

FCC Part 22/24 Compliance Test Report

Test Report no.:	FCC22&24_RM-781_01.docx	Date of Report:	21-Sep-2011
Number of pages:	8	Customer's Contact person:	Kill-Tollnek Vivian
Testing laboratory:	TCC Nokia Copenhagen Laboratory Frederikskaj 1790 COPENHAGEN V DENMARK Tel. +45 33 292929 Fax. +45 33 292934	Customer:	Nokia Corporation Lise Meitner Strasse 10 89081 ULM GERMANY Tel. +49 731 1754 0 Fax. +49 731 1754 6800
FCC listing no.:	99059		
IC recognition no.:	661AL-1		
Tested devices/ accessories:	Phone RM-781 / Battery BL-4U		
FCC ID:	PPIRM-781	IC:	661U-RM781
Supplement reports:	-		
Testing has been carried out in accordance with:	CFR 47, FCC rules Parts 22/24 , TIA-603-C-2004 and IC standards, RSS-GEN (Issue 3, December 2010), 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:			

Ruben Hansen, System Manager, EMC

1. Summary for FCC Part 22/24 Compliance Test Report

Date of receipt	01-Sep-2011
Testing completed	20-Sep-2011
The customer's contact person	Kill-Tollnek Vivian
Test Plan referred to	T:\Projects\RM-781\TestPlan\RS_testplan_RM-781.xls
Notes	-
Document name	T:\Projects\RM-781\EMC\FCC22&24_RM-781_01.docx

1.1. EUT and Accessory Information

The EUT is a 10-band mobile phone:

GSM850/900/1800/1900/GPRS/EGPRS/Monopole without GND reflector (GSM/WCDMA)

WCDMA I/II(1900)/V(850)/VIII/HSDPA/HSUPA/Monopole without GND reflector (GSM/WCDMA)

Bluetooth

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

Product	Type	SN	HW	MV	SW	DUT
Phone	RM-781	004402135658908	0110	-	6.65	26178
Battery	BL-4U	4181571141000001365;0670560	-	-	-	26172

1.2. Summary of Test Results

WCDMA 850 (Band V):

Section in CFR 47	Section in RSS-GEN or RSS-132	Name of the test	Result
§2.1046(a), 22.913(a)	4.4	Conducted RF output power	NP
§22.913(a)	4.4	Radiated RF output power	Passed
§2.1049(h)	4.6.1	99 % occupied bandwidth	NP
§22.917(a)	4.5	Band edge compliance	Passed
§22.917(a), §2.1051	4.5	Spurious emissions at antenna terminals	NP
§22.917(a), §2.1053	4.5	Spurious radiated emissions	NP
§2.1055(a)	4.3	Frequency stability, temperature variation	NP
§2.1055(d)	4.3	Frequency stability, voltage variation	NP

WCDMA 1900 (Band II):

Section in CFR 47	Section in RSS-GEN or RSS-133	Name of the test	Result
§2.1046(a)	6.4	Conducted RF output power	NP
§24.232(b)	6.4	Radiated RF output power	Passed
§2.1049(h)	4.6.1	99 % occupied bandwidth	NP
§24.238(a)	6.5	Band edge compliance	Passed
§24.238(a), §2.1051	6.5	Spurious emissions at antenna terminals	NP
§24.238(a), §2.1053	6.5	Spurious radiated emissions	NP
§2.1055(a)	6.3	Frequency stability, temperature variation	NP
§2.1055(d)	6.3	Frequency stability, voltage variation	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.

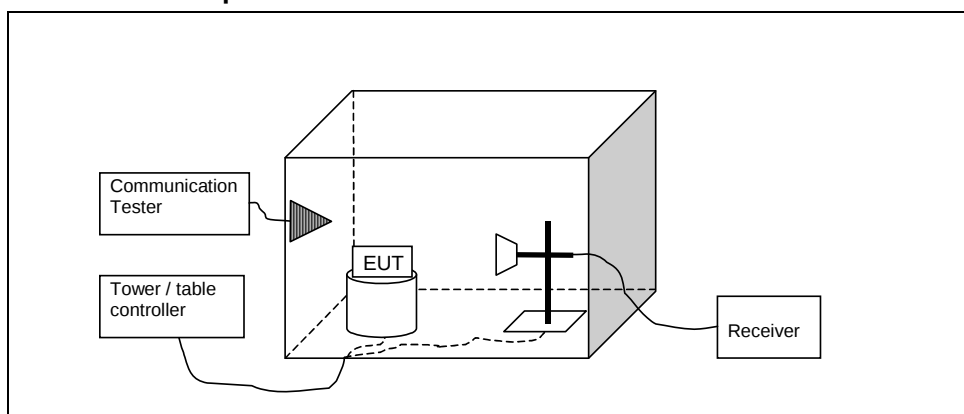
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2. Radiated RF output power (FCC §22.913(a), §24.232(b), RSS-132 4.4, RSS-133 6.4)

EUT with DUT number	RM-781, DUT 26178
Accessories with DUT numbers	BL-4U, DUT 26176
Operation Voltage [V] / [Hz]	-
Results	Passed
Remarks	None
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	22 / 46 / 99.8
Date of measurements	20-Sep-2011
Measured by	Christian Andersen

2.1.1 Test Setup



2.2. Test method and limit

The measurement is made according to TIA-603-C-2004 as follows:

The measurement is performed in the Anechoic Chamber with absorbers on the floor and measuring antenna at fixed height using 2-axis EUT position system. The turntable is rotated 360 degrees and this is repeated for both horizontal and vertical receive antenna polarizations.

The EUT is placed on a nonconductive plate at 170 cm height.

The substitution method is used.

The measurement results are obtained as described below:

$$P [dBm] = P_{SUBST\ TX} + P_{MEAS} - P_{SUBST\ RX} - L_{SUBST\ CABLES} + G_{SUBST\ TX\ ANT}$$

Where $P_{SUBST\ TX}$ is signal generator level. P_{MEAS} is measured power level from the EUT. $P_{SUBST\ RX}$ is measured power level in substitute measurement. $L_{SUBST\ CABLE}$ is the loss of the cable between the signal generator and the substitution antenna and $G_{SUBST\ TX\ ANT}$ is substitution antenna gain.

Limits for radiated RF output power measurements

Frequency range [MHz]	Limit [W]	Limit[dBm]
824 - 849	7	38.5
1710 - 1755	1	30
1850 - 1910	2	33

2.3. WCDMA 1900 (Band II) TX Test results

Peak Detector

Channel / f _c [MHz]	EIRP [dBm]	EIRP [W]	P _{MEAS} [dBm]	P _{SUBST TX} [dBm]	P _{SUBST RX} [dBm]	G _{SUBST TX} ANT [dBi]	L _{SUBST} CABLE [dB]	Polarisation	Result
9262 / 1852.4	23.96	0.249	-20.39	-20	-58	10.10	3.75	HORIZONTAL	Passed
9400 / 1880	21.66	0.147	-22.53	-20	-58	10.00	3.81	HORIZONTAL	Passed
9538 / 1907.6	22.06	0.161	-22.29	-20	-58	10.12	3.77	HORIZONTAL	Passed

RMS Detector

Channel / f _c [MHz]	EIRP [dBm]	EIRP [W]	P _{MEAS} [dBm]	P _{SUBST TX} [dBm]	P _{SUBST RX} [dBm]	G _{SUBST TX} ANT [dBi]	L _{SUBST} CABLE [dB]	Polarisation	Result
9262 / 1852.4	20.77	0.119	-23.58	-20	-58	10.10	3.75	HORIZONTAL	Passed
9400 / 1880	18.46	0.070	-25.73	-20	-58	10.00	3.81	HORIZONTAL	Passed
9538 / 1907.6	18.93	0.078	-25.42	-20	-58	10.12	3.77	HORIZONTAL	Passed

2.4. WCDMA 850 (Band V) TX Test results

Peak Detector

Channel / f _c [MHz]	ERP [dBm]	ERP [W]	P _{MEAS} [dBm]	P _{SUBST TX} [dBm]	P _{SUBST} RX [dBm]	G _{SUBST TX} ANT [dBd]	L _{SUBST} CABLE [dB]	Polarisation	Result
4132 / 826.4	24.15	0.260	-10.02	-20	-59.6	-2.98	2.45	VERTICAL	Passed
4183 / 836.6	21.88	0.154	-11.37	-20	-58.7	-3.01	2.44	VERTICAL	Passed
4233 / 846.6	23.44	0.221	-9.2	-20	-58.4	-3.33	2.43	VERTICAL	Passed

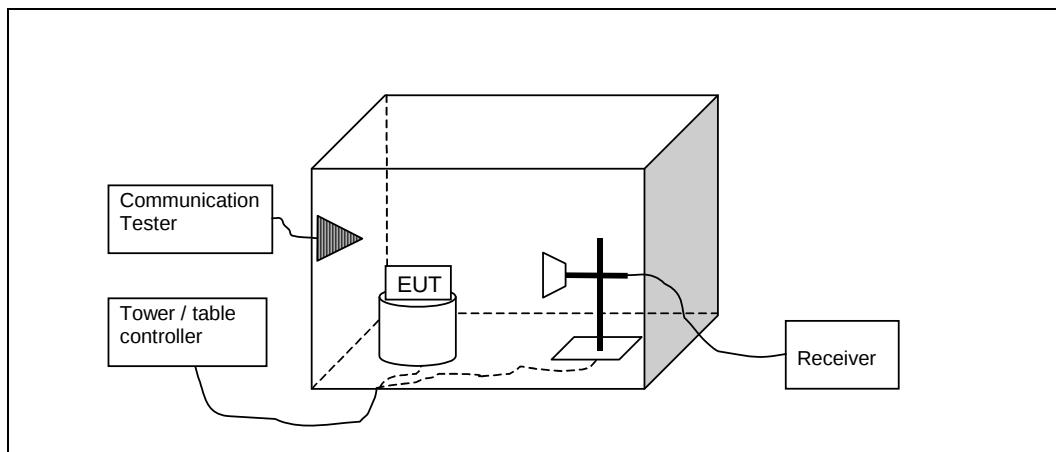
RMS Detector

Channel / f _c [MHz]	ERP [dBm]	ERP [W]	P _{MEAS} [dBm]	P _{SUBST TX} [dBm]	P _{SUBST} RX [dBm]	G _{SUBST TX} ANT [dBd]	L _{SUBST} CABLE [dB]	Polarisation	Result
4132 / 826.4	20.68	0.117	-13.49	-20	-59.6	-2.98	2.45	VERTICAL	Passed
4183 / 836.6	18.33	0.068	-14.92	-20	-58.7	-3.01	2.44	VERTICAL	Passed
4233 / 846.6	20.05	0.101	-12.59	-20	-58.4	-3.33	2.43	VERTICAL	Passed

3. Band edge compliance (FCC §22.917(a), §24.238(a), RSS-132 4.5, RSS-133 6.5)

EUT with DUT number	RM-781, DUT 26178
Accessories with DUT numbers	BL-4U, DUT 26176
Operation Voltage [V] / [Hz]	-
Results	Passed
Remarks	None
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	22 / 46 / 99.8
Date of measurements	20-Sep-2011
Measured by	Christian Andersen

3.1.1 Test Setup



3.2. Test method and limit

The measurement is made according to FCC rules parts 22, 24 and IC standards , RSS-132, RSS-133.

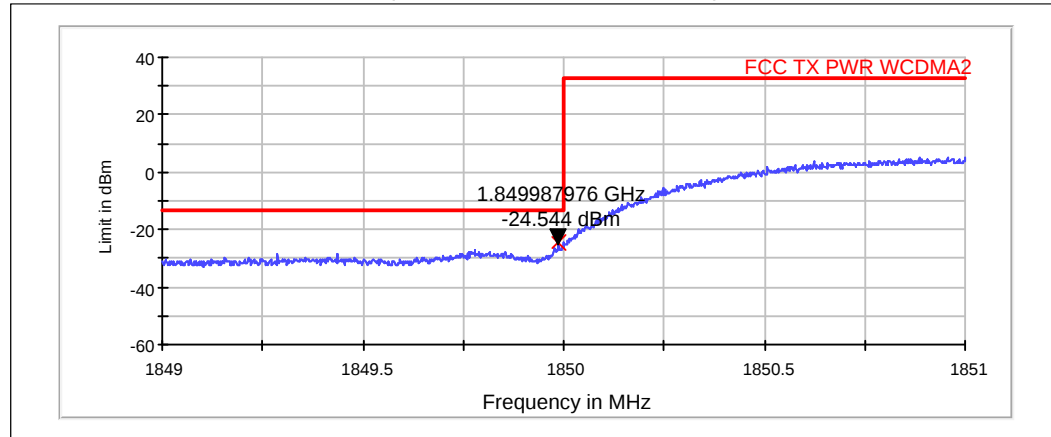
Limits for band edge compliance measurements

Operation band	Frequency range [MHz]	Limit [dBm]
GSM 850 / WCDMA 850	Below 824 and above 849	-13
GSM 1900 / WCDMA 1900	Below 1850 and above 1910	-13

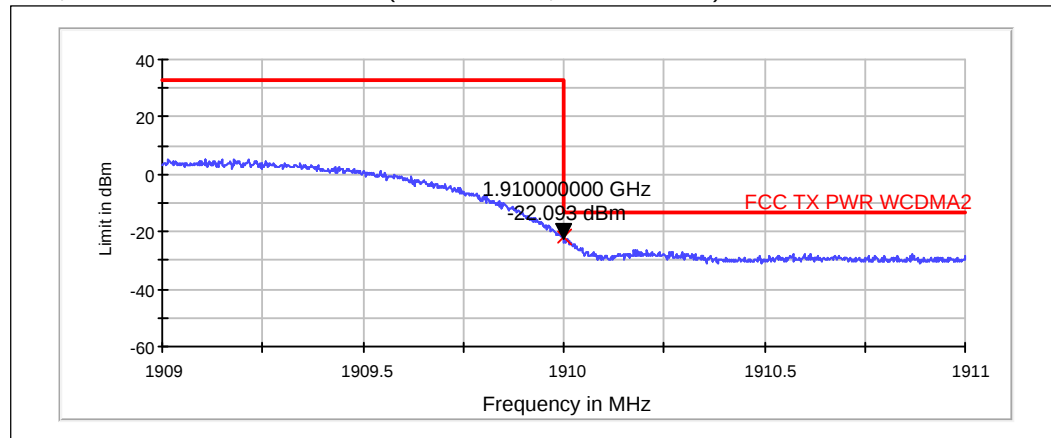
3.3. WCDMA 1900 (Band II) Test results

Operation mode (TX on)	Channel / f_c [MHz]	Level [dBm]	Result
FDD	9262 / 1852.4	-24.54	Passed
FDD	9538 / 1907.6	-22.09	Passed

FDD, channel 9262 / 1852.4 MHz (RMS detector, RBW: 50 kHz)



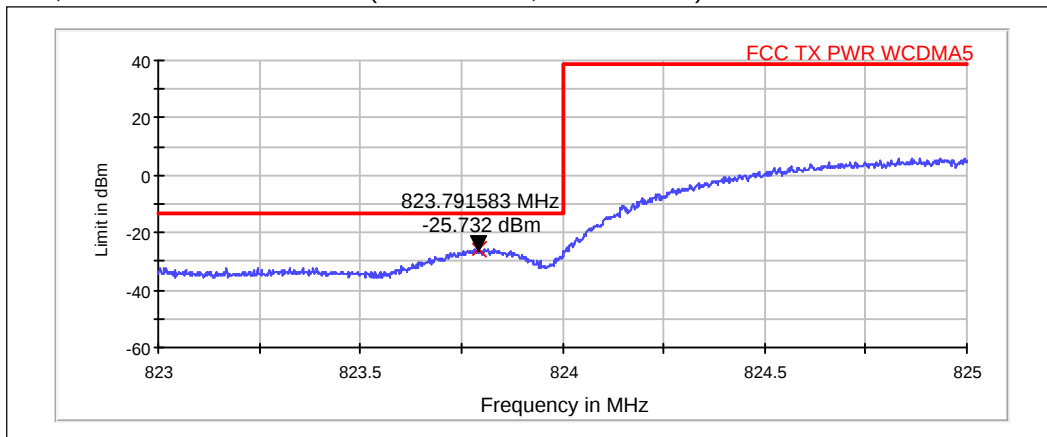
FDD, channel 9538 / 1907.6 MHz (RMS detector, RBW: 50 kHz)



3.4. WCDMA 850 (Band V) Test results

Operation mode (TX on)	Channel / f_c [MHz]	Level [dBm]	Result
FDD	4132 / 826.4	-25.73	Passed
FDD	4233 / 846.6	-24.42	Passed

FDD, channel 4132 / 826.4 MHz (RMS detector, RBW: 50 kHz)



FDD, channel 4233 / 846.6 MHz (RMS detector, RBW: 50 kHz)

