

FCC Part 15B Compliance Test Report

Test Report no.:	FCC15B_RM-693_01.docx	Date of Report:	25-Mar-2011
Number of pages:	10	Customer's Contact person:	Zhang David
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FCC listing no.:	975940		
IC recognition no.:	661AH-1		
Tested devices/ accessories:	Phone RM-693 / Battery BL-5C / AC-charger AC-3E / Headset WH-102		
FCC ID:	QTLRM-693	IC:	661AB-RM693
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). 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	15-Mar-2011
Testing completed	21-Mar-2011
The customer's contact person	Zhang David
Test Plan referred to	T:\Projects\RM-693\TestPlan\RS_testplan_RM-693.xls
Notes	-
Document name	FCC15B_RM-693_01.docx

1.1. EUT and Accessory Information

The EUT is a 2-band (GSM850/1900) mobile phone with GPRS and Bluetooth.

Product	Type	SN	HW	MV	SW	DUT
Phone	RM-693	001004004139235	0402	-	so104 11w06	52118
Battery	BL-5C	0670400382066R24210GL25830	-	-	-	52124
AC-charger	AC-3E	4090498272171205946;0675370	-	-	-	52127
Headset	WH-102	06943250432H2610549	-	-	-	52128

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

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

Bluetooth:

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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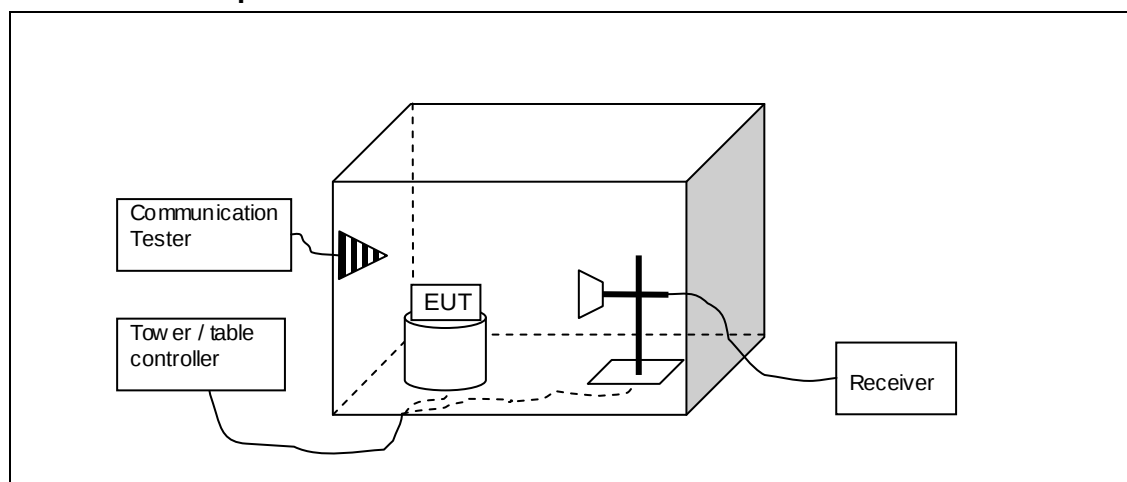
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2. Radiated emissions

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

EUT with DUT number	RM-693, DUT 52118
Accessories with DUT numbers	BL-5C, DUT 52124 ; AC-3E, DUT 52127 ; WH-102, DUT 52128
Operation Voltage [V] / [Hz]	115 / 60
Results	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	19 / 25 / 115
Date of measurements	21-Mar-2011
Measured by	Jia Dongsheng

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. 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
3478.6	42.51	133.475	45.05	-2.54	HORIZONTAL	PASSED
6954	50.98	354.079	46.27	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
3478.6	27.78	24.477	30.32	-2.54	HORIZONTAL	PASSED
6954	38.55	84.635	33.84	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
33.486	26.8	21.875	37.79	-10.99	VERTICAL	PASSED
37.194	24.14	16.114	37.87	-13.73	VERTICAL	PASSED
40.823	27.09	22.62	43.42	-16.33	VERTICAL	PASSED
77.151	18.18	8.107	43.27	-25.09	VERTICAL	PASSED
79.068	11.06	3.571	35.96	-24.9	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
2920.541	49.62	302.587	42.59	7.03	HORIZONTAL	PASSED
7030.858	45.63	191.293	40.72	4.91	HORIZONTAL	PASSED
7054.607	46.29	206.182	41.39	4.9	HORIZONTAL	PASSED
7059.421	46.06	200.84	41.12	4.94	HORIZONTAL	PASSED
7857.713	45.61	190.744	40.86	4.75	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
2920.541	36.83	69.383	29.8	7.03	HORIZONTAL	PASSED
7030.858	32.9	44.152	27.99	4.91	HORIZONTAL	PASSED
7054.607	32.91	44.203	28.01	4.9	HORIZONTAL	PASSED
7059.421	32.96	44.473	28.02	4.94	HORIZONTAL	PASSED
7857.713	32.94	44.335	28.19	4.75	HORIZONTAL	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
3575.4	44.04	159.203	46.82	-2.78	VERTICAL	PASSED
7150.9	46.61	214.141	41.64	4.97	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
3575.4	29.64	30.339	32.42	-2.78	VERTICAL	PASSED
7150.9	33.03	44.807	28.06	4.97	VERTICAL	PASSED

2.4. GSM1900 Test results

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
3860.4	44.93	176.401	46.41	-1.48	VERTICAL	PASSED
7718.4	46.07	201.071	41.51	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
3860.4	30.47	33.362	31.95	-1.48	VERTICAL	PASSED
7718.4	32.52	42.277	27.96	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
37.444	31	35.494	44.92	-13.92	VERTICAL	PASSED
41.523	25.14	18.068	41.88	-16.74	VERTICAL	PASSED
75.81	9.24	2.897	34.46	-25.22	VERTICAL	PASSED
76.512	18.55	8.464	43.7	-25.15	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
2924.251	49.8	308.994	42.86	6.94	HORIZONTAL	PASSED
3920.04	46.7	216.247	48.11	-1.41	VERTICAL	PASSED
7039.176	46.91	221.513	42.04	4.87	VERTICAL	PASSED
7046.69	46.25	205.305	41.38	4.87	HORIZONTAL	PASSED
7060.821	45.79	194.76	40.86	4.93	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
2924.251	36.66	68.108	29.72	6.94	HORIZONTAL	PASSED
3920.04	31.49	37.532	32.9	-1.41	VERTICAL	PASSED
7039.176	33.08	45.066	28.21	4.87	VERTICAL	PASSED
7046.69	32.89	44.086	28.02	4.87	HORIZONTAL	PASSED
7060.821	32.98	44.545	28.05	4.93	HORIZONTAL	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
3979.6	46.52	211.836	48.49	-1.97	VERTICAL	PASSED
7961.3	46.05	200.563	41.26	4.79	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
3979.6	30.91	35.116	32.88	-1.97	VERTICAL	PASSED
7961.3	32.63	42.815	27.84	4.79	VERTICAL	PASSED

2.5. Bluetooth Test results

2.5.1 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
4960.4	44.23	162.742	44.16	0.07	HORIZONTAL	PASSED
7442.5	46.52	211.714	41.49	5.03	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
4960.4	31.97	39.687	31.9	0.07	HORIZONTAL	PASSED
7442.5	34.81	55.036	29.78	5.03	HORIZONTAL	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
36.863	23.96	15.783	37.32	-13.36	VERTICAL	PASSED
51.165	23.71	15.325	46	-22.29	VERTICAL	PASSED
82.584	11.62	3.809	35.78	-24.16	VERTICAL	PASSED
148.337	23.85	15.569	47.57	-23.72	VERTICAL	PASSED
891.994	19.52	9.466	28.51	-8.99	HORIZONTAL	PASSED

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

Frequency [MHz]	E [dB μ V/m]	E [μ V/m]	U _{RX} [dB μ V]	A _{TOT} [dB]	Polarisation	Result
2380.096	46.78	218.147	42.55	4.23	HORIZONTAL	PASSED
2924.047	52.82	437.623	42.67	10.15	HORIZONTAL	PASSED
7031.662	47.04	224.802	42.14	4.9	VERTICAL	PASSED
7062.725	46.67	215.501	41.74	4.93	HORIZONTAL	PASSED
7063.026	46.67	215.477	41.75	4.92	VERTICAL	PASSED
7072.446	46.62	214.388	41.74	4.88	HORIZONTAL	PASSED

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

Frequency [MHz]	E [dB μ V/m]	E [μ V/m]	U _{RX} [dB μ V]	A _{TOT} [dB]	Polarisation	Result
2380.096	35.03	56.403	30.8	4.23	HORIZONTAL	PASSED
2924.047	40.86	110.433	30.71	10.15	HORIZONTAL	PASSED
7031.662	34.18	51.139	29.28	4.9	VERTICAL	PASSED
7062.725	34.39	52.408	29.46	4.93	HORIZONTAL	PASSED
7063.026	34.38	52.366	29.46	4.92	VERTICAL	PASSED
7072.446	34.4	52.463	29.52	4.88	HORIZONTAL	PASSED

TX mode, Channel 0 / 2402 MHz

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

Frequency [MHz]	E [dB μ V/m]	E [μ V/m]	U _{RX} [dB μ V]	A _{TOT} [dB]	Polarisation	Result
4802.9	43.39	147.656	43.62	-0.23	HORIZONTAL	PASSED
7207	46.38	208.377	41.37	5.01	VERTICAL	PASSED

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

Frequency [MHz]	E [dB μ V/m]	E [μ V/m]	U _{RX} [dB μ V]	A _{TOT} [dB]	Polarisation	Result
4802.9	30.85	34.874	31.08	-0.23	HORIZONTAL	PASSED
7207	34.17	51.103	29.16	5.01	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
BJPCWH0020	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	Tempreture Test chamber	VT4002	Votsch industrietechnik	22/24/27, 15C
BJPCTC0090	FSP spectrum analyzer	FSP30	R&S	22/24/27, 15C
BJPCTC0094	GPB-RS232 convertor	GPB-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