



Measurement of RF Emissions from a Model HSLMHL4 Transceiver

For Gentex Corporation
600 N. Centennial Street
Zeeland, MI 49464

P.O. Number 1278252
Date Tested January 31 2012 through February 27, 2012
Test Personnel Richard E. King, Mark Longinotti
Test Specification FCC "Code of Federal Regulations" Title 47
Part15, Subpart C
Industry Canada RSS-GEN
Industry Canada RSS-210

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REVISION HISTORY

Revision	Date	Description
—	February 29, 2012	Initial release

Measurement of RF Emissions from a Transceiver, Model No. HSLMHL4

1. INTRODUCTION

1.1. Scope of Tests

This report presents the results of the RF emissions measurements performed on a Transceiver, Model No. HSLMHL4, Serial No. None Assigned, (hereinafter referred to as the Equipment Under Test (EUT)). The EUT was designed to transmit in the 288MHz to 420MHz band using an internal antenna. The EUT was manufactured and submitted for testing by Gentex Corporation located in Zeeland, MI.

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 C, Sections 15.207 and 15.231 for Intentional Radiators and Industry Canada RSS-GEN Section 7.2.4 and RSS-210, Annex 1, Table A. Testing was performed in accordance with ANSI C63.4-2009.

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 American Association for Laboratory Accreditation (A2LA). A2LA Certificate Number: 1786.01.

1.5. Laboratory Conditions

The temperature at the time of the test was Temp 21°C and the relative humidity was 22%.

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, Subpart C, dated 1 October 2011
- ANSI C63.4-2009, "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"
- Industry Canada Radio Standards Specification, RSS-Gen, "General Requirements and Information for the Certification of Radiocommunication Equipment", Issue 3, December 2010
- Industry Canada Radio Standards Specification, RSS-210, "Low-power License-exempt Radiocommunication Devices (All Frequency Bands): Category I Equipment", Issue 8, December 2010

3. EUT SETUP AND OPERATION

3.1. General Description

The EUT is a Gentex Corporation, Transceiver, Model No. HSLMHL4. A block diagram of the EUT setup is shown as Figure 1.



3.1.1. Power Input

The EUT obtained 13.5VDC from an external DC power supply. The EUT is typically power with 12VDC from an automotive battery.

3.1.2. Peripheral Equipment

The EUT does not require peripheral equipment.

3.1.3. Signal Input/Output Leads

The following interconnect cables were submitted with the EUT:

Item	Description
Power Harness	2.2 meter long, three lead input power harness (Batt +, Batt. -, and Ign.)

3.1.4. Grounding

The EUT was grounded only through the return lead of its input power lead.

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 EUT was trained to transmit at each of the following frequencies 288MHz, 310MHz, 340MHz, 365MHz, 390MHz or 418MHz. Training was perform using a signal generator to set the transmit frequency and a pulse generator to set the modulation to 30%, 50% or 80%.

3.3. EUT Modifications

No modifications were required for compliance to the FCC "Code of Federal Regulations" Title 47, Part 15, Subpart C, Sections 15.207 and 15.231 for Intentional Radiators and Industry Canada RSS-GEN Section 7.2.4 and RSS-210, Annex 1, Table A requirements.

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 C63.4-2009 for site attenuation.

4.2. Test Instrumentation

The test instrumentation and auxiliary equipment used during the tests are listed in Table 9-1.

Conducted and radiated emission measurements were performed with a spectrum analyzer. This receiver allows measurements with the bandwidths and detector functions specified in the requirements. The receiver bandwidth was 120kHz for the 30MHz to 1000MHz radiated emissions data and 1MHz for the 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 Emissions Measurements		
Combined Standard Uncertainty	1.07	-1.07
Expanded Uncertainty (95% confidence)	2.1	-2.1

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

5. TEST PROCEDURES

5.1. Powerline Conducted Emissions

5.1.1. Requirements

Since the EUT is powered with 12VDC from an automotive battery, no conducted emissions measurements are required.

5.2. Release Time

5.2.1. Requirements

A manually operated transmitter shall employ a switch that will automatically deactivate the transmitter within not more than 5 seconds of being released.

5.2.2. Procedures

The spectrum analyzer was setup to display the time domain trace. The EUT was set to transmit normally. The spectrum analyzer was used to record the amount of time that the EUT remained active following activation.

5.2.3. Results

The plot of the periodic timing is shown on data page 15. The data shows that the EUT ceases operation within the allotted time.

5.3. Duty Cycle Factor Measurements

5.3.1. 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.

With the transmitter set up to transmit for maximum pulse density, the time domain trace is displayed on the spectrum analyzer. This trace is obtained by tuning center frequency to the transmitter frequency and then setting a zero span and adjusting the sweep time to accurately measure the duration of a pulse. This trace is plotted. The sweep time is then adjusted to 100msec so that the number of pulses in a 100msec period can be counted. The total "On-Time" in a 100msec period is calculated by multiplying the number of pulses in a 100msec by the width of each pulse. The EUT is a learned transmitter and was trained using 500Hz pulse modulation at 30%, 50% and 80% duty cycles.

The duty cycle factor to apply was determined for the duty cycles of 30%, 50% and 80% as Follows:

For 30% (0.30): duty cycle factor = $20 \cdot \text{Log}(0.3) = -10.46 \text{ dB}$

For 50% (0.50): duty cycle factor = $20 \cdot \text{Log}(0.5) = -6.02 \text{ dB}$

For 80% (0.80): duty cycle factor = $20 \cdot \text{Log}(0.8) = -1.94 \text{ dB}$



5.3.2.Results

Representative plots of the duty cycle for the EUT are shown on pages 16 through 21.

5.4. Radiated Measurements

5.4.1.Requirements

The EUT must comply with the requirements of FCC "Code of Federal Regulations Title 47", Part 15, Subpart C, Section 15.231(b) and Industry Canada RSS-210, Annex 1, Table A. Both standards have the following radiated emissions limits:

Fundamental Frequency MHz	Field Intensity uV/m @ 3 meters	Field Strength Harmonics and Spurious @ 3 meters
260 to 470	3,750 to 12,500*	375 to 1,250*

* - Linear Interpolation

For 288MHz, the limit at the fundamental is 4916.7uV/m @ 3m. The limit for the harmonics is 491.6uV/m @ 3m or the general limit shown in 15.209 whichever limit permits a higher field strength.

For 310MHz, the limit at the fundamental is 5833.3uV/m @ 3m. The limit for the harmonics is 583.3uV/m @ 3m or the general limit shown in 15.209 whichever limit permits a higher field strength.

For 340MHz, the limit at the fundamental is 7083.3uV/m @ 3m. The limit for the harmonics is 708.3uV/m @ 3m or the general limit shown in 15.209 whichever limit permits a higher field strength.

For 365MHz, the limit at the fundamental is 8125.0uV/m @ 3m. The limit for the harmonics is 812.5uV/m @ 3m or the general limit shown in 15.209 whichever limit permits a higher field strength.

For 390MHz, the limit at the fundamental is 9166.7uV/m @ 3m. The limit for the harmonics is 916.7uV/m @ 3m or the general limit shown in 15.209 whichever limit permits a higher field strength.

For 418MHz, the limit at the fundamental is 10333.3uV/m @ 3m. The limit for the harmonics is 1033.3uV/m @ 3m or the general limit shown in 15.209 whichever limit permits a higher field strength.

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

5.4.2.Procedures

All tests were performed in a 32ft. x 20ft. x 18ft. hybrid ferrite-tile/anechoic absorber lined test chamber. The walls and ceiling of the shielded chamber are lined with ferrite tiles. Anechoic absorber material is installed over the ferrite tile. The floor of the chamber is used as the ground plane. The chamber complies with ANSI C63.4-2009 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.

A preliminary radiated emissions test was 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 4.2GHz was investigated using a peak detector function. The data was then processed by the computer to calculate equivalent field intensity.

The final emission tests were then manually performed over the frequency range of 30MHz to 4200MHz. Between 30MHz and 1000MHz, a bilog antenna was used as the pick-up device. A broadband double ridged waveguide antenna was used as the pick-up device for all frequencies above 1GHz. All significant broadband and narrowband signals were measured and recorded. The peak detected levels were converted to average levels using a duty cycle factor which was computed from the pulse train.

To ensure that maximum or worst case, emission levels were measured, the following steps were taken:

- 1) The EUT was rotated so that all of its sides were exposed to the receiving antenna.
- 2) Since the measuring antenna is linearly polarized, both horizontal and vertical field components were measured.
- 3) The measuring antenna was raised and lowered from 1 to 4 meters for each antenna polarization to maximize the readings.
- 4) 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.

5.4.3. Results

The preliminary plots, with the EUT transmitting at 288MHz, 310MHz and 418MHz, are presented on pages 22 through 57. The plots are presented for a reference only, and are not used to determine compliance. The final radiated emission levels with the EUT transmitting at 288MHz, 310MHz and 418MHz, are presented on data pages 58 through 66. In addition, the radiated field strength levels at the transmit frequencies of 340MHz, 365MHz, and 390MHz are shown on page 67. As can be seen from the data, all emissions measured from the EUT were within the specification limits. Photographs of the EUT set-up radiated emission levels are shown on Figure 2 and Figure 3.

5.5. Occupied Bandwidth Measurements

5.5.1. Requirement

In accordance with FCC "Code of Federal Regulations Title 47", Part 15, Subpart C paragraph 15.231(c), all emissions within 20dB of the peak amplitude level of the center frequency are required to be within a band less than 0.25% of the center frequency wide. Per Industry Canada RSS-210, Annex 1, paragraph A1.1.3 the 99% bandwidth shall be no wider than 0.25% of the center frequency.

5.5.2. Procedures

The EUT was placed on an 80cm high non-conductive stand. The unit was set to transmit continuously. With an antenna positioned nearby, occupied bandwidth emissions were displayed on the spectrum analyzer. The resolution bandwidth was set to 30 kHz and span was set to 2 MHz. The frequency spectrum near the fundamental was plotted.

5.5.3. Results

The plots of the emissions near the fundamental frequency are presented on pages 68 through 76. As can be seen from the data pages, the transmitter met the occupied bandwidth requirements. The widest 99% bandwidth was 440.9kHz.

6. OTHER TEST CONDITIONS

6.1. Test Personnel and Witnesses

All tests were performed by qualified personnel from Elite Electronic Engineering Incorporated. *The test series was partially witnessed by Gentex Corporation personnel.

6.2. Disposition of the EUT

The EUT and all associated equipment were returned to Gentex Corporation upon completion of the tests.

7. CONCLUSIONS

It was determined that the Gentex Corporation Transceiver, Model No. HSLMHL4, 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 C, Section 15.207 and 15.231 for Intentional Radiators, when tested per ANSI C63.4-2009.

It was also determined that the Gentex Corporation Transceiver, Model No. HSLMHL4, Serial No. None



Assigned, did fully meet the conducted and radiated emission requirements of the Industry Canada RSS-GEN Section 7.2.4 and RSS-210, Annex 1, Table A, when tested per ANSI C63.4-2009.

8. CERTIFICATION

Elite Electronic Engineering Incorporated certifies that the information contained in this report was obtained under conditions which meet or exceed those specified in the test specifications.

The data presented in this test report pertains to the EUT at the test date as operated by Gentex Corporation personnel. 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.

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
CDY0	WORKSTATION	ELITE	WORKSTATION			N/A	
CMA1	Controllers	EMCO	2090	9701-1213	---	N/A	
NTA0	BILOG ANTENNA	CHASE EMC LTD.	BILOG CBL6112	2057	0.03-2GHZ	6/16/2011	6/16/2012
NTA2	BILOG ANTENNA	TESEQ	6112D	28040	25-1000MHZ	6/29/2011	6/29/2012
NWH0	RIDGED WAVE GUIDE	TENSOR	4105	2081	1-12.4GHZ	11/3/2011	11/3/2012
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

I/O: Initial Only

N/A: Not Applicable

Note 1: For the purpose of this test, the equipment was calibrated over the specified frequency range, pulse rate, or modulation prior to the test or monitored by a calibrated instrument.

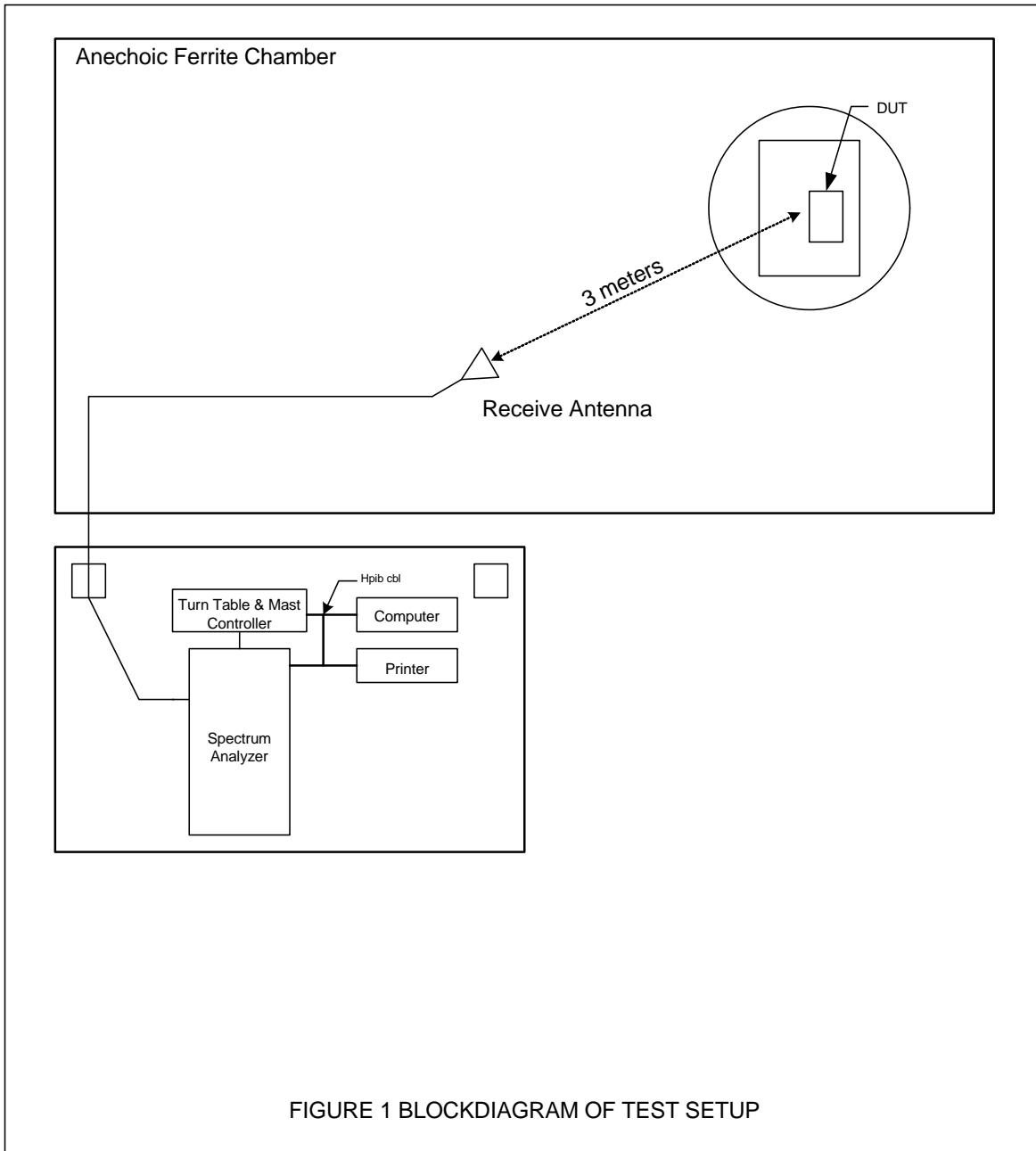


Figure 2



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

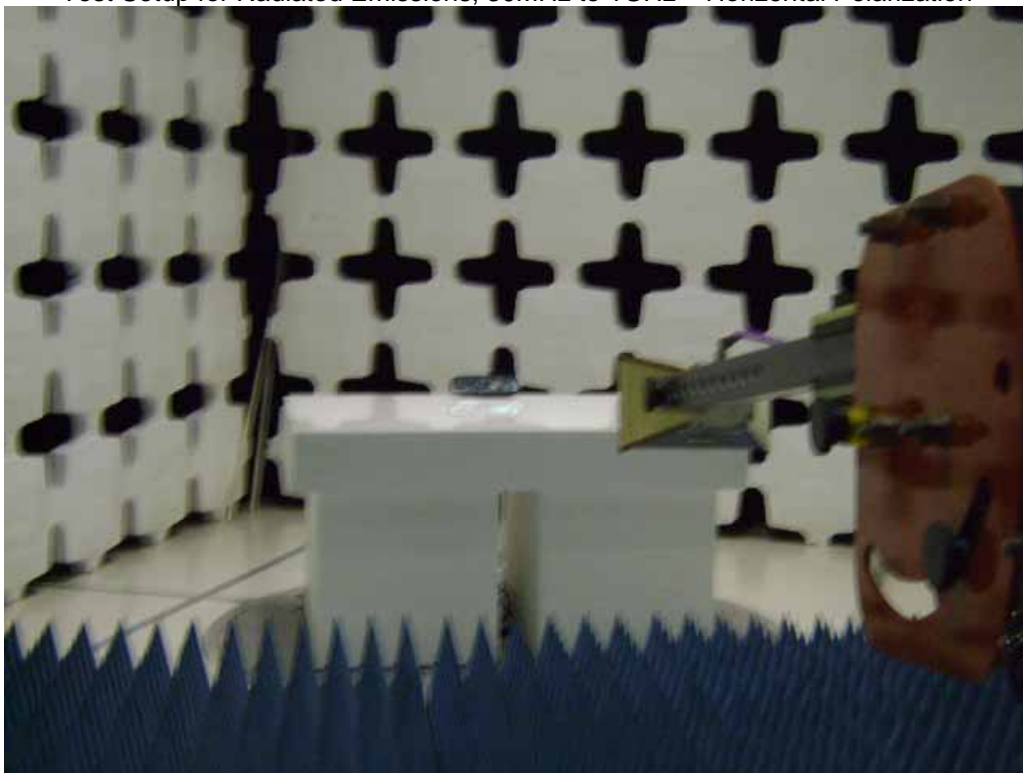


Test Setup for Radiated Emissions, 30MHz to 1GHz – Vertical Polarization

Figure 3



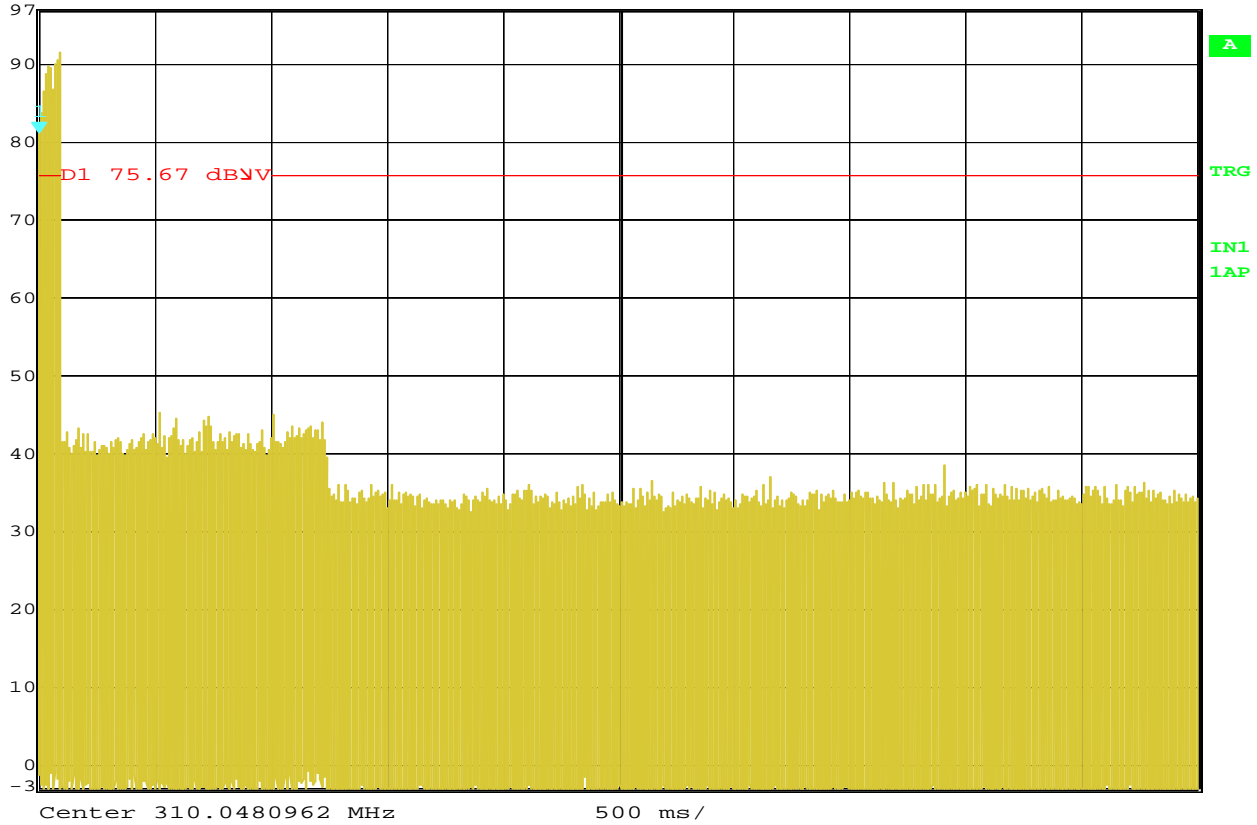
Test Setup for Radiated Emissions, 30MHz to 1GHz – Horizontal Polarization



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



Marker 1 [T1] RBW 3 MHz RF Att 0 dB
 Ref Lvl 81.01 dBµV VBW 3 MHz
 97 dBµV 5.000000 ms SWT 5 s Unit dBµV



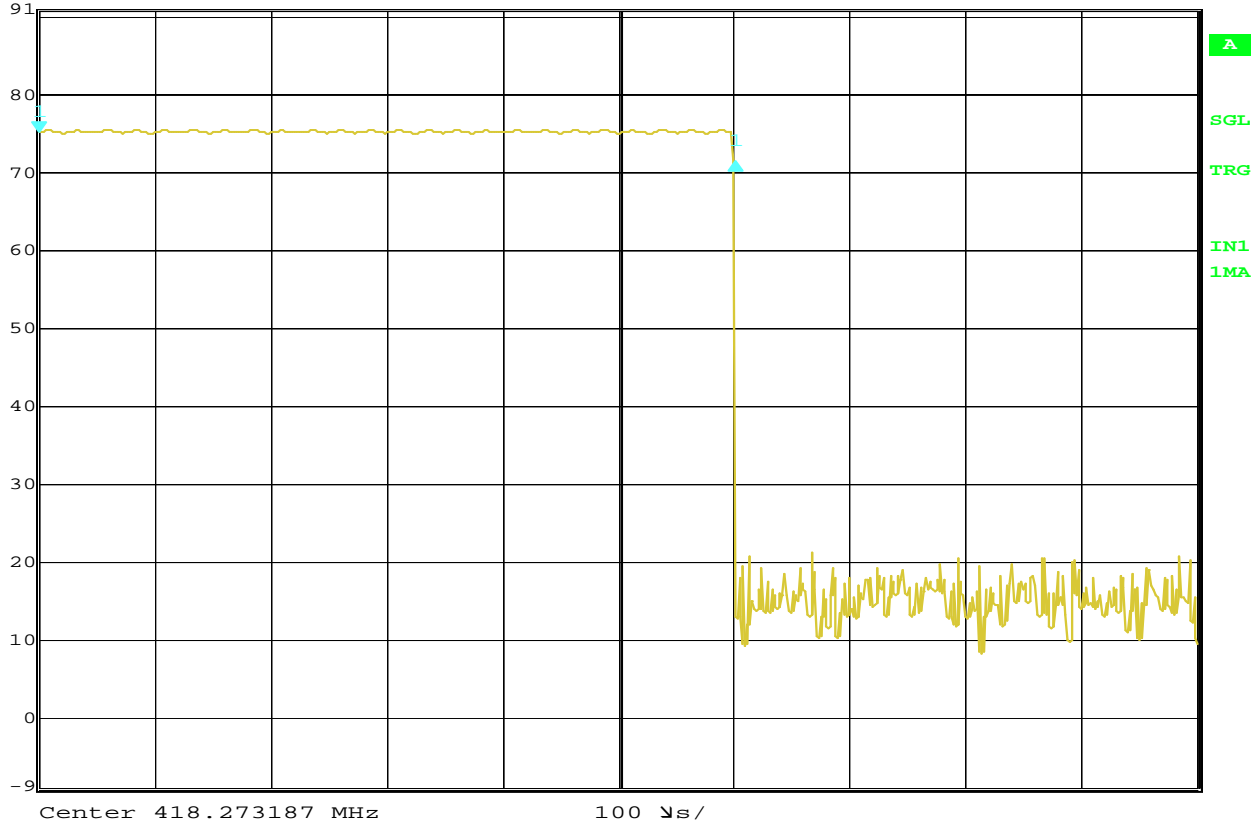
Date: 27.FEB.2012 12:20:00

15.231(a)(1) Release Time

MANUFACTURER : Gentex
 MODEL NUMBER : HSLMHL4
 SERIAL NUMBER :
 TEST MODE : Tx @ 310MHz
 TEST DATE : February 27, 2012
 TEST PARAMETER : Release Time
 NOTES : A manually operated transmitter shall employ a switch that will
 : automatically deactivate the transmitter within not more than 5 seconds of being
 : released.
 EQUIPMENT USED : RBB0



Delta 1 [T1] RBW 1 MHz RF Att 0 dB
 Ref Lvl -3.88 dB VBW 1 MHz
 91 dBμV 601.202405 μs SWT 1 ms Unit dBμV



Date: 22.FEB.2012 15:03:07

FCC 15.35 Duty Cycle

MANUFACTURER : Gentex
 MODEL NUMBER : HSLMHL4
 SERIAL NUMBER :
 TEST MODE : Tx @ 418MHz, 30% Duty Cycle
 TEST DATE : February 22, 2012
 TEST PARAMETER : Duty Cycle
 NOTES : Pulse width = 600usec
 EQUIPMENT USED : RBA0



Marker 1 [T2]

RBW 1 MHz RF Att 0 dB

Ref Lvl 75.89 dBμV

VBW 1 MHz

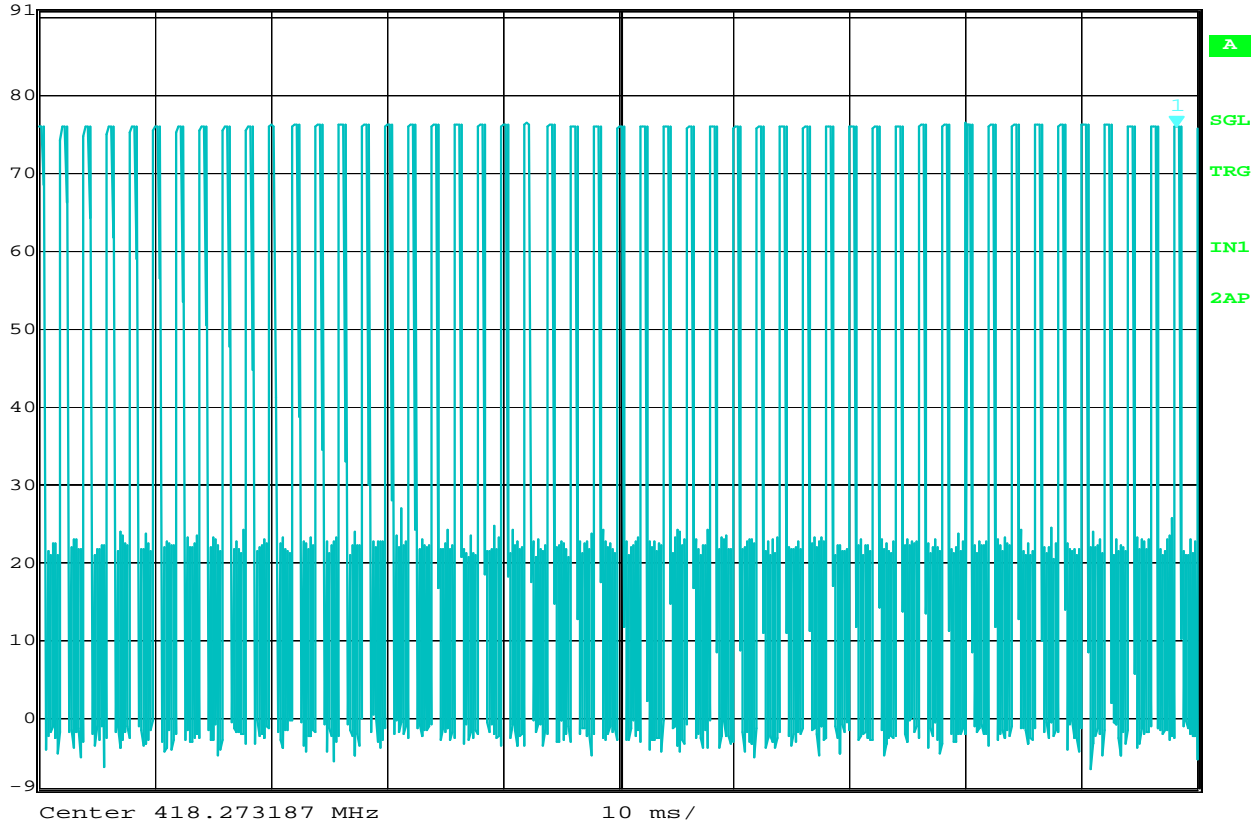
91 dBμV

98.196393 ms

SWT 100 ms

Unit

dBμV



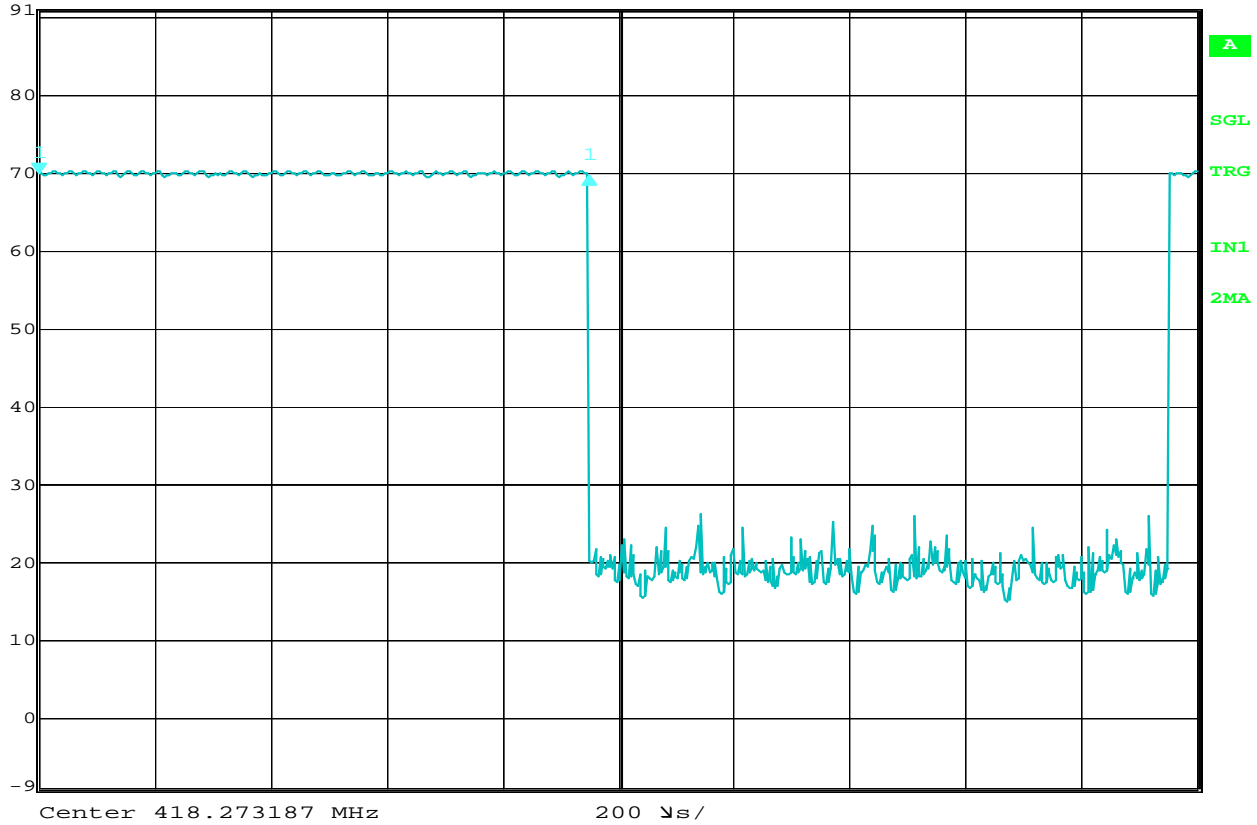
Date: 22.FEB.2012 15:11:07

FCC 15.35 Duty Cycle

MANUFACTURER : Gentex
 MODEL NUMBER : HSLMHL4
 SERIAL NUMBER :
 TEST MODE : Tx @ 418MHz, 30% Duty Cycle
 TEST DATE : February 22, 2012
 TEST PARAMETER : Duty Cycle
 NOTES : Pulse width = 600usec, number of pulses in 100msec is 50. Total on time in
 : 100msec is 50 x 600usec = 30.0msec. Duty cycle = 20 x log(30msec/100msec)
 : Duty Cycle = -10.5dB
 EQUIPMENT USED : RBA0



	Delta 1 [T2]	RBW	1 MHz	RF Att	0 dB
Ref Lvl	-0.18 dB	VBW	1 MHz		
91 dB μ V	949.899800 μ s	SWT	2 ms	Unit	dB μ V



Date: 22.FEB.2012 15:16:40

FCC 15.35 Duty Cycle

MANUFACTURER	: Gentex
MODEL NUMBER	: HSLMHL4
SERIAL NUMBER	:
TEST MODE	: Tx @ 418MHz, 50% Duty Cycle
TEST DATE	: February 22, 2012
TEST PARAMETER	: Duty Cycle
NOTES	: Pulse width = 950usec
EQUIPMENT USED	: RBA0



Marker 1 [T2]

RBW 1 MHz RF Att 0 dB

Ref Lvl 72.18 dBμV

VBW 1 MHz

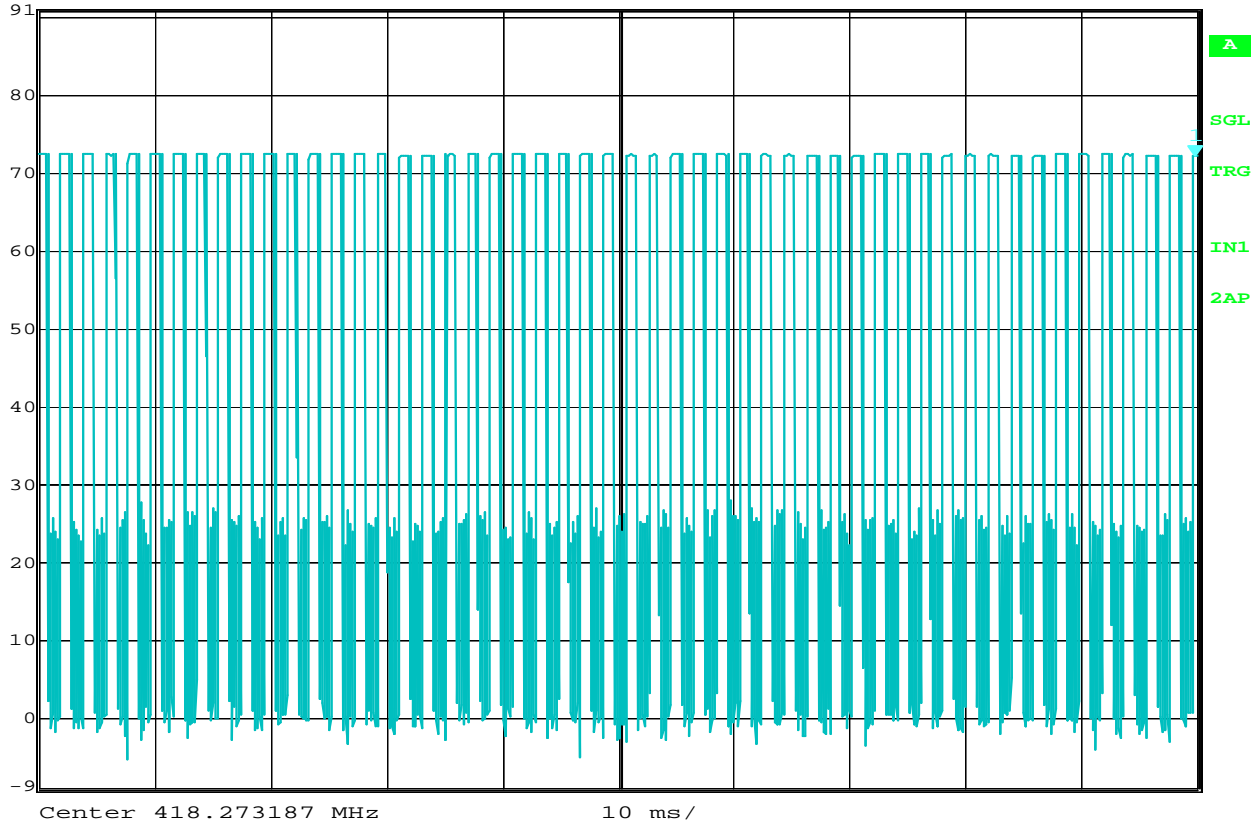
91 dBμV

99.799599 ms

SWT 100 ms

Unit

dBμV



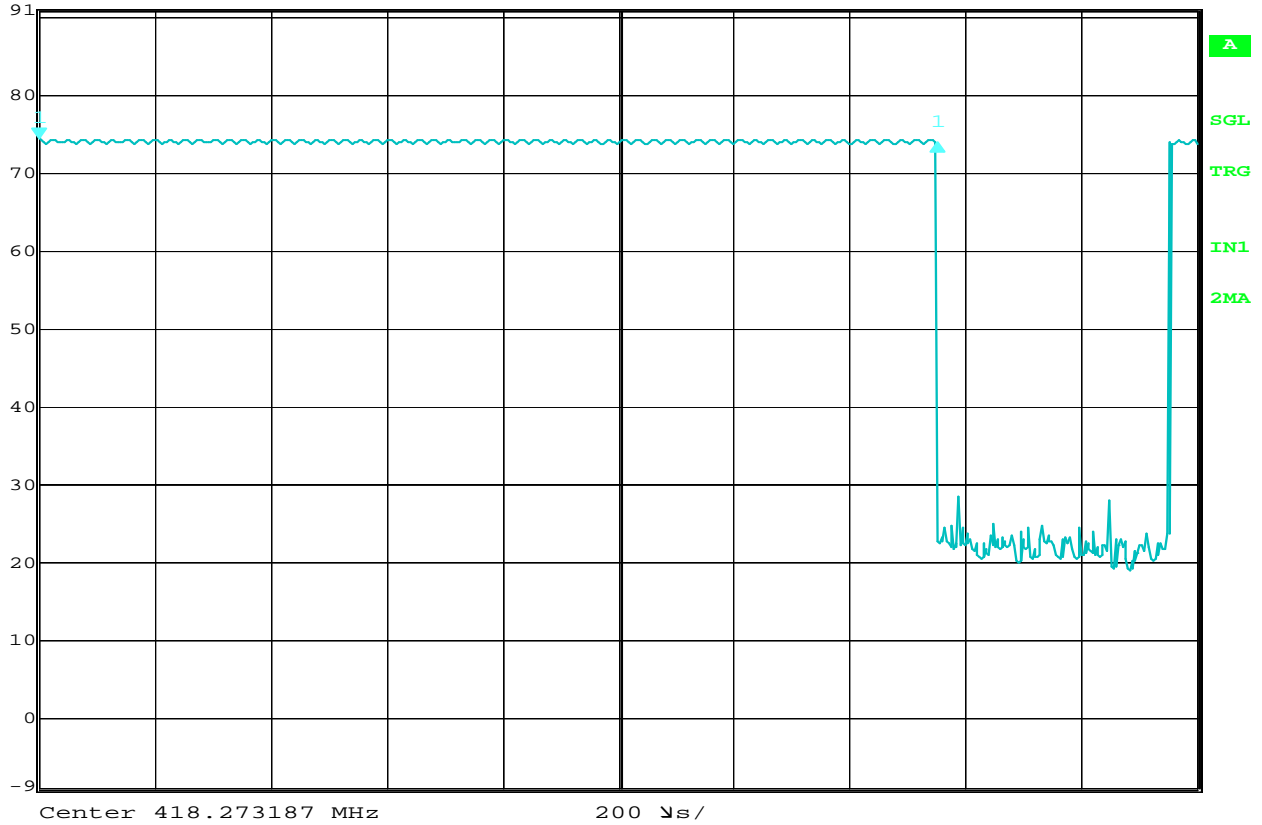
Date: 22.FEB.2012 15:19:30

FCC 15.35 Duty Cycle

MANUFACTURER : Gentex
 MODEL NUMBER : HSLMHL4
 SERIAL NUMBER :
 TEST MODE : Tx @ 418MHz, 50% Duty Cycle
 TEST DATE : February 22, 2012
 TEST PARAMETER : Duty Cycle
 NOTES : Pulse width = 950usec, number of pulses in 100msec is 51 plus 400usec. Total
 : on time in 100msec is (51 x 950usec) + 400usec = 48.85msec. Duty cycle =
 : $20 \times \log(48.85\text{msec}/100\text{msec})$
 : Duty Cycle = -6dB
 EQUIPMENT USED : RBA0



	Delta 1 [T2]	RBW	1 MHz	RF Att	0 dB
Ref Lvl	-0.53 dB	VBW	1 MHz		
91 dB μ V	1.551102 ms	SWT	2 ms	Unit	dB μ V



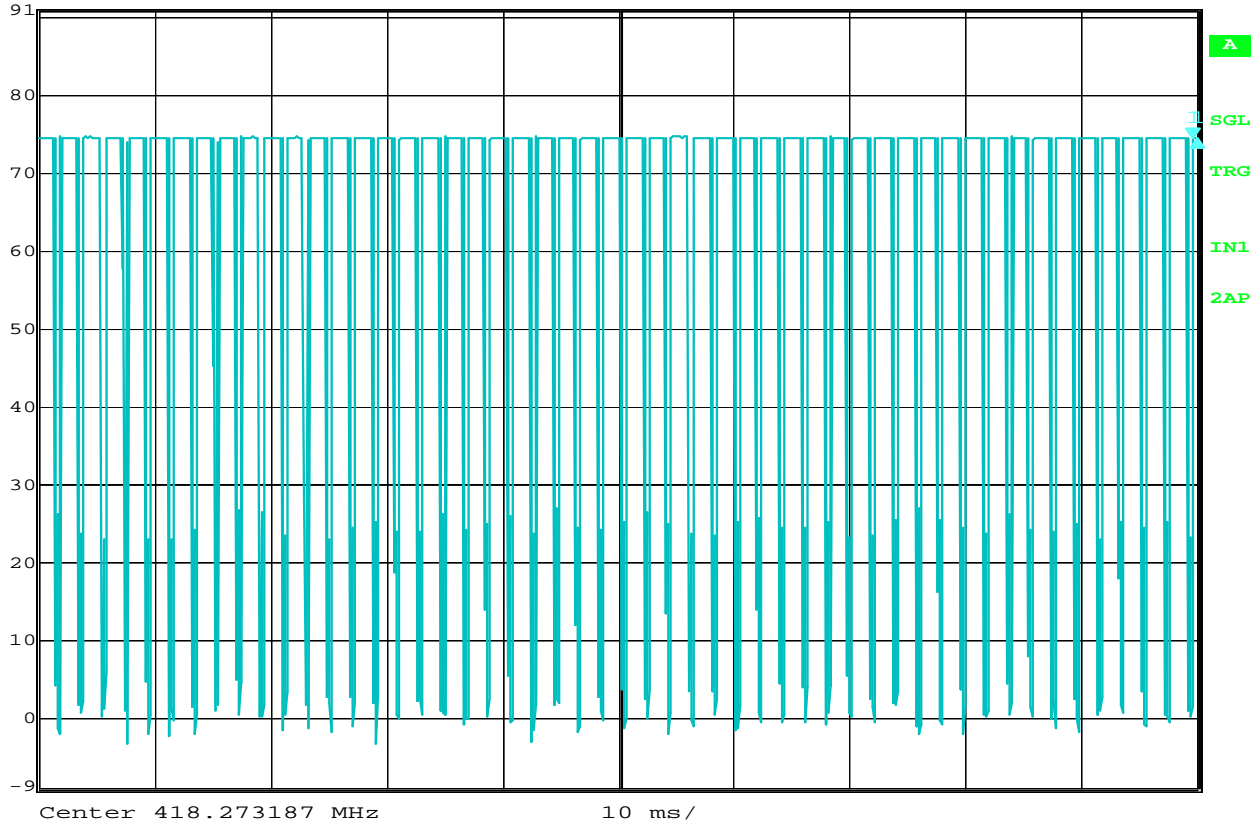
Date: 23.FEB.2012 06:38:12

FCC 15.35 Duty Cycle

MANUFACTURER	: Gentex
MODEL NUMBER	: HSLMHL4
SERIAL NUMBER	:
TEST MODE	: Tx @ 418MHz, 80% Duty Cycle
TEST DATE	: February 23, 2012
TEST PARAMETER	: Duty Cycle
NOTES	: Pulse width = 1.55msec
EQUIPMENT USED	: RBA0



Delta 1 [T2] RBW 1 MHz RF Att 0 dB
 Ref Lvl -0.15 dB VBW 1 MHz
 91 dBmV 400.801603 μs SWT 100 ms Unit dBmV



Date: 23.FEB.2012 06:41:23

FCC 15.35 Duty Cycle

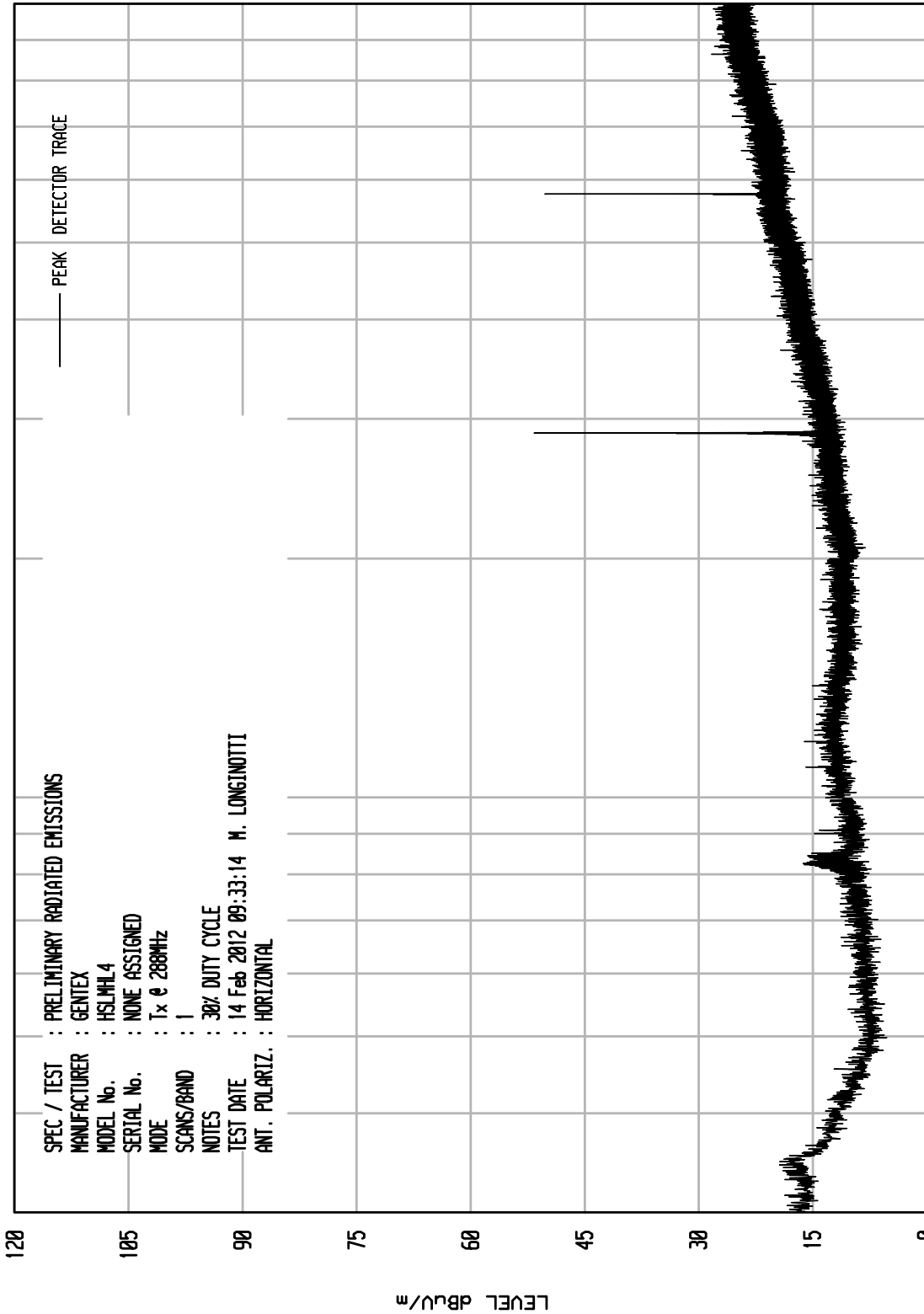
MANUFACTURER : Gentex
 MODEL NUMBER : HSLMHL4
 SERIAL NUMBER :
 TEST MODE : Tx @ 418MHz, 80% Duty Cycle
 TEST DATE : February 23, 2012
 TEST PARAMETER : Duty Cycle
 NOTES : Pulse width = 1.55msec, number of pulses in 100msec is 51 plus 400usec.
 : Total on time in 100msec is (51 x 1.55msec) + 400usec = 79.45msec.
 : Duty cycle = 20 x log(79.45msec/100msec)
 : Duty Cycle = -1.9dB
 EQUIPMENT USED : RBA0

ELITE ELECTRONIC ENGINEERING Inc.
Downers Grove, Ill. 60515

UNIT: RCU ENI RUN 48

UKA1 04/26/11

PRELIMINARY RADIATED EMISSIONS
 SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
 MANUFACTURER : GENTEX
 MODEL No. : HSLMHL4
 SERIAL No. : NONE ASSIGNED
 MODE : Tx @ 288MHz
 SCANS/BAND : 1
 NOTES : 30% DUTY CYCLE
 TEST DATE : 14 Feb 2012 09:33:14 M. LONGINOTTI
 ANT. POLARIZ. : HORIZONTAL



STOP = 1000

FREQUENCY MHz

100

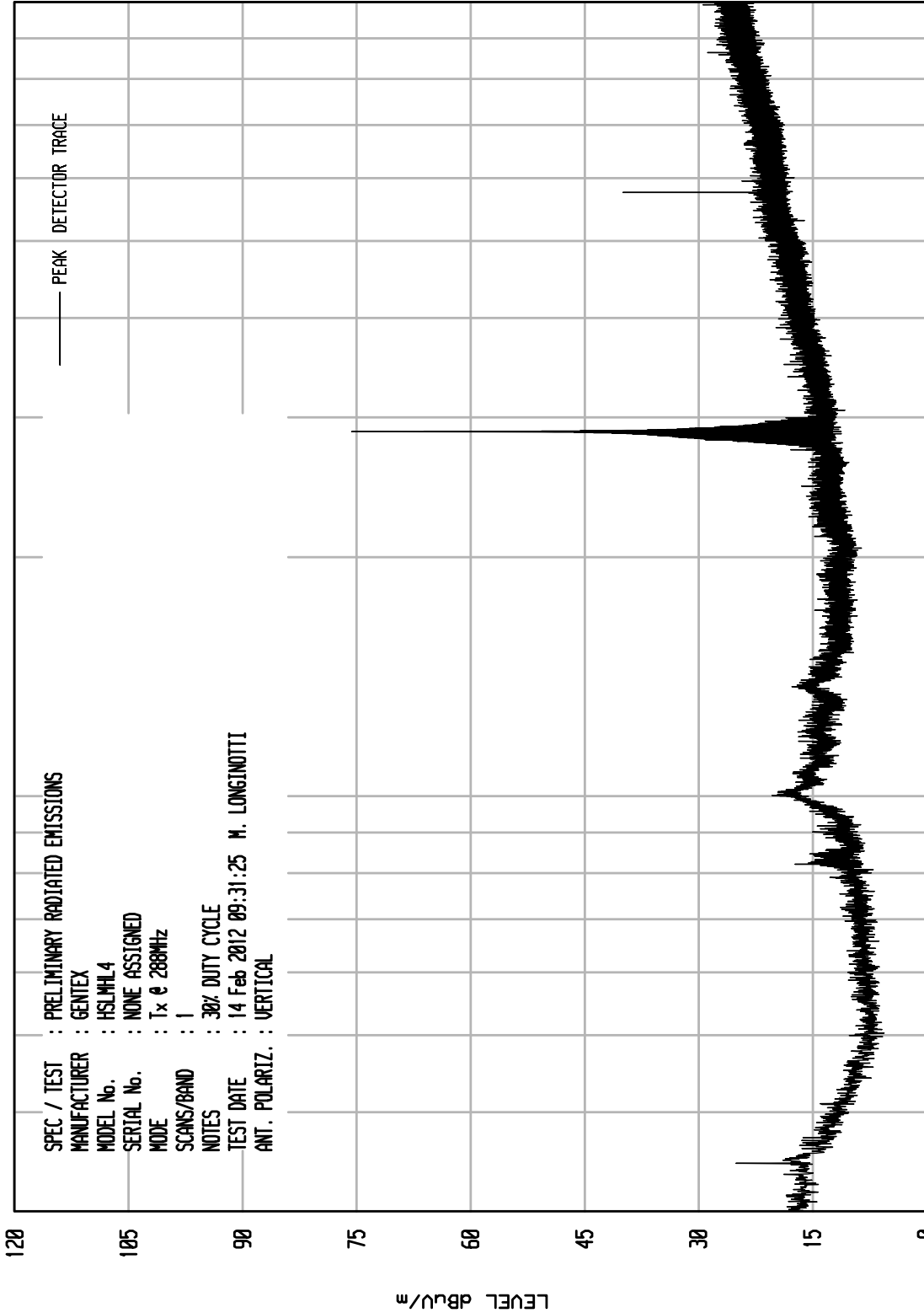
START = 30

ELITE ELECTRONIC ENGINEERING Inc.
Downers Grove, Ill. 60515

UNIU RCU EMI RUN 47

UKA1 04/26/11

PRELIMINARY RADIATED EMISSIONS
 SPEC / TEST :
 MANUFACTURER : GENTEX
 MODEL No. : HSLMHL4
 SERIAL No. : NONE ASSIGNED
 MODE : Tx @ 288MHz
 SCANS/BAND : 1
 NOTES : 30% DUTY CYCLE
 TEST DATE : 14 Feb 2012 09:31:25 M. LONGINOTTI
 ANT. POLARIZ. : VERTICAL



STOP = 1000

FREQUENCY MHz

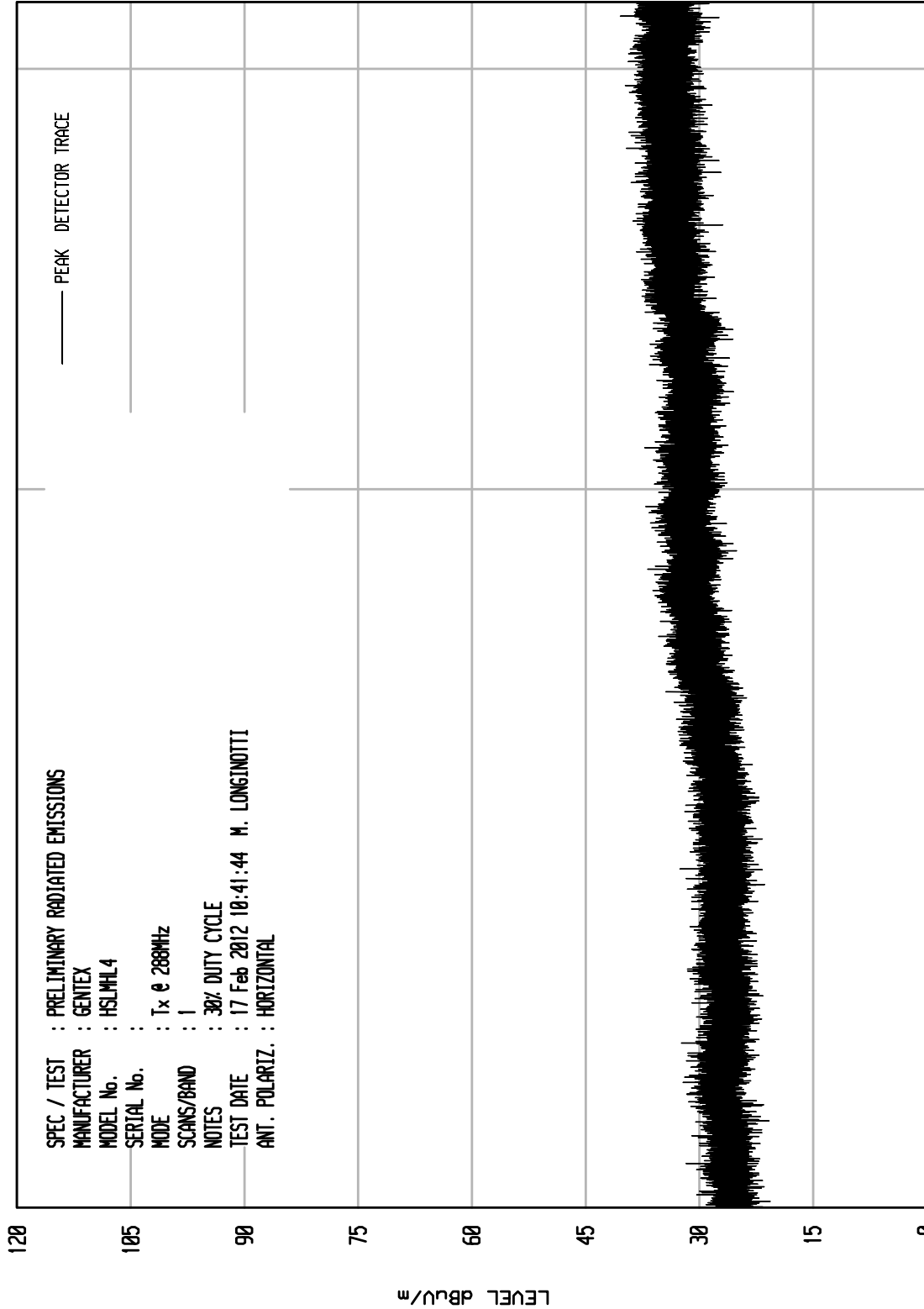
100

START = 30

ELITE ELECTRONIC ENGINEERING Inc.
Downers Grove, Ill. 60515

UNIU RCU EMI RUN 28

UKA1 04/26/11



SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
 MANUFACTURER : GENTEX
 MODEL No. : HSLMHL4
 SERIAL No. :
 MODE : Tx @ 288MHz
 SCANS/BAND : 1
 NOTES : 30% DUTY CYCLE
 TEST DATE : 17 Feb 2012 10:41:44 M. LONGINOTTI
 ANT. POLARIZ. : HORIZONTAL

STOP = 3200

FREQUENCY MHz

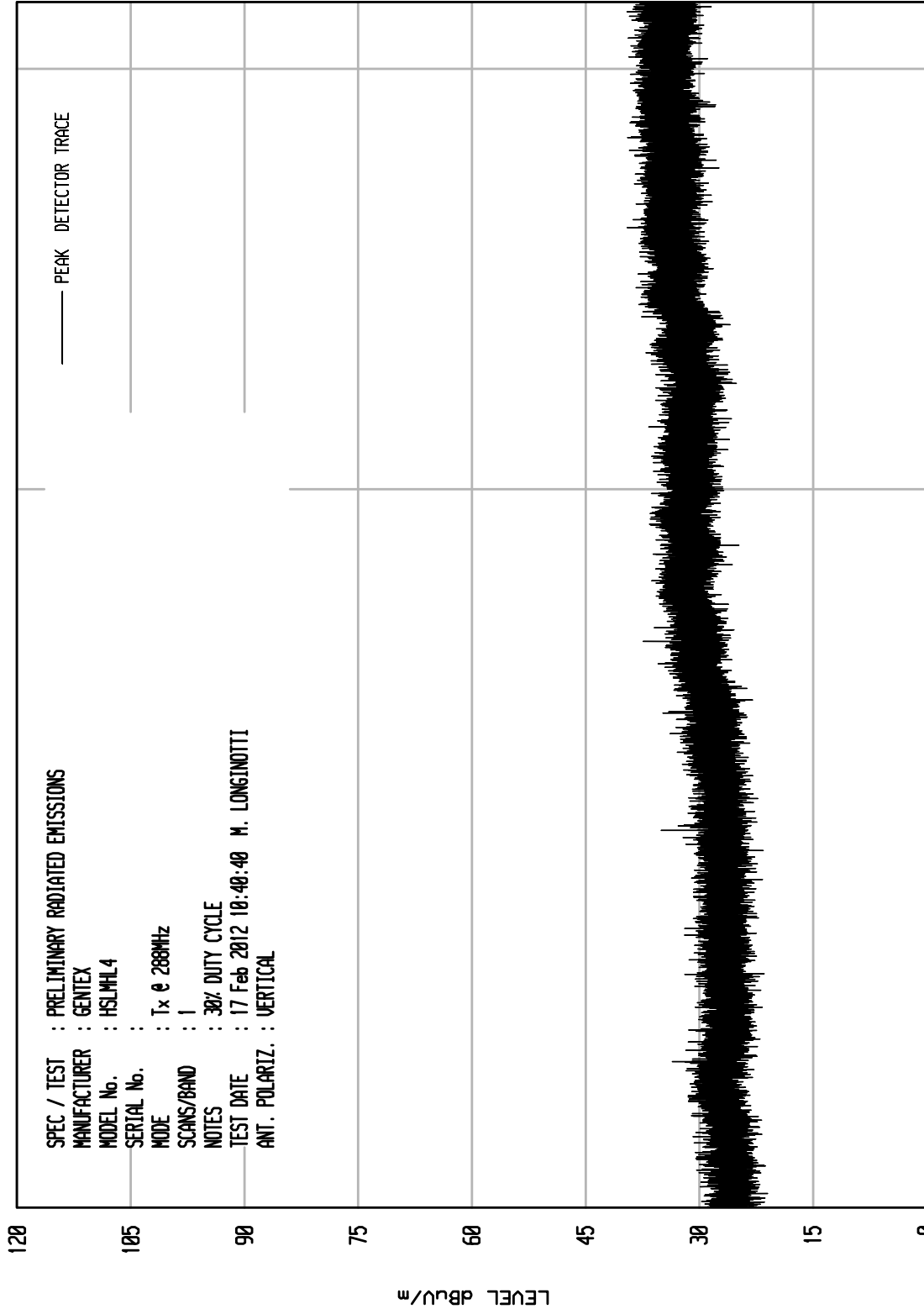
START = 1000

LEVEL dBu/m

ELITE ELECTRONIC ENGINEERING Inc.
Downers Grove, Ill. 60515

UNIU RCU EMI RUN 27

UKA1 04/26/11



SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
 MANUFACTURER : GENTEX
 MODEL No. : HSLMHL4
 SERIAL No. :
 MODE : Tx @ 288MHz
 SCANS/BAND : 1
 NOTES : 30% DUTY CYCLE
 TEST DATE : 17 Feb 2012 10:40:40 M. LONGINOTTI
 ANT. POLARIZ. : VERTICAL

STOP = 3200

FREQUENCY MHz

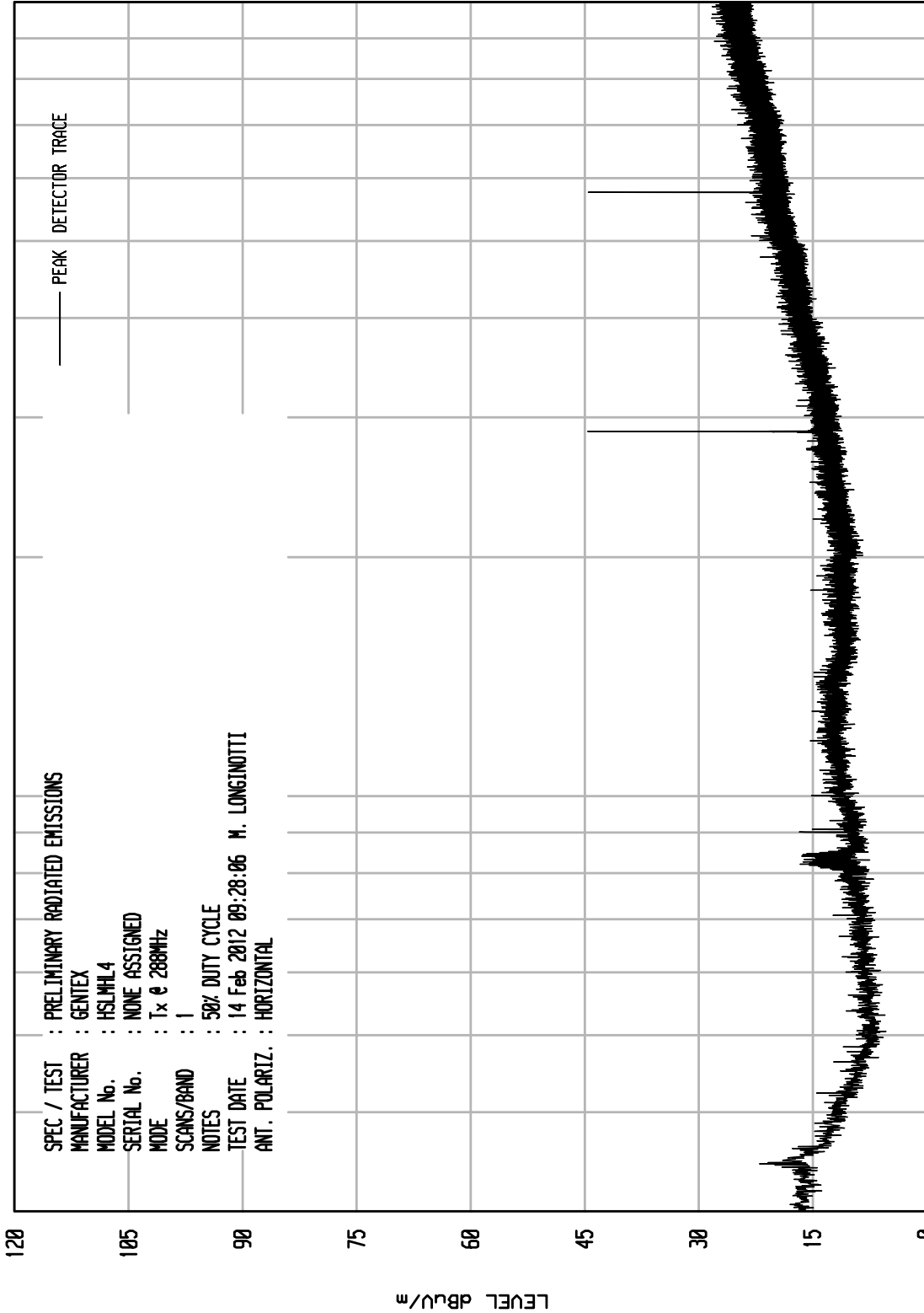
START = 1000

ELITE ELECTRONIC ENGINEERING Inc.
Downers Grove, Ill. 60515

UNIT: RCU ENI RUN 45

UKA1 04/26/11

PRELIMINARY RADIATED EMISSIONS
 SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
 MANUFACTURER : GENTEX
 MODEL No. : HSLMHL4
 SERIAL No. : NONE ASSIGNED
 MODE : Tx @ 288MHz
 SCANS/BAND : 1
 NOTES : 50% DUTY CYCLE
 TEST DATE : 14 Feb 2012 09:28:06 M. LONGINOTTI
 ANT. POLARIZ. : HORIZONTAL



STOP = 1000

FREQUENCY MHz

100

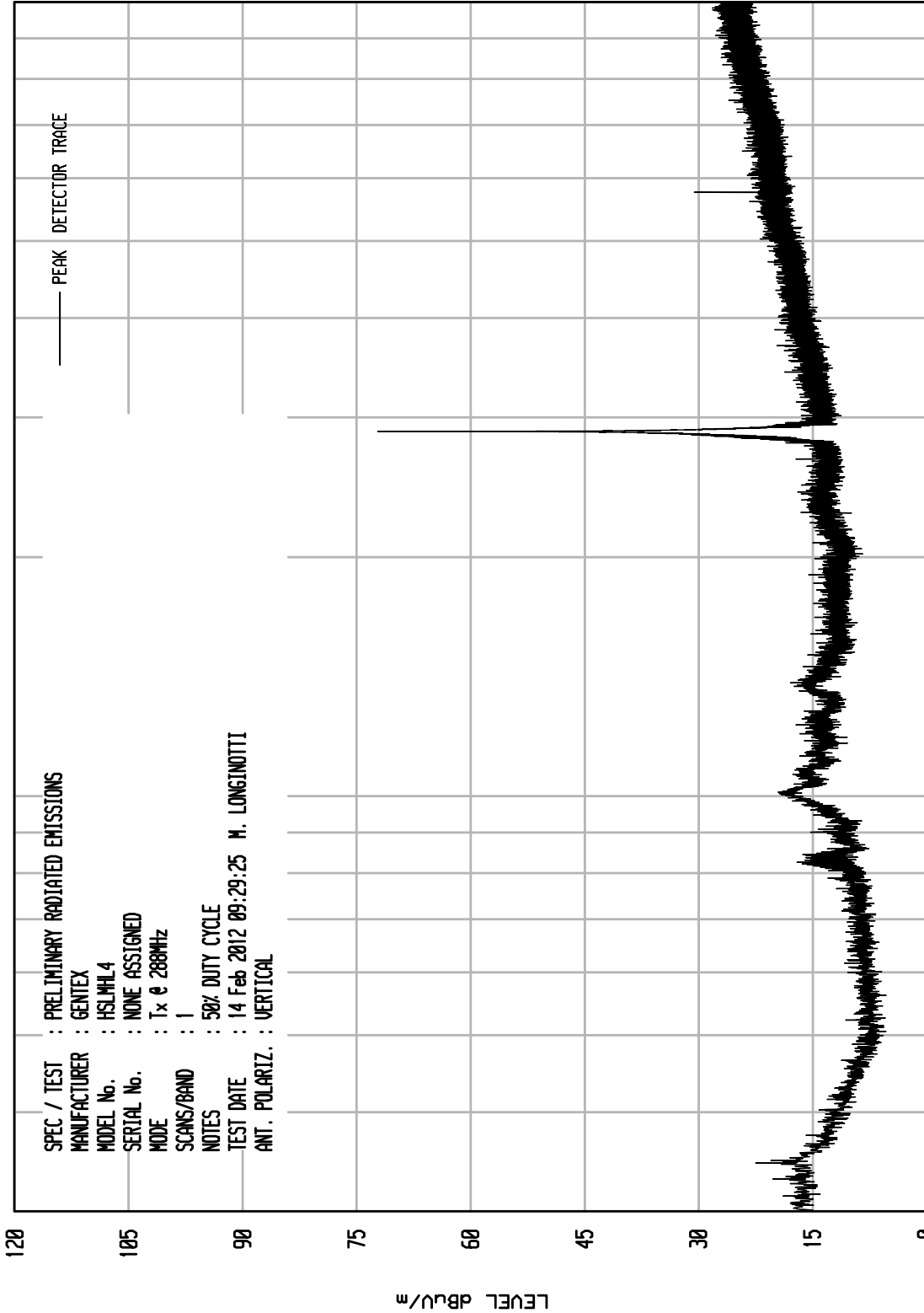
START = 30

ELITE ELECTRONIC ENGINEERING Inc.
Downers Grove, Ill. 60515

UNITU RCU ENI RUN 46

UKA1 04/26/11

PRELIMINARY RADIATED EMISSIONS
 SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
 MANUFACTURER : GENTEX
 MODEL No. : HSLMHL4
 SERIAL No. : NONE ASSIGNED
 MODE : Tx @ 288MHz
 SCANS/BAND : 1
 NOTES : 50% DUTY CYCLE
 TEST DATE : 14 Feb 2012 09:29:25 M. LONGINOTTI
 ANT. POLARIZ. : VERTICAL



STOP = 1000

FREQUENCY MHz

100

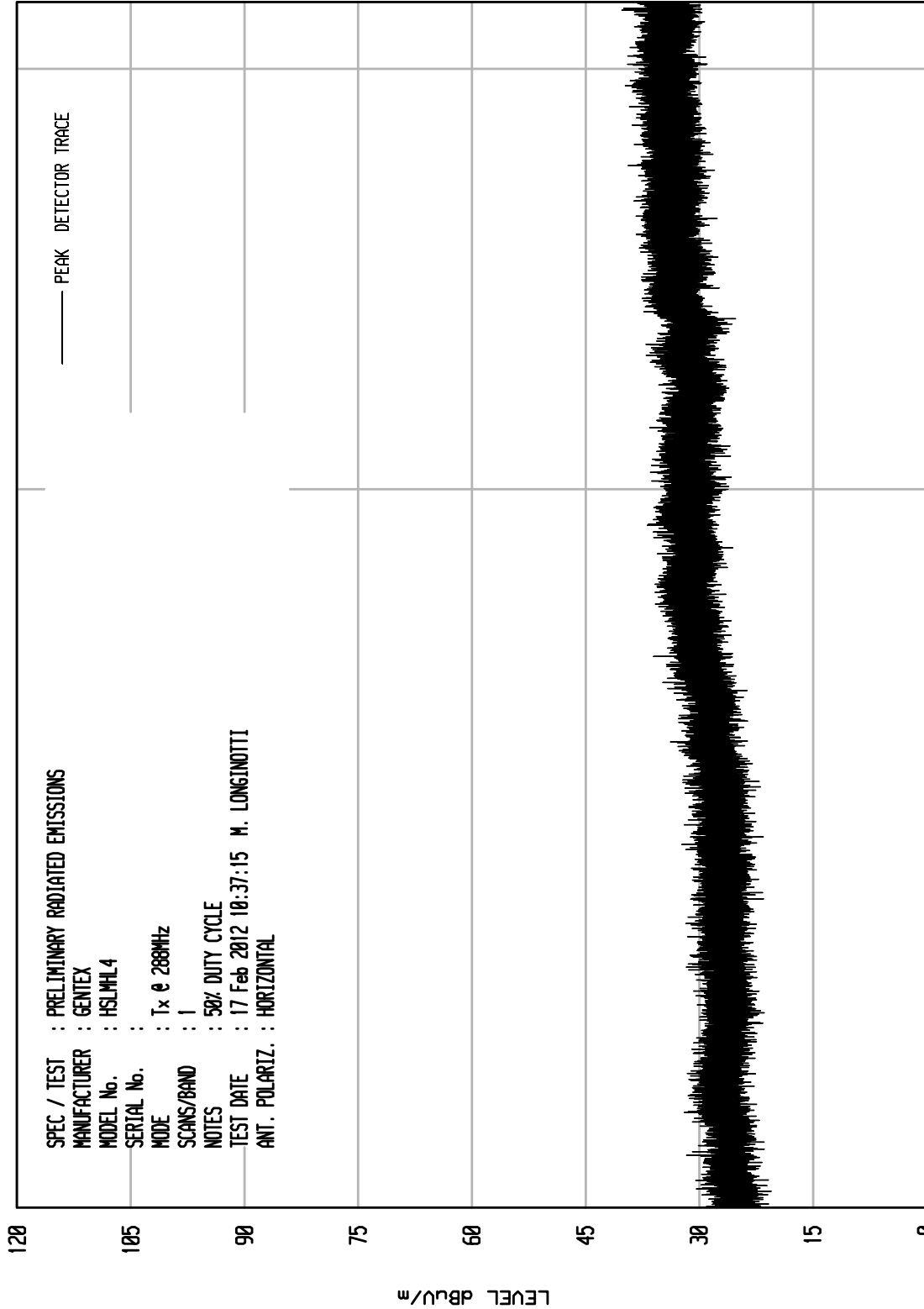
START = 30

LEVEL dBu/m

ELITE ELECTRONIC ENGINEERING Inc.
Downers Grove, Ill. 60515

UNIU RCU EMI RUN 25

UKA1 04/26/11



SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
 MANUFACTURER : GENTEX
 MODEL No. : HSLMHL4
 SERIAL No. :
 MODE : Tx @ 288MHz
 SCANS/BAND : 1
 NOTES : 50% DUTY CYCLE
 TEST DATE : 17 Feb 2012 10:37:15 M. LONGINOTTI
 ANT. POLARIZ. : HORIZONTAL

STOP = 3200

FREQUENCY MHz

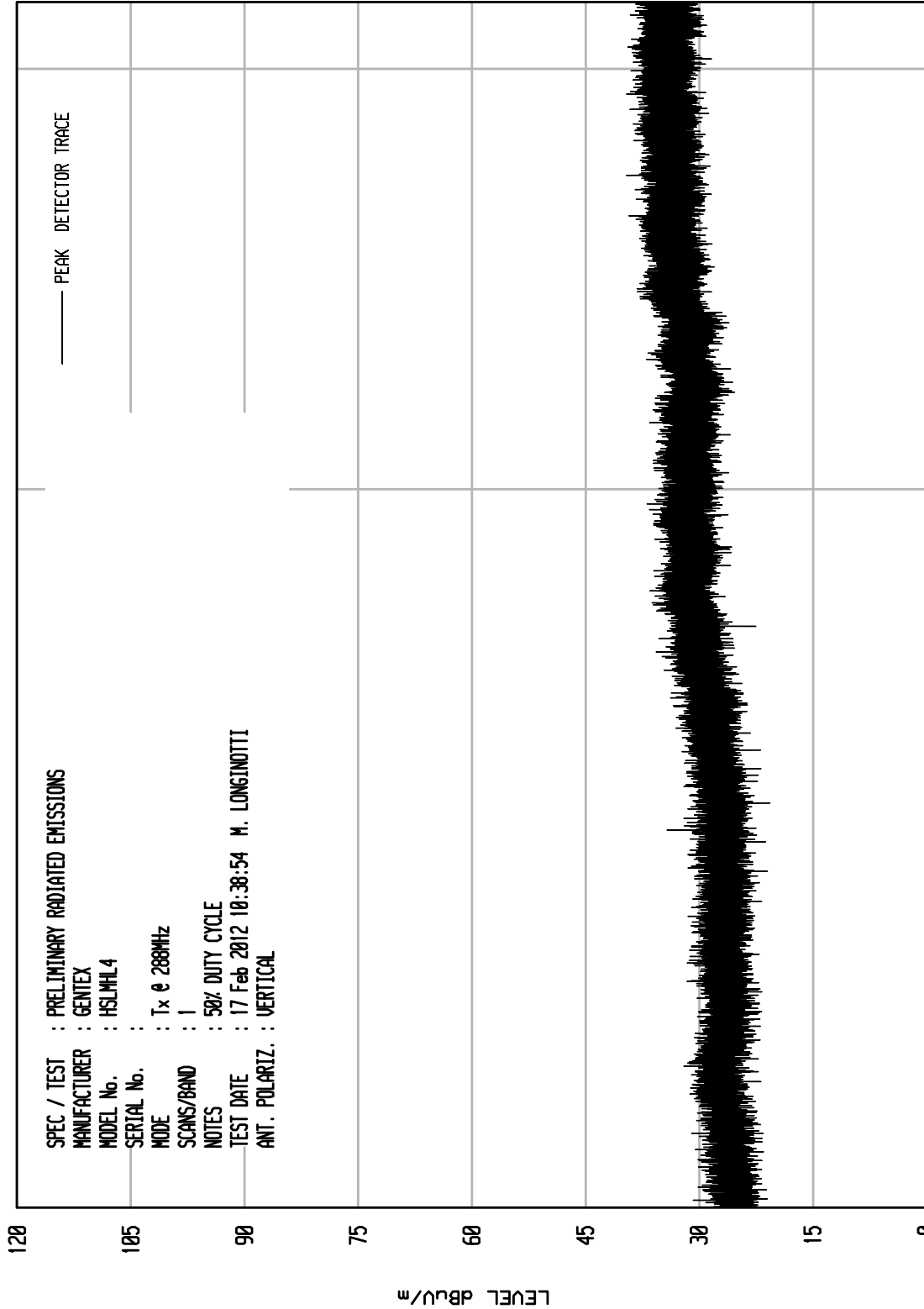
START = 1000

LEVEL dBu/m

ELITE ELECTRONIC ENGINEERING Inc.
Downers Grove, Ill. 60515

UNIU RCU EMI RUN 26

UKA1 04/26/11



SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
 MANUFACTURER : GENTEX
 MODEL No. : HSLMHL4
 SERIAL No. :
 MODE : Tx @ 288MHz
 SCANS/BAND : 1
 NOTES : 50% DUTY CYCLE
 TEST DATE : 17 Feb 2012 10:38:54 M. LONGINOTTI
 ANT. POLARIZ. : VERTICAL

STOP = 3200

FREQUENCY MHz

START = 1000

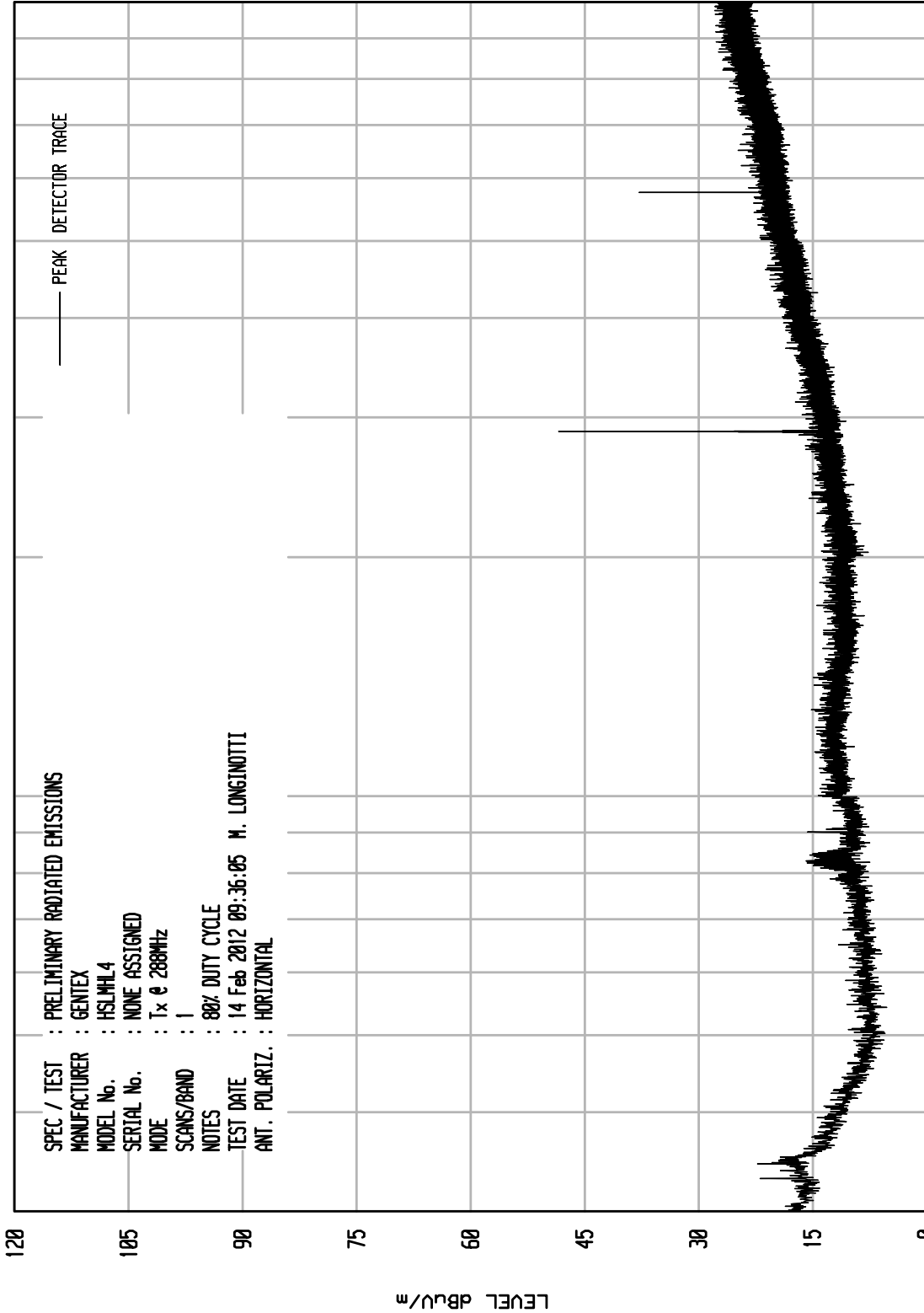
LEVEL dBu/m

ELITE ELECTRONIC ENGINEERING Inc.
Downers Grove, Ill. 60515

UNITU RCU ENH RUN 49

UKA1 04/26/11

PRELIMINARY RADIATED EMISSIONS
 SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
 MANUFACTURER : GENTEX
 MODEL No. : HSLMHL4
 SERIAL No. : NONE ASSIGNED
 MODE : Tx @ 288MHz
 SCANS/BAND : 1
 NOTES : 80% DUTY CYCLE
 TEST DATE : 14 Feb 2012 09:36:05 M. LONGINOTTI
 ANT. POLARIZ. : HORIZONTAL



STOP = 1000

FREQUENCY MHz

100

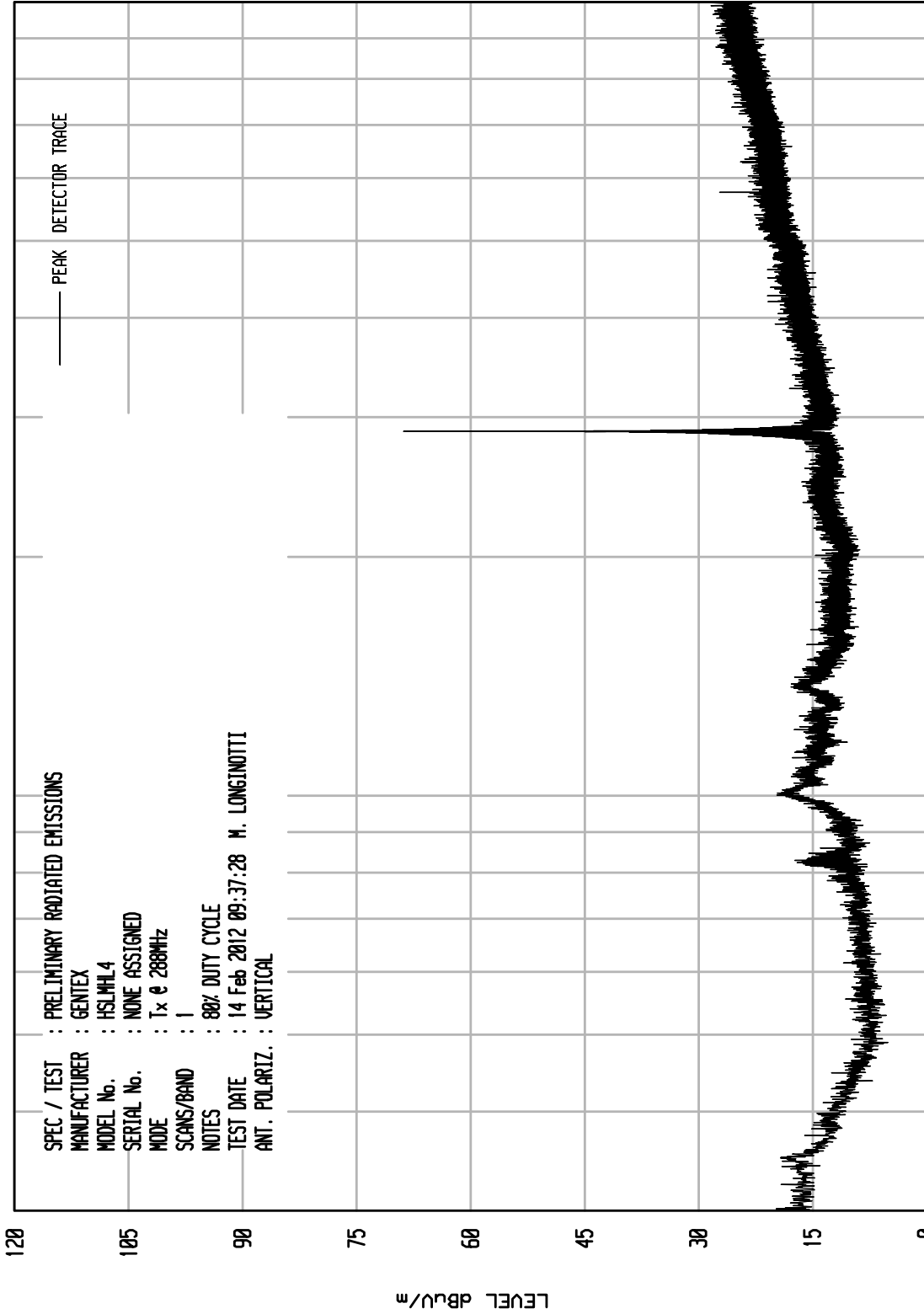
START = 30

ELITE ELECTRONIC ENGINEERING Inc.
Downers Grove, Ill. 60515

UNIU RCU EMI RUN 50

UKA1 04/26/11

PRELIMINARY RADIATED EMISSIONS
 MANUFACTURER : GENTEX
 MODEL No. : HSLMHL4
 SERIAL No. : NONE ASSIGNED
 MODE : Tx @ 288MHz
 SCANS/BAND : 1
 NOTES : 80% DUTY CYCLE
 TEST DATE : 14 Feb 2012 09:37:28 M. LONGINOTTI
 ANT. POLARIZ. : VERTICAL



120

105

90

75

60

45

30

15

0

LEVEL dBu/m

100

FREQUENCY MHz

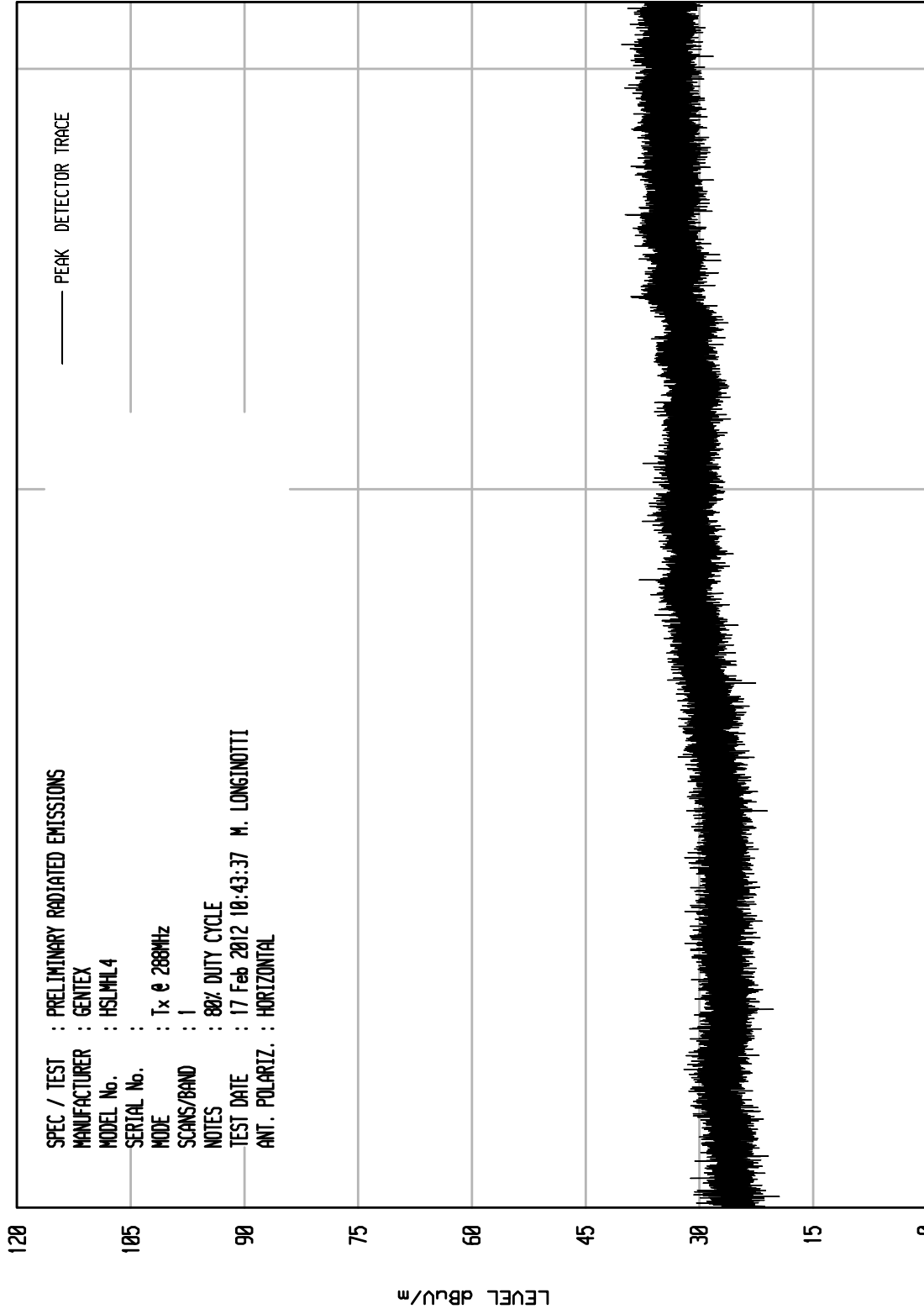
START = 30

STOP = 1000

ELITE ELECTRONIC ENGINEERING Inc.
Downers Grove, Ill. 60515

UNIU RCU EMI RUN 29

UKA1 04/26/11



SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
 MANUFACTURER : GENTEX
 MODEL No. : HSLMHL4
 SERIAL No. :
 MODE : Tx @ 288MHz
 SCANS/BAND : 1
 NOTES : 80% DUTY CYCLE
 TEST DATE : 17 Feb 2012 10:43:37 M. LONGINOTTI
 ANT. POLARIZ. : HORIZONTAL

STOP = 3200

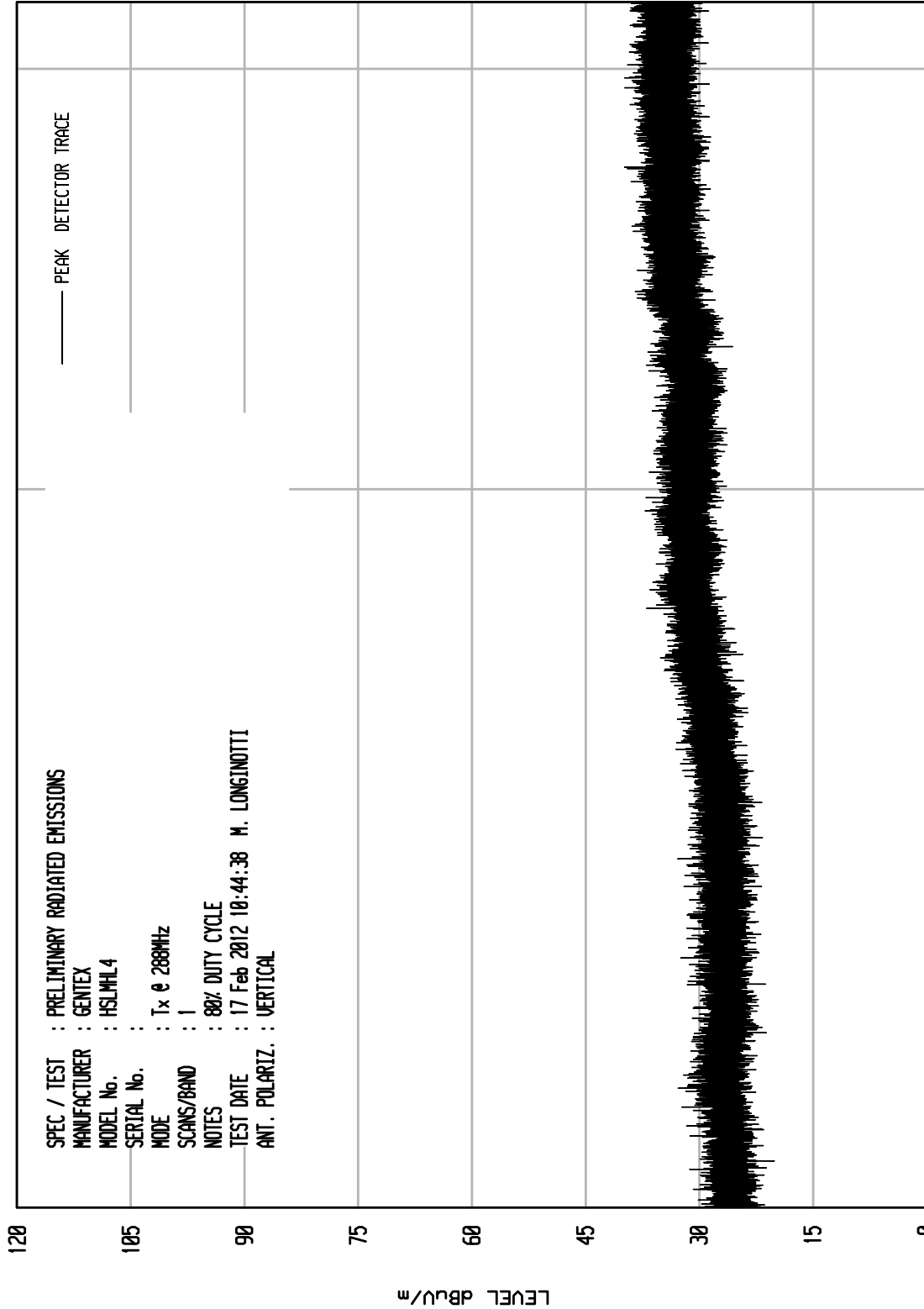
FREQUENCY MHz

START = 1000

ELITE ELECTRONIC ENGINEERING Inc.
Downers Grove, Ill. 60515

UNIU RCU EMI RUN 30

UKA1 04/26/11



SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
 MANUFACTURER : GENTEX
 MODEL No. : HSLMHL4
 SERIAL No. :
 MODE : Tx @ 288MHz
 SCANS/BAND : 1
 NOTES : 80% DUTY CYCLE
 TEST DATE : 17 Feb 2012 10:44:38 M. LONGINOTTI
 ANT. POLARIZ. : VERTICAL

STOP = 3200

FREQUENCY MHz

START = 1000

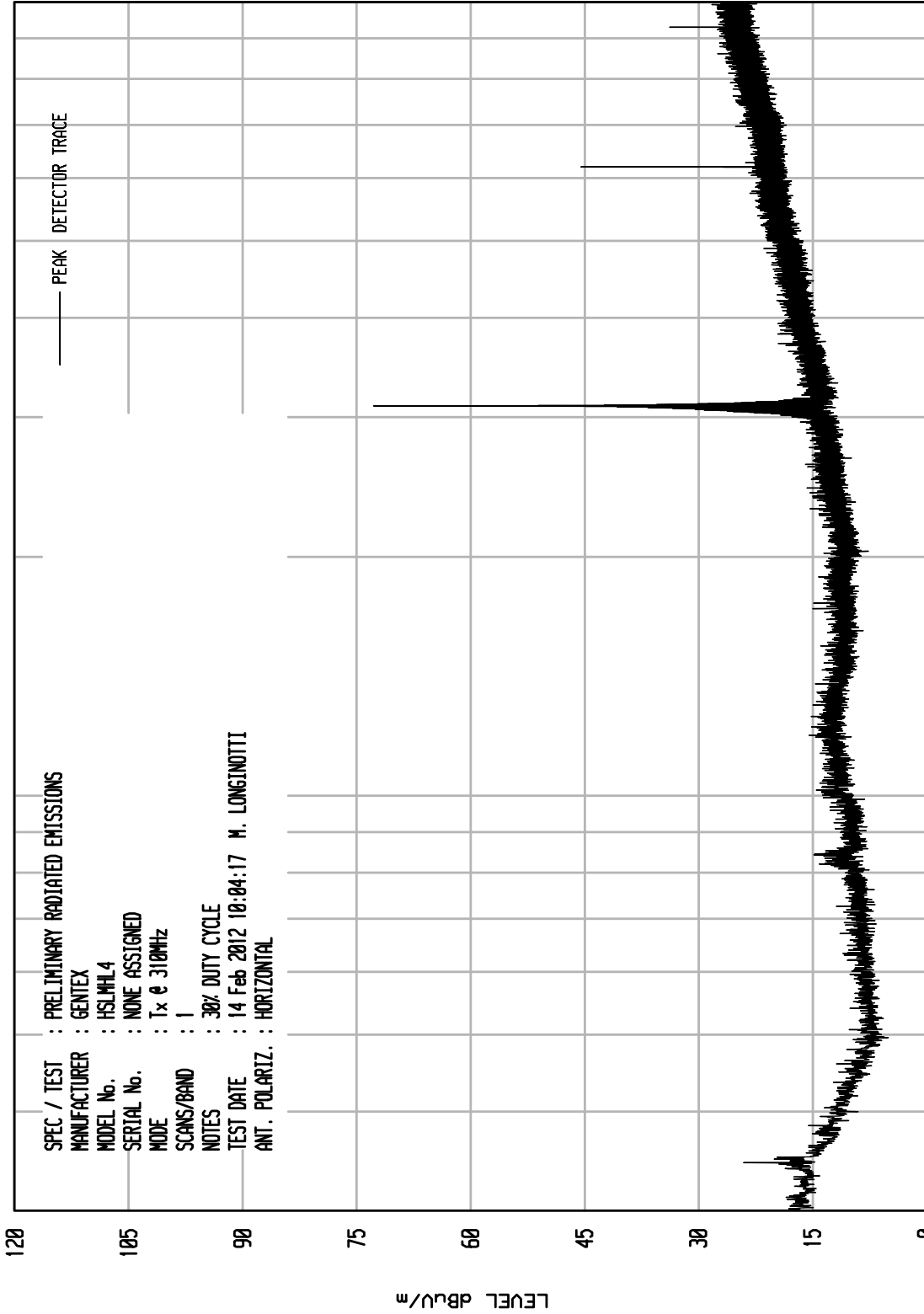
LEVEL dBu/m

ELITE ELECTRONIC ENGINEERING Inc.
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UNIU RCU ENI RUN 52

UKA1 04/26/11

PRELIMINARY RADIATED EMISSIONS
 MANUFACTURER : GENTEX
 MODEL No. : HSLMHL4
 SERIAL No. : NONE ASSIGNED
 MODE : Tx @ 310MHz
 SCANS/BAND : 1
 NOTES : 30% DUTY CYCLE
 TEST DATE : 14 Feb 2012 10:04:17 M. LONGINOTTI
 ANT. POLARIZ. : HORIZONTAL



STOP = 1000

FREQUENCY MHz

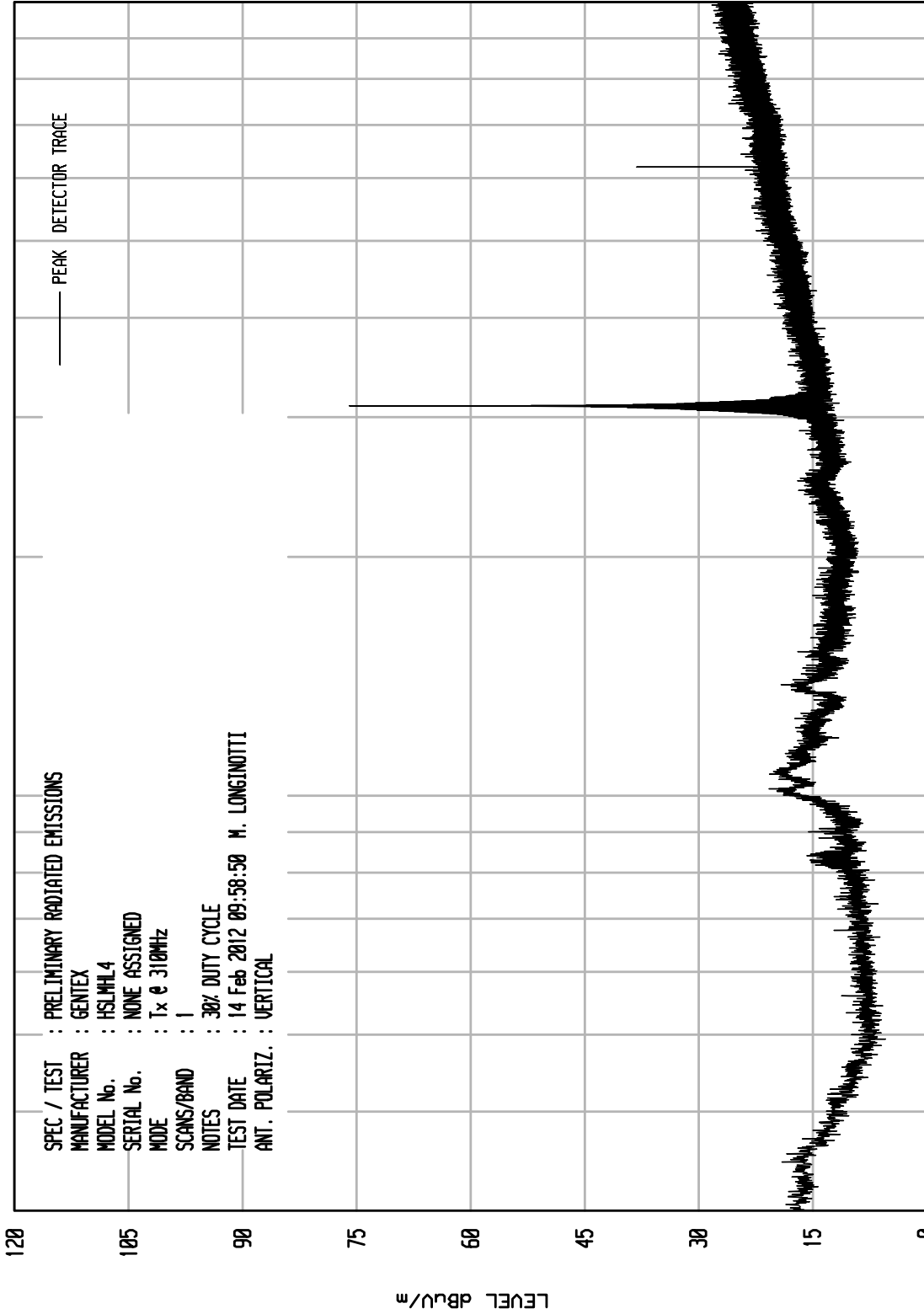
START = 30

ELITE ELECTRONIC ENGINEERING Inc.
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UNIU RCU EMI RUN 51

UKA1 04/26/11

SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
 MANUFACTURER : GENTEX
 MODEL No. : HSLMHL4
 SERIAL No. : NONE ASSIGNED
 MODE : Tx @ 310MHz
 SCANS/BAND : 1
 NOTES : 30% DUTY CYCLE
 TEST DATE : 14 Feb 2012 09:58:50 M. LONGINOTTI
 ANT. POLARIZ. : VERTICAL



STOP = 1000

FREQUENCY MHz

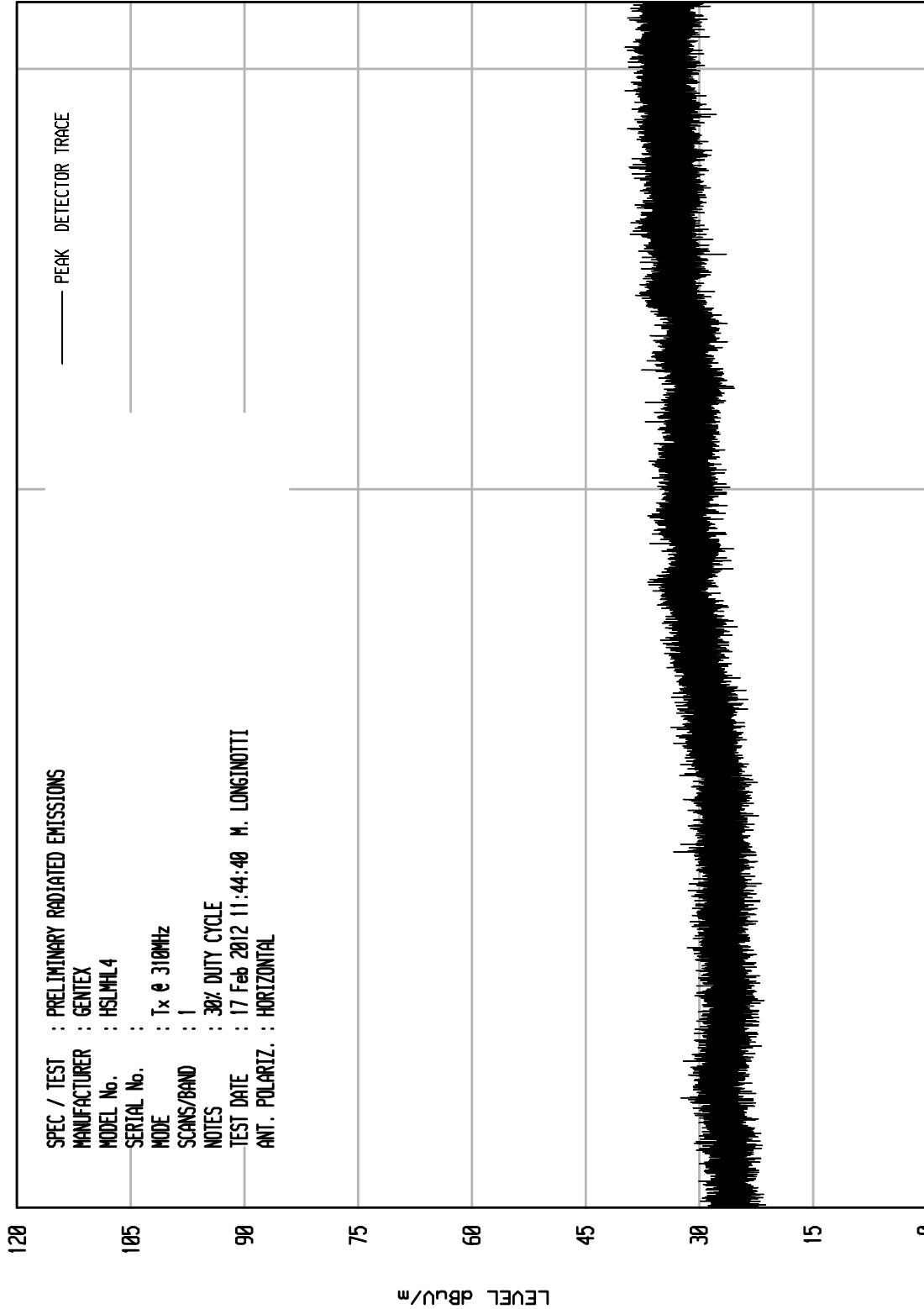
100

START = 30

ELITE ELECTRONIC ENGINEERING Inc.
Downers Grove, Ill. 60515

UNIU RCU EMI RUN 32

UKA1 04/26/11



SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
 MANUFACTURER : GENTEX
 MODEL No. : HSLMHL4
 SERIAL No. :
 MODE : Tx @ 310MHz
 SCANS/BAND : 1
 NOTES : 30% DUTY CYCLE
 TEST DATE : 17 Feb 2012 11:44:40 M. LONGINOTTI
 ANT. POLARIZ. : HORIZONTAL

STOP = 3200

FREQUENCY MHz

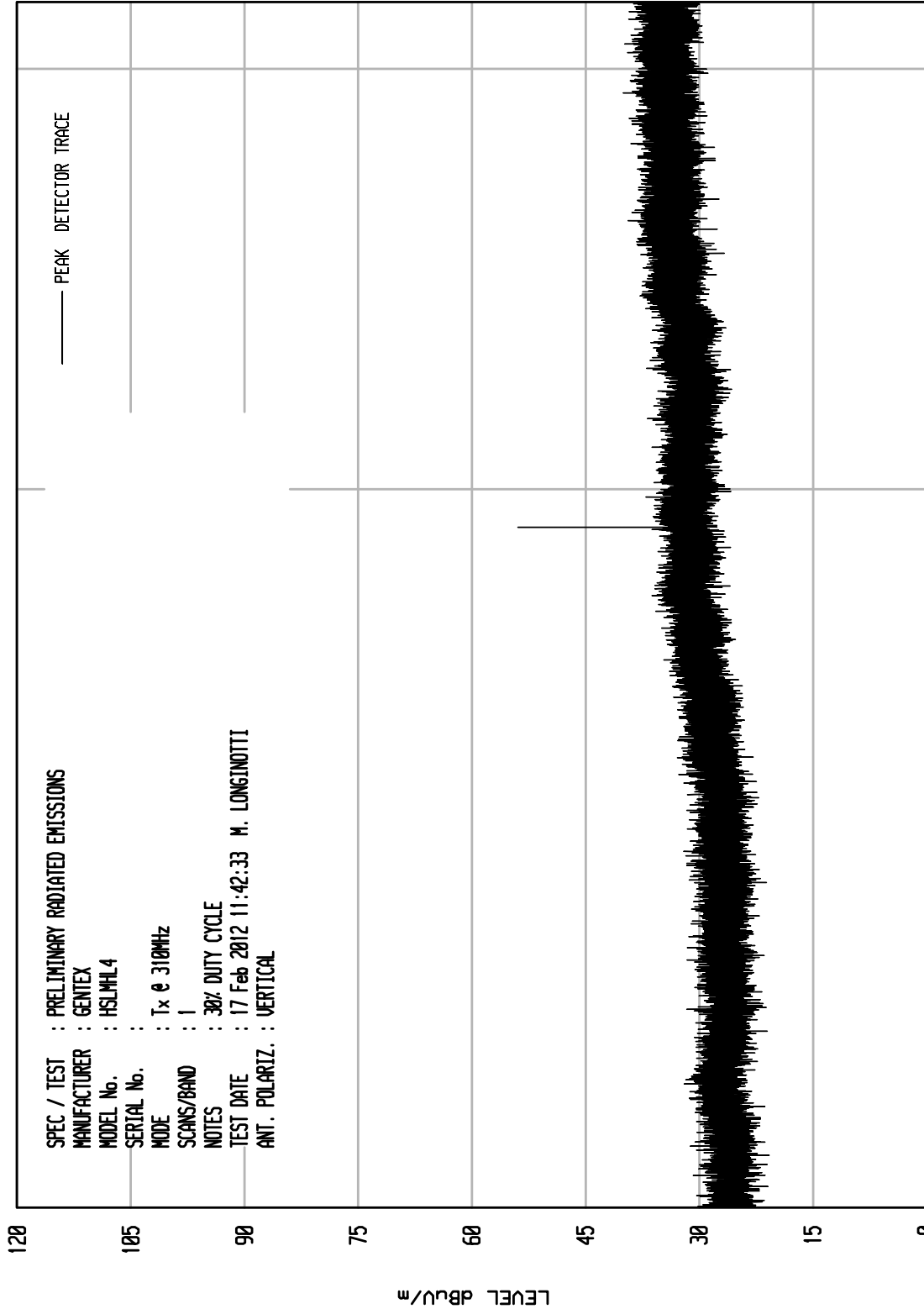
START = 1000

LEVEL dBu/m

ELITE ELECTRONIC ENGINEERING Inc.
Downers Grove, Ill. 60515

UNIU RCU EMI RUN 31

UKA1 04/26/11



SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
 MANUFACTURER : GENTEX
 MODEL No. : HSLMHL4
 SERIAL No. :
 MODE : Tx @ 310MHz
 SCANS/BAND : 1
 NOTES : 30% DUTY CYCLE
 TEST DATE : 17 Feb 2012 11:42:33 M. LONGINOTTI
 ANT. POLARIZ. : VERTICAL

STOP = 3200

FREQUENCY MHz

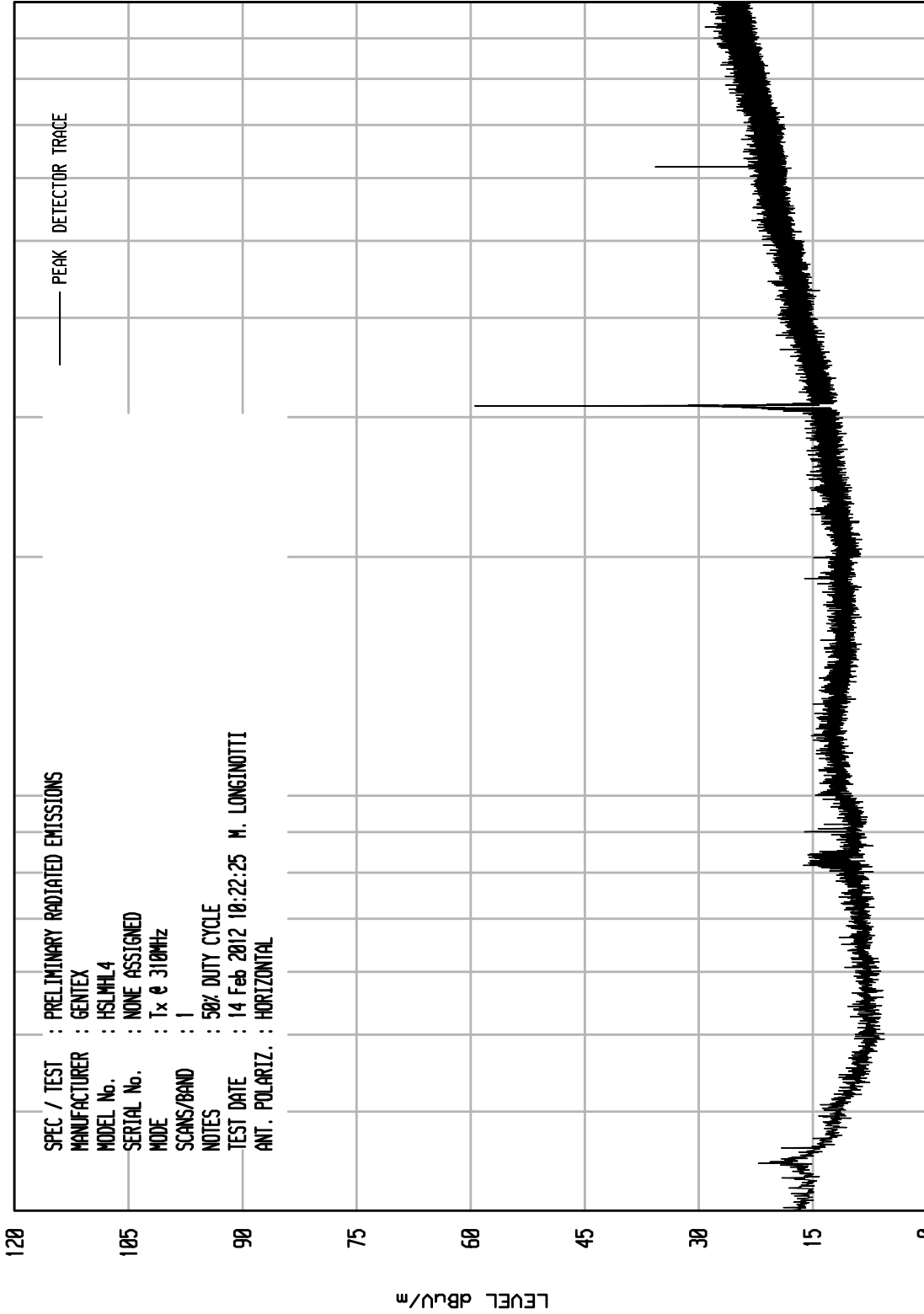
START = 1000

ELITE ELECTRONIC ENGINEERING Inc.
Downers Grove, Ill. 60515

UNIT: RCU ENI RUN 53

UKA1 04/26/11

PRELIMINARY RADIATED EMISSIONS
 SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
 MANUFACTURER : GENTEX
 MODEL No. : HSLMHL4
 SERIAL No. : NONE ASSIGNED
 MODE : Tx @ 310MHz
 SCANS/BAND : 1
 NOTES : 50% DUTY CYCLE
 TEST DATE : 14 Feb 2012 10:22:25 M. LONGINOTTI
 ANT. POLARIZ. : HORIZONTAL



STOP = 1000

FREQUENCY MHz

100

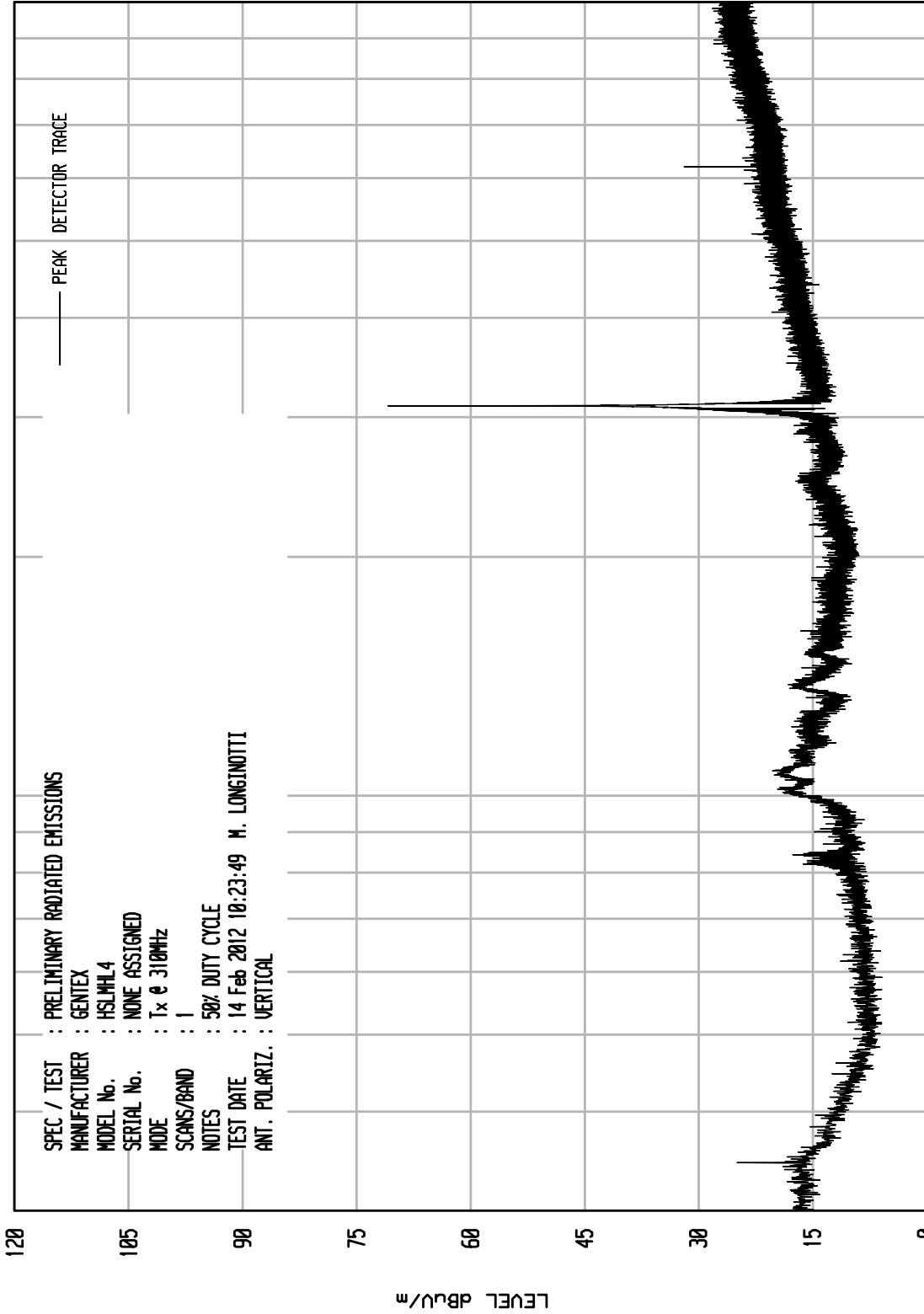
START = 30

ELITE ELECTRONIC ENGINEERING Inc.
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UNIU RCU EMI RUN 54

UKA1 04/26/11

PRELIMINARY RADIATED EMISSIONS
 SPEC / TEST : GENTEX
 MANUFACTURER : HSLMHL4
 MODEL No. : NONE ASSIGNED
 SERIAL No. : Tx @ 310MHz
 MODE : 1
 SCANS/BAND : 50% DUTY CYCLE
 NOTES : 14 Feb 2012 10:23:49 M. LONGINOTTI
 TEST DATE : VERTICAL
 ANT. POLARIZ. :



STOP = 1000

FREQUENCY MHz

100

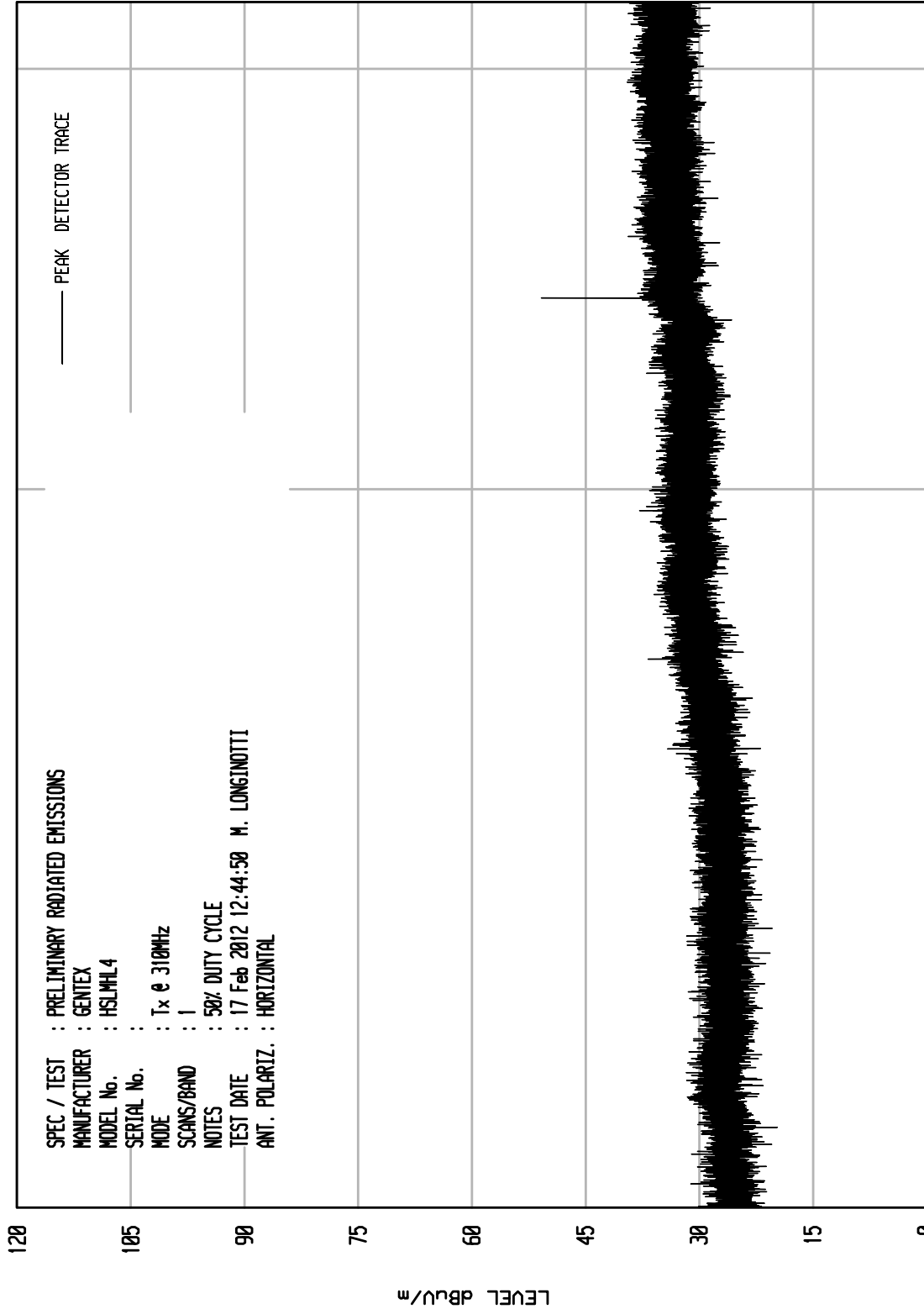
START = 30

LEVEL dBu/m

ELITE ELECTRONIC ENGINEERING Inc.
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UNIU RCU EMI RUN 33

UKA1 04/26/11

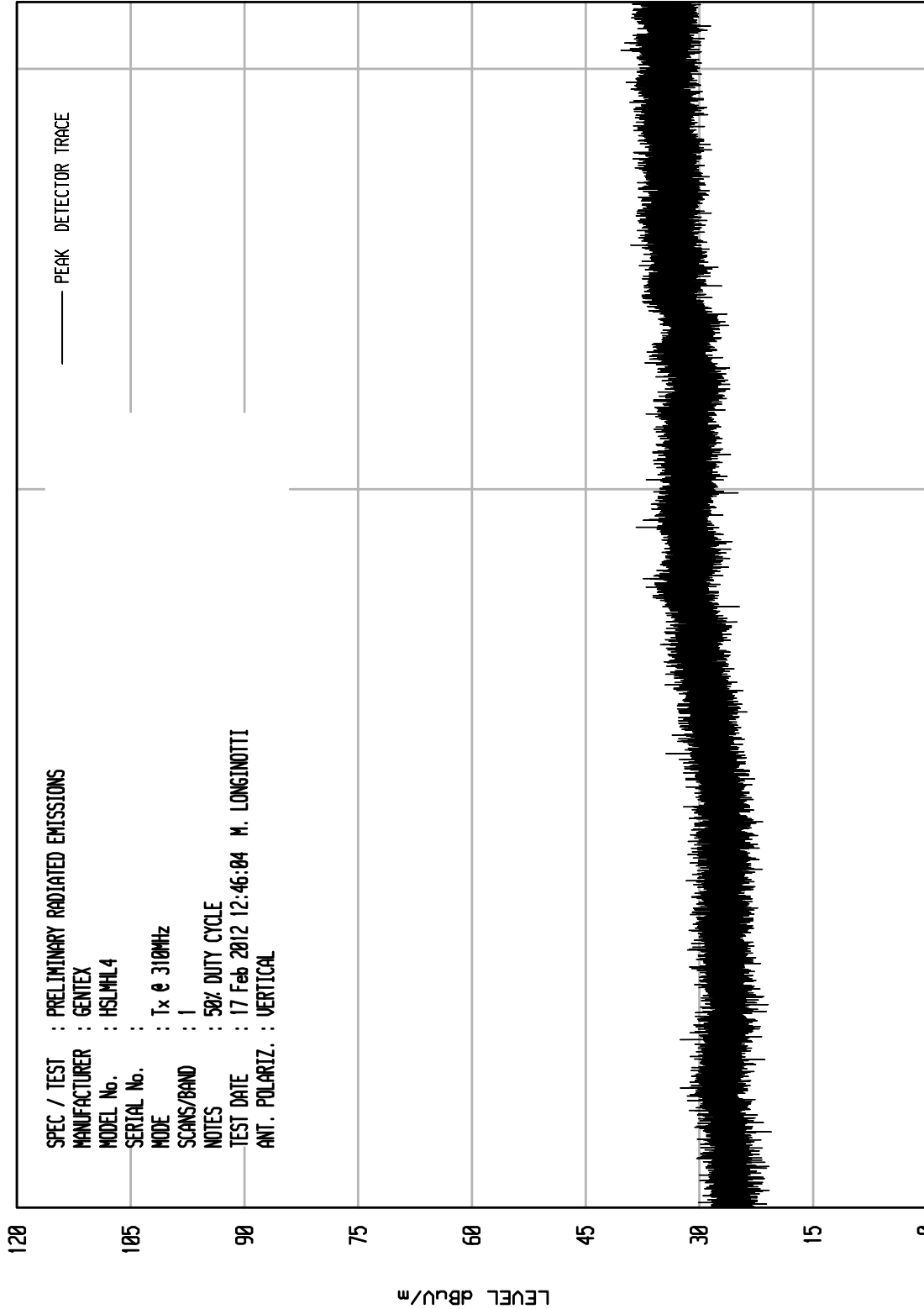


SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
 MANUFACTURER : GENTEX
 MODEL No. : HSLMHL4
 SERIAL No. :
 MODE : Tx @ 310MHz
 SCANS/BAND : 1
 NOTES : 50% DUTY CYCLE
 TEST DATE : 17 Feb 2012 12:44:50 M. LONGINOTTI
 ANT. POLARIZ. : HORIZONTAL

ELITE ELECTRONIC ENGINEERING Inc.
Downers Grove, Ill. 60515

UNIU RCU EMI RUN 34

UKA1 04/26/11



SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
 MANUFACTURER : GENTEX
 MODEL No. : HSLMHL4
 SERIAL No. :
 MODE : Tx @ 310MHz
 SCANS/BAND : 1
 NOTES : 50% DUTY CYCLE
 TEST DATE : 17 Feb 2012 12:46:04 M. LONGINOTTI
 ANT. POLARIZ. : VERTICAL

STOP = 3200

FREQUENCY MHz

START = 1000

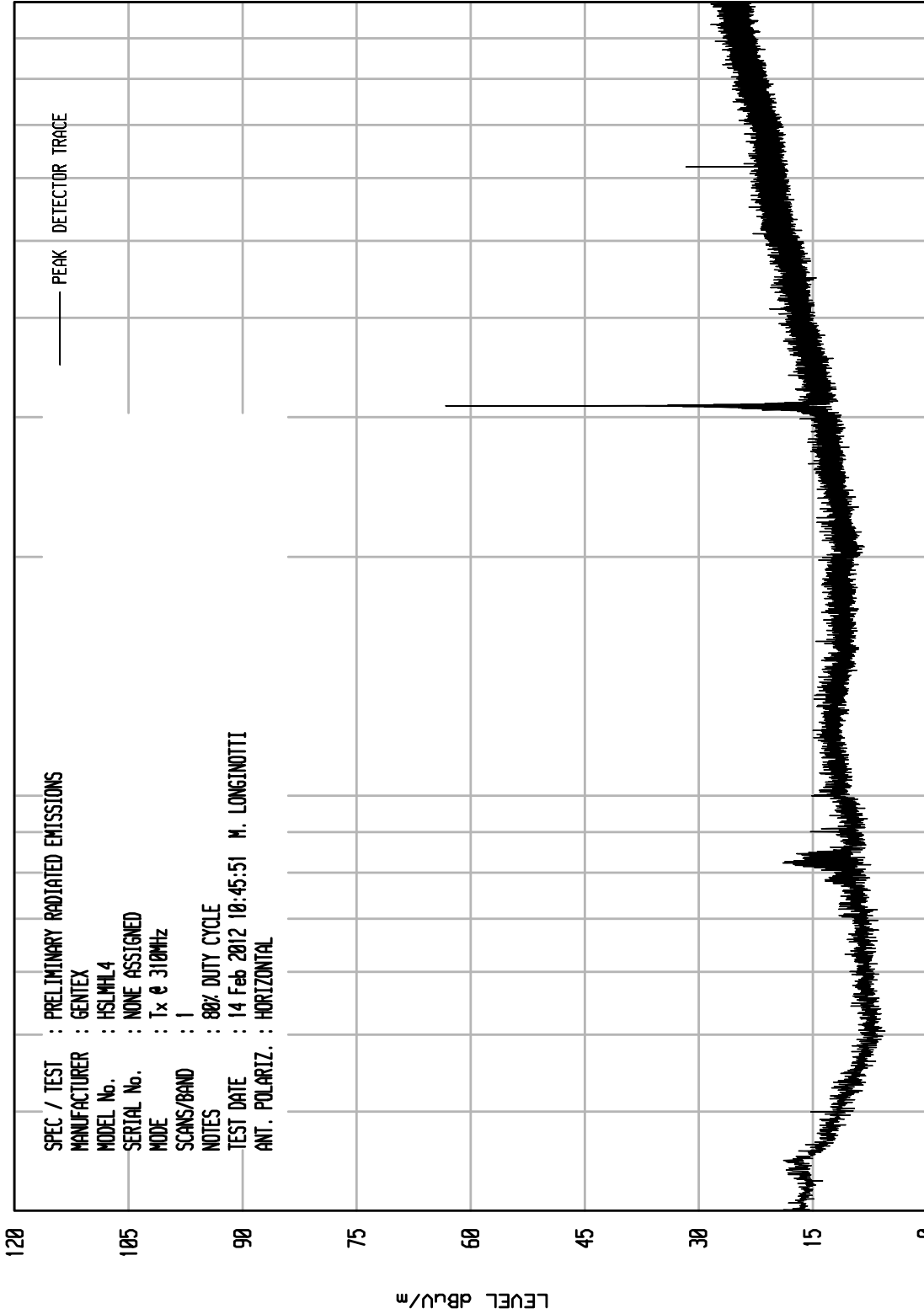
LEVEL dBu/m

ELITE ELECTRONIC ENGINEERING Inc.
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UNIU RCU EMI RUN 56

UKA1 04/26/11

PRELIMINARY RADIATED EMISSIONS
 SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
 MANUFACTURER : GENTEX
 MODEL No. : HSLMHL4
 SERIAL No. : NONE ASSIGNED
 MODE : Tx @ 310MHz
 SCANS/BAND : 1
 NOTES : 80% DUTY CYCLE
 TEST DATE : 14 Feb 2012 10:45:51 M. LONGINOTTI
 ANT. POLARIZ. : HORIZONTAL



STOP = 1000

FREQUENCY MHz

100

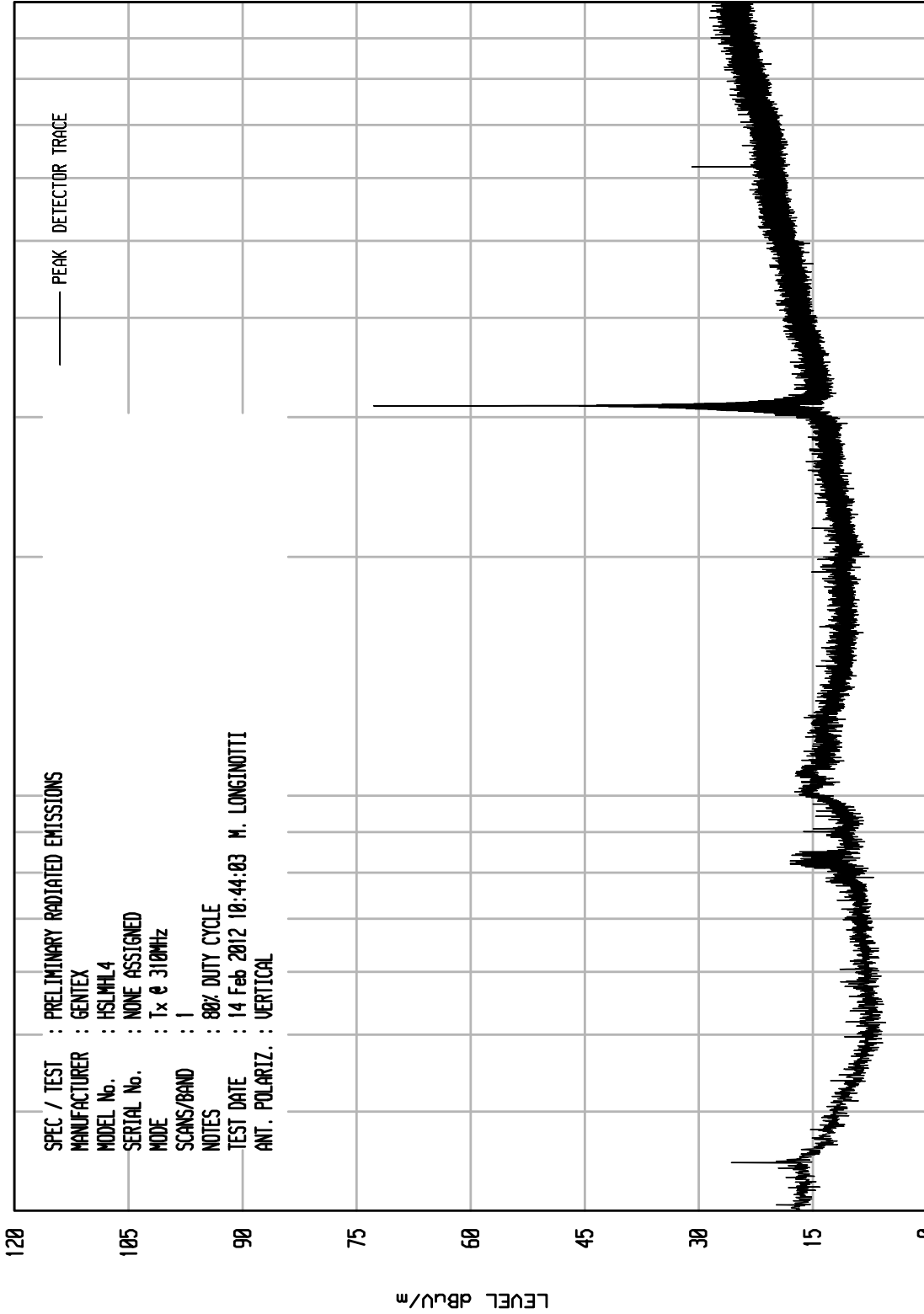
START = 30

ELITE ELECTRONIC ENGINEERING Inc.
Downers Grove, Ill. 60515

UNIT: RCU ENI RUN 55

UKA1 04/26/11

PRELIMINARY RADIATED EMISSIONS
 SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
 MANUFACTURER : GENTEX
 MODEL No. : HSLMHL4
 SERIAL No. : NONE ASSIGNED
 MODE : Tx @ 310MHz
 SCANS/BAND : 1
 NOTES : 80% DUTY CYCLE
 TEST DATE : 14 Feb 2012 10:44:03 M. LONGINOTTI
 ANT. POLARIZ. : VERTICAL



STOP = 1000

FREQUENCY MHz

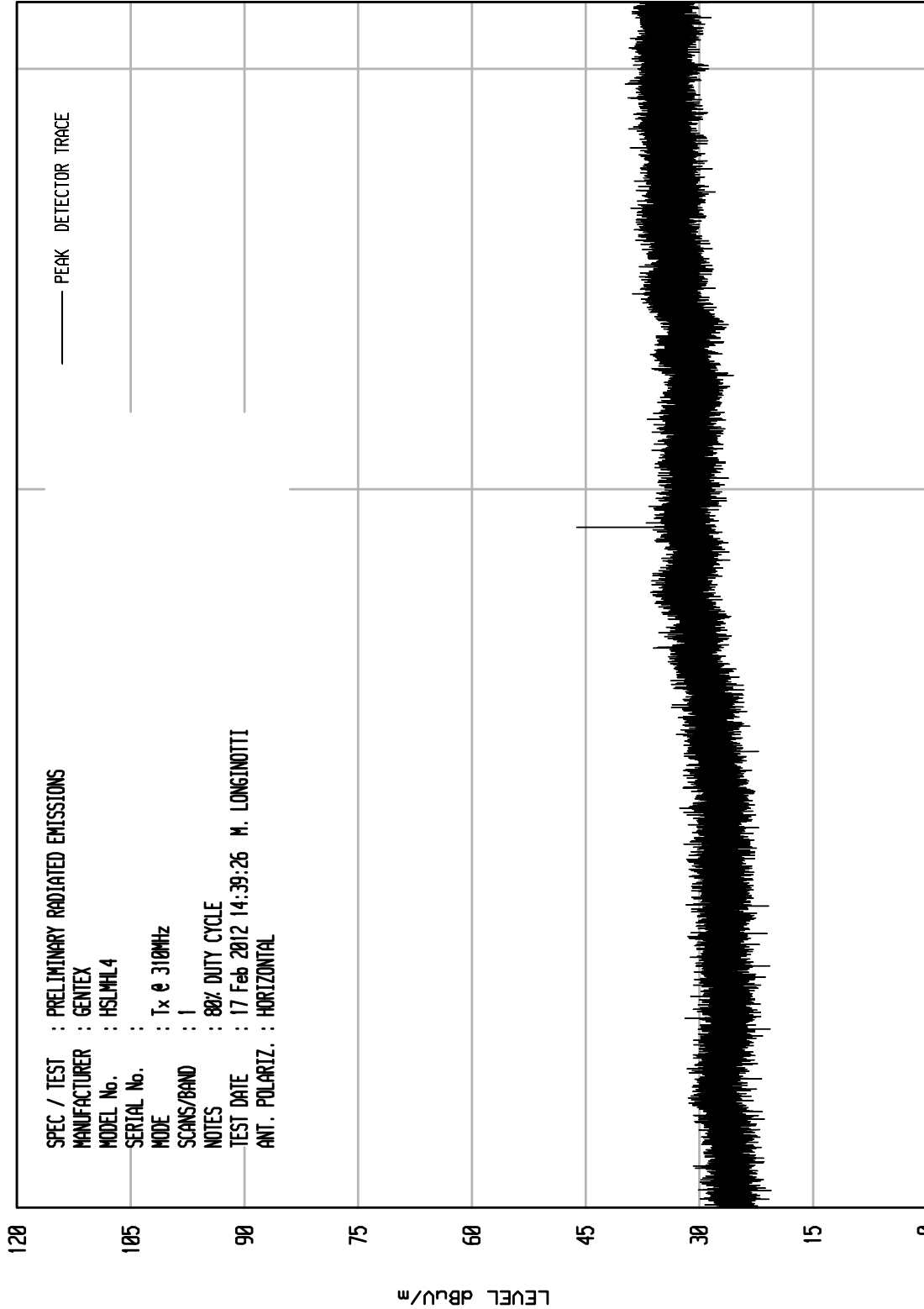
100

START = 30

ELITE ELECTRONIC ENGINEERING Inc.
Downers Grove, Ill. 60515

UNIU RCU EMI RUN 36

UKA1 04/26/11



SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
 MANUFACTURER : GENTEX
 MODEL No. : HSLMHL4
 SERIAL No. :
 MODE : Tx @ 310MHz
 SCANS/BAND : 1
 NOTES : 80% DUTY CYCLE
 TEST DATE : 17 Feb 2012 14:39:26 M. LONGINOTTI
 ANT. POLARIZ. : HORIZONTAL

STOP = 3200

FREQUENCY MHz

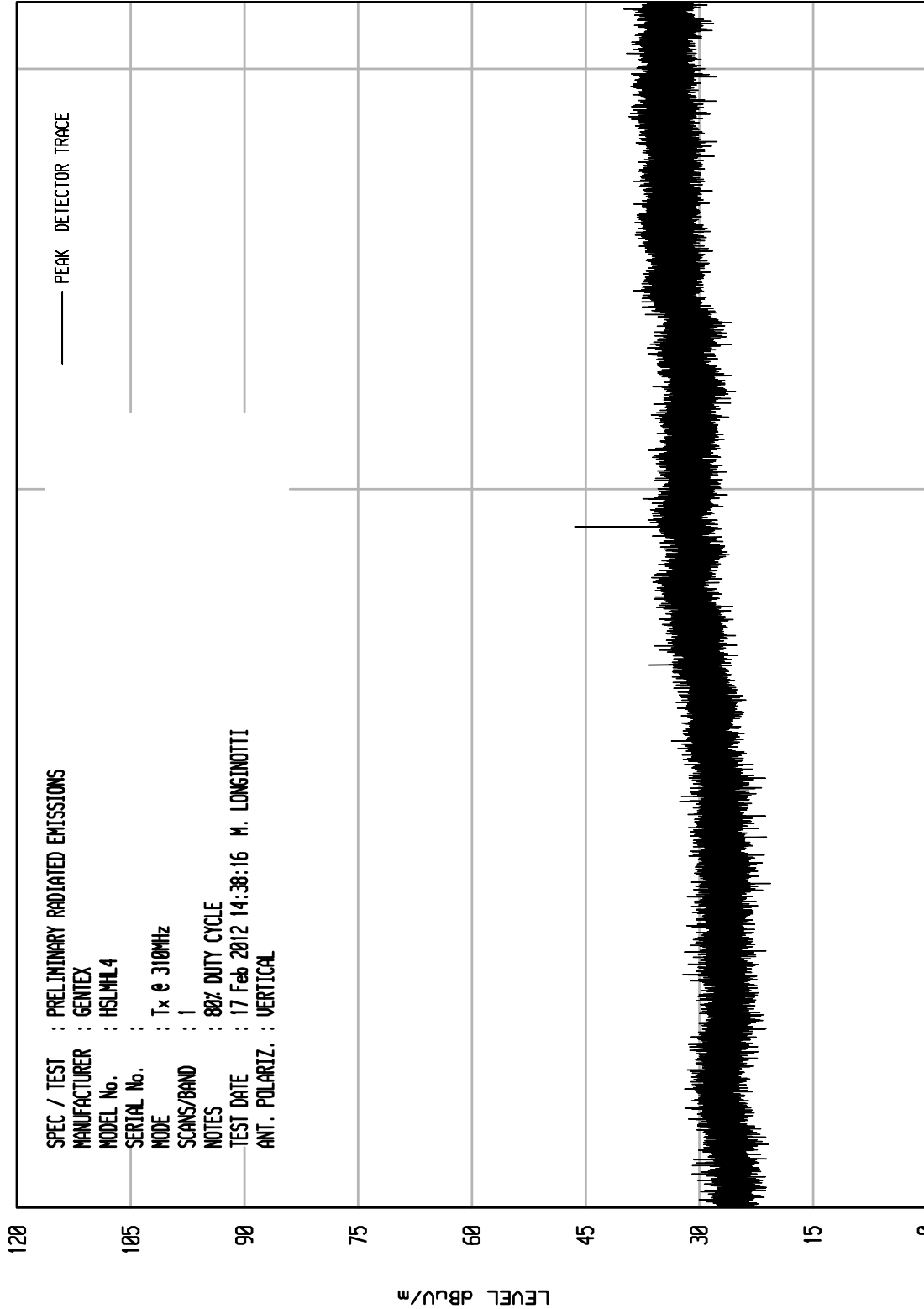
START = 1000

LEVEL dBu/m

ELITE ELECTRONIC ENGINEERING Inc.
Downers Grove, Ill. 60515

UNIU RCU EMI RUN 35

UKA1 04/26/11



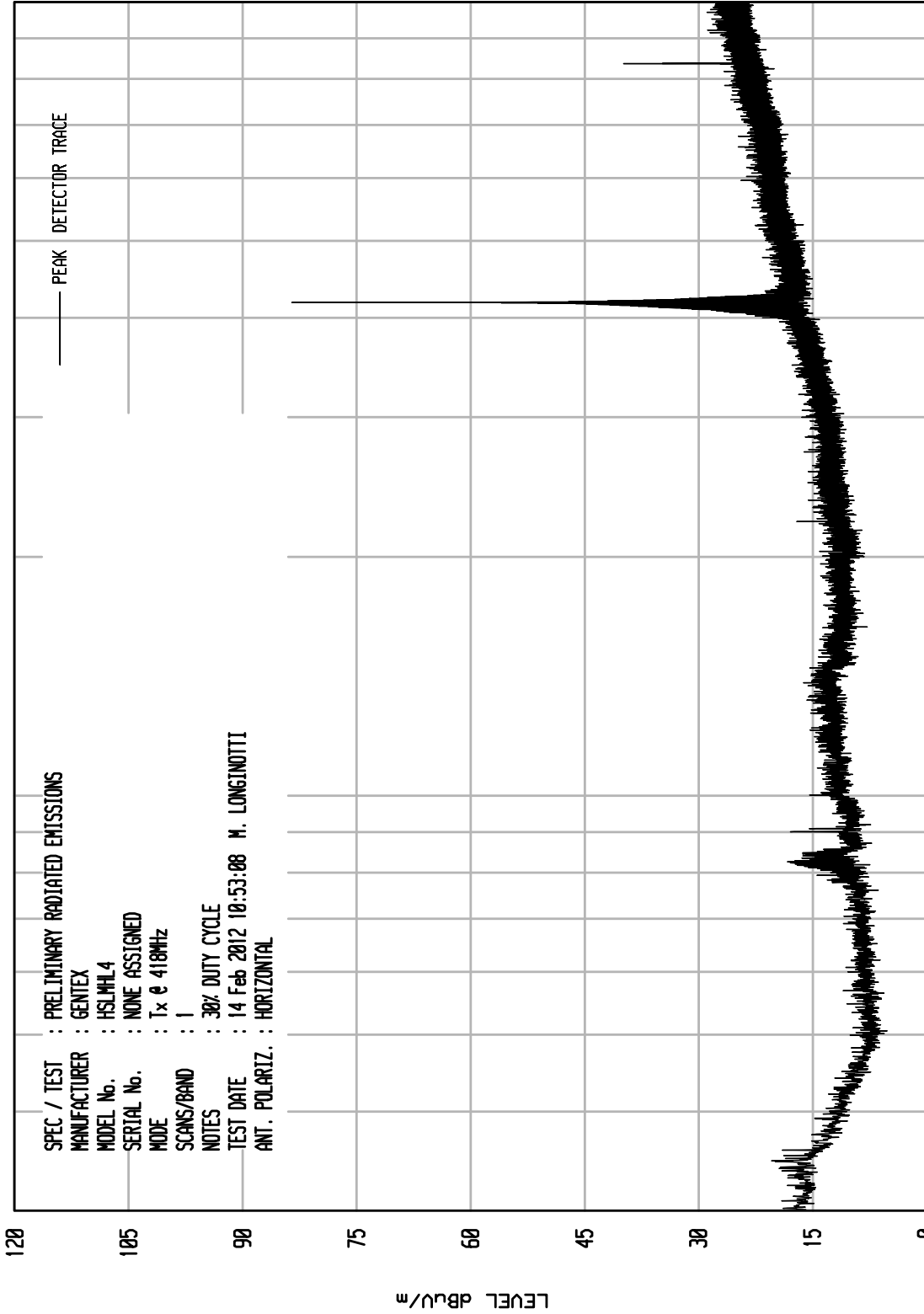
SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
 MANUFACTURER : GENTEX
 MODEL No. : HSLMHL4
 SERIAL No. :
 MODE : Tx @ 310MHz
 SCANS/BAND : 1
 NOTES : 80% DUTY CYCLE
 TEST DATE : 17 Feb 2012 14:38:16 M. LONGINOTTI
 ANT. POLARIZ. : VERTICAL

ELITE ELECTRONIC ENGINEERING Inc.
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UNIU RCU EMI RUN 58

UKA1 04/26/11

SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
 MANUFACTURER : GENTEX
 MODEL No. : HSLMHL4
 SERIAL No. : NONE ASSIGNED
 MODE : Tx @ 418MHz
 SCANS/BAND : 1
 NOTES : 30% DUTY CYCLE
 TEST DATE : 14 Feb 2012 10:53:08 M. LONGINOTTI
 ANT. POLARIZ. : HORIZONTAL



STOP = 1000

FREQUENCY MHz

100

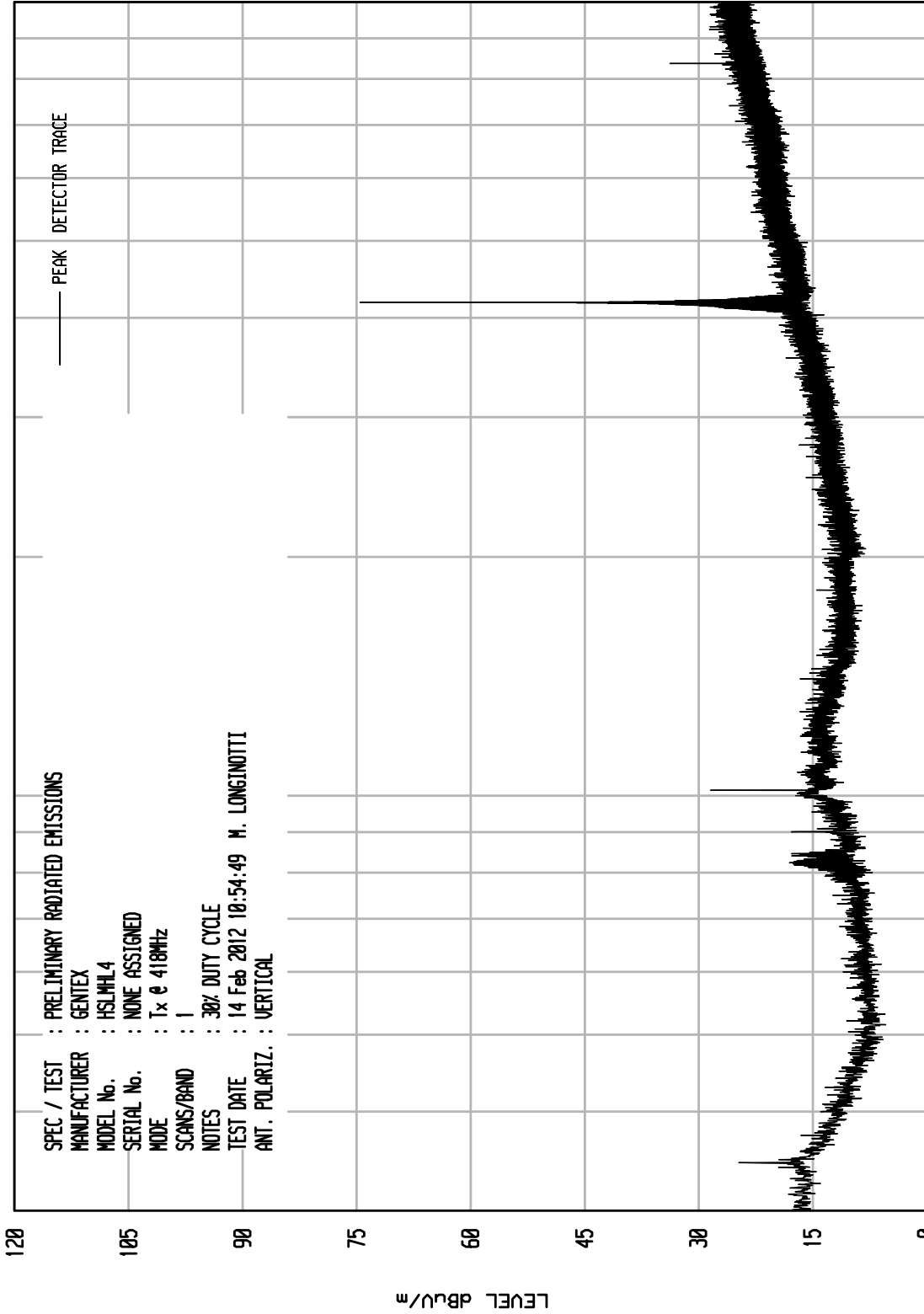
START = 30

ELITE ELECTRONIC ENGINEERING Inc.
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UNIU RCU EMI RUN 59

UKA1 04/26/11

PRELIMINARY RADIATED EMISSIONS
 SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
 MANUFACTURER : GENTEX
 MODEL No. : HSLMHL4
 SERIAL No. : NONE ASSIGNED
 MODE : Tx @ 418MHz
 SCANS/BAND : 1
 NOTES : 30% DUTY CYCLE
 TEST DATE : 14 Feb 2012 10:54:49 M. LONGINOTTI
 ANT. POLARIZ. : VERTICAL



STOP = 1000

FREQUENCY MHz

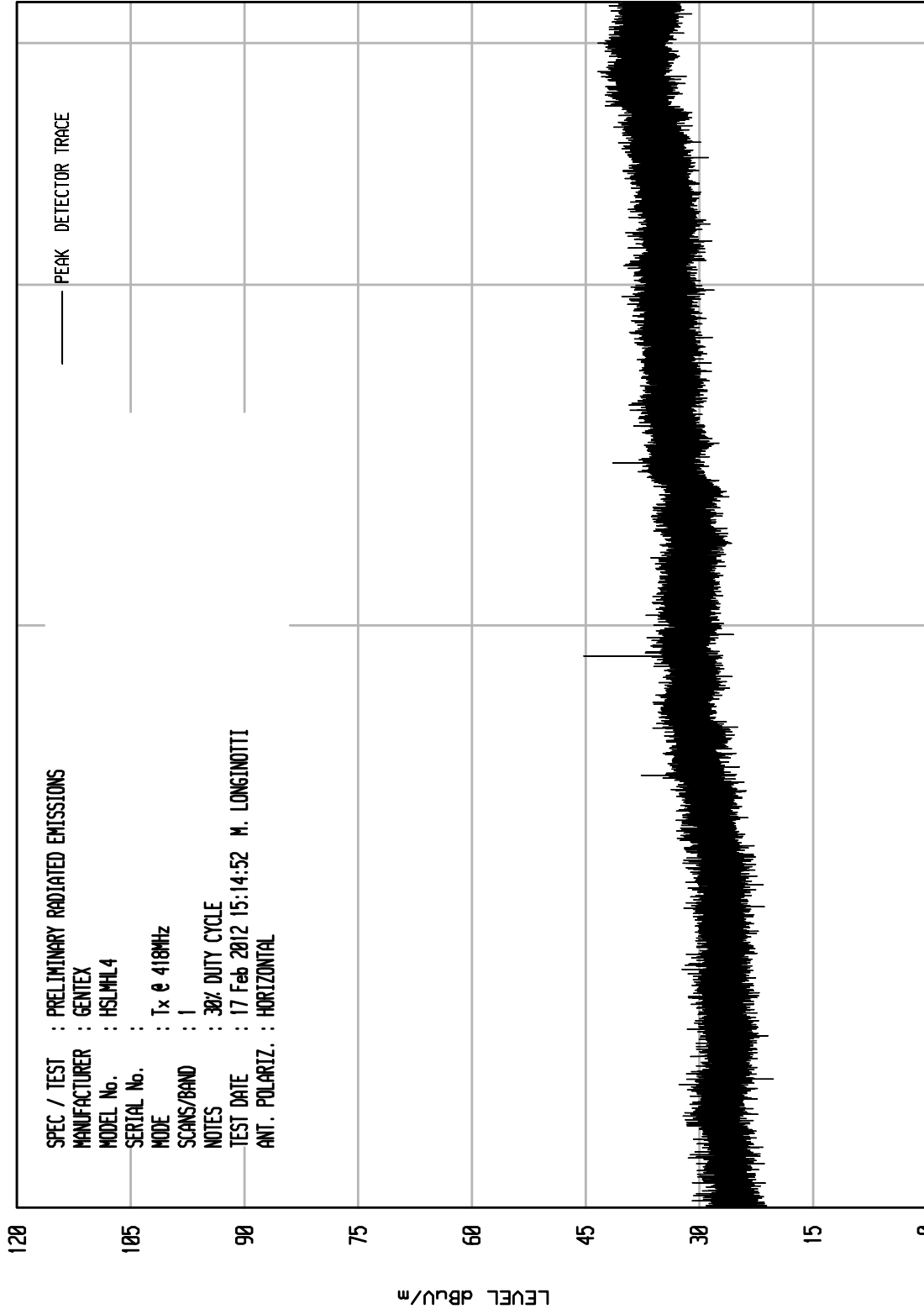
100

START = 30

ELITE ELECTRONIC ENGINEERING Inc.
Downers Grove, Ill. 60515

UNIU RCU EMI RUN 15

UKA1 04/26/11



SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
 MANUFACTURER : GENTEX
 MODEL No. : HSLMHL4
 SERIAL No. :
 MODE : Tx @ 418MHz
 SCANS/BAND : 1
 NOTES : 30% DUTY CYCLE
 TEST DATE : 17 Feb 2012 15:14:52 M. LONGINOTTI
 ANT. POLARIZ. : HORIZONTAL

STOP = 4200

FREQUENCY MHz

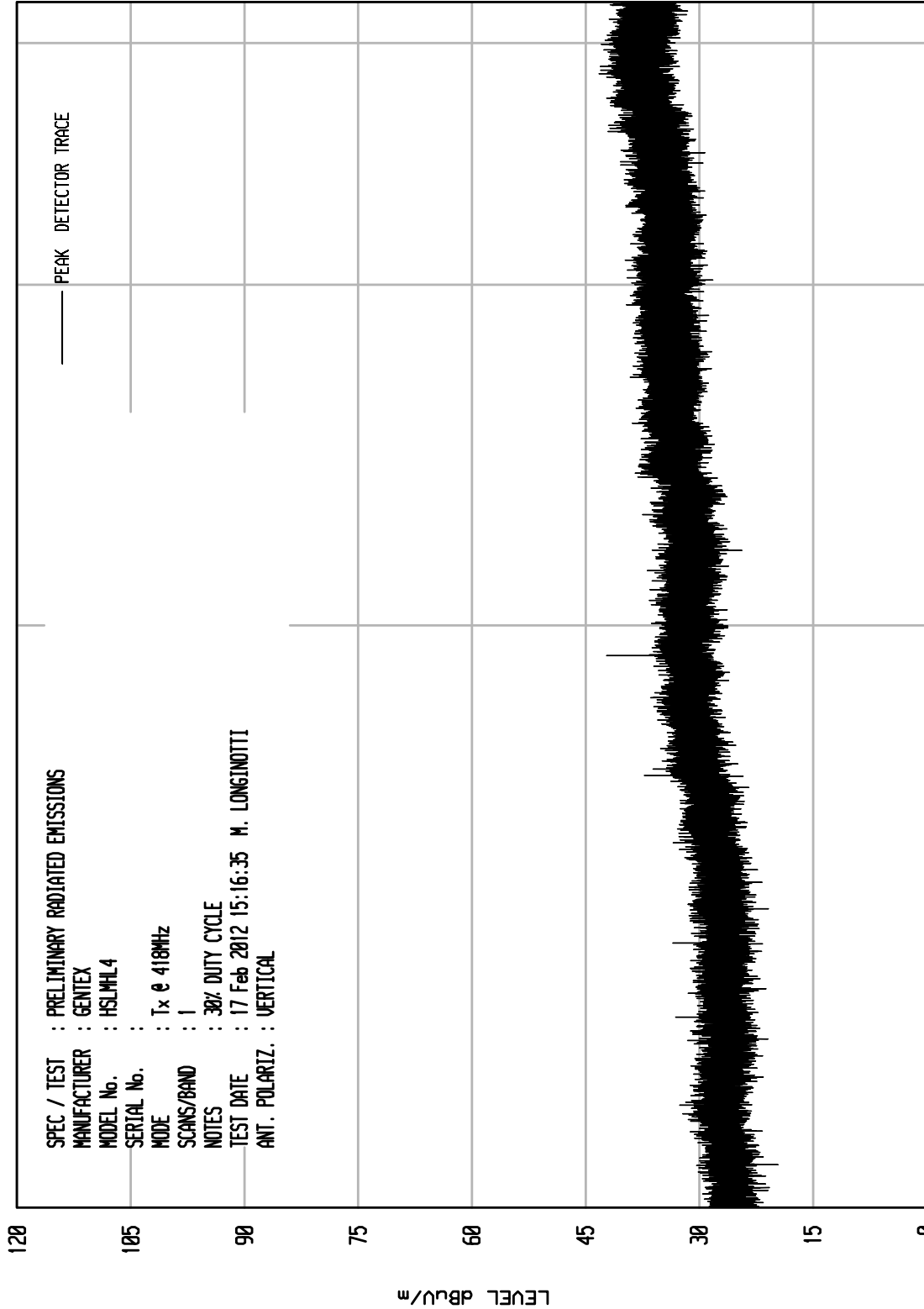
START = 1000

LEVEL dBu/m

ELITE ELECTRONIC ENGINEERING Inc.
Downers Grove, Ill. 60515

UNIU RCU EMI RUN 16

UKA1 04/26/11



SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
 MANUFACTURER : GENTEX
 MODEL No. : HSLMHL4
 SERIAL No. :
 MODE : Tx @ 418MHz
 SCANS/BAND : 1
 NOTES : 30% DUTY CYCLE
 TEST DATE : 17 Feb 2012 15:16:35 M. LONGINOTTI
 ANT. POLARIZ. : VERTICAL

STOP = 4200

FREQUENCY MHz

START = 1000

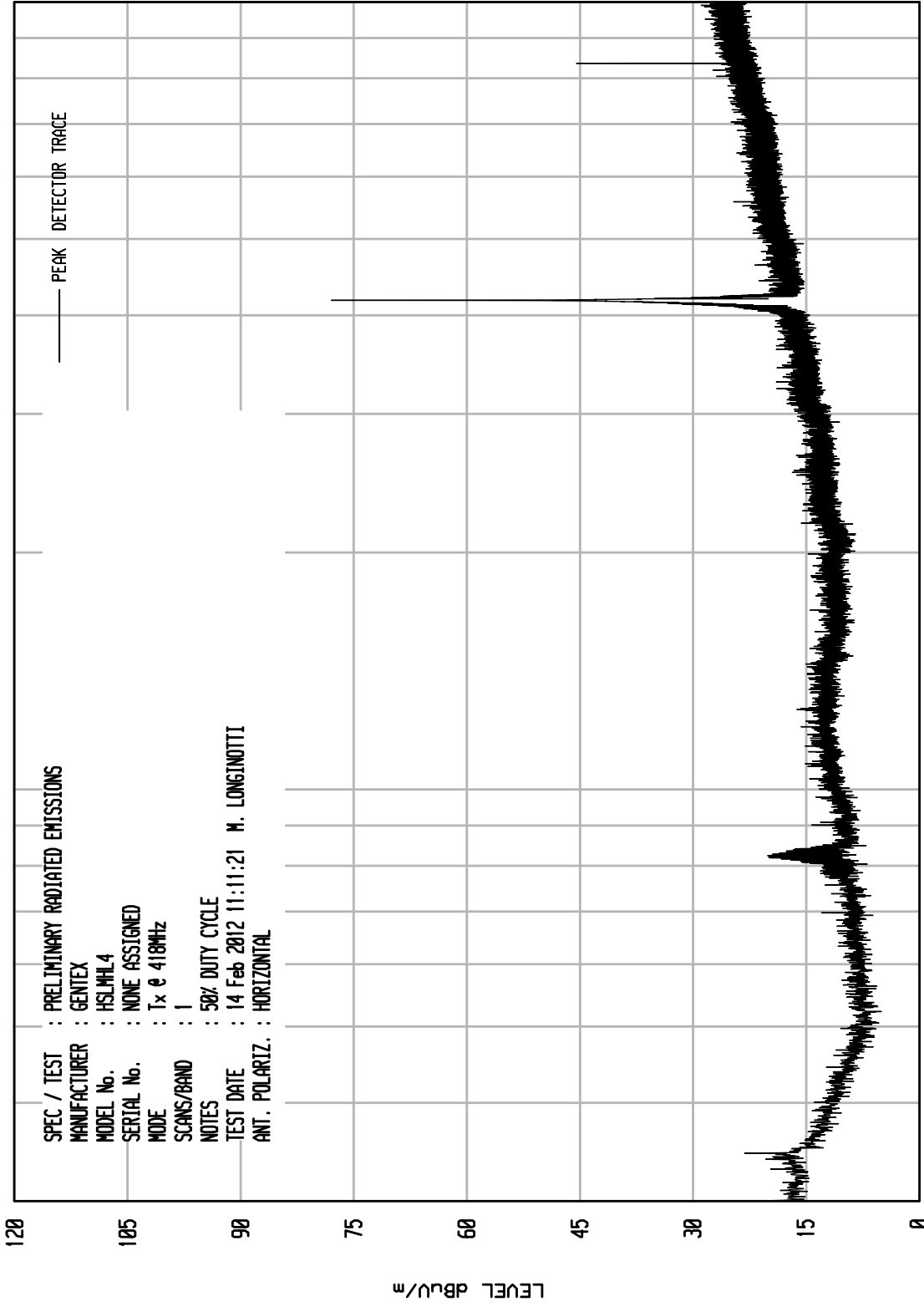
LEVEL dBu/m

ELITE ELECTRONIC ENGINEERING Inc.
Downers Grove, Ill. 60515

UNIU RCU ENI RUN 60

UKA1 04/26/11

PRELIMINARY RADIATED EMISSIONS
 SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
 MANUFACTURER : GENTEX
 MODEL No. : HSLMHL4
 SERIAL No. : NONE ASSIGNED
 MODE : Tx @ 418MHz
 SCANS/BAND : 1
 NOTES : 50% DUTY CYCLE
 TEST DATE : 14 Feb 2012 11:11:21 M. LONGINOTTI
 ANT. POLARIZ. : HORIZONTAL

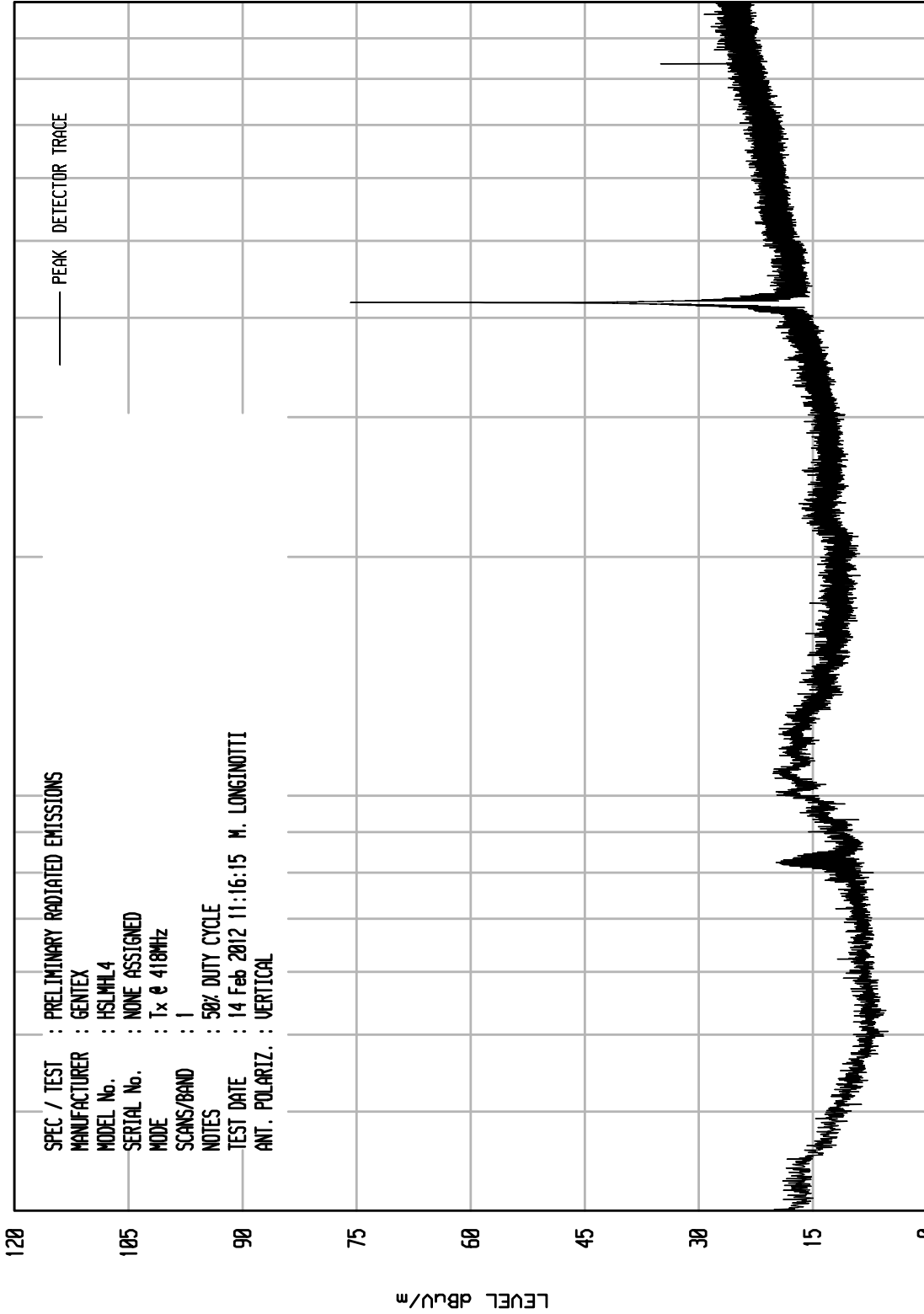


ELITE ELECTRONIC ENGINEERING Inc.
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UNIU RCU EMI RUN 61

UKA1 04/26/11

PRELIMINARY RADIATED EMISSIONS
 SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
 MANUFACTURER : GENTEX
 MODEL No. : HSLMHL4
 SERIAL No. : NONE ASSIGNED
 MODE : Tx @ 418MHz
 SCANS/BAND : 1
 NOTES : 50% DUTY CYCLE
 TEST DATE : 14 Feb 2012 11:16:15 M. LONGINOTTI
 ANT. POLARIZ. : VERTICAL



STOP = 1000

FREQUENCY MHz

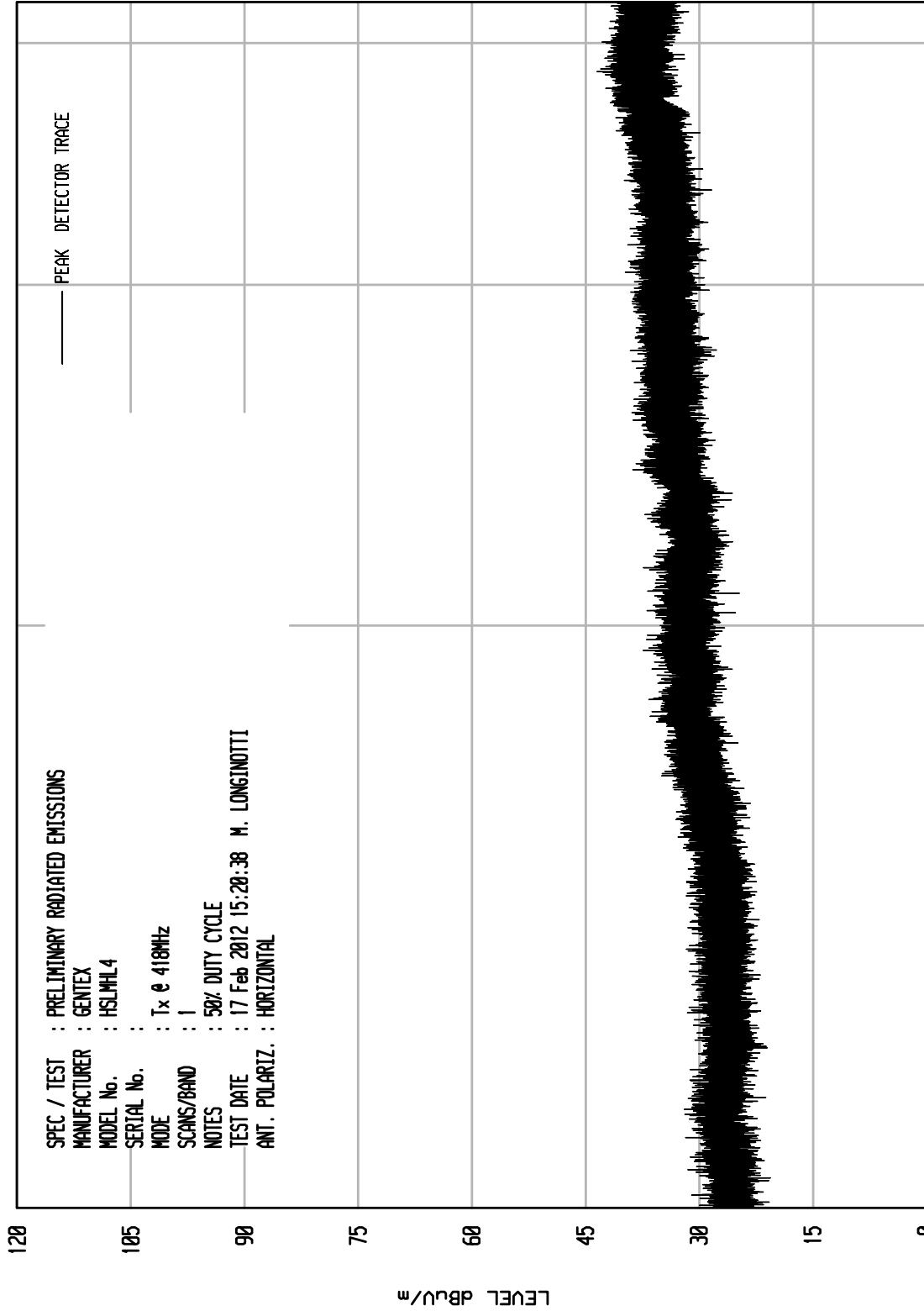
100

START = 30

ELITE ELECTRONIC ENGINEERING Inc.
Downers Grove, Ill. 60515

UNIU RCU EMI RUN 18

UKA1 04/26/11



PRELIMINARY RADIATED EMISSIONS
 MANUFACTURER : GENTEX
 MODEL No. : HSLMHL4
 SERIAL No. :
 MODE : Tx @ 418MHz
 SCANS/BAND : 1
 NOTES : 50% DUTY CYCLE
 TEST DATE : 17 Feb 2012 15:20:38 M. LONGINOTTI
 ANT. POLARIZ. : HORIZONTAL

STOP = 4200

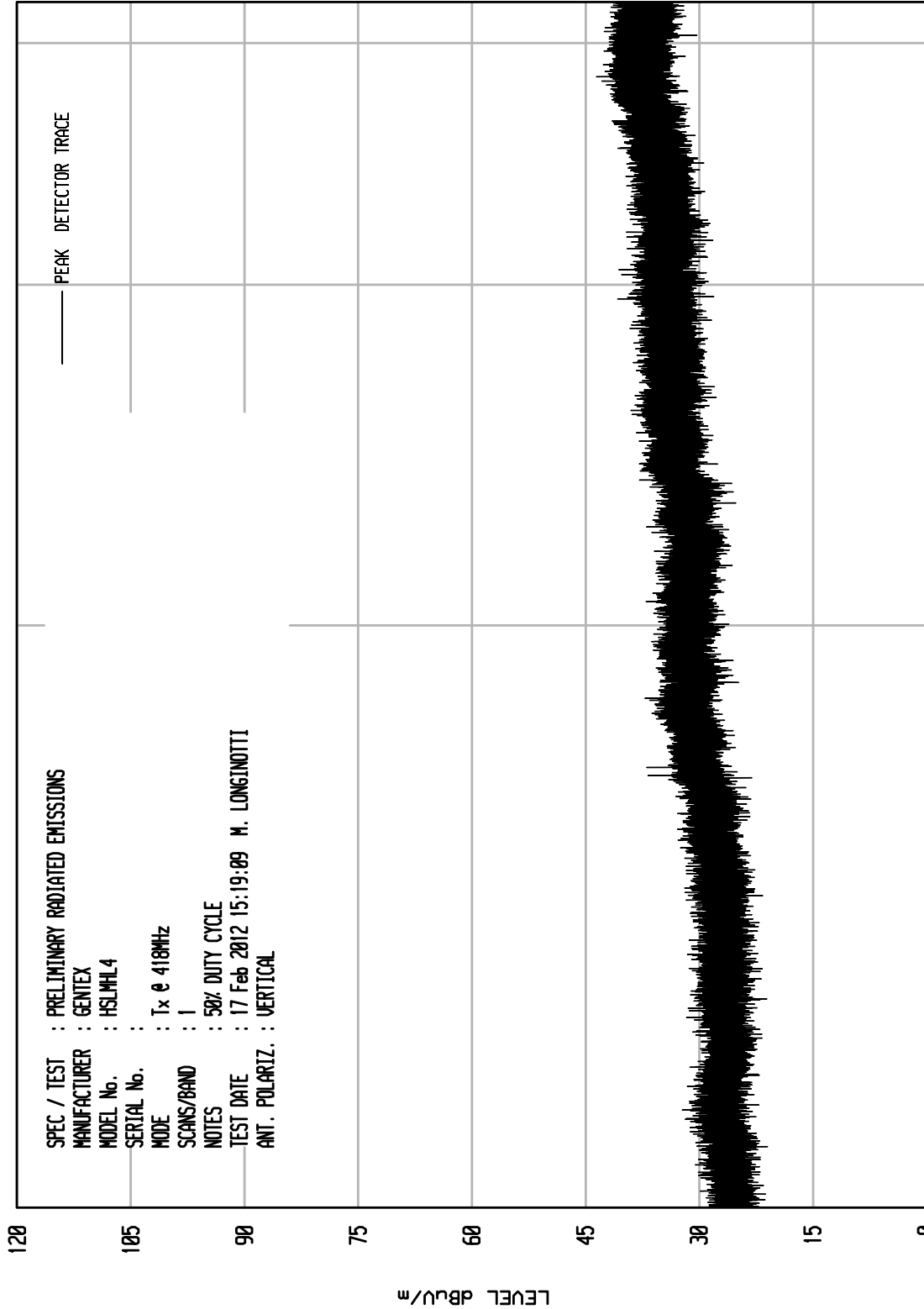
FREQUENCY MHz

START = 1000

ELITE ELECTRONIC ENGINEERING Inc.
Downers Grove, Ill. 60515

UNIU RCU EMI RUN 17

UKA1 04/26/11



SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
 MANUFACTURER : GENTEX
 MODEL No. : HSLMHL4
 SERIAL No. :
 MODE : Tx @ 418MHz
 SCANS/BAND : 1
 NOTES : 50% DUTY CYCLE
 TEST DATE : 17 Feb 2012 15:19:09 M. LONGINOTTI
 ANT. POLARIZ. : VERTICAL

STOP = 4200

FREQUENCY MHz

START = 1000

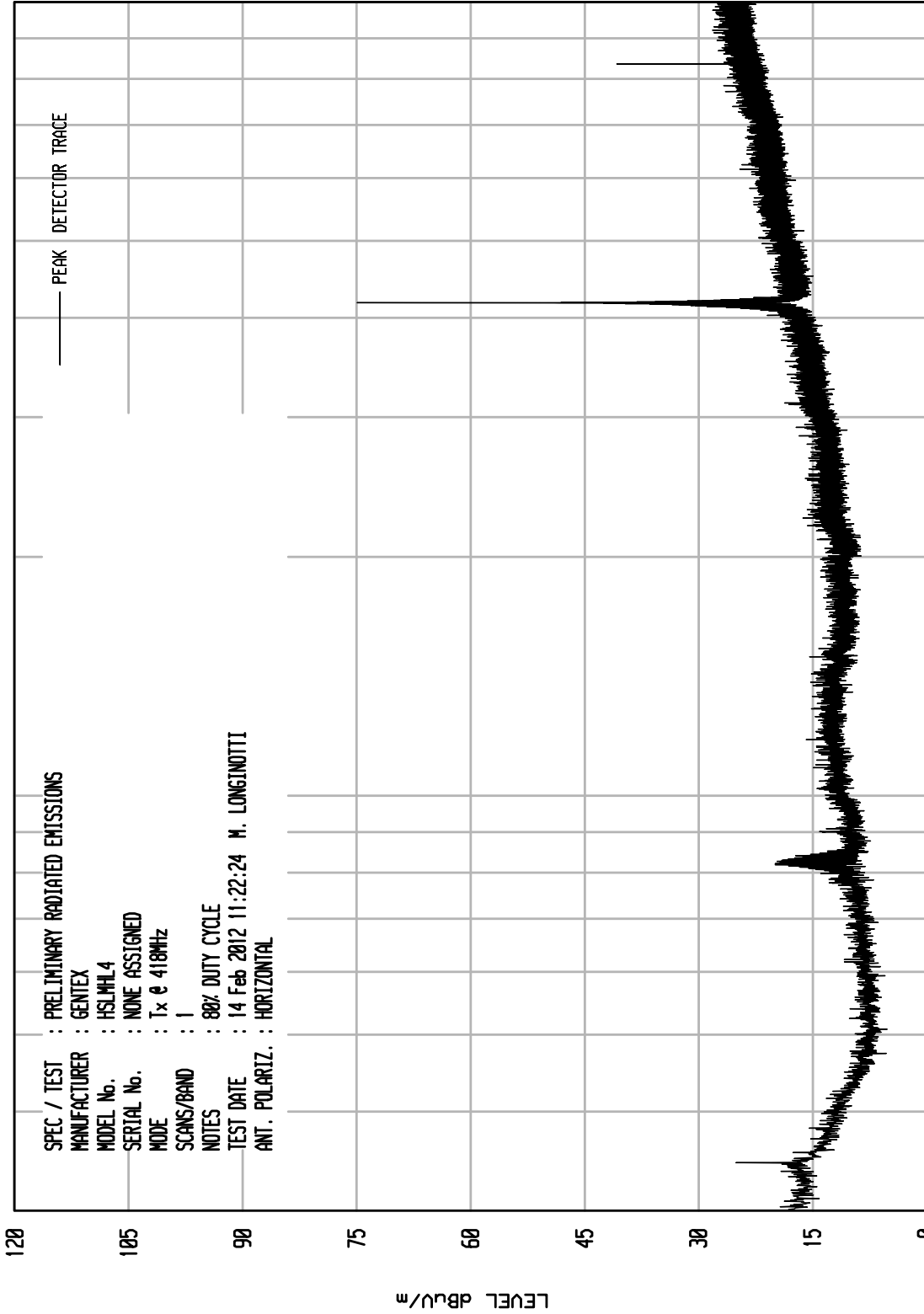
LEVEL dBu/m

ELITE ELECTRONIC ENGINEERING Inc.
Downers Grove, Ill. 60515

UNIU RCU ENI RUN 63

UKA1 04/26/11

PRELIMINARY RADIATED EMISSIONS
 SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
 MANUFACTURER : GENTEX
 MODEL No. : HSLMHL4
 SERIAL No. : NONE ASSIGNED
 MODE : Tx @ 418MHz
 SCANS/BAND : 1
 NOTES : 80% DUTY CYCLE
 TEST DATE : 14 Feb 2012 11:22:24 M. LONGINOTTI
 ANT. POLARIZ. : HORIZONTAL



STOP = 1000

FREQUENCY MHz

100

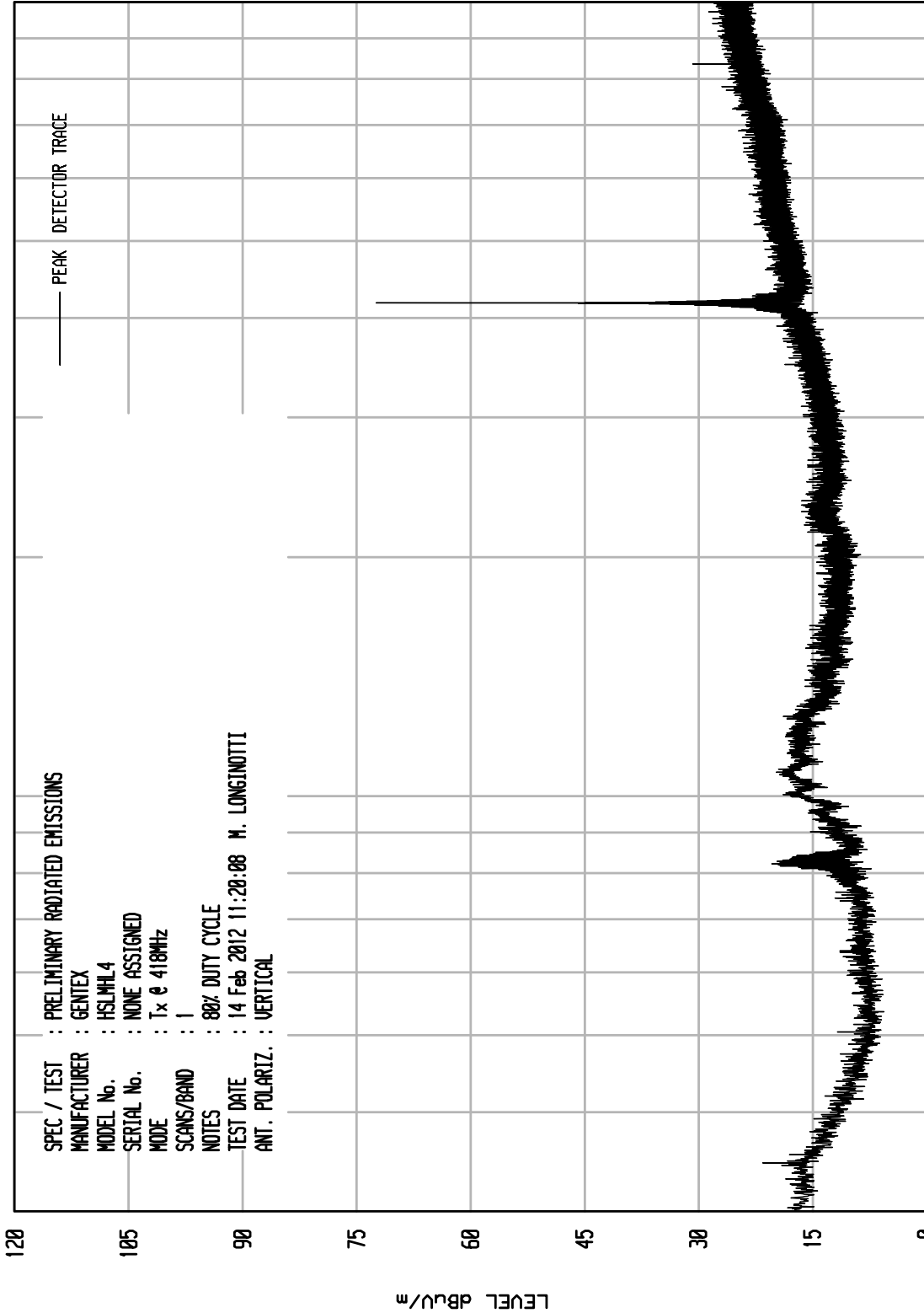
START = 30

ELITE ELECTRONIC ENGINEERING Inc.
Downers Grove, Ill. 60515

UNITU RCU ENI RUN 62

UKA1 04/26/11

PRELIMINARY RADIATED EMISSIONS
 SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
 MANUFACTURER : GENTEX
 MODEL No. : HSLMHL4
 SERIAL No. : NONE ASSIGNED
 MODE : Tx @ 418MHz
 SCANS/BAND : 1
 NOTES : 80% DUTY CYCLE
 TEST DATE : 14 Feb 2012 11:20:08 M. LONGINOTTI
 ANT. POLARIZ. : VERTICAL



STOP = 1000

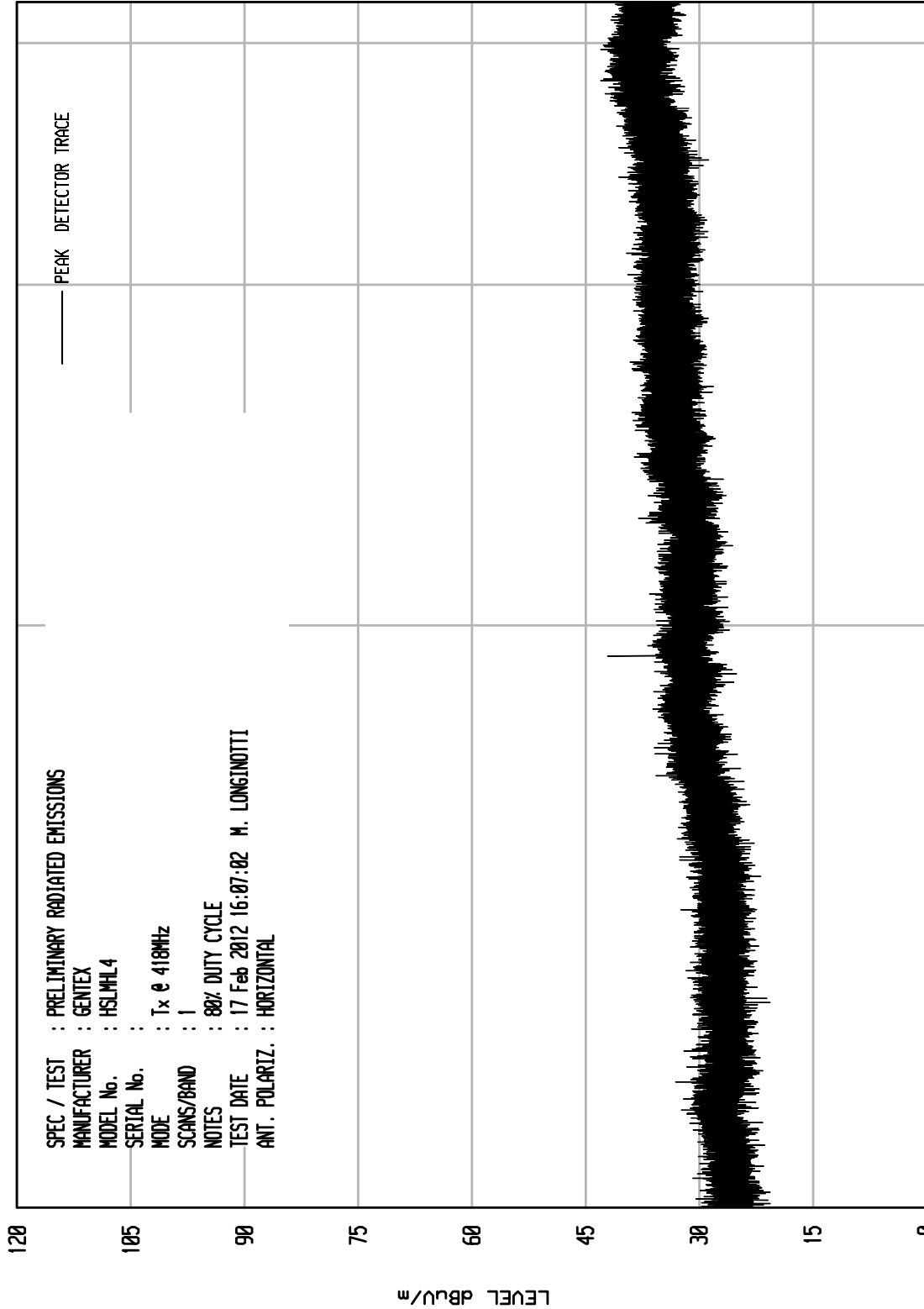
FREQUENCY MHz

START = 30

ELITE ELECTRONIC ENGINEERING Inc.
Downers Grove, Ill. 60515

UNIU RCU EMI RUN 28

UKA1 04/26/11



SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
 MANUFACTURER : GENTEX
 MODEL No. : HSLMHL4
 SERIAL No. :
 MODE : Tx @ 418MHz
 SCANS/BAND : 1
 NOTES : 80% DUTY CYCLE
 TEST DATE : 17 Feb 2012 16:07:02 M. LONGINOTTI
 ANT. POLARIZ. : HORIZONTAL

STOP = 4200

FREQUENCY MHz

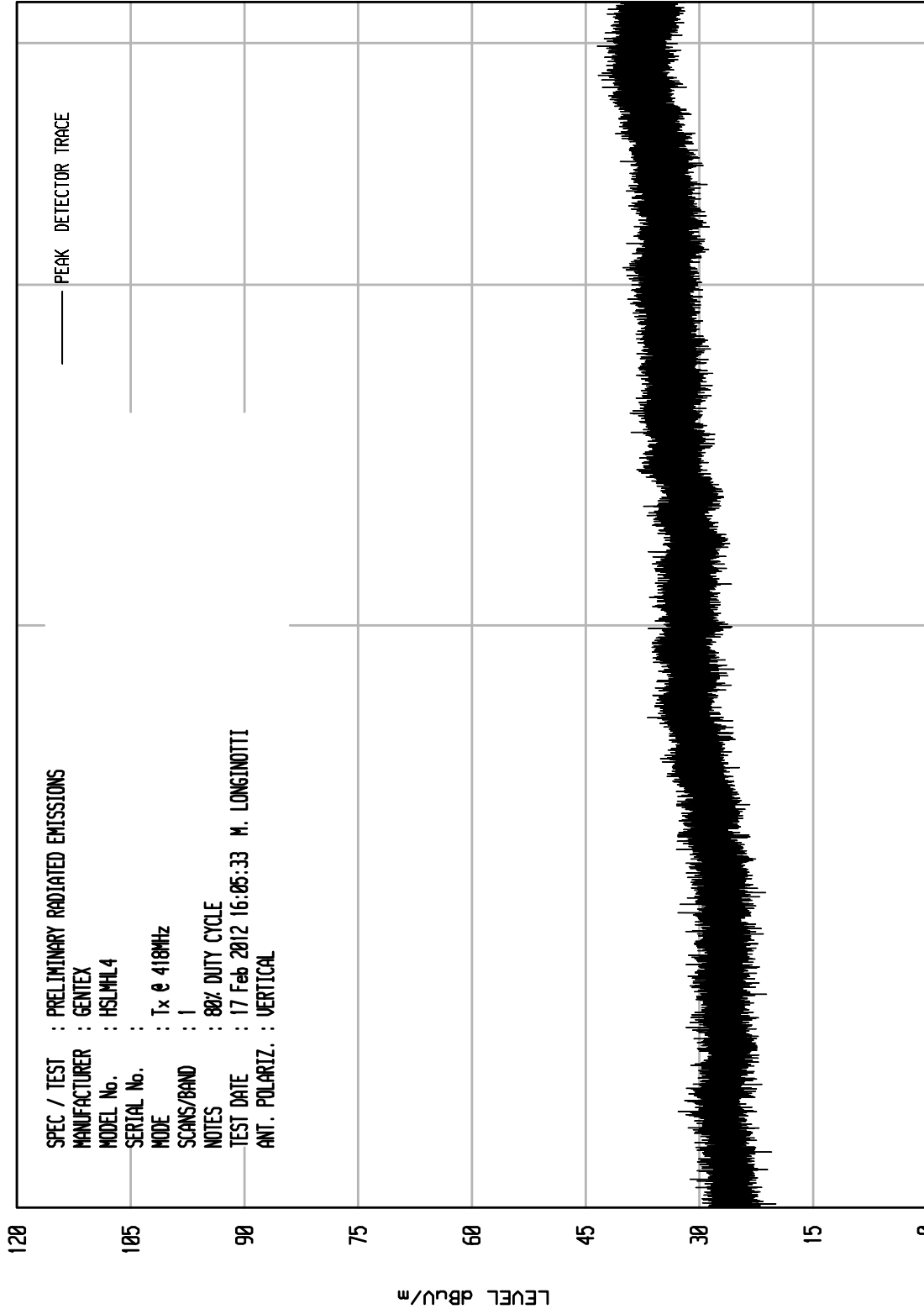
START = 1000

LEVEL dBu/m

ELITE ELECTRONIC ENGINEERING Inc.
Downers Grove, Ill. 60515

UNIU RCU EMI RUN 19

UKA1 04/26/11



SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
 MANUFACTURER : GENTEX
 MODEL No. : HSLMHL4
 SERIAL No. :
 MODE : Tx @ 418MHz
 SCANS/BAND : 1
 NOTES : 80% DUTY CYCLE
 TEST DATE : 17 Feb 2012 16:05:33 M. LONGINOTTI
 ANT. POLARIZ. : VERTICAL

STOP = 4200

FREQUENCY MHz

START = 1000

LEVEL dBu/m



MANUFACTURER : Gentex Corporation
 MODEL : HSLMHL4
 S/N : None Assigned
 SPECIFICATION : FCC-15.231(b) and RSS-210, Annex 1, Table A Radiated Emissions
 DATE : January 31, 2012 through February 17, 2012
 TEST EQUIPMENT : RBB0, NTA2, NWH0, RBB0, CDY0, CMA1
 NOTES : Transmitting @ 288MHz
 : 30% Modulation
 : TEST DISTANCE IS 3 METERS

Freq (MHz)	Ant Pol	Meter Reading (dBUV)	Ambient	CBL Fac (dB)	Ant Fac (dB)	Duty Cycle Factor (dB)	Total dBUV/m at 3 M	Total uV/m at 3M	Limit uV/m at 3M	Margin (dB)
288.00	H	60.5		1.0	13.7	-10.5	64.7	1717.9	4916.7	-9.1
288.00	V	62.1		1.0	13.7	-10.5	66.3	2055.9	4916.7	-7.6
576.00	H	34.3		1.5	19.5	-10.5	44.8	173.6	492.0	-9.0
576.00	V	29.9		1.5	19.5	-10.5	40.3	103.9	492.0	-13.5
864.00	H	13.3		2.0	22.2	-10.5	27.0	22.4	492.0	-26.8
864.00	V	11.0		2.0	22.2	-10.5	24.7	17.2	492.0	-29.1
1152.00	H	20.5		1.7	24.7	-10.5	36.4	66.1	500.0	-17.6
1152.00	V	19.7		1.7	24.7	-10.5	35.6	60.3	500.0	-18.4
1440.00	H	18.1		1.9	25.5	-10.5	35.0	56.1	500.0	-19.0
1440.00	V	21.4		1.9	25.5	-10.5	38.3	82.1	500.0	-15.7
1728.00	H	17.0	Ambient	2.1	26.8	-10.5	35.4	59.0	500.0	-18.6
1728.00	V	19.4		2.1	26.8	-10.5	37.8	77.8	500.0	-16.2
2016.00	H	16.7	Ambient	2.3	28.1	-10.5	36.6	67.4	500.0	-17.4
2016.00	V	18.2	Ambient	2.3	28.1	-10.5	38.1	80.1	500.0	-15.9
2304.00	H	16.3	Ambient	2.5	28.8	-10.5	37.1	71.4	500.0	-16.9
2304.00	V	16.7	Ambient	2.5	28.8	-10.5	37.5	74.7	500.0	-16.5
2592.00	H	17.1	Ambient	2.7	29.5	-10.5	38.8	86.8	500.0	-15.2
2592.00	V	16.9	Ambient	2.7	29.5	-10.5	38.6	84.9	500.0	-15.4
2880.00	H	16.6	Ambient	2.9	30.3	-10.5	39.3	92.3	500.0	-14.7
2880.00	V	15.9	Ambient	2.9	30.3	-10.5	38.6	85.2	500.0	-15.4

Checked By: MARK E. LONGINOTTI
 Mark E. Longinotti



MANUFACTURER : Gentex Corporation
 MODEL : HSLMHL4
 S/N : None Assigned
 SPECIFICATION : FCC-15.231(b) and RSS-210, Annex 1, Table A Radiated Emissions
 DATE : January 31, 2012 through February 17, 2012
 TEST EQUIPMENT : RBB0, NTA2, NWH0, RBB0, CDY0, CMA1
 NOTES : Transmitting @ 288MHz
 : 50% Modulation
 : TEST DISTANCE IS 3 METERS

Freq (MHz)	Ant Pol	Meter Reading (dBUV)	Ambient	CBL Fac (dB)	Ant Fac (dB)	Duty Cycle Factor (dB)	Total dBuV/m at 3 M	Total uV/m at 3M	Limit uV/m at 3M	Margin (dB)
288.00	H	59.6		1.0	13.7	-6.0	68.4	2615.3	4916.7	-5.5
288.00	V	62.8		1.0	13.7	-6.0	71.5	3767.2	4916.7	-2.3
576.00	H	36.4		1.5	18.9	-6.0	50.9	348.7	492.0	-3.0
576.00	V	36.4		1.5	18.9	-6.0	50.9	348.7	492.0	-3.0
864.00	H	17.0		2.0	21.5	-6.0	34.4	52.7	492.0	-19.4
864.00	V	14.6		2.0	21.5	-6.0	32.0	40.0	492.0	-21.8
1152.00	H	15.1	Ambient	1.7	24.7	-6.0	35.5	59.6	500.0	-18.5
1152.00	V	15.6	Ambient	1.7	24.7	-6.0	36.0	63.1	500.0	-18.0
1440.00	H	16.6	Ambient	1.9	25.5	-6.0	38.0	79.3	500.0	-16.0
1440.00	V	18.3		1.9	25.5	-6.0	39.7	96.4	500.0	-14.3
1728.00	H	16.3	Ambient	2.1	26.8	-6.0	39.2	91.4	500.0	-14.8
1728.00	V	16.4	Ambient	2.1	26.8	-6.0	39.3	92.5	500.0	-14.7
2016.00	H	16.0	Ambient	2.3	28.1	-6.0	40.4	104.3	500.0	-13.6
2016.00	V	16.7	Ambient	2.3	28.1	-6.0	41.1	113.1	500.0	-12.9
2304.00	H	16.3	Ambient	2.5	28.8	-6.0	41.6	119.8	500.0	-12.4
2304.00	V	16.0	Ambient	2.5	28.8	-6.0	41.3	115.7	500.0	-12.7
2592.00	H	16.9	Ambient	2.7	29.5	-6.0	43.1	142.5	500.0	-10.9
2592.00	V	16.6	Ambient	2.7	29.5	-6.0	42.8	137.6	500.0	-11.2
2880.00	H	16.2	Ambient	2.9	30.3	-6.0	43.4	148.0	500.0	-10.6
2880.00	V	16.0	Ambient	2.9	30.3	-6.0	43.2	144.6	500.0	-10.8

Checked By: MARK E. LONGINOTTI
 Mark E. Longinotti



MANUFACTURER : Gentex Corporation
 MODEL : HSLMHL4
 S/N : None Assigned
 SPECIFICATION : FCC-15.231(b) and RSS-210, Annex 1, Table A Radiated Emissions
 DATE : January 31, 2012 through February 17, 2012
 TEST EQUIPMENT : RBB0, NTA2, NWH0, RBB0, CDY0, CMA1
 NOTES : Transmitting @ 288MHz
 : 80% Modulation
 : TEST DISTANCE IS 3 METERS

Freq (MHz)	Ant Pol	Meter Reading (dBuV)	Ambient	CBL Fac (dB)	Ant Fac (dB)	Duty Cycle Factor (dB)	Total dBuV/m at 3 M	Total uV/m at 3M	Limit uV/m at 3M	Margin (dB)
288.00	H	54.7		1.0	13.7	-1.9	67.5	2366.0	4916.7	-6.4
288.00	V	57.8		1.0	13.7	-1.9	70.7	3408.2	4916.7	-3.2
576.00	H	24.9		1.5	18.9	-1.9	43.4	147.7	492.0	-10.4
576.00	V	21.2		1.5	18.9	-1.9	39.7	96.3	492.0	-14.2
864.00	H	4.9	Ambient	2.0	21.5	-1.9	26.5	21.1	492.0	-27.4
864.00	V	5.3	Ambient	2.0	21.5	-1.9	26.9	22.1	492.0	-27.0
1152.00	H	15.4	Ambient	1.7	24.7	-1.9	39.9	98.9	500.0	-14.1
1152.00	V	15.0	Ambient	1.7	24.7	-1.9	39.5	94.4	500.0	-14.5
1440.00	H	16.5	Ambient	1.9	25.5	-1.9	42.0	125.7	500.0	-12.0
1440.00	V	17.0	Ambient	1.9	25.5	-1.9	42.5	133.1	500.0	-11.5
1728.00	H	16.6	Ambient	2.1	26.8	-1.9	43.6	151.7	500.0	-10.4
1728.00	V	15.8	Ambient	2.1	26.8	-1.9	42.8	138.3	500.0	-11.2
2016.00	H	16.4	Ambient	2.3	28.1	-1.9	44.9	175.2	500.0	-9.1
2016.00	V	15.9	Ambient	2.3	28.1	-1.9	44.4	165.4	500.0	-9.6
2304.00	H	16.1	Ambient	2.5	28.8	-1.9	45.5	187.7	500.0	-8.5
2304.00	V	15.9	Ambient	2.5	28.8	-1.9	45.3	183.4	500.0	-8.7
2592.00	H	17.1	Ambient	2.7	29.5	-1.9	47.4	233.7	500.0	-6.6
2592.00	V	16.8	Ambient	2.7	29.5	-1.9	47.1	225.8	500.0	-6.9
2880.00	H	15.9	Ambient	2.9	30.3	-1.9	47.2	229.2	500.0	-6.8
2880.00	V	15.8	Ambient	2.9	30.3	-1.9	47.1	226.6	500.0	-6.9

Checked By: MARK E. LONGINOTTI
 Mark E. Longinotti



MANUFACTURER : Gentex Corporation
 MODEL : HSLMHL4
 S/N : None Assigned
 SPECIFICATION : FCC-15.231(b) and RSS-210, Annex 1, Table A Radiated Emissions
 DATE : January 31, 2012 through February 17, 2012
 TEST EQUIPMENT : RBB0, NTA2, NWHO, RBB0, CDY0, CMA1
 NOTES : Transmitting @ 310MHz
 : 30% Modulation
 : TEST DISTANCE IS 3 METERS

Freq (MHz)	Ant Pol	Meter Reading (dBuV)	Ambient	CBL Fac (dB)	Ant Fac (dB)	Duty Cycle Factor (dB)	Total dBuV/m at 3 M	Total uV/m at 3M	Limit uV/m at 3M	Margin (dB)
310.00	H	66.9		1.1	14.3	-10.5	71.8	3880.2	5833.3	-3.5
310.00	V	68.0		1.1	14.3	-10.5	72.9	4393.9	5833.3	-2.5
620.00	H	33.7		1.6	19.5	-10.5	44.3	163.2	583.3	-11.1
620.00	V	32.8		1.6	19.5	-10.5	43.3	146.7	583.3	-12.0
930.00	H	13.3		2.0	22.0	-10.5	26.8	22.0	583.3	-28.5
930.00	V	13.6		2.0	22.0	-10.5	27.1	22.7	583.3	-28.2
1240.00	H	15.1	Ambient	1.8	25.0	-10.5	31.3	36.8	500.0	-22.7
1240.00	V	15.3	Ambient	1.8	25.0	-10.5	31.5	37.7	500.0	-22.5
1550.00	H	17.8		2.0	25.9	-10.5	35.2	57.4	500.0	-18.8
1550.00	V	20.3		2.0	25.9	-10.5	37.7	76.5	500.0	-16.3
1860.00	H	15.9	Ambient	2.2	27.4	-10.5	35.0	56.4	583.3	-20.3
1860.00	V	16.3	Ambient	2.2	27.4	-10.5	35.4	59.0	583.3	-19.9
2170.00	H	15.8	Ambient	2.4	28.5	-10.5	36.2	64.3	583.3	-19.2
2170.00	V	17.0	Ambient	2.4	28.5	-10.5	37.4	73.8	583.3	-18.0
2480.00	H	16.1	Ambient	2.6	29.1	-10.5	37.4	73.8	583.3	-18.0
2480.00	V	15.9	Ambient	2.6	29.1	-10.5	37.2	72.2	583.3	-18.2
2790.00	H	16.1	Ambient	2.8	30.1	-10.5	38.5	84.1	500.0	-15.5
2790.00	V	16.3	Ambient	2.8	30.1	-10.5	38.7	86.0	500.0	-15.3
3100.00	H	16.1	Ambient	3.0	30.9	-10.5	39.5	94.6	583.3	-15.8
3100.00	V	16.0	Ambient	3.0	30.9	-10.5	39.4	93.5	583.3	-15.9

Checked By: MARK E. LONGINOTTI
 Mark E. Longinotti



MANUFACTURER : Gentex Corporation
 MODEL : HSLMHL4
 S/N : None Assigned
 SPECIFICATION : FCC-15.231(b) and RSS-210, Annex 1, Table A Radiated Emissions
 DATE : January 31, 2012 through February 17, 2012
 TEST EQUIPMENT : RBB0, NTA2, NWH0, RBB0, CDY0, CMA1
 NOTES : Transmitting @ 310MHz
 : 50% Modulation
 : TEST DISTANCE IS 3 METERS

Freq (MHz)	Ant Pol	Meter Reading (dBuV)	Ambient	CBL Fac (dB)	Ant Fac (dB)	Duty Cycle Factor (dB)	Total dBuV/m at 3 M	Total uV/m at 3M	Limit uV/m at 3M	Margin (dB)
310.00	H	61.3		1.1	14.3	-6.0	70.7	3426.5	5833.3	-4.6
310.00	V	63.2		1.1	14.3	-6.0	72.6	4254.5	5833.3	-2.7
620.00	H	25.1		1.6	19.5	-6.0	40.2	101.8	583.3	-15.2
620.00	V	19.7		1.6	19.5	-6.0	34.7	54.5	583.3	-20.6
930.00	H	9.2		2.0	22.0	-6.0	27.2	23.0	583.3	-28.1
930.00	V	7.5		2.0	22.0	-6.0	25.5	18.7	583.3	-29.9
1240.00	H	14.6	Ambient	1.8	25.0	-6.0	35.3	58.4	500.0	-18.7
1240.00	V	15.1	Ambient	1.8	25.0	-6.0	35.8	61.8	500.0	-18.2
1550.00	H	16.5	Ambient	2.0	25.9	-6.0	38.4	83.0	500.0	-15.6
1550.00	V	19.7		2.0	25.9	-6.0	41.6	119.9	500.0	-12.4
1860.00	H	16.3	Ambient	2.2	27.4	-6.0	39.9	99.1	583.3	-15.4
1860.00	V	16.8	Ambient	2.2	27.4	-6.0	40.4	105.0	583.3	-14.9
2170.00	H	16.1	Ambient	2.4	28.5	-6.0	41.0	111.8	583.3	-14.4
2170.00	V	16.4	Ambient	2.4	28.5	-6.0	41.3	115.7	583.3	-14.1
2480.00	H	16.7	Ambient	2.6	29.1	-6.0	42.5	132.8	583.3	-12.9
2480.00	V	16.3	Ambient	2.6	29.1	-6.0	42.1	126.8	583.3	-13.3
2790.00	H	17.2	Ambient	2.8	30.1	-6.0	44.1	160.2	500.0	-9.9
2790.00	V	16.3	Ambient	2.8	30.1	-6.0	43.2	144.4	500.0	-10.8
3100.00	H	15.2	Ambient	3.0	30.9	-6.0	43.1	143.2	583.3	-12.2
3100.00	V	15.0	Ambient	3.0	30.9	-6.0	42.9	139.9	583.3	-12.4

Checked By: MARK E. LONGINOTTI
 Mark E. Longinotti



MANUFACTURER : Gentex Corporation
 MODEL : HSLMHL4
 S/N : None Assigned
 SPECIFICATION : FCC-15.231(b) and RSS-210, Annex 1, Table A Radiated Emissions
 DATE : January 31, 2012 through February 17, 2012
 TEST EQUIPMENT : RBB0, NTA2, NWHO, RBB0, CDY0, CMA1
 NOTES : Transmitting @ 310MHz
 : 80% Modulation
 : TEST DISTANCE IS 3 METERS

Freq (MHz)	Ant Pol	Meter Reading (dBuV)	Ambient	CBL Fac (dB)	Ant Fac (dB)	Duty Cycle Factor (dB)	Total dBuV/m at 3 M	Total uV/m at 3M	Limit uV/m at 3M	Margin (dB)
310.00	H	59.7		1.1	14.3	-1.9	73.1	4532.6	5833.3	-2.2
310.00	V	58.8		1.1	14.3	-1.9	72.2	4095.9	5833.3	-3.1
620.00	H	21.6		1.6	19.5	-1.9	40.8	109.5	583.3	-14.5
620.00	V	13.5		1.6	19.5	-1.9	32.7	42.9	583.3	-22.7
930.00	H	6.1	Ambient	2.0	22.0	-1.9	28.2	25.7	583.3	-27.1
930.00	V	5.2	Ambient	2.0	22.0	-1.9	27.3	23.2	583.3	-28.0
1240.00	H	15.0	Ambient	1.8	25.0	-1.9	39.8	98.0	500.0	-14.2
1240.00	V	15.9	Ambient	1.8	25.0	-1.9	40.7	108.7	500.0	-13.3
1550.00	H	15.9	Ambient	2.0	25.9	-1.9	41.9	124.1	500.0	-12.1
1550.00	V	16.4	Ambient	2.0	25.9	-1.9	42.4	131.5	500.0	-11.6
1860.00	H	16.7	Ambient	2.2	27.4	-1.9	44.4	166.4	583.3	-10.9
1860.00	V	16.3	Ambient	2.2	27.4	-1.9	44.0	158.9	583.3	-11.3
2170.00	H	16.1	Ambient	2.4	28.5	-1.9	45.1	179.2	583.3	-10.3
2170.00	V	16.2	Ambient	2.4	28.5	-1.9	45.2	181.3	583.3	-10.2
2480.00	H	16.1	Ambient	2.6	29.1	-1.9	46.0	198.7	583.3	-9.4
2480.00	V	15.7	Ambient	2.6	29.1	-1.9	45.6	189.8	583.3	-9.8
2790.00	H	16.5	Ambient	2.8	30.1	-1.9	47.5	237.0	500.0	-6.5
2790.00	V	16.2	Ambient	2.8	30.1	-1.9	47.2	228.9	500.0	-6.8
3100.00	H	16.1	Ambient	3.0	30.9	-1.9	48.1	254.7	583.3	-7.2
3100.00	V	16.3	Ambient	3.0	30.9	-1.9	48.3	260.6	583.3	-7.0

Checked By: MARK E. LONGINOTTI
 Mark E. Longinotti



MANUFACTURER : Gentex Corporation
 MODEL : HSLMHL4
 S/N : None Assigned
 SPECIFICATION : FCC-15.231(b) and RSS-210, Annex 1, Table A Radiated Emissions
 DATE : January 31, 2012 through February 17, 2012
 TEST EQUIPMENT : RBB0, NTA2, NWHO, RBB0, CDY0, CMA1
 NOTES : Transmitting @ 418MHz
 : 30% Modulation
 : TEST DISTANCE IS 3 METERS

Freq (MHz)	Ant Pol	Meter Reading (dBuV)	Ambient	CBL Fac (dB)	Ant Fac (dB)	Duty Cycle Factor (dB)	Total dBuV/m at 3 M	Total uV/m at 3M	Limit uV/m at 3M	Margin (dB)
418.00	H	68.0		1.5	17.3	-10.5	76.3	6561.5	10333.3	-3.9
418.00	V	70.6		1.5	17.3	-10.5	78.9	8851.2	10333.3	-1.3
836.00	H	32.5		2.0	21.3	-10.5	45.3	184.1	1033.3	-15.0
836.00	V	30.1		2.0	21.3	-10.5	42.9	139.6	1033.3	-17.4
1254.00	H	16.3		1.8	25.0	-10.5	32.6	42.5	1033.3	-27.7
1254.00	V	19.2		1.8	25.0	-10.5	35.5	59.4	1033.3	-24.8
1672.00	H	17.4	Ambient	2.1	26.5	-10.5	35.5	59.6	500.0	-18.5
1672.00	V	21.5		2.1	26.5	-10.5	39.6	95.5	500.0	-14.4
2090.00	H	17.5	Ambient	2.4	28.3	-10.5	37.6	76.0	1033.3	-22.7
2090.00	V	17.4	Ambient	2.4	28.3	-10.5	37.5	75.1	1033.3	-22.8
2508.00	H	16.5	Ambient	2.7	29.2	-10.5	37.9	78.1	1033.3	-22.4
2508.00	V	17.1	Ambient	2.7	29.2	-10.5	38.5	83.7	1033.3	-21.8
2926.00	H	16.7	Ambient	2.9	30.4	-10.5	39.6	95.1	1033.3	-20.7
2926.00	V	16.5	Ambient	2.9	30.4	-10.5	39.4	92.9	1033.3	-20.9
3344.00	H	15.5	Ambient	3.1	31.5	-10.5	39.6	96.0	1033.3	-20.6
3344.00	V	15.1	Ambient	3.1	31.5	-10.5	39.2	91.7	1033.3	-21.0
3762.00	H	16.7	Ambient	3.3	32.7	-10.5	42.2	128.7	500.0	-11.8
3762.00	V	16.8	Ambient	3.3	32.7	-10.5	42.3	130.2	500.0	-11.7
4180.00	H	15.8	Ambient	3.5	33.2	-10.5	42.0	125.9	500.0	-12.0
4180.00	V	16.0	Ambient	3.5	33.2	-10.5	42.2	128.8	500.0	-11.8

Checked By: MARK E. LONGINOTTI
 Mark E. Longinotti



MANUFACTURER : Gentex Corporation
 MODEL : HSLMHL4
 S/N : None Assigned
 SPECIFICATION : FCC-15.231(b) and RSS-210, Annex 1, Table A Radiated Emissions
 DATE : January 31, 2012 through February 17, 2012
 TEST EQUIPMENT : RBB0, NTA2, NWH0, RBB0, CDY0, CMA1
 NOTES : Transmitting @ 418MHz
 : 50% Modulation
 : TEST DISTANCE IS 3 METERS

Freq (MHz)	Ant Pol	Meter Reading (dBuV)	Ambient	CBL Fac (dB)	Ant Fac (dB)	Duty Cycle Factor (dB)	Total dBuV/m at 3 M	Total uV/m at 3M	Limit uV/m at 3M	Margin (dB)
418.00	H	63.1		1.5	17.3	-6.0	75.9	6237.3	10333.3	-4.4
418.00	V	65.7		1.5	17.3	-6.0	78.5	8443.1	10333.3	-1.8
836.00	H	25.6		2.0	21.3	-6.0	42.9	139.6	1033.3	-17.4
836.00	V	21.0		2.0	21.3	-6.0	38.3	82.2	1033.3	-22.0
1254.00	H	15.7	Ambient	1.8	25.0	-6.0	36.5	66.6	1033.3	-23.8
1254.00	V	16.1	Ambient	1.8	25.0	-6.0	36.9	69.8	1033.3	-23.4
1672.00	H	17.1		2.1	26.5	-6.0	39.7	96.6	500.0	-14.3
1672.00	V	19.1		2.1	26.5	-6.0	41.7	121.7	500.0	-12.3
2090.00	H	16.5	Ambient	2.4	28.3	-6.0	41.1	113.7	1033.3	-19.2
2090.00	V	16.7	Ambient	2.4	28.3	-6.0	41.3	116.3	1033.3	-19.0
2508.00	H	16.2	Ambient	2.7	29.2	-6.0	42.1	126.6	1033.3	-18.2
2508.00	V	16.3	Ambient	2.7	29.2	-6.0	42.2	128.1	1033.3	-18.1
2926.00	H	16.2	Ambient	2.9	30.4	-6.0	43.6	150.7	1033.3	-16.7
2926.00	V	17.0	Ambient	2.9	30.4	-6.0	44.4	165.2	1033.3	-15.9
3344.00	H	15.6	Ambient	3.1	31.5	-6.0	44.2	163.0	1033.3	-16.0
3344.00	V	15.6	Ambient	3.1	31.5	-6.0	44.2	163.0	1033.3	-16.0
3762.00	H	17.2	Ambient	3.3	32.7	-6.0	47.2	228.9	500.0	-6.8
3762.00	V	17.2	Ambient	3.3	32.7	-6.0	47.2	228.9	500.0	-6.8
4180.00	H	16.0	Ambient	3.5	33.2	-6.0	46.7	216.3	500.0	-7.3
4180.00	V	16.2	Ambient	3.5	33.2	-6.0	46.9	221.3	500.0	-7.1

Checked By: MARK E. LONGINOTTI
 Mark E. Longinotti



MANUFACTURER : Gentex Corporation
 MODEL : HSLMHL4
 S/N : None Assigned
 SPECIFICATION : FCC-15.231(b) and RSS-210, Annex 1, Table A Radiated Emissions
 DATE : January 31, 2012 through February 17, 2012
 TEST EQUIPMENT : RBB0, NTA2, NWH0, RBB0, CDY0, CMA1
 NOTES : Transmitting @ 418MHz
 : 80% Modulation
 : TEST DISTANCE IS 3 METERS

Freq (MHz)	Ant Pol	Meter Reading (dBUV)	Ambient	CBL Fac (dB)	Ant Fac (dB)	Duty Cycle Factor (dB)	Total dBuV/m at 3 M	Total uV/m at 3M	Limit uV/m at 3M	Margin (dB)
418.00	H	58.0		1.5	17.3	-1.9	74.9	5552.6	10333.3	-5.4
418.00	V	61.6		1.5	17.3	-1.9	78.5	8414.0	10333.3	-1.8
836.00	H	19.0		2.0	21.3	-1.9	40.4	104.7	1033.3	-19.9
836.00	V	18.7		2.0	21.3	-1.9	40.1	101.2	1033.3	-20.2
1254.00	H	15.3	Ambient	1.8	25.0	-1.9	40.2	102.0	1033.3	-20.1
1254.00	V	15.5	Ambient	1.8	25.0	-1.9	40.4	104.4	1033.3	-19.9
1672.00	H	16.5	Ambient	2.1	26.5	-1.9	43.2	144.6	500.0	-10.8
1672.00	V	17.1	Ambient	2.1	26.5	-1.9	43.8	154.9	500.0	-10.2
2090.00	H	16.9	Ambient	2.4	28.3	-1.9	45.6	190.8	1033.3	-14.7
2090.00	V	16.5	Ambient	2.4	28.3	-1.9	45.2	182.2	1033.3	-15.1
2508.00	H	14.9	Ambient	2.7	29.2	-1.9	44.9	174.8	1033.3	-15.4
2508.00	V	16.1	Ambient	2.7	29.2	-1.9	46.1	200.7	1033.3	-14.2
2926.00	H	16.4	Ambient	2.9	30.4	-1.9	47.9	247.2	1033.3	-12.4
2926.00	V	15.6	Ambient	2.9	30.4	-1.9	47.1	225.4	1033.3	-13.2
3344.00	H	14.9	Ambient	3.1	31.5	-1.9	47.6	241.1	1033.3	-12.6
3344.00	V	15.5	Ambient	3.1	31.5	-1.9	48.2	258.4	1033.3	-12.0
3762.00	H	14.9	Ambient	3.3	32.7	-1.9	49.0	281.7	500.0	-5.0
3762.00	V	14.8	Ambient	3.3	32.7	-1.9	48.9	278.4	500.0	-5.1
4180.00	H	14.7	Ambient	3.5	33.2	-1.9	49.5	298.6	500.0	-4.5
4180.00	V	14.6	Ambient	3.5	33.2	-1.9	49.4	295.1	500.0	-4.6

Checked By: MARK E. LONGINOTTI
 Mark E. Longinotti



MANUFACTURER : Gentex Corporation
 MODEL : HSLMHL4
 S/N : None Assigned
 SPECIFICATION : FCC-15.231(b) and RSS-210, Annex 1, Table A Radiated Emissions
 DATE : January 31, 2012 through February 17, 2012
 TEST EQUIPMENT : RBB0, NTA2, NWH0, RBB0, CDY0, CMA1
 NOTES : Transmitting @ 340MHz, 365MHz and 390MHz
 : 30%, 50% and 80% Modulation
 : TEST DISTANCE IS 3 METERS

30% Modulation

Freq (MHz)	Ant Pol	Meter Reading (dBUV)	Ambient	CBL Fac (dB)	Ant Fac (dB)	Duty Cycle Factor (dB)	Total dBuV/m at 3 M	Total uV/m at 3M	Limit uV/m at 3M	Margin (dB)
340.00	H	69.4		1.2	15.0	-10.5	75.2	5726.3	7083.3	-1.8
340.00	V	65.3		1.2	15.0	-10.5	71.0	3567.6	7083.3	-6.0
365.00	H	70.1		1.3	15.8	-10.5	76.7	6831.9	8125.0	-1.5
365.00	V	66.9		1.3	15.8	-10.5	73.5	4748.3	8125.0	-4.7
390.00	H	68.8		1.5	16.2	-10.5	76.0	6277.7	9166.7	-3.3
390.00	V	69.8		1.5	16.2	-10.5	76.9	7019.4	9166.7	-2.3

50% Modulation

Freq (MHz)	Ant Pol	Meter Reading (dBUV)	Ambient	CBL Fac (dB)	Ant Fac (dB)	Duty Cycle Factor (dB)	Total dBuV/m at 3 M	Total uV/m at 3M	Limit uV/m at 3M	Margin (dB)
340.00	H	65.7		1.2	15.0	-6.0	75.9	6214.1	7083.3	-1.1
340.00	V	62.2		1.2	15.0	-6.0	72.4	4177.1	7083.3	-4.6
365.00	H	64.9		1.3	15.8	-6.0	76.0	6302.9	8125.0	-2.2
365.00	V	62.1		1.3	15.8	-6.0	73.2	4580.8	8125.0	-5.0
390.00	H	64.3		1.5	16.2	-6.0	76.0	6292.2	9166.7	-3.3
390.00	V	65.6		1.5	16.2	-6.0	77.2	7282.8	9166.7	-2.0

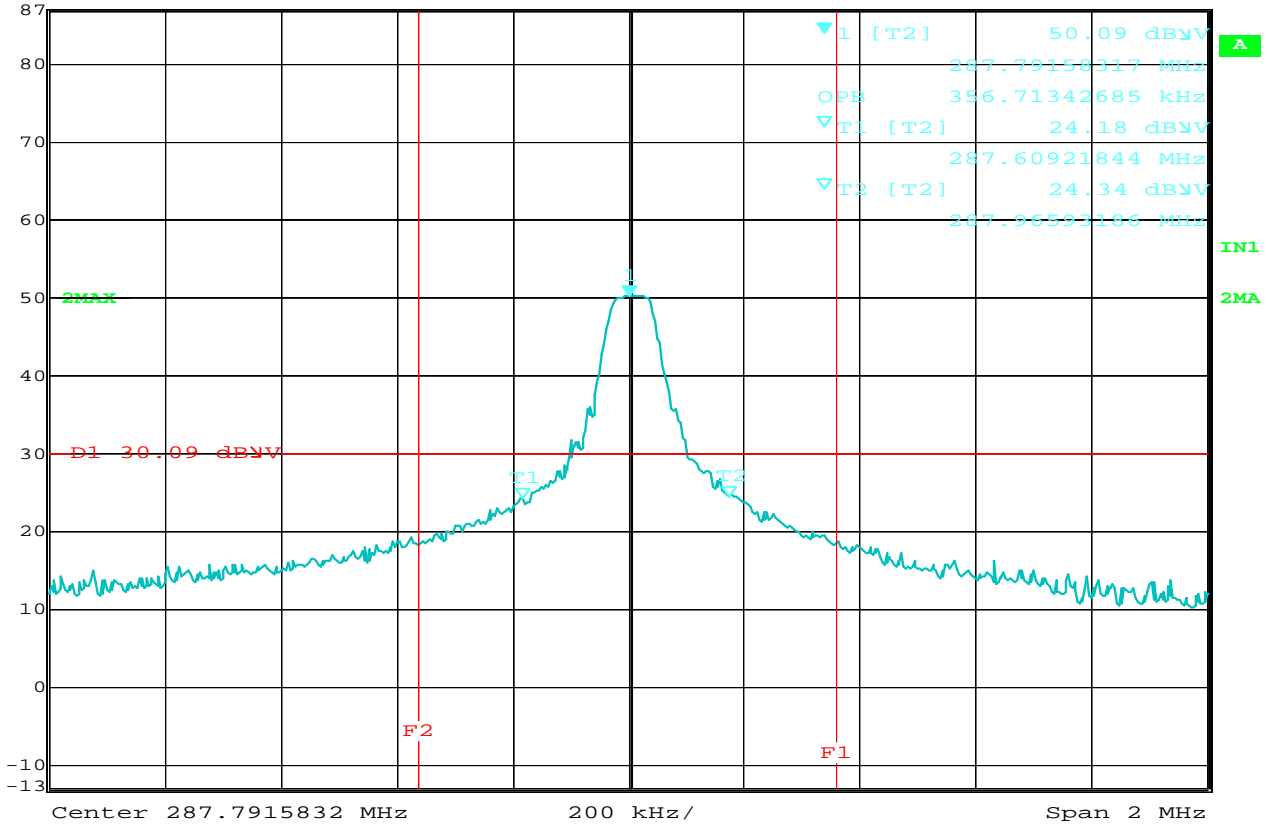
80% Modulation

Freq (MHz)	Ant Pol	Meter Reading (dBUV)	Ambient	CBL Fac (dB)	Ant Fac (dB)	Duty Cycle Factor (dB)	Total dBuV/m at 3 M	Total uV/m at 3M	Limit uV/m at 3M	Margin (dB)
340.00	H	60.8		1.2	15.0	-1.9	75.1	5713.2	7083.3	-1.9
340.00	V	58.3		1.2	15.0	-1.9	72.6	4274.4	7083.3	-4.4
365.00	H	60.1		1.3	15.8	-1.9	75.4	5855.2	8125.0	-2.8
365.00	V	57.5		1.3	15.8	-1.9	72.7	4330.5	8125.0	-5.5
390.00	H	60.4		1.5	16.2	-1.9	76.2	6431.3	9166.7	-3.1
390.00	V	61.1		1.5	16.2	-1.9	76.8	6931.1	9166.7	-2.4

Checked By: MARK E. LONGINOTTI
 Mark E. Longinotti



Marker 1 [T2] RBW 30 kHz RF Att 0 dB
 Ref Lvl 50.09 dBμV VBW 1 MHz
 87 dBμV 287.79158317 MHz SWT 6 ms Unit dBμV



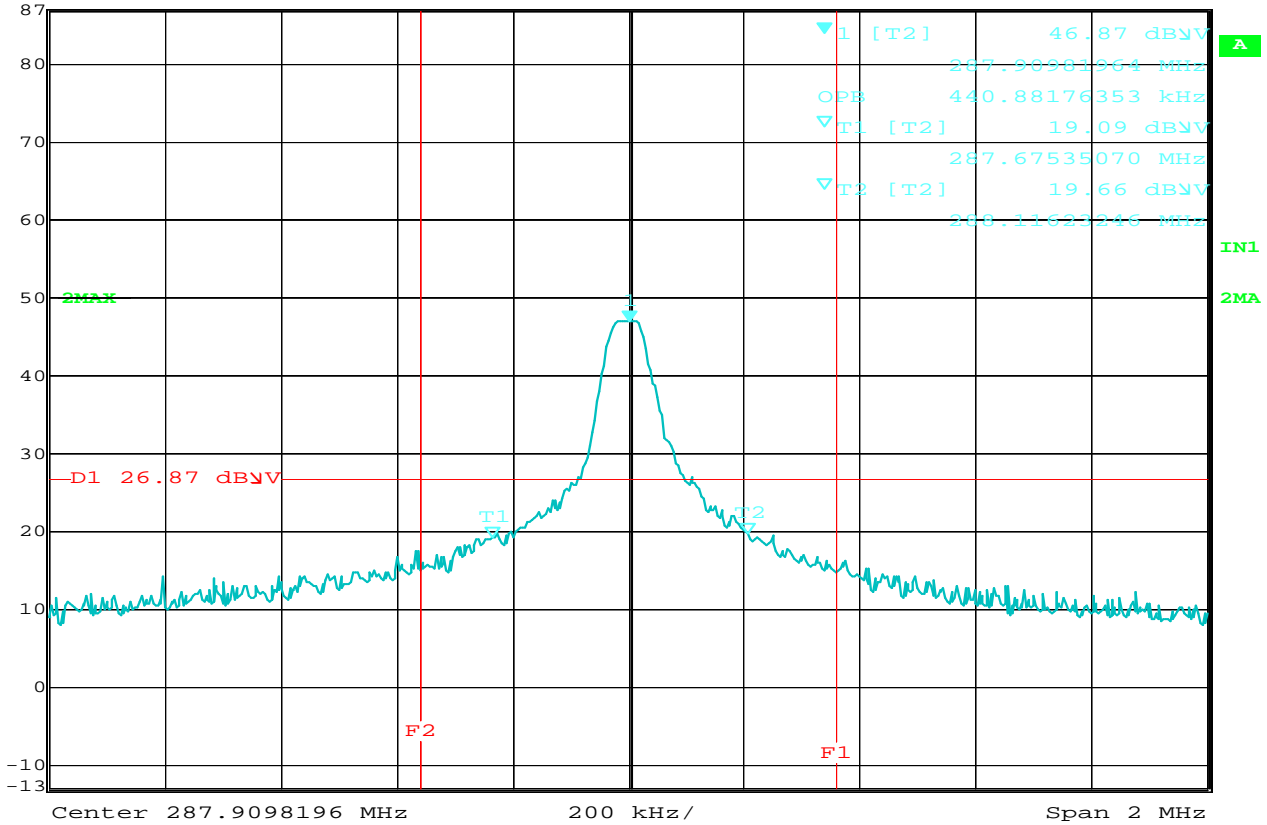
Date: 23.FEB.2012 14:10:13

20dB bandwidth and 99% bandwidth

MANUFACTURER : Gentex
 MODEL NUMBER : HSLMHL4
 SERIAL NUMBER :
 TEST MODE : Tx @ 288MHz, 30% Duty Cycle
 TEST DATE : February 23, 2012
 TEST PARAMETER : Bandwidth
 NOTES : Display Line (D1) represents the 20dB down point
 : from the modulated carrier. Display Lines
 : (F1 & F2) represent the 0.25% bandwidth
 : 99% bandwidth = 356.7kHz
 EQUIPMENT USED : RBA0, NTA0



Marker 1 [T2] RBW 30 kHz RF Att 0 dB
 Ref Lvl 46.87 dBμV VBW 1 MHz
 87 dBμV 287.90981964 MHz SWT 6 ms Unit dBμV



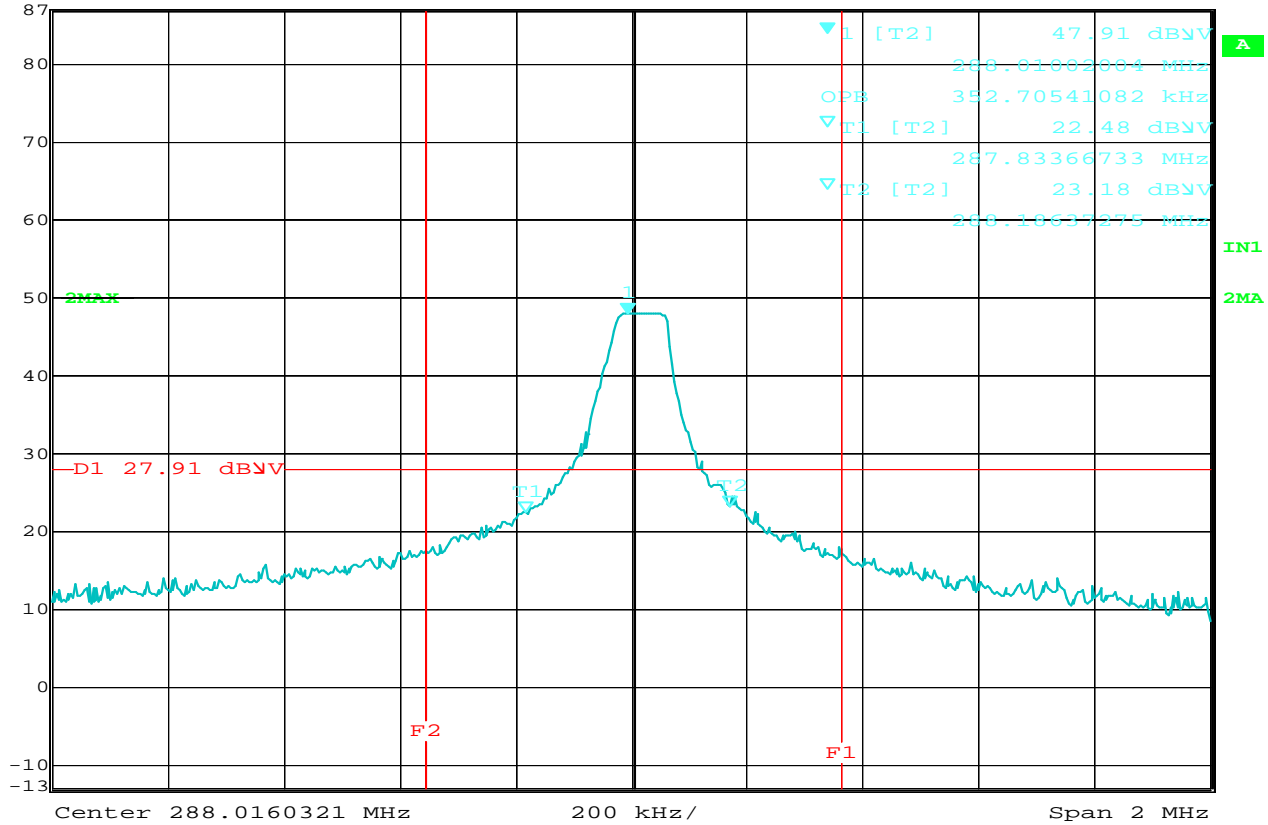
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20dB bandwidth and 99% bandwidth

MANUFACTURER : Gentex
 MODEL NUMBER : HSLMHL4
 SERIAL NUMBER :
 TEST MODE : Tx @ 288MHz, 50% Duty Cycle
 TEST DATE : February 23, 2012
 TEST PARAMETER : Bandwidth
 NOTES : Display Line (D1) represents the 20dB down point
 : from the modulated carrier. Display Lines
 : (F1 & F2) represent the 0.25% bandwidth
 : 99% bandwidth = 440.9kHz
 EQUIPMENT USED : RBA0, NTA0



Marker 1 [T2] RBW 30 kHz RF Att 0 dB
 Ref Lvl 47.91 dBμV VBW 1 MHz
 87 dBμV 288.01002004 MHz SWT 6 ms Unit dBμV



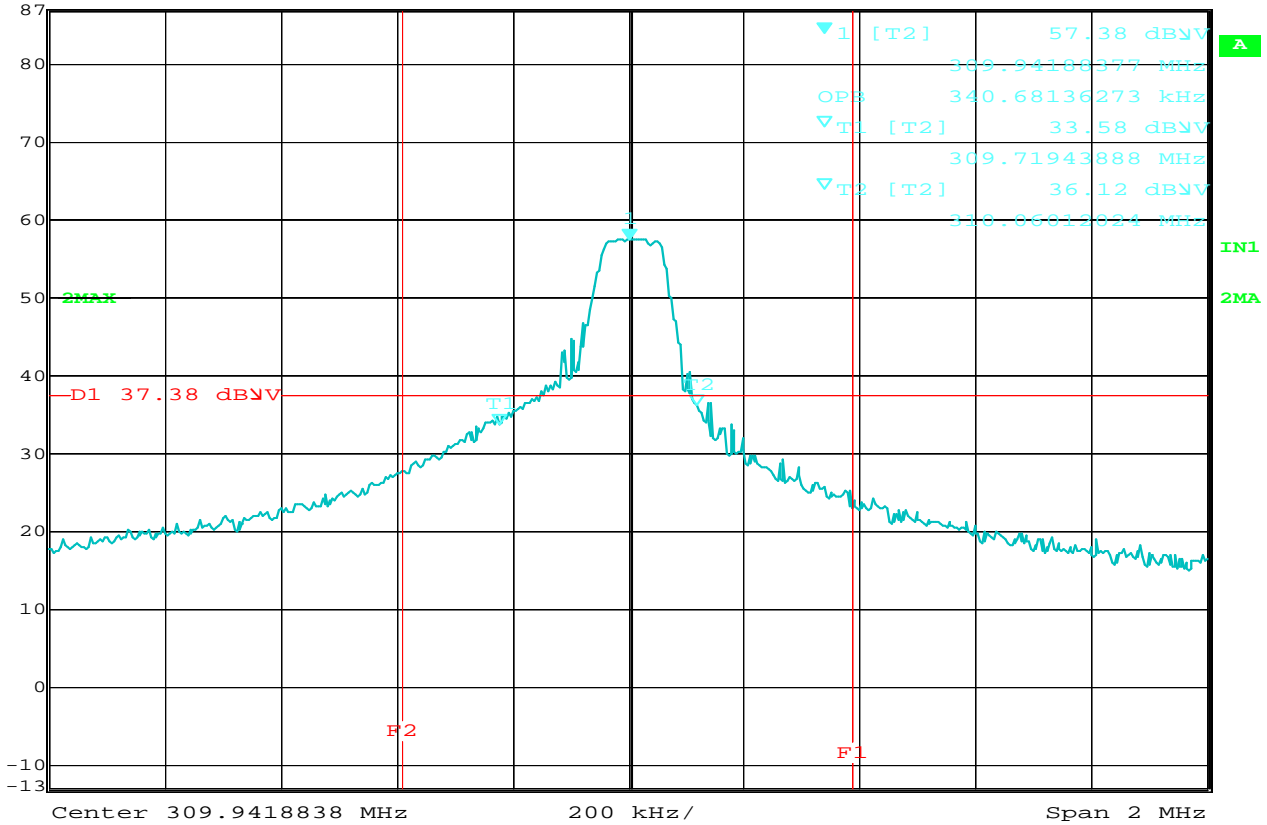
Date: 23.FEB.2012 14:19:23

20dB bandwidth and 99% bandwidth

MANUFACTURER : Gentex
 MODEL NUMBER : HSLMHL4
 SERIAL NUMBER :
 TEST MODE : Tx @ 288MHz, 80% Duty Cycle
 TEST DATE : February 23, 2012
 TEST PARAMETER : Bandwidth
 NOTES : Display Line (D1) represents the 20dB down point
 : from the modulated carrier. Display Lines
 : (F1 & F2) represent the 0.25% bandwidth
 : 99% bandwidth = 352.7kHz
 EQUIPMENT USED : RBA0, NTA0



Ref Lvl	Marker 1 [T2]	RBW	30 kHz	RF Att	0 dB
87 dBμV	57.38 dBμV	VBW	1 MHz		
	309.94188377 MHz	SWT	6 ms	Unit	dBμV



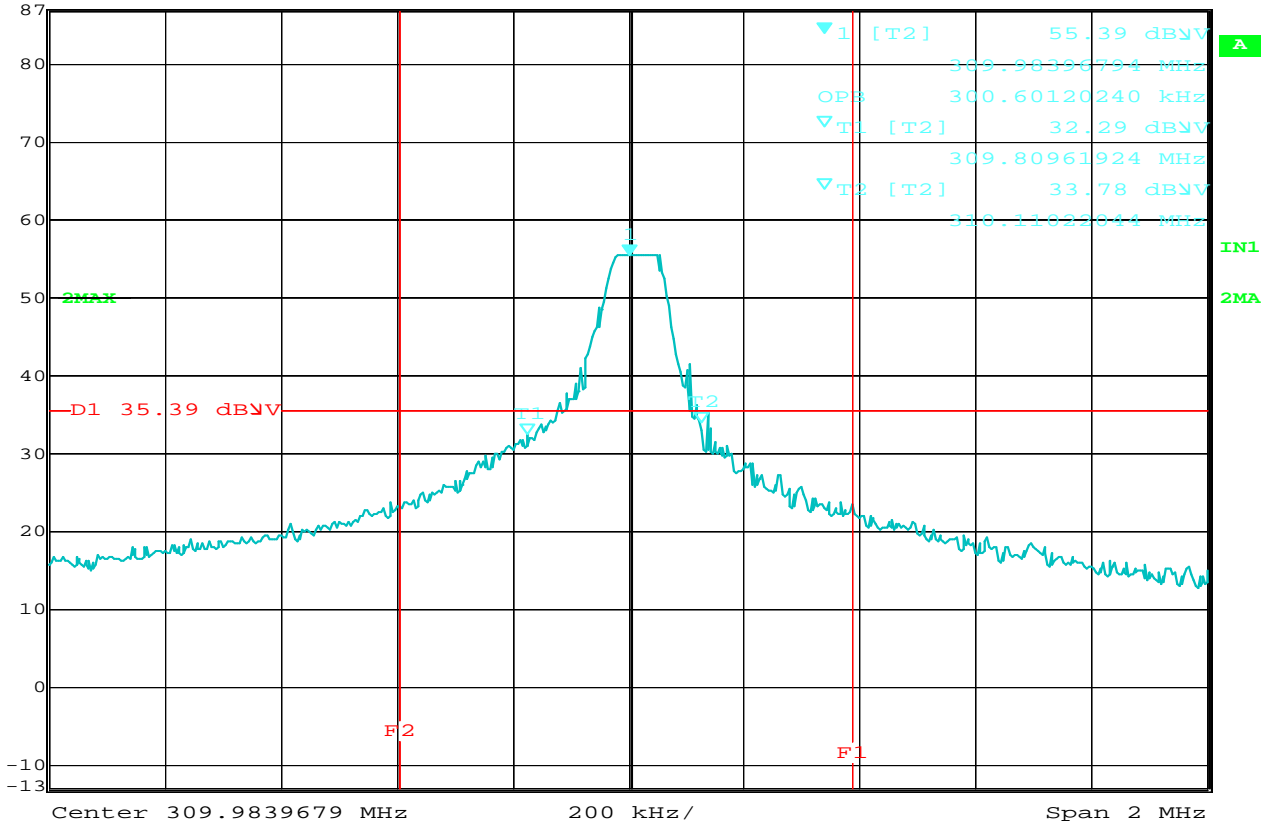
Date: 23.FEB.2012 15:03:31

20dB bandwidth and 99% bandwidth

MANUFACTURER	: Gentex
MODEL NUMBER	: HSLMHL4
SERIAL NUMBER	:
TEST MODE	: Tx @ 310MHz, 30% Duty Cycle
TEST DATE	: February 23, 2012
TEST PARAMETER	: Bandwidth
NOTES	: Display Line (D1) represents the 20dB down point : from the modulated carrier. Display Lines : (F1 & F2) represent the 0.25% bandwidth : 99% bandwidth =340.7kHz
EQUIPMENT USED	: RBA0, NTA0



Marker 1 [T2] RBW 30 kHz RF Att 0 dB
 Ref Lvl 55.39 dBμV VBW 1 MHz
 87 dBμV 309.98396794 MHz SWT 6 ms Unit dBμV



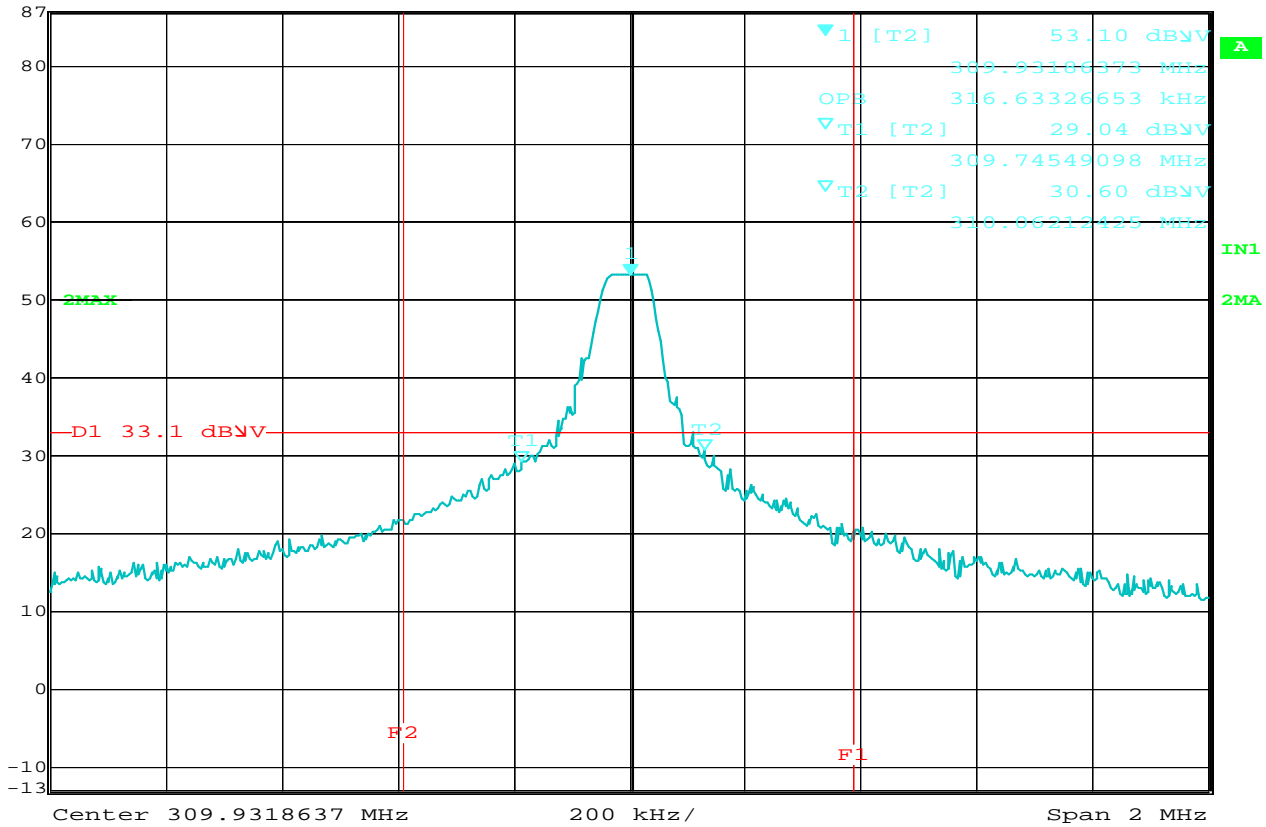
Date: 23.FEB.2012 15:06:21

20dB bandwidth and 99% bandwidth

MANUFACTURER : Gentex
 MODEL NUMBER : HSLMHL4
 SERIAL NUMBER :
 TEST MODE : Tx @ 310MHz, 50% Duty Cycle
 TEST DATE : February 23, 2012
 TEST PARAMETER : Bandwidth
 NOTES : Display Line (D1) represents the 20dB down point
 : from the modulated carrier. Display Lines
 : (F1 & F2) represent the 0.25% bandwidth
 : 99% bandwidth =300.6kHz
 EQUIPMENT USED : RBA0, NTA0



Marker 1 [T2] RBW 30 kHz RF Att 0 dB
 Ref Lvl 53.10 dBμV VBW 1 MHz
 87 dBμV 309.93186373 MHz SWT 6 ms Unit dBμV



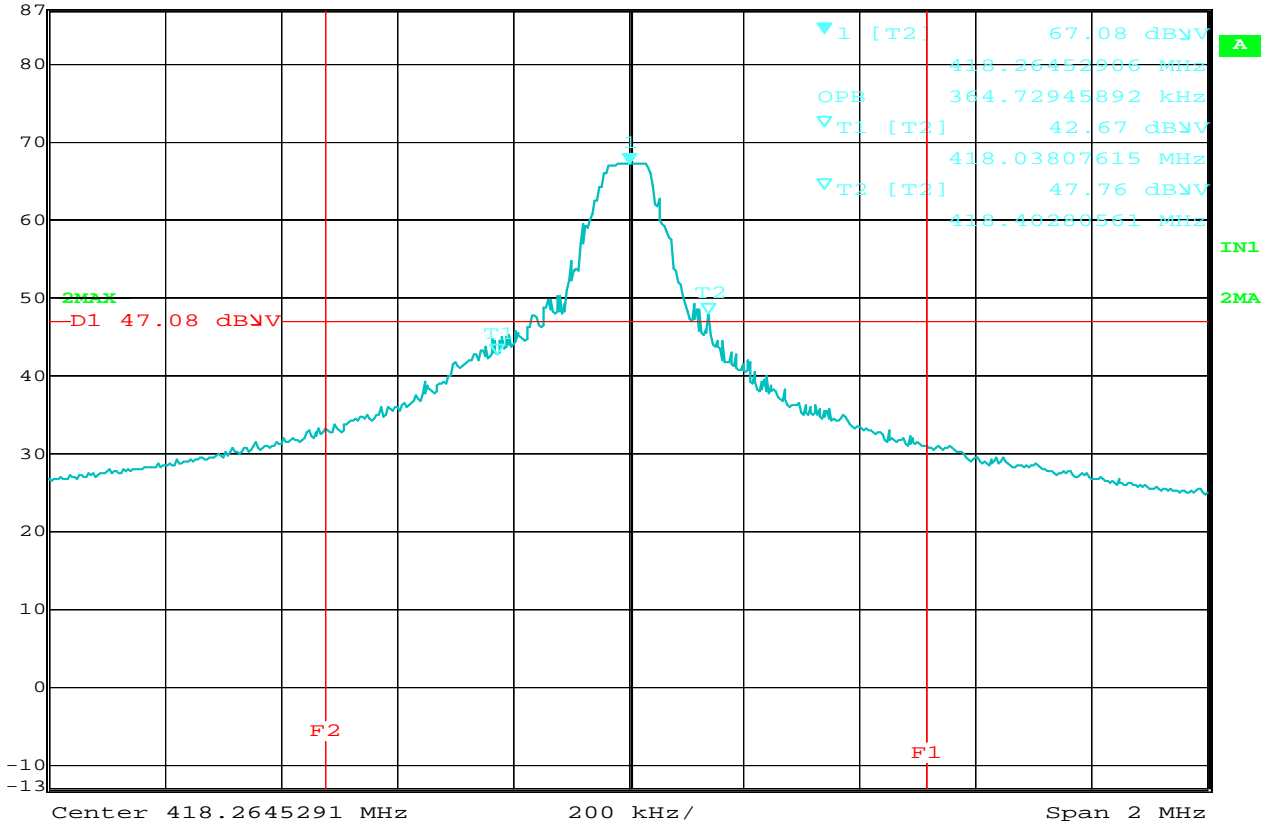
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20dB bandwidth and 99% bandwidth

MANUFACTURER : Gentex
 MODEL NUMBER : HSLMHL4
 SERIAL NUMBER :
 TEST MODE : Tx @ 310MHz, 80% Duty Cycle
 TEST DATE : February 23, 2012
 TEST PARAMETER : Bandwidth
 NOTES : Display Line (D1) represents the 20dB down point
 : from the modulated carrier. Display Lines
 : (F1 & F2) represent the 0.25% bandwidth
 : 99% bandwidth =316.6kHz
 EQUIPMENT USED : RBA0, NTA0



Marker 1 [T2] RBW 30 kHz RF Att 0 dB
 Ref Lvl 67.08 dB μ V VBW 1 MHz
 87 dB μ V 418.26452906 MHz SWT 6 ms Unit dB μ V

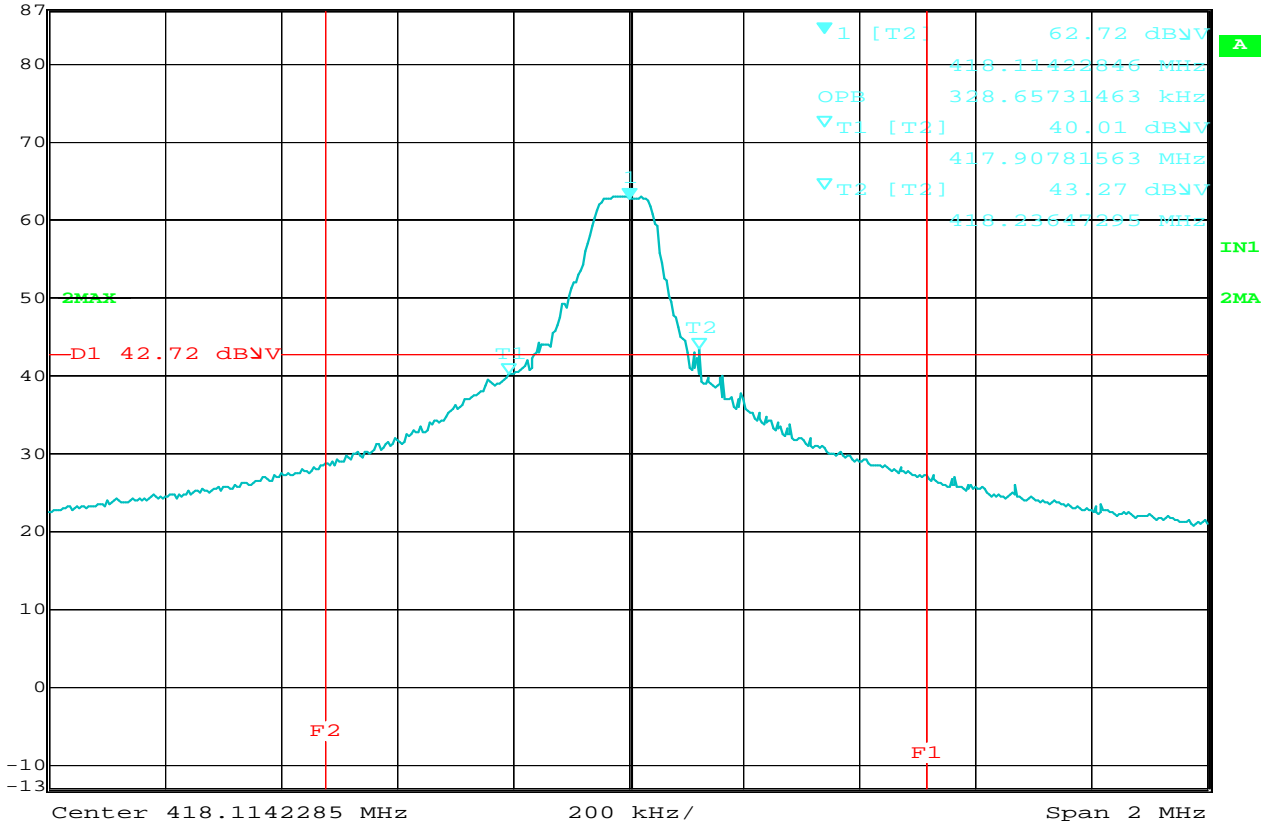


20dB bandwidth and 99% bandwidth

MANUFACTURER : Gentex
 MODEL NUMBER : HSLMHL4
 SERIAL NUMBER :
 TEST MODE : Tx @ 418MHz, 30% Duty Cycle
 TEST DATE : February 23, 2012
 TEST PARAMETER : Bandwidth
 NOTES : Display Line (D1) represents the 20dB down point
 : from the modulated carrier. Display Lines
 : (F1 & F2) represent the 0.25% bandwidth
 : 99% bandwidth = 368.7kHz
 EQUIPMENT USED : RBA0, NTA0



Ref Lvl	Marker 1 [T2]	RBW	30 kHz	RF Att	0 dB
87 dBV	62.72 dBV	VBW	1 MHz		
	418.11422846 MHz	SWT	6 ms	Unit	dBV



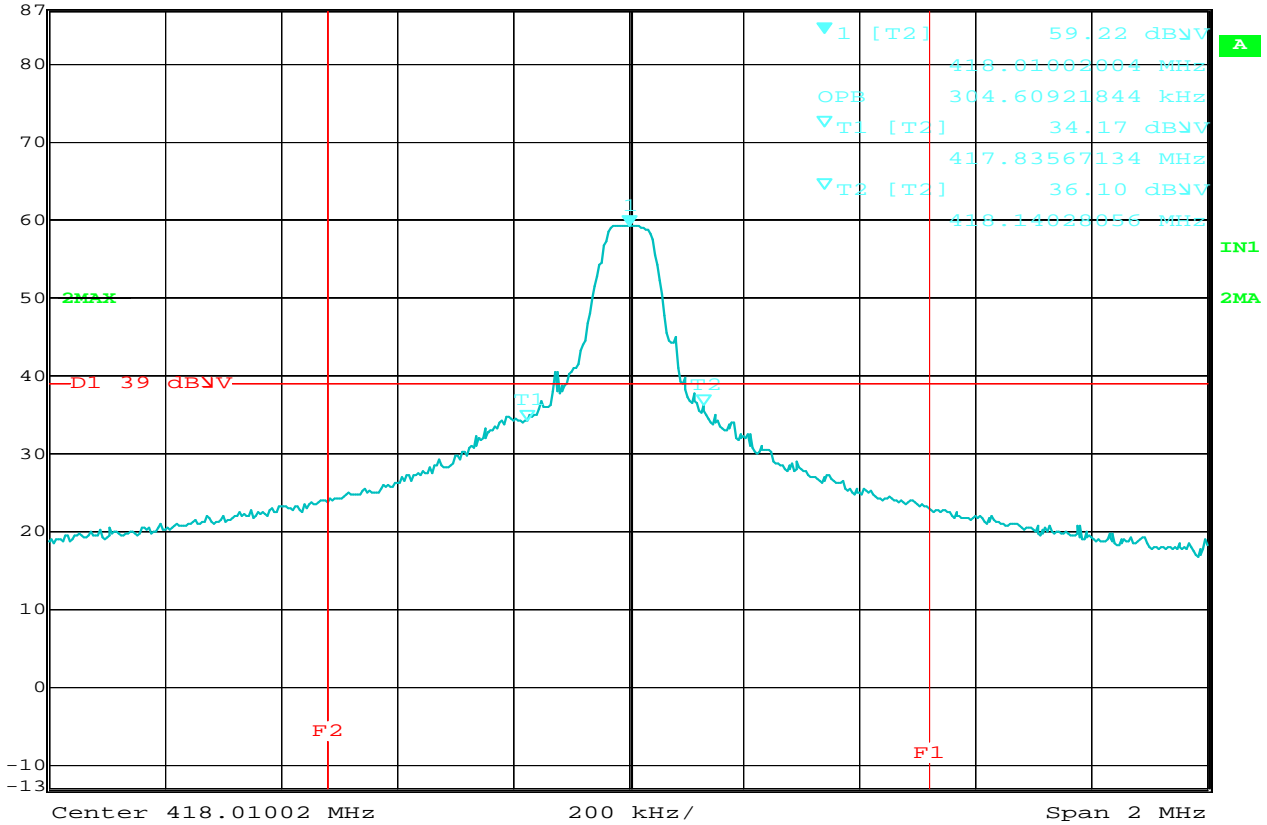
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20dB bandwidth and 99% bandwidth

MANUFACTURER : Gentex
 MODEL NUMBER : HSLMHL4
 SERIAL NUMBER :
 TEST MODE : Tx @ 418MHz, 50% Duty Cycle
 TEST DATE : February 23, 2012
 TEST PARAMETER : Bandwidth
 NOTES : Display Line (D1) represents the 20dB down point
 : from the modulated carrier. Display Lines
 : (F1 & F2) represent the 0.25% bandwidth
 : 99% bandwidth = 328.7kHz
 EQUIPMENT USED : RBA0, NTA0



Marker 1 [T2] RBW 30 kHz RF Att 0 dB
 Ref Lvl 59.22 dBμV VBW 1 MHz
 87 dBμV 418.01002004 MHz SWT 6 ms Unit dBμV



Date: 23.FEB.2012 14:01:52

20dB bandwidth and 99% bandwidth

MANUFACTURER : Gentex
 MODEL NUMBER : HSLMHL4
 SERIAL NUMBER :
 TEST MODE : Tx @ 418MHz, 80% Duty Cycle
 TEST DATE : February 23, 2012
 TEST PARAMETER : Bandwidth
 NOTES : Display Line (D1) represents the 20dB down point
 : from the modulated carrier. Display Lines
 : (F1 & F2) represent the 0.25% bandwidth
 : 99% bandwidth = 304.6kHz
 EQUIPMENT USED : RBA0, NTA0