



Electromagnetic Compatibility Tests for a Handheld Microphone Transmitter, Model No. BLX2

For : Shure Incorporated
5800 West Touhy Avenue
Niles, IL 60714

P.O. No. : 4500197853

Dates Tested : April 28, 2011 through March 12, 2012

Test Personnel : Craig M. Dinsmore, Mark E. Longinotti

Specification : FCC "Code of Federal Regulations" Title 47 Part 74
Industry Canada RSS-123
Industry Canada RSS-Gen

Test Report By :

Handwritten signature of Craig M. Dinsmore in black ink.

Craig M. Dinsmore
Sr. EMC Engineer

Approved By :

Handwritten signature of Raymond J. Klouda in black ink.

Raymond J. Klouda
Registered Professional Engineer of
Illinois - 44894



TABLE OF CONTENTS

PARAGRAPH	DESCRIPTION OF CONTENTS	PAGE NO.
1.	Introduction.....	4
1.1	Scope of Tests.....	4
1.2	Purpose.....	4
1.3	Deviations, Additions, and Exclusions.....	4
1.4	EMC Laboratory Identification.....	4
1.5	Laboratory Conditions.....	4
2.	Applicable Documents.....	4
3.	EUT Setup and Operation.....	5
3.1	General Description.....	5
3.1.1	Power Input.....	5
3.1.2	Peripheral Equipment.....	5
3.1.3	Signal Input/Output Leads.....	5
3.1.4	Grounding.....	5
	The EUT was not grounded during testing.....	5
3.1.5	Frequency of EUT.....	5
3.2	Operational Mode.....	5
3.3	EUT Modifications.....	6
4.	Test Facility and Test Instrumentation.....	6
4.1	Shielded Enclosure.....	6
4.2	Test Instrumentation.....	6
4.3	Calibration Traceability.....	6
4.4	Measurement Uncertainty.....	6
5.	Test Procedures.....	6
5.1	RF POWER OUTPUT MEASUREMENTS.....	6
5.1.1	Requirements.....	6
5.1.2	Procedures.....	7
5.1.3	Results.....	7
5.2	MODULATION CHARACTERISTICS.....	7
5.2.1	Requirements.....	7
5.2.2	Procedures.....	7
5.2.3	Results.....	7
5.3	FREQUENCY STABILITY.....	7
5.3.1	Requirements.....	7
5.3.2	Procedures.....	7
5.3.3	Results.....	8
5.4	OCCUPIED BANDWIDTH MEASUREMENTS.....	8
5.4.1	Requirements.....	8
5.4.2	Procedures.....	8
5.4.3	Results.....	9
5.5	FIELD STRENGTH OF SPURIOUS EMISSIONS.....	9
5.5.1	Requirements.....	9
5.5.2	Procedures.....	9
5.5.3	Results.....	10
6.	OTHER TEST CONDITIONS.....	10
6.1	Test Personnel and Witnesses.....	10
6.2	Disposition of the EUT.....	10
7.	CONCLUSION.....	10
8.	CERTIFICATION.....	10
9.	ENDORSEMENT DISCLAIMER.....	11
10.	EQUIPMENT LIST.....	12

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



REPORT REVISION HISTORY

Revision	Date	Description
--	March 2, 2012	Initial release
A	May 21, 2012	Removed Rick King from the test personal. Replaced all the occupied bandwidth plots with corrected occupied bandwidth plots. Changed the final test date to reflect the corrected plots. Modified the spurious emissions data page header.



Electromagnetic Compatibility Tests on Handheld Microphone Transmitter, Model No. BLX2

1. INTRODUCTION

1.1 Scope of Tests

This document presents the results of a series of electromagnetic compatibility (EMC) tests performed on a Handheld Microphone Transmitter, Model No. BLX2, (hereinafter referred to as the EUT). The EUT is designed to transmit in the following frequency bands using an external, non-removable whip antenna:

Frequency (MHz)	Band	Output Power (mW)
518 – 542	H8	10
584 – 608	J10	10
614 – 638	K12	10
662 - 686	M15	10

For testing purposes only, the whip antenna of the EUT was removed from the antenna port and was replaced by an SMA connector. The modified EUT was used for RF power output tests, modulation characteristics tests, frequency stability tests, and occupied bandwidth tests.

The EUT was manufactured and submitted for testing by Shure Incorporated located in Niles, IL.

1.2 Purpose

The test series was performed to determine if the EUT would meet selected requirements of the Code of Federal Regulations, Title 47, Part 74 for low power auxiliary station bands and Industry Canada RSS-123 Licensed Low-Power Radio Apparatus.

1.3 Deviations, Additions, and Exclusions

There were no deviations, additions to, or exclusions from the test specification during this test series.

1.4 EMC Laboratory Identification

The electromagnetic compatibility tests were performed by Elite Electronic Engineering Incorporated of Downers Grove, Illinois.

1.5 Laboratory Conditions

The temperature at the time of the test was 22°C and the relative humidity was 29%.

2. 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 74, dated 1 October 2011
- Federal Communications Commission "Code of Federal Regulations", Title 47, Part 2, dated 1 October 2011
- RSS-123, "Spectrum Management and Telecommunications Radio Standards Specification Licensed Low Power Radio Apparatus" Issue 2, February 2011



- RSS-Gen, "Spectrum Management and Telecommunications Radio Standards Specification General Requirements and Information for the Certification of Radiocommunication Equipment"
- TIA-603-C-2004, "Land Mobile FM or PM Communications Equipment Measurement and Performance Standard"

3. EUT SETUP AND OPERATION

3.1 General Description

The EUT is a Handheld Microphone Transmitter, Model No. BLX2. A block diagram of the EUT setup is shown as Figure 1.

3.1.1 Power Input

The EUT was powered with 3VDC from two (2) each internal "AA" batteries.

3.1.2 Peripheral Equipment

The microphone port of the EUT was terminated with a Shure WL93 Series Subminiature Lavalier Microphone.

3.1.3 Signal Input/Output Leads

The Shure WL93 microphone was connected to the EUT via a 1.2 meter long microphone cable.

3.1.4 Grounding

The EUT was not grounded during testing.

3.1.5 Frequency of EUT

Per CFR Title 47, Section 2, part 1057, for spurious radiated emissions measurements, the frequency spectrum shall be investigated up to at least the tenth harmonic of the highest fundamental frequency.

3.2 Operational Mode

All emissions tests were performed separately in the following modes:

Band H8

- Tx @ 518.650MHz, 10mW
- Tx @ 529.325MHz, 10mW
- Tx @ 541.775MHz, 10mW

Band J10

- Tx @ 584.375MHz, 10mW
- Tx @ 593.750MHz, 10mW
- Tx @ 607.625MHz, 10mW

Band K12

- Tx @ 614.300MHz, 10mW
- Tx @ 625.650MHz, 10mW
- Tx @ 637.775MHz, 10mW

Band M15



Tx @ 662.125MHz, 10mW
Tx @ 671.250MHz, 10mW
Tx @ 685.850MHz,10mW

3.3 EUT Modifications

No modifications were required for compliance.

4. TEST FACILITY AND TEST INSTRUMENTATION

4.1 Shielded Enclosure

All tests were performed in a 32ft. x 20ft. x 18ft. hybrid ferrite-tile/anechoic absorber lined test chamber. With the exception of the floor, the reflective surfaces of the shielded chamber are lined with ferrite tiles on the walls and ceiling. 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 C63.4-2003 for site attenuation.

4.2 Test Instrumentation

The test instrumentation and auxiliary equipment used during the tests are listed in Table 10-1.

4.3 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).

4.4 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 for these tests is presented below:

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

5. TEST PROCEDURES

5.1 RF POWER OUTPUT MEASUREMENTS

5.1.1 Requirements

In accordance with paragraph 74.861(e)(1)(ii), for low power auxiliary stations operating in the bands allocated for TV broadcasting, the power of the measured unmodulated carrier power at the output of the transmitter power amplifier (antenna input power) may not exceed 250 milliwatts in the 470-608 and 614-698MHz bands.

For certification to section 4.2 of the Industry Canada’s RSS-123 requirement for low power auxiliary equipment, the average transmit power may not exceed 250 milliwatts in the 470-608 and 614-698MHz bands as listed in Table 1 when measured as a conducted emissions.



5.1.2 Procedures

The output from the antenna port of the EUT was connected to a power sensor. The power sensor was connected to a power meter. The output power of the EUT was then measured.

5.1.3 Results

The output power measurements are presented on pages 17 through 20. As can be seen from the data, the power output of each transmitter is within the requirements of Part 74.861 and RSS-123.

5.2 MODULATION CHARACTERISTICS

5.2.1 Requirements

In accordance with paragraph 74.861(e)(3) and paragraph 5.2 of RSS-123, for low power auxiliary stations operating in the bands allocated for TV broadcasting, any form of modulation may be used. A maximum deviation of $\pm 75\text{kHz}$ is permitted when frequency modulation is employed.

5.2.2 Procedures

The output of the antenna port of the EUT was connected to a modulation analyzer. An audio signal generator was connected to the audio input port of the EUT.

- a) The EUT was modulated with a 1000 Hz modulating signal at 60% of the EUTs rated frequency deviation.
- b) With input level held constant the audio signal generator was varied from 25 Hz to 20 kHz.
- c) The positive and negative peak deviations were recorded and plotted.

The output of the antenna port of the EUT was connected to a modulation analyzer. An audio signal generator was connected to the audio input port of the EUT.

- a) The modulation response was measured separately for each of nine frequencies (63Hz, 125Hz, 250Hz, 500Hz, 1000Hz, 2000Hz, 4000Hz, 8000Hz, and 16000Hz).
- b) The input voltage of the audio signal generator was varied and frequency deviation was observed on the modulation analyzer.
- c) The frequency deviations were recorded and plotted.

5.2.3 Results

The plots of the modulation characteristics are presented on pages 21 through 24.

5.3 FREQUENCY STABILITY

5.3.1 Requirements

In accordance with paragraph 74.861(e)(4) and paragraph 5.4 of RSS-123 Table 1, for low power auxiliary stations operating in the bands allocated for TV broadcasting, the frequency tolerance of the transmitter shall be 0.005 percent.

5.3.2 Procedures

The EUT was placed in a temperature chamber. A stub antenna was also placed in the temperature chamber in close proximity to the EUT. The stub antenna was connected to a frequency counter. The EUT was operated in the Transmit at 518.650MHz, 10mW output power mode.

- a) The nominal frequency of the transmitter was measured and recorded.
- b) The temperature chamber was then set to -30°C.
- c) Once the temperature had reached -30°C the EUT was allowed to soak for 30 minutes.
- d) After soaking at -30°C for thirty minutes the EUT was turned on and the transmit frequency was measured and recorded.
- e) Steps (b) through (d) were repeated for each temperature in 10°C steps from -20°C to +50°C.
- f) Steps (a) through (e) were repeated with the EUT transmitting in the remaining modes listed in section 3.2.

5.3.3 Results

The frequency stability measurements are presented on pages 25 through 31. As can be seen from the data the test frequency deviation was within the 0.005 percent limit. A photograph of the test setup is shown in Figure 2.

5.4 OCCUPIED BANDWIDTH MEASUREMENTS

5.4.1 Requirements

In accordance with paragraph 74.861(e)(5) and (6), for low power auxiliary stations operating in the bands allocated for TV broadcasting, the following technical requirements apply:

- a) The operating bandwidth shall not exceed 200 kHz.
- b) The mean power of emissions shall be attenuated below the mean output power of the transmitter in accordance with the following schedule:
 - i. On any frequency removed from the operating frequency by more than 50 percent up to and including 100 percent of the authorized bandwidth: at least 25 dB;
 - ii. On any frequency removed from the operating frequency by more than 100 percent up to and including 250 percent of the authorized bandwidth: at least 35 dB;
 - iii. On any frequency removed from the operating frequency by more than 250 percent of the authorized bandwidth: at least $43 + 10 \log_{10}$ (mean output power in watts) dB.

For certification to the RSS-123 paragraph 5.5.1, the power of unwanted emissions shall be attenuated below the mean transmitter power in accordance with the following schedule:

- a) On any frequency removed from the carrier frequency by more than 50% up to and including 100% of the authorized bandwidth: at least 25 dB.
- b) On any frequency removed from the carrier frequency by more than 100% up to and including 250% of the authorized bandwidth: at least 35 dB.
- c) On any frequency removed from the carrier frequency by more than 250% of the authorized bandwidth: at least $55 + 10 \log (P)$ dB.

5.4.2 Procedures

- a) The EUT was connected to a spectrum analyzer through 40 dB of attenuation. The unmodulated carrier signal level was measured and recorded.

- b) The EUT was modulated with a 2500 Hz sine wave at an input level 16 dB greater than that necessary to produce 50% of the rated system deviation.
- c) Steps (a) through (b) were repeated separately for each of the remaining transmitters. The bandwidth of the spectrum analyzer was set to 2kHz (1% of Authorized BW).

5.4.3 Results

The plots of the occupied bandwidth measured are presented on pages 33 through 56. The limits, shown on the plots, are referenced to the power measured from the un-modulated carrier, the power when modulated with a 2500 Hz sine wave at an input 16dB greater than that necessary to produce 50% of the rated deviation.

The operating bandwidth was determined using Carson's rule:

$B_n = 2M + 2DK$ where B_n = bandwidth, M = Maximum modulating frequency and D = Peak Deviation.

With $K = 1$, $M = 20\text{kHz}$ and $D = 55\text{kHz}$ resulting in an operating bandwidth $B_n = 150\text{kHz}$.

The maximum Industry Canada 99% bandwidth measurement was 123kHz.

As can be seen from the data, the EUTs met all occupied bandwidth requirements. . A photograph of the test setup is shown in Figure 2.

5.5 FIELD STRENGTH OF SPURIOUS EMISSIONS

5.5.1 Requirements

In accordance with paragraph 74.861 of CFR 47, the power of any emission on any frequency removed from the operating frequency by more than 250 percent of the authorized bandwidth shall be attenuated by at least $43 + 10 \log (P)$ dB.

In accordance with RSS-123 paragraph 5.5.1, the power of any emission on any frequency removed from the carrier frequency by more than 250% of the authorized bandwidth shall be attenuated by at least $55 + 10 \log (P)$ dB.

5.5.2 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 2003 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.

1. Preliminary radiated measurements were performed to determine the frequencies where the significant emissions might be found. With the EUT at one set position and the measurement antenna at a set height (i.e. without maximizing), the radiated emissions were measured using a peak detector and automatically plotted. The broadband measuring antenna was positioned at a 3 meter distance from the EUT. This data was then automatically plotted. All preliminary tests were performed separately with the EUT operating in the modes listed in Para. 3.2.
2. All significant broadband and narrowband signals found in the preliminary sweeps were then measured using a peak detector at a test distance of 3 meters. The measurements were made

with a bilog antenna over the frequency range of 30MHz to 1GHz, and a double ridged waveguide antenna was used for frequencies above 1GHz.

3. To ensure that maximum emission levels were measured, the following steps were taken:
 - a. The EUT was rotated so that all of its sides were exposed to the receiving antenna.
 - b. Since the measuring antennas are 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.

The equivalent power was determined from the field intensity levels measured at 3 meters using the substitution method. To determine the emission power, another antenna was set in place of the EUT and connected to a calibrated signal generator. (A tuned dipole was used for all measurements below 1GHz and a double ridged waveguide antenna was used for all measurements above 1GHz.) The output of the signal generator was adjusted to match the received level at the spectrum analyzer. The signal level was recorded. The reading was corrected to compensate for cable loss, as required, and for frequencies above 1GHz, increased by the gain of the waveguide.

5.5.3 Results

The preliminary plots peak levels are presented on pages 57 through 104. Factors for the antennas and cables were added to the data before it was plotted. This data is only presented for a reference, and is not used as official data. All significant radiated emissions were subsequently measured using the substitution method.

The final radiated levels are presented on pages 105 through 120. The radiated emissions were measured through the 10th harmonic. All emissions measured from the EUT were within the specification limits. Photographs of the test setup are shown in Figure 3 and Figure 4.

6. OTHER TEST CONDITIONS

6.1 Test Personnel and Witnesses

All EMC tests were performed by qualified personnel from Elite Electronic Engineering Incorporated. The test series was partially witnessed by Shure Incorporated personnel.

6.2 Disposition of the EUT

The EUT and all associated equipment were returned to Shure Incorporated upon completion of the tests.

7. CONCLUSION

It was found that the Shure Incorporated, model BLX2 Handheld Microphone Transmitter, did comply with the RF power output, the occupied bandwidth, the frequency stability, the spurious emissions at antenna terminal, and the field strength of spurious emissions requirements of FCC Part 74 for low power auxiliary station bands and Industry Canada RSS-123 Low Power Licensed Radio communication Devices.

8. 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 EUT at the test date. Any electrical or mechanical modification made to the EUT subsequent to the specified test date will serve to invalidate the data and void this certification.



9. ENDORSEMENT DISCLAIMER

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



10. EQUIPMENT LIST

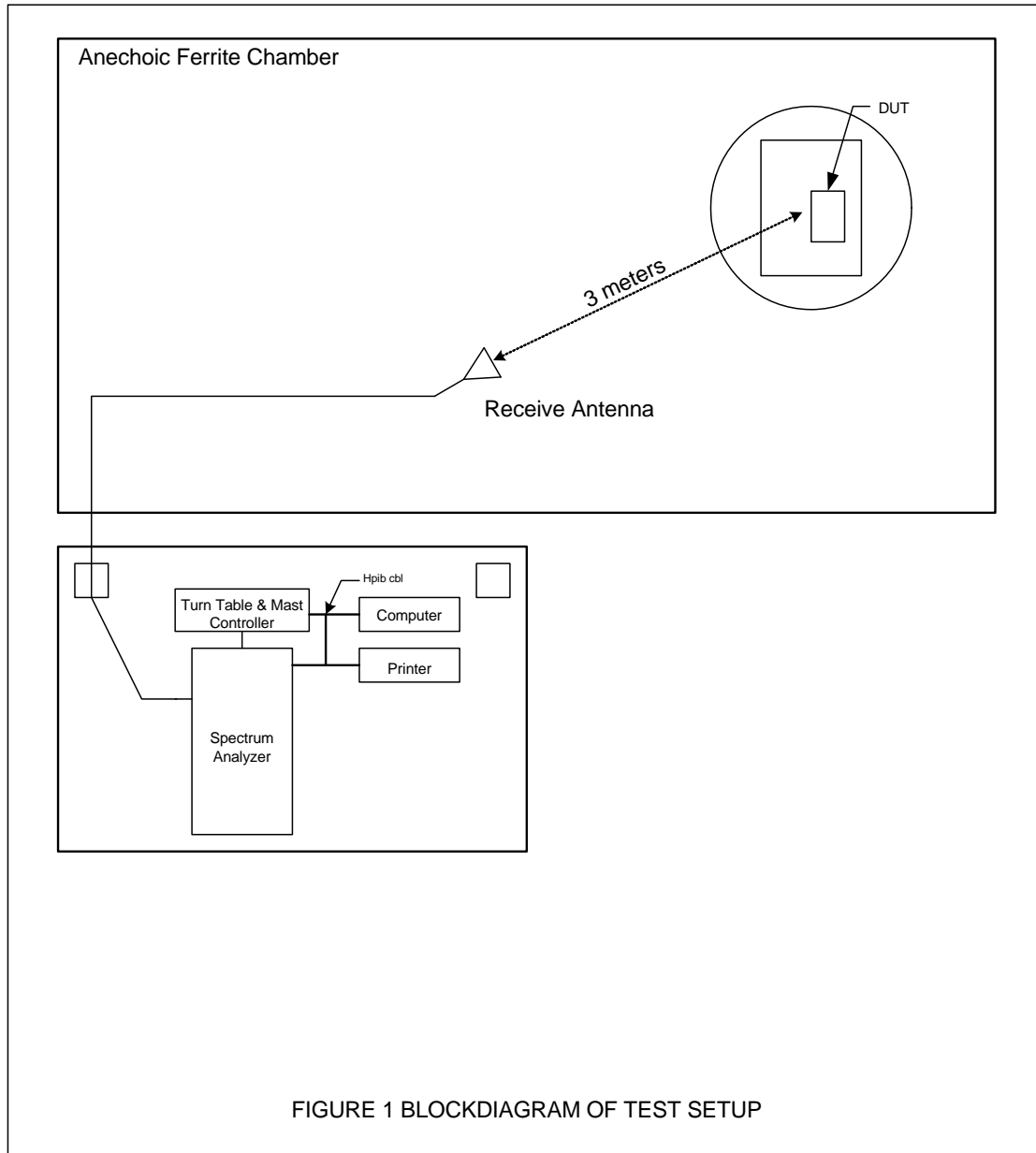
Table 10-1

Eq ID	Equipment Description	Manufacturer	Model No.	Serial No.	Frequency Range	Cal Date	Due Date
CDV0	DESKTOP COMPUTER	COMPAQ	PRESARIO	MXK3391BPJ	2.5GHZ	N/A	
CDX6	COMPUTER	ELITE	WORKSTATION			N/A	
CMA1	Controllers	EMCO	2090	9701-1213	---	N/A	
ETH2	TEMPERATURE/HUMIDITY CHAMBER	THERMOTRON	SE-600-10-10	36821	---	2/9/2012	2/9/2013
GBN2	SIGNAL GENERATOR	ROHDE & SCHWARZ	SMY 02	DE14046	9KHZ-2.080GHZ	4/11/2011	4/11/2012
GBR7	SIGNAL GENERATOR	HEWLETT PACKARD	8648D	3847M00602	9KHZ-4000MHZ	3/25/2011	3/25/2012
GSD4	SIGNAL GENERATOR	ROHDE & SCHWARZ	SMB100A	104455	9KHZ-6GHZ	9/13/2011	9/13/2012
MDBA	MULTIMETER (C. DINSMORE)	FLUKE CORPORATION	177	81380271	I,VAC,VDC,R	9/8/2011	9/8/2012
NDQ1	TUNED DIPOLE ANTENNA	EMCO	3121C-DB4	313	400-1000MHZ	4/20/2011	4/20/2012
NTA2	BILOG ANTENNA	TESEQ	6112D	28040	25-1000MHZ	6/29/2011	6/29/2012
NWF0	RIDGED WAVE GUIDE	EMCO	3105	2035	1-12.4GHZ	1/28/2012	1/28/2013
NWF2	RIDGED WAVE GUIDE	ELECTRO-METRICS	RGA 180	2521	1-12.4GHZ	1/28/2012	1/28/2013
NWH0	RIDGED WAVE GUIDE	SENSOR	4105	2081	1-12.4GHZ	11/3/2011	11/3/2012
RAB2	SPECTRUM ANALYZER	HEWLETT PACKARD	8568B	2517A01392	0.0001-1500MHZ	9/8/2011	9/8/2012
RBA0	EMI TEST RECEIVER	ROHDE & SCHWARZ	ESIB26	100145	20HZ-26.5GHZ	3/9/2011	3/9/2012
RBB0	EMI TEST RECEIVER 20HZ TO 40 GHZ.	ROHDE & SCHWARZ	ESIB40	100250	20 HZ TO 40GHZ	3/24/2011	3/24/2012
RSA0	AUDIO ANALYZER	HEWLETT PACKARD	8903B	3413A4471	---	6/6/2011	6/6/2012
RYE0	MODULATION ANALYZER	HEWLETT PACKARD	8901B	3104A03410	0.15-1300MHZ	8/31/2011	8/31/2012
SA A1	AC POWER SOURCE/ANALYZER	HEWLETT PACKARD	6813A	3524A-00446	0-300VRMS, 1750VA	NOTE 1	
T1E4	10DB 25W ATTENUATOR	WEINSCHTEL	46-10-43	AV5805	DC-18GHZ	1/3/2012	1/3/2013
T2DJ	20DB, 25W ATTENUATOR	WEINSCHTEL	46-20-34	BS0923	DC-18GHZ	8/4/2011	8/4/2012
T2DP	20DB, 25W ATTENUATOR	WEINSCHTEL	46-20-34	BS0921	DC-18GHZ	8/4/2011	8/4/2012
T2S3	20DB 25W ATTENUATOR	WEINSCHTEL	46-20-34	BV3544	DC-18GHZ	1/3/2012	1/3/2013
T2S8	20DB 25W ATTENUATOR	WEINSCHTEL	46-20-34	BV3541	DC-18GHZ	1/3/2012	1/3/2013
TVH1	VARIABLE ATTENUATOR	HEWLETT PACKARD	355D	1204A23871	DC-1GHZ	1/6/2012	1/6/2013
XFA0	RF CURRENT CAL. FIXTURE	EATON	95241-1	0161380-05	.01-450MHz	9/23/2011	9/23/2012
XLH0	150 OHM TERMINATION	ELITE	---	1	0.15-80MHZ	9/19/2011	9/19/2012
XLI3	100 OHM SERIES	ELITE	---	4	0.15-80MHZ	9/19/2011	9/19/2012
XZR7	VHF COAXIAL SWITCH (PROGRAMMABLE)	HEWLETT PACKARD	59307A	2510A08043	---	NOTE 1	

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.





Test Setup for Frequency Stability Test

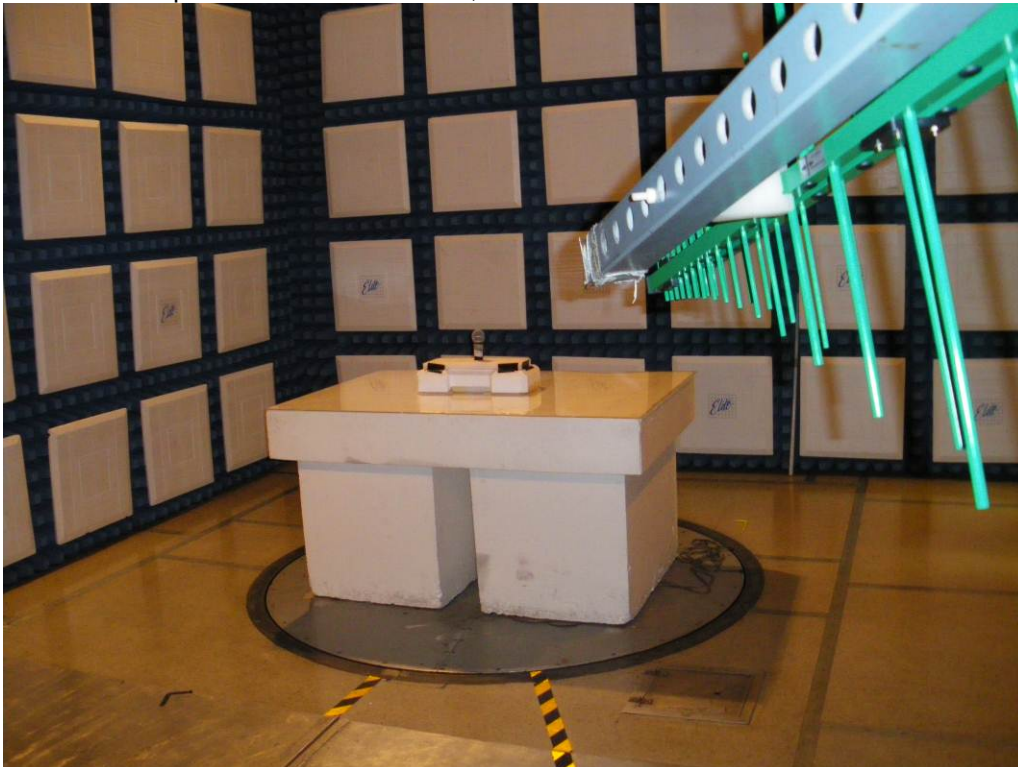


Test Setup for Occupied Bandwidth Test

Figure 3



Test Setup for Radiated Emissions, 30MHz to 1GHz – Horizontal Polarization

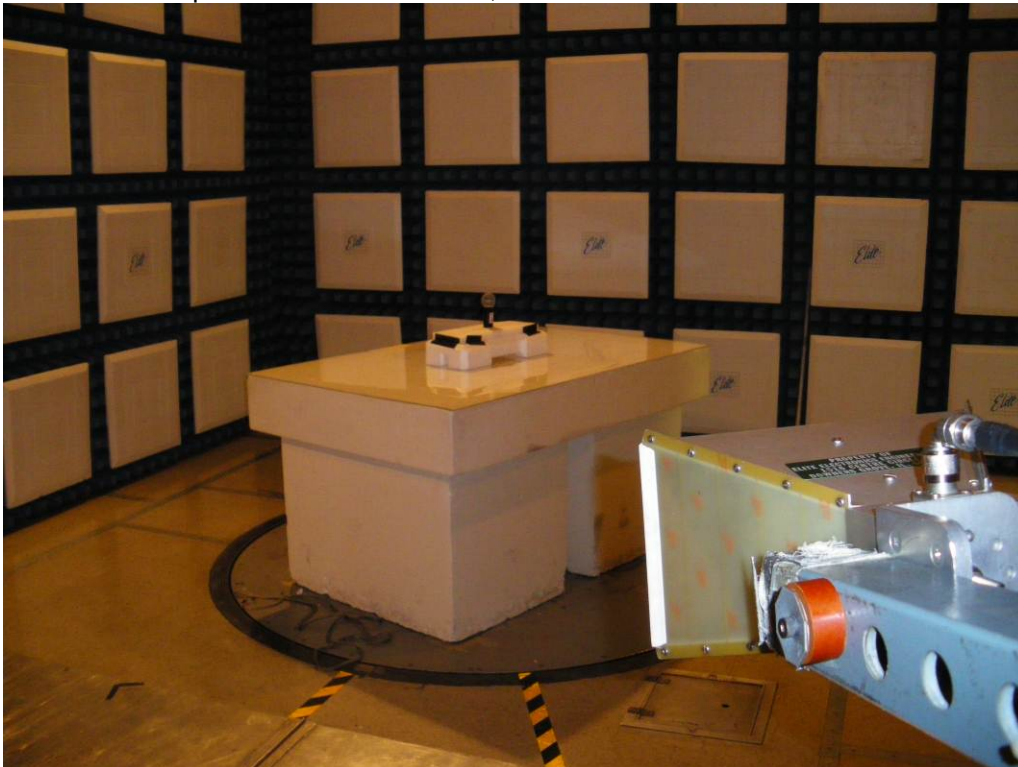


Test Setup for Radiated Emissions, 30MHz to 1GHz – Vertical Polarization

Figure 3



Test Setup for Radiated Emissions, Above 1GHz – Horizontal Polarization



Test Setup for Radiated Emissions, Above 1GHz – Vertical Polarization
Figure 4



MANUFACTURER : Shure Incorporated
MODEL : BLX22 Handheld Microphone Transmitter
SERIAL NO. : None Assigned
SPECIFICATION : FCC-74 and RSS-123 RF Power Output – Antenna Conducted
DATE : January 20, 2013
MODE : See Below
BAND : H8
EQUIPMENT USED : MPC2, MPEA

Frequency MHz	Nominal Power mW	Measured Power mW	FCC-74 Limit mW	RSS-123 Limit mW
518.650	10	8.79	250	250
529.325	10	8.1	250	250
541.775	10	6.98	250	250

Checked By: *MARK E. LONGINOTTI*
Mark E. Longinotti



MANUFACTURER : Shure Incorporated
MODEL : BLX22 Handheld Microphone Transmitter
SERIAL NO. : None Assigned
SPECIFICATION : FCC-74 and RSS-123 RF Power Output – Antenna Conducted
DATE : January 10, 2012
MODE : See Below
BAND : J10
EQUIPMENT USED : MPC2, MPEA

Frequency MHz	Nominal Power mW	Measured Power mW	FCC-74 Limit mW	RSS-123 Limit mW
584.375	10	12.7	250	250
593.750	10	11.4	250	250
607.625	10	9.1	250	250

Checked By: *MARK E. LONGINOTTI*
Mark E. Longinotti



MANUFACTURER : Shure Incorporated
MODEL : BLX22 Handheld Microphone Transmitter
SERIAL NO. : None Assigned
SPECIFICATION : FCC-74 and RSS-123 RF Power Output – Antenna Conducted
DATE : January 10, 2012
MODE : See Below
BAND : K12
EQUIPMENT USED : MPC2, MPEA

Frequency MHz	Nominal Power mW	Measured Power mW	FCC-74 Limit mW	RSS-123 Limit mW
614.300	10	10.1	250	250
625.650	10	10.8	250	250
637.775	10	11	250	250

Checked By: *MARK E. LONGINOTTI*
Mark E. Longinotti



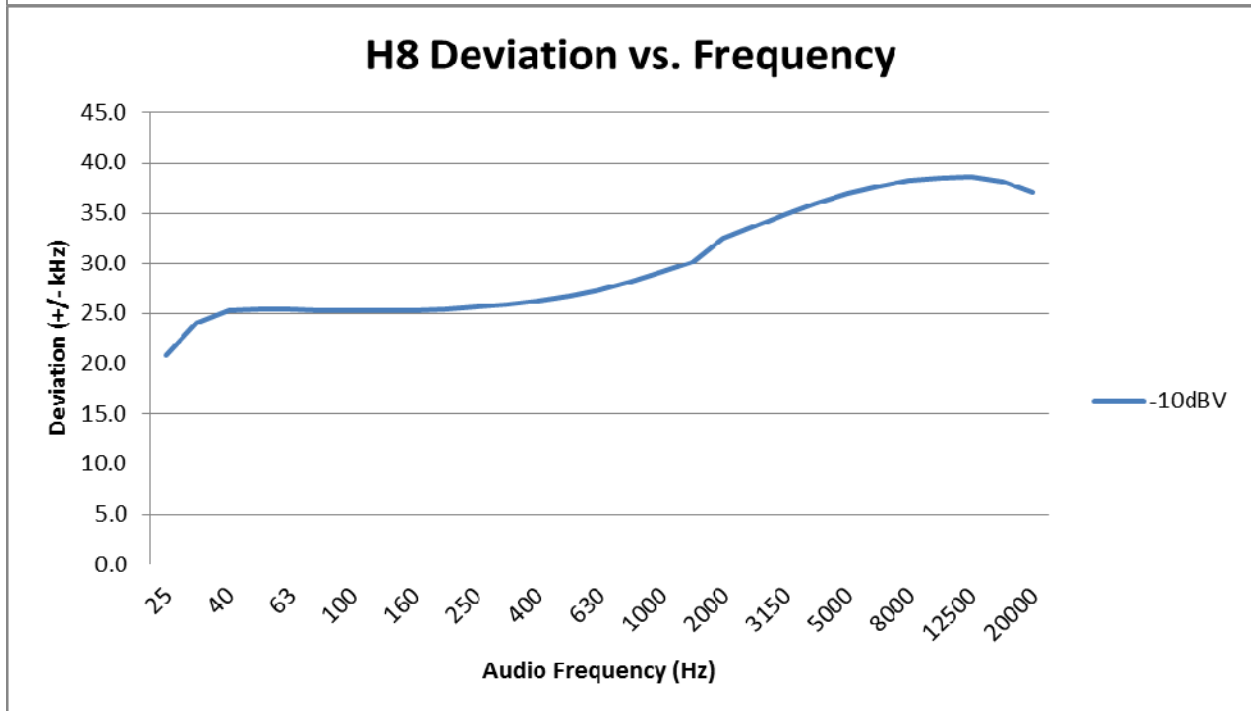
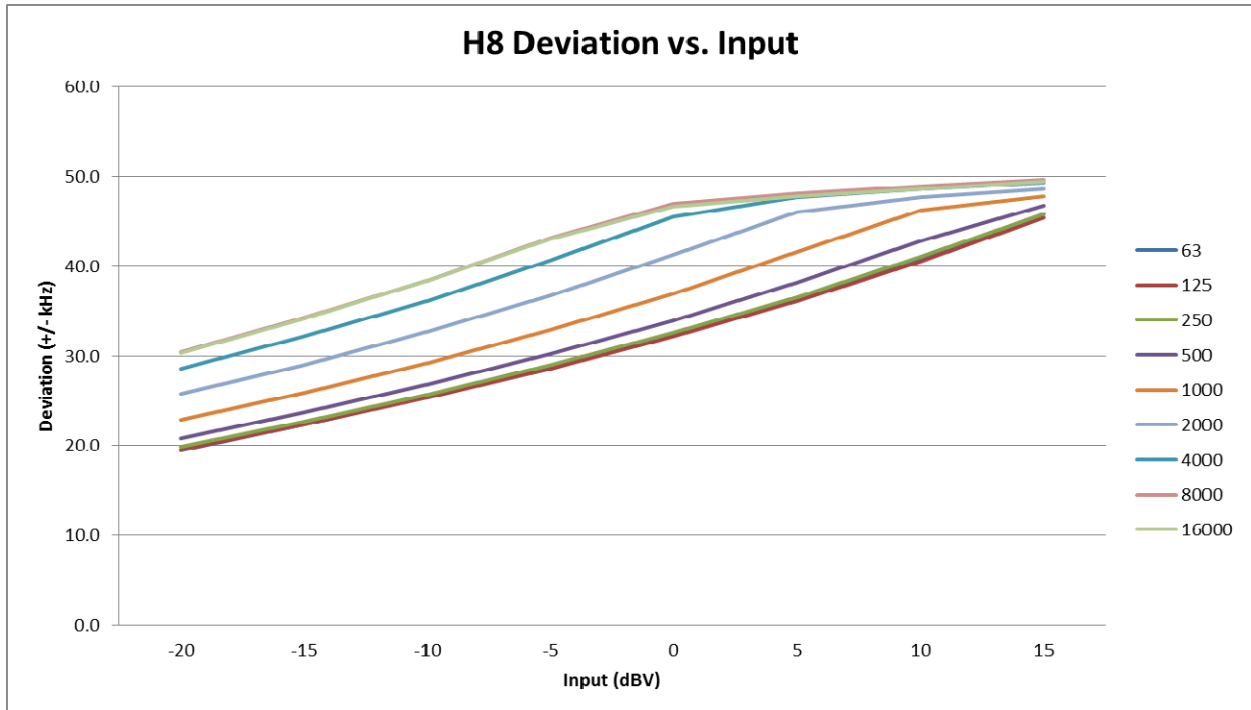
MANUFACTURER : Shure Incorporated
MODEL : BLX22 Handheld Microphone Transmitter
SERIAL NO. : None Assigned
SPECIFICATION : FCC-74 and RSS-123 RF Power Output – Antenna Conducted
DATE : January 10, 2012
MODE : See Below
BAND : M15
EQUIPMENT USED : MPC2, MPEA

Frequency MHz	Nominal Power mW	Measured Power mW	FCC-74 Limit mW	RSS-123 Limit mW
662.125	10	12.5	250	250
671.250	10	12.3	250	250
685.850	10	11.6	250	250

Checked By: *MARK E. LONGINOTTI*
Mark E. Longinotti



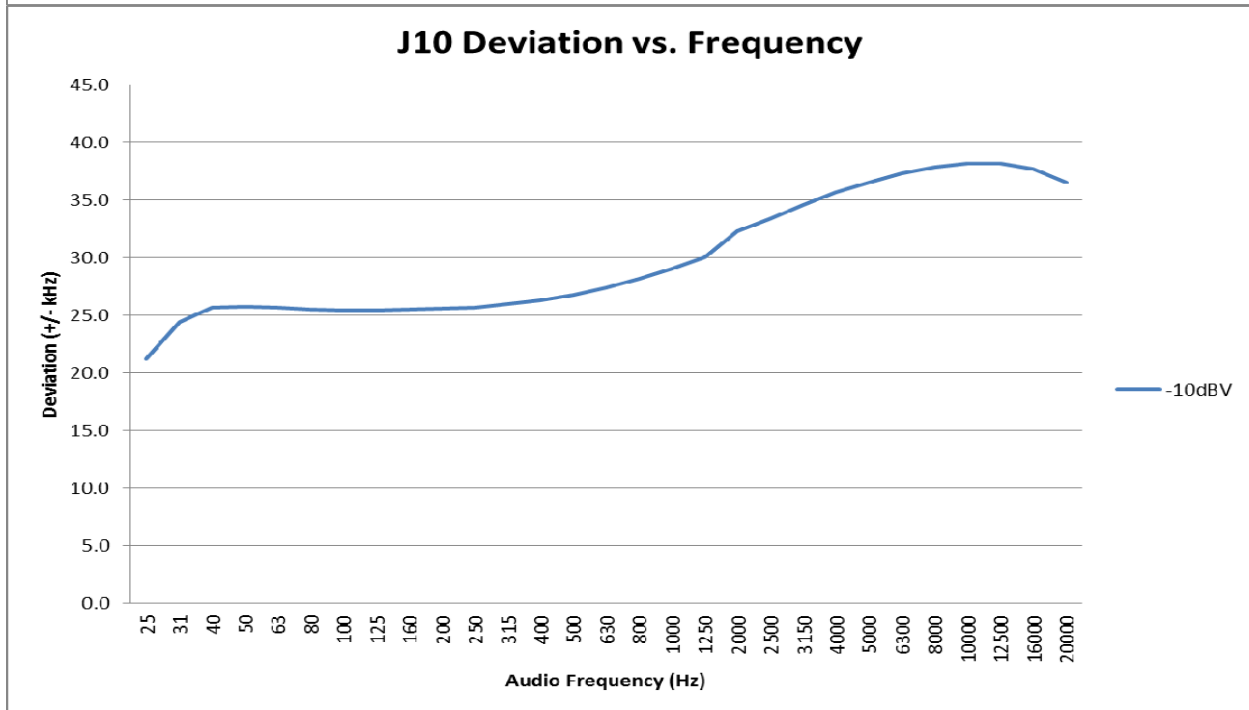
MANUFACTURER : Shure Incorporated
MODEL : BLX22 Handheld Microphone Transmitter
SERIAL NO. : None Assigned
SPECIFICATION : FCC-74 and RSS-123 Modulation Characteristics
MODE : Transmit at 529.325MHz, 10mW
BAND : Band H8
EQUIPMENT USED : Test data provided by Shure



MANUFACTURER : Shure Incorporated

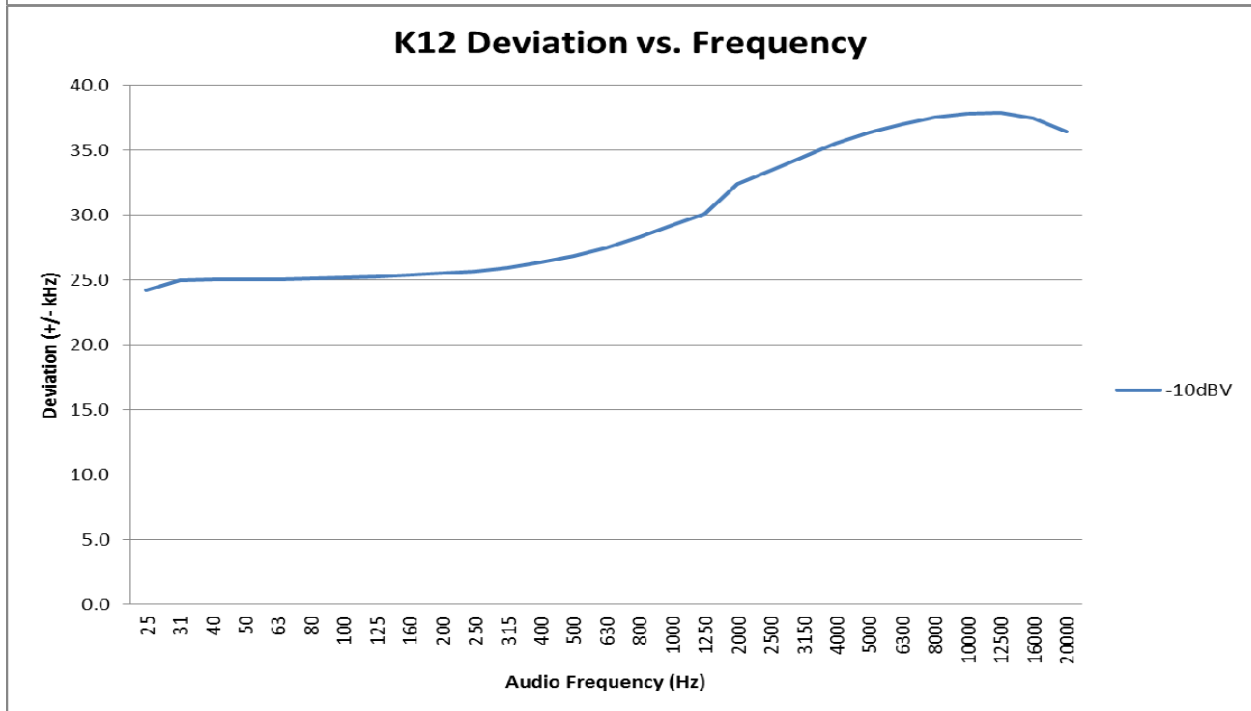
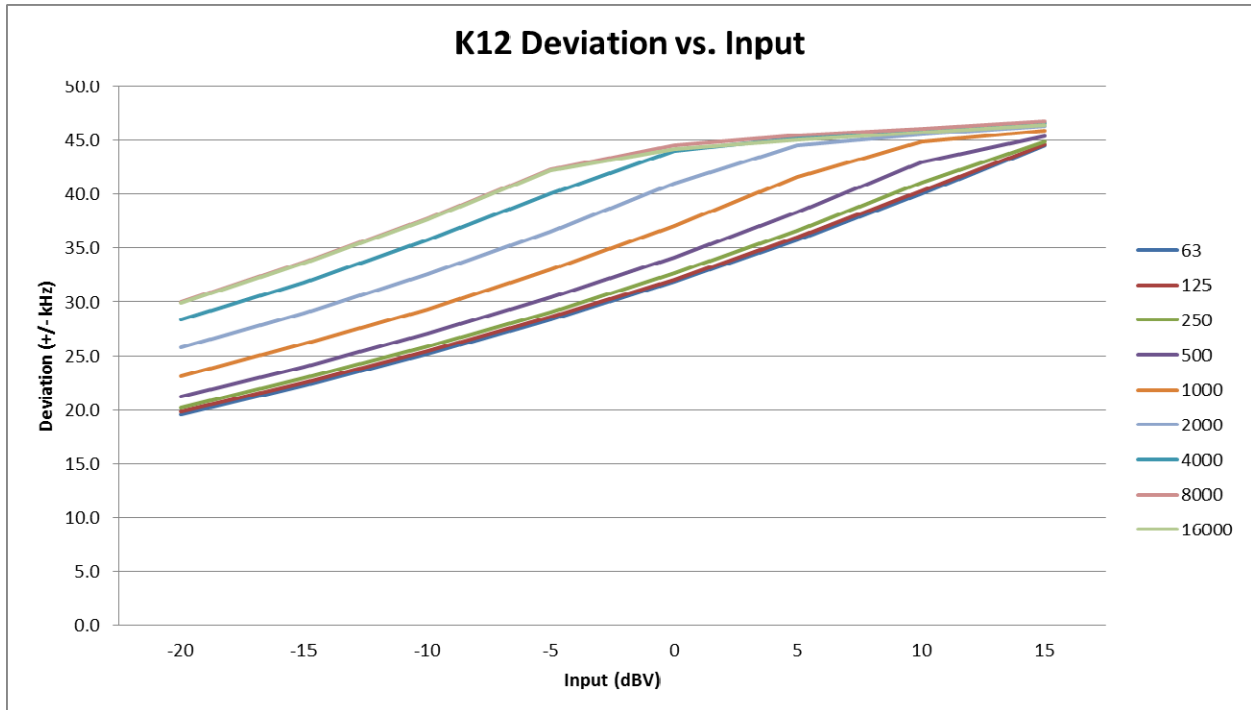


MODEL : BLX22 Handheld Microphone Transmitter
SERIAL NO. : None Assigned
SPECIFICATION : FCC-74 and RSS-123 Modulation Characteristics
MODE : Transmit at 593.75MHz, 10mW
BAND : Band J10
EQUIPMENT USED : Test data provided by Shure



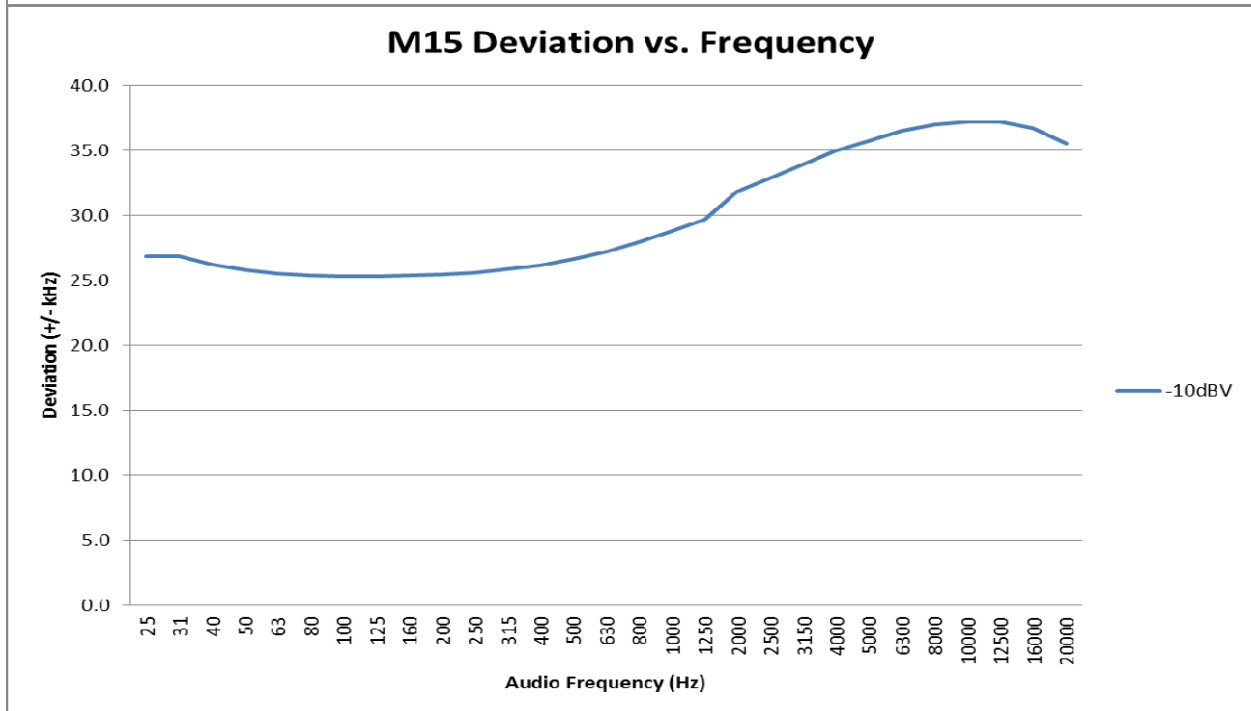
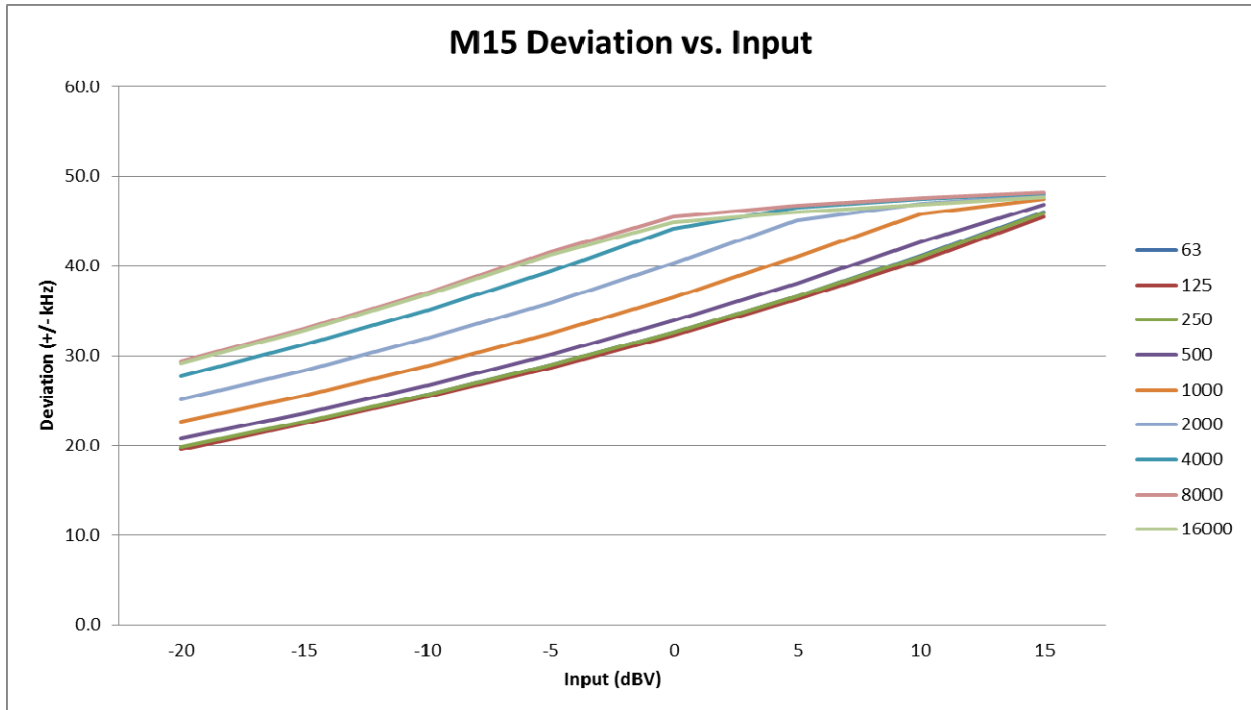


MANUFACTURER : Shure Incorporated
MODEL : BLX22 Handheld Microphone Transmitter
SERIAL NO. : None Assigned
SPECIFICATION : FCC-74 and RSS-123 Modulation Characteristics
MODE : Transmit at 625.65MHz, 10mW
BAND : Band K12
EQUIPMENT USED : Test data provided by Shure





MANUFACTURER : Shure Incorporated
MODEL : BLX22 Handheld Microphone Transmitter
SERIAL NO. : None Assigned
SPECIFICATION : FCC-74 and RSS-123 Modulation Characteristics
MODE : Transmit at 671.25MHz, 10mW
BAND : Band M15
EQUIPMENT USED : Test data provided by Shure





MANUFACTURER : Shure Incorporated
 MODEL : BLX2 Handheld Microphone Transmitter
 SPECIFICATION : FCC-74 and RSS-123 Frequency Stability over Temperature
 DATE : September 1, 2011
 MODE : Transmit, 10mW
 UNIT : Band H8
 EQUIPMENT USED : RBA0, T2S8, T2DJ, MFC0
 NOTES :

Temp °C	Nominal Frequency	Measured Frequency	Deviation (%)	Frequency Stability (%)	Deviation (Hz)	Frequency Stability (Hz)	Pass Or Fail
-30	518.65000 0	518.649754	-0.0000474	0.005	-246.0000	25932.5	PASS
-20	518.65000 0	518.649441	-0.0001078	0.005	-559.3000	25932.5	PASS
-10	518.65000 0	518.651113	0.0002146	0.005	1113.0000	25932.5	PASS
0	518.65000 0	518.65163	0.0003143	0.005	1630.0000	25932.5	PASS
10	518.65000 0	518.651505	0.0002902	0.005	1505.0000	25932.5	PASS
20	518.65000 0	518.650942	0.0001816	0.005	942.0000	25932.5	PASS
30	518.65000 0	518.650158	0.0000305	0.005	158.0000	25932.5	PASS
40	518.65000 0	518.649103	-0.0001729	0.005	-897.0000	25932.5	PASS
50	518.65000 0	518.648552	-0.0002792	0.005	-1448.0000	25932.5	PASS

Temp °C	Nominal Frequency	Measured Frequency	Deviation (%)	Frequency Stability (%)	Deviation (Hz)	Frequency Stability (Hz)	Pass Or Fail
-30	529.32500 0	529.324551	-0.0000848	0.005	-449.0000	26466.25	PASS
-20	529.32500 0	529.324565	-0.0000822	0.005	-435.0000	26466.25	PASS
-10	529.32500 0	529.32597	0.0001833	0.005	970.0000	26466.25	PASS
0	529.32500 0	529.32666	0.0003136	0.005	1660.0000	26466.25	PASS
10	529.32500 0	529.326569	0.0002964	0.005	1569.0000	26466.25	PASS
20	529.32500 0	529.325897	0.0001695	0.005	897.0000	26466.25	PASS
30	529.32500 0	529.32513	0.0000246	0.005	130.0000	26466.25	PASS
40	529.32500 0	529.324148	-0.0001610	0.005	-852.0000	26466.25	PASS
50	529.32500 0	529.323496	-0.0002841	0.005	-1504.0000	26466.25	PASS



Temp °C	Nominal Frequency	Measured Frequency	Deviation (%)	Frequency Stability (%)	Deviation (Hz)	Frequency Stability (Hz)	Pass Or Fail
-30	541.77500 0	541.774583	-0.0000770	0.005	-417.0000	27088.75	PASS
-20	541.77500 0	541.774801	-0.0000367	0.005	-199.0000	27088.75	PASS
-10	541.77500 0	541.776714	0.0003164	0.005	1714.0000	27088.75	PASS
0	541.77500 0	541.776714	0.0003164	0.005	1714.0000	27088.75	PASS
10	541.77500 0	541.776628	0.0003005	0.005	1628.0000	27088.75	PASS
20	541.77500 0	541.775877	0.0001619	0.005	877.0000	27088.75	PASS
30	541.77500 0	541.775188	0.0000347	0.005	188.0000	27088.75	PASS
40	541.77500 0	541.774079	-0.0001700	0.005	-921.0000	27088.75	PASS
50	541.77500 0	541.773476	-0.0002813	0.005	-1524.0000	27088.75	PASS

Checked By: 
Craig M. Dinsmore



MANUFACTURER : Shure Incorporated
 MODEL : BLX2 Handheld Microphone Transmitter
 SPECIFICATION : FCC-74 and RSS-123 RF Power Output over temp range
 DATE : September 1, 2011
 MODE : Transmit, 10mW
 UNIT : Band J10
 EQUIPMENT USED : RBA0, T2S8, T2DJ, MFC0
 NOTES : Attenuators measured 39.6 dB insertion loss

Temp °C	Nominal Frequency	Measured Frequency	Deviation (%)	Frequency Stability (%)	Deviation (Hz)	Frequency Stability (Hz)	Pass Or Fail
-30	584.375000	584.371614	-0.0005794	0.005	-3386.0000	29218.75	PASS
-20	584.375000	584.375625	0.0001070	0.005	625.0000	29218.75	PASS
-10	584.375000	584.375883	0.0001511	0.005	883.0000	29218.75	PASS
0	584.375000	584.376589	0.0002719	0.005	1589.0000	29218.75	PASS
10	584.375000	584.37646	0.0002498	0.005	1460.0000	29218.75	PASS
20	584.375000	584.375645	0.0001104	0.005	645.0000	29218.75	PASS
30	584.375000	584.374766	-0.0000400	0.005	-234.0000	29218.75	PASS
40	584.375000	584.373603	-0.0002391	0.005	-1397.0000	29218.75	PASS
50	584.375000	584.372765	-0.0003825	0.005	-2235.0000	29218.75	PASS

Temp °C	Nominal Frequency	Measured Frequency	Deviation (%)	Frequency Stability (%)	Deviation (Hz)	Frequency Stability (Hz)	Pass Or Fail
-30	593.750000	593.745837	-0.0007011	0.005	-4163.0000	29687.5	PASS
-20	593.750000	593.750703	0.0001184	0.005	703.0000	29687.5	PASS
-10	593.750000	593.75099	0.0001667	0.005	990.0000	29687.5	PASS
0	593.750000	593.751606	0.0002705	0.005	1606.0000	29687.5	PASS
10	593.750000	593.751437	0.0002420	0.005	1437.0000	29687.5	PASS
20	593.750000	593.750607	0.0001022	0.005	607.0000	29687.5	PASS
30	593.750000	593.749822	-0.0000300	0.005	-178.0000	29687.5	PASS
40	593.750000	593.748532	-0.0002472	0.005	-1468.0000	29687.5	PASS
50	593.750000	593.749819	-0.0000305	0.005	-181.0000	29687.5	PASS



Temp °C	Nominal Frequency	Measured Frequency	Deviation (%)	Frequency Stability (%)	Deviation (Hz)	Frequency Stability (Hz)	Pass Or Fail
-30	607.62500 0	607.621099	-0.0006420	0.005	-3901.0000	30381.25	PASS
-20	607.62500 0	607.62582	0.0001350	0.005	820.0000	30381.25	PASS
-10	607.62500 0	607.625828	0.0001363	0.005	828.0000	30381.25	PASS
0	607.62500 0	607.626638	0.0002696	0.005	1638.0000	30381.25	PASS
10	607.62500 0	607.626432	0.0002357	0.005	1432.0000	30381.25	PASS
20	607.62500 0	607.625717	0.0001180	0.005	717.0000	30381.25	PASS
30	607.62500 0	607.624788	-0.0000349	0.005	-212.0000	30381.25	PASS
40	607.62500 0	607.623464	-0.0002528	0.005	-1536.0000	30381.25	PASS
50	607.62500 0	607.62768	0.0004411	0.005	2680.0000	30381.25	PASS

Checked By: 
Craig M. Dinsmore



MANUFACTURER : Shure Incorporated
 MODEL : BLX2 Handheld Microphone Transmitter
 SPECIFICATION : FCC-74 and RSS-123 RF Power Output over temp range
 DATE : September 1, 2011
 MODE : Transmit, 10mW
 UNIT : Band K12
 EQUIPMENT USED : RBA0, T2S8, T2DJ, MFC0
 NOTES : Attenuators measured 39.6 dB insertion loss

Temp °C	Nominal Frequency	Measured Frequency	Deviation (%)	Frequency Stability (%)	Deviation (Hz)	Frequency Stability (Hz)	Pass Or Fail
-30	614.30000 0	617.592269	0.5330813	0.005	3292269.0000	30715	FAIL
-20	614.30000 0	617.262249	0.4799012	0.005	2962249.0000	30715	FAIL
-10	614.30000 0	616.885408	0.4191067	0.005	2585408.0000	30715	FAIL
0	614.30000 0	616.472124	0.3523475	0.005	2172124.0000	30715	FAIL
10	614.30000 0	616.185384	0.3059767	0.005	1885384.0000	30715	FAIL
20	614.30000 0	615.810084	0.2452190	0.005	1510083.5000	30715	FAIL
30	614.30000 0	615.486312	0.1927438	0.005	1186312.0000	30715	FAIL
40	614.30000 0	615.115581	0.1325899	0.005	815581.0000	30715	FAIL
50	614.30000 0	614.694936	0.0642491	0.005	394936.0000	30715	FAIL

Temp °C	Nominal Frequency	Measured Frequency	Deviation (%)	Frequency Stability (%)	Deviation (Hz)	Frequency Stability (Hz)	Pass Or Fail
-30	625.65000 0	625.644034	-0.0009536	0.005	-5966.0000	31282.5	PASS
-20	625.65000 0	625.648438	-0.0002497	0.005	-1562.0000	31282.5	PASS
-10	625.65000 0	625.650165	0.0000264	0.005	165.0000	31282.5	PASS
0	625.65000 0	625.651273	0.0002035	0.005	1273.0000	31282.5	PASS
10	625.65000 0	625.651399	0.0002236	0.005	1399.0000	31282.5	PASS
20	625.65000 0	625.650862	0.0001378	0.005	862.0000	31282.5	PASS
30	625.65000 0	625.650189	0.0000302	0.005	189.0000	31282.5	PASS
40	625.65000 0	625.64952	-0.0000767	0.005	-480.0000	31282.5	PASS
50	625.65000 0	625.649078	-0.0001474	0.005	-922.0000	31282.5	PASS



Temp °C	Nominal Frequency	Measured Frequency	Deviation (%)	Frequency Stability (%)	Deviation (Hz)	Frequency Stability (Hz)	Pass Or Fail
-30	637.77500 0	637.770393	-0.0007224	0.005	-4607.0000	31888.75	PASS
-20	637.77500 0	637.773735	-0.0001983	0.005	-1265.0000	31888.75	PASS
-10	637.77500 0	637.77505	0.0000078	0.005	50.0000	31888.75	PASS
0	637.77500 0	637.776328	0.0002082	0.005	1328.0000	31888.75	PASS
10	637.77500 0	637.771641	-0.0005268	0.005	-3359.5000	31888.75	PASS
20	637.77500 0	637.77585	0.0001333	0.005	850.0000	31888.75	PASS
30	637.77500 0	637.775313	0.0000491	0.005	313.0000	31888.75	PASS
40	637.77500 0	637.774455	-0.0000855	0.005	-545.0000	31888.75	PASS
50	637.77500 0	637.774071	-0.0001457	0.005	-929.0000	31888.75	PASS

Checked By: 
Craig M. Dinsmore



MANUFACTURER : Shure Incorporated
 MODEL : BLX1 Handheld Microphone Transmitter
 SPECIFICATION : FCC-74 and RSS-123 RF Power Output over temp range
 DATE : September 1, 2011
 MODE : Transmit, 10mW
 UNIT : Band M15
 EQUIPMENT USED : RBA0, T2S8, T2DJ, MFC0
 NOTES : Attenuators measured 39.6 dB insertion loss

Temp °C	Nominal Frequency	Measured Frequency	Deviation (%)	Frequency Stability (%)	Deviation (Hz)	Frequency Stability (Hz)	Pass Or Fail
-30	662.125000	662.123456	-0.0002332	0.005	-1544.0000	33106.25	PASS
-20	662.125000	662.120455	-0.0006864	0.005	-4545.0000	33106.25	PASS
-10	662.125000	662.122978	-0.0003054	0.005	-2022.0000	33106.25	PASS
0	662.125000	662.123036	-0.0002966	0.005	-1964.0000	33106.25	PASS
10	662.125000	662.124134	-0.0001308	0.005	-866.0000	33106.25	PASS
20	662.125000	662.123535	-0.0002213	0.005	-1465.0000	33106.25	PASS
30	662.125000	662.122716	-0.0003450	0.005	-2284.0000	33106.25	PASS
40	662.125000	662.121717	-0.0004958	0.005	-3283.0000	33106.25	PASS
50	662.125000	662.121187	-0.0005759	0.005	-3813.0000	33106.25	PASS

Temp °C	Nominal Frequency	Measured Frequency	Deviation (%)	Frequency Stability (%)	Deviation (Hz)	Frequency Stability (Hz)	Pass Or Fail
-30	671.250000	671.241576	-0.0012550	0.005	-8424.0000	33562.5	PASS
-20	671.250000	671.245665	-0.0006458	0.005	-4335.0000	33562.5	PASS
-10	671.250000	671.248044	-0.0002914	0.005	-1956.0000	33562.5	PASS
0	671.250000	671.248963	-0.0001545	0.005	-1037.0000	33562.5	PASS
10	671.250000	671.249105	-0.0001333	0.005	-895.0000	33562.5	PASS
20	671.250000	671.248488	-0.0002253	0.005	-1512.0000	33562.5	PASS
30	671.250000	671.247773	-0.0003318	0.005	-2227.0000	33562.5	PASS
40	671.250000	671.246665	-0.0004968	0.005	-3335.0000	33562.5	PASS
50	671.250000	671.246134	-0.0005759	0.005	-3866.0000	33562.5	PASS

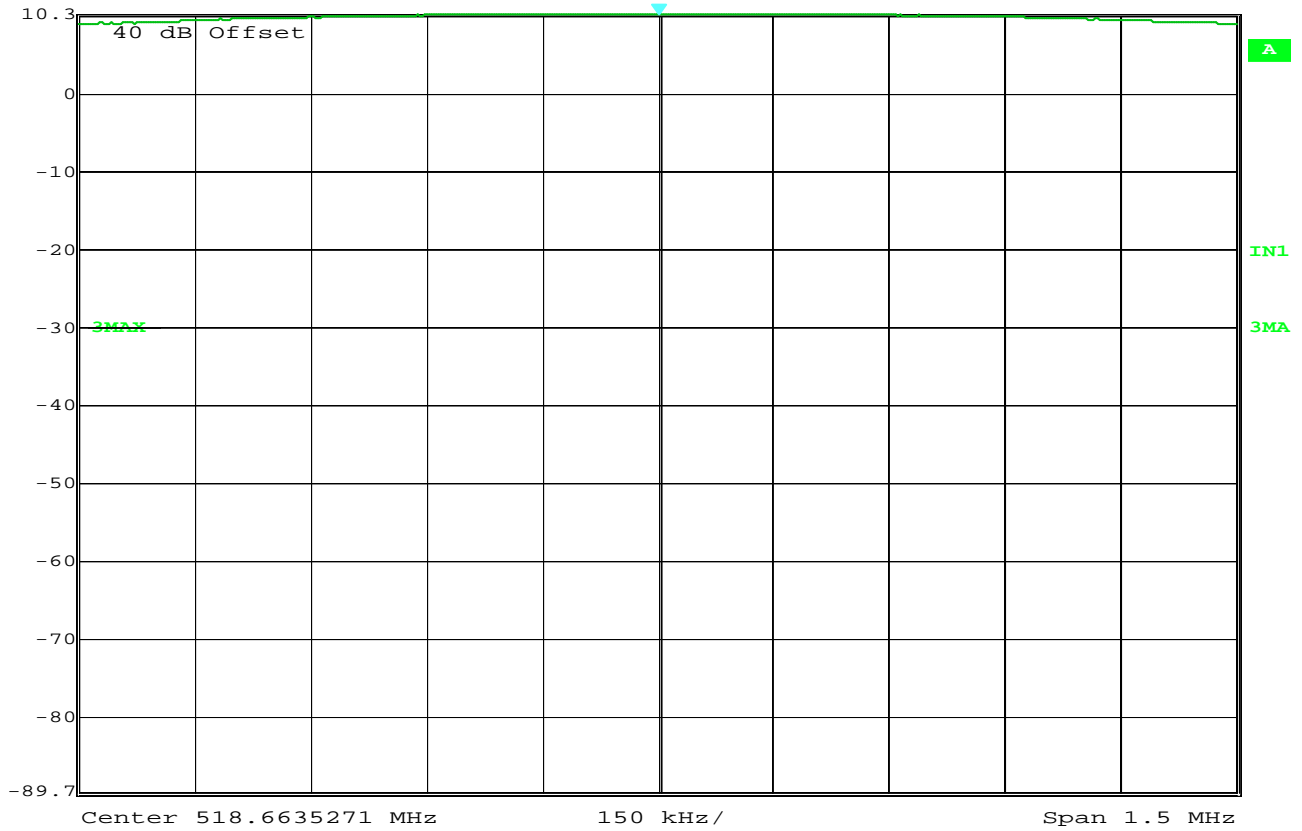


Temp °C	Nominal Frequency	Measured Frequency	Deviation (%)	Frequency Stability (%)	Deviation (Hz)	Frequency Stability (Hz)	Pass Or Fail
-30	685.85000 0	685.84173	-0.0012058	0.005	-8270.0000	34292.5	PASS
-20	685.85000 0	685.845969	-0.0005877	0.005	-4031.0000	34292.5	PASS
-10	685.85000 0	685.847824	-0.0003173	0.005	-2176.0000	34292.5	PASS
0	685.85000 0	685.848968	-0.0001505	0.005	-1032.0000	34292.5	PASS
10	685.85000 0	685.849052	-0.0001382	0.005	-948.0000	34292.5	PASS
20	685.85000 0	685.848691	-0.0001909	0.005	-1309.0000	34292.5	PASS
30	685.85000 0	685.848542	-0.0002126	0.005	-1458.0000	34292.5	PASS
40	685.85000 0	685.846556	-0.0005022	0.005	-3444.0000	34292.5	PASS
50	685.85000 0	685.846079	-0.0005717	0.005	-3921.0000	34292.5	PASS

Checked By: 
Craig M. Dinsmore



Marker 1 [T3] RBW 1 MHz RF Att 10 dB
 Ref Lvl 10.34 dBm VBW 1 MHz
 10.3 dBm 518.66352705 MHz SWT 5 ms Unit dBm

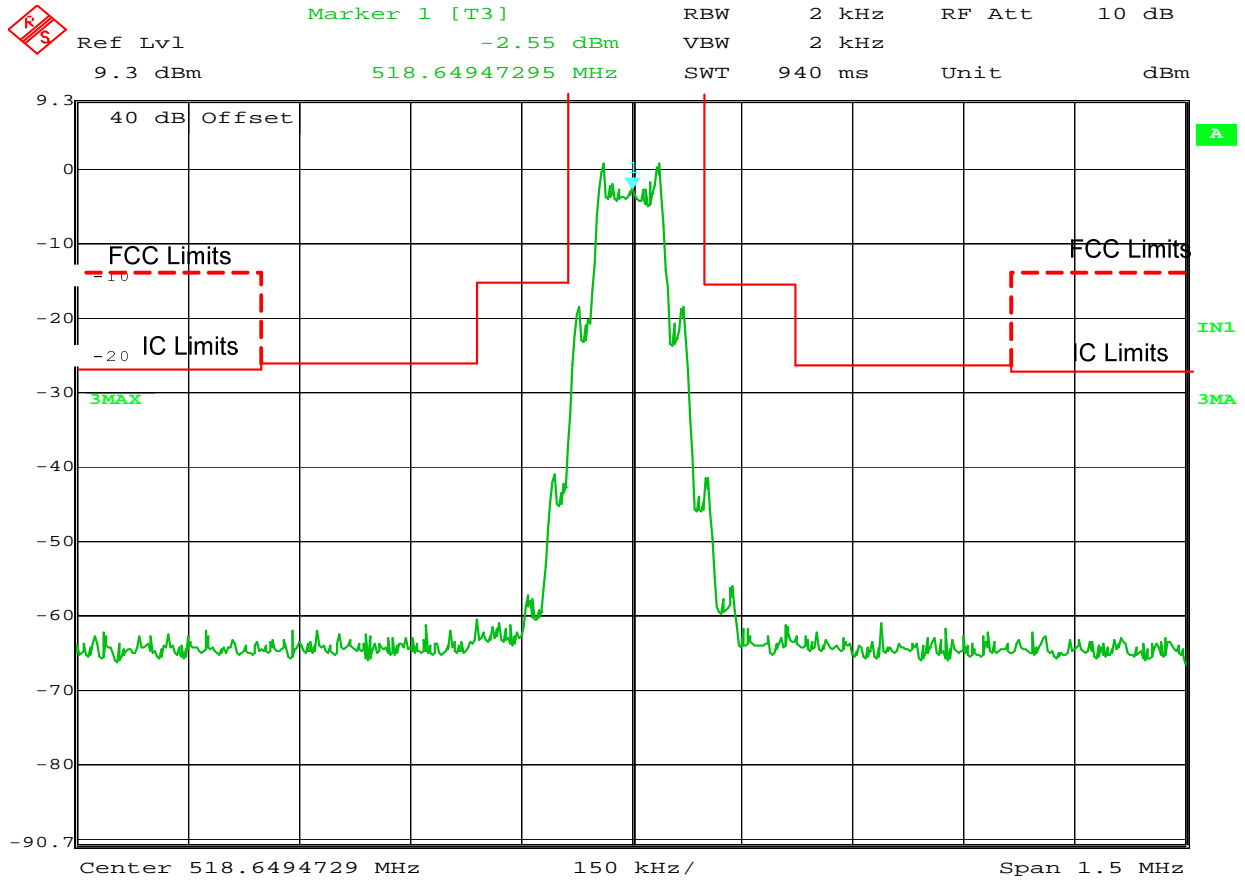


Date: 12.MAR.2012 10:53:05

IC/FCC Occupied Bandwidth

MANUFACTURER : Shure, Inc.
 MODEL NUMBER : BLX2
 SERIAL NUMBER : Band H8
 TEST MODE : Tx at 518.65MHz
 TEST POWER : 10mW nominal
 NOTES : Output Power of the unmodulated carrier
 EQUIPMENT USED : RBA1 w/ T2S3 & T2DD, GWH4, RYE0

NOTES



Date: 12.MAR.2012 14:48:38

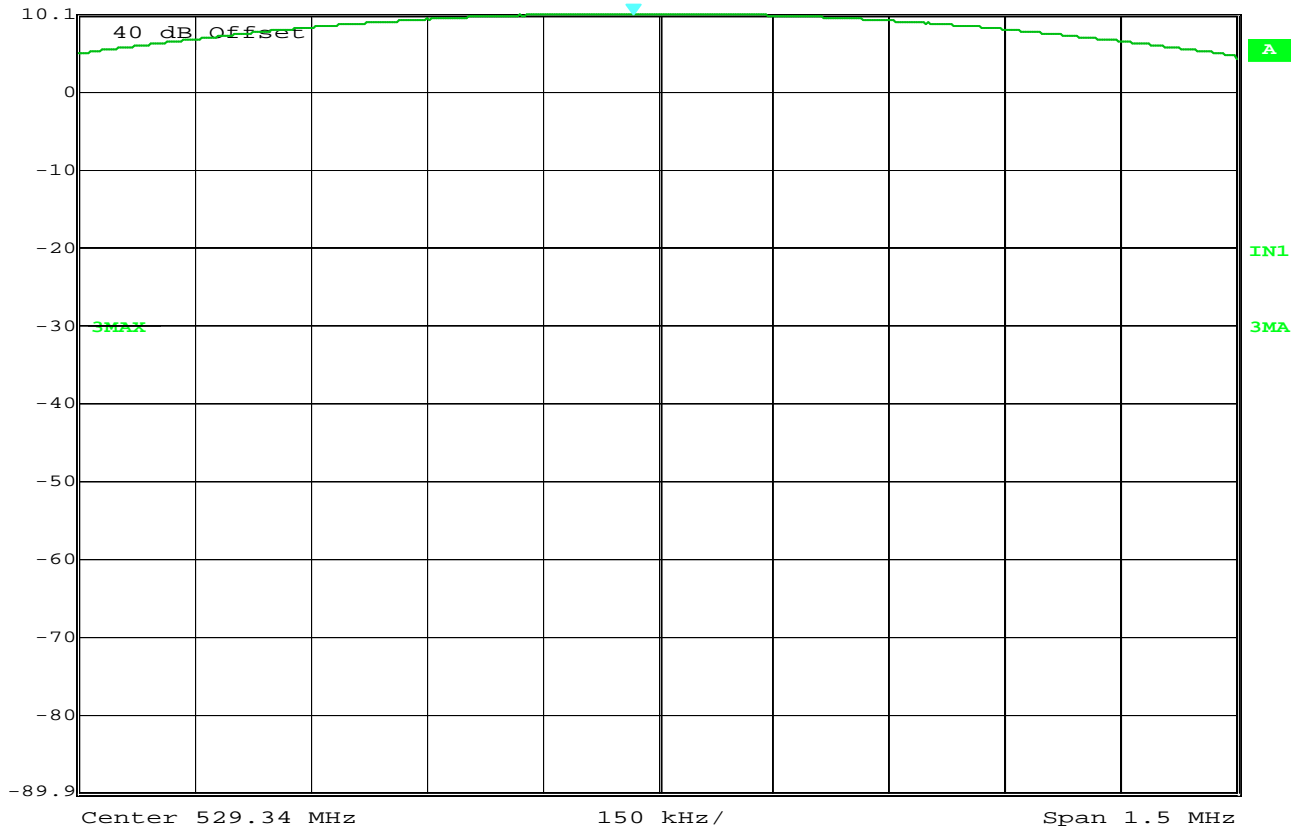
IC/FCC Occupied Bandwidth

MANUFACTURER : Shure, Inc.
 MODEL NUMBER : BLX2
 SERIAL NUMBER : Band H8
 TEST MODE : Tx at 518.65MHz
 TEST POWER : 10mW nominal
 NOTES : 2500Hz at 16dB over 50%
 EQUIPMENT USED : RBA1 w/ T2S3 & T2DD, GWH4, RYE0

NOTES



Marker 1 [T3] RBW 1 MHz RF Att 10 dB
 Ref Lvl 10.04 dBm VBW 1 MHz
 10.1 dBm 529.30843687 MHz SWT 5 ms Unit dBm

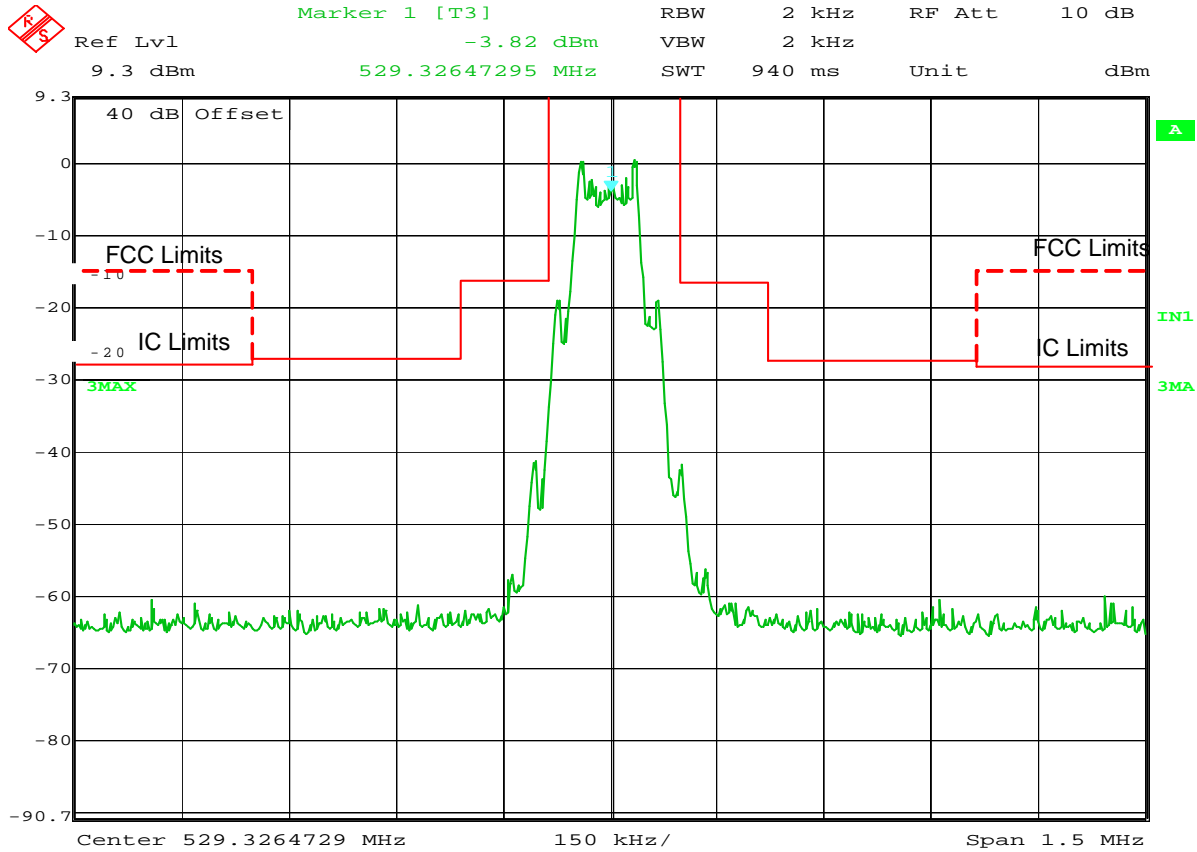


Date: 12.MAR.2012 10:58:33

IC/FCC Occupied Bandwidth

MANUFACTURER : Shure, Inc.
 MODEL NUMBER : BLX2
 SERIAL NUMBER : Band H8
 TEST MODE : Tx at 529.325MHz
 TEST POWER : 10mW nominal
 NOTES : Output Power of the unmodulated carrier
 EQUIPMENT USED : RBA1 w/ T2S3 & T2DD, GWH4, RYE0

NOTES



Date: 12.MAR.2012 14:52:07

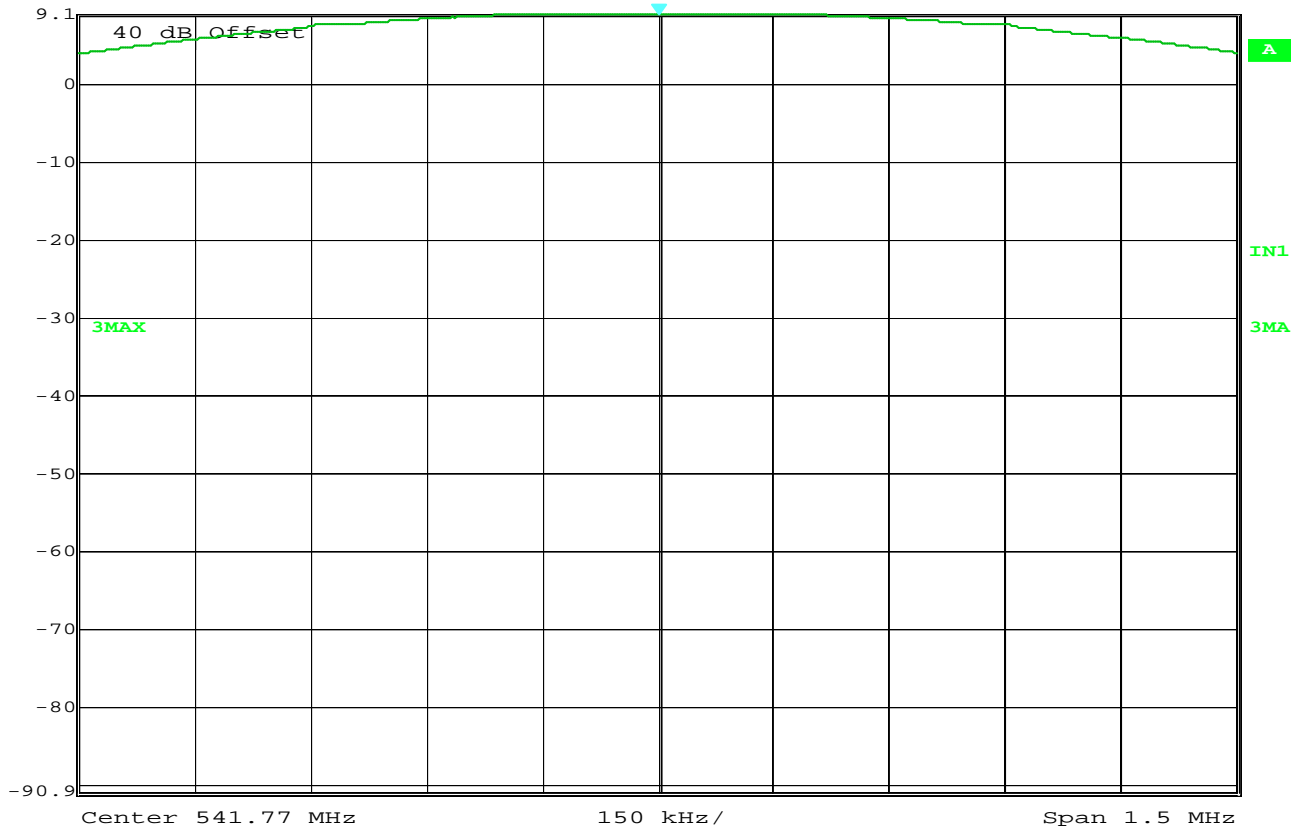
IC/FCC Occupied Bandwidth

MANUFACTURER : Shure, Inc.
 MODEL NUMBER : BLX2
 SERIAL NUMBER : Band H8
 TEST MODE : Tx at 529.325MHz
 TEST POWER : 10mW nominal
 NOTES : 2500Hz at 16dB over 50%
 EQUIPMENT USED : RBA1 w/ T2S3 & T2DD, GWH4, RYE0

NOTES



Marker 1 [T3] RBW 1 MHz RF Att 10 dB
 Ref Lvl 9.17 dBm VBW 1 MHz
 9.1 dBm 541.7700000 MHz SWT 5 ms Unit dBm

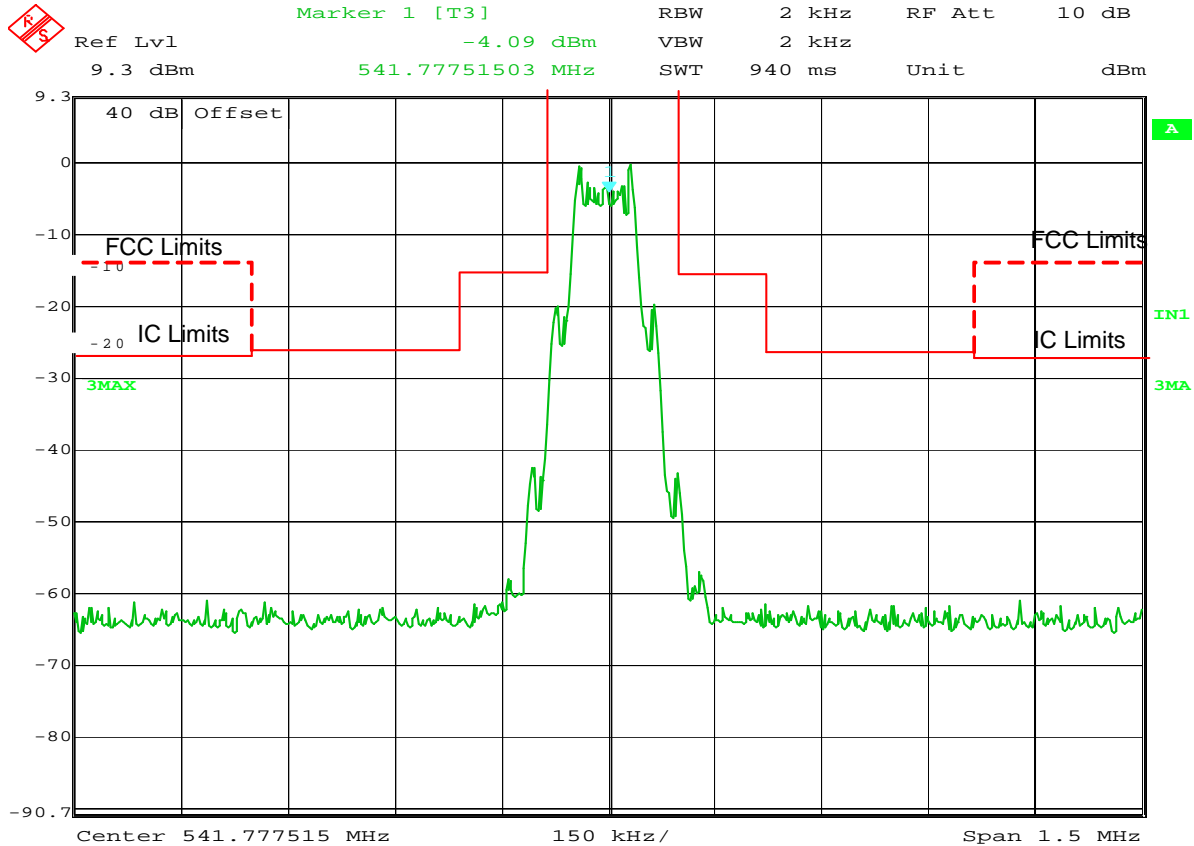


Date: 12.MAR.2012 10:44:49

IC/FCC Occupied Bandwidth

MANUFACTURER : Shure, Inc.
 MODEL NUMBER : BLX2
 SERIAL NUMBER : Band H8
 TEST MODE : Tx at 541.775MHz
 TEST POWER : 10mW nominal
 NOTES : Output Power of the unmodulated carrier
 EQUIPMENT USED : RBA1 w/ T2S3 & T2DD, GWH4, RYE0

NOTES



Date: 12.MAR.2012 14:44:01

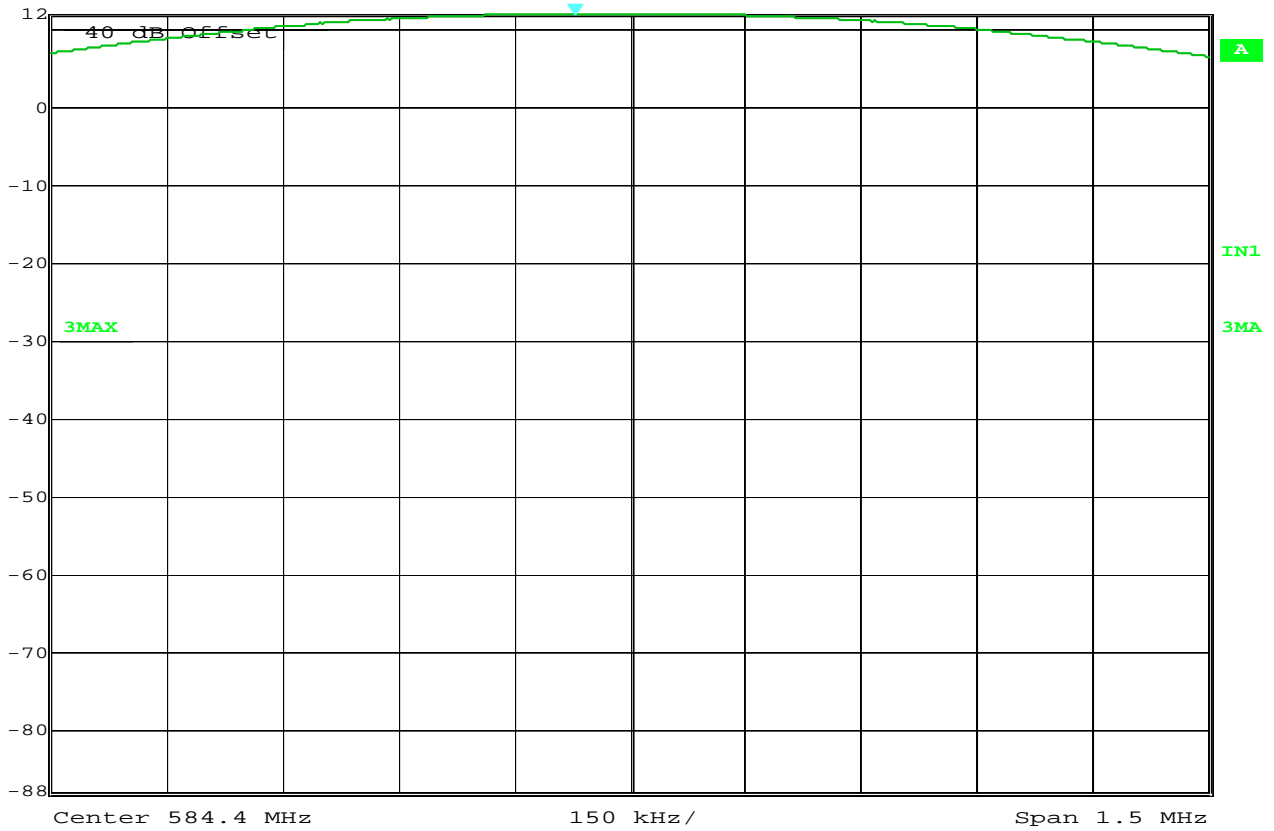
IC/FCC Occupied Bandwidth

MANUFACTURER : Shure, Inc.
 MODEL NUMBER : BLX2
 SERIAL NUMBER : Band H8
 TEST MODE : Tx at 541.775MHz
 TEST POWER : 10mW nominal
 NOTES : 2500Hz at 16dB over 50%
 EQUIPMENT USED : RBA1 w/ T2S3 & T2DD, GWH4, RYE0

NOTES



Marker 1 [T3] RBW 1 MHz RF Att 10 dB
 Ref Lvl 11.94 dBm VBW 1 MHz
 12 dBm 584.32935872 MHz SWT 5 ms Unit dBm

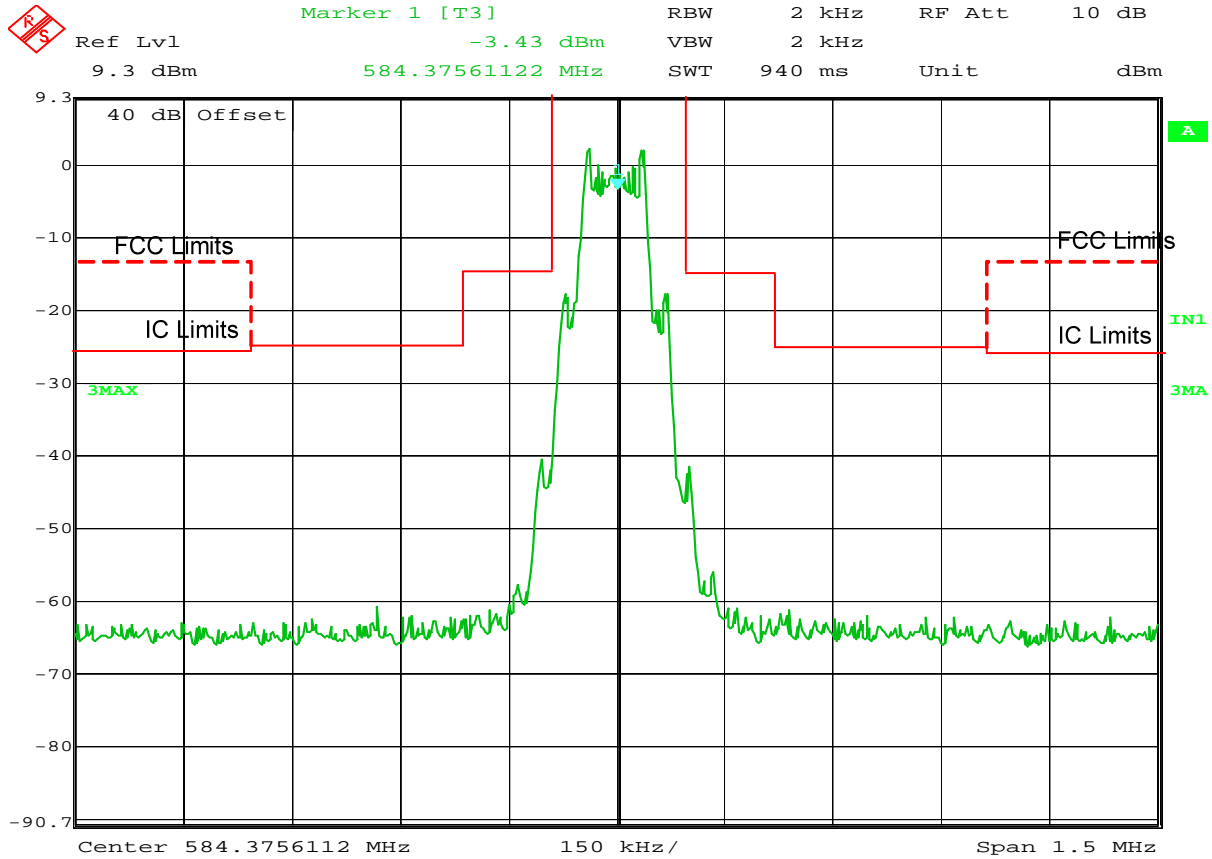


Date: 12.MAR.2012 11:08:20

IC/FCC Occupied Bandwidth

MANUFACTURER : Shure, Inc.
 MODEL NUMBER : BLX2
 SERIAL NUMBER : Band J10
 TEST MODE : Tx at 584.375MHz
 TEST POWER : 10mW nominal
 NOTES : Output Power of the unmodulated carrier
 EQUIPMENT USED : RBA1 w/ T2S3 & T2DD, GWH4, RYE0

NOTES



Date: 12.MAR.2012 15:20:29

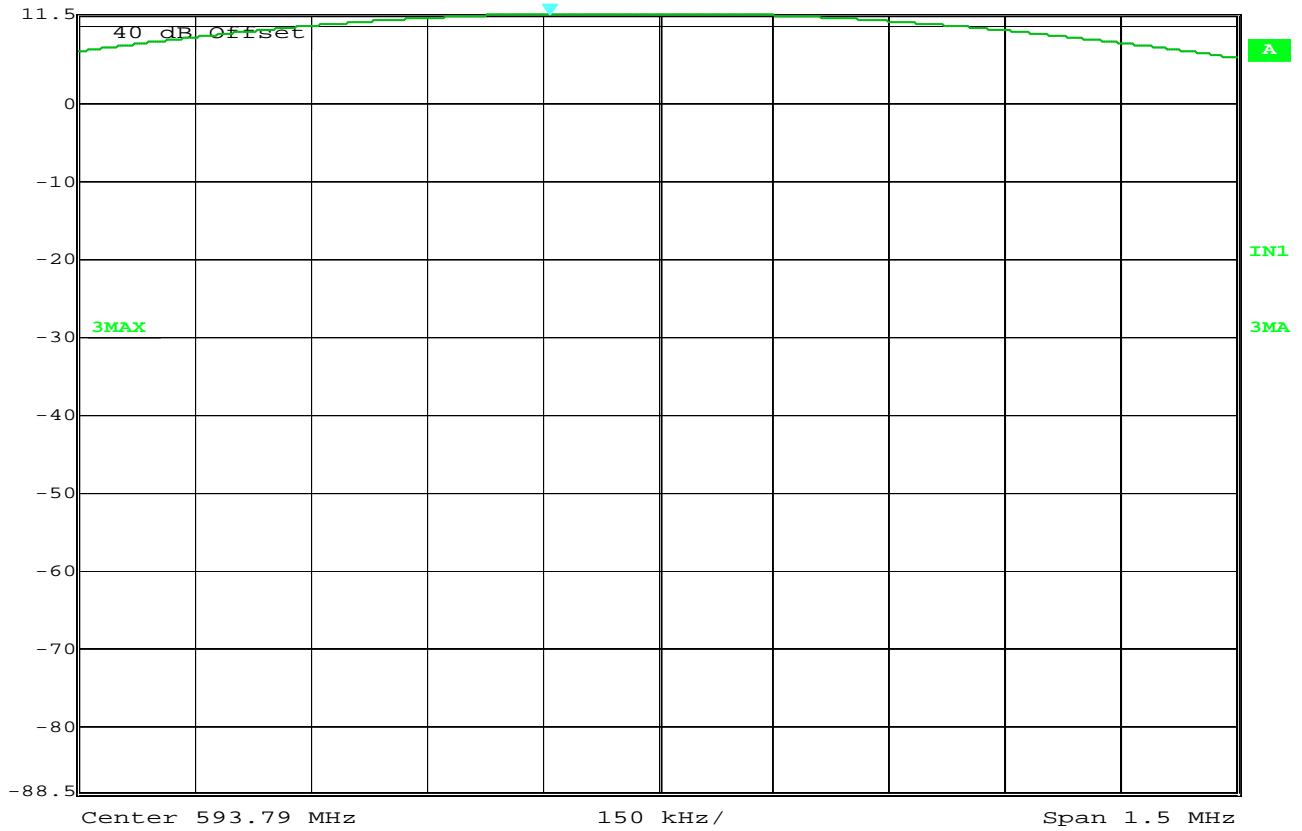
IC/FCC Occupied Bandwidth

MANUFACTURER : Shure, Inc.
 MODEL NUMBER : BLX2
 SERIAL NUMBER : Band J10
 TEST MODE : Tx at 584.375MHz
 TEST POWER : 10mW nominal
 NOTES : 2500Hz at 16dB over 50%
 EQUIPMENT USED : RBA1 w/ T2S3 & T2DD, GWH4, RYE0

NOTES



Marker 1 [T3] RBW 1 MHz RF Att 10 dB
 Ref Lvl 11.42 dBm VBW 1 MHz
 11.5 dBm 593.65022044 MHz SWT 5 ms Unit dBm



Date: 12.MAR.2012 11:11:34

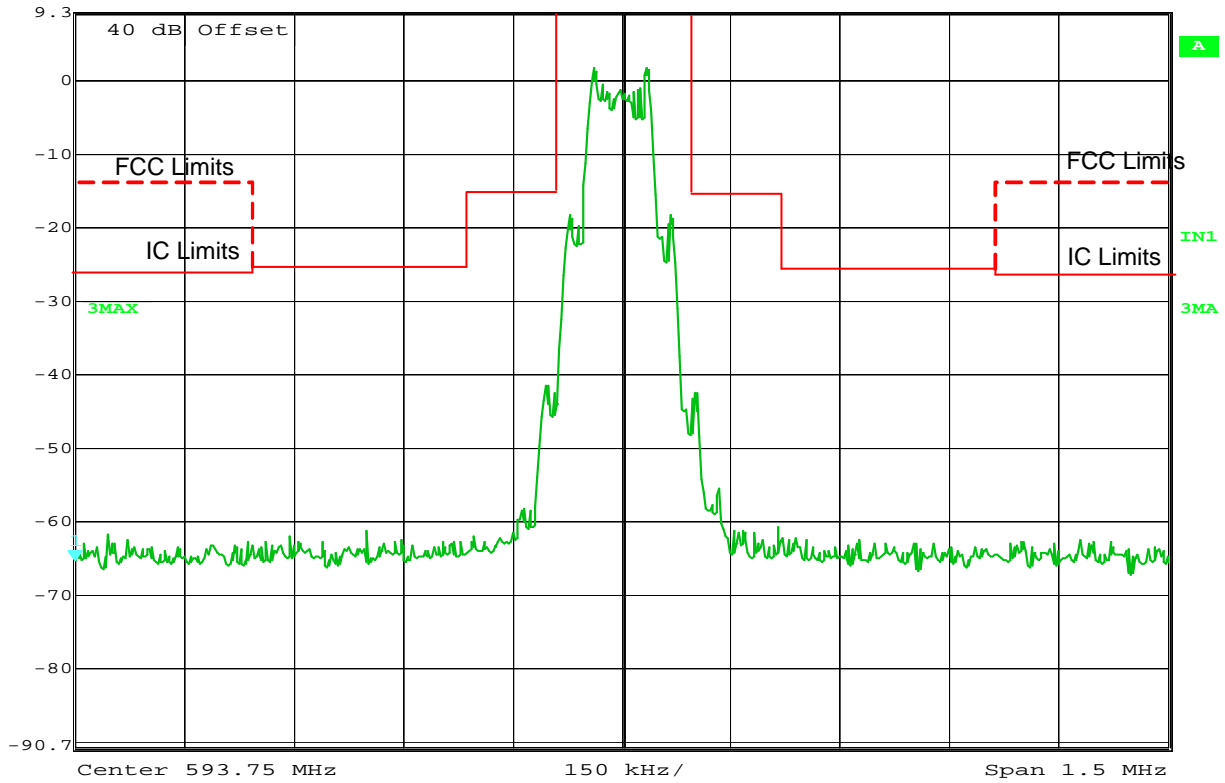
IC/FCC Occupied Bandwidth

MANUFACTURER : Shure, Inc.
 MODEL NUMBER : BLX2
 SERIAL NUMBER : Band J10
 TEST MODE : Tx at 593.75MHz
 TEST POWER : 10mW nominal
 NOTES : Output Power of the unmodulated carrier
 EQUIPMENT USED : RBA1 w/ T2S3 & T2DD, GWH4, RYE0

NOTES



Marker 1 [T3] RBW 2 kHz RF Att 10 dB
 Ref Lvl -65.31 dBm VBW 2 kHz
 9.3 dBm 593.0000000 MHz SWT 940 ms Unit dBm

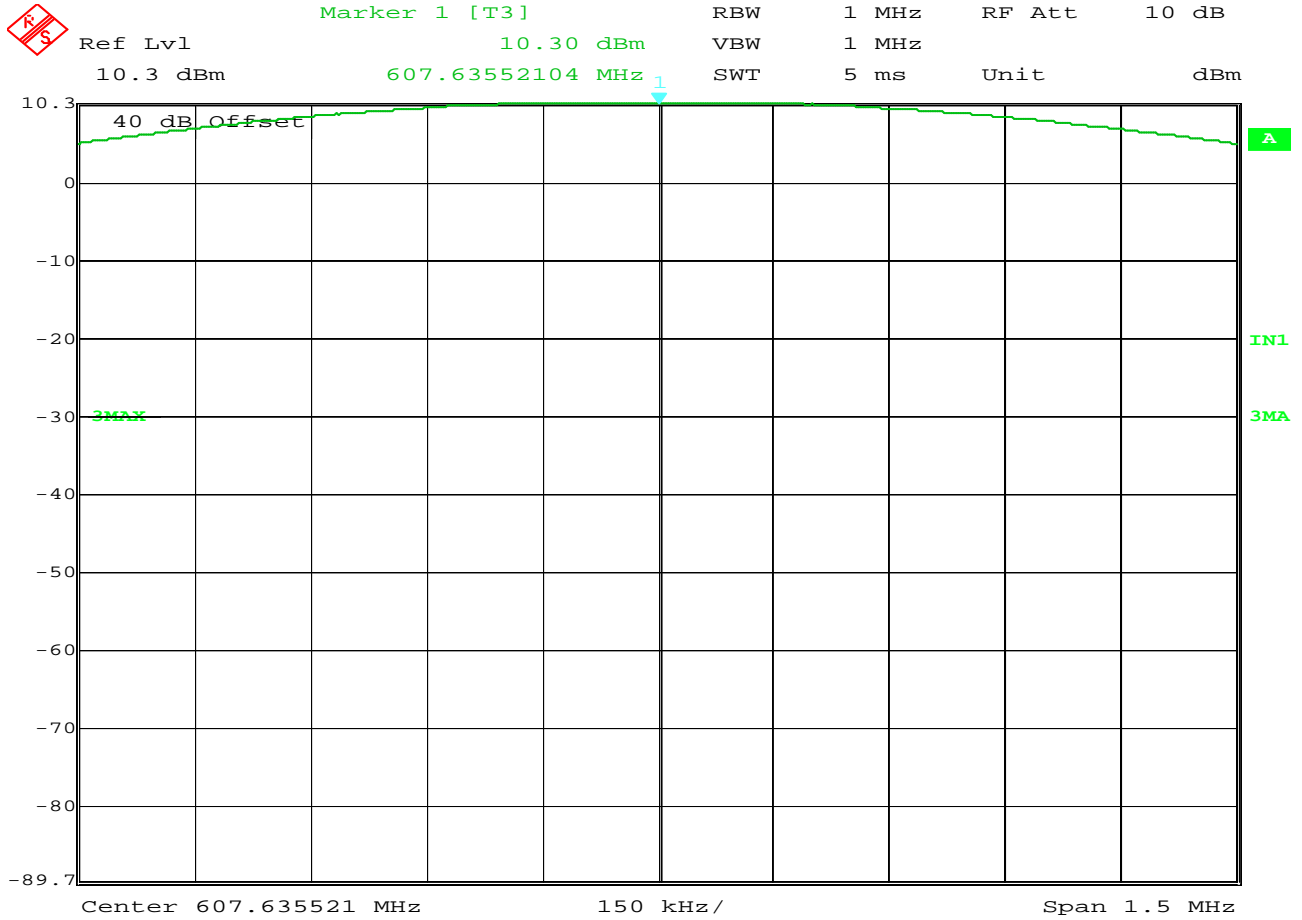


Date: 12.MAR.2012 15:23:10

IC/FCC Occupied Bandwidth

MANUFACTURER : Shure, Inc.
 MODEL NUMBER : BLX2
 SERIAL NUMBER : Band J10
 TEST MODE : Tx at 593.75MHz
 TEST POWER : 10mW nominal
 NOTES : 2500Hz at 16dB over 50%
 EQUIPMENT USED : RBA1 w/ T2S3 & T2DD, GWH4, RYE0

NOTES

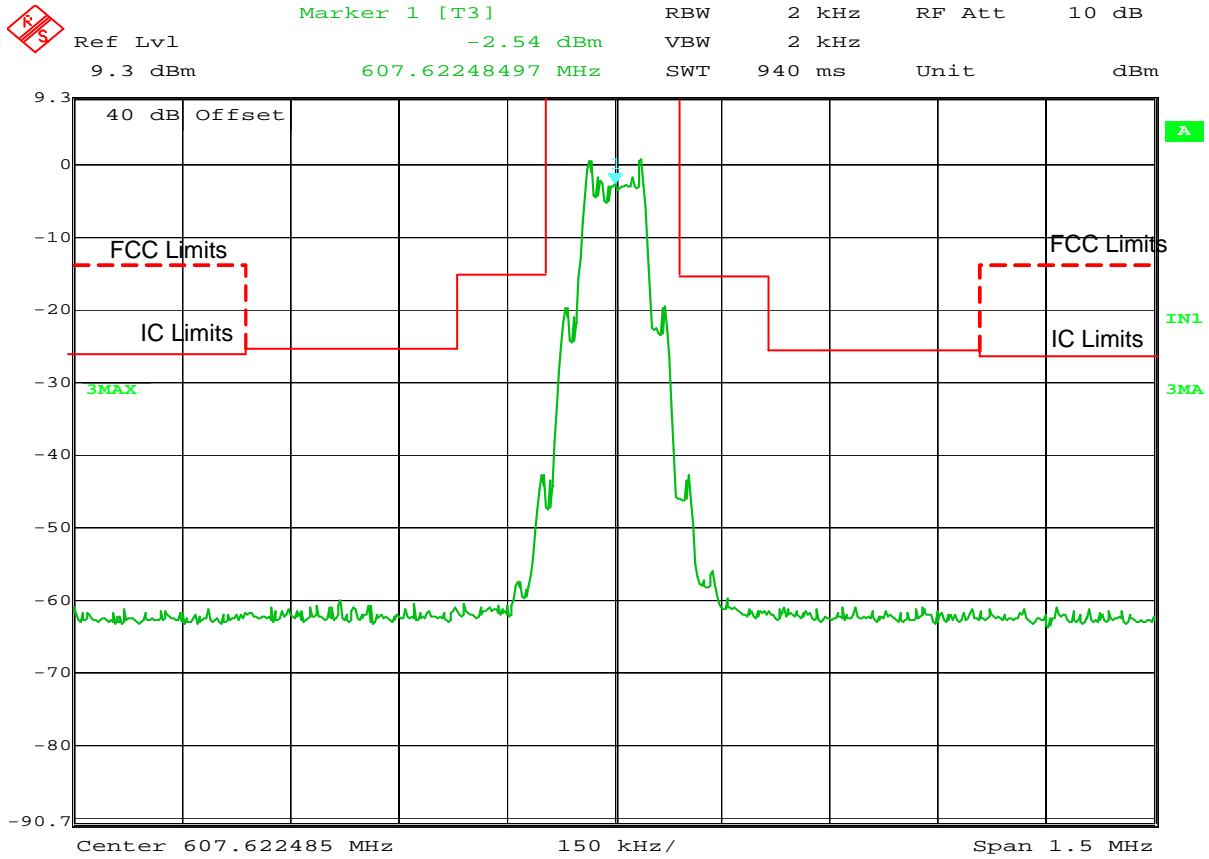


Date: 12.MAR.2012 11:04:46

IC/FCC Occupied Bandwidth

MANUFACTURER : Shure, Inc.
 MODEL NUMBER : BLX2
 SERIAL NUMBER : Band J10
 TEST MODE : Tx at 607.625MHz
 TEST POWER : 10mW nominal
 NOTES : Output Power of the unmodulated carrier
 EQUIPMENT USED : RBA1 w/ T2S3 & T2DD, GWH4, RYE0

NOTES



Date: 12.MAR.2012 15:09:44

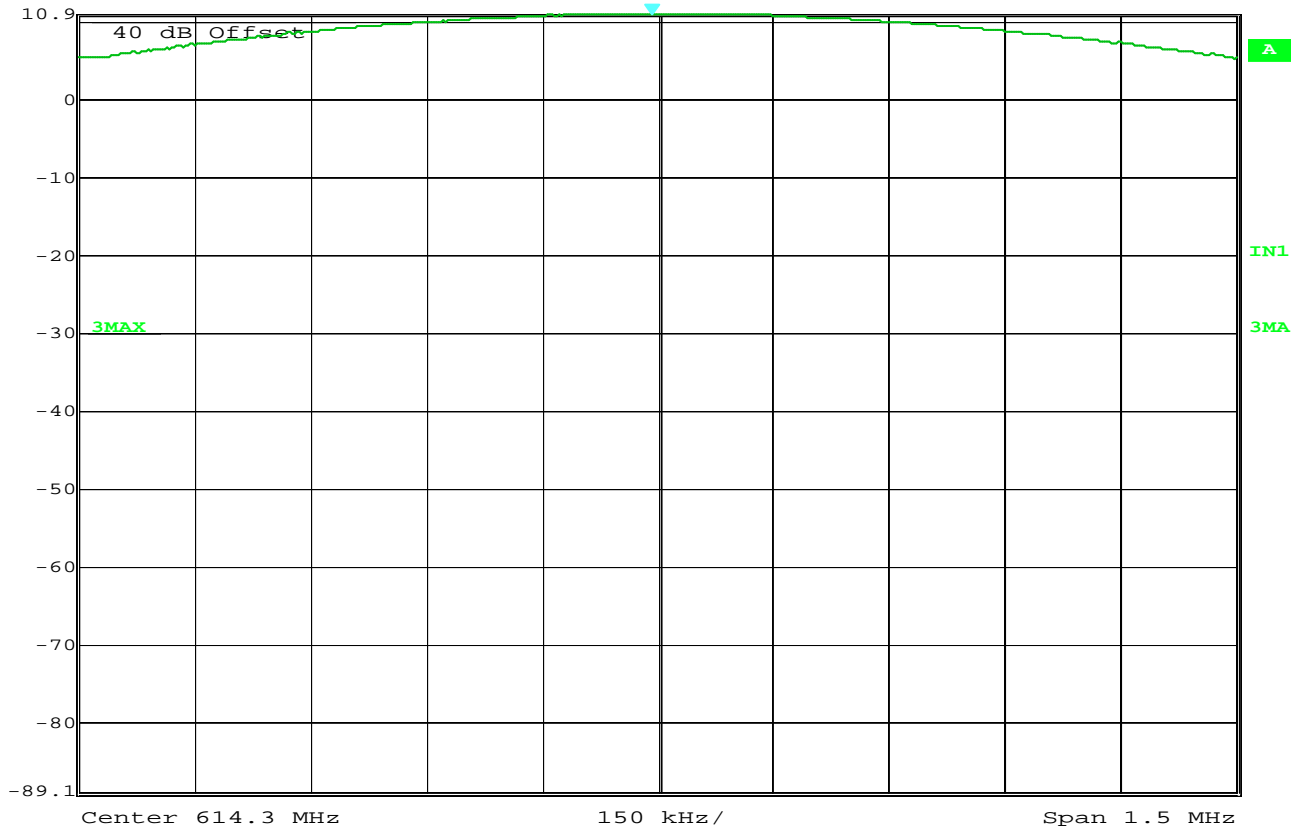
IC/FCC Occupied Bandwidth

MANUFACTURER : Shure, Inc.
 MODEL NUMBER : BLX2
 SERIAL NUMBER : Band J10
 TEST MODE : Tx at 607.625MHz
 TEST POWER : 10mW nominal
 NOTES : 2500Hz at 16dB over 50%
 EQUIPMENT USED : RBA1 w/ T2S3 & T2DD, GWH4, RYE0

NOTES



Marker 1 [T3] RBW 1 MHz RF Att 10 dB
 Ref Lvl 10.83 dBm VBW 1 MHz
 10.9 dBm 614.29248497 MHz SWT 5 ms Unit dBm



Date: 12.MAR.2012 11:20:18

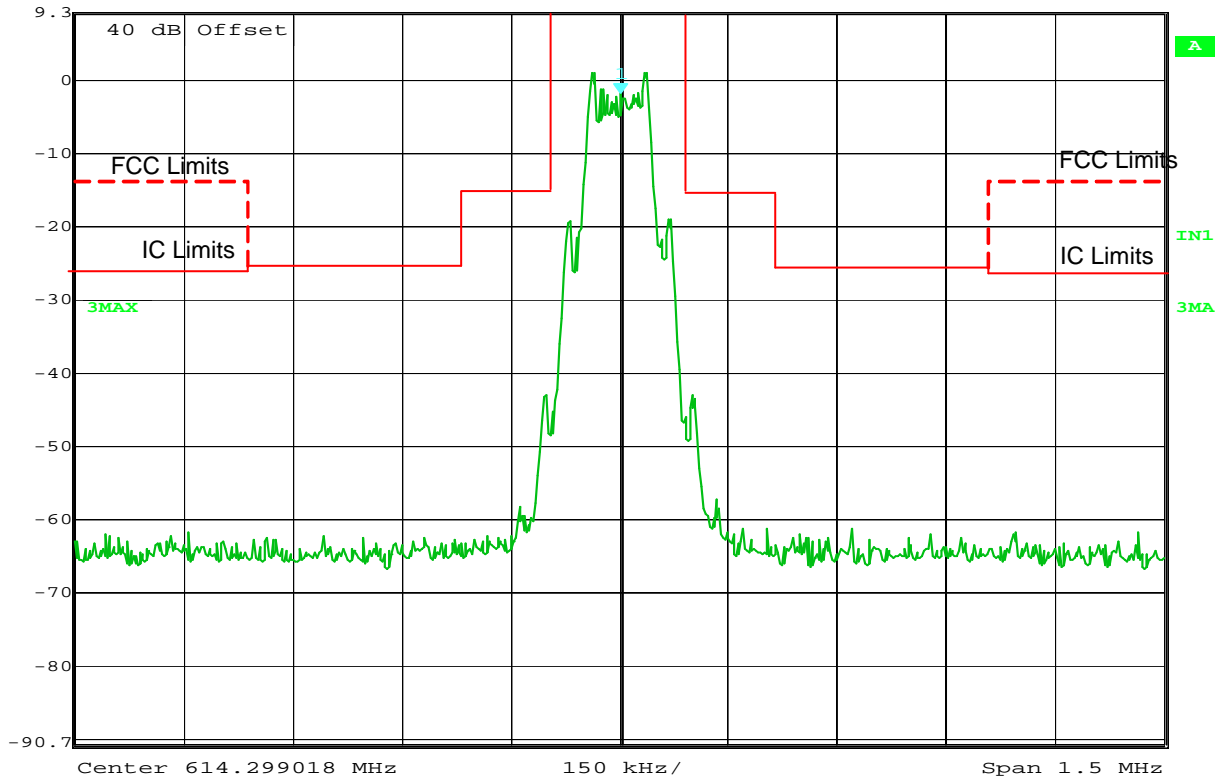
IC/FCC Occupied Bandwidth

MANUFACTURER : Shure, Inc.
 MODEL NUMBER : BLX2
 SERIAL NUMBER : Band K12
 TEST MODE : Tx at 614.3MHz
 TEST POWER : 10mW nominal
 NOTES : Output Power of the unmodulated carrier
 EQUIPMENT USED : RBA1 w/ T2S3 & T2DD, GWH4, RYE0

NOTES



Marker 1 [T3] RBW 2 kHz RF Att 10 dB
 Ref Lvl -1.87 dBm VBW 2 kHz
 9.3 dBm 614.29901804 MHz SWT 940 ms Unit dBm



Date: 12.MAR.2012 15:33:26

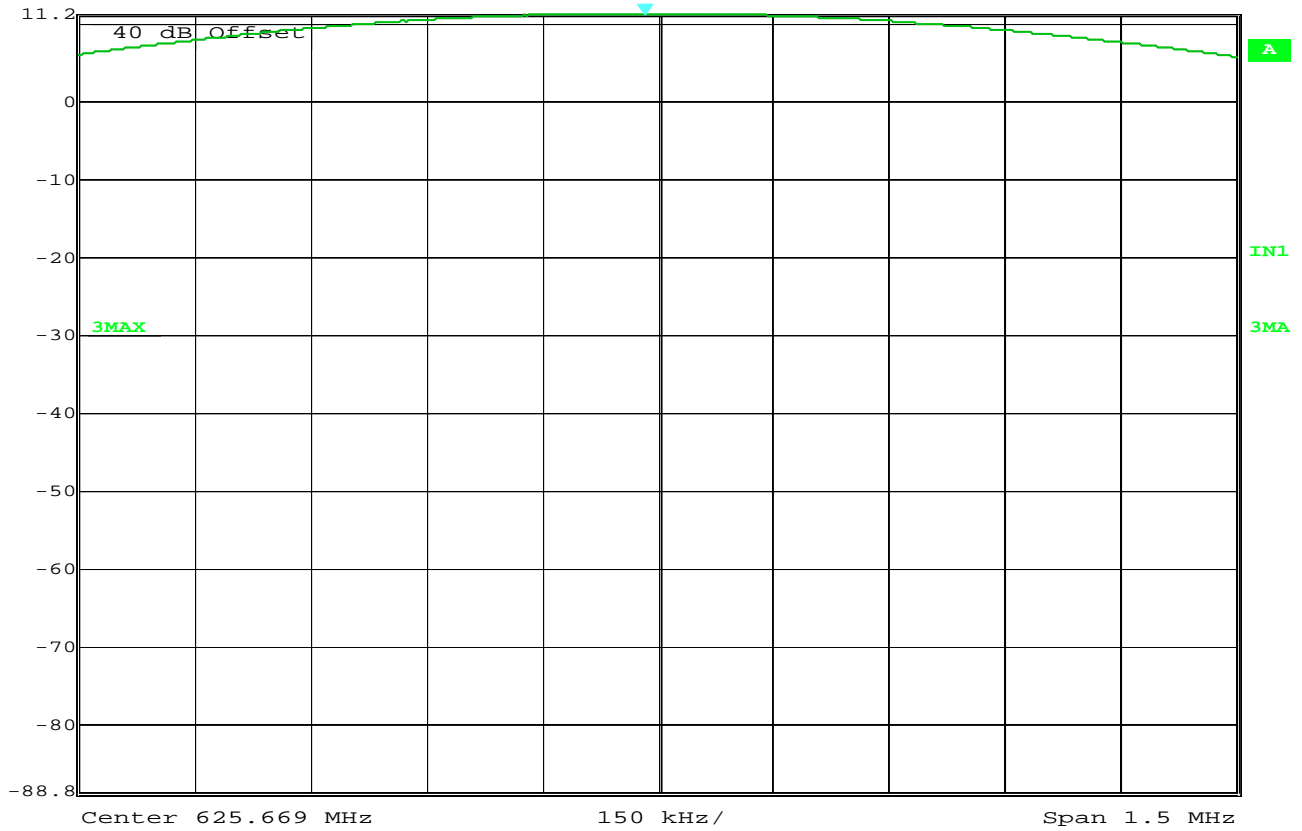
IC/FCC Occupied Bandwidth

MANUFACTURER : Shure, Inc.
 MODEL NUMBER : BLX2
 SERIAL NUMBER : Band K12
 TEST MODE : Tx at 614.3MHz
 TEST POWER : 10mW nominal
 NOTES : 2500Hz at 16dB over 50%
 EQUIPMENT USED : RBA1 w/ T2S3 & T2DD, GWH4, RYE0

NOTES



Marker 1 [T3] RBW 1 MHz RF Att 10 dB
 Ref Lvl 11.06 dBm VBW 1 MHz
 11.2 dBm 625.65246693 MHz SWT 5 ms Unit dBm



Date: 12.MAR.2012 12:07:14

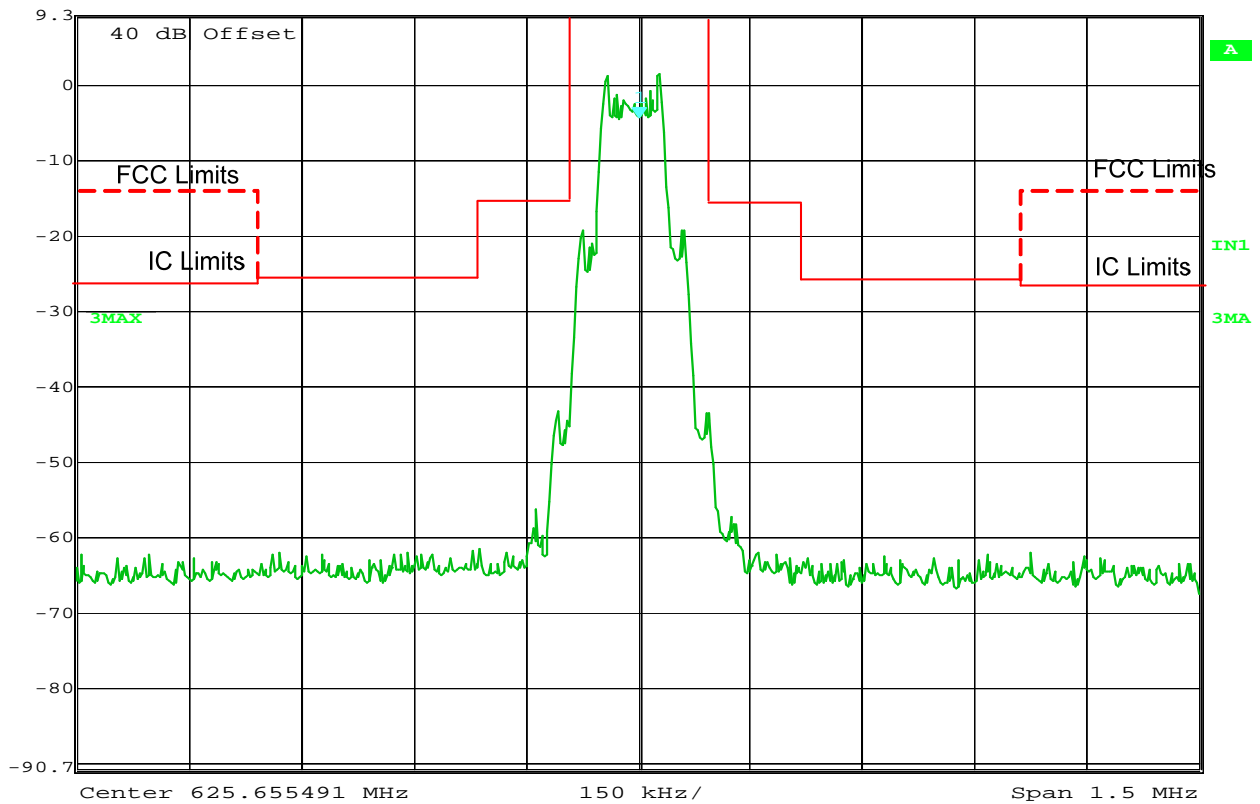
IC/FCC Occupied Bandwidth

MANUFACTURER : Shure, Inc.
 MODEL NUMBER : BLX2
 SERIAL NUMBER : Band K12
 TEST MODE : Tx at 625.65MHz
 TEST POWER : 10mW nominal
 NOTES : Output Power of the unmodulated carrier
 EQUIPMENT USED : RBA1 w/ T2S3 & T2DD, GWH4, RYE0

NOTES



Marker 1 [T3] RBW 2 kHz RF Att 10 dB
 Ref Lvl -4.26 dBm VBW 2 kHz
 9.3 dBm 625.65549098 MHz SWT 940 ms Unit dBm



Date: 12.MAR.2012 15:41:49

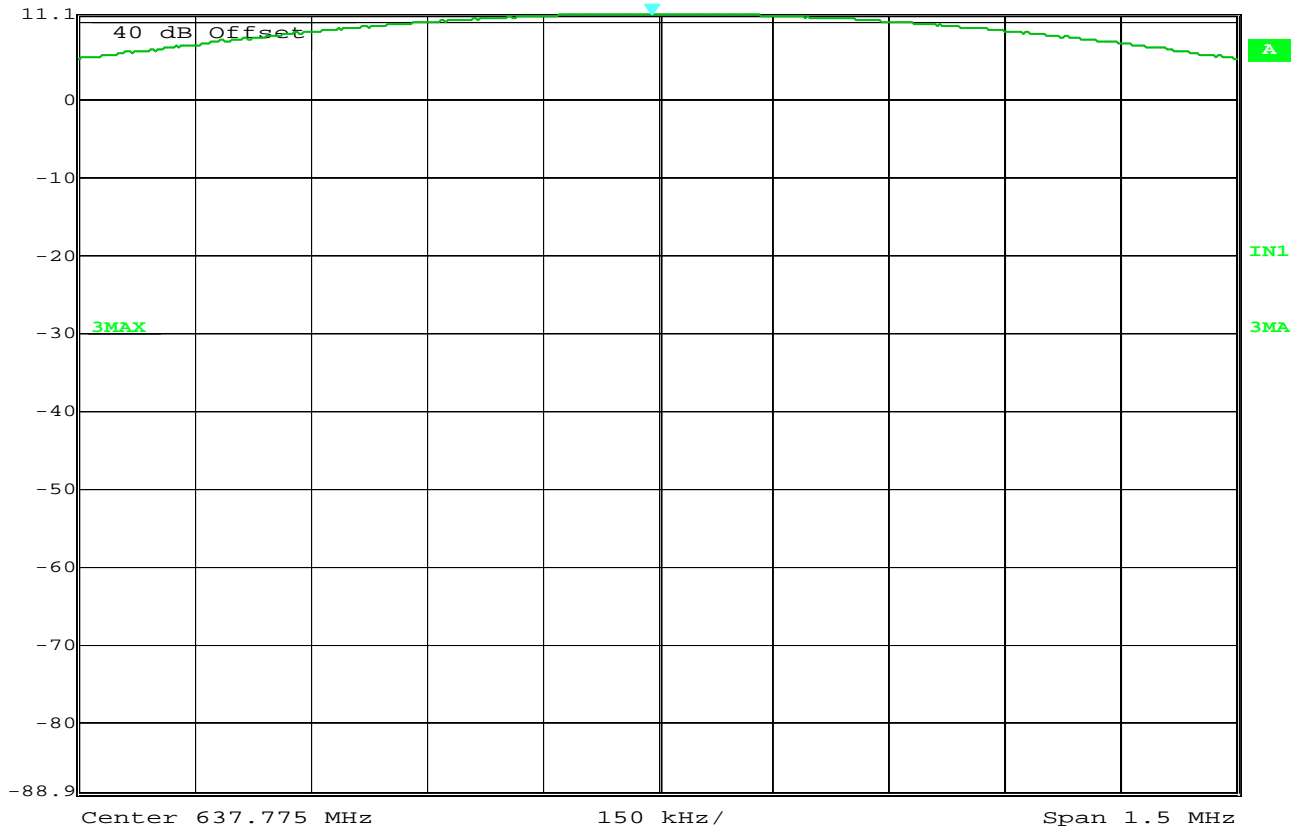
IC/FCC Occupied Bandwidth

MANUFACTURER : Shure, Inc.
 MODEL NUMBER : BLX2
 SERIAL NUMBER : Band K12
 TEST MODE : Tx at 625.65MHz
 TEST POWER : 10mW nominal
 NOTES : 2500Hz at 16dB over 50%
 EQUIPMENT USED : RBA1 w/ T2S3 & T2DD, GWH4, RYE0

NOTES



Marker 1 [T3] RBW 1 MHz RF Att 10 dB
 Ref Lvl 11.03 dBm VBW 1 MHz
 11.1 dBm 637.76748497 MHz SWT 5 ms Unit dBm

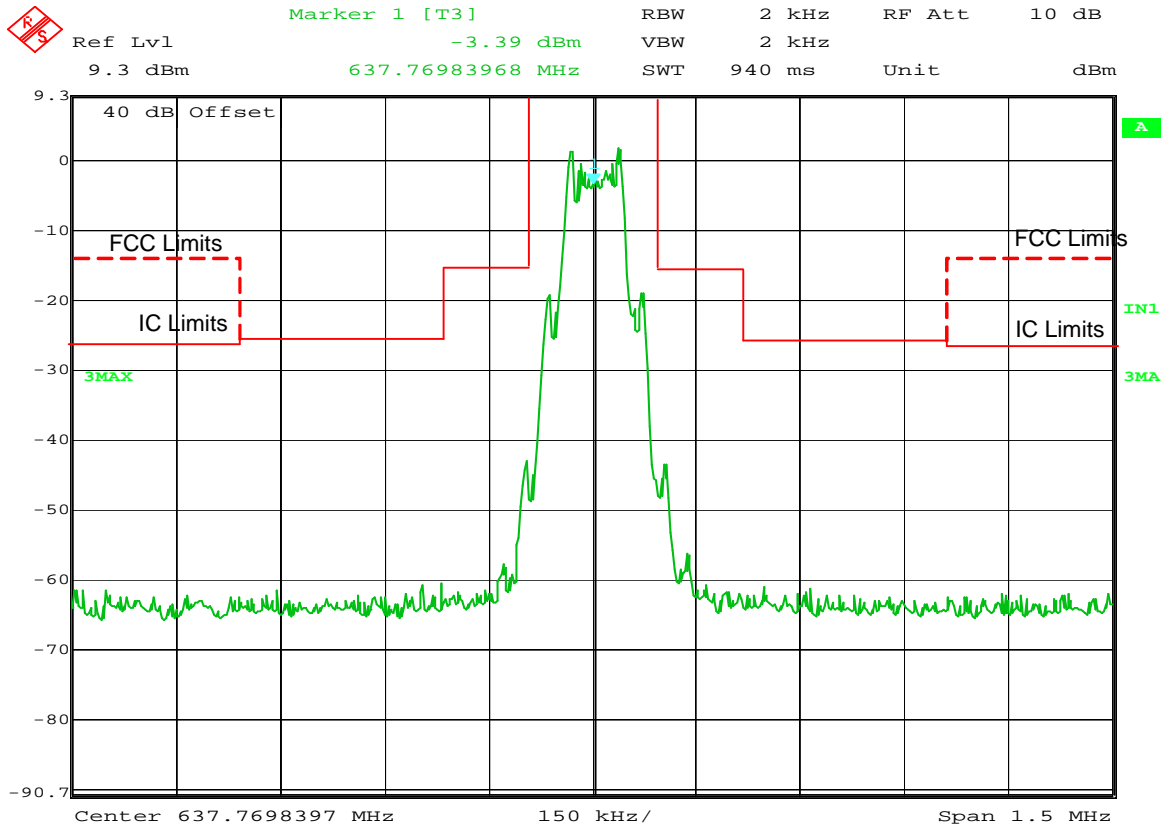


Date: 12.MAR.2012 11:16:46

IC/FCC Occupied Bandwidth

MANUFACTURER : Shure, Inc.
 MODEL NUMBER : BLX2
 SERIAL NUMBER : Band K12
 TEST MODE : Tx at 637.775MHz
 TEST POWER : 10mW nominal
 NOTES : Output Power of the unmodulated carrier
 EQUIPMENT USED : RBA1 w/ T2S3 & T2DD, GWH4, RYE0

NOTES



Date: 12.MAR.2012 15:48:11

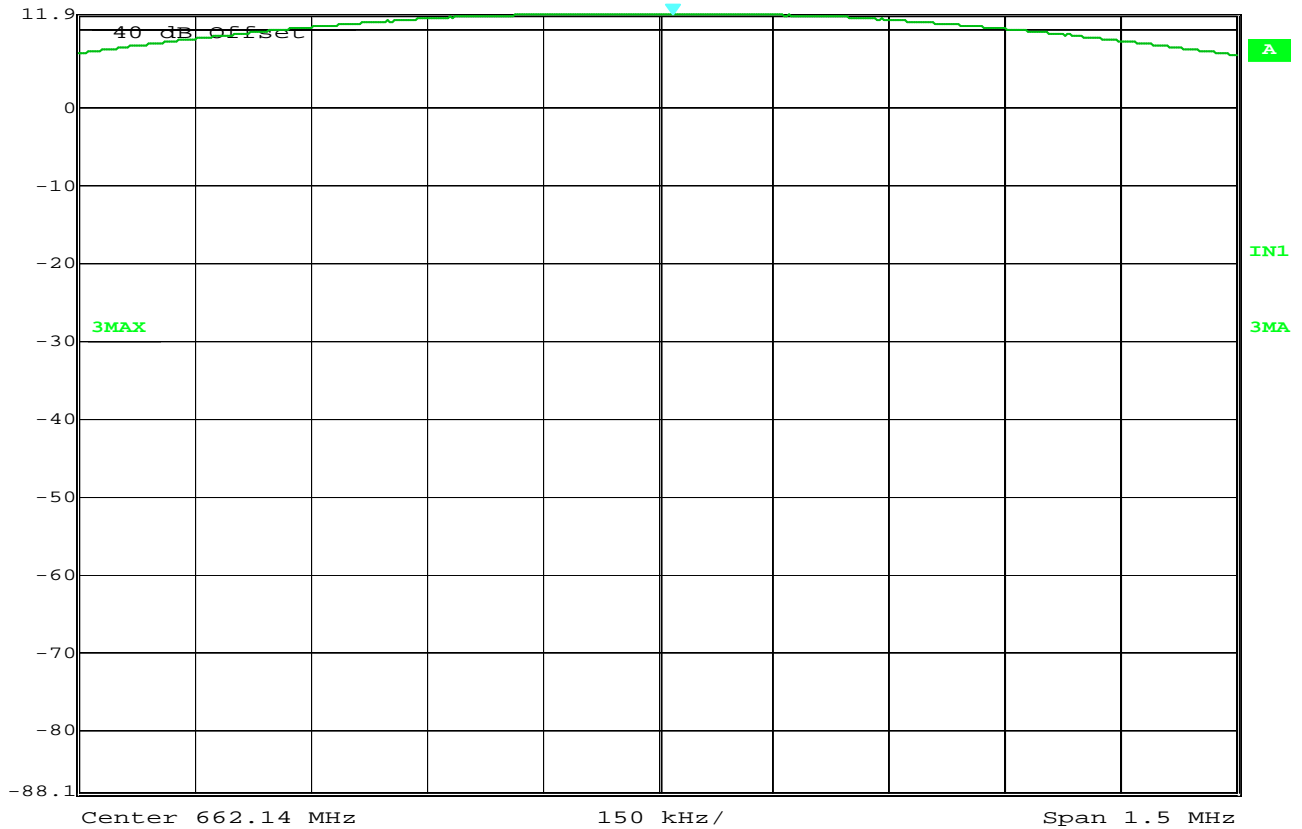
IC/FCC Occupied Bandwidth

MANUFACTURER : Shure, Inc.
 MODEL NUMBER : BLX2
 SERIAL NUMBER : Band K12
 TEST MODE : Tx at 637.775MHz
 TEST POWER : 10mW nominal
 NOTES : 2500Hz at 16dB over 50%
 EQUIPMENT USED : RBA1 w/ T2S3 & T2DD, GWH4, RYE0

NOTES



Marker 1 [T3] RBW 1 MHz RF Att 10 dB
 Ref Lvl 11.83 dBm VBW 1 MHz
 11.9 dBm 662.15953908 MHz SWT 5 ms Unit dBm



Date: 12.MAR.2012 12:14:13

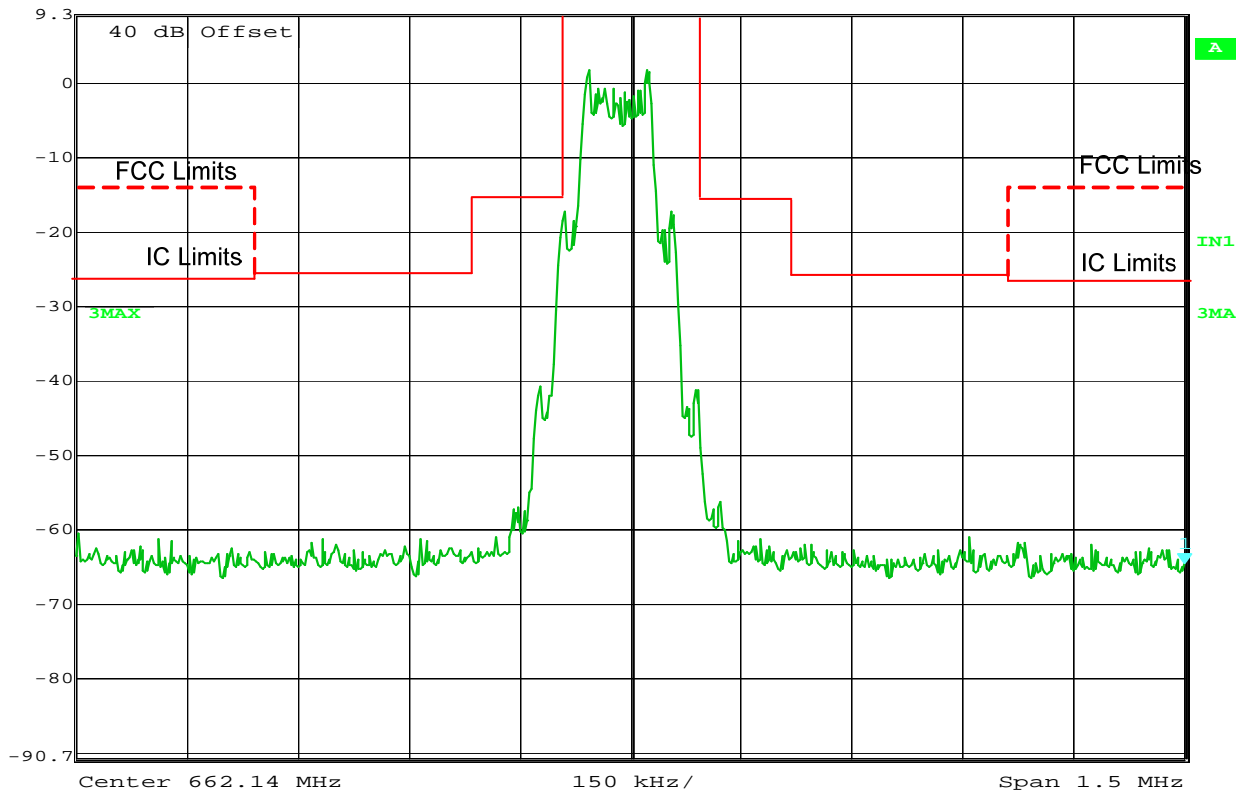
IC/FCC Occupied Bandwidth

MANUFACTURER : Shure, Inc.
 MODEL NUMBER : BLX2
 SERIAL NUMBER : Band M15
 TEST MODE : Tx at 662.125MHz
 TEST POWER : 10mW nominal
 NOTES : Output Power of the unmodulated carrier
 EQUIPMENT USED : RBA1 w/ T2S3 & T2DD, GWH4, RYE0

NOTES



Marker 1 [T3] RBW 2 kHz RF Att 10 dB
 Ref Lvl -64.48 dBm VBW 2 kHz
 9.3 dBm 662.89000000 MHz SWT 940 ms Unit dBm



Date: 12.MAR.2012 15:54:45

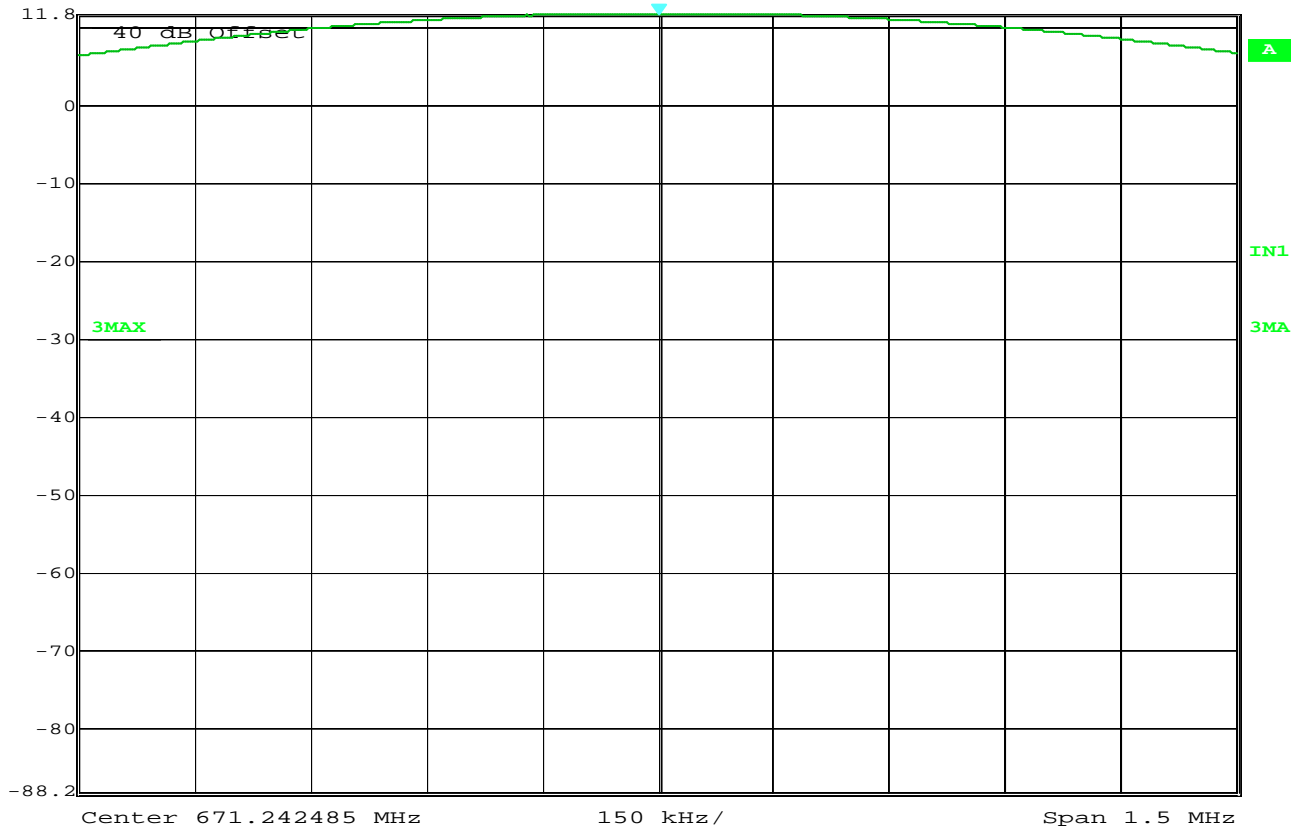
IC/FCC Occupied Bandwidth

MANUFACTURER : Shure, Inc.
 MODEL NUMBER : BLX2
 SERIAL NUMBER : Band M15
 TEST MODE : Tx at 662.125MHz
 TEST POWER : 10mW nominal
 NOTES : 2500Hz at 16dB over 50%
 EQUIPMENT USED : RBA1 w/ T2S3 & T2DD, GWH4, RYE0

NOTES



Marker 1 [T3] RBW 1 MHz RF Att 10 dB
 Ref Lvl 11.74 dBm VBW 1 MHz
 11.8 dBm 671.24248497 MHz SWT 5 ms Unit dBm

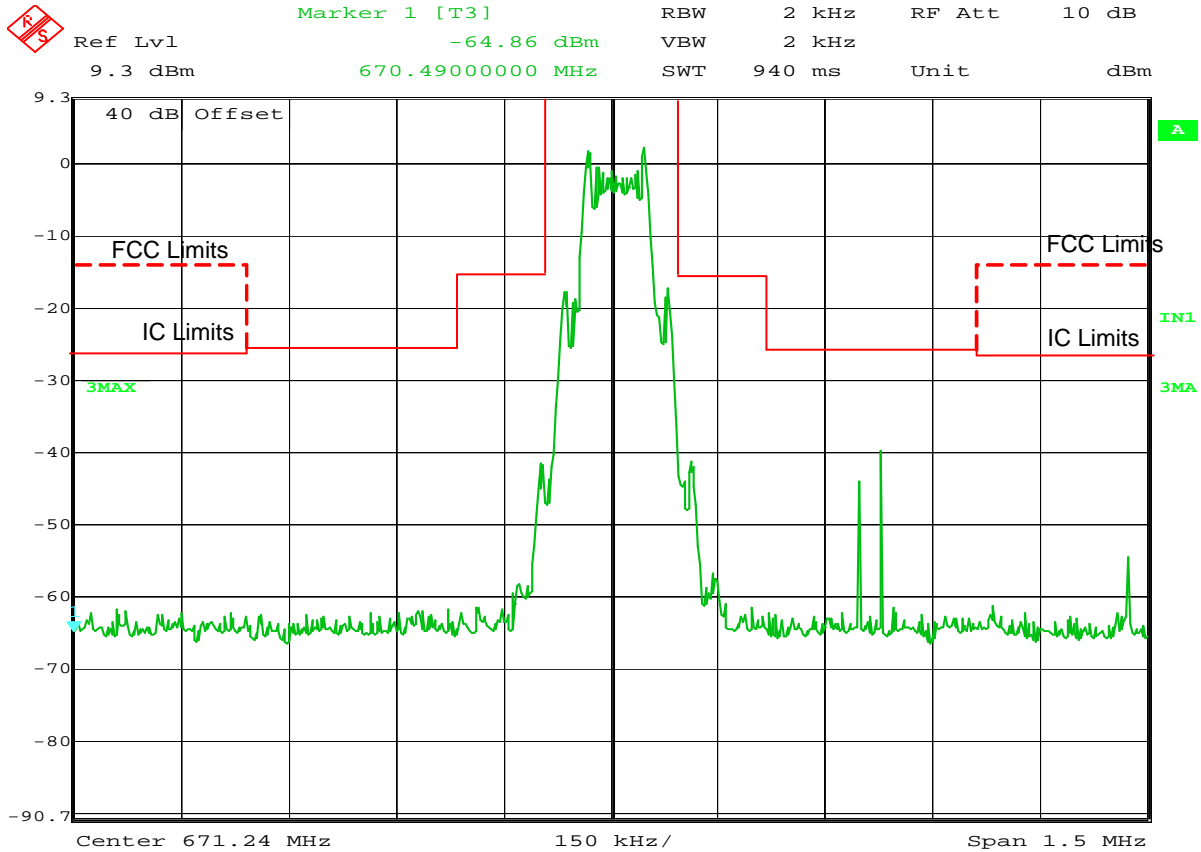


Date: 12.MAR.2012 12:19:54

IC/FCC Occupied Bandwidth

MANUFACTURER : Shure, Inc.
 MODEL NUMBER : BLX2
 SERIAL NUMBER : Band M15
 TEST MODE : Tx at 671.25MHz
 TEST POWER : 10mW nominal
 NOTES : Output Power of the unmodulated carrier
 EQUIPMENT USED : RBA1 w/ T2S3 & T2DD, GWH4, RYE0

NOTES



Date: 12.MAR.2012 15:56:33

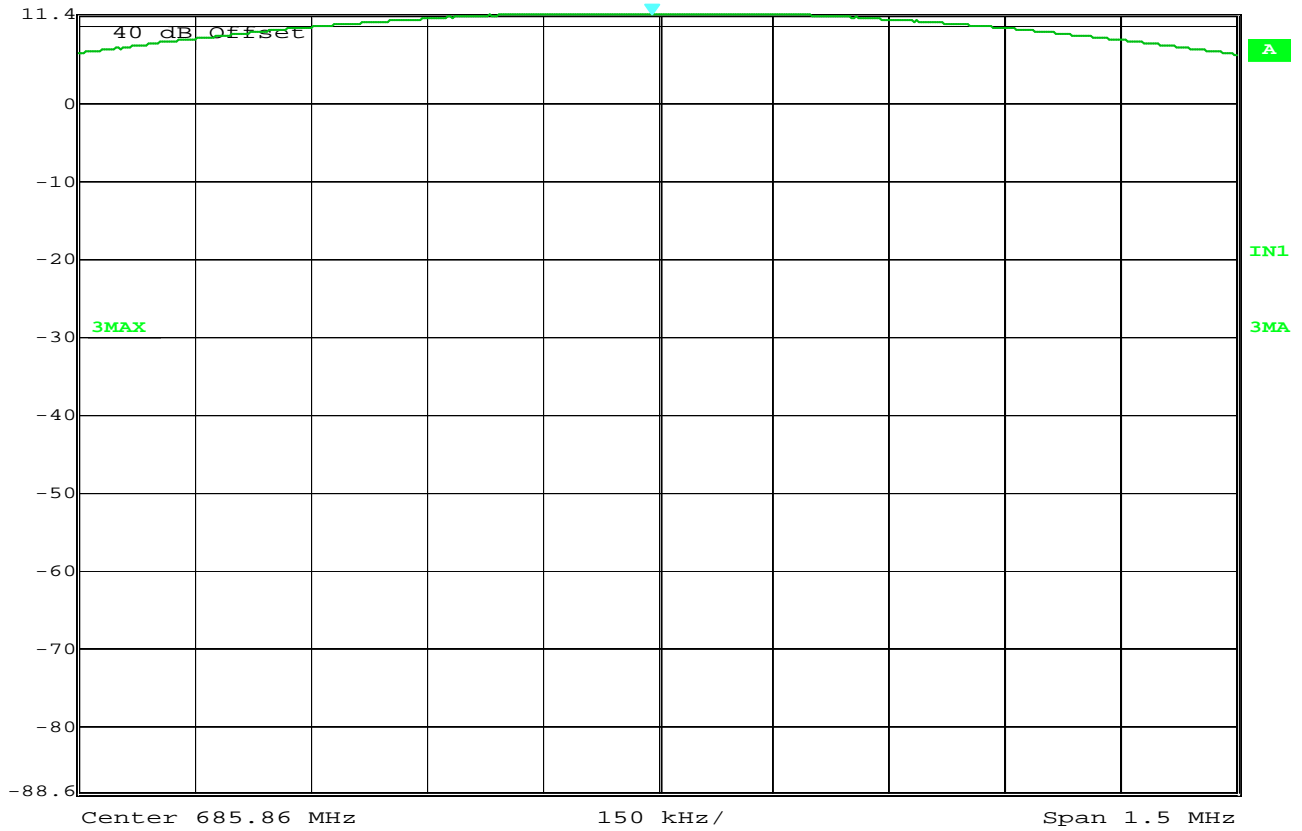
IC/FCC Occupied Bandwidth

MANUFACTURER : Shure, Inc.
 MODEL NUMBER : BLX2
 SERIAL NUMBER : Band M15
 TEST MODE : Tx at 671.25MHz
 TEST POWER : 10mW nominal
 NOTES : 2500Hz at 16dB over 50%
 EQUIPMENT USED : RBA1 w/ T2S3 & T2DD, GWH4, RYE0

NOTES



Marker 1 [T3] RBW 1 MHz RF Att 10 dB
 Ref Lvl 11.36 dBm VBW 1 MHz
 11.4 dBm 685.85248497 MHz SWT 5 ms Unit dBm

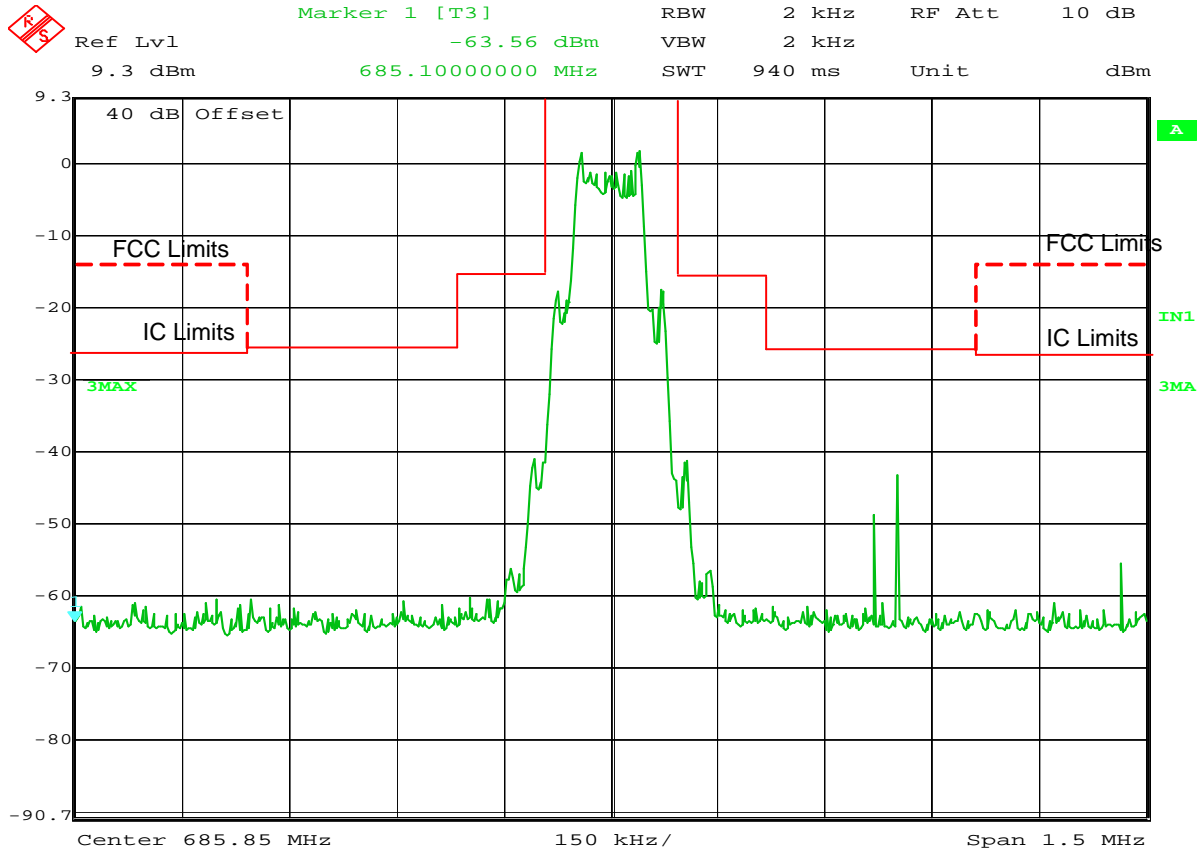


Date: 12.MAR.2012 12:10:57

IC/FCC Occupied Bandwidth

MANUFACTURER : Shure, Inc.
 MODEL NUMBER : BLX2
 SERIAL NUMBER : Band M15
 TEST MODE : Tx at 685.85MHz
 TEST POWER : 10mW nominal
 NOTES : Output Power of the unmodulated carrier
 EQUIPMENT USED : RBA1 w/ T2S3 & T2DD, GWH4, RYE0

NOTES

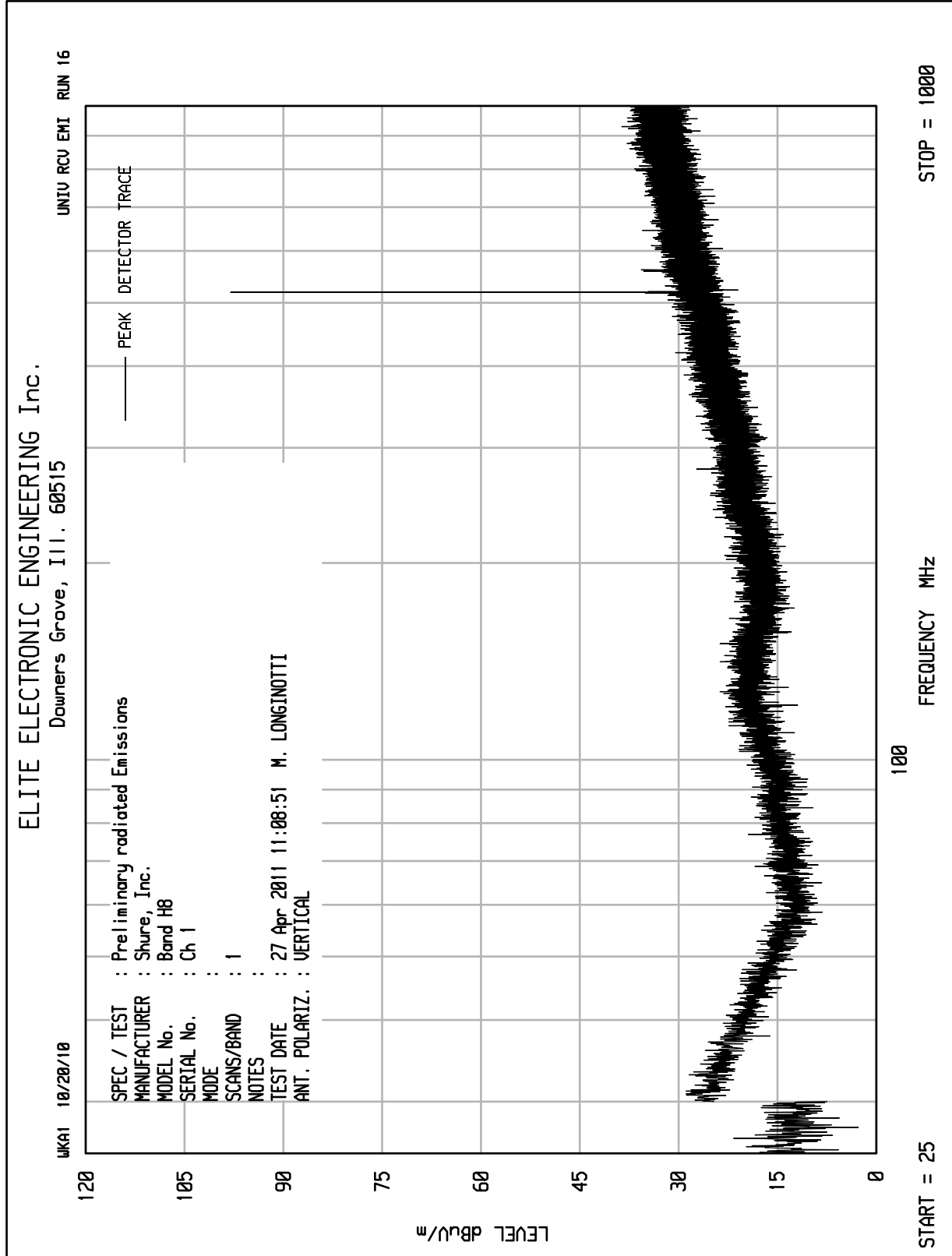


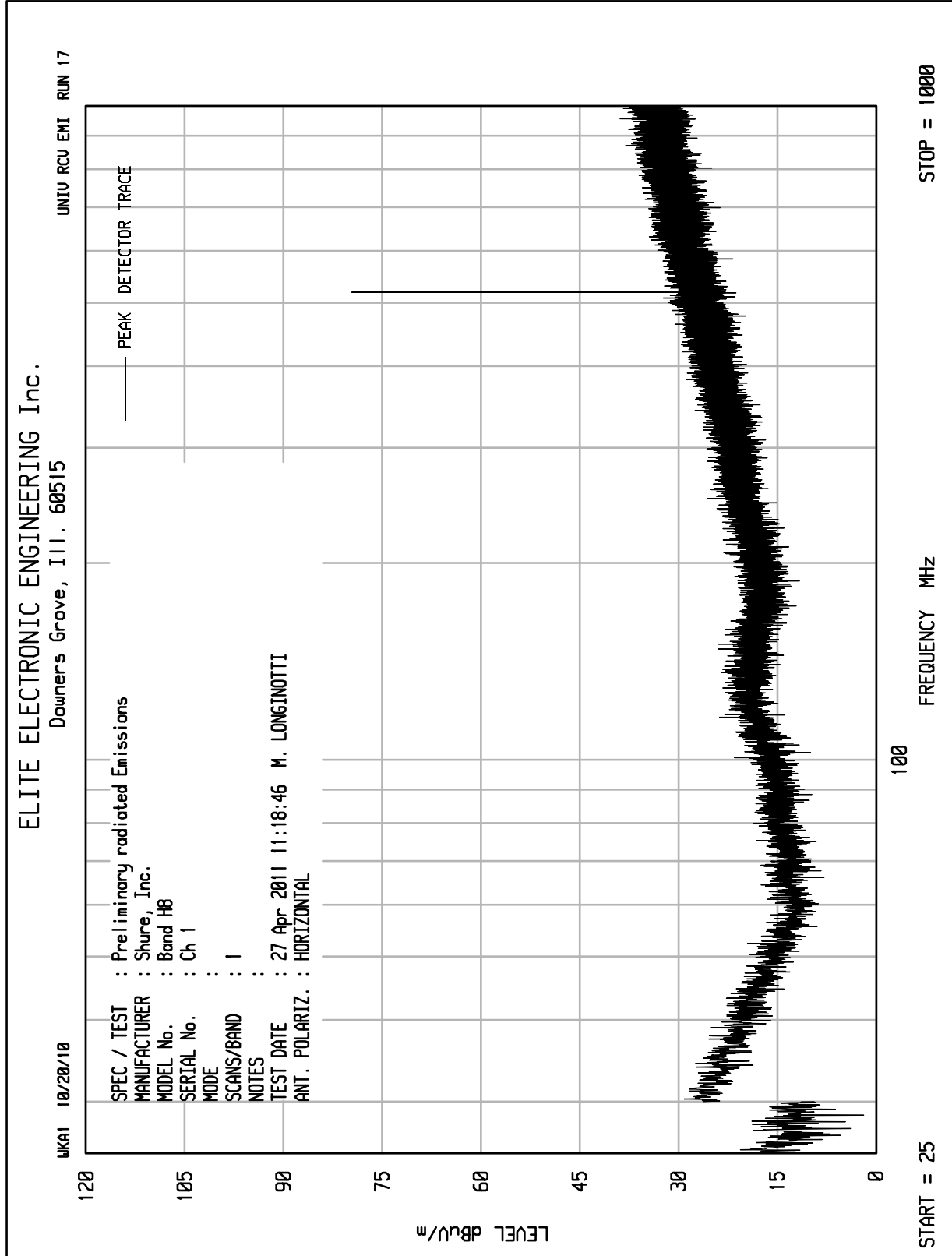
Date: 12.MAR.2012 15:52:48

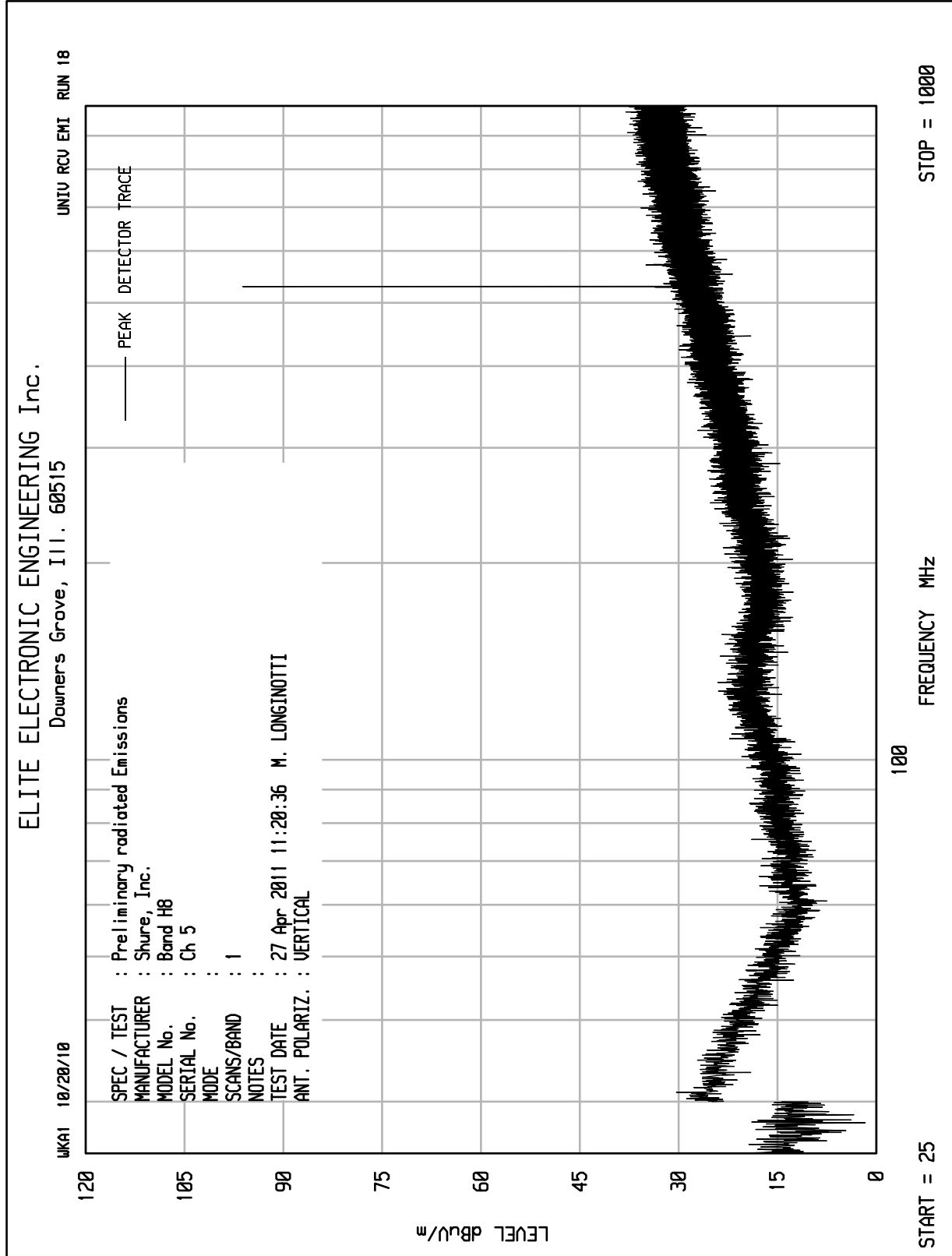
IC/FCC Occupied Bandwidth

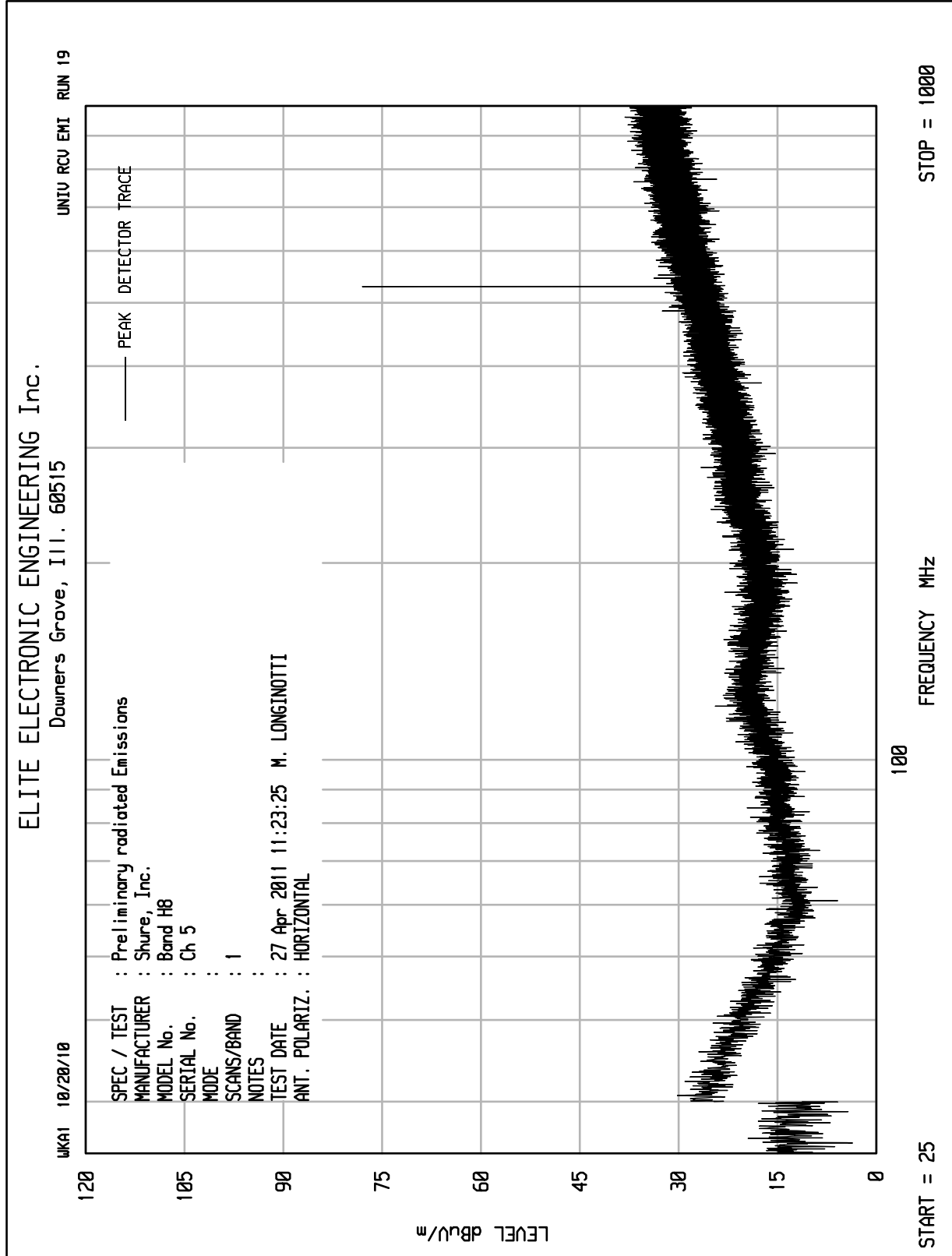
MANUFACTURER : Shure, Inc.
 MODEL NUMBER : BLX2
 SERIAL NUMBER : Band M15
 TEST MODE : Tx at 685.85MHz
 TEST POWER : 10mW nominal
 NOTES : 2500Hz at 16dB over 50%
 EQUIPMENT USED : RBA1 w/ T2S3 & T2DD, GWH4, RYE0

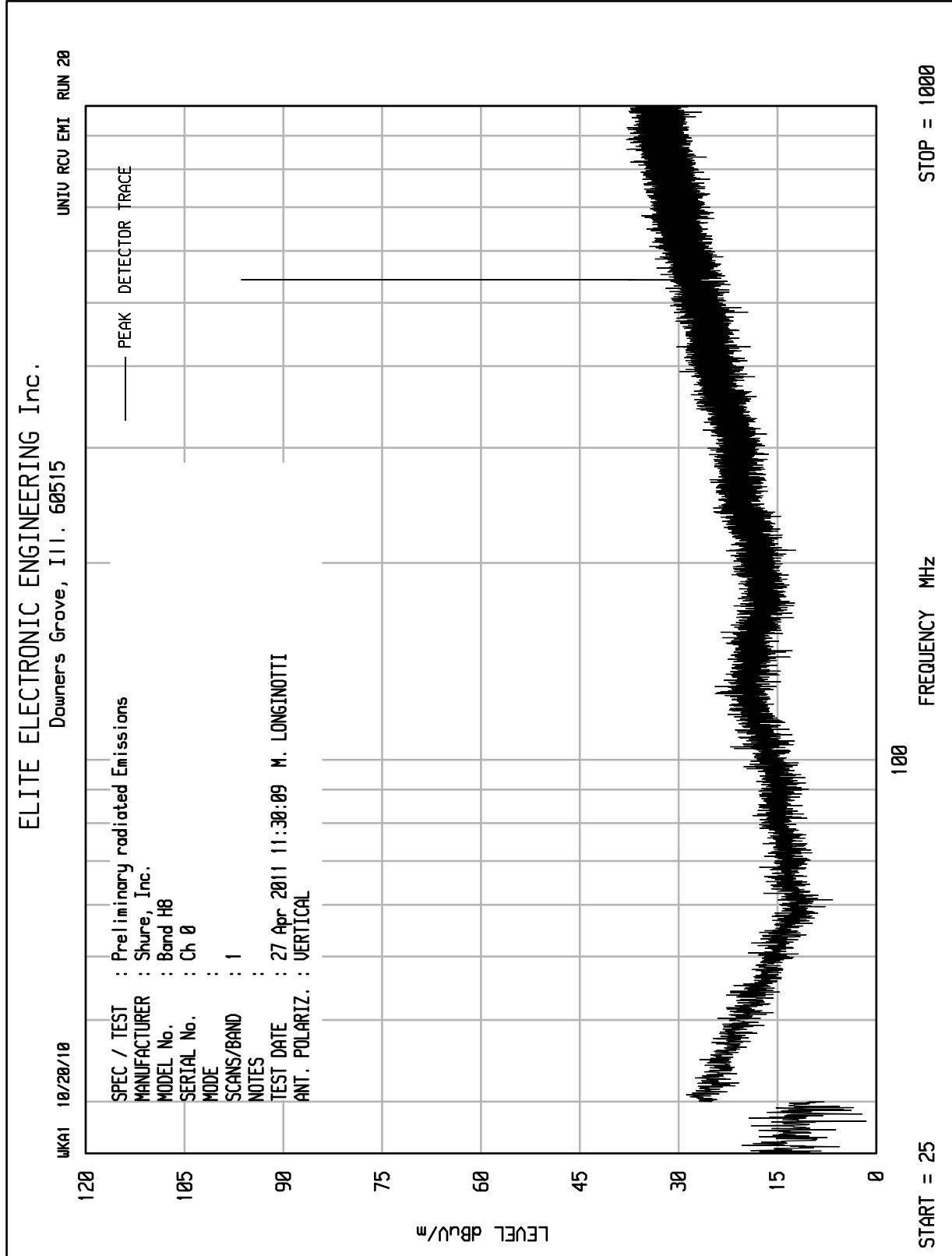
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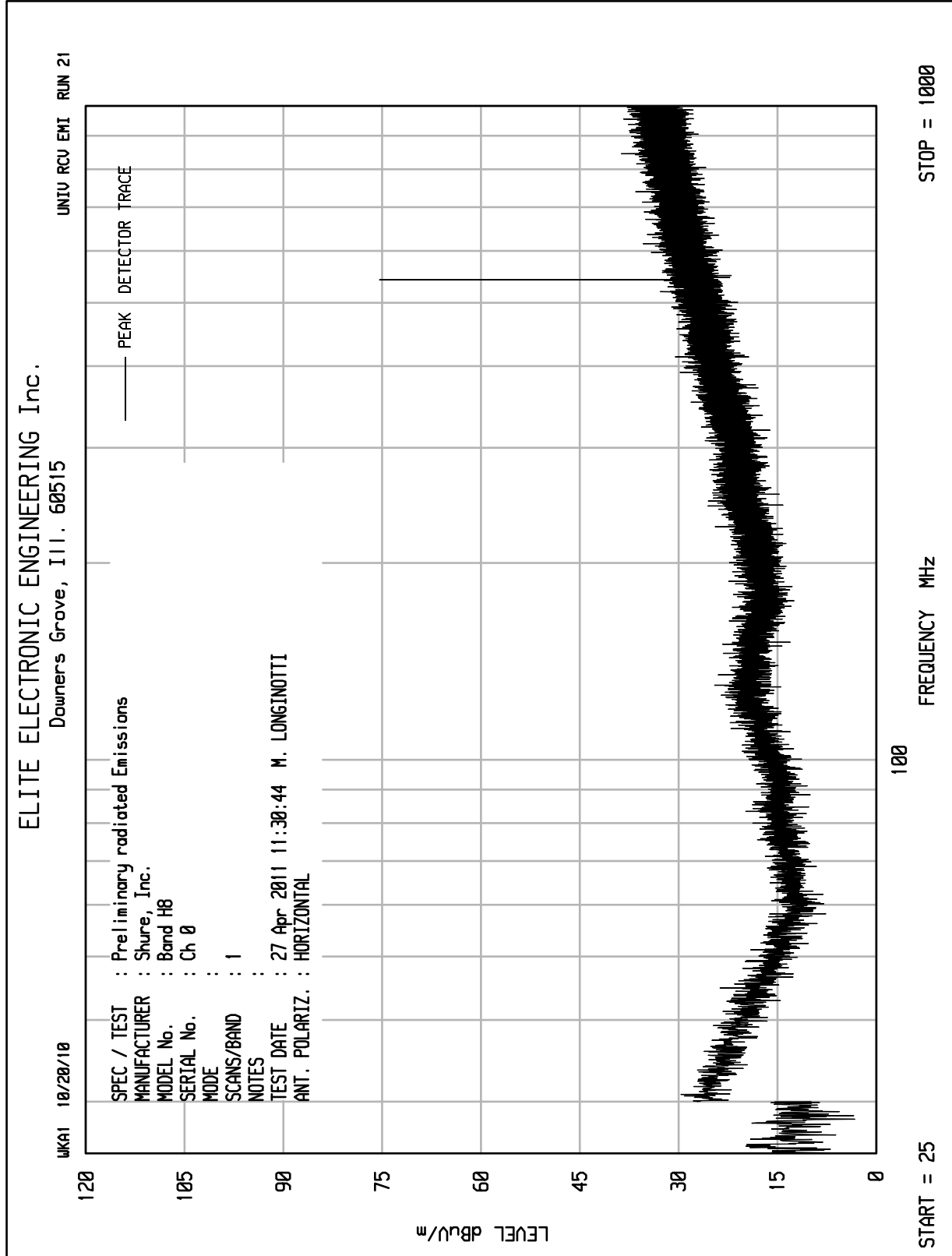


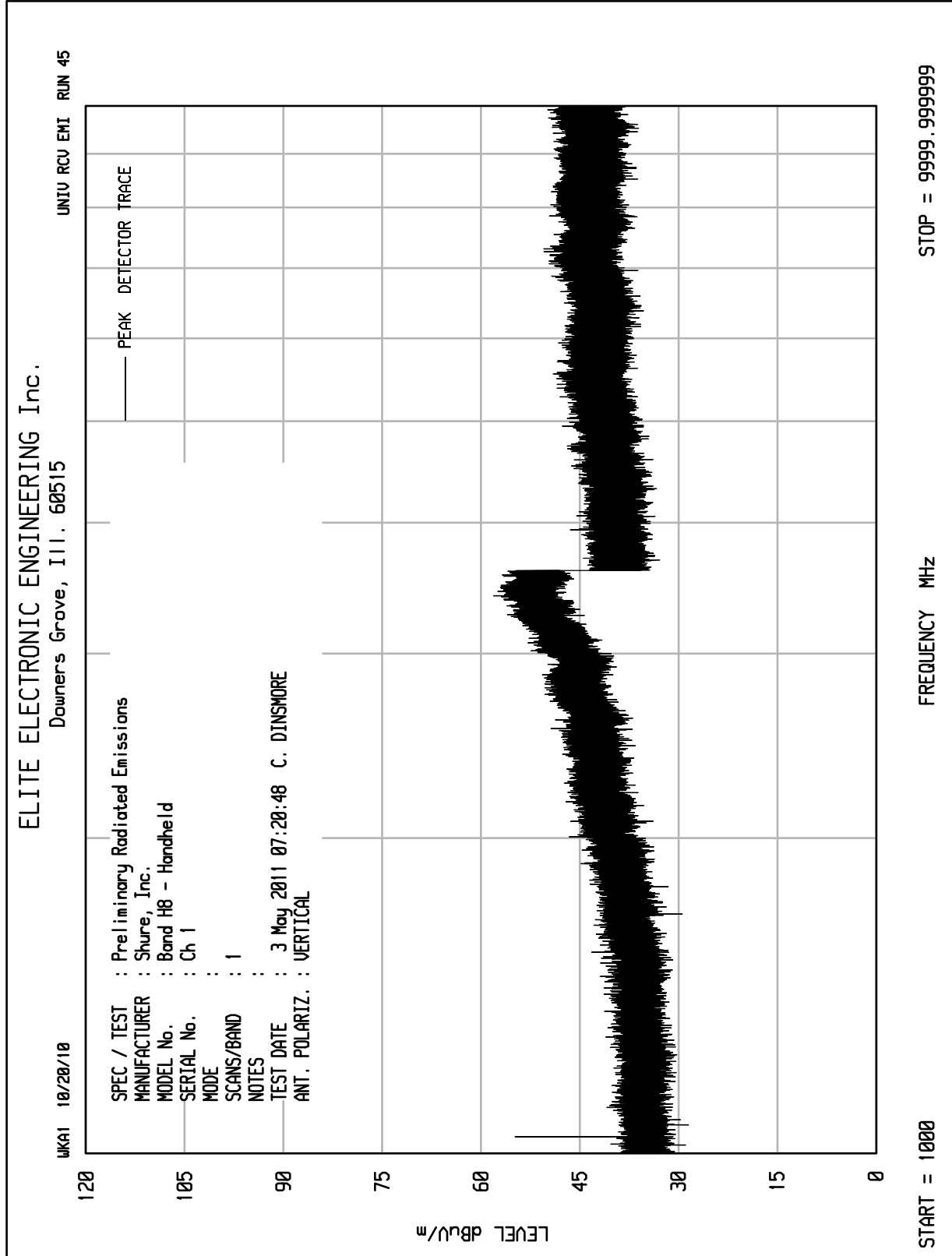


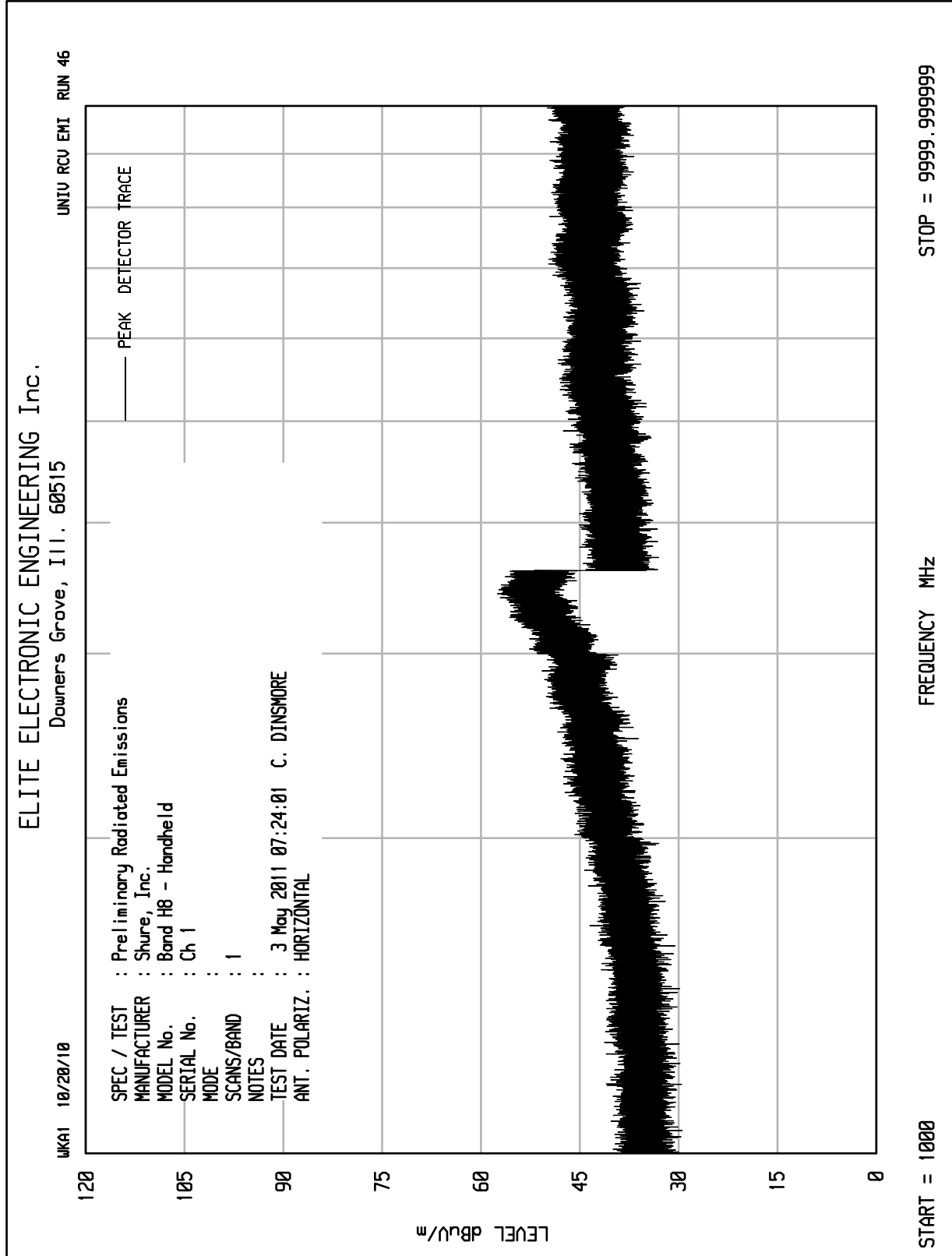


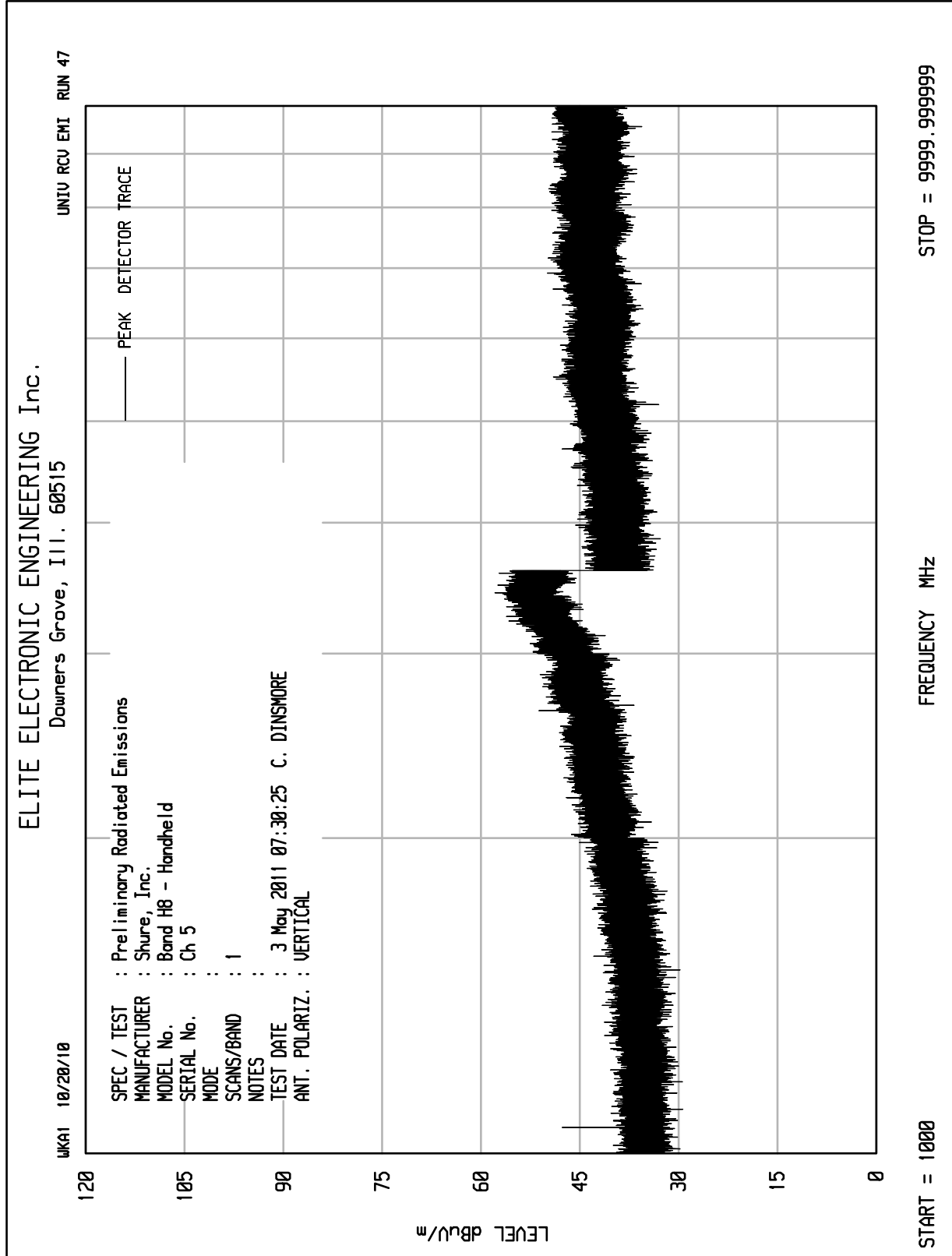


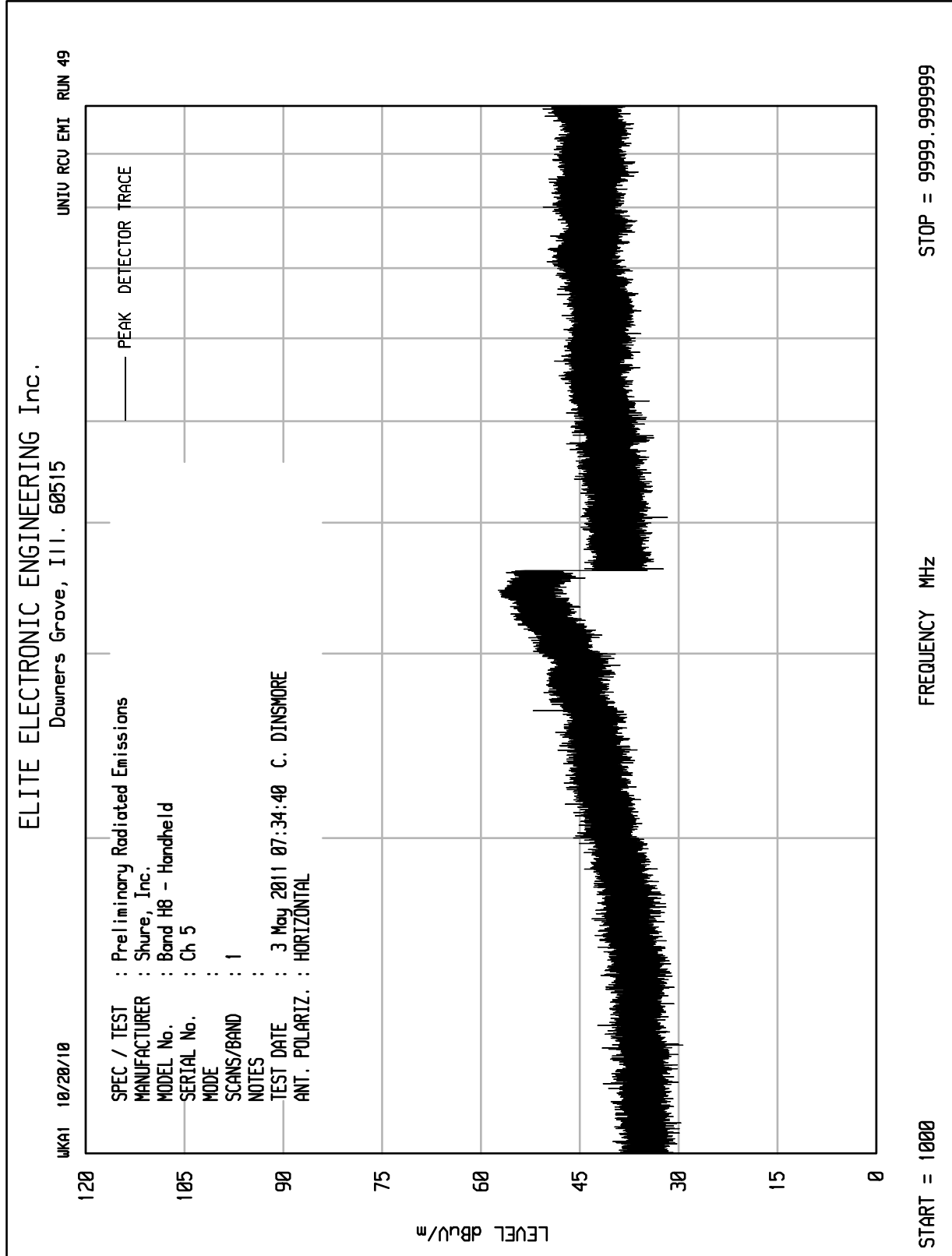


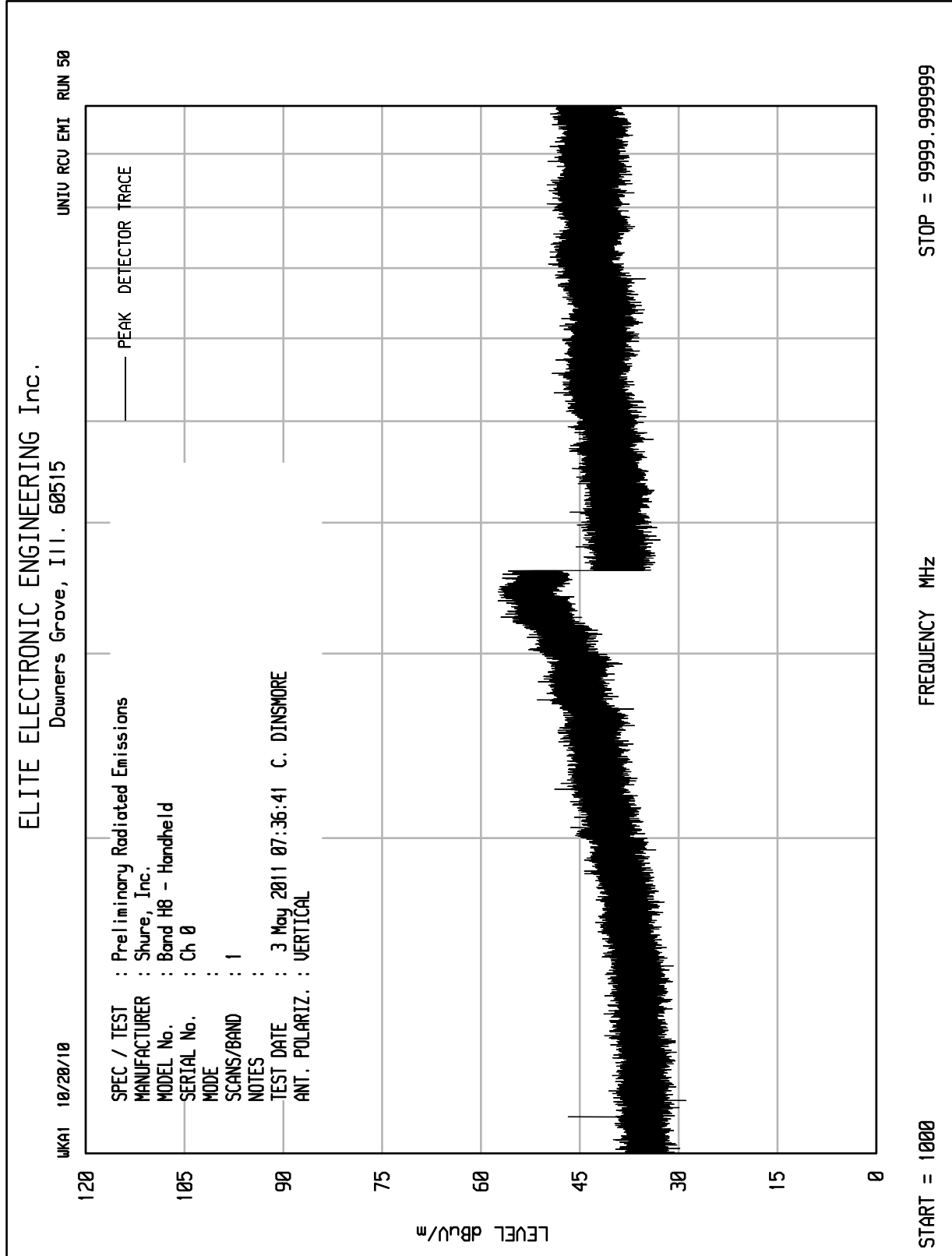


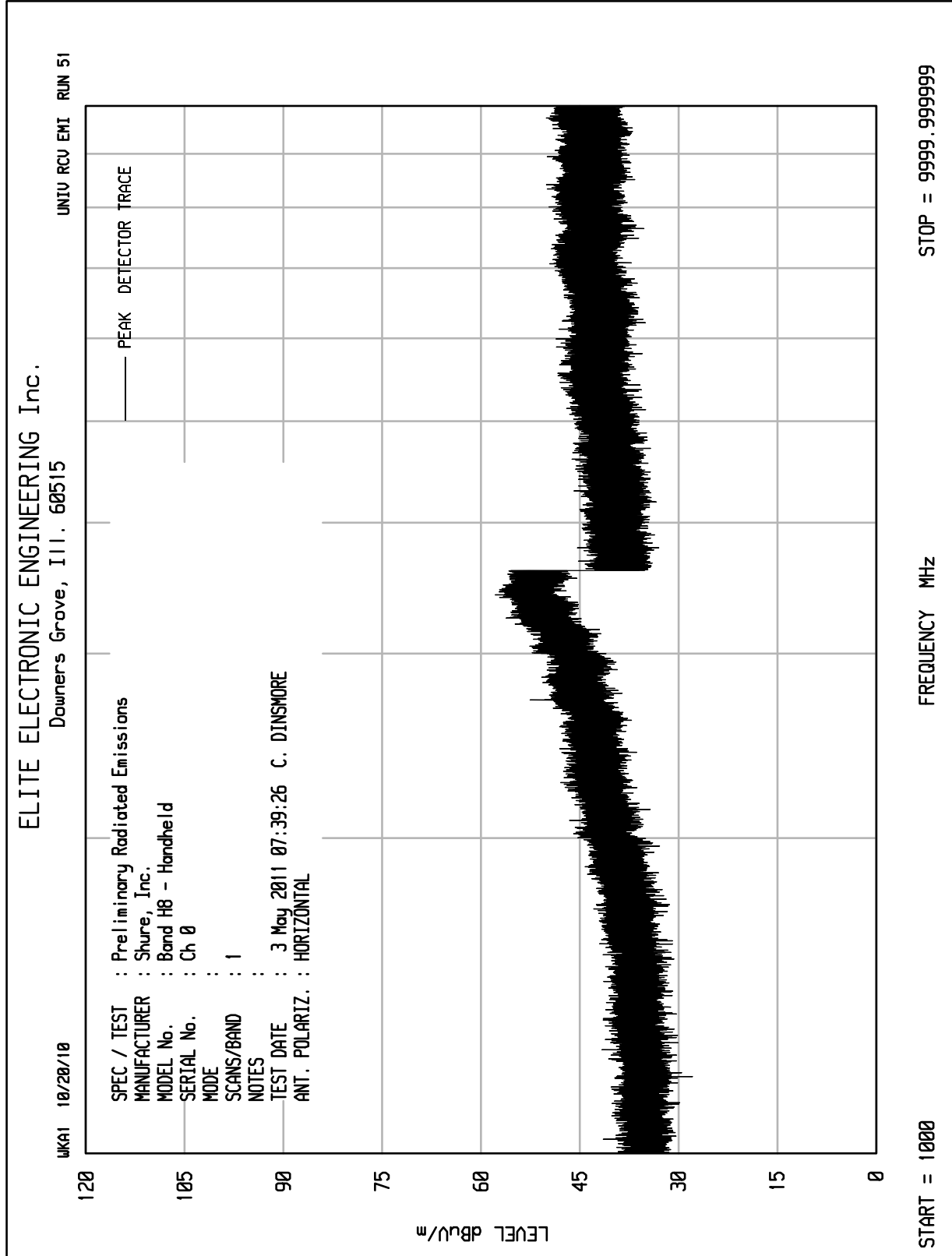


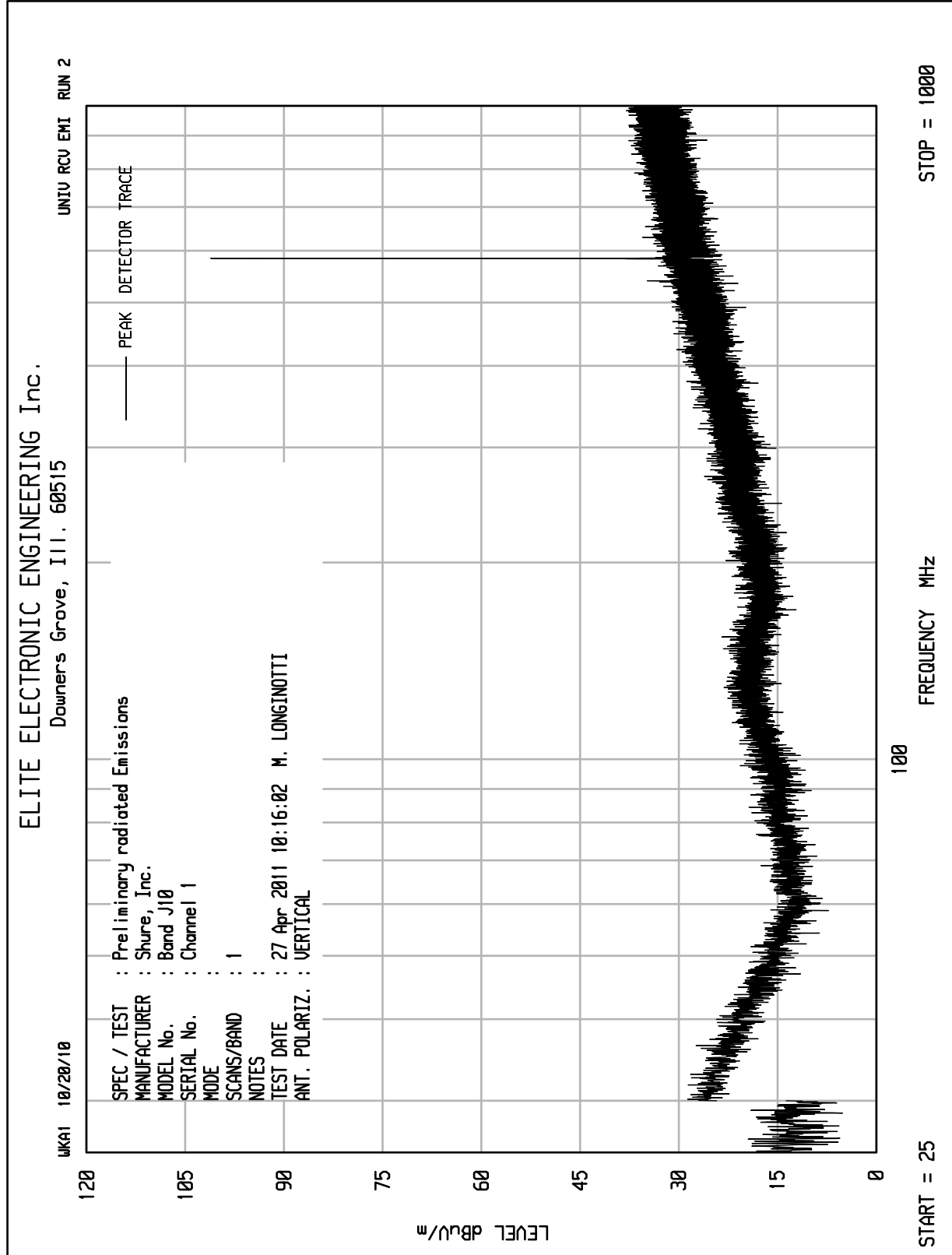


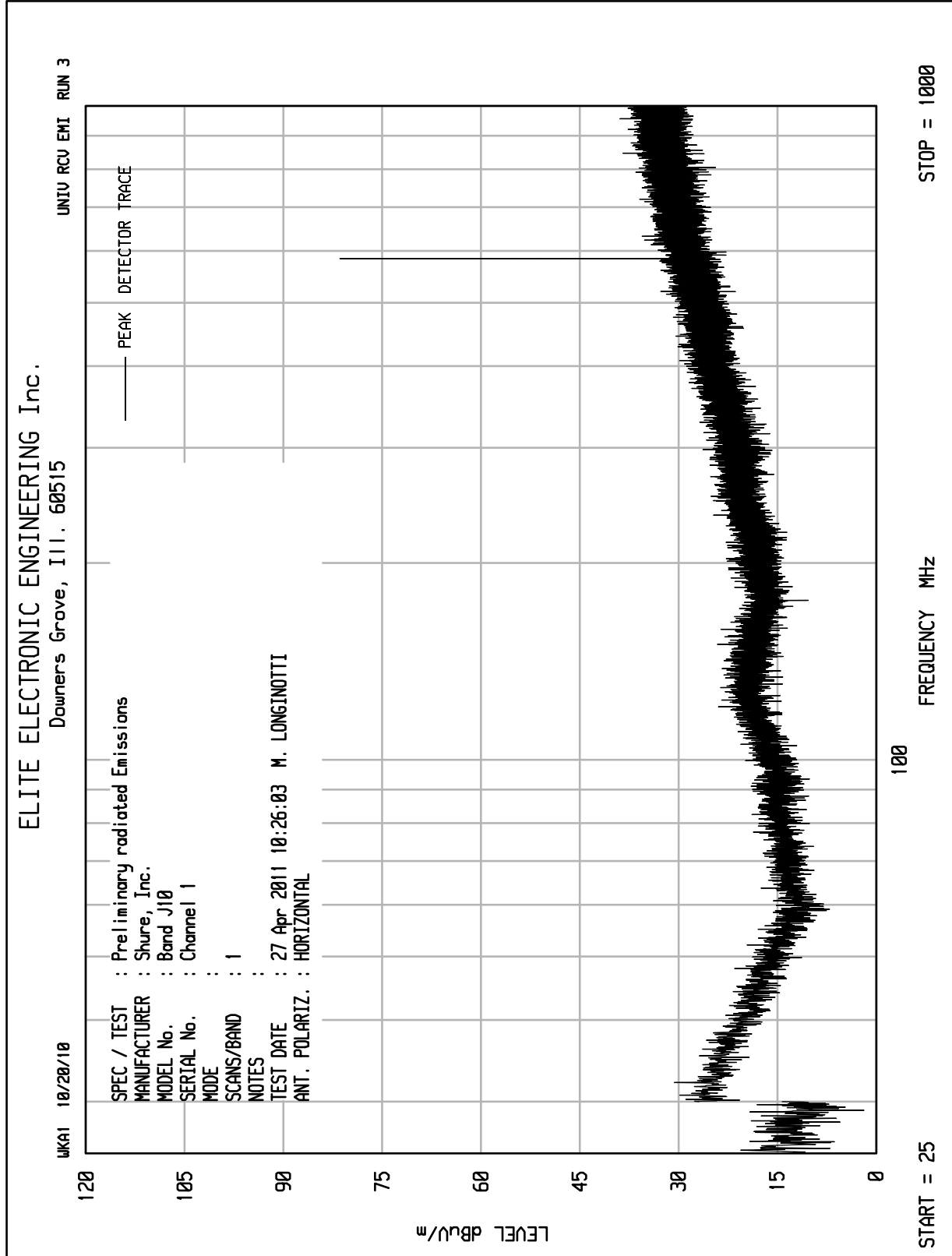


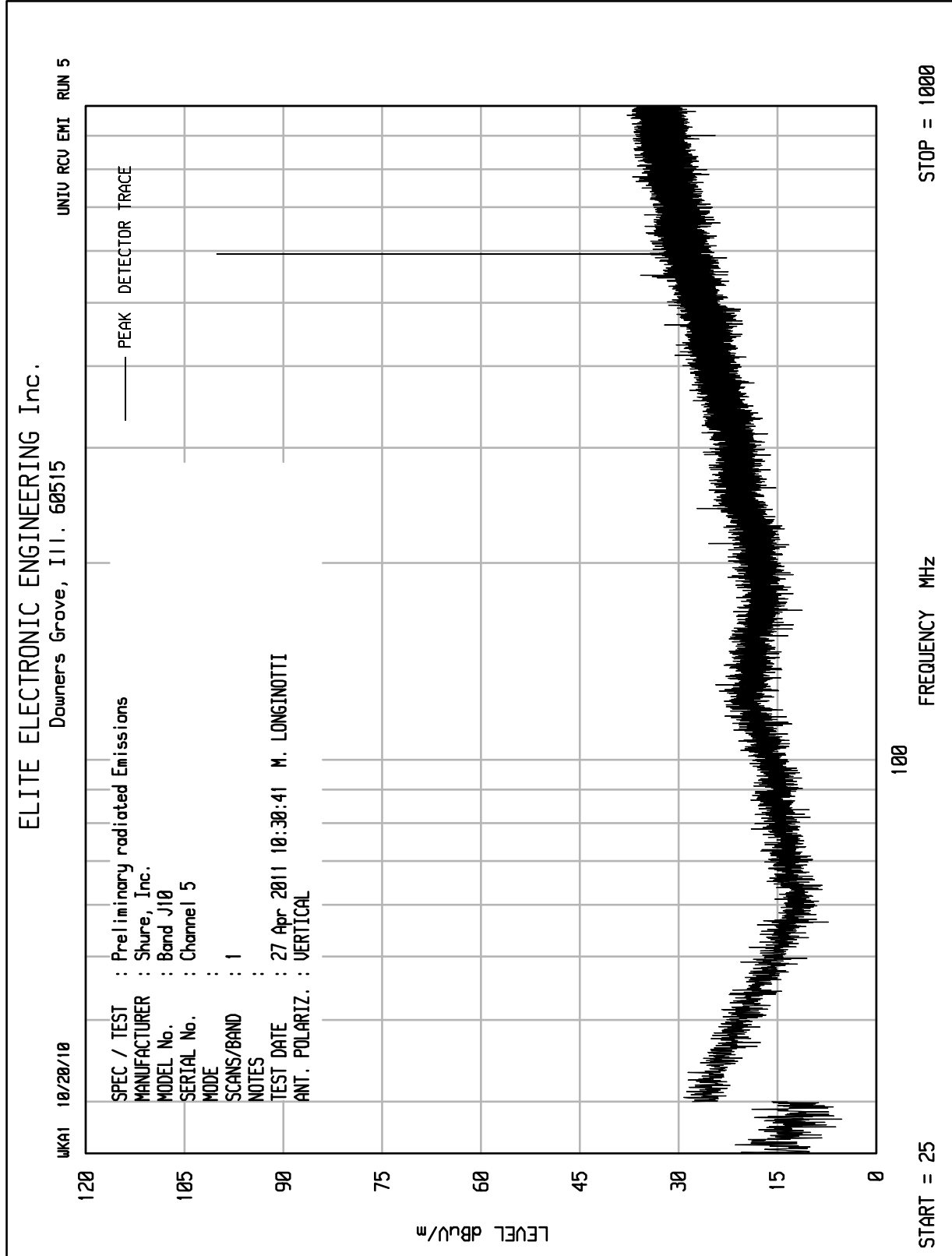


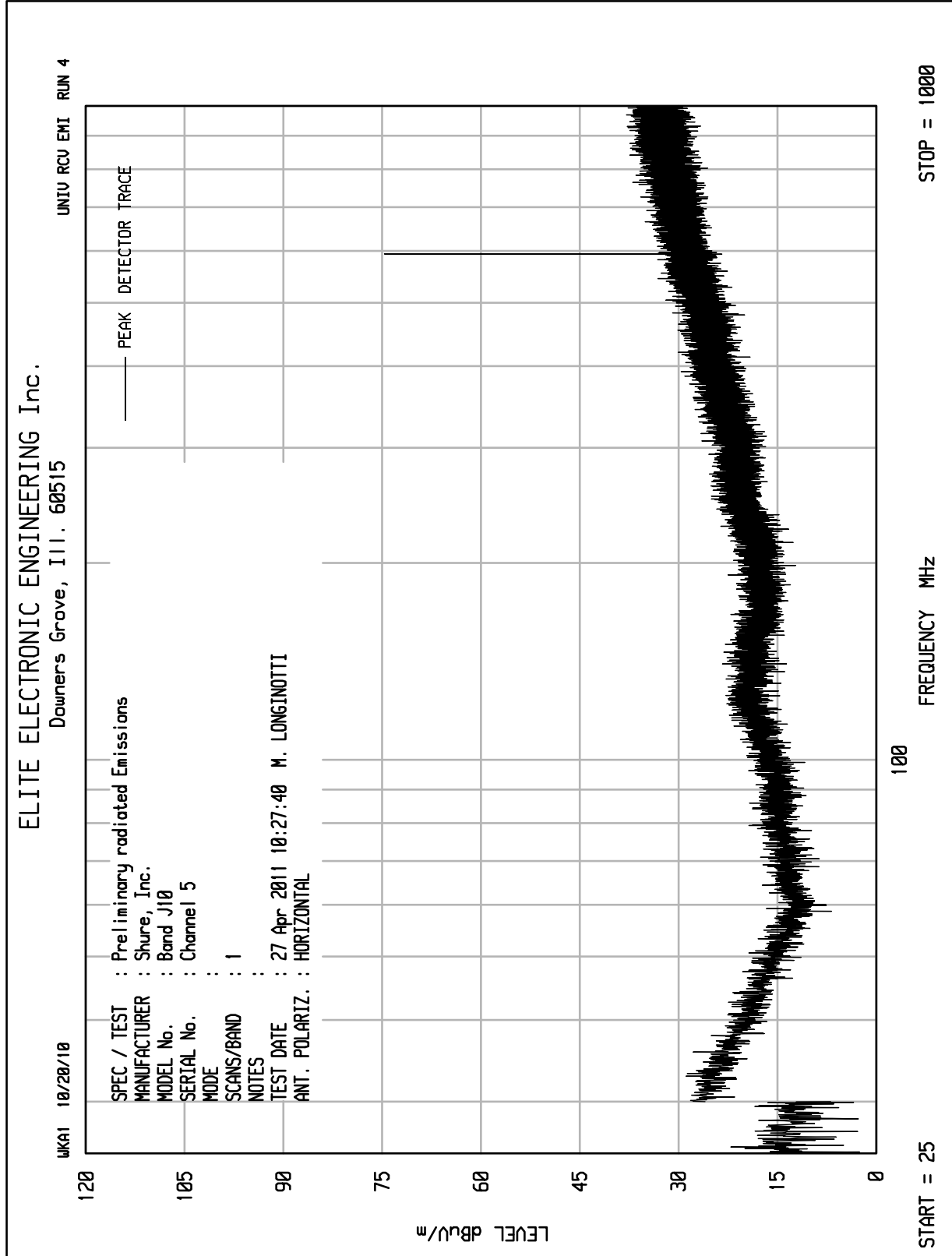


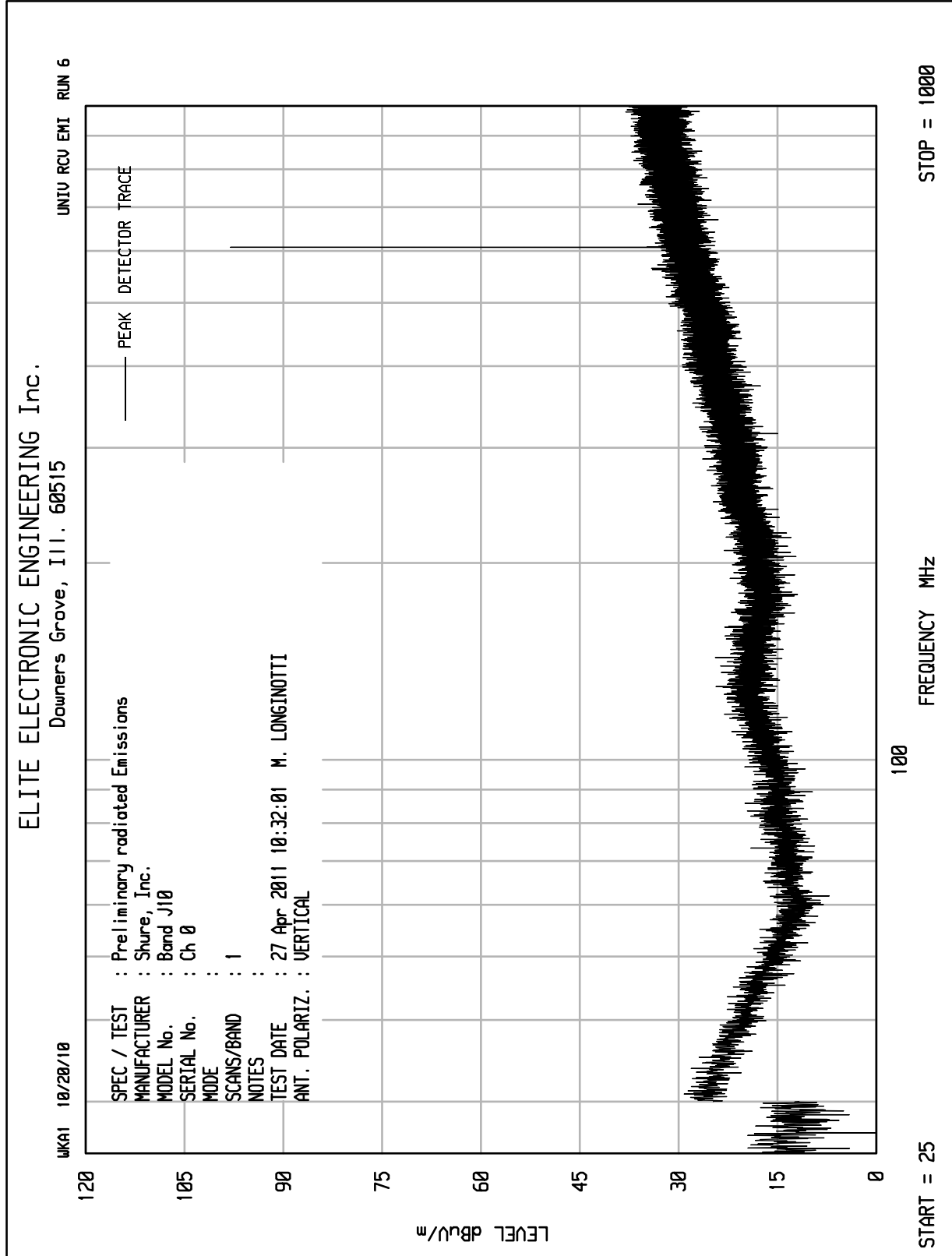


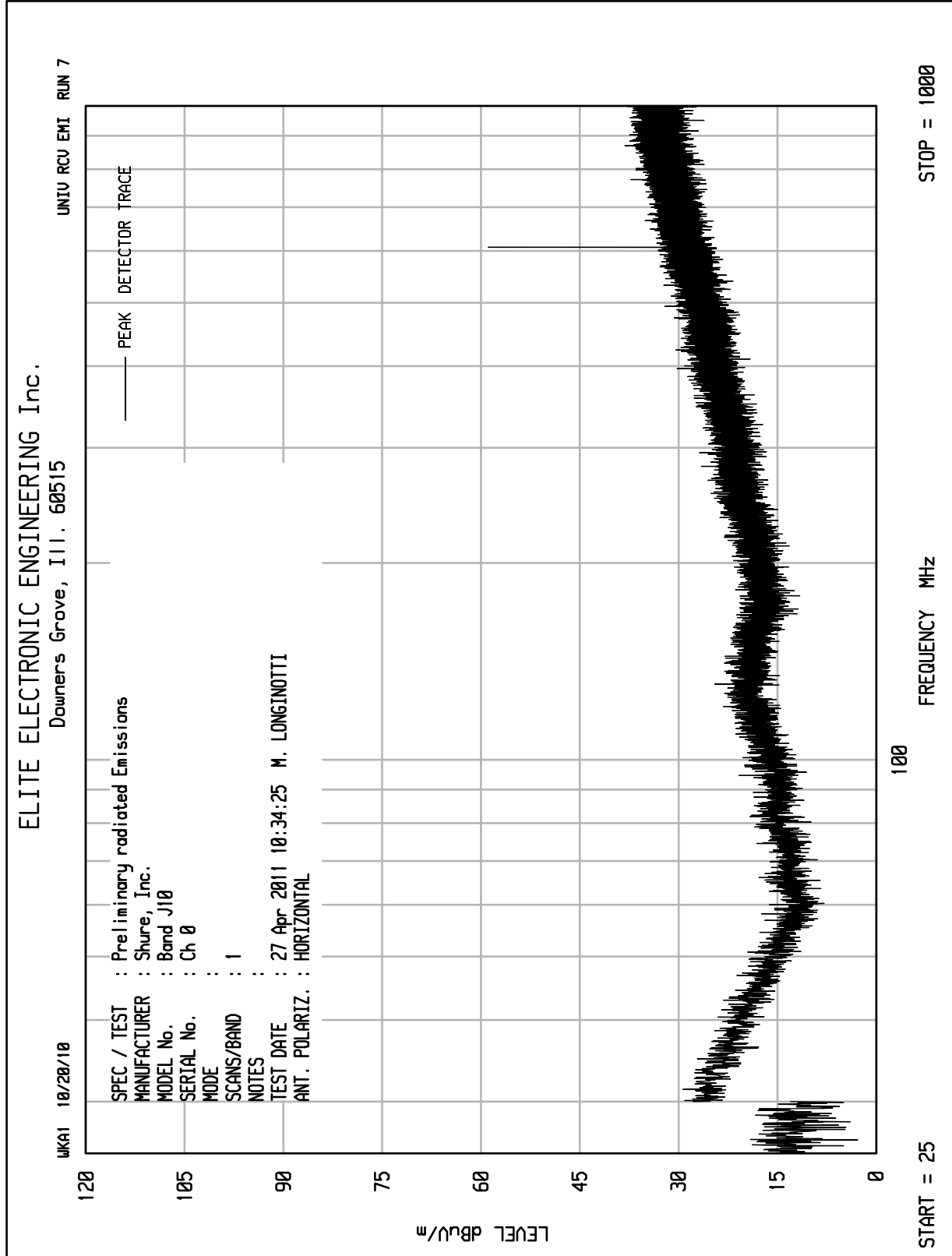


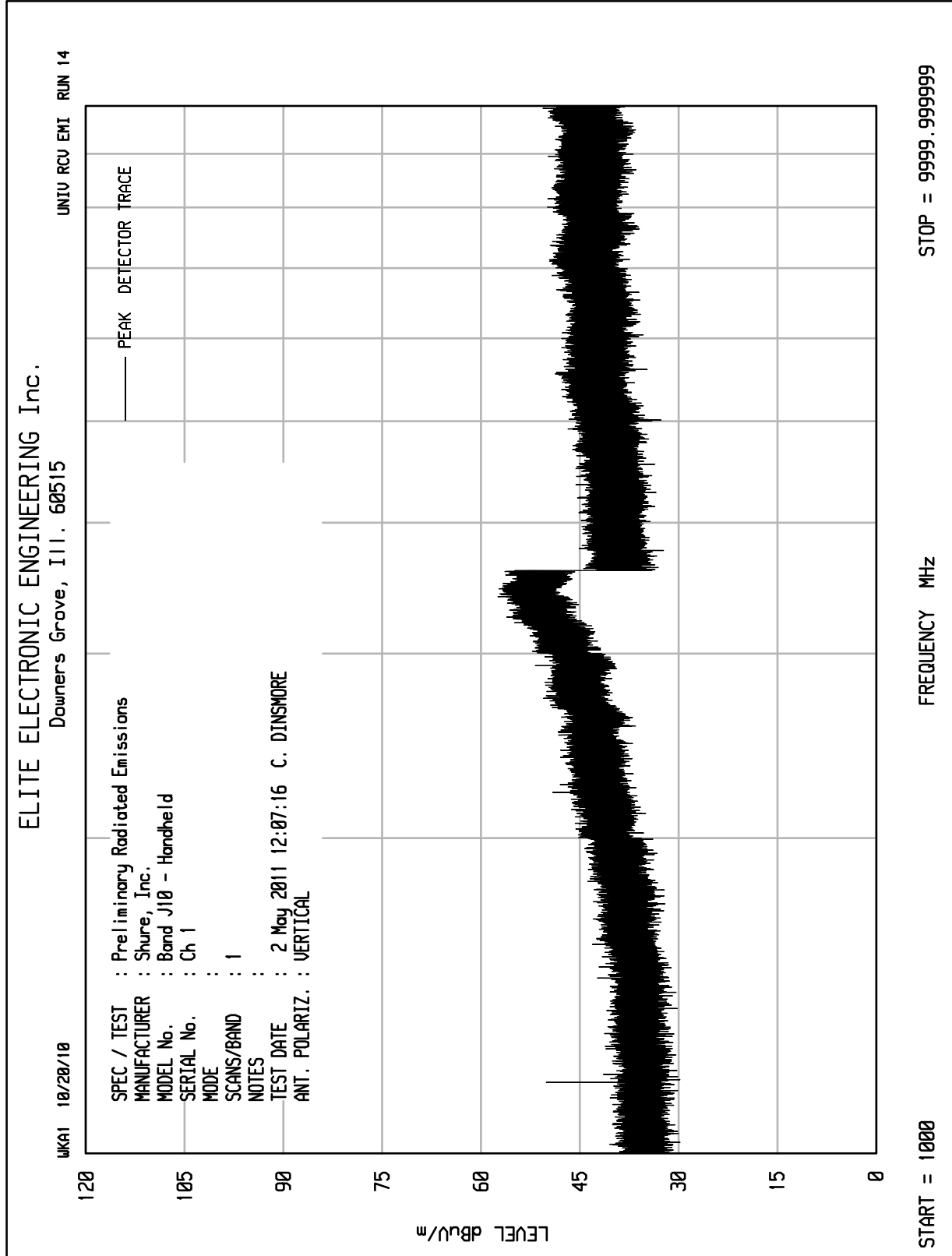


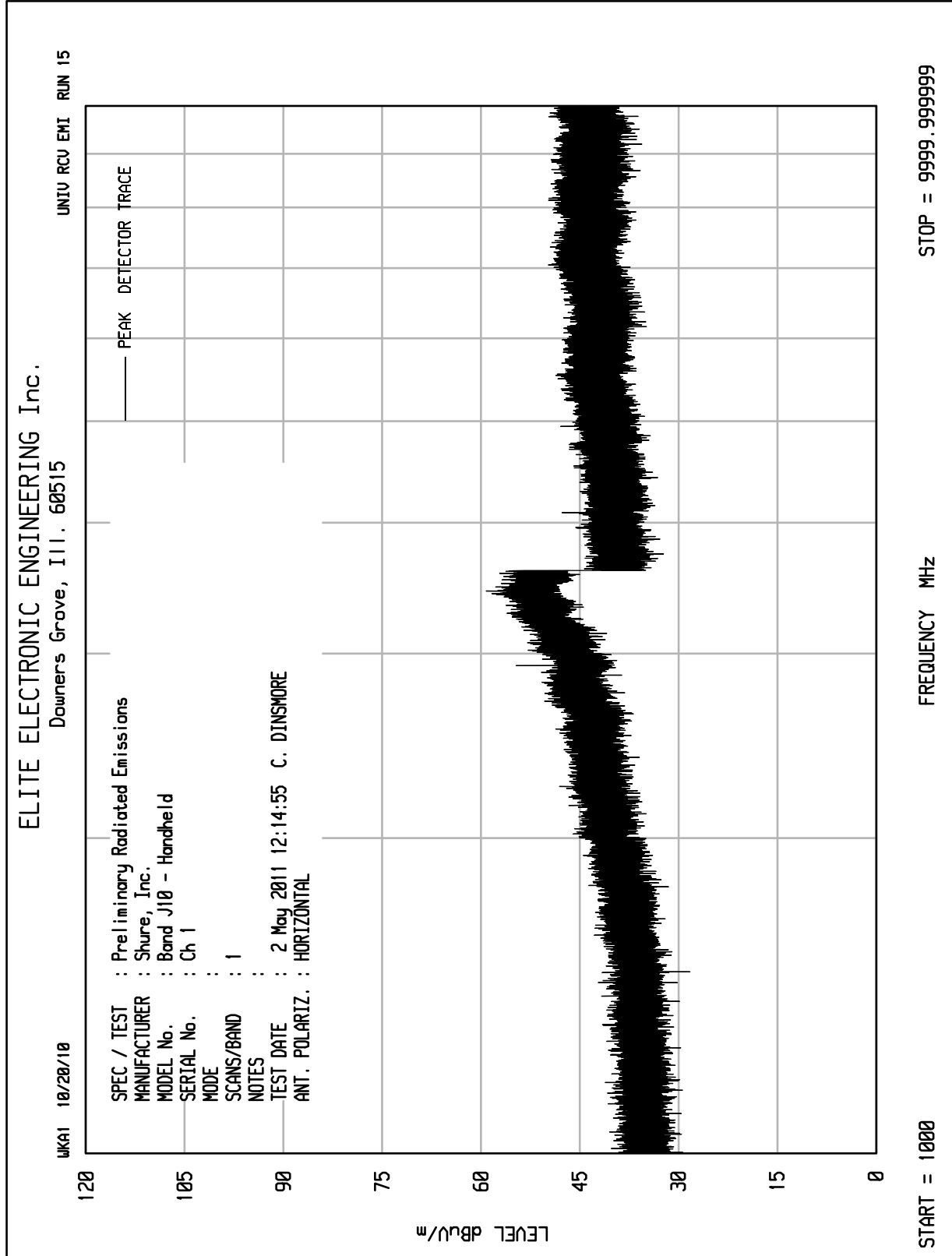


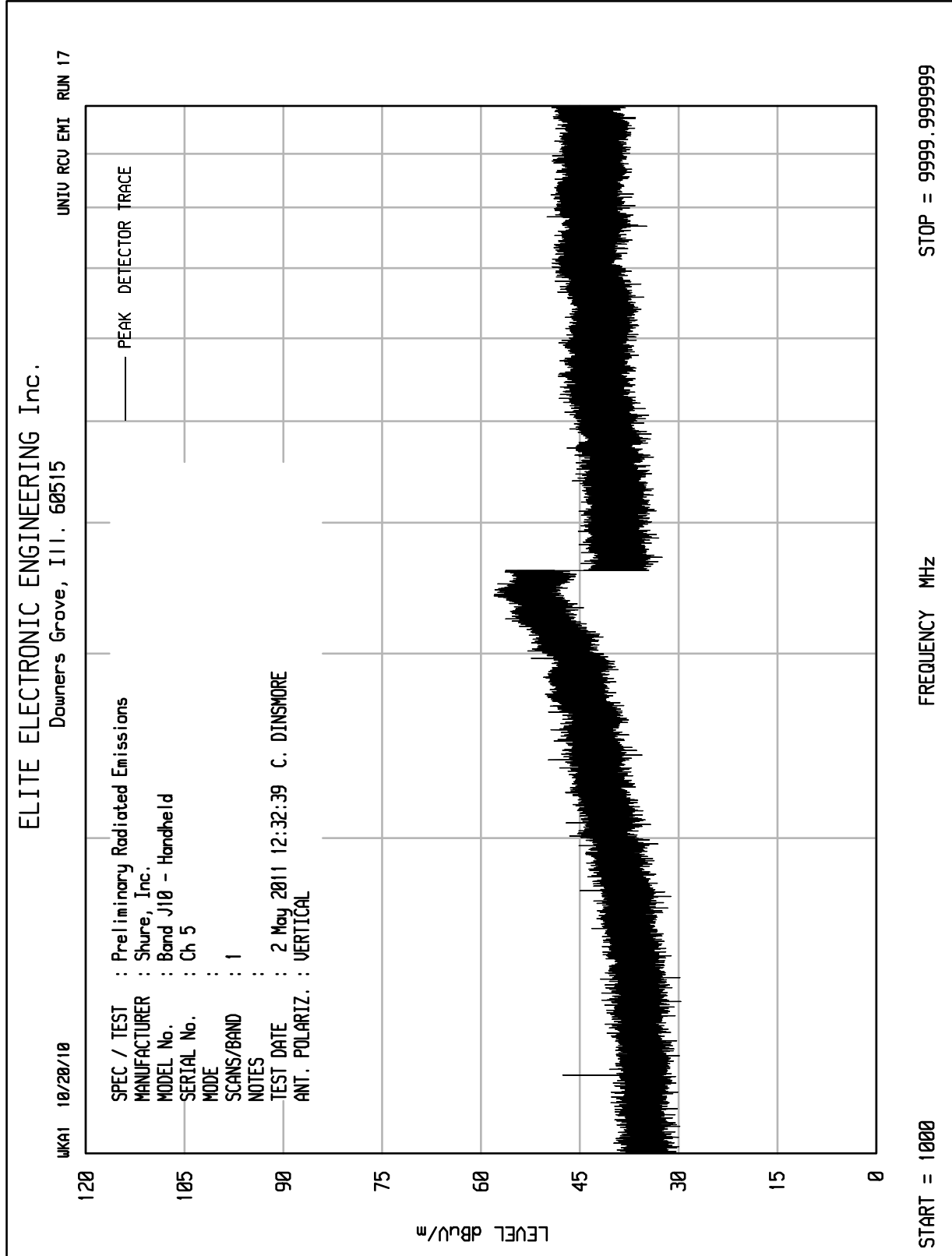


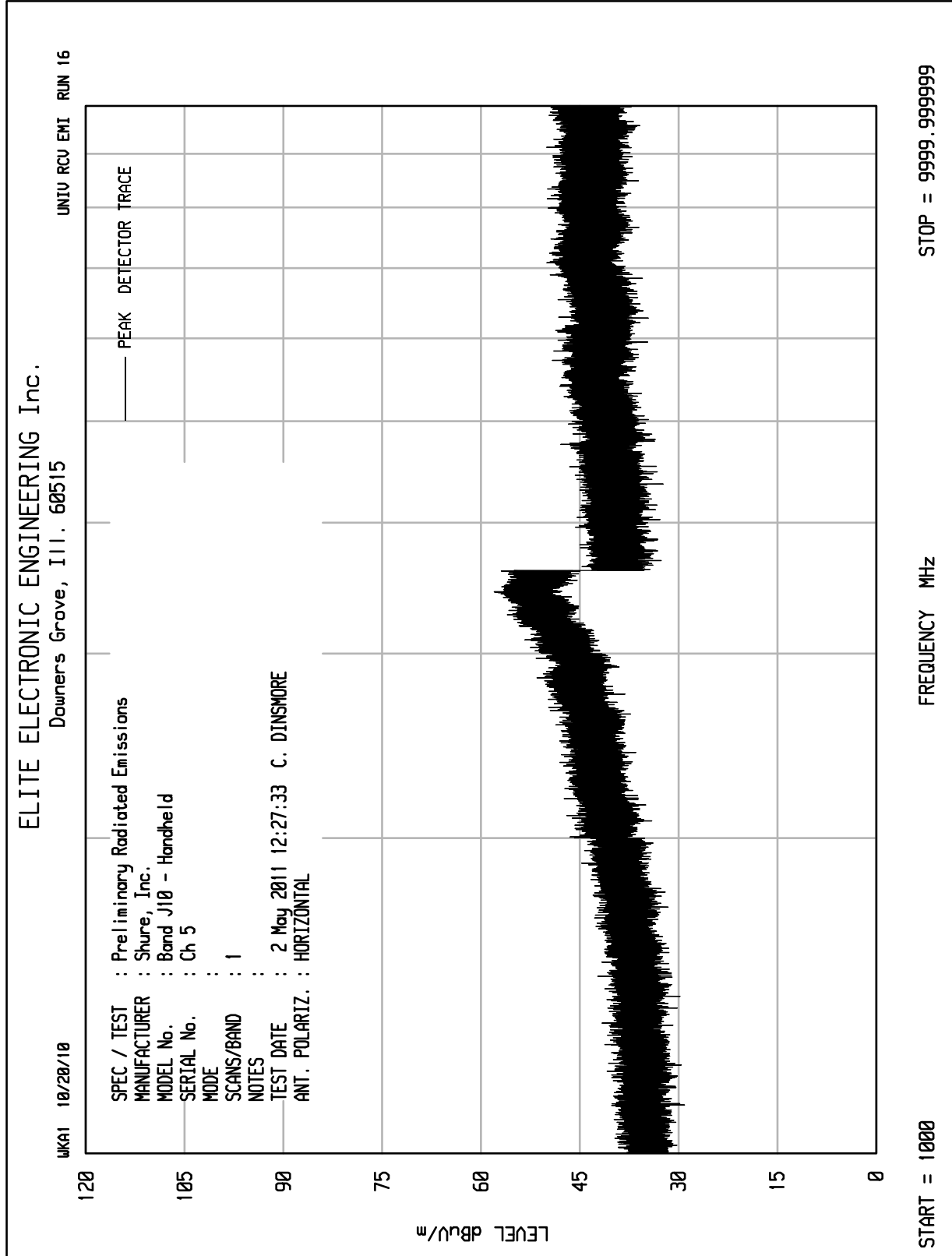


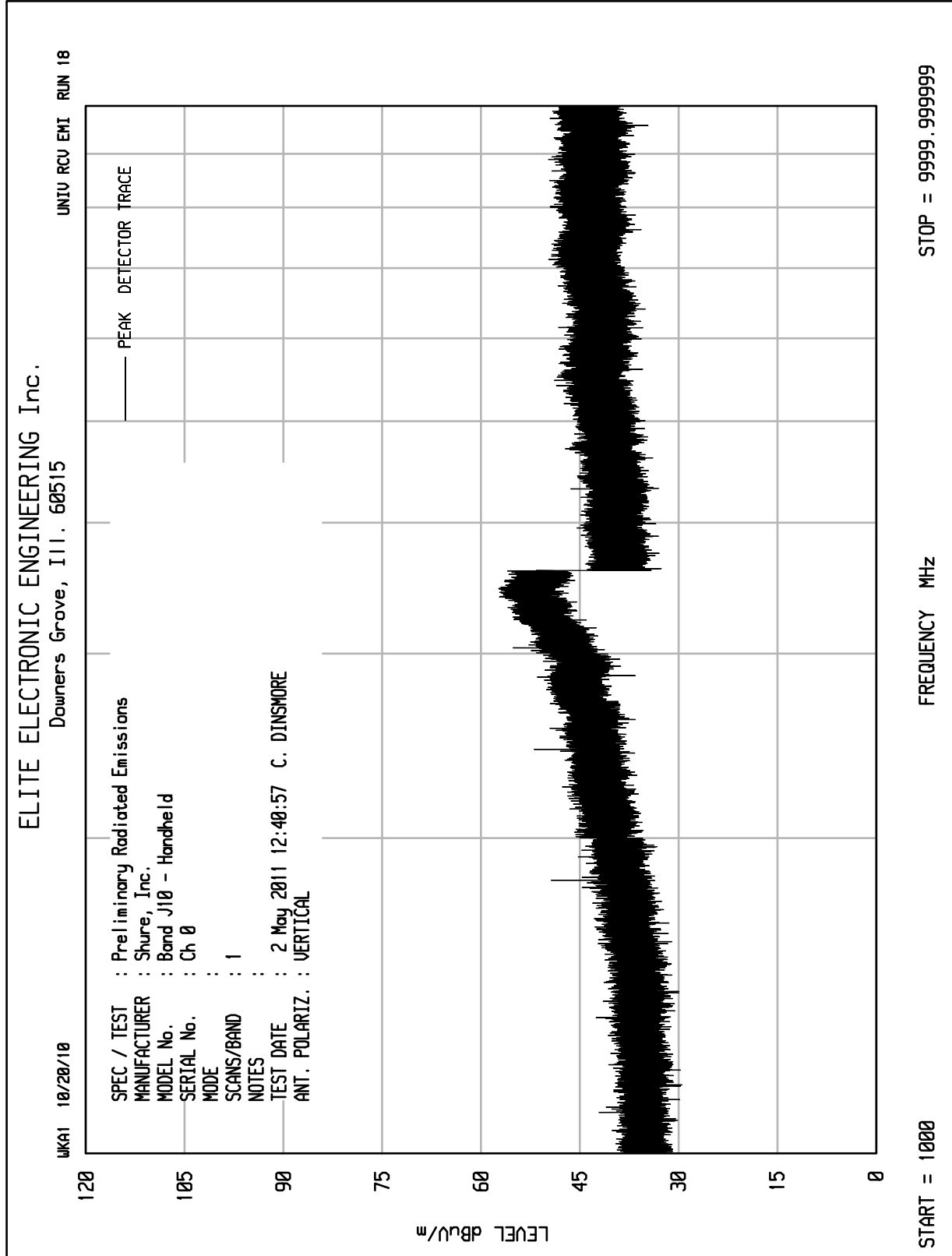


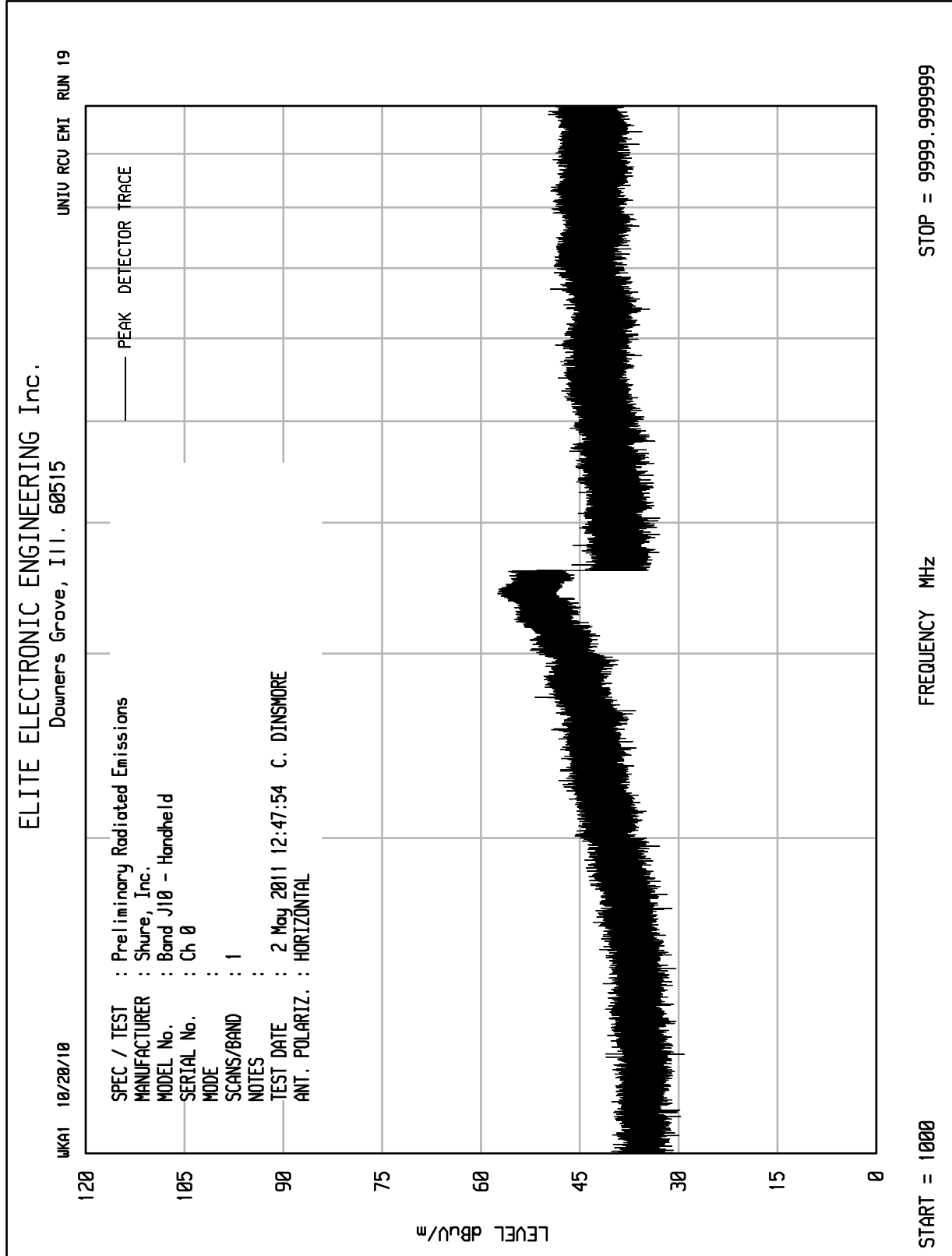


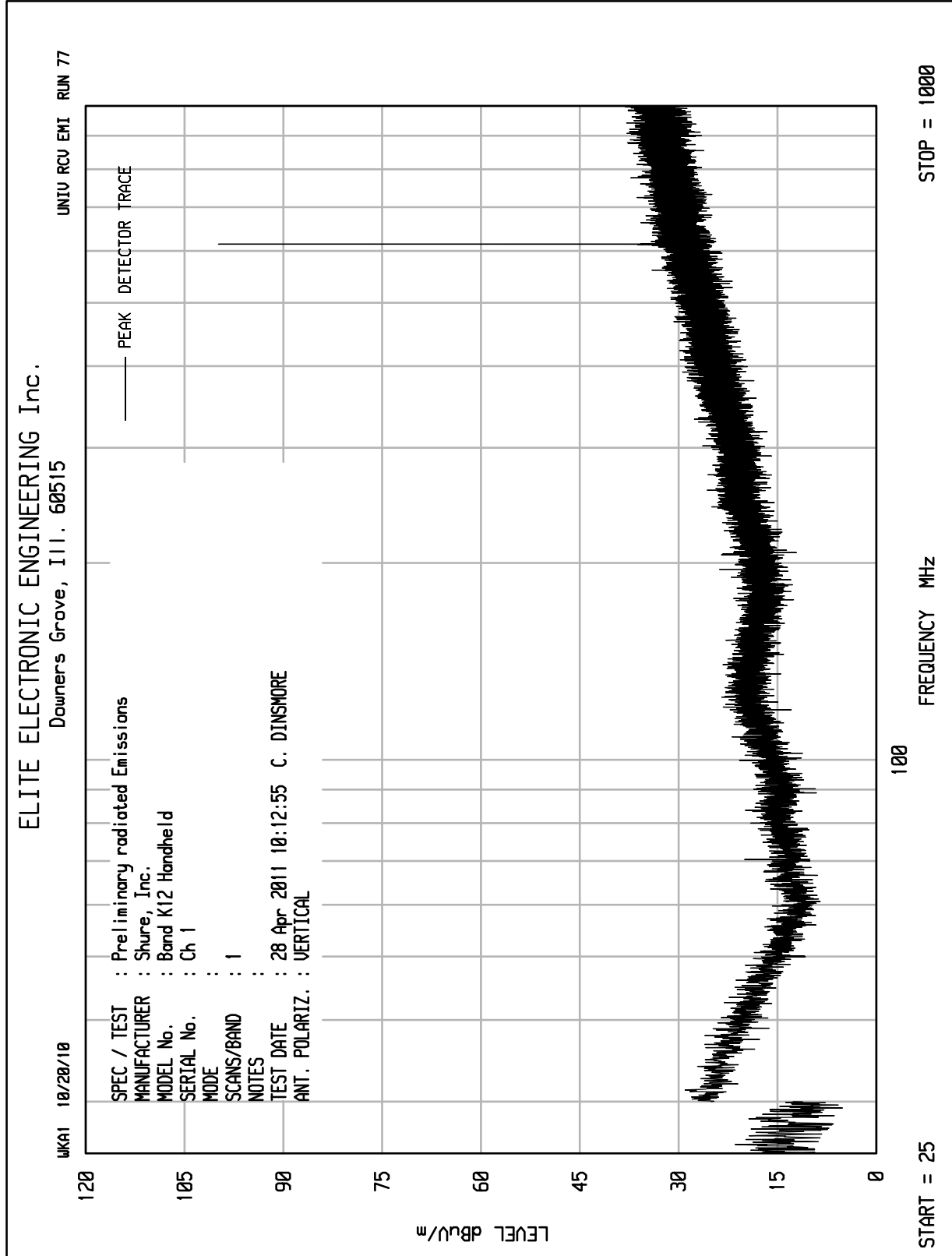


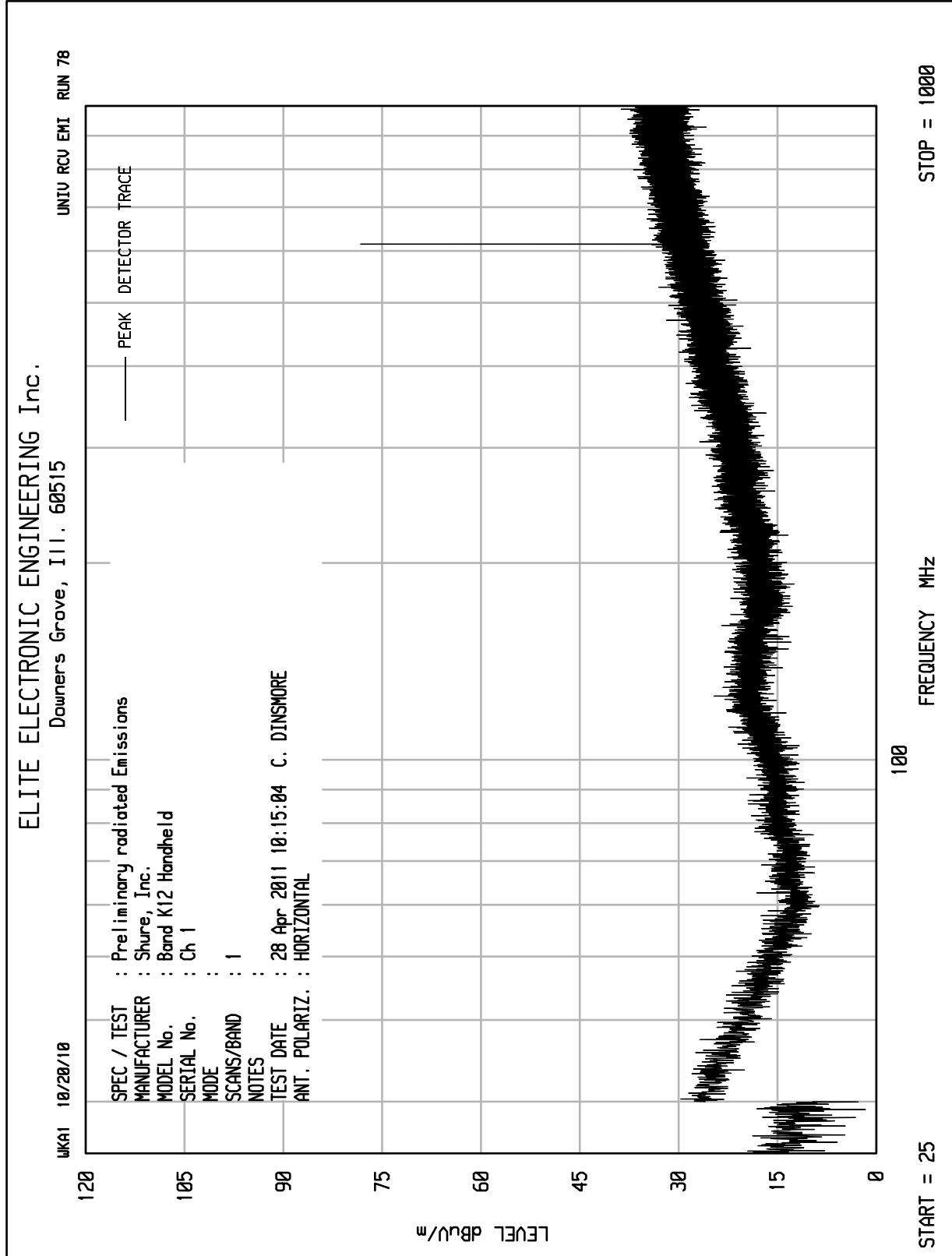


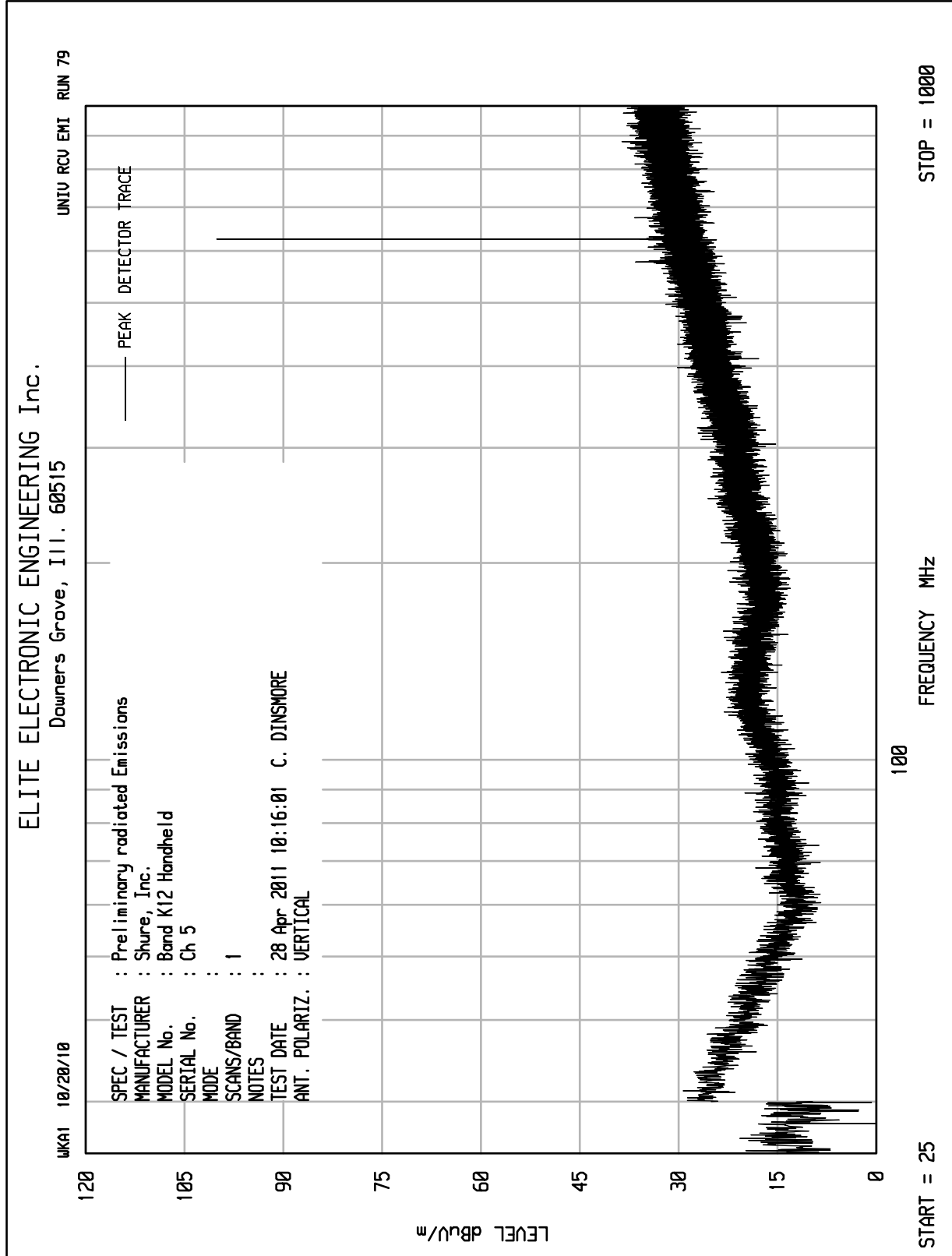


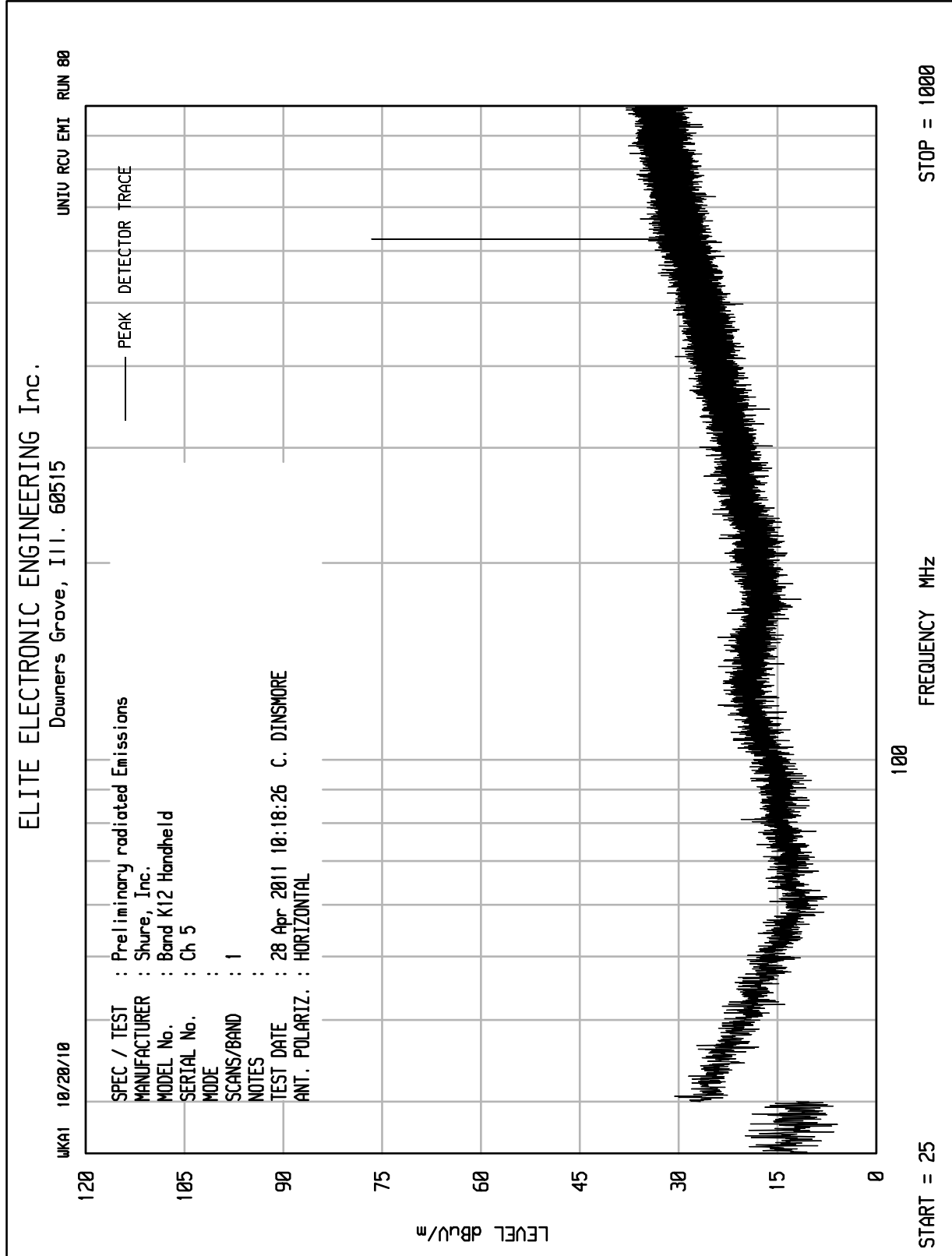


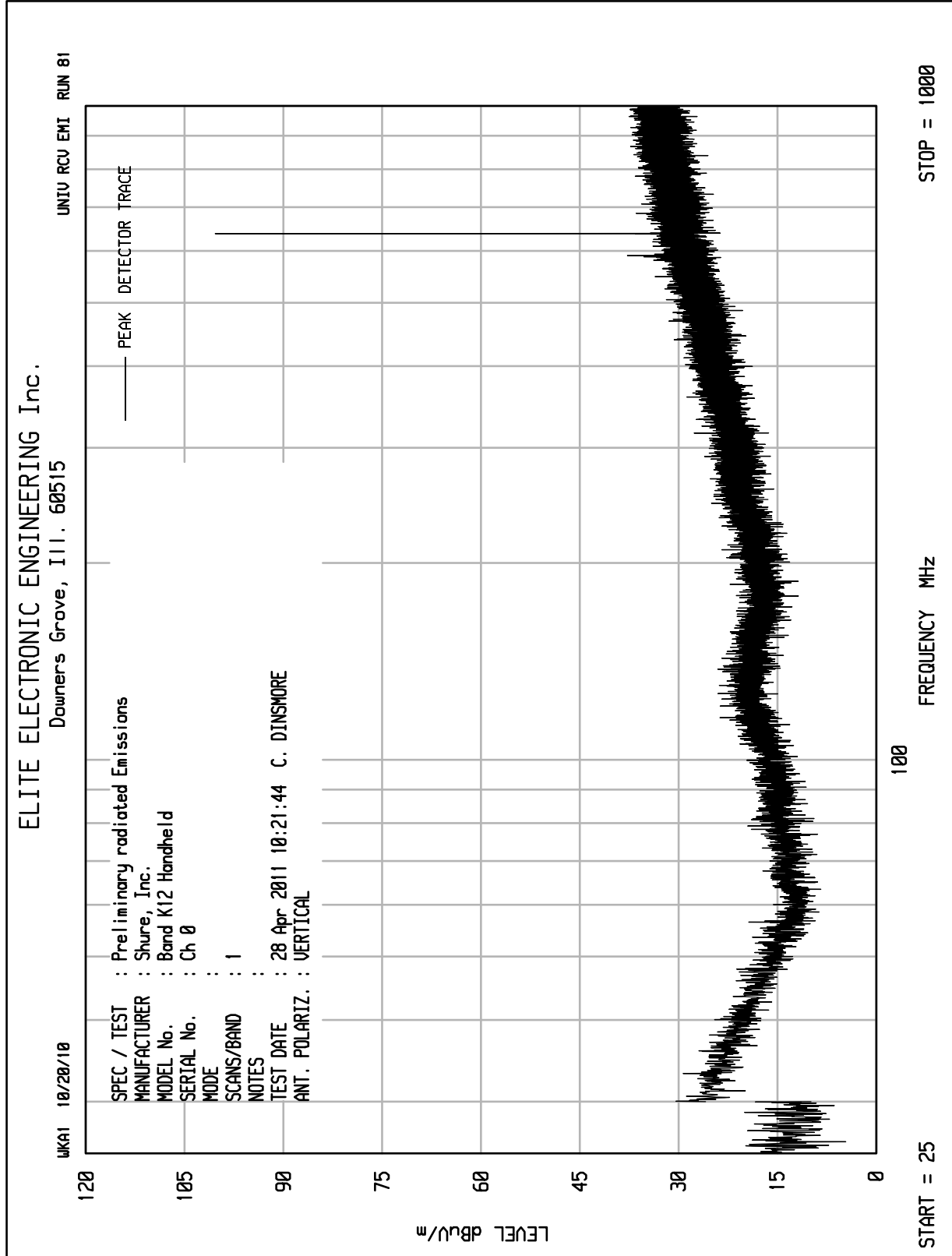


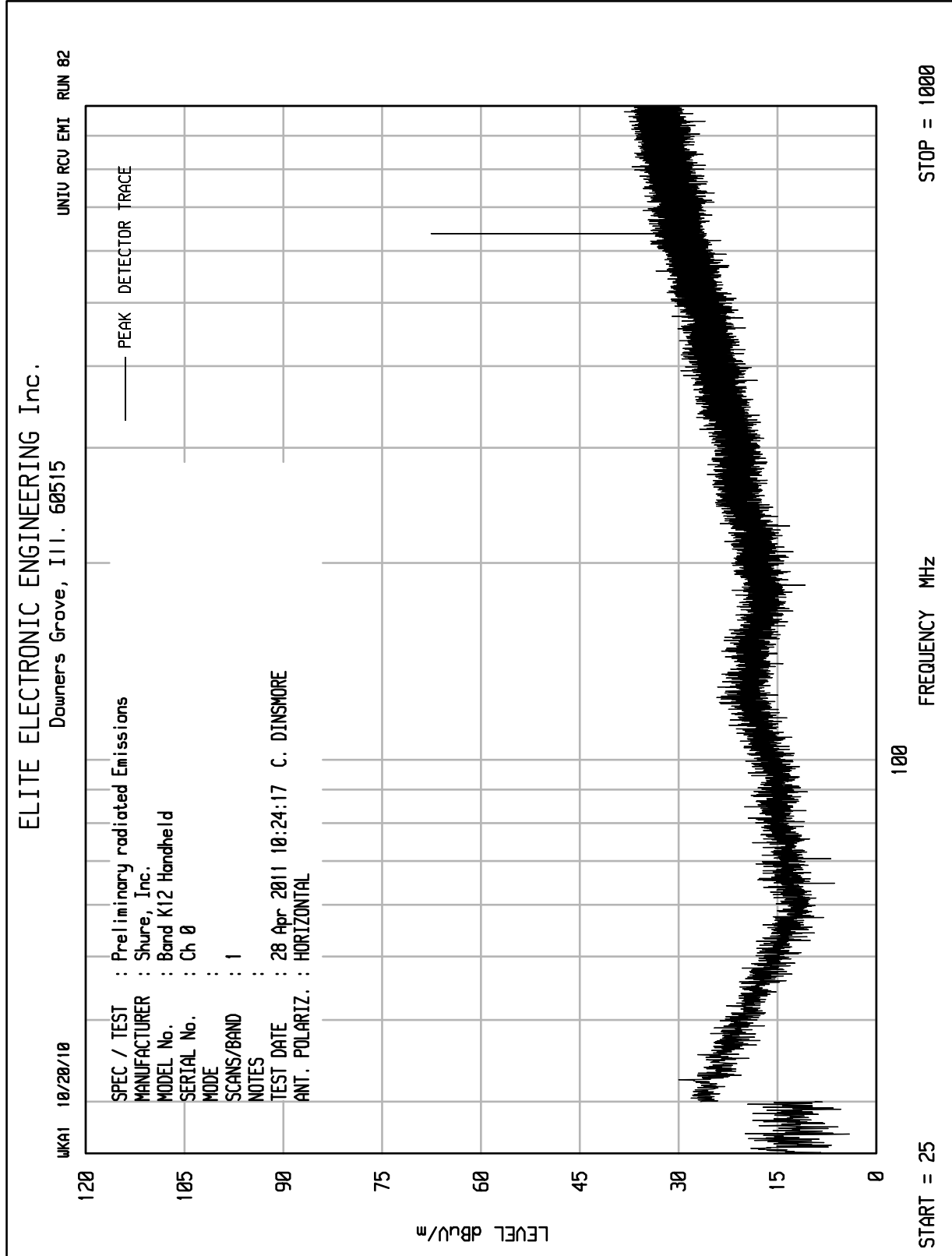


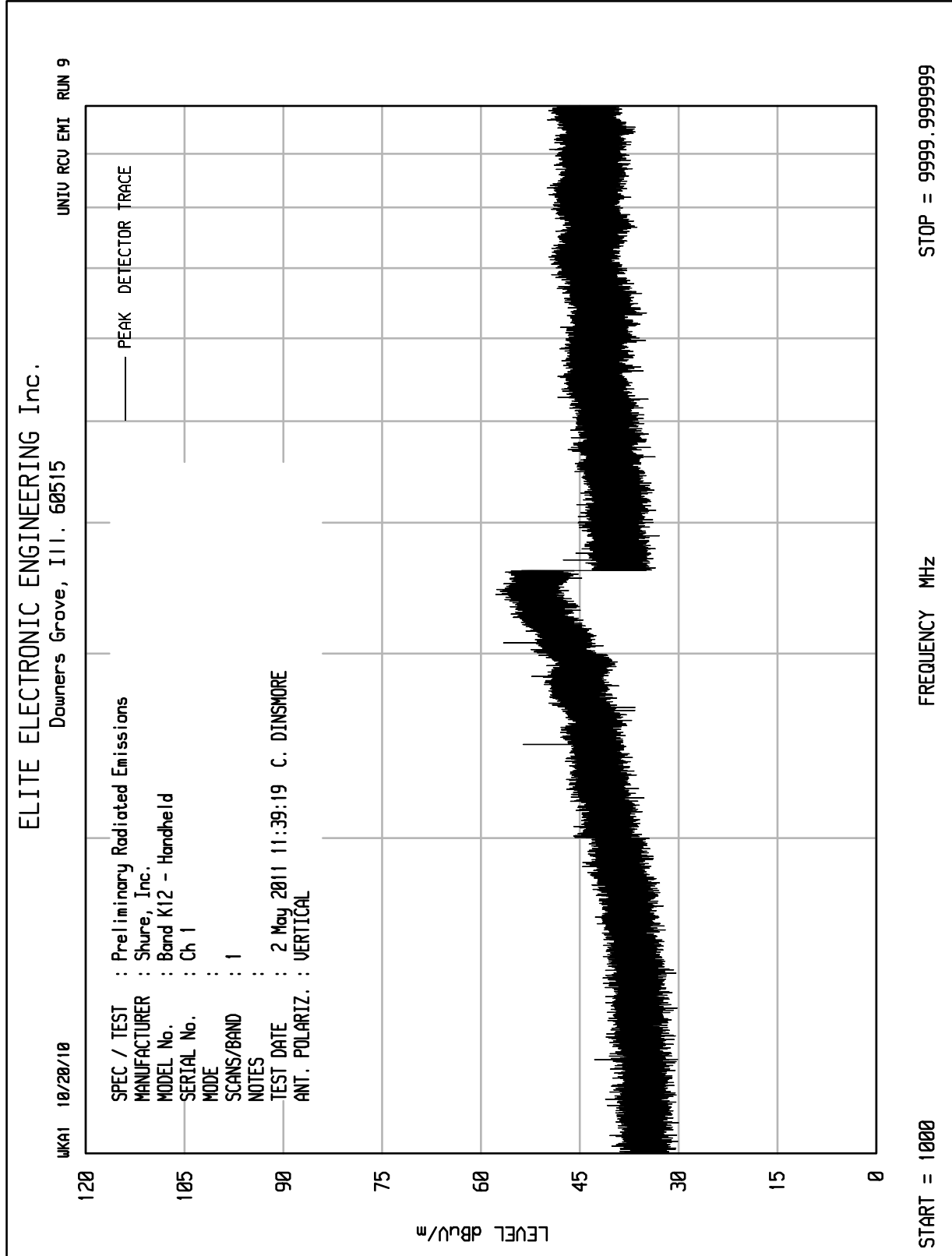


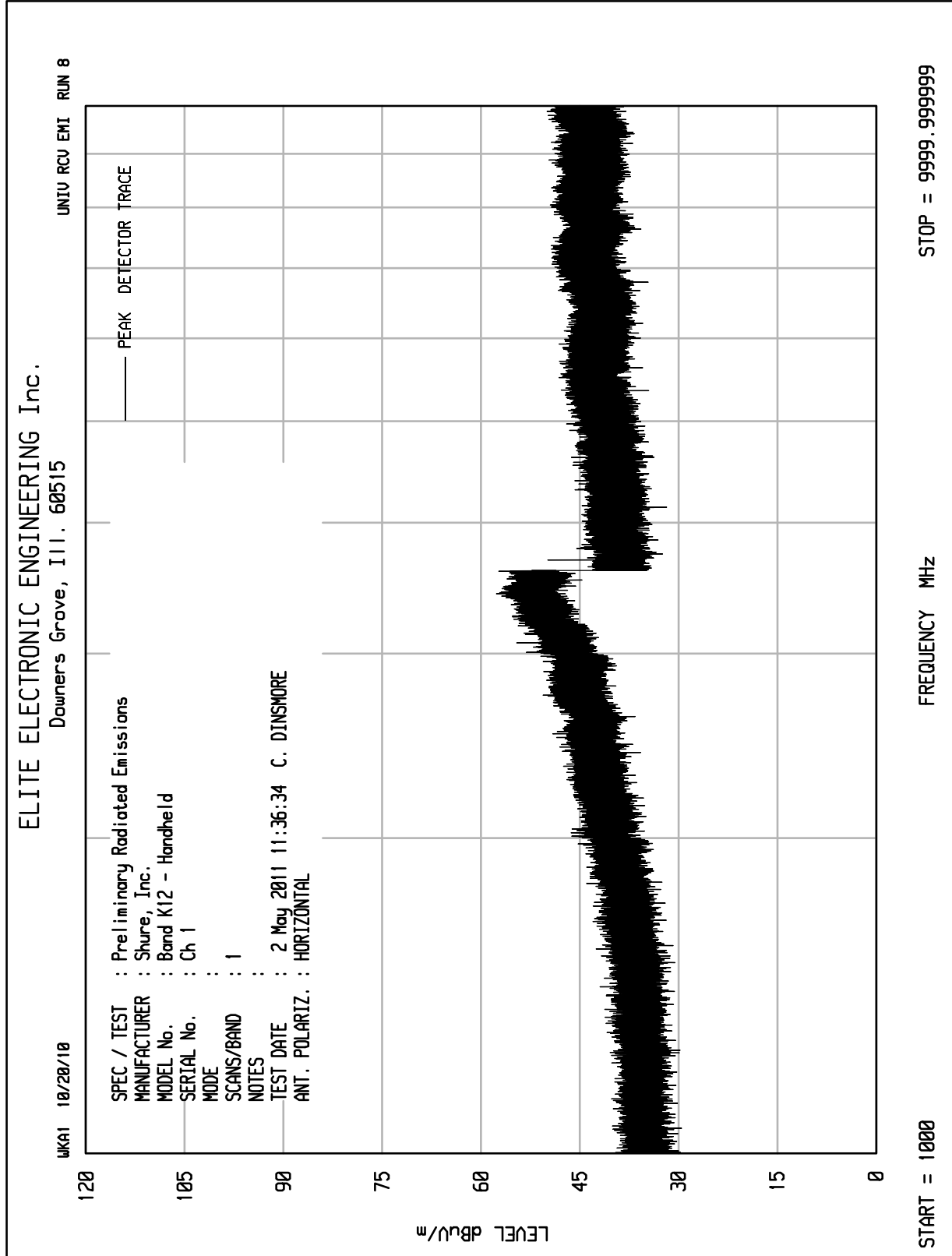


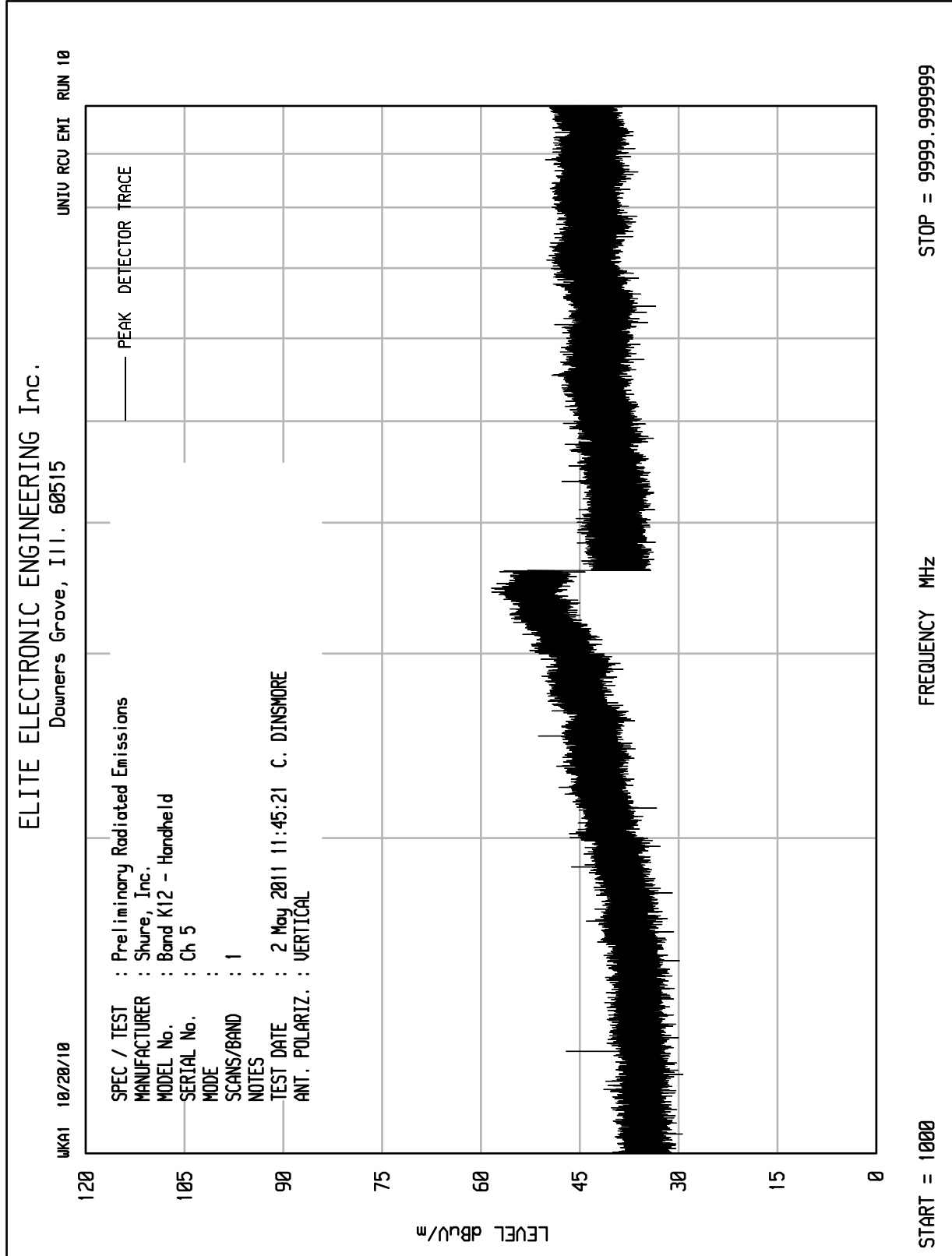


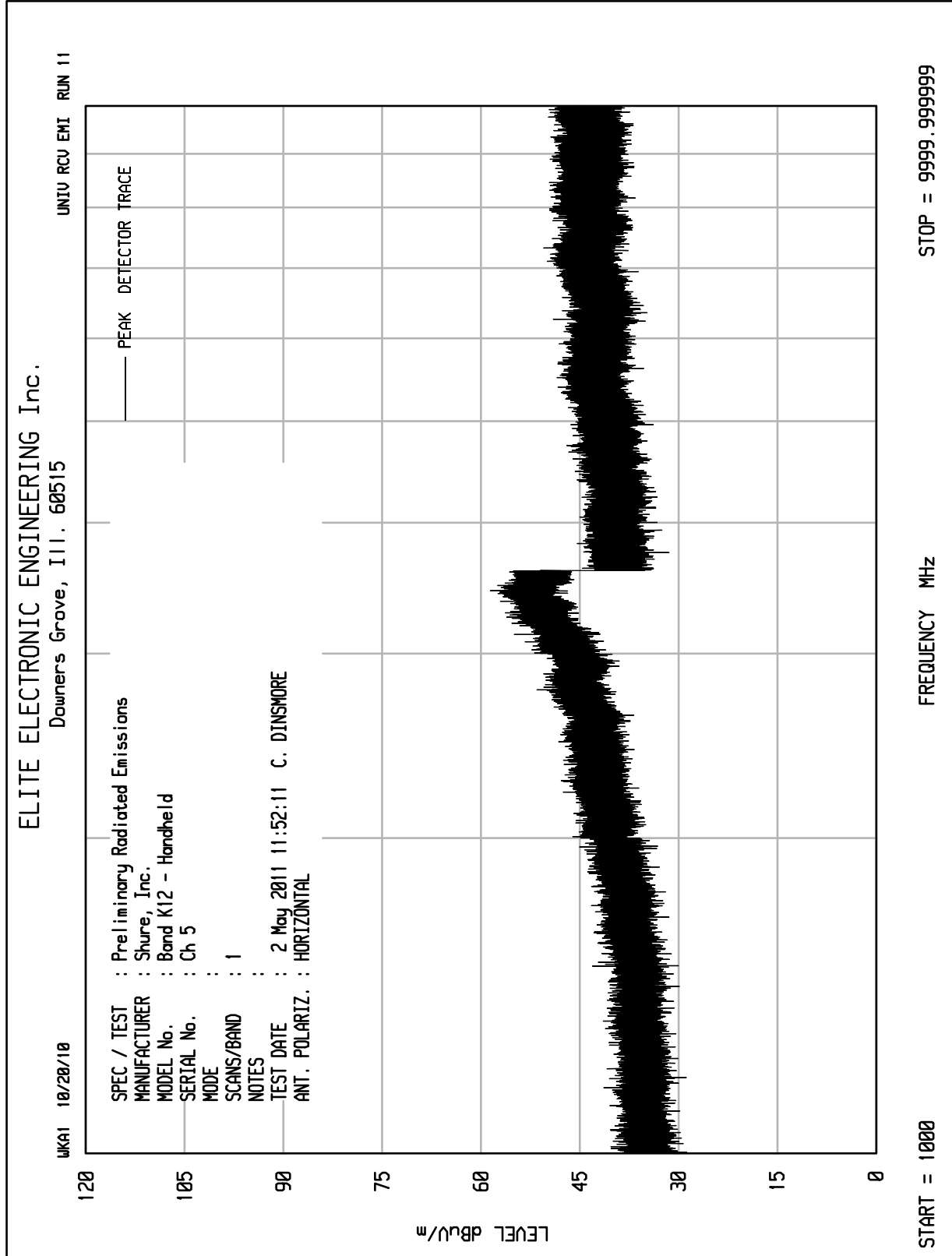


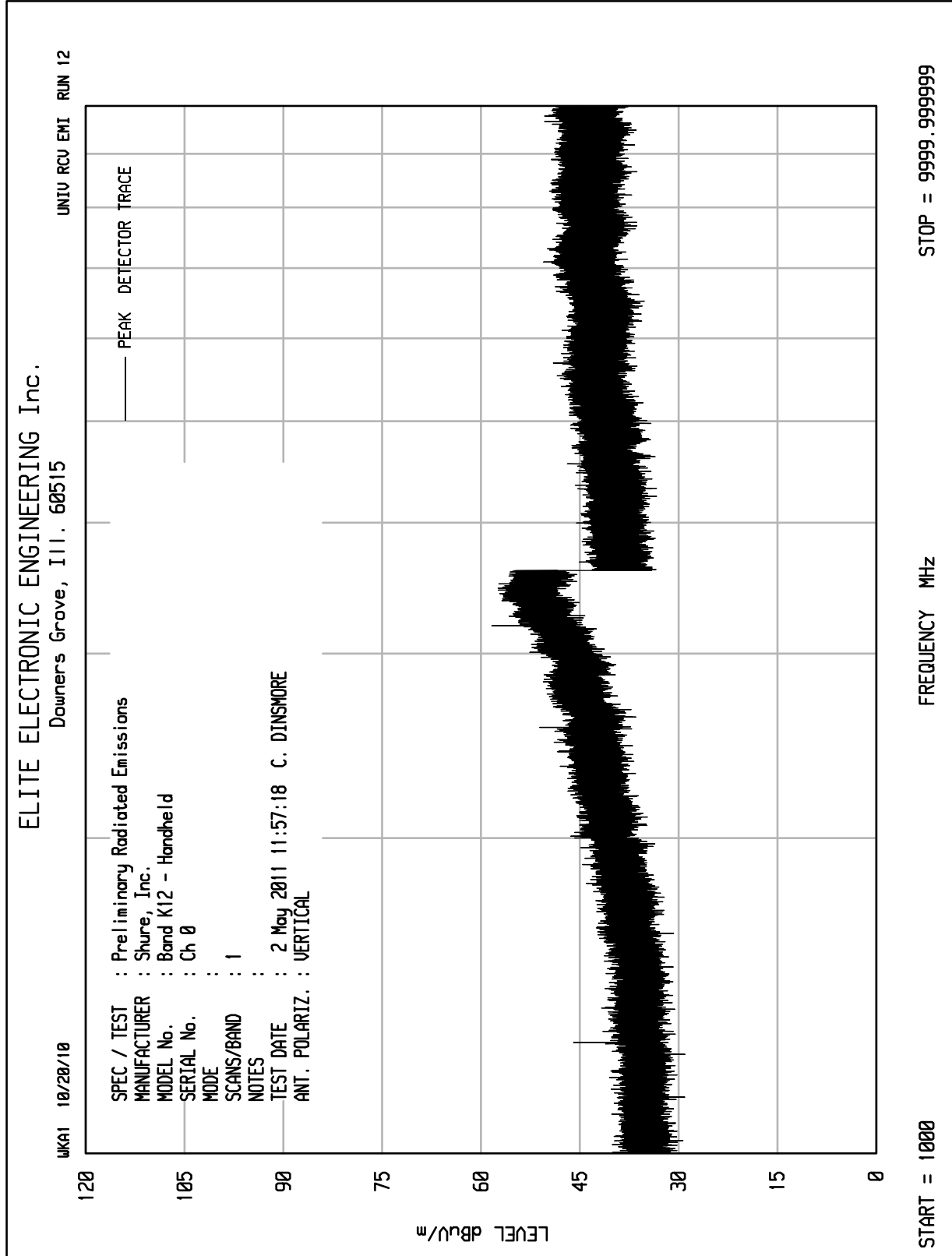


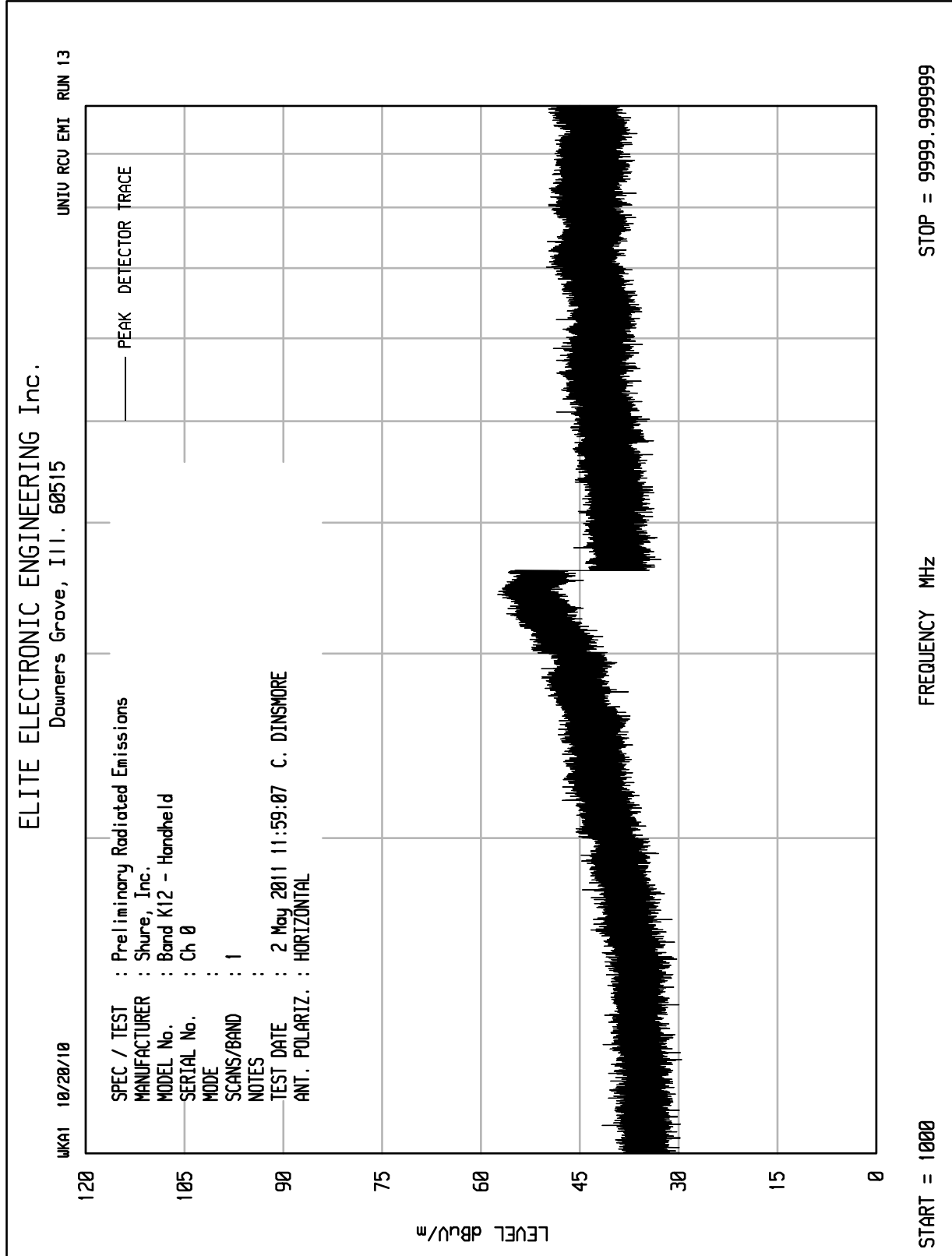


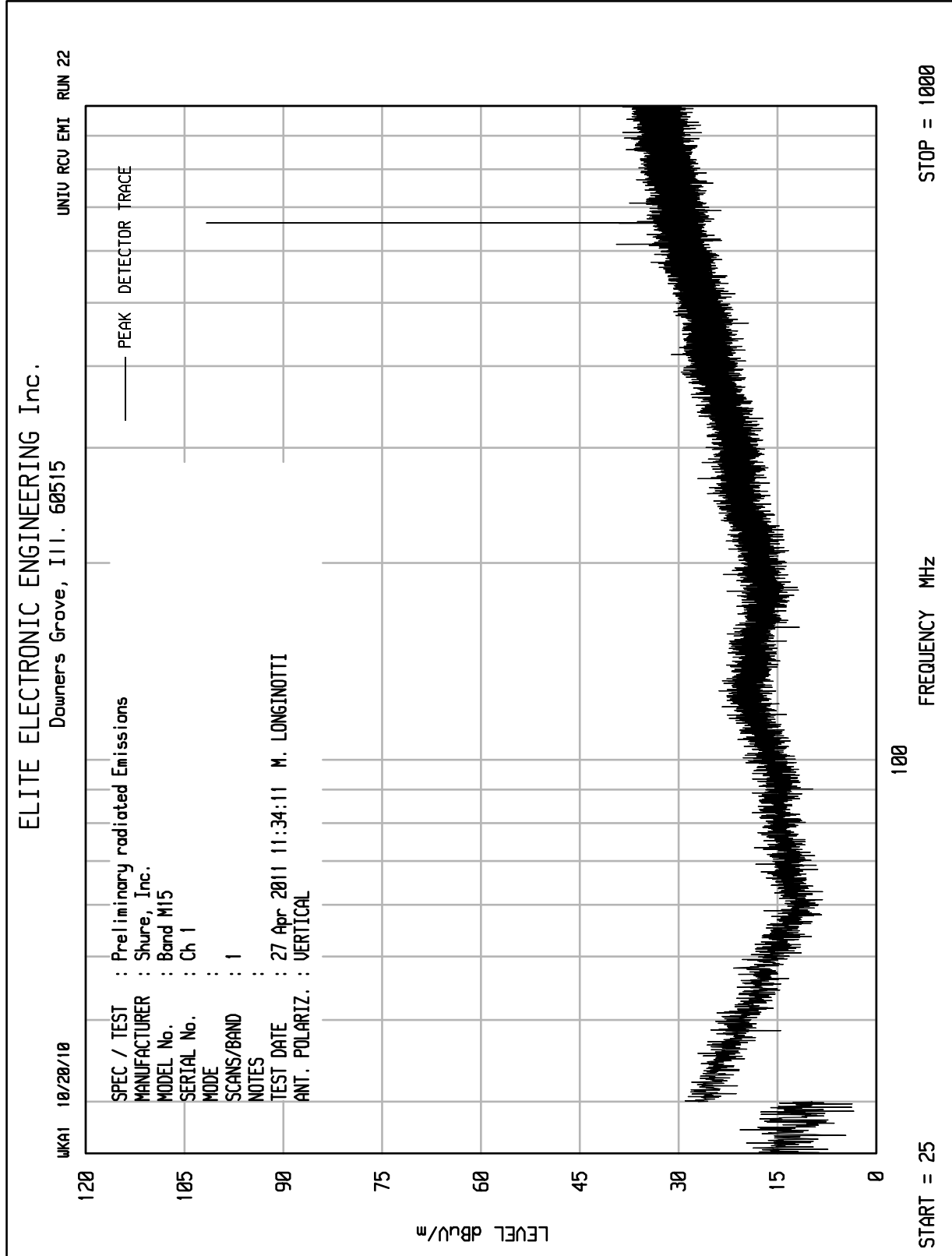


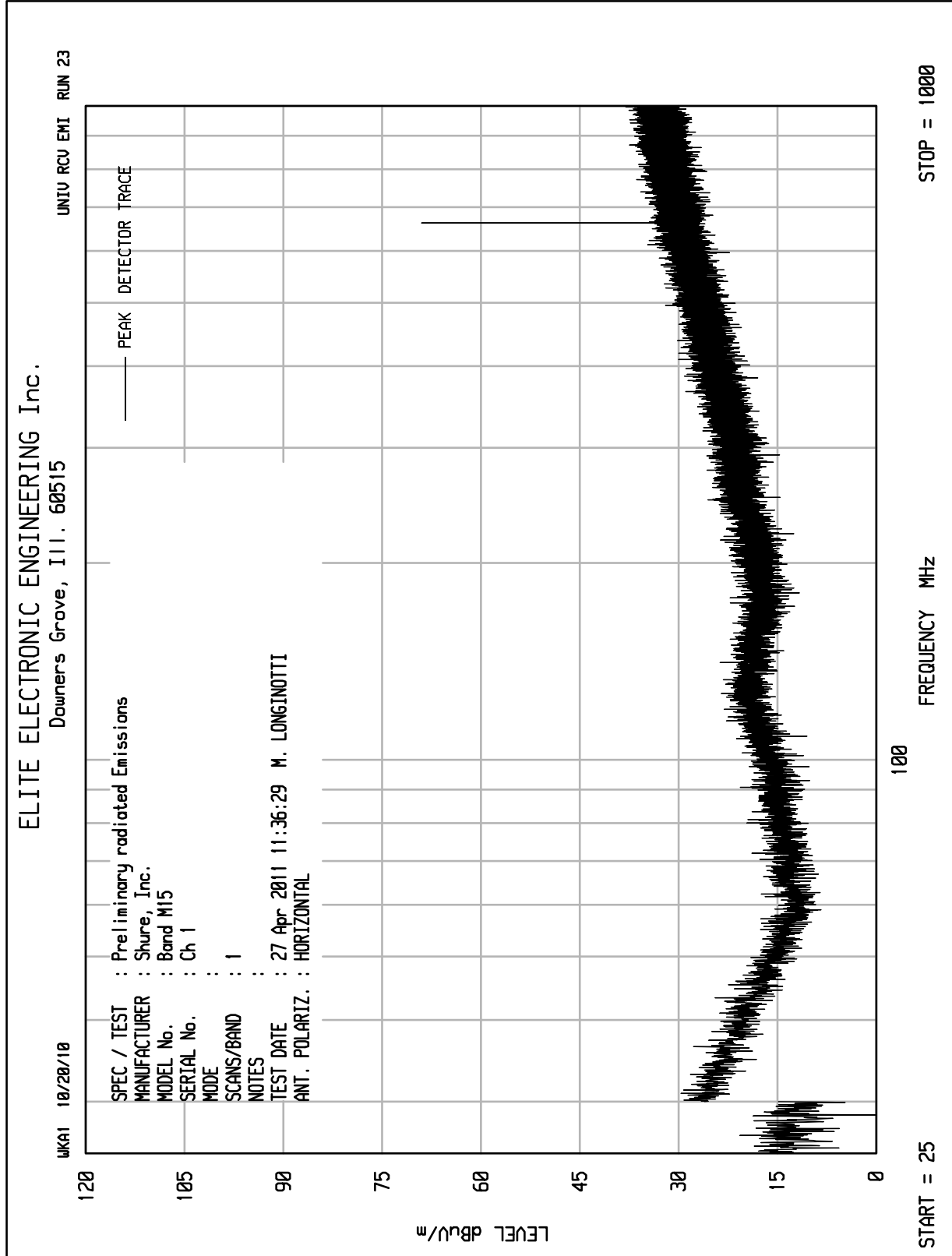


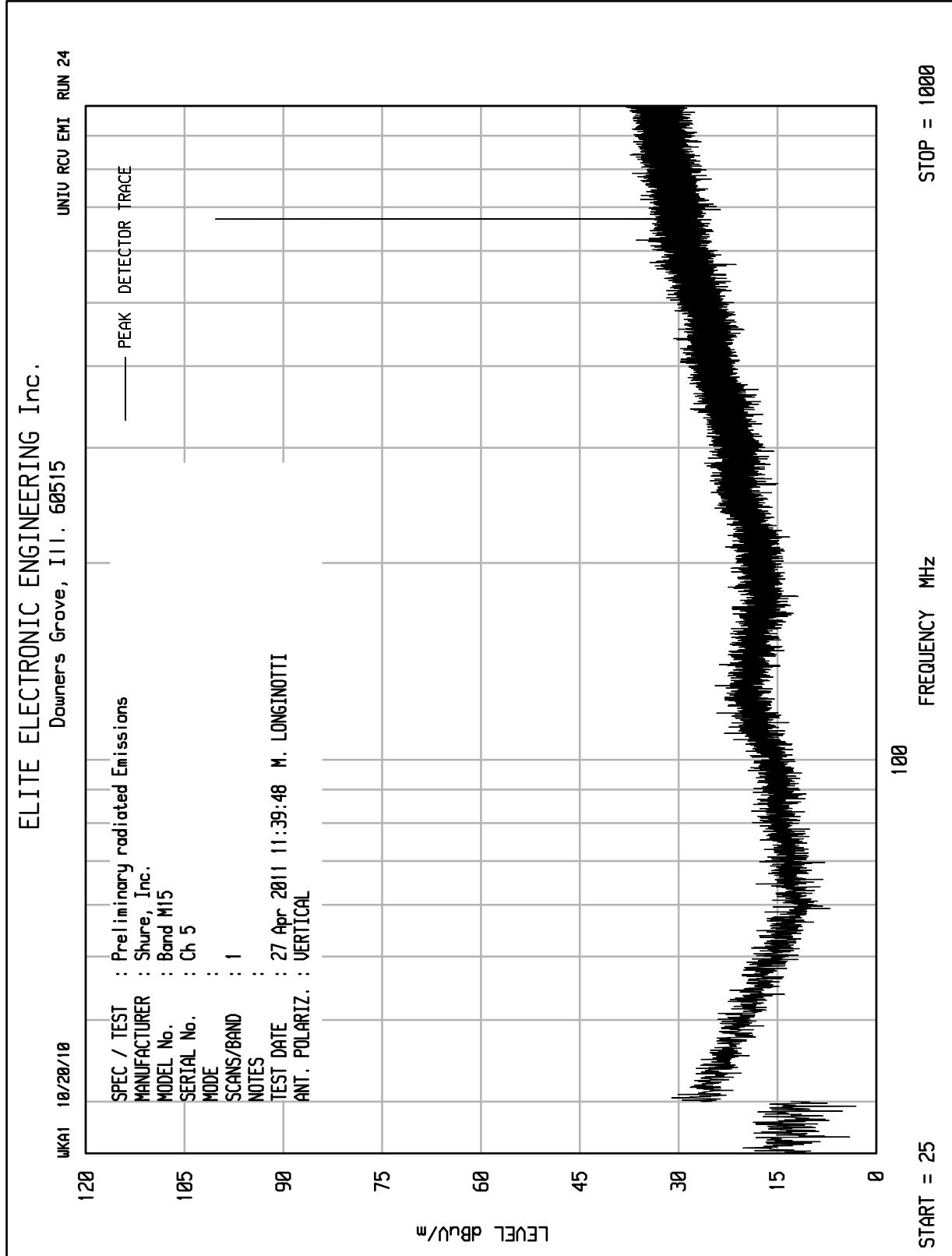


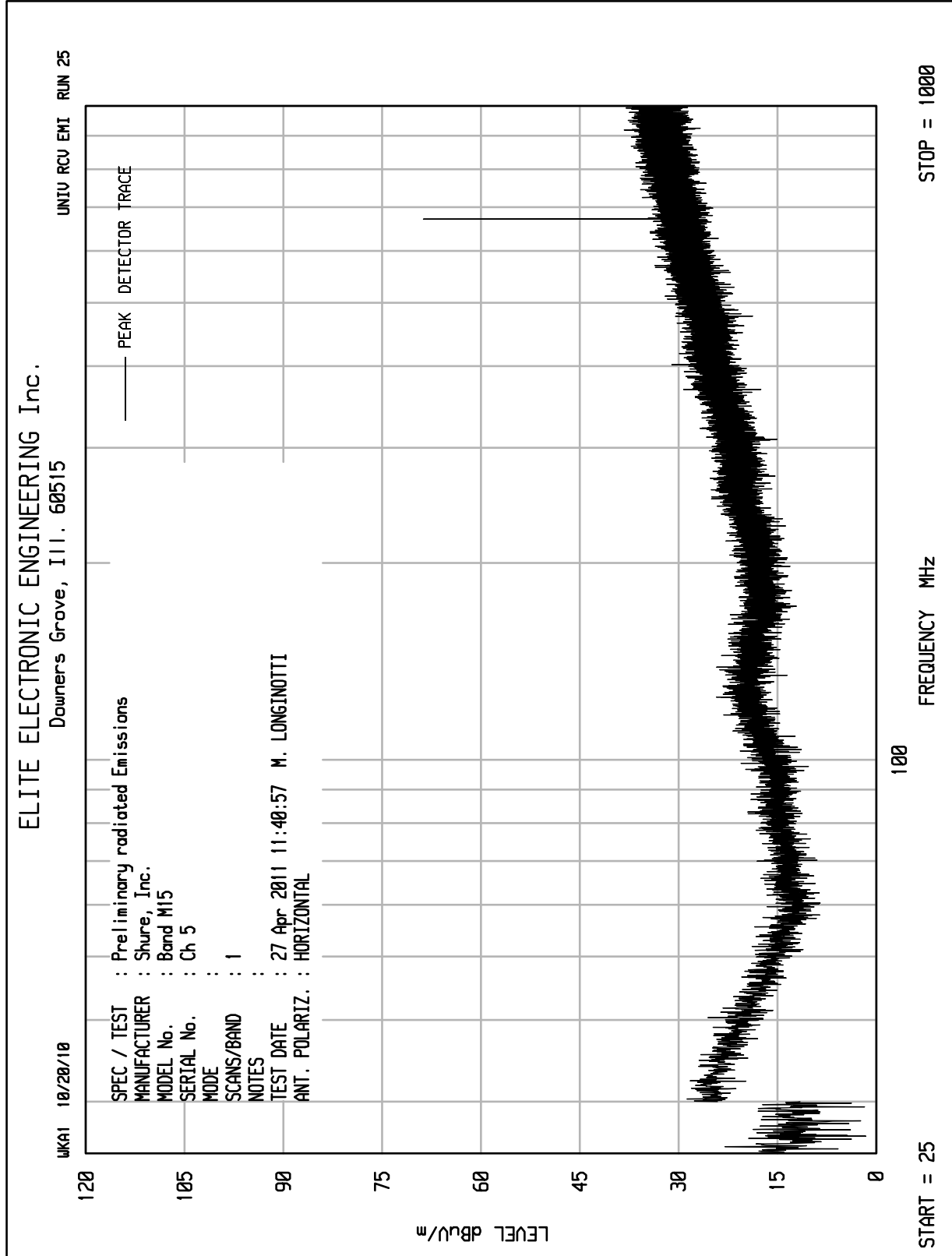


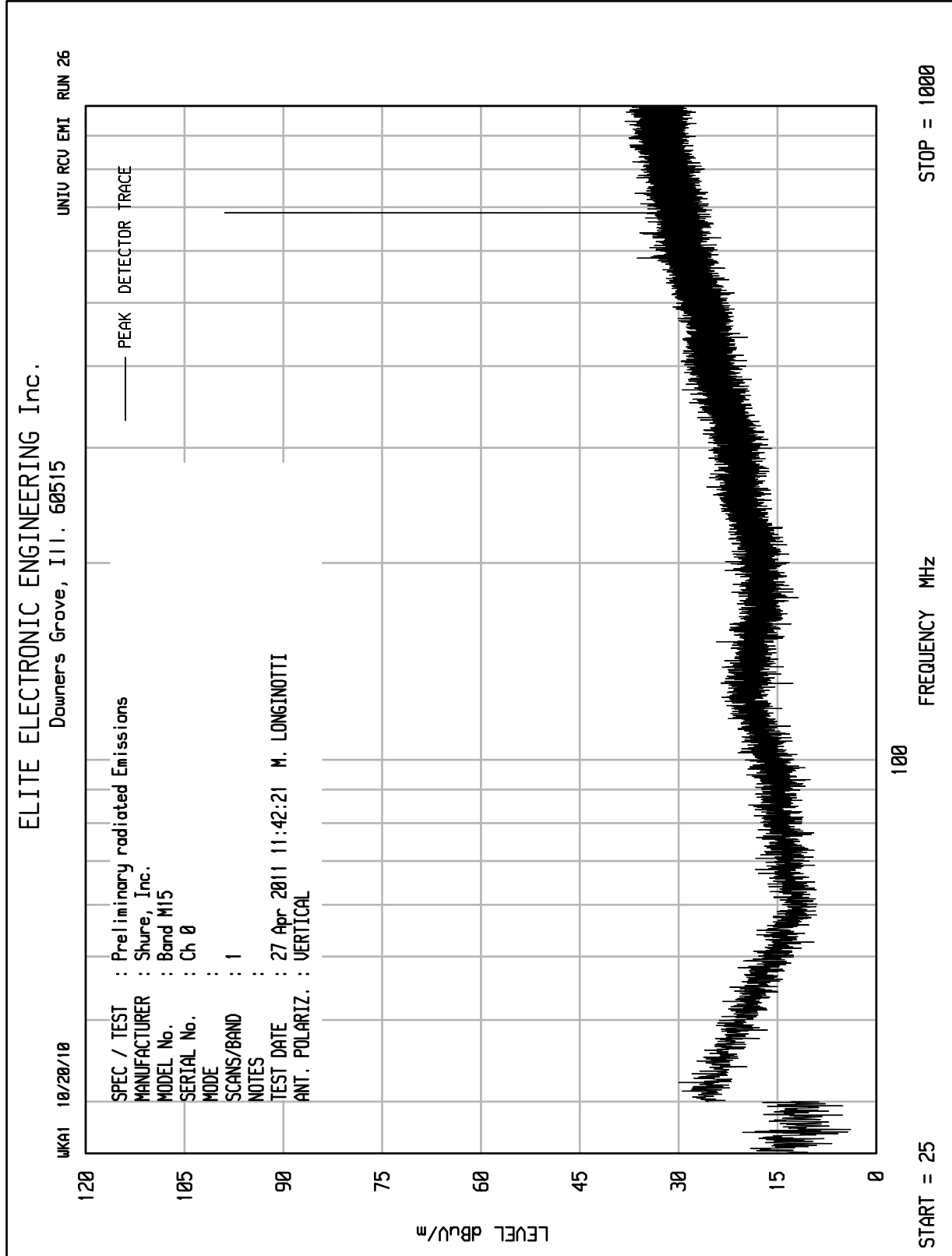


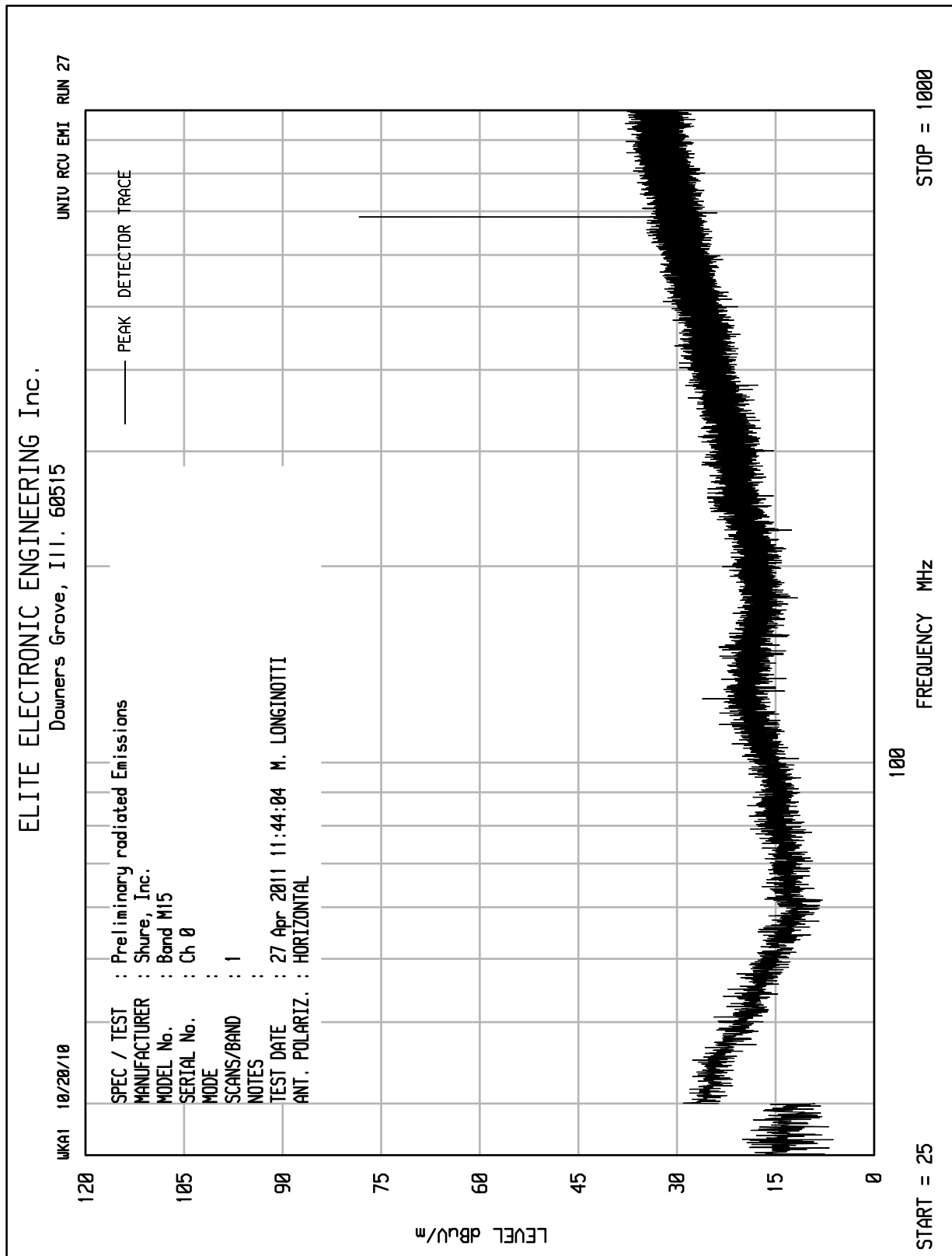


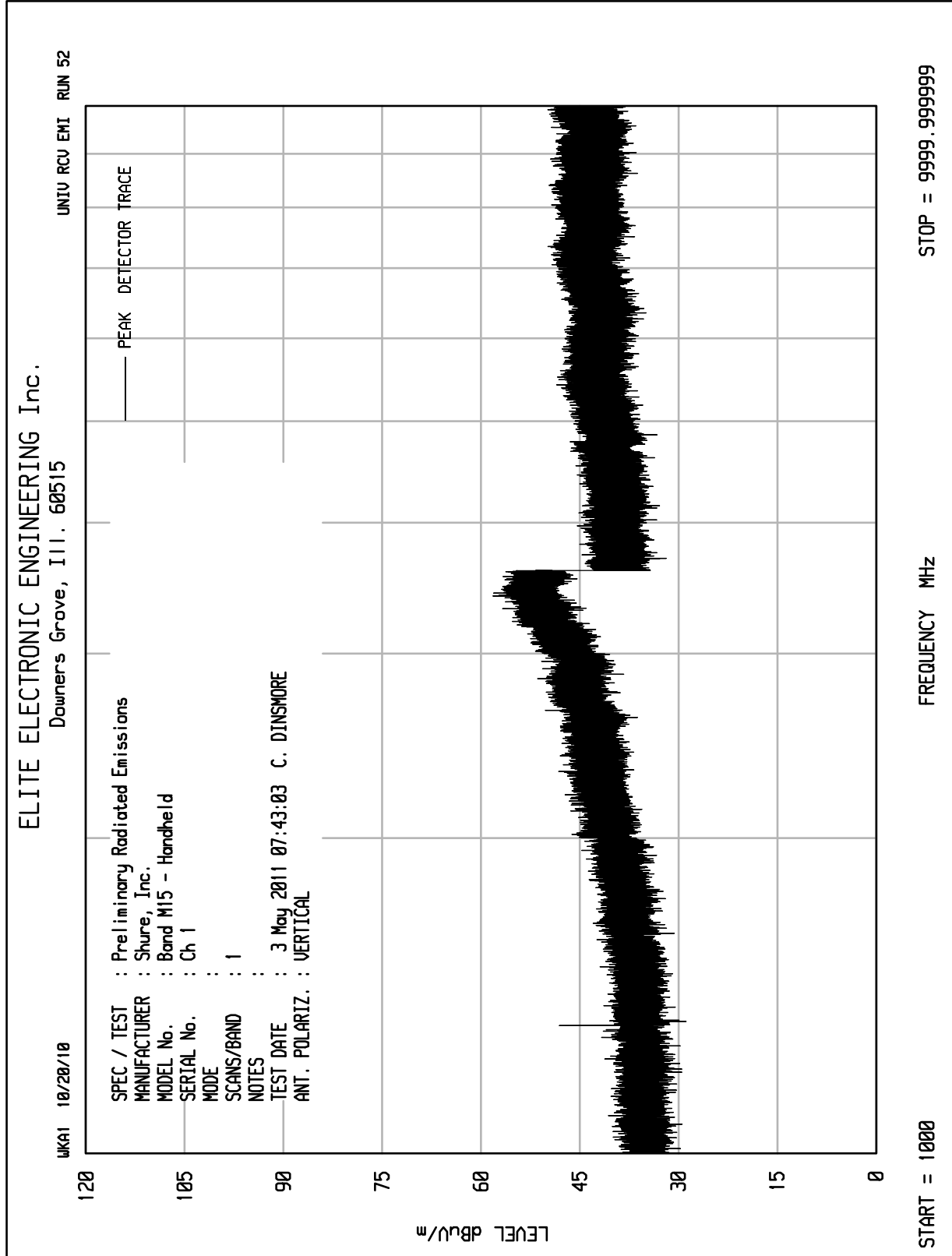


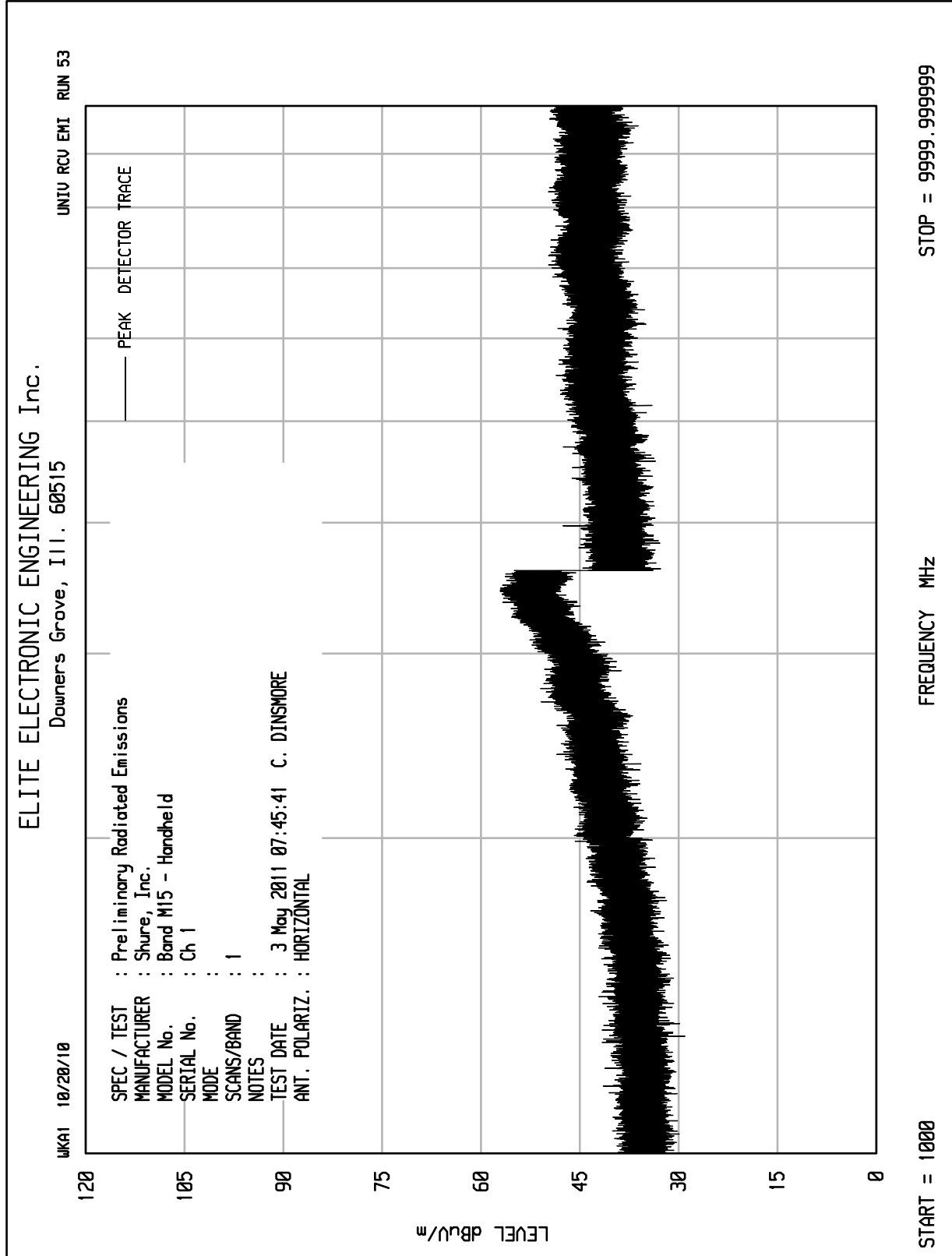


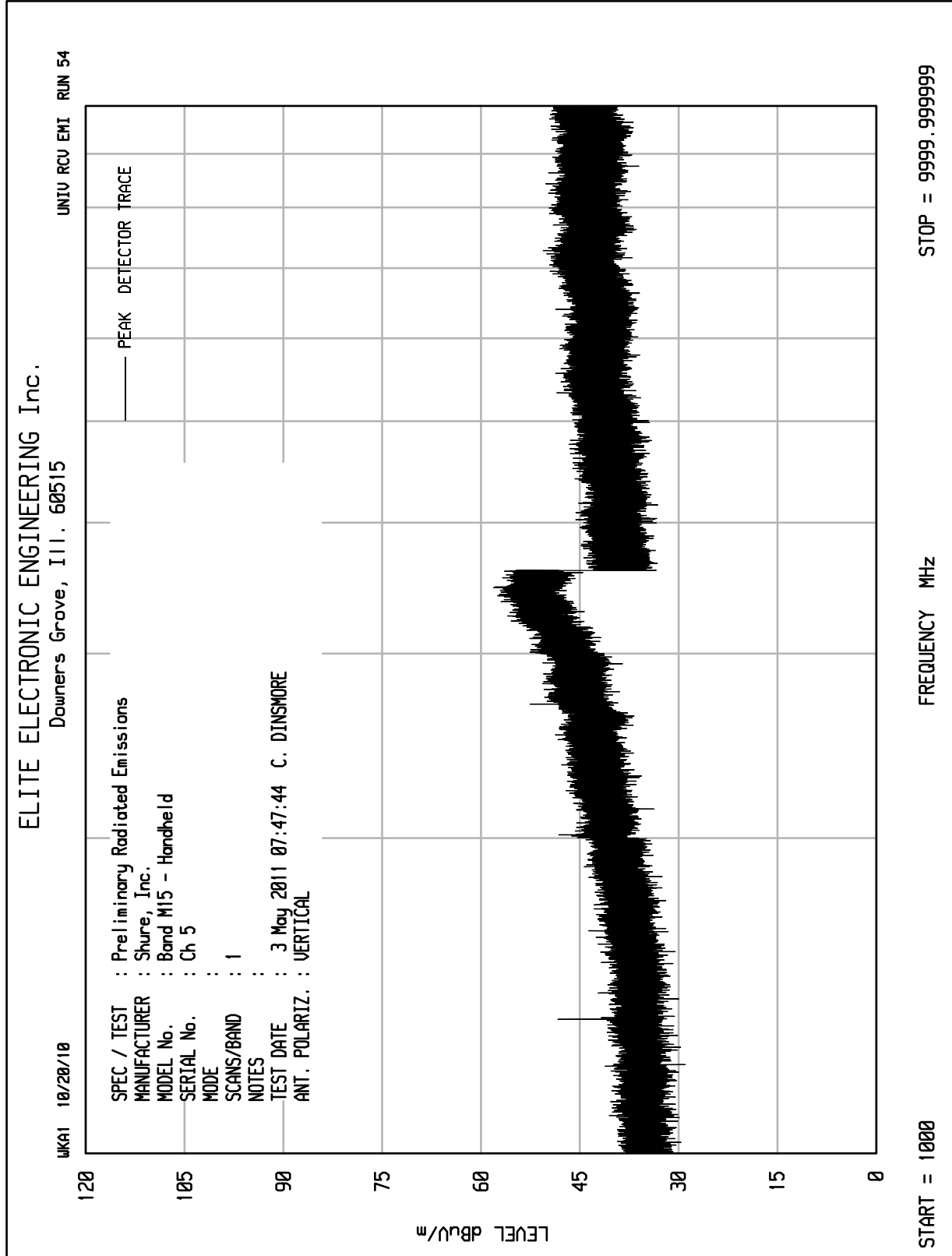


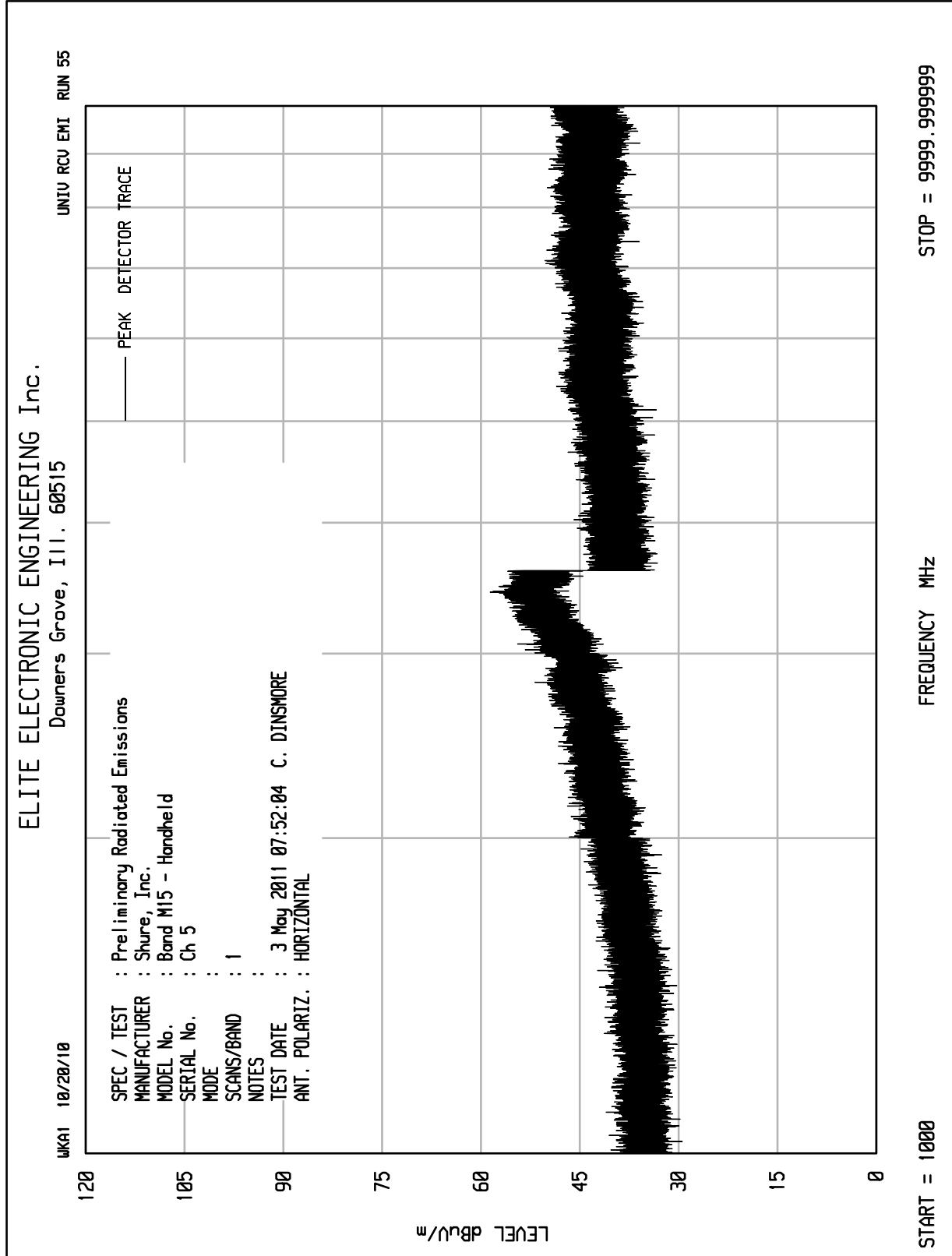


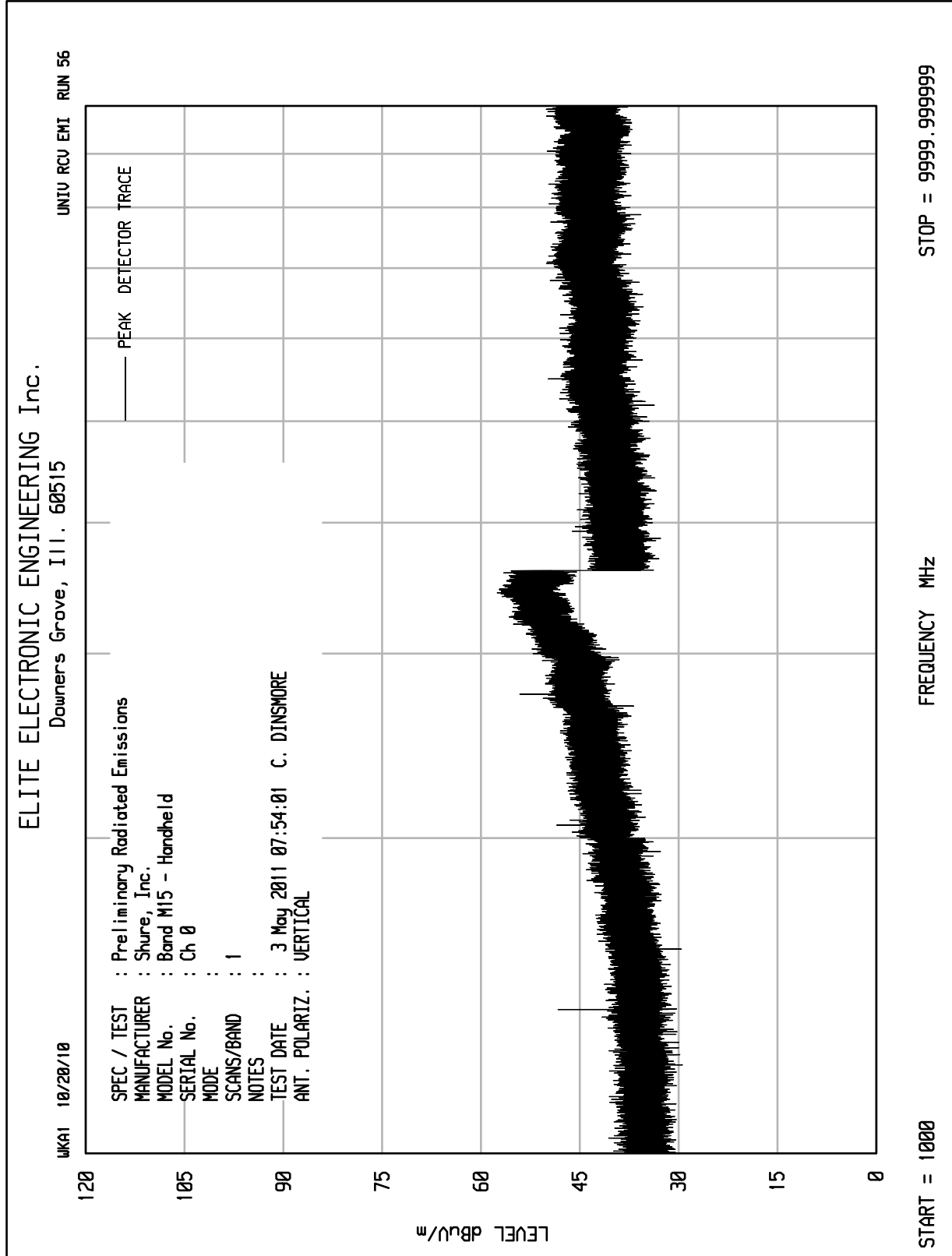


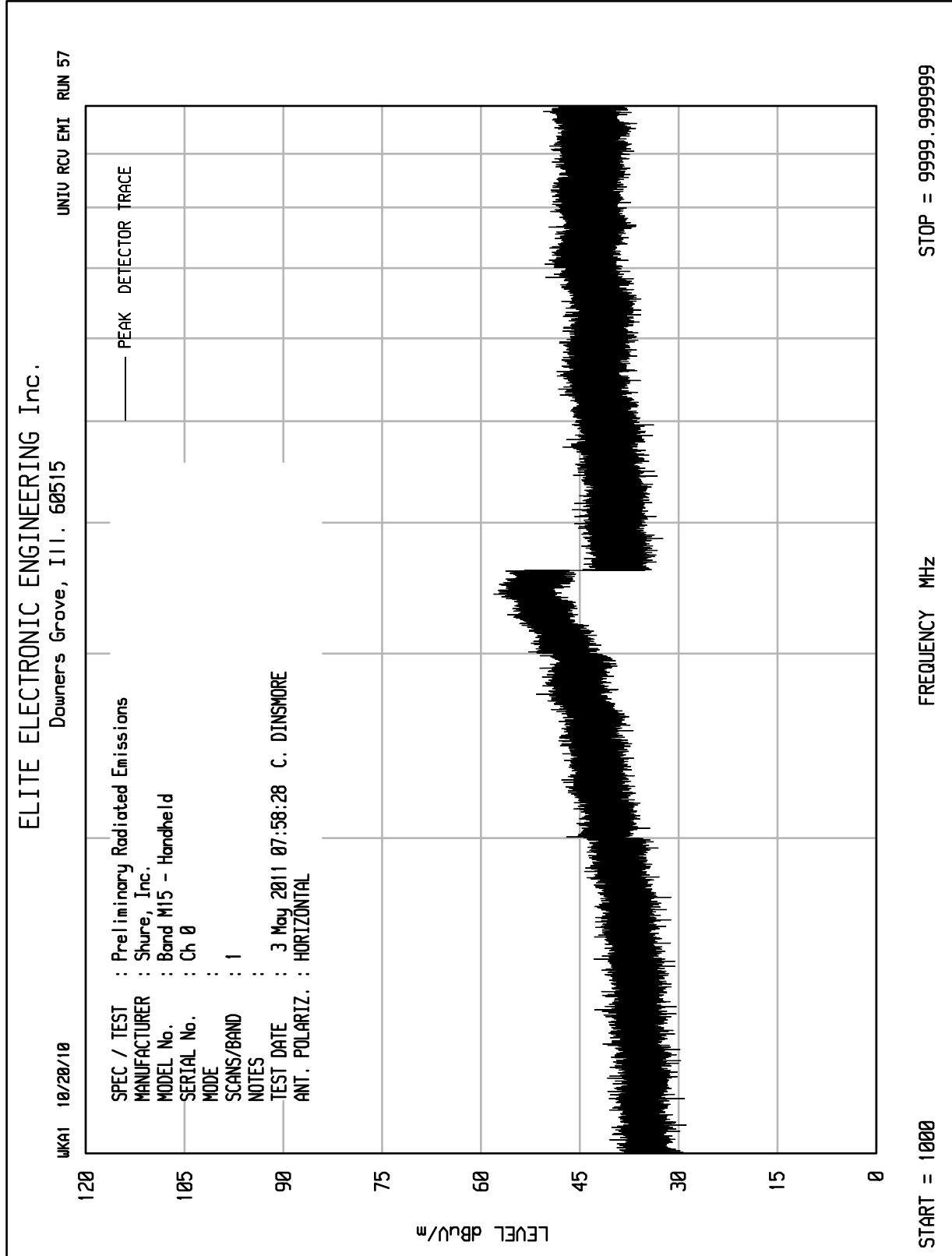














MANUFACTURER : Shure Incorporated
 MODEL : BLX22 Handheld Microphone Transmitter
 SERIAL NO. : None Assigned
 SPECIFICATION : RSS-123 Spurious Radiated Emissions
 DATE : August 24, 2011
 MODE : Transmit on Channel 1 (518.65MHz), 10mW (10dBm)
 BAND : H8
 EQUIPMENT USED : RBB0, CMA1, NTA2, NWH0, NWF0, NDQ1, GXA1

Freq. MHz	Ant Pol	Meter Reading dBuV	Amb	Matched Sig Gen dBm	Antenna Gain dB	Cable Factor dB	ERP Total dBm	Atten dB	RSS-123 Min. Attn. dB
1037.3	H	11.1		-64.5	2.8	1.6	-63.3	73.3	35
1037.3	V	15.7		-60.5	2.8	1.6	-59.4	69.4	35
1556.0	H	10.6		-65.7	4.9	2.1	-62.9	72.9	35
1556.0	V	11.4		-64.8	4.9	2.1	-62.0	72.0	35
2074.6	H	11.0		-62.7	5.2	2.5	-59.9	69.9	35
2074.6	V	11.4		-61.1	5.2	2.5	-58.4	68.4	35
2593.3	H	12.1		-59.9	5.9	2.9	-56.9	66.9	35
2593.3	V	12.5		-57.1	5.9	2.9	-54.1	64.1	35
3111.9	H	11.6		-58.7	6.2	3.2	-55.6	65.6	35
3111.9	V	12.2		-55.9	6.2	3.2	-52.9	62.9	35
3630.6	H	12.8		-55.4	6.9	3.4	-52.0	62.0	35
3630.6	V	11.8		-55.2	6.9	3.4	-51.8	61.8	35
4149.2	H	11.1		-54.5	7.3	3.7	-50.8	60.8	35
4149.2	V	10.8		-54.5	7.3	3.7	-50.9	60.9	35
4667.9	H	11.9		-52.5	8.2	3.9	-48.2	58.2	35
4667.9	V	11.6		-53.2	8.2	3.9	-48.8	58.8	35
5186.5	H	12.5		-49.8	7.6	4.1	-46.2	56.2	35
5186.5	V	12.3		-50.1	7.6	4.1	-46.6	56.6	35

* - Ambient

ERP Total (dBm) = Matched Sig Gen (dBm) + Antenna Gain (dB) – Cable Factor (dB)

Atten. (dB) = Output Power (dBm) – ERP (dBm)

Checked By: MARK E. LONGINOTTI
 Mark E. Longinotti



MANUFACTURER : Shure Incorporated
 MODEL : BLX22 Handheld Microphone Transmitter
 SERIAL NO. : None Assigned
 SPECIFICATION : RSS-123 Spurious Radiated Emissions
 DATE : August 24, 2011
 MODE : Transmit on Channel 5 (530.325MHz), 10mW (10dBm)
 BAND : H8
 EQUIPMENT USED : RBB0, CMA1, NTA2, NWH0, NWF0, NDQ1, GXA1

Freq. MHz	Ant Pol	Meter Reading dBuV	Amb	Matched Sig Gen dBm	Antenna Gain dB	Cable Factor dB	ERP Total dBm	Atten dB	RSS-123 Min. Attn. dB
1058.7	H	10.8		-64.9	2.9	1.7	-63.7	73.7	35
1058.7	V	13.6		-62.6	2.9	1.7	-61.4	71.4	35
1588.0	H	10.7		-65.4	4.9	2.1	-62.6	72.6	35
1588.0	V	11.0		-64.9	4.9	2.1	-62.1	72.1	35
2117.3	H	11.2		-62.3	5.3	2.5	-59.5	69.5	35
2117.3	V	10.6		-61.6	5.3	2.5	-58.8	68.8	35
2646.6	H	13.2		-58.6	5.9	2.9	-55.6	65.6	35
2646.6	V	15.0		-54.4	5.9	2.9	-51.4	61.4	35
3176.0	H	12.7		-57.4	6.3	3.2	-54.3	64.3	35
3176.0	V	11.6		-56.4	6.3	3.2	-53.3	63.3	35
3705.3	H	11.9		-55.8	6.9	3.5	-52.4	62.4	35
3705.3	V	12.0		-54.6	6.9	3.5	-51.2	61.2	35
4234.6	H	11.5		-54.1	7.6	3.7	-50.2	60.2	35
4234.6	V	11.3		-54.2	7.6	3.7	-50.3	60.3	35
4763.9	H	11.0		-52.8	8.1	3.9	-48.6	58.6	35
4763.9	V	10.9		-53.2	8.1	3.9	-49.0	59.0	35
5293.3	H	12.8		-49.3	7.4	4.1	-46.0	56.0	35
5293.3	V	13.2		-49.2	7.4	4.1	-45.9	55.9	35

* - Ambient

ERP Total (dBm) = Matched Sig Gen (dBm) + Antenna Gain (dB) – Cable Loss (dB)

Atten. (dB) = Output Power (dBm) – ERP (dBm)

Checked By: MARK E. LONGINOTTI
 Mark E. Longinotti



MANUFACTURER : Shure Incorporated
 MODEL : BLX22 Handheld Microphone Transmitter
 SERIAL NO. : None Assigned
 SPECIFICATION : RSS-123 Spurious Radiated Emissions
 DATE : August 24, 2011
 MODE : Transmit on Channel 0 (541.775MHz), 10mW (10dBm)
 BAND : H8
 EQUIPMENT USED : RBB0, CMA1, NTA2, NWH0, NWF0, NDQ1, GXA1

Freq. MHz	Ant Pol	Meter Reading dBuV	Amb	Matched Sig Gen dBm	Antenna Gain dB	Cable Factor dB	ERP Total dBm	Atten dB	RSS-123 Min. Attn. dB
1083.6	H	11.5		-64.4	3.0	1.7	-63.0	73.0	35
1083.6	V	12.2		-63.9	3.0	1.7	-62.6	72.6	35
1625.3	H	12.0		-63.8	4.9	2.2	-61.0	71.0	35
1625.3	V	10.5		-65.0	4.9	2.2	-62.2	72.2	35
2167.1	H	10.1		-63.3	5.4	2.5	-60.4	70.4	35
2167.1	V	11.3		-60.6	5.4	2.5	-57.8	67.8	35
2708.9	H	17.9		-53.7	6.0	2.9	-50.7	60.7	35
2708.9	V	17.7		-51.5	6.0	2.9	-48.5	58.5	35
3250.7	H	11.7		-58.2	6.4	3.2	-55.0	65.0	35
3250.7	V	11.8		-56.1	6.4	3.2	-52.9	62.9	35
3792.4	H	12.6		-54.5	6.9	3.5	-51.1	61.1	35
3792.4	V	11.9		-54.2	6.9	3.5	-50.9	60.9	35
4334.2	H	11.5		-54.0	7.9	3.8	-49.9	59.9	35
4334.2	V	11.7		-53.9	7.9	3.8	-49.8	59.8	35
4876.0	H	11.0		-52.2	8.0	4.0	-48.1	58.1	35
4876.0	V	10.6		-52.8	8.0	4.0	-48.7	58.7	35
5417.8	H	16.2		-45.8	7.2	4.2	-42.8	52.8	35
5417.8	V	14.8		-47.5	7.2	4.2	-44.4	54.4	35

* - Ambient

ERP Total (dBm) = Matched Sig Gen (dBm) + Antenna Gain (dB) – Cable Loss (dB)

Atten. (dB) = Output Power (dBm) – ERP (dBm)

Checked By: MARK E. LONGINOTTI
 Mark E. Longinotti



MANUFACTURER : Shure Incorporated
 MODEL : BLX22 Handheld Microphone Transmitter
 SERIAL NO. : None Assigned
 SPECIFICATION : FCC-74 Spurious Radiated Emissions
 DATE : August 24, 2011
 MODE : Transmit on Channel 5 (530.325MHz), 10mW (10dBm)
 BAND : H8
 EQUIPMENT USED : RBB0, CMA1, NTA2, NWH0, NWF0, NDQ1, GX1

Freq. MHz	Ant Pol	Meter Reading dBuV	Amb	Matched Sig Gen dBm	Antenna Gain dB	Cable Factor dB	ERP Total dBm	Atten dB	FCC Min. Attn. dB
1058.7	H	26.4		-49.8	4.3	1.7	-47.2	57.2	23
1058.7	V	31.4		-51.0	4.3	1.7	-48.4	58.4	23
1588.0	H	26.0		-49.6	6.0	2.1	-45.8	55.8	23
1588.0	V	27.4		-49.2	6.0	2.1	-45.4	55.4	23
2117.3	H	24.1		-50.2	6.8	2.5	-45.9	55.9	23
2117.3	V	26.8		-46.5	6.8	2.5	-42.2	52.2	23
2646.6	H	28.4		-42.9	7.3	2.9	-38.5	48.5	23
2646.6	V	29.0		-40.7	7.3	2.9	-36.3	46.3	23
3176.0	H	27.7		-41.9	7.5	3.2	-37.6	47.6	23
3176.0	V	28.1		-39.2	7.5	3.2	-34.9	44.9	23
3705.3	H	27.7		-40.2	7.2	3.5	-36.4	46.4	23
3705.3	V	27.5		-38.2	7.2	3.5	-34.4	44.4	23
4234.6	H	26.7		-40.3	7.6	3.7	-36.4	46.4	23
4234.6	V	28.1		-37.8	7.6	3.7	-33.9	43.9	23
4763.9	H	27.0		-37.3	8.0	3.9	-33.2	43.2	23
4763.9	V	26.3		-38.4	8.0	3.9	-34.3	44.3	23
5293.3	H	29.0		-33.9	8.1	4.1	-29.9	39.9	23
5293.3	V	28.6		-34.4	8.1	4.1	-30.4	40.4	23

* - Ambient

ERP Total (dBm) = Matched Sig Gen (dBm) + Antenna Gain (dB) – Cable Loss (dB)

Atten. (dB) = Output Power (dBm) – ERP (dBm)

Checked By: MARK E. LONGINOTTI
 Mark E. Longinotti



MANUFACTURER : Shure Incorporated
 MODEL : BLX22 Handheld Microphone Transmitter
 SERIAL NO. : None Assigned
 SPECIFICATION : RSS-123 Spurious Radiated Emissions
 DATE : August 24, 2011
 MODE : Transmit on Channel 1 (584.375MHz), 10mW (10dBm)
 BAND : J10
 EQUIPMENT USED : RBB0, CMA1, NTA2, NWH0, NWF0, NDQ1, GXA1

Freq. MHz	Ant Pol	Meter Reading dBuV	Amb	Matched Sig Gen dBm	Antenna Gain dB	Cable Factor dB	ERP Total dBm	Atten dB	RSS-123 Min. Attn. dB
1168.8	H	11.0		-65.4	3.5	1.8	-63.7	73.7	35
1168.8	V	11.8		-64.2	3.5	1.8	-62.5	72.5	35
1753.1	H	10.2		-64.8	5.0	2.2	-62.0	72.0	35
1753.1	V	13.8		-60.6	5.0	2.2	-57.8	67.8	35
2337.5	H	10.5		-62.4	5.7	2.7	-59.4	69.4	35
2337.5	V	10.6		-60.3	5.7	2.7	-57.3	67.3	35
2921.9	H	12.6		-58.3	6.0	3.1	-55.3	65.3	35
2921.9	V	15.8		-52.7	6.0	3.1	-49.7	59.7	35
3506.3	H	10.9		-58.3	6.8	3.4	-54.8	64.8	35
3506.3	V	10.9		-56.8	6.8	3.4	-53.3	63.3	35
4090.6	H	11.9		-53.7	7.2	3.6	-50.2	60.2	35
4090.6	V	11.6		-53.7	7.2	3.6	-50.1	60.1	35
4675.0	H	10.0		-54.3	8.2	3.9	-50.0	60.0	35
4675.0	V	10.0		-54.7	8.2	3.9	-50.4	60.4	35
5259.4	H	11.0		-51.2	7.5	4.1	-47.8	57.8	35
5259.4	V	11.3		-51.1	7.5	4.1	-47.7	57.7	35
5843.8	H	11.0		-50.8	7.8	4.3	-47.3	57.3	35
5843.8	V	11.2		-50.9	7.8	4.3	-47.4	57.4	35

* - Ambient

$$\text{ERP Total (dBm)} = \text{Matched Sig Gen (dBm)} + \text{Antenna Gain (dB)} - \text{Cable Factor (dB)}$$

$$\text{Atten. (dB)} = \text{Output Power (dBm)} - \text{ERP (dBm)}$$

Checked By: MARK E. LONGINOTTI
 Mark E. Longinotti



MANUFACTURER : Shure Incorporated
 MODEL : BLX22 Handheld Microphone Transmitter
 SERIAL NO. : None Assigned
 SPECIFICATION : RSS-123 Spurious Radiated Emissions
 DATE : August 24, 2011
 MODE : Transmit on Channel 5 (593.75MHz), 10mW (10dBm)
 BAND : J10
 EQUIPMENT USED : RBB0, CMA1, NTA2, NWH0, NWF0, NDQ1, GXA1

Freq. MHz	Ant Pol	Meter Reading dBuV	Amb	Matched Sig Gen dBm	Antenna Gain dB	Cable Factor dB	ERP Total dBm	Atten dB	RSS-123 Min. Attn. dB
1187.5	H	10.2		-66.3	3.5	1.8	-64.6	74.6	35
1187.5	V	13.0		-62.9	3.5	1.8	-61.2	71.2	35
1781.3	H	10.9		-63.9	5.0	2.3	-61.2	71.2	35
1781.3	V	14.0		-60.2	5.0	2.3	-57.4	67.4	35
2375.0	H	13.3		-59.4	5.7	2.7	-56.4	66.4	35
2375.0	V	13.6		-57.1	5.7	2.7	-54.1	64.1	35
2968.8	H	17.8		-52.9	6.0	3.1	-50.0	60.0	35
2968.8	V	17.6		-50.7	6.0	3.1	-47.8	57.8	35
3562.5	H	11.6		-57.1	6.8	3.4	-53.7	63.7	35
3562.5	V	12.3		-55.1	6.8	3.4	-51.6	61.6	35
4156.3	H	14.2		-51.4	7.4	3.7	-47.7	57.7	35
4156.3	V	11.6		-53.8	7.4	3.7	-50.1	60.1	35
4750.0	H	11.3		-52.6	8.1	3.9	-48.4	58.4	35
4750.0	V	11.2		-53.0	8.1	3.9	-48.8	58.8	35
5343.8	H	14.5		-47.6	7.3	4.1	-44.4	54.4	35
5343.8	V	14.3		-48.0	7.3	4.1	-44.8	54.8	35
5937.5	H	13.8		-47.9	8.0	4.4	-44.3	54.3	35
5937.5	V	13.8		-48.2	8.0	4.4	-44.6	54.6	35

* - Ambient

ERP Total (dBm) = Matched Sig Gen (dBm) + Antenna Gain (dB) – Cable Loss (dB)

Atten. (dB) = Output Power (dBm) – ERP (dBm)

Checked By: MARK E. LONGINOTTI
 Mark E. Longinotti



MANUFACTURER : Shure Incorporated
 MODEL : BLX22 Handheld Microphone Transmitter
 SERIAL NO. : None Assigned
 SPECIFICATION : RSS-123 Spurious Radiated Emissions
 DATE : August 24, 2011
 MODE : Transmit on Channel 0 (607.625MHz), 10mW (10dBm)
 BAND : J10
 EQUIPMENT USED : RBB0, CMA1, NTA2, NWH0, NWF0, NDQ1, GX1

Freq. MHz	Ant Pol	Meter Reading dBuV	Amb	Matched Sig Gen dBm	Antenna Gain dB	Cable Factor dB	ERP Total dBm	Atten dB	RSS-123 Min. Attn. dB
1215.3	H	10.3		-66.3	3.7	1.8	-64.5	74.5	35
1215.3	V	10.2		-65.7	3.7	1.8	-63.9	73.9	35
1822.9	H	10.9		-63.7	5.0	2.3	-61.0	71.0	35
1822.9	V	13.4		-60.5	5.0	2.3	-57.8	67.8	35
2430.5	H	12.1		-60.5	5.8	2.7	-57.4	67.4	35
2430.5	V	14.0		-56.4	5.8	2.7	-53.3	63.3	35
3038.1	H	15.8		-54.7	6.1	3.1	-51.7	61.7	35
3038.1	V	13.9		-54.3	6.1	3.1	-51.3	61.3	35
3645.8	H	10.5		-57.6	6.9	3.4	-54.2	64.2	35
3645.8	V	10.5		-56.4	6.9	3.4	-53.0	63.0	35
4253.4	H	9.8		-55.7	7.6	3.7	-51.8	61.8	35
4253.4	V	10.2		-55.3	7.6	3.7	-51.4	61.4	35
4861.0	H	10.8		-52.5	8.0	4.0	-48.4	58.4	35
4861.0	V	10.6		-52.9	8.0	4.0	-48.8	58.8	35
5468.6	H	13.5		-48.4	7.1	4.2	-45.5	55.5	35
5468.6	V	14.1		-48.1	7.1	4.2	-45.2	55.2	35
6076.3	H	10.3		-51.3	8.4	4.4	-47.3	57.3	35
6076.3	V	12.5		-49.5	8.4	4.4	-45.5	55.5	35

* - Ambient

ERP Total (dBm) = Matched Sig Gen (dBm) + Antenna Gain (dB) – Cable Loss (dB)

Atten. (dB) = Output Power (dBm) – ERP (dBm)

Checked By: MARK E. LONGINOTTI
 Mark E. Longinotti



MANUFACTURER : Shure Incorporated
 MODEL : BLX22 Handheld Microphone Transmitter
 SERIAL NO. : None Assigned
 SPECIFICATION : FCC-74 Spurious Radiated Emissions
 DATE : August 24, 2011
 MODE : Transmit on Channel 5 (593.75MHz), 10mW (10dBm)
 BAND : J10
 EQUIPMENT USED : RBB0, CMA1, NTA2, NWH0, NWF0, NDQ1, GXA1

Freq. MHz	Ant Pol	Meter Reading dBuV	Amb	Matched Sig Gen dBm	Antenna Gain dB	Cable Factor dB	ERP Total dBm	Atten dB	FCC Min. Attn. dB
1187.5	H	26.0		-49.4	4.8	1.8	-46.4	56.4	23
1187.5	V	30.3		-44.8	4.8	1.8	-41.8	51.8	23
1781.3	H	26.4		-48.0	6.3	2.3	-43.9	53.9	23
1781.3	V	28.5		-45.4	6.3	2.3	-41.3	51.3	23
2375.0	H	27.6		-45.4	7.0	2.7	-41.1	51.1	23
2375.0	V	30.5		-40.8	7.0	2.7	-36.5	46.5	23
2968.8	H	27.9		-43.0	7.6	3.1	-38.5	48.5	23
2968.8	V	29.9		-38.9	7.6	3.1	-34.4	44.4	23
3562.5	H	27.4		-41.4	7.3	3.4	-37.5	47.5	23
3562.5	V	27.4		-38.8	7.3	3.4	-34.9	44.9	23
4156.3	H	27.1		-39.5	7.4	3.7	-35.7	45.7	23
4156.3	V	27.3		-38.1	7.4	3.7	-34.3	44.3	23
4750.0	H	26.7		-37.9	8.0	3.9	-33.8	43.8	23
4750.0	V	26.3		-38.5	8.0	3.9	-34.4	44.4	23
5343.8	H	29.8		-32.3	8.2	4.1	-28.3	38.3	23
5343.8	V	29.7		-32.3	8.2	4.1	-28.3	38.3	23
5937.5	H	29.4		-36.3	8.7	4.4	-32.0	42.0	23
5937.5	V	29.2		-32.8	8.7	4.4	-28.5	38.5	23

* - Ambient

ERP Total (dBm) = Matched Sig Gen (dBm) + Antenna Gain (dB) – Cable Loss (dB)

Atten. (dB) = Output Power (dBm) – ERP (dBm)

Checked By: MARK E. LONGINOTTI
 Mark E. Longinotti



MANUFACTURER : Shure Incorporated
 MODEL : BLX22 Handheld Microphone Transmitter
 SERIAL NO. : None Assigned
 SPECIFICATION : RSS-123 Spurious Radiated Emissions
 DATE : August 24, 2011
 MODE : Transmit on Channel 1 (614.3MHz), 10mW (10dBm)
 BAND : K12
 EQUIPMENT USED : RBB0, CMA1, NTA2, NWH0, NWF0, NDQ1, GXA1

Freq. MHz	Ant Pol	Meter Reading dBuV	Amb	Matched Sig Gen dBm	Antenna Gain dB	Cable Factor dB	ERP Total dBm	Atten dB	RSS-123 Min. Attn. dB
1228.6	H	11.0		-65.6	3.7	1.8	-63.7	73.7	35
1228.6	V	12.2		-63.8	3.7	1.8	-61.9	71.9	35
1842.9	H	11.0		-63.5	5.0	2.3	-60.8	70.8	35
1842.9	V	11.9		-61.9	5.0	2.3	-59.2	69.2	35
2457.2	H	12.1		-60.4	5.9	2.8	-57.3	67.3	35
2457.2	V	14.5		-55.7	5.9	2.8	-52.6	62.6	35
3071.5	H	17.4		-53.0	6.1	3.1	-50.0	60.0	35
3071.5	V	17.2		-50.9	6.1	3.1	-47.9	57.9	35
3685.8	H	13.3		-54.5	6.9	3.5	-51.1	61.1	35
3685.8	V	14.0		-52.7	6.9	3.5	-49.3	59.3	35
4300.1	H	13.1		-52.4	7.8	3.7	-48.4	58.4	35
4300.1	V	12.3		-53.3	7.8	3.7	-49.3	59.3	35
4914.4	H	11.1		-51.9	8.0	4.0	-47.8	57.8	35
4914.4	V	11.0		-52.1	8.0	4.0	-48.1	58.1	35
5528.7	H	15.4		-46.5	7.1	4.2	-43.6	53.6	35
5528.7	V	15.4		-46.8	7.1	4.2	-43.9	53.9	35
6143.0	H	14.8		-46.7	8.6	4.5	-42.5	52.5	35
6143.0	V	14.2		-47.8	8.6	4.5	-43.6	53.6	35

* - Ambient

ERP Total (dBm) = Matched Sig Gen (dBm) + Antenna Gain (dB) – Cable Factor (dB)

Atten. (dB) = Output Power (dBm) – ERP (dBm)

Checked By: MARK E. LONGINOTTI
 Mark E. Longinotti



MANUFACTURER : Shure Incorporated
 MODEL : BLX22 Handheld Microphone Transmitter
 SERIAL NO. : None Assigned
 SPECIFICATION : RSS-123 Spurious Radiated Emissions
 DATE : August 24, 2011
 MODE : Transmit on Channel 5 (625.65MHz), 10mW (10dBm)
 BAND : K12
 EQUIPMENT USED : RBB0, CMA1, NTA2, NWH0, NWF0, NDQ1, GXA1

Freq. MHz	Ant Pol	Meter Reading dBuV	Amb	Matched Sig Gen dBm	Antenna Gain dB	Cable Factor dB	ERP Total dBm	Atten dB	RSS-123 Min. Attn. dB
1251.3	H	12.1		-64.5	3.8	1.9	-62.5	72.5	35
1251.3	V	12.2		-63.9	3.8	1.9	-61.9	71.9	35
1877.0	H	10.5		-63.9	5.0	2.3	-61.2	71.2	35
1877.0	V	10.2		-63.4	5.0	2.3	-60.7	70.7	35
2502.6	H	13.1		-59.3	5.9	2.8	-56.2	66.2	35
2502.6	V	15.2		-54.8	5.9	2.8	-51.7	61.7	35
3128.3	H	17.2		-53.0	6.2	3.2	-50.0	60.0	35
3128.3	V	14.3		-53.8	6.2	3.2	-50.7	60.7	35
3753.9	H	14.0		-53.4	6.9	3.5	-50.0	60.0	35
3753.9	V	14.4		-51.9	6.9	3.5	-48.6	58.6	35
4379.6	H	11.4		-54.1	8.0	3.8	-49.8	59.8	35
4379.6	V	11.6		-54.1	8.0	3.8	-49.9	59.9	35
5005.2	H	11.6		-50.9	7.9	4.0	-47.0	57.0	35
5005.2	V	12.2		-50.4	7.9	4.0	-46.5	56.5	35
5630.9	H	15.1		-46.7	7.4	4.3	-43.7	53.7	35
5630.9	V	16.0		-46.1	7.4	4.3	-43.1	53.1	35
6256.5	H	14.9		-46.4	9.0	4.5	-41.9	51.9	35
6256.5	V	15.0		-46.9	9.0	4.5	-42.5	52.5	35

* - Ambient

ERP Total (dBm) = Matched Sig Gen (dBm) + Antenna Gain (dB) – Cable Loss (dB)

Atten. (dB) = Output Power (dBm) – ERP (dBm)

Checked By: MARK E. LONGINOTTI
 Mark E. Longinotti



MANUFACTURER : Shure Incorporated
 MODEL : BLX22 Handheld Microphone Transmitter
 SERIAL NO. : None Assigned
 SPECIFICATION : RSS-123 Spurious Radiated Emissions
 DATE : August 24, 2011
 MODE : Transmit on Channel 0 (541.775MHz), 10mW (10dBm)
 BAND : K12
 EQUIPMENT USED : RBB0, CMA1, NTA2, NWH0, NWF0, NDQ1, GXA1

Freq. MHz	Ant Pol	Meter Reading dBuV	Amb	Matched Sig Gen dBm	Antenna Gain dB	Cable Factor dB	ERP Total dBm	Atten dB	RSS-123 Min. Attn. dB
1275.6	H	10.3		-66.3	4.0	1.9	-64.3	74.3	35
1275.6	V	13.0		-63.1	4.0	1.9	-61.0	71.0	35
1913.3	H	10.1		-64.1	5.0	2.3	-61.4	71.4	35
1913.3	V	10.3		-63.1	5.0	2.3	-60.4	70.4	35
2551.1	H	13.1		-59.1	5.9	2.8	-56.0	66.0	35
2551.1	V	14.0		-55.8	5.9	2.8	-52.7	62.7	35
3188.9	H	16.2		-53.8	6.3	3.2	-50.7	60.7	35
3188.9	V	15.3		-52.7	6.3	3.2	-49.6	59.6	35
3826.7	H	11.9		-55.0	6.9	3.5	-51.6	61.6	35
3826.7	V	12.2		-53.8	6.9	3.5	-50.4	60.4	35
4464.4	H	11.8		-53.6	8.2	3.8	-49.2	59.2	35
4464.4	V	12.0		-53.8	8.2	3.8	-49.4	59.4	35
5102.2	H	12.1		-50.3	7.8	4.0	-46.6	56.6	35
5102.2	V	12.1		-50.4	7.8	4.0	-46.7	56.7	35
5740.0	H	13.5		-48.3	7.6	4.3	-45.0	55.0	35
5740.0	V	14.6		-47.5	7.6	4.3	-44.2	54.2	35
6377.8	H	16.1		-45.0	9.3	4.6	-40.2	50.2	35
6377.8	V	15.3		-46.6	9.3	4.6	-41.8	51.8	35

* - Ambient

ERP Total (dBm) = Matched Sig Gen (dBm) + Antenna Gain (dB) – Cable Loss (dB)

Atten. (dB) = Output Power (dBm) – ERP (dBm)

Checked By: MARK E. LONGINOTTI
 Mark E. Longinotti



MANUFACTURER : Shure Incorporated
 MODEL : BLX22 Handheld Microphone Transmitter
 SERIAL NO. : None Assigned
 SPECIFICATION : FCC-74 Spurious Radiated Emissions
 DATE : August 24, 2011
 MODE : Transmit on Channel 5 (625.65MHz), 10mW (10dBm)
 BAND : K12
 EQUIPMENT USED : RBB0, CMA1, NTA2, NWH0, NWF0, NDQ1, GX1

Freq. MHz	Ant Pol	Meter Reading dBuV	Amb	Matched Sig Gen dBm	Antenna Gain dB	Cable Factor dB	ERP Total dBm	Atten dB	FCC Min. Attn. dB
1251.3	H	26.4		-49.5	5.0	1.9	-46.3	56.3	23
1251.3	V	27.7		-47.9	5.0	1.9	-44.7	54.7	23
1877.0	H	24.9		-48.4	6.5	2.3	-44.2	54.2	23
1877.0	V	26.3		-46.0	6.5	2.3	-41.8	51.8	23
2502.6	H	27.9		-44.5	7.1	2.8	-40.2	50.2	23
2502.6	V	29.2		-40.5	7.1	2.8	-36.2	46.2	23
3128.3	H	29.5		-40.1	7.5	3.2	-35.7	45.7	23
3128.3	V	30.1		-36.8	7.5	3.2	-32.4	42.4	23
3753.9	H	28.6		-39.0	7.2	3.5	-35.3	45.3	23
3753.9	V	28.7		-37.1	7.2	3.5	-33.4	43.4	23
4379.6	H	27.3		-39.4	7.9	3.8	-35.3	45.3	23
4379.6	V	27.4		-39.1	7.9	3.8	-35.0	45.0	23
5005.2	H	27.5		-35.8	7.9	4.0	-31.9	41.9	23
5005.2	V	27.3		-36.7	7.9	4.0	-32.8	42.8	23
5630.9	H	31.1		-30.8	8.4	4.3	-26.7	36.7	23
5630.9	V	30.7		-31.3	8.4	4.3	-27.2	37.2	23
6256.5	H	29.9		-29.8	9.3	4.5	-25.0	35.0	23
6256.5	V	30.1		-30.2	9.3	4.5	-25.4	35.4	23

* - Ambient

ERP Total (dBm) = Matched Sig Gen (dBm) + Antenna Gain (dB) – Cable Loss (dB)

Atten. (dB) = Output Power (dBm) – ERP (dBm)

Checked By: MARK E. LONGINOTTI
 Mark E. Longinotti



MANUFACTURER : Shure Incorporated
 MODEL : BLX22 Handheld Microphone Transmitter
 SERIAL NO. : None Assigned
 SPECIFICATION : RSS-123 Spurious Radiated Emissions
 DATE : August 24, 2011
 MODE : Transmit on Channel 1 (662.125MHz), 10mW (10dBm)
 BAND : M15
 EQUIPMENT USED : RBB0, CMA1, NTA2, NWH0, NWF0, NDQ1, GXA1

Freq. MHz	Ant Pol	Meter Reading dBuV	Amb	Matched Sig Gen dBm	Antenna Gain dB	Cable Factor dB	ERP Total dBm	Atten dB	RSS-123 Min. Attn. dB
1324.3	H	10.0		-66.6	4.2	1.9	-64.4	74.4	35
1324.3	V	11.0		-65.3	4.2	1.9	-63.0	73.0	35
1986.4	H	10.7		-63.3	5.1	2.4	-60.6	70.6	35
1986.4	V	11.7		-61.4	5.1	2.4	-58.7	68.7	35
2648.5	H	15.9		-55.9	5.9	2.9	-52.9	62.9	35
2648.5	V	15.3		-54.1	5.9	2.9	-51.1	61.1	35
3310.6	H	13.0		-56.7	6.5	3.3	-53.4	63.4	35
3310.6	V	12.5		-55.4	6.5	3.3	-52.1	62.1	35
3972.8	H	14.2		-51.7	6.9	3.6	-48.4	58.4	35
3972.8	V	13.1		-52.1	6.9	3.6	-48.8	58.8	35
4634.9	H	11.7		-52.9	8.2	3.9	-48.5	58.5	35
4634.9	V	10.9		-54.1	8.2	3.9	-49.7	59.7	35
5297.0	H	13.3		-48.8	7.4	4.1	-45.6	55.6	35
5297.0	V	12.9		-49.5	7.4	4.1	-46.2	56.2	35
5959.1	H	13.4		-48.3	8.0	4.4	-44.7	54.7	35
5959.1	V	13.8		-48.2	8.0	4.4	-44.6	54.6	35
6621.3	H	18.3		-42.4	9.4	4.7	-37.7	47.7	35
6621.3	V	18.1		-43.7	9.4	4.7	-39.0	49.0	35

* - Ambient

ERP Total (dBm) = Matched Sig Gen (dBm) + Antenna Gain (dB) – Cable Factor (dB)

Atten. (dB) = Output Power (dBm) – ERP (dBm)

Checked By: MARK E. LONGINOTTI
 Mark E. Longinotti



MANUFACTURER : Shure Incorporated
 MODEL : BLX22 Handheld Microphone Transmitter
 SERIAL NO. : None Assigned
 SPECIFICATION : RSS-123 Spurious Radiated Emissions
 DATE : August 24, 2011
 MODE : Transmit on Channel 5 (671.25MHz), 10mW (10dBm)
 BAND : M15
 EQUIPMENT USED : RBB0, CMA1, NTA2, NWH0, NWF0, NDQ1, GXA1

Freq. MHz	Ant Pol	Meter Reading dBuV	Amb	Matched Sig Gen dBm	Antenna Gain dB	Cable Factor dB	ERP Total dBm	Atten dB	RSS-123 Min. Attn. dB
1342.5	H	10.2		-66.5	4.2	1.9	-64.1	74.1	35
1342.5	V	11.5		-64.8	4.2	1.9	-62.5	72.5	35
2013.8	H	9.9		-64.0	5.1	2.4	-61.3	71.3	35
2013.8	V	12.1		-60.8	5.1	2.4	-58.1	68.1	35
2685.0	H	15.3		-56.4	6.0	2.9	-53.4	63.4	35
2685.0	V	15.4		-53.9	6.0	2.9	-50.9	60.9	35
3356.3	H	14.1		-55.5	6.6	3.3	-52.2	62.2	35
3356.3	V	12.0		-55.8	6.6	3.3	-52.5	62.5	35
4027.5	H	15.0		-50.7	7.0	3.6	-47.3	57.3	35
4027.5	V	12.6		-52.5	7.0	3.6	-49.2	59.2	35
4698.8	H	11.5		-52.7	8.2	3.9	-48.4	58.4	35
4698.8	V	11.6		-52.9	8.2	3.9	-48.7	58.7	35
5370.0	H	14.1		-48.0	7.3	4.2	-44.8	54.8	35
5370.0	V	14.9		-47.4	7.3	4.2	-44.3	54.3	35
6041.3	H	13.6		-48.0	8.3	4.4	-44.2	54.2	35
6041.3	V	13.3		-48.7	8.3	4.4	-44.8	54.8	35
6712.5	H	16.7		-43.9	9.1	4.7	-39.5	49.5	35
6712.5	V	16.6		-45.2	9.1	4.7	-40.8	50.8	35

* - Ambient

ERP Total (dBm) = Matched Sig Gen (dBm) + Antenna Gain (dB) – Cable Loss (dB)

Atten. (dB) = Output Power (dBm) – ERP (dBm)

Checked By: MARK E. LONGINOTTI
 Mark E. Longinotti



MANUFACTURER : Shure Incorporated
 MODEL : BLX22 Handheld Microphone Transmitter
 SERIAL NO. : None Assigned
 SPECIFICATION : RSS-123 Spurious Radiated Emissions
 DATE : August 24, 2011
 MODE : Transmit on Channel 0 (685.85MHz), 10mW (10dBm)
 BAND : M15
 EQUIPMENT USED : RBB0, CMA1, NTA2, NWH0, NWF0, NDQ1, GXA1

Freq. MHz	Ant Pol	Meter Reading dBuV	Amb	Matched Sig Gen dBm	Antenna Gain dB	Cable Factor dB	ERP Total dBm	Atten dB	RSS-123 Min. Attn. dB
1371.7	H	10.4		-66.3	4.4	2.0	-63.9	73.9	35
1371.7	V	12.2		-64.2	4.4	2.0	-61.8	71.8	35
2057.6	H	11.8		-61.9	5.2	2.4	-59.2	69.2	35
2057.6	V	12.1		-60.5	5.2	2.4	-57.8	67.8	35
2743.4	H	19.2		-52.3	6.0	3.0	-49.3	59.3	35
2743.4	V	17.0		-52.1	6.0	3.0	-49.1	59.1	35
3429.3	H	13.0		-56.4	6.7	3.3	-53.0	63.0	35
3429.3	V	13.1		-54.7	6.7	3.3	-51.3	61.3	35
4115.1	H	12.8		-52.8	7.2	3.7	-49.2	59.2	35
4115.1	V	12.5		-52.8	7.2	3.7	-49.2	59.2	35
4801.0	H	11.0		-52.6	8.1	3.9	-48.5	58.5	35
4801.0	V	11.5		-52.4	8.1	3.9	-48.2	58.2	35
5486.8	H	15.7		-46.2	7.1	4.2	-43.3	53.3	35
5486.8	V	16.2		-46.0	7.1	4.2	-43.1	53.1	35
6172.7	H	14.1		-47.3	8.7	4.5	-43.1	53.1	35
6172.7	V	13.9		-48.0	8.7	4.5	-43.8	53.8	35
6858.5	H	16.2		-44.2	8.7	4.7	-40.3	50.3	35
6858.5	V	17.0		-44.7	8.7	4.7	-40.8	50.8	35

* - Ambient

ERP Total (dBm) = Matched Sig Gen (dBm) + Antenna Gain (dB) – Cable Loss (dB)

Atten. (dB) = Output Power (dBm) – ERP (dBm)

Checked By: MARK E. LONGINOTTI
 Mark E. Longinotti



MANUFACTURER : Shure Incorporated
 MODEL : BLX22 Handheld Microphone Transmitter
 SERIAL NO. : None Assigned
 SPECIFICATION : FCC-74 Spurious Radiated Emissions
 DATE : August 24, 2011
 MODE : Transmit on Channel 5 (671.25MHz), 10mW (10dBm)
 BAND : M15
 EQUIPMENT USED : RBB0, CMA1, NTA2, NWH0, NWF0, NDQ1, GX1

Freq. MHz	Ant Pol	Meter Reading dBuV	Amb	Matched Sig Gen dBm	Antenna Gain dB	Cable Factor dB	ERP Total dBm	Atten dB	FCC Min. Attn. dB
1342.5	H	26.1		-49.4	5.3	1.9	-46.0	56.0	23
1342.5	V	27.7		-48.1	5.3	1.9	-44.7	54.7	23
2013.8	H	28.6		-45.0	6.7	2.4	-40.7	50.7	23
2013.8	V	26.7		-46.5	6.7	2.4	-42.2	52.2	23
2685.0	H	27.9		-42.9	7.3	2.9	-38.5	48.5	23
2685.0	V	29.8		-39.4	7.3	2.9	-35.0	45.0	23
3356.3	H	27.8		-40.5	7.4	3.3	-36.4	46.4	23
3356.3	V	28.1		-38.5	7.4	3.3	-34.4	44.4	23
4027.5	H	28.1		-37.8	7.2	3.6	-34.3	44.3	23
4027.5	V	27.5		-36.3	7.2	3.6	-32.8	42.8	23
4698.8	H	27.0		-37.2	8.0	3.9	-33.0	43.0	23
4698.8	V	26.6		-38.0	8.0	3.9	-33.8	43.8	23
5370.0	H	27.5		-34.7	8.2	4.2	-30.7	40.7	23
5370.0	V	27.6		-34.7	8.2	4.2	-30.7	40.7	23
6041.3	H	26.9		-33.3	8.8	4.4	-28.9	38.9	23
6041.3	V	27.0		-35.5	8.8	4.4	-31.1	41.1	23
6712.5	H	26.9		-26.8	9.3	4.7	-22.2	32.2	23
6712.5	V	27.6		-27.8	9.3	4.7	-23.2	33.2	23

* - Ambient

ERP Total (dBm) = Matched Sig Gen (dBm) + Antenna Gain (dB) – Cable Loss (dB)

Atten. (dB) = Output Power (dBm) – ERP (dBm)

Checked By: MARK E. LONGINOTTI
 Mark E. Longinotti