

2.8 Average Spurious Emission in the Frequency Range 30 - 25000 MHz (FCC Section 15.247(c))

The EUT is capable of transmitting in excess of 100 msec periods, therefore duty cycle corrections were considered not applicable. The results of average radiated spurious emissions falling within restricted bands are given in Table 5a (low), Table 5b, (mid), Table 5c (high) and Figure 6a-6b (low), Figure 6c-6e (mid) and Table 6f (high).

Figure 6a
Average Radiated Spurious Emission 15.247(c) Low

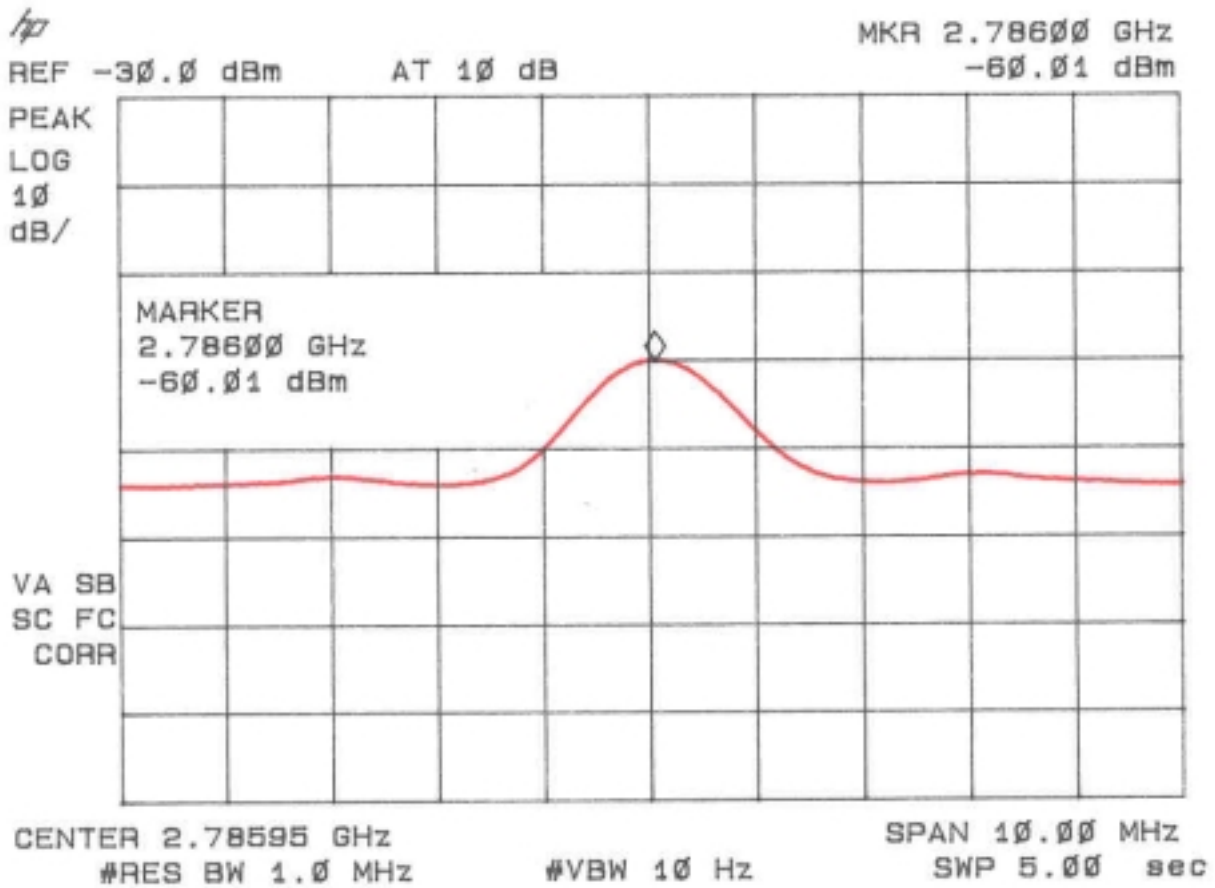


Figure 6b
Average Radiated Spurious Emission 15.247(c) Low

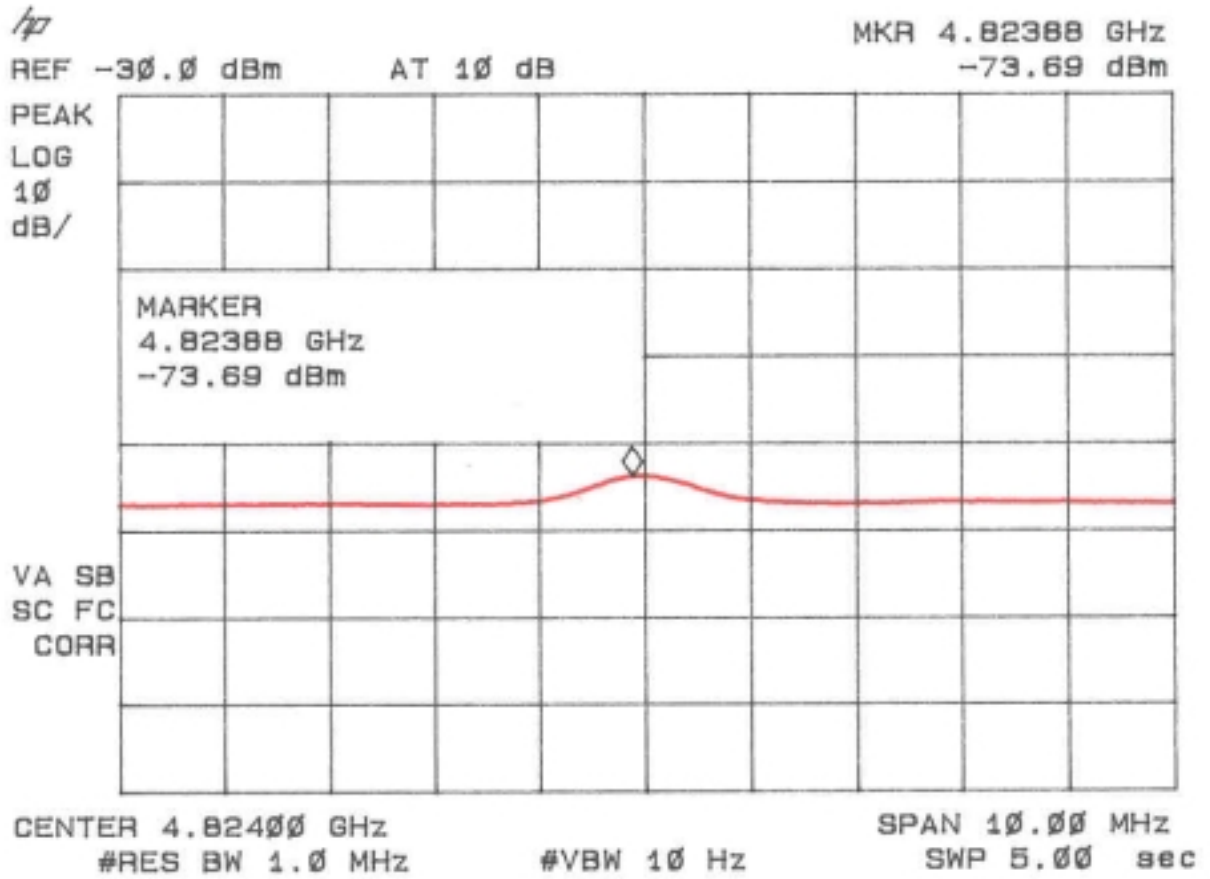


Figure 6c
Average Radiated Spurious Emission 15.247(c) Mid

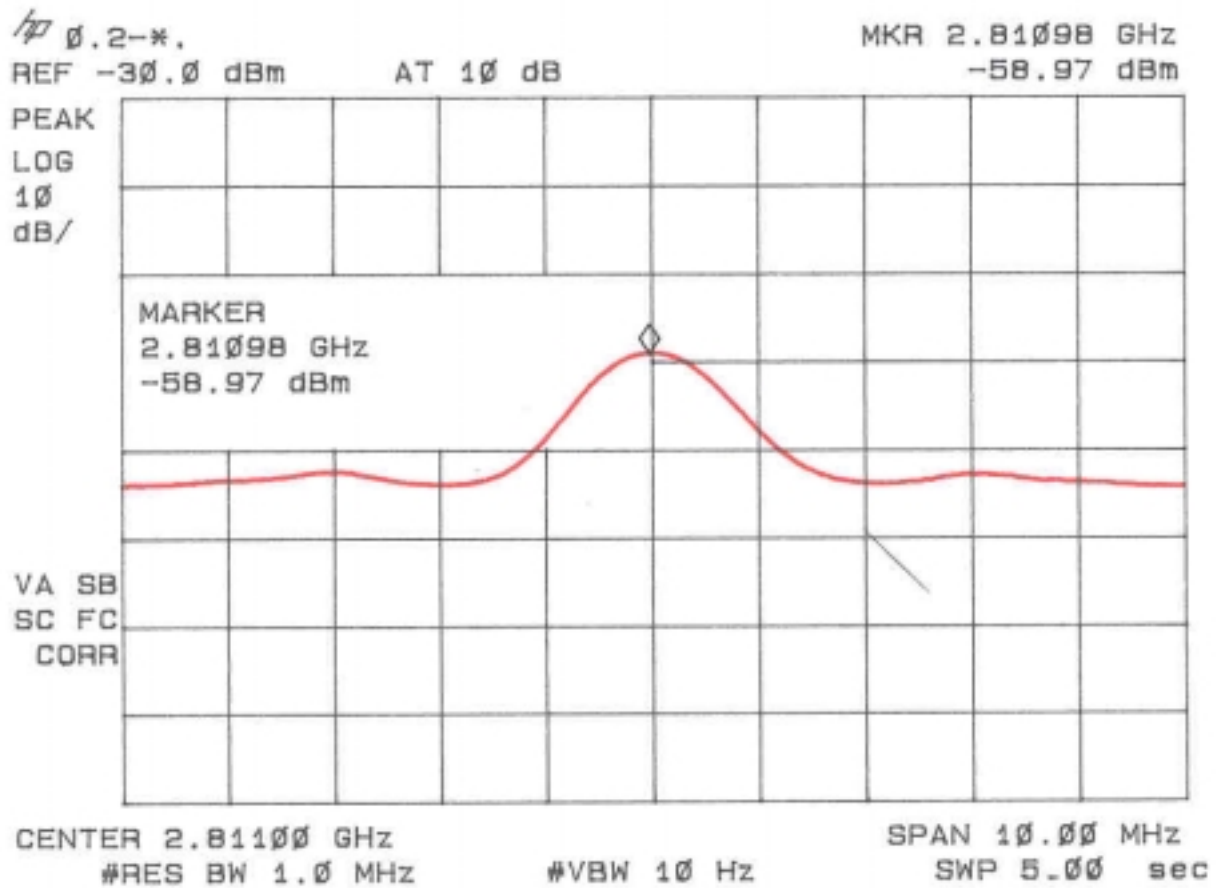


Figure 6d
Average Radiated Spurious Emission 15.247(c) Mid

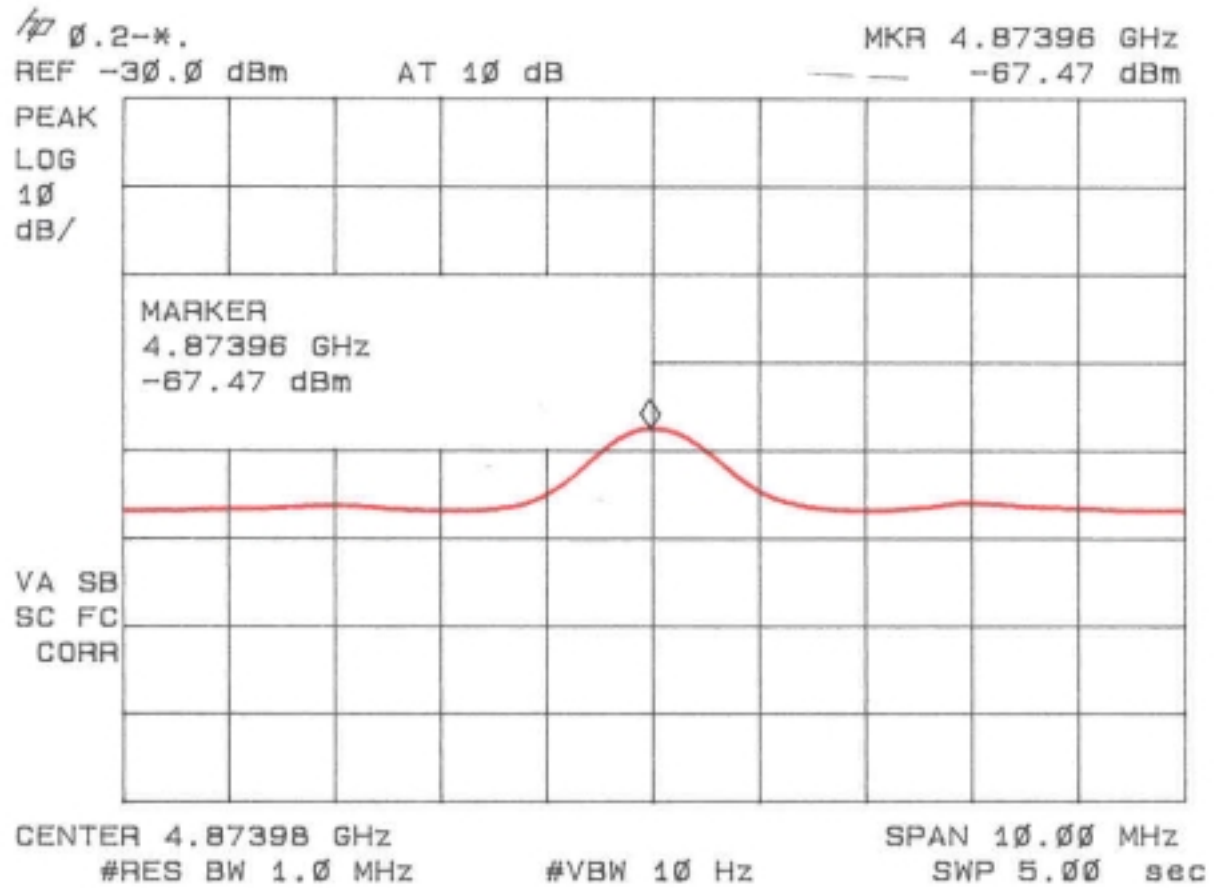


Figure 6e
Average Radiated Spurious Emission 15.247(c) Mid

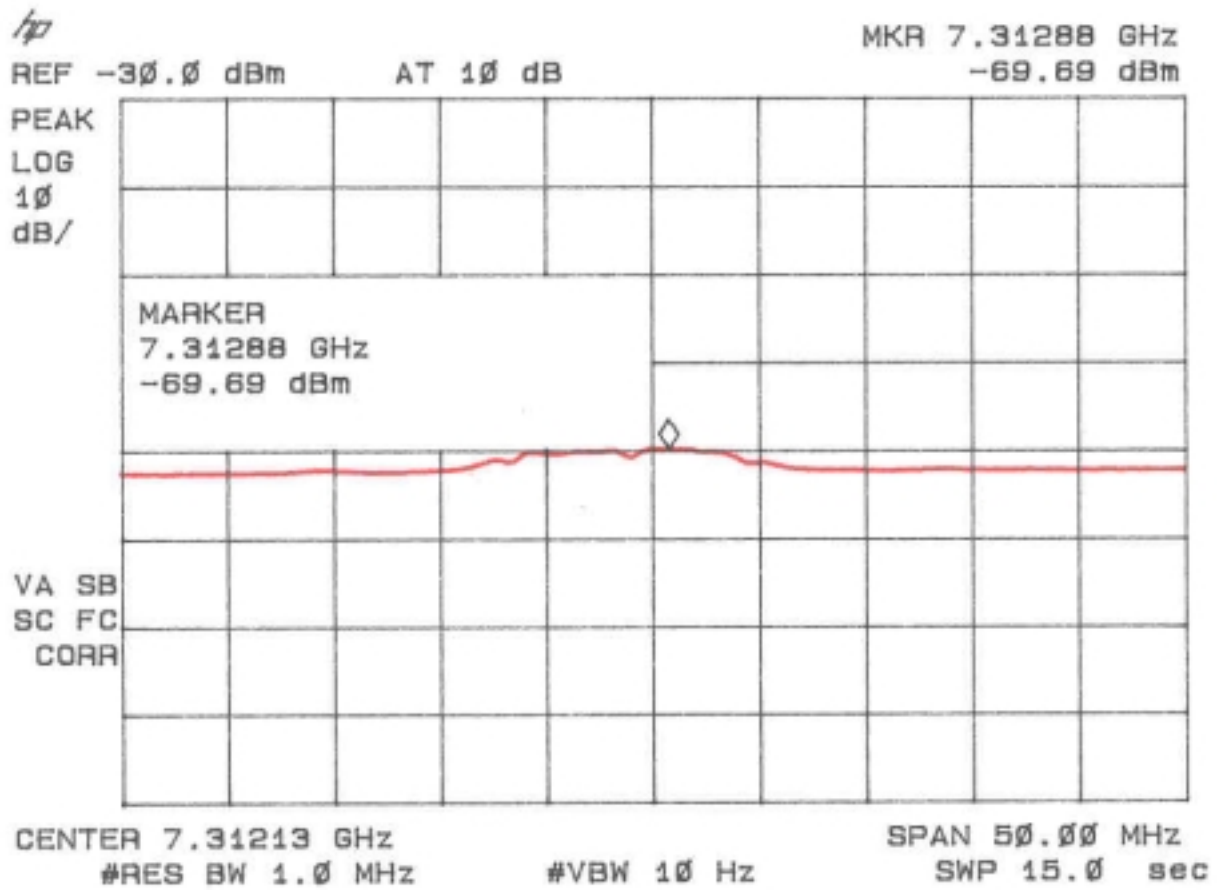


Figure 6f
Average Radiated Spurious Emission 15.247(c) High

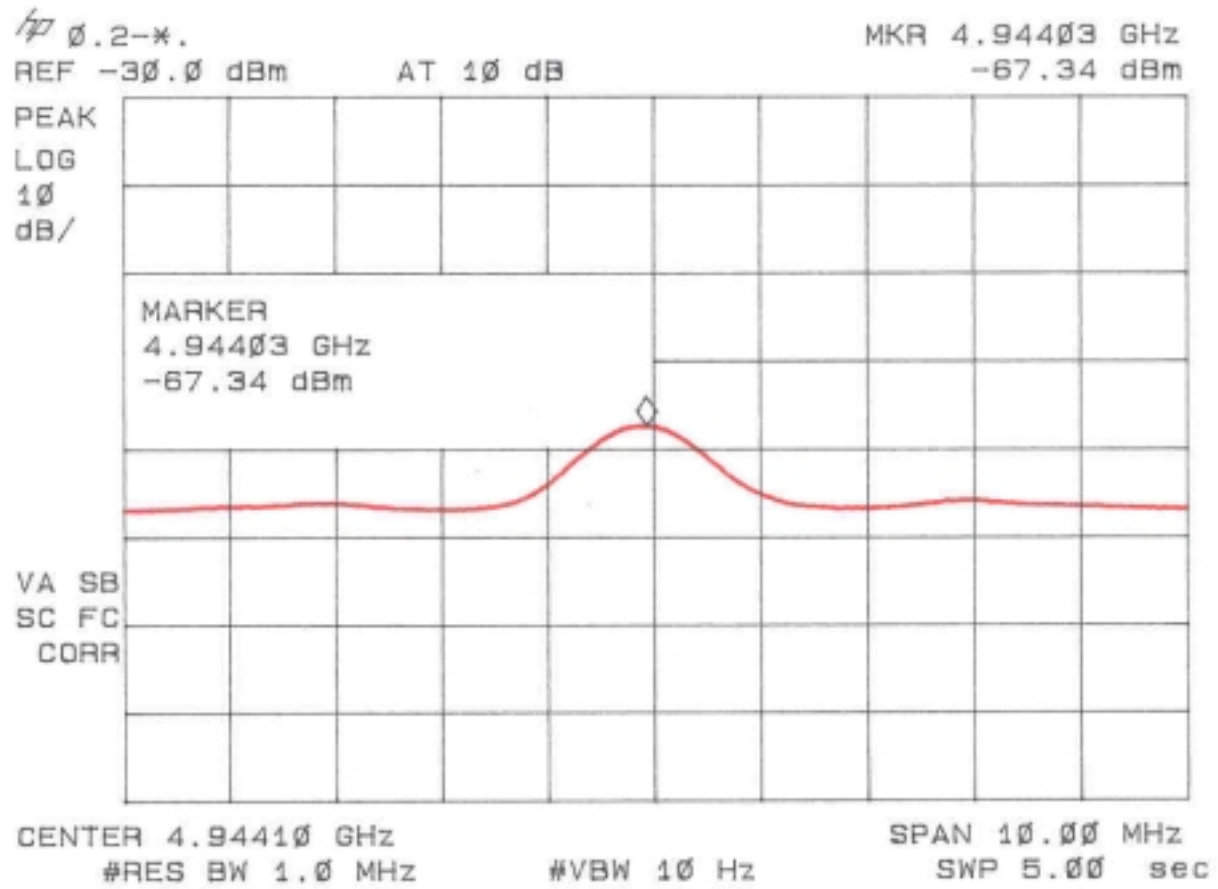


TABLE 5a
AVERAGE RADIATED SPURIOUS EMISSIONS (Low)

Test Date: January 14, 2000
UST Project: 99-901
Customer: Home Wireless Networks, Inc.
Model: 95-0016-XXX

Freq. (GHz)	Test Data (dBm) @3m	High Pass Filter Loss (dB)	Amp. Gain (dB)	Antenna Factor (dB)	Cable Loss (dB)	Results (uV/m) @3m	FCC Limits (uV/m) @3m
2.786	-60.0	1.6	34.9	31.4	4.2	291.7	500
4.824	-73.7	1.0	34.3	34.7	7.9	134.9	500

**** = Instrumentation ground floor**

SAMPLE CALCULATION:

RESULTS (uV/m @ 3m) = Antilog ((-60.0 + 1.6 - 34.9 + 31.4 + 4.2 + 107)/20) = 291.7

CONVERSION FROM dBm TO dBuV = 107 dB

Tester

Signature: _____ **Name:** Tim R. Johnson

TABLE 5b
AVERAGE RADIATED SPURIOUS EMISSIONS (Mid)

Test Date: January 14, 2000
UST Project: 99-901
Customer: Home Wireless Networks, Inc.
Model: 95-0016-XXX

Freq. (GHz)	Test Data (dBm) @3m	High Pass Filter Loss (dB)	Amp. Gain (dB)	Antenna Factor (dB)	Cable Loss (dB)	Results (uV/m) @3m	FCC Limits (uV/m) @3m
2.811	-58.9	1.6	34.9	31.4	4.2	331.1	500
4.874	-67.5	1.0	34.1	34.8	8.1	291.7	500
7.314	-79.2*	1.0	33.8	37.2	7.9	101.2	500

* = EUT measured at 1 meter to achieve better dynamic range. Measurement has been adjusted by $20 \log (1/3) = -9.54$ dB

** = Instrumentation ground floor

SAMPLE CALCULATION:

RESULTS (uV/m @ 3m) = Antilog $((-58.9 + 1.6 - 34.9 + 31.4 + 4.2 + 107)/20) = 331.1$
CONVERSION FROM dBm TO dBuV = 107 dB

Tester

Signature: _____ **Name:** Tim R. Johnson

TABLE 5c
AVERAGE RADIATED SPURIOUS EMISSIONS (High)

Test Date: January 14, 2000
 UST Project: 99-901
 Customer: Home Wireless Networks, Inc.
 Model: 95-0016-XXX

Freq. (GHz)	Test Data (dBm) @3m	High Pass Filter Loss (dB)	Amp. Gain (dB)	Antenna Factor (dB)	Cable Loss (dB)	Results (uV/m) @3m	FCC Limits (uV/m) @3m
4.944	-67.3	1.0	34.1	35.0	8.2	309.0	500

**** = Instrumentation ground floor**

SAMPLE CALCULATION:

RESULTS (uV/m @ 3m) = Antilog ((-67.3 + 1.0 - 34.1 + 35.0 + 8.2 + 107)/20) = 309.0

CONVERSION FROM dBm TO dBuV = 107 dB

Tester

Signature: _____ **Name:** Tim R. Johnson

2.9 Minimum 6 dB Bandwidth per FCC Section 15.247(a)(2)

The minimum requirement is given in Figure 7a through 7c. If the EUT incorporates different spreading codes or data rates these were each investigated and the one which produced the smallest 6 dB bandwidth was selected for test.

Figure 7a.
6 dB Bandwidth per FCC Section 15.247(a)(2) (Low)

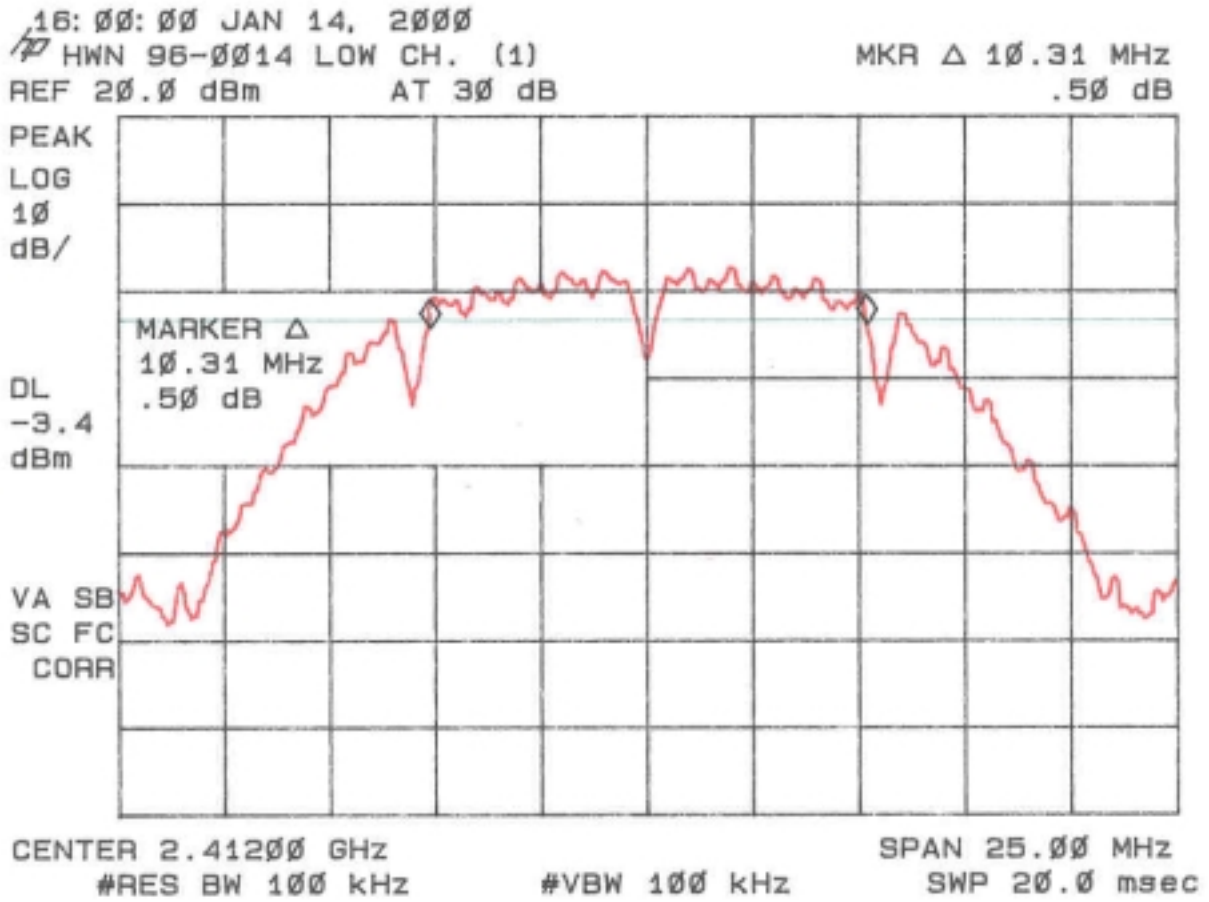


Figure 7b.
6 dB Bandwidth per FCC Section 15.247(a)(2) (Mid)

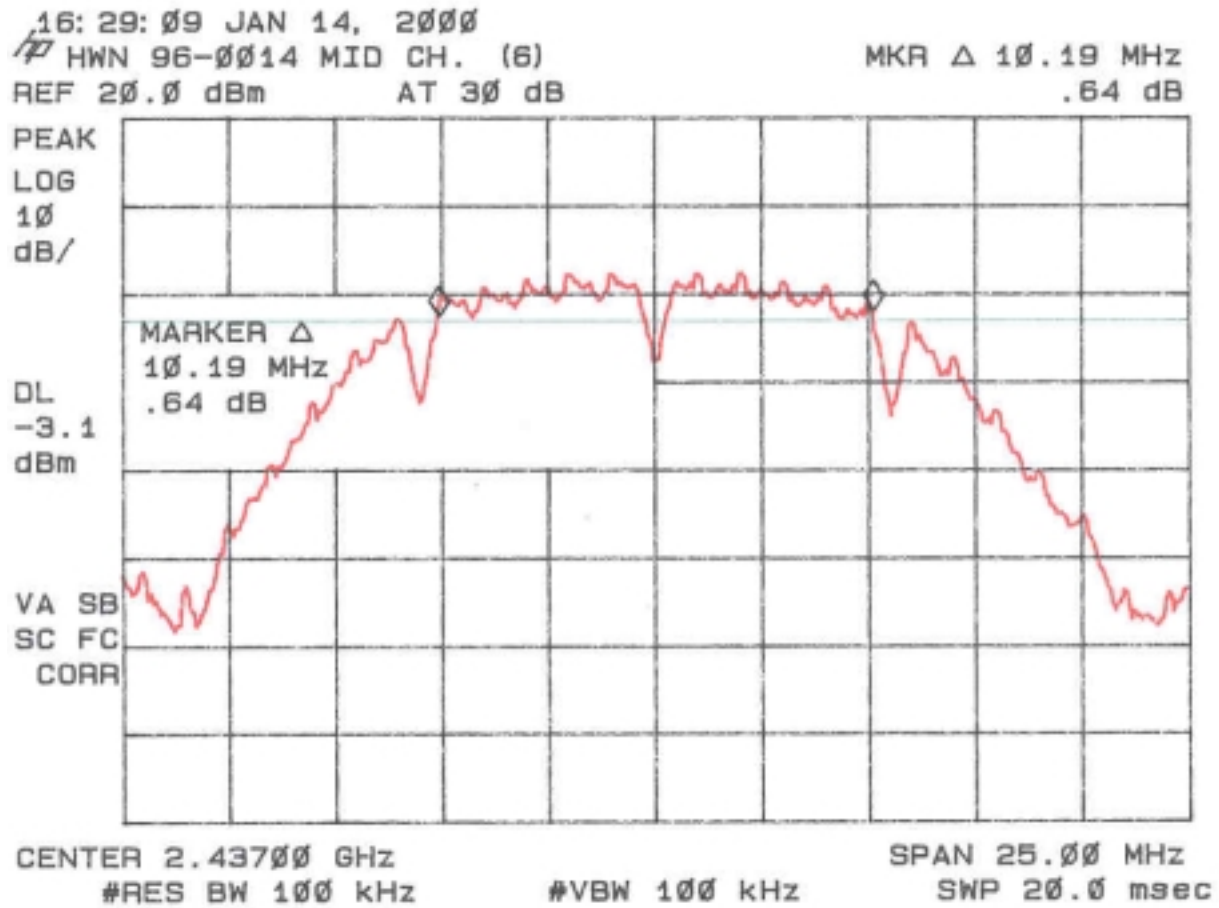
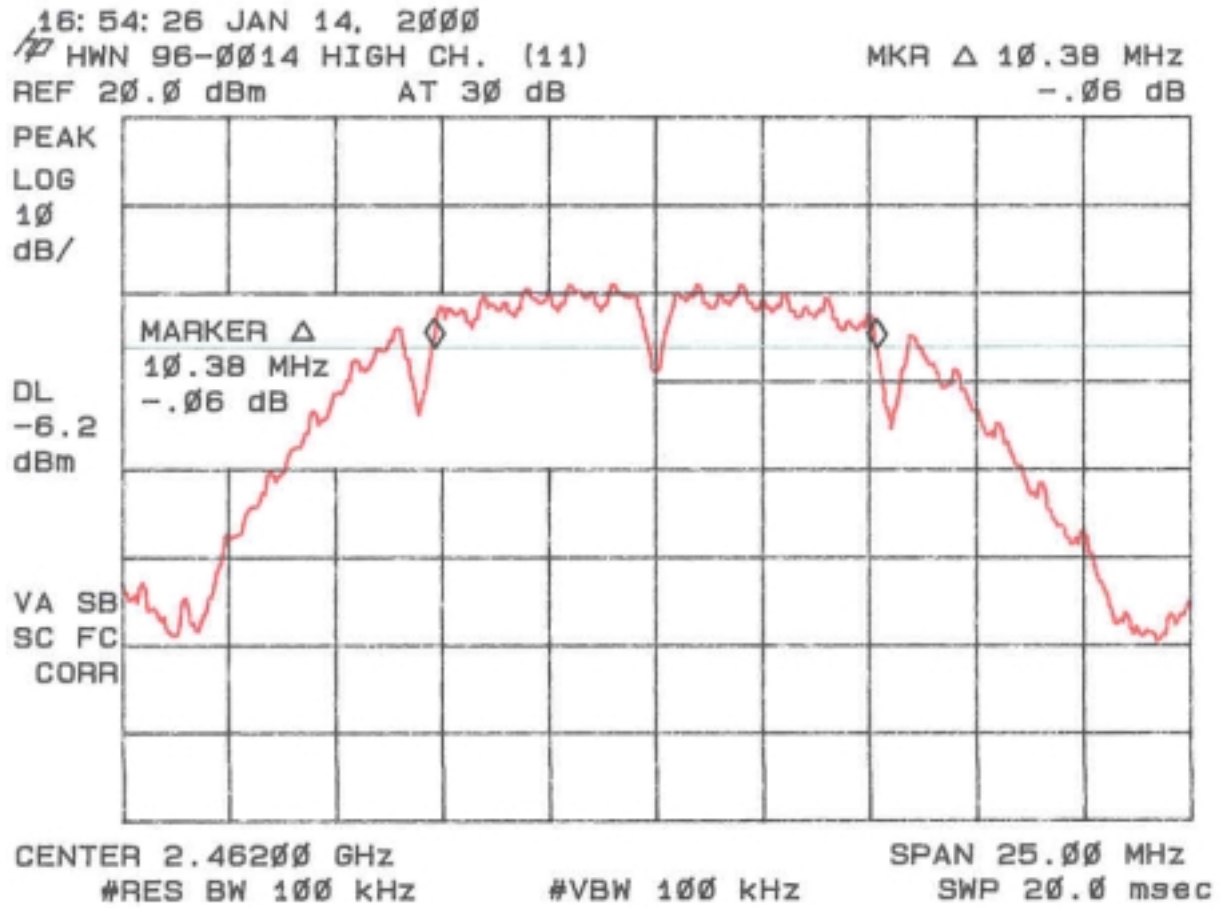


Figure 7c.
6 dB Bandwidth per FCC Section 15.247(a)(2) (High)



2.10 Power Spectral Density FCC Section 15.247(b) and 15.247(d)

The transmitter power spectral density averaged over any 1 second interval is given in Table 7 and Figure 8a through Figure 8c. If the EUT incorporates different spreading codes or data rates these were each investigated and the one which produced the smallest 6 dB bandwidth was selected for test. The measurement was made using a spectrum analyzer utilizing noise marker mode. A 34.8 dBm adjustment has been added to the measurement to correct from 1 Hz to 3 kHz measurement.

TABLE 6
POWER SPECTRAL DENSITY

Test Date: January 14, 2000
UST Project: 99-901
Customer: Home Wireless Networks, Inc.
Model: 95-0016-XXX

Frequency (GHz)	Test Data (dBm) Normalized to 1 Hz	Results (dBm)	FCC Limit (dBm)
2.413	-53.2	-18.4	8.0
2.438	-54.1	-19.3	8.0
2.461	-58.0	-23.2	8.0

Note: 34.8 dBm has been added to correct from 1 Hz to 3 kHz

Tester

Signature: _____ **Name:** Tim R. Johnson

Figure 8a
Power Spectral Density 15.247(b) and 15.247(d) Low

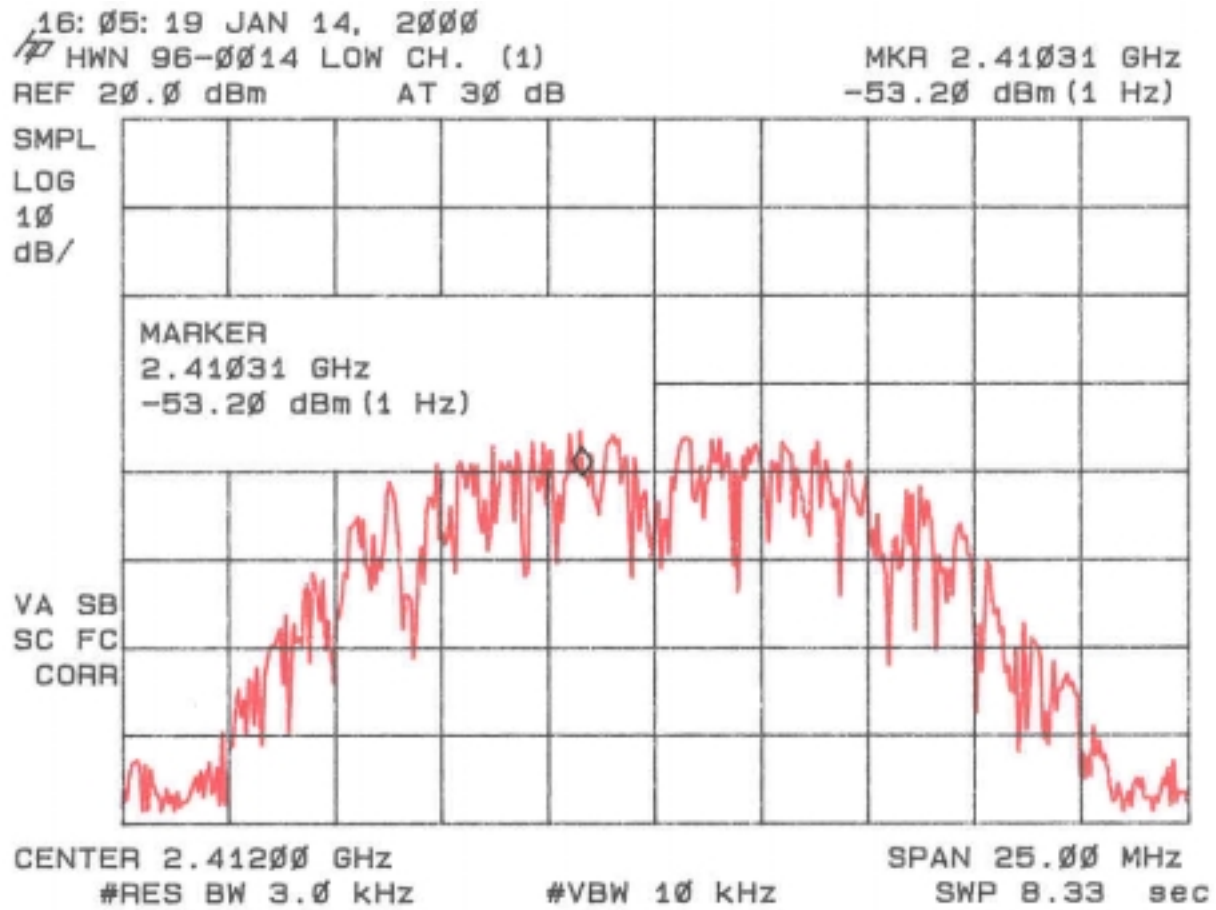


Figure 8b
Power Spectral Density 15.247(b) and 15.247(d) Mid

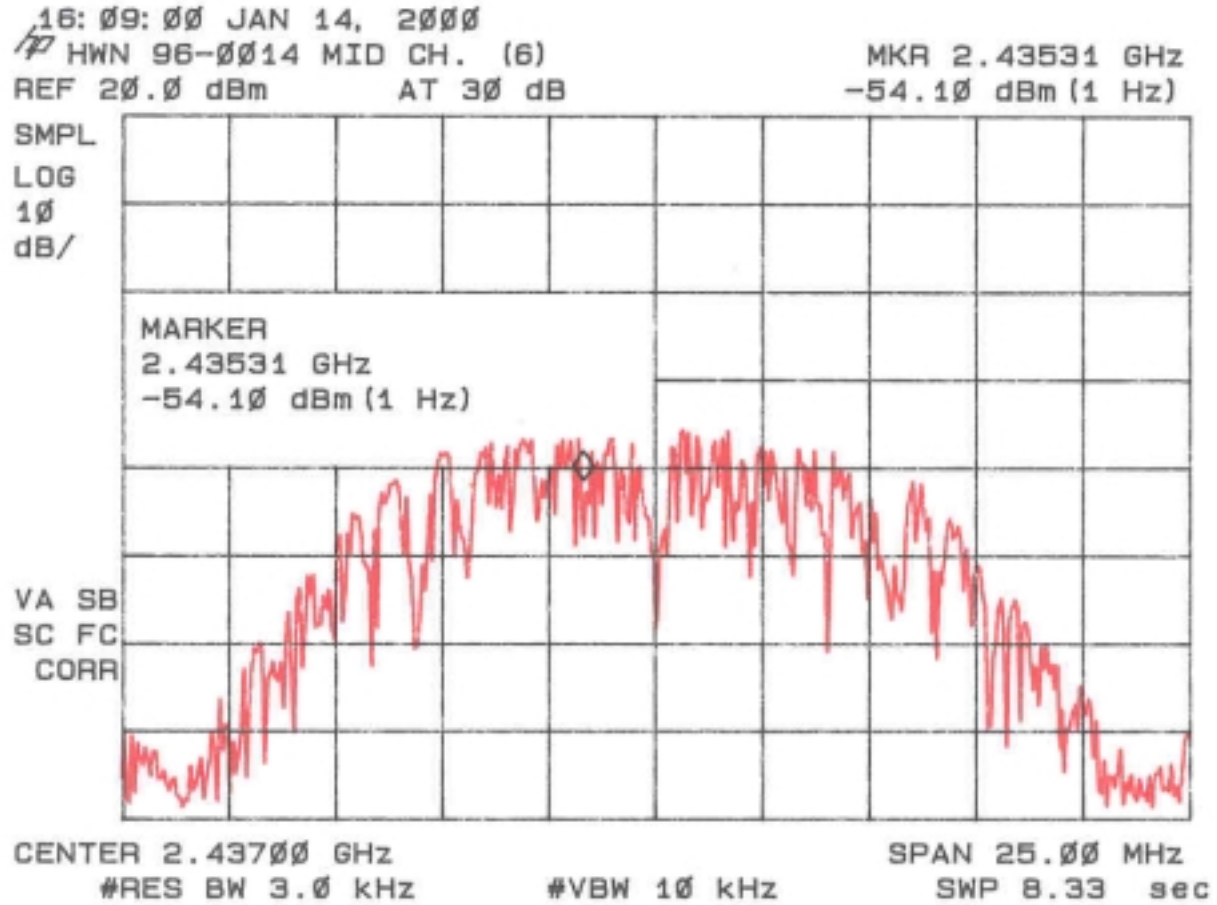
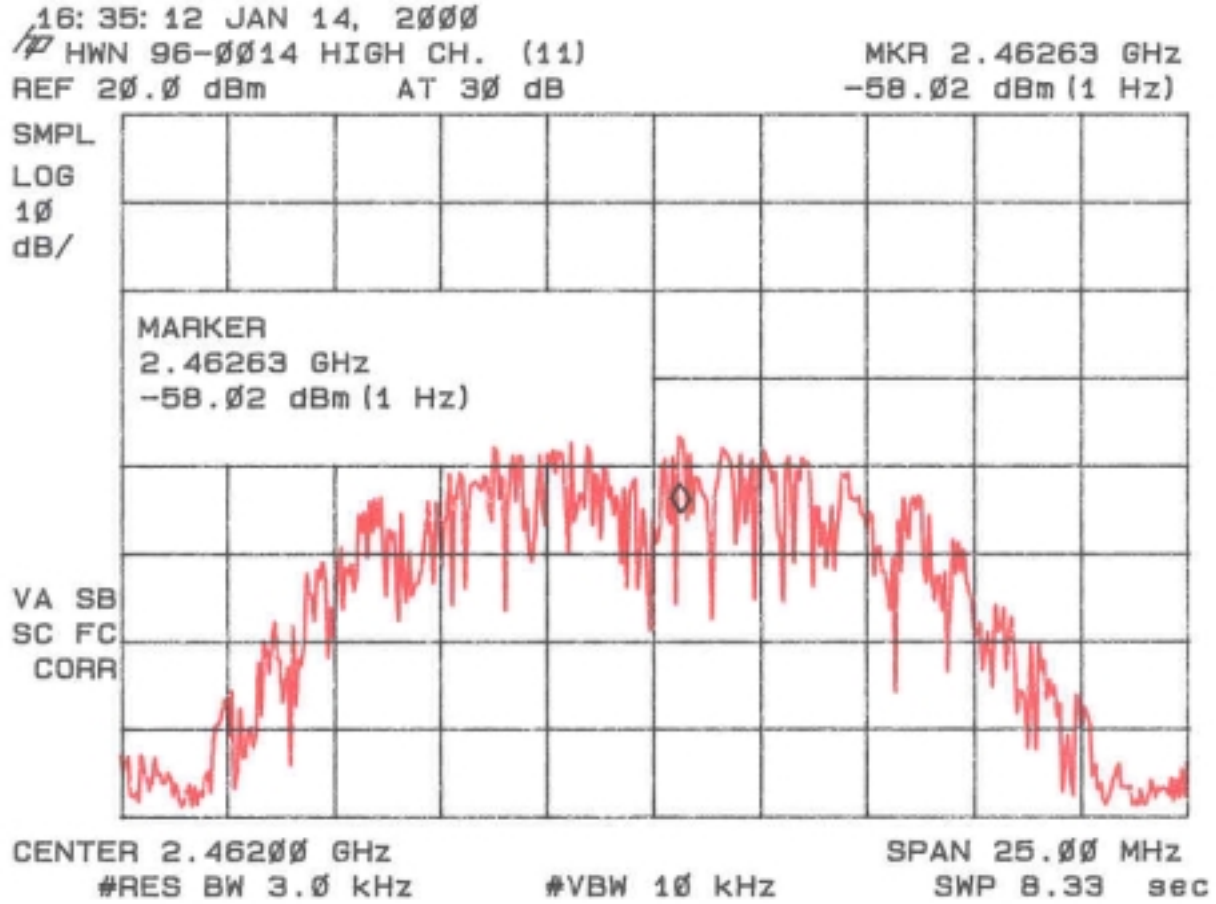


Figure 8c
Power Spectral Density 15.247(b) and 15.247(d) High



2.11 Power Line Conducted Emissions for Transmitter FCC Section 15.207

The conducted voltage measurements have been carried out in accordance with FCC Section 15.207, with a spectrum analyzer connected to a LISN and the EUT placed into a continuous mode of transmit. The results are given in Table 8.

**TABLE 7. CONDUCTED EMISSIONS DATA
CLASS B**

Test Date: January 20, 2000
UST Project: 99-901
Customer: Home Wireless Networks, Inc.
Product: 95-0016-XXX

Configuration with NCU (AC Adapter attached to NCU)

Frequency (MHz)	Test Data (dBm)		RESULTS (uV)		FCC Limits (uV)
	Phase	Neutral	Phase	Neutral	
2.9	-71.1	-69.1	62.3	78.5	250
7.3	-77.4	-77.9	30.2	28.5	250
12.3	-78.4	-82.1	26.9	17.6	250
16.5	-72.0	-72.5	56.2	53.1	250
22.1	-82.1	-81.8	17.6	18.2	250
29.4	-69.3	-69.6	76.7	74.1	250

SAMPLE CALCULATIONS:

RESULTS uV = ANTILOG $((-60.0 + 107)/20)$ = 223.9

CONVERSION FROM dBm TO dBuV = 107 dB

Test Results
Reviewed By
Signature: _____

Name: Tim R. Johnson

SECTION 3

PHOTOGRAPHS

PHOTOS OF THE TESTED EUT

The following photos are attached:

- Photo 1. EUT, Top View of Board
- Photo 2. EUT, Top View of Board with Shields Removed
- Photo 3. EUT, Bottom View of Board
- Photo 4. EUT, Bottom View of Board with Shields Removed

Photo 1. EUT, Top View of Board

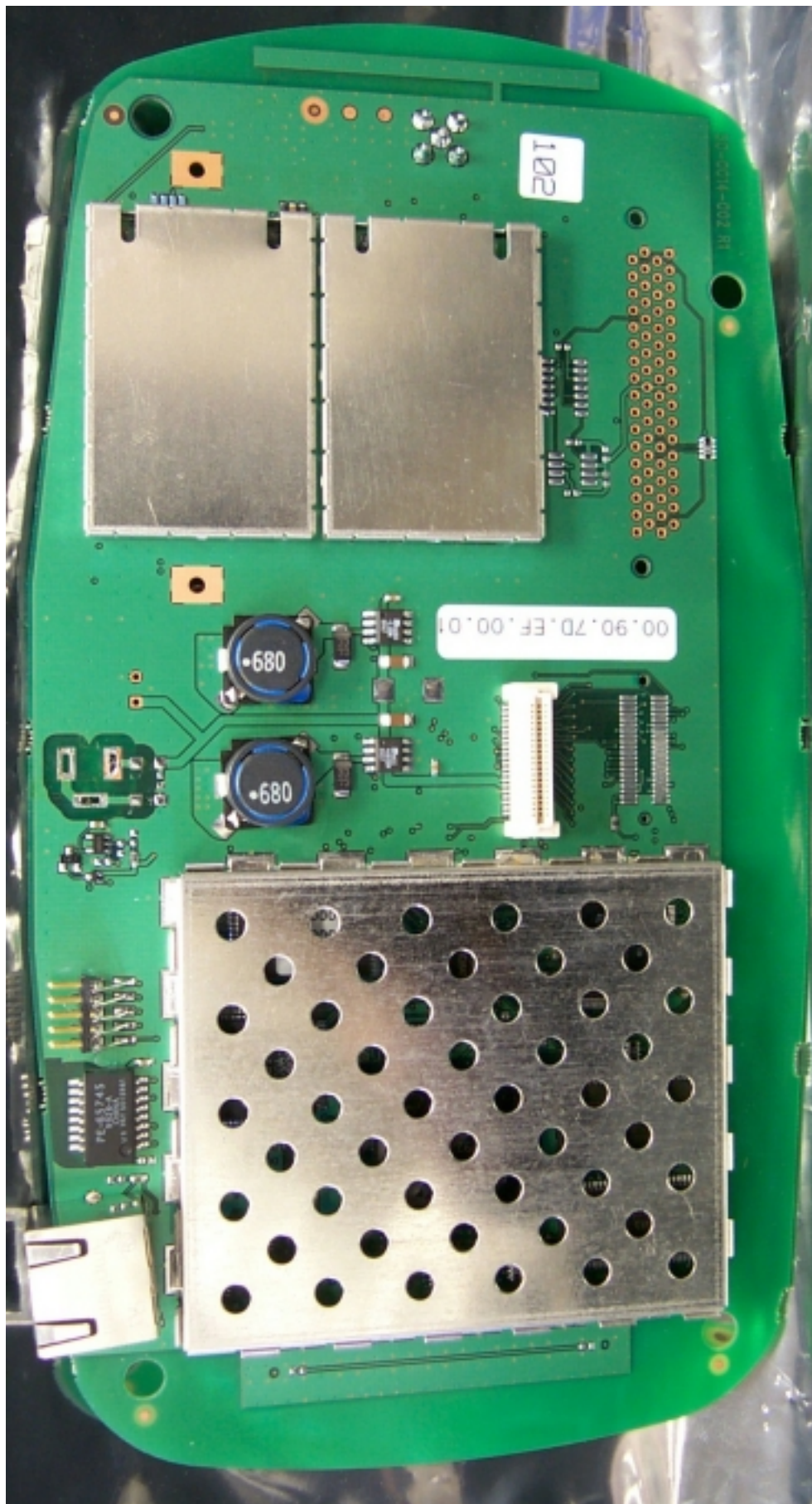


Photo 2. EUT, Top View of Board with Shields Removed

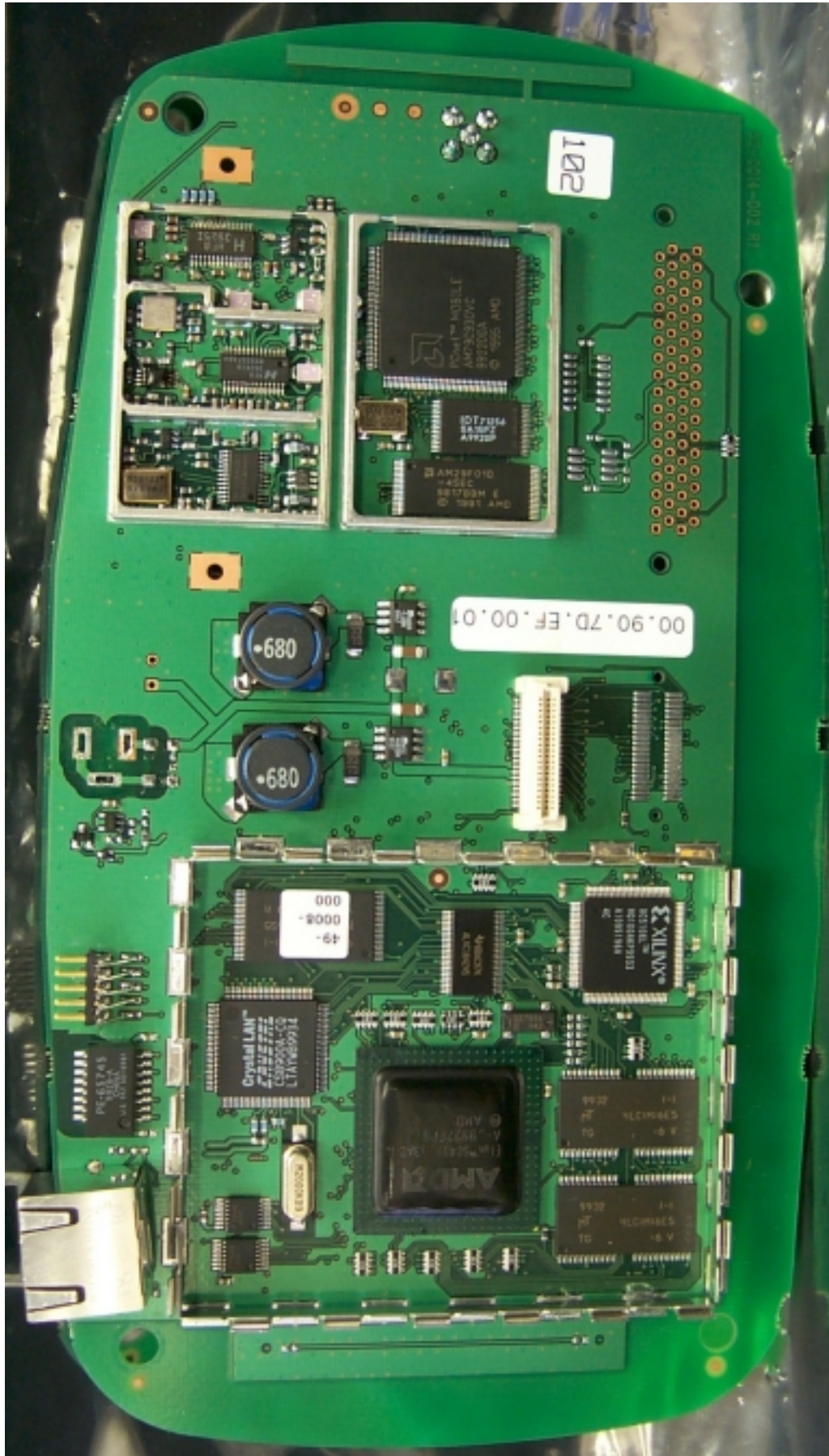


Photo 3. EUT, Bottom View of Board



Photo 4. EUT, Bottom View of Board with Shields Removed

