DLS ELECTRONIC SYSTEMS, INC.
NVLAP 100276-0
1250 Peterson Dr., Wheeling, IL 60090

Company: Cass Creek International, LLC
Model Tested: #938-Nomad MX3 Predator Receiver with Transmitter & #921-Nomad MX3 Deer Receiver with Transmitter
Report Number: 11558

FCC Rules and Regulations / Intentional Radiators

Periodic operational in the 40.66-40.70 MHz Band and above 70 MHz.

Part 15, Subpart C, Section 15.231

THE FOLLOWING **"MEETS"** THE ABOVE TEST SPECIFICATION

Formal Name:	Nomad MX3 Remote Control Electronic Game Call
Kind of Equipment:	Electronic Game Call
Test Configuration:	Stand Alone Tested at 3V DC (nominal)
Model Number(s):	#938-Nomad MX3 Predator Receiver with Transmitter & #921-Nomad MX3 Deer Receiver with Transmitter
Model(s) Tested:	#938-Nomad MX3 Predator Receiver with Transmitter & #921-Nomad MX3 Deer Receiver with Transmitter
Serial Number(s):	890834000938-Nomad MX3 Predator Receiver with Transmitter
Date of Tests:	June 21 & July 24, 2005
Test Conducted For:	Cass Creek International, LLC 1881 Lyndon Boulevard Falconer, New York 14733

SIGNATURE PAGE

Report By:

Arnom C. Rowe
Test Engineer
EMC-001375-NE

Reviewed By:

William Stumpf
OATS Manager

Approved By:

Brian Mattson
General Manager

Company Official:

Cass Creek International, LLC

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United States Department of Commerce
National Institute of Standards and Technology

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WHEELING, IL

is recognized by the National Voluntary Laboratory Accreditation Program for satisfactory compliance with criteria set forth in NIST Handbook 150:2001, all requirements of ISO/IEC 17025:1999, and relevant requirements of ISO 9002:1994. Accreditation is awarded for specific services, listed on the Scope of Accreditation, for:

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D.L.S. ELECTRONIC SYSTEMS, INC.
1250 Peterson Drive
Wheeling, IL 60090-6454
Mr. Brian J. Mattson
Phone: 847-537-6400 Fax: 847-537-6488
E-Mail: bmattson@dlsemc.com
URL: http://www.dlsemc.com

NVLAP Code	*Designation / Description*
Emissions Test Methods:	
12/160D21	RTCA/DO-160D (1997): Environmental Conditions and Test Procedures for Airborne Equipment - Section 21 - Emission of Radio Frequency Energy
12/300220a	EN 300 220-1 V1.3.1 (2000-09): Electromagnetic compatibility and Radio spectrum Matters; Short Range Devices; Radio equipment to be used in the 25 MHz to 1000 MHz frequency range with power levels ranging up to 500 mW; Part 1: Technical characteristics and test methods
12/300386a	EN 300 386 V.1.2.1: Electromagnetic compatibility and radio spectrum matter (ERM); Telecommunication network equipment; Electromagnetic compatibility (EMC) requirements
12/C63.17	ANSI C63.17-1998: American National Standard for Methods of Measurement of the Electromagnetic and Operational Compatibility of Unlicensed Personal Communications Services (UPCS) Devices

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NVLAP Code	*Designation / Description*
12/C6317a	ANSI C63.17-1998: American National Standard for Methods of Measurement of the Electromagnetic and Operational Compatibility of Unlicensed Personal Communications Services (UPCS) Devices
12/CIS11	IEC/CISPR 11 + A1 (1997), EN 55011 (1998), AS/NZS CISPR 11 (2002), and CNS 13803 (1997): Limits and Methods of Measurement of Electromagnetic Disturbance Characteristics of Industrial, Scientific, and Medical Radio-Frequency Equipment
12/CIS13	IEC/CISPR 13 (2001-04), EN 55013 (2001), AS/NZS CISPR 13 (2003), and CNS 13439 (2001): Sound and television broadcast receivers and associated equipment - Radio disturbance characteristics - Limits and methods of measurement
12/CIS14	CISPR 14-1 (March 30, 2000): Limits and Methods of Measurement of Radio interference Characteristics of Household Electrical Appliances, Portable Tools and Similiar Electrical Apparatus - Part 1: Emissions
12/CIS14a	EN 55014-1 (1993), A1 (1997), A2 (1999):
12/CIS14d	IEC/CISPR 14-1 (2001) and A1 (2001): Electromagnetic Compatibility - Requirements for household appliances, electric tools and similar apparatus - Part 1: Emissions
12/CIS14e	EN 55014-1 (2001) and A1 (2001): Electromagnetic Compatibility - Requirements for household appliances, electric tools and similar apparatus - Part 1: Emission

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12/CIS14f	AS/NZS 1044 (2001) and A1 (2001): Electromagnetic Compatibility - Requirements for household appliances, electric tools and similar apparatus - Part 1: Emission
12/CIS14g	CNS 13783-1 (2001) and A1 (2001): Electromagnetic Compatibility - Requirements for household appliances, electric tools and similar apparatus - Part 1: Emission
12/CIS15	IEC/CISPR 15 (2000) + A1 (2001): Limits and methods of measurements of radio disturbance characteristics of electrical lighting and similar equipment
12/CIS15a	AS/NZS CISPR 15 (2002): Limits and methods of measurements of radio disturbance characteristics of electrical lighting and similar equipment
12/CIS15b	CNS 13439 (2000) + A1 (2001): Limits and methods of measurement of radio disturbance characteristics of electrical lighting and similar equipment
12/CIS15c	EN 55015 (2000) + A1 (2001): Limits and methods of measurement of radio disturbance characteristics of electrical lighting and similar equipment
12/CIS22	IEC/CISPR 22 (1997) & EN 55022 (1998) + A1(2000): Limits and methods of measurement of radio disturbance characteristics of information technology equipment
12/CIS22a	IEC/CISPR 22 (1993) and EN 55022 (1994): Limits and methods of measurement of radio disturbance characteristics of information technology equipment, Amendment 1 (1995) and Amendment 2 (1996)

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NVLAP Code	*Designation / Description*
12/CIS22b	CNS 13438 (1997): Limits and Methods of Measurement of Radio Interference Characteristics of Information Technology Equipment
12/EM02a	IEC 61000-3-2, Edition 2.1 (2001-10), EN 61000-3-2 (2000), and AS/NZS 2279.1 (2000): Electromagnetic compatibility (EMC) Part 3-2: Limits - Limits for harmonic current emissions (equipment input current <= 16 A)
12/EM03	IEC 61000-3-3(1995); EN 61000-3-3(1995); AS/NZS 2279.3(1995): EMC - Part 3: Limits - Section 3. Limitation of voltage fluctuations and flicker in low-voltage supply systems for equipment with rated current up to 16A
12/F18	FCC OST/MP-5 (1986): FCC Methods of Measurement of Radio Noise Emissions for ISM Equipment (cited in FCC Method 47 CFR Part 18 - Industrial, Scientific, and Medical Equipment)
12/FCC15b	ANSI C63.4 (2001) with FCC Method 47 CFR Part 15, Subpart B: Unintentional Radiators
12/FCC15c	ANSI C63.4 (2001) with FCC Method 47 CFR Part 15, Subpart C: Intentional Radiators
12/FCC15d	ANSI C63.4(2001) with FCC Method 47 CFR Part 15, Subpart D: Unlicensed Personal Communications Service Devices

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NVLAP Code	*Designation / Description*
12/FCC15e	ANSI C63.4 (2001) with FCC Method 47 CFR Part 15, Subpart E: Unlicensed National Information Infrastructure Service Devices
12/T51	AS/NZS CISPR 22 (2002) and AS/NZS 3548 (1997): Electromagnetic Interference - Limits and Methods of Measurement of Information Technology Equipment
12/VCCIa	Agreement of Voluntary Control Council for Interference by Information Technology Equipment - Technical Requirements: V-3/02.04

Immunity Test Methods:

12/1089a	GR-1089-CORE, Issue 3, October 2002: Electromagnetic Compatibility and Electrical Safety - Generic Criteria for Network Telecommunications Equipment (sections 2, 3.3, and 3.5)
12/160D16	RTCA/DO-160D (1997): Environmental Conditions and Test Procedures for Airborne Equipment - Section 16 - Power Input
12/160D17	RTCA/DO-160D (1997): Environmental Conditions and Test Procedures for Airborne Equipment - Section 17 - Voltage Spike
12/160D18	RTCA/DO-160D (1997): Environmental Conditions and Test Procedures for Airborne Equipment - Section 18 - Audio Frequency Conducted Susceptibility - Power Inputs

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NVLAP Code	*Designation / Description*
12/160D19	RTCA/DO-160D (1997): Environmental Conditions and Test Procedures for Airborne Equipment - Section 19 - Induced Signal Susceptibility
12/160D20	RTCA/DO-160D (1997): Environmental Conditions and Test Procedures for Airborne Equipment - Section 20 - Radio Frequency Susceptibility (Radiated and Conducted)
12/160D22	RTCA/DO-160D (1997): Environmental Conditions and Test Procedures for Airborne Equipment - Section 22 - Lightning Induced Transient Susceptibility
12/160D25	RTCA/DO-160D (1997): Environmental Conditions and Test Procedures for Airborne Equipment - Section 25 - Electrostatic Dischare (ESD)
12/I01	IEC 61000-4-2, Ed. 2.1 (2001), A1, A2; EN 61000-4-2: Electrostatic Discharge Immunity Test
12/I02	IEC 61000-4-3, Ed. 2.0 (2002-03); EN 61000-4-3 (2002): Radiated Radio-Frequency Electromagnetic Field Immunity Test
12/I03	IEC 61000-4-4(1995), A1(2000), A2(2001); EN 61000-4-4: Electromagnetic compatibility (EMC) - Part 4-4: Testing and measurement techniques - Electrical Fast Transient/Burst Immunity Test
12/I04	IEC 61000-4-5, Ed. 1.1 (2001-04); EN 61000-4-5: Electromagnetic compatibility (EMC) - Part 4-5: Testing and measurement techniques - Surge immunity test

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NVLAP Code	*Designation / Description*
12/I05	IEC 61000-4-6, Ed. 2.0 (2003-05); EN 61000-4-6: Electromagnetic compatibility (EMC) - Part 4-6: Testing and measurement techniques - Immunity to conducted disturbances, induced by radio-frequency fields
12/I06	IEC 61000-4-8, Ed. 1.1 (2001); EN 61000-4-8: Electromagnetic compatibility (EMC) - Part 4-8: Testing and measurement techniques - Power frequency magnetic field immunity test
12/I07	IEC 61000-4-11, Ed. 1.1 (2001-03); EN 61000-4-11: Voltage Dips, Short Interruptions and Voltage Variations Immunity Tests
12/J111324	SAE J1113/24: Immunity to radiated electromagnetic fields; 10 kHz to 200 MHz - Crawford TEM cell and 10 kHz to 5 GHz - Wideband TEM cell
12/J111341	SAE J1113/41 (1995-07): Limits and methods of measurement of radio disturbance characteristics of components and modules for the protection of receivers used on board vehicles
Radio Test Methods	
12/RSS119	RSS-119, Issue 6 (March 25, 2000): Land Mobile and Fixed Radio Transmitters and Receivers, 27.41 to 960 MHz
12/RSS123	RSS-123, Issue 1, Rev. 2 (November 6, 1999): Low Power Licensed Radiocommunication Devices

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NVLAP Code	*Designation / Description*
12/RSS125	RSS-125 (March 25, 2000): Land Mobile and Fixed Radio Transmitters and Receivers, 1.705 to 50.0 MHz, Primarily Amplitude Modulated
12/RSS131	RSS-131, Issue 2 (July 2003): Zone Enhancers for the Land Mobile Service
12/RSS132	RSS-132, Issue 1 (August 2002): 800 MHz Cellular Telephones Employing New Technologies
12/RSS133	RSS-133, Issue 2, Rev. 1 (November 6, 1999): 2GHz Personal Communications Services
12/RSS134	RSS-134, Issue 1, Rev. 1 (March 25, 2000): 900 MHz Narrowband Personal Communication Service
12/RSS135	RSS-135, Issue 1 (October 26, 1996): Digital Scanner Receivers
12/RSS136	RSS-136, Issue 5 (October 2002): Land and Mobile Station Radiotelephone Transmitters and Receivers Operating in the 26.960 - 27.410 MHz General Radio Service Band
12/RSS137	RSS-137, Issue 1, Rev. 1 (September 25, 1999): Location and Monitoring Service (902 - 928 MHz)
12/RSS139	RSS-139, Isssue 1 (February 5, 2000): Licensed Radiocommunications Devices in the Band 2400 - 2483.5 MHz

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NVLAP Code	*Designation / Description*
12/RSS141	RSS-141, Issue 1 (July 2003): Aeronautical Radiocommunication Equipment in the Frequency Band 117.975 - 137 MHz
12/RSS142	RSS-142, Issue 2 (August 2002): Narrowband Multipoint Communication Systems in the 1,427 - 1,430 MHz and 1,493.5 - 1,496.5 MHz Bands
12/RSS170	RSS-170, Issue 1, Rev. 1 (November 6, 1999): Satellite Mobile Earth Stations
12/RSS191	RSS-191, Issue 2 (August 2002): Local Multipoint Communication Systems in the 28 GHz Band; Point-to-Point and Point-to-Multipoint Broadband Communication Systems in the 24 GHz and 38 GHz Bands
12/RSS192	RSS-192, Issue 1 (November 6, 1999): Fixed Wireless Access Systems in the Band 3400 - 3700 MHz
12/RSS193	RSS-193, Issue 1 (July 2003): Multipoint and Point-to-Point Communication Systems (MCS) in the Fixed Service Operating in the 2,150 - 2,160 MHz, 2,500 - 2,596 MHz and 2,686 - 2,690 MHz Bands
12/RSS210	RSS-210, Issue 5 (November 2001): Low Power Licence-Exempt Radiocommunication Devices
12/RSS212	RSS-212, Issue 1 (February 27, 1999): Test Facilities and Test Methods for Radio Equipment

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NVLAP Code	*Designation / Description*
12/RSS213	RSS-213, Issue 1 (April 24, 1999): 2 GHz Licence-Exempt Personal Communications Service Devices (PCS)
12/RSS215	RSS-215, Issue 1 (November 6, 1999): Analogue Scanner Receivers
Telecommunications Test Methods:	
12/FCC2a2	TIA/EIA 603A (2001) with 47 CFR Part 2: Public Mobile Services in 47 CFR Part 22
12/FCC2b2	TIA/EIA 603A (2001) with 47 CFR Part 2: Private Land Mobile Radio Services in 47 CFR Part 90
12/FCC2d1	TIA/EIA 603A (2001) with 47 CFR Part 2: Experimental Radio, Auxiliary, Special Broadcast and Other Program Distributional Services in 47 CFR Part 74
12/FCC2e1	TIA/EIA 603A (2001) with 47 CFR Part 2: International Fixed Public Radiocommunication Services in 47 CFR Part 23
12/CIS15c	EN 55015 (2000) + A1 (2001): Limits and methods of measurement of radio disturbance characteristics of electrical lighting and similar equipment

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NVLAP Code	*Designation / Description*
MIL-STD-462 : Conducted Emissions:	
12/A13	MIL-STD-462 Version D Method CE101
12/A14	MIL-STD-462 Version D Method CE102
12/A16	MIL-STD-461 Version E Method CE101
12/A17	MIL-STD-461 Version E Method CE102
12/A18	MIL-STD-461 Version E Method CE106
MIL-STD-462 : Conducted Susceptibility:	
12/B12	MIL-STD-462 Version D Method CS101
12/B13	MIL-STD-462 Version D Method CS103
12/B25	MIL-STD-461 Version E Method CS114
12/B26	MIL-STD-461 Version E Method CS115
12/B27	MIL-STD-461 Version E Method CS116

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MIL-STD-462 : Radiated Emissions:	
12/D04	MIL-STD-462 Version D Method RE101
12/D05	MIL-STD-462 Version D Method RE102
12/D06	MIL-STD-462 Version D Method RE103
MIL-STD-462 : Radiated Susceptibility:	
12/E08	MIL-STD-462 Version D Method RS101
12/E09	MIL-STD-462 Version D Method RS103

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1.0 SUMMARY OF TEST REPORT

It was found that the Nomad MX3 Remote Control Electronic Game Call, Model Number(s) #938-Nomad MX3 Predator Receiver with Transmitter & #921-Nomad MX3 Deer Receiver with Transmitter, **"meets"** the radio interference radiated emission requirements of the FCC "Rules and Regulations", Part 15, Subpart C, Section 15.231 for periodic operational in the 40.66-40.70 MHz Band and above 70 MHz. The conducted emissions test was not required because the Nomad MX3 Remote Control Electronic Game Call is powered from a D.C. power source. It does not have a line cord to plug into the A.C. power line.

This test report relates only to the items tested and contains the following number of pages.

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2.0 INTRODUCTION

On June 21 & July 24, 2005, a series of radio frequency interference measurements was performed on Nomad MX3 Remote Control Electronic Game Call, Model Number(s) #938-Nomad MX3 Predator Receiver with Transmitter & #921-Nomad MX3 Deer Receiver with Transmitter, Serial Number: 890834000938-Nomad MX3 Predator Receiver with Transmitter. The tests were performed according to the procedures of the FCC as stated in the "Methods of Measurement of Radio-Noise Emissions for Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz" found in the American National Standards Institute, ANSI C63.4-2003. Tests were performed by personnel of D.L.S. Electronic Systems, Inc. who are responsible to Donald L. Sweeney, Senior EMC Engineer.

3.0 OBJECT

The purpose of this series of tests was to determine if the test sample could meet the radio frequency interference emission requirements of the FCC "Rules and Regulations", Part 15, Subpart C, Sections 15.33, 15.35, 15.205, 15.209 & 15.231 for Intentional Radiators operating in the Band 40.66-40.70 and above 70 MHz.

4.0 TEST SET-UP

All emission tests were performed at D.L.S. Electronic Systems, Inc. and set up according to the American National Standards Institute, ANSI C63.4-2003, Section 8, (Figures 11a and 11b).

All radiated emissions tests were performed with the test item placed on a 80 cm high rotating non-conductive table, located in the test room. Equipment normally operated on the floor was placed on a metal covered turntable which is flush with the surrounding conducting ground plane. The ground plane has an electrical isolation layer over its surface approximately 7 mm thick. The EUT is separated from the turntable ground plane by a non-conductive layer. The equipment under test was set up according to ANSI C63.4-2003, Sections 6 and 8.

5.0 TEST EQUIPMENT (Bandwidths and Detector Function)

All preliminary data below 1000 MHz was automatically plotted using the HP Spectrum Analyzer or ESI 26/40 Fixed Tuned Receiver. The data was taken using Peak, Quasi-Peak or the Average Detector Functions as required. This information was then used to determine the frequencies of maximum emissions. Above 1000 MHz, final data was taken using the Average Detector.

Below 1000 MHz, final data was taken using the HP Spectrum Analyzer and/or ESI 26/40 Fixed Tuned Receiver. These plots were made using the Peak or Quasi-Peak Detector functions, with manual measurements performed on the questionable frequencies using the Quasi-Peak or the Average Detector Function of the Analyzer or ESI 26/40 Fixed Tuned Receiver as required. Above 1000 MHz, final data was taken using the Average Detector on the Spectrum Analyzer.

The bandwidths shown below are specified by ANSI C63.4-2003, Section 4.2.

Frequency Range	Bandwidth (-6 dB)
10 to 150 kHz	200 Hz
150 kHz to 30 MHz	9 kHz
30 MHz to 1 GHz	120 kHz
Above 1 GHz	1 MHz

A list of the equipment used can be found in Table 1. All primary equipment was calibrated against known reference standards with a verified traceable path to NIST.

6.0 AMBIENT MEASUREMENTS

For emissions measurements, broadband antennas and an EMI Test Receiver with a panoramic spectrum display are used. First the frequency range is scanned and displayed on the test receiver display. Next the scanned frequency range is divided into smaller ranges, and then it is manually tuned through to determine the emissions from the EUT. A headset or loudspeaker is connected to the test receiver's AM/FM demodulated output as an aid in detecting ambient signals and finding frequencies of significant emission from the EUT. If there is any doubt as to the source of the emission, it is further investigated by rotating the EUT, or by disconnecting the power from the EUT.

The EUT is set up in its typical configuration and operated in its various modes. For tabletop systems, cables are manipulated within the range of likely configurations. For floor-standing equipment, the cables are located in the same manner as the user would install them and no further manipulation is made. If the manner of cable installation is not known, or if it changes with each installation, cables or wires for floor-standing equipment shall be manipulated to the extent possible to produce the maximum level of emissions. For each mode of operation, the frequency spectrum is monitored. Variations in antenna height, antenna polarization, EUT azimuth, and cable or wire placement (each variable within bounds specified elsewhere) are explored to produce the emissions that have the highest amplitude relative to the limit. These methods are performed to the specifications in MP-5 or ANSI C63.4-2003, as appropriate.

7.0 DESCRIPTION OF TEST SAMPLE: (See also Paragraph 8.0)

7.1 Description:

This transmitter system consists of an integrated RF transmitter, "micrel part", and a microcontroller. The microcontroller translates user input into bi-phase encoded 16 bit data, enables the transmitter part, and then applies the ask signal to the micrel part's input. The transmission consists of 14 sync bits and the 16 data and is retransmitted 10 times per button press for a total cycle time of 0.9078 seconds. The antenna is a simple monopole antenna and the ground system consists of grounded traces on the printed circuit board. The same transmitter is used in both models with the digital code being change for each model.

7.2 PHYSICAL DIMENSIONS OF EQUIPMENT UNDER TEST

Transmitter: Length: 2.000" x Width: 1" x Height: 4"
Receiver: Length: 4.125" x Width: 2" x Height: 9"

7.3 LINE FILTER USED:

NA

7.4 INTERNAL CLOCK FREQUENCIES:

Switching Power Supply Frequencies:

NA

Clock Frequencies:

13.56 MHz, 4 MHz & 300 Hz

7.5 DESCRIPTION OF ALL CIRCUIT BOARDS:

1. None

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8.0 ADDITIONAL DESCRIPTION OF TEST SAMPLE:
(See also Paragraph 7.0)

1: There were no additional descriptions noted at the time of test.

I certify that the above, as described in paragraph 7.0, describes the equipment tested and will be manufactured as stated.

By: _____ _____
Signature Title

For: _____ _____
Company Date

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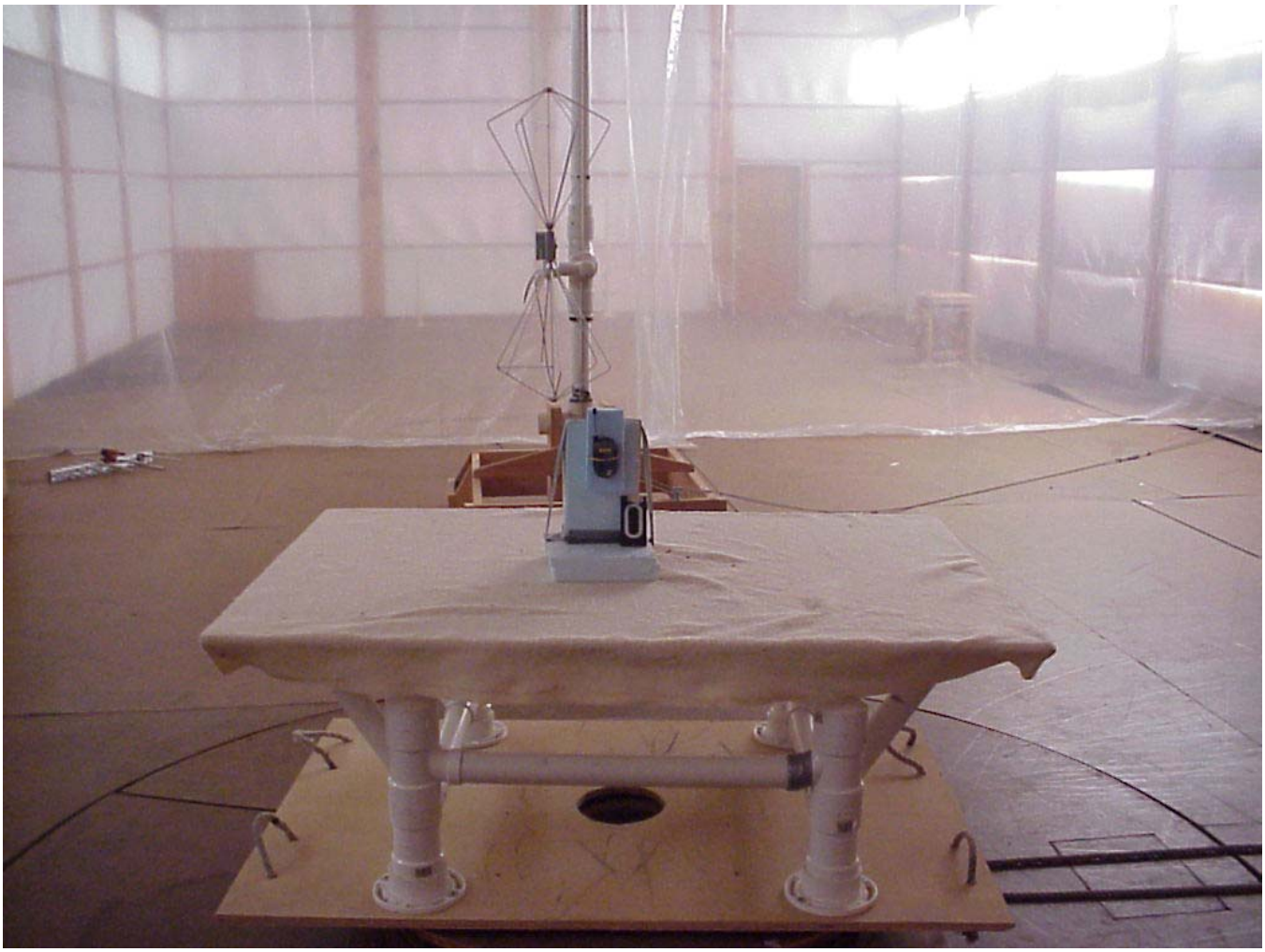
9.0 PHOTO INFORMATION AND TEST SET-UP

Item 0 Nomad MX3 Remote Control Electronic Game Call
Model Number: #938-Nomad MX3 Predator Receiver with Transmitter &
#921-Nomad MX3 Deer Receiver with Transmitter
Serial Number: 890834000938-Nomad MX3 Predator Receiver with Transmitter

10.0 RADIATED PHOTOS TAKEN DURING TESTING



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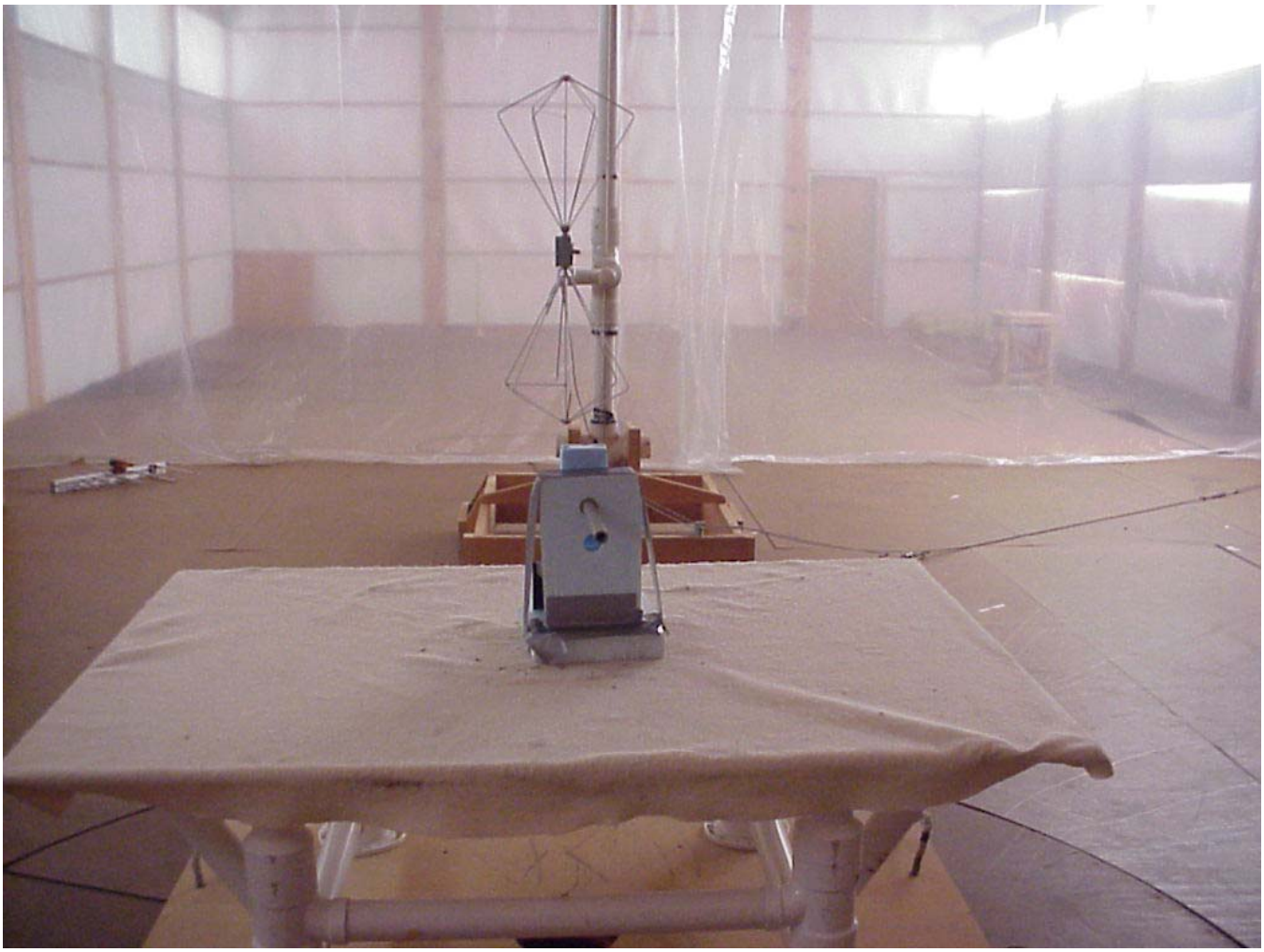
10.0 RADIATED PHOTOS TAKEN DURING TESTING



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11.0 RESULTS OF TESTS

The radio interference emission charts results can be seen on the pages at the end of this report. Data sheets indicating the test measurements taken during testing can also be found at the end of this report. Points on the emission charts shown with a yellow mark are background frequencies that were verified during testing.

12.0 CONCLUSION

It was found that the Nomad MX3 Remote Control Electronic Game Call, Model Number(s) #938-Nomad MX3 Predator Receiver with Transmitter & #921-Nomad MX3 Deer Receiver with Transmitter **"meets"** the radio interference radiated emission requirements of the FCC "Rules and Regulations", Part 15, Subpart C, Section 15.231 for periodic operational in the 40.66-40.70 MHz Band and above 70 MHz.The conducted emissions test was not required because the Nomad MX3 Remote Control Electronic Game Call is powered from a D.C. power source. It does not have a line cord to plug into the A.C. power line.

TABLE 1 – EQUIPMENT LIST

Test Equipment	Manufacturer	Model Number	Serial Number	Frequency Range	Cal Due Dates
Receiver	Rohde & Schwarz	ESI 26	837491/010	20 Hz – 26 GHz	11/05
Receiver	Rohde & Schwarz	ESI 40	837808/006	20 Hz – 40 GHz	12/05
Receiver	Rohde & Schwarz	ESI 40	837808/005	20 Hz – 40 GHz	12/05
Antenna	EMCO	3104C	00054891	20 MHz – 200 MHz	2/06
Antenna	Electrometrics	LPA-25	1114	200 MHz – 1 GHz	3/06
Antenna	EMCO	3104C	00054892	20 MHz – 200 MHz	3/06
Antenna	Electrometrics	3146	1205	200 MHz – 1 GHz	3/06
Antenna	EMCO	3104C	97014785	20 MHz – 200 MHz	2/06
Antenna	EMCO	3146	97024895	200 MHz – 1 GHz	3/06
Antenna	EMCO	3115	2479	1 GHz – 18 GHz	8/05
Antenna	EMCO	3115	99035731	1 GHz – 18 GHz	4/06
Antenna	Rohde & Schwarz	HUF-Z1	829381001	20 MHz – 1 GHz	2/06
Antenna	Rohde & Schwarz	HUF-Z1	829381005	20 MHz – 1 GHz	8/05

All primary equipment is calibrated against known reference standards with a verified traceable path to NIST.

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TABLE 1 – EQUIPMENT LIST

Test Equipment	Manufacturer	Model Number	Serial Number	Frequency Range	Cal Due Dates
LISN	Solar	8012-50-R-24-BNC	8305116	10 MHz – 30 MHz	8/05
LISN	Solar	8012-50-R-24-BNC	814548	10 MHz – 30 MHz	8/05
LISN	Solar	9252-50-R-24-BNC	961019	10 MHz – 30 MHz	12/05
LISN	Solar	9252-50-R-24-BNC	971612	10 MHz – 30 MHz	10/05
LISN	Solar	9252-50-R-24-BNC	92710620	10 MHz – 30 MHz	7/05

All primary equipment is calibrated against known reference standards with a verified traceable path to NIST.

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APPENDIX A

TEST PROCEDURE

Part 15, Subpart C, Section 15.231

ELECTRIC FIELD RADIATED EMISSIONS TEST

APPENDIX A

TEST PROCEDURE

ELECTRIC FIELD RADIATED EMISSIONS TEST

1.0 PULSED OPERATION (Duty Cycle Correction Factor)

The radiated emission tests made at D.L.S. Electronic Systems, Inc. for the Nomad MX3 Remote Control Electronic Game Call, Model Number #938-Nomad MX3 Predator Receiver with Transmitter & #921-Nomad MX3 Deer Receiver with Transmitter, are shown by the graphs on the following pages. The actual total "on time" during the 100 msec is 52.51 msec with a total "off time" of 47.495 msec resulting in a **5.6 Duty Cycle Correction Factor**.

To find the actual "on time" during the 100 msec period, the data word is multiplied by the number of data words per 100 msec, yielding actual on time. Taking this number and dividing it by the 100 msec period gives us the Duty Cycle. We than take the Log of the Duty Cycle and multiply it by 20. This gives us the Duty Cycle Correction Factor. The following method was used to determine the Duty Cycle Correction Factor:

Total on time during 100 msec.

1.402806 usec/pulse on time * 20 pulses = 28.05612 usec (data word on time)

2.605210 usec/pulse on time * 2 pulses = 5.21042 usec (data word on time)

9.619238 usec/pulse on time * 2 pulses = 19.238476 usec (data word on time)

28.05612 usec (data on time) + 5.21042 usec (data on time) + 19.238476 usec (data on time) = 52.5050162 usec total "on time"

52.5050162 msec (total "on time") / 100 msec = .52505016 Duty Cycle

20*LOG10 .52505016 = **5.595984097 dB Duty Cycle Correction Factor**

NOTE:

For pulsed operation, the switches were set to generate their maximum "on" time, and measurements were made with the peak detector. As stated in Docket 86-422, the duty cycle of the pulse is determined from the total "on" time for the worst case condition during 100 msec. Using the percentage of the total "on" time over a 100 msec period, the total absolute average value was determined. As stated in Section 3, a maximum of 20 dB can be used.

See the following pages for the graphs of the actual measurements that were made:

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GRAPH(S) TAKEN OF THE PULSED OPERATION

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GRAPHS TAKEN OF THE PULSE TRAIN SHOWING THE FOLLOWING:

1. Number of Bits per Data Word
2. Number of Pulses per 100 msec
3. Off Time between Data Words
4. Data Word On Time

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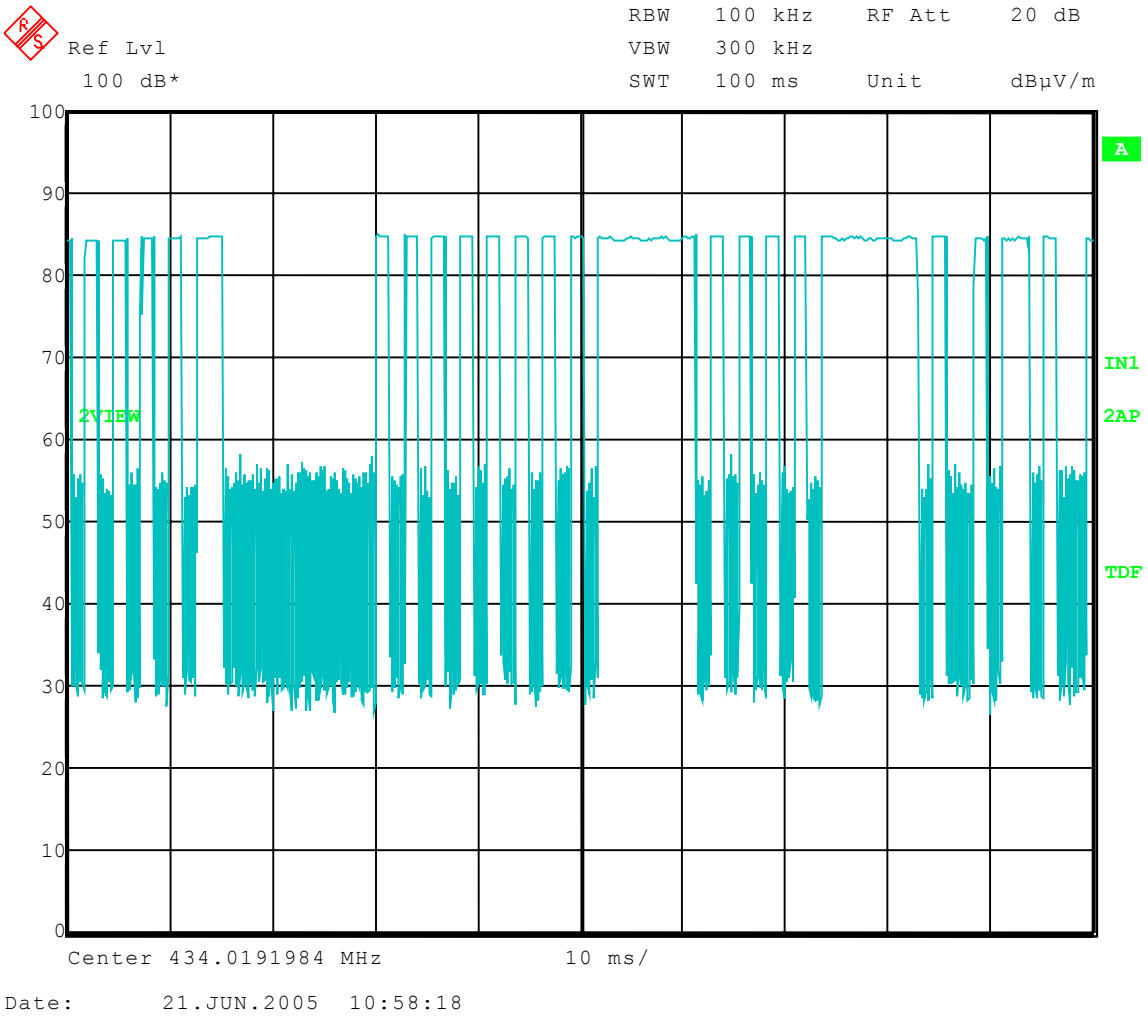
Test Date: 06-21-2005
Company: Cass Creek International
EUT: Nomad MX3
Test: Duty Cycle
Operator: Jason Lauer
Comment: Small Pulse – 20 x 1.402 ms = 28.04 ms
Medium Pulse - 2 x 2.605 ms = 5.21 ms
Large Pulse – 2 x 9.619 ms = 19.24 ms
Total on Time = 52.49 ms during 100 ms Sweep
20 log (52.49/100) = -5.6

Duty Cycle Correction Factor = 5.6 dB



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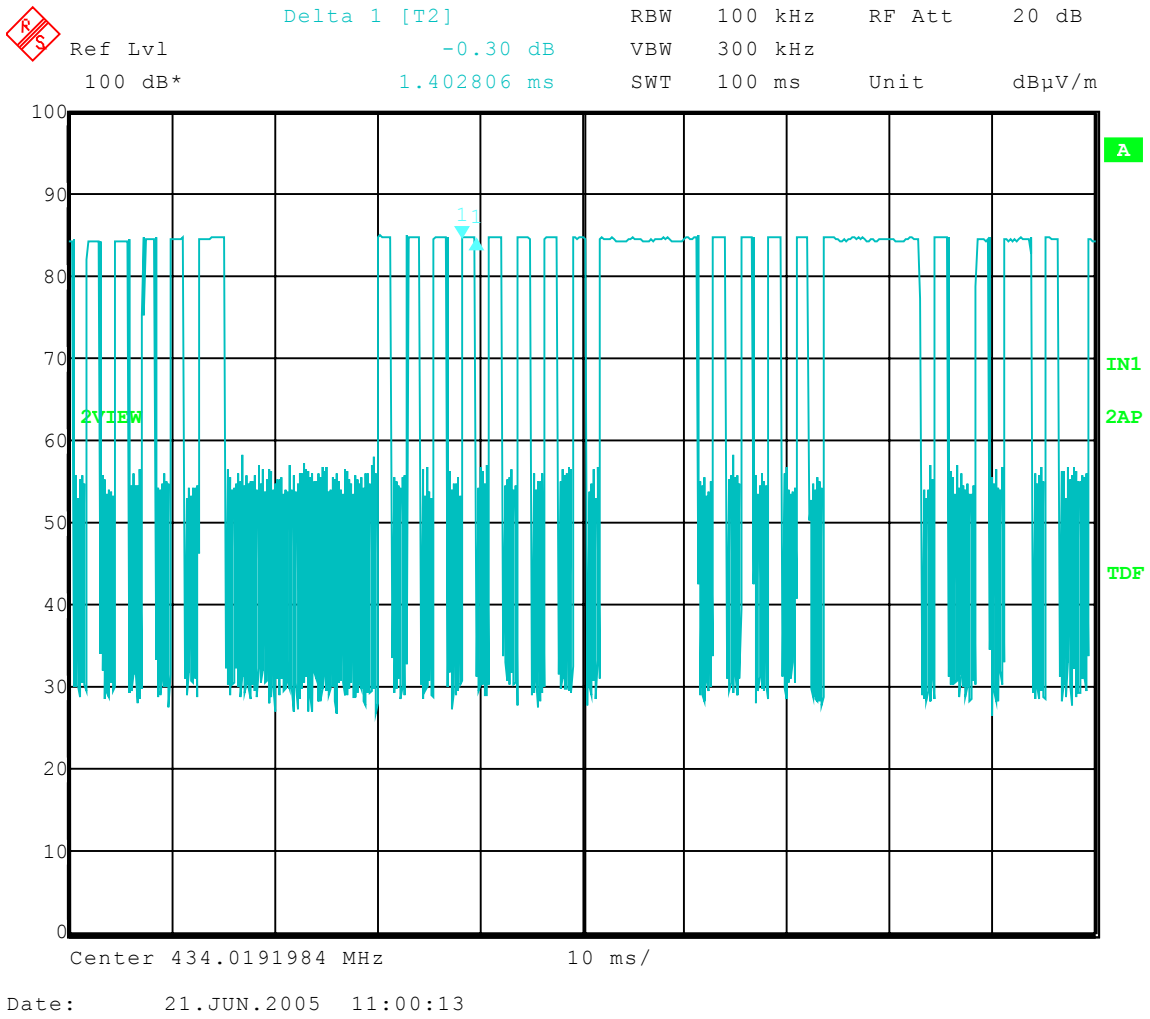
Test Date: 06-21-2005
Company: Cass Creek International
EUT: Nomad MX3
Test: Duty Cycle
Operator: Jason Lauer
Comment: Small Pulse On Time



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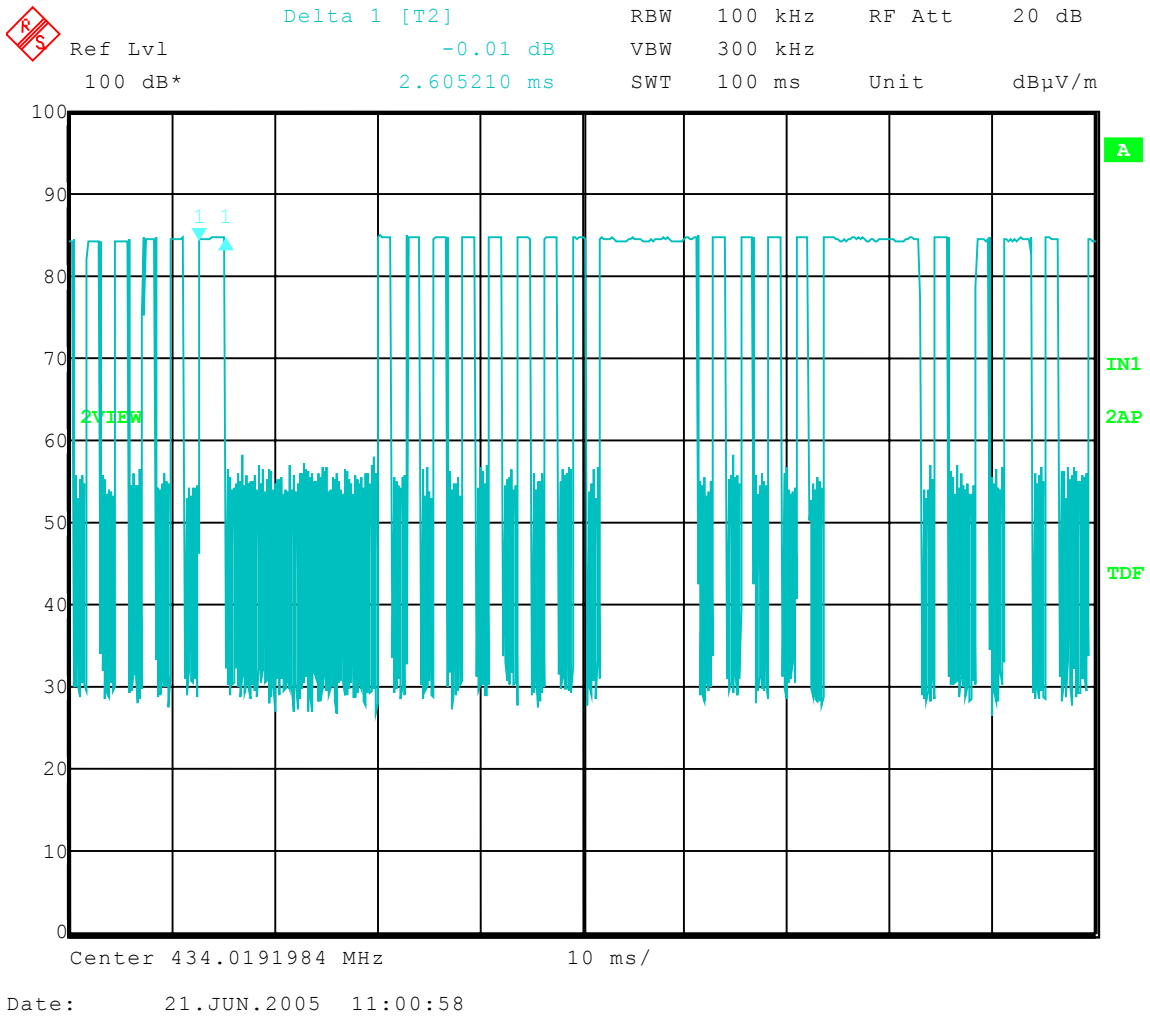
Test Date: 06-21-2005
Company: Cass Creek International
EUT: Nomad MX3
Test: Duty Cycle
Operator: Jason Lauer
Comment: Medium Pulse On Time



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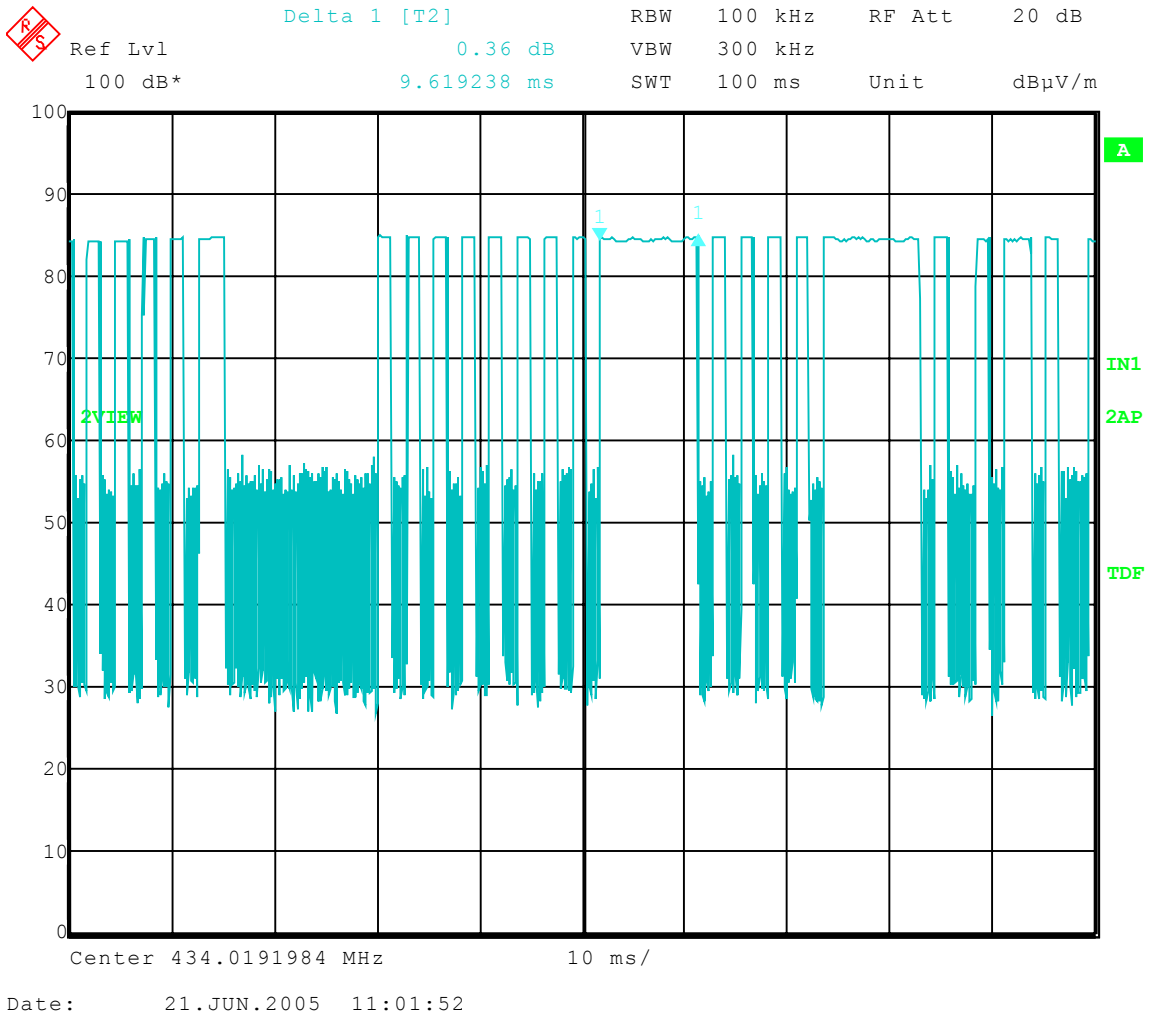
Test Date: 06-21-2005
Company: Cass Creek International
EUT: Nomad MX3
Test: Duty Cycle
Operator: Jason Lauer
Comment: Large Pulse On Time



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2.0 BANDWIDTHS

The bandwidth of the transmitter shall be confined to the following specifications as specified in Section 15.231c & d:

40.66 MHz to 40.7 MHz	±.01% within the band edges
70 MHz to 900 MHz	.25% of the center frequency
Above 900 MHz	.50% of the center frequency

The bandwidth is determined at the points 20 dB down from the modulated carrier.

As shown by the graph(s) on the following page(s), the bandwidth for the Nomad MX3 Remote Control Electronic Game Call was measured at 55.51 kHz, which meets the above specification. With a fundamental frequency of 434.02 MHz, the FCC Bandwidth limit is 108.505 kHz when multiplying the fundamental by 0.25%, with a margin of 52.995 kHz.

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GRAPH(S) TAKEN OF THE BANDWIDTH EMISSIONS

PART 15.231c & d

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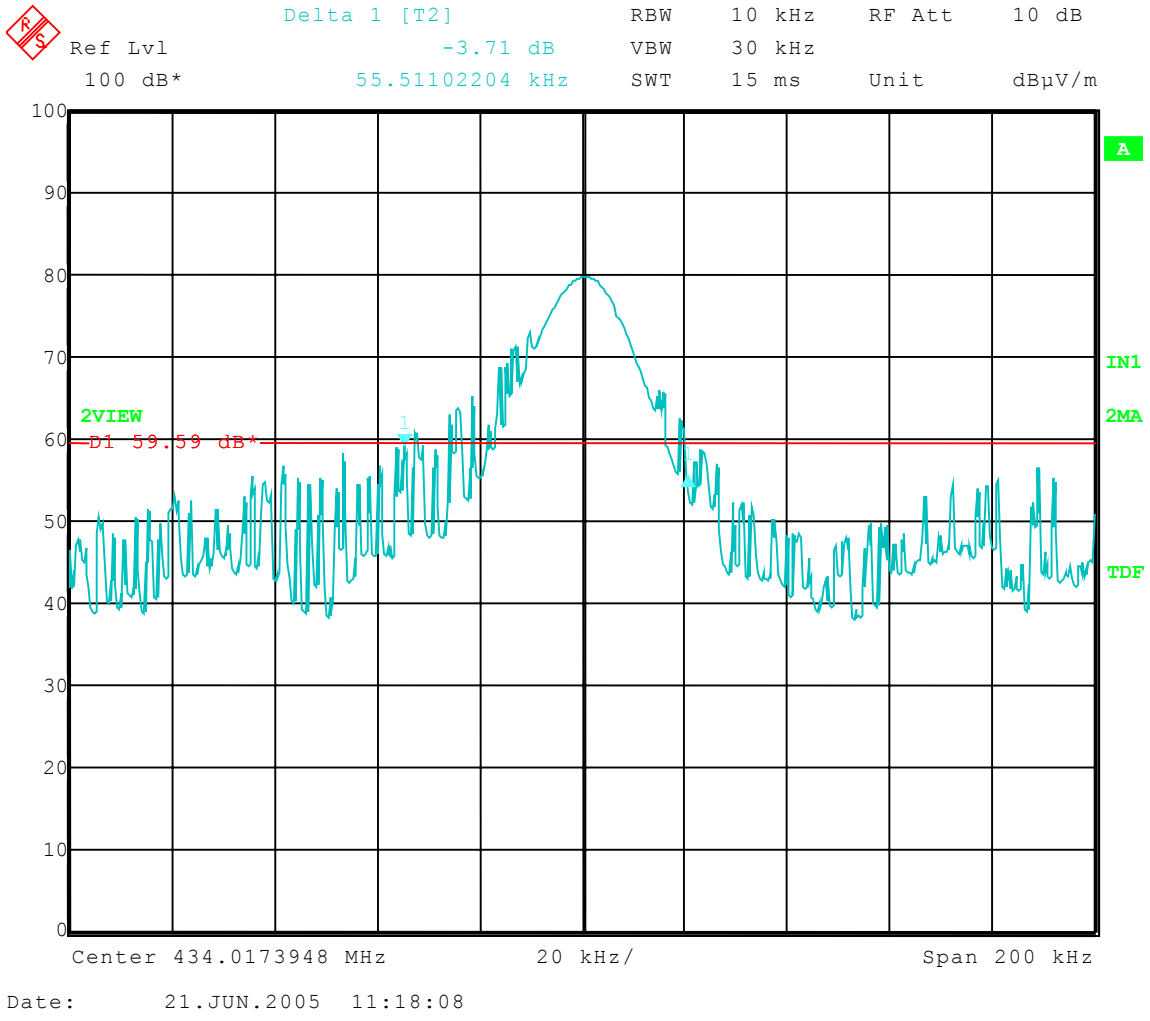
Test Date: 06-21-2005
Company: Cass Creek International
EUT: Nomad MX3
Test: 20 dB Bandwidth
Operator: Jason Lauer
Comment: Frequency – 434.02 MHz

20 dB Bandwidth = 55.51 kHz



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ELECTRIC FIELD RADIATED EMISSIONS TEST

3.0 FIELD STRENGTH OF SPURIOUS EMISSION MEASUREMENTS - SECTION 15.231(b)

For operation in the band 40.66 to 40.70 MHz and above 70 MHz the field strength of any emissions within this band shall not exceed the following table at a distance of 3 meters as specified in FCC, Part 15, Section 15.231(b), based on the average value of the measured emissions. The limits are shown in the following table.

Fundamental Frequency in MHz	Field Strength of Fundamental (uV/m at 3m)	Field Strength of Harmonics (uV/m at 3m)
40.66 to 40.70	2250 (67.04 dBuV)	225 (47.04 dBuV)
70 to 130	1250 (61.94 dBuV)	125 (41.94 dBuV)
130 to 174	1250 (61.94 dBuV) to 3750 (71.48 dBuV)	125 (41.94 dBuV) to 375 (51.48 dBuV)
174 to 260	3750 (71.48 dBuV)	375 (51.48 dBuV)
260 to 470	3750 (71.48 dBuV) to 12500 (81.84 dBuV)	375 (51.48 dBuV) to 1250 (61.94 dBuV)
470 and above	12500 (81.84 dBuV)	1250 (61.94 dBuV)

NOTE:

Preliminary radiation measurements may have been performed at a 3 meter or ten meter test distance. The frequency range from 30 MHz to 1000 MHz was scanned at receive antenna heights from one to four meters, and with a 360° rotation of the EUT. Plots were made and the worst-case emissions were recorded.

As stated in 15.35b the 20 dB peak-to-average limit is applicable to all devices measured using an average detector.

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DATA TAKEN OF FUNDAMENTAL AND SPURIOUS EMISSIONS

PART 15.231b

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Radiated Fundamental and Spurious Emissions – 30 MHz to 5 GHz

Tested at a 3 Meter Distance

EUT: Nomad MX3
Manufacturer: Cass Creek International
Operating Condition: 73 deg F; 61% R.H.
Test Site: Site 2
Operator: Jason Lauer
Test Specification: FCC Part 15.231(b) and FCC Part 15.205
Comment: Continuous Transmit
Date: 07/24/2005

Notes: **(1)** The EUT was measured in 3 orthogonal axis and placed in the worst case axis for the following measurements.
(2) All other emissions at least 20 dB under the limit.

Frequency (MHz)	Measurement Detector	Ant. Pol.	Level (dBuV)	Antenna Factor (dB/m)	System Loss (dB)	Total Level (dBuV/m)	Duty Cycle Correction (dB)	Final Corrected (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Ant. Height (m)	EUT Angle (deg)	Comment
434.02	Max Peak	Vert	89.76	16.15	-21.2	84.7	-5.6	79.1	80.8	1.7	1.2	225	Fundamental
434.02	Max Peak	Horz	89.77	16.15	-21.2	84.7	-5.6	79.1	80.8	1.7	1.0	200	Fundamental
868.04	Max Peak	Vert	61.21	22.51	-18.8	64.9	-5.6	59.3	60.8	1.5	1.0	30	Harmonic
868.04	Max Peak	Horz	62.16	22.51	-18.8	65.9	-5.6	60.3	60.8	0.5	1.0	30	Harmonic
1302.1	Max Peak	Vert	72.49	24.74	-40.2	57.1	-5.6	51.5	54.0	2.5	1.1	45	Res. Band
1302.1	Max Peak	Horz	70.12	24.74	-40.2	54.7	-5.6	49.1	54.0	4.9	1.4	0	Res. Band
1736.0	Max Peak	Vert	64.17	26.20	-39.7	50.7	-5.6	45.1	60.8	15.7	1.2	180	Harmonic
1736.0	Max Peak	Horz	64.17	26.20	-39.7	50.7	-5.6	45.1	60.8	15.7	1.4	125	Harmonic
2170.0	Max Peak	Vert	61.65	27.78	-38.7	50.7	-5.6	45.1	60.8	15.7	1.2	0	Harmonic
2170.0	Max Peak	Horz	57.31	27.78	-38.7	46.4	-5.6	40.8	60.8	20.0	1.3	180	Harmonic
2604.1	Max Peak	Vert	54.68	28.96	-39.2	44.5	-5.6	38.9	60.8	21.9	1.1	45	Harmonic
2604.1	Max Peak	Horz	52.79	28.96	-39.2	42.6	-5.6	37.0	60.8	23.8	1.3	30	Harmonic
3038.1	Max Peak	Vert	51.61	30.26	-39.0	42.9	-5.6	37.3	60.8	23.5	1.2	90	Harmonic
3038.1	Max Peak	Horz	51.86	30.26	-39.0	43.2	-5.6	37.6	60.8	23.2	1.2	30	Harmonic

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4.0 RESTRICTED BANDS

As stated in Section 15.205a, the fundamental emission from the Nomad MX3 Remote Control Electronic Game Call shall not fall within any of the bands listed below:

Frequency in MHz	Frequency in MHz	Frequency in MHz	Frequency in GHz
.0900 to .1100	162.0125 to 167.17	2310.0 to 2390	9.30 to 9.50
.4900 to .5100	167.7200 to 173.20	2483.5 to 2500	10.60 to 12.70
2.1735 to 2.1905	240.000 to 285.00	2655.0 to 2900	13.25 to 13.40
8.362 to 8.3660	322.200 to 335.40	3260.0 to 3267	14.47 to 14.50
13.36 to 13.410	399.900 to 410.00	3332.0 to 3339	15.35 to 16.20
25.50 to 25.670	608.000 to 614.00	3345.8 to 3358	17.70 to 21.40
37.50 to 38.250	960.000 to 1240.00	3600.0 to 4400	22.01 to 23.13
73.00 to 75.500	1300.000 to 1427.00	4500.0 to 5250	23.60 to 24.00
108.00 to 121.94	1435.000 to 1626.50	5350.0 to 5450	31.20 to 31.80
123.00 to 138.00	1660.000 to 1710.00	7250.0 to 7750	36.43 to 36.50
149.90 to 150.00	1718.800 to 1722.20	8025.0 to 8500	ABOVE 38.60
156.70 to 156.90	2200.000 to 2300.00	9000.0 to 9200	

NOTE:

The noise floor within the Restricted Bands for the EMC Receiver and HP Spectrum Analyzer will typically lay 20 dB below the limit.