

FCC Part 15B Compliance Test Report

Test Report no.:	FCC15B_RM-634_05.docx	Date of Report:	29-May-2010
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FCC listing no.:	975940		
IC recognition no.:	661AH-1		
Tested devices/ accessories:	Phone RM-634 / Battery BL-4D / AC-charger AC-8E / Headset WH-102		
FCC ID:	QTKRM-634	IC:	661AD-RM634
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 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:			

Sami Lehtonen, System Specialist, EMC

1. Summary for FCC Part 15B Compliance Test Report

Date of receipt	01-Apr-2010
Testing completed	19-Apr-2010
The customer's contact person	Shao Xu
Test Plan referred to	T:\Projects\Projects\RM-632\TestPlan\RS_testplan_RM-632.xls
Notes	-
Document name	FCC15B_RM-634_05.docx

1.1. EUT and Accessory Information

The EUT is a 7-band (GSM850/900/1800/1900) and WCDMA Band (I/II(1900)/VIII) mobile phone with GPRS, EGPRS, HSDPA, HSUPA and WLAN and Bluetooth.

Product	Type	SN	HW	MV	SW	DUT
Phone	RM-632	004401109337705	0200B	-	041.007 RD	51629
Battery	BL-4D	4181579161001101133;0670603	-	-	-	51399
AC-charger	AC-8E	4868679464320602195;0675387	-	-	-	51633
Headset	WH-102	0694323923554107290	-	-	-	51587

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

WCDMA 1900 (Band II):

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	NP

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	NP

WLAN:

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

PASSED

The EUT complies with the essential requirements in the standard.

FAILED

The EUT does not comply with the essential requirements in the standard.

NP

The test was not performed by the TCC Nokia Laboratory.

The test results of QTKRM-632 are re-used for certification of the QTKRM-634. The table above indicates the results, which will be re-used.

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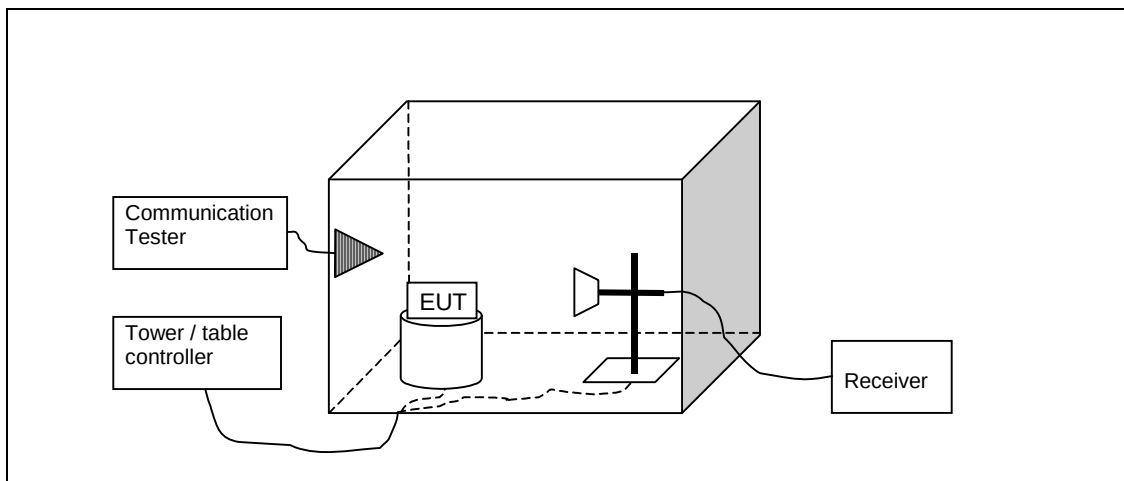
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2. Radiated emissions

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

EUT with DUT number	RM-632, DUT 51629
Accessories with DUT numbers	BL-4D, DUT 51399 ; AC-8E, DUT 51633 ; WH-102, DUT 51587
Operation Voltage [V] / [Hz]	115 / 60
Results	PASSED
Remarks	FM radio was receiving 98MHz signal during GSM850 and GSM1900 measurement.
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	20 / 33 / 101.1
Date of measurements	19-Apr-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 [dB $\mu\text{V/m}$]	Peak limit [dB $\mu\text{V/m}$]
30 - 230	40	-	-
230 – 1000	47	-	-
Above 1000	-	54	74

2.3. GSM850 Test results

RX mode, channel 128 / 869.2 MHz

Peak (RBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
3477.4	40.14	101.66	42.49	-2.35	HORIZONTAL	PASSED
6954.9	50.66	341.036	46.64	4.02	VERTICAL	PASSED

Average(RBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
3477.4	27.56	23.881	29.91	-2.35	HORIZONTAL	PASSED
6954.9	37.28	73.097	33.26	4.02	VERTICAL	PASSED

RX mode, channel 190 / 881.6 MHz

Quasi peak (RBW: 120 kHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
37.398	19.61	9.562	34.45	-14.84	VERTICAL	PASSED
37.415	28.25	25.843	43.11	-14.86	VERTICAL	PASSED
37.436	19.67	9.622	34.54	-14.87	VERTICAL	PASSED
37.539	19.59	9.54	34.54	-14.95	VERTICAL	PASSED
38.661	25.58	19.017	41.33	-15.75	VERTICAL	PASSED
41.201	17.36	7.378	35.04	-17.68	VERTICAL	PASSED
41.322	25.88	19.67	43.66	-17.78	VERTICAL	PASSED
196.774	24.25	16.315	50.61	-26.36	VERTICAL	PASSED

Peak (RBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
2933.866	50.03	317.249	41.57	8.46	VERTICAL	PASSED
3926.754	41.43	117.896	42.37	-0.94	VERTICAL	PASSED

Average(RBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
2933.866	37.38	73.935	28.92	8.46	VERTICAL	PASSED
3926.754	28.15	25.556	29.09	-0.94	VERTICAL	PASSED

RX mode, channel 251 / 893.8 MHz

Peak (RBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
3576.8	40.17	101.93	43.31	-3.14	VERTICAL	PASSED
7148.4	46.07	201.118	41.71	4.36	VERTICAL	PASSED

Average(RBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
3576.8	26.8	21.883	29.94	-3.14	VERTICAL	PASSED
7148.4	32.57	42.526	28.21	4.36	VERTICAL	PASSED

2.4. GSM1900 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
3859.9	41.87	124.037	42.63	-0.76	HORIZONTAL	PASSED
7720.6	48.96	280.543	45.15	3.81	VERTICAL	PASSED

Average(RBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
3859.9	28.75	27.391	29.51	-0.76	HORIZONTAL	PASSED
7720.6	34.64	53.939	30.83	3.81	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
33.956	14.2	5.126	26.58	-12.38	VERTICAL	PASSED
37.543	19.7	9.656	34.65	-14.95	VERTICAL	PASSED
37.629	19.02	8.937	34.03	-15.01	VERTICAL	PASSED
37.695	18.77	8.683	33.83	-15.06	VERTICAL	PASSED
38.36	17.72	7.688	33.26	-15.54	VERTICAL	PASSED
41.184	17.47	7.477	35.14	-17.67	VERTICAL	PASSED
41.223	13.66	4.822	31.36	-17.7	VERTICAL	PASSED
41.266	17.26	7.29	34.99	-17.73	VERTICAL	PASSED

Peak (RBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
7072.548	45.41	186.402	40.9	4.51	HORIZONTAL	PASSED

Average(RBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
7072.548	32.59	42.614	28.08	4.51	HORIZONTAL	PASSED

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	40.54	106.463	42.49	-1.95	VERTICAL	PASSED
7959.5	45.26	183.274	41.3	3.96	HORIZONTAL	PASSED

Average(RBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
3980	27.69	24.249	29.64	-1.95	VERTICAL	PASSED
7959.5	32.14	40.467	28.18	3.96	HORIZONTAL	PASSED

2.5. WLAN Test results

TX mode, channel 1

Peak (RBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
4824.000000	43.20	144.54	43.40	-0.2	HORIZONTAL	PASSED
7236.000000	43.40	147.91	39.10	4.3	VERTICAL	PASSED

Average (RBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
4824.000000	29.60	30.20	29.80	-0.2	HORIZONTAL	PASSED
7236.000000	30.90	35.08	26.60	4.3	VERTICAL	PASSED

TX mode, channel 7 / 2442 MHz

Quasi peak (RBW: 120 kHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
37.595391	27.90	24.83	43.00	-15.1	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
2364.853707	54.90	555.90	49.70	5.2	HORIZONTAL	PASSED
2495.048096	56.00	630.96	49.30	6.7	HORIZONTAL	PASSED
2836.600200	52.10	402.72	41.80	10.3	HORIZONTAL	PASSED
4883.769539	43.30	146.22	42.90	0.4	VERTICAL	PASSED
4884.267535	43.80	154.88	43.40	0.4	VERTICAL	PASSED
7289.077154	43.20	144.54	38.80	4.4	VERTICAL	PASSED
7391.275551	43.10	142.89	38.70	4.4	HORIZONTAL	PASSED
7401.305611	43.10	142.89	38.80	4.3	VERTICAL	PASSED
17477.957916	52.60	426.58	35.80	16.8	VERTICAL	PASSED
17985.973948	55.50	595.66	35.80	19.7	VERTICAL	PASSED

Average (RBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
2362.353707	41.70	121.62	36.50	5.2	HORIZONTAL	PASSED
2496.048096	42.40	131.83	35.70	6.7	HORIZONTAL	PASSED
2840.600200	39.20	91.20	28.80	10.4	HORIZONTAL	PASSED
4883.769539	30.80	34.67	30.40	0.4	VERTICAL	PASSED
4884.267535	30.20	32.36	29.80	0.4	VERTICAL	PASSED
7284.577154	30.30	32.73	26.00	4.3	VERTICAL	PASSED
7387.775551	30.60	33.88	26.10	4.5	HORIZONTAL	PASSED
7404.305611	30.40	33.11	26.10	4.3	VERTICAL	PASSED
17481.957916	39.60	95.50	22.80	16.8	VERTICAL	PASSED
17990.973948	42.30	130.32	22.60	19.7	VERTICAL	PASSED

TX mode, channel 11 / 2462 MHz

Peak (RBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
4924.000000	43.30	146.22	42.60	0.7	VERTICAL	PASSED
7386.000000	43.80	154.88	39.30	4.5	HORIZONTAL	PASSED

Average (RBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
4924.000000	30.30	32.73	29.60	0.7	VERTICAL	PASSED
7386.000000	31.40	37.15	26.90	4.5	VERTICAL	PASSED

3. Test Equipment

3.1. Conducted measurements

Eq. No	Equipment	Type	Manufacturer	Used in
BJPCHW0020	DC Power supply	Hp6632B	HP	22/24/27, 15C
BJPCPT0040	Receiver	ESCS30	R&S	15C,15B
BJPCPT0069	LISN 50 μ H	ESH3-Z5	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	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

3.2. Radiated measurements

Eq. No	Equipment	Type	Manufacturer	Used in
-	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-	Wainwright	24, 15B
BJPCPT0154	Band Reject Filter	WRCT2402/2480-	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-	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-	Wainwright	24, 15B
BJPCTC0065	Band Reject Filter	WRCG832/838-	Wainwright	27, 15B
BJPCTC0071	Multi-Device Controller	2090	EMCO	22/24/27, 15C, 15B
BJPCTC0072	Anechoic Chamber	3 m Semi / Full	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-	Miteq	22/24/27, 15C, 15B