L.S. Compliance, Inc.
W66 N220 Commerce Court
Cedarburg, WI 53012
262.375.4400 FAX: 262.375.4248

Compliance Testing of:

"Turn On" Key-FOB Transmitter

Prepared For:

Dukane Corporation
Attention: Mr. Dan Kramer
2900 Dukane Drive
St. Charles, IL 60174

Test Report Number:

304223

Test Date(s):

May 24th, 2004

Table of Contents

1. L.S. Compliance in Review

L.S. Compliance - Accreditations and Listing's

As an EMC Testing Laboratory, our Accreditation and Assessments are recognized through the following:

A2LA – American Association for Laboratory Accreditation

Accreditation based on ISO/IEC 17025 : 1999
with Electrical (EMC) Scope of Accreditation
A2LA Certificate Number: **1255.01**

Federal Communications Commission (FCC) – USA

Listing of 3 Meter Semi-Anechoic Chamber based on Title 47 CFR – Part 2.948
FCC Registration Number: **90756**

Listing of 3 and 10 meter OATS based on Title 47CFR – Part 2.948
FCC Registration Number: **90757**

Industry Canada

On file, 3 Meter Semi-Anechoic Chamber based on RSS-212 – Issue 1
File Number: **IC 3088-A**

On file, 3 and 10 Meter OATS based on RSS-212 – Issue 1
File Number: **IC 3088**

U. S. Conformity Assessment Body (CAB) Validation

Validated by the European Commission as a **U. S. Competent Body** operating under the U. S. /EU, Mutual Recognition Agreement (MRA) operating under the European Union Electromagnetic Compatibility –Council Directive 89/336/EEC, Article 10.2.
Date of Validation: **January 16, 2001**

Validated by the European Commission as a **U.S. Notified Body** operating under the U.S./EU, Mutual Recognition Agreement (MRA) operating under the European Union Telecommunication Equipment – Council Directive 99/5/EC, Annex V.

Date of Validation: **November 20, 2002**
Notified Body Identification Number: **1243**

2. A2LA Certificate of Accreditation

THE AMERICAN
ASSOCIATION
FOR LABORATORY
ACCREDITATION

ACCREDITED LABORATORY

A2LA has accredited

L.S. COMPLIANCE, INC.
Cedarburg, WI

for technical competence in the field of

Electrical Testing

The accreditation covers the specific tests and types of tests listed on the agreed scope of accreditation. This laboratory meets the requirements of ISO/IEC 17025 - 1999 "General Requirements for the Competence of Testing and Calibration Laboratories" and any additional program requirements in the identified field of testing. Testing and calibration laboratories that comply with this International Standard also operate in accordance with ISO 9001 or ISO 9002 (1994).

Presented this 26th day of March 2003.

President
For the Accreditation Council
Certificate Number 1255.01
Valid to January 31, 2005

For tests or types of tests to which this accreditation applies, please refer to the laboratory's Electrical Scope of Accreditation.

3. A2LA Scope of Accreditation

American Association for Laboratory Accreditation

SCOPE OF ACCREDITATION TO ISO/IEC 17025-1999

L.S. COMPLIANCE, INC.
W66 N220 Commerce Court
Cedarburg, WI 53012
James Blaha Phone: 262 375 4400

ELECTRICAL (EMC)

Valid to: January 31, 2005 Certificate Number: 1255-01

In recognition of the successful completion of the A2LA evaluation process, accreditation is granted to this laboratory to perform the following tests:

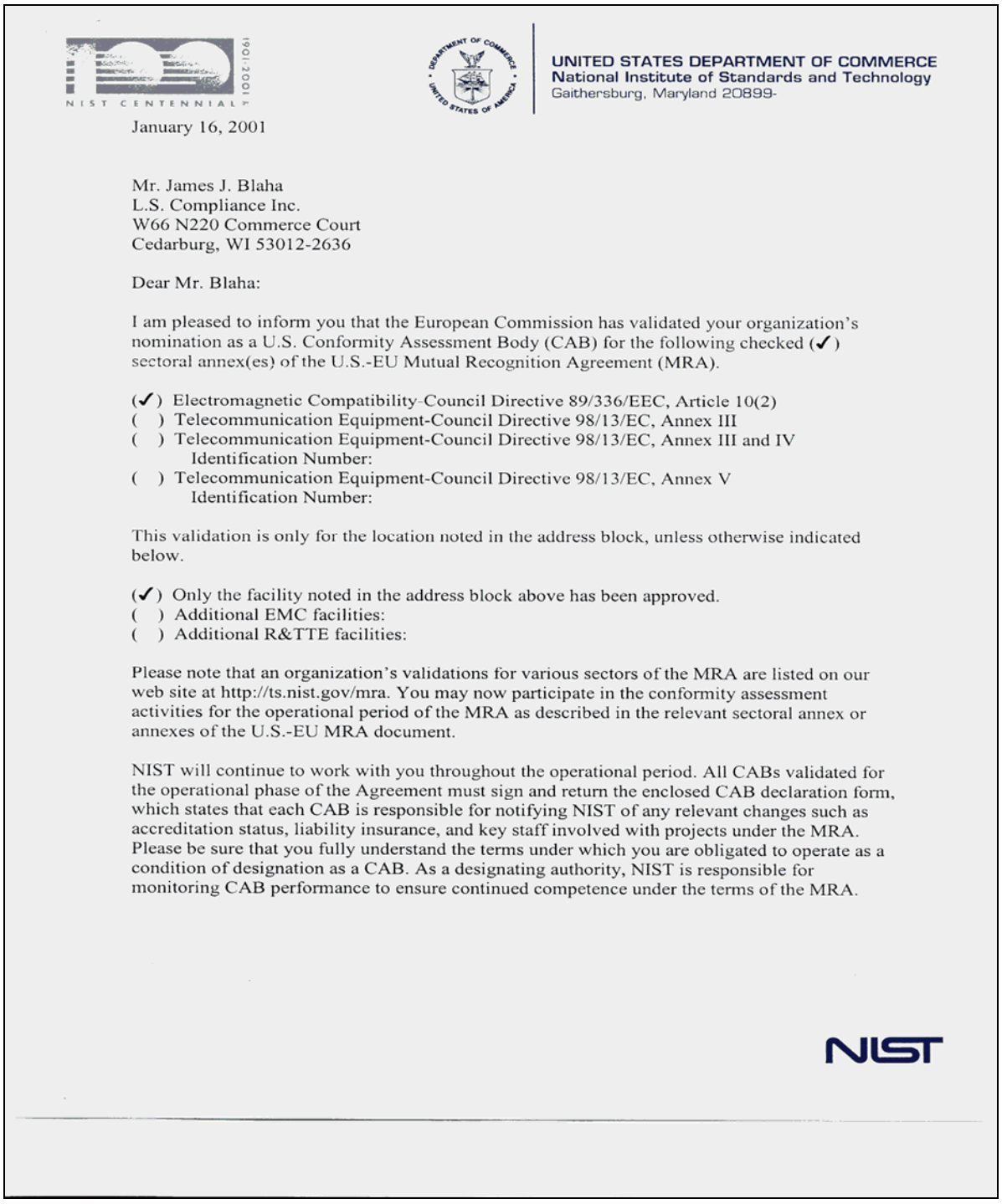
Test	Test Method(s)
Emissions	
Conducted	
Continuous/Discontinuous	Code of Federal Regulations (CFR) 47, FCC Method Parts 15, 18 using ANSI C63.4; EN: 55011, 55022, 50081-1, 50081-2; CISPR: 11, 12, 14-1, 22; CNS 13438
Radiated	Code of Federal Regulations (CFR) 47, FCC Method Parts 15, 18 using ANSI C63.4; EN: 55011, 55022, 50081-1, 50081-2; CISPR: 11, 12, 14-1, 22; CNS 13438
Current Harmonics	IEC 61000-3-2; EN 61000-3-2
Voltage Fluctuations & Flicker	IEC 61000-3-3; EN 61000-3-3
Immunity	EN: 50082-1, 50082-2 EN 61000-6-2 CISPR: 14-2, 24
Conducted Immunity	
Fast Transients/Burst	IEC 61000-4-4; EN 61000-4-4
Surge	IEC: 61000-4-5; ENV 50142; EN 61000-4-5
RF Fields	IEC: 61000-4-6; ENV 50141; EN 61000-4-6
Voltage Dips/Interruptions	IEC 61000-4-11; EN 61000-4-11

Roxanne M. Robinson

(A2LA Cert. No. 1255-01) 05/13/03 Page 1 of 2

5301 Buckeystown Pike, Suite 350 • Frederick, MD 21704-8373 • Phone: 301-644 3248 • Fax: 301-662 2974

4. **Validation Letter – U. S. Competent Body for EMC Directive 89/336/EEC**



UNITED STATES DEPARTMENT OF COMMERCE
National Institute of Standards and Technology
Gaithersburg, Maryland 20899-

January 16, 2001

Mr. James J. Blaha
L.S. Compliance Inc.
W66 N220 Commerce Court
Cedarburg, WI 53012-2636

Dear Mr. Blaha:

I am pleased to inform you that the European Commission has validated your organization's nomination as a U.S. Conformity Assessment Body (CAB) for the following checked (✓) sectoral annex(es) of the U.S.-EU Mutual Recognition Agreement (MRA).

(✓) Electromagnetic Compatibility-Council Directive 89/336/EEC, Article 10(2)
( ) Telecommunication Equipment-Council Directive 98/13/EC, Annex III
( ) Telecommunication Equipment-Council Directive 98/13/EC, Annex III and IV
Identification Number:
( ) Telecommunication Equipment-Council Directive 98/13/EC, Annex V
Identification Number:

This validation is only for the location noted in the address block, unless otherwise indicated below.

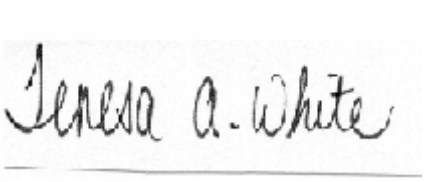
(✓) Only the facility noted in the address block above has been approved.
( ) Additional EMC facilities:
( ) Additional R&TTE facilities:

Please note that an organization's validations for various sectors of the MRA are listed on our web site at http://ts.nist.gov/mra. You may now participate in the conformity assessment activities for the operational period of the MRA as described in the relevant sectoral annex or annexes of the U.S.-EU MRA document.

NIST will continue to work with you throughout the operational period. All CABs validated for the operational phase of the Agreement must sign and return the enclosed CAB declaration form, which states that each CAB is responsible for notifying NIST of any relevant changes such as accreditation status, liability insurance, and key staff involved with projects under the MRA. Please be sure that you fully understand the terms under which you are obligated to operate as a condition of designation as a CAB. As a designating authority, NIST is responsible for monitoring CAB performance to ensure continued competence under the terms of the MRA.

NIST

5. Signature Page

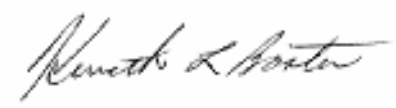


Prepared By: **July 2, 2004**

Teresa A. White, Document Coordinator **Date**

Tested By: **July 2, 2004**

Abtin Spantman, EMC Engineer **Date**



Approved By: **July 2, 2004**

Kenneth L. Boston, EMC Lab Manager **Date**
PE # 31926 Licensed Professional Engineer
Registered in the State of Wisconsin, United States

6. Product and General Information

Manufacturer:	Dukane Corporation					
Date(s) of Test:	"Turn On" Key-FOB Transmitter					
Test Engineer(s):		Tom Smith	√	Abtin Spantman		Ken Boston
Model #:	Turn On FOB					
Serial #:	Pre-production Sample					
Test Frequency and Voltage:	433.9 MHz 3.0 VDC					
Operation Mode:	Normal					

Environmental Conditions in the Test Lab:

Temperature:	20-25° C
Atmospheric Pressure:	86 kPa - 106 kPa
Humidity:	30-60%

7. Introduction

On May 24th, 2004 a series of Radiated Emissions tests were performed on one pre-production sample of the Dukane Corporation "Turn On" key-FOB transmitter, here forth referred to as the "Equipment Under Test" or "EUT".

These tests were performed using the test procedure outlined in ANSI C63.4, 2001 for intentional radiators, and in accordance with the limits set forth in FCC Part 15.231(b) for a periodic operation of a low power transmitter.

All Radiated Emission tests were performed to measure the emissions in the frequency bands described later in this report, and to determine whether said emissions are below the limits established by the aforementioned standards.

These tests were performed in accordance with the procedures described in the American National Standard for methods of measurements of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz (ANSI C63.4, 2001).

Also used as a reference for the EMI Receiver specification is the International Special Committee on Radio Interference – CISPR 16-1, 2002.

8. Product Description

This is a system for controlling a device on a vehicle with an onboard battery, such as an automobile. The system consists of a portable key-FOB transmitter and a receiver. The key-FOB transmitter (remote control unit) sends a coded message to a receiving unit. The receiving unit, upon detecting a valid signal, provides onboard battery voltage to a remote location. This voltage is toggled on or off, when the receiving unit detects a valid signal. The receiving unit is wired to the vehicle's onboard battery, and provides an output signal that can be used to control an apparatus, such as a light.

The transmitter operates on 3.0 VDC, as provided by one type "CR2032" coin-cell battery. The transmitter sends data packets upon the activation of any of the momentary keys, then ceases transmission as soon as the key is released. The last packet is transmitted completely, therefore the transmitter ceases transmission with less than 26 ms of lag after the release of the key.

9. Test Requirements

The EUT was tested for Radiated Emissions, and for compliance with the limits set forth by Title 47 CFR, FCC Parts 15.35, 15.205, 15.209, 15.231(a), 15.231(b) and 15.231(c) for manually operated periodic transmitters, as well as for compliance with Industry Canada RSS-210, for low power license-exempt radio-communication devices.

10. Summary of Test Report

The Equipment Under Test (EUT) was found to **MEET** the requirements as described within the specifications of Title 47 CFR, FCC Part 15.231 and Industry Canada RSS-210, Section 6.1 for a low power transmitter.

11. Radiated Emissions Test

Test Setup

The EUT was operated within the 3 Meter FCC listed Semi-Anechoic Chamber, located at L.S. Compliance, Inc., in Cedarburg, Wisconsin. The EUT was placed on an 80cm high, non-conductive pedestal, which was centered on a flush-mounted 2m diameter metal turntable. The EUT was configured to run in a continuous CW transmit mode during the 15.231(a) and 15.231(b) measurements. The EUT was then returned to normal operation for measurements of the data packet length and occupied bandwidth.

Test Procedure

The fundamental and spurious (harmonic) emissions of the transmitter were tested for compliance to Title 47 CFR, FCC Part 15.231(b) limits for manually operated periodic devices.

The EUT was tested from the lowest frequency generated by the transmitter (without going below 9 kHz) to the 10^{th} harmonic of the fundamental frequency generated by the device. The appropriate limits were also observed when the fundamental or spurious signals were located within any of the restricted bands as described in FCC Part 15.205(a).

The EUT was placed on an 80cm high non-conductive pedestal, with the Antenna Mast placed 3 m from the EUT. A Biconical Antenna was used to measure emissions from 30 MHz to 300 MHz, a Log Periodic Antenna was used to measure emissions from 300 MHz to 1000 MHz, and a Double Ridged Waveguide Horn Antenna was used to measure emissions above 1 GHz.

The EUT was configured to operate in a continuous C.W. transmit mode during the emissions measurements. The resultant signals from the fundamental harmonics and spurious signals were maximized by rotating the turntable 360 degrees, and by raising and lowering the Antenna between 1 and 4 meters. The EUT was also given three orthogonal orientations to determine the maximum signal levels, using both horizontal and vertical antenna polarities.

The battery voltage was monitored to ensure proper level, and replaced as necessary during the test sequence.

Test Results

No significant emissions were found, aside from the transmitter fundamental and harmonics. The unit was scanned for emissions over the range of 30 MHz to 5000 MHz to establish compliance with FCC Parts 15.231 and 15.205 while in a continuous transmit mode. At frequencies below the fundamental, no spurious signals, other than the noise floor of the system, could be found within 20 dB of the limits. A numeric list of measured emissions appears in the Data Chart(s) of this report.

Occupied Bandwidth

In addition to measuring the levels of Radiated Emissions, the Occupied Bandwidth of the transmitter was measured. In accordance with FCC Part 15.231(c), the 20 dB bandwidth of the transmitted signal should be within a window of 0.25% of the center carrier frequency. The resolution bandwidth was set to the closest available filter setting on the HP 8546A EMI Receiver, then corresponded to 5% of the allowable bandwidth determined in the calculation mentioned above, without going below the resolution bandwidth of 10 kHz, as dictated in ANSI C63.4, 2001, Section 13.1.7.

The EUT was activated to transmit in a continuous (normal) mode and was placed on the aforementioned test configuration within the 3 Meter Chamber. The transmitted signal was received on a Log Periodic Antenna and provided to the HP 8546A EMI Receiver, where the fundamental frequency was displayed, and a plot of the Occupied Bandwidth was produced. The measured Occupied Bandwidth of 775 kHz is within the calculated limit of 1084 kHz. Results can be seen in the Occupied Bandwidth scans in this report.

Test Equipment Utilized

A list of the test equipment used for the Radiated Emissions tests can be found in Appendix C of this report. All equipment is calibrated and used according to the operation manuals supplied by the manufacturers. All antenna calibrations were performed at a N.I.S.T. traceable site, and the resultant correction factors were entered into the HP 8546A EMI Receiver software database.

The connecting cables used were also measured for loss using a calibrated Signal Generator and the HP 8546A EMI Receiver. The resulting loss factors were entered into the HP 8546A EMI Receiver database. This allowed for automatic change in the antenna correction factor. The resulting data taken from the HP 8546A EMI Receiver is an actual reading and can be entered into the database as a corrected meter reading.

When a reading is taken using the Peak Detector, a duty cycle correction factor may be applied for conversion to an average reading. This operation can be used when measuring short-duration bursts of data transmission, under FCC Part 15.231.

The resultant average reading can then be compared to the appropriate limit in order to determine compliance with the limits. The HP 8546A EMI Receiver was operated with a bandwidth of 120 kHz when receiving signals below 1 GHz, and with a bandwidth of 1 MHz when receiving signals above 1 GHz, in accordance with CISPR 16.

Radiated Emissions Data Chart

3 Meter Measurements of Electromagnetic Radiated Emissions
Within the 3 Meter FCC Listed Semi-Anechoic Chamber
Test Standard: FCC Parts 15.205, 15.209 and 15.231(b)
Frequency Range Inspected: 30 MHz to 5000 MHz

Manufacturer:	Dukane Corporation										
Date(s) of Test:	May 24th, 2004										
Test Engineer:	√	Abtin Spantman		Tom Smith		Ken Boston					
Model #:	Turn On FOB										
Serial #:	Pre-production sample										
Voltage:	3.0 VDC										
Distance:	3m										
Configuration:	Continuous CW										
Detectors Used:		√	Peak		Quasi-Peak		Average				

Environmental Conditions in the Lab:
Temperature: 20 – 25°C
Atmospheric Pressure: 86 kPa – 106 kPa
Relative Humidity: 30 – 60 %

Test Equipment Used:
EMI Measurement Instrument: HP8546A
Biconical Antenna: EMCO #93110B
Log Periodic Antenna: EMCO #93146
Horn Antenna: EMCO #3115
Spectrum Analyzer: Agilent E4407B

The table depicts the level of significant radiated emissions found:

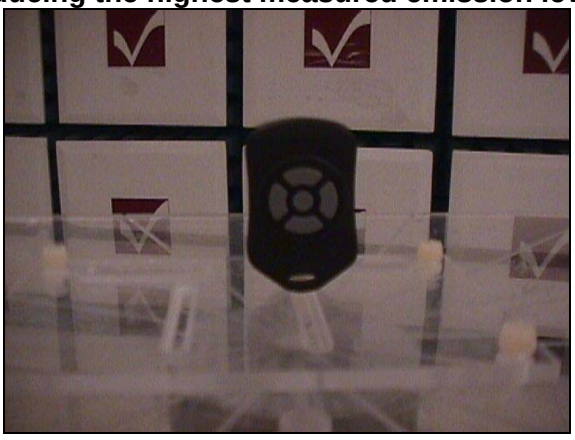
Frequency (MHz)	Antenna Polarity	Height (m)	Azimuth (Degree)	EMI Meter Reading (dBμ V/m)	Duty Cycle Allowance (dB)	Corrected Reading (dBμV/m)	15.231(b) Limit (dBμV/m)	Margin (dB)
433.9	V	1.30	85	72.7	6.6	66.1	80.8	14.7
867.8	V	1.25	290	49.6	6.6	43.0	60.8	17.8
1302	H	1.00	0	43.4	6.6	36.8	54.0	17.2
1736	H	1.15	270	53.9	6.6	47.3	60.8	13.5
2169	H	1.20	260	47.1	6.6	40.5	60.8	20.3
2603	H	1.00	275	39.3	6.6	32.7	60.8	28.1
3037	H	1.00	0	43.5	6.6	36.9	60.8	23.9
3471	H	1.00	0	46.1	6.6	39.5	60.8	21.3
3905	H	1.0	0	47.0	6.6	40.4	54.0	13.6
4339	H	1.00	0	48.7	6.6	42.1	54.0	11.9

Notes:

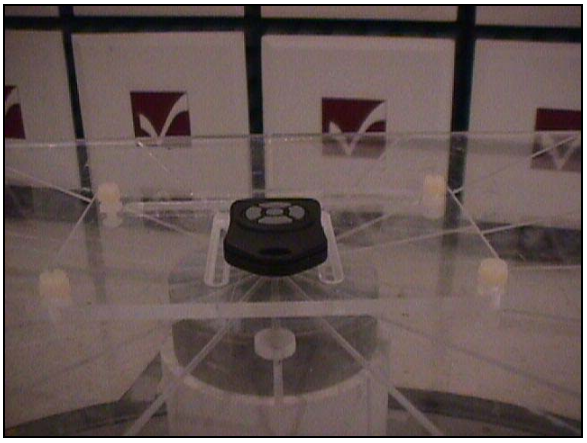
1) When measuring frequencies below 1 GHz, the 'Peak' detector function was used with a receiver bandwidth of 120 kHz, and a video BW of 300 kHz. When measuring frequencies above 1 GHz, the 'Peak' detector function was used with a receiver bandwidth of 1 MHz, and a video BW of 1 MHz.
2) Emission peaks measured did not exceed 20 dB above the limits, as required in 15.35(b).
3) No other significant emissions were noted. All other emissions observed were better than 20 dB below the limit.

Photo(s) of Radiated Emission Test Setup

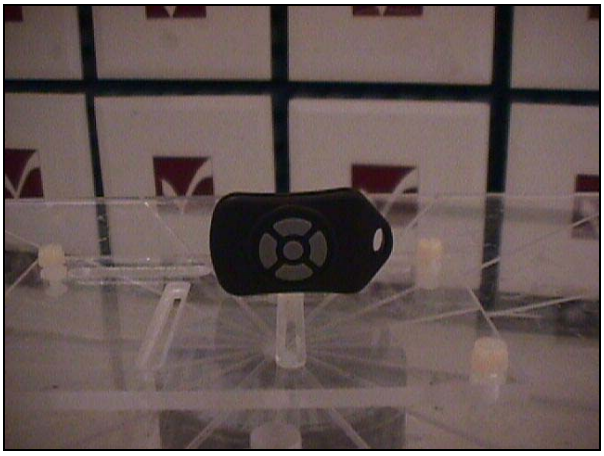
**The EUT shown in the vertical orientation,
producing the highest measured emission levels.**



Horizontal Orientation

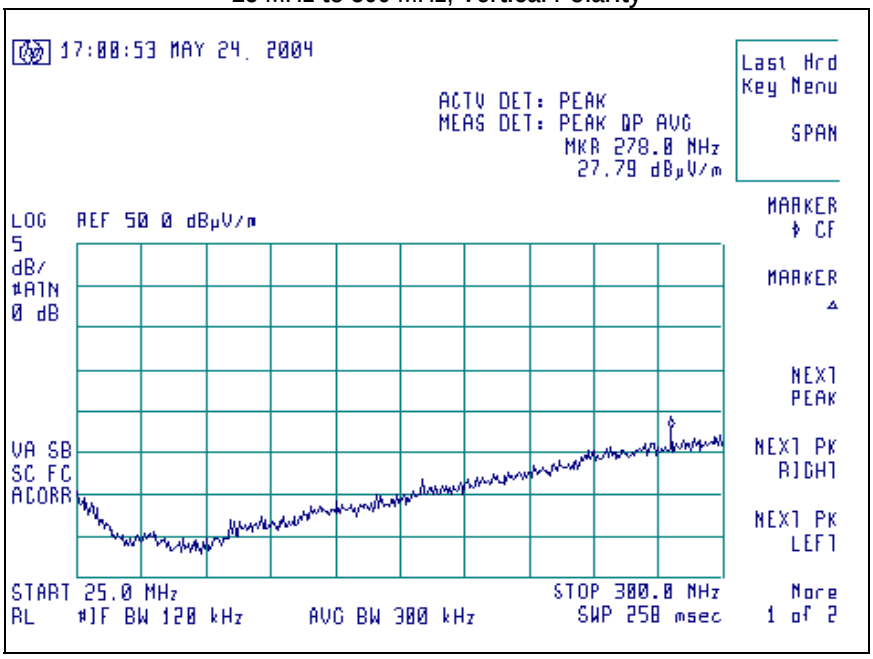


Side Orientation

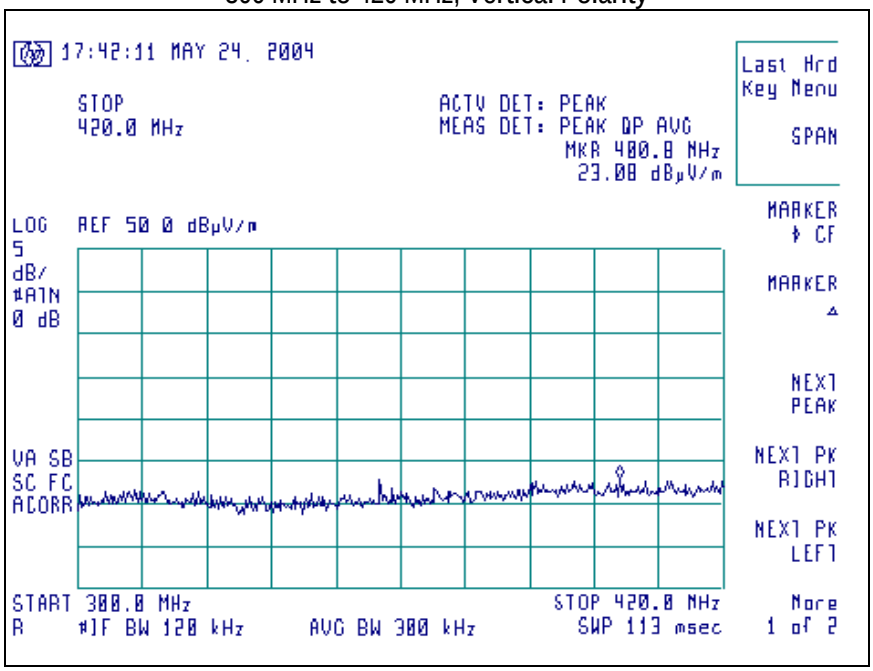


Signature Scans of Radiated Emissions

Signature Scan of Peak Radiated Emissions
25 MHz to 300 MHz, Vertical Polarity

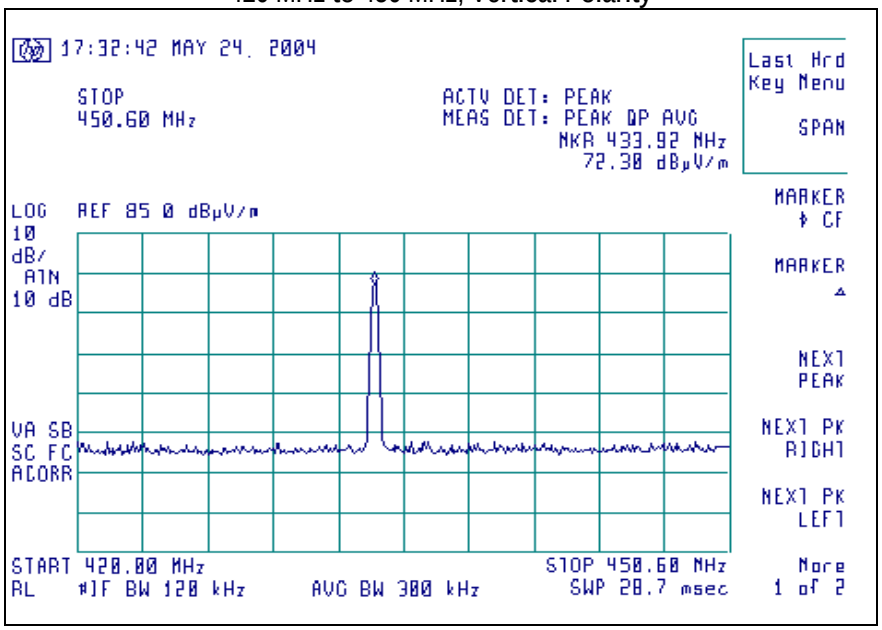


Signature Scan of Peak Radiated Emissions
300 MHz to 420 MHz, Vertical Polarity

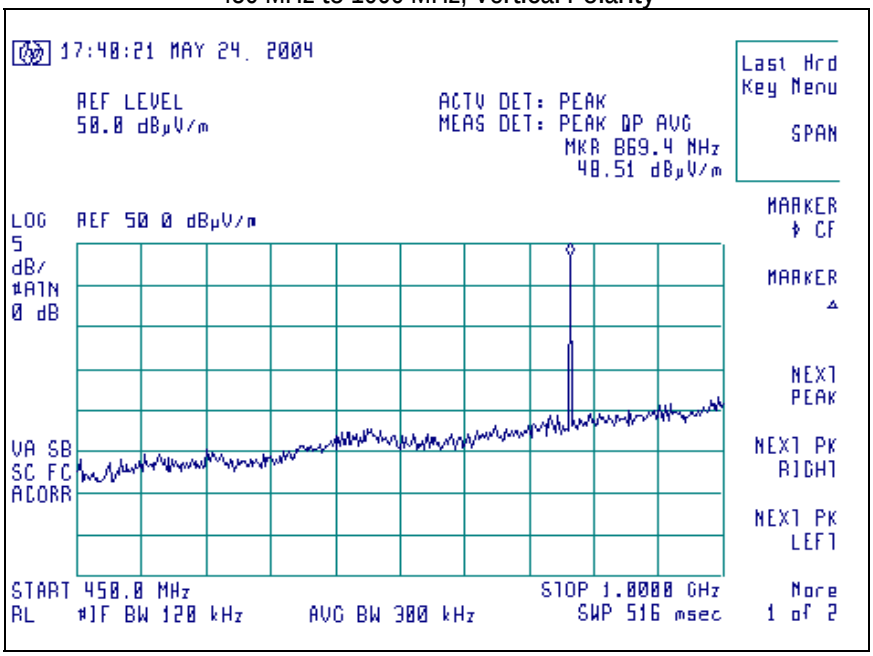


Signature Scans of Radiated Emissions (continued)

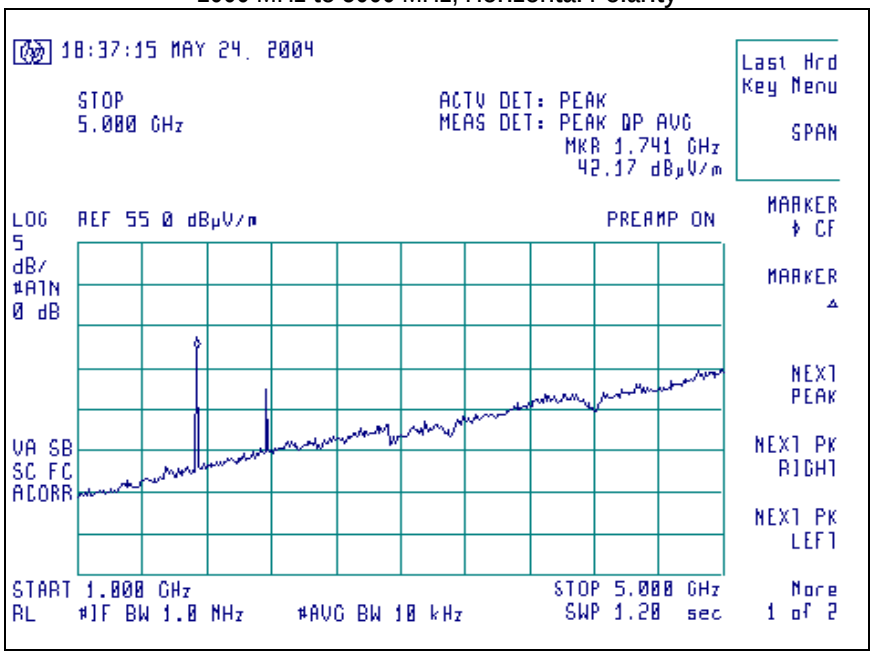
Signature Scan of Peak Radiated Emissions
420 MHz to 450 MHz, Vertical Polarity



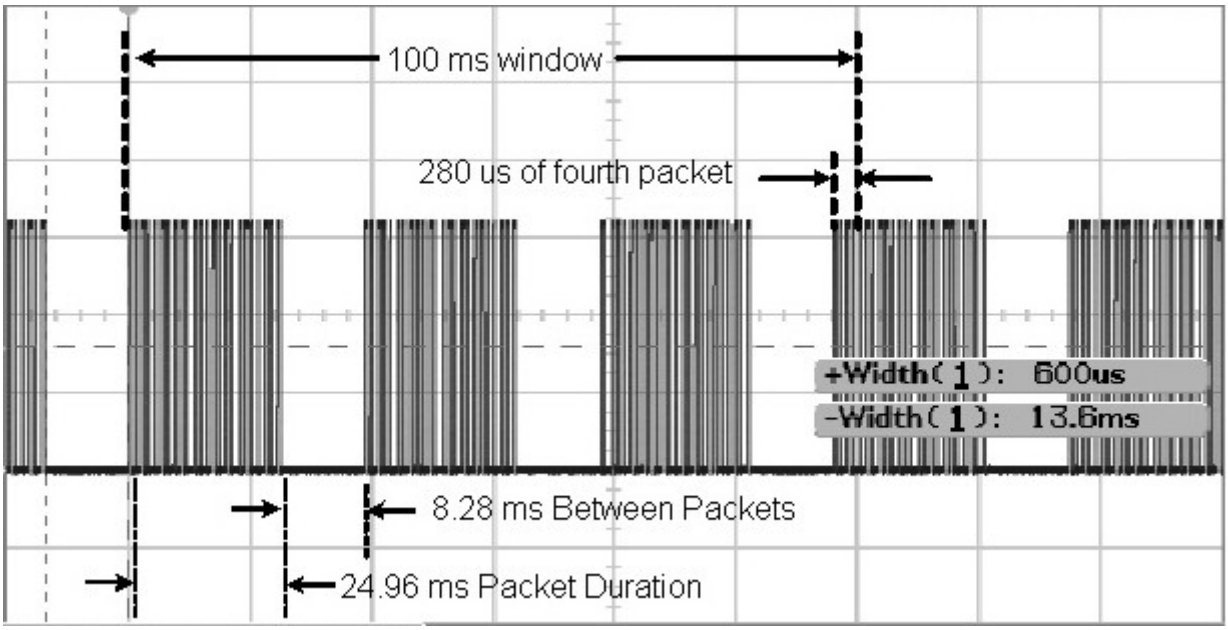
Signature Scan of Peak Radiated Emissions
450 MHz to 1000 MHz, Vertical Polarity



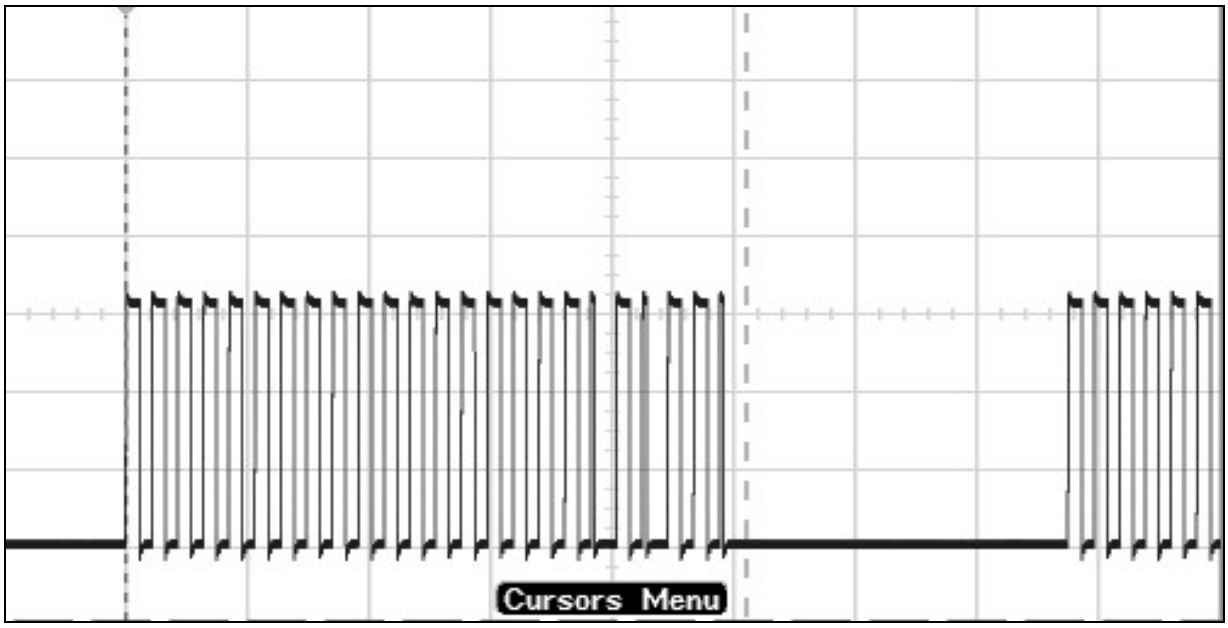
Signature Scan of Peak Radiated Emissions
1000 MHz to 5000 MHz, Horizontal Polarity



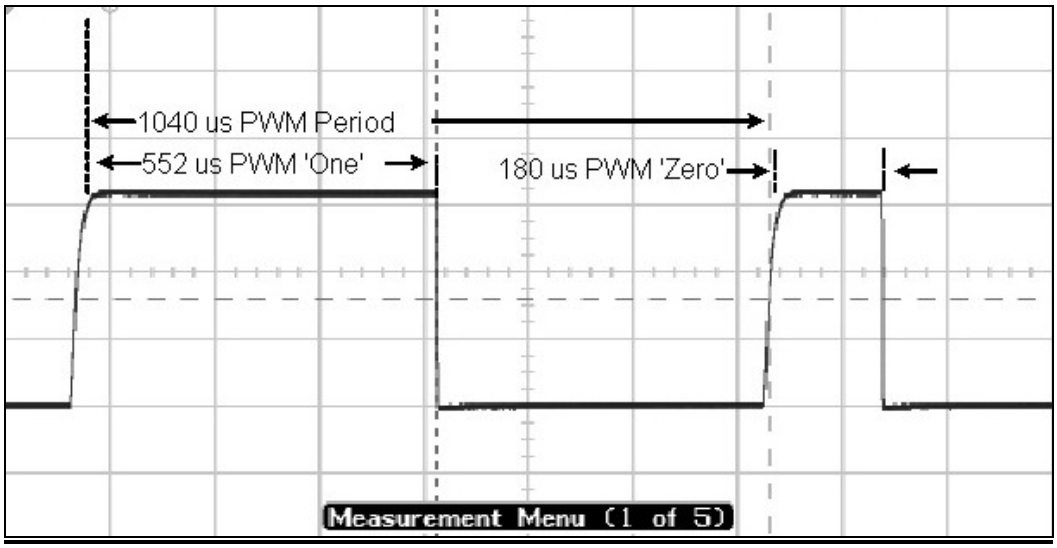
Data Packet Detail - 100 ms Window and transmit packet timing details



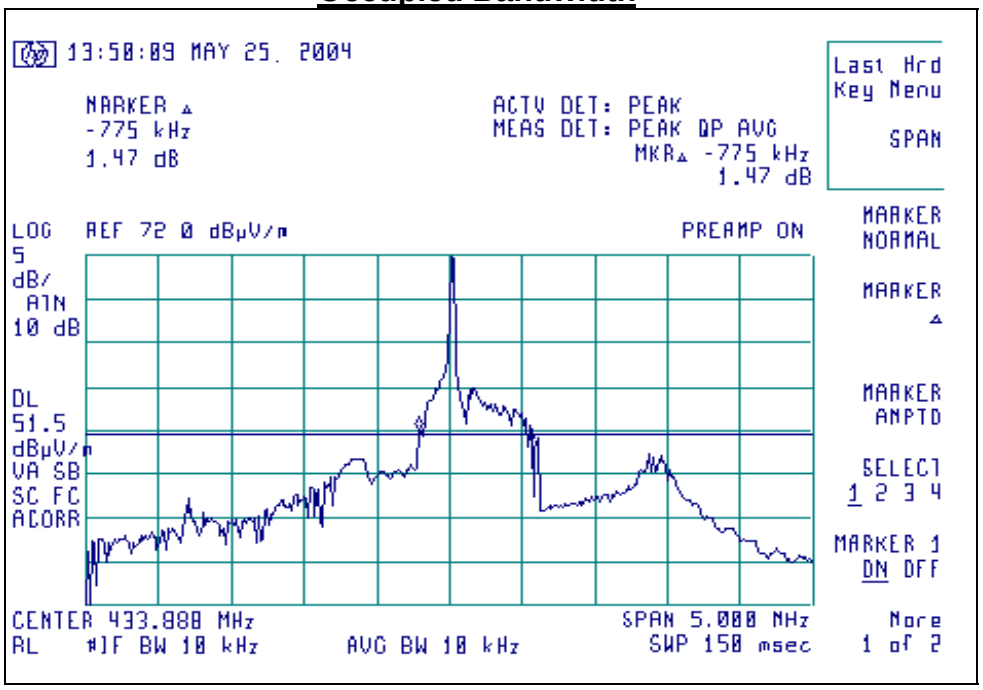
Individual Packet Details showing 24 bits of PWM encoded data



Individual Data Bit Details



Occupied Bandwidth



12. Conducted Emissions Test (AC Line)

This unit operates on one ‘CR2032’ type battery only.
Conducted emissions tests are not applicable to this unit and were not performed.

APPENDIX A

CALCULATIONS

Manufacturer: Dukane Corporation
Model: Turn On FOB
Serial: Pre-Production Unit

CALCULATION OF RADIATED EMISSIONS LIMITS FOR FCC PARTS 15.209, and 15.231(b) (260-470 MHz)

FIELD STRENGTH OF FUNDAMENTAL FREQUENCIES:
The calculation involves a linear interpolation of 3750 to 12500 µV/m over 260-470 MHz, where field strength of the fundamental frequency (f_0) when $260 \leq f_0 \leq 470$ MHz, can be found by: $3750 + 41.6667 (f_0 – 260)$, where f_0 is in MHz.

FIELD STRENGTH OF SPURIOUS/HARMONIC FREQUENCIES:
The spurious and harmonic emissions are subject to the limits expressed in FCC Parts 15.205 and 15.209, if within the restricted bands and dictated by the following calculation elsewhere.

The calculation involves a linear interpolation of 375 to 1250 µV/m over 260 to 470 MHz, where field strength of the harmonic frequencies ($2f_0$, $3f_0$…) when $260 \leq f_0 \leq 470$ MHz, can be found by: $375 + 4.1667(f_0 – 260)$, where f_0 is in MHz.

At fundamental frequency f_0 = 433.92 MHz

Fundamental Limit: 3750 + 41.6667 (433.92 – 260) = 10,996.67 µV/m @ 3m
Harmonic Limit: 375 + 4.1667 (433.92 – 260) = 1,099.67 µV/m @ 3m

Frequency (MHz)	Fundamental Limit (µV/m @ 3m)	Fundamental Limit (dBµV/m @ 3m)	Harmonic Limit (µV/m @3m)	Harmonic Limit (dBµV/m @ 3m)
433.92	10,996.67	80.8	1,099.67	60.8

APPENDIX B

DUTY CYCLE CORRECTION

For a graphical presentation of the data packets from the transmitter, refer to the Data Packet Detail – Radiated Emissions in this report. These images were captured on an oscilloscope, while probing the data line, going into the transmitter. The transmitter was functioning in normal operating mode, and activated by pressing one of the transmit buttons.

Average (Relaxation) Factor

Average Factor = 20 * Log_{10} (Worst Case EUT On-time over 100 ms time window)

The transmitter unit is normally in a sleep mode, and wakes up when a button is pressed. Upon pressing a button, the transmit IC is awakened and the information, encoded in an OOK format, is presented as the modulation source to the transmitter IC. There is a 16.6 ms wake-up pulse, then 7.25 ms of quiet, followed by six packets of redundant transmissions per button activation. The transmission ceases after the six packets are transmitted, even if the key is held in a depressed state. Each packet is 24.96 ms long and contains 24 bits of PWM encoded binary data, with each bit occupying 1040 μs of time. The PWM scheme produces 552 μs of logic 1 (OOK=on), and 180 μs of logic zero (OOK=on), out of a bit period of 1040 μs.

There are two scenarios to consider.

- The first scenario is when the wake up pulse is initiated and followed by packets in the 100 ms window. In this scenario, the transmitter will issue a wake-up pulse of 16.6 ms, followed by two full packets of 24.96 ms each, and 9.67 ms of the third packet over the air.

$$\frac{[(2bits)x(180\mu s)]+[(22bits)x(552\mu s)]}{(24bits)x(1040\mu s)}=\frac{12{,}504\mu s}{24{,}960\mu s}=50.1\%Occupancy$$

$$16.6ms+[(24.96ms+24.96ms+9.67ms)x50.1\%]=46.45ms$$

$$20Log_{10}\left[\frac{46.45ms}{100.00ms}\right]=-6.6dB$$

- The second scenario is when only the packets appear in the 100 ms window. In this scenario, the transmitter will issue three full packets of 24.96 ms each, and 280 μs of the fourth packet over the air.

$$[(24.96ms+24.96ms+24.96ms)x50.1\%]+280\mu s=37.79ms$$

$$20Log_{10}\left[\frac{37.79ms}{100.00ms}\right]=-8.4dB$$

Therefore the worst-case relaxation factor of 6.6 dB may be allowed for this product (first scenario)

OCCUPIED BANDWIDTH CALCULATIONS

FCC Part 15.231(c) states that the bandwidth of a manually operated device shall be no wider than 0.25% of the center frequency for devices operating between 70 MHz and 900 MHz.

Said bandwidth is determined at the -20 dB reference to peak carrier points.

Refer to the set of screen captures in this report, which show the actual Occupied Bandwidth of the transmitters as measured.

For this device, operating at a center frequency of 433.92 MHz, the allowed Occupied Bandwidth is calculated to be:

433.92 MHz X 0.0025 = 1.084 MHz

APPENDIX C - Test Equipment List

Asset #	Manufacturer	Model #	Serial #	Description	Date	Due
AA960008	EMCO	3816/2NM	9701-1057	Line Impedance Stabilization Network	9/03/03	9/03/04
AA960031	HP	119474A	3107A01708	Transient Limiter	Note 1	Note 1
AA960077	EMCO	93110B	9702-2918	Biconical Antenna	9/02/03	9/02/04
AA960078	EMCO	93146	9701-4855	Log-Periodic Antenna	9/02/03	9/02/04
AA960081	EMCO	3115	6907	Double Ridge Horn Antenna	3/18/04	3/18/05
CC00221C	Agilent	E4407B	US39160256	Spectrum Analyzer	11/04/03	11/04/04
EE960004	EMCO	2090	9607-1164	Device Controller	N/A	N/A
EE960013	HP	8546A	3617A00320	Receiver RF Section	9/04/03	9/04/04
EE960014	HP	85460A	3448A00296	Receiver Pre-Selector	9/04/03	9/04/04
N/A	LSC	Cable	0011	3 Meter ½" Armored Cable	6/07/03	6/07/04
N/A	LSC	Cable	0038	1 Meter RG 214 Cable	6/07/03	6/07/04
N/A	LSC	Cable	0050	10 Meter RG 214 Cable	6/07/03	6/07/04
N/A	Pasternack	Attenuator	N/A	10 dB Attenuator	Note 1	Note 1

Note 1 - Equipment calibrated within a traceable system.

Table of Expanded Uncertainty Values, (K=2) for Specified Measurements

Measurement Type	Particular Configuration	Uncertainty Values
Radiated Emissions	3 – Meter chamber, Biconical Antenna	4.24 dB
Radiated Emissions	3-Meter Chamber, Log Periodic Antenna	4.8 dB
Radiated Emissions	10-Meter OATS, Biconical Antenna	4.18 dB
Radiated Emissions	10-Meter OATS, Log Periodic Antenna	3.92 dB
Conducted Emissions	Shielded Room/EMCO LISN	1.60 dB
Radiated Immunity	3 Volts/Meter in 3-Meter Chamber	1.128 Volts/Meter
Conducted Immunity	3 Volts level	1.0 V