



## INNOTEK PET PRODUCTS TEST REPORT

FOR THE

CONTAINMENT TRANSMITTER, M021000

FCC PART 15 SUBPART C  
SECTIONS 15.207 & 15.209

COMPLIANCE

DATE OF ISSUE: AUGUST 29, 2000

### PREPARED FOR:

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Garrett, IN 46738

W.O. No: 75021

**Report No: FC00-085**

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Date of test: August 26, 2000

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## ADMINISTRATIVE INFORMATION

**DATE OF TEST:** August 26, 2000

**PURPOSE OF TEST:** To demonstrate the compliance of the Containment Transmitter, M021000, with the requirements for FCC Part 15 Subpart C Sections 15.207&15.209 devices.

**MANUFACTURER:** Innotek Pet Products  
One Innoway  
Garrett, IN 46738

**REPRESENTATIVE:** Pete Johnson

**TEST LOCATION:** CKC Laboratories, Inc.  
22105 Wilson River Hwy  
Tillamook, OR 97141

**TEST PERSONNEL:** Mike Wilkinson

**TEST METHOD:** ANSI C63.4 1992

**FREQUENCY RANGE TESTED:** 9 kHz - 1000 MHz

### EQUIPMENT UNDER TEST:

#### Containment Transmitter

Manuf: Innotek Pet Products  
Model: M021000  
Serial: 210 #1  
FCC ID: KBS050210 (pending)

#### Direct Plug In Transformer

Manuf: Enterprise Electronics Corp.  
Model: 41A-19-400  
Serial: None  
FCC ID: N/A

## **SUMMARY OF RESULTS**

The Innotek Pet Products Containment Transmitter, M021000, was tested in accordance with ANSI C63.4 1992 for compliance with FCC Part 15 Subpart C Sections 15.207 & 15.209.

As received, the above equipment was found to be fully compliant with the limits of FCC Part 15 Subpart C Sections 15.207 and 15.209. The results in this report apply only to the items tested, as identified herein.

## **EQUIPMENT UNDER TEST (EUT) DESCRIPTION**

The units transmit a coded signal used by a receiving unit (normally worn by a dog) to determine position relative to the transmitting antenna.

## **MEASUREMENT UNCERTAINTY**

Associated with data in this report is a  $\pm 4$ dB measurement uncertainty.

## **PERIPHERAL DEVICES**

The EUT was not tested with peripheral devices.

## REPORT OF MEASUREMENTS

The following tables report the six highest worst case levels recorded during the tests performed on the Containment Transmitter, M021000. All readings taken are peak readings unless otherwise noted by a "Q" or "A". The data sheets from which these tables were compiled are contained in Appendix B.

| Table 1: Fundamental Emission Level |                  |                    |       |       |      |                      |               |        |       |
|-------------------------------------|------------------|--------------------|-------|-------|------|----------------------|---------------|--------|-------|
| FREQUENCY                           | METER<br>READING | CORRECTION FACTORS |       |       |      | CORRECTED<br>READING | SPEC<br>LIMIT | MARGIN | NOTES |
|                                     |                  | Mag<br>L           | Ave F | Cable | Dist |                      |               |        |       |
| MHz                                 | dB $\mu$ V       | dB                 | dB    | dB    | dB   | dB $\mu$ V/m         | dB $\mu$ V/m  | DB     |       |
| 13.442k                             | 80.7             | +16.2              | 11.0  | +0.5  |      | 86.4                 | 115.0         | -28.6  | NA    |
|                                     |                  |                    |       |       |      |                      |               |        |       |

Test Method: ANSI C63.4 1992  
Spec Limit: FCC 15.209  
Test Distance: 10 Meters

N = No Polarization, Magnetic Loop Antenna Used  
A = Average Reading

COMMENTS: EUT is turned on and transmitting continuously with the Field Width adjustment at maximum and internal jumper to large (maximum). A 200 foot 14 gage solid copper wire antenna was connected to the EUT. The antenna was arranged in a circle. The EUT and antenna measurement site was a flat field with short grass approximately 200 x 150 feet with no structures, underground cable or pipes. The temperature was 73°F and the humidity was 50%. AC input to Direct Plug In Transformer was 120V, 60 Hz. Frequency range investigated was 9 kHz to 30 MHz-11 dB correction factor used on the Transmitter Fundamental reading was derived from the measured 26% duty cycle over 100 msec. pulsed operation ( $20\log 0.26 = 11\text{dB}$ ).

**Table 2: Six Highest Spurious Radiated Emission Levels - 9 kHz - 30 MHz**

| FREQUENCY<br>MHz | METER<br>READING<br>dB $\mu$ V | CORRECTION FACTORS |                 |             |            | CORRECTED<br>READING<br>dB $\mu$ V/m | SPEC<br>LIMIT<br>dB $\mu$ V/m | MARGIN<br>DB | NOTES |
|------------------|--------------------------------|--------------------|-----------------|-------------|------------|--------------------------------------|-------------------------------|--------------|-------|
|                  |                                | Mag<br>L<br>dB     | Amp-<br>A<br>dB | Cable<br>dB | Dist<br>dB |                                      |                               |              |       |
| 0.041            | 76.5                           | 11.3               |                 | 0.5         |            | 88.3                                 | 105.4                         | -17.1        | N     |
| 0.054            | 72.1                           | 10.6               |                 | 0.5         |            | 83.2                                 | 102.9                         | -19.7        | N     |
| 0.081            | 69.3                           | 10.3               |                 | 0.5         |            | 80.1                                 | 99.4                          | -19.3        | N     |
| 0.108            | 66.7                           | 10.1               |                 | 0.5         |            | 77.3                                 | 96.9                          | -19.6        | N     |
| 2.124            | 29.7                           | 10.6               |                 | 0.5         |            | 40.8                                 | 60.0                          | -19.2        | N     |
| 2.273            | 28.8                           | 10.6               |                 | 0.5         |            | 39.9                                 | 60.0                          | -20.1        | N     |

Test Method: ANSI C63.4 1992  
Spec Limit: FCC 15.209  
Test Distance: 10 Meters

N = No Polarization, Magnetic Loop Antenna Used

COMMENTS: EUT is turned on and transmitting continuously with the Field Width adjustment at maximum and internal jumper to large (maximum). A 200 foot 14 gage solid copper wire antenna was connected to the EUT. The antenna was arranged in a circle. The EUT and antenna measurement site was a flat field with short grass approximately 200 x 150 feet with no structures, underground cable or pipes. The temperature was 73°F and the humidity was 50%. AC input to Direct Plug In Transformer was 120V, 60 Hz. Frequency range investigated was 9 kHz to 30 MHz-11 dB correction factor used on the Transmitter Fundamental reading was derived from the measured 26% duty cycle over 100 msec. pulsed operation ( $20\log 0.26 = 11\text{dB}$ ).

**Table 3: Six Highest Spurious Emission Levels - 30-1000 MHz**

| FREQUENCY<br>MHz | METER<br>READING<br>dBμV | CORRECTION FACTORS |                 |             |            | CORRECTED<br>READING<br>dBμV/m | SPEC<br>LIMIT<br>dBμV/m | MARGIN<br>DB | NOTES |
|------------------|--------------------------|--------------------|-----------------|-------------|------------|--------------------------------|-------------------------|--------------|-------|
|                  |                          | Bilog<br>dB        | Amp-<br>A<br>dB | Cable<br>dB | Dist<br>dB |                                |                         |              |       |
| 40.022           | 30.5                     | 13.8               | -27.6           | 1.4         |            | 18.1                           | 40.0                    | -21.9        | V     |
| 44.023           | 30.8                     | 11.4               | -27.6           | 1.5         |            | 16.1                           | 40.0                    | -23.9        | V     |
| 48.023           | 33.9                     | 9.2                | -27.5           | 1.5         |            | 17.1                           | 40.0                    | -22.9        | V     |
| 52.032           | 30.1                     | 7.6                | -27.5           | 1.5         |            | 11.7                           | 40.0                    | -28.3        | V     |
| 56.032           | 28.7                     | 6.6                | -27.6           | 1.6         |            | 9.3                            | 40.0                    | -30.7        | V     |
| 60.015           | 33.3                     | 5.7                | -27.6           | 1.7         |            | 13.1                           | 40.0                    | -26.9        | V     |

Test Method: ANSI C63.4 1992  
Spec Limit: FCC Part 15.209  
Test Distance: 3 Meters

NOTES: H = Horizontal Polarization  
V = Vertical Polarization

COMMENTS: EUT is turned on and transmitting continuously with the Field Width adjustment at maximum and internal jumper to large (maximum). A 14 foot 14 gage solid copper wire antenna was connected to the EUT. The antenna was arranged in a circle on the test table. The temperature was 73°F and the humidity was 50%. AC input to Direct Plug In Transformer was 120V, 60 Hz. Frequency range investigated was 30 MHz to 1.0 GHz.

| Table 4: Six Highest Conducted Emission Levels |                          |                    |  |            |  |                              |                       |              |       |
|------------------------------------------------|--------------------------|--------------------|--|------------|--|------------------------------|-----------------------|--------------|-------|
| FREQUENCY<br>MHz                               | METER<br>READING<br>dBμV | CORRECTION FACTORS |  |            |  | CORRECTED<br>READING<br>dBμV | SPEC<br>LIMIT<br>dBμV | MARGIN<br>dB | NOTES |
|                                                |                          | Cable<br>dB        |  | LISN<br>dB |  |                              |                       |              |       |
| 0.493390                                       | 42.5                     | 0.1                |  | 0.4        |  | 43.0                         | 48.0                  | -5.0         | BQ    |
| 0.556040                                       | 45.3                     | 0.1                |  | 0.1        |  | 45.5                         | 48.0                  | -2.5         | BQ    |
| 0.583670                                       | 45.7                     | 0.0                |  | 0.1        |  | 45.8                         | 48.0                  | -2.2         | WQ    |
| 0.608160                                       | 43.9                     | 0.1                |  | 0.1        |  | 44.1                         | 48.0                  | -3.9         | BQ    |
| 0.813100                                       | 43.8                     | 0.2                |  | 0.2        |  | 44.2                         | 48.0                  | -3.8         | B     |
| 0.992141                                       | 43.6                     | 0.0                |  | 0.5        |  | 44.1                         | 48.0                  | -3.9         | W     |

Test Method:  
Spec Limit:

ANSI C63.4 1992  
FCC 15.207

NOTES: Q = Quasi Peak Reading  
A = Average Reading  
B = Black Lead  
W = White Lead

COMMENTS: EUT is turned on and transmitting continuously with the Field Width adjustment at maximum and internal jumper to large (maximum). A 14 foot 14 gage solid copper wire antenna was connected to the EUT. The antenna was arranged in a circle on the test table. The temperature was 73°F and the humidity was 50%. AC input to Direct Plug In Transformer was 120V, 60 Hz. Frequency range investigated was 450 kHz to 30 MHz.

**TABLE A**  
**LIST OF TEST EQUIPMENT**

| <b>Function</b>              | <b>S/N</b> | <b>Calibration Date</b> | <b>Cal Due Date</b> | <b>Asset #</b> |
|------------------------------|------------|-------------------------|---------------------|----------------|
| HP 8574A EMI Receiver        | 3010A01076 | 07/25/2000              | 07/25/2001          | 0              |
| EMCO 6502 Mag Loop Antenna   | 2156       | 01/26/2000              | 01/26/2001          | 52             |
| HP 8447D Amplifier           | 2727A05392 | 02/14/2000              | 02/14/2001          | 10             |
| Chase CBL6111C Bilog Antenna | 2455       | 08/30/1999              | 08/30/2000          | 1992           |
| Fischer LISN                 | none       | 12/28/1999              | 12/28/2000          | 13             |
| Fischer LISN                 | none       | 12/28/1999              | 12/28/2000          | 14             |

## **EUT SETUP**

The equipment under test (EUT) listed was set up in a manner that represented its normal use. Any special conditions required for the EUT to operate normally are identified in the comments that accompany Tables 1-3 for radiated emissions and Table 4 for conducted emissions. Additionally, a complete description of the EUT is included on the information sheets contained in Appendix A.

During radiated emissions testing, the EUT was mounted on a nonconductive, rotating table 80 cm above the conductive grid. The nonconductive table dimensions were 1 meter by 1.5 meters. This configuration is typical for radiated emissions testing of table top devices.

During conducted emissions testing, the EUT was located 80 centimeters above the conducting ground plane on the same nonconducting table as was used for radiated testing. The metal plane was grounded to the earth through the green wire safety ground. Power to the EUT was provided via 3 meters of shielded power cable from a filter grounded to the metal plane to a LISN. The LISN was also grounded to the plane and attached to the LISN was a 4 ganged grounded outlet whose source was also shielded and 60 cm in length. All other objects were kept a minimum of 1 meter away from the EUT during the conducted test.

## TEST INSTRUMENTATION AND ANALYZER SETTINGS

The test instrumentation and equipment listed in Table A were used to collect both the radiated and conducted emissions data for the Containment Transmitter, M021000. For radiated measurements below 30 MHz, the magnetic loop antenna was used. The bilog antenna was used for frequencies between 30-1000 MHz. The bilog antenna was located at a distance of 3 meters from the edge of the EUT. The magnetic loop antenna was located at a distance of 10 meters away from the edge of the EUT. Conducted emissions tests required the use of the FCC type LISN's.

The HP spectrum analyzer was used for all measurements. Table B shows the analyzer bandwidth settings that were used in designated frequency bands. For conducted emissions, an appropriate reference level and a vertical scale size of 10 dB per division were used. A 10 dB external attenuator was also used during conducted tests, with internal offset correction in the analyzer. During radiated testing, the measurements were made with 0 dB of attenuation, a reference level of 97 dB $\mu$ V, and a vertical scale of 10 dB per division.

| TABLE B: ANALYZER BANDWIDTH SETTINGS PER FREQUENCY RANGE |                     |                  |                   |
|----------------------------------------------------------|---------------------|------------------|-------------------|
| TEST                                                     | BEGINNING FREQUENCY | ENDING FREQUENCY | BANDWIDTH SETTING |
| RADIATED EMISSIONS                                       | 9 kHz               | 150 kHz          | 200 Hz            |
| RADIATED EMISSIONS                                       | 150 kHz             | 30 MHz           | 9 kHz             |
| RADIATED EMISSIONS                                       | 30 MHz              | 1000 MHz         | 120 kHz           |
| CONDUCTED EMISSIONS                                      | 450 kHz             | 30 MHz           | 9 kHz             |

## **SPECTRUM ANALYZER DETECTOR FUNCTIONS**

The notes that accompany the measurements contained in Tables 1-4 indicate the type of detector function used to obtain the given readings. Unless otherwise noted, all readings were made in the "Peak" mode. Whenever a "Quasi-Peak" or "Average" reading is listed as one of the six highest readings, this is indicated as a "Q" or an "A" in the appropriate table. The following paragraphs describe in more detail the detector functions and when they were used to obtain the emissions data for the Containment Transmitter, M021000.

### **Peak**

In this mode, the Spectrum Analyzer or test engineer recorded all emissions at their peak value as the frequency band selected was scanned. By combining this function with another feature of the analyzer called "peak hold," the analyzer had the ability to measure transients or low duty cycle transient emission peak levels. In this mode the analyzer made a slow scan across the frequency band selected and measured the peak emission value found at each frequency across the band.

### **Quasi-Peak**

When the true peak values exceeded or were within 2 dB of the specification limit, quasi-peak measurements were taken using the HP Quasi-Peak Adapter for the HP Spectrum Analyzer. The detailed procedure for making quasi peak measurements contained in the HP Quasi-Peak Adapter manual were followed.

### **Average**

Average measurements may be made for certain frequencies using the spectrum analyzer. To make these measurements, the test engineer reduces the video bandwidth on the analyzer until the modulation of the signal is filtered out. At this point the analyzer is set into the linear mode and the scan time is reduced.

## **TEST METHODS**

The radiated and conducted emissions data of the Containment Transmitter, M021000, was taken with the HP Spectrum Analyzer. Incorporating the applicable correction factors for distance, antenna, cable loss and amplifier gain, the data was reduced as shown in the "Sample Calculations". The corrected data was then compared to the FCC Part 15 Subpart C Sections 15.207 & 15.209 emissions limits to determine compliance.

Preliminary and final measurements were taken in order to better ensure that all emissions from the EUT were found and maximized.

### **Radiated Emissions Testing**

During the preliminary radiated scan, the EUT was powered up and operating in its defined test mode, with the I/O cables and line cords facing the antenna. The magnetic loop antenna was used to scan the frequency range of 9 kHz to 30 MHz. The frequency range of 30 MHz - 1000 MHz was then scanned with the biconilog antenna located about 1.5 meter above the ground plane in the vertical polarity. During this scan, the turntable was rotated and all peaks, which were at or near the limit, were recorded. Lastly, a scan of the FM band from 88 - 110 MHz was made, using a reduced resolution bandwidth and a reduced frequency span. The biconical antenna was changed to the horizontal polarity and the above steps were repeated. Care was taken to ensure that no frequencies were missed within the FM and TV bands. An analysis was performed to determine if the signals that were at or near the limit were caused by an ambient transmission. If unable to determine by analysis, the equipment was powered down to make the final determination if the EUT was the source of the emission.

For the final radiated scan, the equipment was again positioned with its cables facing the antenna. A thorough scan of all frequencies was manually made using a small frequency span, rotating the turntable as needed. Comparison with the previously recorded measurements was then made.

Using the peak readings from both scans as a guide, the test engineer then maximized the readings with respect to the table rotation, antenna height and configuration of the cables. Photographs showing the final worst case configuration of the EUT are contained in Appendix A.

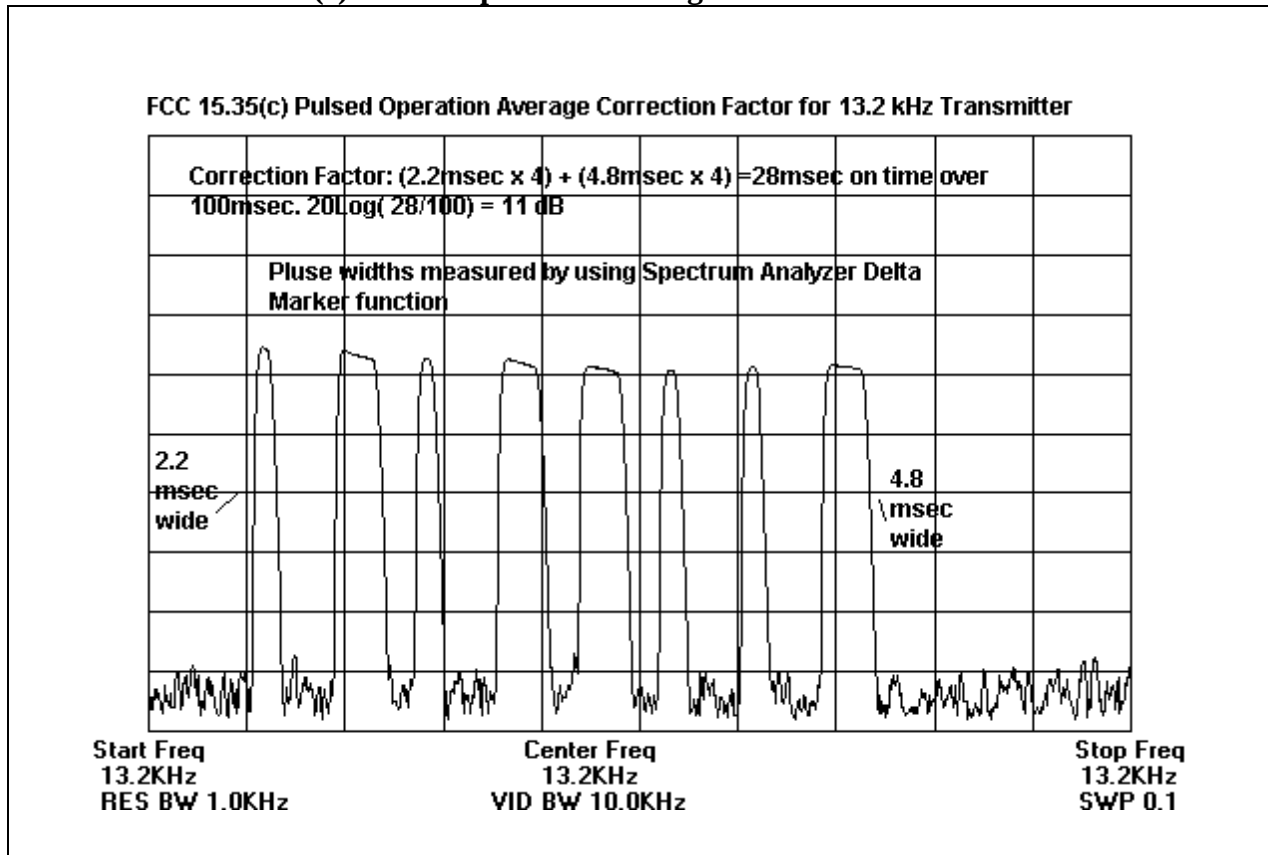
### **Conducted Emissions Testing**

For conducted emissions testing, a 30 to 50 second sweep time was used for automated measurements in the frequency bands of 450 kHz to 1.705 MHz, 1.705 MHz to 3 MHz, and 3 MHz to 30 MHz. All readings within 20 dB of the limit were recorded. At frequencies where the recorded emissions were close to the limit, further investigation was performed manually at a slower sweep rate.

### **FCC Part 15.35(c) - Measurement Detector Functions and Bandwidths**

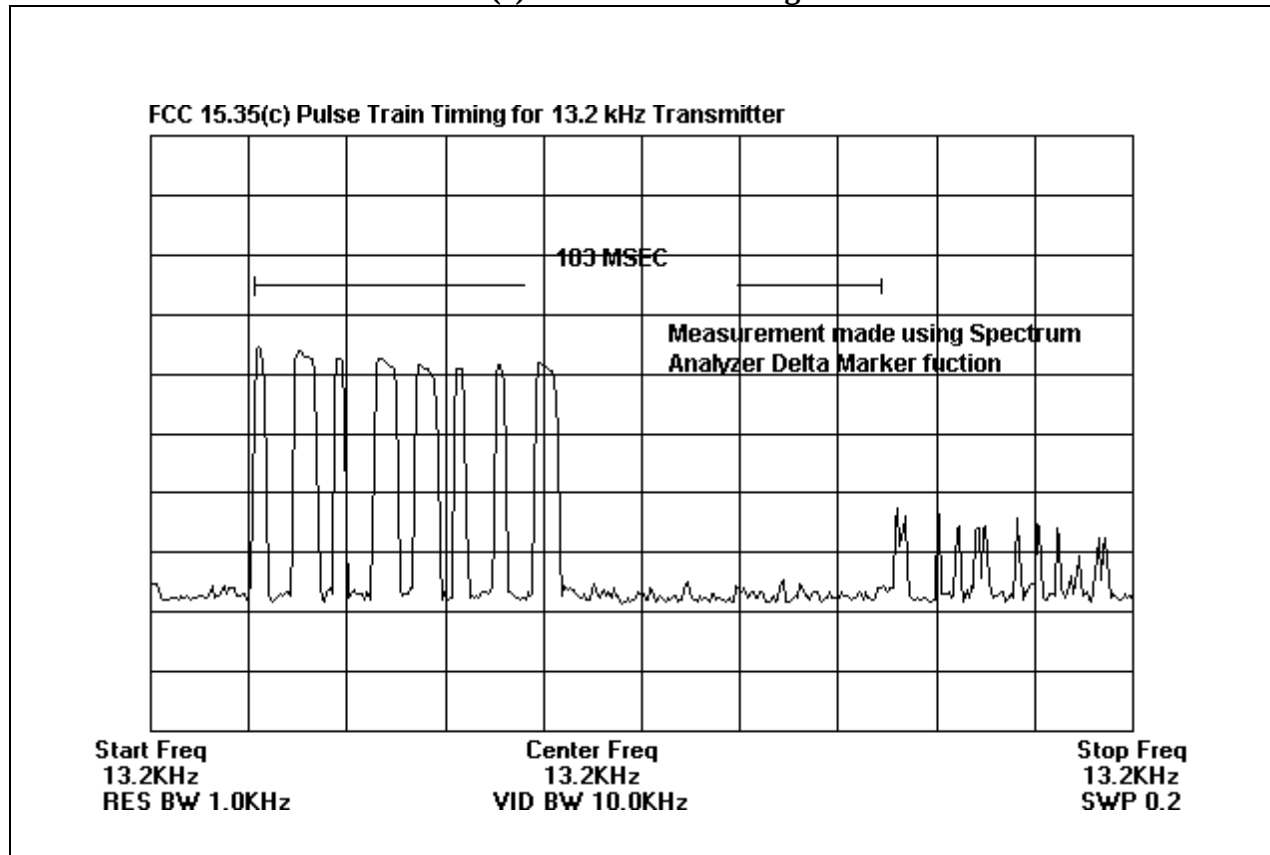
In accordance with Part 15.35(c), when the radiated emissions limits are expressed in terms of the average value of the emission, and pulsed operation is employed, the measurement field strength shall be determined by averaging over one complete pulse train, including blanking intervals, as long as the pulse train does not exceed 0.1 seconds.

#### **15.35(c) Pulsed Operation Average Correction Factor Plot**



#### **15.35(c) Pulsed Operation Plot**

### 15.35(c) Pulse Train Timing Plot



### 15.35(c) Pulsed Operation Plot

## SAMPLE CALCULATIONS

The basic spectrum analyzer reading was converted using correction factors as shown in the highest emissions readings in Tables 1-4. For radiated emissions in dB $\mu$ V/m, the spectrum analyzer reading in dB $\mu$ V was corrected by using the following formula:

$$\begin{aligned}
 &\text{Meter reading (dB}\mu\text{V)} \\
 &+ \text{Antenna Factor (dB)} \\
 &+ \text{Cable Loss (dB)} \\
 &- \text{Distance Correction (dB)} \\
 &- \text{Pre-amplifier Gain (dB)} \\
 &= \text{Corrected Reading (dB}\mu\text{V/m)}
 \end{aligned}$$

This reading was then compared to the applicable specification limit to determine compliance.

A typical data sheet will display the following in column format:

| # | Freq<br>MHz | Rdng<br>dB $\mu$ V | Cbl-<br>2 | Cable | T1 co | Ave<br>F | Amp-<br>A | Bilog | Mag L | Dist | Corr<br>dB $\mu$ V/m | Spec | Margin | Polar |
|---|-------------|--------------------|-----------|-------|-------|----------|-----------|-------|-------|------|----------------------|------|--------|-------|
|   |             |                    |           |       |       |          |           |       |       |      |                      |      |        |       |
|   | L13w        | L14b               |           |       |       |          |           |       |       |      |                      |      |        |       |
|   |             |                    |           |       |       |          |           |       |       |      |                      |      |        |       |

# means reading number

**Freq MHz** is the frequency in MHz of the obtained reading.

**Rdng dB $\mu$ V** is the reading obtained on the spectrum analyzer in dB $\mu$ V.

**Cbl-2, Cable & T1 co** are the cable loss factors in dB of the coaxial cable on the OATS.

**Ave F** is the correction factor for the fundamental reading, derived from the measured pulsed modulation called out in 15.35 (c).

**Amp-A** is short for the preamplifier factor or gain in dB.

**Bilog** is the biconilog antenna factor in dB.

**MagL** is the magnetic loop antenna factor in dB.

**Dist** is the distance factor (in dB). It is used when testing at a different test distance than the one stated in the spec.

**Corr dB $\mu$ V/m & Corr dB $\mu$ V** is the corrected reading, after taking into account all the appropriate transducer factors.

**Spec** is the specification limit (dB) stated in the agency's regulations.

**Margin** is the closeness to the specified limit in dB; + is over and - is under the limit.

**Polar** is the Polarity of the antenna with respect to earth.

**L13w & L14b** is the LISN factor

**APPENDIX A**

**INFORMATION ABOUT THE EQUIPMENT UNDER TEST**

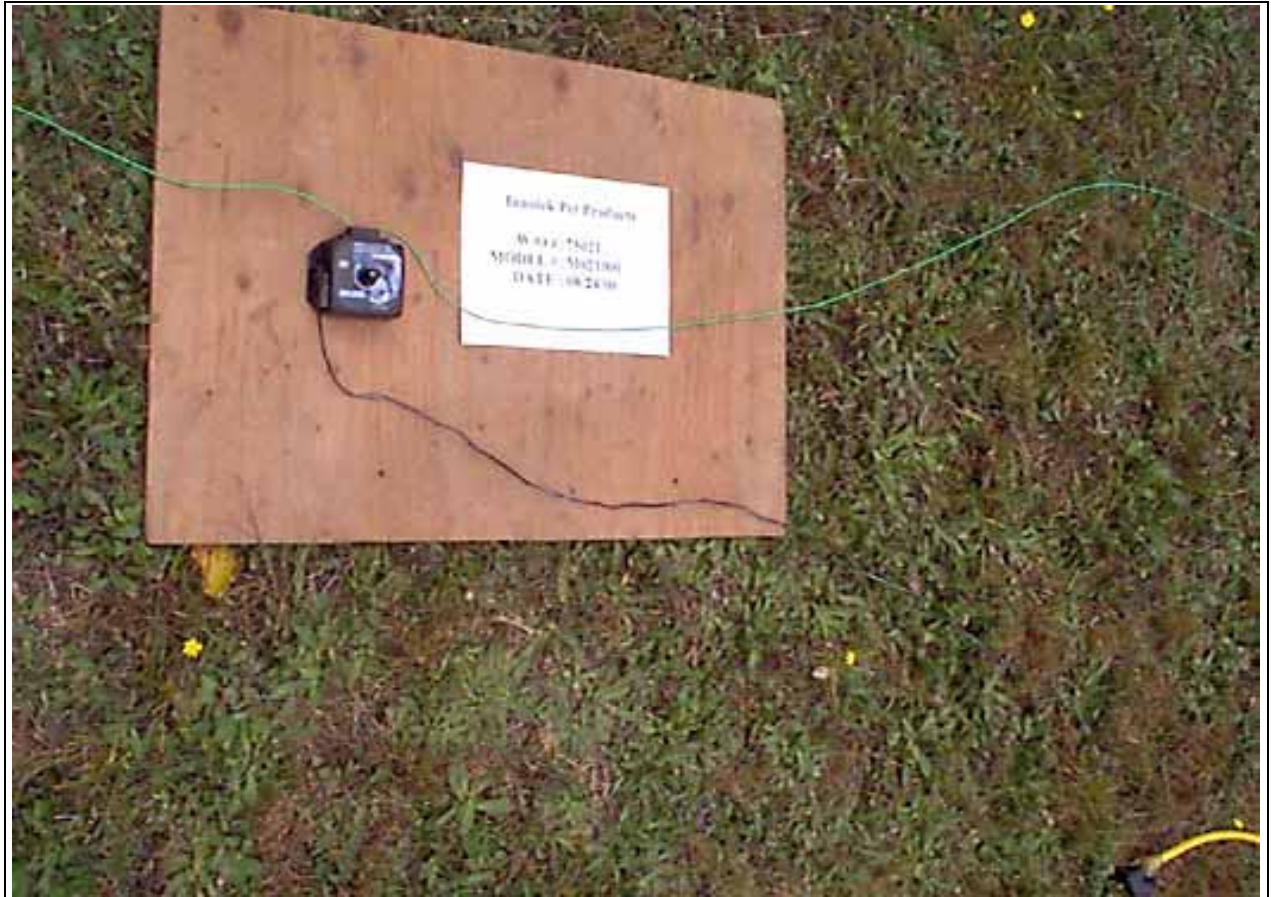
| INFORMATION ABOUT THE EQUIPMENT UNDER TEST |     |
|--------------------------------------------|-----|
| Test Software/Firmware:                    | N/A |
| CRT was displaying:                        | N/A |
| Power Supply Manufacturer:                 |     |
| Power Supply Part Number:                  |     |
| AC Line Filter Manufacturer:               |     |
| AC Line Filter Part Number:                |     |
| Line voltage used during testing:          |     |

| I/O PORTS |   |
|-----------|---|
| Type      | # |
| None      |   |
|           |   |
|           |   |
|           |   |
|           |   |
|           |   |

| CRYSTAL OSCILLATORS |             |
|---------------------|-------------|
| Type                | Freq In MHz |
| Ceramic Resonator   | 4MHz        |
|                     |             |
|                     |             |
|                     |             |
|                     |             |
|                     |             |

| PRINTED CIRCUIT BOARDS |             |             |        |          |
|------------------------|-------------|-------------|--------|----------|
| Function               | Model & Rev | Clocks, MHz | Layers | Location |
| Containment Xmtr       | M021001     | 4Mhz        | 2      |          |
|                        |             |             |        |          |
|                        |             |             |        |          |
|                        |             |             |        |          |
|                        |             |             |        |          |
|                        |             |             |        |          |
|                        |             |             |        |          |

## PHOTOGRAPH SHOWING RADIATED EMISSIONS



Radiated Emissions - Front View 9 kHz-30 MHz

## PHOTOGRAPH SHOWING RADIATED EMISSIONS



Radiated Emissions - Front View 9 kHz-30 MHz w/antenna

## PHOTOGRAPH SHOWING RADIATED EMISSIONS



Radiated Emissions - Front View 30-1000 MHz

## PHOTOGRAPH SHOWING RADIATED EMISSIONS



Radiated Emissions - Back View 30-1000 MHz

## PHOTOGRAPH SHOWING CONDUCTED EMISSIONS



Conducted Emissions - Front View

## PHOTOGRAPH SHOWING CONDUCTED EMISSIONS



Conducted Emissions - Side View

**APPENDIX B**

**MEASUREMENT DATA SHEETS**

Test Location: CKC Laboratories, Inc. • 22105 Wilson River Hwy • Tillamook, OR 97141 • 800 500-4EMC

Customer: **Innotek Pet Products**

Specification: **FCC15.209**

Work Order #: **75021**

Date: 8/24/2000

Test Type: **Maximized Emissions**

Time: 13:59:33

Equipment: **Pet Containment Transmitter**

Sequence#: 4

Manufacturer: Innotek Pet Products

Tested By: Mike Wilkinson

Model: M021000

S/N: 210 #1

**Equipment Under Test (\* = EUT):**

| Function                     | Manufacturer                 | Model #    | S/N    |
|------------------------------|------------------------------|------------|--------|
| Pet Containment Transmitter* | Innotek Pet Products         | M021000    | 210 #1 |
| Direct Plug In Transformer   | Enterprise Electronics Corp. | 41A-19-400 | None   |

**Support Devices:**

| Function | Manufacturer | Model # | S/N |
|----------|--------------|---------|-----|
|----------|--------------|---------|-----|

**Test Conditions / Notes:**

EUT is turned on and transmitting continuously with the Field Width adjustment at maximum and internal jumper to large (maximum). A 200 foot 14 gage solid copper wire antenna was connected to the EUT. The antenna was arranged in a circle. The EUT and antenna measurement site was a flat field with short grass approximately 200 x 150 feet with no structures, underground cable or pipes. The temperature was 73°F and the humidity was 50%. AC input to Direct Plug In Transformer was 120V, 60 Hz. Frequency range investigated was 9 kHz to 30 MHz -11 dB correction factor used on the Transmitter Fundamental reading was derived from the measured 26% duty cycle over 100 msec. pulsed operation (20Log 0.26= 11dB).

**Measurement Data:** Reading listed by margin. Test Distance: 10 Meters

| #  | Freq<br>MHz | Rdng<br>dBμV | Cbl-2<br>dB | Mag L<br>dB | Ave F<br>dB | Dist<br>Table<br>dB | Corr<br>dBμV/m | Spec<br>dBμV/m | Margin<br>dB | Polar<br>Ant |
|----|-------------|--------------|-------------|-------------|-------------|---------------------|----------------|----------------|--------------|--------------|
| 1  | 40.720k     | 76.5         | +0.5        | +11.3       | +0.0        | +0.0                | 88.3           | 105.4          | -17.1        | None         |
| 2  | 2.124M      | 29.7         | +0.5        | +10.6       | +0.0        | +0.0                | 40.8           | 60.0           | -19.2        | None         |
| 3  | 81.340k     | 69.3         | +0.5        | +10.3       | +0.0        | +0.0                | 80.1           | 99.4           | -19.3        | None         |
| 4  | 108.210k    | 66.7         | +0.5        | +10.1       | +0.0        | +0.0                | 77.3           | 96.9           | -19.6        | None         |
| 5  | 54.040k     | 72.1         | +0.5        | +10.6       | +0.0        | +0.0                | 83.2           | 102.9          | -19.7        | None         |
| 6  | 2.273M      | 28.8         | +0.5        | +10.6       | +0.0        | +0.0                | 39.9           | 60.0           | -20.1        | None         |
| 7  | 2.057M      | 28.5         | +0.5        | +10.6       | +0.0        | +0.0                | 39.6           | 60.0           | -20.4        | None         |
| 8  | 24.210k     | 75.2         | +0.5        | +12.8       | +0.0        | +0.0                | 88.5           | 109.9          | -21.4        | None         |
| 9  | 365.430k    | 53.9         | +0.5        | +10.1       | +0.0        | +0.0                | 64.5           | 86.3           | -21.8        | None         |
| 10 | 4.432M      | 27.0         | +0.5        | +10.6       | +0.0        | +0.0                | 38.1           | 60.0           | -21.9        | None         |

|    |                |      |      |       |       |      |      |                                     |       |      |
|----|----------------|------|------|-------|-------|------|------|-------------------------------------|-------|------|
| 11 | 27.090k        | 74.1 | +0.5 | +12.4 | +0.0  | +0.0 | 87.0 | 108.9                               | -21.9 | None |
| 12 | 378.600k       | 52.9 | +0.5 | +10.1 | +0.0  | +0.0 | 63.5 | 86.0                                | -22.5 | None |
| 13 | 106.500k       | 62.9 | +0.5 | +10.1 | +0.0  | +0.0 | 73.5 | 97.0                                | -23.5 | None |
| 14 | 32.410k        | 70.5 | +0.5 | +11.9 | +0.0  | +0.0 | 82.9 | 107.4                               | -24.5 | None |
| 15 | 175.980k       | 56.5 | +0.5 | +10.0 | +0.0  | +0.0 | 67.0 | 92.7                                | -25.7 | None |
| 16 | 16.310k        | 72.0 | +0.5 | +14.8 | +0.0  | +0.0 | 87.3 | 113.3                               | -26.0 | None |
| 17 | 432.740k       | 48.0 | +0.5 | +10.1 | +0.0  | +0.0 | 58.6 | 84.9                                | -26.3 | None |
| 18 | 13.442k<br>Ave | 80.7 | +0.5 | +16.2 | -11.0 | +0.0 | 86.4 | 115.0<br>Transmitter<br>Fundamental | -28.6 | None |
| ^  | 13.455k        | 80.7 | +0.5 | +16.2 | +0.0  | +0.0 | 97.4 | 115.0<br>Transmitter<br>Fundamental | -17.6 | None |
| 20 | 160.930k       | 53.6 | +0.5 | +10.0 | +0.0  | +0.0 | 64.1 | 93.5                                | -29.4 | None |

Test Location: CKC Laboratories, Inc. • 22105 Wilson River Hwy • Tillamook, OR 97141 • 800 500-4EMC

Customer: **Innotek Pet Products**

Specification: **FCC15.209**

Work Order #: **75021**

Date: 08/26/2000

Test Type: **Maximized Emissions**

Time: 09:45:27

Equipment: **Pet Containment Transmitter**

Sequence#: 6

Manufacturer: Innotek Pet Products

Tested By: Mike Wilkinson

Model: M021000

S/N: 210 #1

***Equipment Under Test (\* = EUT):***

| Function                     | Manufacturer                 | Model #    | S/N    |
|------------------------------|------------------------------|------------|--------|
| Pet Containment Transmitter* | Innotek Pet Products         | M021000    | 210 #1 |
| Direct Plug In Transformer   | Enterprise Electronics Corp. | 41A-19-400 | None   |

***Support Devices:***

| Function | Manufacturer | Model # | S/N |
|----------|--------------|---------|-----|
|----------|--------------|---------|-----|

***Test Conditions / Notes:***

EUT is turned on and transmitting continuously with the Field Width adjustment at maximum and internal jumper to large (maximum). A 14 foot 14 gage solid copper wire antenna was connected to the EUT. The antenna was arranged in a circle on the test table. The temperature was 73°F and the humidity was 50%. AC input to Direct Plug In Transformer was 120V, 60 Hz. Frequency range investigated was 30 MHz to 1.0 GHz.

***Measurement Data:***

Reading listed by margin.

Test Distance: 3 Meters

| # | Freq<br>MHz | Rdng<br>dB $\mu$ V | Amp-A |       |      | Bilog |    |    | Dist<br>Table | Corr<br>dB $\mu$ V/m | Spec<br>dB $\mu$ V/m | Margin<br>dB | Polar<br>Ant |
|---|-------------|--------------------|-------|-------|------|-------|----|----|---------------|----------------------|----------------------|--------------|--------------|
|   |             |                    | dB    | dB    | dB   | dB    | dB | dB |               |                      |                      |              |              |
| 1 | 40.022M     | 30.5               | -27.6 | +13.8 | +1.4 |       |    |    | +0.0          | 18.1                 | 40.0                 | -21.9        | Vert         |
| 2 | 40.022M     | 30.4               | -27.6 | +13.8 | +1.4 |       |    |    | +0.0          | 18.0                 | 40.0                 | -22.0        | Horiz        |
| 3 | 48.023M     | 33.9               | -27.5 | +9.2  | +1.5 |       |    |    | +0.0          | 17.1                 | 40.0                 | -22.9        | Vert         |
| 4 | 44.023M     | 30.8               | -27.6 | +11.4 | +1.5 |       |    |    | +0.0          | 16.1                 | 40.0                 | -23.9        | Vert         |
| 5 | 60.015M     | 33.3               | -27.6 | +5.7  | +1.7 |       |    |    | +0.0          | 13.1                 | 40.0                 | -26.9        | Vert         |
| 6 | 52.032M     | 30.1               | -27.5 | +7.6  | +1.5 |       |    |    | +0.0          | 11.7                 | 40.0                 | -28.3        | Vert         |
| 7 | 56.032M     | 28.7               | -27.6 | +6.6  | +1.6 |       |    |    | +0.0          | 9.3                  | 40.0                 | -30.7        | Vert         |

Test Location: CKC Laboratories, Inc. • 22105 Wilson River Hwy • Tillamook, OR 97141 • 800 500-4EMC

Customer: **Innotek Pet Products**

Specification: **FCC 15.207 COND**

Work Order #: **75021**

Date: 08/26/2000

Test Type: **Conducted Emissions**

Time: 10:12:46

Equipment: **Pet Containment Transmitter**

Sequence#: 10

Manufacturer: Innotek Pet Products

Tested By: Mike Wilkinson

Model: M021000

S/N: 210 #1

**Equipment Under Test (\* = EUT):**

| Function                     | Manufacturer                 | Model #    | S/N    |
|------------------------------|------------------------------|------------|--------|
| Pet Containment Transmitter* | Innotek Pet Products         | M021000    | 210 #1 |
| Direct Plug In Transformer   | Enterprise Electronics Corp. | 41A-19-400 | None   |

**Support Devices:**

| Function | Manufacturer | Model # | S/N |
|----------|--------------|---------|-----|
|----------|--------------|---------|-----|

**Test Conditions / Notes:**

EUT is turned on and transmitting continuously with the Field Width adjustment at maximum and internal jumper to large (maximum). A 14 foot 14 gage solid copper wire antenna was connected to the EUT. The antenna was arranged in a circle on the test table. The temperature was 73°F and the humidity was 50%. AC input to Direct Plug In Transformer was 120V, 60 Hz. Frequency range investigated was 450 kHz to 30 MHz.

**Measurement Data:**

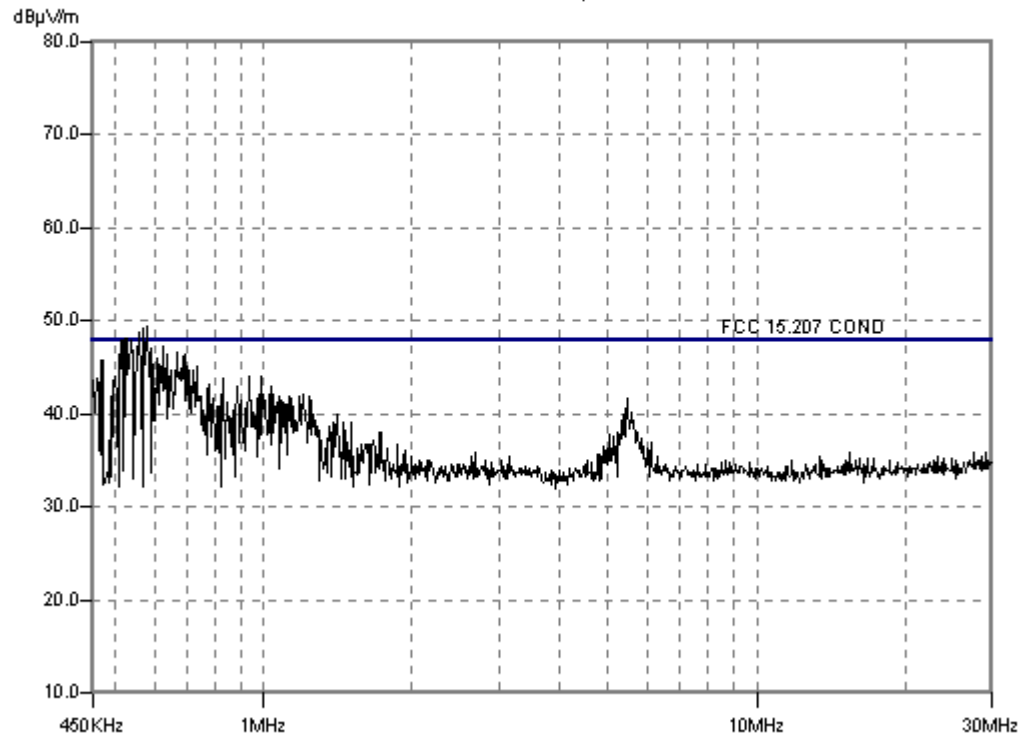
Reading listed by margin.

Test Lead: White

| #  | Freq<br>MHz | Rdng<br>dBμV | T1 co |      | L13w |    | Dist<br>Table | Corr<br>dBμV/m | Spec<br>dBμV | Margin<br>dB | Polar<br>Ant |
|----|-------------|--------------|-------|------|------|----|---------------|----------------|--------------|--------------|--------------|
|    |             |              | dB    | dB   | dB   | dB |               |                |              |              |              |
| 1  | 583.670k    | 45.7         | +0.1  | +0.0 |      |    | +0.0          | 45.8           | 48.0         | -2.2         | White        |
| QP |             |              |       |      |      |    |               |                |              |              |              |
| ^  | 582.189k    | 49.3         | +0.1  | +0.0 |      |    | +0.0          | 49.4           | 48.0         | +1.4         | White        |
| 3  | 470.079k    | 45.6         | +0.2  | +0.0 |      |    | +0.0          | 45.8           | 48.0         | -2.2         | White        |
| 4  | 582.050k    | 45.5         | +0.1  | +0.0 |      |    | +0.0          | 45.6           | 48.0         | -2.4         | White        |
| QP |             |              |       |      |      |    |               |                |              |              |              |
| 5  | 581.590k    | 45.5         | +0.1  | +0.0 |      |    | +0.0          | 45.6           | 48.0         | -2.4         | White        |
| QP |             |              |       |      |      |    |               |                |              |              |              |
| 6  | 556.850k    | 45.5         | +0.1  | +0.0 |      |    | +0.0          | 45.6           | 48.0         | -2.4         | White        |
| QP |             |              |       |      |      |    |               |                |              |              |              |
| ^  | 557.926k    | 48.6         | +0.1  | +0.0 |      |    | +0.0          | 48.7           | 48.0         | +0.7         | White        |
| 8  | 581.270k    | 45.3         | +0.1  | +0.0 |      |    | +0.0          | 45.4           | 48.0         | -2.6         | White        |
| QP |             |              |       |      |      |    |               |                |              |              |              |
| 9  | 598.921k    | 45.3         | +0.1  | +0.0 |      |    | +0.0          | 45.4           | 48.0         | -2.6         | White        |
| 10 | 580.910k    | 45.2         | +0.1  | +0.0 |      |    | +0.0          | 45.3           | 48.0         | -2.7         | White        |
| QP |             |              |       |      |      |    |               |                |              |              |              |
| 11 | 732.783k    | 45.1         | +0.0  | +0.1 |      |    | +0.0          | 45.2           | 48.0         | -2.8         | White        |

|    |          |      |      |      |      |      |      |      |       |
|----|----------|------|------|------|------|------|------|------|-------|
| 12 | 700.154k | 44.5 | +0.5 | +0.1 | +0.0 | 45.1 | 48.0 | -2.9 | White |
| 13 | 682.585k | 44.4 | +0.4 | +0.1 | +0.0 | 44.9 | 48.0 | -3.1 | White |
| 14 | 721.070k | 44.4 | +0.2 | +0.1 | +0.0 | 44.7 | 48.0 | -3.3 | White |
| 15 | 649.120k | 44.4 | +0.1 | +0.1 | +0.0 | 44.6 | 48.0 | -3.4 | White |
| 16 | 617.327k | 44.4 | +0.1 | +0.0 | +0.0 | 44.5 | 48.0 | -3.5 | White |
| 17 | 563.783k | 44.4 | +0.1 | +0.0 | +0.0 | 44.5 | 48.0 | -3.5 | White |
| 18 | 674.219k | 44.0 | +0.3 | +0.1 | +0.0 | 44.4 | 48.0 | -3.6 | White |
| 19 | 524.420k | 44.0 | +0.2 | +0.0 | +0.0 | 44.2 | 48.0 | -3.8 | White |
| QP |          |      |      |      |      |      |      |      |       |
| ^  | 526.134k | 47.9 | +0.2 | +0.0 | +0.0 | 48.1 | 48.0 | +0.1 | White |
| 21 | 992.140k | 43.6 | +0.5 | +0.0 | +0.0 | 44.1 | 48.0 | -3.9 | White |
| 22 | 498.525k | 43.7 | +0.4 | +0.0 | +0.0 | 44.1 | 48.0 | -3.9 | White |
| 23 | 935.249k | 43.9 | +0.1 | +0.0 | +0.0 | 44.0 | 48.0 | -4.0 | White |
| 24 | 623.500k | 42.6 | +0.1 | +0.0 | +0.0 | 42.7 | 48.0 | -5.3 | White |
| QP |          |      |      |      |      |      |      |      |       |
| ^  | 624.020k | 47.2 | +0.1 | +0.0 | +0.0 | 47.3 | 48.0 | -0.7 | White |

CKC Laboratories, Inc. Date: 08/26/2000 Time: 09:56:13 W/O#: 75021  
FCC 15.207 COND Test Lead: White Sequence#: 10



Test Location: CKC Laboratories, Inc. • 22105 Wilson River Hwy • Tillamook, OR 97141 • 800 500-4EMC

Customer: **Innotek Pet Products**

Specification: **FCC 15.207 COND**

Work Order #: **75021**

Date: 08/26/2000

Test Type: **Conducted Emissions**

Time: 10:32:22

Equipment: **Pet Containment Transmitter**

Sequence#: 11

Manufacturer: Innotek Pet Products

Tested By: Mike Wilkinson

Model: M021000

S/N: 210 #1

**Equipment Under Test (\* = EUT):**

| Function                     | Manufacturer                 | Model #    | S/N    |
|------------------------------|------------------------------|------------|--------|
| Pet Containment Transmitter* | Innotek Pet Products         | M021000    | 210 #1 |
| Direct Plug In Transformer   | Enterprise Electronics Corp. | 41A-19-400 | None   |

**Support Devices:**

| Function | Manufacturer | Model # | S/N |
|----------|--------------|---------|-----|
|----------|--------------|---------|-----|

**Test Conditions / Notes:**

EUT is turned on and transmitting continuously with the Field Width adjustment at maximum and internal jumper to large (maximum). A 14 foot 14 gage solid copper wire antenna was connected to the EUT. The antenna was arranged in a circle on the test table. The temperature was 73°F and the humidity was 50%. AC input to Direct Plug In Transformer was 120V, 60 Hz. Frequency range investigated was 450 kHz to 30 MHz.

**Measurement Data:**

Reading listed by margin.

Test Lead: Black

| #  | Freq<br>MHz | Rdng<br>dB $\mu$ V | T1 co |    | L14b |    | Dist<br>Table | Corr<br>dB $\mu$ V/m | Spec<br>dB $\mu$ V | Margin<br>dB | Polar<br>Ant |
|----|-------------|--------------------|-------|----|------|----|---------------|----------------------|--------------------|--------------|--------------|
|    |             |                    | dB    | dB | dB   | dB |               |                      |                    |              |              |
| 1  | 556.040k    | 45.3               | +0.1  |    | +0.1 |    | +0.0          | 45.5                 | 48.0               | -2.5         | Black        |
| QP |             |                    |       |    |      |    |               |                      |                    |              |              |
| ^  | 555.416k    | 49.0               | +0.1  |    | +0.1 |    | +0.0          | 49.2                 | 48.0               | +1.2         | Black        |
| 3  | 694.298k    | 44.6               | +0.5  |    | +0.3 |    | +0.0          | 45.4                 | 48.0               | -2.6         | Black        |
| 4  | 500.198k    | 44.9               | +0.4  |    | +0.1 |    | +0.0          | 45.4                 | 48.0               | -2.6         | Black        |
| 5  | 471.753k    | 45.1               | +0.2  |    | +0.1 |    | +0.0          | 45.4                 | 48.0               | -2.6         | Black        |
| 6  | 577.169k    | 45.0               | +0.1  |    | +0.1 |    | +0.0          | 45.2                 | 48.0               | -2.8         | Black        |
| 7  | 456.693k    | 44.5               | +0.1  |    | +0.1 |    | +0.0          | 44.7                 | 48.0               | -3.3         | Black        |
| 8  | 598.560k    | 44.3               | +0.1  |    | +0.1 |    | +0.0          | 44.5                 | 48.0               | -3.5         | Black        |
| QP |             |                    |       |    |      |    |               |                      |                    |              |              |
| ^  | 598.921k    | 48.0               | +0.1  |    | +0.1 |    | +0.0          | 48.2                 | 48.0               | +0.2         | Black        |
| 10 | 813.100k    | 43.8               | +0.2  |    | +0.2 |    | +0.0          | 44.2                 | 48.0               | -3.8         | Black        |
| 11 | 461.713k    | 44.0               | +0.1  |    | +0.1 |    | +0.0          | 44.2                 | 48.0               | -3.8         | Black        |

|    |          |      |      |      |      |      |      |      |       |
|----|----------|------|------|------|------|------|------|------|-------|
| 12 | 608.160k | 43.9 | +0.1 | +0.1 | +0.0 | 44.1 | 48.0 | -3.9 | Black |
| QP |          |      |      |      |      |      |      |      |       |
| ^  | 608.961k | 48.3 | +0.1 | +0.1 | +0.0 | 48.5 | 48.0 | +0.5 | Black |
| 14 | 727.763k | 43.7 | +0.1 | +0.3 | +0.0 | 44.1 | 48.0 | -3.9 | Black |
| 15 | 657.486k | 43.7 | +0.2 | +0.2 | +0.0 | 44.1 | 48.0 | -3.9 | Black |
| 16 | 652.466k | 43.7 | +0.1 | +0.2 | +0.0 | 44.0 | 48.0 | -4.0 | Black |
| 17 | 921.863k | 43.5 | +0.2 | +0.2 | +0.0 | 43.9 | 48.0 | -4.1 | Black |
| 18 | 613.981k | 43.7 | +0.1 | +0.1 | +0.0 | 43.9 | 48.0 | -4.1 | Black |
| 19 | 667.526k | 43.4 | +0.2 | +0.2 | +0.0 | 43.8 | 48.0 | -4.2 | Black |
| 20 | 515.890k | 43.3 | +0.3 | +0.1 | +0.0 | 43.7 | 48.0 | -4.3 | Black |
| QP |          |      |      |      |      |      |      |      |       |
| ^  | 511.075k | 48.2 | +0.3 | +0.1 | +0.0 | 48.6 | 48.0 | +0.6 | Black |
| 22 | 493.390k | 42.5 | +0.4 | +0.1 | +0.0 | 43.0 | 48.0 | -5.0 | Black |
| QP |          |      |      |      |      |      |      |      |       |
| ^  | 493.505k | 45.1 | +0.4 | +0.1 | +0.0 | 45.6 | 48.0 | -2.4 | Black |
| 24 | 704.820k | 40.6 | +0.4 | +0.3 | +0.0 | 41.3 | 48.0 | -6.7 | Black |
| QP |          |      |      |      |      |      |      |      |       |
| ^  | 704.338k | 45.2 | +0.4 | +0.3 | +0.0 | 45.9 | 48.0 | -2.1 | Black |

CKC Laboratories, Inc. Date: 08/26/2000 Time: 10:14:49 WO#: 75021  
FCC 15.207 COND Test Lead: Black Sequence#: 11

