Measurement of RF Interference from an Cummins INLINE 7 Data Link Adapter Transceiver

For	SNAP-ON NEXIQ Technologies 2950 Waterview Drive Rochester Hills, MI 48309
P.O. Number	915053
Date Received	November 12, 2015
Date Tested	November 17, 2015 through February 29, 2016
Test Personnel	Mark Longinotti
Specification	FCC "Code of Federal Regulations" Title 47, Part 15, Subpart C, Section 15.247 for Digitally Modulated Intentional Radiators Operating within the band 2400-2483.5MHz FCC "Code of Federal Regulations" Title 47, Part 15, Subpart E, Section 15.407 for Intentional Radiators Operating within the 5GHz band FCC "Code of Federal Regulations" Title 47, Part15, Subpart 15B, Section 15.107 and 15.109 for Receivers Industry Canada RSS-247 Industry Canada RSS-GEN
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REVISION HISTORY

Revision	Date	Description
—	03/03/2016	Initial release

Measurement of RF Emissions from a Cummins INLINE 7 Data Link Adapter

1. INTRODUCTION

1.1 Scope of Tests

This document represents the results of the series of radio interference measurements performed on a SNAP-ON NEXIQ Technologies Data Link Adapter, Part No. Cummins INLINE 7 transceiver (hereinafter referred to as the EUT). Serial No. 104 was assigned to the EUT used for all case spurious radiated emissions tests. Serial No. 101 was assigned to the EUT used for all peak output power measurements. The EUT contains a digitally modulated transceiver, FCC ID: PV7-WIBEAR11N-DF1, IC: 7738A-WB11NDF1. The transceiver was designed to transmit and receive in the 2400-2483.5 MHz and the 5GHz band using a Dual-band integral antenna A10194 antenna. The antenna gain of the A10194 antenna was 1.8dB in the 2400-2483.5MHz band and 4.1dB in the 5GHz band. The EUT was manufactured and submitted for testing by SNAP-ON NEXIQ Technologies located in Rochester Hills, MI.

1.2 Purpose

This limited test series was performed to determine if the transceiver, FCC ID: PV7-WIBEAR11N-DF1, IC: 7738A-WB11NDF1 when installed in the EUT, continues to comply with the following requirements:

- FCC "Code of Federal Regulations" Title 47, Part 15,Subpart C, Section 15.247 for Digitally Modulated Intentional Radiators Operating within the band 2400-2483.5MHz
- FCC "Code of Federal Regulations" Title 47, Part 15, Subpart E, Section 15.407 for Intentional Radiators Operating within the 5GHz band
- FCC “Code of Federal Regulations” Title 47, Part15,Subpart 15B, Section 15.107 and 15.109 for Receivers
- Industry Canada RSS-247
- Industry Canada RSS-GEN

Testing was performed in accordance with ANSI C63.10-2013.

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 Lab Code: 1786-01.

1.5 Laboratory Conditions

The temperature at the time of the test was 21C and the relative humidity was 19%.

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
- ANSI C63.10-2013, "American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices"

- Measurement of Digital Transmission Systems Operating under Section 15.247 June 9, 2015

- Industry Canada RSS-247, Issue 1,May 2015, “Spectrum Management and Telecommunications Radio Standards Specification, Digital Transmission Systems (DTSs), Frequency Hopping Systems (FHSs) and License-Exempt Local Area Network (LE-LAN) Devices”

- Industry Canada RSS-GEN, Issue 4, November 2014, “Spectrum Management and Telecommunications Radio Standards Specification, General Requirements for Compliance of Radio Apparatus”

3. EUT SET-UP AND OPERATION

3.1 General Description

The EUT is a Data Link Adapter, Part No. Cummins INLINE 7. A block diagram of the EUT setup is shown as Figure 1 and Figure 2.

3.1.1 Power Input

The EUT normally receives 13.5VDC from vehicle power via 2 leads of a 26-lead serial cable. For testing purposes the power leads were separated from the rest of the serial cable and the 13.5VDC was provided by a power supply.

3.1.2 Peripheral Equipment

The following peripheral equipment was submitted with the EUT:

Item	Description
Laptop Computer	Dell Latitude Laptop Computer

3.1.3 Interconnect Cables

The following interconnect cables were submitted with the EUT:

Item	Description
Serial Cable	90cm long serial cable used to connect the EUT to the Dell Latitude Laptop Computer

3.1.4 Grounding

The EUT was not grounded.

3.2 Software

For all tests the EUT had Firmware Version 00.012400 loaded onto the device to provide correct load characteristics.

3.3 Operational Mode

The Dell Laptop computer was used to program the EUT to operate in one of the following modes (the computer was disconnected from the EUT and removed from the test chamber during testing):

FCC 15.247

- Transmit at 2412MHz (Channel 1), 802.11b, 1Mb/sec, power setting = 18
- Transmit at 2412MHz (Channel 1), 802.11g, 6Mb/sec, power setting = 18
- Transmit at 2412MHz (Channel 1), 802.11n, 72.2Mb/sec, power setting = 18
- Transmit at 2437MHz (Channel 6), 802.11b, 1Mb/sec, power setting = 18
- Transmit at 2437MHz (Channel 6), 802.11g, 6Mb/sec, power setting = 18

- Transmit at 2437MHz (Channel 6), 802.11n, 72.2Mb/sec, power setting = 18
- Transmit at 2462MHz (Channel 11), 802.11b, 1Mb/sec, power setting = 18
- Transmit at 2462MHz (Channel 11), 802.11g, 6Mb/sec, power setting = 18
- Transmit at 2462MHz (Channel 11), 802.11n, 72.2Mb/sec, power setting = 18
- Transmit at 2422MHz (Channel 3), 802.11n, 150Mb/sec (40MHz bandwidth), power setting = 18
- Transmit at 2437MHz (Channel 6), 802.11n, 150Mb/sec (40MHz bandwidth), power setting = 18
- Transmit at 2462MHz (Channel 11), 802.11n, 150Mb/sec (40MHz bandwidth), power setting = 18

FCC 15.407

- Transmit at 5745MHz (Channel 149), 802.11a, 6Mb/sec, power setting = 18
- Transmit at 5785MHz (Channel 157), 802.11a, 6Mb/sec, power setting = 18
- Transmit at 5825MHz (Channel 165), 802.11a, 6Mb/sec, power setting = 18
- Transmit at 5745MHz (Channel 149), 802.11n, 72.2Mb/sec, power setting = 18
- Transmit at 5785MHz (Channel 157), 802.11n, 72.2Mb/sec, power setting = 18
- Transmit at 5825MHz (Channel 165), 802.11n, 72.2Mb/sec, power setting = 18
- Transmit at 5755MHz (Channel 151), 802.11n, 150Mb/sec (40MHz bandwidth), power setting = 18
- Transmit at 5795MHz (Channel 151), 802.11n, 150Mb/sec (40MHz bandwidth), power setting = 18

3.4 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 C63.4-2014 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 and radiated emission tests were performed with an EMI receiver utilizes the bandwidths and detectors specified by the FCC.

4.3 Calibration Traceability

Test equipment is maintained and calibrated on a regular basis with a calibration interval no greater than two years. 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	1.06	-1.06
Expanded Uncertainty (95% confidence)	2.12	-2.12
Radiated Emissions Measurements		
Combined Standard Uncertainty	2.09	-2.09
Expanded Uncertainty (95% confidence)	4.19	-4.19

5. TEST PROCEDURES

5.1 Receiver

5.1.1 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 the Industry Canada RSS-Gen, only radiocommunication receivers operating in stand-alone mode within the band 30-960 MHz, as well as scanner receivers, are subject to Industry Canada requirements. All other receivers are exempted from any Industry Canada certification, testing, labeling and reporting requirements.

5.2 Transmitter

5.2.1 FCC Part 15, Subpart C, Section 247

5.2.1.1 Peak EIRP

5.2.1.1.1 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).

5.2.1.1.2 Procedures

The antenna port of the EUT was connected to a wideband power sensor, Keysight M/N: N1923A, through 20dB of attenuation. The output of the power sensor was connected to a peak power analyzer, Keysight M/N: 8990B. The EUT was programmed to transmit in each of the modes listed in section 3.3. The peak power reading for each mode was measured and recorded (correcting for the external attenuation). The gain of the antenna was added to the conducted peak power reading to determine the peak EIRP.

5.2.1.1.3 Results

The results are presented on page 22. The maximum peak EIRP from the transmitter was 181.1mW (22.58 dBm) which is below the 4 Watt limit.

5.2.1.2 Radiated Spurious Emissions Measurements

5.2.1.2.1 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

5.2.1.2.2 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 26.5GHz was investigated using a peak detector function.

The final open field emission tests were then manually performed over the frequency range of 30MHz to 26.5GHz.

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 EUT was placed on an 80cm high non-conductive stand. 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 EUT was placed on a 1.5m high non-conductive stand. 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 re-measured 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. These readings must be no greater than the limits specified in 15.209(a).

5.2.1.2.3 Results

Transmit at 2412MHz (Ch. 1)

Preliminary radiated emissions plots are shown on pages 23 through 46. Final radiated emissions data are presented on data pages 47 through 52. As can be seen from the data, all emissions measured from the EUT were within the specification limits.

Transmit at 2437MHz (Ch. 6)

Preliminary radiated emissions plots are shown on pages 53 through 76. Final radiated emissions data are presented on data pages 77 through 82. As can be seen from the data, all emissions measured from the EUT were within the specification limits.

Transmit at 2462MHz (Ch. 11)

Preliminary radiated emissions plots are shown on pages 83 through 106. Final radiated emissions data are presented on data pages 107 through 112. As can be seen from the data, all emissions measured from the EUT were within the specification limits.

Transmit at 2422MHz (Ch. 13), 40MHz bandwidth

Preliminary radiated emissions plots are shown on pages 113 through 120. Final radiated emissions data are presented on data pages 121 and 122. As can be seen from the data, all emissions measured from the EUT were within the specification limits.

Transmit at 2437MHz (Ch. 6), 40MHz bandwidth

Preliminary radiated emissions plots are shown on pages 123 through 130. Final radiated emissions data are presented on data pages 131 and 132. As can be seen from the data, all emissions measured from the EUT were within the specification limits.

Transmit at 2462MHz (Ch. 11), 40MHz bandwidth

Preliminary radiated emissions plots are shown on pages 133 through 140. Final radiated emissions data are presented on data pages 141 and 142. As can be seen from the data, all emissions measured from the EUT were within the specification limits.

Photographs of the test configuration which yielded the highest, or worst case, radiated emission levels are shown on Figures 3 through 5.

5.2.1.3 High Band Edge Compliance

5.2.1.3.1 Requirements

Per section 15.247(d), the radiated emissions which fall in the restricted band beginning at 2483.5 MHz must meet the general limits of 15.209(a).

5.2.1.3.2 Procedures

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.

5.2.1.3.3 Results

Pages 143 through 150 show the band-edge compliance results. As can be seen from the data, the radiated emissions at the high end band edge are within the general limits.

5.2.2 FCC Part 15, Subpart E, Section 407

5.2.2.1 Peak Output Power

5.2.2.1.1 Requirements

Per section 15.407(a)(3), 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).

5.2.2.1.2 Procedures

The antenna port of the EUT was connected to a wideband power sensor, Keysight M/N: N1923A, through 20dB of attenuation. The output of the power sensor was connected to a peak power analyzer, Keysight M/N: 8990B. The EUT was programmed to transmit in each of the modes listed in section 3.3. The peak power reading for each mode was measured and recorded (correcting for the external attenuation). The gain of the antenna was added to the conducted peak power reading to determine the peak EIRP.

5.2.2.1.3 Results

The results are presented on page 152. The maximum peak EIRP from the transmitter was 284.4mW (24.54 dBm) which is below the 4 Watt limit.

5.2.2.2 Radiated Spurious Emissions Measurements

5.2.2.2.1 Requirements

Per 15.407(b)(6), unwanted emissions below 1GHz must comply with the general field strength limits set forth in §15.209. In addition, per §15.407(b)(7), 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 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

5.2.2.2.2 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 40GHz was investigated using a peak detector function.

The final open field emission tests were then manually performed over the frequency range of 30MHz to 40GHz.

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 EUT was placed on an 80cm high non-conductive stand. 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 EUT was placed on a 1.5m high non-conductive stand. 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 re-measured 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. These readings must be no greater than the limits specified in 15.209(a).

5.2.2.2.3 Results

Transmit at 5745MHz (Ch. 149)

Preliminary radiated emissions plots are shown on pages 153 through 172. Final radiated emissions data are presented on data pages 173 through 177. As can be seen from the data, all emissions measured from the EUT were within the specification limits.

Transmit at 5785MHz (Ch. 157)

Preliminary radiated emissions plots are shown on pages 178 through 197. Final radiated emissions data are presented on data pages 198 through 201. As can be seen from the data, all emissions measured from the EUT were within the specification limits.

Transmit at 5825MHz (Ch. 165)

Preliminary radiated emissions plots are shown on pages 202 through 221. Final radiated emissions data are presented on data pages 222 through 225. As can be seen from the data, all emissions measured from the EUT were within the specification limits.

Transmit at 5755MHz (Ch. 151), 40MHz bandwidth

Preliminary radiated emissions plots are shown on pages 226 through 235. Final radiated emissions data are presented on data pages 236 and 237. As can be seen from the data, all emissions measured from the EUT were within the specification limits.

Transmit at 5795MHz (Ch. 159), 40MHz bandwidth

Preliminary radiated emissions plots are shown on pages 238 through 247. Final radiated emissions data are presented on data pages 248 and 249. As can be seen from the data, all emissions measured from the EUT were within the specification limits.

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, with a limited series of emissions tests, that the digital modulation transceiver, FCC ID: PV7-WIBEAR11N-DF1, IC: 7738A-WB11NDF1 when installed in the SNAP-ON NEXIQ Technologies Data Link Adapter, Part No. Cummins INLINE 7, continues to 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, the conducted and radiated emissions of the FCC “Code of Federal Regulations” Title 47, Part 15, Subpart C, Sections 15.207 and 15.247 for Intentional Radiators Operating within the 2400-2483.5 MHz, and the conducted and radiated emissions requirements of the FCC “Code of Federal Regulations” Title 47, Part 15, Subpart C, Sections 15.207 and 15.407 for Intentional Radiators Operating within the 5GHz band, when tested per ANSI C63.4-2014.

It was also determined, with a limited series of emissions tests, that the digital modulation transceiver, FCC ID: PV7-WIBEAR11N-DF1, IC: 7738A-WB11NDF1 when installed in the SNAP-ON NEXIQ Technologies Data Link

Adapter, Part No. Cummins INLINE 7, continues to fully meet the conducted and radiated RF emission requirements of the Industry Canada Radio Standards Specification, RSS-Gen, Section 8.8 and Section 7.1.2 for receivers and the Industry Canada Radio Standards Specification RSS-Gen Section 8.8 and RSS-247 for transmitters operating in the 2400MHz-2483.5MHz band and the 5GHz band, when tested per ANSI C63.4-2014.

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 certification, approval, or endorsement by A2LA, NIST or any agency of the Federal 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	2/17/2015	3/17/2016
APW11	PREAMPLIFIER	PMI	PE2-35-120-5R0-10-12-SFF	PL11685/1241	1GHZ-20GHZ	3/5/2015	3/5/2016
APW4	PREAMPLIFIER	PLANAR	PE2-36-2D540G-5R0-10	PL3043/0651	26.5GHZ-40GHZ	2/17/2015	3/17/2016
CDY3	LAB COMPUTER	ELITE	WORKSTATION		WINDOWS 7	N/A	
MPW0	POWER METER	KEYSIGHT	8990B	MY51000388		2/5/2016	2/5/2017
MWPA	WIDEBAND POWER SENSOR	KEYSIGHT	N1923A	MY56080002	50MHZ-18GHZ	2/17/2016	2/17/2017
NHG0	STANDARD GAIN HORN ANTENNA	NARDA	638	---	18-26.5GHZ	NOTE 1	
NHH0	STANDARD GAIN HORN ANTENNA	NARDA	V637	---	26.5-40GHZ	NOTE 1	
NTA2	BILOG ANTENNA	TESEQ	6112D	28040	25-1000MHz	10/27/2015	10/27/2016
NWQ2	DOUBLE RIDGED WAVEGUIDE ANTENNA	ETS LINDGREN	3117	66659	1GHZ-18GHZ	2/9/2015	2/9/2017
RBB0	EMI TEST RECEIVER 20HZ TO 40 GHZ	ROHDE & SCHWARZ	ESIB40	100250	20 HZ TO 40GHZ	2/16/2016	2/16/2017
T1E8	10DB 25W ATTENUATOR	WEINSCHEL	46-10-34	BH7996	DC-18GHZ	8/11/2015	8/11/2016
T1EQ	10DB 25W ATTENUATOR	WEINSCHEL	46-10-34	CD6791	DC-18GHZ	5/12/2015	5/12/2016
XOA2	WAVE-TO-COAX ADAPTER	HEWLETT PACKARD	R281B	01138	26.5-65GHZ	NOTE 1	
XOB2	ADAPTER	HEWLETT PACKARD	K281C,012	09407	18-26.5GHZ	NOTE 1	
XPQ5	FILTER	K&L MICROWAVE	11SH10-9000/U2000-O/O	1	5000-5800 MHZ	9/22/2015	9/22/2016
XPR0	HIGH PASS FILTER	K&L MICROWAVE	11SH10-4800/X20000	001	4.8-20GHZ	9/22/2015	9/22/2016

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.

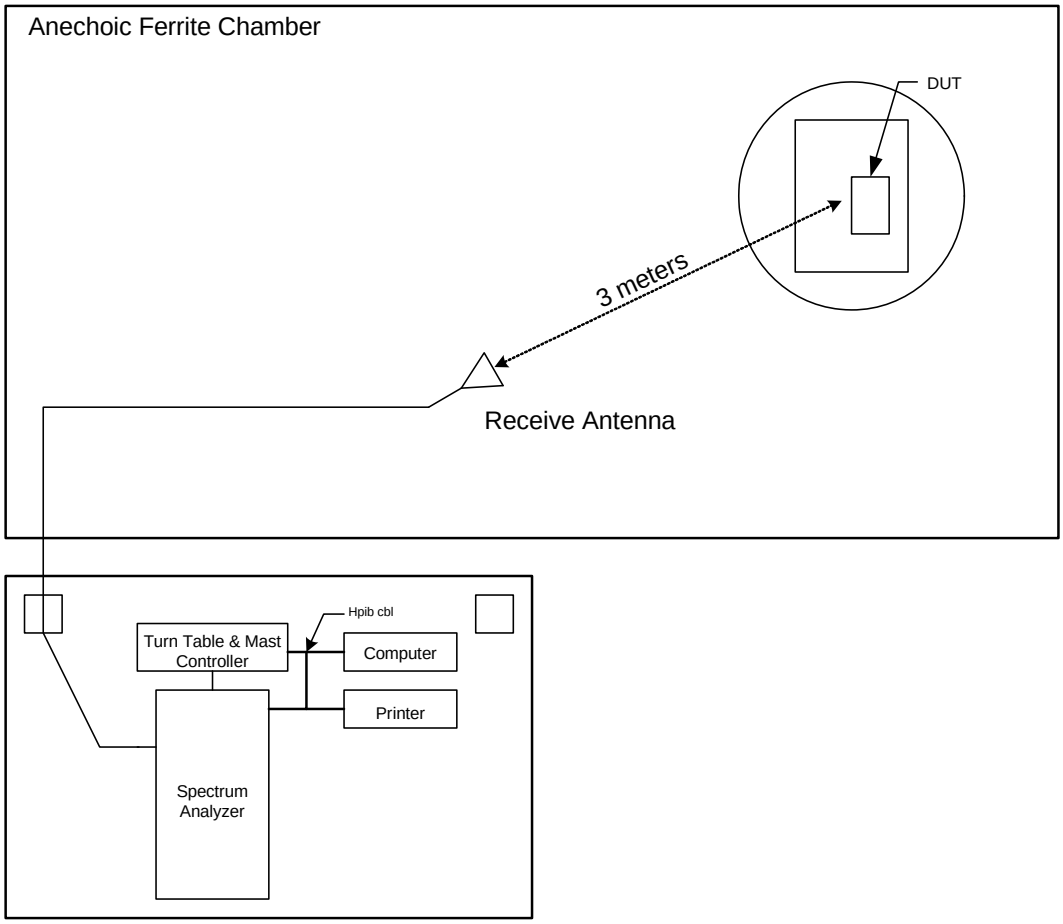


FIGURE 1 BLOCKDIAGRAM OF TEST SETUP

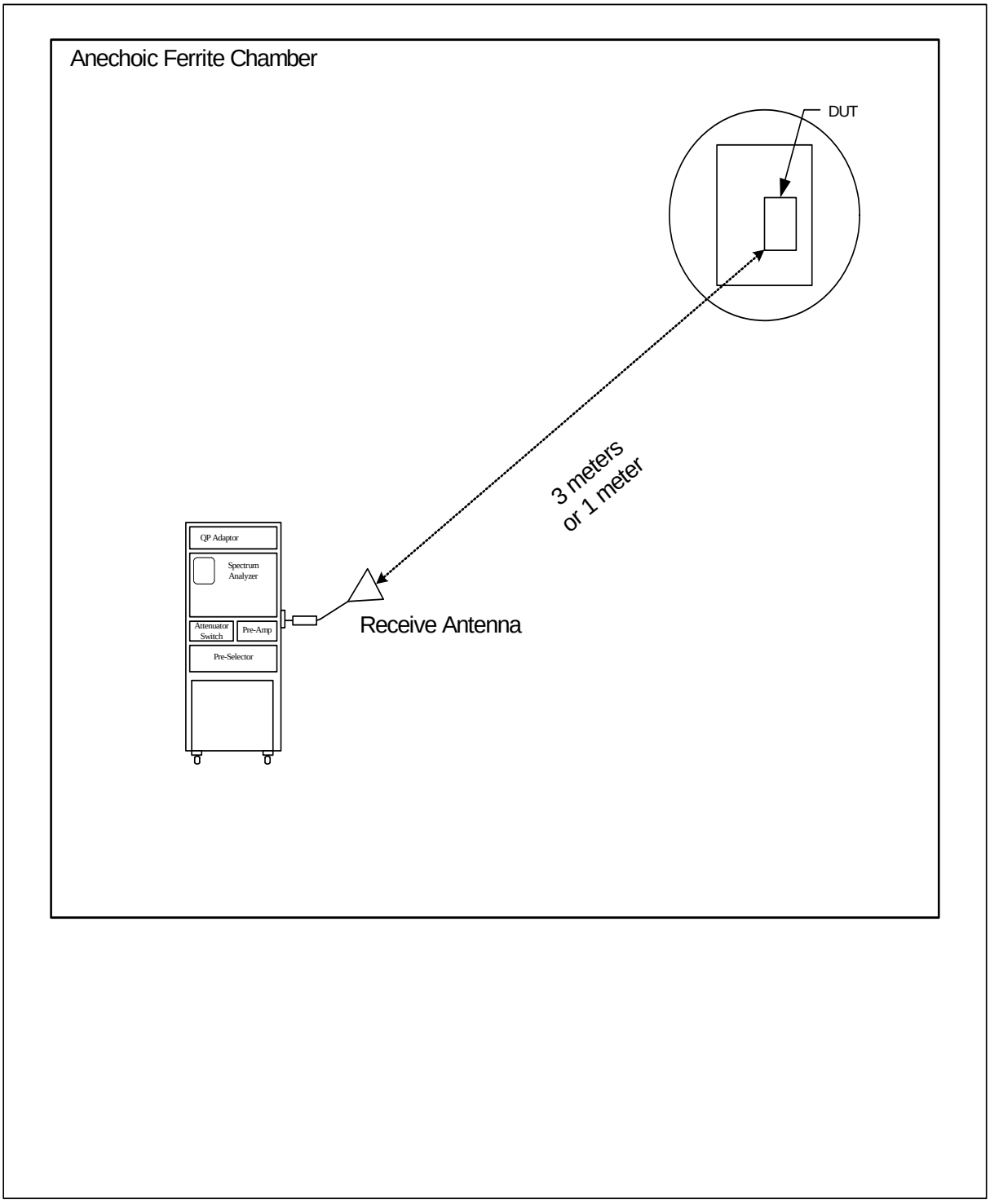
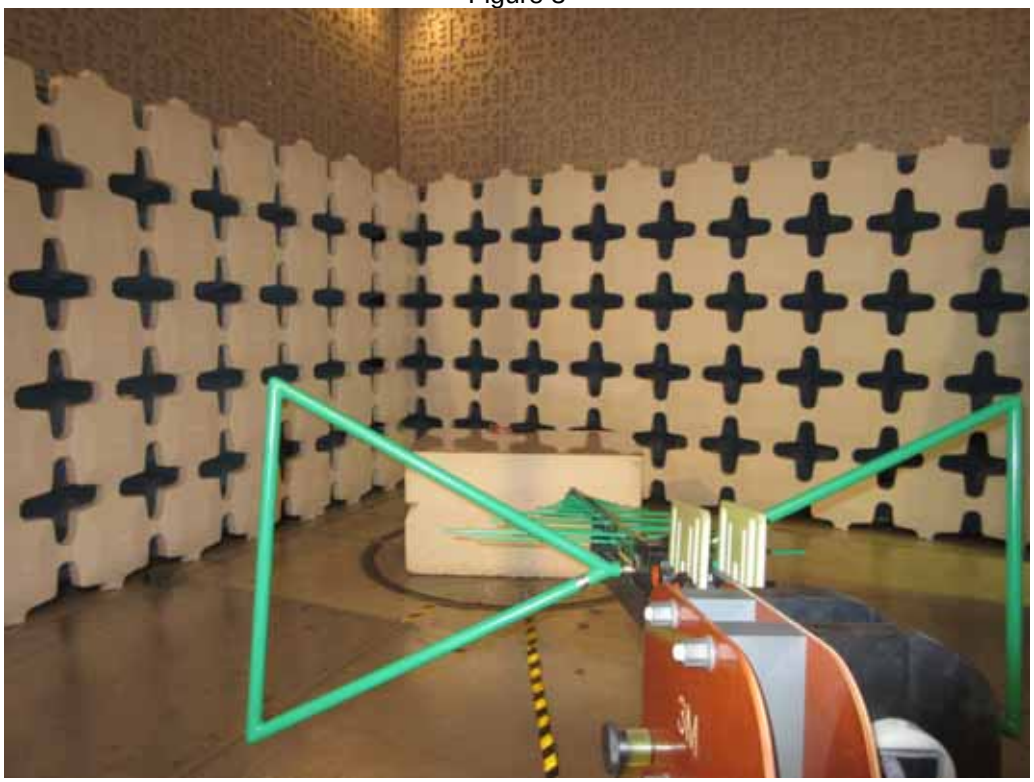
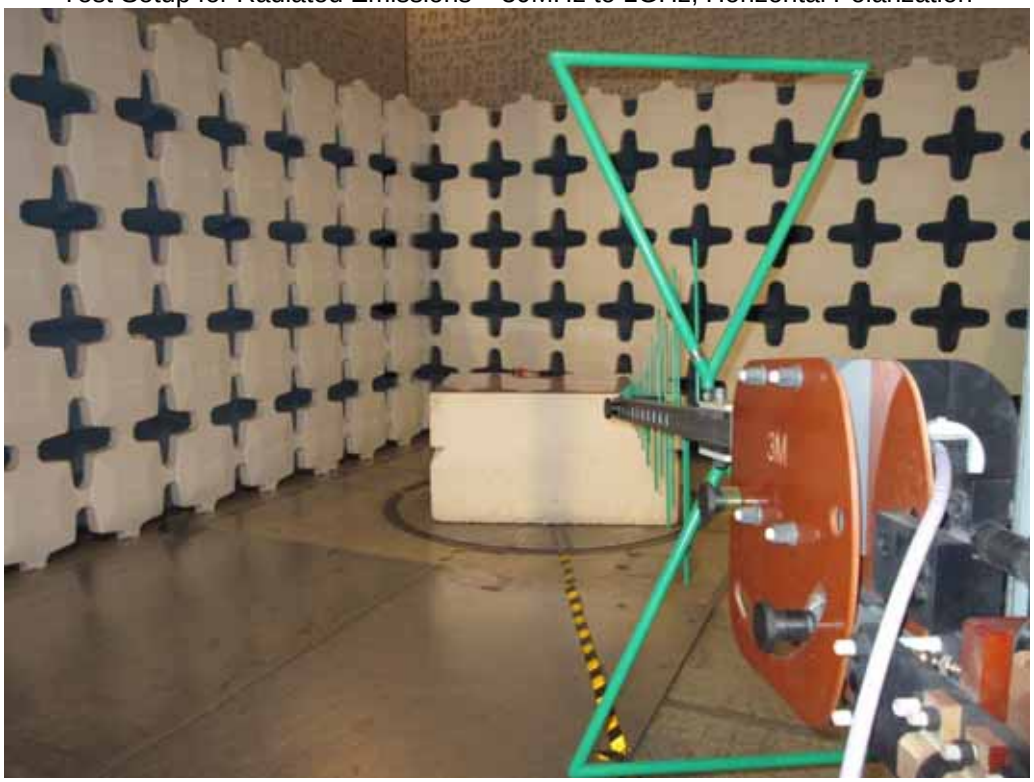


Figure 2: BLOCK DIAGRAM OF TEST SETUP FOR RADIATED EMISSIONS ABOVE 18GHZ

Figure 3



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



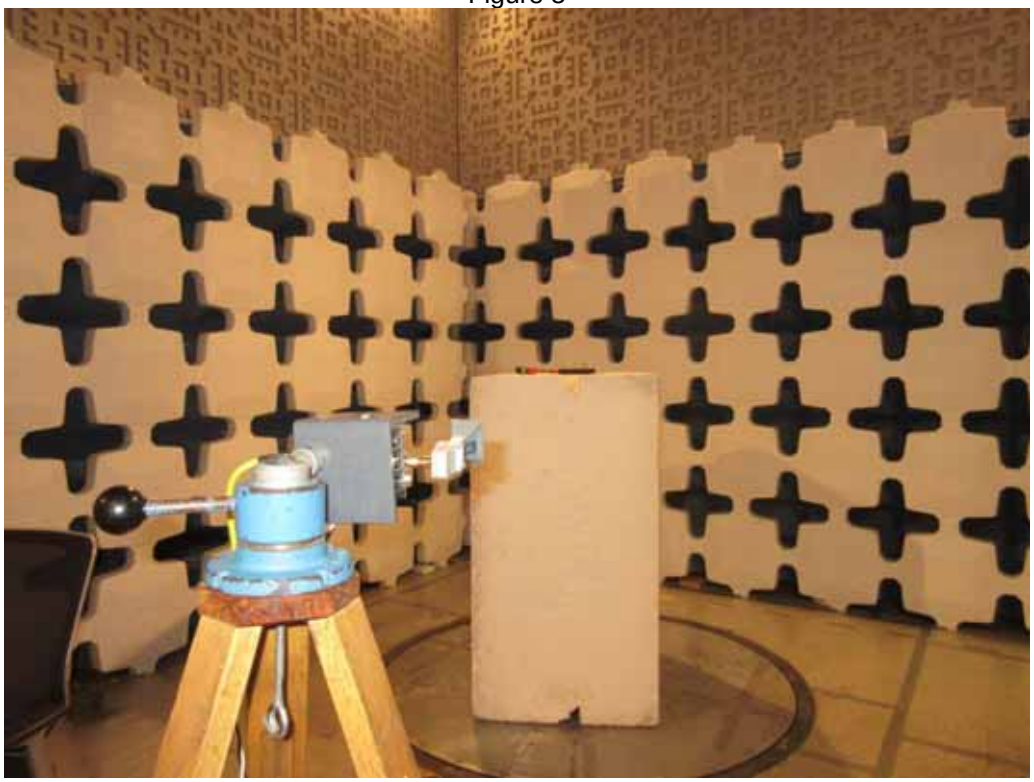
Test Setup for Radiated Emissions – 30MHz to 1GHz, Vertical Polarization

Figure 4

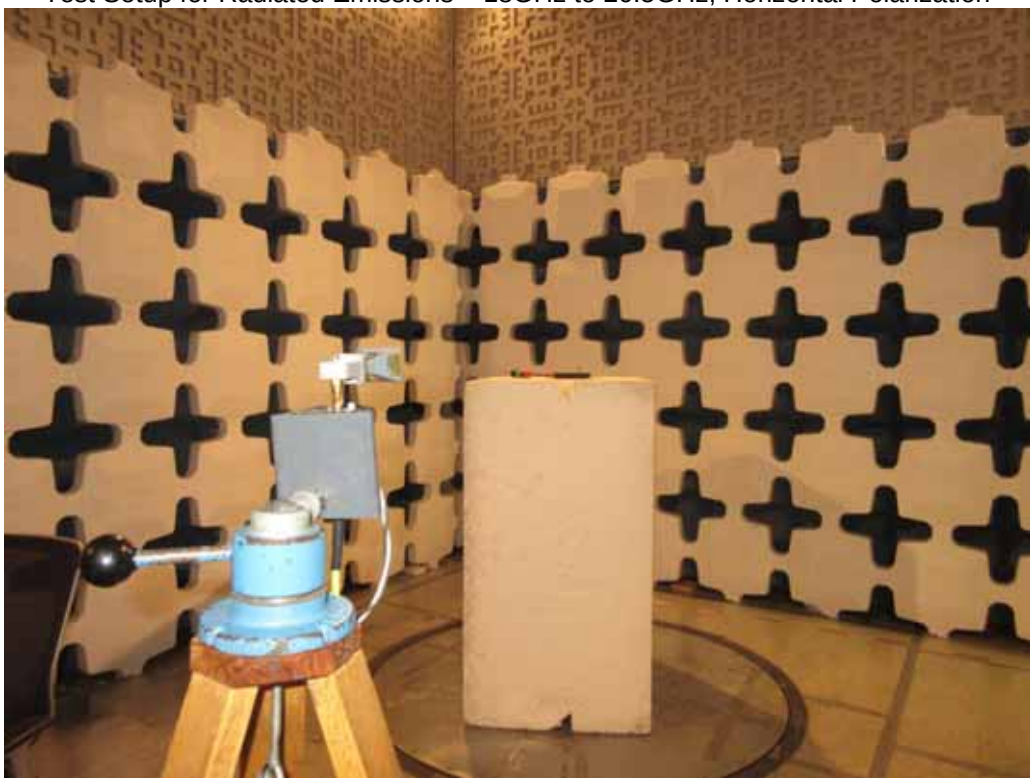
Test Setup for Radiated Emissions – 1GHz to 18GHz, Horizontal Polarization

Test Setup for Radiated Emissions – 1GHz to 18GHz, Vertical Polarization

Figure 5

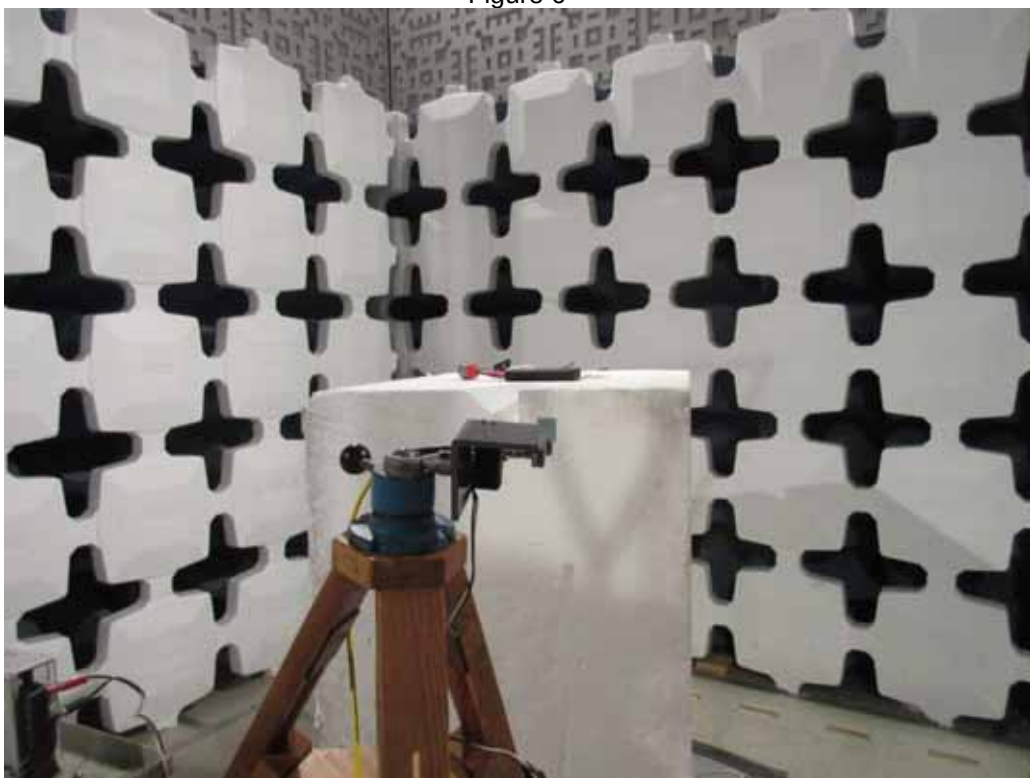


Test Setup for Radiated Emissions – 18GHz to 26.5GHz, Horizontal Polarization

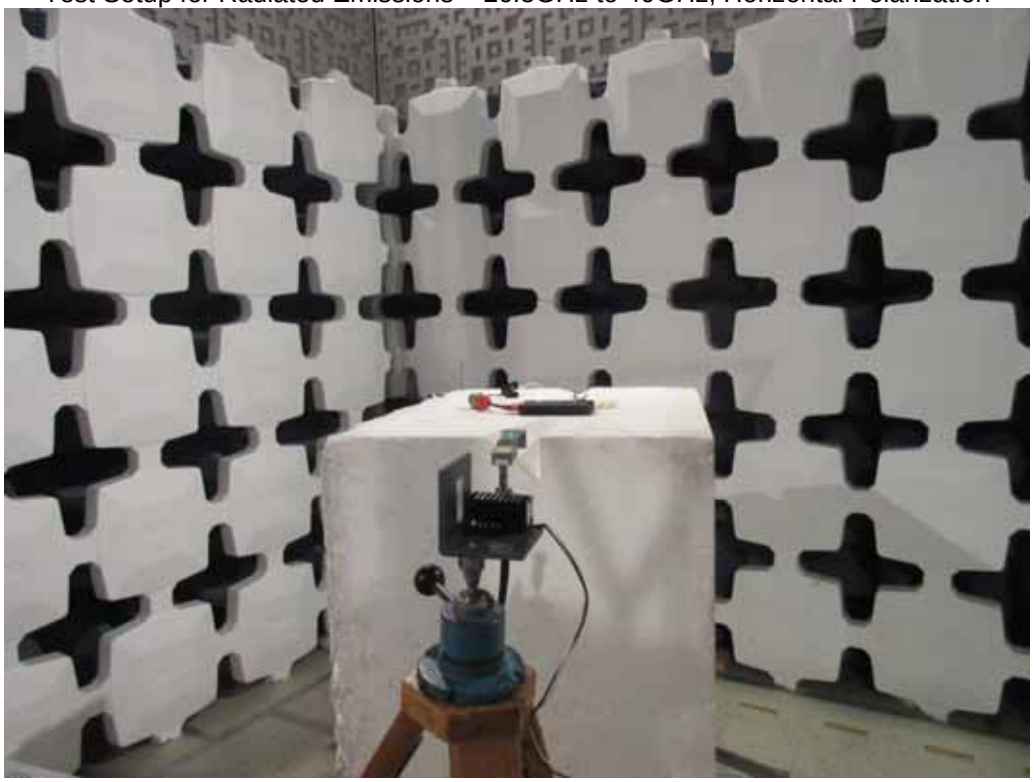


Test Setup for Radiated Emissions – 18GHz to 26.5GHz, Vertical Polarization

Figure 6



Test Setup for Radiated Emissions – 26.5GHz to 40GHz, Horizontal Polarization



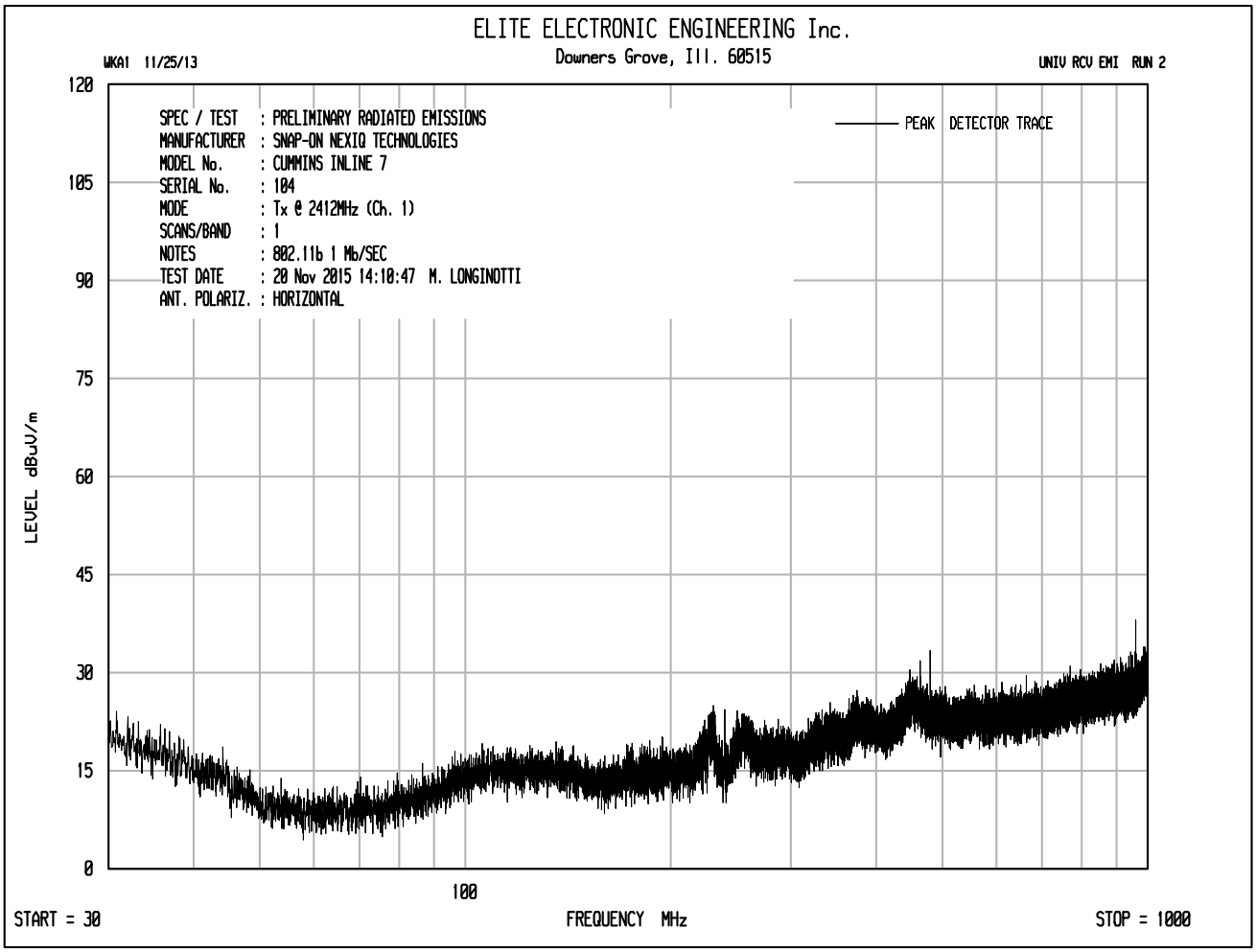
Test Setup for Radiated Emissions – 26.5GHz to 40GHz, Vertical Polarization

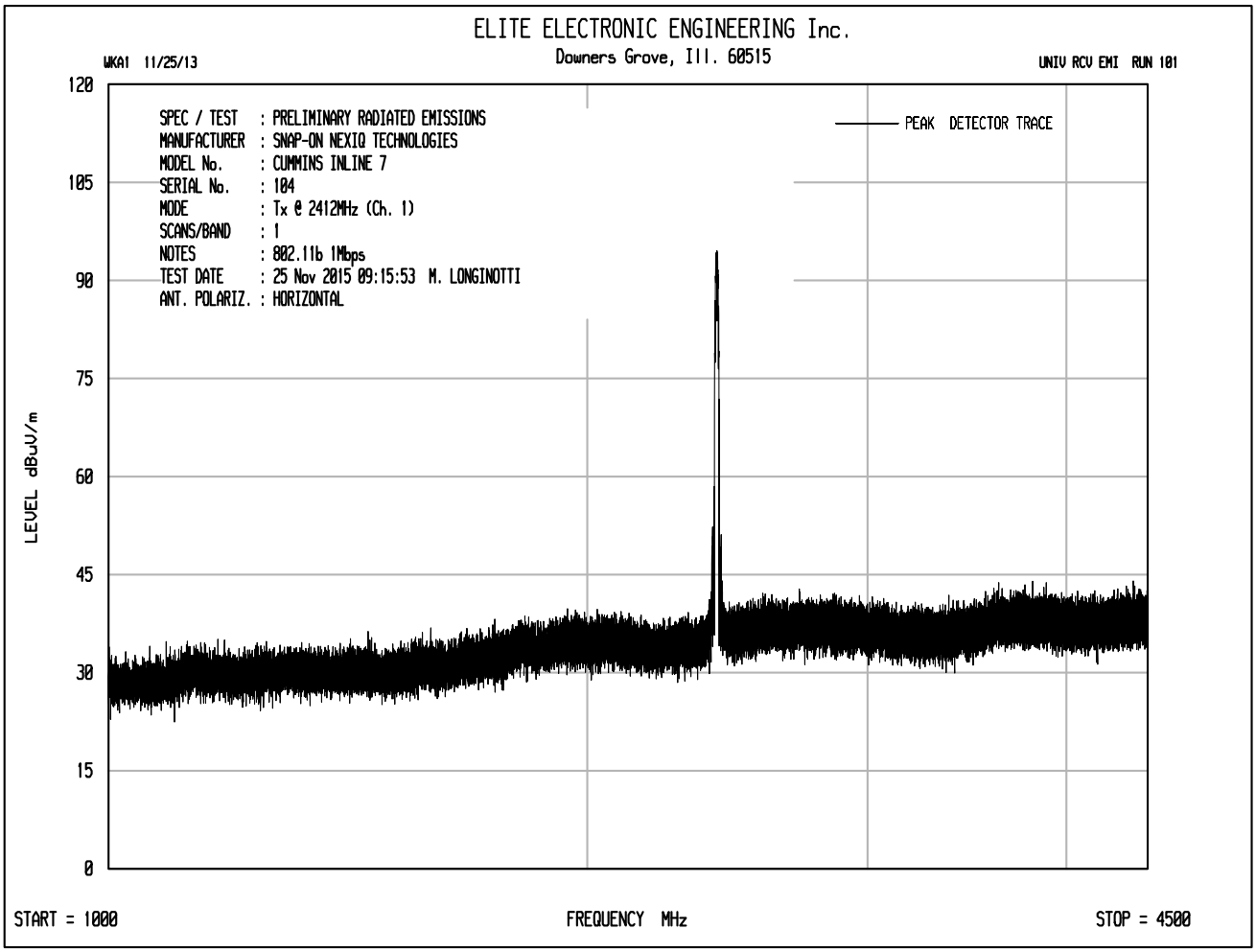
FCC 15.247 DATA

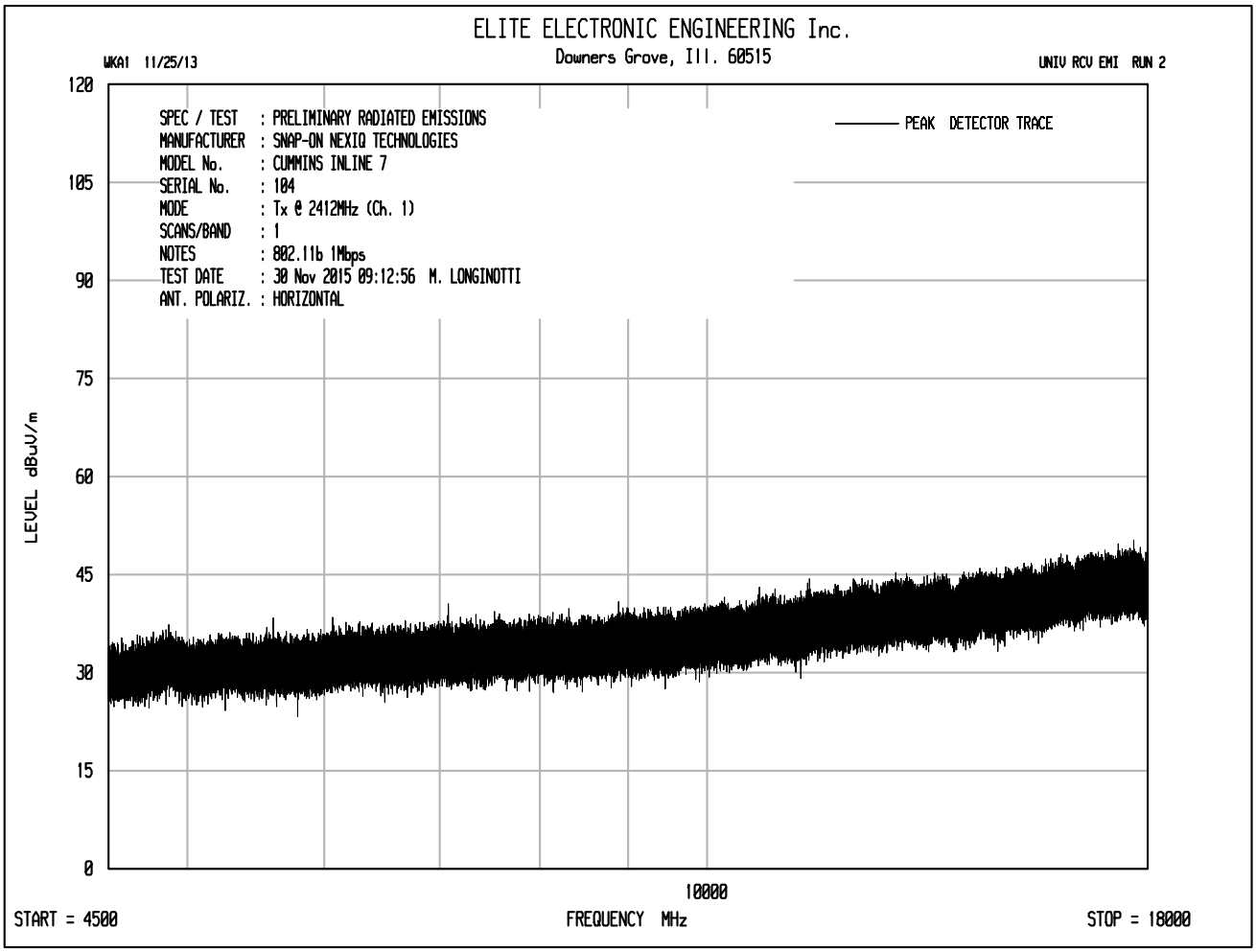
Manufacturer : Snap-On Nexiq Technologies
Model No. : Cummins INLINE 7
Serial No. : 101
Date Tested : February 29, 2016
Test Performed : EIRP
Mode : See Below
Equipment Used : MPW0,MWPA,T1EQ, T1E8
Notes : Antenna Port Conducted Emissions Test
Notes : Peak Power Readings with a Peak Power Meter

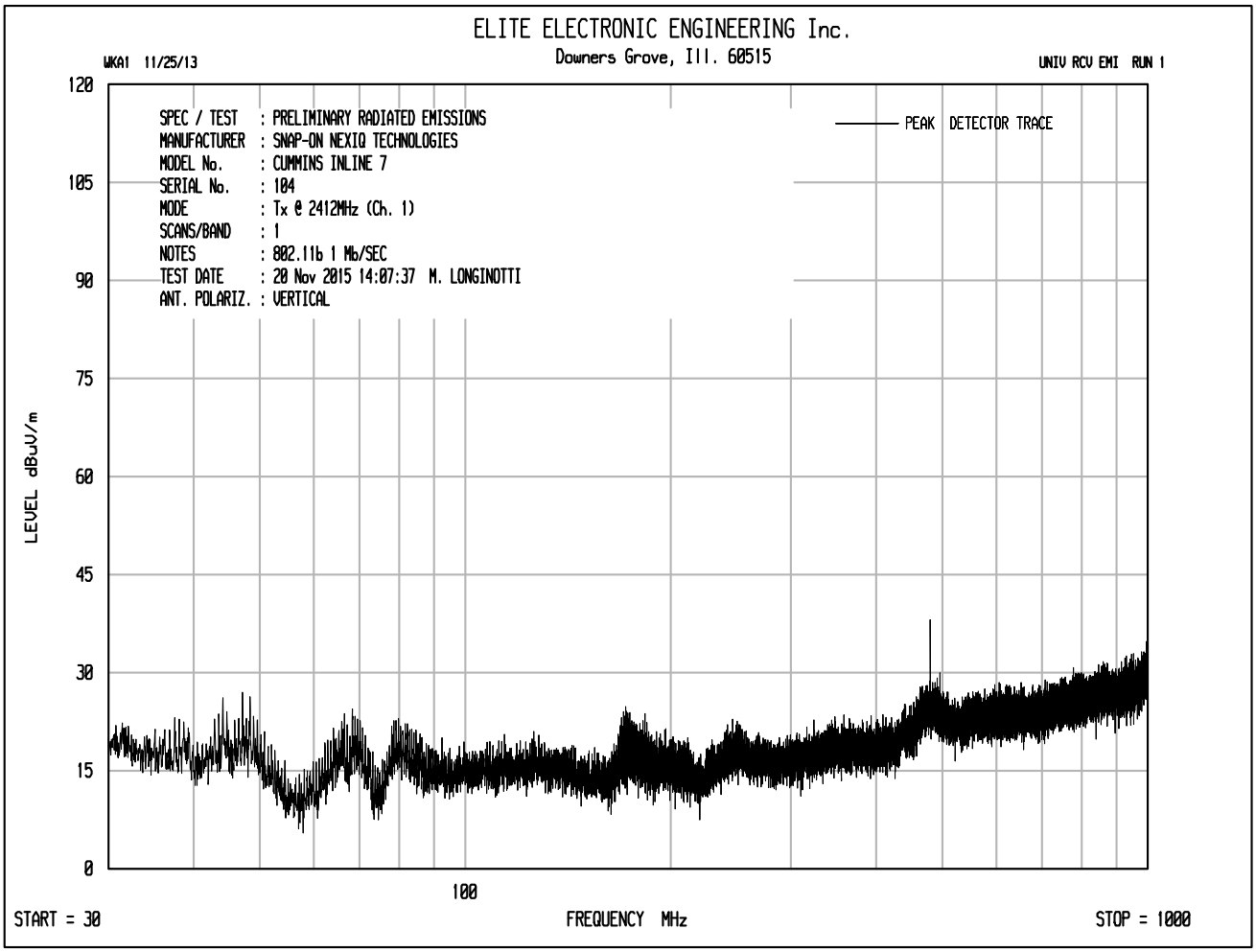
Frequency MHz	802.11 protocol	data rate Mbps	Peak power reading dBm	Attenuation dB	Antenna Gain dB	Peak EIRP dBm
2412	b	1	-0.65	19.43	1.8	20.58
2412	g	6	0.34	19.43	1.8	21.57
2412	n	72.2	0.33	19.43	1.8	21.56
2437	b	1	-0.19	19.36	1.8	20.97
2437	g	6	0.82	19.36	1.8	21.98
2437	n	72.2	0.75	19.36	1.8	21.91
2462	b	1	-0.02	19.46	1.8	21.24
2462	g	6	0.82	19.46	1.8	22.08
2462	n	72.2	0.64	19.46	1.8	21.9
2422	n	150	0.77	19.43	1.8	22.0
2437	n	150	1.05	19.37	1.8	22.22
2462	n	150	1.33	19.45	1.8	22.58

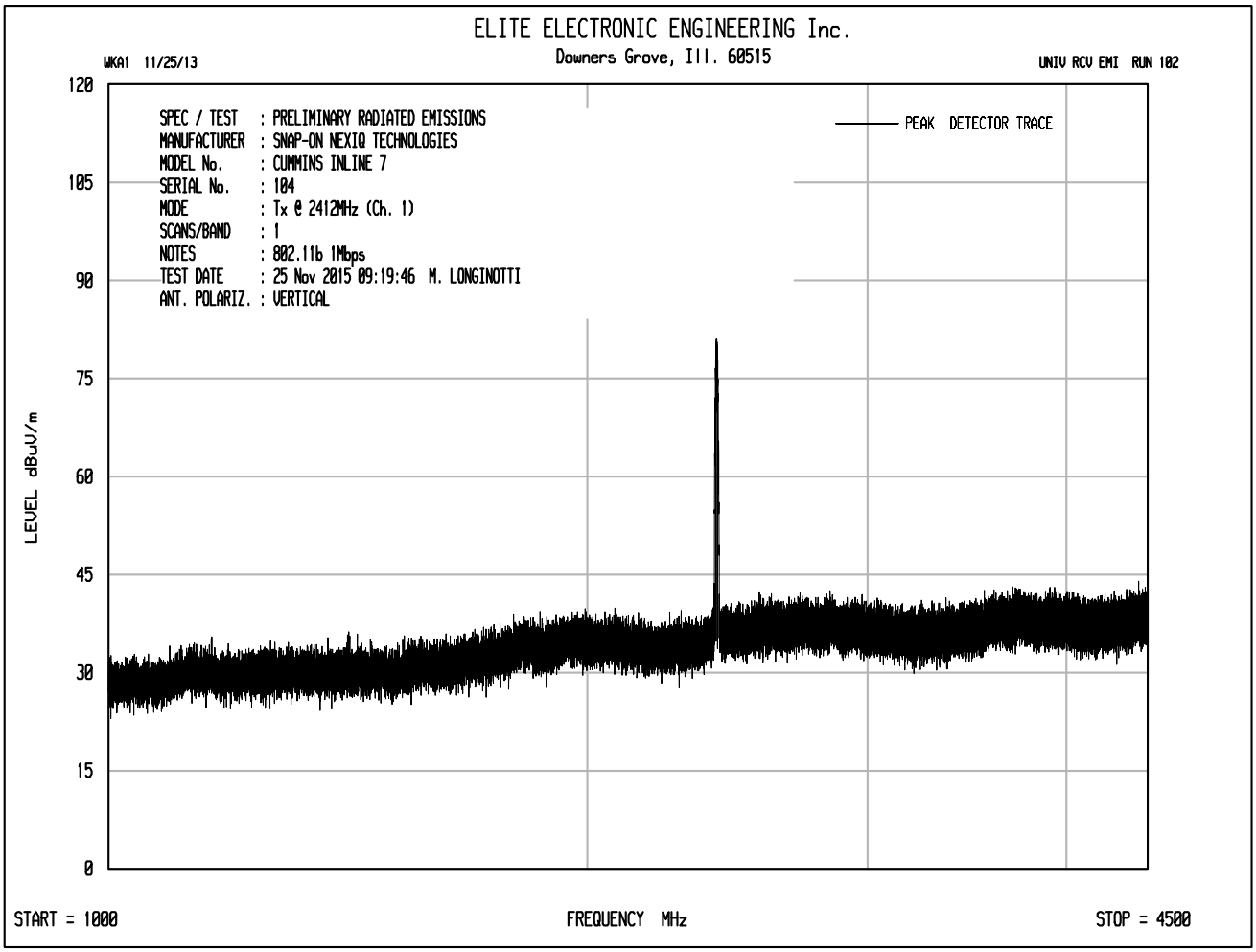
Peak EIRP (dBm) = Peak Power Reading (dBm) + Attenuation (dB) + Antenna Gain (dB)

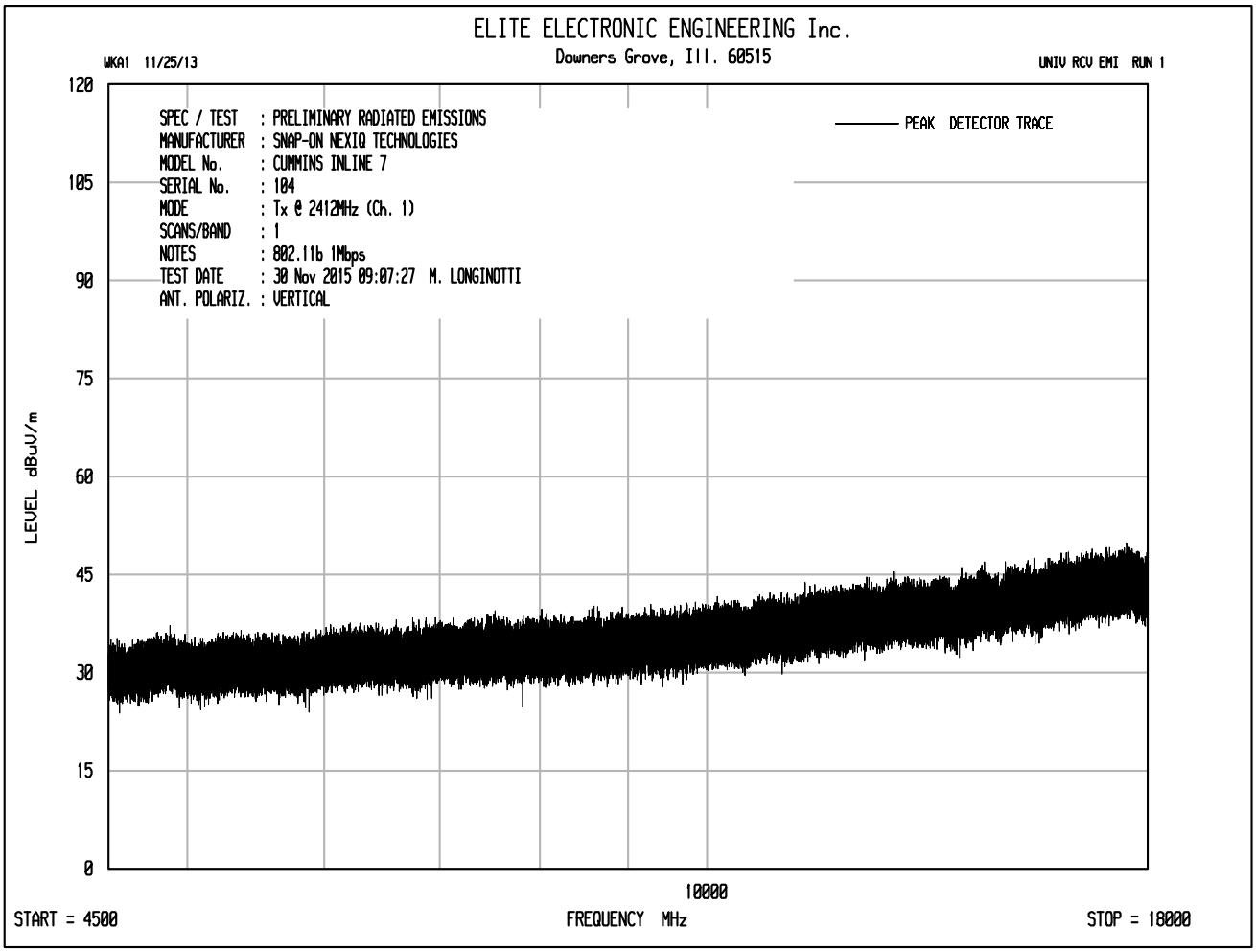

ELITE ELECTRONIC ENGINEERING Inc.
Downers Grove, Ill. 60515
WKA1 11/25/13
UNIV RCV EMI RUN 2
SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
MANUFACTURER : SNAP-ON NEXIQ TECHNOLOGIES
MODEL No. : CUMMINS INLINE 7
SERIAL No. : 104
MODE : Tx @ 2412MHz (Ch. 1)
SCANS/BAND : 1
NOTES : 802.11b 1 Mb/SEC
TEST DATE : 20 Nov 2015 14:10:47 M. LONGINOTTI
ANT. POLARIZ. : HORIZONTAL
PEAK DETECTOR TRACE
LEVEL dBuV/m
120
105
90
75
60
45
30
15
0
100
START = 30
FREQUENCY MHz
STOP = 1000

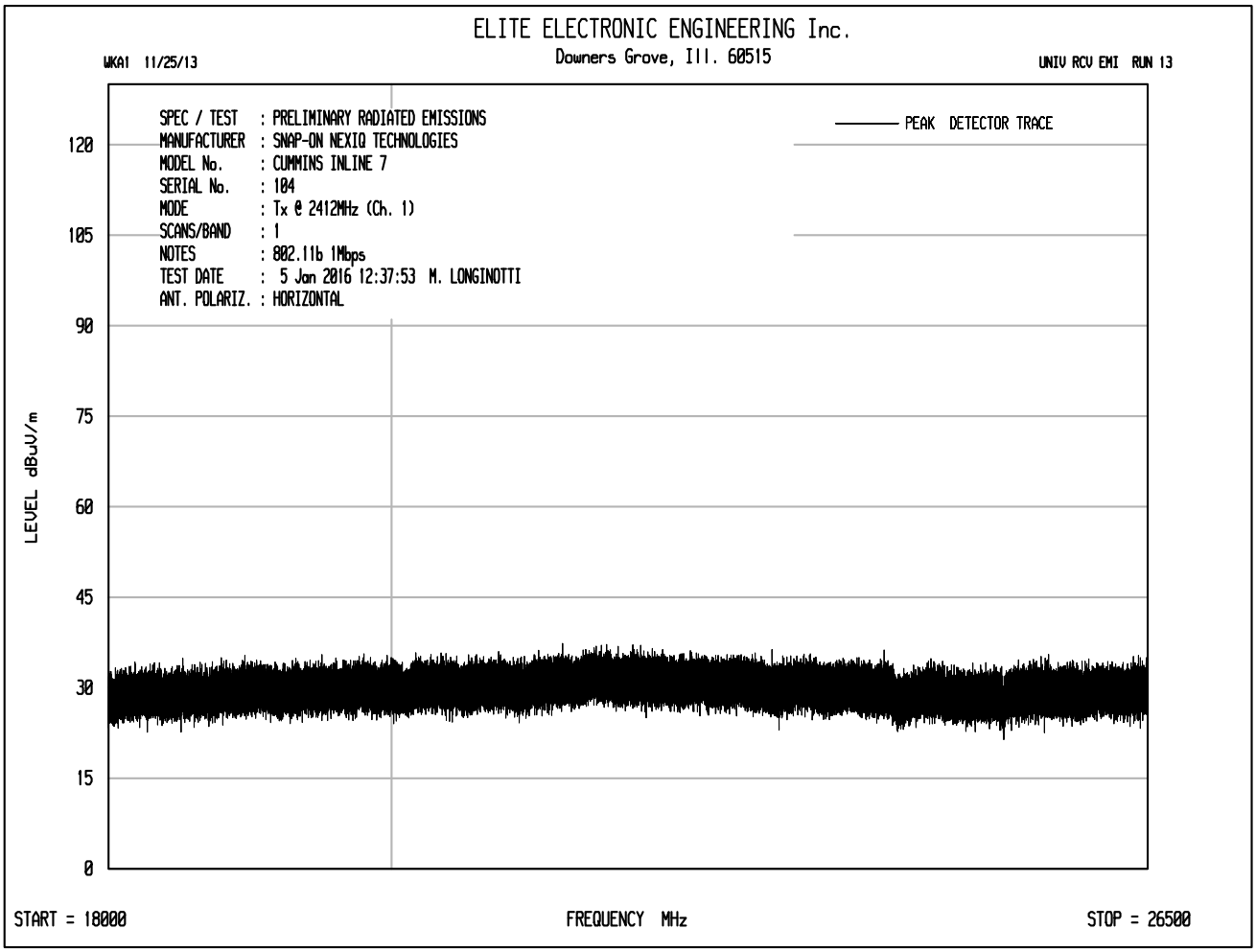

ELITE ELECTRONIC ENGINEERING Inc.
Downers Grove, Ill. 60515
WKA1 11/25/13
UNIV RCV EMI RUN 101
SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
MANUFACTURER : SNAP-ON NEXIQ TECHNOLOGIES
MODEL No. : CUMMINS INLINE 7
SERIAL No. : 104
MODE : Tx @ 2412MHz (Ch. 1)
SCANS/BAND : 1
NOTES : 802.11b 1Mbps
TEST DATE : 25 Nov 2015 09:15:53 M. LONGINOTTI
ANT. POLARIZ. : HORIZONTAL
PEAK DETECTOR TRACE
LEVEL dBuV/m
120
105
90
75
60
45
30
15
0
START = 1000
FREQUENCY MHz
STOP = 4500

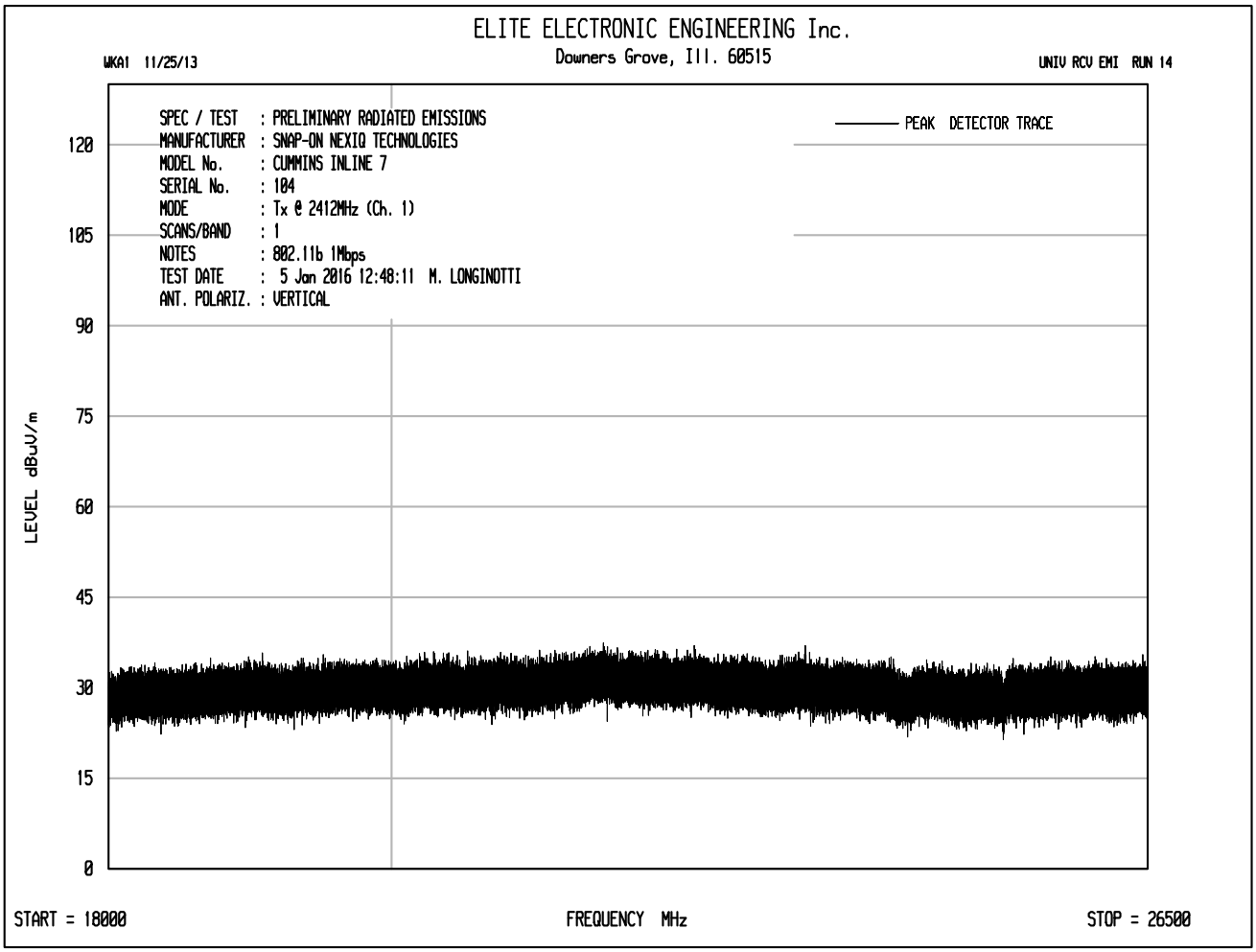

ELITE ELECTRONIC ENGINEERING Inc.
Downers Grove, Ill. 60515
WKA1 11/25/13
UNIV RCV EMI RUN 2
SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
MANUFACTURER : SNAP-ON NEXIQ TECHNOLOGIES
MODEL No. : CUMMINS INLINE 7
SERIAL No. : 104
MODE : Tx @ 2412MHz (Ch. 1)
SCANS/BAND : 1
NOTES : 802.11b 1Mbps
TEST DATE : 30 Nov 2015 09:12:56 M. LONGINOTTI
ANT. POLARIZ. : HORIZONTAL
PEAK DETECTOR TRACE
LEVEL dBuV/m
120
105
90
75
60
45
30
15
0
10000
START = 4500
FREQUENCY MHz
STOP = 18000

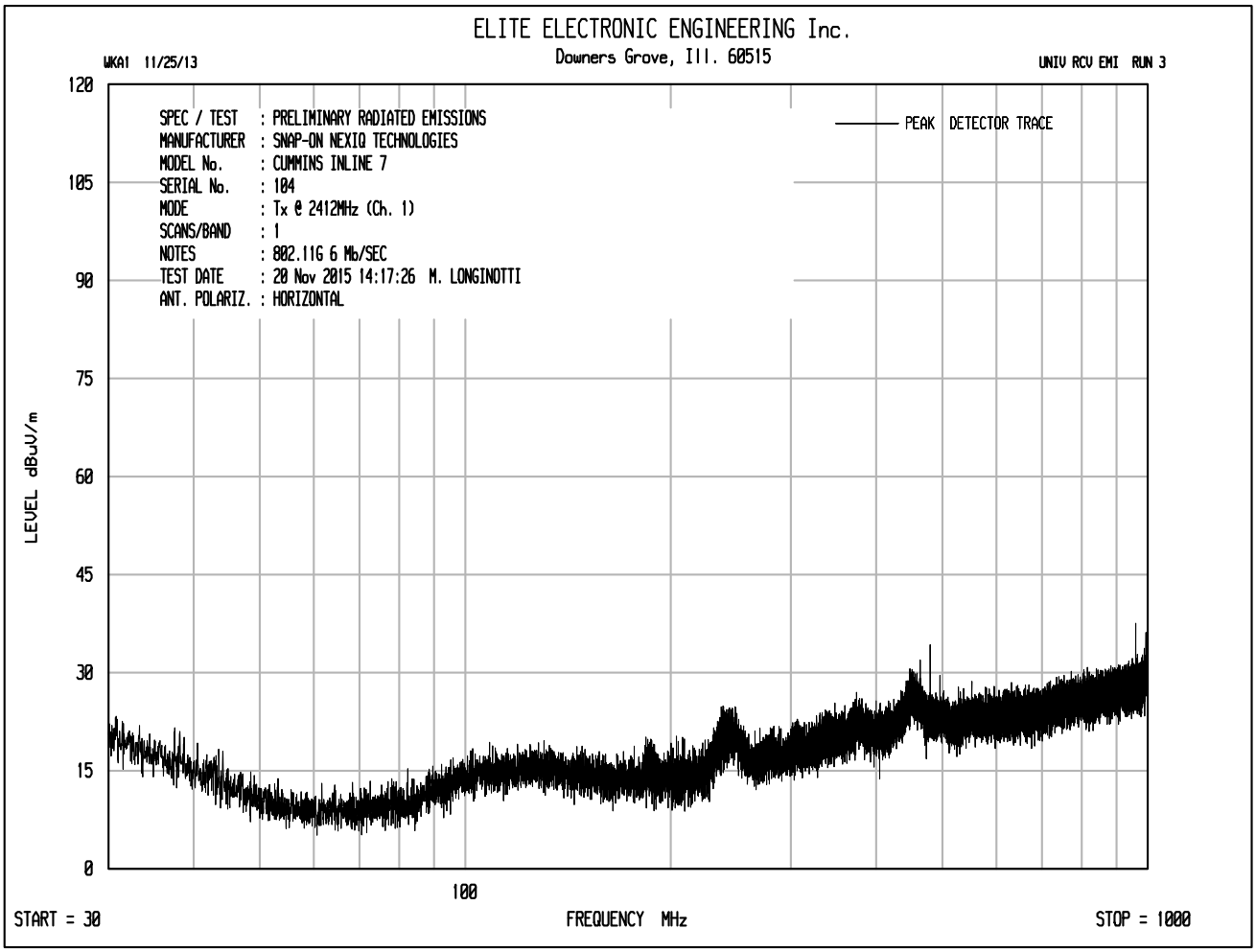

ELITE ELECTRONIC ENGINEERING Inc.
Downers Grove, Ill. 60515
WKA1 11/25/13
UNIV RCV EMI RUN 1
SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
MANUFACTURER : SNAP-ON NEXIQ TECHNOLOGIES
MODEL No. : CUMMINS INLINE 7
SERIAL No. : 104
MODE : Tx @ 2412MHz (Ch. 1)
SCANS/BAND : 1
NOTES : 802.11b 1 Mb/SEC
TEST DATE : 20 Nov 2015 14:07:37 M. LONGINOTTI
ANT. POLARIZ. : VERTICAL
PEAK DETECTOR TRACE
LEVEL dBuV/m
120
105
90
75
60
45
30
15
0
100
START = 30
FREQUENCY MHz
STOP = 1000

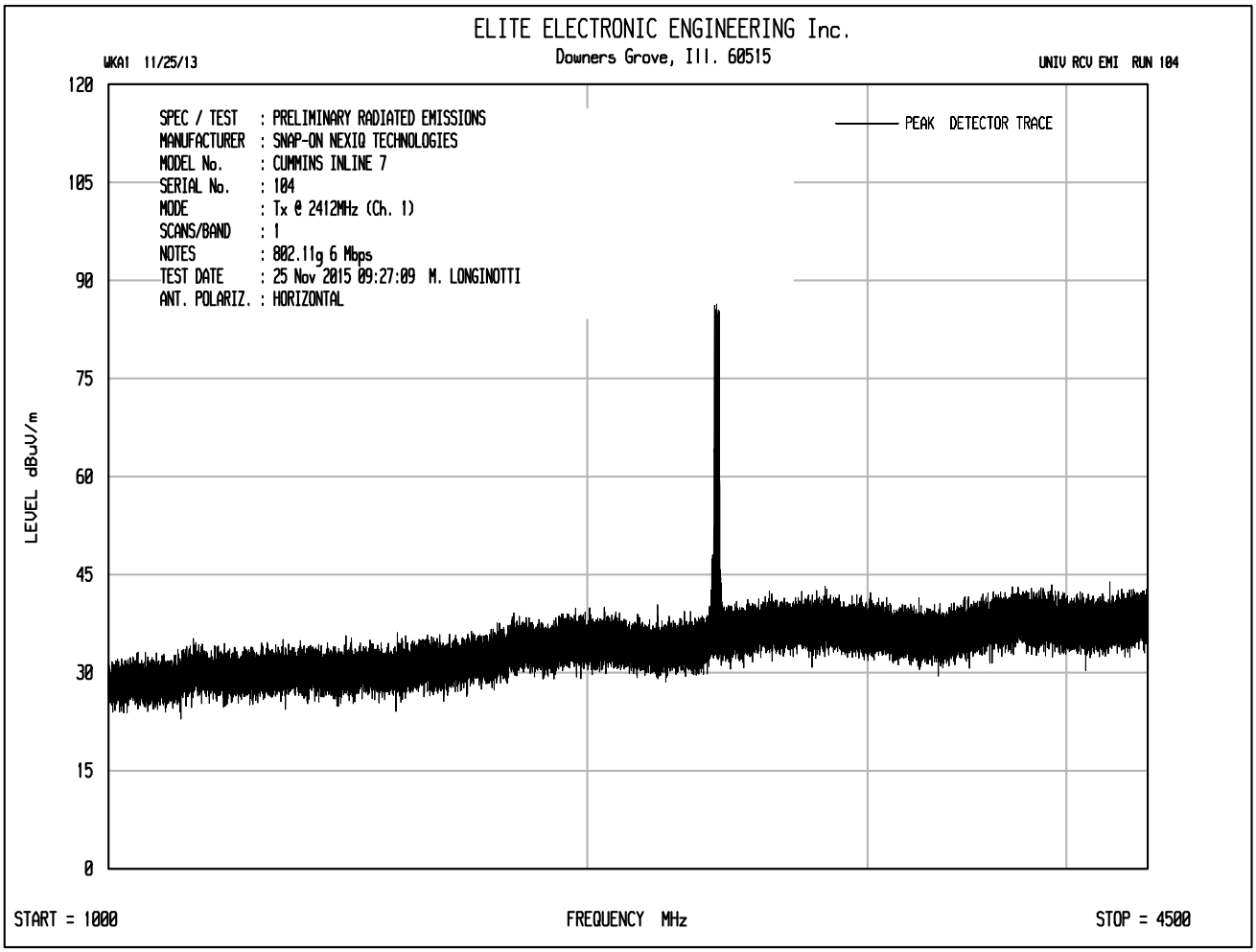

ELITE ELECTRONIC ENGINEERING Inc.
Downers Grove, Ill. 60515
WKA1 11/25/13
UNIV RCV EMI RUN 102
SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
MANUFACTURER : SNAP-ON NEXIQ TECHNOLOGIES
MODEL No. : CUMMINS INLINE 7
SERIAL No. : 104
MODE : Tx @ 2412MHz (Ch. 1)
SCANS/BAND : 1
NOTES : 802.11b 1Mbps
TEST DATE : 25 Nov 2015 09:19:46 M. LONGINOTTI
ANT. POLARIZ. : VERTICAL
PEAK DETECTOR TRACE
LEVEL dBuV/m
120
105
90
75
60
45
30
15
0
START = 1000
FREQUENCY MHz
STOP = 4500

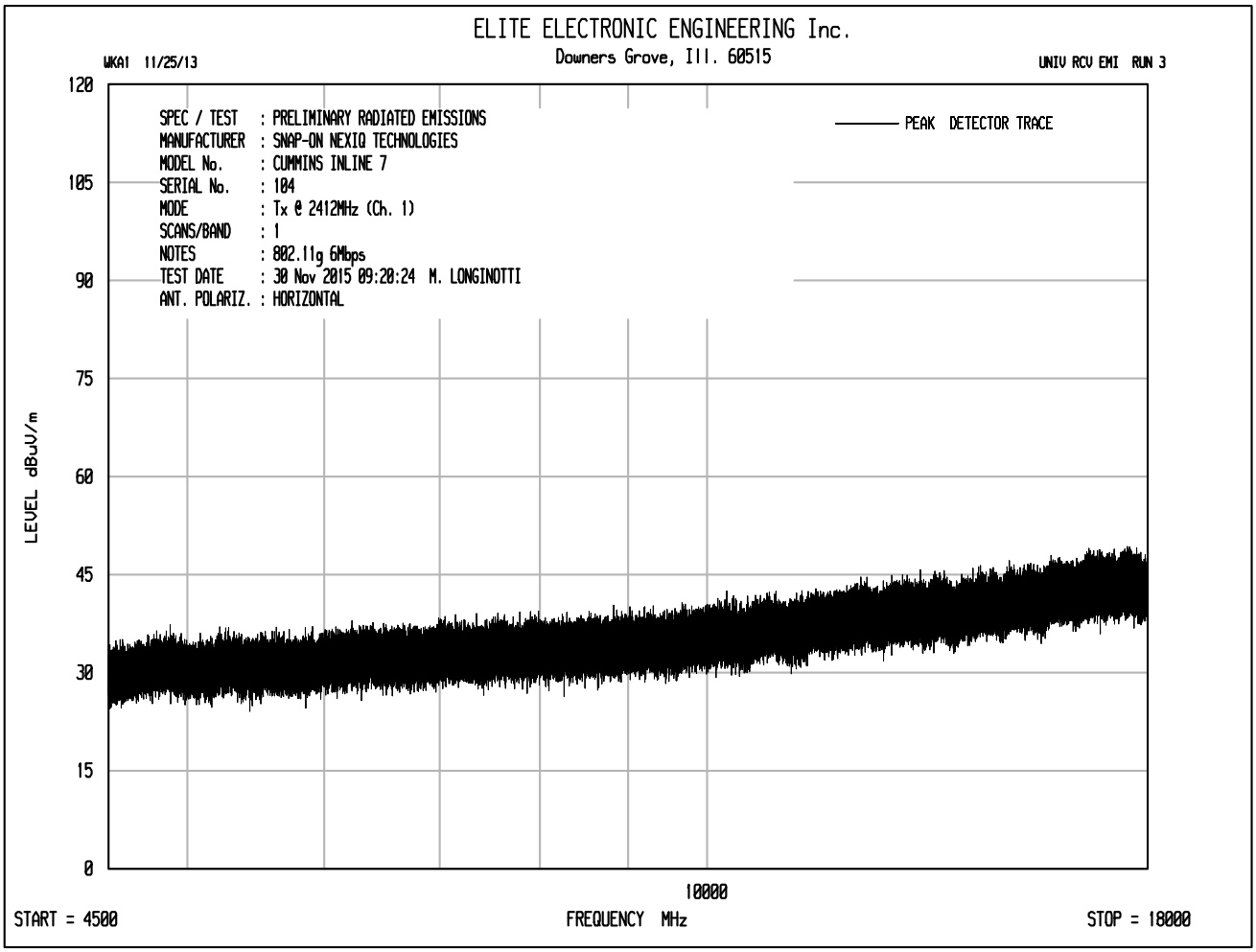

ELITE ELECTRONIC ENGINEERING Inc.
Downers Grove, Ill. 60515
WKA1 11/25/13
UNIV RCV EMI RUN 1
SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
MANUFACTURER : SNAP-ON NEXIQ TECHNOLOGIES
MODEL No. : CUMMINS INLINE 7
SERIAL No. : 104
MODE : Tx @ 2412MHz (Ch. 1)
SCANS/BAND : 1
NOTES : 802.11b 1Mbps
TEST DATE : 30 Nov 2015 09:07:27 M. LONGINOTTI
ANT. POLARIZ. : VERTICAL
PEAK DETECTOR TRACE
LEVEL dBuV/m
120
105
90
75
60
45
30
15
0
10000
START = 4500
FREQUENCY MHz
STOP = 18000

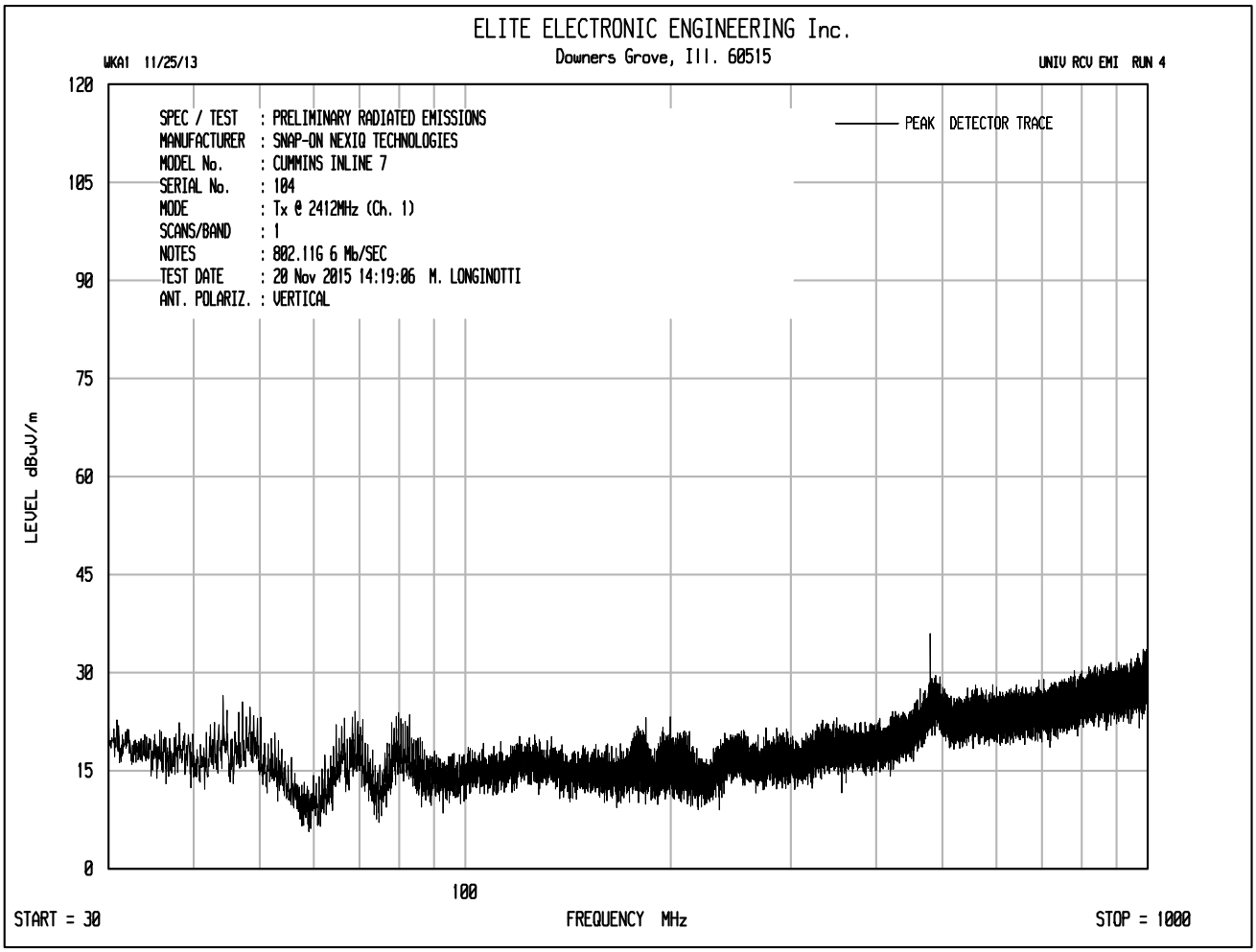

ELITE ELECTRONIC ENGINEERING Inc.
Downers Grove, Ill. 60515
WKA1 11/25/13
UNIV RCV EMI RUN 13
SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
MANUFACTURER : SNAP-ON NEXIQ TECHNOLOGIES
MODEL No. : CUMMINS INLINE 7
SERIAL No. : 104
MODE : Tx @ 2412MHz (Ch. 1)
SCANS/BAND : 1
NOTES : 802.11b 1Mbps
TEST DATE : 5 Jan 2016 12:37:53 M. LONGINOTTI
ANT. POLARIZ. : HORIZONTAL
PEAK DETECTOR TRACE
LEVEL dBuV/m
120
105
90
75
60
45
30
15
0
START = 18000
FREQUENCY MHz
STOP = 26500

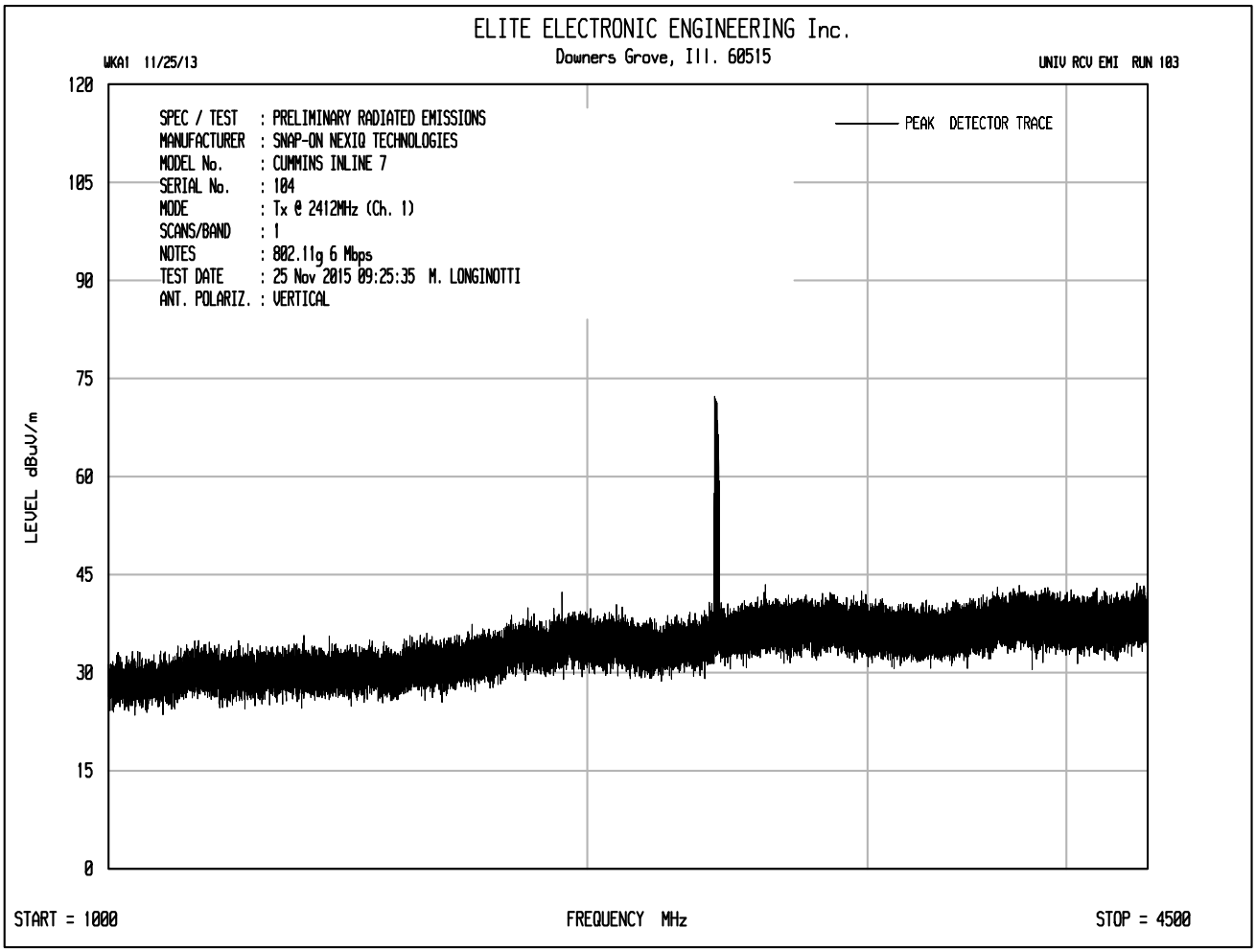

ELITE ELECTRONIC ENGINEERING Inc.
Downers Grove, Ill. 60515
WKA1 11/25/13
UNIV RCV EMI RUN 14
SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
MANUFACTURER : SNAP-ON NEXIQ TECHNOLOGIES
MODEL No. : CUMMINS INLINE 7
SERIAL No. : 104
MODE : Tx @ 2412MHz (Ch. 1)
SCANS/BAND : 1
NOTES : 802.11b 1Mbps
TEST DATE : 5 Jan 2016 12:48:11 M. LONGINOTTI
ANT. POLARIZ. : VERTICAL
PEAK DETECTOR TRACE
LEVEL dBuV/m
120
105
90
75
60
45
30
15
0
START = 18000
FREQUENCY MHz
STOP = 26500

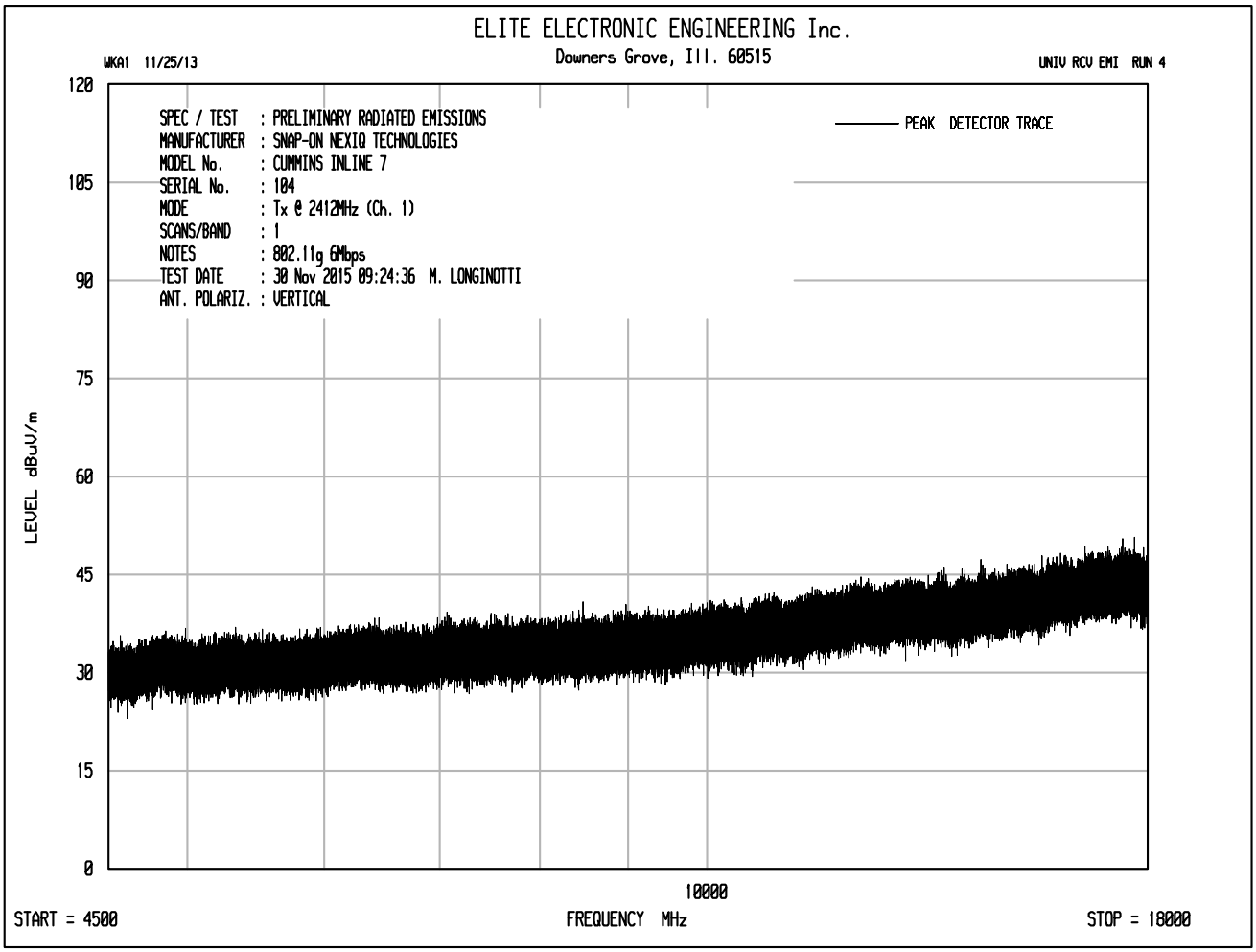

ELITE ELECTRONIC ENGINEERING Inc.
Downers Grove, Ill. 60515
WKA1 11/25/13
UNIV RCV EMI RUN 3
SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
MANUFACTURER : SNAP-ON NEXIQ TECHNOLOGIES
MODEL No. : CUMMINS INLINE 7
SERIAL No. : 104
MODE : Tx @ 2412MHz (Ch. 1)
SCANS/BAND : 1
NOTES : 802.11G 6 Mb/SEC
TEST DATE : 20 Nov 2015 14:17:26 M. LONGINOTTI
ANT. POLARIZ. : HORIZONTAL
PEAK DETECTOR TRACE
LEVEL dBuV/m
120
105
90
75
60
45
30
15
0
100
START = 30
FREQUENCY MHz
STOP = 1000

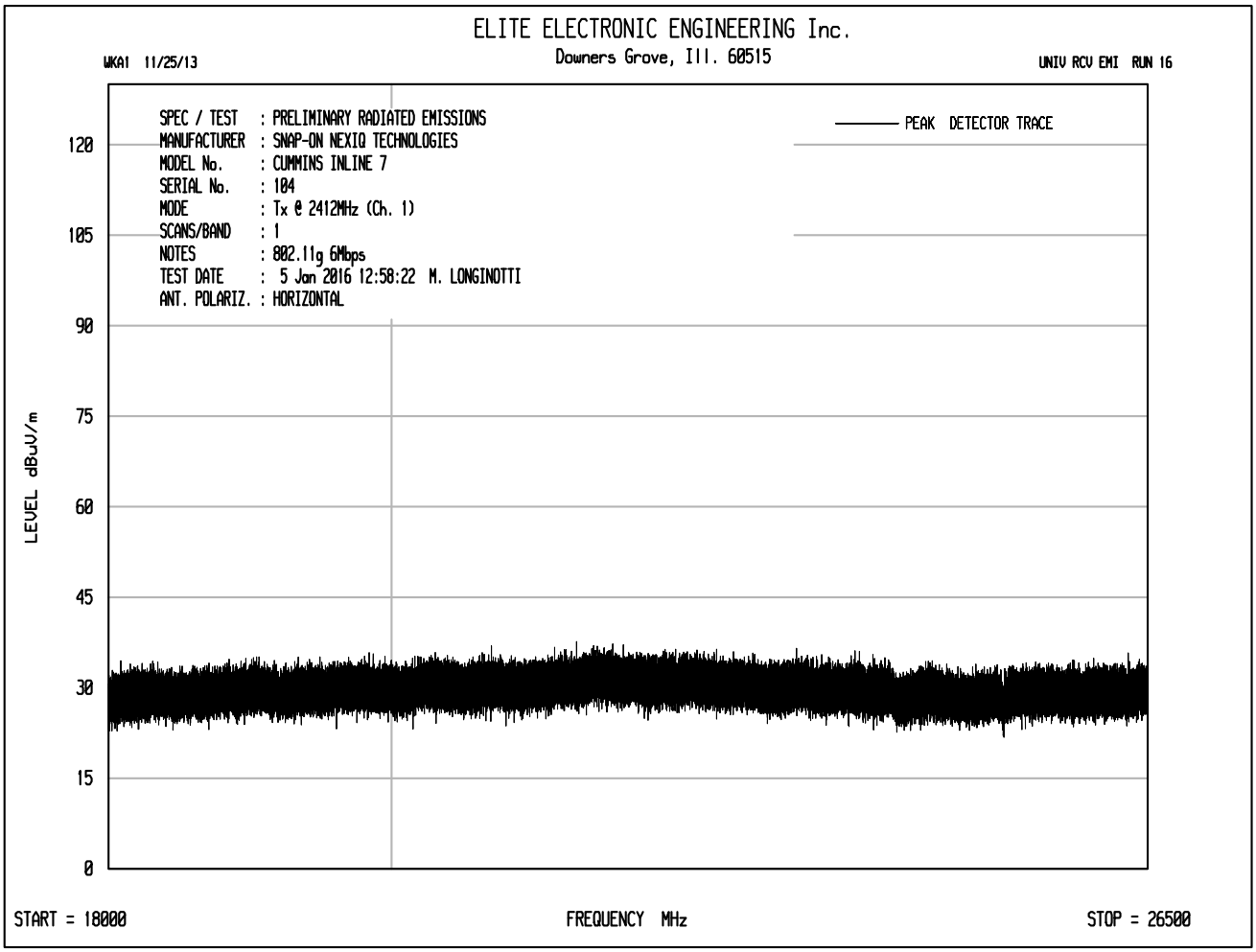

ELITE ELECTRONIC ENGINEERING Inc.
Downers Grove, Ill. 60515
WKA1 11/25/13
UNIV RCV EMI RUN 104
SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
MANUFACTURER : SNAP-ON NEXIQ TECHNOLOGIES
MODEL No. : CUMMINS INLINE 7
SERIAL No. : 104
MODE : Tx @ 2412MHz (Ch. 1)
SCANS/BAND : 1
NOTES : 802.11g 6 Mbps
TEST DATE : 25 Nov 2015 09:27:09 M. LONGINOTTI
ANT. POLARIZ. : HORIZONTAL
PEAK DETECTOR TRACE
LEVEL dBuV/m
120
105
90
75
60
45
30
15
0
START = 1000
FREQUENCY MHz
STOP = 4500

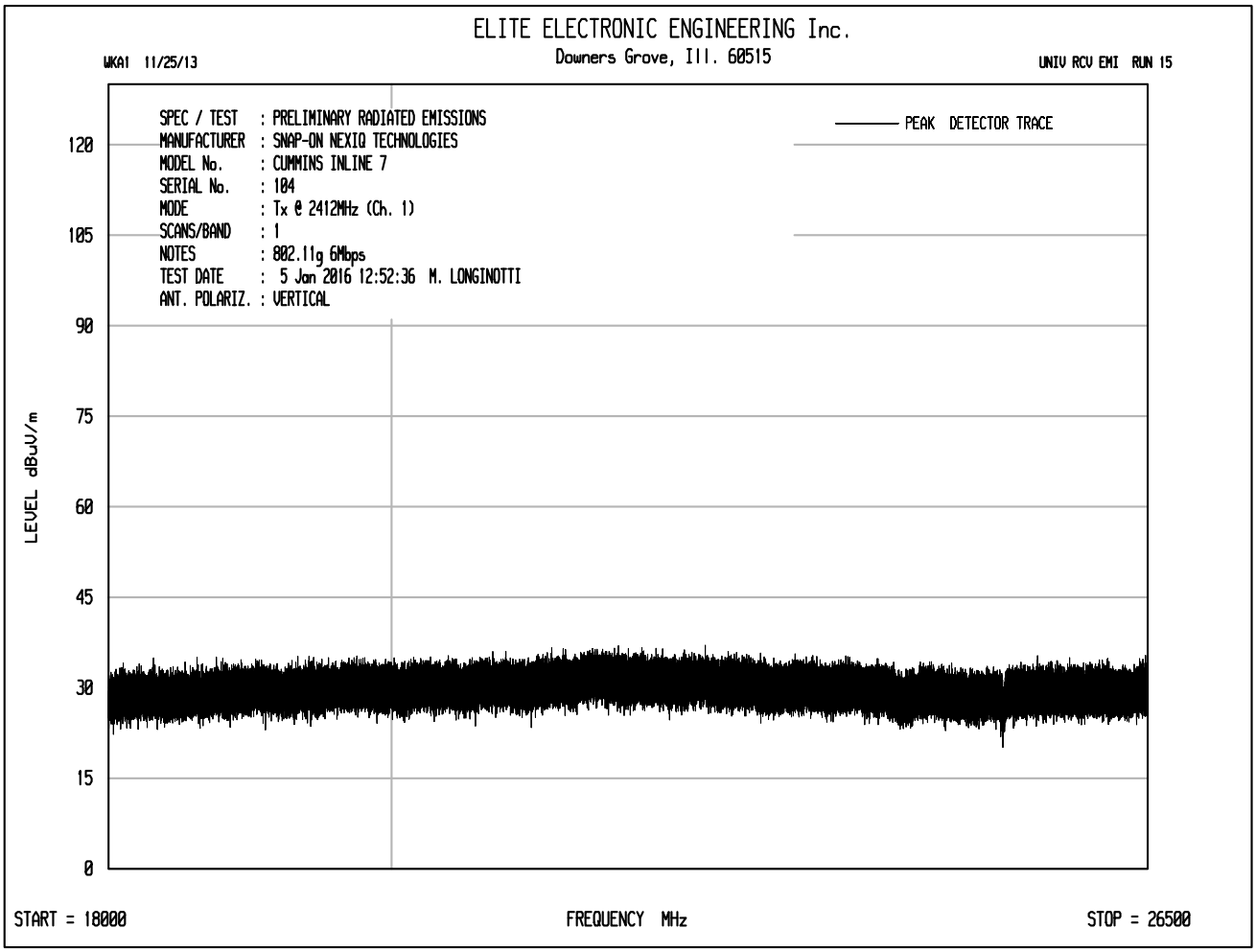

ELITE ELECTRONIC ENGINEERING Inc.
Downers Grove, Ill. 60515
WKA1 11/25/13
UNIV RCV EMI RUN 3
SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
MANUFACTURER : SNAP-ON NEXIQ TECHNOLOGIES
MODEL No. : CUMMINS INLINE 7
SERIAL No. : 104
MODE : Tx @ 2412MHz (Ch. 1)
SCANS/BAND : 1
NOTES : 802.11g 6Mbps
TEST DATE : 30 Nov 2015 09:20:24 M. LONGINOTTI
ANT. POLARIZ. : HORIZONTAL
PEAK DETECTOR TRACE
LEVEL dBuV/m
120
105
90
75
60
45
30
15
0
10000
START = 4500
FREQUENCY MHz
STOP = 18000

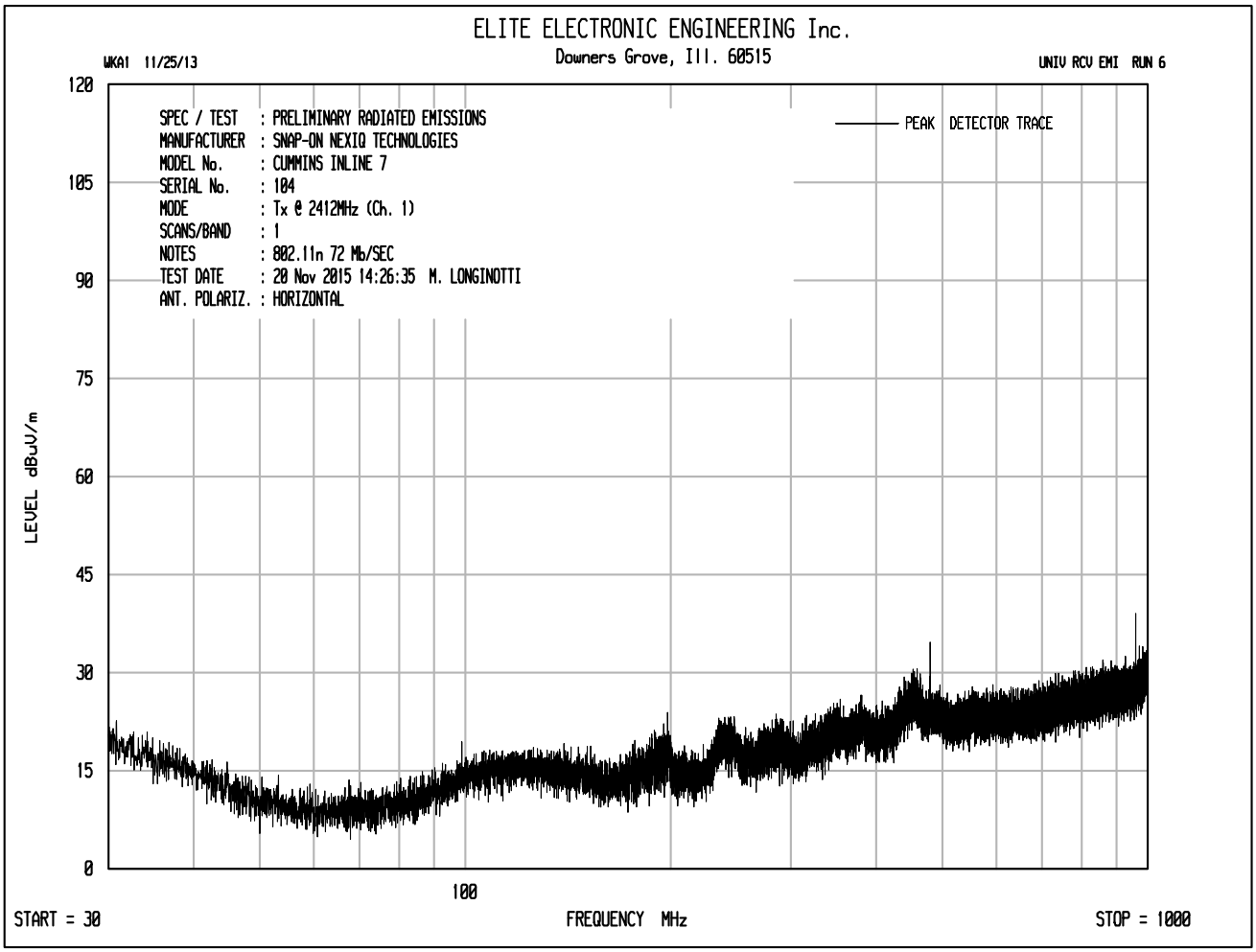

ELITE ELECTRONIC ENGINEERING Inc.
Downers Grove, Ill. 60515
WKA1 11/25/13
UNIV RCV EMI RUN 4
SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
MANUFACTURER : SNAP-ON NEXIQ TECHNOLOGIES
MODEL No. : CUMMINS INLINE 7
SERIAL No. : 104
MODE : Tx @ 2412MHz (Ch. 1)
SCANS/BAND : 1
NOTES : 802.11G 6 Mb/SEC
TEST DATE : 20 Nov 2015 14:19:06 M. LONGINOTTI
ANT. POLARIZ. : VERTICAL
PEAK DETECTOR TRACE
LEVEL dBuV/m
120
105
90
75
60
45
30
15
0
100
START = 30
FREQUENCY MHz
STOP = 1000

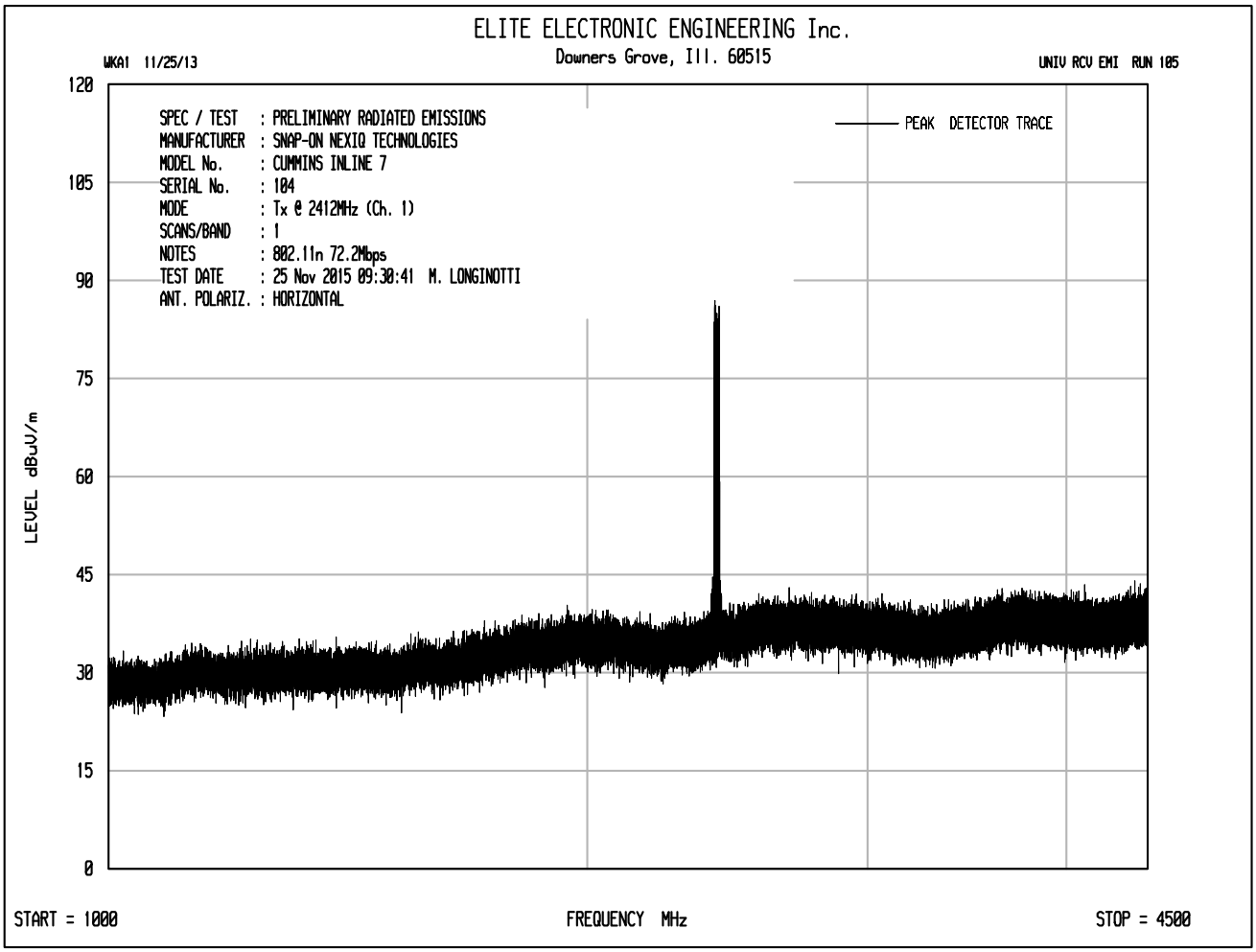

ELITE ELECTRONIC ENGINEERING Inc.
Downers Grove, Ill. 60515
WKA1 11/25/13
UNIV RCV EMI RUN 103
SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
MANUFACTURER : SNAP-ON NEXIQ TECHNOLOGIES
MODEL No. : CUMMINS INLINE 7
SERIAL No. : 104
MODE : Tx @ 2412MHz (Ch. 1)
SCANS/BAND : 1
NOTES : 802.11g 6 Mbps
TEST DATE : 25 Nov 2015 09:25:35 M. LONGINOTTI
ANT. POLARIZ. : VERTICAL
PEAK DETECTOR TRACE
LEVEL dBuV/m
120
105
90
75
60
45
30
15
0
START = 1000
FREQUENCY MHz
STOP = 4500

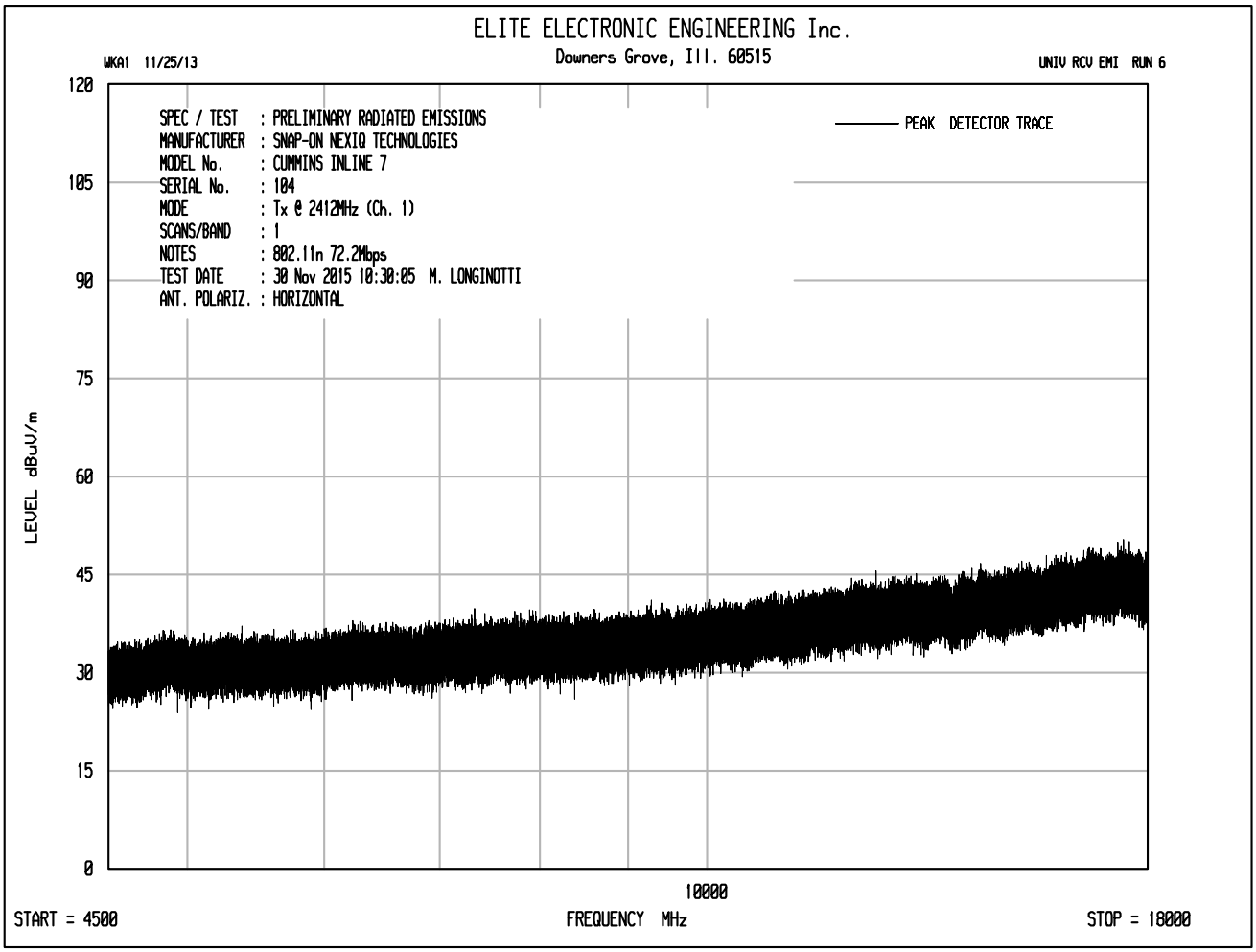

ELITE ELECTRONIC ENGINEERING Inc.
Downers Grove, Ill. 60515
WKA1 11/25/13
UNIV RCV EMI RUN 4
SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
MANUFACTURER : SNAP-ON NEXIQ TECHNOLOGIES
MODEL No. : CUMMINS INLINE 7
SERIAL No. : 104
MODE : Tx @ 2412MHz (Ch. 1)
SCANS/BAND : 1
NOTES : 802.11g 6Mbps
TEST DATE : 30 Nov 2015 09:24:36 M. LONGINOTTI
ANT. POLARIZ. : VERTICAL
PEAK DETECTOR TRACE
LEVEL dBuV/m
120
105
90
75
60
45
30
15
0
10000
START = 4500
FREQUENCY MHz
STOP = 18000

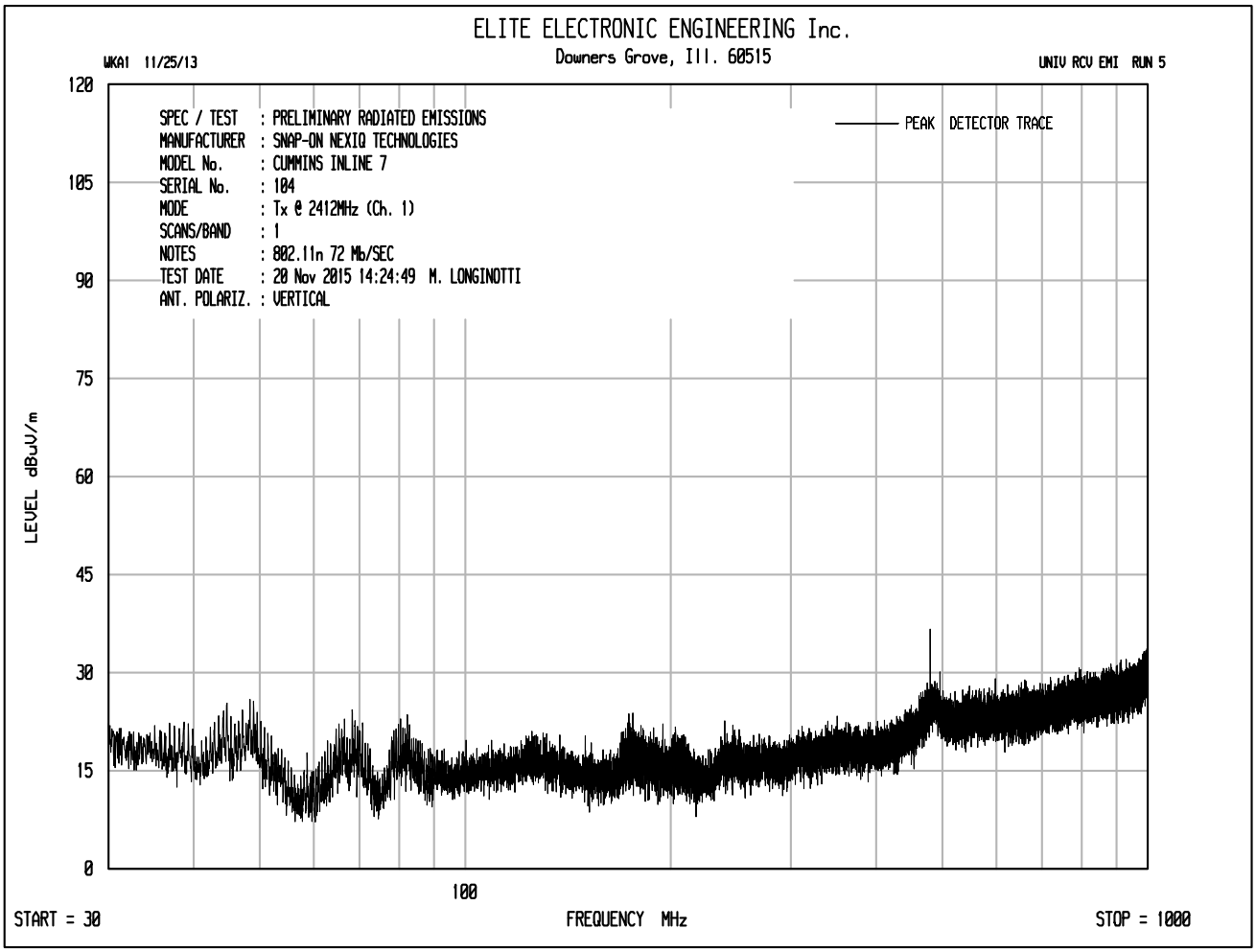

ELITE ELECTRONIC ENGINEERING Inc.
Downers Grove, Ill. 60515
WKA1 11/25/13
UNIV RCV EMI RUN 16
SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
MANUFACTURER : SNAP-ON NEXIQ TECHNOLOGIES
MODEL No. : CUMMINS INLINE 7
SERIAL No. : 104
MODE : Tx @ 2412MHz (Ch. 1)
SCANS/BAND : 1
NOTES : 802.11g 6Mbps
TEST DATE : 5 Jan 2016 12:58:22 M. LONGINOTTI
ANT. POLARIZ. : HORIZONTAL
PEAK DETECTOR TRACE
LEVEL dBuV/m
120
105
90
75
60
45
30
15
0
START = 18000
FREQUENCY MHz
STOP = 26500

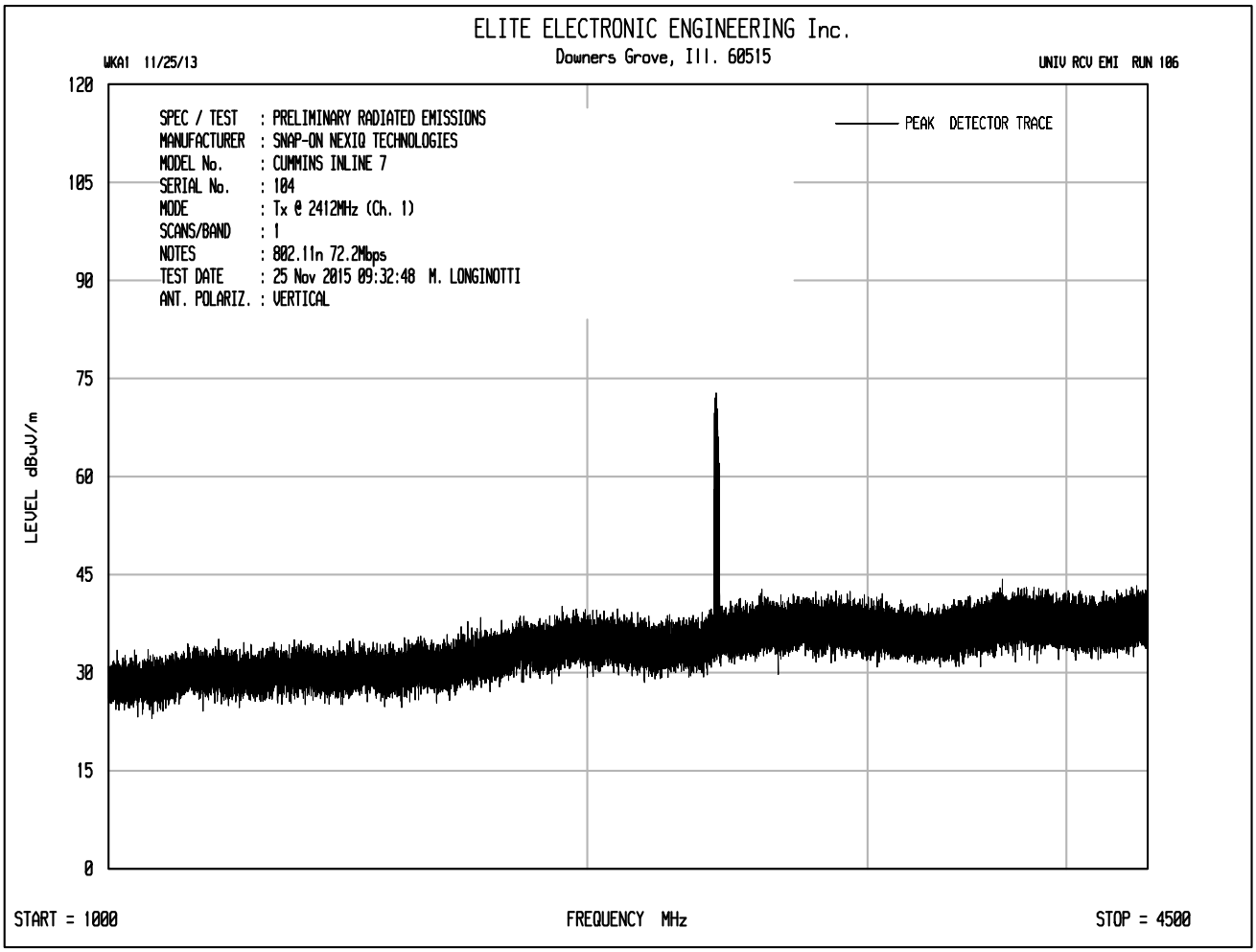

ELITE ELECTRONIC ENGINEERING Inc.
Downers Grove, Ill. 60515
WKA1 11/25/13
UNIV RCV EMI RUN 15
SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
MANUFACTURER : SNAP-ON NEXIQ TECHNOLOGIES
MODEL No. : CUMMINS INLINE 7
SERIAL No. : 104
MODE : Tx @ 2412MHz (Ch. 1)
SCANS/BAND : 1
NOTES : 802.11g 6Mbps
TEST DATE : 5 Jan 2016 12:52:36 M. LONGINOTTI
ANT. POLARIZ. : VERTICAL
PEAK DETECTOR TRACE
LEVEL dBuV/m
120
105
90
75
60
45
30
15
0
START = 18000
FREQUENCY MHz
STOP = 26500

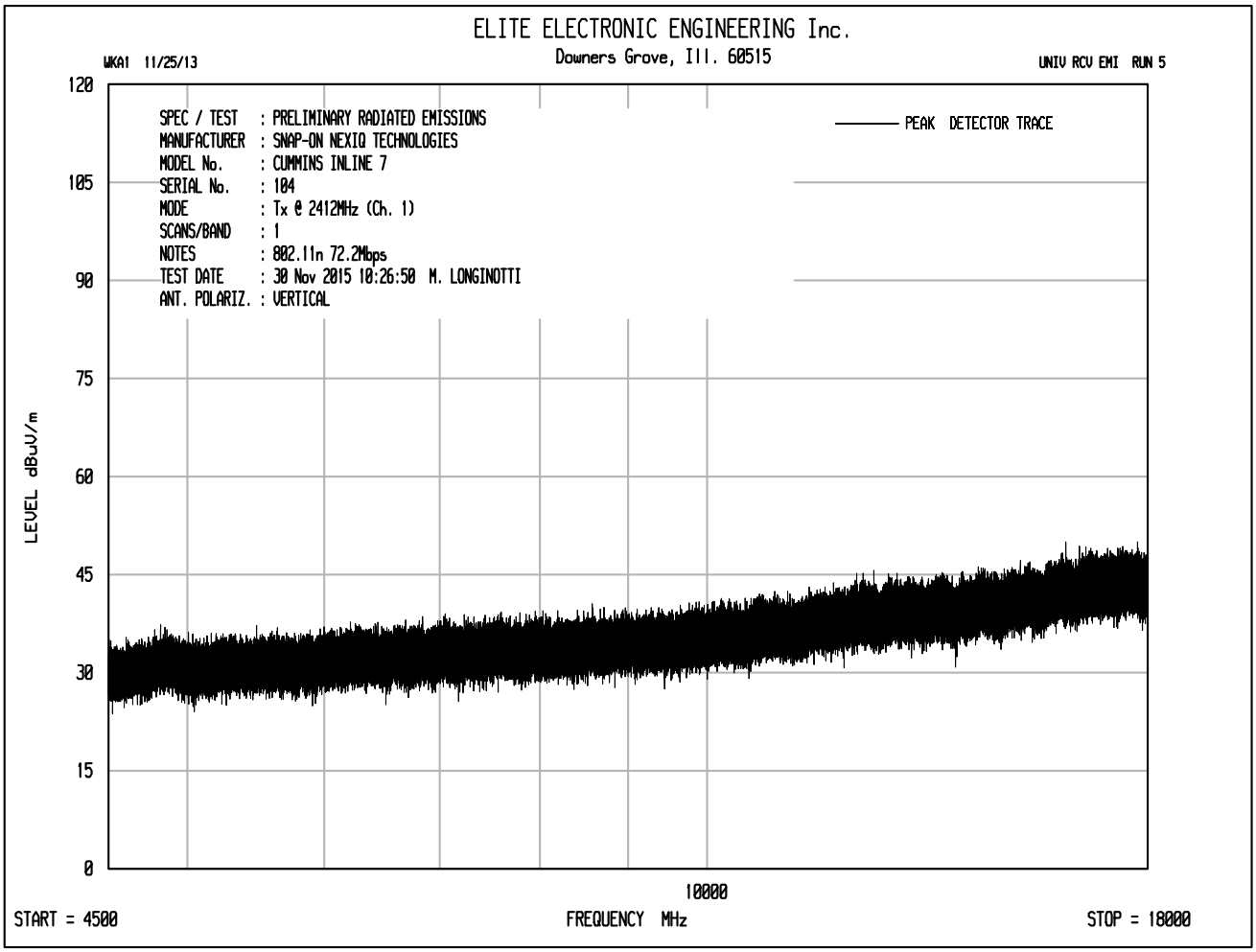

ELITE ELECTRONIC ENGINEERING Inc.
Downers Grove, Ill. 60515
WKA1 11/25/13
UNIV RCV EMI RUN 6
SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
MANUFACTURER : SNAP-ON NEXIQ TECHNOLOGIES
MODEL No. : CUMMINS INLINE 7
SERIAL No. : 104
MODE : Tx @ 2412MHz (Ch. 1)
SCANS/BAND : 1
NOTES : 802.11n 72 Mb/SEC
TEST DATE : 20 Nov 2015 14:26:35 M. LONGINOTTI
ANT. POLARIZ. : HORIZONTAL
PEAK DETECTOR TRACE
LEVEL dBuV/m
120
105
90
75
60
45
30
15
0
100
START = 30
FREQUENCY MHz
STOP = 1000

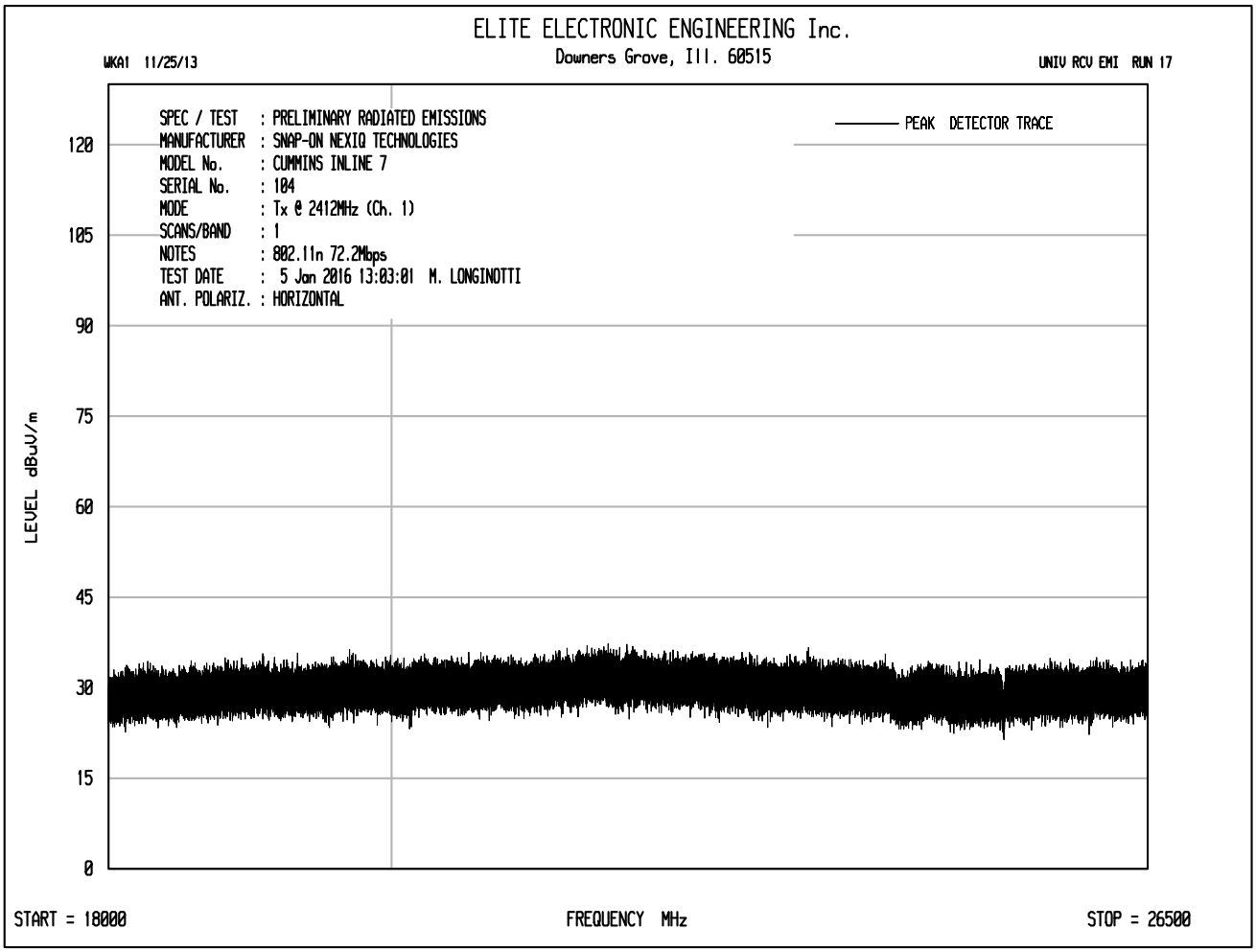

ELITE ELECTRONIC ENGINEERING Inc.
Downers Grove, Ill. 60515
WKA1 11/25/13
UNIV RCV EMI RUN 105
SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
MANUFACTURER : SNAP-ON NEXIQ TECHNOLOGIES
MODEL No. : CUMMINS INLINE 7
SERIAL No. : 104
MODE : Tx @ 2412MHz (Ch. 1)
SCANS/BAND : 1
NOTES : 802.11n 72.2Mbps
TEST DATE : 25 Nov 2015 09:30:41 M. LONGINOTTI
ANT. POLARIZ. : HORIZONTAL
PEAK DETECTOR TRACE
LEVEL dBuV/m
120
105
90
75
60
45
30
15
0
START = 1000
FREQUENCY MHz
STOP = 4500

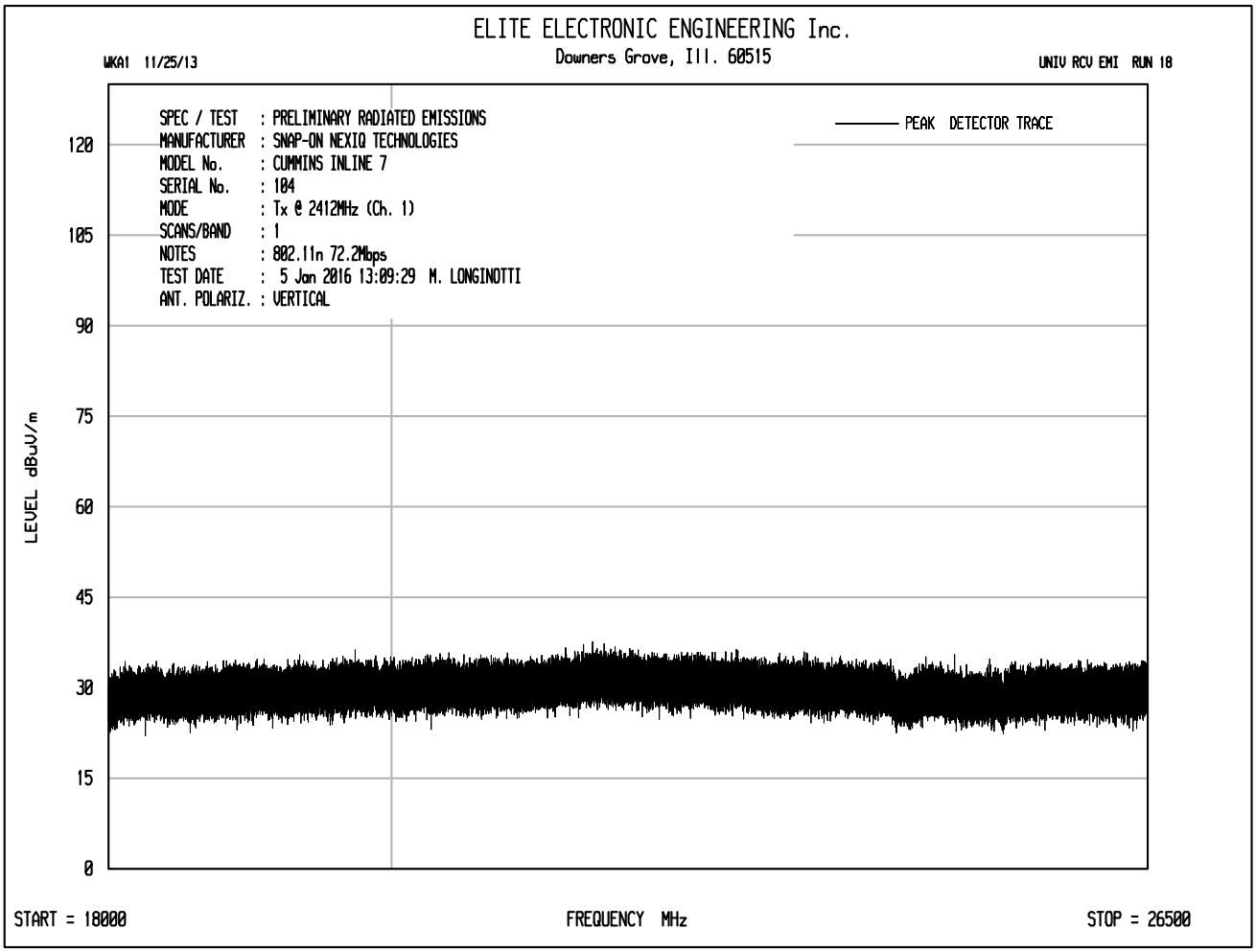

ELITE ELECTRONIC ENGINEERING Inc.
Downers Grove, Ill. 60515
WKA1 11/25/13
UNIV RCV EMI RUN 6
SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
MANUFACTURER : SNAP-ON NEXIQ TECHNOLOGIES
MODEL No. : CUMMINS INLINE 7
SERIAL No. : 104
MODE : Tx @ 2412MHz (Ch. 1)
SCANS/BAND : 1
NOTES : 802.11n 72.2Mbps
TEST DATE : 30 Nov 2015 10:30:05 M. LONGINOTTI
ANT. POLARIZ. : HORIZONTAL
PEAK DETECTOR TRACE
LEVEL dBuV/m
120
105
90
75
60
45
30
15
0
10000
START = 4500
FREQUENCY MHz
STOP = 18000


ELITE ELECTRONIC ENGINEERING Inc.
Downers Grove, Ill. 60515
WKA1 11/25/13
UNIV RCV EMI RUN 5
SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
MANUFACTURER : SNAP-ON NEXIQ TECHNOLOGIES
MODEL No. : CUMMINS INLINE 7
SERIAL No. : 104
MODE : Tx @ 2412MHz (Ch. 1)
SCANS/BAND : 1
NOTES : 802.11n 72 Mb/SEC
TEST DATE : 20 Nov 2015 14:24:49 M. LONGINOTTI
ANT. POLARIZ. : VERTICAL
PEAK DETECTOR TRACE
LEVEL dBuV/m
120
105
90
75
60
45
30
15
0
100
START = 30
FREQUENCY MHz
STOP = 1000


ELITE ELECTRONIC ENGINEERING Inc.
Downers Grove, Ill. 60515
WKA1 11/25/13
UNIV RCV EMI RUN 106
SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
MANUFACTURER : SNAP-ON NEXIQ TECHNOLOGIES
MODEL No. : CUMMINS INLINE 7
SERIAL No. : 104
MODE : Tx @ 2412MHz (Ch. 1)
SCANS/BAND : 1
NOTES : 802.11n 72.2Mbps
TEST DATE : 25 Nov 2015 09:32:48 M. LONGINOTTI
ANT. POLARIZ. : VERTICAL
PEAK DETECTOR TRACE
LEVEL dBuV/m
120
105
90
75
60
45
30
15
0
START = 1000
FREQUENCY MHz
STOP = 4500


ELITE ELECTRONIC ENGINEERING Inc.
Downers Grove, Ill. 60515
WKA1 11/25/13
UNIV RCV EMI RUN 5
SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
MANUFACTURER : SNAP-ON NEXIQ TECHNOLOGIES
MODEL No. : CUMMINS INLINE 7
SERIAL No. : 104
MODE : Tx @ 2412MHz (Ch. 1)
SCANS/BAND : 1
NOTES : 802.11n 72.2Mbps
TEST DATE : 30 Nov 2015 10:26:50 M. LONGINOTTI
ANT. POLARIZ. : VERTICAL
PEAK DETECTOR TRACE
LEVEL dBuV/m
120
105
90
75
60
45
30
15
0
10000
START = 4500
FREQUENCY MHz
STOP = 18000


ELITE ELECTRONIC ENGINEERING Inc.
Downers Grove, Ill. 60515
WKA1 11/25/13
UNIV RCV EMI RUN 17
SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
MANUFACTURER : SNAP-ON NEXIQ TECHNOLOGIES
MODEL No. : CUMMINS INLINE 7
SERIAL No. : 104
MODE : Tx @ 2412MHz (Ch. 1)
SCANS/BAND : 1
NOTES : 802.11n 72.2Mbps
TEST DATE : 5 Jan 2016 13:03:01 M. LONGINOTTI
ANT. POLARIZ. : HORIZONTAL
PEAK DETECTOR TRACE
LEVEL dBuV/m
120
105
90
75
60
45
30
15
0
START = 18000
FREQUENCY MHz
STOP = 26500


ELITE ELECTRONIC ENGINEERING Inc.
Downers Grove, Ill. 60515
WKA1 11/25/13
UNIV RCV EMI RUN 18
SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
MANUFACTURER : SNAP-ON NEXIQ TECHNOLOGIES
MODEL No. : CUMMINS INLINE 7
SERIAL No. : 104
MODE : Tx @ 2412MHz (Ch. 1)
SCANS/BAND : 1
NOTES : 802.11n 72.2Mbps
TEST DATE : 5 Jan 2016 13:09:29 M. LONGINOTTI
ANT. POLARIZ. : VERTICAL
PEAK DETECTOR TRACE
LEVEL dBuV/m
120
105
90
75
60
45
30
15
0
START = 18000
FREQUENCY MHz
STOP = 26500

Manufacturer : Snap-On Nexiq Technologies
Model No. : Cummins INLINE 7
Serial No. : 104
Date Tested : November 20, 2015 through January 5, 2016
Test Performed : Radiated Spurious Emissions in Restricted Bands
Mode : Transmit at 2412MHz, 802.11b 1 Mb/sec
Test Distance : 3 meters
Notes : Peak Readings with a 1MHz RBW

Freq. MHz	Ant Pol	Meter Reading (dBuV)	Ambient	CBL Fac (dB)	Ant Fac (dB)	Pre Amp (dB)	Peak Total dBuV/m at 3m	Peak Total uV/m at 3 m	Peak Limit uV/m at 3 m	Margin (dB)
4824.00	H	47.6	Ambient	4.8	34.2	-39.3	47.3	232.7	5000.0	-26.6
4824.00	V	48.9	Ambient	4.8	34.2	-39.3	48.6	270.3	5000.0	-25.3
12060.00	H	48.3	Ambient	8.0	39.1	-39.1	56.3	654.0	5000.0	-17.7
12060.00	V	48.2	Ambient	8.0	39.1	-39.1	56.2	646.5	5000.0	-17.8
14472.00	H	48.3	Ambient	8.7	39.6	-38.3	58.3	825.9	5000.0	-15.6
14472.00	V	48.0	Ambient	8.7	39.6	-38.3	58.0	797.9	5000.0	-15.9
19296.00	H	32.0	Ambient	2.2	40.4	-28.3	46.3	206.2	5000.0	-27.7
19296.00	V	31.8	Ambient	2.2	40.4	-28.3	46.1	201.5	5000.0	-27.9

Peak Total (dBuV/m) = Meter Reading (dBuV) + CBL Fac (dB) + Ant Fac (dB) + Pre Amp (dB)

Peak Total (uV/m) = 10^(Peak Total (dBuV/m)/20)

Manufacturer : Snap-On Nexiq Technologies
Model No. : Cummins INLINE 7
Serial No. : 104
Date Tested : November 20, 2015 through January 5, 2016
Test Performed : Radiated Spurious Emissions in Restricted Bands
Mode : Transmit at 2412MHz, 802.11b 1 Mb/sec
Test Distance : 3 meters
Notes : Average Readings with a 1MHz RBW

Freq. MHz	Ant Pol	Meter Reading (dBuV)	Ambient	CBL Fac (dB)	Ant Fac (dB)	Pre Amp (dB)	Average Total dBuV/m at 3m	Average Total uV/m at 3 m	Average Limit uV/m at 3 m	Margin (dB)
4824.00	H	35.7	Ambient	4.8	34.2	-39.3	35.4	59.1	500.0	-18.5
4824.00	V	35.8	Ambient	4.8	34.2	-39.3	35.5	59.8	500.0	-18.4
12060.00	H	36.6	Ambient	8.0	39.1	-39.1	44.6	170.0	500.0	-9.4
12060.00	V	35.6	Ambient	8.0	39.1	-39.1	43.6	151.5	500.0	-10.4
14472.00	H	35.2	Ambient	8.7	39.6	-38.3	45.2	182.8	500.0	-8.7
14472.00	V	36.2	Ambient	8.7	39.6	-38.3	46.2	205.1	500.0	-7.7
19296.00	H	19.4	Ambient	2.2	40.4	-28.3	33.7	48.3	500.0	-20.3
19296.00	V	19.2	Ambient	2.2	40.4	-28.3	33.5	47.2	500.0	-20.5

Average Total (dBuV/m) = Meter Reading (dBuV) + CBL Fac (dB) + Ant Fac (dB) + Pre Amp (dB)

Average Total (uV/m) = 10^(Peak Total (dBuV/m)/20)

Manufacturer : Snap-On Nexiq Technologies
Model No. : Cummins INLINE 7
Serial No. : 104
Date Tested : November 20, 2015 through January 5, 2016
Test Performed : Radiated Spurious Emissions in Restricted Bands
Mode : Transmit at 2412MHz, 802.11g 6 Mb/sec
Test Distance : 3 meters
Notes : Peak Readings with a 1MHz RBW

Freq. MHz	Ant Pol	Meter Reading (dBuV)	Ambient	CBL Fac (dB)	Ant Fac (dB)	Pre Amp (dB)	Peak Total dBuV/m at 3m	Peak Total uV/m at 3 m	Peak Limit uV/m at 3 m	Margin (dB)
4824.00	H	48.8	Ambient	4.8	34.2	-39.3	48.5	267.2	5000.0	-25.4
4824.00	V	49.1	Ambient	4.8	34.2	-39.3	48.8	276.6	5000.0	-25.1
12060.00	H	48.0	Ambient	8.0	39.1	-39.1	56.0	631.8	5000.0	-18.0
12060.00	V	48.4	Ambient	8.0	39.1	-39.1	56.4	661.5	5000.0	-17.6
14472.00	H	48.5	Ambient	8.7	39.6	-38.3	58.5	845.2	5000.0	-15.4
14472.00	V	48.2	Ambient	8.7	39.6	-38.3	58.2	816.5	5000.0	-15.7
19296.00	H	31.3	Ambient	2.2	40.4	-28.3	45.6	190.3	5000.0	-28.4
19296.00	V	31.9	Ambient	2.2	40.4	-28.3	46.2	203.9	5000.0	-27.8

Peak Total (dBuV/m) = Meter Reading (dBuV) + CBL Fac (dB) + Ant Fac (dB) + Pre Amp (dB)

Peak Total (uV/m) = 10^(Peak Total (dBuV/m)/20)

Manufacturer : Snap-On Nexiq Technologies
Model No. : Cummins INLINE 7
Serial No. : 104
Date Tested : November 20, 2015 through January 5, 2016
Test Performed : Radiated Spurious Emissions in Restricted Bands
Mode : Transmit at 2412MHz, 802.11g 6 Mb/sec
Test Distance : 3 meters
Notes : Average Readings with a 1MHz RBW

Freq. MHz	Ant Pol	Meter Reading (dBuV)	Ambient	CBL Fac (dB)	Ant Fac (dB)	Pre Amp (dB)	Average Total dBuV/m at 3m	Average Total uV/m at 3 m	Average Limit uV/m at 3 m	Margin (dB)
4824.00	H	35.8	Ambient	4.8	34.2	-39.3	35.5	59.8	500.0	-18.4
4824.00	V	35.8	Ambient	4.8	34.2	-39.3	35.5	59.8	500.0	-18.4
12060.00	H	35.4	Ambient	8.0	39.1	-39.1	43.4	148.1	500.0	-10.6
12060.00	V	35.4	Ambient	8.0	39.1	-39.1	43.4	148.1	500.0	-10.6
14472.00	H	35.4	Ambient	8.7	39.6	-38.3	45.4	187.0	500.0	-8.5
14472.00	V	35.4	Ambient	8.7	39.6	-38.3	45.4	187.0	500.0	-8.5
19296.00	H	19.1	Ambient	2.2	40.4	-28.3	33.4	46.7	500.0	-20.6
19296.00	V	19.3	Ambient	2.2	40.4	-28.3	33.6	47.8	500.0	-20.4

Average Total (dBuV/m) = Meter Reading (dBuV) + CBL Fac (dB) + Ant Fac (dB) + Pre Amp (dB)

Average Total (uV/m) = 10^(Peak Total (dBuV/m)/20)

Manufacturer : Snap-On Nexiq Technologies
Model No. : Cummins INLINE 7
Serial No. : 104
Date Tested : November 20, 2015 through January 5, 2016
Test Performed : Radiated Spurious Emissions in Restricted Bands
Mode : Transmit at 2412MHz, 802.11n 72.2 Mb/sec
Test Distance : 3 meters
Notes : Peak Readings with a 1MHz RBW

Freq. MHz	Ant Pol	Meter Reading (dBuV)	Ambient	CBL Fac (dB)	Ant Fac (dB)	Pre Amp (dB)	Peak Total dBuV/m at 3m	Peak Total uV/m at 3 m	Peak Limit uV/m at 3 m	Margin (dB)
4824.00	H	48.8	Ambient	4.8	34.2	-39.3	48.5	267.2	5000.0	-25.4
4824.00	V	49.7	Ambient	4.8	34.2	-39.3	49.4	296.4	5000.0	-24.5
12060.00	H	48.3	Ambient	8.0	39.1	-39.1	56.3	654.0	5000.0	-17.7
12060.00	V	48.9	Ambient	8.0	39.1	-39.1	56.9	700.7	5000.0	-17.1
14472.00	H	47.7	Ambient	8.7	39.6	-38.3	57.7	770.8	5000.0	-16.2
14472.00	V	48.8	Ambient	8.7	39.6	-38.3	58.8	874.9	5000.0	-15.1
19296.00	H	31.3	Ambient	2.2	40.4	-28.3	45.6	190.3	5000.0	-28.4
19296.00	V	31.8	Ambient	2.2	40.4	-28.3	46.1	201.5	5000.0	-27.9

Peak Total (dBuV/m) = Meter Reading (dBuV) + CBL Fac (dB) + Ant Fac (dB) + Pre Amp (dB)

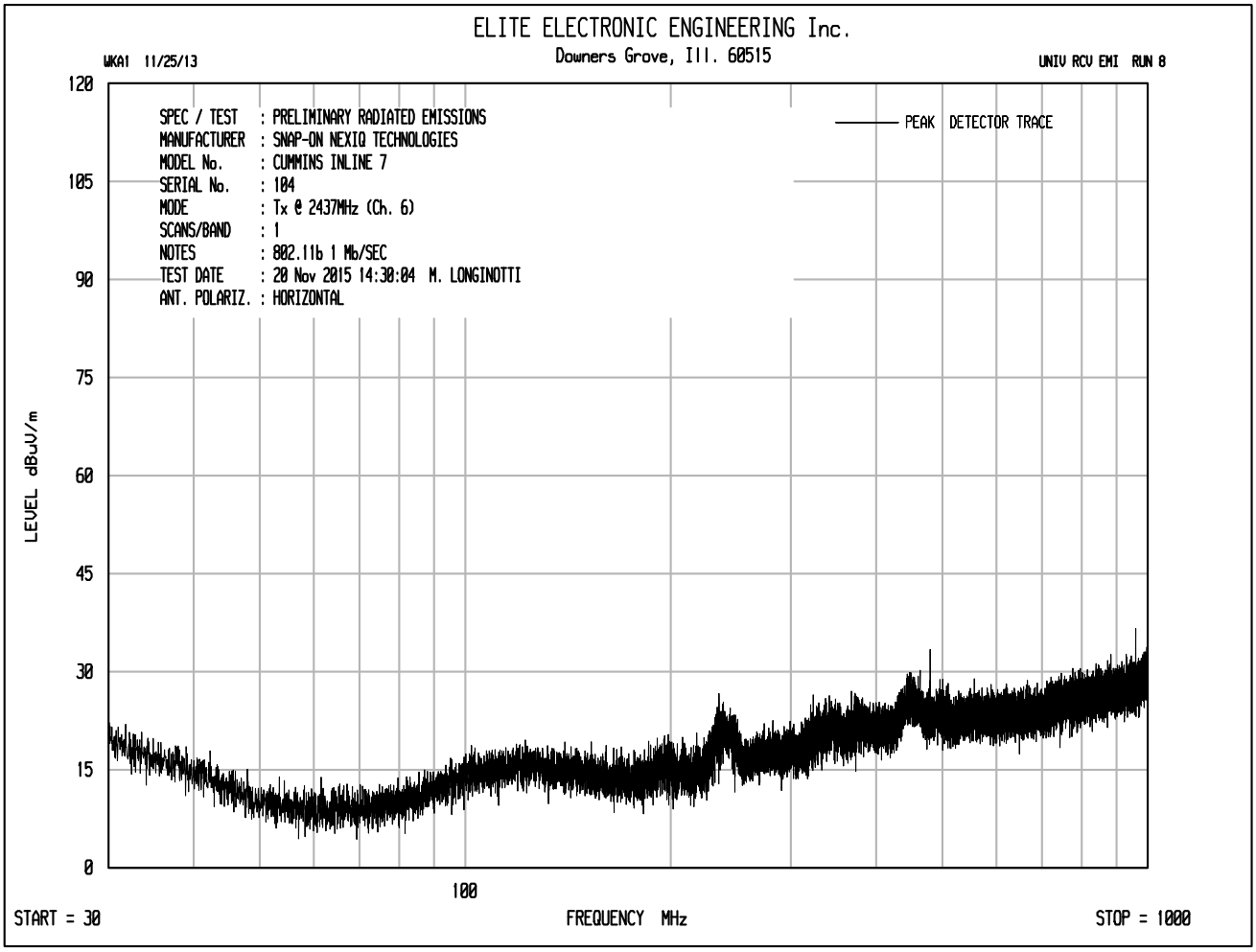
Peak Total (uV/m) = 10^(Peak Total (dBuV/m)/20)

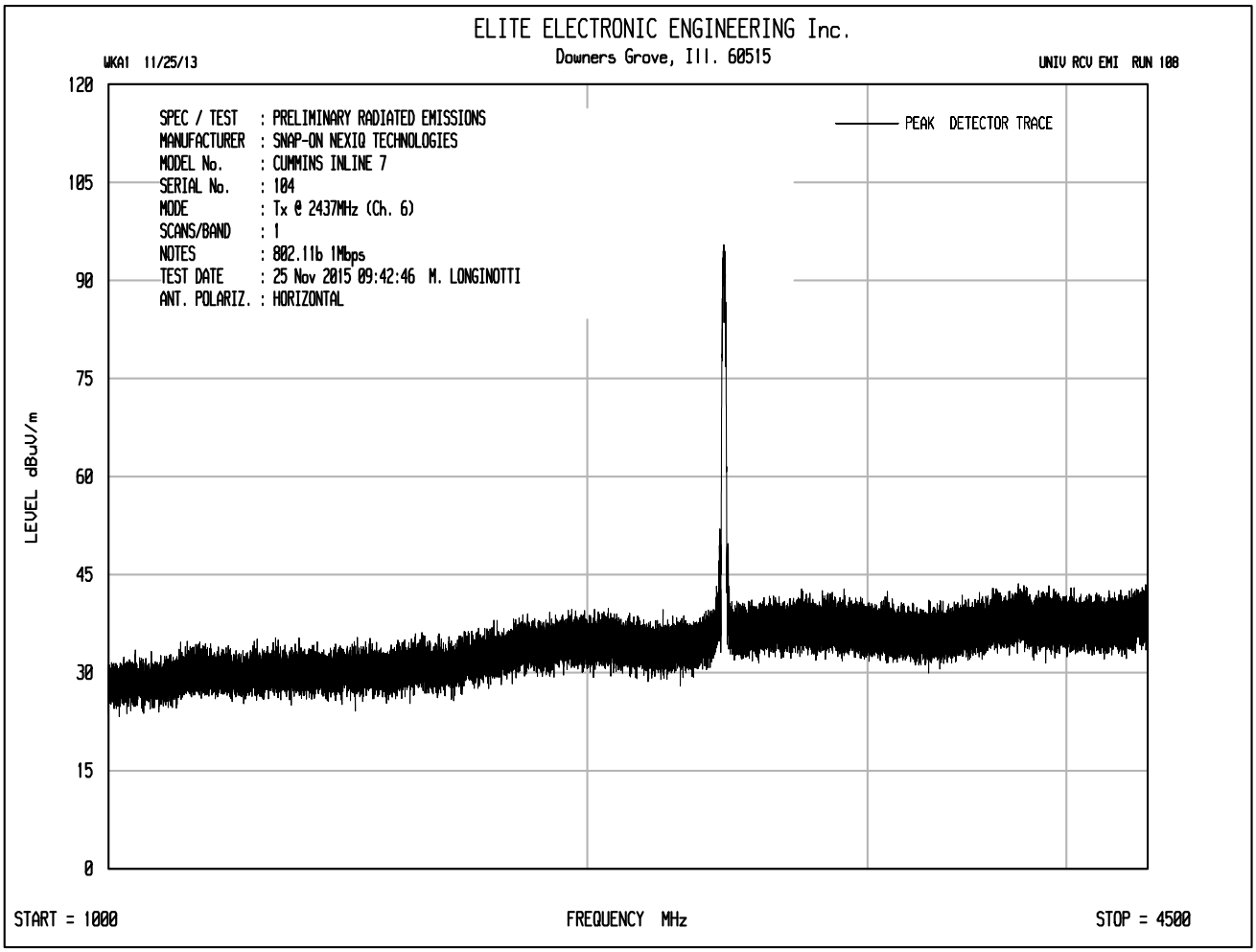
Manufacturer : Snap-On Nexiq Technologies
Model No. : Cummins INLINE 7
Serial No. : 104
Date Tested : November 20, 2015 through January 5, 2016
Test Performed : Radiated Spurious Emissions in Restricted Bands
Mode : Transmit at 2412MHz, 802.11n 72.2 Mb/sec
Test Distance : 3 meters
Notes : Average Readings with a 1MHz RBW

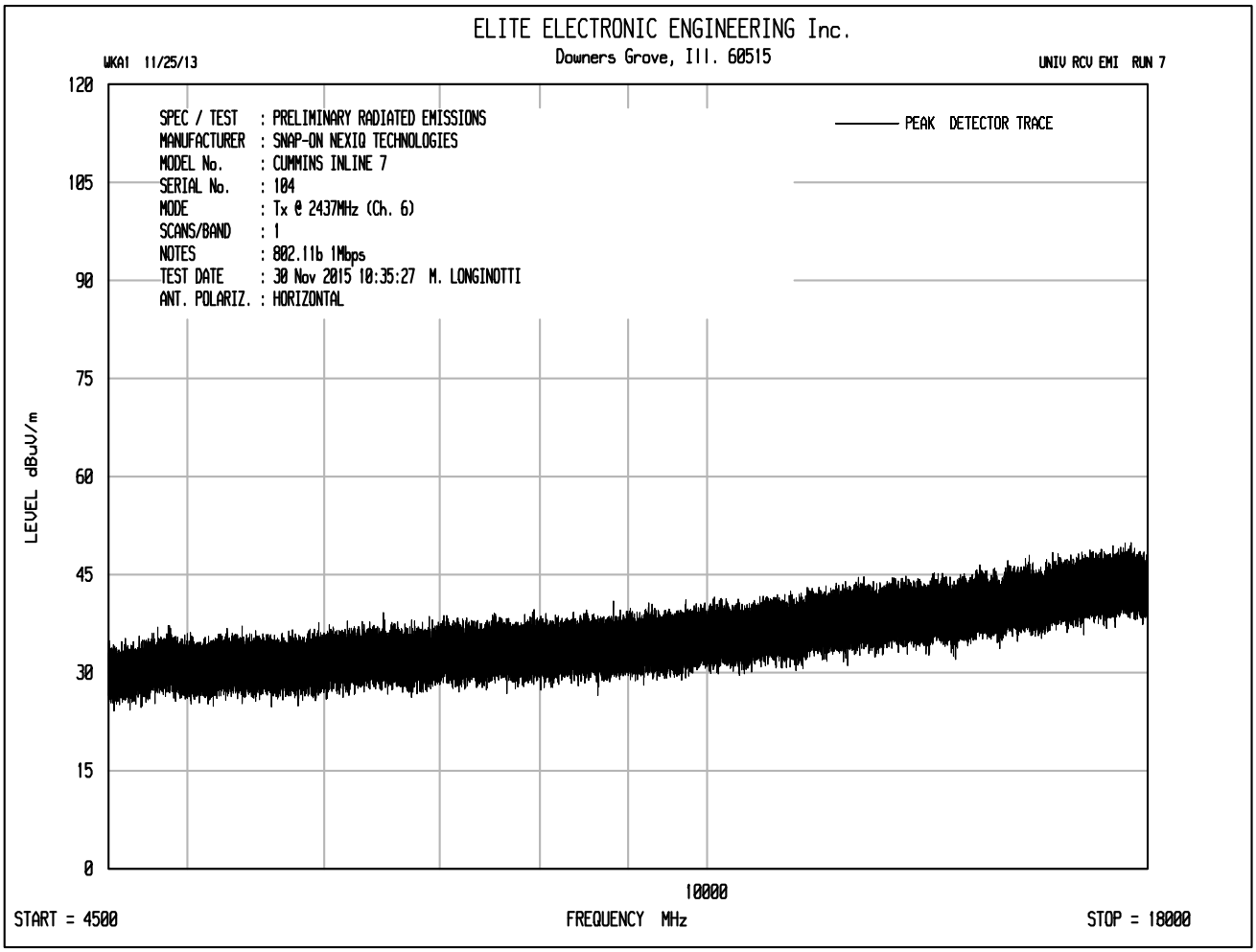
Freq. MHz	Ant Pol	Meter Reading (dBuV)	Ambient	CBL Fac (dB)	Ant Fac (dB)	Pre Amp (dB)	Average Total dBuV/m at 3m	Average Total uV/m at 3 m	Average Limit uV/m at 3 m	Margin (dB)
4824.00	H	35.8	Ambient	4.8	34.2	-39.3	35.5	59.8	500.0	-18.4
4824.00	V	35.8	Ambient	4.8	34.2	-39.3	35.5	59.8	500.0	-18.4
12060.00	H	35.6	Ambient	8.0	39.1	-39.1	43.6	151.5	500.0	-10.4
12060.00	V	35.5	Ambient	8.0	39.1	-39.1	43.5	149.8	500.0	-10.5
14472.00	H	35.4	Ambient	8.7	39.6	-38.3	45.4	187.0	500.0	-8.5
14472.00	V	35.4	Ambient	8.7	39.6	-38.3	45.4	187.0	500.0	-8.5
19296.00	H	19.3	Ambient	2.2	40.4	-28.3	33.6	47.8	500.0	-20.4
19296.00	V	19.2	Ambient	2.2	40.4	-28.3	33.5	47.2	500.0	-20.5

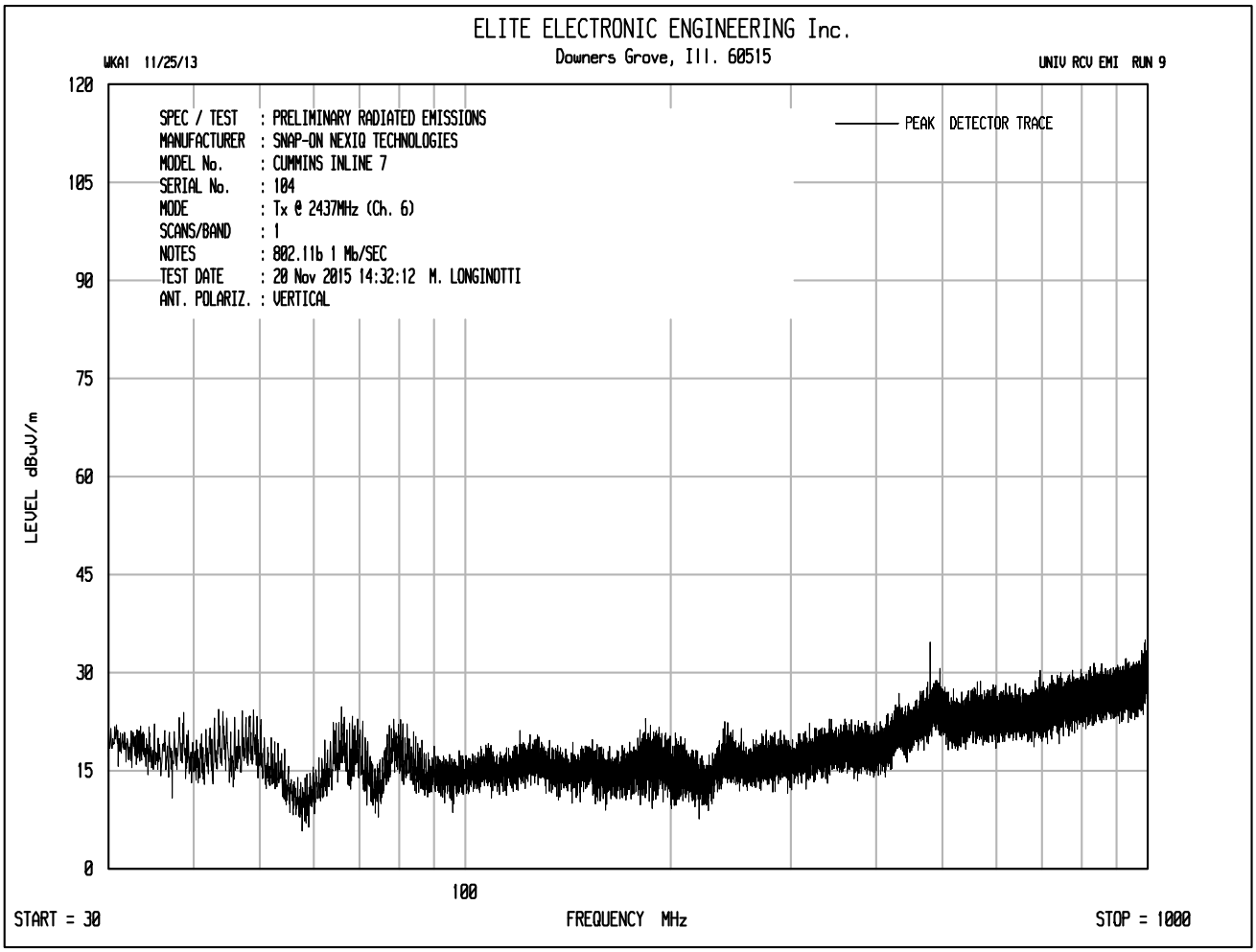
Average Total (dBuV/m) = Meter Reading (dBuV) + CBL Fac (dB) + Ant Fac (dB) + Pre Amp (dB)

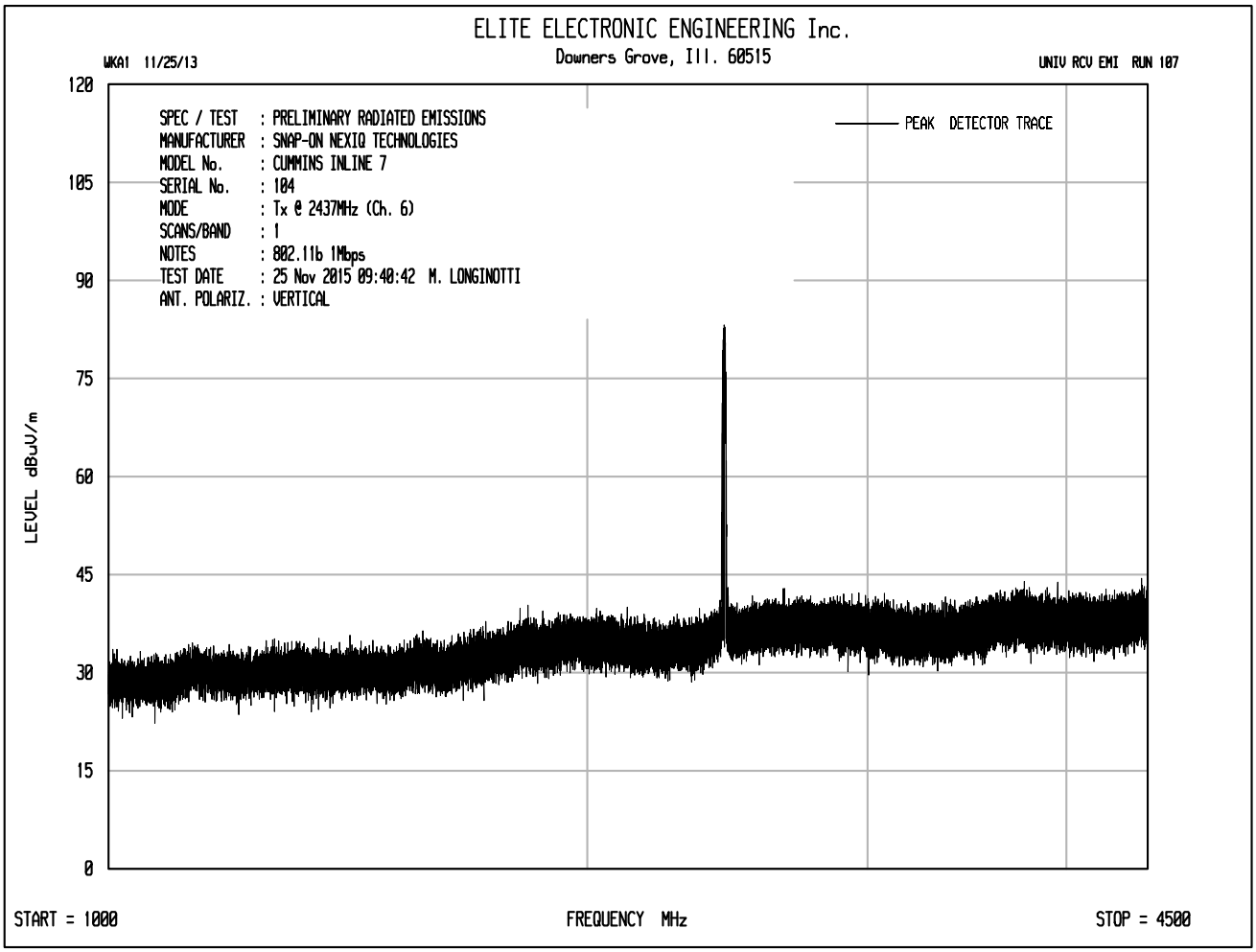
Average Total (uV/m) = 10^(Peak Total (dBuV/m)/20)

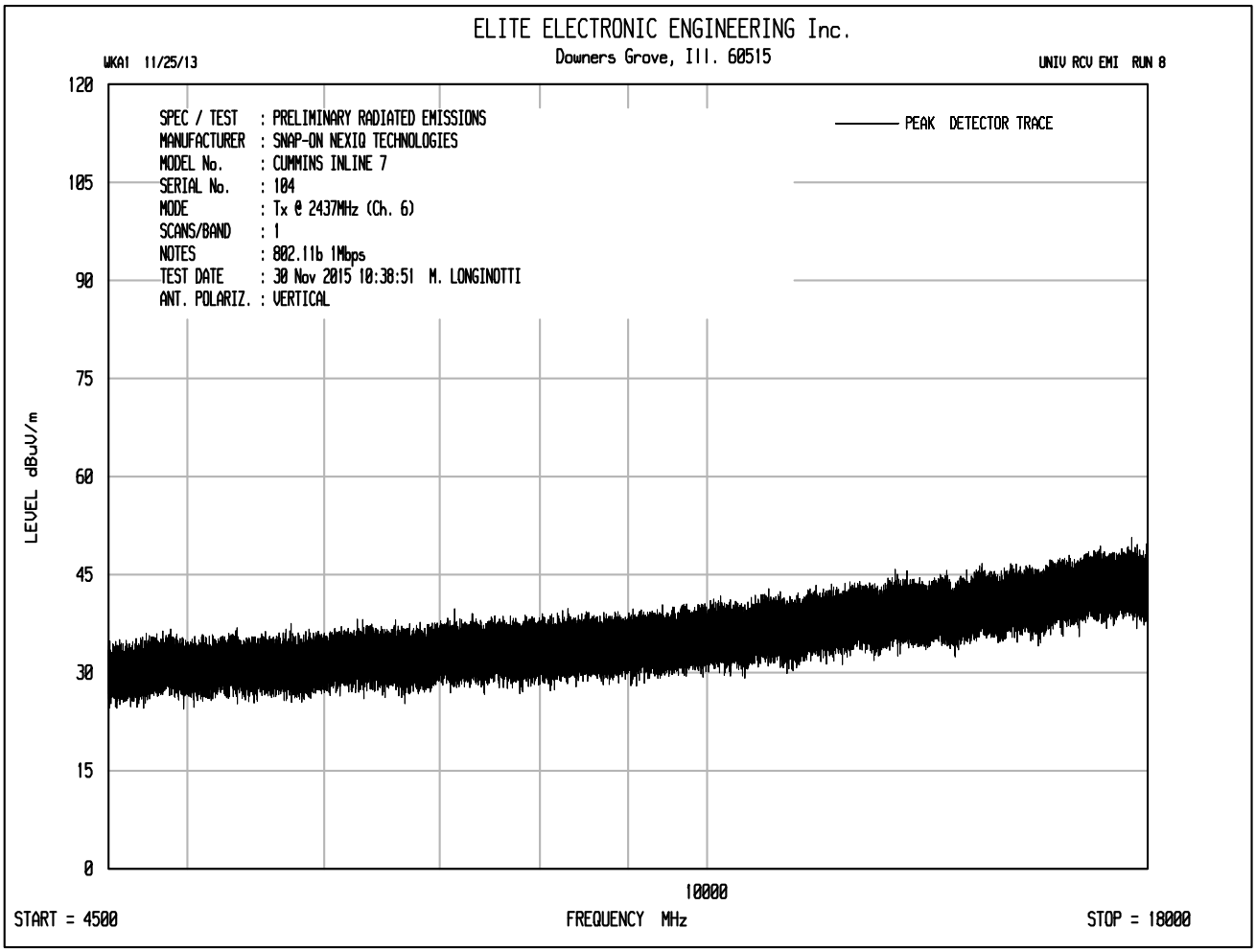

ELITE ELECTRONIC ENGINEERING Inc.
Downers Grove, Ill. 60515
WKA1 11/25/13
UNIV RCV EMI RUN 8
SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
MANUFACTURER : SNAP-ON NEXIQ TECHNOLOGIES
MODEL No. : CUMMINS INLINE 7
SERIAL No. : 104
MODE : Tx @ 2437MHz (Ch. 6)
SCANS/BAND : 1
NOTES : 802.11b 1 Mb/SEC
TEST DATE : 20 Nov 2015 14:30:04 M. LONGINOTTI
ANT. POLARIZ. : HORIZONTAL
PEAK DETECTOR TRACE
LEVEL dBuV/m
120
105
90
75
60
45
30
15
0
100
START = 30
FREQUENCY MHz
STOP = 1000

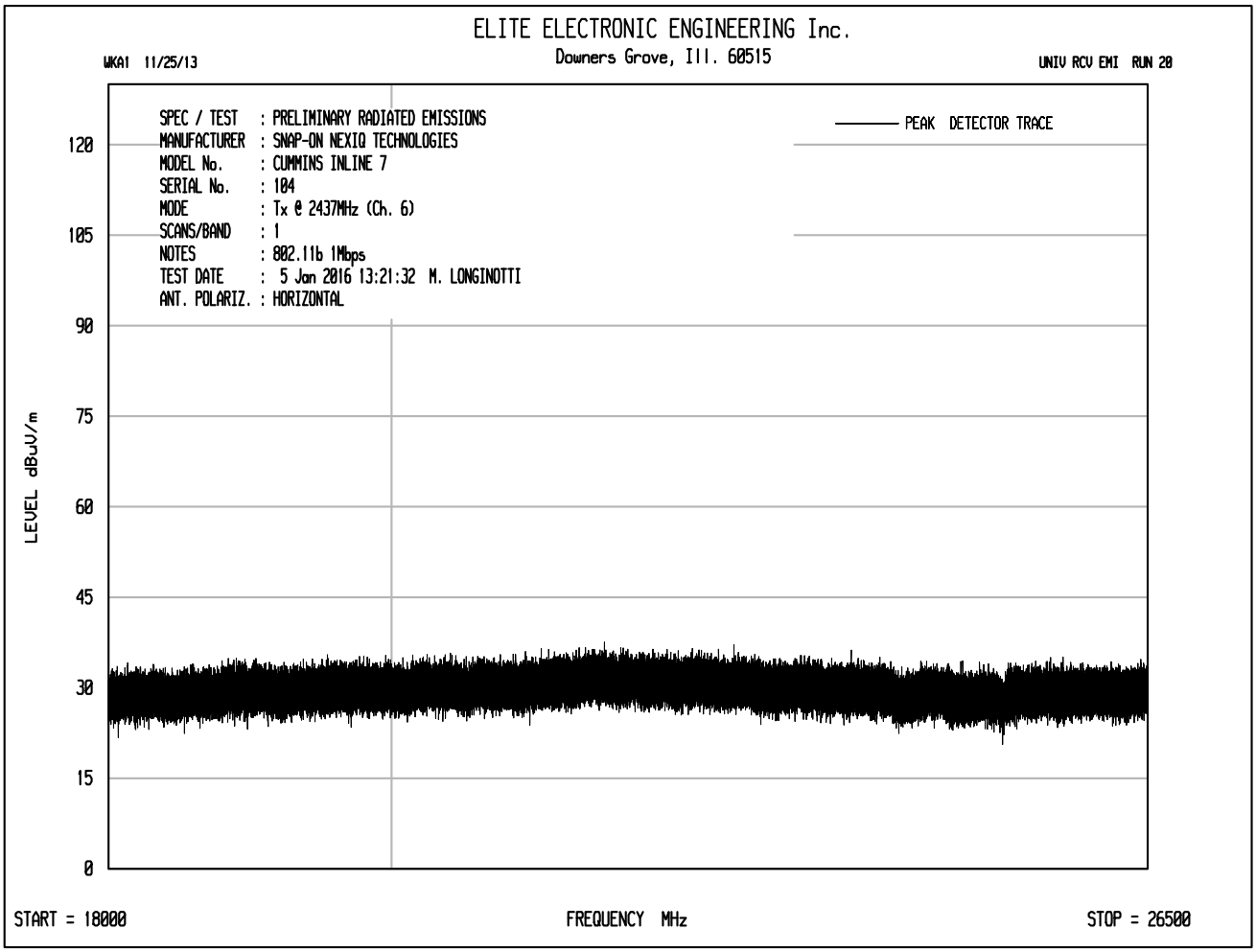

ELITE ELECTRONIC ENGINEERING Inc.
Downers Grove, Ill. 60515
WKA1 11/25/13
UNIV RCV EMI RUN 108
SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
MANUFACTURER : SNAP-ON NEXIQ TECHNOLOGIES
MODEL No. : CUMMINS INLINE 7
SERIAL No. : 104
MODE : Tx @ 2437MHz (Ch. 6)
SCANS/BAND : 1
NOTES : 802.11b 1Mbps
TEST DATE : 25 Nov 2015 09:42:46 M. LONGINOTTI
ANT. POLARIZ. : HORIZONTAL
PEAK DETECTOR TRACE
LEVEL dBuV/m
120
105
90
75
60
45
30
15
0
START = 1000
FREQUENCY MHz
STOP = 4500

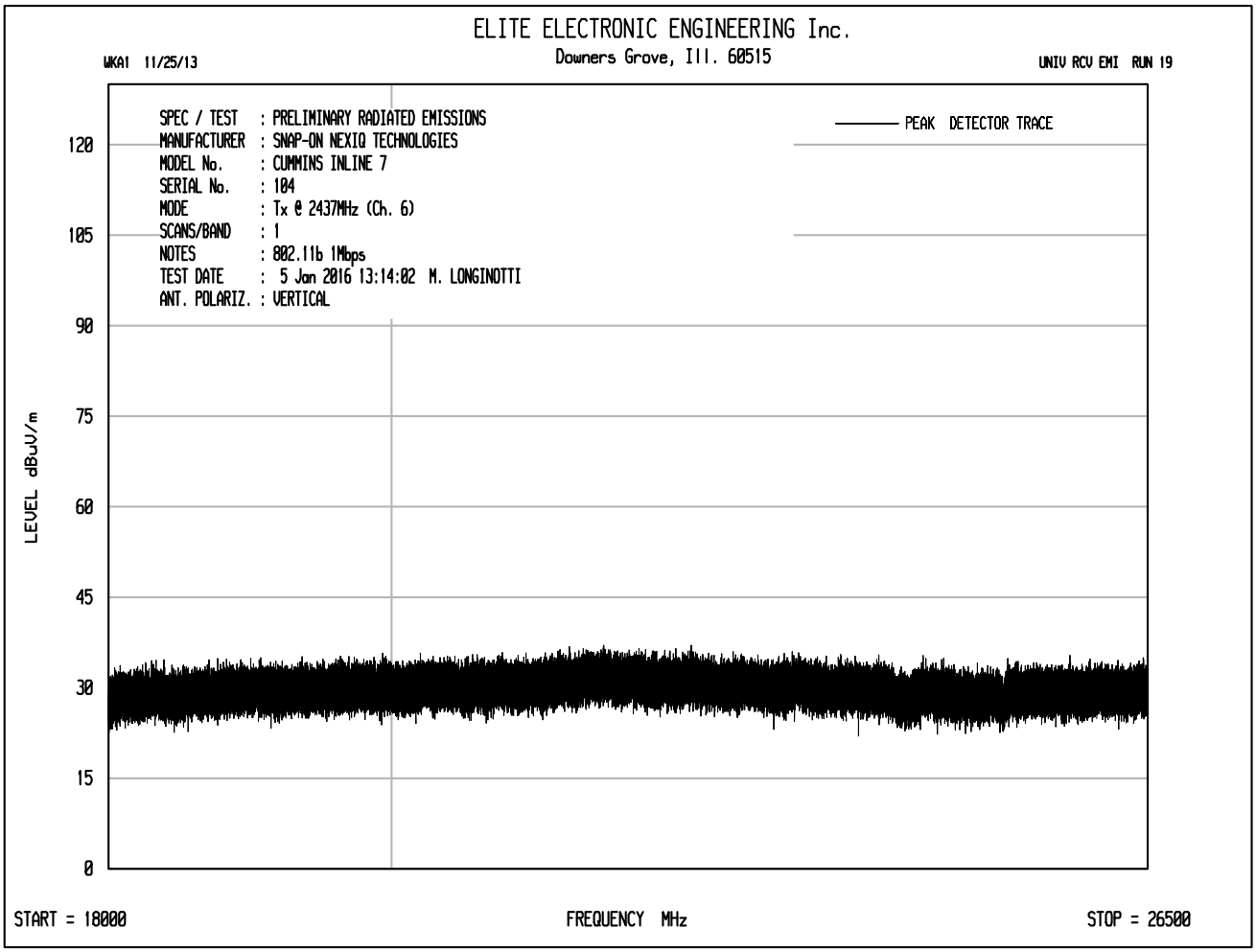

ELITE ELECTRONIC ENGINEERING Inc.
Downers Grove, Ill. 60515
WKA1 11/25/13
UNIV RCV EMI RUN 7
SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
MANUFACTURER : SNAP-ON NEXIQ TECHNOLOGIES
MODEL No. : CUMMINS INLINE 7
SERIAL No. : 104
MODE : Tx @ 2437MHz (Ch. 6)
SCANS/BAND : 1
NOTES : 802.11b 1Mbps
TEST DATE : 30 Nov 2015 10:35:27 M. LONGINOTTI
ANT. POLARIZ. : HORIZONTAL
PEAK DETECTOR TRACE
LEVEL dBuV/m
120
105
90
75
60
45
30
15
0
10000
START = 4500
FREQUENCY MHz
STOP = 18000

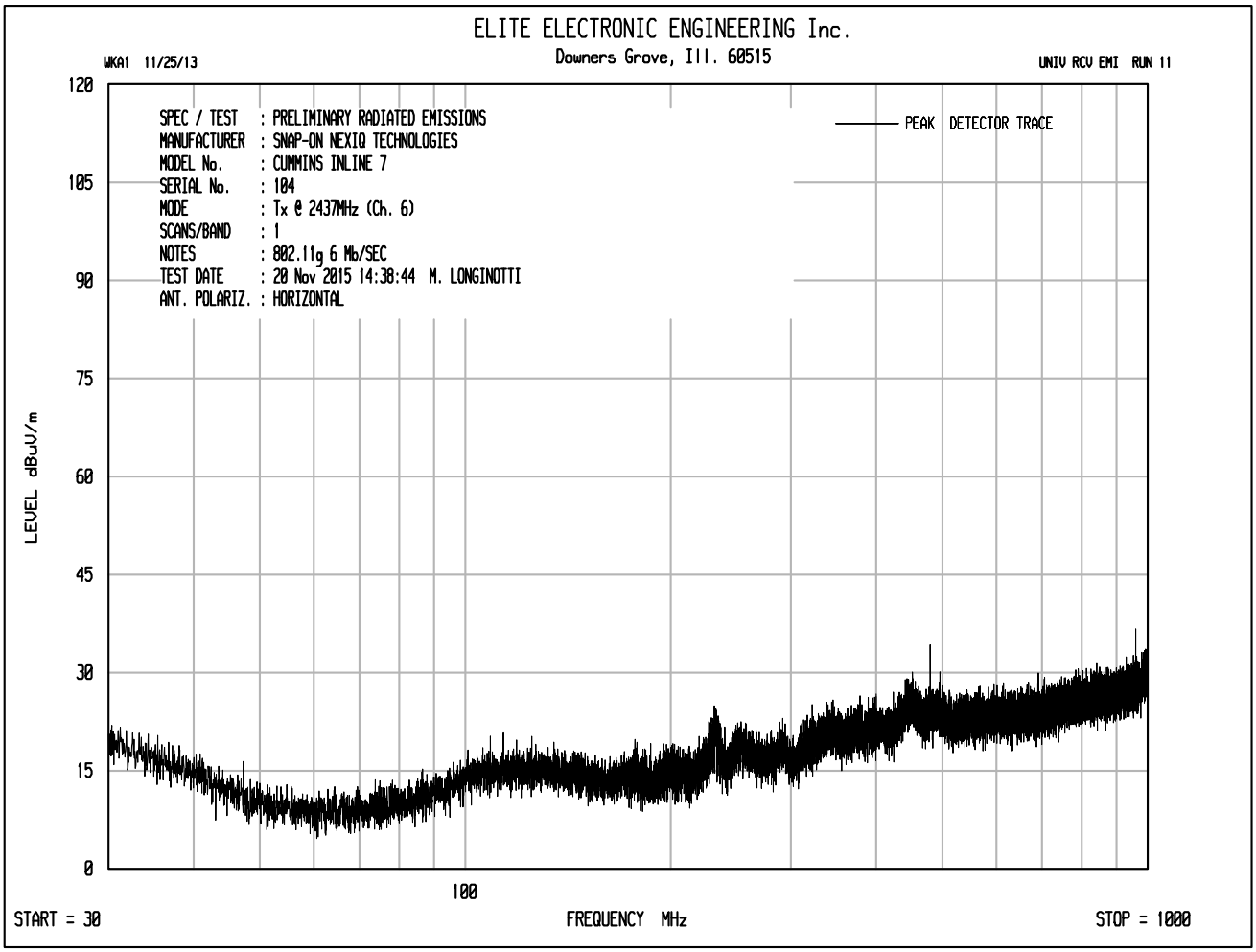

ELITE ELECTRONIC ENGINEERING Inc.
Downers Grove, Ill. 60515
WKA1 11/25/13
UNIV RCV EMI RUN 9
SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
MANUFACTURER : SNAP-ON NEXIQ TECHNOLOGIES
MODEL No. : CUMMINS INLINE 7
SERIAL No. : 104
MODE : Tx @ 2437MHz (Ch. 6)
SCANS/BAND : 1
NOTES : 802.11b 1 Mb/SEC
TEST DATE : 20 Nov 2015 14:32:12 M. LONGINOTTI
ANT. POLARIZ. : VERTICAL
PEAK DETECTOR TRACE
LEVEL dBuV/m
120
105
90
75
60
45
30
15
0
100
START = 30
FREQUENCY MHz
STOP = 1000

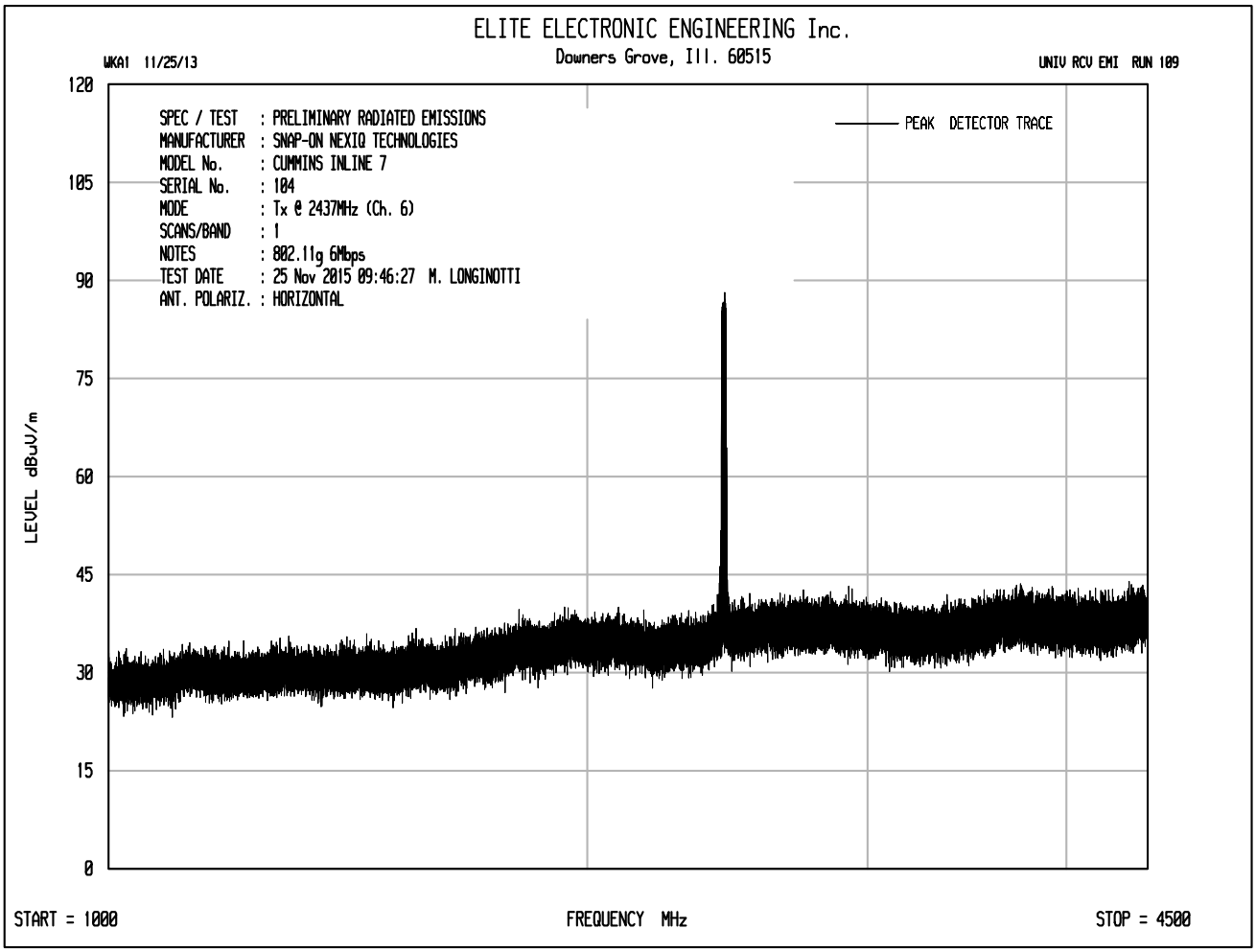

ELITE ELECTRONIC ENGINEERING Inc.
Downers Grove, Ill. 60515
WKA1 11/25/13
UNIV RCV EMI RUN 107
SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
MANUFACTURER : SNAP-ON NEXIQ TECHNOLOGIES
MODEL No. : CUMMINS INLINE 7
SERIAL No. : 104
MODE : Tx @ 2437MHz (Ch. 6)
SCANS/BAND : 1
NOTES : 802.11b 1Mbps
TEST DATE : 25 Nov 2015 09:40:42 M. LONGINOTTI
ANT. POLARIZ. : VERTICAL
PEAK DETECTOR TRACE
LEVEL dBuV/m
120
105
90
75
60
45
30
15
0
START = 1000
FREQUENCY MHz
STOP = 4500

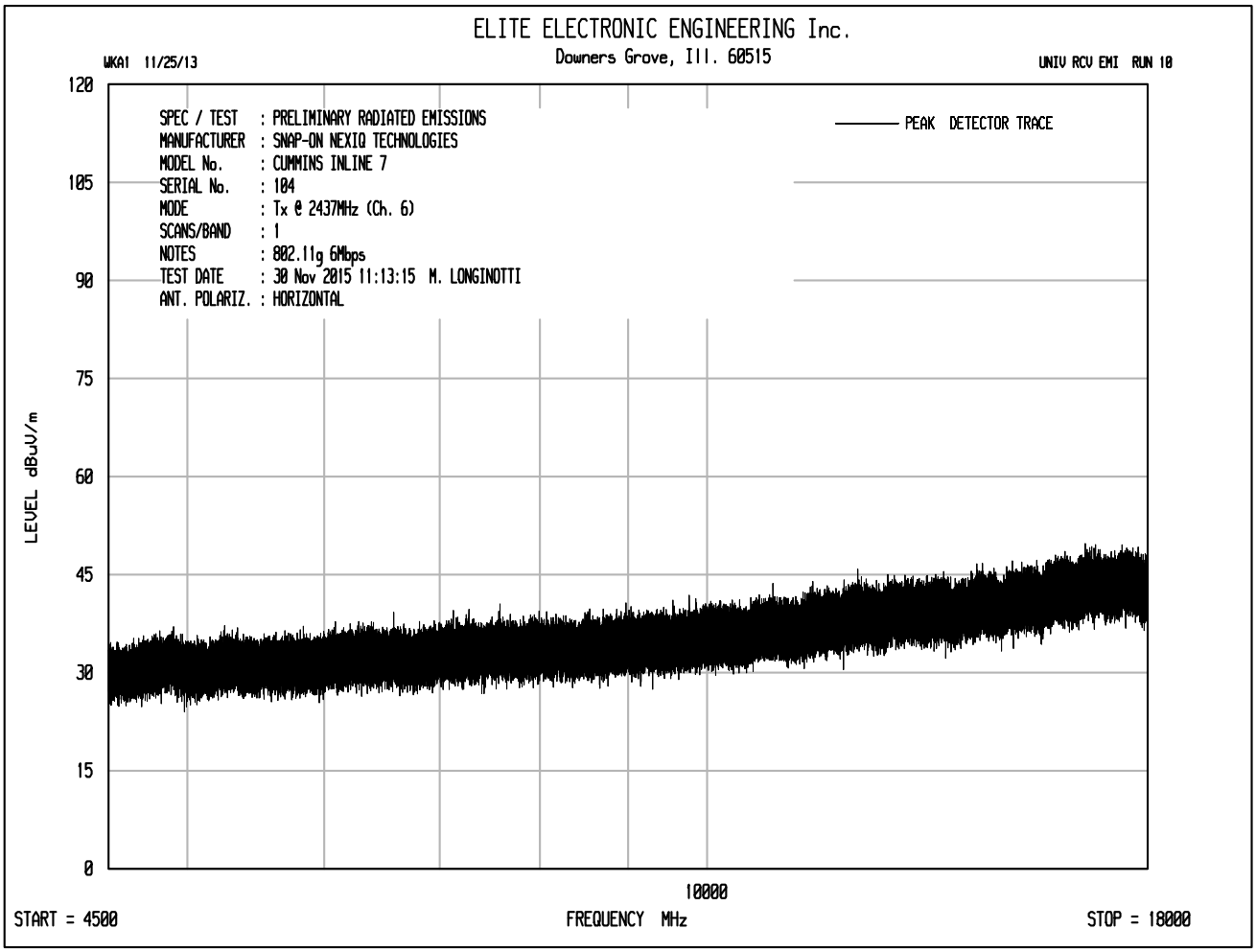

ELITE ELECTRONIC ENGINEERING Inc.
Downers Grove, Ill. 60515
WKA1 11/25/13
UNIV RCV EMI RUN 8
SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
MANUFACTURER : SNAP-ON NEXIQ TECHNOLOGIES
MODEL No. : CUMMINS INLINE 7
SERIAL No. : 104
MODE : Tx @ 2437MHz (Ch. 6)
SCANS/BAND : 1
NOTES : 802.11b 1Mbps
TEST DATE : 30 Nov 2015 10:38:51 M. LONGINOTTI
ANT. POLARIZ. : VERTICAL
PEAK DETECTOR TRACE
LEVEL dBuV/m
120
105
90
75
60
45
30
15
0
10000
START = 4500
FREQUENCY MHz
STOP = 18000

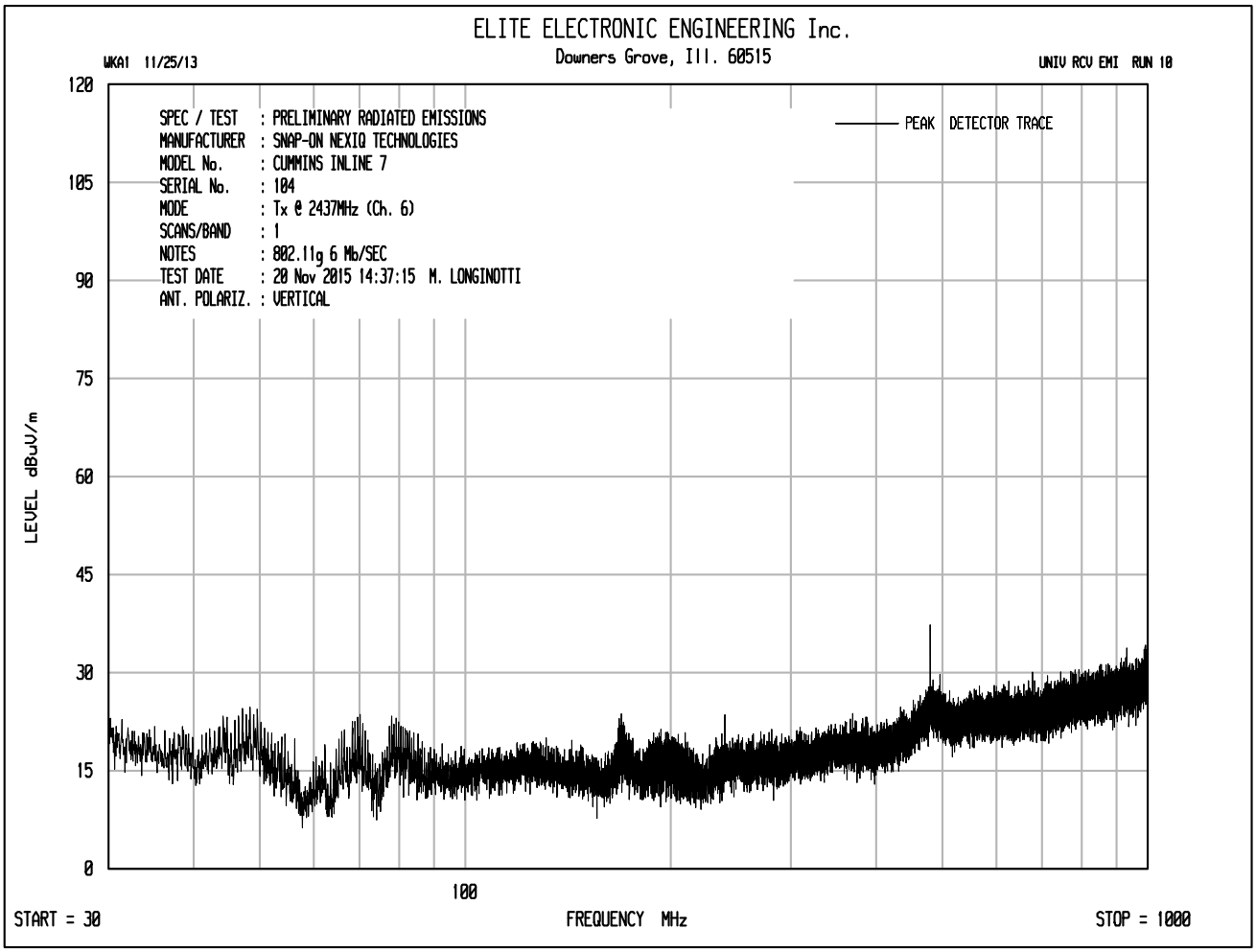

ELITE ELECTRONIC ENGINEERING Inc.
Downers Grove, Ill. 60515
WKA1 11/25/13
UNIV RCV EMI RUN 20
SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
MANUFACTURER : SNAP-ON NEXIQ TECHNOLOGIES
MODEL No. : CUMMINS INLINE 7
SERIAL No. : 104
MODE : Tx @ 2437MHz (Ch. 6)
SCANS/BAND : 1
NOTES : 802.11b 1Mbps
TEST DATE : 5 Jan 2016 13:21:32 M. LONGINOTTI
ANT. POLARIZ. : HORIZONTAL
PEAK DETECTOR TRACE
LEVEL dBuV/m
120
105
90
75
60
45
30
15
0
START = 18000
FREQUENCY MHz
STOP = 26500

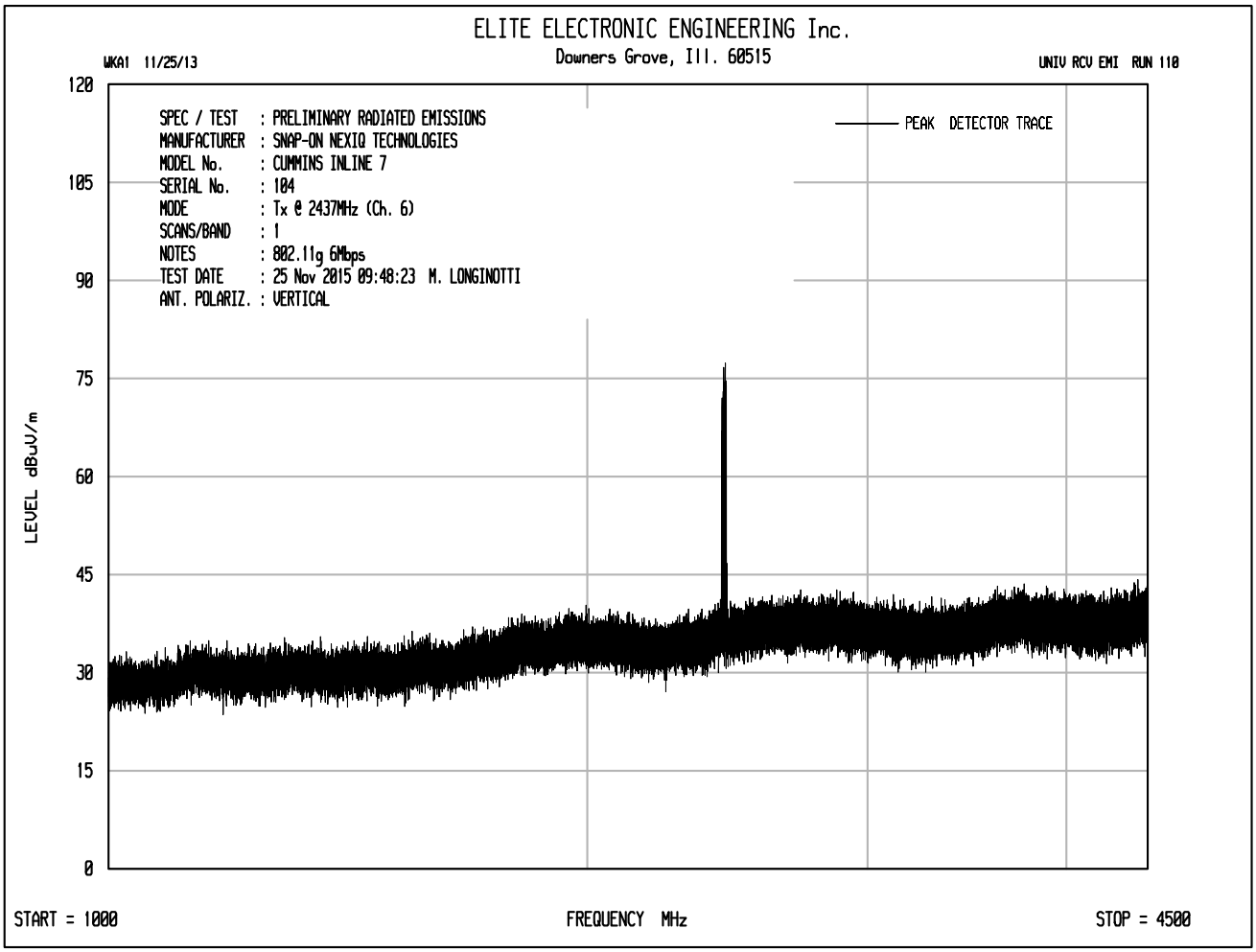

ELITE ELECTRONIC ENGINEERING Inc.
Downers Grove, Ill. 60515
WKA1 11/25/13
UNIV RCV EMI RUN 19
SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
MANUFACTURER : SNAP-ON NEXIQ TECHNOLOGIES
MODEL No. : CUMMINS INLINE 7
SERIAL No. : 104
MODE : Tx @ 2437MHz (Ch. 6)
SCANS/BAND : 1
NOTES : 802.11b 1Mbps
TEST DATE : 5 Jan 2016 13:14:02 M. LONGINOTTI
ANT. POLARIZ. : VERTICAL
PEAK DETECTOR TRACE
LEVEL dBuV/m
120
105
90
75
60
45
30
15
0
START = 18000
FREQUENCY MHz
STOP = 26500

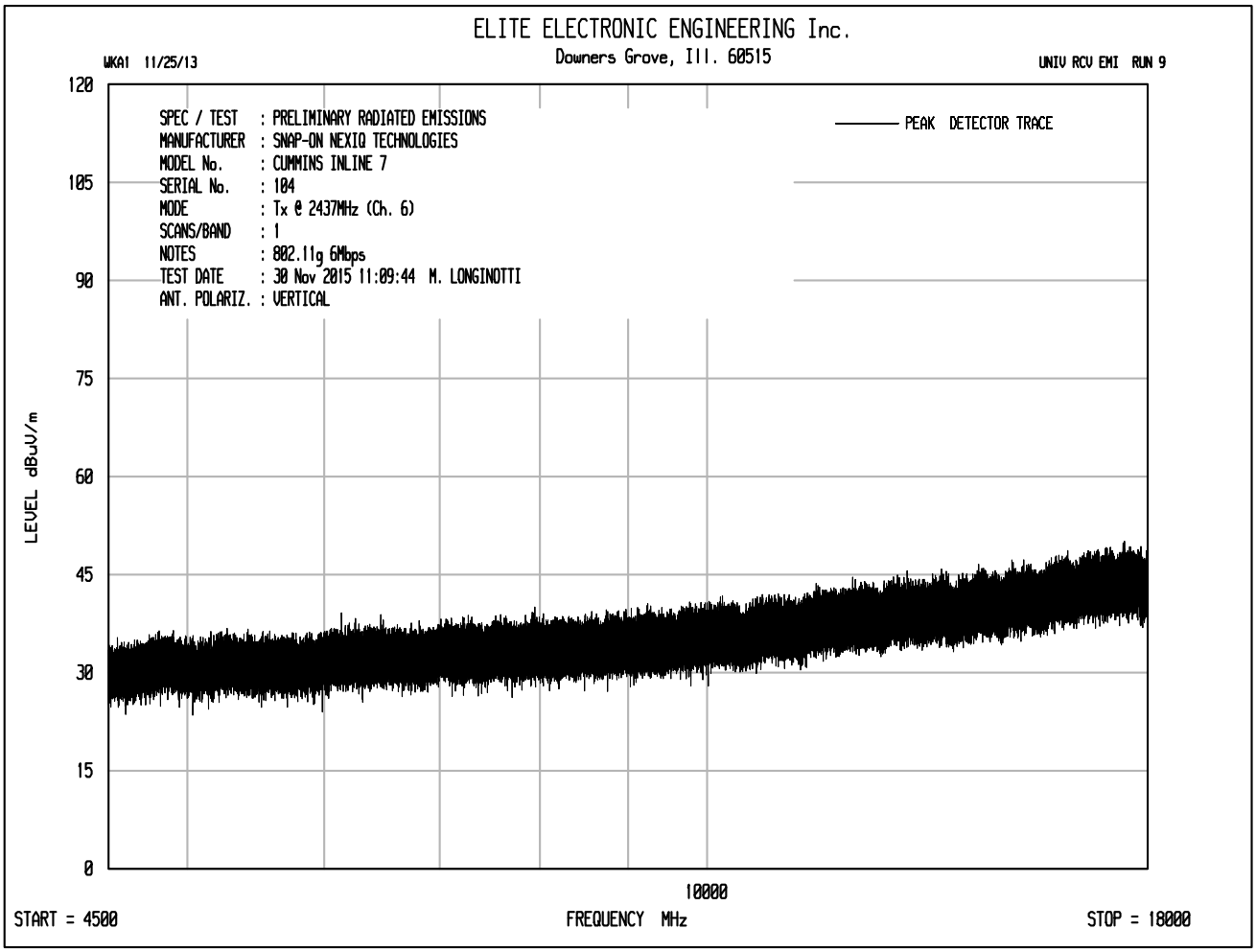

ELITE ELECTRONIC ENGINEERING Inc.
Downers Grove, Ill. 60515
WKA1 11/25/13
UNIV RCV EMI RUN 11
SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
MANUFACTURER : SNAP-ON NEXIQ TECHNOLOGIES
MODEL No. : CUMMINS INLINE 7
SERIAL No. : 104
MODE : Tx @ 2437MHz (Ch. 6)
SCANS/BAND : 1
NOTES : 802.11g 6 Mb/SEC
TEST DATE : 20 Nov 2015 14:38:44 M. LONGINOTTI
ANT. POLARIZ. : HORIZONTAL
PEAK DETECTOR TRACE
LEVEL dBuV/m
120
105
90
75
60
45
30
15
0
100
START = 30
FREQUENCY MHz
STOP = 1000

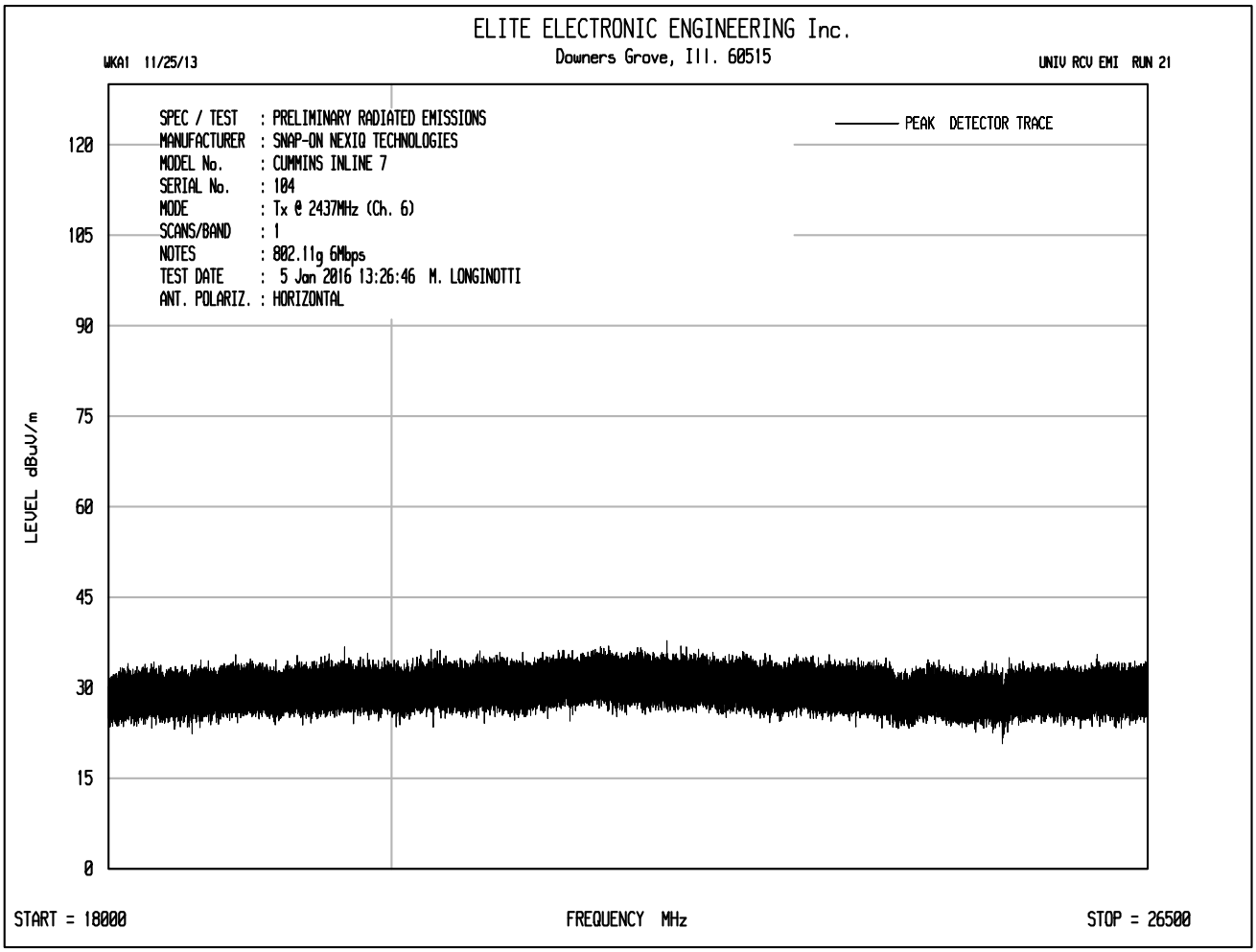

ELITE ELECTRONIC ENGINEERING Inc.
Downers Grove, Ill. 60515
WKA1 11/25/13
UNIV RCV EMI RUN 109
SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
MANUFACTURER : SNAP-ON NEXIQ TECHNOLOGIES
MODEL No. : CUMMINS INLINE 7
SERIAL No. : 104
MODE : Tx @ 2437MHz (Ch. 6)
SCANS/BAND : 1
NOTES : 802.11g 6Mbps
TEST DATE : 25 Nov 2015 09:46:27 M. LONGINOTTI
ANT. POLARIZ. : HORIZONTAL
PEAK DETECTOR TRACE
LEVEL dBuV/m
120
105
90
75
60
45
30
15
0
START = 1000
FREQUENCY MHz
STOP = 4500

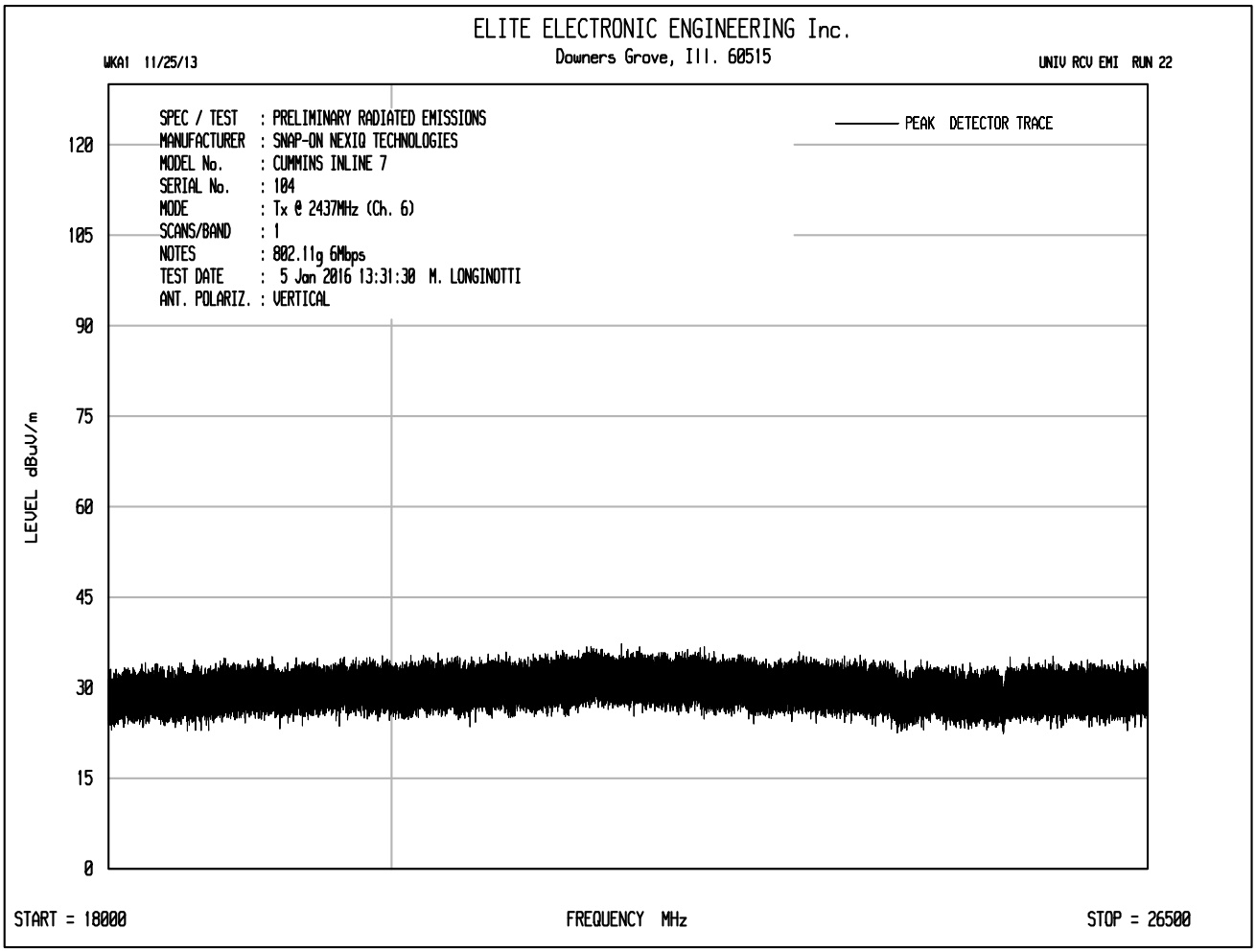

ELITE ELECTRONIC ENGINEERING Inc.
Downers Grove, Ill. 60515
WKA1 11/25/13
UNIV RCV EMI RUN 10
SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
MANUFACTURER : SNAP-ON NEXIQ TECHNOLOGIES
MODEL No. : CUMMINS INLINE 7
SERIAL No. : 104
MODE : Tx @ 2437MHz (Ch. 6)
SCANS/BAND : 1
NOTES : 802.11g 6Mbps
TEST DATE : 30 Nov 2015 11:13:15 M. LONGINOTTI
ANT. POLARIZ. : HORIZONTAL
PEAK DETECTOR TRACE
LEVEL dBuV/m
120
105
90
75
60
45
30
15
0
10000
START = 4500
FREQUENCY MHz
STOP = 18000

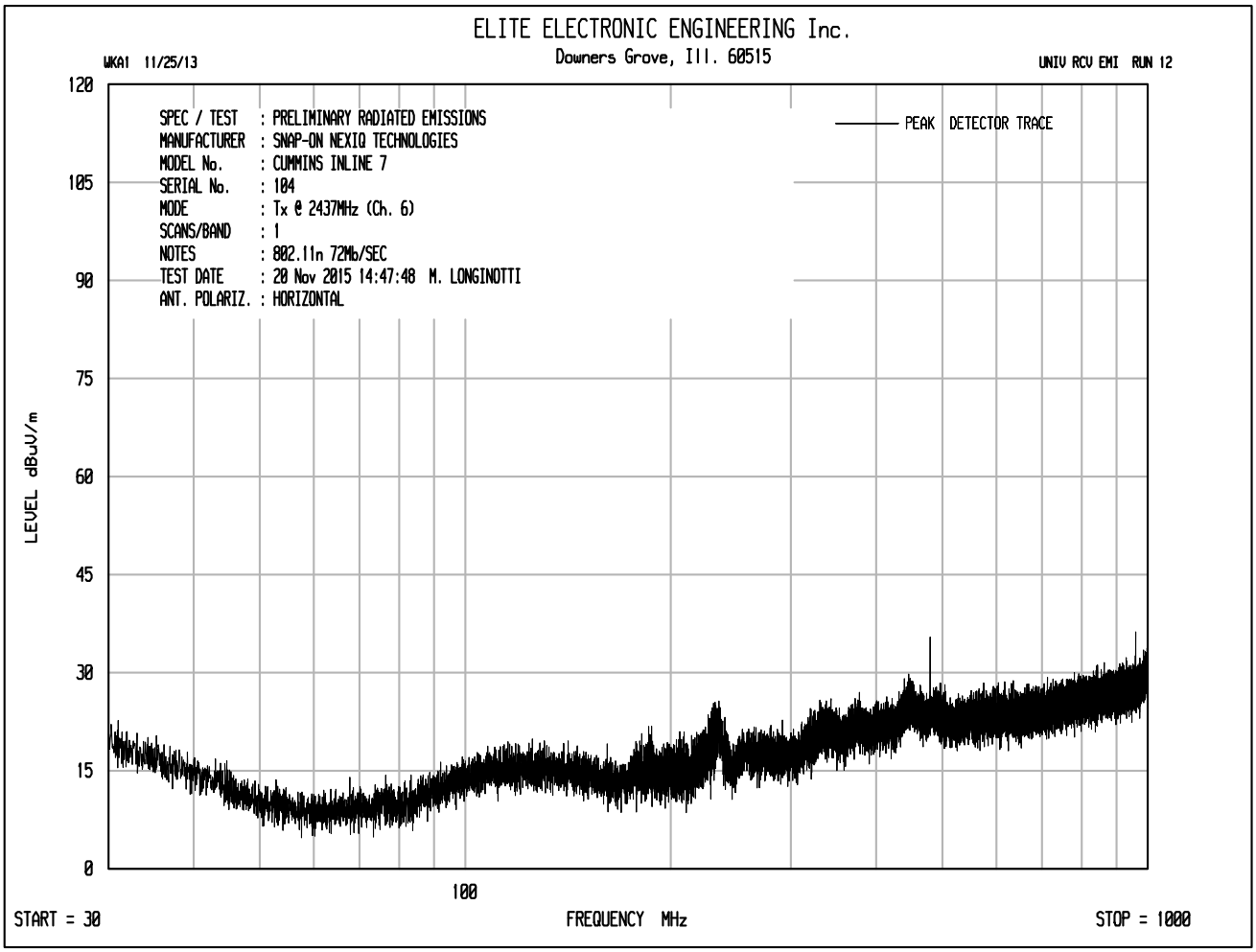

ELITE ELECTRONIC ENGINEERING Inc.
Downers Grove, Ill. 60515
WKA1 11/25/13
UNIV RCV EMI RUN 10
SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
MANUFACTURER : SNAP-ON NEXIQ TECHNOLOGIES
MODEL No. : CUMMINS INLINE 7
SERIAL No. : 104
MODE : Tx @ 2437MHz (Ch. 6)
SCANS/BAND : 1
NOTES : 802.11g 6 Mb/SEC
TEST DATE : 20 Nov 2015 14:37:15 M. LONGINOTTI
ANT. POLARIZ. : VERTICAL
PEAK DETECTOR TRACE
LEVEL dBuV/m
120
105
90
75
60
45
30
15
0
100
START = 30
FREQUENCY MHz
STOP = 1000

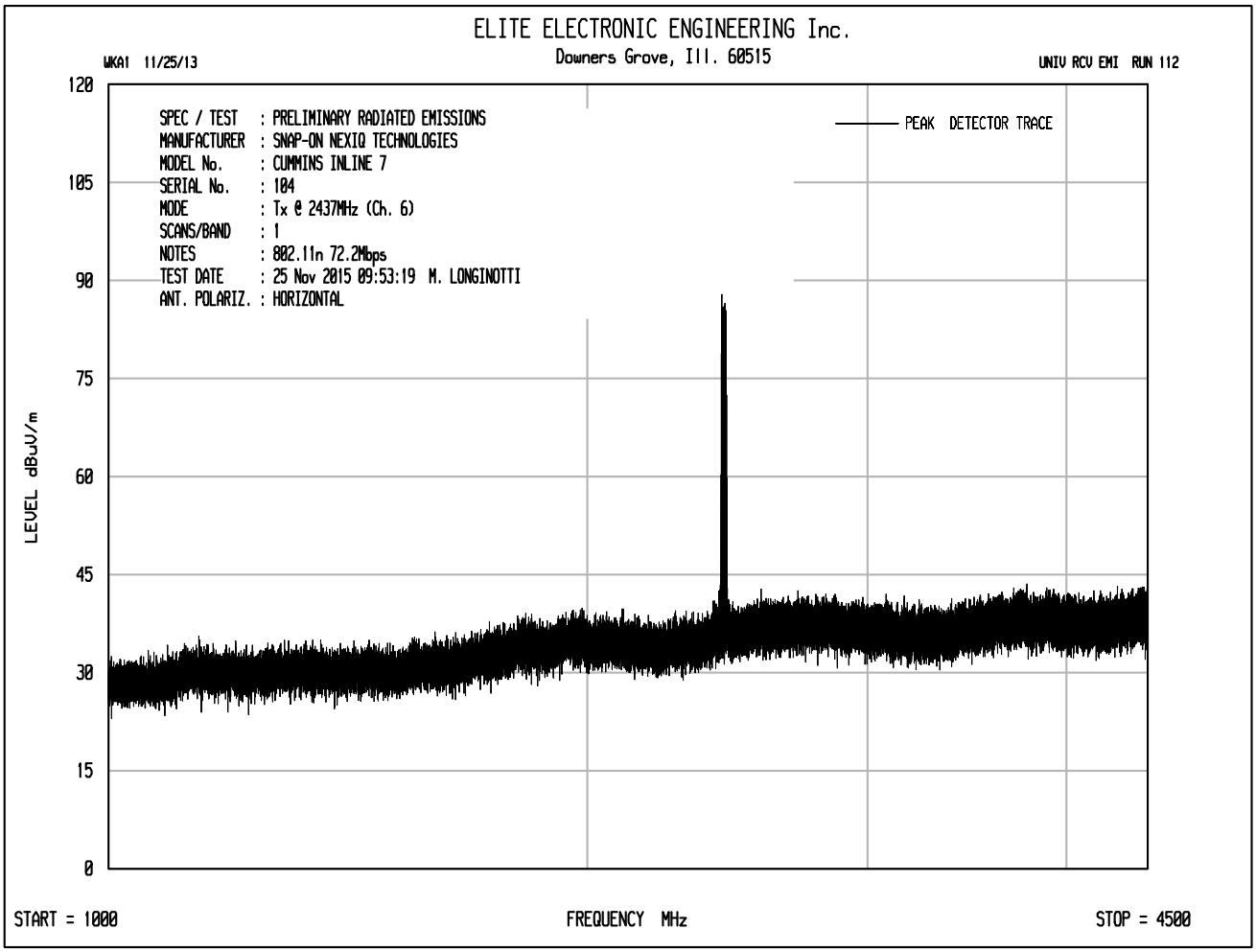

ELITE ELECTRONIC ENGINEERING Inc.
Downers Grove, Ill. 60515
WKA1 11/25/13
UNIV RCV EMI RUN 110
SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
MANUFACTURER : SNAP-ON NEXIQ TECHNOLOGIES
MODEL No. : CUMMINS INLINE 7
SERIAL No. : 104
MODE : Tx @ 2437MHz (Ch. 6)
SCANS/BAND : 1
NOTES : 802.11g 6Mbps
TEST DATE : 25 Nov 2015 09:48:23 M. LONGINOTTI
ANT. POLARIZ. : VERTICAL
PEAK DETECTOR TRACE
LEVEL dBuV/m
120
105
90
75
60
45
30
15
0
START = 1000
FREQUENCY MHz
STOP = 4500

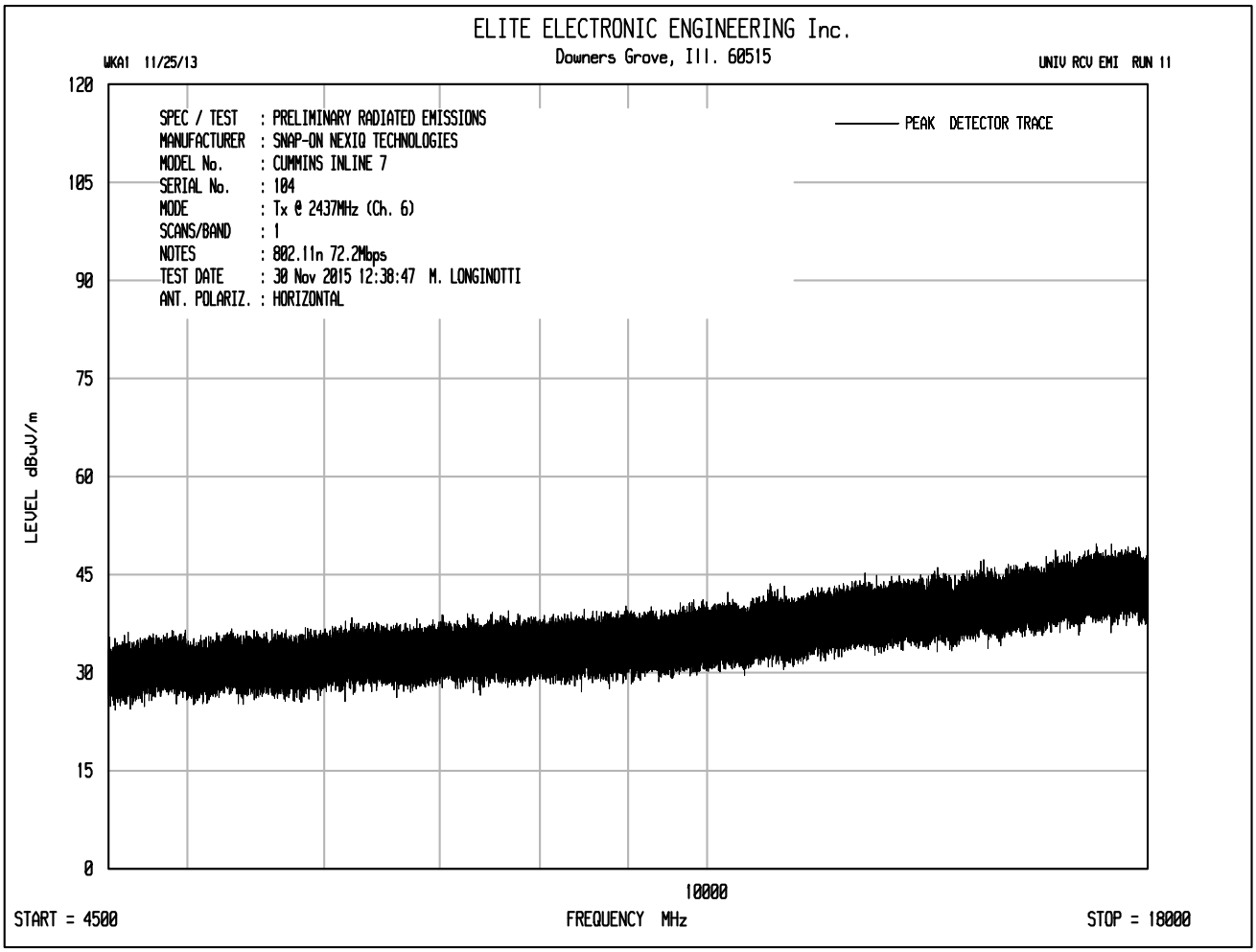

ELITE ELECTRONIC ENGINEERING Inc.
Downers Grove, Ill. 60515
WKA1 11/25/13
UNIV RCV EMI RUN 9
SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
MANUFACTURER : SNAP-ON NEXIQ TECHNOLOGIES
MODEL No. : CUMMINS INLINE 7
SERIAL No. : 104
MODE : Tx @ 2437MHz (Ch. 6)
SCANS/BAND : 1
NOTES : 802.11g 6Mbps
TEST DATE : 30 Nov 2015 11:09:44 M. LONGINOTTI
ANT. POLARIZ. : VERTICAL
PEAK DETECTOR TRACE
LEVEL dBuV/m
120
105
90
75
60
45
30
15
0
10000
START = 4500
FREQUENCY MHz
STOP = 18000

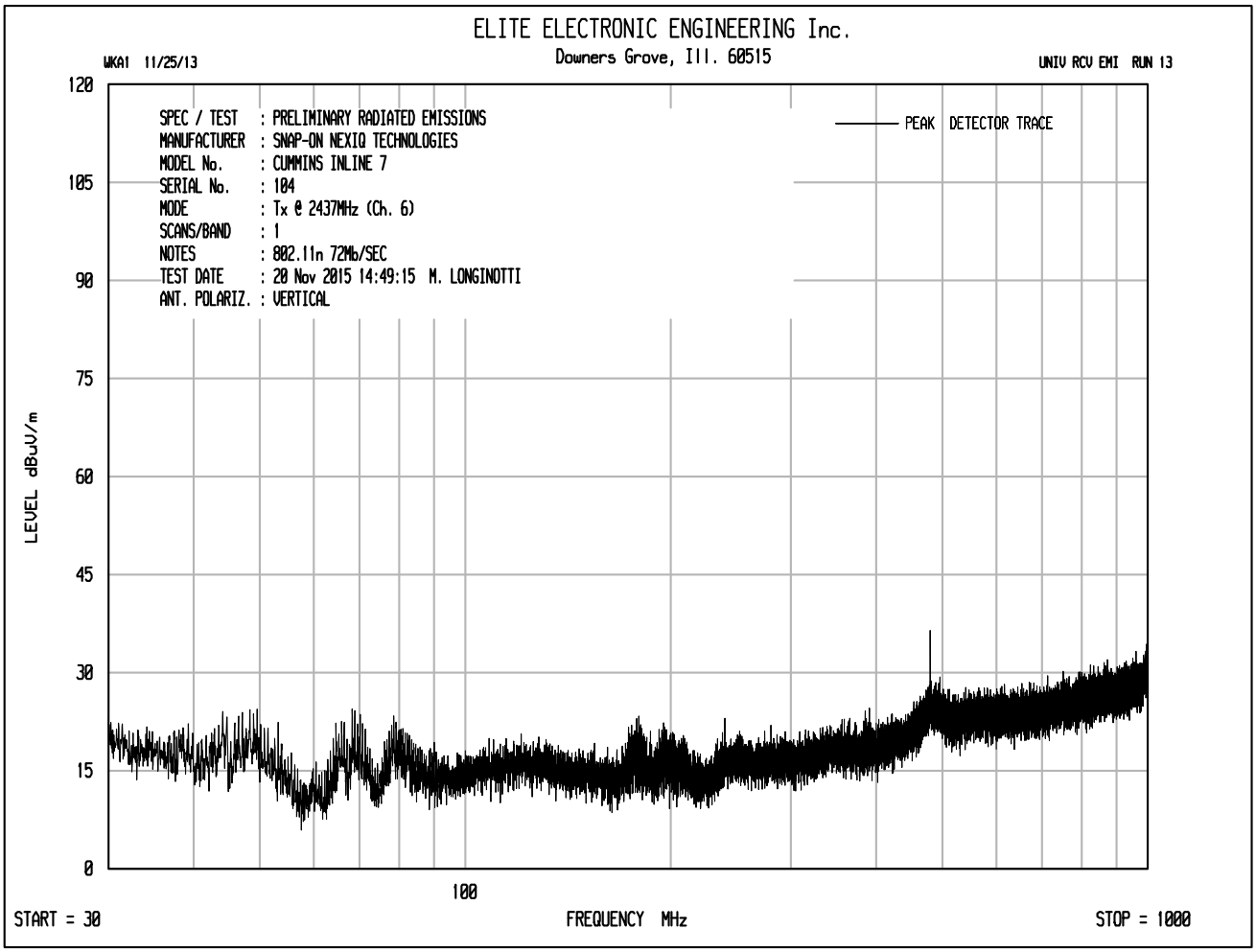

ELITE ELECTRONIC ENGINEERING Inc.
Downers Grove, Ill. 60515
WKA1 11/25/13
UNIV RCV EMI RUN 21
SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
MANUFACTURER : SNAP-ON NEXIQ TECHNOLOGIES
MODEL No. : CUMMINS INLINE 7
SERIAL No. : 104
MODE : Tx @ 2437MHz (Ch. 6)
SCANS/BAND : 1
NOTES : 802.11g 6Mbps
TEST DATE : 5 Jan 2016 13:26:46 M. LONGINOTTI
ANT. POLARIZ. : HORIZONTAL
PEAK DETECTOR TRACE
LEVEL dBuV/m
120
105
90
75
60
45
30
15
0
START = 18000
FREQUENCY MHz
STOP = 26500

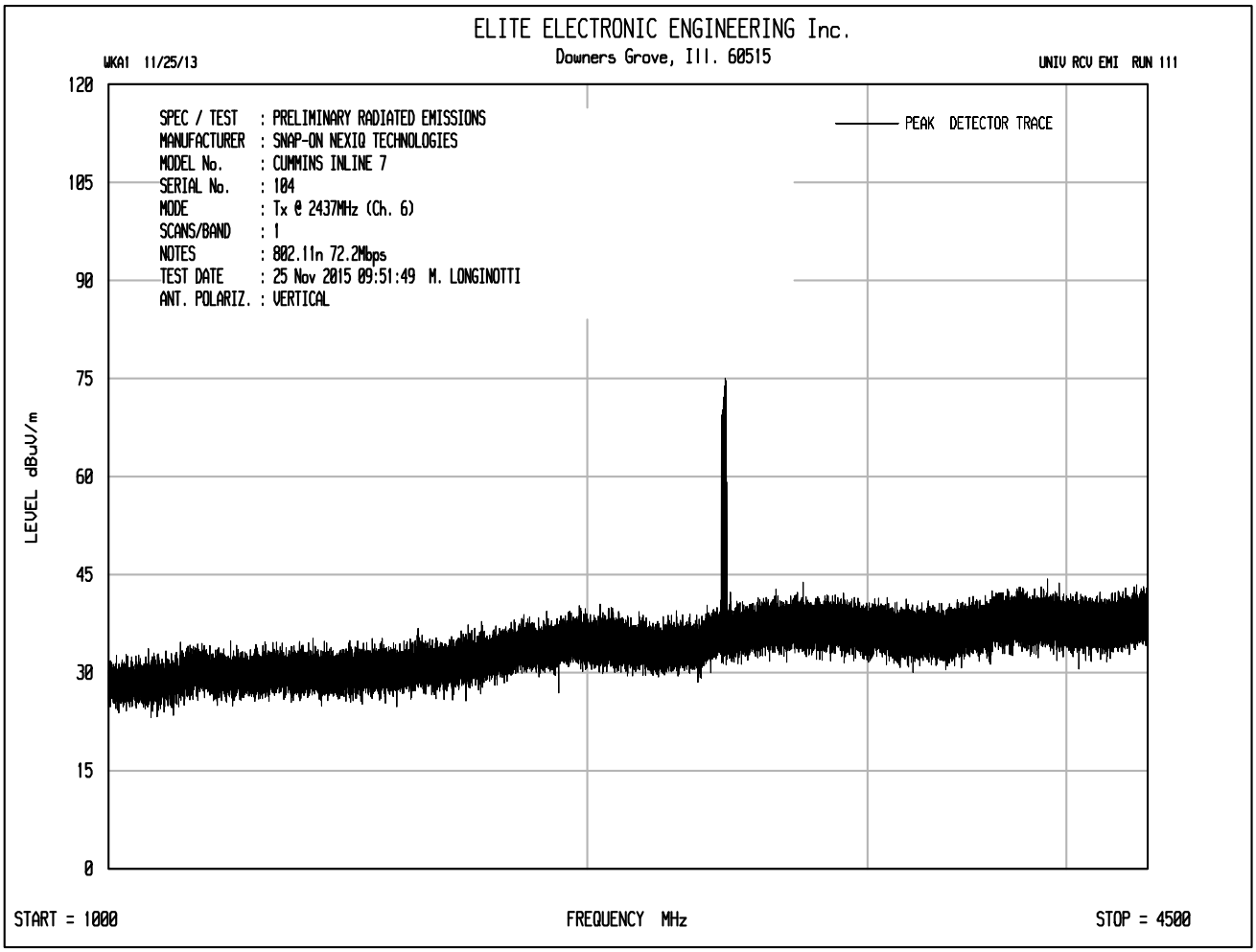

ELITE ELECTRONIC ENGINEERING Inc.
Downers Grove, Ill. 60515
WKA1 11/25/13
UNIV RCV EMI RUN 22
SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
MANUFACTURER : SNAP-ON NEXIQ TECHNOLOGIES
MODEL No. : CUMMINS INLINE 7
SERIAL No. : 104
MODE : Tx @ 2437MHz (Ch. 6)
SCANS/BAND : 1
NOTES : 802.11g 6Mbps
TEST DATE : 5 Jan 2016 13:31:30 M. LONGINOTTI
ANT. POLARIZ. : VERTICAL
PEAK DETECTOR TRACE
LEVEL dBuV/m
120
105
90
75
60
45
30
15
0
START = 18000
FREQUENCY MHz
STOP = 26500

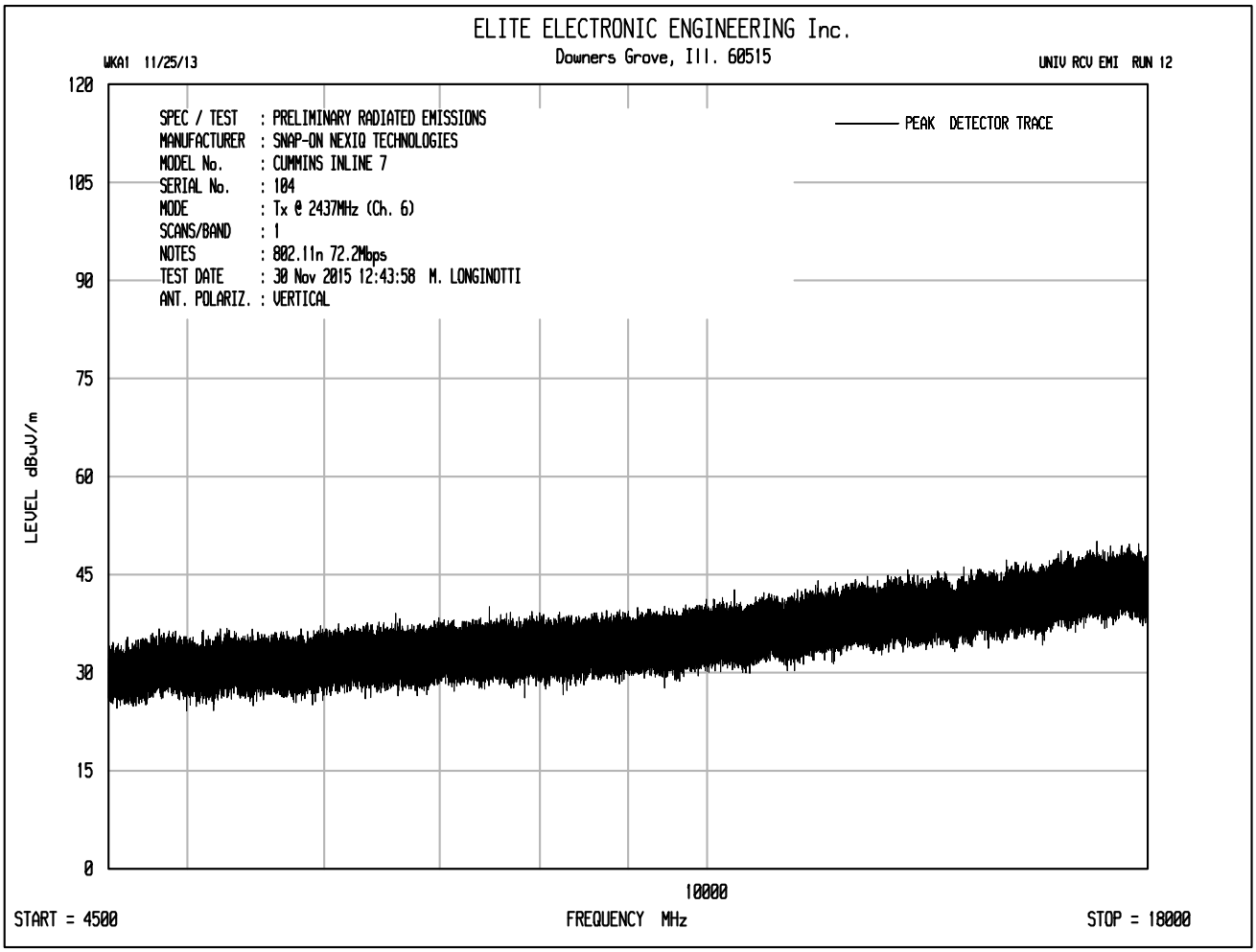

ELITE ELECTRONIC ENGINEERING Inc.
Downers Grove, Ill. 60515
WKA1 11/25/13
UNIV RCV EMI RUN 12
SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
MANUFACTURER : SNAP-ON NEXIQ TECHNOLOGIES
MODEL No. : CUMMINS INLINE 7
SERIAL No. : 104
MODE : Tx @ 2437MHz (Ch. 6)
SCANS/BAND : 1
NOTES : 802.11n 72Mb/SEC
TEST DATE : 20 Nov 2015 14:47:48 M. LONGINOTTI
ANT. POLARIZ. : HORIZONTAL
PEAK DETECTOR TRACE
LEVEL dBuV/m
120
105
90
75
60
45
30
15
0
100
START = 30
FREQUENCY MHz
STOP = 1000

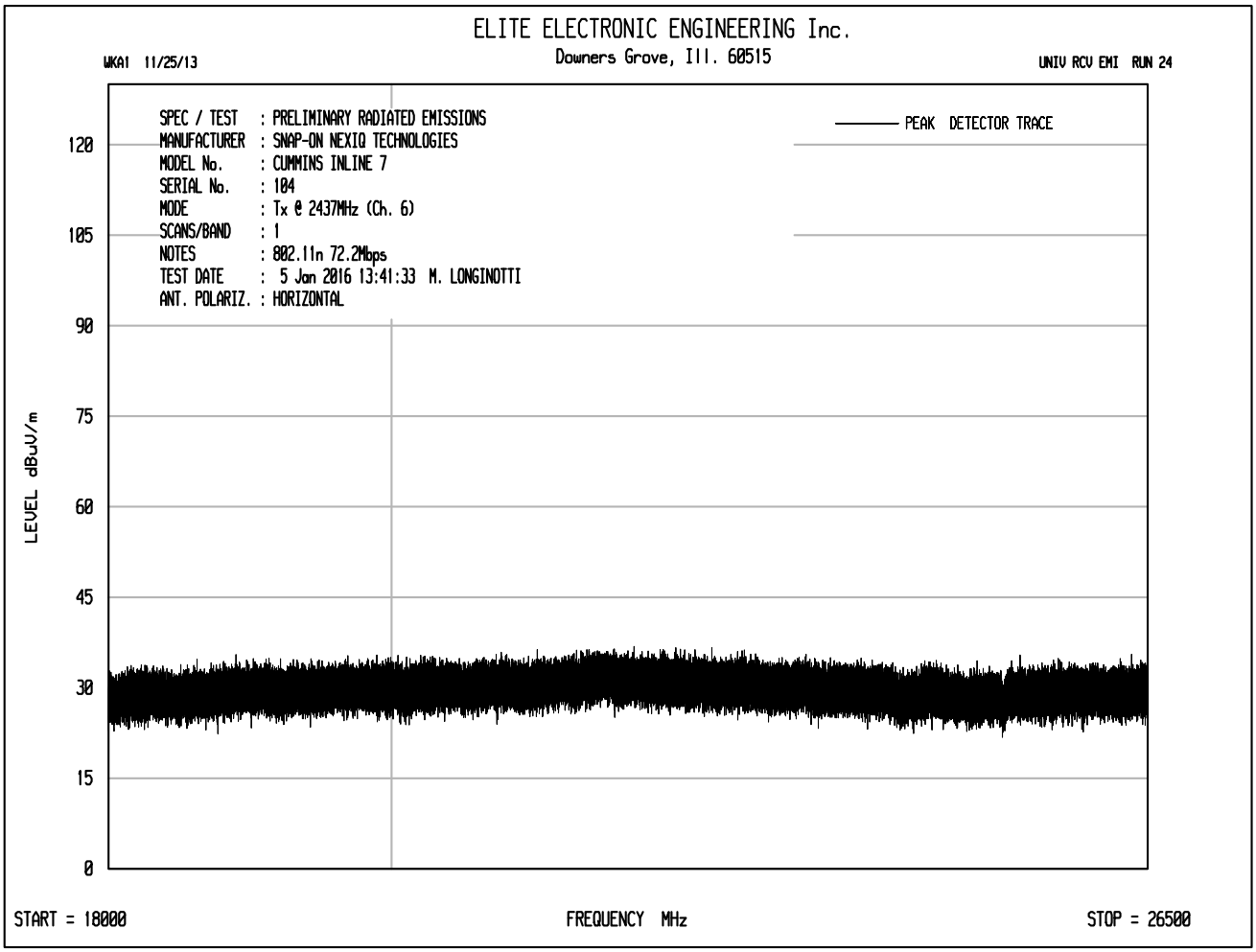

ELITE ELECTRONIC ENGINEERING Inc.
Downers Grove, Ill. 60515
WKA1 11/25/13
UNIV RCV EMI RUN 112
SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
MANUFACTURER : SNAP-ON NEXIQ TECHNOLOGIES
MODEL No. : CUMMINS INLINE 7
SERIAL No. : 104
MODE : Tx @ 2437MHz (Ch. 6)
SCANS/BAND : 1
NOTES : 802.11n 72.2Mbps
TEST DATE : 25 Nov 2015 09:53:19 M. LONGINOTTI
ANT. POLARIZ. : HORIZONTAL
PEAK DETECTOR TRACE
LEVEL dBuV/m
120
105
90
75
60
45
30
15
0
START = 1000
FREQUENCY MHz
STOP = 4500

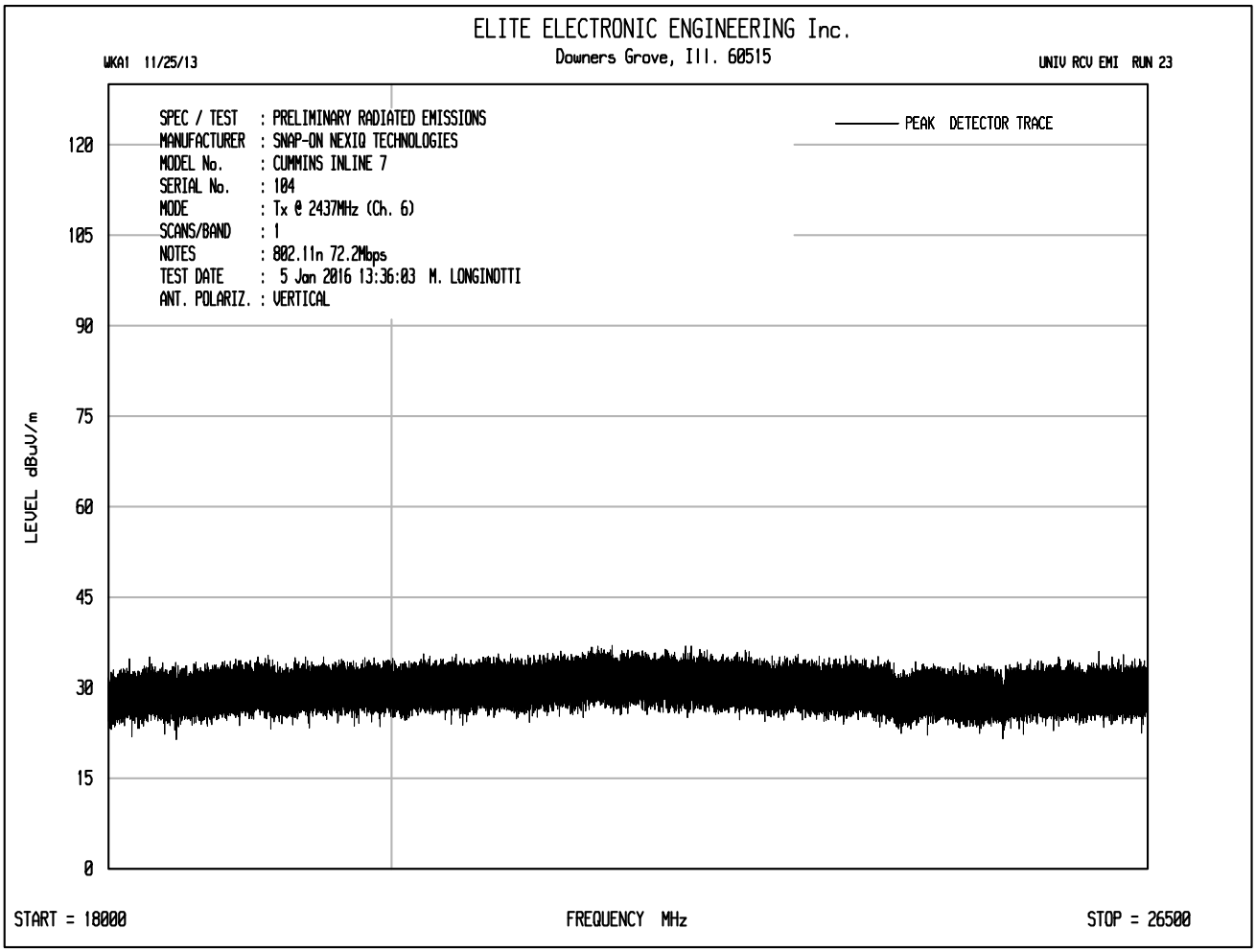

ELITE ELECTRONIC ENGINEERING Inc.
Downers Grove, Ill. 60515
WKA1 11/25/13
UNIV RCV EMI RUN 11
SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
MANUFACTURER : SNAP-ON NEXIQ TECHNOLOGIES
MODEL No. : CUMMINS INLINE 7
SERIAL No. : 104
MODE : Tx @ 2437MHz (Ch. 6)
SCANS/BAND : 1
NOTES : 802.11n 72.2Mbps
TEST DATE : 30 Nov 2015 12:38:47 M. LONGINOTTI
ANT. POLARIZ. : HORIZONTAL
PEAK DETECTOR TRACE
LEVEL dBuV/m
120
105
90
75
60
45
30
15
0
10000
START = 4500
FREQUENCY MHz
STOP = 18000


ELITE ELECTRONIC ENGINEERING Inc.
Downers Grove, Ill. 60515
WKA1 11/25/13
UNIV RCV EMI RUN 13
SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
MANUFACTURER : SNAP-ON NEXIQ TECHNOLOGIES
MODEL No. : CUMMINS INLINE 7
SERIAL No. : 104
MODE : Tx @ 2437MHz (Ch. 6)
SCANS/BAND : 1
NOTES : 802.11n 72Mb/SEC
TEST DATE : 20 Nov 2015 14:49:15 M. LONGINOTTI
ANT. POLARIZ. : VERTICAL
PEAK DETECTOR TRACE
LEVEL dBuV/m
120
105
90
75
60
45
30
15
0
100
START = 30
FREQUENCY MHz
STOP = 1000


ELITE ELECTRONIC ENGINEERING Inc.
Downers Grove, Ill. 60515
WKA1 11/25/13
UNIV RCV EMI RUN 111
SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
MANUFACTURER : SNAP-ON NEXIQ TECHNOLOGIES
MODEL No. : CUMMINS INLINE 7
SERIAL No. : 104
MODE : Tx @ 2437MHz (Ch. 6)
SCANS/BAND : 1
NOTES : 802.11n 72.2Mbps
TEST DATE : 25 Nov 2015 09:51:49 M. LONGINOTTI
ANT. POLARIZ. : VERTICAL
PEAK DETECTOR TRACE
LEVEL dBuV/m
120
105
90
75
60
45
30
15
0
START = 1000
FREQUENCY MHz
STOP = 4500


ELITE ELECTRONIC ENGINEERING Inc.
Downers Grove, Ill. 60515
WKA1 11/25/13
UNIV RCV EMI RUN 12
SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
MANUFACTURER : SNAP-ON NEXIQ TECHNOLOGIES
MODEL No. : CUMMINS INLINE 7
SERIAL No. : 104
MODE : Tx @ 2437MHz (Ch. 6)
SCANS/BAND : 1
NOTES : 802.11n 72.2Mbps
TEST DATE : 30 Nov 2015 12:43:58 M. LONGINOTTI
ANT. POLARIZ. : VERTICAL
PEAK DETECTOR TRACE
LEVEL dBuV/m
120
105
90
75
60
45
30
15
0
10000
START = 4500
FREQUENCY MHz
STOP = 18000


ELITE ELECTRONIC ENGINEERING Inc.
Downers Grove, Ill. 60515
WKA1 11/25/13
UNIV RCV EMI RUN 24
SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
MANUFACTURER : SNAP-ON NEXIQ TECHNOLOGIES
MODEL No. : CUMMINS INLINE 7
SERIAL No. : 104
MODE : Tx @ 2437MHz (Ch. 6)
SCANS/BAND : 1
NOTES : 802.11n 72.2Mbps
TEST DATE : 5 Jan 2016 13:41:33 M. LONGINOTTI
ANT. POLARIZ. : HORIZONTAL
PEAK DETECTOR TRACE
LEVEL dBuV/m
120
105
90
75
60
45
30
15
0
START = 18000
FREQUENCY MHz
STOP = 26500


ELITE ELECTRONIC ENGINEERING Inc.
Downers Grove, Ill. 60515
WKA1 11/25/13
UNIV RCV EMI RUN 23
SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
MANUFACTURER : SNAP-ON NEXIQ TECHNOLOGIES
MODEL No. : CUMMINS INLINE 7
SERIAL No. : 104
MODE : Tx @ 2437MHz (Ch. 6)
SCANS/BAND : 1
NOTES : 802.11n 72.2Mbps
TEST DATE : 5 Jan 2016 13:36:03 M. LONGINOTTI
ANT. POLARIZ. : VERTICAL
PEAK DETECTOR TRACE
LEVEL dBuV/m
120
105
90
75
60
45
30
15
0
START = 18000
FREQUENCY MHz
STOP = 26500

Manufacturer : Snap-On Nexiq Technologies
Model No. : Cummins INLINE 7
Serial No. : 104
Date Tested : November 20, 2015 through January 5, 2016
Test Performed : Radiated Spurious Emissions in Restricted Bands
Mode : Transmit at 2437MHz, 802.11b 1 Mb/sec
Test Distance : 3 meters
Notes : Peak Readings with a 1MHz RBW

Freq. MHz	Ant Pol	Meter Reading (dBuV)	Ambient	CBL Fac (dB)	Ant Fac (dB)	Pre Amp (dB)	Peak Total dBuV/m at 3m	Peak Total uV/m at 3 m	Peak Limit uV/m at 3 m	Margin (dB)
4874.00	H	49.4	Ambient	4.9	34.2	-39.3	49.1	286.5	5000.0	-24.8
4874.00	V	49.2	Ambient	4.9	34.2	-39.3	48.9	280.0	5000.0	-25.0
7311.00	H	49.3	Ambient	6.2	36.1	-39.4	52.2	406.8	5000.0	-21.8
7311.00	V	50.7	Ambient	6.2	36.1	-39.4	53.6	477.9	5000.0	-20.4
12185.00	H	48.5	Ambient	8.0	39.2	-39.1	56.7	680.6	5000.0	-17.3
12185.00	V	48.7	Ambient	8.0	39.2	-39.1	56.9	696.4	5000.0	-17.1
19496.00	H	31.7	Ambient	2.2	40.4	-28.6	45.7	193.5	5000.0	-28.2
19496.00	V	32.1	Ambient	2.2	40.4	-28.6	46.1	202.6	5000.0	-27.8

Peak Total (dBuV/m) = Meter Reading (dBuV) + CBL Fac (dB) + Ant Fac (dB) + Pre Amp (dB)

Peak Total (uV/m) = 10^(Peak Total (dBuV/m)/20)

Manufacturer : Snap-On Nexiq Technologies
Model No. : Cummins INLINE 7
Serial No. : 104
Date Tested : November 20, 2015 through January 5, 2016
Test Performed : Radiated Spurious Emissions in Restricted Bands
Mode : Transmit at 2437MHz, 802.11b 1 Mb/sec
Test Distance : 3 meters
Notes : Average Readings with a 1MHz RBW

Freq. MHz	Ant Pol	Meter Reading (dBuV)	Ambient	CBL Fac (dB)	Ant Fac (dB)	Pre Amp (dB)	Average Total dBuV/m at 3m	Average Total uV/m at 3 m	Average Limit uV/m at 3 m	Margin (dB)
4874.00	H	36.2	Ambient	4.9	34.2	-39.3	35.9	62.7	500.0	-18.0
4874.00	V	36.3	Ambient	4.9	34.2	-39.3	36.0	63.4	500.0	-17.9
7311.00	H	36.30	Ambient	6.2	36.1	-39.4	39.2	91.1	500.0	-14.8
7311.00	V	40.5		6.2	36.1	-39.4	43.4	147.7	500.0	-10.6
12185.00	H	36.1	Ambient	8.0	39.2	-39.1	44.3	163.3	500.0	-9.7
12185.00	V	35.9	Ambient	8.0	39.2	-39.1	44.1	159.5	500.0	-9.9
19496.00	H	19.2	Ambient	2.2	40.4	-28.6	33.2	45.9	500.0	-20.7
19496.00	V	19.5	Ambient	2.2	40.4	-28.6	33.5	47.5	500.0	-20.4

Average Total (dBuV/m) = Meter Reading (dBuV) + CBL Fac (dB) + Ant Fac (dB) + Pre Amp (dB)

Average Total (uV/m) = 10^(Peak Total (dBuV/m)/20)

Manufacturer : Snap-On Nexiq Technologies
Model No. : Cummins INLINE 7
Serial No. : 104
Date Tested : November 20, 2015 through January 5, 2016
Test Performed : Radiated Spurious Emissions in Restricted Bands
Mode : Transmit at 2437MHz, 802.11g 6 Mb/sec
Test Distance : 3 meters
Notes : Peak Readings with a 1MHz RBW

Freq. MHz	Ant Pol	Meter Reading (dBuV)	Ambient	CBL Fac (dB)	Ant Fac (dB)	Pre Amp (dB)	Peak Total dBuV/m at 3m	Peak Total uV/m at 3 m	Peak Limit uV/m at 3 m	Margin (dB)
4874.00	H	49.6	Ambient	4.9	34.2	-39.3	49.3	293.2	5000.0	-24.6
4874.00	V	48.7	Ambient	4.9	34.2	-39.3	48.4	264.3	5000.0	-25.5
7311.00	H	49.3	Ambient	6.2	36.1	-39.4	52.2	406.8	5000.0	-21.8
7311.00	V	49.2	Ambient	6.2	36.1	-39.4	52.1	402.1	5000.0	-21.9
12185.00	H	49.5	Ambient	8.0	39.2	-39.1	57.7	763.6	5000.0	-16.3
12185.00	V	49.2	Ambient	8.0	39.2	-39.1	57.4	737.7	5000.0	-16.6
19496.00	H	31.4	Ambient	2.2	40.4	-28.6	45.4	186.9	5000.0	-28.5
19496.00	V	31.8	Ambient	2.2	40.4	-28.6	45.8	195.7	5000.0	-28.1

Peak Total (dBuV/m) = Meter Reading (dBuV) + CBL Fac (dB) + Ant Fac (dB) + Pre Amp (dB)

Peak Total (uV/m) = 10^(Peak Total (dBuV/m)/20)

Manufacturer : Snap-On Nexiq Technologies
Model No. : Cummins INLINE 7
Serial No. : 104
Date Tested : November 20, 2015 through January 5, 2016
Test Performed : Radiated Spurious Emissions in Restricted Bands
Mode : Transmit at 2437MHz, 802.11g 6 Mb/sec
Test Distance : 3 meters
Notes : Average Readings with a 1MHz RBW

Freq. MHz	Ant Pol	Meter Reading (dBuV)	Ambient	CBL Fac (dB)	Ant Fac (dB)	Pre Amp (dB)	Average Total dBuV/m at 3m	Average Total uV/m at 3 m	Average Limit uV/m at 3 m	Margin (dB)
4874.00	H	36.3	Ambient	4.9	34.2	-39.3	36.0	63.4	500.0	-17.9
4874.00	V	36.2	Ambient	4.9	34.2	-39.3	35.9	62.7	500.0	-18.0
7311.00	H	36.30	Ambient	6.2	36.1	-39.4	39.2	91.1	500.0	-14.8
7311.00	V	36.3	Ambient	6.2	36.1	-39.4	39.2	91.1	500.0	-14.8
12185.00	H	35.9	Ambient	8.0	39.2	-39.1	44.1	159.5	500.0	-9.9
12185.00	V	35.9	Ambient	8.0	39.2	-39.1	44.1	159.5	500.0	-9.9
19496.00	H	19.4	Ambient	2.2	40.4	-28.6	33.4	46.9	500.0	-20.5
19496.00	V	19.3	Ambient	2.2	40.4	-28.6	33.3	46.4	500.0	-20.6

Average Total (dBuV/m) = Meter Reading (dBuV) + CBL Fac (dB) + Ant Fac (dB) + Pre Amp (dB)

Average Total (uV/m) = 10^(Peak Total (dBuV/m)/20)

Manufacturer : Snap-On Nexiq Technologies
Model No. : Cummins INLINE 7
Serial No. : 104
Date Tested : November 20, 2015 through January 5, 2016
Test Performed : Radiated Spurious Emissions in Restricted Bands
Mode : Transmit at 2437MHz, 802.11n 72.2 Mb/sec
Test Distance : 3 meters
Notes : Peak Readings with a 1MHz RBW

Freq. MHz	Ant Pol	Meter Reading (dBuV)	Ambient	CBL Fac (dB)	Ant Fac (dB)	Pre Amp (dB)	Peak Total dBuV/m at 3m	Peak Total uV/m at 3 m	Peak Limit uV/m at 3 m	Margin (dB)
4874.00	H	49.5	Ambient	4.9	34.2	-39.3	49.2	289.8	5000.0	-24.7
4874.00	V	49.0	Ambient	4.9	34.2	-39.3	48.7	273.6	5000.0	-25.2
7311.00	H	48.8	Ambient	6.2	36.1	-39.4	51.7	384.0	5000.0	-22.3
7311.00	V	48.6	Ambient	6.2	36.1	-39.4	51.5	375.3	5000.0	-22.5
12185.00	H	49.0	Ambient	8.0	39.2	-39.1	57.2	720.9	5000.0	-16.8
12185.00	V	48.8	Ambient	8.0	39.2	-39.1	57.0	704.5	5000.0	-17.0
19496.00	H	31.7	Ambient	2.2	40.4	-28.6	45.7	193.5	5000.0	-28.2
19496.00	V	32.0	Ambient	2.2	40.4	-28.6	46.0	200.3	5000.0	-27.9

Peak Total (dBuV/m) = Meter Reading (dBuV) + CBL Fac (dB) + Ant Fac (dB) + Pre Amp (dB)

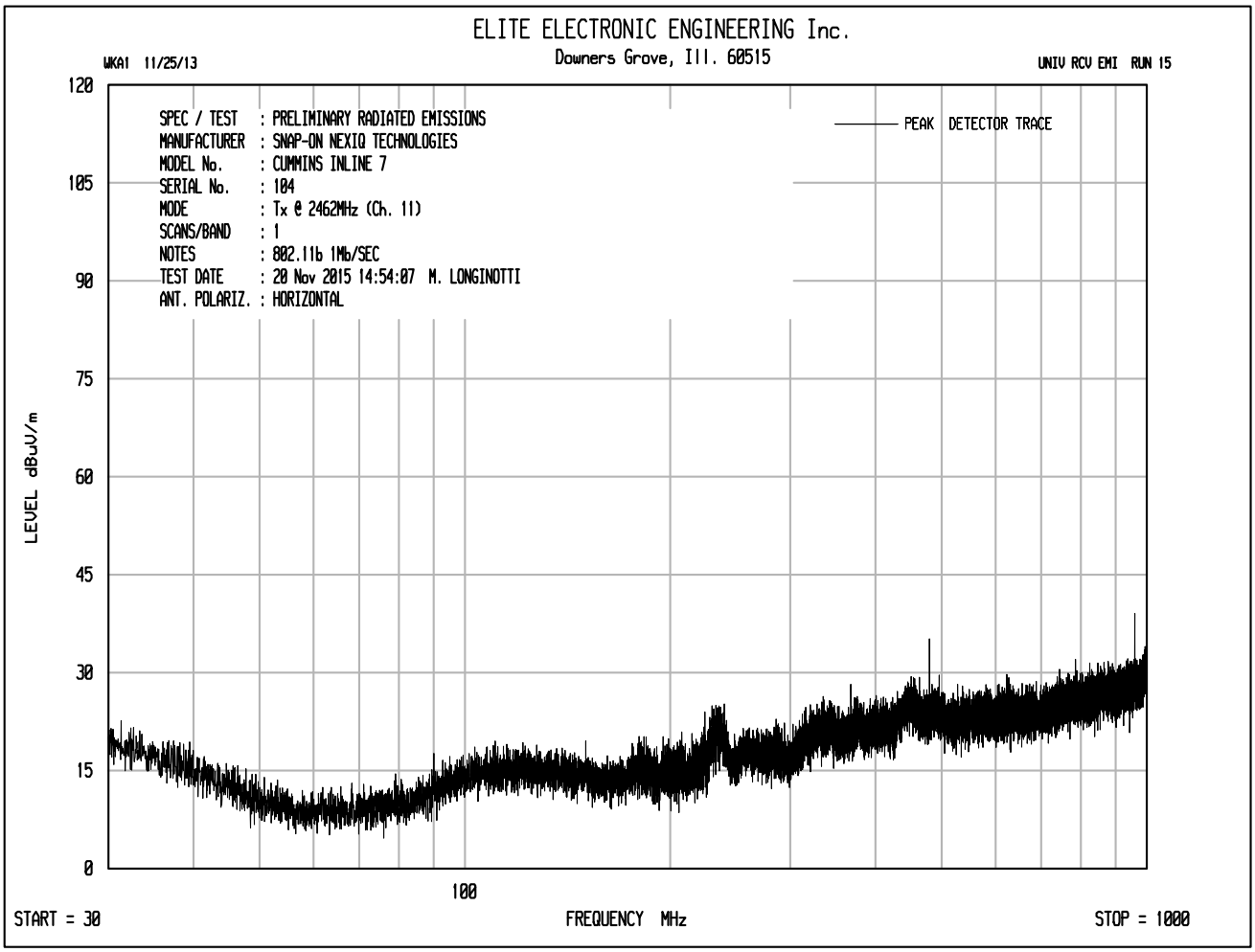
Peak Total (uV/m) = 10^(Peak Total (dBuV/m)/20)

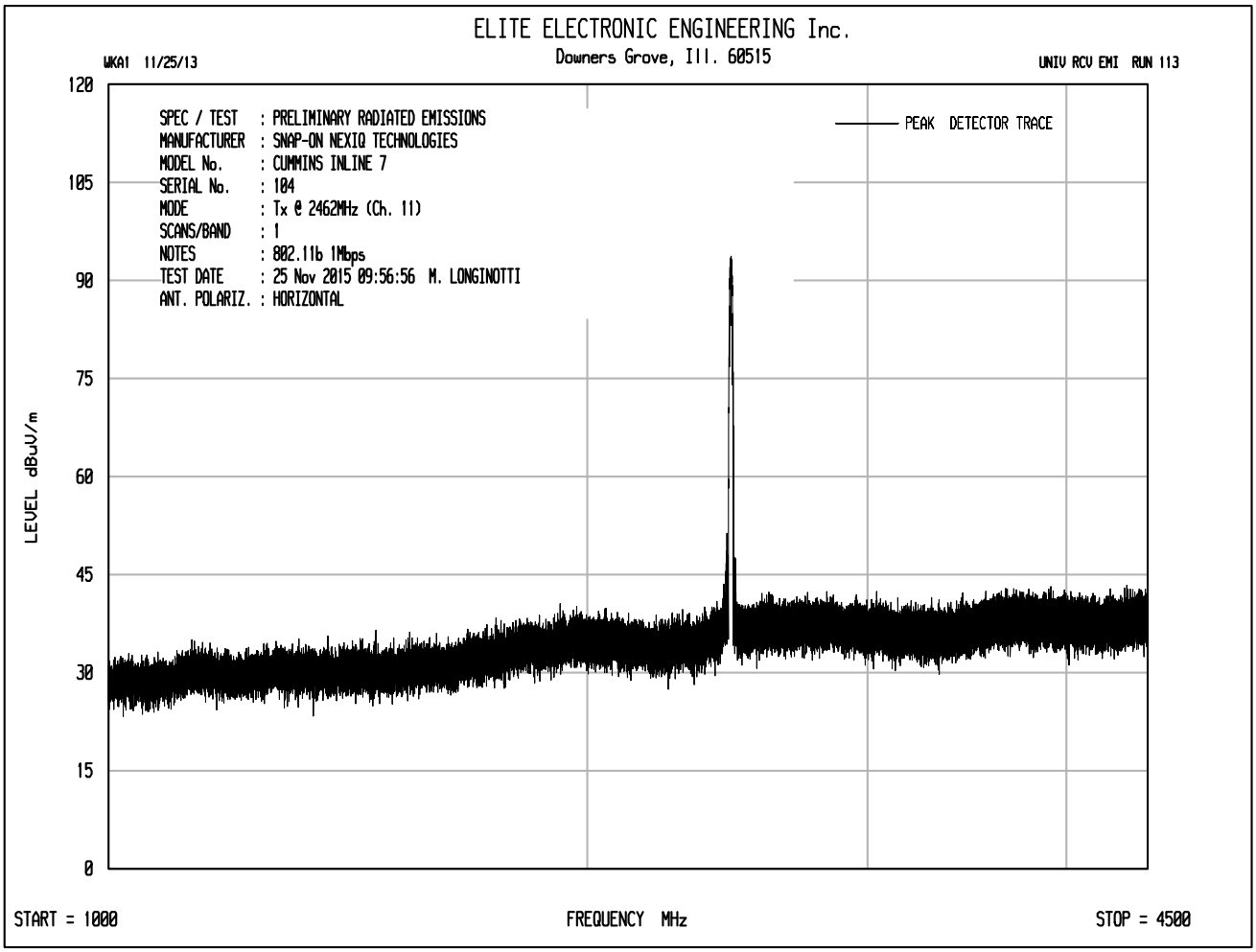
Manufacturer : Snap-On Nexiq Technologies
Model No. : Cummins INLINE 7
Serial No. : 104
Date Tested : November 20, 2015 through January 5, 2016
Test Performed : Radiated Spurious Emissions in Restricted Bands
Mode : Transmit at 2437MHz, 802.11n 72.2 Mb/sec
Test Distance : 3 meters
Notes : Average Readings with a 1MHz RBW

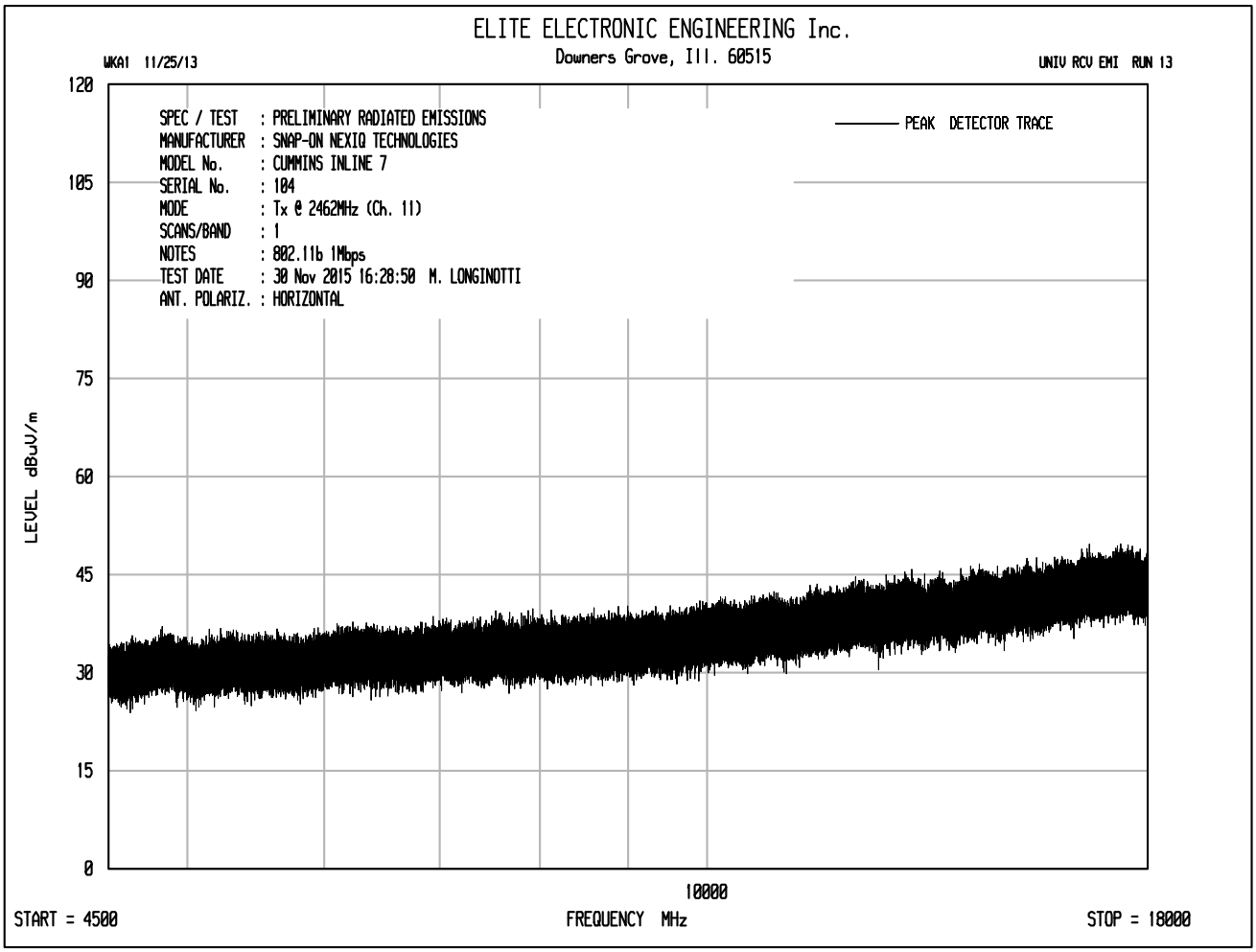
Freq. MHz	Ant Pol	Meter Reading (dBuV)	Ambient	CBL Fac (dB)	Ant Fac (dB)	Pre Amp (dB)	Average Total dBuV/m at 3m	Average Total uV/m at 3 m	Average Limit uV/m at 3 m	Margin (dB)
4874.00	H	36.2	Ambient	4.9	34.2	-39.3	35.9	62.7	500.0	-18.0
4874.00	V	36.2	Ambient	4.9	34.2	-39.3	35.9	62.7	500.0	-18.0
7311.00	H	36.30	Ambient	6.2	36.1	-39.4	39.2	91.1	500.0	-14.8
7311.00	V	36.3	Ambient	6.2	36.1	-39.4	39.2	91.1	500.0	-14.8
12185.00	H	35.9	Ambient	8.0	39.2	-39.1	44.1	159.5	500.0	-9.9
12185.00	V	35.9	Ambient	8.0	39.2	-39.1	44.1	159.5	500.0	-9.9
19496.00	H	19.3	Ambient	2.2	40.4	-28.6	33.3	46.4	500.0	-20.6
19496.00	V	19.5	Ambient	2.2	40.4	-28.6	33.5	47.5	500.0	-20.4

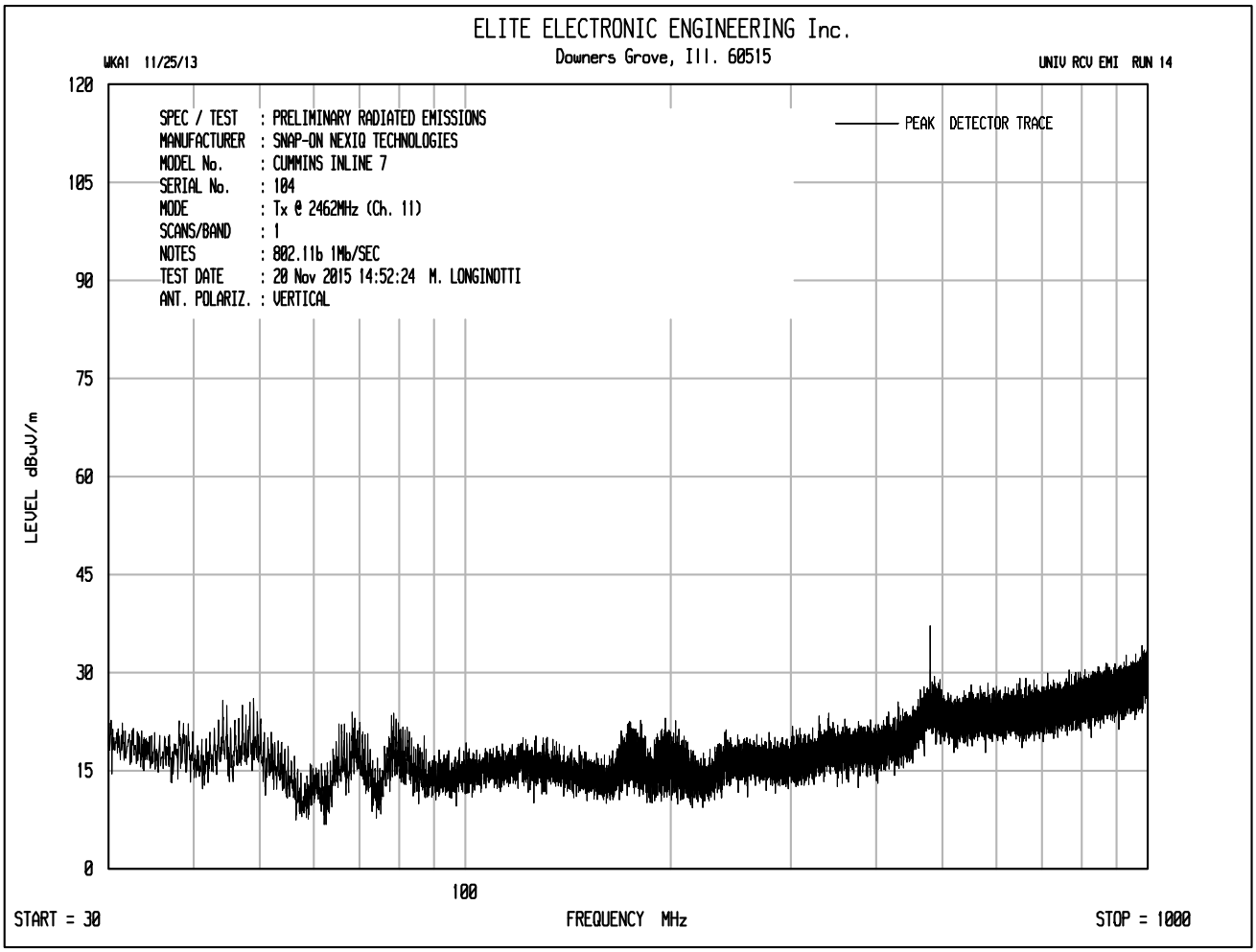
Average Total (dBuV/m) = Meter Reading (dBuV) + CBL Fac (dB) + Ant Fac (dB) + Pre Amp (dB)

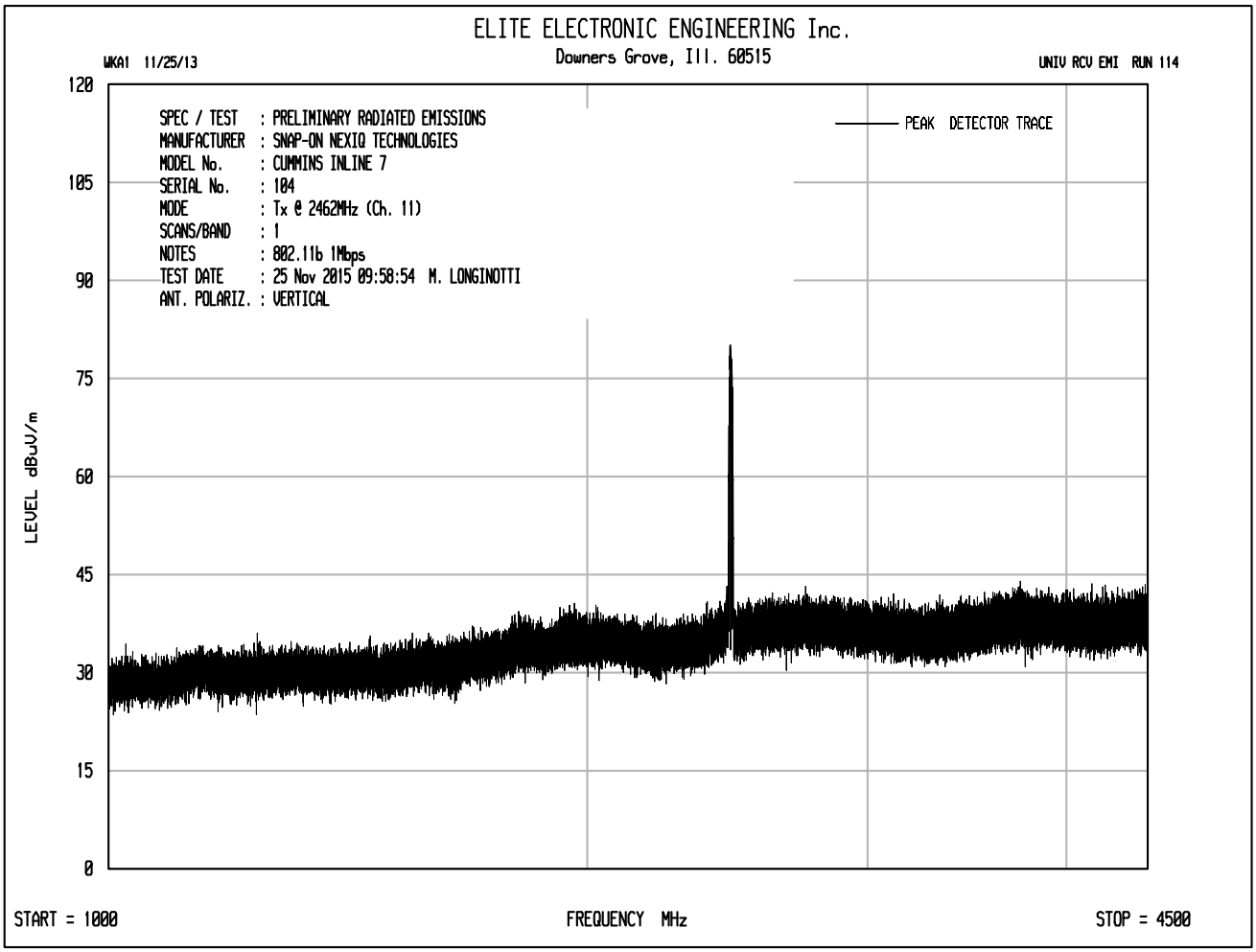
Average Total (uV/m) = 10^(Peak Total (dBuV/m)/20)

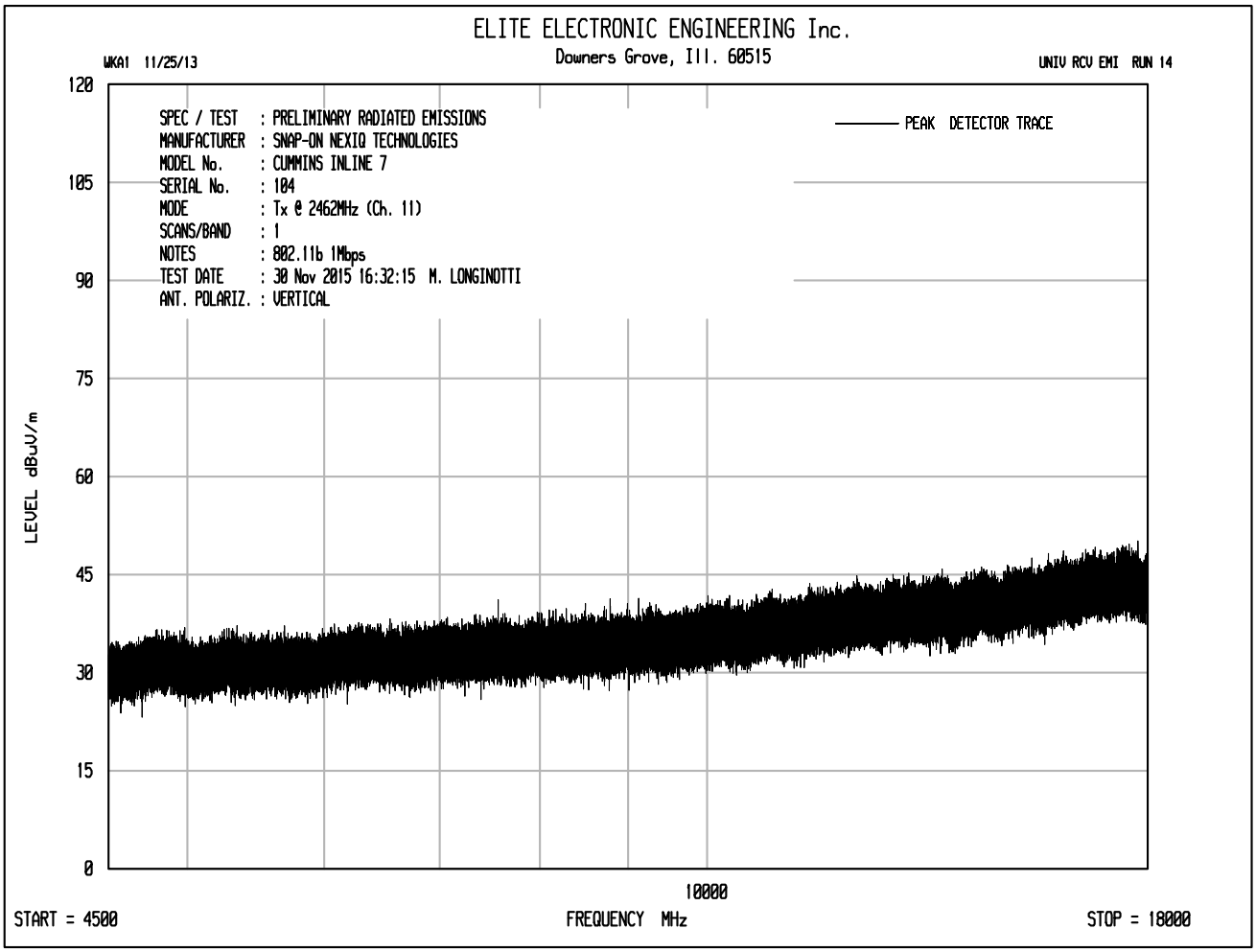

ELITE ELECTRONIC ENGINEERING Inc.
Downers Grove, Ill. 60515
WKA1 11/25/13
UNIV RCV EMI RUN 15
SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
MANUFACTURER : SNAP-ON NEXIQ TECHNOLOGIES
MODEL No. : CUMMINS INLINE 7
SERIAL No. : 104
MODE : Tx @ 2462MHz (Ch. 11)
SCANS/BAND : 1
NOTES : 802.11b 1Mb/SEC
TEST DATE : 20 Nov 2015 14:54:07 M. LONGINOTTI
ANT. POLARIZ. : HORIZONTAL
PEAK DETECTOR TRACE
LEVEL dBuV/m
120
105
90
75
60
45
30
15
0
100
START = 30
FREQUENCY MHz
STOP = 1000

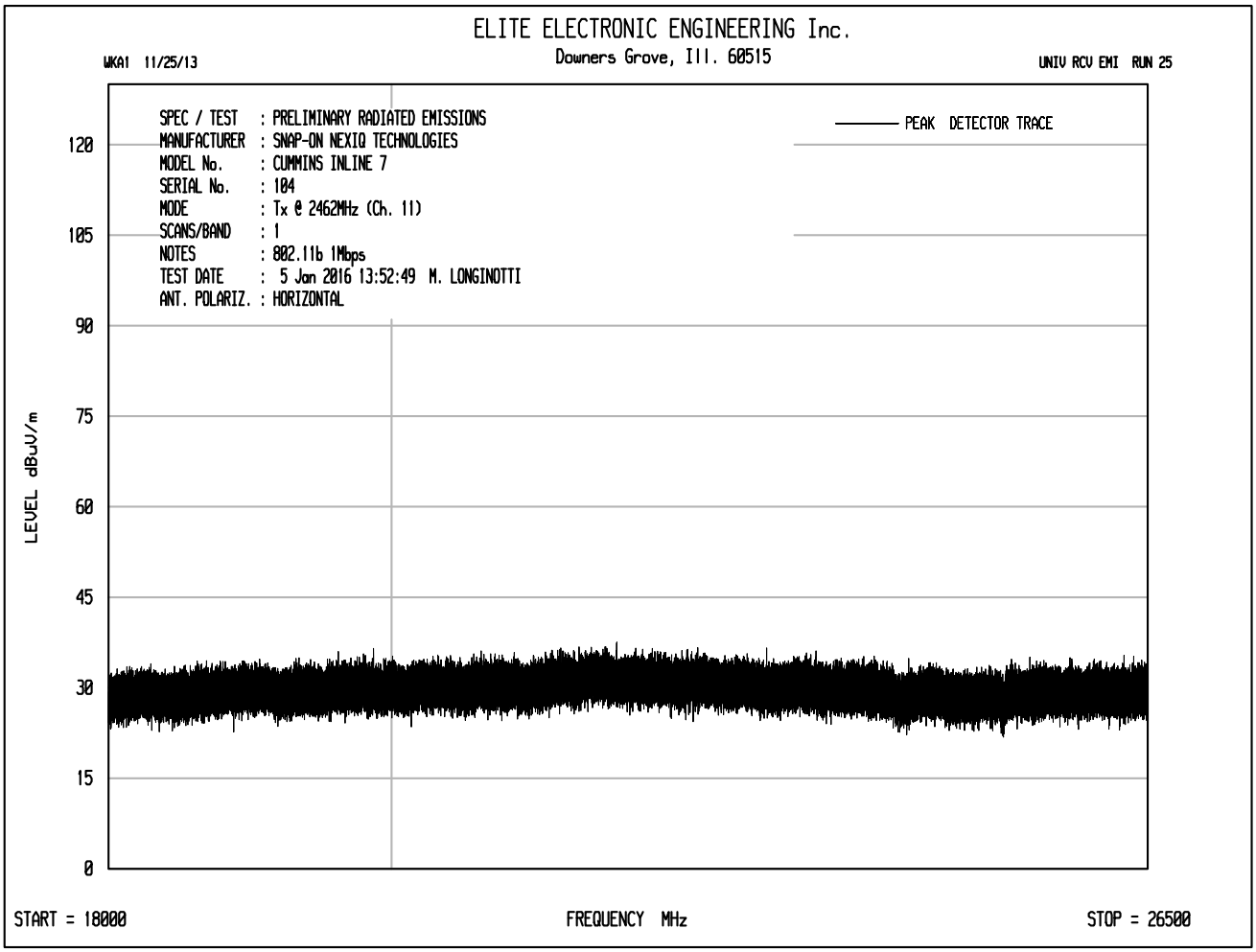

ELITE ELECTRONIC ENGINEERING Inc.
Downers Grove, Ill. 60515
WKA1 11/25/13
UNIV RCV EMI RUN 113
SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
MANUFACTURER : SNAP-ON NEXIQ TECHNOLOGIES
MODEL No. : CUMMINS INLINE 7
SERIAL No. : 104
MODE : Tx @ 2462MHz (Ch. 11)
SCANS/BAND : 1
NOTES : 802.11b 1Mbps
TEST DATE : 25 Nov 2015 09:56:56 M. LONGINOTTI
ANT. POLARIZ. : HORIZONTAL
PEAK DETECTOR TRACE
LEVEL dBuV/m
120
105
90
75
60
45
30
15
0
START = 1000
FREQUENCY MHz
STOP = 4500

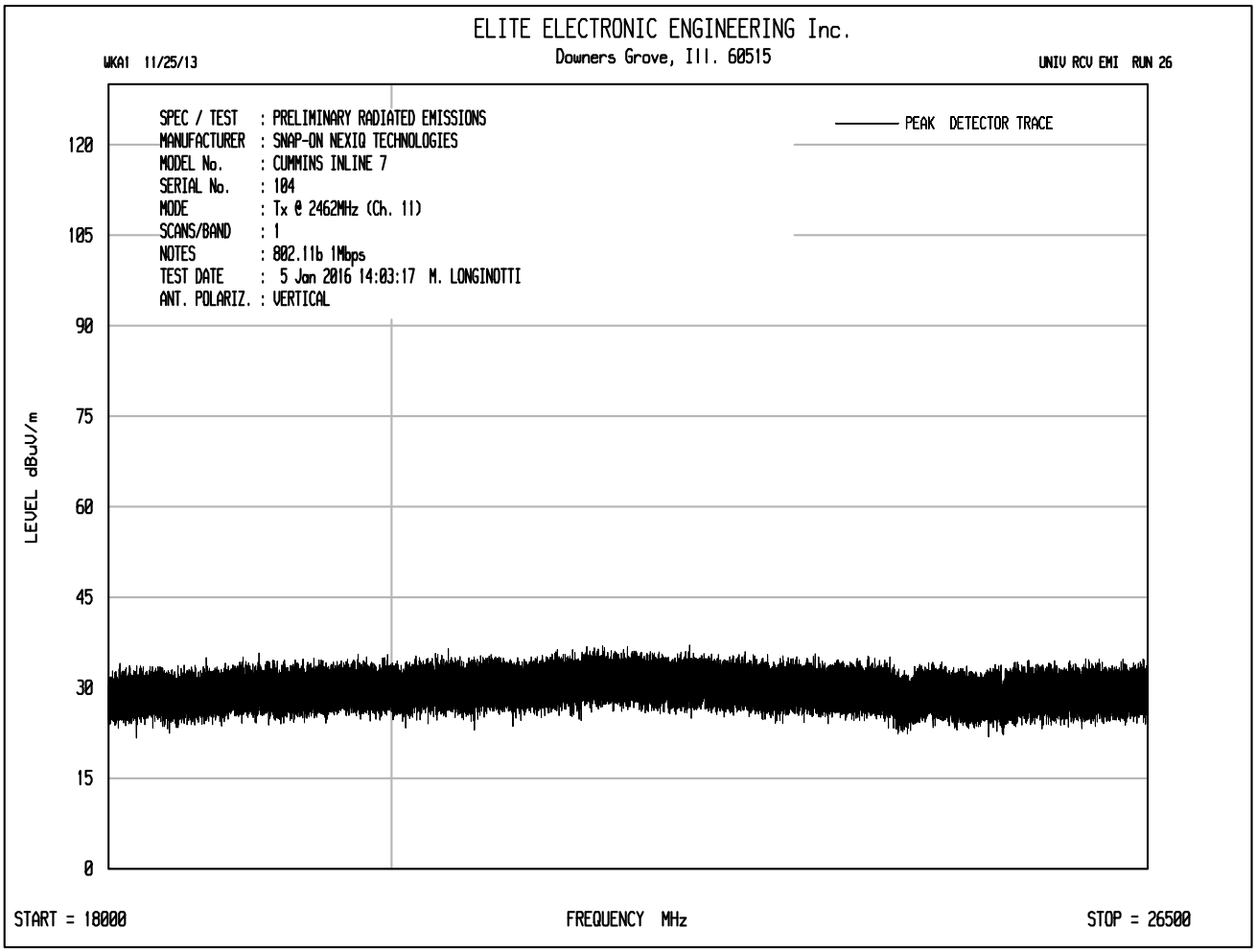

ELITE ELECTRONIC ENGINEERING Inc.
Downers Grove, Ill. 60515
WKA1 11/25/13
UNIV RCV EMI RUN 13
SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
MANUFACTURER : SNAP-ON NEXIQ TECHNOLOGIES
MODEL No. : CUMMINS INLINE 7
SERIAL No. : 104
MODE : Tx @ 2462MHz (Ch. 11)
SCANS/BAND : 1
NOTES : 802.11b 1Mbps
TEST DATE : 30 Nov 2015 16:28:50 M. LONGINOTTI
ANT. POLARIZ. : HORIZONTAL
PEAK DETECTOR TRACE
LEVEL dBuV/m
120
105
90
75
60
45
30
15
0
10000
START = 4500
FREQUENCY MHz
STOP = 18000

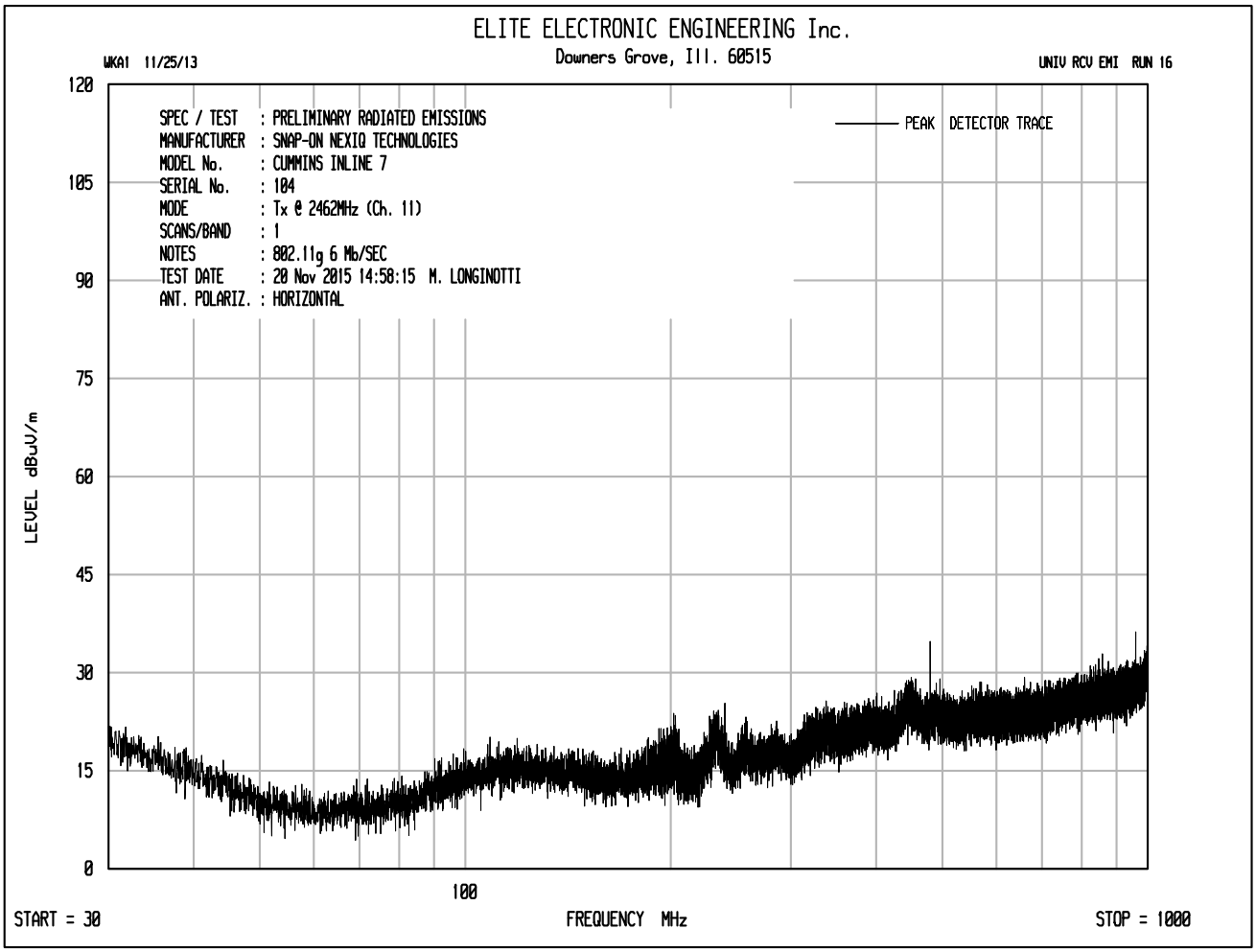

ELITE ELECTRONIC ENGINEERING Inc.
Downers Grove, Ill. 60515
WKA1 11/25/13
UNIV RCV EMI RUN 14
SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
MANUFACTURER : SNAP-ON NEXIQ TECHNOLOGIES
MODEL No. : CUMMINS INLINE 7
SERIAL No. : 104
MODE : Tx @ 2462MHz (Ch. 11)
SCANS/BAND : 1
NOTES : 802.11b 1Mb/SEC
TEST DATE : 20 Nov 2015 14:52:24 M. LONGINOTTI
ANT. POLARIZ. : VERTICAL
PEAK DETECTOR TRACE
LEVEL dBuV/m
120
105
90
75
60
45
30
15
0
100
START = 30
FREQUENCY MHz
STOP = 1000

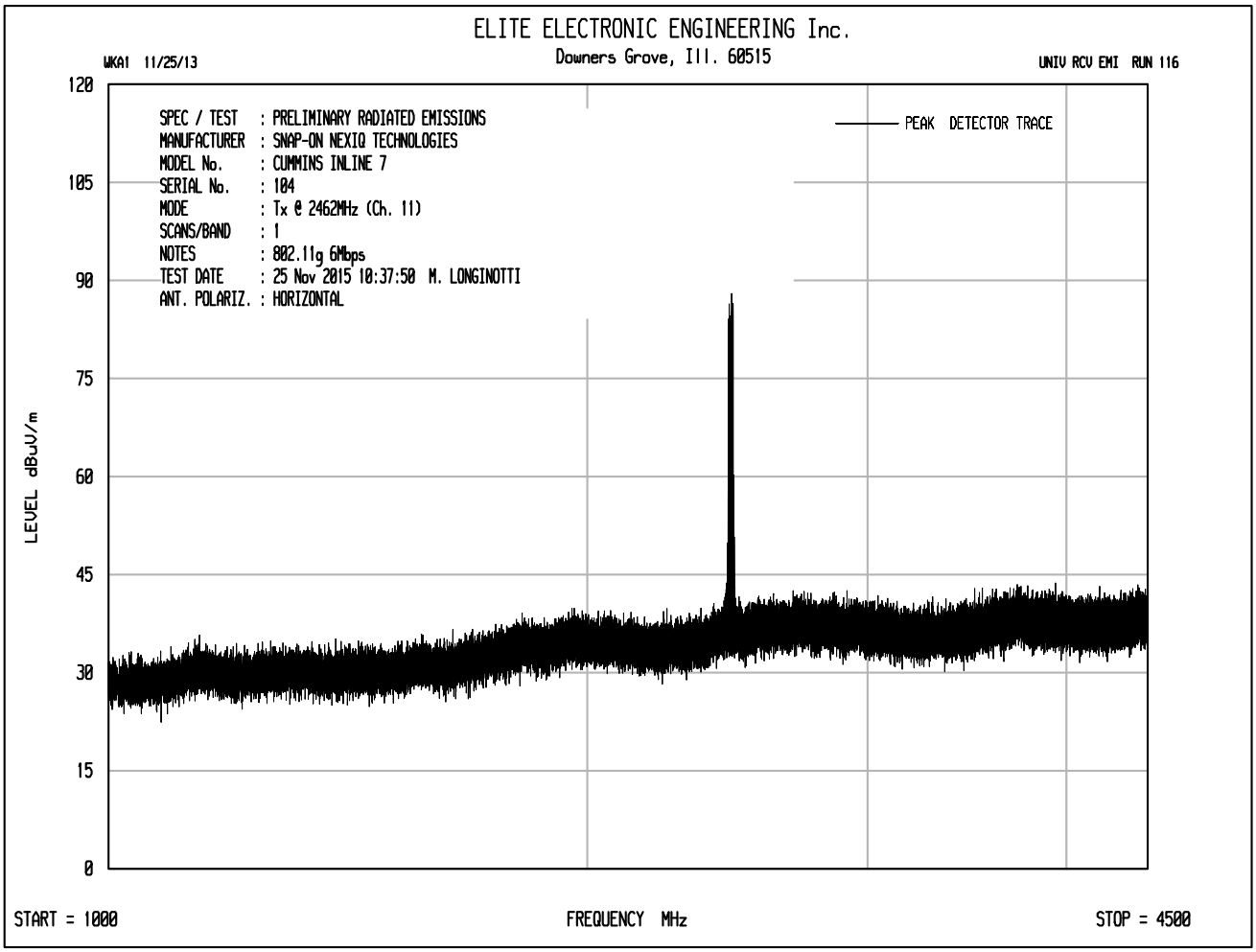

ELITE ELECTRONIC ENGINEERING Inc.
Downers Grove, Ill. 60515
WKA1 11/25/13
UNIV RCV EMI RUN 114
SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
MANUFACTURER : SNAP-ON NEXIQ TECHNOLOGIES
MODEL No. : CUMMINS INLINE 7
SERIAL No. : 104
MODE : Tx @ 2462MHz (Ch. 11)
SCANS/BAND : 1
NOTES : 802.11b 1Mbps
TEST DATE : 25 Nov 2015 09:58:54 M. LONGINOTTI
ANT. POLARIZ. : VERTICAL
PEAK DETECTOR TRACE
LEVEL dBuV/m
120
105
90
75
60
45
30
15
0
START = 1000
FREQUENCY MHz
STOP = 4500

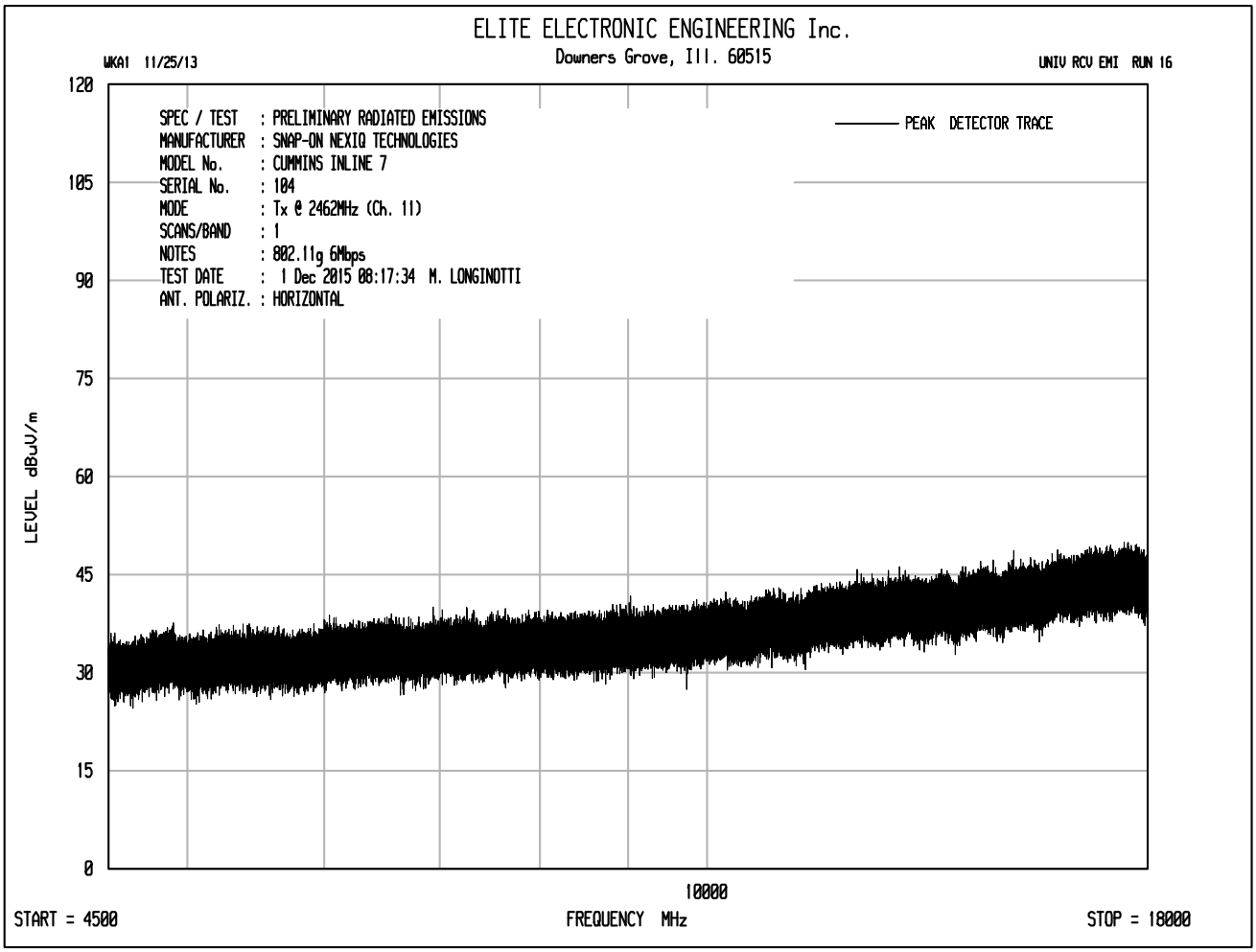

ELITE ELECTRONIC ENGINEERING Inc.
Downers Grove, Ill. 60515
WKA1 11/25/13
UNIV RCV EMI RUN 14
SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
MANUFACTURER : SNAP-ON NEXIQ TECHNOLOGIES
MODEL No. : CUMMINS INLINE 7
SERIAL No. : 104
MODE : Tx @ 2462MHz (Ch. 11)
SCANS/BAND : 1
NOTES : 802.11b 1Mbps
TEST DATE : 30 Nov 2015 16:32:15 M. LONGINOTTI
ANT. POLARIZ. : VERTICAL
PEAK DETECTOR TRACE
LEVEL dBuV/m
120
105
90
75
60
45
30
15
0
10000
START = 4500
FREQUENCY MHz
STOP = 18000

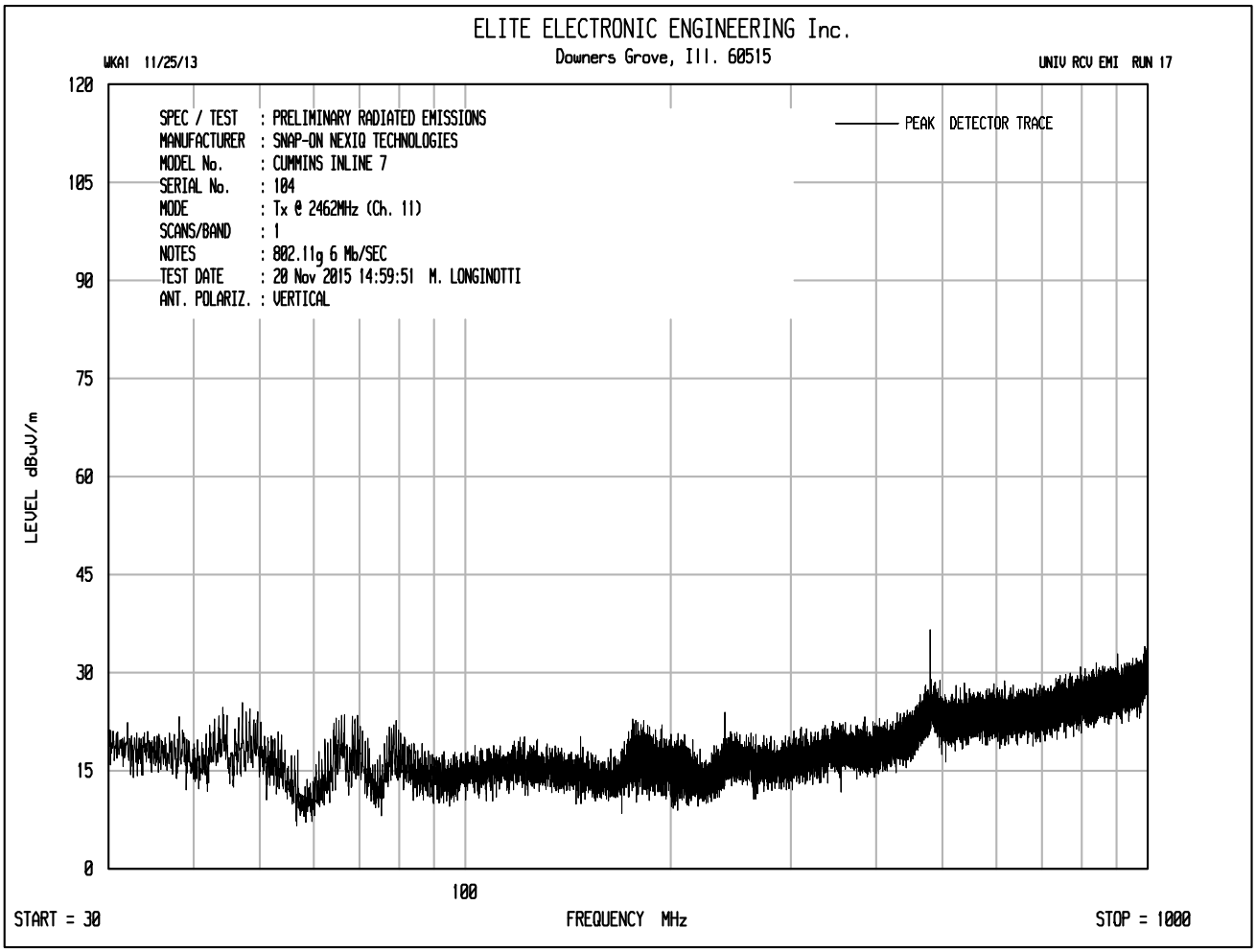

ELITE ELECTRONIC ENGINEERING Inc.
Downers Grove, Ill. 60515
WKA1 11/25/13
UNIV RCV EMI RUN 25
SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
MANUFACTURER : SNAP-ON NEXIQ TECHNOLOGIES
MODEL No. : CUMMINS INLINE 7
SERIAL No. : 104
MODE : Tx @ 2462MHz (Ch. 11)
SCANS/BAND : 1
NOTES : 802.11b 1Mbps
TEST DATE : 5 Jan 2016 13:52:49 M. LONGINOTTI
ANT. POLARIZ. : HORIZONTAL
PEAK DETECTOR TRACE
LEVEL dBuV/m
120
105
90
75
60
45
30
15
0
START = 18000
FREQUENCY MHz
STOP = 26500

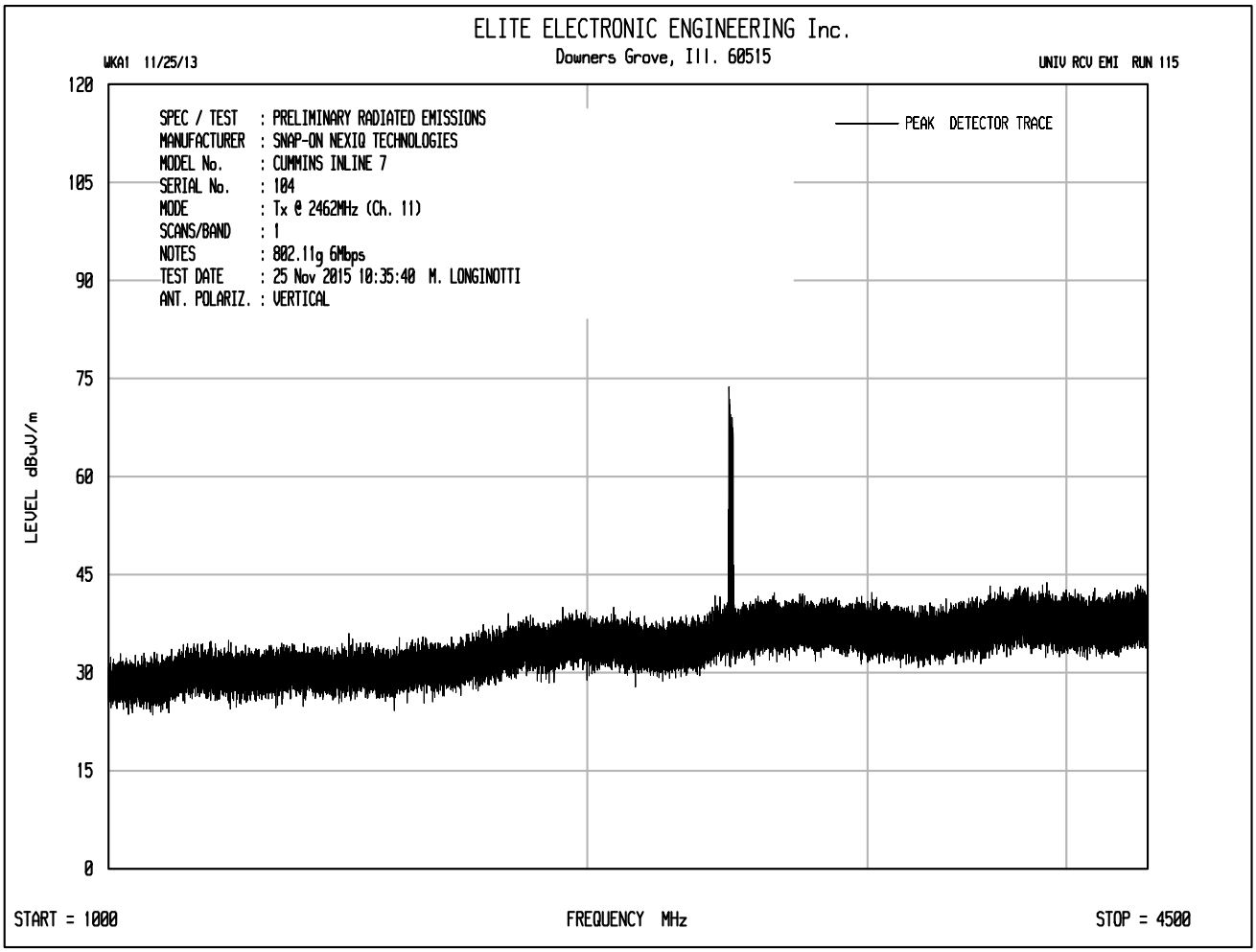

ELITE ELECTRONIC ENGINEERING Inc.
Downers Grove, Ill. 60515
WKA1 11/25/13
UNIV RCV EMI RUN 26
SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
MANUFACTURER : SNAP-ON NEXIQ TECHNOLOGIES
MODEL No. : CUMMINS INLINE 7
SERIAL No. : 104
MODE : Tx @ 2462MHz (Ch. 11)
SCANS/BAND : 1
NOTES : 802.11b 1Mbps
TEST DATE : 5 Jan 2016 14:03:17 M. LONGINOTTI
ANT. POLARIZ. : VERTICAL
PEAK DETECTOR TRACE
LEVEL dBuV/m
120
105
90
75
60
45
30
15
0
START = 18000
FREQUENCY MHz
STOP = 26500

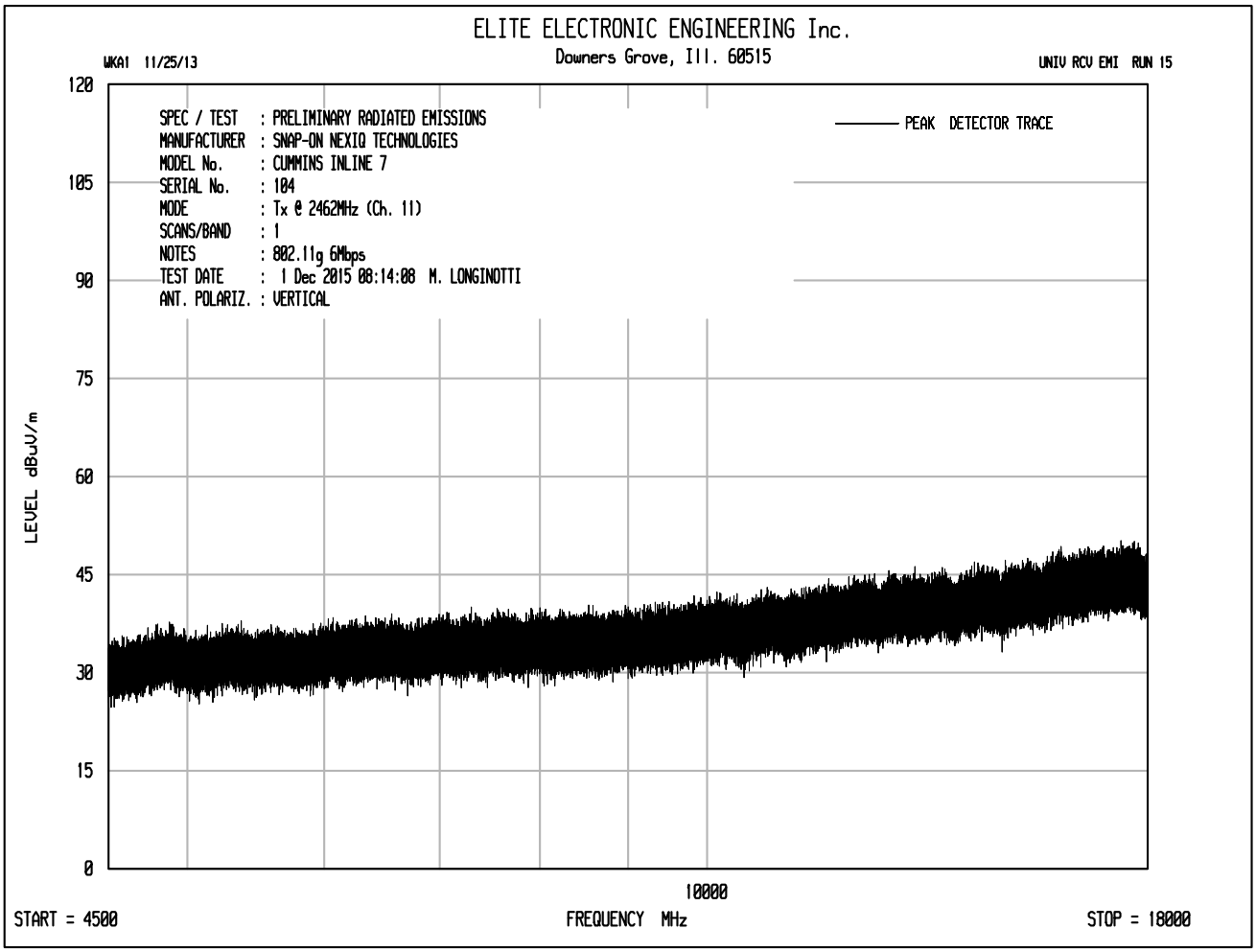

ELITE ELECTRONIC ENGINEERING Inc.
Downers Grove, Ill. 60515
WKA1 11/25/13
UNIV RCV EMI RUN 16
SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
MANUFACTURER : SNAP-ON NEXIQ TECHNOLOGIES
MODEL No. : CUMMINS INLINE 7
SERIAL No. : 104
MODE : Tx @ 2462MHz (Ch. 11)
SCANS/BAND : 1
NOTES : 802.11g 6 Mb/SEC
TEST DATE : 20 Nov 2015 14:58:15 M. LONGINOTTI
ANT. POLARIZ. : HORIZONTAL
PEAK DETECTOR TRACE
LEVEL dBuV/m
120
105
90
75
60
45
30
15
0
100
START = 30
FREQUENCY MHz
STOP = 1000

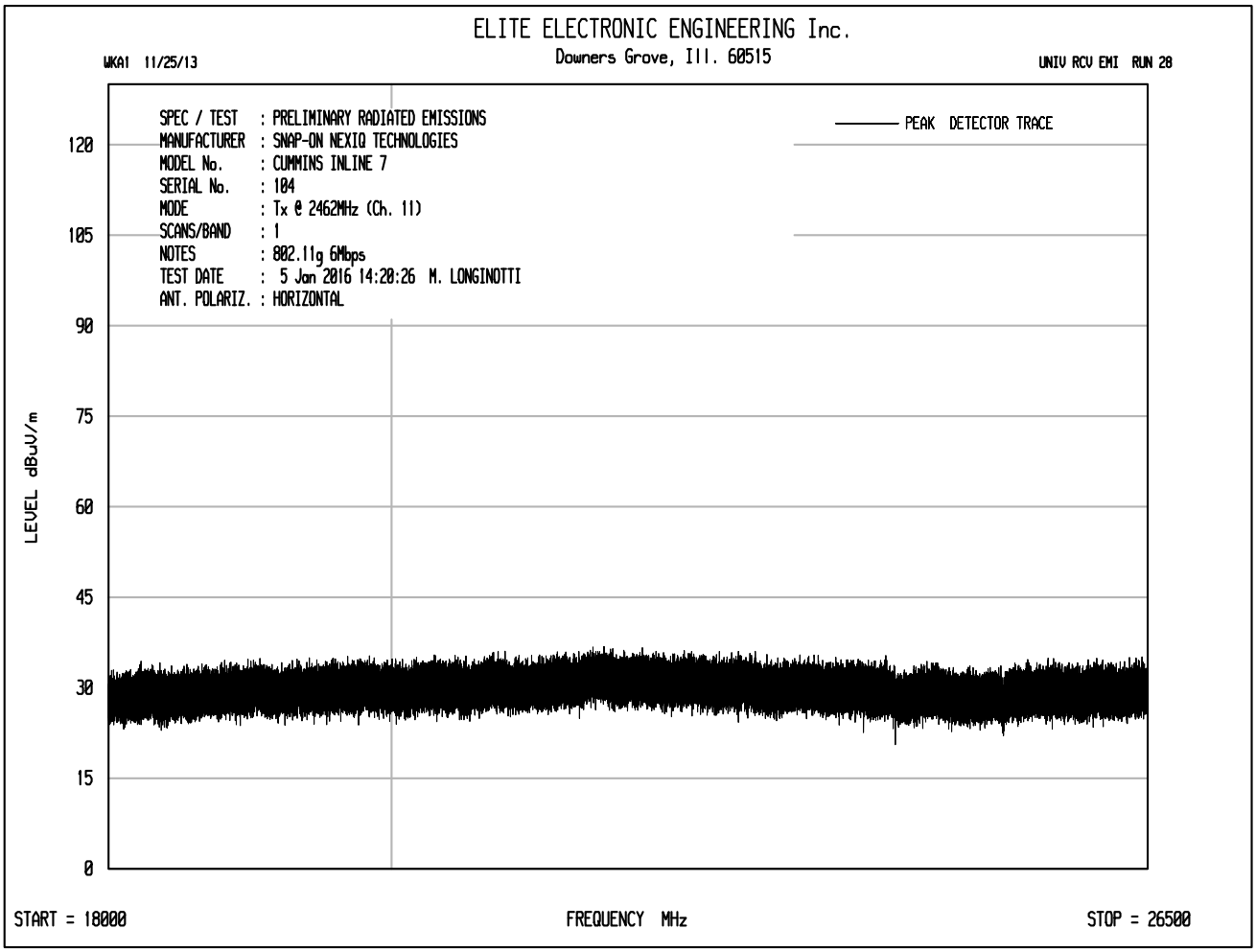

ELITE ELECTRONIC ENGINEERING Inc.
Downers Grove, Ill. 60515
WKA1 11/25/13
UNIV RCV EMI RUN 116
SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
MANUFACTURER : SNAP-ON NEXIQ TECHNOLOGIES
MODEL No. : CUMMINS INLINE 7
SERIAL No. : 104
MODE : Tx @ 2462MHz (Ch. 11)
SCANS/BAND : 1
NOTES : 802.11g 6Mbps
TEST DATE : 25 Nov 2015 10:37:50 M. LONGINOTTI
ANT. POLARIZ. : HORIZONTAL
PEAK DETECTOR TRACE
LEVEL dBuV/m
120
105
90
75
60
45
30
15
0
START = 1000
FREQUENCY MHz
STOP = 4500

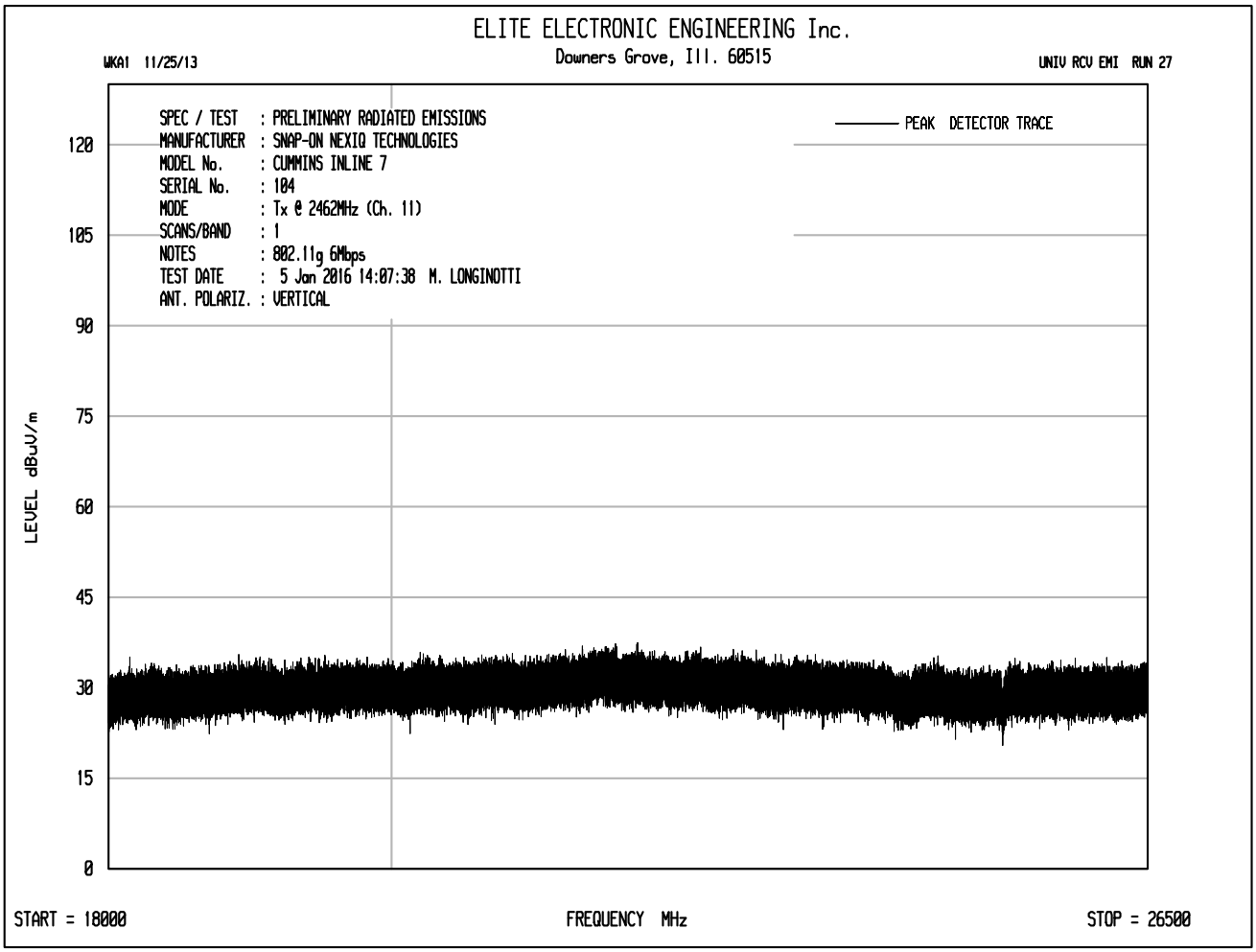

ELITE ELECTRONIC ENGINEERING Inc.
Downers Grove, Ill. 60515
WKA1 11/25/13
UNIV RCV EMI RUN 16
SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
MANUFACTURER : SNAP-ON NEXIQ TECHNOLOGIES
MODEL No. : CUMMINS INLINE 7
SERIAL No. : 104
MODE : Tx @ 2462MHz (Ch. 11)
SCANS/BAND : 1
NOTES : 802.11g 6Mbps
TEST DATE : 1 Dec 2015 08:17:34 M. LONGINOTTI
ANT. POLARIZ. : HORIZONTAL
PEAK DETECTOR TRACE
LEVEL dBuV/m
120
105
90
75
60
45
30
15
0
10000
START = 4500
FREQUENCY MHz
STOP = 18000

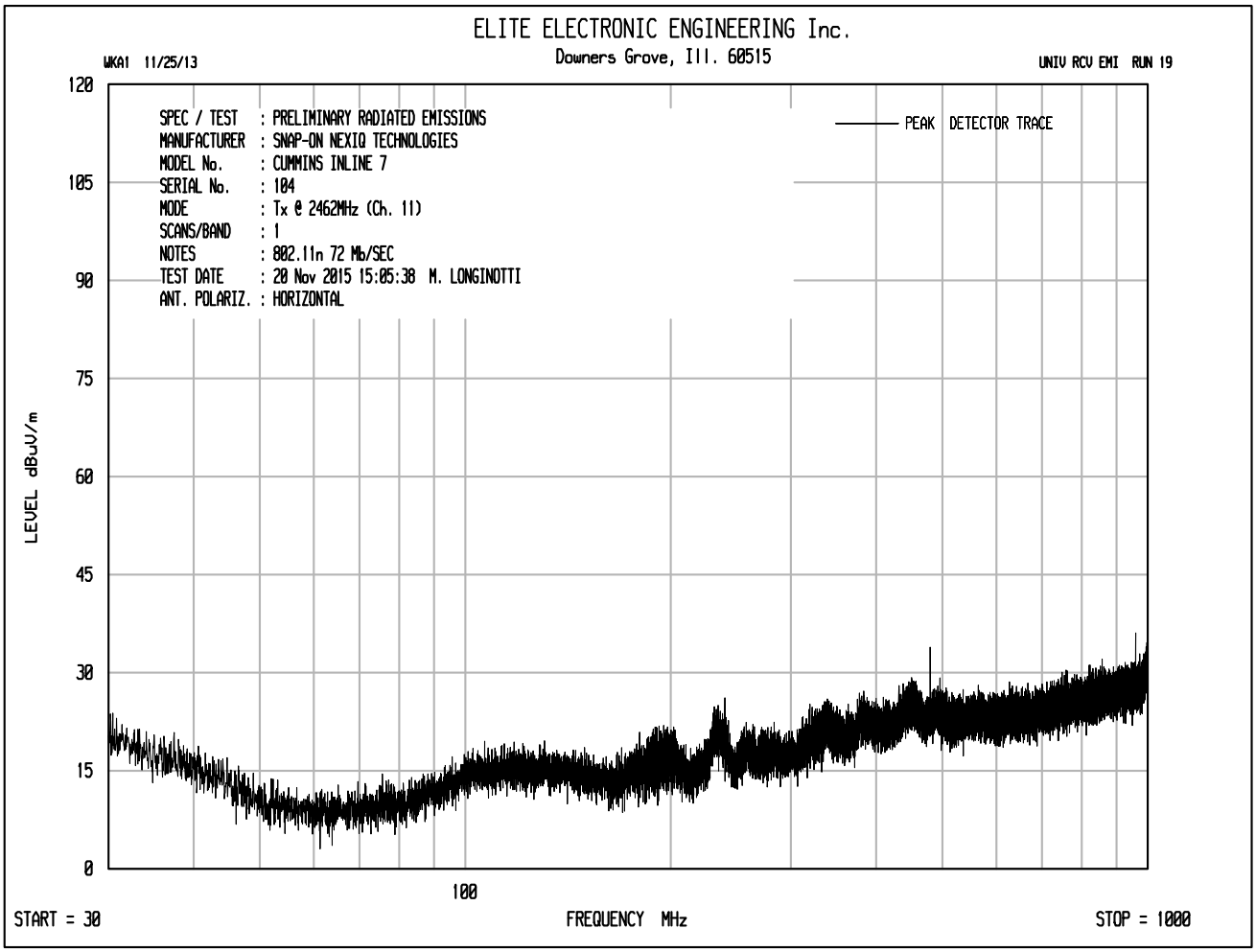

ELITE ELECTRONIC ENGINEERING Inc.
Downers Grove, Ill. 60515
WKA1 11/25/13
UNIV RCV EMI RUN 17
SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
MANUFACTURER : SNAP-ON NEXIQ TECHNOLOGIES
MODEL No. : CUMMINS INLINE 7
SERIAL No. : 104
MODE : Tx @ 2462MHz (Ch. 11)
SCANS/BAND : 1
NOTES : 802.11g 6 Mb/SEC
TEST DATE : 20 Nov 2015 14:59:51 M. LONGINOTTI
ANT. POLARIZ. : VERTICAL
PEAK DETECTOR TRACE
LEVEL dBuV/m
120
105
90
75
60
45
30
15
0
100
START = 30
FREQUENCY MHz
STOP = 1000

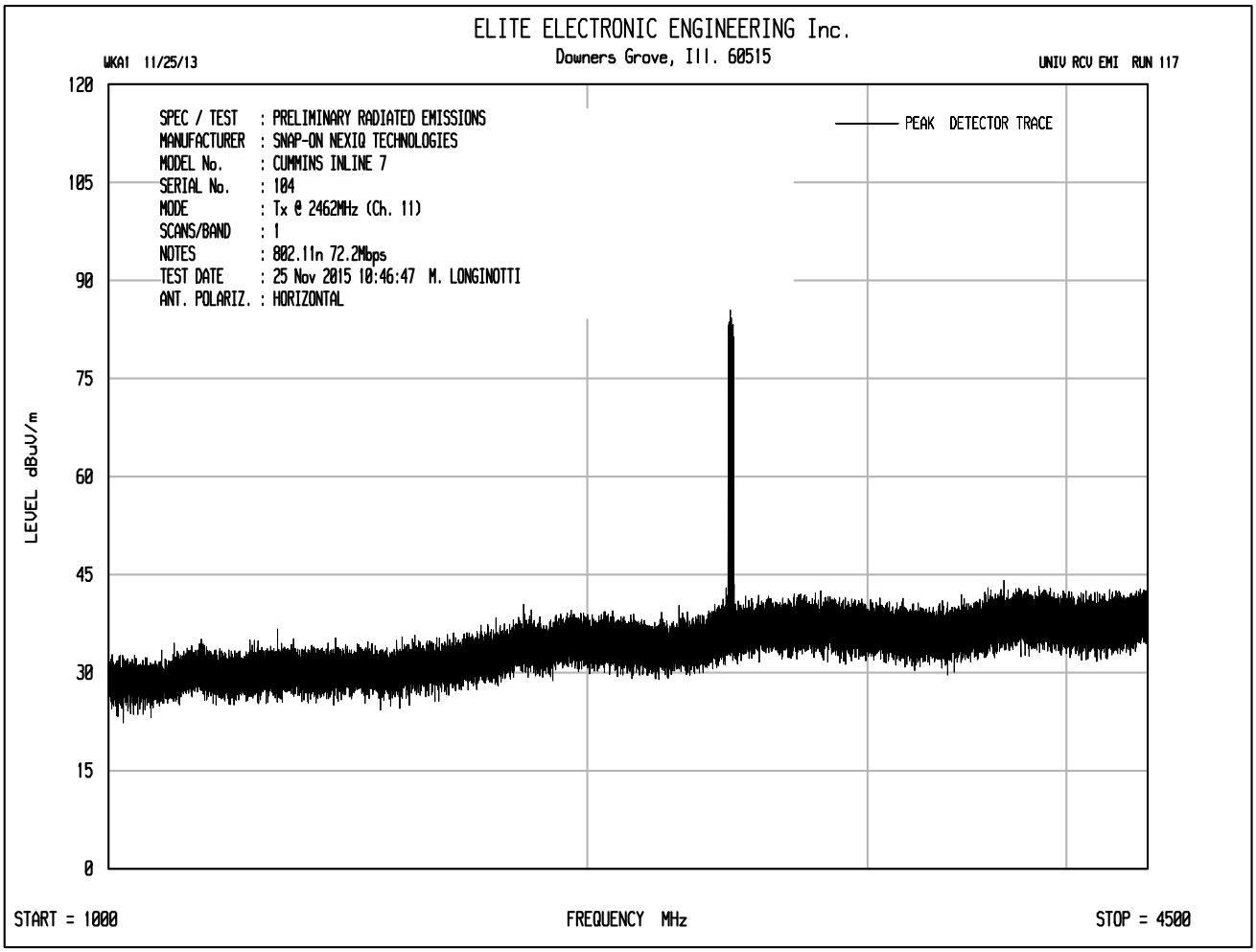

ELITE ELECTRONIC ENGINEERING Inc.
Downers Grove, Ill. 60515
WKA1 11/25/13
UNIV RCV EMI RUN 115
SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
MANUFACTURER : SNAP-ON NEXIQ TECHNOLOGIES
MODEL No. : CUMMINS INLINE 7
SERIAL No. : 104
MODE : Tx @ 2462MHz (Ch. 11)
SCANS/BAND : 1
NOTES : 802.11g 6Mbps
TEST DATE : 25 Nov 2015 10:35:40 M. LONGINOTTI
ANT. POLARIZ. : VERTICAL
PEAK DETECTOR TRACE
LEVEL dBuV/m
120
105
90
75
60
45
30
15
0
START = 1000
FREQUENCY MHz
STOP = 4500

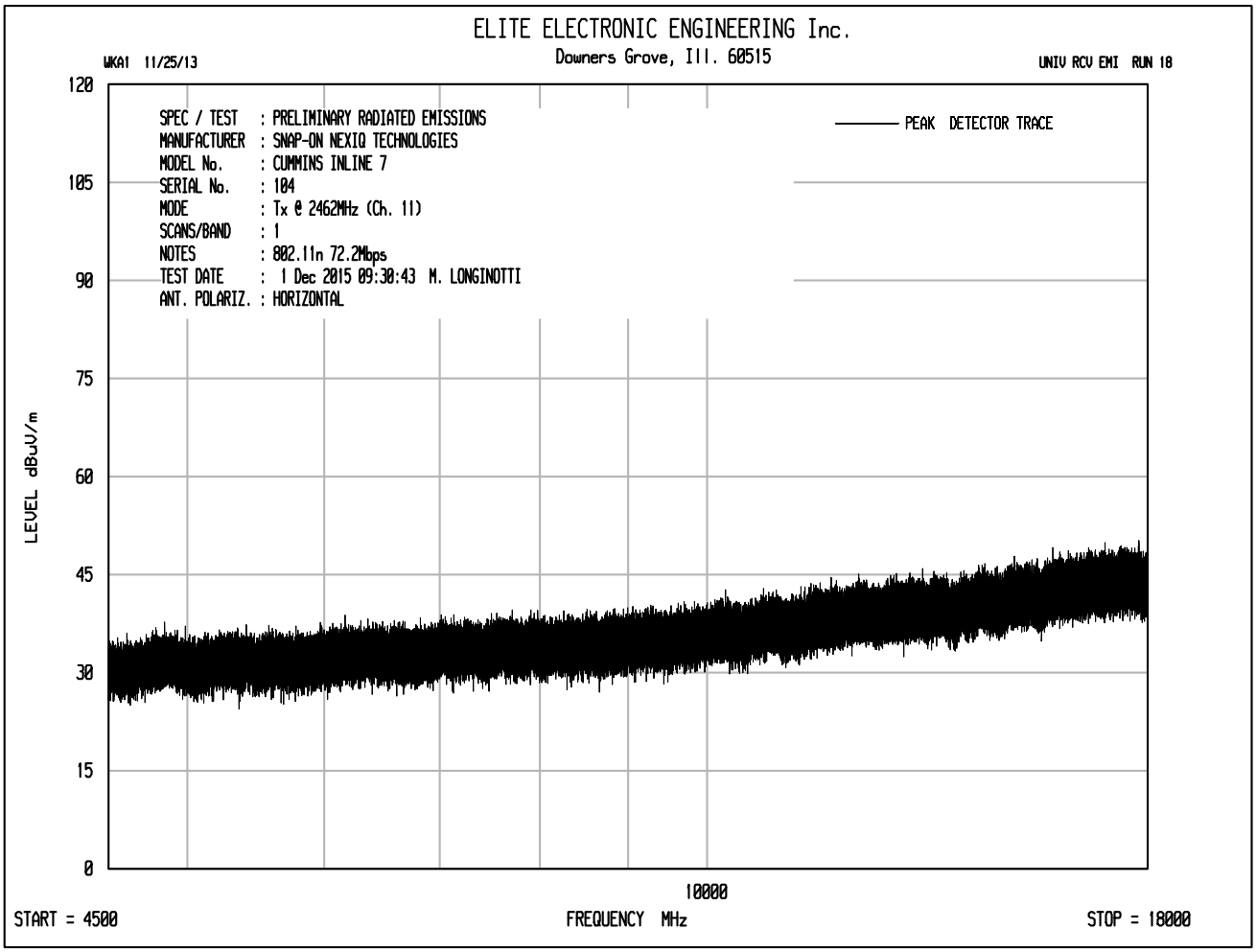

ELITE ELECTRONIC ENGINEERING Inc.
Downers Grove, Ill. 60515
WKA1 11/25/13
UNIV RCV EMI RUN 15
SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
MANUFACTURER : SNAP-ON NEXIQ TECHNOLOGIES
MODEL No. : CUMMINS INLINE 7
SERIAL No. : 104
MODE : Tx @ 2462MHz (Ch. 11)
SCANS/BAND : 1
NOTES : 802.11g 6Mbps
TEST DATE : 1 Dec 2015 08:14:08 M. LONGINOTTI
ANT. POLARIZ. : VERTICAL
PEAK DETECTOR TRACE
LEVEL dBuV/m
120
105
90
75
60
45
30
15
0
10000
START = 4500
FREQUENCY MHz
STOP = 18000

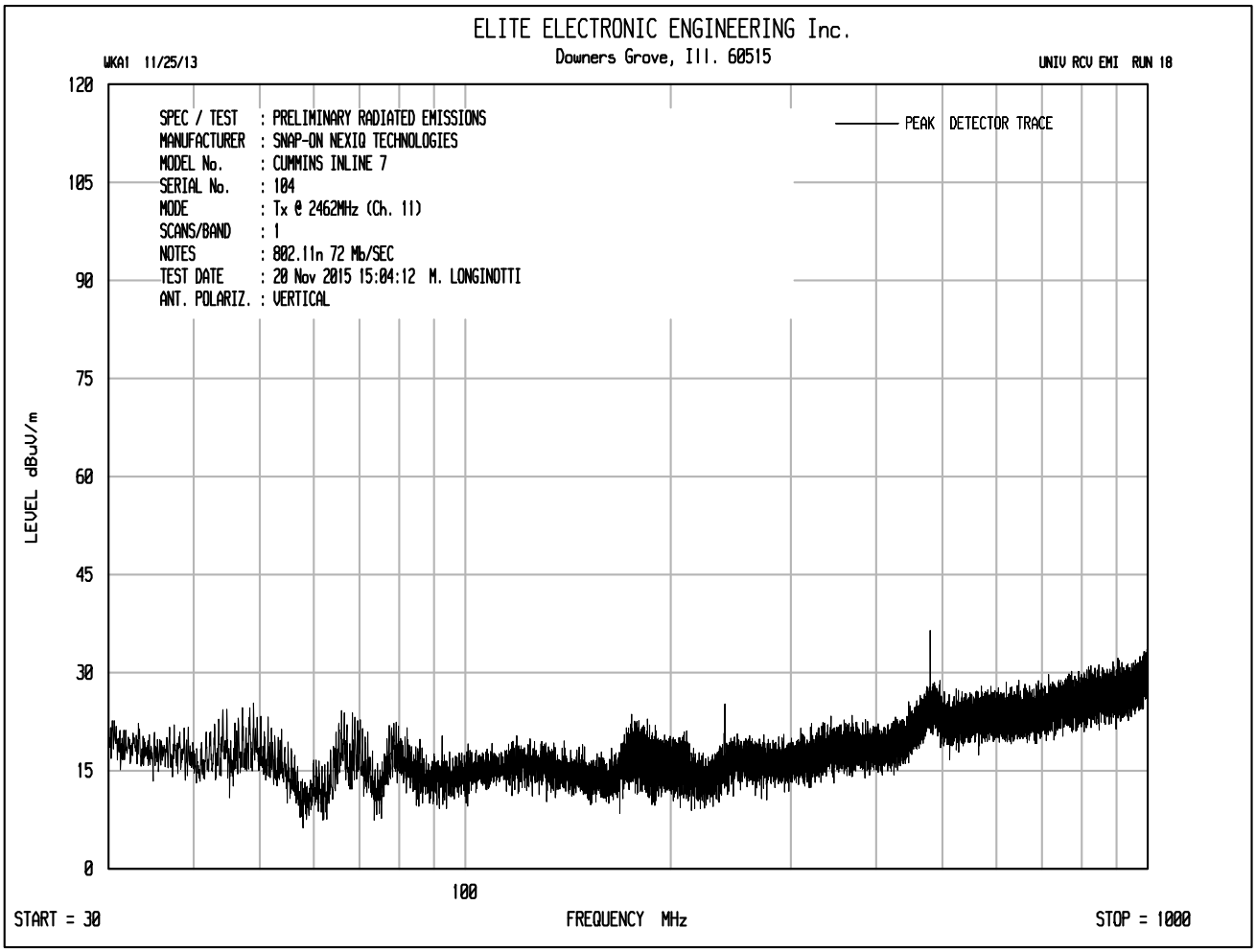

ELITE ELECTRONIC ENGINEERING Inc.
Downers Grove, Ill. 60515
WKA1 11/25/13
UNIV RCV EMI RUN 28
SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
MANUFACTURER : SNAP-ON NEXIQ TECHNOLOGIES
MODEL No. : CUMMINS INLINE 7
SERIAL No. : 104
MODE : Tx @ 2462MHz (Ch. 11)
SCANS/BAND : 1
NOTES : 802.11g 6Mbps
TEST DATE : 5 Jan 2016 14:20:26 M. LONGINOTTI
ANT. POLARIZ. : HORIZONTAL
PEAK DETECTOR TRACE
LEVEL dBuV/m
120
105
90
75
60
45
30
15
0
START = 18000
FREQUENCY MHz
STOP = 26500

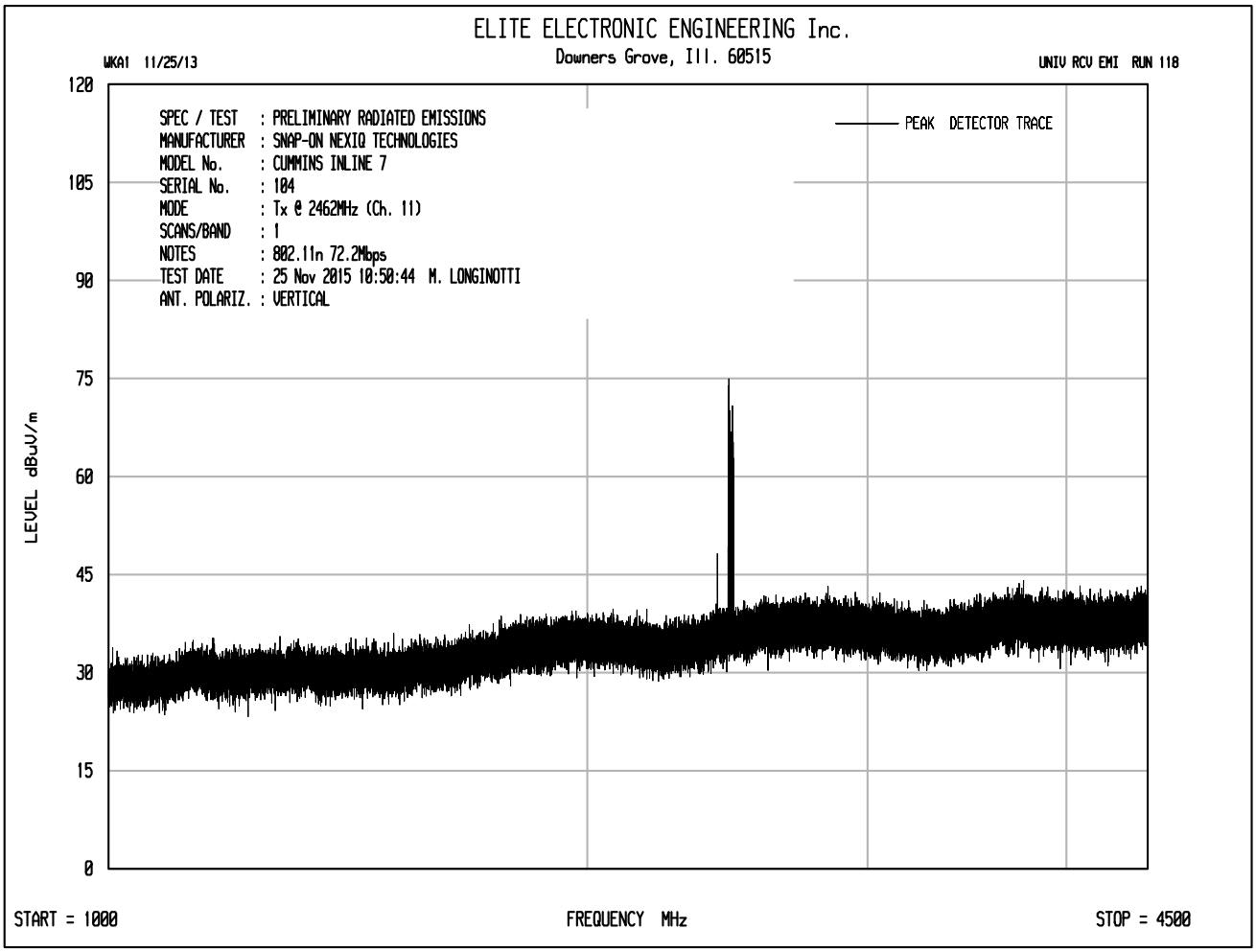

ELITE ELECTRONIC ENGINEERING Inc.
Downers Grove, Ill. 60515
WKA1 11/25/13
UNIV RCV EMI RUN 27
SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
MANUFACTURER : SNAP-ON NEXIQ TECHNOLOGIES
MODEL No. : CUMMINS INLINE 7
SERIAL No. : 104
MODE : Tx @ 2462MHz (Ch. 11)
SCANS/BAND : 1
NOTES : 802.11g 6Mbps
TEST DATE : 5 Jan 2016 14:07:38 M. LONGINOTTI
ANT. POLARIZ. : VERTICAL
PEAK DETECTOR TRACE
LEVEL dBuV/m
120
105
90
75
60
45
30
15
0
START = 18000
FREQUENCY MHz
STOP = 26500

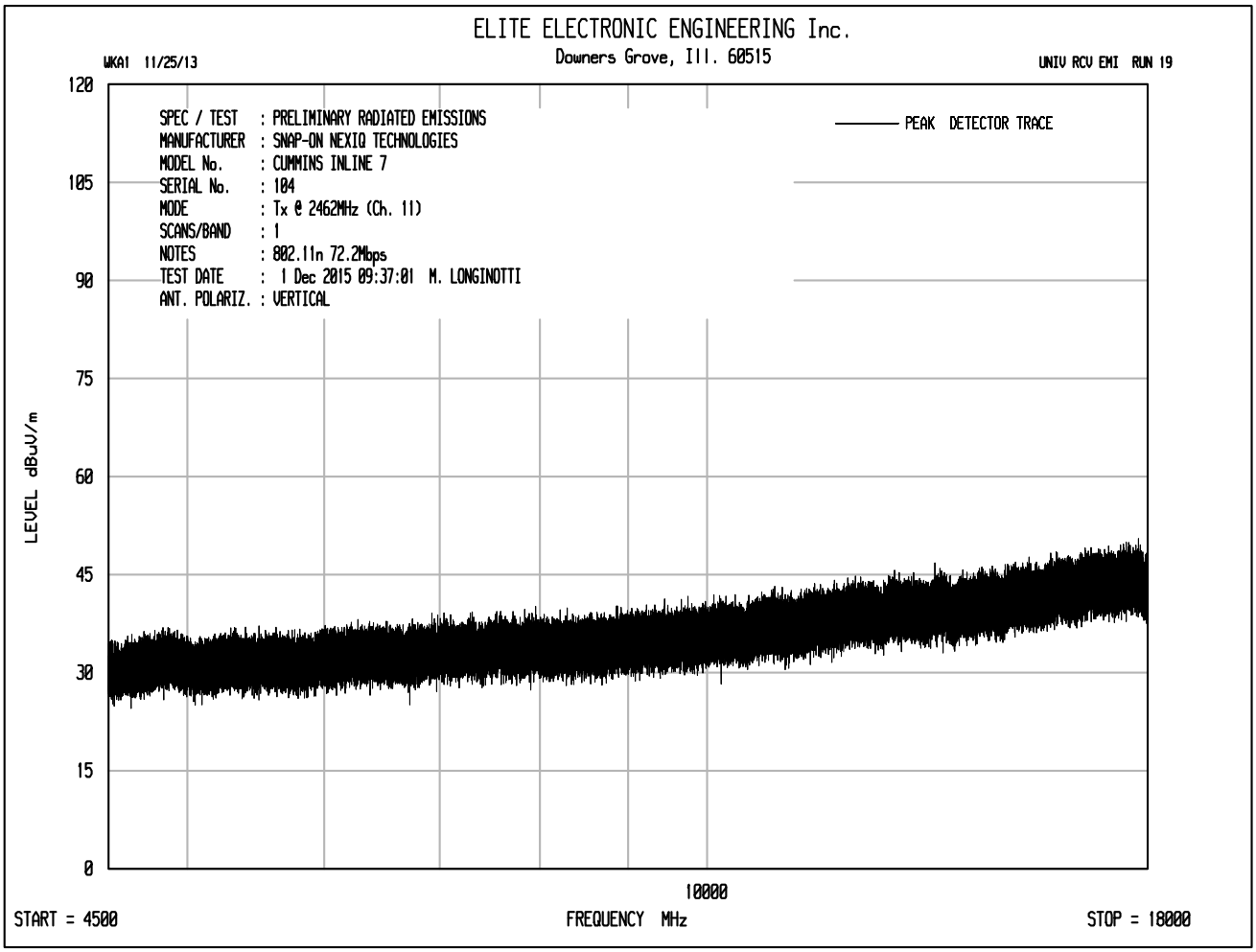

ELITE ELECTRONIC ENGINEERING Inc.
Downers Grove, Ill. 60515
WKA1 11/25/13
UNIV RCV EMI RUN 19
SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
MANUFACTURER : SNAP-ON NEXIQ TECHNOLOGIES
MODEL No. : CUMMINS INLINE 7
SERIAL No. : 104
MODE : Tx @ 2462MHz (Ch. 11)
SCANS/BAND : 1
NOTES : 802.11n 72 Mb/SEC
TEST DATE : 20 Nov 2015 15:05:38 M. LONGINOTTI
ANT. POLARIZ. : HORIZONTAL
PEAK DETECTOR TRACE
LEVEL dBuV/m
120
105
90
75
60
45
30
15
0
100
START = 30
FREQUENCY MHz
STOP = 1000

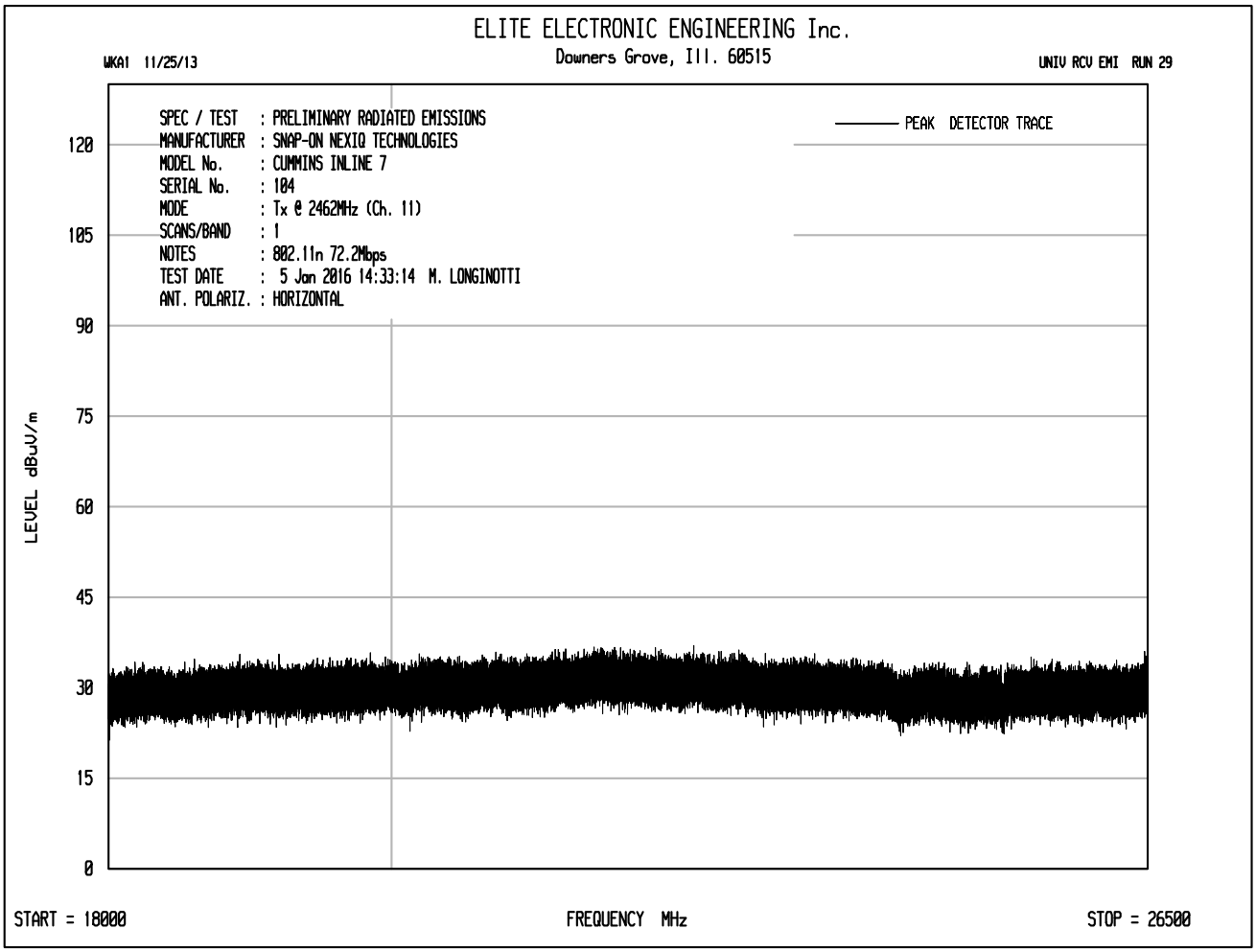

ELITE ELECTRONIC ENGINEERING Inc.
Downers Grove, Ill. 60515
WKA1 11/25/13
UNIV RCV EMI RUN 117
SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
MANUFACTURER : SNAP-ON NEXIQ TECHNOLOGIES
MODEL No. : CUMMINS INLINE 7
SERIAL No. : 104
MODE : Tx @ 2462MHz (Ch. 11)
SCANS/BAND : 1
NOTES : 802.11n 72.2Mbps
TEST DATE : 25 Nov 2015 10:46:47 M. LONGINOTTI
ANT. POLARIZ. : HORIZONTAL
PEAK DETECTOR TRACE
LEVEL dBuV/m
120
105
90
75
60
45
30
15
0
START = 1000
FREQUENCY MHz
STOP = 4500

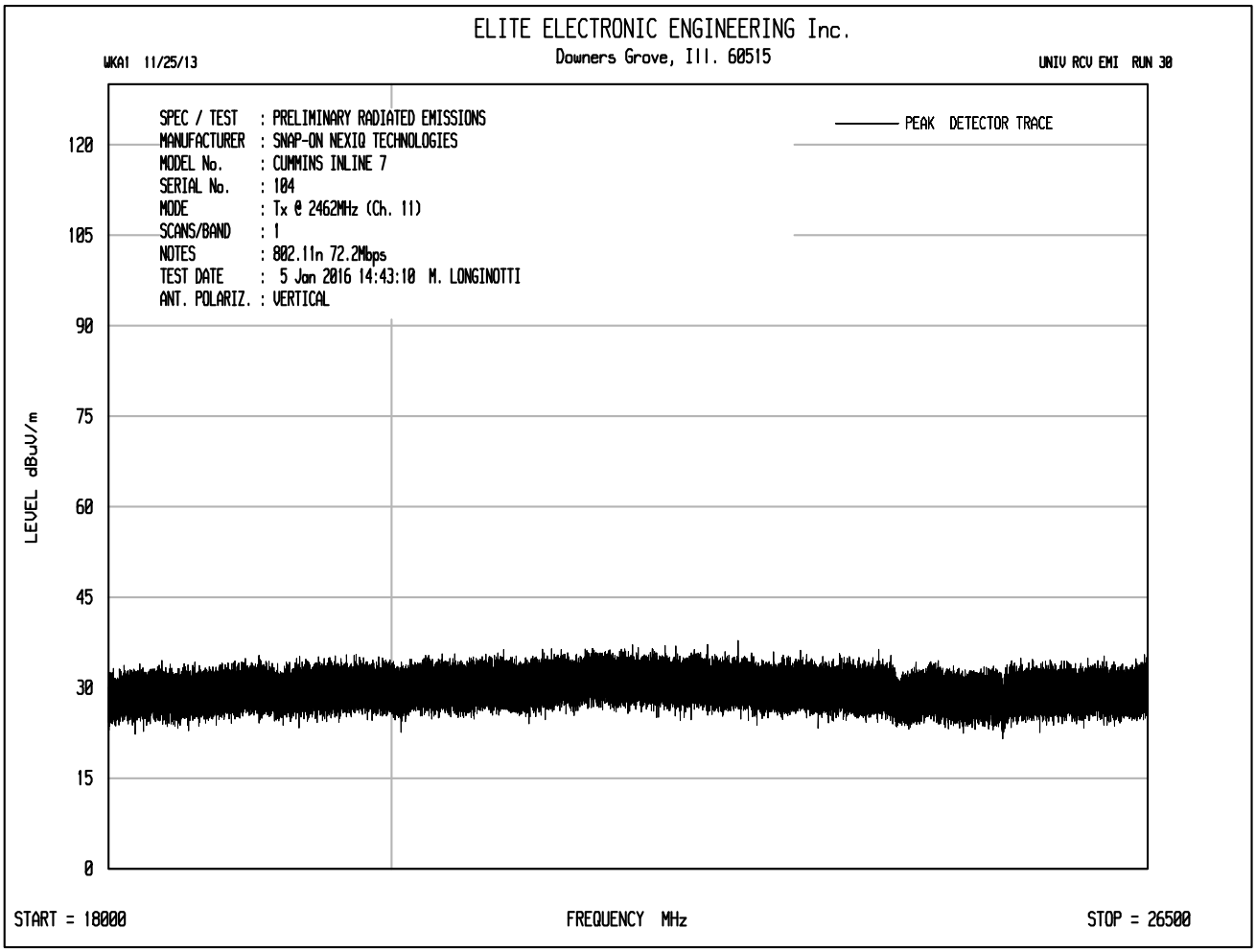

ELITE ELECTRONIC ENGINEERING Inc.
Downers Grove, Ill. 60515
WKA1 11/25/13
UNIV RCV EMI RUN 18
SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
MANUFACTURER : SNAP-ON NEXIQ TECHNOLOGIES
MODEL No. : CUMMINS INLINE 7
SERIAL No. : 104
MODE : Tx @ 2462MHz (Ch. 11)
SCANS/BAND : 1
NOTES : 802.11n 72.2Mbps
TEST DATE : 1 Dec 2015 09:30:43 M. LONGINOTTI
ANT. POLARIZ. : HORIZONTAL
PEAK DETECTOR TRACE
LEVEL dBuV/m
120
105
90
75
60
45
30
15
0
10000
START = 4500
FREQUENCY MHz
STOP = 18000


ELITE ELECTRONIC ENGINEERING Inc.
Downers Grove, Ill. 60515
WKA1 11/25/13
UNIV RCV EMI RUN 18
SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
MANUFACTURER : SNAP-ON NEXIQ TECHNOLOGIES
MODEL No. : CUMMINS INLINE 7
SERIAL No. : 104
MODE : Tx @ 2462MHz (Ch. 11)
SCANS/BAND : 1
NOTES : 802.11n 72 Mb/SEC
TEST DATE : 20 Nov 2015 15:04:12 M. LONGINOTTI
ANT. POLARIZ. : VERTICAL
PEAK DETECTOR TRACE
LEVEL dBuV/m
120
105
90
75
60
45
30
15
0
100
START = 30
FREQUENCY MHz
STOP = 1000


ELITE ELECTRONIC ENGINEERING Inc.
Downers Grove, Ill. 60515
WKA1 11/25/13
UNIV RCV EMI RUN 118
SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
MANUFACTURER : SNAP-ON NEXIQ TECHNOLOGIES
MODEL No. : CUMMINS INLINE 7
SERIAL No. : 104
MODE : Tx @ 2462MHz (Ch. 11)
SCANS/BAND : 1
NOTES : 802.11n 72.2Mbps
TEST DATE : 25 Nov 2015 10:50:44 M. LONGINOTTI
ANT. POLARIZ. : VERTICAL
PEAK DETECTOR TRACE
LEVEL dBuV/m
120
105
90
75
60
45
30
15
0
START = 1000
FREQUENCY MHz
STOP = 4500


ELITE ELECTRONIC ENGINEERING Inc.
Downers Grove, Ill. 60515
WKA1 11/25/13
UNIV RCV EMI RUN 19
SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
MANUFACTURER : SNAP-ON NEXIQ TECHNOLOGIES
MODEL No. : CUMMINS INLINE 7
SERIAL No. : 104
MODE : Tx @ 2462MHz (Ch. 11)
SCANS/BAND : 1
NOTES : 802.11n 72.2Mbps
TEST DATE : 1 Dec 2015 09:37:01 M. LONGINOTTI
ANT. POLARIZ. : VERTICAL
PEAK DETECTOR TRACE
LEVEL dBuV/m
120
105
90
75
60
45
30
15
0
10000
START = 4500
FREQUENCY MHz
STOP = 18000


ELITE ELECTRONIC ENGINEERING Inc.
Downers Grove, Ill. 60515
WKA1 11/25/13
UNIV RCV EMI RUN 29
SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
MANUFACTURER : SNAP-ON NEXIQ TECHNOLOGIES
MODEL No. : CUMMINS INLINE 7
SERIAL No. : 104
MODE : Tx @ 2462MHz (Ch. 11)
SCANS/BAND : 1
NOTES : 802.11n 72.2Mbps
TEST DATE : 5 Jan 2016 14:33:14 M. LONGINOTTI
ANT. POLARIZ. : HORIZONTAL
PEAK DETECTOR TRACE
LEVEL dBuV/m
120
105
90
75
60
45
30
15
0
START = 18000
FREQUENCY MHz
STOP = 26500


ELITE ELECTRONIC ENGINEERING Inc.
Downers Grove, Ill. 60515
WKA1 11/25/13
UNIV RCV EMI RUN 30
SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
MANUFACTURER : SNAP-ON NEXIQ TECHNOLOGIES
MODEL No. : CUMMINS INLINE 7
SERIAL No. : 104
MODE : Tx @ 2462MHz (Ch. 11)
SCANS/BAND : 1
NOTES : 802.11n 72.2Mbps
TEST DATE : 5 Jan 2016 14:43:10 M. LONGINOTTI
ANT. POLARIZ. : VERTICAL
PEAK DETECTOR TRACE
LEVEL dBuV/m
120
105
90
75
60
45
30
15
0
START = 18000
FREQUENCY MHz
STOP = 26500

Manufacturer : Snap-On Nexiq Technologies
Model No. : Cummins INLINE 7
Serial No. : 104
Date Tested : November 20, 2015 through January 5, 2016
Test Performed : Radiated Spurious Emissions in Restricted Bands
Mode : Transmit at 2462MHz, 802.11b 1 Mb/sec
Test Distance : 3 meters
Notes : Peak Readings with a 1MHz RBW

Freq. MHz	Ant Pol	Meter Reading (dBuV)	Ambient	CBL Fac (dB)	Ant Fac (dB)	Pre Amp (dB)	Peak Total dBuV/m at 3m	Peak Total uV/m at 3 m	Peak Limit uV/m at 3 m	Margin (dB)
4924.00	H	49.6	Ambient	4.9	34.2	-39.3	49.3	293.4	5000.0	-24.6
4924.00	V	50.2	Ambient	4.9	34.2	-39.3	49.9	314.4	5000.0	-24.0
7386.00	H	49.2	Ambient	6.2	36.2	-39.4	52.2	406.6	5000.0	-21.8
7386.00	V	51.3	Ambient	6.2	36.2	-39.4	54.3	517.9	5000.0	-19.7
12310.00	H	49.0	Ambient	8.0	39.3	-39.0	57.3	731.1	5000.0	-16.7
12310.00	V	49.5	Ambient	8.0	39.3	-39.0	57.8	774.4	5000.0	-16.2
19696.00	H	32.0	Ambient	2.2	40.4	-28.3	46.4	208.3	5000.0	-27.6
19696.00	V	30.6	Ambient	2.2	40.4	-28.3	45.0	177.3	5000.0	-29.0
22158.00	H	33.0	Ambient	2.2	40.6	-29.1	46.7	217.0	5000.0	-27.2
22158.00	V	33.0	Ambient	2.2	40.6	-29.1	46.7	217.0	5000.0	-27.2

Peak Total (dBuV/m) = Meter Reading (dBuV) + CBL Fac (dB) + Ant Fac (dB) + Pre Amp (dB)

Peak Total (uV/m) = 10^(Peak Total (dBuV/m)/20)

Manufacturer : Snap-On Nexiq Technologies
Model No. : Cummins INLINE 7
Serial No. : 104
Date Tested : November 20, 2015 through January 5, 2016
Test Performed : Radiated Spurious Emissions in Restricted Bands
Mode : Transmit at 2462MHz, 802.11b 1 Mb/sec
Test Distance : 3 meters
Notes : Average Readings with a 1MHz RBW

Freq. MHz	Ant Pol	Meter Reading (dBuV)	Ambient	CBL Fac (dB)	Ant Fac (dB)	Pre Amp (dB)	Average Total dBuV/m at 3m	Average Total uV/m at 3 m	Average Limit uV/m at 3 m	Margin (dB)
4924.00	H	35.9	Ambient	4.9	34.2	-39.3	35.6	60.6	500.0	-18.3
4924.00	V	35.9	Ambient	4.9	34.2	-39.3	35.6	60.6	500.0	-18.3
7386.00	H	35.70	Ambient	6.2	36.2	-39.4	38.7	85.9	500.0	-15.3
7386.00	V	42.2		6.2	36.2	-39.4	45.2	181.6	500.0	-8.8
12310.00	H	35.7	Ambient	8.0	39.3	-39.0	44.0	158.1	500.0	-10.0
12310.00	V	35.8	Ambient	8.0	39.3	-39.0	44.1	159.9	500.0	-9.9
19696.00	H	19.3	Ambient	2.2	40.4	-28.3	33.7	48.3	500.0	-20.3
19696.00	V	19.2	Ambient	2.2	40.4	-28.3	33.6	47.7	500.0	-20.4
22158.00	H	20.6	Ambient	2.2	40.6	-29.1	34.3	52.1	500.0	-19.6
22158.00	V	20.8	Ambient	2.2	40.6	-29.1	34.5	53.3	500.0	-19.4

Average Total (dBuV/m) = Meter Reading (dBuV) + CBL Fac (dB) + Ant Fac (dB) + Pre Amp (dB)

Average Total (uV/m) = 10^(Peak Total (dBuV/m)/20)

Manufacturer : Snap-On Nexiq Technologies
Model No. : Cummins INLINE 7
Serial No. : 104
Date Tested : November 20, 2015 through January 5, 2016
Test Performed : Radiated Spurious Emissions in Restricted Bands
Mode : Transmit at 2462MHz, 802.11g 6 Mb/sec
Test Distance : 3 meters
Notes : Peak Readings with a 1MHz RBW

Freq. MHz	Ant Pol	Meter Reading (dBuV)	Ambient	CBL Fac (dB)	Ant Fac (dB)	Pre Amp (dB)	Peak Total dBuV/m at 3m	Peak Total uV/m at 3 m	Peak Limit uV/m at 3 m	Margin (dB)
4924.00	H	49.2	Ambient	4.9	34.2	-39.3	48.9	280.2	5000.0	-25.0
4924.00	V	49.3	Ambient	4.9	34.2	-39.3	49.0	283.5	5000.0	-24.9
7386.00	H	48.0	Ambient	6.2	36.2	-39.4	51.0	354.2	5000.0	-23.0
7386.00	V	48.9	Ambient	6.2	36.2	-39.4	51.9	392.8	5000.0	-22.1
12310.00	H	48.9	Ambient	8.0	39.3	-39.0	57.2	722.7	5000.0	-16.8
12310.00	V	48.4	Ambient	8.0	39.3	-39.0	56.7	682.3	5000.0	-17.3
19696.00	H	31.4	Ambient	2.2	40.4	-28.3	45.8	194.4	5000.0	-28.2
19696.00	V	31.7	Ambient	2.2	40.4	-28.3	46.1	201.3	5000.0	-27.9
22158.00	H	32.6	Ambient	2.2	40.6	-29.1	46.3	207.2	5000.0	-27.6
22158.00	V	32.1	Ambient	2.2	40.6	-29.1	45.8	195.6	5000.0	-28.1
2483.80	H	17.1	Ambient	3.5	32.6	0.0	53.2	455.7	5000.0	-20.8
2491.00	V	16.2	Ambient	3.5	32.6	0.0	52.3	411.7	5000.0	-21.7

Peak Total (dBuV/m) = Meter Reading (dBuV) + CBL Fac (dB) + Ant Fac (dB) + Pre Amp (dB)

Peak Total (uV/m) = 10^(Peak Total (dBuV/m)/20)

Manufacturer : Snap-On Nexiq Technologies
Model No. : Cummins INLINE 7
Serial No. : 104
Date Tested : November 20, 2015 through January 5, 2016
Test Performed : Radiated Spurious Emissions in Restricted Bands
Mode : Transmit at 2462MHz, 802.11g 6 Mb/sec
Test Distance : 3 meters
Notes : Average Readings with a 1MHz RBW

Freq. MHz	Ant Pol	Meter Reading (dBuV)	Ambient	CBL Fac (dB)	Ant Fac (dB)	Pre Amp (dB)	Average Total dBuV/m at 3m	Average Total uV/m at 3 m	Average Limit uV/m at 3 m	Margin (dB)
4924.00	H	36.7	Ambient	4.9	34.2	-39.3	36.4	66.4	500.0	-17.5
4924.00	V	36.6	Ambient	4.9	34.2	-39.3	36.3	65.7	500.0	-17.6
7386.00	H	35.60	Ambient	6.2	36.2	-39.4	38.6	85.0	500.0	-15.4
7386.00	V	35.6	Ambient	6.2	36.2	-39.4	38.6	85.0	500.0	-15.4
12310.00	H	35.9	Ambient	8.0	39.3	-39.0	44.2	161.8	500.0	-9.8
12310.00	V	35.8	Ambient	8.0	39.3	-39.0	44.1	159.9	500.0	-9.9
19696.00	H	19.2	Ambient	2.2	40.4	-28.3	33.6	47.7	500.0	-20.4
19696.00	V	19.3	Ambient	2.2	40.4	-28.3	33.7	48.3	500.0	-20.3
22158.00	H	20.7	Ambient	2.2	40.6	-29.1	34.4	52.7	500.0	-19.5
22158.00	V	20.8	Ambient	2.2	40.6	-29.1	34.5	53.3	500.0	-19.4
2483.80	H	6.4	Ambient	3.5	32.6	0.0	42.5	132.9	500.0	-11.5
2491.00	V	1.5	Ambient	3.5	32.6	0.0	37.6	75.8	500.0	-16.4

Average Total (dBuV/m) = Meter Reading (dBuV) + CBL Fac (dB) + Ant Fac (dB) + Pre Amp (dB)

Average Total (uV/m) = 10^(Peak Total (dBuV/m)/20)

Manufacturer : Snap-On Nexiq Technologies
Model No. : Cummins INLINE 7
Serial No. : 104
Date Tested : November 20, 2015 through January 5, 2016
Test Performed : Radiated Spurious Emissions in Restricted Bands
Mode : Transmit at 2462MHz, 802.11n 72.2 Mb/sec
Test Distance : 3 meters
Notes : Peak Readings with a 1MHz RBW

Freq. MHz	Ant Pol	Meter Reading (dBuV)	Ambient	CBL Fac (dB)	Ant Fac (dB)	Pre Amp (dB)	Peak Total dBuV/m at 3m	Peak Total uV/m at 3 m	Peak Limit uV/m at 3 m	Margin (dB)
4924.00	H	49.3	Ambient	4.9	34.2	-39.3	49.0	283.5	5000.0	-24.9
4924.00	V	49.4	Ambient	4.9	34.2	-39.3	49.1	286.7	5000.0	-24.8
7386.00	H	48.6	Ambient	6.2	36.2	-39.4	51.6	379.5	5000.0	-22.4
7386.00	V	48.1	Ambient	6.2	36.2	-39.4	51.1	358.3	5000.0	-22.9
12310.00	H	48.8	Ambient	8.0	39.3	-39.0	57.1	714.4	5000.0	-16.9
12310.00	V	48.9	Ambient	8.0	39.3	-39.0	57.2	722.7	5000.0	-16.8
19696.00	H	31.4	Ambient	2.2	40.4	-28.3	45.8	194.4	5000.0	-28.2
19696.00	V	31.7	Ambient	2.2	40.4	-28.3	46.1	201.3	5000.0	-27.9
22158.00	H	33.3	Ambient	2.2	40.6	-29.1	47.0	224.6	5000.0	-26.9
22158.00	V	33.8	Ambient	2.2	40.6	-29.1	47.5	237.9	5000.0	-26.4

Peak Total (dBuV/m) = Meter Reading (dBuV) + CBL Fac (dB) + Ant Fac (dB) + Pre Amp (dB)

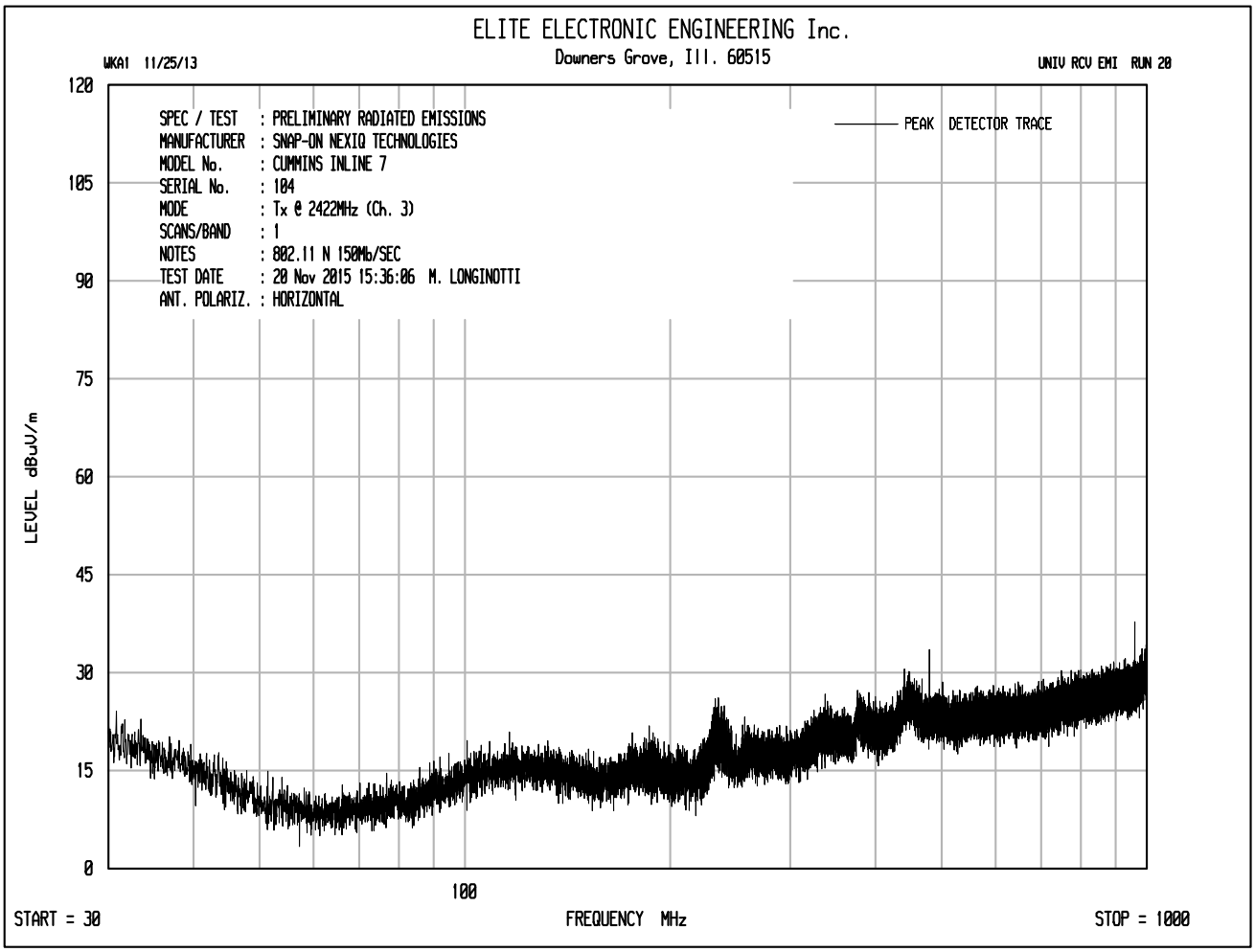
Peak Total (uV/m) = 10^(Peak Total (dBuV/m)/20)

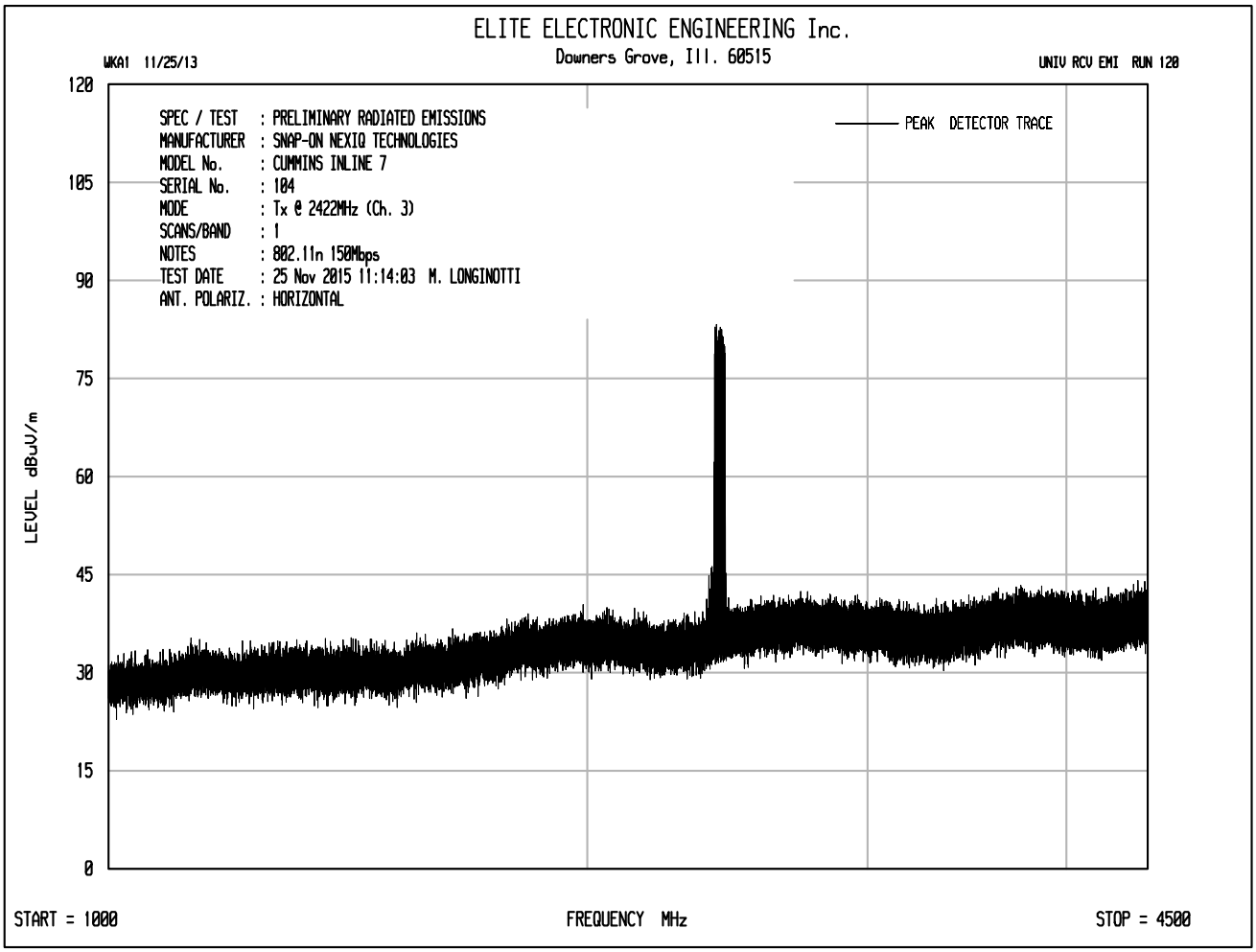
Manufacturer : Snap-On Nexiq Technologies
Model No. : Cummins INLINE 7
Serial No. : 104
Date Tested : November 20, 2015 through January 5, 2016
Test Performed : Radiated Spurious Emissions in Restricted Bands
Mode : Transmit at 2462MHz, 802.11n 72.2 Mb/sec
Test Distance : 3 meters
Notes : Average Readings with a 1MHz RBW

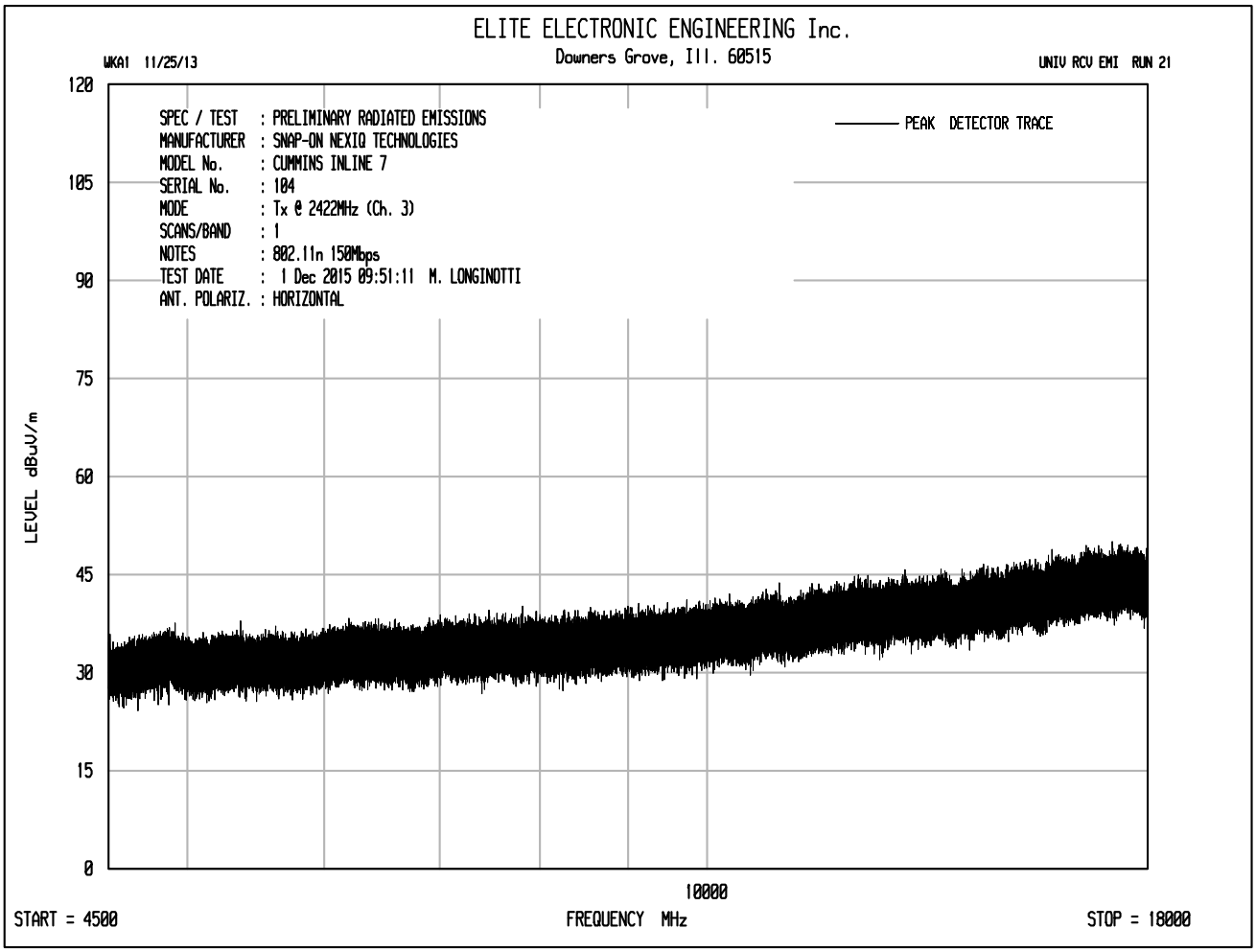
Freq. MHz	Ant Pol	Meter Reading (dBuV)	Ambient	CBL Fac (dB)	Ant Fac (dB)	Pre Amp (dB)	Duty Cycle (dB)	Average Total dBuV/m at 3m	Average Total uV/m at 3 m	Average Limit uV/m at 3 m	Margin (dB)
4924.00	H	36.3	Ambient	4.9	34.2	-39.3	0.0	36.0	63.5	500.0	-17.9
4924.00	V	36.3	Ambient	4.9	34.2	-39.3	0.0	36.0	63.5	500.0	-17.9
7386.00	H	35.60	Ambient	6.2	36.2	-39.4	0.0	38.6	85.0	500.0	-15.4
7386.00	V	35.6	Ambient	6.2	36.2	-39.4	0.0	38.6	85.0	500.0	-15.4
12310.00	H	35.8	Ambient	8.0	39.3	-39.0	0.0	44.1	159.9	500.0	-9.9
12310.00	V	35.8	Ambient	8.0	39.3	-39.0	0.0	44.1	159.9	500.0	-9.9
19696.00	H	19.2	Ambient	2.2	40.4	-28.3	0.0	33.6	47.7	500.0	-20.4
19696.00	V	19.3	Ambient	2.2	40.4	-28.3	0.0	33.7	48.3	500.0	-20.3
22158.00	H	20.7	Ambient	2.2	40.6	-29.1	0.0	34.4	52.7	500.0	-19.5
22158.00	V	20.7	Ambient	2.2	40.6	-29.1	0.0	34.4	52.7	500.0	-19.5

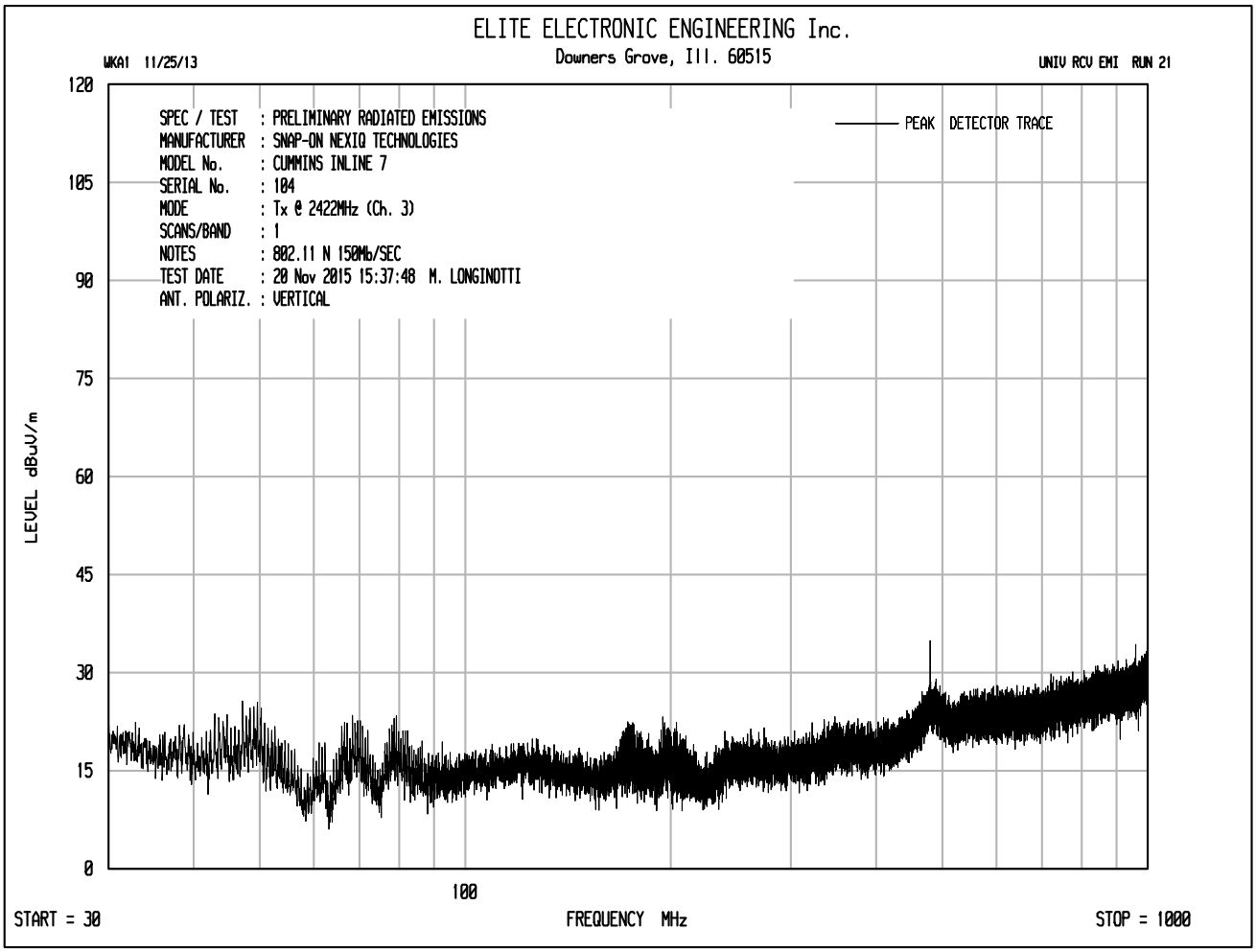
Average Total (dBuV/m) = Meter Reading (dBuV) + CBL Fac (dB) + Ant Fac (dB) + Pre Amp (dB)

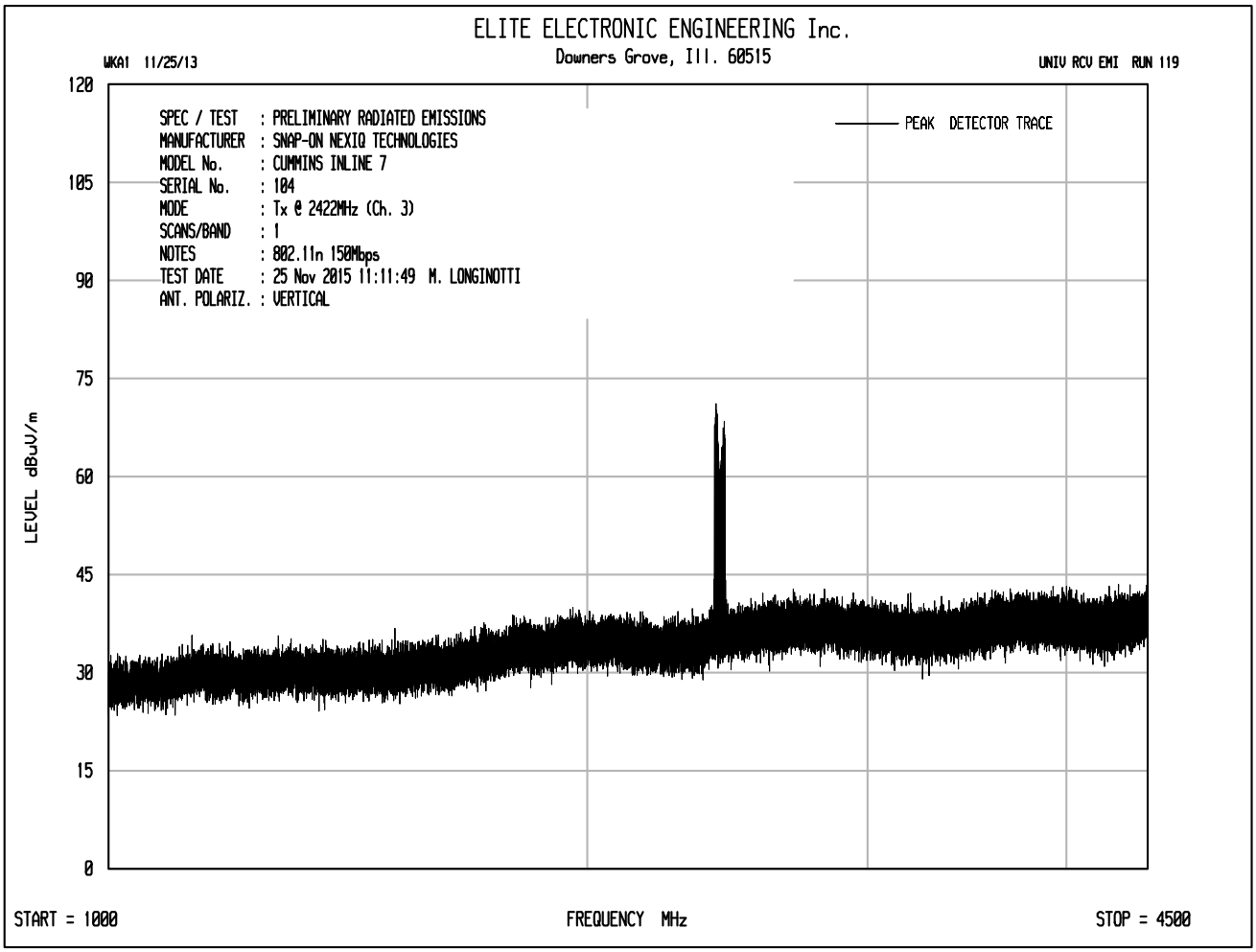
Average Total (uV/m) = 10^(Peak Total (dBuV/m)/20)

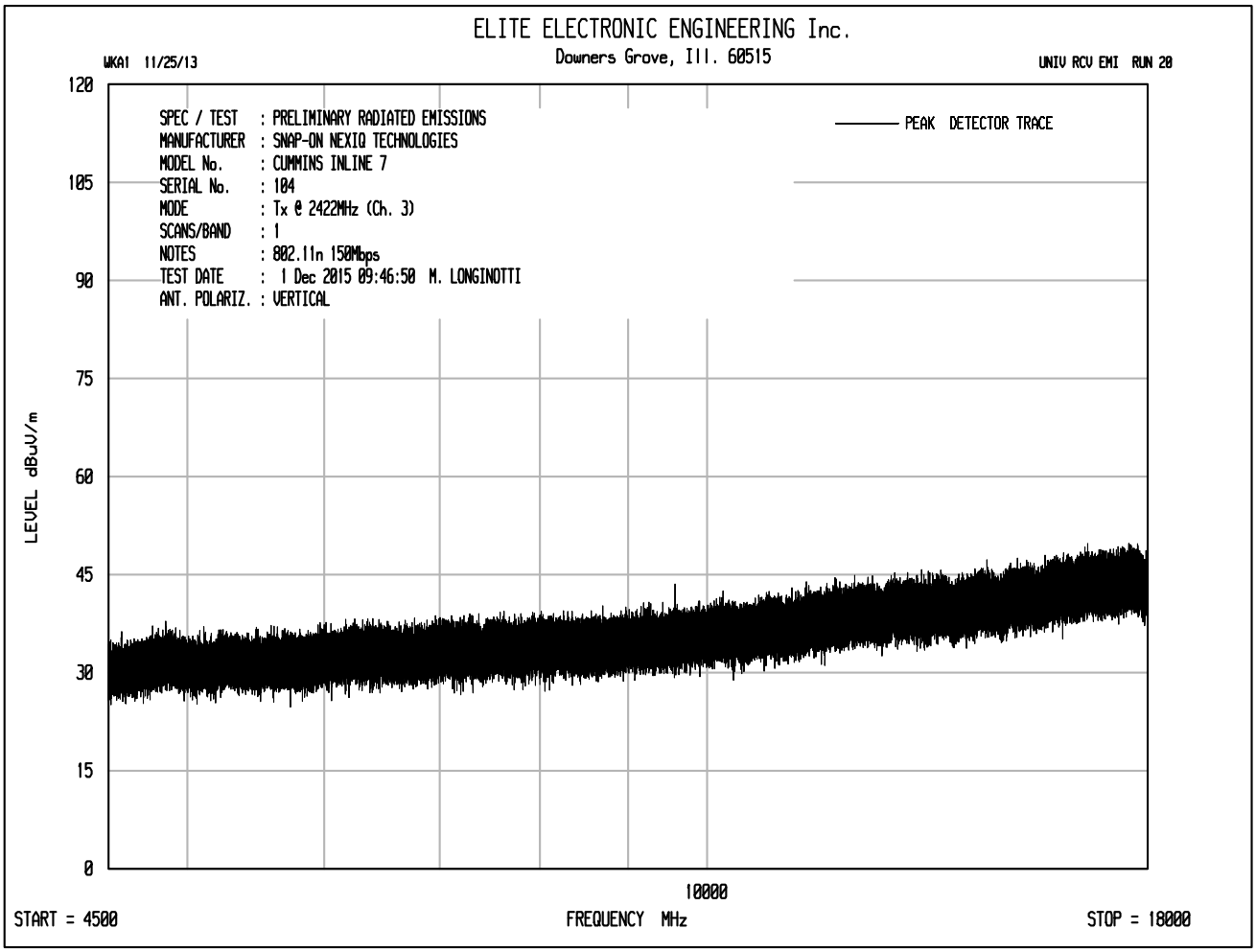

ELITE ELECTRONIC ENGINEERING Inc.
Downers Grove, Ill. 60515
WKA1 11/25/13
UNIV RCV EMI RUN 20
SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
MANUFACTURER : SNAP-ON NEXIQ TECHNOLOGIES
MODEL No. : CUMMINS INLINE 7
SERIAL No. : 104
MODE : Tx @ 2422MHz (Ch. 3)
SCANS/BAND : 1
NOTES : 802.11 N 150Mb/SEC
TEST DATE : 20 Nov 2015 15:36:06 M. LONGINOTTI
ANT. POLARIZ. : HORIZONTAL
PEAK DETECTOR TRACE
LEVEL dBuV/m
120
105
90
75
60
45
30
15
0
100
START = 30
FREQUENCY MHz
STOP = 1000

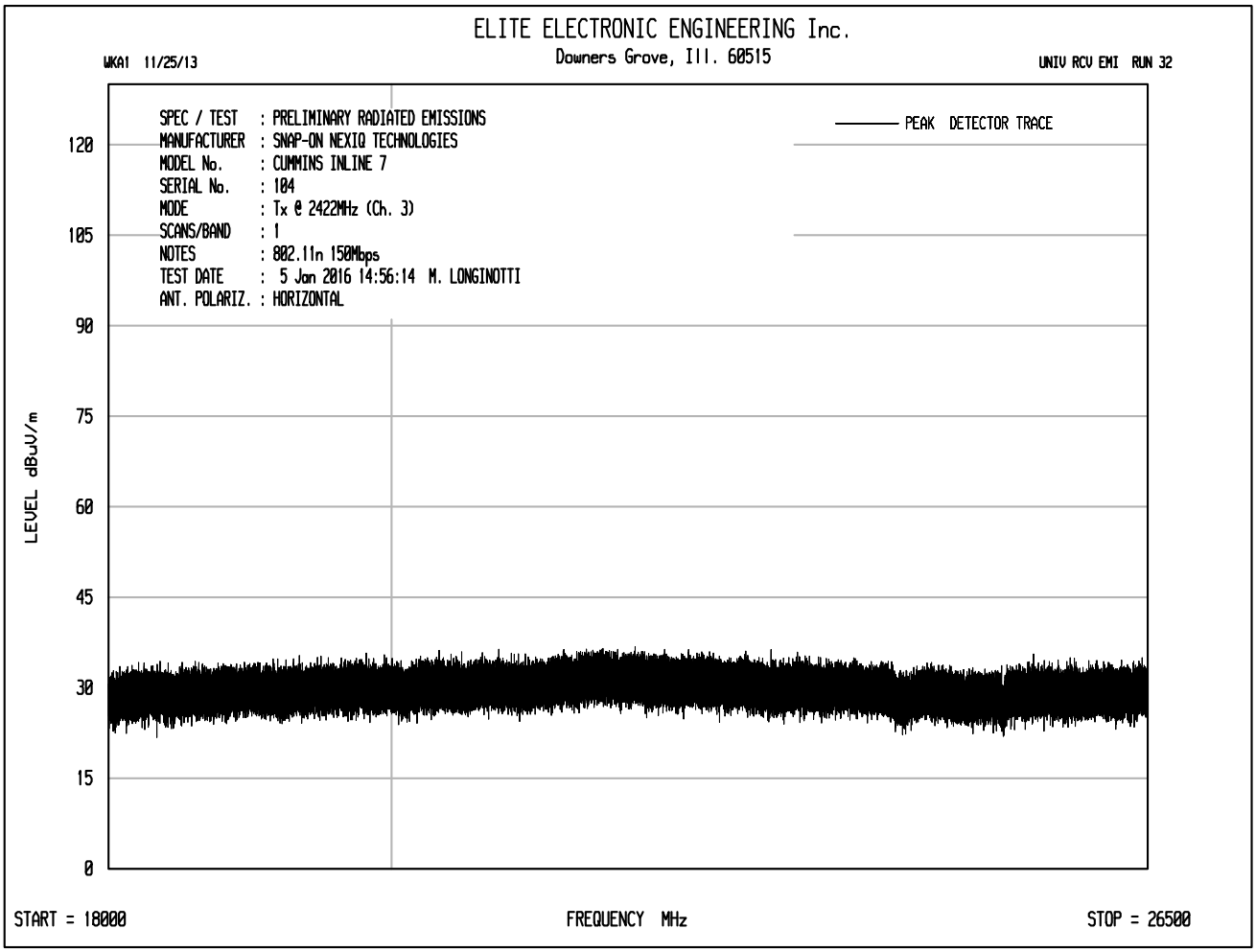

ELITE ELECTRONIC ENGINEERING Inc.
Downers Grove, Ill. 60515
WKA1 11/25/13
UNIV RCV EMI RUN 120
SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
MANUFACTURER : SNAP-ON NEXIQ TECHNOLOGIES
MODEL No. : CUMMINS INLINE 7
SERIAL No. : 104
MODE : Tx @ 2422MHz (Ch. 3)
SCANS/BAND : 1
NOTES : 802.11n 150Mbps
TEST DATE : 25 Nov 2015 11:14:03 M. LONGINOTTI
ANT. POLARIZ. : HORIZONTAL
PEAK DETECTOR TRACE
LEVEL dBuV/m
120
105
90
75
60
45
30
15
0
START = 1000
FREQUENCY MHz
STOP = 4500

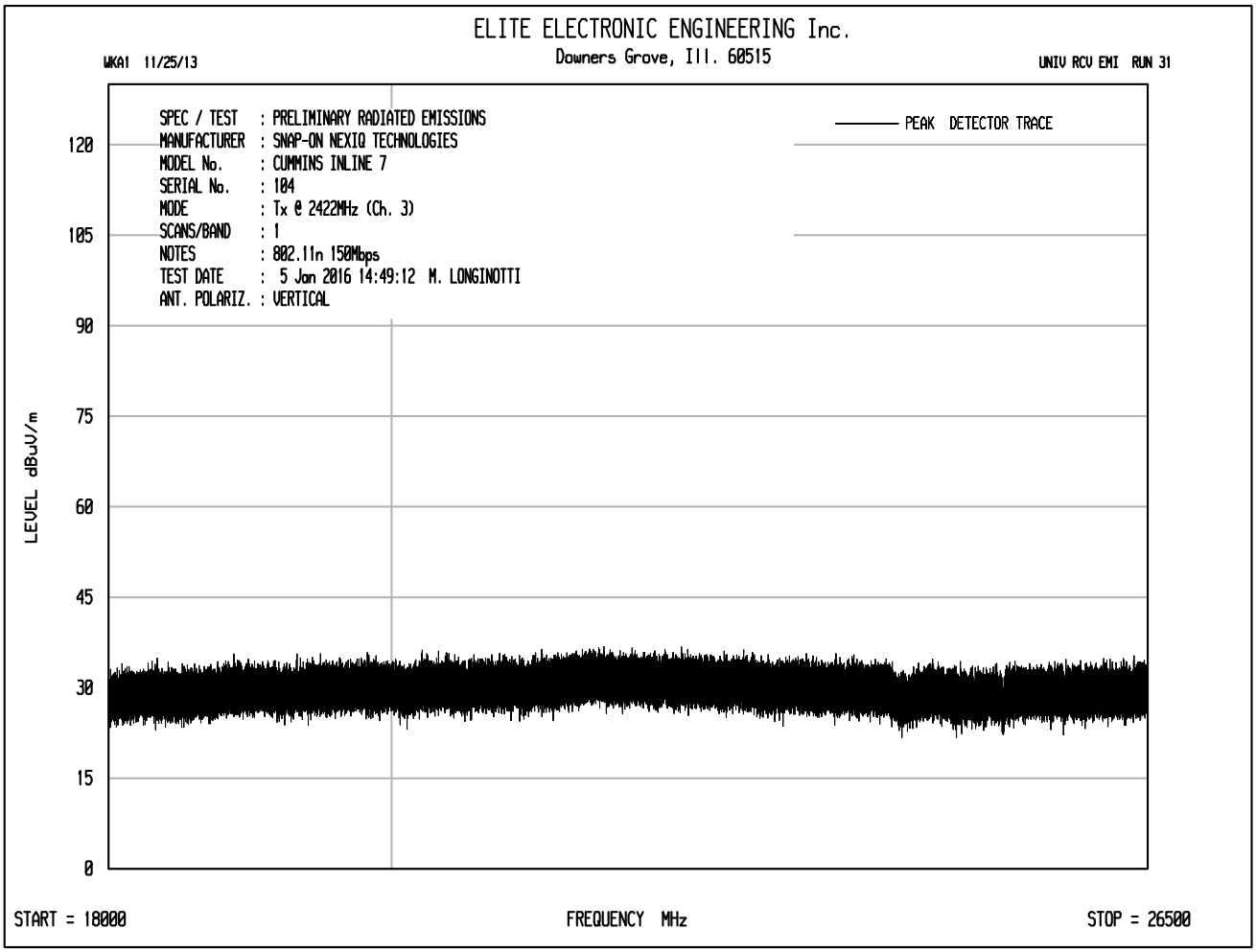

ELITE ELECTRONIC ENGINEERING Inc.
Downers Grove, Ill. 60515
WKA1 11/25/13
UNIV RCV EMI RUN 21
SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
MANUFACTURER : SNAP-ON NEXIQ TECHNOLOGIES
MODEL No. : CUMMINS INLINE 7
SERIAL No. : 104
MODE : Tx @ 2422MHz (Ch. 3)
SCANS/BAND : 1
NOTES : 802.11n 150Mbps
TEST DATE : 1 Dec 2015 09:51:11 M. LONGINOTTI
ANT. POLARIZ. : HORIZONTAL
PEAK DETECTOR TRACE
LEVEL dBuV/m
120
105
90
75
60
45
30
15
0
10000
START = 4500
FREQUENCY MHz
STOP = 18000


ELITE ELECTRONIC ENGINEERING Inc.
Downers Grove, Ill. 60515
WKA1 11/25/13
UNIV RCV EMI RUN 21
SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
MANUFACTURER : SNAP-ON NEXIQ TECHNOLOGIES
MODEL No. : CUMMINS INLINE 7
SERIAL No. : 104
MODE : Tx @ 2422MHz (Ch. 3)
SCANS/BAND : 1
NOTES : 802.11 N 150Mb/SEC
TEST DATE : 20 Nov 2015 15:37:48 M. LONGINOTTI
ANT. POLARIZ. : VERTICAL
PEAK DETECTOR TRACE
LEVEL dBuV/m
120
105
90
75
60
45
30
15
0
100
START = 30
FREQUENCY MHz
STOP = 1000


ELITE ELECTRONIC ENGINEERING Inc.
Downers Grove, Ill. 60515
WKA1 11/25/13
UNIV RCV EMI RUN 119
SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
MANUFACTURER : SNAP-ON NEXIQ TECHNOLOGIES
MODEL No. : CUMMINS INLINE 7
SERIAL No. : 104
MODE : Tx @ 2422MHz (Ch. 3)
SCANS/BAND : 1
NOTES : 802.11n 150Mbps
TEST DATE : 25 Nov 2015 11:11:49 M. LONGINOTTI
ANT. POLARIZ. : VERTICAL
PEAK DETECTOR TRACE
LEVEL dBuV/m
120
105
90
75
60
45
30
15
0
START = 1000
FREQUENCY MHz
STOP = 4500


ELITE ELECTRONIC ENGINEERING Inc.
Downers Grove, Ill. 60515
WKA1 11/25/13
UNIV RCV EMI RUN 20
SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
MANUFACTURER : SNAP-ON NEXIQ TECHNOLOGIES
MODEL No. : CUMMINS INLINE 7
SERIAL No. : 104
MODE : Tx @ 2422MHz (Ch. 3)
SCANS/BAND : 1
NOTES : 802.11n 150Mbps
TEST DATE : 1 Dec 2015 09:46:50 M. LONGINOTTI
ANT. POLARIZ. : VERTICAL
PEAK DETECTOR TRACE
LEVEL dBuV/m
120
105
90
75
60
45
30
15
0
10000
START = 4500
FREQUENCY MHz
STOP = 18000


ELITE ELECTRONIC ENGINEERING Inc.
Downers Grove, Ill. 60515
WKA1 11/25/13
UNIV RCV EMI RUN 32
SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
MANUFACTURER : SNAP-ON NEXIQ TECHNOLOGIES
MODEL No. : CUMMINS INLINE 7
SERIAL No. : 104
MODE : Tx @ 2422MHz (Ch. 3)
SCANS/BAND : 1
NOTES : 802.11n 150Mbps
TEST DATE : 5 Jan 2016 14:56:14 M. LONGINOTTI
ANT. POLARIZ. : HORIZONTAL
PEAK DETECTOR TRACE
LEVEL dBuV/m
120
105
90
75
60
45
30
15
0
START = 18000
FREQUENCY MHz
STOP = 26500


ELITE ELECTRONIC ENGINEERING Inc.
Downers Grove, Ill. 60515
WKA1 11/25/13
UNIV RCV EMI RUN 31
SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
MANUFACTURER : SNAP-ON NEXIQ TECHNOLOGIES
MODEL No. : CUMMINS INLINE 7
SERIAL No. : 104
MODE : Tx @ 2422MHz (Ch. 3)
SCANS/BAND : 1
NOTES : 802.11n 150Mbps
TEST DATE : 5 Jan 2016 14:49:12 M. LONGINOTTI
ANT. POLARIZ. : VERTICAL
PEAK DETECTOR TRACE
LEVEL dBuV/m
120
105
90
75
60
45
30
15
0
START = 18000
FREQUENCY MHz
STOP = 26500

Manufacturer : Snap-On Nexiq Technologies
Model No. : Cummins INLINE 7
Serial No. : 104
Date Tested : November 20, 2015 through January 5, 2016
Test Performed : Radiated Spurious Emissions in Restricted Bands
Mode : Transmit at 2422MHz, 802.11n 150 Mb/sec
Test Distance : 3 meters
Notes : Peak Readings with a 1MHz RBW

Freq. MHz	Ant Pol	Meter Reading (dBuV)	Ambient	CBL Fac (dB)	Ant Fac (dB)	Pre Amp (dB)	Peak Total dBuV/m at 3m	Peak Total uV/m at 3 m	Peak Limit uV/m at 3 m	Margin (dB)
4844.00	H	49.1	Ambient	4.9	34.2	-39.3	48.8	276.7	5000.0	-25.1
4844.00	V	49.2	Ambient	4.9	34.2	-39.3	48.9	279.9	5000.0	-25.0
7266.00	H	48.8	Ambient	6.1	36.1	-39.4	51.6	381.5	5000.0	-22.4
7266.00	V	48.8	Ambient	6.1	36.1	-39.4	51.6	381.5	5000.0	-22.4
12110.00	H	49.2	Ambient	8.0	39.2	-39.1	57.3	730.3	5000.0	-16.7
12110.00	V	48.4	Ambient	8.0	39.2	-39.1	56.5	666.0	5000.0	-17.5
19376.00	H	31.7	Ambient	2.2	40.4	-28.4	45.9	196.5	5000.0	-28.1
19376.00	V	32.2	Ambient	2.2	40.4	-28.4	46.4	208.1	5000.0	-27.6

Peak Total (dBuV/m) = Meter Reading (dBuV) + CBL Fac (dB) + Ant Fac (dB) + Pre Amp (dB)

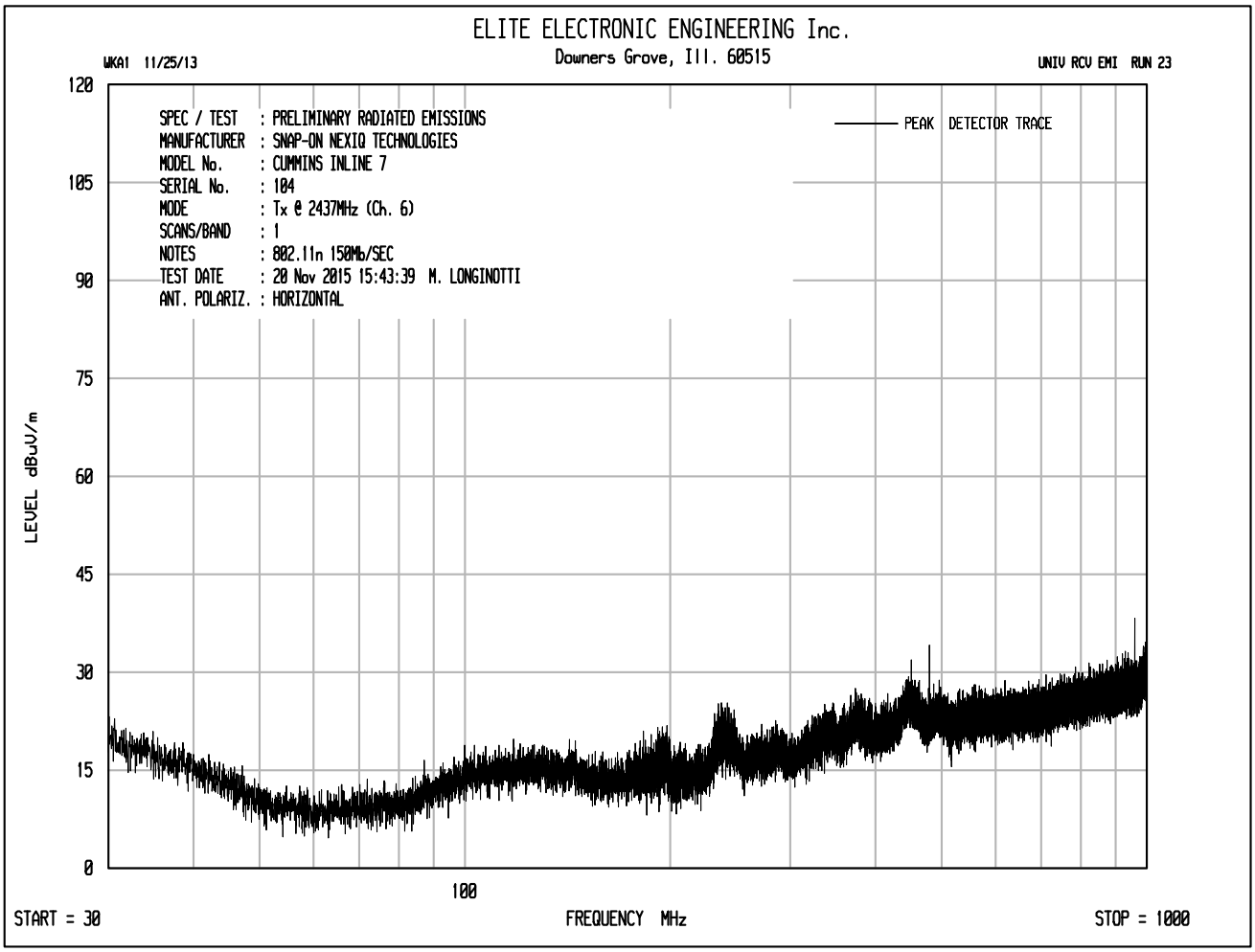
Peak Total (uV/m) = 10^(Peak Total (dBuV/m)/20)

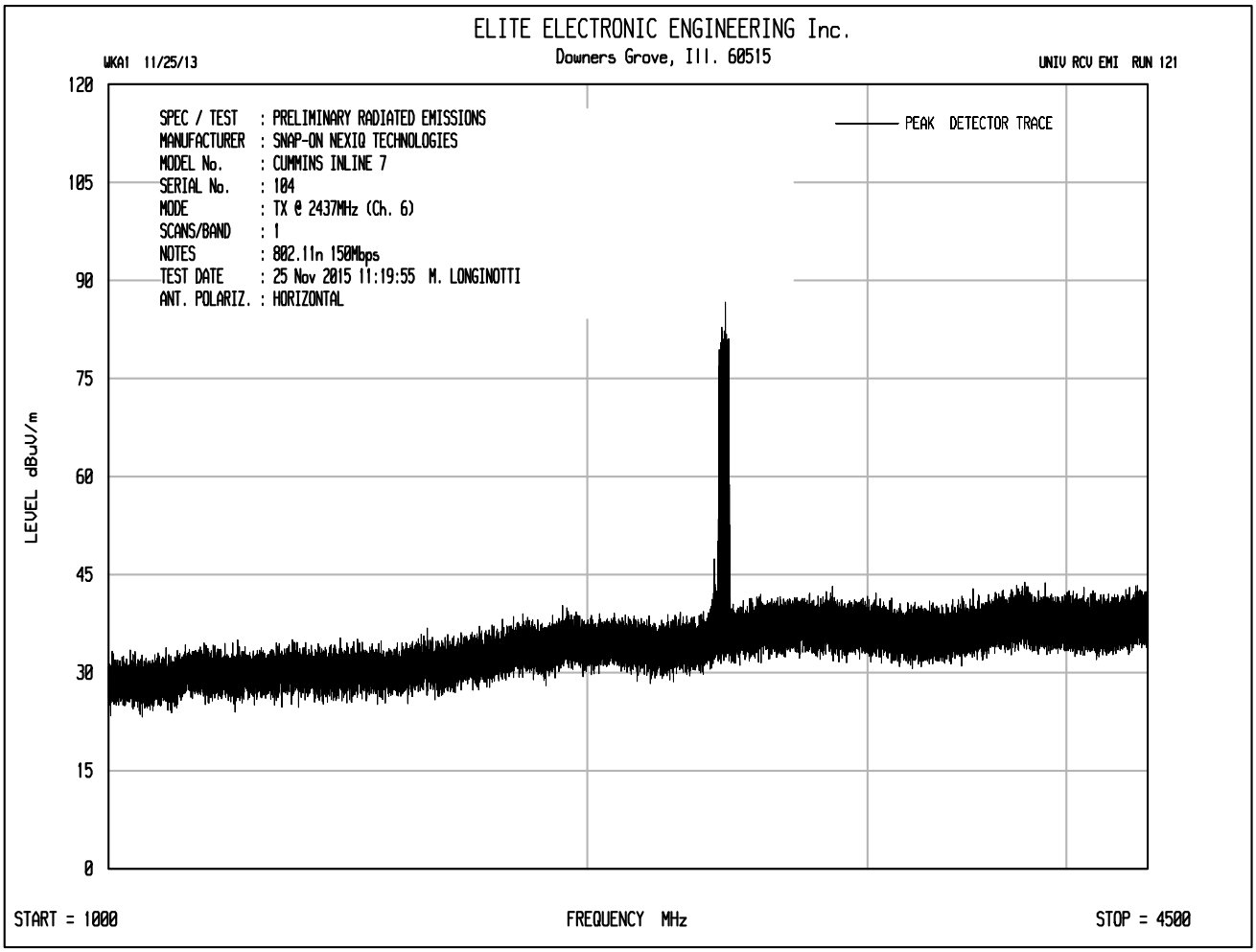
Manufacturer : Snap-On Nexiq Technologies
Model No. : Cummins INLINE 7
Serial No. : 104
Date Tested : November 20, 2015 through January 5, 2016
Test Performed : Radiated Spurious Emissions in Restricted Bands
Mode : Transmit at 2422MHz, 802.11n 150 Mb/sec
Test Distance : 3 meters
Notes : Average Readings with a 1MHz RBW

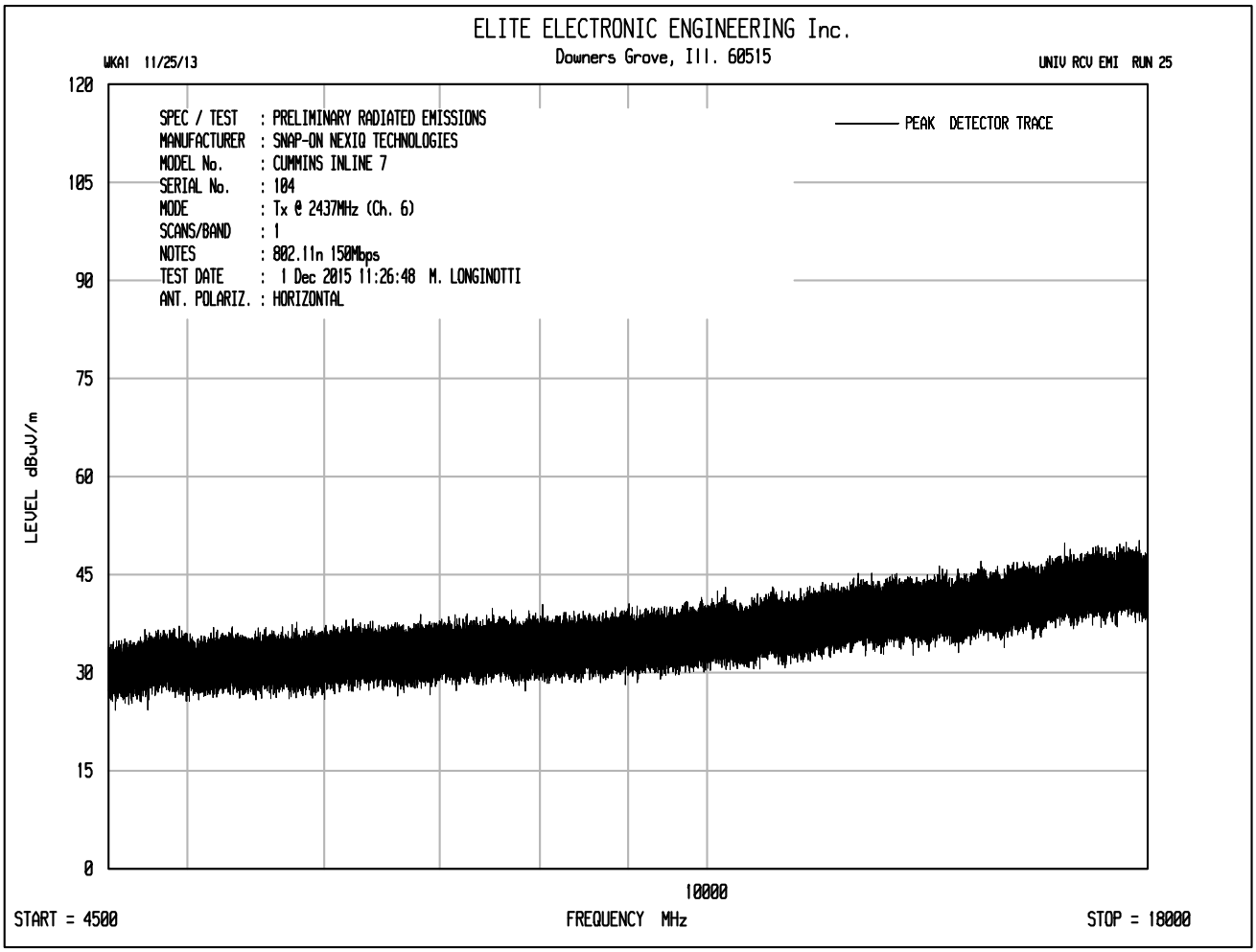
Freq. MHz	Ant Pol	Meter Reading (dBuV)	Ambient	CBL Fac (dB)	Ant Fac (dB)	Pre Amp (dB)	Average Total dBuV/m at 3m	Average Total uV/m at 3 m	Average Limit uV/m at 3 m	Margin (dB)
4844.00	H	36.1	Ambient	4.9	34.2	-39.3	35.8	61.9	500.0	-18.1
4844.00	V	36.1	Ambient	4.9	34.2	-39.3	35.8	61.9	500.0	-18.1
7266.00	H	36.30	Ambient	6.1	36.1	-39.4	39.1	90.5	500.0	-14.9
7266.00	V	36.3	Ambient	6.1	36.1	-39.4	39.1	90.5	500.0	-14.9
12110.00	H	35.8	Ambient	8.0	39.2	-39.1	43.9	156.1	500.0	-10.1
12110.00	V	35.9	Ambient	8.0	39.2	-39.1	44.0	157.9	500.0	-10.0
19376.00	H	19.3	Ambient	2.2	40.4	-28.4	33.5	47.1	500.0	-20.5
19376.00	V	19.4	Ambient	2.2	40.4	-28.4	33.6	47.7	500.0	-20.4

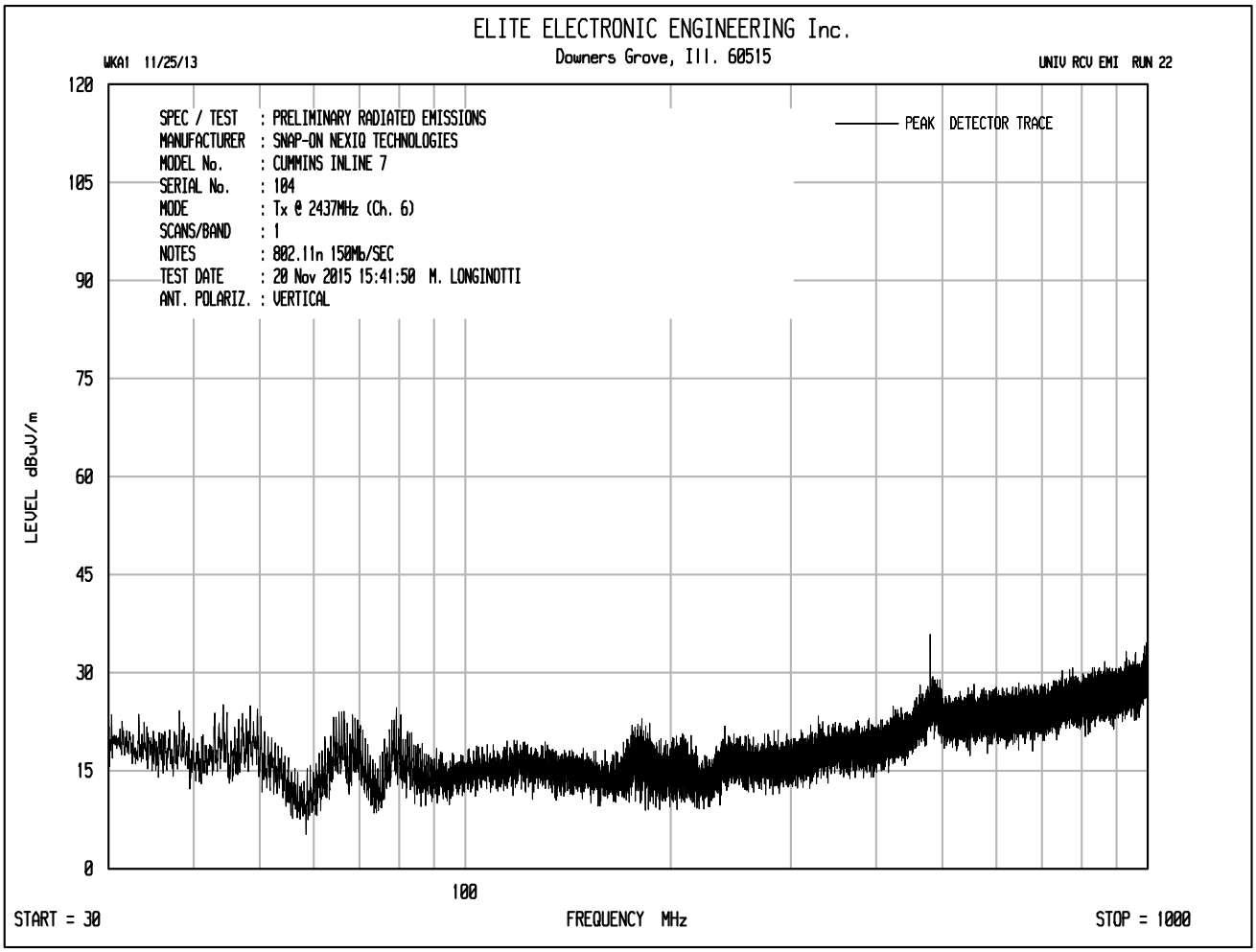
Average Total (dBuV/m) = Meter Reading (dBuV) + CBL Fac (dB) + Ant Fac (dB) + Pre Amp (dB)

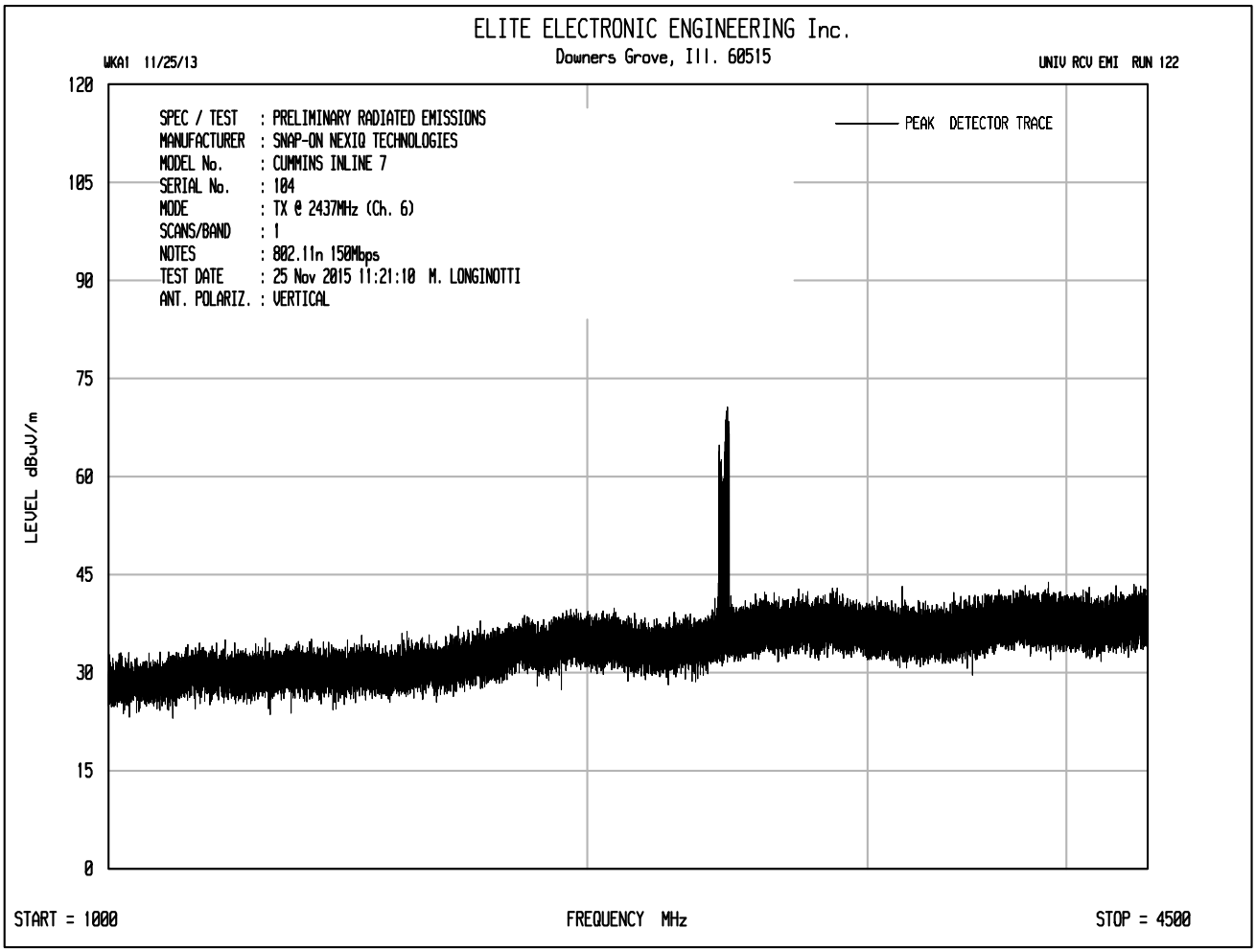
Average Total (uV/m) = 10^(Peak Total (dBuV/m)/20)

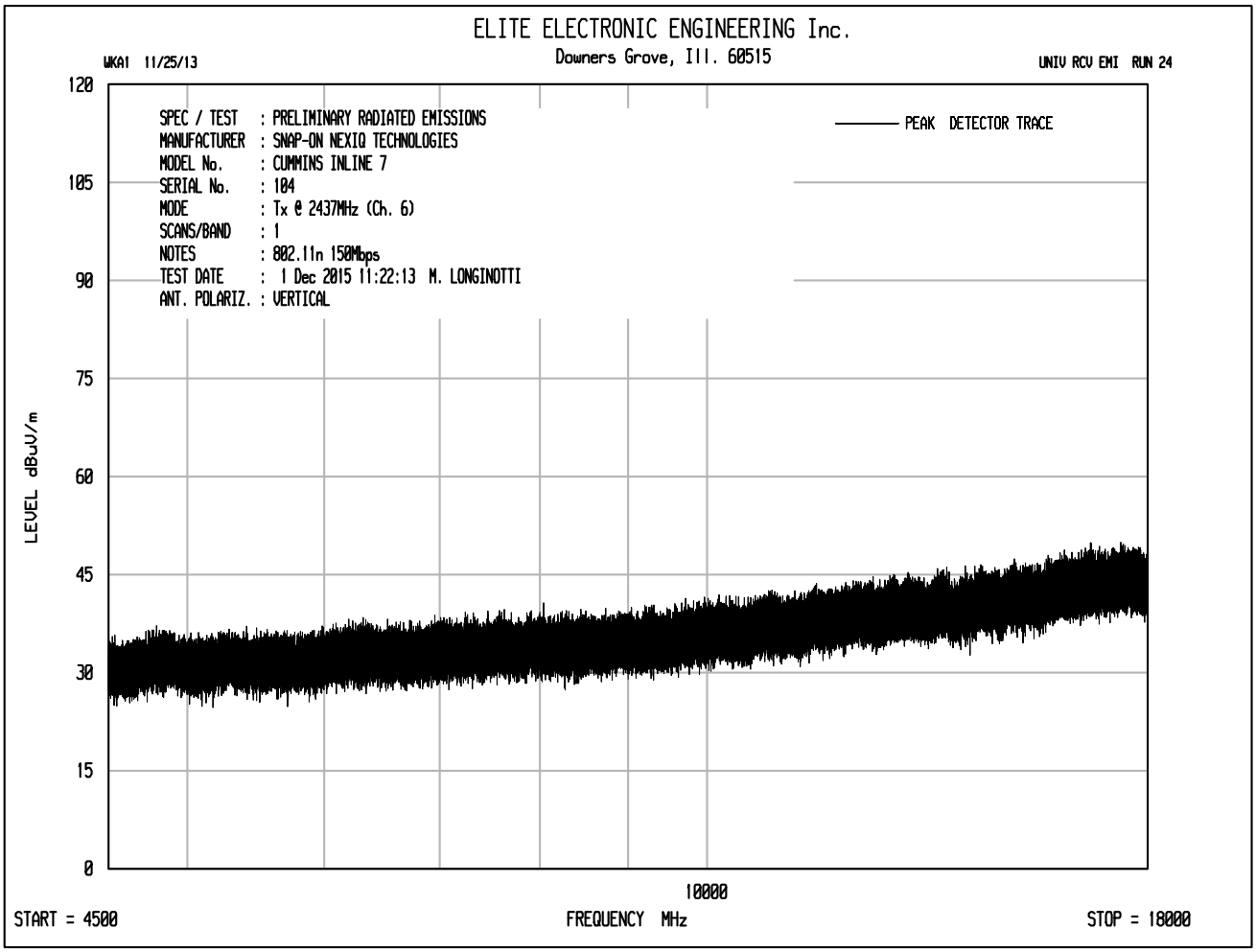

ELITE ELECTRONIC ENGINEERING Inc.
Downers Grove, Ill. 60515
WKA1 11/25/13
UNIV RCV EMI RUN 23
SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
MANUFACTURER : SNAP-ON NEXIQ TECHNOLOGIES
MODEL No. : CUMMINS INLINE 7
SERIAL No. : 104
MODE : Tx @ 2437MHz (Ch. 6)
SCANS/BAND : 1
NOTES : 802.11n 150Mb/SEC
TEST DATE : 20 Nov 2015 15:43:39 M. LONGINOTTI
ANT. POLARIZ. : HORIZONTAL
PEAK DETECTOR TRACE
LEVEL dBuV/m
120
105
90
75
60
45
30
15
0
100
START = 30
FREQUENCY MHz
STOP = 1000

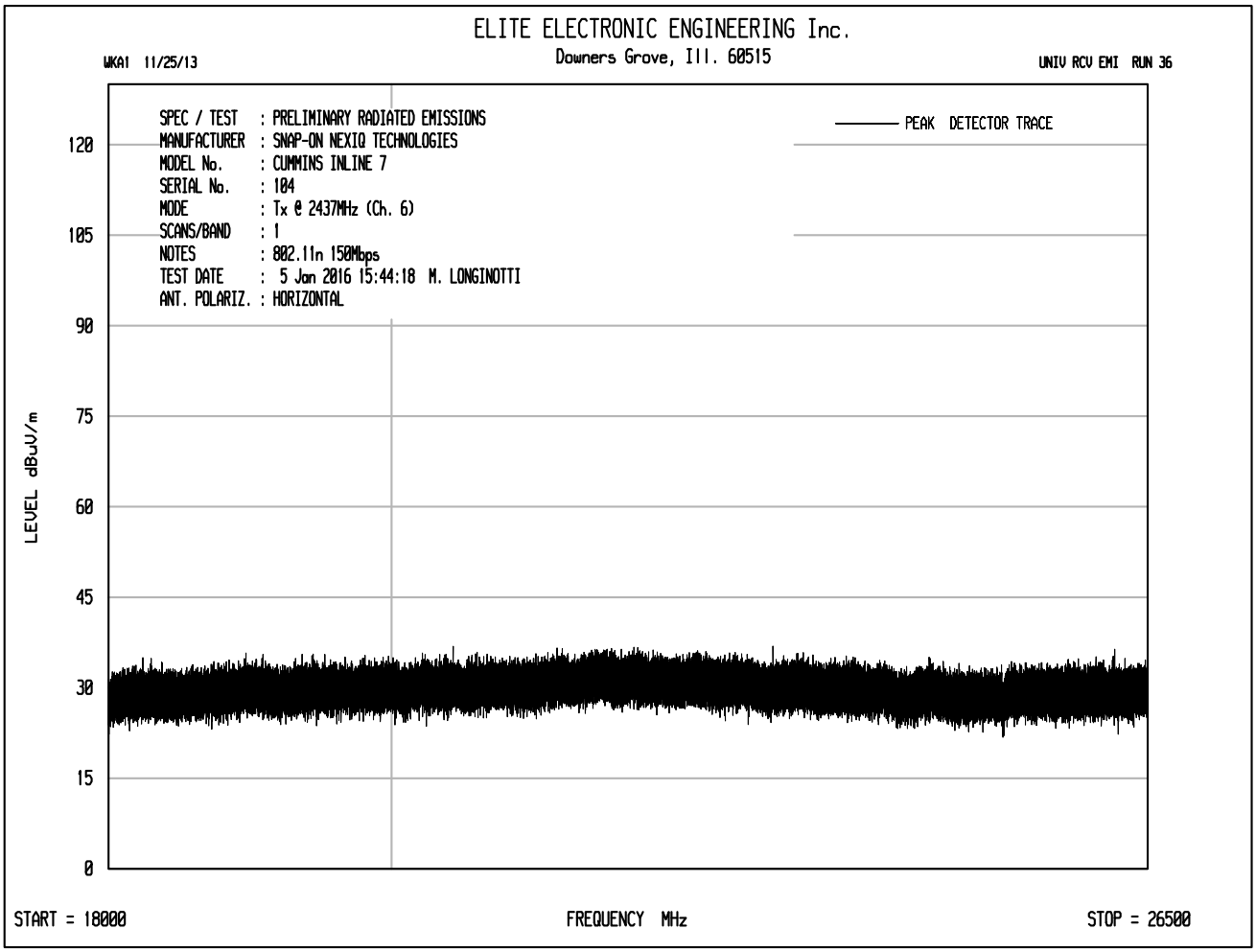

ELITE ELECTRONIC ENGINEERING Inc.
Downers Grove, Ill. 60515
WKA1 11/25/13
UNIV RCV EMI RUN 121
SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
MANUFACTURER : SNAP-ON NEXIQ TECHNOLOGIES
MODEL No. : CUMMINS INLINE 7
SERIAL No. : 104
MODE : TX @ 2437MHz (Ch. 6)
SCANS/BAND : 1
NOTES : 802.11n 150Mbps
TEST DATE : 25 Nov 2015 11:19:55 M. LONGINOTTI
ANT. POLARIZ. : HORIZONTAL
PEAK DETECTOR TRACE
LEVEL dBuV/m
120
105
90
75
60
45
30
15
0
START = 1000
FREQUENCY MHz
STOP = 4500

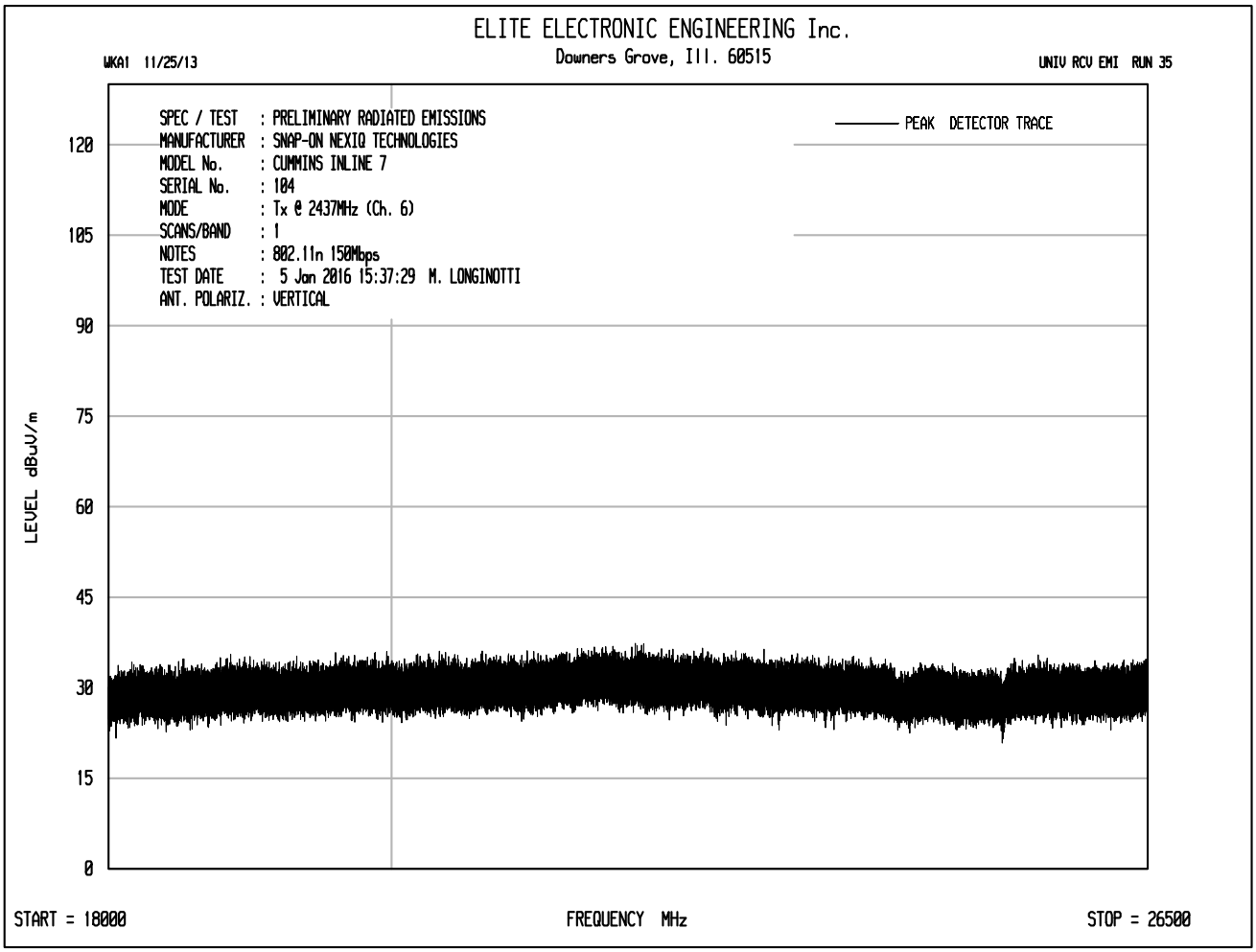

ELITE ELECTRONIC ENGINEERING Inc.
Downers Grove, Ill. 60515
WKA1 11/25/13
UNIV RCV EMI RUN 25
SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
MANUFACTURER : SNAP-ON NEXIQ TECHNOLOGIES
MODEL No. : CUMMINS INLINE 7
SERIAL No. : 104
MODE : Tx @ 2437MHz (Ch. 6)
SCANS/BAND : 1
NOTES : 802.11n 150Mbps
TEST DATE : 1 Dec 2015 11:26:48 M. LONGINOTTI
ANT. POLARIZ. : HORIZONTAL
PEAK DETECTOR TRACE
LEVEL dBuV/m
120
105
90
75
60
45
30
15
0
10000
START = 4500
FREQUENCY MHz
STOP = 18000


ELITE ELECTRONIC ENGINEERING Inc.
Downers Grove, Ill. 60515
WKA1 11/25/13
UNIV RCV EMI RUN 22
SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
MANUFACTURER : SNAP-ON NEXIQ TECHNOLOGIES
MODEL No. : CUMMINS INLINE 7
SERIAL No. : 104
MODE : Tx @ 2437MHz (Ch. 6)
SCANS/BAND : 1
NOTES : 802.11n 150Mb/SEC
TEST DATE : 20 Nov 2015 15:41:50 M. LONGINOTTI
ANT. POLARIZ. : VERTICAL
PEAK DETECTOR TRACE
LEVEL dBuV/m
120
105
90
75
60
45
30
15
0
100
START = 30
FREQUENCY MHz
STOP = 1000


ELITE ELECTRONIC ENGINEERING Inc.
Downers Grove, Ill. 60515
WKA1 11/25/13
UNIV RCV EMI RUN 122
SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
MANUFACTURER : SNAP-ON NEXIQ TECHNOLOGIES
MODEL No. : CUMMINS INLINE 7
SERIAL No. : 104
MODE : TX @ 2437MHz (Ch. 6)
SCANS/BAND : 1
NOTES : 802.11n 150Mbps
TEST DATE : 25 Nov 2015 11:21:10 M. LONGINOTTI
ANT. POLARIZ. : VERTICAL
PEAK DETECTOR TRACE
LEVEL dBuV/m
120
105
90
75
60
45
30
15
0
START = 1000
FREQUENCY MHz
STOP = 4500


ELITE ELECTRONIC ENGINEERING Inc.
Downers Grove, Ill. 60515
WKA1 11/25/13
UNIV RCV EMI RUN 24
SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
MANUFACTURER : SNAP-ON NEXIQ TECHNOLOGIES
MODEL No. : CUMMINS INLINE 7
SERIAL No. : 104
MODE : Tx @ 2437MHz (Ch. 6)
SCANS/BAND : 1
NOTES : 802.11n 150Mbps
TEST DATE : 1 Dec 2015 11:22:13 M. LONGINOTTI
ANT. POLARIZ. : VERTICAL
PEAK DETECTOR TRACE
LEVEL dBuV/m
120
105
90
75
60
45
30
15
0
10000
START = 4500
FREQUENCY MHz
STOP = 18000


ELITE ELECTRONIC ENGINEERING Inc.
Downers Grove, Ill. 60515
WKA1 11/25/13
UNIV RCV EMI RUN 36
SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
MANUFACTURER : SNAP-ON NEXIQ TECHNOLOGIES
MODEL No. : CUMMINS INLINE 7
SERIAL No. : 104
MODE : Tx @ 2437MHz (Ch. 6)
SCANS/BAND : 1
NOTES : 802.11n 150Mbps
TEST DATE : 5 Jan 2016 15:44:18 M. LONGINOTTI
ANT. POLARIZ. : HORIZONTAL
PEAK DETECTOR TRACE
LEVEL dBuV/m
120
105
90
75
60
45
30
15
0
START = 18000
FREQUENCY MHz
STOP = 26500


ELITE ELECTRONIC ENGINEERING Inc.
Downers Grove, Ill. 60515
WKA1 11/25/13
UNIV RCV EMI RUN 35
SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
MANUFACTURER : SNAP-ON NEXIQ TECHNOLOGIES
MODEL No. : CUMMINS INLINE 7
SERIAL No. : 104
MODE : Tx @ 2437MHz (Ch. 6)
SCANS/BAND : 1
NOTES : 802.11n 150Mbps
TEST DATE : 5 Jan 2016 15:37:29 M. LONGINOTTI
ANT. POLARIZ. : VERTICAL
PEAK DETECTOR TRACE
LEVEL dBuV/m
120
105
90
75
60
45
30
15
0
START = 18000
FREQUENCY MHz
STOP = 26500

Manufacturer : Snap-On Nexiq Technologies
Model No. : Cummins INLINE 7
Serial No. : 104
Date Tested : November 20, 2015 through January 5, 2016
Test Performed : Radiated Spurious Emissions in Restricted Bands
Mode : Transmit at 2437MHz, 802.11n 150 Mb/sec
Test Distance : 3 meters
Notes : Peak Readings with a 1MHz RBW

Freq. MHz	Ant Pol	Meter Reading (dBuV)	Ambient	CBL Fac (dB)	Ant Fac (dB)	Pre Amp (dB)	Peak Total dBuV/m at 3m	Peak Total uV/m at 3 m	Peak Limit uV/m at 3 m	Margin (dB)
4874.00	H	49.7	Ambient	4.9	34.2	-39.3	49.4	296.6	5000.0	-24.5
4874.00	V	49.1	Ambient	4.9	34.2	-39.3	48.8	276.8	5000.0	-25.1
7311.00	H	48.7	Ambient	6.2	36.1	-39.4	51.6	379.6	5000.0	-22.4
7311.00	V	49.2	Ambient	6.2	36.1	-39.4	52.1	402.1	5000.0	-21.9
12185.00	H	49.2	Ambient	8.0	39.2	-39.1	57.4	737.7	5000.0	-16.6
12185.00	V	48.5	Ambient	8.0	39.2	-39.1	56.7	680.6	5000.0	-17.3
19496.00	H	31.5	Ambient	2.2	40.4	-28.6	45.5	189.1	5000.0	-28.4
19496.00	V	31.5	Ambient	2.2	40.4	-28.6	45.5	189.1	5000.0	-28.4

Peak Total (dBuV/m) = Meter Reading (dBuV) + CBL Fac (dB) + Ant Fac (dB) + Pre Amp (dB)

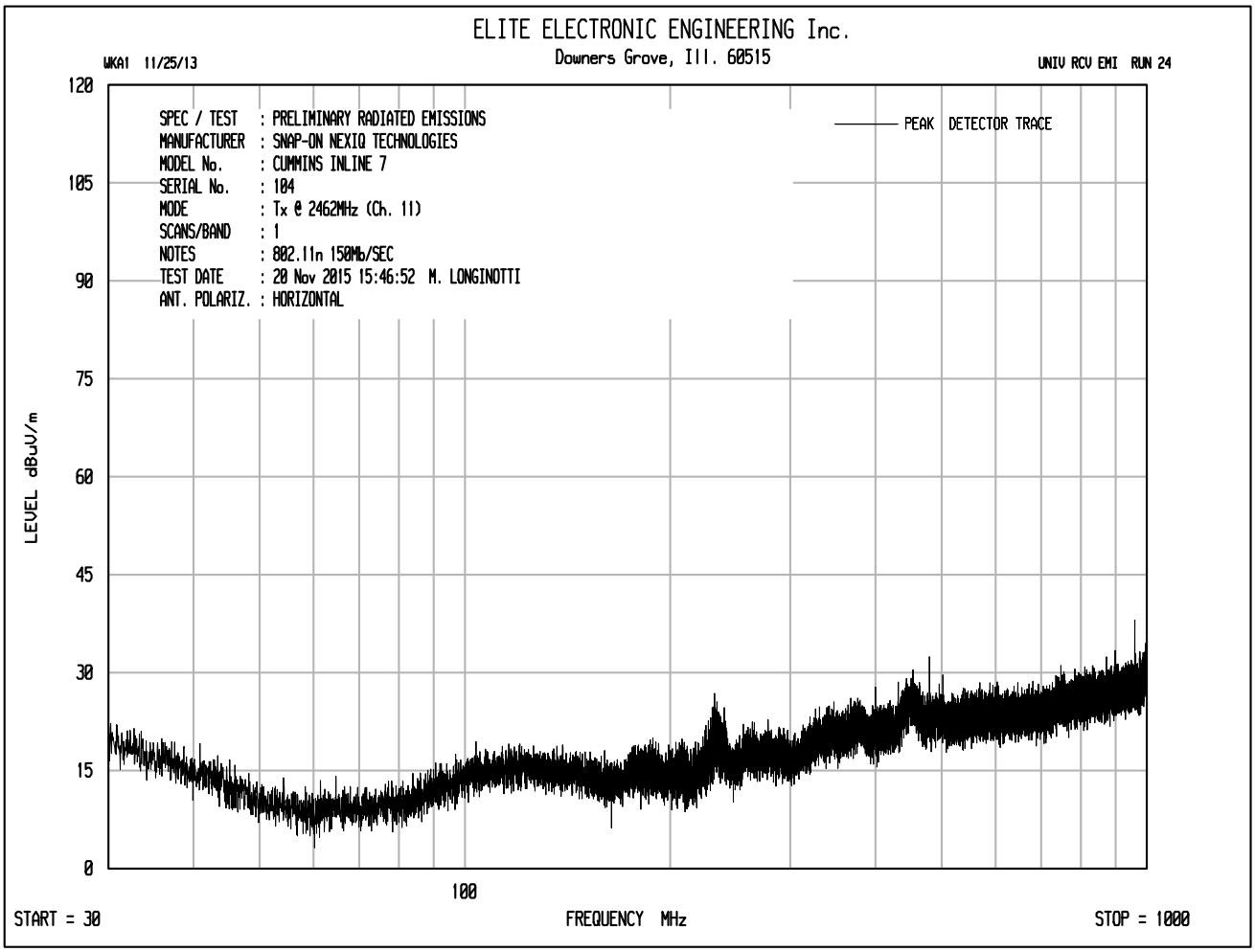
Peak Total (uV/m) = 10^(Peak Total (dBuV/m)/20)

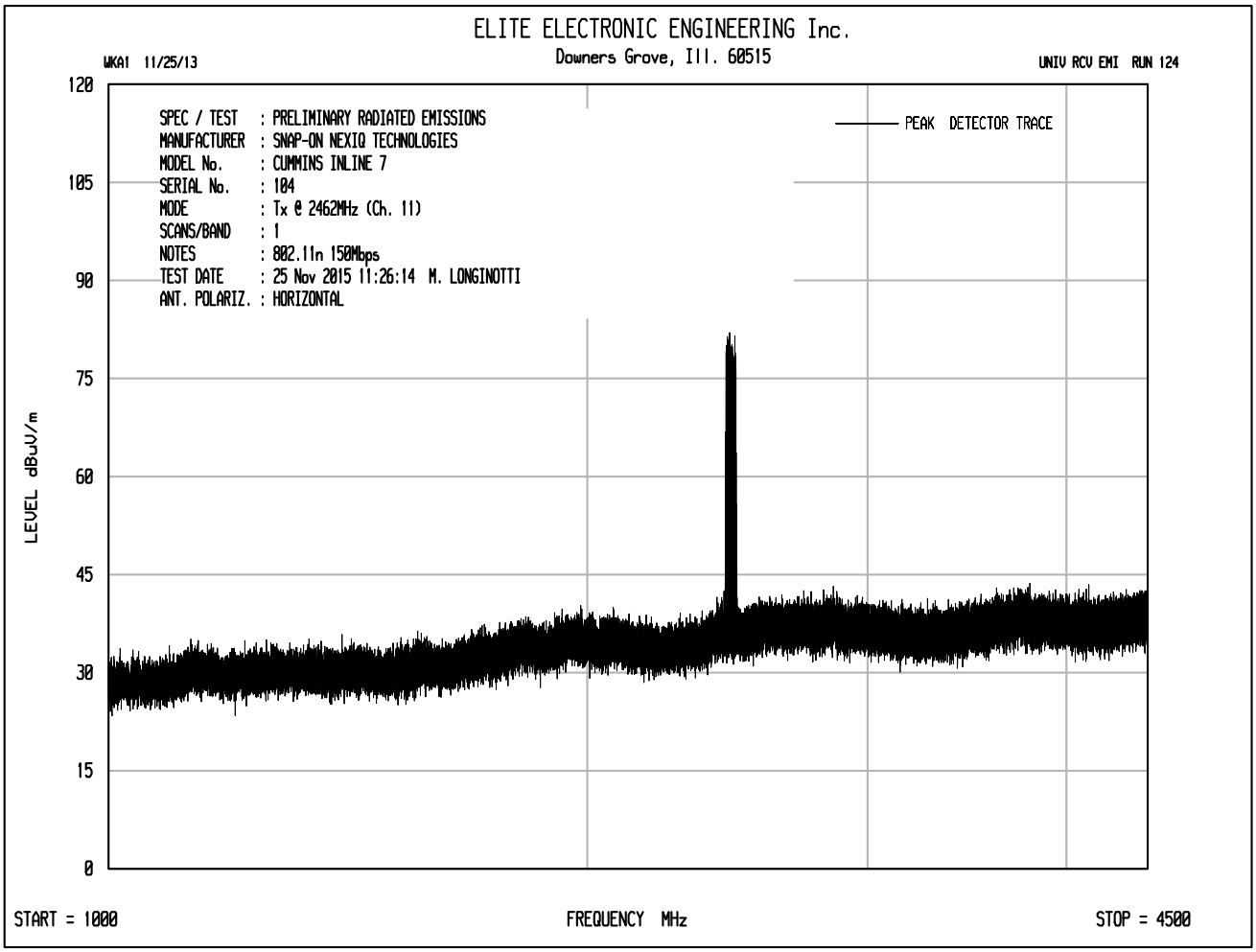
Manufacturer : Snap-On Nexiq Technologies
Model No. : Cummins INLINE 7
Serial No. : 104
Date Tested : November 20, 2015 through January 5, 2016
Test Performed : Radiated Spurious Emissions in Restricted Bands
Mode : Transmit at 2437MHz, 802.11n 150 Mb/sec
Test Distance : 3 meters
Notes : Average Readings with a 1MHz RBW

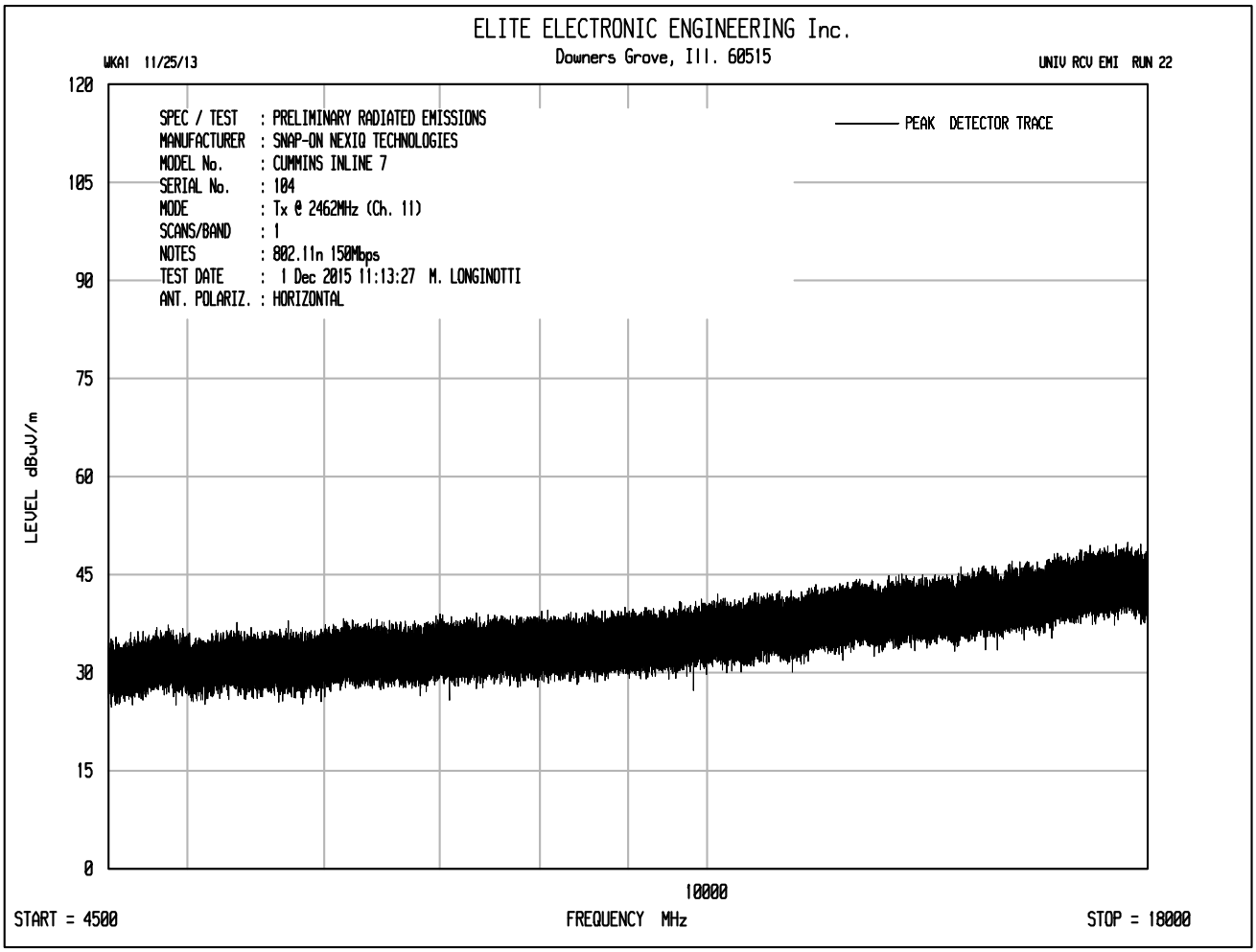
Freq. MHz	Ant Pol	Meter Reading (dBuV)	Ambient	CBL Fac (dB)	Ant Fac (dB)	Pre Amp (dB)	Average Total dBuV/m at 3m	Average Total uV/m at 3 m	Average Limit uV/m at 3 m	Margin (dB)
4874.00	H	36.4	Ambient	4.9	34.2	-39.3	36.1	64.1	500.0	-17.8
4874.00	V	34.4	Ambient	4.9	34.2	-39.3	34.1	51.0	500.0	-19.8
7311.00	H	36.40	Ambient	6.2	36.1	-39.4	39.3	92.1	500.0	-14.7
7311.00	V	36.4	Ambient	6.2	36.1	-39.4	39.3	92.1	500.0	-14.7
12185.00	H	36.0	Ambient	8.0	39.2	-39.1	44.2	161.4	500.0	-9.8
12185.00	V	36.0	Ambient	8.0	39.2	-39.1	44.2	161.4	500.0	-9.8
19496.00	H	19.3	Ambient	2.2	40.4	-28.6	33.3	46.4	500.0	-20.6
19496.00	V	19.5	Ambient	2.2	40.4	-28.6	33.5	47.5	500.0	-20.4

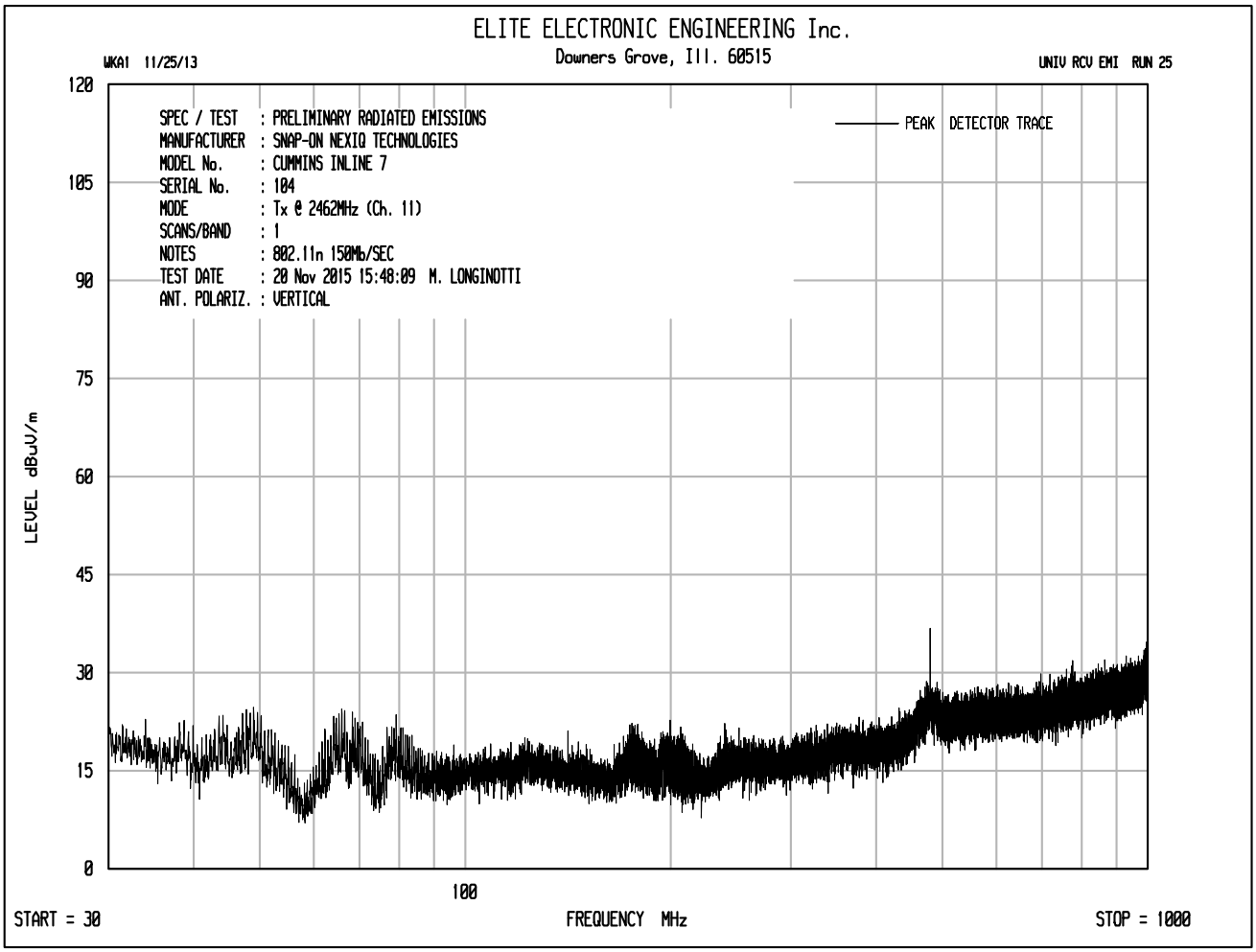
Average Total (dBuV/m) = Meter Reading (dBuV) + CBL Fac (dB) + Ant Fac (dB) + Pre Amp (dB)

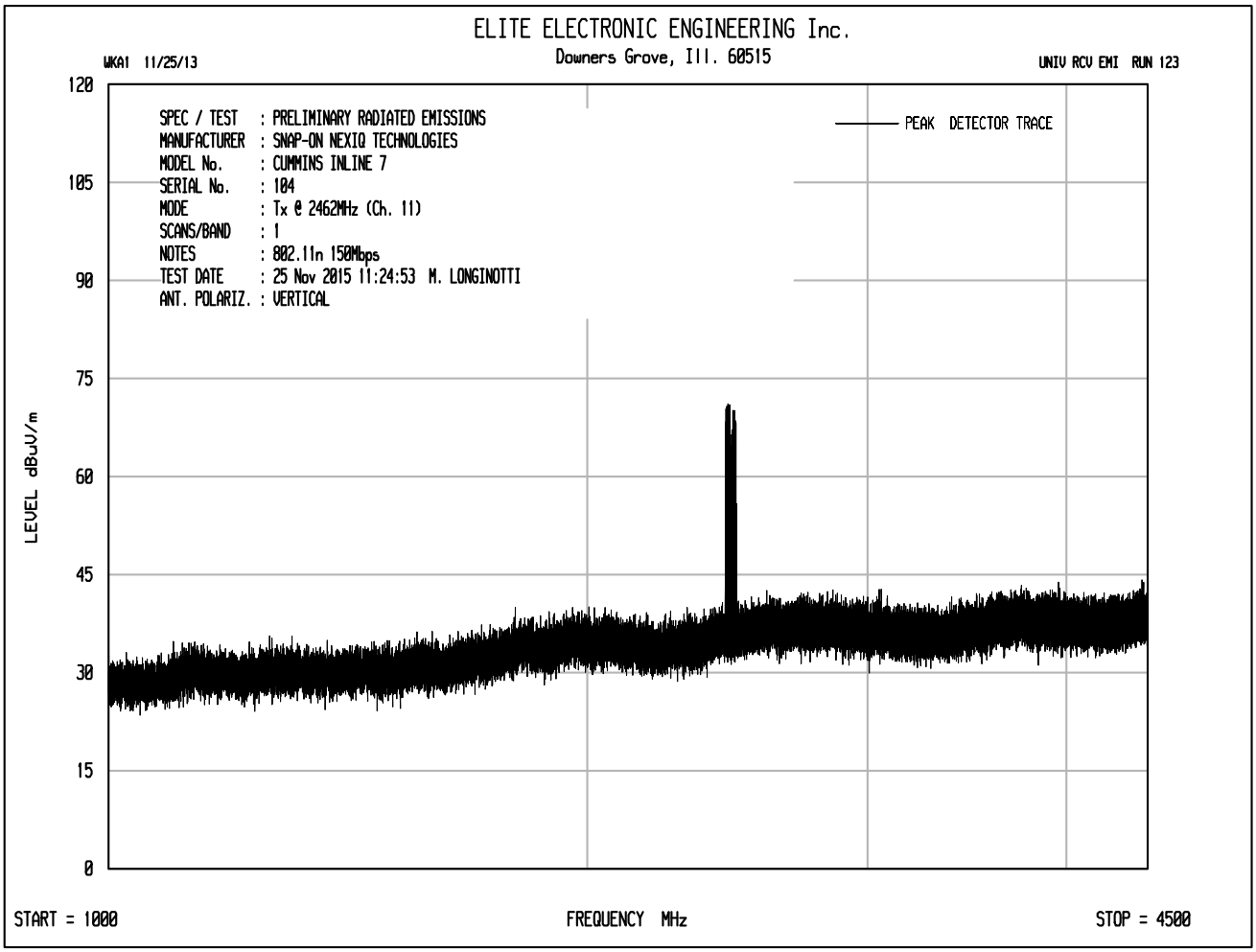
Average Total (uV/m) = 10^(Peak Total (dBuV/m)/20)

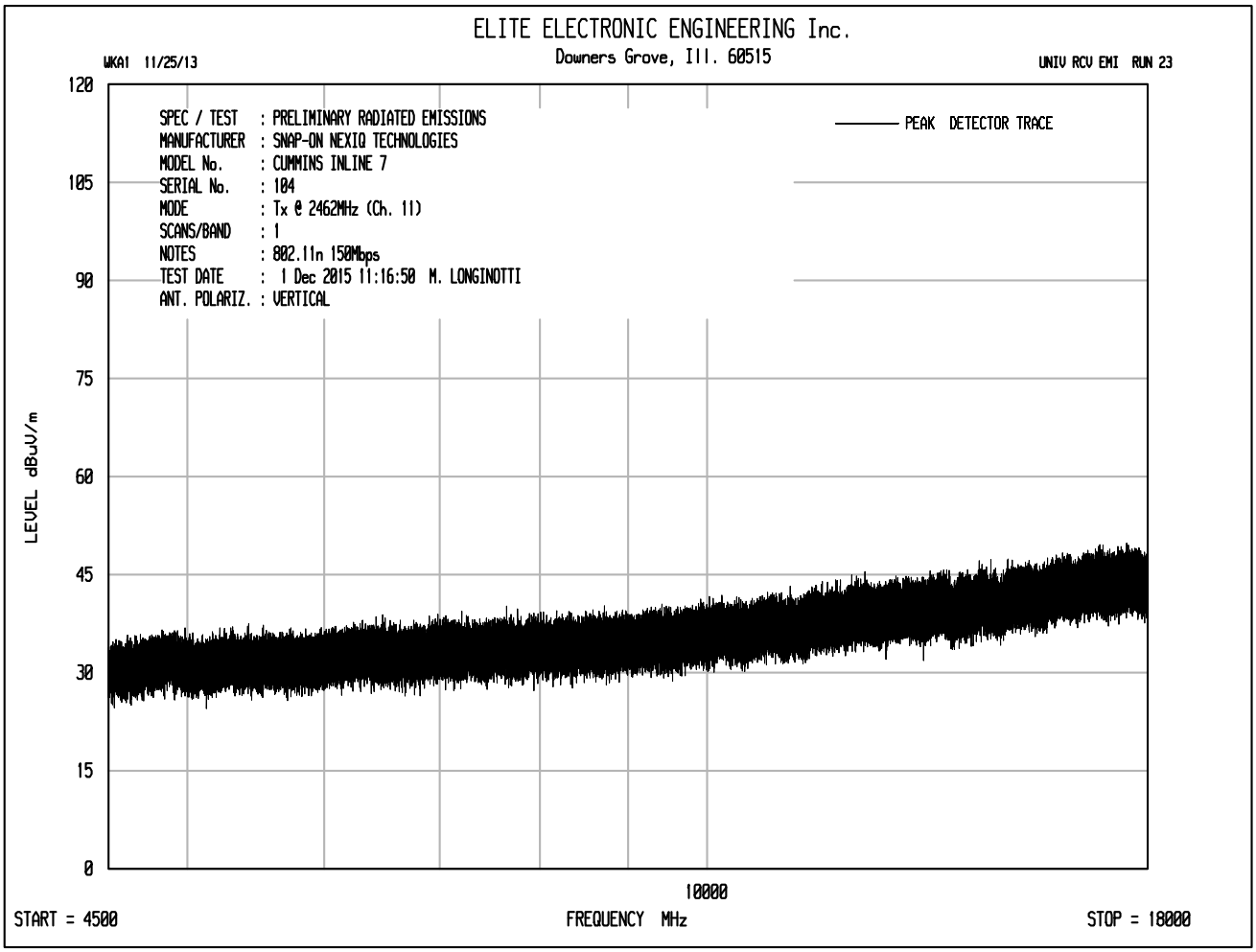

ELITE ELECTRONIC ENGINEERING Inc.
Downers Grove, Ill. 60515
WKA1 11/25/13
UNIV RCV EMI RUN 24
SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
MANUFACTURER : SNAP-ON NEXIQ TECHNOLOGIES
MODEL No. : CUMMINS INLINE 7
SERIAL No. : 104
MODE : Tx @ 2462MHz (Ch. 11)
SCANS/BAND : 1
NOTES : 802.11n 150Mb/SEC
TEST DATE : 20 Nov 2015 15:46:52 M. LONGINOTTI
ANT. POLARIZ. : HORIZONTAL
PEAK DETECTOR TRACE
LEVEL dBuV/m
120
105
90
75
60
45
30
15
0
100
START = 30
FREQUENCY MHz
STOP = 1000

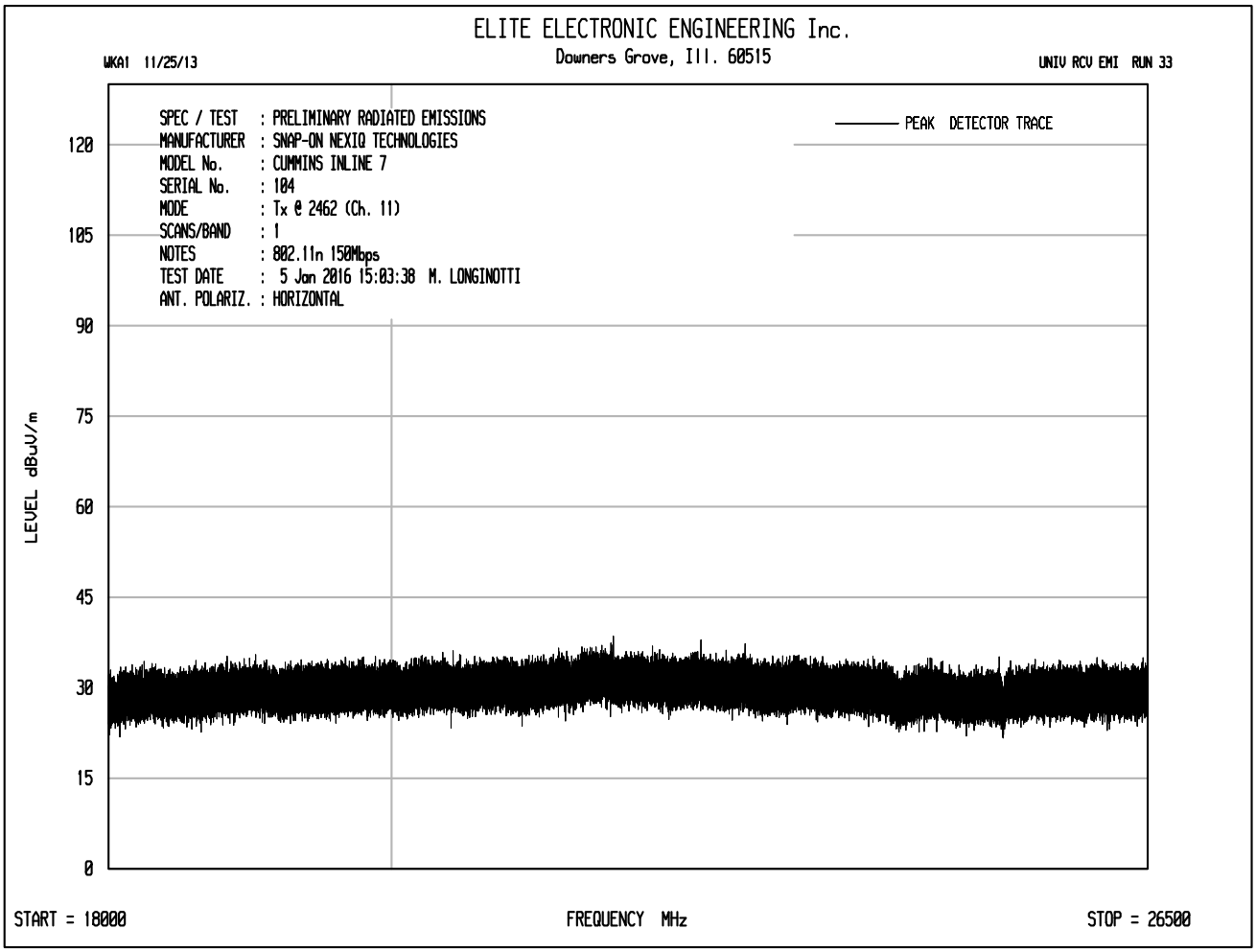

ELITE ELECTRONIC ENGINEERING Inc.
Downers Grove, Ill. 60515
WKA1 11/25/13
UNIV RCV EMI RUN 124
SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
MANUFACTURER : SNAP-ON NEXIQ TECHNOLOGIES
MODEL No. : CUMMINS INLINE 7
SERIAL No. : 104
MODE : Tx @ 2462MHz (Ch. 11)
SCANS/BAND : 1
NOTES : 802.11n 150Mbps
TEST DATE : 25 Nov 2015 11:26:14 M. LONGINOTTI
ANT. POLARIZ. : HORIZONTAL
PEAK DETECTOR TRACE
LEVEL dBuV/m
120
105
90
75
60
45
30
15
0
START = 1000
FREQUENCY MHz
STOP = 4500

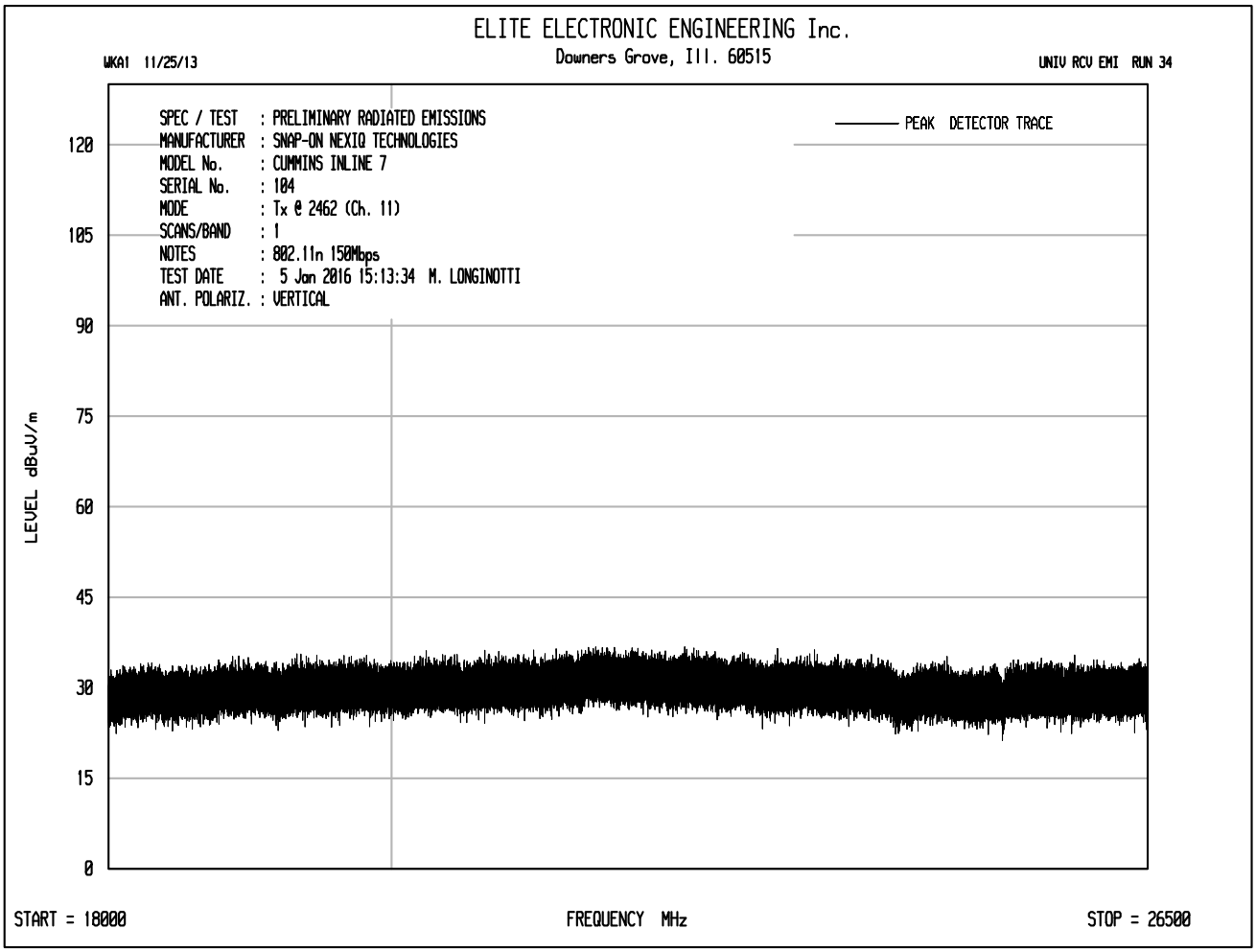

ELITE ELECTRONIC ENGINEERING Inc.
Downers Grove, Ill. 60515
WKA1 11/25/13
UNIV RCV EMI RUN 22
SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
MANUFACTURER : SNAP-ON NEXIQ TECHNOLOGIES
MODEL No. : CUMMINS INLINE 7
SERIAL No. : 104
MODE : Tx @ 2462MHz (Ch. 11)
SCANS/BAND : 1
NOTES : 802.11n 150Mbps
TEST DATE : 1 Dec 2015 11:13:27 M. LONGINOTTI
ANT. POLARIZ. : HORIZONTAL
PEAK DETECTOR TRACE
LEVEL dBuV/m
120
105
90
75
60
45
30
15
0
10000
START = 4500
FREQUENCY MHz
STOP = 18000


ELITE ELECTRONIC ENGINEERING Inc.
Downers Grove, Ill. 60515
WKA1 11/25/13
UNIV RCV EMI RUN 25
SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
MANUFACTURER : SNAP-ON NEXIQ TECHNOLOGIES
MODEL No. : CUMMINS INLINE 7
SERIAL No. : 104
MODE : Tx @ 2462MHz (Ch. 11)
SCANS/BAND : 1
NOTES : 802.11n 150Mb/SEC
TEST DATE : 20 Nov 2015 15:48:09 M. LONGINOTTI
ANT. POLARIZ. : VERTICAL
PEAK DETECTOR TRACE
LEVEL dBuV/m
120
105
90
75
60
45
30
15
0
100
START = 30
FREQUENCY MHz
STOP = 1000


ELITE ELECTRONIC ENGINEERING Inc.
Downers Grove, Ill. 60515
WKA1 11/25/13
UNIV RCV EMI RUN 123
SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
MANUFACTURER : SNAP-ON NEXIQ TECHNOLOGIES
MODEL No. : CUMMINS INLINE 7
SERIAL No. : 104
MODE : Tx @ 2462MHz (Ch. 11)
SCANS/BAND : 1
NOTES : 802.11n 150Mbps
TEST DATE : 25 Nov 2015 11:24:53 M. LONGINOTTI
ANT. POLARIZ. : VERTICAL
PEAK DETECTOR TRACE
LEVEL dBuV/m
120
105
90
75
60
45
30
15
0
START = 1000
FREQUENCY MHz
STOP = 4500


ELITE ELECTRONIC ENGINEERING Inc.
Downers Grove, Ill. 60515
WKA1 11/25/13
UNIV RCV EMI RUN 23
SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
MANUFACTURER : SNAP-ON NEXIQ TECHNOLOGIES
MODEL No. : CUMMINS INLINE 7
SERIAL No. : 104
MODE : Tx @ 2462MHz (Ch. 11)
SCANS/BAND : 1
NOTES : 802.11n 150Mbps
TEST DATE : 1 Dec 2015 11:16:50 M. LONGINOTTI
ANT. POLARIZ. : VERTICAL
PEAK DETECTOR TRACE
LEVEL dBuV/m
120
105
90
75
60
45
30
15
0
10000
START = 4500
FREQUENCY MHz
STOP = 18000


ELITE ELECTRONIC ENGINEERING Inc.
Downers Grove, Ill. 60515
WKA1 11/25/13
UNIV RCV EMI RUN 33
SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
MANUFACTURER : SNAP-ON NEXIQ TECHNOLOGIES
MODEL No. : CUMMINS INLINE 7
SERIAL No. : 104
MODE : Tx @ 2462 (Ch. 11)
SCANS/BAND : 1
NOTES : 802.11n 150Mbps
TEST DATE : 5 Jan 2016 15:03:38 M. LONGINOTTI
ANT. POLARIZ. : HORIZONTAL
PEAK DETECTOR TRACE
LEVEL dBuV/m
120
105
90
75
60
45
30
15
0
START = 18000
FREQUENCY MHz
STOP = 26500


ELITE ELECTRONIC ENGINEERING Inc.
Downers Grove, Ill. 60515
WKA1 11/25/13
UNIV RCV EMI RUN 34
SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
MANUFACTURER : SNAP-ON NEXIQ TECHNOLOGIES
MODEL No. : CUMMINS INLINE 7
SERIAL No. : 104
MODE : Tx @ 2462 (Ch. 11)
SCANS/BAND : 1
NOTES : 802.11n 150Mbps
TEST DATE : 5 Jan 2016 15:13:34 M. LONGINOTTI
ANT. POLARIZ. : VERTICAL
PEAK DETECTOR TRACE
LEVEL dBuV/m
120
105
90
75
60
45
30
15
0
START = 18000
FREQUENCY MHz
STOP = 26500

Manufacturer : Snap-On Nexiq Technologies
Model No. : Cummins INLINE 7
Serial No. : 104
Date Tested : November 20, 2015 through January 5, 2016
Test Performed : Radiated Spurious Emissions in Restricted Bands
Mode : Transmit at 2462MHz, 802.11n 150 Mb/sec
Test Distance : 3 meters
Notes : Peak Readings with a 1MHz RBW

Freq. MHz	Ant Pol	Meter Reading (dBuV)	Ambient	CBL Fac (dB)	Ant Fac (dB)	Pre Amp (dB)	Peak Total dBuV/m at 3m	Peak Total uV/m at 3 m	Peak Limit uV/m at 3 m	Margin (dB)
4924.00	H	48.8	Ambient	4.9	34.2	-39.3	48.5	267.6	5000.0	-25.4
4924.00	V	49.4	Ambient	4.9	34.2	-39.3	49.1	286.7	5000.0	-24.8
7386.00	H	48.3	Ambient	6.2	36.2	-39.4	51.3	366.6	5000.0	-22.7
7386.00	V	47.8	Ambient	6.2	36.2	-39.4	50.8	346.1	5000.0	-23.2
12310.00	H	49.0	Ambient	8.0	39.3	-39.0	57.3	731.1	5000.0	-16.7
12310.00	V	48.8	Ambient	8.0	39.3	-39.0	57.1	714.4	5000.0	-16.9
19696.00	H	31.9	Ambient	2.2	40.4	-28.3	46.3	205.9	5000.0	-27.7
19696.00	V	31.2	Ambient	2.2	40.4	-28.3	45.6	190.0	5000.0	-28.4
22158.00	H	32.2	Ambient	2.2	40.6	-29.1	45.9	197.9	5000.0	-28.0
22158.00	V	33.7	Ambient	2.2	40.6	-29.1	47.4	235.2	5000.0	-26.5

Peak Total (dBuV/m) = Meter Reading (dBuV) + CBL Fac (dB) + Ant Fac (dB) + Pre Amp (dB)

Peak Total (uV/m) = 10^(Peak Total (dBuV/m)/20)

Manufacturer : Snap-On Nexiq Technologies
Model No. : Cummins INLINE 7
Serial No. : 104
Date Tested : November 20, 2015 through January 5, 2016
Test Performed : Radiated Spurious Emissions in Restricted Bands
Mode : Transmit at 2437MHz, 802.11n 150 Mb/sec
Test Distance : 3 meters
Notes : Average Readings with a 1MHz RBW

Freq. MHz	Ant Pol	Meter Reading (dBuV)	Ambient	CBL Fac (dB)	Ant Fac (dB)	Pre Amp (dB)	Average Total dBuV/m at 3m	Average Total uV/m at 3 m	Average Limit uV/m at 3 m	Margin (dB)
4924.00	H	36.4	Ambient	4.9	34.2	-39.3	36.1	64.2	500.0	-17.8
4924.00	V	36.4	Ambient	4.9	34.2	-39.3	36.1	64.2	500.0	-17.8
7386.00	H	35.50	Ambient	6.2	36.2	-39.4	38.5	84.0	500.0	-15.5
7386.00	V	35.5	Ambient	6.2	36.2	-39.4	38.5	84.0	500.0	-15.5
12310.00	H	35.8	Ambient	8.0	39.3	-39.0	44.1	159.9	500.0	-9.9
12310.00	V	35.8	Ambient	8.0	39.3	-39.0	44.1	159.9	500.0	-9.9
19696.00	H	19.3	Ambient	2.2	40.4	-28.3	33.7	48.3	500.0	-20.3
19696.00	V	19.2	Ambient	2.2	40.4	-28.3	33.6	47.7	500.0	-20.4
22158.00	H	20.7	Ambient	2.2	40.6	-29.1	34.4	52.7	500.0	-19.5
22158.00	V	20.7	Ambient	2.2	40.6	-29.1	34.4	52.7	500.0	-19.5

Average Total (dBuV/m) = Meter Reading (dBuV) + CBL Fac (dB) + Ant Fac (dB) + Pre Amp (dB)

Average Total (uV/m) = 10^(Peak Total (dBuV/m)/20)

Manufacturer : Snap-On Nexiq Technologies
Model No. : Cummins INLINE 7
Serial No. : 104
Date Tested : November 25, 2015
Test Performed : Radiated Spurious Emissions at the High Band Edge
Mode : Transmit at 2462MHz, 802.11b 1 Mb/sec
Test Distance : 3 meters
Notes : Peak Readings with a 1MHz RBW

Freq. MHz	Ant Pol	Meter Reading (dBuV)	Ambient	CBL Fac (dB)	Ant Fac (dB)	Pre Amp (dB)	Peak Total dBuV/m at 3m	Peak Total uV/m at 3 m	Peak Limit uV/m at 3 m	Margin (dB)
2484.30	H	17.7		3.5	32.6	0.0	53.8	488.3	5000.0	-20.2
2491.00	V	15.9		3.5	32.6	0.0	52.0	397.8	5000.0	-22.0

Peak Total (dBuV/m) = Meter Reading (dBuV) + CBL Fac (dB) + Ant Fac (dB) + Pre Amp (dB)

Peak Total (uV/m) = 10^(Peak Total (dBuV/m)/20)

Manufacturer : Snap-On Nexiq Technologies
Model No. : Cummins INLINE 7
Serial No. : 104
Date Tested : November 25, 2015
Test Performed : Radiated Spurious Emissions at the High Band Edge
Mode : Transmit at 2462MHz, 802.11b 1 Mb/sec
Test Distance : 3 meters
Notes : Average Readings with a 1MHz RBW

Freq. MHz	Ant Pol	Meter Reading (dBuV)	Ambient	CBL Fac (dB)	Ant Fac (dB)	Pre Amp (dB)	Average Total dBuV/m at 3m	Average Total uV/m at 3 m	Average Limit uV/m at 3 m	Margin (dB)
2484.30	H	6.4		3.5	32.6	0.0	42.5	133.0	500.0	-11.5
2491.00	V	3.3		3.5	32.6	0.0	39.4	93.2	500.0	-14.6

Average Total (dBuV/m) = Meter Reading (dBuV) + CBL Fac (dB) + Ant Fac (dB) + Pre Amp (dB)

Average Total (uV/m) = 10^(Peak Total (dBuV/m)/20)

Manufacturer : Snap-On Nexiq Technologies
Model No. : Cummins INLINE 7
Serial No. : 104
Date Tested : November 25, 2015
Test Performed : Radiated Spurious Emissions at the High Band Edge
Mode : Transmit at 2462MHz, 802.11g 6 Mb/sec
Test Distance : 3 meters
Notes : Peak Readings with a 1MHz RBW

Freq. MHz	Ant Pol	Meter Reading (dBuV)	Ambient	CBL Fac (dB)	Ant Fac (dB)	Pre Amp (dB)	Peak Total dBuV/m at 3m	Peak Total uV/m at 3 m	Peak Limit uV/m at 3 m	Margin (dB)
2483.80	H	17.1		3.5	32.6	0.0	53.2	455.7	5000.0	-20.8
2491.00	V	16.2		3.5	32.6	0.0	52.3	411.7	5000.0	-21.7

Peak Total (dBuV/m) = Meter Reading (dBuV) + CBL Fac (dB) + Ant Fac (dB) + Pre Amp (dB)

Peak Total (uV/m) = 10^(Peak Total (dBuV/m)/20)

Manufacturer : Snap-On Nexiq Technologies
Model No. : Cummins INLINE 7
Serial No. : 104
Date Tested : November 25, 2015
Test Performed : Radiated Spurious Emissions at the High Band Edge
Mode : Transmit at 2462MHz, 802.11g 6 Mb/sec
Test Distance : 3 meters
Notes : Average Readings with a 1MHz RBW

Freq. MHz	Ant Pol	Meter Reading (dBuV)	Ambient	CBL Fac (dB)	Ant Fac (dB)	Pre Amp (dB)	Average Total dBuV/m at 3m	Average Total uV/m at 3 m	Average Limit uV/m at 3 m	Margin (dB)
2483.80	H	6.4		3.5	32.6	0.0	42.5	132.9	500.0	-11.5
2491.00	V	1.5		3.5	32.6	0.0	37.6	75.8	500.0	-16.4

Average Total (dBuV/m) = Meter Reading (dBuV) + CBL Fac (dB) + Ant Fac (dB) + Pre Amp (dB)

Average Total (uV/m) = 10^(Peak Total (dBuV/m)/20)

Manufacturer : Snap-On Nexiq Technologies
Model No. : Cummins INLINE 7
Serial No. : 104
Date Tested : November 25, 2015
Test Performed : Radiated Spurious Emissions at the High Band Edge
Mode : Transmit at 2462MHz, 802.11n 72.2 Mb/sec
Test Distance : 3 meters
Notes : Peak Readings with a 1MHz RBW

Freq. MHz	Ant Pol	Meter Reading (dBuV)	Ambient	CBL Fac (dB)	Ant Fac (dB)	Pre Amp (dB)	Peak Total dBuV/m at 3m	Peak Total uV/m at 3 m	Peak Limit uV/m at 3 m	Margin (dB)
2484.50	H	17.5		3.5	32.6	0.0	53.6	477.2	5000.0	-20.4
2484.00	V	15.9		3.5	32.6	0.0	52.0	396.9	5000.0	-22.0

Peak Total (dBuV/m) = Meter Reading (dBuV) + CBL Fac (dB) + Ant Fac (dB) + Pre Amp (dB)

Peak Total (uV/m) = 10^(Peak Total (dBuV/m)/20)

Manufacturer : Snap-On Nexiq Technologies
Model No. : Cummins INLINE 7
Serial No. : 104
Date Tested : November 25, 2015
Test Performed : Radiated Spurious Emissions at the High Band Edge
Mode : Transmit at 2462MHz, 802.11n 72.2 Mb/sec
Test Distance : 3 meters
Notes : Average Readings with a 1MHz RBW

Freq. MHz	Ant Pol	Meter Reading (dBuV)	Ambient	CBL Fac (dB)	Ant Fac (dB)	Pre Amp (dB)	Average Total dBuV/m at 3m	Average Total uV/m at 3 m	Average Limit uV/m at 3 m	Margin (dB)
2484.50	H	1.5		3.5	32.6	0.0	37.6	75.6	500.0	-16.4
2484.00	V	1.4		3.5	32.6	0.0	37.5	74.8	500.0	-16.5

Average Total (dBuV/m) = Meter Reading (dBuV) + CBL Fac (dB) + Ant Fac (dB) + Pre Amp (dB)

Average Total (uV/m) = 10^(Peak Total (dBuV/m)/20)

Manufacturer : Snap-On Nexiq Technologies
Model No. : Cummins INLINE 7
Serial No. : 104
Date Tested : November 25, 2015
Test Performed : Radiated Spurious Emissions at the High Band Edge
Mode : Transmit at 2462MHz, 802.11n 150 Mb/sec
Test Distance : 3 meters
Notes : Peak Readings with a 1MHz RBW

Freq. MHz	Ant Pol	Meter Reading (dBuV)	Ambient	CBL Fac (dB)	Ant Fac (dB)	Pre Amp (dB)	Peak Total dBuV/m at 3m	Peak Total uV/m at 3 m	Peak Limit uV/m at 3 m	Margin (dB)
2483.50	H	27.5		3.5	32.6	0.0	63.6	1508.7	5000.0	-10.4
2483.74	V	19.6		3.5	32.6	0.0	55.7	607.6	5000.0	-18.3

Peak Total (dBuV/m) = Meter Reading (dBuV) + CBL Fac (dB) + Ant Fac (dB) + Pre Amp (dB)

Peak Total (uV/m) = 10^(Peak Total (dBuV/m)/20)

Manufacturer : Snap-On Nexiq Technologies
Model No. : Cummins INLINE 7
Serial No. : 104
Date Tested : November 25, 2015
Test Performed : Radiated Spurious Emissions at the High Band Edge
Mode : Transmit at 2462MHz, 802.11n 150 Mb/sec
Test Distance : 3 meters
Notes : Average Readings with a 1MHz RBW

Freq. MHz	Ant Pol	Meter Reading (dBuV)	Ambient	CBL Fac (dB)	Ant Fac (dB)	Pre Amp (dB)	Average Total dBuV/m at 3m	Average Total uV/m at 3 m	Average Limit uV/m at 3 m	Margin (dB)
2483.50	H	1.6		3.5	32.6	0.0	37.7	76.5	500.0	-16.3
2483.74	V	1.4		3.5	32.6	0.0	37.5	74.8	500.0	-16.5

Average Total (dBuV/m) = Meter Reading (dBuV) + CBL Fac (dB) + Ant Fac (dB) + Pre Amp (dB)

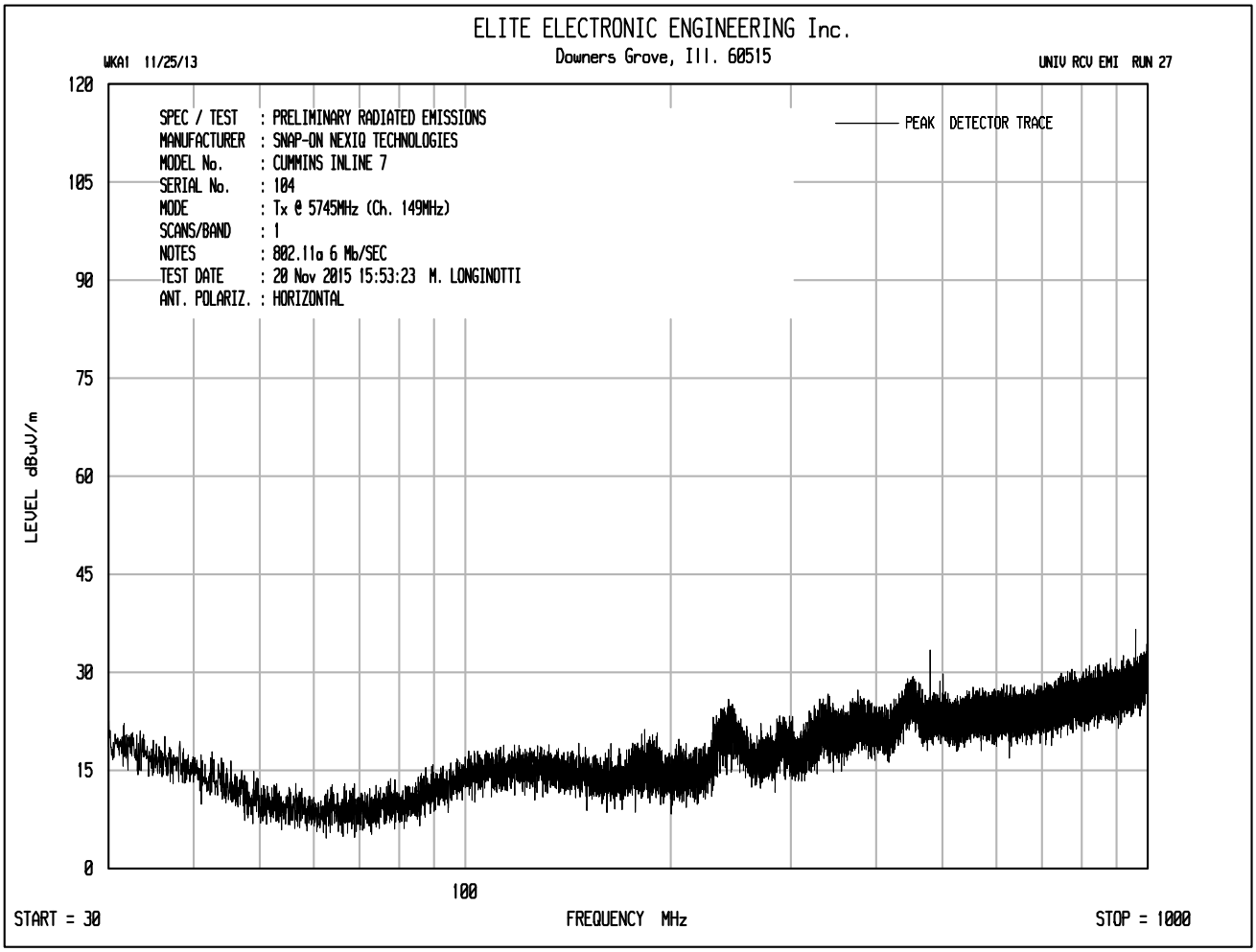
Average Total (uV/m) = 10^(Peak Total (dBuV/m)/20)

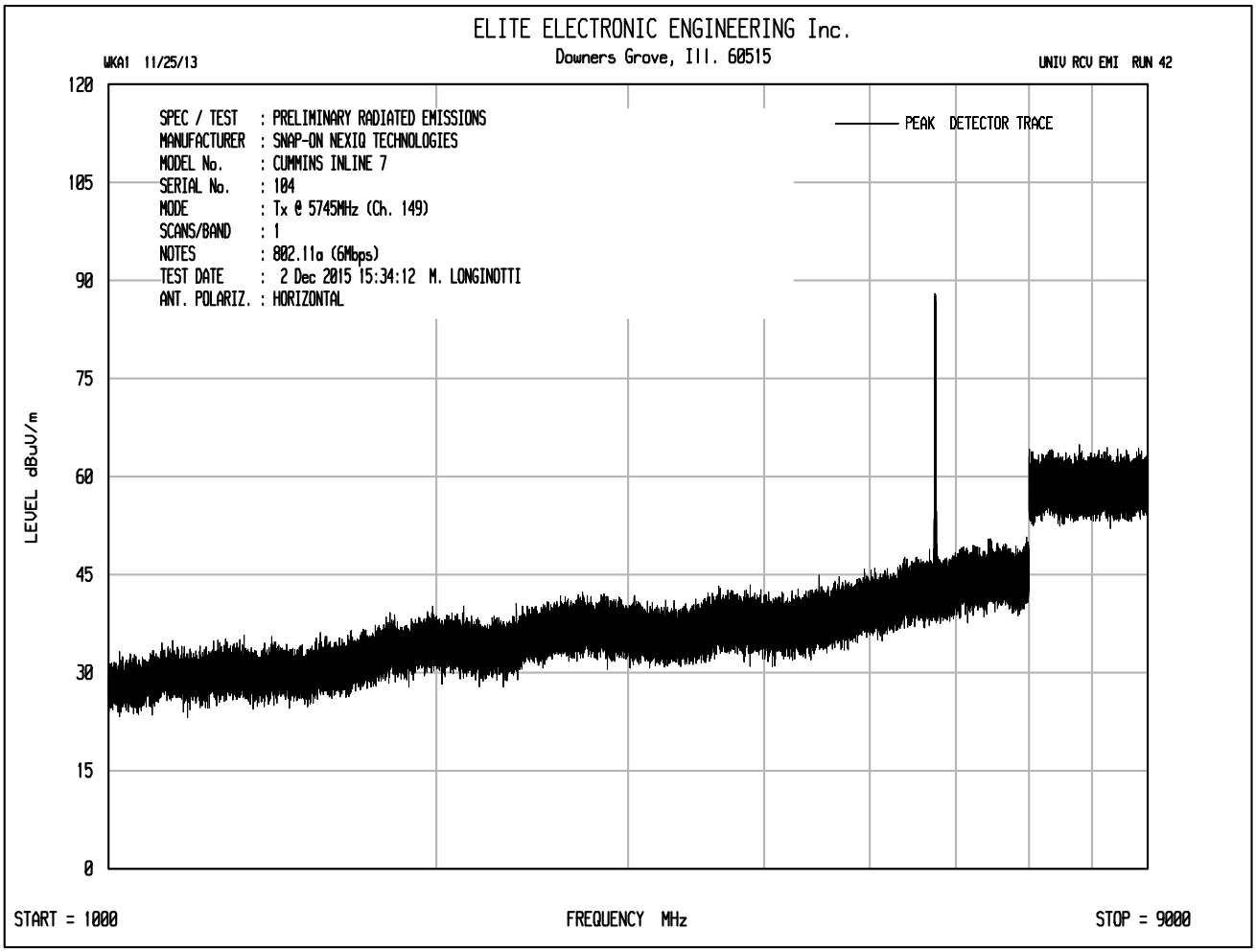
FCC 15.407 DATA

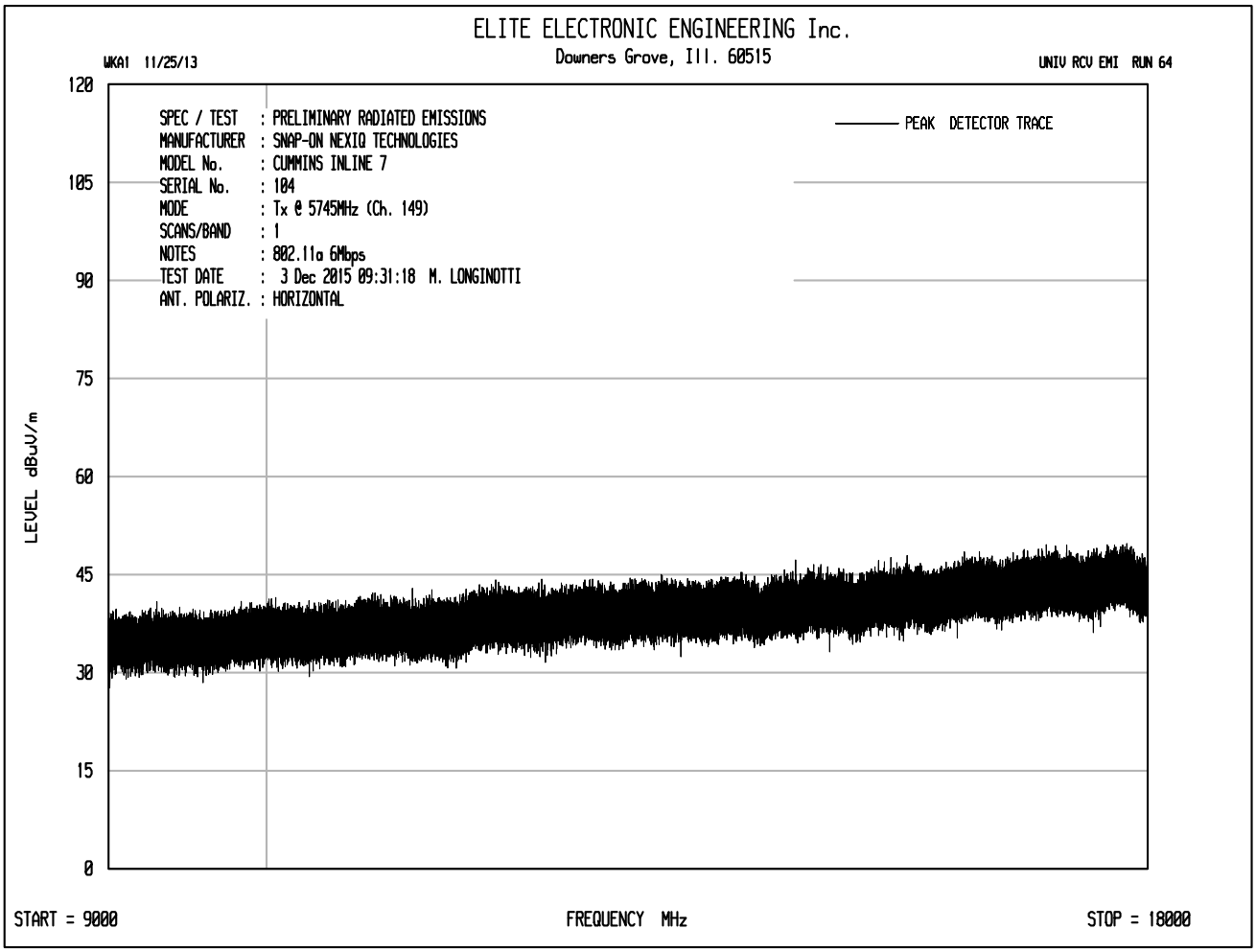
Manufacturer : Snap-On Nexiq Technologies
Model No. : Cummins INLINE 7
Serial No. : 101
Date Tested : February 29, 2016
Test Performed : EIRP
Mode : See Below
Equipment Used : MPW0, MWPA,T1EQ, T1E8
Notes : Antenna Port Conducted Emissions Test
Notes : Peak Power Readings with a Peak Power Meter

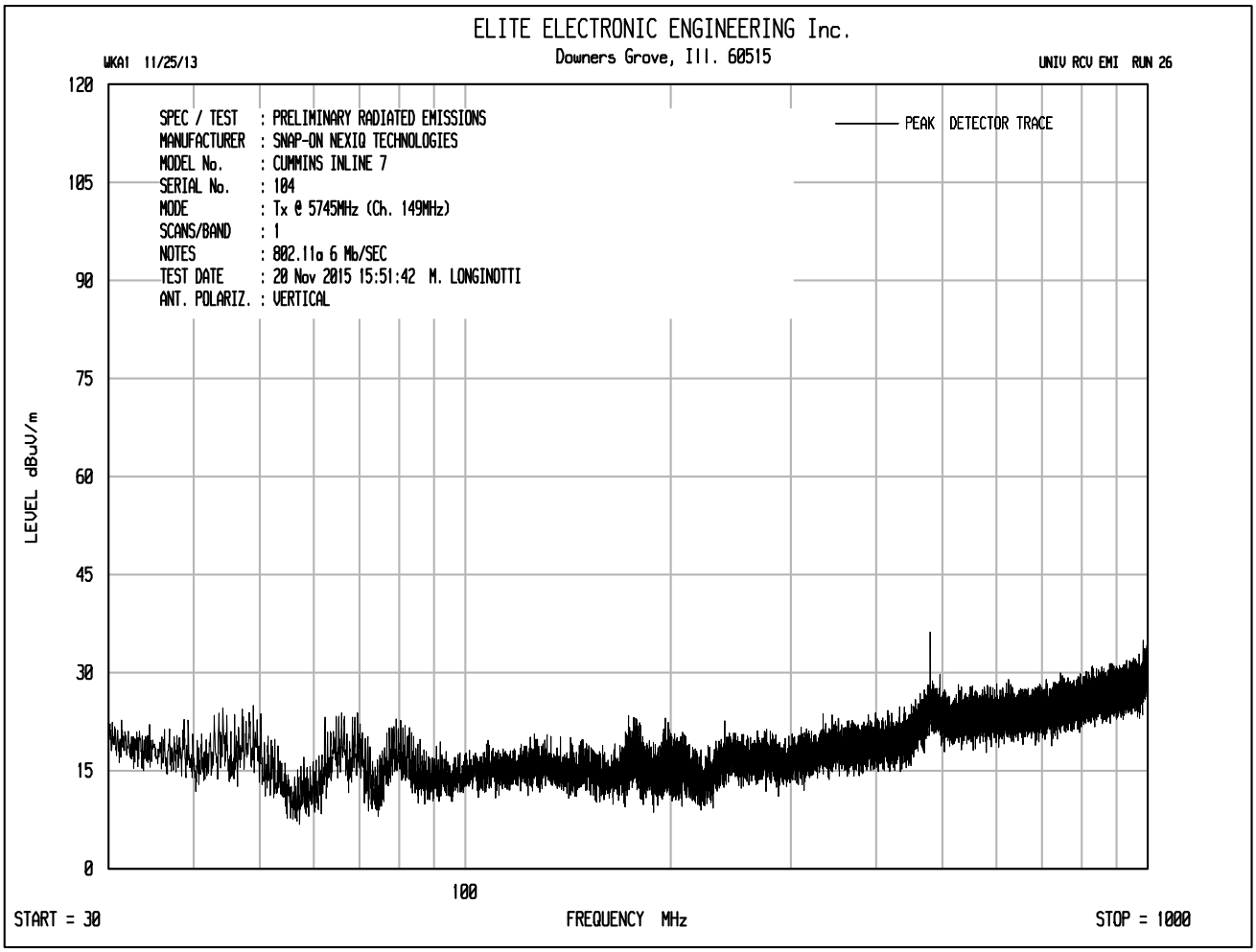
Frequency MHz	802.11 protocol	data rate Mbps	Peak power reading dBm	Attenuation dB	Antenna Gain dB	Peak EIRP dBm
5745	a	6	0.31	19.45	4.1	23.86
5785	a	6	0.48	19.41	4.1	23.99
5825	a	6	0.62	19.46	4.1	24.18
5745	n	72.2	0.25	19.45	4.1	23.8
5785	n	72.2	0.49	19.41	4.1	24.0
5825	n	72.2	0.61	19.46	4.1	24.17
5755	n	150	0.79	19.39	4.1	24.28
5795	n	150	1.04	19.4	4.1	24.54

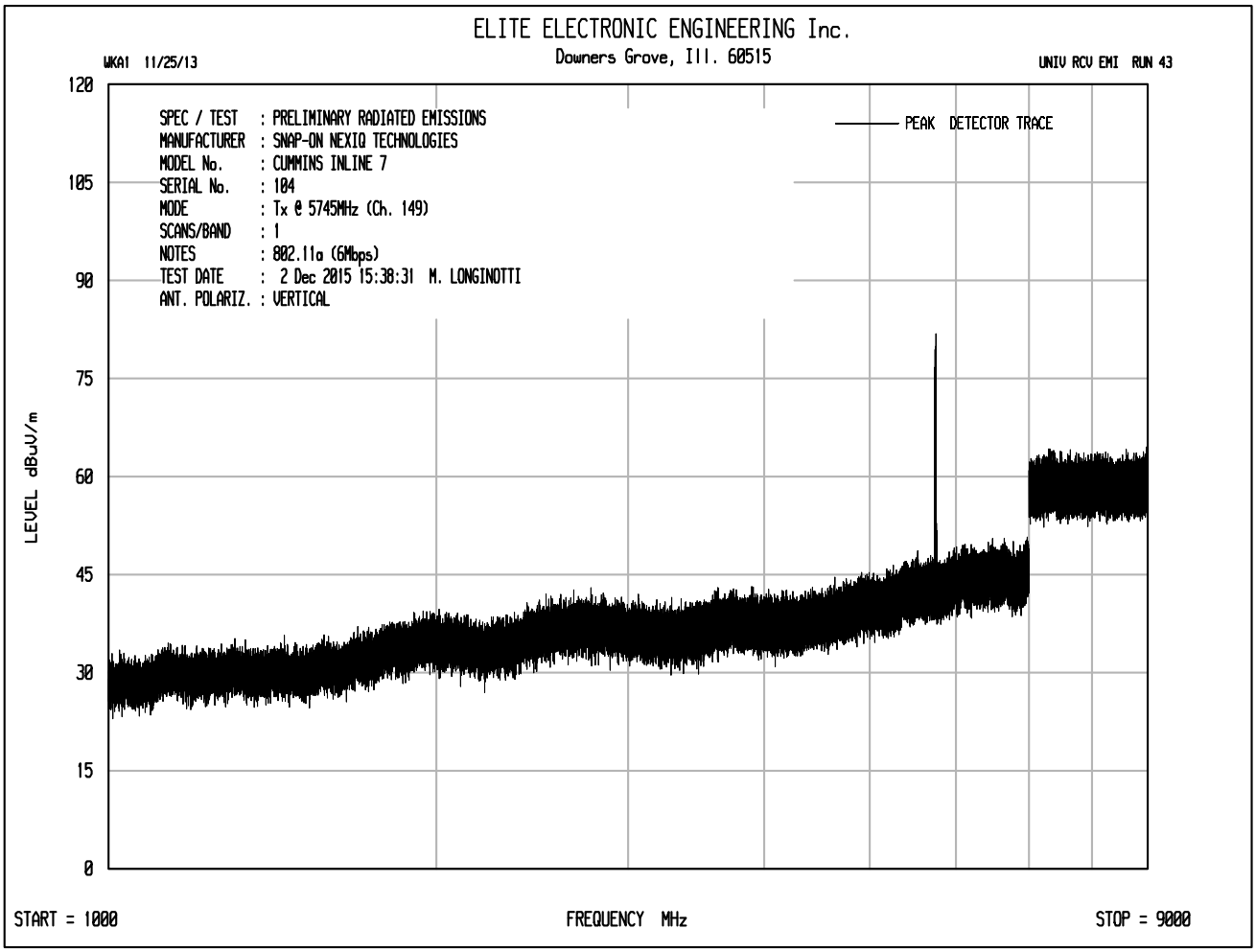
Peak EIRP (dBm) = Peak Power Reading (dBm) + Attenuation (dB) + Antenna Gain (dB)

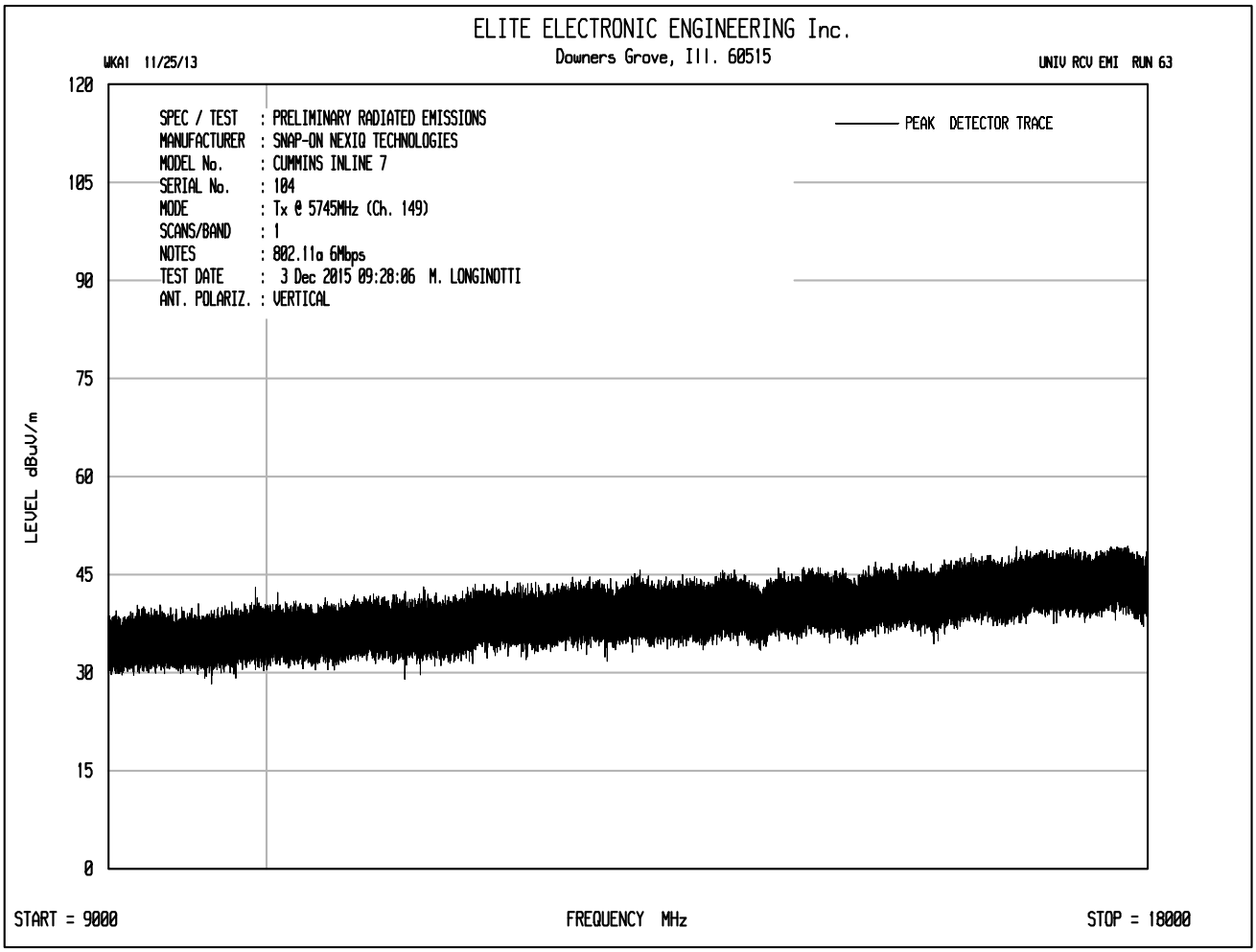

ELITE ELECTRONIC ENGINEERING Inc.
Downers Grove, Ill. 60515
WKA1 11/25/13
UNIV RCV EMI RUN 27
SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
MANUFACTURER : SNAP-ON NEXIQ TECHNOLOGIES
MODEL No. : CUMMINS INLINE 7
SERIAL No. : 104
MODE : Tx @ 5745MHz (Ch. 149MHz)
SCANS/BAND : 1
NOTES : 802.11a 6 Mb/SEC
TEST DATE : 20 Nov 2015 15:53:23 M. LONGINOTTI
ANT. POLARIZ. : HORIZONTAL
PEAK DETECTOR TRACE
LEVEL dBuV/m
120
105
90
75
60
45
30
15
0
100
START = 30
FREQUENCY MHz
STOP = 1000

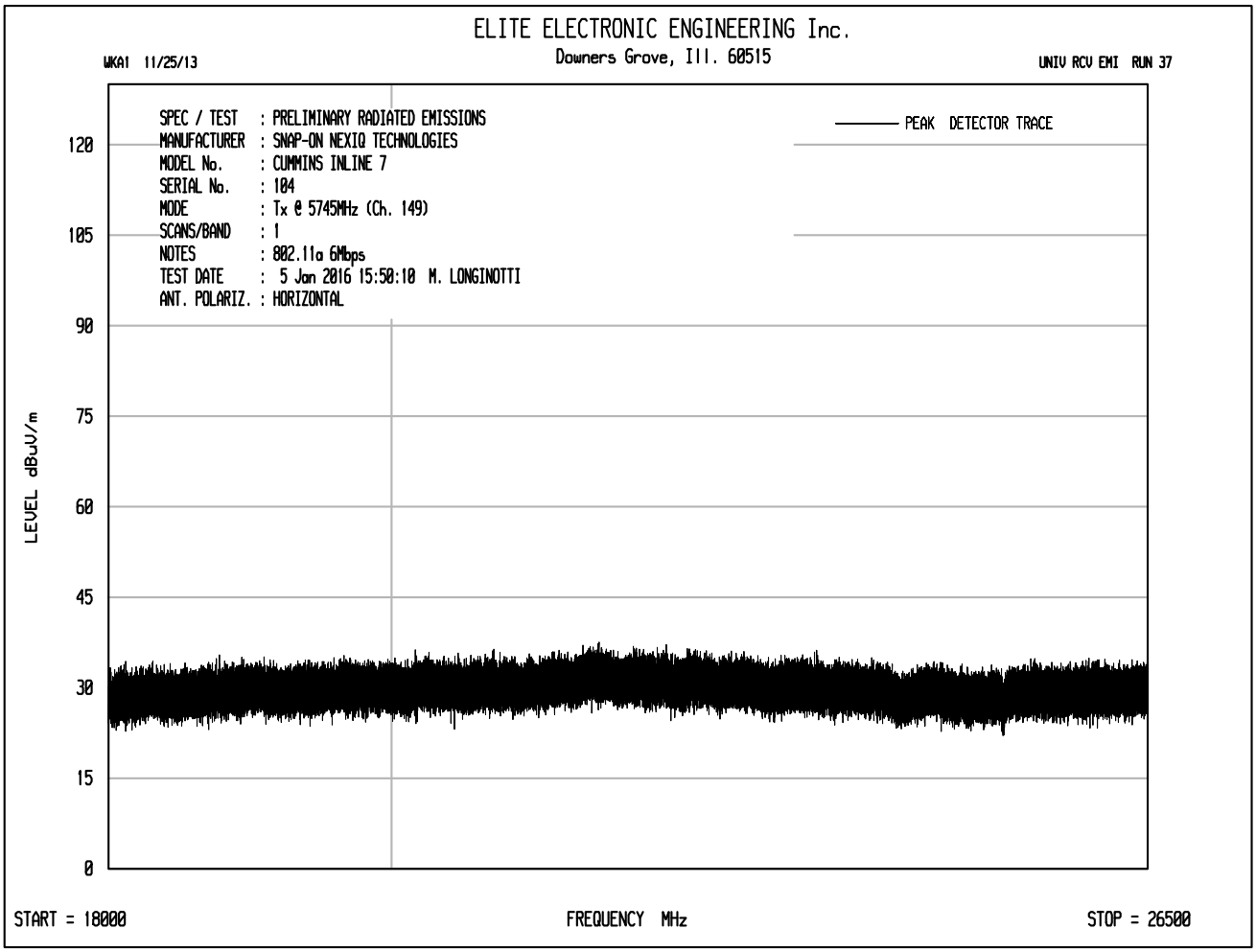

ELITE ELECTRONIC ENGINEERING Inc.
Downers Grove, Ill. 60515
WKA1 11/25/13
UNIV RCV EMI RUN 42
SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
MANUFACTURER : SNAP-ON NEXIQ TECHNOLOGIES
MODEL No. : CUMMINS INLINE 7
SERIAL No. : 104
MODE : Tx @ 5745MHz (Ch. 149)
SCANS/BAND : 1
NOTES : 802.11a (6Mbps)
TEST DATE : 2 Dec 2015 15:34:12 M. LONGINOTTI
ANT. POLARIZ. : HORIZONTAL
PEAK DETECTOR TRACE
LEVEL dBuV/m
120
105
90
75
60
45
30
15
0
START = 1000
FREQUENCY MHz
STOP = 9000

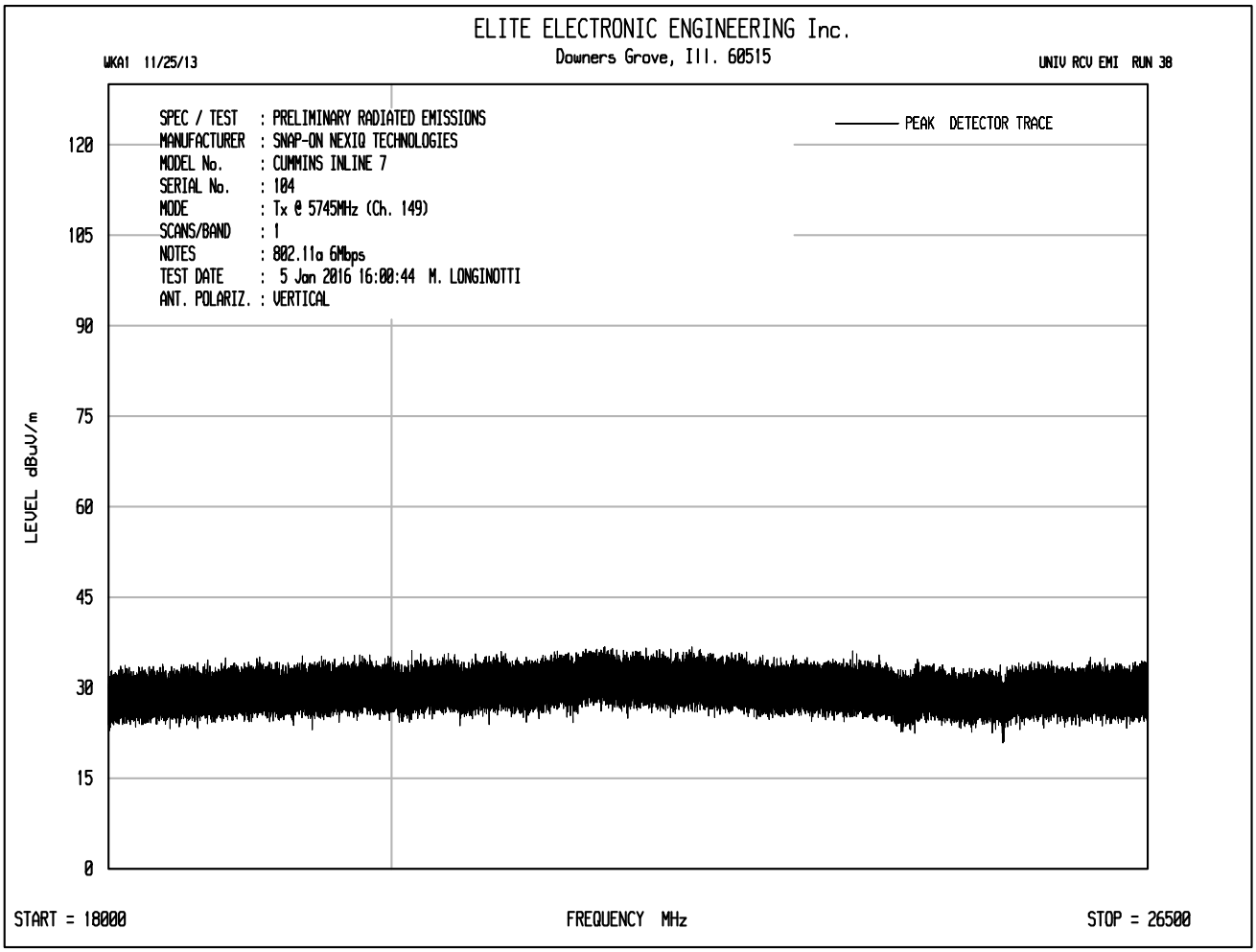

ELITE ELECTRONIC ENGINEERING Inc.
Downers Grove, Ill. 60515
WKA1 11/25/13
UNIV RCV EMI RUN 64
SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
MANUFACTURER : SNAP-ON NEXIQ TECHNOLOGIES
MODEL No. : CUMMINS INLINE 7
SERIAL No. : 104
MODE : Tx @ 5745MHz (Ch. 149)
SCANS/BAND : 1
NOTES : 802.11a 6Mbps
TEST DATE : 3 Dec 2015 09:31:18 M. LONGINOTTI
ANT. POLARIZ. : HORIZONTAL
PEAK DETECTOR TRACE
LEVEL dBuV/m
120
105
90
75
60
45
30
15
0
START = 9000
FREQUENCY MHz
STOP = 18000

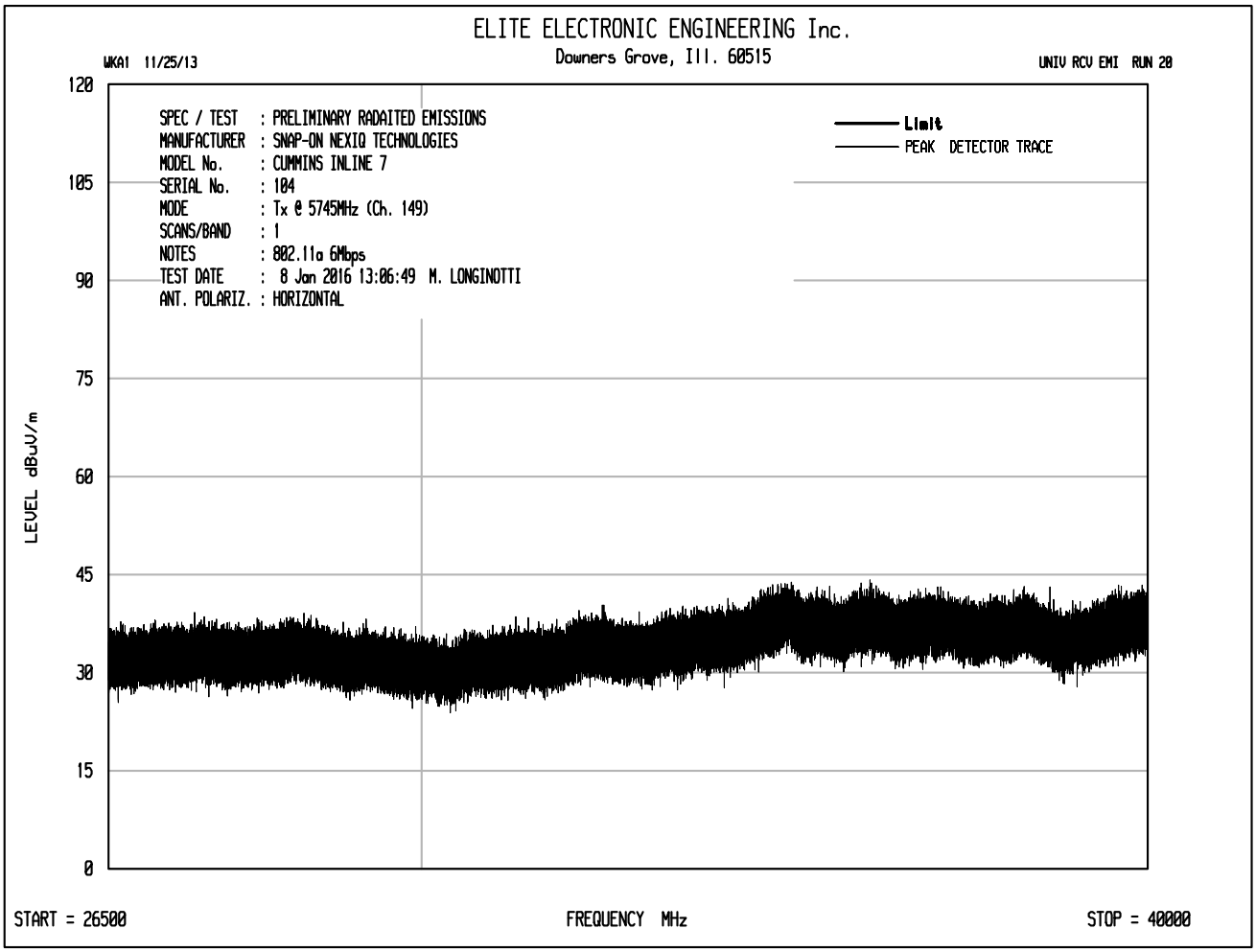

ELITE ELECTRONIC ENGINEERING Inc.
Downers Grove, Ill. 60515
WKA1 11/25/13
UNIV RCV EMI RUN 26
SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
MANUFACTURER : SNAP-ON NEXIQ TECHNOLOGIES
MODEL No. : CUMMINS INLINE 7
SERIAL No. : 104
MODE : Tx @ 5745MHz (Ch. 149MHz)
SCANS/BAND : 1
NOTES : 802.11a 6 Mb/SEC
TEST DATE : 20 Nov 2015 15:51:42 M. LONGINOTTI
ANT. POLARIZ. : VERTICAL
PEAK DETECTOR TRACE
LEVEL dBuV/m
120
105
90
75
60
45
30
15
0
100
START = 30
FREQUENCY MHz
STOP = 1000

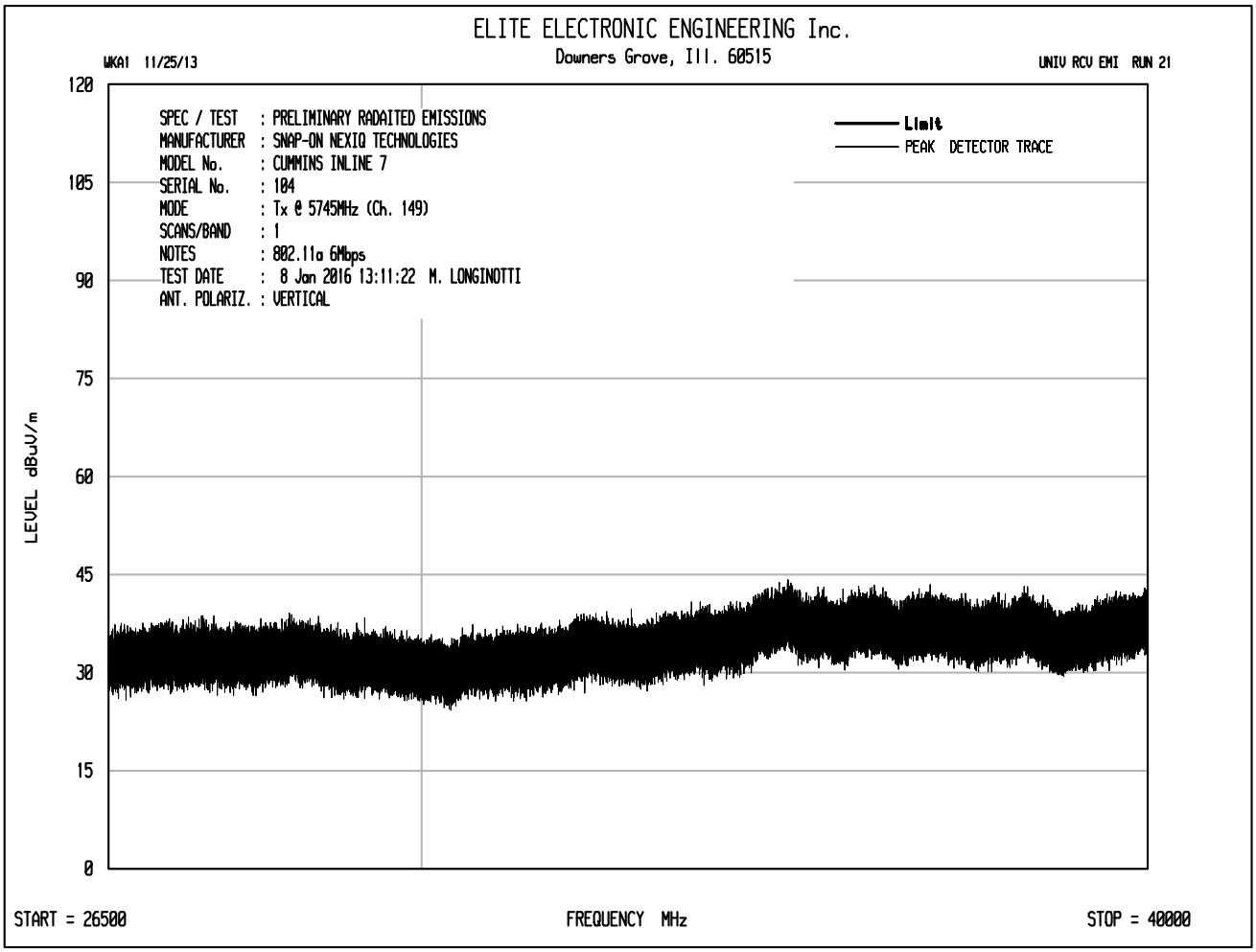

ELITE ELECTRONIC ENGINEERING Inc.
Downers Grove, Ill. 60515
WKA1 11/25/13
UNIV RCV EMI RUN 43
SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
MANUFACTURER : SNAP-ON NEXIQ TECHNOLOGIES
MODEL No. : CUMMINS INLINE 7
SERIAL No. : 104
MODE : Tx @ 5745MHz (Ch. 149)
SCANS/BAND : 1
NOTES : 802.11a (6Mbps)
TEST DATE : 2 Dec 2015 15:38:31 M. LONGINOTTI
ANT. POLARIZ. : VERTICAL
PEAK DETECTOR TRACE
120
105
90
75
60
45
30
15
0
LEVEL dBuV/m
START = 1000
FREQUENCY MHz
STOP = 9000

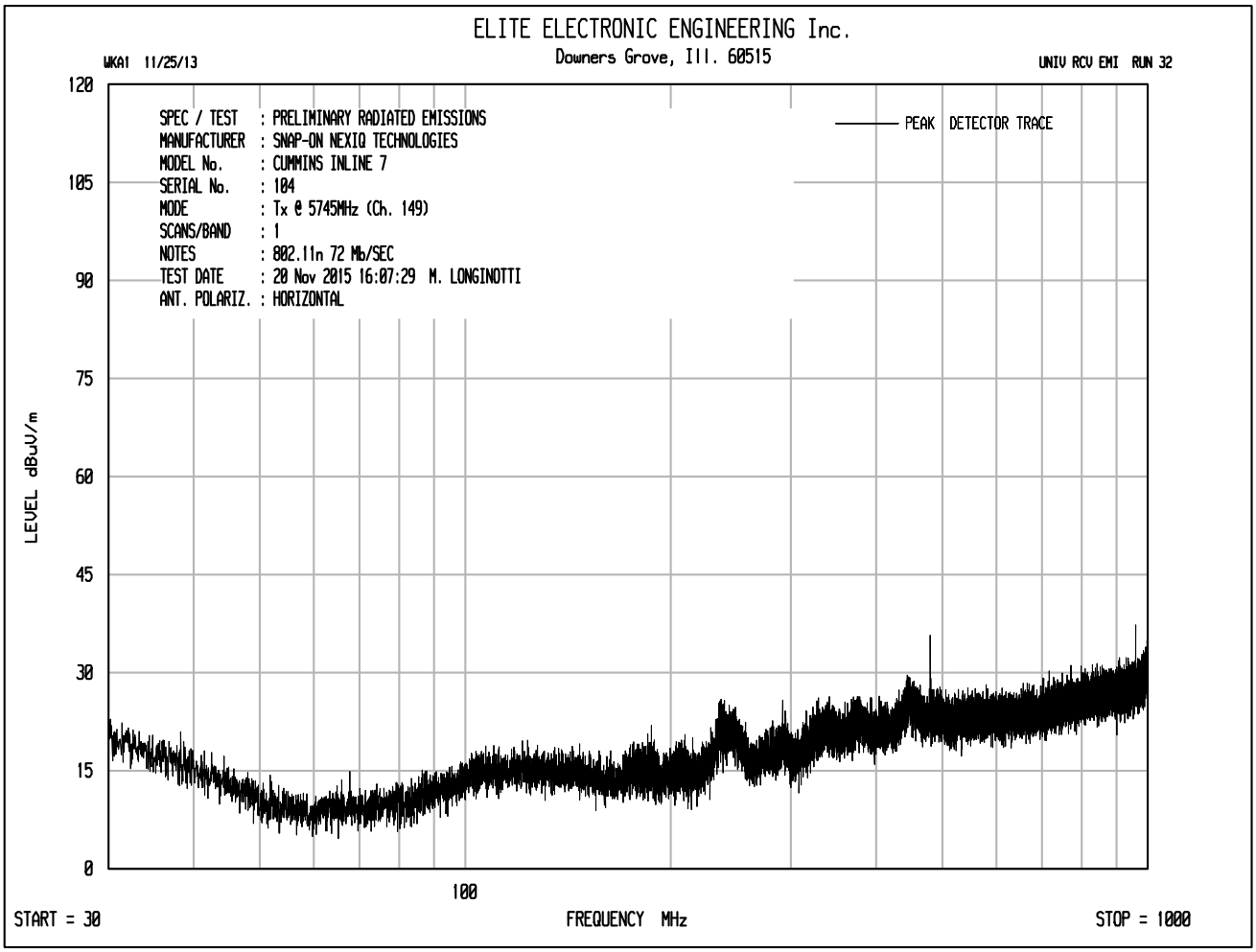

ELITE ELECTRONIC ENGINEERING Inc.
Downers Grove, Ill. 60515
WKA1 11/25/13
UNIV RCV EMI RUN 63
SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
MANUFACTURER : SNAP-ON NEXIQ TECHNOLOGIES
MODEL No. : CUMMINS INLINE 7
SERIAL No. : 104
MODE : Tx @ 5745MHz (Ch. 149)
SCANS/BAND : 1
NOTES : 802.11a 6Mbps
TEST DATE : 3 Dec 2015 09:28:06 M. LONGINOTTI
ANT. POLARIZ. : VERTICAL
PEAK DETECTOR TRACE
120
105
90
75
60
45
30
15
0
LEVEL dBuV/m
START = 9000
FREQUENCY MHz
STOP = 18000

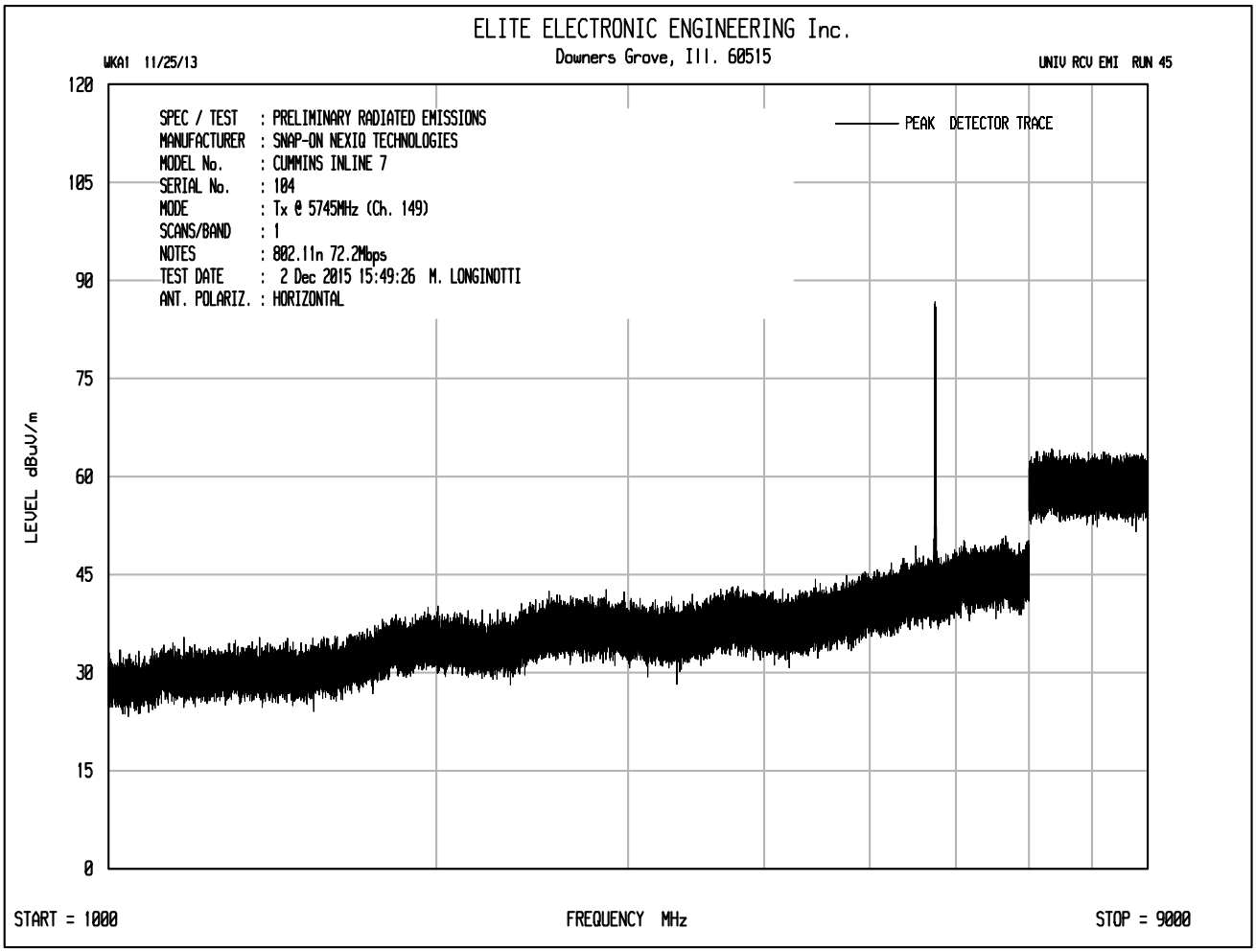

ELITE ELECTRONIC ENGINEERING Inc.
Downers Grove, Ill. 60515
WKA1 11/25/13
UNIV RCV EMI RUN 37
SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
MANUFACTURER : SNAP-ON NEXIQ TECHNOLOGIES
MODEL No. : CUMMINS INLINE 7
SERIAL No. : 104
MODE : Tx @ 5745MHz (Ch. 149)
SCANS/BAND : 1
NOTES : 802.11a 6Mbps
TEST DATE : 5 Jan 2016 15:50:10 M. LONGINOTTI
ANT. POLARIZ. : HORIZONTAL
PEAK DETECTOR TRACE
LEVEL dBuV/m
120
105
90
75
60
45
30
15
0
START = 18000
FREQUENCY MHz
STOP = 26500

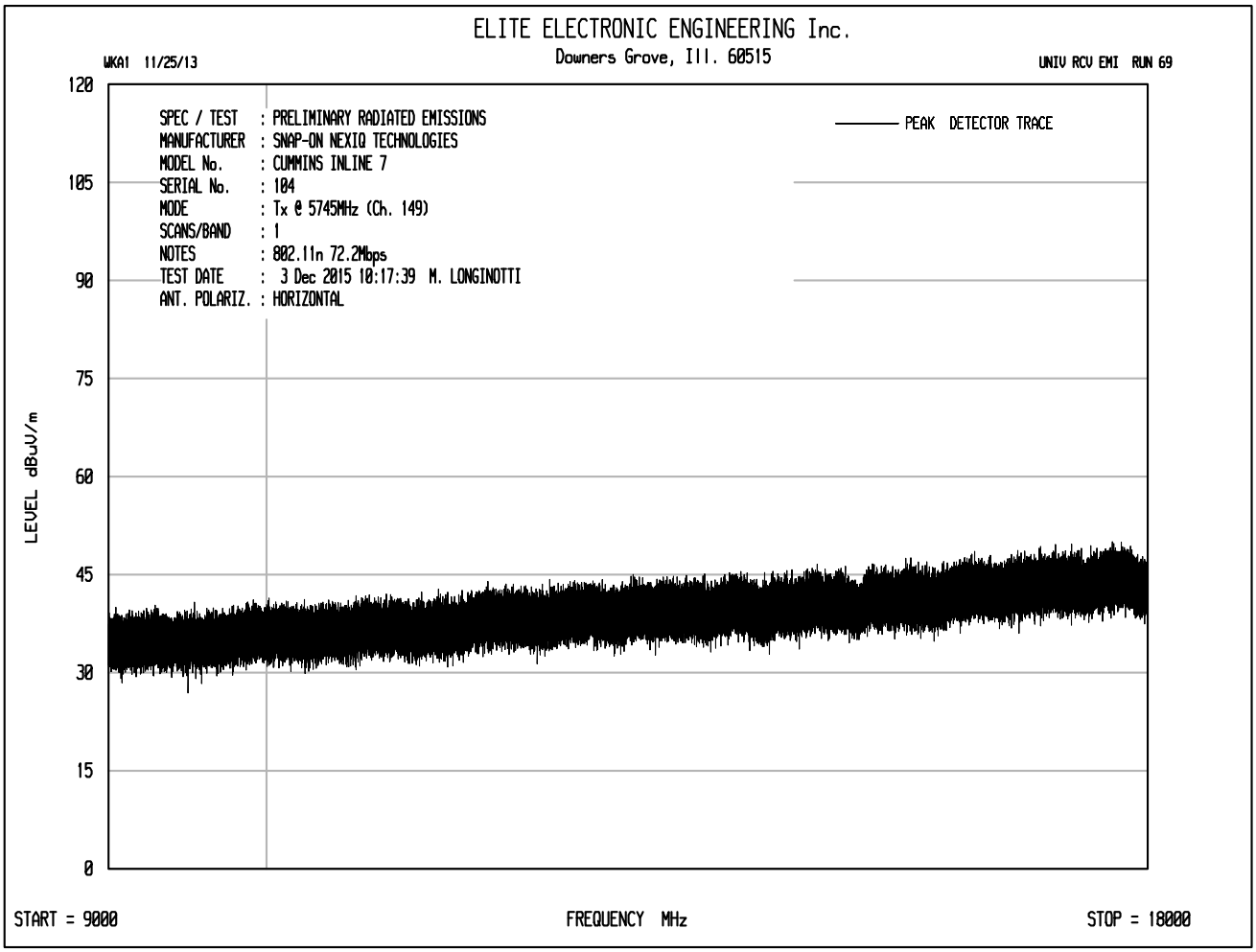

ELITE ELECTRONIC ENGINEERING Inc.
Downers Grove, Ill. 60515
WKA1 11/25/13
UNIV RCV EMI RUN 38
SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
MANUFACTURER : SNAP-ON NEXIQ TECHNOLOGIES
MODEL No. : CUMMINS INLINE 7
SERIAL No. : 104
MODE : Tx @ 5745MHz (Ch. 149)
SCANS/BAND : 1
NOTES : 802.11a 6Mbps
TEST DATE : 5 Jan 2016 16:00:44 M. LONGINOTTI
ANT. POLARIZ. : VERTICAL
PEAK DETECTOR TRACE
LEVEL dBuV/m
120
105
90
75
60
45
30
15
0
START = 18000
FREQUENCY MHz
STOP = 26500

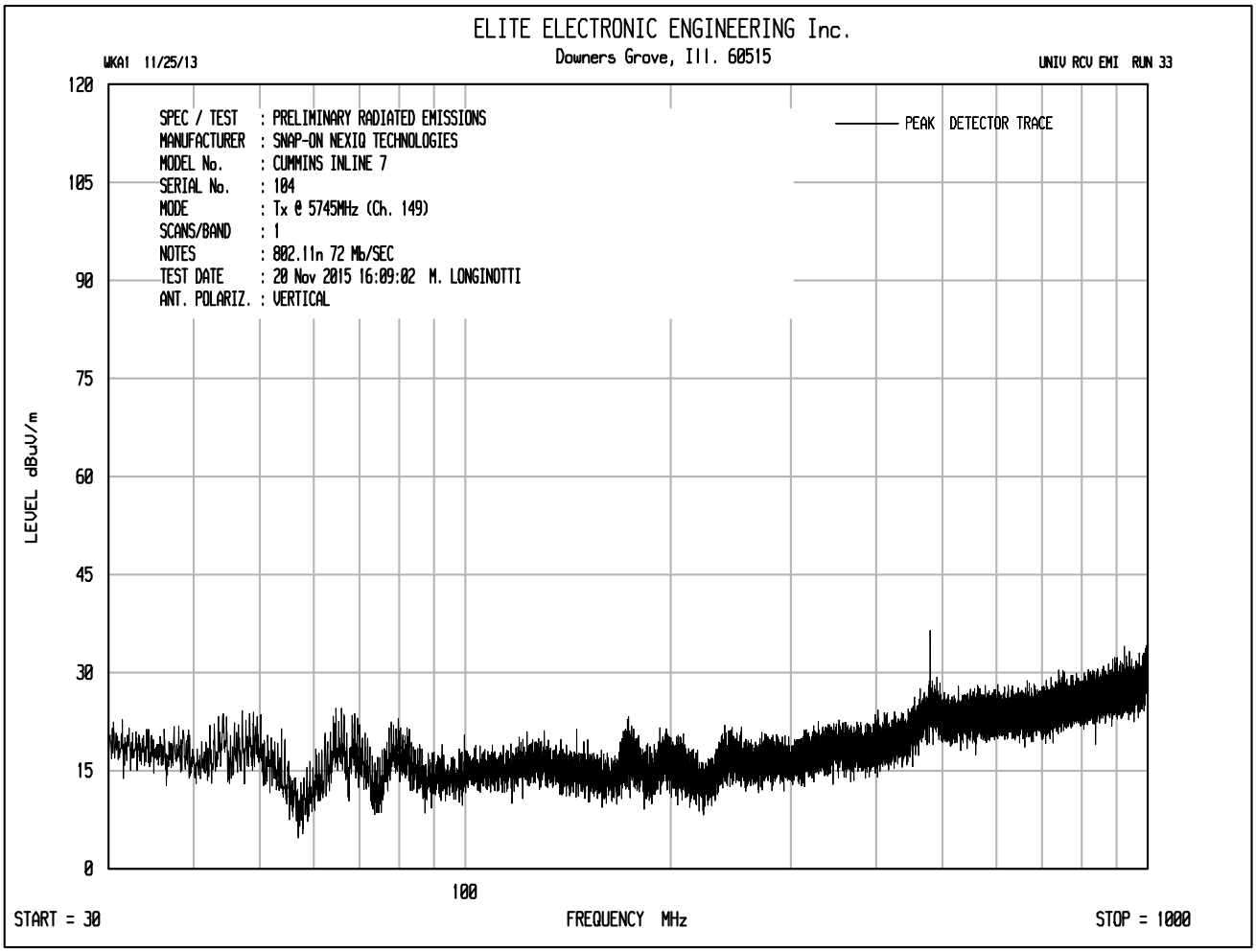

ELITE ELECTRONIC ENGINEERING Inc.
Downers Grove, Ill. 60515
WKA1 11/25/13
UNIV RCV EMI RUN 20
SPEC / TEST : PRELIMINARY RADAITED EMISSIONS
MANUFACTURER : SNAP-ON NEXIQ TECHNOLOGIES
MODEL No. : CUMMINS INLINE 7
SERIAL No. : 104
MODE : Tx @ 5745MHz (Ch. 149)
SCANS/BAND : 1
NOTES : 802.11a 6Mbps
TEST DATE : 8 Jan 2016 13:06:49 M. LONGINOTTI
ANT. POLARIZ. : HORIZONTAL
Limit
PEAK DETECTOR TRACE
LEVEL dBuV/m
120
105
90
75
60
45
30
15
0
START = 26500
FREQUENCY MHz
STOP = 40000

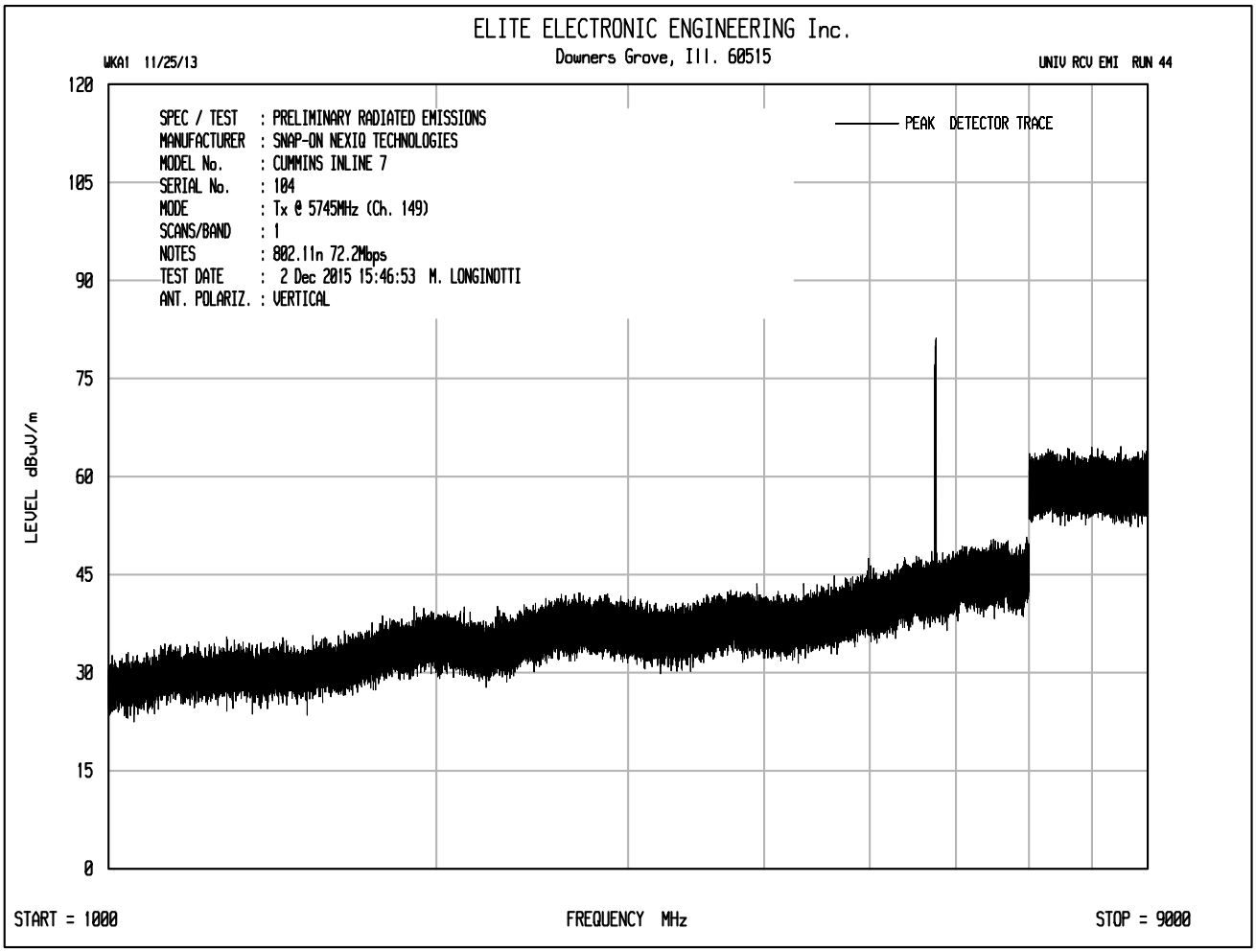

ELITE ELECTRONIC ENGINEERING Inc.
Downers Grove, Ill. 60515
WKA1 11/25/13
UNIV RCV EMI RUN 21
SPEC / TEST : PRELIMINARY RADAITED EMISSIONS
MANUFACTURER : SNAP-ON NEXIQ TECHNOLOGIES
MODEL No. : CUMMINS INLINE 7
SERIAL No. : 104
MODE : Tx @ 5745MHz (Ch. 149)
SCANS/BAND : 1
NOTES : 802.11a 6Mbps
TEST DATE : 8 Jan 2016 13:11:22 M. LONGINOTTI
ANT. POLARIZ. : VERTICAL
Limit
PEAK DETECTOR TRACE
LEVEL dBuV/m
120
105
90
75
60
45
30
15
0
START = 26500
FREQUENCY MHz
STOP = 40000

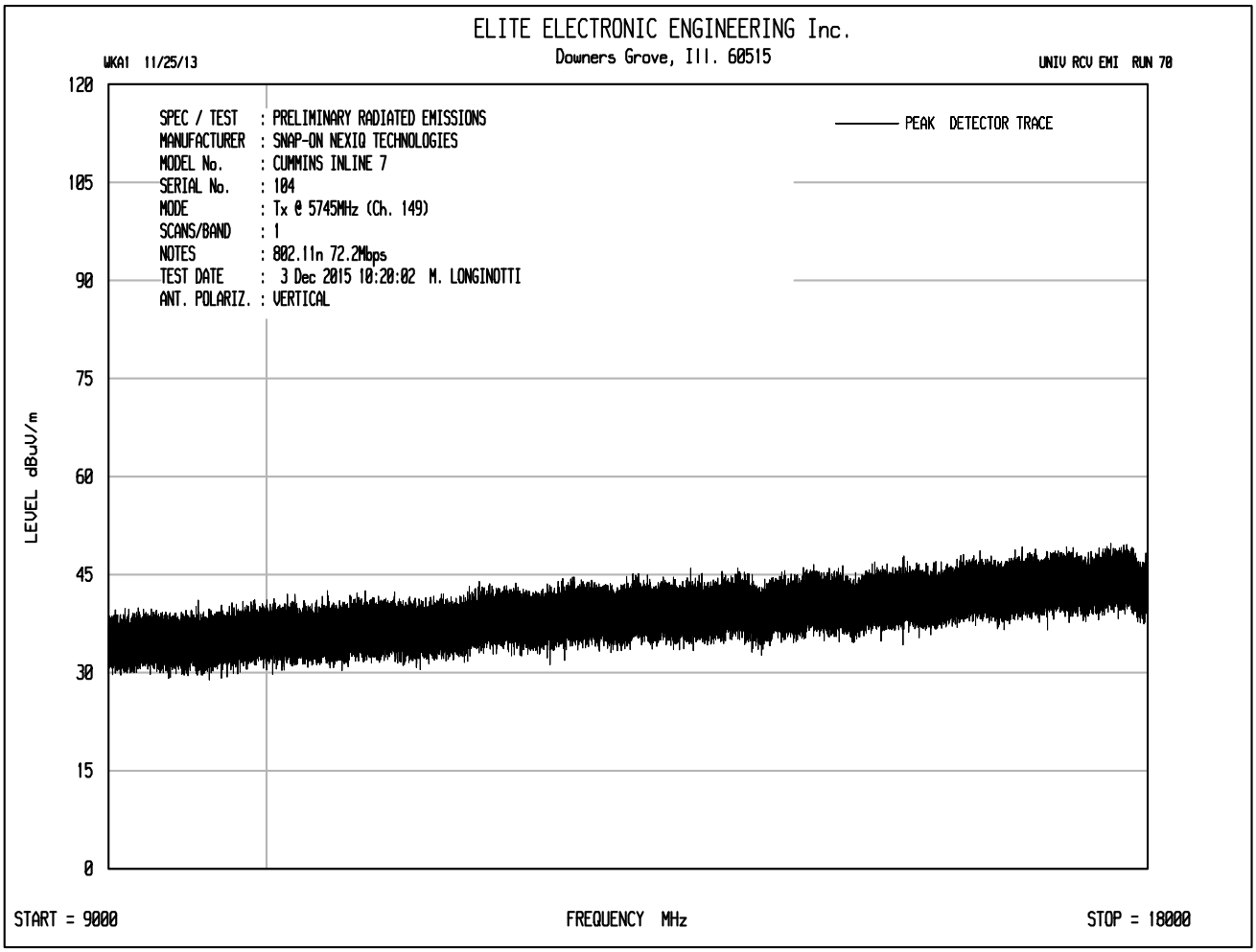

ELITE ELECTRONIC ENGINEERING Inc.
Downers Grove, Ill. 60515
WKA1 11/25/13
UNIV RCV EMI RUN 32
SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
MANUFACTURER : SNAP-ON NEXIQ TECHNOLOGIES
MODEL No. : CUMMINS INLINE 7
SERIAL No. : 104
MODE : Tx @ 5745MHz (Ch. 149)
SCANS/BAND : 1
NOTES : 802.11n 72 Mb/SEC
TEST DATE : 20 Nov 2015 16:07:29 M. LONGINOTTI
ANT. POLARIZ. : HORIZONTAL
PEAK DETECTOR TRACE
LEVEL dBuV/m
120
105
90
75
60
45
30
15
0
100
START = 30
FREQUENCY MHz
STOP = 1000

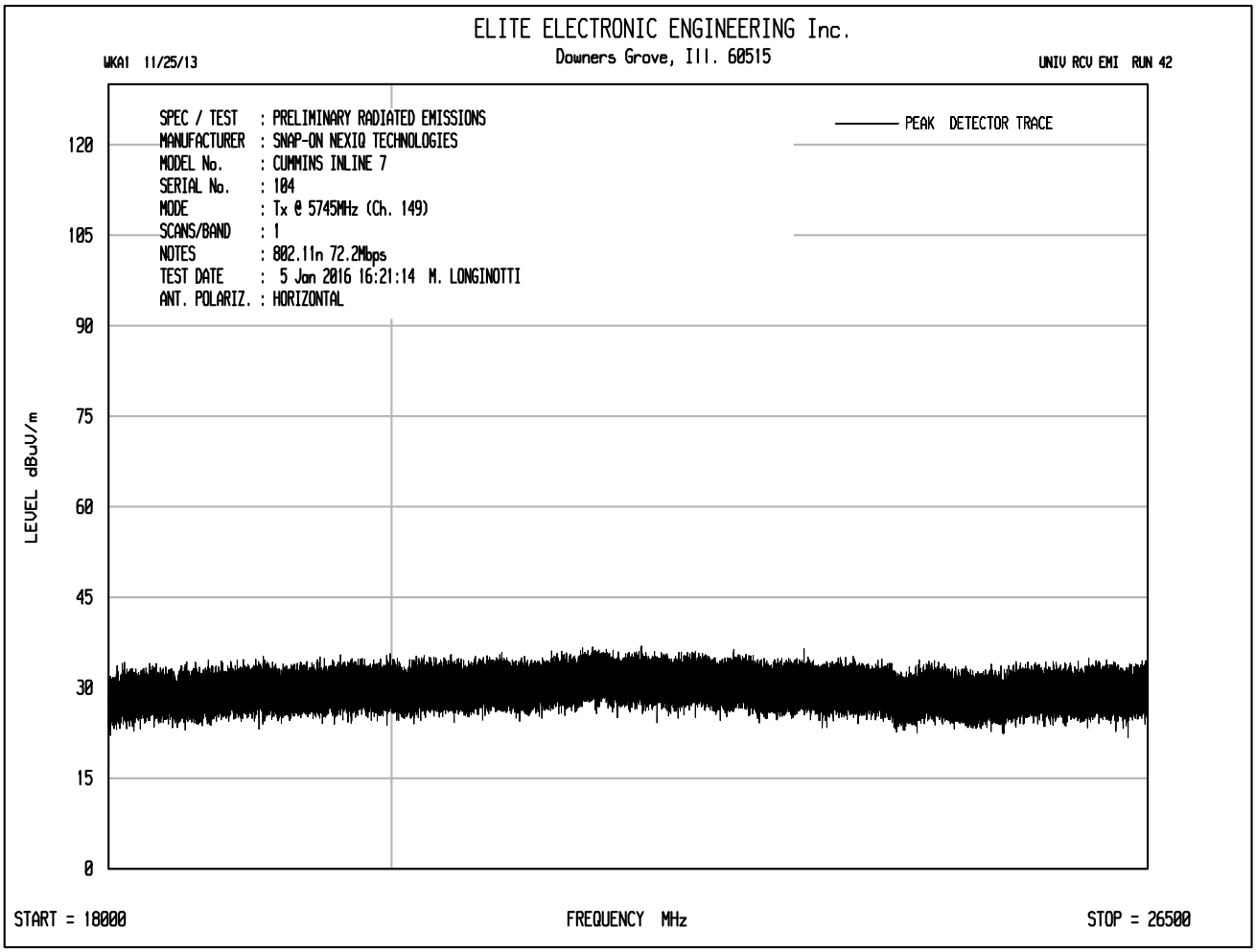

ELITE ELECTRONIC ENGINEERING Inc.
Downers Grove, Ill. 60515
WKA1 11/25/13
UNIV RCV EMI RUN 45
SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
MANUFACTURER : SNAP-ON NEXIQ TECHNOLOGIES
MODEL No. : CUMMINS INLINE 7
SERIAL No. : 104
MODE : Tx @ 5745MHz (Ch. 149)
SCANS/BAND : 1
NOTES : 802.11n 72.2Mbps
TEST DATE : 2 Dec 2015 15:49:26 M. LONGINOTTI
ANT. POLARIZ. : HORIZONTAL
PEAK DETECTOR TRACE
LEVEL dBuV/m
120
105
90
75
60
45
30
15
0
START = 1000
FREQUENCY MHz
STOP = 9000

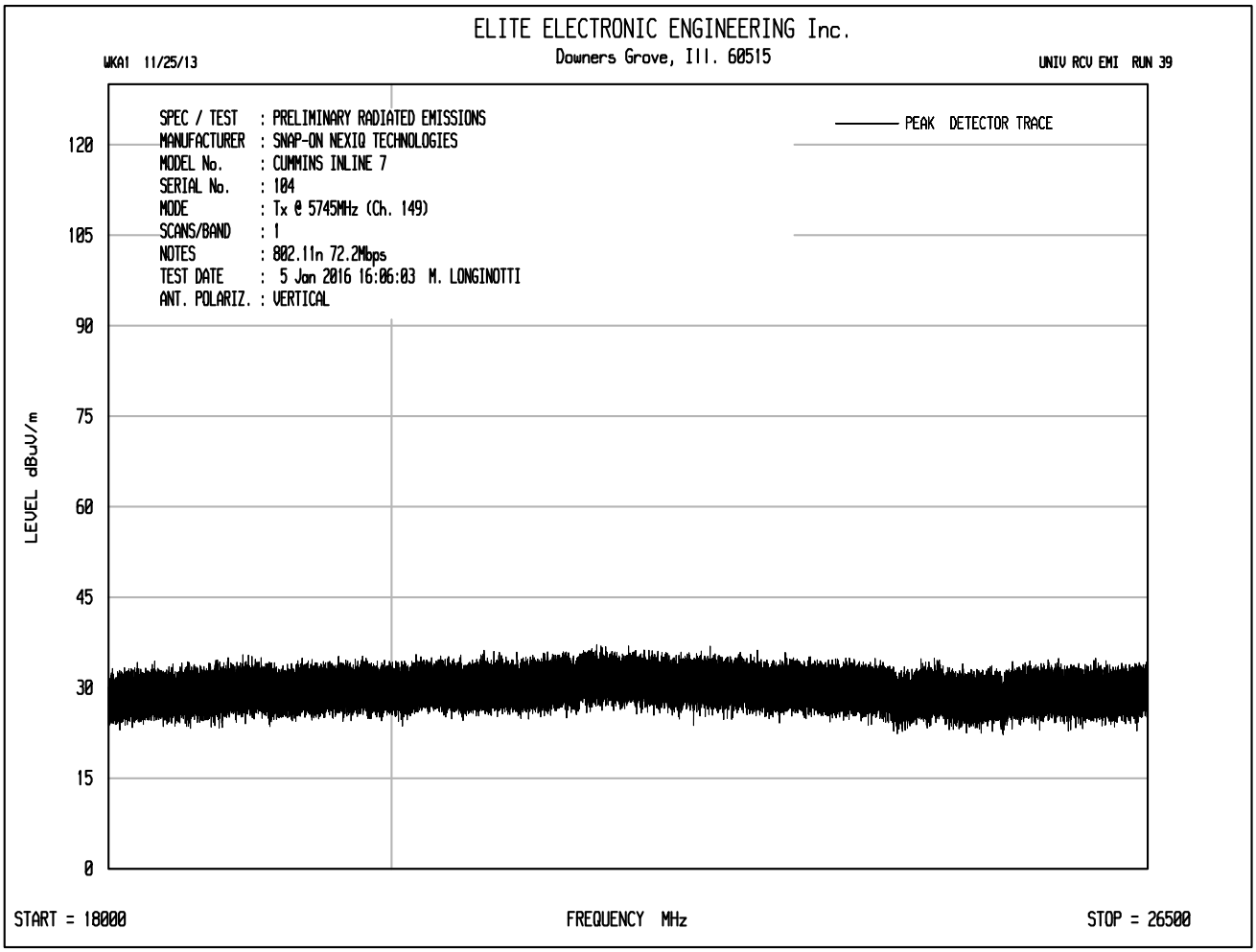

ELITE ELECTRONIC ENGINEERING Inc.
Downers Grove, Ill. 60515
WKA1 11/25/13
UNIV RCV EMI RUN 69
SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
MANUFACTURER : SNAP-ON NEXIQ TECHNOLOGIES
MODEL No. : CUMMINS INLINE 7
SERIAL No. : 104
MODE : Tx @ 5745MHz (Ch. 149)
SCANS/BAND : 1
NOTES : 802.11n 72.2Mbps
TEST DATE : 3 Dec 2015 10:17:39 M. LONGINOTTI
ANT. POLARIZ. : HORIZONTAL
PEAK DETECTOR TRACE
120
105
90
75
60
45
30
15
0
LEVEL dBuV/m
START = 9000
FREQUENCY MHz
STOP = 18000

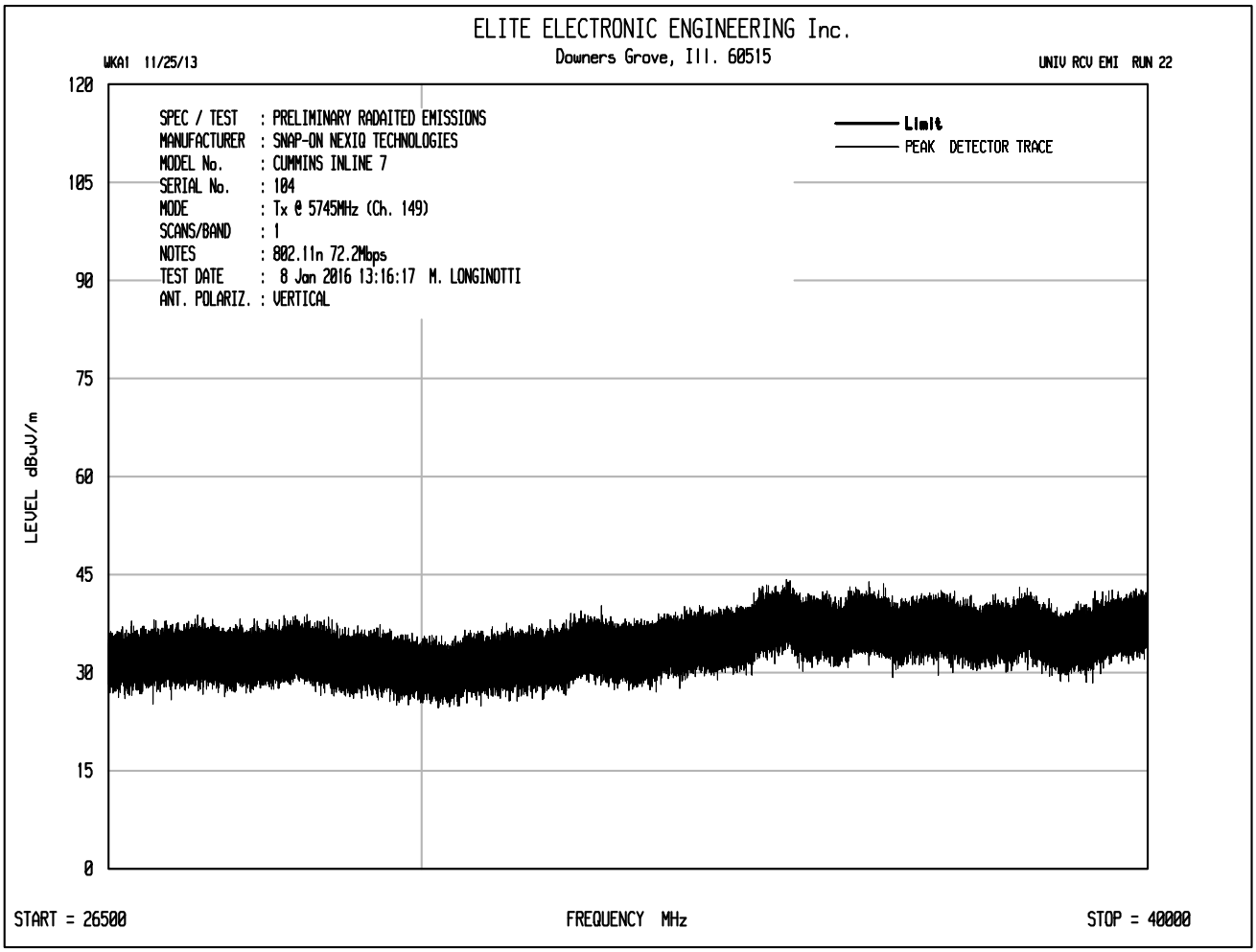

ELITE ELECTRONIC ENGINEERING Inc.
Downers Grove, Ill. 60515
WKA1 11/25/13
UNIV RCV EMI RUN 33
SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
MANUFACTURER : SNAP-ON NEXIQ TECHNOLOGIES
MODEL No. : CUMMINS INLINE 7
SERIAL No. : 104
MODE : Tx @ 5745MHz (Ch. 149)
SCANS/BAND : 1
NOTES : 802.11n 72 Mb/SEC
TEST DATE : 20 Nov 2015 16:09:02 M. LONGINOTTI
ANT. POLARIZ. : VERTICAL
PEAK DETECTOR TRACE
LEVEL dBuV/m
120
105
90
75
60
45
30
15
0
100
START = 30
FREQUENCY MHz
STOP = 1000

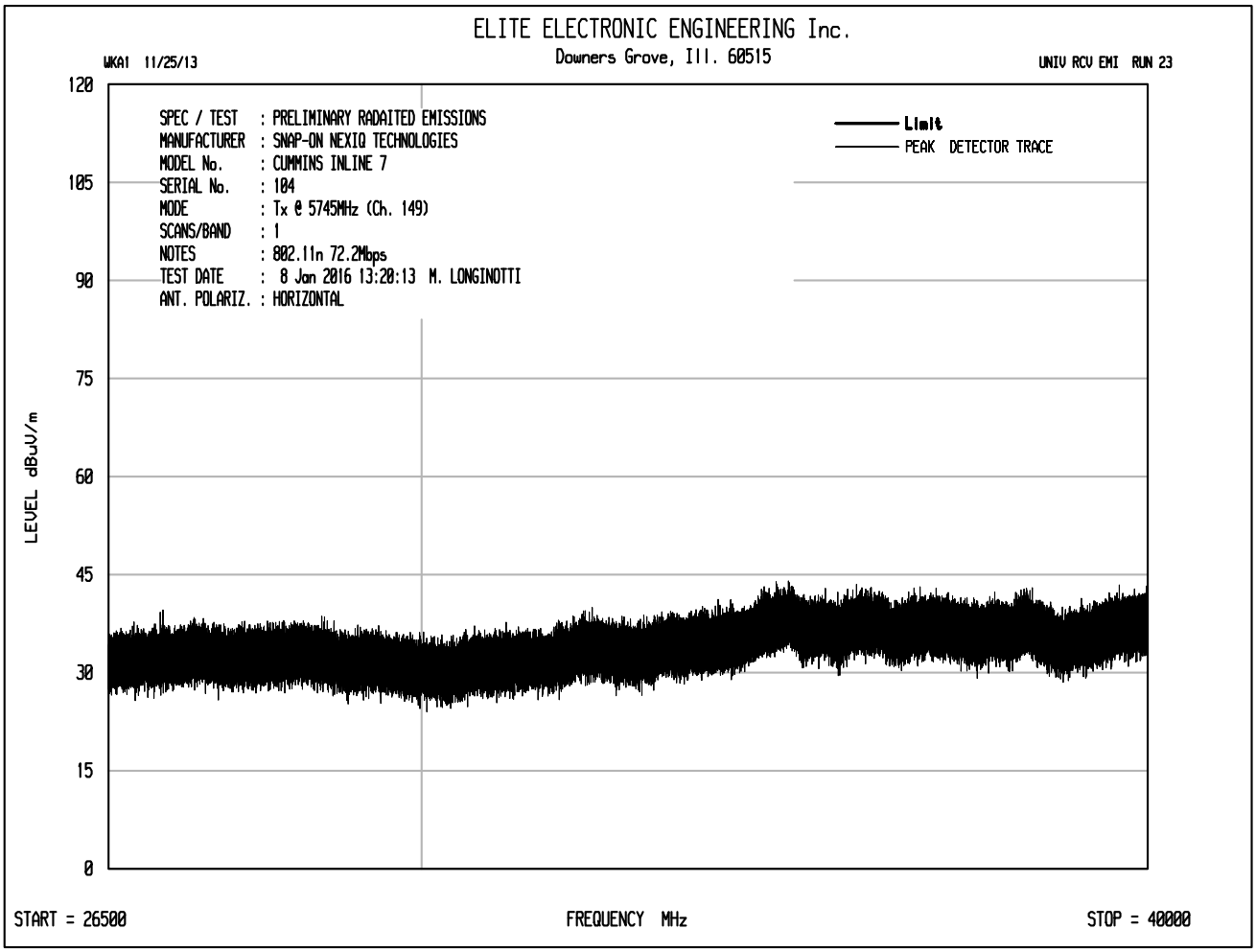

ELITE ELECTRONIC ENGINEERING Inc.
Downers Grove, Ill. 60515
WKA1 11/25/13
UNIV RCV EMI RUN 44
SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
MANUFACTURER : SNAP-ON NEXIQ TECHNOLOGIES
MODEL No. : CUMMINS INLINE 7
SERIAL No. : 104
MODE : Tx @ 5745MHz (Ch. 149)
SCANS/BAND : 1
NOTES : 802.11n 72.2Mbps
TEST DATE : 2 Dec 2015 15:46:53 M. LONGINOTTI
ANT. POLARIZ. : VERTICAL
PEAK DETECTOR TRACE
120
105
90
75
60
45
30
15
0
LEVEL dBuV/m
START = 1000
FREQUENCY MHz
STOP = 9000


ELITE ELECTRONIC ENGINEERING Inc.
Downers Grove, Ill. 60515
WKA1 11/25/13
UNIV RCV EMI RUN 70
SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
MANUFACTURER : SNAP-ON NEXIQ TECHNOLOGIES
MODEL No. : CUMMINS INLINE 7
SERIAL No. : 104
MODE : Tx @ 5745MHz (Ch. 149)
SCANS/BAND : 1
NOTES : 802.11n 72.2Mbps
TEST DATE : 3 Dec 2015 10:20:02 M. LONGINOTTI
ANT. POLARIZ. : VERTICAL
PEAK DETECTOR TRACE
LEVEL dBuV/m
120
105
90
75
60
45
30
15
0
START = 9000
FREQUENCY MHz
STOP = 18000


ELITE ELECTRONIC ENGINEERING Inc.
Downers Grove, Ill. 60515
WKA1 11/25/13
UNIV RCV EMI RUN 42
SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
MANUFACTURER : SNAP-ON NEXIQ TECHNOLOGIES
MODEL No. : CUMMINS INLINE 7
SERIAL No. : 104
MODE : Tx @ 5745MHz (Ch. 149)
SCANS/BAND : 1
NOTES : 802.11n 72.2Mbps
TEST DATE : 5 Jan 2016 16:21:14 M. LONGINOTTI
ANT. POLARIZ. : HORIZONTAL
PEAK DETECTOR TRACE
LEVEL dBuV/m
120
105
90
75
60
45
30
15
0
START = 18000
FREQUENCY MHz
STOP = 26500


ELITE ELECTRONIC ENGINEERING Inc.
Downers Grove, Ill. 60515
WKA1 11/25/13
UNIV RCV EMI RUN 39
SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
MANUFACTURER : SNAP-ON NEXIQ TECHNOLOGIES
MODEL No. : CUMMINS INLINE 7
SERIAL No. : 104
MODE : Tx @ 5745MHz (Ch. 149)
SCANS/BAND : 1
NOTES : 802.11n 72.2Mbps
TEST DATE : 5 Jan 2016 16:06:03 M. LONGINOTTI
ANT. POLARIZ. : VERTICAL
PEAK DETECTOR TRACE
LEVEL dBuV/m
120
105
90
75
60
45
30
15
0
START = 18000
FREQUENCY MHz
STOP = 26500


ELITE ELECTRONIC ENGINEERING Inc.
Downers Grove, Ill. 60515
WKA1 11/25/13
UNIV RCV EMI RUN 22
SPEC / TEST : PRELIMINARY RADAITED EMISSIONS
MANUFACTURER : SNAP-ON NEXIQ TECHNOLOGIES
MODEL No. : CUMMINS INLINE 7
SERIAL No. : 104
MODE : Tx @ 5745MHz (Ch. 149)
SCANS/BAND : 1
NOTES : 802.11n 72.2Mbps
TEST DATE : 8 Jan 2016 13:16:17 M. LONGINOTTI
ANT. POLARIZ. : VERTICAL
Limit
PEAK DETECTOR TRACE
LEVEL dBuV/m
120
105
90
75
60
45
30
15
0
START = 26500
FREQUENCY MHz
STOP = 40000


ELITE ELECTRONIC ENGINEERING Inc.
Downers Grove, Ill. 60515
WKA1 11/25/13
UNIV RCV EMI RUN 23
SPEC / TEST : PRELIMINARY RADAITED EMISSIONS
MANUFACTURER : SNAP-ON NEXIQ TECHNOLOGIES
MODEL No. : CUMMINS INLINE 7
SERIAL No. : 104
MODE : Tx @ 5745MHz (Ch. 149)
SCANS/BAND : 1
NOTES : 802.11n 72.2Mbps
TEST DATE : 8 Jan 2016 13:20:13 M. LONGINOTTI
ANT. POLARIZ. : HORIZONTAL
Limit
PEAK DETECTOR TRACE
LEVEL dBuV/m
120
105
90
75
60
45
30
15
0
START = 26500
FREQUENCY MHz
STOP = 40000

Manufacturer : Snap-On Nexiq Technologies
Model No. : Cummins INLINE 7
Serial No. : 104
Date Tested : November 20, 2015 through January 8, 2016
Test Performed : Radiated Spurious Emissions in Restricted Bands
Mode : Transmit at 5745MHz, 802.11a 6 Mb/sec
Test Distance : 3 meters
Notes : Peak Readings with a 1MHz RBW

Freq. MHz	Ant Pol	Meter Reading (dBuV)	Ambient	CBL Fac (dB)	Ant Fac (dB)	Pre Amp (dB)	Peak Total dBuV/m at 3m	Peak Total uV/m at 3 m	Peak Limit uV/m at 3 m	Margin (dB)
11490.00	H	48.3	Ambient	7.8	38.5	-39.2	55.4	587.0	5000.0	-18.6
11490.00	V	48.2	Ambient	7.8	38.5	-39.2	55.3	580.3	5000.0	-18.7
22980.00	H	33.3	Ambient	2.3	40.6	-29.9	46.3	205.8	5000.0	-27.7
22980.00	V	33.0	Ambient	2.3	40.6	-29.9	46.0	198.8	5000.0	-28.0

Peak Total (dBuV/m) = Meter Reading (dBuV) + CBL Fac (dB) + Ant Fac (dB) + Pre Amp (dB)

Peak Total (uV/m) = 10^(Peak Total (dBuV/m)/20)

Manufacturer : Snap-On Nexiq Technologies
Model No. : Cummins INLINE 7
Serial No. : 104
Date Tested : November 20, 2015 through January 8, 2016
Test Performed : Radiated Spurious Emissions in Restricted Bands
Mode : Transmit at 5745MHz, 802.11a 6 Mb/sec
Test Distance : 3 meters
Notes : Average Readings with a 1MHz RBW

Freq. MHz	Ant Pol	Meter Reading (dBuV)	Ambient	CBL Fac (dB)	Ant Fac (dB)	Pre Amp (dB)	Average Total dBuV/m at 3m	Average Total uV/m at 3 m	Average Limit uV/m at 3 m	Margin (dB)
11490.00	H	36.3	Ambient	7.8	38.5	-39.2	43.4	147.4	500.0	-10.6
11490.00	V	35.9	Ambient	7.8	38.5	-39.2	43.0	140.8	500.0	-11.0
22980.00	H	20.6	Ambient	2.3	40.6	-29.9	33.6	47.7	500.0	-20.4
22980.00	V	20.5	Ambient	2.3	40.6	-29.9	33.5	47.1	500.0	-20.5

Average Total (dBuV/m) = Meter Reading (dBuV) + CBL Fac (dB) + Ant Fac (dB) + Pre Amp (dB)

Average Total (uV/m) = 10^(Peak Total (dBuV/m)/20)

Manufacturer : Snap-On Nexiq Technologies
Model No. : Cummins INLINE 7
Serial No. : 104
Date Tested : November 20, 2015 through January 8, 2016
Test Performed : Radiated Spurious Emissions below 1GHz
Mode : Transmit at 5745MHz, 802.11a 6 Mb/sec
Test Distance : 3 meters
Notes : Quasi-Peak Readings with a 120kHz RBW

Freq. MHz	Ant Pol	Meter Reading (dBuV)	Ambient	CBL Fac (dB)	Ant Fac (dB)	Pre Amp (dB)	Peak Total dBuV/m at 3m	Peak Total uV/m at 3 m	Peak Limit uV/m at 3 m	Margin (dB)
480.00	H	18.5		1.5	23.4	0.0	43.4	148.2	200.0	-2.6
480.00	V	19.9		1.5	23.4	0.0	44.8	174.1	200.0	-1.2

Quasi-Peak Total (dBuV/m) = Meter Reading (dBuV) + CBL Fac (dB) + Ant Fac (dB) + Pre Amp (dB)

Quasi-Peak Total (uV/m) = 10^(Peak Total (dBuV/m)/20)

Manufacturer : Snap-On Nexiq Technologies
Model No. : Cummins INLINE 7
Serial No. : 104
Date Tested : November 20, 2015 through January 8, 2016
Test Performed : Radiated Spurious Emissions in Restricted Bands
Mode : Transmit at 5745MHz, 802.11n 72.2 Mb/sec
Test Distance : 3 meters
Notes : Peak Readings with a 1MHz RBW

Freq. MHz	Ant Pol	Meter Reading (dBuV)	Ambient	CBL Fac (dB)	Ant Fac (dB)	Pre Amp (dB)	Peak Total dBuV/m at 3m	Peak Total uV/m at 3 m	Peak Limit uV/m at 3 m	Margin (dB)
11490.00	H	47.1	Ambient	7.8	38.5	-39.2	54.2	511.3	5000.0	-19.8
11490.00	V	48.0	Ambient	7.8	38.5	-39.2	55.1	567.1	5000.0	-18.9
22980.00	H	31.7	Ambient	2.3	40.6	-29.9	44.7	171.2	5000.0	-29.3
22980.00	V	32.5	Ambient	2.3	40.6	-29.9	45.5	187.7	5000.0	-28.5

Peak Total (dBuV/m) = Meter Reading (dBuV) + CBL Fac (dB) + Ant Fac (dB) + Pre Amp (dB)

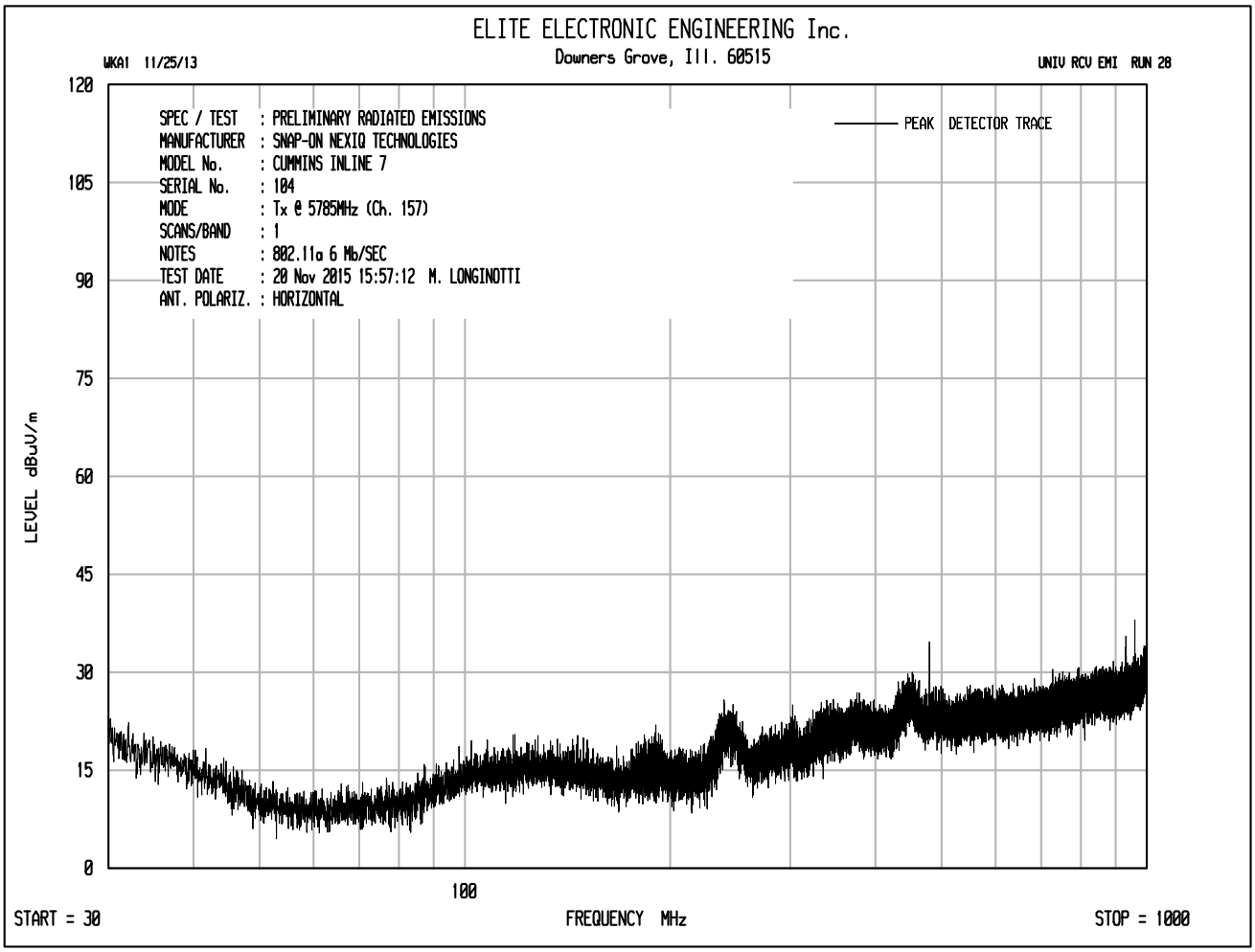
Peak Total (uV/m) = 10^(Peak Total (dBuV/m)/20)

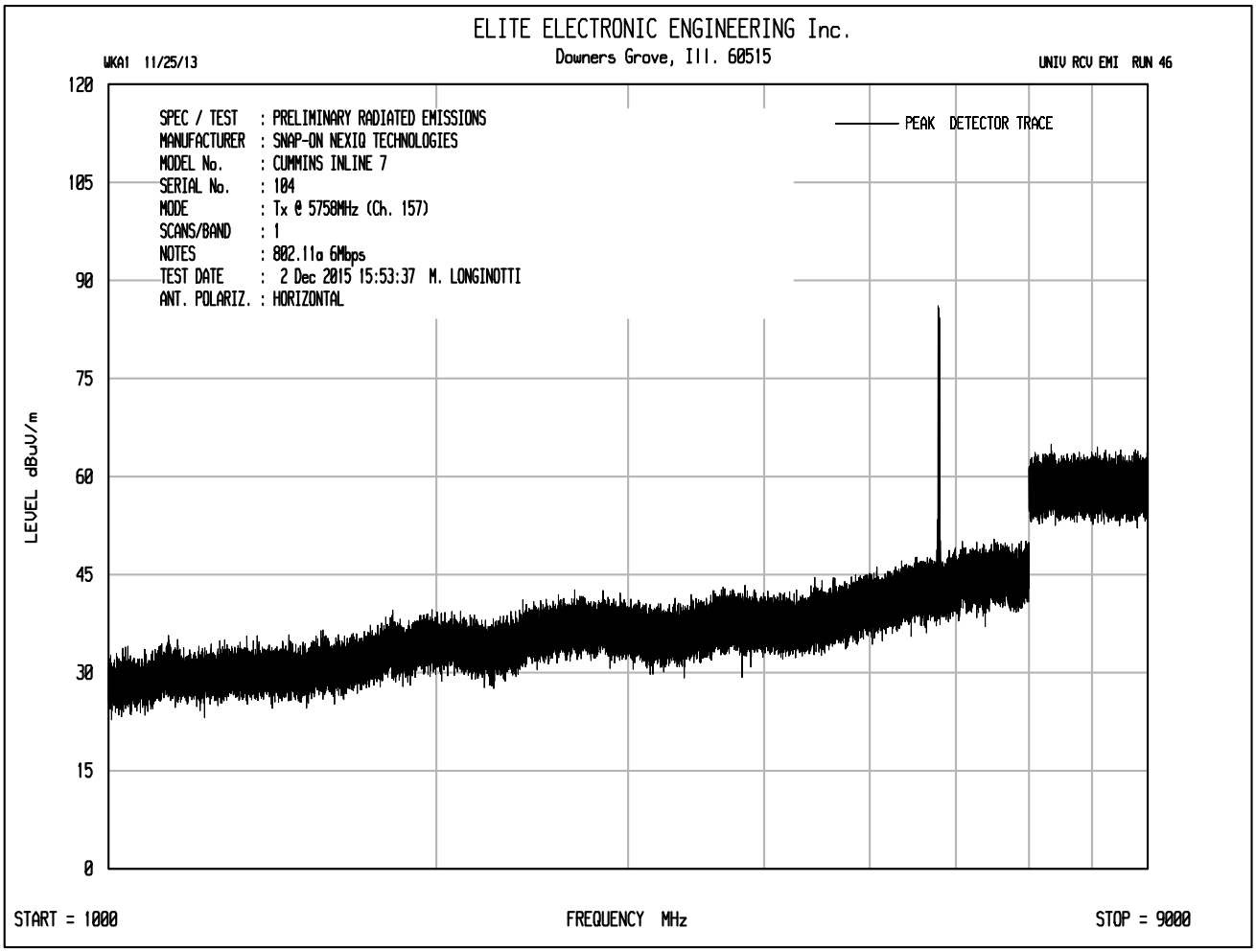
Manufacturer : Snap-On Nexiq Technologies
Model No. : Cummins INLINE 7
Serial No. : 104
Date Tested : November 20, 2015 through January 8, 2016
Test Performed : Radiated Spurious Emissions in Restricted Bands
Mode : Transmit at 5745MHz, 802.11n 72.2 Mb/sec
Test Distance : 3 meters
Notes : Average Readings with a 1MHz RBW

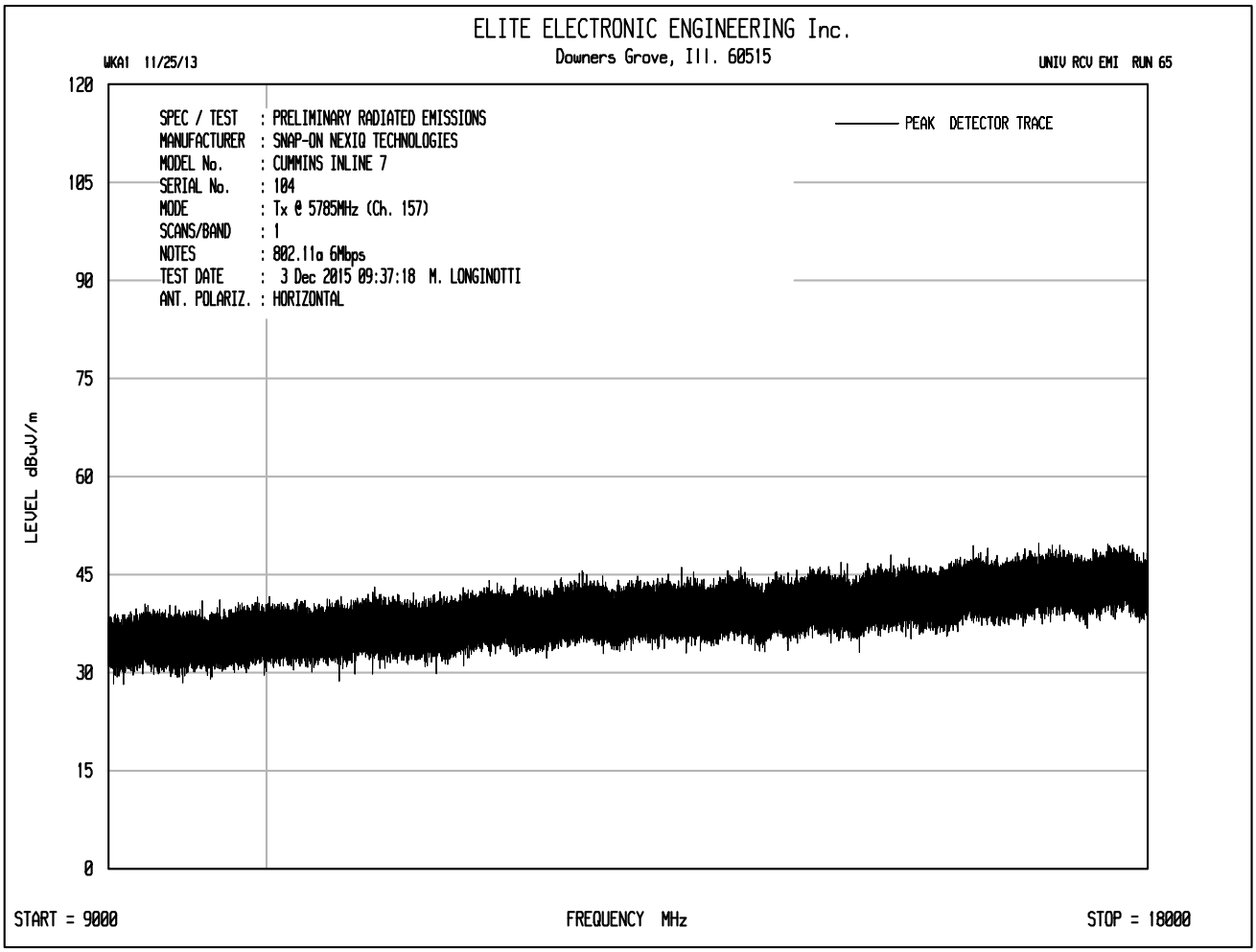
Freq. MHz	Ant Pol	Meter Reading (dBuV)	Ambient	CBL Fac (dB)	Ant Fac (dB)	Pre Amp (dB)	Average Total dBuV/m at 3m	Average Total uV/m at 3 m	Average Limit uV/m at 3 m	Margin (dB)
11490.00	H	35.6	Ambient	7.8	38.5	-39.2	42.7	136.0	500.0	-11.3
11490.00	V	35.8	Ambient	7.8	38.5	-39.2	42.9	139.2	500.0	-11.1
22980.00	H	20.5	Ambient	2.3	40.6	-29.9	33.5	47.1	500.0	-20.5
22980.00	V	20.6	Ambient	2.3	40.6	-29.9	33.6	47.7	500.0	-20.4

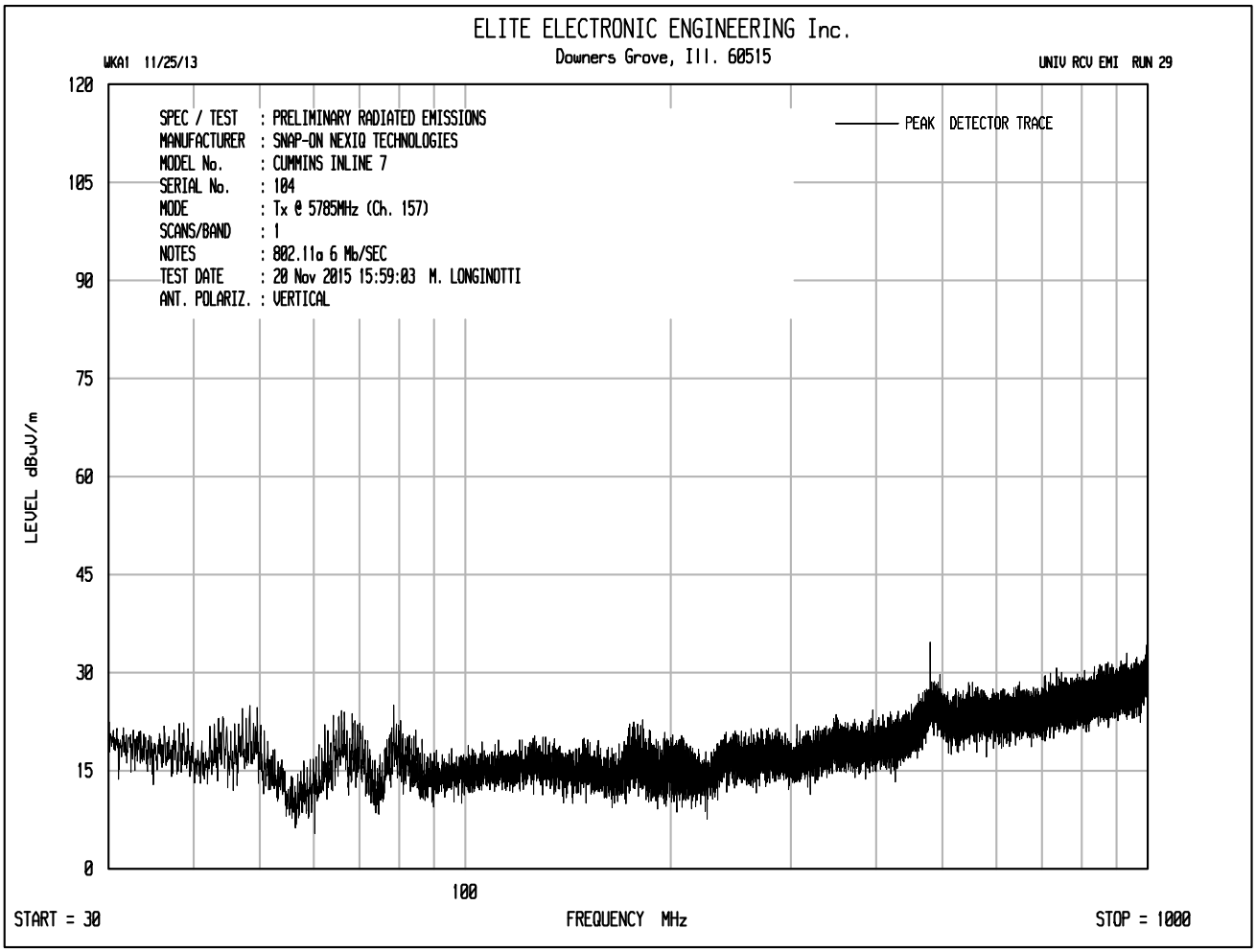
Average Total (dBuV/m) = Meter Reading (dBuV) + CBL Fac (dB) + Ant Fac (dB) + Pre Amp (dB)

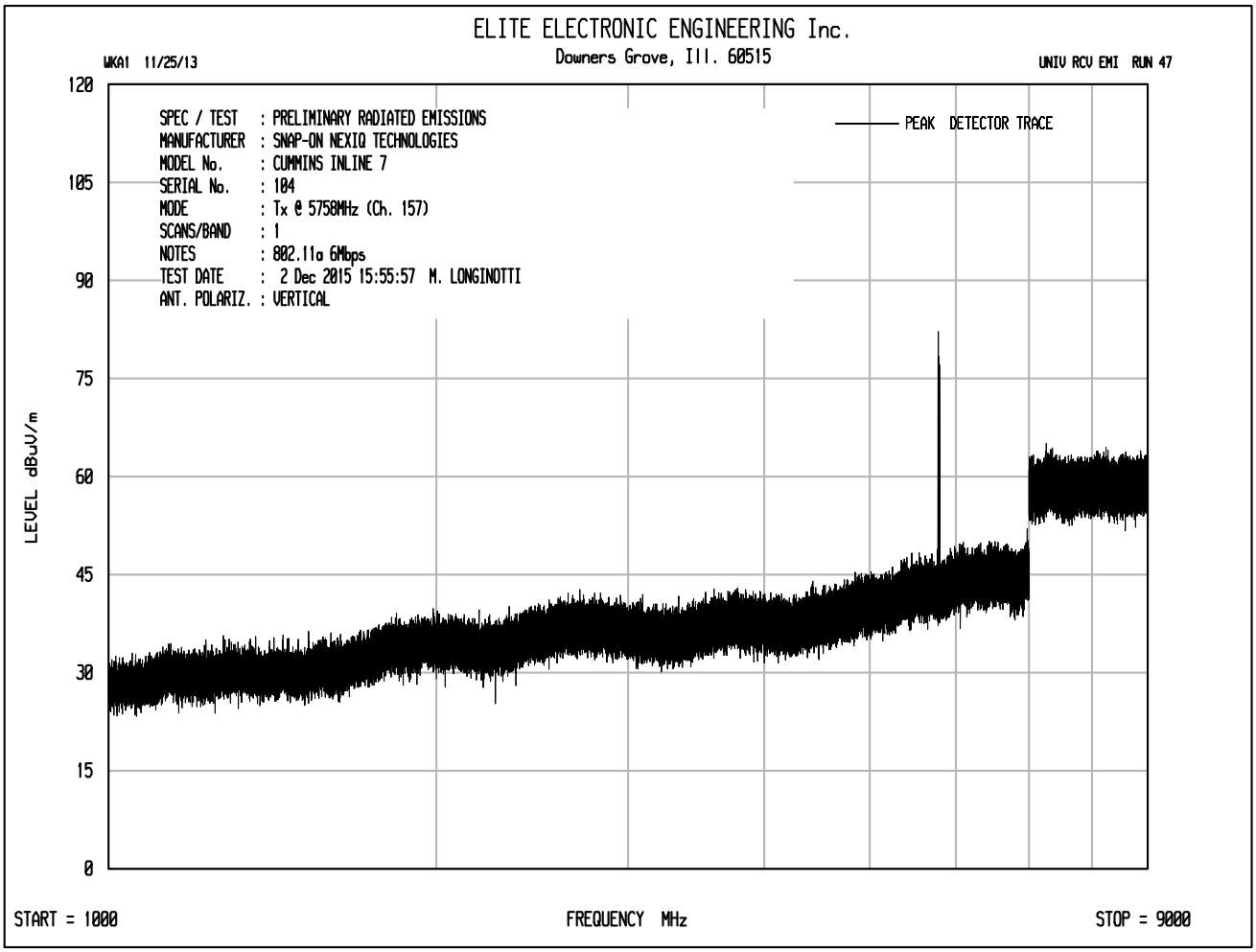
Average Total (uV/m) = 10^(Peak Total (dBuV/m)/20)

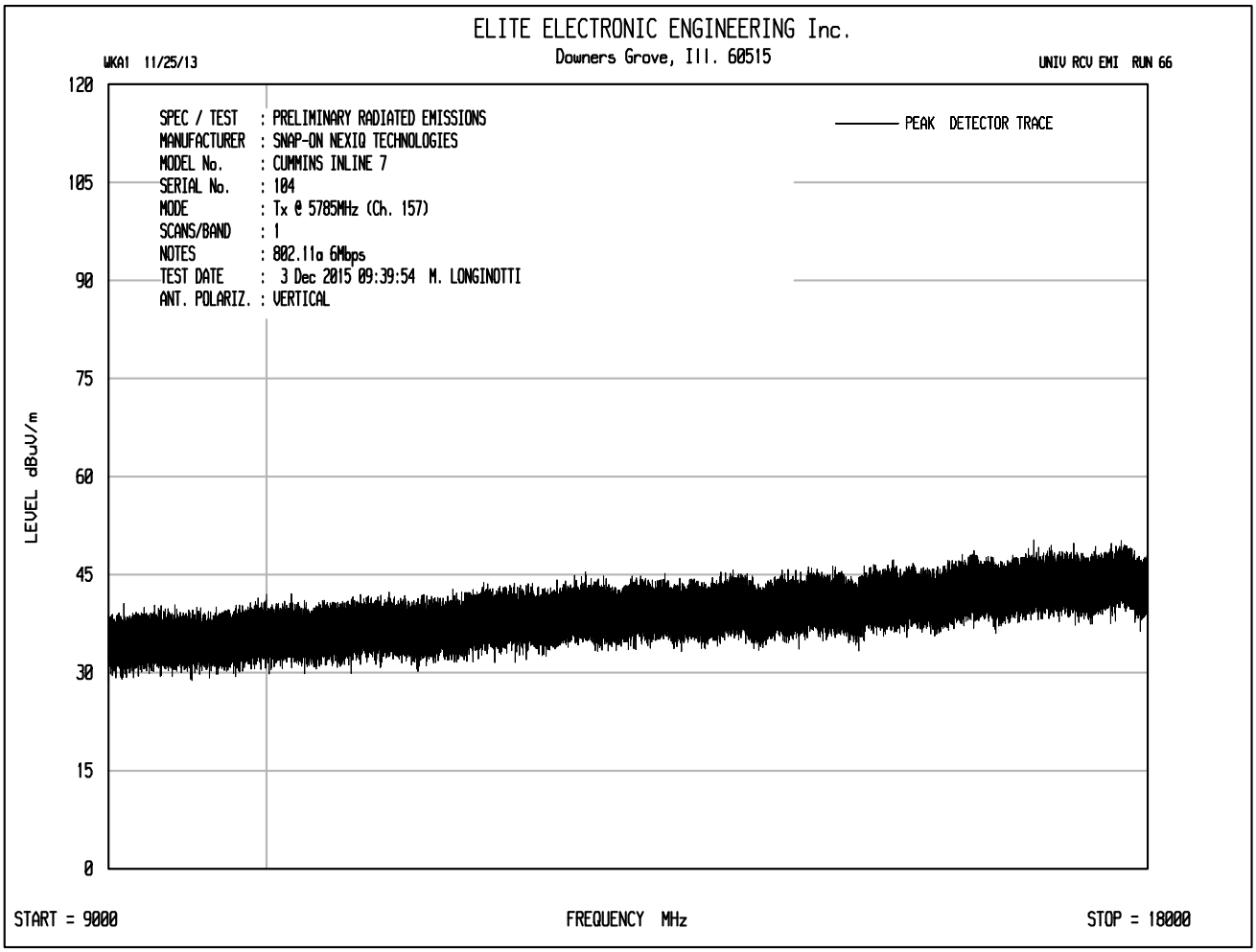

ELITE ELECTRONIC ENGINEERING Inc.
Downers Grove, Ill. 60515
WKA1 11/25/13
UNIV RCV EMI RUN 28
SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
MANUFACTURER : SNAP-ON NEXIQ TECHNOLOGIES
MODEL No. : CUMMINS INLINE 7
SERIAL No. : 104
MODE : Tx @ 5785MHz (Ch. 157)
SCANS/BAND : 1
NOTES : 802.11a 6 Mb/SEC
TEST DATE : 20 Nov 2015 15:57:12 M. LONGINOTTI
ANT. POLARIZ. : HORIZONTAL
PEAK DETECTOR TRACE
LEVEL dBuV/m
120
105
90
75
60
45
30
15
0
100
START = 30
FREQUENCY MHz
STOP = 1000


ELITE ELECTRONIC ENGINEERING Inc.
Downers Grove, Ill. 60515
WKA1 11/25/13
UNIV RCV EMI RUN 46
SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
MANUFACTURER : SNAP-ON NEXIQ TECHNOLOGIES
MODEL No. : CUMMINS INLINE 7
SERIAL No. : 104
MODE : Tx @ 5758MHz (Ch. 157)
SCANS/BAND : 1
NOTES : 802.11a 6Mbps
TEST DATE : 2 Dec 2015 15:53:37 M. LONGINOTTI
ANT. POLARIZ. : HORIZONTAL
PEAK DETECTOR TRACE
LEVEL dBuV/m
120
105
90
75
60
45
30
15
0
START = 1000
FREQUENCY MHz
STOP = 9000


ELITE ELECTRONIC ENGINEERING Inc.
Downers Grove, Ill. 60515
WKA1 11/25/13
UNIV RCV EMI RUN 65
SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
MANUFACTURER : SNAP-ON NEXIQ TECHNOLOGIES
MODEL No. : CUMMINS INLINE 7
SERIAL No. : 104
MODE : Tx @ 5785MHz (Ch. 157)
SCANS/BAND : 1
NOTES : 802.11a 6Mbps
TEST DATE : 3 Dec 2015 09:37:18 M. LONGINOTTI
ANT. POLARIZ. : HORIZONTAL
PEAK DETECTOR TRACE
120
105
90
75
60
45
30
15
0
LEVEL dBuV/m
START = 9000
FREQUENCY MHz
STOP = 18000


ELITE ELECTRONIC ENGINEERING Inc.
Downers Grove, Ill. 60515
WKA1 11/25/13
UNIV RCV EMI RUN 29
SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
MANUFACTURER : SNAP-ON NEXIQ TECHNOLOGIES
MODEL No. : CUMMINS INLINE 7
SERIAL No. : 104
MODE : Tx @ 5785MHz (Ch. 157)
SCANS/BAND : 1
NOTES : 802.11a 6 Mb/SEC
TEST DATE : 20 Nov 2015 15:59:03 M. LONGINOTTI
ANT. POLARIZ. : VERTICAL
PEAK DETECTOR TRACE
LEVEL dBuV/m
120
105
90
75
60
45
30
15
0
100
START = 30
FREQUENCY MHz
STOP = 1000


ELITE ELECTRONIC ENGINEERING Inc.
Downers Grove, Ill. 60515
WKA1 11/25/13
UNIV RCV EMI RUN 47
SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
MANUFACTURER : SNAP-ON NEXIQ TECHNOLOGIES
MODEL No. : CUMMINS INLINE 7
SERIAL No. : 104
MODE : Tx @ 5758MHz (Ch. 157)
SCANS/BAND : 1
NOTES : 802.11a 6Mbps
TEST DATE : 2 Dec 2015 15:55:57 M. LONGINOTTI
ANT. POLARIZ. : VERTICAL
PEAK DETECTOR TRACE
120
105
90
75
60
45
30
15
0
LEVEL dBuV/m
START = 1000
FREQUENCY MHz
STOP = 9000


ELITE ELECTRONIC ENGINEERING Inc.
Downers Grove, Ill. 60515
WKA1 11/25/13
UNIV RCV EMI RUN 66
SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
MANUFACTURER : SNAP-ON NEXIQ TECHNOLOGIES
MODEL No. : CUMMINS INLINE 7
SERIAL No. : 104
MODE : Tx @ 5785MHz (Ch. 157)
SCANS/BAND : 1
NOTES : 802.11a 6Mbps
TEST DATE : 3 Dec 2015 09:39:54 M. LONGINOTTI
ANT. POLARIZ. : VERTICAL
PEAK DETECTOR TRACE
120
105
90
75
60
45
30
15
0
LEVEL dBuV/m
START = 9000
FREQUENCY MHz
STOP = 18000