

FCC Part 15C Compliance Test Report

Test Report no.:	FCC15CNFC_RM-885_CC-3064_26.docx	Date of Report:	15-Mar-2013
Number of pages:	13	Customer's Contact person:	Li Criag.K
Testing laboratory:	TCC Nokia Beijing Laboratory Beijing Economic and Technological Development Area No.5 Donghuan Zhonglu Beijing PRC China 100176 Tel. +86 10 8711 8888 Fax. +86 10 8711 4550	Customer:	Nokia Corporation Beijing Economic and Technological Development Area No.5 Donghuan Zhonglu Beijing PRC China 100176 Tel. +86 10 8711 8888 Fax. +86 10 8711 4550
FCC listing no.:	975940		
IC recognition no.:	661AH-1		
Tested devices/ accessories:	Phone RM-885 / Battery BP-4GWA / Wireless charger cover CC-3064 / Wireless charger AC-301E / Wireless charger pad DT-910		
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, 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 15C Compliance Test Report

Date of receipt	19-Feb-2013
Testing completed	15-Mar-2013
The customer's contact person	Li Criag.K
Test Plan referred to	T:\Projects\RM-885\TestPlan\RS_testplan_RM-885_CC-3064.xlsm
Notes	-
Document name	FCC15CNFC_RM-885_CC-3064_26.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	004402472084957	0203	-	1030.6407.1307.0000	53257
Battery	BP-4GWA	-	2.0	-	-	53258
Wireless charger cover	CC-3064	000174	B1.5	-	-	53256
Wireless charger	AC-301E	4090492522600309294;0675638	-	-	-	53260
Wireless charger pad	DT-910	0677098250486803429	-	-	-	53263

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	PASSED
15.209	A2.6	Radiated emission above 30 MHz	PASSED
15.225(a-d)	A2.6	Field strength in the 13.56 MHz band	PASSED
15.207	7.2.2	AC power line conducted emission	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.

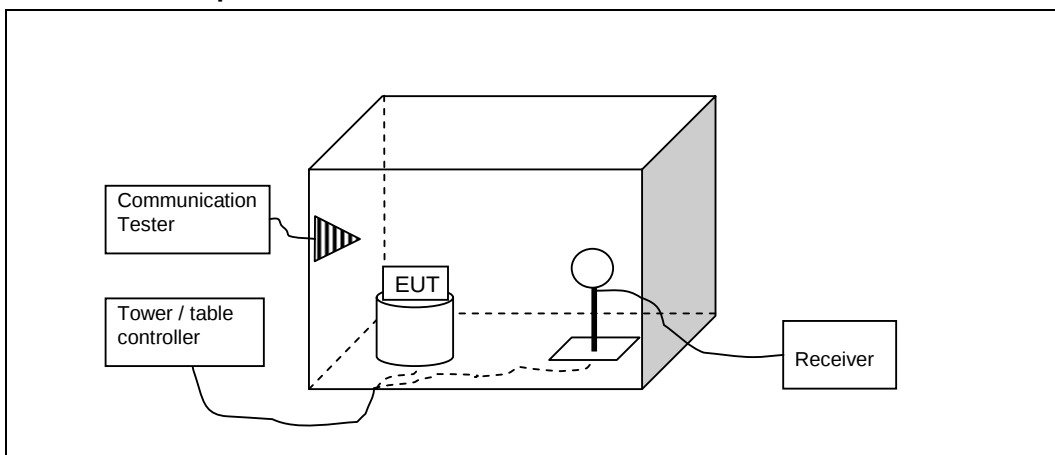
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2. Radiated Emissions below 30 MHz (FCC §15.209, RSS-GEN 7.2.5)

EUT with DUT number	RM-885, DUT 53257
Accessories with DUT numbers	BP-4GWA, DUT 53258 ; CC-3064, DUT 53256 ; AC-301E, DUT 53260 ; DT-910, DUT 53263
Operation Voltage [V] / [Hz]	115 / 60
Results	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	22 / 32 /101
Date of measurements	14-Mar-2013
Measured by	Zou Ming

2.1.1 Test setup



2.2. Test method and limit

The measurement is made according to ANSI C63.4-2009 and RSS-GEN as follows:

The measurement distance is 3 m.

The limit line has been adjusted with the distance correction factor (+40 dB for 30 m distance, +80 dB for 300 m distance).

The measurement is divided into the Preliminary Measurement and the Final Measurement. The suspected frequencies are searched for in Preliminary Measurement with measuring antenna at fixed height using 2-axis EUT position system, set on the turntable, which is rotated 360 degrees. For all identified emissions, the antenna is adjusted for maximum reading.

The measurement results are obtained as described below:

$$E [dB\mu V/m] = U_{RX} + 20 \text{ dB } [1/m] + L_{CABLES}$$

Where U_{RX} is receiver reading, 20 dB the antenna factor of the loop antenna and L the cable attenuation.

Limits for radiated emissions measurements (3 m measurement distance)

Frequency range [MHz]	Limit [$\mu\text{V/m}$]	Distance [m]	Detector	RBW [kHz]
0.009 - 0.09	$2400 / f[\text{kHz}]$	300	Pk & Avg*	0.2
0.09 - 0.11	$2400 / f[\text{kHz}]$	300	QP	0.2
0.11 - 0.15	$2400 / f[\text{kHz}]$	300	Pk & Avg	0.2
0.15 - 0.49	$2400 / f[\text{kHz}]$	300	Pk & Avg*	9
0.49 - 1.705	$24000 / f[\text{kHz}]$	30	QP	9
1.705 - 30	30	30	QP	9

* These are average limits. The peak limit is 20 dB above the average limit.

2.3. NFC test results

MaxPeak

Frequency [MHz]	Reading [dB μ V/m]	Limit [μ V/m]	Distance CF [dB]	Limit @ 3m [dB μ V/m]	Margin [dB]	Limit [dB μ V/m]	Results
0.175	81.855	13.71	80	122.75	40.9	22.74	PASSED
0.175	81.605	13.71	80	122.75	41.1	22.74	PASSED
0.175	79.492	13.71	80	122.75	43.3	22.74	PASSED
0.175	44.603	13.71	80	122.75	78.1	22.74	PASSED
0.175	81.035	13.71	80	122.75	41.7	22.74	PASSED

Average

Frequency [MHz]	Reading [dB μ V/m]	Limit [μ V/m]	Distance CF [dB]	Limit @ 3m [dB μ V/m]	Margin [dB]	Limit [dB μ V/m]	Results
0.175	60.698	13.71	80	102.75	42.1	22.74	PASSED
0.175	58.538	13.71	80	102.75	44.2	22.74	PASSED
0.175	57.297	13.71	80	102.75	45.5	22.74	PASSED
0.175	58.234	13.71	80	102.75	44.5	22.74	PASSED
0.175	30.059	13.71	80	102.75	72.7	22.74	PASSED

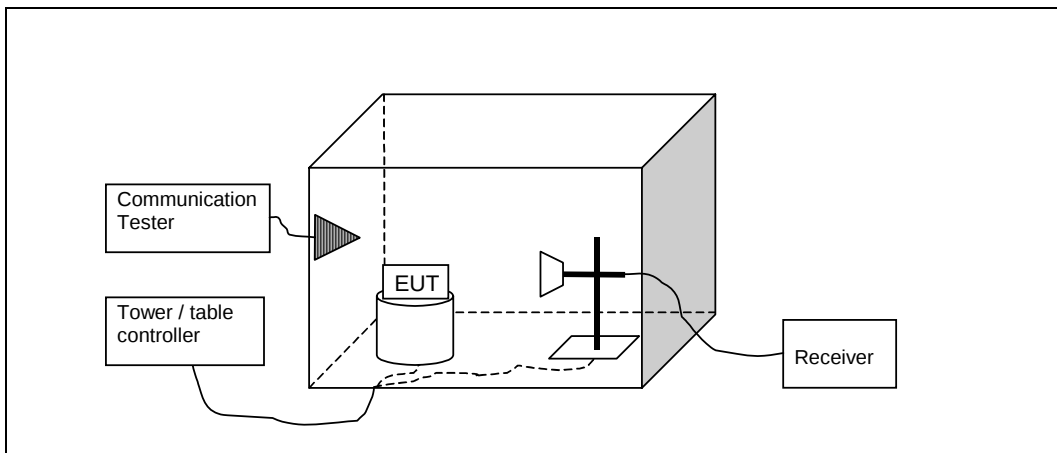
QuasiPeak

Frequency [MHz]	Reading [dB μ V/m]	Limit [μ V/m]	Distance CF [dB]	Limit @ 3m [dB μ V/m]	Margin [dB]	Limit [dB μ V/m]	Results
0.19	78.6	---	---	---	---	---	PASSED

3. Radiated emissions above 30 MHz (FCC §15.209, RSS-GEN 7.2.5)

EUT with DUT number	RM-885, DUT 53257
Accessories with DUT numbers	BP-4GWA, DUT 53258 ; CC-3064, DUT 53256 ; AC-301E, DUT 53260 ; DT-910, DUT 53263
Operation Voltage [V] / [Hz]	115 / 60
Results	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	21 / 31 / 101
Date of measurements	15-Mar-2013
Measured by	Zou Ming

3.1.1 Test setup



3.2. Test method and limit

The measurement is made according to the ANSI C63.4-2009 and RSS-Gen as follows:
The measurement is divided into the Preliminary Measurement and the Final Measurement.

The suspected frequencies are searched for in Preliminary Measurement with absorbers on the floor and measuring antenna at fixed height using 2-axis EUT position system.

The Final Measurement is performed in the Semi-Anechoic Chamber with conducting metal floor, if the Preliminary Measurement results are closer than 20 dB to the permissible value.

The EUT is placed at nonconductive plate at the turntable center.

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:

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

Where U_{RX} is receiver reading and A_{TOT} is total correction factor including cable loss, antenna factor and preamplifier gain ($A_{TOT} = L_{CABLES} + A_F - G_{PREAMP}$).

Limits for spurious radiated emissions measurements (3 m measurement distance)

Frequency range [MHz]	Limit [$\mu V/m$]	Limit [$dB\mu V/m$]	Detector
30 - 88	100	40	Quasi peak
88 - 216	150	43.5	Quasi peak
216 - 960	200	46	Quasi peak
960 - 1000	500	54	Quasi peak
Above 1000	500	54	Average
Above 1000	5000	74	Peak

3.3. NFC test results

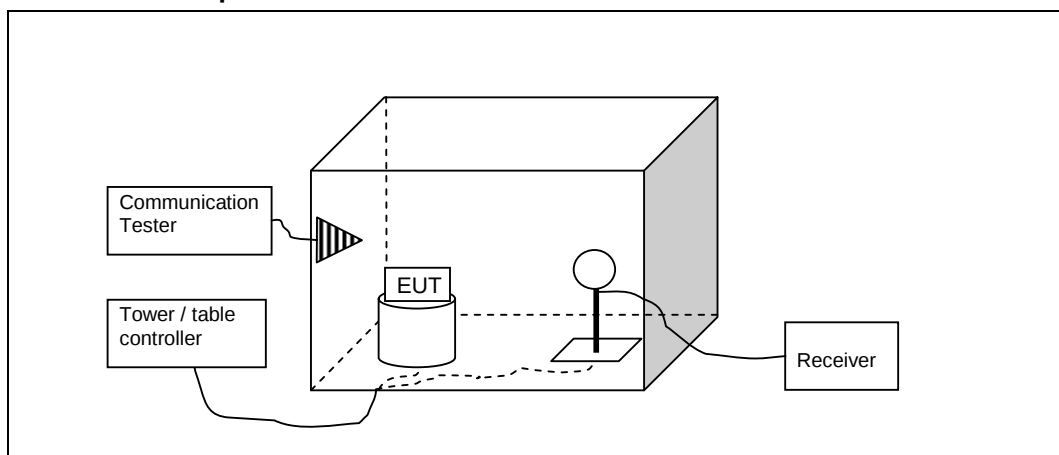
Quasi peak (RBW: 100 kHz, VBW: 100 kHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Margin	Limit [dBμV/m]	Results
30.63	36.6	67.601	39.69	-3.09	3.4	40	PASSED
30.81	36.29	65.215	39.51	-3.22	3.7	40	PASSED
30.93	36.03	63.314	39.34	-3.31	4	40	PASSED

4. Field strength in the 13.56 MHz band

EUT with DUT number	RM-885, DUT 53257
Accessories with DUT numbers	BP-4GWA, DUT 53258 ; CC-3064, DUT 53256 ; AC-301E, DUT 53260 ; DT-910, DUT 53263
Operation Voltage [V] / [Hz]	115 / 60
Results	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	21 / 31 / 101
Date of measurements	15-Mar-2013
Measured by	Zou Ming

4.1.1 Test setup

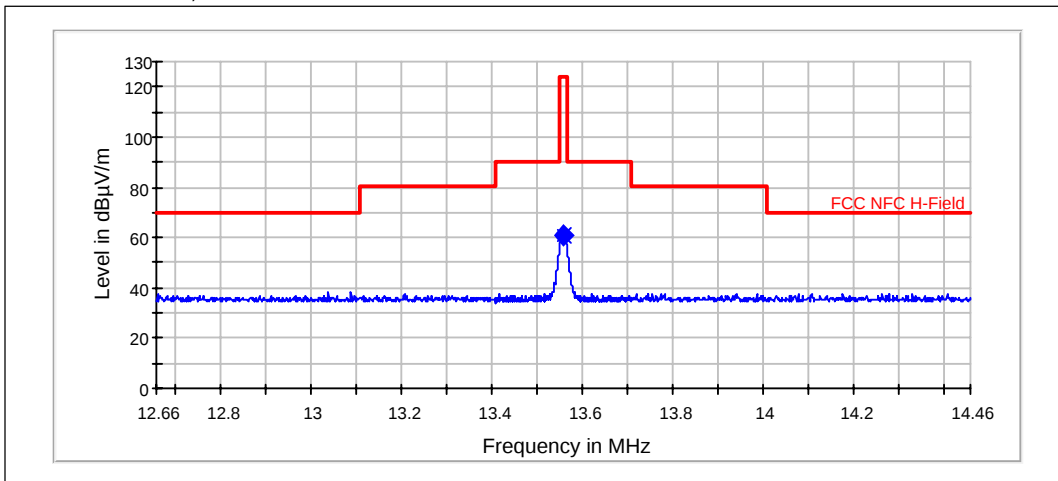


4.2. Test method and limit

The measurement is made according to EN 302 291-01, Section 7.1.1
The measuring distance was 3 meter in shielded enclosure.

4.3. NFC test results

Radiated H-Field, 3 meter distance



QuasiPeak

Frequency [MHz]	Reading [dBμV]	Result [dBμA/m]	Correction [dB]	Margin [dB]	Limit [dBμA/m]	Results
13.56	60.994	40.99	20	63	124	PASSED

5. Test Equipment

5.1. 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
BJPCTC0306	Power Splitter	11667B	Agilent	22/24/27, 15C
BJPCTC0305	GPIO converter	GPIO-RS232	NI	22/24/27, 15C
BJPCTC0304	Spectrum Analyser	FSV30	R&S	22/24/27, 15C

5.2. 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

Eq. No	Equipment	Type	Manufacturer	Used in
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