ELECTROMAGNETIC INTERFERENCE TEST REPORT

FOR

MAGNETEK/GENERAL ELECTRIC

ELECTRONIC FLUORESCENT DIMMING BALLAST WITH BULB

MODEL FEH552D/HPF/DV/120

FCC ID: NE455DVHC

TORCHIERE VERSION

August 12, 1998

Prepared for: General Electric Company
1975 Noble Road
East Cleveland, OH 44112

Measurements made
and report prepared by: James R. Pollock

SMITH ELECTRONICS, INC.
8200 SNOWVILLE RD.
CLEVELAND, OH 44141
440/526-4386

CERTIFICATE OF COMPLIANCE

1.	Applicant:	MagneTek S.p.A Settore Nord-Est, 81 Terranuova B.ni (Arezzo) ITALY
2.	Prepared for:	General Electric Company 1975 Noble Road East Cleveland, OH 44112
3.	Regulation:	CFR47-Part 18 RF Lighting Devices 18.305 & 18.307
4.	Measurement Method:	FCC/OST MP-5
5.	FCC ID:	NE455DVHC
6.	Model Number:	FEH552D/HPF/DV/120
7.	Trade Name:	Electronic Fluorescent Dimming Ballast with Bulb
8.	Operating Frequency:	Low = 90.0 kHz, @ zero ohms Med. = 56.0 kHz, @ 5 kohms High = 45.6 kHz, @ 10 kohms
9.	Input Power:	Low 120 VAC, 159 mA, 18.4 W Med. 120 VAC, 426 mA, 50.7 W High 120 VAC, 526 mA, 62.6 W
10.	Date of Test:	August 5 - 9, 1998
10.	Place of Test:	Smith Electronics, Inc. Test Lab, 8200 Snowville Rd., Brecksville, OH. Open Field Site at 2730 Old Mill Rd., Hudson, OH

11. Statement of Compliance:

I hereby certify that measurements of radio frequency emissions from the torchiere version the MagneTek/GE Electronic Fluorescent Dimming Ballast with Bulb, Model FEH552D/HPF/DV/120, were performed by me on August 5 - 9, 1998, and that the results of the measurements confirmed that the units tested are capable of compliance with the Rules and Regulations of the Federal Communications Commission for electromagnetic emissions according to Part 18.305 and 18.307 of the Rules.

8-12 98
Date

James R. Pilbeck, Pres.
Signature, Title

RADIO FREQUENCY EMISSION MEASUREMENTS

OBJECTIVE

To perform radio frequency interference measurements to ascertain that the MagneTek/GE, Model FEH552D/HPF/DV/120, Electronic Fluorescent Dimming Ballast with Bulb, complies with the requirements of Part 18 of the FCC Rules and Regulations for consumer RF lighting devices.

SUMMARY

The torchiere version of the MagneTek/GE FEH552D/HPF/DV/120, Electronic Fluorescent Dimming Adapter with Bulb was found to comply with the radio frequency emissions requirements for Industrial, Scientific, and Medical Equipment as found in paragraphs 18.305 and 18.307 of the FCC Rules for RF lighting devices used in a consumer environment.

The highest level of conducted emissions was observed at 809 kHz on the neutral side of the line in the "Dim" mode and was a quasi-peak value of 47.4 dBuV, or 0.6 dB below the consumer limit.

The radiated emission closest to the limit was found at 84.5 MHz in the "Bright" mode and was 1.2 dB below the consumer limit.

A list of the highest conducted and radiated levels found is given in the following table.

HIGHEST CONDUCTED LEVELS

Freq. (MHz)	Level (dBuV)	Diff. from Limit (dB)	Line, Mode
0.809	47.4 QP	- 0.6	Neutral, Dim
0.626	45.8 QP	- 2.2	Hot, Dim
0.990	45.0 QP	- 3.0	Hot, Dim
0.627	45.0 QP	- 3.0	Neutral, Dim
0.879	44.2 QP	- 3.8	Neutral, Dim
0.748	43.7 QP	- 4.3	Hot, Medium

All other observed emissions are greater than 4.5 dB below the limit.

HIGHEST RADIATED LEVELS

Freq. (MHz)	Level (uV/m)	Diff. from Limit (dB)	Mode
84.5	86.8	- 1.2	Bright
86.0	68.4	- 3.3	Medium
80.0	60.5	- 4.4	Dim
74.0	45.0	- 6.9	Dim
44.0	42.3	- 7.5	Bright
44.0	33.6	- 9.5	Medium

All other observed emissions are greater than 10 dB below the limit.

TEST INFORMATION

MANUFACTURER	MagneTek S.p.A Settore Nord-Est, 81 Terranuova B.ni (Arezzo) ITALY
MARKETED BY:	General Electric Company 1975 Noble Rd. East Cleveland, OH 44112
TEST DATE	August 5 - 9, 1998
EQUIPMENT UNDER TEST	MagneTek/GE FEH552D/HPF/DV/120 Electronic Fluorescent Dimming Ballast with 55W 2D Bulb
MEASUREMENT EQUIPMENT	Hewlett-Packard Spectrum Analyzer Type 8568B with 8560A RF Section S/N 2216A02120 85662A Display Section S/N 2152A03686 85650A Quasi-Peak Adapter S/N 2043A00350 Calibrated 5/98 Singer Stoddart EMI Field Intensity Meter Model NM 37/57 S/N 0234-04233 Calibrated 5/98 Hewlett-Packard Preamplifier Model 8447D S/N 1725A01282 50 uH LISN's EMCO Biconical Antenna Model 3104 Freq. Range 20 - 200 MHz EMCO Log-Periodic Antenna Model 3146 Freq. Range 200 - 1000 MHz 6.1 m RG-214/U coaxial cable

Open field measurements were performed on the Smith Electronics open field test site located at 2730 Old Mill Rd., Hudson, OH. Information concerning this site is on file with the FCC.

INTRODUCTION

This high power factor, torchiere style of the MagneTek/GE FEH552D/HPF/DV/120 Electronic Fluorescent Dimming Ballast with Bulb is intended for use in the torchiere type lamps which often use a halogen type bulb. This version of the adapter uses the threaded tube type mounting, and is provided with 2 wires for power input and 2 wires for a dimming control resistor.

The sample lamp/ballast was tested to compare the values of emissions measured to the limits specified by the FCC. Measurements were made of both the conducted and radiated emissions with the results being compared to the applicable limits of 18.305 and 18.307 of the FCC Rules and Regulations.

MEASUREMENT PROCEDURES

The sample ballast was tested in a typical mounting position (lamp plane horizontal) using typical lamp hardware and non-conducting support materials. A polarized electrical plug on a short piece of two-conductor cord was used to connect to the ballast's input power leads, providing an overall length of about 1 meter.

To approximate a typical installation in a torchiere fixture, the control wires were twisted together and run in close proximity to the power wires for about 2 ft. At that point, the power and control wires were separated somewhat. For the conducted emissions tests, the wiring was run horizontally along the test bench. For the radiated emissions, the wiring ran vertically from the lamp to the floor.

Conducted emissions were measured over the frequency range of 450 kHz - 30 MHz. Radiated tests were performed over the frequency range of 30 MHz to 1000 MHz, as covered by present FCC Rules and Regulations. Test procedures followed are those described in FCC/OST MP-5, "FCC METHODS OF MEASUREMENT OF RADIO NOISE EMISSIONS FROM INDUSTRIAL, SCIENTIFIC, AND MEDICAL EQUIPMENT".

Measurements of both conducted and radiated emissions were made at three power levels, dim, medium and bright. Low, or dim, output was made with 0 ohms across the control wires. Medium output was attained with 5 kohms across the control wires and the bright level was performed with a 10 kohm load on the control wires.

CONDUCTED EMISSIONS MEASUREMENTS

All conducted emission measurements were made in the shielded room. The test set up is shown photographically in Pictorial 1. The test fixture was placed on a non-conducting support, 40 cm. from the shielded room wall. All other metallic surfaces were at least 80 cm. from the lamp. Filtered 120 VAC electric power was fed through the LISN's to the fixture.

With the lamp operating for at least 2 hours, the output of the RF port of the LISN was connected to the spectrum analyzer. A given frequency range was scanned and the results compared to the appropriate FCC limit. Both sides of the line were examined for emissions with reference to ground at the three brightness settings. The results of these conducted emissions measurements are found in Figs. 1 - 9 of this report.

Figures 1 - 6 are plots of peak emissions at the three power levels with Figs. 1, 3 & 5 covering 450 kHz - 3 MHz and Figs. 2, 4 & 6 covering 3 -30 MHz. As some of the peak emissions are close to or over the limit, an expanded, quasi-peak scan was made covering 450 kHz -1.4 MHz. This data is seen in Figs. 7 - 9.

Due to relatively high emission levels below 450 kHz, a high-pass filter was used to prevent spectrum analyzer overload. In the figures, the 48 dBuV limit is reduced by the insertion loss of the filter and is indicated graphically on each of the plots. Any tabular values of conducted emissions include the filter insertion loss and are, therefore, correctly indicated.

RADIATED EMISSIONS MEASUREMENTS

Initial measurements of the radiated emissions emanating from the lamp were made in the shielded room. The absence of ambient RF noise in the shielded room allows easy measurement of the emissions produced by the lighting device. Measurements conducted in the shielded room have unwanted perturbations caused by reflections, resonances, and antenna loading. However, shielded room measurements are useful in identifying specific frequencies of interest for investigation on the open field site.

The same test setup was used for these measurements as for the conducted emissions except that the lamp was on a non-conducting table about 1 meter above the ground plane, positioned further away from the room walls and used a longer power cord.

All radiated emissions measured in the shielded room were measured at an antenna distance of 1 meter. All spectral plots made of the detected emissions have scaled FCC limits drawn in for reference. The spectrum analyzer detector was set to peak mode for all measurements. The FCC limits for consumer RF lighting devices radiated emissions are as follows:

Frequency (MHz)	FCC Consumer Limit (1 m) (uV/m)	(dBuV/m)	FCC Consumer Limit (30 m) (uV/m)	(dBuV/m)
30 - 88	300	49.5	10	20.0
> 88 - 216	450	53.0	15	23.5
> 216 - 1000	600	55.6	20	26.0

To transfer the scaled one meter FCC limits to the spectral plots taken in the shielded room, the following relationship was used:

$$L = FCC - AF - CP + P \qquad \text{(Eq. 1)}$$

Where: L = Corrected limit on plot in dBuV

FCC = Scaled FCC limit (1 m) at frequency of interest in dBuV/m

AF = Antenna factor in dB at frequency of interest

C = Coax loss in dB at frequency of interest

P = Gain of preamplifier (26 dB).

To determine compliance with FCC limits on the open field site, the following equation was used:

$$Q = S + AF + C - FCC \qquad \text{(Eq. 2)}$$

Where: Q = Magnitude in dB above/below the FCC limit

S = Measured signal strength of interference in dBuV

AF = Antenna factor in dB at frequency of interest

C = Coax loss in dB at frequency of interest

FCC = FCC Consumer RF lighting device limit (3 m) in dBuV/m at frequency of interest.

Note: The antenna and coax factors used are found in the appendix.

The shielded room measurements, as well as those on the open field, were made using broadband linearly polarized antennas. A biconical antenna was used for measurements between 30 - 200 MHz and a log periodic antenna was used between 200 - 1000 MHz.

Measurements were made with both vertical and horizontal antenna polarizations with the detected emissions recorded on a spectral plot. Data obtained in the shielded room is shown in Figs. 10 - 15.

Radiated emissions measurements were also made on a 3 m open field site with the lamp set up as shown photographically in Pictorial 2. The 120 VAC was provided in the same manner as for the conducted emissions tests except that the LISN's were not used. With the appropriate antenna in place, the frequency range was scanned using the EMI receiver. Quasi-Peak detection was used for these measurements.

When an emission was detected, the lamp was rotated until the maximum level was observed. The measurement antenna was then raised and lowered between 1 & 4 meters to again find the maximum value. This maximum value was then recorded. Measurements were made using both horizontal and vertical polarizations and the maximum results of these open field radiated measurements are found in Tables 1 - 3 for the three power levels.

The measured values of the radiated emissions were recorded in dBuV. To these values are added the antenna factors and a coax loss factor.

As the limits for radiated emissions are specified at 30 meters and the measurements were made at 3 meters a factor of 10 is also included to account for the difference using linear extrapolation.

All measured values recorded in Tables 1 - 3 are below the FCC limits for radiated emissions for consumer lighting devices.

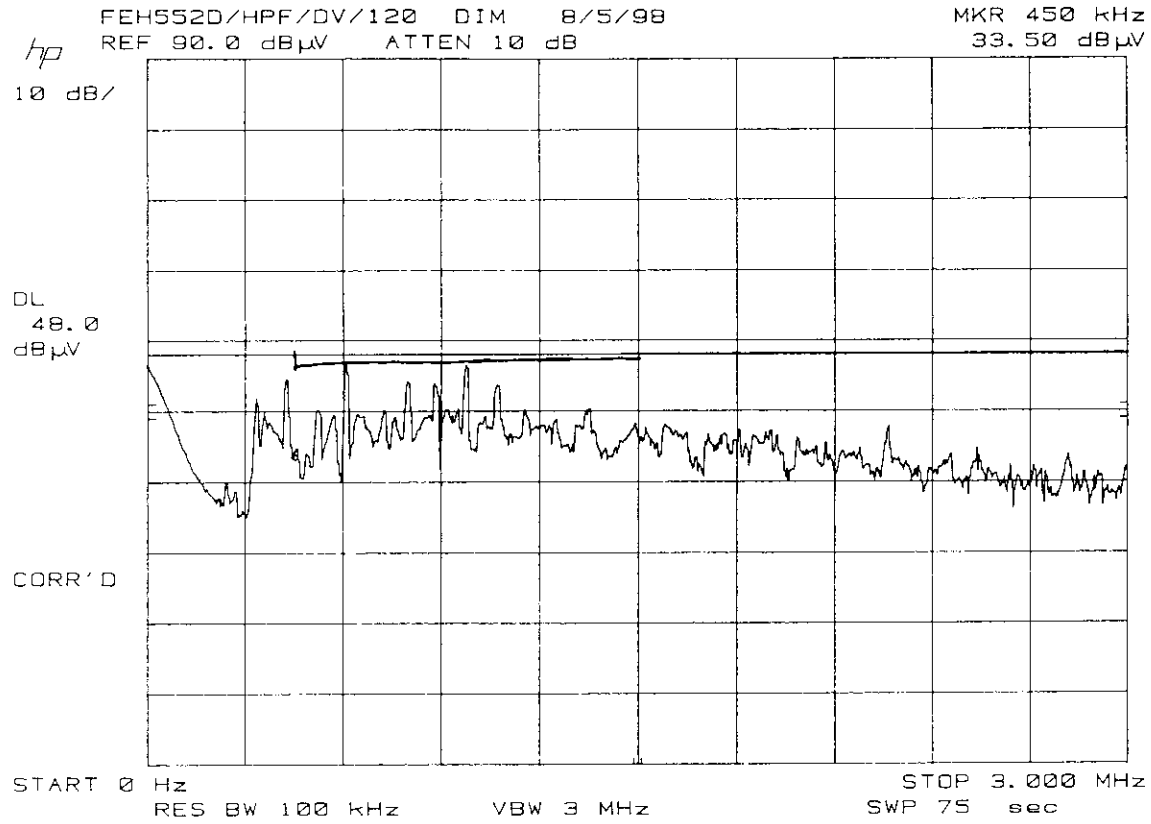
RESULTS

The plots of the conducted emissions are found in Figs. 1 - 9, along with the appropriate consumer limit per 18.307 and adjusted for the filter loss. Peak emissions at most frequencies are below the consumer limit. For those frequencies where the peak values exceed the limit, quasi-peak measurements were made. All quasi-peak measurements are below the consumer limit.

The results of the radiated emissions measurements taken on the open field site and tabulated in Tables 1 - 3, indicate that the lamps tested comply with the limits for consumer RF lighting devices given in paragraph 18.305 of the FCC rules. This is found in the column labeled "DB VS. FCC B" in the tables. At 84.5 MHz in Table 1, a quasi-peak value of 86.8 uV/m was obtained which is 1.2 dB below the 100 uV/m limit at 3 meters. The "DB VS. FCC A" column would compare the reading to the limit for non-consumer RF lighting devices.

CONCLUSION:

The FEH552D/HPF/DV/120, FCC ID NO. NE455DVHC, in the torchiere version tested and mounted as described, does comply with the requirements for radiated and conducted radio frequency emissions for consumer RF lighting devices as provided for in paragraphs 18.305 and 18.307 of the Federal Communications Commission's Rules and Regulations.



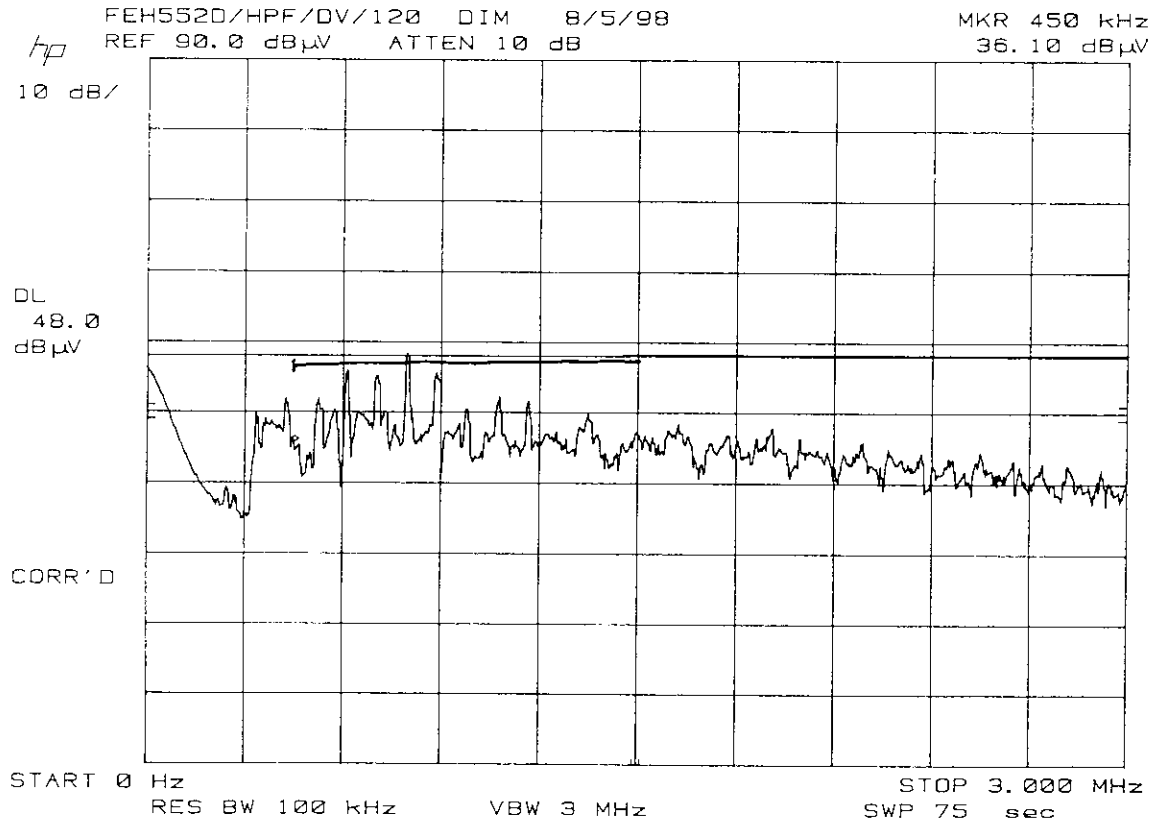
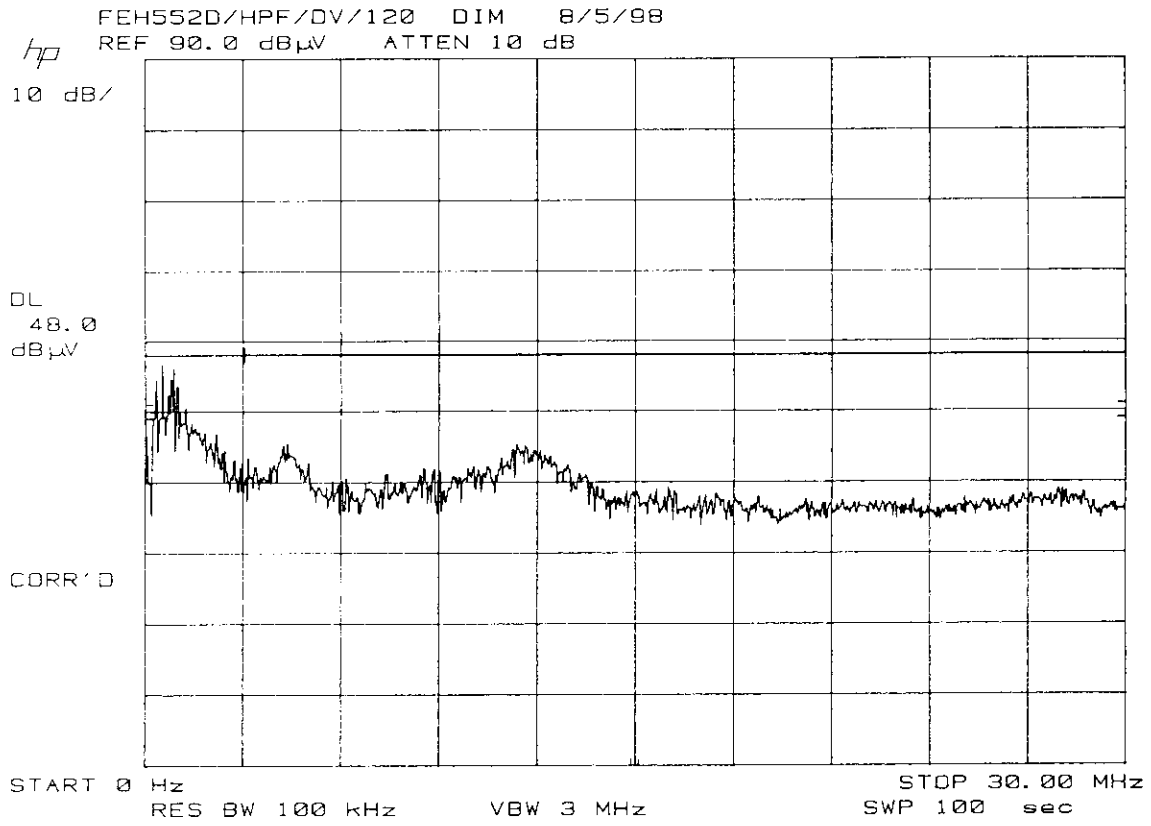


Fig. 1
CONDUCTED EMISSIONS
MAGNETEK FEH552D/HPF/DV/120
FCC ID: NE455DVHC DIM
450 kHz - 3 MHz Peak



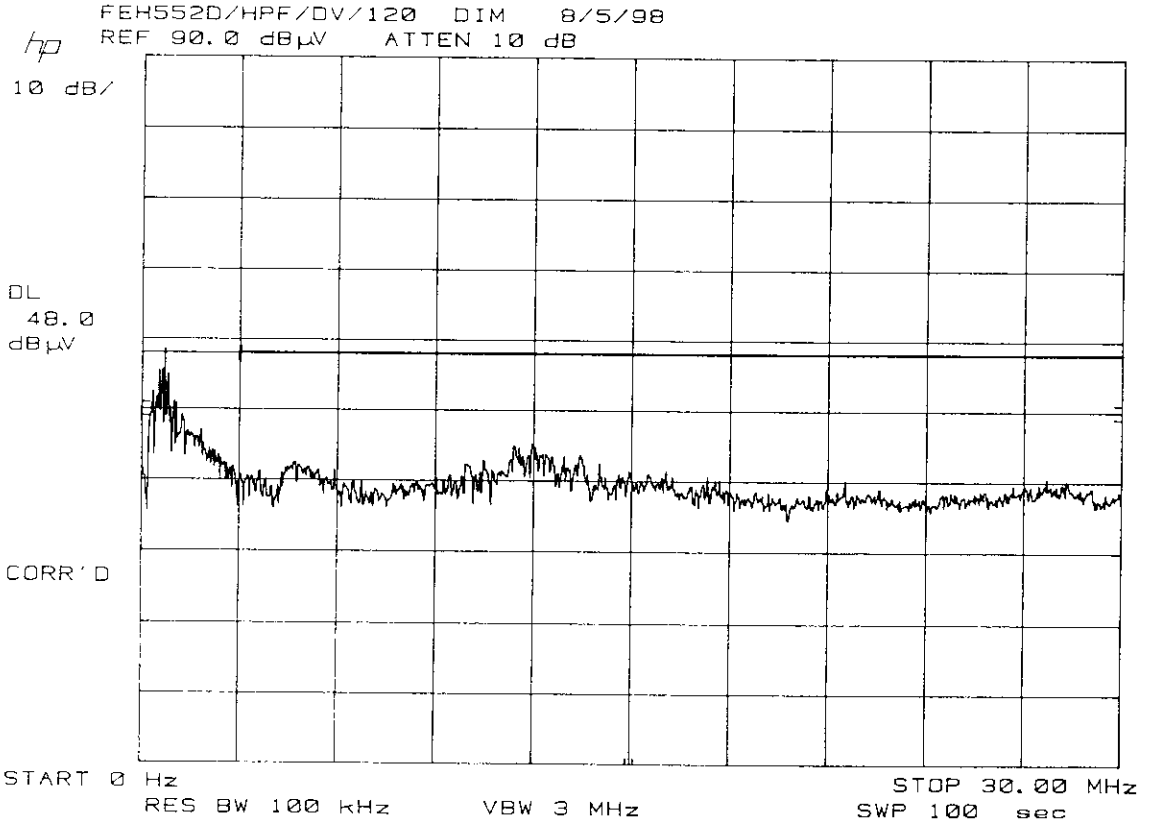
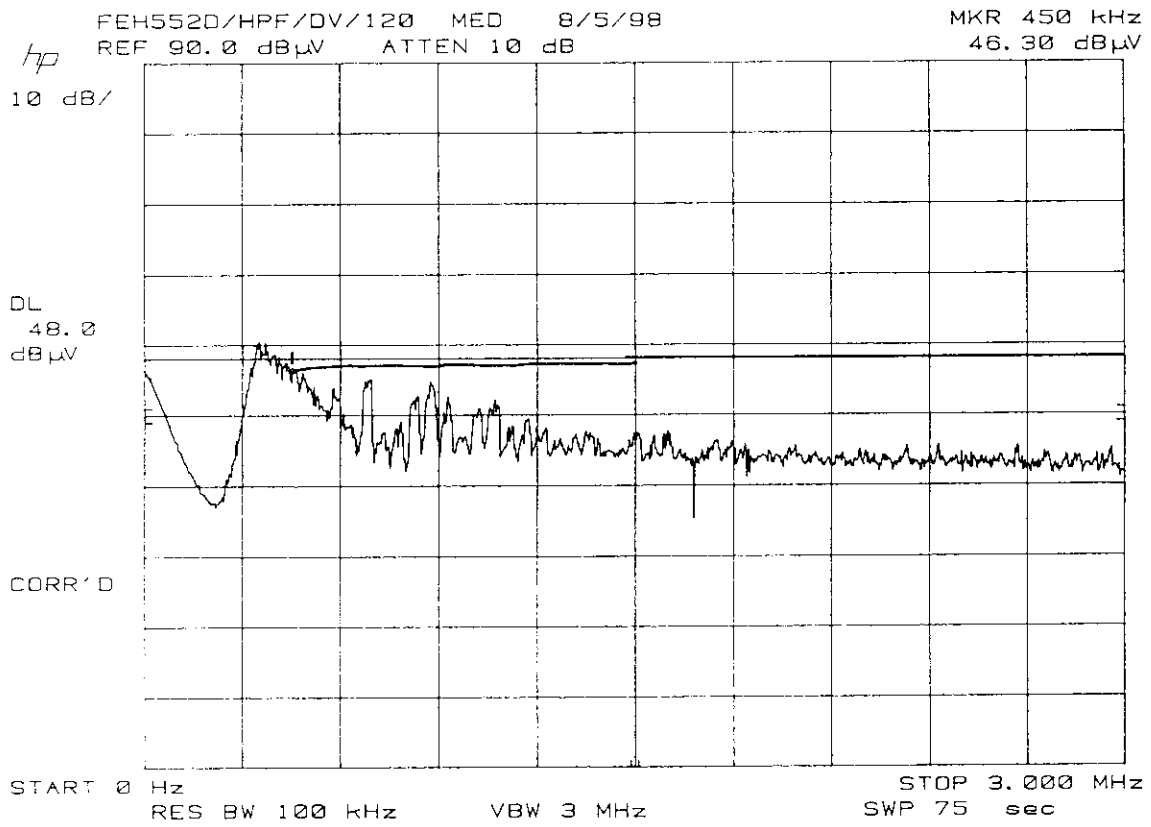


Fig. 2
CONDUCTED EMISSIONS
MAGNETEK FEH552D/HPF/DV/120
FCC ID: NE455DVHC DIM
3 MHz - 30 MHz Peak



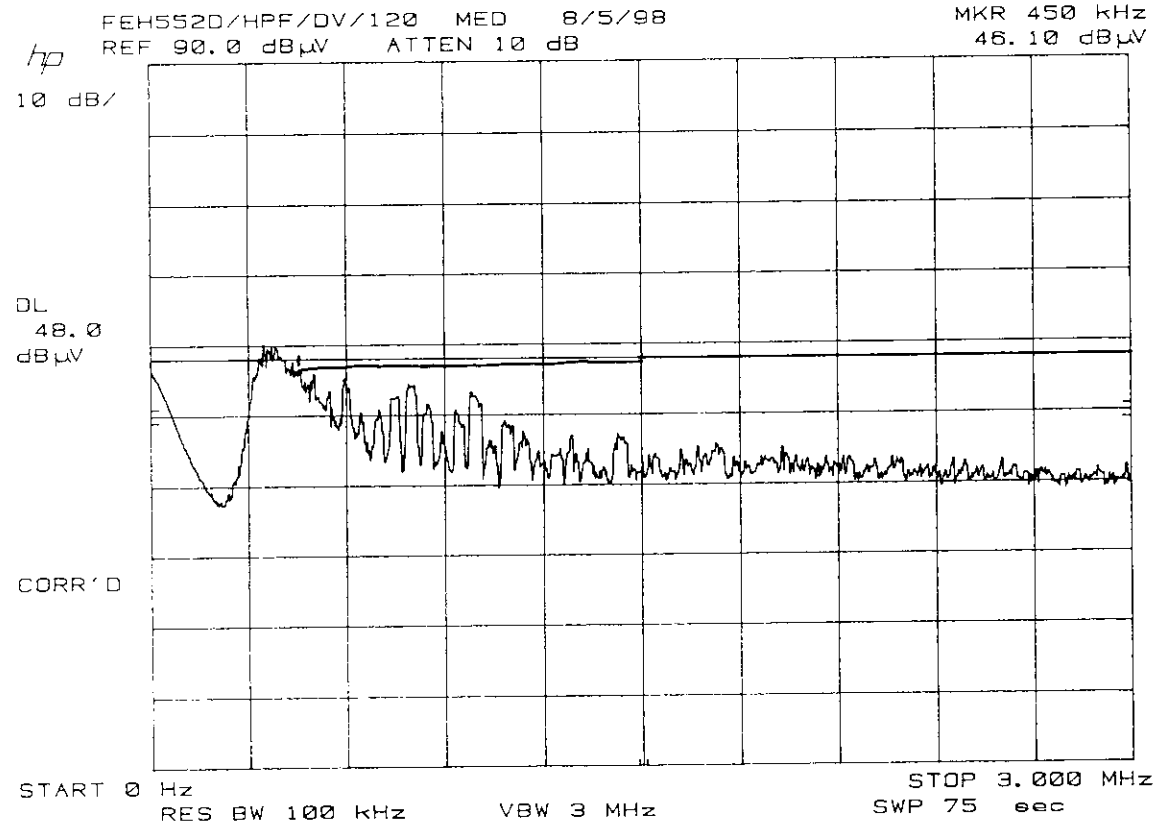
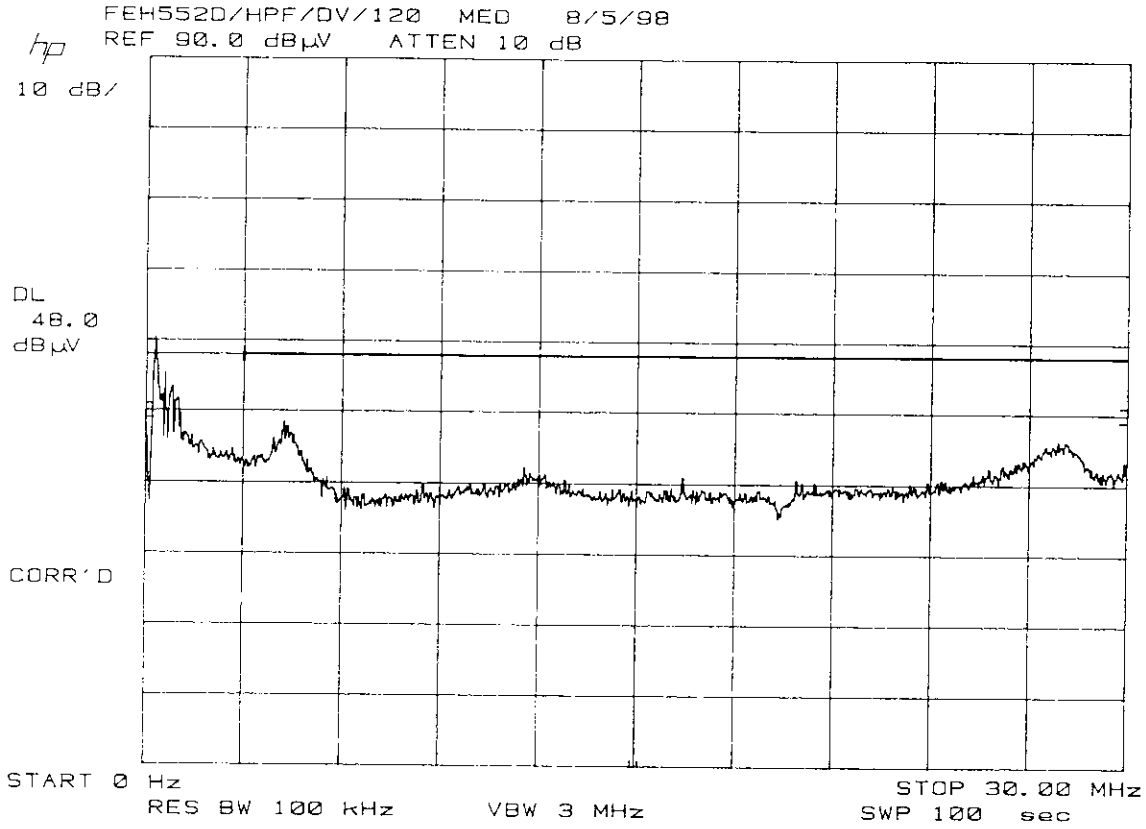


Fig. 3
CONDUCTED EMISSIONS
MAGNETEK FEH52D/HPF/DV/120
FCC ID: NE455DVHC MEDIUM
450 kHz - 3 MHz Peak



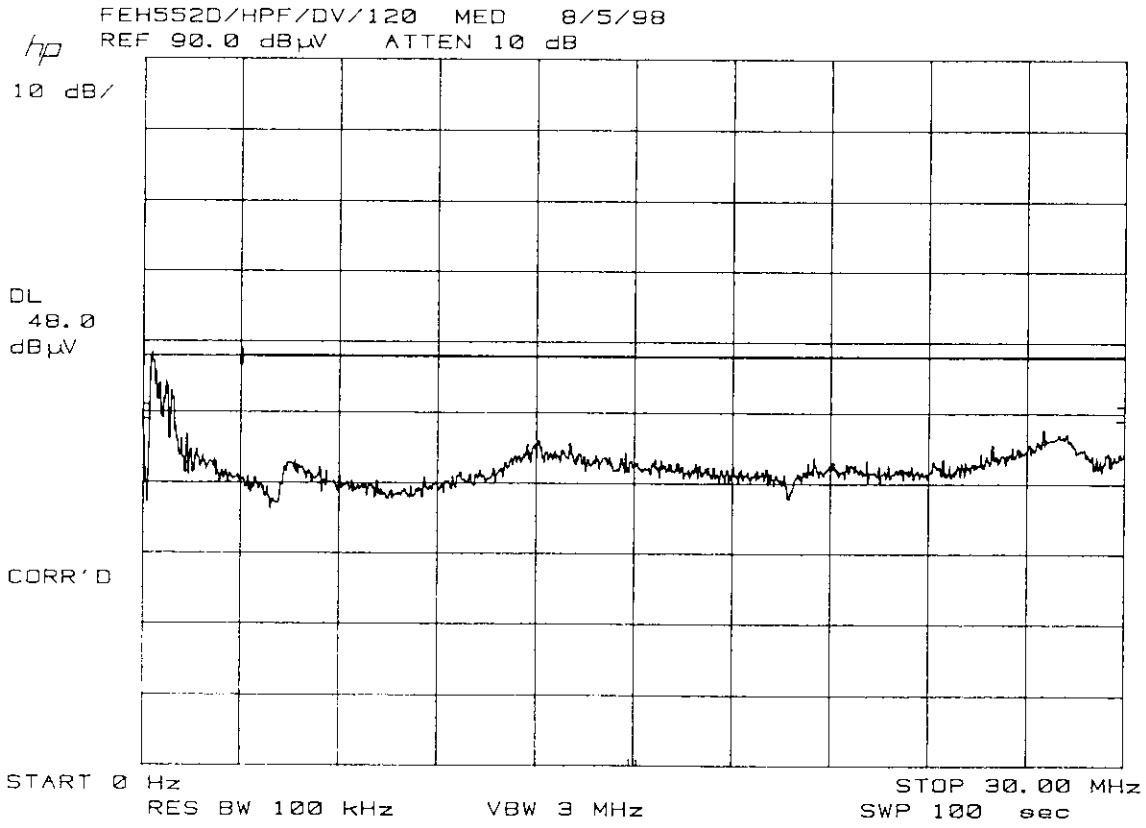
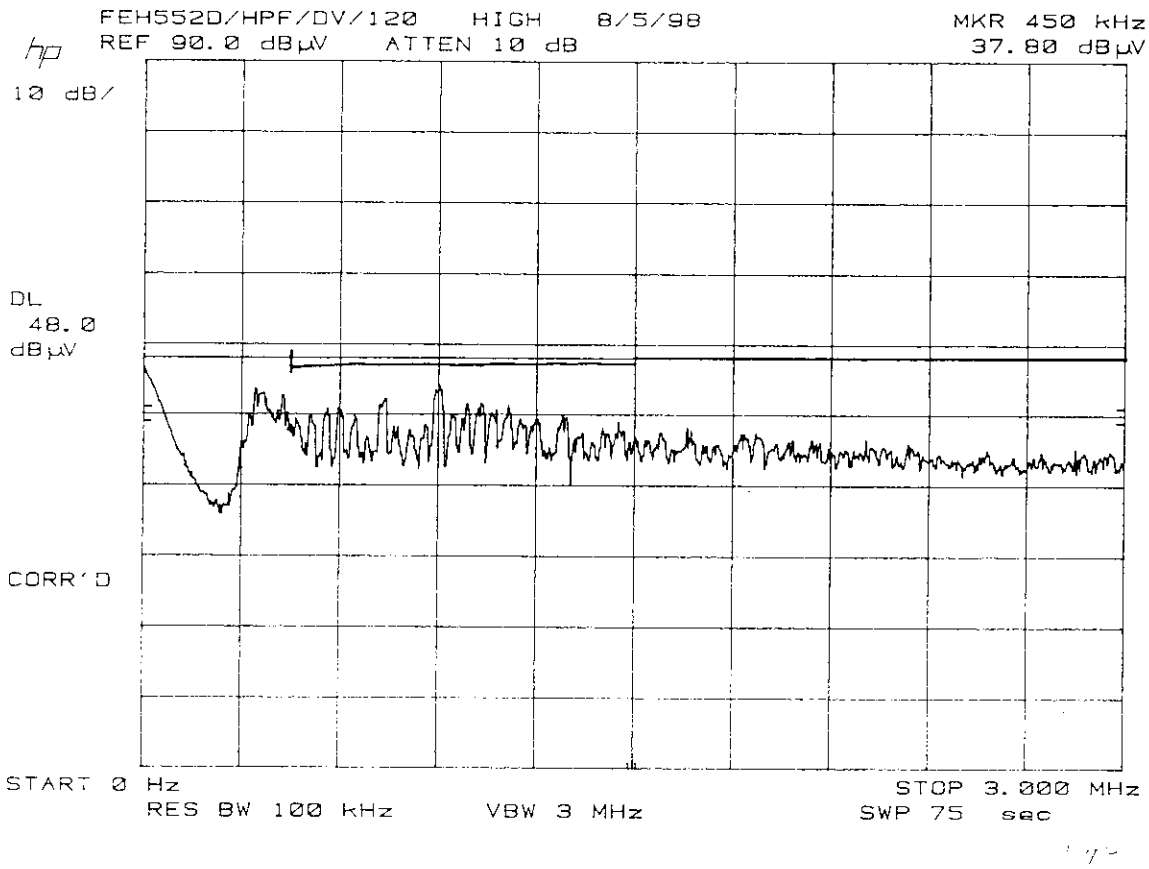


Fig. 4
CONDUCTED EMISSIONS
MAGNETEK FEH552D/HPF/DV/120
FCC ID: NE455DVHC MEDIUM
3 MHz - 30 MHz Peak



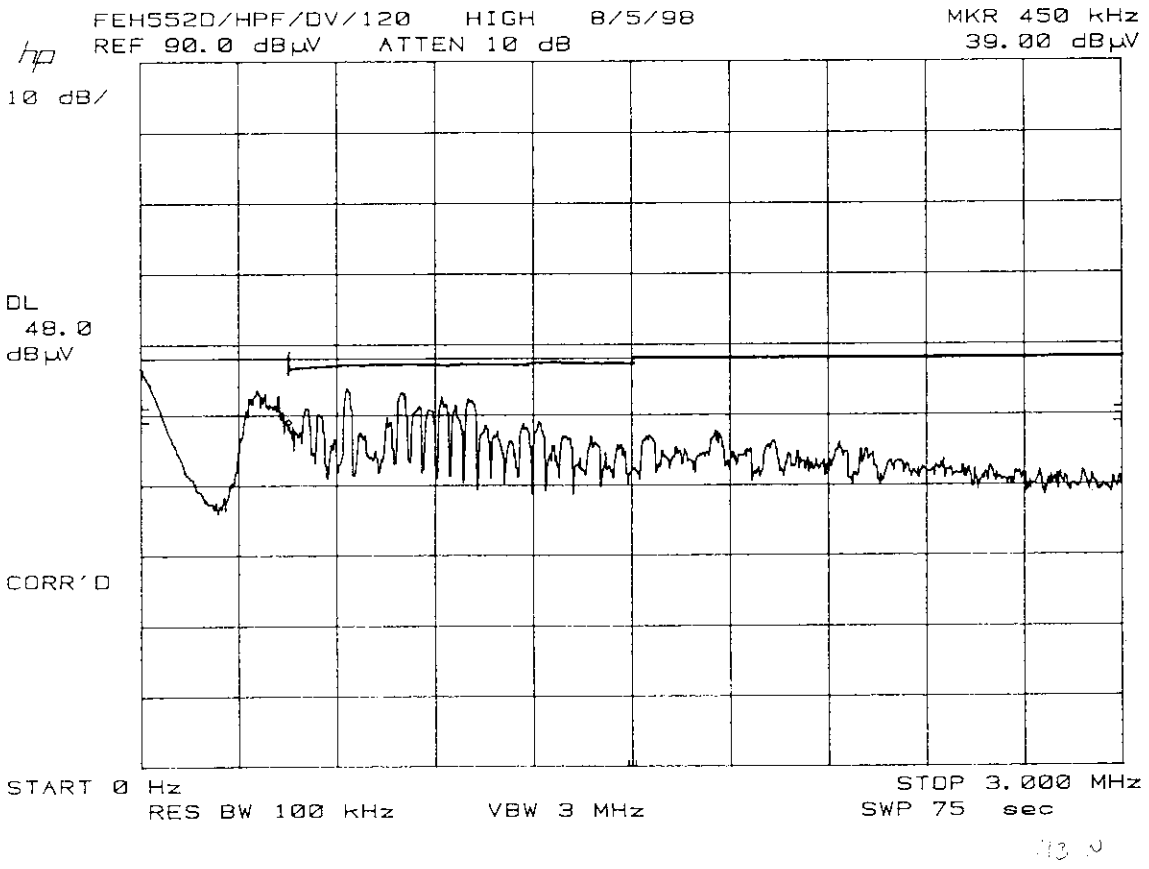
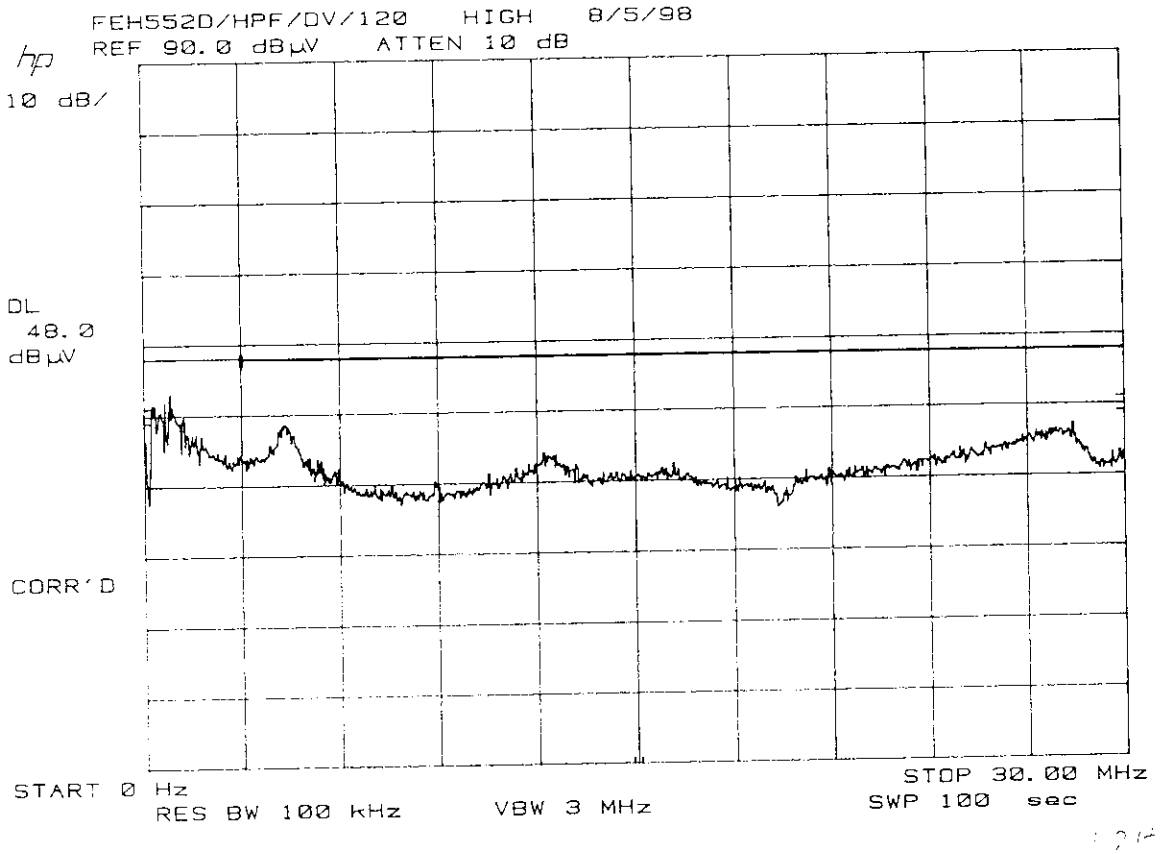


Fig. 5
CONDUCTED EMISSIONS
MAGNETEK FEH552D/HPF/DV/120
FCC ID: NE455DVHC BRIGHT
450 kHz - 3 MHz Peak



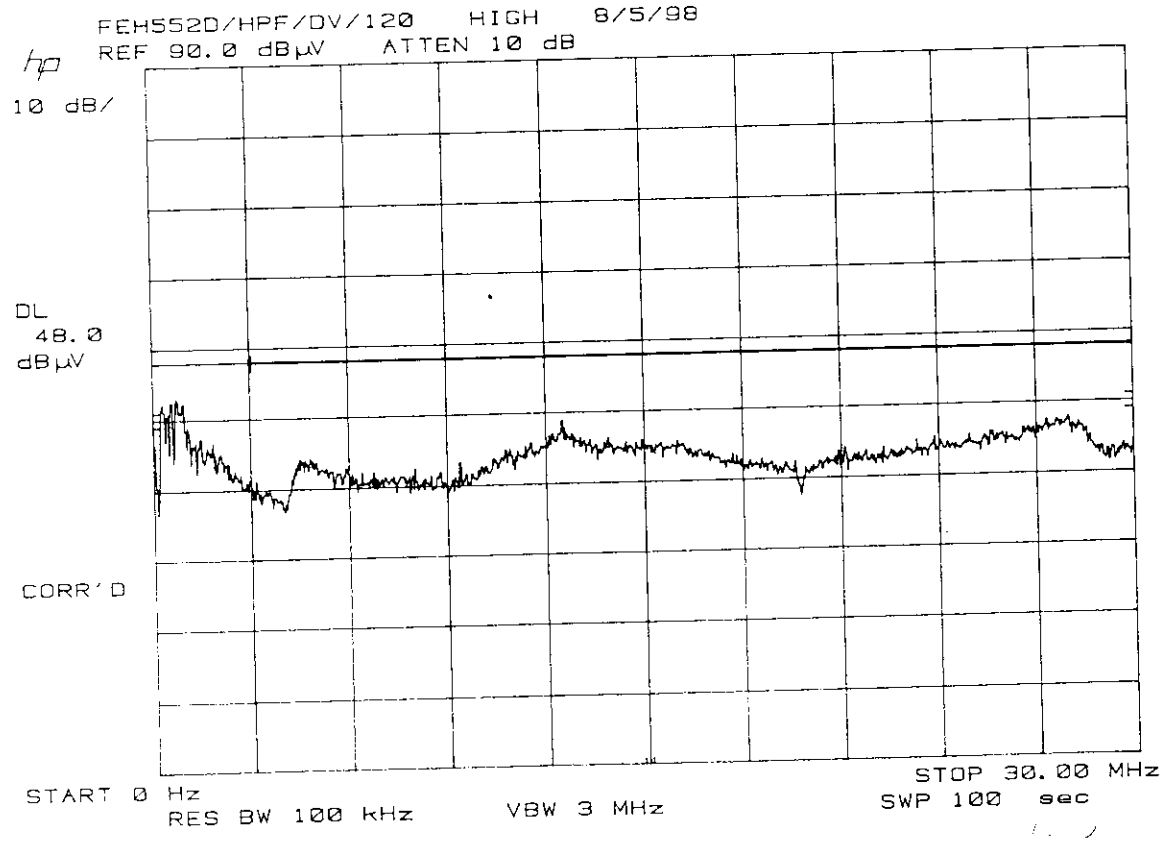
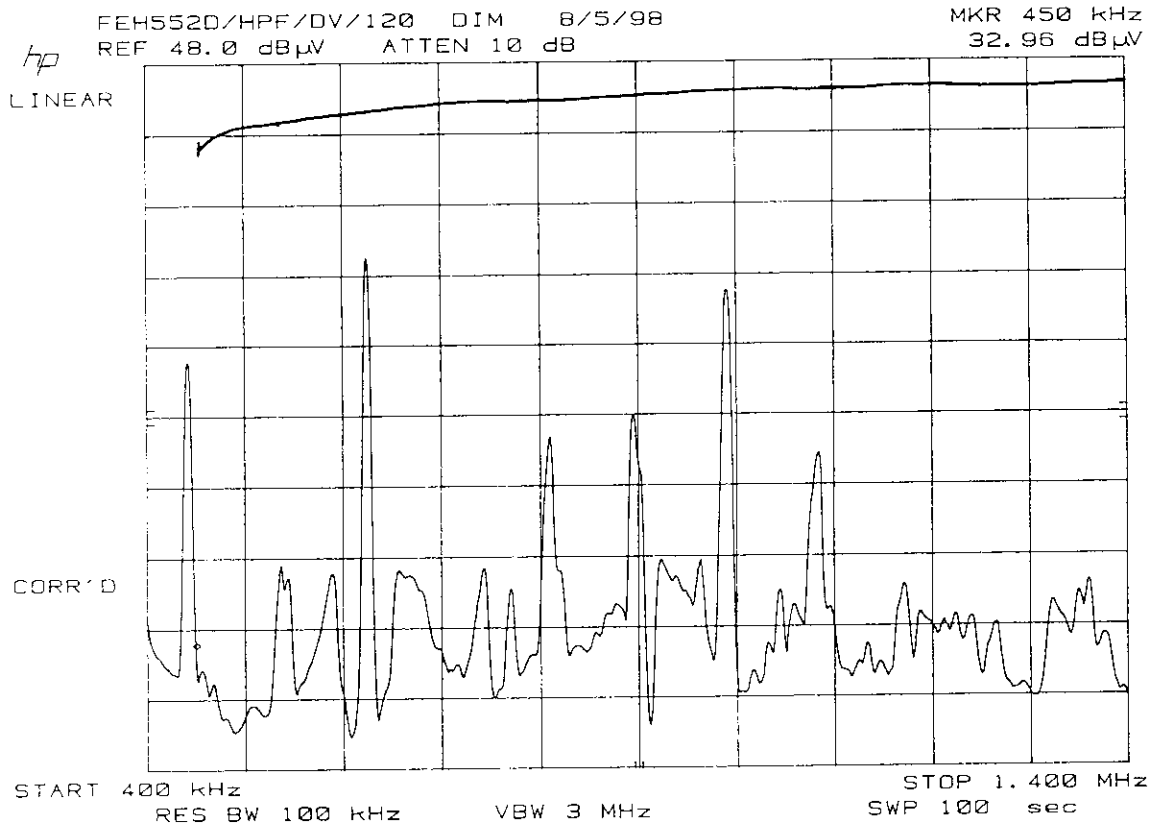


Fig. 6
CONDUCTED EMISSIONS
MAGNETEK FEH552D/HPF/DV/120
FCC ID: NE455DVHC BRIGHT
3 MHz - 30 MHz Peak



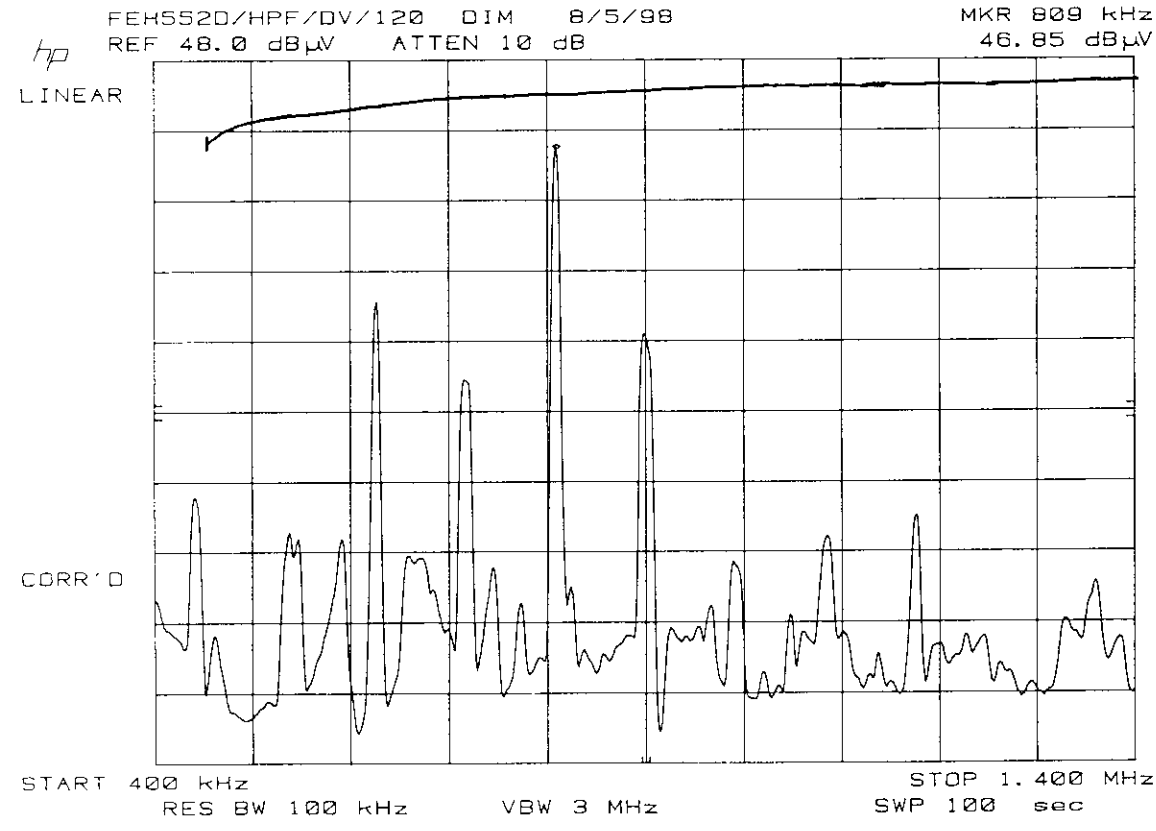
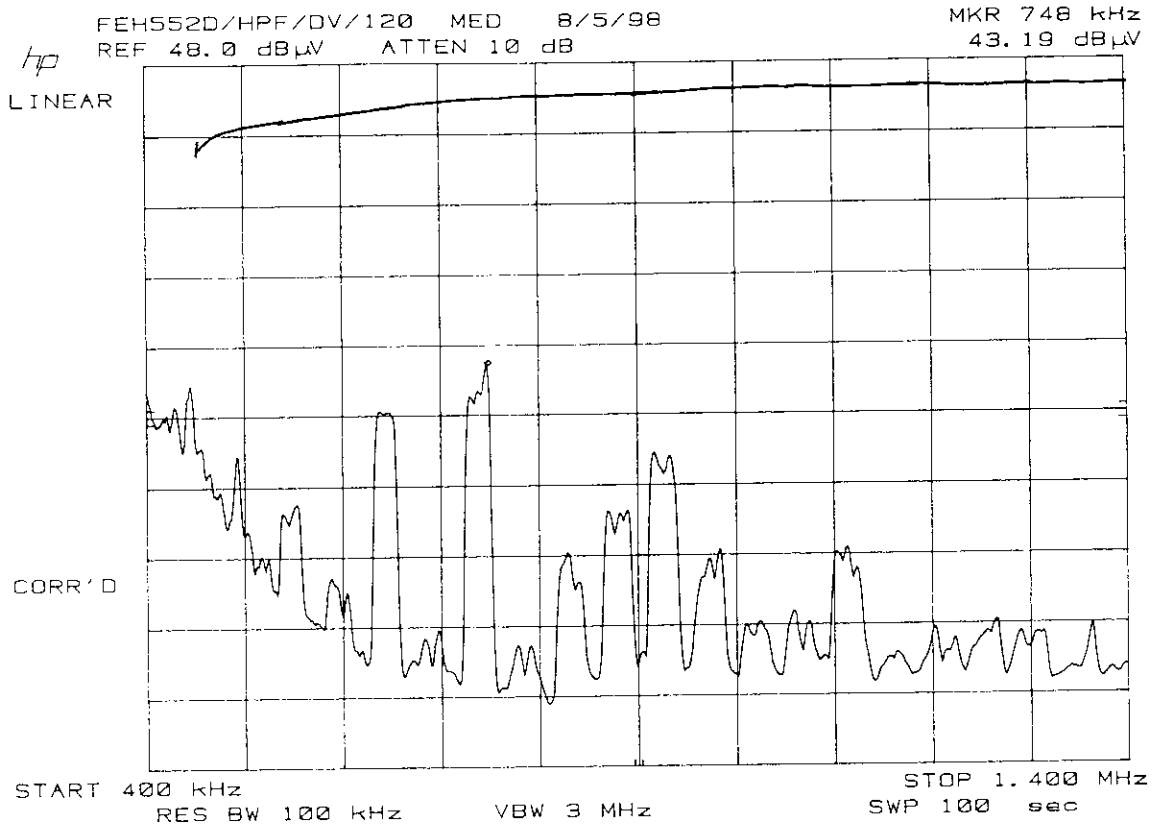


Fig. 7
CONDUCTED EMISSIONS
MAGNETEK FEH552D/HPF/DV/120
FCC ID: NE455DVHC DIM
450 kHz - 1.4 MHz Quasi-Peak



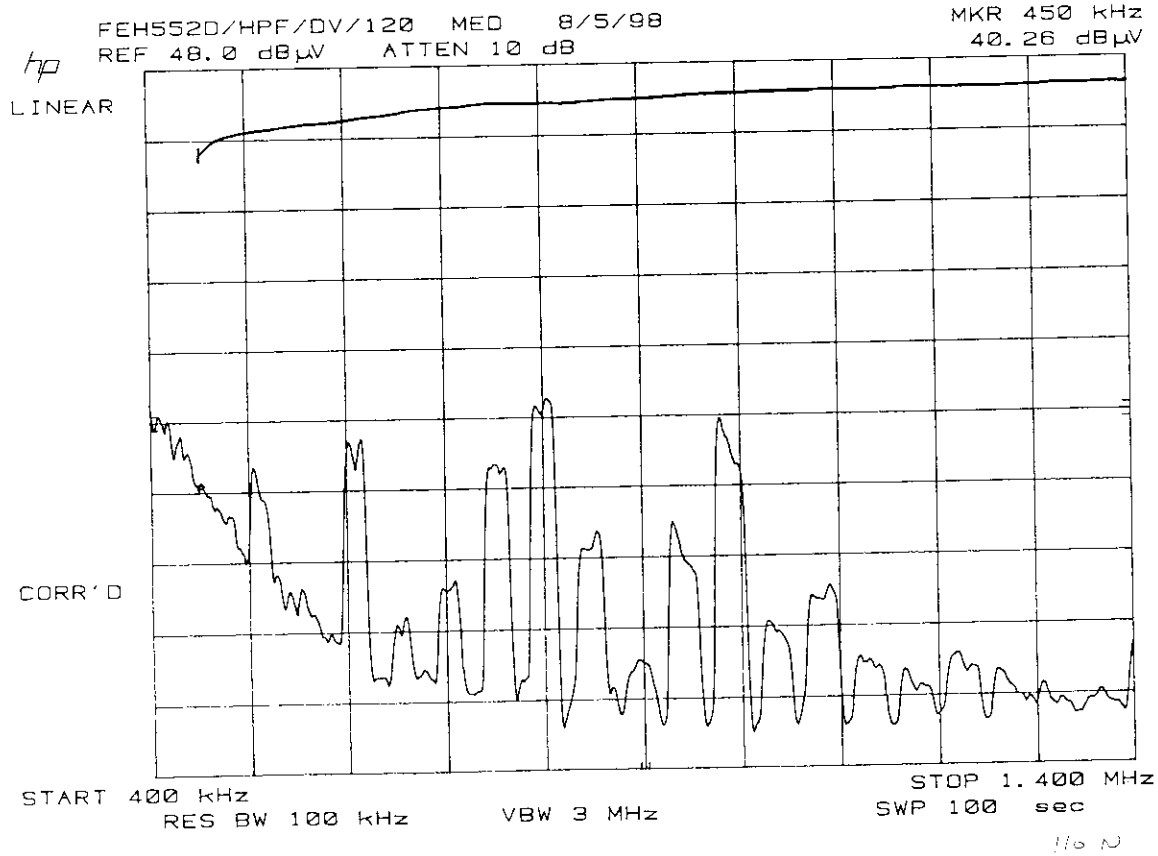
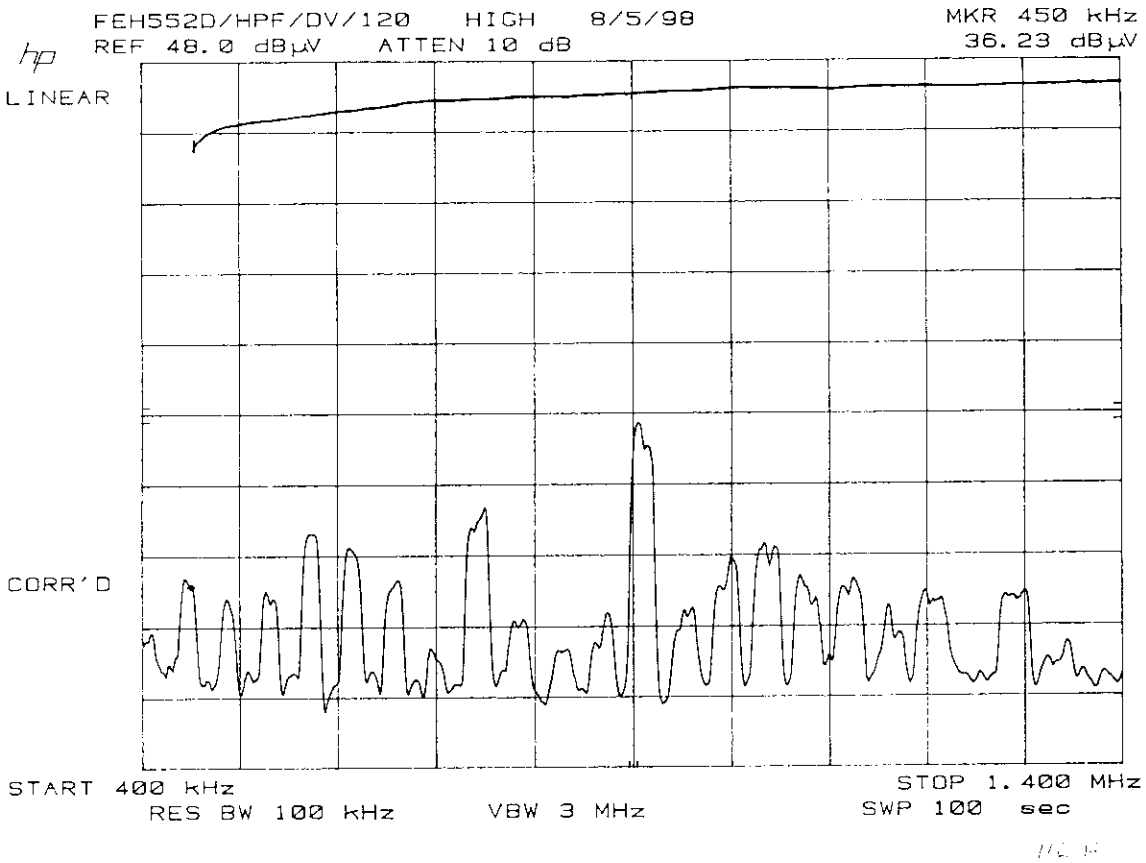


Fig. 8
CONDUCTED EMISSIONS
MAGNETEK FEH552D/HPF/DV/120
FCC ID: NE455DVHC MEDIUM
450 kHz - 1.4 MHz Quasi-Peak



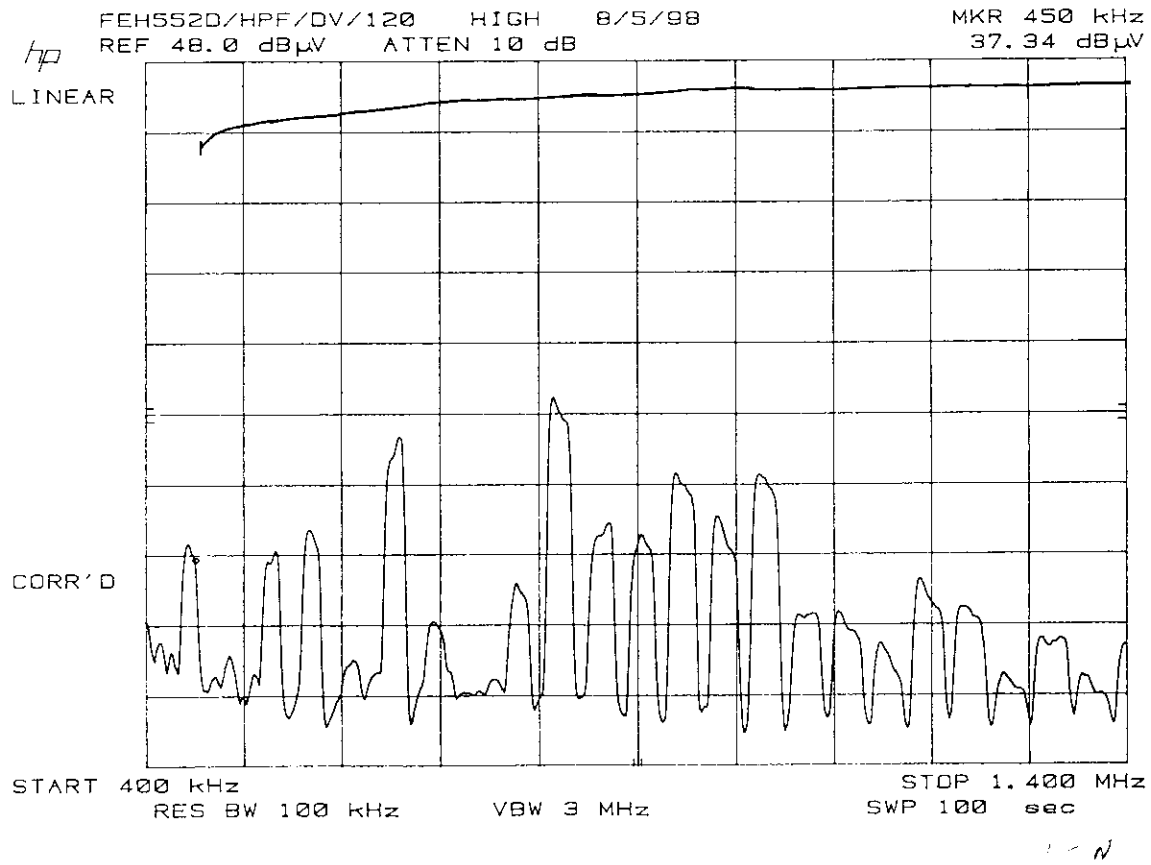
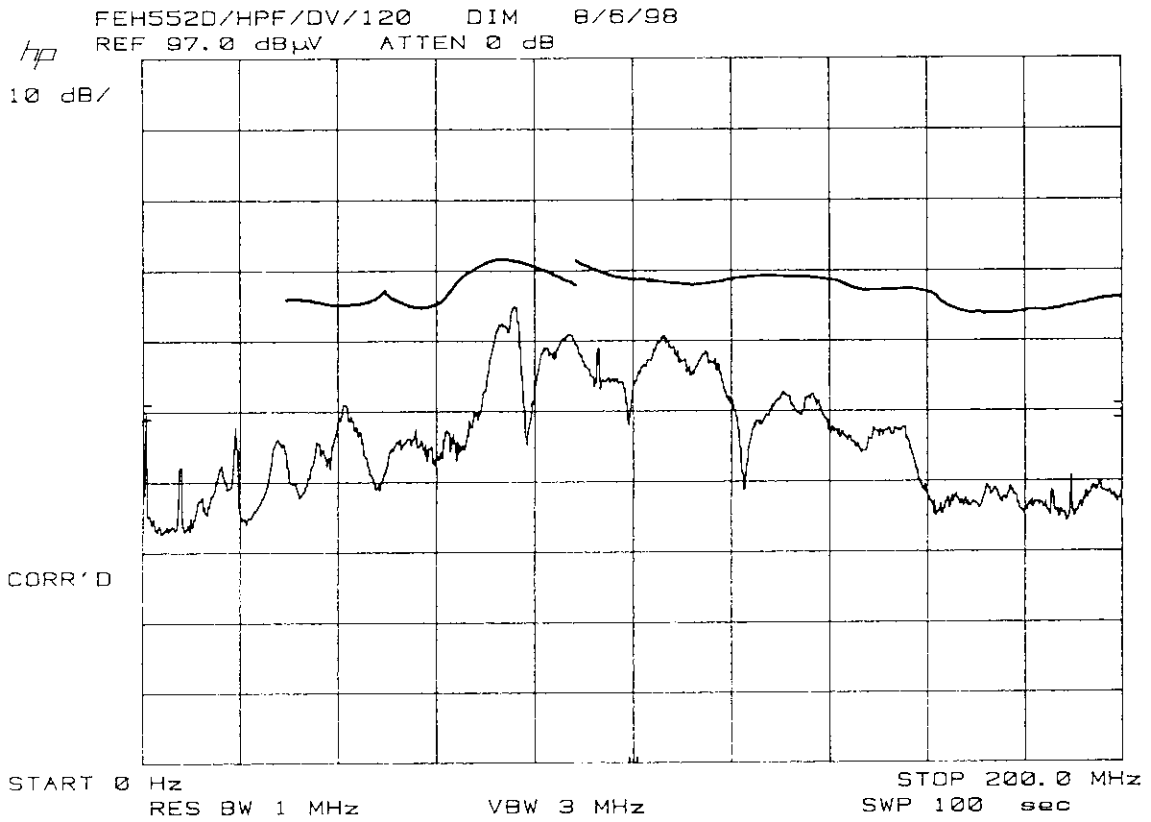


Fig. 9
CONDUCTED EMISSIONS
MAGNETEK FEH552D/HPF/DV/120
FCC ID: NE455DVHC BRIGHT
450 kHz - 1.4 MHz Quasi-Peak



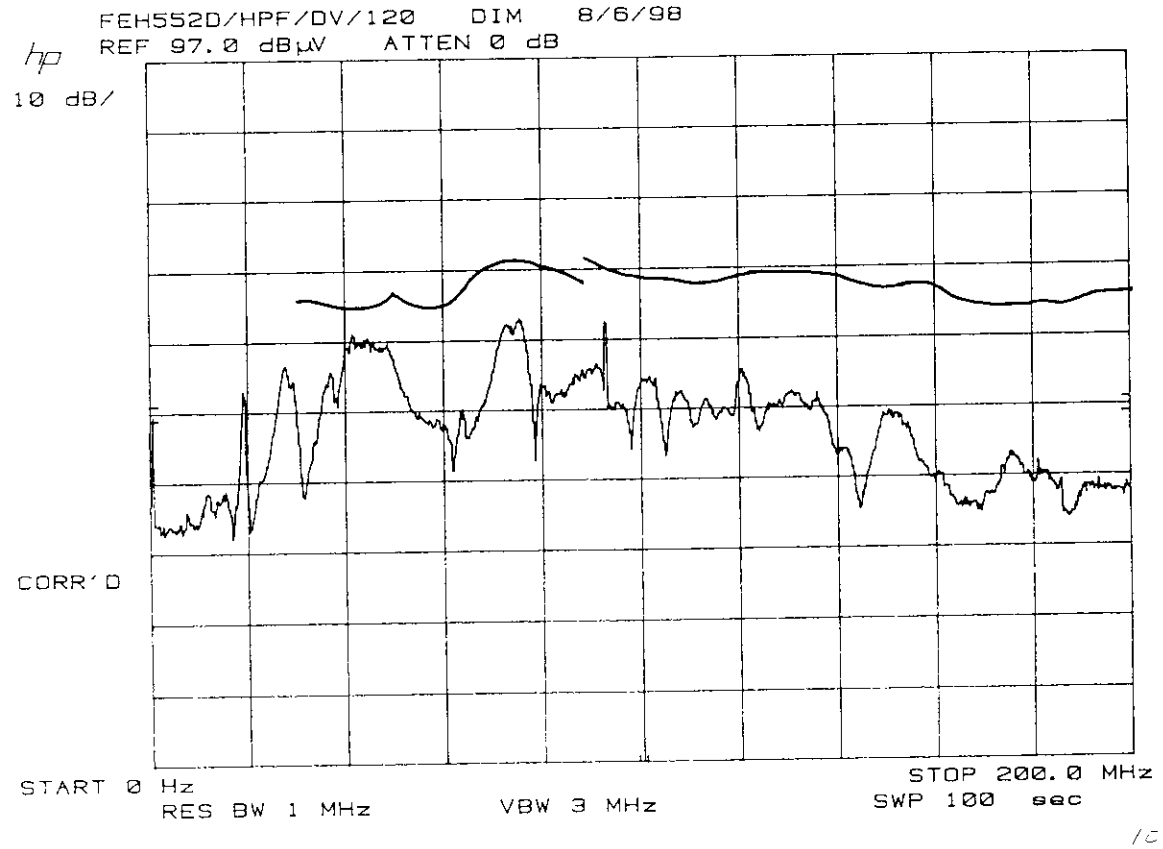
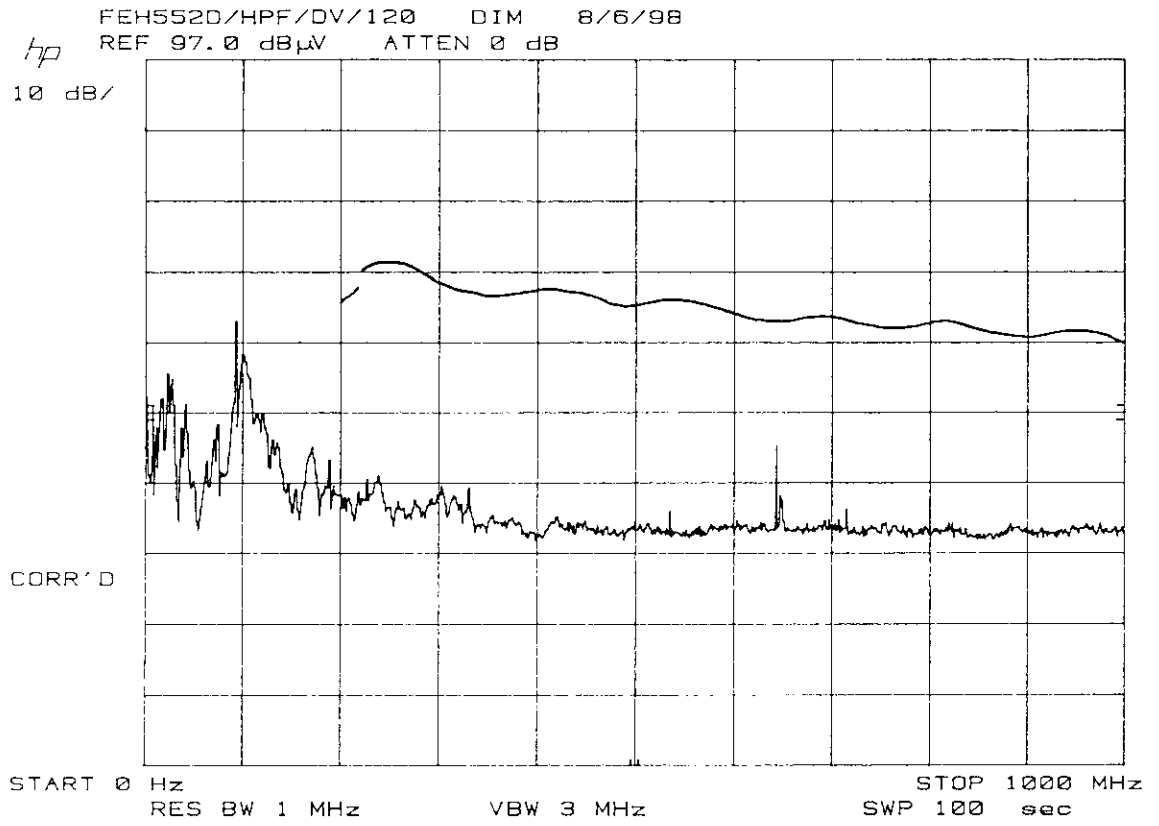


Fig. 10
RADIATED EMISSIONS
MAGNETEK FEH552D/HPF/DV/120
FCC ID: NE455DVHC DIM
30 MHz - 200 MHz



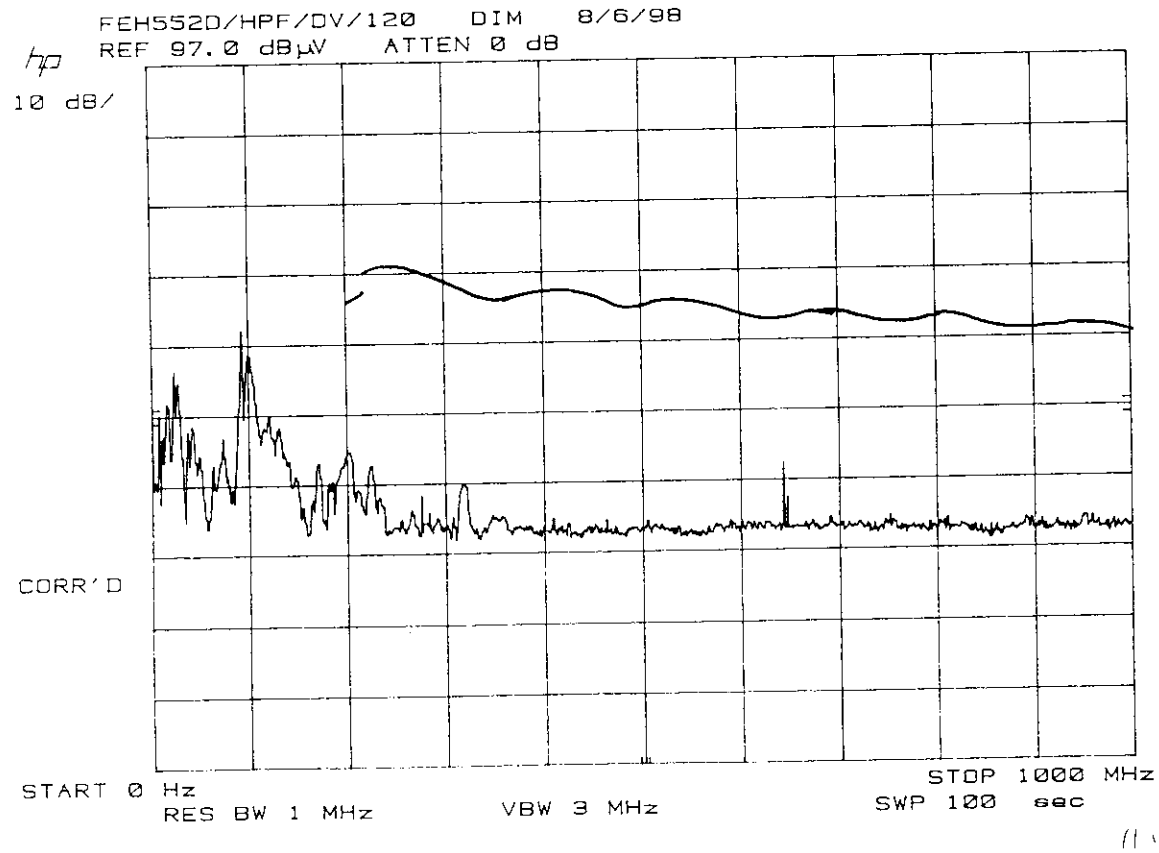
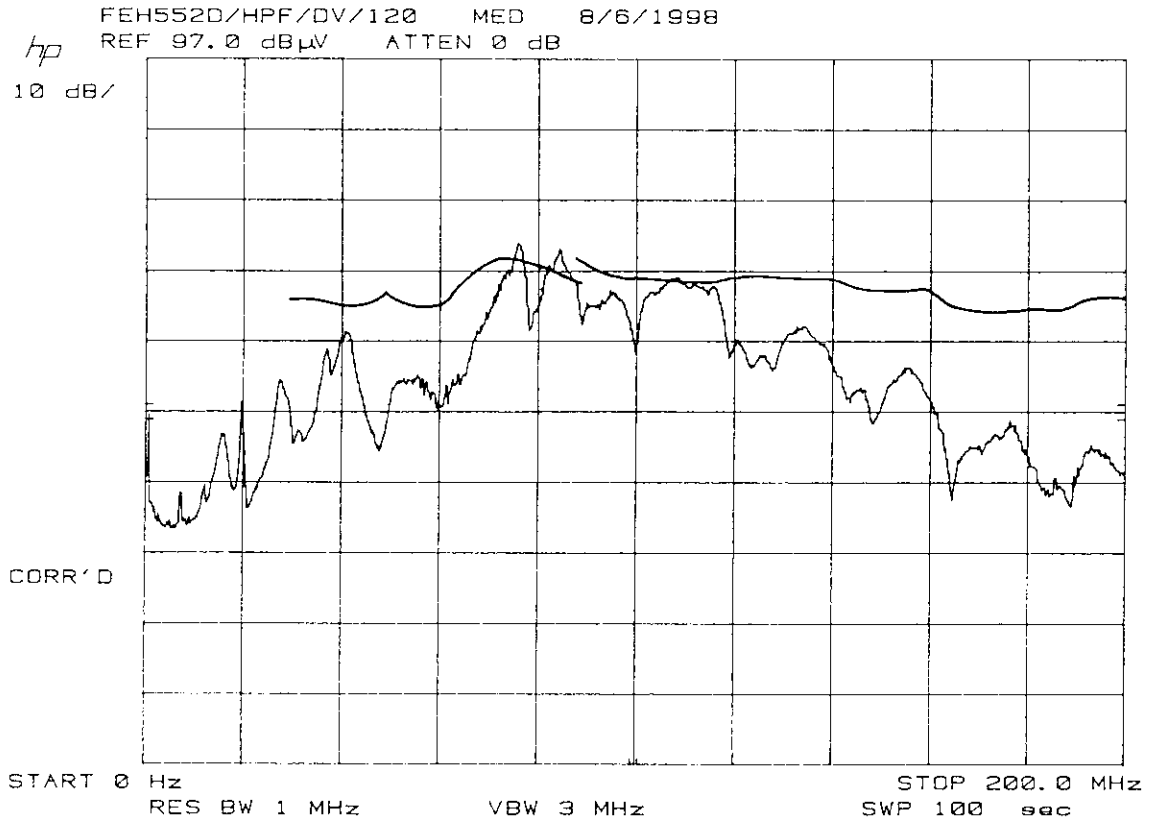


Fig. 11
RADIATED EMISSIONS
MAGNETEK FEH552D/HPF/DV/120
FCC ID: NE455DVHC DIM
200 MHz - 1000 MHz



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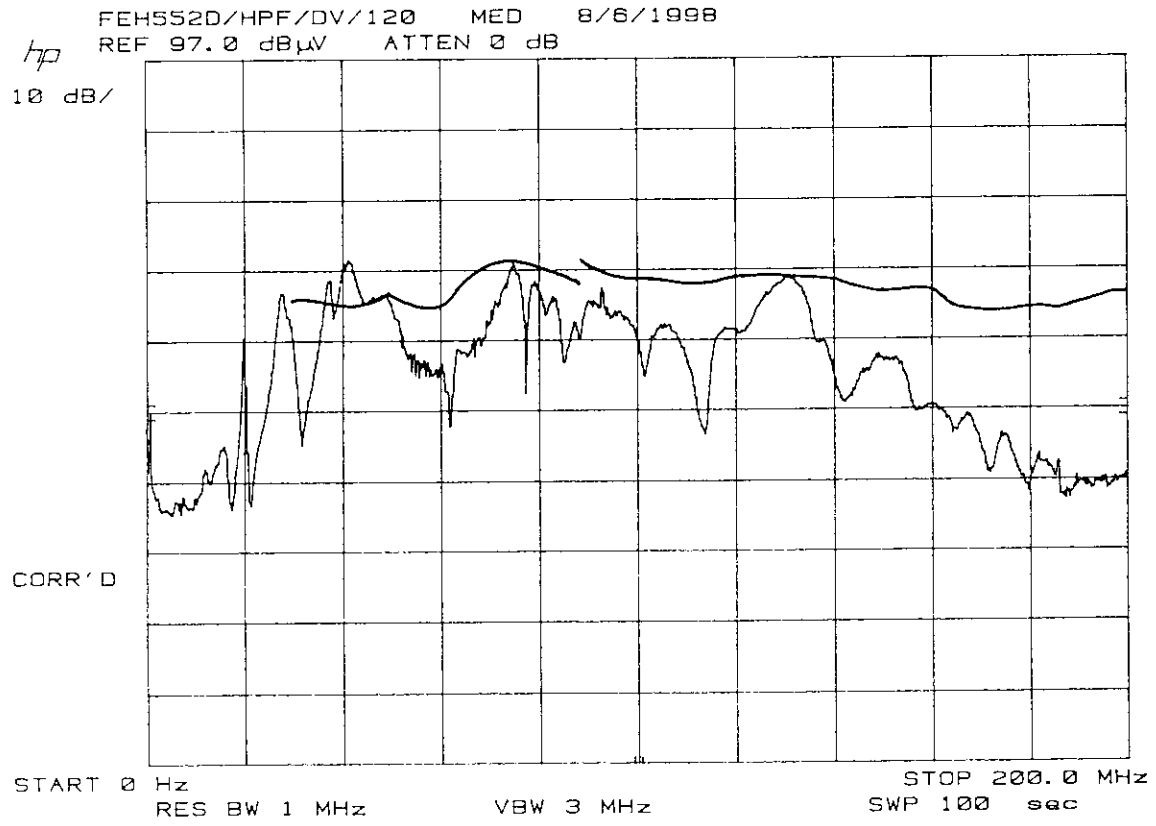

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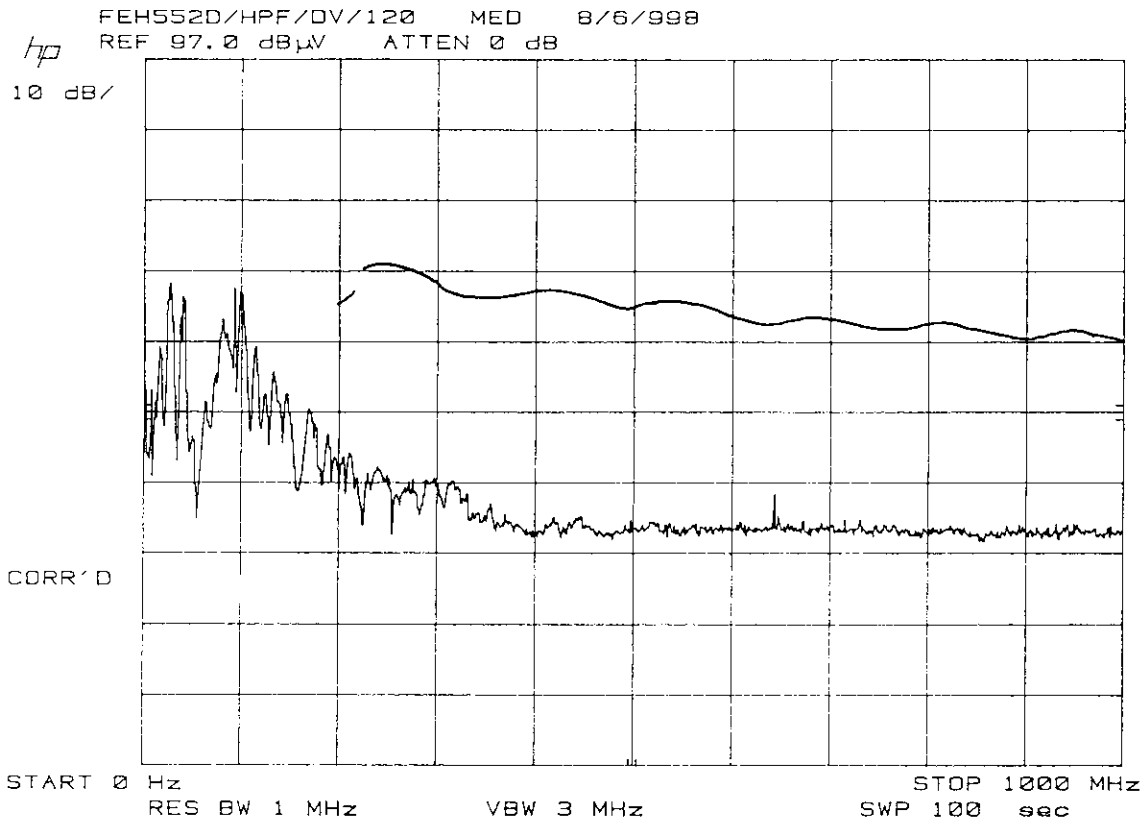
Fig. 12
RADIATED EMISSIONS
MAGNETEK FEH552D/HPF/DV/120
FCC ID: NE455DVHC MEDIUM
30 MHz - 200 MHz



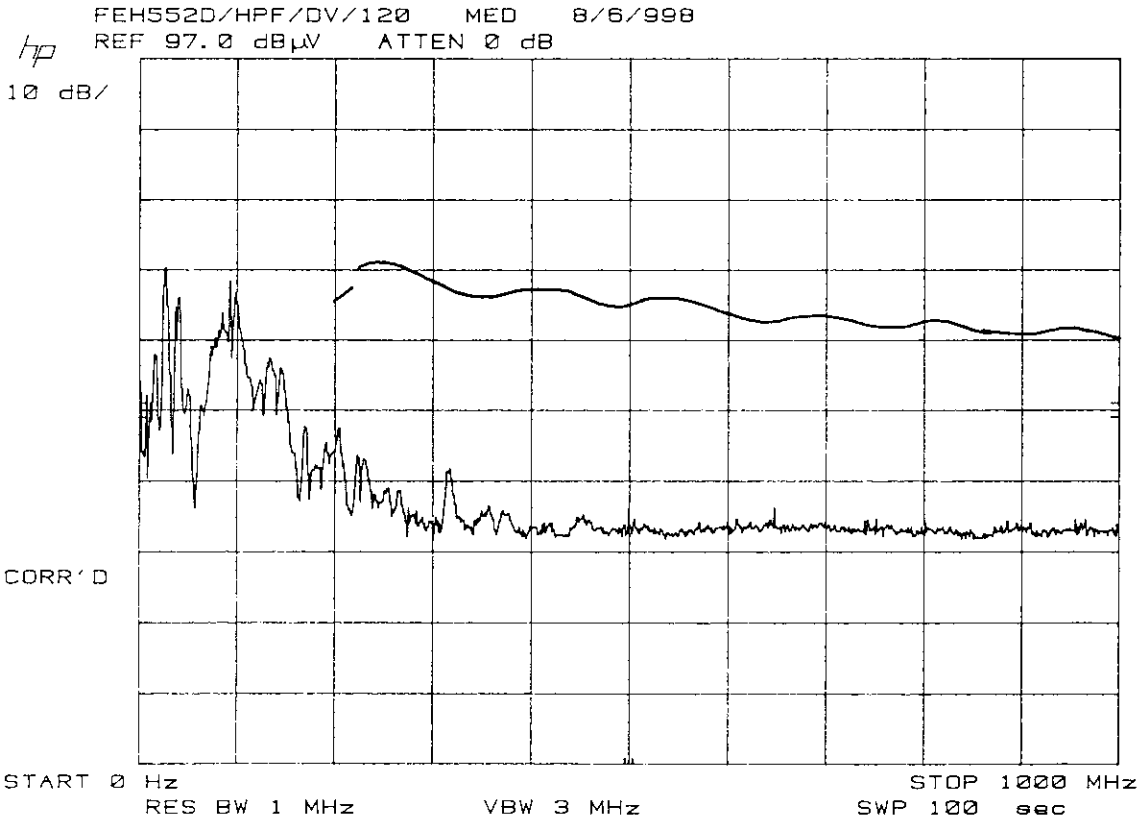
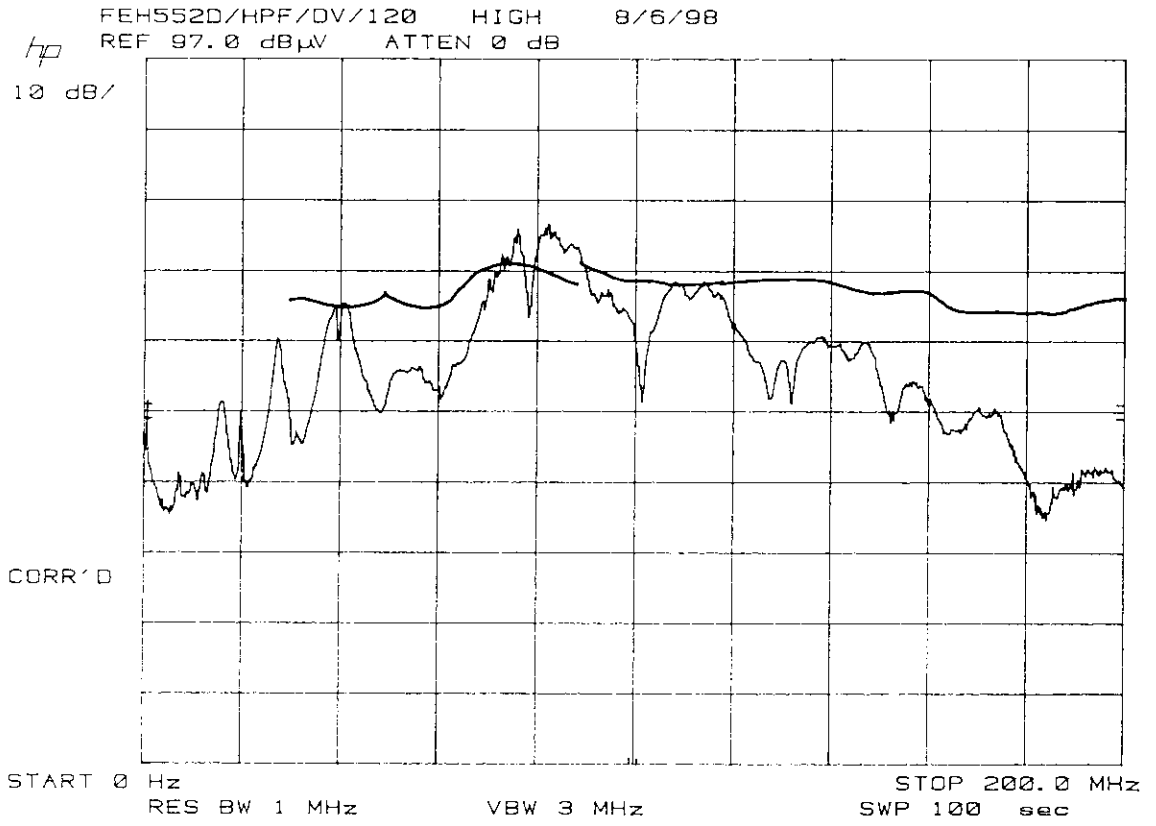


Fig. 13
RADIATED EMISSIONS
MAGNETEK FEH552D/HPF/DV/120
FCC ID: NE455DVHC MEDIUM
200 MHz - 1000 MHz



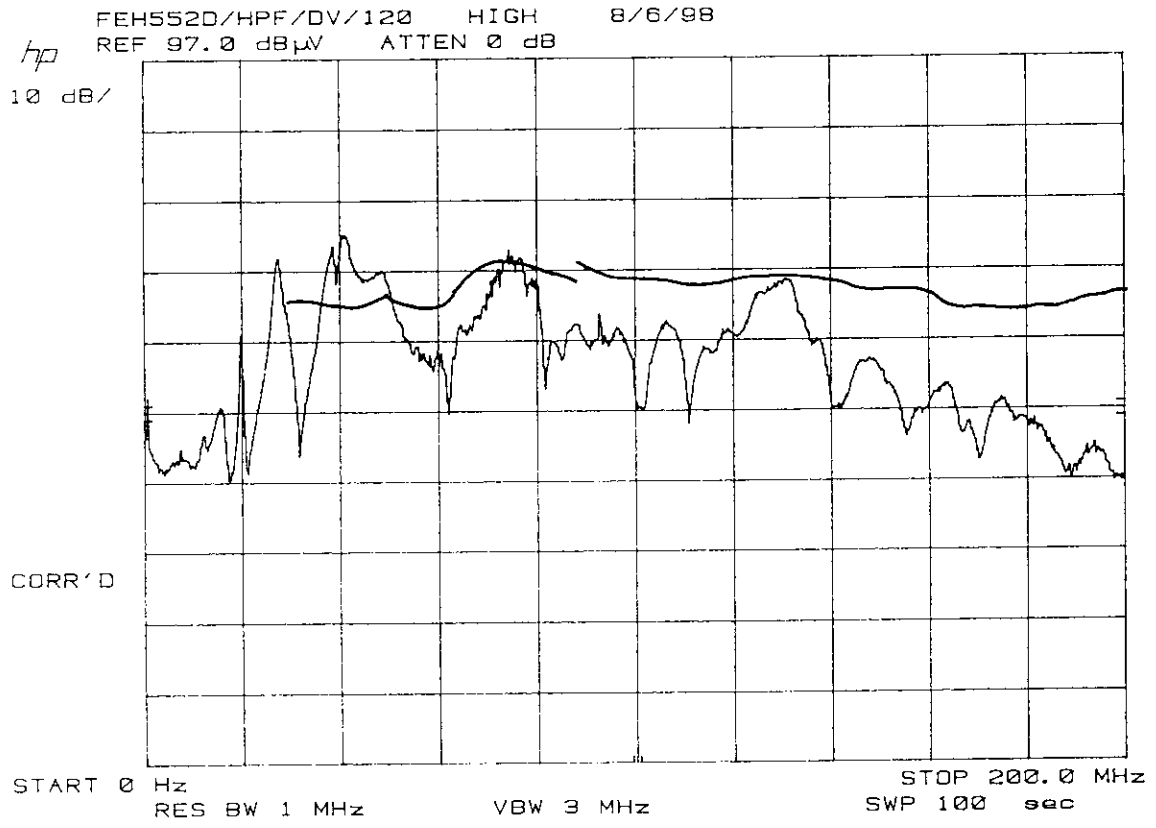
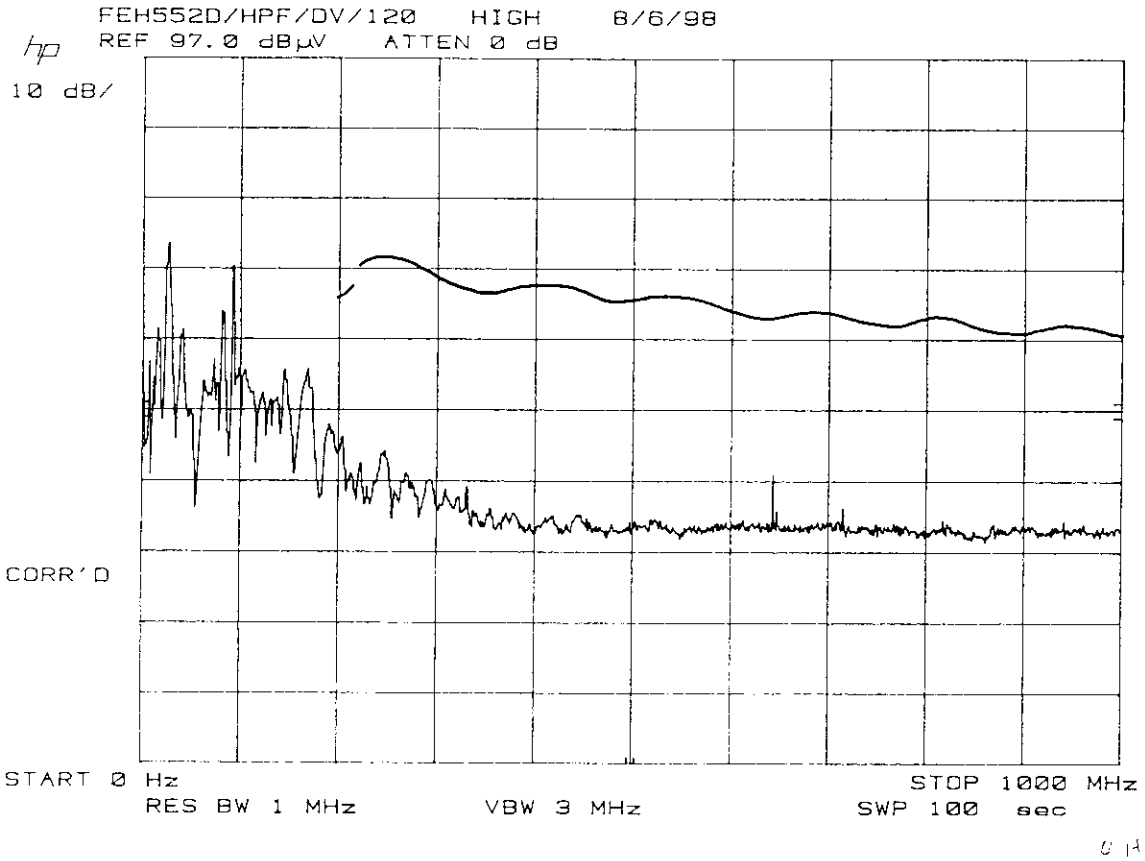


Fig. 14
RADIATED EMISSIONS
MAGNETEK FEH552D/HPF/DV/120
FCC ID: NE455DVHC BRIGHT
30 MHz - 200 MHz



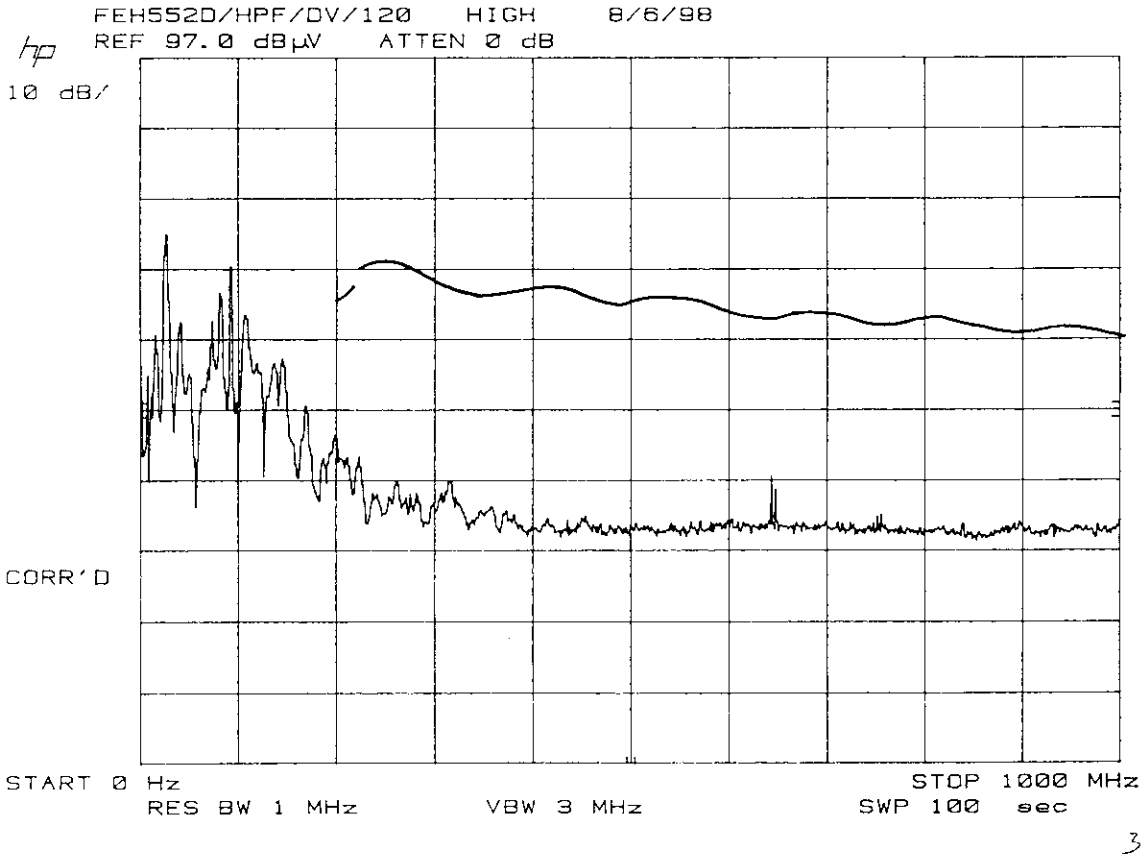


Fig. 15
RADIATED EMISSIONS
MAGNETEK FEH552D/HPF/DV/120
FCC ID: NE455DVHC BRIGHT
200 MHz - 1000 MHz

TABLE 1 OPEN FIELD TEST SUMMARY, RADIATED EMISSIONS
MAGNETEK ELECTRONIC VARIABLE DIMMING BALLAST 55W
HIGH POWER FACTOR MODEL FEH552D/HPF/DV/120
FCC ID: NE455DVHC BRIGHT LEVEL
MEASUREMENT DISTANCE, 3 METERS

FREQ. MHZ	SIGNAL DBUV	ANTENNA FACTOR	COAX FACTOR	E UV/M	DB VS. FCC A	DB VS. FCC B	ANTENNA TYPE
30.0	16.0	8.9	0.2	18.0	-24.4	-14.9	BCON.V
30.0	12.0	8.9	0.2	11.3	-28.4	-18.9	BCON.H
34.5	13.0	9.3	0.2	13.4	-27.0	-17.4	BCON.H
35.0	12.0	9.4	0.2	12.0	-27.9	-18.4	BCON.V
44.0	22.0	10.3	0.3	42.3	-17.0	-7.5	BCON.V
44.0	12.0	10.3	0.3	13.4	-27.0	-17.5	BCON.H
50.0	17.0	10.7	0.3	25.1	-21.6	-12.0	BCON.V
57.0	14.0	9.5	0.3	15.5	-25.7	-16.2	BCON.V
67.0	17.0	9.6	0.4	22.2	-22.6	-13.1	BCON.V
70.0	10.0	7.4	0.4	7.7	-31.8	-22.2	BCON.H
84.5	25.0	13.4	0.4	86.8	-10.8	-1.2	BCON.V
92.0	20.0	13.0	0.4	47.0	-20.5	-10.1	BCON.V
102.0	8.0	13.3	0.5	12.2	-32.2	-21.8	BCON.H
114.0	21.0	11.8	0.5	46.2	-20.7	-10.2	BCON.V
118.0	15.0	11.9	0.5	23.5	-26.5	-16.1	BCON.H
149.0	9.0	12.1	0.6	12.1	-32.3	-21.9	BCON.H
150.0	14.0	12.1	0.6	21.5	-27.3	-16.9	BCON.V
159.0	9.0	12.3	0.6	12.4	-32.1	-21.7	BCON.H

TABLE 2 OPEN FIELD TEST SUMMARY, RADIATED EMISSIONS
MAGNETEK ELECTRONIC VARIABLE DIMMING BALLAST 55W
HIGH POWER FACTOR MODEL FEH552D/HPF/DV/120
FCC ID: NE455DVHC MEDIUM LEVEL
MEASUREMENT DISTANCE, 3 METERS

FREQ. MHZ	SIGNAL DBUV	ANTENNA FACTOR	COAX FACTOR	E UV/M	DB VS. FCC A	DB VS. FCC B	ANTENNA TYPE
30.0	14.0	8.9	0.2	14.3	-26.4	-16.9	BCON.V
30.0	11.0	8.9	0.2	10.1	-29.4	-19.9	BCON.H
34.5	10.0	9.3	0.2	9.5	-30.0	-20.4	BCON.V
35.0	10.0	9.4	0.2	9.6	-29.9	-20.4	BCON.H
44.0	9.0	10.3	0.3	9.5	-30.0	-20.5	BCON.H
44.0	20.0	10.3	0.3	33.6	-19.0	-9.5	BCON.V
50.0	14.0	10.7	0.3	17.7	-24.6	-15.0	BCON.V
57.0	12.0	9.5	0.3	12.3	-27.7	-18.2	BCON.V
68.0	15.0	8.9	0.4	16.2	-25.3	-15.8	BCON.V
70.0	9.0	7.4	0.4	6.9	-32.8	-23.2	BCON.H
80.0	11.0	13.3	0.4	17.1	-24.9	-15.4	BCON.H
86.0	23.0	13.3	0.4	68.4	-12.8	-3.3	BCON.V
92.0	20.0	13.0	0.4	47.0	-20.5	-10.1	BCON.V
102.0	12.0	13.3	0.5	19.4	-28.2	-17.8	BCON.V
102.0	8.0	13.3	0.5	12.2	-32.2	-21.8	BCON.H
115.0	20.0	11.9	0.5	41.4	-21.6	-11.2	BCON.V
119.0	17.0	12.0	0.5	29.7	-24.5	-14.1	BCON.H
140.0	10.0	10.3	0.5	11.1	-33.1	-22.6	BCON.H
150.0	12.0	12.1	0.6	17.1	-29.3	-18.9	BCON.V
158.0	9.0	12.2	0.6	12.3	-32.2	-21.7	BCON.H

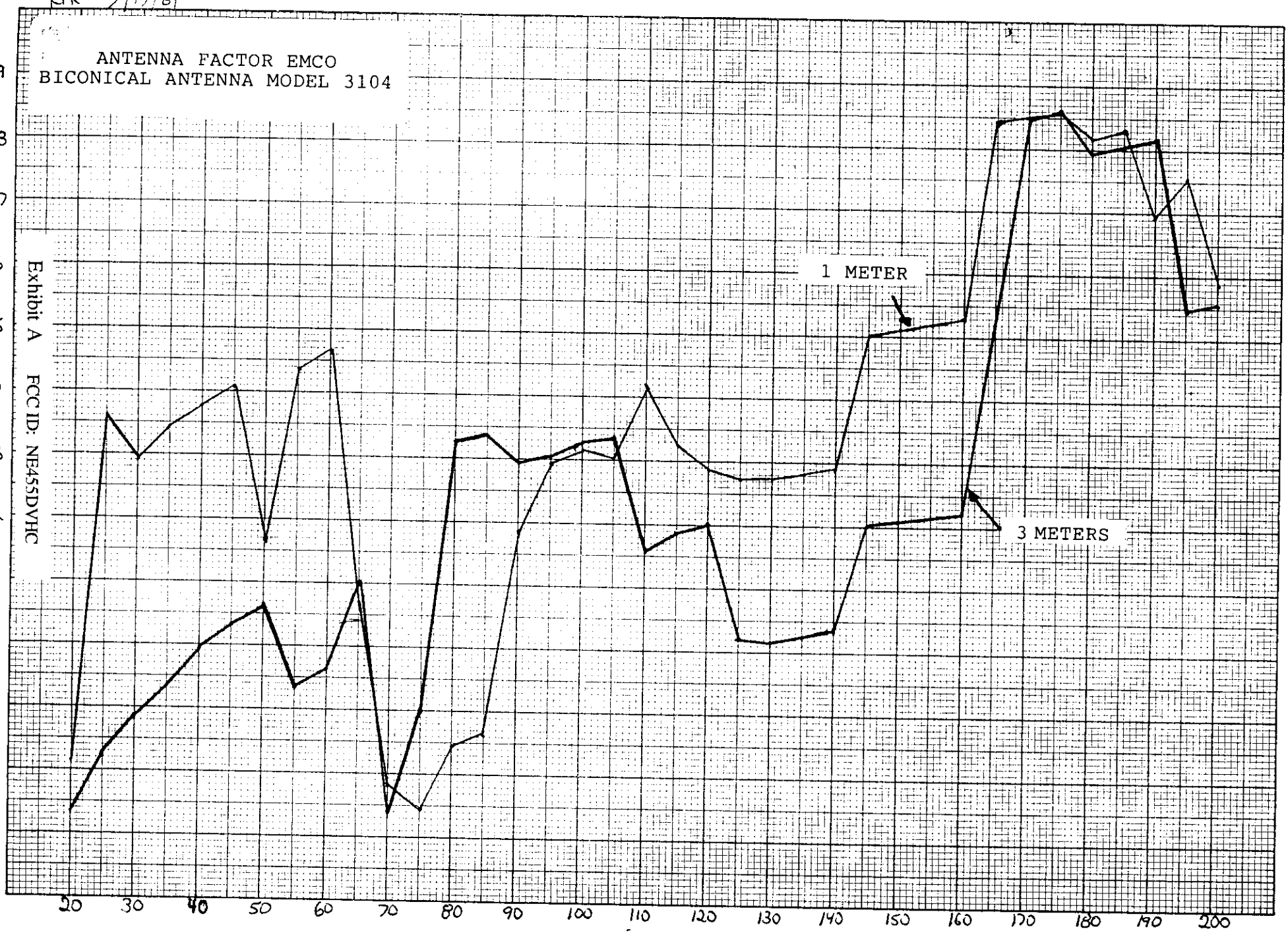
TABLE 3 OPEN FIELD TEST SUMMARY, RADIATED EMISSIONS
MAGNETEK ELECTRONIC VARIABLE DIMMING BALLAST 55W
HIGH POWER FACTOR MODEL FEH552D/HPF/DV/120
FCC ID: NE455DVHC DIM LEVEL
MEASUREMENT DISTANCE, 3 METERS

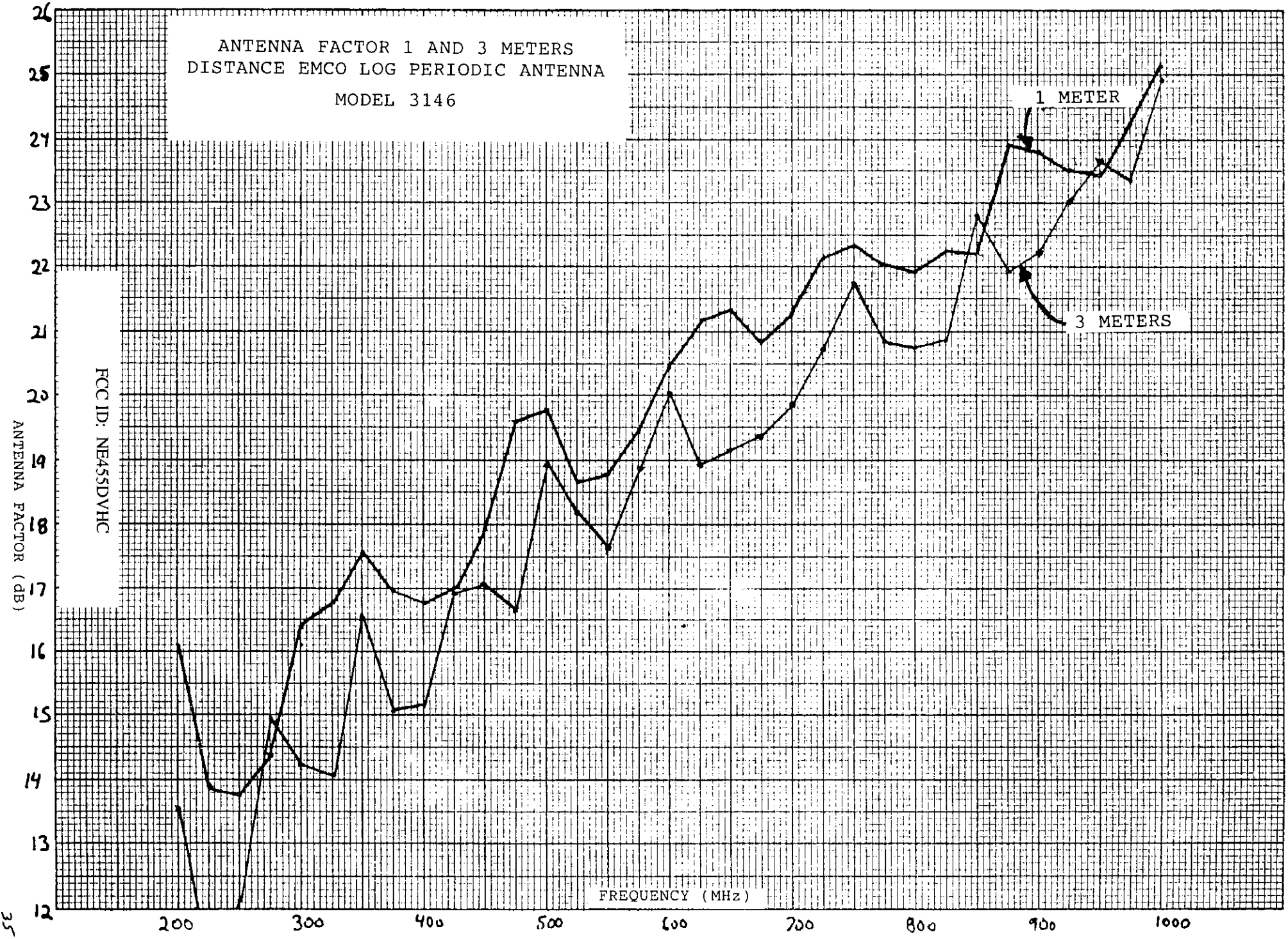
FREQ. MHZ	SIGNAL DBUV	ANTENNA FACTOR	COAX FACTOR	E UV/M	DB VS. FCC A	DB VS. FCC B	ANTENNA TYPE
30.5	4.0	8.9	0.2	4.5	-36.4	-26.9	BCON.V
31.0	3.0	9.0	0.2	4.1	-37.3	-27.8	BCON.H
35.0	4.0	9.4	0.2	4.8	-35.9	-26.4	BCON.H
40.0	7.0	9.9	0.3	7.2	-32.4	-22.8	BCON.V
44.0	10.0	10.3	0.3	10.6	-29.0	-19.5	BCON.V
50.0	6.0	10.7	0.3	7.1	-32.6	-23.0	BCON.V
57.0	5.0	9.5	0.3	5.5	-34.7	-25.2	BCON.V
70.0	9.0	7.4	0.4	6.9	-32.8	-23.2	BCON.H
74.0	24.0	8.7	0.4	45.0	-16.5	-6.9	BCON.V
80.0	22.0	13.3	0.4	60.5	-13.9	-4.4	BCON.V
92.0	15.0	13.0	0.4	26.4	-25.5	-15.1	BCON.V
102.0	13.0	13.3	0.5	21.8	-27.2	-16.8	BCON.V
120.0	11.0	12.0	0.5	15.0	-30.5	-20.0	BCON.V
123.0	7.0	11.0	0.5	8.4	-35.5	-25.1	BCON.H

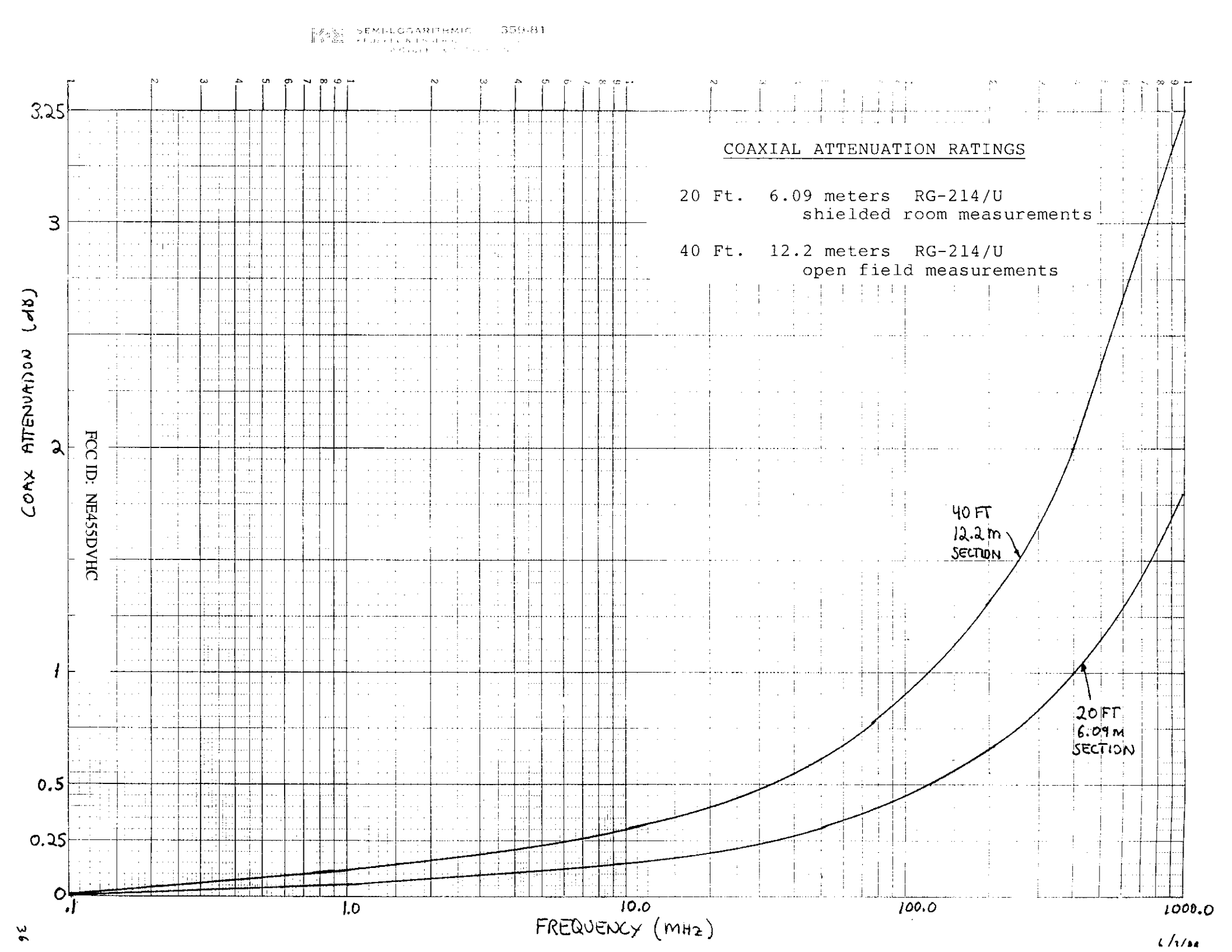
A P P E N D I X

Antenna Factors:	EMCO 3104 Biconical Antenna
	EMCO 3146 Log Periodic Antenna
Coax Factors:	RG-214/U Coax
High Pass Filter:	Solar Model 8130-400

KPK 7/17/84


ANTENNA FACTOR EMCO
BICONICAL ANTENNA MODEL 3104
Exhibit A FCC ID: NE455DVHC
1 METER
3 METERS
ANTENNA FACTOR (dB)
19
18
17
16
15
14
13
12
11
10
9
8
7
20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170 180 190 200
FREQUENCY (MHz)




SEMI-LOGARITHMIC 359-81
COAXIAL ATTENUATION RATINGS
20 Ft. 6.09 meters RG-214/U
shielded room measurements
40 Ft. 12.2 meters RG-214/U
open field measurements
40 FT
12.2 m
SECTION
20 FT
6.09 M
SECTION
COAX ATTENUATION (dB)
3.25
3
2
1
0.5
0.25
0
.1
1.0
10.0
100.0
1000.0
FREQUENCY (MHz)
FCC ID: NE455DVHC
6/1/88

SOLAR MODEL 8130-400 HIGH PASS FILTER

The characteristics of the 8130-400 were measured in order to apply the appropriate correction factors to measured values when the filter is used for conducted emissions measurements.

A Hewlett-Packard Model 8568B spectrum analyzer and a Marconi Model 2019 signal generator were used to measure the insertion loss of the filter between approximately 50 kHz to 30 MHz.

A signal of given magnitude was produced by the signal generator and injected directly into the analyzer. The analyzer was adjusted so that the measured signal coincided with the reference level of the analyzer. Using a fast scan time and the max hold function of the analyzer, the signal generator was stepped over the frequency range to be investigated. Frequency steps were small enough that a smooth curve was produced on the analyzer screen.

The filter was then inserted between the generator and the analyzer and the same frequency span examined. Differences in the two signals could be accurately determined by using the marker function of the analyzer to obtain the level of each trace at the given frequency.

The data obtained is shown in three plots and a table. Fig. 1a is a 0 - 2 MHz plot while Fig. 1b is a 0 - 30 MHz plot. In Fig. 1a the generator scan was started at 10 kHz while for Fig. 1b it was started at 2 MHz. It can be seen that above about 1 MHz the filter has a minimal effect.

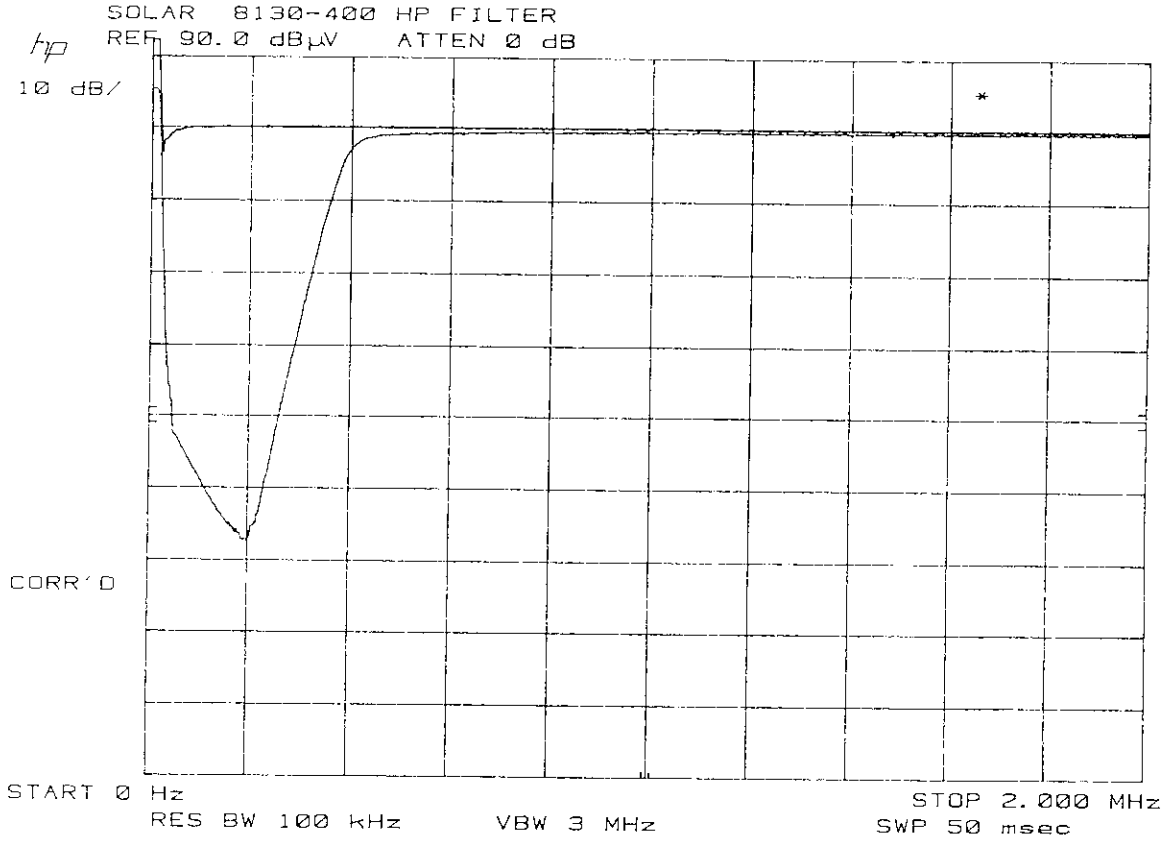
Fig. 2 is an expanded plot covering 400 kHz - 1.4 MHz. The vertical scale is 2 dB/div rather than 10 dB/div. At 450 kHz, the insertion loss is 1.1 dB and it decreases to about 0.3 dB at 1.2 MHz. The loss stays at about 0.3 dB all the way to 30 MHz.

The following table itemizes the values determined from the spectrum analyzer plot.

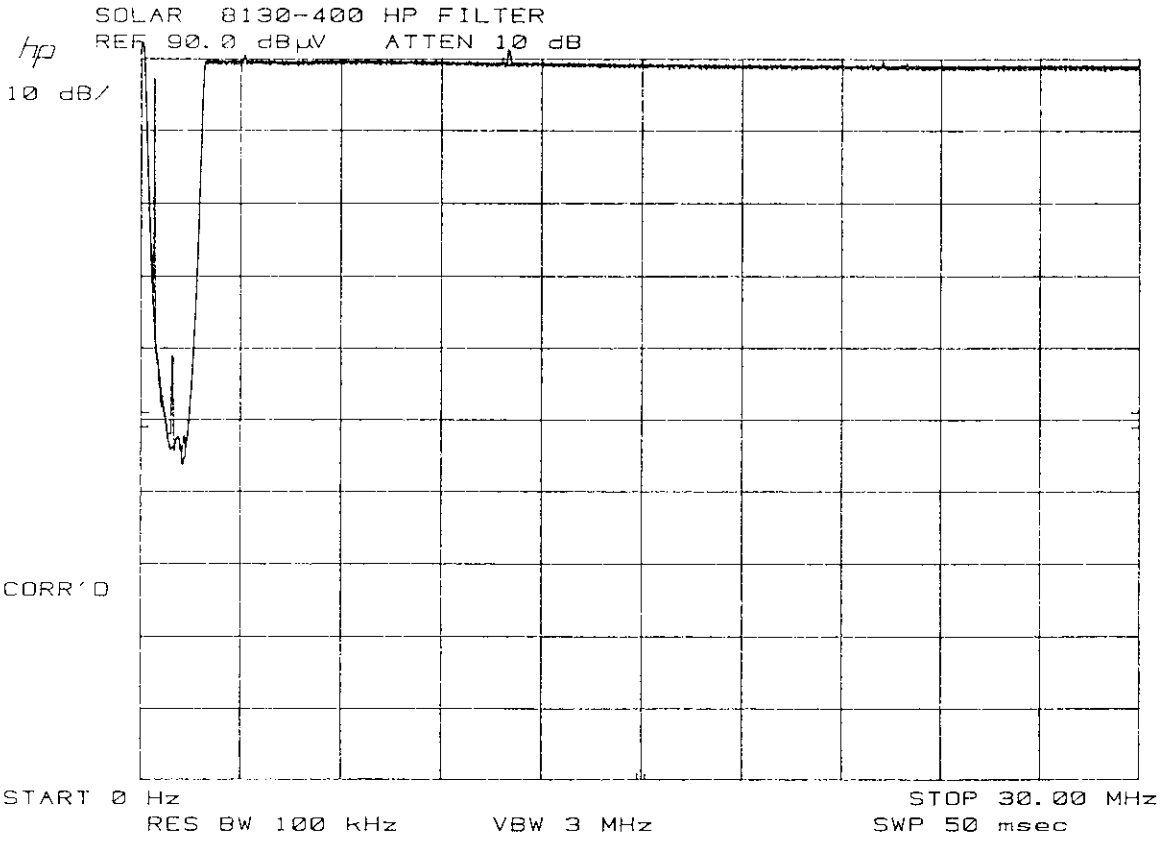
INSERTION LOSS DATA

SOLAR 8130-400 HP FILTER

Freq. (MHz)	Loss (dB)	Freq. (MHz)	Loss (dB)
.400	2.5	.760	0.5
.425	1.5	.780	0.5
.450	1.1	.800	0.5
.460	1.0	.825	0.5
.480	0.9	.850	0.5
.500	0.8	.875	0.4
.520	0.8	.900	0.4
.540	0.7	.925	0.5
.560	0.7	.950	0.4
.580	0.7	.975	0.4
.600	0.7	1.000	0.4
.620	0.6	1.050	0.4
.640	0.6	1.100	0.4
.660	0.6	1.150	0.3
.680	0.6	1.200	0.4
.700	0.5	1.250	0.3
.720	0.5	1.300	0.3
.740	0.5	1.350	0.3
		1.400	0.3



a.



b.

Fig. 1
8130-400 INSERTION LOSS

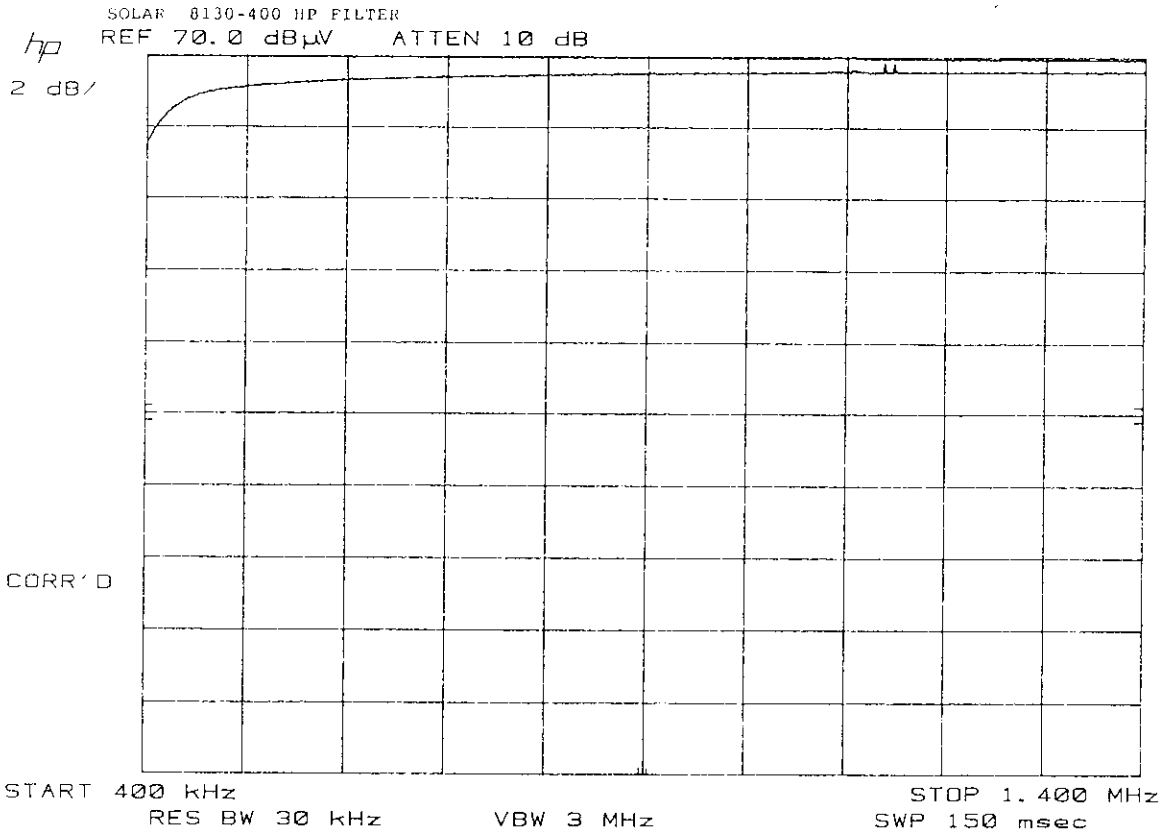


Fig. 2
8130-400 INSERTION LOSS

GE/MagneTek

Electronic Fluorescent Dimming Ballast with Bulb

System Electrical Parameters

Parameter			
Input:			
Voltage {Vac}	120(nom.)	120(nom.)	120(nom.)
Power Level	Low (0Ω res.)	Med.(5kΩ res.)	High(10kΩ res.)
Current {A}	0.159	0.426	0.526
Frequency {Hz}	60	60	60
Power {W}	18.4	50.7	62.6
Power Factor	0.961	0.991	0.994
THD {%}	<24	<13	<11
Output:			
Oper. Freq. {KHz}	90.0	56.0	45.6
Lamp Power {W}	16.1	45.4	57.0

NOTES: 1. Product Model #: FEH552D/HPF/DV/120 - Electronic Variable Dimming 55Watt *High Power Factor* Fluorescent Ballast Adapter (*) for use with F552D/827/4P 2D™ Lamp

2. FCC ID: NE455DVHC (Ballast manufactured by MagneTek S.p.A., ITALY)

				GE Lighting		GENERAL ELECTRIC CO Cleveland, OH	
				FEH552D/HPF/DV/120 System Electrical Parameters			
REV	ECO NO	DATE	APPROVAL	SIZE A	PRELIMINARY PROPRIETARY	DWG NO: Sketch: 130A11	REV 1
DRAWN: J. BOYLE			03 AUG-98	ENGRG: J. BOYLE			
CHECKED:				ISSUED:			SHEET 1 OF 1

Exhibit B Model # FEH552D/HPF/DV/120
System Electrical Parameters
FCC ID: NE455DVHC