

FCC Part 22/24 Compliance Test Report

Test Report no.:	Cph_FCC_0809_04.doc	Date of Report:	21-feb-2008
Number of pages:	13	Customer's Contact person:	Victoria Abadilla
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FCC listing no.:	99059		
IC recognition no.:	661AD-1		
Tested devices/ accessories:	Phone: RM-324 (hw3100), Battery: BP-4L, Headset: HS-9 AC charger: AC-4E		
FCC ID:	QMNRM-324H	IC:	661X-RM324
Supplement reports:	None		
Testing has been carried out in accordance with:	CFR 47, FCC rules Parts 22 and 24, TIA-603-C-2004 and IC standards RSS-GEN (Issue 2, June 2007), RSS-132 (Issue 2, September 2005) and RSS-133 (Issue 3, June 2005). 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:			

Jan Engelbrechtsen, Engineer

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

Date of receipt	29-jan-2008
Testing completed	21-feb-2008
The customer's contact person	Victoria Abadilla
Test Plan referred to	T:\Projects\RM-324\TestPlan_RS\RS_Testplan_RM-324.xls
Notes	
Document name	T:\Projects\RM-324\EMC\Results\FCC\Cph_FCC_0809_04.doc

1.1. EUT and Accessory Information

The EUT is a 6-band (GSM850/900/1800/1900 and WCDMA Band II(1900)/V(850)) mobile phone with GPRS, EGPRS and 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-324	004401/01/379300/1	3100	-	QS 02.14	27096
Battery	BP-4L	3932137314130266371;0670519	-	-	-	27099
Headset	HS-9	-	-	-	-	27109
AC charger	AC-4E	3943497116160430215	-	-	-	27615

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)	4.6, 4.4	Conducted RF output power	Passed
§22.913(a)	4.6, 4.4	Radiated RF output power	NP
§2.1049(h)	4.4.1	99 % occupied bandwidth	NP
§22.917(a)	4.7, 4.5	Band edge compliance	NP
§22.917(a), §2.1051	4.7, 4.5	Spurious emissions at antenna terminals	NP
§22.917(a), §2.1053	4.7, 4.5	Spurious radiated emissions	NP
§2.1055(a)	4.5, 4.3	Frequency stability, temperature variation	NP
§2.1055(d)	4.5, 4.3	Frequency stability, voltage variation	NP

GSM 1900:

Section in CFR 47	Section in RSS-133	Name of the test	Result
§2.1046(a)	6.2	Conducted RF output power	Passed
§24.232(b)	6.2	Radiated RF output power	NP
§2.1049(h)	5.6	99 % occupied bandwidth	NP
§24.238(a)	6.3	Band edge compliance	NP
§24.238(a), §2.1051	6.3	Spurious emissions at antenna terminals	NP
§24.238(a), §2.1053	6.3	Spurious radiated emissions	NP
§2.1055(a)	7	Frequency stability, temperature variation	NP
§2.1055(d)	7	Frequency stability, voltage variation	NP

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)	4.6, 4.4	Conducted RF output power	Passed
§22.913(a)	4.6, 4.4	Radiated RF output power	NP
§2.1049(h)	4.4.1	99 % occupied bandwidth	NP
§22.917(a)	4.7, 4.5	Band edge compliance	NP
§22.917(a), §2.1051	4.7, 4.5	Spurious emissions at antenna terminals	NP
§22.917(a), §2.1053	4.7, 4.5	Spurious radiated emissions	NP
§2.1055(a)	4.5, 4.3	Frequency stability, temperature variation	NP
§2.1055(d)	4.5, 4.3	Frequency stability, voltage variation	NP

WCDMA 1900 (Band II):

Section in CFR 47	Section in RSS-133	Name of the test	Result
§2.1046(a)	6.2	Conducted RF output power	Passed
§24.232(b)	6.2	Radiated RF output power	NP
§2.1049(h)	5.6	99 % occupied bandwidth	NP
§24.238(a)	6.3	Band edge compliance	NP
§24.238(a), §2.1051	6.3	Spurious emissions at antenna terminals	NP
§24.238(a), §2.1053	6.3	Spurious radiated emissions	NP
§2.1055(a)	7	Frequency stability, temperature variation	NP
§2.1055(d)	7	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 Copenhagen Laboratory.

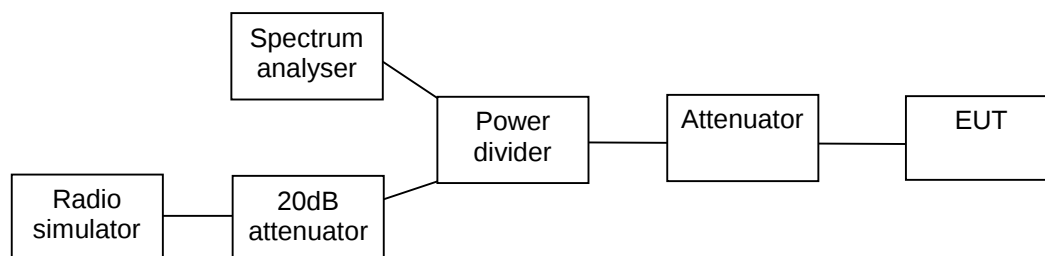
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2. Conducted RF output power (FCC §2.1046(a), §22.913(a), RSS-GEN 4.6, RSS-132 4.4, RSS-133 6.2)

EUT with DUT number	RM-324 dut 27096, BP-4L dut 27099
Accessories with DUT numbers	HS-9 dut 27109, AC-4E dut 27615
Operation Voltage [V] / [Hz]	Nominal
Result	Passed
Remarks	None
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	24.3 / 40.9 101.99
Date of measurements	21-feb-2008
Measured by	Jan Engelbrechtsen

2.1. Test setup



2.2. Test method and limit

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

Limits for conducted RF output power measurements

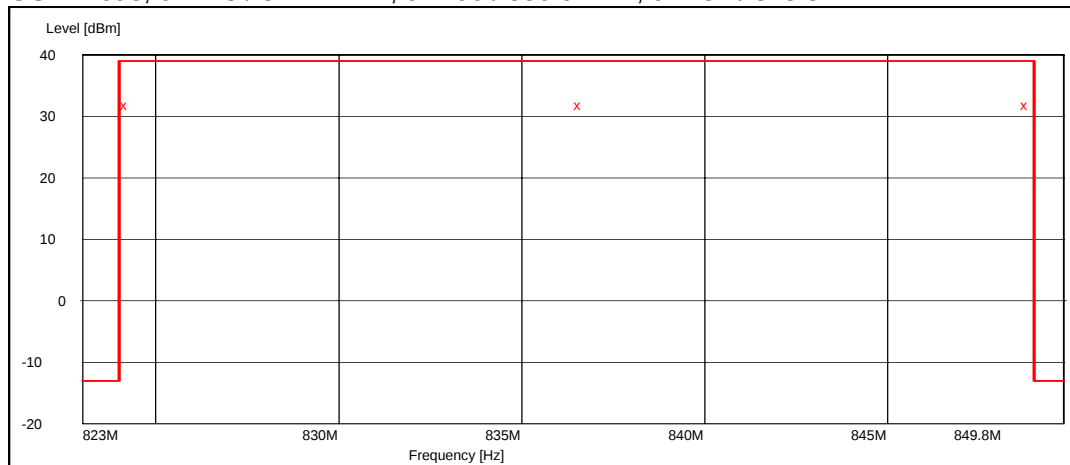
Frequency range [MHz]	Limit [W]	Limit [dBm]
824 - 849	7	38.5
1850 - 1910	2	33

2.3. GSM 850 Test results

GSM mode

Channel / f_c [MHz]	P [dBm]	P [W]	Result
128 / 824.2	31.90	1.549	Pass
190 / 836.6	31.90	1.549	Pass
251 / 848.8	31.90	1.549	Pass

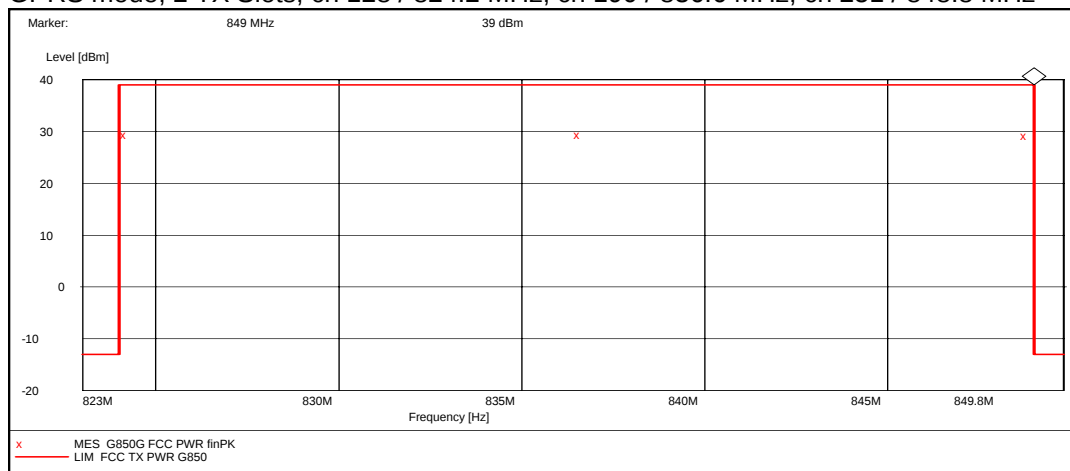
GSM mode, ch 128 / 824.2 MHz, ch 190 / 836.6 MHz, ch 251 / 848.8 MHz



GPRS mode, 2 TX Slots

Channel / f_c [MHz]	P [dBm]	P [W]	Result
128 / 824.2	29.40	0.871	Pass
190 / 836.6	29.30	0.851	Pass
251 / 848.8	29.20	0.832	Pass

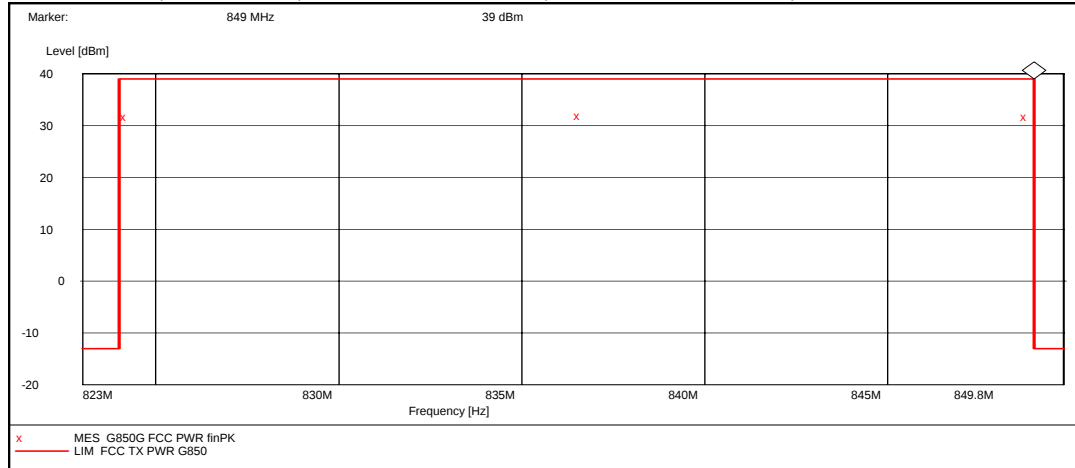
GPRS mode, 2 TX Slots, ch 128 / 824.2 MHz, ch 190 / 836.6 MHz, ch 251 / 848.8 MHz



GPRS mode, 1 TX Slots

Channel / f_c [MHz]	P [dBm]	P [W]	Result
128 / 824.2	31.70	1.479	Pass
190 / 836.6	31.80	1.514	Pass
251 / 848.8	31.70	1.479	Pass

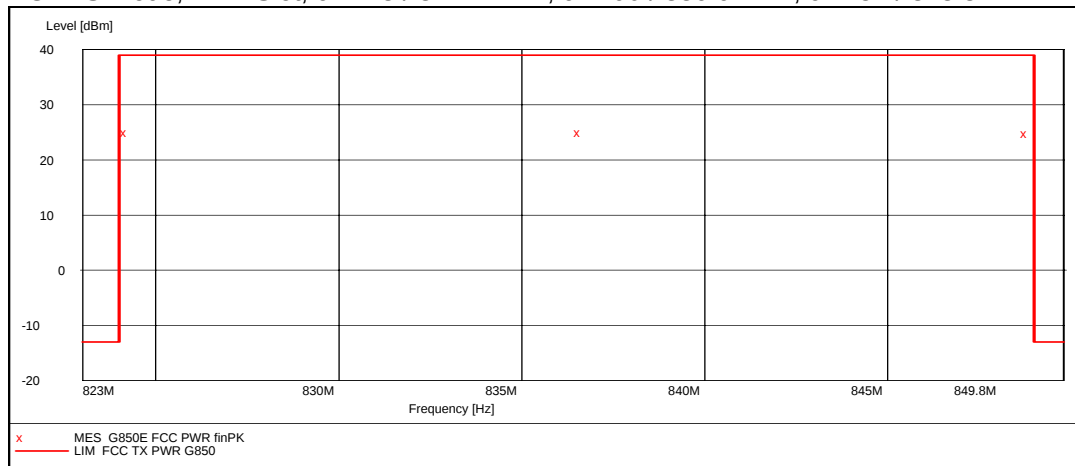
GPRS mode, 1 TX Slots, ch 128 / 824.2 MHz, ch 190 / 836.6 MHz, ch 251 / 848.8 MHz



EGPRS mode, 2 TX Slot

Channel / f_c [MHz]	P [dBm]	P [W]	Result
128 / 824.2	24.90	0.309	Pass
190 / 836.6	25.00	0.316	Pass
251 / 848.8	24.80	0.302	Pass

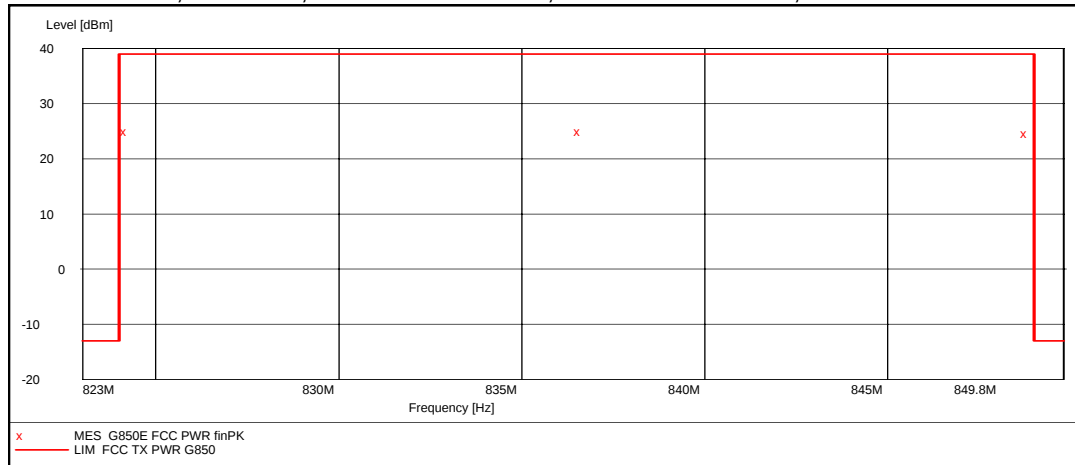
EGPRS mode, 2 TX Slot, ch 128 / 824.2 MHz, ch 190 / 836.6 MHz, ch 251 / 848.8 MHz



EGPRS mode,1 TX Slot

Channel / f_c [MHz]	P [dBm]	P [W]	Result
128 / 824.2	24.90	0.309	Pass
190 / 836.6	24.90	0.309	Pass
251 / 848.8	24.60	0.288	Pass

EGPRS mode, 1 TX Slot, ch 128 / 824.2 MHz, ch 190 / 836.6 MHz, ch 251 / 848.8 MHz

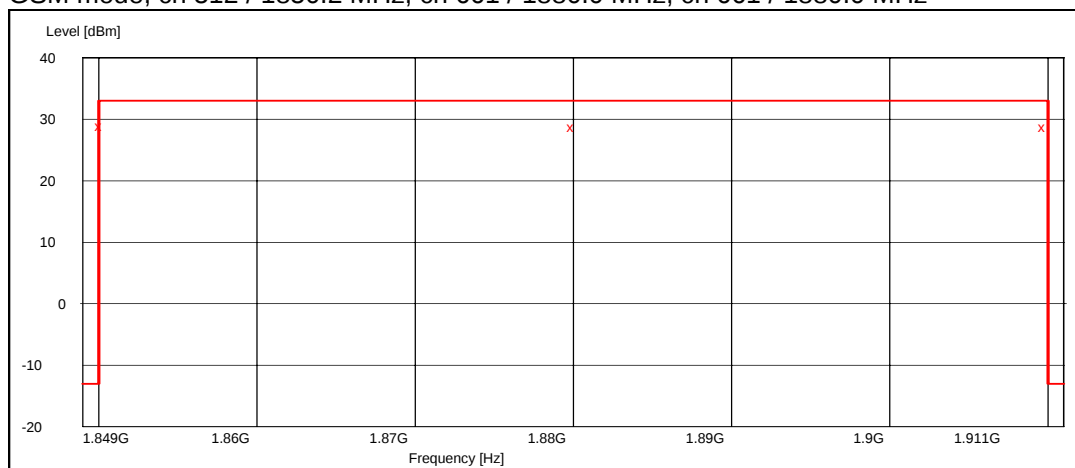


2.4. GSM 1900 Test results

GSM mode

Channel / f_c [MHz]	P [dBm]	P [W]	Result
512 / 1850.2	28.90	0.776	Pass
661 / 1880.0	28.80	0.759	Pass
810 / 1909.8	28.70	0.741	Pass

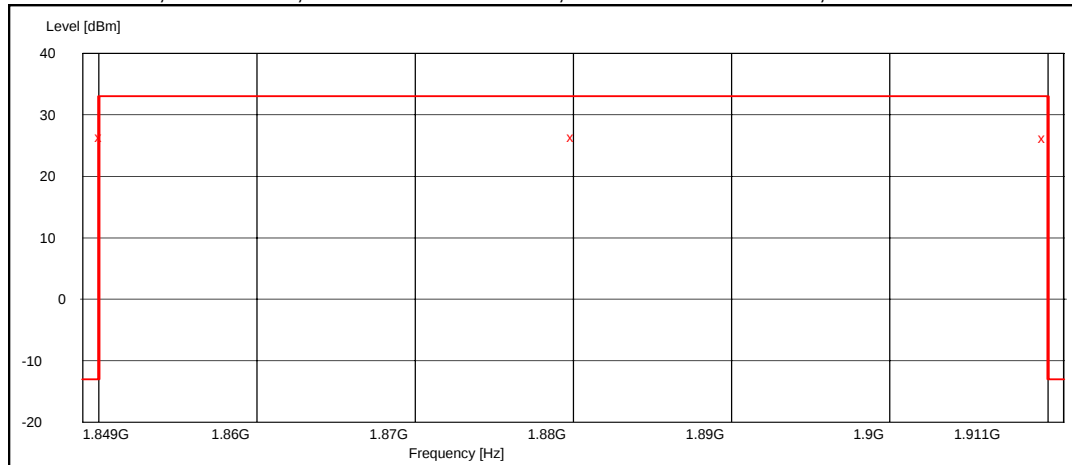
GSM mode, ch 512 / 1850.2 MHz, ch 661 / 1880.0 MHz, ch 661 / 1880.0 MHz



GPRS mode, 2 TX Slots

Channel / f_c [MHz]	P [dBm]	P [W]	Result
512 / 1850.2	26.40	0.437	Pass
661 / 1880.0	26.30	0.427	Pass
810 / 1909.8	26.20	0.417	Pass

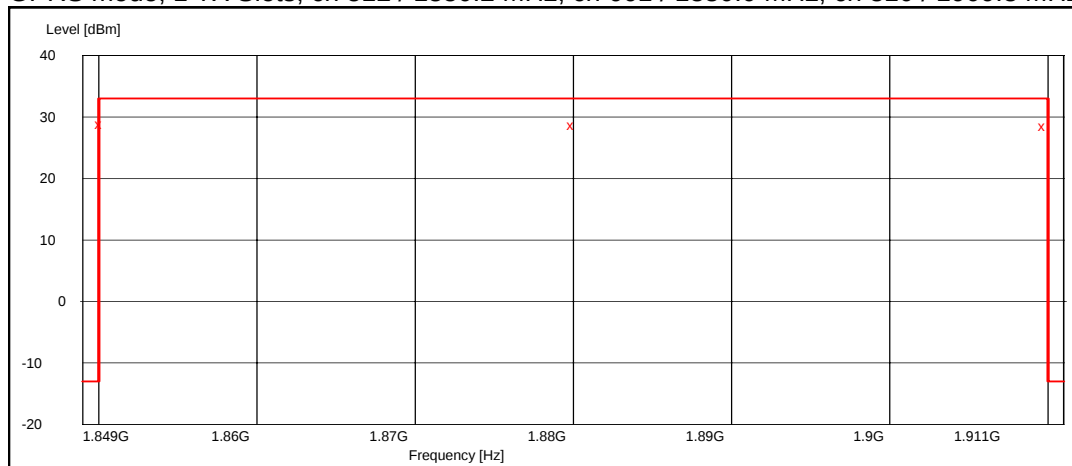
GPRS mode, 2 TX Slots, ch 512 / 1850.2 MHz, ch 661 / 1880.0 MHz, ch 810 / 1909.8 MHz



GPRS mode, 1 TX Slot

Channel / f_c [MHz]	P [dBm]	P [W]	Result
512 / 1850.2	28.80	0.759	Pass
661 / 1880.0	28.70	0.741	Pass
810 / 1909.8	28.50	0.708	Pass

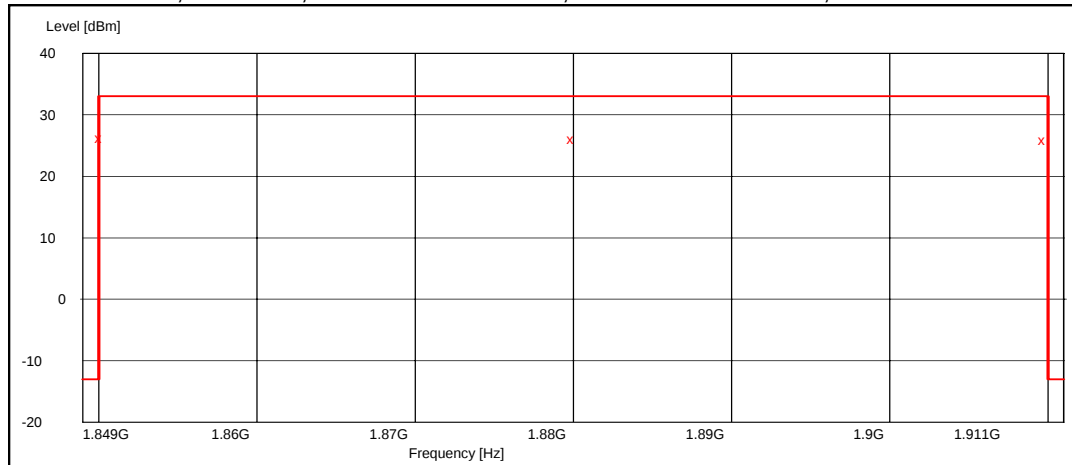
GPRS mode, 1 TX Slots, ch 512 / 1850.2 MHz, ch 661 / 1880.0 MHz, ch 810 / 1909.8 MHz



EGPRS mode, 2 TX Slot

Channel / f _c [MHz]	P [dBm]	P [W]	Result
512 / 1850.2	26.20	0.417	Pass
661 / 1880.0	26.10	0.407	Pass
810 / 1909.8	25.90	0.389	Pass

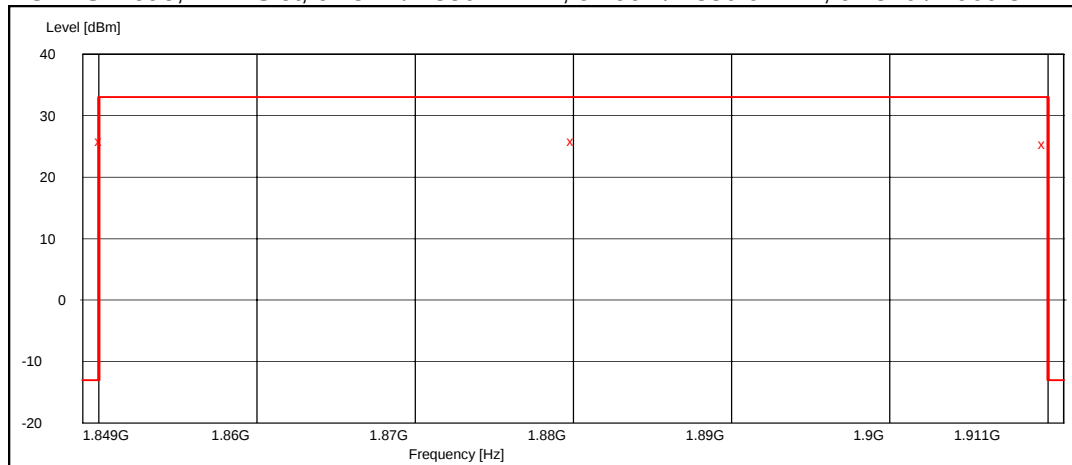
EGPRS mode, 2 TX Slot, ch 512 / 1850.2 MHz, ch 661 / 1880.0 MHz, ch 810 / 1909.8 MHz



EGPRS mode, 1 TX Slot

Channel / f _c [MHz]	P [dBm]	P [W]	Result
512 / 1850.2	25.90	0.389	Pass
661 / 1880.0	25.80	0.380	Pass
810 / 1909.8	25.40	0.347	Pass

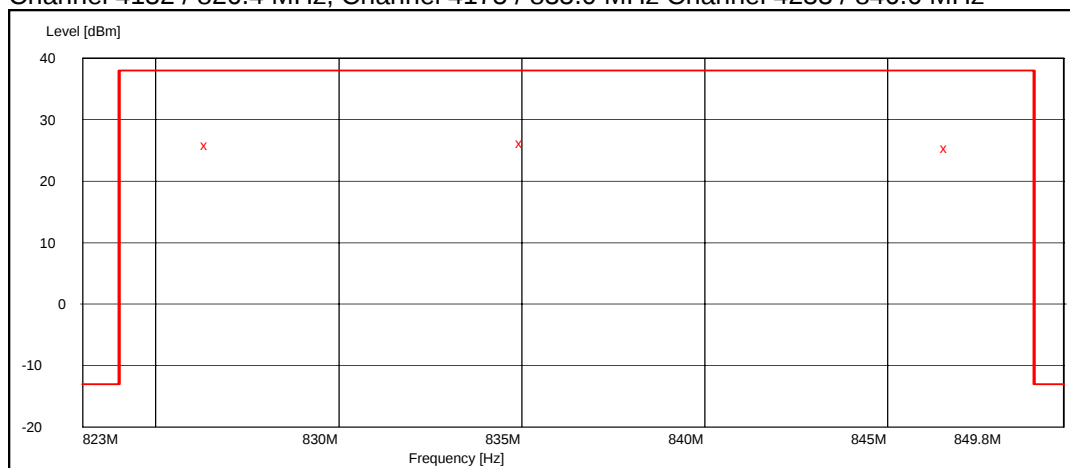
EGPRS mode, 1 TX Slot, ch 512 / 1850.2 MHz, ch 661 / 1880.0 MHz, ch 810 / 1909.8 MHz



2.5. WCDMA 850 Test results

Channel / f_c [MHz]	P [dBm]	P [W]	Result
4132 / 826.4	25.80	0.380	Pass
4175 / 835.0	26.10	0.407	Pass
4233 / 846.6	25.40	0.347	Pass

Channel 4132 / 826.4 MHz, Channel 4175 / 835.0 MHz Channel 4233 / 846.6 MHz



2.6. WCDMA 1900 Test results

Channel / f_c [MHz]	P [dBm]	P [W]	Result
9262 / 1852.4	24.90	0.309	Pass
9400 / 1880.0	25.10	0.324	Pass
9538 / 1907.6	24.50	0.282	Pass

Channel 9262 / 1852.4 MHz, Channel 9400 / 1880.0 MHz, Channel 9538 / 1907.6 MHz



3. Test Equipment

3.1. Conducted measurements

Eq. No	Equipment	Type	Manufacturer	Used in
13037	Power Supply 0-15V 10A	EA3012	LP Instruments	15C, 15B
13513	Pulse Limiter 9KHz-30MHz	ESH3Z2	Rohde&Schwarz	15C, 15B
13666	EMI Test Reciever 9KHz-2,5GHz	ESPC	Rohde&Schwarz	15C, 15B
13935	Two Lines Artificial Mains Network	ESH3-Z5	Rohde&Schwarz	15C, 15B
16995	Directional Coupler 20dB 0,5-2,0 GHz SMA Conn.	1538RA-20	Weinschel	15C, 15B
18772	Shielded Chamber	RFD-100	ETS-Lindgren	15C, 15B
19171	Universal Radio Communication Tester	CMU200	Rohde&Schwarz	15C, 15B
11386	System DC Power Supply	HP6632A	Hewlett Packard	22/24/27, 15C, 15B
19678	Spectrum Analyzer 26 GHz	FSP	Rohde&Schwarz	22/24/27, 15C, 15B
16601	Universal Radio Communication Tester	CMU200	Rohde&Schwarz	22/24/27, 15C, 15B
19625	Vötsch Climatic Chamber	VT4002EMC	Vötsch	22/24/27, 15C, 15B
13357	Rohde & Schwartz Signal Generator	SMP02	Rohde&Schwarz	22/24/27, 15C, 15B
20168	Bluetooth EDR Tester	CBT	Rohde&Schwarz	22/24/27, 15C, 15B

3.2. Radiated measurements

Eq. No	Equipment	Type	Manufacturer	Used in
18416	Universal Radio Communication Tester	CMU200	Rohde&Schwarz	22/24/27, 15C, 15B
	Programmable Relay Switching System	-----	Pickering	22/24/27, 15C, 15B
15742	Programmable Relay Switching System	-----	Pickering	22/24/27, 15C, 15B
14020	Power Supply Module Relay Switching System 45W	10-910-002	Pickering	22/24/27, 15C, 15B
15743	Power Supply Module Relay Switching System 50W	10-910L-001	Pickering	22/24/27, 15C, 15B
16490	RS-232/IEEE-488.2 Interface	10-921-001	Pickering	22/24/27, 15C, 15B
	RS-232/IEEE-488.2 Interface	10-921-001	Pickering	22/24/27, 15C, 15B
20078	Relay 2x6 Chnl µWave Mux	10-785B-522	Pickering	22/24/27, 15C, 15B
14021	Relay Dual 6 Chnl µWave Mux	10-785-522		22/24/27, 15C, 15B
	Relay Dual 6 Chnl µWave Mux	10-785-522		22/24/27, 15C, 15B
17644	Dual 6 Channel MUX Microwave Relay SMA 50 Ohm	10-785-522	Pickering	22/24/27, 15C, 15B
16948	Dual 6 Channel MUX Microwave Relay SMA 50 Ohm	10-785-522	Pickering	22/24/27, 15C, 15B
16949	Dual 6 Channel MUX Microwave Relay SMA 50 Ohm	10-785-522	Pickering	22/24/27, 15C, 15B
18792	Multi Device Controller	2090	ETS-EMCO	22/24/27, 15C, 15B
14963	RF Preamplifier 100MHz-4GHz (Metal Chassis)	AFS3-00100400	Miteq/NMP Cph	22/24/27, 15C, 15B
18861	EMI Test Receiver 20Hz-26,5GHz	ESI	Rohde&Schwarz	22/24/27, 15C, 15B
20335	Ultra Broadband Antenna Ultralog 30-3000MHz	HL562	Rohde&Schwarz	22/24/27, 15C, 15B
18773	Shielded Chamber	RFD-100	ETS-Lindgren	22/24/27, 15C, 15B
18774	Shielded Chamber	RFSD-F/A-100	ETS-Lindgren	22/24/27, 15C, 15B
19151	High Pass Filter 3GHz	WHJS3000-10SS	Wainwright	22/24/27, 15C, 15B

Eq. No	Equipment	Type	Manufacturer	Used in
	WHK3.0/18G-10ss			
13937	Ultra Stable Notch Filter 850MHz	WRCA902.4-0.2/40-6SS	Wainwright Instruments	22/24/27, 15C, 15B
13936	Ultra Stable Notch Filter 1747,5MHz	WRCD1747.5-0.2/40-10SS	Wainwright Instruments	22/24/27, 15C, 15B
14114	Highpass filter	WHK1000-12SS	Wainwright Instruments	22/24/27, 15C, 15B
14188	Ultra Stable Notch Filter 902,4MHz	WRCA902.4-0.2/40-6SS	Wainwright	22/24/27, 15C, 15B
14187	Ultra Stable Notch Filter 1747,5MHz	WRCD1747.5-0.2/40-10SS	Wainwright	22/24/27, 15C, 15B
16633	Ultra Stable Notch Filter 1880,0MHz	WRCD1880.0-0.2/40-10SS	Wainwright	22/24/27, 15C, 15B
19587	BT/WLAN Band Reject Filter	WRCG2400/2483-2390/2493-35/10SS	Wainwright	22/24/27, 15C, 15B
20115	WDCMA Band 2 filter		Wainwright	24, 15C, 15B
20114	WDCMA Band 4 filter	WRCG1737/1743-1733/1747-40/6SS	Wainwright	27, 15C, 15B
20116	WDCMA Band 5&6 filter	WRCG832/83/-825/845-40/5SS	Wainwright	22, 15C, 15B
18323	Band reject filter 1947-1953MHz 40dB	WRCG1947/1953-1940/1960-40/6SS	Wainwright	22/24/27, 15C, 15B
20031	Double Ridged Broadband Horn	BBHA 9120 D	SCHWARZBECK	22/24/27, 15C, 15B
19966	Magnetic Loop Antenna 9 kHz - 30 MHz	HFH2-Z2	Rohde&Schwarz	15C, 15B
14993	EMI Test Receiver 9KHz-2750MHz	ESCS30	Rohde&Schwarz	22/24/27, 15C, 15B
15191	Turntable Contoller Unit	G-800SDX	YAESU	22/24/27, 15C, 15B
14900	Antenna Controller	HD100	HD GmbH	22/24/27, 15C, 15B
19374	Resonant Dipole Antenna 850MHz SMA m Conn.	-----	NMP Cph	22/24/27, 15C, 15B
19375	Resonant Dipole Antenna 1900MHz SMA m Conn.	-----	NMP Cph	22/24/27, 15C, 15B
20168	Bluetooth EDR Tester	CBT	Rohde&Schwarz	22/24/27, 15C, 15B