

4.6 Peak Power Output

Para. No.: 15.247 (b)

Test Performed By: Egil Hauger

Date of Test: 20. October 2003

Test Results: Complies

Measurement Data:

Maximum Conducted Peak Output Power, Watts

RF channel	1	41	79
Portable part	0,374	0,363	0,329

Maximum EIRP, Watts

RF channel	1	41	79
Portable part	0.465	0.435	0.220
Antenna gain dBi	0.94	0.78	-1.74

Antenna gain = $10 \cdot \log(\text{EIRP}/\text{Conducted power})$ dBi

EIRP is measured by substitution method defined by ETSI.

See attached graph.

Detachable antenna?

Yes No

If detachable, is the antenna connector non-standard?

Yes No

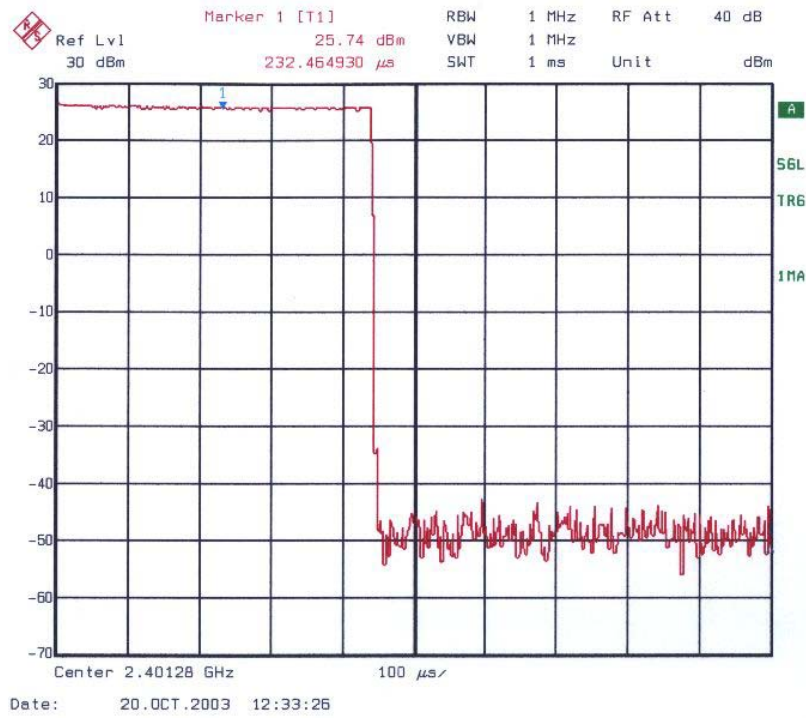
Requirements:

The maximum peak output power for frequency hopping systems shall not exceed the following limits:

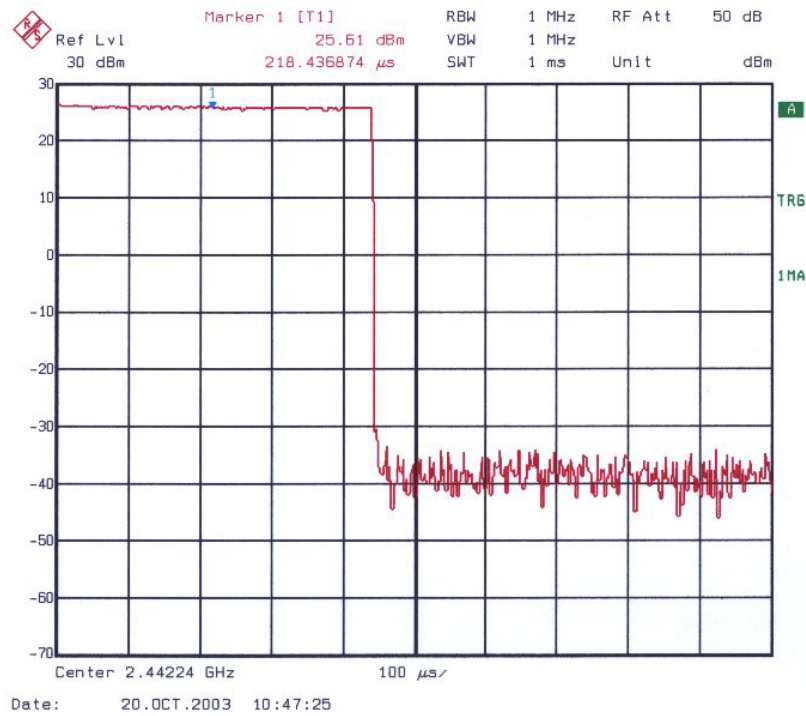
For systems employing at least 75 hopping channels: 1 watt

For all other frequency hopping systems in the 2400 - 2483.5 MHz band: 0.125 watts

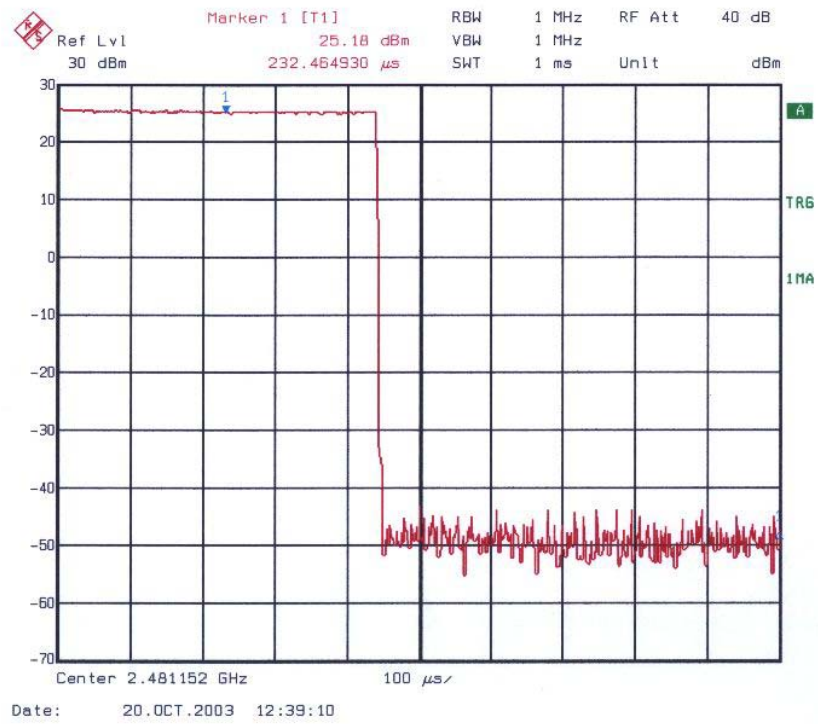
If transmitting antennas of directional gain greater than 6 dBi are used, the peak output power from the intentional radiator shall be reduced below the stated value above by the amount in dB that the directional gain of the antenna exceeds 6 dBi.



RF conducted channel 1



RF conducted channel 41



RF conducted channel 79

4.7 Spurious Emissions (Radiated)

Para. No.: 15.247 (c)

Test Performed By: Egil Hauger	Date of Test: 13. to 23. October 2003
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Test Results: Complies

Measurement Data:

Band-edge conducted power.

Frequency	Power below nearest channel, dB	Limit	Margin
GHz	RF ch 1/79 hopping	Frequency	dB
2,4	-48,9	-50,7	-20
2,4835	-55,5	-65,5	-20

See attached graph

Band-edge field strength 2.4835 GHz.

Max field strength upper channel (79), 1 MHz BW: 12,2 dB μ V/m

Delta marker 100 kHz BW: -63,7 dB

Field strength at 2,4835 GHz Peak: 122,2 dB μ V/m - 63,7 dB = 58,5 dB μ V/m

Margin: 74 - 58,5 = 15,5 dB.

Field strength at 2,4835 GHz Average: 58,5 - 20 = 38,5 dB μ V/m.

See attached graph.

RF conducted power to 25 GHz see attached graph.

Maximum RF level outside operating band:

RF ch 1: -57,1 dB/C, margin 37,3 dB

RF ch 41: -55,5 dB/C, margin 35,5 dB

RF ch 79: -53,6 dB7C, margin 33,6 dB

Radiated emission, 1-25 GHz, see attached table.

Highest value RF Ch 1: Peak 66,7 dB μ V/m, average 46,7 dB μ V/m, 10,806 GHz

Ch 41: Peak 60,9 dB μ V/m, average 40,7 dB μ V/m, 10,989 GHz

Ch 79: Peak 69,5 dB μ V/m, average 49,5 dB μ V/m, 17,369 GHz

Example of frequency graph of radiated emission is also attached.

Antenna factor, amplifier gain and cable loss are included in spectrum analyzer "Transducer factor".

Radiated Emission 1 – 25 GHz, Peak**Measured with Peak Detector**

Frequency	RF channel	Dist. corr. factor	Field strength, Peak, 3 metres	Duty cycle	Limit	Margin
GHz	1-79	dB	dB μ V/m	dB	dB μ V/m	dB
3.602	1	0	67.3		74	6.7
3.663	41	0	59.0		74	15.0
3.721	79	0	50.9		74	23.1
4.802	1	0	56.6		74	17.4
4.884	41	0	55.6		74	18.4
4.961	79	0	60.8		74	13.2
6.003	1	0	60.8		74	13.2
6.105	41	0	55.3		74	18.7
6.202	79	0	52.1		74	21.9
7.203	1	0	58.3		74	15.7
7.326	41	0	57.1		74	16.9
7.444	79	0	52.1		74	21.9
9.924	79	0	59.7		74	14.3
10.806	1	0	66.7		74	7.3
10.989	41	0	60.9		74	13.1
11.164	79	0	60.8		74	13.2
16.810	1	0	64.5		74	9.5
17.369	79	0	69.5		74	4.5
18.009	1	-9.5 ¹⁾	73.7		74	9.8
21.978	41	-9.5 ¹⁾	67.9		74	15.6
24.809	79	-9.5 ¹⁾	71.9		74	11.6

¹⁾ Measured at a distance of 1.0 meters.