

EMC TEST REPORT

No. 0127227E

Emission of electromagnetic disturbances

EQUIPMENT UNDER TEST

Equipment : Bluetooth Local Infotainment Point
Type / model : blip C11
Manufacturer: Ericsson Microwave Systems AB
Tested by request of : Ericsson Microwave Systems AB

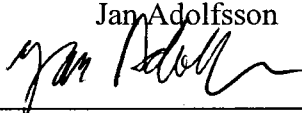
SUMMARY

The equipment complies with the requirements according to the following standard:

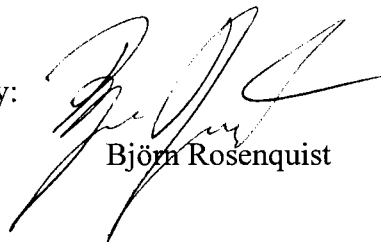
FCC (1999) Part 15: Radio frequency devices, Subpart B

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1. CLIENT INFORMATION

The EUT has been tested by request of

Company: Ericsson Microwave Systems AB
TS/U CTP
SE-431 84 Mölndal
Sweden

Name of contact: Gilbert Bengtsson
E-mail: Gilbert.Bengtsson@emw.ericsson.se

2. EQUIPMENT UNDER TEST (EUT)**2.1 Identification of the EUT**

Equipment: Bluetooth Local Infotainment Point
Type/Model: blip C11
Brand name: BLIP
Manufacturer: Ericsson Microwave Systems AB
Rating: 5 V DC; 0,65 A

2.2 Additional information about the EUT

The EUT consists of the following units:

Units	Product number	Serial number
blip C 11	BFM 901 99/1 P4B S80 0000482 01W09	
Power supply	BML 162 130/13 R1B	047021027G

The EUT was tested with the following cables:

Cable	Type	Length
Serial RS232	Shielded	1,5 m
Adapter cable	Not specified	1,5 m

3. TEST SPECIFICATIONS

3.1 Standards

FCC (1999) Part 15 - Radio frequency devices:

Subpart B - Unintentional radiators

	Frequency range, MHz	Limit
Conducted emission:	0.45 – 30	48 dB μ V
Radiated emission (3 m distance):	30 – 88	40.0 dB μ V/m
	88 – 216	43.5 dB μ V/m
	216 – 960	46.0 dB μ V/m
	960 – 1000	54.0 dB μ V/m

3.2 Additions, deviations and exclusions from standards

No additions, deviations or exclusions have been made from the standard.

3.3 Mode of operation during the tests

The EUT was supplied with 5 V DC through its power supply unit (see 2.2) and set into the stand by mode. A lap-top computer running an arbitrary program in Windows environment was connected to the EUT by the serial cable but no control signal was applied to the EUT.

4. TEST SUMMARY

The results in this report apply only to sample tested:

Test	Result	Note
Conducted emission, 0,45 – 30 MHz	Pass	
Radiated emission, 30 MHz – 1000 MHz	Pass	

5. MAINS TERMINAL CONTINUOUS DISTURBANCE VOLTAGE IN THE FREQUENCY RANGE 0,45 MHZ TO 30 MHZ

5.1 Operating environment

Temperature: 25 °C
Relative Humidity: 38 %

5.2 Test set-up and test procedure

The mains terminal disturbance voltage was measured with the equipment under test (EUT) 0,8 m above the ground plane and 0,4 m from the vertical ground plane. The EUT was connected to an artificial mains network (AMN). The AMN was placed on a metallic, grounded floor. Amplitude measurements were performed with a quasi-peak detector. Set-up photos are given in Appendix.

5.3 Measurement uncertainty

Mains terminal disturbance voltage, quasi-peak detection: $\pm 2,0$ dB

The measurement uncertainty describes the overall uncertainty of the given measured value during the operation of the EUT in the above mentioned way. Measurement uncertainty is calculated in accordance with WECC 19-1990. The measurement uncertainty is given with a confidence of 95%.

5.4 Test equipment

Test site:	Shielded room		
Equipment	Manufacturer	Type	SEMKO No.
Measurement receiver	Rohde & Schwarz	ESHS 30	3149
Artificial mains network	Rohde & Schwarz	ESH3-Z5	2727

5.5 Test protocol

Date of test: July 2, 2001

Frequency /MHz	Quasi-Peak	
	Disturbance Level /dB(μ V)	Permitted limit /dB(μ V)
0,527	46	48
0,688	46	48
0,856	47	48
1,024	48	48
1,199	48	48
1,367	46	48
1,542	45	48
1,710	46	48
2,053	43	48

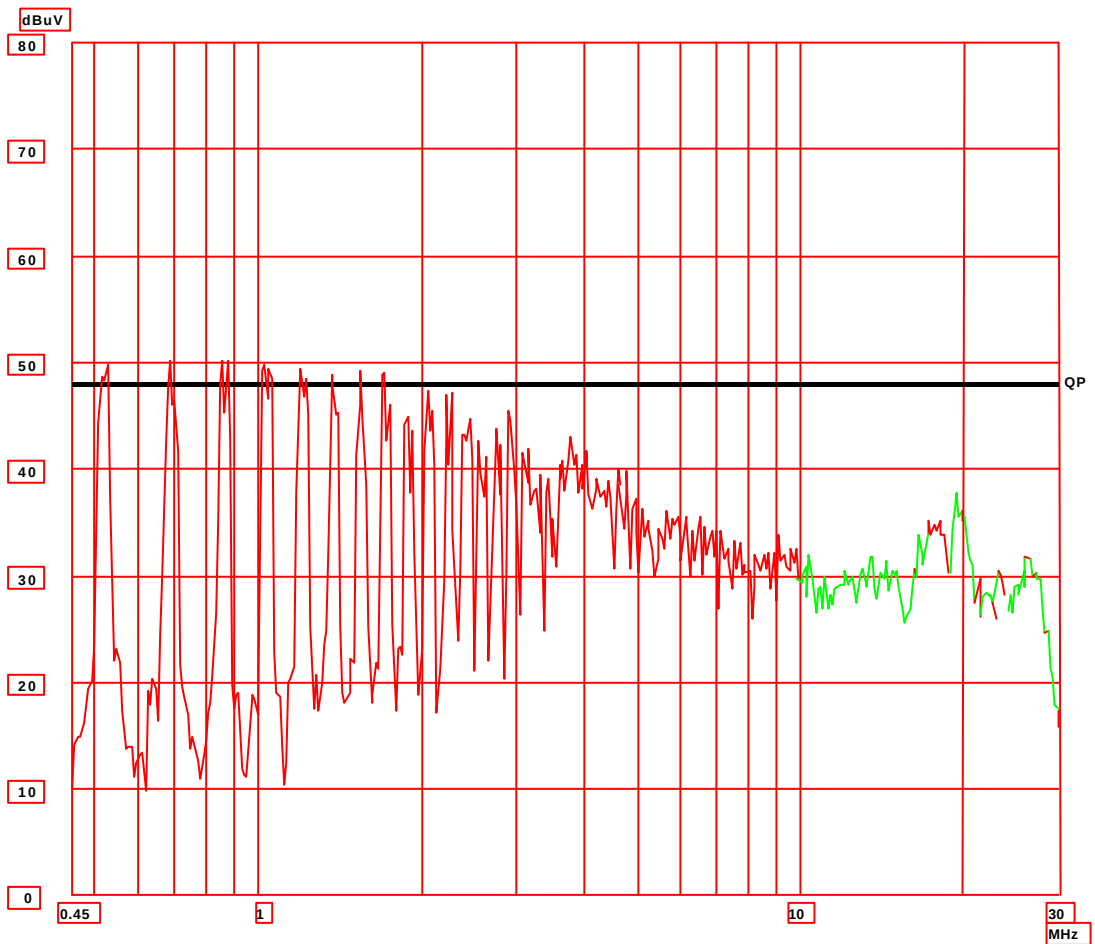
An overview sweep performed with a peak detector is shown below.

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FCC Part 15 conducted

EUT:	BLIP C11
Manuf:	Ericsson Microwave
Op Cond:	Standby mode
Operator:	VLB
Test Spec:	Mains terminals. Peak measurements.
Comment:	Temp.= 25 C;
	RH = 38 %



6. RADIATED ELECTROMAGNETIC FIELD IN THE FREQUENCY RANGE 30 MHZ TO 1000 MHZ

6.1 Operating environment

Temperature: 23 °C
Relative Humidity: 44 %

Measurements were performed in a semi-anechoic chamber.

6.2 Test set-up and test procedure

The radiated disturbance electric field intensity was measured in a semi-anechoic chamber at a distance of 3 m and the EUT was placed on a non-metallic table, 0,8 m above the reference ground plane.

The EUT was positioned in order to emit maximum disturbance. Photos of the set-up are included in Appendix.

An overview sweep with peak detection of the electric field intensity was performed with the measurement receiver in max-hold and with the antenna placed 1,5 m, 2,5 m and 3,5 m above the floor. The polarisation was horizontal and vertical. The measurements were repeated with the EUT rotated in 90-degree steps. The peak overview sweep is shown in Section 6.5.

For frequencies where high disturbance levels were found a search for max disturbance level was performed. With the EUT and antenna in the worst case configuration quasi-peak or average measurements were carried out. These measurement results are found in the test protocol.

6.3 Measurement uncertainty

Radiated disturbance electric field intensity, 30-200 MHz: ±3,0 dB
Radiated disturbance electric field intensity, 200-1000 MHz: ±2,5 dB

The measurement uncertainty describes the overall uncertainty of the given measured value during operation of the EUT in the way specified in Section 3.3.

Measurement uncertainty is calculated in accordance with WECC 19-1990.
The measurement uncertainty is given with a confidence of 95%.

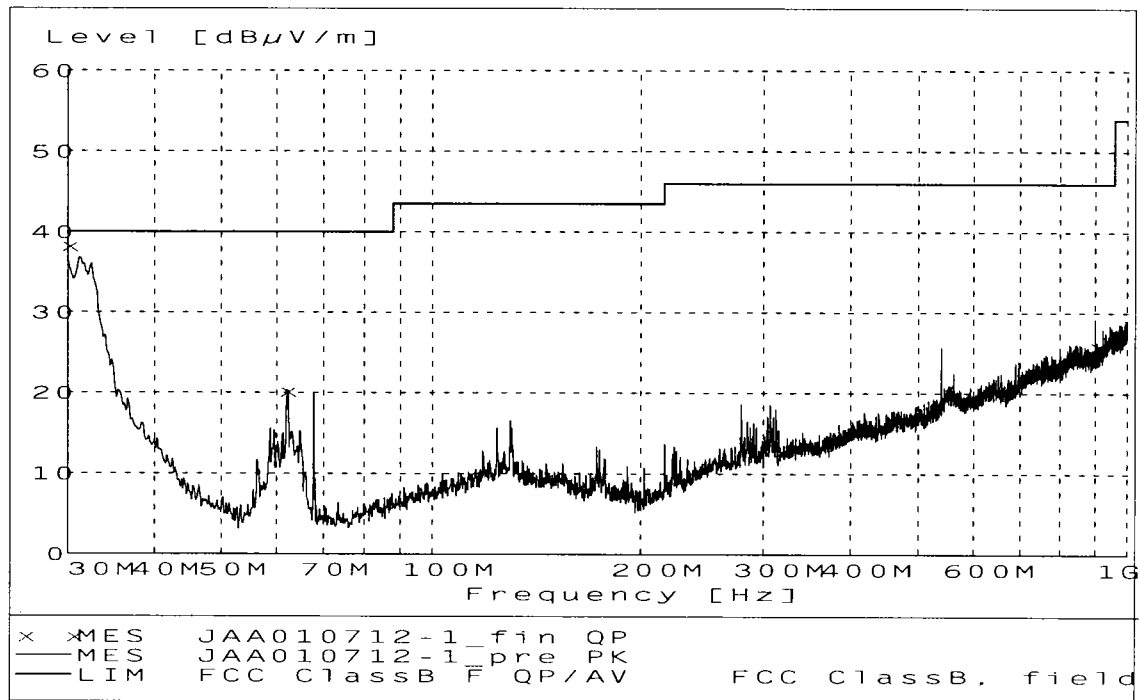
6.4 Test equipment

Test site:	Semi-anechoic shielded chamber. 10 x 20 x 8,5 m (W x L x H).	
Equipment	Manufacturer. and type	Semko No.
Software	ES.K1 V1.60	
Measurement receiver	R&S, ESAI	2973/2974
Amplifier	Semko	7992/7993
Antenna, bilog	Chase, CBL6111A	971

R&S = Rohde & Schwarz.

6.5 Test protocol

Date of test: July 12, 2001

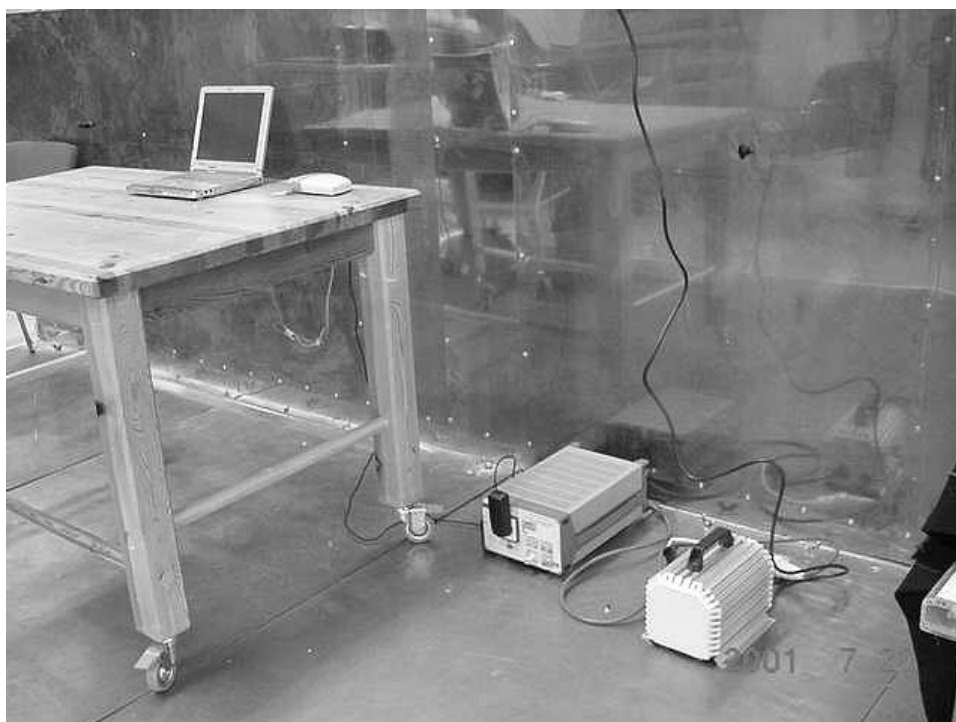


Over view sweep with max peak detection.

Frequency /MHz	Quasi-Peak	
	Disturbance Level /dB(μV/m)	Permitted limit /dB(μV/m)
30,00	37	40
61,84	21	40
900,00	26	46

APPENDIX - TEST SET-UP PHOTOS

Conducted emission



Radiated emission 30 – 1000MHz

