

FCC Part 15B Compliance Test Report

Test Report no.:	FCC15B_RM-849_10.docx	Date of Report:	24-May-2012
Number of pages:	11	Customer's Contact person:	Hu Dongji
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FCC listing no.:	975940		
IC recognition no.:	661AH-1		
Tested devices/ accessories:	Phone RM-849 / Battery BP-3L / Laptop IBM T43 / USB data cable CA-190CD / Printer HP C6427A		
FCC ID:	QTLRM-849	IC:	661AB-RM849
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	27-Apr-2012
Testing completed	21-May-2012
The customer's contact person	Hu Dongji
Test Plan referred to	T:\Projects\RM-849\TestPlan\RS_testplan_RM-849.xls
Notes	-
Document name	FCC15B_RM-849_10.docx

1.1. EUT and Accessory Information

The EUT is a mobile phone with following features:

GSM/WCDMA/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-849	004402138942945	2035	-	1100.0000.8773.12150	52703
Battery	BP-3L	3932131515450172308;0670635	-	-	-	52723
Laptop	IBM T43	L3KXHL3	-	-	-	52468
USB data cable	CA-190CD	07304571506G2F	-	-	-	52721
Printer	HP C6427A	MY15B18156JJ	-	-	-	51838
Phone	RM-849	004402138942549	2035	-	1100.0000.8773.12150	52706
Battery	BP-3L	3932131515450172305;0670635	-	-	-	52711
USB data cable	CA-190CD	07304571506G2F	-	-	-	52720

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	NP

WCDMA 850 (Band V):

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	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	NP

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	PASSED
15.109, a	5.5 (6.6)	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 Laboratory.

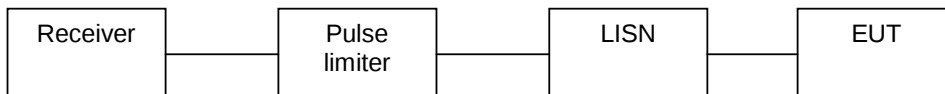
CONTENTS

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)	5
2.1. Test Setup.....	5
2.2. Test method and limit.....	5
2.3. WLAN Test results	6
3. Radiated emissions (FCC §15.109, ICES-003 section 5.5, RSS-132 4.6, RSS-133 6.6)	7
3.2. Test method and limit.....	7
3.3. WLAN Test results	9
4. Test Equipment.....	11
4.1. Conducted measurements	11
4.2. Radiated measurements	11

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

EUT with DUT number	RM-849, DUT 52703
Accessories with DUT numbers	BP-3L, DUT 52723 ; IBM T43, DUT 52468 ; CA-190CD, DUT 52721 ; HP C6427A, DUT 51838
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]	24/40/101.1
Date of measurements	09-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.

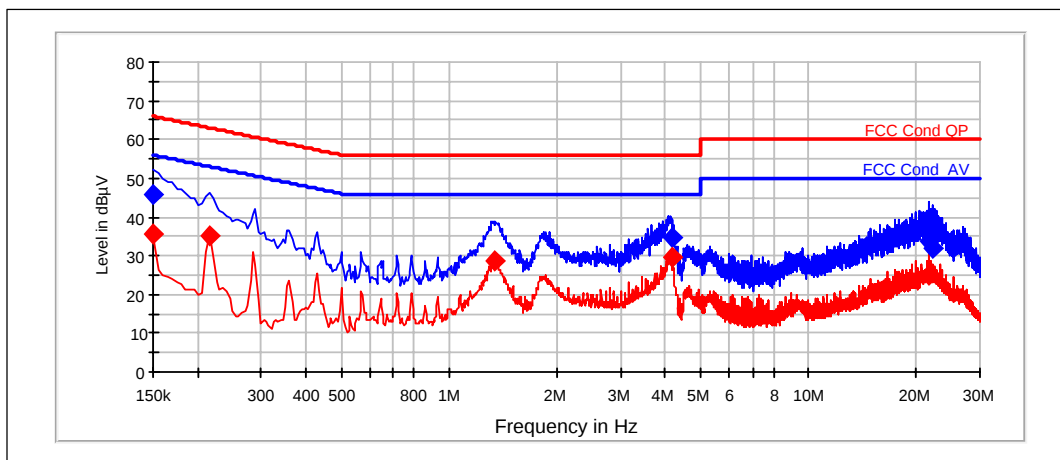
CISPR 22 Class B limits

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. WLAN Test results

2.3.1 DSSS mode, QPSK modulation, 11 Mbps data rate

Channel 6 / 2437 MHz; measured from PC charger.



QuasiPeak (RBW: 9 kHz)

Frequency [MHz]	U [dBμV]	Line	Result
0.15	45.81	N	PASSED
4.17	34.67	N	PASSED
21.6	33.67	L1	PASSED
22.175	32.03	N	PASSED

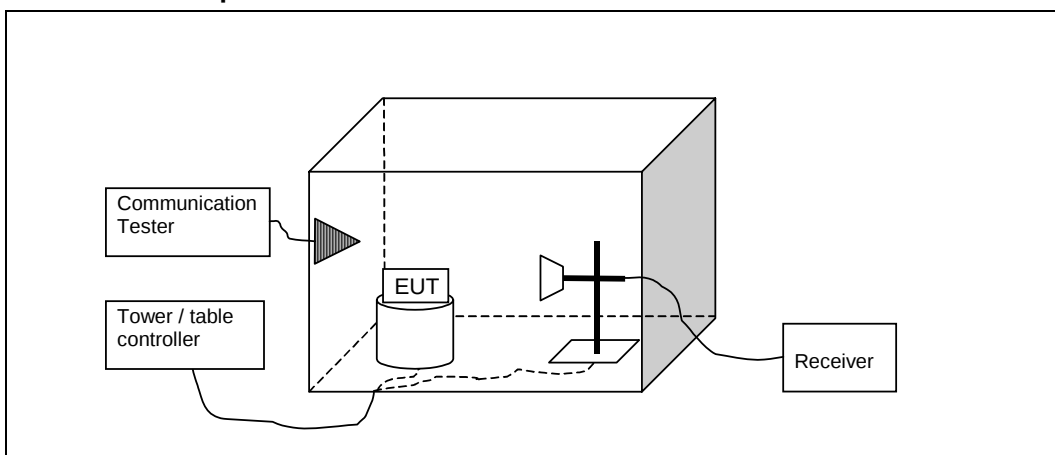
Average (RBW: 9 kHz)

Frequency [MHz]	U [dBμV]	Line	Result
0.15	35.44	N	PASSED
0.215	35.1	L1	PASSED
1.335	28.63	N	PASSED
4.165	29.55	N	PASSED
21.62	24.99	N	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-849, DUT 52706
Accessories with DUT numbers	BP-3L, DUT 52711 ; HP C6427A, DUT 51838 ; CA-190CD, DUT 52720 ; IBM T43, DUT 52468
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]	23/48/101
Date of measurements	21-May-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 [dB μ V/m]	Average limit [dB μ V/m]	Peak limit [dB μ V/m]
30 - 230	40	-	-
230 – 1000	47	-	-
Above 1000	-	54	74

3.3. WLAN Test results

3.3.1 DSSS mode, QPSK modulation, 11 Mbps data rate

RX mode, Channel 1 / 2412 MHz

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

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
4801.5	42.7	136.521	42.57	0.13	VERTICAL	PASSED
7203.5	45.42	186.595	40.36	5.06	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
4801.5	29.6	30.21	29.47	0.13	VERTICAL	PASSED
7203.5	32.98	44.571	27.92	5.06	HORIZONTAL	PASSED

RX mode, Channel 6 / 2437 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
30.06	22.82	13.836	25.5	-2.68	HORIZONTAL	PASSED
56.383	27.14	22.743	53.32	-26.18	HORIZONTAL	PASSED
106.882	33.2	45.683	55.68	-22.48	VERTICAL	PASSED
107.155	32.46	41.966	54.92	-22.46	VERTICAL	PASSED
161.309	26.93	22.208	51.28	-24.35	VERTICAL	PASSED
201.45	29.59	30.179	52.86	-23.27	HORIZONTAL	PASSED
205.006	35.63	60.43	58.75	-23.12	HORIZONTAL	PASSED
215.818	38.92	88.338	61.56	-22.64	HORIZONTAL	PASSED
796.354	33.5	47.293	43.46	-9.96	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
1530.764	60.77	1092.32	63.46	-2.69	VERTICAL	PASSED
2998.597	52.63	428.154	42.03	10.6	HORIZONTAL	PASSED
3001.9	42.57	134.462	44.21	-1.64	HORIZONTAL	PASSED
4881.1	43.32	146.47	42.98	0.34	VERTICAL	PASSED
7064.325	45.95	198.404	40.75	5.2	VERTICAL	PASSED
7319.1	46.74	217.27	41.4	5.34	VERTICAL	PASSED
7827.858	46.23	204.833	41.65	4.58	HORIZONTAL	PASSED
7834.071	46.61	214.067	42.03	4.58	HORIZONTAL	PASSED
7862.826	46.09	201.512	41.4	4.69	HORIZONTAL	PASSED

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

Frequency [MHz]	E [dB μ V/m]	E [μ V/m]	U _{RX} [dB μ V]	A _{TOT} [dB]	Polarisation	Result
1530.764	33.3	46.259	35.99	-2.69	VERTICAL	PASSED
2998.597	39.7	96.549	29.1	10.6	HORIZONTAL	PASSED
3001.9	28.38	26.236	30.02	-1.64	HORIZONTAL	PASSED
4881.1	30.43	33.212	30.09	0.34	VERTICAL	PASSED
7064.325	33.13	45.358	27.93	5.2	VERTICAL	PASSED
7319.1	33.57	47.72	28.23	5.34	VERTICAL	PASSED
7827.858	32.9	44.152	28.32	4.58	HORIZONTAL	PASSED
7834.071	32.85	43.904	28.27	4.58	HORIZONTAL	PASSED
7862.826	33.08	45.102	28.39	4.69	HORIZONTAL	PASSED

RX mode, Channel 11 / 2462 MHz

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

Frequency [MHz]	E [dB μ V/m]	E [μ V/m]	U _{RX} [dB μ V]	A _{TOT} [dB]	Polarisation	Result
4959.4	43.87	156.135	43.39	0.48	HORIZONTAL	PASSED
7439.8	45.89	197.038	40.75	5.14	HORIZONTAL	PASSED

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

Frequency [MHz]	E [dB μ V/m]	E [μ V/m]	U _{RX} [dB μ V]	A _{TOT} [dB]	Polarisation	Result
4959.4	31.07	35.748	30.59	0.48	HORIZONTAL	PASSED
7439.8	33.17	45.546	28.03	5.14	HORIZONTAL	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
BJPCHW0020	DC Power supply	Hp6632B	HP	22/24/27, 15C
BJPCPT0040	Receiver	ESCS30	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 industrietechnik	22/24/27, 15C
BJPCTC0090	FSP spectrum analyzer	FSP30	R&S	22/24/27, 15C
BJPCTC0094	GPB-RS232 convertor	GPB-RS232	NI	22/24/27, 15C
BJPCTC0112	Power Splitter	11667B	Agilent	22/24/27, 15C
BJPCTC0114	Signal Generator	E8357C	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	-