CKC LABORATORIES, INC. Testing the Future

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EMC/SAFETY

ADDENDUM TO FC02-030

FOR THE

M024100 TRANSMITTER

FCC PART 15 SUBPART C SECTIONS 15.207, 15.209 AND RSS 210

COMPLIANCE

DATE OF ISSUE: MARCH 27, 2002

PREPARED FOR:

Invisible Fence Company, Inc.
355 Phoenixville Pike, Rd #6
Malvern, PA 19355

P.O. No.: 57897
W.O. No.: 78516

PREPARED BY:

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

Date of test: March 12-13, 2002

Report No.: FC02-030A

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ADMINISTRATIVE INFORMATION

DATE OF TEST:	March 12-13, 2002
DATE OF RECEIPT:	March 12, 2002
PURPOSE OF TEST:	To demonstrate the compliance of the M024100 Transmitter with the requirements for FCC Part 15 Subpart C Sections 15.207, 15.209 and RSS 210 devices. The purpose of this addendum is to add revised data sheets for fundamental, voltage variations and 15.209 and add an explanation of testing conditions for 15.207.
TEST METHOD:	ANSI C63.4 (1992) and RSS 210
MANUFACTURER:	Innotek Pet Products 1000 Fuller Drive Garrett, IN 46738
REPRESENTATIVE:	Pete Johnson
TEST LOCATION:	CKC Laboratories, Inc. 22105 Wilson River Hwy Tillamook, OR 97141

SUMMARY OF RESULTS

As received, the Invisible Fence Company, Inc. M024100 Transmitter was found to be fully compliant with the following standards and specifications:

United States

- FCC Part 15 Subpart C Sections 15.207 and 15.209
- ANSI C63.4 (1992) method

Canada

RSS-210 using:

- FCC Part 15 Subpart C Sections 15.207 and 15.209
- ANSI C63.4 (1992) method

Industry of Canada File No. IC 3173-A

CONDITIONS FOR COMPLIANCE

No modifications to the EUT were necessary to comply.

APPROVALS

QUALITY ASSURANCE:

Steve Behm, Manager of Engineering Services

Joyce Walker, Quality Assurance Administrative Manager

TEST PERSONNEL:

Mike Wilkinson, Test Engineer

EQUIPMENT UNDER TEST (EUT) DESCRIPTION
The EUT tested by CKC Laboratories was representative of a production unit.
The product is an invisible fence pet containment system.

The EUT was tested for Innotek Pet Products. Innotek Pet Products has now merged with Invisible Fence Company, Inc.

The following model has been tested by CKC Laboratories:

M024101

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.

M024100

Eut Operating Frequency
The EUT operates at 8.192 kHz, 10.7 kHz and 8.192/13.2 kHz but during testing was operating only at 10.7 kHz.

15.31(m) Number Of Channels
This device operates on three channels: 8.192 kHz, 10.7 kHz and 8.192/13.2 kHz (Dual Band).

15.33(a) Frequency Ranges Tested
15.207 Conducted Emissions: 450 kHz – 30 MHz
15.209 Radiated Emissions: 9 kHz – 1000 MHz

15.203/6.2.2(o)(e)(2) Antenna Requirements
The antenna is a coil loop antenna with unique connector; therefore the EUT complies with Section 15.203 of the FCC rules.

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.

EQUIPMENT UNDER TEST

Transmitter

Manuf:	Innotek Pet Products
Model:	M024100
Serial:	0045M0241011002B
FCC ID:	KZ3050241

Lightning Protector

Manuf:	Innotek Pet Products
Model:	LP-2000
Serial:	None
FCC ID:	DoC

AC Adapter

Manuf:	KTC
Model:	KA12A240040044U
Serial:	NA
FCC ID:	DoC

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 M024100 Transmitter. 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: 15.209/6.2.1 Fundamental

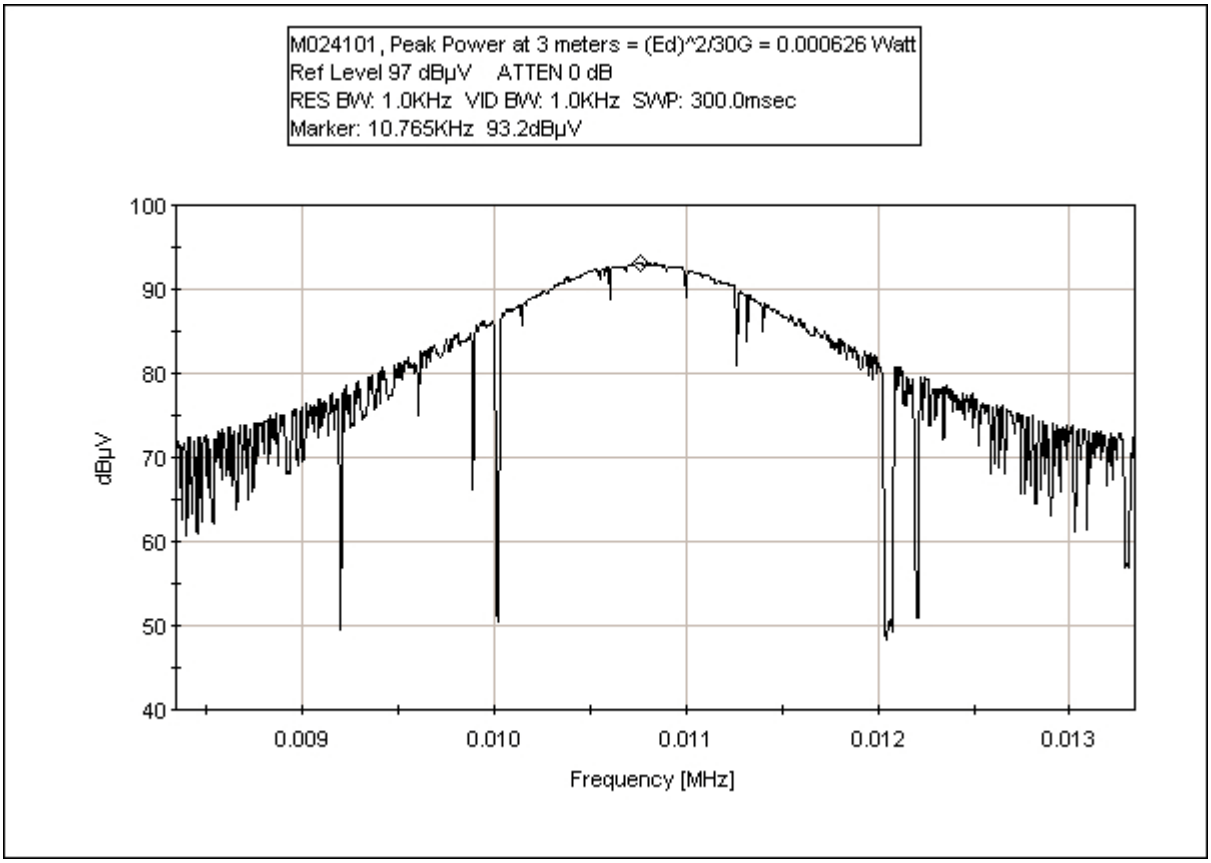
FREQUENCY kHz	METER READING dBµV	CORRECTION FACTORS Ant dB	Amp dB	Cable dB	Corr dB	CORRECTED READING dBµV/m	SPEC LIMIT dBµV/m	MARGIN DB	NOTES
10.760	93.2	13.2	0.0	0.3	-80.0	26.7	46.9	-20.2	N

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

NOTES: N = No Polarization

COMMENTS: The EUT was plugged into the power port of the lightning protector and connected to the lightning protector transmitter ports with two 1-meter lengths of 14 gauge solid copper wire. A 200-foot length of 14 gauge solid copper wire was connected to the loop ports of the lightning protector and arranged in a circle on the ground. EUT was turned on and transmitting continuously with the Battery Backup Monitor off, STIM Level at High, Field Width adjustment at maximum and Field Size set to large (maximum). Backup batteries installed. The Lighting Protector was plugged into 120 VAC/60 Hz. 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 65°F and the humidity was 40%. Frequency range investigated was 9 kHz to 30 MHz. Using the formula (ED)^2 / (30G) and G = 1, the peak output power of the fundamental corrected reading is 0.014032 Watt.

15.209/6.2.1 PEAK OUTPUT POWER 120V AC



Using the formula (ED)^2 / (30G) and G = 1, the peak output power of the fundamental corrected reading is 0.014032 Watt.

15.209/6.2.1 PEAK OUTPUT POWER BATTERY

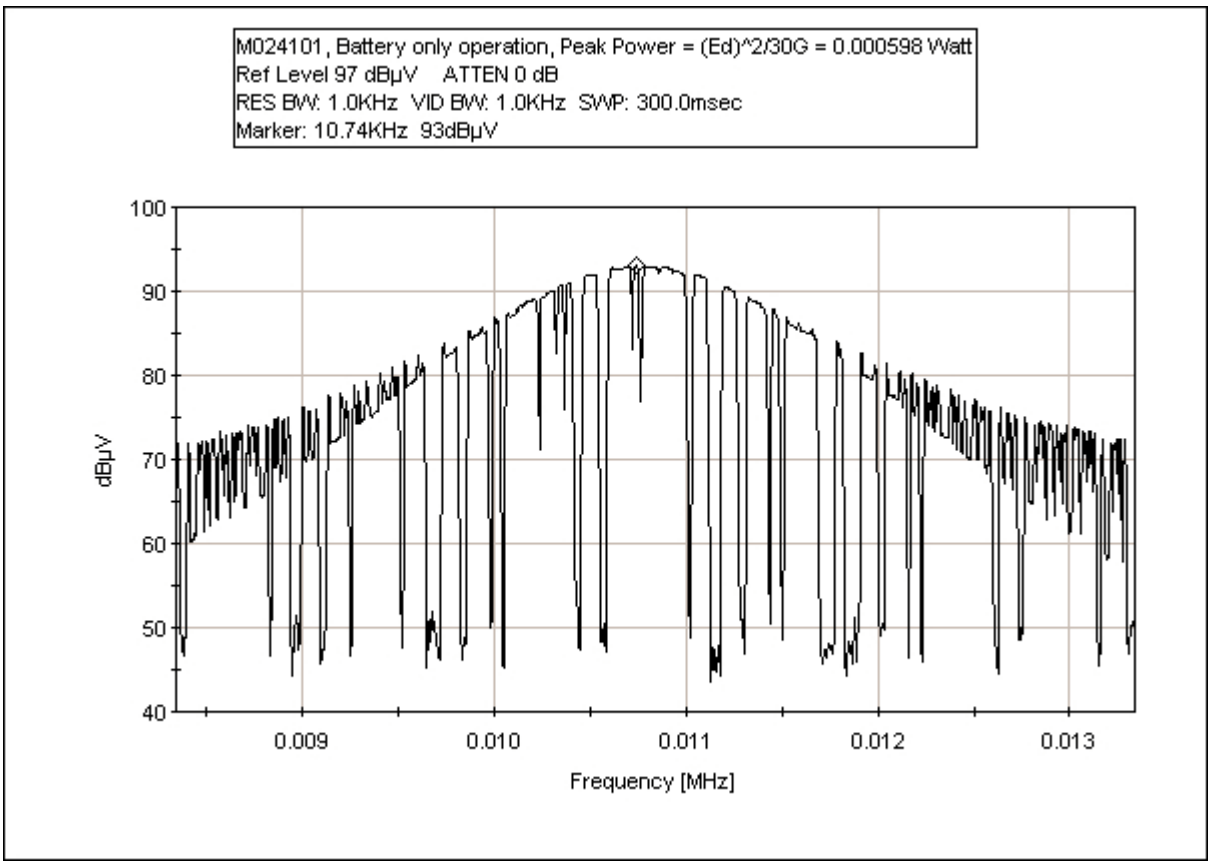


Table 2: 15.31(e) Voltage Variations				
FREQUENCY kHz	**CORRECTED READING dBµV/m**	**85%**	**115%**	**SPEC LIMIT dBµV/m**
10.750	26.7			47.0
10.725		27.0		47.0
10.690			3.7	47.0

Table 3: 15.207/6.6 Six Highest Conducted Emission Levels									
	METER	CORRECTION FACTORS				CORRECTED	SPEC		
FREQUENCY MHz	READING dBµV	Lisn dB	Corr dB	Cable dB	dB	READING dBµV	LIMIT dBµV	MARGIN dB	NOTES
0.450000	40.5	9.8	-80.0	0.2		40.8	48.0	-7.2	W
0.613817	51.2	9.9	-80.0	0.1		38.4	48.0	-9.6	BQ
0.640562	52.2	10.0	-80.0	0.1		39.4	48.0	-8.6	BQ
0.662293	49.7	10.1	-80.0	0.1		36.9	48.0	-11.1	BQ
1.150000	50.0	10.1	-80.0	0.2		37.3	48.0	-10.7	BQ
4.336000	49.7	10.1	-80.0	0.7		37.5	48.0	-10.5	WQ

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

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

COMMENTS: The EUT was plugged into the power port of the lightning protector and connected to the lightning protector transmitter ports with two 1-meter lengths of 14 gauge solid copper wire. 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. EUT was turned on and transmitting continuously with the Battery Backup Monitor off, STIM Level at High, Field Width adjustment at maximum and Field Size set to large (maximum). Backup batteries installed. The Lighting Protector was plugged into 120 VAC/60 Hz. The temperature was 65°F and the humidity was 40%. Frequency range investigated was 450 kHz to 30 MHz. All signals in this data sheet meet the Broadband requirement in FCC 15.207 (b) and the 13 dB correction has been applied to all QP readings.

During the AC conducted emissions testing to 15.207, the level of the emission measured using a quasi-peak instrumentation is 6 dB, or more, higher than the level of the same emission measured with instrumentation having an average detector and a 9 kHz minimum bandwidth. Therefore in accordance with section 15.207(b), the broadband level obtained with the quasi-peak detector was reduced by 13dB.

Table 4: 15.209/6.2.1 Six Highest Radiated Emission Levels - 9 kHz - 30 MHz									
	METER	CORRECTION FACTORS				CORRECTED	SPEC		
FREQUENCY	READING	Ant		Cable		READING	LIMIT	MARGIN	NOTES
MHz	dBµV	dB	dB	dB	dB	dBµV/m	dBµV/m	DB	
0.367	70.7	-70.2		0.6		1.1	16.3	-15.2	N
0.562	60.0	-30.1		0.7		30.6	32.6	-2.0	NQ
0.691	56.5	-30.0		0.7		27.2	30.8	-3.6	NQ
1.125	45.1	-29.9		0.6		15.8	26.5	-10.7	N
2.648	46.3	-29.9		0.6		17.0	29.5	-12.5	N
3.686	41.4	-29.9		0.6		12.1	29.5	-17.4	N

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

NOTES: N = No Polarization
Q = Quasi Peak Reading

COMMENTS: The EUT was plugged into the power port of the lightning protector and connected to the lightning protector transmitter ports with two 1-meter lengths of 14 gauge solid copper wire. A 200-foot length of 14 gauge solid copper wire was connected to the loop ports of the lightning protector and arranged in a circle on the ground. EUT was turned on and transmitting continuously with the Battery Backup Monitor off, STIM Level at High, Field Width adjustment at maximum and Field Size set to large (maximum). Backup batteries installed. The Lighting Protector was plugged into 120 VAC/60 Hz. 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 65°F and the humidity was 40%. Frequency range investigated was 9 kHz to 30 MHz. Using the formula (ED)^2 / (30G) and G = 1, the peak output power of the fundamental corrected reading is 0.014032 Watt.

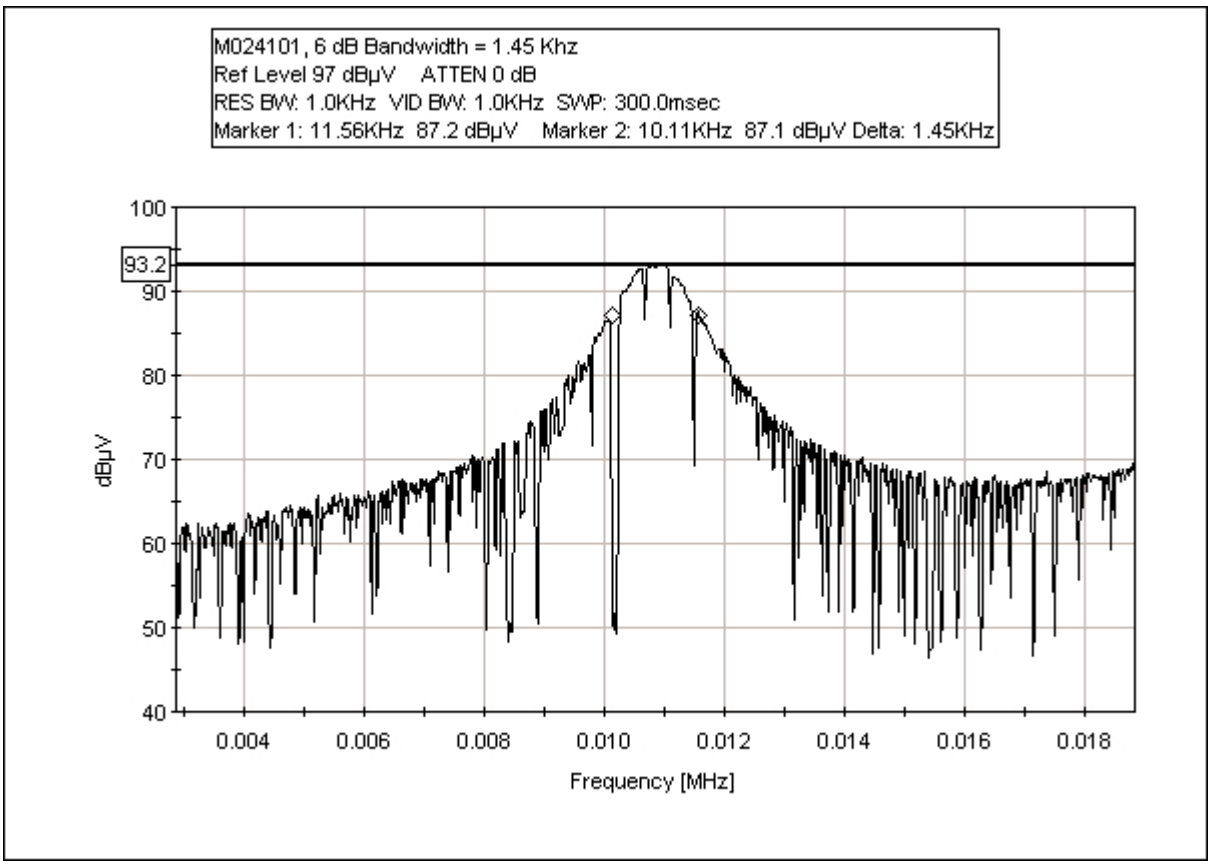
Table 5: 15.209/6.2.1 Six Highest Radiated Emission Levels - 30 MHz - 1000 MHz									
	METER	CORRECTION FACTORS				CORRECTED	SPEC		
FREQUENCY MHz	READING dBµV	Ant dB	Amp dB	dB	dB	READING dBµV/m	LIMIT dBµV/m	MARGIN DB	NOTES
31.980	32.0	17.7	-27.2			22.5	40.0	-17.5	V
32.027	30.1	17.7	-27.2			20.6	40.0	-19.4	H
44.430	27.5	11.7	-27.2			12.0	40.0	-28.0	V
48.027	31.4	9.1	-27.2			13.3	40.0	-26.7	H
158.070	37.0	10.7	-26.9			20.8	43.5	-22.7	V
224.288	34.9	10.6	-26.6			18.9	46.0	-27.1	V

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

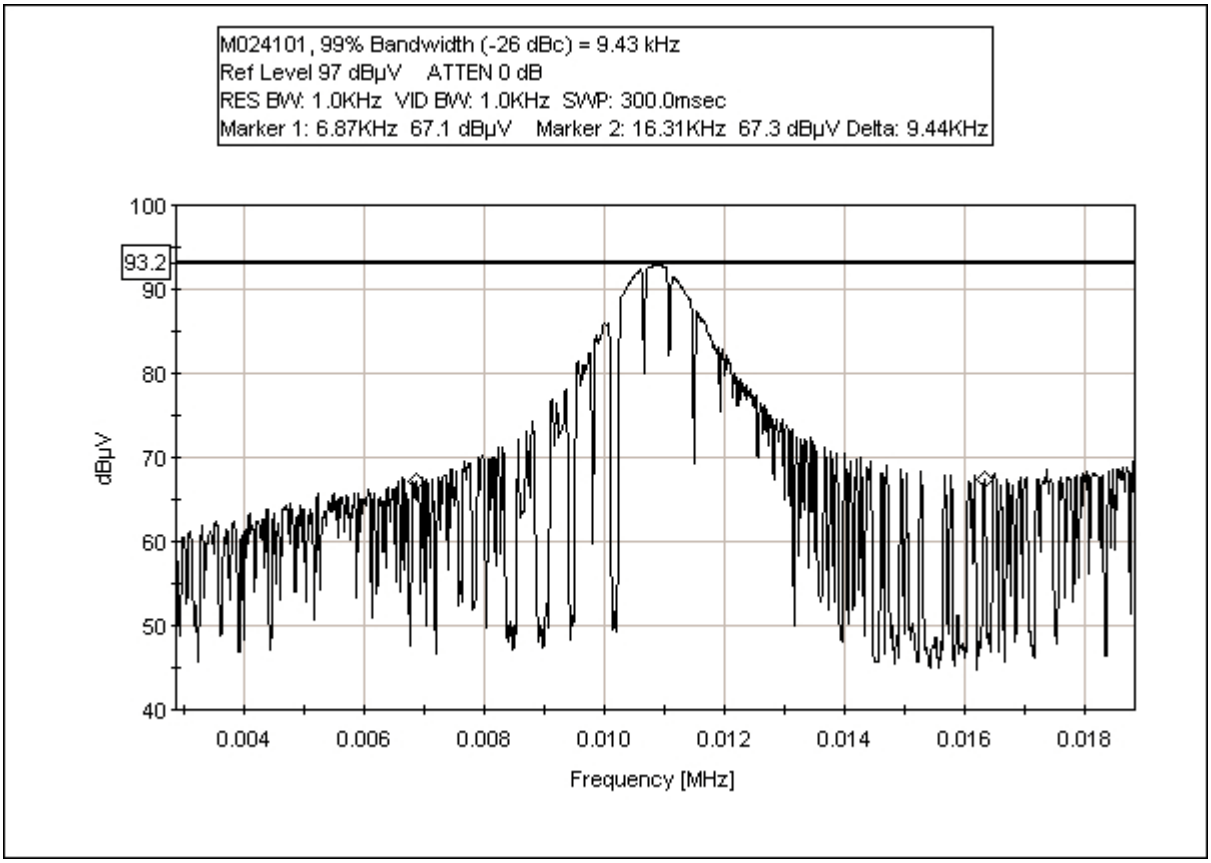
NOTES: H = Horizontal Polarization
V = Vertical Polarization

COMMENTS: The EUT was plugged into the power port of the lightning protector and connected to the lightning protector transmitter ports with two 1-meter lengths of 14 gauge solid copper wire. 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. EUT was turned on and transmitting continuously with the Battery Backup Monitor off, STIM Level at High, Field Width adjustment at maximum and Field Size set to large (maximum). Backup batteries installed. The Lighting Protector was plugged into 120 VAC/60 Hz. The temperature was 65°F and the humidity was 40%. Frequency range investigated was 30 to 1000 MHz. No signal from the EUT or Lightning Protector was detected. The readings on the data sheet are ambient readings at harmonics of the EUT's 4 MHz clock.

6 dB BANDWIDTH



RSS-210 99% BANDWIDTH



MEASUREMENT UNCERTAINTY

Measurement uncertainty associated with data in this report is a ± 2.94dB for radiated and ± 1.56dB for conducted emissions.

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 radiated and conducted emissions data of the M024100 Transmitter, 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 dBµV/m, the spectrum analyzer reading in dBµV 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	(dBµV)
+	Antenna Factor	(dB)
+	Cable Loss	(dB)
-	Distance Correction	(dB)
-	Preamplifier Gain	(dB)
=	Corrected Reading	(dBµV/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 the M024100 Transmitter. For radiated measurements from 9 kHz to 30 MHz, the magnetic loop antenna was used. For frequencies from 30 to 1000 MHz, the biconilog antenna was used. 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 dBµV, and a vertical scale of 10 dB per division.

FCC SECTION 15.35:
TABLE B: ANALYZER BANDWIDTH SETTINGS PER FREQUENCY RANGE

TEST	BEGINNING FREQUENCY	ENDING FREQUENCY	BANDWIDTH SETTING
CONDUCTED EMISSIONS	450 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

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 for the M024100 Transmitter.

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.

EUT 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.

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.

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. Photographs showing the final worst case configuration of the EUT are contained in Appendix A.

APPENDIX A

INFORMATION ABOUT THE EQUIPMENT UNDER TEST

INFORMATION ABOUT THE EQUIPMENT UNDER TEST	
Test Software/Firmware:	NA
CRT was displaying:	NA
Power Supply Manufacturer:	
Power Supply Part Number:	
AC Line Filter Manufacturer:	NA
AC Line Filter Part Number:	NA

I/O PORTS	
Type	#

CRYSTAL OSCILLATORS	
Type	Freq In MHz
uP Clock, ceramic resonator.	4
Crystal	0.64
LC oscillator	0.00658

PRINTED CIRCUIT BOARDS				
Function	Model & Rev	Clocks, MHz	Layers	Location
Transmitter	A24101 REV B	4.0	2	

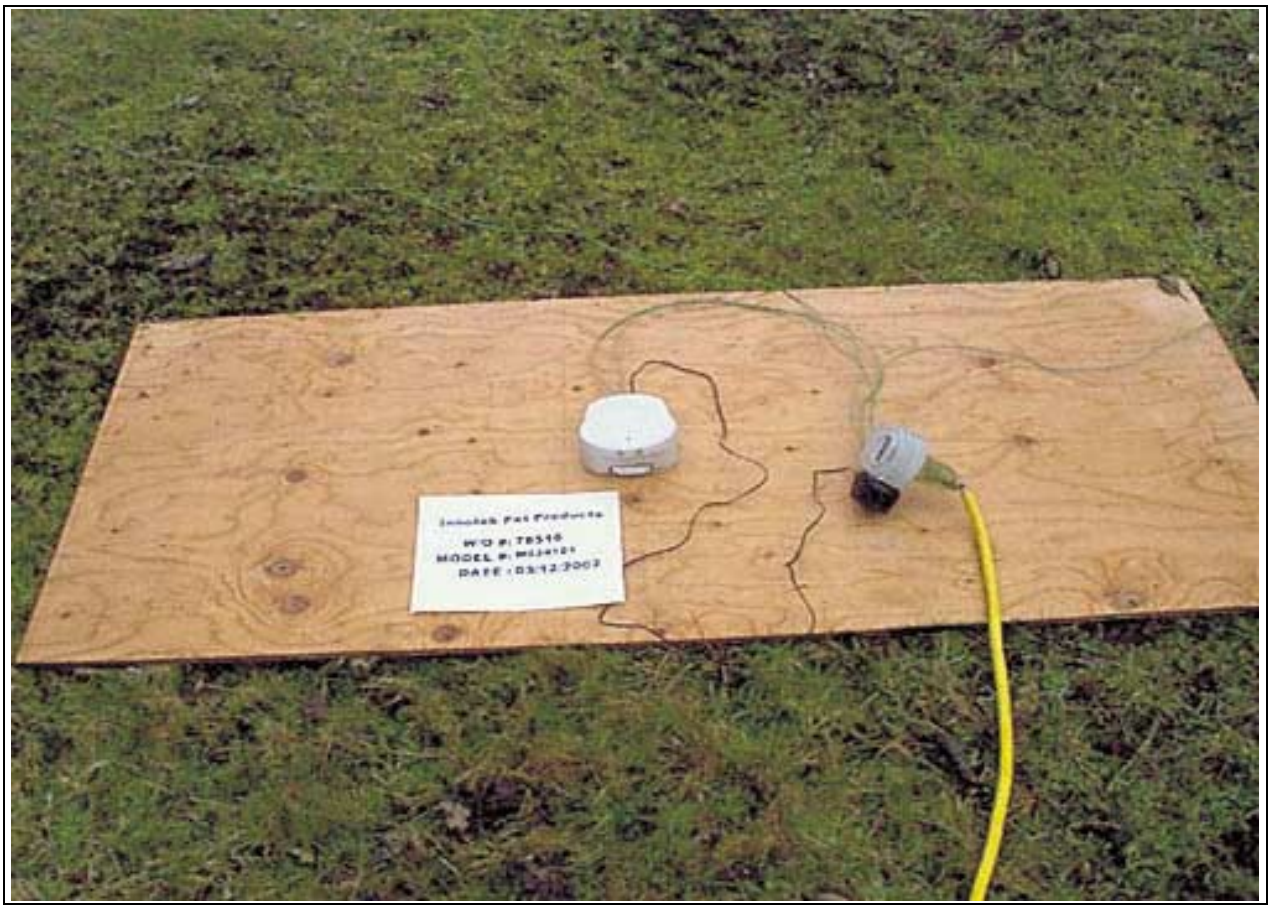
PHOTOGRAPH SHOWING MAINS CONDUCTED EMISSIONS

Mains Conducted Emissions - Front View

PHOTOGRAPH SHOWING MAINS CONDUCTED EMISSIONS

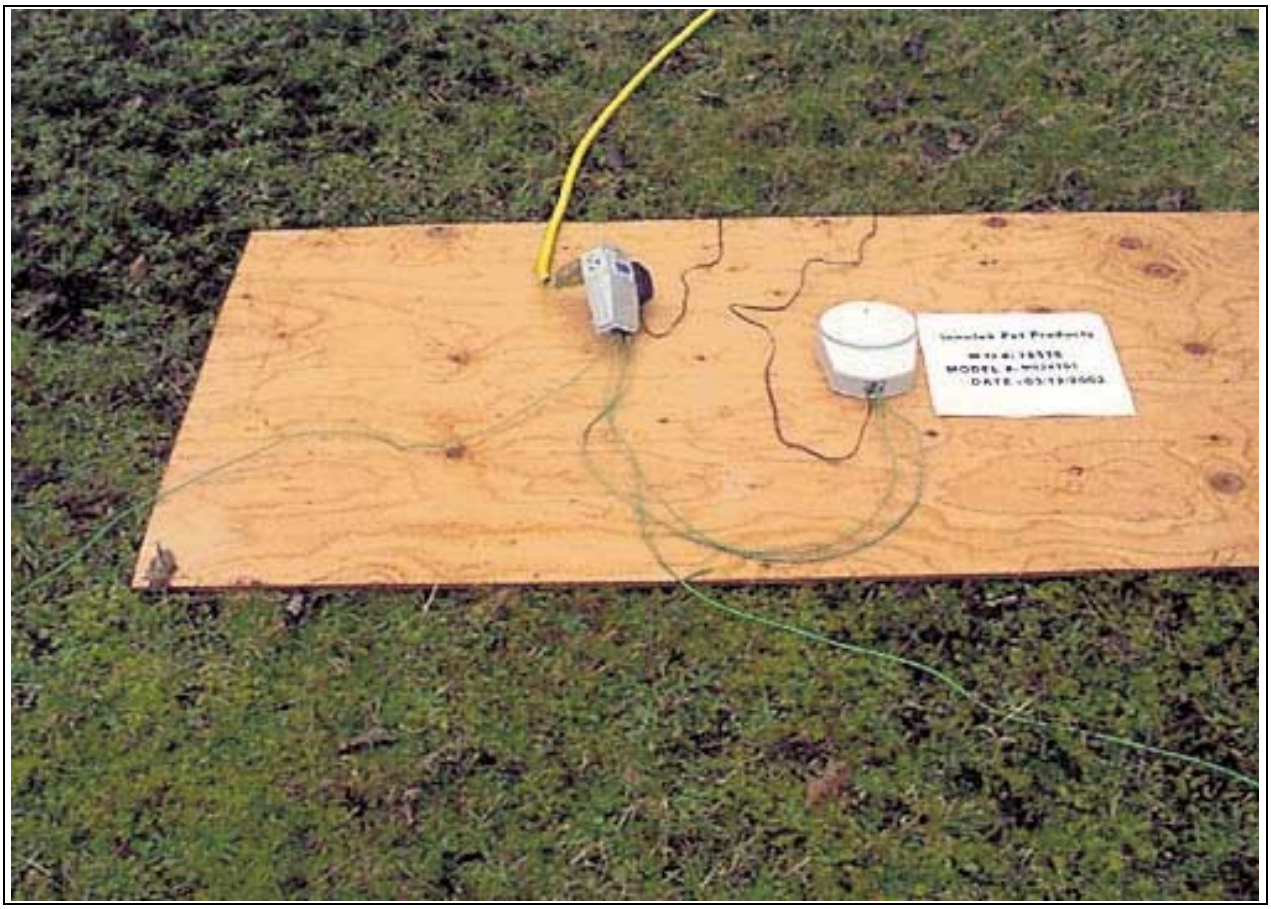
Mains Conducted Emissions - Side View

PHOTOGRAPH SHOWING RADIATED EMISSIONS



Radiated Emissions - Front View Below 30 MHz

PHOTOGRAPH SHOWING RADIATED EMISSIONS



Radiated Emissions - Back View Below 30 MHz

PHOTOGRAPH SHOWING RADIATED EMISSIONS

Radiated Emissions - Antenna Below 30 MHz

PHOTOGRAPH SHOWING RADIATED EMISSIONS

Radiated Emissions - Front View Above 30 MHz

PHOTOGRAPH SHOWING RADIATED EMISSIONS

Radiated Emissions - Back View Above 30 MHz

APPENDIX B

TEST EQUIPMENT LIST

Voltage Variations

Function	S/N	Calibration Date	Cal Due Date	Asset #
HP 8574A EMI Receiver	3010A01076	07/12/2001	07/12/2002	42
EMCO 6502 Mag Loop Antenna	2156	01/09/2002	01/09/2003	52

Conducted Emissions

Function	S/N	Calibration Date	Cal Due Date	Asset #
HP 8574A EMI Receiver	3010A01076	07/12/2001	07/12/2002	42
Fischer LISN	none	11/15/2001	11/15/2002	12
Fischer LISN	none	11/15/2001	11/15/2002	11

Radiated Emissions < 30 MHz

Function	S/N	Calibration Date	Cal Due Date	Asset #
HP 8574A EMI Receiver	3010A01076	07/12/2001	07/12/2002	42
EMCO 6502 Mag Loop Antenna	2156	01/09/2002	01/09/2003	52

Radiated Emissions > 30 MHz

Function	S/N	Calibration Date	Cal Due Date	Asset #
HP 8574A EMI Receiver	3010A01076	07/12/2001	07/12/2002	42
Chase CBL6111C Bilog Antenna	2455	01/31/2002	01/31/2003	1992
HP 8447D Amplifier	2727A05392	08/17/2001	08/17/2002	10

APPENDIX C

MEASUREMENT DATA SHEETS

Test Location: CKC Laboratories, Inc. •22105 Wilson River Hwy • Tillamook, Or 97141 • 503 842-5577

Customer: **Innotek Pet Products**
Specification: **FCC 15.209**
Work Order #: **78516** Date: 3/12/02
Test Type: **Maximized Emissions** Time: 11:25:02
Equipment: **Pet Containment Transmitter** Sequence#: 2
Manufacturer: Innotek Pet Products Tested By: Mike Wilkinson
Model: M024101
S/N: 0045M0241011002B

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

Function	Manufacturer	Model #	S/N
Pet Containment Transmitter*	Innotek Pet Products	M024101	0045M0241011002B
Lightning Protector	Innotek Pet Products	LP-2000	None
AC Adapter	KTC	KA12A240040044U	None

Support Devices:

Function	Manufacturer	Model #	S/N

Test Conditions / Notes:

The EUT was plugged into the power port of the lightning protector and connected to the lightning protector transmitter ports with two 1-meter lengths of 14 gauge solid copper wire. A 200-foot length of 14 gauge solid copper wire was connected to the loop ports of the lightning protector and arranged in a circle on the ground. EUT was turned on and transmitting continuously with the Battery Backup Monitor off, STIM Level at High, Field Width adjustment at maximum and Field Size set to large (maximum). Backup batteries installed. 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 65°F and the humidity was 40% Frequency range investigated was 9 kHz to 30 MHz AC power input was set to 102 VAC (85%), 120 VAC (nominal) and 138 VAC (115%) for each channel as indicated for each reading in the datasheet.

Transducer Legend:

T1=Mag-Loop T2=Cable 120-ft coax
T3=FCC 15.31 40dB/Dec Correction

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

#	Freq Hz	Rdng dBµV	T1 dB	T2 dB	T3 dB	dB	Dist Table	Corr dBµV/m	Spec dBµV/m	Margin dB	Polar Ant
1	10.725k	93.5	+13.2	+0.3	-80.0		+0.0	27.0	47.0	-20.0	None
									85% AC input		
2	10.750k	93.2	+13.2	+0.3	-80.0		+0.0	26.7	47.0	-20.3	None
									Nominal AC input		
3	10.690k	70.2	+13.2	+0.3	-80.0		+0.0	3.7	47.0	-43.3	None
									115% AC input		

Test Location: CKC Laboratories, Inc. •22105 Wilson River Hwy • Tillamook, Or 97141 • 503 842-5577

Customer:	**Innotek Pet Products**		
Specification:	**FCC 15.207 COND**		
Work Order #:	**78516**	Date:	3/13/02
Test Type:	**Conducted Emissions**	Time:	11:07:04
Equipment:	**Pet Containment Transmitter**	Sequence#:	3
Manufacturer:	Innotek Pet Products	Tested By:	Mike Wilkinson
Model:	M024101		120V 60Hz
S/N:	0045M0241011002B		

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

Function	Manufacturer	Model #	S/N
Pet Containment Transmitter*	Innotek Pet Products	M024101	0045M0241011002B
Lightning Protector	Innotek Pet Products	LP-2000	None
AC Adapter	KTC	KA12A240040044U	None

Support Devices:

Function	Manufacturer	Model #	S/N

Test Conditions / Notes:

The EUT was plugged into the power port of the lightning protector and connected to the lightning protector transmitter ports with two 1-meter lengths of 14 gauge solid copper wire. 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. EUT was turned on and transmitting continuously with the Battery Backup Monitor off, STIM Level at High, Field Width adjustment at maximum and Field Size set to large (maximum). Backup batteries installed. The Lighting Protector was plugged into 120 VAC/60 Hz. The temperature was 65°F and the humidity was 40%. Frequency range investigated was 450 kHz to 30 MHz. All signals in this data sheet meet the Broadband requirement in FCC 15.207 (b) and the 13 dB correction has been applied to all QP readings.

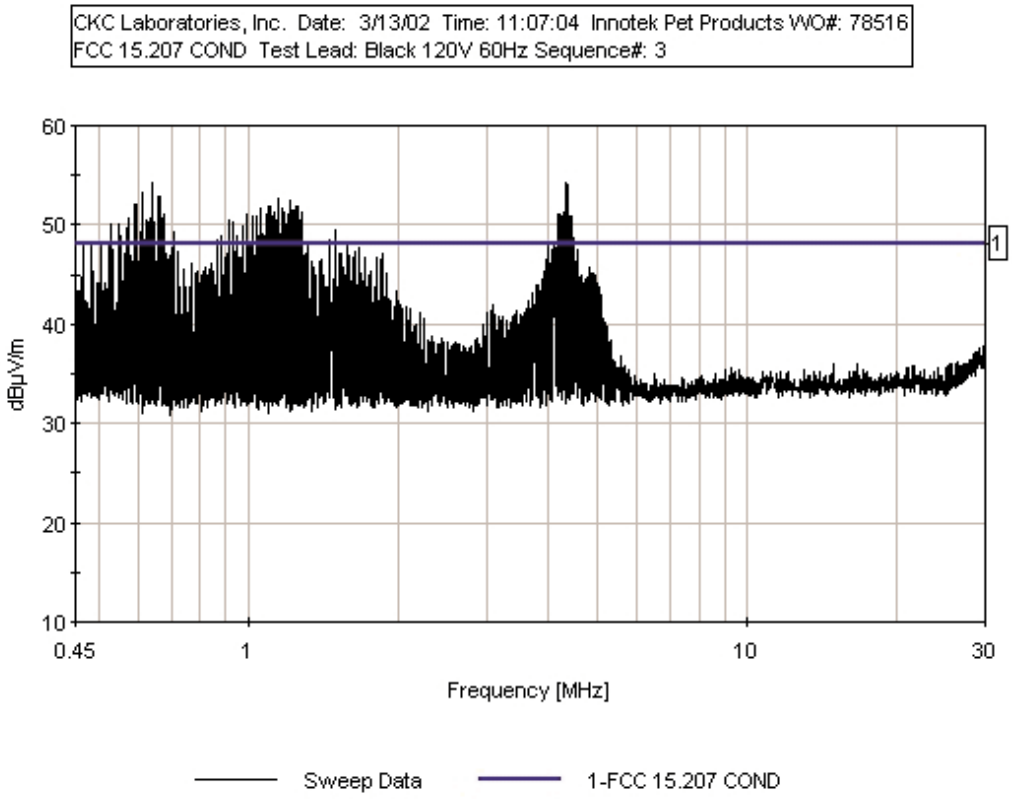
Transducer Legend:

T1=T1 conducted cables	T2=L11b
T3=Broadband Correction	

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

#	Freq Hz	Rdng dBµV	T1 dB	T2 dB	T3 dB	dB	Dist Table	Corr dBµV/m	Spec dBµV/m	Margin dB	Polar Ant
1	640.562k QP	52.2	+0.1	+0.1	-13.0		+0.0	39.4	48.0	-8.6	Black
2	613.817k QP	51.2	+0.1	+0.1	-13.0		+0.0	38.4	48.0	-9.6	Black
^	613.817k	53.1	+0.1	+0.1	+0.0		+0.0	53.3	48.0	+5.3	Black
4	1.150M QP	50.0	+0.2	+0.1	-13.0		+0.0	37.3	48.0	-10.7	Black
^	1.150M	52.4	+0.2	+0.1	+0.0		+0.0	52.7	48.0	+4.7	Black
6	662.293k QP	49.7	+0.1	+0.1	-13.0		+0.0	36.9	48.0	-11.1	Black

7	4.309M QP	48.6	+0.7	+0.0	-13.0	+0.0	36.2	48.0	-11.8	Black
^	4.309M	53.5	+0.7	+0.0	+0.0	+0.0	54.2	48.0	+6.2	Black
9	592.086k QP	48.6	+0.1	+0.1	-13.0	+0.0	35.8	48.0	-12.2	Black
10	1.214M QP	47.5	+0.2	+0.1	-13.0	+0.0	34.8	48.0	-13.2	Black
11	1.545M QP	43.9	+0.3	+0.1	-13.0	+0.0	31.3	48.0	-16.7	Black
12	1.545M Ave	30.4	+0.3	+0.1	+0.0	+0.0	30.8	48.0	-17.2	Black
^	1.545M	48.3	+0.3	+0.1	+0.0	+0.0	48.7	48.0	+0.7	Black
14	4.369M Ave	30.0	+0.7	+0.0	+0.0	+0.0	30.7	48.0	-17.3	Black
15	592.086k Ave	29.0	+0.1	+0.1	+0.0	+0.0	29.2	48.0	-18.8	Black
^	592.086k	51.8	+0.1	+0.1	+0.0	+0.0	52.0	48.0	+4.0	Black
17	662.293k Ave	29.0	+0.1	+0.0	+0.0	+0.0	29.1	48.0	-18.9	Black
^	662.293k	52.8	+0.1	+0.0	+0.0	+0.0	52.9	48.0	+4.9	Black
19	640.562k Ave	27.2	+0.1	+0.1	+0.0	+0.0	27.4	48.0	-20.6	Black
^	640.562k	54.1	+0.1	+0.1	+0.0	+0.0	54.3	48.0	+6.3	Black
21	1.214M Ave	27.0	+0.2	+0.1	+0.0	+0.0	27.3	48.0	-20.7	Black
^	1.214M	52.1	+0.2	+0.1	+0.0	+0.0	52.4	48.0	+4.4	Black


CKC Laboratories, Inc. Date: 3/13/02 Time: 11:07:04 Innotek Pet Products WO#: 78516
FCC 15.207 COND Test Lead: Black 120V 60Hz Sequence#: 3
60
50
40
30
20
10
dBµV/m
0.45
1
10
30
Frequency [MHz]
1
Sweep Data
1-FCC 15.207 COND

Test Location: CKC Laboratories, Inc. •22105 Wilson River Hwy • Tillamook, Or 97141 • 503 842-5577

Customer: **Innotek Pet Products**
Specification: **FCC 15.207 COND**
Work Order #: **78516** Date: 3/13/02
Test Type: **Conducted Emissions** Time: 11:41:56
Equipment: **Pet Containment Transmitter** Sequence#: 4
Manufacturer: Innotek Pet Products Tested By: Mike Wilkinson
Model: M024101 120V 60Hz
S/N: 0045M0241011002B

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

Function	Manufacturer	Model #	S/N
Pet Containment Transmitter*	Innotek Pet Products	M024101	0045M0241011002B
Lightning Protector	Innotek Pet Products	LP-2000	None
AC Adapter	KTC	KA12A240040044U	None

Support Devices:

Function	Manufacturer	Model #	S/N

Test Conditions / Notes:

The EUT was plugged into the power port of the lightning protector and connected to the lightning protector transmitter ports with two 1-meter lengths of 14 gauge solid copper wire. 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. EUT was turned on and transmitting continuously with the Battery Backup Monitor off, STIM Level at High, Field Width adjustment at maximum and Field Size set to large (maximum). Backup batteries installed. The Lighting Protector was plugged into 120 VAC/60 Hz. The temperature was 65°F and the humidity was 40% Frequency range investigated was 450 kHz to 30 MHz. All signals in this data sheet meet the Broadband requirement in FCC 15.207 (b) and the 13 dB correction has been applied to all QP readings.

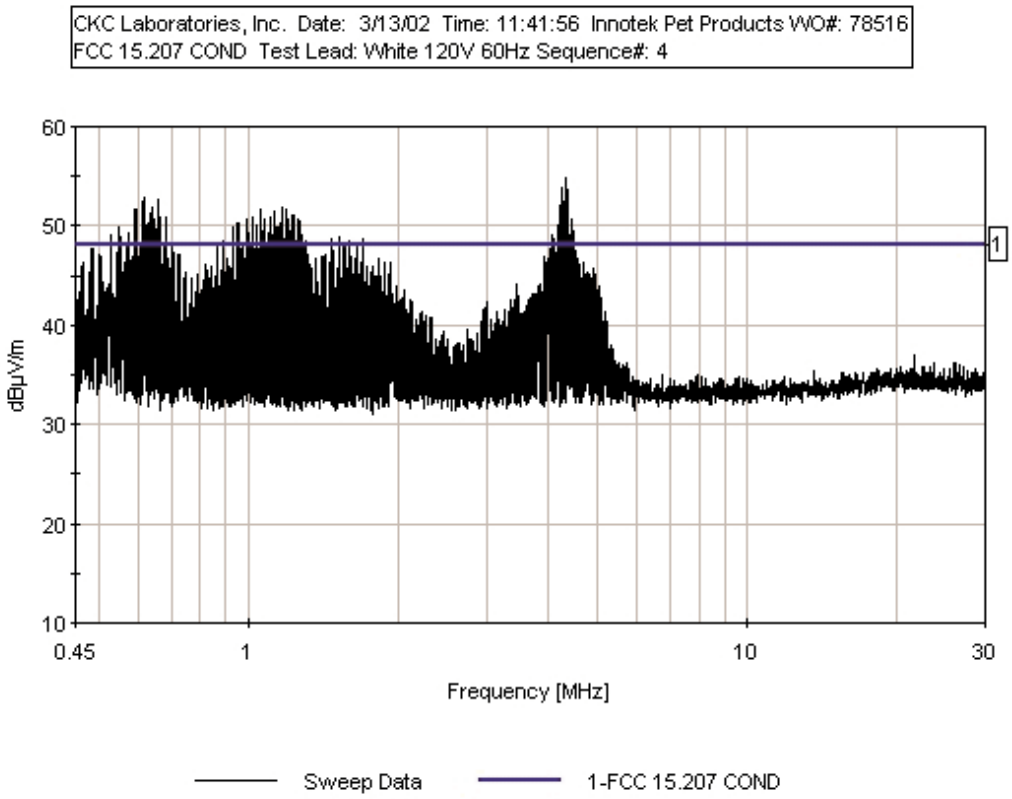
Transducer Legend:

T1=T1 conducted cables	T2=L12w
T3=Broadband Correction	

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

#	Freq Hz	Rdng dBµV	T1 dB	T2 dB	T3 dB	dB	Dist Table	Corr dBµV/m	Spec dBµV/m	Margin dB	Polar Ant
1	450.000k	40.5	+0.2	+0.1	+0.0		+0.0	40.8	48.0	-7.2	White
2	4.336M QP	49.7	+0.7	+0.1	-13.0		+0.0	37.5	48.0	-10.5	White
3	4.240M QP	48.4	+0.7	+0.1	-13.0		+0.0	36.2	48.0	-11.8	White
4	1.168M QP	48.9	+0.2	+0.1	-13.0		+0.0	36.2	48.0	-11.8	White
5	1.168M Ave	35.0	+0.2	+0.1	+0.0		+0.0	35.3	48.0	-12.7	White
^	1.168M	51.5	+0.2	+0.1	+0.0		+0.0	51.8	48.0	+3.8	White

7	4.240M Ave	32.9	+0.7	+0.1	+0.0	+0.0	33.7	48.0	-14.3	White
^	4.240M	53.0	+0.7	+0.1	+0.0	+0.0	53.8	48.0	+5.8	White
9	616.324k QP	45.5	+0.1	+0.1	+0.0	+0.0	32.7	48.0	-15.3	White
10	992.350k QP	45.4	+0.2	+0.1	-13.0	+0.0	32.6	48.0	-15.4	White
11	616.324k Ave	29.4	+0.1	+0.1	+0.0	+0.0	29.6	48.0	-18.4	White
^	616.324k	52.7	+0.1	+0.1	+0.0	+0.0	52.9	48.0	+4.9	White
13	992.350k Ave	28.4	+0.2	+0.1	+0.0	+0.0	28.7	48.0	-19.3	White
^	992.350k	51.9	+0.2	+0.1	+0.0	+0.0	52.2	48.0	+4.2	White
15	4.336M Ave	27.2	+0.7	+0.1	+0.0	+0.0	28.0	48.0	-20.0	White
^	4.336M	54.0	+0.7	+0.1	+0.0	+0.0	54.8	48.0	+6.8	White



Test Location: CKC Laboratories, Inc. •22105 Wilson River Hwy • Tillamook, Or 97141 • 503 842-5577

Customer: **Innotek Pet Products**
Specification: **FCC 15.209**
Work Order #: **78516** Date: 3/12/02
Test Type: **Maximized Emissions** Time: 14:45:50
Equipment: **Pet Containment Transmitter** Sequence#: 1
Manufacturer: Innotek Pet Products Tested By: Mike Wilkinson
Model: M024101
S/N: 0045M0241011002B

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

Function	Manufacturer	Model #	S/N
Pet Containment Transmitter*	Innotek Pet Products	M024101	0045M0241011002B
Lightning Protector	Innotek Pet Products	LP-2000	None
AC Adapter	KTC	KA12A240040044U	None

Support Devices:

Function	Manufacturer	Model #	S/N

Test Conditions / Notes:

The EUT was plugged into the power port of the lightning protector and connected to the lightning protector transmitter ports with two 1-meter lengths of 14 gauge solid copper wire. A 200-foot length of 14 gauge solid copper wire was connected to the loop ports of the lightning protector and arranged in a circle on the ground. EUT was turned on and transmitting continuously with the Battery Backup Monitor off, STIM Level at High, Field Width adjustment at maximum and Field Size set to large (maximum). Backup batteries installed. The Lighting Protector was plugged into 120 VAC/60 Hz. 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 65°F and the humidity was 40%. Frequency range investigated was 9 kHz to 30 MHz. Using the formula (ED)^2 / (30G) and G = 1, the peak output power of the fundamental corrected reading is 0.014032 Watt.

Transducer Legend:

T1=Mag-Loop T2=Cable 120-ft coax
T3=FCC 15.31 40dB/Dec Correction

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

#	Freq Hz	Rdng dBµV	T1 dB	T2 dB	T3 dB	dB	Dist Table	Corr dBµV/m	Spec dBµV/m	Margin dB	Polar Ant
1	561.750k QP	60.0	+9.9	+0.7	-40.0		+0.0	30.6	32.6	-2.0	None
^	561.590k	60.2	+9.9	+0.7	-40.0		+0.0	30.8	32.6	-1.8	None
3	691.430k QP	56.5	+10.0	+0.7	-40.0		+0.0	27.2	30.8	-3.6	None
^	691.260k	56.7	+10.0	+0.7	-40.0		+0.0	27.4	30.8	-3.4	None
5	1.125M	45.1	+10.1	+0.6	-40.0		+0.0	15.8	26.5	-10.7	None
6	2.648M	46.3	+10.1	+0.6	-40.0		+0.0	17.0	29.5	-12.5	None
7	367.060k	70.7	+9.8	+0.6	-80.0		+0.0	1.1	16.3	-15.2	None

8	3.686M	41.4	+10.1	+0.6	-40.0	+0.0	12.1	29.5	-17.4	None
9	43.130k	83.8	+10.9	+0.5	-80.0	+0.0	15.2	34.9	-19.7	None
10	75.570k	79.2	+10.4	+0.5	-80.0	+0.0	10.1	30.0	-19.9	None
11	3.890M	38.8	+10.1	+0.6	-40.0	+0.0	9.5	29.5	-20.0	None
12	140.440k	74.1	+9.9	+0.6	-80.0	+0.0	4.6	24.6	-20.0	None
13	10.760k	93.2	+13.2	+0.3	-80.0	+0.0	26.7	46.9 Fundamental	-20.2	None
14	86.330k	77.9	+10.2	+0.5	-80.0	+0.0	8.6	28.9	-20.3	None
15	129.620k	74.2	+9.9	+0.6	-80.0	+0.0	4.7	25.3	-20.6	None
16	107.970k	75.7	+10.0	+0.6	-80.0	+0.0	6.3	26.9	-20.6	None
17	108.010k	75.7	+10.0	+0.6	-80.0	+0.0	6.3	26.9	-20.6	None
18	32.290k	85.0	+11.1	+0.5	-80.0	+0.0	16.6	37.4	-20.8	None
19	21.640k	88.1	+11.5	+0.3	-80.0	+0.0	19.9	40.9	-21.0	None
20	97.210k	74.1	+10.2	+0.6	-80.0	+0.0	4.9	27.8	-22.9	None
21	53.950k	78.5	+10.6	+0.5	-80.0	+0.0	9.6	33.0	-23.4	None
22	4.850M	30.5	+10.1	+0.6	-40.0	+0.0	1.2	29.5	-28.3	None
23	7.380M	26.1	+9.8	+0.6	-40.0	+0.0	-3.5	29.5	-33.0	None

Test Location: CKC Laboratories, Inc. •22105 Wilson River Hwy • Tillamook, Or 97141 • 503 842-5577

Customer: **Innotek Pet Products**
Specification: **FCC15.209**
Work Order #: **78516** Date: 3/13/02
Test Type: **Maximized Emissions** Time: 09:34:11
Equipment: **Pet Containment Transmitter** Sequence#: 3
Manufacturer: Innotek Pet Products Tested By: Mike Wilkinson
Model: M024101
S/N: 0045M0241011002B

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

Function	Manufacturer	Model #	S/N
Pet Containment Transmitter*	Innotek Pet Products	M024101	0045M0241011002B
Lightning Protector	Innotek Pet Products	LP-2000	None
AC Adapter	KTC	KA12A240040044U	None

Support Devices:

Function	Manufacturer	Model #	S/N

Test Conditions / Notes:

The EUT was plugged into the power port of the lightning protector and connected to the lightning protector transmitter ports with two 1-meter lengths of 14 gauge solid copper wire. 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. EUT was turned on and transmitting continuously with the Battery Backup Monitor off, STIM Level at High, Field Width adjustment at maximum and Field Size set to large (maximum). Backup batteries installed. The Lighting Protector was plugged into 120 VAC/60 Hz. The temperature was 65°F and the humidity was 40%. Frequency range investigated was 30 to 1000 MHz. No signal from the EUT or Lightning Protector was detected. The readings on the data sheet are ambient readings at harmonics of the EUT's 4 MHz clock.

Transducer Legend:

T1=Amp-A	T2=Bilog A

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

#	Freq Hz	Rdng dBµV	T1 dB	T2 dB	dB	dB	Dist Table	Corr dBµV/m	Spec dBµV/m	Margin dB	Polar Ant
1	31.980M	32.0	-27.2	+17.7			+0.0	22.5	40.0	-17.5	Vert
2	32.027M	30.1	-27.2	+17.7			+0.0	20.6	40.0	-19.4	Horiz
3	158.070M	37.0	-26.9	+10.7			+0.0	20.8	43.5	-22.7	Vert
4	48.027M	31.4	-27.2	+9.1			+0.0	13.3	40.0	-26.7	Horiz
5	224.288M	34.9	-26.6	+10.6			+0.0	18.9	46.0	-27.1	Vert
6	44.430M	27.5	-27.2	+11.7			+0.0	12.0	40.0	-28.0	Vert
7	356.586M	28.1	-26.9	+15.0			+0.0	16.2	46.0	-29.8	Vert
8	120.023M	29.3	-27.1	+11.3			+0.0	13.5	43.5	-30.0	Horiz

9	184.005M	31.4	-26.8	+8.7		+0.0	13.3	43.5	-30.2	Horiz
10	92.023M	29.1	-27.0	+8.8		+0.0	10.9	43.5	-32.6	Horiz
11	88.086M	26.5	-27.0	+8.2		+0.0	7.7	43.5	-35.8	Vert
12	112.086M	24.0	-27.1	+10.7		+0.0	7.6	43.5	-35.9	Vert
13	136.086M	23.3	-27.0	+11.2		+0.0	7.5	43.5	-36.0	Vert