



Measurement of RF Interference from an AXT200 Axient Handheld Frequency Diversity Transmitter with Zigbee Transceiver

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Digital Modulation Intentional Radiators Operating within
the 2400-2483.5MHz Band
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Industry Canada RSS-210
Industry Canada RSS-GEN

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REVISION HISTORY

Revision	Date	Description
—	June 13, 2011	Initial release



Measurement of RF Emissions from an Axient Handheld Frequency Diversity Transmitter with Zigbee Transceiver, Model No. AXT200

1 INTRODUCTION

1.1 Scope of Tests

This document represents the results of the series of radio interference measurements performed on a Shure, Incorporated Axient Handheld Frequency Diversity Transmitter with Zigbee Transceiver, Part No. AXT200, Serial No. None Assigned, (hereinafter referred to as the EUT). The EUT was manufactured and submitted for testing by Shure, Incorporated located in Niles, IL.

The EUT contained a digital modulation Zigbee transceiver. The transceiver was designed to transmit and receive in the 2400-2483.5 MHz band using a removable spiral antenna. The EUT contained a super-heterodyne type receiver.

The EUT can also transmit simultaneously on two independent channels in the following bands using the same removable spiral antenna that the Zigbee transceiver uses:

Group	Frequency (MHz)	Band	Output Power (mW)
1	470 – 530	G1	10, 50
2	518 – 578	H4	10, 50
3	578 – 638	J5	10, 50
4	638 – 698	L3	10, 50

See Elite Electronic Engineering, Inc. Engineering Test Report No. 1004060-03 for compliance testing on the UHF transmitter.

1.2 Purpose

The test series was performed to determine if the EUT meets the conducted and radiated RF emission requirements of the FCC "Code of Federal Regulations" Title 47, Part 15, Subpart B, Sections 15.107 and 15.109, for receivers and Subpart C, Sections 15.207 and 15.249 for Intentional Radiators Operating within the 2400-2483.5 MHz band.

The test series was also performed to determine if the EUT meets the conducted and radiated RF emission requirements of the Industry Canada Radio Standards Specification, RSS-Gen, Section 7.2.4 and Section 6.1 for receivers and the Industry Canada Radio Standards Specification RSS-Gen Section 7.2.4 and RSS-210 Annex 8, for digital modulation systems operating in the 2400-2483.5MHz band.

Testing was performed in accordance with ANSI C63.4-2003.

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

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

1.5 Laboratory Conditions

The temperature at the time of the test was 23C and the relative humidity was 31%.

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 15, Subparts B and C, dated 1 October 2010
- ANSI C63.4-2003, "American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz"
- Measurement of Digital Transmission Systems Operating under Section 15.247
March 23, 2005
- Industry Canada RSS-210, Issue 8, December 2010, "Spectrum Management and Telecommunications Radio Standards Specification, Low-power License-exempt radio communication devices (All Frequency Bands): Category I Equipment"
- Industry Canada RSS-GEN, Issue 3, December 2010, "Spectrum Management and Telecommunications Radio Standards Specification, General Requirements and Information for the Certification of radio communication equipment"

3 EUT SET-UP AND OPERATION

3.1 General Description

The EUT is an Axient Handheld Frequency Diversity Transmitter with Zigbee Transceiver, Part No. AXT200. A block diagram of the EUT setup is shown as Figure 1 and Figure 2.

3.1.1 Power Input

The EUT was powered by 3.6VDC from a removable, rechargeable lithium-ion battery, Shure Model AXT920.

3.1.2 Peripheral Equipment

The following peripheral equipment was submitted with the EUT:

Item	Description
Vocal Microphone Shure Model SM58	Connected to the EUT for all radiated emissions tests.

3.1.3 Interconnect Cables

No interconnect cables were submitted with the EUT.

3.1.4 Grounding

The EUT was ungrounded during the tests.

3.2 Operational Mode

For all tests the EUT and all peripheral equipment were placed on an 80cm high non-conductive stand. The EUT and all peripheral equipment were energized. The unit was programmed to operate in one of the following modes:

- Transmit at 2405MHz
- Transmit at 2445MHHz
- Transmit at 2480MHHz
- Receive at 2445MHHz
- Zigbee Mode (normal operation)

For intermodulation tests, the unit was programmed to operate in one of the following modes:

- Transmit at 470MHz, 530MHz, and 2480MHz
- Transmit at 518MHz, 578MHz, and 2480MHz
- Transmit at 578MHz, 638MHz, and 2480MHz
- Transmit at 638MHz, 698MHz, and 2480MHz



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 9-1. All equipment was calibrated per the instruction manuals supplied by the manufacturer.

Conducted emission tests were performed with a spectrum analyzer in conjunction with a quasi-peak adapter. Radiated emissions were performed with a spectrum analyzer. This receiver allows measurements with the bandwidths specified by the FCC and with the quasi-peak and average detector functions. The spectrum analyzer bandwidth was 120kHz for the 30MHz to 1000MHz radiated emissions data and 1MHz bandwidth for radiated emissions data above 1000MHz.

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:

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

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

5 TEST PROCEDURES

5.1 Receiver

5.1.1 Powerline Conducted Emissions

5.1.1.1 Requirements

Since the test item was powered by 3.6VDC from a removable, rechargeable lithium-ion battery, no conducted emissions tests are required.

5.1.2 Radiated Measurements

5.1.2.1 Requirements

Per the FCC "Code of Federal Regulations" Title 47, Part 15, Subpart B, Section 15.101(b), receivers operating above 960MHz are exempt from complying with the technical provisions of part 15.

Per Industry Canada RSS-Gen, Section 6.1, all radio frequency emissions from a receiver shall be below the limits shown on the following table:

RADIATION LIMITS FOR A RECEIVER

Frequency MHz	Distance between EUT And Antenna in Meters	Field Strength uV/m	Field Strength dBuV/m
30-88	3	100	40
88-216	3	150	43.5
216-960	3	200	46
Above 960	3	500	54

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

5.1.2.2 Procedures

Per the FCC "Code of Federal Regulations" Title 47, Part 15, Subpart B, Section 15.101(b), receivers operating above 960MHz are exempt from complying with the technical provisions of part 15.

For Industry Canada, testing was performed on a middle channel. The emissions in the frequency range of 30MHz to 3 times the highest tunable or local oscillator frequency, whichever is the higher, were measured and plotted.

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.

Since a quasi-peak detector and an average detector require long integration times, it is not practical to automatically sweep through the quasi-peak and average levels. Therefore, radiated emissions from the EUT were first scanned using a peak detector and automatically plotted. The frequencies where significant emission levels were noted were then remeasured using the quasi-peak detector or average detector.

The broadband measuring antenna was positioned at a 3 meter distance from the EUT. The frequency range from 30MHz to 1GHz was investigated using a peak detector function with the bilog antenna at several heights, horizontal and vertical polarization, and with several different orientations of the EUT with respect to the antenna. The frequency range from 1GHz to 7.5GHz was investigated using a peak detector function with the double ridged waveguide antenna at several heights, horizontal and vertical polarization, and with several different orientations of the EUT with respect to the antenna. The maximum levels for each antenna polarization were plotted.

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

- 1) Measurements from 30MHz to 1GHz were made using a quasi-peak detector and a broadband bilog antenna. Measurements above 1GHz were made using an average detector and a broadband double ridged waveguide antenna.
- 2) To ensure that maximum or worst case, 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 antenna is linearly polarized, both horizontal and vertical field components were measured.
 - c) The measuring antenna was raised and lowered from 1 to 4 meters for each antenna polarization to maximize the readings.
 - d) For hand-held or body-worn devices, the EUT was rotated through three orthogonal axes to determine which orientation produces the highest emission relative to the limit.

5.1.2.3 Results

The preliminary plots are presented on pages 25 through 28. The plots are presented for a reference only, and are not used to determine compliance. The final radiated levels are presented on page 29. As can be seen from the data, all emissions measured from the EUT were within the specification limits. The emissions level closest to the limit (worst case) occurred at 7335MHz. The emissions level at this frequency was 16.5dB within the limit. See data page 29 for details. Photographs of the test configuration which yielded the highest or worst case, radiated emission levels are shown on Figure 3 and Figure 4.

5.2 Transmitter

5.2.1 Powerline Conducted Emissions

Since the test item was powered by 3.7VDC from a removable, rechargeable lithium-ion battery, no conducted emissions tests are required.

5.2.2 6dB Bandwidth

5.2.2.1 Requirements

Per 15.247(a)(2), the minimum 6dB bandwidth shall be at least 500kHz for all systems using digital modulation techniques.

5.2.2.2 Procedures

The output of the EUT was connected to the spectrum analyzer through 40dB of attenuation.

The EUT was allowed to transmit continuously. The transmit channel was set separately to low, middle, and high channels. The resolution bandwidth (RBW) was set to 100kHz and the span was set to greater than the RBW.

The 'Max-Hold' function was engaged. The analyzer was allowed to scan until the envelope of the transmitter bandwidth was defined. The analyzer's display was plotted using a 'screen dump' utility.

5.2.2.3 Results

The plots on pages 30 through 32 show that the minimum 6 dB bandwidth was 1.5MHz which is greater than minimum allowable 6dB bandwidth requirement of 500kHz for systems using digital modulation techniques. The 99% bandwidth was measured to be 2.5MHz.

5.2.3 Antenna Conducted Peak Output Power

5.2.3.1 Requirements

Per section 15.247(b)(3), for systems using digital modulation the maximum peak output conducted power shall not be greater than 1.0W (30dBm).

5.2.3.2 Procedures

The output of the EUT was connected to the spectrum analyzer through 40dB of attenuation. The EUT was set to transmit separately at the low, middle, and high channels. The resolution bandwidth (RBW) was set to greater than the 6dB bandwidth. The 'Max-Hold' function was engaged. The maximum meter reading was recorded. The peak power output was calculated for the low, middle and high channels.

5.2.3.3 Results

The results are presented on pages 33 through 35. The maximum peak conducted output power from the transmitter was 5.58 mW (7.47dBm) which is below the 1 Watt limit.

5.2.4 Effective Isotropic Radiated Power (EIRP)

5.2.4.1 Requirements

Per section 15.247(b)(3), for systems using digital modulation the maximum peak output conducted power shall not be greater than 1.0W (30dBm). Per section 15.247(b)(4), this limit is based on the use of antennas with directional gains that do not exceed 6dBi. Since the limit allows for a 6dBi antenna gain, the maximum EIRP can be increased by 6dB to 4 Watt (36dBm).

5.2.4.2 Procedures

The EUT was placed on the non-conductive stand and set to transmit. Double ridged waveguide antenna was placed at a test distance of 3 meters from the EUT. The resolution bandwidth (RBW) of the spectrum analyzer was set to greater than the 6dB bandwidth. The EUT was maximized for worst case emissions (or maximum output power) at the measuring antenna. The maximum meter reading was recorded. The peak power output was measured for the low, middle and high channels.

The equivalent power was determined from the field intensity levels measured at 3 meters using the substitution method. To determine the emission power, a second double ridged waveguide antenna was then set in place of the EUT and connected to a calibrated signal generator. 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 then corrected to compensate for cable loss (and antenna gain for all measurements above 1GHz), as required. The peak power output was calculated for low, middle, and high frequencies.

5.2.4.3 Results

The results are presented on page 36. The maximum EIRP measured from the transmitter was 5.5 dBm or 3.5mW which is below the 4 Watt limit.



5.2.5 Duty Cycle Factor Measurements

5.2.5.1 Procedures

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

The duty cycle calculation was provided in Shure document "Measurements of Shure AXT100/200 for FCC and ETSI Regulatory Approval", March 21, 2011. This test was performed with the AXT100 communicating with the WAP. Several consecutive measurements were taken in 10 second interval and the amount of captured packets was counted.

5.2.5.2 Results

From the Shure document "Measurements of Shure AXT100/200 for FCC and ETSI Regulatory Approval", March 21, 2011, the pulse width is 1.2 msec and no more than 1 pulse can appear in any 100msec period. The duty cycle factor was calculated to be $20 \cdot \log(1.2 \text{ msec on time} / 100 \text{ msec}) = -38.4 \text{ dB}$.

5.2.6 Antenna Conducted Spurious Emissions

5.2.6.1 Requirements

Per section 15.247(c), the spurious emissions in any 100 kHz BW outside the frequency band must be at least 20dB below the highest 100 kHz BW level measured within the band.

5.2.6.2 Procedures

The output of the EUT was connected to the spectrum analyzer through 40dB of attenuation (20dB of attenuation above 18GHz). The resolution bandwidth (RBW) was set to 100kHz. The peak detector and 'Max-Hold' function were engaged. The emissions in the frequency range from 30MHz to 25GHz were observed and plotted separately with the EUT transmitting at low, middle and high channels.

5.2.6.3 Results

The results of the antenna conducted emissions levels were plotted. These plots are presented on pages 37 through 39. These plots show that the spurious emissions were at least 20 dB below the level of the fundamental.

5.2.7 Radiated Spurious Emissions Measurements

5.2.7.1 Requirements

Radiated emissions which fall in the restricted bands, as defined in §15.205(a), must comply with the radiated emission limits specified in §15.209(a).

Paragraph 15.209(a) has the following radiated emission limits:

Frequency MHz	Field Strength (microvolts/meter)	Measurement distance (meters)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30.0	30	3
30.0-88.0	100	3
88.0-216.0	150	3
216.0-960.0	200	3
Above 960	500	3

5.2.7.2 Procedures

Radiated measurements were performed in a 32ft. x 20ft. x 14ft. high shielded enclosure. The shielded enclosure

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

Preliminary radiated emissions tests were performed to determine the emission characteristics of the EUT. For the preliminary test, a broadband measuring antenna was positioned at a 3 meter distance from the EUT. The entire frequency range from 30MHz to 25GHz was investigated using a peak detector function.

The final open field emission tests were then manually performed over the frequency range of 30MHz to 25GHz.

- 1) For all emissions in the restricted bands, the following procedure was used:
 - a) The field strengths of all emissions below 1 GHz were measured using a bi-log antenna. The bi-log antenna was positioned at a 3 meter distance from the EUT. A peak detector with a resolution bandwidth of 100 kHz was used on the spectrum analyzer.
 - b) The field strengths of all emissions above 1 GHz were measured using a double-ridged waveguide antenna. The waveguide antenna was positioned at a 3 meter distance from the EUT. A peak detector with a resolution bandwidth of 1 MHz was used on the spectrum analyzer.
 - c) To ensure that maximum or worst case emission levels were measured, the following steps were taken when taking all measurements:
 - i) The EUT was rotated so that all of its sides were exposed to the receiving antenna.
 - ii) Since the measuring antenna is linearly polarized, both horizontal and vertical field components were measured.
 - iii) The measuring antenna was raised and lowered for each antenna polarization to maximize the readings.
 - iv) In instances where it was necessary to use a shortened cable between the measuring antenna and the spectrum analyzer, the measuring antenna was not raised or lowered to ensure maximized readings, instead the EUT was rotated through all axis to ensure the maximum readings were recorded for the EUT.
 - d) For all radiated emissions measurements below 1 GHz, if the peak reading is below the limits listed in 15.209(a), no further measurements are required. If however, the peak readings exceed the limits listed in 15.209(a), then the emissions are remeasured using a quasi-peak detector.
 - e) For all radiated emissions measurements above 1 GHz, the peak readings must comply with the 15.35(b) limits. 15.35(b) states that when average radiated emissions measurements are specified, there also is a limit on the peak level of the radiated emissions. The limit on the peak radio frequency emissions is 20 dB above the maximum permitted average emission limit applicable to the equipment under test. Therefore, all peak readings above 1 GHz must be no greater than 20 dB above the limits specified in 15.209(a).
 - f) Next, for all radiated emissions measurements above 1GHz, the resolution bandwidth was set to 1MHz. The analyzer was set to linear mode with a 10Hz video bandwidth in order to simulate an average detector. An average reading was taken. If the emission is pulsed, the reading can be adjusted by a "duty cycle correction factor" derived from $20 \cdot \log(\text{on time}/100\text{msec})$. These readings must be no greater than the limits specified in 15.209(a).

5.2.7.3 Results

Preliminary radiated emissions plots with the EUT transmitting at 2405MHz, 2445MHz, and 2480MHz are shown on pages 40 through 63. Final radiated emissions data are presented on data pages 64 through 69. As can be seen from the data, all emissions measured from the EUT were within the specification limits. The emissions level closest to the limit (worst case) occurred at 12400MHz. The emissions level at this frequency was 15.7dB within the limit. See data pages 64 through 69 for details. Photographs of the test configuration which yielded the highest, or worst case, radiated emission levels are shown on Figures 3 through 6.

5.2.8 Band Edge Compliance

5.2.8.1 Requirements

Per section 15.247(d), the emissions at the band-edges must be at least 20dB below the highest level measured within the band but attenuation below the general limits listed in 15.209(a) is not required. In addition, the radiated emissions which fall in the restricted band beginning at 2483.5 MHz must meet the general limits of 15.209(a).

5.2.8.2 Procedures

5.2.8.2.1 Low Band Edge

- 1) The output of the EUT was connected to the spectrum analyzer through 40dB of attenuation.
- 2) The EUT was set to transmit continuously at the channel closest to the low band-edge.
- 3) To determine the band edge compliance, the following spectrum analyzer settings were used:
 - a. Center frequency = low band-edge frequency.
 - b. Span = Wide enough to capture the peak level of the emission operating on the channel closest to the band-edge, as well as any modulation products which fall outside of the authorized band of operation.
 - c. Resolution bandwidth (RBW) \geq 1% of the span.
 - d. The 'Max-Hold' function was engaged. The analyzer was allowed to scan until the envelope of the transmitter bandwidth was defined.
 - e. The marker was set on the peak of the in-band emissions. A display line was placed 20dB down from the peak of the in-band emissions. All emissions which fall outside of the authorized band of operation must be below the 20dB down display line. (All emissions to the left of the center frequency (band-edge) must be below the display line.)
 - f. The analyzer's display was plotted using a 'screen dump' utility.

5.2.8.2.2 High Band Edge

- 1) The EUT was set to transmit continuously at the channel closest to the high band-edge.
- 2) A double ridged waveguide was placed 3 meters away from the EUT. The antenna was connected to the input of a spectrum analyzer.
- 3) The center frequency of the analyzer was set to the high band edge (2483.5MHz)
- 4) The resolution bandwidth was set to 1MHz.
- 5) To ensure that the maximum or worst case emission level was 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 antenna is linearly polarized, both horizontal and vertical field components were measured.
 - c. The measuring antenna was raised and lowered from 1 to 4 meters for each antenna polarization to maximize the readings.
- 6) The highest measured peak reading was recorded.
- 7) The highest measured average reading was recorded.

5.2.8.3 Results

Pages 70 and 71 show the band-edge compliance results. As can be seen from these plots, the conducted emissions at the low end band edge are within the 20 dB down limits. The radiated emissions at the high end band edge are within the general limits.

5.2.9 Antenna Conducted Power Spectral Density

5.2.9.1 Requirement

Per section 15.247(d), the peak power spectral density from the intentional radiator shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

5.2.9.2 Procedures

- 1) The output of the EUT was connected to the spectrum analyzer through a 40dB pad and the EUT was set to transmit at a mid-channel.
- 2) To determine the power spectral density, the following spectrum analyzer settings were used for channel 1:
 - a. Center frequency = transmit frequency
 - b. Span = 1MHz
 - c. Resolution bandwidth (RBW) = 5MHz
 - d. Sweep time = auto
 - e. The peak detector and 'Max-Hold' function was engaged. The analyzer was allowed to scan until the envelope of the transmitter bandwidth was defined.
 - f. Channel 1 of the spectrum analyzer was placed in 'View' mode.
- 3) This reading corresponds to the peak output power measured for the mid channel.
- 4) The EUT was then placed in the normal operation mode.
- 5) To determine the power spectral density, the following spectrum analyzer settings were used for channel 2:
 - a. Center frequency = transmit frequency
 - b. Span = 1MHz
 - c. Resolution bandwidth (RBW) = 3kHz
 - d. Sweep time = span divided by RBW = $1\text{MHz}/3\text{kHz} = 333$ seconds
 - e. The peak detector and 'Max-Hold' function was engaged.
 - f. The display line represents the 8 dBm limit
 - g. The analyzer's display was plotted using a 'screen dump' utility.

5.2.9.3 Results

Page 72 shows the power spectral density results. As can be seen from this plot, the peak power density is less than 8dBm in a 3kHz band during any time interval of continuous transmission.

5.2.10 Radiated Power Spectral Density

5.2.10.1 Requirements

Per section 15.247(d), the peak power spectral density from the intentional radiator shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

5.2.10.2 Procedures

- 1) The EUT was placed on the non-conductive stand and set to transmit at a mid-channel.
- 2) A broadband measuring antenna was placed near the EUT.
- 3) To determine the power spectral density, the following spectrum analyzer settings were used for Channel 1:
 - a. Center frequency = transmit frequency
 - b. Span = 1MHz or wider
 - c. Resolution bandwidth (RBW) greater than the 6dB bandwidth.
 - d. Sweep time = auto

- e. The peak detector and 'Max-Hold' function was engaged. The analyzer was allowed to scan until the envelope of the transmitter bandwidth was defined.
- f. Channel 1 of the spectrum analyzer was placed in 'View' mode.
- 4) This reading corresponds to the peak output power measured for the mid channel.
- 5) Turn on the display line and place it at the corresponding +8dBm level. (e.g. if the peak output power is +18dBm then the +8dBm level will be 10dB down from the radiated level and if the peak output power is +6dBm then the +8dBm level will be 2dB above the radiated level.)
- 6) The EUT was then placed in the normal operation mode.
- 7) To determine the power spectral density, the following spectrum analyzer settings were used for Channel 2:
 - a. Center frequency = transmit frequency
 - b. Span = 1MHz or wider
 - c. Resolution bandwidth (RBW) = 3kHz
 - d. Sweep time = span divided by RBW = (for example :1MHz/3kHz = 333 seconds)
 - e. The peak detector and 'Max-Hold' function was engaged.
 - f. The display line represents the 8 dBm limit
 - g. The analyzer's display was plotted using a 'screen dump' utility.

5.2.10.3 Results

Page 73 shows the power spectral density results. As can be seen from this plot, the peak power density is less than 8dBm in a 3kHz band during any time interval of continuous transmission.

5.2.11 Intermodulation

5.2.11.1 Requirements

Per a response to Inquiry to FCC (tracking number 294618), intermodulation testing must first be performed on the UHF transmitter portion of the EUT – one with simultaneous transmission of the two signals at minimum separation and the other with simultaneous transmission of the two signals at maximum separation. (See Elite Electronic Engineering, Inc. Engineering Test Report No. 1004060-01 for more information on the UHF transmitter.) Then intermodulation tests must be performed again on the EUT with simultaneous transmission of three (3) frequencies – the configuration that produces the worst case intermodulation for simultaneous transmission of the UHF transmitters and the worst case Part 15 (Zigbee) transmitter. Any intermodulation product that is a result of the Zigbee transmitter must meet the appropriate requirements of 15.247 for spurious emissions.

Per section 15.247(c), the spurious emissions in any 100 kHz BW outside the frequency band must be at least 20dB below the highest 100 kHz BW level measured within the band.

Radiated emissions which fall in the restricted bands, as defined in §15.205(a), must comply with the radiated emission limits specified in §15.209(a).

Paragraph 15.209(a) has the following radiated emission limits:

Frequency MHz	Field Strength (microvolts/meter)	Measurement distance (meters)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30.0	30	3
30.0-88.0	100	3
88.0-216.0	150	3
216.0-960.0	200	3
Above 960	500	3

5.2.11.2 Procedures

5.2.11.2.1 Antenna Conducted Emissions

The output of the EUT was connected to the spectrum analyzer through 40dB of attenuation (20dB of attenuation above 18GHz). The resolution bandwidth (RBW) was set to 100kHz. The peak detector and 'Max-Hold' function were engaged. The emissions in the frequency range from 30MHz to 25GHz were observed and plotted separately with the EUT transmitting at the worst case UHF transmitter frequencies and the worst case Part 15 (Zigbee) transmitter frequency simultaneously.

5.2.11.2.2 Radiated Emissions

Radiated measurements were performed in a 32ft. x 20ft. x 14ft. high shielded enclosure. The shielded enclosure prevents emissions from other sources, such as radio and TV stations from interfering with the measurements. All powerlines and signal lines entering the enclosure pass through filters on the enclosure wall. The powerline filters prevent extraneous signals from entering the enclosure on these leads.

Preliminary radiated emissions tests were performed to determine the emission characteristics of the EUT. For the preliminary test, a broadband measuring antenna was positioned at a 3 meter distance from the EUT. The entire frequency range from 30MHz to 25GHz was investigated using a peak detector function.

The final open field emission tests were then manually performed over the frequency range of 30MHz to 25GHz.

- 1) For all emissions in the restricted bands, the following procedure was used:
 - a) The field strengths of all emissions below 1 GHz were measured using a bi-log antenna. The bi-log antenna was positioned at a 3 meter distance from the EUT. A peak detector with a resolution bandwidth of 100 kHz was used on the spectrum analyzer.
 - b) The field strengths of all emissions above 1 GHz were measured using a double-ridged waveguide antenna. The waveguide antenna was positioned at a 3 meter distance from the EUT. A peak detector with a resolution bandwidth of 1 MHz was used on the spectrum analyzer.
 - c) To ensure that maximum or worst case emission levels were measured, the following steps were taken when taking all measurements:
 - i) The EUT was rotated so that all of its sides were exposed to the receiving antenna.
 - ii) Since the measuring antenna is linearly polarized, both horizontal and vertical field components were measured.
 - iii) The measuring antenna was raised and lowered for each antenna polarization to maximize the readings.
 - iv) In instances where it was necessary to use a shortened cable between the measuring antenna and the spectrum analyzer. The measuring antenna was not raised or lowered to ensure maximized readings, instead the EUT was rotated through all axis to ensure the maximum readings were recorded for the EUT.
 - d) For all radiated emissions measurements, if the peak reading is below the limits listed in 15.209(a), no further measurements are required. If however, the peak readings exceed the limits listed in 15.209(a), then the emissions are remeasured using a quasi-peak detector for emissions below 1GHz and remeasured using an average detector for emissions above 1GHz.

5.2.11.3 Results

The results of the antenna conducted intermodulation emissions levels were plotted. These plots are presented on pages 74 through 173. These plots show that the spurious emissions were at least 20 dB below the level of the fundamental.

Preliminary radiated emissions plots with the EUT transmitting at the worst case UHF transmitter frequencies and



the worst case Part 15 (Zigbee) transmitter frequency simultaneously are shown on pages 174 through 230. No radiated emissions associated with the intermodulation of the UHF transmitters and the Part 15 (Zigbee) transmitter were seen in the preliminary radiated sweeps therefore no final radiated emissions data were taken. Photographs of the test configuration which yielded the highest, or worst case, radiated emission levels are shown on Figures 3 through 6.

6 CONCLUSIONS

It was determined that the Shure, Incorporated Axient Handheld Frequency Diversity Transmitter with Zigbee Transceiver, Part No. AXT200 DTS transceiver, Serial No. None Assigned, did fully meet the conducted and radiated emission requirements of the FCC "Code of Federal Regulations" Title 47, Part 15, Subpart B, Sections 15.107 and 15.109 for receivers and Subpart C, Sections 15.207 and 15.247 for Intentional Radiators Operating within the 2400-2483.5 MHz band, when tested per ANSI C63.4-2003.

It was also determined that the Shure, Incorporated Axient Handheld Frequency Diversity Transmitter with Zigbee Transceiver, Part No. AXT200 DTS transceiver, Serial No. None Assigned, did fully meet the conducted and radiated RF emission requirements of the Industry Canada Radio Standards Specification Section 7.2.4 and Section 6.1 for receivers and the Industry Canada Radio Standards Specification RSS-Gen Section 7.2.4 and RSS-210 Annex 8, for digital modulation systems operating in the 2400-2483.5MHz band., when tested per ANSI C63.4-2003.

It was also determined that the Shure Incorporated, Axient Handheld Frequency Diversity Transmitter with Zigbee Transceiver, Part No. AXT200 DTS transceiver, Serial No. None Assigned, did comply with the response to Inquiry to FCC (tracking number 294618) for Part 74 UHF transmitters and Part 15 Zigbee transmitters

7 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 specifications.

The data presented in this test report pertains 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.

8 ENDORSEMENT DISCLAIMER

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



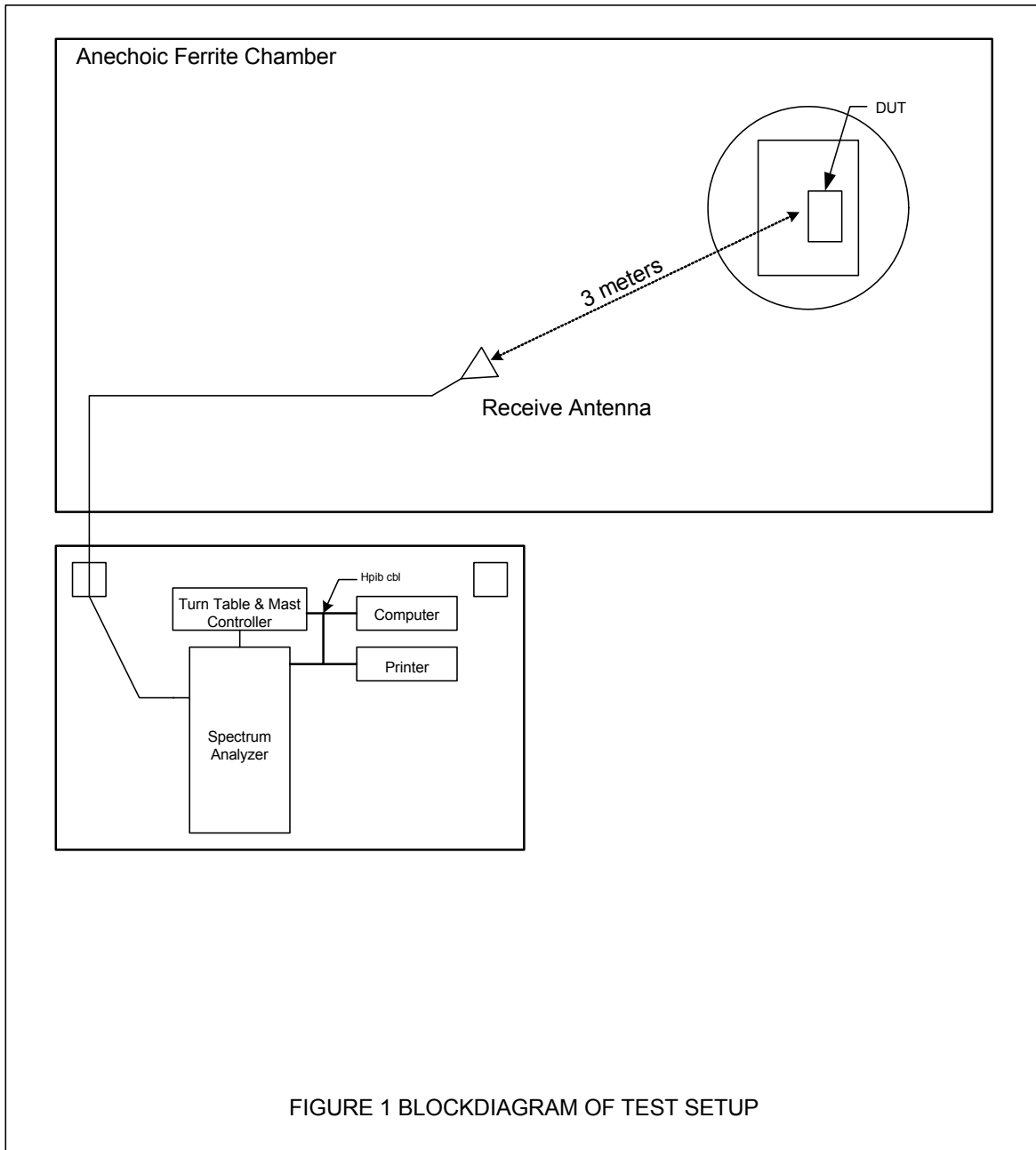
9 EQUIPMENT LIST

Table 9-1 Equipment List

Eq ID	Equipment Description	Manufacturer	Model No.	Serial No.	Frequency Range	Cal Date	Due Date
APW0	PREAMPLIFIER	PLANAR ELECTRONICS	PE2-30-20G20R6G	PL2926/0646	20GHZ-26.5GHZ	8/27/2010	8/27/2011
APW3	PREAMPLIFIER	PLANAR ELECTRONICS	PE2-35-120-5R0-10-12	PL2924	1GHZ-20GHZ	8/27/2010	8/27/2011
CDV0	DESKTOP COMPUTER	COMPAQ	PRESARIO	MXK3391BPJ	2.5GHZ	N/A	
CDW3	COMPUTER			004		N/A	
CMA1	Controllers	EMCO	2090	9701-1213	---	N/A	
GBX1	SYNTHESIZED SWEEPER	HEWLETT PACKARD	83630A	3420A00857	10MHZ-26.5GHZ	6/2/2010	6/2/2011
NHG1	STANDARD GAIN HORN ANTENNA	NARDA	638	---	18-26.5GHZ	NOTE 1	
NTA2	BILOG ANTENNA	TESEQ	6112D	28040	25-1000MHz	6/7/2010	6/7/2011
NWH0	RIDGED WAVE GUIDE	SENSOR	4105	2081	1-12.4GHZ	8/31/2010	8/31/2011
NW10	RIDGED WAVE GUIDE	AEL	H1498	153	2-18GHZ	1/29/2011	1/29/2012
NWQ1	DOUBLE RIDGED WAVEGUIDE ANTENNA	ETS-LINDGREN	3117	66655	1GHZ-18GHZ	1/29/2011	1/29/2012
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
SES1	24VDC POWER SUPPLY	P TRANS	FS-32024-1M	002	18-27VDC	NOTE 1	
T1P0	10dB ATTENUATOR (40GHz)	WEINSCHEL	89-10-12	254	DC-40GHz	1/7/2011	1/7/2012
T2D7	20DB, 25W ATTENUATOR	WEINSCHEL	46-20-43	AY9246	DC-18GHZ	8/9/2010	8/9/2011
T2DG	20DB, 25W ATTENUATOR	WEINSCHEL	46-20-34	BN1038	DC-18GHZ	1/3/2011	1/3/2012
T2DJ	20DB, 25W ATTENUATOR	WEINSCHEL	46-20-34	BS0923	DC-18GHZ	8/9/2010	8/9/2011
T2DS	20DB, 25W ATTENUATOR	WEINSCHEL	46-20-34	BS0916	DC-18GHZ	8/9/2010	8/9/2011
T2S3	20DB 25W ATTENUATOR	WEINSCHEL	46-20-34	BV3544	DC-18GHZ	1/3/2011	1/3/2012
T2S8	20DB 25W ATTENUATOR	WEINSCHEL	46-20-34	BV3541	DC-18GHZ	1/3/2011	1/3/2012
XOB1	ADAPTER	HEWLETT PACKARD	K281C	10422	18-26.5GHZ	NOTE 1	
XPR0	HIGH PASS FILTER	K&L MICROWAVE	11SH10-4800/X20000	001	4.8-20GHZ	7/19/2010	7/19/2011

I/O: Initial Only N/A: Not Applicable

Note 1: For the purpose of this test, the equipment was calibrated prior to the test or monitored by a calibrated instrument.



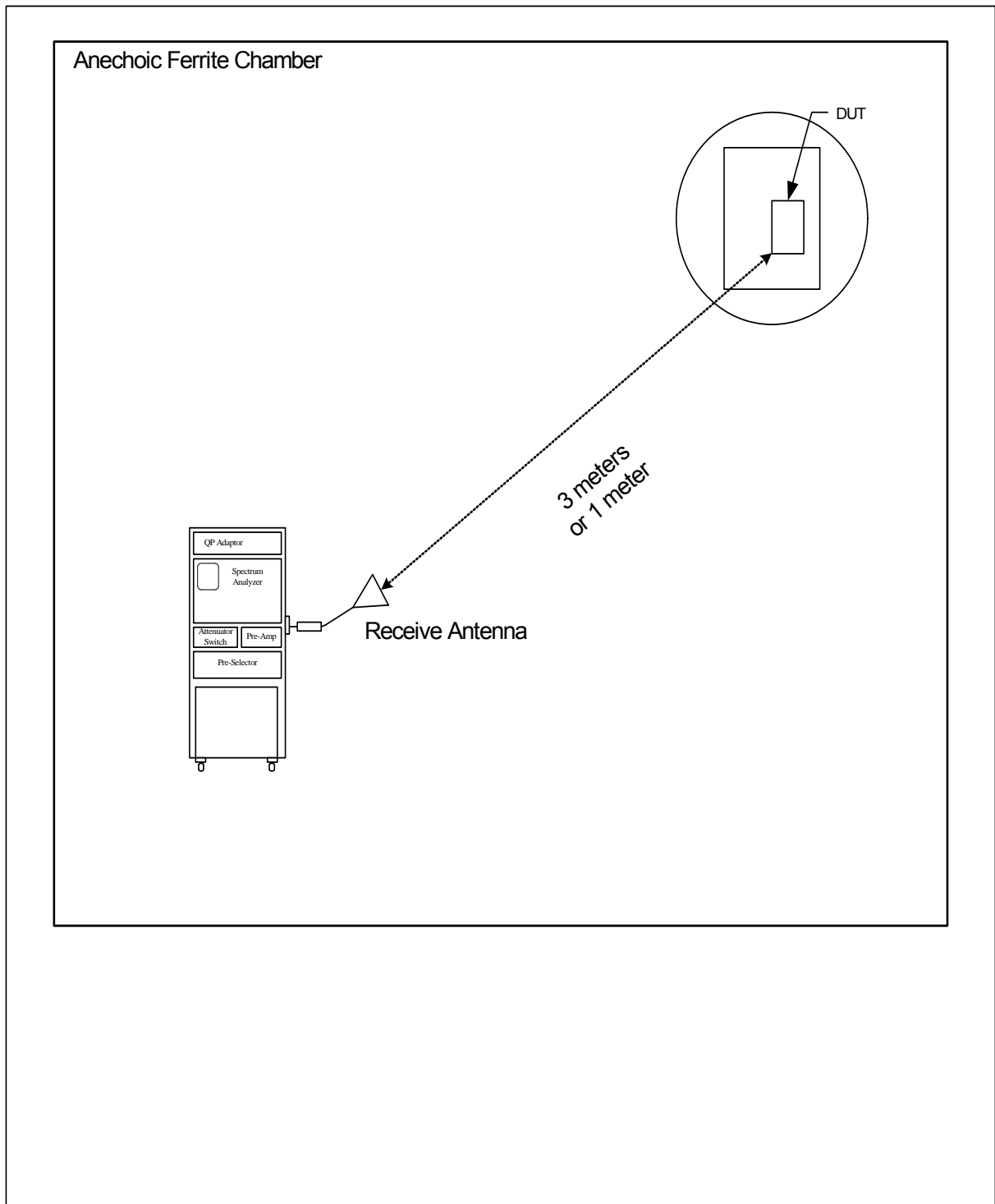


Figure 2: BLOCK DIAGRAM OF TEST SETUP FOR RADIATED EMISSIONS ABOVE 18GHZ

Figure 3



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



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

Figure 4



Test Setup for Radiated Emissions – 1GHz to 12GHz, Horizontal Polarization



Test Setup for Radiated Emissions – 1GHz to 12GHz, Vertical Polarization

Figure 5

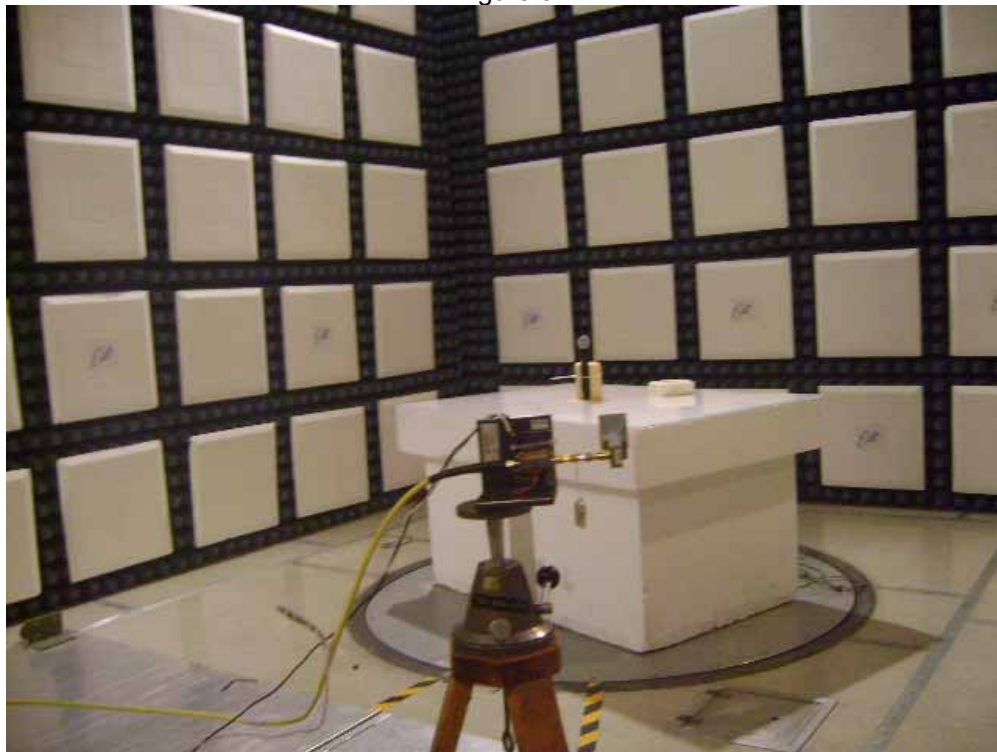


Test Setup for Radiated Emissions – 12GHz to 18GHz, Horizontal Polarization

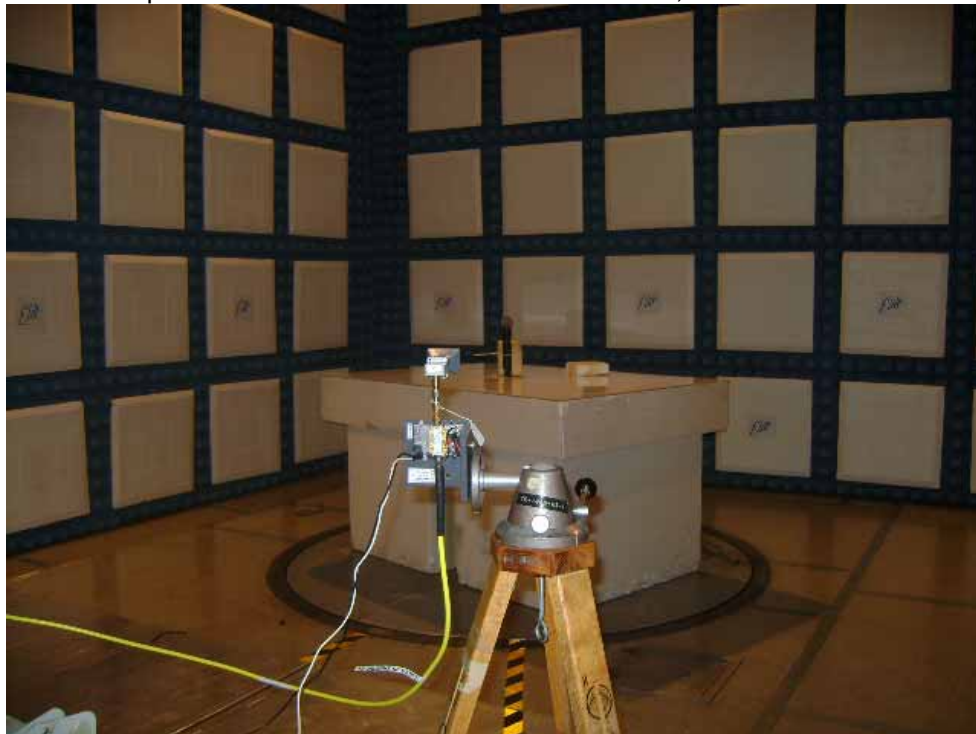


Test Setup for Radiated Emissions – 12GHz to 18GHz, Vertical Polarization

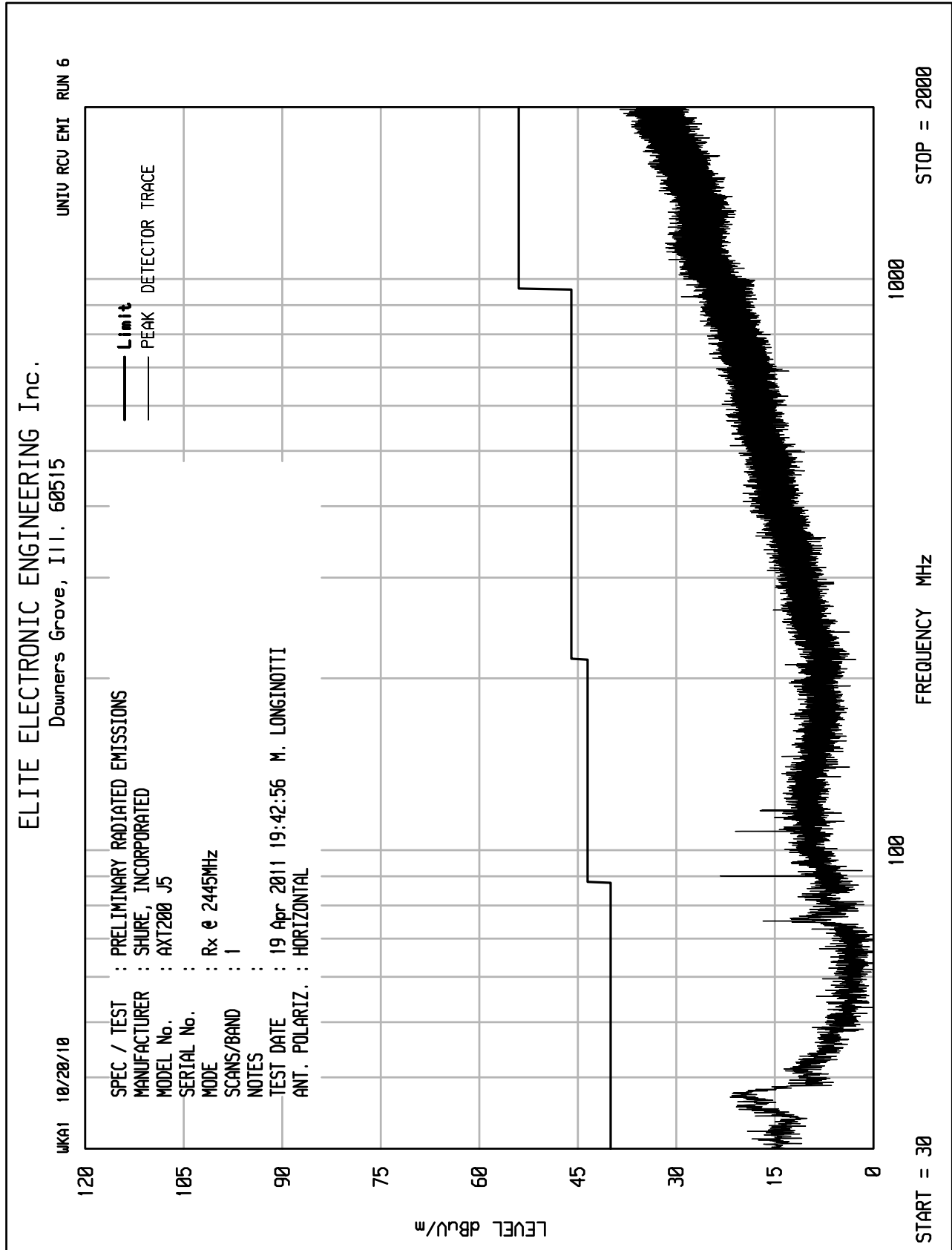
Figure 6

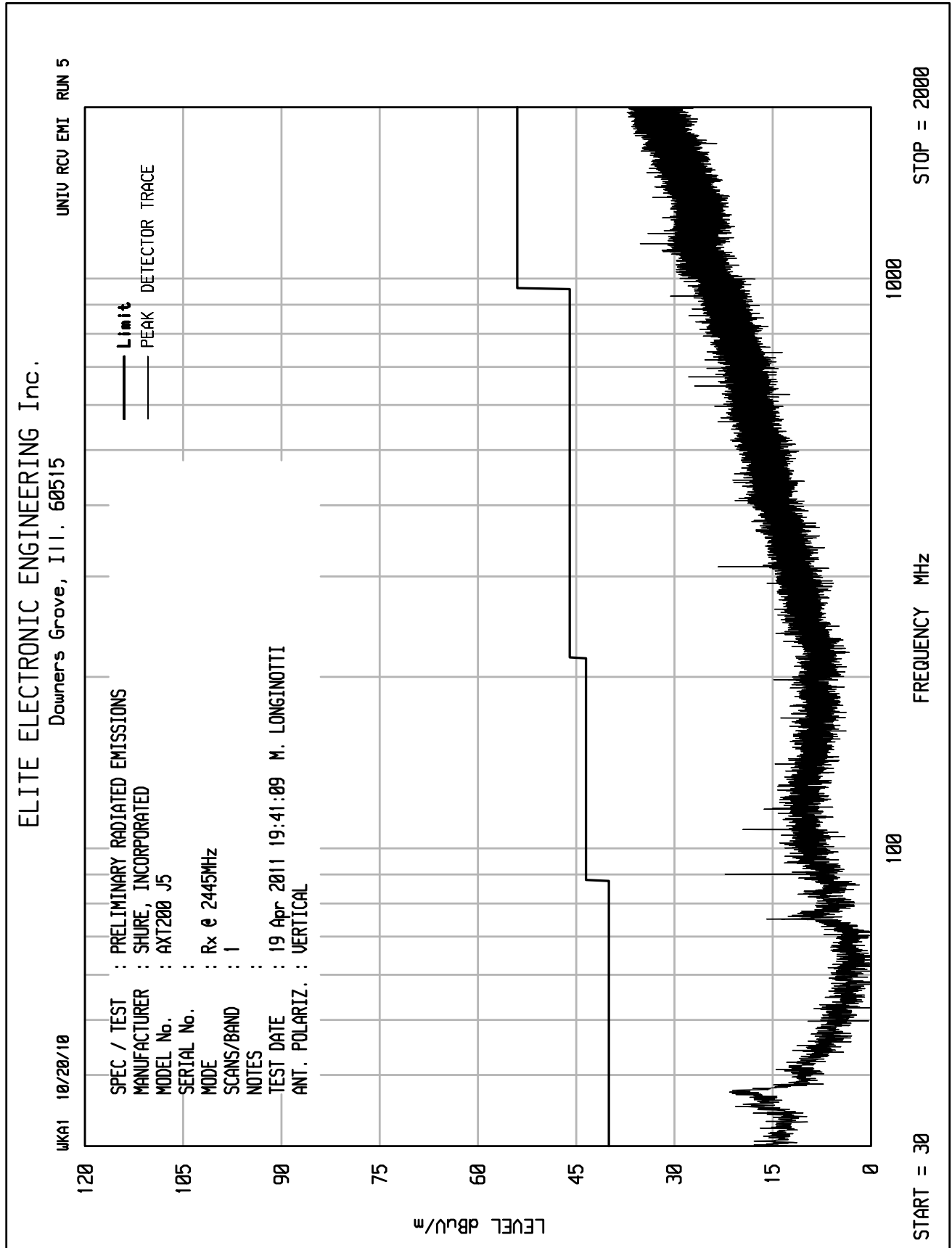


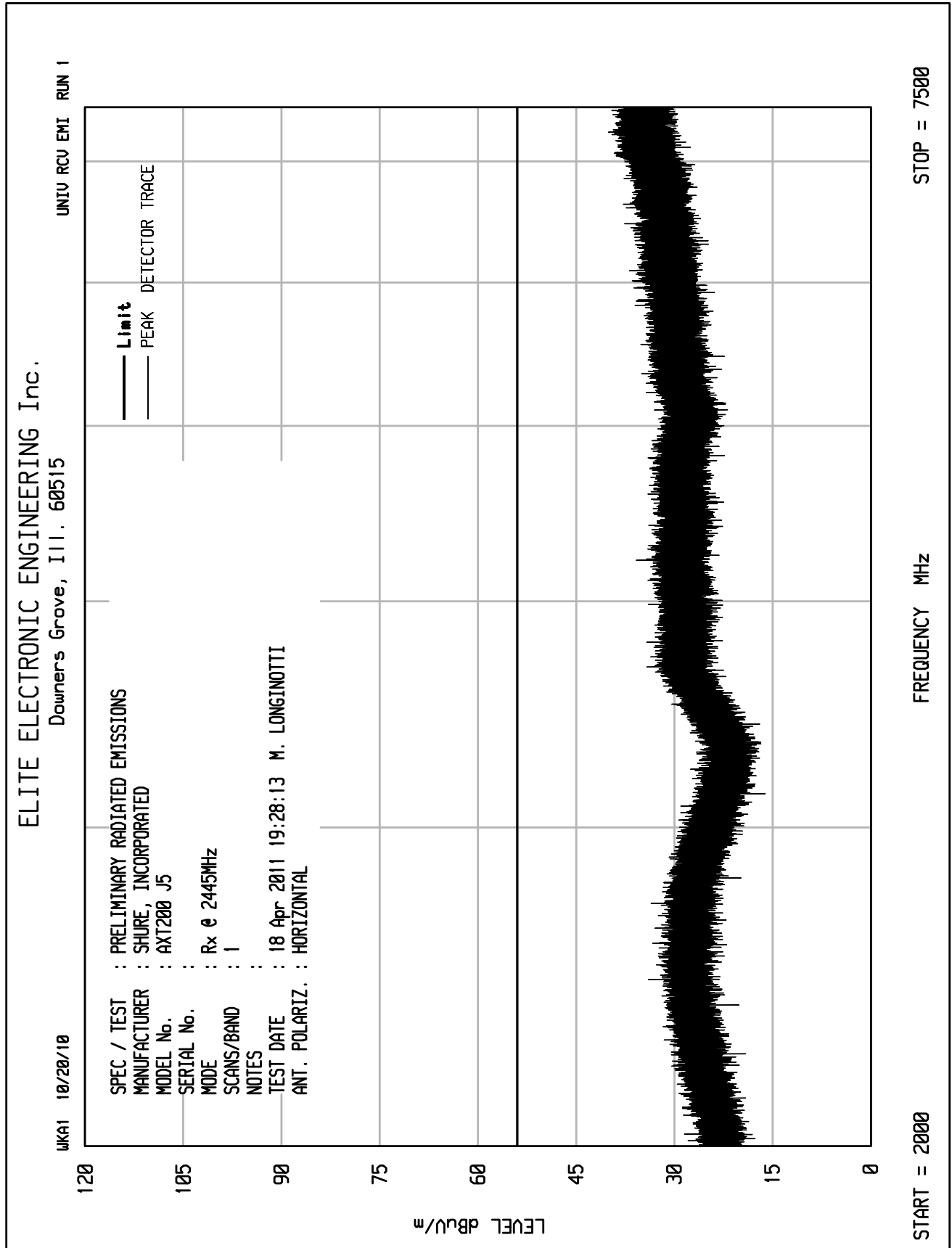
Test Setup for Radiated Emissions – 18GHz to 25GHz, Horizontal Polarization



Test Setup for Radiated Emissions – 18GHz to 25GHz, Vertical Polarization







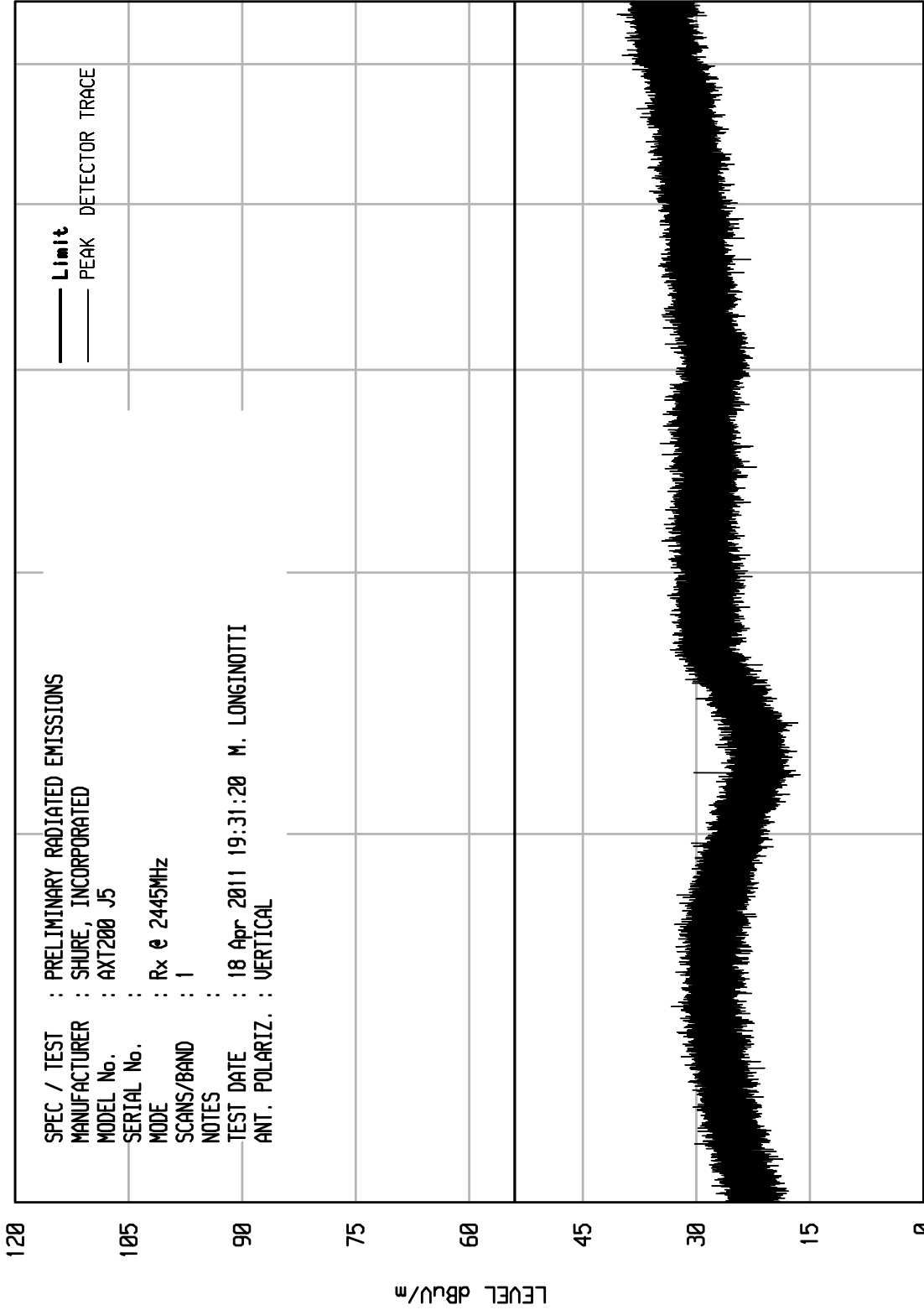


ELITE ELECTRONIC ENGINEERING Inc.

Downers Grove, Ill. 60515

UNIU RCU EMI RUN 2

UKA1 10/20/10



SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
 MANUFACTURER : SHURE, INCORPORATED
 MODEL No. : AXT200 J5
 SERIAL No. :
 MODE : Rx @ 2445MHz
 SCANS/BAND : 1
 NOTES :
 TEST DATE : 18 Apr 2011 19:31:20 M. LONGINOTTI
 ANT. POLARIZ. : VERTICAL

STOP = 7500

FREQUENCY MHz

START = 2000

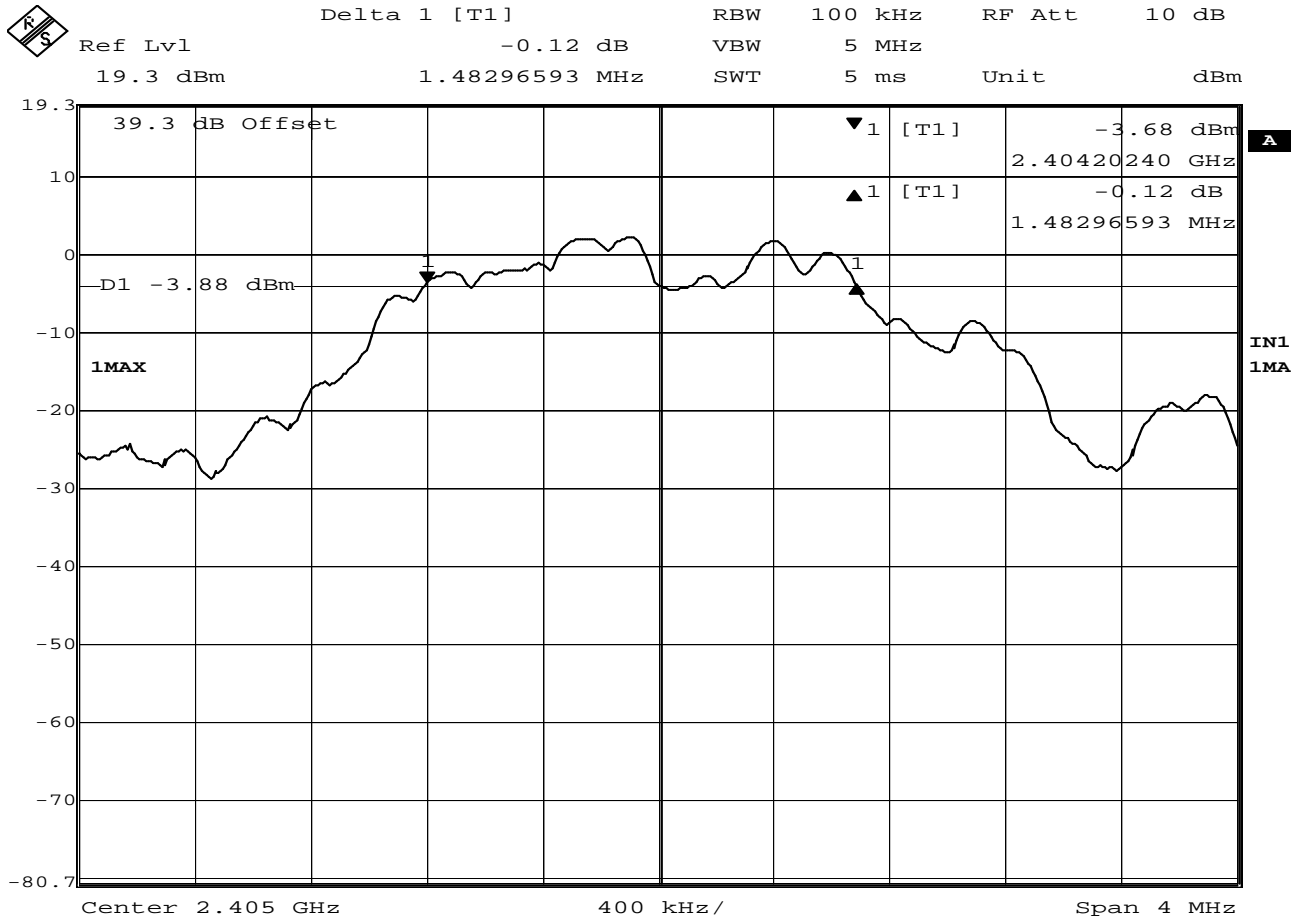
LEVEL dBu/m



MANUFACTURER : Shure, Incorporated
MODEL : AXT200 Axient Handheld Frequency Diversity Transmitter with Zigbee Transceiver
SERIAL NO. : None Assigned
SPECIFICATION : RSS-Gen Spurious Radiated Emissions
DATE : April 18 and 19, 2011
MODE : Receive at 2445MHz
UNIT : J5
NOTES : Test Distance is 3 meters

Frequency MHz	Ant Pol	Meter Reading dBuV	Ambient	Cable Factor dB	Ant. Factor dB	Pre Amp dB	Total dBuV/m	Total uV/m	Limit uV/m	Margin dB
2445.0	H	36.0	Ambient	3.4	31.5	-40.3	30.6	34.0	500.0	-23.3
2445.0	V	36.0	Ambient	3.4	31.5	-40.3	30.6	34.0	500.0	-23.3
4890.0	H	32.1	Ambient	5.0	34.9	-40.1	31.8	38.8	500.0	-22.2
4890.0	V	32.0	Ambient	5.0	34.9	-40.1	31.7	38.3	500.0	-22.3
7335.0	H	32.9	Ambient	6.2	38.1	-39.7	37.4	74.4	500.0	-16.5
7335.0	V	32.9	Ambient	6.2	38.1	-39.7	37.4	74.4	500.0	-16.5

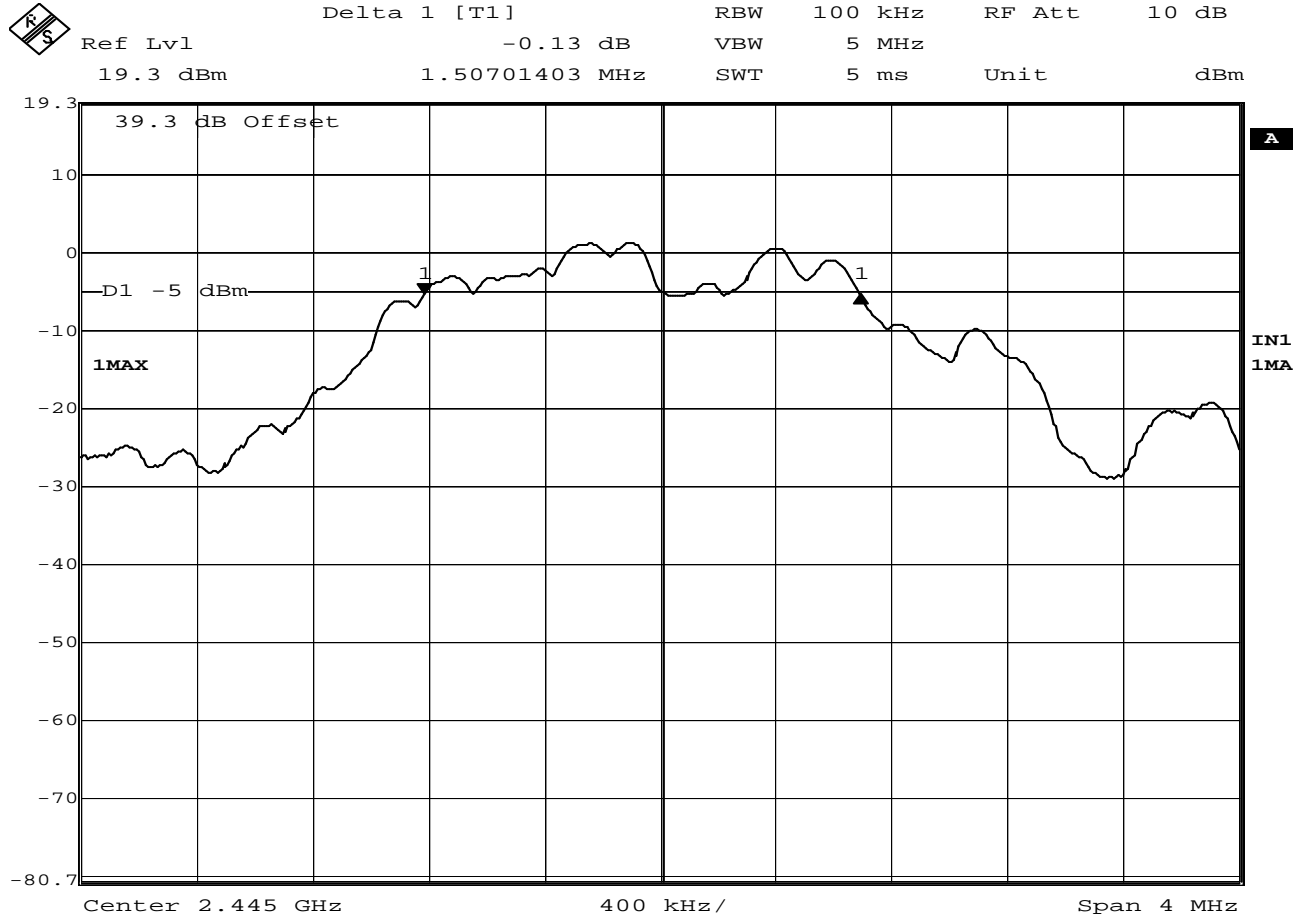
Checked By: MARK E. LONGINOTTI



Date: 5.MAY.2011 09:03:30

15.247(a)(2) 6dB Bandwidth – Antenna Conducted

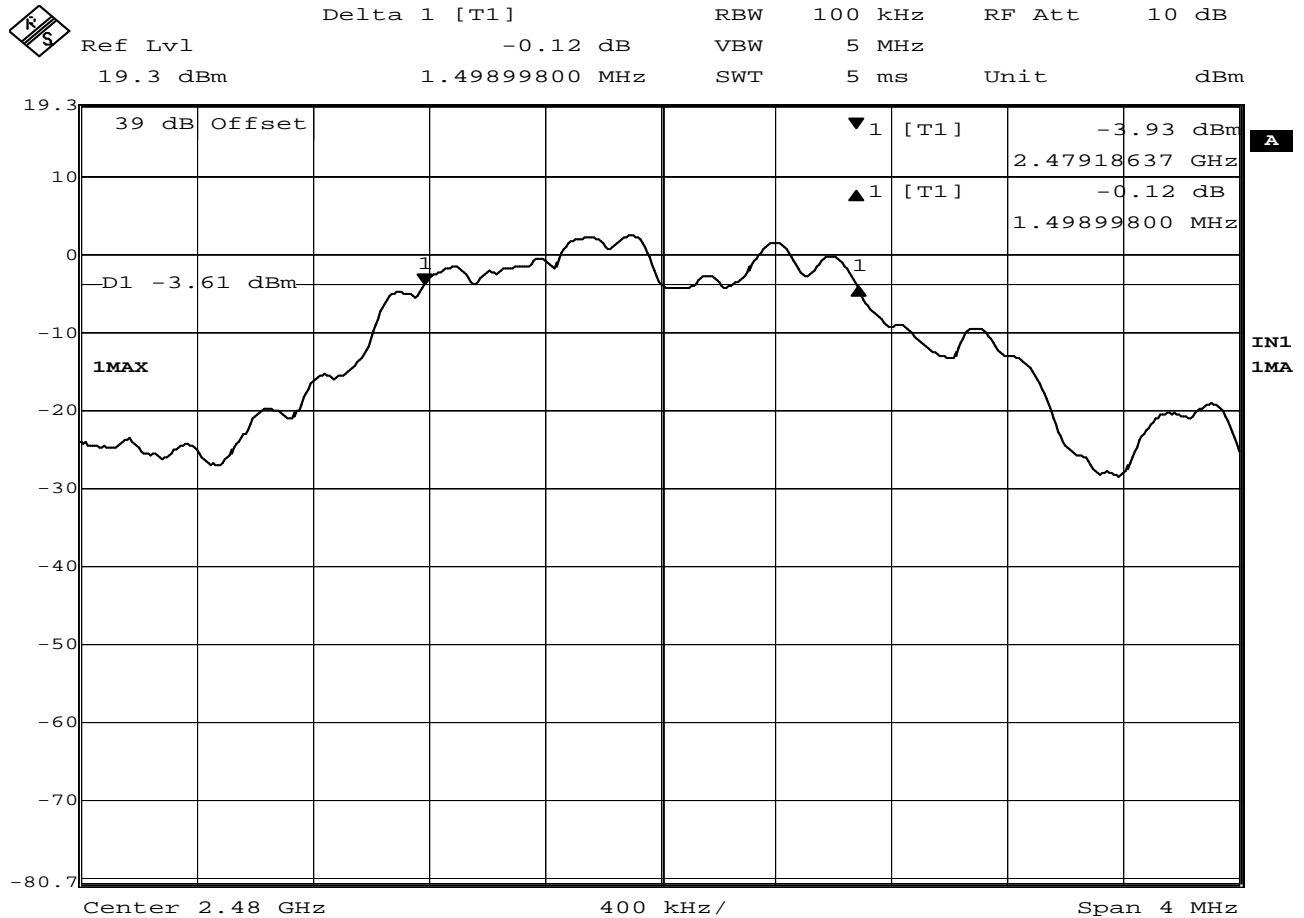
MANUFACTURER : Shure, Inc.
 MODEL NUMBER : AXT200 J5
 SERIAL NUMBER :
 TEST MODE : Tx @ 2405MHz
 NOTES :
 TEST DATE : May 5, 2011
 TEST PARAMETERS : 6dB bandwidth = 1.48MHz
 NOTES : 99% bandwidth = 2.4MHz
 EQUIPMENT USED : RBA0, T2S8, T2DJ



Date: 5.MAY.2011 08:46:29

15.247(a)(2) 6dB Bandwidth – Antenna Conducted

MANUFACTURER : Shure, Inc.
 MODEL NUMBER : AXT200 J5
 SERIAL NUMBER :
 TEST MODE : Tx @ 2445MHz
 NOTES :
 TEST DATE : May 5, 2011
 TEST PARAMETERS : 6dB bandwidth = 1.5MHz
 NOTES : 99% bandwidth = 2.5MHz
 EQUIPMENT USED : RBA0, T2S8, T2DJ



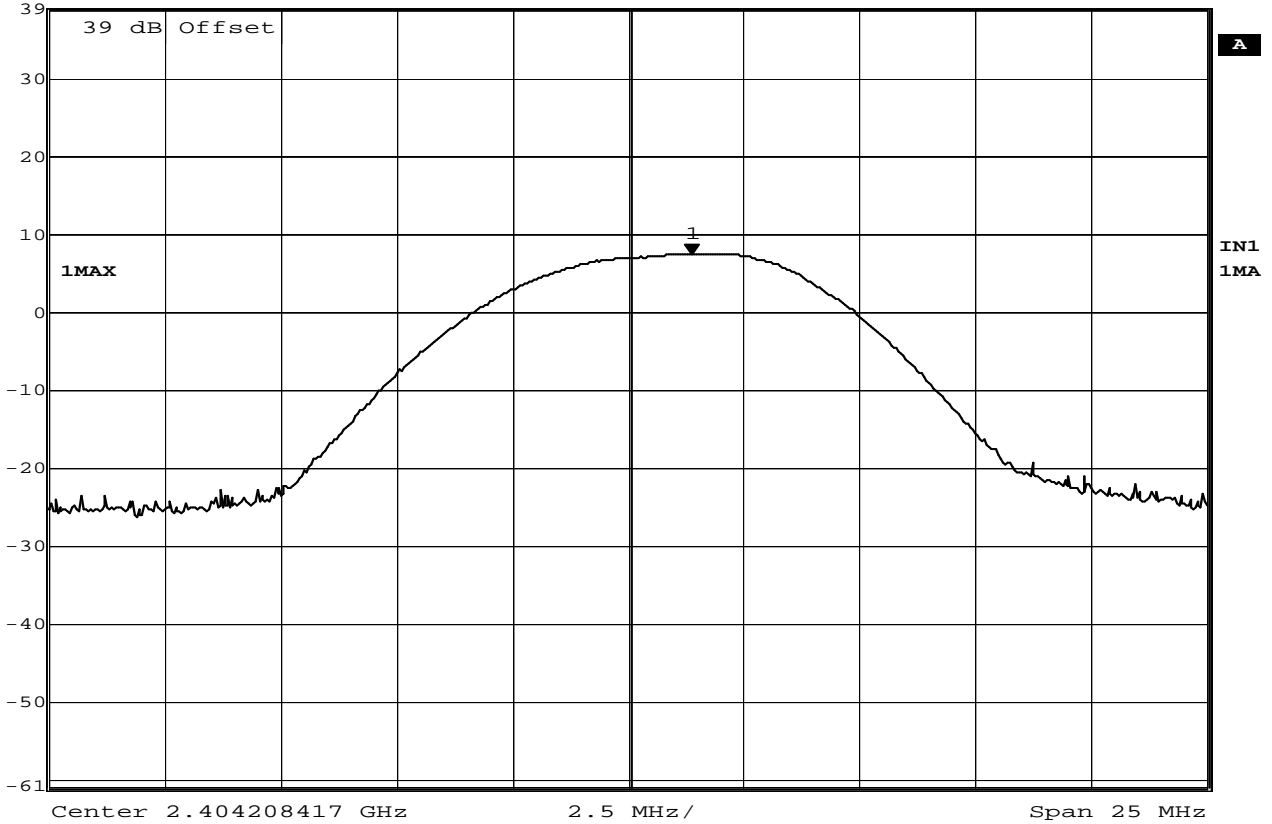
Date: 5.MAY.2011 09:32:15

15.247(a)(2) 6dB Bandwidth – Antenna Conducted

MANUFACTURER : Shure, Inc.
 MODEL NUMBER : AXT200 J5
 SERIAL NUMBER :
 TEST MODE : Tx @ 2480MHz
 NOTES :
 TEST DATE : May 5, 2011
 TEST PARAMETERS : 6dB bandwidth = 1.5MHz
 NOTES : 99% bandwidth = 2.5MHz
 EQUIPMENT USED : RBA0, T2S8, T2DJ



Ref Lvl	Marker 1 [T1]	RBW	5 MHz	RF Att	10 dB
39 dBm	7.47 dBm	VBW	5 MHz		
	2.40558617 GHz	SWT	5 ms	Unit	dBm



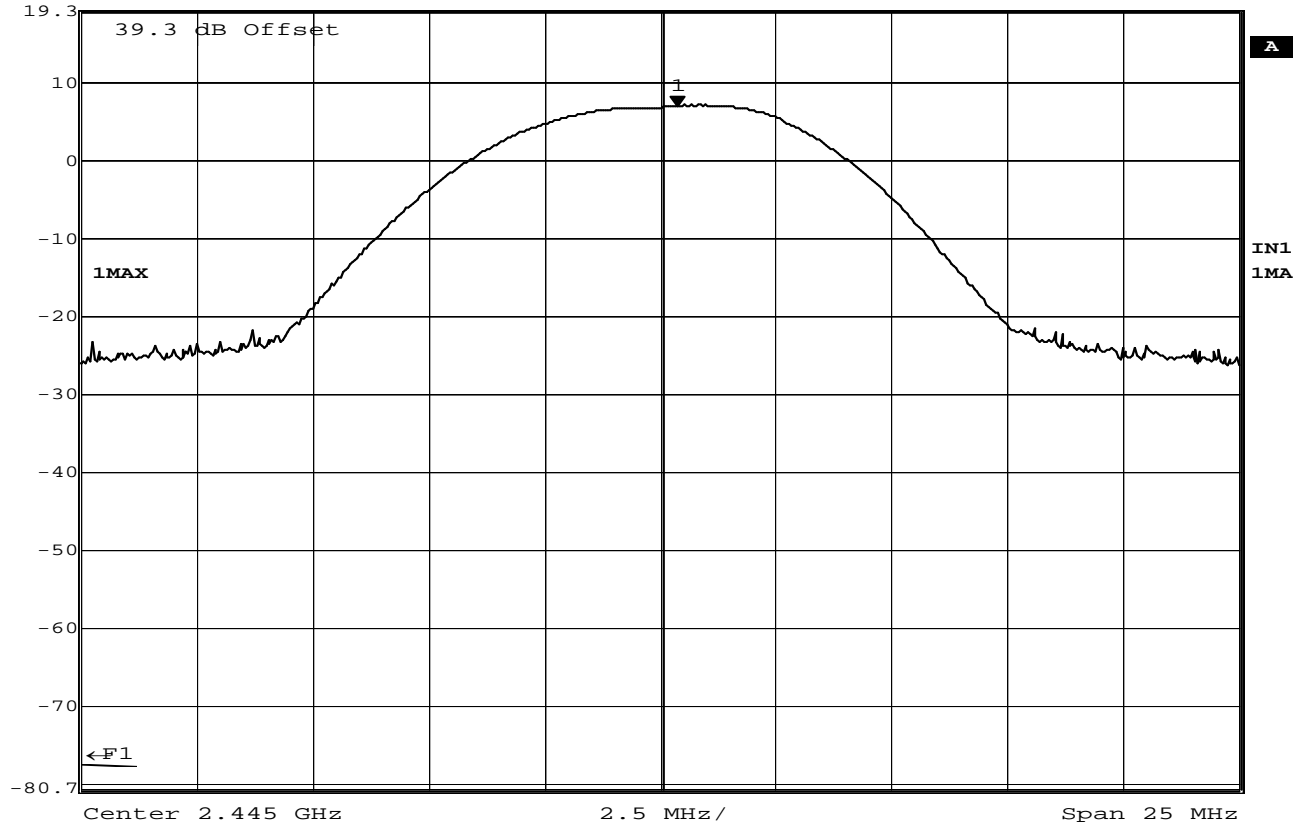
Date: 11.APR.2011 15:02:14

Conducted Output Power – Antenna Port

MANUFACTURER	: Shure, Inc.
MODEL NUMBER	: AXT200
SERIAL NUMBER	:
TEST MODE	: Tx @ 2405MHz
NOTES	: Group J5, RF Mute On
TEST DATE	: April 11, 2011
TEST PARAMETERS	: Conducted Output Power – Antenna Port
NOTES	: Power = 12, Bias = 4
EQUIPMENT USED	: RBA0, T2S8, T2DJ




	Marker 1 [T1]	RBW	5 MHz	RF Att	10 dB
	Ref Lvl	7.00 dBm	VBW	5 MHz	
	19.3 dBm	2.44537575 GHz	SWT	5 ms	Unit dBm

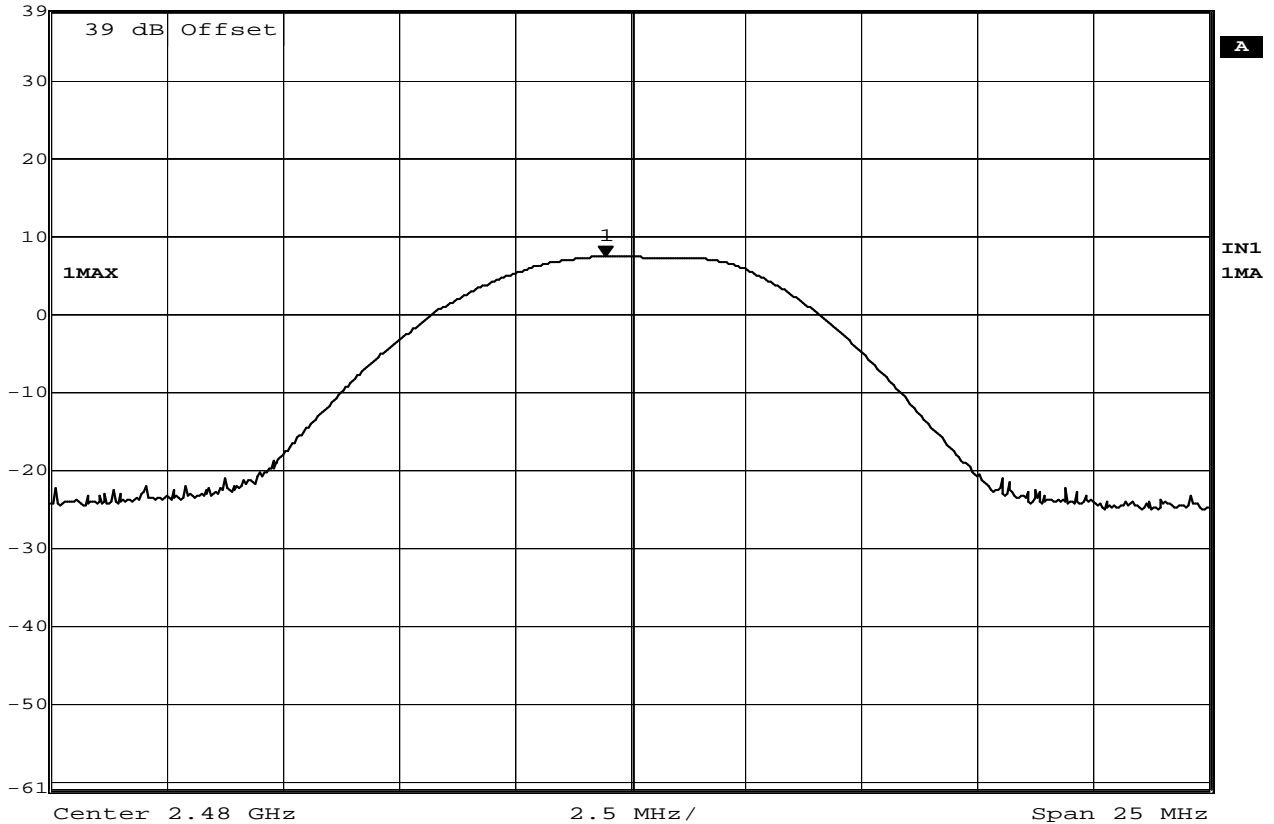


Date: 13.APR.2011 13:11:24

Conducted Output Power – Antenna Conducted

MANUFACTURER	: Shure, Inc.
MODEL NUMBER	: AXT200
SERIAL NUMBER	:
TEST MODE	: Tx @ 2445MHz
NOTES	: Group J5, RF Mute On
TEST DATE	: April 13, 2011
TEST PARAMETERS	: Conducted Output Power – Antenna Conducted
NOTES	: Power = 12, Bias = 10
EQUIPMENT USED	: RBA0, T2S8, T2DJ

	Ref Lvl	Marker 1 [T1]	RBW	5 MHz	RF Att	10 dB
	39 dBm	7.40 dBm	VBW	5 MHz		
		2.47947395 GHz	SWT	5 ms	Unit	dBm



Date: 12.APR.2011 12:09:07

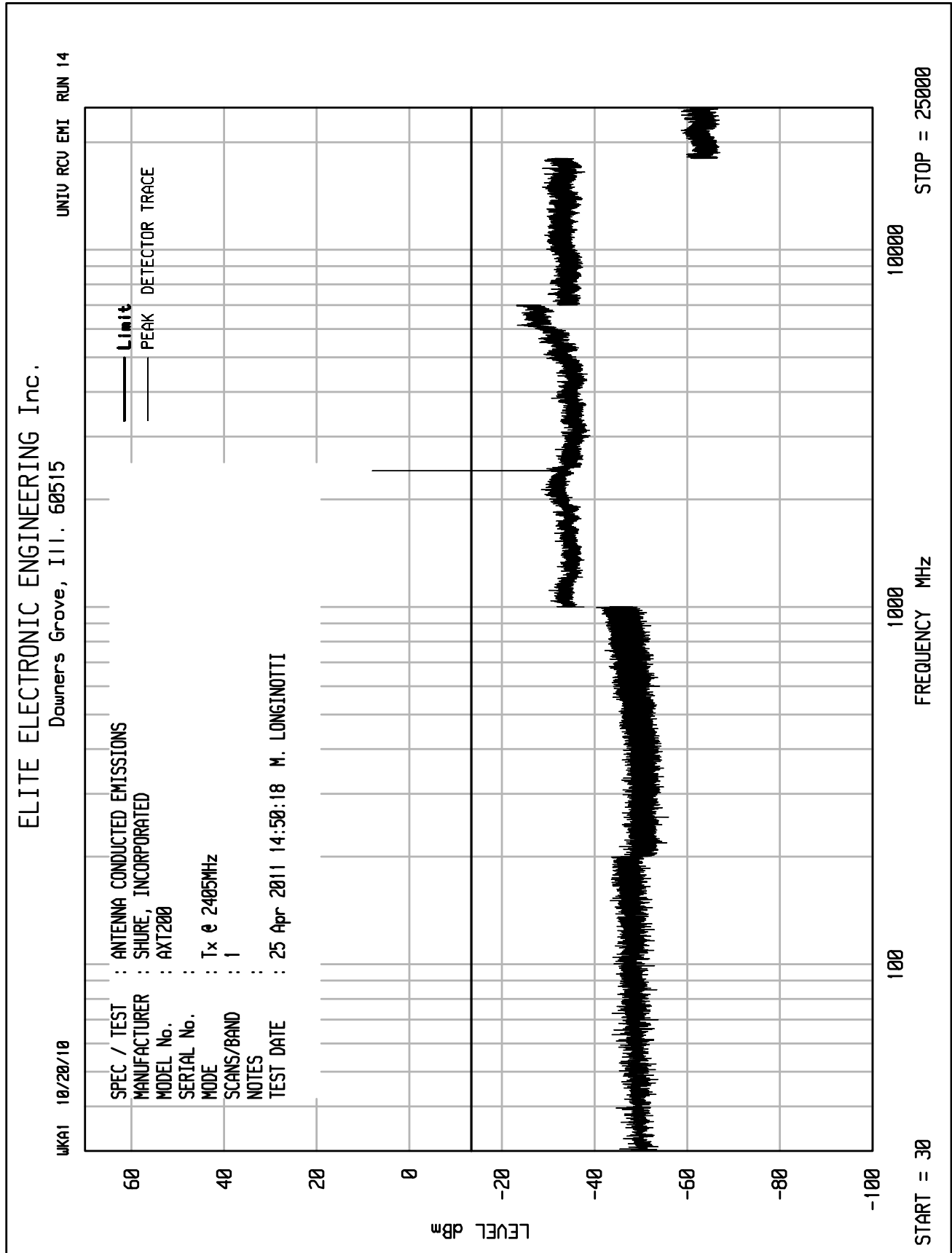
Conducted Output Power – Antenna Port

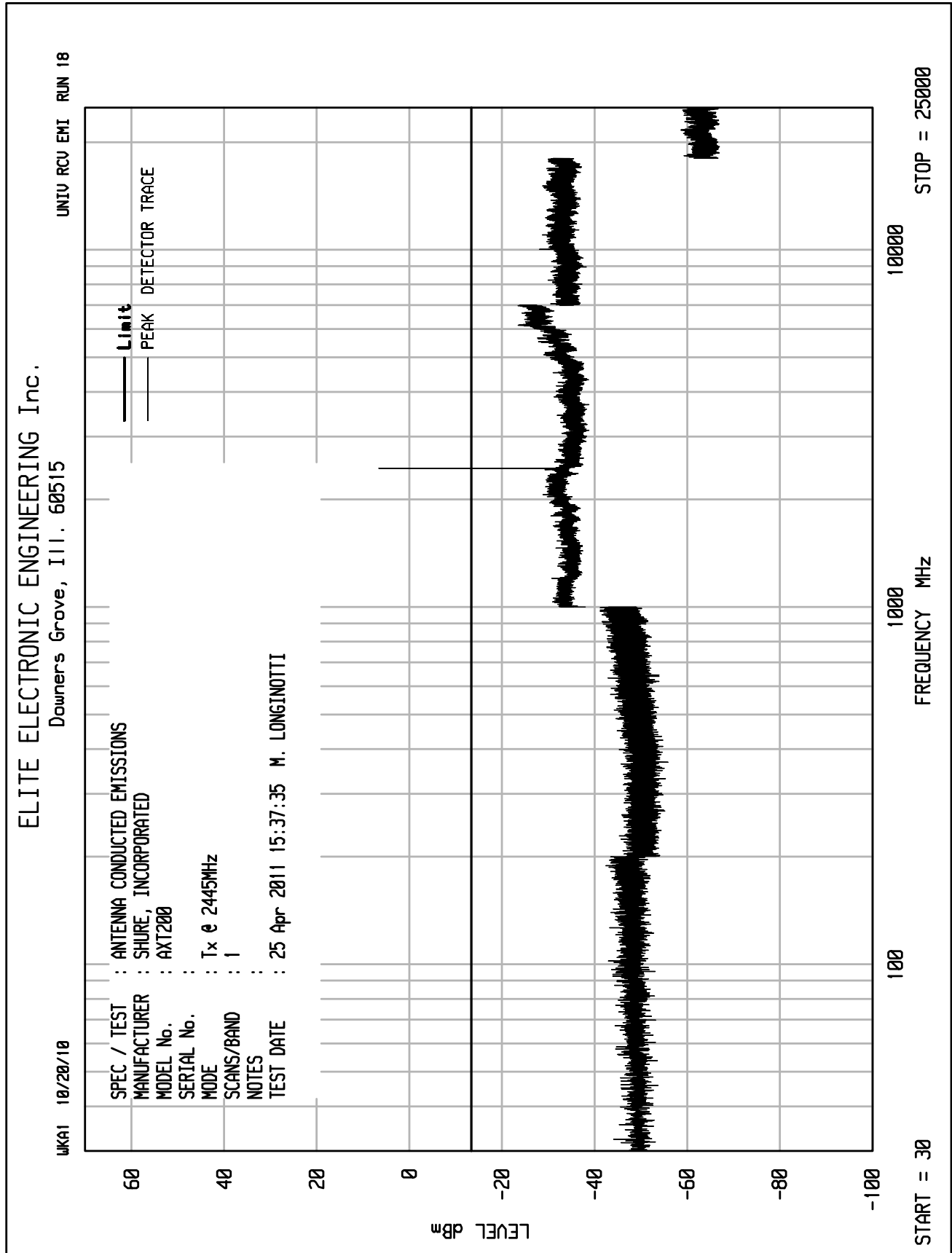
MANUFACTURER	: Shure, Inc.
MODEL NUMBER	: AXT200
SERIAL NUMBER	:
TEST MODE	: Tx @ 2480MHz
NOTES	: Group J5, RF Mute On
TEST DATE	: April 12, 2011
TEST PARAMETERS	: Conducted Output Power – Antenna Port
NOTES	: Power = 12, Bias = 4
EQUIPMENT USED	: RBA0, T2S8, T2DJ

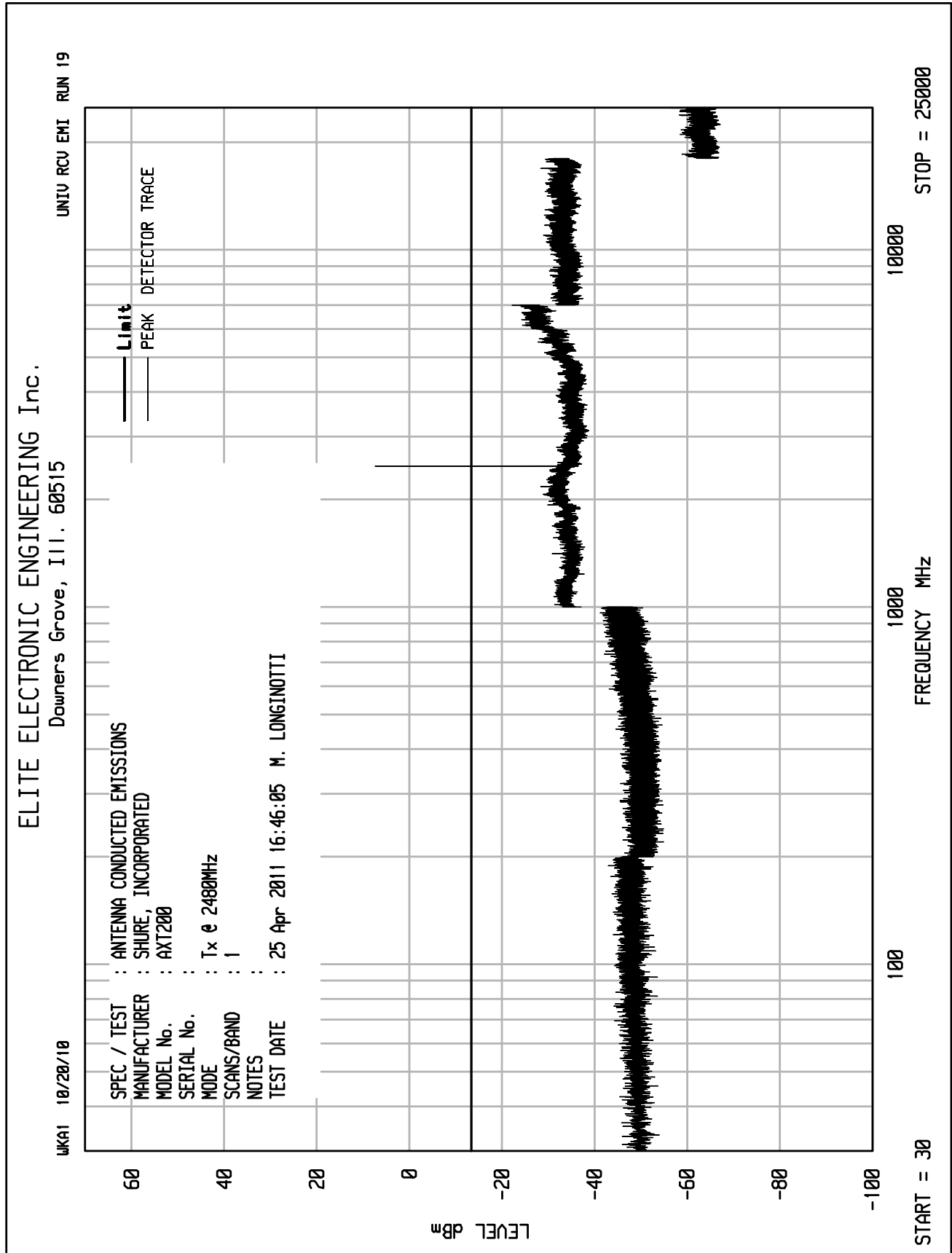


MANUFACTURER : Shure, Incorporated
MODEL : AXT200 Axient Handheld Frequency Diversity Transmitter with Zigbee Transceiver
SERIAL NO. : None Assigned
SPECIFICATION : 15.247(b) - EIRP
DATE : April 20, 2011
MODE : See Below
UNIT : J5
NOTES : Test Distance is 3 meters

Frequency MHz	Ant Pol	Meter Reading dBuV	Ambient	Matched Sig. Gen dB	Ant. Gain dB	Cable Loss dB	Total dBm	Limit dBm
Transmit at 2405MHz								
2405.0	H	62.1		-4.7	5.2	3.4	-2.9	36.0
2405.0	V	68.1		2.0	5.2	3.4	3.8	36.0
Transmit at 2445MHz								
2445.0	H	55.5		-10.8	5.4	3.4	-8.9	36.0
2445.0	V	69.6		3.4	5.4	3.4	5.3	36.0
Transmit at 2480MHz								
2480.0	H	58.4		-8.3	5.5	3.5	-6.3	36.0
2480.0	V	70.9		3.5	5.5	3.5	5.5	36.0







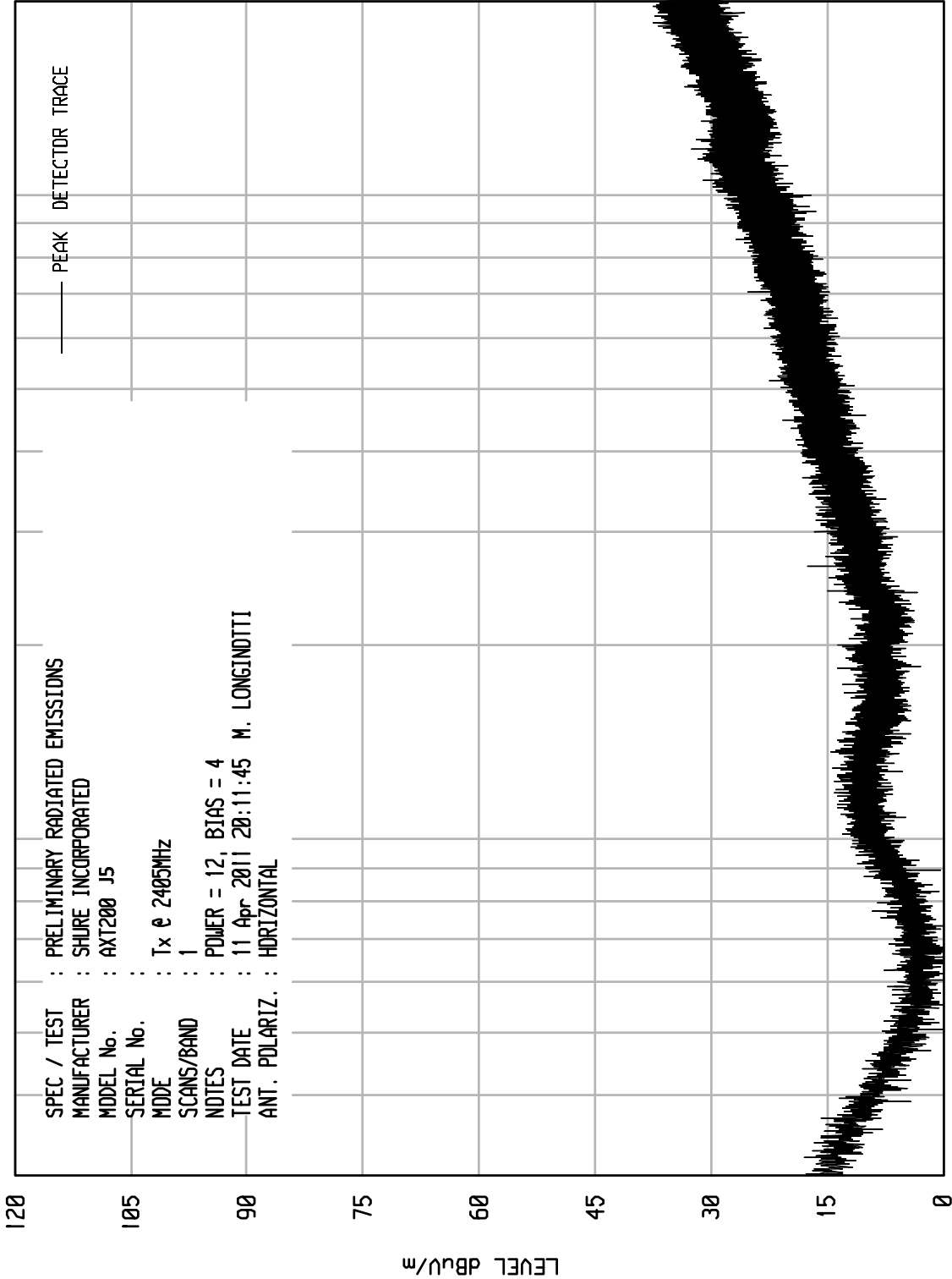


ELITE ELECTRONIC ENGINEERING Inc.
Dawners Grove, Ill. 60515

UNIV RCV ENI RUN 5

UKA1 10/20/10

: PRELIMINARY RADIATED EMISSIONS
 : SHURE INCORPORATED
 : AXT200 J5
 : Tx @ 2405MHz
 : 1
 : POWER = 12, BIAS = 4
 : 11 Apr 2011 20:11:45 M. LONGINDTTI
 : HORIZONTAL



STOP = 2000

START = 30

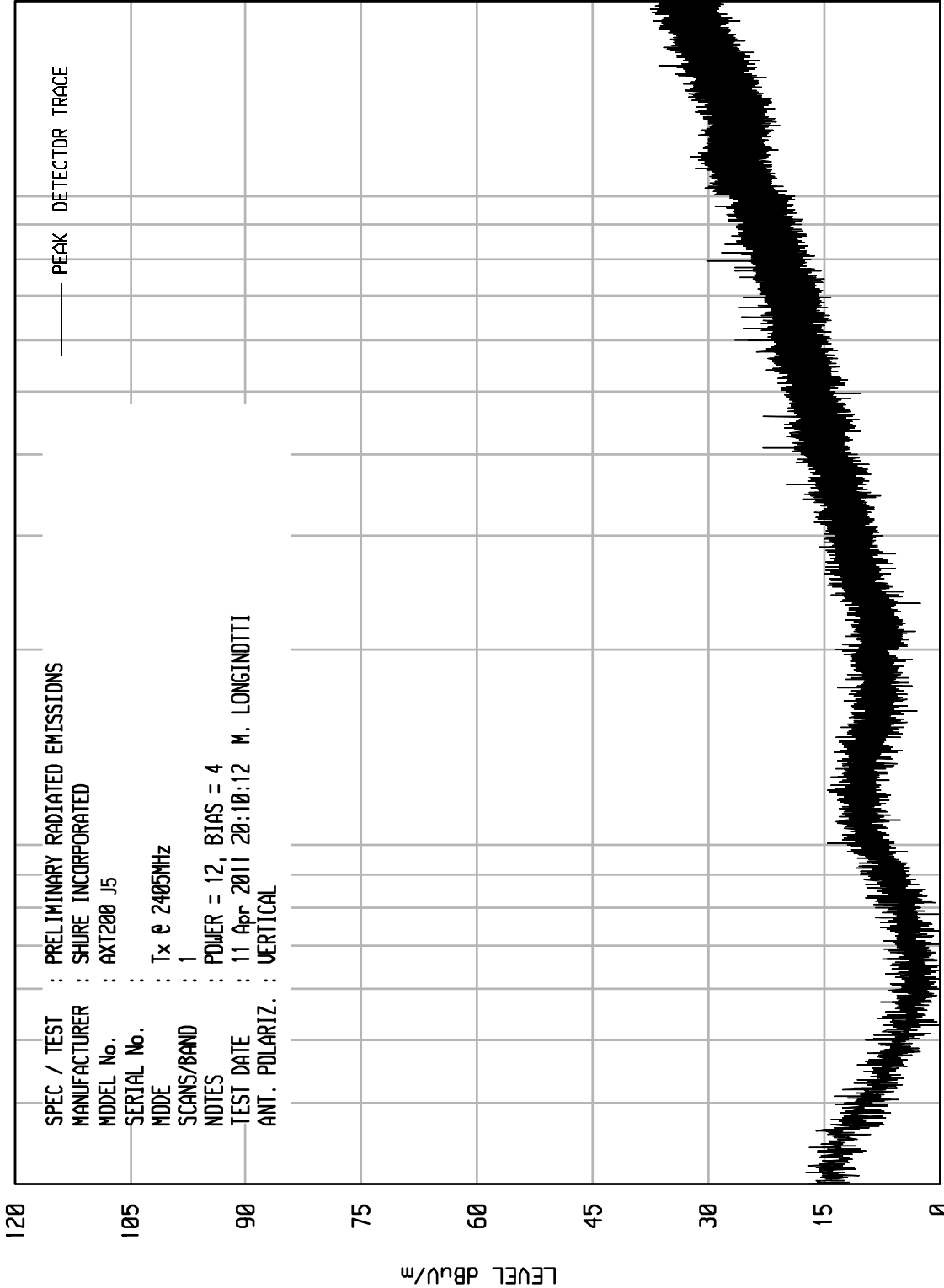


ELITE ELECTRONIC ENGINEERING Inc.

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UNIV RCV ENI RUN 4

UKA1 10/28/10



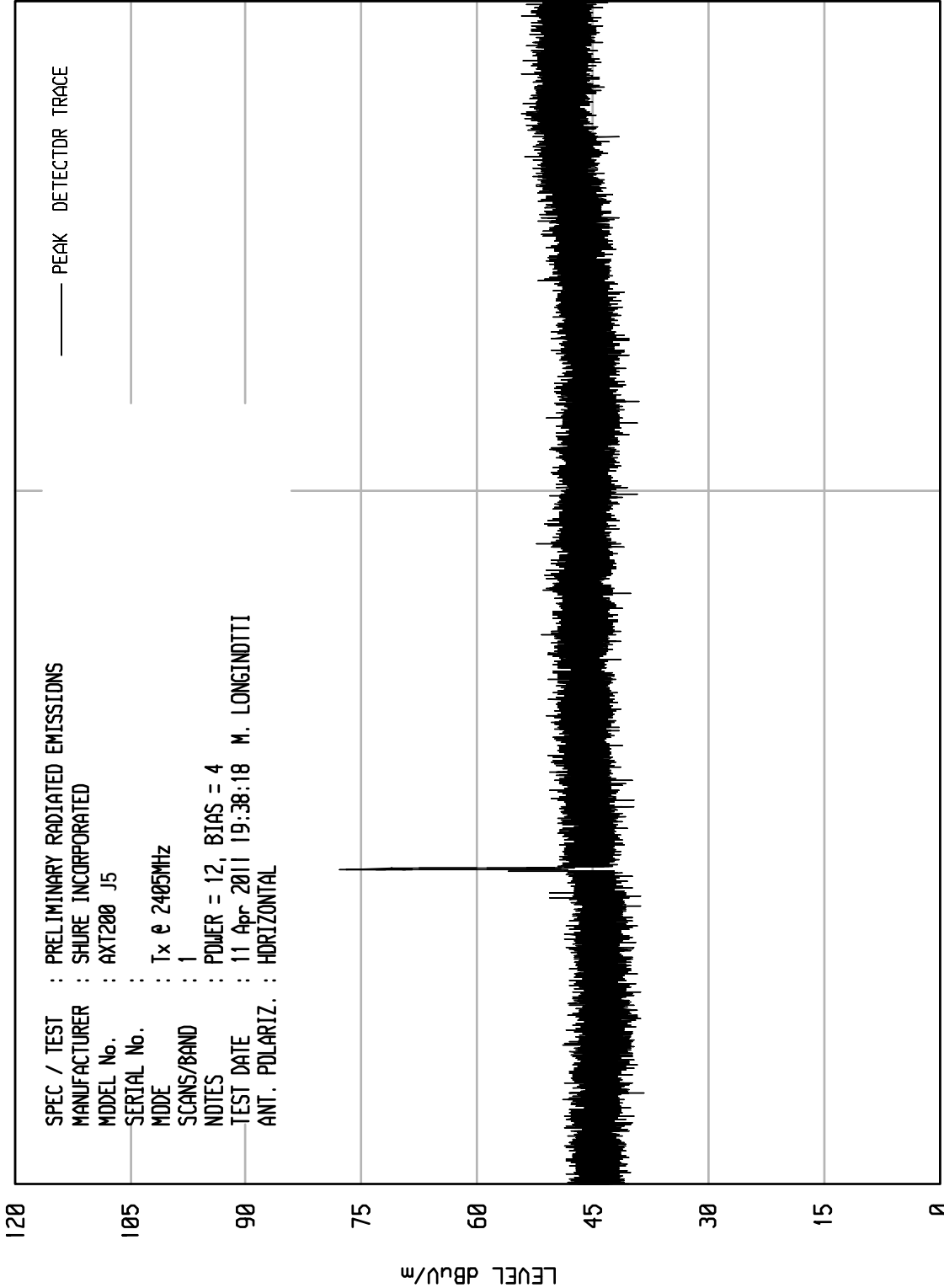


ELITE ELECTRONIC ENGINEERING Inc.

Dawners Grove, Ill. 60515

UNIV RCV ENI RUN 2

UKA1 10/28/10



STOP = 4000

FREQUENCY MHz

START = 2000

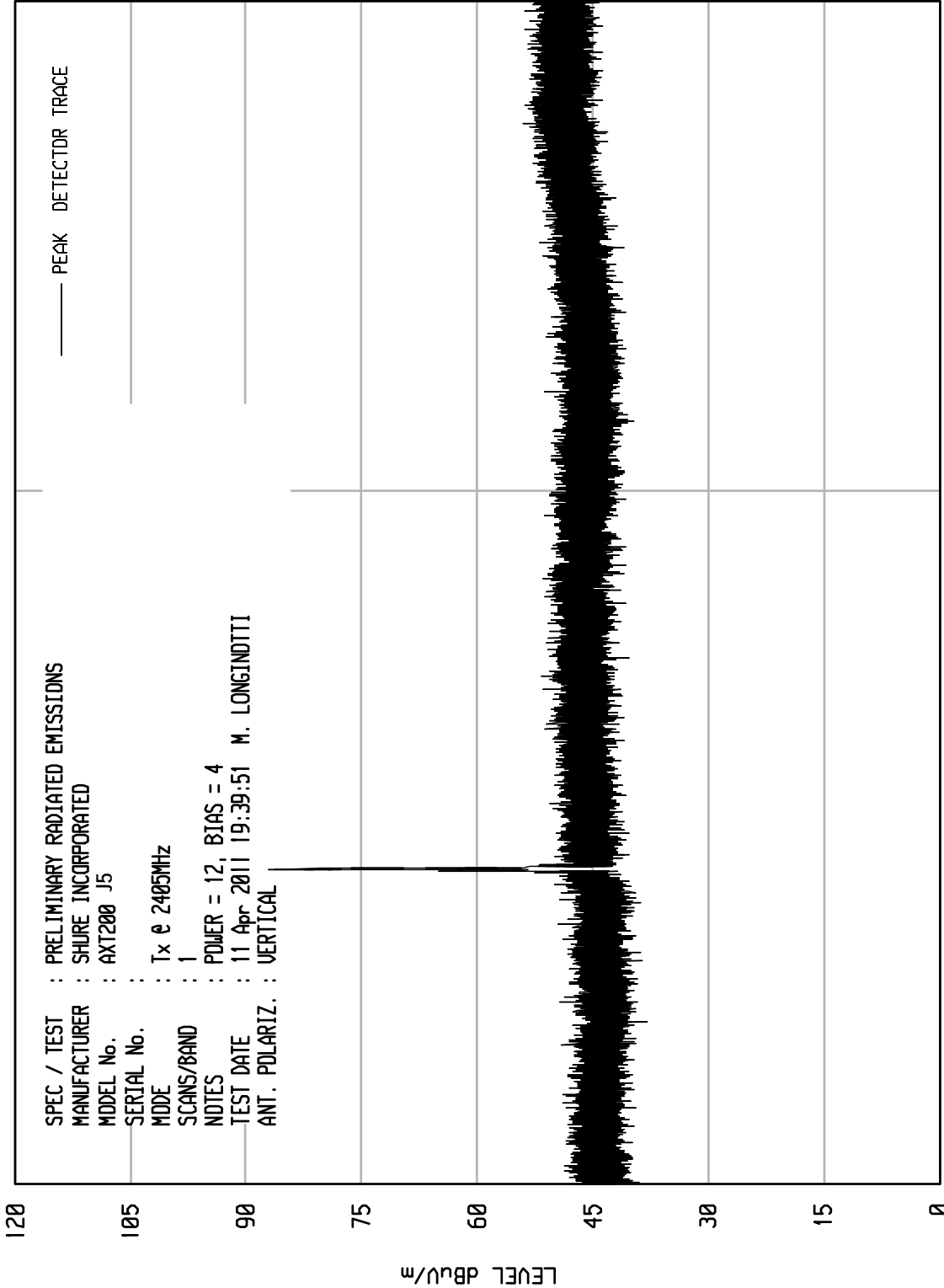


ELITE ELECTRONIC ENGINEERING Inc.

Dawners Grove, Ill. 60515

UNIV RCV ENI RUN 3

UKA1 10/28/10



STOP = 4000

FREQUENCY MHz

START = 2000

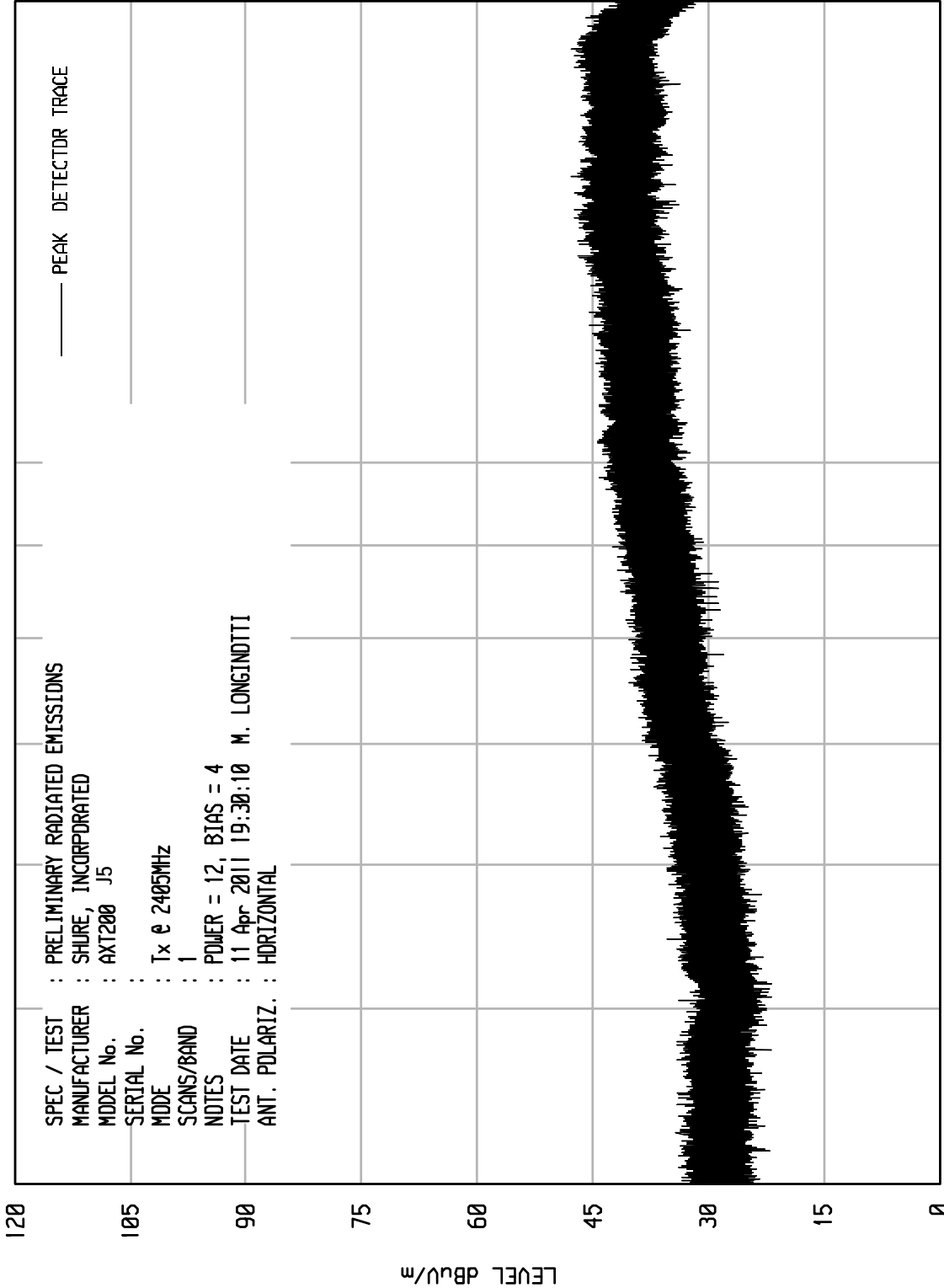


ELITE ELECTRONIC ENGINEERING Inc.

Dawners Grove, Ill. 60515

UNIV RCV ENI RUN 2

UKA1 10/20/10



PRELIMINARY RADIATED EMISSIONS

SPEC / TEST :
 MANUFACTURER : SHURE, INCORPORATED
 MODEL No. : AXI200 J5
 SERIAL No. :
 MODE : Tx @ 2405MHz
 SCANS/BAND : 1
 NOTES : PDWLR = 12, BIAS = 4
 TEST DATE : 11 Apr 2011 19:30:10 M. LONGINDTTI
 ANT. POLARIZ. : HORIZONTAL

START = 4000

10000

FREQUENCY MHz

STOP = 18000

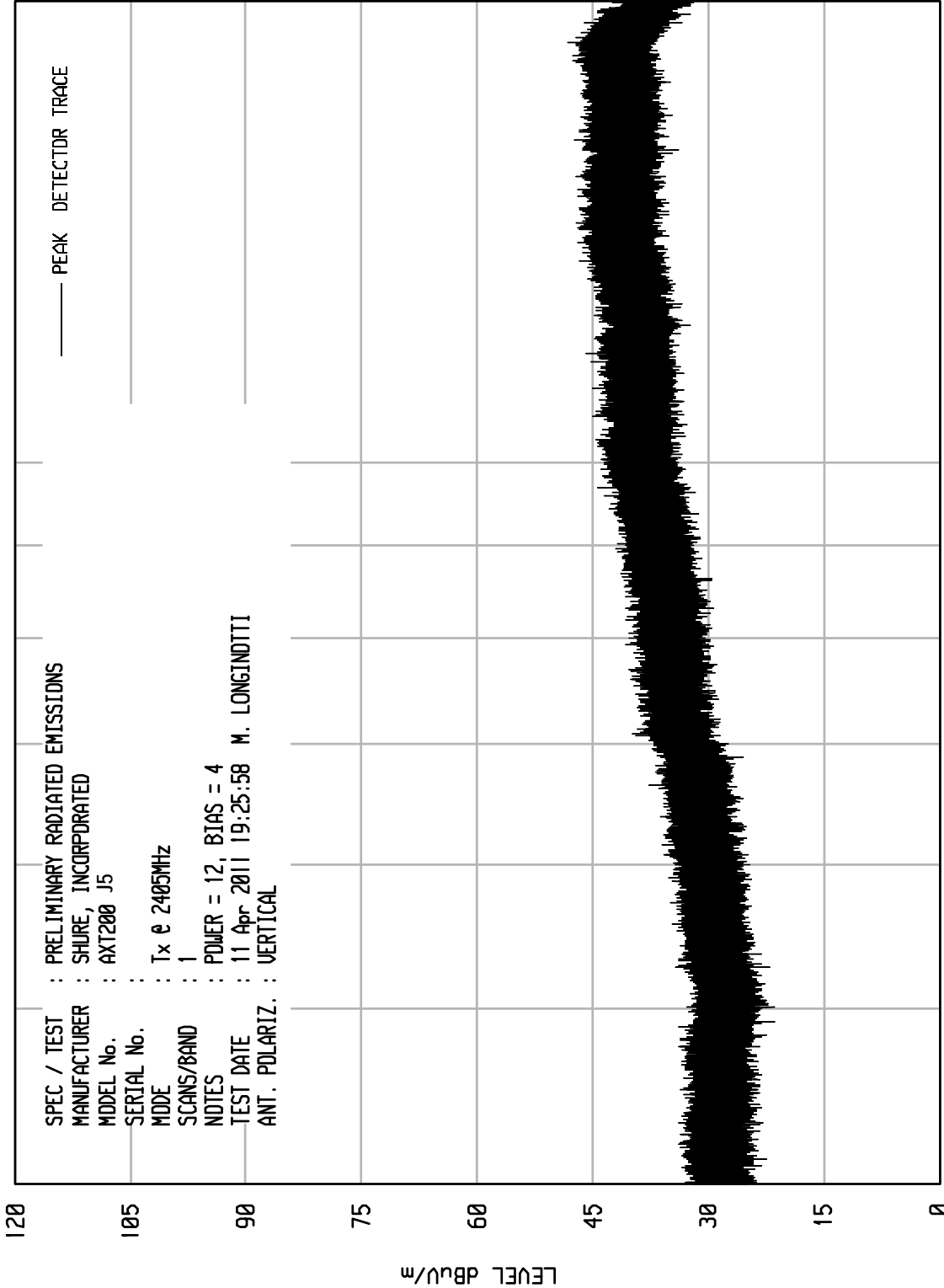


ELITE ELECTRONIC ENGINEERING Inc.

Dawners Grove, Ill. 60515

UNIV RCV ENI RUN I

UKA1 10/28/10



START = 4000

10000

FREQUENCY MHz

STOP = 18000

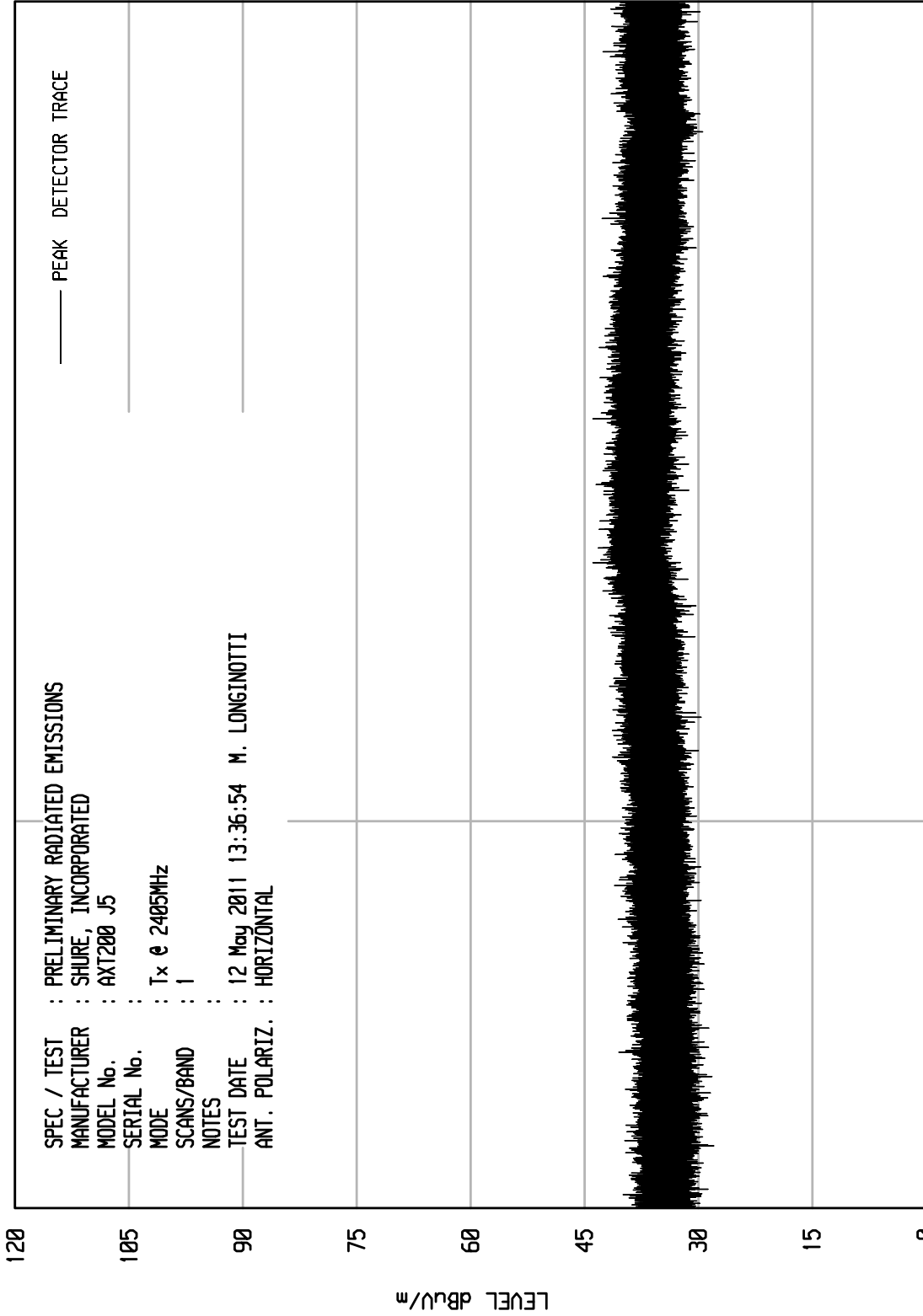


ELITE ELECTRONIC ENGINEERING Inc.

Downers Grove, Ill. 60515

UNIU RCU EMI RUN 9

UKA1 10/20/10



120
105
90
75
60
45
30
15
0

LEVEL dBu/m

START = 18000

FREQUENCY MHz

STOP = 25000

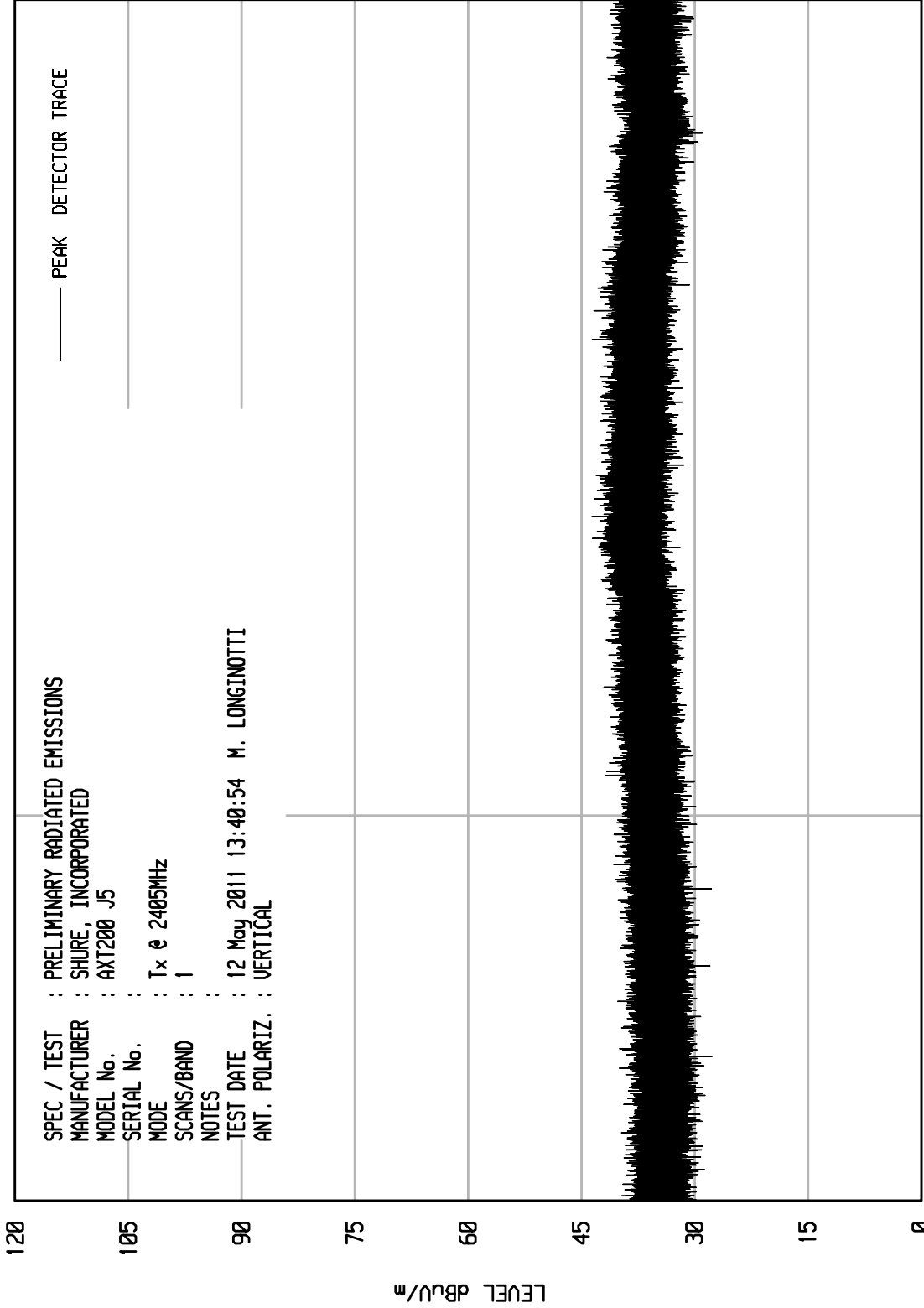


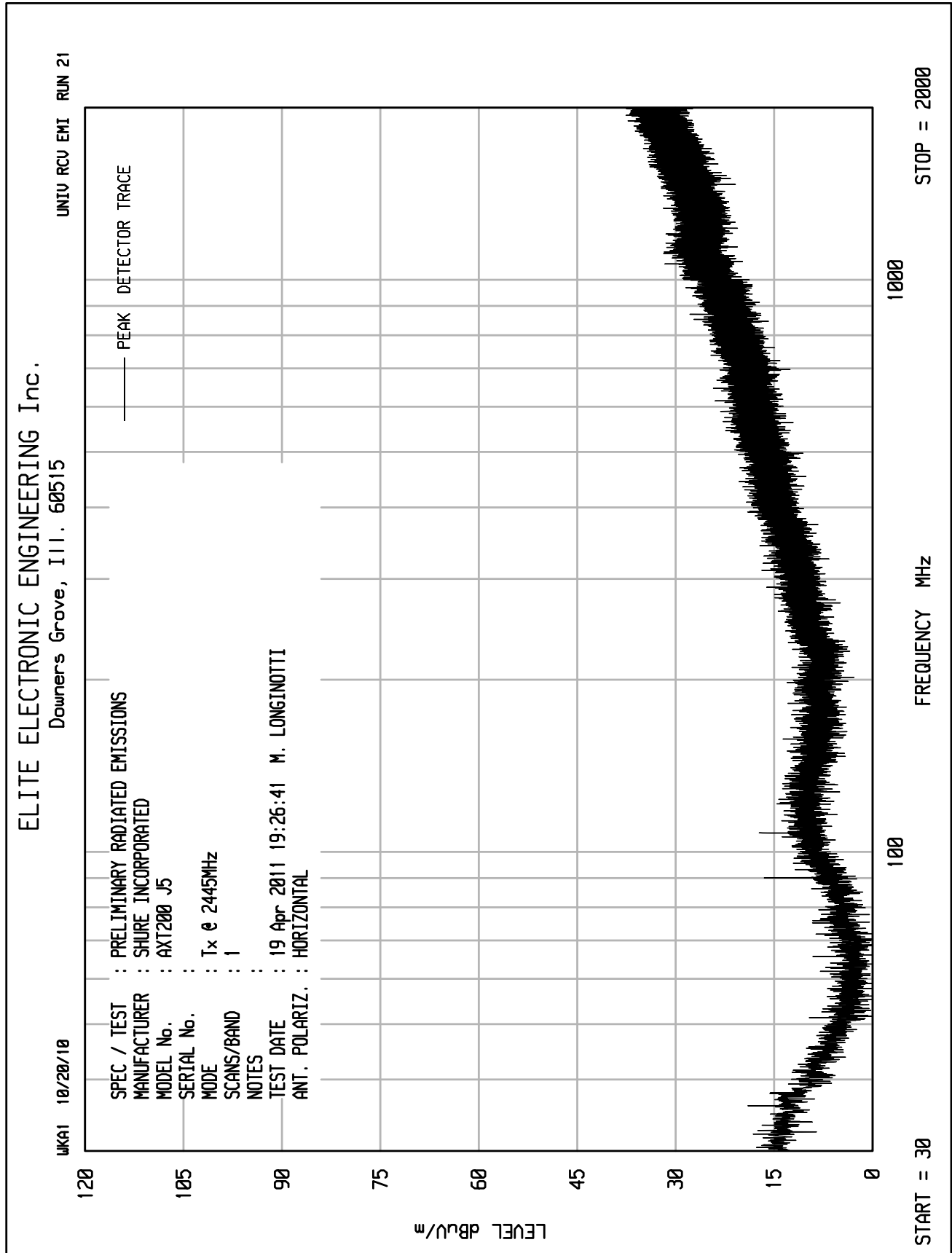
ELITE ELECTRONIC ENGINEERING Inc.

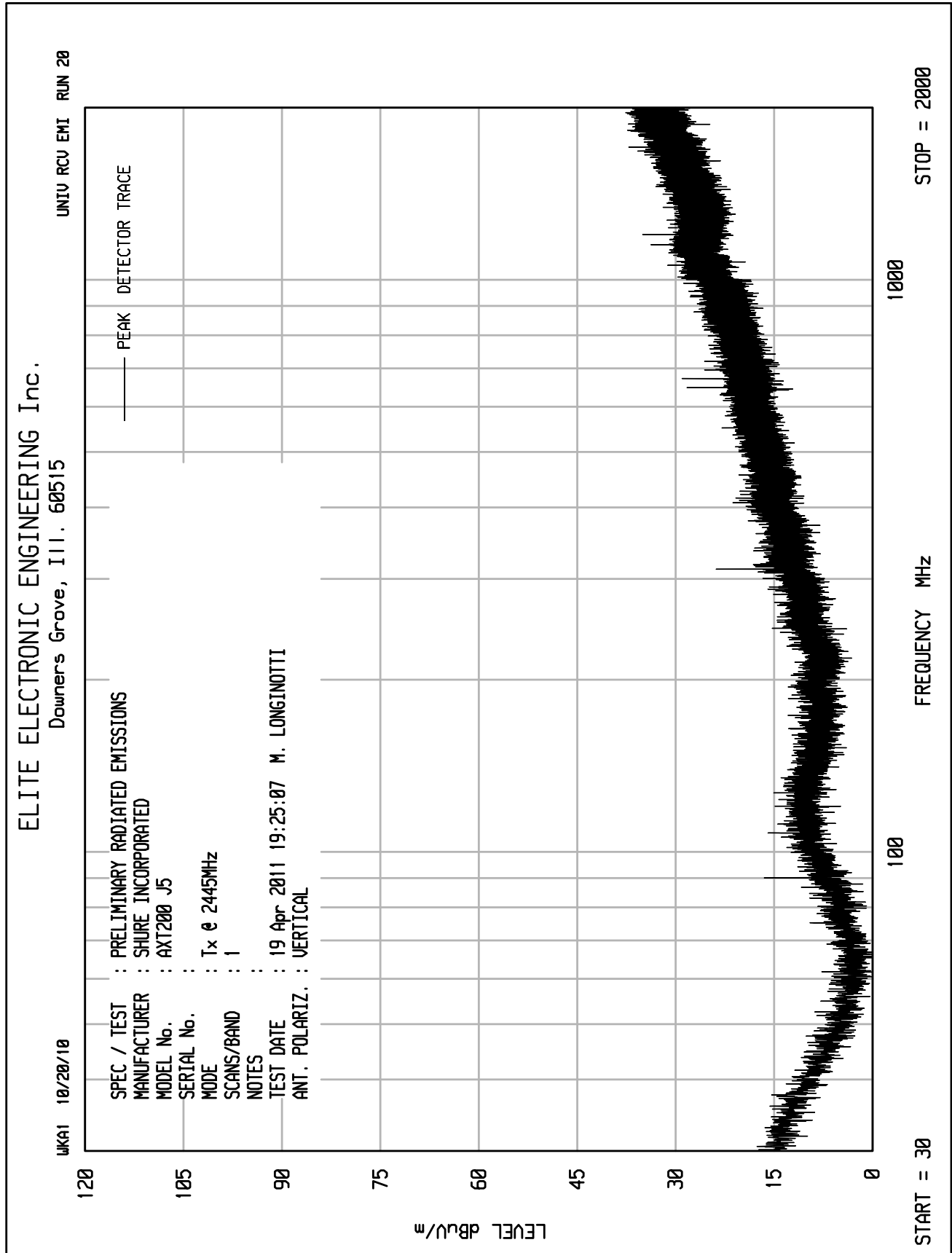
Downers Grove, Ill. 60515

UNIU RCU EMI RUN 10

UKA1 10/20/10







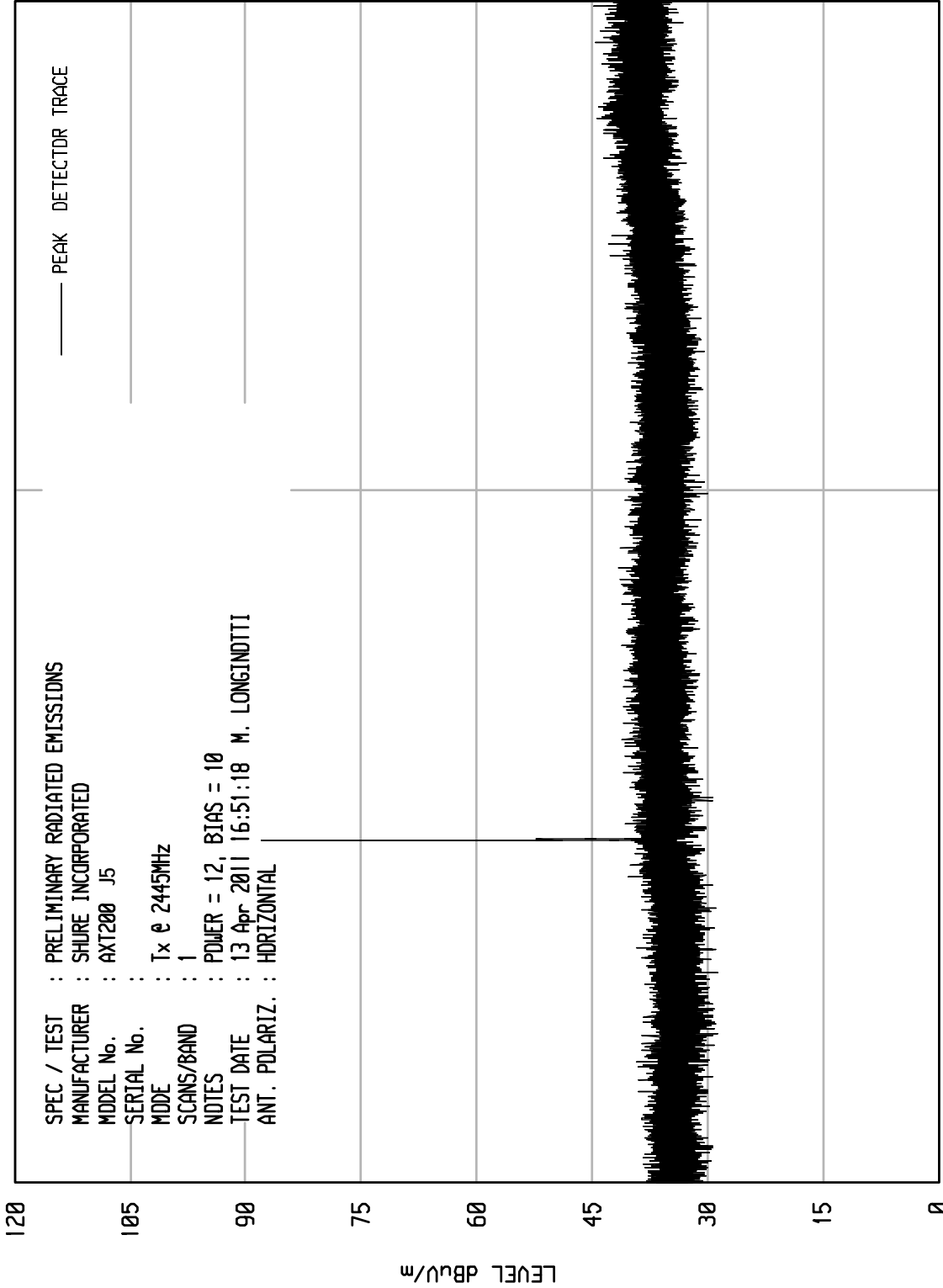


ELITE ELECTRONIC ENGINEERING Inc.

Dawners Grove, Ill. 60515

UNIV RCV ENI RUN I

UKA1 10/28/10



SPEC / TEST : PRELIMINARY RADIATED EMISSIONS

MANUFACTURER : SHURE INCORPORATED

MODEL No. : AXT200 J5

SERIAL No. :

MODE : Tx @ 2445MHz

SCANS/BAND : 1

NOTES : POWER = 12, BIAS = 10

TEST DATE : 13 Apr 2011 16:51:18 M. LONGINDTTI

ANT. POLARIZ. : HORIZONTAL

START = 2000

FREQUENCY MHz

STOP = 4000

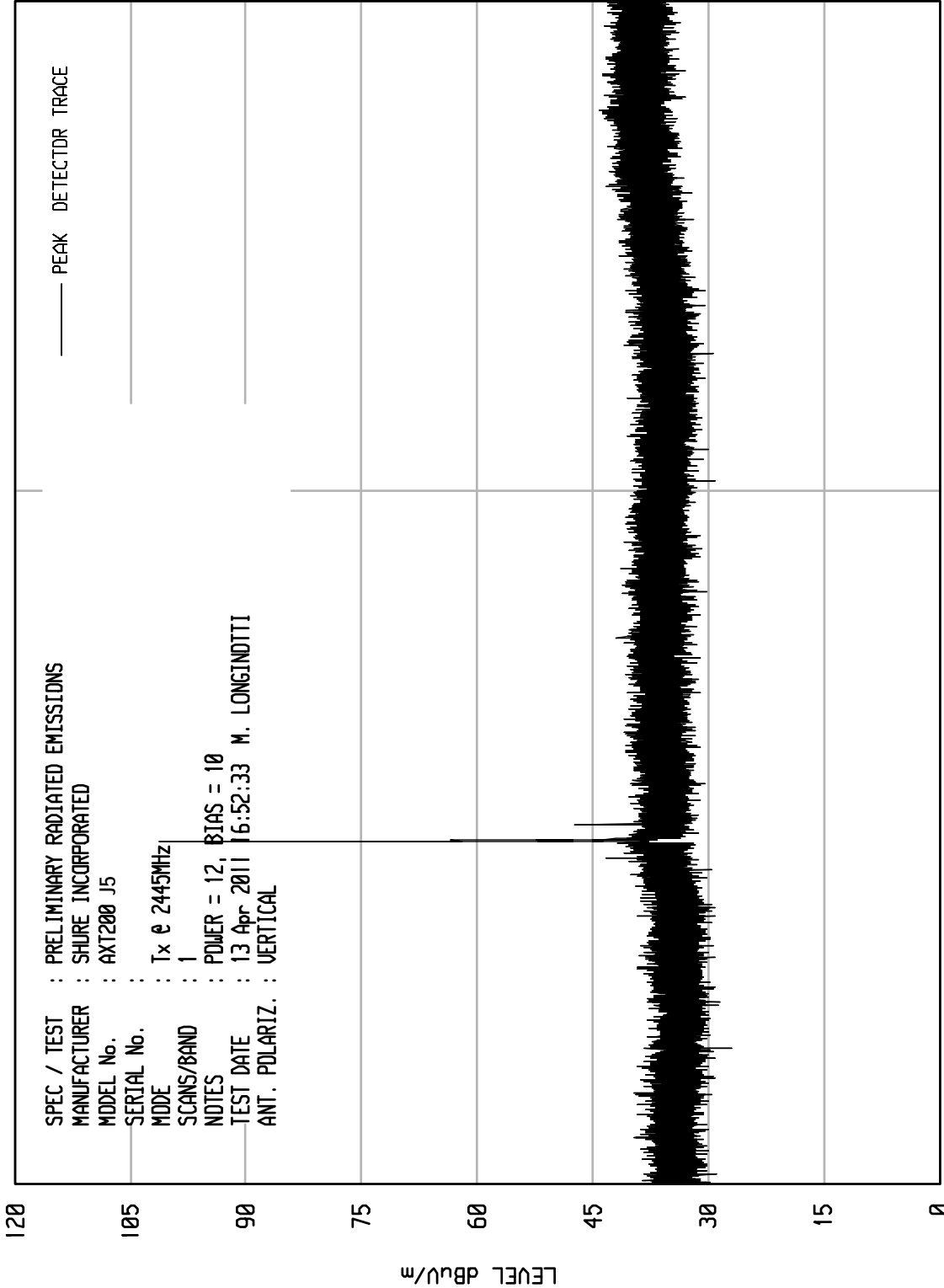


ELITE ELECTRONIC ENGINEERING Inc.

Dawners Grove, Ill. 60515

UNIV RCV ENI RUN 2

UKA1 10/28/10



SPEC / TEST : PRELIMINARY RADIATED EMISSIONS

MANUFACTURER : SHURE INCORPORATED

MODEL No. : AXT200 J5

SERIAL No. :

MODE : Tx @ 2445MHz

SCANS/BAND : 1

NOTES : POWER = 12, BIAS = 10

TEST DATE : 13 Apr 2011 16:52:33 M. LONGINDTTI

ANT. POLARIZ. : VERTICAL

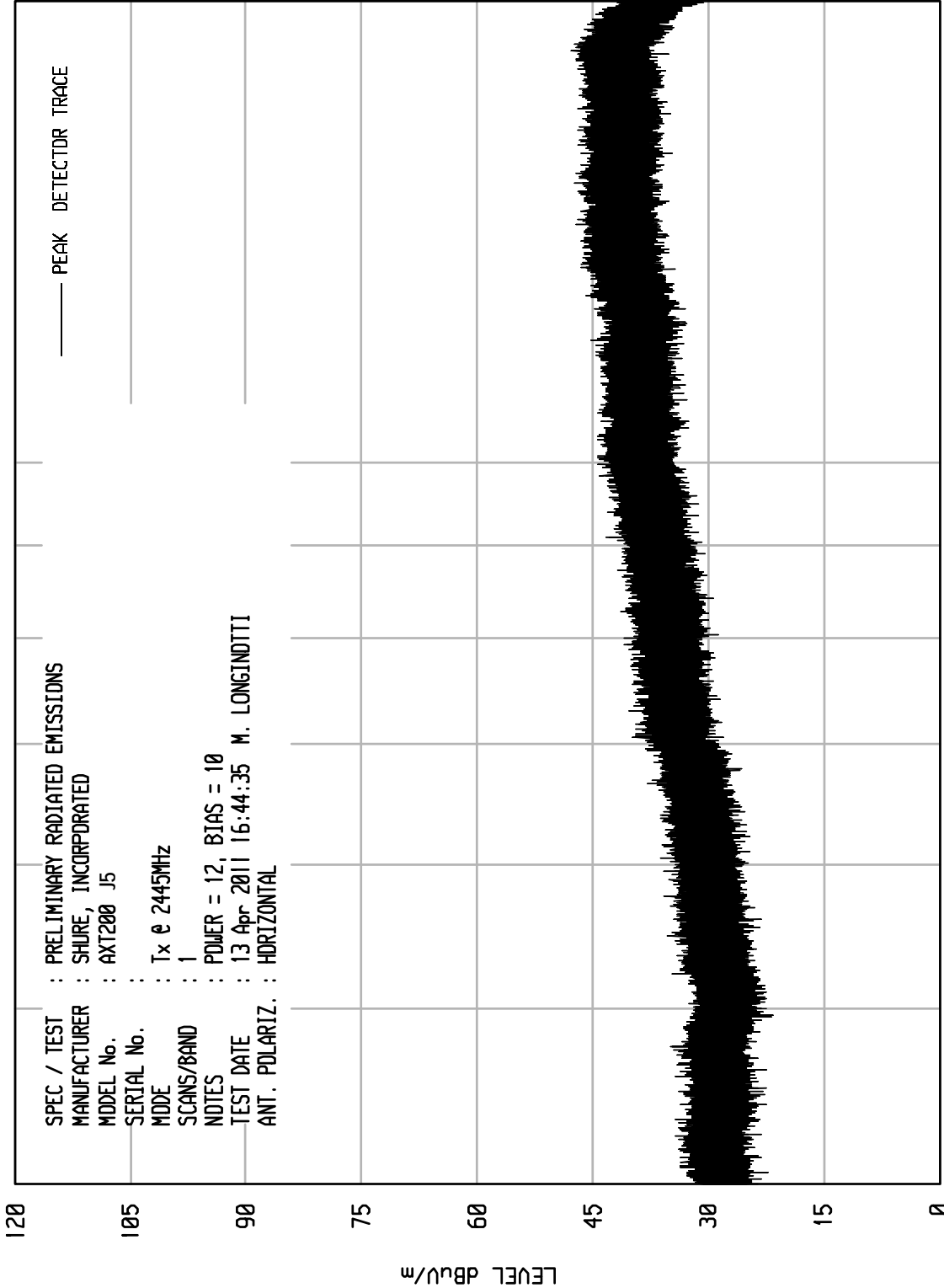


ELITE ELECTRONIC ENGINEERING Inc.

Dawners Grove, Ill. 60515

UNIV RCV ENI RUN 2

UKA1 10/28/10



START = 4000

10000

FREQUENCY MHz

STOP = 18000

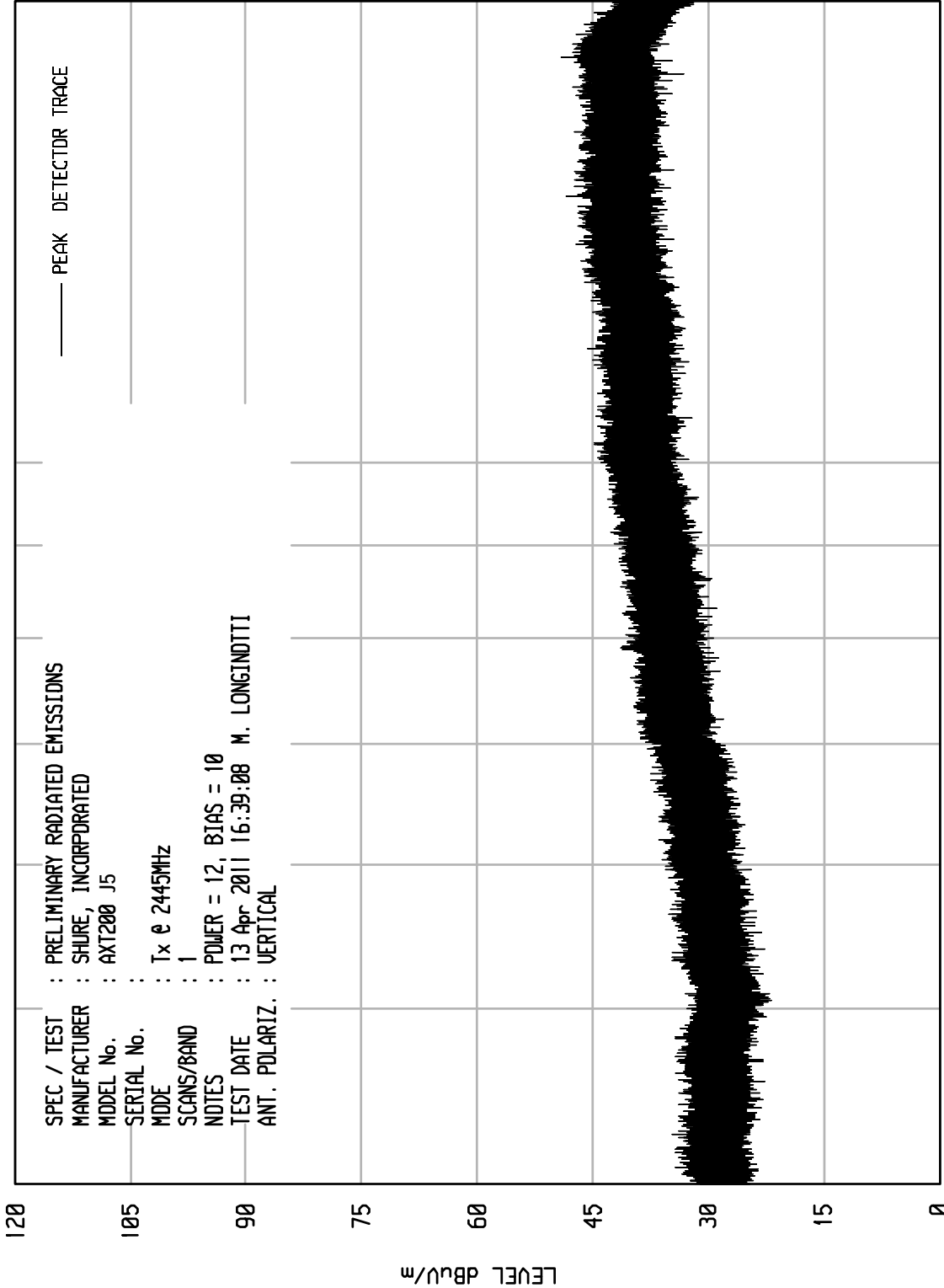


ELITE ELECTRONIC ENGINEERING Inc.

Dawners Grove, Ill. 60515

UNIV RCV ENI RUN 1

UKA1 10/28/10



PRELIMINARY RADIATED EMISSIONS

MANUFACTURER : SHURE, INCORPORATED

MODEL No. : AX1200 J5

SERIAL No. :

MODE : Tx @ 2445MHz

SCANS/BAND : 1

NOTES : POWER = 12, BIAS = 10

TEST DATE : 13 Apr 2011 16:39:08 M. LONGINDTTI

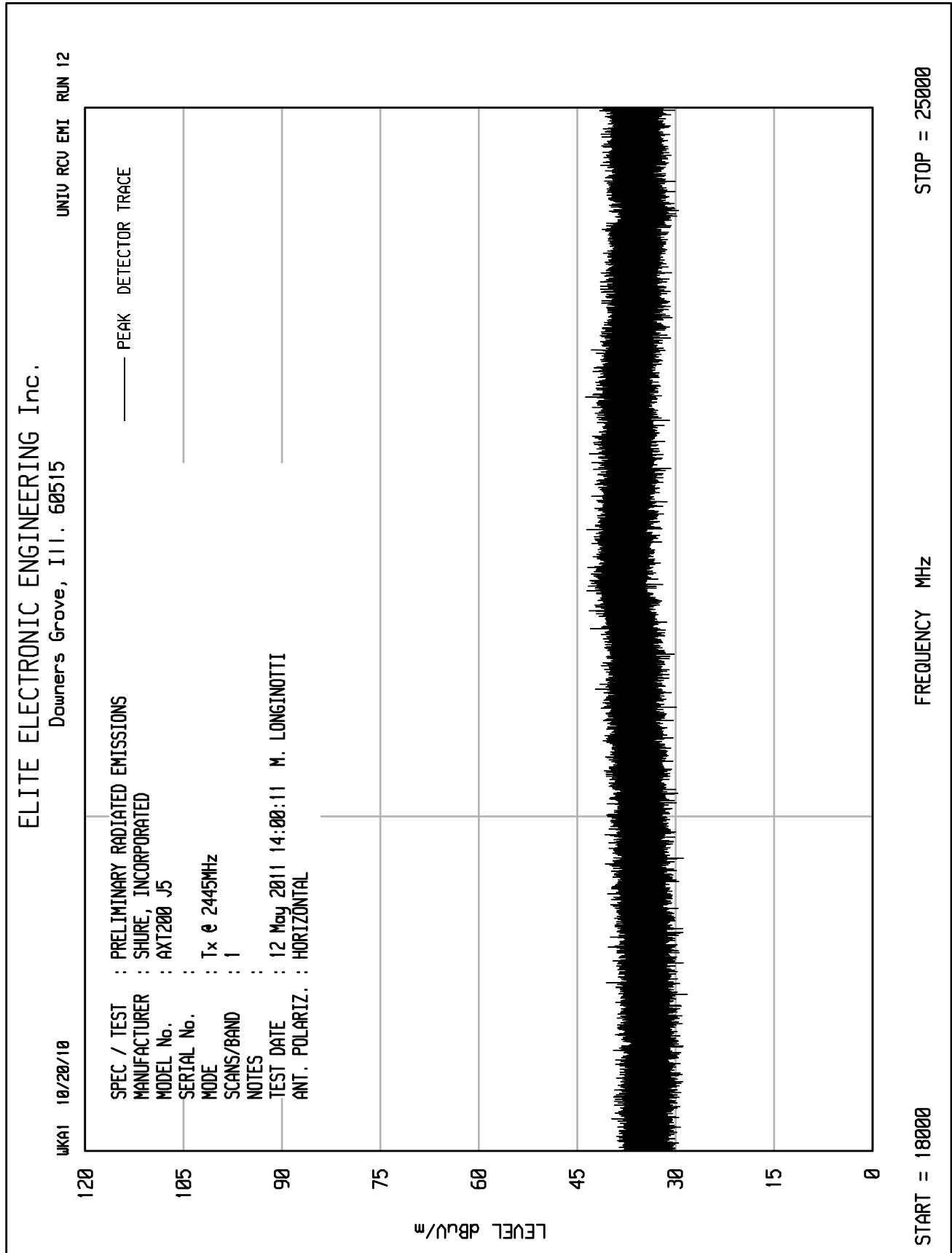
ANT. POLARIZ. : VERTICAL

START = 4000

10000

FREQUENCY MHz

STOP = 18000



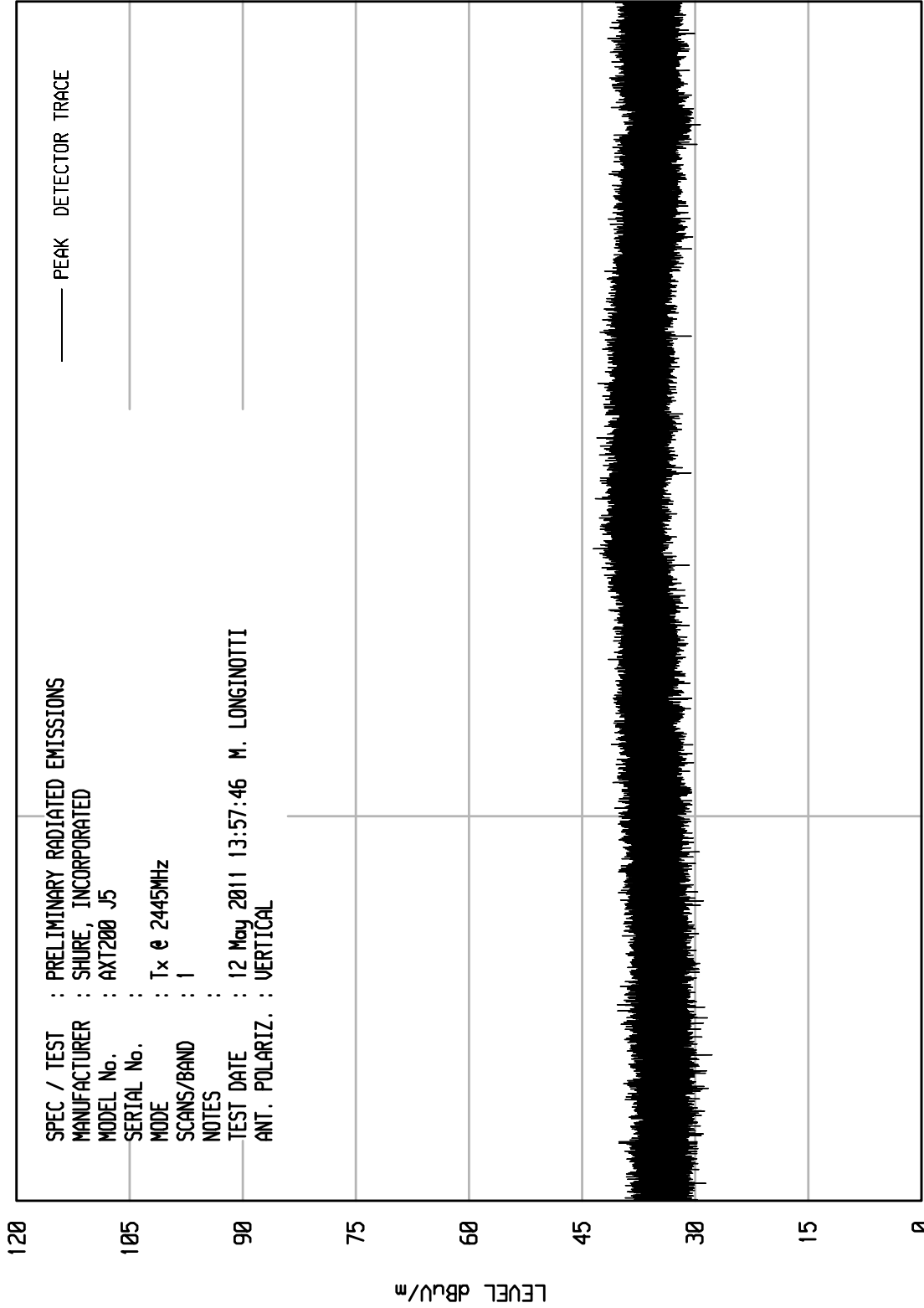


ELITE ELECTRONIC ENGINEERING Inc.

Downers Grove, Ill. 60515

UNIU RCU EMI RUN 11

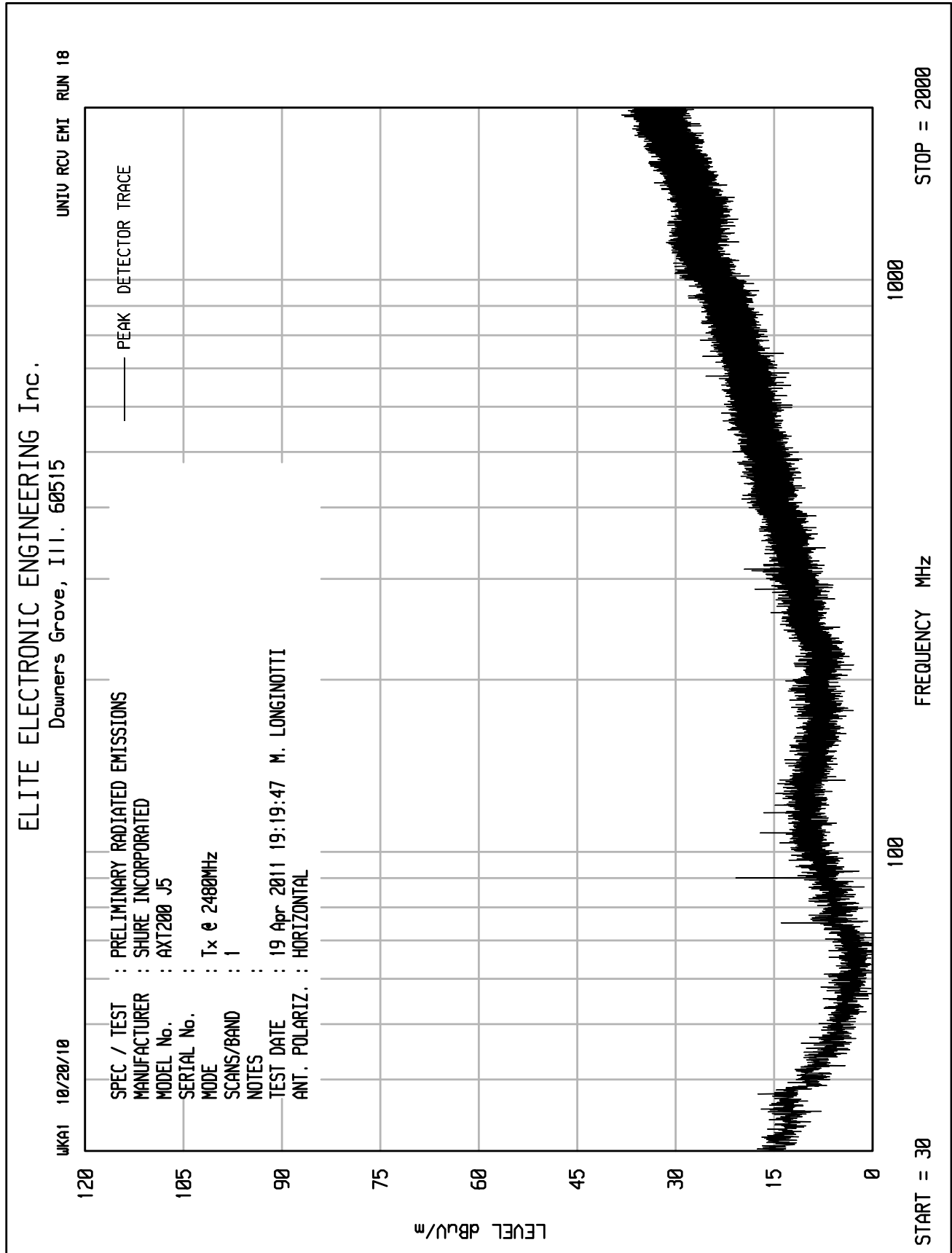
UKA1 10/20/10

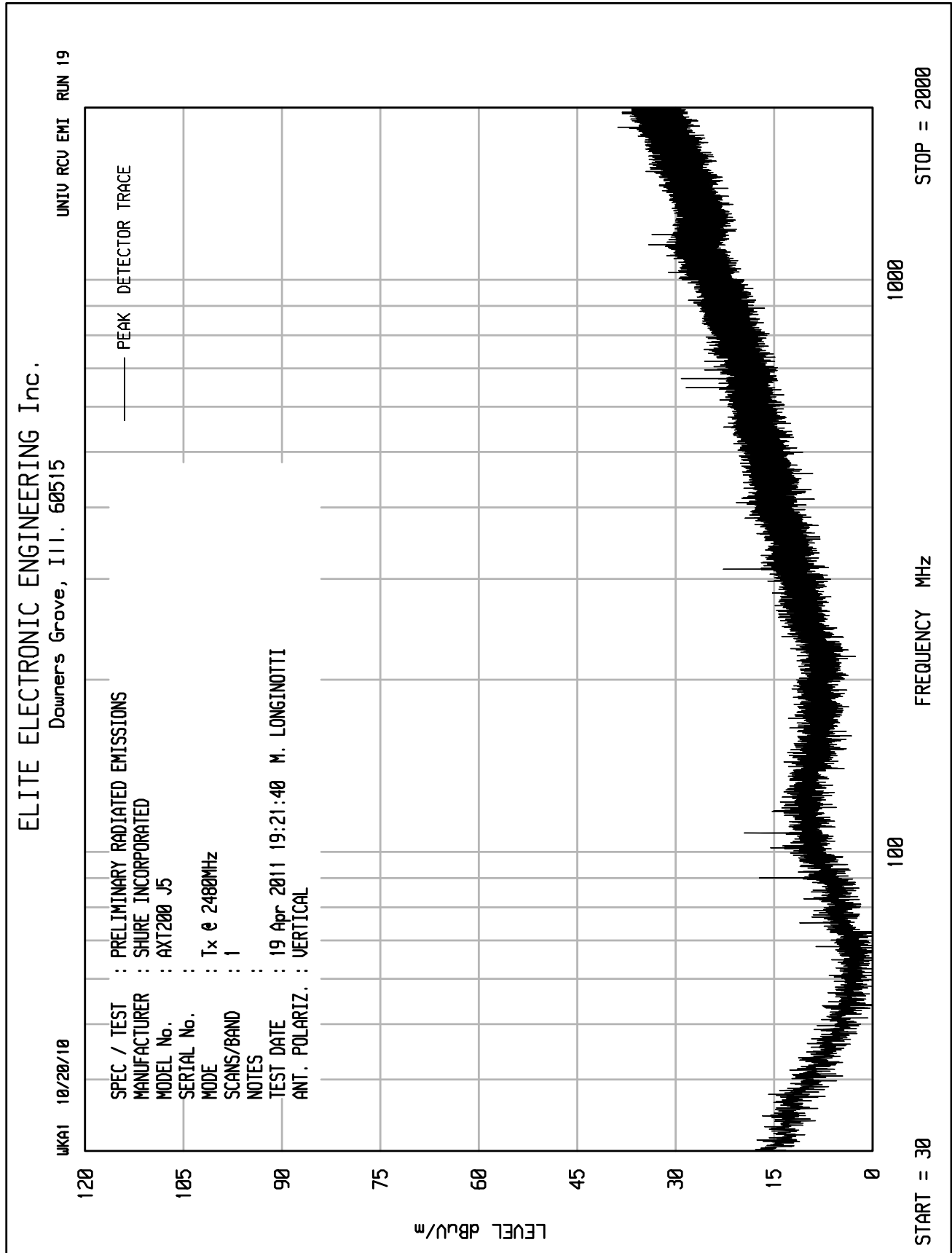


STOP = 25000

FREQUENCY MHz

START = 18000





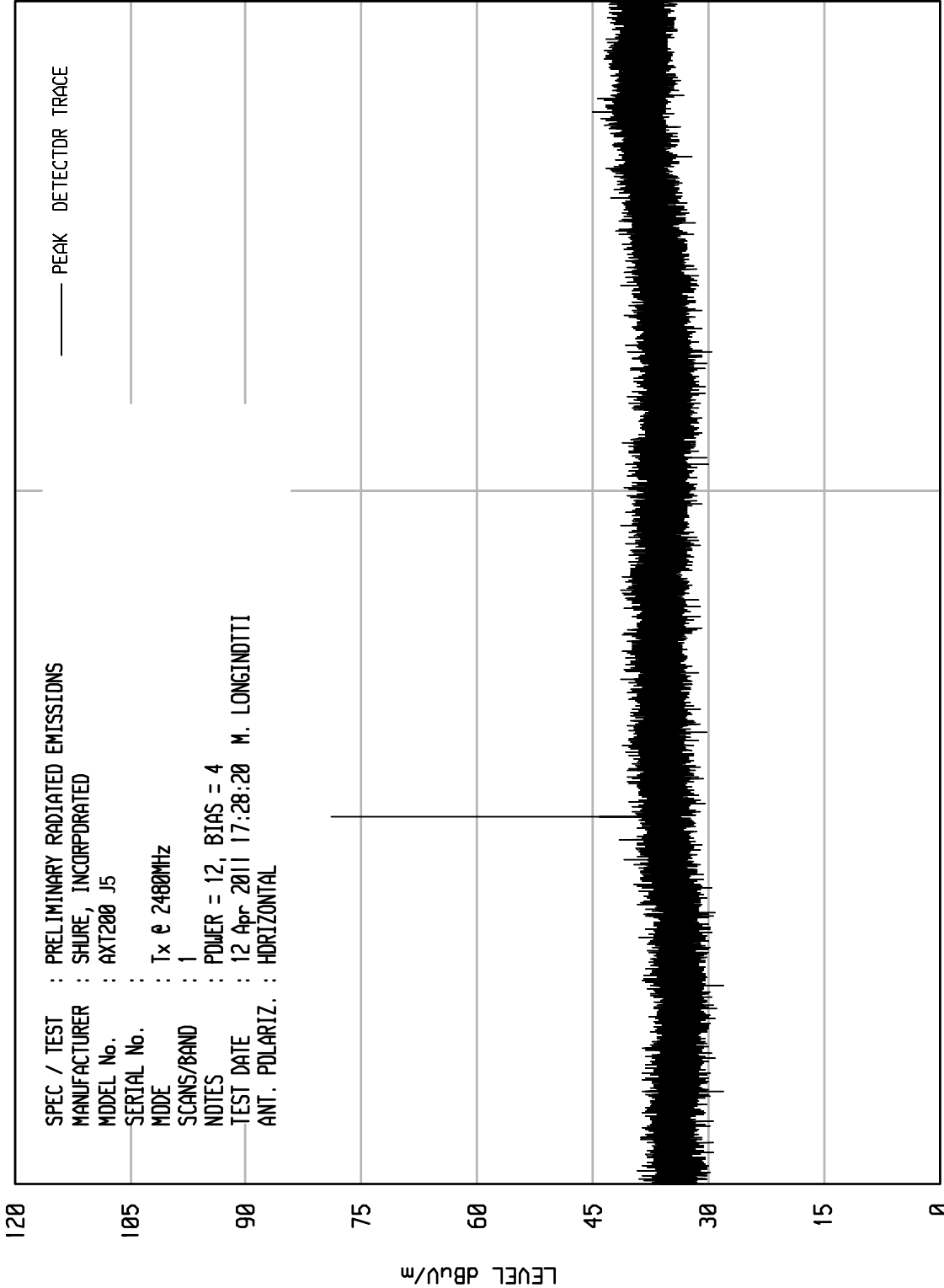


ELITE ELECTRONIC ENGINEERING Inc.

Dawners Grove, Ill. 60515

UNIV RCV ENI RUN 4

UKA1 10/20/10



SPEC / TEST : PRELIMINARY RADIATED EMISSIONS

MANUFACTURER : SHURE, INCORPORATED

MODEL No. : AXI200 J5

SERIAL No. :

MODE : Tx @ 2480MHz

SCANS/BAND : 1

NOTES : POWER = 12, BIAS = 4

TEST DATE : 12 Apr 2011 17:28:20 M. LONGINDTTI

ANT. POLARIZ. : HORIZONTAL

START = 2000

FREQUENCY MHz

STOP = 4000

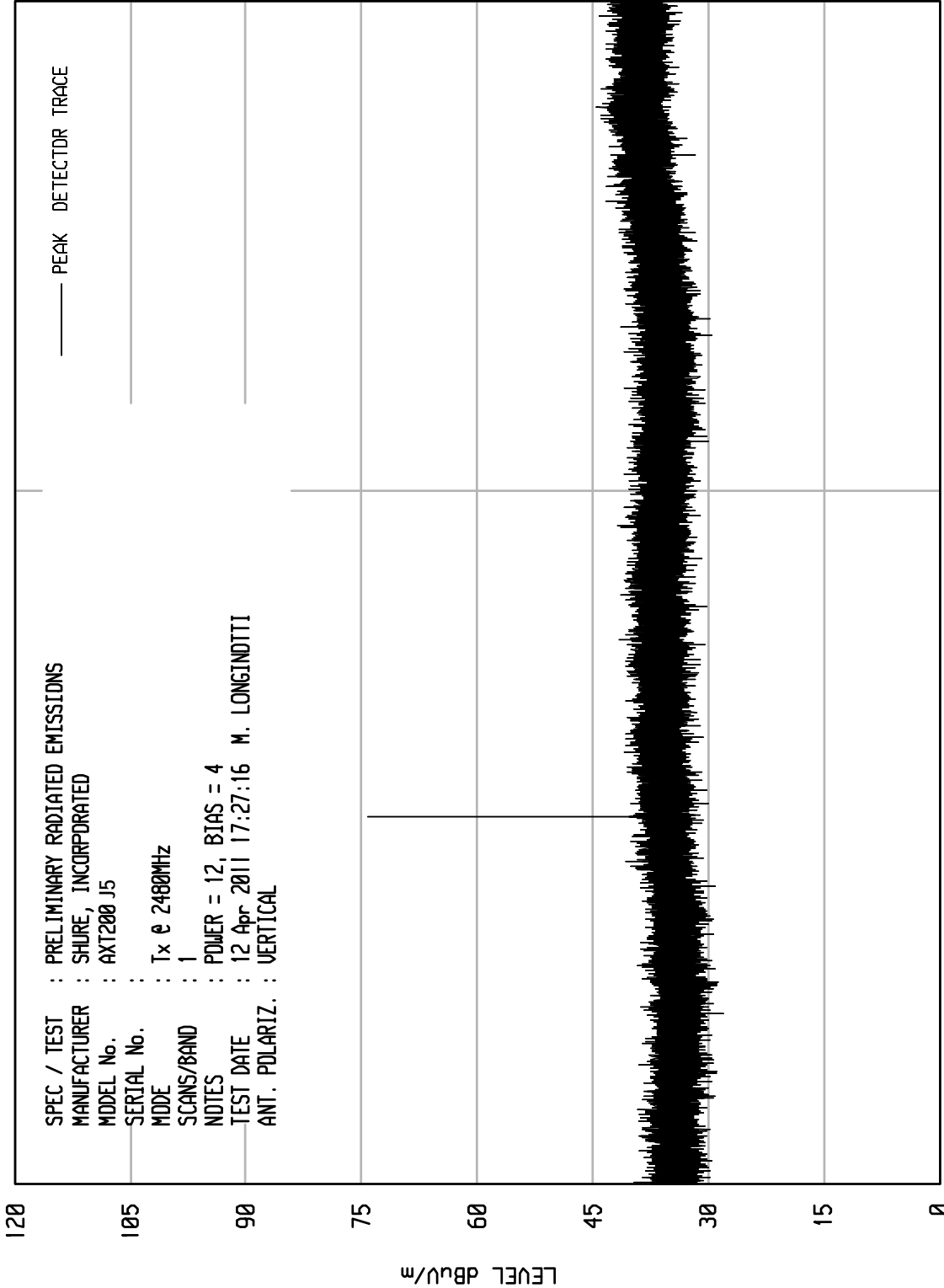


ELITE ELECTRONIC ENGINEERING Inc.

Dawners Grove, Ill. 60515

UNIV RCV ENI RUN 3

WKA1 10/28/10



SPEC / TEST : PRELIMINARY RADIATED EMISSIONS

MANUFACTURER : SHURE, INCORPORATED

MODEL No. : AXT200 J5

SERIAL No. :

MODE : Tx @ 2480MHz

SCANS/BAND : 1

NOTES : POWER = 12, BIAS = 4

TEST DATE : 12 Apr 2011 17:27:16 M. LONGINDTTI

ANT. POLARIZ. : VERTICAL

START = 2000

FREQUENCY MHz

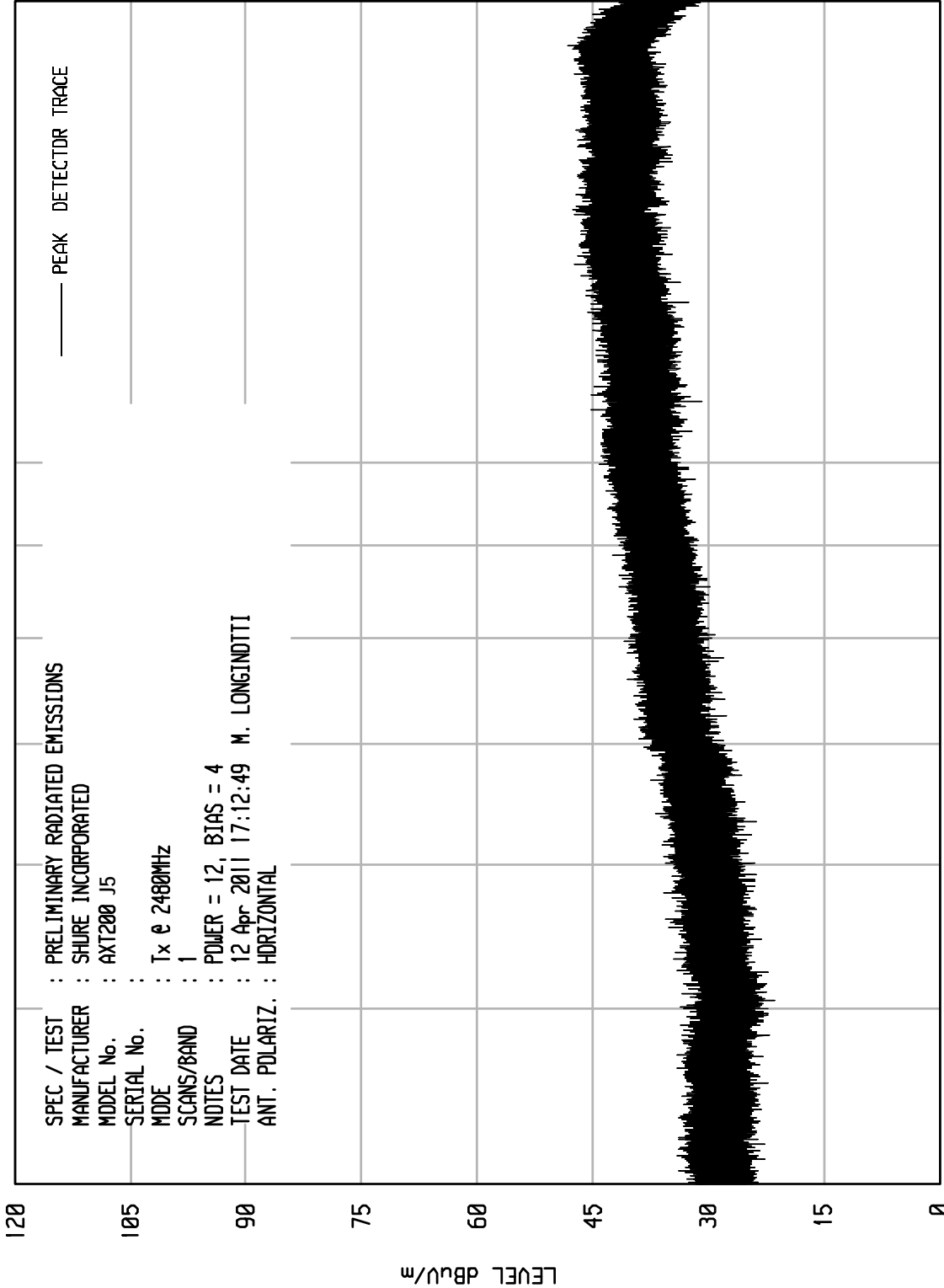
STOP = 4000

ELITE ELECTRONIC ENGINEERING Inc.

Dawners Grove, Ill. 60515

UNIV RCV ENI RUN 3

UKA1 10/20/10



PRELIMINARY RADIATED EMISSIONS

MANUFACTURER : SHURE INCORPORATED

MODEL No. : AXT200 J5

SERIAL No. :

MODE : Tx @ 2480MHz

SCANS/BAND : 1

NOTES : POWER = 12, BIAS = 4

TEST DATE : 12 Apr 2011 17:12:49 M. LONGINDOTTI

ANT. POLARIZ. : HORIZONTAL

START = 4000

10000

FREQUENCY MHz

STOP = 18000

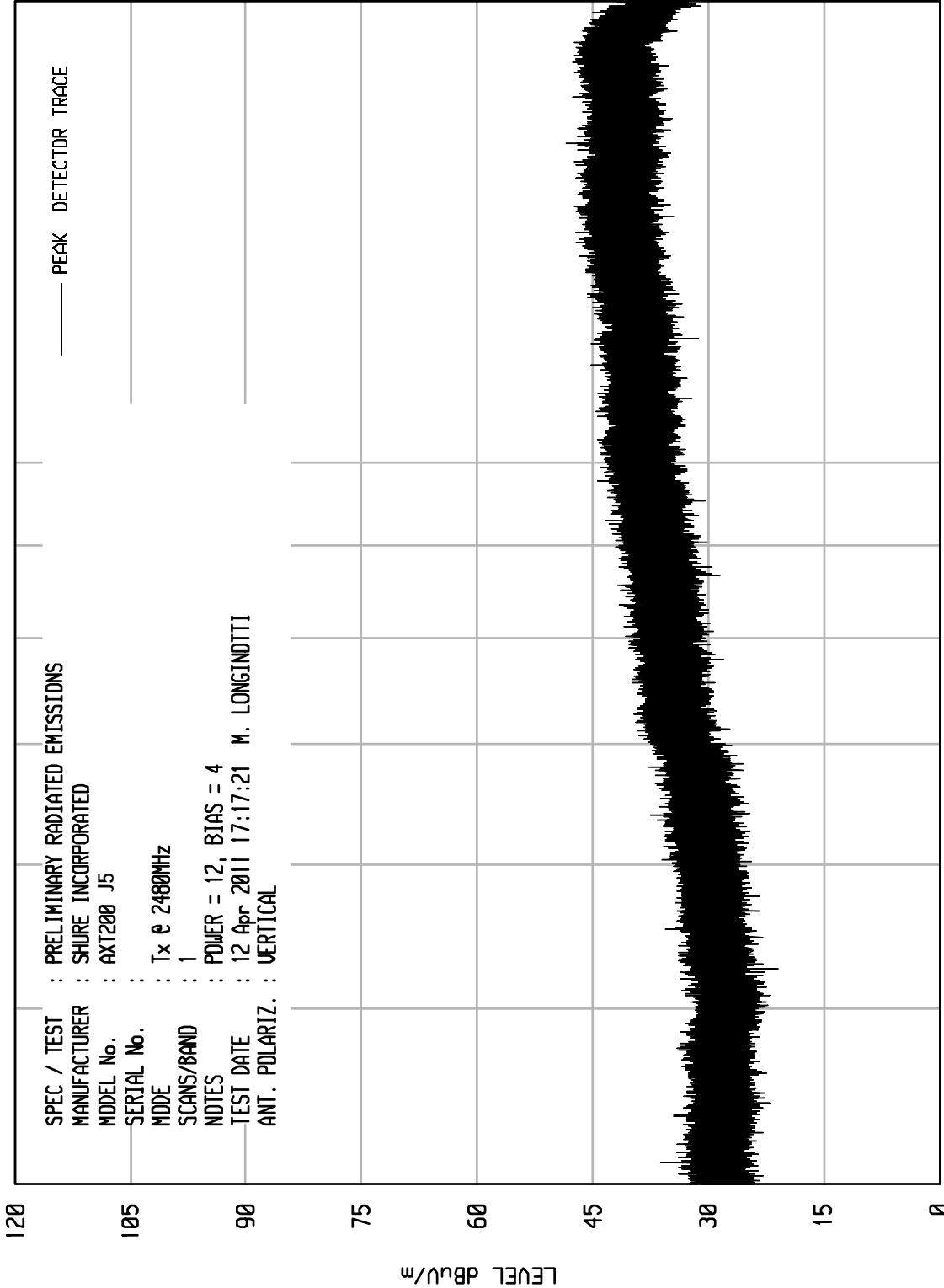


ELITE ELECTRONIC ENGINEERING Inc.

Dawners Grove, Ill. 60515

UNIV RCV ENI RUN 4

UKA1 10/20/10



PRELIMINARY RADIATED EMISSIONS

MANUFACTURER : SHURE INCORPORATED

MODEL No. : AX1200 J5

SERIAL No. :

MODE : Tx @ 2480MHz

SCANS/BAND : 1

NOTES : POWER = 12, BIAS = 4

TEST DATE : 12 Apr 2011 17:17:21 M. LONGINDTTI

ANT. POLARIZ. : VERTICAL

START = 4000

10000

FREQUENCY MHz

STOP = 18000

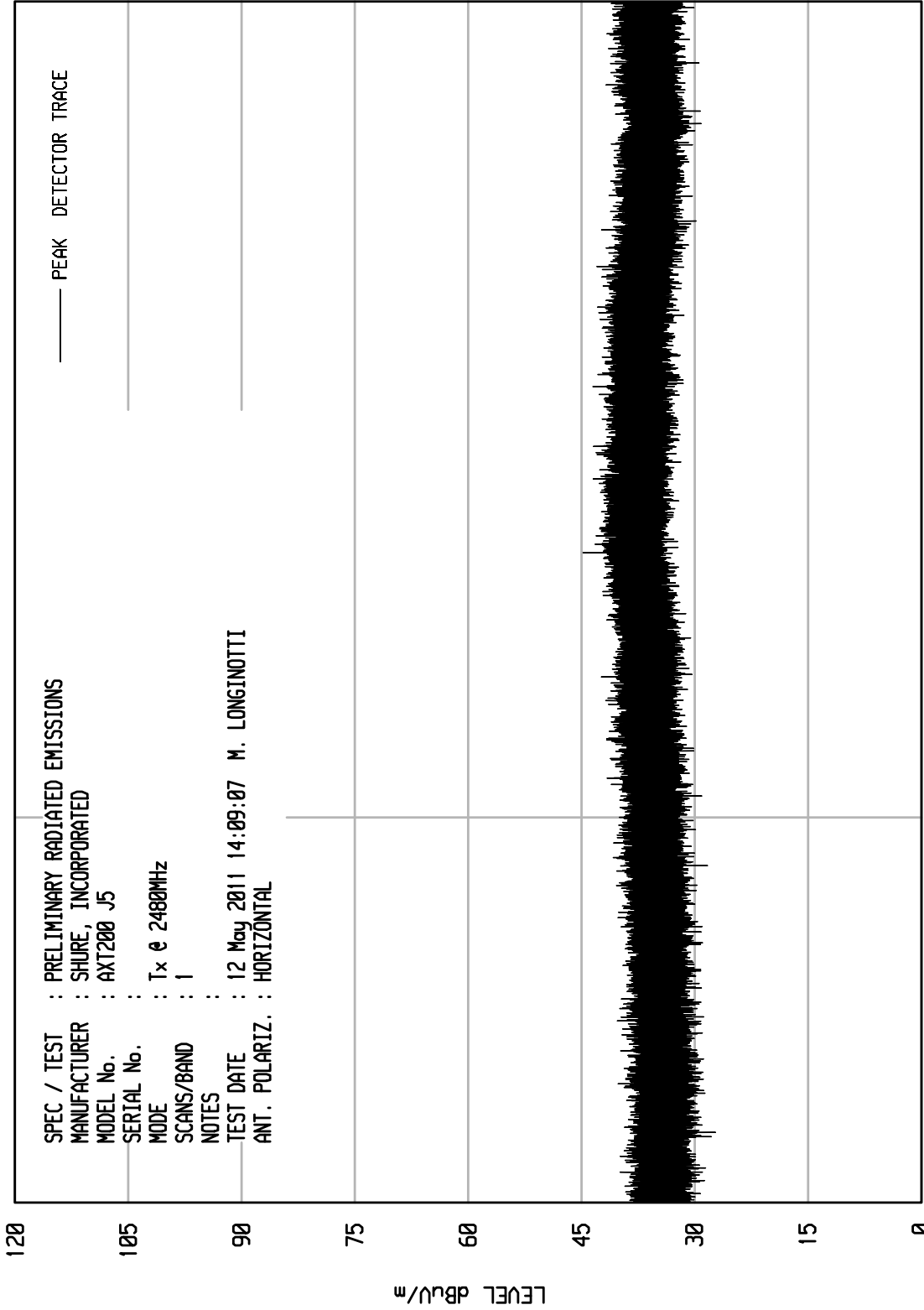


ELITE ELECTRONIC ENGINEERING Inc.

Downers Grove, Ill. 60515

UNIU RCU EMI RUN 13

UKA1 10/20/10



START = 18000

FREQUENCY MHz

STOP = 25000

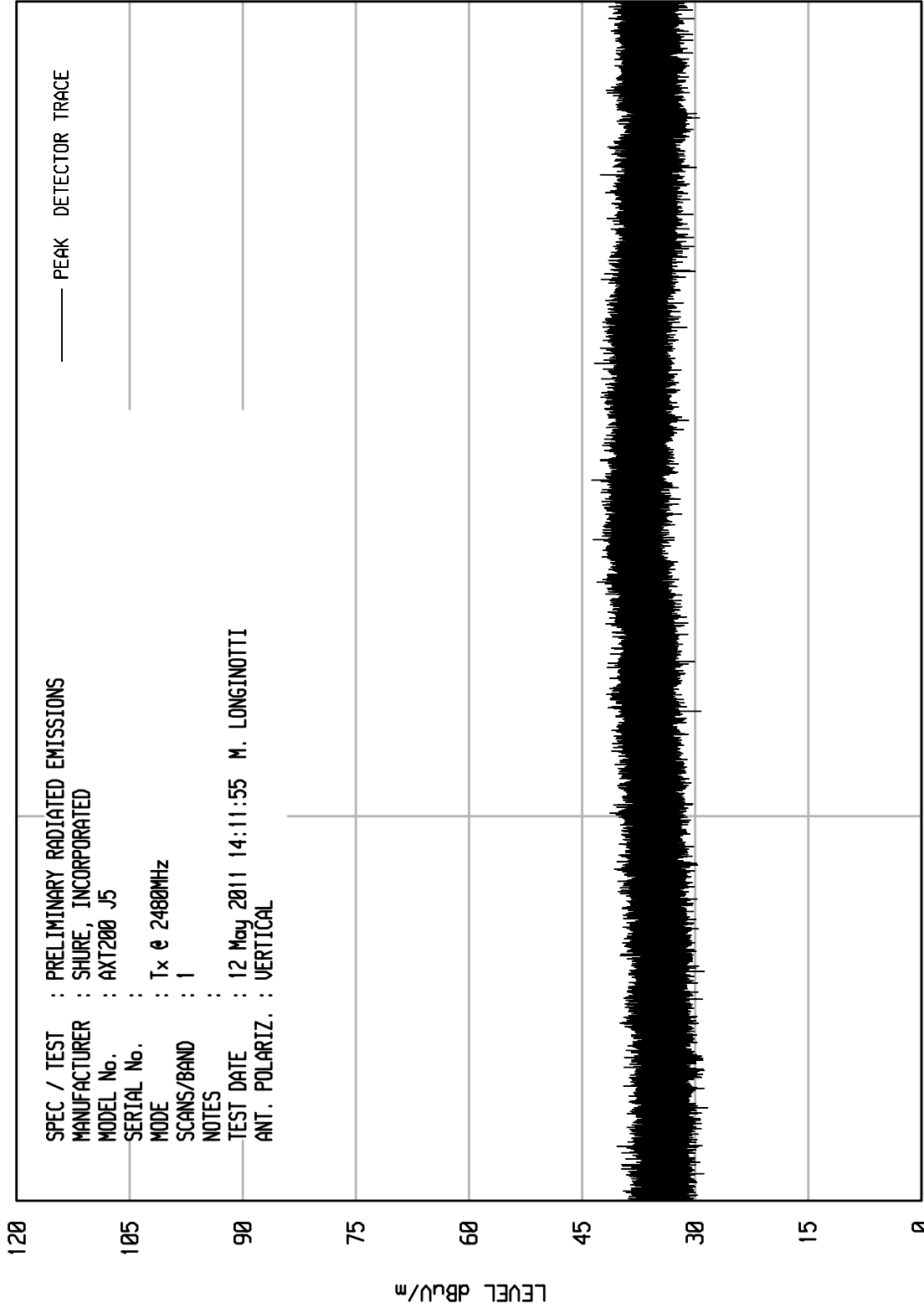


ELITE ELECTRONIC ENGINEERING Inc.

Downers Grove, Ill. 60515

UNIU RCU EMI RUN 14

UKA1 10/20/10



STOP = 25000

FREQUENCY MHz

START = 18000



MANUFACTURER : Shure, Incorporated
MODEL : AXT200 Axient Handheld Frequency Diversity Transmitter with Zigbee Transceiver
SERIAL NO. : None Assigned
SPECIFICATION : 15.247(d) – Spurious Radiated Emissions in Restricted Bands
DATE : April 18, 2011 through May 19, 20011
MODE : Tx @ 2405MHz
UNIT : J5
EQUIPMENT USED : NTA2, NWH0, NWI0, RBB0, CMA1, CDW3, APW3, NHG1, X0B1, APW0, SES1
NOTES : Test Distance is 3 meters
NOTES : Peak Readings

Frequency MHz	Ant Pol	Meter Reading dBuV	Ambient	Cable Factor dB	Ant. Factor dB	Pre Amp dB	Total dBuV/m	Total uV/m	Limit uV/m	Margin dB
4810.000	H	47.7	Ambient	4.9	34.8	-40.1	47.3	232.6	5000.0	-26.6
4810.000	V	46.5	Ambient	4.9	34.8	-40.1	46.1	202.6	5000.0	-27.8
12025.000	H	47.6	Ambient	8.0	41.2	-39.6	57.2	723.7	5000.0	-16.8
12025.000	V	48.1	Ambient	8.0	41.2	-39.6	57.7	766.6	5000.0	-16.3
19240.000	H	35.1	Ambient	2.2	40.4	-27.5	50.2	324.4	5000.0	-23.8
19240.000	V	35.2	Ambient	2.2	40.4	-27.5	50.3	328.1	5000.0	-23.7



MANUFACTURER : Shure, Incorporated
MODEL : AXT200 Axient Handheld Frequency Diversity Transmitter with Zigbee Transceiver
SERIAL NO. : None Assigned
SPECIFICATION : 15.247(d) – Spurious Radiated Emissions in Restricted Bands
DATE : April 18, 2011 through May 19, 2011
MODE : Tx @ 2405MHz
UNIT : J5
EQUIPMENT USED : NTA2, NWH0, NWI0, RBB0, CMA1, CDW3, APW3, NHG1, X0B1, APW0, SES1
NOTES : Test Distance is 3 meters
NOTES : Average Readings

Frequency MHz	Ant Pol	Meter Reading dBuV	Ambient	Cable Factor dB	Ant. Factor dB	Pre Amp dB	Duty Cycle dB	Total dBuV/m	Total uV/m	Limit uV/m	Margin dB
4810.0	H	34.0	Ambient	4.9	34.8	-40.1	-38.4	-4.8	0.6	500.0	-58.7
4810.0	V	34.1	Ambient	4.9	34.8	-40.1	-38.4	-4.7	0.6	500.0	-58.6
12025.0	H	35.1	Ambient	8.0	41.2	-39.6	-38.4	6.3	2.1	500.0	-47.7
12025.0	V	35.1	Ambient	8.0	41.2	-39.6	-38.4	6.3	2.1	500.0	-47.7
19240.0	H	23.4	Ambient	2.2	40.4	-27.5	-38.4	0.1	1.0	500.0	-53.9
19240.0	V	23.5	Ambient	2.2	40.4	-27.5	-38.4	0.2	1.0	500.0	-53.8



MANUFACTURER : Shure, Incorporated
MODEL : AXT200 Axient Handheld Frequency Diversity Transmitter with Zigbee Transceiver
SERIAL NO. : None Assigned
SPECIFICATION : 15.247(d) – Spurious Radiated Emissions in Restricted Bands
DATE : April 18, 2011 through May 19, 2011
MODE : Tx @ 2445MHz
UNIT : J5
EQUIPMENT USED : NTA2, NWH0, NWI0, RBB0, CMA1, CDW3, APW3, NHG1, X0B1, APW0, SES1
NOTES : Test Distance is 3 meters
NOTES : Peak Readings

Frequency MHz	Ant Pol	Meter Reading dBuV	Ambient	Cable Factor dB	Ant. Factor dB	Pre Amp dB	Total dBuV/m	Total uV/m	Limit uV/m	Margin dB
4890.000	H	46.8	Ambient	5.0	34.9	-40.1	46.5	210.6	5000.0	-27.5
4890.000	V	46.6	Ambient	5.0	34.9	-40.1	46.3	205.8	5000.0	-27.7
7335.000	H	47.7	Ambient	6.2	38.1	-39.7	52.2	409.1	5000.0	-21.7
7335.000	V	48.0	Ambient	6.2	38.1	-39.7	52.5	423.5	5000.0	-21.4
12225.000	H	46.3	Ambient	8.0	41.3	-39.4	56.2	646.7	5000.0	-17.8
12225.000	V	47.0	Ambient	8.0	41.3	-39.4	56.9	701.0	5000.0	-17.1
19560.000	H	34.5	Ambient	2.2	40.4	-27.1	50.0	314.5	5000.0	-24.0
19560.000	V	35.7	Ambient	2.2	40.4	-27.1	51.2	361.1	5000.0	-22.8



MANUFACTURER : Shure, Incorporated
MODEL : AXT200 Axient Handheld Frequency Diversity Transmitter with Zigbee Transceiver
SERIAL NO. : None Assigned
SPECIFICATION : 15.247(d) – Spurious Radiated Emissions in Restricted Bands
DATE : April 18, 2011 through May 19, 2011
MODE : Tx @ 2445MHz
UNIT : J5
EQUIPMENT USED : NTA2, NWH0, NWI0, RBB0, CMA1, CDW3, APW3, NHG1, X0B1, APW0, SES1
NOTES : Test Distance is 3 meters
NOTES : Average Readings

Frequency MHz	Ant Pol	Meter Reading dBuV	Ambient	Cable Factor dB	Ant. Factor dB	Pre Amp dB	Duty Cycle dB	Total dBuV/m	Total uV/m	Limit uV/m	Margin dB
4890.0	H	33.8	Ambient	5.0	34.9	-40.1	-38.4	-4.9	0.6	500.0	-58.9
4890.0	V	33.8	Ambient	5.0	34.9	-40.1	-38.4	-4.9	0.6	500.0	-58.9
7335.0	H	35.1	Ambient	6.2	38.1	-39.7	-38.4	1.2	1.2	500.0	-52.7
7335.0	V	35.1	Ambient	6.2	38.1	-39.7	-38.4	1.2	1.2	500.0	-52.7
12225.0	H	34.1	Ambient	8.0	41.3	-39.4	-38.4	5.6	1.9	500.0	-48.4
12225.0	V	34.1	Ambient	8.0	41.3	-39.4	-38.4	5.6	1.9	500.0	-48.4
19560.0	H	23.5	Ambient	2.2	40.4	-27.1	-38.4	0.6	1.1	500.0	-53.4
19560.0	V	23.5	Ambient	2.2	40.4	-27.1	-38.4	0.6	1.1	500.0	-53.4



MANUFACTURER : Shure, Incorporated
MODEL : AXT200 Axient Handheld Frequency Diversity Transmitter with Zigbee Transceiver
SERIAL NO. : None Assigned
SPECIFICATION : 15.247(d) – Spurious Radiated Emissions in Restricted Bands
DATE : April 18, 2011 through May 19, 20011
MODE : Tx @ 2480MHz
UNIT : J5
EQUIPMENT USED : NTA2, NWH0, NWI0, RBB0, CMA1, CDW3, APW3, NHG1, X0B1, APW0, SES1
NOTES : Test Distance is 3 meters
NOTES : Peak Readings

Frequency MHz	Ant Pol	Meter Reading dBuV	Ambient	Cable Factor dB	Ant. Factor dB	Pre Amp dB	Total dBuV/m	Total uV/m	Limit uV/m	Margin dB
4960.000	H	46.2	Ambient	5.0	34.9	-40.2	45.9	197.3	5000.0	-28.1
4960.000	V	46.3	Ambient	5.0	34.9	-40.2	46.0	199.6	5000.0	-28.0
7440.000	H	46.6	Ambient	6.2	38.2	-39.7	51.3	366.0	5000.0	-22.7
7440.000	V	47.3	Ambient	6.2	38.2	-39.7	52.0	396.8	5000.0	-22.0
12400.000	H	48.1	Ambient	8.0	41.4	-39.3	58.3	821.6	5000.0	-15.7
12400.000	V	48.1	Ambient	8.0	41.4	-39.3	58.3	821.6	5000.0	-15.7
19840.000	H	35.5	Ambient	2.2	40.4	-26.9	51.2	365.0	5000.0	-22.7
19840.000	V	35.5	Ambient	2.2	40.4	-26.9	52.2	409.5	5000.0	-21.7
22320.000	H	36.6	Ambient	2.2	40.6	-27.1	54.3	521.7	5000.0	-19.6
22320.000	V	36.7	Ambient	2.2	40.6	-27.1	55.4	592.1	5000.0	-18.5

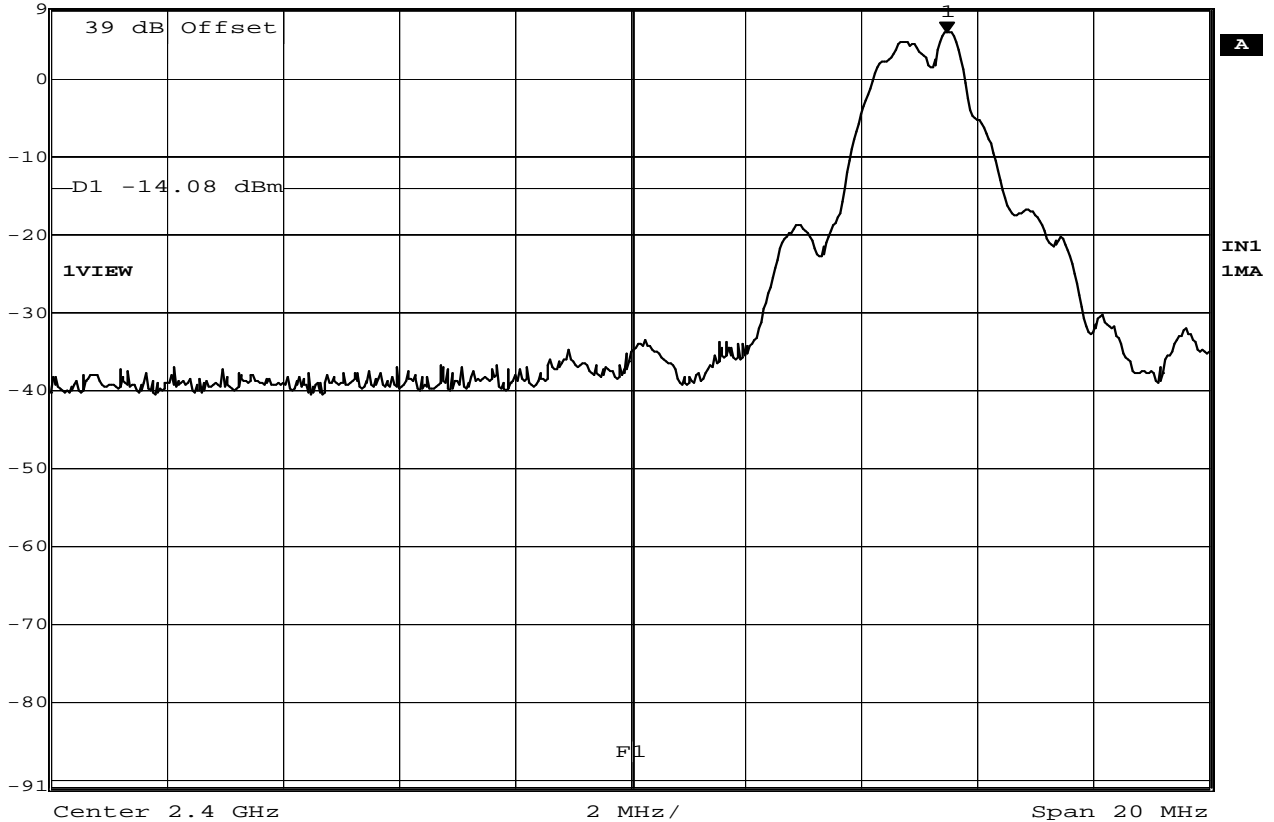


MANUFACTURER : Shure, Incorporated
MODEL : AXT200 Axient Handheld Frequency Diversity Transmitter with Zigbee Transceiver
SERIAL NO. : None Assigned
SPECIFICATION : 15.247(d) – Spurious Radiated Emissions in Restricted Bands
DATE : April 18, 2011 through May 19, 20011
MODE : Tx @ 2480MHz
UNIT : J5
EQUIPMENT USED : NTA2, NWH0, NWI0, RBB0, CMA1, CDW3, APW3, NHG1, X0B1, APW0, SES1
NOTES : Test Distance is 3 meters
NOTES : Average Readings

Frequency MHz	Ant Pol	Meter Reading dBuV	Ambient	Cable Factor dB	Ant. Factor dB	Pre Amp dB	Duty Cycle dB	Total dBuV/m	Total uV/m	Limit uV/m	Margin dB
4960.0	H	32.9	Ambient	5.0	34.9	-40.2	-38.4	-5.8	0.5	500.0	-59.8
4960.0	V	33.0	Ambient	5.0	34.9	-40.2	-38.4	-5.7	0.5	500.0	-59.7
7440.0	H	34.4	Ambient	6.2	38.2	-39.7	-38.4	0.7	1.1	500.0	-53.3
7440.0	V	34.3	Ambient	6.2	38.2	-39.7	-38.4	0.6	1.1	500.0	-53.4
12400.0	H	35.1	Ambient	8.0	41.4	-39.3	-38.4	6.9	2.2	500.0	-47.1
12400.0	V	35.2	Ambient	8.0	41.4	-39.3	-38.4	7.0	2.2	500.0	-47.0
19840.0	H	23.6	Ambient	2.2	40.4	-26.9	-38.4	0.9	1.1	500.0	-53.0
19840.0	V	23.6	Ambient	2.2	40.4	-26.9	-38.4	0.9	1.1	500.0	-53.0
22320.0	H	24.8	Ambient	2.2	40.6	-27.1	-38.4	2.1	1.3	500.0	-51.8
22320.0	V	24.7	Ambient	2.2	40.6	-27.1	-38.4	2.0	1.3	500.0	-51.9



Marker 1 [T1] RBW 300 kHz RF Att 10 dB
 Ref Lvl 5.92 dBm VBW 300 kHz
 9 dBm 2.40547094 GHz SWT 5 ms Unit dBm



Date: 12.APR.2011 16:06:09

Band Edge Compliance – Antenna Conducted

MANUFACTURER : Shure, Inc.
 MODEL NUMBER : AXT200
 SERIAL NUMBER :
 TEST MODE : Tx @ 2405MHz
 NOTES : Group J5, RF Mute On
 TEST DATE : April 12, 2011
 TEST PARAMETERS : Band Edge Compliance – Antenna Conducted
 NOTES : Display Line (F1) represents the band edge (2400MHz). Display Line (D1) represents the 20dB down point from the peak of the in-band emissions.
 NOTES : Power = 12, Bias = 4
 EQUIPMENT USED : RBA0, T2S8, T2DJ



MANUFACTURER : Shure, Incorporated
MODEL : AXT200 Axient Handheld Frequency Diversity Transmitter with Zigbee Transceiver
SERIAL NO. : None Assigned
SPECIFICATION : 15.247(d) – Band edge compliance
DATE : April 20, 2011
MODE : Tx @ 2480MHz
UNIT : J5
NOTES : Test Distance is 3 meters

Peak Readings

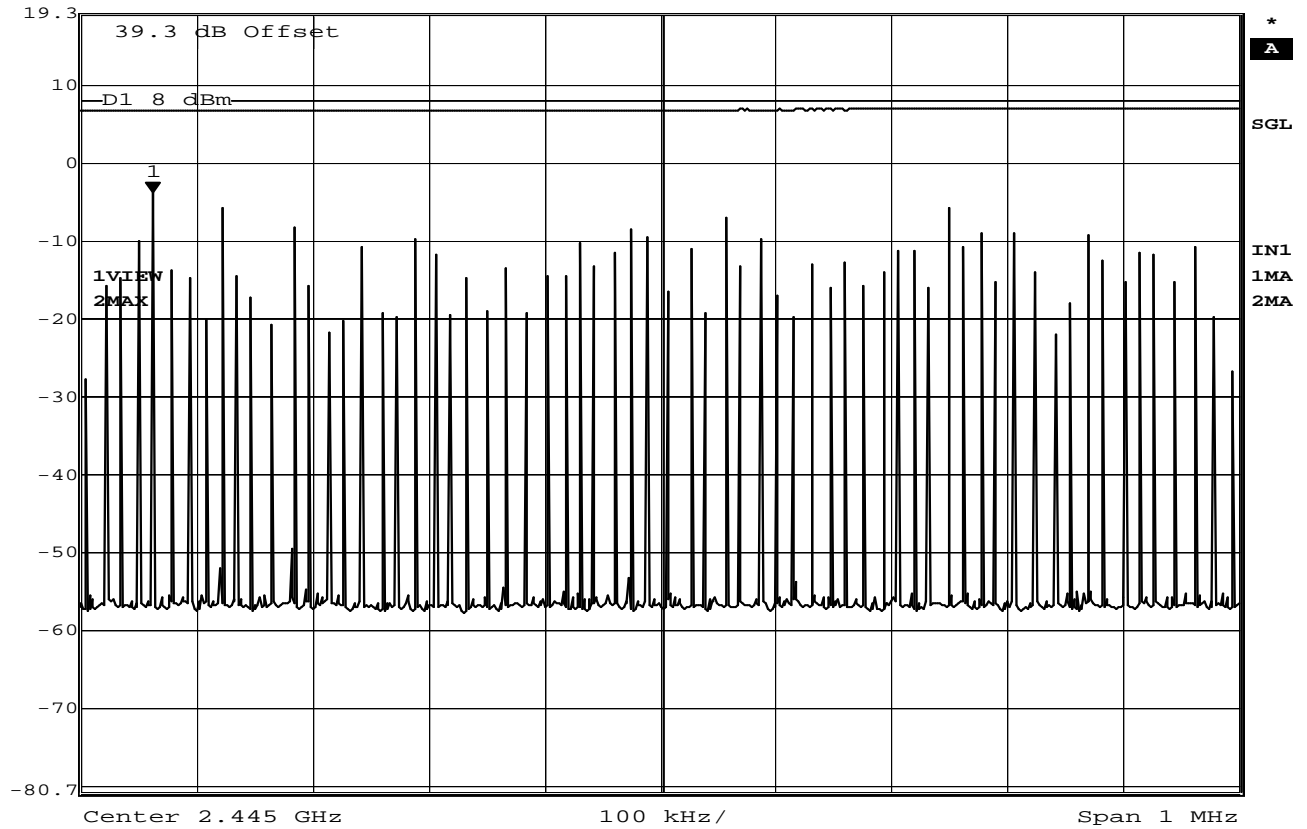
Frequency MHz	Ant Pol	Meter Reading dBuV	Ambient	Cable Factor dB	Ant. Factor dB	Pre Amp dB	Total dBuV/m	Total uV/m	Peak Limit uV/m	Margin dB
2483.500	H	27.8		3.5	31.5	0.0	62.8	1380.4	5000.0	-11.2
2483.500	V	36.6		3.5	31.5	0.0	71.6	3801.9	5000.0	-2.4

Average Readings

Frequency MHz	Ant Pol	Meter Reading dBuV	Ambient	Cable Factor dB	Ant. Factor dB	Duty Cycle dB	Total dBuV/m	Total uV/m	Average Limit uV/m	Margin dB
2483.5	H	18.0		3.5	31.5	0.0	-38.4	14.6	5.4	500.0
2483.5	V	36.6		3.5	31.5	0.0	-38.4	33.2	45.7	500.0



Marker 1 [T2] RBW 3 kHz RF Att 10 dB
 Ref Lvl -3.85 dBm VBW 5 MHz
 19.3 dBm 2.44456212 GHz SWT 340 s Unit dBm



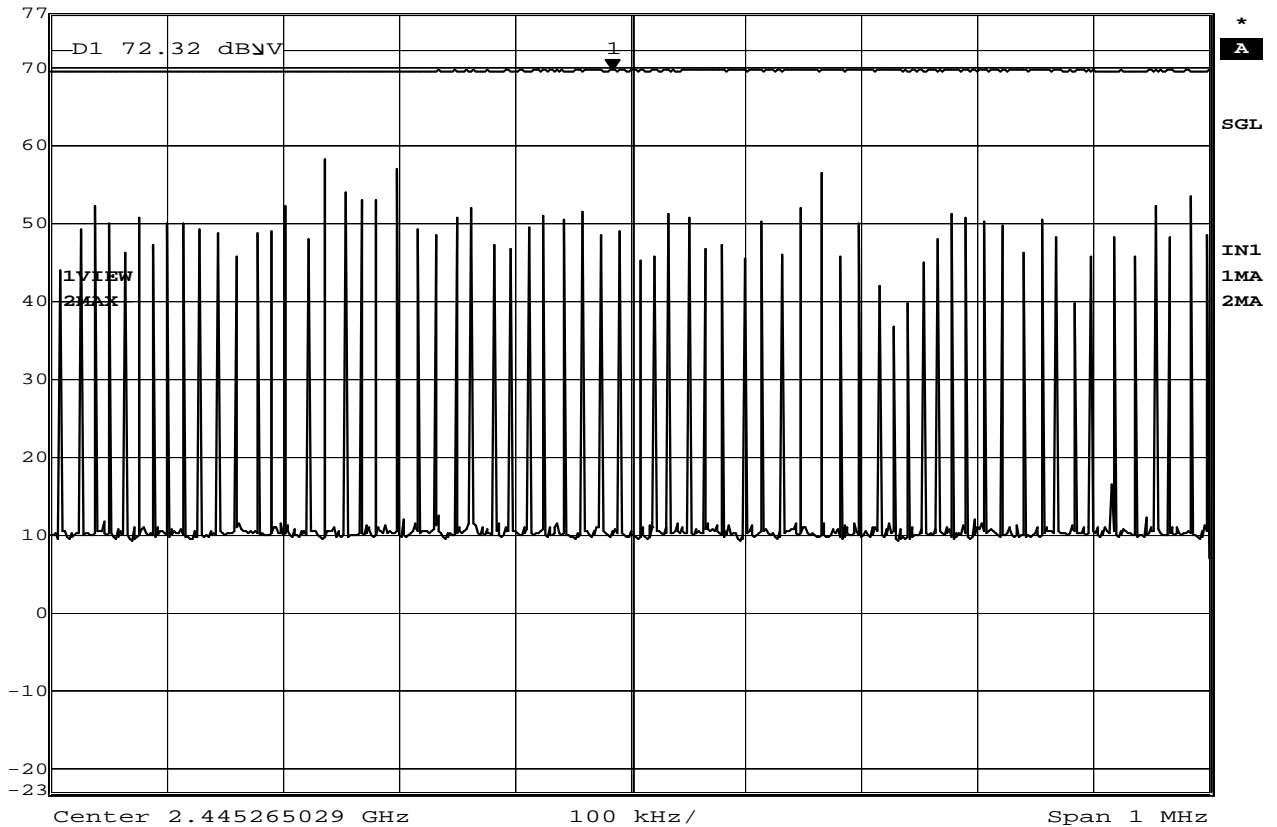
Date: 5.MAY.2011 08:27:59

Power Spectral Density Tests – Antenna Conducted

MANUFACTURER : Shure, Inc.
 MODEL NUMBER : AXT200 J5
 SERIAL NUMBER :
 TEST MODE : Zigbee On
 NOTES :
 TEST DATE : May 5, 2011
 TEST PARAMETERS : PSD limit = +8.0dBm
 NOTES : The upper trace represents the Zigbee transmitter output power at 2445MHz in a 5MHz resolution bandwidth. Display Line (D1) represents the power spectral density limit of +8.0dBm. The lower trace represents the Zigbee transmitter in normal operation mode when measured in a 3kHz resolution bandwidth.
 EQUIPMENT USED : RBA0, T2DJ, T2S8



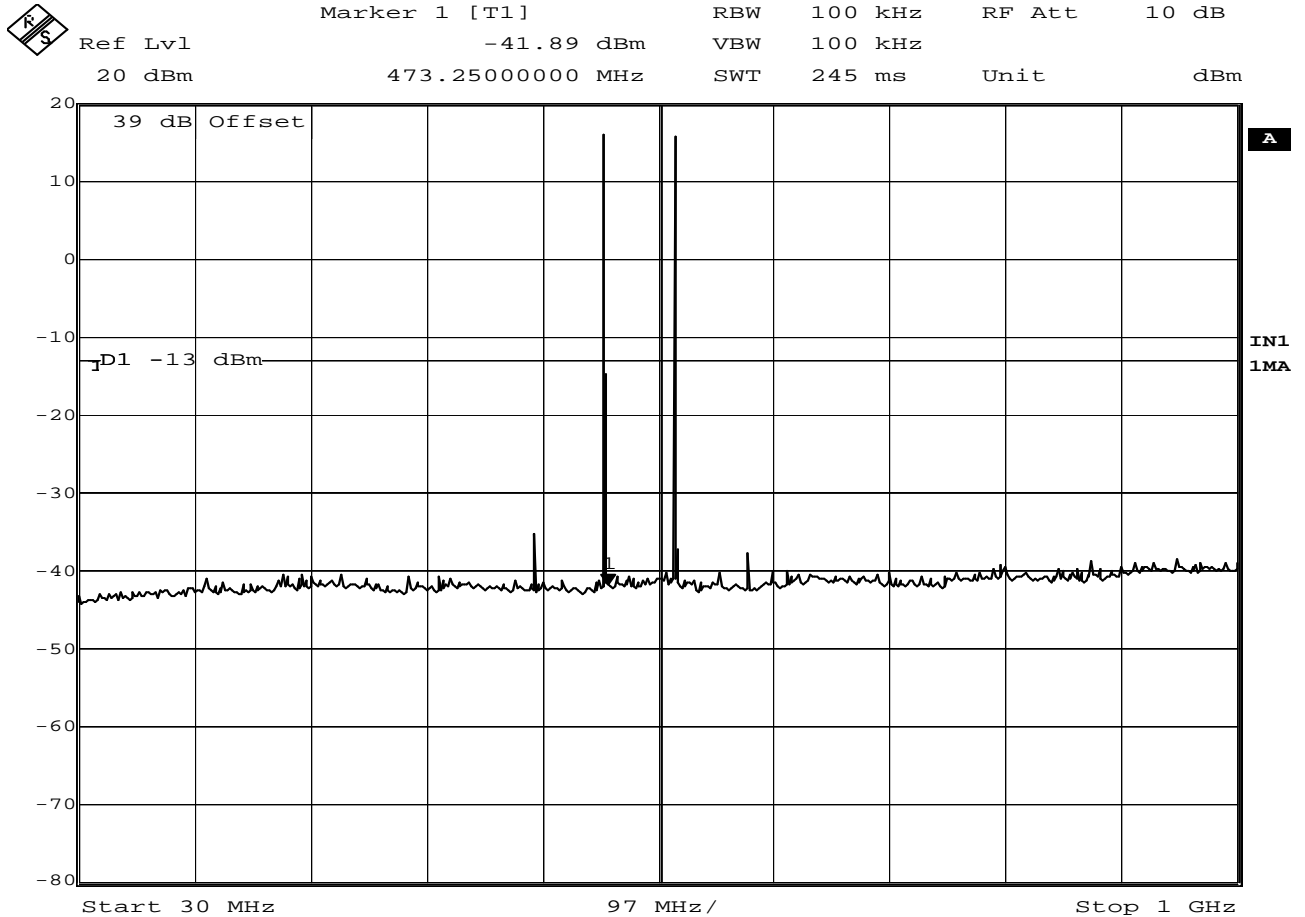
Marker 1 [T1] RBW 3 kHz RF Att 10 dB
 Ref Lvl 69.62 dBuV VBW 5 MHz
 77 dBuV 2.44525000 GHz SWT 340 s Unit dBuV



Date: 19.MAY.2011 07:52:24

Power Spectral Density Tests – Radiated Emissions

MANUFACTURER : Shure, Inc.
 MODEL NUMBER : AXT200 J5
 SERIAL NUMBER :
 TEST MODE : Zigbee On
 NOTES :
 TEST DATE : May 19, 2011
 TEST PARAMETERS : PSD limit = +8.0dBm
 NOTES : The upper trace (69.62dBuV) represents the Zigbee EIRP at 2445MHz in a 5MHz resolution bandwidth (EIRP = 5.3dBm). Display Line (D1= 72.32dBuV) represents the power spectral density limit of +8.0dBm (+8.0dBm = 69.62dBuV – (5.3dB - 8.0dB)). The lower trace represents the Zigbee transmitter in normal operation mode when measured in a 3kHz resolution bandwidth.
 EQUIPMENT USED : RBB0, NWI0



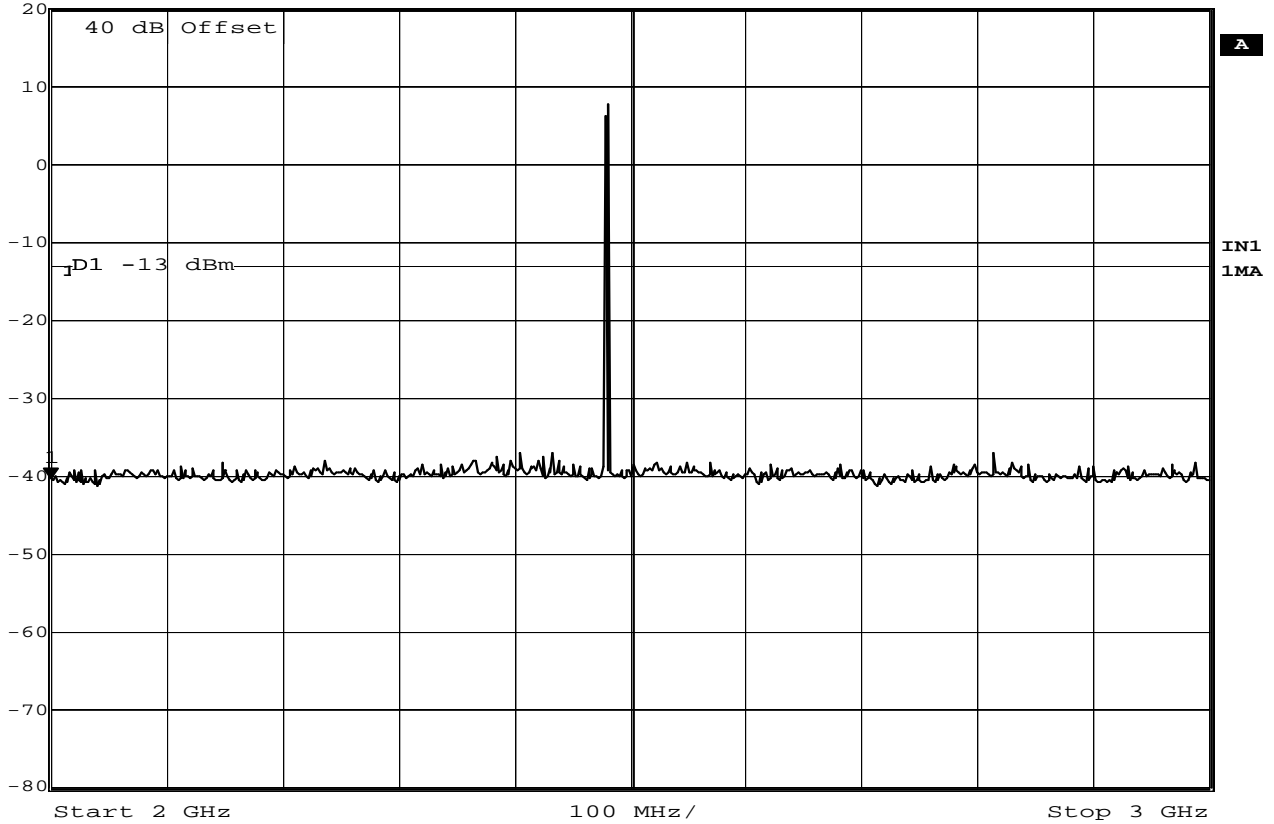
Date: 29.APR.2011 07:15:51

Intermodulation Tests – Antenna Conducted

MANUFACTURER : Shure, Inc.
 MODEL NUMBER : AXT200 G1
 SERIAL NUMBER :
 TEST MODE : Tx @ 470.125MHz and 529.875MHz
 NOTES : 50mW, Zigbee Tx at 2480MHz
 TEST DATE : April 29, 2011
 TEST PARAMETERS :
 NOTES :
 EQUIPMENT USED : RBA0, T2D7, T2S3



Marker 1 [T1] RBW 100 kHz RF Att 10 dB
 Ref Lvl -40.35 dBm VBW 100 kHz
 20 dBm 2.00000000 GHz SWT 250 ms Unit dBm



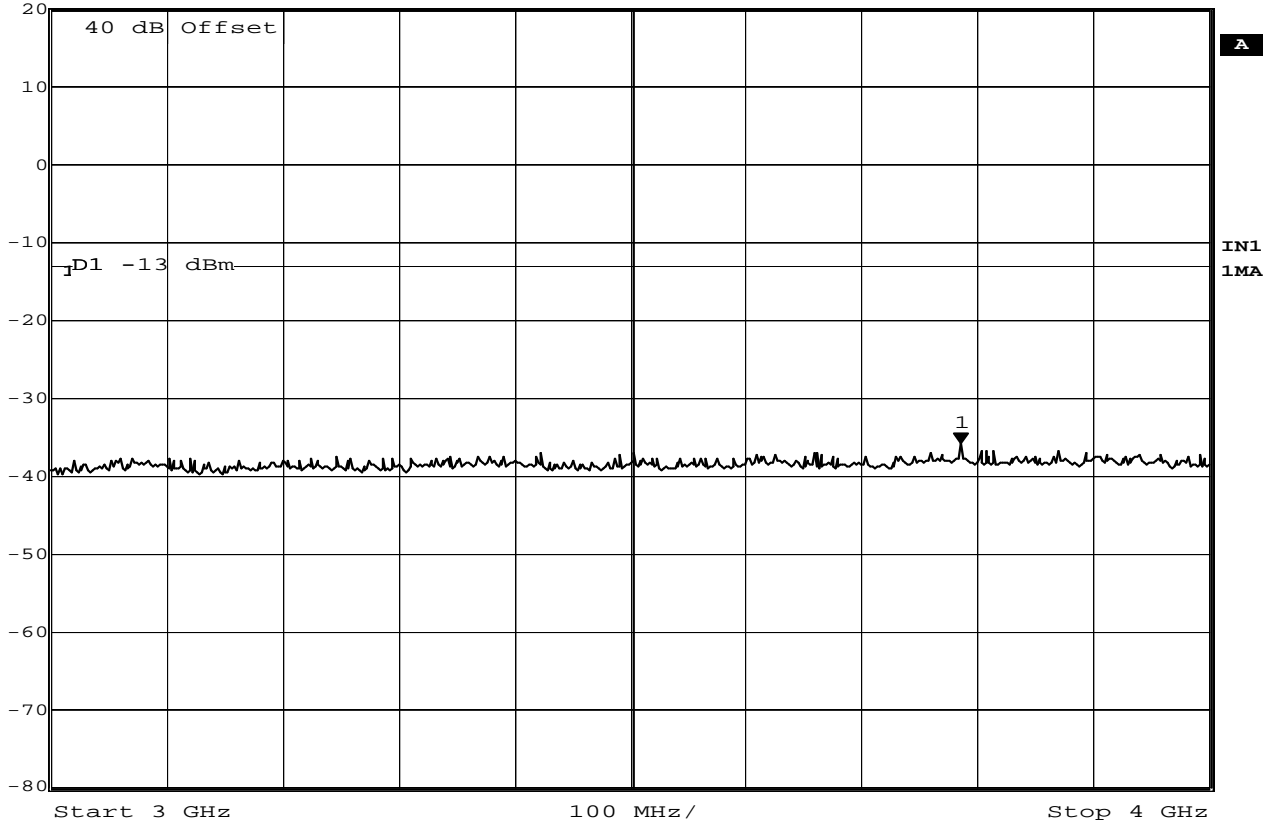
Date: 29.APR.2011 07:24:42

Intermodulation Tests – Antenna Conducted

MANUFACTURER : Shure, Inc.
 MODEL NUMBER : AXT200 G1
 SERIAL NUMBER :
 TEST MODE : Tx @ 470.125MHz and 529.875MHz
 NOTES : 50mW, Zigbee Tx at 2480MHz
 TEST DATE : April 29, 2011
 TEST PARAMETERS :
 NOTES :
 EQUIPMENT USED : RBA0, T2D7, T2S3



Marker 1 [T1] RBW 100 kHz RF Att 10 dB
Ref Lvl -35.96 dBm VBW 100 kHz
20 dBm 3.78557114 GHz SWT 250 ms Unit dBm



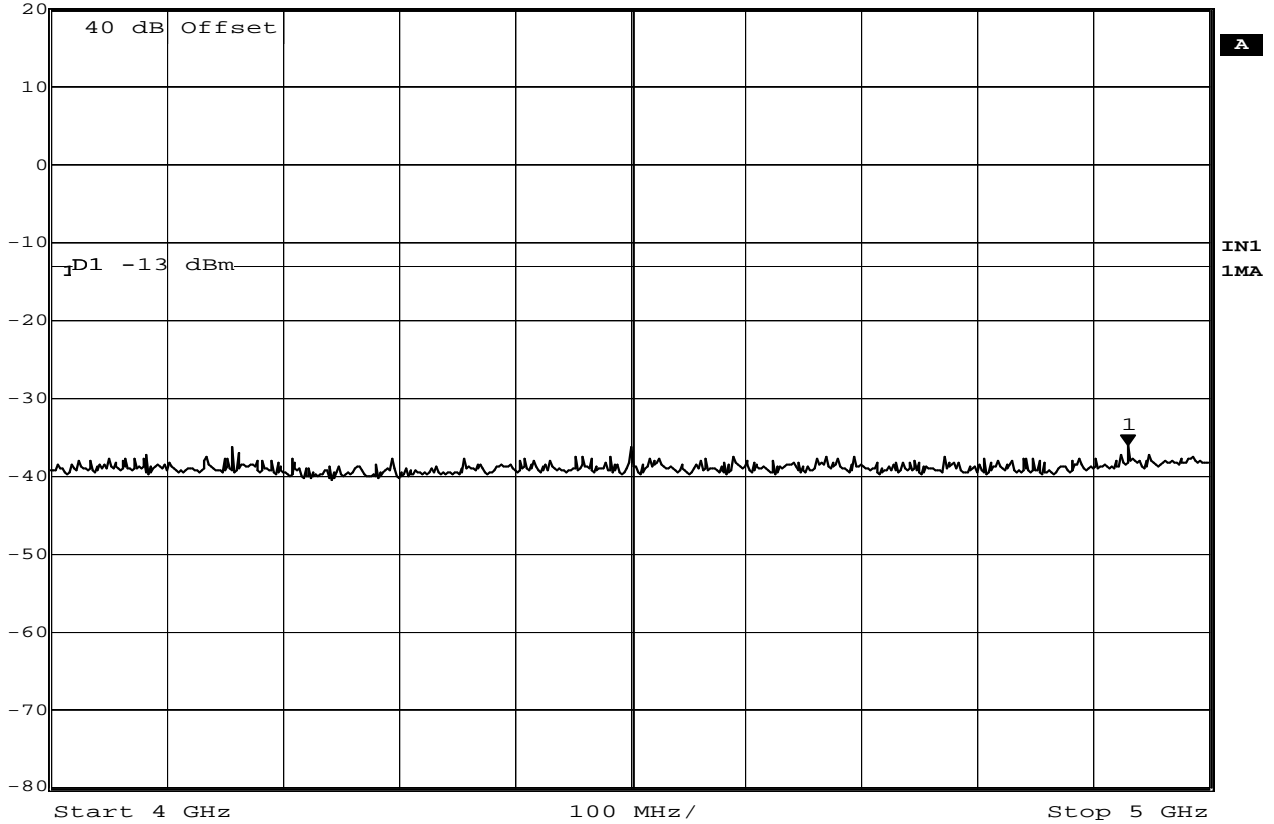
Date: 29.APR.2011 07:27:11

Intermodulation Tests – Antenna Conducted

MANUFACTURER : Shure, Inc.
MODEL NUMBER : AXT200 G1
SERIAL NUMBER :
TEST MODE : Tx @ 470.125MHz and 529.875MHz
NOTES : 50mW, Zigbee Tx at 2480MHz
TEST DATE : April 29, 2011
TEST PARAMETERS :
NOTES :
EQUIPMENT USED : RBA0, T2D7, T2S3



Marker 1 [T1] RBW 100 kHz RF Att 10 dB
 Ref Lvl -36.21 dBm VBW 100 kHz
 20 dBm 4.92985972 GHz SWT 250 ms Unit dBm



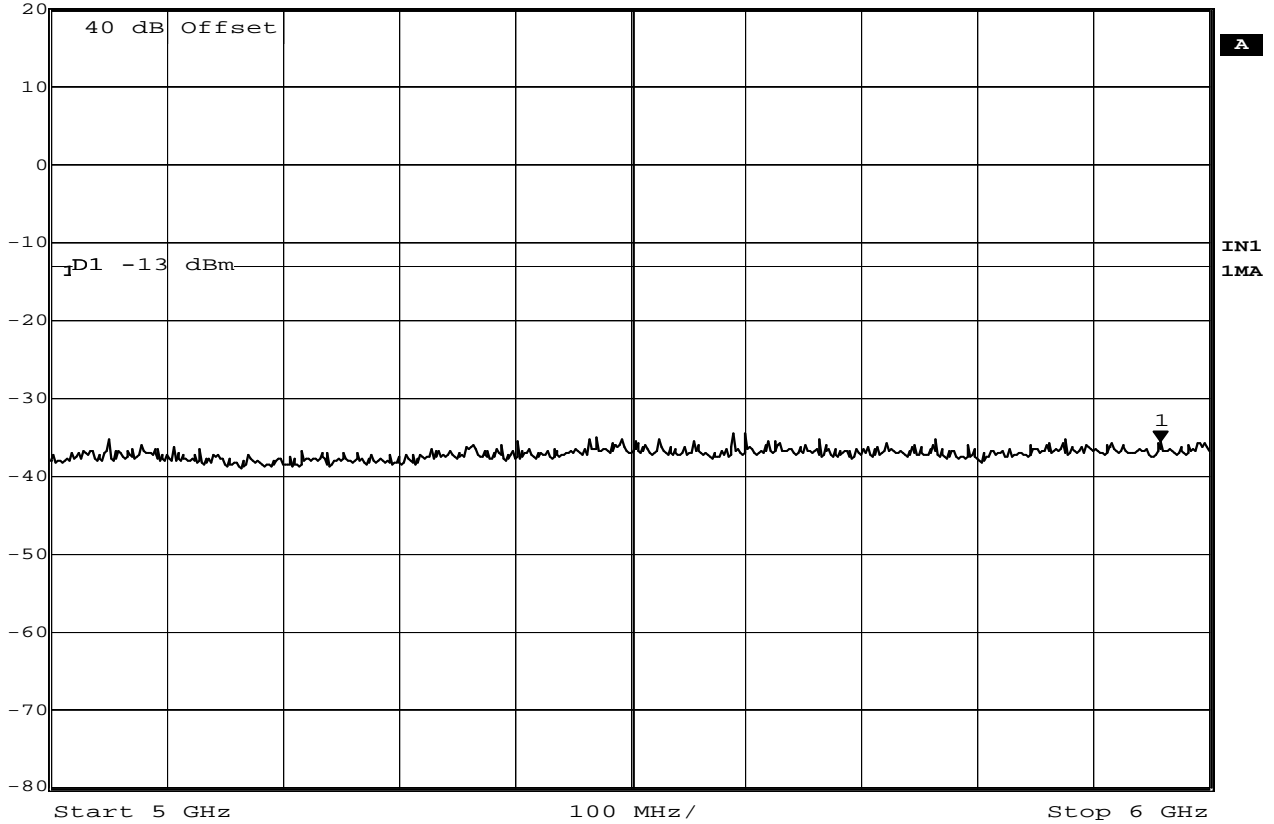
Date: 29.APR.2011 07:28:35

Intermodulation Tests – Antenna Conducted

MANUFACTURER : Shure, Inc.
 MODEL NUMBER : AXT200 G1
 SERIAL NUMBER :
 TEST MODE : Tx @ 470.125MHz and 529.875MHz
 NOTES : 50mW, Zigbee Tx at 2480MHz
 TEST DATE : April 29, 2011
 TEST PARAMETERS :
 NOTES :
 EQUIPMENT USED : RBA0, T2D7, T2S3



Marker 1 [T1] RBW 100 kHz RF Att 10 dB
 Ref Lvl -35.62 dBm VBW 100 kHz
 20 dBm 5.95791583 GHz SWT 250 ms Unit dBm



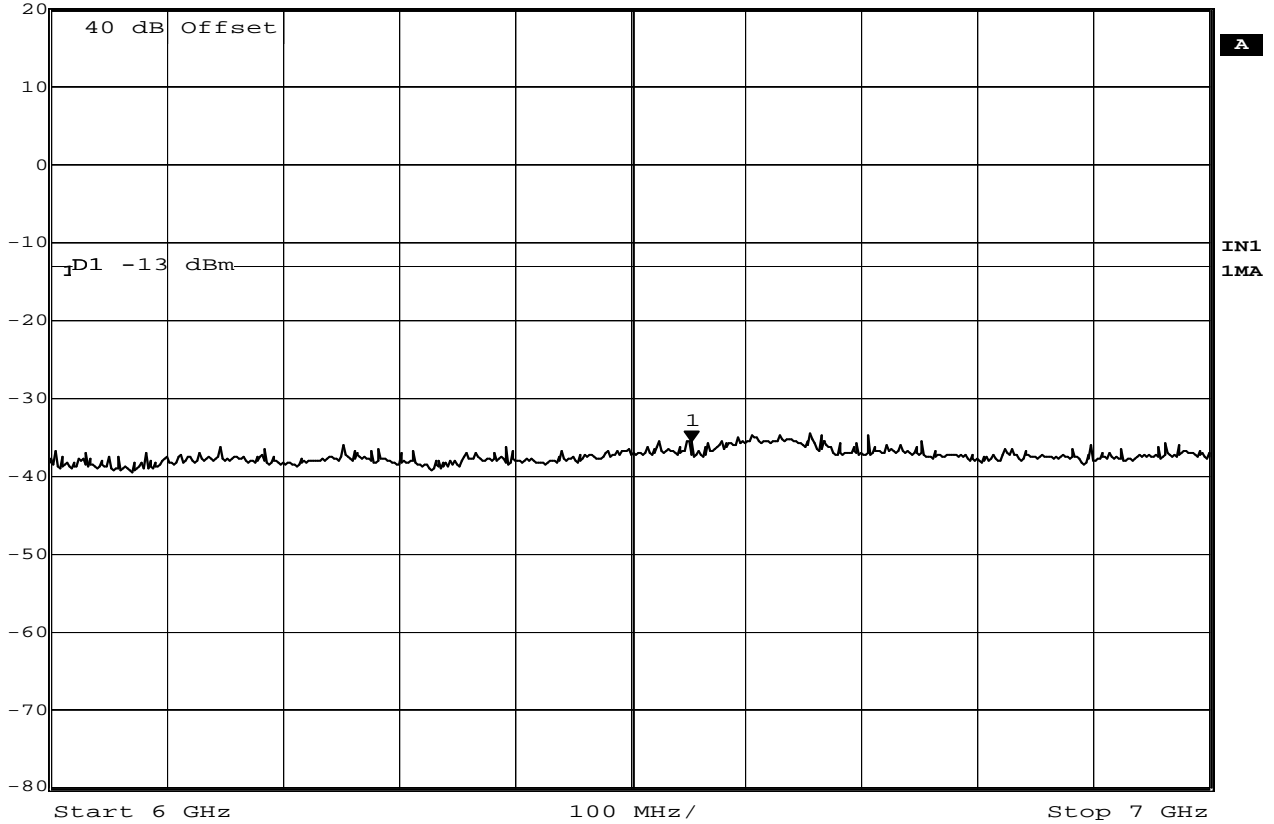
Date: 29.APR.2011 07:29:46

Intermodulation Tests – Antenna Conducted

MANUFACTURER : Shure, Inc.
 MODEL NUMBER : AXT200 G1
 SERIAL NUMBER :
 TEST MODE : Tx @ 470.125MHz and 529.875MHz
 NOTES : 50mW, Zigbee Tx at 2480MHz
 TEST DATE : April 29, 2011
 TEST PARAMETERS :
 NOTES :
 EQUIPMENT USED : RBA0, T2D7, T2S3



Marker 1 [T1] RBW 100 kHz RF Att 10 dB
 Ref Lvl -35.55 dBm VBW 100 kHz
 20 dBm 6.55310621 GHz SWT 250 ms Unit dBm



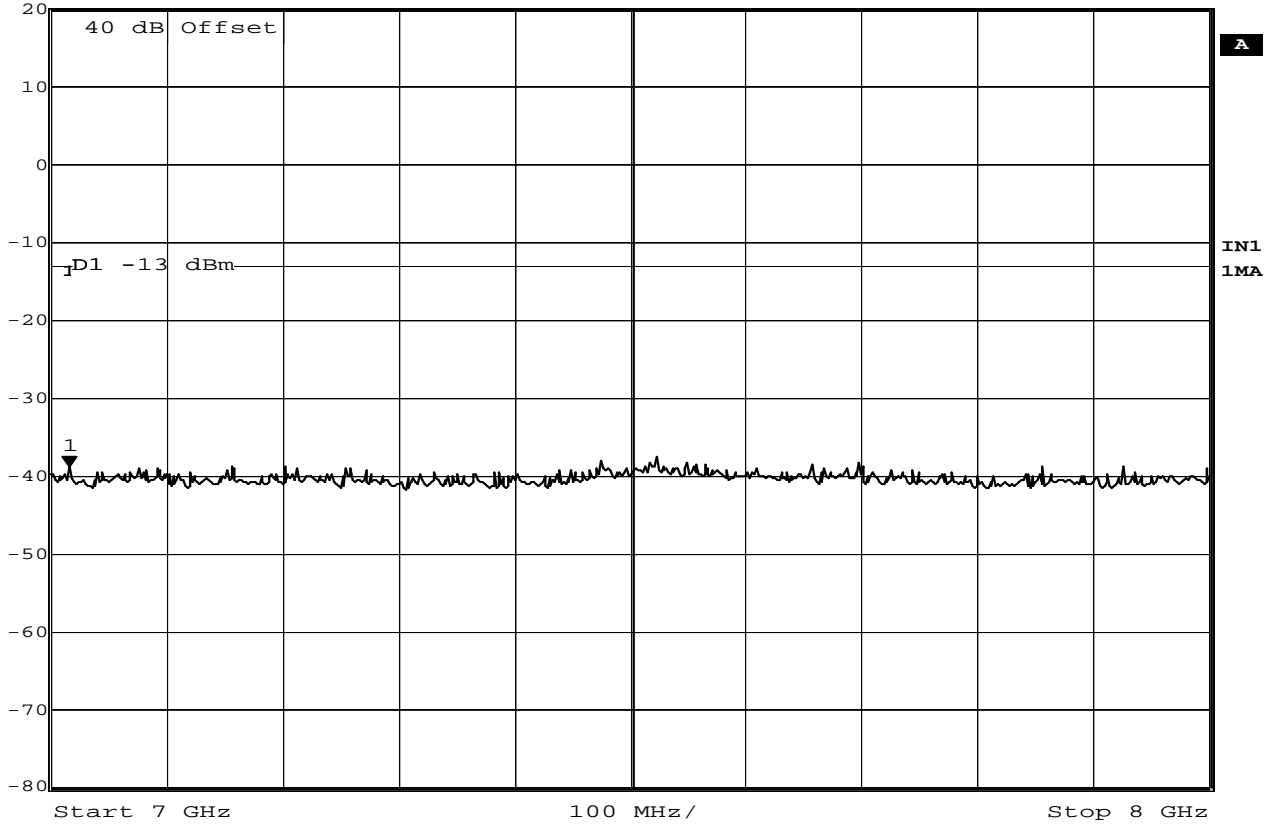
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Intermodulation Tests – Antenna Conducted

MANUFACTURER : Shure, Inc.
 MODEL NUMBER : AXT200 G1
 SERIAL NUMBER :
 TEST MODE : Tx @ 470.125MHz and 529.875MHz
 NOTES : 50mW, Zigbee Tx at 2480MHz
 TEST DATE : April 29, 2011
 TEST PARAMETERS :
 NOTES :
 EQUIPMENT USED : RBA0, T2D7, T2S3



Marker 1 [T1] RBW 100 kHz RF Att 10 dB
 Ref Lvl -38.92 dBm VBW 100 kHz
 20 dBm 7.01603206 GHz SWT 250 ms Unit dBm



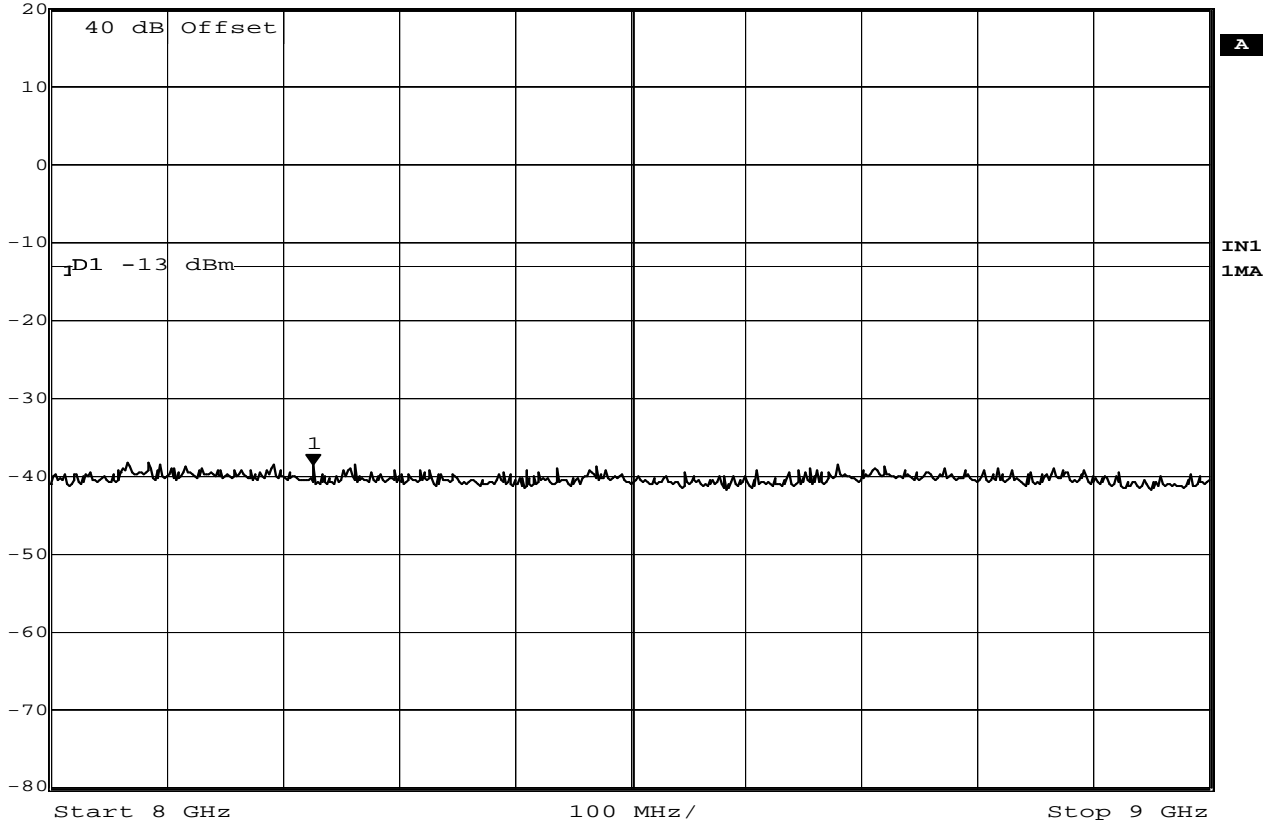
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Intermodulation Tests – Antenna Conducted

MANUFACTURER : Shure, Inc.
 MODEL NUMBER : AXT200 G1
 SERIAL NUMBER :
 TEST MODE : Tx @ 470.125MHz and 529.875MHz
 NOTES : 50mW, Zigbee Tx at 2480MHz
 TEST DATE : April 29, 2011
 TEST PARAMETERS :
 NOTES :
 EQUIPMENT USED : RBA0, T2D7, T2S3



Ref Lvl 20 dBm
 Marker 1 [T1] -38.52 dBm
 8.22645291 GHz
 RBW 100 kHz
 VBW 100 kHz
 RF Att 10 dB
 SWT 250 ms
 Unit dBm



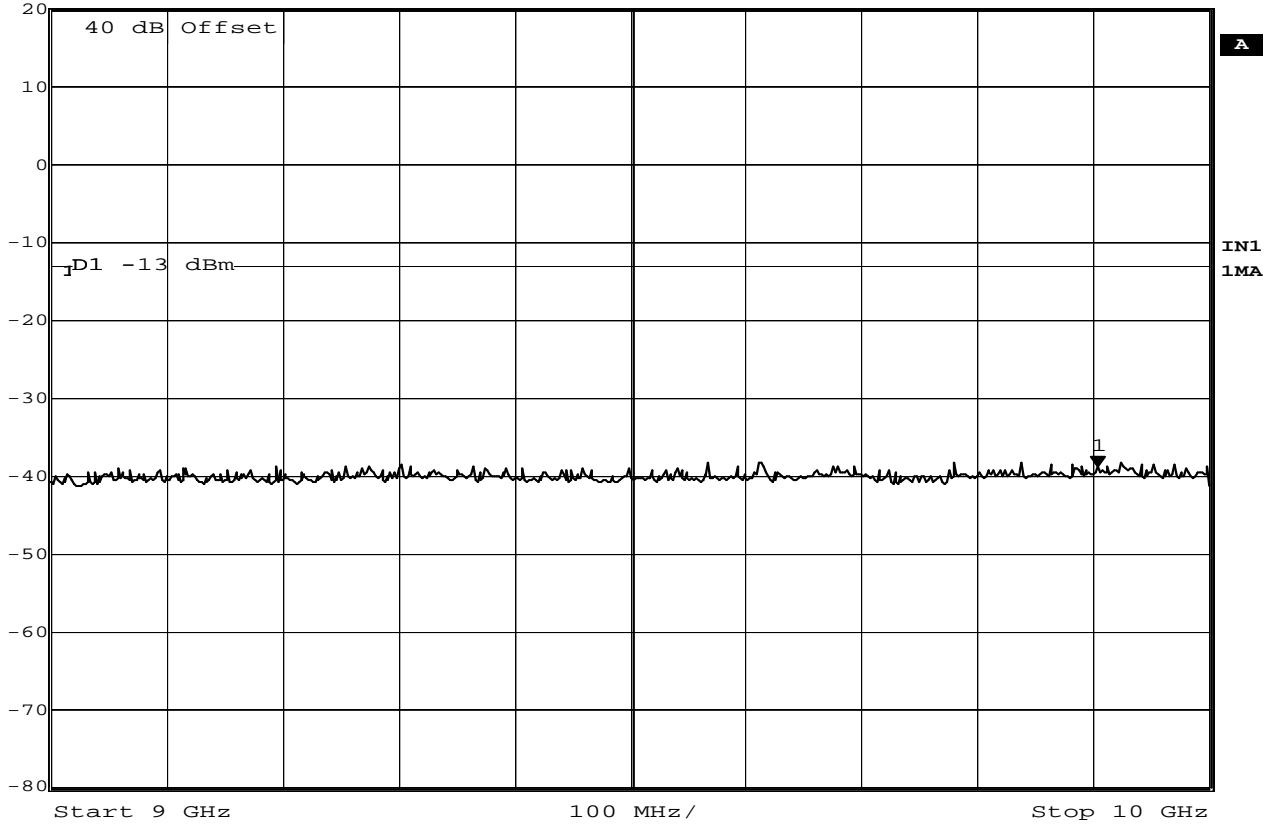
Date: 29.APR.2011 07:33:27

Intermodulation Tests – Antenna Conducted

MANUFACTURER : Shure, Inc.
 MODEL NUMBER : AXT200 G1
 SERIAL NUMBER :
 TEST MODE : Tx @ 470.125MHz and 529.875MHz
 NOTES : 50mW, Zigbee Tx at 2480MHz
 TEST DATE : April 29, 2011
 TEST PARAMETERS :
 NOTES :
 EQUIPMENT USED : RBA0, T2D7, T2S3



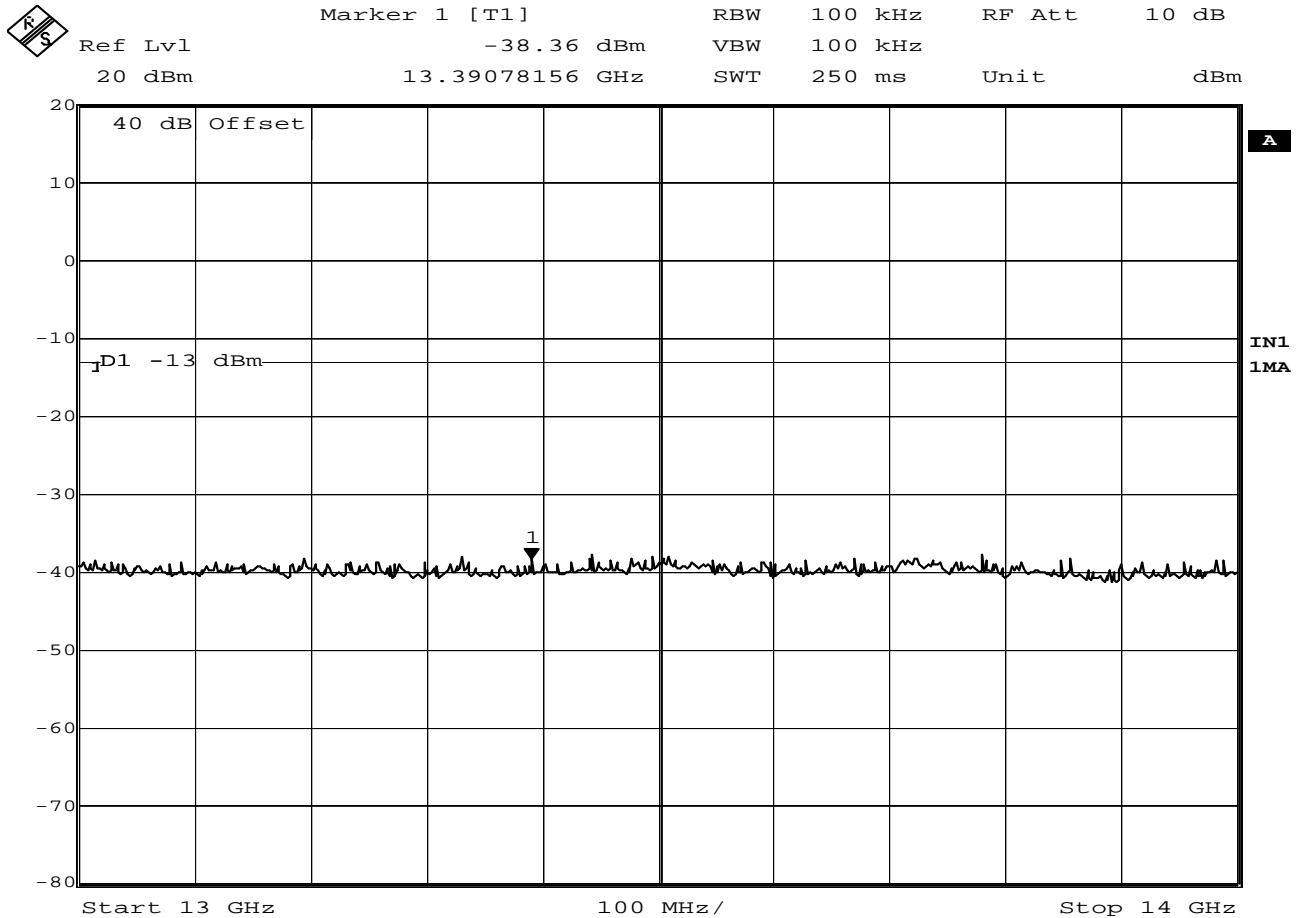
Marker 1 [T1] RBW 100 kHz RF Att 10 dB
 Ref Lvl -38.82 dBm VBW 100 kHz
 20 dBm 9.90380762 GHz SWT 250 ms Unit dBm



Date: 29.APR.2011 07:34:56

Intermodulation Tests – Antenna Conducted

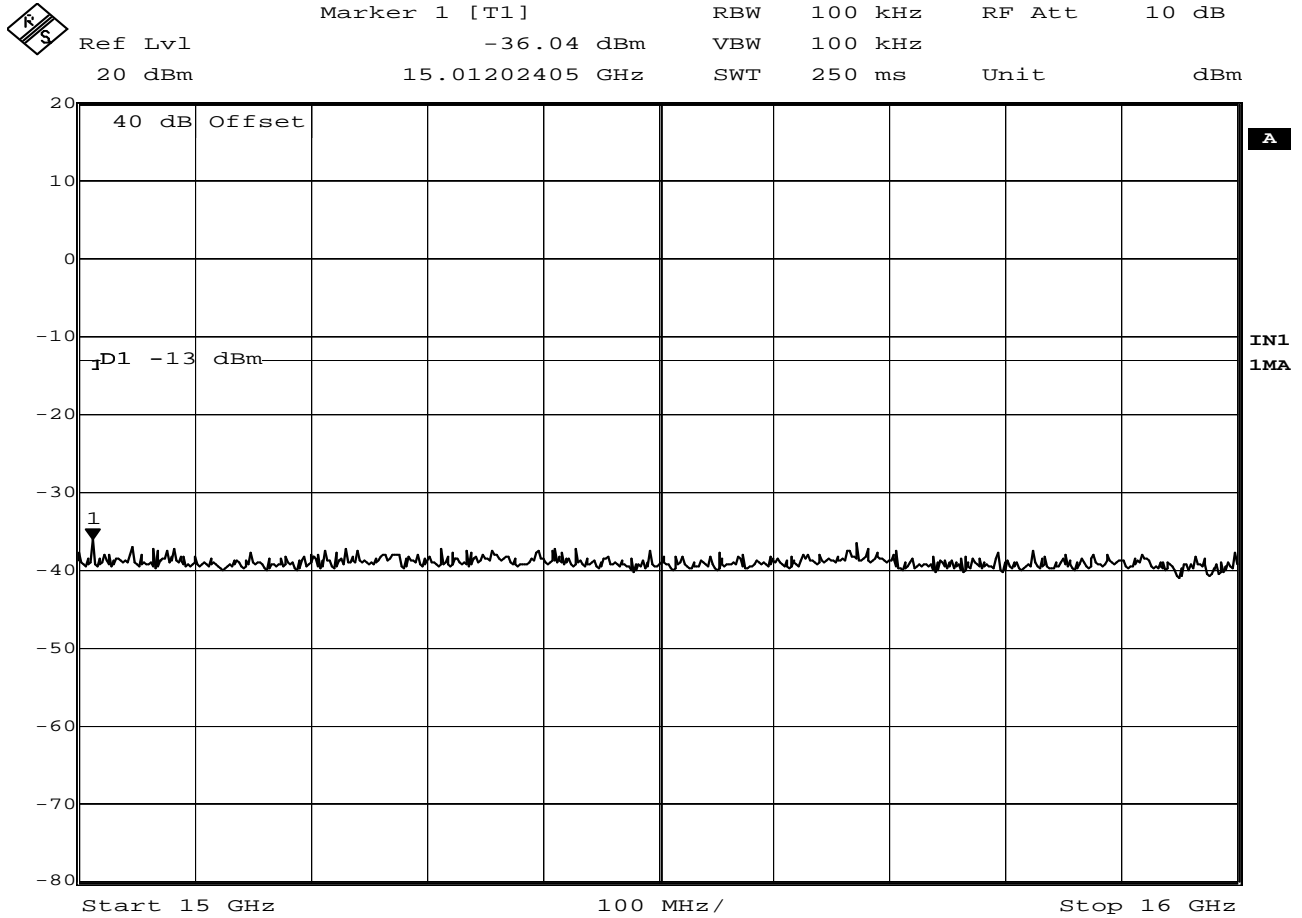
MANUFACTURER : Shure, Inc.
 MODEL NUMBER : AXT200 G1
 SERIAL NUMBER :
 TEST MODE : Tx @ 470.125MHz and 529.875MHz
 NOTES : 50mW, Zigbee Tx at 2480MHz
 TEST DATE : April 29, 2011
 TEST PARAMETERS :
 NOTES :
 EQUIPMENT USED : RBA0, T2D7, T2S3



Date: 29.APR.2011 07:39:58

Intermodulation Tests – Antenna Conducted

MANUFACTURER : Shure, Inc.
MODEL NUMBER : AXT200 G1
SERIAL NUMBER :
TEST MODE : Tx @ 470.125MHz and 529.875MHz
NOTES : 50mW, Zigbee Tx at 2480MHz
TEST DATE : April 29, 2011
TEST PARAMETERS :
NOTES :
EQUIPMENT USED : RBA0, T2D7, T2S3



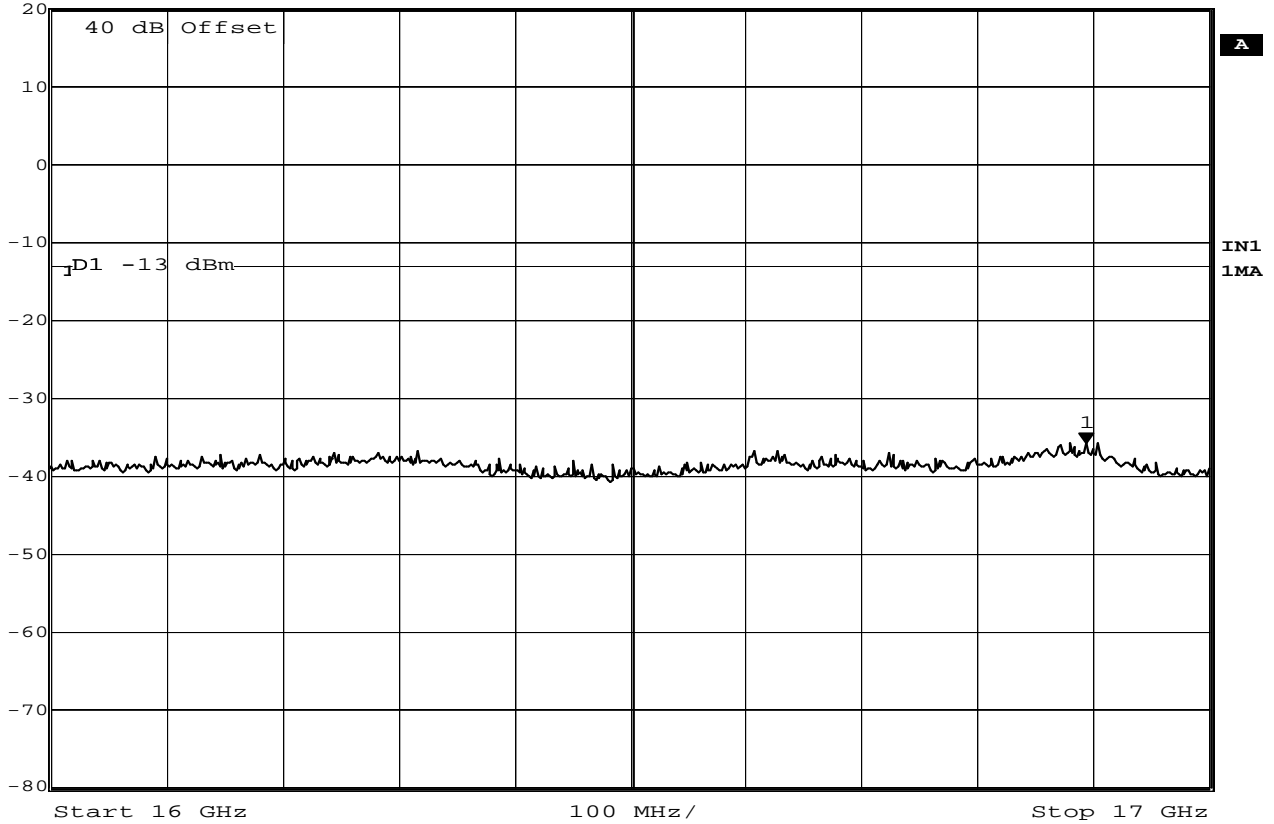
Date: 29.APR.2011 07:42:29

Intermodulation Tests – Antenna Conducted

MANUFACTURER : Shure, Inc.
 MODEL NUMBER : AXT200 G1
 SERIAL NUMBER :
 TEST MODE : Tx @ 470.125MHz and 529.875MHz
 NOTES : 50mW, Zigbee Tx at 2480MHz
 TEST DATE : April 29, 2011
 TEST PARAMETERS :
 NOTES :
 EQUIPMENT USED : RBA0, T2D7, T2S3



Marker 1 [T1] RBW 100 kHz RF Att 10 dB
 Ref Lvl -35.82 dBm VBW 100 kHz
 20 dBm 16.89378758 GHz SWT 250 ms Unit dBm



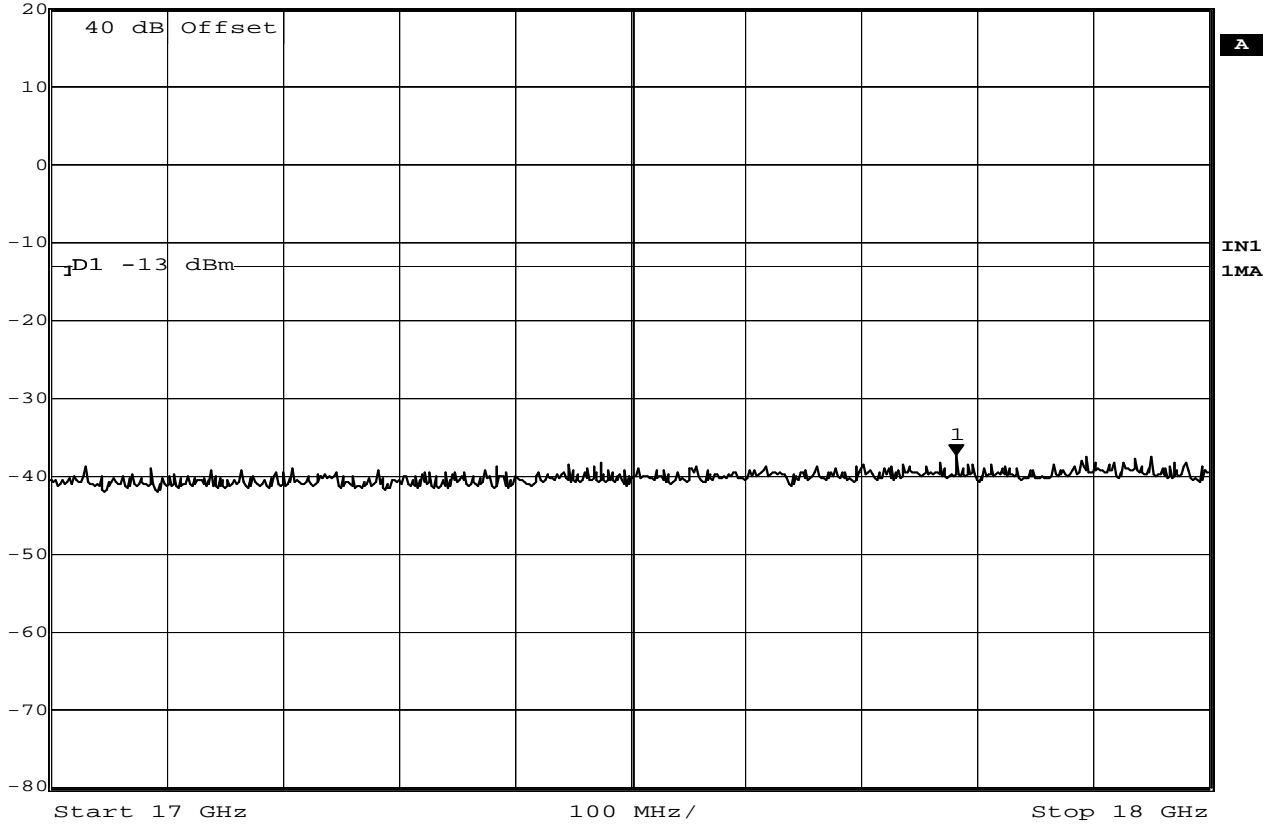
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Intermodulation Tests – Antenna Conducted

MANUFACTURER : Shure, Inc.
 MODEL NUMBER : AXT200 G1
 SERIAL NUMBER :
 TEST MODE : Tx @ 470.125MHz and 529.875MHz
 NOTES : 50mW, Zigbee Tx at 2480MHz
 TEST DATE : April 29, 2011
 TEST PARAMETERS :
 NOTES :
 EQUIPMENT USED : RBA0, T2D7, T2S3



Marker 1 [T1] RBW 100 kHz RF Att 10 dB
 Ref Lvl -37.44 dBm VBW 100 kHz
 20 dBm 17.78156313 GHz SWT 250 ms Unit dBm



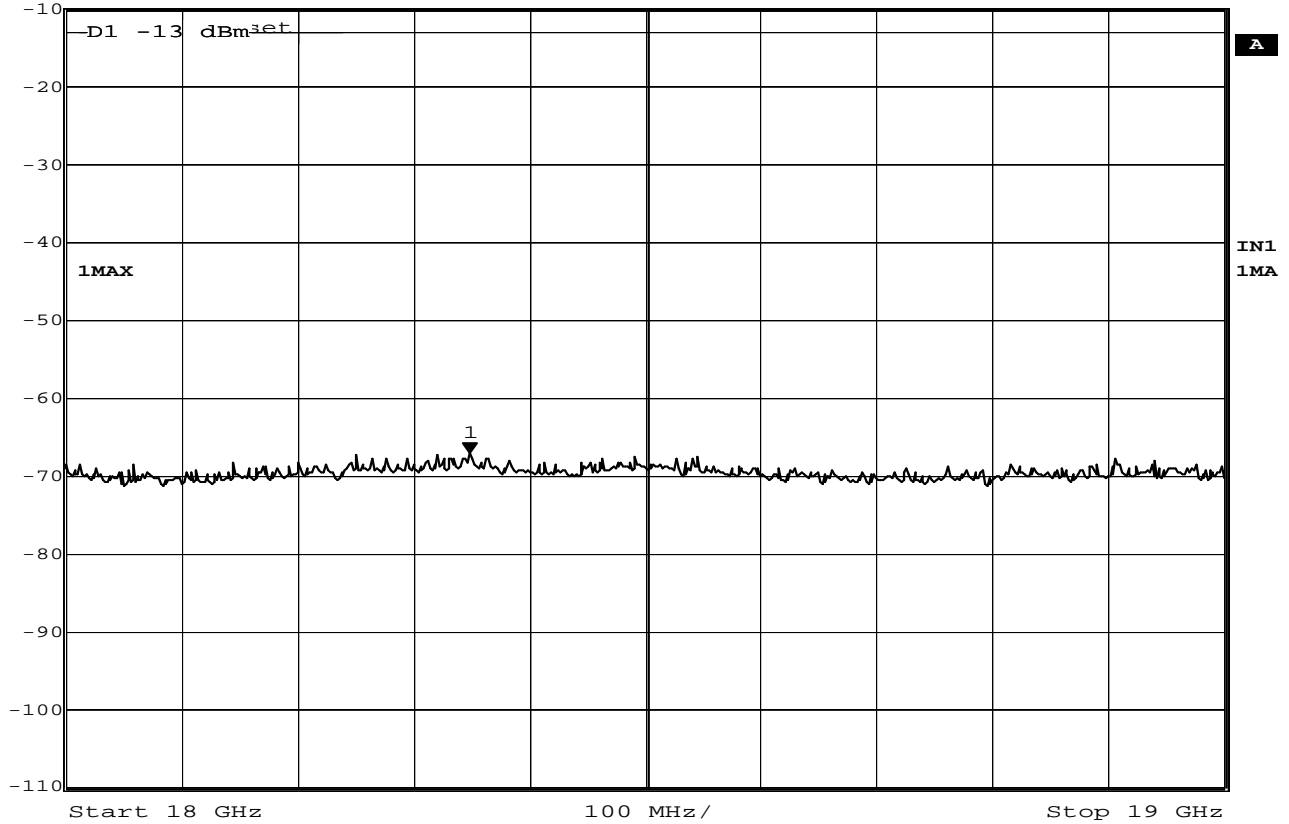
Date: 29.APR.2011 07:46:23

Intermodulation Tests – Antenna Conducted

MANUFACTURER : Shure, Inc.
 MODEL NUMBER : AXT200 G1
 SERIAL NUMBER :
 TEST MODE : Tx @ 470.125MHz and 529.875MHz
 NOTES : 50mW, Zigbee Tx at 2480MHz
 TEST DATE : April 29, 2011
 TEST PARAMETERS :
 NOTES :
 EQUIPMENT USED : RBA0, T2D7, T2S3



Marker 1 [T1] RBW 100 kHz RF Att 10 dB
 Ref Lvl -67.03 dBm VBW 100 kHz
 -10 dBm 18.34869739 GHz SWT 250 ms Unit dBm



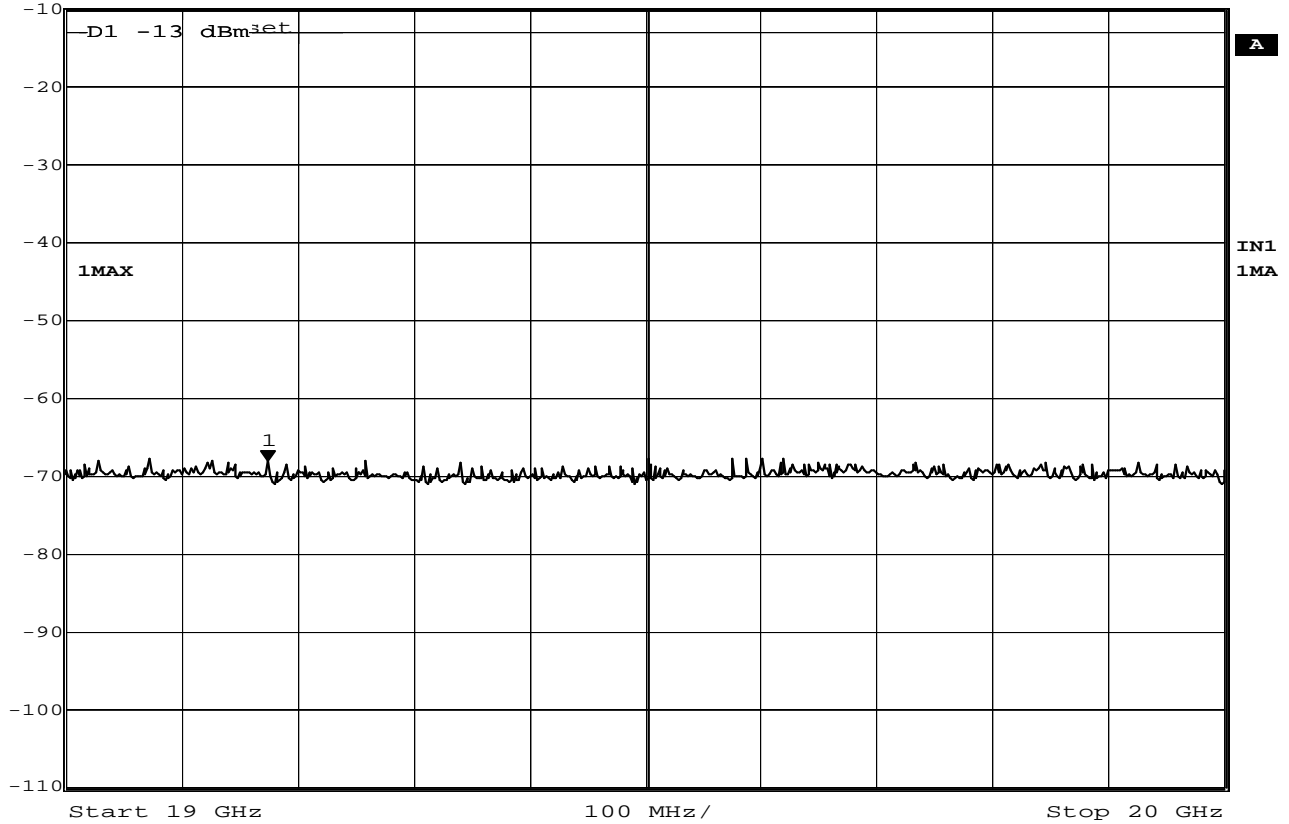
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Intermodulation Tests – Antenna Conducted

MANUFACTURER : Shure, Inc.
 MODEL NUMBER : AXT200 G1
 SERIAL NUMBER :
 TEST MODE : Tx @ 470.125MHz and 529.875MHz
 NOTES : 50mW, Zigbee Tx at 2480MHz
 TEST DATE : April 29, 2011
 TEST PARAMETERS :
 NOTES :
 EQUIPMENT USED : RBA0, T1P0



Marker 1 [T1] RBW 100 kHz RF Att 10 dB
 Ref Lvl -68.04 dBm VBW 100 kHz
 -10 dBm 19.17434870 GHz SWT 250 ms Unit dBm



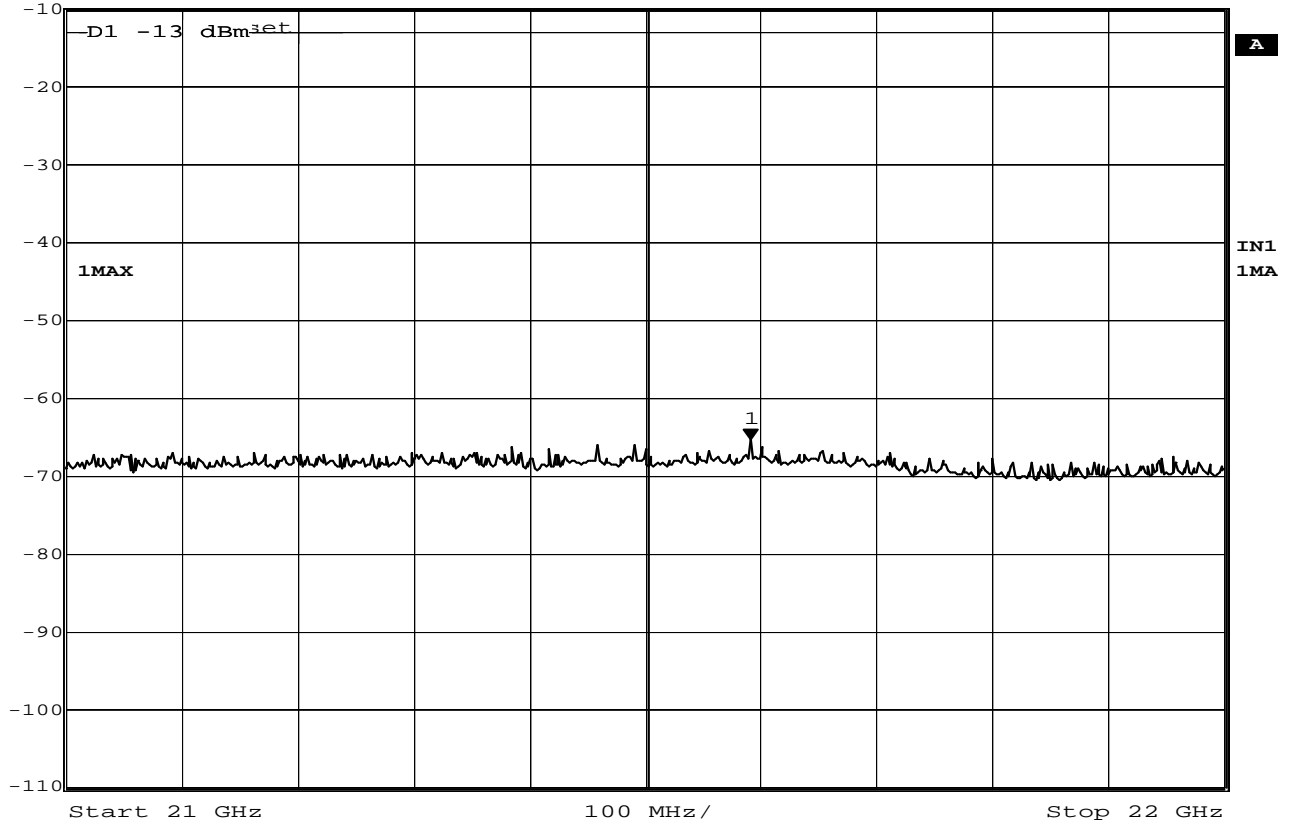
Date: 29.APR.2011 07:51:46

Intermodulation Tests – Antenna Conducted

MANUFACTURER : Shure, Inc.
 MODEL NUMBER : AXT200 G1
 SERIAL NUMBER :
 TEST MODE : Tx @ 470.125MHz and 529.875MHz
 NOTES : 50mW, Zigbee Tx at 2480MHz
 TEST DATE : April 29, 2011
 TEST PARAMETERS :
 NOTES :
 EQUIPMENT USED : RBA0, T1P0



Marker 1 [T1] RBW 100 kHz RF Att 10 dB
 Ref Lvl -65.27 dBm VBW 100 kHz
 -10 dBm 21.59118236 GHz SWT 250 ms Unit dBm



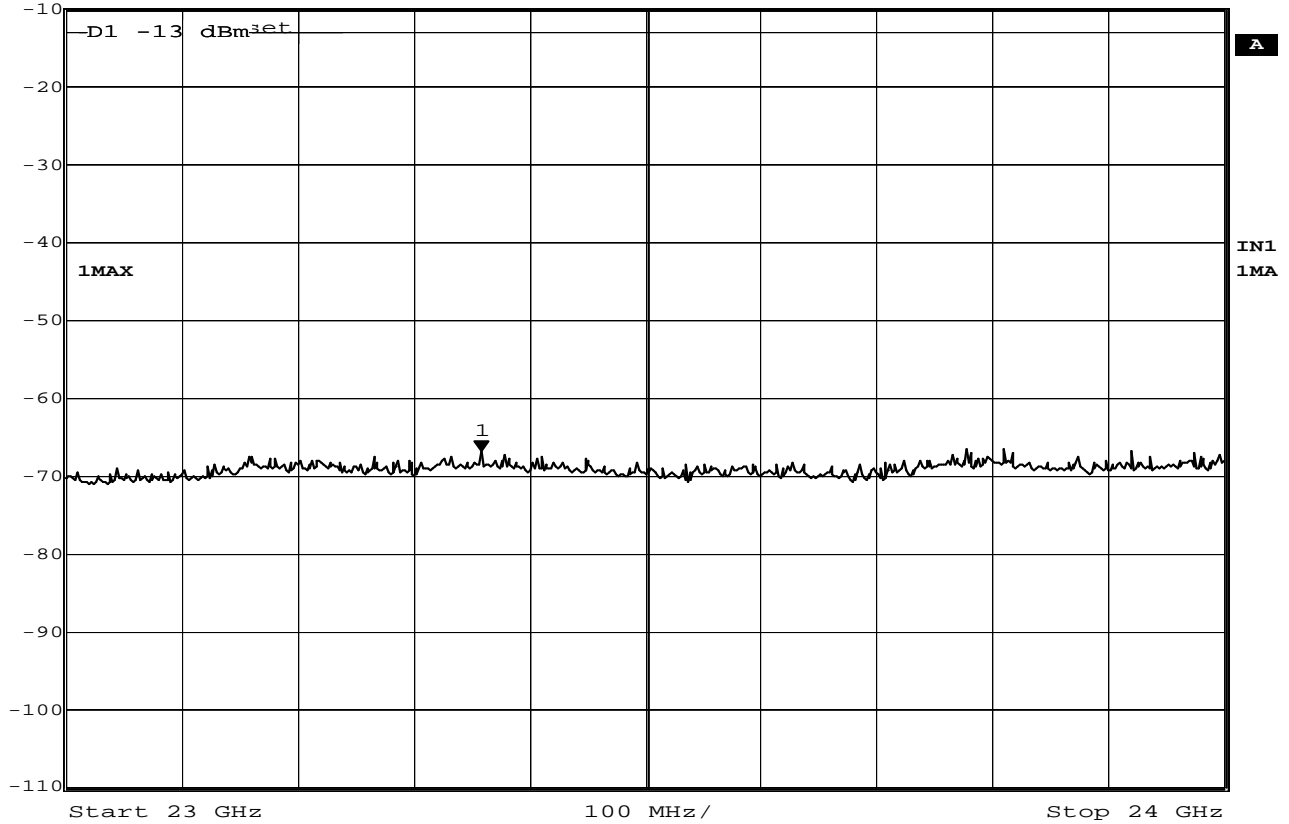
Date: 29.APR.2011 07:53:59

Intermodulation Tests – Antenna Conducted

MANUFACTURER : Shure, Inc.
 MODEL NUMBER : AXT200 G1
 SERIAL NUMBER :
 TEST MODE : Tx @ 470.125MHz and 529.875MHz
 NOTES : 50mW, Zigbee Tx at 2480MHz
 TEST DATE : April 29, 2011
 TEST PARAMETERS :
 NOTES :
 EQUIPMENT USED : RBA0, T1P0



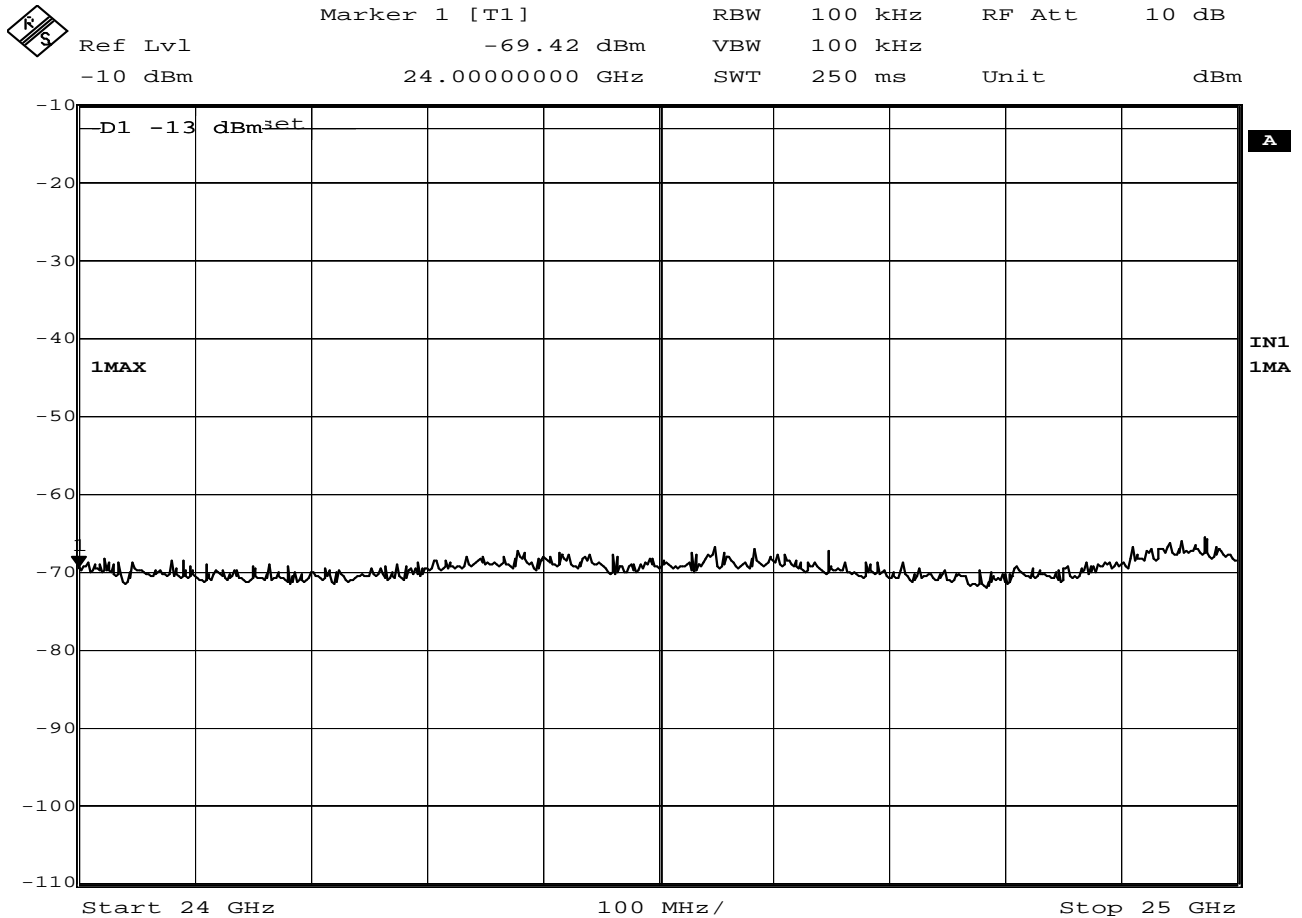
Marker 1 [T1] RBW 100 kHz RF Att 10 dB
 Ref Lvl -66.79 dBm VBW 100 kHz
 -10 dBm 23.35871743 GHz SWT 250 ms Unit dBm



Date: 29.APR.2011 07:56:23

Intermodulation Tests – Antenna Conducted

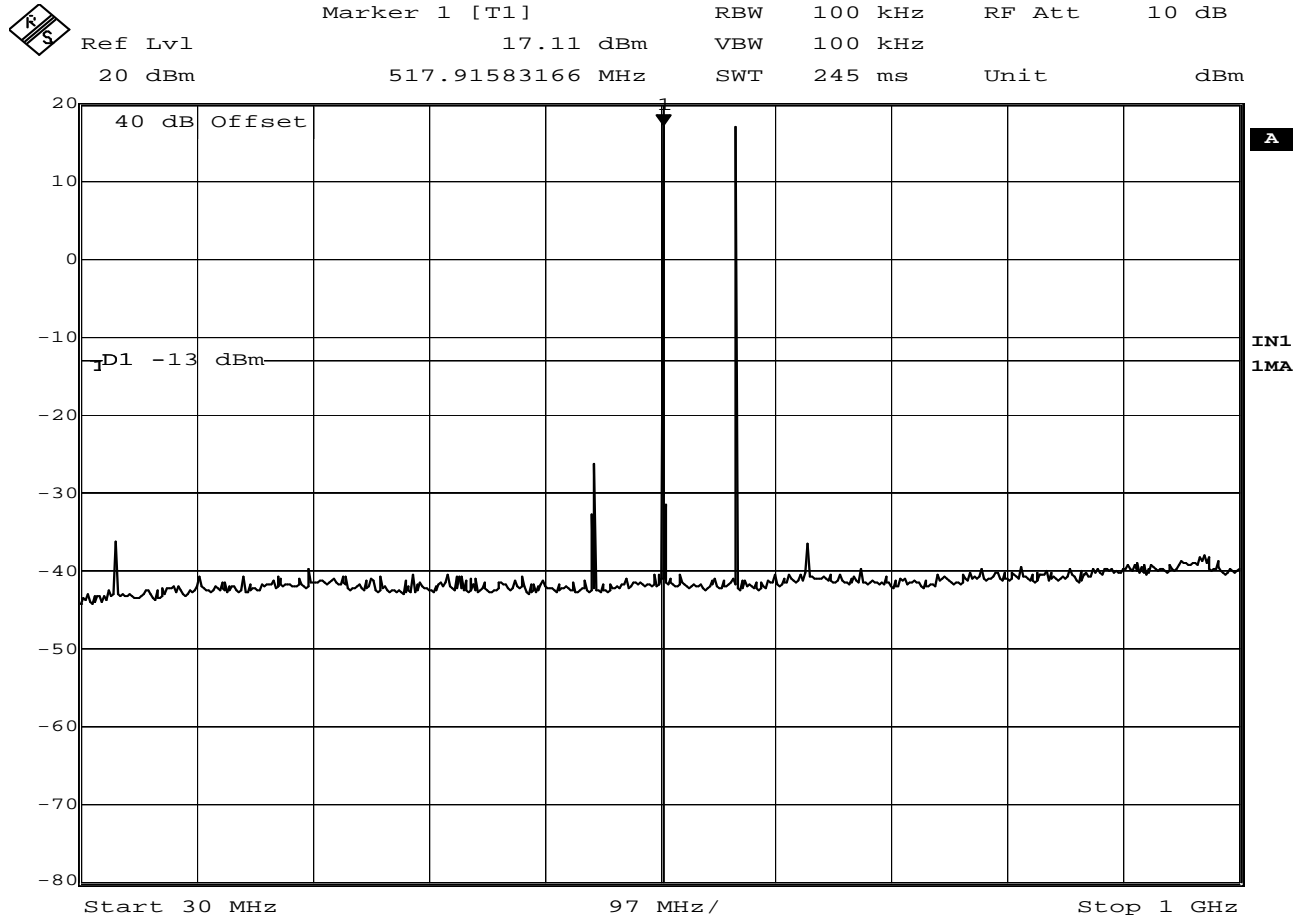
MANUFACTURER : Shure, Inc.
 MODEL NUMBER : AXT200 G1
 SERIAL NUMBER :
 TEST MODE : Tx @ 470.125MHz and 529.875MHz
 NOTES : 50mW, Zigbee Tx at 2480MHz
 TEST DATE : April 29, 2011
 TEST PARAMETERS :
 NOTES :
 EQUIPMENT USED : RBA0, T1P0



Date: 29.APR.2011 07:57:21

Intermodulation Tests – Antenna Conducted

MANUFACTURER : Shure, Inc.
MODEL NUMBER : AXT200 G1
SERIAL NUMBER :
TEST MODE : Tx @ 470.125MHz and 529.875MHz
NOTES : 50mW, Zigbee Tx at 2480MHz
TEST DATE : April 29, 2011
TEST PARAMETERS :
NOTES :
EQUIPMENT USED : RBA0, T1P0



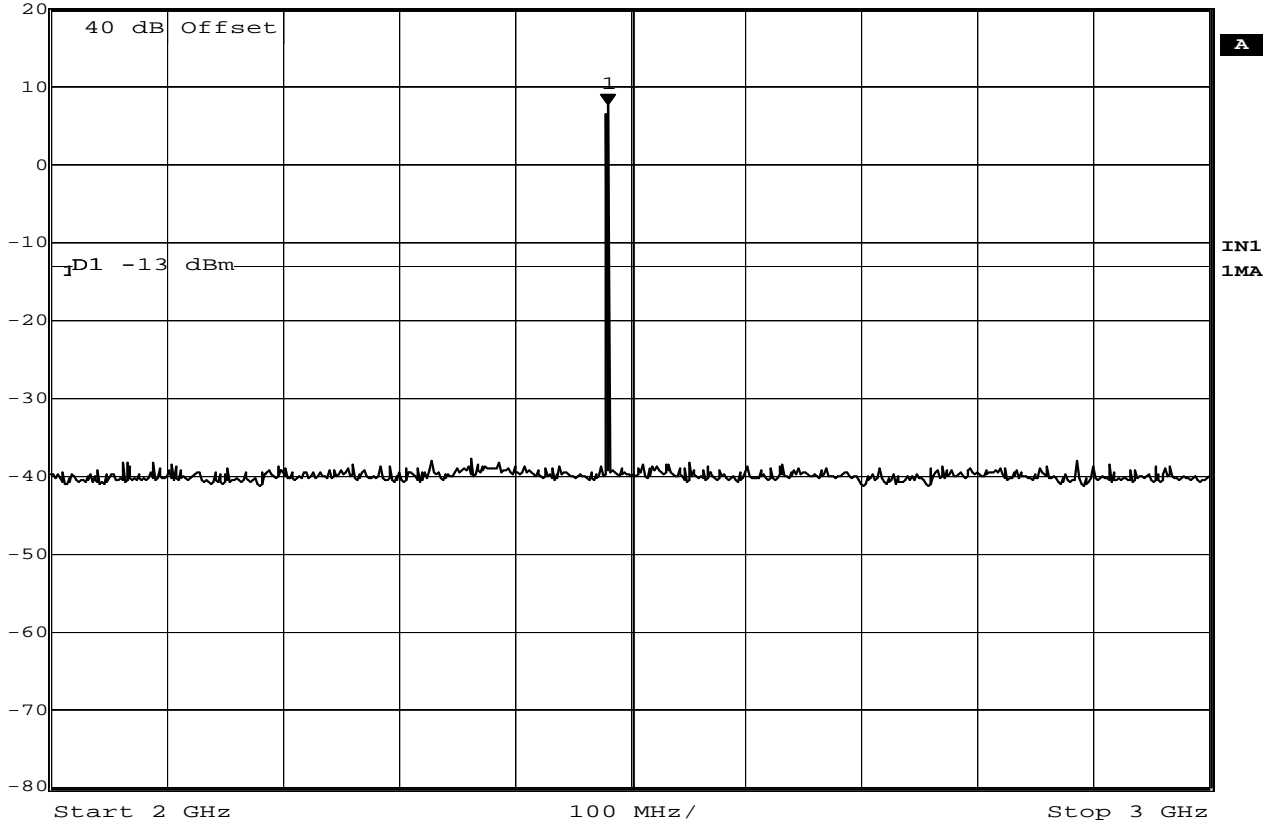
Date: 28.APR.2011 14:58:17

Intermodulation Tests – Antenna Conducted

MANUFACTURER : Shure, Inc.
 MODEL NUMBER : AXT200 H4
 SERIAL NUMBER :
 TEST MODE : Tx @ 518MHz and 578MHz
 NOTES : 50mW, Zigbee Tx at 2480MHz
 TEST DATE : April 28, 2011
 TEST PARAMETERS :
 NOTES :
 EQUIPMENT USED : RBA0, T2S3, T2D7



Marker 1 [T1] RBW 100 kHz RF Att 10 dB
 Ref Lvl 7.66 dBm VBW 100 kHz
 20 dBm 2.48096192 GHz SWT 250 ms Unit dBm



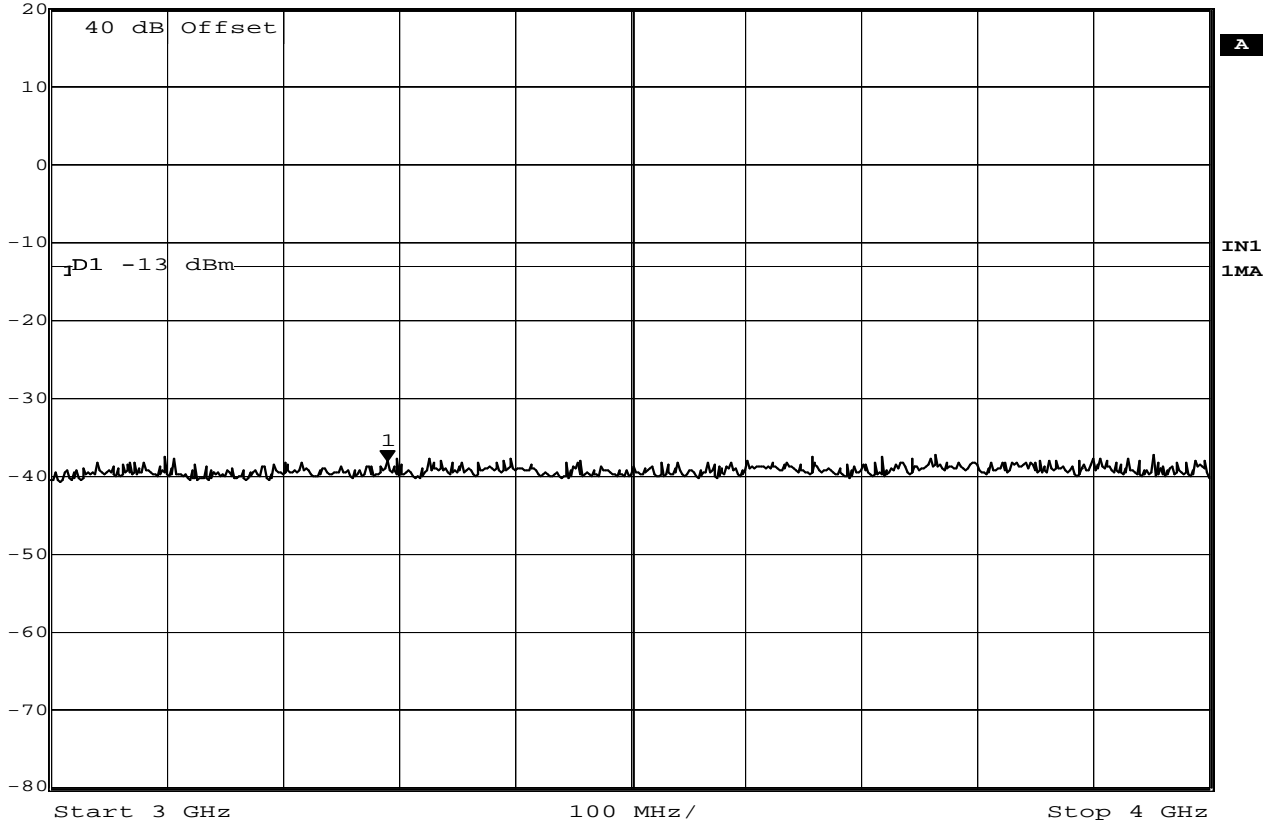
Date: 28.APR.2011 15:02:44

Intermodulation Tests – Antenna Conducted

MANUFACTURER : Shure, Inc.
 MODEL NUMBER : AXT200 H4
 SERIAL NUMBER :
 TEST MODE : Tx @ 518MHz and 578MHz
 NOTES : 50mW, Zigbee Tx at 2480MHz
 TEST DATE : April 28, 2011
 TEST PARAMETERS :
 NOTES :
 EQUIPMENT USED : RBA0, T2S3, T2D7



Marker 1 [T1] RBW 100 kHz RF Att 10 dB
 -38.01 dBm VBW 100 kHz
 Ref Lvl 3.29058116 GHz SWT 250 ms Unit dBm
 20 dBm



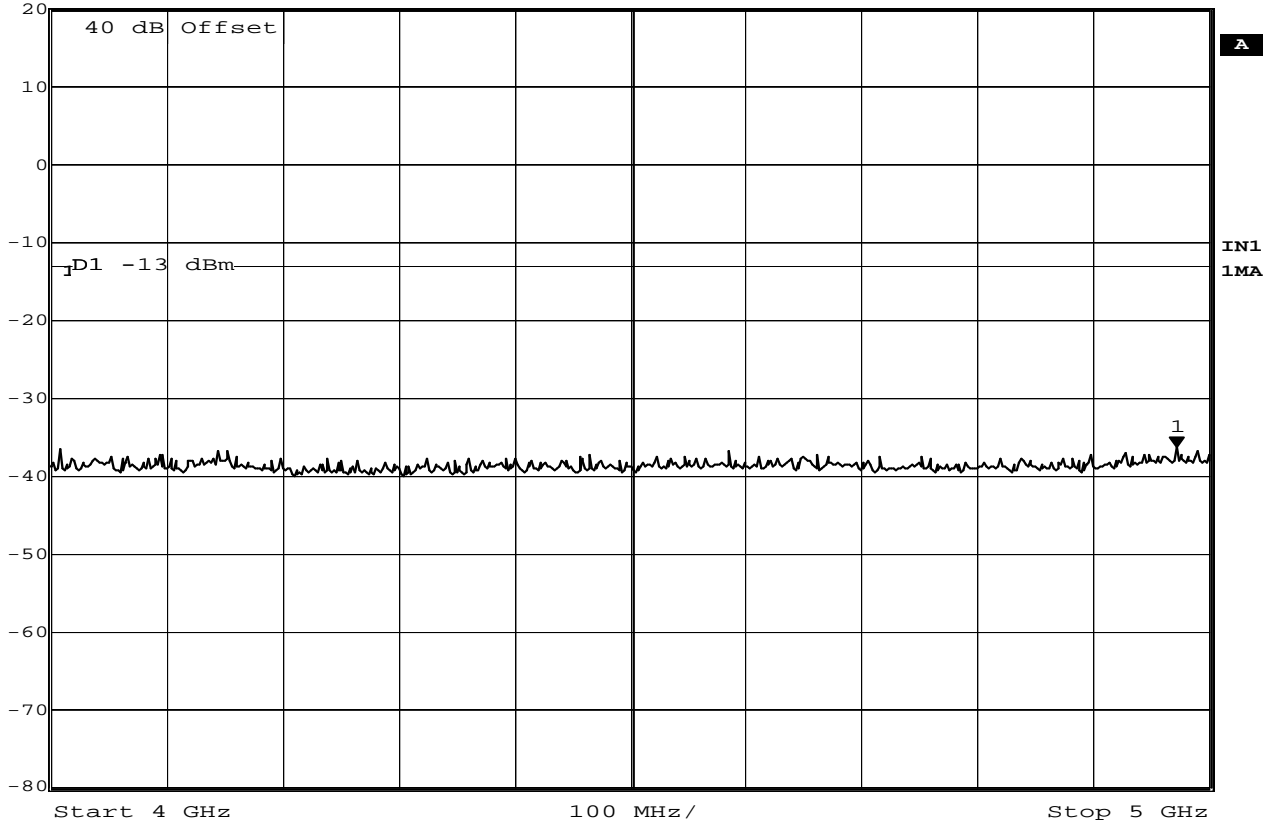
Date: 28.APR.2011 15:03:39

Intermodulation Tests – Antenna Conducted

MANUFACTURER : Shure, Inc.
 MODEL NUMBER : AXT200 H4
 SERIAL NUMBER :
 TEST MODE : Tx @ 518MHz and 578MHz
 NOTES : 50mW, Zigbee Tx at 2480MHz
 TEST DATE : April 28, 2011
 TEST PARAMETERS :
 NOTES :
 EQUIPMENT USED : RBA0, T2S3, T2D7



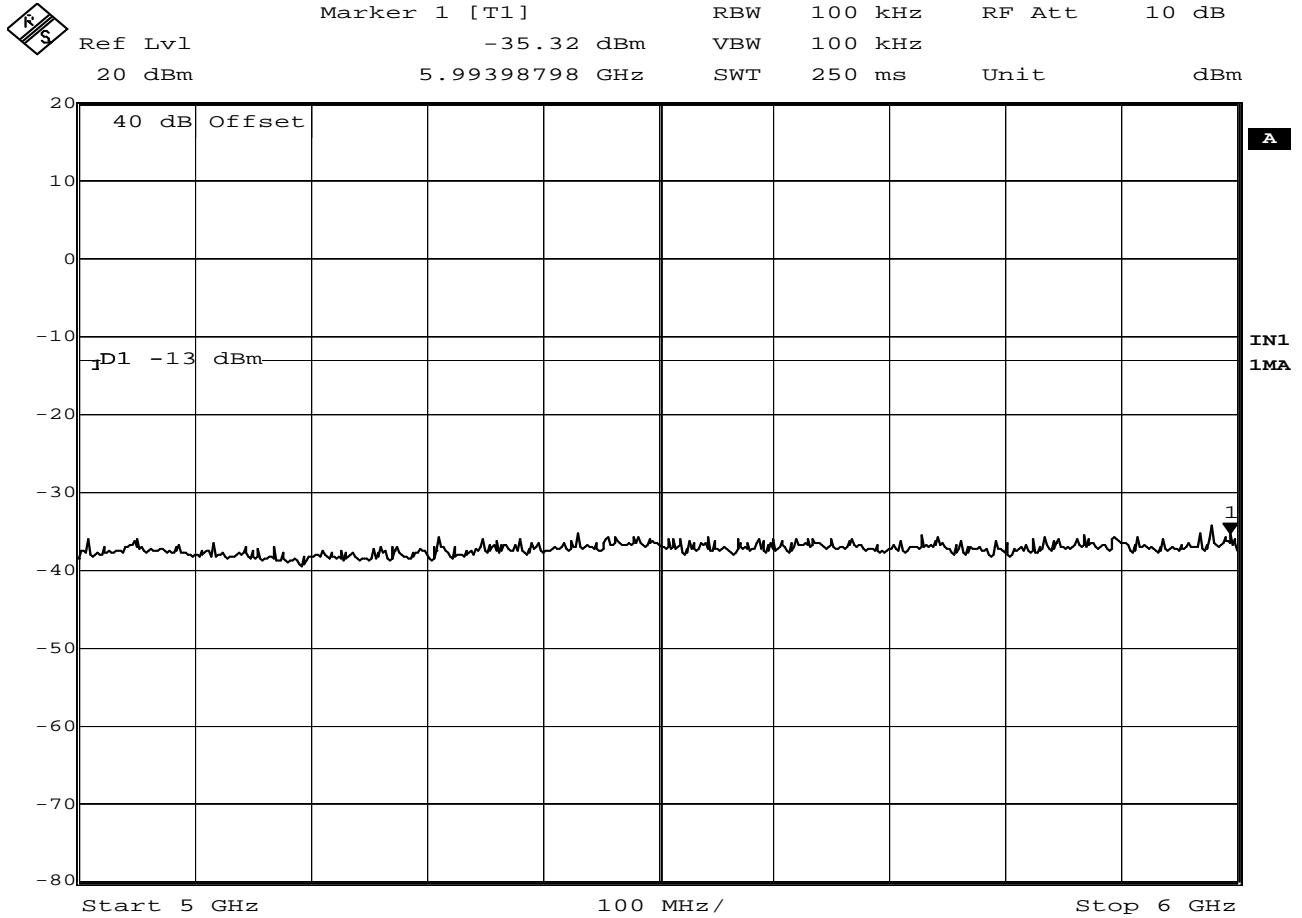
Marker 1 [T1] RBW 100 kHz RF Att 10 dB
 -36.49 dBm VBW 100 kHz
 Ref Lvl 4.97194389 GHz SWT 250 ms Unit dBm
 20 dBm



Date: 28.APR.2011 15:04:57

Intermodulation Tests – Antenna Conducted

MANUFACTURER : Shure, Inc.
 MODEL NUMBER : AXT200 H4
 SERIAL NUMBER :
 TEST MODE : Tx @ 518MHz and 578MHz
 NOTES : 50mW, Zigbee Tx at 2480MHz
 TEST DATE : April 28, 2011
 TEST PARAMETERS :
 NOTES :
 EQUIPMENT USED : RBA0, T2S3, T2D7



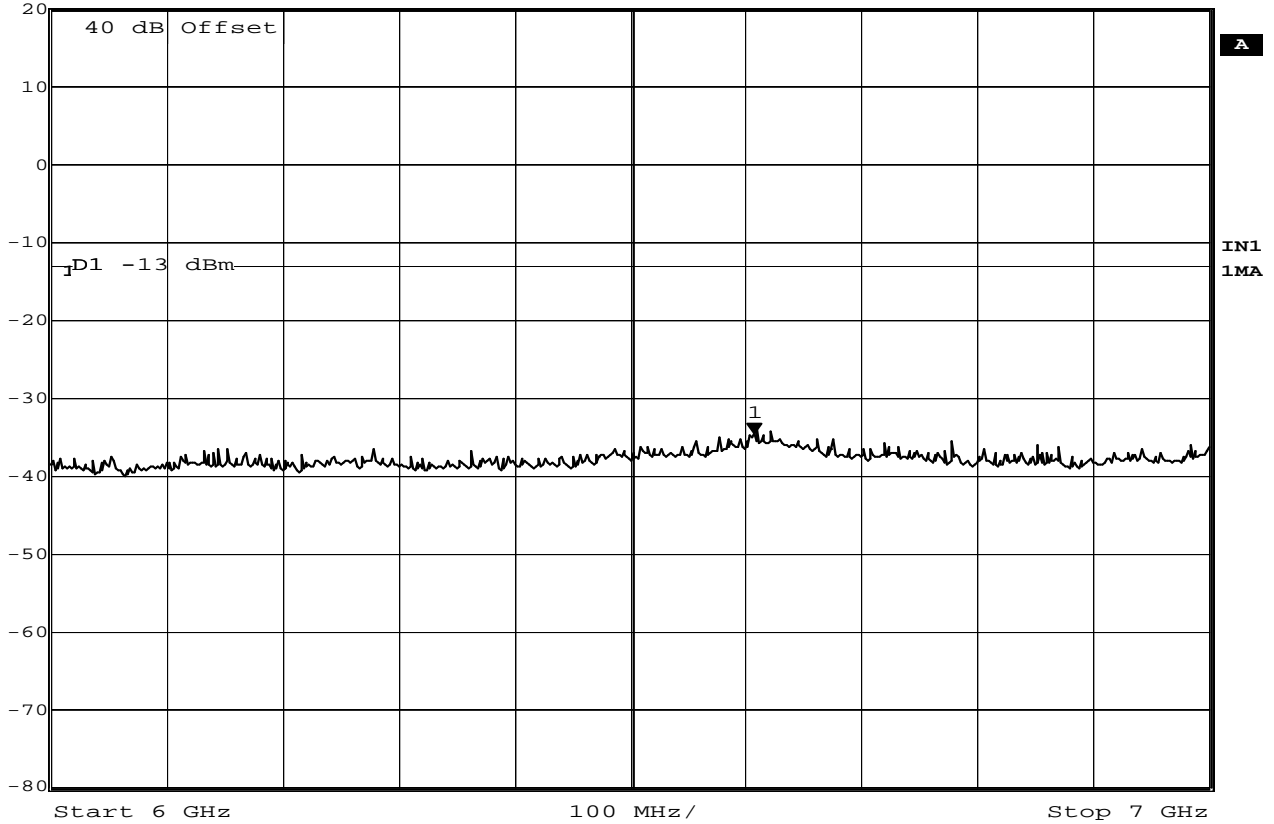
Date: 28.APR.2011 15:07:43

Intermodulation Tests – Antenna Conducted

MANUFACTURER : Shure, Inc.
MODEL NUMBER : AXT200 H4
SERIAL NUMBER :
TEST MODE : Tx @ 518MHz and 578MHz
NOTES : 50mW, Zigbee Tx at 2480MHz
TEST DATE : April 28, 2011
TEST PARAMETERS :
NOTES :
EQUIPMENT USED : RBA0, T2S3, T2D7



Marker 1 [T1] RBW 100 kHz RF Att 10 dB
 Ref Lvl -34.75 dBm VBW 100 kHz
 20 dBm 6.60721443 GHz SWT 250 ms Unit dBm



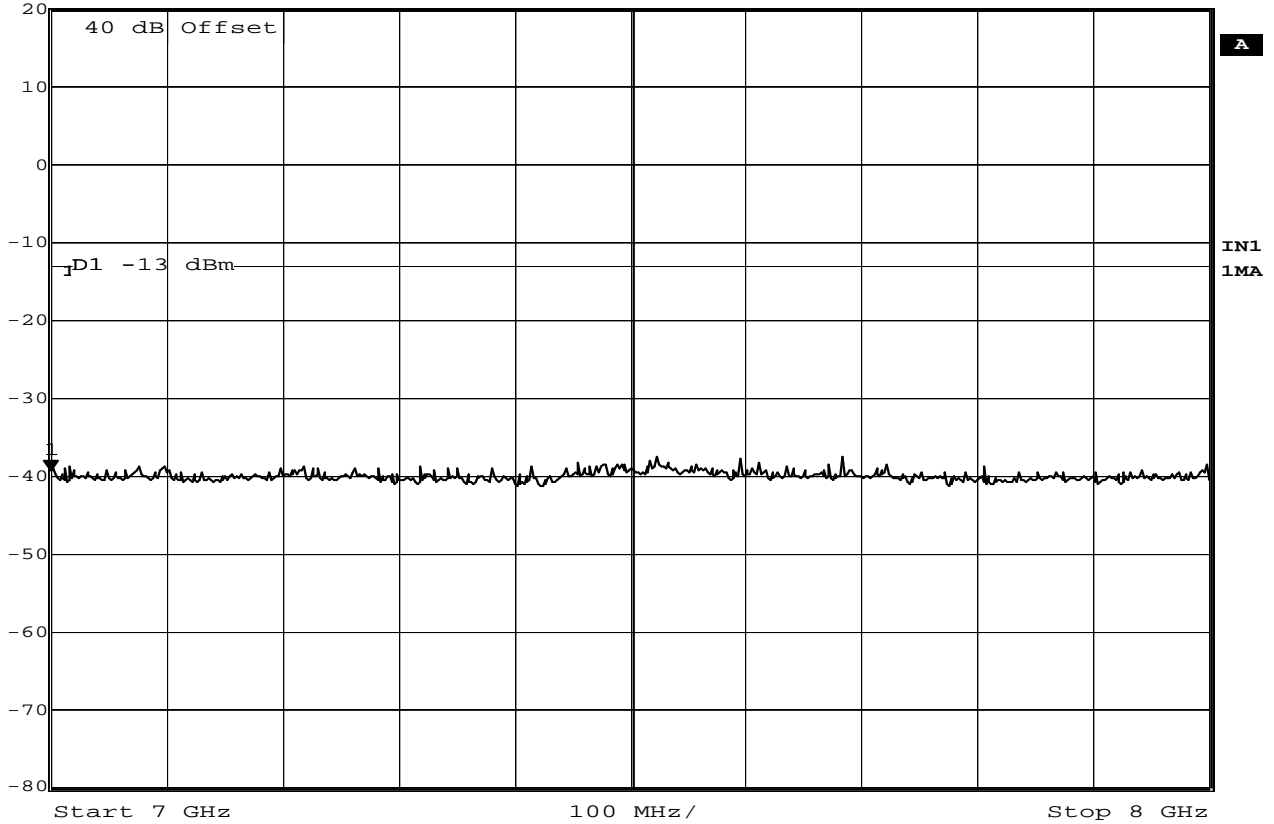
Date: 28.APR.2011 15:08:38

Intermodulation Tests – Antenna Conducted

MANUFACTURER : Shure, Inc.
 MODEL NUMBER : AXT200 H4
 SERIAL NUMBER :
 TEST MODE : Tx @ 518MHz and 578MHz
 NOTES : 50mW, Zigbee Tx at 2480MHz
 TEST DATE : April 28, 2011
 TEST PARAMETERS :
 NOTES :
 EQUIPMENT USED : RBA0, T2S3, T2D7



Marker 1 [T1] RBW 100 kHz RF Att 10 dB
 Ref Lvl -39.46 dBm VBW 100 kHz
 20 dBm 7.00000000 GHz SWT 250 ms Unit dBm



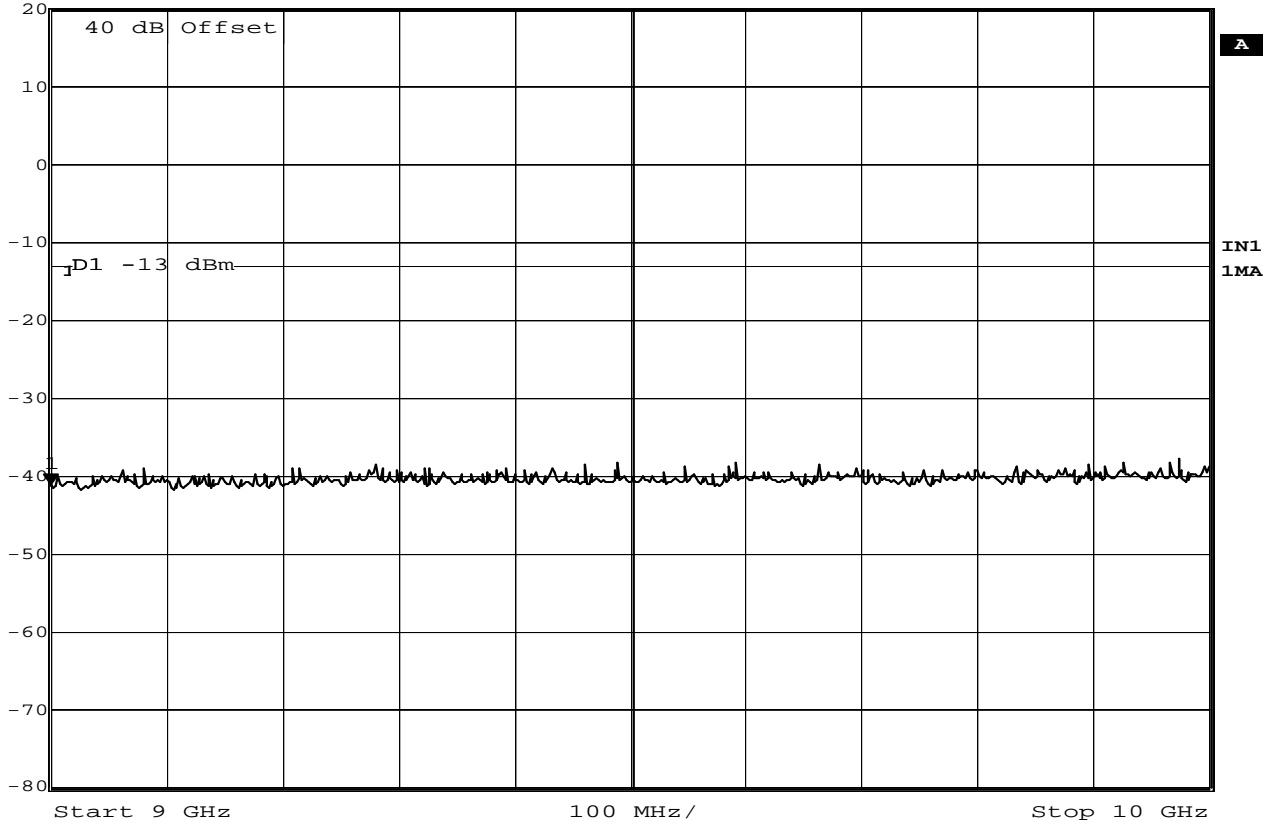
Date: 28.APR.2011 15:10:12

Intermodulation Tests – Antenna Conducted

MANUFACTURER : Shure, Inc.
 MODEL NUMBER : AXT200 H4
 SERIAL NUMBER :
 TEST MODE : Tx @ 518MHz and 578MHz
 NOTES : 50mW, Zigbee Tx at 2480MHz
 TEST DATE : April 28, 2011
 TEST PARAMETERS :
 NOTES :
 EQUIPMENT USED : RBA0, T2S3, T2D7



Marker 1 [T1] RBW 100 kHz RF Att 10 dB
 Ref Lvl -41.18 dBm VBW 100 kHz
 20 dBm 9.00000000 GHz SWT 250 ms Unit dBm



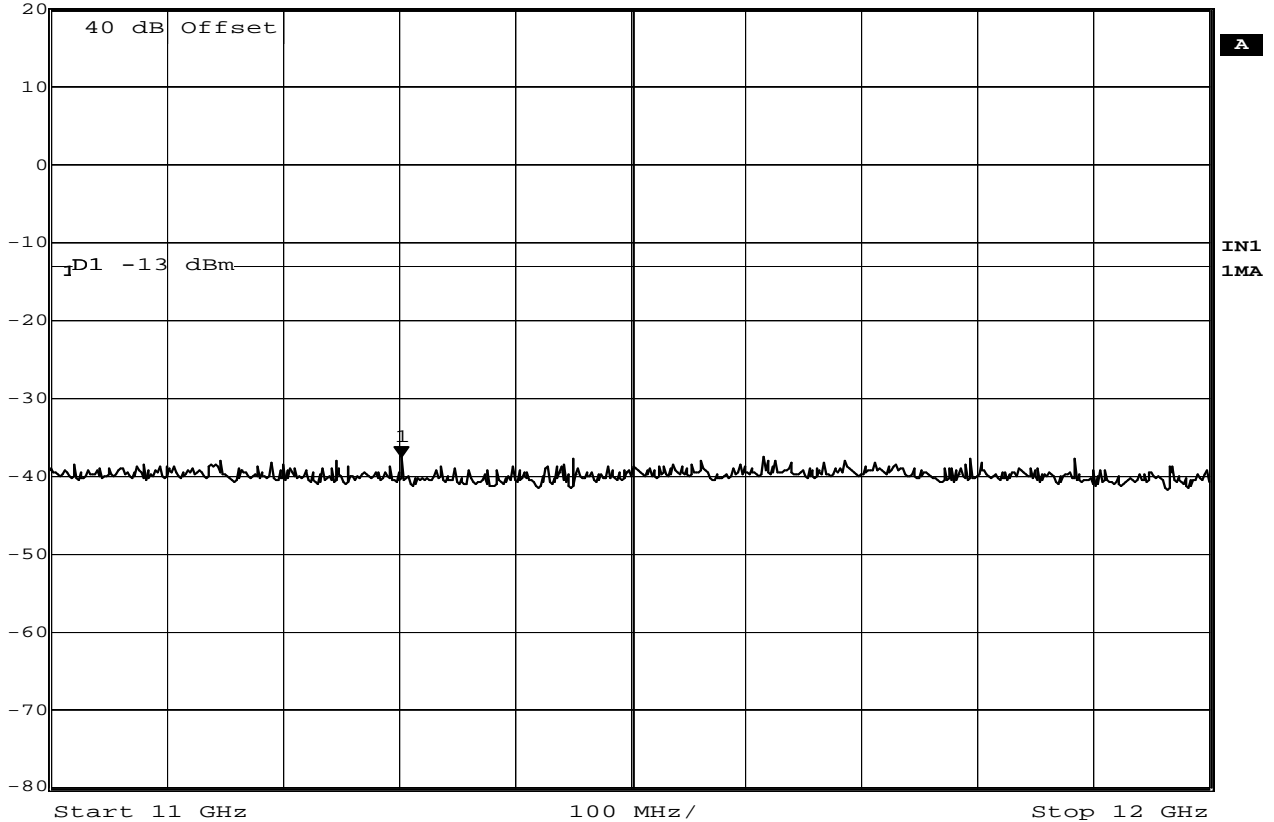
Date: 28.APR.2011 15:12:00

Intermodulation Tests – Antenna Conducted

MANUFACTURER : Shure, Inc.
 MODEL NUMBER : AXT200 H4
 SERIAL NUMBER :
 TEST MODE : Tx @ 518MHz and 578MHz
 NOTES : 50mW, Zigbee Tx at 2480MHz
 TEST DATE : April 28, 2011
 TEST PARAMETERS :
 NOTES :
 EQUIPMENT USED : RBA0, T2S3, T2D7



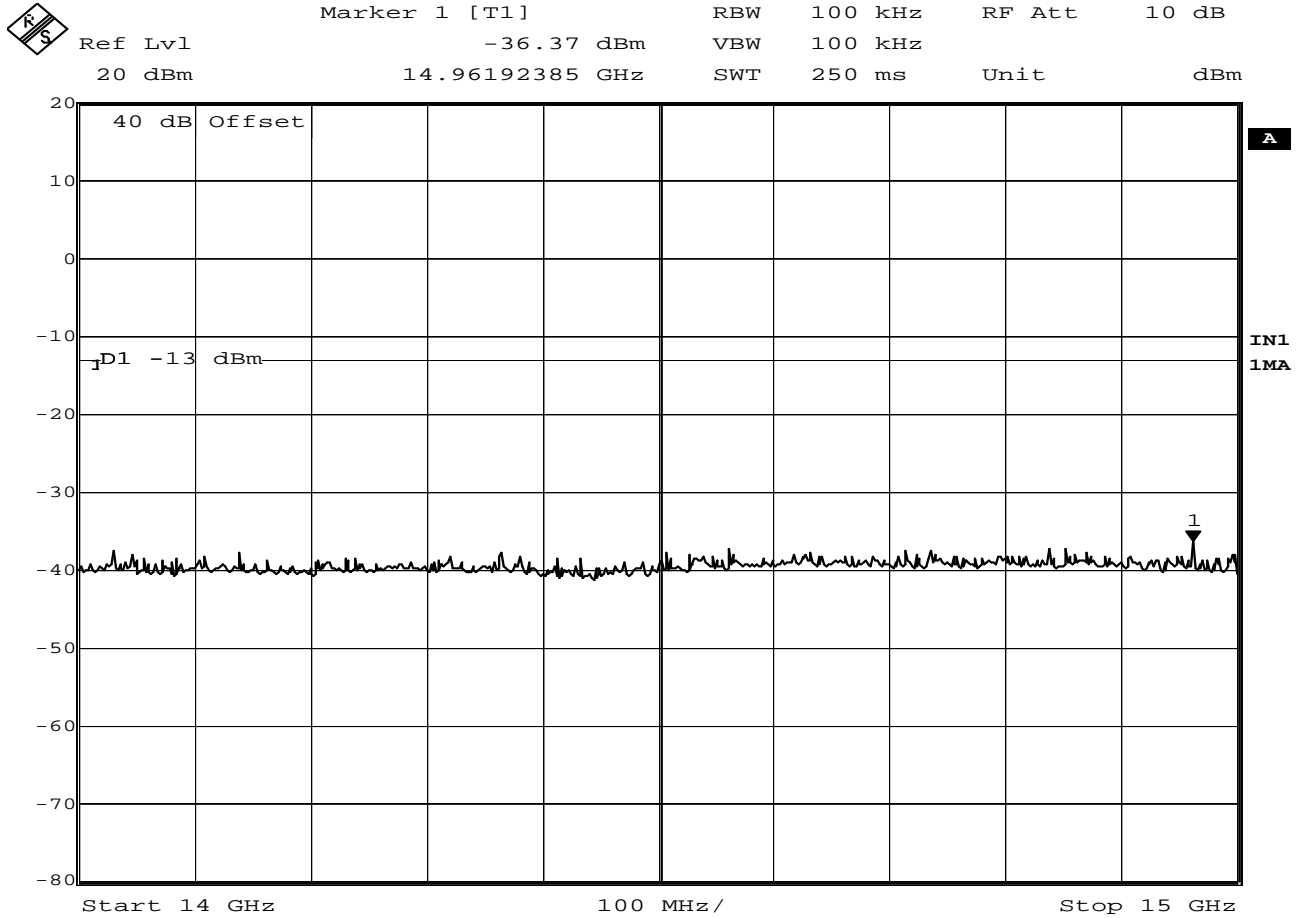
Marker 1 [T1] RBW 100 kHz RF Att 10 dB
 Ref Lvl -37.57 dBm VBW 100 kHz
 20 dBm 11.30260521 GHz SWT 250 ms Unit dBm



Date: 28.APR.2011 15:14:27

Intermodulation Tests – Antenna Conducted

MANUFACTURER : Shure, Inc.
 MODEL NUMBER : AXT200 H4
 SERIAL NUMBER :
 TEST MODE : Tx @ 518MHz and 578MHz
 NOTES : 50mW, Zigbee Tx at 2480MHz
 TEST DATE : April 28, 2011
 TEST PARAMETERS :
 NOTES :
 EQUIPMENT USED : RBA0, T2S3, T2D7



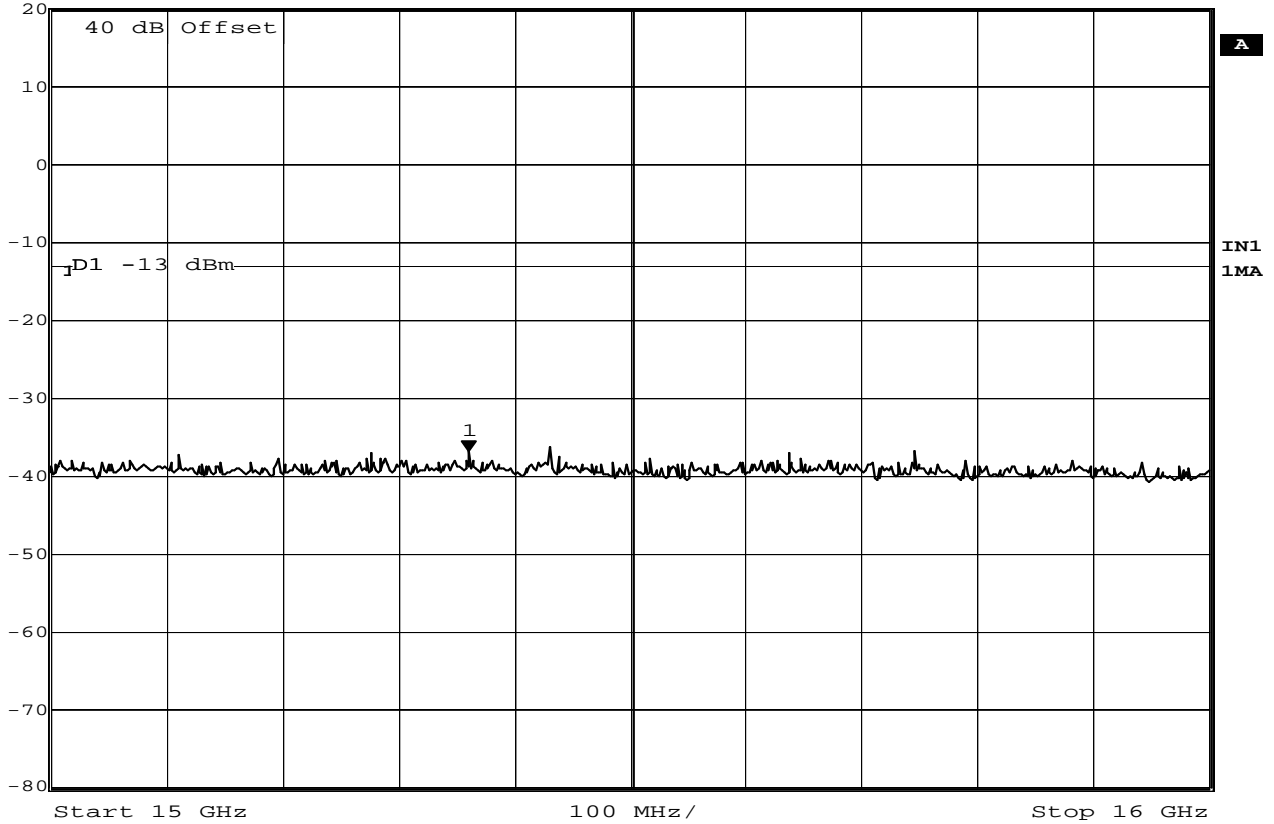
Date: 28.APR.2011 15:17:25

Intermodulation Tests – Antenna Conducted

MANUFACTURER : Shure, Inc.
MODEL NUMBER : AXT200 H4
SERIAL NUMBER :
TEST MODE : Tx @ 518MHz and 578MHz
NOTES : 50mW, Zigbee Tx at 2480MHz
TEST DATE : April 28, 2011
TEST PARAMETERS :
NOTES :
EQUIPMENT USED : RBA0, T2S3, T2D7



Marker 1 [T1] RBW 100 kHz RF Att 10 dB
 Ref Lvl -36.76 dBm VBW 100 kHz
 20 dBm 15.36072144 GHz SWT 250 ms Unit dBm



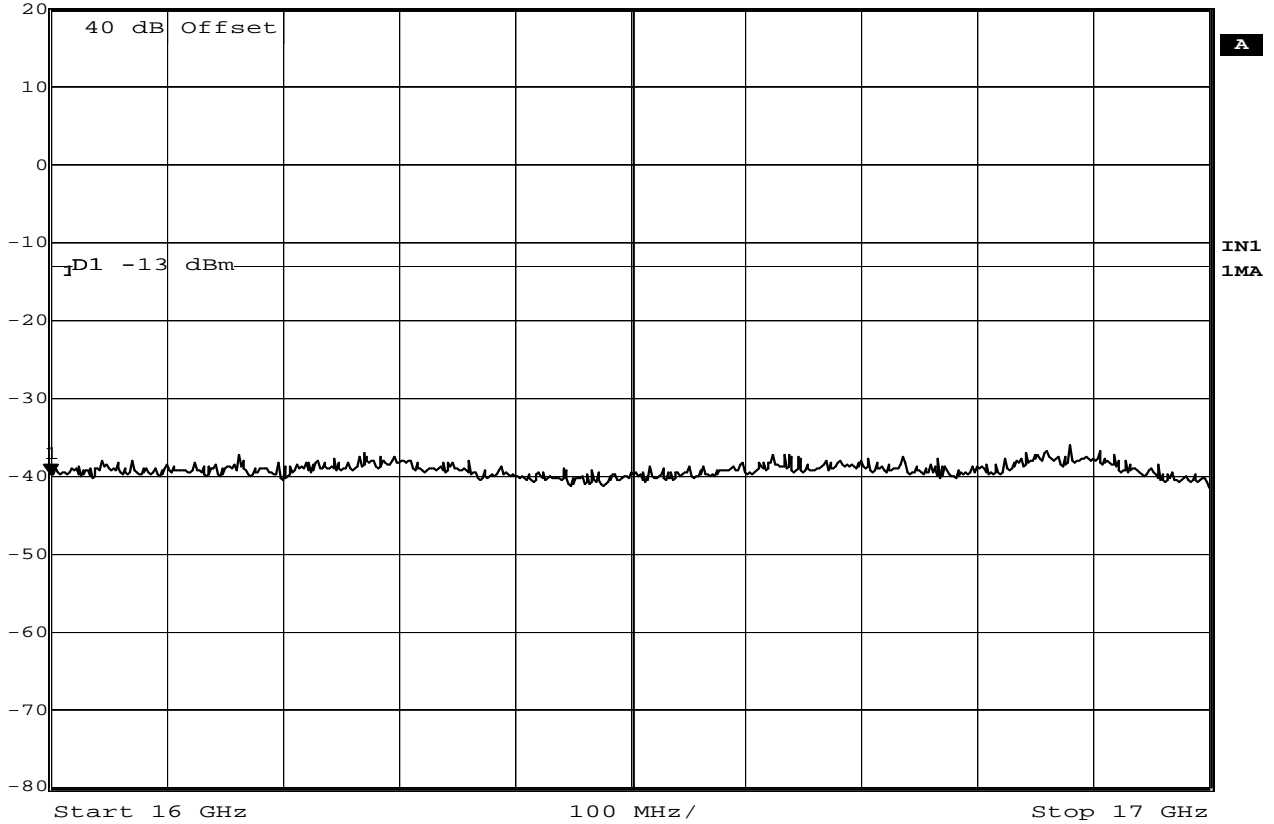
Date: 28.APR.2011 15:19:05

Intermodulation Tests – Antenna Conducted

MANUFACTURER : Shure, Inc.
 MODEL NUMBER : AXT200 H4
 SERIAL NUMBER :
 TEST MODE : Tx @ 518MHz and 578MHz
 NOTES : 50mW, Zigbee Tx at 2480MHz
 TEST DATE : April 28, 2011
 TEST PARAMETERS :
 NOTES :
 EQUIPMENT USED : RBA0, T2S3, T2D7



Marker 1 [T1] RBW 100 kHz RF Att 10 dB
 Ref Lvl -39.86 dBm VBW 100 kHz
 20 dBm 16.00000000 GHz SWT 250 ms Unit dBm



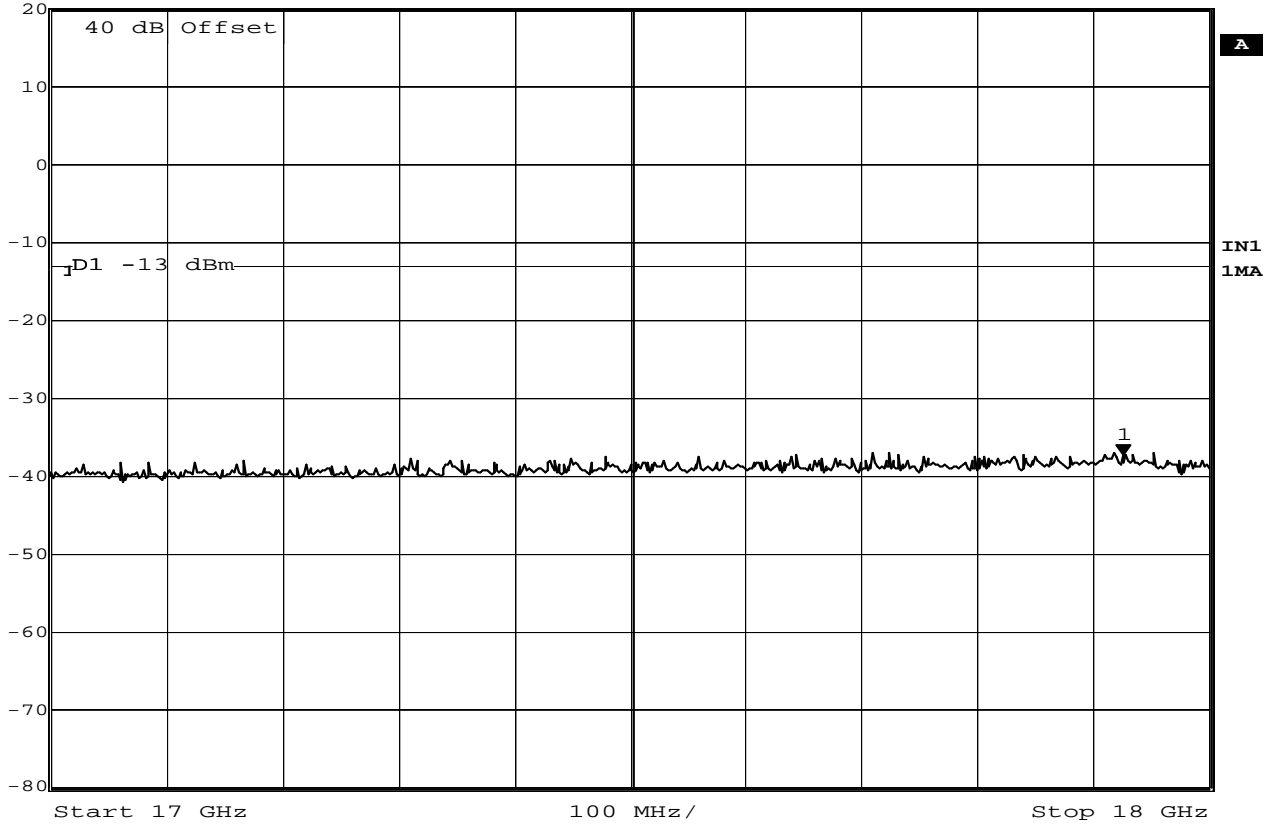
Date: 28.APR.2011 15:21:01

Intermodulation Tests – Antenna Conducted

MANUFACTURER : Shure, Inc.
 MODEL NUMBER : AXT200 H4
 SERIAL NUMBER :
 TEST MODE : Tx @ 518MHz and 578MHz
 NOTES : 50mW, Zigbee Tx at 2480MHz
 TEST DATE : April 28, 2011
 TEST PARAMETERS :
 NOTES :
 EQUIPMENT USED : RBA0, T2S3, T2D7



Marker 1 [T1] RBW 100 kHz RF Att 10 dB
 Ref Lvl -37.44 dBm VBW 100 kHz
 20 dBm 17.92585170 GHz SWT 250 ms Unit dBm




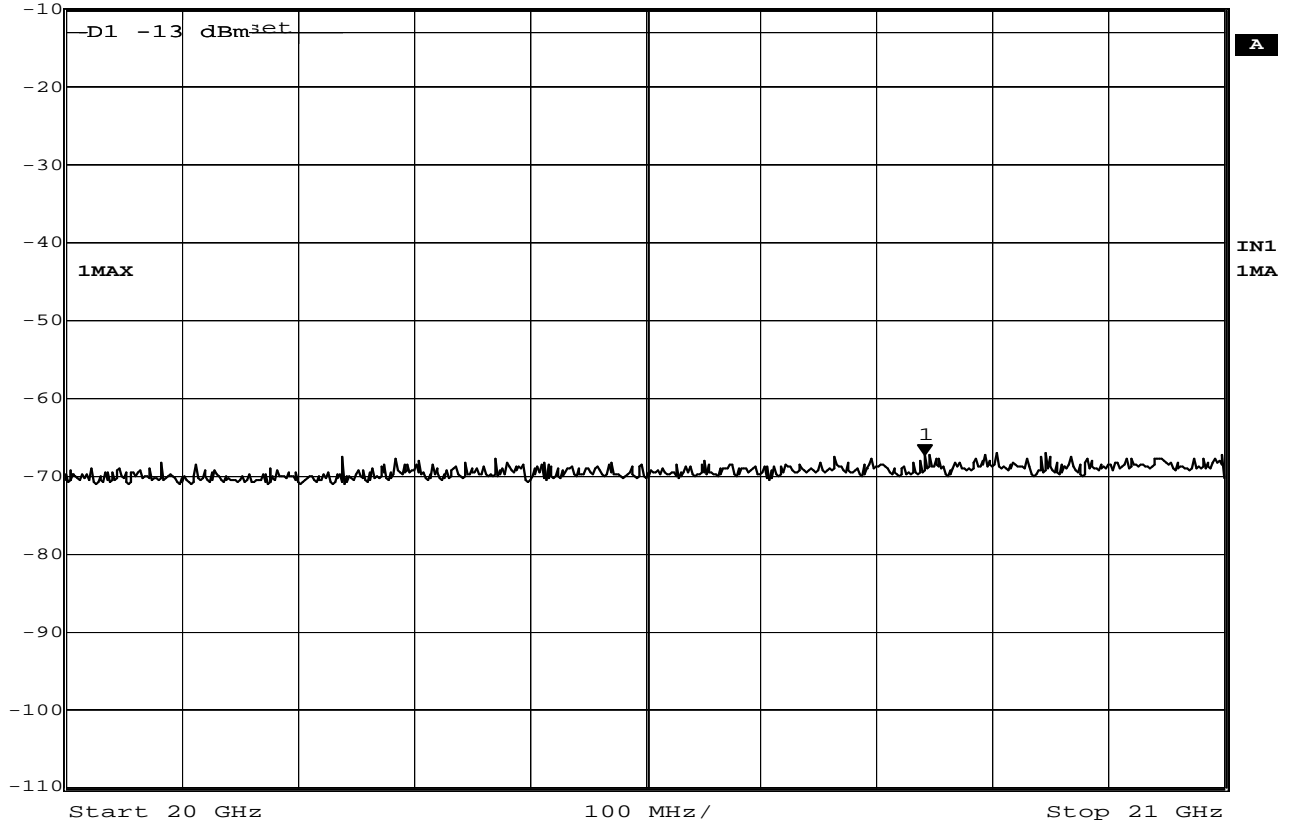
Date: 28.APR.2011 15:24:11

Intermodulation Tests – Antenna Conducted

MANUFACTURER : Shure, Inc.
 MODEL NUMBER : AXT200 H4
 SERIAL NUMBER :
 TEST MODE : Tx @ 518MHz and 578MHz
 NOTES : 50mW, Zigbee Tx at 2480MHz
 TEST DATE : April 28, 2011
 TEST PARAMETERS :
 NOTES :
 EQUIPMENT USED : RBA0, T2S3, T2D7




 Marker 1 [T1] RBW 100 kHz RF Att 10 dB
 Ref Lvl -67.33 dBm VBW 100 kHz
 -10 dBm 20.74148297 GHz SWT 250 ms Unit dBm



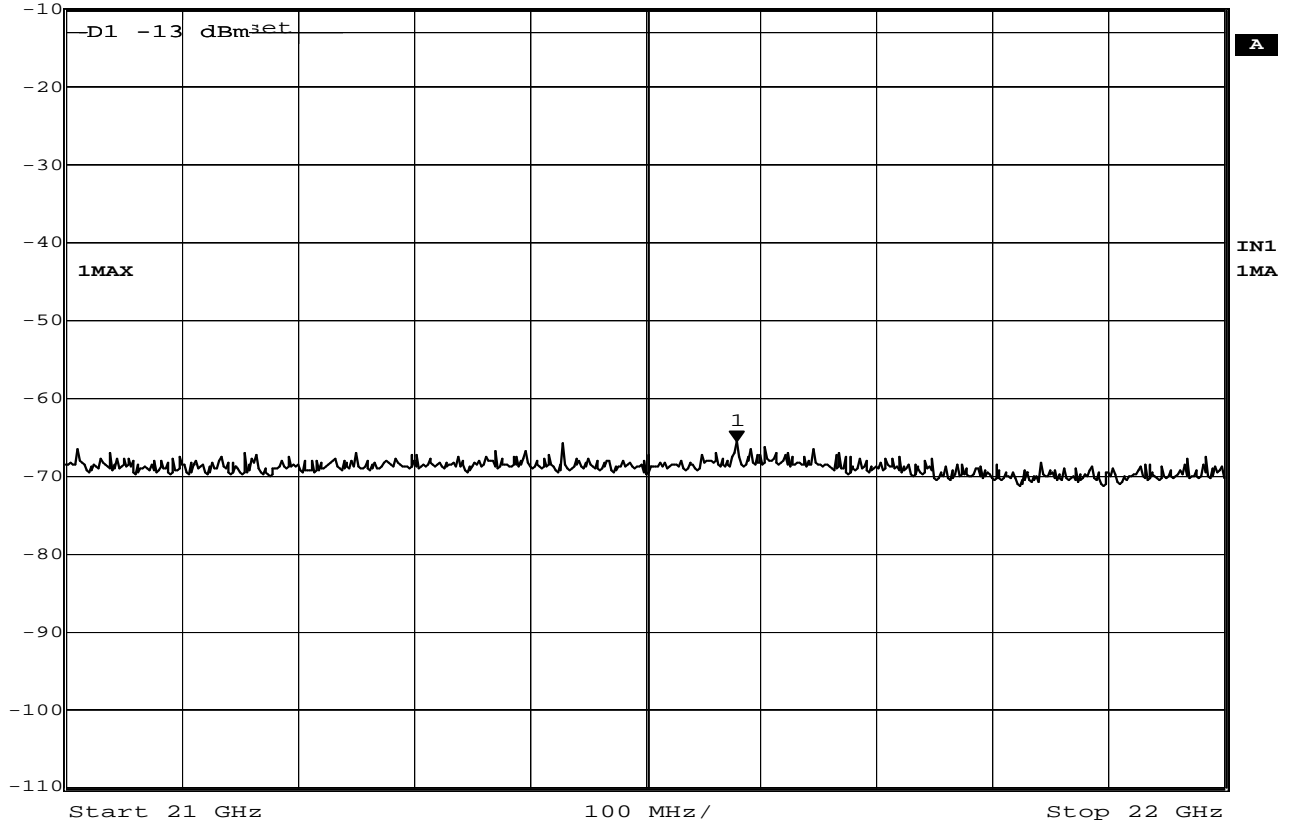
Date: 28.APR.2011 15:28:39

Intermodulation Tests – Antenna Conducted

MANUFACTURER : Shure, Inc.
 MODEL NUMBER : AXT200 H4
 SERIAL NUMBER :
 TEST MODE : Tx @ 518MHz and 578MHz
 NOTES : 50mW, Zigbee Tx at 2480MHz
 TEST DATE : April 28, 2011
 TEST PARAMETERS :
 NOTES :
 EQUIPMENT USED : RBA0, T1P0



Ref Lvl -10 dBm
 Marker 1 [T1] -65.54 dBm
 21.57915832 GHz
 RBW 100 kHz
 VBW 100 kHz
 SWT 250 ms
 RF Att 10 dB
 Unit dBm



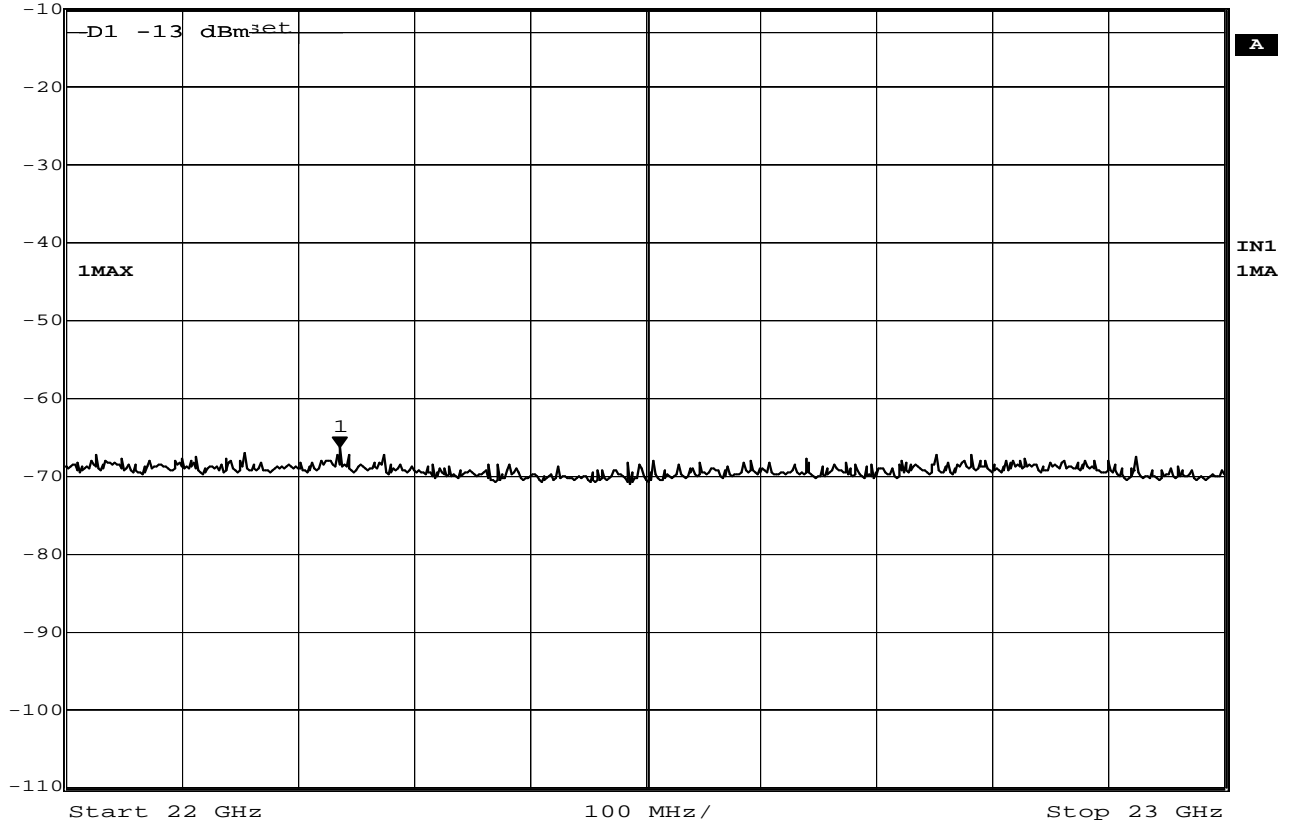
Date: 28.APR.2011 15:29:22

Intermodulation Tests – Antenna Conducted

MANUFACTURER : Shure, Inc.
 MODEL NUMBER : AXT200 H4
 SERIAL NUMBER :
 TEST MODE : Tx @ 518MHz and 578MHz
 NOTES : 50mW, Zigbee Tx at 2480MHz
 TEST DATE : April 28, 2011
 TEST PARAMETERS :
 NOTES :
 EQUIPMENT USED : RBA0, T1P0



Marker 1 [T1] RBW 100 kHz RF Att 10 dB
 Ref Lvl -66.50 dBm VBW 100 kHz
 -10 dBm 22.23647295 GHz SWT 250 ms Unit dBm



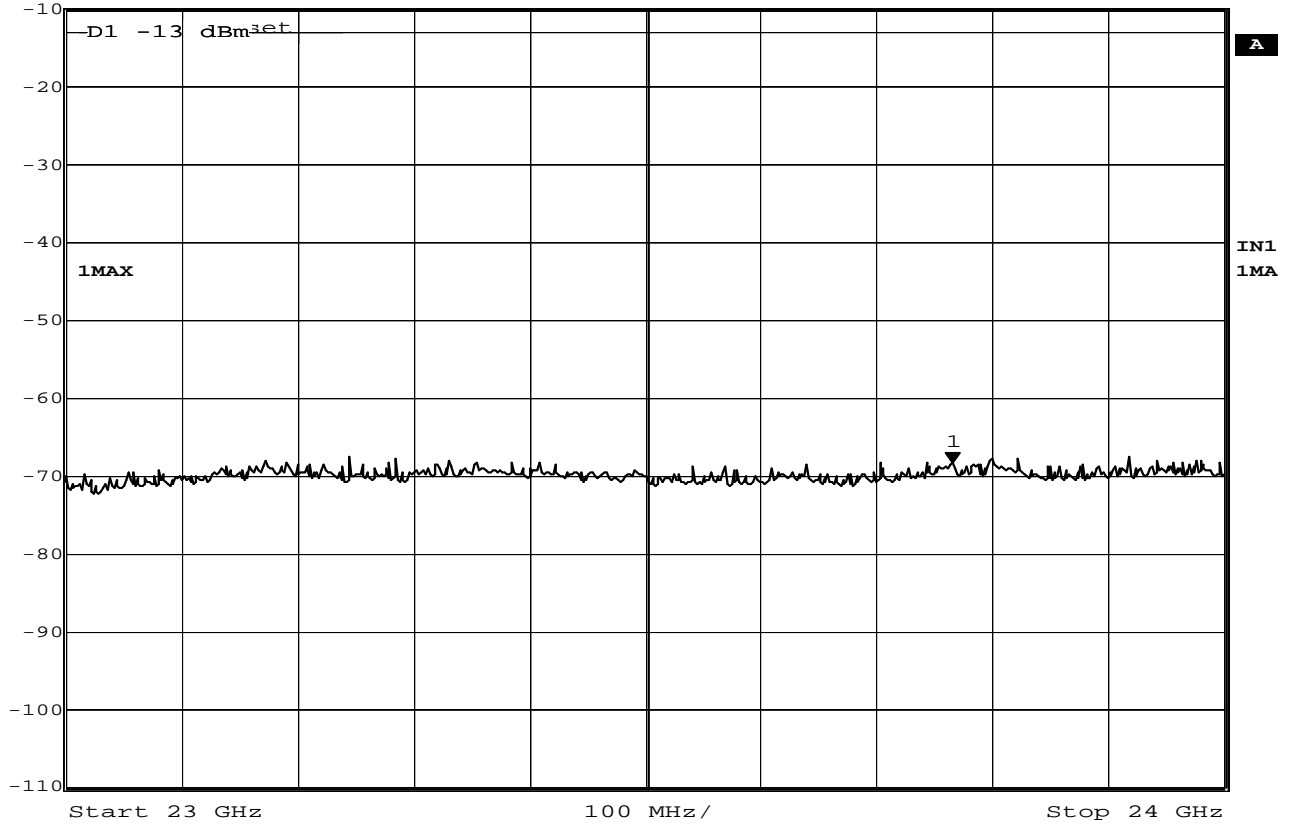
Date: 28.APR.2011 15:31:02

Intermodulation Tests – Antenna Conducted

MANUFACTURER : Shure, Inc.
 MODEL NUMBER : AXT200 H4
 SERIAL NUMBER :
 TEST MODE : Tx @ 518MHz and 578MHz
 NOTES : 50mW, Zigbee Tx at 2480MHz
 TEST DATE : April 28, 2011
 TEST PARAMETERS :
 NOTES :
 EQUIPMENT USED : RBA0, T1P0



Marker 1 [T1] RBW 100 kHz RF Att 10 dB
 Ref Lvl -68.25 dBm VBW 100 kHz
 -10 dBm 23.76553106 GHz SWT 250 ms Unit dBm



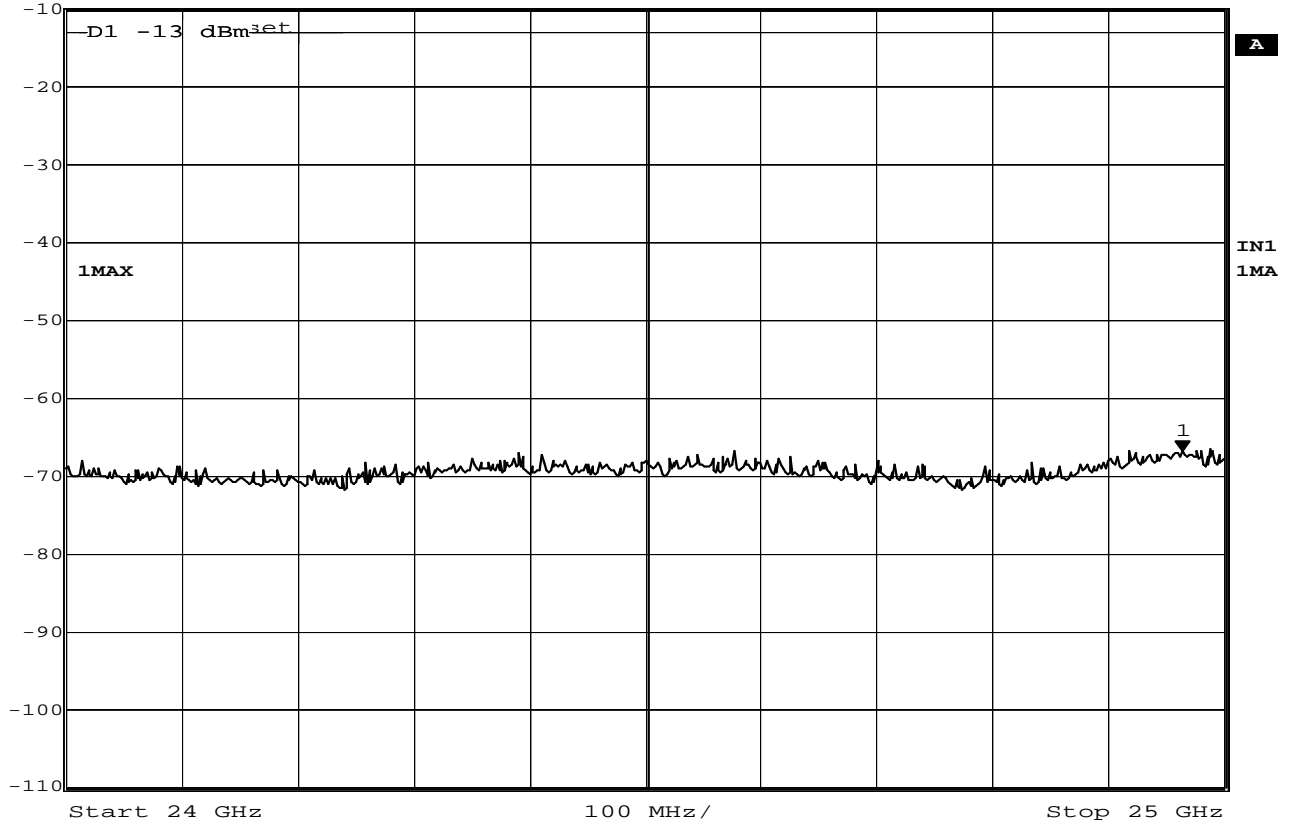
Date: 28.APR.2011 15:31:55

Intermodulation Tests – Antenna Conducted

MANUFACTURER : Shure, Inc.
 MODEL NUMBER : AXT200 H4
 SERIAL NUMBER :
 TEST MODE : Tx @ 518MHz and 578MHz
 NOTES : 50mW, Zigbee Tx at 2480MHz
 TEST DATE : April 28, 2011
 TEST PARAMETERS :
 NOTES :
 EQUIPMENT USED : RBA0, T1P0



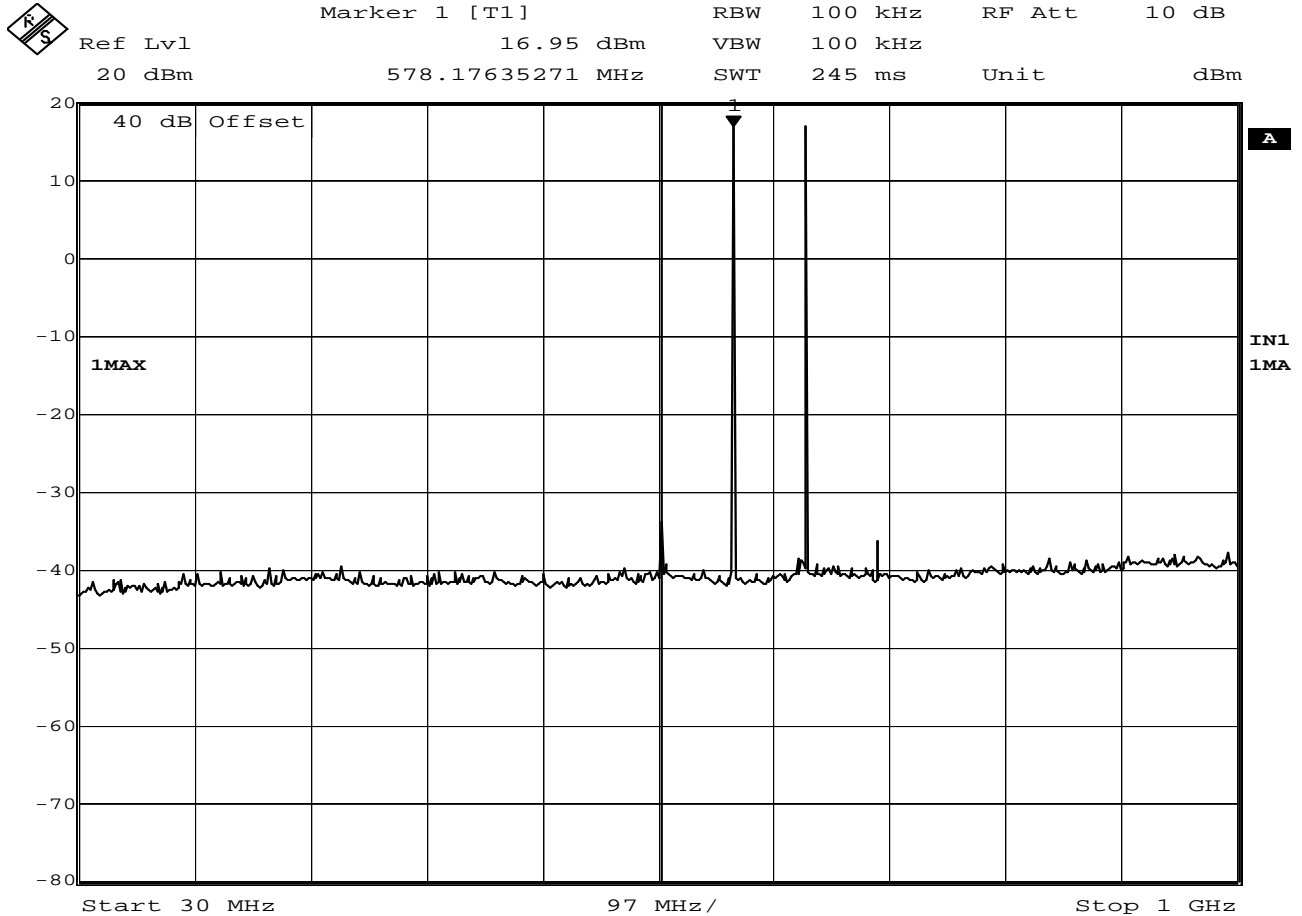
Marker 1 [T1] RBW 100 kHz RF Att 10 dB
 Ref Lvl -66.81 dBm VBW 100 kHz
 -10 dBm 24.96392786 GHz SWT 250 ms Unit dBm



Date: 28.APR.2011 15:33:02

Intermodulation Tests – Antenna Conducted

MANUFACTURER : Shure, Inc.
 MODEL NUMBER : AXT200 H4
 SERIAL NUMBER :
 TEST MODE : Tx @ 518MHz and 578MHz
 NOTES : 50mW, Zigbee Tx at 2480MHz
 TEST DATE : April 28, 2011
 TEST PARAMETERS :
 NOTES :
 EQUIPMENT USED : RBA0, T1P0



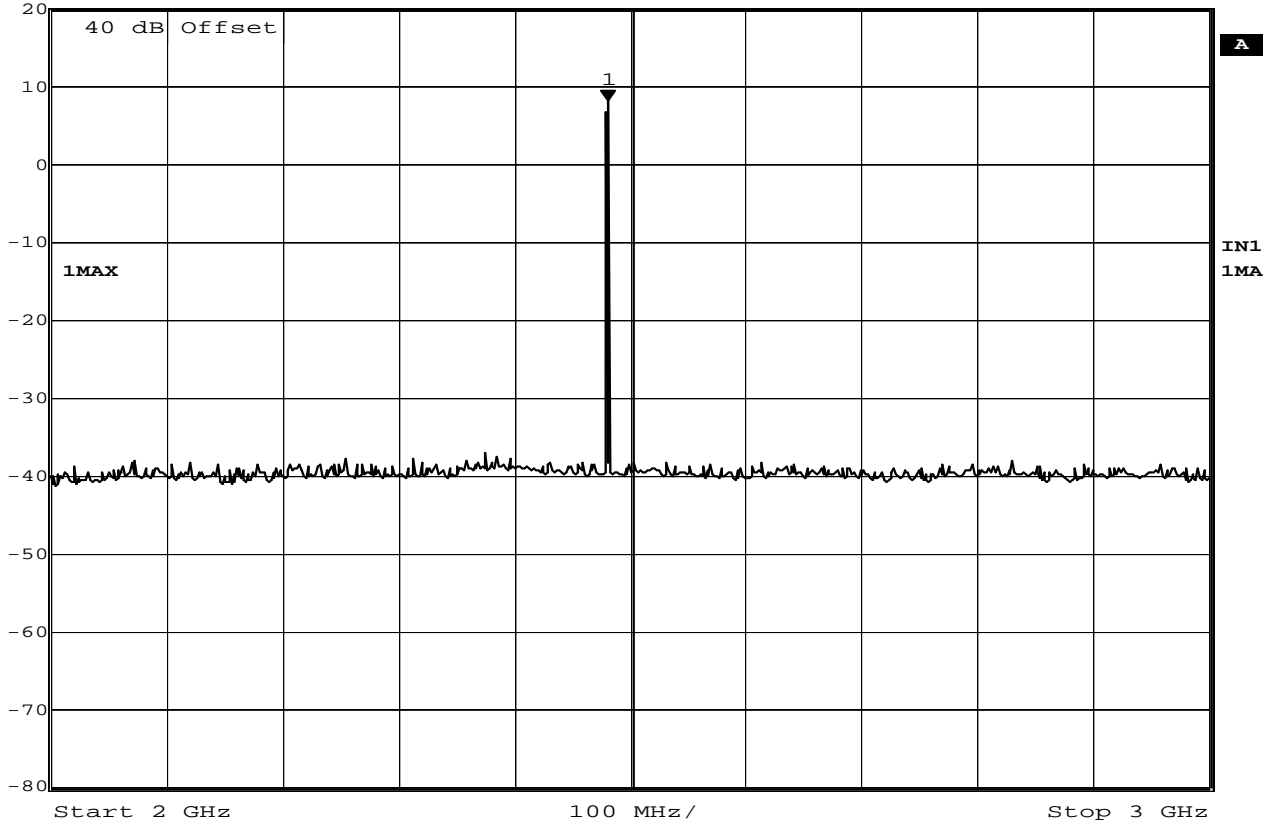
Date: 4.MAY.2011 07:26:27

Intermodulation Tests – Antenna Conducted

MANUFACTURER : Shure, Inc.
 MODEL NUMBER : AXT200 J5
 SERIAL NUMBER :
 TEST MODE : Tx @ 578MHz and 638MHz
 NOTES : 50mW, Zigbee Tx at 2480MHz
 TEST DATE : May 4, 2011
 TEST PARAMETERS :
 NOTES :
 EQUIPMENT USED : RBA0, T2D7, T2S3



Marker 1 [T1] RBW 100 kHz RF Att 10 dB
 Ref Lvl 8.14 dBm VBW 100 kHz
 20 dBm 2.48096192 GHz SWT 250 ms Unit dBm



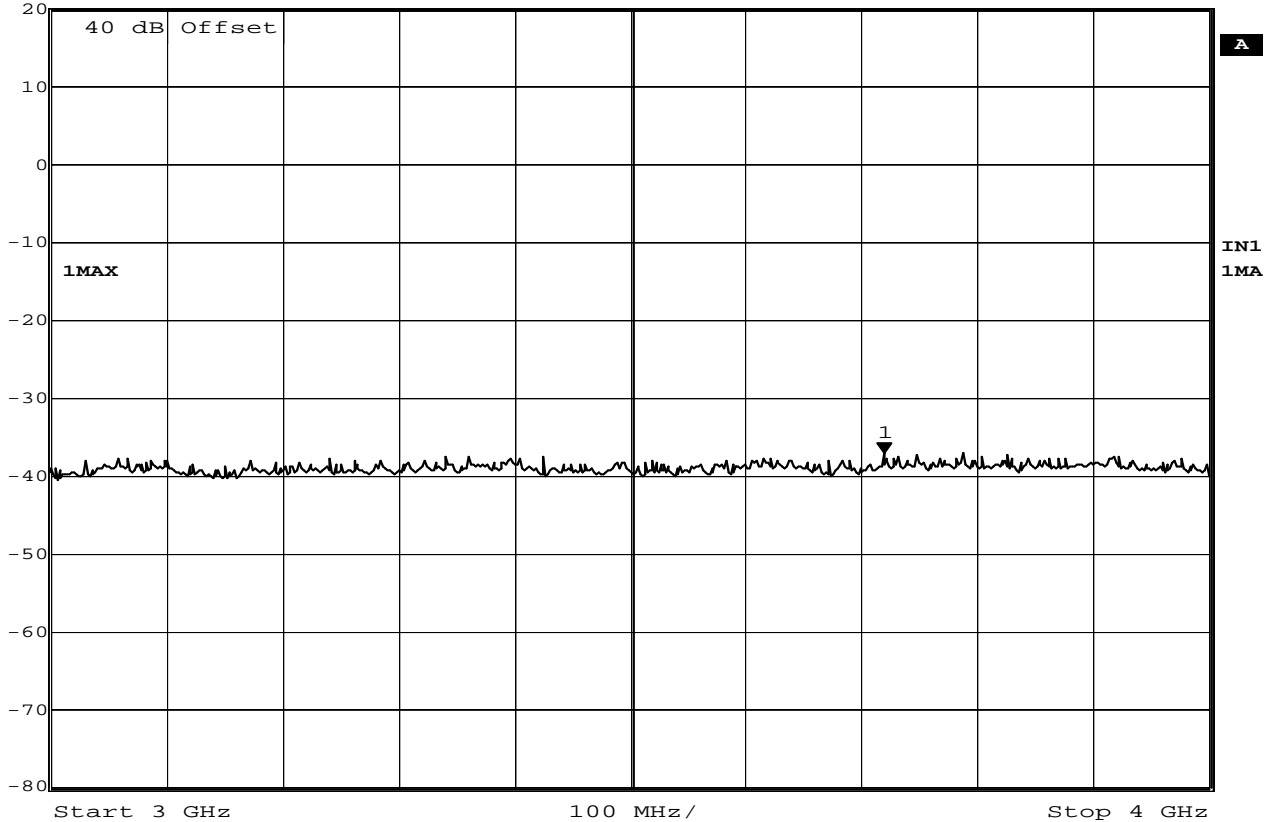
Date: 4.MAY.2011 07:30:28

Intermodulation Tests – Antenna Conducted

MANUFACTURER : Shure, Inc.
 MODEL NUMBER : AXT200 J5
 SERIAL NUMBER :
 TEST MODE : Tx @ 578MHz and 638MHz
 NOTES : 50mW, Zigbee Tx at 2480MHz
 TEST DATE : May 4, 2011
 TEST PARAMETERS :
 NOTES :
 EQUIPMENT USED : RBA0, T2D7, T2S3



Marker 1 [T1] RBW 100 kHz RF Att 10 dB
 Ref Lvl -37.19 dBm VBW 100 kHz
 20 dBm 3.71943888 GHz SWT 250 ms Unit dBm



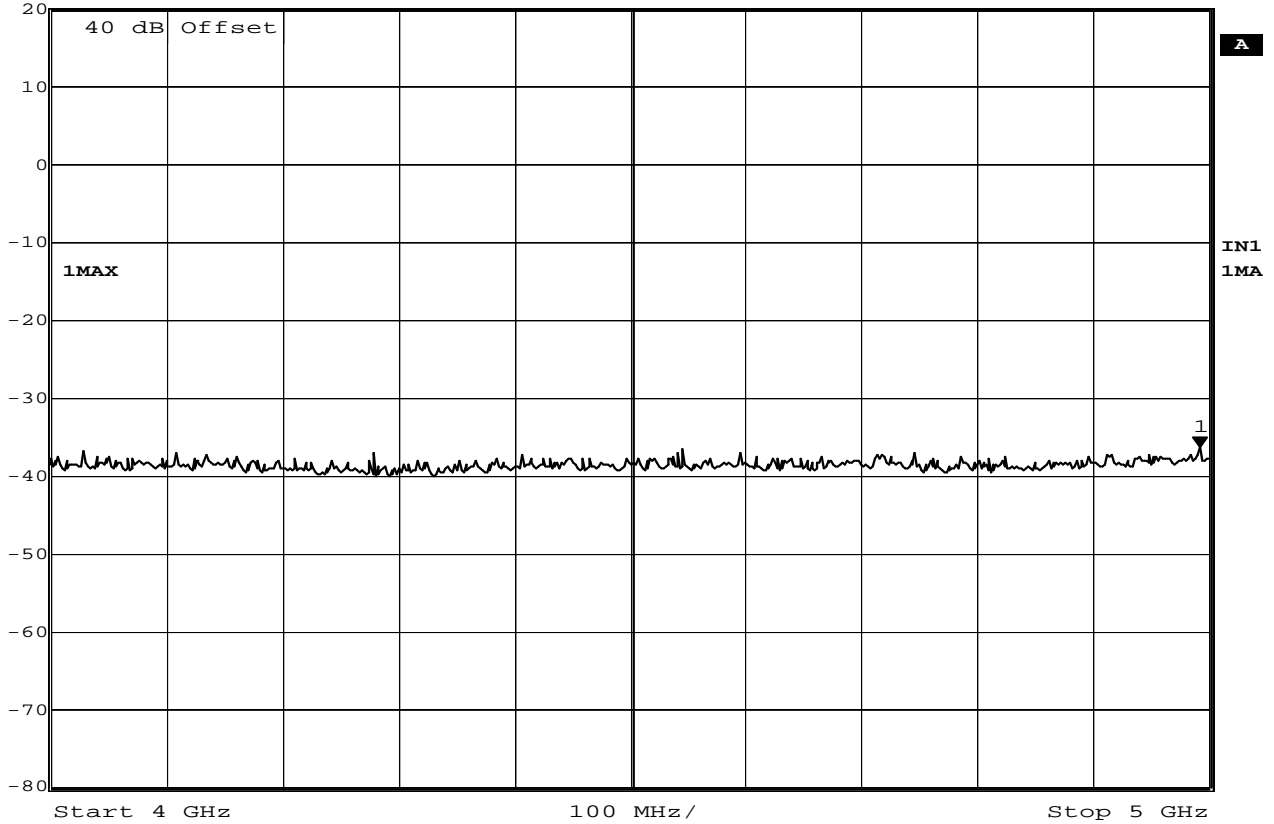
Date: 4.MAY.2011 07:31:37

Intermodulation Tests – Antenna Conducted

MANUFACTURER : Shure, Inc.
 MODEL NUMBER : AXT200 J5
 SERIAL NUMBER :
 TEST MODE : Tx @ 578MHz and 638MHz
 NOTES : 50mW, Zigbee Tx at 2480MHz
 TEST DATE : May 4, 2011
 TEST PARAMETERS :
 NOTES :
 EQUIPMENT USED : RBA0, T2D7, T2S3



Marker 1 [T1] RBW 100 kHz RF Att 10 dB
 Ref Lvl -36.40 dBm VBW 100 kHz
 20 dBm 4.99198397 GHz SWT 250 ms Unit dBm



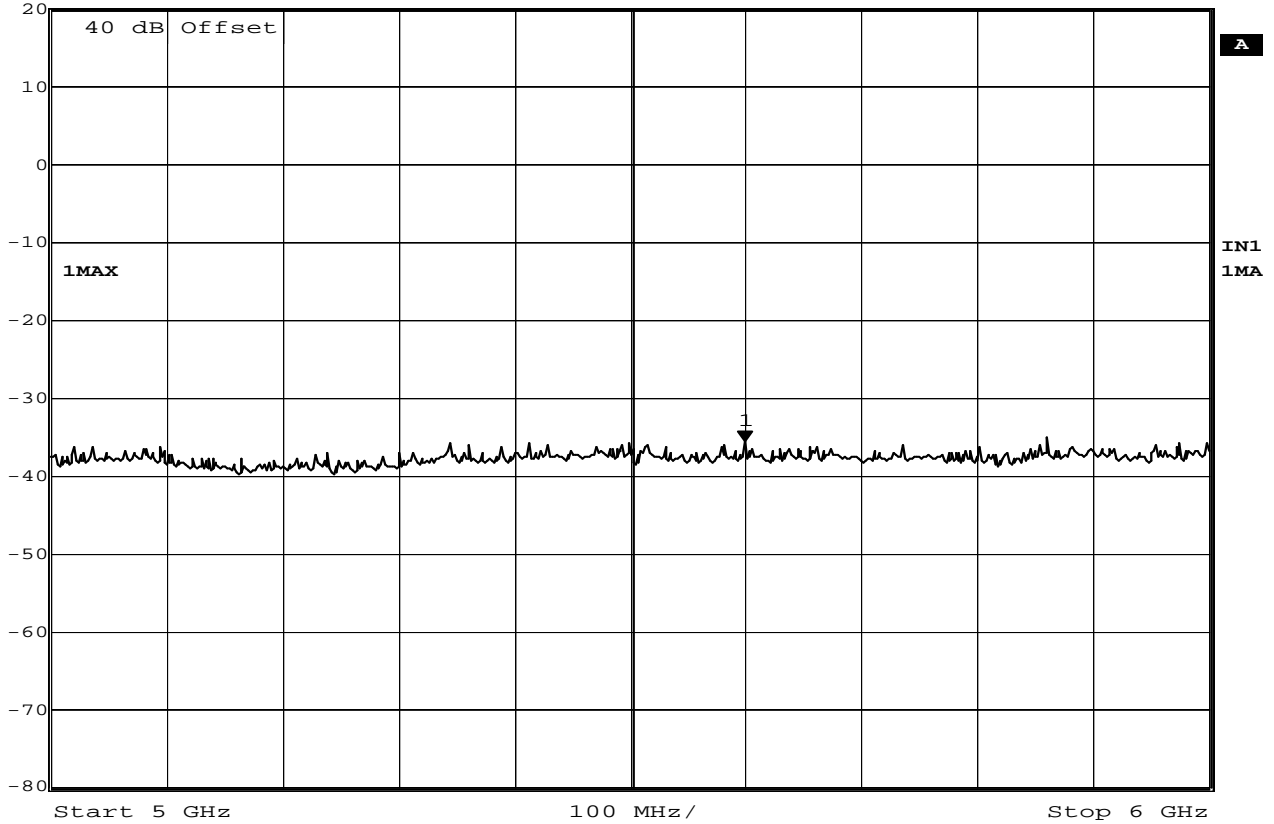
Date: 4.MAY.2011 07:32:48

Intermodulation Tests – Antenna Conducted

MANUFACTURER : Shure, Inc.
 MODEL NUMBER : AXT200 J5
 SERIAL NUMBER :
 TEST MODE : Tx @ 578MHz and 638MHz
 NOTES : 50mW, Zigbee Tx at 2480MHz
 TEST DATE : May 4, 2011
 TEST PARAMETERS :
 NOTES :
 EQUIPMENT USED : RBA0, T2D7, T2S3



Marker 1 [T1] RBW 100 kHz RF Att 10 dB
 Ref Lvl -35.75 dBm VBW 100 kHz
 20 dBm 5.59919840 GHz SWT 250 ms Unit dBm



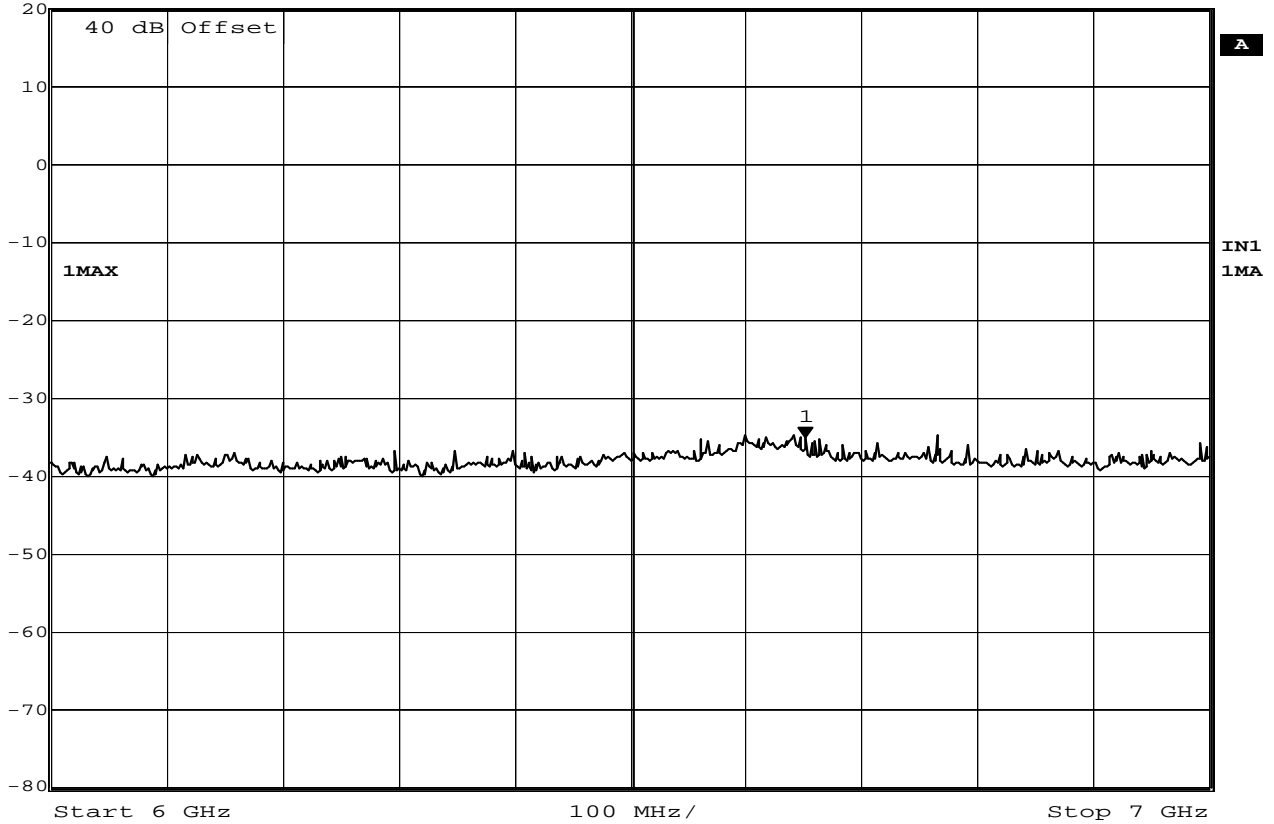
Date: 4.MAY.2011 07:34:08

Intermodulation Tests – Antenna Conducted

MANUFACTURER : Shure, Inc.
 MODEL NUMBER : AXT200 J5
 SERIAL NUMBER :
 TEST MODE : Tx @ 578MHz and 638MHz
 NOTES : 50mW, Zigbee Tx at 2480MHz
 TEST DATE : May 4, 2011
 TEST PARAMETERS :
 NOTES :
 EQUIPMENT USED : RBA0, T2D7, T2S3



Marker 1 [T1] RBW 100 kHz RF Att 10 dB
 Ref Lvl -35.13 dBm VBW 100 kHz
 20 dBm 6.65130261 GHz SWT 250 ms Unit dBm



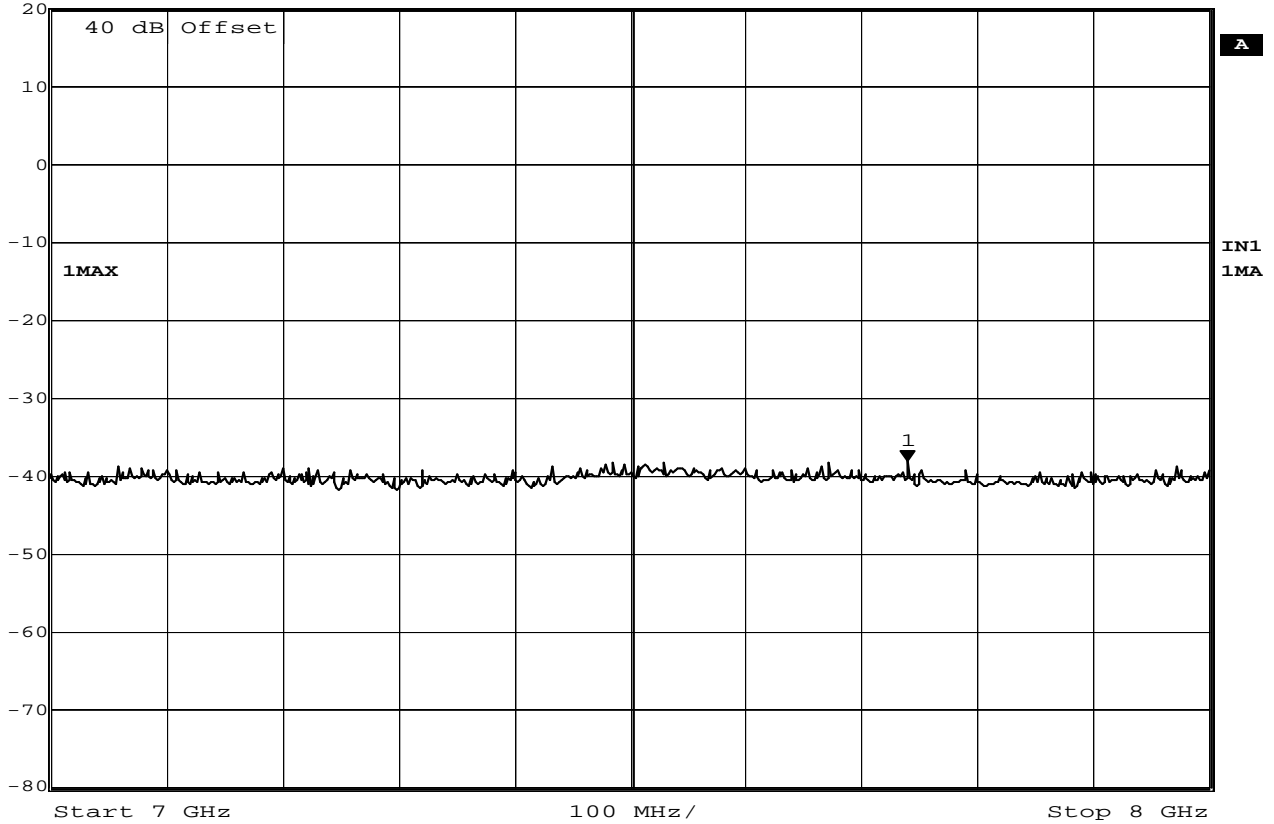
Date: 4.MAY.2011 07:35:00

Intermodulation Tests – Antenna Conducted

MANUFACTURER : Shure, Inc.
 MODEL NUMBER : AXT200 J5
 SERIAL NUMBER :
 TEST MODE : Tx @ 578MHz and 638MHz
 NOTES : 50mW, Zigbee Tx at 2480MHz
 TEST DATE : May 4, 2011
 TEST PARAMETERS :
 NOTES :
 EQUIPMENT USED : RBA0, T2D7, T2S3



Marker 1 [T1] RBW 100 kHz RF Att 10 dB
 Ref Lvl -38.13 dBm VBW 100 kHz
 20 dBm 7.73947896 GHz SWT 250 ms Unit dBm




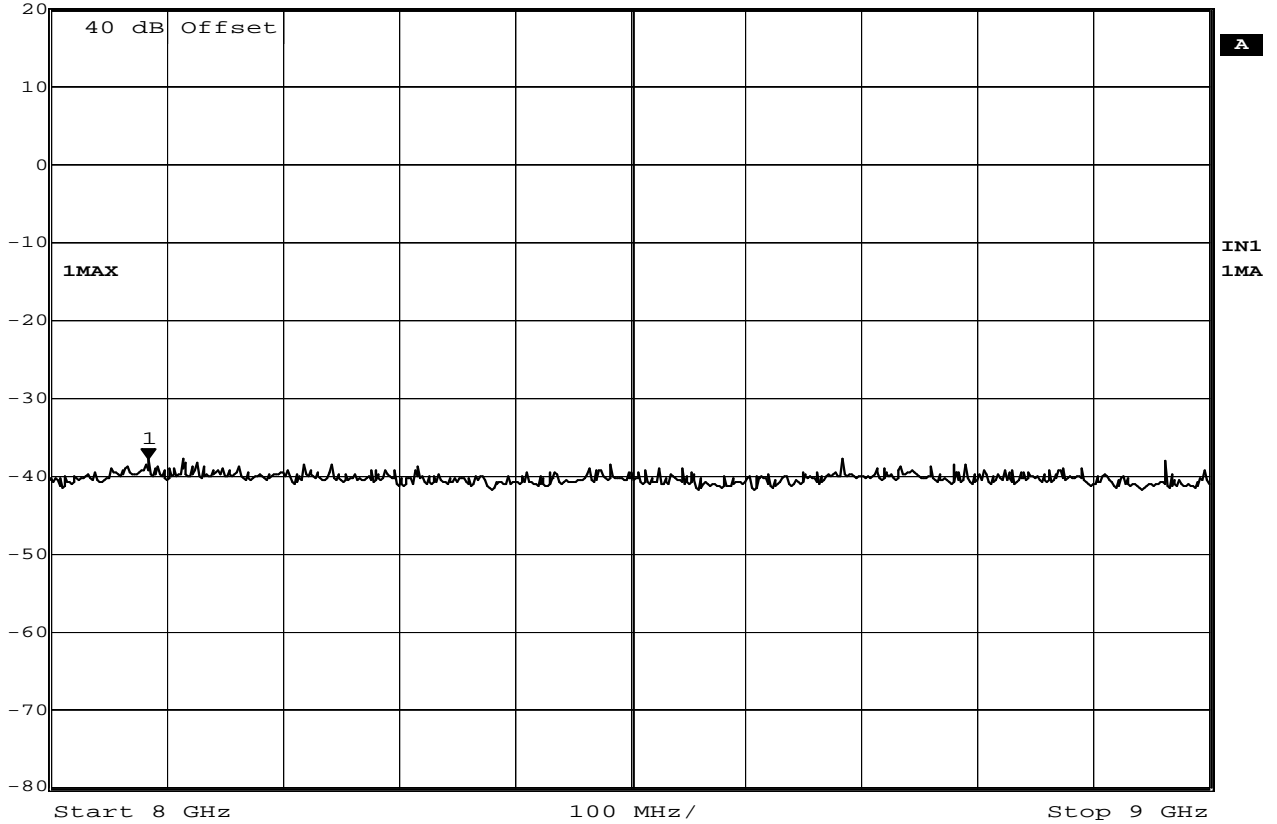
Date: 4.MAY.2011 07:36:19

Intermodulation Tests – Antenna Conducted

MANUFACTURER : Shure, Inc.
 MODEL NUMBER : AXT200 J5
 SERIAL NUMBER :
 TEST MODE : Tx @ 578MHz and 638MHz
 NOTES : 50mW, Zigbee Tx at 2480MHz
 TEST DATE : May 4, 2011
 TEST PARAMETERS :
 NOTES :
 EQUIPMENT USED : RBA0, T2D7, T2S3



 Marker 1 [T1] RBW 100 kHz RF Att 10 dB
Ref Lvl -37.82 dBm VBW 100 kHz
20 dBm 8.08416834 GHz SWT 250 ms Unit dBm



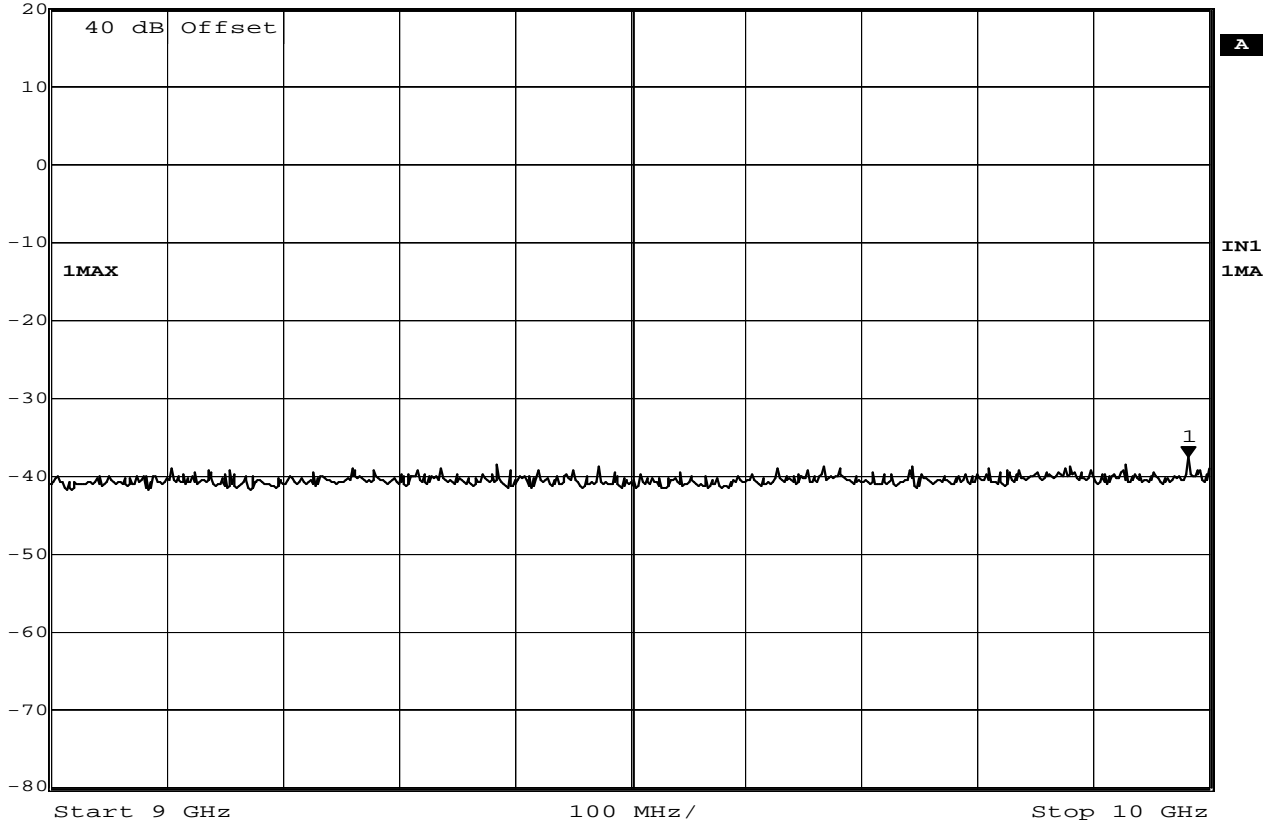
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Intermodulation Tests – Antenna Conducted

MANUFACTURER : Shure, Inc.
MODEL NUMBER : AXT200 J5
SERIAL NUMBER :
TEST MODE : Tx @ 578MHz and 638MHz
NOTES : 50mW, Zigbee Tx at 2480MHz
TEST DATE : May 4, 2011
TEST PARAMETERS :
NOTES :
EQUIPMENT USED : RBA0, T2D7, T2S3



Marker 1 [T1] RBW 100 kHz RF Att 10 dB
 Ref Lvl -37.54 dBm VBW 100 kHz
 20 dBm 9.98196393 GHz SWT 250 ms Unit dBm



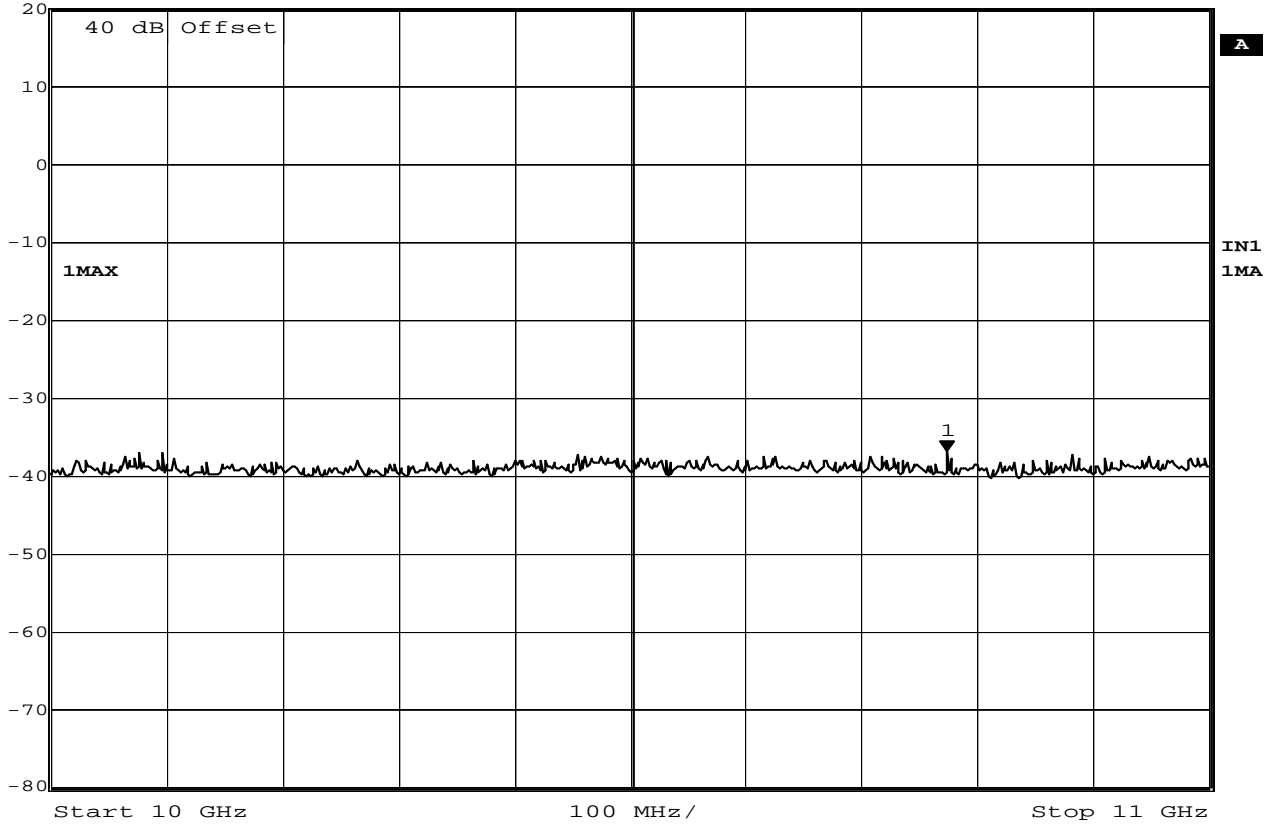
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Intermodulation Tests – Antenna Conducted

MANUFACTURER : Shure, Inc.
 MODEL NUMBER : AXT200 J5
 SERIAL NUMBER :
 TEST MODE : Tx @ 578MHz and 638MHz
 NOTES : 50mW, Zigbee Tx at 2480MHz
 TEST DATE : May 4, 2011
 TEST PARAMETERS :
 NOTES :
 EQUIPMENT USED : RBA0, T2D7, T2S3



Marker 1 [T1] RBW 100 kHz RF Att 10 dB
 Ref Lvl -36.98 dBm VBW 100 kHz
 20 dBm 10.77354709 GHz SWT 250 ms Unit dBm



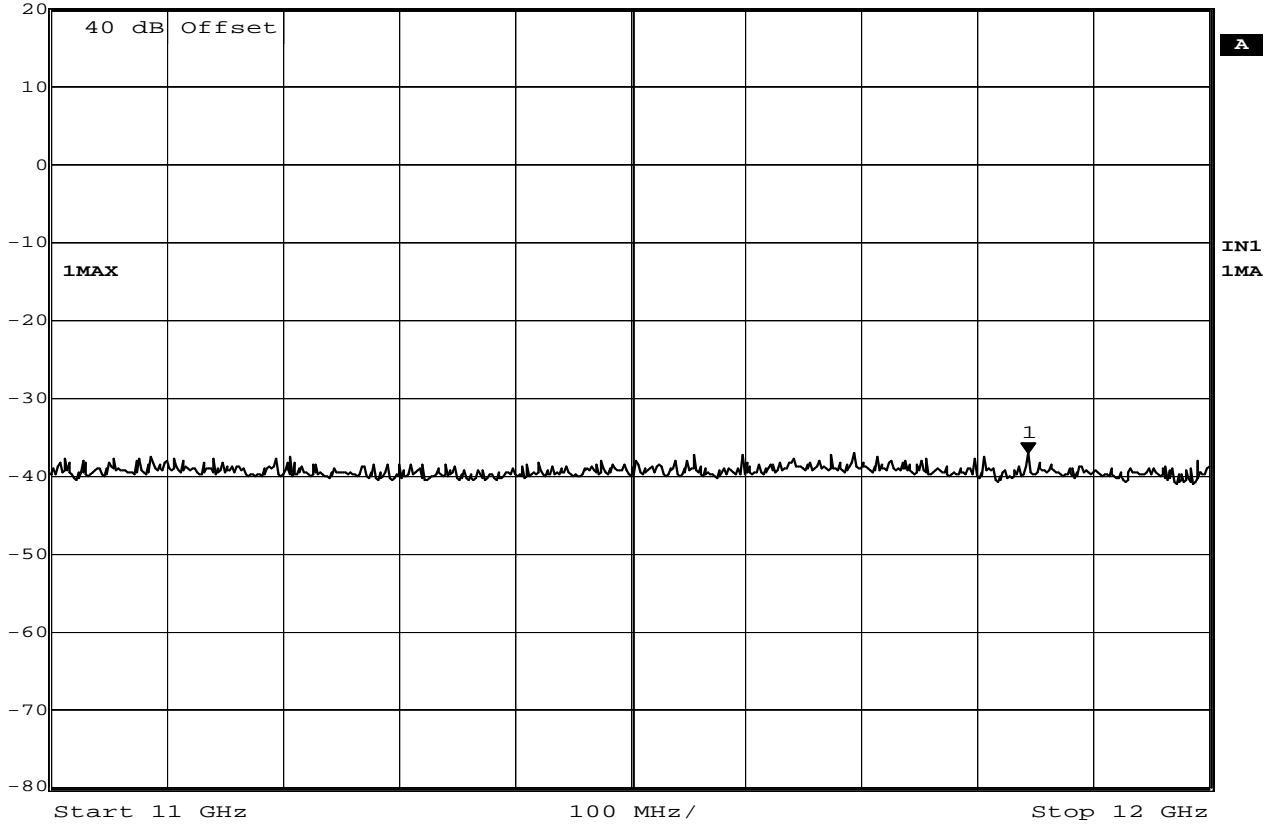
Date: 4.MAY.2011 07:39:44

Intermodulation Tests – Antenna Conducted

MANUFACTURER : Shure, Inc.
 MODEL NUMBER : AXT200 J5
 SERIAL NUMBER :
 TEST MODE : Tx @ 578MHz and 638MHz
 NOTES : 50mW, Zigbee Tx at 2480MHz
 TEST DATE : May 4, 2011
 TEST PARAMETERS :
 NOTES :
 EQUIPMENT USED : RBA0, T2D7, T2S3



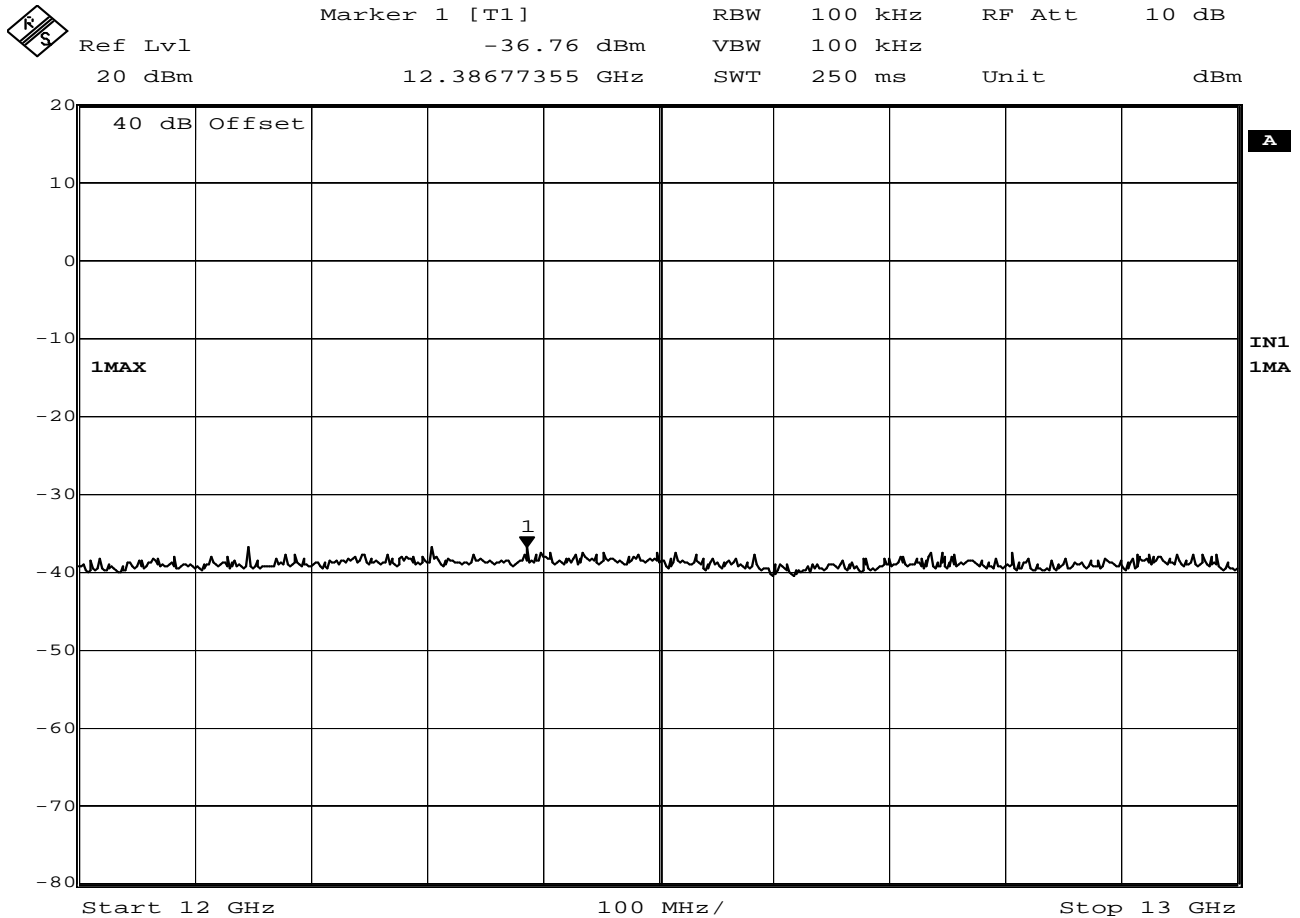
Marker 1 [T1] RBW 100 kHz RF Att 10 dB
 Ref Lvl -37.07 dBm VBW 100 kHz
 20 dBm 11.84368737 GHz SWT 250 ms Unit dBm



Date: 4.MAY.2011 07:40:38

Intermodulation Tests – Antenna Conducted

MANUFACTURER : Shure, Inc.
 MODEL NUMBER : AXT200 J5
 SERIAL NUMBER :
 TEST MODE : Tx @ 578MHz and 638MHz
 NOTES : 50mW, Zigbee Tx at 2480MHz
 TEST DATE : May 4, 2011
 TEST PARAMETERS :
 NOTES :
 EQUIPMENT USED : RBA0, T2D7, T2S3



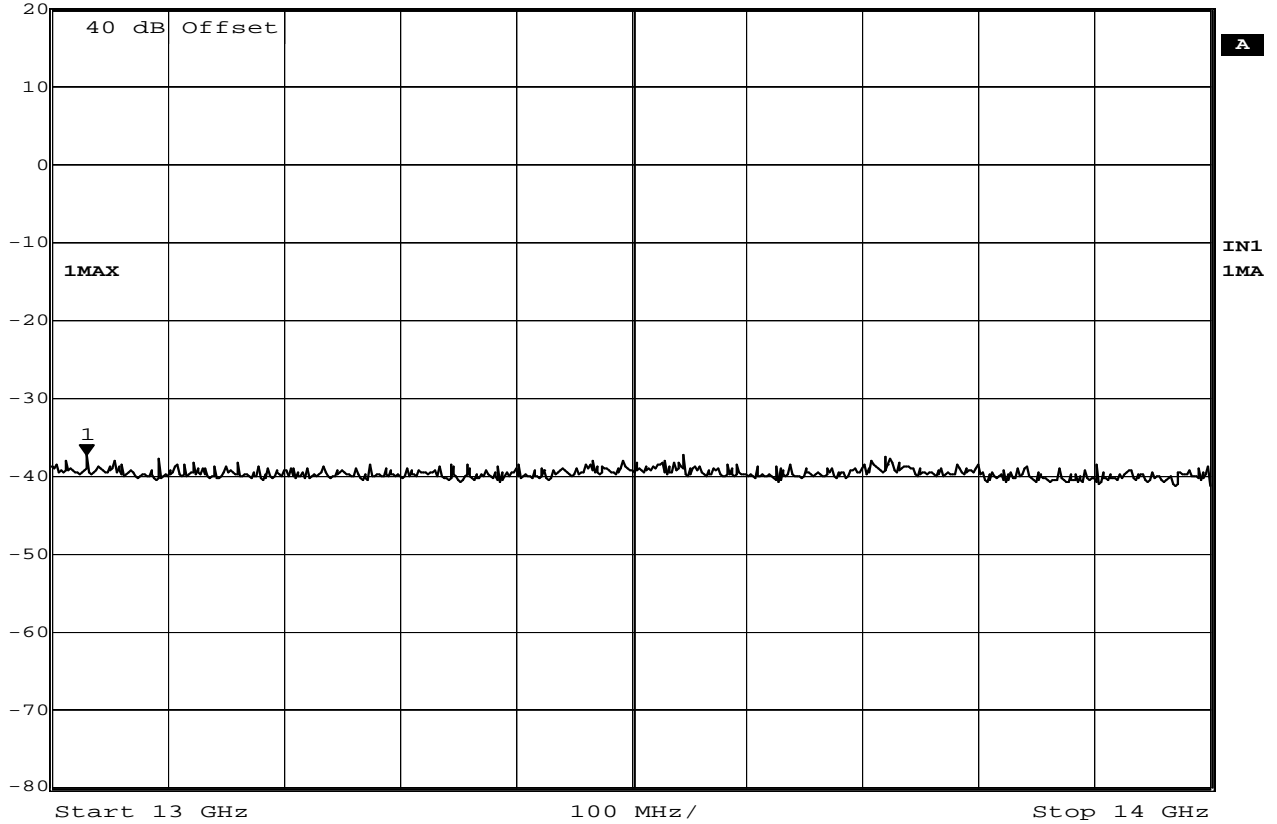
Date: 4.MAY.2011 07:46:22

Intermodulation Tests – Antenna Conducted

MANUFACTURER : Shure, Inc.
MODEL NUMBER : AXT200 J5
SERIAL NUMBER :
TEST MODE : Tx @ 578MHz and 638MHz
NOTES : 50mW, Zigbee Tx at 2480MHz
TEST DATE : May 4, 2011
TEST PARAMETERS :
NOTES :
EQUIPMENT USED : RBA0, T2D7, T2S3



Marker 1 [T1] RBW 100 kHz RF Att 10 dB
 Ref Lvl -37.27 dBm VBW 100 kHz
 20 dBm 13.03006012 GHz SWT 250 ms Unit dBm



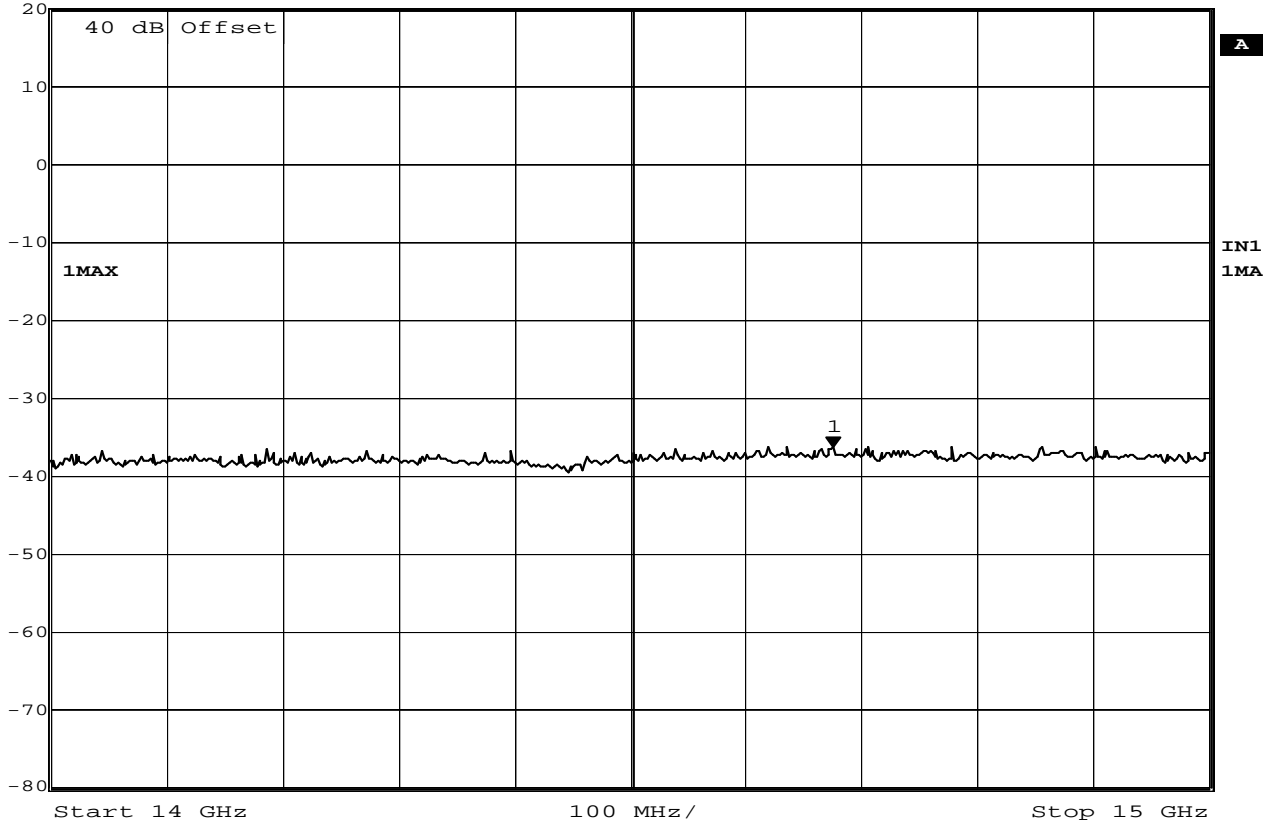
Date: 4.MAY.2011 07:43:45

Intermodulation Tests – Antenna Conducted

MANUFACTURER : Shure, Inc.
 MODEL NUMBER : AXT200 J5
 SERIAL NUMBER :
 TEST MODE : Tx @ 578MHz and 638MHz
 NOTES : 50mW, Zigbee Tx at 2480MHz
 TEST DATE : May 4, 2011
 TEST PARAMETERS :
 NOTES :
 EQUIPMENT USED : RBA0, T2D7, T2S3



Marker 1 [T1] RBW 100 kHz RF Att 10 dB
 Ref Lvl -36.28 dBm VBW 100 kHz
 20 dBm 14.67535070 GHz SWT 250 ms Unit dBm



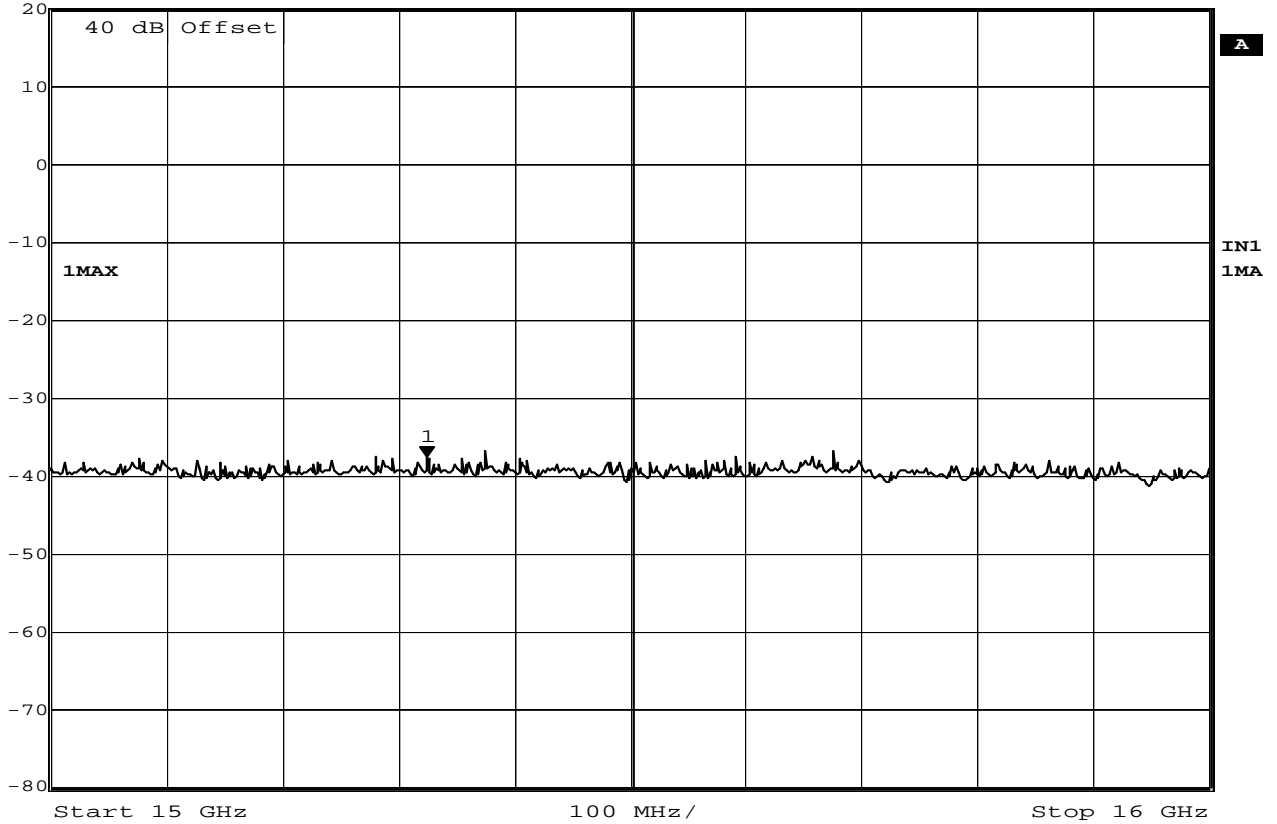
Date: 4.MAY.2011 08:12:46

Intermodulation Tests – Antenna Conducted

MANUFACTURER : Shure, Inc.
 MODEL NUMBER : AXT200 J5
 SERIAL NUMBER :
 TEST MODE : Tx @ 578MHz and 638MHz
 NOTES : 50mW, Zigbee Tx at 2480MHz
 TEST DATE : May 4, 2011
 TEST PARAMETERS :
 NOTES :
 EQUIPMENT USED : RBA0, T2D7, T2S3



Ref Lvl 20 dBm
 Marker 1 [T1] 15.32464930 GHz
 RBW 100 kHz
 VBW 100 kHz
 RF Att 10 dB
 SWT 250 ms
 Unit dBm



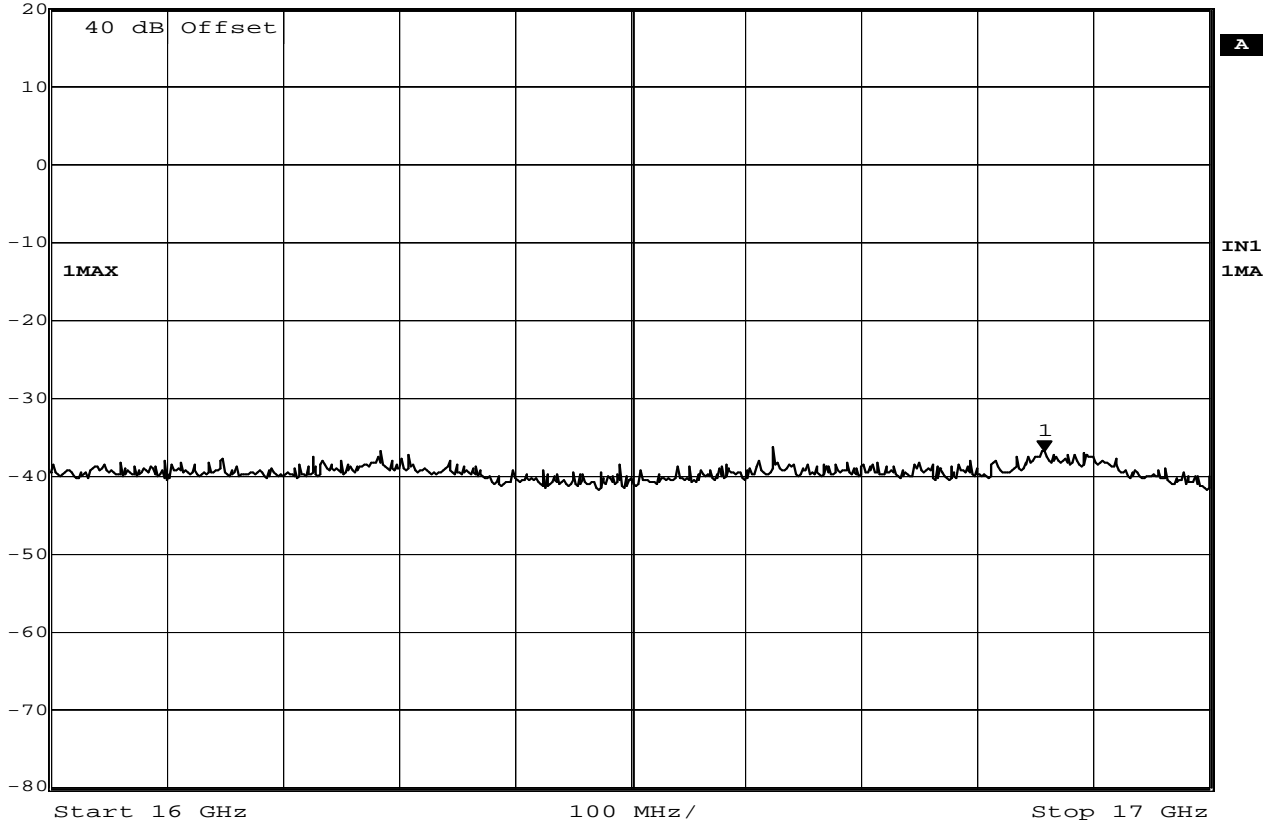
Date: 4.MAY.2011 08:13:32

Intermodulation Tests – Antenna Conducted

MANUFACTURER : Shure, Inc.
 MODEL NUMBER : AXT200 J5
 SERIAL NUMBER :
 TEST MODE : Tx @ 578MHz and 638MHz
 NOTES : 50mW, Zigbee Tx at 2480MHz
 TEST DATE : May 4, 2011
 TEST PARAMETERS :
 NOTES :
 EQUIPMENT USED : RBA0, T2D7, T2S3



Marker 1 [T1] RBW 100 kHz RF Att 10 dB
 Ref Lvl -36.79 dBm VBW 100 kHz
 20 dBm 16.85771543 GHz SWT 250 ms Unit dBm



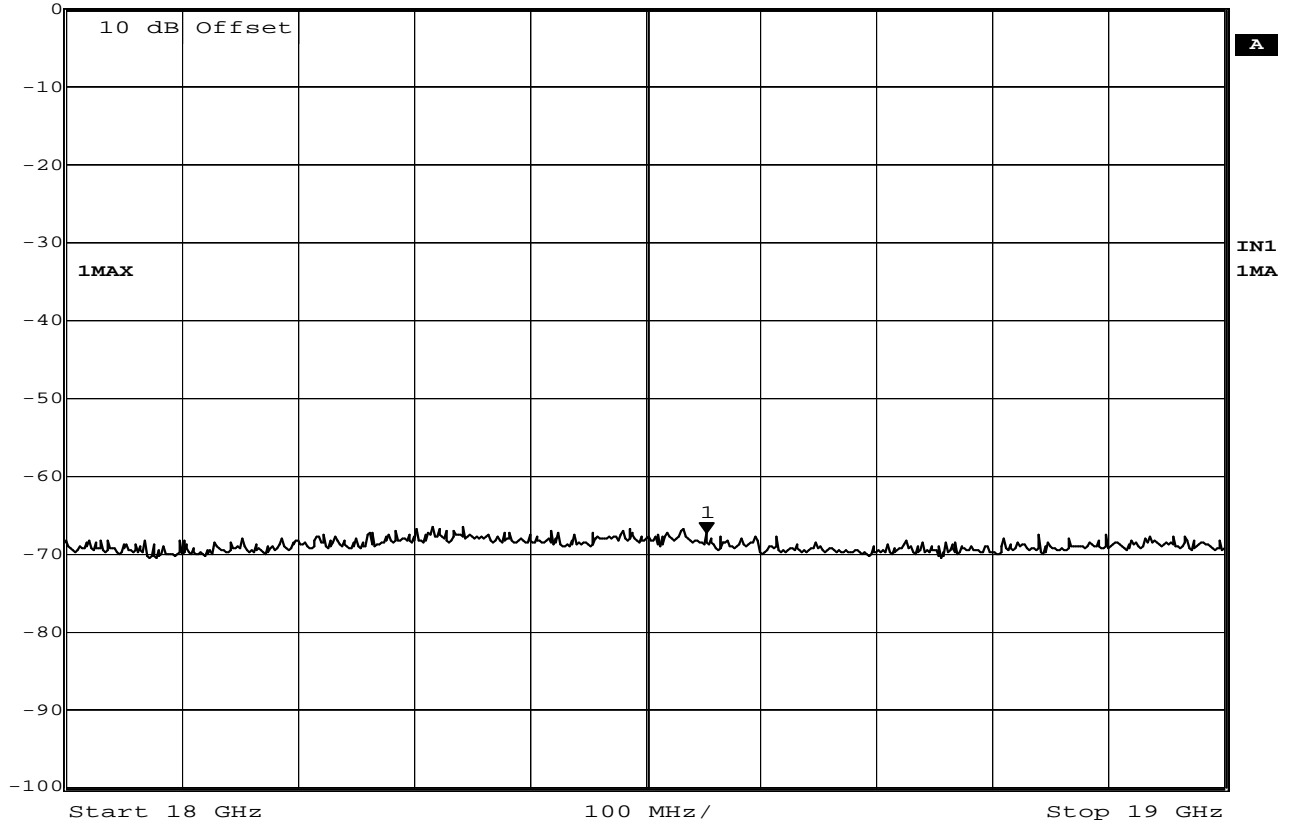
Date: 4.MAY.2011 08:23:24

Intermodulation Tests – Antenna Conducted

MANUFACTURER : Shure, Inc.
 MODEL NUMBER : AXT200 J5
 SERIAL NUMBER :
 TEST MODE : Tx @ 578MHz and 638MHz
 NOTES : 50mW, Zigbee Tx at 2480MHz
 TEST DATE : May 4, 2011
 TEST PARAMETERS :
 NOTES :
 EQUIPMENT USED : RBA0, T2D7, T2S3



Marker 1 [T1] RBW 100 kHz RF Att 10 dB
 Ref Lvl -67.41 dBm VBW 100 kHz
 0 dBm 18.55310621 GHz SWT 250 ms Unit dBm



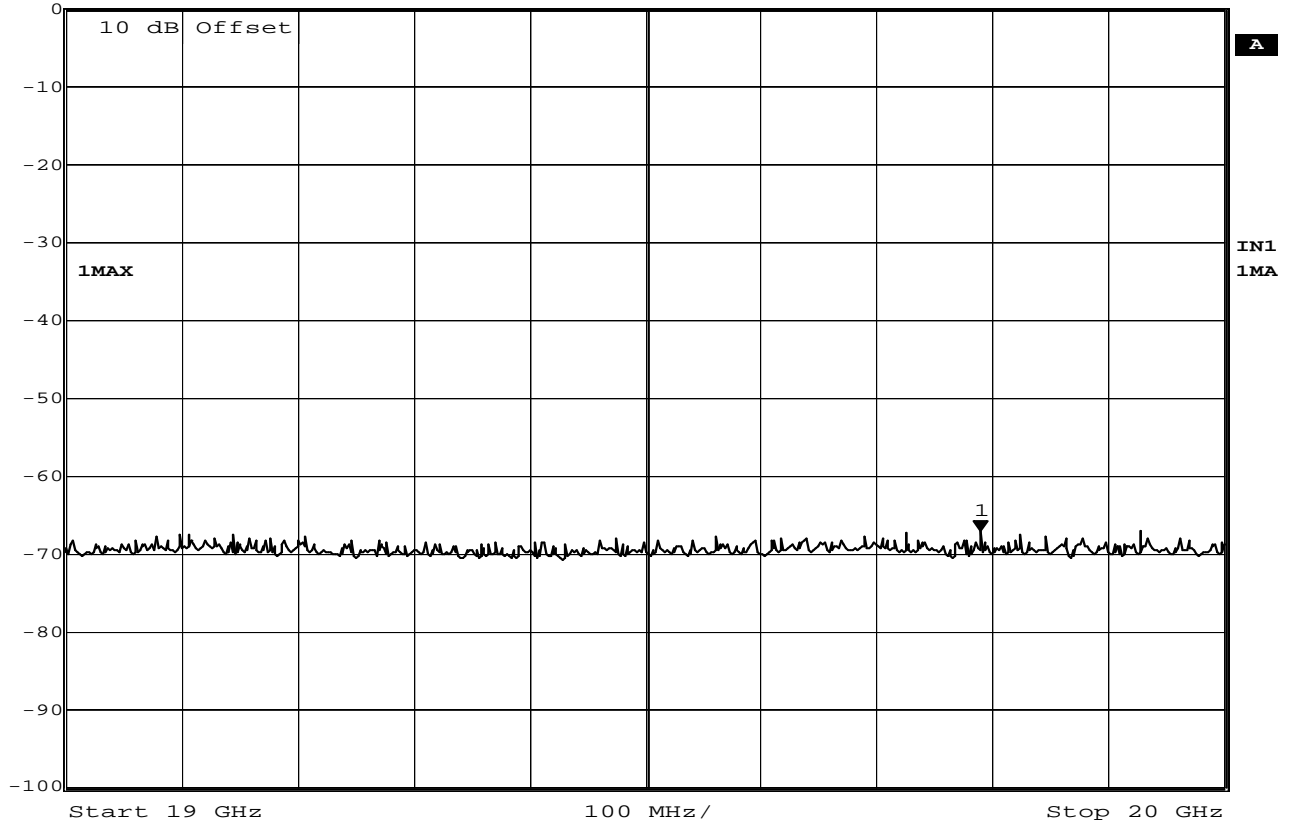
Date: 4.MAY.2011 08:30:03

Intermodulation Tests – Antenna Conducted

MANUFACTURER : Shure, Inc.
 MODEL NUMBER : AXT200 J5
 SERIAL NUMBER :
 TEST MODE : Tx @ 578MHz and 638MHz
 NOTES : 50mW, Zigbee Tx at 2480MHz
 TEST DATE : May 4, 2011
 TEST PARAMETERS :
 NOTES :
 EQUIPMENT USED : RBA0, T1P0



Marker 1 [T1] RBW 100 kHz RF Att 10 dB
Ref Lvl -67.01 dBm VBW 100 kHz
0 dBm 19.78957916 GHz SWT 250 ms Unit dBm



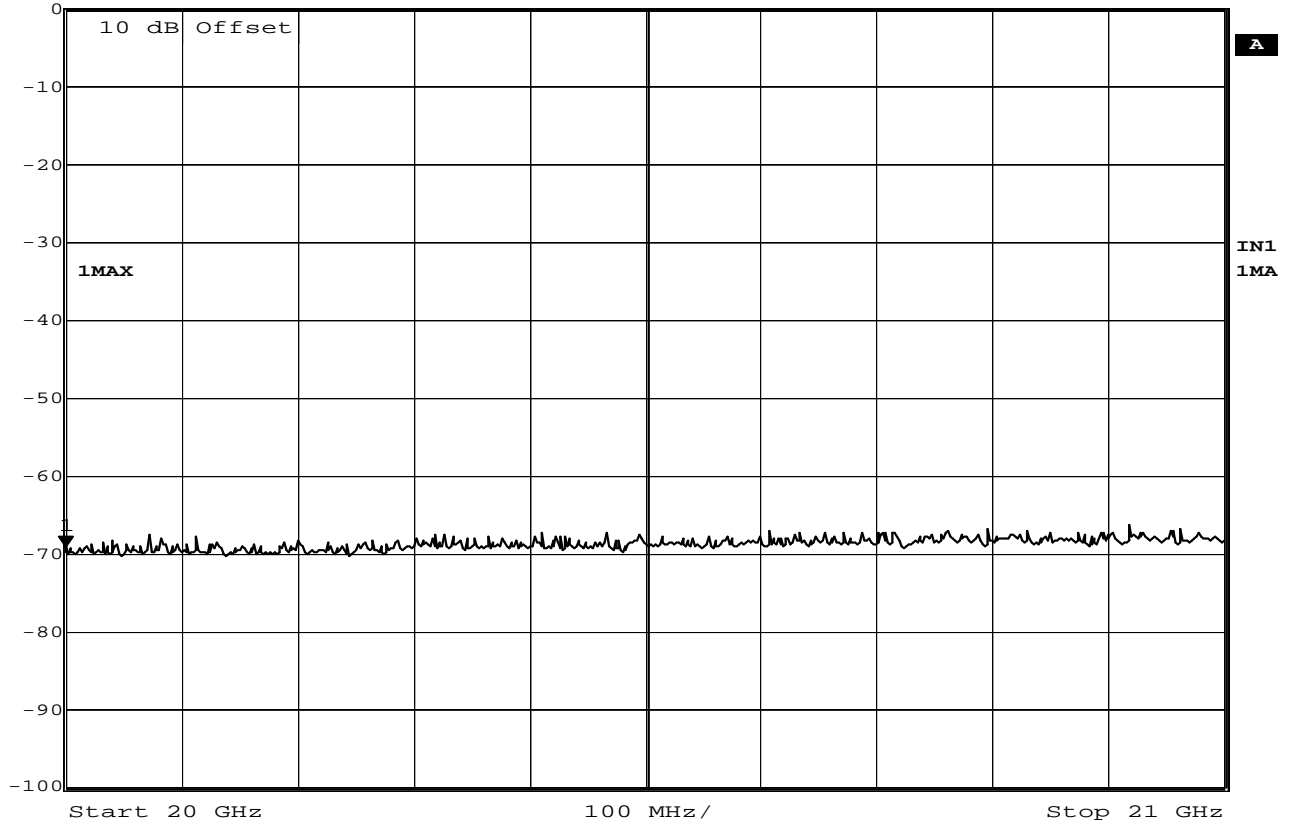
Date: 4.MAY.2011 08:31:09

Intermodulation Tests – Antenna Conducted

MANUFACTURER : Shure, Inc.
MODEL NUMBER : AXT200 J5
SERIAL NUMBER :
TEST MODE : Tx @ 578MHz and 638MHz
NOTES : 50mW, Zigbee Tx at 2480MHz
TEST DATE : May 4, 2011
TEST PARAMETERS :
NOTES :
EQUIPMENT USED : RBA0, T1P0



Marker 1 [T1] RBW 100 kHz RF Att 10 dB
 Ref Lvl -69.05 dBm VBW 100 kHz
 0 dBm 20.00000000 GHz SWT 250 ms Unit dBm



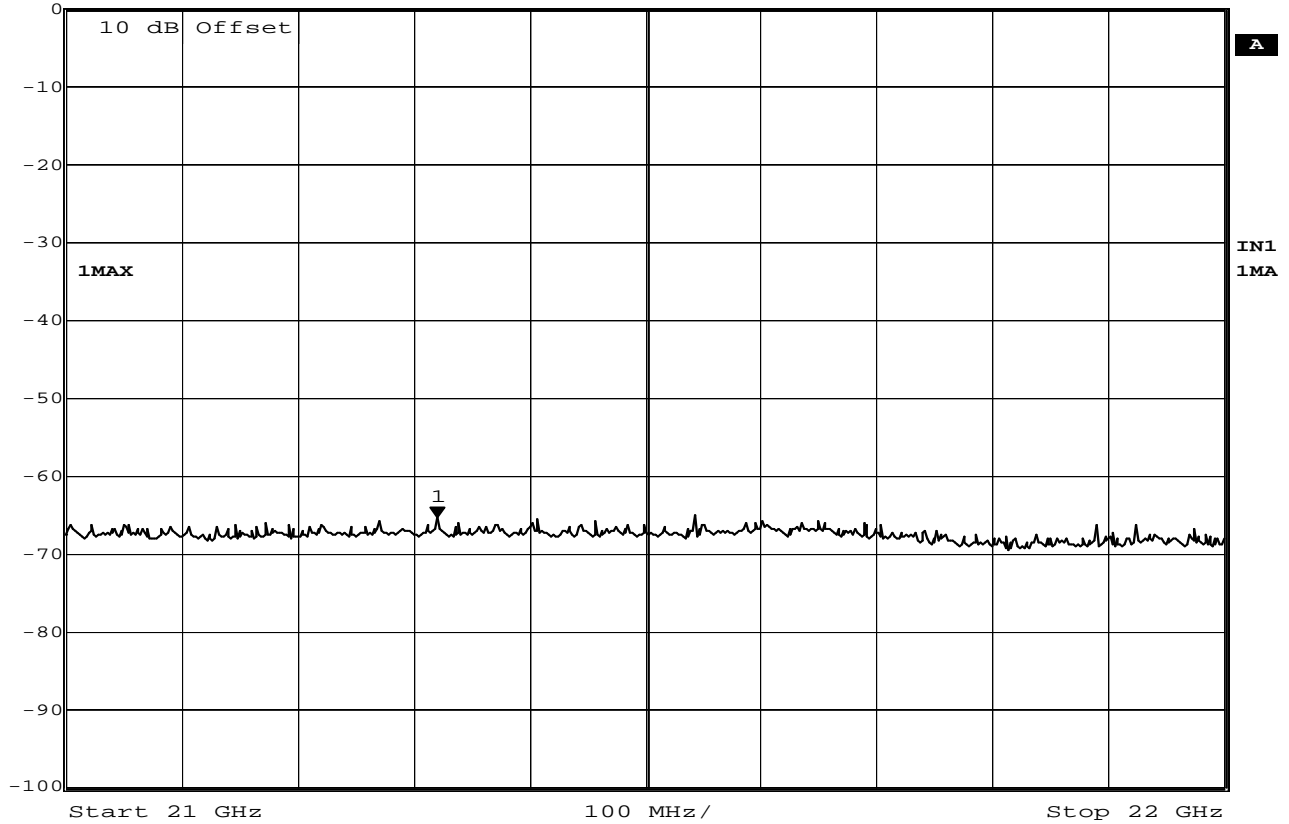
Date: 4.MAY.2011 08:32:08

Intermodulation Tests – Antenna Conducted

MANUFACTURER : Shure, Inc.
 MODEL NUMBER : AXT200 J5
 SERIAL NUMBER :
 TEST MODE : Tx @ 578MHz and 638MHz
 NOTES : 50mW, Zigbee Tx at 2480MHz
 TEST DATE : May 4, 2011
 TEST PARAMETERS :
 NOTES :
 EQUIPMENT USED : RBA0, T1P0




 Marker 1 [T1] RBW 100 kHz RF Att 10 dB
 Ref Lvl -65.34 dBm VBW 100 kHz
 0 dBm 21.32064128 GHz SWT 250 ms Unit dBm



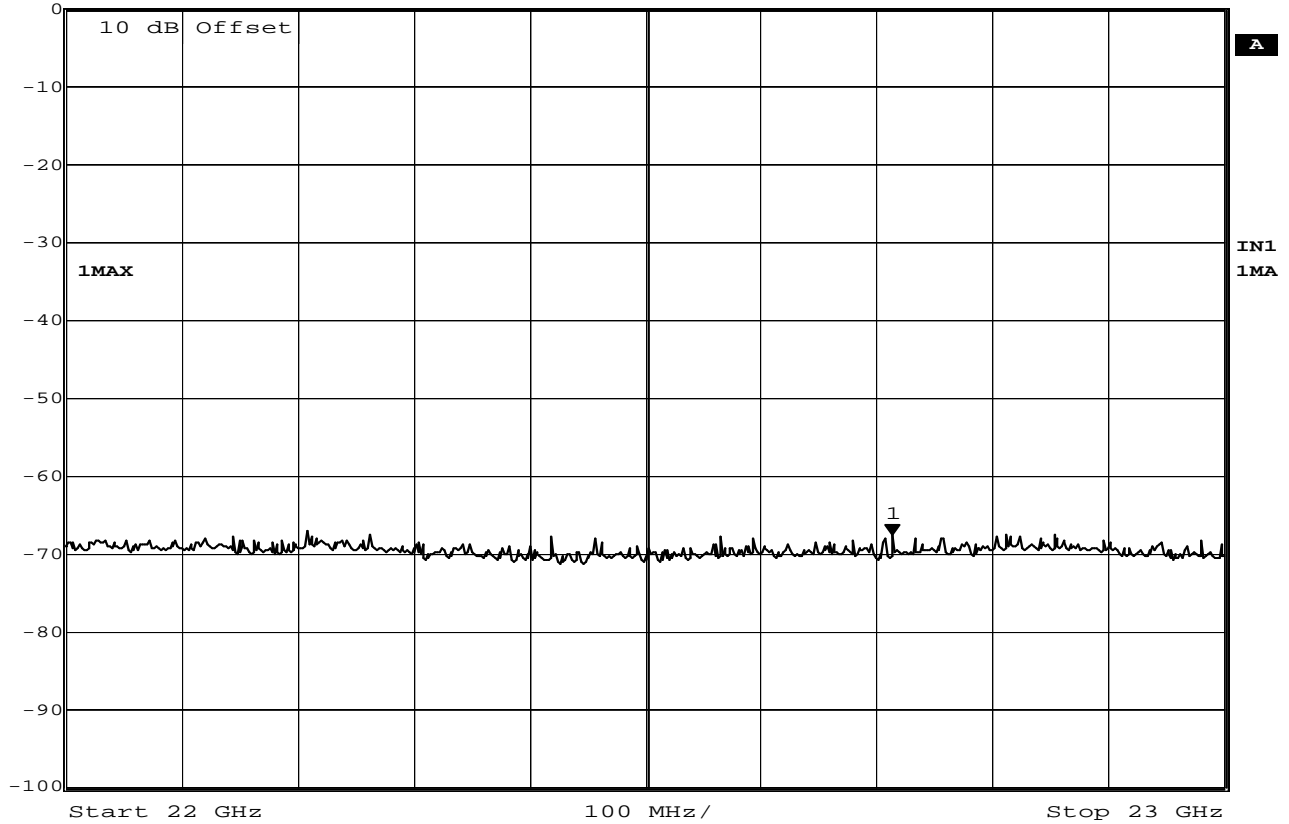
Date: 4.MAY.2011 08:33:59

Intermodulation Tests – Antenna Conducted

MANUFACTURER : Shure, Inc.
 MODEL NUMBER : AXT200 J5
 SERIAL NUMBER :
 TEST MODE : Tx @ 578MHz and 638MHz
 NOTES : 50mW, Zigbee Tx at 2480MHz
 TEST DATE : May 4, 2011
 TEST PARAMETERS :
 NOTES :
 EQUIPMENT USED : RBA0, T1P0



Marker 1 [T1] RBW 100 kHz RF Att 10 dB
 Ref Lvl -67.63 dBm VBW 100 kHz
 0 dBm 22.71342685 GHz SWT 250 ms Unit dBm



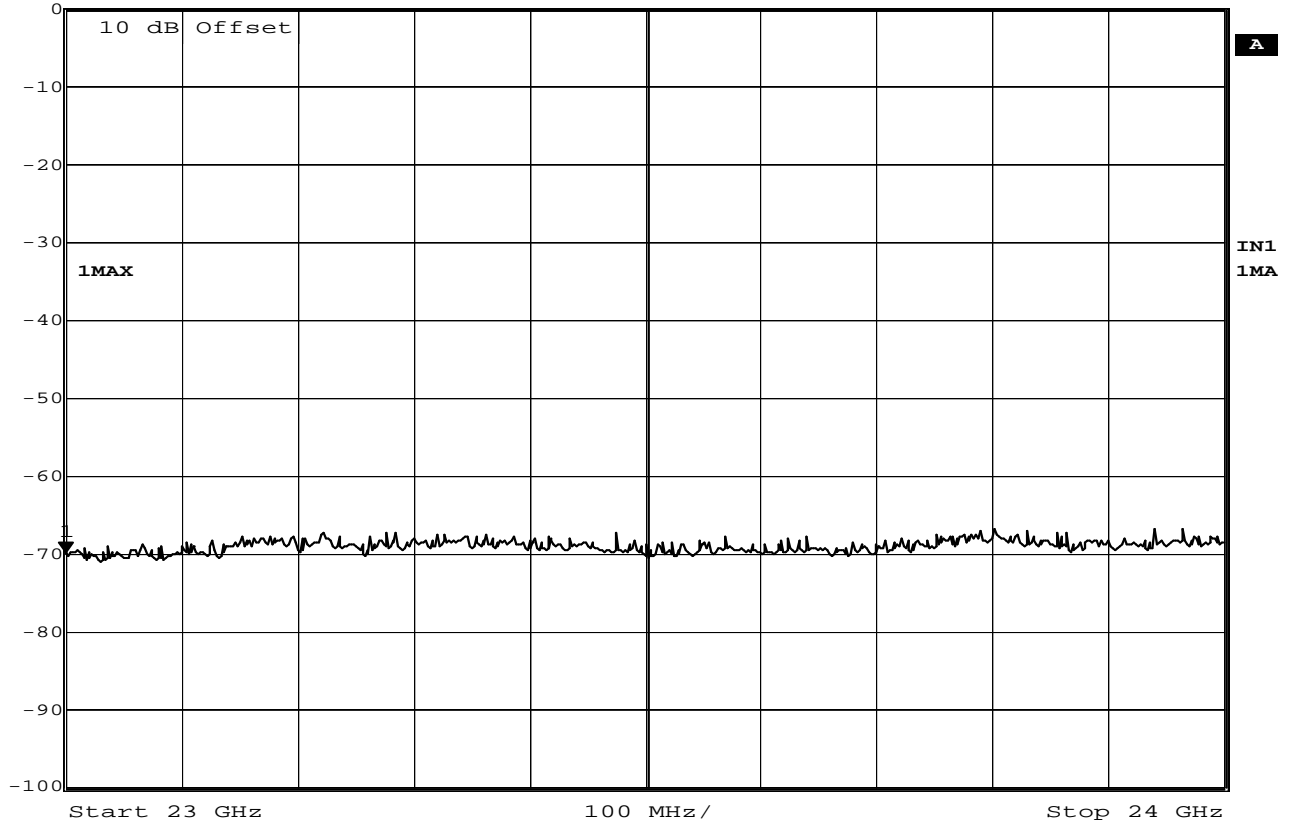
Date: 4.MAY.2011 08:34:47

Intermodulation Tests – Antenna Conducted

MANUFACTURER : Shure, Inc.
 MODEL NUMBER : AXT200 J5
 SERIAL NUMBER :
 TEST MODE : Tx @ 578MHz and 638MHz
 NOTES : 50mW, Zigbee Tx at 2480MHz
 TEST DATE : May 4, 2011
 TEST PARAMETERS :
 NOTES :
 EQUIPMENT USED : RBA0, T1P0



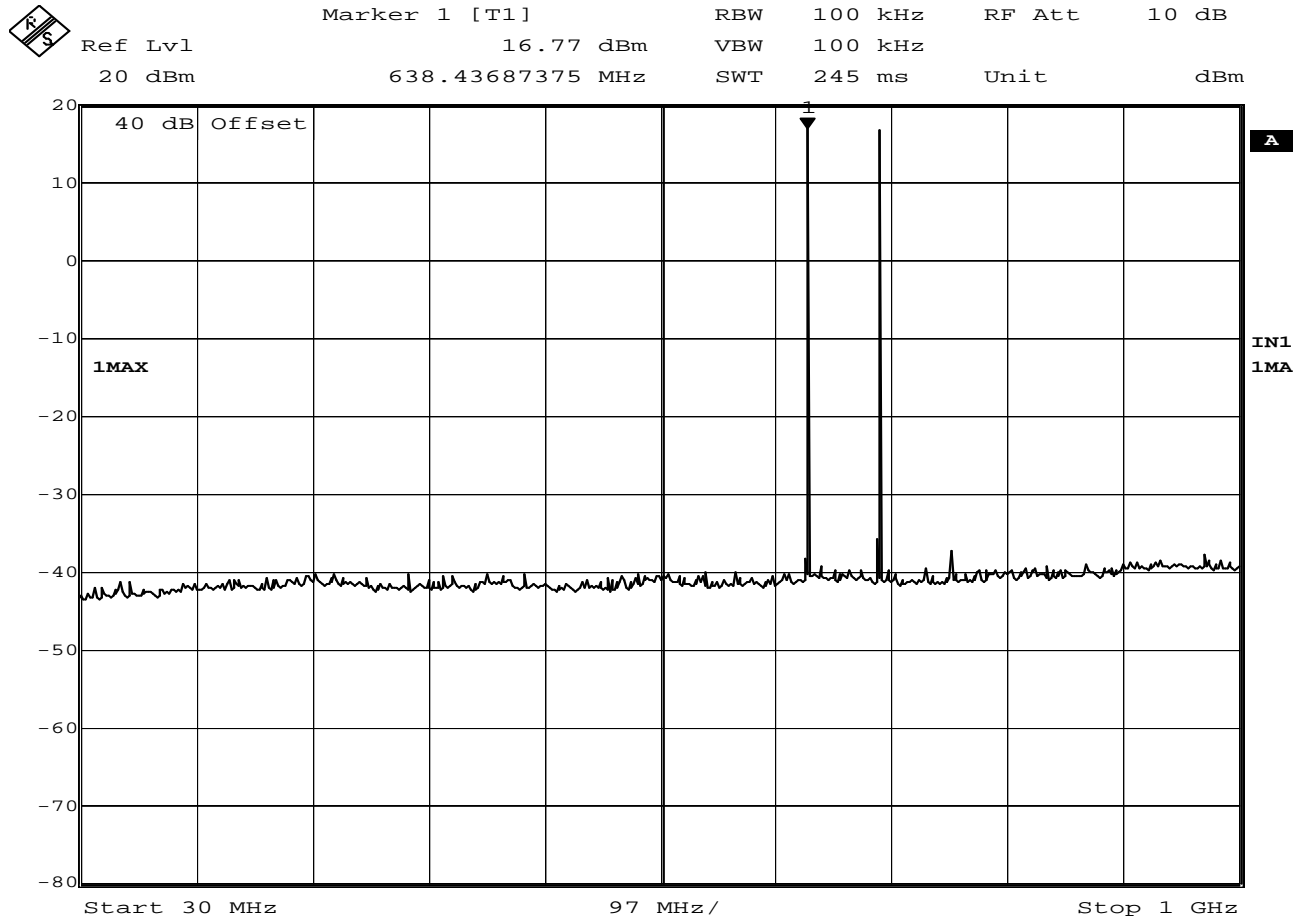
Marker 1 [T1] RBW 100 kHz RF Att 10 dB
 Ref Lvl -69.81 dBm VBW 100 kHz
 0 dBm 23.00000000 GHz SWT 250 ms Unit dBm



Date: 4.MAY.2011 08:36:02

Intermodulation Tests – Antenna Conducted

MANUFACTURER : Shure, Inc.
 MODEL NUMBER : AXT200 J5
 SERIAL NUMBER :
 TEST MODE : Tx @ 578MHz and 638MHz
 NOTES : 50mW, Zigbee Tx at 2480MHz
 TEST DATE : May 4, 2011
 TEST PARAMETERS :
 NOTES :
 EQUIPMENT USED : RBA0, T1P0



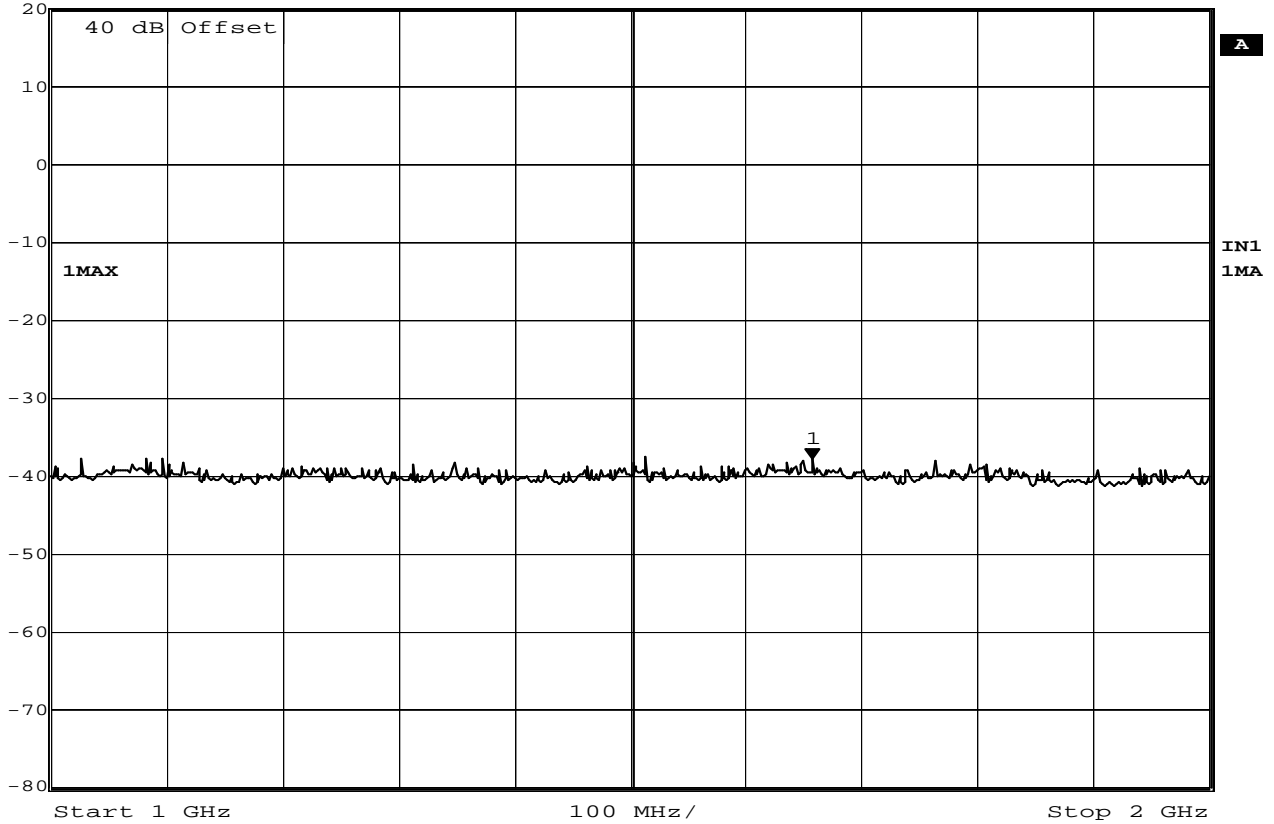
Date: 28.APR.2011 14:04:55

Intermodulation Tests – Antenna Conducted

MANUFACTURER : Shure, Inc.
MODEL NUMBER : AXT200 L3
SERIAL NUMBER :
TEST MODE : Tx @ 638MHz and 697.875MHz
NOTES : 50mW, Zigbee Tx at 2480MHz
TEST DATE : April 28, 2011
TEST PARAMETERS :
NOTES :
EQUIPMENT USED : RBA0, T2D7, T2S3



Marker 1 [T1] RBW 100 kHz RF Att 10 dB
 Ref Lvl -37.76 dBm VBW 100 kHz
 20 dBm 1.65731463 GHz SWT 250 ms Unit dBm



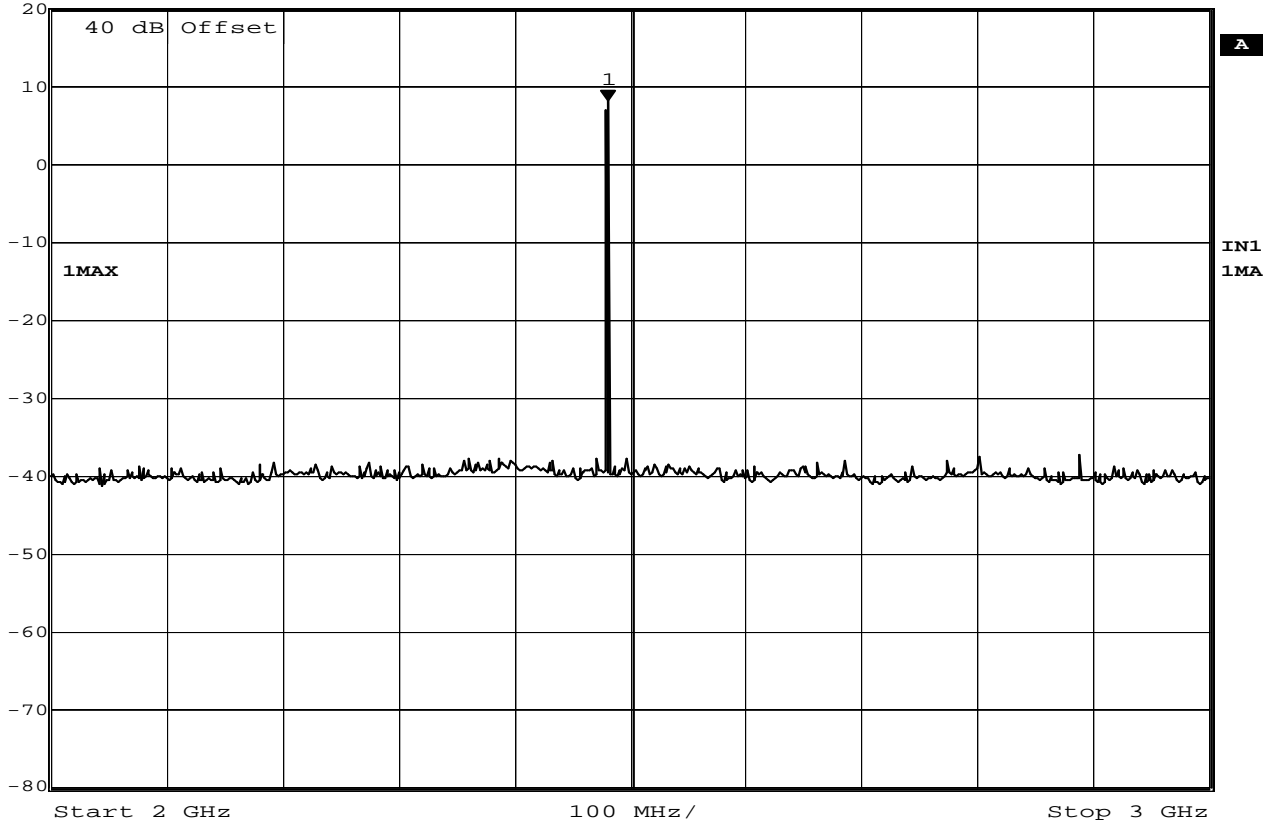
Date: 28.APR.2011 14:08:41

Intermodulation Tests – Antenna Conducted

MANUFACTURER : Shure, Inc.
 MODEL NUMBER : AXT200 L3
 SERIAL NUMBER :
 TEST MODE : Tx @ 638MHz and 697.875MHz
 NOTES : 50mW, Zigbee Tx at 2480MHz
 TEST DATE : April 28, 2011
 TEST PARAMETERS :
 NOTES :
 EQUIPMENT USED : RBA0, T2D7, T2S3



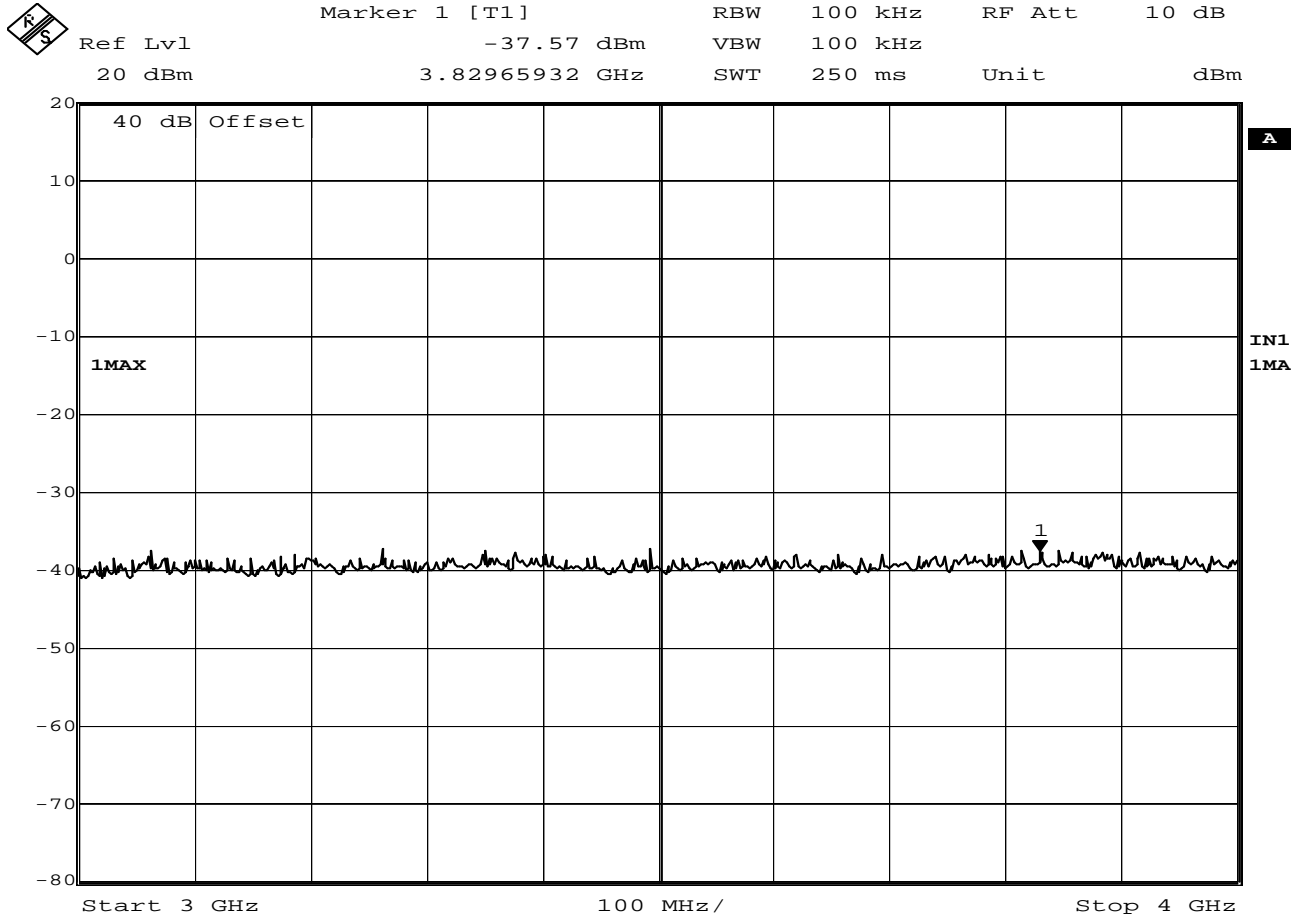
Marker 1 [T1] RBW 100 kHz RF Att 10 dB
 Ref Lvl 8.14 dBm VBW 100 kHz
 20 dBm 2.48096192 GHz SWT 250 ms Unit dBm



Date: 28.APR.2011 14:09:35

Intermodulation Tests – Antenna Conducted

MANUFACTURER : Shure, Inc.
 MODEL NUMBER : AXT200 L3
 SERIAL NUMBER :
 TEST MODE : Tx @ 638MHz and 697.875MHz
 NOTES : 50mW, Zigbee Tx at 2480MHz
 TEST DATE : April 28, 2011
 TEST PARAMETERS :
 NOTES :
 EQUIPMENT USED : RBA0, T2D7, T2S3



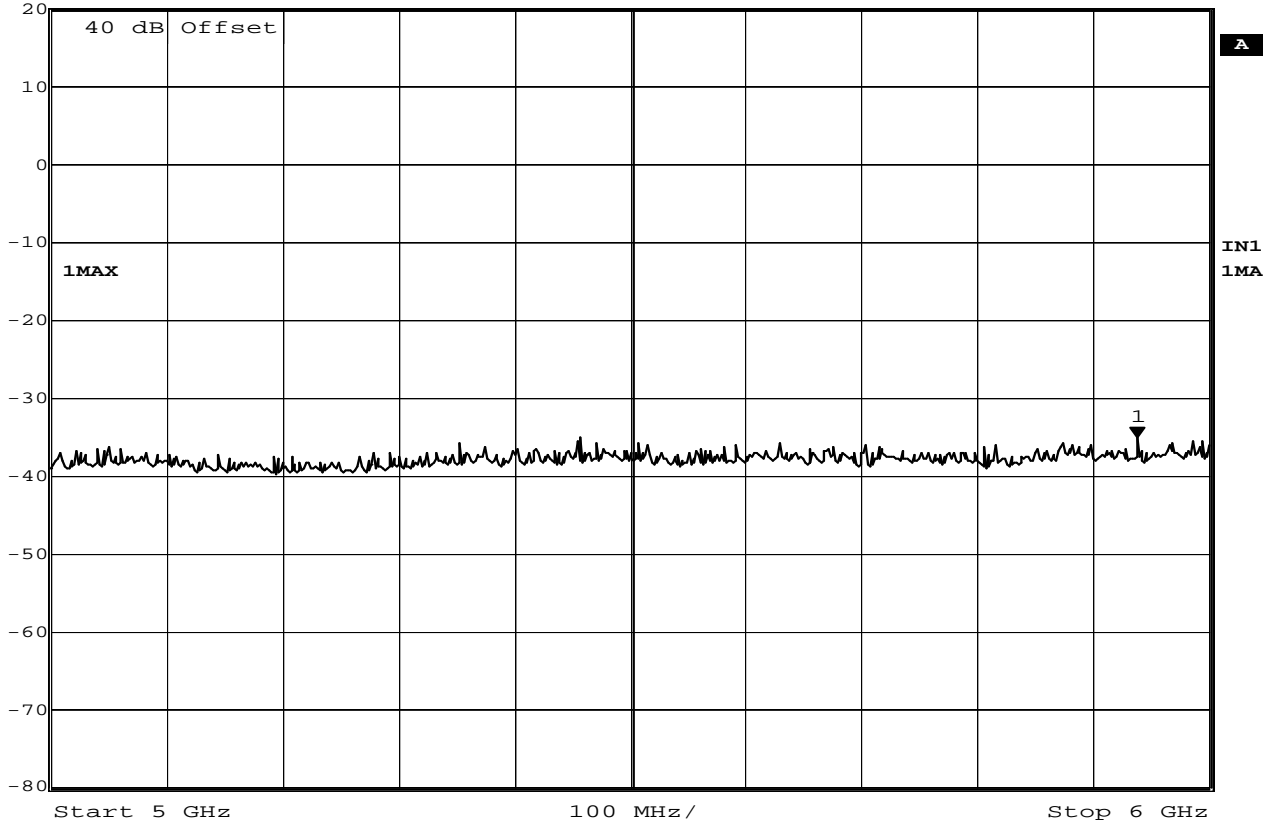
Date: 28.APR.2011 14:10:25

Intermodulation Tests – Antenna Conducted

MANUFACTURER : Shure, Inc.
MODEL NUMBER : AXT200 L3
SERIAL NUMBER :
TEST MODE : Tx @ 638MHz and 697.875MHz
NOTES : 50mW, Zigbee Tx at 2480MHz
TEST DATE : April 28, 2011
TEST PARAMETERS :
NOTES :
EQUIPMENT USED : RBA0, T2D7, T2S3



Marker 1 [T1] RBW 100 kHz RF Att 10 dB
 Ref Lvl -35.19 dBm VBW 100 kHz
 20 dBm 5.93787575 GHz SWT 250 ms Unit dBm



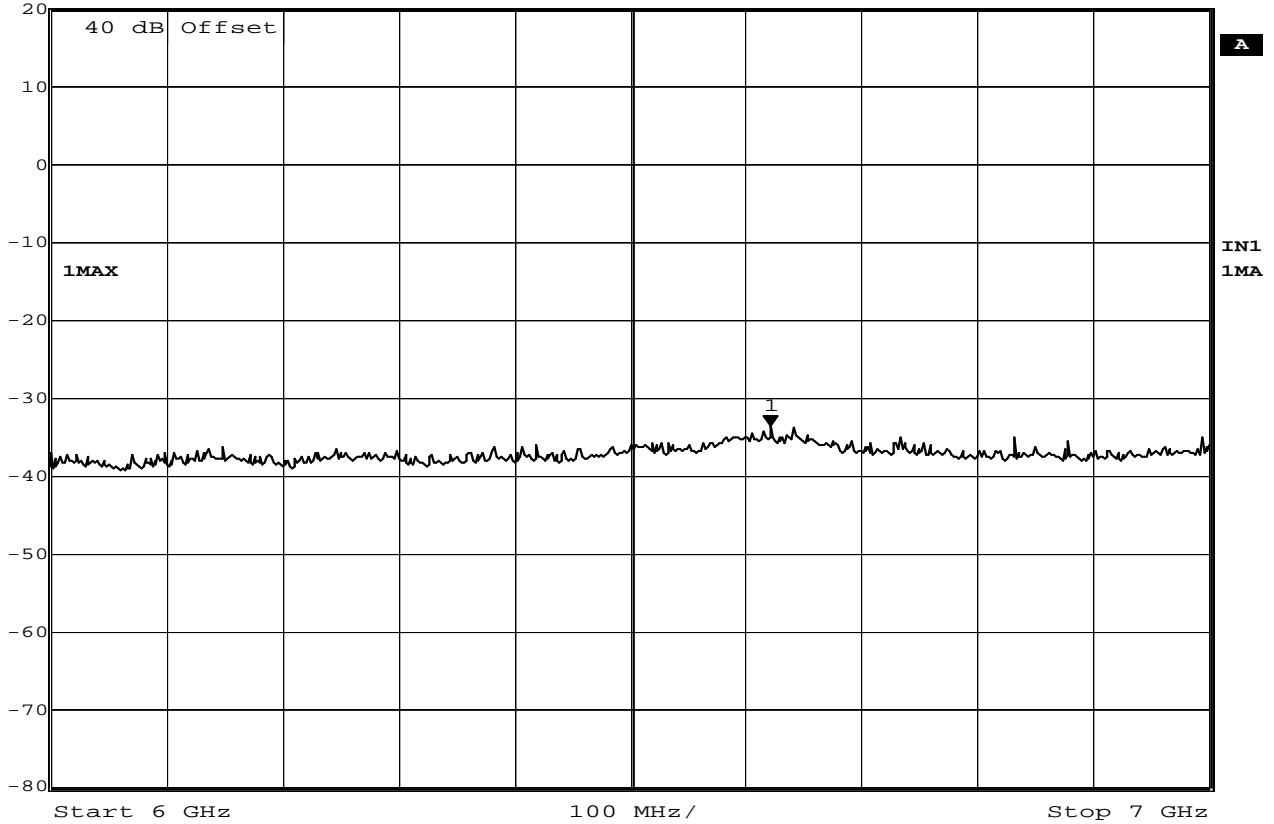
Date: 28.APR.2011 14:11:53

Intermodulation Tests – Antenna Conducted

MANUFACTURER : Shure, Inc.
 MODEL NUMBER : AXT200 L3
 SERIAL NUMBER :
 TEST MODE : Tx @ 638MHz and 697.875MHz
 NOTES : 50mW, Zigbee Tx at 2480MHz
 TEST DATE : April 28, 2011
 TEST PARAMETERS :
 NOTES :
 EQUIPMENT USED : RBA0, T2D7, T2S3



Ref Lvl 20 dBm
 Marker 1 [T1] -33.73 dBm
 6.62124248 GHz
 RBW 100 kHz
 VBW 100 kHz
 RF Att 10 dB
 SWT 250 ms
 Unit dBm



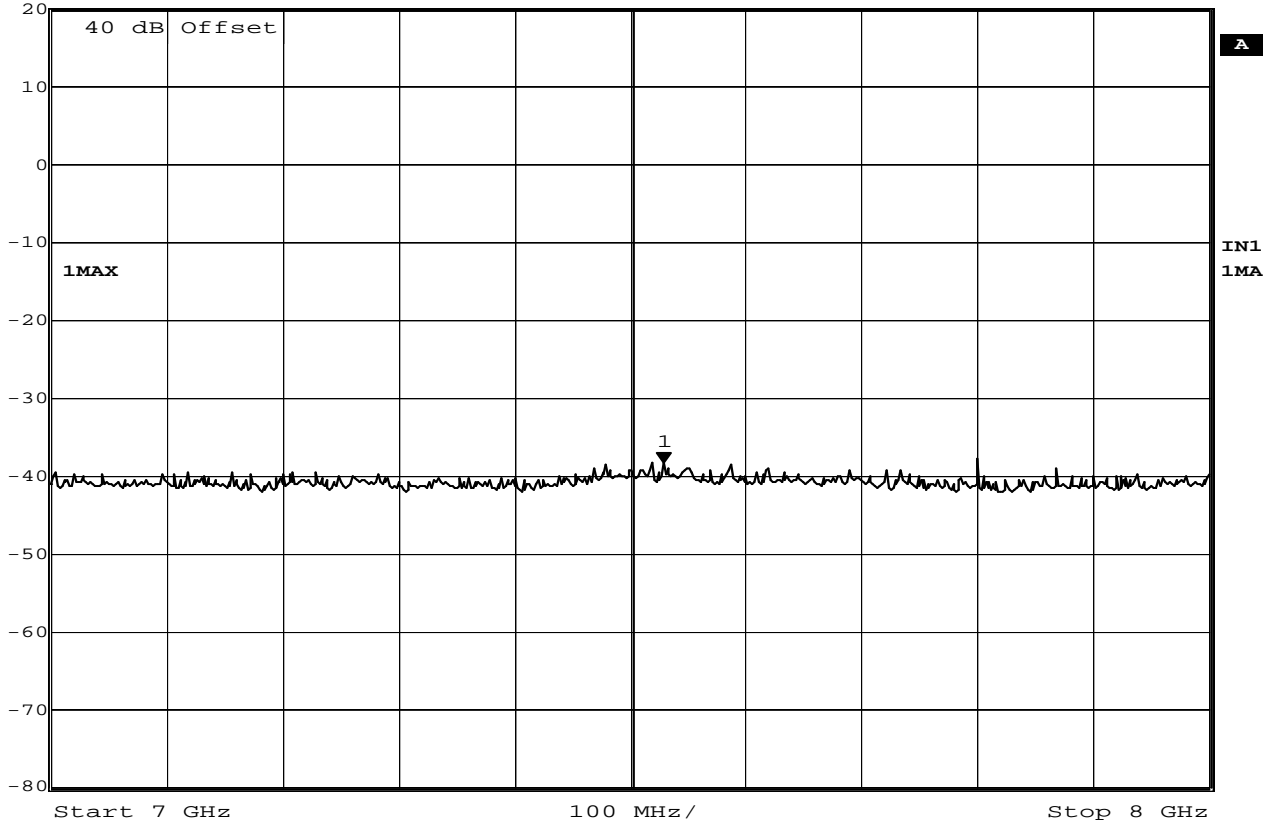
Date: 28.APR.2011 14:14:13

Intermodulation Tests – Antenna Conducted

MANUFACTURER : Shure, Inc.
 MODEL NUMBER : AXT200 L3
 SERIAL NUMBER :
 TEST MODE : Tx @ 638MHz and 697.875MHz
 NOTES : 50mW, Zigbee Tx at 2480MHz
 TEST DATE : April 28, 2011
 TEST PARAMETERS :
 NOTES :
 EQUIPMENT USED : RBA0, T2D7, T2S3



Marker 1 [T1] RBW 100 kHz RF Att 10 dB
 -38.25 dBm VBW 100 kHz
 7.52905812 GHz SWT 250 ms Unit dBm
 Ref Lvl
 20 dBm



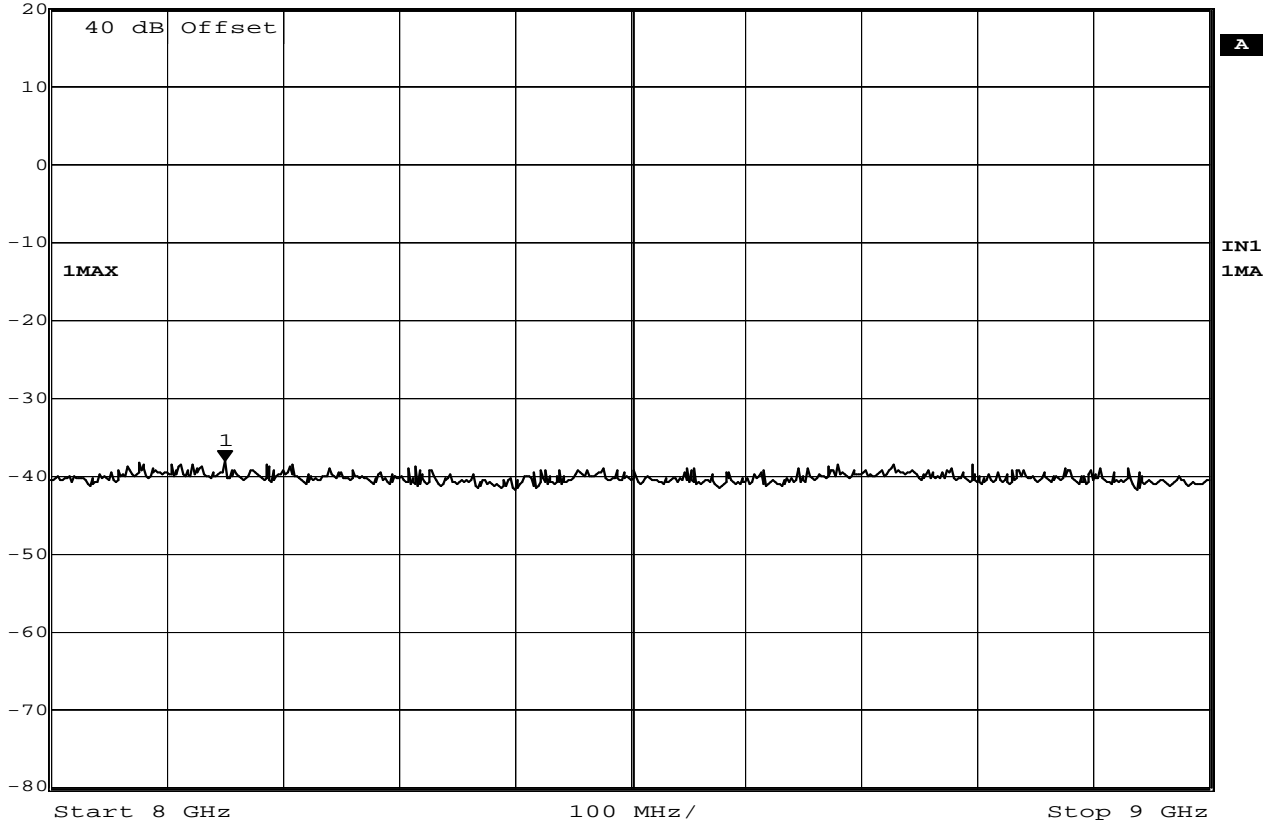
Date: 28.APR.2011 14:15:10

Intermodulation Tests – Antenna Conducted

MANUFACTURER : Shure, Inc.
 MODEL NUMBER : AXT200 L3
 SERIAL NUMBER :
 TEST MODE : Tx @ 638MHz and 697.875MHz
 NOTES : 50mW, Zigbee Tx at 2480MHz
 TEST DATE : April 28, 2011
 TEST PARAMETERS :
 NOTES :
 EQUIPMENT USED : RBA0, T2D7, T2S3



Marker 1 [T1] RBW 100 kHz RF Att 10 dB
 Ref Lvl -38.16 dBm VBW 100 kHz
 20 dBm 8.15030060 GHz SWT 250 ms Unit dBm



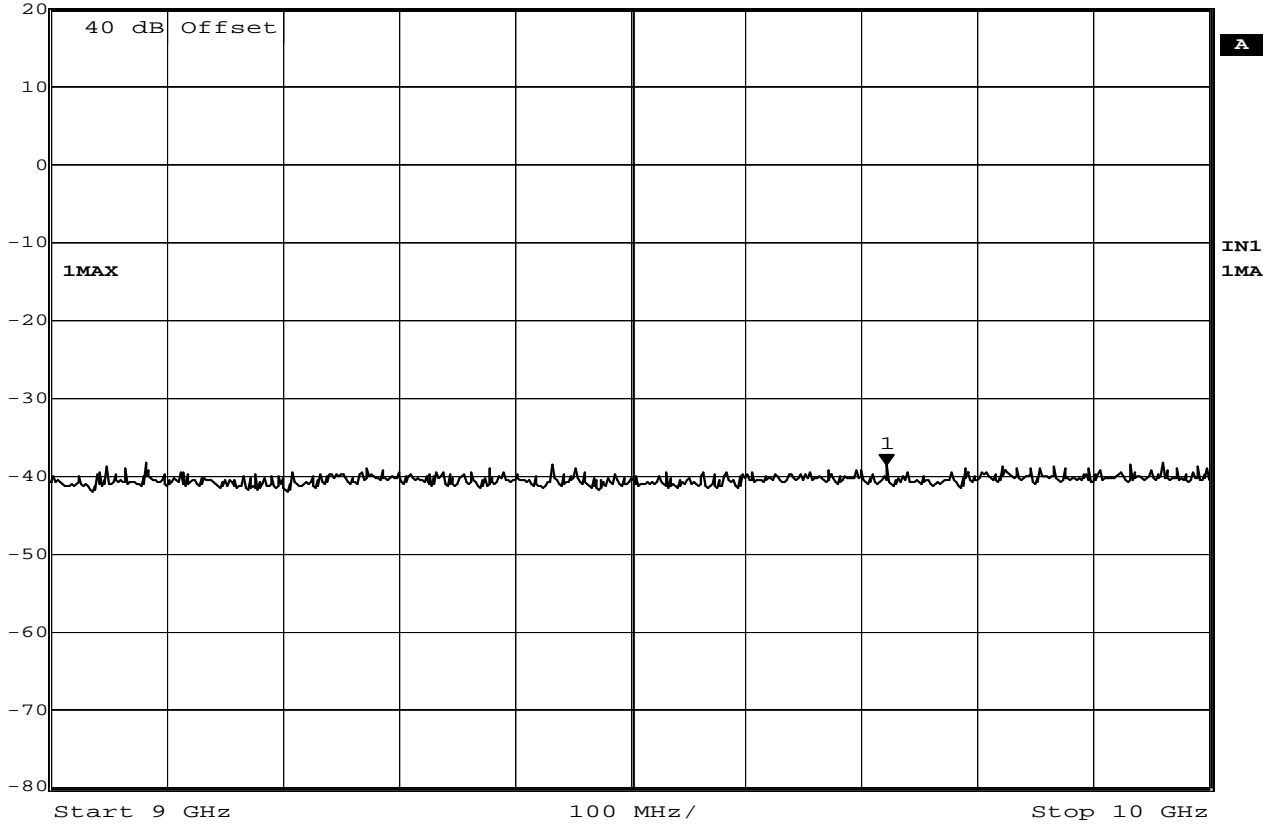
Date: 28.APR.2011 14:16:13

Intermodulation Tests – Antenna Conducted

MANUFACTURER : Shure, Inc.
 MODEL NUMBER : AXT200 L3
 SERIAL NUMBER :
 TEST MODE : Tx @ 638MHz and 697.875MHz
 NOTES : 50mW, Zigbee Tx at 2480MHz
 TEST DATE : April 28, 2011
 TEST PARAMETERS :
 NOTES :
 EQUIPMENT USED : RBA0, T2D7, T2S3



Marker 1 [T1] RBW 100 kHz RF Att 10 dB
 Ref Lvl -38.54 dBm VBW 100 kHz
 20 dBm 9.72144289 GHz SWT 250 ms Unit dBm



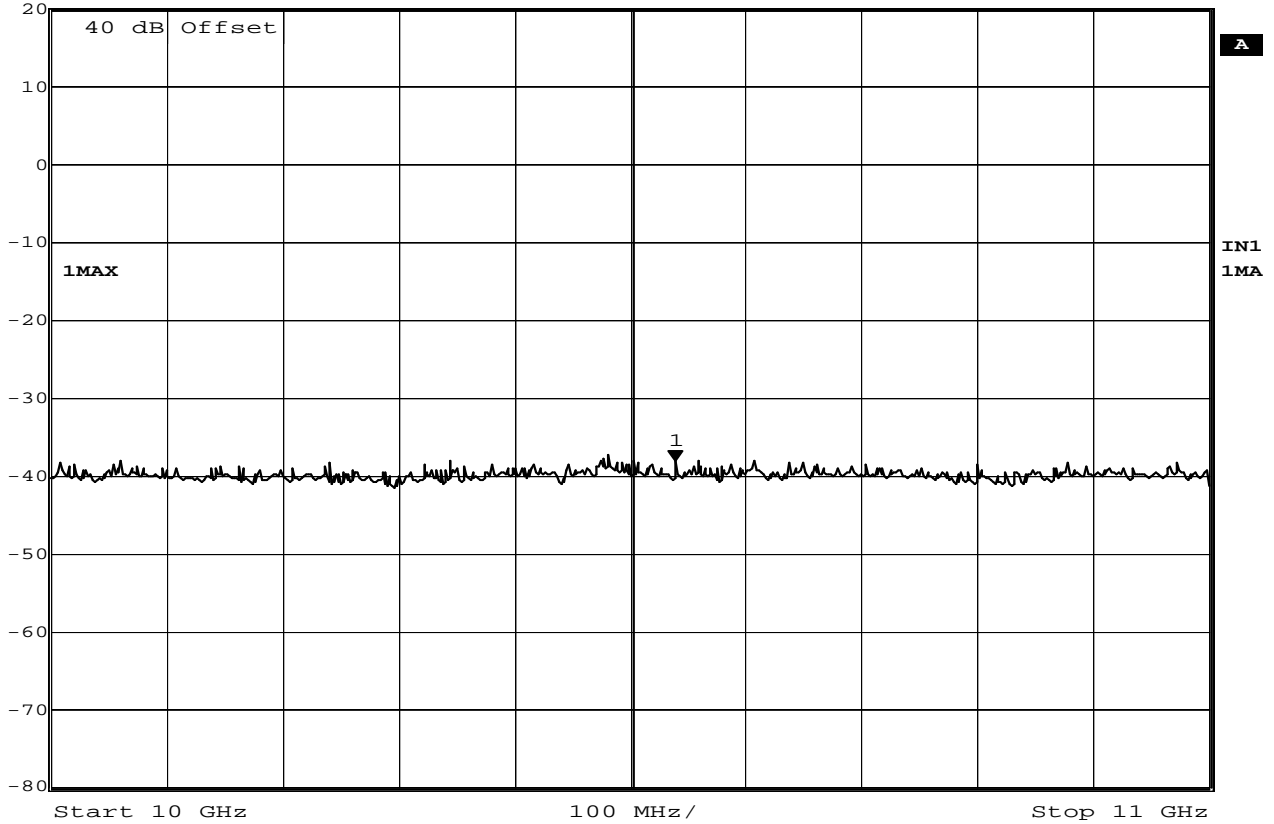
Date: 28.APR.2011 14:17:10

Intermodulation Tests – Antenna Conducted

MANUFACTURER : Shure, Inc.
 MODEL NUMBER : AXT200 L3
 SERIAL NUMBER :
 TEST MODE : Tx @ 638MHz and 697.875MHz
 NOTES : 50mW, Zigbee Tx at 2480MHz
 TEST DATE : April 28, 2011
 TEST PARAMETERS :
 NOTES :
 EQUIPMENT USED : RBA0, T2D7, T2S3



Marker 1 [T1] RBW 100 kHz RF Att 10 dB
 Ref Lvl -38.12 dBm VBW 100 kHz
 20 dBm 10.53907816 GHz SWT 250 ms Unit dBm



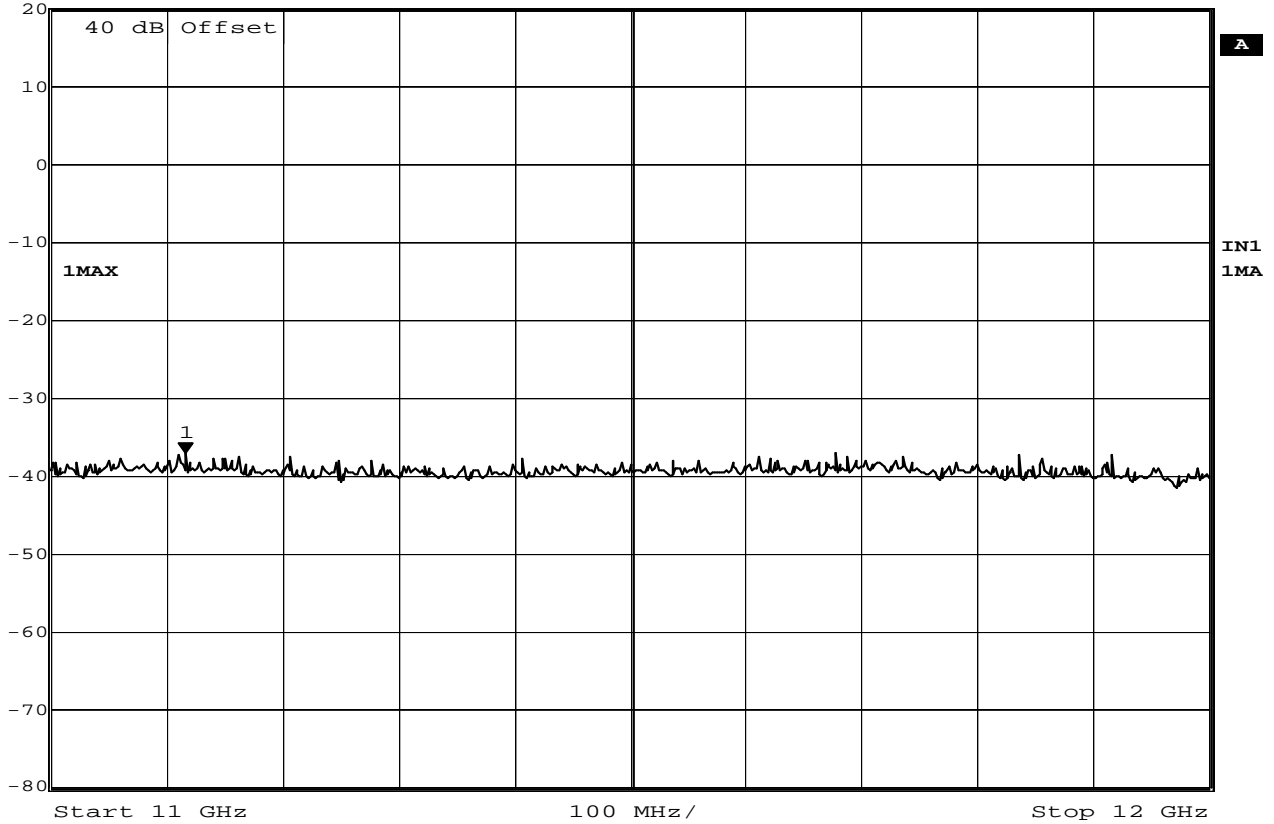
Date: 28.APR.2011 14:17:50

Intermodulation Tests – Antenna Conducted

MANUFACTURER : Shure, Inc.
 MODEL NUMBER : AXT200 L3
 SERIAL NUMBER :
 TEST MODE : Tx @ 638MHz and 697.875MHz
 NOTES : 50mW, Zigbee Tx at 2480MHz
 TEST DATE : April 28, 2011
 TEST PARAMETERS :
 NOTES :
 EQUIPMENT USED : RBA0, T2D7, T2S3



Marker 1 [T1] RBW 100 kHz RF Att 10 dB
 Ref Lvl -37.23 dBm VBW 100 kHz
 20 dBm 11.11623246 GHz SWT 250 ms Unit dBm




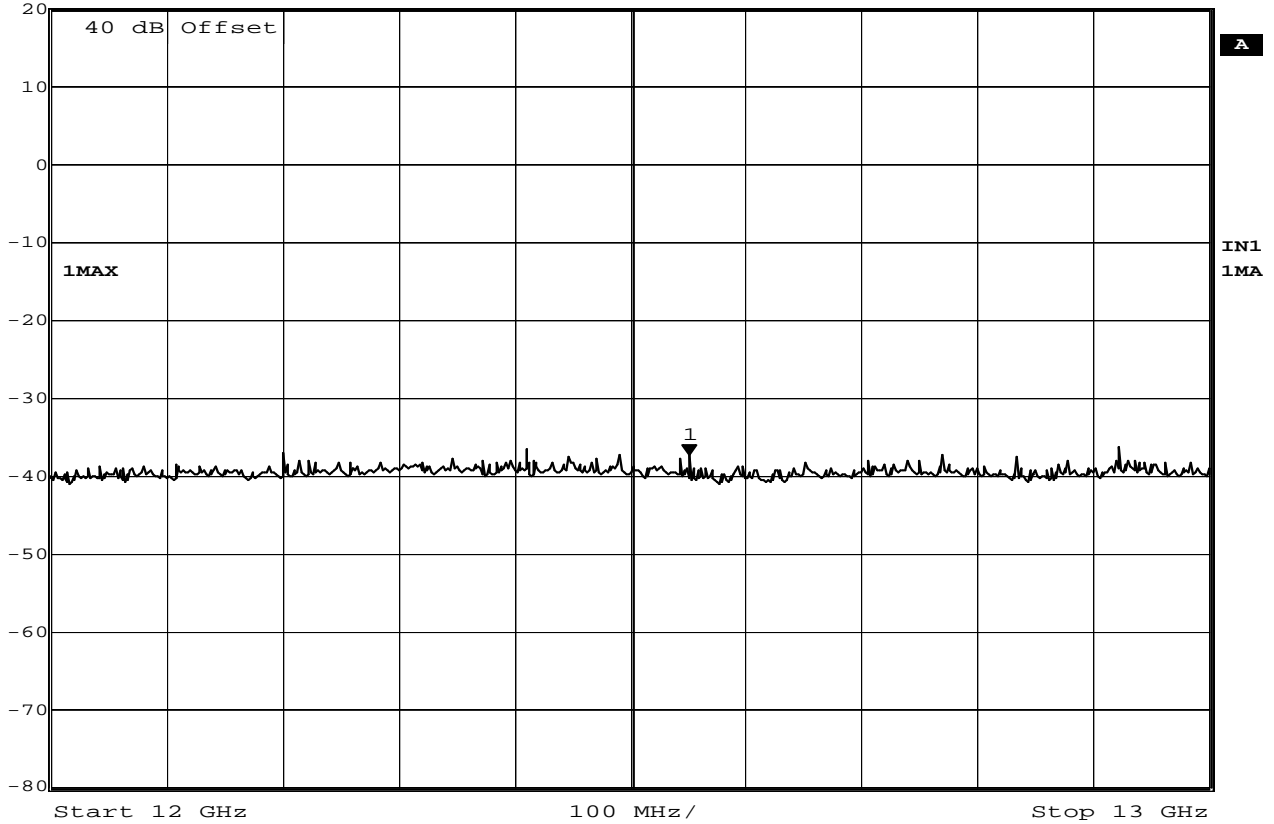
Date: 28.APR.2011 14:18:53

Intermodulation Tests – Antenna Conducted

MANUFACTURER : Shure, Inc.
 MODEL NUMBER : AXT200 L3
 SERIAL NUMBER :
 TEST MODE : Tx @ 638MHz and 697.875MHz
 NOTES : 50mW, Zigbee Tx at 2480MHz
 TEST DATE : April 28, 2011
 TEST PARAMETERS :
 NOTES :
 EQUIPMENT USED : RBA0, T2D7, T2S3




 Marker 1 [T1] RBW 100 kHz RF Att 10 dB
 Ref Lvl -37.47 dBm VBW 100 kHz
 20 dBm 12.55110220 GHz SWT 250 ms Unit dBm



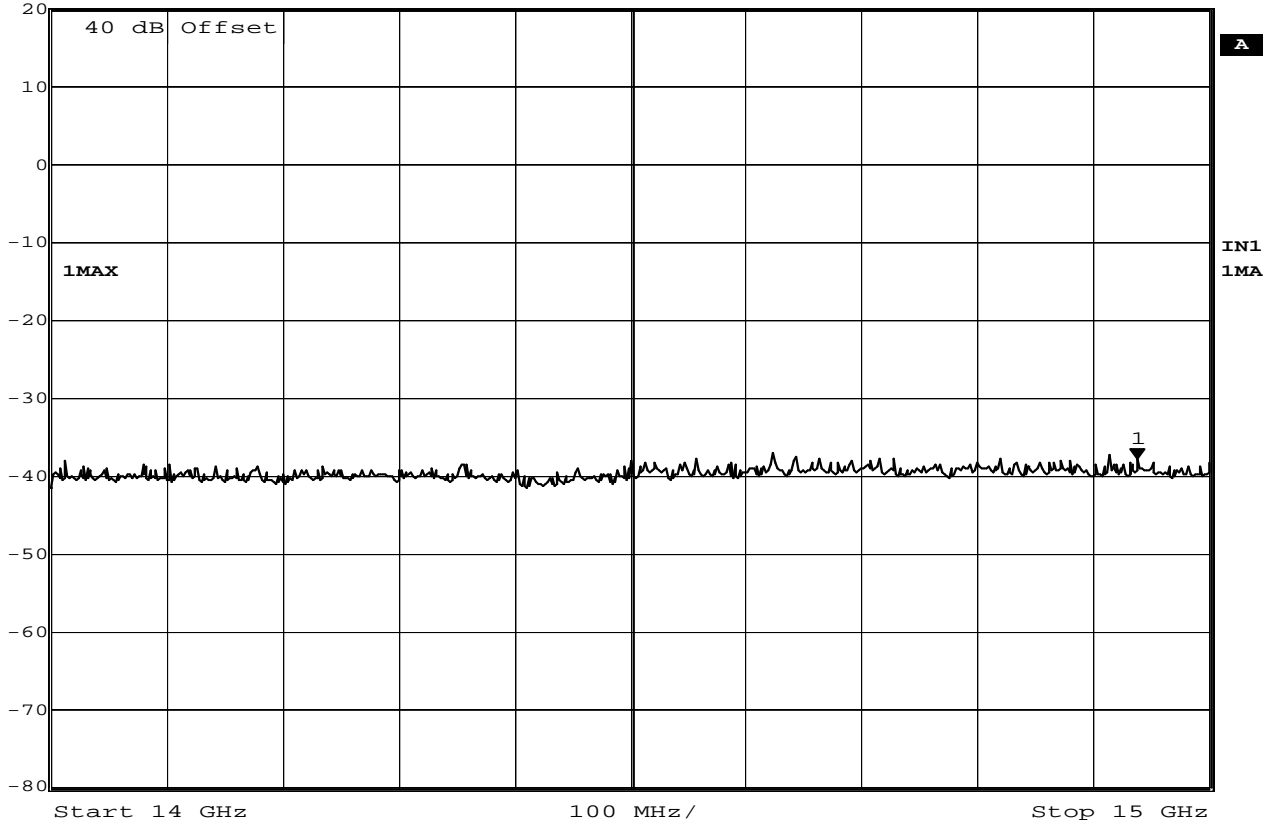
Date: 28.APR.2011 14:19:46

Intermodulation Tests – Antenna Conducted

MANUFACTURER : Shure, Inc.
 MODEL NUMBER : AXT200 L3
 SERIAL NUMBER :
 TEST MODE : Tx @ 638MHz and 697.875MHz
 NOTES : 50mW, Zigbee Tx at 2480MHz
 TEST DATE : April 28, 2011
 TEST PARAMETERS :
 NOTES :
 EQUIPMENT USED : RBA0, T2D7, T2S3



Marker 1 [T1] RBW 100 kHz RF Att 10 dB
 Ref Lvl -37.92 dBm VBW 100 kHz
 20 dBm 14.93787575 GHz SWT 250 ms Unit dBm



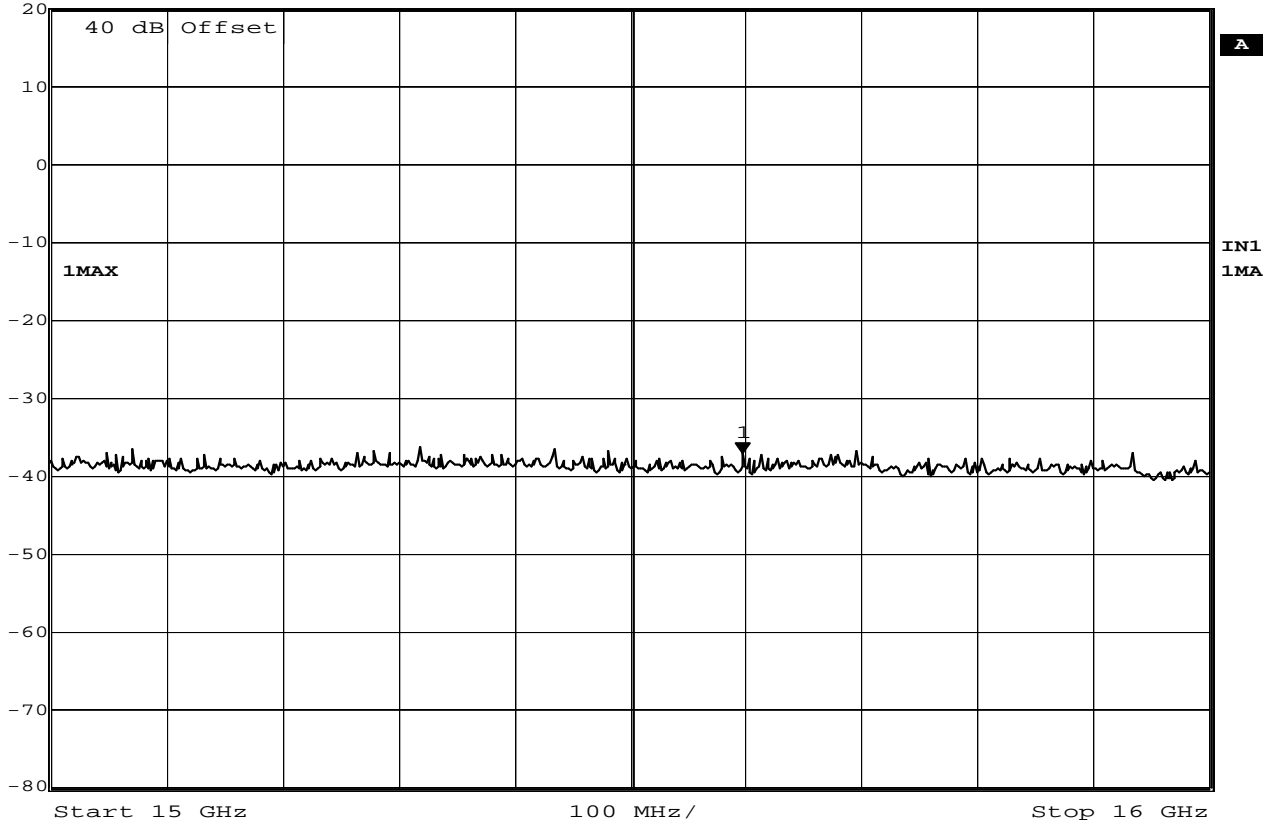
Date: 28.APR.2011 14:21:48

Intermodulation Tests – Antenna Conducted

MANUFACTURER : Shure, Inc.
 MODEL NUMBER : AXT200 L3
 SERIAL NUMBER :
 TEST MODE : Tx @ 638MHz and 697.875MHz
 NOTES : 50mW, Zigbee Tx at 2480MHz
 TEST DATE : April 28, 2011
 TEST PARAMETERS :
 NOTES :
 EQUIPMENT USED : RBA0, T2D7, T2S3



Ref Lvl 20 dBm
 Marker 1 [T1] -37.23 dBm
 15.59719439 GHz
 RBW 100 kHz
 VBW 100 kHz
 RF Att 10 dB
 SWT 250 ms
 Unit dBm



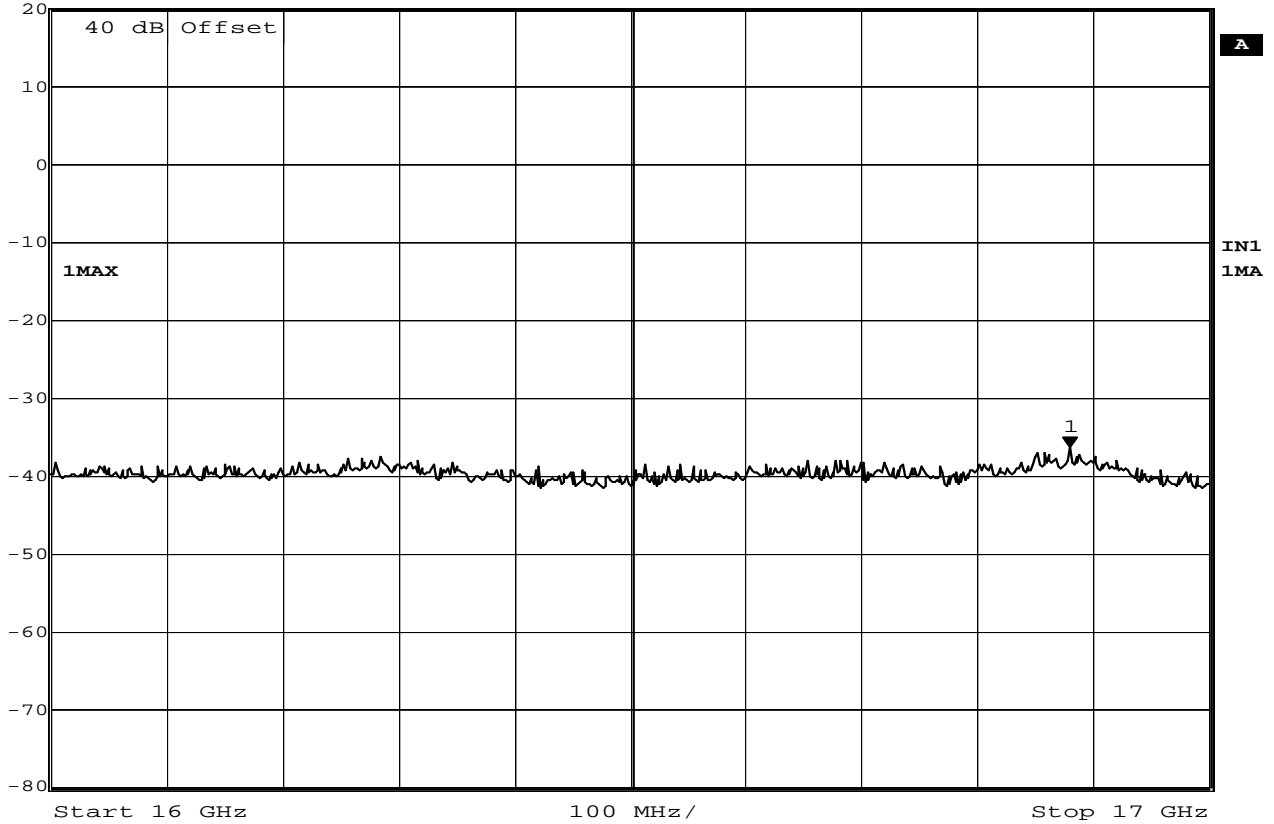
Date: 28.APR.2011 14:22:58

Intermodulation Tests – Antenna Conducted

MANUFACTURER : Shure, Inc.
 MODEL NUMBER : AXT200 L3
 SERIAL NUMBER :
 TEST MODE : Tx @ 638MHz and 697.875MHz
 NOTES : 50mW, Zigbee Tx at 2480MHz
 TEST DATE : April 28, 2011
 TEST PARAMETERS :
 NOTES :
 EQUIPMENT USED : RBA0, T2D7, T2S3



Marker 1 [T1] RBW 100 kHz RF Att 10 dB
 Ref Lvl -36.39 dBm VBW 100 kHz
 20 dBm 16.87975952 GHz SWT 250 ms Unit dBm



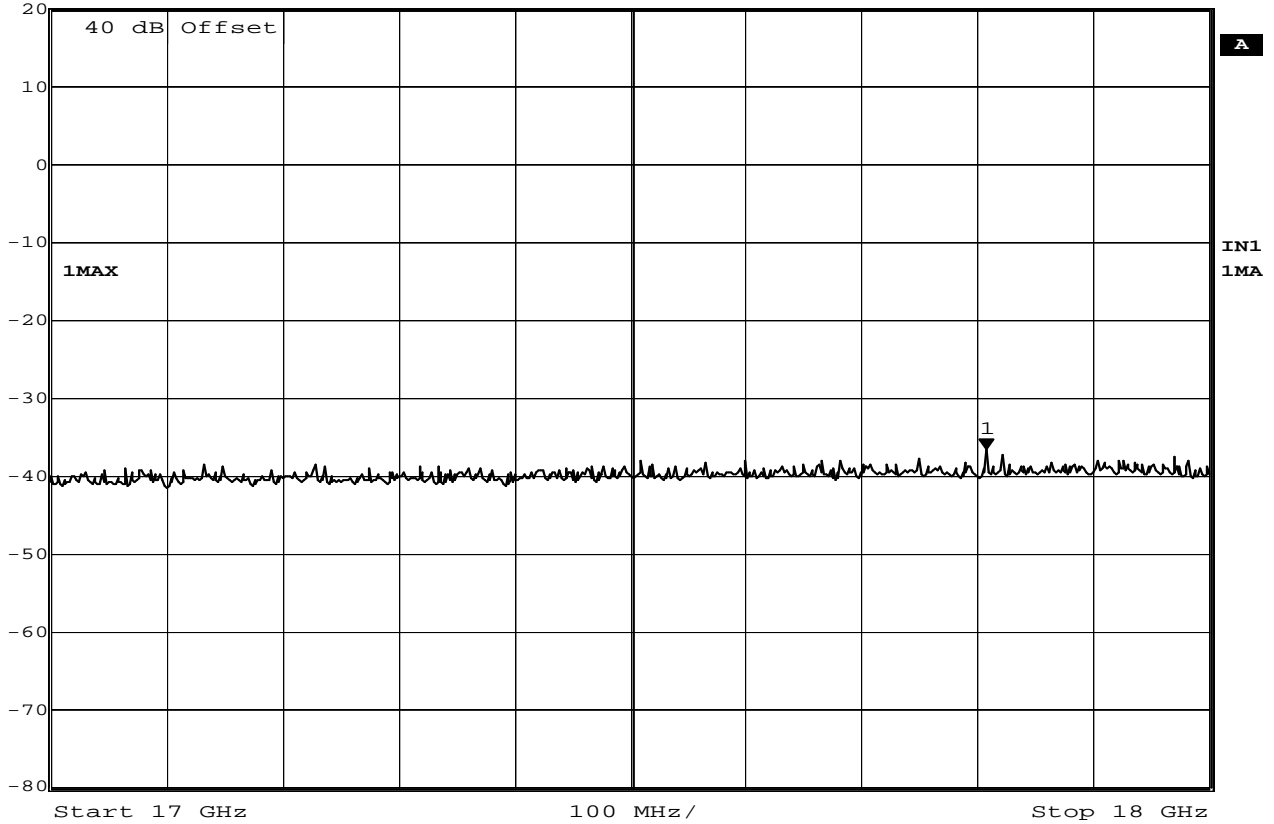
Date: 28.APR.2011 14:25:09

Intermodulation Tests – Antenna Conducted

MANUFACTURER : Shure, Inc.
 MODEL NUMBER : AXT200 L3
 SERIAL NUMBER :
 TEST MODE : Tx @ 638MHz and 697.875MHz
 NOTES : 50mW, Zigbee Tx at 2480MHz
 TEST DATE : April 28, 2011
 TEST PARAMETERS :
 NOTES :
 EQUIPMENT USED : RBA0, T2D7, T2S3



Marker 1 [T1] RBW 100 kHz RF Att 10 dB
 Ref Lvl -36.58 dBm VBW 100 kHz
 20 dBm 17.80761523 GHz SWT 250 ms Unit dBm



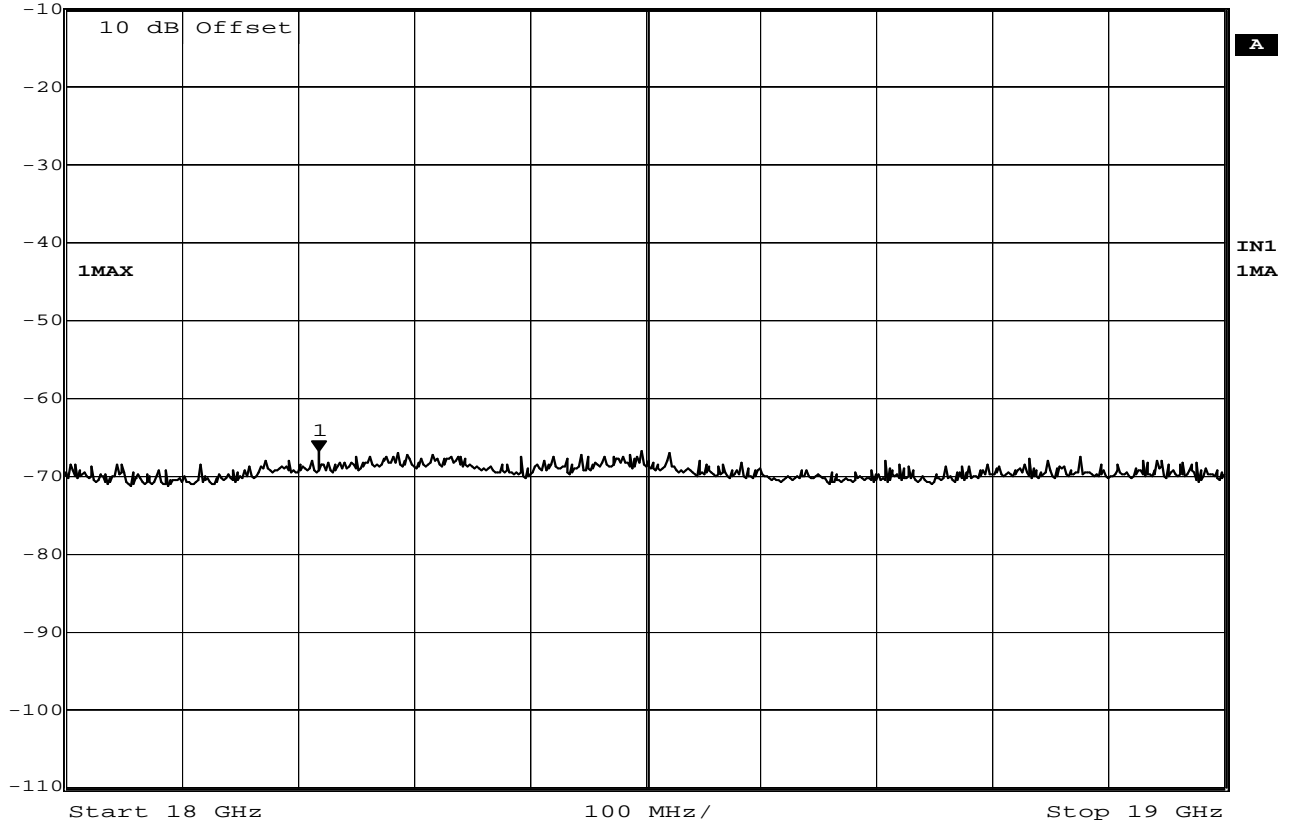
Date: 28.APR.2011 14:27:05

Intermodulation Tests – Antenna Conducted

MANUFACTURER : Shure, Inc.
 MODEL NUMBER : AXT200 L3
 SERIAL NUMBER :
 TEST MODE : Tx @ 638MHz and 697.875MHz
 NOTES : 50mW, Zigbee Tx at 2480MHz
 TEST DATE : April 28, 2011
 TEST PARAMETERS :
 NOTES :
 EQUIPMENT USED : RBA0, T2D7, T2S3



Marker 1 [T1] RBW 100 kHz RF Att 10 dB
 Ref Lvl -66.96 dBm VBW 100 kHz
 -10 dBm 18.21843687 GHz SWT 250 ms Unit dBm



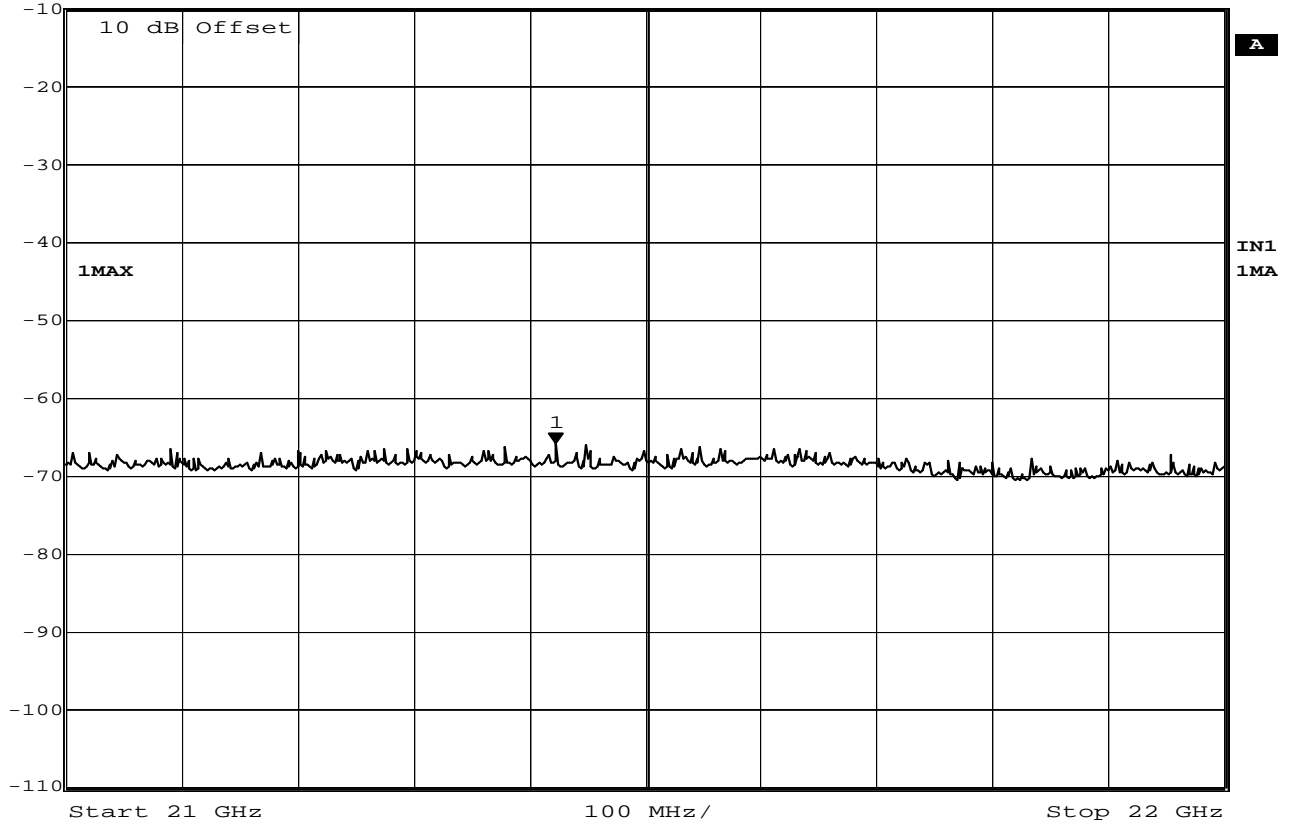
Date: 28.APR.2011 14:44:52

Intermodulation Tests – Antenna Conducted

MANUFACTURER : Shure, Inc.
 MODEL NUMBER : AXT200 L3
 SERIAL NUMBER :
 TEST MODE : Tx @ 638MHz and 697.875MHz
 NOTES : 50mW, Zigbee Tx at 2480MHz
 TEST DATE : April 28, 2011
 TEST PARAMETERS :
 NOTES :
 EQUIPMENT USED : RBA0, T1P0



Marker 1 [T1] RBW 100 kHz RF Att 10 dB
 Ref Lvl -65.87 dBm VBW 100 kHz
 -10 dBm 21.42284569 GHz SWT 250 ms Unit dBm



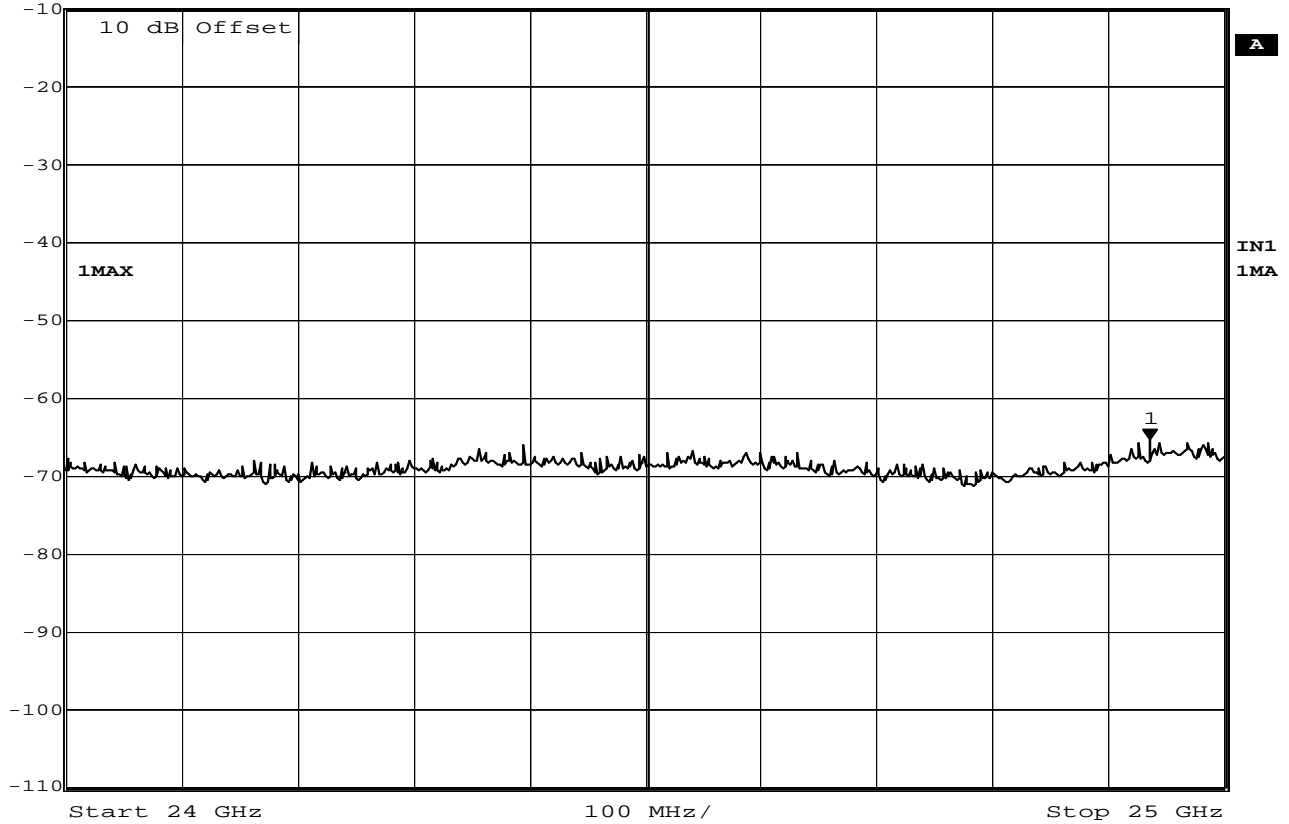
Date: 28.APR.2011 14:36:31

Intermodulation Tests – Antenna Conducted

MANUFACTURER : Shure, Inc.
 MODEL NUMBER : AXT200 L3
 SERIAL NUMBER :
 TEST MODE : Tx @ 638MHz and 697.875MHz
 NOTES : 50mW, Zigbee Tx at 2480MHz
 TEST DATE : April 28, 2011
 TEST PARAMETERS :
 NOTES :
 EQUIPMENT USED : RBA0, T1P0



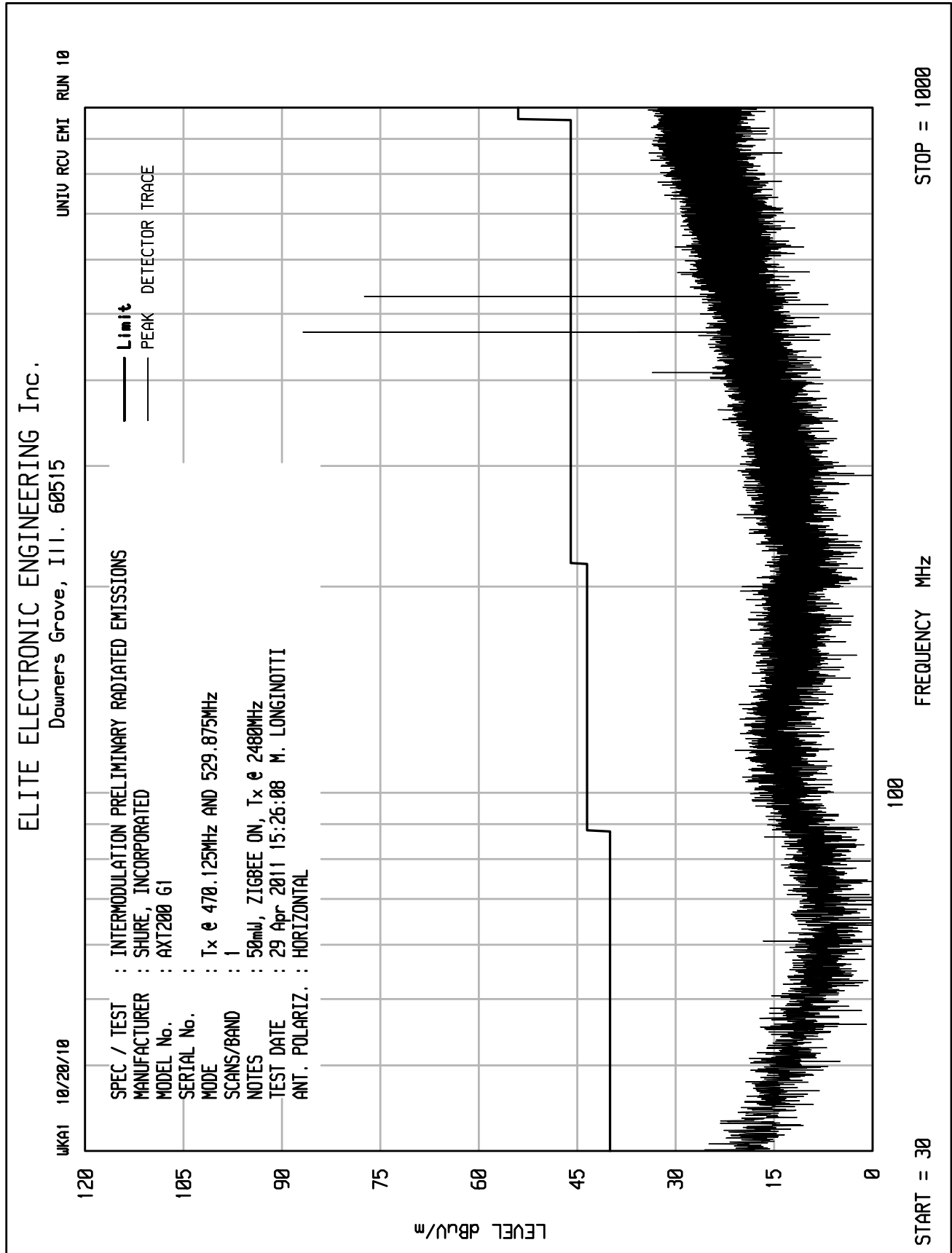
Marker 1 [T1] RBW 100 kHz RF Att 10 dB
 Ref Lvl -65.44 dBm VBW 100 kHz
 -10 dBm 24.93587174 GHz SWT 250 ms Unit dBm



Date: 28.APR.2011 14:42:31

Intermodulation Tests – Antenna Conducted

MANUFACTURER : Shure, Inc.
 MODEL NUMBER : AXT200 L3
 SERIAL NUMBER :
 TEST MODE : Tx @ 638MHz and 697.875MHz
 NOTES : 50mW, Zigbee Tx at 2480MHz
 TEST DATE : April 28, 2011
 TEST PARAMETERS :
 NOTES :
 EQUIPMENT USED : RBA0, T1P0

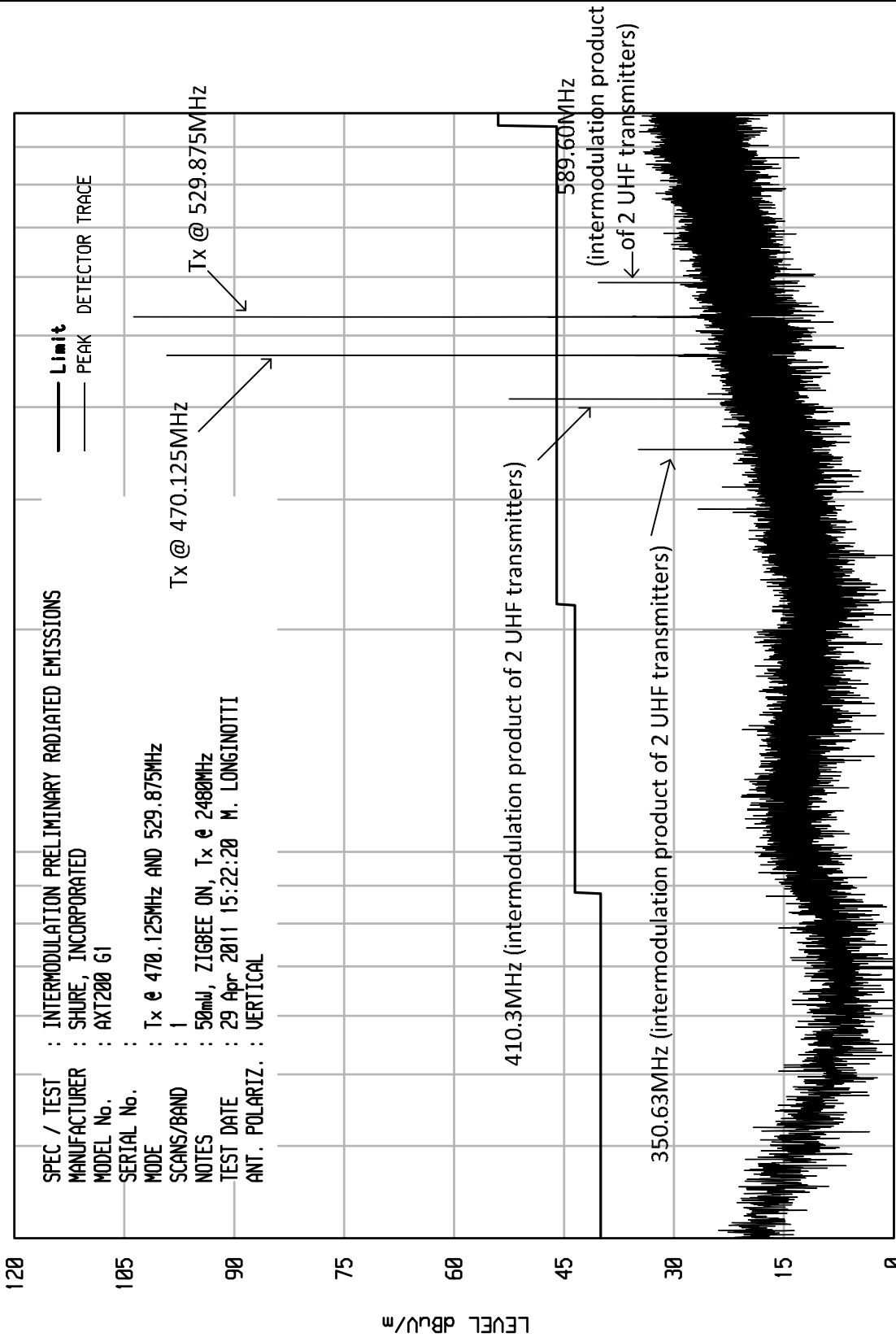


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Downers Grove, Ill. 60515

UNIV RCU EMI RUN 9

WKA1 10/20/10

SPEC / TEST : INTERMODULATION PRELIMINARY RADIATED EMISSIONS
 MANUFACTURER : SHURE, INCORPORATED
 MODEL No. : AXT200 G1
 SERIAL No. :
 MODE :
 SCANS/BAND : Tx @ 470.125MHz AND 529.875MHz
 NOTES : 1
 : 50mW, ZIGBEE ON, Tx @ 2480MHz
 TEST DATE : 29 Apr 2011 15:22:20 M. LONGINOTTI
 ANT. POLARIZ. : VERTICAL



STOP = 1000

FREQUENCY MHz

START = 30

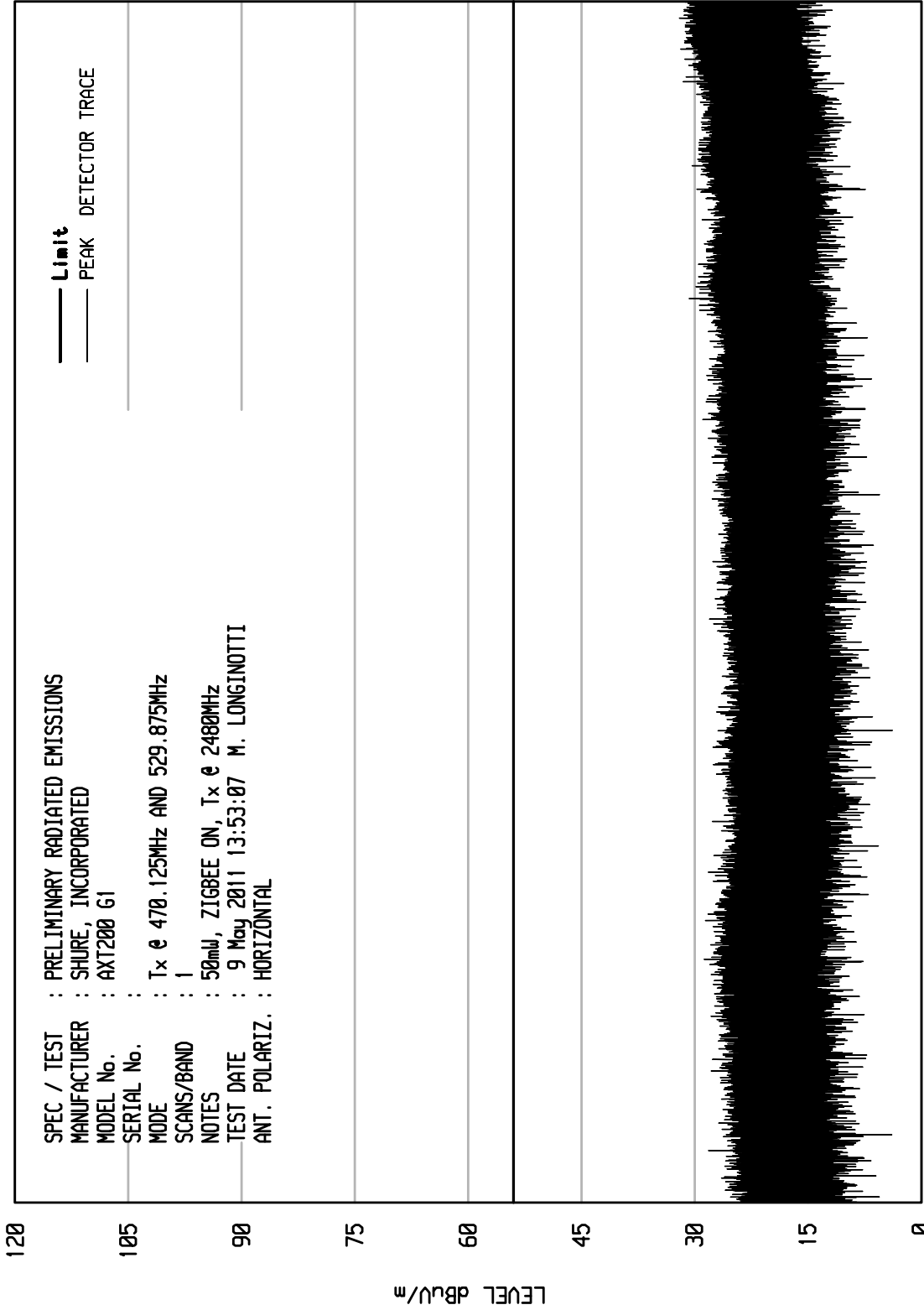


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UNIU RCU EMI RUN 12

UKA1 10/20/10



120

105

90

75

60

45

30

15

0

START = 1000

FREQUENCY MHz

STOP = 2000

SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
 MANUFACTURER : SHURE, INCORPORATED
 MODEL No. : AXT200 G1
 SERIAL No. :
 MODE : Tx @ 470.125MHz AND 529.875MHz
 SCANS/BAND : 1
 NOTES : 50mV, ZIGBEE ON, Tx @ 2400MHz
 TEST DATE : 9 May 2011 13:53:07 M. LONGINOTTI
 ANT. POLARIZ. : HORIZONTAL

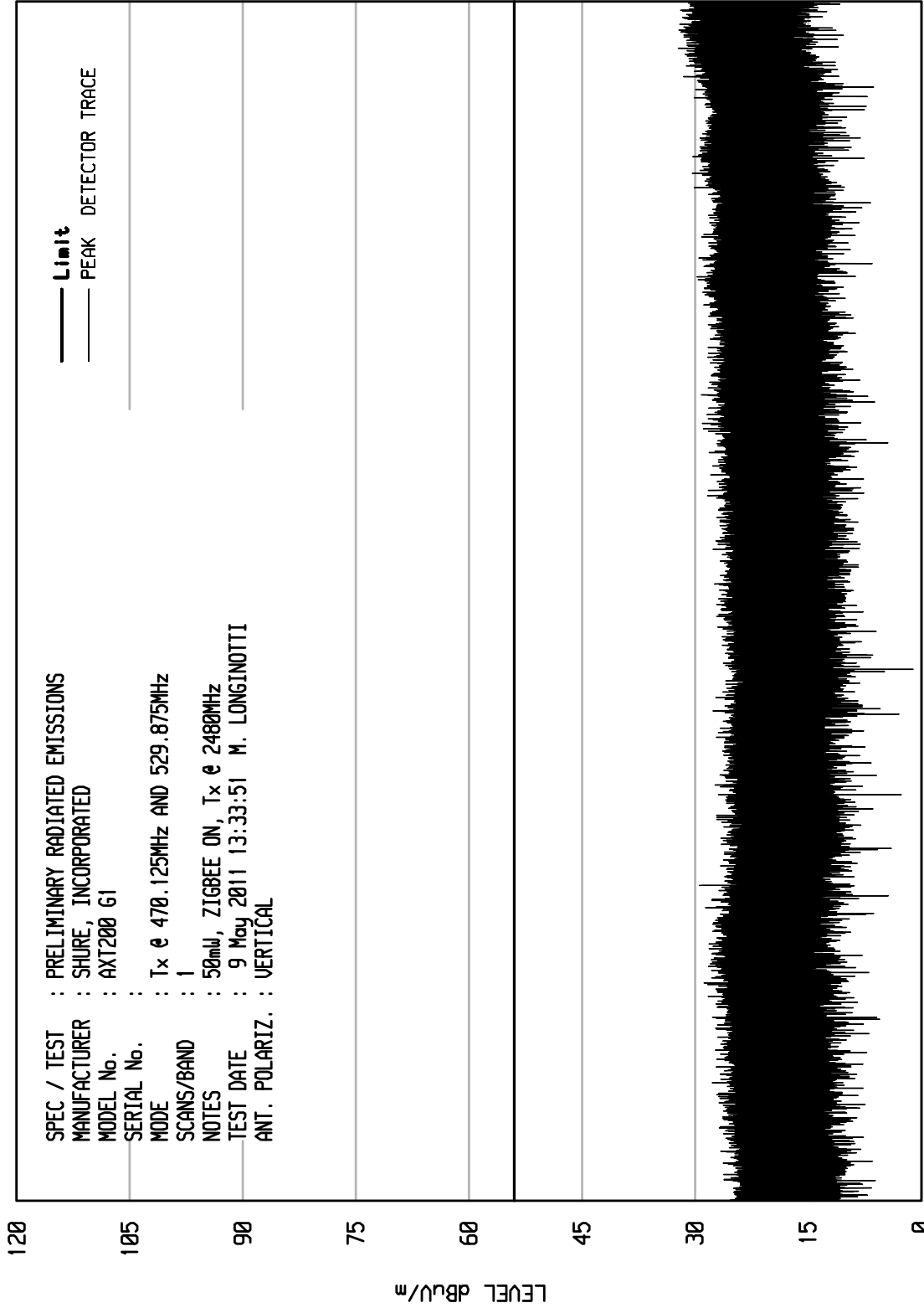


ELITE ELECTRONIC ENGINEERING Inc.

Downers Grove, Ill. 60515

UNIU RCU EMI RUN 11

UKA1 10/20/10



SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
 MANUFACTURER : SHURE, INCORPORATED
 MODEL No. : AXT200 G1
 SERIAL No. :
 MODE : Tx @ 470.125MHz AND 529.875MHz
 SCANS/BAND : 1
 NOTES : 50mW, ZIGBEE ON, Tx @ 2400MHz
 TEST DATE : 9 May 2011 13:33:51 M. LONGINOTTI
 ANT. POLARIZ. : VERTICAL

START = 1000 FREQUENCY MHz STOP = 2000

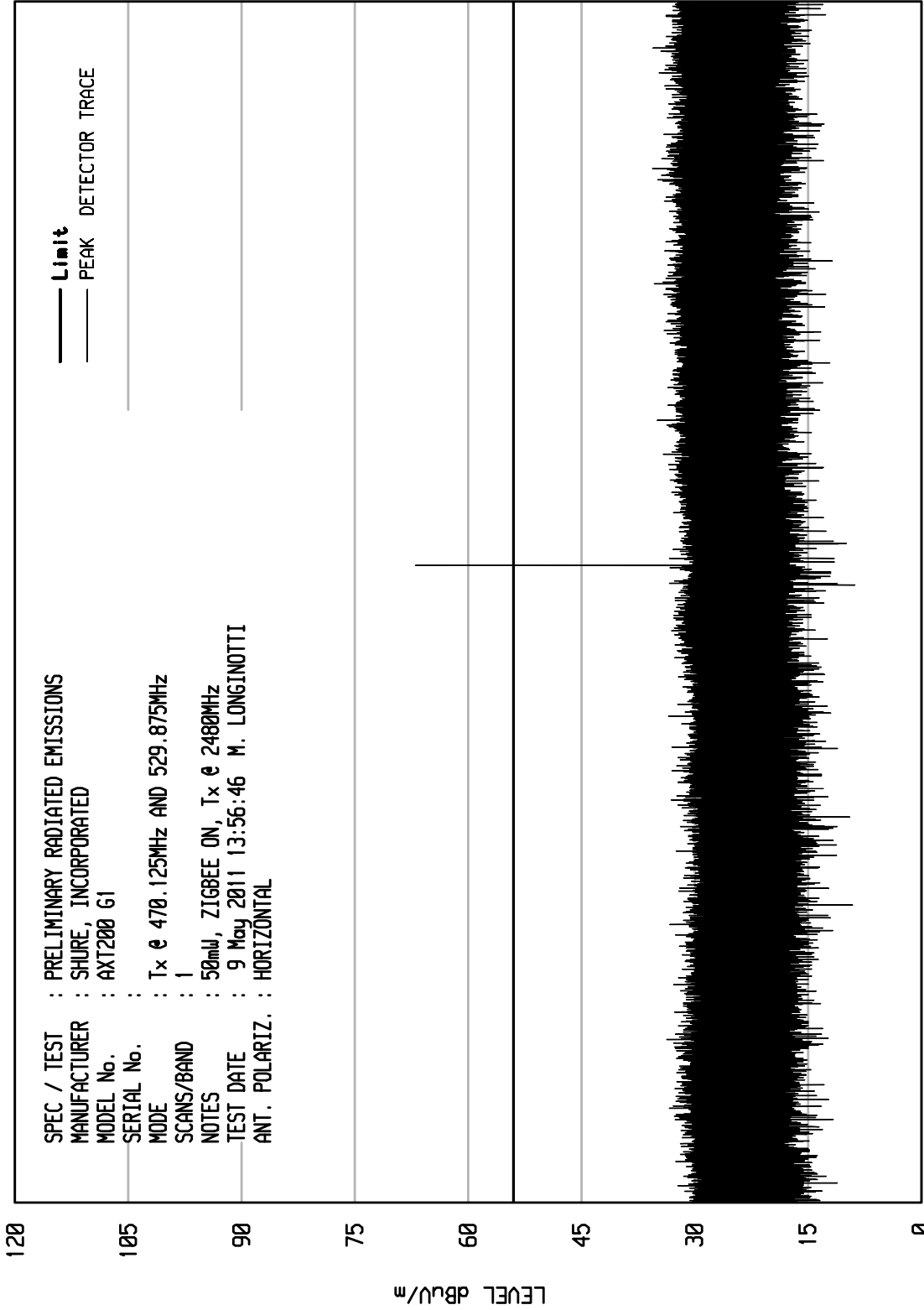


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Downers Grove, Ill. 60515

UNIU RCU EMI RUN 12

UKA1 10/20/10



STOP = 3000

FREQUENCY MHz

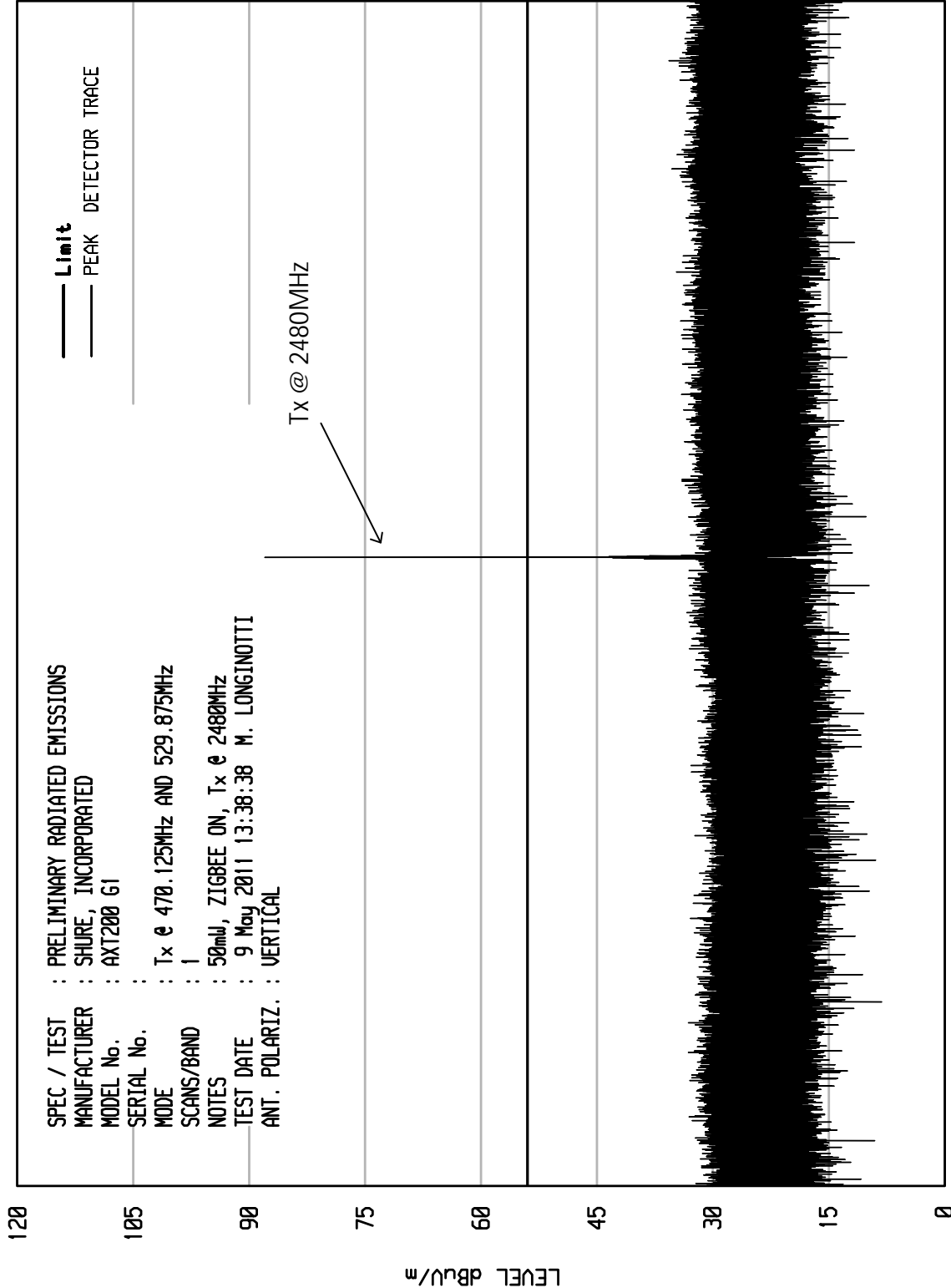
START = 2000

LEVEL dBu/m

ELITE ELECTRONIC ENGINEERING Inc.
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UNIU RCV EMI RUN 11

UKA1 10/20/10



SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
 MANUFACTURER : SHURE, INCORPORATED
 MODEL No. : AXT200 G1
 SERIAL No. :
 MODE : Tx @ 470.125MHz AND 529.875MHz
 SCANS/BAND : 1
 NOTES : 50mW, ZIGBEE ON, Tx @ 2480MHz
 TEST DATE : 9 May 2011 13:38:38 M. LONGINOTTI
 ANT. POLARIZ. : VERTICAL

STOP = 3000

FREQUENCY MHz

START = 2000

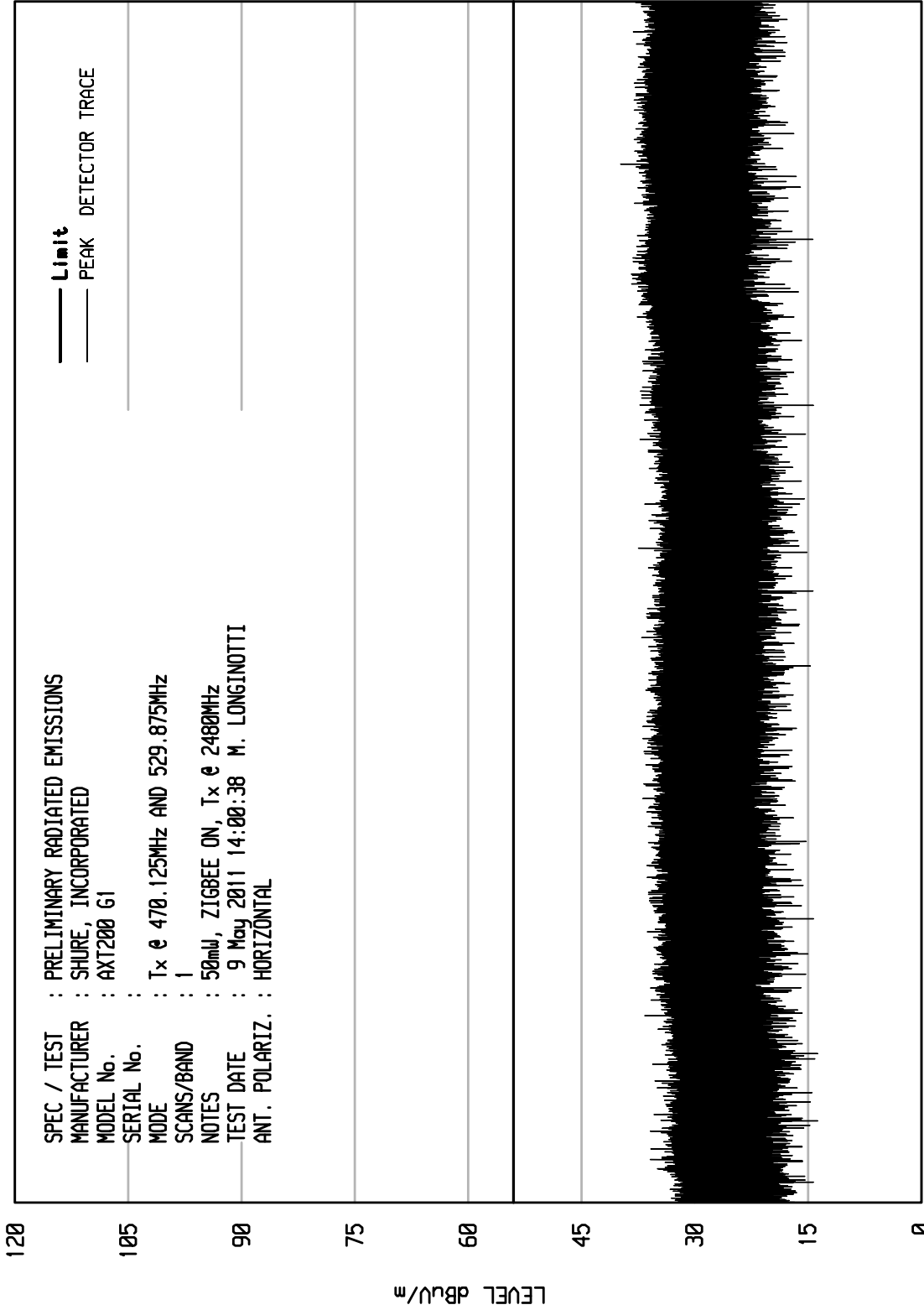


ELITE ELECTRONIC ENGINEERING Inc.

Downers Grove, Ill. 60515

UNIU RCU EMI RUN 13

UKA1 10/20/10



SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
 MANUFACTURER : SHURE, INCORPORATED
 MODEL No. : AXT200 G1
 SERIAL No. :
 MODE : Tx @ 470.125MHz AND 529.875MHz
 SCANS/BAND : 1
 NOTES : 50mW, ZIGBEE ON, Tx @ 2480MHz
 TEST DATE : 9 May 2011 14:00:38 M. LONGINOTTI
 ANT. POLARIZ. : HORIZONTAL

120
 105
 90
 75
 60
 45
 30
 15
 0

LEVEL dBuV/m

START = 3000 FREQUENCY MHz STOP = 4000

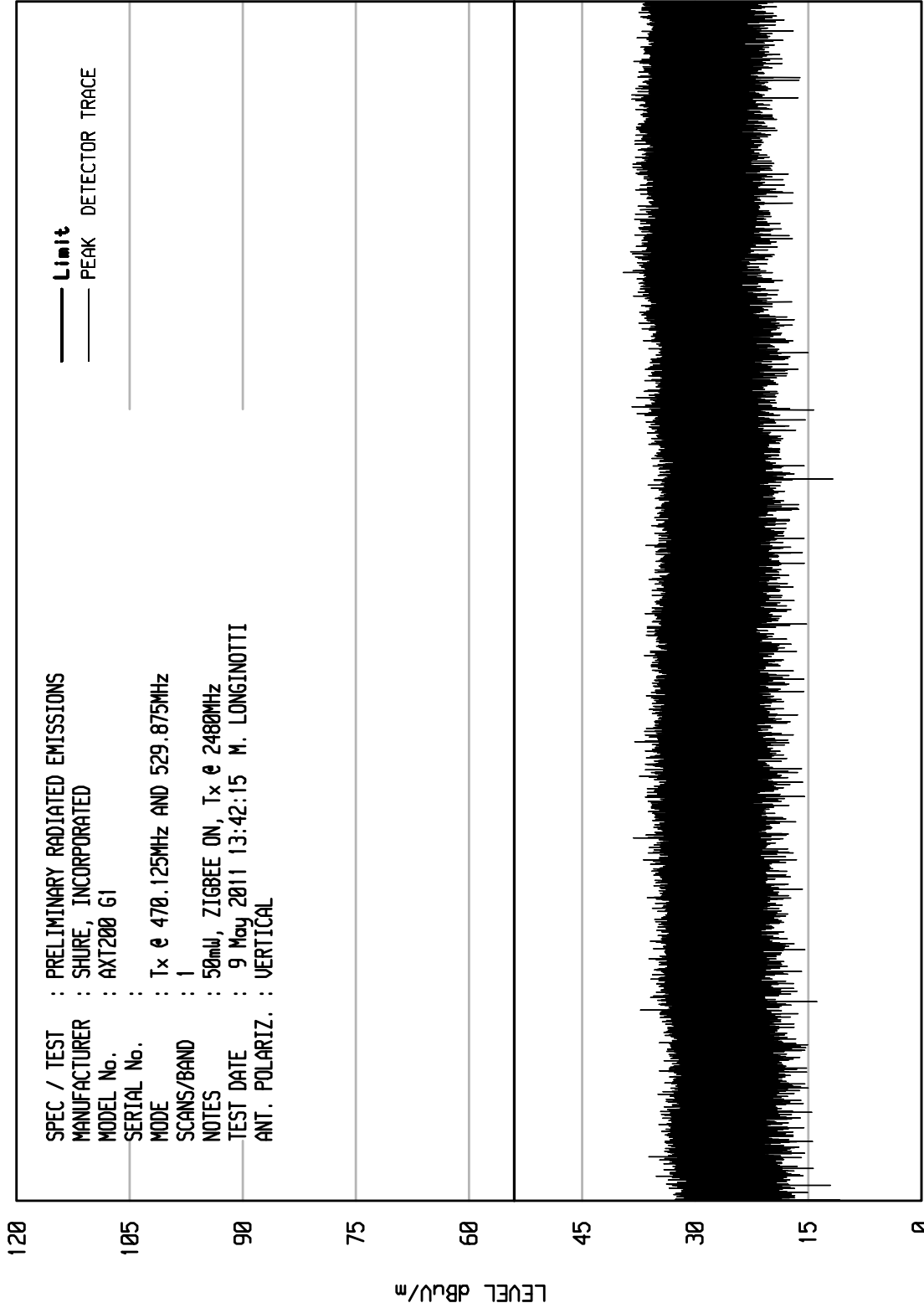


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UNIU RCU EMI RUN 11

UKA1 10/20/10



SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
 MANUFACTURER : SHURE, INCORPORATED
 MODEL No. : AXT200 G1
 SERIAL No. :
 MODE : Tx @ 470.125MHz AND 529.875MHz
 SCANS/BAND : 1
 NOTES : 50mW, ZIGBEE ON, Tx @ 2480MHz
 TEST DATE : 9 May 2011 13:42:15 M. LONGINOTTI
 ANT. POLARIZ. : VERTICAL

120
 105
 90
 75
 60
 45
 30
 15
 0

LEVEL dBuV/m

START = 3000

FREQUENCY MHz

STOP = 4000

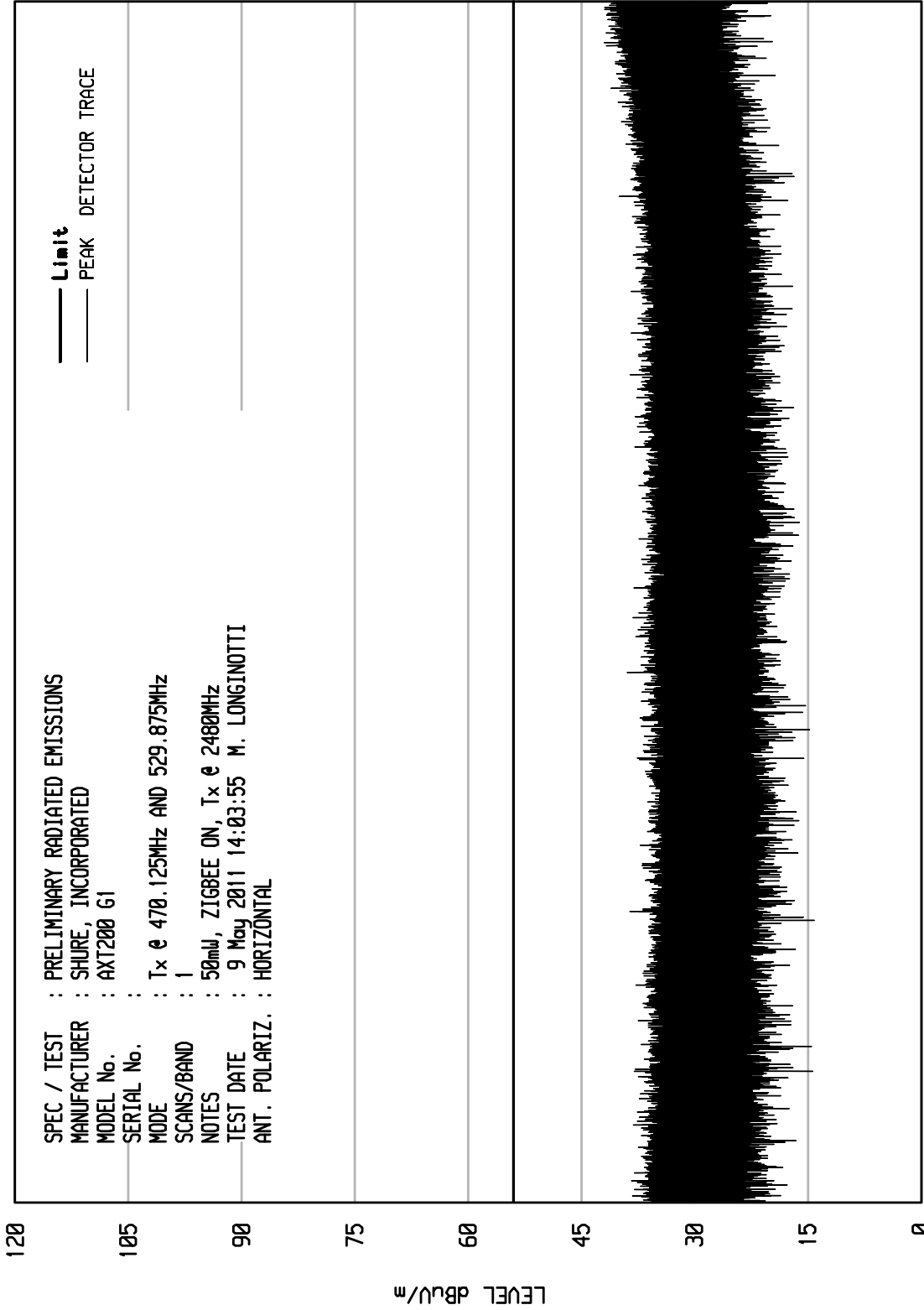


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UNIU RCU EMI RUN 8

UKA1 10/20/10



SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
 MANUFACTURER : SHURE, INCORPORATED
 MODEL No. : AXT200 G1
 SERIAL No. :
 MODE : Tx @ 470.125MHz AND 529.875MHz
 SCANS/BAND : 1
 NOTES : 50mW, ZIGBEE ON, Tx @ 2480MHz
 TEST DATE : 9 May 2011 14:03:55 M. LONGINOTTI
 ANT. POLARIZ. : HORIZONTAL

120
 105
 90
 75
 60
 45
 30
 15
 0

LEVEL dBuV/m

START = 4000

FREQUENCY MHz

STOP = 5000

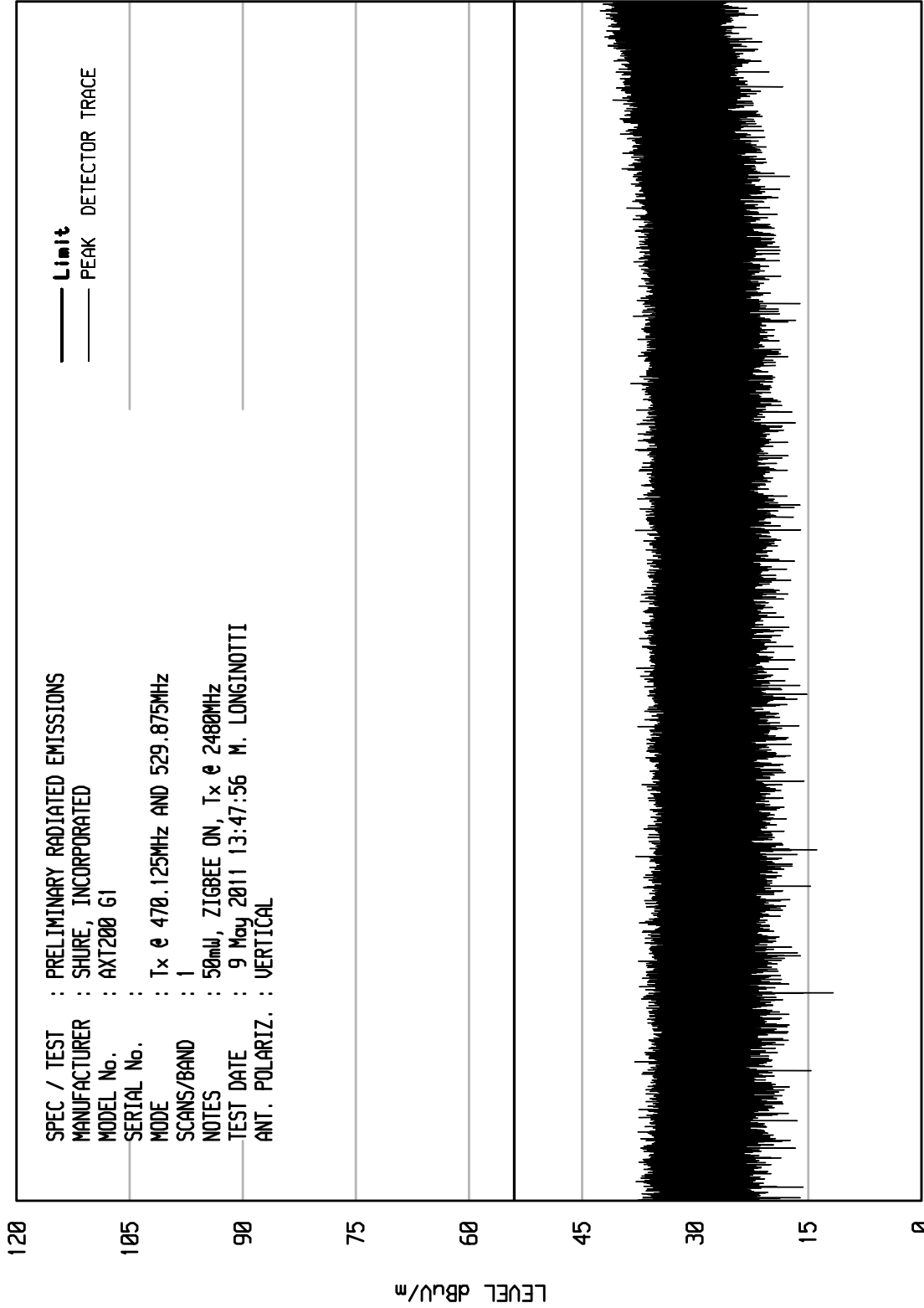


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UNIU RCU EMI RUN 7

UKA1 10/20/10



SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
 MANUFACTURER : SHURE, INCORPORATED
 MODEL No. : AXT200 G1
 SERIAL No. :
 MODE : Tx @ 470.125MHz AND 529.875MHz
 SCANS/BAND : 1
 NOTES : 50mW, ZIGBEE ON, Tx @ 2480MHz
 TEST DATE : 9 May 2011 13:47:56 M. LONGINOTTI
 ANT. POLARIZ. : VERTICAL

120
105
90
75
60
45
30
15
0

LEVEL dBuV/m

START = 4000

FREQUENCY MHz

STOP = 5000

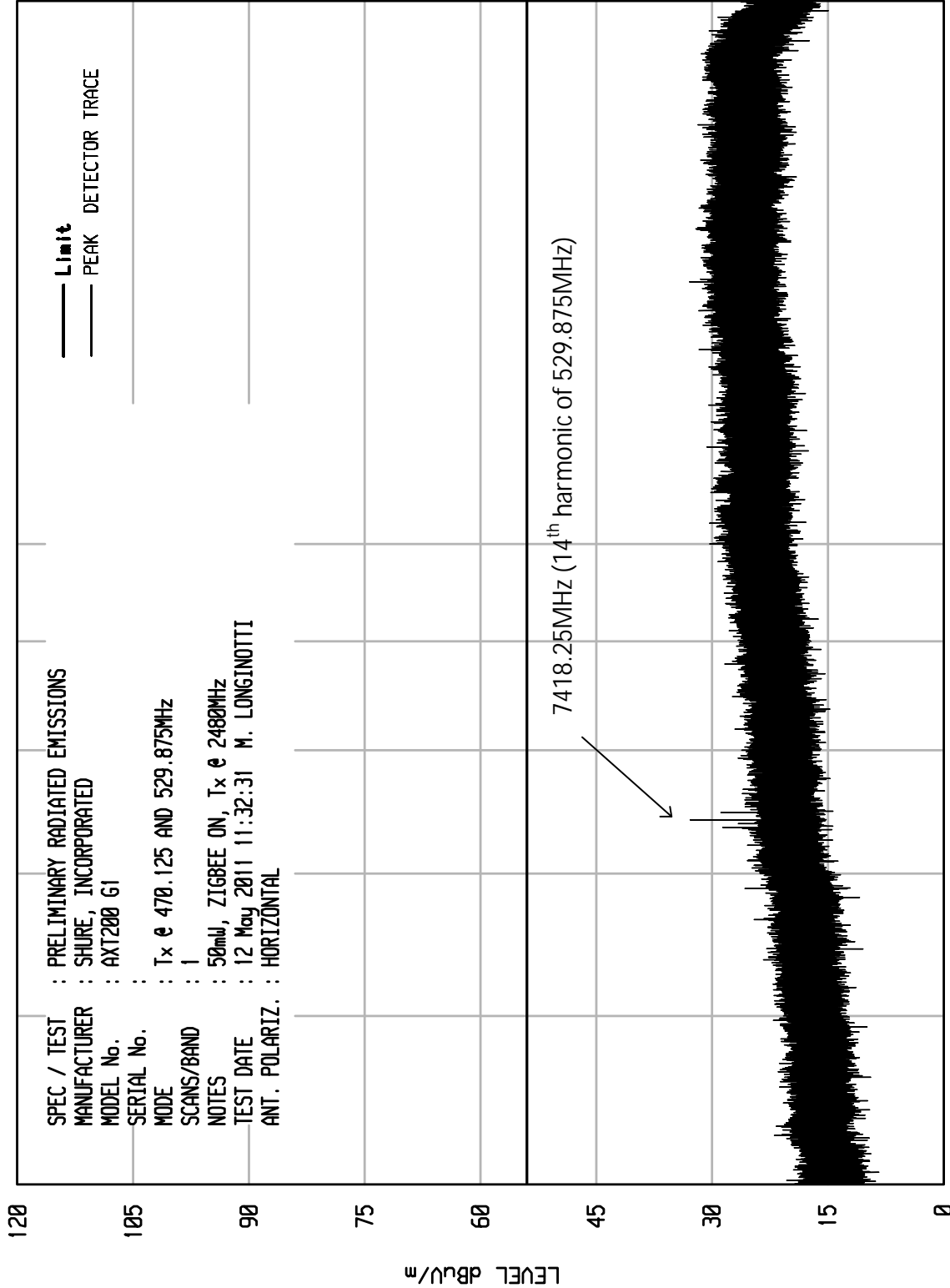
ELITE ELECTRONIC ENGINEERING Inc.
Downers Grove, Ill. 60515

UNIU RCV EMI RUN 5

UKA1 10/20/10

SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
 MANUFACTURER : SHURE, INCORPORATED
 MODEL No. : AXT200 G1
 SERIAL No. :
 MODE : Tx @ 470.125 AND 529.875MHz
 SCANS/BAND : 1
 NOTES : 50mW, ZIGBEE ON, Tx @ 2400MHz
 TEST DATE : 12 May 2011 11:32:31 M. LONGINOTTI
 ANT. POLARIZ. : HORIZONTAL

— Limit
 — PEAK DETECTOR TRACE



STOP = 18000

FREQUENCY MHz

START = 5000

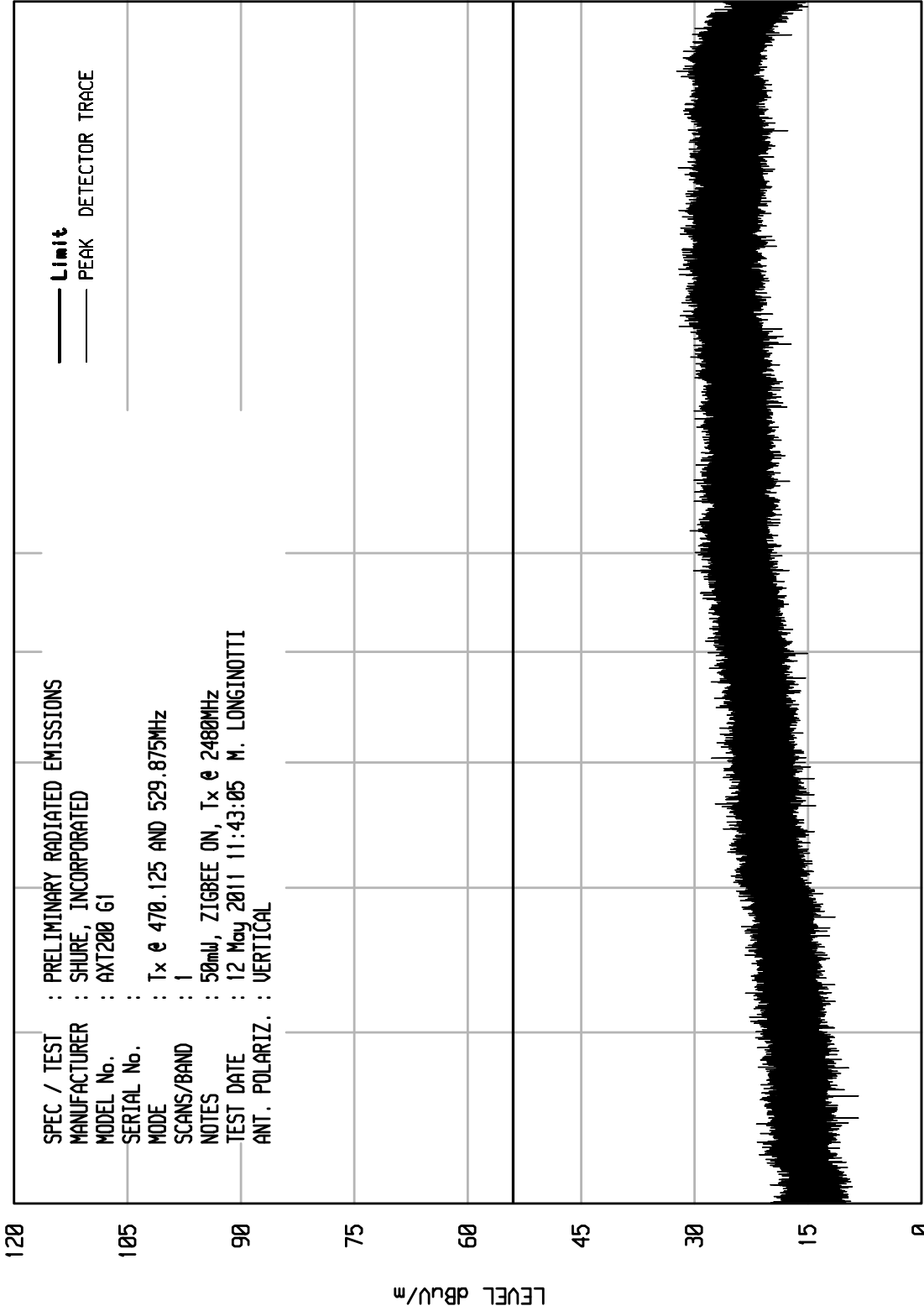


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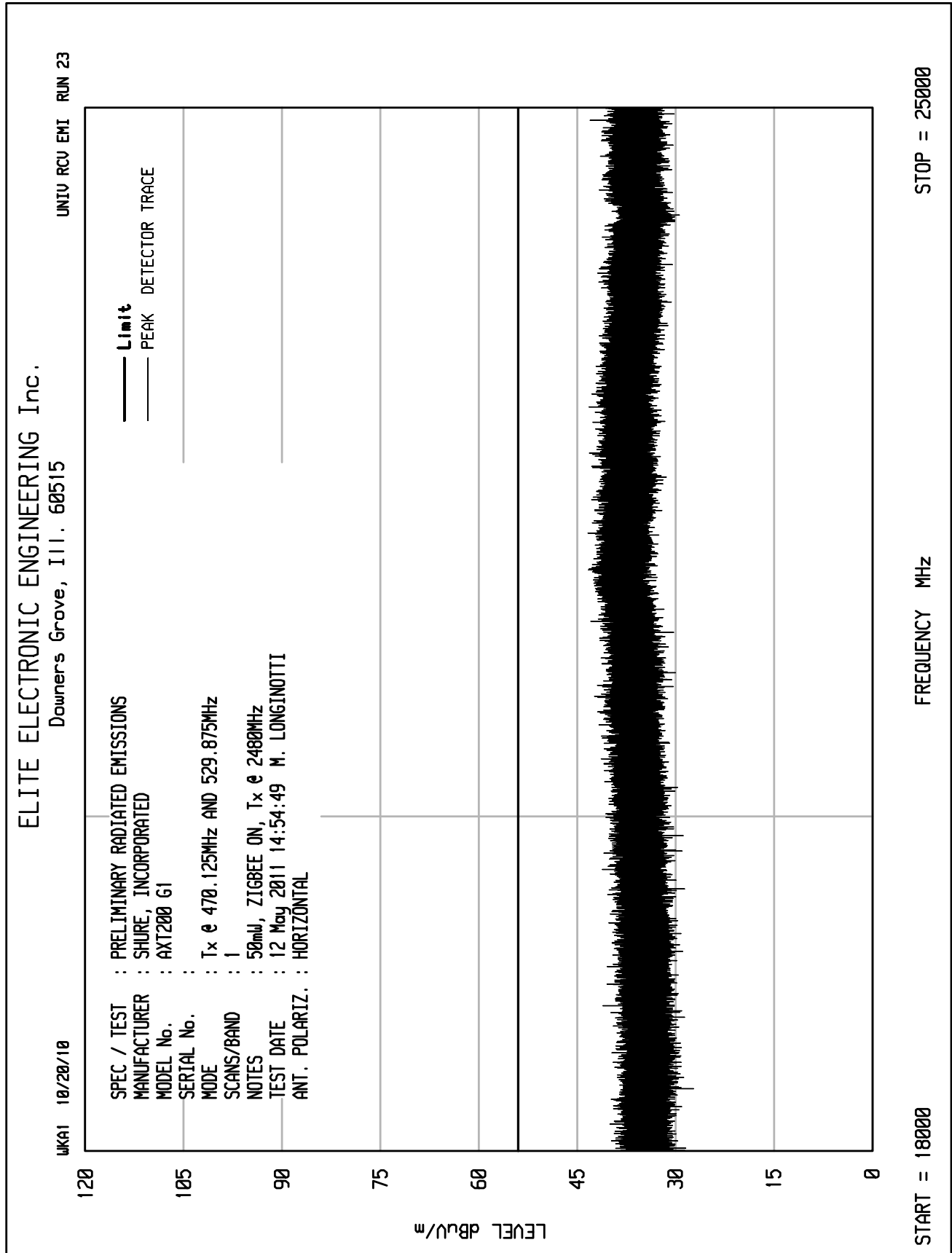
UNIU RCU EMI RUN 6

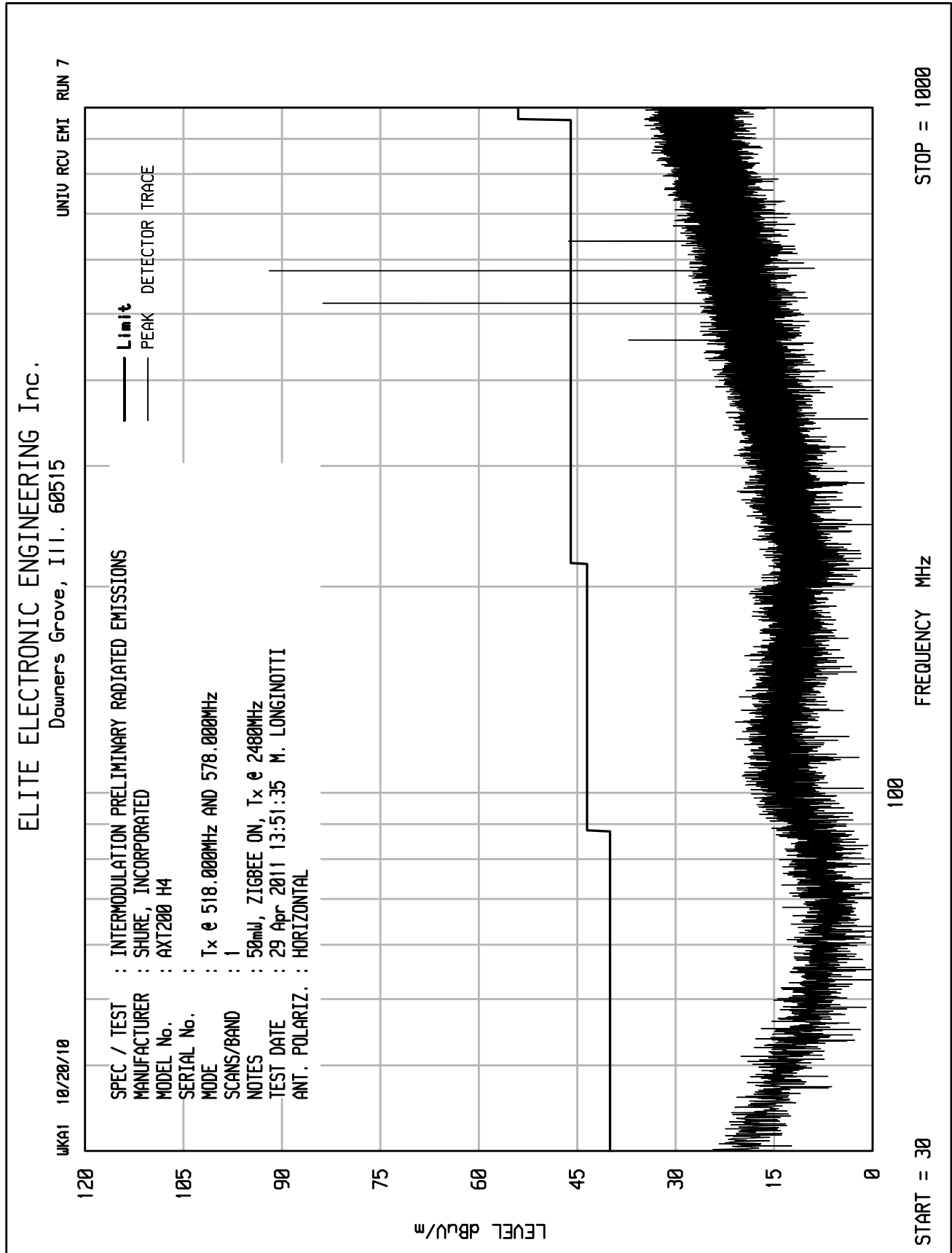
UKA1 10/20/10



SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
 MANUFACTURER : SHURE, INCORPORATED
 MODEL No. : AXT200 G1
 SERIAL No. :
 MODE : Tx @ 470.125 AND 529.875MHz
 SCANS/BAND : 1
 NOTES : 50mV, ZIGBEE ON, Tx @ 2400MHz
 TEST DATE : 12 May 2011 11:43:05 M. LONGINOTTI
 ANT. POLARIZ. : VERTICAL

START = 5000 FREQUENCY MHz STOP = 18000

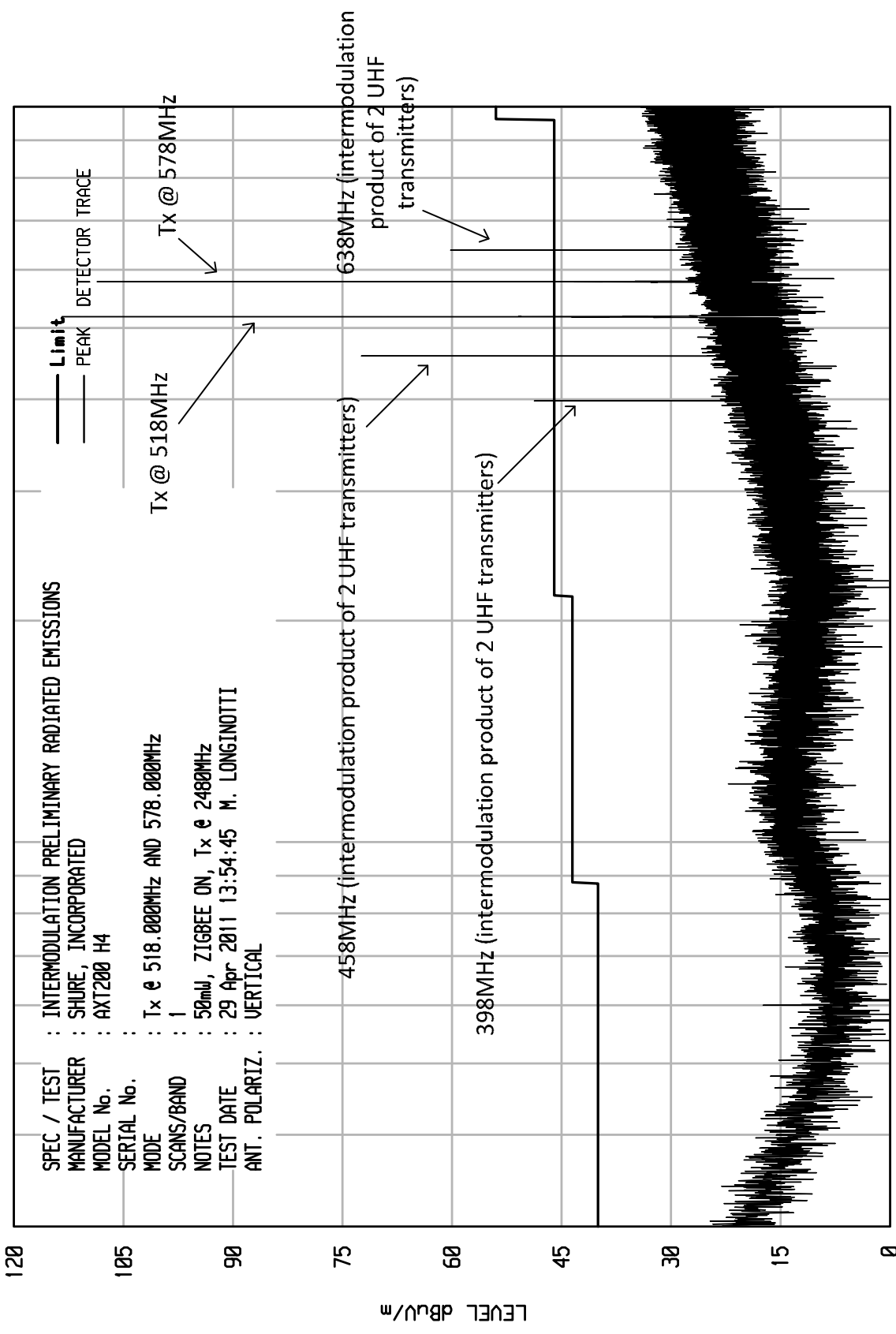




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Downers Grove, Ill. 60515

UNIU RCU EMI RUN 8

UKA1 10/20/10



SPEC / TEST : INTERMODULATION PRELIMINARY RADIATED EMISSIONS
 MANUFACTURER : SHURE, INCORPORATED
 MODEL No. : AXT200 H4
 SERIAL No. :
 MODE : Tx @ 518.000MHz AND 578.000MHz
 SCANS/BAND : 1
 NOTES : 50mV, ZIGBEE ON, Tx @ 2480MHz
 TEST DATE : 29 Apr 2011 13:54:45 M. LONGINOTTI
 ANT. POLARIZ. : VERTICAL

START = 30 STOP = 1000

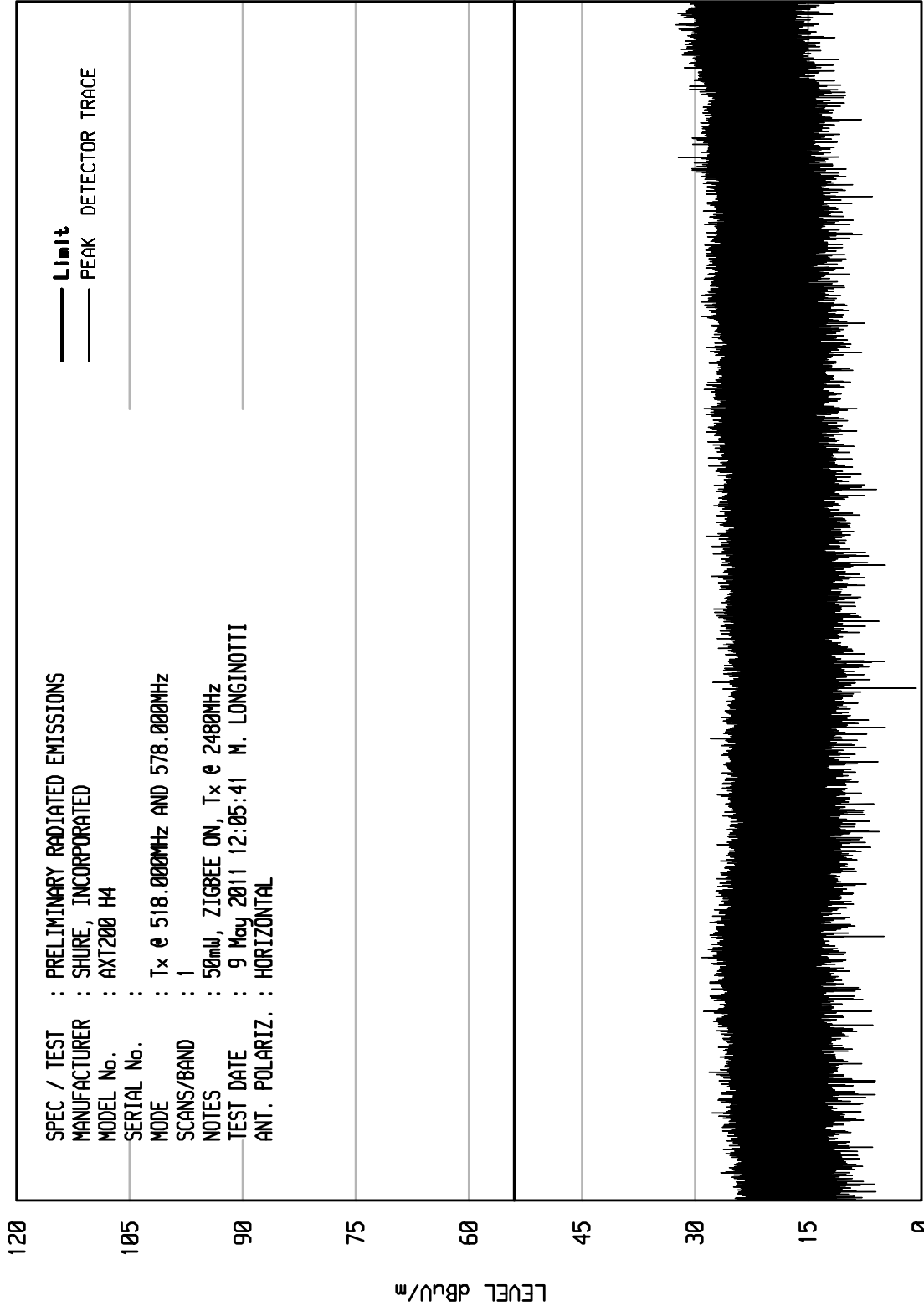


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Downers Grove, Ill. 60515

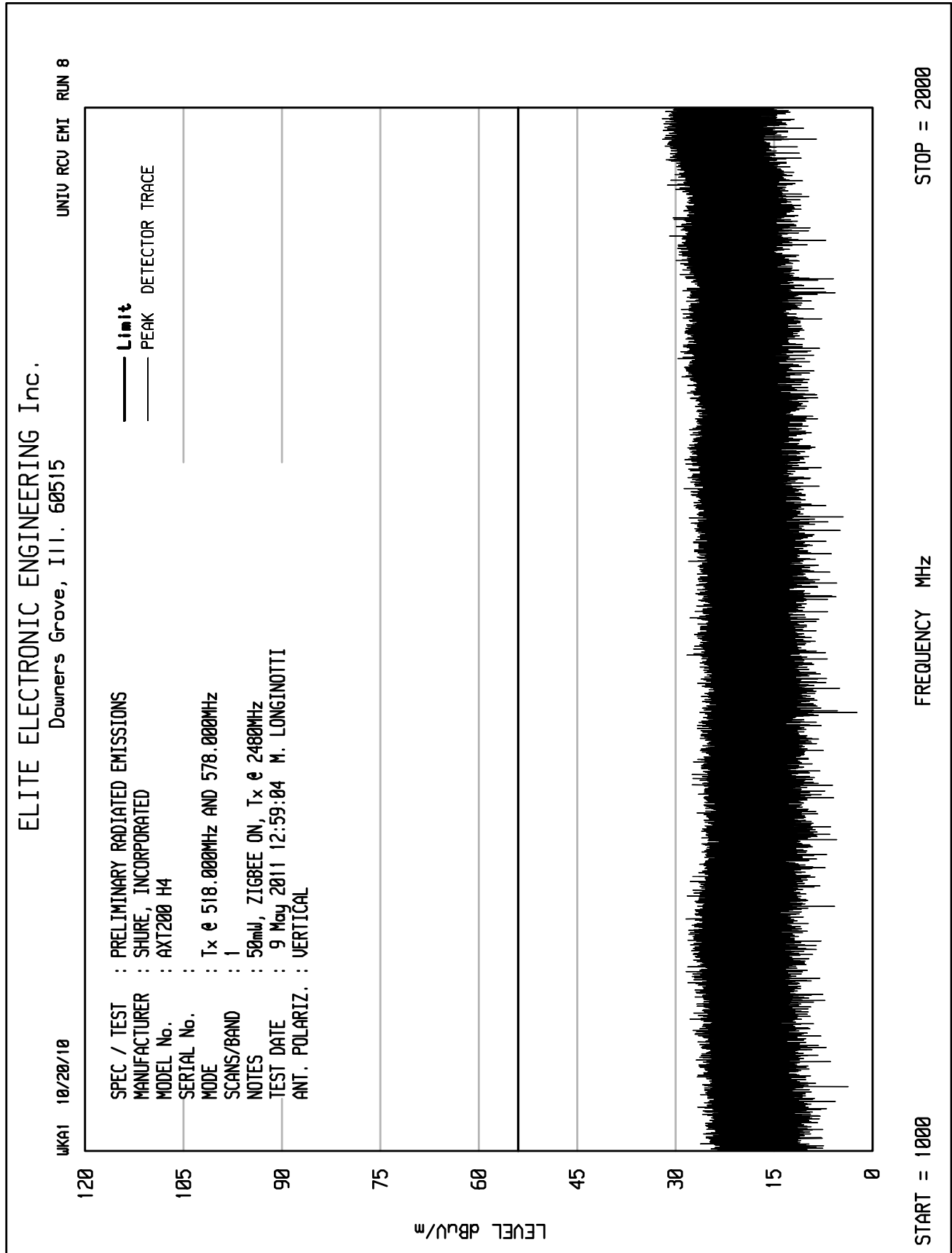
UNIU RCU EMI RUN 7

UKA1 10/20/10



SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
 MANUFACTURER : SHURE, INCORPORATED
 MODEL No. : AXT200 H4
 SERIAL No. :
 MODE : Tx @ 518.000MHz AND 578.000MHz
 SCANS/BAND : 1
 NOTES : 50mV, ZIGBEE ON, Tx @ 2400MHz
 TEST DATE : 9 May 2011 12:05:41 M. LONGINOTTI
 ANT. POLARIZ. : HORIZONTAL

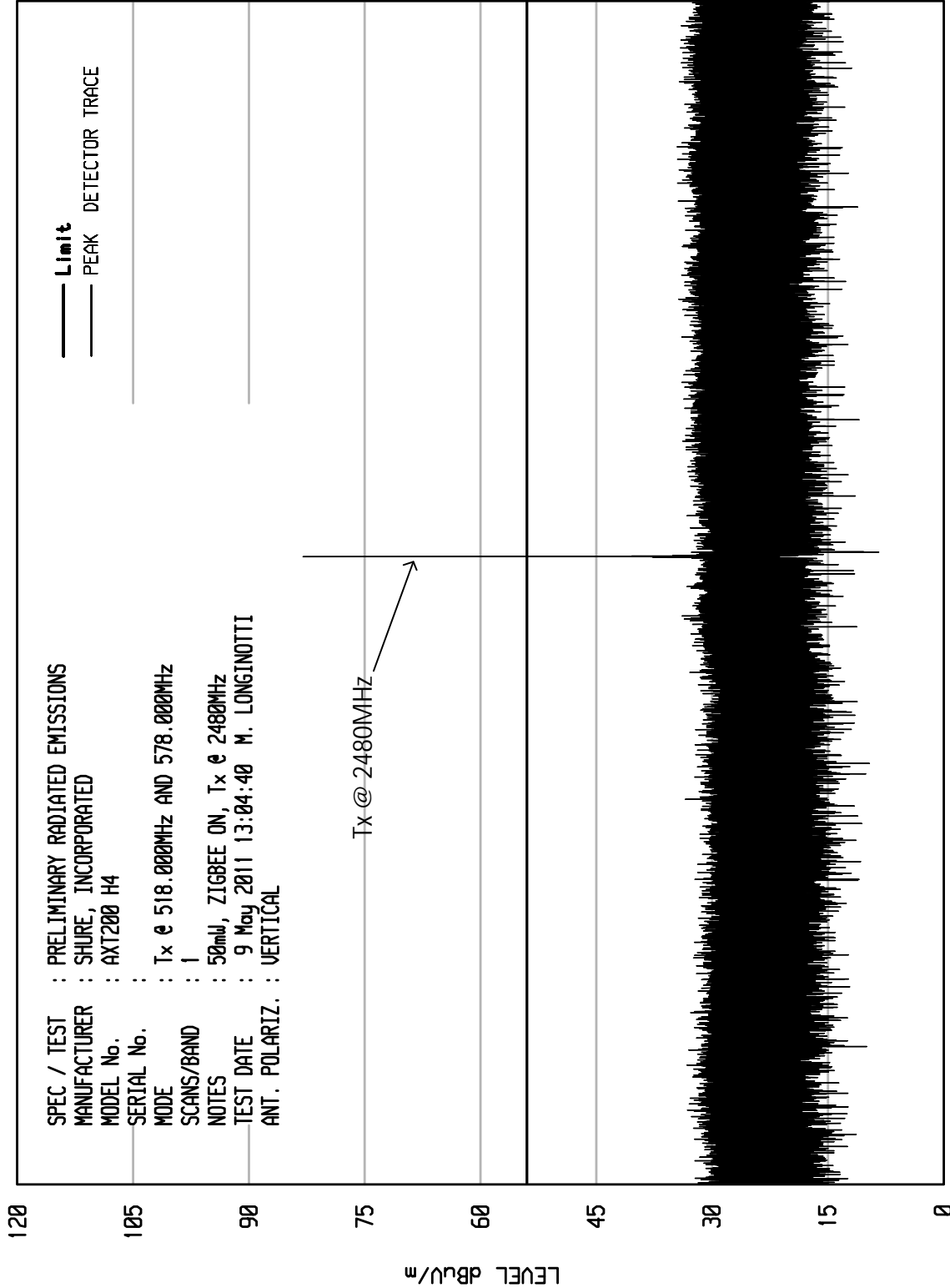
START = 1000 STOP = 2000



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Downers Grove, Ill. 60515

UNIU RCV EMI RUN 9

UKA1 10/20/10



STOP = 3000

FREQUENCY MHz

START = 2000

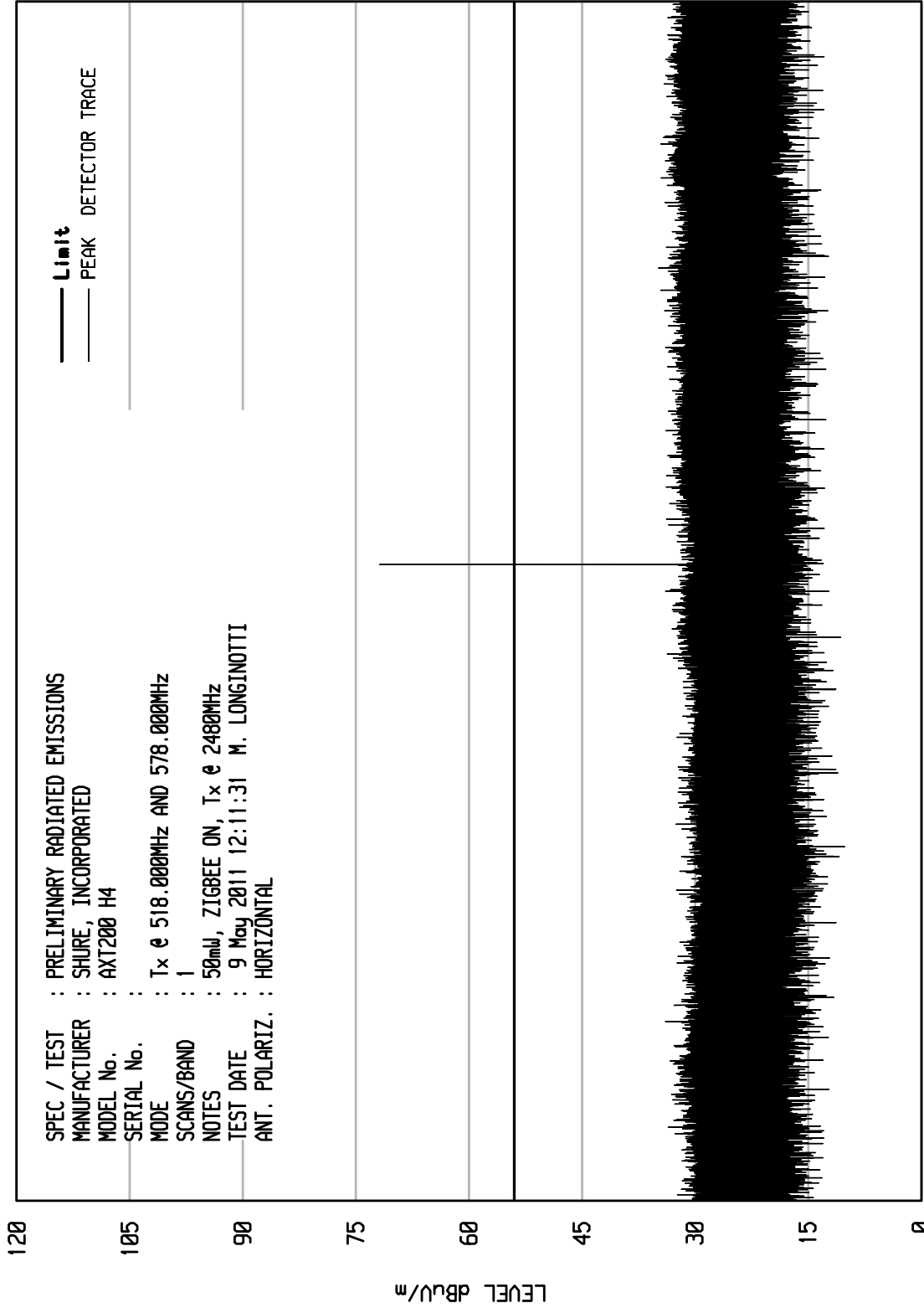


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UNIU RCU EMI RUN 7

UKA1 10/20/10



SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
 MANUFACTURER : SHURE, INCORPORATED
 MODEL No. : AXT200 H4
 SERIAL No. :
 MODE : Tx @ 518.000MHz AND 578.000MHz
 SCANS/BAND : 1
 NOTES : 50mV, ZIGBEE ON, Tx @ 2480MHz
 TEST DATE : 9 May 2011 12:11:31 M. LONGINOTTI
 ANT. POLARIZ. : HORIZONTAL

START = 2000

FREQUENCY MHz

STOP = 3000

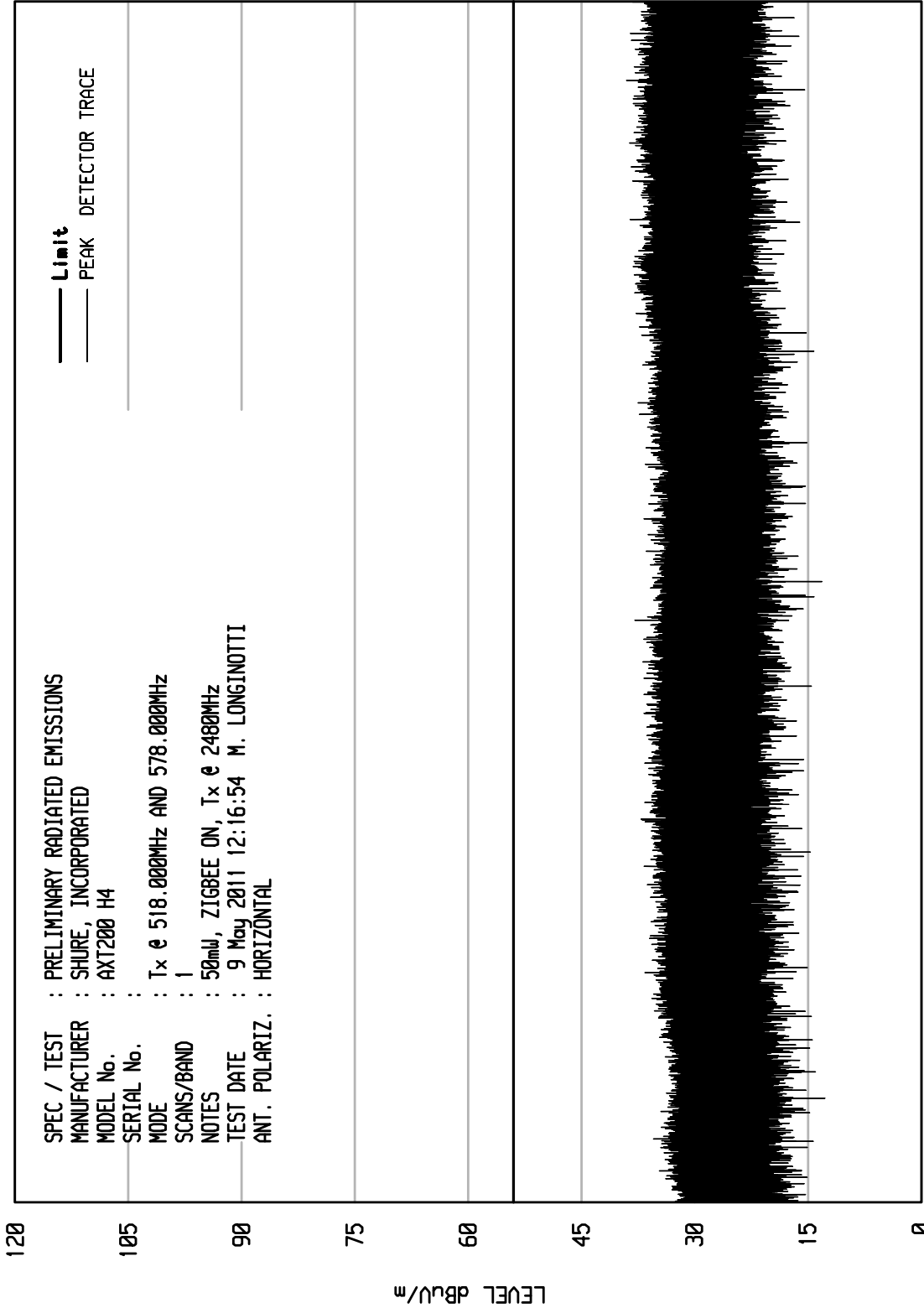


ELITE ELECTRONIC ENGINEERING Inc.

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UNIU RCU EMI RUN 9

UKA1 10/20/10



SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
 MANUFACTURER : SHURE, INCORPORATED
 MODEL No. : AXT200 H4
 SERIAL No. :
 MODE : Tx @ 518.000MHz AND 578.000MHz
 SCANS/BAND : 1
 NOTES : 50mW, ZIGBEE ON, Tx @ 2480MHz
 TEST DATE : 9 May 2011 12:16:54 M. LONGINOTTI
 ANT. POLARIZ. : HORIZONTAL

120
 105
 90
 75
 60
 45
 30
 15
 0

LEVEL dBuV/m

START = 3000 FREQUENCY MHz STOP = 4000

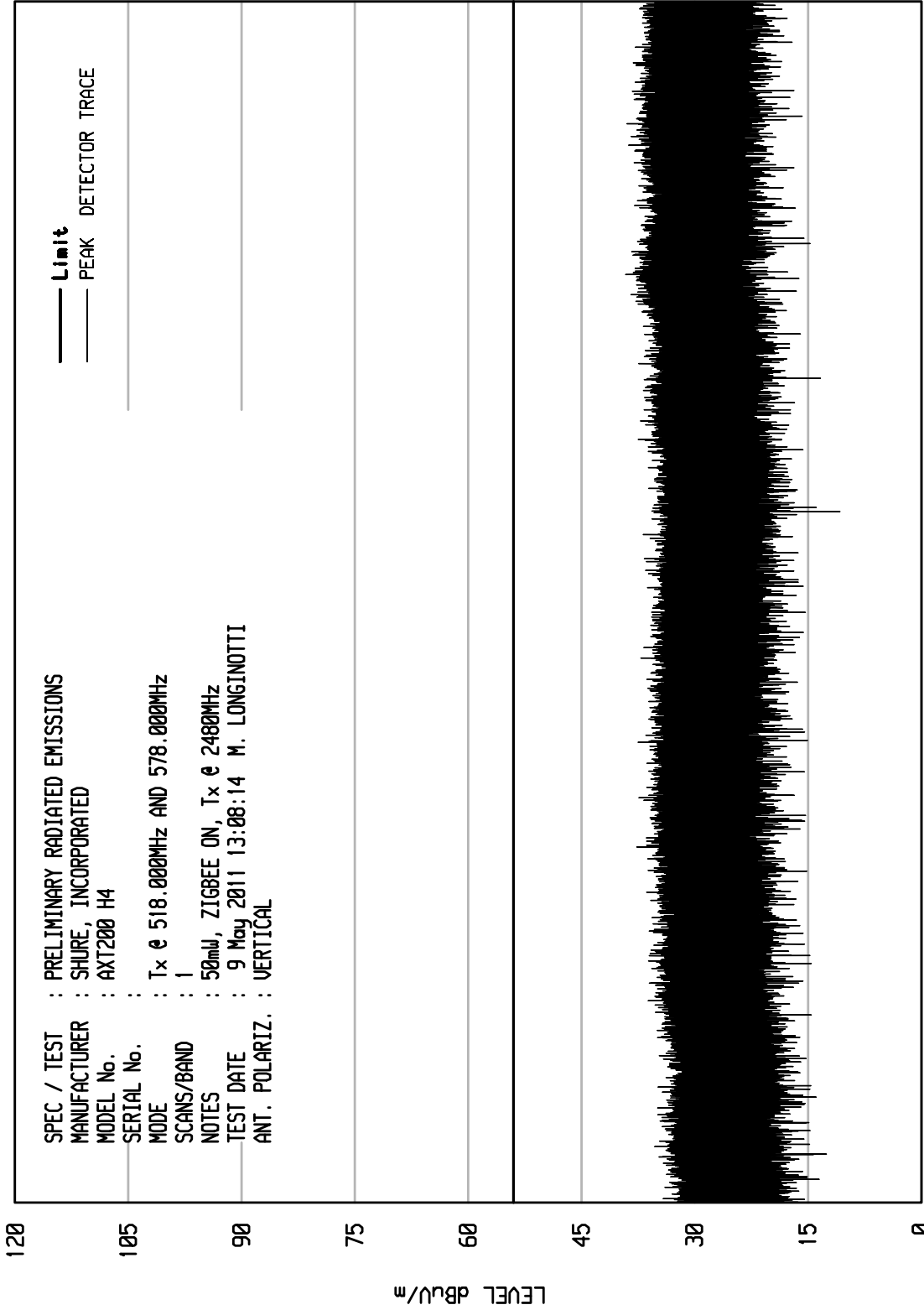


ELITE ELECTRONIC ENGINEERING Inc.

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UNIU RCU EMI RUN 10

UKA1 10/20/10



SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
 MANUFACTURER : SHURE, INCORPORATED
 MODEL No. : AXT200 H4
 SERIAL No. :
 MODE : Tx @ 518.000MHz AND 578.000MHz
 SCANS/BAND : 1
 NOTES : 50mV, ZIGBEE ON, Tx @ 2480MHz
 TEST DATE : 9 May 2011 13:08:14 M. LONGINOTTI
 ANT. POLARIZ. : VERTICAL

120
105
90
75
60
45
30
15
0

LEVEL dBuV/m

FREQUENCY MHz

STOP = 4000

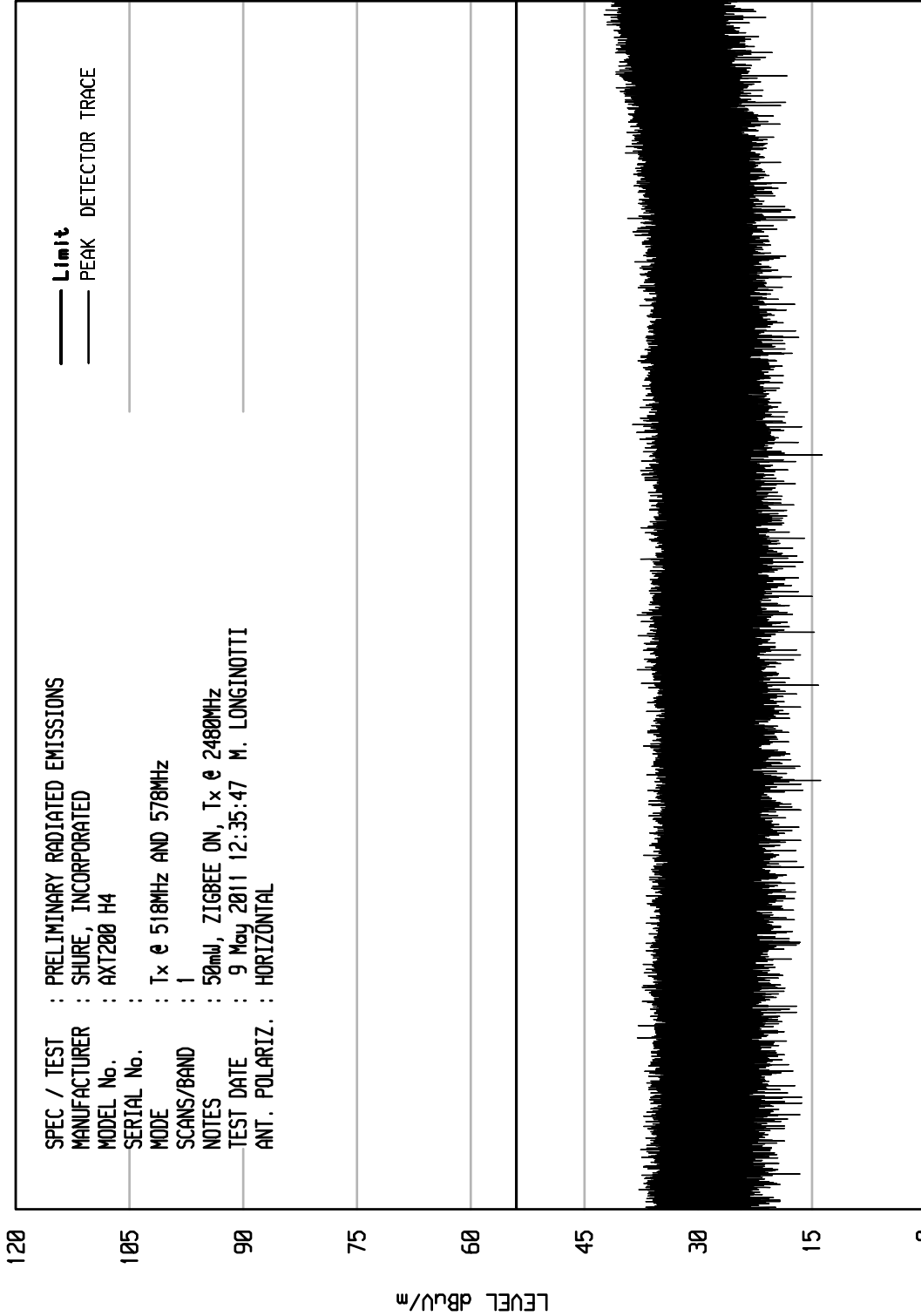
START = 3000



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UNITU RCU EMI RUN 5

UKR1 10/20/10



STOP = 5000

FREQUENCY MHz

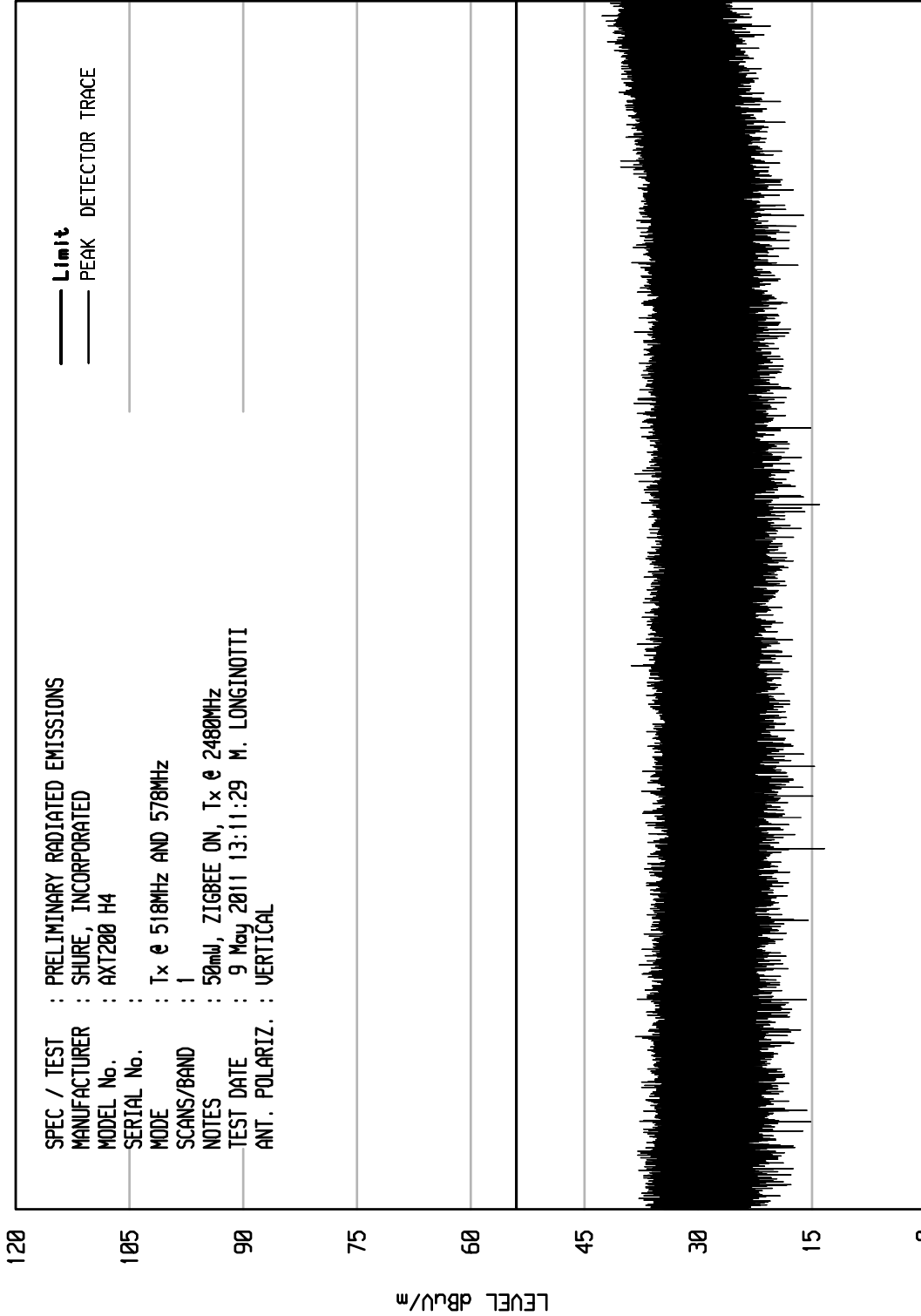
START = 4000

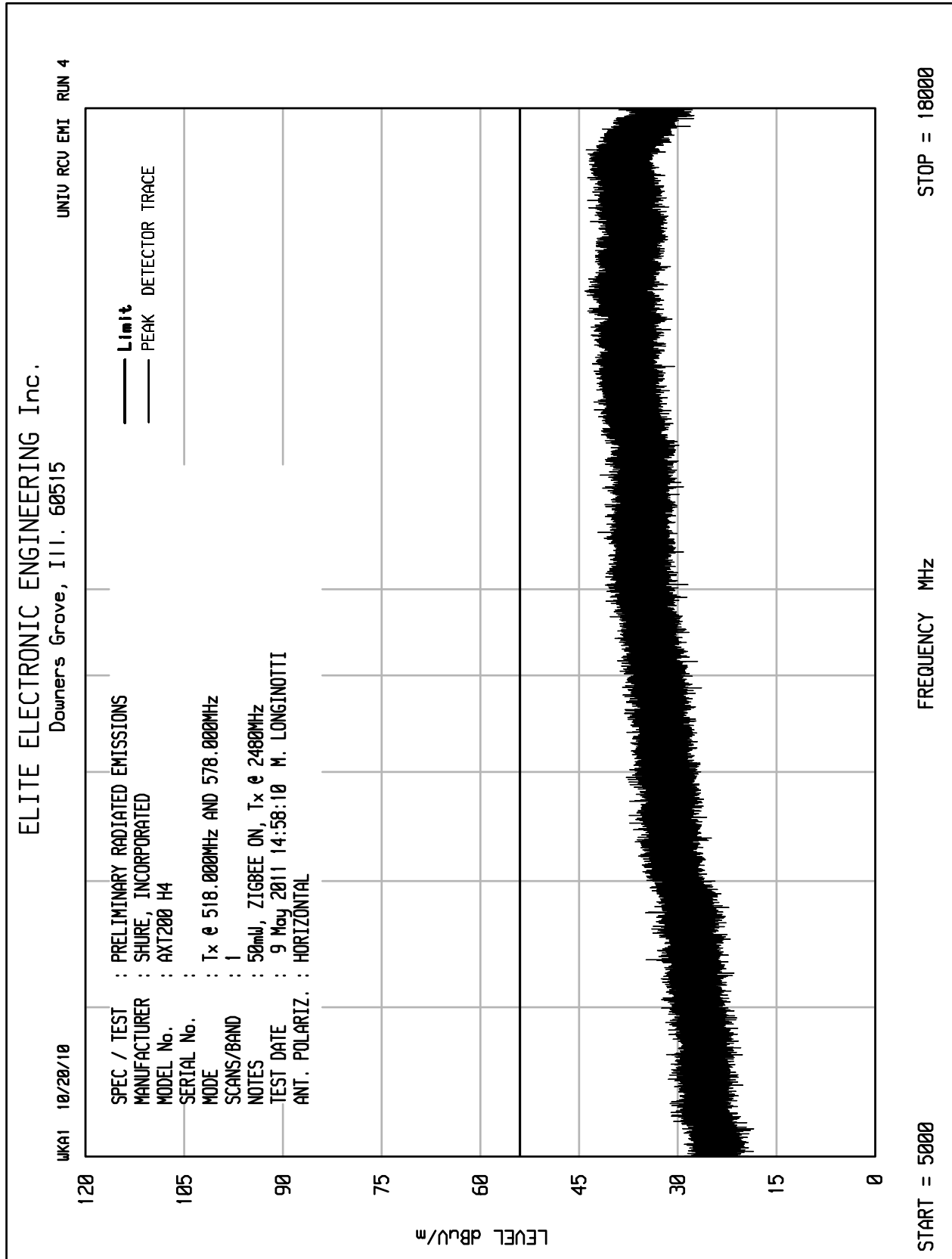


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UNITU RCU EMI RUN 6

UKR1 10/20/10

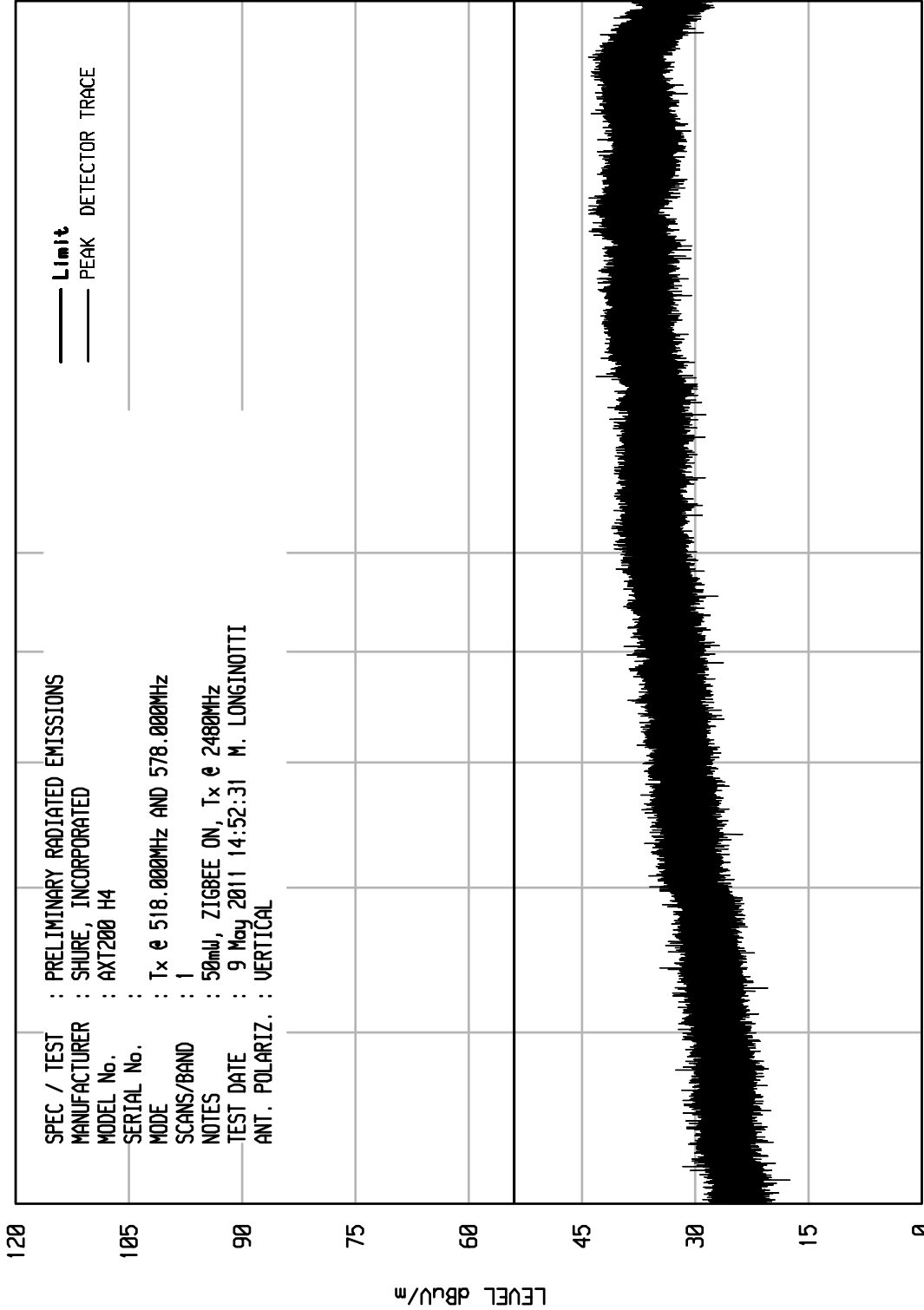




ELITE ELECTRONIC ENGINEERING Inc.
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UNITU RCU EMI RUN 2

WK91 10/20/10



SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
 MANUFACTURER : SHURE, INCORPORATED
 MODEL No. : AXT200 H4
 SERIAL No. :
 MODE : Tx @ 518.000MHz AND 578.000MHz
 SCANS/BAND : 1
 NOTES : 50mW, ZIGBEE ON, Tx @ 2480MHz
 TEST DATE : 9 May 2011 14:52:31 M. LONGINOTTI
 ANT. POLARIZ. : VERTICAL

120
105
90
75
60
45
30
15
0

LEVEL dBu/m

STOP = 18000

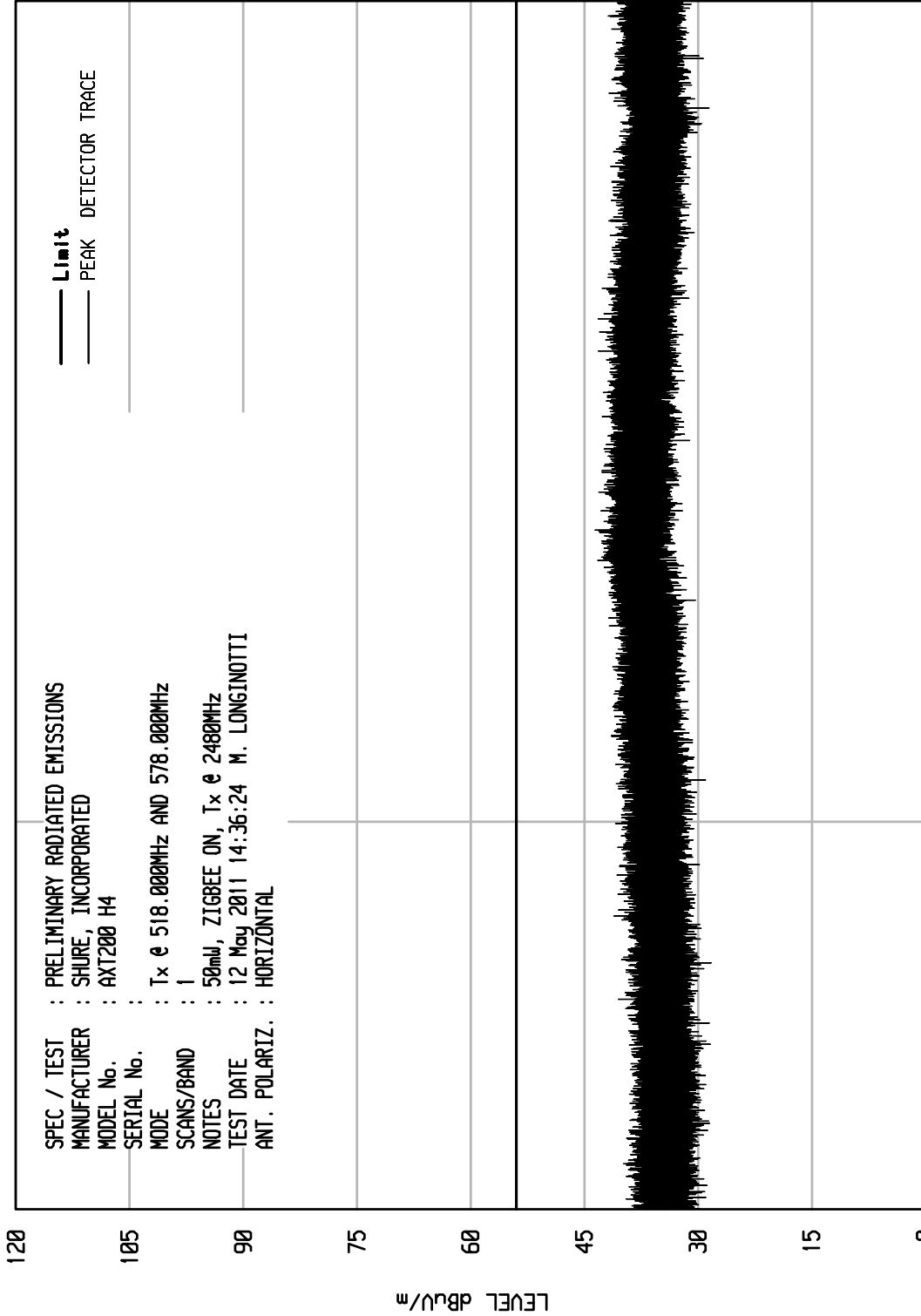
FREQUENCY MHz

START = 5000

ELITE ELECTRONIC ENGINEERING Inc.
Downers Grove, Ill. 60515

UNITU RCU EMI RUN 18

WKA1 10/20/10



SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
 MANUFACTURER : SHURE, INCORPORATED
 MODEL No. : AXT200 H4
 SERIAL No. :
 MODE : Tx @ 518.000MHz AND 578.000MHz
 SCANS/BAND : 1
 NOTES : 50mW, ZIGBEE ON, Tx @ 2480MHz
 TEST DATE : 12 May 2011 14:36:24 M. LONGINOTTI
 ANT. POLARIZ. : HORIZONTAL

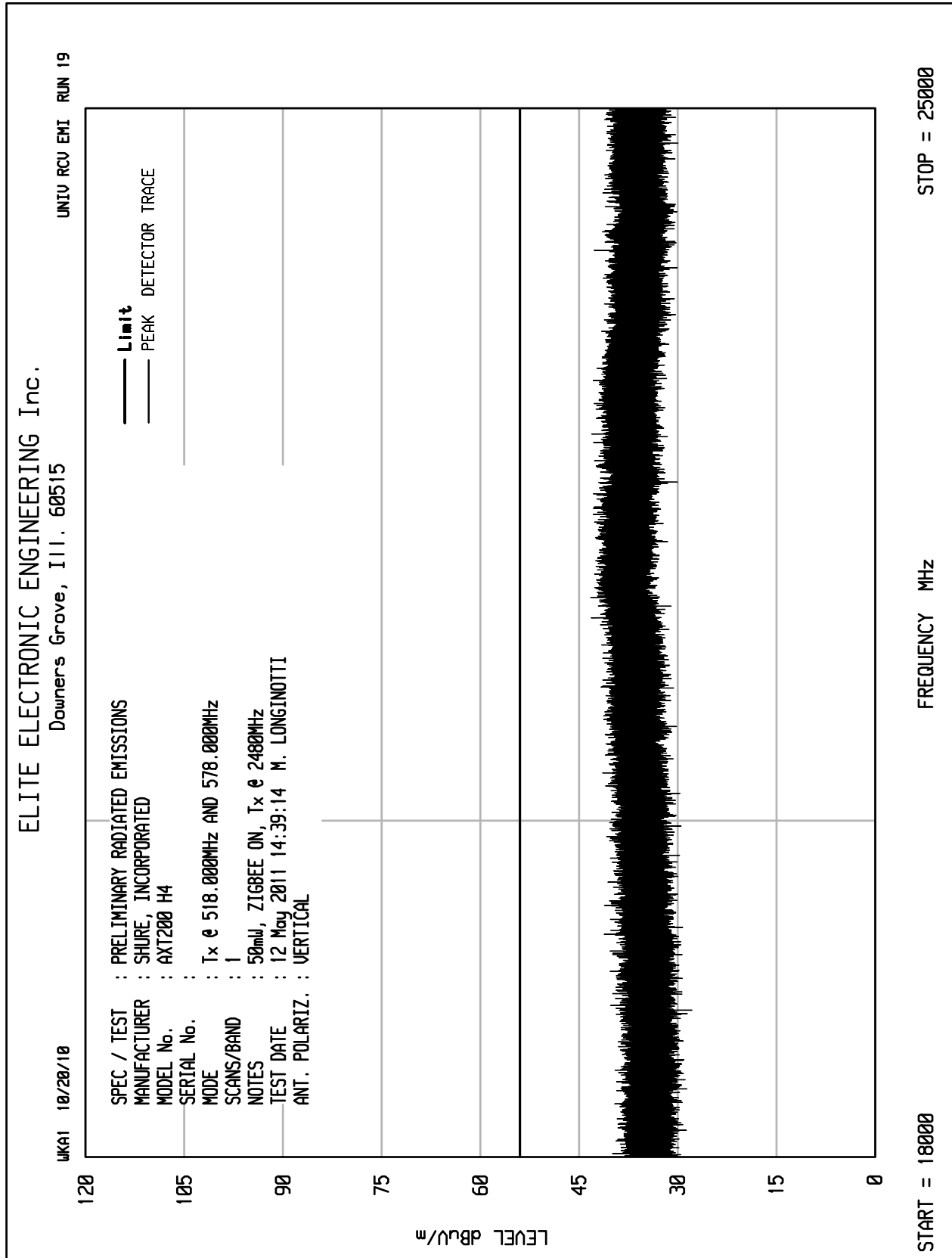
120
105
90
75
60
45
30
15
0

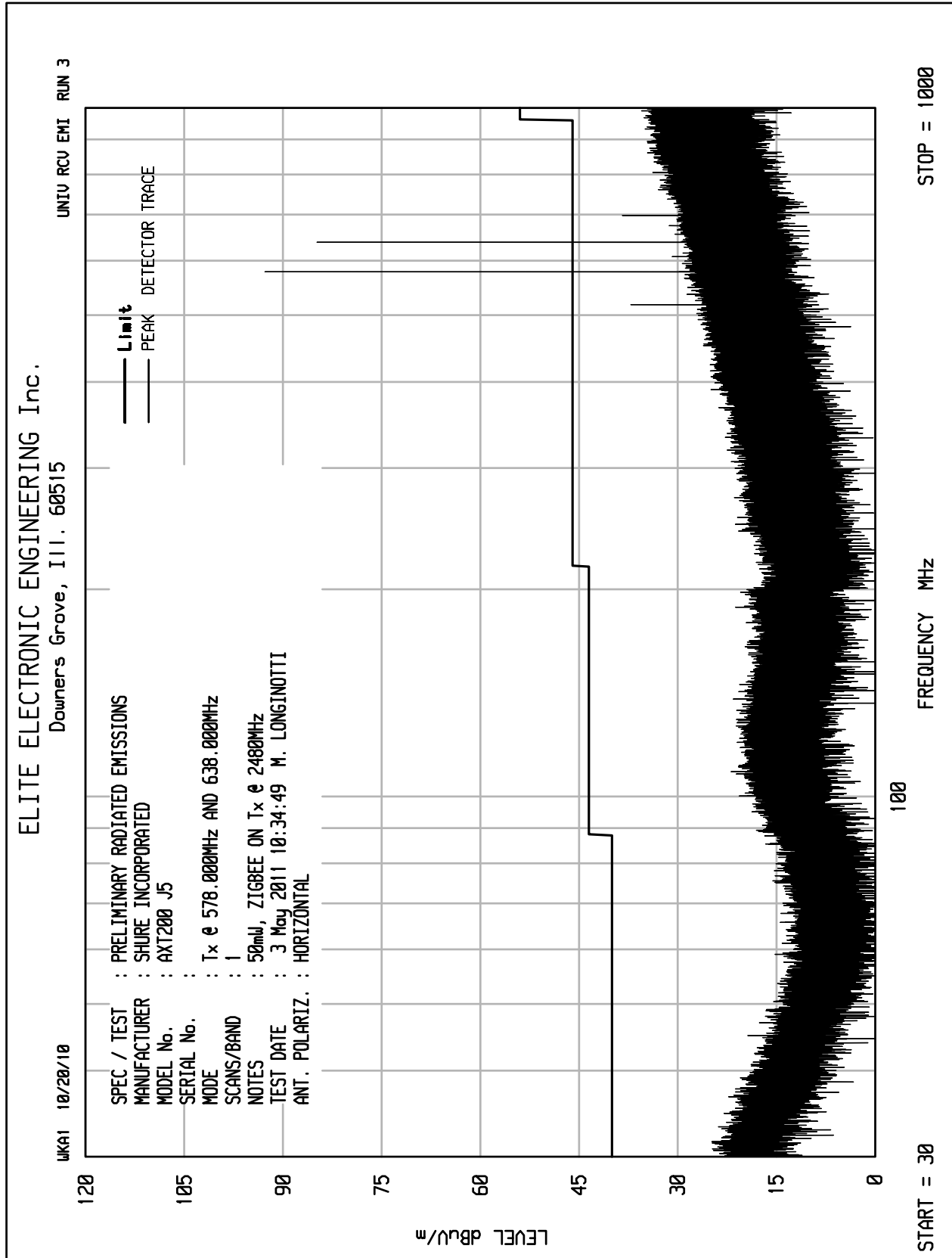
LEVEL dBu/m

STOP = 25000

START = 18000

FREQUENCY MHz

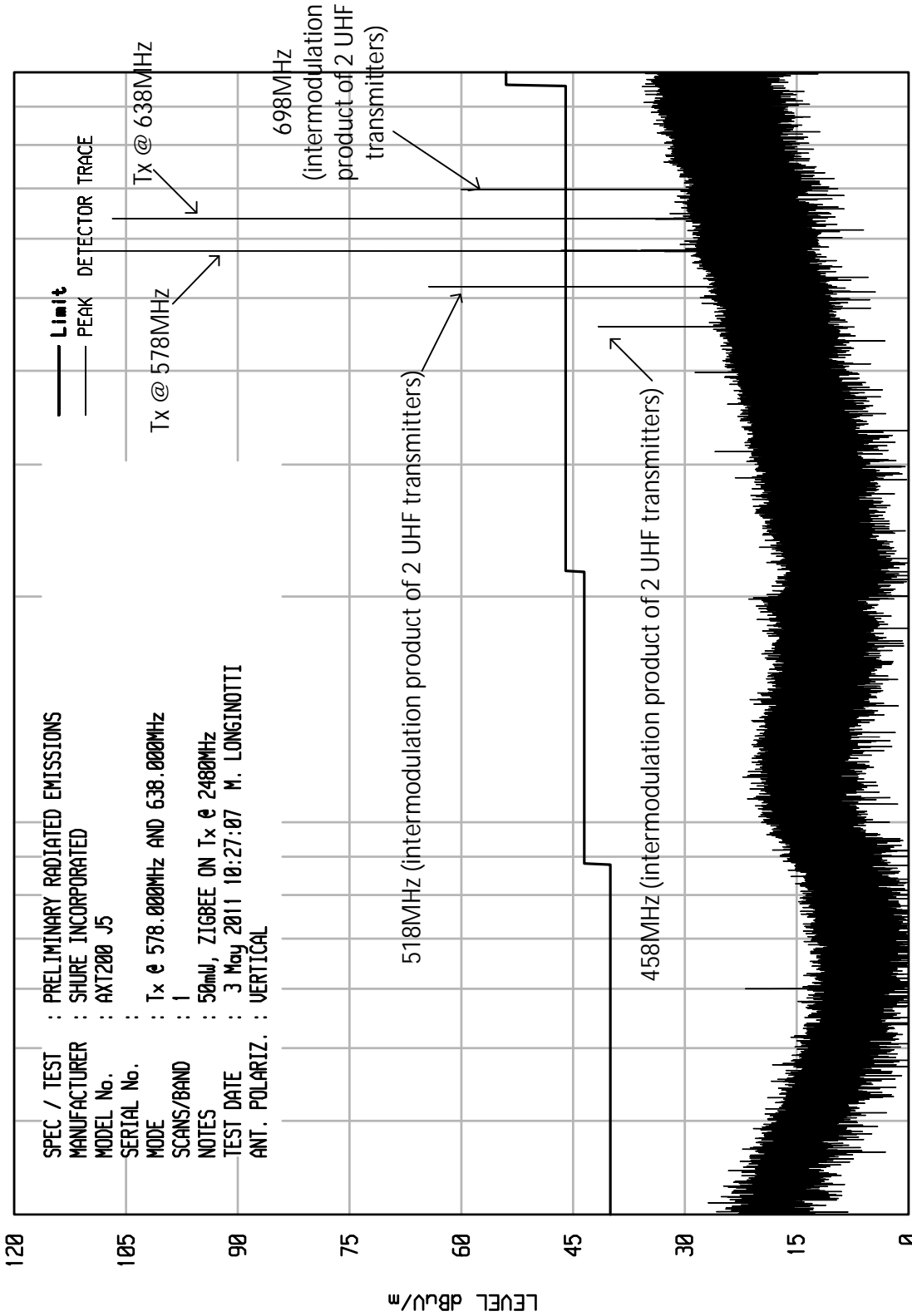




ELITE ELECTRONIC ENGINEERING Inc.
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UNIU RCV EMI RUN 2

WKA1 10/20/10



SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
 MANUFACTURER : SHURE INCORPORATED
 MODEL No. : AXT200 J5
 SERIAL No. :
 MODE : Tx @ 578.000MHz AND 638.000MHz
 SCANS/BAND : 1
 NOTES : 50mW, ZIGBEE ON Tx @ 2400MHz
 TEST DATE : 3 May 2011 10:27:07 M. LONGINOTTI
 ANT. POLARIZ. : VERTICAL

START = 30 STOP = 1000

ELITE ELECTRONIC ENGINEERING Inc.

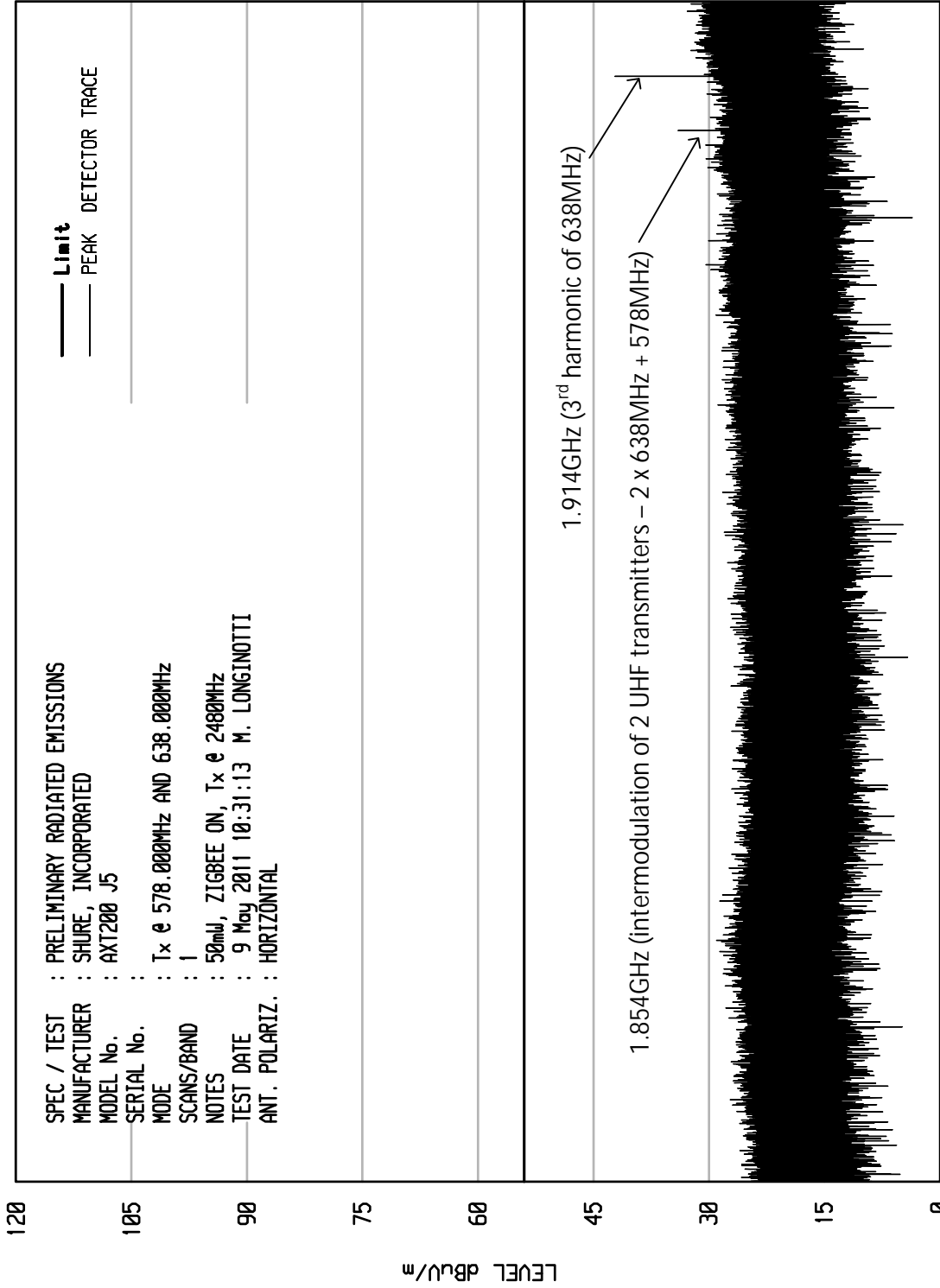
Downers Grove, Ill. 60515

UNITV RCU EMI RUN 3

UKA1 10/20/10

SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
 MANUFACTURER : SHURE, INCORPORATED
 MODEL No. : AXT200 J5
 SERIAL No. :
 MODE : Tx @ 578.000MHz AND 638.000MHz
 SCANS/BAND : 1
 NOTES : 50mW, ZIGBEE ON, Tx @ 2400MHz
 TEST DATE : 9 May 2011 10:31:13 M. LONGINOTTI
 ANT. POLARIZ. : HORIZONTAL

— Limit
 — PEAK DETECTOR TRACE



START = 1000

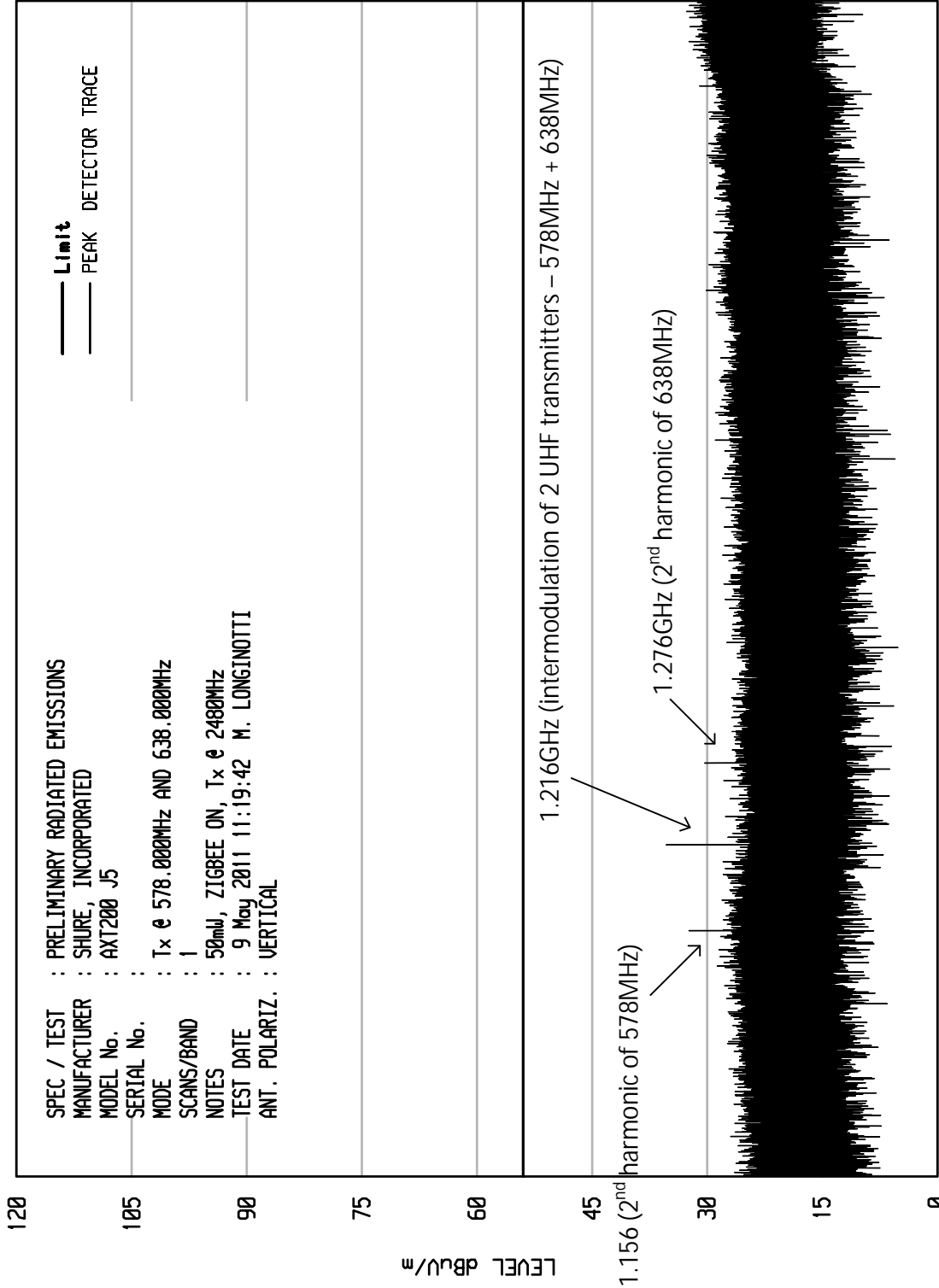
STOP = 2000

ELITE ELECTRONIC ENGINEERING Inc.

Downers Grove, Ill. 60515

UNIU RCU EMI RUN 4

WKA1 10/20/10



120

SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
 MANUFACTURER : SHURE, INCORPORATED
 MODEL No. : AXT200 J5
 SERIAL No. :
 MODE : Tx @ 578.000MHz AND 638.000MHz
 SCANS/BAND : 1
 NOTES : 50mV, ZIGBEE ON, Tx @ 2400MHz
 TEST DATE : 9 May 2011 11:19:42 M. LONGINOTTI
 ANT. POLARIZ. : VERTICAL

105

90

75

60

45

30

15

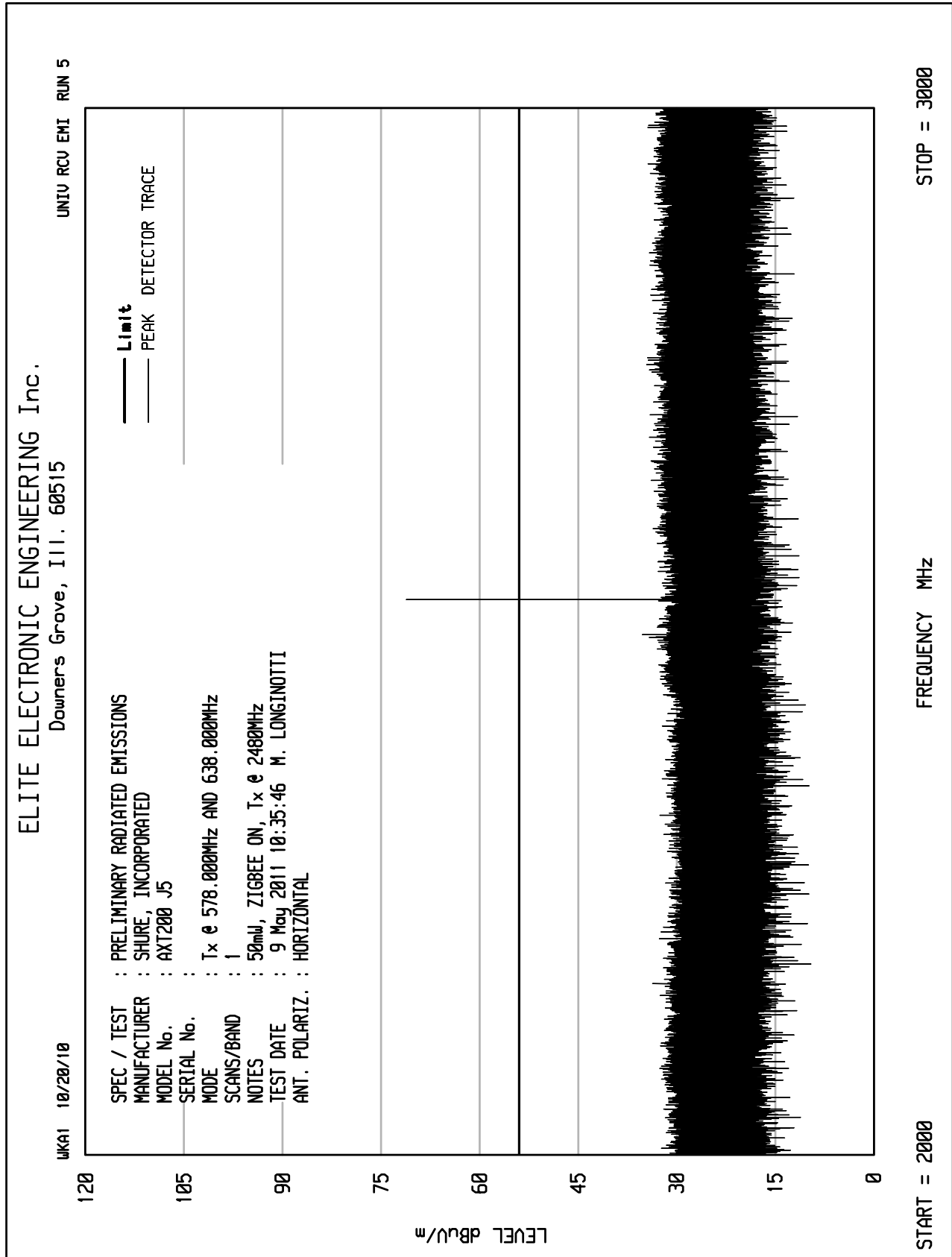
0

LEVEL dBu/m

START = 1000

FREQUENCY MHz

STOP = 2000

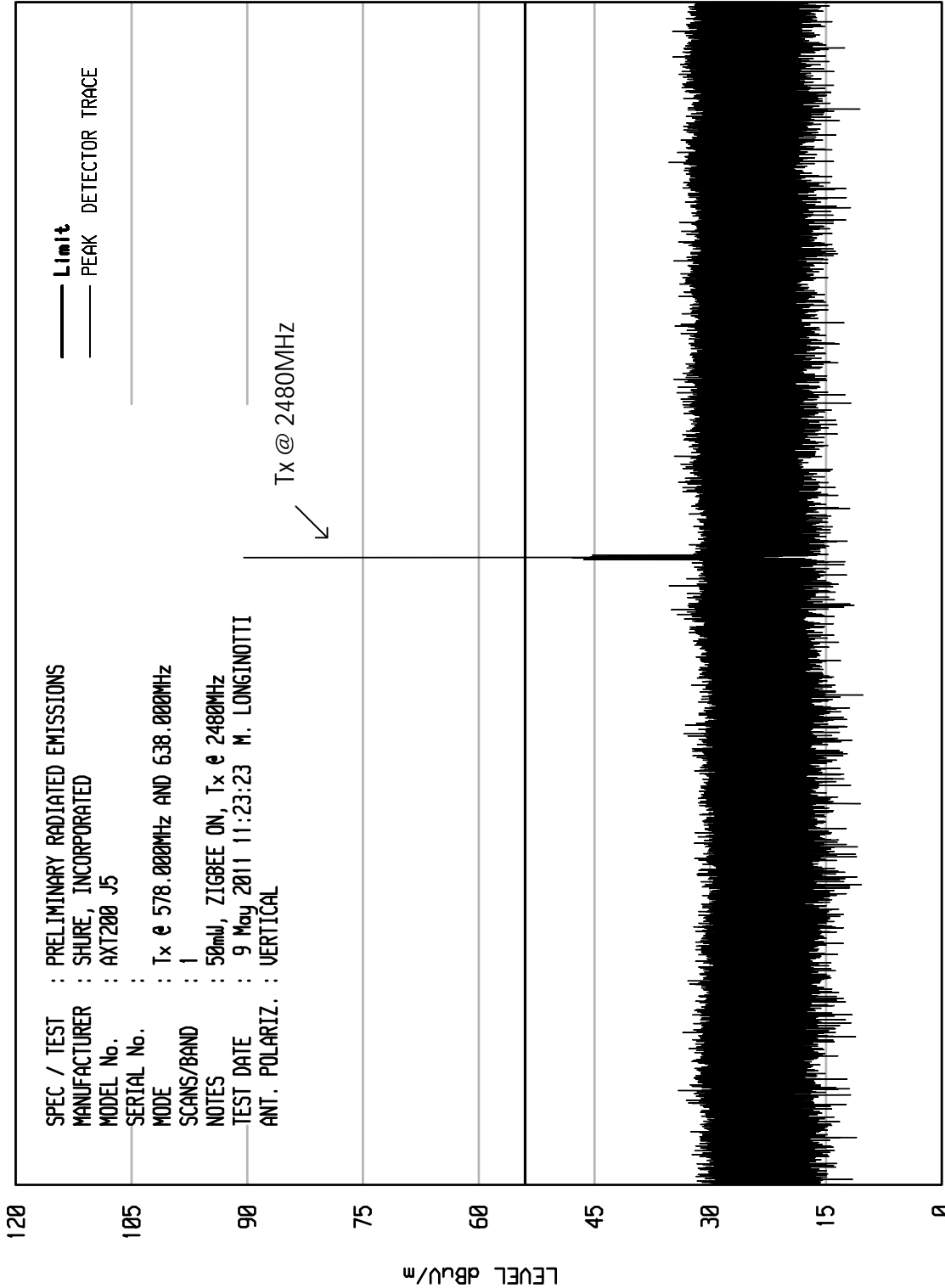


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UNIU RCV EMI RUN 6

WKA1 10/20/10



SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
 MANUFACTURER : SHURE, INCORPORATED
 MODEL No. : AXT200 J5
 SERIAL No. :
 MODE : Tx @ 578.000MHz AND 638.000MHz
 SCANS/BAND : 1
 NOTES : 50mV, ZIGBEE ON, Tx @ 2480MHz
 TEST DATE : 9 May 2011 11:23:23 M. LONGINOTTI
 ANT. POLARIZ. : VERTICAL

STOP = 3000

FREQUENCY MHz

START = 2000

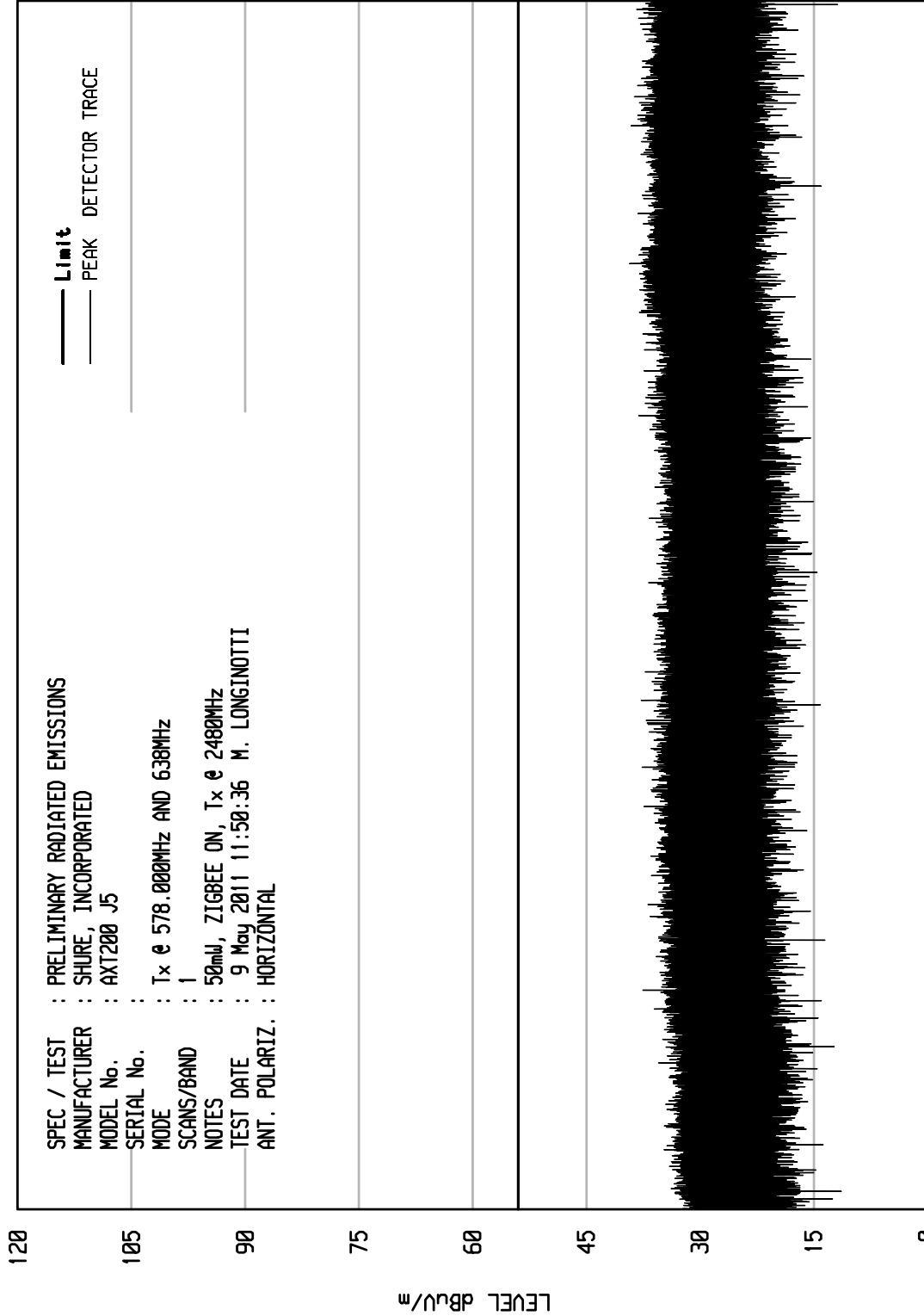


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Downers Grove, Ill. 60515

UNITV RCU EMI RUN 8

UKA1 10/20/10



SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
 MANUFACTURER : SHURE, INCORPORATED
 MODEL No. : AXT200 J5
 SERIAL No. :
 MODE : Tx @ 578.000MHz AND 638MHz
 SCANS/BAND : 1
 NOTES : 50mW, ZIGBEE ON, Tx @ 2480MHz
 TEST DATE : 9 May 2011 11:50:36 M. LONGINOTTI
 ANT. POLARIZ. : HORIZONTAL

120
 105
 90
 75
 60
 45
 30
 15
 0

LEVEL dBu/m

STOP = 4000

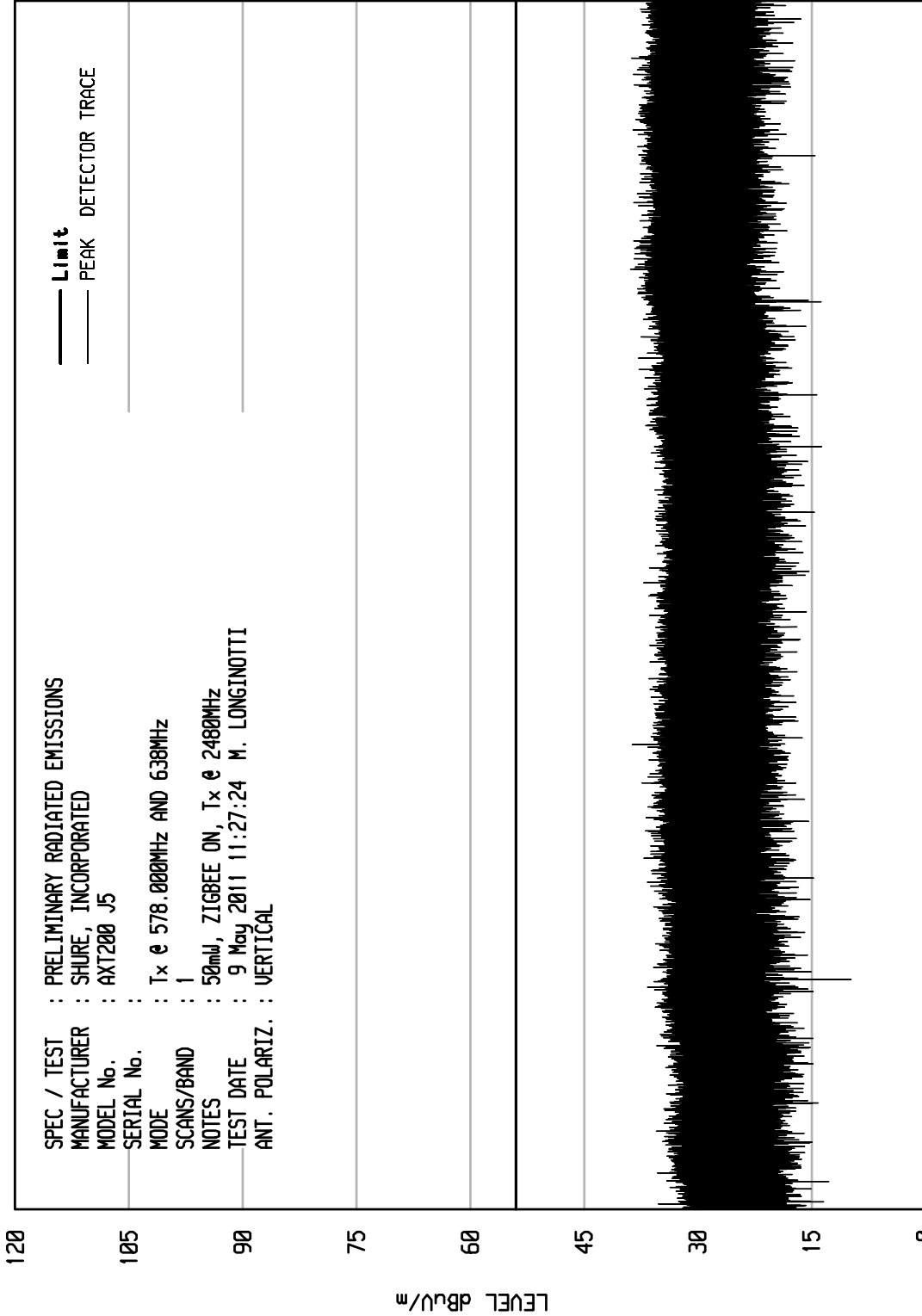
FREQUENCY MHz

START = 3000

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UNITV RCU EMI RUN 7

UKA1 10/20/10



SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
 MANUFACTURER : SHURE, INCORPORATED
 MODEL No. : AXT200 J5
 SERIAL No. :
 MODE : Tx @ 578.000MHz AND 638MHz
 SCANS/BAND : 1
 NOTES : 50mW, ZIGBEE ON, Tx @ 2480MHz
 TEST DATE : 9 May 2011 11:27:24 M. LONGINOTTI
 ANT. POLARIZ. : VERTICAL

120
105
90
75
60
45
30
15
0

LEVEL dBu/m

STOP = 4000

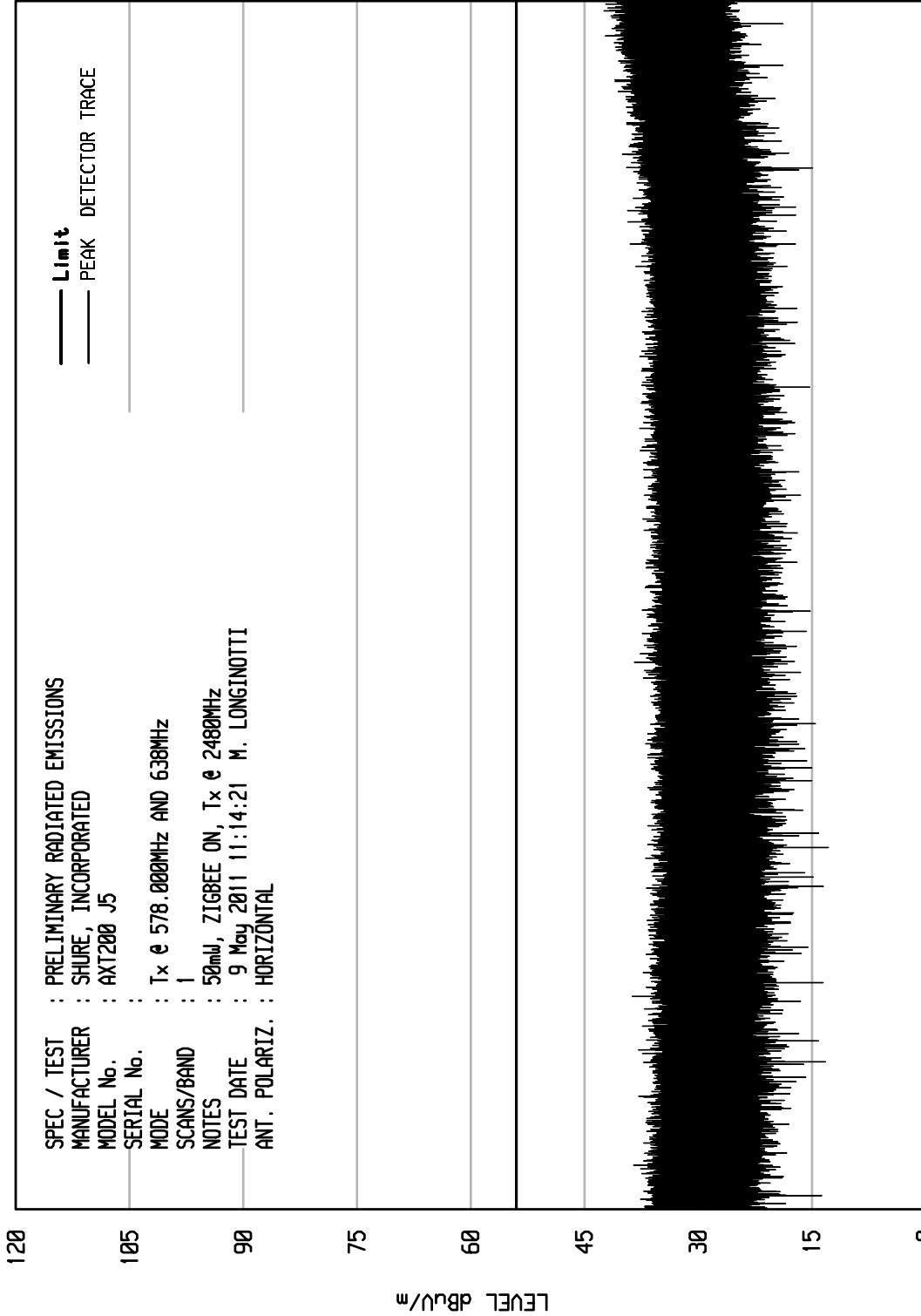
FREQUENCY MHz

START = 3000

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UNITU RCU EMI RUN 3

WK#1 10/20/10



SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
 MANUFACTURER : SHURE, INCORPORATED
 MODEL No. : AXT200 J5
 SERIAL No. :
 MODE : Tx @ 578.000MHz AND 638MHz
 SCANS/BAND : 1
 NOTES : 50mW, ZIGBEE ON, Tx @ 2480MHz
 TEST DATE : 9 May 2011 11:14:21 M. LONGINOTTI
 ANT. POLARIZ. : HORIZONTAL

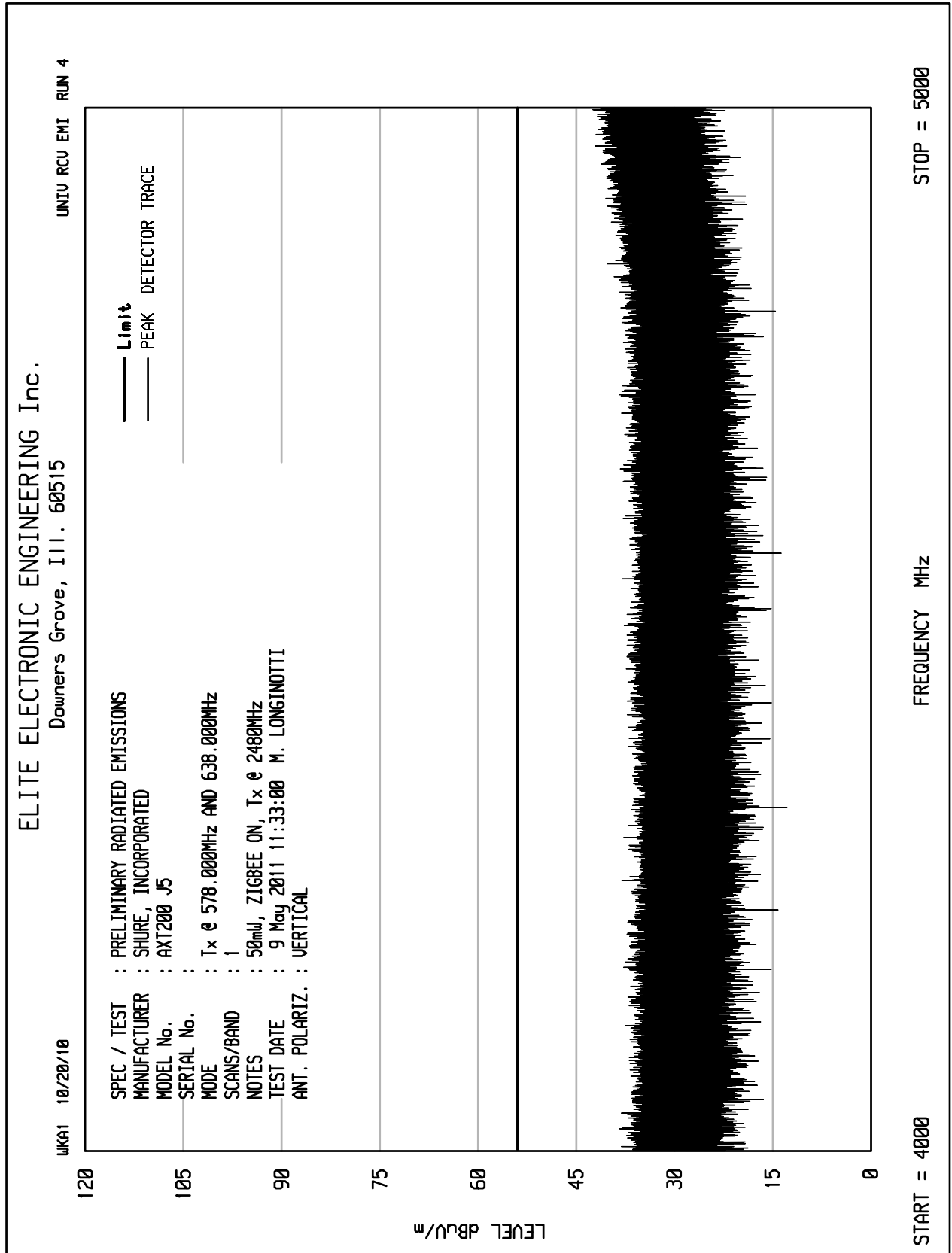
120
105
90
75
60
45
30
15
0

LEVEL dBu/m

STOP = 5000

FREQUENCY MHz

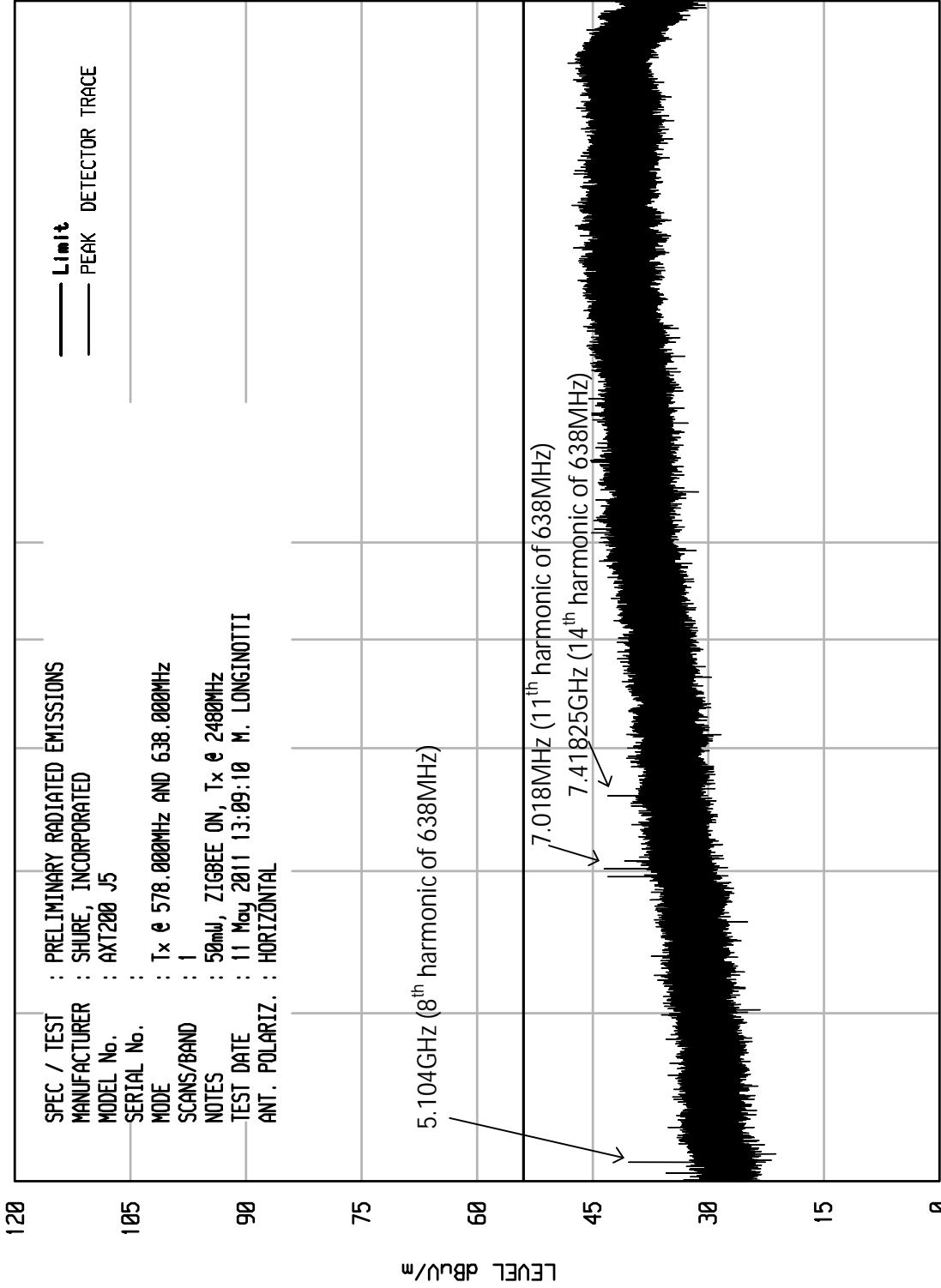
START = 4000



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UNIU RCU EMI RUN 9

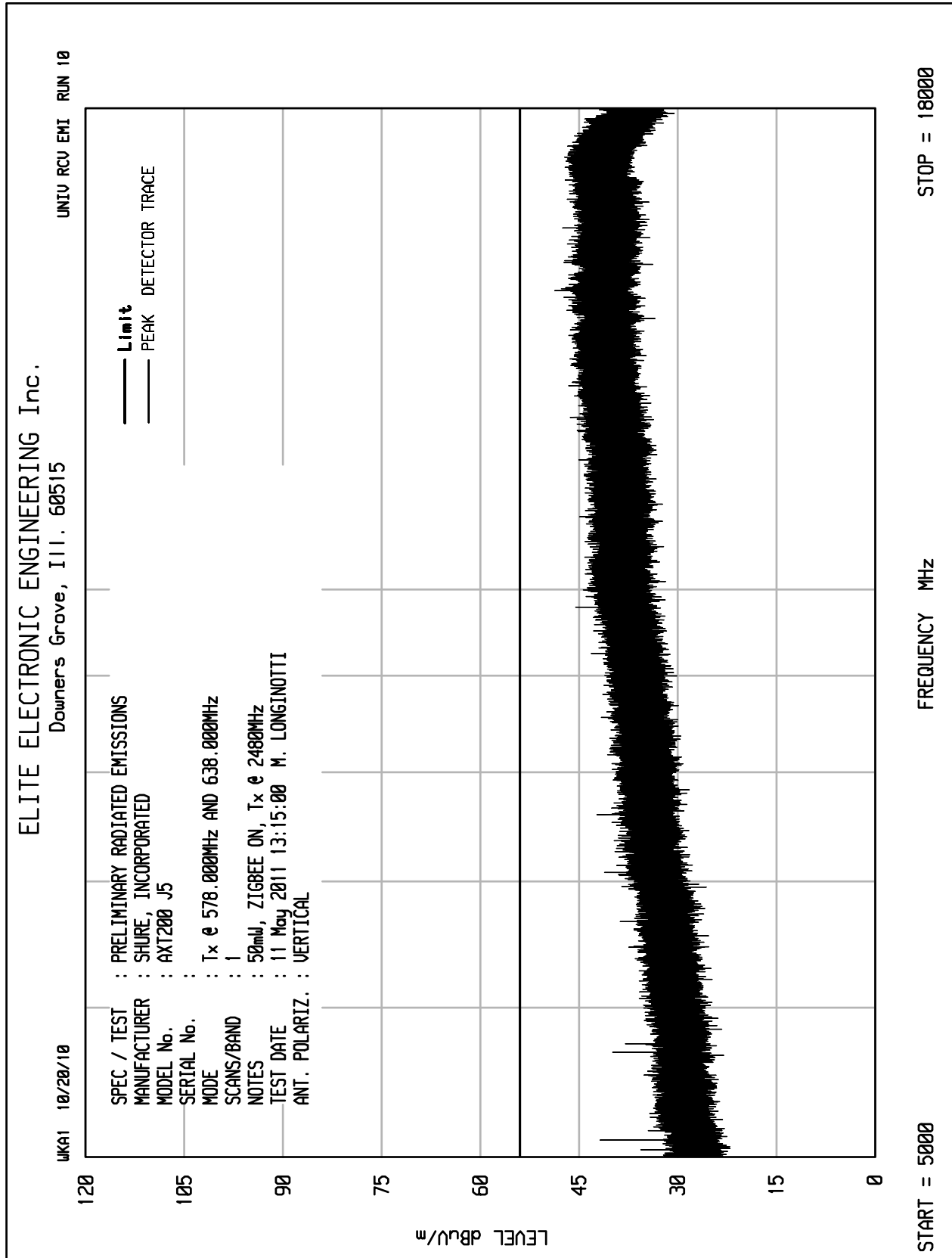
WKA1 10/20/10



STOP = 18000

FREQUENCY MHz

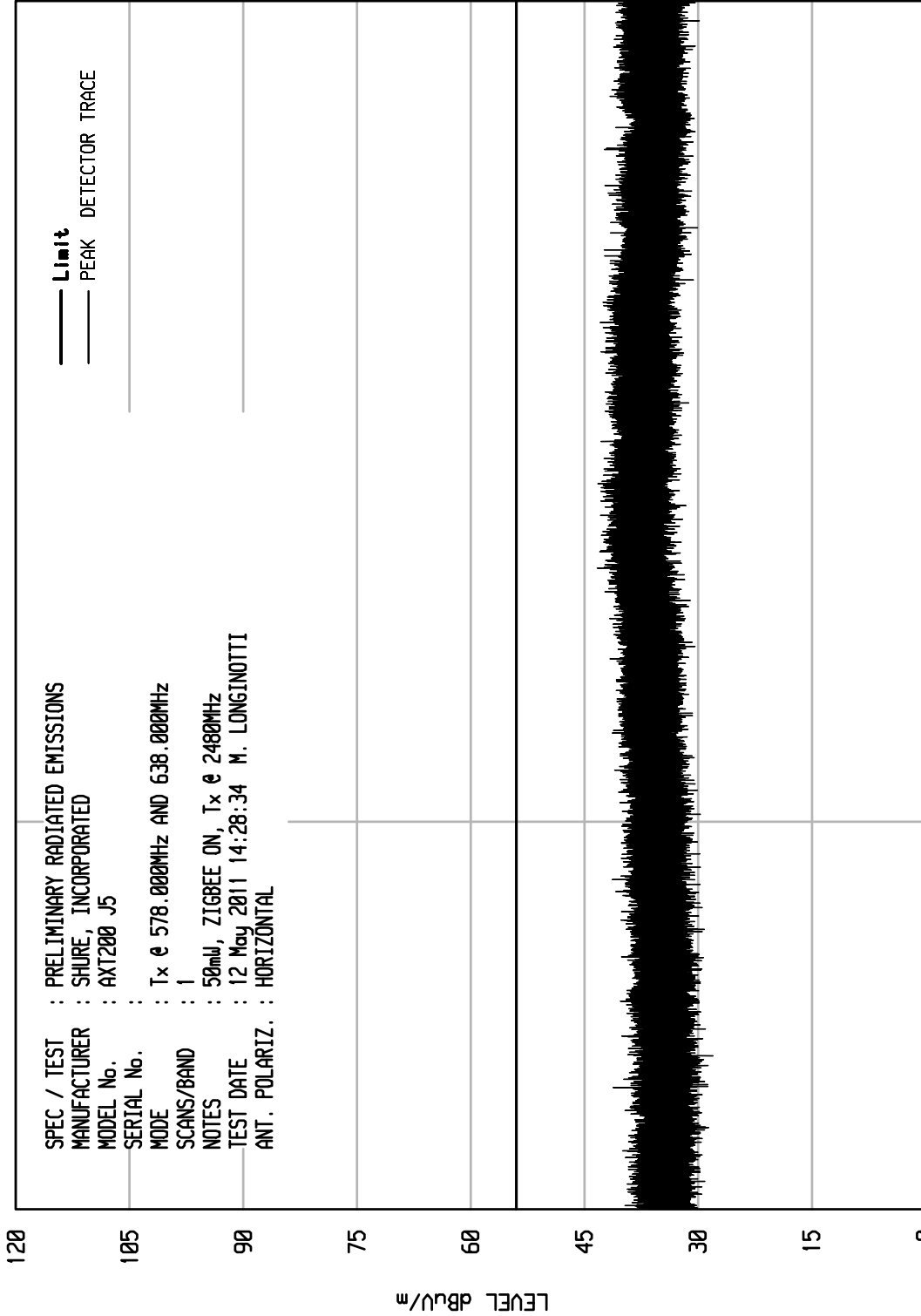
START = 5000



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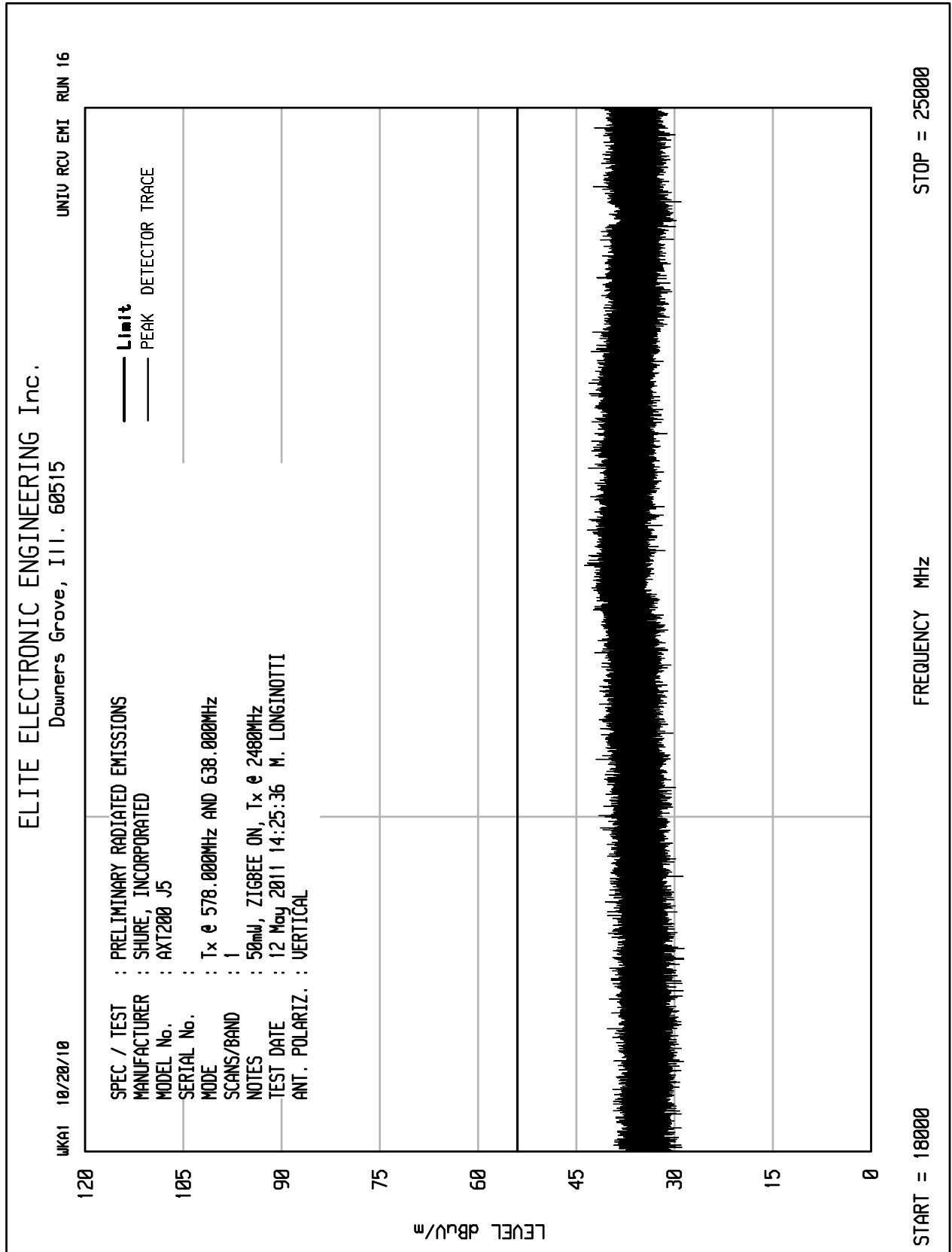
UNITU RCU EMI RUN 17

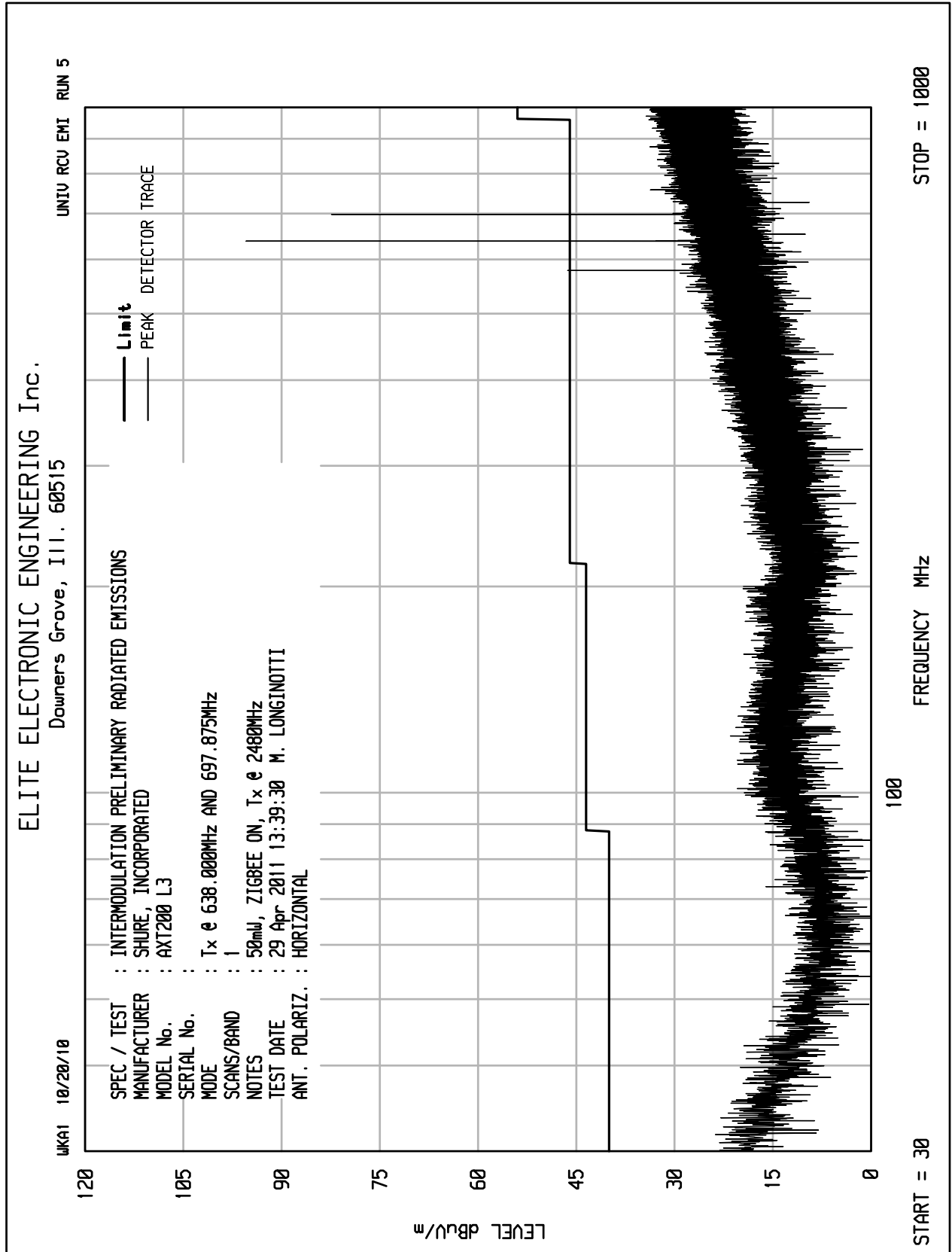
WK91 10/20/10



STOP = 25000

START = 18000

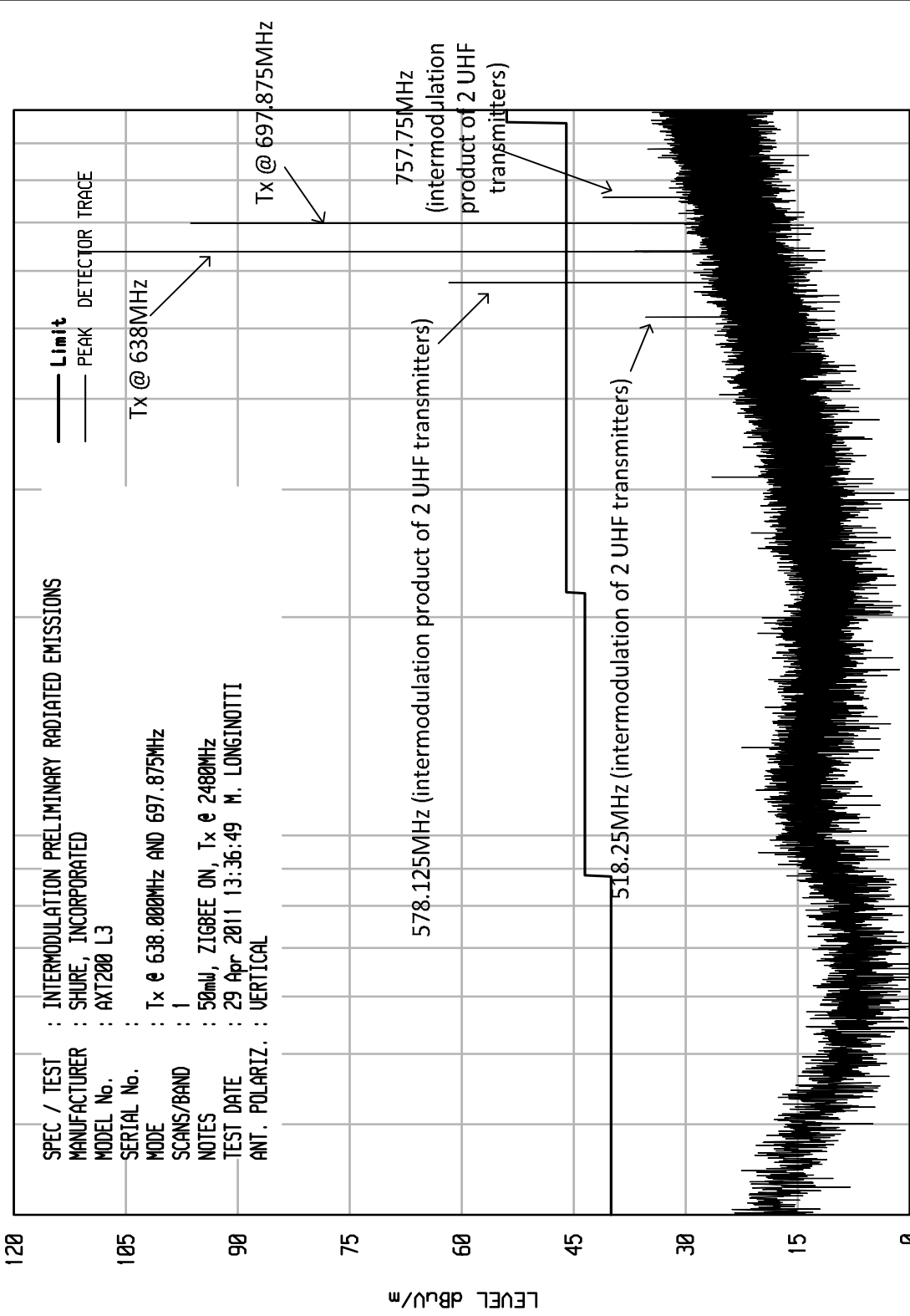




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UNIU RCV EMI RUN 4

UKA1 10/20/10



SPEC / TEST : INTERMODULATION PRELIMINARY RADIATED EMISSIONS
 MANUFACTURER : SHURE, INCORPORATED
 MODEL No. : AXT200 L3
 SERIAL No. :
 MODE : Tx @ 638.000MHz AND 697.875MHz
 SCANS/BAND : 1
 NOTES : 50mV, ZIGBEE ON, Tx @ 2400MHz
 TEST DATE : 29 Apr 2011 13:36:49 M. LONGINOTTI
 ANT. POLARIZ. : VERTICAL

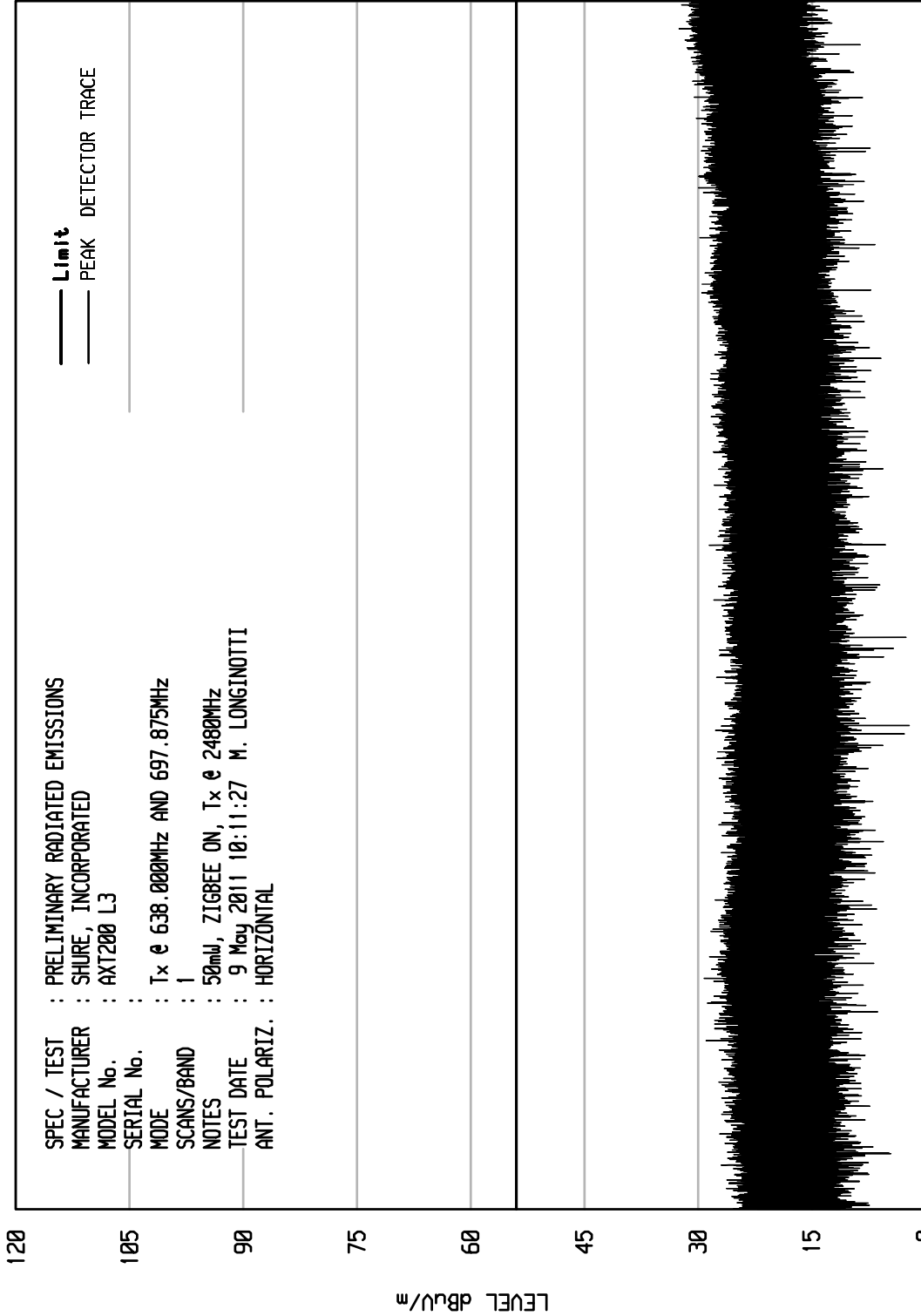
START = 30 STOP = 1000



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UNITU RCU EMI RUN 2

UKR1 10/20/10



120

105

90

75

60

45

30

15

0

LEVEL dBu/m

START = 1000

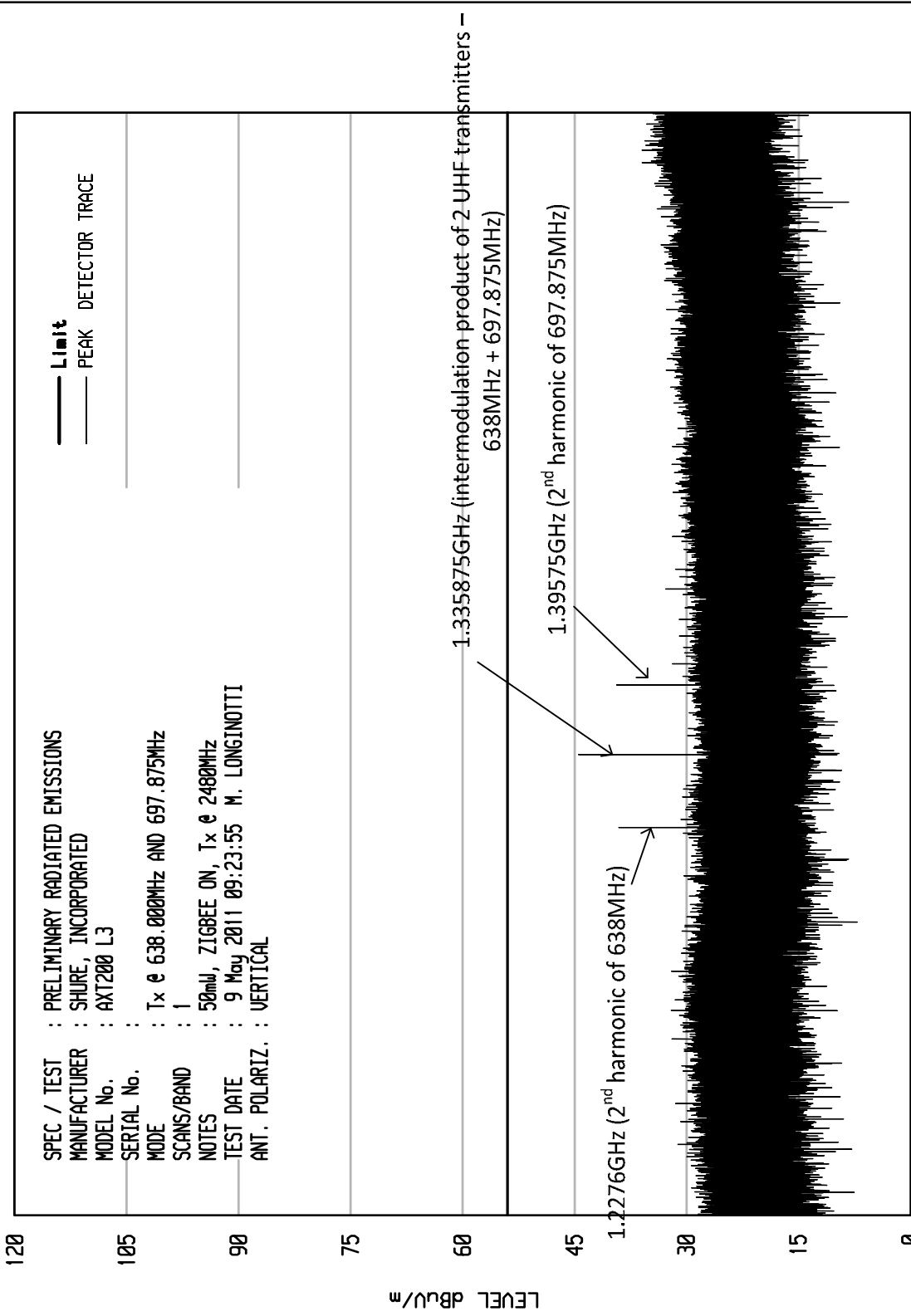
FREQUENCY MHz

STOP = 2000

ELITE ELECTRONIC ENGINEERING Inc.
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UNIU RCU EMI RUN 1

WKA1 10/20/10

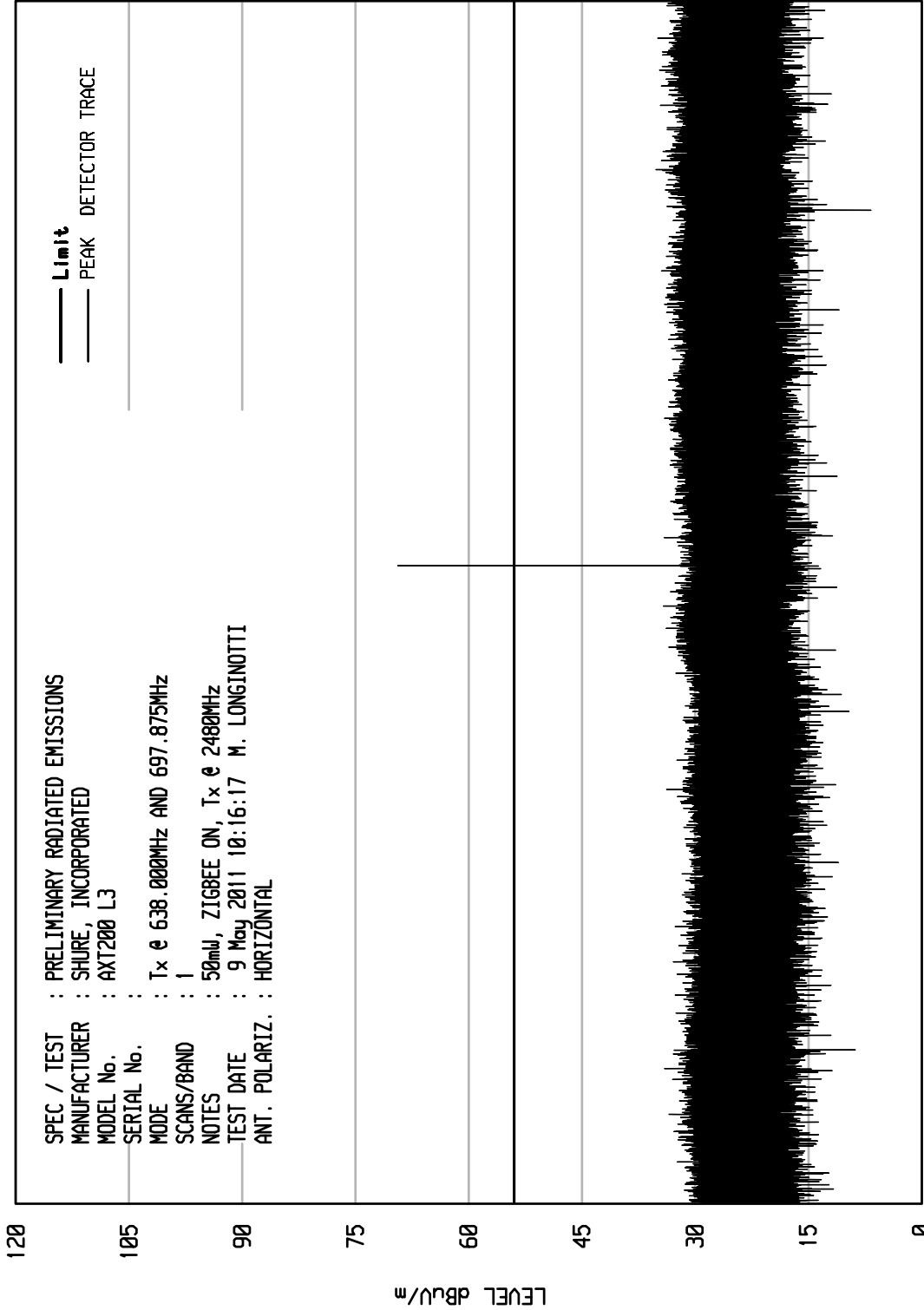


SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
 MANUFACTURER : SHURE, INCORPORATED
 MODEL No. : AXT200 L3
 SERIAL No. :
 MODE : Tx @ 638.000MHz AND 697.875MHz
 SCANS/BAND : 1
 NOTES : 50mV, ZIGBEE ON, Tx @ 2400MHz
 TEST DATE : 9 May 2011 09:23:55 M. LONGINOTTI
 ANT. POLARIZ. : VERTICAL

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UNITU RCU EMI RUN 4

UKR1 10/20/10



STOP = 3000

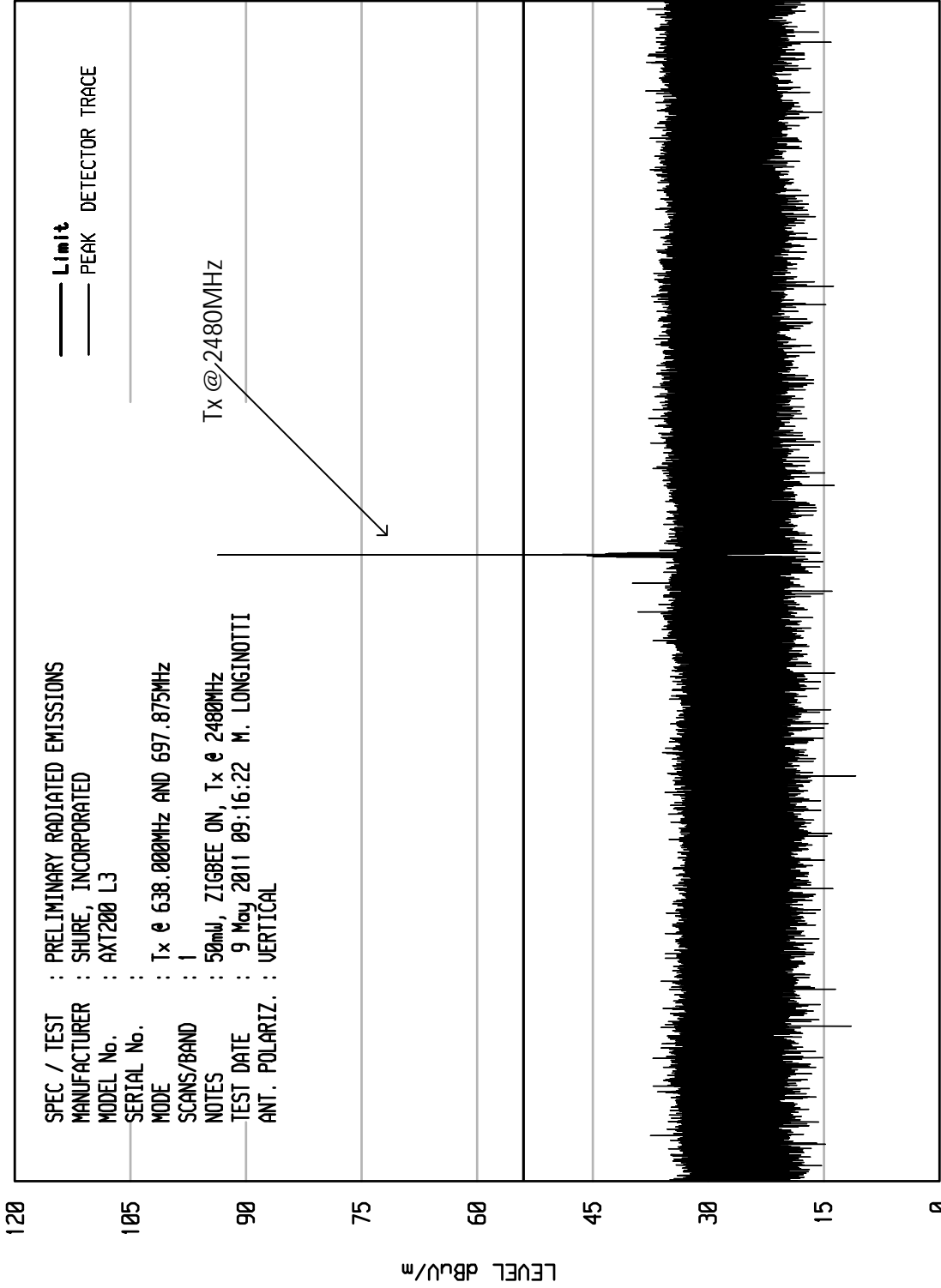
FREQUENCY MHz

START = 2000

ELITE ELECTRONIC ENGINEERING Inc.
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UNIU RCU EMI RUN 3

WKA1 10/20/10



SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
 MANUFACTURER : SHURE, INCORPORATED
 MODEL No. : AXT200 L3
 SERIAL No. :
 MODE : Tx @ 638.000MHz AND 697.875MHz
 SCANS/BAND : 1
 NOTES : 50mW, ZIGBEE ON, Tx @ 2480MHz
 TEST DATE : 9 May 2011 09:16:22 M. LONGINOTTI
 ANT. POLARIZ. : VERTICAL

120
105
90
75
60
45
30
15
0

LEVEL dBu/m

STOP = 3000

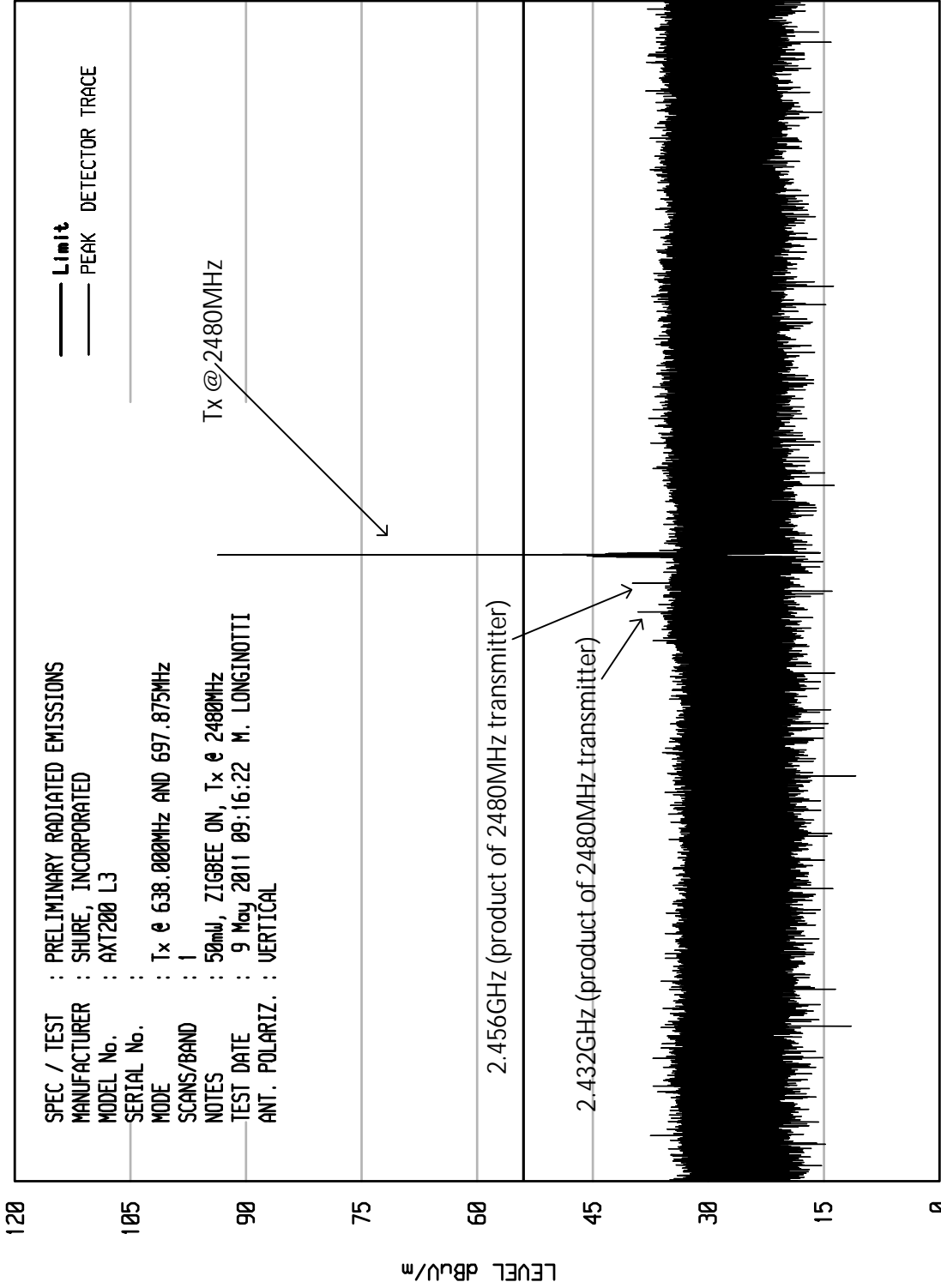
FREQUENCY MHz

START = 2000

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UNIU RCU EMI RUN 3

WKA1 10/20/10



120

105

90

75

60

45

30

15

0

LEVEL dBu/m

START = 2000

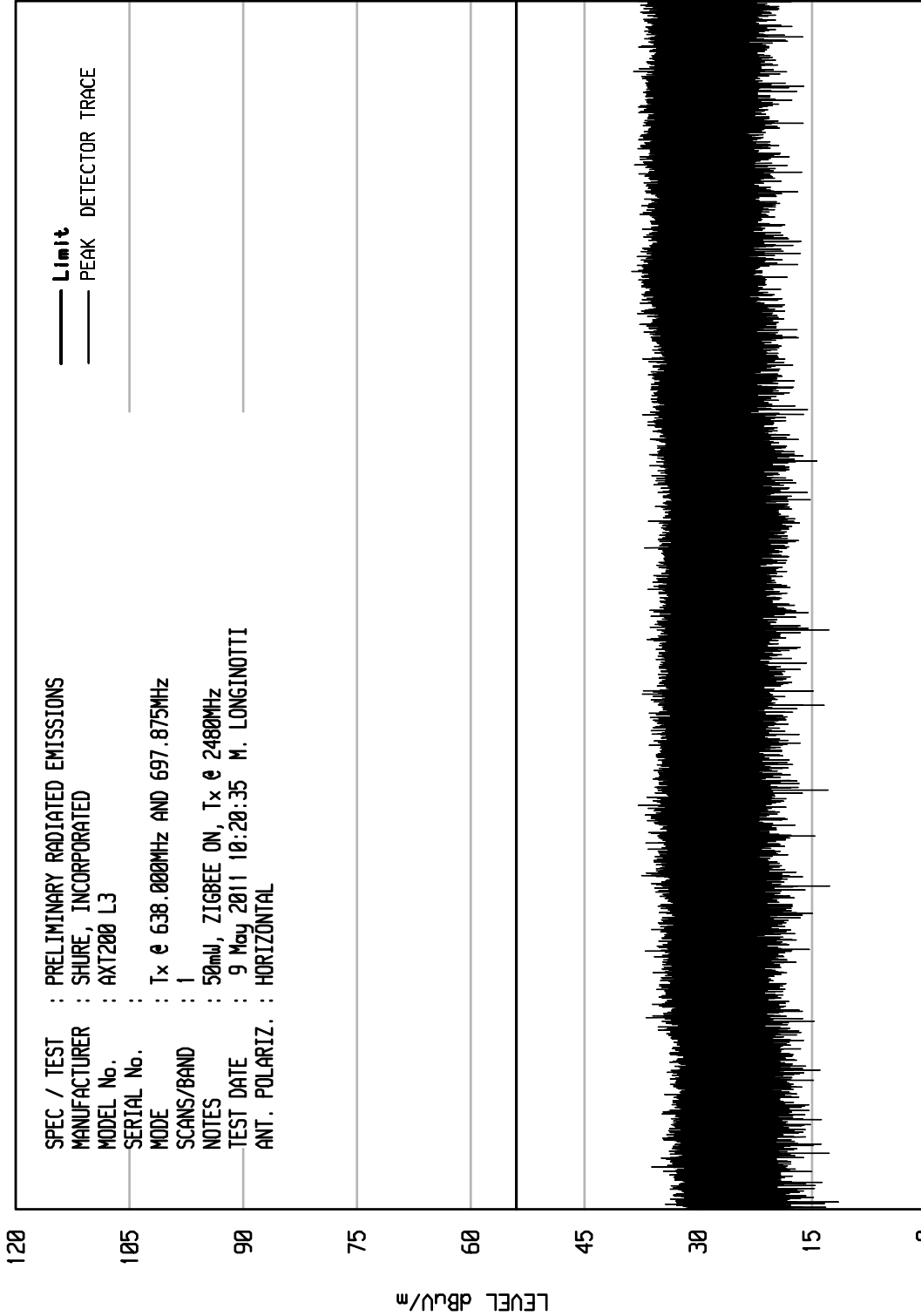
FREQUENCY MHz

STOP = 3000

ELITE ELECTRONIC ENGINEERING Inc.
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UNITU RCU EMI RUN 4

WK91 10/20/10



SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
 MANUFACTURER : SHURE, INCORPORATED
 MODEL No. : AXT200 L3
 SERIAL No. :
 MODE : Tx @ 638.000MHz AND 697.875MHz
 SCANS/BAND : 1
 NOTES : 50mW, ZIGBEE ON, Tx @ 2480MHz
 TEST DATE : 9 May 2011 10:20:35 M. LONGINOTTI
 ANT. POLARIZ. : HORIZONTAL

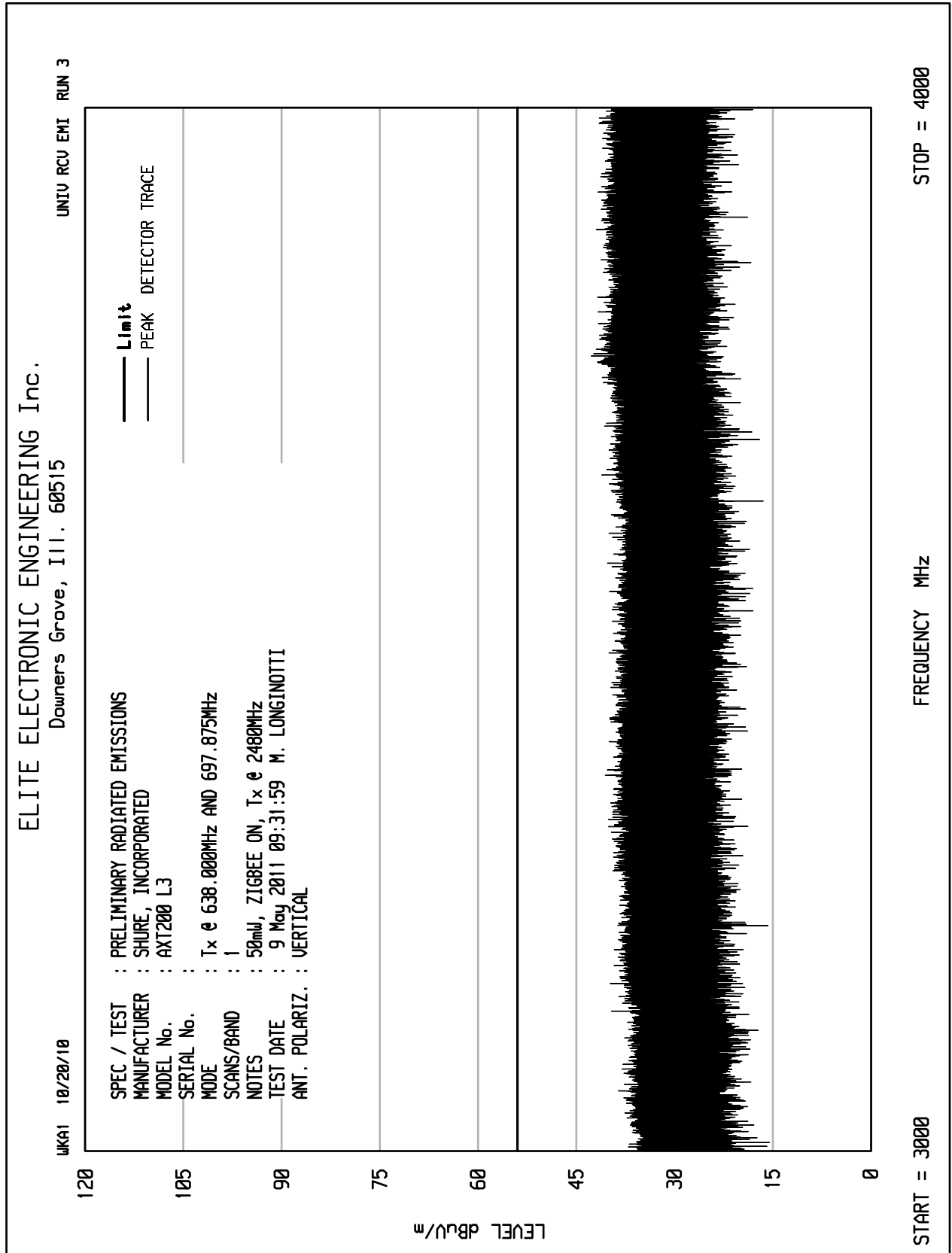
120
105
90
75
60
45
30
15
0

LEVEL dBu/m

STOP = 4000

FREQUENCY MHz

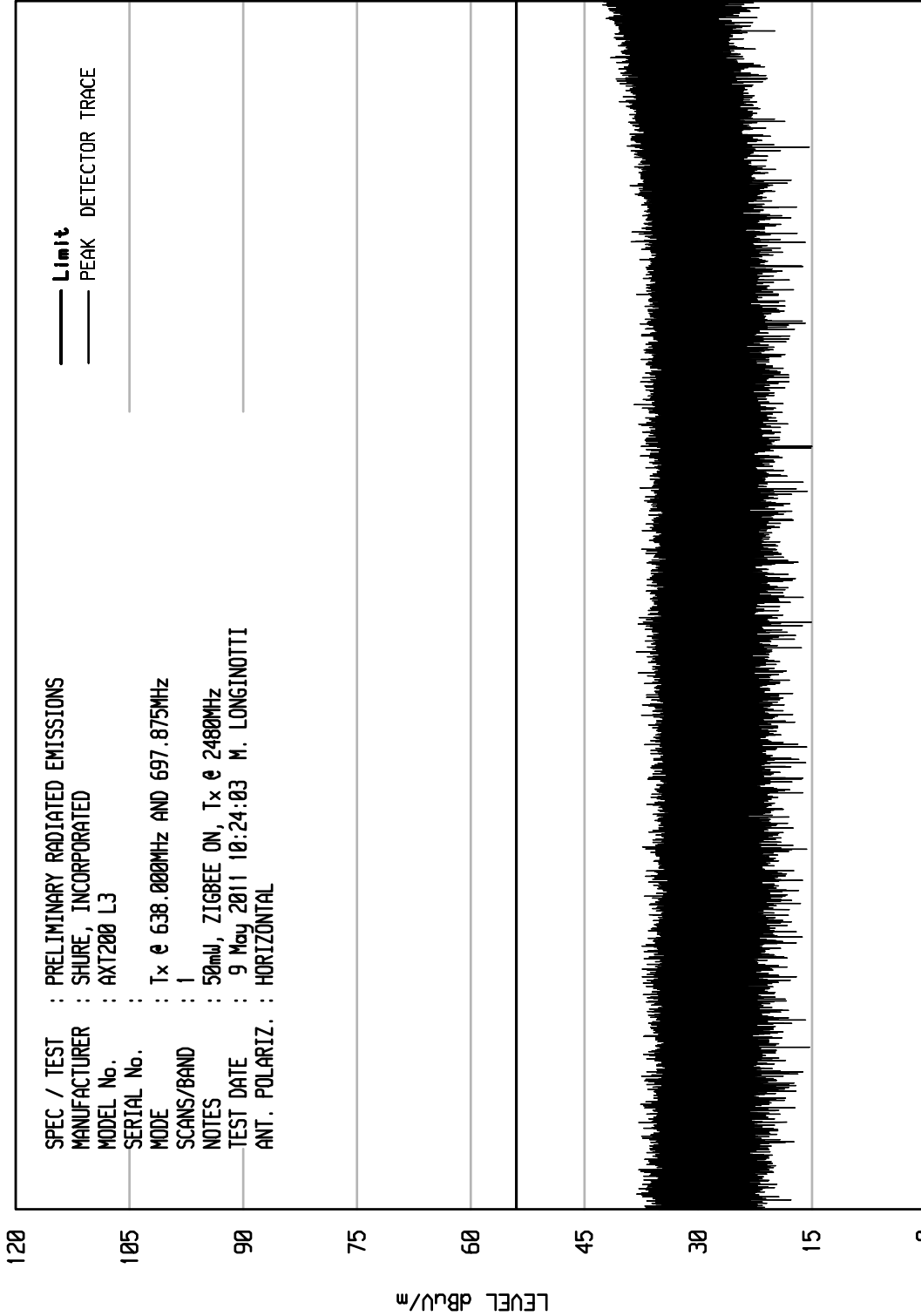
START = 3000



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UNITU RCU EMI RUN 2

UKR1 10/20/10



STOP = 5000

FREQUENCY MHz

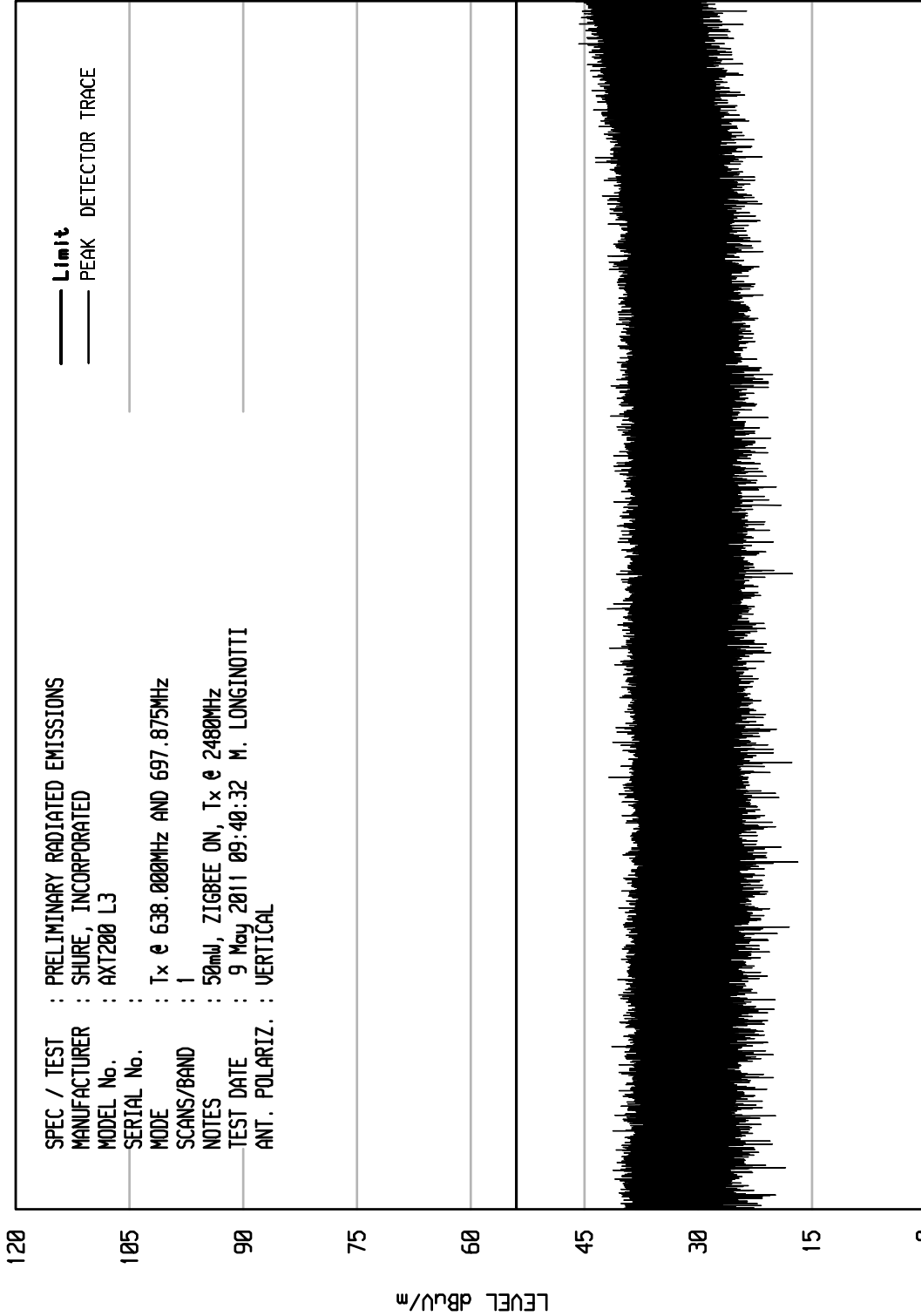
START = 4000



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UNITU RCU EMI RUN 1

UKR1 10/20/10



SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
 MANUFACTURER : SHURE, INCORPORATED
 MODEL No. : AXT200 L3
 SERIAL No. :
 MODE : Tx @ 638.000MHz AND 697.875MHz
 SCANS/BAND : 1
 NOTES : 50mW, ZIGBEE ON, Tx @ 2480MHz
 TEST DATE : 9 May 2011 09:40:32 M. LONGINOTTI
 ANT. POLARIZ. : VERTICAL

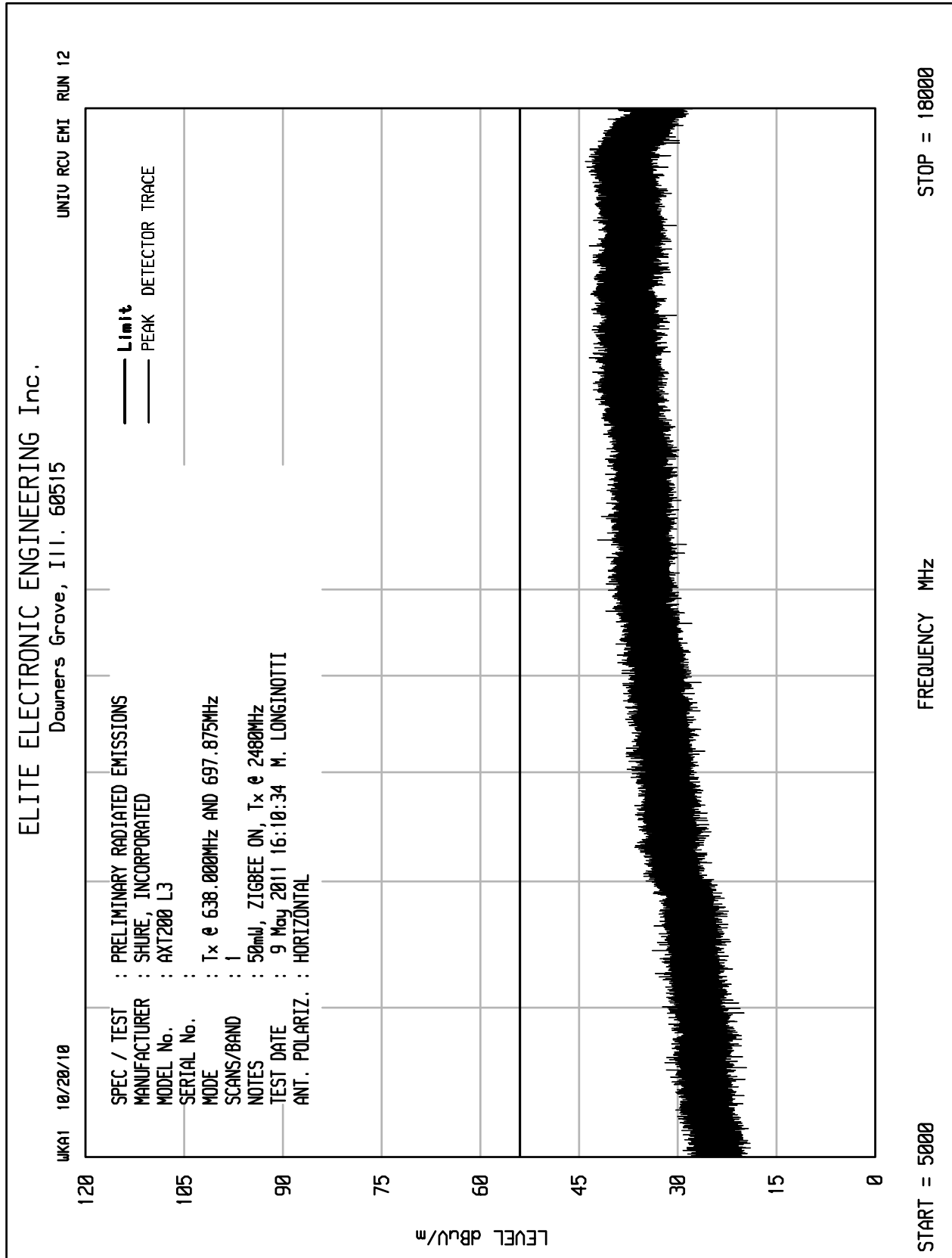
120
 105
 90
 75
 60
 45
 30
 15
 0

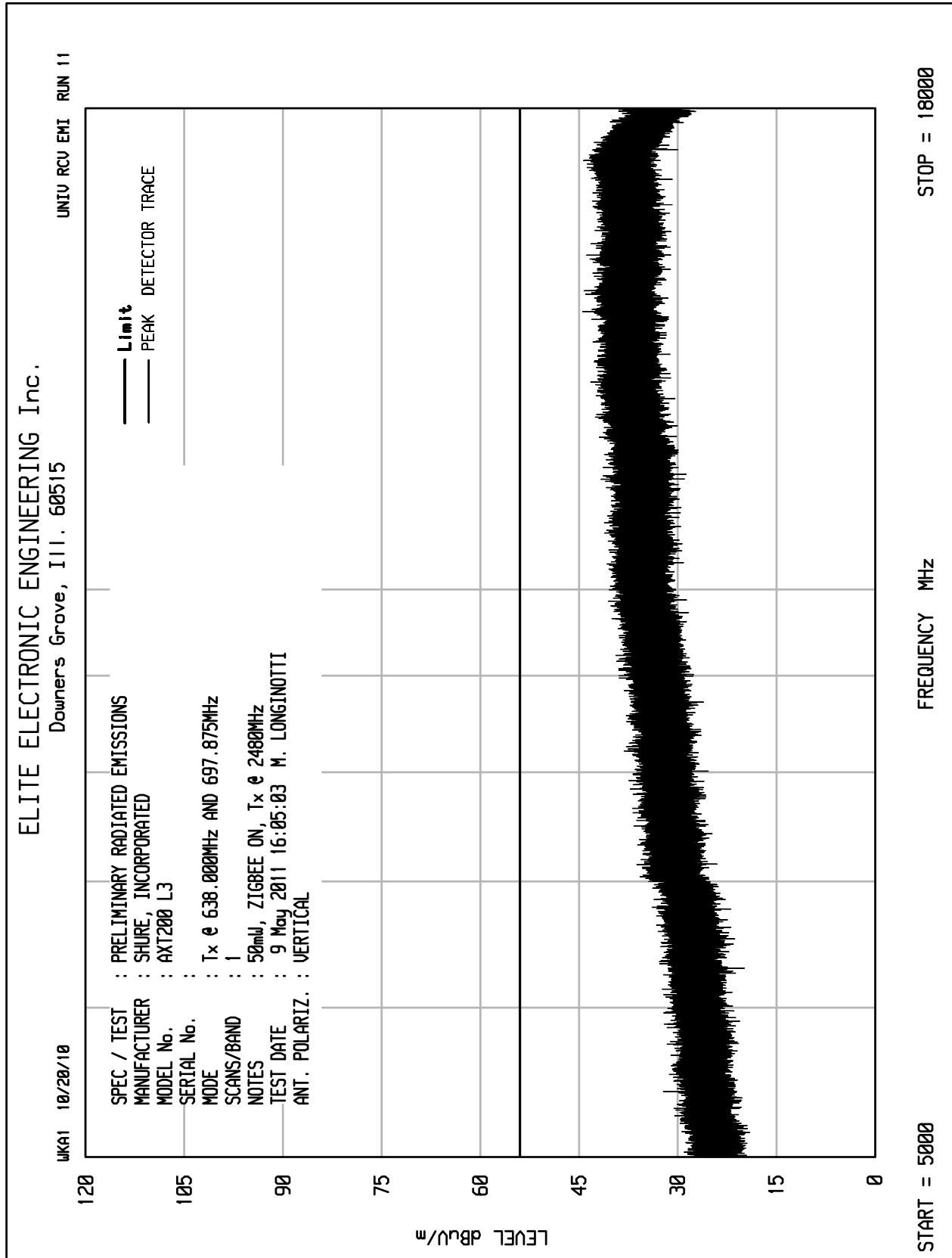
LEVEL dBu/m

STOP = 5000

FREQUENCY MHz

START = 4000

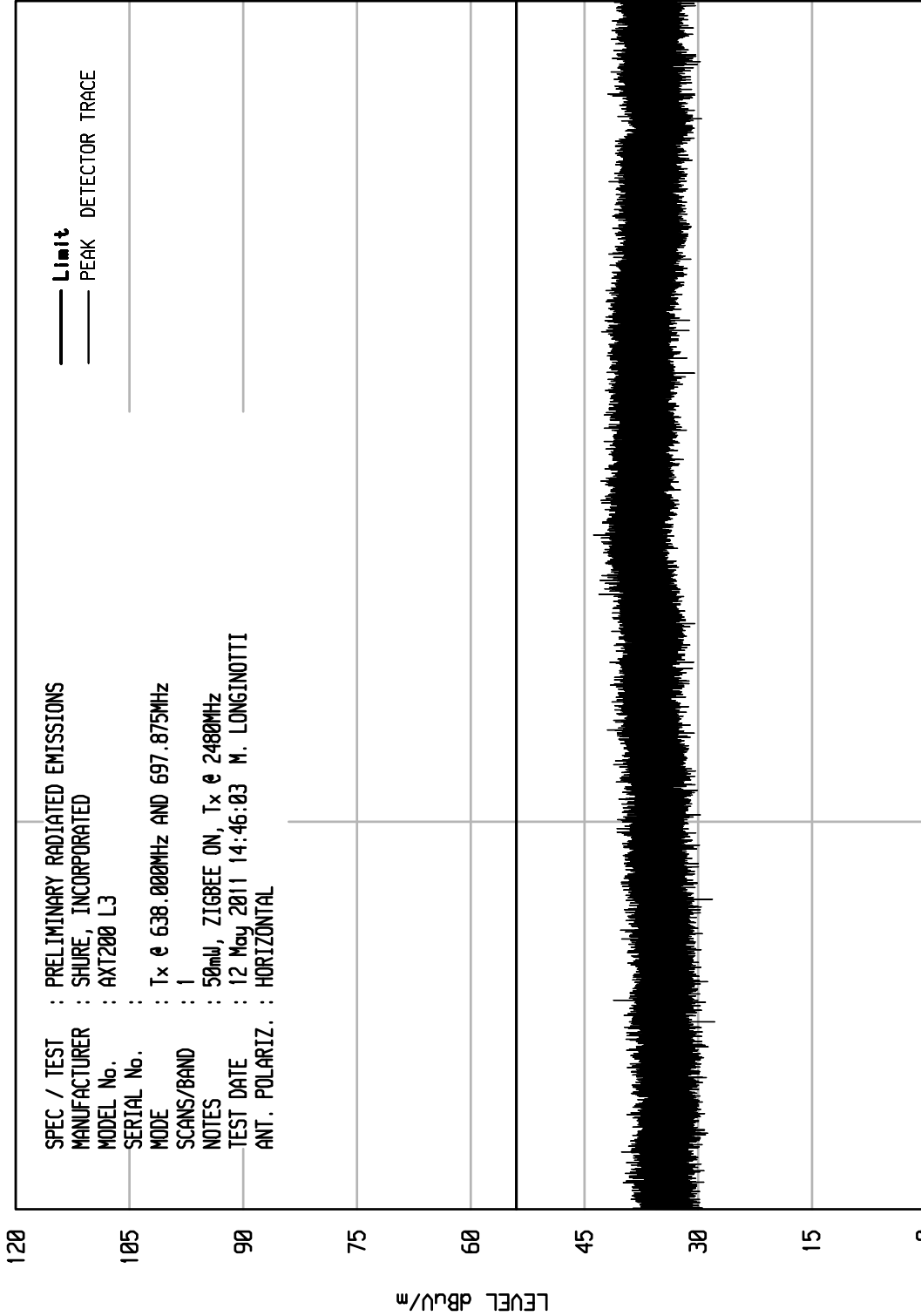




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UNITU RCU EMI RUN 21

WK91 10/20/10



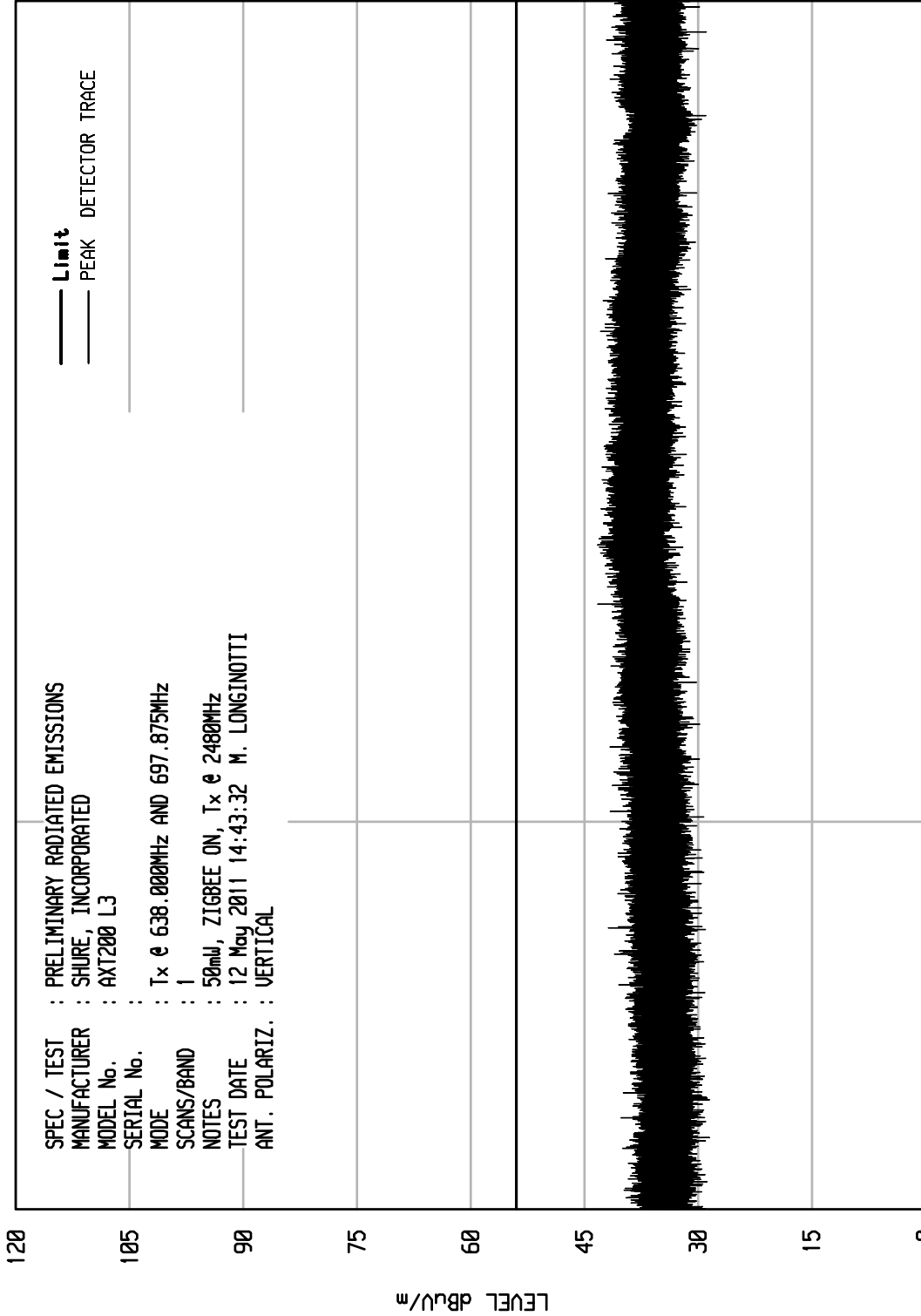
STOP = 25000

START = 18000

ELITE ELECTRONIC ENGINEERING Inc.
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UNITU RCU EMI RUN 20

WK91 10/20/10



STOP = 25000

START = 18000