

FCC Part 15B Compliance Test Report

Test Report no.:	Bej_FCC_0739_16.doc	Date of Report:	19.09.2007
Number of pages:	10	Customer's Contact person:	Robert Binder
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FCC listing no.:	884453		
IC recognition no.:	4917		
Tested devices/ accessories:	Phone RM-313 / Battery BP-6MT, AC-charger AC-5, Headset HS-43, Data cable CA-101 and Computer IBM 600X		
FCC ID:	QVVRM-314	IC:	661AE-RM314
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, RSS-133 and RSS-210. 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:			

Yin Hongpeng, Engineer

1. Summary for FCC Part 15B Compliance Test Report

Date of receipt	10.09.2007
Testing completed	19.09.2007
The customer's contact person	Robert Binder
Test Plan referred to	T:\Projects\RM-313\TestPlan_RS\RS_test_plan_RM-313.xls
Notes	-
Document name	T:\Projects\RM-314\EMC\Results\FCC\Bej_FCC_0739_16.doc

1.1. EUT and Accessory Information

The EUT is a 4-band (GSM850/900/1800/1900) mobile phone with GPRS, EGPRS and Bluetooth. GSM bands are tested in idle mode. Bluetooth is tested with maximum rated TX power.

Product	Type	SN	HW	MV	SW	DUT
Phone	RM-313	004401/01/318139/7	3001	-	10.0.005	50683
Battery	BP-6MT	3932137214110100030;0670551	-	-	-	50684
AC-charger	AC-5	3943497311090619965;0675540	-	-	-	50685
Headset	HS-43	0694540716602607947	-	-	-	50679
Data cable	CA-101	0730634726301300349	-	-	-	50686
Computer	IBM 600X	-	-	-	-	50691

1.2. Summary of Test Results

GSM 850:

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 (6.6)	Radiated emissions	PASSED

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 (9)	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	NP
15.109, a	5.5	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 Beijing Laboratory.

The test results of QVVRM-313 are re-used for certification of the QVVRM-314. The table above indicates the results, which will be re-used

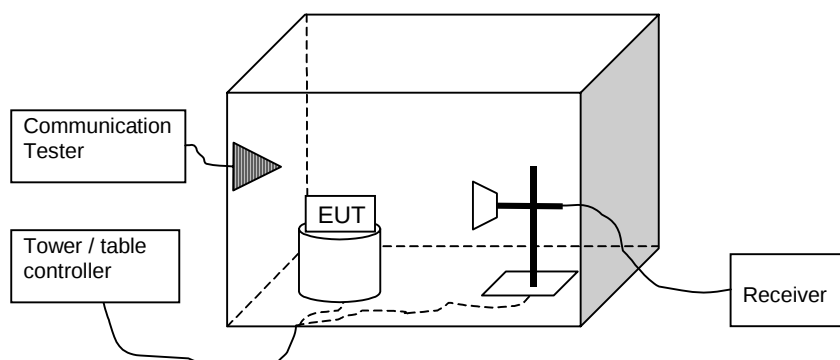
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2. Radiated emissions (FCC §15.109, ICES-003 section 5.5, RSS-132 6.6, RSS-133 9)

EUT with DUT number	RM-313, DUT 50683
Accessories with DUT numbers	BP-6MT, DUT 50684; AC-5, DUT 50685; HS-43, DUT 50679; Data cable, DUT 50686; IBM 600X, DUT 50691
Operation Voltage [V] / [Hz]	115 / 60
Result	PASSED
Remarks	FM radio is on during GSM 850 mode. Data transferring between phone and computer during GSM 1900, BT mode.
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	18 / 71 / 100.5 – 15 / 74 / 100.5
Date of measurements	17-18.09.2007
Measured by	Yin Hongpeng

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

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

2.3. GSM 850 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
3476.800000	47.40	234.42	43.20	4.2	VERTICAL	PASSED
6953.600000	48.20	257.04	37.70	10.5	HORIZONTAL	PASSED

Average (RBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U_{RX} [dBμV]	A_{TOT} [dB]	Polarisation	Result
3476.800000	33.70	48.42	29.50	4.2	VERTICAL	PASSED
6953.600000	36.00	63.10	25.50	10.5	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
38.014429	16.30	6.53	42.80	-26.5	VERTICAL	PASSED
67.917435	12.40	4.17	50.40	-38.0	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
3526.552104	47.80	245.47	43.30	4.5	VERTICAL	PASSED

Average (RBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U_{RX} [dBμV]	A_{TOT} [dB]	Polarisation	Result
3526.552104	33.80	48.98	29.30	4.5	VERTICAL	PASSED
7497.997996	35.00	56.23	22.10	12.9	VERTICAL	PASSED
7992.985972	35.50	59.57	21.00	14.5	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
3575.200000	46.90	221.31	44.00	2.9	HORIZONTAL	PASSED
7150.400000	50.40	331.13	38.10	12.3	VERTICAL	PASSED

Average (RBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
3575.200000	32.80	43.65	29.90	2.9	HORIZONTAL	PASSED
7150.400000	36.30	65.31	24.00	12.3	VERTICAL	PASSED

2.4. 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	44.30	164.06	40.90	3.4	VERTICAL	PASSED
7720.000000	49.10	285.10	36.30	12.8	VERTICAL	PASSED

Average (RBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
3860.000000	30.70	34.28	27.30	3.4	VERTICAL	PASSED
7720.000000	34.10	50.70	21.30	12.8	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
149.378557	32.00	39.81	68.80	-36.80	VERTICAL	PASSED
348.696192	32.70	43.15	63.50	-30.80	HORIZONTAL	PASSED
398.697996	30.10	31.99	59.50	-29.40	HORIZONTAL	PASSED
447.794990	39.30	92.26	67.40	-28.10	VERTICAL	PASSED
549.498196	29.20	28.84	55.20	-26.00	VERTICAL	PASSED

Average (RBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
1369.739479	39.30	92.26	53.90	-14.60	VERTICAL	PASSED
2391.779559	27.70	24.27	32.90	-5.20	VERTICAL	PASSED
7498.497996	34.80	54.95	21.90	12.90	VERTICAL	PASSED
7996.493988	35.40	58.88	20.80	14.60	VERTICAL	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
3980.000000	44.10	160.32	40.60	3.5	VERTICAL	PASSED
7960.000000	48.00	251.19	33.90	14.1	VERTICAL	PASSED

Average (RBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
3980.000000	31.40	37.15	27.90	3.5	HORIZONTAL	PASSED
7960.000000	35.00	56.23	20.90	14.1	VERTICAL	PASSED

2.5. 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	56.80	691.83	48.50	8.3	VERTICAL	PASSED
7206.000000	49.50	298.54	36.80	12.7	VERTICAL	PASSED

Average (RBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
4804.000000	44.50	167.88	36.20	8.3	VERTICAL	PASSED
7206.000000	35.50	59.57	22.80	12.7	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
4883.767535	54.60	537.03	47.10	7.5	HORIZONTAL	PASSED
7326.651303	48.80	275.42	36.50	12.3	VERTICAL	PASSED
14498.497996	54.60	537.03	31.70	22.9	VERTICAL	PASSED
14499.500000	54.40	524.81	31.50	22.9	HORIZONTAL	PASSED
15497.997996	56.30	653.13	30.10	26.2	HORIZONTAL	PASSED
15993.991984	58.90	881.05	31.50	27.4	VERTICAL	PASSED
16061.624248	59.20	912.01	31.90	27.3	HORIZONTAL	PASSED
17852.709419	61.70	1,216.19	30.10	31.6	VERTICAL	PASSED

Average (RBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
4883.767535	42.10	127.35	34.60	7.5	HORIZONTAL	PASSED
7325.651303	35.50	59.57	23.20	12.3	VERTICAL	PASSED
14502.997996	41.80	123.03	18.90	22.9	VERTICAL	PASSED
14504.000000	41.80	123.03	18.90	22.9	HORIZONTAL	PASSED
15498.997996	43.50	149.62	17.30	26.2	HORIZONTAL	PASSED
15998.491984	45.60	190.55	18.20	27.4	VERTICAL	PASSED
16060.624248	46.40	208.93	19.10	27.3	HORIZONTAL	PASSED
17855.209419	48.50	266.07	16.90	31.6	VERTICAL	PASSED

TX mode, channel 78 / 2480 MHz

Peak (RBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
4960.000000	52.80	436.52	47.50	5.3	VERTICAL	PASSED
7440.000000	49.70	305.49	37.40	12.3	VERTICAL	PASSED

Average (RBW: 1 MHz)

Frequency	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT}	Polarisation	Result
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[MHz]				[dB]		
4960.000000	39.60	95.50	34.30	5.3	VERTICAL	PASSED
7440.000000	36.30	65.31	24.00	12.3	VERTICAL	PASSED

3. Test Equipment

3.1. 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

3.2. 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
BJPCTC0046	Shielding Enclosure	3M Test Site	ETS-Lindgren	22/24/27, 15C, 15B
BJPCTC0047	Turntable	Model 2088-1.23	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