

**TABLE 4b PEAK RADIATED SPURIOUS EMISSIONS (Mid Channel)**

| Peak Radiated Emissions |           |                              |           |           |          |         |                    |        |        |
|-------------------------|-----------|------------------------------|-----------|-----------|----------|---------|--------------------|--------|--------|
| Test By:                | Test:     | FCC Part 15.247, Mid Channel |           |           | Client:  |         | The Bodine Company |        |        |
| DPB                     | Project:  | 05-0069                      | Class:    |           | NA       | Model:  | FEBnet node        |        |        |
| Frequency               | Test Data | AF                           | Test Data | AF+CA-AMP | Results  | Limits  | Distance /         | Margin | PK = n |
| (MHz)                   | (dBm)     | Table                        | (dBuV)    | (dB)      | (uV/m)   | (uV/m)  | Polarity           | (dB)   | / QP   |
| 910.30                  | -25.3     | 2LP3mV                       | 81.7      | 30.7      | 414577.8 |         | 3m./VERT           |        | PK     |
| 1820.55                 | -45.5     | 2HN3m                        | 61.5      | -6.9      | 538.6    | 41457.8 | 3m./HORZ           | 37.7   | PK     |
| 2731                    | -53.0     | 2HN3m                        | 54.0      | -2.4      | 378.5    | 5000.0  | 3m./HORZ           | 22.4   | PK     |
| 3641.23                 | -45.8     | 2HN3m                        | 61.2      | 1.0       | 1294.2   | 5000.0  | 3m./HORZ           | 11.7   | PK     |
| 4551.78                 | -64.7     | 2HN3m                        | 42.3      | 4.8       | 225.9    | 5000.0  | 3m./HORZ           | 26.9   | PK     |
| 5462.23                 | -71.2*    | 2HN3m                        | 35.8      | 6.8       | 135.0    | 41457.8 | 3m./HORZ           | 49.7   | PK     |
| 6372.4                  | -72.0*    | 2HN3m                        | 35.0      | 8.1       | 142.7    | 41457.8 | 3m./HORZ           | 49.3   | PK     |

Data corrected by 1 dB for loss of high pass filter except for fundamental frequency

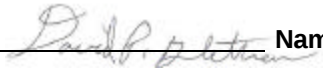
\* Data conversion from 1 meter to 3 meters = -9.54

**SAMPLE CALCULATION:**

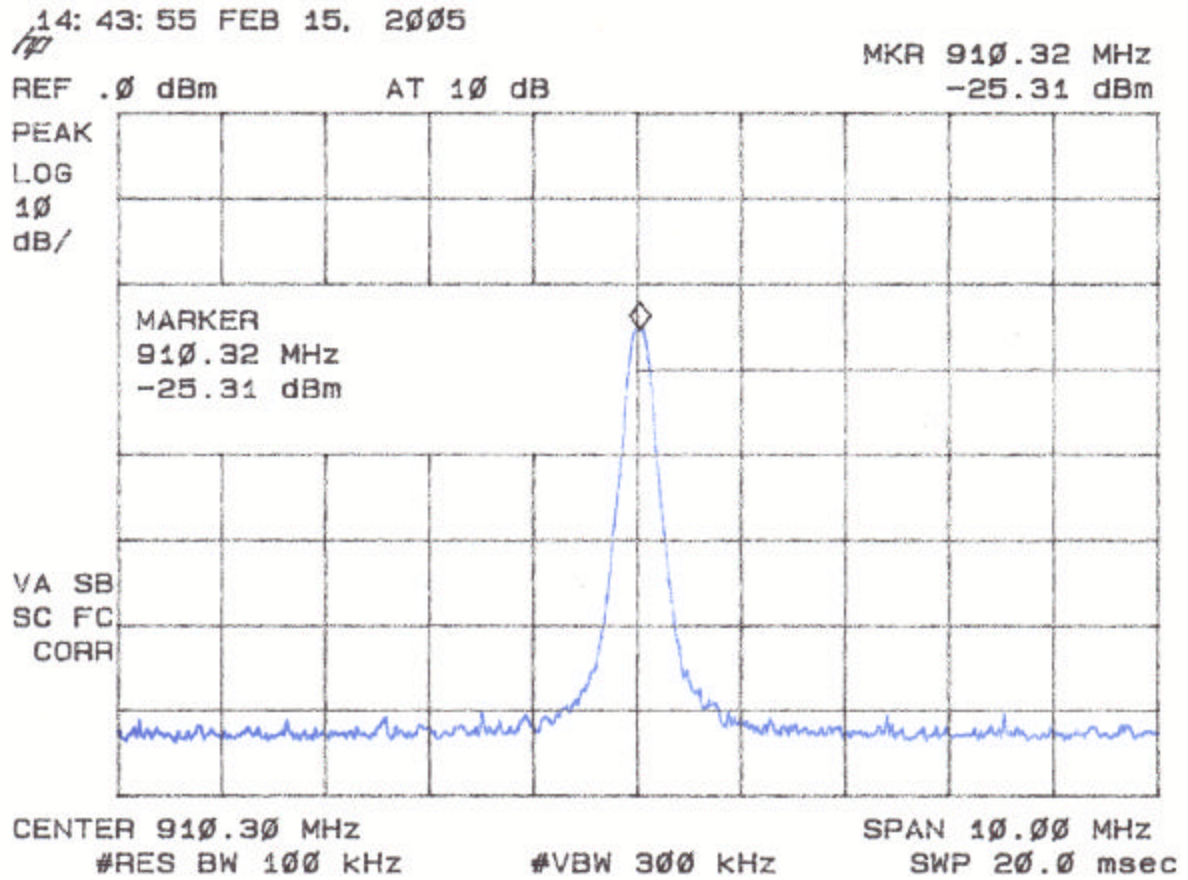
**RESULTS (uV/m @ 3m) = Antilog ((-45.5 + -6.9 + 107)/20) = 538.6**

**CONVERSION FROM dBm TO dBuV = 107 dB**

Tester

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**Figure 5b-1**  
**Peak Radiated Spurious Emission 15.247(c) Mid Channel –**  
**Fundamental**



**Figure 5b-2**  
**Peak Radiated Spurious Emission 15.247(c) Mid Channel –**  
**2<sup>nd</sup> Harmonic**

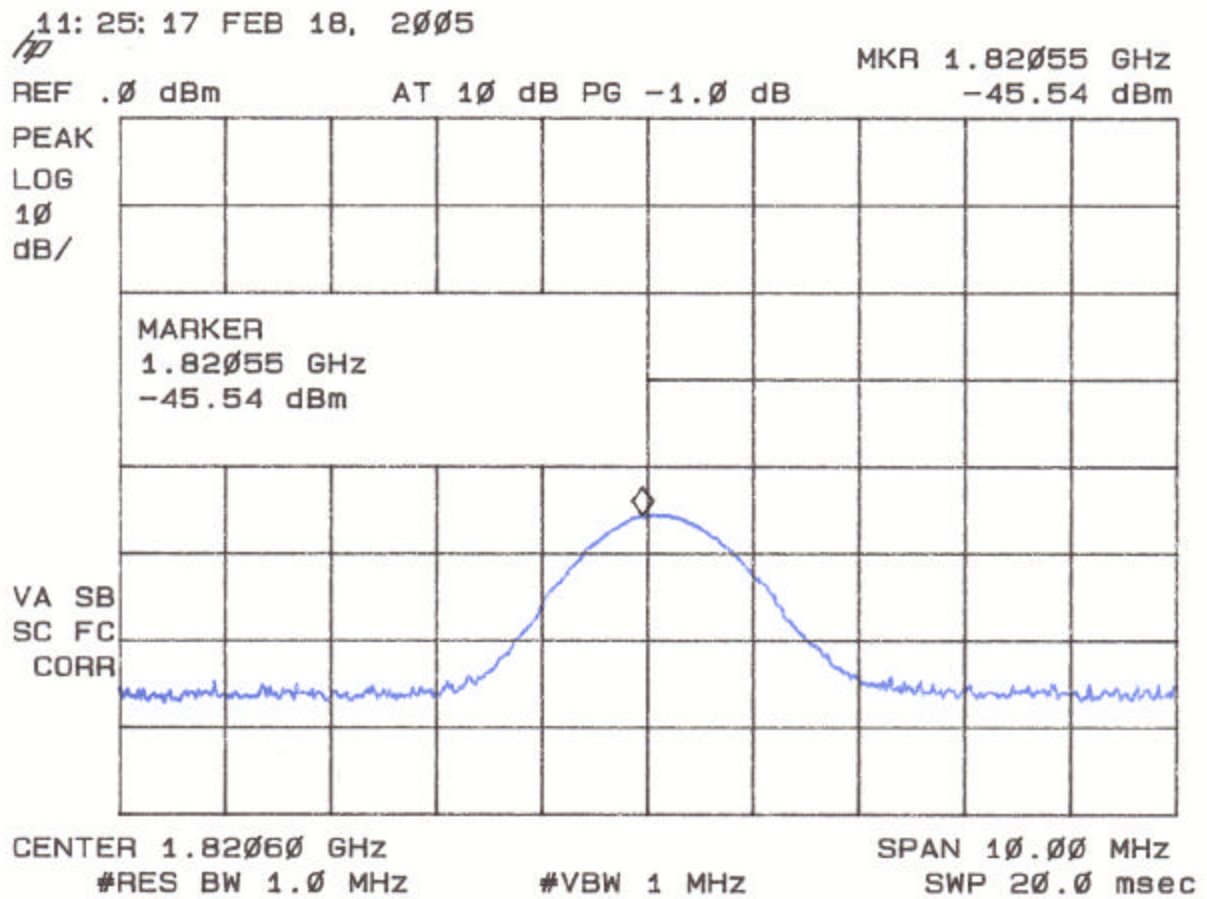


Figure 5b-3  
Peak Radiated Spurious Emission 15.247(c) Mid Channel –  
3<sup>rd</sup> Harmonic

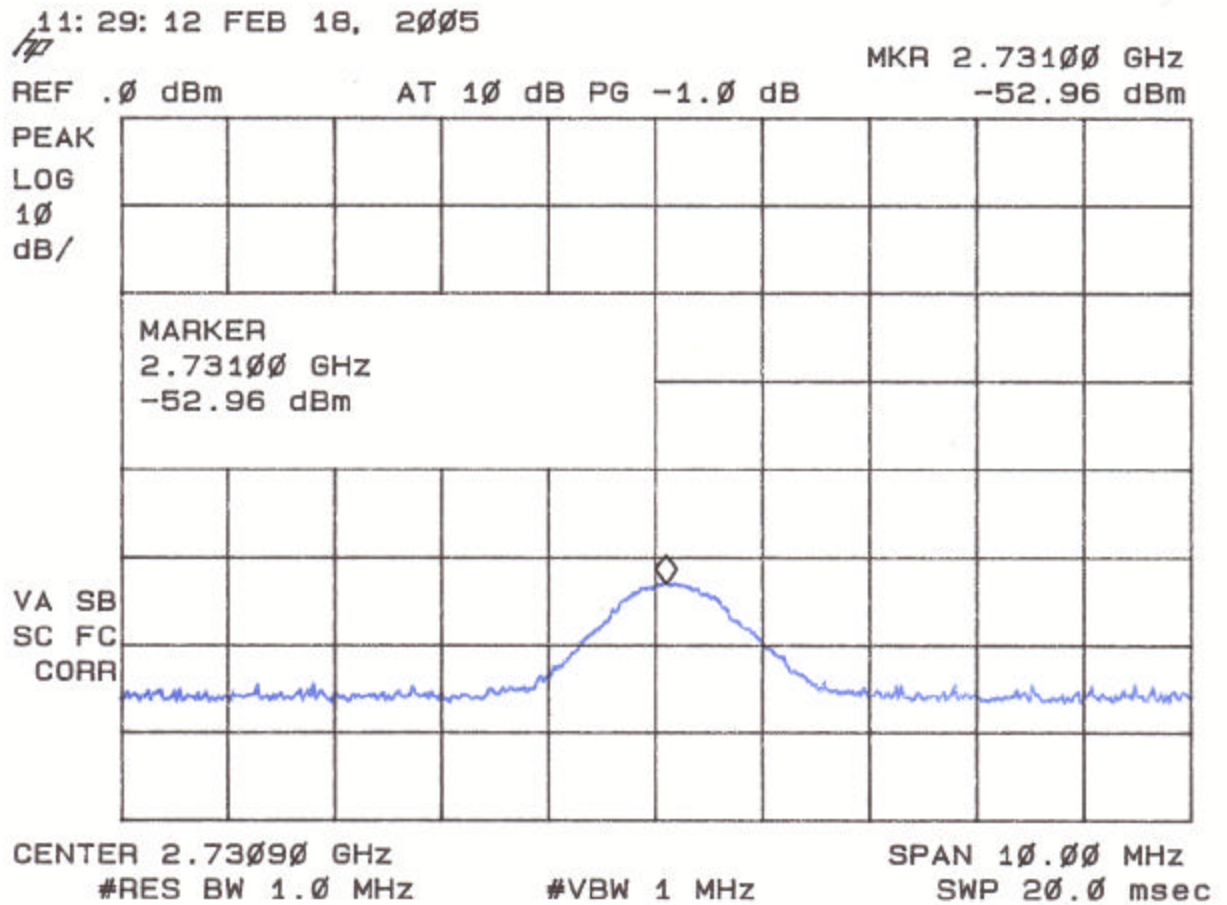
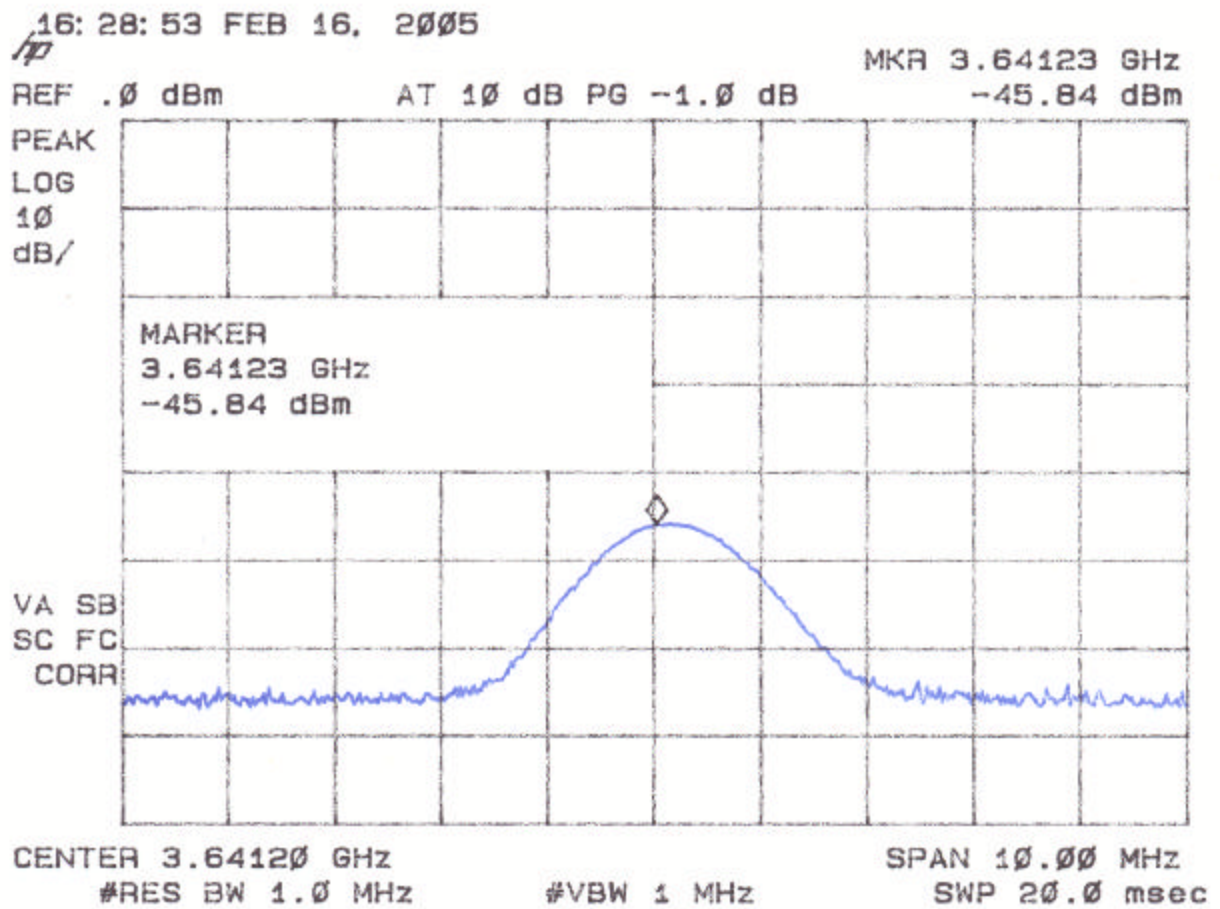


Figure 5b-4  
Peak Radiated Spurious Emission 15.247(c) Mid Channel –  
4<sup>th</sup> Harmonic



**Figure 5b-5**  
**Peak Radiated Spurious Emission 15.247(c) Mid Channel –**  
**5<sup>th</sup> Harmonic**

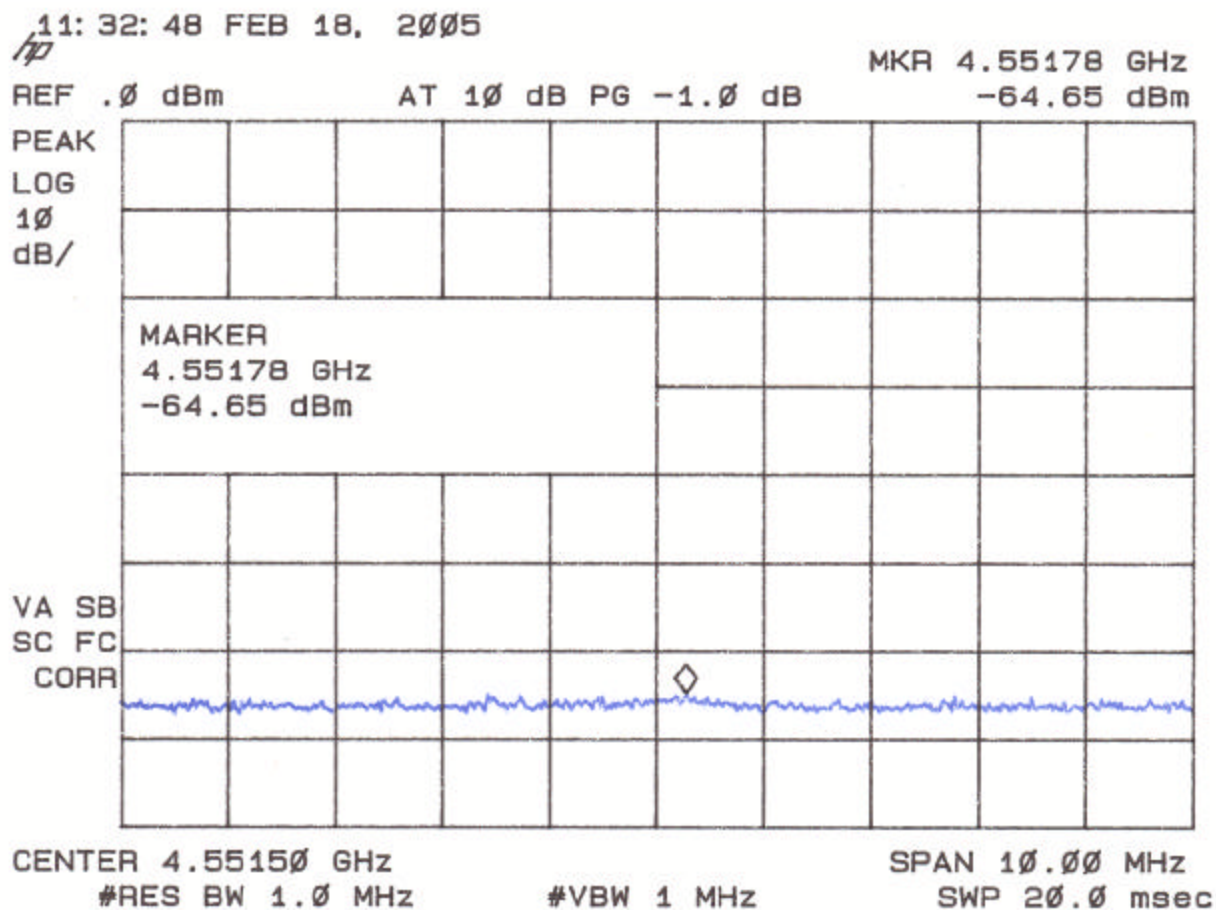


Figure 5b-6  
Peak Radiated Spurious Emission 15.247(c) Mid Channel –  
6<sup>th</sup> Harmonic

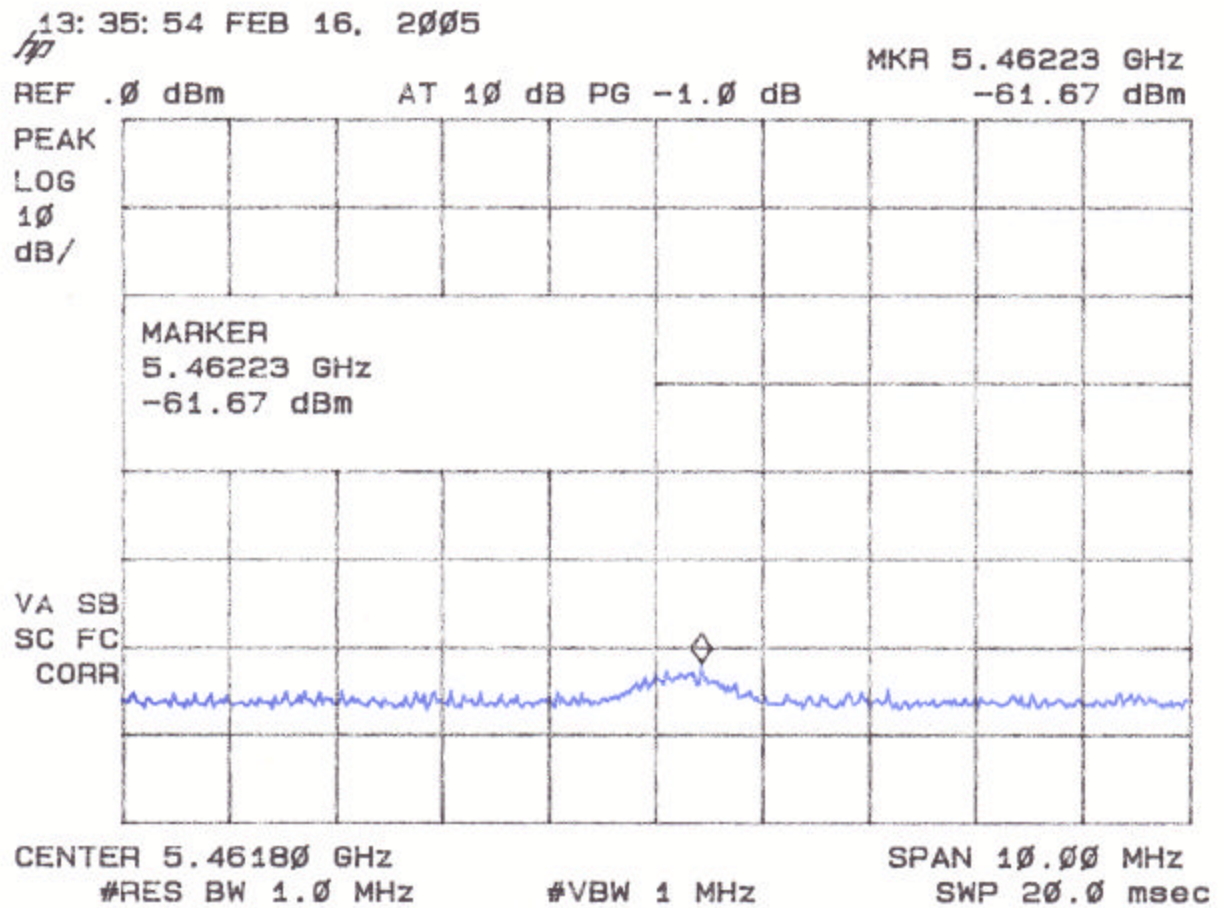
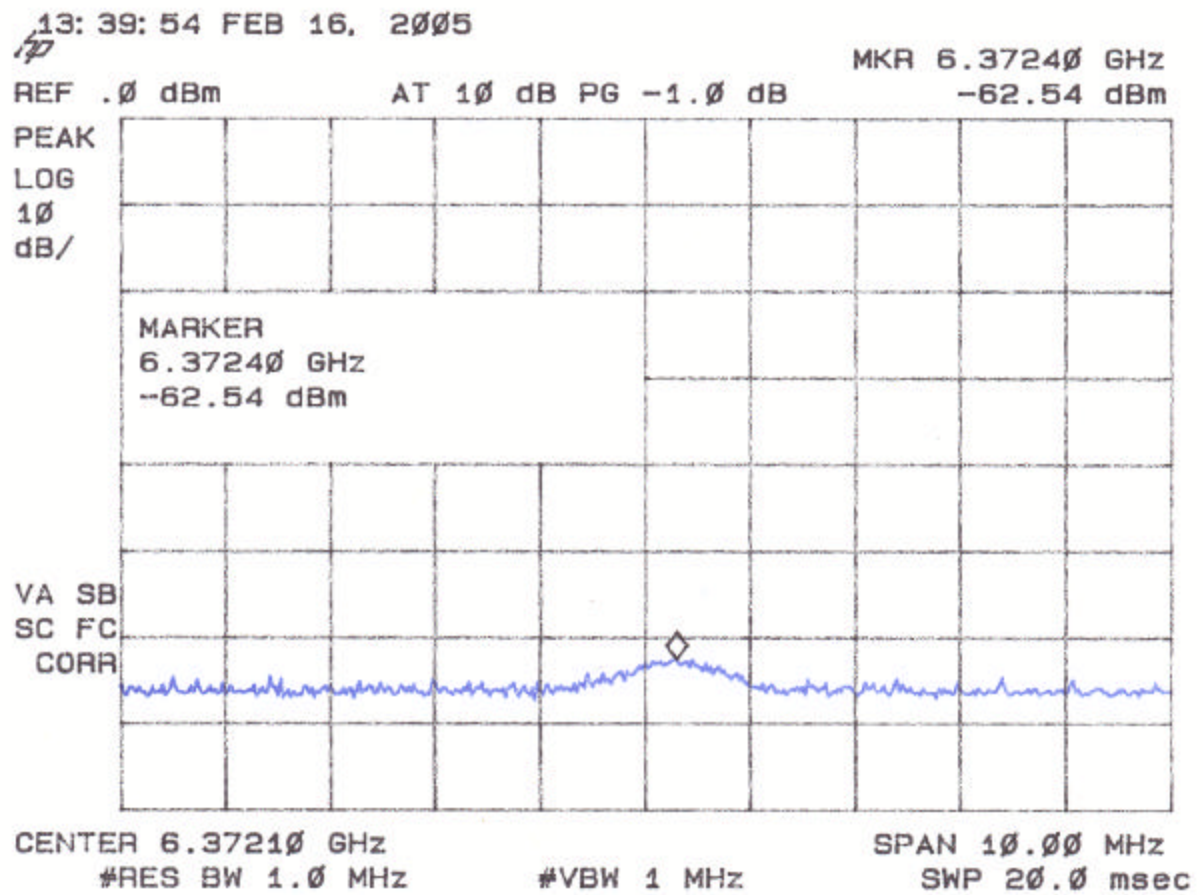


Figure 5b-7  
Peak Radiated Spurious Emission 15.247(c) Mid Channel –  
7<sup>th</sup> Harmonic



**Table 4c. PEAK RADIATED SPURIOUS EMISSIONS (High Channel)**

| Peak Radiated Emission |           |                               |           |           |          |                    |             |        |        |
|------------------------|-----------|-------------------------------|-----------|-----------|----------|--------------------|-------------|--------|--------|
| Test By:               | Test:     | FCC Part 15.247, High Channel |           |           | Client:  | The Bodine Company |             |        |        |
| DPB                    | Project:  | 05-0069                       |           | Class:    | NA       | Model:             | FEBnet node |        |        |
| Frequency              | Test Data | AF                            | Test Data | AF+CA-AMP | Results  | Limits             | Distance /  | Margin | PK = n |
| (MHz)                  | (dBm)     | Table                         | (dBuV)    | (dB)      | (uV/m)   | (uV/m)             | Polarity    | (dB)   | / QP   |
| 917.80                 | -25.1     | 2LP3mV                        | 81.9      | 30.7      | 427815.0 |                    | 3m./VERT    |        | PK     |
| 1835.65                | -46.0     | 2HN3m                         | 61.0      | -6.6      | 522.9    | 42781.5            | 3m./HORZ    | 38.3   | PK     |
| 2753.5                 | -52.0     | 2HN3m                         | 55.0      | -2.4      | 428.2    | 5000.0             | 3m./HORZ    | 21.3   | PK     |
| 3671.25                | -48.2     | 2HN3m                         | 58.8      | 1.2       | 1000.6   | 5000.0             | 3m./HORZ    | 14.0   | PK     |
| 4589.05                | -63.1     | 2HN3m                         | 43.9      | 4.9       | 276.2    | 5000.0             | 3m./HORZ    | 25.2   | PK     |
| 5507.03                | -71.9*    | 2HN3m                         | 35.1      | 6.8       | 125.1    | 42781.5            | 3m./HORZ    | 50.7   | PK     |
| 6424.93                | -71.3*    | 2HN3m                         | 35.7      | 8.1       | 154.6    | 42781.5            | 3m./HORZ    | 48.8   | PK     |

Data corrected by 1 dB for loss of high pass filter except for fundamental frequency

\* Data conversion from 1 meter to 3 meters = -9.54

**SAMPLE CALCULATION:**

**RESULTS (uV/m @ 3m) = Antilog ((-46.0 + -6.6 + 107)/20) = 522.9**

**CONVERSION FROM dBm TO dBuV = 107 dB**

Tester

Signature:  Name: David Blethen

**Figure 5c-1**  
**Peak Radiated Spurious Emission 15.247(c) High Channel –**  
**Fundamental**

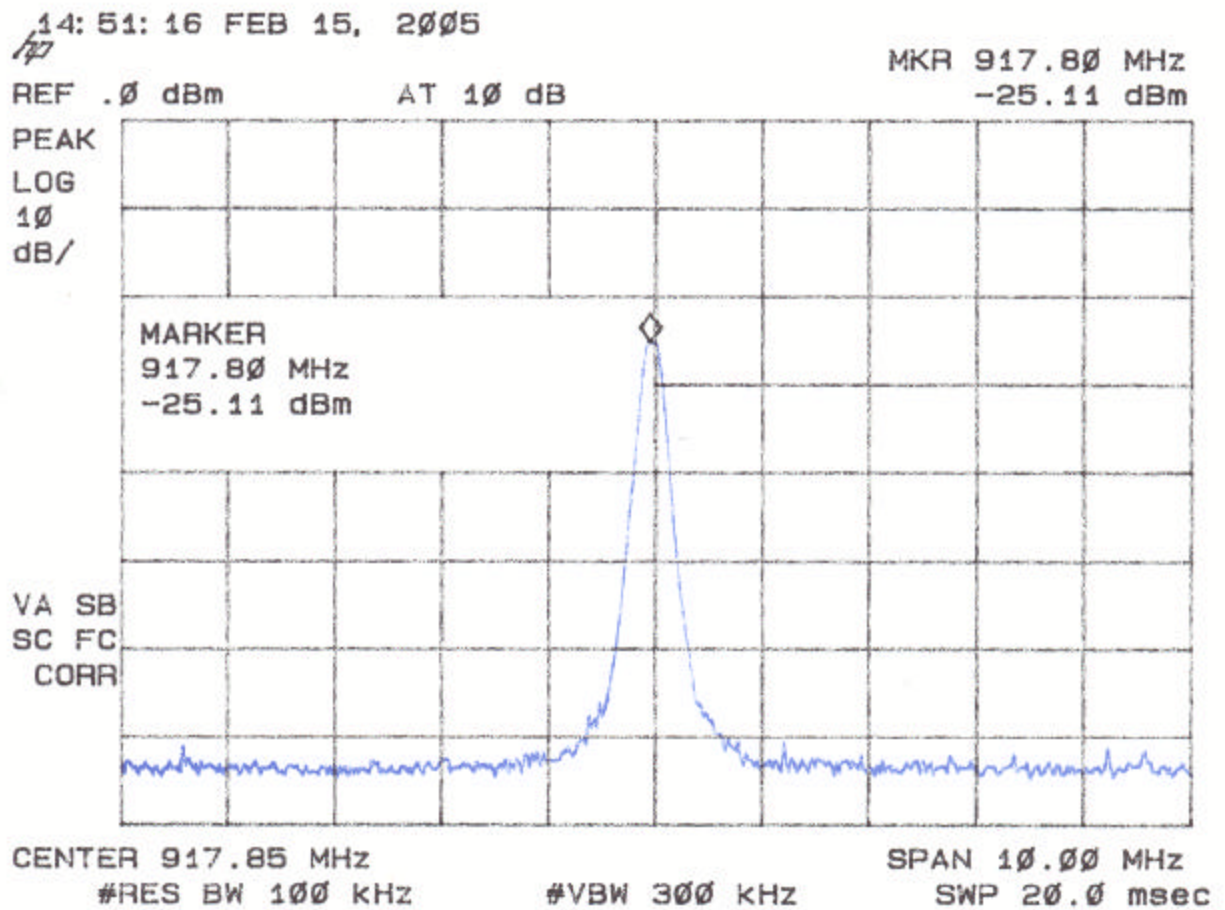


Figure 5c-2  
 Peak Radiated Spurious Emission 15.247(c) High Channel –  
 2<sup>nd</sup> Harmonic

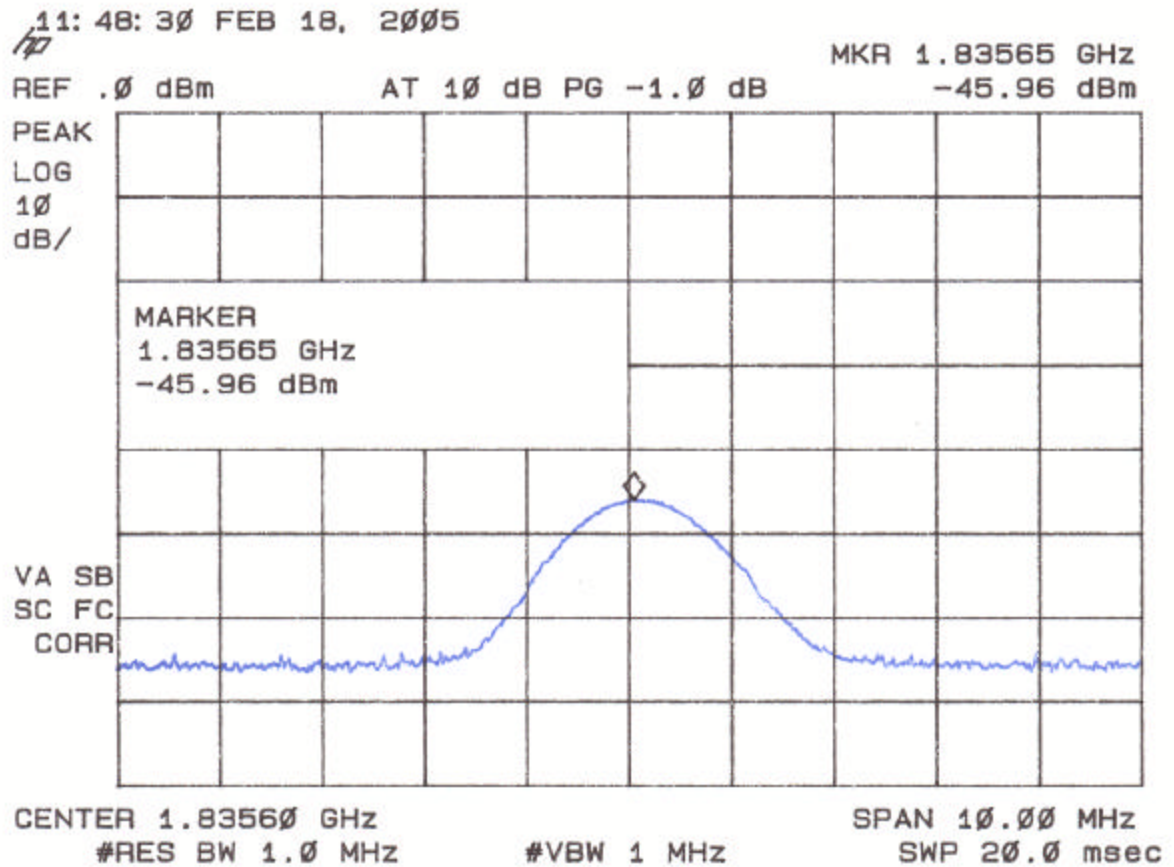


Figure 5c-3  
Peak Radiated Spurious Emission 15.247(c) High Channel –  
3<sup>rd</sup> Harmonic

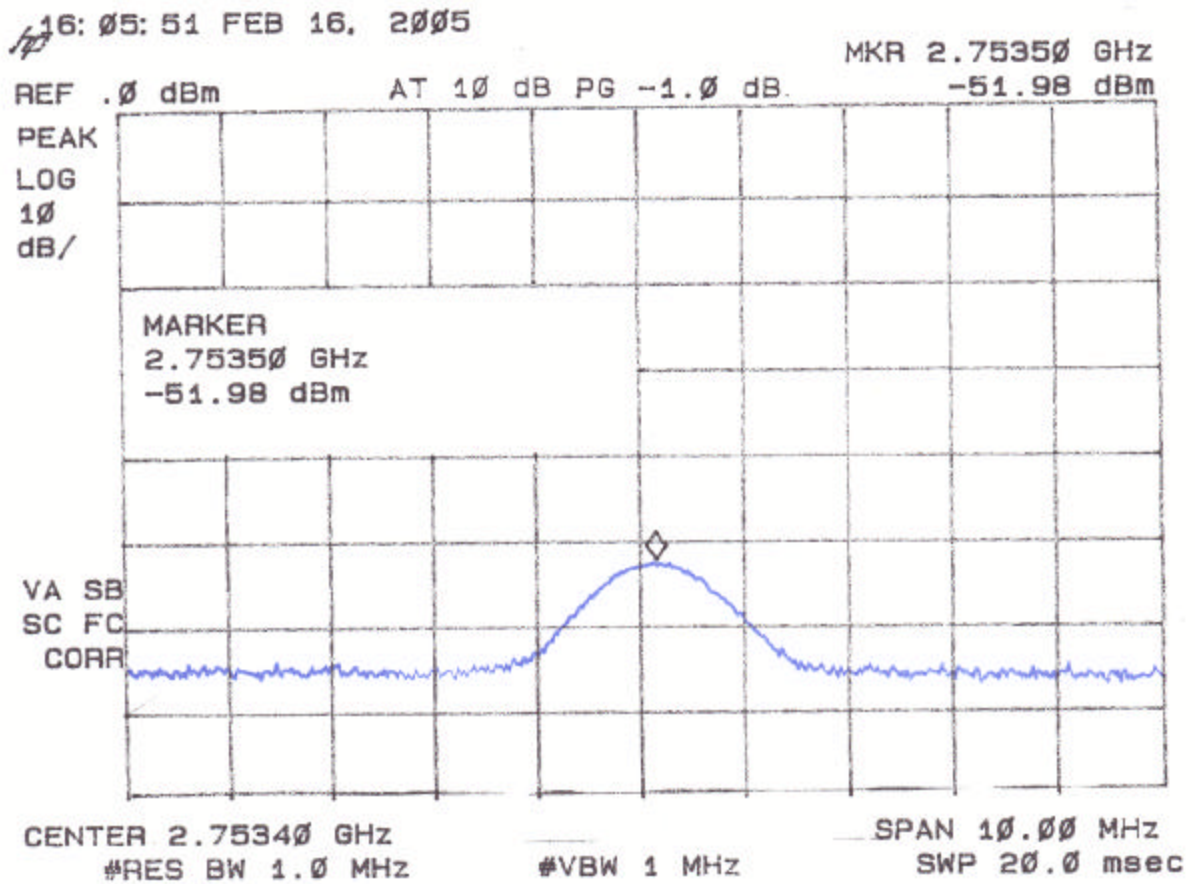


Figure 5c-4  
Peak Radiated Spurious Emission 15.247(c) High Channel –  
4<sup>th</sup> Harmonic

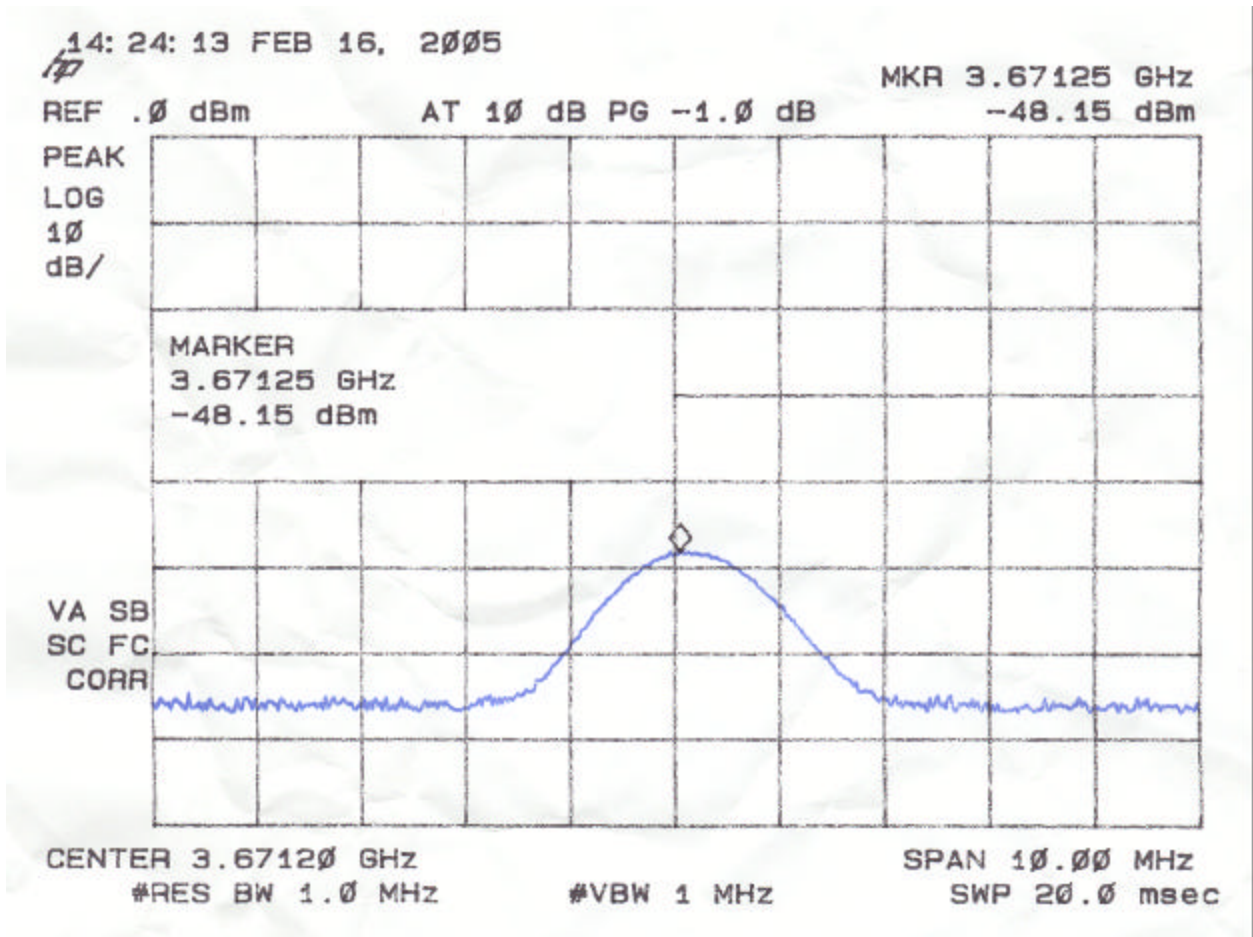


Figure 5c-5  
Peak Radiated Spurious Emission 15.247(c) High Channel –  
5<sup>th</sup> Harmonic

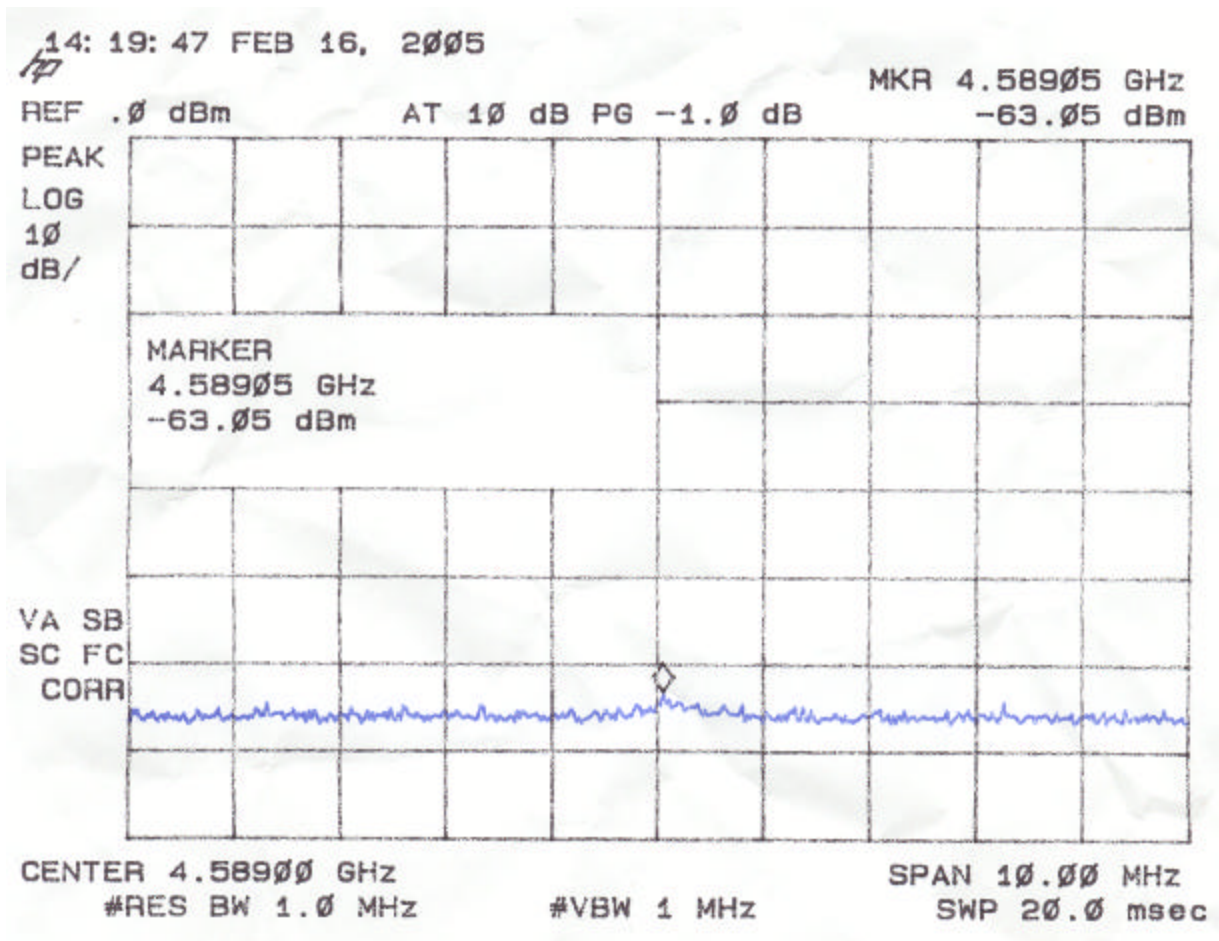


Figure 5c-6  
Peak Radiated Spurious Emission 15.247(c) High Channel –  
6<sup>th</sup> Harmonic

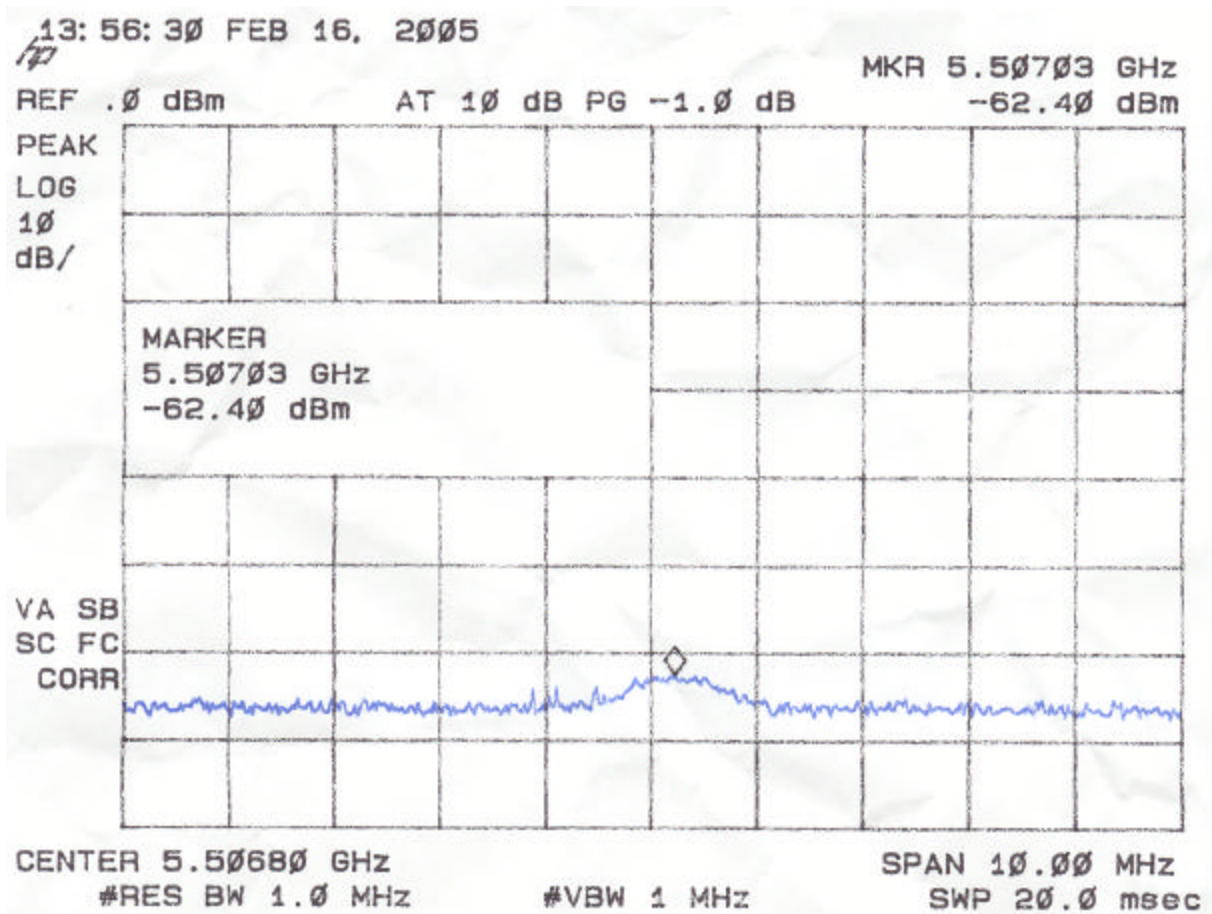
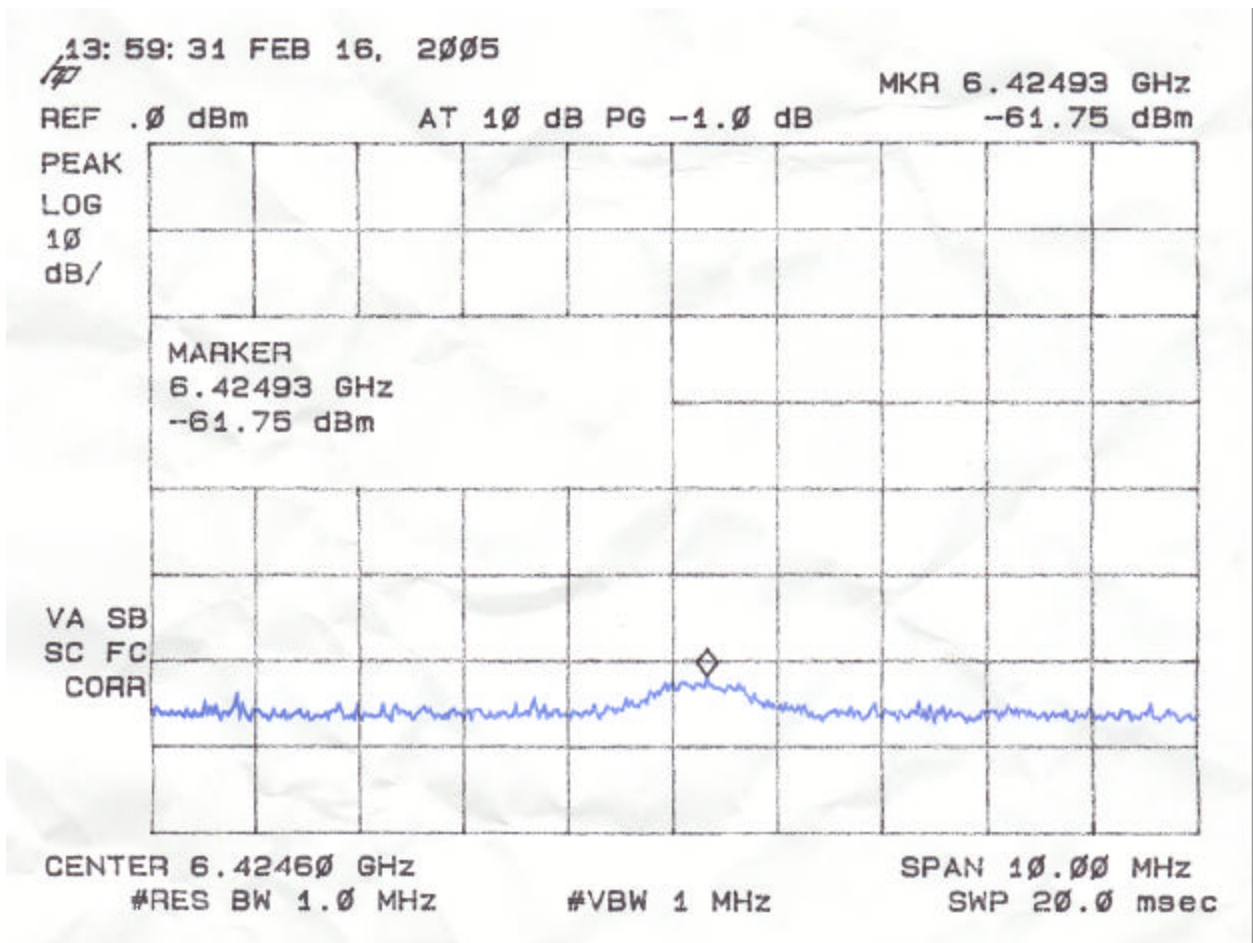


Figure 5c-7  
Peak Radiated Spurious Emission 15.247(c) High Channel –  
7<sup>th</sup> Harmonic



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

The results of average radiated spurious emissions falling within restricted bands are given in Tables 5a – 5c. These values were calculated using the following duty cycle corrections:

The maximum transmit time of the EUT, based upon software and firmware settings, is 31.5 ms. Measured time of occupancy from Section 2.13 is 31.5 ms therefore:

$$31.50 \text{ ms}/100 \text{ ms} = 31.50\% \text{ duty cycle}$$
$$20^{\log}(.3150) = -10 \text{ dB correction factor}$$

**Table 5a. AVERAGE RADIATED SPURIOUS EMISSIONS Low Channel**

| Average Radiated Emissions, Duty Cycle 31.5%, 10 dB correction |           |                              |           |           |          |         |                    |        |        |
|----------------------------------------------------------------|-----------|------------------------------|-----------|-----------|----------|---------|--------------------|--------|--------|
| Test By:                                                       | Test:     | FCC Part 15.247, Low Channel |           |           |          | Client: | The Bodine Company |        |        |
| DPB                                                            | Project:  | 05-0069                      |           | Class:    | NA       | Model:  | FEBnet node        |        |        |
| Frequency                                                      | Test Data | AF                           | Test Data | AF+CA-AMP | Results  | Limits  | Distance /         | Margin | PK = n |
| (MHz)                                                          | (dBm)     | Table                        | (dBuV)    | (dB)      | (uV/m)   | (uV/m)  | Polarity           | (dB)   | / QP   |
| 903.10                                                         | -36.4     | 2LP3mV                       | 70.6      | 30.6      | 114317.3 |         | 3m./VERT           |        | AVG    |
| 959.4                                                          | -98.1     | 2LP3mV                       | 8.9       | 31.2      | 101.6    | 11431.7 | 3m./VERT           | 41.0   | AVG    |
| 333.1                                                          | -100.7    | 2LP3mV                       | 6.3       | 18.8      | 18.0     | 500.0   | 3m./VERT           | 28.9   | AVG    |
| 975.3                                                          | -97.4     | 2LP3mV                       | 9.6       | 31.4      | 112.7    | 500.0   | 3m./VERT           | 12.9   | AVG    |
| 1806.25                                                        | -54.6     | 2HN3m                        | 52.4      | -7.1      | 183.9    | 11431.7 | 3m./HORZ           | 35.9   | AVG    |
| 2709.35                                                        | -64.6     | 2HN3m                        | 42.4      | -2.5      | 98.8     | 500.0   | 3m./HORZ           | 14.1   | AVG    |
| 3612.6                                                         | -56.7     | 2HN3m                        | 50.3      | 0.9       | 362.4    | 500.0   | 3m./HORZ           | 2.8    | AVG    |
| 4516.13                                                        | -74.5     | 2HN3m                        | 32.5      | 4.6       | 71.9     | 500.0   | 3m./HORZ           | 16.8   | AVG    |
| 5418.73                                                        | -80.0*    | 2HN3m                        | 27.0      | 6.8       | 48.9     | 500.0   | 3m./HORZ           | 20.2   | AVG    |
| 6322.2                                                         | -80.0*    | 2HN3m                        | 27.0      | 8.1       | 56.8     | 11431.7 | 3m./HORZ           | 46.1   | AVG    |

Data corrected by 1 dB for loss of high pass filter except for fundamental frequency

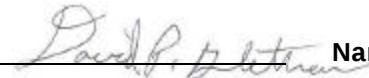
\* Data conversion from 1 meter to 3 meters = -9.54

**SAMPLE CALCULATION:**

**RESULTS (uV/m @ 3m) = Antilog ((-54.6 + 52.4 + 107)/20) = 183.9**

**CONVERSION FROM dBm TO dBuV = 107 dB**

Tester

Signature:  Name: David Blethen

**Table 5b. AVERAGE RADIATED SPURIOUS EMISSIONS Mid Channel**

| Average Radiated Emissions, 31.5% duty cycle, 10 dB correction |           |                             |           |           |          |             |                    |        |        |
|----------------------------------------------------------------|-----------|-----------------------------|-----------|-----------|----------|-------------|--------------------|--------|--------|
| Test By:                                                       | Test:     | FCC Part 15.247 Mid Channel |           |           |          | Client:     | The Bodine Company |        |        |
| DPB                                                            | Project:  | 05-0069                     | Class:    | NA        | Model:   | FEBnet node |                    |        |        |
| Frequency                                                      | Test Data | AF                          | Test Data | AF+CA-AMP | Results  | Limits      | Distance /         | Margin | PK = n |
| (MHz)                                                          | (dBm)     | Table                       | (dBuV)    | (dB)      | (uV/m)   | (uV/m)      | Polarity           | (dB)   | / QP   |
| 910.30                                                         | -35.3     | 2LP3mV                      | 71.7      | 30.7      | 131101.0 |             | 3m./VERT           |        | AVG    |
| 1820.55                                                        | -55.5     | 2HN3m                       | 51.5      | -6.9      | 170.3    | 13628.0     | 3m./HORZ           | 38.1   | AVG    |
| 2731                                                           | -63.0     | 2HN3m                       | 44.0      | -2.4      | 119.7    | 500.0       | 3m./HORZ           | 12.4   | AVG    |
| 3641.23                                                        | -55.8     | 2HN3m                       | 51.2      | 1.0       | 409.3    | 500.0       | 3m./HORZ           | 1.7    | AVG    |
| 4551.78                                                        | -74.7     | 2HN3m                       | 32.3      | 4.8       | 71.4     | 500.0       | 3m./HORZ           | 16.9   | AVG    |
| 5462.23                                                        | -81.2*    | 2HN3m                       | 25.8      | 6.8       | 42.7     | 13628.0     | 3m./HORZ           | 50.1   | AVG    |
| 6372.4                                                         | -82.0*    | 2HN3m                       | 25.0      | 8.1       | 45.1     | 13628.0     | 3m./HORZ           | 49.6   | AVG    |

Data corrected by 1 dB for loss of high pass filter except for fundamental frequency

\* Data conversion from 1 meter to 3 meters = -9.54

**SAMPLE CALCULATION:**

**RESULTS (uV/m @ 3m) = Antilog ((-55.5 + -6.9 + 107)/20) = 170.3**

**CONVERSION FROM dBm TO dBuV = 107 dB**

Tester

Signature:  Name: David Blethen

**Table 5c. AVERAGE RADIATED SPURIOUS EMISSIONS High Channel**

| Average Radiated Emissions, 31.5% duty cycle, 10 dB correction |           |                              |           |           |          |                    |            |        |        |
|----------------------------------------------------------------|-----------|------------------------------|-----------|-----------|----------|--------------------|------------|--------|--------|
| Test By:                                                       | Test:     | FCC Part 15.247 High Channel |           |           | Client:  | The Bodine Company |            |        |        |
| DPB                                                            | Project:  | 05-0069                      | Class:    | NA        | Model:   | FEBnet node        |            |        |        |
| Frequency                                                      | Test Data | AF                           | Test Data | AF+CA-AMP | Results  | Limits             | Distance / | Margin | PK = n |
| (MHz)                                                          | (dBm)     | Table                        | (dBuV)    | (dB)      | (uV/m)   | (uV/m)             | Polarity   | (dB)   | / QP   |
| 917.80                                                         | -35.1     | 2LP3mV                       | 71.9      | 30.7      | 135287.0 |                    | 3m./VERT   |        | AVG    |
| 1835.65                                                        | -56.0     | 2HN3m                        | 51.0      | -6.6      | 165.4    | 13528.7            | 3m./HORZ   | 38.3   | AVG    |
| 2753.5                                                         | -62.0     | 2HN3m                        | 45.0      | -2.4      | 135.4    | 500.0              | 3m./HORZ   | 11.3   | AVG    |
| 3671.25                                                        | -58.2     | 2HN3m                        | 48.8      | 1.2       | 316.4    | 500.0              | 3m./HORZ   | 4.0    | AVG    |
| 4589.05                                                        | -73.1     | 2HN3m                        | 33.9      | 4.9       | 87.3     | 500.0              | 3m./HORZ   | 15.2   | AVG    |
| 5507.03                                                        | -81.9*    | 2HN3m                        | 25.1      | 6.8       | 39.6     | 13528.7            | 3m./HORZ   | 50.7   | AVG    |
| 6424.93                                                        | -81.3*    | 2HN3m                        | 25.7      | 8.1       | 48.9     | 13528.7            | 3m./HORZ   | 48.8   | AVG    |

Data corrected by 1 dB for loss of high pass filter except for fundamental frequency

\* Data conversion from 1 meter to 3 meters = -9.54

**SAMPLE CALCULATION:**

**RESULTS (uV/m @ 3m) = Antilog ((-56.0 + -6.6 + 107)/20) = 165.4**

**CONVERSION FROM dBm TO dBuV = 107 dB**

Tester

Signature: David P. Blethen Name: David Blethen