

2.9 Peak Radiated Spurious Emission in the Frequency Range 30 - 25000 MHz (FCC Section 15.247(c))

A preliminary scan was performed on the EUT to determine frequencies that were caused by the transmitter portion of the product. Significant emissions that fell within restricted bands were then measured on an OAT's site. Radiated measurements below 1 GHz were tested with a RBW = 120 kHz. Radiated measurements above 1 GHz were measured using a RBW = VBW = 1 MHz. The results of peak radiated spurious emissions falling within restricted bands are given in Table 4a & 4d (low), Table 4b & 4e, (mid), Table 4c & 4f (high) and Figure 5a – 5f.

Figure 5a
Peak Radiated Spurious Emission 15.247(c) (Antenna A – Low)

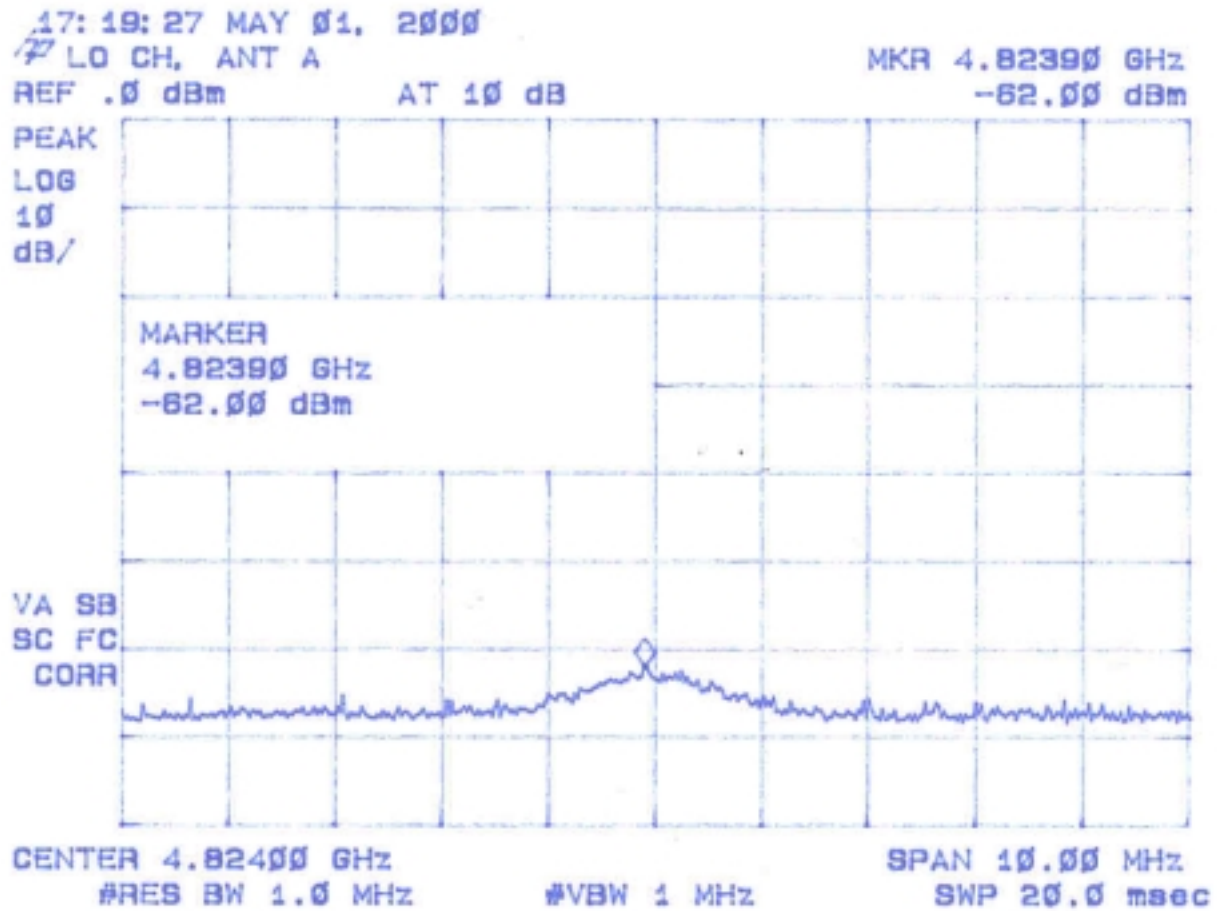


Figure 5b
Peak Radiated Spurious Emission 15.247(c) (Antenna A – Mid)

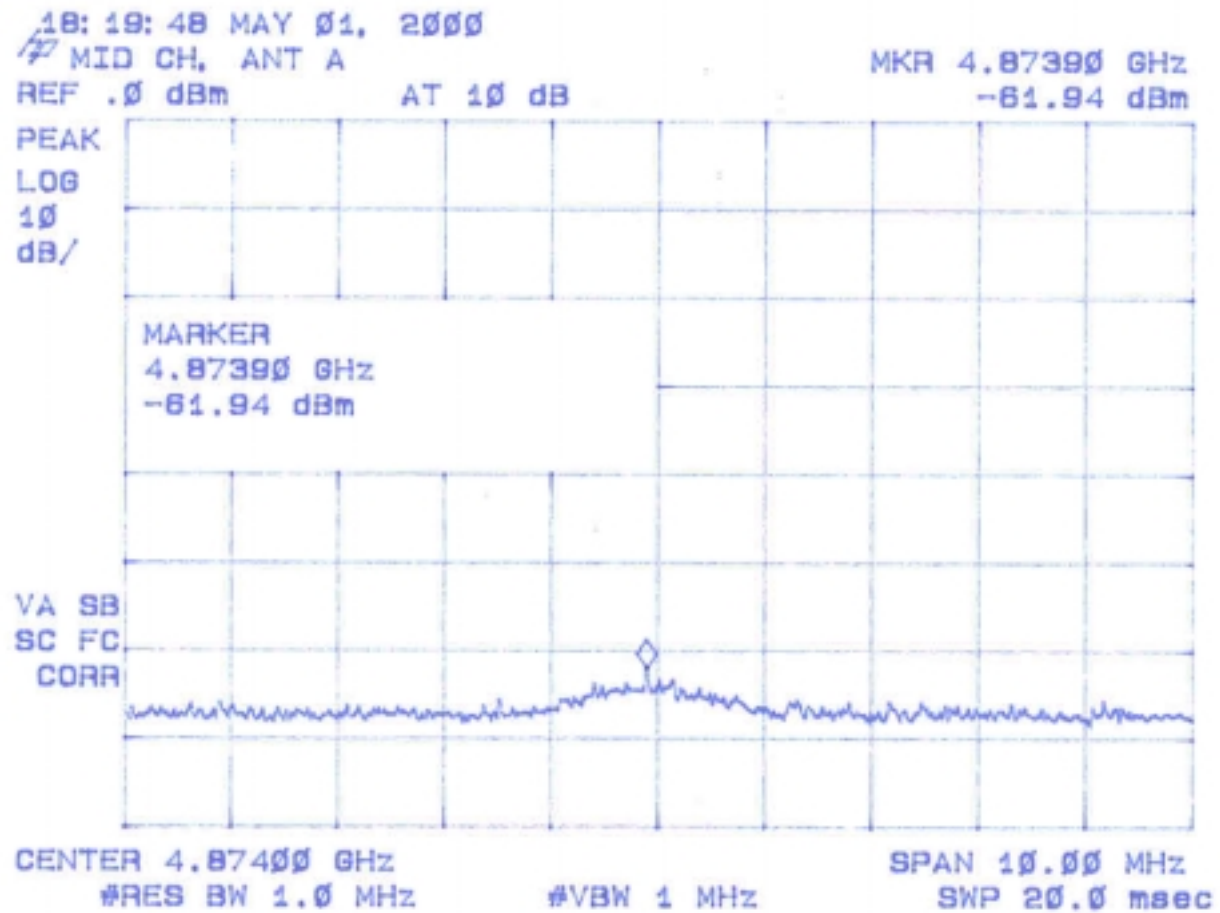


Figure 5c
Peak Radiated Spurious Emission 15.247(c) (Antenna A – High)

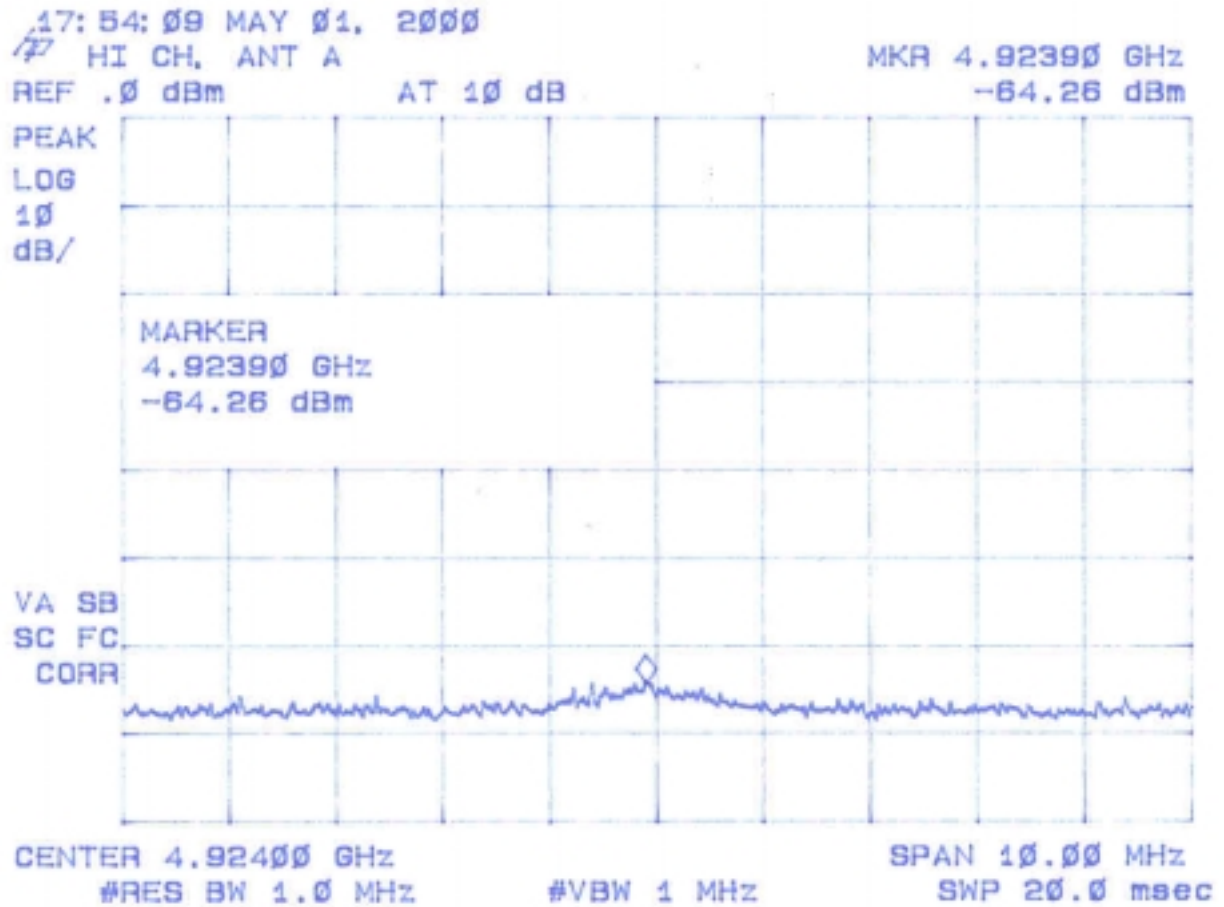


Figure 5d
Peak Radiated Spurious Emission 15.247(c) (Antenna B – Low)

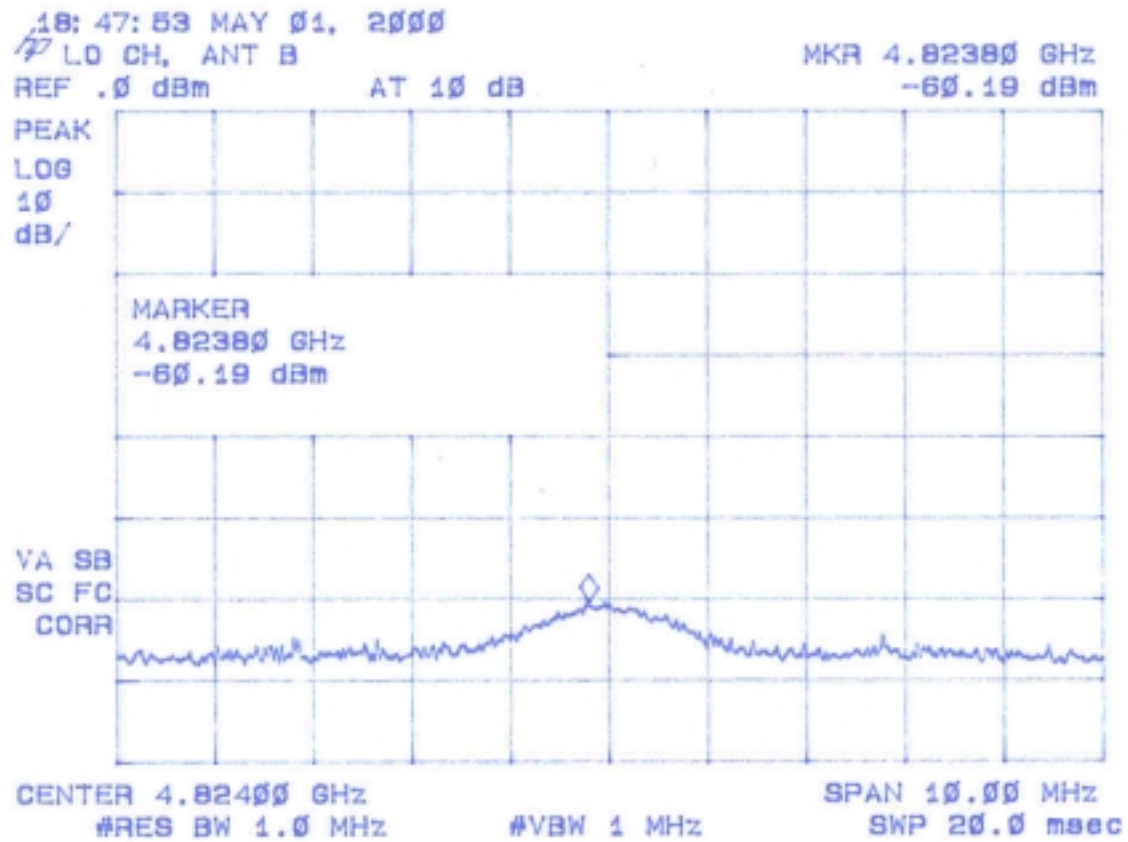


Figure 5e
Peak Radiated Spurious Emission 15.247(c) (Antenna B – Mid)

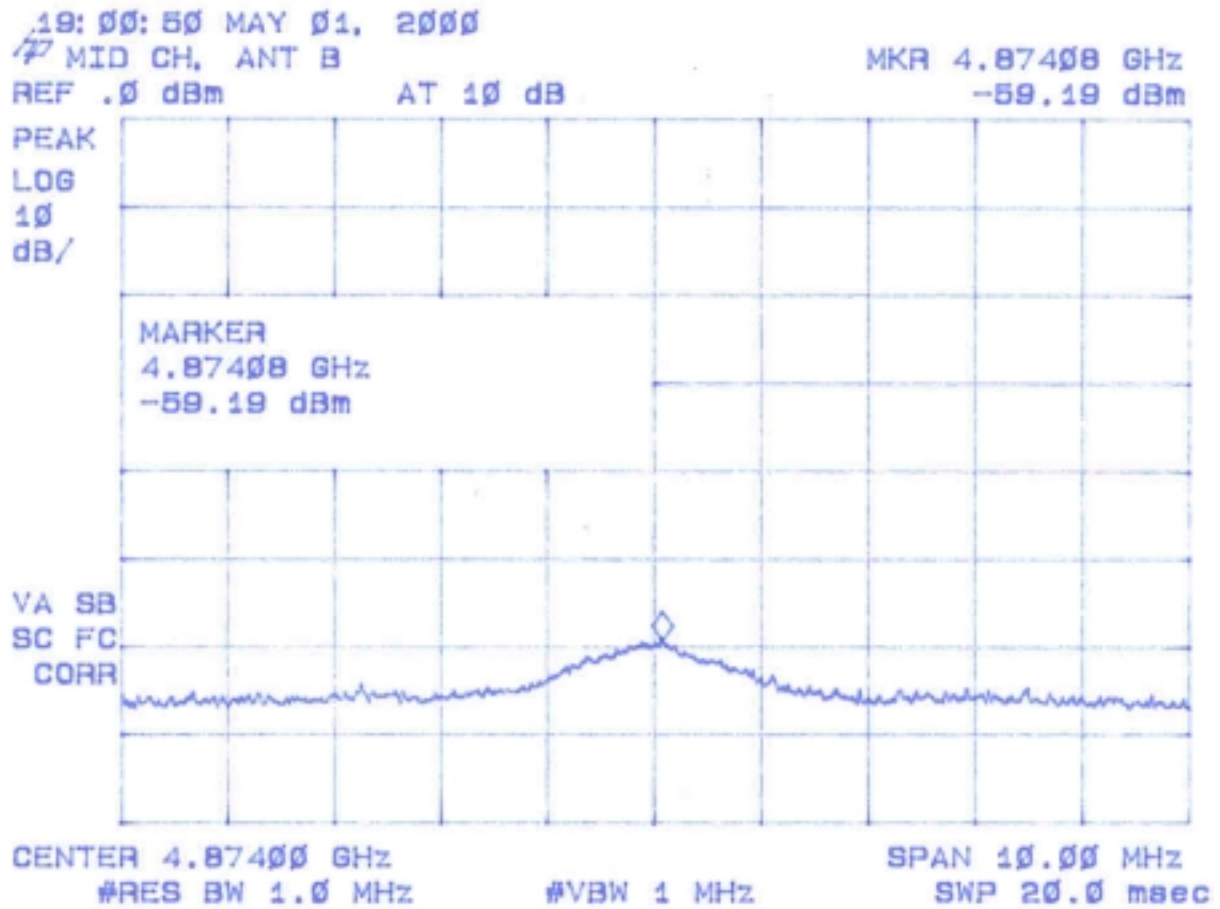


Figure 5f
Peak Radiated Spurious Emission 15.247(c) (Antenna B – High)

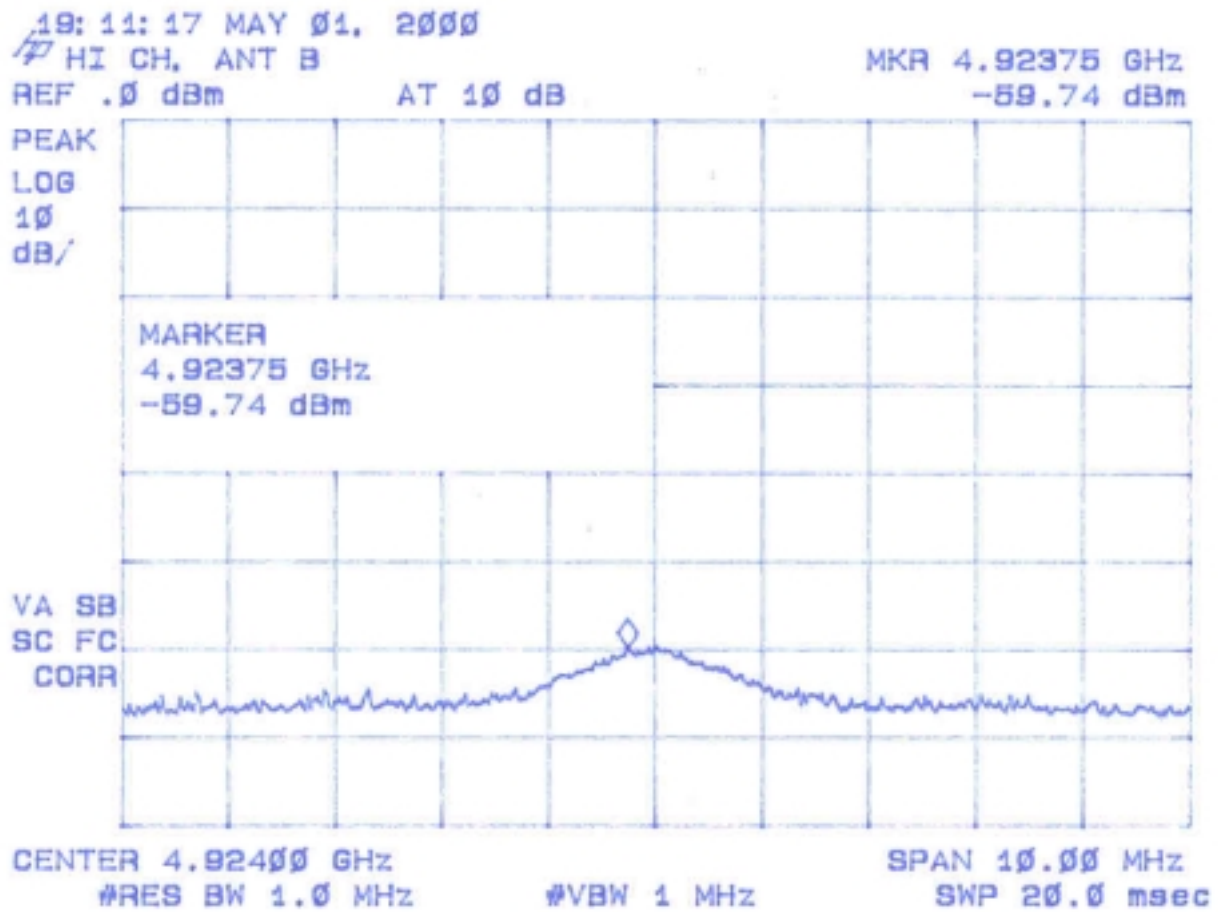


TABLE 4a
PEAK RADIATED SPURIOUS EMISSIONS (Antenna A - Low)

Test Date: May 1, 2000
 UST Project: 00-0161
 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
4.824	-62.0	1.0	34.2	34.7	7.9	524.8	5000

SAMPLE CALCULATION:

RESULTS (uV/m @ 3m) = Antilog $((-62.0 + 1.0 - 34.2 + 34.7 + 7.9 + 107)/20)$ = 524.8

CONVERSION FROM dBm TO dBuV = 107 dB

Test Results

Reviewed By

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

TABLE 4b
PEAK RADIATED SPURIOUS EMISSIONS (Antenna A - Mid)

Test Date: May 1, 2000
 UST Project: 00-0161
 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
4.874	-61.9	1.0	34.1	34.8	8.1	555.9	5000

SAMPLE CALCULATION:

RESULTS (uV/m @ 3m) = Antilog ((-61.9 + 1.0 - 34.1 + 34.8 + 8.1 + 107)/20) = 555.9

CONVERSION FROM dBm TO dBuV = 107 dB

Test Results

Reviewed By

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

TABLE 4c
PEAK RADIATED SPURIOUS EMISSIONS (Antenna A - High)

Test Date: May 1, 2000
 UST Project: 00-0161
 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
4.934	-64.3	1.0	34.1	34.9	8.2	431.5	5000

SAMPLE CALCULATION:

RESULTS (uV/m @ 3m) = Antilog ((-64.3 + 1.0 - 34.1 + 34.9 + 8.2 + 107)/20) = 431.5

CONVERSION FROM dBm TO dBuV = 107 dB

Test Results**Reviewed By**

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

TABLE 4d
PEAK RADIATED SPURIOUS EMISSIONS (Antenna B - Low)

Test Date: May 1, 2000
 UST Project: 00-0161
 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
4.824	-59.2	1.0	34.2	34.7	7.9	724.4	5000

SAMPLE CALCULATION:

RESULTS (uV/m @ 3m) = Antilog ((-59.2 + 1.0 - 34.2 + 34.7 + 7.9 + 107)/20) = 724.4

CONVERSION FROM dBm TO dBuV = 107 dB

Test Results

Reviewed By

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TABLE 4e
PEAK RADIATED SPURIOUS EMISSIONS (Antenna B - Mid)

Test Date: May 1, 2000
UST Project: 00-0161
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
4.874	-59.1	1.0	34.1	34.8	8.1	767.4	5000

SAMPLE CALCULATION:

RESULTS (uV/m @ 3m) = Antilog ((-59.1 + 1.0 - 34.1 + 34.8 + 8.1 + 107)/20) = 767.4

CONVERSION FROM dBm TO dBuV = 107 dB

Test Results

Reviewed By

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TABLE 4f
PEAK RADIATED SPURIOUS EMISSIONS (Antenna B - High)

Test Date: May 1, 2000
 UST Project: 00-0161
 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
4.934	-59.7	1.0	34.1	34.9	8.2	732.8	5000

SAMPLE CALCULATION:

RESULTS (uV/m @ 3m) = Antilog ((-59.7 + 1.0 - 34.1 + 34.9 + 8.2 + 107)/20) = 732.8

CONVERSION FROM dBm TO dBuV = 107 dB

Test Results**Reviewed By**

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

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

Radiated measurements above 1 GHz were measured using a RBW = 1 MHz & VBW = 10 Hz. Since the EUT is capable of transmitting in excess of 100 msec periods, further correction of the readings for duty cycle were considered not applicable. The results of average radiated spurious emissions falling within restricted bands are given in Table 5a & 5d (low), Table 5b & 5e (mid), Table 5c & 5f (high) and Figure 6a-6f.

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

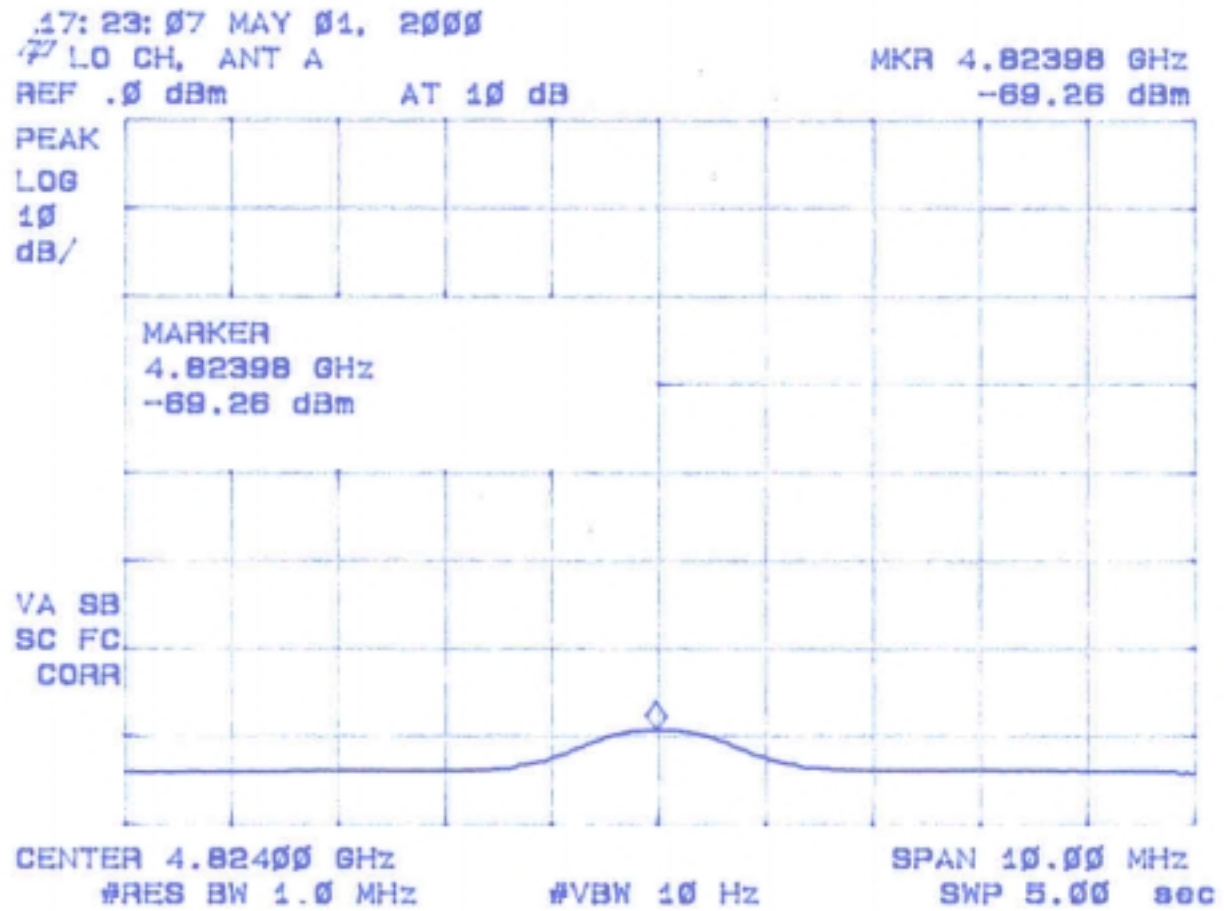


Figure 6b
Average Radiated Spurious Emission 15.247(c) (Antenna A – Mid)

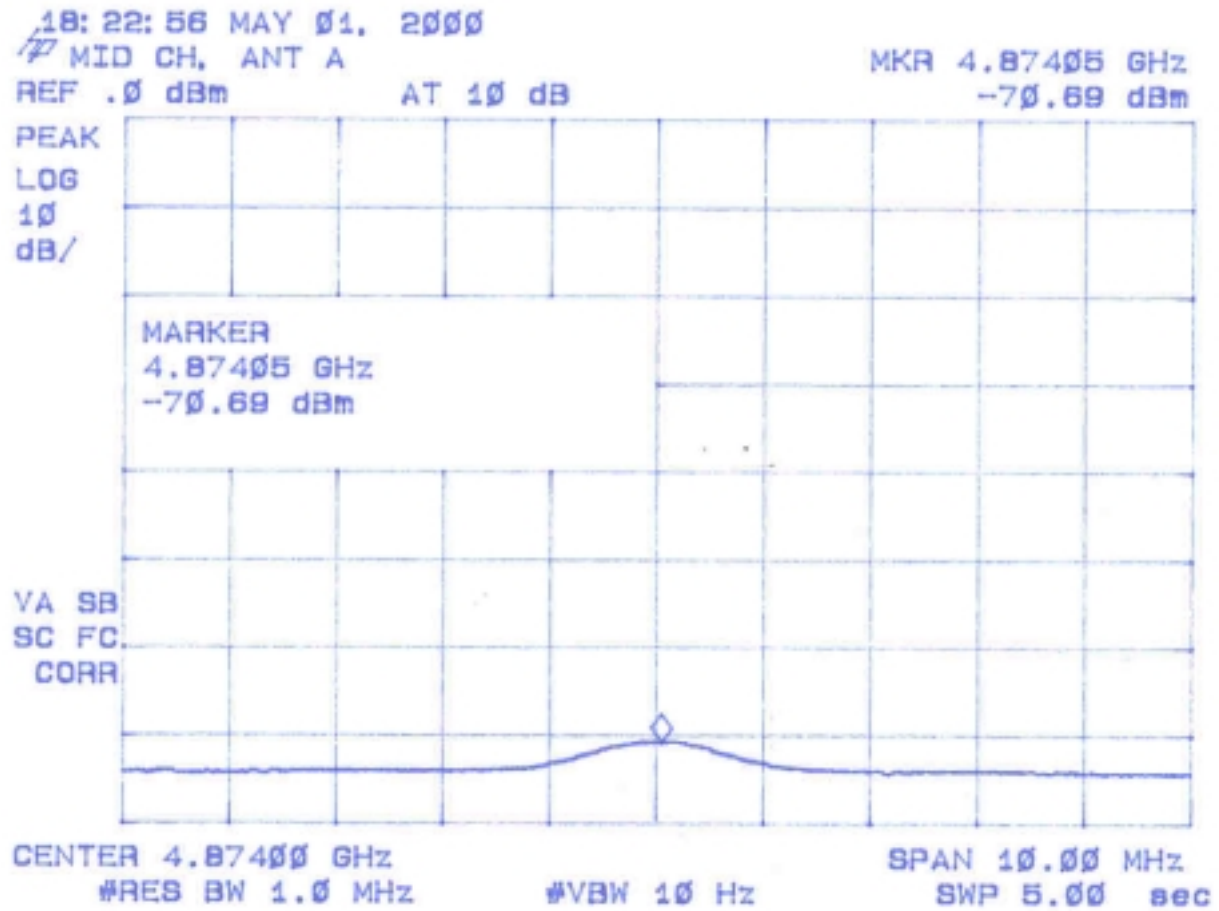


Figure 6c
Average Radiated Spurious Emission 15.247(c) (Antenna A – High)

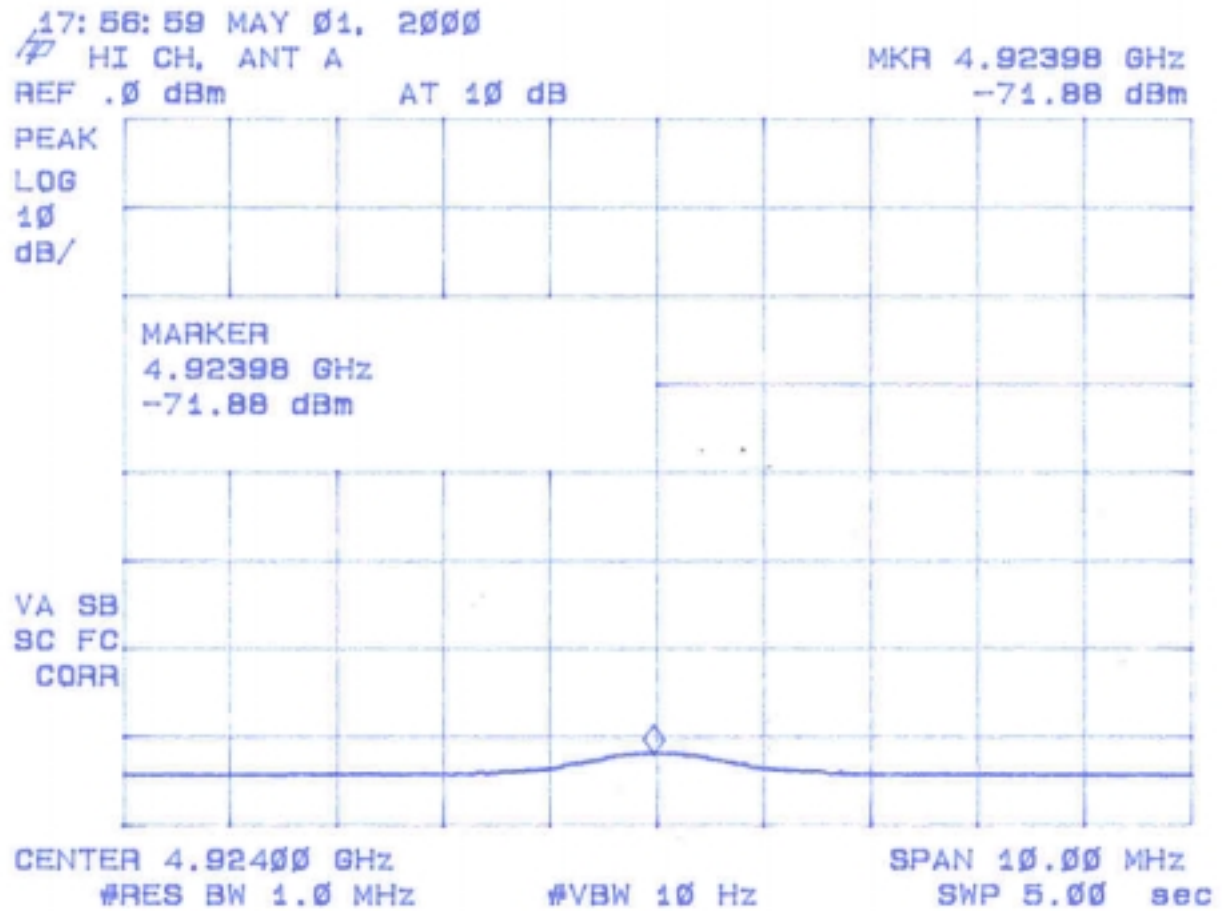


Figure 6d
Average Radiated Spurious Emission 15.247(c) (Antenna B – Low)

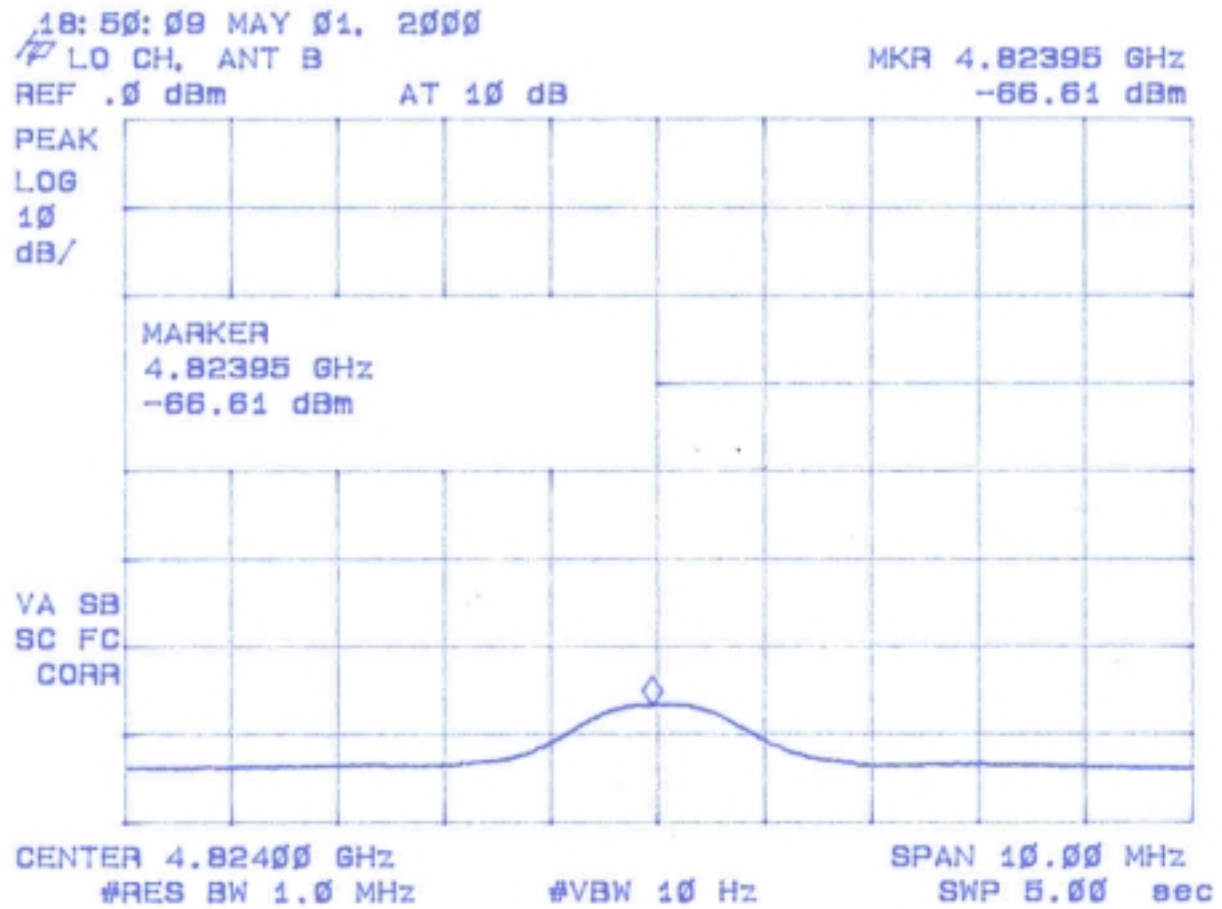


Figure 6e
Average Radiated Spurious Emission 15.247(c) (Antenna B – Mid)

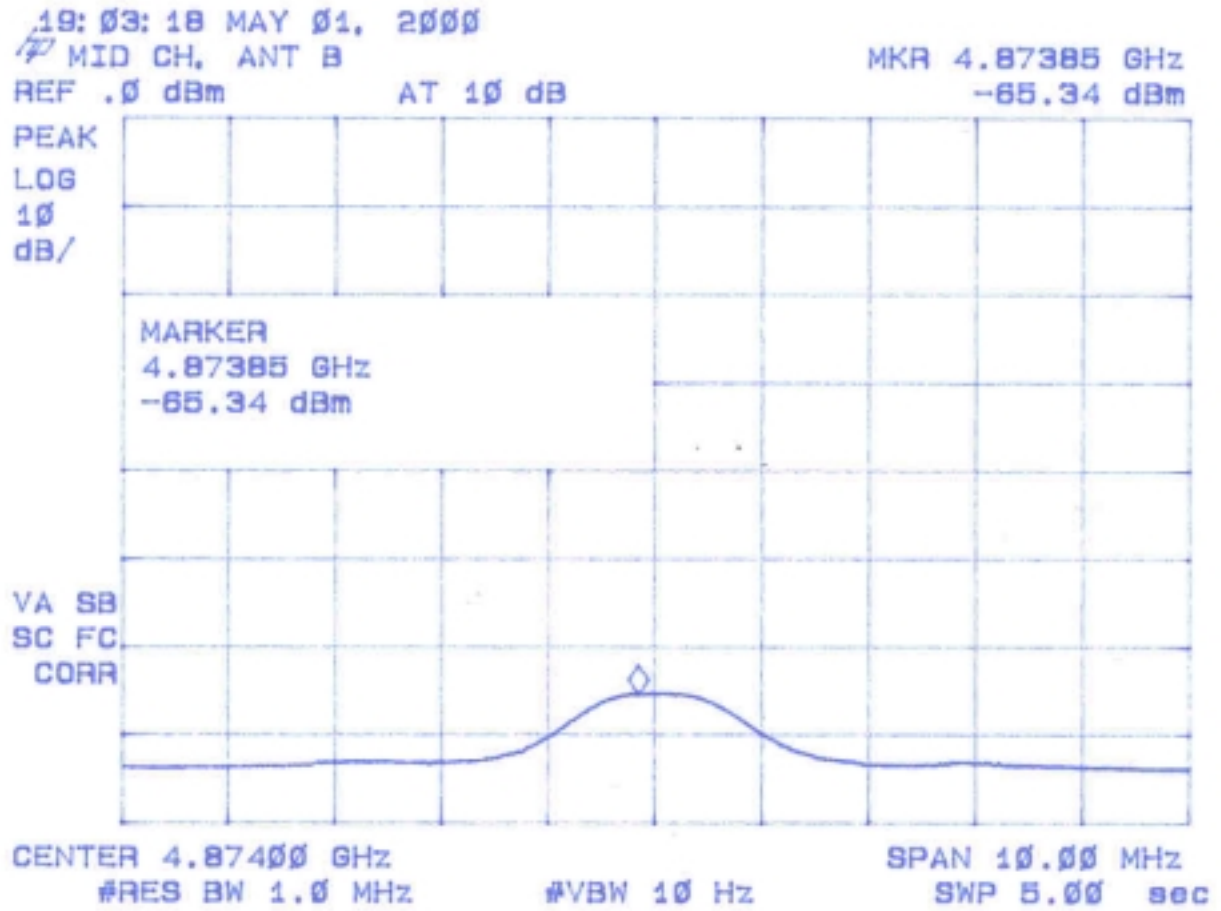


Figure 6f
Average Radiated Spurious Emission 15.247(c) (Antenna B – High)

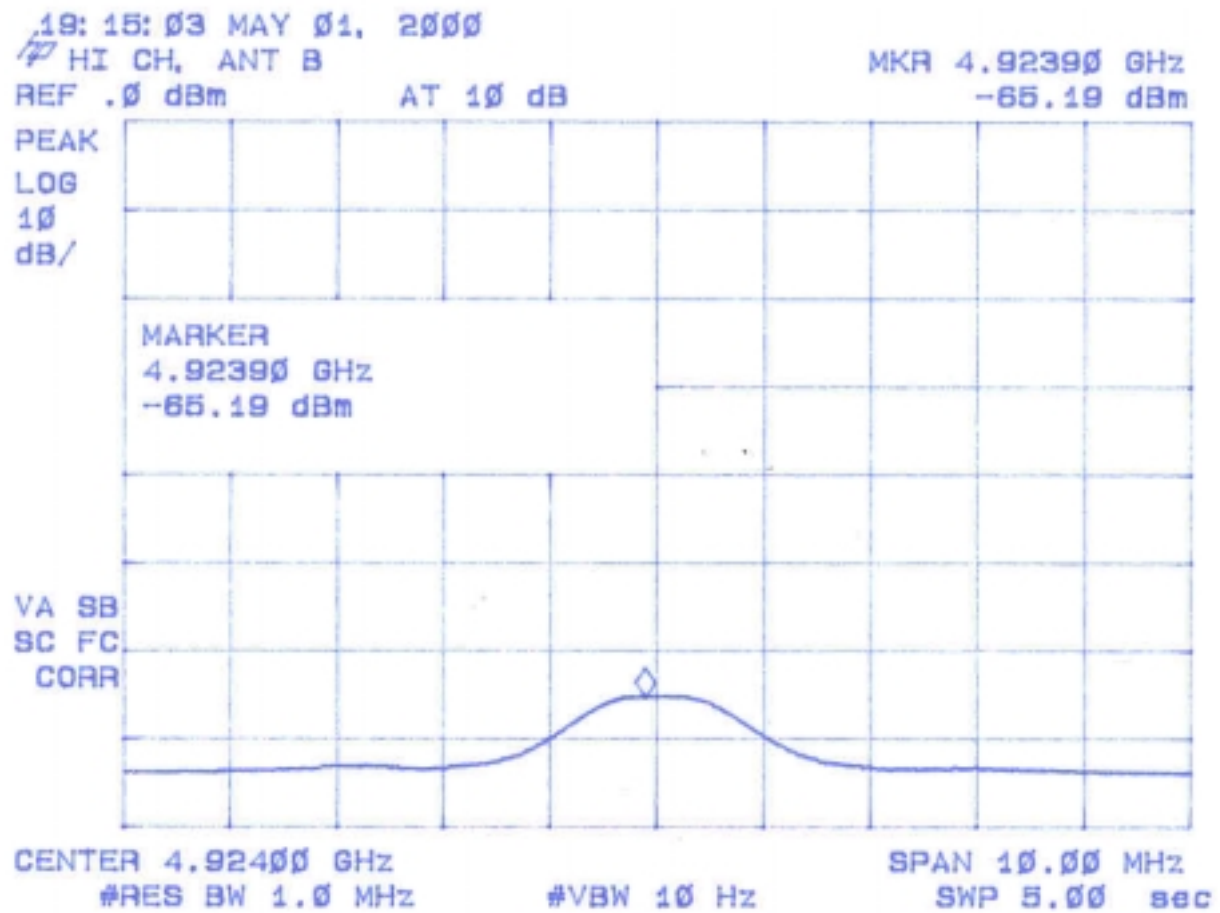


TABLE 5a
AVERAGE RADIATED SPURIOUS EMISSIONS (Antenna A - Low)

Test Date: May 1, 2000
UST Project: 00-0161
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
4.824	-69.3	1.0	34.2	34.7	7.9	226.5	500

SAMPLE CALCULATION:

RESULTS (uV/m @ 3m) = Antilog $((-69.3 + 1.0 - 34.2 + 34.7 + 7.9 + 107)/20)$ = 226.5

CONVERSION FROM dBm TO dBuV = 107 dB

Test Results

Reviewed By

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

TABLE 5b
AVERAGE RADIATED SPURIOUS EMISSIONS (Antenna A - Mid)

Test Date: May 1, 2000
UST Project: 00-0161
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
4.874	-70.7	1.0	34.1	34.8	8.1	201.8	500

SAMPLE CALCULATION:

RESULTS (uV/m @ 3m) = Antilog $((-70.7 + 1.0 - 34.1 + 34.8 + 8.1 + 107)/20)$ = 201.8

CONVERSION FROM dBm TO dBuV = 107 dB

Test Results**Reviewed By**

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TABLE 5c
AVERAGE RADIATED SPURIOUS EMISSIONS (Antenna A - High)

Test Date: May 1, 2000
 UST Project: 00-0161
 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
4.934	-71.9	1.0	34.1	34.9	8.2	179.9	500

SAMPLE CALCULATION:

RESULTS (uV/m @ 3m) = Antilog ((-71.9 + 1.0 - 34.1 + 34.9 + 8.2 + 107)/20) = 179.9

CONVERSION FROM dBm TO dBuV = 107 dB

Test Results**Reviewed By**

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

TABLE 5d
AVERAGE RADIATED SPURIOUS EMISSIONS (Antenna B - Low)

Test Date: May 1, 2000
 UST Project: 00-0161
 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
4.824	-66.6	1.0	34.2	34.7	7.9	309.0	500

SAMPLE CALCULATION:

RESULTS (uV/m @ 3m) = Antilog ((-66.6 + 1.0 - 34.2 + 34.7 + 7.9 + 107)/20) = 309.0

CONVERSION FROM dBm TO dBuV = 107 dB

Test Results

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

TABLE 5e
AVERAGE RADIATED SPURIOUS EMISSIONS (Antenna B - Mid)

Test Date: May 1, 2000
 UST Project: 00-0161
 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
4.874	-65.3	1.0	34.1	34.8	8.1	378.8	500

SAMPLE CALCULATION:

RESULTS (uV/m @ 3m) = Antilog $((-65.3 + 1.0 - 34.1 + 34.8 + 8.1 + 107)/20) = 378.8$

CONVERSION FROM dBm TO dBuV = 107 dB

Test Results

Reviewed By

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

TABLE 5f
AVERAGE RADIATED SPURIOUS EMISSIONS (Antenna B - High)

Test Date: May 1, 2000
 UST Project: 00-0161
 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
4.934	-65.2	1.0	34.1	34.9	8.2	389.0	500

SAMPLE CALCULATION:

RESULTS (uV/m @ 3m) = Antilog ((-65.2 + 1.0 - 34.1 + 34.9 + 8.2 + 107)/20) = 389.0

CONVERSION FROM dBm TO dBuV = 107 dB

Test Results

Reviewed By

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