

Report of Equipment Authorization
for the
Micron 4 Transmitter

Certified under the FCC Rules
contained in
Title 47 of the CFR, Part 15, Subpart B
15.249 for 902-928 MHz Operation

MET REPORT EMC1308B
August 20, 2001

PREPARED FOR:

HBC-Radiomatic
Haller Strasse 49-53
D-74564 Crailsheim, Germany

PREPARED BY:

MET Laboratories, Inc.
914 West Patapsco Avenue
Baltimore, Maryland 21230-3432

August 20, 2001

HBC-Radiomatic
Haller Strasse 49-53
D-74564 Crailsheim, Germany

Attention: Juergen Schneider

Regarding: Certification of the Micron 4 Transmitter under Part 15, Subpart B of the FCC Rules as a
Transmitter
MET Report: EMC1308B

Dear Juergen Schneider:

Enclosed is a report of compliance in accordance with FCC Part 15, Subpart B of Title 47 of the Code of Federal Regulations, Section 15.209 and 15.249 for the Micron 4 Transmitter.

Based on these results, MET Laboratories, Inc. certifies that the Micron 4 Transmitter, tested as configured, meets the requirements and interference limitations contained in Section 15.209 and 15.249 under Part 15, Subpart B of Title 47 of the Code of Federal Regulations.

If you have any questions concerning this report or your responsibilities as a manufacturer of Certified equipment, please contact us at your convenience. Thank you for using MET's testing services.

Sincerely,

MET Laboratories, Inc.

A handwritten signature in blue ink that reads "Joanna A. Kolasinski".

Joanna Agnieszka Kolasinski
Documentation Department Manager

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PREPARED FOR:

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D-74564 Crailsheim, Germany

PREPARED BY:

MET Laboratories, Inc.
914 West Patapsco Avenue
Baltimore, Maryland 21230-3432

Test Engineer:


Tony Permsombut

Technical Writer:


Joanna A. Kolasinski

Reviewed by:

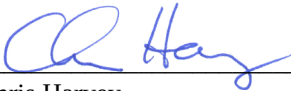

Chris Harvey
EMC Laboratory Director

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LEGAL STATEMENT

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EXHIBIT 1

MANUFACTURER & PRODUCT INFORMATION

ENGINEERING STATEMENT

MANUFACTURER & PRODUCT INFORMATION

TYPE OF AUTHORIZATION: Certification for Transmitter

FCC IDENTIFIER: FCC ID: NO9M40004

APPLICABLE FCC RULES: 2.907; 2.1033 to 2.1041; 15.209; 15.249

CLIENT: HBC-Radiomatic
Haller Strasse 49-53
D-74564 Crailsheim, Germany

EQUIPMENT: Micron 4 Transmitter

TESTING DATE(S): 2/3/00 and 2/4/00

ENGINEERING STATEMENT

I ATTEST: the measurements shown in this report were made in accordance with the procedures indicated, and that the Emissions from this equipment were found to be within the limits applicable. I assume full responsibility for the accuracy and completeness of these measurements, and for the qualifications of all persons taking them.

I FURTHER ATTEST: on the basis of the measurements made, the equipment tested is capable of operation in accordance with the requirements of Part 15 of the FCC Rules under normal use and maintenance.



Tony Permsombut
Project Engineer

EXHIBIT 2

INTRODUCTION

TEST SITE

MEASUREMENT PROCEDURES

INSTRUMENTATION

TEST CONFIGURATION

MODIFICATIONS STATEMENT

PHOTOGRAPHS

INTRODUCTION

An EMC evaluation to determine compliance of the Micron 4 Transmitter with the requirements of Part 15, Subpart B was conducted. (All references are to the most current version of Title 47 of the Code of Federal Regulations in effect). In accordance with §2.1033, the following data is presented in support of the Certification of the Micron 4 Transmitter. HBC-Radiomatic should retain a copy of this document which should be kept on file for at least two years after the manufacturing of the Micron 4 Transmitter has been **permanently** discontinued, as per §2.1033.

TEST SITE

All testing was conducted at MET Laboratories, Inc., 914 West Patapsco Avenue, Baltimore, Maryland 21230-3432. In accordance with §2.948(a)(3), a complete site description is contained at MET Laboratories. In accordance with §2.948(d), MET Laboratories has been accredited by the National Voluntary Laboratory Accreditation Program (Lab Code: 100273-0)

MEASUREMENT PROCEDURES

As required by §15.209(a), *radiated Emissions measurements* were made in accordance with the general procedures of ANSI C63.4-1992 "Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9kHz to 40 GHz". The measurements were performed over the frequency range of 30 MHz to 1 GHz using broadband antennas as the input transducer to a spectrum analyzer. The measurements were made with the detector set for "quasi-peak" within a bandwidth of 120 kHz. A preliminary RF scan was performed in an RF-shielded enclosure.

As per §15.249, operation within the bands 902-928 MHz :

(a) the field strength of the emissions from intentional radiators operated within these frequency bands shall comply with the following :

Fundamental Frequency	Field Strength of fundamental (millivolts/meter)	Field Strength of harmonics (microvolts/meter)
902 -928 MHz	50	500

(b) Field strength limits are specified at a distance of 3 meters.

(c) Emissions radiated outside of 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 limits in §15.209, whichever is the lesser attenuation.

(d) As shown in §15.35(b), for frequencies above 1000 MHz, the above field strength limits are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation.

MODIFICATIONS STATEMENT

No modifications were made during testing.

INSTRUMENTATION

Radiated Emissions measurements were made using the following equipment:

Nomenclature	Manufacturer	Model	MET #	Cal Date	Cal Due
Spectrum Analyzer	Hewlett Packard	8593EM	1U0002	10/30/99	10/29/00
Pre-Amplifier	Hewlett Packard	8449B	1U0027	12/29/99	12/28/00
Bilog Antenna	Schaffner-Chase	CBL6140A	1U0040	5/1/99	4/30/00
Horn Antenna	EMCO	3115	1U0037	2/6/00	2/5/01
Test Room	Lundgreen	Fact4	1U0032	5/20/99	5/19/00

TEST CONFIGURATION

The EUT is a transmitter housing with an EMERGENCY-STOP push button, a battery charger with 2 rechargeable NiCd batteries and a receiver with an antenna, a connecting cable, and a mating connector. The EUT was configured in accordance with the manufacturer's instructions and operated in a manner representative of the typical usage of the equipment. During all testing, system components were manipulated within the confines of typical usage to maximize each emission.

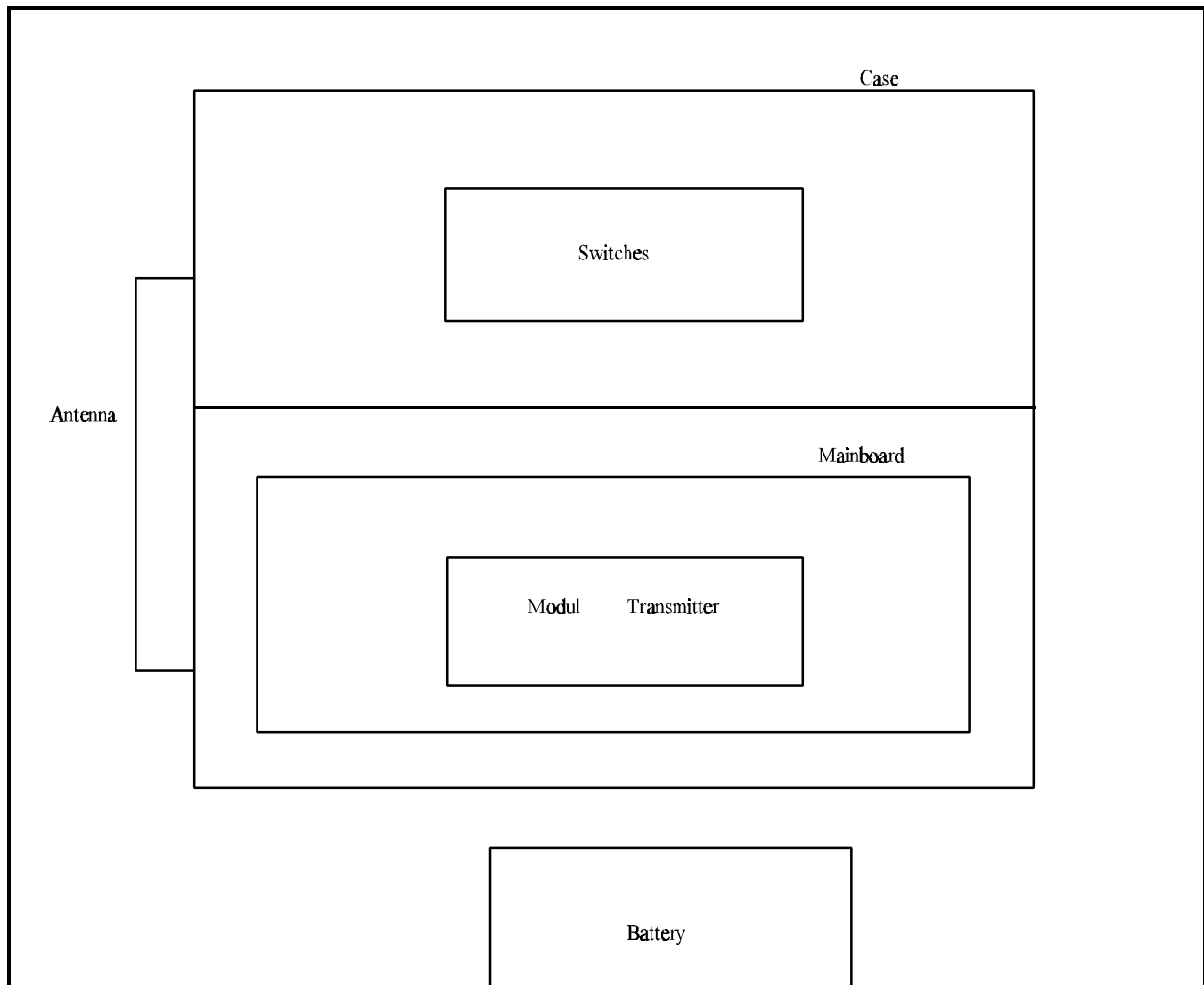


Figure 1. Test Configuration Block Diagram

DEVICE, PERIPHERALS, AND CABLES USED

Description	Manufacturer	Model#
Case	HBC-radiomatic	HEG 105
Switches	various	various
Mainboard	HBC-radiomatic	72.11.024
Transmitter	HBC-radiomatic	FuS 680/3
Antenna	HBC-radiomatic	n/a
Battery Charger	HBC-radiomatic	FLG 105-115V

**Photograph of Radiated Emissions Test Configuration
Micron 4 Transmitter**



EXHIBIT 3

TEST DATA

SUBJECT: Radiated Emissions
Transmitter
Low Oscillator
FCC Part 15

MET REPORT: EMI1308B
MFG: HBC-Radiomatic
TESTED BY: Tony Permsombut
TEST DATE: 2/3/00

EUT: Micron 4 Transmitter

TECHNICAL SPECIFICATION: 15.209 (b) and 15.249

Frequency (MHz)	Class B Limit (dBμV) @ 3m
30 - 88	40.00
88 - 216	43.52
216 - 230	46.00
230 - 960	46.00
960 - 1000	54.00
*902 - 928	94.00

*Note: This is the limit for the fundamental frequency.

Frequency (MHZ)	Azimuth (ECCW - 0E=EUT facing ant.)	Polar-ity	Height (m)	Raw Amplitude (dBμV) @3m	Pre-Amp Gain	Corrected Amplitude (dBμV/m) @3m	Limit (dBμV/m) @3m
177	79	H	1.58	54.65	26.91	27.7	43.52
177	164	V	1.71	45.62	26.91	18.7	43.52
179	77	H	1.59	54.2	26.89	27.3	43.52
179	166	V	1.69	45.45	26.89	18.6	43.52
245	257	H	1.37	55.58	26.5	29.1	46.0
245	151	V	1.54	45.69	26.5	19.2	46.0
321	83	H	1.0	51.41	26.61	24.8	46.0
321	322	V	1.0	39.81	26.61	13.2	46.0
369	287	H	1.0	49.31	27.07	22.2	46.0
369	0	V	1.0	38.26	27.07	11.2	46.0
902	281	H	1.0	114.13	27.09	87	94.0
902	139	V	1.38	107.59	27.09	80.5	94.0

SUBJECT: Radiated Emissions
Transmitter
Low Oscillator
FCC Part 15

MET REPORT: EMI1308B
MFG: HBC-Radiomatic
TESTED BY: Tony Permsombut
TEST DATE: 2/3/00

EUT: Micron 4 Transmitter

TECHNICAL SPECIFICATION: 15.209 (b) and 15.249

Frequency (GHz)	Azimuth	Polar-ity	Height (m)	Raw Amplitude (dBV) @1m	Pre-Amp Gain	Ant. Corr. (dB)	Cable Loss (dB)	Dist. Corr. Factor	Corrected Amplitude (dBV/m) @3m	Limit (dBV/m) @3m
1.804	200	H	1	55.34	34.9	26.18	1.4	-9.54	38.5	54
1.804	180	V	1	58.69	34.9	26.06	1.4	-9.54	41.7	54
2.706	20	H	1.17	53.91	34.73	28.98	1.89	-9.54	40.5	54
2.706	160	V	1.04	54.3	34.73	28.87	1.89	-9.54	40.8	54
3.608	315	H	1.05	56.54	34.70	31.96	2.28	-9.54	46.5	54
3.608	315	V	1.10	54.27	34.7	31.92	2.28	-9.54	44.2	54
*4.51	70	H	1.08	59.95	34.6	32.52	3.01	-9.54	51.3	54
4.51	45	V	1.10	57.37	34.6	32.52	3.01	-9.54	48.8	54
5.412	100	H	1.05	44.79	34.5	34.64	3.76	-9.54	39.2	54
5.412	225	V	1.12	43.29	34.5	34.80	3.76	-9.54	37.8	54
6.314	225	H	1	31.03	34.5	34.6	4.38	-9.54	26.0	54
6.314	240	V	1	31.65	34.5	34.82	4.38	-9.54	25	54
7.216	225	H	1	31.26	34.6	36.88	5.33	-9.54	29.3	54
7.216	270	V	1	31.08	34.6	36.7	5.33	-9.54	29	54
8.118	90	H	1	31.65	34.79	38.03	5.95	-9.54	31.1	54
8.118	270	V	1	32.51	34.79	37.96	5.95	-9.54	32.1	54
9.020	45	H	1	30	34.85	39.42	7.15	-9.54	32.2	54
9.020	180	V	1	29.72	34.85	39.14	7.15	-9.54	31.6	54
10.0	0	H	1	29.83	34.7	38.50	9.7	-9.54	33.8	54
10.0	0	V	1	29.59	34.7	38.40	9.7	-9.54	33.6	54
15.0	0	H	1	31.88	33.41	34.7	19.78	-9.54	48.5	54
15.0	0	V	1	31.70	33.41	34.7	19.78	-9.54	48.3	54

* - This frequency exhibits a margin of compliance that is less than 3dB below the specification limit. We recommend that every emission measured, have at least a 3dB margin to allow for deviations in the emission characteristics that may occur during the production process.

Note: The EUT was tested at 1m. The data has been corrected for comparison with the 3m limit using the formula: $20\log(1m/3m)$ as expressed in the 'Dist. Corr. Factor' column.

Equipment meets the specifications of Part 15.209 (b) and 15.249

SUBJECT: Radiated Emissions
Transmitter
Mid- Oscillator
FCC Part 15

EUT: Micron 4 Transmitter

MET REPORT: EMI1308B
MFG: HBC-Radiomatic
TESTED BY: Tony Permsombut
TEST DATE: 2/3/00

TECHNICAL SPECIFICATION: 15.209 (b) and 15.249

Frequency (MHz)	Class B Limit (dBuV) @ 3m
30 - 88	40.00
88 - 216	43.52
216 - 230	46.00
230 - 960	46.00
960 - 1000	54.00
*902 - 928	94.00

*Note: This is the limit for the fundamental frequency

Frequency (MHz)	Azimuth (ECCW - 0E=EUT facing ant.)	Polar-ity	Height (m)	Raw Amplitude (dBV) @3m	Pre-Amp Gain	Corrected Amplitude (dBV/m) @3m	Limit (dBV/m) @3m
179	270	H	1.5	54.32	26.89	27.4	43.52
179	0	V	1.87	45.56	26.89	18.7	43.52
191	272	H	1.65	50.65	26.8	23.9	43.52
191	0	V	1.65	41.73	26.8	14.9	43.52
440	81	H	2	53.72	27.53	26.2	46
440	129	V	2.2	43.37	27.53	15.8	46
240	83	H	1.38	44.39	26.52	17.9	46
240	319	V	1.78	38.72	26.52	12.2	46
420	86	H	2.26	53.25	27.4	25.9	46
420	326	V	2.13	46.08	27.4	18.7	46
911.6	91	H	1	113.12	27.01	86.1	94
911.6	333	V	1.38	107.83	27.01	80.8	94

SUBJECT: Radiated Emissions
Transmitter
Mid- Oscillator
FCC Part 15

MET REPORT: EMI1308B
MFG: HBC-Radiomatic
TESTED BY: Tony Permsombut
TEST DATE: 2/3/00

Frequency (GHz)	Azimuth	Polar-ity	Height (m)	Raw Amplitude (dBV) @1m	Pre-Amp Gain	Ant. Corr. (dB)	Cable Loss (dB)	Dist. Corr. Factor	Corrected Amplitude (dBV/m) @3m	Limit (dBV/m) @3m
1.823	340	H	1	55.59	34.9	26.28	1.4	-9.54	38.8	54
1.823	190	V	1	59.63	34.9	26.15	1.4	-9.54	42.7	54
2.735	135	H	1	49.99	34.72	29.09	1.91	-9.54	36.7	54
2.735	10	V	1	53.08	34.72	28.99	1.91	-9.54	39.7	54
3.646	45	H	1	51.74	34.7	32.05	2.29	-9.54	41.8	54
3.646	45	V	1	49.81	34.7	31.99	2.29	-9.54	39.9	54
4.558	350	H	1	53.68	34.6	32.6	3.07	-9.54	45.2	54
4.558	45	V	1	51.64	34.6	32.6	3.07	-9.54	43.2	54
5.470	90	H	1	42.74	34.5	34.81	3.79	-9.54	37.3	54
5.470	290	V	1	47.46	34.4	35	3.79	-9.54	42.2	54
6.381	135	H	1	31.42	34.51	34.49	4.46	-9.54	26.3	54
6.381	90	V	1	32.01	34.51	34.74	4.46	-9.54	27.2	54
7.293	190	H	1	34.28	34.6	37.04	5.38	-9.54	32.6	54
7.293	260	V	1	33.44	34.6	37.04	5.38	-9.54	31.6	54
8.204	0	H	1	32.9	34.8	38.56	6.07	-9.54	33.2	54
8.204	270	V	1	32.65	34.8	38.51	6.07	-9.54	32.9	54
9.117	0	H	1	30.43	34.82	39.06	7.4	-9.54	32.5	54
9.117	0	V	1	30.47	34.82	38.83	7.4	-9.54	32.3	54
10	0	H	1	29.93	34.7	38.5	9.7	-9.54	33.9	54
10	0	V	1	29.81	34.7	38.4	9.7	-9.54	33.7	54
15	0	H	1	31.88	33.41	39.8	19.78	-9.54	48.5	54
15	0	V	1	32.11	33.41	39.8	19.78	-9.54	48.7	54

* - This frequency exhibits a margin of compliance that is less than 3dB below the specification limit. We recommend that every emission measured, have at least a 3dB margin to allow for deviations in the emission characteristics that may occur during the production process.

Note: The EUT was tested at 1m. The data has been corrected for comparison with the 3m limit using the formula: $20\log(1m/3m)$ as expressed in the 'Dist. Corr. Factor' column.

Equipment meets the specifications of Part 15.209 (b) and 15.249

SUBJECT: Radiated Emissions
Transmitter
High Oscillator
FCC Part 15

MET REPORT: EMI1308B
MFG: HBC-Radiomatic
TESTED BY: Tony Permsombut
TEST DATE: 2/4/00

EUT: Micron 4 Transmitter

TECHNICAL SPECIFICATION: 15.209 (b) and 15.249

Frequency (MHz)			Class B Limit (dBµV) @ 3m
30	-	88	40.00
88	-	216	43.52
216	-	230	46.00
230	-	960	46.00
960	-	1000	54.00
*902	-	928	94.00

*Note: This is the limit for the fundamental frequency.

Frequency (MHz)	Azimuth (ECCW - 0E=EUT facing ant.)	Polar-ity	Height (m)	Raw Amplitude (dBµV) @3m	Pre-Amp Gain	Corrected Amplitude (dBµV/m) @3m	Limit (dBµV/m) @3m
177	103	H	1.62	53.66	26.91	26.8	43.52
177	0	V	2.02	45.78	26.91	18.9	43.52
179	94	H	1.51	54.08	26.89	27.2	43.52
179	0	V	2	45.65	26.89	18.8	43.52
199	79	H	1.41	49.5	26.73	22.8	43.52
199	315	V	1.49	40.89	26.73	14.2	43.52
245.05	83	H	1.26	52.78	26.5	26.3	46
245.05	0	V	1.71	44.81	26.5	18.3	46
331.96	97	H	1	52.88	26.7	26.2	46
331.96	0	V	2.81	41.02	26.7	14.3	46
918	121	H	1.39	114.87	27	87.9	94
918	170	V	2.04	108.94	27	87.9	94

SUBJECT: Radiated Emissions
Transmitter
High Oscillator
FCC Part 15

MET REPORT: EMI1308B
MFG: HBC-Radiomatic
TESTED BY: Tony Permsombut
TEST DATE: 2/24/00

Frequency (GHz)	Azimuth	Polar-ity	Height (m)	Raw Amplitude (dBV) @1m	Pre-Amp Gain	Ant. Corr. (dB)	Cable Loss (dB)	Dist. Corr. Factor	Corrected Amplitude (dBV/m) @3m	Limit (dBV/m) @3m
1.836	180	H	1	59.82	34.9	26.35	1.4	-9.54	43.1	54
1.836	135	V	1	57.59	34.9	26.21	1.4	-9.54	40.80	54
2.754	315	H	1.2	45.31	34.71	29.17	1.93	-9.54	32.2	54
2.754	135	V	1.07	55.51	34.71	29.07	1.93	-9.54	42.3	54
3.672	45	H	1.04	56.67	34.7	32.11	2.3	-9.54	46.8	54
3.672	225	V	1.06	55.91	34.7	32.04	2.3	-9.54	46.0	54
4.590	0	H	1.02	55.33	34.59	32.66	3.11	-9.54	47.5	54
4.590	45	V	1.02	51.76	34.59	32.66	3.11	-9.54	43.4	54
5.508	90	H	1	40.9	34.5	34.9	3.8	-9.54	35.6	54
5.508	300	V	1	45.02	34.5	35.1	3.8	-9.54	39.9	54
6.426	170	H	1	32.89	34.53	34.42	4.51	-9.54	27.8	54
6.426	110	V	1	33.92	34.53	34.69	4.51	-9.54	29.1	54
7.344	225	H	1	36.06	34.6	37.16	5.41	-9.54	34.5	54
7.344	270	V	1	37.33	34.6	37.06	5.41	-9.54	35.7	54
8.262	200	H	1	31.2	34.8	38.92	6.14	-9.54	31.9	54
8.262	260	V	1	32.84	34.8	38.88	6.14	-9.54	33.5	54
9.18	120	H	1	30.86	34.8	38.82	7.57	-9.54	32.9	54
9.18	180	V	1	31.04	34.8	38.62	7.57	-9.54	32.9	54
10.0	0	H	1	29.47	34.7	38.5	9.7	-9.54	33.4	54
10.0	0	V	1	29.77	34.7	38.4	9.7	-9.54	33.6	54
15.0	0	H	1	31.92	33.41	39.8	19.78	-9.54	48.6	54
15.0	0	V	1	31.77	33.41	39.8	19.78	-9.54	48.4	54

Note: The EUT was tested at 1m. The data has been corrected for comparison with the 3m limit using the formula: $20\log(1m/3m)$ as expressed in the 'Distance Correction' column.

Equipment meets the specifications of Part 15.209 (b) and 15.249

EXHIBIT 4

MANUFACTURER'S RESPONSIBILITY

MANUFACTURER'S RESPONSIBILITIES

The following text excerpts are from the Code of Federal Regulations, Title 47, Part 2 and 15.

§ 2.1073 Responsibilities

(a) The responsible party, as defined in Section 2.909 of this part, must warrant that each unit of equipment marketed under a Declaration of Conformity is identical to the unit tested and found acceptable with the standards and that the records maintained by the responsible party continue to reflect the equipment being produced under the Declaration of Conformity within the variation that can be expected due to quantity production and testing on a statistical basis.

(b) The responsible party, if different from the manufacturer, may upon receiving a written statement from the manufacturer that the equipment complies with the appropriate technical standard rely on the manufacturer or independent testing agency to determine compliance. However, the test records required in Section 2.1075 of this part shall be in the English language and shall be made available to the Commission upon a reasonable request in accordance with the provisions of Section 2.1076 of this part.

(c) In the case of transfer of control of the equipment, as in the case of sale or merger of the responsible party, the new responsible party shall bear the responsibility of continued compliance of the equipment.

(d) Equipment shall be retested to demonstrate continued compliance with the applicable technical standards if any modifications or changes that could adversely affect the emanation characteristics of the equipment are made by the responsible party. The responsible party bears responsibility for the continued compliance of subsequently produced equipment.

(e) If any modifications or changes are made by anyone other than the responsible party for the Declaration of Conformity, the party making the modifications or changes, if located within the U.S., becomes the new responsible party. The new responsible party must comply with all the provisions for the Declaration of Conformity, including having test data on file demonstrating that the product continues to comply with all of the applicable technical standards.

§ 2.1074 Identification

Devices subject only to a Declaration of Conformity shall be uniquely identified by the responsible party. This identification shall not be of a format which could be confused with the FCC Identifier required on certified, notified, type accepted, or type approved equipment. The responsible party shall maintain adequate identification records to facilitate positive identification for each device.

§ 2.1077 Compliance information

(a) If a product must be tested and authorized under a Declaration of Conformity, A COMPLIANCE INFORMATION STATEMENT SHALL BE SUPPLIED WITH THE PRODUCT AT THE TIME OF MARKETING OR IMPORTATION, containing the following information:

(1) Identification of the product, e.g., name and model number;

(2) A statement, similar to that contained in §15.19(a)(3) of this chapter, that the product complies with part 15 of this chapter; and

(3) The identification, by name, address, and telephone number, of the responsible party, as defined in §2.909. The responsible party for Declaration of Conformity must be located in the United States.

(b) If a product is assembled from modular components that, by themselves, are authorized under a Declaration of Conformity and/or a grant of certification, and the assembled product is also subject to authorization under a Declaration of Conformity but, in accordance with the applicable regulations does not require additional testing, the product shall be supplied, at the time of marketing or importation, with a compliance information statement containing

the following information:

- (1) Identification of the assembled product, e.g., name and model number.
 - (2) Identification of the modular components used in the assembly. A modular component authorized under a Declaration of Conformity shall be identified as specified in paragraph (a)(1) of this section. A modular component authorized under a grant of certification shall be identified by name and model number (if applicable) along with the FCC Identifier number.
 - (3) A statement that the product complies with part 15 of this chapter.
 - (4) The identification, by name, address, and telephone number, of the responsible party who assembled the product from modular components, as defined in § 2.909. The responsible party for a Declaration of Conformity must be located within the United States.
 - (5) Copies of the compliance information statements for each modular components used in the system that is authorized under a Declaration of Conformity.
- (c) The compliance information statement shall be included in the user's manual or as a separate sheet.

§ 15.3 Definitions

(r) **Peripheral Device** An input/output unit of a system that feeds data into and/or receives data from the central processing unit of a digital device. Peripherals to a digital device include any device that is connected external to the digital device, any device internal to the digital device that connects the digital device to an external device by wire or cable, and any circuit board designed for interchangeable mounting, internally or externally, that increases the operating or processing speed of a digital device, e.g., “turbo” cards and “enhancement” boards. Examples of peripheral devices include terminals, printers, external floppy disk drives and other data storage devices, video monitors, keyboards, interface boards, external memory expansion cards, and other input/output devices that may or may not contain digital circuitry. This definition does not include CPU boards, as defined in paragraph (bb) of this section, even though a CPU board may connect to an external keyboard or other components.

(bb) **CPU Board** A circuit board that contains a microprocessor, or frequency determining circuitry for the microprocessor, the primary function of which is to execute user-provided programming, but not including: (1) a circuit board that contains only a microprocessor intended to operate under the primary control or instruction of a microprocessor external to such a circuit board; or (2) a circuit board that is a dedicated controller for a storage or input/output device.

§ 15.19 Labeling requirements

(a) (4) Where a device is constructed in two or more sections connected by wires and marketed together, a statement specified under paragraph (a) of this section is required to be affixed only to the main control unit.

(5) When a device is so small or for such use this is not practicable to place the statement specified under paragraph (a) of this section on it, the information required by this paragraph shall be placed in a prominent location in the instruction manual or pamphlet supplied to the user or, alternatively, shall be placed on the container in which the device is marketed. However, the FCC identifier or the unique identifier, as appropriate, must be displayed on the device.

(b) Products subject to authorization under the Declaration of Conformity shall be labeled as follows:

(1) The label shall be located in a conspicuous location on the device and shall contain the unique identification described in Section 2.1074 of this chapter and the following logo:

(I) If the product is authorized based on testing of the product or system:

(ii) If the product is authorized based on assembly using separately authorized components and the resulting product is not separately tested:

Trade Name

Model Number



Tested To Comply
With FCC Standards

FOR HOME OR OFFICE USE

Trade Name

Model Number



Assembled From
Tested Components
(Complete System Not Tested)

FOR HOME OR OFFICE USE

(2) When the device is so small or for such use that it is not practicable to place the statement specified under paragraph (b)(1) of this section on it, such as for a CPU board or a plug-in circuit board peripheral device, the text associated with the logo may be placed in a prominent location in the instruction manual or pamphlet supplied to the user. However, the unique identification (trade name and model number) and the logo must be displayed on the device.

(3) The label shall not be a stick-on paper label. The label on these products shall be permanently affixed to the product and shall be readily visible to the purchaser at the time of purchase, as described in Section 2.925(d) of this chapter. "Permanently affixed" means that the label is etched, engraved, stamped, silkscreened, indelibly printed, or otherwise permanently marked on a permanently attached part of the equipment or on a nameplate of metal, plastic, or other material fastened to the equipment by welding, riveting, or a permanent adhesive. The label must be designed to last the expected lifetime of the equipment in the environment in which the equipment may be operated and must not be readily detachable.

§ 15.32 Test Procedures for CPU boards and computer power supplies

Power supplies and CPU boards used with personal computers and for which separate authorizations are required to be obtained shall be tested as follows:

(a) CPU boards shall be tested as follows:

(1) Testing for radiated Emissions shall be performed with the CPU board installed in a typical enclosure but with the enclosure's cover removed so that the internal circuitry is exposed at the top and on at least two sides. Additional components, including a power supply, peripheral devices, and subassemblies, shall be added, as needed, to result in a complete personal computer system. If the oscillator and the microprocessor circuits are contained on separate circuit boards, both boards, typical of the combination that would normally be employed, must be used in the test. Testing shall be in accordance with the procedures specified in Section 15.31 of this part. Under these test conditions, the system under test shall not exceed the radiated emission limits specified in Section 15.109 of this part by more than 3dB.

(2) Unless the test in paragraph (a)(1) of this section demonstrates compliance with the limits in Section 15.109 of this part, a second test shall be performed using the same configuration described above but with the cover installed on the enclosure. Testing shall be in accordance with the procedures specified in Section 15.31 of this part. Under these test conditions, the system under test shall not exceed the radiated emission limits specified in Section 15.109 of this part.

(3) The test demonstrating compliance with the AC power line conducted limits specified in Section 15.107 of this part shall be performed in accordance with the procedures specified in Section 15.31 using an enclosure, peripherals, power supply, and subassemblies that are typical of the type with which the CPU board under test would normally be employed.

(b) The power supply shall be tested installed in an enclosure that is typical of the type within which it would normally be installed. Additional components, including peripheral devices, a CPU board, and subassemblies, shall be added, as needed, to result in a complete personal computer system. Testing shall be in accordance with the procedures specified in Section 15.31 and must demonstrate compliance with all of the standards contained in this part.