

FCC Part 15B Compliance Test Report

Test Report no.:	Bej_FCC_0843_05.doc	Date of Report:	30-Oct-2008
Number of pages:	10	Customer's Contact person:	Hu Helen
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FCC listing no.:	975940		
IC recognition no.:	661AH-1		
Tested devices/ accessories:	Phone RM-458 / Battery BL-4S, AC-charger AC-8E, Headset HS-48.		
FCC ID:	QTLRM-458	IC:	661AB-RM458
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 4, February 2008), RSS-139 (Issue 1, February 2008) 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:			
	Zou Ming, Engineer		

1. Summary for FCC Part 15B Compliance Test Report

Date of receipt	15-Oct-2008
Testing completed	30-Oct-2008
The customer's contact person	Hu Helen
Test Plan referred to	T:\Projects\RM-458\TestPlan_RS\RS_Testplan_RM-458.xls
Notes	-
Document name	T:\Projects\RM-458\EMC\Results\FCC\Bej_FCC_0843_05.doc

1.1. EUT and Accessory Information

The EUT is a 3-band (GSM900/1800/1900) 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-458	004401101584429	0201	-	lu07w41_08w38	51040
AC-charger	AC-8E	3997918362060300097;0675387	-	-	-	51034
Battery	BL-4S	3820668341210985734;0670577	-	-	-	51041
Headset	HS-48	06945818263K2100333	-	-	-	51042

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 (6.6)	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	PASSED
15.109, a	5.5	Radiated emissions	NP

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 Beijing Laboratory.

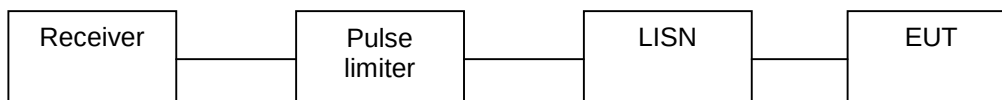
CONTENTS

1. Summary for FCC Part 15B Compliance Test Report.....	2
1.1. EUT and Accessory Information	2
1.2. Summary of Test Results	2
2. AC powerline conducted emissions (FCC §15.107, ICES-003 section 5.3)	4
2.1. Test setup	4
2.2. Test method and limit	4
2.3. Bluetooth Test results	5
3. Radiated emissions (FCC §15.109, ICES-003 section 5.5, RSS-132 4.6, RSS-133 6.6, RSS-139 6.6)	7
3.1. Test setup	7
3.2. Test method and limit	7
3.3. GSM 1900 Test results	8
4. Test Equipment.....	10
4.1. Conducted measurements	10
4.2. Radiated measurements	10

2. AC powerline conducted emissions (FCC §15.107, ICES-003 section 5.3)

EUT with DUT number	RM-458, DUT 51040
Accessories with DUT numbers	BL-4S, DUT 51041; AC-8E, DUT 51034; HS-48, DUT 51042
Operation Voltage [V] / [Hz]	110 / 60
Result	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	21 / 34 / 102.1
Date of measurements	27-Oct-2008
Measured by	Zou Ming

2.1. Test setup



2.2. Test method and limit

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

The EUT is placed on a wooden table 80 cm above the reference groundplane.

The EUT is connected via LISN to a test power supply.

The measurement results are obtained as described below:

$$U [dB\mu V] = U_{RX} + A_{TOT}$$

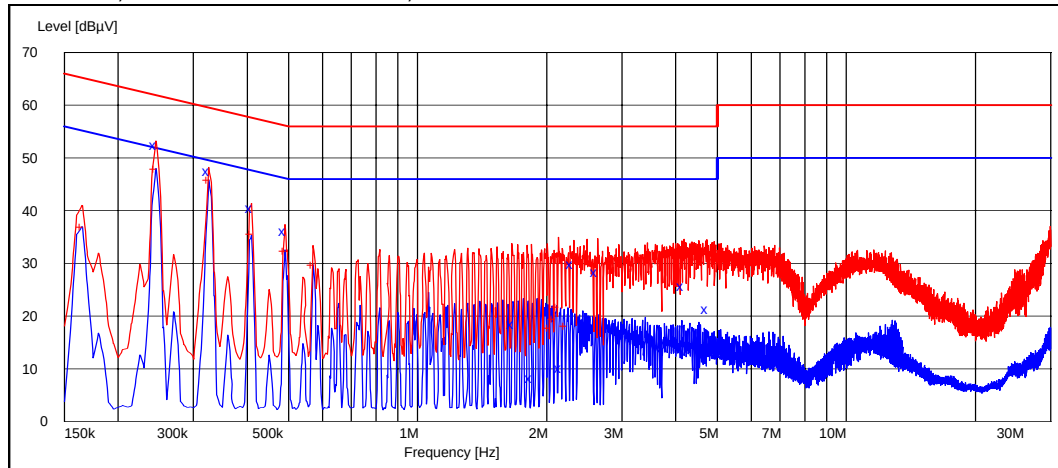
Where U_{RX} is receiver reading and A_{TOT} is total correction factor including cable and pulse limiter attenuations.

CISPR 22 Class B limits

Frequency range [MHz]	Quasi peak limit [dBμV]	Average limit [dBμV]
0.15 - 0.5	66 - 56	56 - 46
0.5 - 5	56	46
5 - 30	60	50

2.3. Bluetooth Test results

TX mode, channel 40 / 2442 MHz, GFSK modulation



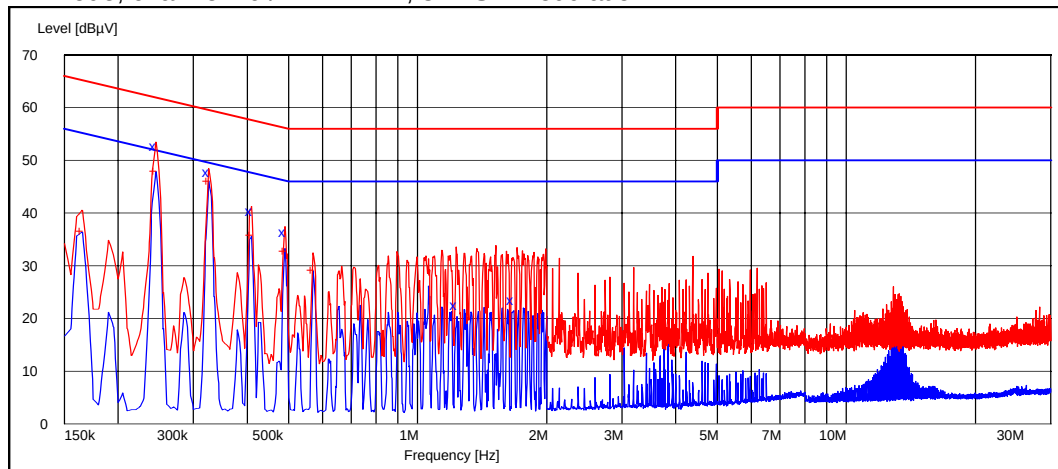
Quasi peak (RBW: 9 kHz)

Frequency [MHz]	U [dBμV]	Line	Result
0.245000	52.50	N	PASSED
0.325000	47.60	N	PASSED
0.410000	40.40	N	PASSED
0.490000	36.10	N	PASSED
1.670000	18.40	N	PASSED
1.845000	8.30	N	PASSED
2.155000	10.20	L1	PASSED
2.295000	29.90	L1	PASSED
2.480000	15.70	L1	PASSED
2.615000	28.30	L1	PASSED
4.155000	25.70	L1	PASSED
4.745000	21.40	L1	PASSED

Average (RBW: 9 kHz)

Frequency [MHz]	U [dBμV]	Line	Result
0.165000	36.90	N	PASSED
0.245000	47.80	N	PASSED
0.325000	45.70	N	PASSED
0.410000	35.50	N	PASSED
0.490000	32.30	N	PASSED
0.570000	29.70	N	PASSED
2.030000	17.70	L1	PASSED
2.080000	19.40	L1	PASSED
2.125000	21.70	L1	PASSED
2.220000	18.10	N	PASSED

TX mode, channel 40 / 2442 MHz, 8DPSK modulation



Quasi peak (RBW: 9 kHz)

Frequency [MHz]	U [dBμV]	Line	Result
0.245000	52.70	N	PASSED
0.325000	47.70	N	PASSED
0.410000	40.40	N	PASSED
0.490000	36.40	N	PASSED
1.230000	22.50	N	PASSED
1.670000	23.40	N	PASSED

Average (RBW: 9 kHz)

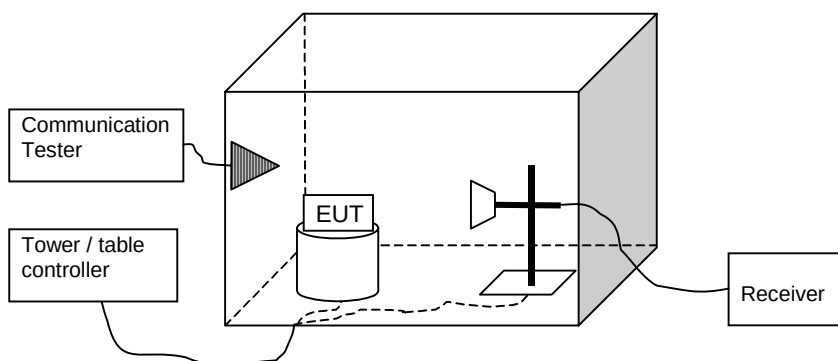
Frequency [MHz]	U [dBμV]	Line	Result
0.165000	36.50	N	PASSED
0.245000	48.00	N	PASSED
0.325000	46.00	N	PASSED
0.410000	35.80	N	PASSED
0.490000	32.80	N	PASSED
0.570000	29.20	N	PASSED

3. Radiated emissions

(FCC §15.109, ICES-003 section 5.5, RSS-132 4.6, RSS-133 6.6, RSS-139 6.6)

EUT with DUT number	RM-458, DUT 51040
Accessories with DUT numbers	BL-4S, DUT 51041; AC-8E, DUT 51034; HS-48, DUT 51042
Operation Voltage [V] / [Hz]	110 / 60
Result	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	21 / 66 / 100.2
Date of measurements	22-Oct-2008
Measured by	Zou Ming

3.1. Test setup



3.2. 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

3.3. 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	42.40	131.83	42.50	-0.1	VERTICAL	PASSED
7720.000000	44.70	171.79	40.00	4.7	HORIZONTAL	PASSED

Average (RBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
3860.000000	29.30	29.17	29.40	-0.1	HORIZONTAL	PASSED
7720.000000	31.60	38.02	26.90	4.7	HORIZONTAL	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
33.547695	12.70	4.32	35.60	-22.9	VERTICAL	PASSED
67.174549	8.20	2.57	47.50	-39.3	VERTICAL	PASSED
120.018437	13.90	4.95	48.80	-34.9	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
17977.957916	55.80	616.60	35.90	19.9	HORIZONTAL	PASSED

Average (RBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
2982.957916	35.10	56.89	33.40	1.7	VERTICAL	PASSED
17977.457916	42.70	136.46	22.80	19.9	HORIZONTAL	PASSED

RX mode, channel 810 / 1989.8 MHz

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
3980.000000	40.70	108.39	42.20	-1.5	VERTICAL	PASSED
7960.000000	44.80	173.78	39.40	5.4	HORIZONTAL	PASSED

Average (RBW: 1 MHz)

Frequency [MHz]	E [dB μ V/m]	E [μ V/m]	U _{RX} [dB μ V]	A _{TOT} [dB]	Polarisation	Result
3980.000000	27.70	24.27	29.20	-1.5	VERTICAL	PASSED
7960.000000	32.00	39.81	26.60	5.4	HORIZONTAL	PASSED

4. Test Equipment

4.1. Conducted measurements

Eq. No	Equipment	Type	Manufacturer	Used in
BJPCPT0039	LISN	ESH3-Z5	BJPCPT0039	15C, 15B
BJPCPT0040	TEST RECEIVER	ESCS30	BJPCPT0040	15C, 15B
BJPCPT0069	LISN	ESH3-Z5	BJPCPT0069	15C, 15B
BJPCPT0079	LISN	ESH3-Z5	BJPCPT0079	15C, 15B
BJPCPT0191	PULSE LIMITER	ESH3-Z2	BJPCPT0191	15C, 15B

4.2. Radiated measurements

Eq. No	Equipment	Type	Manufacturer	Used in
BJPCPT0129	Relay Unit	TS-RSP	Rohde&Schwarz	22/24/27, 15C, 15B
BJPCPT0130	Relay Unit	TS-RSP	Rohde&Schwarz	22/24/27, 15C, 15B
BJPCPT0080	Device Controller	EMCO2090	ETS-EMCO	22/24/27, 15C, 15B
BJPCTC0048	RF Preamplifier 10MHz-3GHz (Metal chassis)	AFS4-00100300-10-10P-4	MITEQ	22/24/27, 15C, 15B
BJPCTC0007	Ultra Broadband Antenna 30MHz-3000MHz	HL562	Rohde&Schwarz	22/24/27, 15C, 15B
BJPCPT0162	Horn Antenna 1GHz-18GHz	HF906	Rohde&Schwarz	22/24/27, 15C, 15B
BJPCTC0029	Horn Antenna 1GHz-18GHz	HF906	Rohde&Schwarz	22/24/27, 15C, 15B
BJPCTC0049	RF preamplifier 3GHz-18GHz	BLMA-0118-1A-BT	Rohde&Schwarz	22/24/27, 15C, 15B
BJPCTC0072	3m anechoic chamber	-	ETS-Lindgren	22/24/27, 15C, 15B
BJPCTC0075	Turntable	Model 2088	ETS-EMCO	22/24/27, 15C, 15B
BJPCPT0072	EMI Test Receiver 20Hz-26.5GHz	ESIB26	Rohde&Schwarz	22/24/27, 15C, 15B
BJPCPT0150	High Pass filter	WHKS 1200-10SS	Wainwright instruments	22/24/27, 15C, 15B
BJPCTC0034	Notch Filter	WRCT800/880-0.2/40-5SSK	Wainwright instruments	22, 15B
BJPCPT0151	Notch Filter	WRCD1800/2000-0.2/40-5SSK	Wainwright instruments	24, 15B
BJPCTC0017	Radio Communication Tester	CMU200	Rohde&Schwarz	22/24/27, 15C, 15B
BJPCPT0154	Filter	WRCT2402/2480-2400/2483.5-30-20SS	Wainwright instruments	15C, 15B
BJPCTC0058	Bluetooth tester	CBT	Rohde&Schwarz	15C, 15B
BJPCTC0064	WCDMA II FILTER	WRCG1877/1883-1870/1890-40/6SS	Wainwright instruments	24, 15B
BJPCTC0065	WCDMA V FILTER	WRCG832/838-825/845-40/5SS	Wainwright instruments	22, 15B