

FCC Part 15C Compliance Test Report

Test Report no.:	FCC15CNFC_RM-885_14.docx	Date of Report:	27-Feb-2013
Number of pages:	10	Customer's Contact person:	Li Craig.K
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FCC listing no.:	975940		
IC recognition no.:	661AH-1		
Tested devices/ accessories:	Phone RM-885 / Battery BP-4GWA / AC-Charger AC-50U / USB data cable CA-190CD / Headset WH-108 / Dummy battery SD-121M		
FCC ID:	QTLA	IC:	
Supplement reports:	-		
Testing has been carried out in accordance with:	CFR 47, FCC rules Part 15 Subpart C, ANSI C63.4 (2009), IC standards. 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 15C Compliance Test Report

Date of receipt	29-Jan-2013
Testing completed	21-Feb-2013
The customer's contact person	Li Craig.K
Test Plan referred to	T:\Projects\RM-885\TestPlan\RS_testplan_RM-885_EMC_FCC.xlsm
Notes	-
Document name	FCC15CNFC_RM-885_14.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.

Devices under tests

Product	Type	SN	HW	MV	SW	DUT
Phone	RM-885	004402472083926	0203	-	1030.6300.1302.10055	53120
Battery	BP-4GWA	-	2.0	-	-	53128
AC-Charger	AC-50U	4090492342270514284;0675620	-	-	-	53130
USB data cable	CA-190CD	07304562453Y2F	-	-	-	53139
Headset	WH-108	2483171	-	-	-	53143
Phone	RM-885	004402472085012	0203	-	1030.6300.1302.10055	53122
Dummy battery	SD-121M	03618	-	-	-	53124

1.2. Summary of Test Results

NFC:

Section in CFR 47	Section in RSS-210	Name of the test	Result
15.209	2.6	Radiated emission below 30 MHz	NP
15.209	A2.6	Radiated emission above 30 MHz	NP
15.225(a-d)	A2.6	Field strength in the 13.56 MHz band	NP
	4.6.1	Occupied Bandwidth	PASSED
15.225(e)	A2.6	Frequency stability, temperature variation	PASSED
15.225(e)	A2.6	Frequency stability, voltage variation	PASSED
15.207	7.2.2	AC power line conducted emission	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. Occupied bandwidth

EUT with DUT number	RM-885, DUT 53120
Accessories with DUT numbers	BP-4GWA, DUT 53128 ; AC-50U, DUT 53130 ; CA-190CD, DUT 53139 ; WH-108, DUT 53143
Operation Voltage [V] / [Hz]	Nominal
Results	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	17/25/102.6
Date of measurements	19-Feb-2013
Measured by	Gao Sherina

2.1. Test Setup

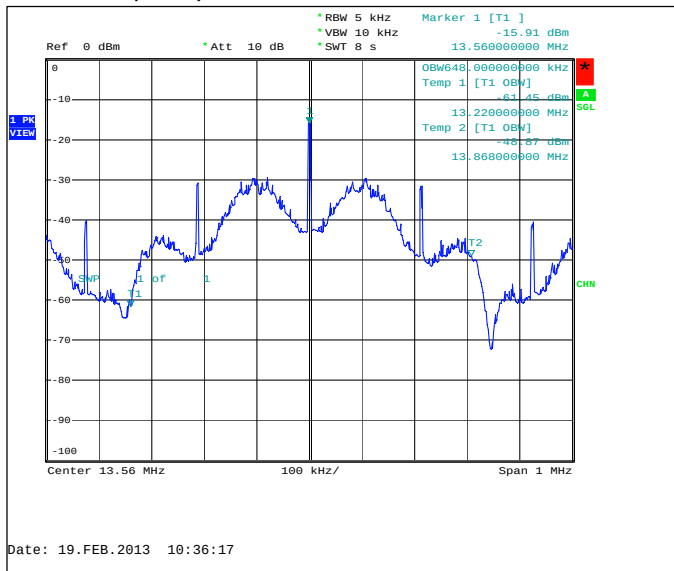
A small whip antenna was placed close to the EUT, and connected to the measuring Spectrum Analyzer.

2.2. Test method and limit

The Test was carried out with the EUT in Test mode with modulation on.

2.3. NFC Test results

NFC TX Frequency = 13.56 MHz



Operation mode (TX on)	Occupied bandwidth [kHz]
NFC, modulated	648

3. Frequency stability, temperature variation (FCC §15.225 (e) [2], RSS-210 A2.6)

EUT with DUT number	RM-885, DUT 53120
Accessories with DUT numbers	BP-4GWA, DUT 53128 ; AC-50U, DUT 53130 ; CA-190CD, DUT 53139 ; WH-108, DUT 53143
Operation Voltage [V] / [Hz]	Nominal
Results	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	17/25/102.6
Date of measurements	19-Feb-2013
Measured by	Gao Sherina

3.1. Test Setup

The EUT was placed in a Climatic Chamber. A small whip antenna was placed close to the EUT, and connected to the measuring Spectrum Analyzer. Measurement performed without modulation on TX.

3.2. Test method and limit

The measurement is made according to FCC rules FCC 47 CFR Part 15 section 15.225 (e) [2] and RSS-210 A2.6

- The EUT is placed in the chamber in transmit mode.
- The climate chamber temperature is set to the maximum value and allowed to stabilize.
- The transmit frequency is measured.
- Temperature is lowered to the next temperature value and allowed to stabilize.
- The steps c - d is repeated for each temperature.

Limits for frequency stability, temperature variation measurements

Frequency deviation [%]
+/- 0.01

3.3. NFC Test results

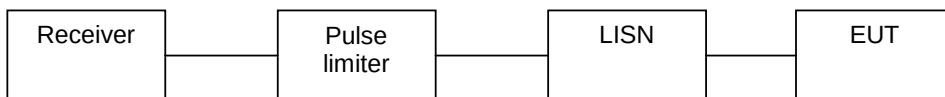
NFC TX Frequency = 13.56 MHz

Temperature [°C]	Frequency [MHz]	Deviation [kHz]	Deviation [%]	Result
50	13.559893	-0.107	-0.000789	PASSED
40	13.5599	-0.100	-0.000737	PASSED
30	13.559923	-0.077	-0.000568	PASSED
20	13.559959	-0.041	-0.000302	PASSED
10	13.56	0.000	0.000000	PASSED
0	13.560042	0.042	0.000310	PASSED
-10	13.560049	0.049	0.000361	PASSED
-20	13.560034	0.034	0.000251	PASSED
-30	13.559994	-0.006	-0.000044	PASSED

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

EUT with DUT number	RM-885, DUT 53120
Accessories with DUT numbers	BP-4GWA, DUT 53128 ; AC-50U, DUT 53130 ; CA-190CD, DUT 53139 ; WH-108, DUT 53143
Operation Voltage [V] / [Hz]	115/60
Results	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	20/30/102.2
Date of measurements	29-Jan-2013
Measured by	Gao Sherina

4.1. Test Setup



4.2. 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:

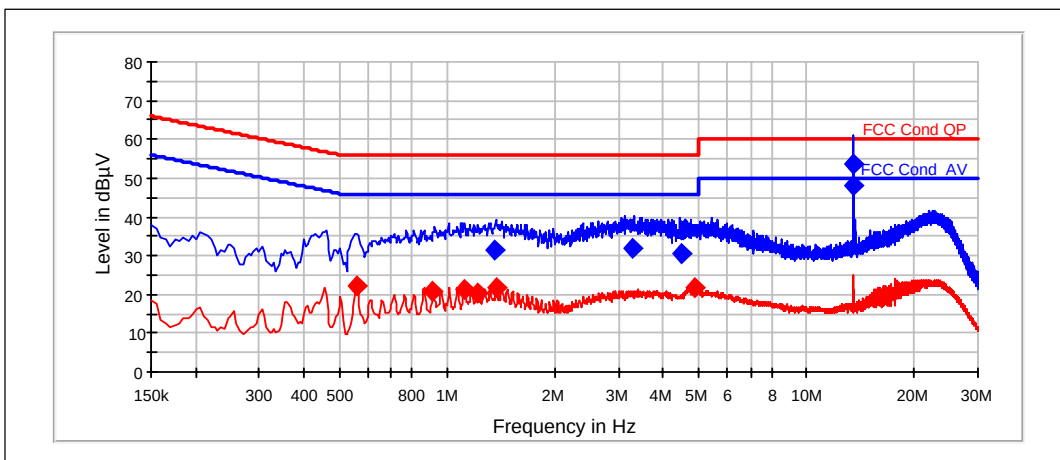
$$U [dB\mu V] = U_{RX} + A_{TOT}$$

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

4.3. NFC Test results



QuasiPeak (RBW: 9 kHz)

Frequency [MHz]	U [dBμV]	Line	Result
1.35	31.6	N	PASSED
3.29	32.04	N	PASSED
4.51	30.3	N	PASSED
13.555	47.94	N	PASSED
13.56	53.68	N	PASSED

Average (RBW: 9 kHz)

Frequency [MHz]	U [dBμV]	Line	Result
0.56	22.02	L1	PASSED
0.915	20.71	L1	PASSED
1.12	21.27	L1	PASSED
1.215	20.52	N	PASSED
1.375	21.54	L1	PASSED
4.865	21.61	L1	PASSED

5. Frequency stability, voltage variation (FCC §15.225 (e) [2], RSS-210 A2.6)

EUT with DUT number	RM-885, DUT 53122
Accessories with DUT numbers	SD-121M, DUT 53124
Operation Voltage [V] / [Hz]	Nominal
Results	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	17/25/102.6
Date of measurements	19-Feb-2013
Measured by	Gao Sherina

5.1. Test Setup

A small whip antenna was placed close to the EUT, and connected to the measuring Spectrum Analyzer.

5.2. Test method and limit

The EUT battery was replaced with an adjustable power supply. The frequency stability was measured at nominal voltage and at +5% and -15%. Measurement performed without modulation on TX.

Limits for frequency stability, voltage variation measurements

Frequency deviation [%]
+/- 0.01

5.3. NFC Test results

NFC TX Frequency = 13.56 MHz

Voltage [V]	Frequency [MHz]	Deviation [kHz]	Deviation [%]	Result
4.1	13.559991	-0.009	-0.000066	PASSED
3.7	13.559993	-0.007	-0.000052	PASSED
3.5	13.559975	-0.025	-0.000184	PASSED

6. Test Equipment

6.1. 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 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
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	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
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

6.2. 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
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
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

Eq. No	Equipment	Type	Manufacturer	Used in
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