPCTC0058	Bluetooth Tester	CBT	R&S	15C, 15B
BJPCTC0064	Band Reject Filter	WRCG1877/1883-1870/1890-40/6SS	Wainwright	24, 15B
BJPCTC0065	Band Reject Filter	WRCG832/838-825/845-40/5SS	Wainwright	27, 15B
BJPCTC0071	Multi-Device Controller	2090	EMCO	22/24/27, 15C, 15B
BJPCTC0072	Anechoic Chamber	3 m Semi / Full Anechoic Chamber	ETS	22/24/27, 15C, 15B
BJPCTC0073	MAST	Model-TR/POL	ETS	22/24/27, 15C, 15B
BJPCTC0074	MAST	Model 2070-2	ETS	22/24/27, 15C, 15B
BJPCTC0075	Turntable	Model 2188	ETS-EMCO	22/24/27, 15C, 15B
BJPCTC0096	Preamplifier	AFS4-00100300-20-23P-6	Miteq	22/24/27, 15C, 15B
BJPCTC0113	Receiver	ESI B26	R&S	22/24/27, 15B, 15C
BJPCTC0115	Communication Tester	CMU200	R&S	22/24/27, 15B, 15C