EXHIBIT E

REPORT OF MEASUREMENTS

A. TEST REPORT

The Monduce Remote Control Transmitter was tested and found to comply with the limits imposed by the FCC "Code of Federal Regulations", Title 47, Part 15, subsection 15.209, general limit for low power transmitters.

The attached test report describes the results of the test in detail.

FCC ID: XXXMRCS98-1

ELITE ELECTRONIC ENGINEERING COMPANY
1516 CENTRE CIRCLE
DOWNERS GROVE, ILLINOIS 60515-1082

ELITE PROJECT: 26136

DATES TESTED: October 29, 1997
& March 20, 1998

TEST PERSONNEL: Stanley D. Dolecki & Mark E. Longinotti

TEST SPECIFICATION: FCC "Code of Federal Regulations" Title 47
Part 15, Subpart C, Intentional Radiators

ENGINEERING TEST REPORT NO. 20492

MEASUREMENT OF RF EMISSIONS

FROM THE MONDUCE REMOTE CONTROL

TRANSMITTER

MODEL MRCS98-1

FOR: Monduce, Inc.
Metuchen, NJ

Report By: Neil J. Hurley

Approved By: Raymond J. Klouda
Registered Professional
Engineer of Illinois - 44894

ENGINEERING TEST REPORT NO. 20492

ADMINISTRATIVE DATA AND SUMMARY OF TESTS

DESCRIPTION OF TEST ITEM: Low frequency remote control transmitter

MODEL NO: MRCS98-1 **SERIAL NO:** None

MANUFACTURER: Monduce, Inc.

APPLICABLE SPECIFICATIONS: FCC "Code of Federal Regulations" Title 47, Part 15, Subpart C, Intentional Radiators

QUANTITY OF ITEMS TESTED: One (1)

TEST PERFORMED BY: ELITE ELECTRONIC ENGINEERING COMPANY
Downers Grove, Illinois 60515

DATES TESTED: October 29, 1997 and March 20, 1998

PERSONNEL (OPERATORS, OBSERVERS, AND CO-ORDINATORS):
CUSTOMER: No Monduce, Inc. personnel were present.
ELITE ELECTRONIC: Stanley D. Dolecki & Mark E. Longinotti

ELITE JOB NO.: 26136

ABSTRACT: The model MRCS98-1 Transmitter, with the ferrite beads installed, does meet the conducted and radiated emission requirements of the FCC "Code of Federal Regulations", Title 47, Part 15, Subpart C, for intentional radiators.

The conducted emissions level closest to the limit occurred at 20MHz. The emissions level at this frequency was 5.3dB within the limit. See data pages 103 and 104 for more detailed results.

The radiated emission level at the fundamental frequency of 78 kHz measured 22.2 dB below the specification limit. The level closest to the limit occurred at 40MHz. The emissions level at this frequency was 0.8dB within the limit. This emission is unintentional and generated from the microprocessors. See data pages 106 and 109 for more details.

ENGINEERING TEST REPORT NO. 20492

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ENGINEERING TEST REPORT NO. 20492

MEASUREMENT OF RF EMISSIONS

FROM THE MONDUCE REMOTE CONTROL TRANSMITTER

1.0 INTRODUCTION:

1.1 DESCRIPTION OF TEST ITEM: This report presents the results of radio interference measurements were performed on the Monduce Remote Control Transmitter, Model MRCS98-1, (hereinafter referred to as the test item).

The transmitter is an integral part of the Monduce Remote Control System. The system is a multi-player, coin operated system intended for use in the amusement and entertainment industry. Players maneuver remote controlled vehicles around a track or pond depending upon the vehicle type (i.e. miniature trucks, cars, or boats).

The transmitter operates at approximately 78kHz. The transmitter in contained in a metal cabinet. The signal radiates from an antenna wire loop which been installed around the perimeter of the course or pond. The vehicles which contain receivers can then operated within the course or pond.

The transmitter was tested in conjunction with the console. The console is the customer interface for the system. It contains the coin operated controls, steering and speed controls, speaker. The game and sound electronics are contained in the console.

1.2 PURPOSE: The test series was performed to determine if the test item meets the conducted and radiated RF emission requirements of the FCC "Code of Federal Regulations" Title 47, Part 15, Subpart C, for intentional radiators. Testing was performed in accordance with ANSI C63.4-1992.

1.3 DEVIATIONS, ADDITIONS AND EXCLUSIONS: There were no deviations, additions to, or exclusions from the test specification during this test series.

1.4 APPLICABLE DOCUMENTS: The following documents of the exact issue designated form part of this document to the extent specified herein:

- Federal Communications Commission "Code of Federal Regulations", Title 47, Part 15, Subpart C, dated 1 October 1997
- ANSI C63.4-1992, "American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz"
- Notes on testing "invisible dog fence" transmitter.

1.5 SUBCONTRACTOR IDENTIFICATION: This series of tests was performed by the Elite Electronic Engineering Company, of Downers Grove, Illinois.

2.0 TEST ITEM SETUP AND OPERATION:

For tests the test item was placed on a 80cm high non-conductive stand. The console was placed on the floor next to the stand. The console was connected to the test item with a 4 foot long, six wire cable.

During the open area radiated measurements from 9kHz to 30MHz, an antenna wire was attached the transmitter's output. Since the antenna length can vary depending on the installation, an **ANTENNA WIRE** of **100 meters** in length and #14 AWG was selected in accordance with the FCC Note. The wire was laid out in a 25m by 25m square directly on surface of the level grass test site. The antenna length will not be longer than 100 meters when the transmitter is used. Figure 3

depicts the layout.

During the conducted measurements and the radiated measurements from 30MHz to 1GHz, the antenna was simulated with a 100uH load.

The test item obtained 115V 60Hz power via a 3 wire, 3 foot long, unshielded power cord. During the conducted emission test, the high and low leads were connected through a line impedance stabilization network (LISN) which was located on the copper ground plane. The network complies with the requirements of Paragraph 4.1.2 of ANSI C63.4-1992.

The test item was grounded only through the third wire of its input power cord.

For all tests, the test item was **set to transmit** at the **FULL POWER** setting. The full power was set according the setup and tuning instructions in the manual.

3.0 TEST SITE AND INSTRUMENTATION:

3.1 TEST SITE: Conducted measurements were performed in a shielded enclosure at the laboratory of Elite Electronic Engineering Company.

Radiated emissions from 9kHz to 30MHz were performed at Elite's open field test site located in Waterman Illinois. The open field test site is located in a clear and level grassy area.

Radiated emissions from 30MHz to 1GHz were performed in a 32ft. x 20ft. x 18ft. hybrid ferrite-tile/anechoic absorber lined test chamber. The floor and ceiling of the shielded chamber are lined with ferrite tiles. Anechoic absorber material is installed over the ferrite tile. The floor of the chamber is used as the ground plane. The chamber complies with ANSI C63.4 1992 for site attenuation.

3.2 TEST INSTRUMENTATION: A list of the test equipment used can be found on Table I. All equipment was calibrated per the instruction manuals supplied by the manufacturer.

The radiated measurements below 30MHz were made with a loop antenna. Radiated measurements above 30MHz were made with a bi-log antenna.

The fundamental, harmonics and spurious emissions measured with a Hewlett Packard spectrum analyzer. The spectrum analyzer peak detected readings were converted to average readings using a duty cycle factor. The measurement bandwidth adjusted to 10 kHz below 30 MHz and 120 kHz above 30 MHz for the radiated measurements, and 9 kHz for conducted measurements.

The duty cycle factor was calculated from the pulse train for the test item. A data plot was obtained to determine the duty cycle factor. The duty cycle factor was computed as the Word ON time divided by the Word period (ON time + OFF time). The duty cycle factor in dB = 20 log (Word ON/Word period). If the word period is more than 100 milliseconds, then the duty cycle would be computed on the maximum Word ON time during a 100 millisecond period.

4.0 REQUIREMENTS, PROCEDURES AND RESULTS:

4.1 POWERLINE CONDUCTED EMISSIONS:

4.1.1 REQUIREMENTS: All radio frequency voltages on the power lines of an intentional radiator shall be below 250uV (quasi-peak) over the frequency range from 0.45MHz to 30MHz. It is also to be noted that if emitted levels in the peak detector function do not exceed the above limits, the test item does meet the intent of these requirements.

4.1.2 PROCEDURES: The interference on each power lead was measured by connecting the measuring equipment to the appropriate meter terminal of the LISN. The meter terminal of the LISN not under test was terminated with 50 ohms. Measurements were first made over the entire frequency range from 450kHz through 30MHz with a peak detector and the results were automatically plotted. The data thus obtained was then searched by the computer for the highest levels. Quasi-peak measurements were automatically performed at the frequencies selected from the highest peak measurements, and the results printed.

4.1.3 RESULTS: The plots of the peak preliminary conducted voltage levels on each power line are presented on data pages 101 and 102. The conducted limit for intentional radiators is shown as a reference. The final quasi-peak results are presented on data pages 103 and 104. All conducted emission levels met the specification's requirements.

The emissions level closest to the limit occurred at 20MHz. The emissions level at this frequency was 5.3dB within the limit. Photographs of the test configuration which yielded the highest conducted emission levels are shown on Figure 1.

4.2 RADIATED EMISSIONS:

4.2.1 REQUIREMENTS: Radiated emissions shall not exceed the general requirements shown in paragraph and 15.209 (Subpart C). These levels are shown on the table below:

RADIATION LIMITS

Frequency MHz	Distance between Test Item and Antenna in Meters	Field Strength uV/m
0.009-0.490	300	2400/F(kHz)

0.490-1.705	30	24000/F(kHz)
1.705-30	30	30
30-88	3	100
88-216	3	150
216-960	3	200
Above 960	3	500

Note: The tighter limit shall apply at the edge between the two frequency bands.

4.2.2 PROCEDURES:

4.2.2.1 DUTY CYCLE FACTOR - The duty cycle factor is used to convert peak detected readings to average reading. This factor is computed from the time domain trace of the pulse modulation signal.

With the transmitter set up to transmit for maximum pulse density, the time domain trace is displayed on the spectrum analyzer. This trace is obtained by tuning center frequency to the transmitter frequency and then setting a zero span width. The time or sweep speed is adjusted to view the duty cycle. The amplitude setting are adjusted so that the on/off transitions clear the 4th division from the bottom of the display. The markers are set at beginning and end of a word period. If the word period exceeds 100 msec the word period is set to 100 msec. The on-time and off-time are then measured. The on-time is total time signal level exceeds the 4th division. Off-time is time under for the word period. The duty cycle is then computed as the (On-time/ word period) where the word period = (On-time + Off-time).

4.2.2.2 MEASUREMENTS - 9kHz to 30MHz: All measurements over the frequency range from 9kHz to 30MHz were performed at Elite's open field test site located in Waterman, Illinois. The open field test site is located in a clear area.

Figure 3 shows the test layout. Measurements were performed at

with a loop antenna set at a test distance of 30 meters measured from the perimeter of the square formed by the antenna wire. The measurement antenna's position was moved at least 20 meters along the perimeter to insure that the maximum level was detected. In addition, the orientation of the loop was positioned vertical and then horizontal to maximize the level. Measurements were performed using an peak detector at frequencies below 30 MHz. Below 490 kHz, the peak readings were converted to average readings based on the duty cycle. Peak reading were reported above 490 kHz through 30 MHz.

All significant broadband and narrowband signals were measured and recorded. Harmonics of the transmitter frequency were recorded up through the 10th harmonic.

4.2.2.3 MEASUREMENTS - 30MHz to 1GHz: The tests over the frequency range from 30MHz to 1GHz were performed in a 32ft. x 20ft. x 18ft. hybrid ferrite-tile/anechoic absorber lined test chamber. The floor and ceiling of the shielded chamber are lined with ferrite tiles. Anechoic absorber material is installed over the ferrite tile. The floor of the chamber is used as the ground plane. The chamber complies with ANSI C63.4 1992 for site attenuation.

The shielded enclosure prevents emissions from other sources, such as radio and TV stations from interfering with the measurements. All powerlines and signal lines entering the enclosure pass through filters on the enclosure wall. The powerline filters prevent extraneous signals from entering the enclosure on these leads.

Since a quasi-peak detector requires long integration times, it is not practical to automatically sweep through the quasi-peak levels. Therefore, radiated emissions from the test item were first scanned

using a peak detector and automatically plotted. The frequencies where significant emission levels were noted were then remeasured using the quasi-peak detector.

The broadband measuring antenna was positioned at a 3 meter distance from the test item. The frequency range from 30MHz to 1000MHz was investigated using a peak detector function with the bilog antenna at several heights, horizontal and vertical antenna polarization, and with several different orientations of the test item with respect to the antenna. The maximum levels for each antenna polarization were plotted.

Final radiated emissions were performed on all significant broadband and narrowband emissions found in the preliminary sweeps using the following methods:

1) Measurements were made using a quasi-peak detector and a broadband bi-log antenna.

2) To ensure that maximum, or worst case, emission levels were measured, the following steps were taken:

   (a) The test item was rotated so that all of its sides were exposed to the receiving antenna.

   (b) Since the measuring antenna is linearly polarized, both horizontal and vertical field components were measured.

   (c) The measuring antenna was raised and lowered from 1 to 4 meters for each antenna polarization to maximize the readings.

4.2.3 RESULTS: The radiated emissions were within the specification limits.

The data for the radiated emissions measurements over the frequency range of 9kHz to 30MHz are presented on data page 106. Below 490 kHz, the duty cycle factor of -14 dB was added to the reading to

convert peak to average levels. A 20 msec plot depicting the duty cycle and calculations is presented on data page 105.

The data for the preliminary radiated emissions measurements over the frequency range of 30MHz to 1GHz are presented on data pages 107 and 108. The data for the final radiated emissions measurements for this frequency range are presented on data page 109. The emissions measured in this test were mainly generated by the digital circuits located on the transmitter and game boards.

Initially, radiated emissions in excess of the specification limits were measured. Three (3) ferrite beads, P/N 2842024-0A0, were installed on the wire bundle inside the console, just as the bundle entered the cabinet. As can be seen, no excessive readings were detected with the ferrite beads installed. The radiated emissions level closest to the limit occurred at 40MHz. The emissions level at this frequency was 0.8dB within the limit.

Photographs of the test configurations which yielded the highest radiated emission levels are shown on Figure 2.

5.0 CONCLUSION:

It was found that the Monduce Remote Control Transmitter, model MRCS98-1, with the ferrite beads installed, does comply with the limits imposed by the FCC "Code of Federal Regulations", Title 47, Part 15, Subpart C, for intentional radiators.

6.0 CERTIFICATION:

Elite Electronic Engineering Company certifies that the information contained in this report was obtained under conditions which meet or exceed those specified in the test specification.

The data presented in this test report pertains only to the test

item at the test date. Any electrical or mechanical modification made to the test item subsequent to the specified may serve to void this certification.

This report must not be used to claim product endorsement by NVLAP or any agency of the US Government.

TABLE 1: TEST EQUIPMENT LIST

ELITE ELECTRONIC ENGINEERING

Eq ID	Equipment Description	Manufacturer	Model No.	Serial No.	Frequency Range	Cal Date	Cal Inv	Due Date
Equipment Type: ACCESSORIES, MISCELLANEOUS								
XZG0	ATTENUATOR/SWITCH DRIVER	HEWLETT PACKARD	11713A	3439A00325	---	01/24/98	12	01/24/99
Equipment Type: AMPLIFIERS								
APK0	PREAMPLIFIER	HEWLETT PACKARD	8449B	3008A00662	1-26.5GHZ	01/27/98	12	01/27/99
Equipment Type: ANTENNAS								
NLG1	12" LOOP ANTENNA	EMPIRE DEVICES	LP-105	199	0.15-30MHZ		I/O	
NLK2	36" LOOP ANTENNA	EMPIRE DEVICES	LG-105	E-350	0.014-0.15MHZ		I/O	
NTA1	BILOG ANTENNA	CHASE EMC LTD.	BILOG CBL611	2054	.03-2GHZ	04/21/97	12	04/21/98
Equipment Type: ATTENUATORS								
T1K1	10DB, 2.5W LIMITER	HEWLETT PACKARD	11947A	3107A01737	.01-200MHZ	02/24/98	12	02/24/99
Equipment Type: CONTROLLERS								
CDB0	COMPUTER	HEWLETT PACKARD	D3094A#ABA	3506S01720	---		N/A	
CDD2	COMPUTER	HEWLETT PACKARD	D4171A#ABA	SUS61654645	N/A		N/A	
CMA0	MULTI-DEVICE CONTROLLER	EMCO	2090	9701-1213	---	10/21/97	12	10/21/98
Equipment Type: PROBES; CLAMP-ON & LISNS								
PLB0	FCC/LISN	CEMEC, INC.	FCC-20-2	1001	0.45-30MHZ	04/07/98	12	04/07/99
Equipment Type: PRINTERS AND PLOTTERS								
HRE0	LASERJET 5P PRINTER	HEWLETT PACKARD	C3150A	USHB007254	---		N/A	
HRE1	LASER JET 5P	HEWLETT PACKARD	C3150A	USHB061052	---		N/A	
Equipment Type: RECEIVERS								
RAC1	SPECTRUM ANALYZER	HEWLETT PACKARD	85660B	3407A08369	100HZ-22GHZ	01/24/98	12	01/24/99
RACB	RF PRESELECTOR	HEWLETT PACKARD	85685A	3506A01491	20HZ-2GHZ	01/24/98	12	01/24/99
RAF3	QUASIPEAK ADAPTER	HEWLETT PACKARD	85650A	3303A01775	0.01-1000MHZ	01/26/98	12	01/26/99
RAKG	RF SECTION	HEWLETT PACKARD	85462A	3549A00284	9KHZ-6.5GHZ	01/30/98	12	01/30/99
RAKH	RF FILTER SECTION	HEWLETT PACKARD	85460A	3448A00324	---	01/30/98	12	01/30/99
RAM0	SPECTRUM ANALYZER	HEWLETT PACKARD	8593A	3639A00181	9KHZ-22GHZ	07/03/97	12	07/03/98

Cal. Interval: Listed in Months I/O: Initial Only N/A: Not Applicable

Note 1: For the purpose of this test, the equipment was calibrated over the specified frequency range, pulse rate, or modulation prior to the test or monitored by a calibrated instrument.

OCT.17.1997 2:40PM FCC LAB 301-344-2050 NO.469 P.1/1

Post-it® Fax Note 7672 | No. of Pages 1 | Today's Date 10-17-97 | Time 3:30 P.M.

To RAY KLOUDA | From RICH FABINACC ID: XXXMRCS98-1

Company ELITE ELECTRONICS | Company FCC LAB

Location | Location | Dept. Charge

Fax # 630-495-9785 Telephone # | Fax # | Telephone #

Comments RAY,

ATTACHED IS A TEST PROCEDURE THAT MAY BE FOLLOWED FOR TESTING THE 78 KHZ REMOTE CONTROL TRAIN TRANSMITTER. THE ONLY POSSIBLE DEVIATION FROM IT WOULD BE TESTING WITH THE SPECIFIED LENGTH OF ANTENNA THAT IT IS ALWAYS USED WITH. IF THIS LENGTH CHANGES, FOLLOW THE PROCEDURE BELOW. Rich Fabina

Original Disposition: ☐ Destroy ☐ Return ☐ Call for pickup

FEDERAL COMMUNICATIONS COMMISSION

Customer Service Branch
7435 Oakland Mills Road, Columbia, MD 21046
Phone: (301) 725-1585,ext 229 Fax: (301) 344-2050

FROM: Ed Gibbons **DATE:** October 2, 1996
TO: Debbie Stevens
PAGES: One
REFERENCE: Our telecon of 10-2-96
FAX NUMBER: 607-898-4830

Dear Debbie,

Below is a description of our test procedure for evaluating the radiated emissions from "invisible dog fences". Based on our research, we have found that there may be very substantial differences in emissions depending on how the fence wire is handled. Specifically, we have seen that the radiated levels can increase by more than 20 dB if the wire is placed on the ground during testing rather than above the ground.

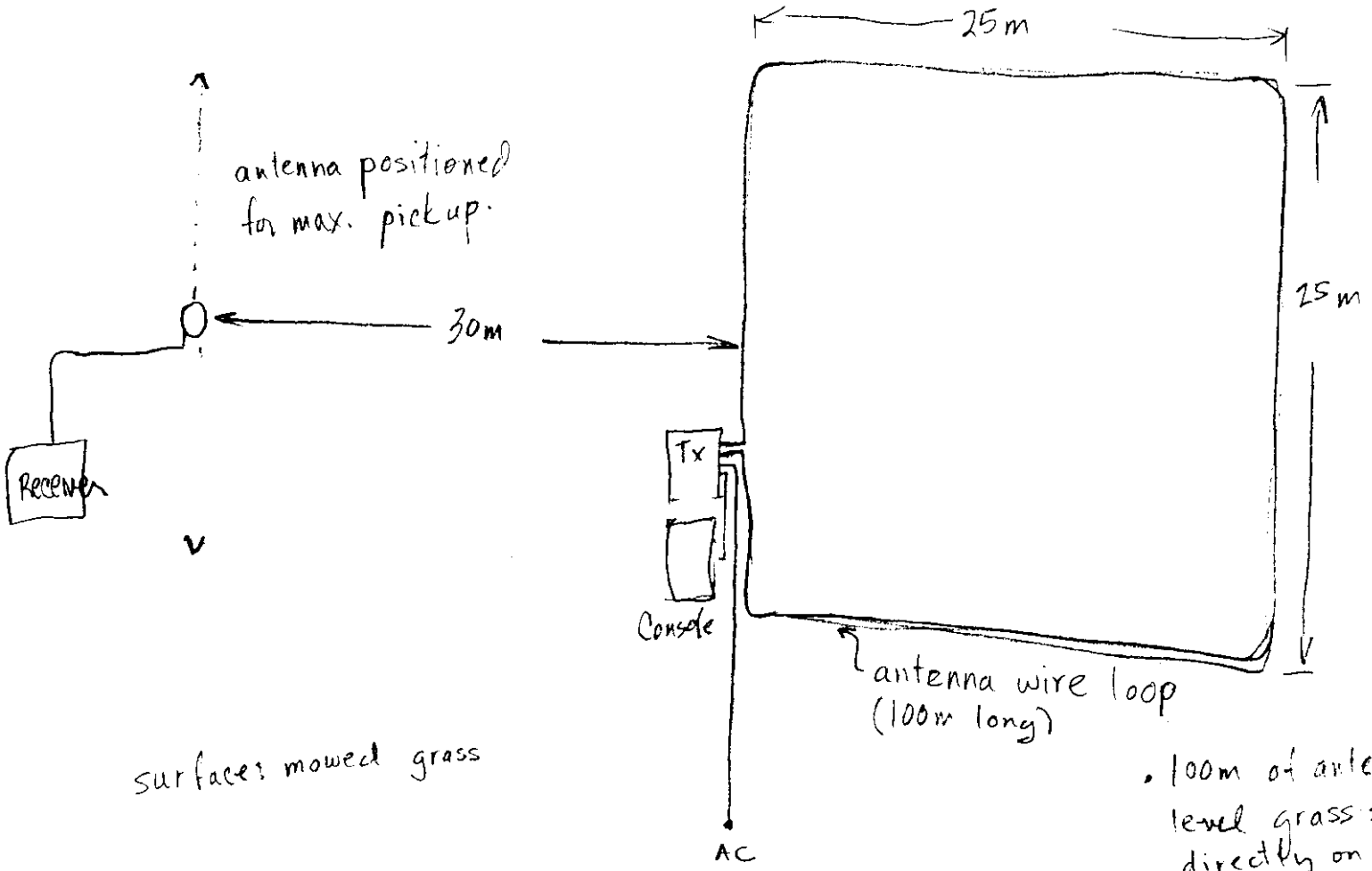
TEST PROCEDURE

At least 100 m. of wire must be attached to the transmitter and laid out as a circle on the surface of the ground. Radiated measurements must be made at a distance of 30m or more from the perimeter of the circle, and the location of the measurement antenna (loop) should be varied by at least 20m along the perimeter of the circle to be sure that measurements are not being made in a null.

Note:
The measurement loop polarization must be varied from vertical to horizontal to maximize the reading. At very low frequencies (below 100 kHz), an extrapolation factor of 60 dB/decade may be used to calculate the field strength at 300m. At higher frequencies, other appropriate extrapolation factors should be applied.

I hope that the above is helpful and if you have any questions, please do not hesitate to contact me.

Sincerely,



surfaces: mowed grass

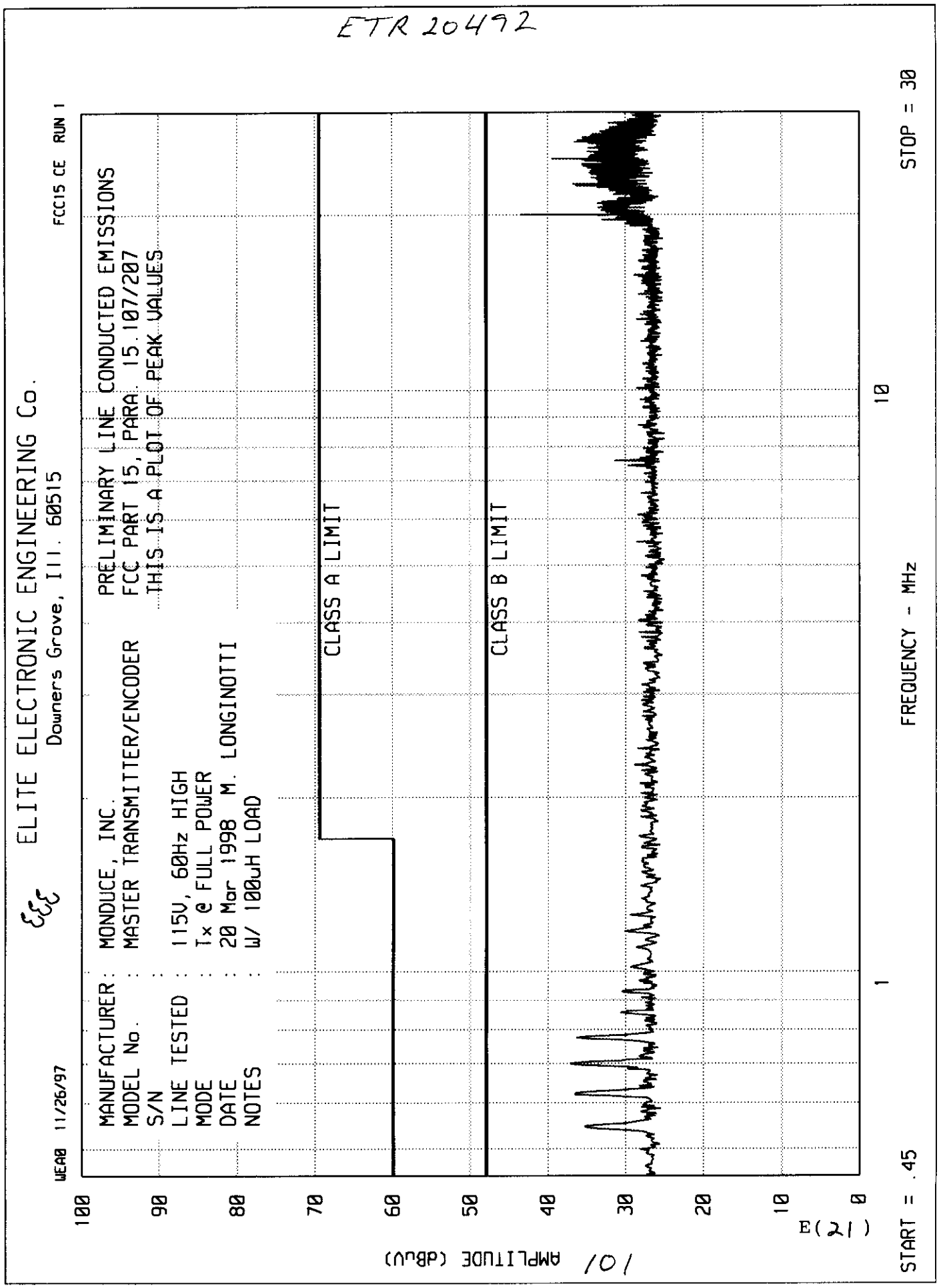
- 100m of antenna wire laid out on level grass surface - wire laid directly on grass.
- tuned for max. output level
- Tx freq. of 78kHz

Figure 3 : Transmitter configuration for low frequency open field measurements

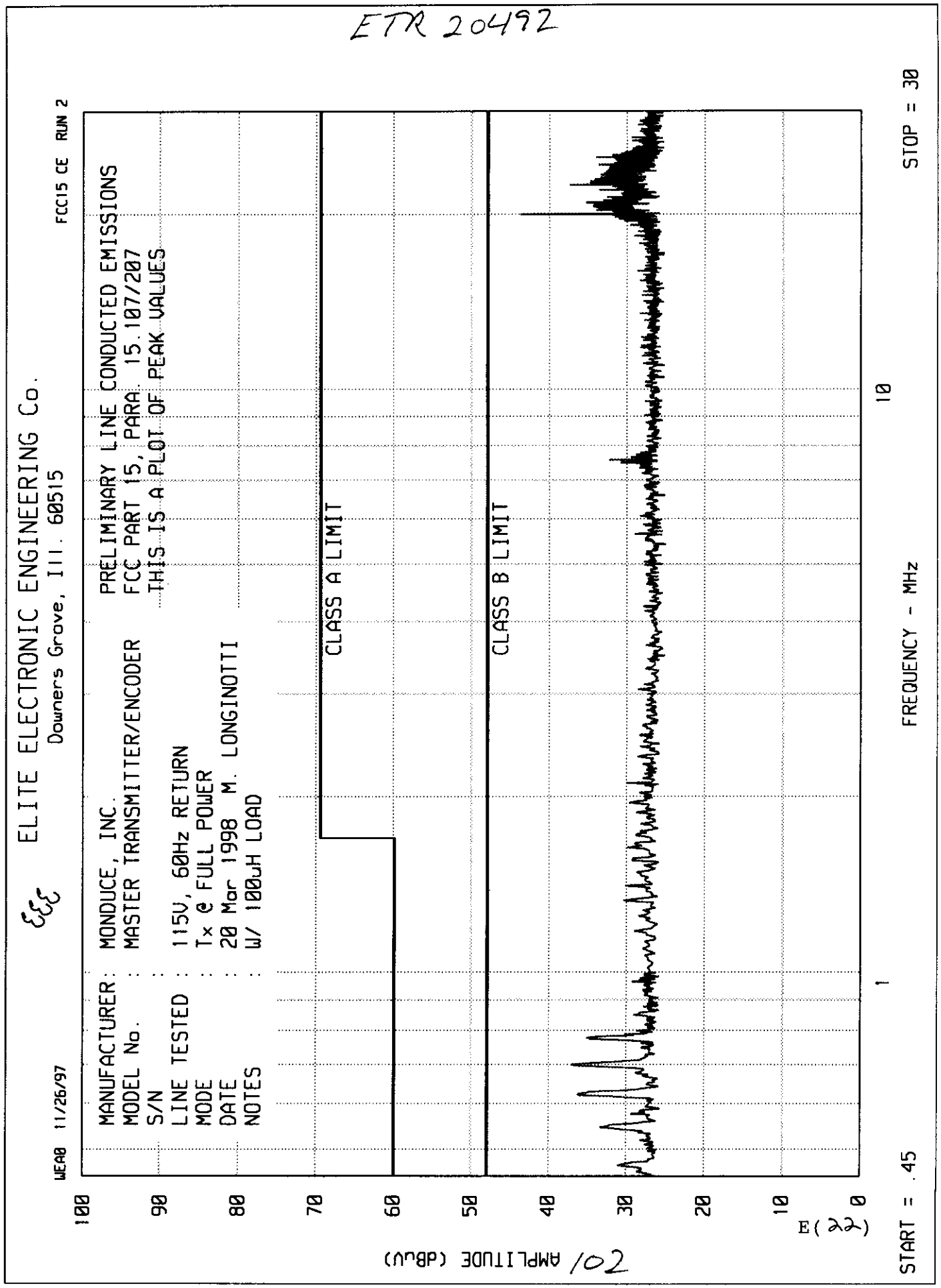
E(20)

FCC ID: XXXMRCS98-1

ETR 20492


ELITE ELECTRONIC ENGINEERING Co.
Downers Grove, III. 60515
FCC15 CE RUN 1
WEA8 11/26/97
MANUFACTURER : MONDUCE, INC.
MODEL No. : MASTER TRANSMITTER/ENCODER
S/N :
LINE TESTED : 115V, 60Hz HIGH
MODE : Tx @ FULL POWER
DATE : 20 Mar 1998 M. LONGINOTTI
NOTES : W/ 100uH LOAD
PRELIMINARY LINE CONDUCTED EMISSIONS
FCC PART 15, PARA. 15.107/207
THIS IS A PLOT OF PEAK VALUES
CLASS A LIMIT
CLASS B LIMIT
AMPLITUDE (dBuV)
100
90
80
70
60
50
40
30
20
10
0
E(21)
START = .45
1
10
FREQUENCY - MHz
STOP = 30

ETR 20492



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ELITE ELECTRONIC ENGINEERING CO.

MANUFACTURER : MONDUCE, INC.
MODEL : MASTER TRANSMITTER/ENCODER
S/N :
SPECIFICATION : FCC DIGITAL EQUIPMENT, CLASS B
TEST : LINE CONDUCTED EMISSIONS
LINE TESTED : 115V, 60Hz HIGH
MODE : Tx @ FULL POWER
DATE : 20 Mar 1998
NOTES : W/ 100uH LOAD
RECEIVER : HP 8566 w/ HP85650A QP ADAPTOR
VALUES MEASURED WITH QP DETECTOR USING 9kHz BANDWIDTH

FREQUENCY MHz	METER RDG. uV	LIMIT uV
.610	52.8	250
.688	28.0 BB	250
.860	21.3	250
1.158	42.7	250
2.250	20.6	250
2.422	20.4	250
3.794	19.9	250
3.980	19.6	250
4.667	20.1	250
5.441	37.9	250
6.051	19.9	250
7.580	28.3	250
8.667	19.9	250
10.043	19.9	250
13.198	19.9	250
14.578	20.4	250
15.728	20.1	250
17.029	20.1	250
19.609	28.0	250
20.001	136.9	250
22.658	43.3	250
24.921	30.7	250
25.001	53.8	250
26.718	22.1 BB	250
27.814	21.3	250
28.749	20.1	250

CHECKED BY: RK
M. LONGINOTTI

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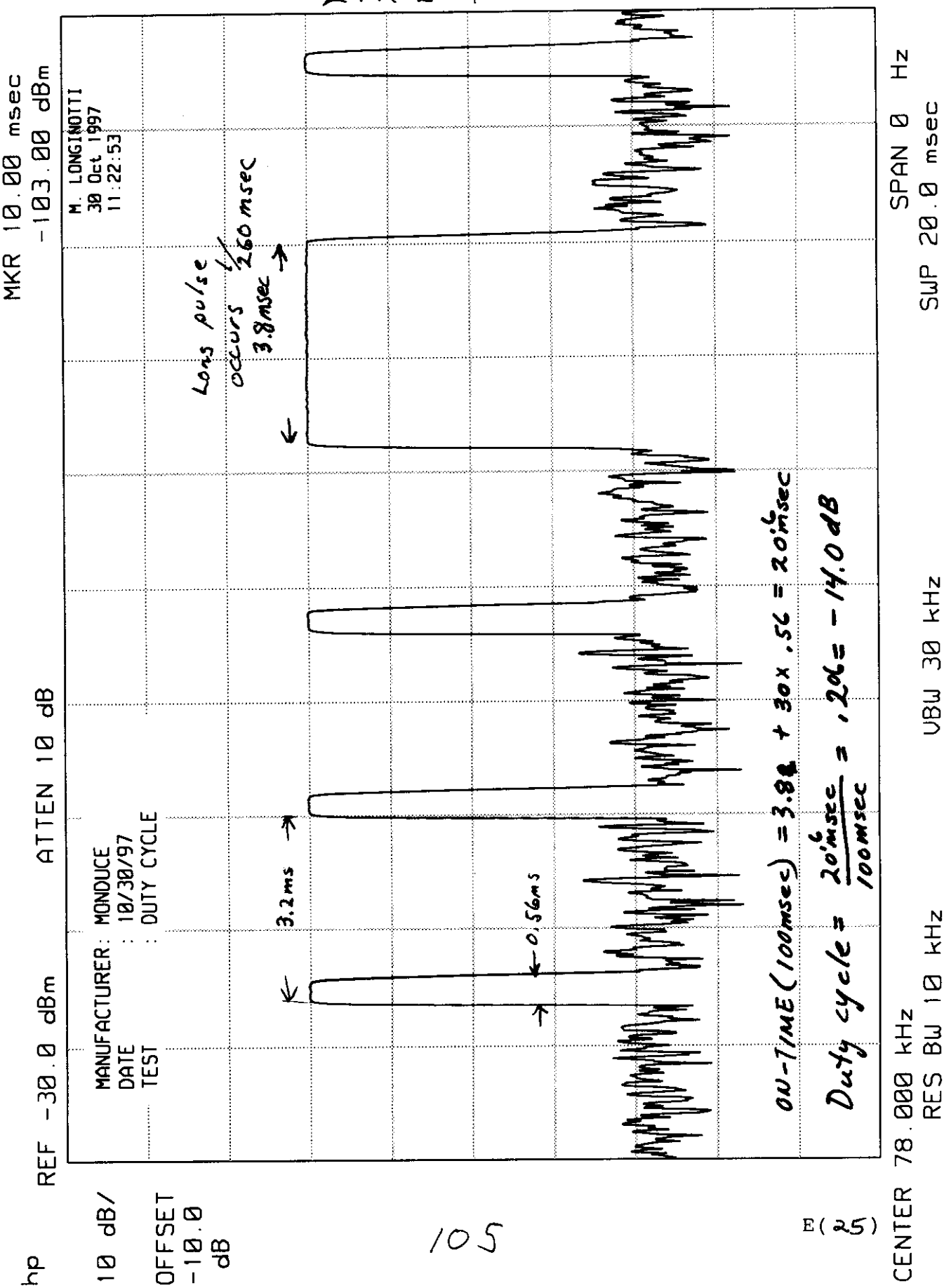
ELITE ELECTRONIC ENGINEERING CO.

MANUFACTURER : MONDUCE, INC.
MODEL : MASTER TRANSMITTER/ENCODER
S/N :
SPECIFICATION : FCC DIGITAL EQUIPMENT, CLASS B
TEST : LINE CONDUCTED EMISSIONS
LINE TESTED : 115V, 60Hz RETURN
MODE : Tx @ FULL POWER
DATE : 20 Mar 1998
NOTES : W/ 100uH LOAD
RECEIVER : HP 8566 w/ HP85650A QP ADAPTOR
VALUES MEASURED WITH QP DETECTOR USING 9kHz BANDWIDTH

FREQUENCY MHz	METER RDG. uV	LIMIT uV
.612	51.5	250
.705	51.9	250
.783	40.5	250
.953	25.8	250
1.314	41.1	250
2.032	20.9	250
2.110	21.1	250
2.345	20.9	250
3.008	19.9	250
4.193	20.1	250
4.667	19.9	250
5.612	20.1	250
6.027	20.1	250
7.347	21.6	250
7.580	28.8	250
8.983	20.1	250
11.363	20.1	250
11.748	19.9	250
11.798	20.4	250
13.438	20.4	250
15.428	20.1	250
15.918	20.6	250
17.778	20.1	250
19.923	32.3	250
20.001	136.0	250
20.939	46.2	250
22.501	51.5	250
24.298	34.5	250
25.002	51.5	250
26.717	21.3	250
28.403	20.4	250

CHECKED BY: RK
M. LONGINOTTI
E(24)

ETR 20492



E(25)

ETR No. 20492 FCC ID: XXXMRCS98-1
DATA SHEET

RADIATED EMISSIONS MEASUREMENTS AT A 30 m OPEN AREA TEST SITE

SPECIFICATION	: FCC 15C
MANUFACTURER	: MONDUCE, INC.
MODEL NO.	: MASTER TRANSMITTER/ ENCODER (TYPE 4X) (MODEL NO. J1614HPL)
SERIAL NO.	: M00129
TEST MODE	: FULL POWER
ANT. POLARITY	: VERTICAL
TEST DATE	: OCTOBER 29, 1997
TEST DISTANCE	: 30 meters

FREQUENCY (kHz)	METER READING (dBuV)	AMBIENT	ANT FAC (dB)	CABLE LOSS (dB)	PREAMP GAIN (dB)	DUTY CYCLE CORR. FACTOR (dB)	DISTANCE CORRECTION FACTOR (dB)	TOTAL (dBuV/m)	LIMIT (dBuV/m)
78	32.02		49.0	0.6		-14	60	7.6	29.8
156	15.60		41.5	0.6		-14	60	-16.3	23.8
234	11.30		38.0	0.6	22	-14	60	-46.1	20.3
312	5.50		35.7	0.6	22	-14	60	-54.2	17.7
390	3.48		38.3	0.6	22	-14	60	-53.6	15.8
468	-6.25		37.0	0.6	22	-14	60	-64.7	14.2
546	-4.11		35.8	0.6	22	0	0	10.3	32.7
624	-15.00	AMBIENT	34.4	0.6	22	0	0	-2.0	31.7
702	-21.70	AMBIENT	33.4	0.6	22	0	0	-9.7	30.7
780	-15.70	AMBIENT	32.7	0.6	22	0	0	-4.4	29.8

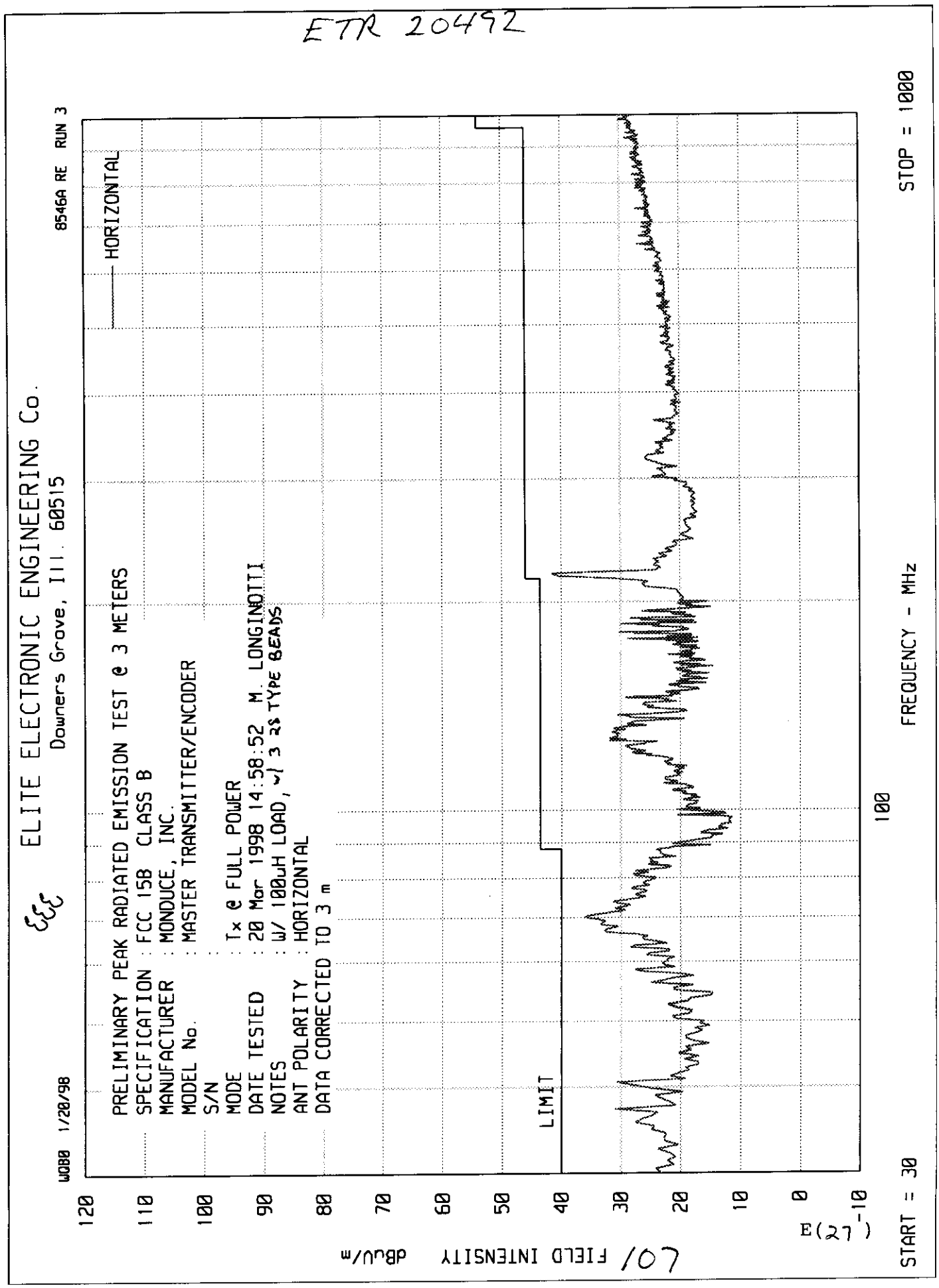
SINCE ALL HORIZONTAL MEASUREMENTS WERE LOWER THAN VERTICAL,
ONLY VERTICAL MEASUREMENTS WERE RECORDED

AVERAGE MEASUREMENTS PERFORMED BELOW 490kHz (BASED ON DUTY CYCLE)

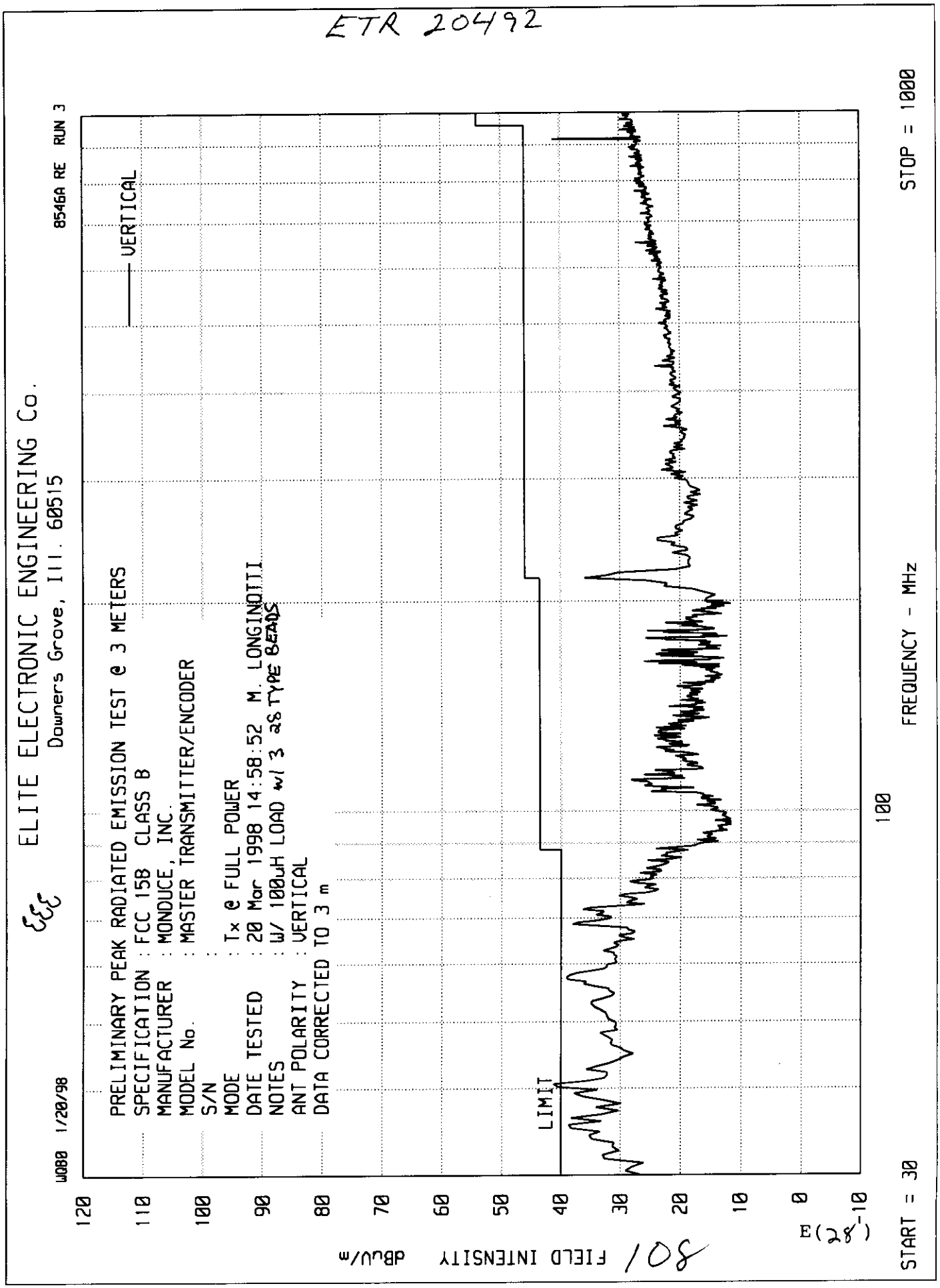
PEAK MEASUREMENTS PERFORMED ABOVE 490kHz

CHECKED BY: RJK

ETR 20492


ELITE ELECTRONIC ENGINEERING Co.
Downers Grove, Ill. 60515
8546A RE RUN 3
W080 1/20/98
PRELIMINARY PEAK RADIATED EMISSION TEST @ 3 METERS
SPECIFICATION : FCC 15B CLASS B
MANUFACTURER : MONDUCE, INC.
MODEL No. : MASTER TRANSMITTER/ENCODER
S/N :
MODE : Tx @ FULL POWER
DATE TESTED : 20 Mar 1998 14:58:52 M. LONGINOTTI
NOTES : W/ 100uH LOAD, W/ 3 RS TYPE BEADS
ANT POLARITY : HORIZONTAL
DATA CORRECTED TO 3 m
HORIZONTAL
LIMIT
FIELD INTENSITY dBuV/m
120
110
100
90
80
70
60
50
40
30
20
10
0
-10
E(27)
START = 30
100
FREQUENCY - MHz
STOP = 1000

ETR 20492



80 / 108

ETR No. 20492 FCC ID: XXXMRC~~8546A~~98-1
DATA SHEET TEST NO. 3

RADIATED QP EMISSION MEASUREMENTS in a 3 m ANECHOIC ROOM
SPECIFICATION : FCC 15B CLASS B
MANUFACTURER : MONDUCE, INC.
MODEL NO. : MASTER TRANSMITTER/ENCODER
SERIAL NO. :
TEST MODE : Tx @ FULL POWER
NOTES : W/ 100uH LOAD w/ 3 28 TYPE BEADS
TEST DATE : 20 Mar 1998 14:58:52
TEST DISTANCE : 3 m (DATA EXTRAPOLATED TO 3 m)

FREQUENCY MHz	QP READING dBuV	ANT FAC dB	CBL FAC dB	DIST FAC dB	TOTAL dBuV/m	QP LIMIT dBuV/m	AZ deg	ANT HT cm	POLAR
40.00	23.9	14.7	.6	0.0	39.2	40.0	180	120	V
57.89	26.1	7.1	.7	0.0	33.8	40.0	300	200	V
72.16	16.9	7.1	.7	0.0	24.7	40.0	180	340	V
109.38	6.2	11.8	.9	0.0	19.0	43.5	300	121	V
126.34	14.2	12.4	1.0	0.0	27.6	43.5	0	200	H
144.59	17.3	11.4	1.1	0.0	29.8	43.5	-0	200	H
179.62	9.0	10.0	1.2	0.0	20.3	43.5	180	200	H
216.65	12.7	11.1	1.4	0.0	25.2	43.5	0	200	H
314.22	6.1	14.4	1.8	0.0	22.3	46.0	180	120	H
440.32	5.5	16.9	2.3	0.0	24.7	46.0	180	120	V
577.23	4.6	19.0	2.7	0.0	26.3	46.0	240	340	V
645.00	5.1	19.8	2.9	0.0	27.8	46.0	0	200	V
766.53	4.9	20.8	3.3	0.0	28.9	46.0	120	200	V
899.25	4.3	21.8	3.7	0.0	29.8	46.0	180	340	V
914.75	4.9	22.0	3.7	0.0	30.6	46.0	180	340	V

tested by: RK
M. LONGINOTTI
109 E(29)