

Technical Information

APPLICANT		MANUFACTURER	
Name:	Magnetek	Name:	Magnetek
Address:	N50W13605 Overview Dr	Address:	N50W13605 Overview Dr
City, State, Zip:	Menomonee Falls, WI 53051	City, State, Zip:	Menomonee Falls, WI 53051

TEST SPECIFICATION:

FCC Rules and Regulations Part 15, Subpart C, Section 15.231

Radio Standards Specification, RSS-210, Issue 7, June, 2007 and RSS-GEN, Issue 2, June 2007

TEST PROCEDURE: ANSI C63.4:2003

Test Sample Description

TEST SAMPLE: Telependant Remote Transmitter

BRANDNAME(s): Telemotive

MODEL(s): TelePendant

FCC ID: TNE-430PEN2

IC ID: 6145A-430PEN2

TYPE: Radio Control Handheld Transmitter

POWER REQUIREMENTS: 3 VDC derived from (2) AA Batteries

FREQUENCY OF OPERATION: 430 to 440 MHz

Tests Performed

The test methods performed on the Telependant Remote Transmitter are shown below:

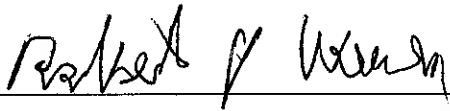
FCC Part 15, Subpart C	Industry Canada RSS-210 Issue 7, June 2007	Industry Canada RSS-GEN Issue 2, June 2007	Test Method
15.231(b)	A1.1.2(1)	N/A	Field Strength of Emissions
15.231(b)(2)	A1.1.2(2)	4.5	Duty Cycle Determination
15.231(b)(3)	A1.1.2(3)	N/A	Field Strength of Spurious Emissions
15.231(c)	A1.1.3	N/A	Bandwidth of Emission

General Test Requirements

1. The measurement procedures of ANSI C63.4:2003 were utilized as specified in FCC Part 15, Subpart C, Section 15.31(a)(3) and IC RSS-GEN Section 4.1.
2. All radiated emissions measurements were performed on an Open Area Test Site (OATS), listed with the FCC and IC, in accordance with FCC Section 15.31(d) and IC Section 4.2.
3. The level of the fundamental field strength was recorded with a new battery installed in the EUT, in accordance with FCC Section 15.231(e) and IC Section 4.3(e).
4. All measurements were performed at the specified 3 meter test distance as required by FCC Section 15.31(f) and IC Section 7.25.
5. The EUT was rotated throughout 360 degrees for all radiated emissions measurements as specified in FCC Section 15.31(f)(5) and IC Section 4.3(h).
6. All readily accessible EUT controls were adjusted in such a manner as to maximize the level of emissions in accordance with FCC Section 15.31(g) and IC Section 4.3(h).
7. Appropriate accessories were attached to all EUT ports during the performance of radiated emissions measurements as required by FCC Section 15.31(i) and IC Section 4.3(d).
8. The EUT operated over the frequency range of 430 to 440 MHz. A total range of 10 MHz. Testing was performed with the device operating at 2 frequencies, 1 at the top and 1 at the bottom of the range of operation in accordance with FCC Section 15.31(m) and IC Section 4.3(f)(g).
9. The frequency spectrum was investigated from the lowest frequency generated in the device up to the 10th harmonic of the highest fundamental frequency in accordance with FCC Section 15.33(a)(1) and IC Section 4.9.
10. All measurements were taken with a peak detector function as specified in FCC Section 15.35(a) and IC Section 4.4. The duty cycle, calculated in accordance with FCC Section 15.35(c) and IC Section 4.5, was applied to the peak readings in order to obtain the average value of emissions. The peak value of emissions was verified to meet the 20 dB requirement of FCC Section 15.35(b) and IC Section 7.2.1.

Certification and Signatures

We certify that this report is a true representation of the results obtained from the tests of the equipment stated. We further certify that the measurements shown in this report were made in accordance with the procedures indicated and vouch for the qualifications of all Retlif Testing Laboratories personnel taking them.



Robert P. Warren
EMC Test Engineer
NARTE Certified Technician EMC-000498-NT



Richard J. Reitz
Laboratory Manager
iNARTE Certified Engineer ATL-0036-E

Non-Warranty Provision

The testing services have been performed, findings obtained and reports prepared in accordance with generally accepted laboratory principles and practices. This warranty is in lieu of all others, either expressed or implied.

Non-Endorsement

This test report contains only findings and results arrived at after employing the specific test procedures and standards listed herein. It is not intended to constitute a recommendation, endorsement or certification of the product or material tested. This test report must not be used by the client to claim product endorsement by NVLAP or any agency of the U.S. Government.

Requirements and Test Results

Requirement:

FCC Section 15.231(a) - Periodic operation in the band 40.66 - 40.7 MHz and above 70 MHz

The provisions of this Section are restricted to periodic operation within the band 40.66-40.7 MHz and above 70 MHz. Except as shown in Paragraph (e) of this Section, the intentional radiator is restricted to the transmissions of a control signal such as those used with alarm systems, door openers, remote switches, etc. Continuous transmissions, voice, video and the radio control of toys are not permitted. Data is permitted to be sent with a control signal.

IC RSS-210, A1.1 - Momentarily Operated Devices

The frequency bands and field strength limits in Tables 4 and 5 are only for the transmission of a control signal such as that used with alarm systems, door openers, remote switches, etc. Radio control of toys or model aircrafts, and continuous transmissions such as voice or video are not permitted except as provided in A1.1.5. Data is permitted to be sent with a control signal.

- Results:
The device was operated at a frequency of 430 to 440 MHz and is for the transmission of a control signal. Data is sent with the control signal.

Requirement:

FCC Sections 15.231(a)(1)-(5)

Periodic operation in the band 40.66 - 40.7 MHz and above 70 MHz

The following conditions were met in order to comply with the provisions for momentary operation:

IC RSS-210, A1.1.1(a)-(d) - Types of Momentary Signals

The following conditions were met in order to comply with the provisions for momentary operation:

FCC 15.231(a)(1): A manually operated transmitter shall employ a switch that will automatically deactivate the transmitter within not more than 5 seconds of being released.

IC A1.1.1(a): A manually operated transmitter shall employ a push-to-operate switch and be under manual control at all transmission times. When released, the transmitter shall cease transmission (holdover time of up to 5 seconds of operation).

- Results:
The device is a manually operated, push to operate transmitter under manual control. The device ceased transmission within 5 seconds of deactivation.

FCC 15.231(a)(2): A transmitter activated automatically shall cease transmission within 5 seconds after activation.

IC A1.1.1(b): A transmitter activated automatically shall cease transmission with 5 seconds after activation, (i.e. maximum 5 seconds of operation).

- Results:
Transmission is not automatically activated.

Requirements and Test Results (con't)

FCC 15.231(a)(3): Periodic transmissions at regular predetermined intervals are not permitted. However, polling or supervision transmissions, including data, to determine system integrity of transmitters used in security or safety applications are allowed if the total duration of transmissions does not exceed more than two seconds per hour for each transmitter. There is no limit on the number of individual transmissions, provided the total transmission time does not exceed two seconds per hour.

IC A1.1.1(c): Periodic transmissions at regular predetermined intervals are not permitted, except as provided in A1.1.5. However, polling or supervision transmissions, to determine system integrity of transmitters used in security or safety applications are allowed if the total duration of transmissions does not exceed 2 seconds per hour for each transmitter.

- Results:
The transmitter does not perform periodic transmissions.

FCC 15.231(a)(4): Intentional radiators which are employed for radio control purposes during emergencies involving fire, security and safety of life, when activated to signal an alarm, may operate during the pendency of the alarm condition.

IC A1.1.1(d): Intentional radiators employed for radio control purposes during emergencies involving fire, security of goods (e.g. burglar alarms), and safety-of-life, when activated to signal an alarm, may operate during the interval of the alarm condition.

- Results:
This device is not employed for radio control purposes during emergencies involving fire, security and safety for life.

FCC 15.231(a)(5): Transmission of set-up information for security systems may exceed the transmission duration limits in paragraphs (a)(1) and (a)(2) of this section, provided such transmission are under the control of a professional installer and do not exceed ten seconds after a manually operated switch is released or a transmitter is activated automatically. Such set-up information may include data.

- Results:
The device is not employed for security systems.

Requirements and Test Results (con't)

Requirement:

FCC Section 15.231(b) - Field Strength of Emissions

In addition to the provisions of Section 15.205, the field strength of emissions from intentional radiators operated under this Section shall not exceed the limits specified in Table 1.

IC RSS-210, A1.1.2(1) - Field Strengths and Frequency Bands

The field strength of emissions from momentarily operated intentional radiators shall not exceed the limits specified in Table 1:

Table 1 - Test Limits, Field Strength of Emissions

Fundamental Frequency (MHz)	Field Strength of Fundamental microvolts/meter @3 meters (watts, e.i.r.p.) Quasi Peak or Average	Field Strength of Spurious Emissions microvolts/meter @3 meters Quasi Peak or Average
40.66 to 40.70	2,250	225
70 to 130	1,250 (470 nW)	125
130 to 174	1,250 to 3,750**	125 to 375**
174 to 260	3,750 (4.2 µW)	375
260 to 470	3,750 to 12,500**	375 to 1,250**
Above 470	12,500 (47 µW)	1,250
**Linear Interpolations For 130-174 MHz: FS (microvolts/m) = (56.82 x F) - 6,136 For 260-470 MHz: FS (microvolts/m) = (41.67 x F) - 7,083 The maximum permitted unwanted emission level is 20 dB below the maximum permitted fundamental level.		

The Fundamental and Harmonic Emissions limits for a device operating at 430.3 MHz and 439.7 MHz are listed in Table 2.

Table 2 - Fundamental and Harmonic Limits

Frequency of Operation MHz	Fundamental µV/m	Harmonics µV/m
430.3	10845.8	1084.6
439.7	11237.5	1123.8

- Results:

The Fundamental and Harmonics field strengths did not exceed the limits specified in Table 2 at a test distance of 3 meters, taken with an Average Detector. See Table 3 for the Fundamental and Harmonic emissions test results.

Table 3 - Fundamental and Harmonics Test Results

Fundamental Frequency MHz	Maximum Fundamental µV/m	Maximum Harmonics µV/m
430.3	5308.8	153.1
439.7	6166.0	190.5

Requirements and Test Results (con't)

Requirement:

FCC Section 15.231(b)(2) - Duty Cycle Determination-Pulsed Operation

Intentional radiators operating under the provisions of the Section shall demonstrate compliance with the limits on the field strength emissions, as shown in Table 1, based on the average value of the measured emissions. As an alternative, compliance with the limits in the Table 1 may be based on the use of measurement instrumentation with a CISPR quasi-peak detector. The specific method of measurement employed shall be specified in the application for equipment authorization. If average emission measurements are employed, the provisions in Section 15.35 for averaging pulsed emissions and for limiting peak emissions apply. Further, compliance with the provisions of Section 15.205 shall be demonstrated using the measurement instrumentation specified in that Section.

IC RSS-GEN, Paragraph 4.5, Pulsed Operation

When the field strength (or envelope power) is not constant or when it is in pulses, and an average detector is specified to be used, the value of field strength or power shall be determined by averaging over one complete pulse train, including blanking intervals within the pulse train, as long as the pulse train does not exceed 0.1 seconds. In cases where the pulse train exceeds 0.1 seconds, the average value (of field strength or output power) shall be determined during a 0.1 second interval during which the field strength or power is at its maximum value.

The unit's RF output was directly coupled to the input of the spectrum analyzer. The analyzer was set for a frequency span of 0 Hz. The sweep time was then adjusted in order to display one full pulse train. The transmitter on time was then summed and compared to the time for one full cycle in order to obtain the duty cycle. (See plots for additional information).

- Results:
The emissions did not exceed the limits specified in Table 1. See below for the exact method of calculating the average field strength.

$$\begin{aligned}\text{Transmitter On Time} &= \underline{100} \text{ milliseconds (maximum per cycle)} \\ \text{Transmitter Cycle Time} &= \underline{14.5} \text{ milliseconds (100 ms maximum)} \\ \text{Transmitter Duty Cycle} &= \underline{14.5} \%\end{aligned}$$

CALCULATION

$$\begin{aligned}\text{Duty Cycle (14.5/100)} &= \underline{14.5} \% \\ \text{Correction Factor} &= 20 \log \underline{(0.145)} = \underline{-16.8} \text{ dB}\end{aligned}$$

Requirements and Test Results (con't)

Requirement:

FCC Section 15.231(b)(3) - Field Strength of Spurious Emissions

The limits on the field strength of the spurious emissions specified in Table 1 are based on the fundamental frequency of the intentional radiator. Spurious emissions shall be attenuated to the average (or, alternatively, CISPR quasi-peak) limits shown in Table 1 or to the general limits shown in Section 15.209, whichever limit permits a higher field strength.

IC RSS-210, A1.1.2(3) - Field Strength of Unwanted Emissions

The limits on the field strength of unwanted emissions in Table 4 of RSS-210 are based on the fundamental frequency of the intentional radiator. Unwanted emissions shall be attenuated to the limits shown in Table 2 of RSS-210 or to the limits shown in Table 4 of RSS-210, whichever is less stringent.

- Results:
No spurious emissions were observed within 20 dB of the specified limit.

Requirement:

FCC Section 15.231(c) - Bandwidth of Emissions

The bandwidth of the emissions shall be no wider than 0.25% of the center frequency for devices operating above 70 MHz and below 900 MHz. For devices operating above 900 MHz, the emission shall be no wider than 0.5% of the frequency. Bandwidth is determined at the points 20 dB down from the modulated carrier.

IC RSS-210, A1.1.3 - Bandwidth of Momentary Signals

For the purpose of Section A1.1, the 99% bandwidth shall be no wider than 0.25% of the center frequency for devices operating between 70-900 MHz. For devices operating above 900 MHz, the emission shall be no wider than 0.5% of the center frequency.

- Results:
The bandwidth was measured and found to be 124 kHz.

General Requirements FCC and IC

RF Exposure Limits

The following power measurement was calculated from field strength measurements as outlined in Paragraph 4.2 of RSS-102, Issue 2:

$$\begin{aligned} TP &= \frac{FS \times (D)^2}{30 \times G} & FS &= 0.042658 \text{ (Peak)} \\ & & D &= 3 \text{ M} \\ & & G &= 1 \\ & TP &= 12.7 \text{ milliwatts} \end{aligned}$$

In accordance with Paragraph 2.5.1 of RSS-102, Issue 2, this device is exempt from SAR evaluation since the TP is less than 200 milliwatts and the device is portable.

Spectrum Analyzer Desensitization Considerations

Due to the nature of the emissions being measured, care was taken to ensure that the resolution bandwidth of the spectrum analyzer was adequate to provide accurate measurements. The following formula was utilized:

$$\text{minimum bandwidth} = 1 / \{\text{minimum pulse width (in seconds)} \times 1.5\} = \text{Hz}$$

Setting pulse desensitization equal to zero and utilizing the minimum observed pulse width of 14 ms yields a minimum required bandwidth of 48 Hz. FCC specified bandwidths of 100 kHz and 1 MHz were utilized below and above 1GHz, respectively.

Equipment List

FCC Section 15.231(b) - Field Strength of Emissions IC RSS-210, Section A1.1.2(1) - Field Strength and Frequency Bands

EN	Type	Manufacturer	Description	Model No.	Cal Date	Due Date
8017	Double Ridge Guide	EMCO	1 - 18 GHz	3115	8/6/2007	2/6/2009
8060A	Cable	Retlif	10 kHz - 18 GHz	25' Type N	8/14/2008	8/14/2009
8061A	Cable	Retlif	10 kHz - 18 GHz	25' Type N	1/26/2009	1/26/2010
8071	Spectrum Analyzer	Hewlett Packard	100Hz-2.5 GHz/2-22GH	8566B	12/27/2007	2/27/2009
8072	Spectrum Analyzer Display	Hewlett Packard		85662A	12/27/2007	2/27/2009
8300	OATS Site NSA	RSI	3/10 Meter Site		8/15/2008	8/15/2009
8317	Preamplifier	Agilent	1-26.5 GHz, 30 dB	8449B	4/6/2007	4/6/2009
8365	Biconilog	EMCO	26 MHz - 3 GHz	3142C	9/12/2007	9/12/2009
8411	Preamplifier	Sonoma Instrument	9 kHz - 1 GHz	310N	9/23/2008	9/23/2009

FCC Section 15.231(b)(2) - Duty Cycle Determination - Pulsed Operation IC RSS-210, Section A1.1.2(2), RSS-GEN, 4.5 - Pulsed Operation

EN	Type	Manufacturer	Description	Model No.	Cal Date	Due Date
8071	Spectrum Analyzer	Hewlett Packard	100Hz-2.5 GHz/2-22GH	8566B	12/27/2007	2/27/2009
8072	Spectrum Analyzer Display	Hewlett Packard		85662A	12/27/2007	2/27/2009
8410B	3cm Magnetic-Field Loop	EMCO	1.5GHz	7405-002	8/8/2008	8/8/2009

FCC Section 15.231(b)(3) - Field Strength of Spurious Emissions IC RSS-210, Section A1.1.2(3) - Field Strength of Unwanted Emissions

EN	Type	Manufacturer	Description	Model No.	Cal Date	Due Date
8017	Double Ridge Guide	EMCO	1 - 18 GHz	3115	8/6/2007	2/6/2009
8060A	Cable	Retlif	10 kHz - 18 GHz	25' Type N	8/14/2008	8/14/2009
8061A	Cable	Retlif	10 kHz - 18 GHz	25' Type N	1/26/2009	1/26/2010
8071	Spectrum Analyzer	Hewlett Packard	100Hz-2.5 GHz/2-22GH	8566B	12/27/2007	2/27/2009
8072	Spectrum Analyzer Display	Hewlett Packard		85662A	12/27/2007	2/27/2009
8300	OATS Site NSA	RSI	3/10 Meter Site		8/15/2008	8/15/2009
8317	Preamplifier	Agilent	1-26.5 GHz, 30 dB	8449B	4/6/2007	4/6/2009
8365	Biconilog	EMCO	26 MHz - 3 GHz	3142C	9/12/2007	9/12/2009
8411	Preamplifier	Sonoma Instrument	9 kHz - 1 GHz	310N	9/23/2008	9/23/2009

FCC Section 15.231(c) - Bandwidth of Emission IC RSS-210, Section A1.1.3 - Bandwidth of Momentary Signals

EN	Type	Manufacturer	Description	Model No.	Cal Date	Due Date
8071	Spectrum Analyzer	Hewlett Packard	100Hz-2.5 GHz/2-22GH	8566B	12/27/2007	2/27/2009
8072	Spectrum Analyzer Display	Hewlett Packard		85662A	12/27/2007	2/27/2009
8410B	3cm Magnetic-Field Loop	EMCO	1.5GHz	7405-002	8/8/2008	8/8/2009

Field Strength of Emissions
FCC Part 15, Subpart C, Section 15.231(b)
IC RSS-210, Section A1.1.2(1)
Test Data

Test Method:	FCC Part 15 Subpart C, Field Strength of Emissions, Paragraph 15.231(b)						
	IC RSS-210, A1.1.2 (1) Field Strengths and Frequency Bands						
Customer:	Magnetek			Job No.	R-1297P-1		
Test Sample:	430-440MHz TelePendant Hand Held Remote Tx						
Model / S/O No.:	TX12P-2C / 29449T R			FCC ID:	TNE-430PEN2		
Operating Mode:	Continuously transmitting a RF signal at 430.3MHz on CH. A						
Technician:	R. Wilson			Date:	1-30-09		
Notes:	Detector: Peak, Unless otherwise specified			Test Distance: 3 Meters			
Test Freq.	Antenna Pol./Height	EUT Orientation	Meter Reading	Correction Factor	Corrected Reading	Converted Reading	Peak Limit
MHz	(V/H)/Meters	X / Y / Z	dBµV	dB	dBµV/m	uV/m	uV/m
430.3	V / 1.0	X	106.5	-15.2	91.3	36728.2	108458.0
	V / 1.0	Y	93.4	-15.2	78.2	8128.3	
	V / 1.0	Z	94.3	-15.2	79.1	9015.7	
	H / 1.0	X	93.5	-15.2	78.3	8222.4	
	H / 1.0	Y	104.8	-15.2	89.6	30199.5	
430.3	H / 1.8	Z	105.6	-15.2	90.4	33113.1	108458.0
860.6	V / 1.0	X	68.3	-7.8	60.5	1059.3	10845.8
	V / 1.0	Y	63.4	-7.8	55.6	602.6	
	V / 1.0	Z	57.3	-7.8	49.5	298.5	
	H / 1.0	X	49.5	-7.8	41.7	121.6	
	H / 1.0	Y	60.1	-7.8	52.3	412.1	
860.6	H / 1.0	Z	62.5	-7.8	54.7	543.3	10845.8
*1290.9	V / 1.0	X	45.9	-8.1	37.8	77.6	10845.8
	V / 1.0	Y	45.9	-8.1	37.8	77.6	
	V / 1.0	Z	45.9	-8.1	37.8	77.6	
	H / 1.0	X	45.9	-8.1	37.8	77.6	
	H / 1.0	Y	45.9	-8.1	37.8	77.6	
*1290.9	H / 1.0	Z	45.9	-8.1	37.8	77.6	10845.8
*1721.2	V / 1.0	X	45.7	-6.1	39.6	95.5	5000.0
	V / 1.0	Y	45.7	-6.1	39.6	95.5	
	V / 1.0	Z	45.7	-6.1	39.6	95.5	
	H / 1.0	X	45.7	-6.1	39.6	95.5	
	H / 1.0	Y	45.7	-6.1	39.6	95.5	
*1721.2	H / 1.0	Z	45.7	-6.1	39.6	95.5	5000.0
*2151.5	V / 1.0	X	46.3	-4.2	42.1	127.4	10845.8
	V / 1.0	Y	46.3	-4.2	42.1	127.4	
	V / 1.0	Z	46.3	-4.2	42.1	127.4	
	H / 1.0	X	46.3	-4.2	42.1	127.4	
	H / 1.0	Y	46.3	-4.2	42.1	127.4	
*2151.5	H / 1.0	Z	46.3	-4.2	42.1	127.4	10845.8

Test Method:	FCC Part 15 Subpart C, Field Strength of Emissions, Paragraph 15.231(b)						
	IC RSS-210, A1.1.2 (1) Field Strengths and Frequency Bands						
Customer:	Magnetek	Job No.	R-1297P-1				
Test Sample:	430-440MHz TelePendant Hand Held Remote Tx						
Model / S/O No.:	TX12P-2C / 29449T R	FCC ID:	TNE-430PEN2				
Operating Mode:	Continuously transmitting a RF signal at 430.3MHz on CH. A						
Technician:	R. Wilson	Date:	1-30-09				
Notes:	Detector: Peak, unless otherwise specified			Test Distance: 3 Meters			
Test Freq.	Antenna Pol./Height	EUT Orientation	Meter Reading	Correction Factor	Corrected Reading	Converted Reading	Peak Limit
MHz	(V/H)-Meters	X / Y / Z	dBμV	dB	dBμV/m	uV/m	uV/m
*2581.8	V / 1.0	X	46.0	-2.8	43.2	144.5	10845.8
	V / 1.0	Y	46.0	-2.8	43.2	144.5	
	V / 1.0	Z	46.0	-2.8	43.2	144.5	
	H / 1.0	X	46.0	-2.8	43.2	144.5	
	H / 1.0	Y	46.0	-2.8	43.2	144.5	
*2581.8	H / 1.0	Z	46.0	-2.8	43.2	144.5	10845.8
*3012.1	V / 1.0	X	48.0	-0.7	47.3	231.7	10845.8
	V / 1.0	Y	48.0	-0.7	47.3	231.7	
	V / 1.0	Z	48.0	-0.7	47.3	231.7	
	H / 1.0	X	48.0	-0.7	47.3	231.7	
	H / 1.0	Y	48.0	-0.7	47.3	231.7	
*3012.1	H / 1.0	Z	48.0	-0.7	47.3	231.7	10845.8
*3442.4	V / 1.0	X	47.4	1.3	48.7	272.3	10845.8
	V / 1.0	Y	47.4	1.3	48.7	272.3	
	V / 1.0	Z	47.4	1.3	48.7	272.3	
	H / 1.0	X	47.4	1.3	48.7	272.3	
	H / 1.0	Y	47.4	1.3	48.7	272.3	
*3442.4	H / 1.0	Z	47.4	1.3	48.7	272.3	10845.8
*3872.7	V / 1.0	X	47.1	2.2	49.3	291.7	5000.0
	V / 1.0	Y	47.1	2.2	49.3	291.7	
	V / 1.0	Z	47.1	2.2	49.3	291.7	
	H / 1.0	X	47.1	2.2	49.3	291.7	
	H / 1.0	Y	47.1	2.2	49.3	291.7	
*3872.7	H / 1.0	Z	47.1	2.2	49.3	291.7	5000.0
*4303.0	V / 1.0	X	46.2	4.2	50.4	331.1	5000.0
	V / 1.0	Y	46.2	4.2	50.4	331.1	
	V / 1.0	Z	46.2	4.2	50.4	331.1	
	H / 1.0	X	46.2	4.2	50.4	331.1	
	H / 1.0	Y	46.2	4.2	50.4	331.1	
*4303.0	H / 1.0	Z	46.2	4.2	50.4	331.1	5000.0
	The frequency range was scanned from 30 MHz to 4.4 GHz. All emissions not recorded were more						
	than 20 dB below the specified limit. Emissions from the EUT do not exceed the specified limits.						
	*=Noise Floor Measurements (Minimum system sensitivity)						

Test Method:	FCC Part 15 Subpart C, Field Strength of Emissions, Paragraph 15.231(b)						
	IC RSS-210, A1.1.2 (1) Field Strengths and Frequency Bands						
Customer:	Magnetek	Job No.		R-1297P-1			
Test Sample:	430-440MHz TelePendant Hand Held Remote Tx						
Model / S/O No.:	TX12P-2C / 29449T R	FCC ID:		TNE-430PEN2			
Operating Mode:	Continuously transmitting a RF signal at 430.3MHz on CH. A						
Technician:	R. Wilson	Date:		1-30-09			
Notes:	Average values calculated from Peak readings			Duty Cycle: 14.5% Duty Cycle Correction: -16.8dB			
Test Freq.	Antenna Pol./Height	EUT Orientation	Peak Reading	Duty Cycle Correction	Corrected Reading	Converted Reading	Avg. Limit
MHz	(V/H)-Meters	X / Y / Z	dBμV	dB	dBμV/m	uV/m	uV/m
430.3	V / 1.0	X	91.3	-16.8	74.5	5308.8	10845.8
	V / 1.0	Y	78.2	-16.8	61.4	1174.9	
	V / 1.0	Z	79.1	-16.8	62.3	1303.2	
	H / 1.0	X	78.3	-16.8	61.5	1188.5	
	H / 1.0	Y	89.6	-16.8	72.8	4365.2	
430.3	H / 1.8	Z	90.4	-16.8	73.6	4786.3	10845.8
860.6	V / 1.0	X	60.5	-16.8	43.7	153.1	1084.6
	V / 1.0	Y	55.6	-16.8	38.8	87.1	
	V / 1.0	Z	49.5	-16.8	32.7	43.2	
	H / 1.0	X	41.7	-16.8	24.9	17.6	
	H / 1.0	Y	52.3	-16.8	35.5	59.6	
860.6	H / 1.0	Z	54.7	-16.8	37.9	78.5	1084.6
*1290.9	V / 1.0	X	37.8	-16.8	21.0	11.2	1084.6
	V / 1.0	Y	37.8	-16.8	21.0	11.2	
	V / 1.0	Z	37.8	-16.8	21.0	11.2	
	H / 1.0	X	37.8	-16.8	21.0	11.2	
	H / 1.0	Y	37.8	-16.8	21.0	11.2	
*1290.9	H / 1.0	Z	37.8	-16.8	21.0	11.2	1084.6
*1721.2	V / 1.0	X	39.6	-16.8	22.8	13.8	500.0
	V / 1.0	Y	39.6	-16.8	22.8	13.8	
	V / 1.0	Z	39.6	-16.8	22.8	13.8	
	H / 1.0	X	39.6	-16.8	22.8	13.8	
	H / 1.0	Y	39.6	-16.8	22.8	13.8	
*1721.2	H / 1.0	Z	39.6	-16.8	22.8	13.8	500.0
*2151.5	V / 1.0	X	42.1	-16.8	25.3	18.4	1084.6
	V / 1.0	Y	42.1	-16.8	25.3	18.4	
	V / 1.0	Z	42.1	-16.8	25.3	18.4	
	H / 1.0	X	42.1	-16.8	25.3	18.4	
	H / 1.0	Y	42.1	-16.8	25.3	18.4	
*2151.5	H / 1.0	Z	42.1	-16.8	25.3	18.4	1084.6

Test Method:	FCC Part 15 Subpart C, Field Strength of Emissions, Paragraph 15.231(b)						
	IC RSS-210, A1.1.2 (1) Field Strengths and Frequency Bands						
Customer:	Magnetek				Job No.	R-1297P-1	
Test Sample:	430-440MHz TelePendant Hand Held Remote Tx						
Model / S/O No.:	TX12P-2C / 29449T R				FCC ID:	TNE-430PEN2	
Operating Mode:	Continuously transmitting a RF signal at 430.3MHz on CH. A						
Technician:	R. Wilson				Date:	1-30-09	
Notes:	Average values calculated from Peak readings Duty Cycle: 14.5% Duty Cycle Correction: -16.8dB						
Test Freq.	Antenna Pol./Height	EUT Orientation	Peak Reading	Duty Cycle Correction	Corrected Reading	Converted Reading	Avg. Limit
MHz	(V/H)-Meters	X / Y / Z	dBμV	dB	dBμV/m	uV/m	uV/m
*2581.8	V / 1.0	X	43.2	-16.8	26.4	20.9	1084.6
	V / 1.0	Y	43.2	-16.8	26.4	20.9	
	V / 1.0	Z	43.2	-16.8	26.4	20.9	
	H / 1.0	X	43.2	-16.8	26.4	20.9	
	H / 1.0	Y	43.2	-16.8	26.4	20.9	
*2581.8	H / 1.0	Z	43.2	-16.8	26.4	20.9	1084.6
*3012.1	V / 1.0	X	47.3	-16.8	30.5	33.5	1084.6
	V / 1.0	Y	47.3	-16.8	30.5	33.5	
	V / 1.0	Z	47.3	-16.8	30.5	33.5	
	H / 1.0	X	47.3	-16.8	30.5	33.5	
	H / 1.0	Y	47.3	-16.8	30.5	33.5	
*3012.1	H / 1.0	Z	47.3	-16.8	30.5	33.5	1084.6
*3442.4	V / 1.0	X	48.7	-16.8	31.9	39.4	1084.6
	V / 1.0	Y	48.7	-16.8	31.9	39.4	
	V / 1.0	Z	48.7	-16.8	31.9	39.4	
	H / 1.0	X	48.7	-16.8	31.9	39.4	
	H / 1.0	Y	48.7	-16.8	31.9	39.4	
*3442.4	H / 1.0	Z	48.7	-16.8	31.9	39.4	1084.6
*3872.7	V / 1.0	X	49.3	-16.8	32.5	42.2	500.0
	V / 1.0	Y	49.3	-16.8	32.5	42.2	
	V / 1.0	Z	49.3	-16.8	32.5	42.2	
	H / 1.0	X	49.3	-16.8	32.5	42.2	
	H / 1.0	Y	49.3	-16.8	32.5	42.2	
*3872.7	H / 1.0	Z	49.3	-16.8	32.5	42.2	500.0
*4303.0	V / 1.0	X	50.4	-16.8	33.6	47.9	500.0
	V / 1.0	Y	50.4	-16.8	33.6	47.9	
	V / 1.0	Z	50.4	-16.8	33.6	47.9	
	H / 1.0	X	50.4	-16.8	33.6	47.9	
	H / 1.0	Y	50.4	-16.8	33.6	47.9	
*4303.0	H / 1.0	Z	50.4	-16.8	33.6	47.9	500.0
	*=Noise Floor Measurements (Minimum system sensitivity)						

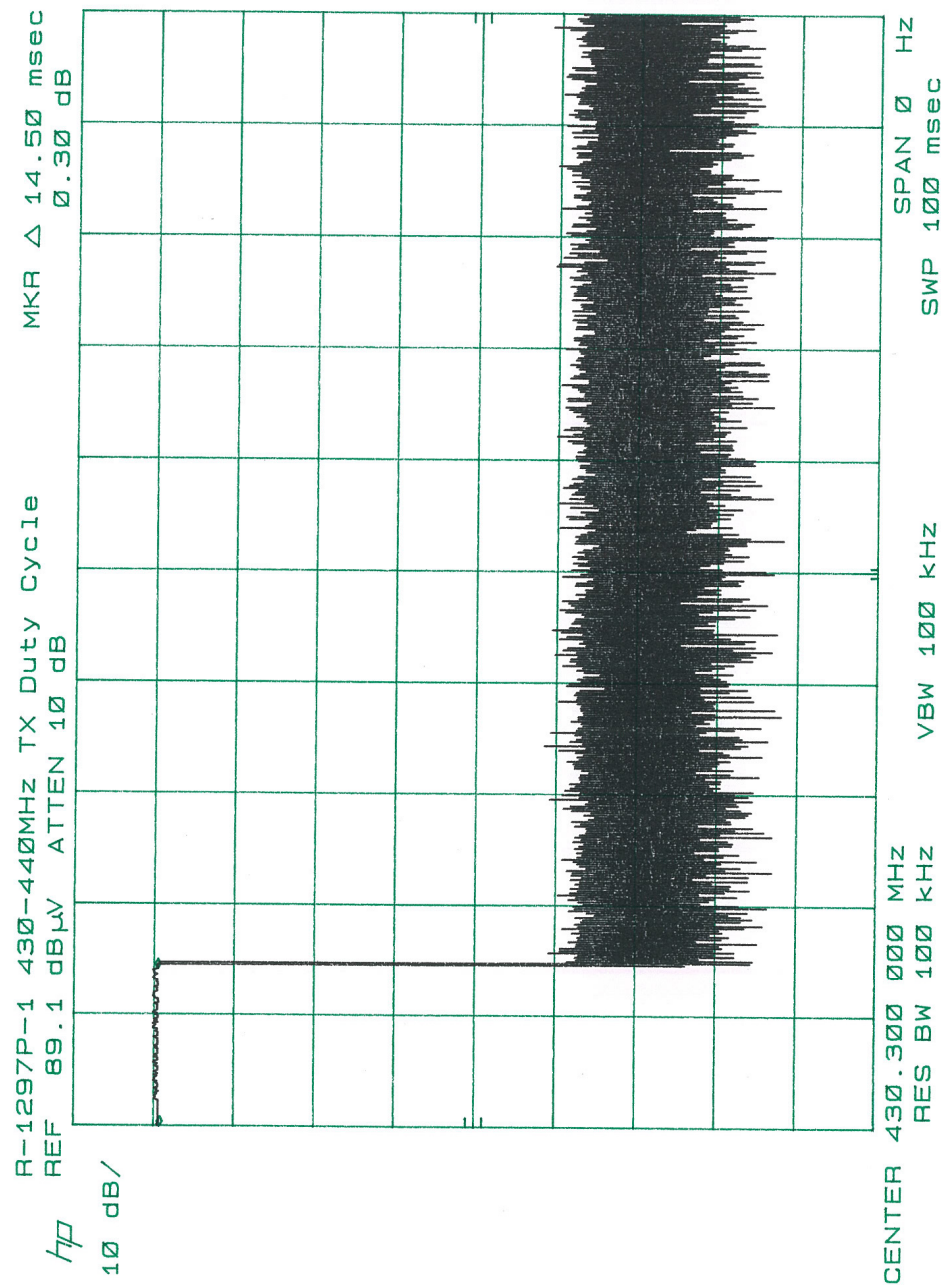
Test Method:	FCC Part 15 Subpart C, Field Strength of Emissions, Paragraph 15.231(b)						
	IC RSS-210, A1.1.2 (1) Field Strengths and Frequency Bands						
Customer:	Magnetek				Job No.	R-1297P-1	
Test Sample:	430-440MHz TelePendant Hand Held Remote Tx						
Model / S/O No.:	TX12P-2C / 29449T R				FCC ID:	TNE-430PEN2	
Operating Mode:	Continuously transmitting a RF signal at 439.7MHz on CH. C						
Technician:	R. Wilson				Date:	1-30-09	
Notes:	Detector: Peak, Unless otherwise specified				Test Distance: 3 Meters		
Test Freq.	Antenna Pol./Height	EUT Orientation	Meter Reading	Correction Factor	Corrected Reading	Converted Reading	Peak Limit
MHz	(V/H)/Meters	X / Y / Z	dBμV	dB	dBμV/m	uV/m	uV/m
439.7	V / 1.0	X	107.8	-15.2	92.6	42658.0	112375.0
	V / 1.0	Y	94.1	-15.2	78.9	8810.5	
	V / 1.0	Z	96.1	-15.2	80.9	11091.7	
	H / 1.0	X	95.3	-15.2	80.1	10115.8	
	H / 1.7	Y	107.7	-15.2	92.5	42169.7	
439.7	H / 1.8	Z	107.0	-15.2	91.8	38904.5	112375.0
879.4	V / 1.0	X	68.7	-6.3	62.4	1318.3	11237.5
	V / 1.0	Y	58.3	-6.3	52.0	398.1	
	V / 1.0	Z	57.0	-6.3	50.7	342.8	
	H / 1.0	X	48.1	-6.3	41.8	123.0	
	H / 1.0	Y	60.8	-6.3	54.5	530.9	
879.4	H / 1.0	Z	64.6	-6.3	58.3	822.2	11237.5
*1319.1	V / 1.0	X	45.2	-7.4	37.8	77.6	5000.0
	V / 1.0	Y	45.2	-7.4	37.8	77.6	
	V / 1.0	Z	45.2	-7.4	37.8	77.6	
	H / 1.0	X	45.2	-7.4	37.8	77.6	
	H / 1.0	Y	45.2	-7.4	37.8	77.6	
*1319.1	H / 1.0	Z	45.2	-7.4	37.8	77.6	5000.0
*1758.8	V / 1.0	X	46.8	-5.0	41.8	123.0	11237.5
	V / 1.0	Y	46.8	-5.0	41.8	123.0	
	V / 1.0	Z	46.8	-5.0	41.8	123.0	
	H / 1.0	X	46.8	-5.0	41.8	123.0	
	H / 1.0	Y	46.8	-5.0	41.8	123.0	
*1758.8	H / 1.0	Z	46.8	-5.0	41.8	123.0	11237.5
*2198.5	V / 1.0	X	46.5	-3.2	43.3	146.2	11237.5
	V / 1.0	Y	46.5	-3.2	43.3	146.2	
	V / 1.0	Z	46.5	-3.2	43.3	146.2	
	H / 1.0	X	46.5	-3.2	43.3	146.2	
	H / 1.0	Y	46.5	-3.2	43.3	146.2	
*2198.5	H / 1.0	Z	46.5	-3.2	43.3	146.2	11237.5
	*= Noise Floor Measurements (minimum sensitivity).						

Test Method:	FCC Part 15 Subpart C, Field Strength of Emissions, Paragraph 15.231(b)						
	IC RSS-210, A1.1.2 (1) Field Strengths and Frequency Bands						
Customer:	Magnetek				Job No.	R-1297P-1	
Test Sample:	430-440MHz TelePendant Hand Held Remote Tx						
Model / S/O No.:	TX12P-2C / 29449T R				FCC ID:	TNE-430PEN2	
Operating Mode:	Continuously transmitting a RF signal at 439.7MHz on CH. C						
Technician:	R. Wilson				Date:	1-30-09	
Notes:	Detector: Peak, unless otherwise specified				Test Distance: 3 Meters		
Test Freq.	Antenna Pol./Height	EUT Orientation	Meter Reading	Correction Factor	Corrected Reading	Converted Reading	Peak Limit
MHz	(V/H)-Meters	X / Y / Z	dBμV	dB	dBμV/m	uV/m	uV/m
*2638.2	V / 1.0	X	47.4	-2.6	44.8	173.8	11237.5
	V / 1.0	Y	47.4	-2.6	44.8	173.8	
	V / 1.0	Z	47.4	-2.6	44.8	173.8	
	H / 1.0	X	47.4	-2.6	44.8	173.8	
	H / 1.0	Y	47.4	-2.6	44.8	173.8	
*2638.2	H / 1.0	Z	47.4	-2.6	44.8	173.8	11237.5
*3077.9	V / 1.0	X	47.6	-0.7	46.9	221.3	11237.5
	V / 1.0	Y	47.6	-0.7	46.9	221.3	
	V / 1.0	Z	47.6	-0.7	46.9	221.3	
	H / 1.0	X	47.6	-0.7	46.9	221.3	
	H / 1.0	Y	47.6	-0.7	46.9	221.3	
*3077.9	H / 1.0	Z	47.6	-0.7	46.9	221.3	11237.5
*3517.6	V / 1.0	X	47.1	1.3	48.4	263.0	11237.5
	V / 1.0	Y	47.1	1.3	48.4	263.0	
	V / 1.0	Z	47.1	1.3	48.4	263.0	
	H / 1.0	X	47.1	1.3	48.4	263.0	
	H / 1.0	Y	47.1	1.3	48.4	263.0	
*3517.6	H / 1.0	Z	47.1	1.3	48.4	263.0	11237.5
*3957.3	V / 1.0	X	47.3	3.7	51.0	354.8	5000.0
	V / 1.0	Y	47.3	3.7	51.0	354.8	
	V / 1.0	Z	47.3	3.7	51.0	354.8	
	H / 1.0	X	47.3	3.7	51.0	354.8	
	H / 1.0	Y	47.3	3.7	51.0	354.8	
*3957.3	H / 1.0	Z	47.3	3.7	51.0	354.8	5000.0
*4397.0	V / 1.0	X	47.7	4.2	51.9	393.6	5000.0
	V / 1.0	Y	47.7	4.2	51.9	393.6	
	V / 1.0	Z	47.7	4.2	51.9	393.6	
	H / 1.0	X	47.7	4.2	51.9	393.6	
	H / 1.0	Y	47.7	4.2	51.9	393.6	
*4397.0	H / 1.0	Z	47.7	4.2	51.9	393.6	5000.0
	The frequency range was scanned from 30 MHz to 4.4 GHz. All emissions not recorded were more than 20 dB below the specified limit. Emissions from the EUT do not exceed the specified limits.						
	*=Noise Floor Measurements (Minimum system sensitivity)						

Test Method:	FCC Part 15 Subpart C, Field Strength of Emissions, Paragraph 15.231(b)						
	IC RSS-210, A1.1.2 (1) Field Strengths and Frequency Bands						
Customer:	Magnetek				Job No.	R-1297P-1	
Test Sample:	430-440MHz TelePendant Hand Held Remote Tx						
Model / S/O No.:	TX12P-2C / 29449T R				FCC ID:	TNE-430PEN2	
Operating Mode:	Continuously transmitting a RF signal at 439.7MHz on CH. C						
Technician:	R. Wilson				Date:	1-30-09	
Notes:	Average values calculated from Peak readings Duty Cycle: 14.5% Duty Cycle Correction: -16.8dB						
Test Freq.	Antenna Pol./Height	EUT Orientation	Peak Reading	Duty Cycle Correction	Corrected Reading	Converted Reading	Avg. Limit
MHz	(V/H)-Meters	X / Y / Z	dBμV	dB	dBμV/m	uV/m	uV/m
439.7	V / 1.0	X	92.6	-16.8	75.8	6166.0	11237.5
	V / 1.0	Y	78.9	-16.8	62.1	1273.5	
	V / 1.0	Z	80.9	-16.8	64.1	1603.2	
	H / 1.0	X	80.1	-16.8	63.3	1462.2	
	H / 1.7	Y	92.5	-16.8	75.7	6095.4	
439.7	H / 1.8	Z	91.8	-16.8	75.0	5623.4	11237.5
879.4	V / 1.0	X	62.4	-16.8	45.6	190.5	1123.8
	V / 1.0	Y	52.0	-16.8	35.2	57.5	
	V / 1.0	Z	50.7	-16.8	33.9	49.5	
	H / 1.0	X	41.8	-16.8	25.0	17.8	
	H / 1.0	Y	54.5	-16.8	37.7	76.7	
879.4	H / 1.0	Z	58.3	-16.8	41.5	118.9	1123.8
*1319.1	V / 1.0	X	37.8	-16.8	21.0	11.2	500.0
	V / 1.0	Y	37.8	-16.8	21.0	11.2	
	V / 1.0	Z	37.8	-16.8	21.0	11.2	
	H / 1.0	X	37.8	-16.8	21.0	11.2	
	H / 1.0	Y	37.8	-16.8	21.0	11.2	
*1319.1	H / 1.0	Z	37.8	-16.8	21.0	11.2	500.0
*1758.8	V / 1.0	X	41.8	-16.8	25.0	17.8	1123.8
	V / 1.0	Y	41.8	-16.8	25.0	17.8	
	V / 1.0	Z	41.8	-16.8	25.0	17.8	
	H / 1.0	X	41.8	-16.8	25.0	17.8	
	H / 1.0	Y	41.8	-16.8	25.0	17.8	
*1758.8	H / 1.0	Z	41.8	-16.8	25.0	17.8	1123.8
*2198.5	V / 1.0	X	43.3	-16.8	26.5	21.1	1123.8
	V / 1.0	Y	43.3	-16.8	26.5	21.1	
	V / 1.0	Z	43.3	-16.8	26.5	21.1	
	H / 1.0	X	43.3	-16.8	26.5	21.1	
	H / 1.0	Y	43.3	-16.8	26.5	21.1	
*2198.5	H / 1.0	Z	43.3	-16.8	26.5	21.1	1123.8
	*=Noise Floor Measurements (Minimum system sensitivity)						

Test Method:	FCC Part 15 Subpart C, Field Strength of Emissions, Paragraph 15.231(b)						
	IC RSS-210, A1.1.2 (1) Field Strengths and Frequency Bands						
Customer:	Magnetek				Job No.	R-1297P-1	
Test Sample:	430-440MHz TelePendant Hand Held Remote Tx						
Model / S/O No.:	TX12P-2C / 29449T R				FCC ID:	TNE-430PEN2	
Operating Mode:	Continuously transmitting a RF signal at 439.7MHz on CH. C						
Technician:	R. Wilson				Date:	1-30-09	
Notes:	Average values calculated from Peak readings Duty Cycle: 14.5% Duty Cycle Correction: -16.8dB						
Test Freq.	Antenna Pol./Height	EUT Orientation	Peak Reading	Duty Cycle Correction	Corrected Reading	Converted Reading	Avg. Limit
MHz	(V/H)-Meters	X / Y / Z	dBμV	dB	dBμV/m	uV/m	uV/m
*2638.2	V / 1.0	X	44.8	-16.8	28.0	25.1	1123.8
	V / 1.0	Y	44.8	-16.8	28.0	25.1	
	V / 1.0	Z	44.8	-16.8	28.0	25.1	
	H / 1.0	X	44.8	-16.8	28.0	25.1	
	H / 1.0	Y	44.8	-16.8	28.0	25.1	
*2638.2	H / 1.0	Z	44.8	-16.8	28.0	25.1	1123.8
*3077.9	V / 1.0	X	46.9	-16.8	30.1	32.0	1123.8
	V / 1.0	Y	46.9	-16.8	30.1	32.0	
	V / 1.0	Z	46.9	-16.8	30.1	32.0	
	H / 1.0	X	46.9	-16.8	30.1	32.0	
	H / 1.0	Y	46.9	-16.8	30.1	32.0	
*3077.9	H / 1.0	Z	46.9	-16.8	30.1	32.0	1123.8
*3517.6	V / 1.0	X	48.4	-16.8	31.6	38.0	1123.8
	V / 1.0	Y	48.4	-16.8	31.6	38.0	
	V / 1.0	Z	48.4	-16.8	31.6	38.0	
	H / 1.0	X	48.4	-16.8	31.6	38.0	
	H / 1.0	Y	48.4	-16.8	31.6	38.0	
*3517.6	H / 1.0	Z	48.4	-16.8	31.6	38.0	1123.8
*3957.3	V / 1.0	X	51.0	-16.8	34.2	51.3	500.0
	V / 1.0	Y	51.0	-16.8	34.2	51.3	
	V / 1.0	Z	51.0	-16.8	34.2	51.3	
	H / 1.0	X	51.0	-16.8	34.2	51.3	
	H / 1.0	Y	51.0	-16.8	34.2	51.3	
*3957.3	H / 1.0	Z	51.0	-16.8	34.2	51.3	500.0
*4397.0	V / 1.0	X	51.9	-16.8	35.1	56.9	500.0
	V / 1.0	Y	51.9	-16.8	35.1	56.9	
	V / 1.0	Z	51.9	-16.8	35.1	56.9	
	H / 1.0	X	51.9	-16.8	35.1	56.9	
	H / 1.0	Y	51.9	-16.8	35.1	56.9	
*4397.0	H / 1.0	Z	51.9	-16.8	35.1	56.9	500.0
	*=Noise Floor Measurements (Minimum system sensitivity)						

Duty Cycle Determination
FCC Part 15, Subpart C, Section 15.231(b)
IC RSS-210, Section A1.1.2(2)
Test Data



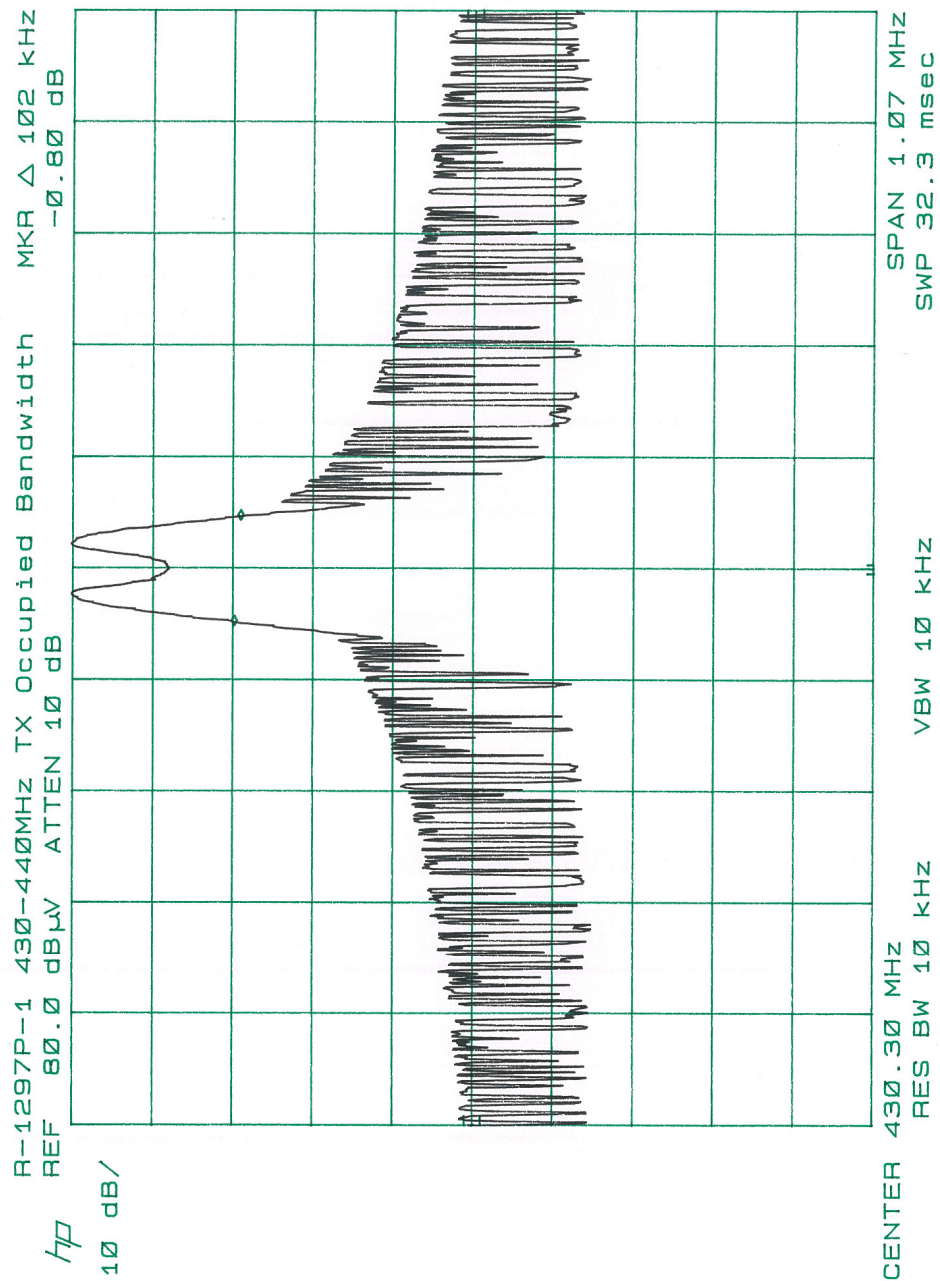
Test Method: Duty Cycle Determination, FCC Part 15.231(b), IC RSS-210, Section A1.1.2(2)

Notes: Measurement of cycle time = 14.5mSec.

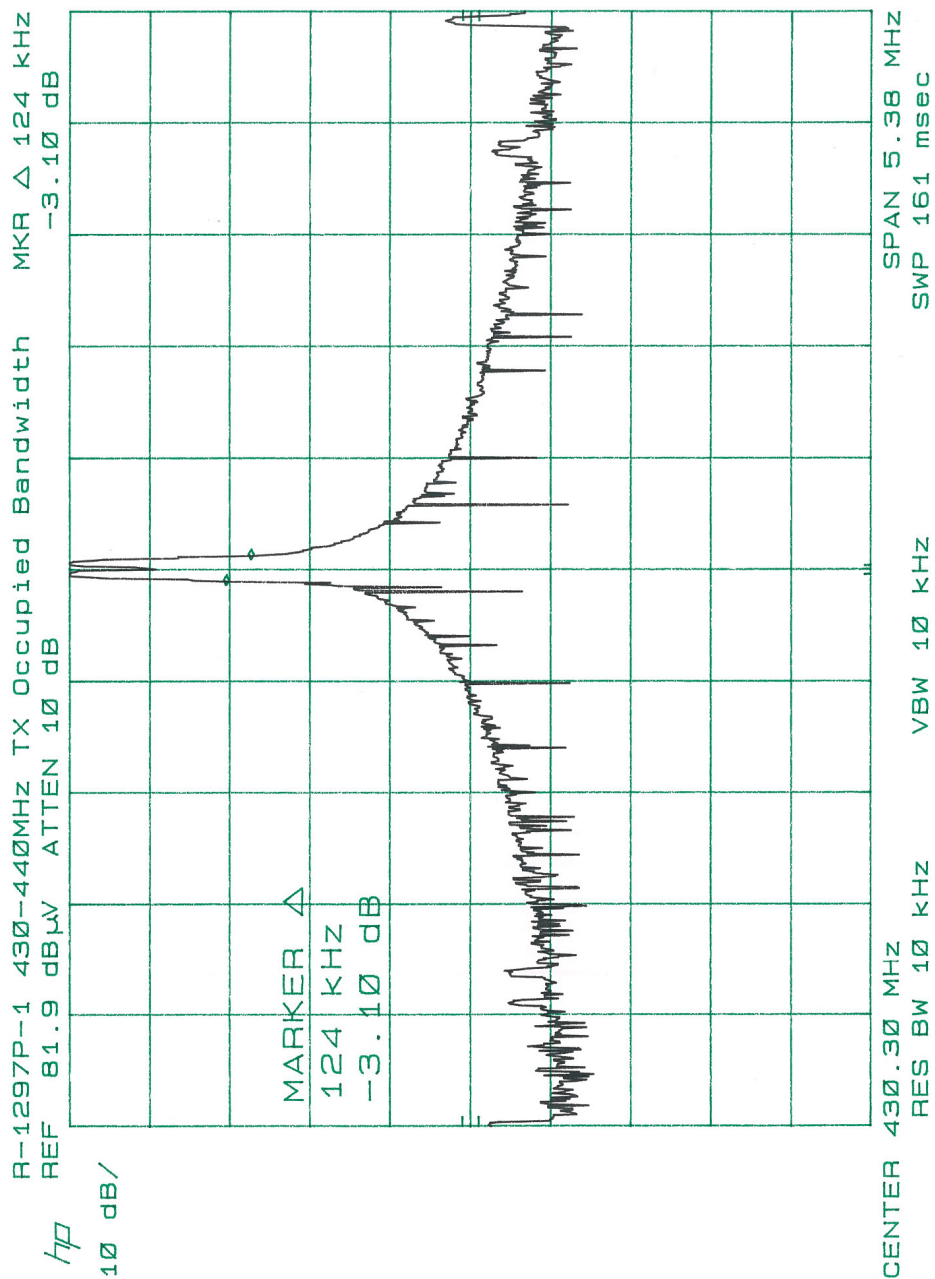
Customer	Magnetek	
Test Sample	430-440MHz TelePendant Hand Held Remote	
Model / S/O	TX12P-2C / 29449T R	
Date 1-29-09	Tech: R. Wilson	Sheet 1 of 1

**Field Strength of Spurious Emissions
FCC Part 15, Subpart C, Section 15.231(b)
IC RSS-210, Section A1.1.2(3)
Test Data**

Bandwidth of Emission
FCC Part 15, Subpart C, Section 15.231(c)
IC RSS-210, Section A1.1.3
Test Data


Test Method: Bandwidth of Emission, FCC Section 15.231(c), IC RSS-210, A1.1.3
Notes: Bandwidth does not exceed 0.25% of center frequency at the 20 dBc points

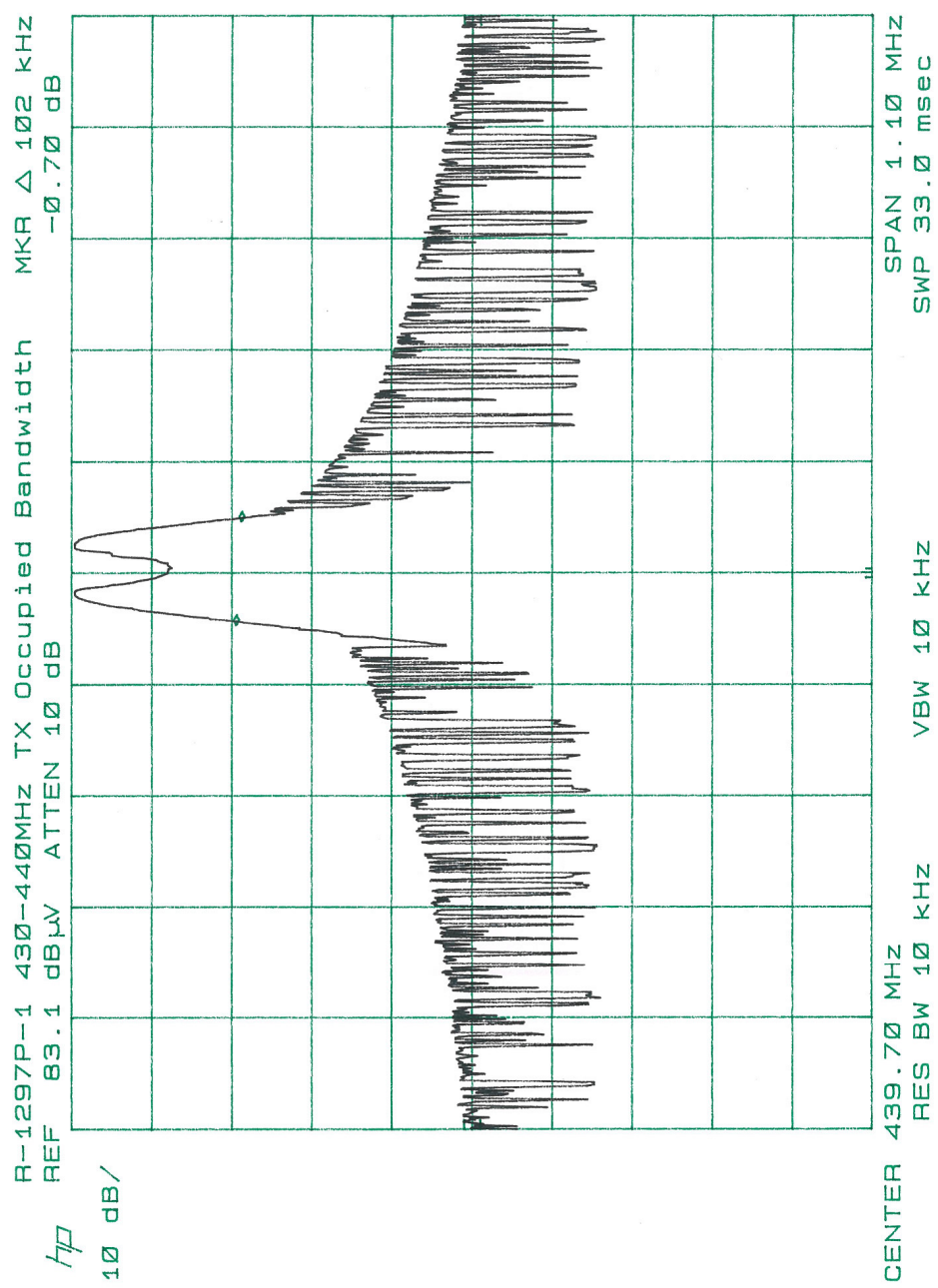
Customer	Magnetek	
Test Sample	430-440MHz TelePendant Hand Held Remote	
Model / S/O	TX12P-2C / 29449T R	
Date 1-29-09	Tech: R. Wilson	Sheet 1 of 4



Test Method: Bandwidth of Emission, FCC Section 15.231(c), IC RSS-210, A1.1.3

Notes: Bandwidth does not exceed 0.25% of center frequency at the 20 dBc points

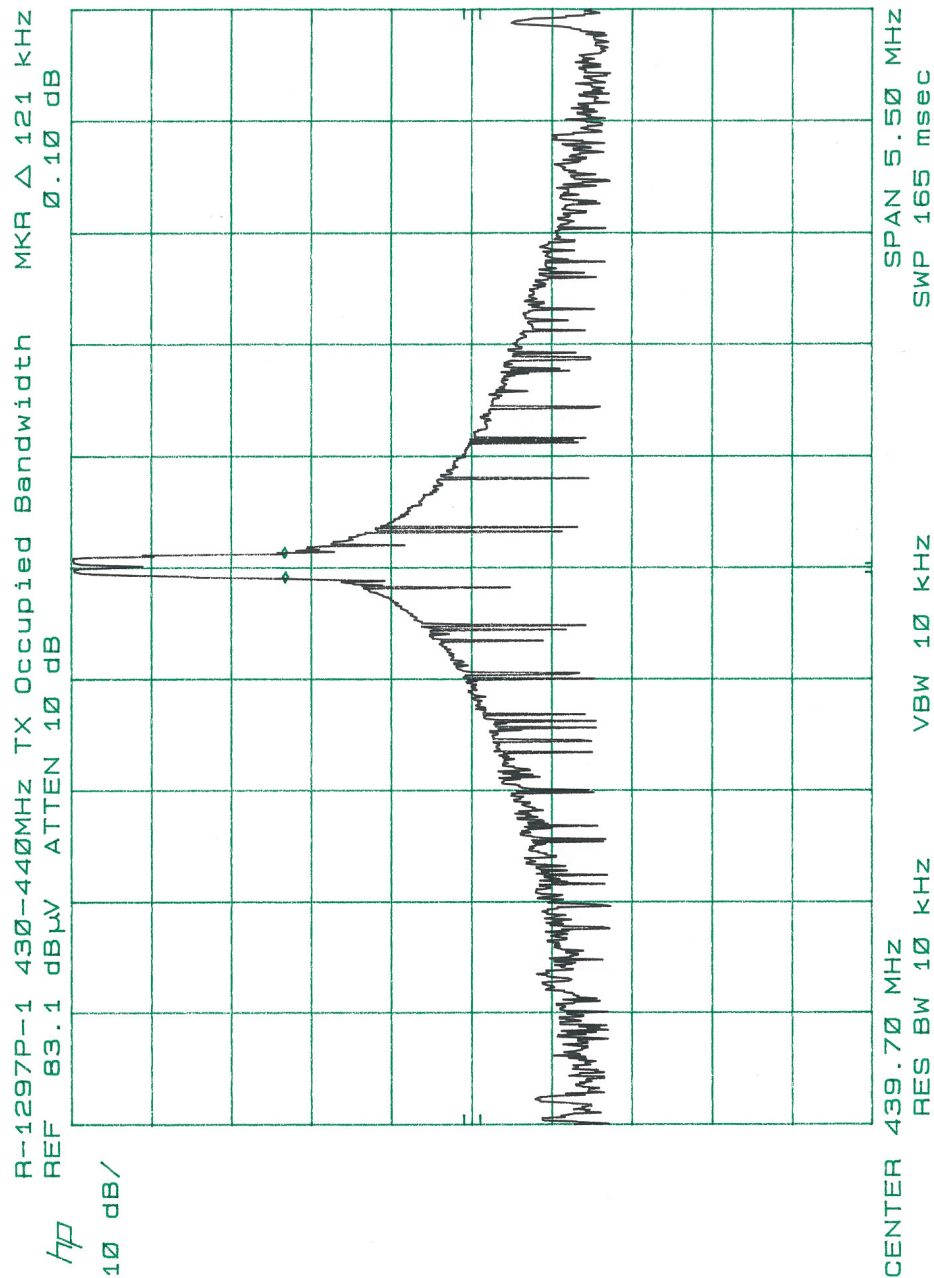
Customer	Magnetek	
Test Sample	430-440MHz TelePendant Hand Held Remote	
Model / S/O	TX12P-2C / 29449T R	
Date 1-29-09	Tech: R. Wilson	Sheet 2 of 4



Test Method: Bandwidth of Emission, FCC Section 15.231(c), IC RSS-210, A1.1.3

Notes: Bandwidth does not exceed 0.25% of center frequency at the 20 dBc points

Customer	Magnetek	
Test Sample	430-440MHz TelePendant Hand Held Remote	
Model / S/O	TX12P-2C / 29449T R	
Date 1-29-09	Tech: R. Wilson	Sheet 3 of 4



Test Method: Bandwidth of Emission, FCC Section 15.231(c), IC RSS-210, A1.1.3

Notes: Bandwidth does not exceed 0.25% of center frequency at the 20 dBc points

Customer	Magnetek	
Test Sample	430-440MHz TelePendant Hand Held Remote	
Model / S/O	TX12P-2C / 29449T R	
Date 1-29-09	Tech: R. Wilson	Sheet 4 of 4