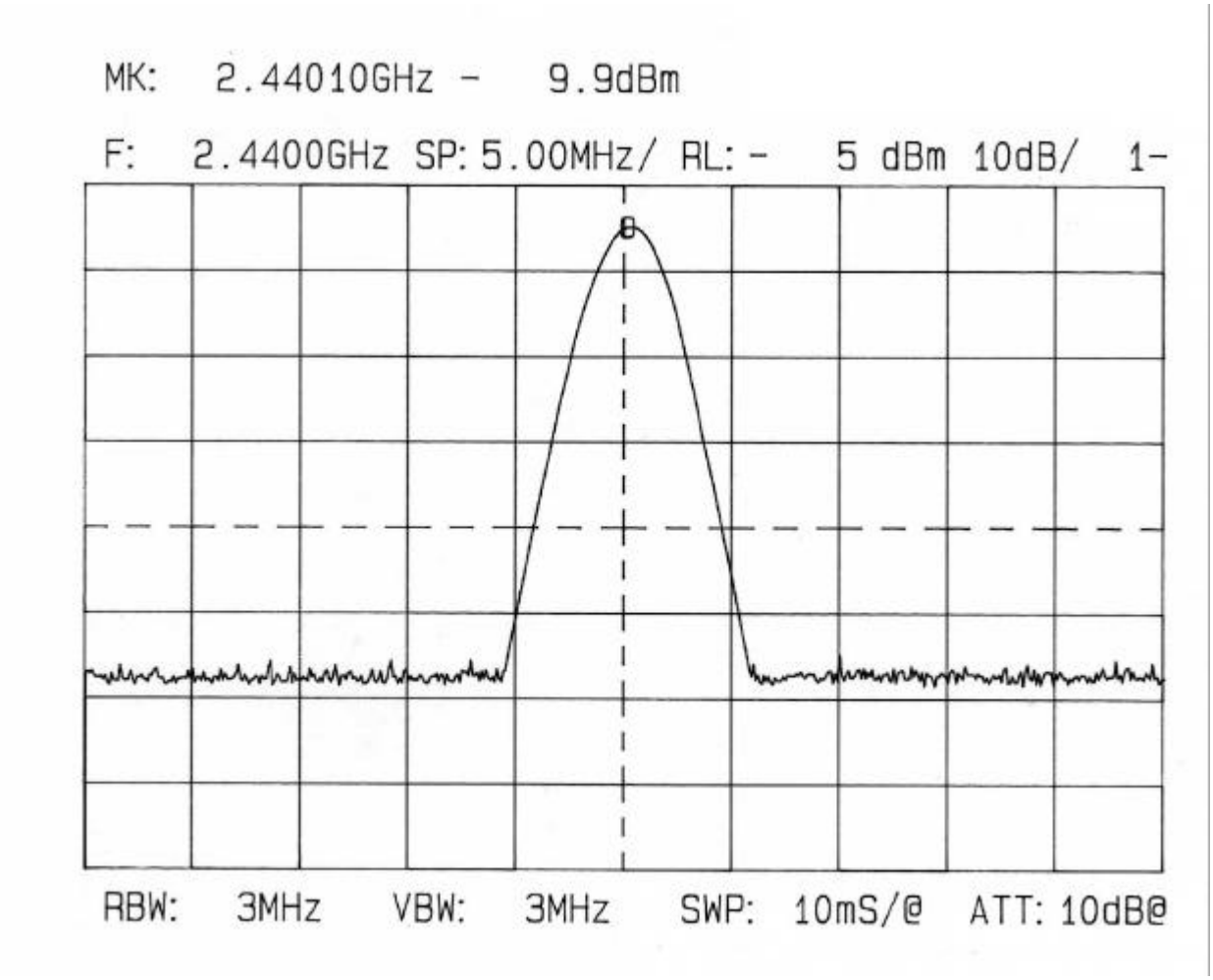
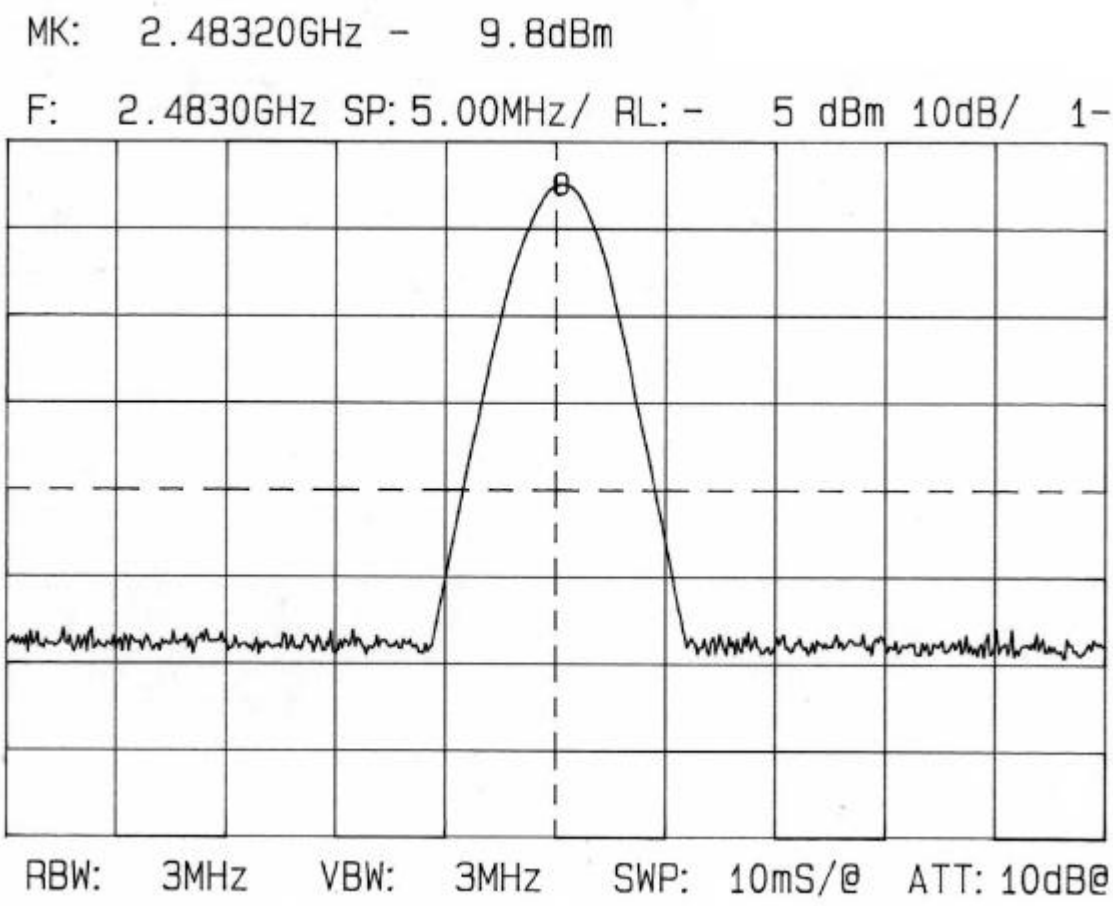
Plot 4.4.2
Transmitter output RF power test results



External attenuation = 30.5 dB.

P = -9.9 + 30.5 = 20.6 dBm

Plot 4.4.3
Transmitter output RF power test results



External attenuation = 30.5 dB.

P = -9.8 + 30.5 = 20.7 dBm

4.5 Out of band radiated emissions test according to §15.247(c) and § 15.205, 15.209(a)

4.5.1 General

This test was performed
1) to prove that the EUT out-of-band emissions in any 100 kHz bandwidth outside 2401 to 2480 MHz are at least 20 dB below maximum power content as measured in any 100 kHz bandwidth within the band that contains the highest level of the desired power and
2) to measure radiated emissions except carriers generated by the transmitter.

Radiated emissions which fall in the restricted bands shall comply with §15.209(a) limits.

4.5.2 Test procedure

The radiated emissions measurements were performed in the anechoic chamber with the biconilog and double ridged guide antennas from 30 MHz to 6.5 GHz and at open field test site with double ridged guide and standard gain horn antennas from 6.5 GHz to 24.83 GHz at 3 meters test distance as shown in Figure 4.6.1 and Photographs 4.6.1, 4.6.2, 4.5.1, 4.5.2. For test configuration refer to Figure 2.4.2.

The EUT was set up on the wooden turntable. To find the maximum radiation measuring antenna height was changed from 1 to 4 m, the turntable was rotated 360° and the antennas polarization was changed from vertical to horizontal.

The test was performed with transmitter operating at 3 carrier frequencies F_{max} = 2483 MHz, F_{min} = 2401 MHz, F_{cent} = 2441 MHz.

No emissions were found at frequency range above 12.5 GHz.

Test results are recorded in Table 4.5.1 and shown in Plots 4.5.1 to 4.5.17.

Reference numbers of test equipment used

HL 0025	HL 0038	HL 0041	HL 0053	HL 0465	HL 0521	HL 0547	HL 0589
HL 0593	HL 0604	HL 0768	HL 0872	HL 1175	HL 1200		

Full description is given in Appendix A.

Table 4.5.1 Out of band radiated emission measurements test results

DATE: January 21, 2000
RELATIVE HUMIDITY: 67%
AMBIENT TEMPERATURE: 23°C

MEASUREMENTS PERFORMED AT 3 METRES DISTANCE

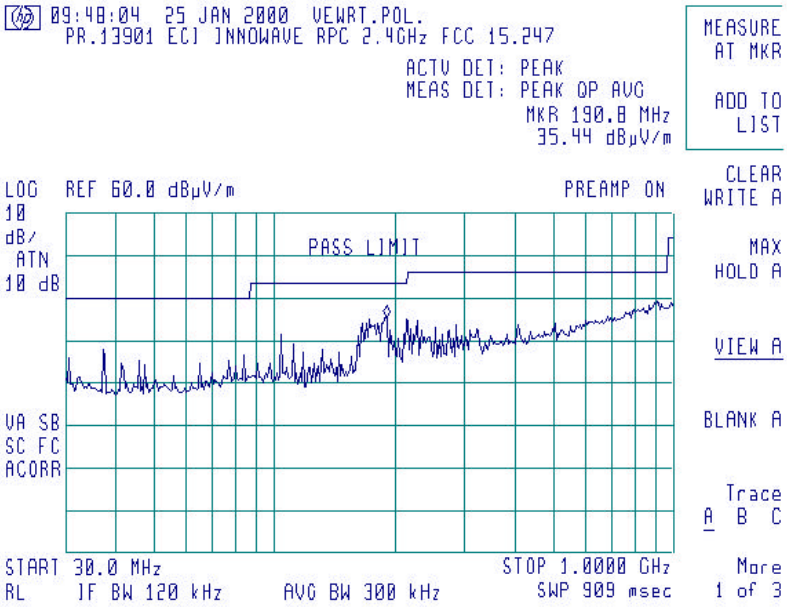
Frequency, MHz	Measured result, dB (μV)	Detector type	VBW, MHz/HZ	Antenna factor, dB(1/m)	C. loss/ Ampl. gain, dB	Radiated emissions, dB (μV/m)	Spec. limit, dB (μV/m)	Margin, dB	Pass/ Fail
7449	68.1	Peak	1 MHz	35.9	1.8/35	71.8	74	2.2	Pass
7449	50.4	Aver	10 Hz	35.9	1.8/35	53.1	54	0.9	Pass
7320	58.8	Peak	1 MHz	35.9	1.8/35	61.5	74	12.5	Pass
7320	44.3	Aver	10 Hz	35.9	1.8/35	47	54	7.0	Pass
7203	56.3	Peak	1 MHz	35.9	1.8/35	59	104*	45	Pass
9932	60.2	Peak	1 MHz	38.2	2.1/35	65.5	104*	38.5	Pass
12.415	59.1	Peak	1 MHz	39.3	2.4/35	65.8	74	8.2	Pass
12.415	40.4	Aver	10 Hz	39.3	2.4/35	47.1	54	6.9	Pass

* The limit is calculated as 20 dB below the maximum RF peak output power (see Plot 4.5.10).

Notes to table calculations:

Antenna type: double ridged guide.
Antenna polarization: vertical.
Resolution bandwidth = 1 MHz.
Radiated emission [dB(μV/m)] = measured result [dB(μV)] + antenna factor [dB(1/m)] + cable loss (dB) - amplifier gain (dB).
Margin = dB below (negative if above) specification limit.

Plot 4.5.1
Test specification: § 15.247 (c)
Out-of-band radiated emissions test



Plot 4.5.2
Test specification: § 15.247 (c)
Out-of-band radiated emissions test