

Section 15.247 Subclause (b). Maximum peak output power and antenna gain

SPECIFICATION

For frequency hopping systems operating in the 2400-2483.5 MHz band employing at least 75 hopping channels: 1 watt (30 dBm).

RESULTS

MAXIMUM PEAK OUTPUT POWER (CONDUCTED). See next plots.

	Lowest frequency 2402 MHz	Middle frequency 2441 MHz	Highest frequency 2480 MHz
Maximum peak power (dBm)	1.21	0.78	0.53
Measurement uncertainty (dB)	±1.5		

The maximum declared antenna gain for this device is 1.8 dBi, therefore the maximum theoretical peak radiated power (EIRP) in the three measurement channels for this device is 3.01 dBm or 2 mW.

The actual peak radiated power (EIRP) was measured for the lowest, middle and highest frequency (see next plots):

MAXIMUM PEAK OUTPUT POWER (RADIATED).

	Lowest frequency 2402 MHz	Middle frequency 2441 MHz	Highest frequency 2480 MHz
Instrument reading (dBm)	-37.41	-38.01	-39.01
Correction Factor (dB)	34.96	35.10	35.24
Maximum EIRP peak power (dBm)	-2.45	-2.91	-3.77
Measurement uncertainty (dB)	+1.98 / -1.75		

The antenna is integrated in the class 2 surface Bluetooth module.

Declared peak gain: 1.8 dBi

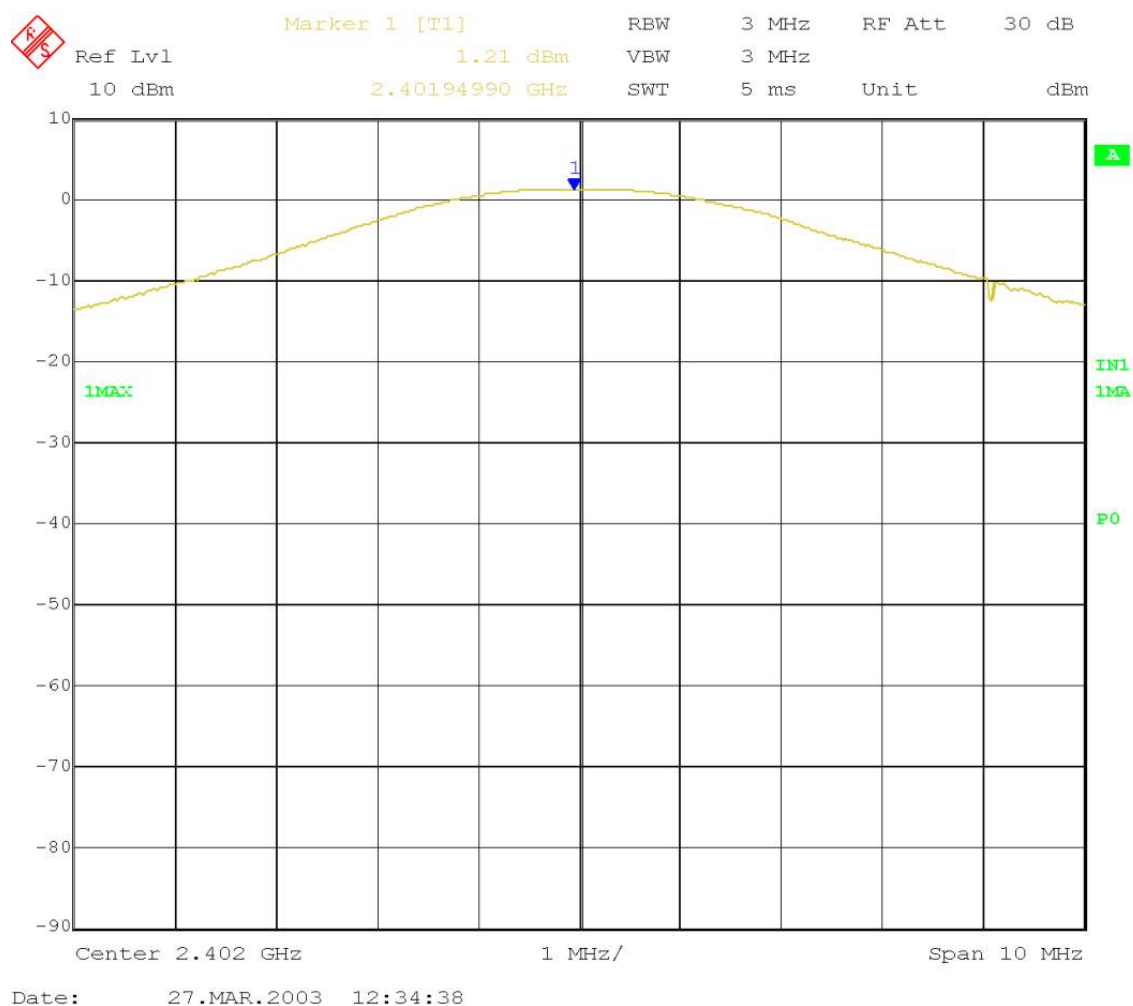
The maximum directional gain of the antenna is less than 6 dBi and therefore the maximum output power is not required to be reduced from the stated values.

Verdict: PASS

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PEAK OUTPUT POWER (CONDUCTED).

Lowest Channel: 2402 MHz.



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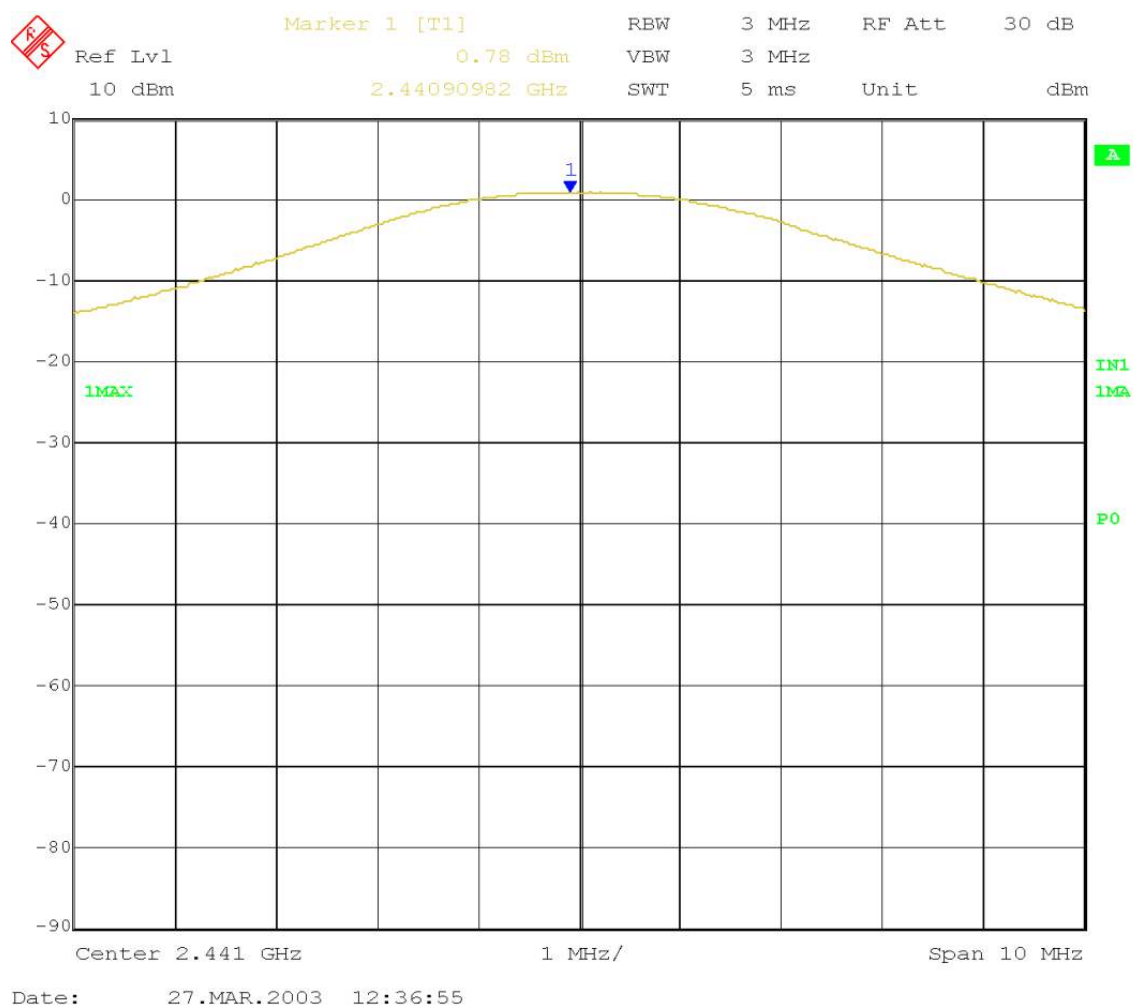
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PEAK OUTPUT POWER (CONDUCTED).

Middle Channel: 2441 MHz.



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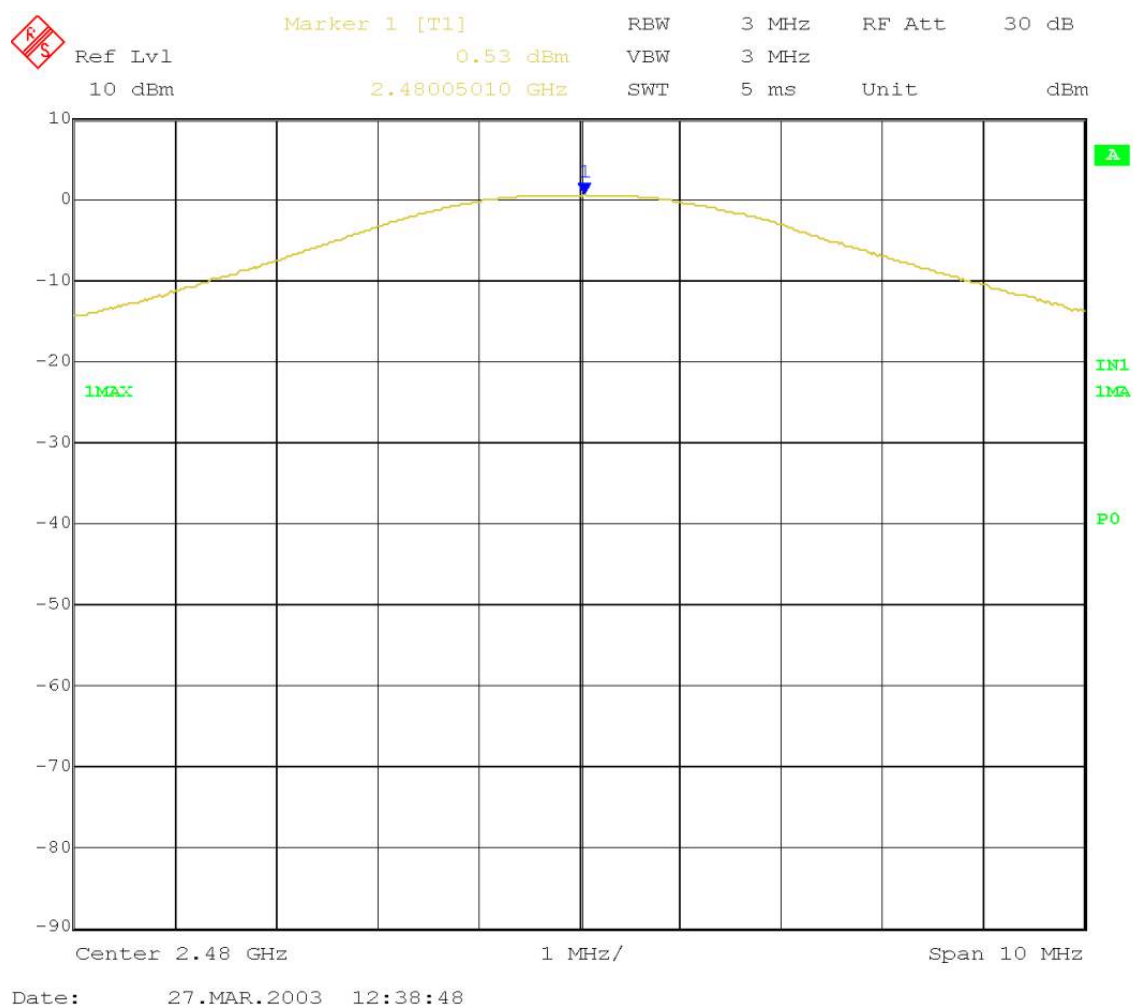
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PEAK OUTPUT POWER (CONDUCTED).

Highest Channel: 2480 MHz.



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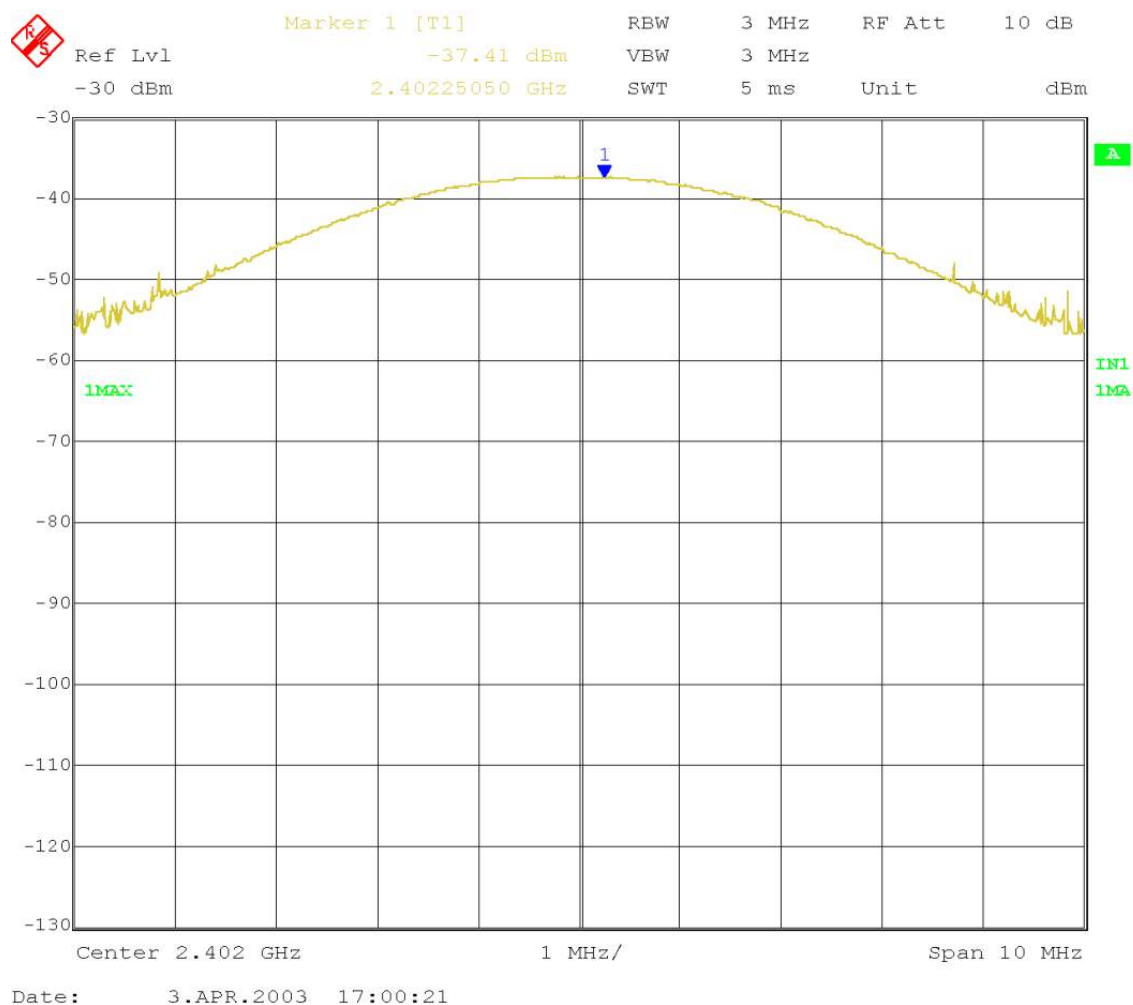
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PEAK OUTPUT POWER (RADIATED).

Lowest Channel: 2402 MHz.



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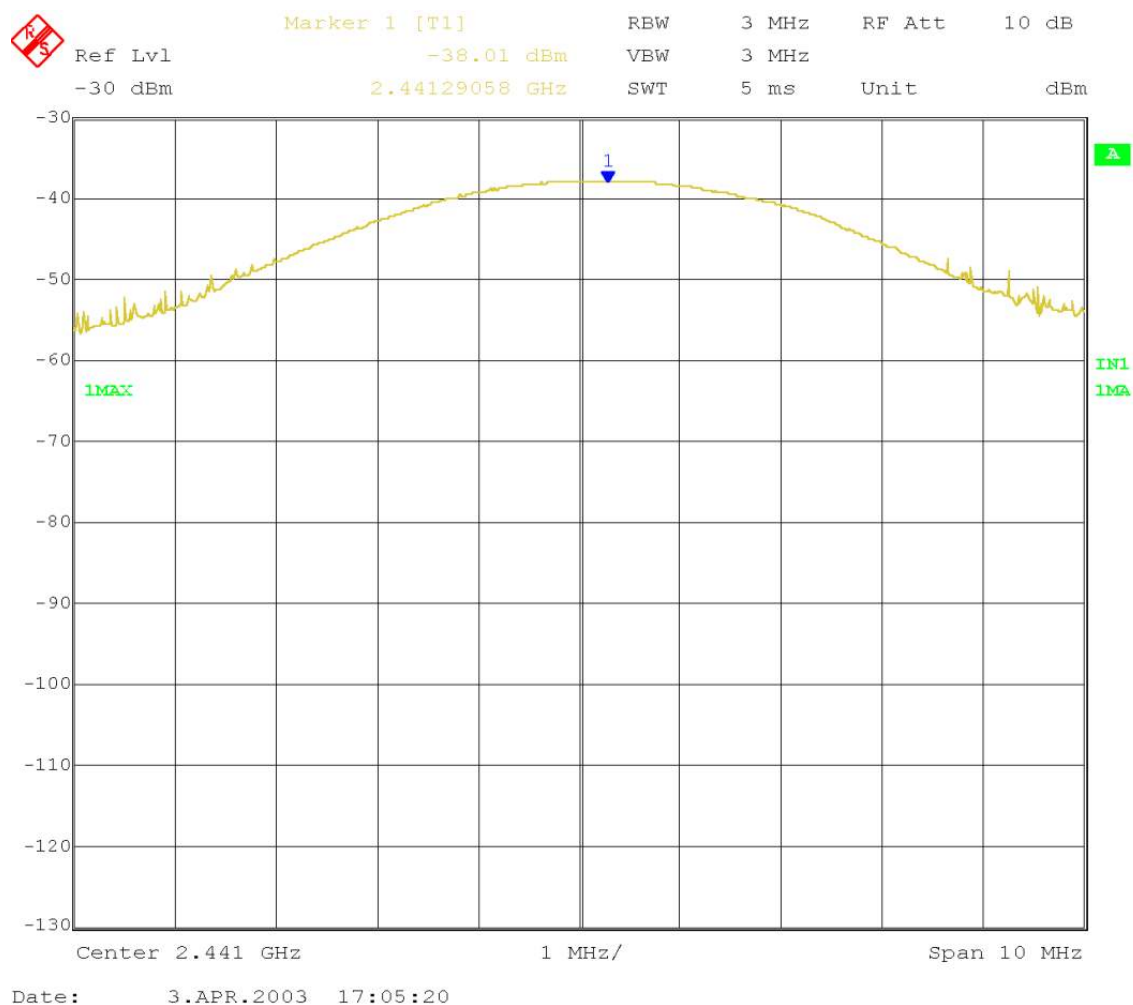
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PEAK OUTPUT POWER (RADIATED).

Middle Channel: 2441 MHz.



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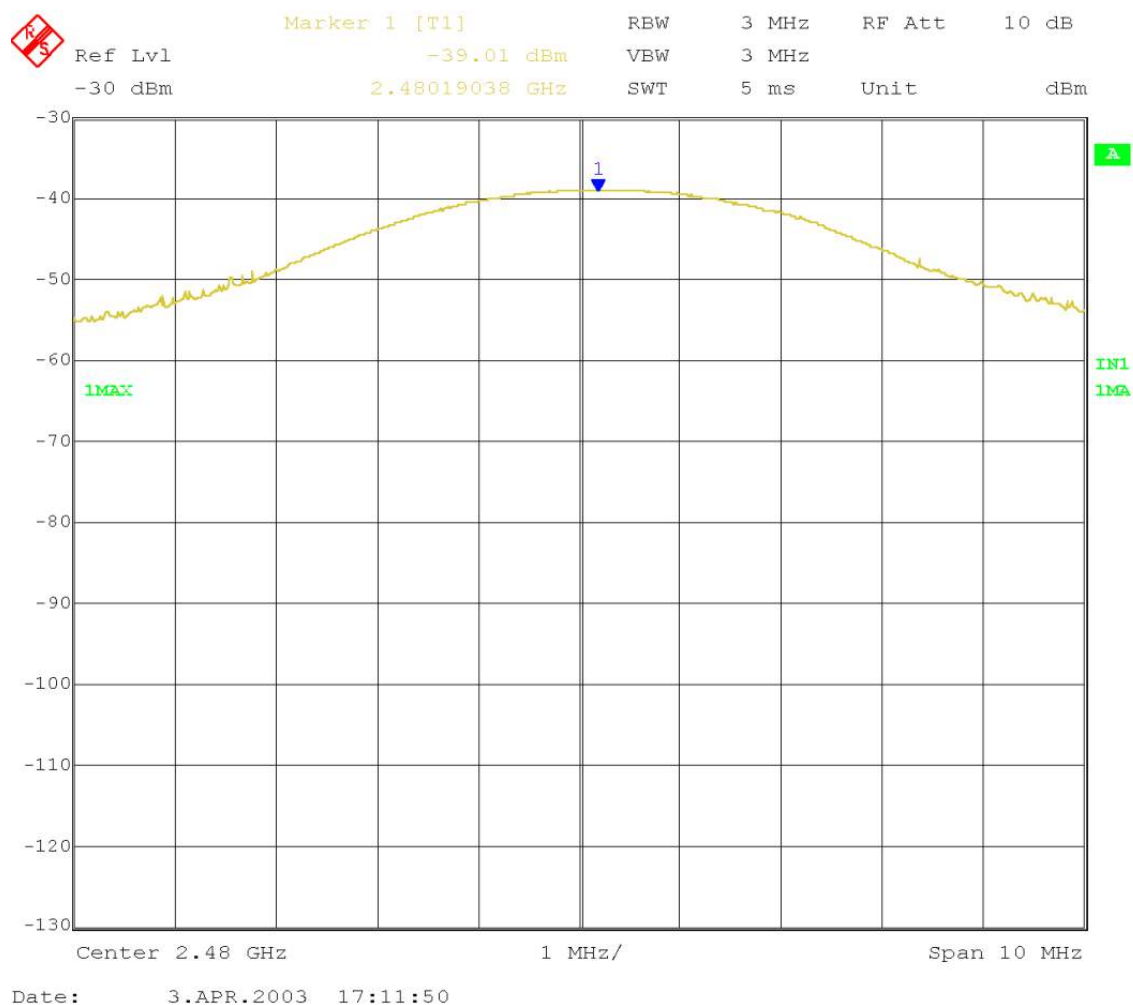
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PEAK OUTPUT POWER (RADIATED).

Highest Channel: 2480 MHz.



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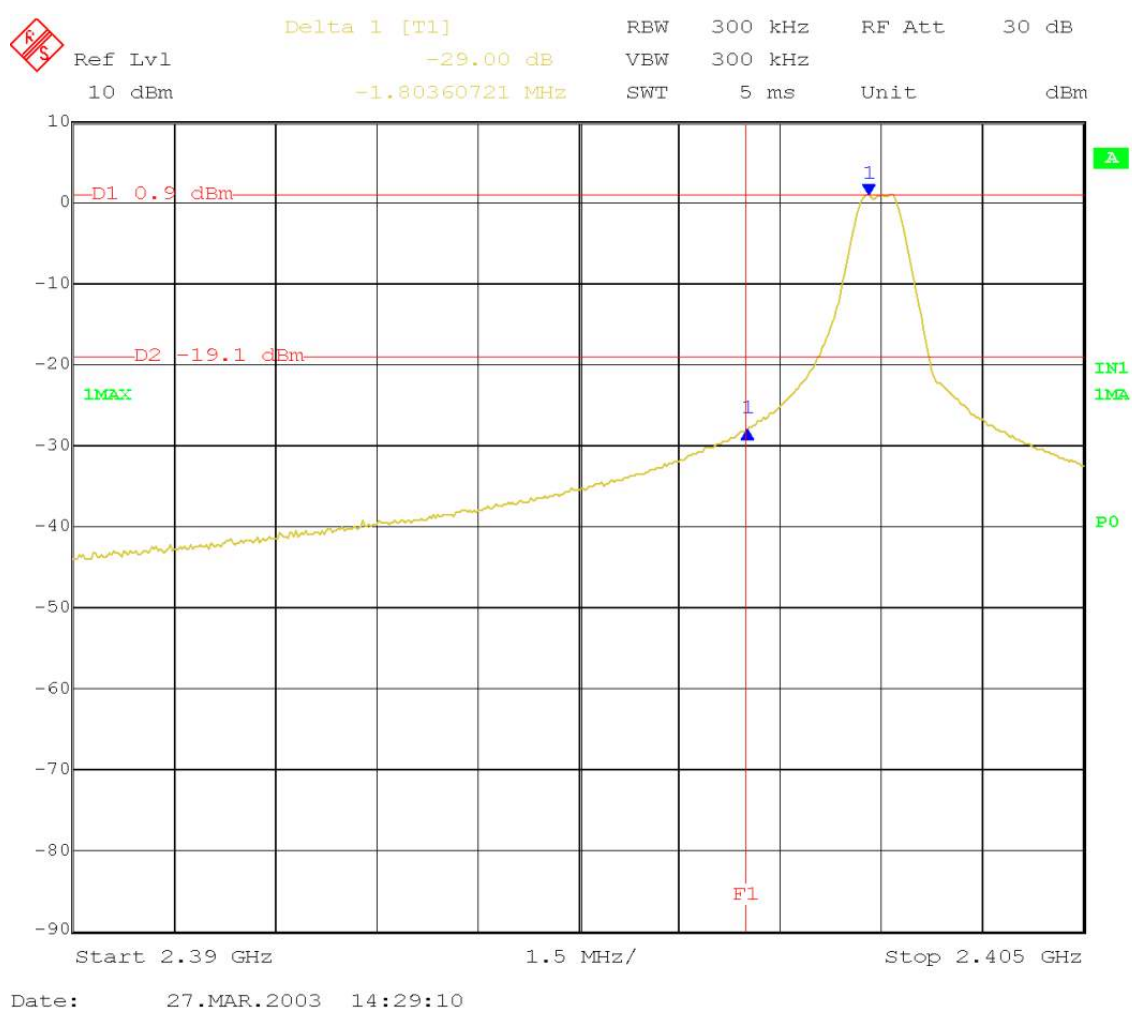
Section 15.247 Subclause (c). Band-edge of conducted emissions (Transmitter)

SPECIFICATION

Emissions outside the frequency band in which the intentional radiator is operating shall be at least 20dB below the highest level of the desired power.

RESULTS:

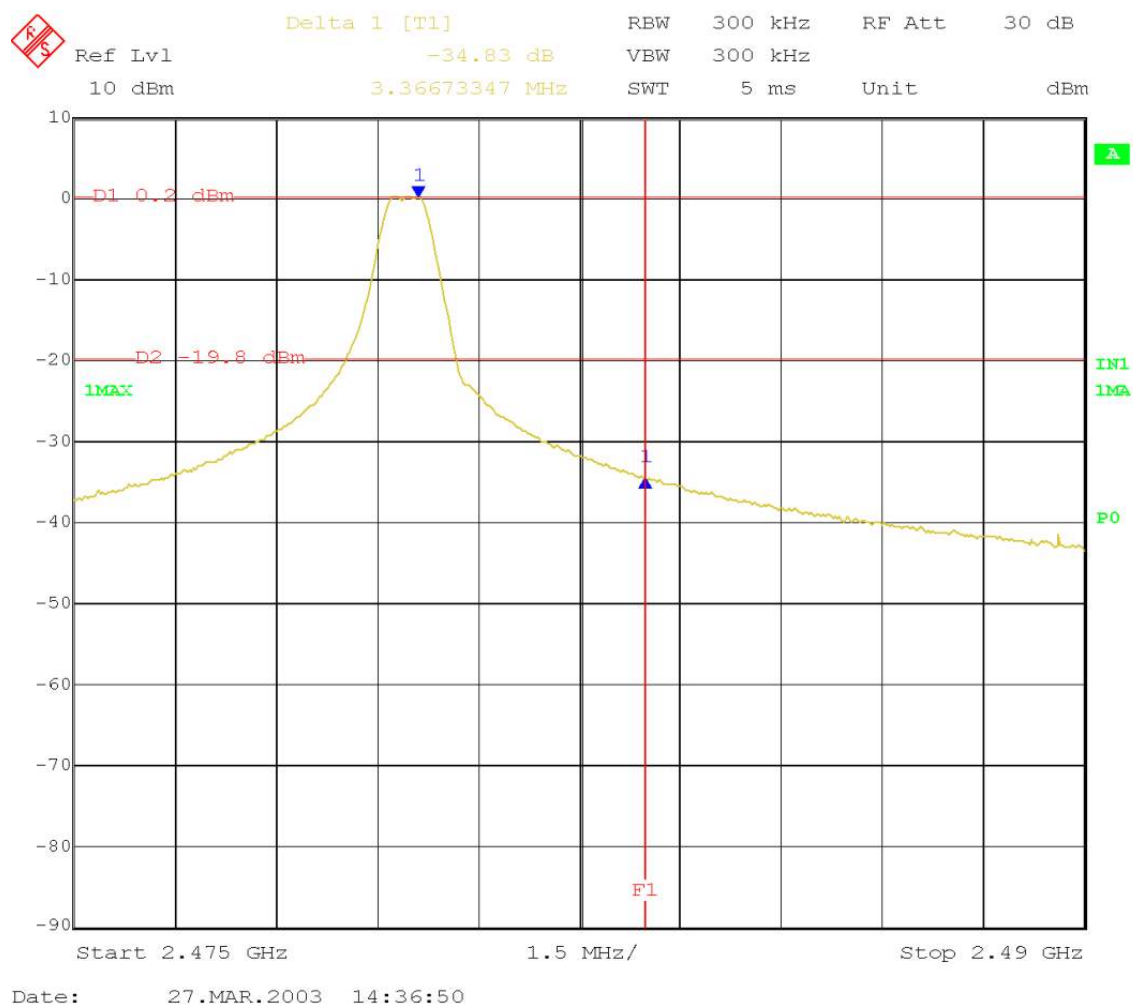
1. LOW FREQUENCY SECTION 2402 MHz (HOPPING OFF). See next plot.



Verdict: PASS

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2. HIGH FREQUENCY SECTION 2480 MHz (HOPPING OFF). See next plot.



Verdict: PASS

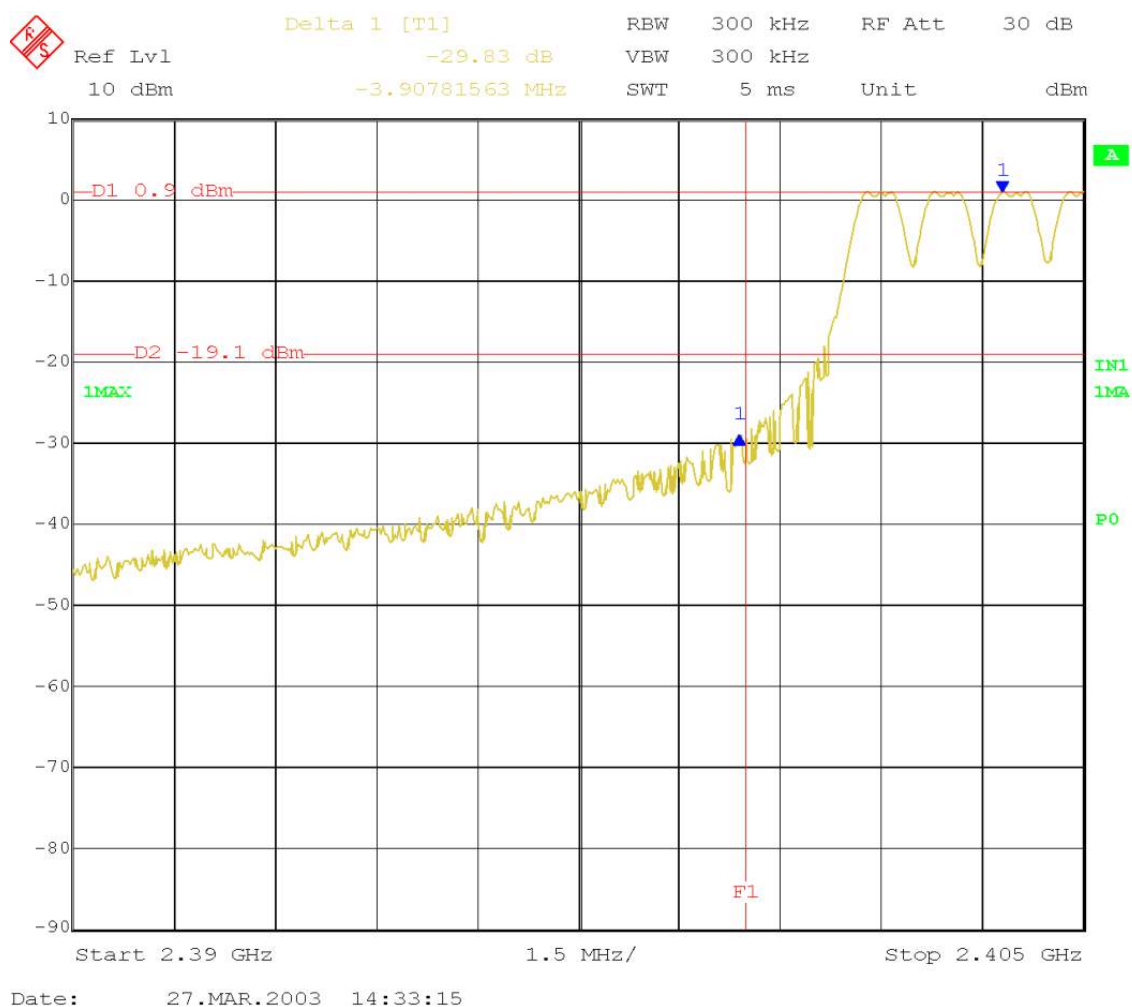
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3. LOW FREQUENCY SECTION (HOPPING ON). See next plot.



Verdict: PASS

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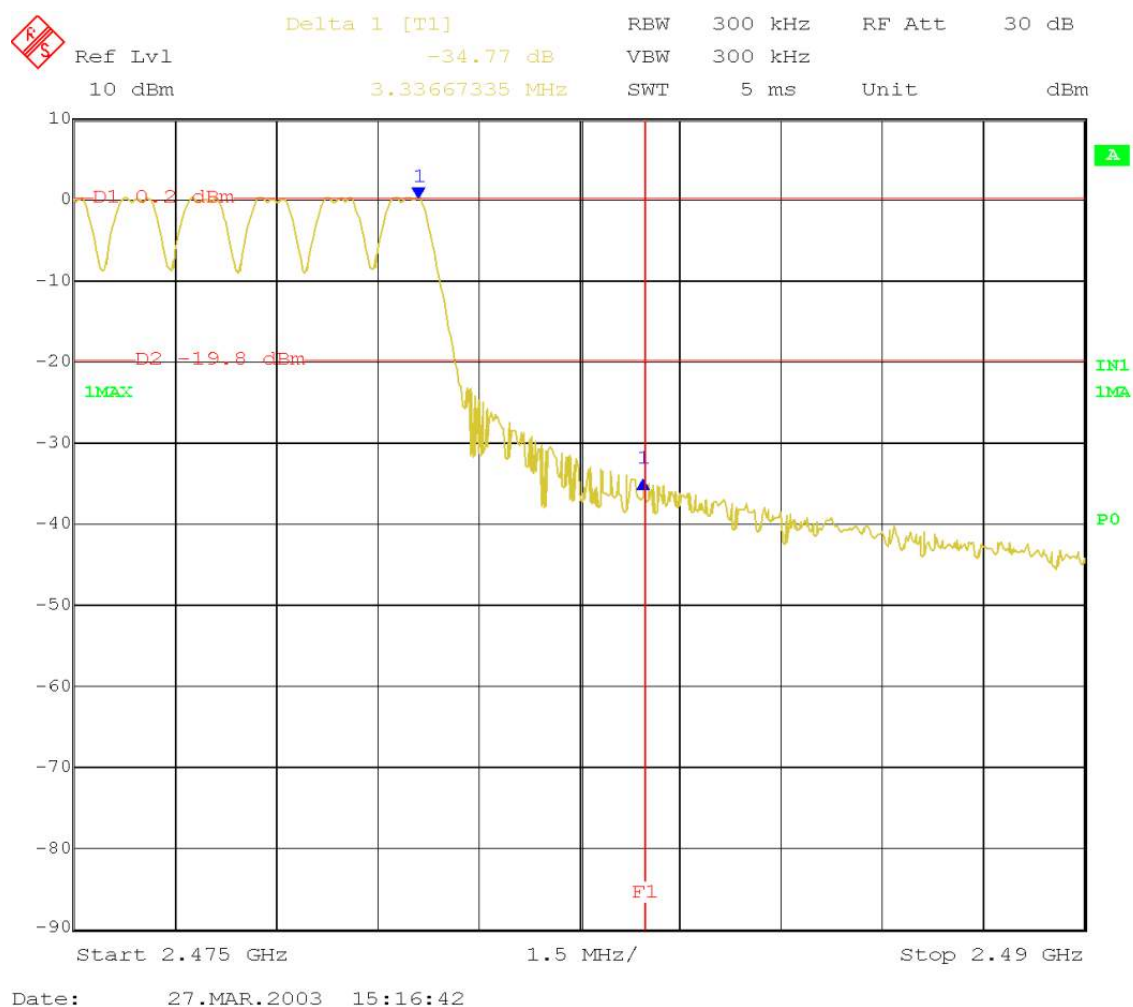
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4. HIGH FREQUENCY SECTION (HOPPING ON). See next plot.



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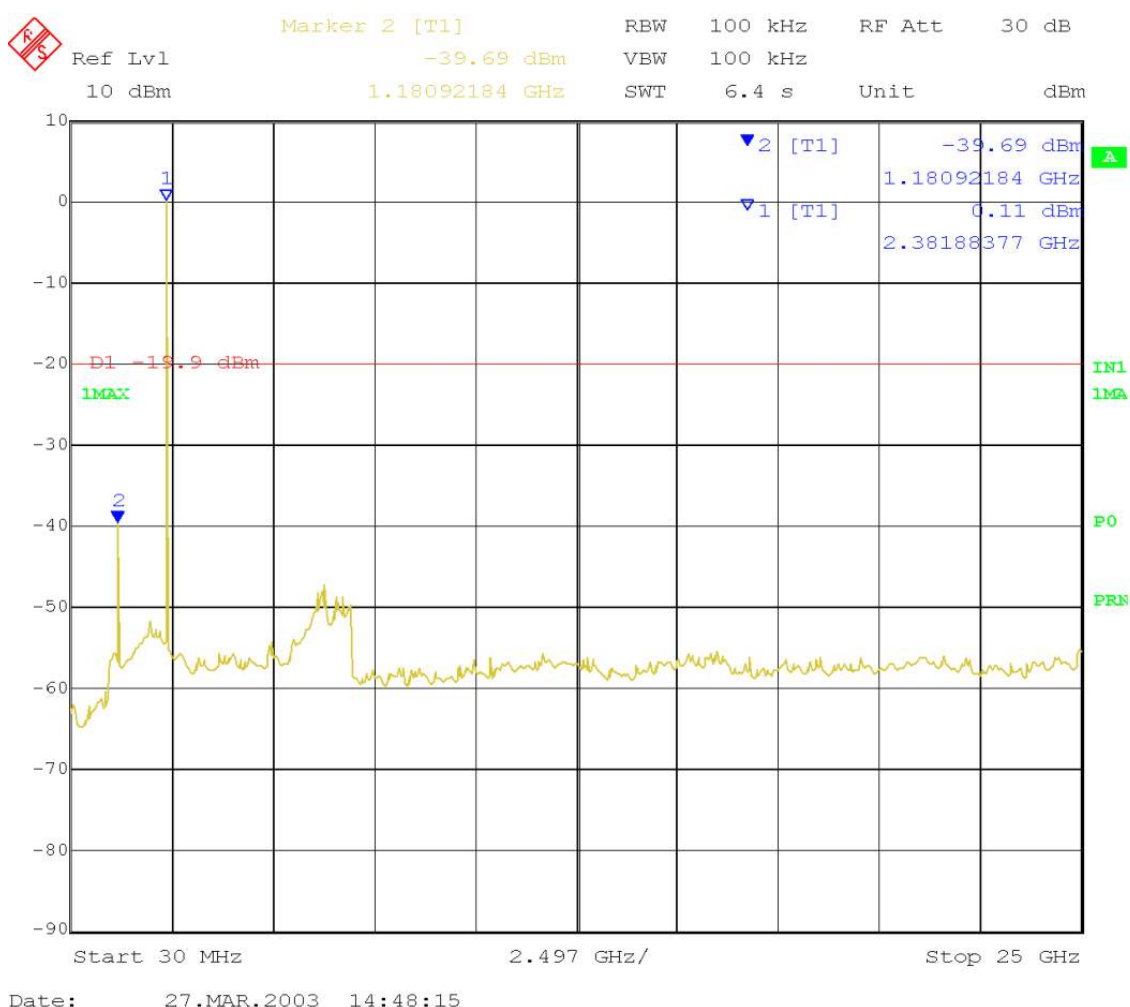
Section 15.247 Subclause (c). Emission limitations conducted (Transmitter)

SPECIFICATION

In any 100 kHz bandwidth outside the frequency band in which the intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20dB below that in the 100kHz bandwidth within the band that contains the highest level of the desired power.

RESULTS:

1. LOWEST CHANNEL (2402 MHz): 30 MHz-25 GHz (see next plot).



Note: The peak above the limit is the carrier frequency.

Verdict: PASS

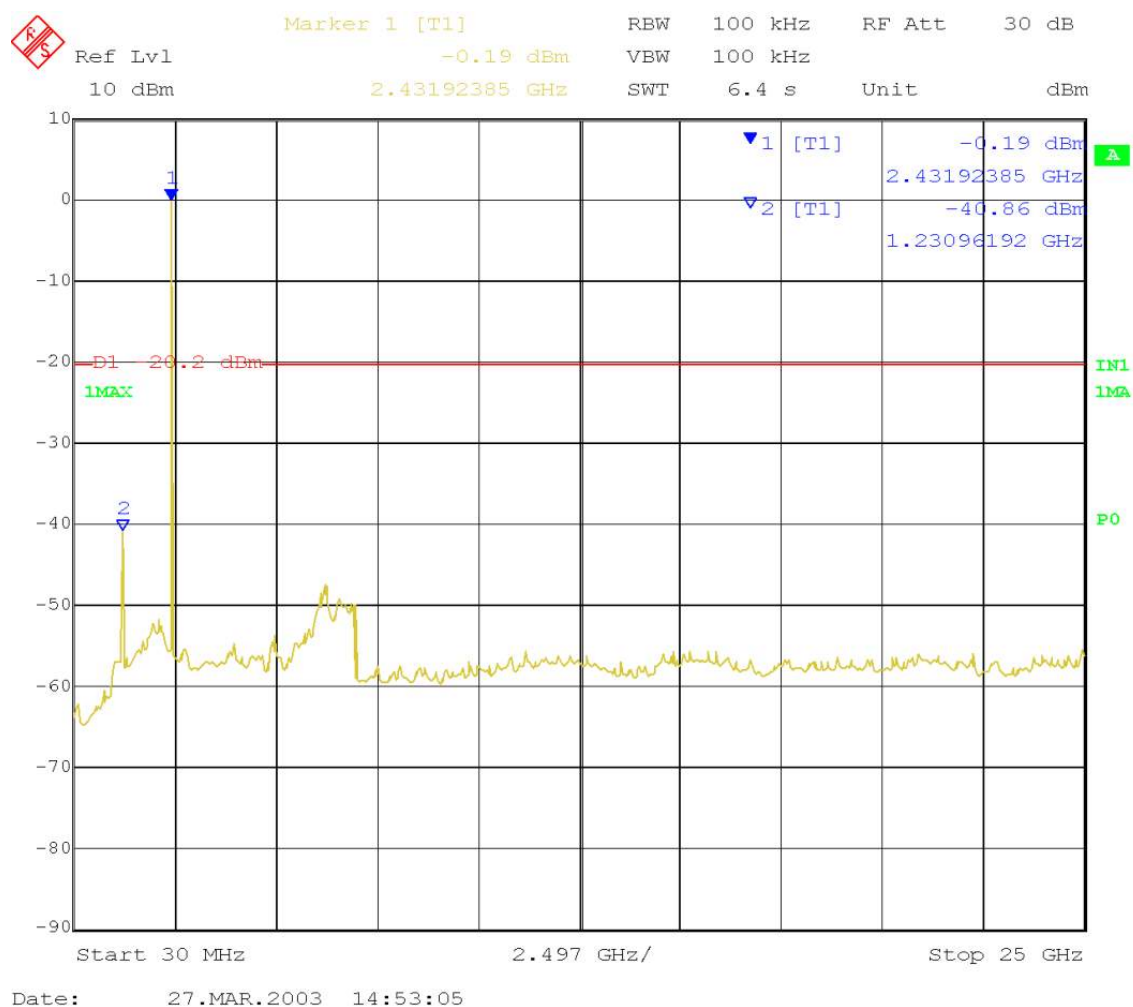
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2. MIDDLE CHANNEL (2441 MHz): 30 MHz-25 GHz (see next plot).



Note: The peak above the limit is the carrier frequency.

Verdict: PASS

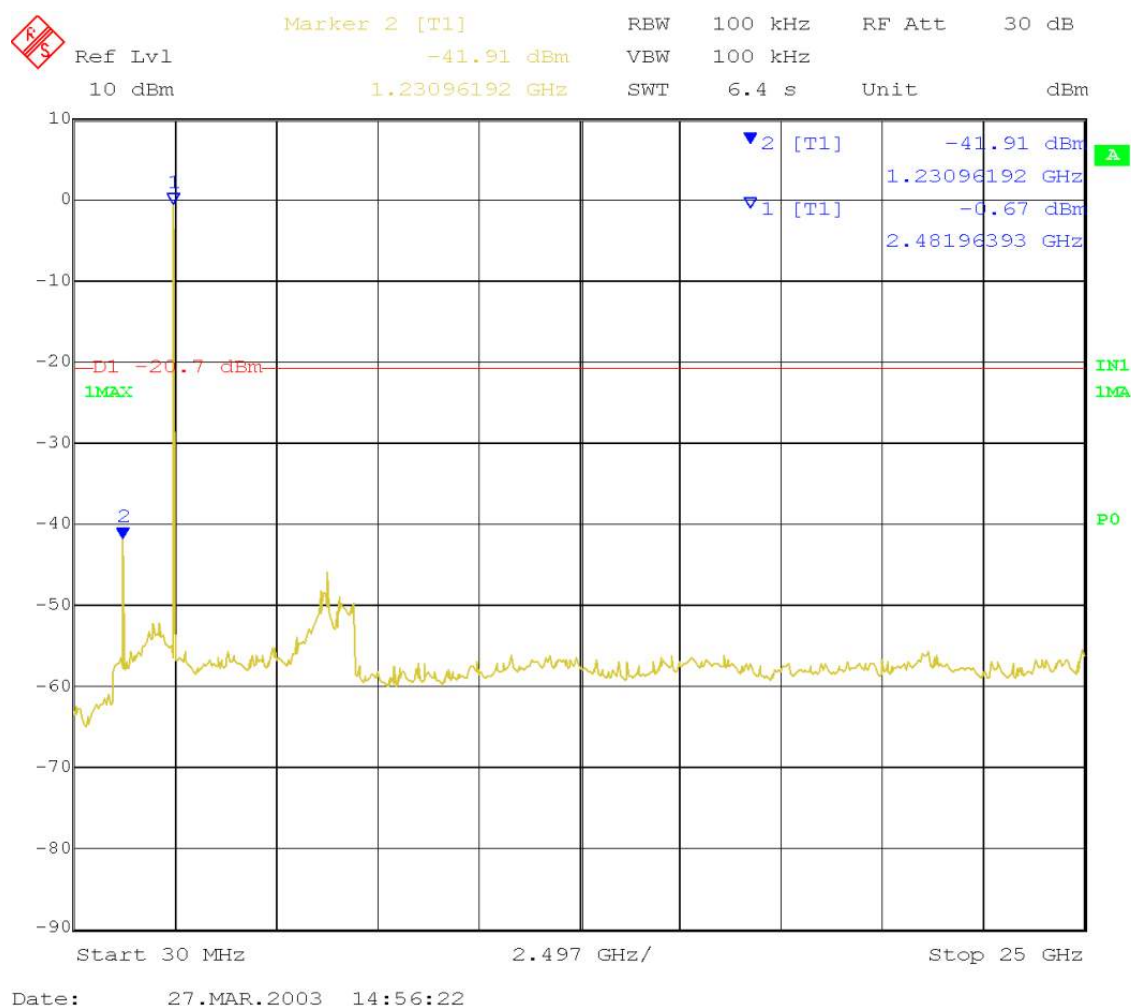
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3. HIGH CHANNEL (2480 MHz): 30 MHz-25 GHz (see next plot).



Note: The peak above the limit is the carrier frequency.

Verdict: PASS

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ANNEX B

PHOTOGRAPHS

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1. Equipment (external view)



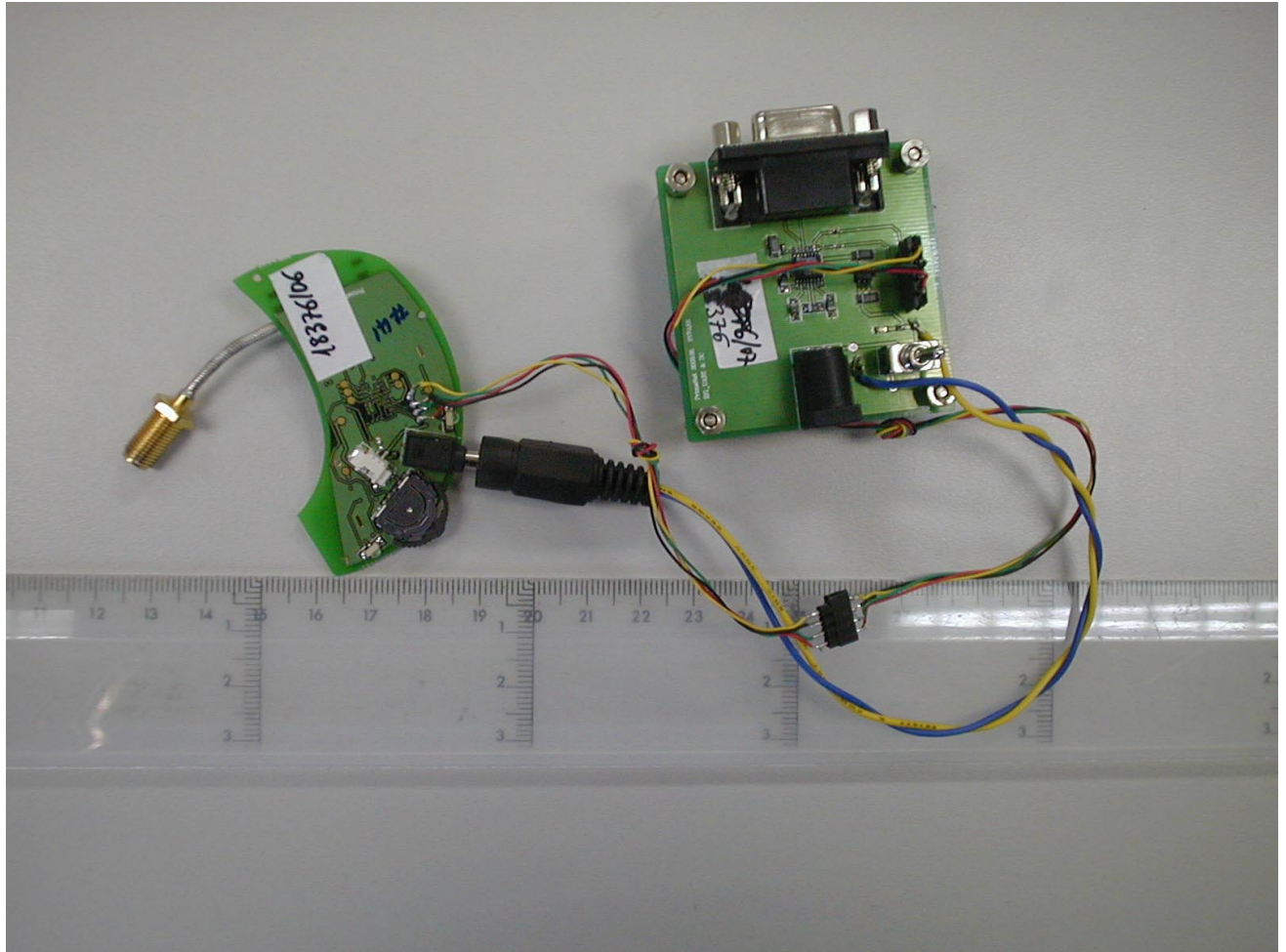
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2. Equipment (internal view).



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3. Test set-up for radiated power measurements above 1 GHz.



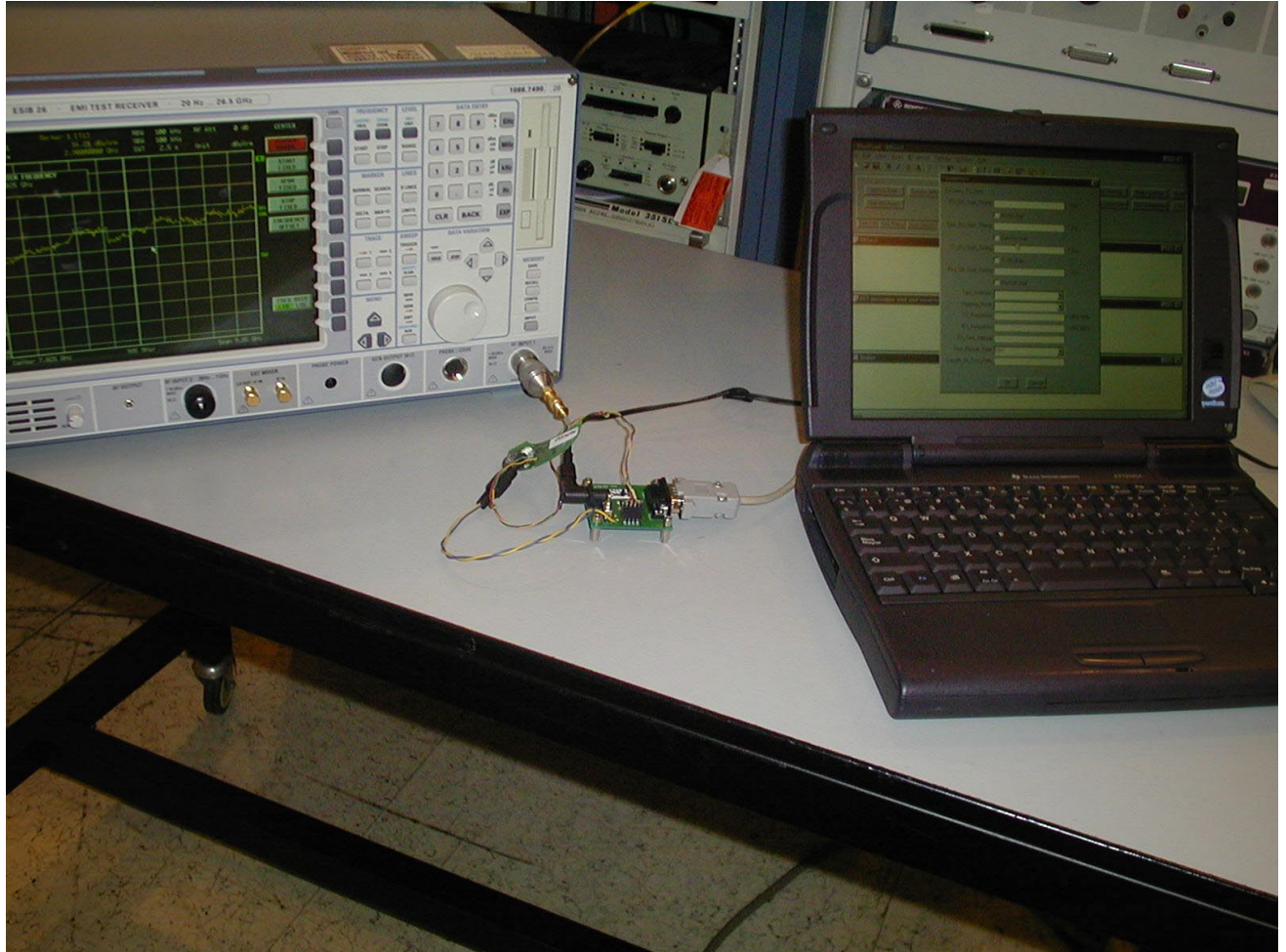
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4. Test set-up for RF conducted measurements.



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