

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

ELITE PROJECT: 30514

DATES TESTED: December 12-14, 2001

TEST PERSONNEL: Mark Longinotti

TEST SPECIFICATION: FCC "Code of Federal Regulations" Title 47
Part 15, Subpart C, Section 15.205

ENGINEERING TEST REPORT NO. 24357
MEASUREMENT OF RF INTERFERENCE FROM
A MODEL ECM984 DIGICALL SPECTRUM SYSTEM CONSOLE TRANSMITTER

FOR: Fleetwood Group
Holland, MI

PURCHASE ORDER NO.: 5649

Report By:

Richard E. King
Richard E. King

Witnessed By:

Dave Raymond, Mike Hall
Harry Derks
Fleetwood Group

Approved By:

Craig W. Fanning
Craig Fanning
EMC Department Supervisor
Narte Certified: EMC-0029-NT
ATL-0188-E

ADMINISTRATIVE DATA AND SUMMARY OF TESTS

DESCRIPTION OF TEST ITEM: DIGICALL SPECTRUM SYSTEM CONSOLE

MODEL NO: ECM984

SERIAL NO: None assigned

MANUFACTURER: Fleetwood Group

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

QUANTITY OF ITEMS TESTED: One (1)

TEST PERFORMED BY: ELITE ELECTRONIC ENGINEERING INCORPORATED
Radio Interference Consultants
Downers Grove, Illinois 60515

DATE RECEIVED: December 12, 2001

DATES TESTED: December 12-14, 2001

PERSONNEL (OPERATORS, OBSERVERS, AND CO-ORDINATORS):

CUSTOMER: Dave Raymond, Mike Hall and Harry Derks of Fleetwood Group were present.

ELITE ELECTRONIC: Mark Longinotti

ELITE JOB NO.: 30514

ABSTRACT: The model ECM984 Digicall Spectrum System Console, does meet the conducted and radiated emission requirements of the FCC "Code of Federal Regulations" Title 47, Part 15, Subpart C, Section 15.205 et seq. for Intentional Radiators, when tested per ANSI C63.4-1992.

The conducted emissions level closest to the limit (worst case) occurred at 525 kHz. The emissions level at this frequency was 10.2 dB within the limit. See data pages 18 and 19 for more detailed results.

The radiated emissions level closest to the limit (worst case) occurred at 921.45 MHz. The emissions level at this frequency was .1 dB within the limit. See data page 24 for more details.

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TOTAL NUMBER OF PAGES IN THIS DOCUMENT,
(INCLUDING DATA SHEETS): 26

THIS REPORT SHALL NOT BE REPRODUCED, EXCEPT IN FULL, WITHOUT THE
WRITTEN APPROVAL OF ELITE ELECTRONIC ENGINEERING INCORPORATED.

MEASUREMENT OF RF INTERFERENCE FROM

A MODEL ECM984 Digicall Spectrum System Console TRANSMITTER

1.0 INTRODUCTION:

1.1 DESCRIPTION OF TEST ITEM: This document presents the results of a series of radio interference measurements performed on a model ECM984 Digicall Spectrum System Console Transmitter, (hereinafter referred to as the test item). No serial number was assigned to the test item. The test item was designed to transmit at approximately 920-928MHz using an internal antenna, 3.5 inches long. The tests were performed for Fleetwood Group of Holland, MI.

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, Sections 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 1999
- 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"

1.5 SUBCONTRACTOR IDENTIFICATION: This series of tests was performed by Elite Electronic Engineering Incorporated of Downers Grove, Illinois. The laboratory is accredited by the National Institute of Standards and Technology (NIST) under the National Voluntary Laboratory Accreditation Program (NVLAP). NVLAP Lab Code: 100278-0.

1.6 LABORATORY CONDITIONS: The temperature at the time of the test was 25°C and the relative humidity was 50%.

2.0 TEST ITEM SETUP AND OPERATION:

A block diagram of the test item setup is included as Figure 3.

2.1 POWER INPUT: The test item obtained 115V 60Hz power via a 3 wire, 3 foot long, unshielded power cord. 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.

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

2.3 PERIPHERAL EQUIPMENT: No peripheral equipment was submitted with the test item.

2.4 INTERCONNECT CABLES: No interconnect cables were submitted with the test item.

2.5 OPERATIONAL MODE: For all tests, the test item was set to transmit continuously. The tests were performed with the test item operating between 920-928MHz.

3.0 TEST EQUIPMENT:

3.1 TEST EQUIPMENT LIST: 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.

Conducted emission tests were performed with a spectrum analyzer in conjunction with a quasi-peak adapter.

The fundamental, harmonics and spurious emissions were measured with a spectrum analyzer. All measurements were taken with the resolution and video bandwidth of the measuring instrument adjusted to 100kHz below 1GHz and 1MHz above 1GHz.

3.2 CALIBRATION TRACEABILITY: Test equipment is maintained and calibrated on a regular basis. All calibrations are traceable to the National Institute of Standards and Technology (NIST).

3.3 MEASUREMENT UNCERTAINTY: All measurements are an estimate of their true value. The measurement uncertainty characterizes, with a specified confidence level, the spread of values which may be possible for a given measurement system.

The measurement uncertainty budgets were based on guidelines in "ISO Guide to the Expression of Uncertainty in Measurements" and NAMAS NIS81 "The Treatment of Uncertainty in EMC Measurements".

The measurement uncertainty for these tests is presented below:

Conducted Emission Measurements:

Combined Standard Uncertainty	1.07	-1.07
Expanded Uncertainty (95% confidence)	2.1	-2.1

Radiated Emission Measurements:

Combined Standard Uncertainty	2.26	-2.18
Expanded Uncertainty (95% confidence)	4.5	-4.4

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 16 and 17. The conducted limit for intentional radiators is shown as a reference. The final quasi-peak results are presented on data pages 18 and 19. All conducted emission levels met the specification's requirements.

The emissions level closest to the limit (worst case) occurred at 525 kHz. The emissions level at this frequency was 10.2 dB within the limit. Photographs of the test configuration which yielded the highest, or worst case, conducted emission levels are shown on Figure 1.

4.2 RADIATED MEASUREMENTS:

4.2.1 REQUIREMENTS: The test item must comply with the requirements of FCC "Code of Federal Regulations Title 47", Part 15, Subpart C, Section 15.205 et seq.

Paragraph 15.249(a) has the following radiated emission limits:

Fundamental Frequency MHz	Fundamental Field Intensity uV/m @ 3 meters	Field Strength Harmonics and Spurious @ 3 meters
Above 470	50000	500

For 921.45 MHz and 927.45 MHz, the limit at the fundamental is 50000uV/m @ 3m and the limit on the harmonics is 500uV/m @ 3m.

In addition, emissions appearing in the Restricted Bands of Operation listed in paragraph 15.205(a) shall not exceed the general requirements shown in paragraph 15.209.

4.2.2 PROCEDURES: All tests were performed in a 32ft. x 20ft. x 18ft. hybrid ferrite-tile/anechoic absorber lined test chamber. The walls 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.

Preliminary radiated emissions measurements were first performed using a peak detector and automatically plotted. The frequencies where significant emission levels were noted were then re-measured.

With the broadband measuring antennas positioned at a 3 meter distance from the test item, the frequency range from 30MHz to 1GHz was investigated using a peak detector function.

With the broadband measuring antennas positioned at a 3 meter

distance from the test item, the frequency range from 1GHz to 10GHz was investigated using a peak detector function.

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 peak detector and a broadband bi-log antenna for the frequency range of 30MHz to 1000MHz. For measurements made in the 1GHz to 10GHz range a double ridged waveguide was used.
- 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.
 - (d) The fundamental through the 10th harmonic of the transmit frequency were measured.

4.2.3 RESULTS: The preliminary plots, with the test item transmitting at 921.25 and 927.45 MHz, are presented on data pages 20 through 23. The plots of data from 30MHz to 1000MHz represent composite maximum peak readings of multiple antenna heights and multiple orientations of the test item. The plots are presented for a reference only, and are not used to determine compliance.

The final radiated levels, with the test item transmitting at 921.25 and 927.45 MHz, are presented on data pages 24 and 25. As can be seen from the data, all emissions measured from the test item were within the specification limits. The emissions level closet to the limit (worst case) occurred at 921.45 and 927.45 MHz. The emissions level at these frequencies were .1 dB within the limit. See data page 24 and 25 for

details. Photographs of the test configuration which yielded the highest, or worst case, radiated emission levels are shown on Figure 2.

4.3 OCCUPIED BANDWIDTH MEASUREMENTS:

4.3.1 REQUIREMENTS: In accordance with paragraph 15.249(c), emissions radiated outside the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emissions limit of 15.209, whichever is the lesser attenuation.

4.3.2 PROCEDURES: The unit was set to transmit continuously. With an antenna positioned nearby, occupied bandwidth emissions were displayed on the spectrum analyzer. The resolution bandwidth was set to 30 kHz and span was set to 2 MHz. The frequency spectrum near the fundamental was plotted.

4.3.3 RESULTS: The plot of the emissions near the fundamental frequency are presented on data page 26. As can be seen from this data page, the transmitter met the occupied bandwidth requirements.

5.0 CONCLUSION:

It was found that the Fleetwood Group model ECM984 Digicall Spectrum System Console Transmitter, does meet the conducted and radiated emission requirements of the FCC "Code of Federal Regulations" Title 47, Part 15, Subpart C, Section 15.205 et seq. for Intentional Radiators, when tested per ANSI C63.4-1992.

6.0 CERTIFICATION:

Elite Electronic Engineering Incorporated 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 test date will serve to invalidate the data and void this certification.

7.0 ENDORSEMENT DISCLAIMER:

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

ENGINEERING TEST REPORT NO. 24357

TABLE I: TEST EQUIPMENT LIST

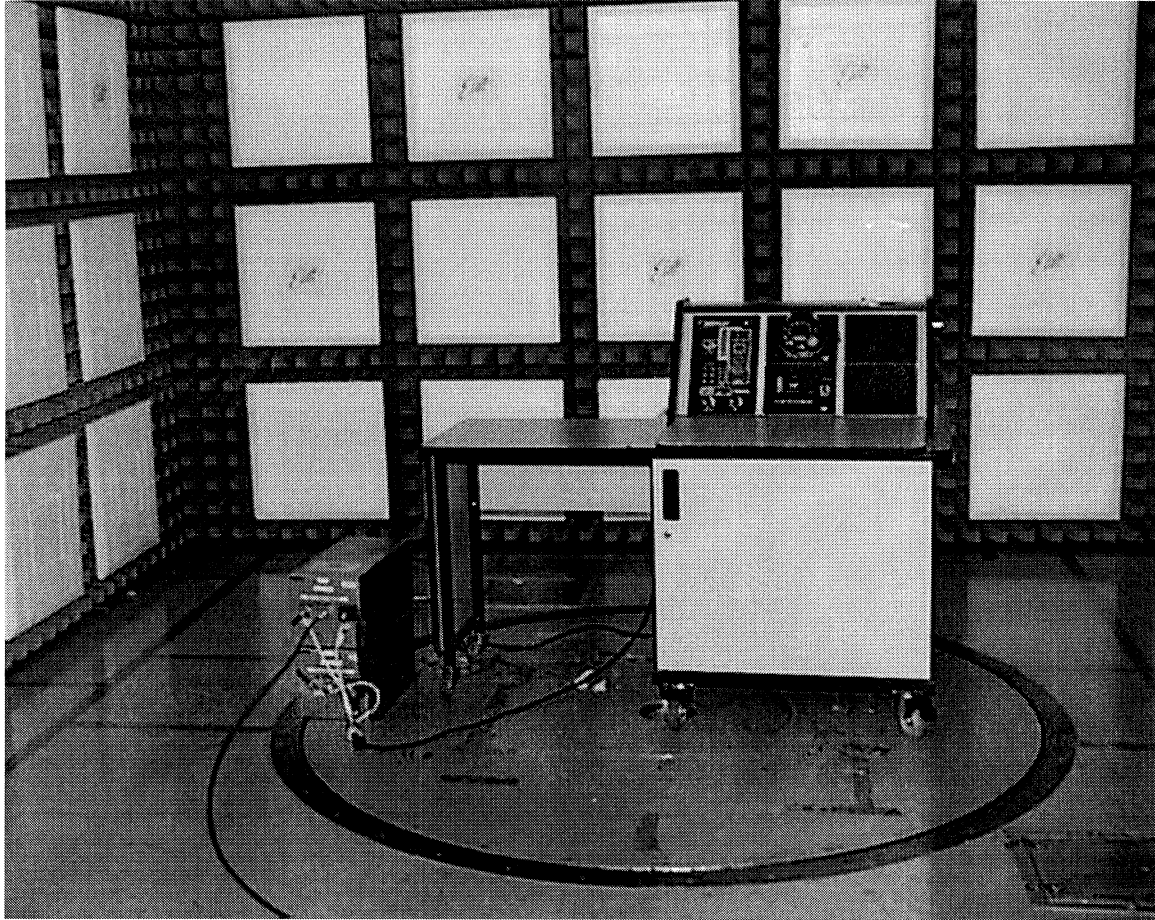
ELITE ELECTRONIC ENG. INC.

Page: 1

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	3439A02724	---		N/A	
Equipment Type: AMPLIFIERS								
APK0	PRE-AMPLIFIER	HEWLETT PACKARD	8449B	3008A00662	1-26.5GHZ	02/15/01	12	02/15/02
Equipment Type: ANTENNAS								
NDQ1	TUNED DIPOLE ANTENNA	EMCO	3121C-DB4	313	400-1000MHZ	12/27/00	12	12/27/01
NTAO	BILOG ANTENNA	CHASE EMC LTD.	BILOG CBL611	2057	0.03-2GHZ	05/09/01	12	05/09/02
NW11	RIDGED WAVE GUIDE	AEL	H1498	154	2-18GHZ	09/18/01	12	09/18/02
Equipment Type: ATTENUATORS								
T1K1	10DB, 2.5W LIMITER	HEWLETT PACKARD	11947A	3107A01737	0.009-200MHZ	03/21/01	12	03/21/02
Equipment Type: PROBES; CLAMP-ON & LISNS								
PLL9	50UH LISN 462D	ELITE	462D/70A	010	0.01-400MHZ	01/29/01	12	01/29/02
PLLA	50UH LISN 462D	ELITE	462D/70A	011	0.01-400MHZ	01/30/01	12	01/30/02
Equipment Type: RECEIVERS								
RAC1	SPECTRUM ANALYZER	HEWLETT PACKARD	85660B	3407A08369	100HZ-22GHZ	01/16/01	12	01/16/02
RACB	RF PRESELECTOR	HEWLETT PACKARD	85685A	3506A01491	20HZ-2GHZ	05/09/01	12	05/09/02
RAF3	QUASIEPEAK ADAPTER	HEWLETT PACKARD	85650A	3303A01775	0.01-1000MHZ	01/17/01	12	01/17/02

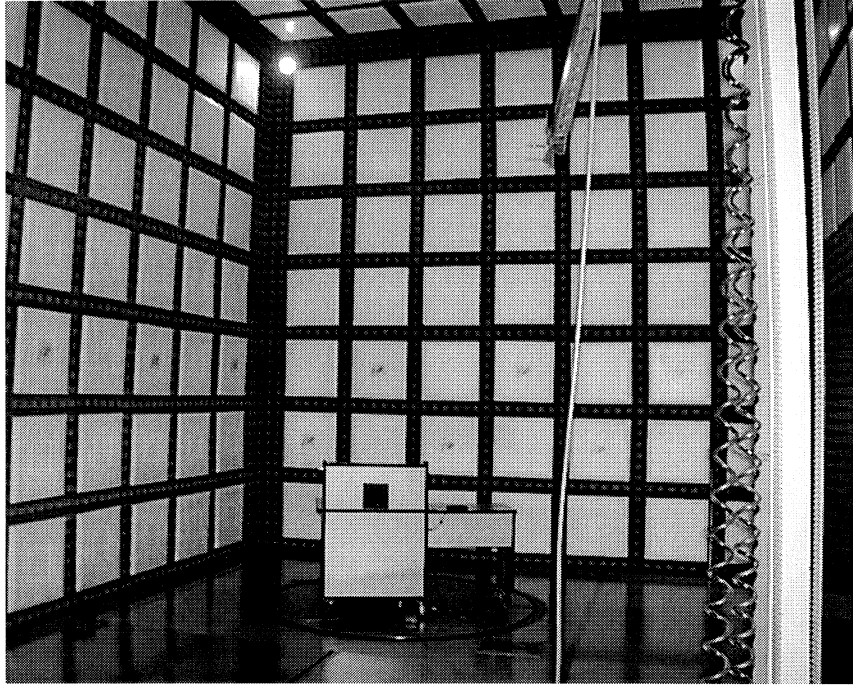
Cal. Interval: Listed in Months I/O: Initial Only N/A: Not Applicable
 Note 1: For the purpose of this test, the equipment was calibrated over the specified frequency range, pulse rate, or modulation prior to the test or monitored by a calibrated instrument.

ETR 24357
Figure 1

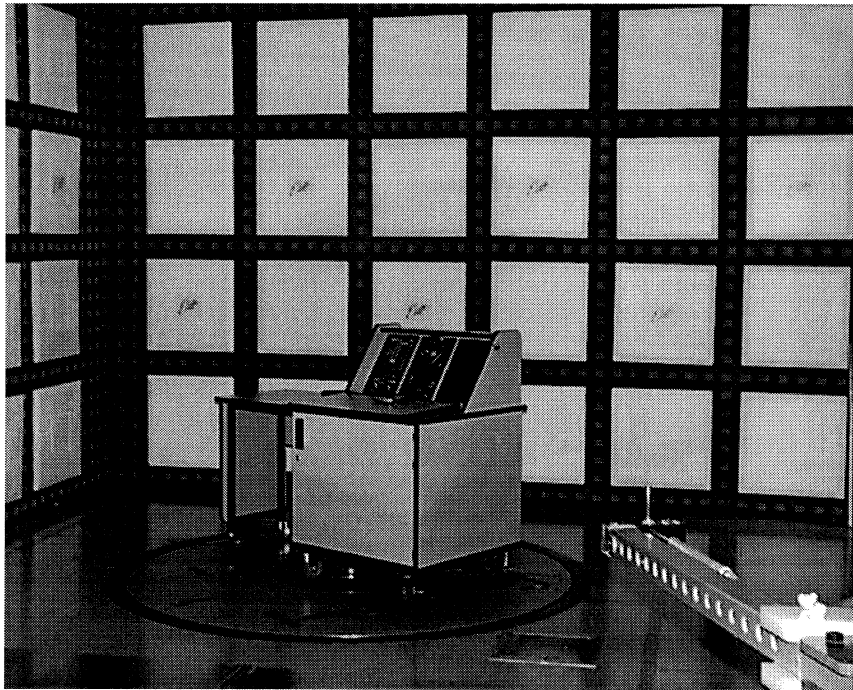


Conducted Emissions Test Setup

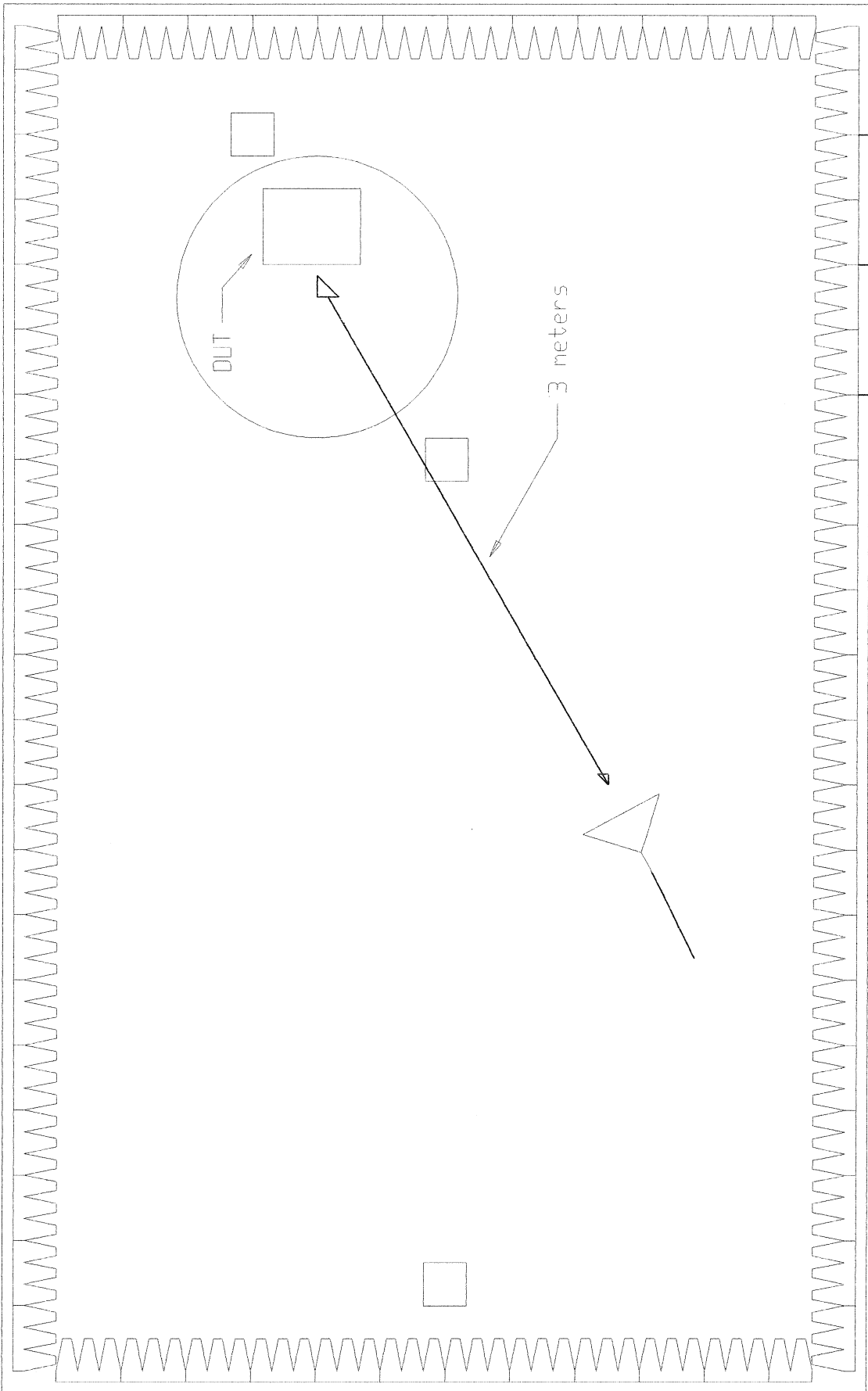
ETR 24357
Figure 2



Radiated Emissions Worst Case Horizontal Polarization



Radiated Emissions Worst Case Vertical Polarization



ETR 24357

TEST SETUP DRAWING RADIATED EMISSIONS

Figure 3



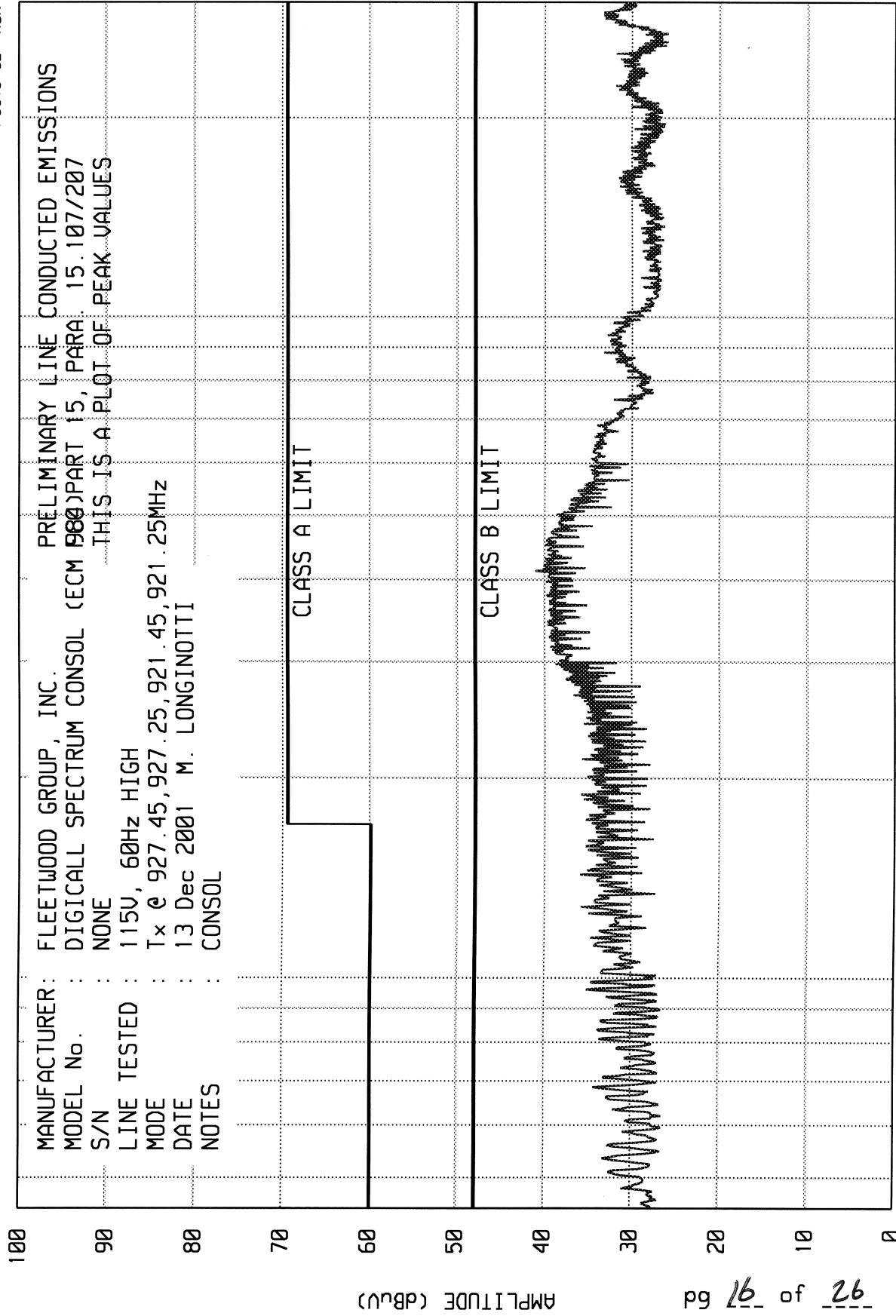
ELITE ELECTRONIC ENGINEERING Co.

Downers Grove, Ill. 60515

WEA0 02/22/01

FCC15 CE RUN 3

MANUFACTURER: FLEETWOOD GROUP, INC. PRELIMINARY LINE CONDUCTED EMISSIONS
 MODEL No. : DIGICALL SPECTRUM CONSOL (ECM 900) PART 15, PARA. 15.107/207
 S/N : NONE THIS IS A PLOT OF PEAK VALUES
 LINE TESTED : 115V, 60Hz HIGH
 MODE : Tx @ 927.45, 927.25, 921.45, 921.25MHz
 DATE : 13 Dec 2001 M. LONGINOTTI
 NOTES : CONSOL



START = .45

FREQUENCY - MHz

10

STOP = 30

92 of 6d

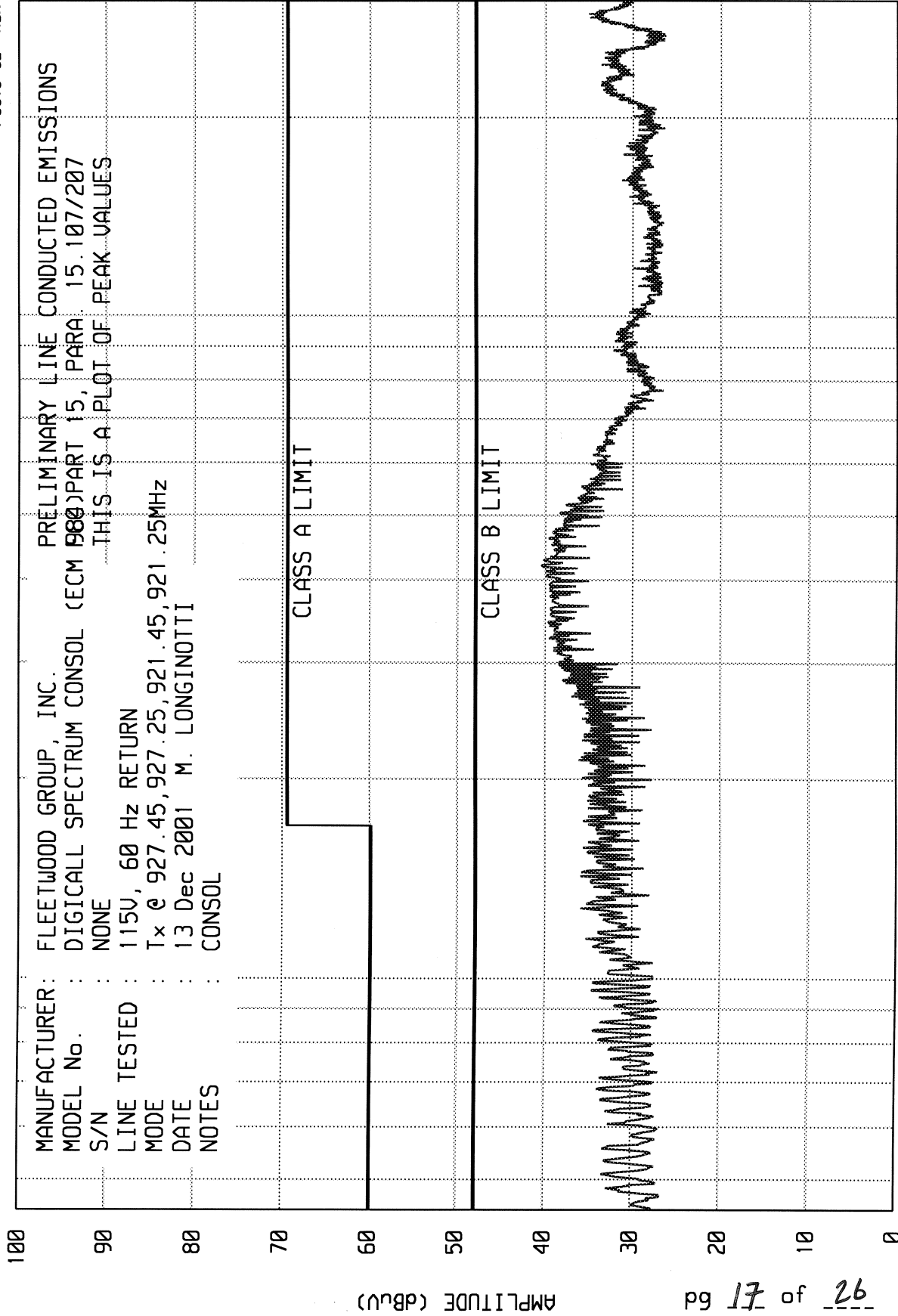


ELITE ELECTRONIC ENGINEERING Co.

Downers Grove, Ill. 60515

WEAB 02/22/01

FCC15 CE RUN 4



MANUFACTURER: FLEETWOOD GROUP, INC. PRELIMINARY LINE CONDUCTED EMISSIONS
 MODEL No. : DIGICALL SPECTRUM CONSOL (ECM 900)PART 15, PARA. 15.107/207
 S/N : NONE THIS IS A PLOT OF PEAK VALUES
 LINE TESTED : 115V, 60 Hz RETURN
 MODE : Tx @ 927.45,927.25,921.45,921.25MHz
 DATE : 13 Dec 2001 M. LONGINOTTI
 NOTES : CONSOL

START = .45 STOP = 30

26 of 6d 17

MANUFACTURER : FLEETWOOD GROUP, INC.
MODEL : DIGICALL SPECTRUM CONSOL (ECM 984)
S/N : NONE
SPECIFICATION : FCC DIGITAL EQUIPMENT, CLASS B
TEST : LINE CONDUCTED EMISSIONS
LINE TESTED : 115V, 60Hz HIGH
MODE : Tx @ 927.45, 927.25, 921.45, 921.25MHz
DATE : 13 Dec 2001
NOTES : CONSOL
RECEIVER : HP 8566 w/ HP85650A QP ADAPTOR
VALUES MEASURED WITH QP DETECTOR USING 9kHz BANDWIDTH

FREQUENCY MHz	METER RDG. uV	LIMIT uV
.525	76.8	250
.689	33.5	250
.842	35.7	250
.969	35.4	250
1.301	41.4	250
1.428	43.0	250
1.886	41.7	250
2.956	61.0	250
2.980	61.3	250
3.999	74.3	250
4.126	74.6	250
4.611	74.6	250
5.043	61.0	250
6.062	40.5	250
7.461	24.8	250
8.862	30.5	250
9.092	32.3	250
10.010	26.1	250
10.136	24.3	250
12.582	20.9	250
14.745	21.6	250
14.796	21.9	250
15.713	26.1	250
16.221	25.8	250
18.031	22.6	250
19.193	20.1	250
20.779	20.6	250
22.358	26.6	250
22.791	25.3	250
24.521	25.3	250
25.057	27.3	250
28.115	29.8	250
28.291	31.3	250
28.641	35.1	250

MANUFACTURER : FLEETWOOD GROUP, INC.
MODEL : DIGICALL SPECTRUM CONSOL (ECM 984)
S/N : NONE
SPECIFICATION : FCC DIGITAL EQUIPMENT, CLASS B
TEST : LINE CONDUCTED EMISSIONS
LINE TESTED : 115V, 60 Hz RETURN
MODE : Tx @ 927.45, 927.25, 921.45, 921.25MHz
DATE : 13 Dec 2001
NOTES : CONSOL
RECEIVER : HP 8566 w/ HP85650A QP ADAPTOR
VALUES MEASURED WITH QP DETECTOR USING 9kHz BANDWIDTH

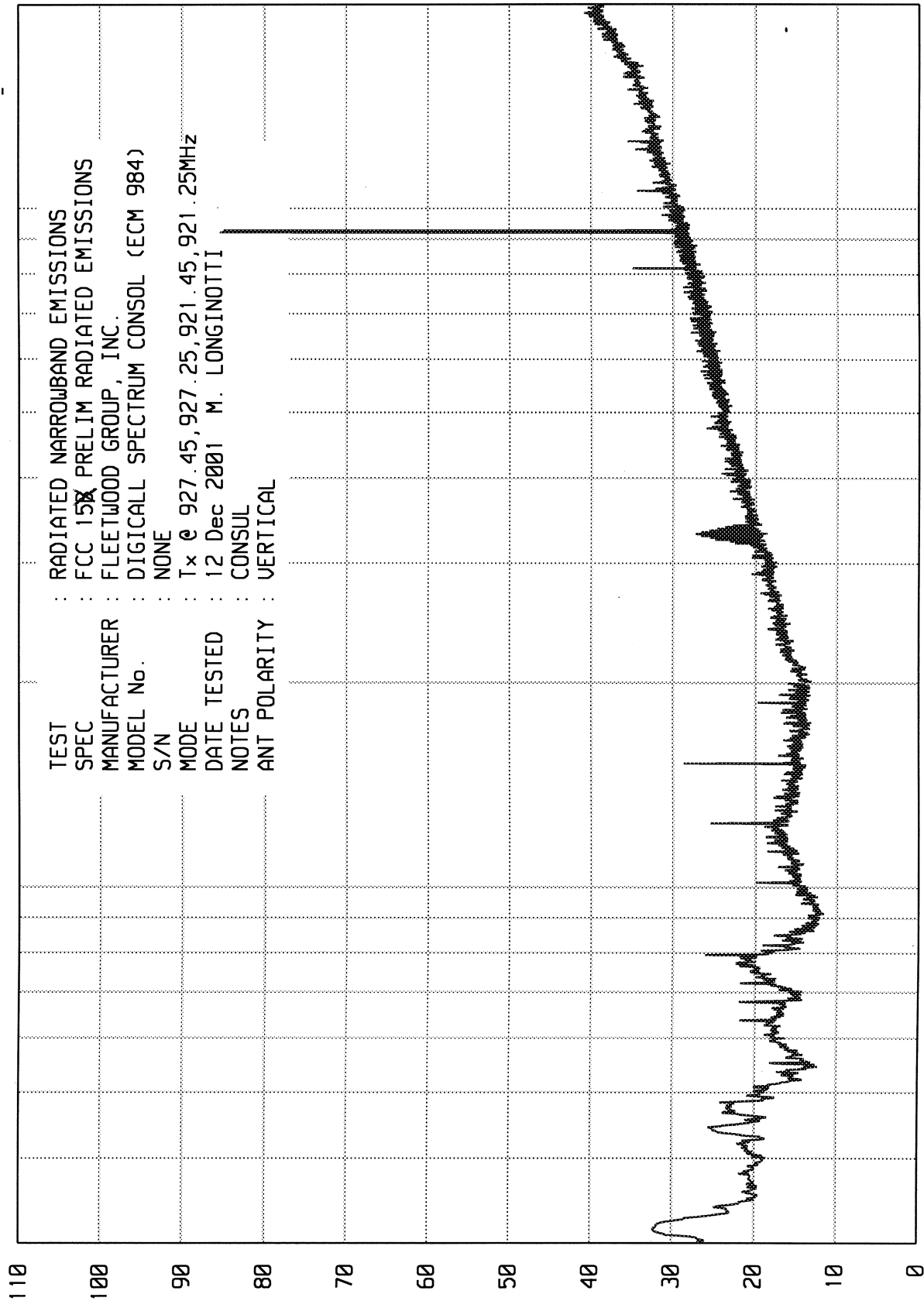
FREQUENCY MHz	METER RDG. uV	LIMIT uV
.511	31.9	250
.689	34.2	250
.842	36.0	250
.969	36.4	250
1.275	41.1	250
1.581	44.0	250
2.140	40.5	250
2.980	61.0	250
3.439	71.8	250
4.177	73.0	250
4.483	71.2	250
5.043	56.0	250
6.139	38.6	250
8.531	25.8	250
8.913	28.6	250
9.065	29.1	250
10.108	23.6	250
11.814	20.6	250
14.819	21.6	250
16.042	25.3	250
17.596	23.1	250
18.512	22.6	250
19.631	21.1	250
21.593	30.3	250
22.357	34.8	250
22.688	32.9	250
23.986	30.5	250
25.058	35.7	250
28.314	36.4	250
28.416	37.0	250
28.641	42.1	250

ELITE ELECTRONIC ENGINEERING Co.

Downers Grove, Ill. 60515

UNTV_EM RUN RUN 1

UKA0 08/24/01



TEST : RADIATED NARROWBAND EMISSIONS
 SPEC : FCC 15K PRELIM RADIATED EMISSIONS
 MANUFACTURER : FLEETWOOD GROUP, INC.
 MODEL No. : DIGICALL SPECTRUM CONSOL (ECM 984)
 S/N : NONE
 MODE : Tx @ 927.45, 927.25, 921.45, 921.25MHz
 DATE TESTED : 12 Dec 2001 M. LONGINOTTI
 NOTES : CONSUL
 ANT POLARITY : VERTICAL

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START = 30

FREQUENCY - MHz

1000

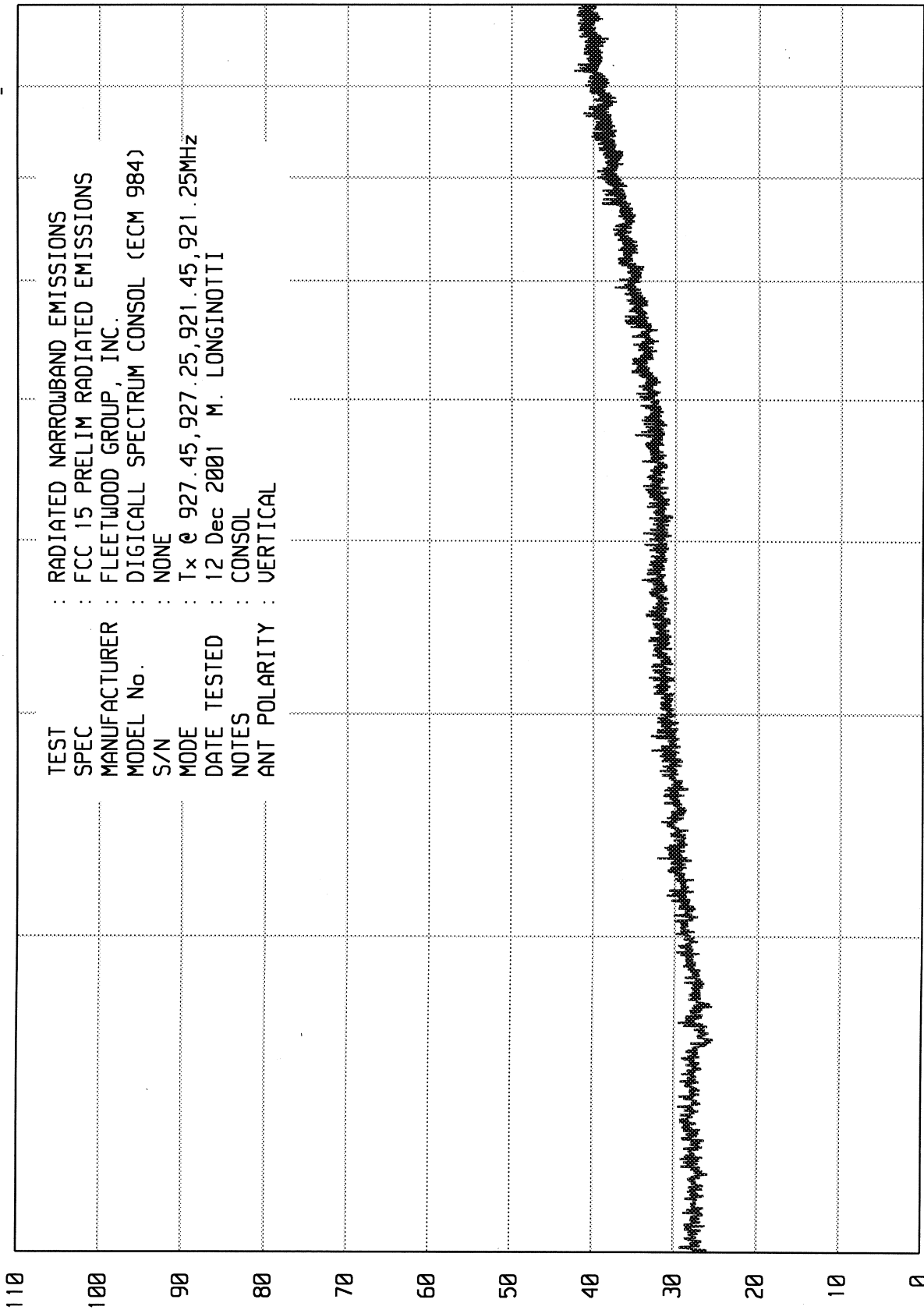
STOP = 2000

ELITE ELECTRONIC ENGINEERING Co.

Downers Grove, Ill. 60515

UNTV_EM RUN RUN 1

UKA08 08/24/01



TEST : RADIATED NARROWBAND EMISSIONS
 SPEC : FCC 15 PRELIM RADIATED EMISSIONS
 MANUFACTURER : FLEETWOOD GROUP, INC.
 MODEL No. : DIGICALL SPECTRUM CONSOL (ECM 984)
 S/N : NONE
 MODE : Tx @ 927.45,927.25,921.45,921.25MHz
 DATE TESTED : 12 Dec 2001 M. LONGINOTTI
 NOTES : CONSOL
 ANT POLARITY : VERTICAL

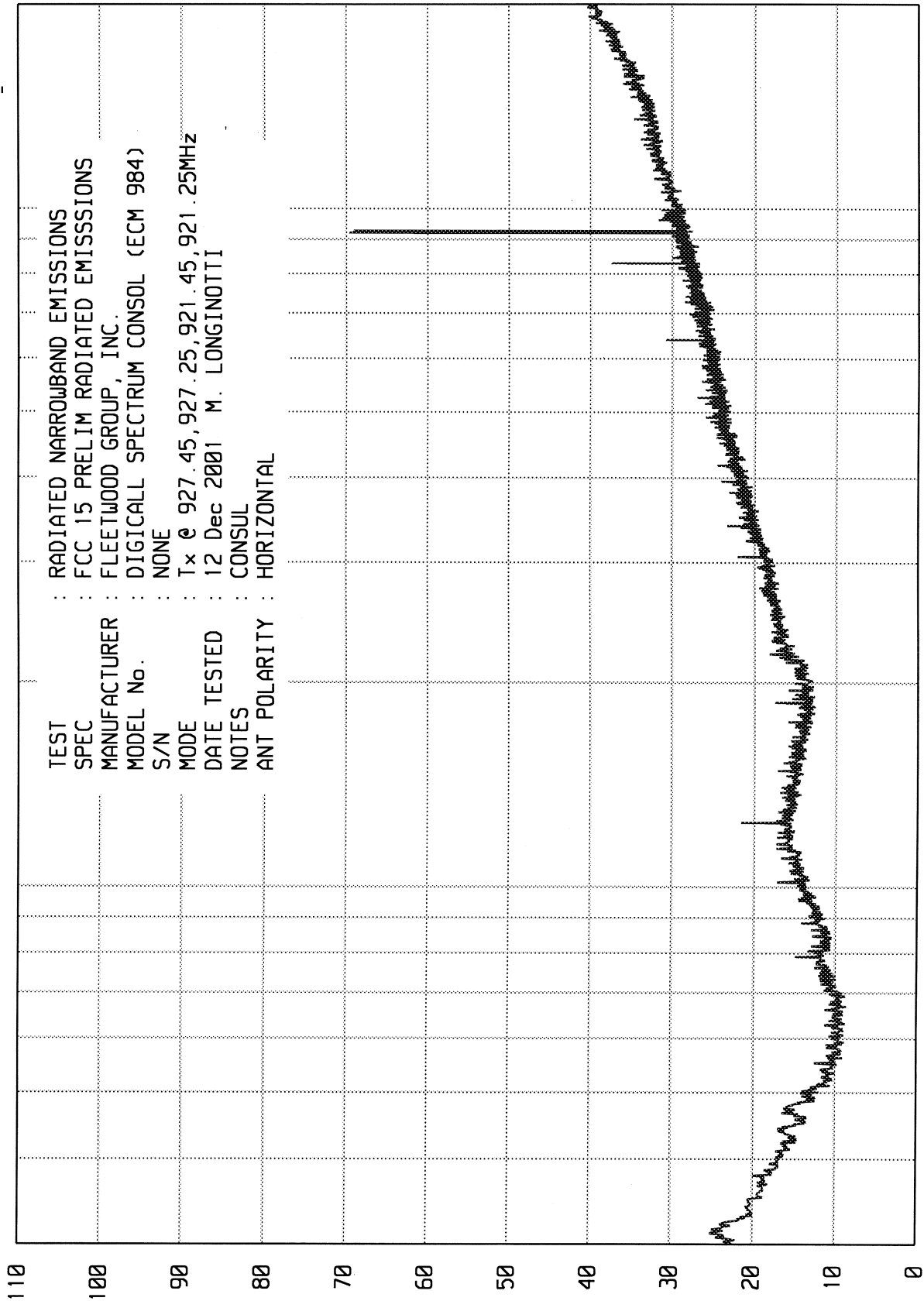
EE

ELITE ELECTRONIC ENGINEERING Co.

Downers Grove, Ill. 60515

UNTU_EM RUN RUN 1

UKA0 08/24/01



TEST : RADIATED NARROWBAND EMISSIONS
 SPEC : FCC 15 PRELIM RADIATED EMISSIONS
 MANUFACTURER : FLEETWOOD GROUP, INC.
 MODEL No. : DIGICALL SPECTRUM CONSOL (ECM 984)
 S/N : NONE
 MODE : Tx @ 927.45, 927.25, 921.45, 921.25MHz
 DATE TESTED : 12 Dec 2001 M. LONGINOTTI
 NOTES : CONSUL
 ANT POLARITY : HORIZONTAL

RADIATED NARROWBAND EMISSIONS - dBu/m

927.45

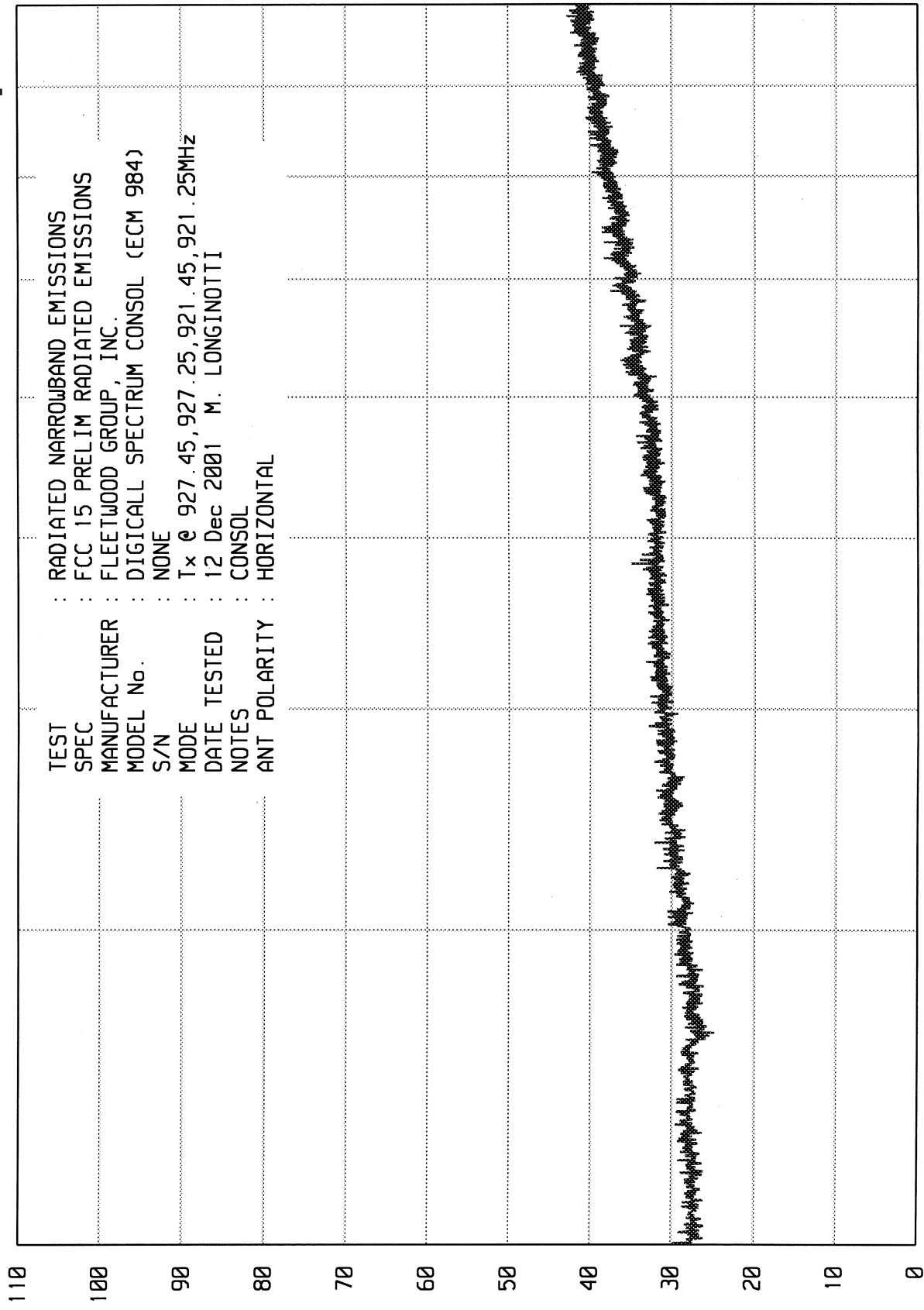
START = 30 FREQUENCY - MHz STOP = 2000

ELITE ELECTRONIC ENGINEERING Co.

Downers Grove, Ill. 60515

UNIU_EM RUN RUN 1

UKA0 08/24/01



TEST : RADIATED NARROWBAND EMISSIONS
 SPEC : FCC 15 PRELIM RADIATED EMISSIONS
 MANUFACTURER : FLEETWOOD GROUP, INC.
 MODEL No. : DIGICALL SPECTRUM CONSOL (ECM 984)
 S/N : NONE
 MODE : Tx @ 927.45,927.25,921.45,921.25MHz
 DATE TESTED : 12 Dec 2001 M. LONGINOTTI
 NOTES : CONSOL
 ANT POLARITY : HORIZONTAL

RADIATED NARROWBAND EMISSIONS - dBu/m

92 of 26

START = 2000

FREQUENCY - MHZ

STOP = 10000



ETR No. 24357
DATA SHEET

MANUFACTURER : Fleetwood Group, Inc.
 MODEL : Digicall Spectrum Console (ECM 984)
 S/N : None
 SPECIFICATION : FCC-15C Spurious Radiated Emissions
 DATE : 12/12/01
 NOTES : Transmitting at 921.45MHz.
 : TEST DISTANCE IS 3 METERS

Frequency MHz	Antenna Polarity	Meter Reading dBuV	Ambient	Antenna Factor	Cable Loss	Pre Amp Gain	Total dBuV	Total uV/m	Limit uV/m
921.45	H	54.80		28	3.10	0.0	85.90	19724.23	50000
	V	62.80		28	3.10	0.0	93.90	49545.02	50000
1842.90	H	15.30	AMB	28.5	5.40	0.0	49.20	288.40	500
	V	16.10	AMB	28.5	5.40	0.0	50.00	316.23	500
2764.35	H	41.80	AMB	31.5	3.60	-36.1	40.80	109.65	500
	V	41.20	AMB	31.5	3.60	-36.1	40.20	102.33	500
3685.80	H	41.20	AMB	33.7	4.32	-35.5	43.72	153.46	500
	V	41.50	AMB	33.7	4.32	-35.5	44.02	158.85	500
4607.25	H	40.80	AMB	34.9	4.68	-35.3	45.08	179.47	500
	V	40.40	AMB	34.9	4.68	-35.3	44.68	171.40	500
5528.70	H	39.10	AMB	36.1	5.40	-35.3	45.30	184.08	500
	V	39.00	AMB	36.1	5.40	-35.3	45.20	181.97	500
6450.15	H	40.70	AMB	37.3	5.40	-35.2	48.20	257.04	500
	V	40.70	AMB	37.3	5.40	-35.2	48.20	257.04	500
7317.60	H	40.20	AMB	38.2	6.84	-35.6	49.64	303.39	500
	V	40.20	AMB	38.2	6.84	-35.6	49.64	303.39	500
8293.05	H	41.30	AMB	38.7	7.92	-35.8	52.12	403.65	500
	V	41.40	AMB	38.7	7.92	-35.8	52.22	408.32	500
9214.50	H	42.10	AMB	39.2	7.56	-35.9	52.96	444.63	500
	V	41.40	AMB	39.2	7.56	-35.9	52.26	410.20	500

CHECKED BY: Mark E. Longinotti
 Mark E. Longinotti



ETR No. 24357
DATA SHEET

MANUFACTURER : Fleetwood Group, Inc.
 MODEL : Digicall Spectrum Console (ECM 984)
 S/N : None
 SPECIFICATION : FCC-15C Radiated Emissions
 DATE : 12/12/01
 NOTES : Transmitting at 927.45MHz.
 : TEST DISTANCE IS 3 METERS

Frequency MHz	Antenna Polarity	Meter Reading dBuV	Ambient	Antenna Factor	Cable Loss	Pre Amp Gain	Total dBuV	Total uV/m	Limit uV/m
927.45	H	57.30		28.1	3.20	0.0	88.60	26915.35	50000
	V	62.60		28.1	3.20	0.0	93.90	49545.02	50000
1854.90	H	15.40	AMB	28.5	5.40	0.0	49.30	291.74	500
	V	15.20	AMB	28.5	5.40	0.0	49.10	285.10	500
2782.35	H	42.40	AMB	31.5	3.60	-36.1	41.40	117.49	500
	V	42.70	AMB	31.5	3.60	-36.1	41.70	121.62	500
3709.80	H	41.50	AMB	33.8	4.20	-35.5	44.00	158.49	500
	V	42.00	AMB	33.8	4.20	-35.5	44.50	167.88	500
4637.25	H	39.90	AMB	35	4.80	-35.3	44.40	165.96	500
	V	41.20	AMB	35	4.80	-35.3	45.70	192.75	500
5564.70	H	40.10	AMB	36.1	5.20	-35.3	46.10	201.84	500
	V	39.30	AMB	36.1	5.20	-35.3	45.30	184.08	500
6492.15	H	40.80	AMB	37.4	5.90	-35.2	48.90	278.61	500
	V	40.10	AMB	37.4	5.90	-35.2	48.20	257.04	500
7419.60	H	41.40	AMB	38.2	6.90	-35.6	50.90	350.75	500
	V	41.30	AMB	38.2	6.90	-35.6	50.80	346.74	500
8347.05	H	40.80	AMB	38.7	7.60	-35.8	51.30	367.28	500
	V	41.10	AMB	38.7	7.60	-35.8	51.60	380.19	500
9274.50	H	40.40	AMB	39.2	7.60	-35.9	51.30	367.28	500
	V	41.00	AMB	39.2	7.60	-35.9	51.90	393.55	500

CHECKED BY: *Mark E. Longinotti*
 Mark E. Longinotti

ELITE ELECTRONIC ENGINEERING CO

MKR ^ 516 kHz
-58.70 dB

hp

REF -20.0 dBm ATTEN 0 dB

10 dB/

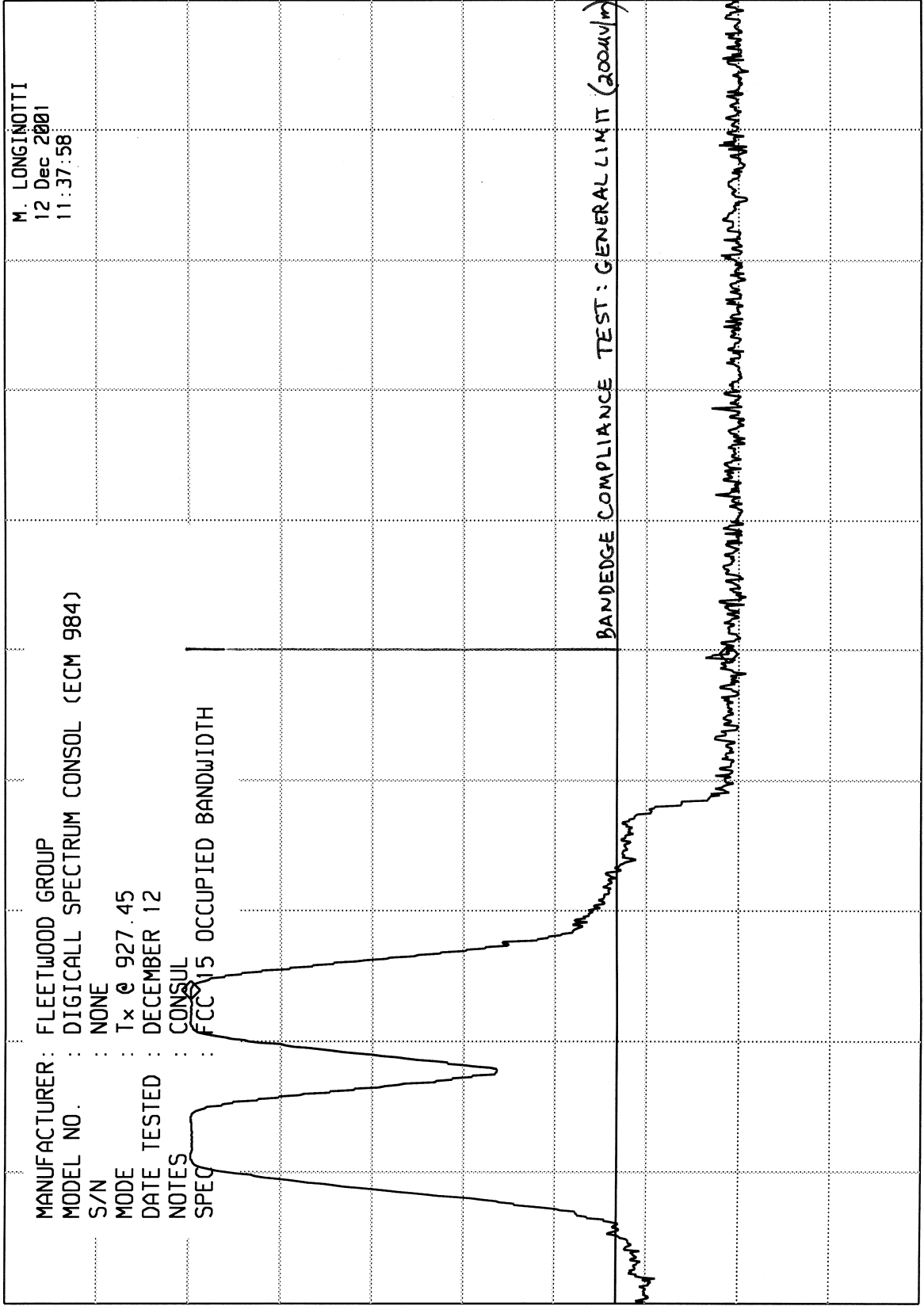
OFFSET

-10.0

dB

DL

-86.8
dBm



M. LONGINOTTI
12 Dec 2001
11:37:58

CENTER 928.00 MHz
RES BW 30 kHz(i)
SPAN 2.00 MHz
SWP 20.0 msec

UBW 300 kHz