

FCC Part 22/24 Compliance Test Report

Test Report no.:	Oulu_FCC_0539_01.doc	Date of Report:	26.09.2005
Number of pages:	6	Customer's Contact person:	Kai Niskala
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FCC listing no.:	185671		
IC recognition no.:	4542		
Tested devices/ accessories:	Phone RM-70 / battery BL-4B, AC-charger AC-3E and headset HS-31		
FCC ID:	PPIRM-70	IC:	661U-RM70
Supplement reports:	-		
Testing has been carried out in accordance with:	CFR 47, FCC rules Parts 22 and 24, TIA-603-B-2002 and IC standards RSS-132 and RSS-133. 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:			

Erik Rundgren, System Manager

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

Date of receipt	21.09.2005
Testing completed	28.09.2005
The customer's contact person	Kai Niskala
Test Plan referred to	RM-70_RS_Testplan.xls
Notes	-
Document name	T:\Projects\RM-70\results\emc\FCC\Oulu_FCC_0539_01.doc

1.1. EUT and Accessory Information

The EUT is a single band (GSM1900) mobile phone with GPRS and EGPRS. 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-70	004400/56/170772/8	4031	-	3.01.1	30481
Battery	BL-4B	-	-	-	-	30483
Headset	HS-31	-	-	-	-	30472
AC-charger	AC-3E	4090495276921002507; 0675370	-	-	-	30468

1.2. Summary of Test Results

GSM 1900:

Section in CFR 47	Section in RSS-133	Name of the test	Result
§2.1046(a)	6.2	Conducted RF output power	NP
§24.232(b)	6.2	Radiated RF output power	PASSED
§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 Oulu Laboratory.

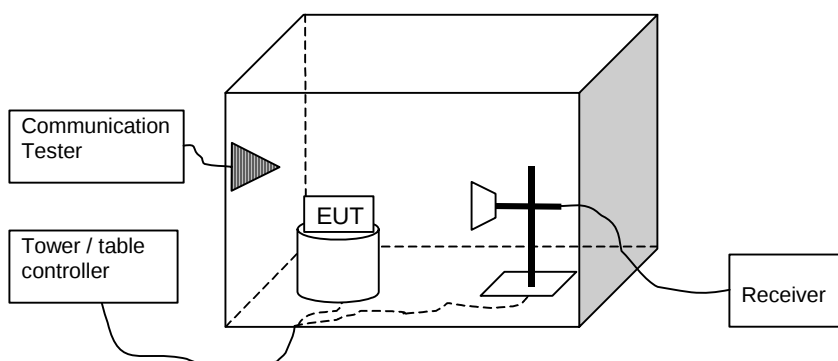
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2. Radiated RF output power (FCC §22.913(a), §24.232(b), RSS-132 6.4, RSS-133 6.2)

EUT with DUT number	RM-70; DUT 30481
Accessories with DUT numbers	BL-4B; DUT 30483, HS-31; DUT 30472, AC-3E; DUT 30468
Operation Voltage [V] / [Hz]	230 / 50
Result	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [hPa]	20 / 48 / 1018, 19 / 51 / 1014, 20 / 51 / 1011
Date of measurements	26.09.2005, 27.09.2005, 28.09.2005
Measured by	Erik Rundgren

2.1. Test setup



2.2. Test method and limit

The measurement is made according to TIA-603-B-2002 as follows:

The measurement is performed in the Anechoic Chamber with metallic floor, without absorbers on the floor and measuring antenna scanned from 1m to 4m height with 10cm steps 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. 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 ($A_{TOT} = L_{CABLES} + A_{SUBST}$).

Limits for radiated RF output power measurements

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

2.3. GSM 1900 Test results

GSM mode

Channel	EIRP [dBm]	EIRP [W]	P_{MEAS} [dBm]	A_{TOT} [dB]	Polarisation	Result
512	29.90	0.977	- 15.30	45.20	VERTICAL	PASSED

Channel	EIRP [dBm]	EIRP [W]	P_{MEAS} [dBm]	A_{TOT} [dB]	Polarisation	Result
661	28.20	0.661	- 15.90	44.10	VERTICAL	PASSED

Channel	EIRP [dBm]	EIRP [W]	P_{MEAS} [dBm]	A_{TOT} [dB]	Polarisation	Result
810	27.80	0.603	- 16.80	44.60	VERTICAL	PASSED

GPRS mode, 2 TX Slot

Channel	EIRP [dBm]	EIRP [W]	P_{MEAS} [dBm]	A_{TOT} [dB]	Polarisation	Result
512	28.90	0.776	- 16.30	45.20	VERTICAL	PASSED
661	28.30	0.676	- 15.80	44.10	VERTICAL	PASSED
810	28.40	0.692	- 15.90	44.30	HORIZONTAL	PASSED

EGPRS mode, 2 TX Slot

Channel	EIRP [dBm]	EIRP [W]	P_{MEAS} [dBm]	A_{TOT} [dB]	Polarisation	Result
512	27.50	0.562	- 17.70	45.20	VERTICAL	PASSED
661	26.50	0.447	- 17.60	44.10	VERTICAL	PASSED
810	26.60	0.457	- 17.70	44.30	HORIZONTAL	PASSED

3. Test Equipment

3.1. Conducted measurements

Eq. No	Equipment	Type	Manufacturer	Used in
450113	Two Line V-Network	ESH3-Z5	R&S	22/24
590230	Impulse Limiter	ESH3-Z2	R&S	22/24
640018	AC Power Source	6811B	Agilent	22/24
720017	EMI Test Receiver	ESMI-RF53	R&S	22/24
210282	Radio Communication Tester	CMU200	R&S	22/24

3.2. Radiated measurements

Eq. No	Equipment	Type	Manufacturer	Used in
110167	Signal Generator	SMR27	R&S	22/24
550089	Log. Per. Anten	HL025	R&S	22/24
550179	Mast	7-TR	EMCO	22/24
560178	Signal Switching Unit	EMCSSU	Orbis	22/24
590165	Band Reject Filter	WRCA836.0	Wainwright	22/24
590166	Ultra St. Notch Filter	WRCD1880.0	Wainwright	22/24
590167	Ultra St. Notch Filter	WRCD1747	Wainwright	22/24
590168	Band Reject Filter	WRCA902.0	Wainwright	22/24
610406	Power Supply	EL302D	Tti	22/24
720061	EMI Test Receiver	ESI26	R&S	22/24
210157	Radio Communication Tester	CMU200	R&S	22/24
450127	Two Line V-Network	3810/2	EMCO	22/24