

FCC Part 22/24 Compliance Test Report

Test Report no.:	FCC22&24_RM-803_11.docx	Date of Report:	28-Sep-2011
Number of pages:	15	Customer's Contact person:	Abadilla Victoria
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 12278 Scripps Summit Drive SAN DIEGO CA. 92131 USA Tel. +1 858 831 5000 Fax. +1 858 831 6500
FCC listing no.:	975940		
IC recognition no.:	661AH-1		
Tested devices/ accessories:	Phone RM-803 / Battery BP-3L / AC-charger AC-10U / Headset WH-208 / Dummy Battery SD-95R		
FCC ID:	QMNRM-803	IC:	661X-RM803
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:			

Jia Dongsheng, System Manager

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

Date of receipt	07-Sep-2011
Testing completed	20-Sep-2011
The customer's contact person	Abadilla Victoria
Test Plan referred to	T:\Projects\RM-803\TestPlan\RS_testplan_RM-803.xls
Notes	-
Document name	FCC22&24_RM-803_11.docx

1.1. EUT and Accessory Information

The EUT is a 7-band (GSM850/900/1800/1900 and WCDMA Band I/II(1900)/VIII) mobile phone with GPRS, EGPRS, Bluetooth and WLAN. 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-803	004402136356486	0110	-	1600.2201.7 720.11350	52431
Battery	BP-3L	0670389495540P134110100077	-	-	-	52443
AC-charger	AC-10U	3997910227082204672;0675409	-	-	-	52442
Headset	WH-208	353	0.1	0.1	-	52444
Dummy Battery	SD-95R	ES1920095	-	-	-	52441
Phone	RM-803	004402136356247	0110	-	1600.2201.7 720.11350	52433
Battery	BP-3L	0670389495540P134110100077	-	-	-	52435
AC-charger	AC-10U	3997910232052202765;0675409	-	-	-	52437
Headset	WH-208	392	-	-	-	52439

1.2. Summary of Test Results

GSM 850:

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	PASSED
§2.1055(a)	4.3	Frequency stability, temperature variation	PASSED
§2.1055(d)	4.3	Frequency stability, voltage variation	PASSED

GSM 1900:

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	PASSED
§2.1055(a)	6.3	Frequency stability, temperature variation	PASSED

§2.1055(d)	6.3	Frequency stability, voltage variation	PASSED
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WCDMA 1900 (Band II):

Section in CFR 47	Section in <i>RSS-GEN</i> or <i>RSS-133</i>	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	NP
§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

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 Beijing Laboratory.

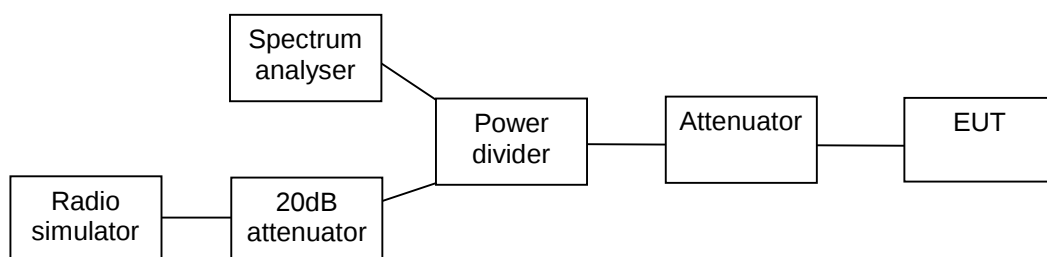
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2. 99 % occupied bandwidth (FCC §2.1049(h), RSS-GEN 4.6.1)

EUT with DUT number	RM-803, DUT52431
Accessories with DUT numbers	BP-3L, DUT52443; AC-10U, DUT52442; WH-208, DUT52444
Operation Voltage [V] / [Hz]	Nominal
Result	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	22-23 / 55-57 / 100.6-101.1
Date of measurements	16-17-Sep-2011
Measured by	Jia Dongsheng

2.1. Test setup



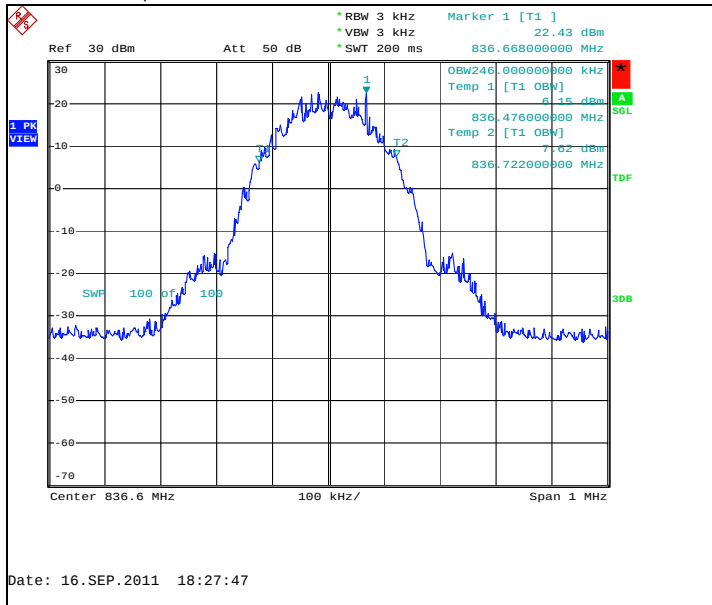
2.2. Test method and limit

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

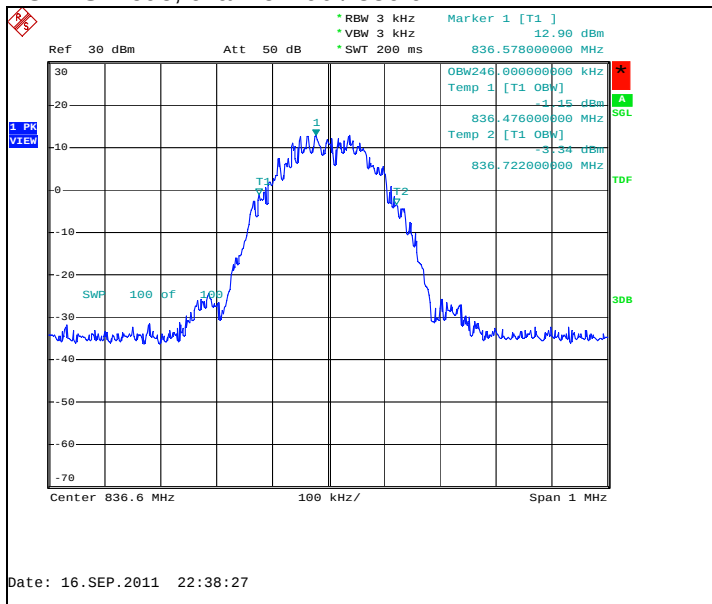
2.3. GSM 850 Test results

Operation mode (TX on)	99% occupied bandwidth [kHz]
GSM	246.000
EGPRS	246.000

GSM mode, channel 190 / 836.6 MHz



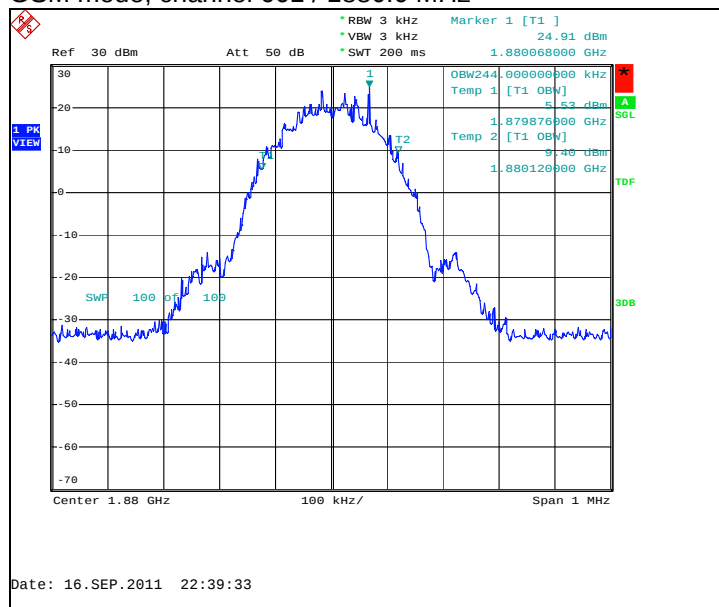
EGPRS mode, channel 190 / 836.6 MHz



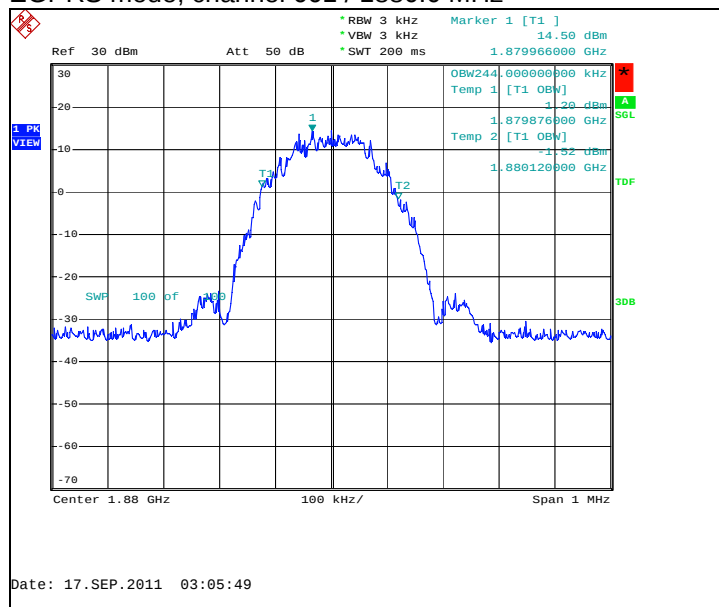
2.4. GSM 1900 Test results

Operation mode (TX on)	99% occupied bandwidth [kHz]
GSM	244.000
EGPRS	244.000

GSM mode, channel 661 / 1880.0 MHz



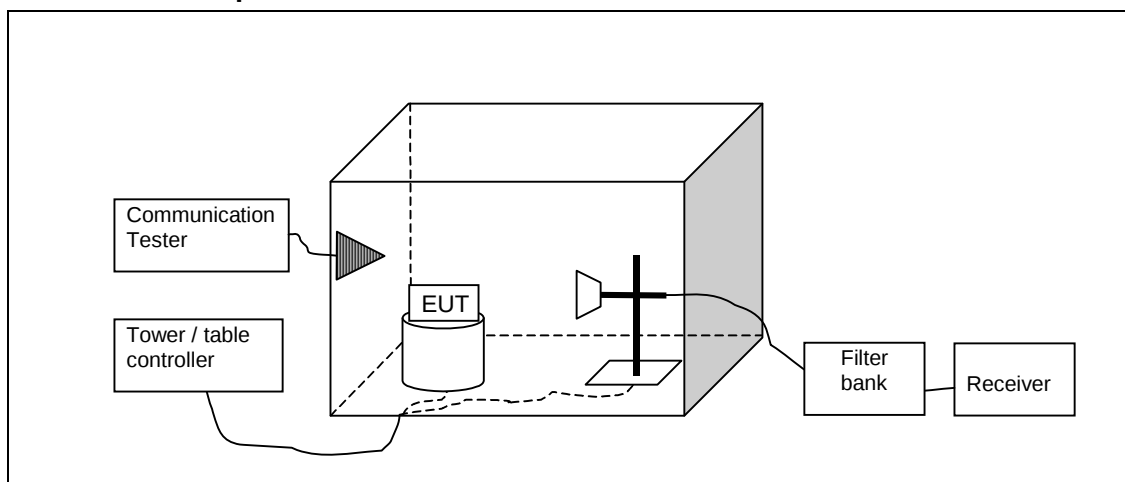
EGPRS mode, channel 661 / 1880.0 MHz



3. Spurious radiated emissions (FCC §22.917(a), §2.1053, §24.238(a), §2.1053, RSS-132 4.5, RSS-133 6.5)

EUT with DUT number	RM-803, DUT 52433
Accessories with DUT numbers	BP-3L, DUT 52435 ; AC-10U, DUT 52437 ; WH-208, DUT 52439
Operation Voltage [V] / [Hz]	Nominal
Results	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	22 / 55 / 101.7
Date of measurements	20-Sep-2011
Measured by	Zou Ming

3.1.1 Test Setup



3.2. Test method and limit

The measurement is made according to TIA-603-C-2004 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 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 substitution method is used. Substitution values at each frequencies are measured beforehand and saved to the test software. The substitution corrections are obtained as described below:

$$A_{SUBST} = P_{SUBST\ TX} - P_{SUBST\ RX} - L_{SUBST\ CABLES} + G_{SUBST\ TX\ ANT}$$

Where A_{SUBST} is the final substitution correction including receive antenna gain. $P_{SUBST\ TX}$ is signal generator level, $P_{SUBST\ RX}$ is receiver level, $L_{SUBST\ CABLES}$ is cable losses including both TX and RX cables and $G_{SUBST\ TX\ ANT}$ is substitution antenna gain.

The measurement results are obtained as described below:

$$P[dBm] = P_{MEAS} + A_{TOT}$$

Where P_{MEAS} is receiver reading in dBm and A_{TOT} is total correction factor including cable loss and substitution correction ($A_{TOT} = L_{CABLES} - G_{PREAMP} + A_{SUBST}$).

Limits for spurious radiated emissions measurements

Operation band	Frequency range [MHz]	Limit [dBm]
GSM 850 / WCDMA 850	30 - 8500	-13
GSM 1900 / WCDMA 1700 / WCDMA 1900	30 - 18000	-13

3.3. GSM850 TX Test results

GSM mode, channel 190 / 836.6 MHz

Frequency [MHz]	P [dBm]	P [μ W]	P _{MEAS} [dBm]	A _{TOT} [dB]	Polarisation	Result
1673.194	-44.87	0.03258	-50.69	5.82	HORIZONTAL	PASSED
2509.8	-45.98	0.02523	-59.09	13.11	HORIZONTAL	PASSED
2509.9	-45.92	0.02559	-59.03	13.11	HORIZONTAL	PASSED
3341.523	-55.46	0.00284	-63.8	8.34	HORIZONTAL	PASSED
3396.834	-56.14	0.00243	-63.97	7.83	HORIZONTAL	PASSED

EGPRS mode, channel 190 / 836.6 MHz

Frequency [MHz]	P [dBm]	P [μ W]	P _{MEAS} [dBm]	A _{TOT} [dB]	Polarisation	Result
1673.246	-45.39	0.02891	-51.21	5.82	HORIZONTAL	PASSED
2503.026	-51.37	0.00729	-64.24	12.87	HORIZONTAL	PASSED
2506.693	-51.3	0.00741	-64.27	12.97	HORIZONTAL	PASSED
3341.824	-55.78	0.00264	-64.13	8.35	HORIZONTAL	PASSED
3348.236	-55.38	0.0029	-63.65	8.27	HORIZONTAL	PASSED

*Substitution method could not be utilized as no emissions above noise floor were found during measurements.

3.4. GSM1900 TX Test results

GSM mode, channel 661 / 1880.0 MHz

Frequency [MHz]	P [dBm]	P [μ W]	P _{MEAS} [dBm]	A _{TOT} [dB]	Polarisation	Result
2814.712	-46.34	0.02323	-64.49	18.15	VERTICAL	PASSED
2886.526	-44.97	0.03184	-65.34	20.37	VERTICAL	PASSED
2902.882	-44.06	0.03926	-64.04	19.98	HORIZONTAL	PASSED
2910.363	-44.4	0.03631	-64.92	20.52	VERTICAL	PASSED
2913.01	-44.17	0.03828	-64.57	20.4	HORIZONTAL	PASSED
2913.716	-44.04	0.03945	-64.73	20.69	VERTICAL	PASSED

EGPRS mode, channel 661 / 1880.0 MHz

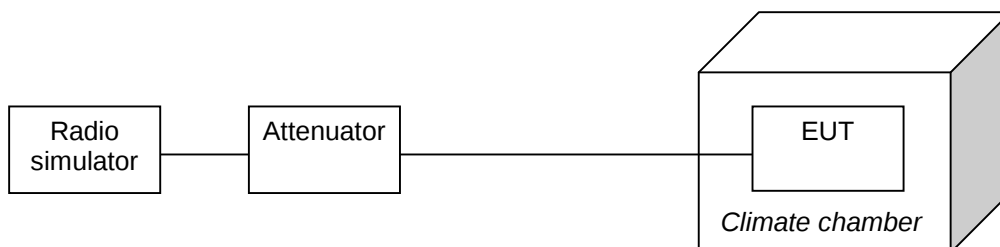
Frequency [MHz]	P [dBm]	P [μ W]	P _{MEAS} [dBm]	A _{TOT} [dB]	Polarisation	Result
2791.165	-46.27	0.0236	-64.24	17.97	VERTICAL	PASSED
2849.873	-46.04	0.02489	-65.66	19.62	VERTICAL	PASSED
2879.936	-44.34	0.03681	-64.56	20.22	HORIZONTAL	PASSED
2909.662	-43.99	0.0399	-64.49	20.5	VERTICAL	PASSED
2917.319	-44.73	0.03365	-65.06	20.33	HORIZONTAL	PASSED
2942.554	-45.33	0.02931	-65.5	20.17	VERTICAL	PASSED

*Substitution method could not be utilized as no emissions above noise floor were found during measurements.

4. Frequency stability, temperature variation (FCC §2.1055(a), RSS-132 4.3, RSS-133 6.3)

EUT with DUT number	RM-803, DUT52431
Accessories with DUT numbers	BP-3L, DUT52443; AC-10U, DUT52442; WH-208, DUT52444
Operation Voltage [V] / [Hz]	Nominal
Result	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	23 / 55 / 100.6
Date of measurements	17-Sep-2011
Measured by	Jia Dongsheng

4.1. Test setup



4.2. Test method and limit

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

4.3. GSM 850 Test results

GSM mode, channel 190 / 836.6 MHz

Temperature [°C]	Deviation [Hz]	Deviation [ppm]
50	-11	-0.0131
40	-16	-0.0191
30	-17	-0.0203
20	-12	-0.0143
10	-13	-0.0155
0	21	0.0251
-10	14	0.0167
-20	32	0.0383
-22	32	0.0383
-24	22	0.0263
-26	21	0.0251
-28	23	0.0275
-30	-11	-0.0131

4.4. GSM 1900 Test results

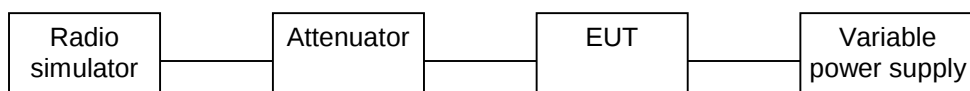
GSM mode, channel 661 / 1880.0 MHz

Temperature [°C]	Deviation [Hz]	Deviation [ppm]
50	-7	-0.0037
40	-20	-0.0106
30	-12	-0.0064
20	-15	-0.0080
10	13	0.0069
0	56	0.0298
-10	29	0.0154
-20	47	0.0250
-22	36	0.0191
-24	29	0.0154
-26	42	0.0223
-28	31	0.0165
-30	31	0.0165

5. Frequency stability, voltage variation (FCC §2.1055(d), RSS-132 4.3, RSS-133 6.3)

EUT with DUT number	RM-803, DUT52431
Accessories with DUT numbers	SD-95R, DUT52441
Operation Voltage [V] / [Hz]	Nominal
Result	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	23 / 55 / 100.6
Date of measurements	17-Sep-2011
Measured by	Jia Dongsheng

5.1. Test setup



5.2. Test method and limit

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

5.3. GSM 850 Test results

GSM mode, channel 190 / 836.6 MHz

Voltage level [V]	Deviation [Hz]	Deviation [ppm]
Battery cut-off point / 3.20	-4	-0.0048
Nominal / 3.70	-24	-0.0287

5.4. GSM 1900 Test results

GSM mode, channel 661 / 1880.0 MHz

Voltage level [V]	Deviation [Hz]	Deviation [ppm]
Battery cut-off point / 3.20	23	0.0122
Nominal / 3.70	23	0.0122

6. Test Equipment

6.1. Conducted measurements

Eq. No	Equipment	Type	Manufacturer	Used in
-	RF Emission Software	ES-K1 v.1.71	R&S	22/24/27, 15C, 15B
BJPC00020	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
BJPCPT0079	LISN 50 µH	ESH3-Z5	R&S	15C,15B
BJPCPT0131	Communication Tester	CMU200	R&S	15C,15B
BJPCPT0191	Pulse Limiter	ESH3-Z2	R&S	15C,15B
BJPCTC0017	Communication Tester	CMU200	R&S	22/24/27, 15C, 15B
BJPCTC0067	Bluetooth Tester	CBT	R&S	22/24/27, 15C
BJPCTC0089	Temperature 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

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	ES-K1 v.1.71	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
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
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
BJPCTC0096	Preamplifier	AFS4-00100300-20-23P-6	Miteq	22/24/27, 15C, 15B