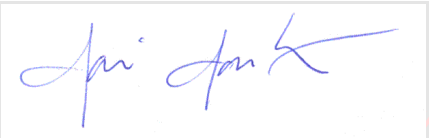
FCC Part 22/24/27 Compliance Test Report

Test Report no.:	FCC22&24&27_RM-807_14.docx	**Date of Report:**	05-Mar-2012
Number of pages:	15	**Customer's Contact person:**	Huhtala Tero
Testing laboratory:	TCC Nokia Tampere Laboratory P.O. Box 68 Sinitaival 5 FIN-33720 TAMPERE, FINLAND Tel. +358 (0) 7180 46800 Fax. +358 (0) 7180 46880	**Customer:**	Nokia Corporation P.O. Box 68 Sinitaival 5 FIN-33720 TAMPERE, FINLAND Tel. +358 (0) 7180 46800 Fax. +358 (0) 7180 46880
FCC listing no.: **IC recognition no.:**	94436 661AK-1		
Tested devices/ accessories:	**Phone RM-807 / Battery BV-4D / Headset WH-209Black / AC charger AC-50E / Data cable CA-190CD / Dummy battery SD-103R**		
FCC ID:	PDNRM-807	**IC:**	661R-RM807
Supplement reports:	-		
Testing has been carried out in accordance with:	**CFR 47, FCC rules Parts 22/24/27 , 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:	 Digitally signed by Jari Jantunen Date: 2012.03.05 12:51:52 +02'00'		

Jari Jantunen, System Manager, EMC

TCC Nokia Tampere Laboratory
P.O. Box 68
Sinitaival 5
FIN-33720 TAMPERE, FINLAND
Tel. +358 (0) 7180 46800
Fax. +358 (0) 7180 46880

1. Summary for FCC Part 22/24/27 Compliance Test Report

Date of receipt	06-Feb-2012
Testing completed	13-Feb-2012
The customer's contact person	Huhtala Tero
Test Plan referred to	T:\Projects\RM-807\TestPlan\RS_testplan_RM-807.xls
Notes	-
Document name	T:\Projects\RM-807\EMC\FCC22&24&27_RM-807_14.docx

1.1. EUT and Accessory Information

The EUT is a mobile phone with following features:
GSM/WCDMA/WLAN/Bluetooth/FM Transmitter
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-807	004402137763003	2010	-	112.010.0805	42782
Battery	BV-4D	4175352012A10400619;0670613	Proto V4 PWB V1.1	-	-	42784
Headset	WH-209Black	352	0.5	0.1	-	42787
AC charger	AC-50E	409049202326040060;0675619	HW0.5MW0.4PV04	-	-	42785
Data cable	CA-190CD	-	-	-	-	42786
Dummy battery	SD-103R	IS3720107	0.1	-	-	42789

1.2. Summary of Test Results

GSM850:

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	NP
§2.1049(h)	4.6.1	99 % occupied bandwidth	PASSED
§22.917(a)	4.5	Band edge compliance	NP
§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	PASSED
§2.1055(d)	4.3	Frequency stability, voltage variation	PASSED

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	NP
§2.1049(h)	4.6.1	99 % occupied bandwidth	PASSED
§22.917(a)	4.5	Band edge compliance	NP
§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

TCC Nokia Tampere Laboratory
P.O. Box 68
Sinitaival 5
FIN-33720 TAMPERE, FINLAND
Tel. +358 (0) 7180 46800
Fax. +358 (0) 7180 46880

GSM1900:

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	NP
§2.1049(h)	4.6.1	99 % occupied bandwidth	PASSED
§24.238(a)	6.5	Band edge compliance	NP
§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	PASSED
§2.1055(d)	6.3	Frequency stability, voltage variation	PASSED

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	NP
§2.1049(h)	4.6.1	99 % occupied bandwidth	PASSED
§24.238(a)	6.5	Band edge compliance	NP
§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

WCDMA 1700 (Band IV):

Section in CFR 47	Section in RSS-GEN or RSS-139	Name of the test	Result
§2.1046(a)	6.4	Conducted RF output power	NP
§27.50(d)(2)	6.4	Radiated RF output power	NP
§2.1049(h)	4.6.1	99 % occupied bandwidth	PASSED
§27.53(g)	6.5	Band edge compliance	NP
§27.53(g), §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	PASSED
§2.1055(d)	6.3	Frequency stability, voltage variation	PASSED

PASSED	The EUT complies with the essential requirements in the standard.
FAILED	The EUT does not comply with the essential requirements in the standard.
NP	The test was not performed by the TCC Nokia Laboratory.

TCC Nokia Tampere Laboratory
P.O. Box 68
Sinitaival 5
FIN-33720 TAMPERE, FINLAND
Tel. +358 (0) 7180 46800
Fax. +358 (0) 7180 46880

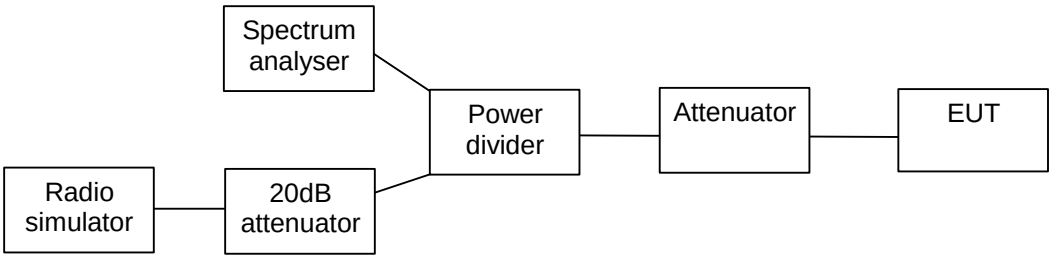
CONTENTS

TCC Nokia Tampere Laboratory
P.O. Box 68
Sinitaival 5
FIN-33720 TAMPERE, FINLAND
Tel. +358 (0) 7180 46800
Fax. +358 (0) 7180 46880

2. 99% occupied bandwidth
(FCC §2.1049(h), RSS-GEN 4.6.1)

EUT with DUT number	RM-807, DUT 42782
Accessories with DUT numbers	BV-4D, DUT 42784 ; WH-209Black, DUT 42787
Operation Voltage [V] / [Hz]	Nominal
Results	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	22-23 / 33-36 / 99.4-102.0
Date of measurements	08 and 13-Feb-2012
Measured by	Jari Jantunen

2.1. Test Setup



2.2. Test method and limit

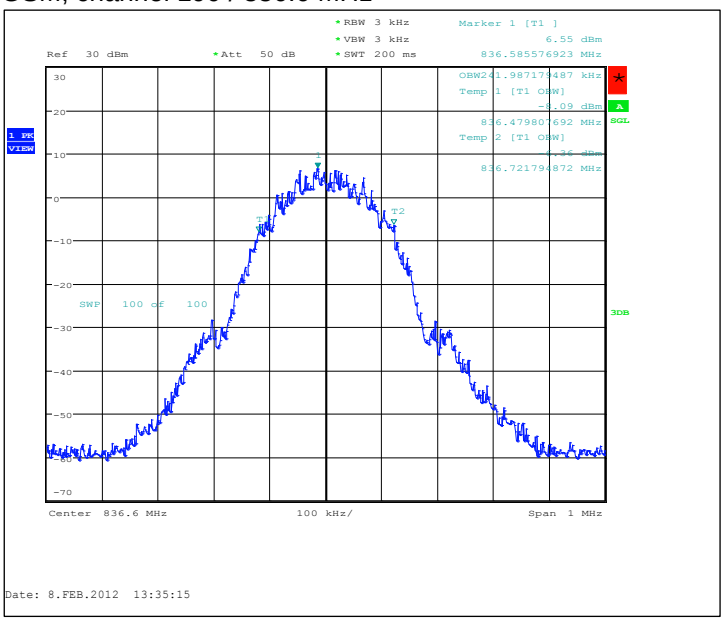
The measurement is made according to FCC rules parts 22, 24, 27 and IC standard RSS-GEN.

TCC Nokia Tampere Laboratory
P.O. Box 68
Sinitaival 5
FIN-33720 TAMPERE, FINLAND
Tel. +358 (0) 7180 46800
Fax. +358 (0) 7180 46880

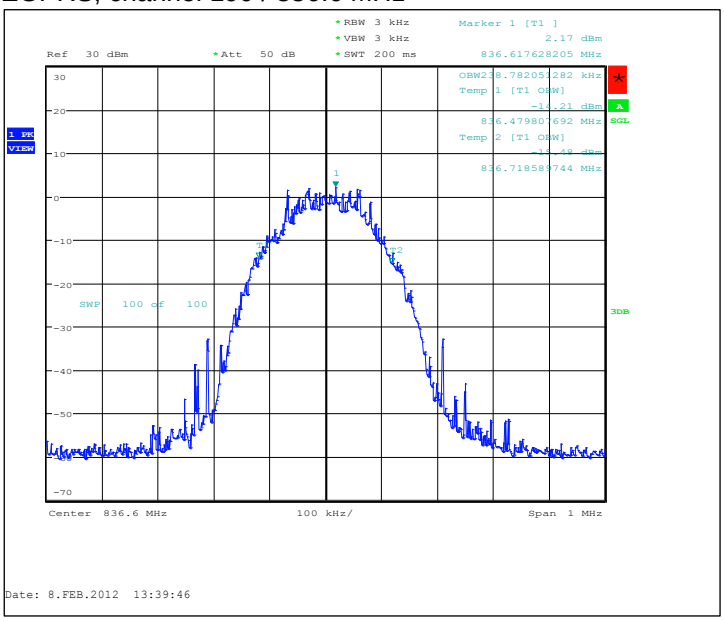
2.3. GSM 850 Test results

Operation mode (TX on)	99% Occupied bandwidth [kHz]
GSM	242
EGPRS	238.8

GSM, channel 190 / 836.6 MHz



EGPRS, channel 190 / 836.6 MHz

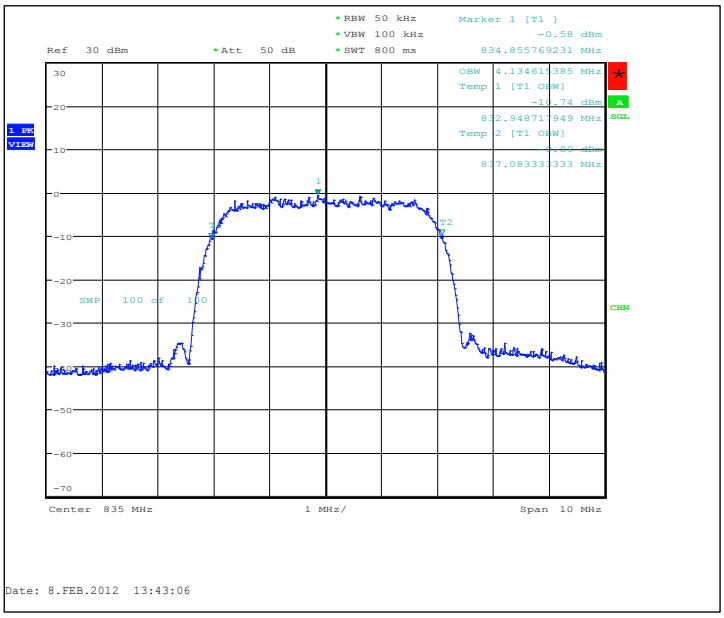


TCC Nokia Tampere Laboratory
P.O. Box 68
Sinitaival 5
FIN-33720 TAMPERE, FINLAND
Tel. +358 (0) 7180 46800
Fax. +358 (0) 7180 46880

2.4. WCDMA 850 Test results

Operation mode (TX on)	99% Occupied bandwidth [kHz]
FDD	4134.6

FDD, Channel 4175 / 835.0 MHz

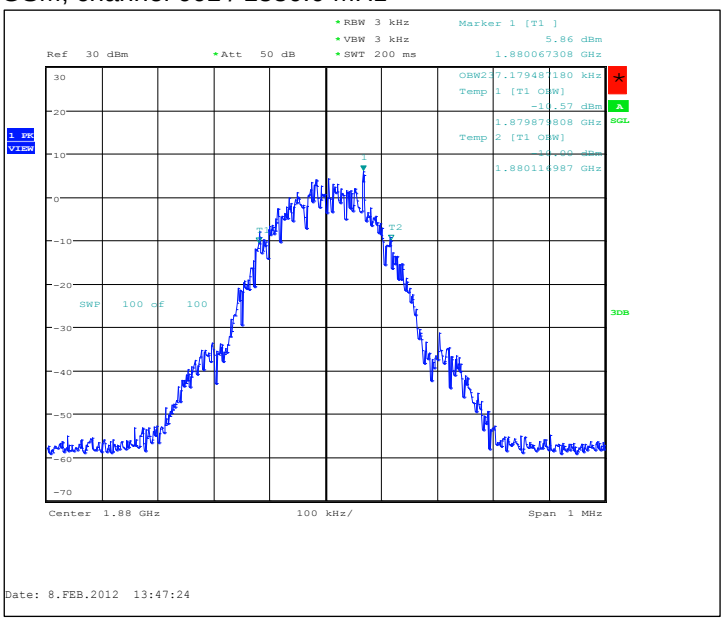


TCC Nokia Tampere Laboratory
P.O. Box 68
Sinitaival 5
FIN-33720 TAMPERE, FINLAND
Tel. +358 (0) 7180 46800
Fax. +358 (0) 7180 46880

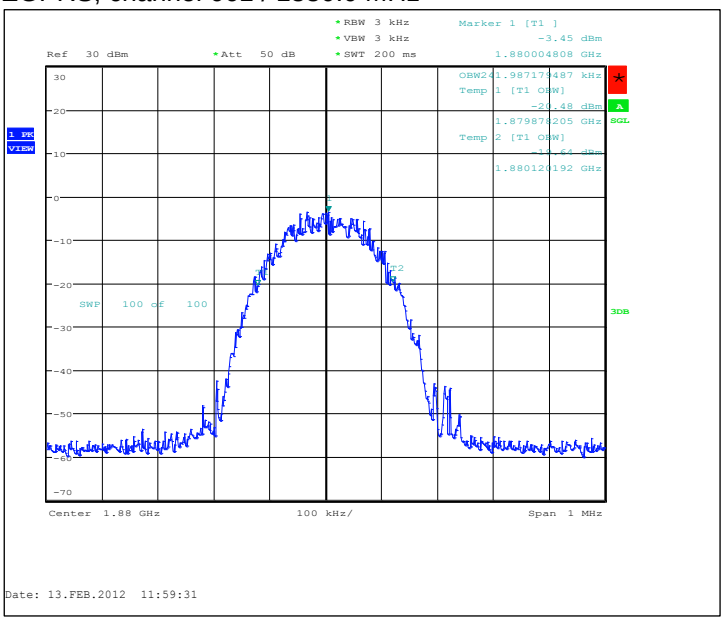
2.5. GSM 1900 Test results

Operation mode (TX on)	99% Occupied bandwidth [kHz]
GSM	237.2
EGPRS	242

GSM, channel 661 / 1880.0 MHz



EGPRS, channel 661 / 1880.0 MHz

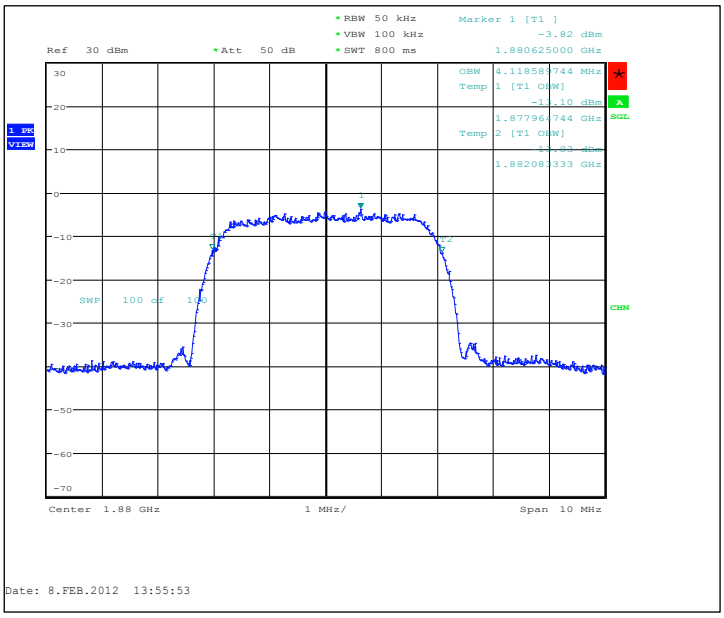


TCC Nokia Tampere Laboratory
P.O. Box 68
Sinitaival 5
FIN-33720 TAMPERE, FINLAND
Tel. +358 (0) 7180 46800
Fax. +358 (0) 7180 46880

2.6. WCDMA 1900 Test results

Operation mode (TX on)	99% Occupied bandwidth [kHz]
FDD	4118.6

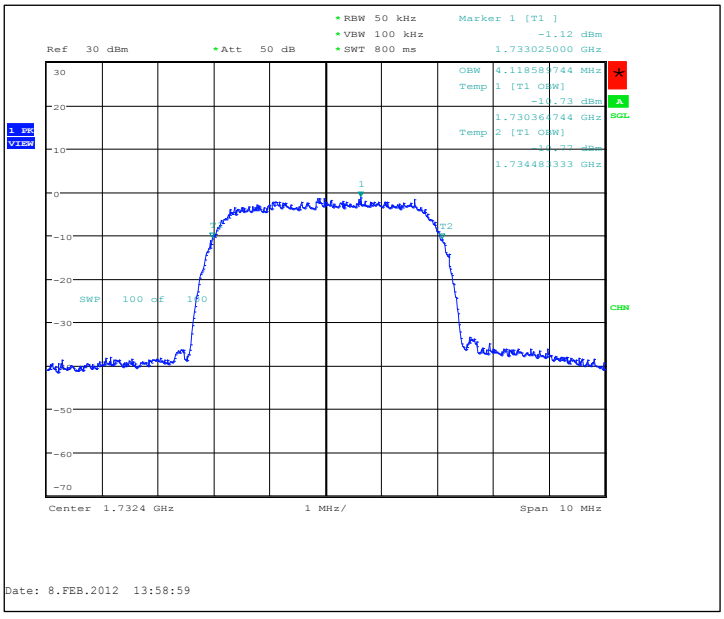
FDD, Channel 9400 / 1880.0 MHz



2.7. WCDMA 1700 Test results

Operation mode (TX on)	99% Occupied bandwidth [kHz]
FDD	4118.6

FDD, Channel 1412 / 1732.4 MHz



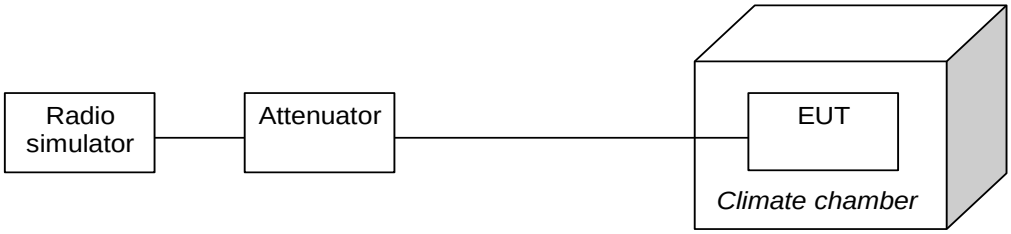
TCC Nokia Tampere Laboratory
P.O. Box 68
Sinitaival 5
FIN-33720 TAMPERE, FINLAND
Tel. +358 (0) 7180 46800
Fax. +358 (0) 7180 46880

3. Frequency stability, temperature variation

(FCC §2.1055(a), RSS-132 4.3, RSS-133 6.3, RSS-139 6.3)

EUT with DUT number	RM-807, DUT 42782
Accessories with DUT numbers	BV-4D, DUT 42784 ; WH-209Black, DUT 42787 ; AC-50E, DUT 42785 ; CA-190CD, DUT 42786
Operation Voltage [V] / [Hz]	230 / 60
Results	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	22-23 / 33-36 / 99.4-102.0
Date of measurements	08 and 13-Feb-2012
Measured by	Jari Jantunen

3.1. Test Setup



3.2. Test method and limit

The measurement is made according to FCC rules parts 22, 24, 27 and IC standard RSS-132, RSS-133 and RSS-139
as follows:

The climate chamber temperature is set to the maximum value and the temperature is allowed to stabilize.
The EUT is placed in the chamber.
The EUT is set in idle mode for 15 minutes.
The EUT is set to transmit.
The transmit frequency error was measured immediately.
The steps c - e were repeated for each temperature.Limits for frequency stability, temperature variation measurements

Frequency deviation [ppm]
+\- 2.5

TCC Nokia Tampere Laboratory
P.O. Box 68
Sinitaival 5
FIN-33720 TAMPERE, FINLAND
Tel. +358 (0) 7180 46800
Fax. +358 (0) 7180 46880

3.3. GSM 1900 Test results

GSM, channel 661 / 1880.0 MHz

Temperature [°C]	Frequency [MHz]	Deviation [Hz]	Deviation [ppm]	Result
50	1880	-13.75	-0.0073	PASSED
40	1880	-9.3	-0.0049	PASSED
30	1880	-12.46	-0.0066	PASSED
20	1880	-12.07	-0.0064	PASSED
10	1880	-13.69	-0.0073	PASSED
0	1880	-14.59	-0.0078	PASSED
-10	1880	-14.79	-0.0079	PASSED
-20	1880	-29.64	-0.0158	PASSED
-22	1880	-18.02	-0.0096	PASSED
-24	1880	-16.47	-0.0088	PASSED

*Phone could not establish a call on temperatures below -24 °C

3.4. WCDMA 1700 Test results

FDD, Channel 1412 / 1732.4 MHz

Temperature [°C]	Frequency [MHz]	Deviation [Hz]	Deviation [ppm]	Result
50	1732.4	6.22559	0.0036	PASSED
40	1732.4	4.60815	0.0027	PASSED
30	1732.4	8.66699	0.005	PASSED
20	1732.4	7.72095	0.0045	PASSED
10	1732.4	5.24902	0.003	PASSED
0	1732.4	7.84302	0.0045	PASSED
-10	1732.4	7.21741	0.0042	PASSED
-12	1732.4	8.16345	0.0047	PASSED
-14	1732.4	2.83814	0.0016	PASSED

*Phone could not establish a call on temperatures below -14 °C

3.5. GSM 850 Test results

GSM, channel 190 / 836.6 MHz

Temperature [°C]	Frequency [MHz]	Deviation [Hz]	Deviation [ppm]	Result
50	836.6	-14.46	-0.0173	PASSED
40	836.6	-7.94	-0.0095	PASSED
30	836.6	-19.69	-0.0235	PASSED
20	836.6	-14.46	-0.0173	PASSED
10	836.6	-12.91	-0.0154	PASSED
0	836.6	-14.66	-0.0175	PASSED
-10	836.6	-17.31	-0.0207	PASSED
-20	836.6	-12.85	-0.0154	PASSED
-22	836.6	-8.59	-0.0103	PASSED
-24	836.6	-21.95	-0.0262	PASSED

*Phone could not establish a call on temperatures below -24 °C

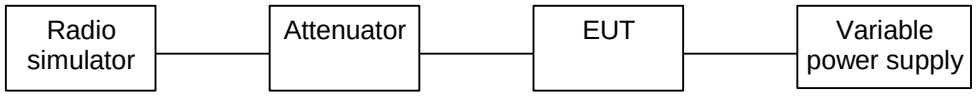
TCC Nokia Tampere Laboratory
P.O. Box 68
Sinitaival 5
FIN-33720 TAMPERE, FINLAND
Tel. +358 (0) 7180 46800
Fax. +358 (0) 7180 46880

4. Frequency stability, voltage variation

(FCC §2.1055(d), RSS-132 4.3, RSS-133 6.3, RSS-139 6.3)

EUT with DUT number	RM-807, DUT 42782
Accessories with DUT numbers	SD-103R, DUT 42789
Operation Voltage [V] / [Hz]	3.3 - 4.25 VDC
Results	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	22 / 36 / 99.4
Date of measurements	13-Feb-2012
Measured by	Jari Jantunen

4.1. Test Setup



4.2. Test method and limit

The measurement is made according to FCC rules parts 22, 24, 27 and IC standard RSS-132, RSS-133 and RSS-139
as follows:

The EUT battery was replaced with an adjustable power supply. The frequency stability was measured at nominal voltage and at the battery cut-off point.
Limits for frequency stability, voltage variation measurements

Frequency deviation [ppm]
+\- 2.5

TCC Nokia Tampere Laboratory
P.O. Box 68
Sinitaival 5
FIN-33720 TAMPERE, FINLAND
Tel. +358 (0) 7180 46800
Fax. +358 (0) 7180 46880

4.3. GSM 1900 Test results

GSM, channel 661 / 1880.0 MHz

Voltage level [V]	Frequency [MHz]	Deviation [Hz]	Deviation [ppm]	Result
Max / 4.35	1880	-20.6	-0.011	PASSED
Nominal / 3.80	1880	-19.11	-0.0102	PASSED
Battery cut-off point / 3.60	1880	-10.78	-0.0057	PASSED

4.4. WCDMA 1700 Test results

FDD, Channel 1412 / 1732.4 MHz

Voltage level [V]	Frequency [MHz]	Deviation [Hz]	Deviation [ppm]	Result
Max / 4.35	1732.4	-4.91333	-0.0028	PASSED
Nominal / 3.80	1732.4	6.80542	0.0039	PASSED
Battery cut-off point / 3.30	1732.4	4.5929	0.0026	PASSED

4.5. GSM 850 Test results

GSM, channel 190 / 836.6 MHz

Voltage level [V]	Frequency [MHz]	Deviation [Hz]	Deviation [ppm]	Result
Max / 4.35	836.6	-12.79	-0.0153	PASSED
Nominal / 3.80	836.6	-15.11	-0.0181	PASSED
Battery cut-off point / 3.60	836.6	-9.1	-0.0109	PASSED

TCC Nokia Tampere Laboratory
P.O. Box 68
Sinitaival 5
FIN-33720 TAMPERE, FINLAND
Tel. +358 (0) 7180 46800
Fax. +358 (0) 7180 46880

5. Test Equipment

5.1. Conducted measurements

Eq. No	Equipment	Type	Manufacturer	Used in
TM38112	Power supply	6632A	Agilent	22/24/27, 15C
TM38631	Signal Generator	83640L	Agilent	22/24/27, 15C, 15B
OM06312	Signal Generator	E4422B	Agilent	22/24
TM37678	Communication Tester	CMU200	R&S	15C, 15B
TM30600	Impulse limiter	ESH3-Z2	R&S	15C, 15B
TM26490	LISN 50 µH	ESH3-Z5	R&S	15C, 15B
TM26491	LISN 50 µH	ESH3-Z5	R&S	15C, 15B
TM37610	Spectrum Analyzer	FSU26	R&S	22/24/27, 15C
TM22806	Battery	BAT 20/E	Fiskars	15C, 15B
TM22805	UPS	PS 20/1.2	Fiskars	15C, 15B
-	Temperature and humidity logger	175-H2	Testo	15C, 15B
-	Temperature and humidity logger	175-H2	Testo	22/24/27, 15C
-	Air pressure and temperature logger	635-2	Testo	22/24/27, 15C, 15B
-	Air pressure sensor	0638-1835	Testo	22/24/27, 15C, 15B
-	Temperature test chamber	VT 4002	Vötsch	22/24
2058	Receiver	ESPC	R&S	15C, 15B
2001	Bluetooth tester	CBT	R&S	22/24/27, 15C, 15B
2002	Communication Tester	CMU200	R&S	22/24/27, 15C
2009	LISN 50 µH	ENV216	R&S	15C, 15B
2010	LISN 50 µH	ENV216	R&S	15C, 15B
2012	Power splitter	11667B	Agilent	22/24/27, 15C
2013	Attenuator	8493C	Agilent	22/24/27, 15C
2014	Attenuator	8493C	Agilent	22/24/27, 15C
2019	Power splitter	ZN2PD-9G-S+	Mini-Circuits	15E
2020	Power splitter	ZN2PD-9G-S+	Mini-Circuits	15E

5.2. Radiated measurements

Eq. No	Equipment	Type	Manufacturer	Used in
TM38114	Power supply	6632A	Agilent	22/24/27, 15C, 15B
TM38631	Signal Generator	83640L	Agilent	22/24/27, 15C, 15B
TM38323	Preamplifier	PA-02 18-26 GHz	EMC Automation	22/24/27, 15C, 15B
-	Antenna	BBHA 9120 D	Schwarzbeck	22/24/27, 15C
TM26497	Antenna	3115	Emco	22/24/27, 15C, 15B
TM37773	Communication Tester	CMU200	R&S	22/24/27, 15C, 15B
TM38845	Receiver	ESIB 26	R&S	22/24/27, 15C, 15B
-	Antenna	HL562	R&S	22/24/27, 15C, 15B
-	Turntable	2188	EMCO	22/24/27, 15C, 15B
-	Turntable controller	2090	EMCO	22/24/27, 15C, 15B
-	RF system panel	TS-RSP	R&S	22/24/27, 15C, 15B
-	RF system panel	TS-RSP	R&S	22/24/27, 15C, 15B
-	Mini mast	2075-2	ETS Lindgren	22/24/27, 15C, 15B
TM38843	Mini mast	2075	Emco	22/24/27, 15C, 15B
TM38842	Antenna mast controller	2090	Emco	22/24/27, 15C, 15B
TM30643	LISN 50 µH	LISN-5-20-2	FCC	22/24/27, 15C, 15B
TM30644	LISN 50 µH	LISN-5-20-2	FCC	22/24/27, 15C, 15B
-	Temperature and humidity logger	175-H2	Testo	22/24/27, 15C, 15B
-	Air pressure and temperature logger	635-2	Testo	22/24/27, 15C, 15B
-	Air pressure sensor	0638-1835	Testo	22/24/27, 15C, 15B
TM39180	Laser distance meter	Disto Pro	Leica	22/24/27, 15C, 15B

TCC Nokia Tampere Laboratory
P.O. Box 68
Sinitaival 5
FIN-33720 TAMPERE, FINLAND
Tel. +358 (0) 7180 46800
Fax. +358 (0) 7180 46880

Eq. No	Equipment	Type	Manufacturer	Used in
TM37523	Preamplifier	AMF-4D-10M-3G-25-20P	Miteq	22/24/27, 15C, 15B
TM37498	Preamplifier	AMF-5D-020180-26-10P	Miteq	22/24/27, 15C, 15B
TM30599	Semi anechoic chambre	UNKNOWN	TDK	22/24/27, 15C, 15B
TM22638	Power supply	OL63743-901	-	22/24/27, 15C, 15B
TM38066	High pass filter	4HC3000/18000-3-KK	Trilithic	22/24/27, 15C, 15B
-	High pass filter	WHKX 1.6/15G-12SS	Wainwright	22/24/27, 15C, 15B
TM37545	Tunable notch filter	800.0/960.0-0.2/40-8SSK	Wainwright	22
TM26512	Tunable notch filter	WRCD1850/1910-0.2/40-10SSK	Wainwright	24
-	Band reject filter	WRCG1877/1883-1870/1890-40/6EE	Wainwright	24
-	Band reject filter	WRCG1729.4/1735.4-1722.4/1742.4-40/6SS	Wainwright	27
-	Band reject filter	WRCG832/838-825/848-40/5SS	Wainwright	22
TM23892	Controller	G-1000SDX	Yaesu	22/24/27
2001	Bluetooth tester	CBT	R&S	22/24/27, 15C, 15B
6023	Antenna	VUBA 9117	Schwarzbeck	22/24/27, 15C

TCC Nokia Tampere Laboratory
P.O. Box 68
Sinitaival 5
FIN-33720 TAMPERE, FINLAND
Tel. +358 (0) 7180 46800
Fax. +358 (0) 7180 46880