

FCC Part 15C Compliance Test Report

Test Report no.:	Cph_FCC_0629_03.doc	Date of Report:	11-08-2006
Number of pages:	38	Customer's Contact person:	Robert Binder
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FCC listing no.:	99059		
IC recognition no.:	4820 and 4820-1		
Tested devices/ accessories:	Phone; RM-156 (HW 2401) & Battery; BL-5F & AC-Charger; AC-4E & Headset HS-23		
FCC ID:	QVVRM-156	IC:	661AE-RM156
Supplement reports:			
Testing has been carried out in accordance with:	CFR 47, FCC rules Part 15 Subpart C, ANSI C63.4 (2003), IC standards RSS-GEN 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:			

Niels Christian Andersen, Engineer

1. Summary for FCC Part 15C Compliance Test Report

Date of receipt	17-07-2006
Testing completed	10-08-2006
The customer's contact person	Robert Binder
Test Plan referred to	\\EMC\\TESTPLAN\\
Notes	None
Document name	T:\\Projects\\RM-156\\EMC\\Results\\FCC\\Cph_FCC_0629_03.doc

1.1. EUT and Accessory Information

The EUT is a quadri band (GSM900/1800/1900 and WCDMA2100) mobile phone with GPRS, EGPRS, Bluetooth and WLAN. Bluetooth and WLAN are tested with maximum rated TX power.

Product	Type	SN	HW	MV	SW	DUT
Phone	RM-156	004400/84/161817/4	2401	-	02.0.113	29057
Phone	RM-156	004400/84/161809/1	2401	-	02.0.113	28495
Battery	BL-5F	067049800000N151140000000	-	-	-	29060
AC-Charger	AC-4E	3943495412070127156;0675384	-	-	-	29065
Headset	HS-23	350741542103	-	-	-	29061
Phone	RM-156	004400/84/161811/7	2401	-	02.0.113	29052
Battery	BL-5F	0670498363563M515110100155	-	-	-	29069
AC-Charger	AC-4E	3943495412070126678;0675384	-	-	-	29064
Headset	HS-23	350741542103	-	-	-	29061

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)	Peak output power	NP
15.247(c)	A8.5	Band edge compliance of RF emissions	Passed
15.247(c)	A8.5	Spurious RF conducted emissions	NP
15.247(c), 15.209	A8.5	Spurious radiated emissions	Passed
15.207	7.2.2	AC powerline conducted emissions	Passed
15.247(a)(1)	A8.1 (1)	20 dB bandwidth	NP
15.247(a)(1)	A8.1 (2)	Carrier frequency separation	NP
15.247(a)(1)(iii)	A8.1 (4)	Number of hopping frequencies	NP
15.247(a)(1)(iii)	A8.1 (4)	Time of occupancy	NP

WLAN:

Section in CFR 47	Section in RSS-210	Name of the test	Result
15.247(b)(1)	A8.4 (4)	Peak output power	NP
15.247(c)	A8.5	Band edge compliance of RF emissions	Passed
15.247(c)	A8.5	Spurious RF conducted emissions	NP
15.247(c), 15.209	A8.5	Spurious radiated emissions	Passed
15.207	7.2.2	AC powerline conducted emissions	Passed
15.247(a)(2)	A8.2 (1)	6 dB bandwidth	NP
15.247(e)	A8.2 (2)	Power spectral density	NP

PASSED
FAILED
NP

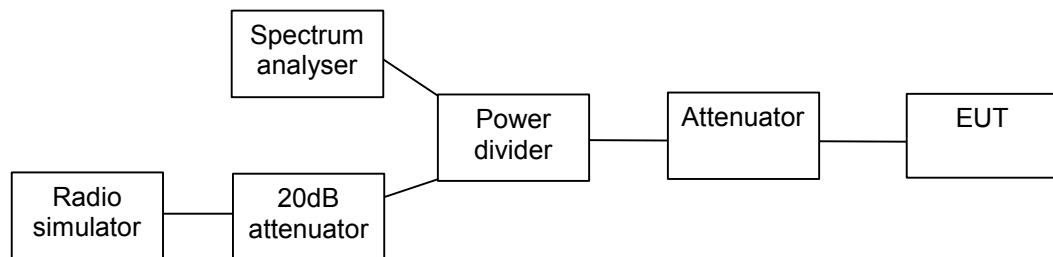
The EUT complies with the essential requirements in the standard.
The EUT does not comply with the essential requirements in the standard.
The test was not performed by the TCC Nokia Copenhagen Laboratory.

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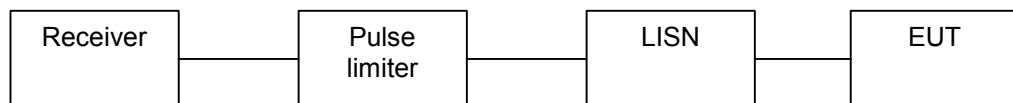
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2. Test setups

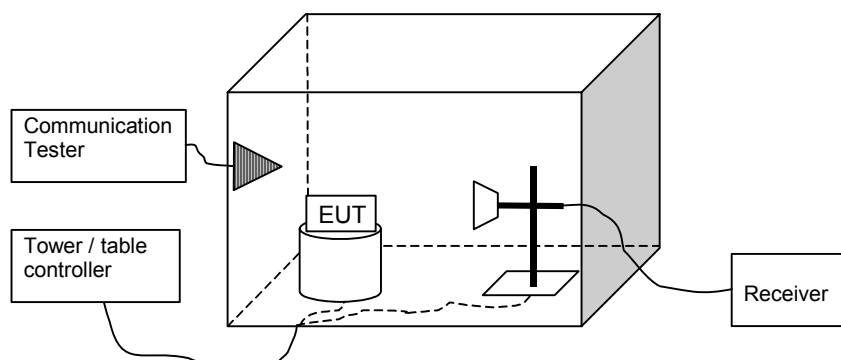
2.1. Conducted RF test setup



2.2. AC powerline conducted emissions test setup



2.3. Spurious radiated emissions test setup



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

EUT with DUT number	RM-156 Dut#29057
Accessories with DUT numbers	BL-5F Dut#29060, AC-4E Dut#29065, HS-23 Dut#29061
Operation Voltage [V] / [Hz]	230 / 50
Result	Passed
Remarks	None
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	23 / 52 / 1023
Date of measurements	09-08-2006
Measured by	Christian Andersen

3.1. Test method and limit

The measurement is made according to FCC rules part 15.247 and IC standard RSS-210.

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

3.2. Bluetooth Test results

3.2.1 GFSK modulation, PRBS packet type

3.2.1.1 Phone flip open

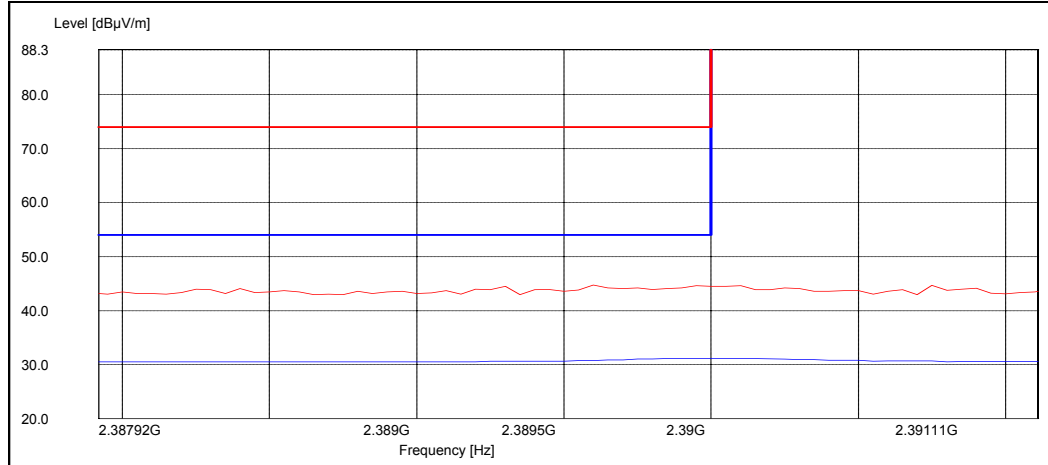
Average (RBW: 1 MHz)

Channel / f_c [MHz]	E [dBμV/m]	Result
0 / 2402	31.15	Passed
78 / 2480	37.21	Passed
Hopping on, low end	30.27	Passed
Hopping on, high end	31.91	Passed

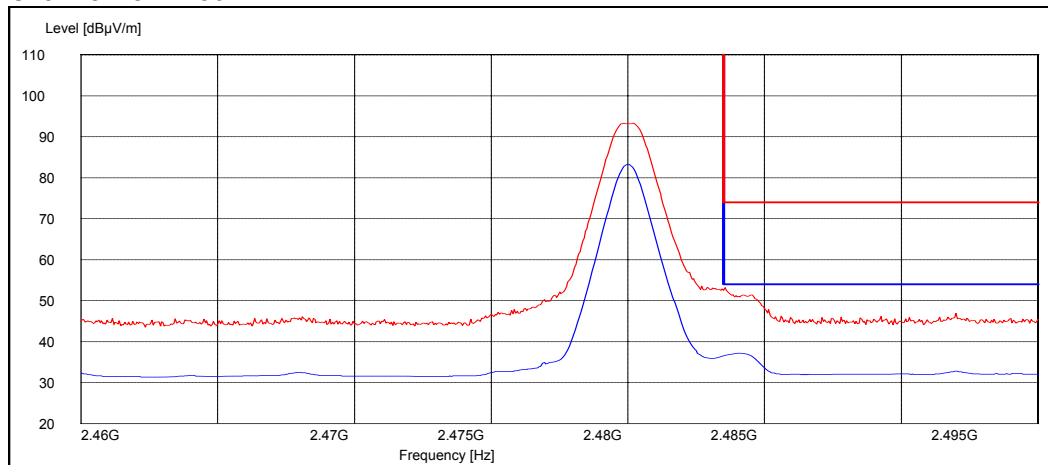
Peak (RBW: 1 MHz)

Channel / f_c [MHz]	E [dBμV/m]	Result
0 / 2402	44.63	Passed
78 / 2480	53.17	Passed
Hopping on, low end	44.78	Passed
Hopping on, high end	51.89	Passed

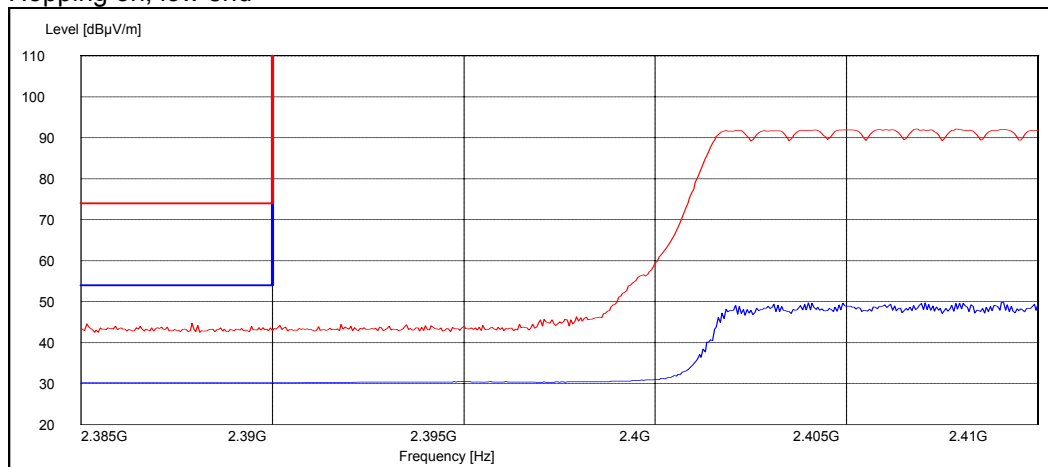
Channel 0 / 2402 MHz



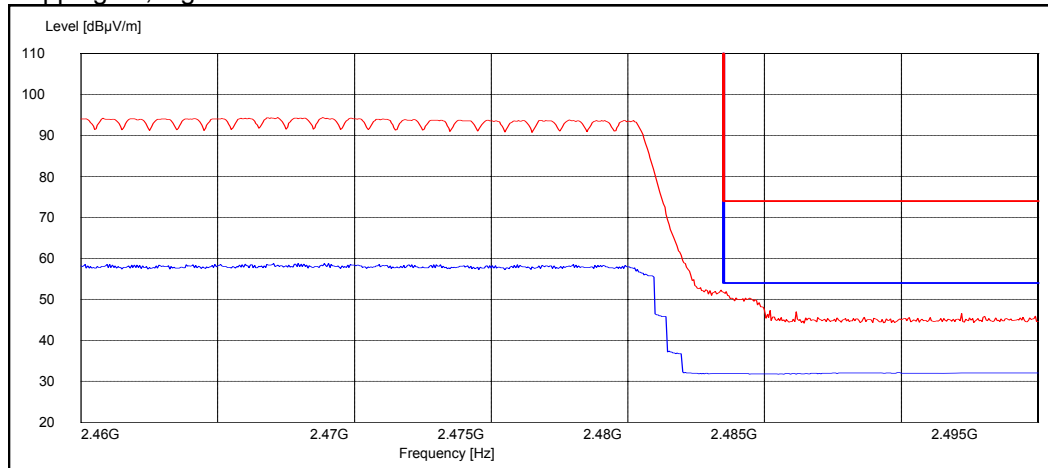
Channel 78 / 2480 MHz



Hopping on, low end



Hopping on, high end



3.2.1.2 Phone flip closed

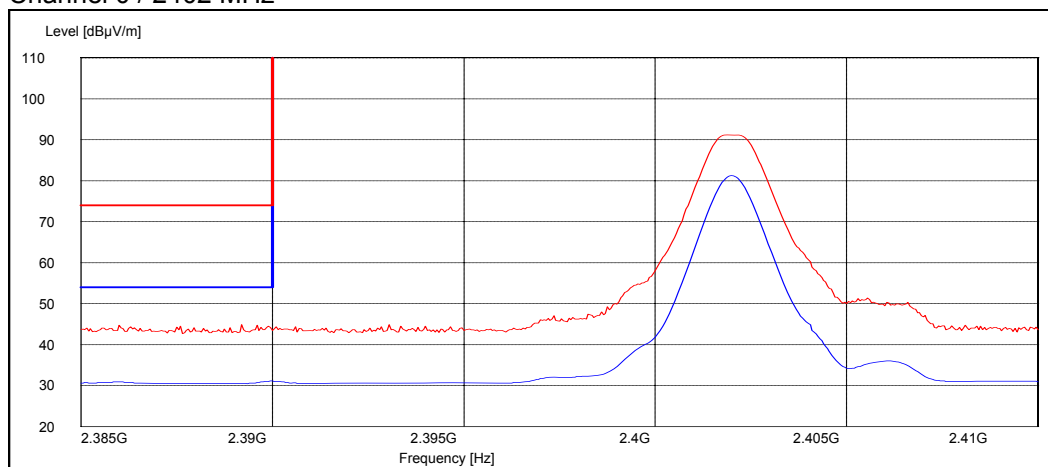
Average (RBW: 1 MHz)

Channel / f_c [MHz]	E [dBμV/m]	Result
0 / 2402	31.03	Passed
78 / 2480	36.18	Passed
Hopping on, low end	30.52	Passed
Hopping on, high end	31.90	Passed

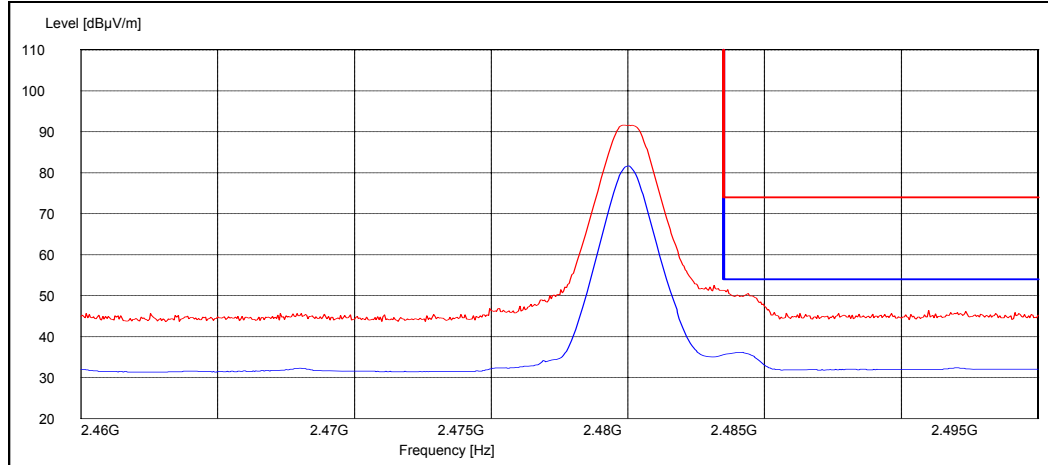
Peak (RBW: 1 MHz)

Channel / f_c [MHz]	E [dBμV/m]	Result
0 / 2402	44.5	Passed
78 / 2480	51.33	Passed
Hopping on, low end	44.75	Passed
Hopping on, high end	50.17	Passed

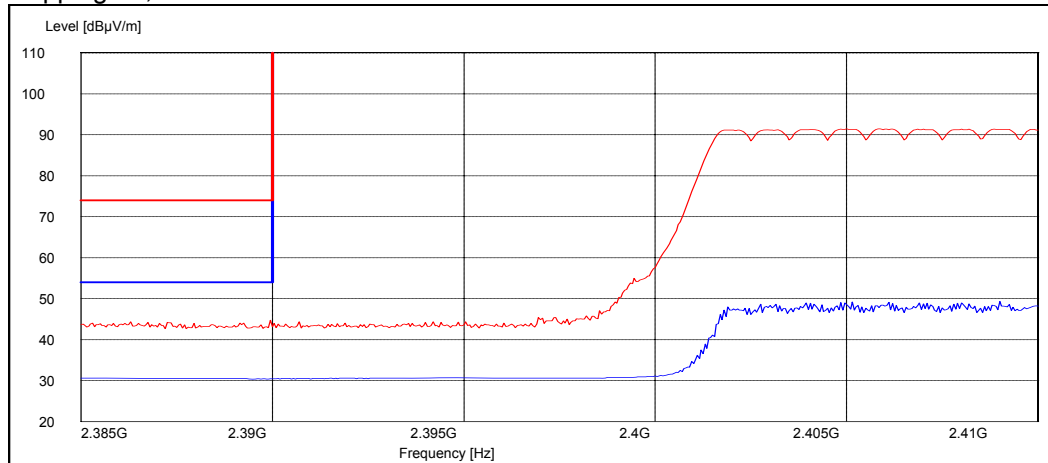
Channel 0 / 2402 MHz



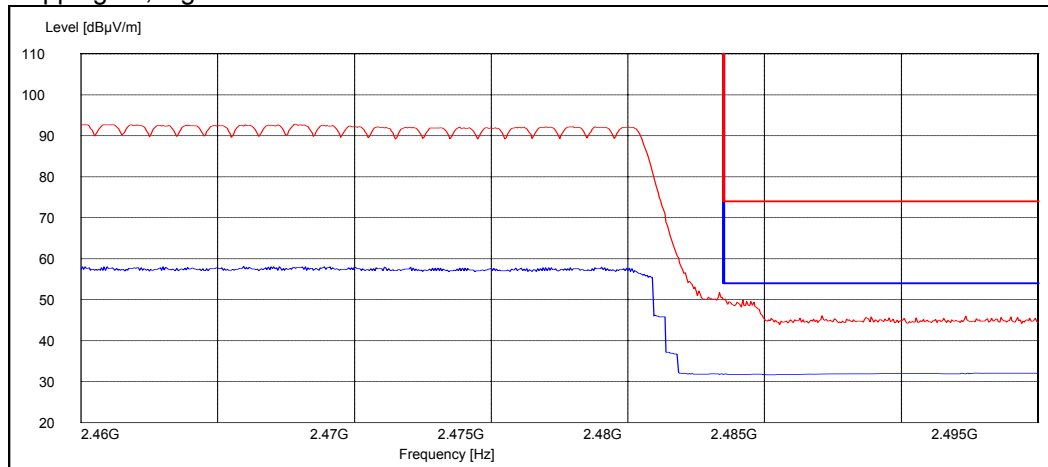
Channel 78 / 2480 MHz



Hopping on, low end



Hopping on, high end



3.2.2 8DPSK modulation, PRBS packet type

3.2.2.1 Phone flip open

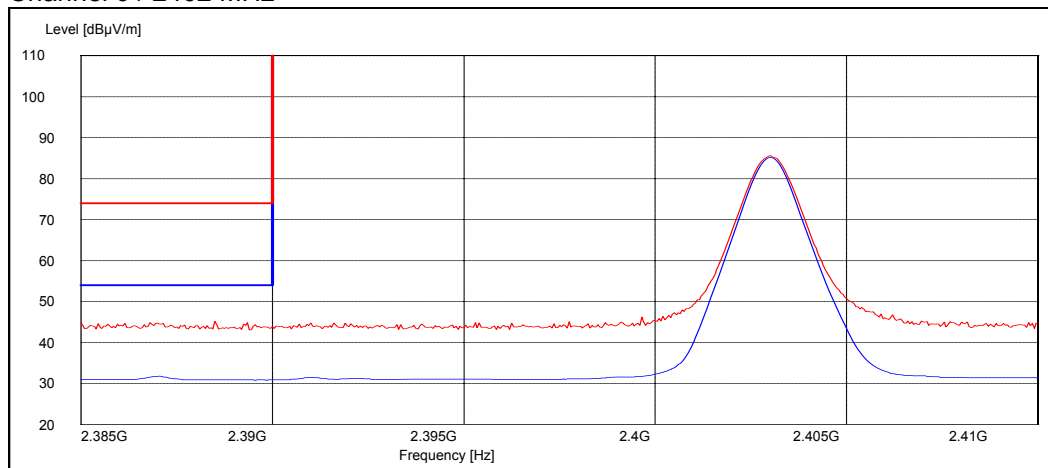
Average (RBW: 1 MHz)

Channel / f_c [MHz]	E [dB μ V/m]	Result
0 / 2402	30.91	Passed
78 / 2480	35.77	Passed
Hopping on, low end	30.65	Passed
Hopping on, high end	31.91	Passed

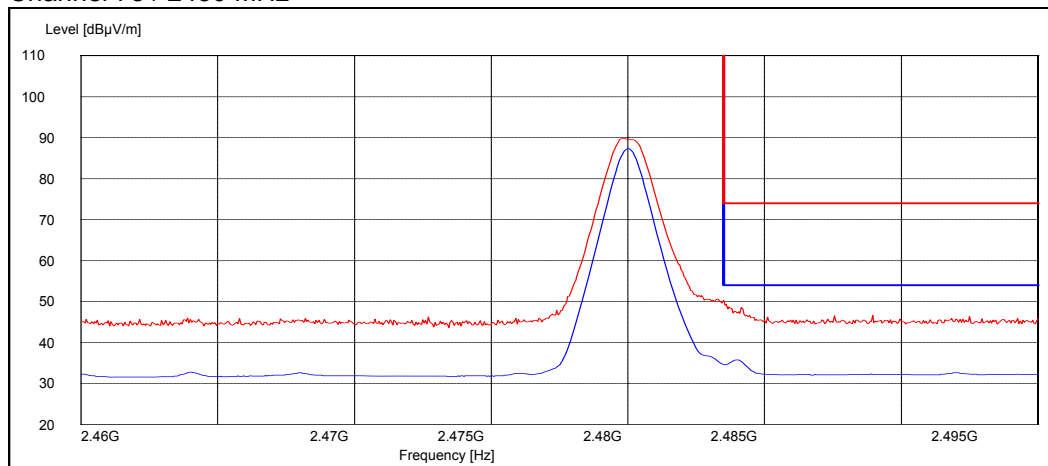
Peak (RBW: 1 MHz)

Channel / f_c [MHz]	E [dB μ V/m]	Result
0 / 2402	44.91	Passed
78 / 2480	50.29	Passed
Hopping on, low end	45.18	Passed
Hopping on, high end	48.87	Passed

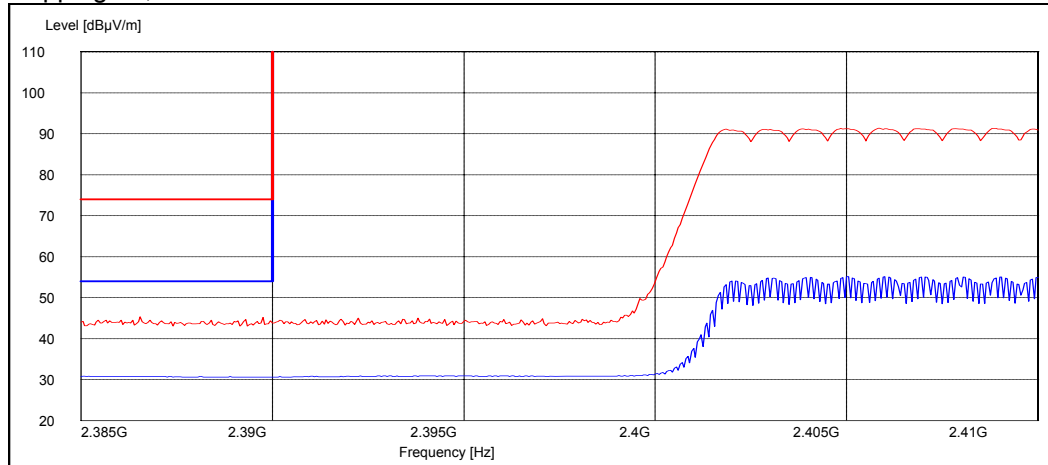
Channel 0 / 2402 MHz



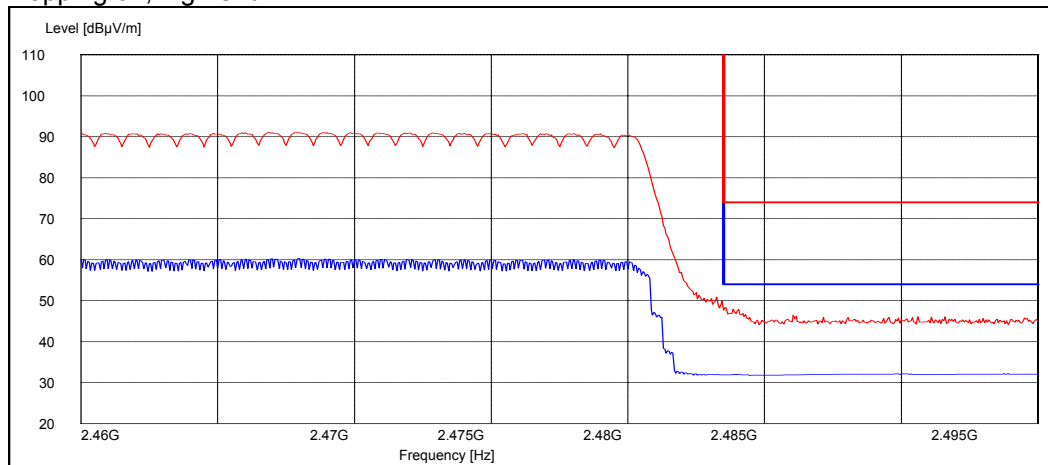
Channel 78 / 2480 MHz



Hopping on, low end



Hopping on, high end



3.2.2.2 Phone flip closed

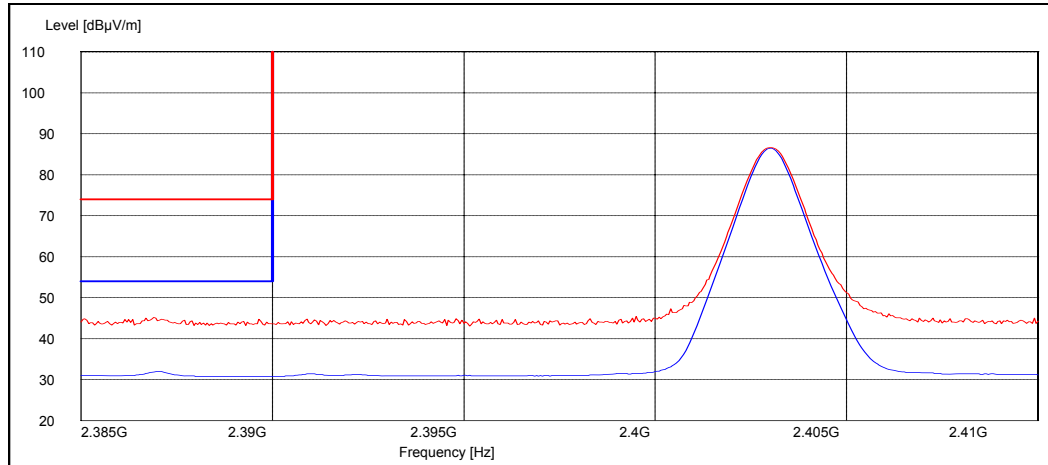
Average (RBW: 1 MHz)

Channel / f_c [MHz]	E [dBμV/m]	Result
0 / 2402	30.78	Passed
78 / 2480	35.68	Passed
Hopping on, low end	30.52	Passed
Hopping on, high end	31.78	Passed

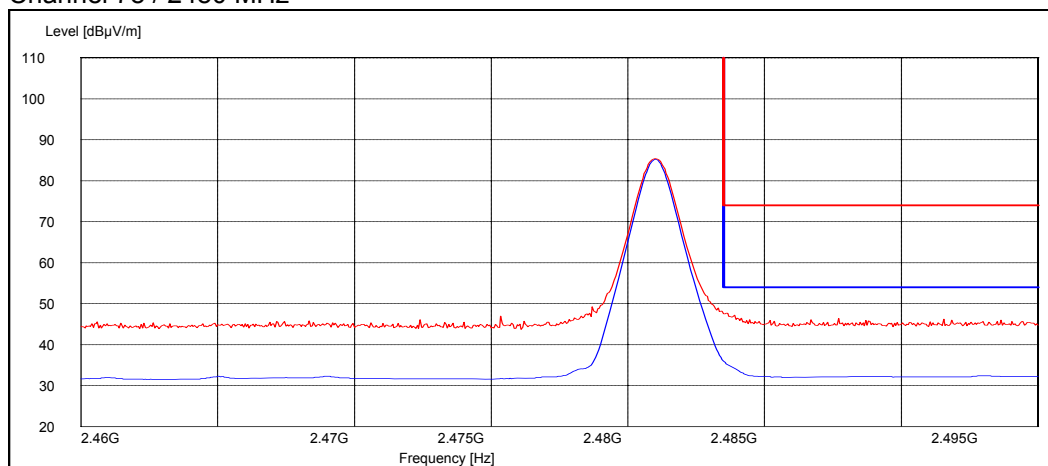
Peak (RBW: 1 MHz)

Channel / f_c [MHz]	E [dBμV/m]	Result
0 / 2402	44.76	Passed
78 / 2480	47.53	Passed
Hopping on, low end	44.10	Passed
Hopping on, high end	48.47	Passed

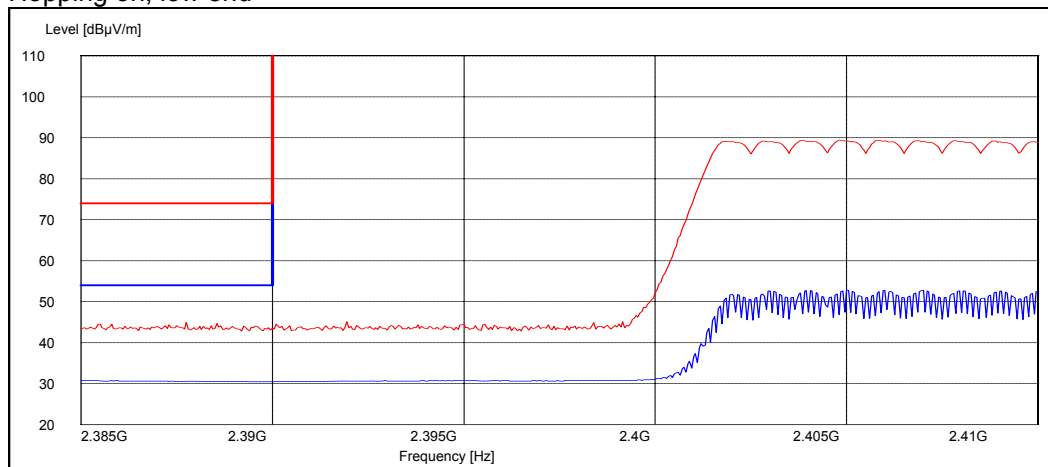
Channel 0 / 2402 MHz



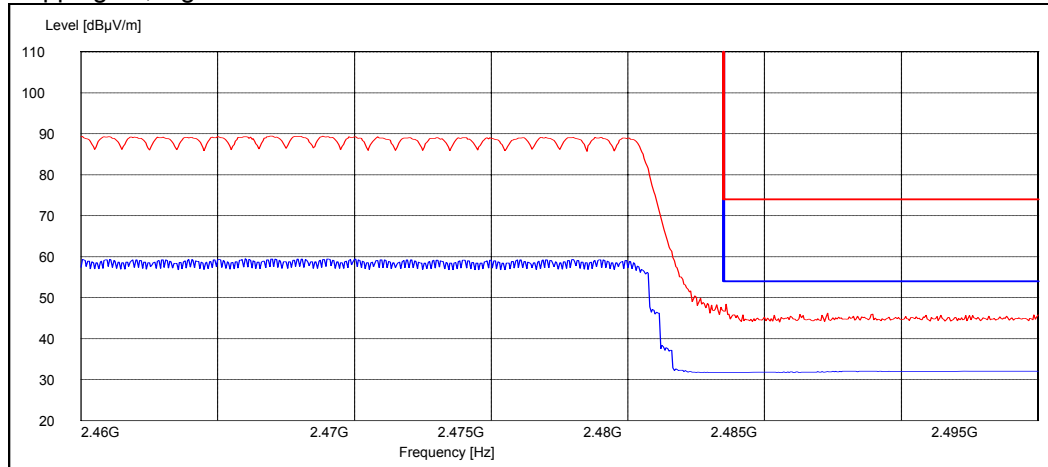
Channel 78 / 2480 MHz



Hopping on, low end



Hopping on, high end



4. Spurious radiated emissions (FCC §15.247(c), §15.209, RSS-210 A8.5)

EUT with DUT number	RM-156 Dut#29057
Accessories with DUT numbers	BL-5F Dut#29060, AC-4E Dut#29065, HS-23 Dut#29061
Operation Voltage [V] / [Hz]	230 / 50
Result	Passed
Remarks	None
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	23 / 52 / 1023
Date of measurements	20-07-2006
Measured by	Christian Andersen

4.1. Test method and limit

The measurement is made according to FCC rules part 15.247 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 ($A_{TOT} = L_{CABLES} + AF - G_{PREAMP}$).

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

Frequency range [MHz]	Limit [$\mu\text{V/m}$]	Limit [dB $\mu\text{V/m}$]	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

4.2. Bluetooth Test results

4.2.1 GFSK modulation, PRBS packet type

4.2.1.1 Phone flip open

Channel 0 / 2402 MHz

Peak (RBW: 1 MHz)

Frequency [MHz]	E [dB $\mu\text{V/m}$]	E [$\mu\text{V/m}$]	U _{RX} [dB μV]	A _{TOT} [dB]	Polarisation	Result
4804.000000	53.20	457.09	55.20	-2.00	HORIZONTAL	Passed
7206.000000	48.70	272.27	44.50	4.20	HORIZONTAL	Passed

Average (RBW: 1 MHz)

Frequency [MHz]	E [dB $\mu\text{V/m}$]	E [$\mu\text{V/m}$]	U _{RX} [dB μV]	A _{TOT} [dB]	Polarisation	Result
4804.000000	43.70	153.11	45.70	-2.00	HORIZONTAL	Passed
7206.000000	37.30	73.28	33.10	4.20	HORIZONTAL	Passed

Channel 40 / 2442 MHz

Quasi peak (RBW: 120 kHz)

Frequency [MHz]	E [dB $\mu\text{V/m}$]	E [$\mu\text{V/m}$]	U _{RX} [dB μV]	A _{TOT} [dB]	Polarisation	Result
37.695391	17.10	7.16	34.90	-17.80	VERTICAL	Passed
41.621643	19.80	9.77	40.20	-20.40	VERTICAL	Passed
73.888978	12.80	4.37	39.90	-27.10	HORIZONTAL	Passed
74.569940	15.10	5.69	42.10	-27.00	HORIZONTAL	Passed
868.137475	37.50	74.99	49.40	-11.90	VERTICAL	Passed

Peak (RBW: 1 MHz)

Frequency [MHz]	E [dB $\mu\text{V/m}$]	E [$\mu\text{V/m}$]	U _{RX} [dB μV]	A _{TOT} [dB]	Polarisation	Result
4884.269539	52.40	416.87	54.30	-1.90	HORIZONTAL	Passed
7325.651303	50.20	323.59	46.00	4.20	HORIZONTAL	Passed
17871.249499	58.30	822.24	32.90	25.40	VERTICAL	Passed

Average (RBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
4883.769539	42.60	134.90	44.50	-1.90	HORIZONTAL	Passed
7325.651303	38.00	79.43	33.80	4.20	HORIZONTAL	Passed
17874.249499	45.00	177.83	19.50	25.50	VERTICAL	Passed

Channel 78 / 2480 MHz

Peak (RBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
4960.000000	54.80	549.54	56.40	-1.60	HORIZONTAL	Passed
7440.000000	47.00	223.87	42.10	4.90	HORIZONTAL	Passed

Average (RBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
4960.000000	43.20	144.54	44.80	-1.60	HORIZONTAL	Passed
7440.000000	35.00	56.23	30.10	4.90	HORIZONTAL	Passed

4.2.1.2 Phone flip closed

Channel 0 / 2402 MHz

Peak (RBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
4804.000000	51.40	371.54	53.40	-2.00	VERTICAL	Passed
7206.000000	45.80	194.98	41.60	4.20	HORIZONTAL	Passed

Average (RBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
4804.000000	41.00	112.20	43.00	-2.00	VERTICAL	Passed
7206.000000	34.20	51.29	30.00	4.20	HORIZONTAL	Passed

Channel 40 / 2442 MHz

Quasi peak (RBW: 120 kHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
30.200000	25.40	18.62	38.50	-13.10	VERTICAL	Passed
37.895391	21.10	11.35	39.10	-18.00	VERTICAL	Passed
45.993186	24.70	17.18	48.10	-23.40	VERTICAL	Passed
74.148497	18.50	8.41	45.60	-27.10	HORIZONTAL	Passed
75.169940	17.20	7.24	44.10	-26.90	HORIZONTAL	Passed
868.137475	38.10	80.35	50.00	-11.90	VERTICAL	Passed

Peak (RBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
4883.767535	50.10	319.89	52.00	-1.90	HORIZONTAL	Passed
4883.769539	48.90	278.61	50.80	-1.90	VERTICAL	Passed
7325.651303	47.00	223.87	42.80	4.20	HORIZONTAL	Passed
17870.247495	58.10	803.53	32.70	25.40	VERTICAL	Passed

Average (RBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
4883.767535	39.90	98.86	41.80	-1.90	HORIZONTAL	Passed
4883.769539	38.60	85.11	40.50	-1.90	VERTICAL	Passed
7325.651303	34.60	53.70	30.40	4.20	HORIZONTAL	Passed
17877.247495	44.90	175.79	19.50	25.40	VERTICAL	Passed

Channel 78 / 2480 MHz

Peak (RBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
4960.000000	52.10	402.72	53.70	-1.60	VERTICAL	Passed
7440.000000	45.40	186.21	40.50	4.90	HORIZONTAL	Passed

Average (RBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
4960.000000	40.50	105.93	42.10	-1.60	VERTICAL	Passed
7440.000000	33.00	44.67	28.10	4.90	HORIZONTAL	Passed

4.2.2 8DPSK modulation, PRBS packet type

4.2.2.1 Phone flip open

Channel 0 / 2402 MHz

Peak (RBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
4804.000000	36.70	68.39	38.70	-2.00	VERTICAL	Passed
7206.000000	40.00	100.00	35.80	4.20	VERTICAL	Passed

Average (RBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
4804.000000	24.00	15.85	26.00	-2.00	VERTICAL	Passed
7206.000000	27.00	22.39	22.80	4.20	VERTICAL	Passed

Channel 40 / 2442 MHz

Quasi peak (RBW: 120 kHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
37.995391	24.80	17.38	42.90	-18.10	VERTICAL	Passed
74.808016	12.80	4.37	39.80	-27.00	HORIZONTAL	Passed
75.069940	9.30	2.92	36.20	-26.90	HORIZONTAL	Passed
244.689379	32.70	43.15	57.80	-25.10	VERTICAL	Passed
249.599599	34.40	52.48	59.40	-25.00	VERTICAL	Passed
269.138076	33.30	46.24	57.40	-24.10	VERTICAL	Passed

Peak (RBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
4920.341683	38.00	79.43	39.50	-1.50	VERTICAL	Passed
7414.837675	41.50	118.85	36.40	5.10	VERTICAL	Passed
17876.257515	58.20	812.83	32.70	25.50	VERTICAL	Passed

Average (RBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
4921.841683	24.80	17.38	26.30	-1.50	VERTICAL	Passed
7420.337675	29.20	28.84	24.30	4.90	VERTICAL	Passed
17877.757515	44.90	175.79	19.50	25.40	VERTICAL	Passed

Channel 78 / 2480 MHz

Peak (RBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
4960.000000	47.70	242.66	49.30	-1.60	HORIZONTAL	Passed
7440.000000	42.40	131.83	37.50	4.90	HORIZONTAL	Passed

Average (RBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
4960.000000	33.70	48.42	35.30	-1.60	HORIZONTAL	Passed
7440.000000	32.00	39.81	27.10	4.90	HORIZONTAL	Passed

4.2.2.2 Phone flip closed

Channel 0 / 2402 MHz

Peak (RBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
4804.000000	36.60	67.61	38.60	-2.00	HORIZONTAL	Passed
7206.000000	39.90	98.86	35.70	4.20	VERTICAL	Passed

Average (RBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
4804.000000	24.00	15.85	26.00	-2.00	VERTICAL	Passed
7206.000000	27.00	22.39	22.80	4.20	VERTICAL	Passed

Channel 40 / 2442 MHz

Quasi peak (RBW: 120 kHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
37.595391	24.70	17.18	42.50	-17.80	VERTICAL	Passed
73.446092	21.50	11.89	48.70	-27.20	HORIZONTAL	Passed
74.569940	19.70	9.66	46.70	-27.00	HORIZONTAL	Passed
244.689379	32.60	42.66	57.70	-25.10	VERTICAL	Passed
249.599599	36.10	63.83	61.10	-25.00	VERTICAL	Passed
269.138076	3.90	1.57	28.00	-24.10	VERTICAL	Passed

Peak (RBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
4919.335671	37.90	78.52	39.40	-1.50	VERTICAL	Passed
7422.839679	42.10	127.35	37.30	4.80	VERTICAL	Passed
17875.247495	59.80	977.24	34.30	25.50	VERTICAL	Passed

Average (RBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
4918.835671	24.90	17.58	26.40	-1.50	VERTICAL	Passed
7416.839679	29.20	28.84	24.20	5.00	VERTICAL	Passed
17876.247495	44.90	175.79	19.40	25.50	VERTICAL	Passed

Channel 78 / 2480 MHz

Peak (RBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
4960.000000	41.30	116.14	42.90	-1.60	VERTICAL	Passed
7440.000000	41.90	124.45	37.00	4.90	VERTICAL	Passed

Average (RBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
4960.000000	30.80	34.67	32.40	-1.60	VERTICAL	Passed
7440.000000	30.00	31.62	25.10	4.90	HORIZONTAL	Passed

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

EUT with DUT number	RM-156 Dut # 29052
Accessories with DUT numbers	BL-5F Dut # 29069 + AC-4E Dut # 29064 + HS-23 Dut # 29062
Operation Voltage [V] / [Hz]	230 / 50
Result	Passed
Remarks	When activating BT EDR (8DPSK modulation) with Phoenix Test SW the phone goes into local mode and therefore no charging function is available. WLAN Test: DSSS mode, 1 Mbps data rate and OFDM mode, 6 Mbps data rate was selected as worst case.
Temp [°C] / Humidity [%RH] / Air Pressure [mBar]	23.4 / 41.0 1016.2
Date of measurements	08-08-2006
Measured by	Allan F. Henriksen

5.1. Test method and limit

The measurement is made according to FCC rules part 15.247 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:

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

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

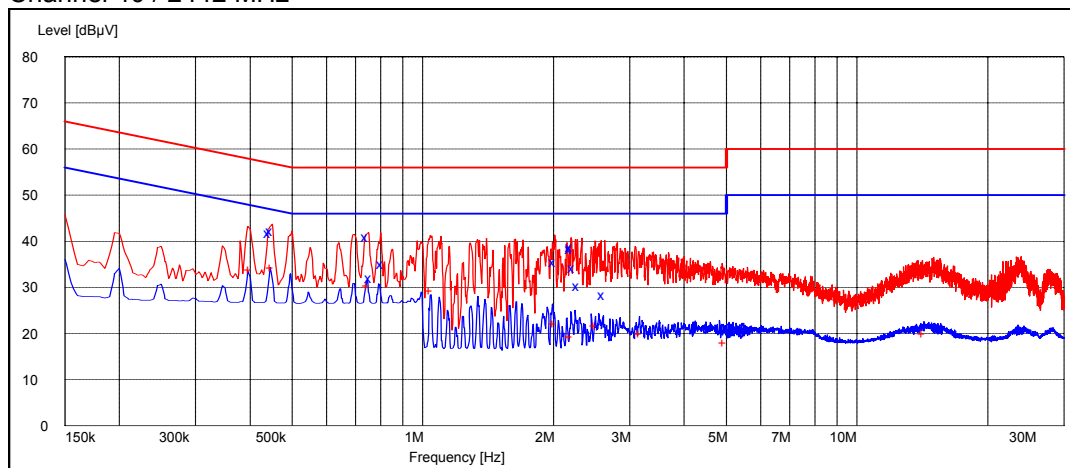
CISPR 22 Class B limits

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

5.2. Bluetooth Test results

5.2.1 GFSK modulation, PRBS packet type

Channel 40 / 2442 MHz



Quasi peak (RBW: 9 kHz)

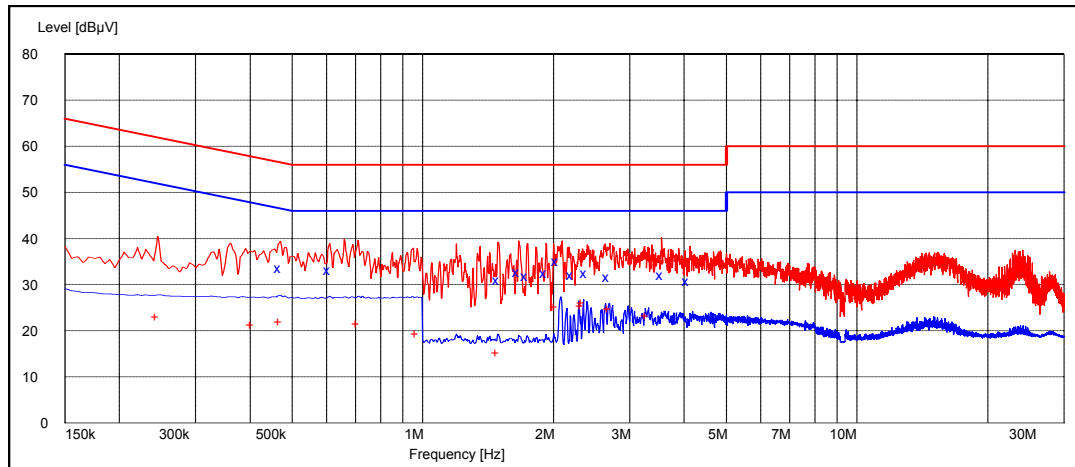
Frequency [MHz]	U [dBμV]	Line	Result
0.445000	41.70	L1	Passed
0.450000	42.20	L1	Passed
0.745000	40.90	L1	Passed
0.760000	32.00	L1	Passed
0.810000	35.00	L1	Passed
2.020000	35.50	L1	Passed
2.200000	38.30	L1	Passed
2.205000	38.80	L1	Passed
2.230000	34.10	L1	Passed
2.285000	30.20	L1	Passed
2.615000	28.20	L1	Passed

Average (RBW: 9 kHz)

Frequency [MHz]	U [dBμV]	Line	Result
0.400000	33.70	L1	Passed
0.450000	34.10	L1	Passed
0.750000	30.40	L1	Passed
1.045000	29.30	L1	Passed
2.015000	22.00	N	Passed
2.200000	19.10	L1	Passed
2.505000	21.50	L1	Passed
3.170000	19.90	N	Passed
4.960000	18.00	N	Passed
14.280000	19.80	L1	Passed

5.2.2 8DPSK modulation, PRBS packet type

Channel 40 / 2442 MHz



Quasi peak (RBW: 9 kHz)

Frequency [MHz]	U [dBμV]	Line	Result
0.470000	33.50	L1	Passed
0.610000	33.20	N	Passed
1.495000	31.00	L1	Passed
1.665000	32.80	L1	Passed
1.740000	31.90	L1	Passed
1.925000	32.50	L1	Passed
2.045000	35.10	L1	Passed
2.215000	32.00	L1	Passed
2.380000	32.60	N	Passed
2.685000	31.70	L1	Passed
3.565000	32.10	L1	Passed
4.085000	30.80	L1	Passed

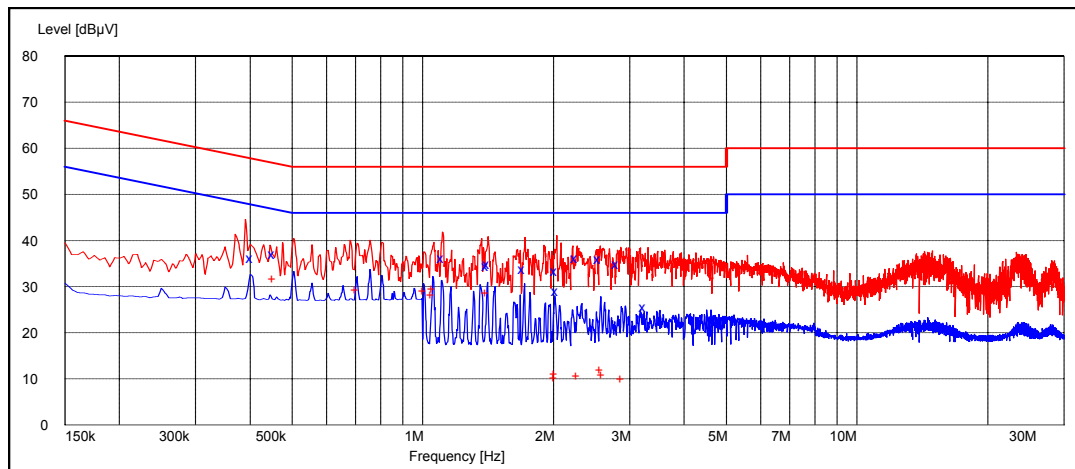
Average (RBW: 9 kHz)

Frequency [MHz]	U [dBμV]	Line	Result
0.245000	23.00	L1	Passed
0.405000	21.20	N	Passed
0.470000	21.80	N	Passed
0.710000	21.40	N	Passed
0.970000	19.20	N	Passed
1.490000	15.20	N	Passed
2.030000	25.10	N	Passed
2.330000	25.30	N	Passed
2.340000	26.00	N	Passed
2.690000	24.70	N	Passed
3.280000	23.20	N	Passed

5.3. WLAN Test results

5.3.1 DSSS mode, BPSK modulation, 1 Mbps data rate

Channel 7 / 2442 MHz



Quasi peak (RBW: 9 kHz)

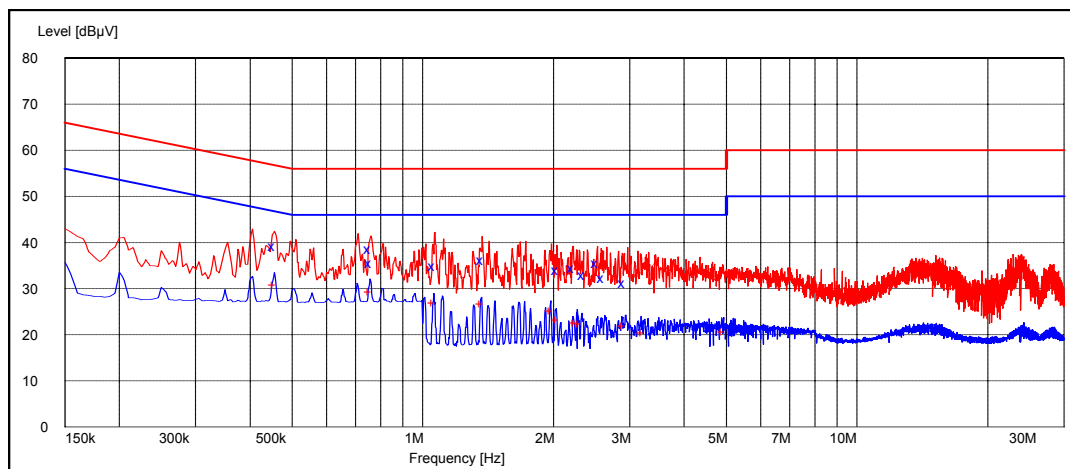
Frequency [MHz]	U [dBμV]	Line	Result
0.405000	36.10	L1	Passed
0.455000	37.10	L1	Passed
1.115000	36.20	L1	Passed
1.415000	34.40	L1	Passed
1.420000	34.90	L1	Passed
1.715000	33.70	L1	Passed
2.035000	33.40	L1	Passed
2.045000	29.10	L1	Passed
2.265000	36.20	L1	Passed
2.565000	35.90	L1	Passed
2.815000	34.80	L1	Passed
3.260000	25.50	L1	Passed

Average (RBW: 9 kHz)

Frequency [MHz]	U [dBμV]	Line	Result
0.455000	31.70	L1	Passed
0.705000	29.20	L1	Passed
1.010000	29.00	N	Passed
1.055000	28.20	L1	Passed
1.060000	29.50	N	Passed
1.410000	28.70	N	Passed
2.025000	10.20	N	Passed
2.030000	11.00	L1	Passed
2.280000	10.60	L1	Passed
2.585000	11.90	N	Passed
2.605000	10.80	L1	Passed
2.885000	10.00	N	Passed

5.3.2 OFDM mode, BPSK modulation, 6 Mbps data rate

Channel 7 / 2442 MHz



Quasi peak (RBW: 9 kHz)

Frequency [MHz]	U [dBμV]	Line	Result
0.455000	39.30	L1	Passed
0.755000	38.50	L1	Passed
0.760000	35.50	L1	Passed
1.065000	34.80	L1	Passed
1.375000	36.10	L1	Passed
2.045000	34.00	L1	Passed
2.225000	34.50	L1	Passed
2.355000	33.00	L1	Passed
2.530000	35.60	L1	Passed
2.610000	32.30	L1	Passed
2.915000	31.20	L1	Passed

Average (RBW: 9 kHz)

Frequency [MHz]	U [dBμV]	Line	Result
0.455000	30.80	L1	Passed
0.755000	29.30	L1	Passed
1.060000	26.90	L1	Passed
1.365000	26.60	N	Passed
1.970000	25.20	N	Passed
2.040000	23.20	N	Passed
2.245000	22.50	N	Passed
2.300000	22.40	N	Passed
2.905000	21.80	N	Passed
3.210000	20.40	L1	Passed
4.920000	20.60	N	Passed

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

EUT with DUT number	RM-156 Dut#28495
Accessories with DUT numbers	BL-5F Dut#29060, AC-4E Dut#29065, HS-23 Dut#29061
Operation Voltage [V] / [Hz]	230 / 50
Result	Passed
Remarks	None
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	23 / 52 / 1023
Date of measurements	09-08-2006
Measured by	Christian Andersen

6.1. Test method and limit

The measurement is made according to FCC rules part 15.247 and IC standard RSS-210.

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

6.2. WLAN Test results

6.2.1 DSSS mode, BPSK modulation, 1 Mbps data rate

6.2.1.1 Phone flip open

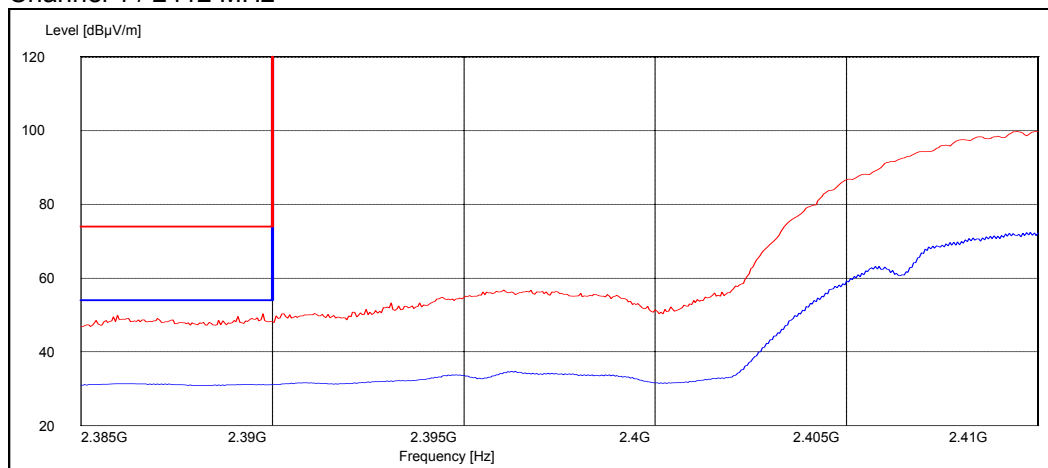
Average (RBW: 1 MHz)

Channel / f_c [MHz]	E [dB μ V/m]	Result
1 / 2412	31.15	Passed
11 / 2462	32.40	Passed

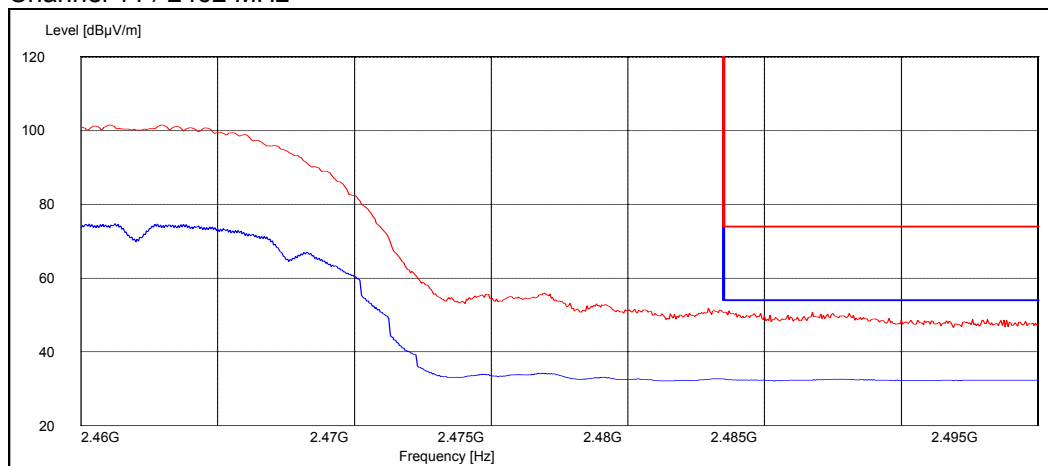
Peak (RBW: 1 MHz)

Channel / f_c [MHz]	E [dB μ V/m]	Result
1 / 2412	50.35	Passed
11 / 2462	51.06	Passed

Channel 1 / 2412 MHz



Channel 11 / 2462 MHz



6.2.1.2 Phone flip closed

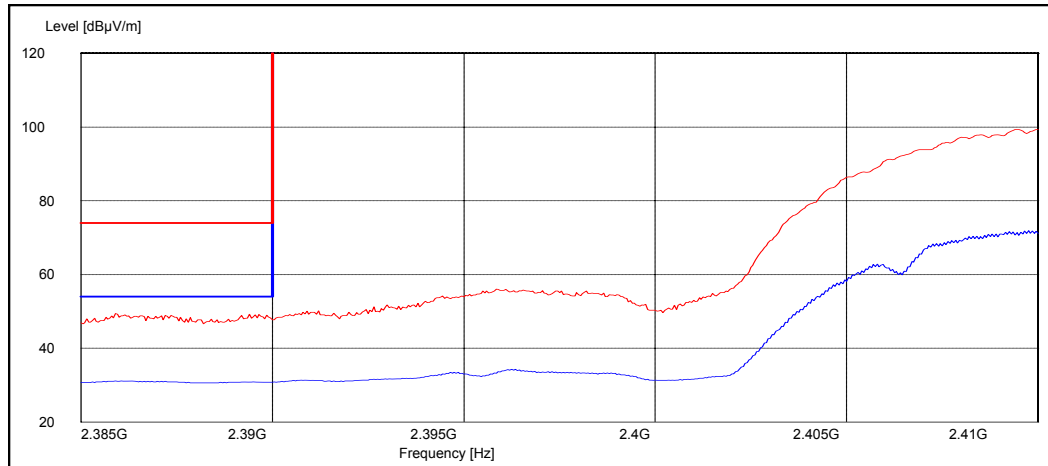
Average (RBW: 1 MHz)

Channel / f_c [MHz]	E [dB μ V/m]	Result
1 / 2412	30.78	Passed
11 / 2462	33.21	Passed

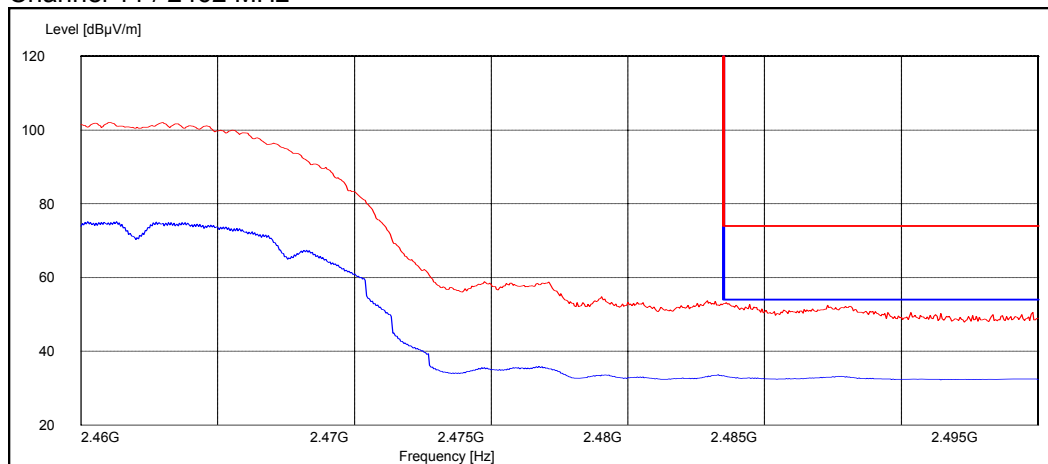
Peak (RBW: 1 MHz)

Channel / f_c [MHz]	E [dB μ V/m]	Result
1 / 2412	48.53	Passed
11 / 2462	53.17	Passed

Channel 1 / 2412 MHz



Channel 11 / 2462 MHz



6.2.2 OFDM mode, BPSK modulation, 6 Mbps data rate

6.2.2.1 Phone flip open

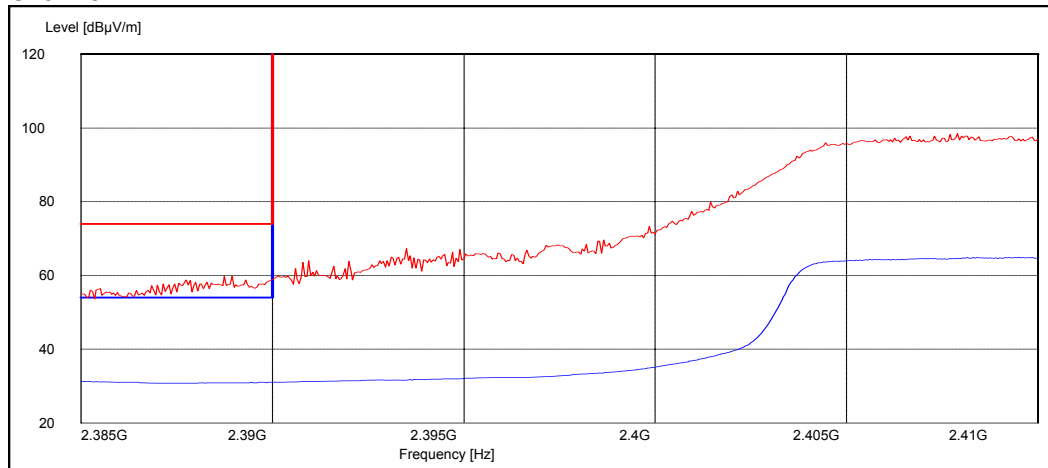
Average (RBW: 1 MHz)

Channel / f_c [MHz]	E [dB μ V/m]	Result
1 / 2412	30.92	Passed
11 / 2462	37.30	Passed

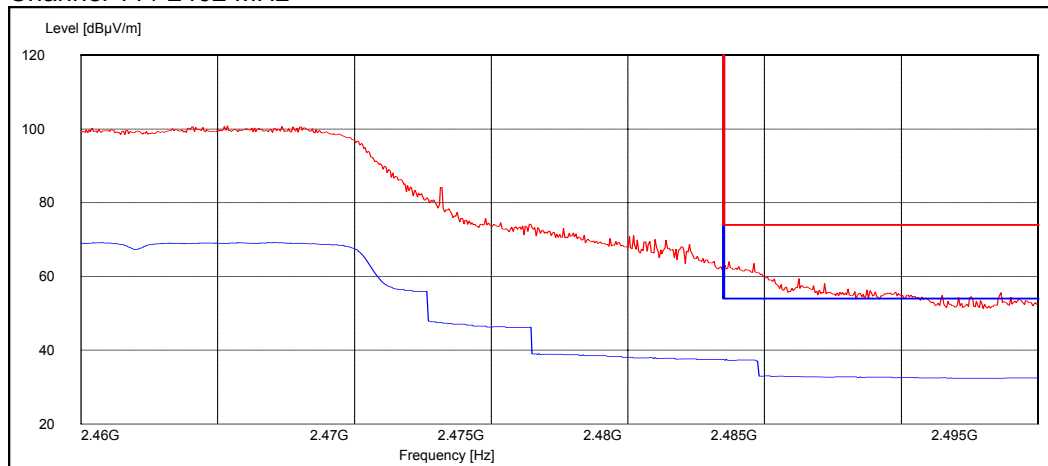
Peak (RBW: 1 MHz)

Channel / f_c [MHz]	E [dB μ V/m]	Result
1 / 2412	59.73	Passed
11 / 2462	63.99	Passed

Channel 1 / 2412 MHz



Channel 11 / 2462 MHz



6.2.2.2 Phone flip closed

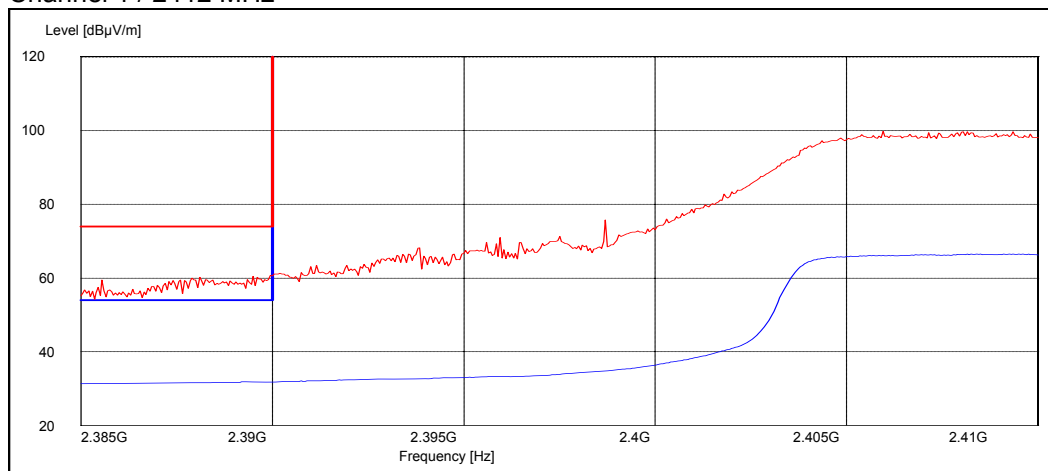
Average (RBW: 1 MHz)

Channel / f_c [MHz]	E [dB μ V/m]	Result
1 / 2412	31.85	Passed
11 / 2462	37.51	Passed

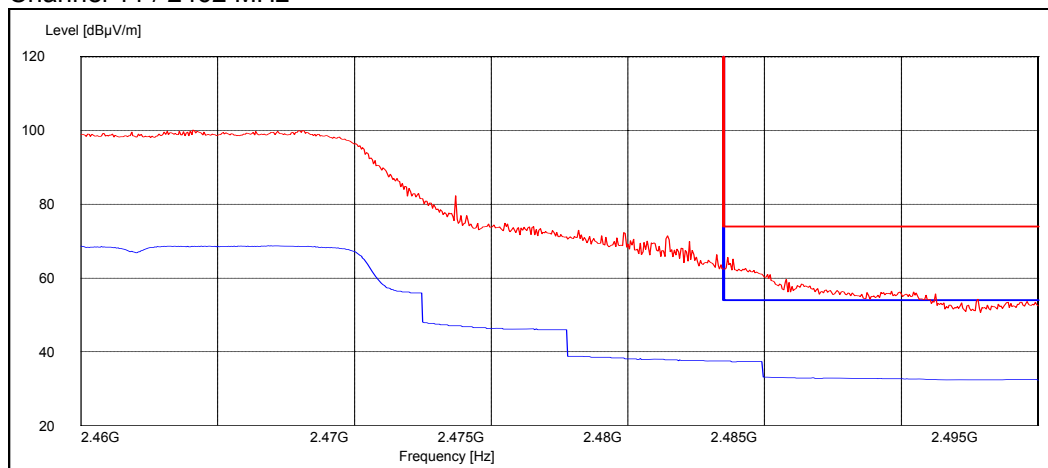
Peak (RBW: 1 MHz)

Channel / f_c [MHz]	E [dB μ V/m]	Result
1 / 2412	60.59	Passed
11 / 2462	65.58	Passed

Channel 1 / 2412 MHz



Channel 11 / 2462 MHz



7. Spurious radiated emissions (FCC §15.247(c), §15.209, RSS-210 A8.5)

EUT with DUT number	RM-156 Dut#29057
Accessories with DUT numbers	BL-5F Dut#29060, AC-4E Dut#29065, HS-23 Dut#29061
Operation Voltage [V] / [Hz]	230 / 50
Result	Passed
Remarks	None
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	23 / 52 / 1023
Date of measurements	21-07-2006
Measured by	Christian Andersen

7.1. Test method and limit

The measurement is made according to FCC rules part 15.247 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 ($A_{TOT} = L_{CABLES} + AF - G_{PREAMP}$).

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

Frequency range [MHz]	Limit [$\mu\text{V/m}$]	Limit [dB $\mu\text{V/m}$]	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

7.2. WLAN Test results

7.2.1 DSSS mode, BPSK modulation, 1 Mbps data rate

7.2.1.1 Phone flip open

Channel 1 / 2412 MHz

Peak (RBW: 1 MHz)

Frequency [MHz]	E [dB $\mu\text{V/m}$]	E [$\mu\text{V/m}$]	U _{RX} [dB μV]	A _{TOT} [dB]	Polarisation	Result
4824.000000	52.60	426.58	54.80	-2.20	VERTICAL	Passed
7236.000000	43.20	144.54	39.20	4.00	VERTICAL	Passed

Average (RBW: 1 MHz)

Frequency [MHz]	E [dB $\mu\text{V/m}$]	E [$\mu\text{V/m}$]	U _{RX} [dB μV]	A _{TOT} [dB]	Polarisation	Result
4824.000000	32.20	40.74	34.40	-2.20	VERTICAL	Passed
7236.000000	28.60	26.92	24.60	4.00	VERTICAL	Passed

Channel 7 / 2442 MHz

Quasi peak (RBW: 120 kHz)

Frequency [MHz]	E [dB $\mu\text{V/m}$]	E [$\mu\text{V/m}$]	U _{RX} [dB μV]	A _{TOT} [dB]	Polarisation	Result
31.002405	29.30	29.17	42.90	-13.60	VERTICAL	Passed
37.895391	23.90	15.67	41.90	-18.00	VERTICAL	Passed
44.169339	28.30	26.00	50.50	-22.20	VERTICAL	Passed
73.208016	19.20	9.12	46.50	-27.30	HORIZONTAL	Passed
74.369940	16.60	6.76	43.70	-27.10	HORIZONTAL	Passed

Peak (RBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
4820.633267	37.00	70.79	39.20	-2.20	HORIZONTAL	Passed
4847.193387	37.10	71.61	39.30	-2.20	HORIZONTAL	Passed
4862.217435	37.70	76.74	39.80	-2.10	HORIZONTAL	Passed
4867.737475	36.50	66.83	38.50	-2.00	HORIZONTAL	Passed
4883.767535	50.80	346.74	52.70	-1.90	HORIZONTAL	Passed
7420.841683	42.30	130.32	37.40	4.90	VERTICAL	Passed
17888.271543	57.30	732.82	32.00	25.30	VERTICAL	

Average (RBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
4816.633267	23.90	15.67	26.00	-2.10	HORIZONTAL	Passed
4847.693387	23.80	15.49	26.00	-2.20	HORIZONTAL	Passed
4861.717435	23.90	15.67	26.00	-2.10	HORIZONTAL	Passed
4871.737475	24.10	16.03	26.10	-2.00	HORIZONTAL	Passed
4884.267535	30.90	35.08	32.80	-1.90	HORIZONTAL	Passed
7419.841683	28.80	27.54	23.90	4.90	VERTICAL	Passed
17881.771543	44.60	169.82	19.20	25.40	VERTICAL	Passed

Channel 11 / 2462 MHz

Peak (RBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
4924.000000	53.00	446.68	54.40	-1.40	HORIZONTAL	Passed
7386.000000	41.20	114.82	36.20	5.00	VERTICAL	Passed

Average (RBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
4924.000000	32.60	42.66	34.00	-1.40	HORIZONTAL	Passed
7386.000000	28.10	25.41	23.10	5.00	VERTICAL	Passed

7.2.1.2 Phone flip closed

Channel 1 / 2412 MHz

Peak (RBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
4824.000000	53.60	478.63	55.80	-2.20	HORIZONTAL	Passed
7236.000000	40.50	105.93	36.50	4.00	VERTICAL	Passed

Average (RBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
4824.000000	32.80	43.65	35.00	-2.20	HORIZONTAL	Passed
7236.000000	28.10	25.41	24.10	4.00	VERTICAL	Passed

Channel 7 / 2442 MHz

Quasi peak (RBW: 120 kHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
37.735872	22.60	13.49	40.50	-17.90	VERTICAL	Passed
43.166934	28.20	25.70	49.70	-21.50	VERTICAL	Passed
63.205411	8.10	2.54	38.40	-30.30	VERTICAL	Passed
73.408016	11.50	3.76	38.70	-27.20	HORIZONTAL	Passed
74.369940	9.70	3.05	36.80	-27.10	HORIZONTAL	Passed

Peak (RBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
4883.769539	49.70	305.49	51.60	-1.90	HORIZONTAL	Passed
7418.833667	41.80	123.03	36.80	5.00	VERTICAL	Passed
7420.841683	42.20	128.82	37.30	4.90	VERTICAL	Passed
17870.749499	58.30	822.24	32.90	25.40	VERTICAL	Passed

Average (RBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
4883.769539	30.60	33.88	32.50	-1.90	HORIZONTAL	Passed
7419.833667	29.10	28.51	24.20	4.90	VERTICAL	Passed
7419.841683	29.10	28.51	24.20	4.90	VERTICAL	Passed
17875.749499	45.00	177.83	19.50	25.50	VERTICAL	Passed

Channel 11 / 2462 MHz

Peak (RBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
4924.000000	52.20	407.38	53.60	-1.40	HORIZONTAL	Passed
7386.000000	41.70	121.62	36.70	5.00	VERTICAL	Passed

Average (RBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
4924.000000	32.20	40.74	33.60	-1.40	HORIZONTAL	Passed
7386.000000	28.00	25.12	23.00	5.00	VERTICAL	Passed

OFDM mode, BPSK modulation, 6 Mbps data rate

7.2.1.3 Phone flip open

Channel 1 / 2412 MHz

Peak (RBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
4824.000000	45.80	194.98	48.00	-2.20	HORIZONTAL	Passed
7236.000000	40.70	108.39	36.70	4.00	HORIZONTAL	Passed

Average (RBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
4824.000000	24.80	17.38	27.00	-2.20	VERTICAL	Passed
7236.000000	27.90	24.83	23.90	4.00	VERTICAL	Passed

Channel 7 / 2442 MHz

Quasi peak (RBW: 120 kHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
37.976353	23.80	15.49	41.80	-18.00	VERTICAL	Passed
43.266934	28.20	25.70	49.80	-21.60	VERTICAL	Passed
73.746092	18.30	8.22	45.50	-27.20	VERTICAL	Passed
75.069940	17.60	7.59	44.50	-26.90	HORIZONTAL	Passed

Peak (RBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
4884.273547	44.00	158.49	45.90	-1.90	HORIZONTAL	Passed
4885.767535	43.60	151.36	45.50	-1.90	HORIZONTAL	Passed
7341.677355	40.30	103.51	35.60	4.70	HORIZONTAL	Passed
7413.331663	41.00	112.20	35.90	5.10	VERTICAL	Passed
7417.341683	41.70	121.62	36.70	5.00	VERTICAL	Passed
17851.203407	57.20	724.44	32.30	24.90	HORIZONTAL	Passed

Average (RBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
4884.267535	25.00	17.78	26.90	-1.90	HORIZONTAL	Passed
4884.273547	25.00	17.78	26.90	-1.90	HORIZONTAL	Passed
7340.177355	27.70	24.27	23.10	4.60	HORIZONTAL	Passed
7417.341683	28.80	27.54	23.80	5.00	VERTICAL	Passed
7418.831663	28.80	27.54	23.80	5.00	VERTICAL	Passed
17852.703407	44.30	164.06	19.40	24.90	HORIZONTAL	Passed

Channel 11 / 2462 MHz

Peak (RBW: 1 MHz)

Frequency [MHz]	E [dB μ V/m]	E [μ V/m]	U _{RX} [dB μ V]	A _{TOT} [dB]	Polarisation	Result
4924.000000	44.80	173.78	46.20	-1.40	HORIZONTAL	Passed
7386.000000	40.20	102.33	35.20	5.00	VERTICAL	Passed

Average (RBW: 1 MHz)

Frequency [MHz]	E [dB μ V/m]	E [μ V/m]	U _{RX} [dB μ V]	A _{TOT} [dB]	Polarisation	Result
4924.000000	25.40	18.62	26.80	-1.40	VERTICAL	Passed
7386.000000	27.70	24.27	22.70	5.00	VERTICAL	Passed

7.2.1.4 Phone flip closed

Channel 1 / 2412 MHz

Peak (RBW: 1 MHz)

Frequency [MHz]	E [dB μ V/m]	E [μ V/m]	U _{RX} [dB μ V]	A _{TOT} [dB]	Polarisation	Result
4824.000000	44.40	165.96	46.60	-2.20	HORIZONTAL	Passed
7236.000000	41.00	112.20	37.00	4.00	HORIZONTAL	Passed

Average (RBW: 1 MHz)

Frequency [MHz]	E [dB μ V/m]	E [μ V/m]	U _{RX} [dB μ V]	A _{TOT} [dB]	Polarisation	Result
4824.000000	25.60	19.05	27.80	-2.20	HORIZONTAL	Passed
7236.000000	28.40	26.30	24.40	4.00	VERTICAL	Passed

Channel 7 / 2442 MHz

Quasi peak (RBW: 120 kHz)

Frequency [MHz]	E [dB μ V/m]	E [μ V/m]	U _{RX} [dB μ V]	A _{TOT} [dB]	Polarisation	Result
30.800000	28.00	25.12	41.50	-13.50	VERTICAL	Passed
38.195391	21.80	12.30	40.00	-18.20	VERTICAL	Passed
43.205010	25.50	18.84	47.00	-21.50	VERTICAL	Passed
70.460321	8.50	2.66	36.40	-27.90	HORIZONTAL	Passed
73.186573	12.70	4.32	40.00	-27.30	HORIZONTAL	Passed
74.269940	12.60	4.27	39.70	-27.10	HORIZONTAL	Passed

Peak (RBW: 1 MHz)

Frequency [MHz]	E [dB μ V/m]	E [μ V/m]	U _{RX} [dB μ V]	A _{TOT} [dB]	Polarisation	Result
4882.269539	43.80	154.88	45.80	-2.00	HORIZONTAL	Passed
4884.271543	44.70	171.79	46.60	-1.90	HORIZONTAL	Passed
7416.337675	42.30	130.32	37.30	5.00	VERTICAL	Passed
7423.345691	41.80	123.03	37.00	4.80	VERTICAL	Passed
17864.723447	57.70	767.36	32.50	25.20	HORIZONTAL	Passed

Average (RBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
4883.271543	25.00	17.78	26.90	-1.90	HORIZONTAL	Passed
4886.269539	24.90	17.58	26.80	-1.90	HORIZONTAL	Passed
7418.837675	28.90	27.86	23.90	5.00	VERTICAL	Passed
7426.845691	28.60	26.92	23.80	4.80	VERTICAL	Passed
17859.723447	44.60	169.82	19.50	25.10	HORIZONTAL	Passed

Channel 11 / 2462 MHz

Peak (RBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
4924.000000	44.30	164.06	45.70	-1.40	HORIZONTAL	Passed
7386.000000	40.70	108.39	35.70	5.00	HORIZONTAL	Passed

Average (RBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Polarisation	Result
4924.000000	25.70	19.28	27.10	-1.40	HORIZONTAL	Passed
7386.000000	27.90	24.83	22.90	5.00	VERTICAL	Passed

8. Test Equipment

8.1. Conducted measurements

Eq. No	Equipment	Type	Manufacturer	Used in
13037	Power Supply 0-15V 10A	EA3012	LP Instruments	15B,15C
13513	Pulse Limiter 9KHz-30MHz	ESH3Z2	Rohde&Schwarz	15B,15C
13666	EMI Test Reciever 9KHz-2,5GHz	ESPC	Rohde&Schwarz	15B,15C
13935	Two Lines Artificial Mains Network	ESH3-Z5	Rohde&Schwarz	15B,15C
16995	Directional Coupler 20dB 0,5-2,0 GHz SMA Conn.	1538RA-20	Weinschel	15B,15C
18772	Shielded Chamber	RFD-100	ETS-Lindgren	15B,15C
19171	Universal Radio Communication Tester	CMU200	Rohde&Schwarz	15B,15C
11386	System DC Power Supply	HP6632A	Hewlett Packard	22.24
11487	Network analyzer 300KHz-3,0GHz	HP8753A	Hewlett Packard	22.24
11584	Spectrum analyzer 50Hz-6,5GHz	HP8561B	Hewlett Packard	22.24
13134	Tracking generator	HP85645A	Hewlett Packard	22.24
13302	Spectrum Analyzer 9KHz-12.8GHz	HP8596E	Hewlett Packard	22.24
13371	Temperature Chamber	S-1,2C	Thermotron	22.24
13524	Digital Radiocomm. Tester	CMD55	Rohde&Schwarz	22.24
14807	S - Parameter Test Set 300KHz-6GHz	HP85047A	Hewlett Packard	22.24
15859	Digital Radio Communication Test Set	4201S	Wavetek	22.24
17277	Multimeter Digital 6 1/2 Digit	AT34401A	Agilent Technologies	22.24
17796	Radio Communication Test Set	4400M	Wavetek	22.24
19374	Resonant Dipole Antenna 850MHz SMA m Conn.	-	NMP Cph	22.24
19375	Resonant Dipole Antenna 1900MHz SMA m Conn.	-	NMP Cph	22.24
13037	Power Supply 0-15V 10A	EA3012	LP Instruments	15B,15C

8.2. Radiated measurements

Eq. No	Equipment	Type	Manufacturer	Used in
14020	Programmable Relay Switching System	-	Pickering	15B,15C,22,24
18792	Multi Device Controller	2090	ETS-EMCO	15B,15C,22,24
13829	Turntable Controller	4630-100	Comtest	15B,15C,22,24
14963	RF Preamplifier 100MHz-4GHz (Metal Chassis)	AFS3-00100400	Miteq/NMP Cph	15B,15C,22,24
13668	BiLog Antenna 30-2000MHz	BiLog-CBL6112A	Chase	15B,15C,22,24
18861	EMI Test Receiver 20Hz-26,5GHz	ESI	Rohde&Schwarz	15B,15C,22,24
12679	Dual Log Periodic Antenna 1-18 GHz	HL025	Rohde&Schwarz	15B,15C,22,24
18860	Ultra Broadband Antenna	HL562	Rohde&Schwarz	15B,15C,22,24

Eq. No	Equipment	Type	Manufacturer	Used in
	Ultralog 30-3000MHz			
18773	Shielded Chamber	RFD-100	ETS-Lindgren	15B,15C,22,24
18774	Shielded Chamber	RFSD-F/A-100	ETS-Lindgren	15B,15C,22,24
18324	High Pass Filter 3GHz SMA f Conn	WHJS3000-10SS	Wainwright	15B,15C,22,24
14114	Highpass Filter 1000MHz-4500MHz	WHK1000-12SS	Wainwright	15B,15C,22,24
13918	Highpass Filter 2000-4000MHz 50OHM SMA Conn	WHKS2000-10SS	Wainwright Instruments	15B,15C,22,24
13937	Ultra Stable Notch Filter 902,4MHz	WRCA902.4-0.2/40-6SS	Wainwright Instruments	15B,15C,22,24
13936	Ultra Stable Notch Filter 1747,5MHz	WRCD1747.5-0.2/40-10SS	Wainwright Instruments	15B,15C,22,24
13917	Highpass Filter 1000-3000MHz 50OHM SMA Conn	WHKS1000-10SS	Wainwright Instruments	15B,15C,22,24
14188	Ultra Stable Notch Filter 902,4MHz	WRCA902.4-0.2/40-6SS	Wainwright	15B,15C,22,24
14187	Ultra Stable Notch Filter 1747,5MHz	WRCD1747.5-0.2/40-10SS	Wainwright	15B,15C,22,24
16633	Ultra Stable Notch Filter 1880,0MHz	WRCD1880.0-0.2/40-10SS	Wainwright	15B,15C,22,24
18323	Band reject filter 1947-1953MHz 40dB	WRCG1947/1953-1940/1960-40/6SS	Wainwright	15B,15C,22,24
15190	Infra Red Remote Control Unit	4630	Emco	22,24,15B,15C
14993	EMI Test Receiver 9KHz-2750MHz	ESCS30	Rohde&Schwarz	22,24,15B,15C
15191	Turntable Contoller Unit	G-800SDX	YAESU	22,24,15B,15C
14900	Antenna Controller	HD100	HD GmbH	22,24,15B,15C