FCC Part 15B Compliance Test Report

Test Report no.:	Salo_FCC_0738_02.doc	**Date of Report:**	19.09.2007
Number of pages:	9	**Customer's Contact person:**	Robert Binder
Testing laboratory:	TCC Nokia Salo Laboratory P.O. Box 86 Joensuunkatu 7H / Kiila 1B FIN-24101 SALO, FINLAND Tel. +358 (0) 7180 08000 Fax. +358 (0) 7180 45220	**Customer:**	Nokia Corporation Arco Tower Shimomeguro 1-8-1 Meguro-ku TOKYO 153-0064 JAPAN Tel. +81 3 5759 7001 Fax. +81 3 5740 6858
FCC listing no.: **IC recognition no.:**	533467 5385		
Tested devices/ accessories:	**Phone RM-313 / Battery BP-6MT, AC-Charger AC-5E, Data Cable CA-101, Laptop TA-30 and Printer C3941A**		
FCC ID:	QVVRM-313	**IC:**	661AE-RM313
Supplement reports:	-		
Testing has been carried out in accordance with:	**CFR 47, FCC rules Part 15 Subpart B, ANSI C63.4 (2003), ICES-003, CISPR 22 and IC standards RSS-132, RSS-133 and RSS-210. 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 Anni Manninen DN: cn=Anni Manninen, c=FI, o=Nokia, ou=CertMT, email=ext-anni.manninen@nokia.com Date: 2007.09.19 14:53:35 +03'00'		

Anni Manninen, System Manager

1. Summary for FCC Part 15B Compliance Test Report

Date of receipt	10.09.2007
Testing completed	17.09.2009
The customer's contact person	Robert Binder
Test Plan referred to	T:\Projects\ RM-313\TestPlan_RS\RS_test_plan_RM-313.xls
Notes	-
Document name	T:\Projects\RM-313\EMC\Results\FCC\Salo_FCC_0738_02.doc

1.1. EUT and Accessory Information

The EUT is a 5-band (GSM850/900/1800/1900 and WCDMA Band I) mobile phone with GPRS, EGPRS, Bluetooth and WLAN. GSM bands are tested in idle mode. Bluetooth and WLAN are tested with maximum rated TX power.

Product	Type	SN	HW	MV	SW	DUT
Phone	RM-313	004401/01/318144/7	3001	-	10.0.005	12226
Battery	BP-6MT	393213719111010711 6;0670551	-	-	-	12189
AC-Charger	AC-5E	394349647304060289 8;0675540	-	-	-	11998
Laptop	T-30	99-ZYGY7	-	-	-	11358
Printer H&P LaserJet 5L	C3941A	CNVMO55419	-	-	-	10854
Data Cable	CA-101	-	1.2	1.1	-	12238

1.2. Summary of Test Results

GSM 1900:

Section in CFR 47	Section in ICES-003 (RSS-133)	Name of the test	Result
15.107, a	5.3	AC powerline conducted emissions	PASSED
15.109, a	5.5 (9)	Radiated emissions	-

Bluetooth:

Section in CFR 47	Section in ICES-003	Name of the test	Result
15.107, a	5.3	AC powerline conducted emissions	PASSED
15.109, a	5.5	Radiated emissions	-

WLAN:

Section in CFR 47	Section in ICES-003	Name of the test	Result
15.107, a	5.3	AC powerline conducted emissions	PASSED
15.109, a	5.5	Radiated emissions	-

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 Salo Laboratory.

TCC Nokia Salo Laboratory
P.O. Box 86
Joensuunkatu 7H / Kiila 1B
FIN-24101 SALO, FINLAND
Tel. +358 (0) 7180 08000
Fax. +358 (0) 7180 45220

CONTENTS

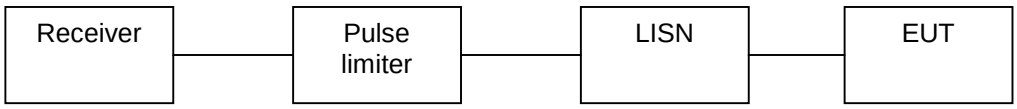
TCC Nokia Salo Laboratory
P.O. Box 86
Joensuunkatu 7H / Kiila 1B
FIN-24101 SALO, FINLAND
Tel. +358 (0) 7180 08000
Fax. +358 (0) 7180 45220

2. AC powerline conducted emissions

(FCC §15.107, ICES-003 section 5.3)

EUT with DUT number	RM-313, DUT 12226
Accessories with DUT numbers	BP-6MT, DUT 12189; AC-5E, DUT 11998; CA-101, DUT 12238; T-30, DUT 11358; C3941A, DUT 10854
Operation Voltage [V] / [Hz]	115 / 60
Result	PASSED
Remarks	Continuous data transferring was active between phone and computer during test.
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	21 / 42 / 100
Date of measurements	17.09.2007
Measured by	Jani Koskinen

2.1. Test setup



2.2. Test method and limit

The measurement is made according to ANSI C63.4-2003 as follows:

The EUT is placed on a wooden table 80 cm above the reference groundplane.

The EUT is connected via LISN to a test power supply.

The measurement results are obtained as described below:

$$U\ [dB\mu V] = U_{RX} + A_{TOT}$$

Where U_{RX} is receiver reading and A_{TOT} is total correction factor including cable and pulse limiter attenuations.

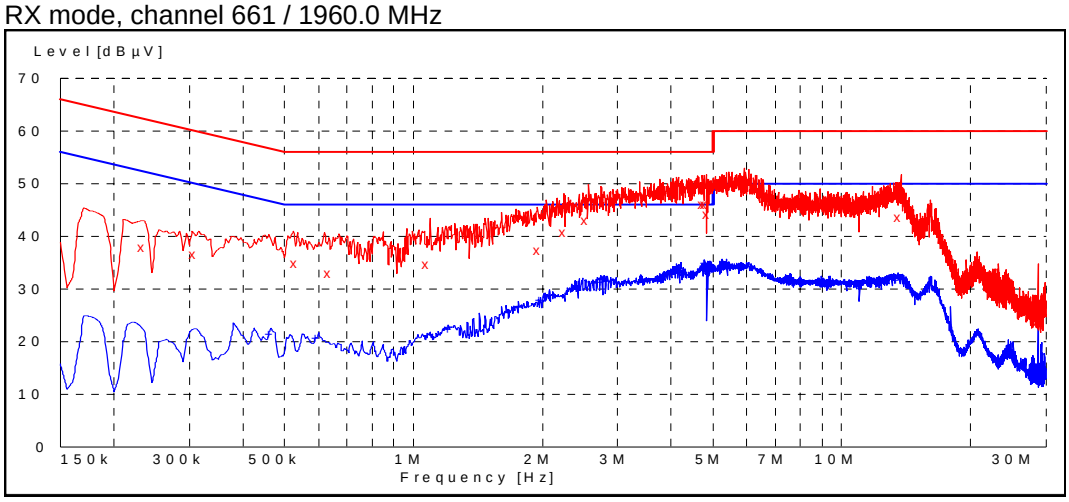
CISPR 22 Class B limits

Frequency range [MHz]	Quasi peak limit [dBµV]	Average limit [dBµV]
0.15 - 0.5	66 - 56	56 - 46
0.5 - 5	56	46
5 - 30	60	50

TCC Nokia Salo Laboratory
P.O. Box 86
Joensuunkatu 7H / Kiila 1B
FIN-24101 SALO, FINLAND
Tel. +358 (0) 7180 08000
Fax. +358 (0) 7180 45220

2.3. GSM 1900 Test results

RX mode, channel 661 / 1960.0 MHz



Quasi peak (RBW: 9 kHz)

Frequency [MHz]	U [dBµV]	Line	Result
0.235000	37.90	N	PASSED
0.310000	36.50	N	PASSED
0.535000	34.90	N	PASSED
0.640000	32.90	L1	PASSED
1.085000	34.70	N	PASSED
1.965000	37.40	N	PASSED
2.260000	40.90	N	PASSED
2.555000	43.10	N	PASSED
4.800000	46.20	N	PASSED
4.850000	46.00	N	PASSED
4.905000	44.20	N	PASSED
13.705000	43.60	N	PASSED

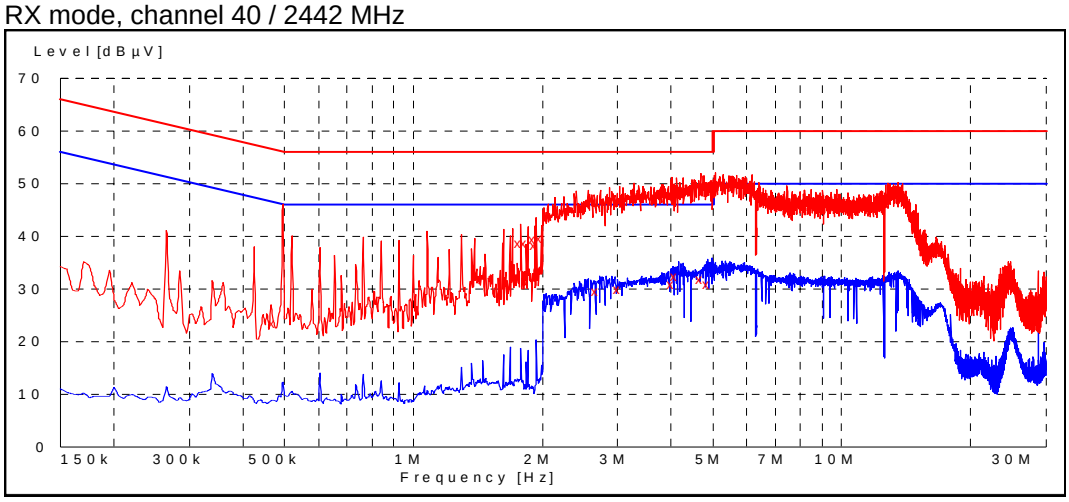
Average (RBW: 9 kHz)

Frequency [MHz]	U [dBµV]	Line	Result
0.465000	21.40	L1	PASSED
0.600000	20.70	L1	PASSED
1.220000	22.30	N	PASSED
2.000000	27.80	L1	PASSED
2.780000	31.40	L1	PASSED
4.805000	34.30	N	PASSED
4.845000	34.90	N	PASSED
4.940000	33.10	N	PASSED
9.365000	30.70	N	PASSED
13.575000	31.70	N	PASSED

TCC Nokia Salo Laboratory
P.O. Box 86
Joensuunkatu 7H / Kiila 1B
FIN-24101 SALO, FINLAND
Tel. +358 (0) 7180 08000
Fax. +358 (0) 7180 45220

2.4. Bluetooth Test results

RX mode, channel 40 / 2442 MHz



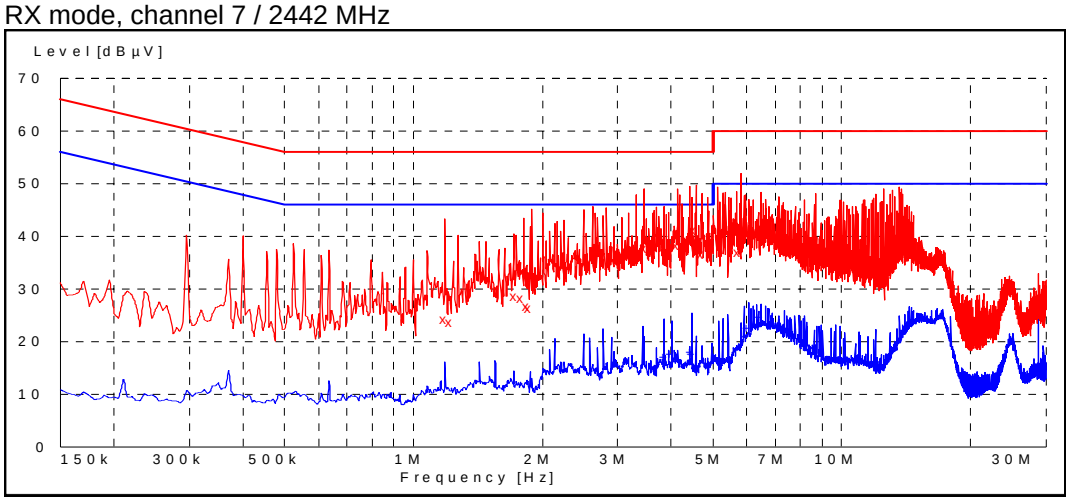
Quasi peak (RBW: 9 kHz)

Frequency [MHz]	U [dBµV]	Line	Result
0.475000	23.50	L1	PASSED
1.780000	38.80	N	PASSED
1.835000	38.60	N	PASSED
1.930000	39.50	N	PASSED
1.935000	38.30	N	PASSED
1.995000	39.60	N	PASSED
2.690000	29.60	N	PASSED
3.035000	29.80	N	PASSED
4.040000	30.80	N	PASSED
4.120000	32.40	N	PASSED
4.720000	31.80	N	PASSED
4.905000	30.80	N	PASSED

TCC Nokia Salo Laboratory
P.O. Box 86
Joensuunkatu 7H / Kiila 1B
FIN-24101 SALO, FINLAND
Tel. +358 (0) 7180 08000
Fax. +358 (0) 7180 45220

2.5. WLAN Test results

RX mode, channel 7 / 2442 MHz



Quasi peak (RBW: 9 kHz)

Frequency [MHz]	U [dBµV]	Line	Result
1.195000	24.20	N	PASSED
1.225000	23.70	L1	PASSED
1.735000	28.60	N	PASSED
1.800000	28.20	L1	PASSED
1.855000	26.70	N	PASSED
1.875000	26.40	L1	PASSED
3.495000	37.60	N	PASSED
4.160000	38.30	N	PASSED
4.405000	39.30	N	PASSED
4.550000	41.10	N	PASSED
4.760000	36.50	L1	PASSED
5.785000	37.10	L1	PASSED

Average (RBW: 9 kHz)

Frequency [MHz]	U [dBµV]	Line	Result
3.875000	17.10	L1	PASSED
4.015000	17.60	L1	PASSED
4.485000	17.90	L1	PASSED
4.490000	17.60	L1	PASSED
6.075000	22.50	L1	PASSED
6.495000	24.60	L1	PASSED

TCC Nokia Salo Laboratory
P.O. Box 86
Joensuunkatu 7H / Kiila 1B
FIN-24101 SALO, FINLAND
Tel. +358 (0) 7180 08000
Fax. +358 (0) 7180 45220

3. Test Equipment

3.1. Conducted measurements

Eq. No	Equipment	Type	Manufacturer	Used in
1742	EMI Test Receiver	ESMI	R&S	15C, 15B
1759	LISN 50 µH	ESH3-Z5	R&S	15C, 15B
1872	Thermo- Hygrograph	00.02520.150700	Lambrecht	15C, 15B
1916	Radio Communication tester	CMTA84	R&S	15C, 15B
2039	Power Supply	PL330QMD	THURLBY	15C, 15B
2060	LISN 50 µH	ESH3-Z5	R&S	15C, 15B
2068	CDN-Antenna line	S1	NMP	15C, 15B
2097	Pulse Limiter	ESH3-Z2	R&S	15C, 15B
2111	Multimeter	TX3	Tektronix	15C, 15B
2156	Digital Radio Communication Tester	CMU200	R&S	15C, 15B
2206	Signal generator	SMX	R&S	15C, 15B
2335	GPIB Switch 2 to 1	-	National Instruments	15C, 15B
2347	Digital Radio Communication Tester	CMU200	R&S	22/24, 15C, 15B
2352	Spectrum Analyzer	FSP	R&S	22/24, 15C
2359	Temperature Test system	VT4002	Vötsch Industrietechnik	22/24
2360	Serial Bus Converter	Serial 488A	IO Tech	22/24
2362	Power Supply	NGPX 70/5	R&S	22/24
2388	Bluetooth Tester	CBT	R&S	15C, 15B
-	RF Emission Software	ES-K1 v.1.71	R&S	22/24, 15C, 15B

3.2. Radiated measurements

Eq. No	Equipment	Type	Manufacturer	Used in
1748	Log. per. Antenna	HL025	R&S	22/24, 15C
1749	Log. per. Antenna	HL025	R&S	22/24, 15C
1875	Thermo- Hygrograph	00.02520.150700	Lambrecht	22/24, 15C, 15B
1917	Radio Communication tester	CMTA84	R&S	22/24, 15C, 15B
1933	Precision half-wave dipole antennas	HZ-13	R&S	22/24, 15C
1938	Precision half-wave dipole antennas	HZ-12	R&S	22/24, 15C
2006	Radiation Reference Source	VSQ	MEB	22/24, 15C, 15B
2009	Signal generator	SMP 22	R&S	22/24, 15C, 15B
2019	Multimeter	34401A	HP	22/24, 15C, 15B
2027	Coupling and Decoupling Network	M2 (modified) DC1	MEB	22/24, 15C, 15B
2028	Coupling and Decoupling Network	M3 (modified) DC2	MEB	22/24, 15C, 15B
2029	Power Supply	PL330	THURLBY	22/24, 15C, 15B
2043	Band Reject Filter	WRCA824/849-0,2-6SS	Wainwright	22/24, 15C, 15B
2047	Band Reject Filter	WRCC1800/2000-0.2-10SS	Wainwright	22/24, 15C, 15B
2051	High Pass Filter	4HC1700-1-KK	R&S	22/24, 15C
2057	Log. per. Antenna	HL025	R&S	22/24, 15C

TCC Nokia Salo Laboratory
P.O. Box 86
Joensuunkatu 7H / Kiila 1B
FIN-24101 SALO, FINLAND
Tel. +358 (0) 7180 08000
Fax. +358 (0) 7180 45220

Eq. No	Equipment	Type	Manufacturer	Used in
2109	Power Supply	PL330QMD	THURLBY	22/24, 15C, 15B
2110	Multimeter	34401A	HP	22/24, 15C, 15B
2112	Multimeter	TX3	Tektronix	22/24, 15C, 15B
2116	Controller	EMCO MODEL 2090	ETS	22/24, 15C, 15B
2133	Power Meter	NRVS	R&S	22/24, 15C
2134	Power Sensor	NRV-Z32	R&S	22/24, 15C
2135	Coupling and Decoupling Network	CDN 801-M3	LÜTHI	22/24, 15C, 15B
2138	Ultra Broadband Antenna	HL562	R&S	22/24, 15C, 15B
2140	Biconical Antenna	EMCO93110B	EMCO	22/24, 15C
2142	Log.-per.-dipol Antenna	3146	EMCO	22/24, 15C
2144	Attenuator	6803.17B	Huber-Suhner	22/24, 15C, 15B
2150	High Pass Filter	F-15041	RLC ELECTRONICS	22/24, 15C
2176	Coupling and Decoupling Network	CDN 801-M3	LÜTHI	22/24, 15C, 15B
2180	Digital Radio Communication Tester	CMU200	R&S	22/24, 15C, 15B
2188	Preamplifier	AFS4-00100300-20-23P-6	MITEQ	22/24, 15C, 15B
2330	EMI Test receiver	ESIB26	R&S	22/24, 15C, 15B
2334	GPIB Switch 2 to 1	-	National Instruments	22/24, 15C, 15B
2348	Yaesu controller	G-1000DXC	YAESU	22/24, 15C, 15B
2349	Computer controller (Yaesu)	GS-232B	YAESU	22/24, 15C, 15B
2350	Preamplifier	AMF-6D-020180-29-20P	MITEQ	22/24, 15C
2361	Anechoic chamber	3 meter semi/full anechoic chamber	Euroshield	22/24, 15C, 15B
2398	Horn antenna	HF906	R&S	22/24, 15C
2363	Band Reject Filter	WRCG 832/838-825/845/5SS	Wainwright	22/24
2364	Band Reject Filter	WRCG1877/1883 - 1870/1890-40/6SS	Wainwright	22/24
2365	Relay Switch Unit	TS-RSP	R&S	22/24, 15C, 15B
2366	Relay Switch Unit	TS-RSP	R&S	22/24, 15C, 15B
2384	Band Reject Filter	WRCG832/838-825/845-40/5SS	Wainwright	22/24
2388	Bluetooth Tester	CBT	R&S	15C, 15B
-	RF Emission Software	ES-K1 v.1.71	R&S	22/24, 15C, 15B

TCC Nokia Salo Laboratory
P.O. Box 86
Joensuunkatu 7H / Kiila 1B
FIN-24101 SALO, FINLAND
Tel. +358 (0) 7180 08000
Fax. +358 (0) 7180 45220