DNB ENGINEERING, INC.

CERTIFICATION
FOR
INTENTIONAL RADIATOR

per
Part 15 Subpart C
(CFR 47, 15.203, 15.231 & 15.209)

EUT: RCT200 Transmitter
(433.95 MHz)

PREPARED FOR APPLICANT:
REMTRON, INC.
1916 W. Mission Rd.
Escondido, CA 92029-1114

REPORT # 96050-1
Test Date: January 4 & 15, 1999

Prepared By:
DNB ENGINEERING, INC.
1100 East Chalk Creek Rd.
Coalville, Utah 84017
Tel: 1(801) 336-4433

Revision Letter	Number of Pages	Page No. of Rev.	Description	Date
A	38		Document Release	1-19-99

TRANSMITTAL SUMMARY

Unit tested:	RCT200 Transmitter
FCC ID:	EGTRCT200
Specifications:	ANSI C63.4 (1992) and CFR 47 FCC part 15 Subpart C
Purpose of Report:	This report was prepared to document the status of the RCT200 Transmitter with requirements of the standards listed above.
Requirements not applicable to EUT	Part 15.37 - Not applicable Emergency Broadcast System - Not applicable Spread Spectrum Exhibit - Not applicable Scanning Receiver - Not applicable
Test Summary	The EUT's compliance status according to the tests performed is as follows.

REQUIREMENTS	STATUS
FCC part 15 Subpart C	
per 15.203, 15.231 & 15.209	COMPLIANT

CERTIFICATION OF TEST DATA - per 2.911(d)

This report, containing emissions test data and evaluations, has been prepared by an independent electromagnetic compatibility laboratory, DNB ENGINEERING, in accordance with the applicable specifications and instructions required per the Introduction. DNB Engineering has been evaluated to do these tests by the American Association for Laboratory Accreditation, A2LA.

The data evaluation and equipment configuration presented herein are a true and accurate representation of the measurements of the test emissions characteristics as of the dates and at the times of the test under the conditions herein specified.

Equipment Tested:	RCT200 TRANSMITTER
FCC ID#:	EGTRCT2000
Dates of Test:	January 4 & 15, 1999

Test Performed: _____ _____
Norm Hansen — Date
Test Technician

Test Report Reviewed: _____ _____
Rick Linford — Date
Facility Manager
Regulatory Engineer

TABLE OF CONTENTS

1. INTRODUCTION

1.1 Administrative Data Per 2.1033(a) and 2.911(c)

1.1.1 REQUEST FOR CERTIFICATION Per 2.1033(b)1:

Applicant: ***REMTRON, INC.***
1916 W. Mission Rd.
Escondido, CA 92029-1114

Contact: John Schooley

Dates of Test: January 4 & 15, 1999

Equipment Under Test (EUT): RCT200 TRANSMITTER
FCC ID: EGTRDT200

1.2 Related Submittals/Grants

None

1.3 Purpose of Tests

The purpose of this series of tests was to demonstrate the Electromagnetic Compatibility (EMC) characteristics of the EUT. The following tests were performed:

REQUIREMENTS	STATUS
FCC part 15 Subpart C	
per 15.231 & 15.209	COMPLIANT

2. TEST DESCRIPTION

2.1 Test Configuration

Config-uration	Unit Name - Processor, Monitor, Printer, Cable, etc. (indent for features of a unit)	Style/Model/ Part No.	Serial Number	Obj. of test	VAC	Comments/ FCC ID#
A	RCT200 TRANSMITTER			■	BAT	9 VDC

■ - *Specific device(s) for which this test is being conducted.*

2.2 Equipment Description

The RCT200 Transmitter is the transmitter for a digital remote control system. It is designed for short range, license free operation of industrial and commercial equipment.

2.2.1 Mode of Operation

The RTC200 Transmitter had the cycle button hard wired internally allowing the transmitter to constantly send packets. The RTC200 Transmitter was checked flat on the table, on it's side, and set upright or vertical on the table for testing. The upright or vertical position was found to allow the highest emissions relative to the limit and was used for final testing of the transmitter.

2.3 Antenna Requirement - per 15.203

Antenna is an internal loop antenna on the PCB.

2.3.1 Circuit Description - per 2.1033(b)4

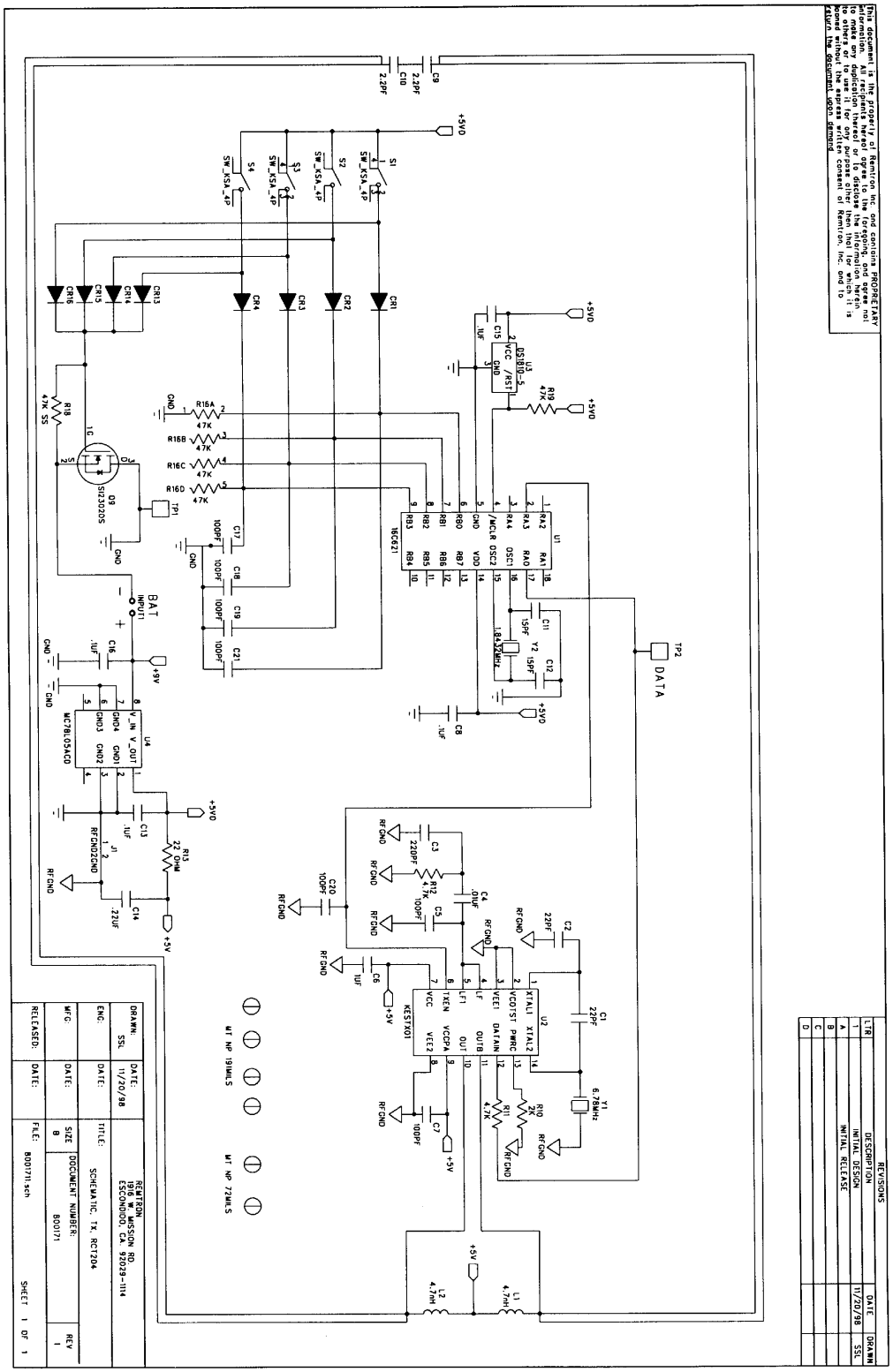
The transmitter is housed in a plastic case with membrane switches for control inputs. Inputs are encoded by a microprocessor and transmitted using burst mode ASK.

When a switch is activated, power is applied to the transmitter. The microprocessor encodes and sends a packet containing the address, data and CRC check word to the Transmitter IC. The packet is repeated every 60 milliseconds as long as a switch is activated. When all switches are released, power is removed from the transmitter. The transmitter IC is an integrated frequency multiplying PLL with a power output stage. It uses a fixed ÷64 prescaler so the output frequency is set at 64 times the reference crystal. The transmitter antenna consists of a matched loop on the circuit board.

The Transmitter IC has a sleep mode that is used to conserve battery power. Each time a packet is sent, the transmitter is enabled 6 milliseconds before modulation is applied to allow it to stabilize. After the data is sent, the transmitter again enters the sleep mode. The transmitter is therefore enabled approximately 20% of the time it is transmitting data.

2.4 Schematic Diagram

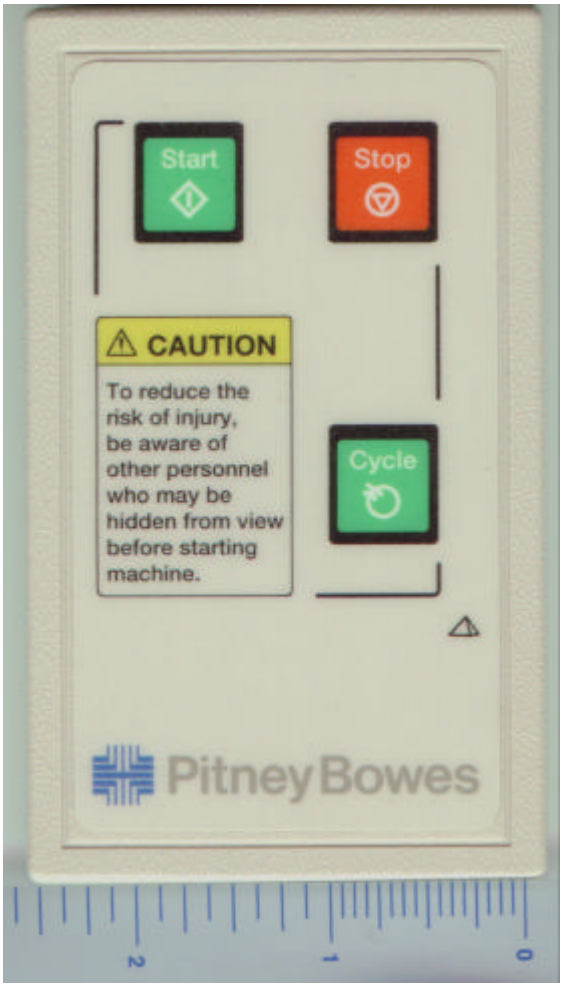
Schematic, TX, RCT204



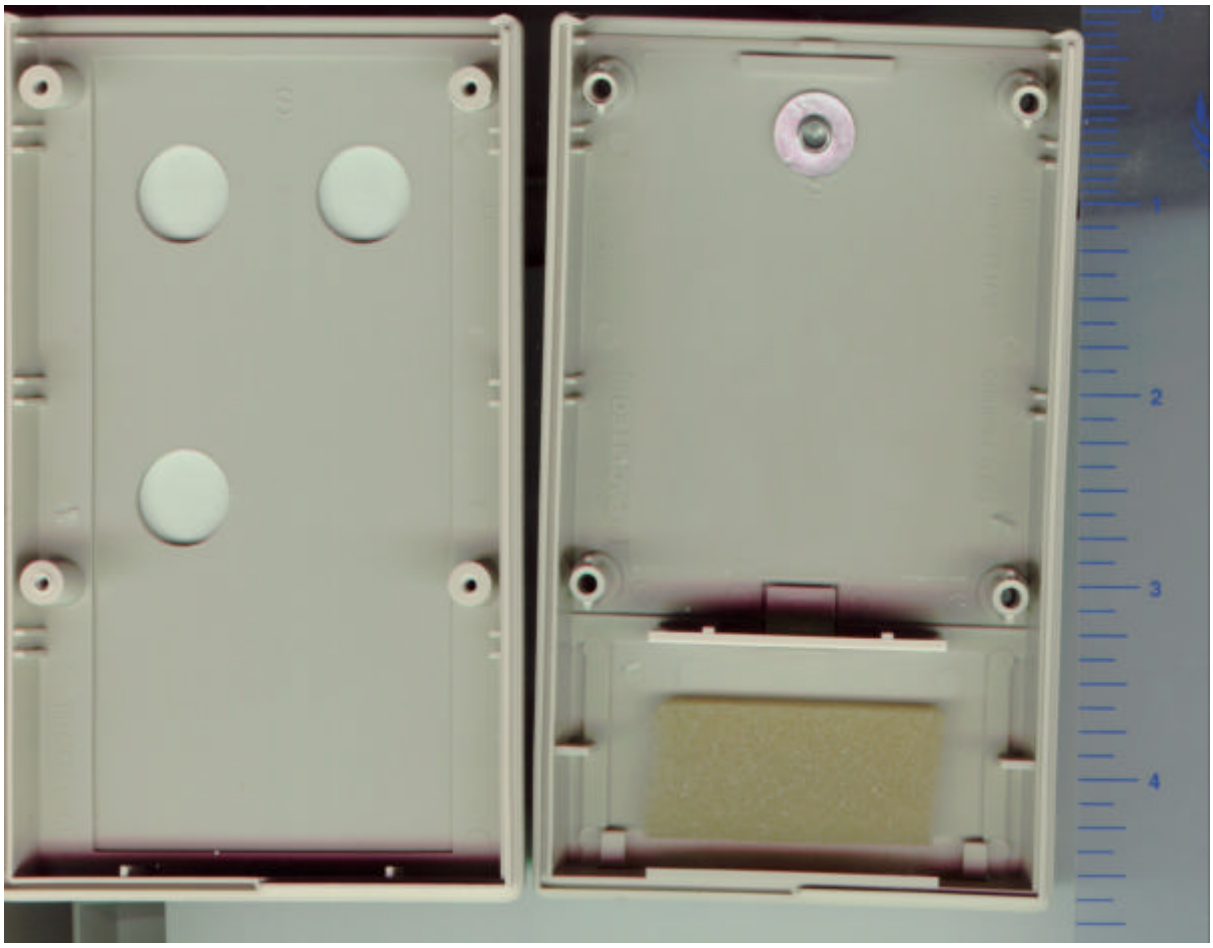
2.5 Photograph of EUT - per 2.1033(b)(7)

RCT200 TRANSMITTER

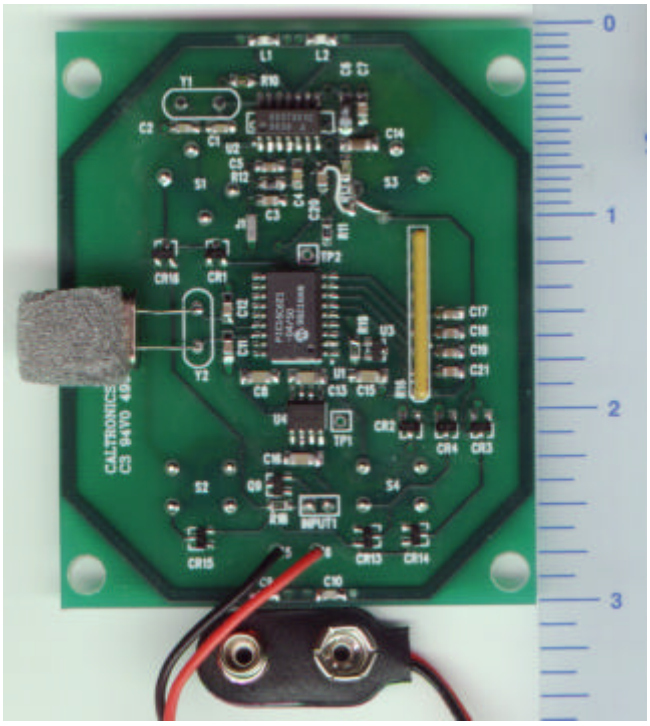
2.5.1 Front View of RCT200 Transmitter



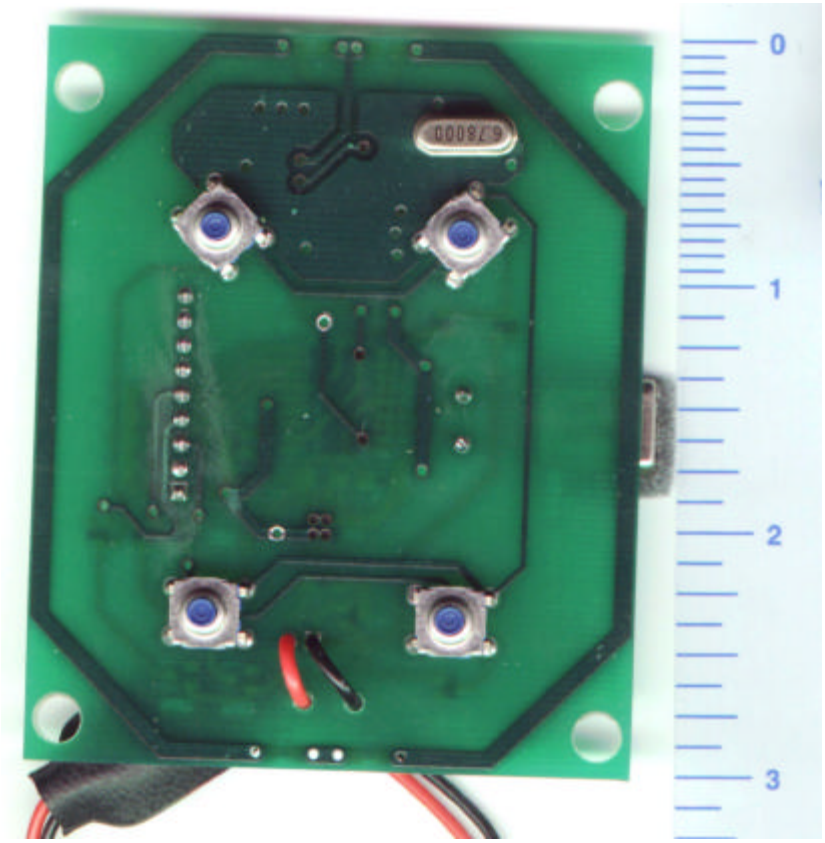
2.5.2 RCT200 Transmitter Case –Internal View



2.5.3 RCT200 PCB – Top View



2.5.4 RCT200 PCB – Bottom View



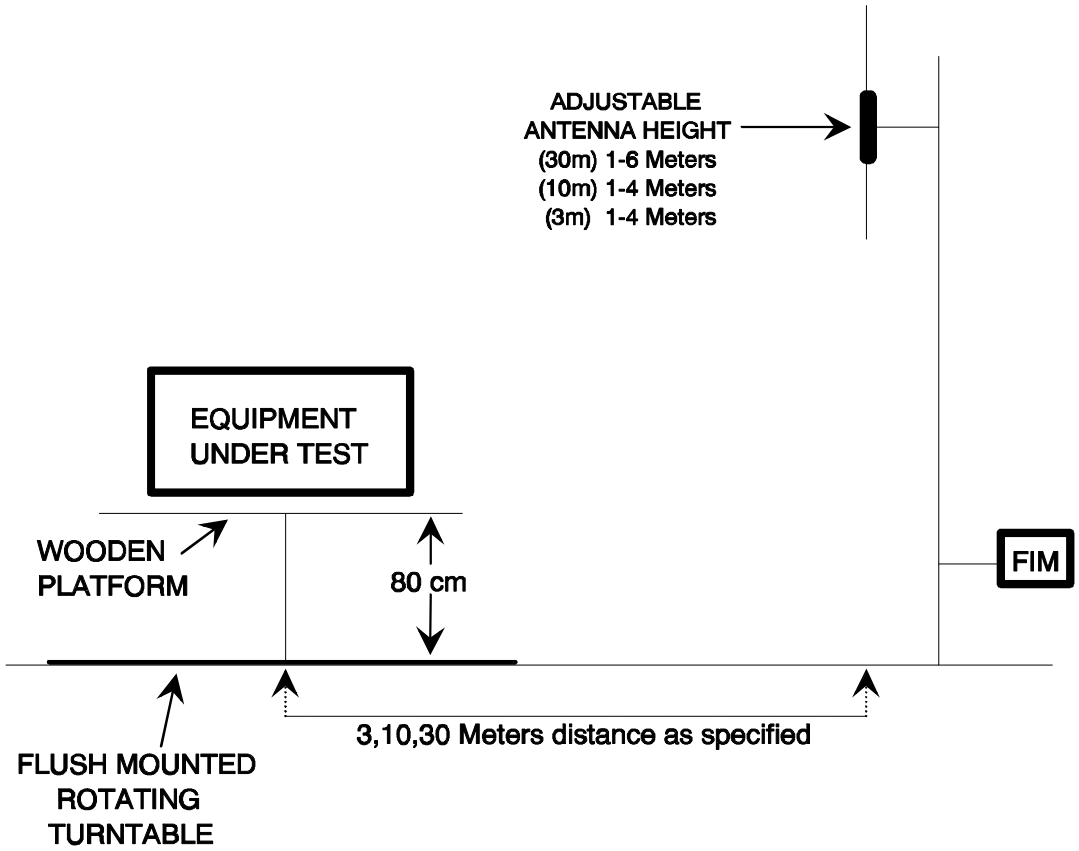
3. EMISSIONS FCC PART 15

per FCC part 15 Subpart C

3.1 Radiated Emissions Test Setup and Procedure - Per 2.1033(b)(6) Per 2.947(a)

The EUT was placed on a wooden table 1 meter wide and 1.5 meters long which rests on a flush mounted, steel-top turntable on the open area test site as shown in Section 3.1.1. The top of the table is 80 cm above the ground plane. The turntable can be rotated 360 degrees. Measuring antenna is set at the prescribed distance. Measurements are made with broad band antennas that have been correlated with tuned dipole antennas. The mast is 4.5 meters high and is self-supporting. The height of the antenna can be varied from 1 to 4 meters. Positioning of the antenna is controlled remotely.

3.1.1 Test Site Per 2.1033(b)6



Radiated Test Setup and Procedure - cont'd

The EUT is put into the operational test mode as stated in Section 2.2.1 is then started.

The spectrum analyzer is setup to store the peak emission over the band of the antenna. Peak EUT and ambient emissions are stored while the turntable is rotated 360^0. Peak spectrum analyzer trace is then plotted with the addition of antenna and cable correction factors. The limit is plotted on the same graph. A receiver with CISPR Quasi Peak capabilities is then used on the frequencies identified as the highest with respect to the plotted limit. Ambients are noted on the graph along with EUT emissions. The highest EUT frequencies, with respect to the limit, are maximized.

To maximize emissions levels, the turntable is rotated and the antenna is raised and lowered to determine the point of maximum emanations. The cables are then manipulated at that point to maximize emissions. Measurements are made with the antennas in each horizontal and vertical polarization separately. The data obtained from these tests is corrected with the proper cable, preamplifier and antenna factors. The results are then transcribed onto tables that show the maximum emission levels. The highest emissions are listed in a Radiated Emissions Summary table.

If no emissions can be found, the lowest harmonics of the EUT clocks within the bands of the standard are tuned into with the receiver. If no emissions are found, the noise floor will be entered into the table and noted. A minimum of six frequencies will be logged. Summary results will reflect only actual emissions from the EUT.

Radiated Test Setup and Procedure - cont'd

The field intensity measurements are made using standard techniques with a spectrum analyzer or EMI receiver as the calibrated Field Intensity Meter (FIM). Preamplifiers and filters are used when required.

When using the Hewlett Packard Model 8568B Spectrum Analyzer as the FIM, the Analyzer is calibrated to read signal level in dBm. Where:

0 dBm (50 ohms) = 107 dBuV (50 ohms)

The signal level (dBuV) = indicated signal level (dBm) + 107 dB. To obtain the signal level in dBuV/m it is necessary to add the antenna factor in dB.

3.1.2 Example Of Typical Calculation Per 2.1033(b)6

Measurement Distance = 3 Meter

Reading @ 433 MHz			*100.1*	*dBuV*
Antenna Factor	*+7.5*	*dBuV*		
Duty Cycle Correction	*-18.0*	*dBuV*		
Cable Loss	*+2.0*	*dBuV*		
Preamplifier	*-25.5*	*dBuV*		
	-34.0	*dBuV*	*-34.0*	*dBuV*
Field Strength dBuV/m at 3 Meter =			*66.1*	*dBuV*

*(DCC=20*LOG(N/100)*

The Following FCC limits for acceptance were used:

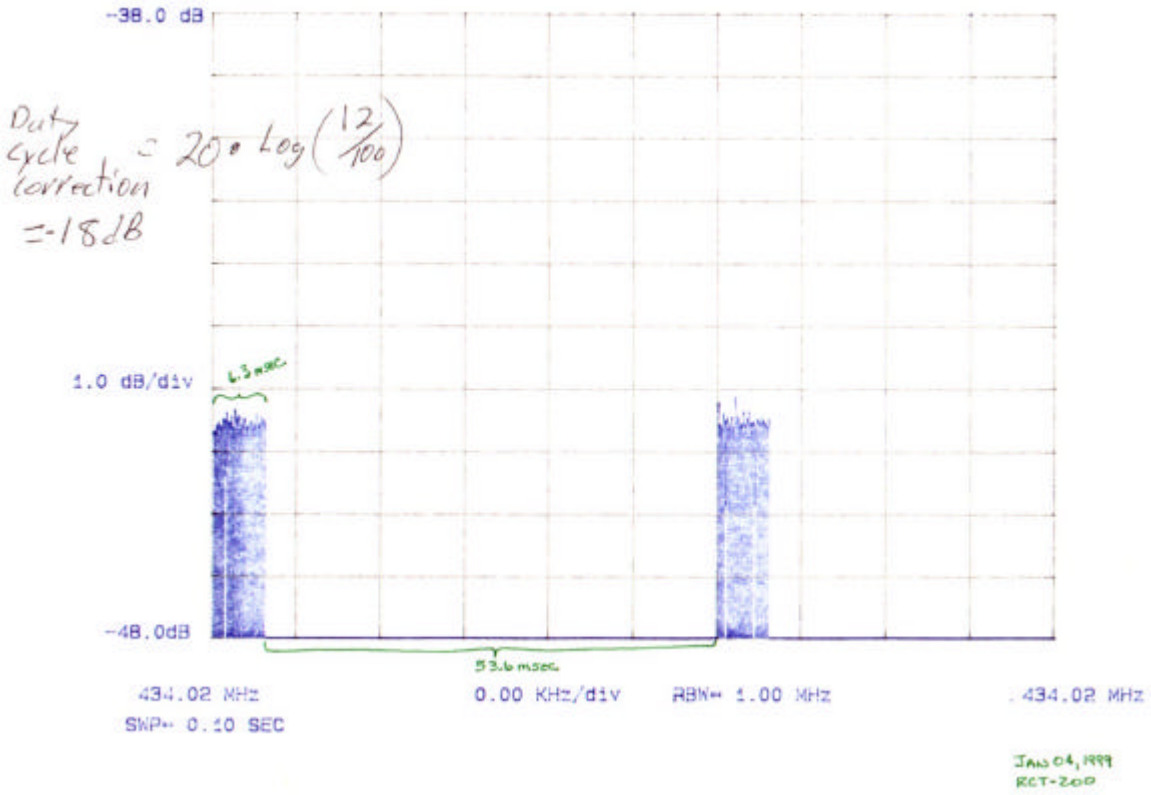
Limit per 15.231(b) at 433MHz:

10960 mV/M = 20 log (10960) dBmV/M = 81 dBmV/M @ 3 Meters

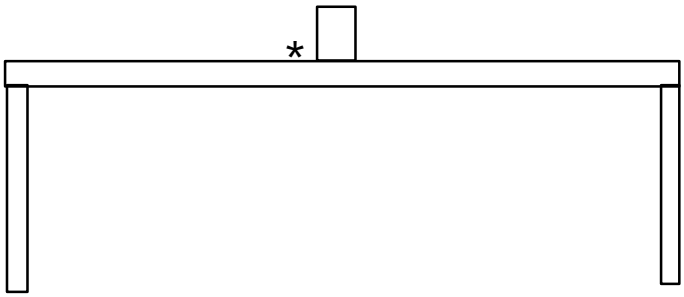
Limit Spurious Emissions:

1096 mV/M = 20 log (1096) dBmV/M = 61 dBmV/M @ 3 Meters

*Duty Cycle Correction is applied to get an average reading over a 100 mS time per 15.35. This correction is applied against the peak measurement. Attached Duty Cycle graph shows and on time of 12.6 mS for –18dB Correction. The following formula is applied. Correction = 20*log(12.6/100).*


-38.0 dB
Duty cycle correction = -18dB
1.0 dB/div
6.3 msec.
-48.0dB
53.6 msec.
434.02 MHz
0.00 KHz/div
RBW= 1.00 MHz
434.02 MHz
SWP= 0.10 SEC
JAN 04, 1999
RCT-200

3.1.3 Diagram of Test Setup - per 2.1033(b)5



* - Equipment under Test

3.1.4 *Field Strength of Intentional Radiator – Fundamental Frequency*

The EUT was compliant with CFR 47, 15.231(b) field strength of intentional radiator.

Radiated Emissions - Fundamental Frequency Summary Test Data

per FCC part 15, Subpart C (15.231) at 3 meters

REMTRON, INC. *EUT: RCT200 TRANSMITTER*

Transmitter Field Strength

VERTICAL Configuration

Frequency MHz	Corrected Measurement (dBuV/m)	Limit (dBuV/m)	Delta (dB)
433.96	66.1	81.0	**-14.9**
433.96	65.4	81.0	**-15.6**

- *Reference Appendix A for all data taken.*

3.1.5 Emissions Radiated - Spurious

The EUT was compliant with CFR 47, 15.231(b) radiated emissions requirements.

Radiated Emissions -Spurious Summary Test Data

per FCC part 15, Subpart C (15.231) at 3 meters

Table 3.1.5

REMTRON, INC. EUT: RCT200 TRANSMITTER

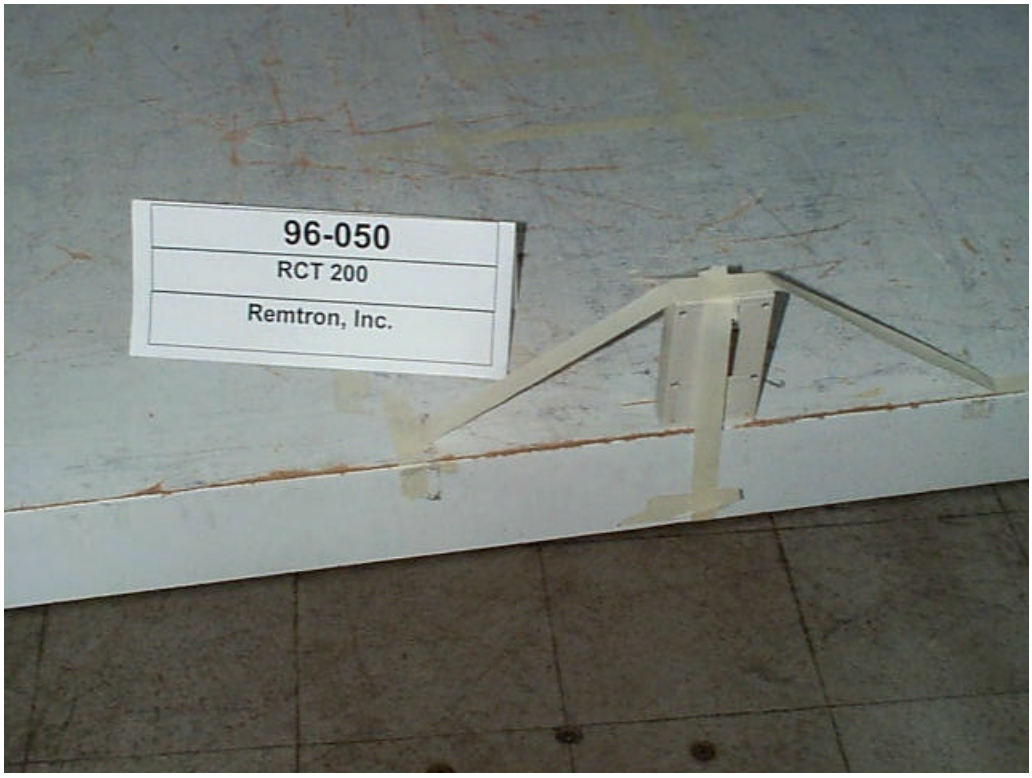
Freq. (MHz)	Meas'd (dBuV)	Note 1 Factors (dB)	Cable Factors (dB)	Antenna Factors (dB)	Total Factors (dB)	Corrected signal (dBuV/m)	Limit (dBuV/m)	Delta (dB)
867.79	69.8	44.5	9.4	22.8	-12.3	57.5	61.0	**-3.5**
867.88	65.9	44.5	9.4	22.8	-12.3	53.6	61.0	**-7.4**
1302.00	66.8	44.8	1.4	24.4	-18.9	47.9	61.0	**-13.1**
1302.00	60.7	44.8	1.4	24.4	-18.9	41.7	61.0	**-19.3**
1737.00	58.2	45.1	1.5	26.8	-16.9	41.3	61.0	**-19.7**
1737.00	52.8	45.1	1.5	26.8	-16.9	35.9	61.0	**-25.1**

- *Six highest frequencies relative to the Limit.*
- *Reference Appendix A for all data taken.*
- *Note 1 Factors include amplifier and duty cycle correction.*

3.1.6 Photograph of Radiated Test Setup –Front View - per 2.1033(b)(7)
RCT200 TRANSMITTER

3.1.7 Photograph of Radiated Test Setup – Rear View - per 2.1033(b)(7)

RCT200 TRANSMITTER

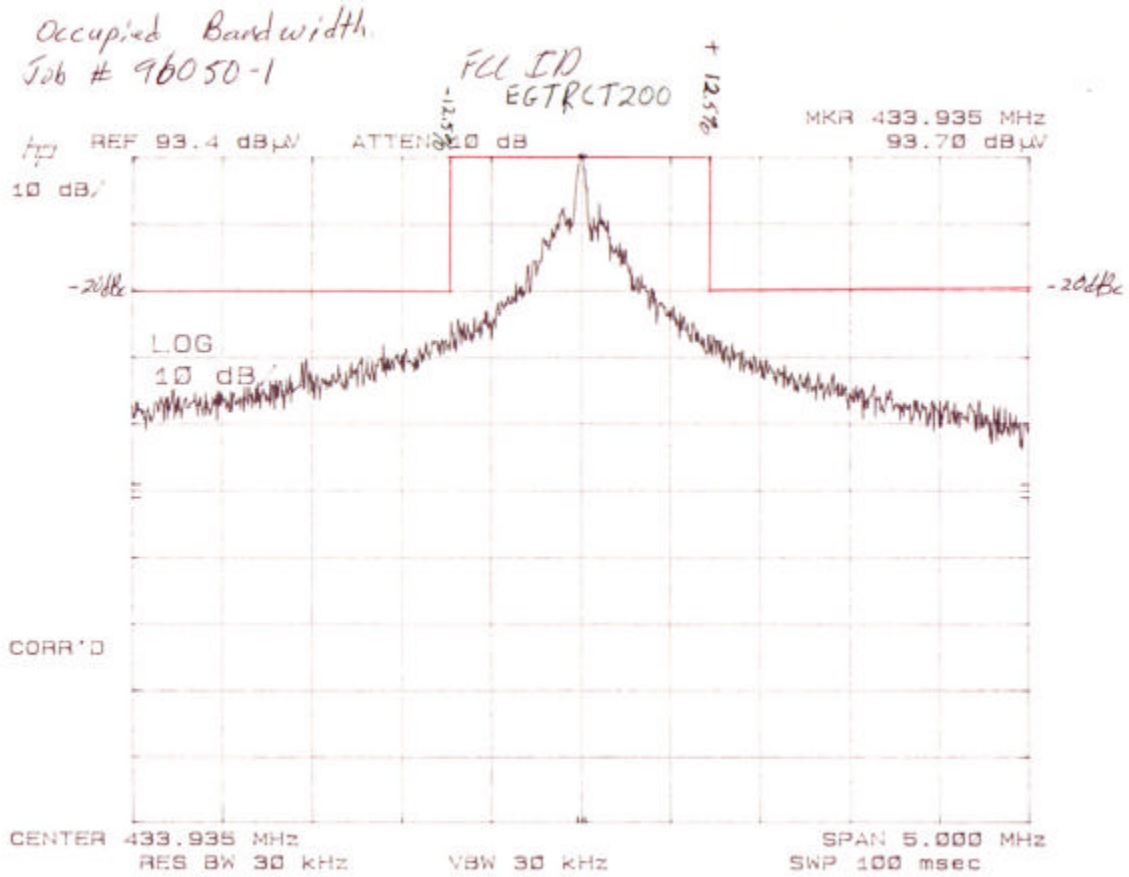


4. OCCUPIED BANDWIDTH PER 15.231(C)

The occupied bandwidth at the transceiver's fundamental frequency output was measured using a HP8566B spectrum analyzer.

The spectrum analyzer was adjusted as follows:

Frequency: 433.95 MHz	*Resolution Bandwidth: 30 kHz*
Input Attenuation: 10.0 dB	*Video Bandwidth: 30 kHz*
Scan Width: 3 MHz, 300 kHz/div	*Reference Level: as needed*
Vertical Scale: 10 dB/div	*Detector: Peak*



5. LABELING REQUIREMENTS - PER 2.1033(B)(7)

Label will be constructed of 0.02 inch plastic attached as shown on the equipment with permanent adhesive.

All information on the label will be etched or screened. All methods will exceed the expected lifetime of the equipment.

The label will be large enough to allow all information to be readily legible.

5.1 Additional Label Required

This device complies with Part 15 of the FCC Rules. Operation is subject to the following tow conditions: (1) This device may not cause harmful interference, and (2) This device must accept any interference received, including interference that may cause undesired operation.

Shown above is a copy of the label with the Part 15.19 Compliance Statement, Location of required information is checked "below".

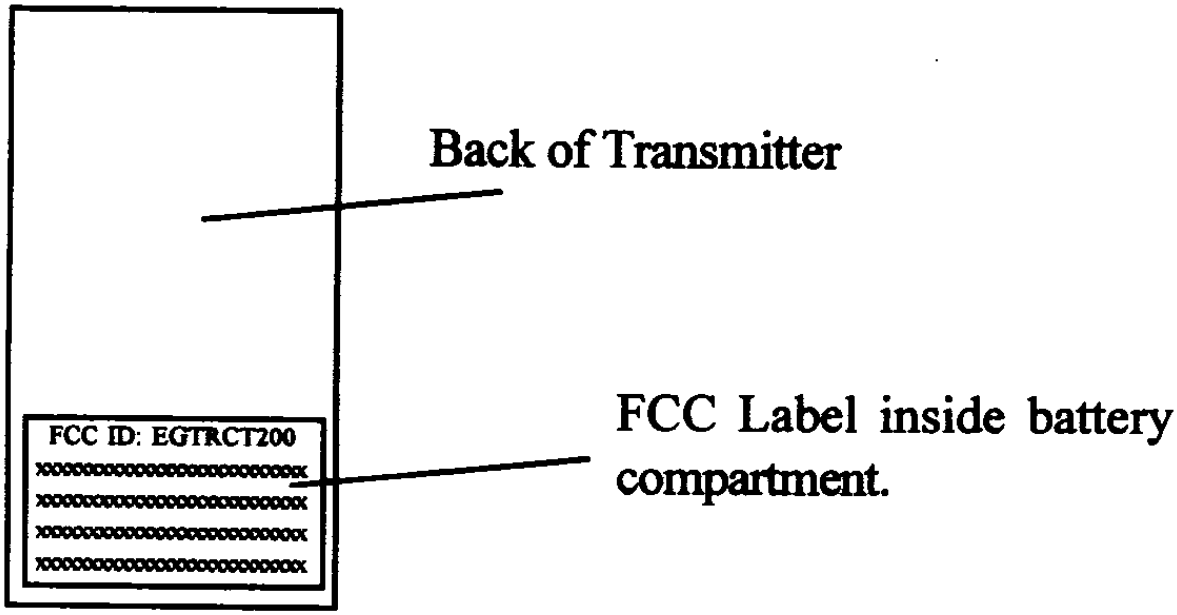
■ *The label will be placed in a conspicuous location on the device.*

☐ *The device is too small for a compliance label. Therefore the label will be placed in a prominent location in the Instruction Manual or other information supplied to the user.*

☐ *The device is too small for a compliance label. The label will be placed on the container in which the device will be marketed.*

5.2 Label

See attached PDF file for label contents.



6. OWNERS MANUAL

See HTML file sent with this report.

7. APPENDIX SECTION

7.1 APPENDIX A: TEST DATA

96050 Remtron RCT200 DNB Engineering, Inc. Page 1

RADIATED EMISSIONS
Location #2 FCC Part 15 Subpart C (15.231(b))

Client: Remtron, Inc. File #: 96050 Rep.: John Schooley
Date: 4-Jan-99 Engr.: Norm Hansen System: RCT200

Freq (MHz)	Meas'd (dBuV)	Duty & Amp Factors (dB)	Cable Factors (dB)	Antenna Factors (dB)	Total Factors (dBuV/m)	Total (dBuV/m)	3 Meter FCC Limit (dBuV/m)	Delta (dB)	Azimuth (degree)	Height (m)	Hor/ Vert	HP/ R&S	Meas Type Ave QP Peak	Comments
867.79	69.8	44.5	9.4	22.8	-12.3	57.5	61.0	-3.48	174	1.20	Vert	R&S	Peak	Run 2-vert/worst case
867.88	65.9	44.5	9.4	22.8	-12.3	53.6	61.0	-7.38	238	1.00	Hor/	R&S	Peak	Run 2-vert/worst case
433.96	66.1	44.1	6.6	17.5	-20.0	66.1	81.0	-14.92	173	1.00	Hor/	R&S	Peak	Run 2-vert/worst case
433.96	65.4	44.1	6.6	17.5	-20.0	65.4	81.0	-15.62	272	1.20	Vert	R&S	Peak	Run 2-vert/worst case

1100 E. Chalk Creek Rd.
Coalville, UT, 84017

Data not valid for report unless signed by DNB personnel
Norm Hansen

Phone (801) 336-4433
Fax (801) 336-4436

96050 Remtron RCT-200 DNB Engineering, Inc. Page 1

RADIATED EMISSIONS
Location #1 FCC Part 15 Class B

Client: Remtron File # 96050 Rep.: John Schooley
Date: 4-Jan-99 Engr: Norm Hansen System: RCT-200

Freq (GHz)	Meas'd (dBuV)	Amp Factors (dB)	Cable Factors (dB)	Antenna Factors (dB)	Total Factors (dBuV/m)	Total (dBuV/m)	3 Meter FCC Limit (dBuV/m)	Delta (dB)	Azimuth (degree)	Height (m)	Hor/ Vert	HPV R&S	Meas Type Ave Peak	Comments
1.302	66.8	44.8	1.4	24.4	-18.9	47.9	61.0	-13.1	168	1.00	Hor	HP	Peak	Run 2
1.302	60.7	44.8	1.4	24.4	-18.9	41.7	61.0	-19.3	89	2.75	Vert	HP	Peak	Run 2
1.737	58.2	45.1	1.5	26.8	-16.9	41.3	61.0	-19.7	3	1.00	Vert	HP	Peak	Run 2
1.737	52.6	45.1	1.5	26.8	-16.9	35.9	61.0	-25.1	184	3.50	Hor	HP	Peak	Run 2
2.604	37.0	47.0	2.3	29.2	-15.5	21.5	61.0	-39.5	217	1.30	Hor	HP	Peak	Run 2
2.604	36.0	47.0	2.3	29.2	-15.5	20.5	61.0	-40.5	228	1.50	Vert	HP	Peak	Run 2
2.171	33.4	46.5	1.7	28.7	-16.1	17.2	61.0	-43.8	275	2.00	Vert	HP	Peak	Run 2
2.171	33.2	46.5	1.7	28.7	-16.1	17.1	61.0	-43.9	313	1.50	Hor	HP	Peak	Run 2
4.340	28.6	48.0	3.2	31.9	-12.8	15.8	61.0	-45.2	0-360	1-4	Vert	HP	Peak	Run 2-noise floor-BWs @ 100KHz
4.340	28.4	48.0	3.2	31.9	-12.8	15.5	61.0	-45.5	0-360	1-4	Hor	HP	Peak	Run 2-noise floor-BWs @ 100KHz
3.910	28.8	47.9	3.0	31.2	-13.7	15.0	61.0	-46.0	0-360	1-4	Vert	HP	Peak	Run 2-noise floor-BWs @ 100KHz
3.910	28.4	47.9	3.0	31.2	-13.7	14.7	61.0	-46.3	0-360	1-4	Hor	HP	Peak	Run 2-noise floor-BWs @ 100KHz
3.044	28.4	47.0	2.4	30.4	-14.3	14.1	61.0	-46.9	0-360	1-4	Vert	HP	Peak	Run 2-noise floor-BWs @ 100KHz
3.044	28.3	47.0	2.4	30.4	-14.3	14.1	61.0	-46.9	0-360	1-4	Hor	HP	Peak	Run 2-noise floor-BWs @ 100KHz
3.477	27.9	47.9	3.1	30.1	-14.8	13.1	61.0	-47.9	0-360	1-4	Hor	HP	Peak	Run 2-noise floor-BWs @ 100KHz
3.477	27.8	47.9	3.1	30.1	-14.8	13.0	61.0	-48.0	0-360	1-4	Vert	HP	Peak	Run 2-noise floor-BWs @ 100KHz

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7.2 APPENDIX B: UNCERTAINTY TOLERANCE

UNCERTAINTY TOLERANCE

DNB Engineering's Utah Facility is within acceptable uncertainty tolerances per ANSI C63.4 (1992) sections 5.4.6.1 and 5.4.6.2 as well as CISPR 16-1(1993) Annex M, section M.2.

ANSI C63.4 (1992)

5.4.6.1 Site Attenuation. A measurement site shall be considered acceptable for radiated electromagnetic field measurements if the horizontal and vertical NSA derived from measurements, i.e., the "measured NSA," are within ±4 dB of the theoretical NSA (5.4.6.3) for an ideal site.

5.4.6.1 NSA Tolerance. The ±4 dB tolerance in 5.4.6.1 includes instrumentation calibration errors, measurement technique errors, and errors due to site anomalies. These errors are analyzed in ANSI C63.6-1988 [3], wherein it is shown that the performance of a well-built site contributes only 1 dB of the total allowable tolerance.

CISPR 16-1 (1993)

M.2 Error analysis

. . . The total estimated errors are the basis for the ±4 dB site acceptability criterion consisting of approximately 3 dB measurement uncertainty and an additional allowable 1 dB for site imperfections.

7.3 APPENDIX C: TEST SITE CERTIFICATION, CHALK CREEK EMI SITE - per 2.948(a)

SITE CHARACTERISTICS, CHALK CREEK EMI TEST SITE

General:

The DNB Engineering test facility is located in Chalk Creek Canyon near Coalville, Utah. Site characteristics were measured according to the procedures outlined in ANSI C63.4 (1992) "Characteristics of Open Field Test Site". The results of these characterizations indicate that the Chalk Creek site is an outstanding facility to perform accurate and repeatable EMI tests.

This facility has been FCC approved to perform class B certification testing since January 1986. In October of 1996, according to the FCC requirement to re-apply every three years, the facility was again certified. Certification was granted for the 3, 10, and 30 meter positions for both ranges. Facility approval was granted by the FCC Oct. 15, 1996 under file number 31040/PRV 1300F2.

In July of 1997, **The American Association for Laboratory Accreditation**, **A2LA**, granted accreditation to this facility. Standards for which accreditation was granted: RF Emissions: ANSI C63.4 - 1992, FCC Part 15 subpart B and C, FCC Part 18 CISPR 11, CISPR 13, CISPR 14, CISPR 22, EN 55011, EN 55013, EN 55014, EN 55022, EN 60601-1-2, EN 50081-1, EN 50081-2, IEC 601-1-2; RF Immunity: EN 50082-1, EN 50082-2, Radiated Susceptibility: EN 61000-4-3, ENV 50140, ENV 50204, IEC 1000-4-3, IEC 801-3, ESD: EN 61000-4-2, IEC 1000-4-2, IEC 801-2, EFT: EN 61000-4-4, IEC 1000-4-4, IEC 801-4, Surge: EN 61000-4-5, ENV 50142, IEC 1000-4-5, IEC 801-5, Injected RF Immunity: EN 61000-4-6, ENV 50141, IEC 1000-4-6, IEC 801-6

In September, 1994 the National Certified Testing/Competent/ Notified Body for Norway and Scandinavian Countries (NEMKO) approved this test facility. DNB now offers the testing required for the CE Mark. **NEMKO EMC Laboratory Authorization No.: ELA 131** Standards for which accreditation was granted: RF Emission: EN 55011, EN 55022, EN 50081-1, EN 50081-2; RF Immunity: EN 50082-1, EN 50082-2

In September, 1994, the New Zealand Ministry of Commerce certified that DNB ENGINEERING, INC. EMC facilities meet their laboratory approval criteria for EMC testing and placed DNB ENGINEERING on their list of Ministry-Approved laboratories.

In August, 1995, VCCI certified that the Chalk Creek facility was acceptable to perform EMI test according to VCCI requirements. The certificate number is 715.

Ambient Emissions

Ambient emission measurements were made to determine the level of the ambient emanations at the DNB test facility. The results indicate that all ambient signals are below the FCC, and VCCI radiated emission limits or that each can easily be identified as an ambient signal.

7.4 APPENDIX D: EMC INSTRUMENTATION AND MEASUREMENT EQUIPMENT

All test equipment is calibrated by a certified metrology facility using standards traceable to NIST.

Each instrument is calibrated annually or more frequently if required.

Test Equipment for Emissions

Antenna Mast, site 2 (30m)	AH Systems	AMSC-6	2159-4C	
Plotter	HP	7475A	2517A20261	
Printer	HP	2671G	2520A31080	
PRE Amp (30m)	HP	8447D	2727A06182	3/4/99
PRE Amp (3,10m)	HP	8447D	2727A06180	6/17/99
CISPR Adapter site 2	HP	85650A	2043A00277	9/25/99
Computer desk top site 1	HP	9826A	2439A09175	
Spectrum Analyzer site 2	HP	8568B	1721A00113	9/23/99
Receiver site 2	R&S	ESH3	872842/045	5/13/99
Receiver site 2	R&S	ESVP	882402/005	1/27/99
Spectrum Monitor site 2	R&S site 1	EZM(3)	880 087/038	
Log Periodic Antenna site 2	SCH	UHAL09107	91071004(L10)	7/24/99
Biconical Antenna site 2	SCH	BBA9106	11	7/20/99
LISN	SCH	NSLK 8126	142	11/6/99
LISN	SCH	NNLA 8120	301	11/6/99
Bicon Antenna	AH SYS	SAS-200/543	183	7/20/99
Log Periodic Antenna	AH SYS	SAS-200/512	322	7/24/99
Horn Antenna, Double Rdg Gd	AH SYS	SAS-200/571	222	4/3/99
Horn Antenna	AR	AT4000	10801	
Antenna Mast, site 1(30m outside)	DNB	2159-2	AMS6	
Antenna Mast, site 1(10m inside)	EMCO 1	1050*	1236a	
Antenna Mast, site 1(3m inside)	EMCO1	1050*	1236b	
Printer	HP	2671G	2520A31883	
Computer desk top	HP	9826A	231A05633	
PRE Amp (3m)	HP	8447D	2727A06191	6/18/99
PRE Amp (30m) site 1	HP	8447D	2727A06181	6/17/99
CISPR Adapter site 1 (ref. only)	HP	85650A	2043A00124	10/27/99
Plotter	HP	7475A	2325A64445	
Spectrum Analyzer site 1	HP	8566B	2421A00516	10/27/99
RF/Preselector site 1 (ref. only)	HP	85685A	2724A00659	10/27/99
PRE Amp. (10m)	HP	8447D	2727A06184	6/17/99
Amplifier	Mini-Circuits	ZHL-1042J	N111496-6	
Amplifier (2-20 GHz, 22dB gain)	MITEQ	AFS6-02002000-18O-MP	428738	6/17/99
Receiver site 1	R&S	ESH3	882399/025	6/19/99
Spectrum Monitor site 1	R&S	EZM(3)	880 487/037	
Receiver site 1	R&S	ESVP	879807/048	6/19/99
LISN	SCH	NNLK 8121	218	11/6/99
Log Periodic Antenna	SCH	UJALP9107	2C	7/24/99
LISN	SCH	NNLK 8121	156	11/6/99
Antenna Mast site 1 port. (10m outside)	Unisys	U-258	CC-300-5023	

7.5 APPENDIX E: INFORMATION SUPPLIED TO APPLICANT

INFORMATION PERTAINING TO EQUIPMENT MANUFACTURED AFTER COMPLIANCE TESTING

It is prudent that manufacturers have an established Quality Assurance program to spot check their products on a periodic basis, either based upon time or quantities produced. Obviously, a change in the engineering design should be sufficient justification for a re-test.

The Quality assurance test need not be formal Verification or Certification such as required during the initial production of the product. However, it should be sufficient in scope to assure that the EMI characteristics of the product have not changed to the degree that the product exceeds the FCC limits. If a new model of a product is produced, it must undergo full Verification or Certification testing and, in case of Certification, be filed with the FCC.

It is expected that the FCC will place greater emphasis and resources in spot checking commercially available products. If a product is found not to be compliant with the Limits specified in Part 15, Subpart B. the manufacturer will be subject to the appropriate penalties imposed by the Commission. The initial Certification or Verification is sufficient to justify initial production. The additional quality assurance testing performed is the manufacturer's responsibility to assure continued compliance.