

FCC Part 15B Compliance Test Report

Test Report no.:	FCC15B_RM-926_07.docx	Date of Report:	03-Apr-2013
Number of pages:	11	Customer's Contact person:	Wang Jason
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FCC listing no.:	975940		
IC recognition no.:	661AH-1		
Tested devices/ accessories:	Phone RM-926 / AC Charger AC-11E / Headset WH-109 / USB data cable CA-190CD / Printer HP C6427A / Laptop IBM T43		
FCC ID:	QTLRM-926	IC:	
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). 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:			

Gao Sherina, Engineer, EMC

1. Summary for FCC Part 15B Compliance Test Report

Date of receipt	26-Mar-2013
Testing completed	01-Apr-2013
The customer's contact person	Wang Jason
Test Plan referred to	T:\Projects\RM-926\TestPlan\RS_testplan_RM-926.xlsm
Notes	-
Document name	FCC15B_RM-926_07.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.

Devices under tests

Product	Type	SN	HW	MV	SW	DUT
Phone	RM-926	004402471846497	0202	-	snsECL_13w06	53304
Battery	BL-4U	4181572473000000303;0670560	-	-	-	53308
AC Charger	AC-11E	4868672495441407809;0675479	-	-	-	53311
Headset	WH-109	2512I3R	-	-	-	53284
USB data cable	CA-190CD	07304562112T2F	-	-	-	53312
Printer	HP C6427A	MY15B18156JJ	-	-	-	51838
Laptop	IBM T43	L3KXHL3	-	-	-	52468
Phone	RM-926	004402471846695	0202	-	snsECL_13w06	53301
Battery	BL-4U	4181572473000000306;0670560	-	-	-	53309
AC Charger	AC-11E	4868672495451408123;0675479	-	-	-	53352
Headset	WH-109	2512I3R	-	-	-	53282

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

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	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.

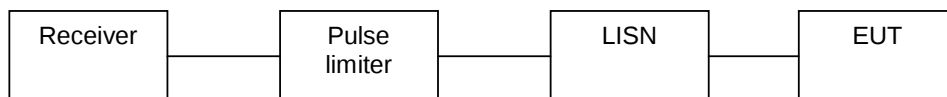
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2. AC powerline conducted emissions (FCC §15.107, ICES-003 section 5.3)

EUT with DUT number	RM-926, DUT 53304
Accessories with DUT numbers	BL-4U, DUT 53308 ; AC-11E, DUT 53311 ; WH-109, DUT 53284 ; CA-190CD, DUT 53312; HP C6427A, DUT 51838 ; IBM T43, DUT 52468
Operation Voltage [V] / [Hz]	115 / 60
Results	PASSED
Remarks	Data was kept transferring between phone and computer during GSM1900 idle mode.
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	21/35/101.2
Date of measurements	01-Apr-2013
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:

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

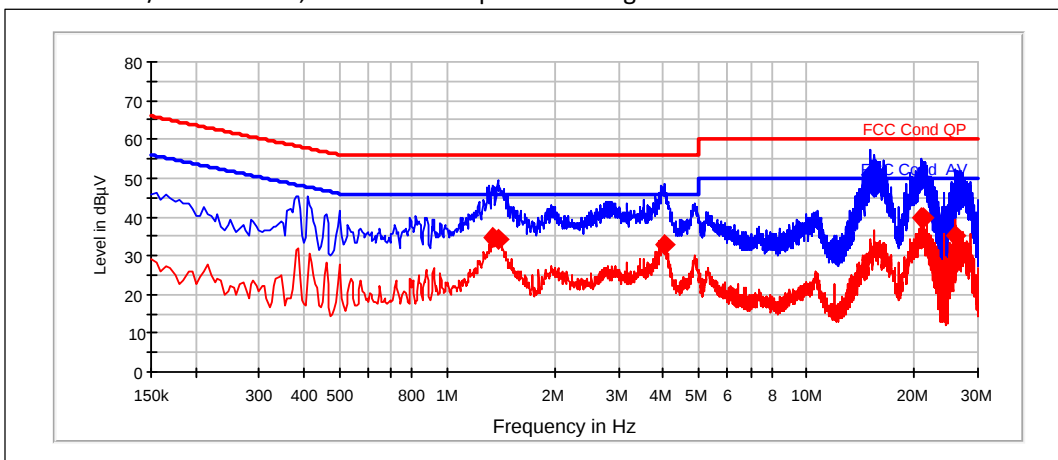
Where U_{RX} is receiver reading and A_{TOT} is total correction factor including cable and pulse limiter attenuations.

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 1900 Test results

Channel 661 / 1880.0 MHz, Measure from phone's charger



QuasiPeak (RBW: 9 kHz)

Frequency [MHz]	U [dBμV]	Line	Result
15.125	51.07	N	PASSED
15.42	47.58	N	PASSED
15.46	49.36	N	PASSED
15.47	50.69	N	PASSED
15.575	50.41	N	PASSED
20.905	49.4	L1	PASSED

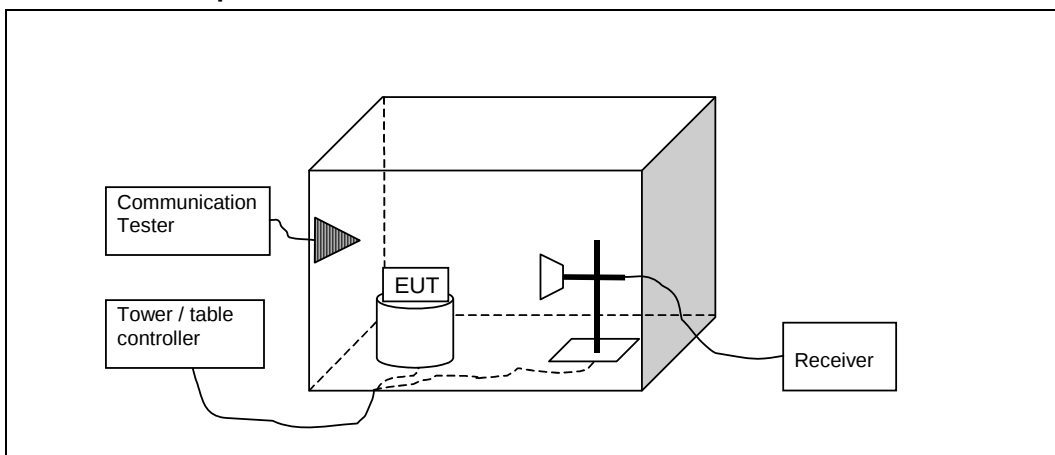
Average (RBW: 9 kHz)

Frequency [MHz]	U [dBμV]	Line	Result
1.345	34.58	N	PASSED
1.385	34.25	N	PASSED
4.01	32.74	L1	PASSED
20.875	39.93	L1	PASSED
21	39.72	N	PASSED
26.02	35.01	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-926, DUT 53301
Accessories with DUT numbers	BL-4U, DUT 53309 ; AC-11E, DUT 53352 ; WH-109, DUT 53282 ; CA-190CD, DUT 53312; HP C6427A, DUT 51838 ; IBM T43, DUT 52468
Operation Voltage [V] / [Hz]	115 / 60
Results	PASSED
Remarks	Data was kept transferring between phone and computer during GSM1900 idle mode.
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	22/35/101.2
Date of measurements	01-Apr-2013
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	-	-
1000 - 3000	-	50	70
Above 3000	-	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]	Margin	Limit [dBμV/m]	Results
3860	42.61	135.114	39.85	2.76	31.4	74	PASSED
7720.3	48.79	275.106	38.23	10.56	25.2	74	PASSED

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

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Margin	Limit [dBμV/m]	Results
3860	29.93	31.362	27.17	2.76	24.1	54	PASSED
7720.3	35.96	62.784	25.4	10.56	18	54	PASSED

RX mode, channel 661 / 1960.0 MHz

Quasi peak (RBW: 100 kHz, VBW: 100 kHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Margin	Limit [dBμV/m]	Results
30.66	33.35	46.489	41.43	-8.08	6.7	40	PASSED
34.88	37.46	74.645	54.35	-16.89	2.5	40	PASSED
43.727	32.86	43.959	55.31	-22.45	7.1	40	PASSED
53.597	27.98	25.05	56.99	-29.01	12	40	PASSED
69.64	21.31	11.623	50.49	-29.18	18.7	40	PASSED
101.79	24.26	16.323	50.58	-26.32	15.7	40	PASSED
107.847	34.55	53.376	60.42	-25.87	5.5	40	PASSED
165.644	26.8	21.885	54.44	-27.64	13.2	40	PASSED
221.059	33.14	45.41	58.78	-25.64	6.9	40	PASSED
799.63	33.35	46.5	46.79	-13.44	13.7	47	PASSED
930.985	19.1	9.019	30.58	-11.48	27.9	47	PASSED

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

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Margin	Limit [dBμV/m]	Results
3001.6	40.84	110.141	40.33	0.51	33.2	74	PASSED
3919.2	42.48	133.107	39.85	2.63	31.5	74	PASSED
7067.434	49.05	283.367	39.48	9.57	25	74	PASSED
7828.455	50.09	319.411	39.48	10.61	23.9	74	PASSED
7842	49.42	295.903	38.86	10.56	24.6	74	PASSED
7846.596	49.78	308.39	39.23	10.55	24.2	74	PASSED
7859.02	49.28	291.172	38.6	10.68	24.7	74	PASSED

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

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Margin	Limit [dBμV/m]	Results
3001.6	27.93	24.912	27.42	0.51	26.1	54	PASSED
3919.2	29.79	30.867	27.16	2.63	24.2	54	PASSED
7067.434	35.75	61.32	26.18	9.57	18.2	54	PASSED
7828.455	36.59	67.507	25.98	10.61	17.4	54	PASSED
7842	36.52	66.988	25.96	10.56	17.5	54	PASSED
7846.596	36.46	66.489	25.91	10.55	17.5	54	PASSED

7859.02	36.59	67.507	25.91	10.68	17.4	54	PASSED
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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]	Margin	Limit [dBμV/m]	Results
3980.8	43.06	142.233	40.33	2.73	30.9	74	PASSED
7958.8	49.86	311.243	38.73	11.13	24.1	74	PASSED

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

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Margin	Limit [dBμV/m]	Results
3980.8	29.46	29.7	26.73	2.73	24.5	54	PASSED
7958.8	36.82	69.343	25.69	11.13	17.2	54	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
BJPCPT0069	LISN 50 µH	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
BJPCPT0208	UPS	PULSAR RX10	Merlin gerin	15C,15B
BJPCTC0001	DIGITAL CAMERA	PC1015	CANON	15C,15R
BJPCTC0017	Communication Tester	CMU200	R&S	22/24/27, 15C, 15B
BJPCTC0062	AC Power source	6812B	Hp	15C,15B
BJPCTC0067	Bluetooth Tester	CBT	R&S	22/24/27, 15C
BJPCTC0082	Humidity and Temperature Sensor	175-H2	Testo	15B,15C
BJPCTC0088	Absolut pressure meter	testo 511	Testo	22/24/27, 15B,15C
BJPCTC0089	Tempreture 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	E8257C	Agilent	22/24/27, 15C
BJPCTC0115	Communication Tester	CMU200	R&S	22/24/27, 15B, 15C
BJPCTC0127	AC Power source	SOYI-500VA	SOYI	15B 15C
BJPCTC0128	Communication antenna	JXTXLB-10180	A-INFOMW	22/24/27 15B 15C
BJPCTC0129	Communication antenna	JXTXLB-10180	A-INFOMW	22/24/27 15B 15C
BJPCTC0131	Communication tester	CMW500	R&S	22/24/27 15B 15C
BJPCTC0136	Communication antenna	JXTXLB-880-NF	A-INFOMW	15B 15C
BJPCTC0306	Power Splitter	11667B	Agilent	22/24/27, 15C
BJPCTC0305	GPB converter	GPB-RS232	NI	22/24/27, 15C
BJPCTC0304	Spectrum Analyser	FSV30	R&S	22/24/27, 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
BJPCTC0171	Broad-band Horn Antenna	BBHA9120 D	SCHWARZBECK MESS - ELEKTRONIK	22/24/27, 15C, 15B
BJPCPT0208	UPS	PULSAR RX10	Merlin gerin	15C,15B
BJPCTC0001	DIGITAL CAMERA	PC1015	CANON	15C,15R
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

Eq. No	Equipment	Type	Manufacturer	Used in
BJPCTC0062	AC Power source	6812B	Hp	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
BJPCTC0081	Humidity and Temperature Sensor	175-H2	Testo	15B, 15C
BJPCTC0088	Absolut pressure meter	testo 511	Testo	22/24/27, 15B,15C
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	-
BJPCTC0125	Loop Antenna	HFH2-Z2	R&S	15C
BJPCTC0126	Tripod	FHU-Z	R&S	15C
BJPCTC0128	Communication antenna	JXTXLB-10180	A-INFOMW	22/24/27 15B 15C
BJPCTC0129	Communication antenna	JXTXLB-10180	A-INFOMW	22/24/27 15B 15C
BJPCTC0131	Communication tester	CMW500	R&S	22/24/27 15B 15C
BJPCTC0133	Open Swith and contril unit	OSP 150	R&S	15B,15C
BJPCTC0134	Open Swith and contril unit	OSP 150	R&S	15B,15C
BJPCTC0135	Open Swith and contril unit	OSP 130	R&S	15B,15C
BJPCTC0136	Communication antenna	JXTXLB-880-NF	A-INFOMW	15B 15C