

FCC Part 15B Compliance Test Report

Test Report no.:	FCC15B_RM-844_06.docx	Date of Report:	13-Jun-2012
Number of pages:	11	Customer's Contact person:	Zhang Wei
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FCC listing no.:	975940		
IC recognition no.:	661AH-1		
Tested devices/ accessories:	Phone RM-844 / Battery BL-4U / AC Charger AC-11E / Headset WH-102 / Printer HP C6427A / Laptop IBM T43 / USB data cable CA-190CD		
FCC ID:	QTLRM-844	IC:	661AB-RM844
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 8, December 2010). 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, EMC

1. Summary for FCC Part 15B Compliance Test Report

Date of receipt	23-May-2012
Testing completed	08-Jun-2012
The customer's contact person	Zhang Wei
Test Plan referred to	T:\Projects\RM-844\TestPlan\RS_testplan_RM-844.xls
Notes	-
Document name	FCC15B_RM-844_06.docx

1.1. EUT and Accessory Information

The EUT is a mobile phone with following features:

GSM/WLAN/Bluetooth

The EUT is tested with maximum rated TX power, modulated with pseudo random bit sequence (PRBS9).

Devices under tests

Product	Type	SN	HW	MV	SW	DUT
Phone	RM-844	004402138816180	0204	-	tn12w19	52736
Battery	BL-4U	4955402032021202713;0670560	-	-	-	52733
AC Charger	AC-11E	4090491466160502525;0675479	-	-	-	52735
Headset	WH-102	0694323152311D02963	-	-	-	52734
Printer	HP C6427A	MY15B18156JJ	-	-	-	51838
Laptop	IBM T43	L3KXHL3	-	-	-	52468
USB data cable	CA-190CD	07304561494G2F	-	-	-	52758
Phone	RM-844	004402138815992	0204	-	tn12w19	52748
Battery	BL-4U	4955402032021202703;0670560	-	-	-	52751
AC-Charger	AC-11E	4090491466160502548;0675479	-	-	-	52754
Headset	WH-102	0694323152311D23538	-	-	-	52755

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	PASSED
15.109, a	5.5 (4.6)	Radiated emissions	NP

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-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	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 Laboratory.

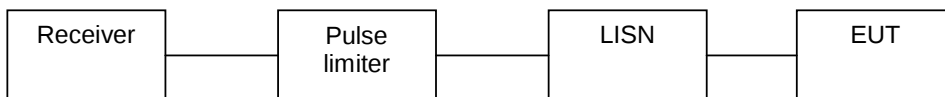
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2. AC powerline conducted emissions (FCC §15.107, ICES-003 section 5.3)

EUT with DUT number	RM-844, DUT 52748
Accessories with DUT numbers	BL-4U, DUT 52751 ; AC-11E, DUT 52754 ; WH-102, DUT 52755 ; HP C6427A, DUT 51838 ; IBM T43, DUT 52468 ; CA-190CD, DUT 52758
Operation Voltage [V] / [Hz]	115/60
Results	PASSED
Remarks	Data was keeping transferred between PC and mobile phone during the measurement.
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	24/41/101.3
Date of measurements	30-May-2012
Measured by	Gao Sherina

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:

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

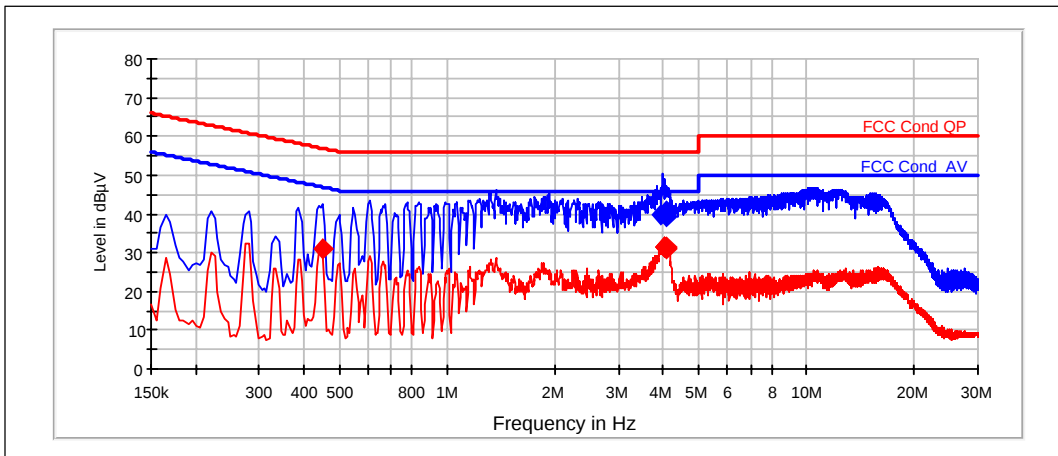
Where U_{RX} is receiver reading and A_{TOT} is total correction factor including cable and pulse limiter attenuations.

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 850 Test results

Channel 190 / 836.6 MHz



QuasiPeak (RBW: 9 kHz)

Frequency [MHz]	U [dBμV]	Line	Result
3.91	39.7	L1	PASSED
4.06	39.51	N	PASSED
4.065	40.62	N	PASSED
4.07	40.36	L1	PASSED
4.075	40.65	L1	PASSED
4.08	40.39	L1	PASSED

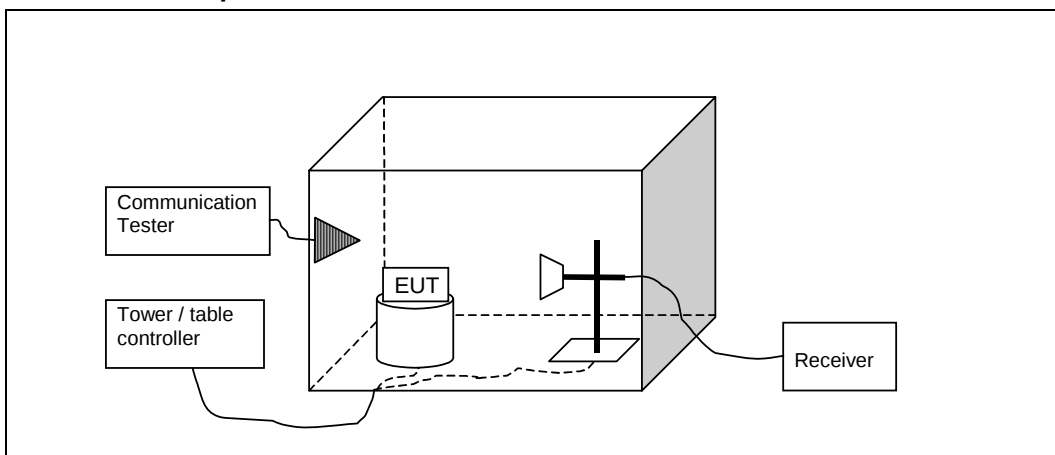
Average (RBW: 9 kHz)

Frequency [MHz]	U [dBμV]	Line	Result
0.45	31.1	N	PASSED
4.015	31.51	L1	PASSED
4.02	31.31	L1	PASSED
4.03	31.61	L1	PASSED
4.055	31.32	N	PASSED
4.075	31.14	L1	PASSED

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

EUT with DUT number	RM-844, DUT 52736
Accessories with DUT numbers	BL-4U, DUT 52733 ; AC-11E, DUT 52735 ; WH-102, DUT 52734 ; HP C6427A, DUT 51838 ; IBM T43, DUT 52468 ; CA-190CD, DUT 52758
Operation Voltage [V] / [Hz]	115/60
Results	PASSED
Remarks	Data was keeping transferred between PC and mobile phone during the measurement.
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	25/53/99.4
Date of measurements	08-Jun-2012
Measured by	Zou Ming

3.1.1 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:

$$E \text{ [dB}\mu\text{V/m]} = U_{RX} + A_{TOT}$$

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]	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. 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
3859.2	42.37	131.432	43.06	-0.69	HORIZONTAL	PASSED
7720	45.65	191.602	41.22	4.43	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
3859.2	29.49	29.833	30.18	-0.69	HORIZONTAL	PASSED
7720	32.78	43.571	28.35	4.43	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
30.72	25.2	18.193	28.35	-3.15	VERTICAL	PASSED
55.581	23.45	14.868	49.8	-26.35	HORIZONTAL	PASSED
55.591	23.74	15.376	50.09	-26.35	HORIZONTAL	PASSED
100.03	26.74	21.72	50.01	-23.27	HORIZONTAL	PASSED
113.095	31.53	37.727	54.63	-23.1	HORIZONTAL	PASSED
127.789	38.31	82.3	61.56	-23.25	HORIZONTAL	PASSED
199.94	33.28	46.142	57.48	-24.2	HORIZONTAL	PASSED
480	37.03	71.031	53.7	-16.67	HORIZONTAL	PASSED
720.03	36.88	69.807	49.57	-12.69	HORIZONTAL	PASSED
799.662	27.83	24.626	39.51	-11.68	HORIZONTAL	PASSED
959.99	36.4	66.1	46.49	-10.09	HORIZONTAL	PASSED

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

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
3000.2	41.7	121.619	43.34	-1.64	HORIZONTAL	PASSED
3919.4	42.08	127.014	42.8	-0.72	VERTICAL	PASSED
7030.862	46.19	203.962	40.96	5.23	HORIZONTAL	PASSED
7039.181	46.21	204.456	40.96	5.25	VERTICAL	PASSED
7069.237	46.13	202.465	40.96	5.17	VERTICAL	PASSED
7821.341	46.3	206.419	41.74	4.56	VERTICAL	PASSED
7838.1	47.1	226.543	42.53	4.57	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
3000.2	28.85	27.689	30.49	-1.64	HORIZONTAL	PASSED
3919.4	29.41	29.546	30.13	-0.72	VERTICAL	PASSED
7030.862	33.38	46.655	28.15	5.23	HORIZONTAL	PASSED
7039.181	33.36	46.58	28.11	5.25	VERTICAL	PASSED
7069.237	33.37	46.618	28.2	5.17	VERTICAL	PASSED
7821.341	33.09	45.108	28.53	4.56	VERTICAL	PASSED
7838.1	33.18	45.619	28.61	4.57	VERTICAL	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
3980.3	42.19	128.603	43.07	-0.88	HORIZONTAL	PASSED
7962	46.25	205.423	41.22	5.03	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
3980.3	29.21	28.88	30.09	-0.88	HORIZONTAL	PASSED
7962	33.45	47.016	28.42	5.03	VERTICAL	PASSED

4. Test Equipment

4.1. 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
BJPCPT0069	LISN 50 μ H	ESH3-Z5	R&S	15C, 15B
BJPCPT0073	Signal Generator	SMR 20	R&S	22/24/27, 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 industrietechnik	22/24/27, 15C
BJPCTC0090	FSP spectrum analyzer	FSP30	R&S	22/24/27, 15C
BJPCTC0094	GPIO-RS232 convertor	GPIO-RS232	NI	22/24/27, 15C
BJPCTC0112	Power Splitter	11667B	Agilent	22/24/27, 15C
BJPCTC0114	Signal Generator	E8257C	Agilent	22/24/27, 15C
BJPCTC0115	Communication Tester	CMU200	R&S	22/24/27, 15B, 15C

4.2. 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
BJPCTC0124	Attenuator	SA18N200W-40	Fairview Microwave	-