

FCC Part 15B Compliance Test Report

Test Report no.:	Bej_FCC_0843_12.doc	Date of Report:	31-Oct-2008
Number of pages:	9	Customer's Contact person:	Helen Hu
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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, Data cable CA-101D, PC IBM T40		
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	17-Oct-2008
Testing completed	27-Oct-2008
The customer's contact person	Helen Hu
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_12.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
Battery	BL-4S	3820668341210985734;0670577	-	-	-	51041
AC-Charger	AC-8E	3997918362060300097;0675387	-	-	-	51034
Data Cable	CA-101D	3159	-	3.0	-	51043
PC	IBM T40	-	-	-	-	51044

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	PASSED
15.109, a	5.5 (6.6)	Radiated emissions	NP

Bluetooth:

Section in CFR 47	Section in ICES-003	Name of the test	Result
15.107, a	5.3	AC powerline conducted emissions	NP
15.109, a	5.5	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 Beijing Laboratory.

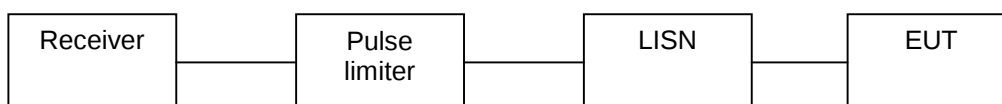
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2. AC powerline conducted emissions (FCC §15.107, ICES-003 section 5.3)

EUT with DUT number	RM-458, DUT51040
Accessories with DUT numbers	BL-4S, DUT51041; AC-8E, DUT51034; CA-101D, DUT51043; IBM T40, DUT51044
Operation Voltage [V] / [Hz]	110 / 60
Result	PASSED
Remarks	Data transferring between phone and computer during GSM1900 mode.
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:

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

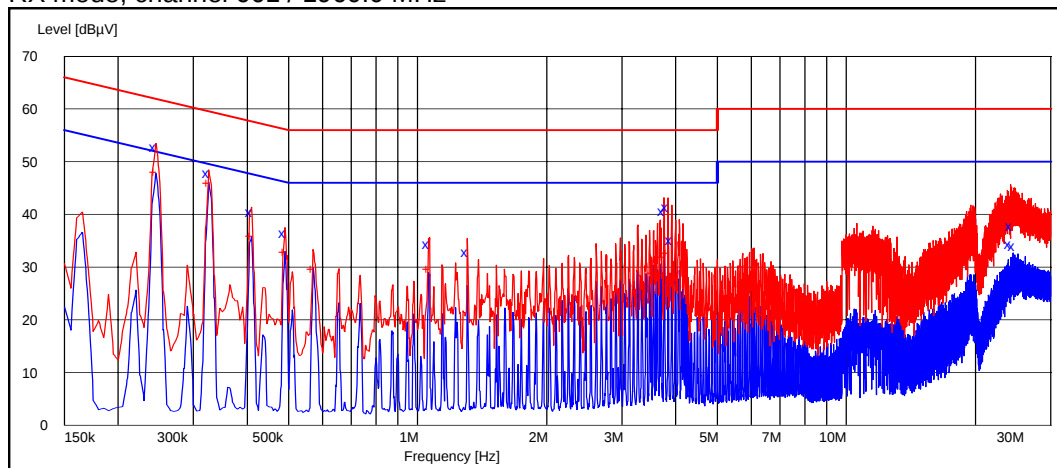
Where U_{RX} is receiver reading and A_{TOT} is total correction factor including cable and pulse limiter attenuations.

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. GSM 1900 Test results

RX mode, channel 661 / 1960.0 MHz



Quasi peak (RBW: 9 kHz)

Frequency [MHz]	U [dBμV]	Line	Result
0.245000	52.70	N	PASSED
0.325000	47.80	N	PASSED
0.410000	40.40	N	PASSED
0.490000	36.50	N	PASSED
1.060000	34.30	N	PASSED
1.305000	32.80	N	PASSED
3.755000	40.60	N	PASSED
3.835000	41.30	N	PASSED
3.915000	35.10	N	PASSED
24.185000	34.40	L1	PASSED
24.315000	37.70	N	PASSED
24.620000	33.90	N	PASSED

Average (RBW: 9 kHz)

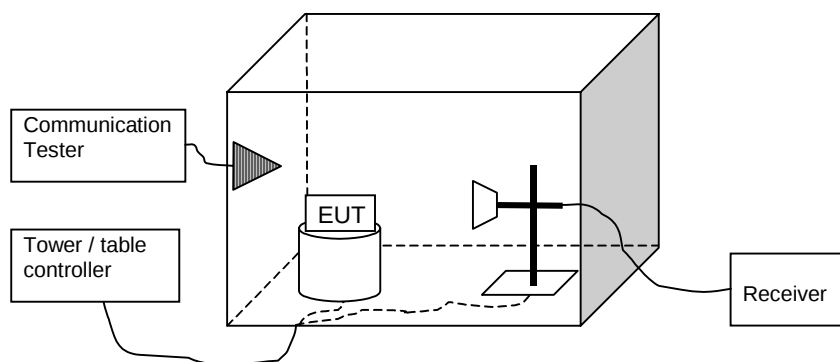
Frequency [MHz]	U [dBμV]	Line	Result
0.245000	48.00	N	PASSED
0.325000	46.00	N	PASSED
0.410000	35.90	N	PASSED
0.490000	32.80	N	PASSED
0.570000	29.70	N	PASSED
1.060000	29.70	N	PASSED
3.545000	28.90	N	PASSED
3.620000	28.20	N	PASSED
3.690000	28.50	N	PASSED
3.755000	32.00	L1	PASSED
3.835000	32.70	N	PASSED
3.920000	28.00	L1	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, DUT51040
Accessories with DUT numbers	BL-4S, DUT51041; AC-8E, DUT51034; CA-101D, DUT51043; IBM T40, DUT51044
Operation Voltage [V] / [Hz]	110 / 60
Result	PASSED
Remarks	Data transferring between phone and computer during BT mode.
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	21 / 66 / 100.8
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. Bluetooth Test results

TX mode, channel 0 / 2402 MHz

Peak (RBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
4804.000000	39.70	96.61	39.80	-0.1	HORIZONTAL	PASSED
7206.000000	44.00	158.49	39.70	4.3	HORIZONTAL	PASSED

Average (RBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
4804.000000	27.30	23.17	27.40	-0.1	HORIZONTAL	PASSED
7206.000000	31.00	35.48	26.70	4.3	VERTICAL	PASSED

TX mode, channel 40 / 2442 MHz

Quasi peak (RBW: 120 kHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
166.532465	19.40	9.33	56.10	-36.7	HORIZONTAL	PASSED
171.342685	26.80	21.88	63.20	-36.4	VERTICAL	PASSED
256.914028	31.10	35.89	64.90	-33.8	VERTICAL	PASSED
400.500401	36.00	63.10	65.50	-29.5	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
2838.112224	50.20	323.59	46.70	3.5	VERTICAL	PASSED
7334.677355	44.00	158.49	39.40	4.6	VERTICAL	PASSED
7398.793587	44.30	164.06	39.80	4.5	HORIZONTAL	PASSED
17480.463928	52.80	436.52	35.70	17.1	VERTICAL	PASSED
17999.493988	56.10	638.26	35.80	20.3	HORIZONTAL	PASSED

Average (RBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
2844.612224	37.50	74.99	33.90	3.6	VERTICAL	PASSED

7339.677355	31.00	35.48	26.40	4.6	VERTICAL	PASSED
7394.293587	31.30	36.73	26.80	4.5	HORIZONTAL	PASSED
17483.463928	40.20	102.33	23.10	17.1	VERTICAL	PASSED
17994.493988	43.10	142.89	22.90	20.2	HORIZONTAL	PASSED

TX mode, channel 78 / 2480 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
4960.000000	40.50	105.93	40.30	0.2	HORIZONTAL	PASSED
7440.000000	44.20	162.18	39.90	4.3	VERTICAL	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
4960.000000	28.10	25.41	27.90	0.2	VERTICAL	PASSED
7440.000000	31.20	36.31	26.90	4.3	VERTICAL	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