FCC Part 15C Compliance Test Report

Test Report no.:	FCC15C_RM-718_12.docx	**Date of Report:**	26-Jul-2010
Number of pages:	16	**Customer's Contact person:**	Kari Koskela
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 P.O.Box(86) Joensuunkatu 7H / Kiila 1B FIN-24101 SALO, FINLAND Tel. +358 (0) 7180 08000 Fax. +358 (0) 7180 45220
FCC listing no.: **IC recognition no.:**	975940 661AH-1		
Tested devices/ accessories:	**Phone RM-718 / Battery BL-5CT / AC-charger AC-15E / Headset WH-102**		
FCC ID:	PYARM-718	**IC:**	661V-RM718
Supplement reports:	This report is a copy of FCC15C_RM-601_06.docx		
Testing has been carried out in accordance with:	**CFR 47, FCC rules Part 15 Subpart C, ANSI C63.4 (2003), Public Notice DA 00-705, DTS procedures KDB 558074, IC standards, RSS-210 (Issue 7, June 2007). 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: 2010.07.26 16:05:41 +03'00'		

Jari Jantunen, System Manager

1. Summary for FCC Part 15C Compliance Test Report

Date of receipt	11-Jun-2010
Testing completed	13-Jul-2010
The customer's contact person	Alison Lenaghan
Test Plan referred to	T:\Projects\RM-601\TestPlan\RS_testplan_RM-601.xls
Notes	-
Document name	FCC15C_RM-601_06.docx

1.1. EUT and Accessory Information

The EUT is a 8-band (GSM850/900/1800/1900) and WCDMA Band (I/II(1900)/IV(1700)/VIII(850)) mobile phone with GPRS, EGPRS, HSDPA, HSUPA and WLAN and Bluetooth. Bluetooth and WLAN are tested with maximum rated TX power.

Product	Type	SN	HW	MV	SW	DUT
Phone	RM-601	004401109708913;0585851	0400	-	010.021	51714
Battery	BL-5CT	363563015391040853;0670555	-	-	-	51712
AC-charger	AC-15E	409049002322080607;0675463	-	-	-	51720
Headset	WH-102	06943239346A4106742	-	-	-	51608

1.2. Summary of Test Results

Bluetooth:

Section in CFR 47	Section in *RSS-GEN* or RSS-210	Name of the test	Result
15.247(b)(1)	A8.4 (2)	Conducted peak output power	NP
15.247(d)	A8.5	Band edge compliance of RF emissions	PASSED
15.247(d)	A8.5	Spurious RF conducted emissions	NP
15.247(d), 15.209	A8.5	Spurious radiated emissions	PASSED
15.207	*7.2.2*	AC powerline conducted emissions	PASSED
15.247(a)(1)	A8.1 (a)	20 dB bandwidth	NP
15.247(a)(1)	A8.1 (b)	Carrier frequency separation	NP
15.247(a)(1)(iii)	A8.1 (d)	Number of hopping frequencies	NP
15.247(a)(1)(iii)	A8.1 (d)	Time of occupancy	NP

The test results of PYARM-601 are re-used for certification of the PYARM-718. The table above indicates the results, which will be re-used.

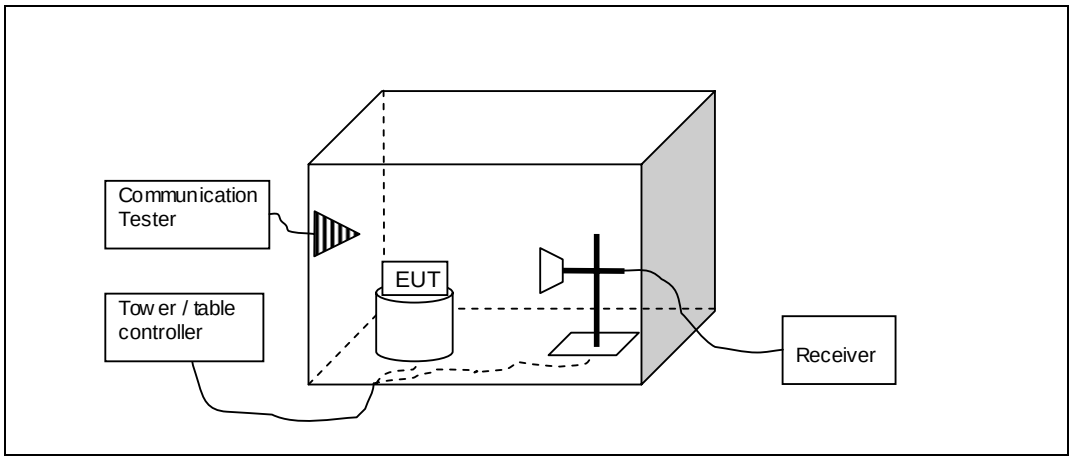
PASSED	The EUT complies with the essential requirements in the standard.
FAILED	The EUT does not comply with the essential requirements in the standard.
NP	The test was not performed by the TCC Nokia Laboratory.

CONTENTS

2. Band edge compliance of RF emissions
(FCC §15.247(d), RSS-210 A8.5)

EUT with DUT number	RM-601, DUT 51714
Accessories with DUT numbers	BL-5CT, DUT 51712 ; AC-15E, DUT 51720 ; WH-102, DUT 51608
Operation Voltage [V] / [Hz]	Nominal
Results	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	21 / 59 / 99.8
Date of measurements	13-Jun-2010
Measured by	Jia Dongsheng

2.1. Test Setup



2.2. Test method and limit

The measurement is made according to Public notice DA 00-705 and IC standard RSS-210.

The measurement results are obtained as described below:

$E\ [\mu V/m] = U_{RX} + A_{TOT}$

Where U_{RX} is receiver reading and A_{TOT} is total correction factor including cable loss, antenna factor and preamplifier gain ($A_{TOT} = L_{CABLES} + A_F - G_{PREAMP}$).

Limits for band edge compliance of RF emissions measurements (3 m measurement distance)

Frequency range [MHz]	Limit Average [dBµV/m]	Limit Peak [dBµV/m]
Below 2390 and above 2483.5	<=54	<=74

2.3. Bluetooth Test results

2.3.1 GFSK modulation, PRBS packet type

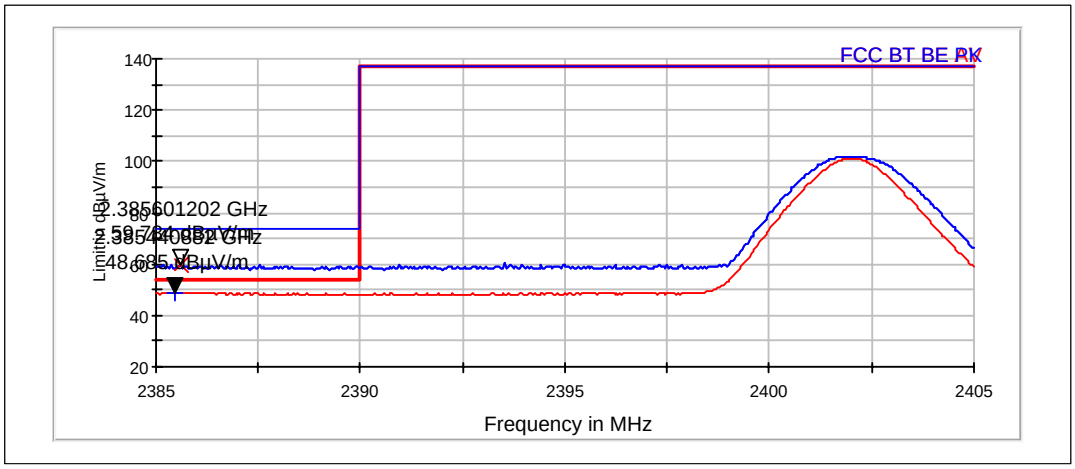
Average (RBW: 1 MHz, VBW: 1 MHz)

Channel / f_C [MHz]	E [dBµV/m]	E [µV/m]	U_{RX} [dBµV]	A_{TOT} [dB]	Result
0 / 2402	48.68	271.796	46.83	1.85	PASSED
Hopping on, low end	49.86	311.308	48.01	1.85	PASSED
78 / 2480	52.47	420.115	49.96	2.51	PASSED
Hopping on, high end	52.37	415.498	49.86	2.51	PASSED

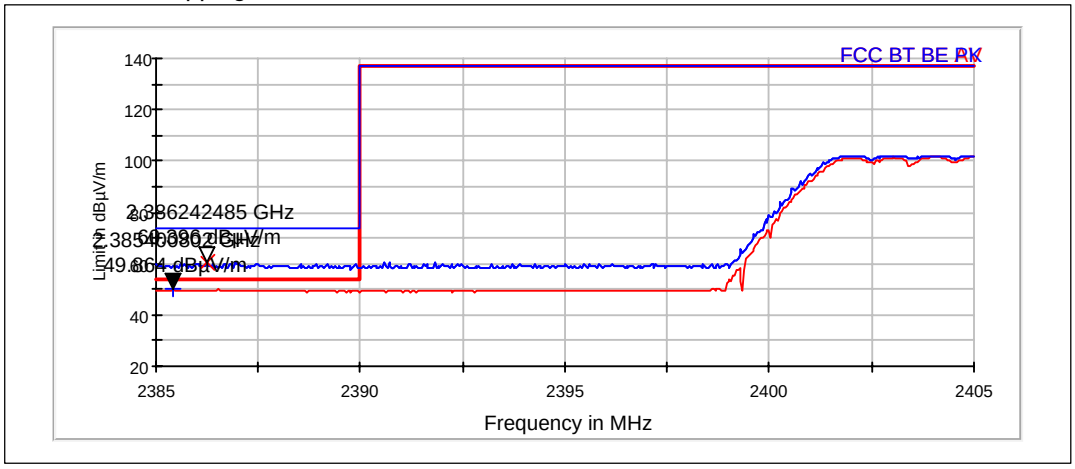
Peak (RBW: 1 MHz, VBW: 1 MHz)

Channel / f_C [MHz]	E [dBµV/m]	E [µV/m]	U_{RX} [dBµV]	A_{TOT} [dB]	Result
0 / 2402	59.78	975.429	57.93	1.85	PASSED
Hopping on, low end	60.4	1046.67	58.55	1.85	PASSED
78 / 2480	61.43	1179.104	58.92	2.51	PASSED
Hopping on, high end	61.84	1236.007	59.33	2.51	PASSED

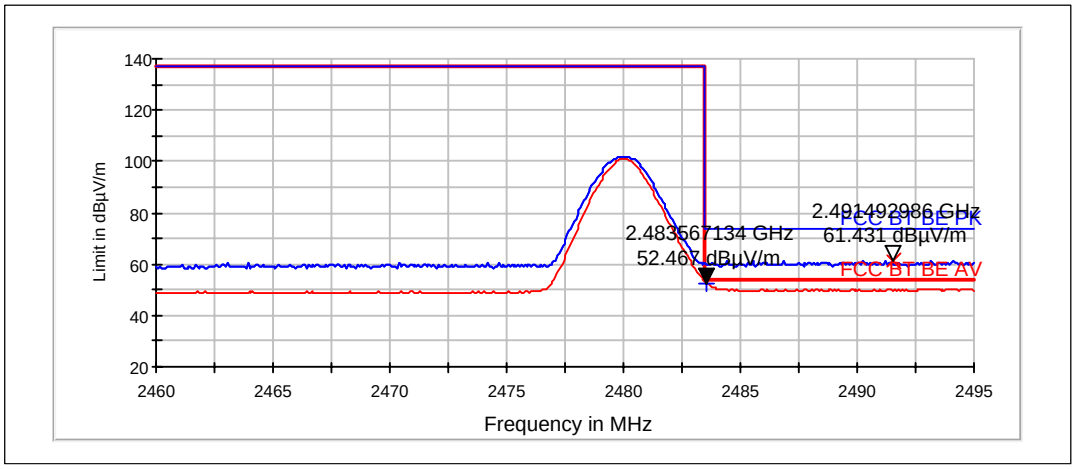
GFSK mode. Channel 0 / 2402 MHz



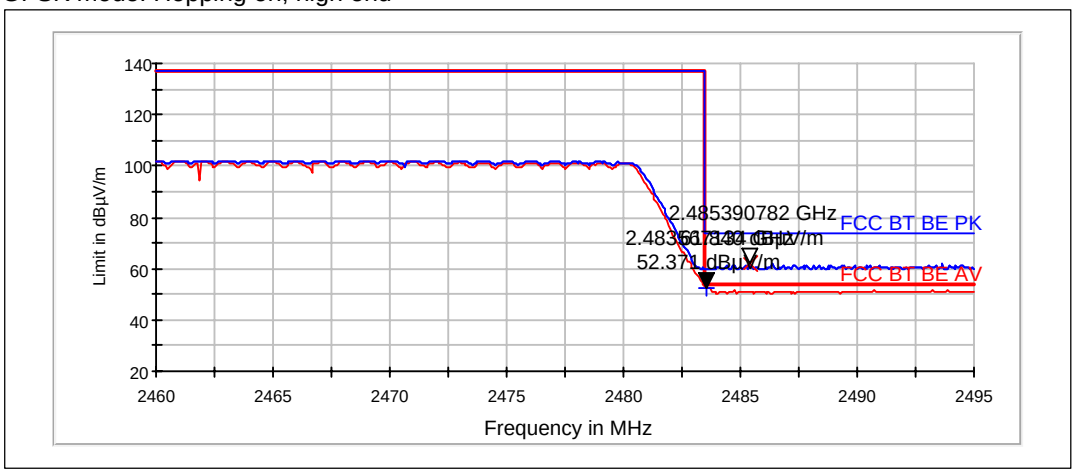
GFSK mode. Hopping on, low end



GFSK mode. Channel 78 / 2480 MHz



GFSK mode. Hopping on, high end



2.3.2 8DPSK modulation, PRBS packet type

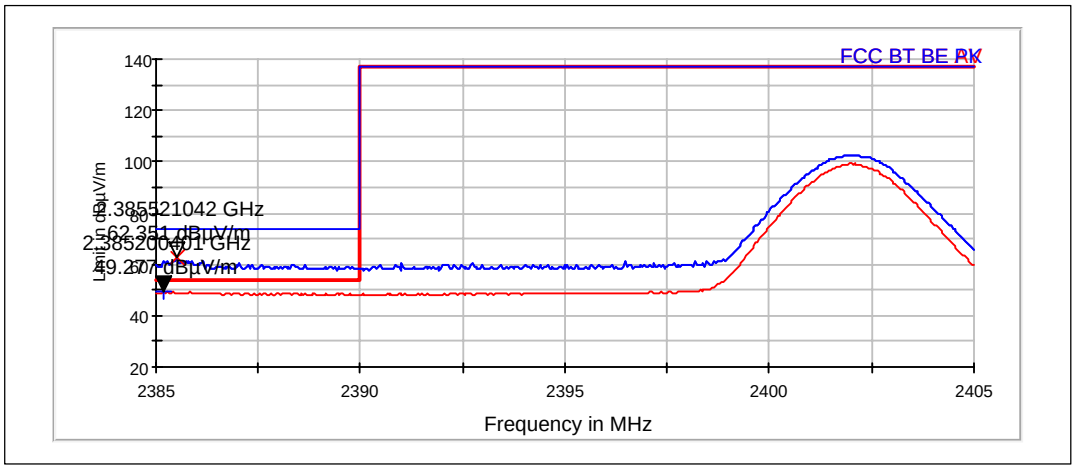
Average (RBW: 1 MHz, VBW: 1 MHz)

Channel / f_C [MHz]	E [dBµV/m]	E [µV/m]	U_{RX} [dBµV]	A_{TOT} [dB]	Result
0 / 2402	49.28	290.978	47.43	1.85	PASSED
Hopping on, low end	52.18	406.42	50.33	1.85	PASSED
78 / 2480	52.93	443.198	50.42	2.51	PASSED
Hopping on, high end	53.29	461.665	50.78	2.51	PASSED

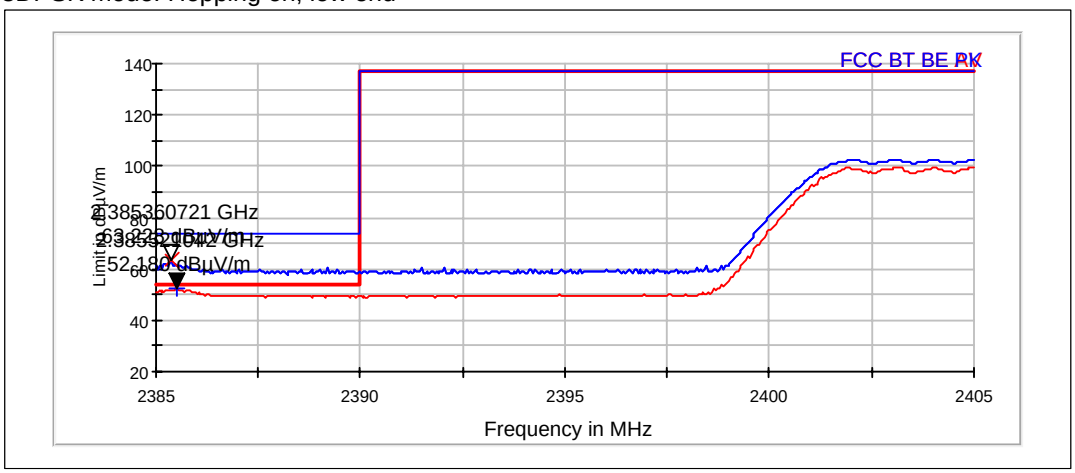
Peak (RBW: 1 MHz, VBW: 1 MHz)

Channel / f_C [MHz]	E [dBµV/m]	E [µV/m]	U_{RX} [dBµV]	A_{TOT} [dB]	Result
0 / 2402	62.35	1310.916	60.5	1.85	PASSED
Hopping on, low end	63.23	1450.109	61.38	1.85	PASSED
78 / 2480	61.84	1235.671	59.33	2.51	PASSED
Hopping on, high end	62.05	1266.701	59.54	2.51	PASSED

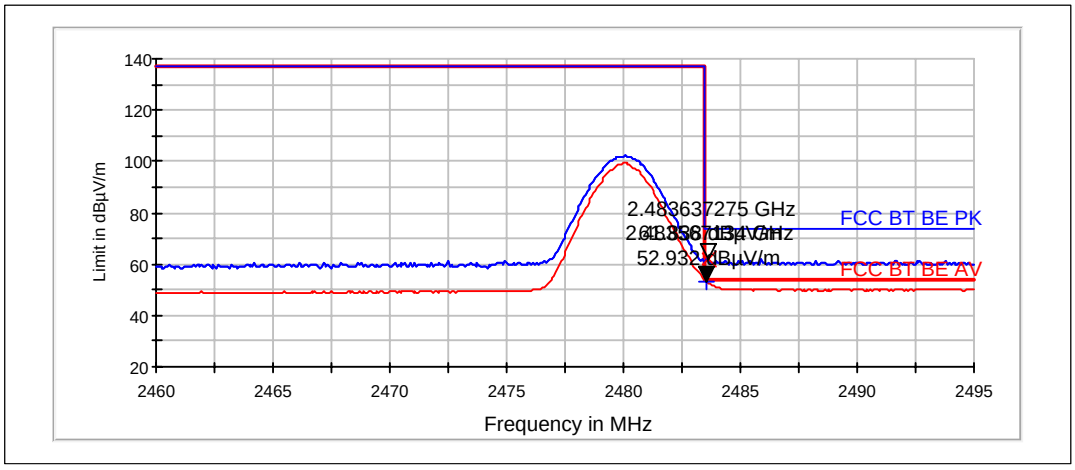
8DPSK mode. Channel 0 / 2402 MHz



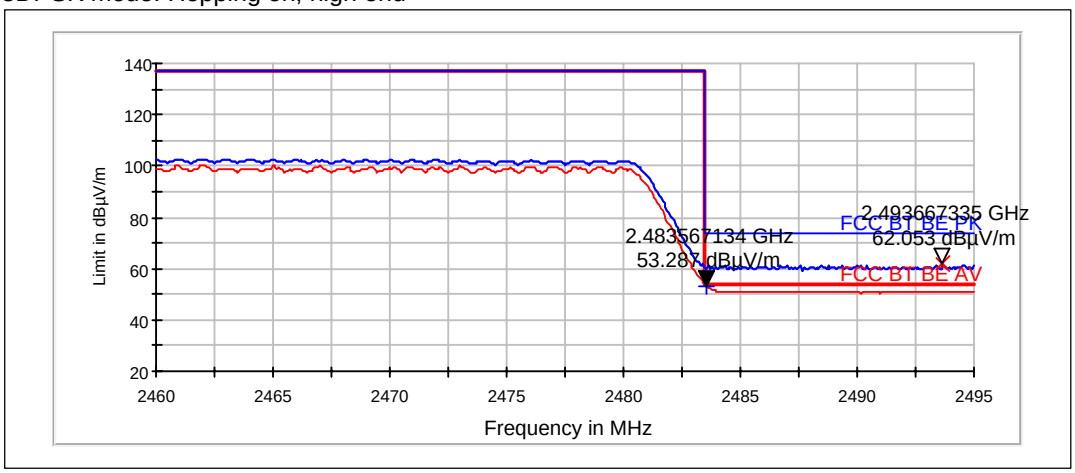
8DPSK mode. Hopping on, low end



8DPSK mode. Channel 78 / 2480 MHz



8DPSK mode. Hopping on, high end

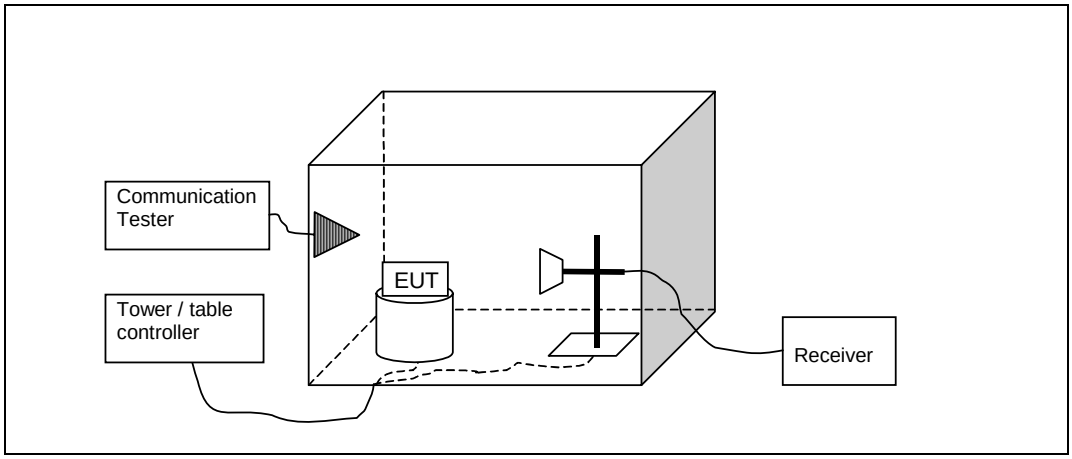


3. Spurious radiated emissions

(FCC §22.917(a), §24.238(a), §2.1053, RSS-132 4.5, RSS-133 6.5)

EUT with DUT number	RM-601, DUT 51714
Accessories with DUT numbers	BL-5CT, DUT 51712 ; AC-15E, DUT 51720 ; WH-102, DUT 51608
Operation Voltage [V] / [Hz]	Nominal
Results	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] /	21 / 59 / 99.8
Date of measurements	13-Jun-2010
Measured by	Jia Dongsheng

3.1. Test Setup



3.2. Test method and limit

The measurement is made according to Public notice DA 00-705 and IC standard RSS-210 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 the 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 measurement results are obtained as described below:

$E\ [\mu V/m] = U_{RX} + A_{TOT}$

Where U_{RX} is receiver reading and A_{TOT} is total correction factor including cable loss, antenna factor and preamplifier gain ($A_{TOT} = L_{CABLES} + A_F - G_{PREAMP}$).

Limits for spurious radiated emissions measurements (3 m measurement distance)

Frequency range [MHz]	Limit [µV/m]	Limit [dBµV/m]	Detector
30 - 88	100	40	Quasi peak
88 – 216	150	43.5	Quasi peak
216 – 960	200	46	Quasi peak
960 – 1000	500	54	Quasi peak
Above 1000	500	54	Average
Above 1000	5000	74	Peak

3.3. Bluetooth Test results

3.3.1 GFSK modulation, PRBS packet type

Channel 78 / 2480 MHz

Average(RBW: 1 MHz)

Frequency [MHz]	E [dBµV/m]	E [µV/m]	U_{RX} [dBµV]	A_{TOT} [dB]	Polarisation	Result
4959.6	36.56	67.274	36.49	0.07	HORIZONTAL	PASSED
7440.5	35.54	59.827	30.47	5.07	VERTICAL	PASSED

Peak (RBW: 1 MHz)

Frequency [MHz]	E [dBµV/m]	E [µV/m]	U_{RX} [dBµV]	A_{TOT} [dB]	Polarisation	Result
4959.6	50.57	337.831	50.5	0.07	HORIZONTAL	PASSED
7440.5	49.33	292.617	44.26	5.07	VERTICAL	PASSED

Channel 0 / 2402 MHz

Average(RBW: 1 MHz)

Frequency [MHz]	E [dBµV/m]	E [µV/m]	U_{RX} [dBµV]	A_{TOT} [dB]	Polarisation	Result
4803.9	33.79	48.91	34.04	-0.25	HORIZONTAL	PASSED
7205.6	36.21	64.632	31.19	5.02	VERTICAL	PASSED

Peak (RBW: 1 MHz)

Frequency [MHz]	E [dBµV/m]	E [µV/m]	U_{RX} [dBµV]	A_{TOT} [dB]	Polarisation	Result
4803.9	46.63	214.511	46.88	-0.25	HORIZONTAL	PASSED
7205.6	49.69	305.035	44.67	5.02	VERTICAL	PASSED

Channel 40 / 2442 MHz

Average(RBW: 1 MHz)

Frequency [MHz]	E [dBµV/m]	E [µV/m]	U_{RX} [dBµV]	A_{TOT} [dB]	Polarisation	Result
2820.539	38.58	84.898	29.62	8.96	VERTICAL	PASSED
2896.696	38.55	84.586	29.8	8.75	HORIZONTAL	PASSED
3921.943	28.7	27.236	30.11	-1.41	VERTICAL	PASSED
4883.568	36.25	64.923	36.22	0.03	HORIZONTAL	PASSED
17928.66	45.97	198.747	27.47	18.5	VERTICAL	PASSED

Quasi peak (RBW: 100 kHz)

Frequency [MHz]	E [dBµV/m]	E [µV/m]	U_{RX} [dBµV]	A_{TOT} [dB]	Polarisation	Result
37.094	31.84	39.089	39.38	-7.54	VERTICAL	PASSED
40.741	33.34	46.462	43.63	-10.29	VERTICAL	PASSED
40.752	33.25	45.973	43.55	-10.3	VERTICAL	PASSED
40.762	33.25	45.989	43.56	-10.31	VERTICAL	PASSED
40.791	33.16	45.488	43.48	-10.32	VERTICAL	PASSED

Peak (RBW: 1 MHz)

Frequency [MHz]	E [dBµV/m]	E [µV/m]	U_{RX} [dBµV]	A_{TOT} [dB]	Polarisation	Result
2820.539	51.97	396.735	43.01	8.96	VERTICAL	PASSED
2896.696	51.22	363.957	42.47	8.75	HORIZONTAL	PASSED
3921.943	41.46	118.318	42.87	-1.41	VERTICAL	PASSED
4883.568	50.13	320.996	50.1	0.03	HORIZONTAL	PASSED
17928.66	58.07	800.479	39.57	18.5	VERTICAL	PASSED

3.3.2 8DPSK modulation, PRBS packet type

Channel 78 / 2480 MHz

Average(RBW: 1 MHz)

Frequency [MHz]	E [dBµV/m]	E [µV/m]	U_{RX} [dBµV]	A_{TOT} [dB]	Polarisation	Result
4959.8	33.88	49.431	33.82	0.06	HORIZONTAL	PASSED
7439.1	35.57	60.076	30.49	5.08	VERTICAL	PASSED

Peak (RBW: 1 MHz)

Frequency [MHz]	E [dBµV/m]	E [µV/m]	U_{RX} [dBµV]	A_{TOT} [dB]	Polarisation	Result
4959.8	47.08	225.84	47.02	0.06	HORIZONTAL	PASSED
7439.1	49.06	283.857	43.98	5.08	VERTICAL	PASSED

Channel 0 / 2402 MHz

Average(RBW: 1 MHz)

Frequency [MHz]	E [dBµV/m]	E [µV/m]	U_{RX} [dBµV]	A_{TOT} [dB]	Polarisation	Result
4804.5	34.92	55.744	35.17	-0.25	HORIZONTAL	PASSED
7206.1	35.71	61.017	30.69	5.02	VERTICAL	PASSED

Peak (RBW: 1 MHz)

Frequency [MHz]	E [dBµV/m]	E [µV/m]	U_{RX} [dBµV]	A_{TOT} [dB]	Polarisation	Result
4804.5	48.3	260.046	48.55	-0.25	HORIZONTAL	PASSED
7206.1	49	281.773	43.98	5.02	VERTICAL	PASSED

Channel 40 / 2442 MHz

Average(RBW: 1 MHz)

Frequency [MHz]	E [dBµV/m]	E [µV/m]	U_{RX} [dBµV]	A_{TOT} [dB]	Polarisation	Result
2849.899	37.71	76.825	29.43	8.28	VERTICAL	PASSED
2892.683	38.57	84.811	29.69	8.88	HORIZONTAL	PASSED
3897.993	28.91	27.877	30.32	-1.41	VERTICAL	PASSED
3921.043	28.75	27.378	30.16	-1.41	VERTICAL	PASSED
17995.392	46.29	206.205	27.1	19.19	VERTICAL	PASSED

Quasi peak (RBW: 100 kHz)

Frequency [MHz]	E [dBµV/m]	E [µV/m]	U_{RX} [dBµV]	A_{TOT} [dB]	Polarisation	Result
33.266	30.65	34.072	35.29	-4.64	VERTICAL	PASSED
37.084	31.9	39.332	39.43	-7.53	VERTICAL	PASSED
40.701	33.31	46.286	43.58	-10.27	VERTICAL	PASSED
40.711	33.35	46.51	43.62	-10.27	VERTICAL	PASSED
40.902	32.92	44.233	43.31	-10.39	VERTICAL	PASSED

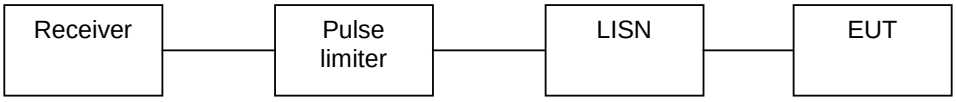
Peak (RBW: 1 MHz)

Frequency [MHz]	E [dBµV/m]	E [µV/m]	U_{RX} [dBµV]	A_{TOT} [dB]	Polarisation	Result
2849.899	50.22	324.19	41.94	8.28	VERTICAL	PASSED
2892.683	50.82	347.576	41.94	8.88	HORIZONTAL	PASSED
3897.993	41.6	120.268	43.01	-1.41	VERTICAL	PASSED
3921.043	41.46	118.331	42.87	-1.41	VERTICAL	PASSED
17995.392	58.65	855.756	39.46	19.19	VERTICAL	PASSED

4. AC powerline conducted emissions
(FCC §15.207, RSS-GEN 7.2.2)

EUT with DUT number	RM-601, DUT 51714
Accessories with DUT numbers	BL-5CT, DUT 51712 ; AC-15E, DUT 51720 ; WH-102, DUT 51608
Operation Voltage [V] / [Hz]	115 / 60
Result	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	23 / 62 / 99.7
Date of measurements	29-Jun-2010
Measured by	Jia Dongsheng

4.1. Test Setup



4.2. Test method and limit
The measurement is made according to Public notice DA 00-705 and IC standard RSS-GEN 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.

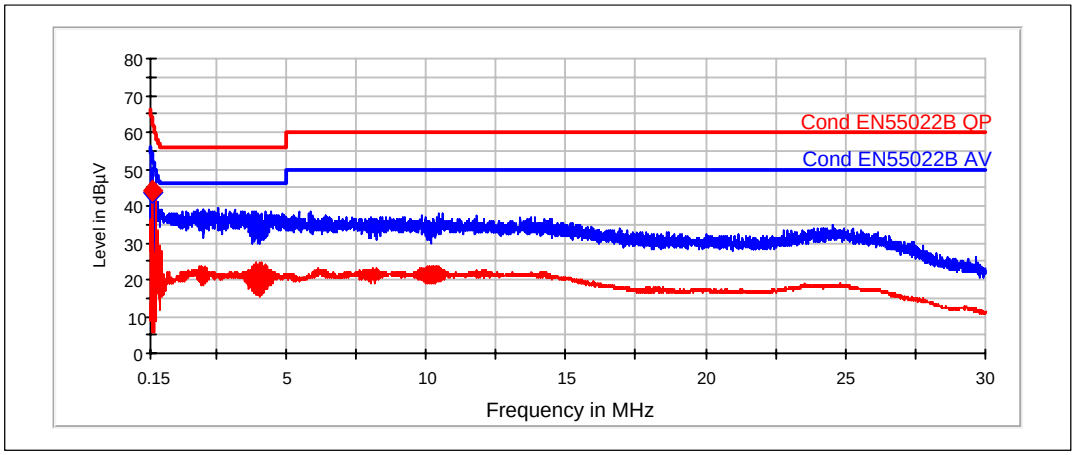
CISPR 22 Class B limits

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

4.3. Bluetooth Test results

4.3.1 GFSK modulation, PRBS packet type

Channel 40 / 2442 MHz



Quasi peak

Frequency [MHz]	Level [dBµV]	IF-BW[kHz]	Line	Margin	Result
0.24	43.36	9	L1	18.7	PASSED

Average

Frequency [MHz]	Level [dBµV]	IF-BW[kHz]	Line	Margin	Result
0.245	44.14	9	L1	7.82	PASSED

5. Test Equipment

5.1. Conducted measurements

Eq. No	Equipment	Type	Manufacturer	Used in
-	RF Emission Software	ES-K1 v.1.71	R&S	22/24/27, 15C, 15B
BJPCHW0020	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	Tempreture Test chamber	VT4002	Votsch industrietechnik	22/24/27, 15C
BJPCTC0090	FSP spectrum analyzer	FSP30	R&S	22/24/27, 15C
BJPCTC0094	GPIB-RS232 convertor	GPIB-RS232	NI	22/24/27, 15C

5.2. 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