

FCC Part 15B Compliance Test Report

Test Report no.:	FCC15B_RM-688_10.docx	Date of Report:	17-Jun-2010
Number of pages:	9	Customer's Contact person:	Alison Lenaghan
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FCC listing no.:	975940		
IC recognition no.:	661AH-1		
Tested devices/ accessories:	Phone RM-688 / Battery BL-5CT / AC-charger AC-8C / Charger adapter CA-100C / Headset WH-102 / Memory Card MU-37		
FCC ID:	QFXRM-688	IC:	661Z-RM688
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 (Issue 2, September 2005), RSS-133 (Issue 5, February 2009) and RSS-210 (Issue 7, June 2007). 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:			

Jia Dongsheng, System Manager

1. Summary for FCC Part 15B Compliance Test Report

Date of receipt	29-May-2010
Testing completed	11-Jun-2010
The customer's contact person	Alison Lenaghan
Test Plan referred to	T:\Projects\RM-688\TestPlan\RS_testplan_RM-688.xls
Notes	-
Document name	FCC15B_RM-688_08.docx

1.1. EUT and Accessory Information

The EUT is a 6-band (GSM850/900/1800/1900) and WCDMA Band (I/V(850)) mobile phone with GPRS, EGPRS, HSDPA, HSUPA and Bluetooth.

Product	Type	SN	HW	MV	SW	DUT
Phone	RM-688	004402130836046	4500	-	032.006	51683
Battery	BL-5CT	3635639385150103997;0670555	-	-	-	51691
AC-charger	AC-8C	4419299414010343131;0675391	-	-	-	51697
Charger adapter	CA-100C	0730339805111830435	-	-	-	51700
Headset	WH-102	06943239375c4106664	-	-	-	51703
Memory Card	MU-37	M24U2GTM1BRN11PK3991Q	-	-	-	51695

1.2. Summary of Test Results

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

WCDMA 850 (Band V):

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	NP

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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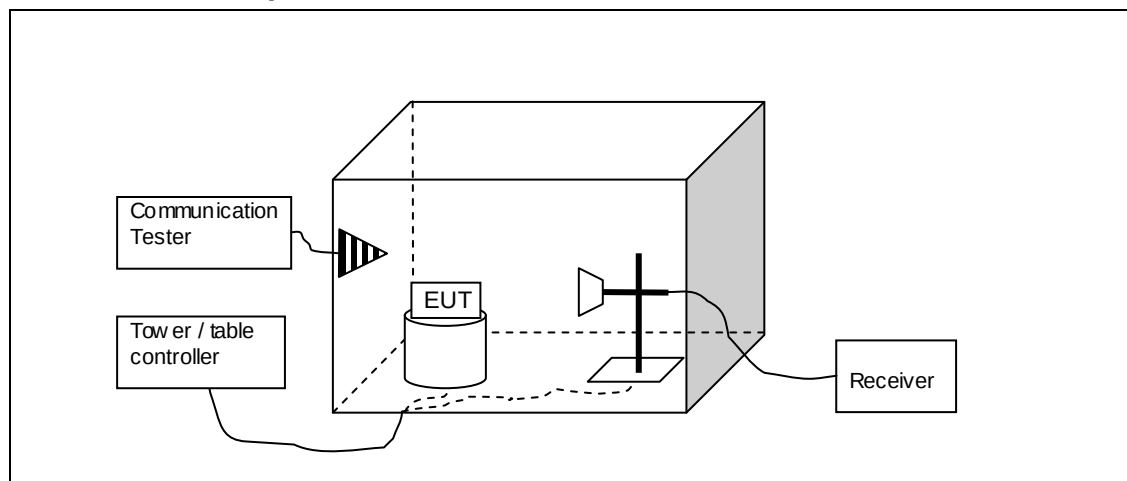
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2. Radiated emissions

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

EUT with DUT number	RM-688, DUT 51683
Accessories with DUT numbers	BL-5CT, DUT 51691 ; AC-8C, DUT 51697 ; CA-100C, DUT 51700 ; WH-102, DUT 51703 ; MU-37, DUT 51695
Operation Voltage [V] / [Hz]	115 / 60
Results	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	21 / 62 / 100.8
Date of measurements	11-Jun-2010
Measured by	Jia Dongsheng

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 ($A_{TOT} = L_{CABLES} + A_F - G_{PREAMP}$).

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

Frequency range [MHz]	Limit [$\mu\text{V/m}$]	Limit [$\text{dB}\mu\text{V/m}$]	Peak limit [$\text{dB}\mu\text{V/m}$]
30 - 230	40	-	-
230 – 1000	47	-	-
Above 1000	-	54	74

2.3. GSM850 Test results, GPS receiver active

RX mode, channel 128 / 869.2 MHz

Average(RBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
3478.6	28.13	25.492	30.28	-2.15	HORIZONTAL	PASSED
6951.7	37.31	73.401	33.54	3.77	VERTICAL	PASSED

Peak (RBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
3478.6	41	112.176	43.15	-2.15	HORIZONTAL	PASSED
6951.7	50.1	319.779	46.33	3.77	VERTICAL	PASSED

RX mode, channel 190 / 881.6 MHz

Average(RBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
2930.659	37.84	77.938	29.45	8.39	VERTICAL	PASSED
3911.822	29.4	29.526	30.03	-0.63	VERTICAL	PASSED

Quasi peak (RBW: 120 kHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
37.595	26.1	20.177	41.2	-15.1	VERTICAL	PASSED
41.223	21.44	11.8	39.26	-17.82	VERTICAL	PASSED
68.765	16.67	6.815	45.09	-28.42	VERTICAL	PASSED
235.749	18.69	8.604	43.38	-24.69	VERTICAL	PASSED

Peak (RBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
2930.659	50.46	333.35	42.07	8.39	VERTICAL	PASSED
3911.822	41.97	125.473	42.6	-0.63	VERTICAL	PASSED

RX mode, channel 251 / 893.8 MHz

Average(RBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
3575.9	27.45	23.572	30.41	-2.96	VERTICAL	PASSED
7149.9	32.89	44.111	28.62	4.27	HORIZONTAL	PASSED

Peak (RBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
3575.9	40.05	100.589	43.01	-2.96	VERTICAL	PASSED
7149.9	45.57	189.867	41.3	4.27	HORIZONTAL	PASSED

2.4. GSM1900 Test results, FM radio on

RX mode, channel 512 / 1930.2 MHz

Average(RBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
3860.6	29.33	29.258	30.16	-0.83	VERTICAL	PASSED
7721.7	32.45	41.932	28.62	3.83	VERTICAL	PASSED

Peak (RBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
3860.6	41.91	124.537	42.74	-0.83	VERTICAL	PASSED
7721.7	45.26	183.21	41.43	3.83	VERTICAL	PASSED

RX mode, channel 661 / 1960.0 MHz

Average(RBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
1960.019	49.35	293.359	51.07	-1.72	VERTICAL	PASSED
3923.847	28.65	27.055	30.06	-1.41	VERTICAL	PASSED

Quasi peak (RBW: 120 kHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
37.755	25.1	17.991	39.26	-14.16	VERTICAL	PASSED
41.253	20.17	10.199	36.75	-16.58	VERTICAL	PASSED
62.406	25.55	18.941	51.59	-26.04	VERTICAL	PASSED
83.786	13.64	4.806	37.92	-24.28	VERTICAL	PASSED
97.956	26.35	20.78	49.64	-23.29	VERTICAL	PASSED
124.179	19.11	9.027	41.43	-22.32	VERTICAL	PASSED
141.943	17.45	7.459	41.13	-23.68	VERTICAL	PASSED
238.369	17.61	7.595	40.07	-22.46	HORIZONTAL	PASSED

Peak (RBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
1960.019	51.92	394.503	53.64	-1.72	VERTICAL	PASSED
3923.847	41.19	114.71	42.6	-1.41	VERTICAL	PASSED

RX mode, channel 810 / 1989.8 MHz

Average(RBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
3978.6	27.79	24.508	29.77	-1.98	HORIZONTAL	PASSED
7959.3	33.34	46.435	28.54	4.8	HORIZONTAL	PASSED

Peak (RBW: 1 MHz)

Frequency [MHz]	E [dB μ V/m]	E [μ V/m]	U _{RX} [dB μ V]	A _{TOT} [dB]	Polarisation	Result
3978.6	40.36	104.232	42.34	-1.98	HORIZONTAL	PASSED
7959.3	45.96	198.655	41.16	4.8	HORIZONTAL	PASSED

3. Test Equipment

3.1. Conducted measurements

Eq. No	Equipment	Type	Manufacturer	Used in
-	RF Emission Software	ES-K1 v.1.71	R&S	22/24/27, 15C, 15B
BJPCHW0020	DC Power supply	Hp6632B	HP	22/24/27, 15C
BJPCPT0040	Receiver	ESCS30	R&S	15C,15B
BJPCPT0069	LISN 50 µH	ESH3-Z5	R&S	15C,15B
BJPCPT0073	Signal Generator	SMR 20	R&S	22/24/27, 15C, 15B
BJPCPT0079	LISN 50 µH	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	GPIO-RS232 convertor	GPIO-RS232	NI	22/24/27, 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	ES-K1 v.1.71	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