



INNOTEK, INC. TEST REPORT
FOR THE
M023700 TRANSMITTER
FCC PART 15 SUBPART C SECTIONS 15.207, 15.209 and RSS 210
COMPLIANCE

DATE OF ISSUE: APRIL 7, 2003

PREPARED FOR:

Innotek, Inc.
1000 Fuller Drive
Garrett, IN 46738

P.O. No.: 61835
W.O. No.: 80337

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Mariposa, CA 95338

Date of test: April 1 & 2, 2003

Report No.: FC03-024

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ADMINISTRATIVE INFORMATION

DATE OF TEST: April 1 & 2, 2003

DATE OF RECEIPT: April 1, 2003

PURPOSE OF TEST: To demonstrate the compliance of the M023700 Transmitter, with the requirements for FCC Part 15 Subpart C Sections 15.207, 15.209 and RSS 210 devices.

TEST METHOD: ANSI C63.4 (1992) and RSS 210

MANUFACTURER: Innotek, Inc.
1000 Fuller Drive
Garrett, IN 46738

REPRESENTATIVE: Pete Johnson

TEST LOCATION: CKC Laboratories, Inc.
5473A Clouds Rest
Mariposa, CA 95338

SUMMARY OF RESULTS

As received, the Innotek, Inc. M023700 Transmitter, was found to be fully compliant with the following standards and specifications:

<u>United States</u>	<u>Canada</u>
FCC Part 15	RSS 210
15.203	6.2.2(o)(e)(2)
15.207	6.6
15.209	6.2.1
ANSI C63.4 (1992) method	ANSI C63.4 (1992) method
	Industry of Canada File No. IC 3082-B

CONDITIONS FOR COMPLIANCE

No modifications to the EUT were necessary to comply.

APPROVALS

QUALITY ASSURANCE:




Steve Behm, Director of Engineering Services
and Quality Assurance



Joyce Walker, Quality Assurance Administrative
Manager

TEST PERSONNEL:



Mike Wilkinson, Lab Manager

FCC 15.31(e) Voltage Variations

FCC 15.31(e) Voltage Variation on Peak Power				
FREQUENCY kHz	CORRECTED READING dB μ V/m 85%	CORRECTED READING dB μ V/m 100%	CORRECTED READING dB μ V/m 115%	SPEC LIMIT dB μ V/m
13.100	35.7	35.9	35.9	45.2

Test Method: ANSI C63.4 (1992)
 Spec Limit: FCC Part 15 Subpart C Section 15.31(e)
 Test Distance: 3 meters
 Tested By: Mike Wilkinson

FCC 15.31(m) Number Of Channels

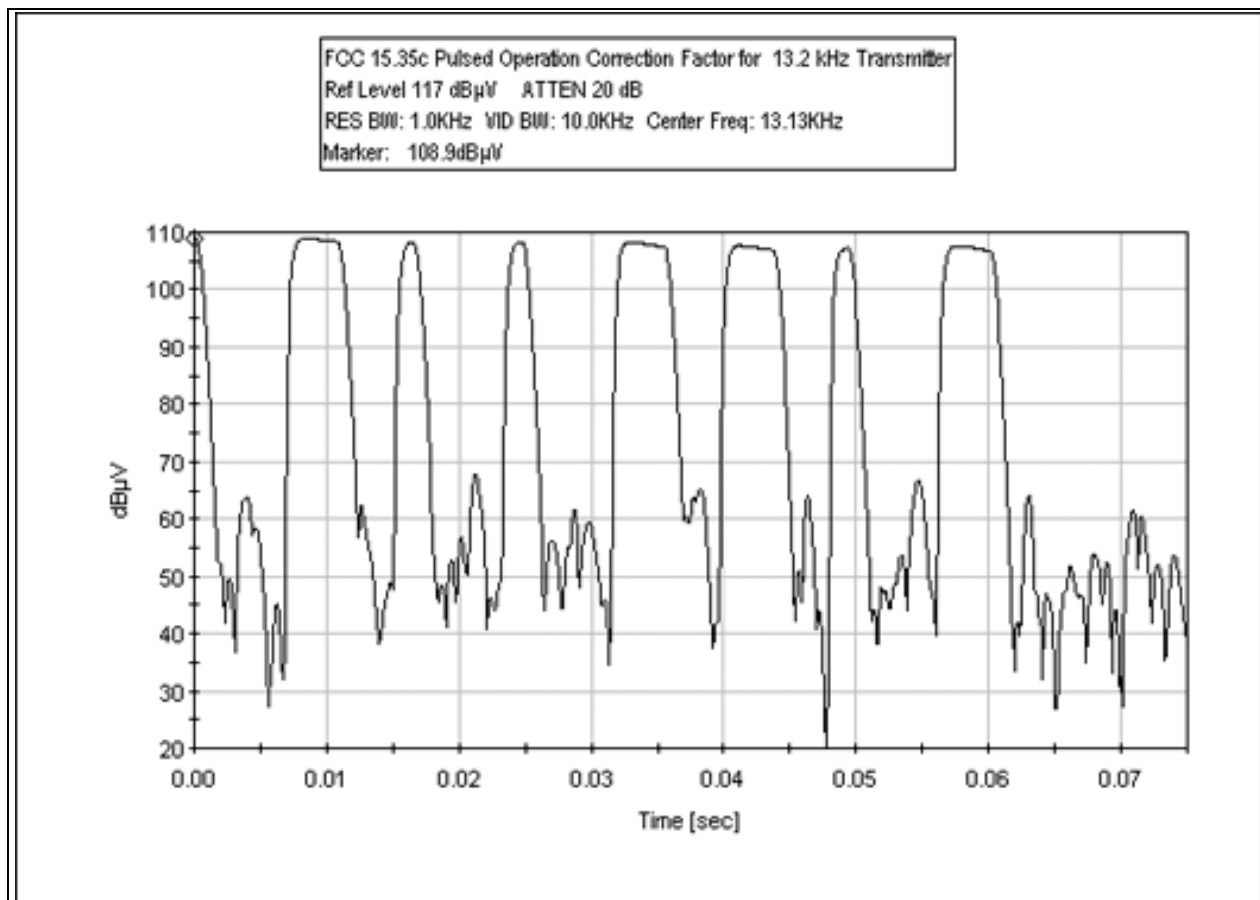
This device operates on two channels: 8.2 kHz and 13.2 kHz but during testing was operating only at 13.2 kHz.

FCC 15.33(a) Frequency Ranges Tested

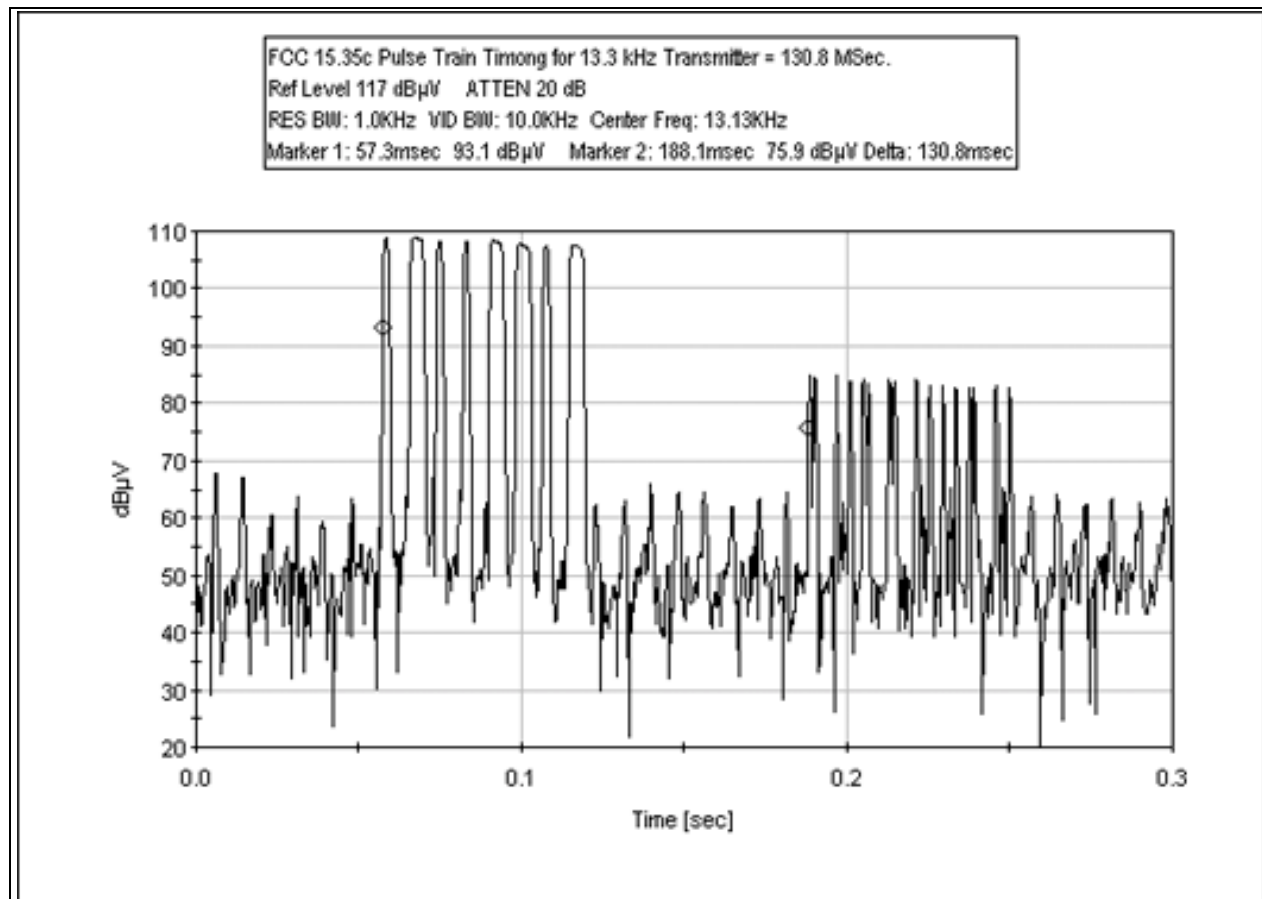
15.207 Conducted: 150 kHz – 30 MHz
 15.209 Radiated: 9 kHz – 1000 MHz

FCC SECTION 15.35: ANALYZER BANDWIDTH SETTINGS PER FREQUENCY RANGE			
TEST	BEGINNING FREQUENCY	ENDING FREQUENCY	BANDWIDTH SETTING
CONDUCTED EMISSIONS	150 kHz	30 MHz	9 kHz
RADIATED EMISSIONS	9 kHz	150 kHz	200 Hz
RADIATED EMISSIONS	150 kHz	30 MHz	9 kHz
RADIATED EMISSIONS	30 MHz	1000 MHz	120 kHz

FCC 15.35(c) Pulsed Operation Correction Factor



FCC 15.35(c) Pulse Train Timing



FCC 15.203/RSS 210 6.2.2(o)(e)(2) Antenna Requirements

The antenna is an integral part of the EUT and is non-removable; therefore the EUT complies with Section 15.203 of the FCC rules.

FCC 15.205 Restricted Bands

The fundamental operating frequency lies outside the restricted bands and therefore complies with the requirements of Section 15.205 of the FCC rules. Any spurious emission coming from the EUT was investigated to determine if any portion lies inside the restricted band. If any portion of a spurious emissions signal was found to be within a restricted band, investigation was performed to ensure compliance with Section 15.209.

EUT Operating Frequency

This device operates on two channels: 8.2 kHz and 13.2 kHz but during testing was operating only at 13.2 kHz.

Temperature And Humidity During Testing

The temperature during testing was within +15°C and + 35°C.
The relative humidity was between 20% and 75%.

EQUIPMENT UNDER TEST (EUT) DESCRIPTION

The EUT tested by CKC Laboratories was a production unit. Short range transmitter used to generate a localized RF field along a buried wire for a pet containment system.

The following model has been tested by CKC Laboratories: **M023706**

The following additional models are identical electrically to the one which was tested, or any differences between them do not affect their EMC characteristics, and therefore they comply to the level of testing equivalent to the tested models: **M023700**

EQUIPMENT UNDER TEST

Pet Containment Transmitter

Manuf: Innotek Pet Products
Model: M023700
Serial: 02378
FCC ID: pending

AC-AC Adapter 120V

Manuf: Innotek
Model: KA12A120020023U
Serial: NA
FCC ID: NA

PERIPHERAL DEVICES

The EUT was not tested with peripheral devices.

REPORT OF MEASUREMENTS

The following tables report the worst case emissions levels recorded during the tests performed on the EUT. All readings taken were peak readings unless otherwise stated. The data sheets from which the emissions tables were compiled are contained in Appendix C.

Table 1: FCC 15.207/RSS 210 6.6 Six Highest Conducted Emission Levels

FREQUENCY MHz	METER READING dB μ V	CORRECTION FACTORS				CORRECTED READING dB μ V	SPEC LIMIT dB μ V	MARGIN dB	NOTES
		Lisn dB		Cable dB					
0.172500	41.3	0.0		0.0		41.3	54.8	-13.5	BA
0.441600	40.0	0.0		0.1		40.1	47.0	-6.9	BA
0.488100	36.1	0.2		0.1		36.4	46.2	-9.8	WA
0.491800	34.8	0.2		0.1		35.1	46.1	-11.0	WA
0.501200	40.9	0.0		0.1		41.0	46.0	-5.0	BA
0.549200	41.0	0.1		0.1		41.2	46.0	-4.8	BA

Test Method: ANSI C63.4 (1992)
Spec Limit : FCC Part 15 Subpart C Section 15.207/
RSS 210 Section 6.6

NOTES: 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 jumpers to large (maximum), Dual Freq and Hi. A 14 foot 14 gauge solid copper wire antenna was connected to the EUT. The antenna was arranged in a circle. The temperature was 70°F and the humidity was 45%. AC input to AC-AC Adapter was 120 V/60 Hz. Frequency range investigated was 150 kHz to 30 MHz.

Table 2: FCC 15.209/RSS 210 6.2.1 Fundamental

FREQUENCY MHz	METER READING dB μ V	CORRECTION FACTORS				CORRECTED READING dB μ V/m	SPEC LIMIT dB μ V/m	MARGIN DB	NOTES
		Ant dB	15.31 dB	Cable dB	Corr dB				
0.013	109.1	17.5	-80.0	0.1	-10.8	35.9	45.2	-9.3	VA
0.013	109.1	17.5	-80.0	0.1	0.0	46.7	65.2	-18.5	V

Test Method: ANSI C63.4 (1992)
 Spec Limit : FCC Part 15 Subpart C Section 15.209/
 RSS 210 Section 6.2.1
 Test Distance: 3 Meters

NOTES: A = Average Reading
 V = Vertical Polarization

COMMENTS: EUT is turned on and transmitting continuously with the Field Width adjustment at maximum and internal jumpers to large (maximum), Dual Freq and Hi. A 200 foot 14 gauge 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 70°F and the humidity was 45 %. AC input to AC-AC Adapter was 120V/60 Hz. -10.8 dB correction factor used on the Transmitter Fundamental reading was derived from the measured 28.8% duty cycle over 100 msec. pulsed operation ($20\text{Log } 0.28.8 = -10.8 \text{ dB}$). Using the formula $(ED)^2 / (30G)$ and $G = 1$, the output power of the fundamental corrected average reading is 0.00270 Watt.

Table 3: FCC 15.209/RSS 210 6.2.1 Six Highest Radiated Emission Levels: 9kHz-30MHz

FREQUENCY MHz	METER READING dB μ V	CORRECTION FACTORS				CORRECTED READING dB μ V/m	SPEC LIMIT dB μ V/m	MARGIN DB	NOTES
		Ant dB		Corr dB					
0.025	99.3	13.5		-80.0		32.8	39.6	-6.8	N
0.026	99.6	13.3		-80.0		32.9	39.2	-6.3	N
0.041	96.0	11.9		-80.0		27.9	35.3	-7.4	N
0.053	94.3	11.0		-80.0		25.3	33.1	-7.8	N
0.066	93.4	10.4		-80.0		23.8	31.2	-7.4	N
0.066	93.3	10.4		-80.0		23.7	31.2	-7.5	N

Test Method: ANSI C63.4 (1992)
 Spec Limit : FCC Part 15 Subpart C Sections 15.209/
 RSS 210 Section 6.2.1
 Test Distance: 3 Meters

NOTES: N = No Polarization
 V = Vertical Polarization

COMMENTS: EUT is turned on and transmitting continuously with the Field Width adjustment at maximum and internal jumpers to large (maximum), Dual Freq and Hi. A 200 foot 14 gauge 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 70°F and the humidity was 45 %. AC input to AC-AC Adapter was 120 V/ 60 Hz. Frequency range investigated was 9 kHz to 30 MHz.

Table 4: FCC 15.209/RSS 210 6.2.1 Six Highest Radiated Emission Levels: 30MHz-1GHz

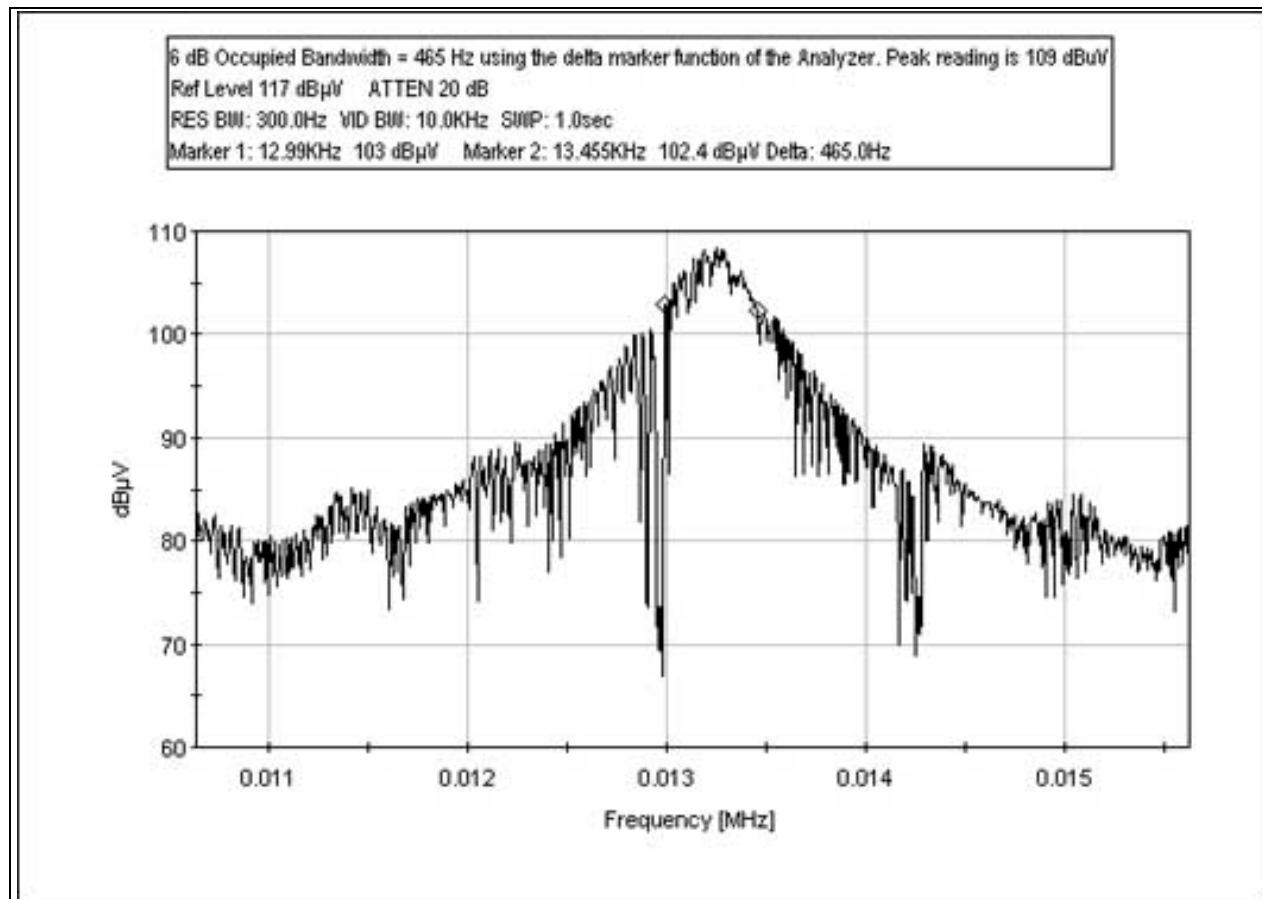
FREQUENCY MHz	METER READING dB μ V	CORRECTION FACTORS				CORRECTED READING dB μ V/m	SPEC LIMIT dB μ V/m	MARGIN DB	NOTES
		Ant dB	Amp dB	Cable dB					
34.520	37.4	16.3	-27.3	0.8		27.2	40.0	-12.8	V
68.280	36.3	5.9	-27.2	1.3		16.3	40.0	-23.7	V
83.010	34.8	7.5	-27.1	1.5		16.7	40.0	-23.3	H
129.600	34.7	11.6	-27.2	1.7		20.8	43.5	-22.7	V
278.900	28.1	12.9	-26.5	2.8		17.3	46.0	-28.7	V
477.800	26.0	18.3	-27.7	4.3		20.9	46.0	-25.1	V

Test Method: ANSI C63.4 (1992)
 Spec Limit : FCC Part 15 Subpart C Sections 15.209/
 RSS 210 Section 6.2.1
 Test Distance: 3 Meters

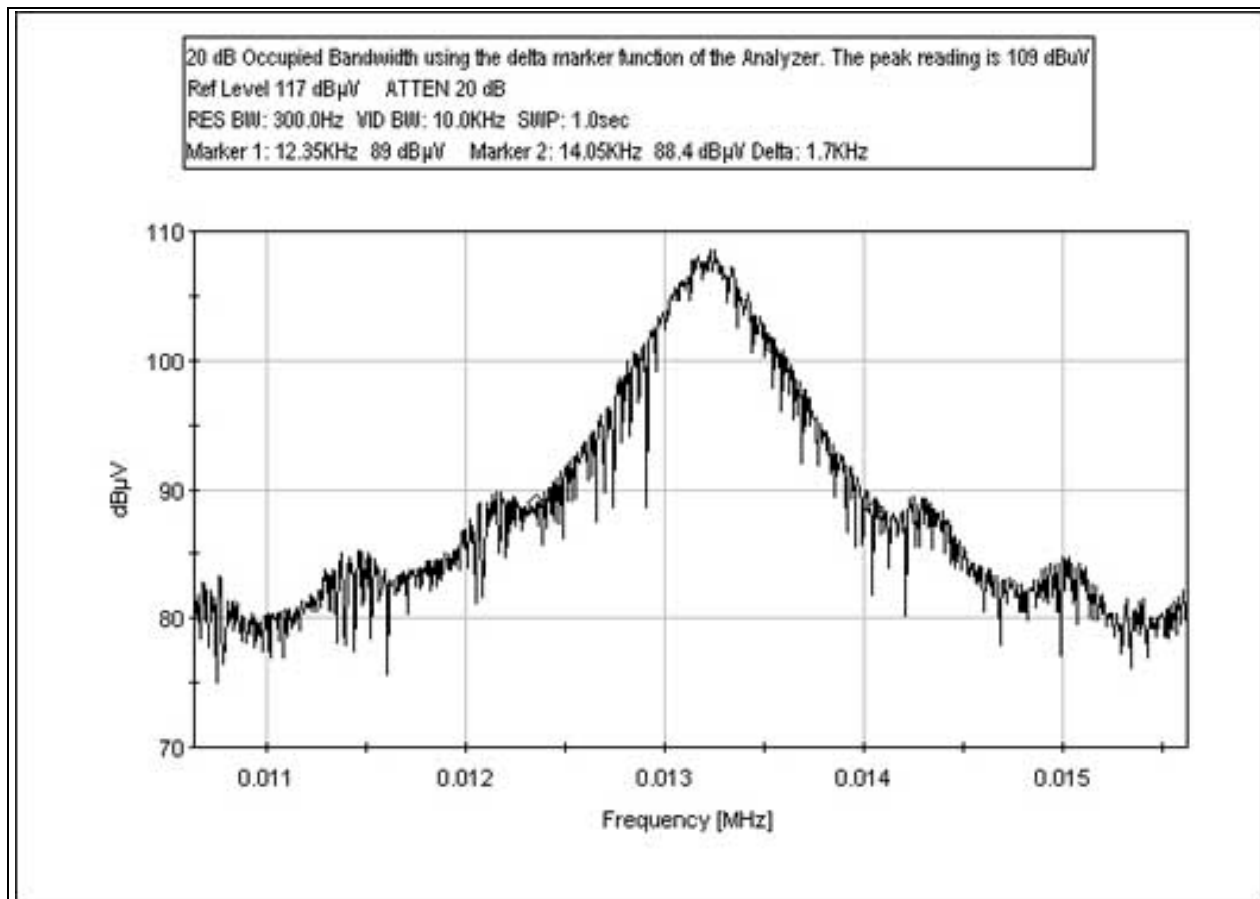
NOTES: H = Horizontal Polarization
 V = Vertical Polarization

COMMENTS: EUT is turned on and transmitting continuously with the Field Width adjustment at maximum and internal jumpers to large (maximum), Dual Freq and Hi. A 14 foot 14 gauge solid copper wire antenna was connected to the EUT. The antenna was arranged in a circle. The temperature was 70°F and the humidity was 45%. AC input to AC-AC Adapter was 120 V/60 Hz. Frequency range investigated was 30 MHz to 1.0 GHz. No signal from EUT detected. **All readings are noise floor.**

FCC - 6 dB Bandwidth



RSS 210 - 99% Bandwidth



MEASUREMENT UNCERTAINTY

TEST	HIGHEST UNCERTAINTY
Radiated Emissions	+/- 2.94 dB
Conducted Emissions	+/- 1.56 dB

Note: Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k=2. Statements of compliance are based on the nominal values only.

EUT SETUP

The equipment under test (EUT) was set up in a manner that represented its normal use, as shown in the photographs in Appendix A. Any special conditions required for the EUT to operate normally are identified in the comments that accompany the emissions tables. The corrected data was then compared to the applicable emission limits to determine compliance.

The cables were routed consistent with the typical application by varying the configuration of the test sample. Interface cables were connected to the available I/O ports of the test unit. The effect of varying the position of the cables was investigated to find the configuration that produced maximum emissions. I/O cables were of the type and length specified in the individual requirements. The length of cable that produced maximum emissions was selected.

The radiated and conducted emissions data of the EUT 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 Table A.

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

CORRECTION FACTORS

The basic spectrum analyzer reading was converted using correction factors as shown in the highest emissions readings in the tables. For radiated emissions in dB μ V/m, the spectrum analyzer reading in dB μ V was corrected by using the following formula in Table A. This reading was then compared to the applicable specification limit to determine compliance.

TABLE A: SAMPLE CALCULATIONS		
	Meter reading	(dB μ V)
+	Antenna Factor	(dB)
+	Cable Loss	(dB)
-	Distance Correction	(dB)
-	Preamplifier Gain	(dB)
=	Corrected Reading	(dB μ V/m)

TEST INSTRUMENTATION AND ANALYZER SETTINGS

The test instrumentation and equipment listed in Appendix B were used to collect both the radiated and conducted emissions data. For radiated measurements from 9 kHz to 30 MHz, the magnetic loop antenna was used. For radiated measurements below 300 MHz, the biconical antenna was used. For frequencies from 300 to 1000 MHz, the log periodic antenna was used. For frequencies from 30 to 1000 MHz, the biconilog antenna was used. The horn antenna was used for frequencies above 1000 MHz. Conducted emissions tests required the use of the FCC type LISNs.

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 μ V, and a vertical scale of 10 dB per division.

SPECTRUM ANALYZER DETECTOR FUNCTIONS

The notes that accompany the measurements contained in the Tables 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.

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

For certain frequencies, average measurements may be made 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.

TESTING

Mains Conducted Emissions

During conducted emissions testing, the EUT was located on a wooden table measuring approximately 80 cm high, 1 meter deep, and 1.5 meters in length. One wall of the room where the EUT was located has a minimum 2 meter by 2 meter conductive plane. The EUT was mounted on the wooden table 40 cm away from the conductive plane, and 80 cm from any other conductive surface.

The vertical metal plane used for conducted emissions was grounded to the earth. Power to the EUT was provided through a LISN. The LISN was grounded to the ground plane. All other objects were kept a minimum of 80 cm away from the EUT during the conducted test.

The LISNs used were 50 μ H/+50 ohms. Above 150 kHz, a 0.15 μ F series capacitor was added in-line prior to connecting the analyzer to restore the proper impedance for the range. A 30 to 50 second sweep time was used for automated measurements in the frequency bands of 150 kHz to 500 kHz, and 500 kHz to 30 MHz. All readings within 20 dB of the limit were recorded, and those within 6 dB of the limit were examined with additional measurements using a slower sweep time.

Radiated Emissions

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.

During the preliminary radiated scan, the EUT was powered up and operating in its defined FCC test mode. For radiated measurements from 9 kHz to 30 MHz, the magnetic loop antenna was used. The frequency range of 30 MHz to 1000 MHz was 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 at or near the limit were recorded. A scan of the FM band from 88 to 110 MHz was then made using a reduced resolution bandwidth and frequency span. The biconilog 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.

A thorough scan of all frequencies was made manually using a small frequency span, rotating the turntable as needed. The test engineer maximized the readings with respect to the table rotation, antenna height, and configuration of EUT. Maximizing of the EUT was achieved by monitoring the spectrum analyzer on a closed circuit television monitor.

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:	Innotek, Inc.
Power Supply Part Number:	0400036-1
AC Line Filter Manufacturer:	N/A
AC Line Filter Part Number:	N/A

I/O PORTS	
Type	#

CRYSTAL OSCILLATORS	
Type	Freq In MHz
uP Clock, ceramic resonator.	4

PRINTED CIRCUIT BOARDS				
Function	Model & Rev	Clocks, MHz	Layers	Location
Transmitter	A0237 Rev B	4.0	2	

PHOTOGRAPH SHOWING MAINS CONDUCTED EMISSIONS



Mains Conducted Emissions - Front View

PHOTOGRAPH SHOWING MAINS CONDUCTED EMISSIONS



Mains Conducted Emissions - Side View

PHOTOGRAPH SHOWING RADIATED EMISSIONS



Radiated Emissions - Front View

PHOTOGRAPH SHOWING RADIATED EMISSIONS



Radiated Emissions - Back View

PHOTOGRAPH SHOWING RADIATED EMISSIONS



Radiated Emissions - Front View with Magnetic Loop Antenna

APPENDIX B

TEST EQUIPMENT LIST

Conducted Emissions

Function	S/N	Calibration Date	Cal Due Date	Asset #
HP 8566B SA	2209A01404	02/26/2003	02/26/2004	490
HP 8566B SA Display	2403A08241	02/26/2003	02/26/2004	489
HP 85650A QPA	2811A01267	02/26/2003	02/26/2004	478
LISN Model 8028-50-TS-24-BNC	992 & 996	06/05/2002	06/05/2003	2055

Radiated Emissions

Function	S/N	Calibration Date	Cal Due Date	Asset #
HP 8566B SA	2209A01404	02/26/2003	02/26/2004	490
HP 8566B SA Display	2403A08241	02/26/2003	02/26/2004	489
HP 85650A QPA	2811A01267	02/26/2003	02/26/2004	478
EMCO 6502 Mag Loop Antenna	2078	08/23/2002	08/23/2003	432
Chase CBL6111C Bilog	2456	12/13/2002	12/13/2004	1991
HP 8447D Preamp	1937A02604	03/07/2003	03/07/2004	99

APPENDIX C:
MEASUREMENT DATA SHEETS

Test Location: CKC Laboratories •5473A Clouds Rest • Mariposa, Ca 95338 • (209) 966-5240

Customer: **Innotek Pet Products**
 Specification: **FCC 15.207 - AVE**
 Work Order #: **80337** Date: 4/2/03
 Test Type: **Conducted Emissions** Time: 17:14:14
 Equipment: **Pet Containment Transmitter** Sequence#: 5
 Manufacturer: Innotek Pet Products Tested By: Mike Wilkinson
 Model: M023706 120V 60Hz
 S/N: 02378

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
Pet Containment Transmitter*	Innotek Pet Products	M023706	02378
AC-AC Adapter 120V	Innotek	KA12A120020023U	None

Support Devices:

Function	Manufacturer	Model #	S/N
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Test Conditions / Notes:

EUT is turned on and transmitting continuously with the Field Width adjustment at maximum and internal jumpers to large (maximum), Dual Freq and Hi. A 14 foot 14 gauge solid copper wire antenna was connected to the EUT. The antenna was arranged in a circle. The temperature was 70°F and the humidity was 45%. AC input to AC-AC Adapter was 120 V/60 Hz. Frequency range investigated was 150 kHz to 30 MHz.

Transducer Legend:

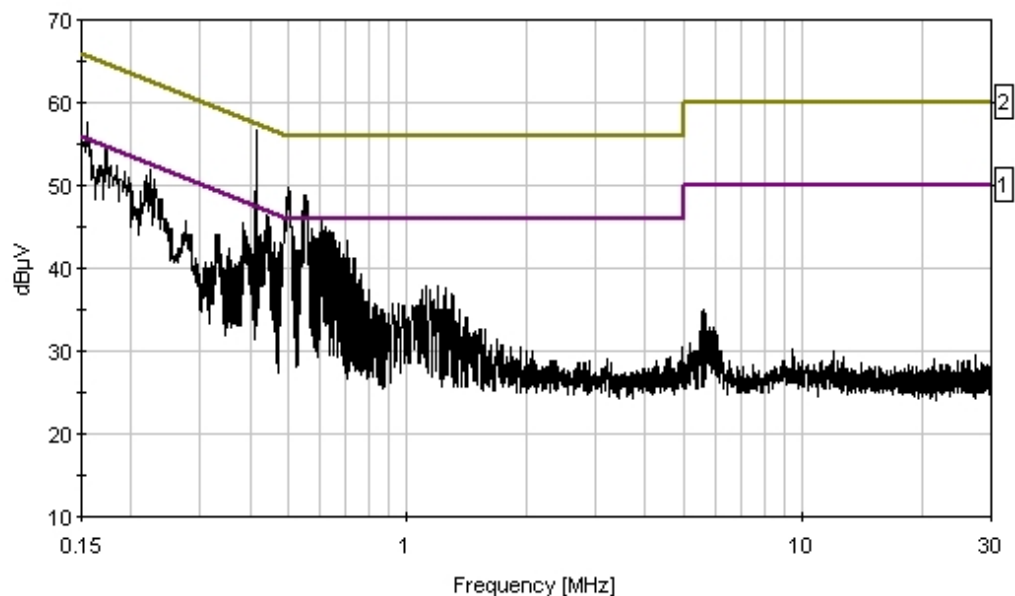
T1=Cable & Cap (Bench)	T2=LISN Insertion Loss s/n474
------------------------	-------------------------------

Measurement Data: Reading listed by margin. Test Lead: Black

#	Freq MHz	Rdng dB μ V	T1 dB	T2 dB	Dist dB	Corr dB	Spec dB μ V	Margin dB	Polar Ant
1	549.200k	41.0	+0.1	+0.1	+0.0	41.2	46.0	-4.8	Black
	Ave								
^	549.233k	48.6	+0.1	+0.1	+0.0	48.8	46.0	+2.8	Black
3	501.200k	40.9	+0.1	+0.0	+0.0	41.0	46.0	-5.0	Black
	Ave								
^	501.238k	49.6	+0.1	+0.0	+0.0	49.7	46.0	+3.7	Black
5	441.600k	40.0	+0.1	+0.0	+0.0	40.1	47.0	-6.9	Black
	Ave								
^	441.607k	46.4	+0.1	+0.0	+0.0	46.5	47.0	-0.5	Black
^	445.970k	46.1	+0.1	+0.0	+0.0	46.2	46.9	-0.7	Black
8	172.500k	41.3	+0.0	+0.0	+0.0	41.3	54.8	-13.5	Black
	Ave								
^	172.543k	54.4	+0.0	+0.0	+0.0	54.4	54.8	-0.4	Black

10	155.100k Ave	41.0	+0.1	+0.0	+0.0	41.1	55.7	-14.6	Black
^	155.090k	57.4	+0.1	+0.0	+0.0	57.5	55.7	+1.8	Black
12	224.200k Ave	37.7	+0.0	+0.0	+0.0	37.7	52.7	-15.0	Black
^	224.174k	52.0	+0.0	+0.0	+0.0	52.0	52.7	-0.7	Black
14	611.000k Ave	29.6	+0.1	+0.1	+0.0	29.8	46.0	-16.2	Black
^	611.045k	45.8	+0.1	+0.1	+0.0	46.0	46.0	+0.0	Black
16	414.000k Ave	28.7	+0.1	+0.0	+0.0	28.8	47.6	-18.8	Black
^	413.974k	56.6	+0.1	+0.0	+0.0	56.7	47.6	+9.1	Black

CKC Laboratories Date: 4/2/03 Time: 17:14:14 Innotek Pet Products WO#: 80337
FCC 15.207 - AVE Test Lead: Black 120V 60Hz Sequence#: 5



— 1 - FCC 15.207 - AVE — 2 - FCC 15.207 - QP

Test Location: CKC Laboratories •5473A Clouds Rest • Mariposa, Ca 95338 • (209) 966-5240

Customer: **Innotek Pet Products**
 Specification: **FCC 15.207 - AVE**
 Work Order #: **80337** Date: 4/2/03
 Test Type: **Conducted Emissions** Time: 17:30:26
 Equipment: **Pet Containment Transmitter** Sequence#: 5
 Manufacturer: Innotek Pet Products Tested By: Mike Wilkinson
 Model: M023706 120V 60Hz
 S/N: 02378

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
Pet Containment Transmitter*	Innotek Pet Products	M023706	02378
AC-AC Adapter 120V	Innotek	KA12A120020023U	None

Support Devices:

Function	Manufacturer	Model #	S/N
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Test Conditions / Notes:

EUT is turned on and transmitting continuously with the Field Width adjustment at maximum and internal jumpers to large (maximum), Dual Freq and Hi. A 14 foot 14 gauge solid copper wire antenna was connected to the EUT. The antenna was arranged in a circle. The temperature was 70°F and the humidity was 45%. AC input to AC-AC Adapter was 120 V/60 Hz. Frequency range investigated was 150 kHz to 30 MHz.

Transducer Legend:

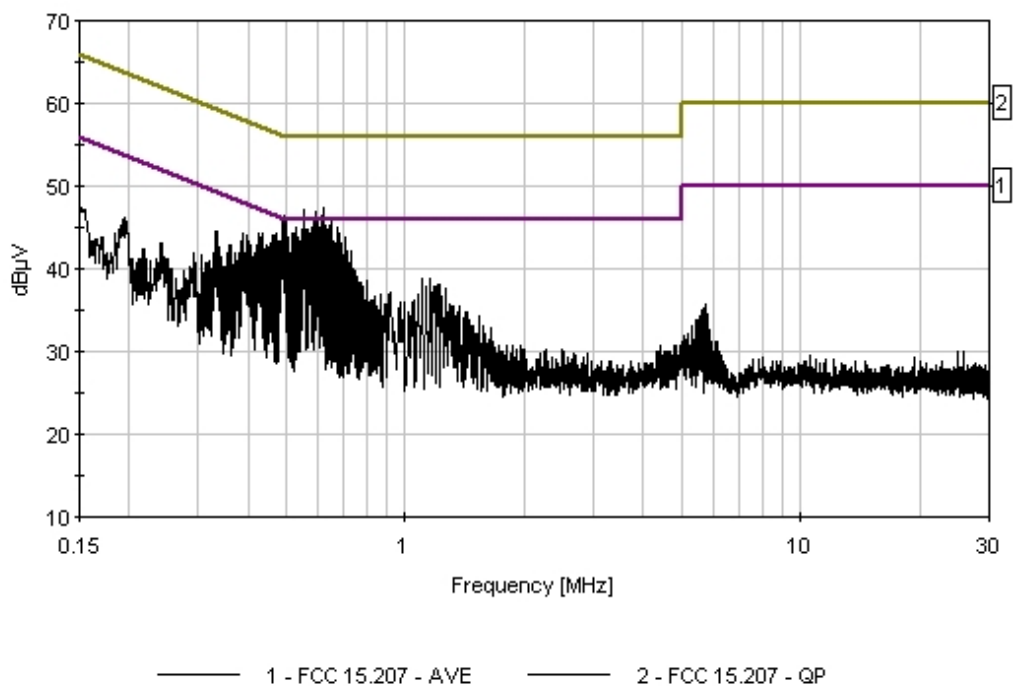
T1=Cable & Cap (Bench)	T2=LISN Insertion Loss s/n493
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Measurement Data: Reading listed by margin. Test Lead: White

#	Freq MHz	Rdng dB μ V	T1 dB	T2 dB	Dist Table dB	Corr dB μ V	Spec dB μ V	Margin dB	Polar Ant
1	488.100k	36.1	+0.1	+0.2	+0.0	36.4	46.2	-9.8	White
	Ave								
^	491.800k	46.2	+0.1	+0.2	+0.0	46.5	46.1	+0.4	White
^	488.100k	45.5	+0.1	+0.2	+0.0	45.8	46.2	-0.4	White
4	491.800k	34.8	+0.1	+0.2	+0.0	35.1	46.1	-11.0	White
	Ave								
5	594.300k	32.6	+0.1	+0.2	+0.0	32.9	46.0	-13.1	White
	Ave								
^	594.319k	46.7	+0.1	+0.2	+0.0	47.0	46.0	+1.0	White
7	555.800k	31.6	+0.1	+0.2	+0.0	31.9	46.0	-14.1	White
	Ave								
^	555.778k	46.9	+0.1	+0.2	+0.0	47.2	46.0	+1.2	White
9	502.000k	28.9	+0.1	+0.2	+0.0	29.2	46.0	-16.8	White
	Ave								
^	501.965k	45.3	+0.1	+0.2	+0.0	45.6	46.0	-0.4	White

11	622.000k Ave	28.9	+0.1	+0.2	+0.0	29.2	46.0	-16.8	White
^	621.953k	47.2	+0.1	+0.2	+0.0	47.5	46.0	+1.5	White
13	649.600k Ave	27.6	+0.1	+0.2	+0.0	27.9	46.0	-18.1	White
^	649.586k	45.7	+0.1	+0.2	+0.0	46.0	46.0	+0.0	White

CKC Laboratories Date: 4/2/03 Time: 17:30:26 Innotek Pet Products WO#: 80337
 FCC 15.207 - AVE Test Lead: White 120V 60Hz Sequence#: 5



Test Location: CKC Laboratories •5473A Clouds Rest • Mariposa, Ca 95338 • (209) 966-5240

Customer: **Innotek Pet Products**
 Specification: **FCC 15.209**
 Work Order #: **80337** Date: 4/2/03
 Test Type: **Radiated Scan** Time: 10:45:23
 Equipment: **Pet Containment Transmitter** Sequence#: 1
 Manufacturer: Innotek Pet Products Tested By: Mike Wilkinson
 Model: M023700
 S/N: 02378

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
Pet Containment Transmitter*	Innotek Pet Products	M023700	02378
AC-AC Adapter 120V	Innotek	KA12A120020023U	None

Support Devices:

Function	Manufacturer	Model #	S/N
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Test Conditions / Notes:

EUT is turned on and transmitting continuously with the Field Width adjustment at maximum and internal jumpers to large (maximum), Dual Freq and Hi. A 200 foot 14 gauge 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 70°F and the humidity was 45%. AC input to AC-AC Adapter was 120V/60 Hz. -10.8 dB correction factor used on the Transmitter. Fundamental reading was derived from the measured 28.8% duty cycle over 100 msec. pulsed operation ($20\log 0.288 = -10.8 \text{ dB}$). Using the formula $(ED)^2 / (30G)$ and $G = 1$, the output power of the fundamental corrected average reading is 0.00270 Watt.

Transducer Legend:

T1=Cable - 10 Meter	T2=Mag Loop A/N 00432, S/N 2078
T3=15.31 3m 40dB/Dec Correction	T4=10.8 dB Pulsed Correction Factor

Measurement Data: Reading listed by margin. Test Distance: 3 Meters

#	Freq MHz	Rdng dBμV	T1 dB	T2 dB	T3 dB	T4 dB	Dist Table	Corr dBμV/m	Spec dBμV/m	Margin dB	Polar Ant
1	13.130k	109.1	+0.1	+17.5	-80.0	-10.8	+0.0	35.9	45.2	-9.3	Vert
Ave											
^	13.150k	109.1	+0.1	+17.5	-80.0		+0.0	-33.3	65.2	-98.5	Vert

Test Location: CKC Laboratories •5473A Clouds Rest • Mariposa, Ca 95338 • (209) 966-5240

Customer: **Innotek Pet Products**
 Specification: **FCC 15.209**
 Work Order #: **80337** Date: 4/2/03
 Test Type: **Maximized Emissions** Time: 15:05:40
 Equipment: **Pet Containment Transmitter** Sequence#: 2
 Manufacturer: Innotek Pet Products Tested By: Mike Wilkinson
 Model: M023706
 S/N: 02378

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
Pet Containment Transmitter*	Innotek Pet Products	M023706	02378
AC-AC Adapter 120V	Innotek	KA12A120020023U	None

Support Devices:

Function	Manufacturer	Model #	S/N
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Test Conditions / Notes:

EUT is turned on and transmitting continuously with the Field Width adjustment at maximum and internal jumpers to large (maximum), Dual Freq and Hi. A 200 foot 14 gauge 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 70°F and the humidity was 45%. AC input to AC-AC Adapter was 120V/60 Hz. Frequency range investigated was 9 kHz to 30 MHz.

Transducer Legend:

T1=Cable - 10 Meter	T2=Mag Loop A/N 00432, S/N 2078
T3=15.31 3m 40dB/Dec Correction	

Measurement Data: Reading listed by margin. Test Distance: 3 Meters

#	Freq MHz	Rdng dBμV	T1 dB	T2 dB	T3 dB	Dist Table dB	Corr dBμV/m	Spec dBμV/m	Margin dB	Polar Ant
1	26.360k	99.6	+0.0	+13.3	-80.0	+0.0	32.9	39.2	-6.3	None
2	25.040k	99.3	+0.0	+13.5	-80.0	+0.0	32.8	39.6	-6.8	None
3	41.000k	96.0	+0.0	+11.9	-80.0	+0.0	27.9	35.3	-7.4	None
4	65.925k	93.4	+0.0	+10.4	-80.0	+0.0	23.8	31.2	-7.4	None
5	66.140k	93.3	+0.0	+10.4	-80.0	+0.0	23.7	31.2	-7.5	None
6	52.770k	94.3	+0.0	+11.0	-80.0	+0.0	25.3	33.1	-7.8	None
7	79.290k	89.9	+0.0	+10.4	-80.0	+0.0	20.3	29.6	-9.3	None
8	16.760k	97.2	+0.0	+15.8	-80.0	+0.0	33.0	43.1	-10.1	None
9	92.370k	87.9	+0.0	+10.2	-80.0	+0.0	18.1	28.3	-10.2	None

10	105.620k	85.5	+0.0	+10.1	-80.0	+0.0	15.6	27.1	-11.5	None
11	1.666M	41.0	+0.2	+10.0	-40.0	+0.0	11.2	23.1	-11.9	None
12	73.730k	87.2	+0.0	+10.3	-80.0	+0.0	17.5	30.2	-12.7	None
13	39.535k	100.3	+0.0	+12.0	-80.0	+0.0	21.5	35.7	-14.2	None
	Ave									
14	118.990k	81.1	+0.0	+9.8	-80.0	+0.0	10.9	26.1	-15.2	None

Test Location: CKC Laboratories • 5473A Clouds Rest • Mariposa, Ca 95338 • (209) 966-5240

Customer: **Innotek Pet Products**
 Specification: **FCC 15.209**
 Work Order #: **80337** Date: 4/2/03
 Test Type: **Maximized Emissions** Time: 16:27:11
 Equipment: **Pet Containment Transmitter** Sequence#: 4
 Manufacturer: Innotek Pet Products Tested By: Mike Wilkinson
 Model: M023706
 S/N: 02378

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
Pet Containment Transmitter*	Innotek Pet Products	M023706	02378
AC-AC Adapter 120V	Innotek	KA12A120020023U	None

Support Devices:

Function	Manufacturer	Model #	S/N
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Test Conditions / Notes:

EUT is turned on and transmitting continuously with the Field Width adjustment at maximum and internal jumpers to large (maximum), Dual Freq and Hi. A 14 foot 14 gauge solid copper wire antenna was connected to the EUT. The antenna was arranged in a circle. The temperature was 70°F and the humidity was 45%. AC input to AC-AC Adapter was 120 V/60 Hz. Frequency range investigated was 30 MHz to 1.0 GHz. **No signal from EUT detected. All readings are noise floor.**

Transducer Legend:

T1=Cable - 10 Meter	T2=Amp - S/N 604
T3=Bilog B	

Measurement Data: Reading listed by margin. Test Distance: 3 Meters

#	Freq MHz	Rdng dBµV	T1 dB	T2 dB	T3 dB	Dist Table dB	Corr dBµV/m	Spec dBµV/m	Margin dB	Polar Ant
1	34.520M	37.4	+0.8	-27.3	+16.3	+0.0	27.2	40.0	-12.8	Vert
2	129.600M	34.7	+1.7	-27.2	+11.6	+0.0	20.8	43.5	-22.7	Vert
3	83.010M	34.8	+1.5	-27.1	+7.5	+0.0	16.7	40.0	-23.3	Horiz
4	68.280M	36.3	+1.3	-27.2	+5.9	+0.0	16.3	40.0	-23.7	Vert
5	477.800M	26.0	+4.3	-27.7	+18.3	+0.0	20.9	46.0	-25.1	Vert
6	278.900M	28.1	+2.8	-26.5	+12.9	+0.0	17.3	46.0	-28.7	Vert
7	228.000M	27.8	+2.5	-26.5	+11.3	+0.0	15.1	46.0	-30.9	Vert