



Measurement of RF Emissions from a Stronghold Garage Door Opener Model No. 8575W Transmitter

For	Chamberlain Group Inc. 1818 Swift Dr. Oak Brook, IL 60523
P.O. Number	4900047788
Date Tested	October 16-18, 2017
Test Personnel	Tylar Jozefczyk
Test Specification	FCC "Code of Federal Regulations" Title 47, Part 15, Subpart C, Section 15.247 for Digital Modulation Intentional Radiators Operating within The bands 902-928MHz, 2400-2483.5MHz, and 5725-5850MHz Industry Canada RSS-GEN Industry Canada RSS-247

Test Report By:

A handwritten signature in black ink, appearing to read "Tylar Jozefczyk".

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EMC Engineer

Requested By:

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Approved By:

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Raymond J. Klouda
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TABLE OF CONTENTS

PARAGRAPH	DESCRIPTION OF CONTENTS	PAGE NO.
1. Introduction.....		5
1.1. Scope of Tests.....		5
1.2. Purpose		5
1.3. Deviations, Additions and Exclusions.....		5
1.4. EMC Laboratory Identification		5
1.5. Laboratory Conditions.....		5
2. Applicable Documents.....		5
3. EUT Setup and Operation.....		6
3.1. General Description		6
3.1.1. Power Input.....		6
3.1.2. Grounding		6
3.2. Operational Mode		6
3.3. EUT Modifications.....		6
4. Test Facility and Test Instrumentation.....		6
4.1. Shielded Enclosure.....		6
4.2. Test Instrumentation.....		6
4.3. Calibration Traceability.....		6
4.4. Measurement Uncertainty		7
5. Test Procedures		7
5.1. Powerline Conducted Emissions.....		7
5.1.1. Requirements.....		7
5.1.2. Procedures.....		7
5.1.3. Results		8
5.2. Peak Output Power.....		8
5.2.1. Requirements.....		8
5.2.2. Procedures.....		8
5.2.3. Results		8
5.3. Radiated Spurious Emissions Measurements.....		9
5.3.1. Requirements.....		9
5.3.2. Procedures.....		9
5.3.3. Results		10
5.4. Band Edge Compliance		10
5.4.1. Requirement.....		11
5.4.2. Procedures.....		11
5.4.2.1 Low Band Edge		11
5.4.2.2 High Band Edge.....		11
5.4.3. Results		12
6. Other Test Conditions		12
6.1. Test Personnel and Witnesses.....		12
6.2. Disposition of the EUT		12

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TABLE OF CONTENTS

PARAGRAPH	DESCRIPTION OF CONTENTS	PAGE NO.
7.	Conclusions.....	12
8.	Certification.....	12
9.	Equipment List.....	13

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REVISION HISTORY

Revision	Date	Description
—	31 OCT 2017	Initial release

Measurement of RF Emissions from a Stronghold Garage Door Opener, Model No. 8575W Transmitter

1. INTRODUCTION

1.1. Scope of Tests

This report represents the results of the series of radio interference measurements performed on a Chamberlain Group Inc. Stronghold Garage Door Opener, Model No. 8575W, transmitter (hereinafter referred to as the EUT). The EUT is a digital modulation transmitter. The transmitter was designed to transmit in the 2400-2483.5 MHz band using an internal antenna. The EUT that was tested had a LMA module (FCC ID: HBW8169-1) added to a new host.

The EUT was manufactured and submitted for testing by Chamberlain Group Inc. located in Oak Brook, IL.

1.2. Purpose

The test series was performed to determine if the EUT meets the conducted and radiated RF emission requirements of the FCC "Code of Federal Regulations" Title 47, Part 15, Subpart C, Sections 15.207 and 15.247 for Intentional Radiators. The test series was also performed to determine if the EUT meets the conducted RF emission requirements of the Industry Canada Radio Standards Specification, RSS-Gen, Section 7.2.4 and the radiated RF emission requirements of the Industry Canada Radio Standards Specification, RSS-210, Annex 8 for transmitters. Testing was performed in accordance with ANSI C63.4-2014.

1.3. Deviations, Additions and Exclusions

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

1.4. EMC Laboratory Identification

This series of tests was performed by Elite Electronic Engineering Incorporated of Downers Grove, Illinois. The laboratory is accredited by The American Association for Laboratory Accreditation (A2LA). A2LA Certificate Number: 1786.01.

1.5. Laboratory Conditions

The temperature at the time of the test was 23.5°C and the relative humidity was 35%.

2. APPLICABLE DOCUMENTS

The following documents of the exact issue designated form part of this document to the extent specified herein:

- Federal Communications Commission "Code of Federal Regulations", Title 47, Part 15, Subpart C, dated 1 October 2016
- Federal Communications Commission Office of Engineering and Technology Laboratory Division Guidance for Performing Compliance Measurements on Digital Transmission Systems (DTS) Operating Under Section 15.247, October 4, 2012
- ANSI C63.4-2014, "American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz"
- ANSI C63.10-2013, " American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices"
- Industry Canada Radio Standards Specification, RSS-Gen, "General Requirements for Compliance of Radio Apparatus", Issue 4, November 2014

- Industry Canada Radio Standards Specification, RSS-247, "Digital Transmission Systems (DTSS), Frequency Hopping Systems (FHSs) and License-Exempt Local Area Network (LE-LAN) Devices", Issue 2, February 2017

3. EUT SETUP AND OPERATION

3.1. General Description

The EUT is a Chamberlain Group Inc., Stronghold Garage Door Opener, Model No. 8575W. A block diagram of the EUT setup is shown as Figure 1.

3.1.1. Power Input

The EUT was powered with 120VAC through two (2) 1-meter, unshielded leads.

3.1.2. Grounding

The EUT was grounded only through the third wire of its input power cord.

3.2. Operational Mode

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

- Transmit in the 802.11b band with a 1Mbps rate
- Transmit in the 802.11g band with a 54Mbps rate
- Transmit in the 802.11n band

All three bands were tested with the same channels/frequencies:

- Channel 1 = 2412MHz
- Channel 6 = 2437MHz
- Channel 11 = 2462MHz

3.3. EUT Modifications

No modifications were required for compliance to the FCC 15.247 requirements.

4. TEST FACILITY AND TEST INSTRUMENTATION

4.1. Shielded Enclosure

All tests were performed in a 32ft. x 20ft. x 18ft. hybrid ferrite-tile/anechoic absorber lined test chamber. With the exception of the floor, the reflective surfaces of the shielded chamber are lined with ferrite tiles on the walls and ceiling. Anechoic absorber material is installed over the ferrite tile. The floor of the chamber is used as the ground plane. The chamber complies with ANSI C63.4-2014 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 measurements were performed with a spectrum analyzer. This receiver allows measurements with the bandwidths and detector functions specified by the FCC. The receiver bandwidth was 120kHz for the 30MHz to 1000MHz radiated emissions data and 1MHz for the 1000MHz to 5000MHz radiated emissions data.

4.3. Calibration Traceability

Test equipment is maintained and calibrated on a regular basis. All calibrations are traceable to the National Institute of Standards and Technology (NIST).

4.4. Measurement Uncertainty

All measurements are an estimate of their true value. The measurement uncertainty characterizes, with a specified confidence level, the spread of values which may be possible for a given measurement system.

Values of Expanded Measurement Uncertainty (95% Confidence) are presented below:

Measurement Type	Expanded Measurement Uncertainty
Conducted disturbance (mains port) (150 kHz – 30 MHz)	2.7
Radiated disturbance (electric field strength on an open area test site or alternative test site) (30 MHz – 1000 MHz)	4.3
Radiated disturbance (electric field strength on an open area test site or alternative test site) (1 GHz – 6 GHz)	3.1
Radiated disturbance (electric field strength on an open area test site or alternative test site) (6 GHz – 18 GHz)	3.2

5. TEST PROCEDURES

5.1. Powerline Conducted Emissions

5.1.1. Requirements

Per the FCC "Code of Federal Regulations" Title 47, Part 15, Subpart C, Per 15.207(a) and Industry Canada RSS-Gen section 7.2.4, all radio frequency voltages on the power lines of a transmitter shall be below the values shown below when using a quasi-peak or average detector:

Frequency MHz	Conducted Limit (dB μ V)	
	Quasi-peak	Average
0.15 – 0.5	66 decreasing with logarithm of frequency to 56	56 decreasing with logarithm of frequency to 46
0.5 - 5	56	46
5 - 30	60	50

Note 1: The lower limit shall apply at the transition frequencies.

Note 2: If the levels measured using the QP detector meet both the QP and the Average limits, the EUT is considered to have met both requirements and measurements do not need to be performed using the Average detector.

5.1.2. Procedures

The interference on each power lead of the EUT was measured by connecting the measuring equipment to the appropriate meter terminal of the Line Impedance Stabilization Network (LISN). The meter terminal of the LISN not under test was terminated with 50 ohms.

- a) The EUT was operated in the 802.11b mode.
- b) Measurements were first made on the 120VAC high line.
- c) The frequency range from 150 kHz to 30 MHz was broken up into smaller frequency sub-bands.
- d) Conducted emissions measurements were taken on the first frequency sub-band using a peak detector.

- e) The data thus obtained was then searched by the computer for the highest levels. Any emissions levels that were within 10dB of the average limit were then measured again using both a quasi-peak detector and an average detector. (If no peak readings were within 10dB of the average limit, quasi-peak and average readings were taken on the highest emissions levels measured during the peak detector scan.)
- f) Steps (d) and (e) were repeated for the remainder of the frequency sub-bands until the entire frequency range from 150kHz to 30MHz was investigated. The peak trace was automatically plotted. The plot also shows quasi-peak and average readings that were taken on discrete frequencies. A table showing the quasi-peak and average readings was also generated. This tabular data compares the quasi-peak and average conducted emissions to the applicable conducted emissions limits.
- g) Steps (c) through (f) were repeated on the 120VAC return line.

5.1.3. Results

The plots and tabular data of the peak, quasi-peak, and average conducted voltage levels acquired from each input power line with the EUT operated in the 802.11b mode are shown on pages 20 through 24. All power line conducted emissions measured from the EUT were within the specification limits. The emissions level closest to the limit (worst case) occurred at 2750MHz. The emissions level at this frequency was 2.5dB within the limit. Photographs of the test configuration which yielded the highest or worst case, conducted emission levels are shown on Figure 2.

5.2. Peak Output Power

5.2.1. 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).

A manually operated transmitter shall employ a switch that will automatically deactivate the transmitter within not more than 5 seconds of being released. Also, a transmitter activated automatically shall cease transmission within 5 seconds after activation.

5.2.2. Procedures

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

The equivalent power was determined from the field intensity levels measured at 3 meters using the substitution method. To determine the emission power, a second double ridged waveguide antenna was then set in place of the EUT and connected to a calibrated signal generator. The output of the signal generator was adjusted to match the received level at the spectrum analyzer. The signal level was recorded. The reading was then corrected to compensate for cable loss and antenna gain, as required. The peak power output was calculated for low, middle, and high hopping frequencies.

5.2.3. Results

For radiated emissions method, the results are presented on pages 25 through 27. The maximum EIRP measured from the transmitter occurred at the following for all three modes:

- For 802.11b, the maximum EIRP was 18.8dBm (0.0758W), which is below the 4 Watt limit.
- For 802.11g, the maximum EIRP was 23.6dBm (0.229W), which is below the 4 Watt limit.
- For 802.11n, the maximum EIRP was 22.1dBm (0.16218W), which is below the 4 Watt limit.

5.3. Radiated Spurious Emissions Measurements

5.3.1. Requirements

Per section 15.247(d), in any 100kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated emissions measurement. Attenuation below the general limits specified in §15.209(a) is not required. In addition, 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

5.3.2. Procedures

All tests were performed in a 32ft. x 20ft. x 18ft. hybrid ferrite-tile/anechoic absorber lined test chamber. The walls and ceiling of the shielded chamber are lined with ferrite tiles. Anechoic absorber material is installed over the ferrite tile. The floor of the chamber is used as the ground plane. The chamber complies with ANSI C63.4-2014 for site attenuation.

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

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

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

1) For all harmonics not in the restricted bands, the following procedure was used:

- a) The field strength of the fundamental was measured using a double ridged waveguide antenna. The waveguide antenna was positioned at a 3 meter distance from the EUT. A peak detector with a resolution bandwidth of 100 kHz was used on the spectrum analyzer.
- b) The field strengths of all of the harmonics not in the restricted band were then measured using a double-ridged waveguide antenna. The waveguide antenna was positioned at a 3 meter distance from the EUT. A peak detector with a resolution bandwidth of 100 kHz was used on the spectrum analyzer.
- c) To ensure that maximum or worst case emission levels at the fundamental and harmonics were measured, the following steps were taken when measuring the fundamental emissions and the spurious emissions:
 - 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 axes to ensure the maximum readings were recorded for the EUT.
- d) All harmonics not in the restricted bands must be at least 20 dB below levels measured at the fundamental. However, attenuation below the general limits specified in §15.209(a) is not required.

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

If the emission is pulsed, the reading can be adjusted by a “duty cycle correction factor” derived from $20 \times \log(\text{on time}/100\text{msec})$. These readings must be no greater than the limits specified in 15.209(a).

5.3.3. Results

Preliminary radiated emissions plots of the EUT are shown on pages 28 through 99. Final radiated emissions data are presented on data pages 100 through 126. As can be seen from the data, all emissions measured from the EUT were within the specification limits. The emissions level closest to the limit (worst case) occurred at the following for all three modes:

- For 802.11b, the emissions level closest to the limit was 4824MHz. The emissions level at this frequency was -7.1dB within the limit.
- For 802.11g, the emissions level closest to the limit was 4874MHz. The emissions level at this frequency was -8.5dB within the limit.
- For 802.11n, the emissions level closest to the limit was 4874MHz. The emissions level at this frequency was -9.4dB within the limit.

Photographs of the test configuration which yielded the highest (or worst case) radiated emission levels are shown on Figures 3 through 6.

5.4. Band Edge Compliance

5.4.1. Requirement

Per section 15.247(d), the emissions at the band-edges must be at least 20dB below the highest level measured within the band but attenuation below the general limits listed in 15.209(a) is not required.

5.4.2. Procedures

5.4.2.1 Low Band Edge

- 1) The EUT was set up inside the test chamber on a non-conductive stand.
- 2) A broadband measuring antenna was placed at a test distance of 3 meters from the EUT.
- 3) The EUT was set to transmit continuously at the channel closest to the low band-edge.
- 4) The EUT was maximized for worst case emissions at the measuring antenna. The maximum meter reading was recorded.
- 5) To determine the band edge compliance, the following spectrum analyzer settings were used:
 - a. Center frequency = low band-edge frequency.
 - b. Span = Wide enough to capture the peak level of the emission operating on the channel closest to the band-edge, as well as any modulation products which fall outside of the authorized band of operation.
 - c. Resolution bandwidth (RBW) $\geq 1\%$ of the span.
 - d. The 'Max-Hold' function was engaged. The analyzer was allowed to scan until the envelope of the transmitter bandwidth was defined.
 - e. The marker was set on the peak of the in-band emissions. A display line was placed 20dB down from the peak of the in-band emissions. All emissions which fall outside of the authorized band of operation must be below the 20dB down display line. (All emissions to the left of the center frequency (band-edge) must be below the display line.)
 - f. The analyzer's display was plotted using a 'screen dump' utility.

5.4.2.2 High Band Edge

- 1) The EUT was set up inside the test chamber on a non-conductive stand.
- 2) A broadband measuring antenna was placed at a test distance of 3 meters from the EUT.
- 3) The EUT was maximized for worst case emissions at the measuring antenna. A peak reading was taken with a resolution bandwidth of 1MHz and a video bandwidth of 1MHz or greater. An average reading was then taken with a resolution bandwidth of 1MHz and a video bandwidth of 10Hz. The maximum peak and average meter readings were recorded.
- 4) To determine the band edge compliance, the following spectrum analyzer settings were used:
 - a. Center frequency = high band-edge frequency.
 - b. Span = Wide enough to capture both the peak level of the fundamental emission and the band-edge emission under investigation.
 - c. Resolution bandwidth (RBW) = 1% of the span (but never less than 30kHz).
 - d. The 'Max-Hold' function was engaged. The analyzer was allowed to scan until the envelope of the transmitter bandwidth was defined.
 - e. The marker was set on the peak of the in-band emissions. This level corresponds to the maximized peak (or average) reading previously taken. The "marker-delta" method described in Public Notice DA 00-705 was then used to determine band edge compliance. The delta between the marker and the general limit (74dB μ V/m or 54dB μ V/m) was calculated by subtracting the general limit (74dB μ V/m or 54dB μ V/m) from the maximum reading taken with a 1MHz bandwidth. This delta represents how

far below the marker the emissions outside of the authorized band of operation must be. A display line was placed at this level. All emissions which fall outside of the authorized band of operation must be below the display line. (All emissions to the right of the center frequency (band-edge) must be below the display line.)

- f. The analyzer's display was plotted using a 'screen dump' utility.

In accordance with paragraph 15.247(d), all emissions within 20dB of the peak amplitude level of the center frequency are required to be within a band less than 0.25% of the center frequency wide.

5.4.3. Results

Pages 127 through 130 show the radiated band edge compliance results. As can be seen from these plots, the radiated emissions at the low end band edge are within the 20 dB down limits. The radiated emissions at the high end band edge are within the general limits.

6. OTHER TEST CONDITIONS

6.1. Test Personnel and Witnesses

All tests were performed by qualified personnel from Elite Electronic Engineering Incorporated. The test series was witnessed by Chamberlain Group Inc. personnel.

6.2. Disposition of the EUT

The EUT and all associated equipment were returned to Chamberlain Group Inc. upon completion of the tests.

7. CONCLUSIONS

It was determined that the Chamberlain Group Inc. Stronghold Garage Door Opener, Model No. 8575W digital modulation transmitter did fully meet the conducted and radiated emission requirements 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 band, when tested per ANSI C63.4-2014.

It was also determined that the Chamberlain Group Inc. Stronghold Garage Door Opener, Model No. 8575W digital modulation transmitter did fully meet the conducted and radiated RF emission requirements of the Industry Canada Radio Standards Specification, RSS-Gen Section 7.2.4 and RSS-210 Annex 8, for transmitters, when tested per ANSI C63.4-2014.

8. CERTIFICATION

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

The data presented in this test report pertains to the EUT at the test date *as operated by Chamberlain Group Inc. personnel. Any electrical or mechanical modification made to the EUT subsequent to the specified test date will serve to invalidate the data and void this certification.

This report must not be used to claim product certification, approval, or endorsement by NVLAP, NIST or any agency of the Federal Government.

9. EQUIPMENT LIST

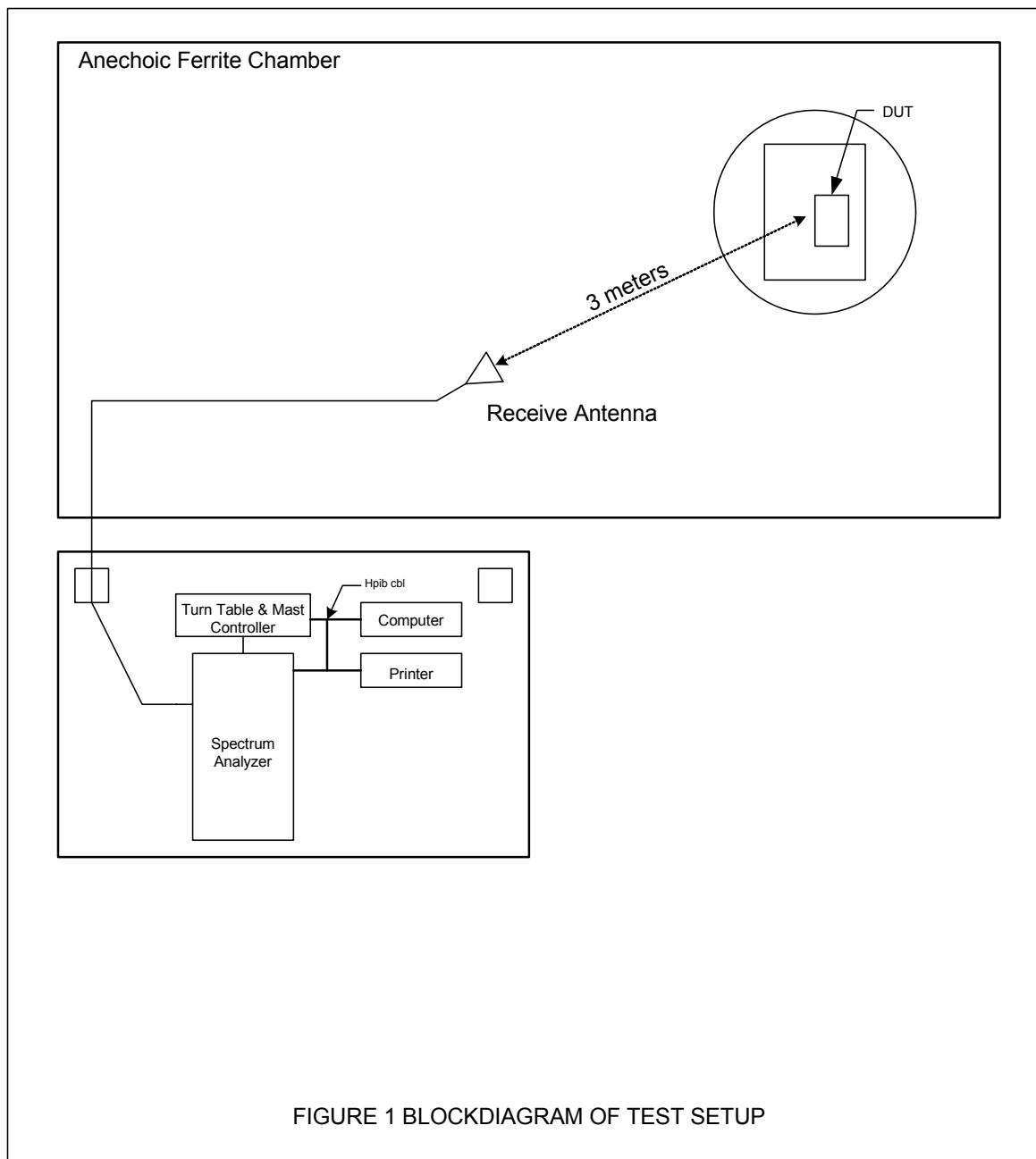
Table 9-1 Equipment List

Eq ID	Equipment Description	Manufacturer	Model No.	Serial No.	Frequency Range	Cal Date	Due Date
APW11	PREAMPLIFIER	PMI	PE2-35-120-5R0-10-12-SFF	PL11685/1241	1GHZ-20GHZ	3/22/2017	3/22/2018
CDY0	WORKSTATION	ELITE	WORKSTATION		WINDOWS 7	N/A	
GRB0	1MHZ, LISN SIGNAL CHECKER	ELITE	LISNCHKR1M	1	1MHZ	1/12/2017	1/12/2018
MEA3	MICRO-OHM METER	KEITHLEY	580	772667	10UOHM-200KOHM	6/6/2017	6/6/2018
NTA4	BILOG ANTENNA	TESEQ	6112D	46660	20-2000GHZ	8/18/2017	8/18/2018
NWQ2	DOUBLE RIDGED WAVEGUIDE ANTENNA	ETS LINDGREN	3117	66659	1GHZ-18GHZ	3/2/2016	3/2/2018
PLF1	CISPR16 50UH LISN	ELITE	CISPR16/70A	001	.15-30MHz	5/8/2017	5/8/2018
PLF3	CISPR16 50UH LISN	ELITE	CISPER16/70A	003	.15-30MHz	5/8/2017	5/8/2018
RBG3	EMI ANALYZER	ROHDE & SCHWARZ	ESW44	101592	2HZ-44GHZ	1/11/2017	1/11/2018
SES0	24VDC POWER SUPPLY	P-TRANS	FS-32024-1M	001	18-27VDC	NOTE 1	
T1EQ	10DB 25W ATTENUATOR	WEINSCHEL	46-10-34	CD6791	DC-18GHZ	5/2/2016	5/2/2018
VBR8	CISPR EN FCC CE VOLTAGE.exe	ELITE				I/O	
XLJR	5W, 50 OHM TERMINATION	JFW INDUSTRIES	50T-052	---	DC-2GHZ	7/7/2016	7/7/2018
XPRO	HIGH PASS FILTER	K&L MICROWAVE	11SH10-4800/X20000	001	4.8-20GHZ	9/12/2017	9/12/2019

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.



Anechoic Ferrite Chamber

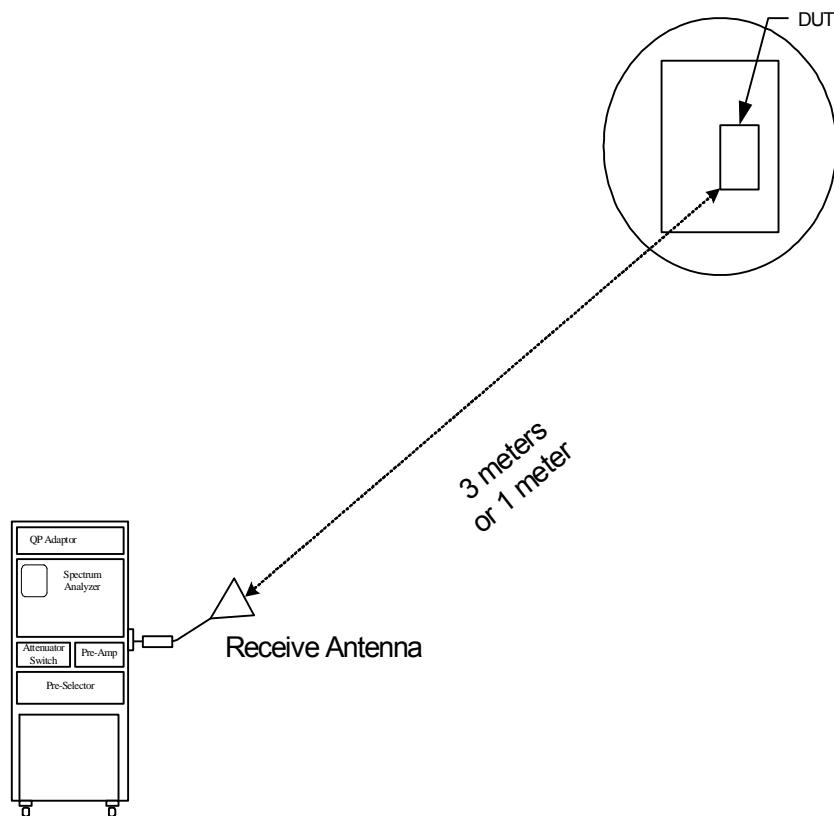
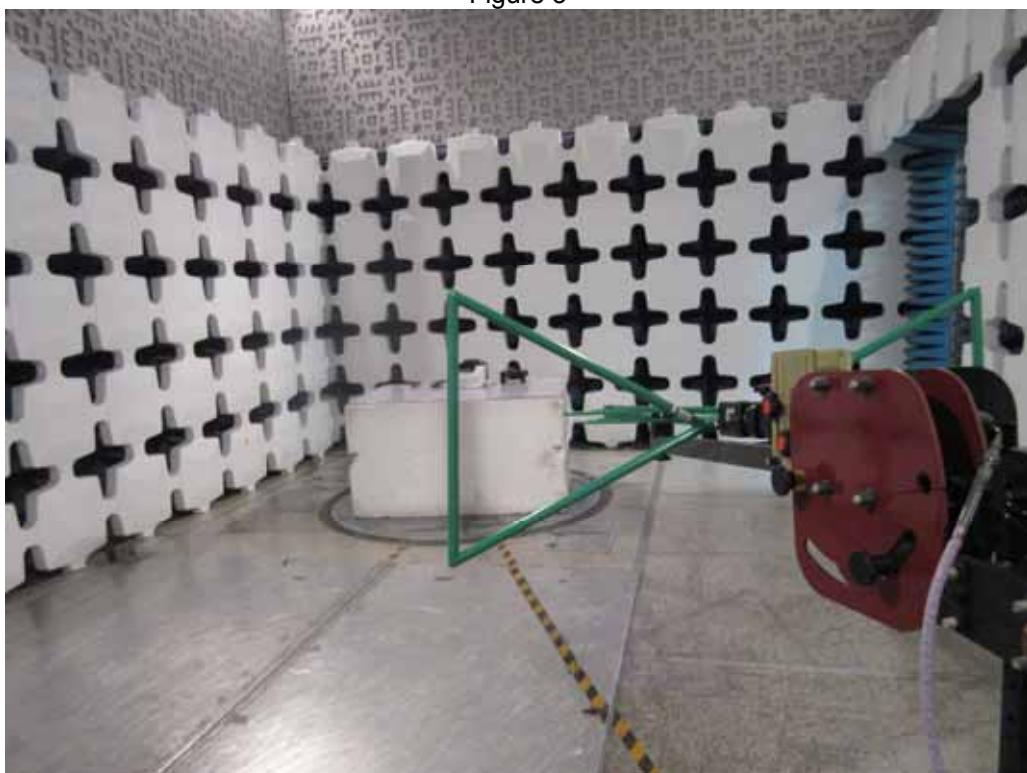


Figure 2



Test Setup for Conducted Emissions

Figure 3

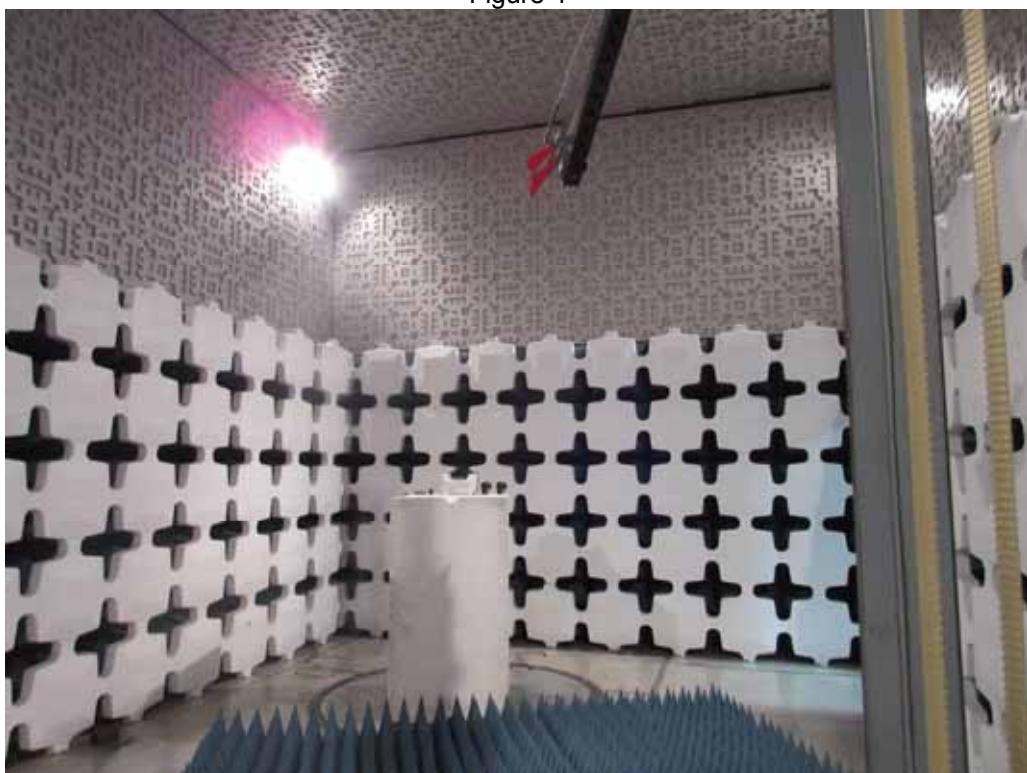


Test Setup for Radiated Emissions, 30MHz to 1GHz – Horizontal Polarization



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

Figure 4



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



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

Figure 5



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



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

FCC Part 15 Subpart B Conducted Emissions Test

Significant Emissions Data

VBR8 04/23/2015

Manufacturer : CHAMBERLAIN
 Model : 8575W
 DUT Revision : 1.0
 Serial Number : HBW1D8088-1
 DUT Mode : NORMAL OPERATION (802.11B - TX @ 2412MHZ)
 Line Tested : 120VAC HIGH LINE
 Scan Step Time [ms] : 30
 Meas. Threshold [dB] : -10
 Notes :
 Test Engineer : T. Jozefczyk
 Limit : Class B
 Test Date : Oct 18, 2017 03:26:11 PM
 Data Filter : Up to 80 maximum levels detected with 6 dB level excursion threshold over 10 dB margin below limit

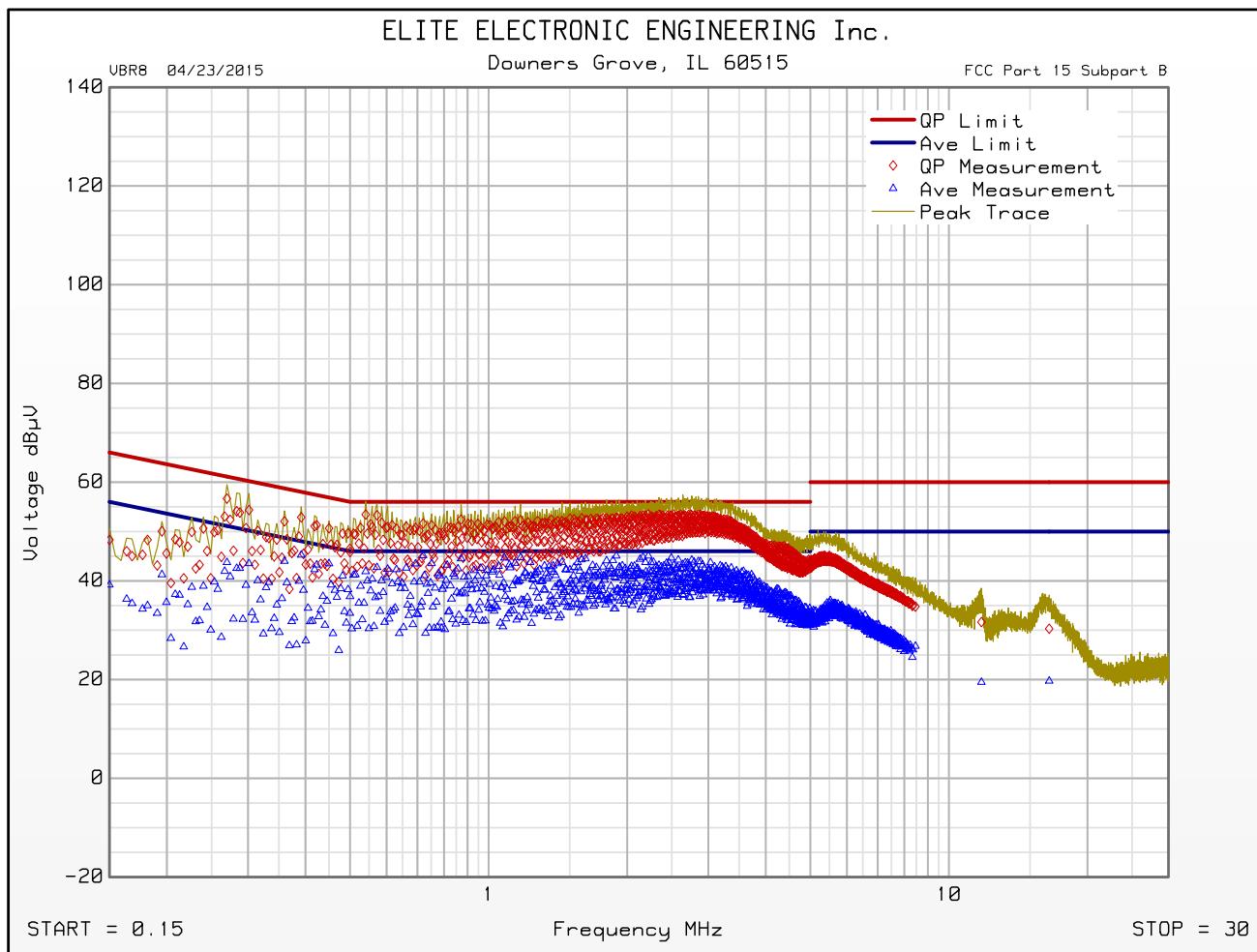
Freq MHz	Quasi-peak Level dB μ V	Quasi-peak Limit dB μ V	Excessive Quasi-peak Emissions	Average Level dB μ V	Average Limit dB μ V	Excessive Average Emissions
0.270	56.7	56.0		43.7	51.1	
0.541	53.4	56.0		41.9	46.0	
0.572	53.3	56.0		42.7	46.0	
0.871	52.4	56.0		44.5	46.0	
1.502	52.6	56.0		42.2	46.0	
1.592	52.7	56.0		44.3	46.0	
1.714	52.6	56.0		42.7	46.0	
1.772	52.7	56.0		42.8	46.0	
1.804	52.7	56.0		44.1	46.0	
1.862	52.6	56.0		44.2	46.0	
1.894	52.8	56.0		45.0	46.0	
1.907	52.7	56.0		41.5	46.0	
1.939	52.7	56.0		41.6	46.0	
1.998	53.0	56.0		39.2	46.0	
2.030	52.9	56.0		42.5	46.0	
2.043	53.2	56.0		43.0	46.0	
2.075	53.0	56.0		43.0	46.0	
2.088	52.8	56.0		41.1	46.0	
2.120	52.7	56.0		41.6	46.0	
2.133	53.1	56.0		44.4	46.0	
2.165	53.2	56.0		44.8	46.0	
2.178	52.7	56.0		41.1	46.0	
2.192	53.2	56.0		43.7	46.0	
2.223	53.5	56.0		45.1	46.0	
2.255	53.1	56.0		43.7	46.0	
2.268	52.9	56.0		42.0	46.0	
2.300	52.9	56.0		40.3	46.0	
2.313	53.1	56.0		42.9	46.0	
2.327	52.7	56.0		41.2	46.0	
2.345	53.4	56.0		43.2	46.0	
2.358	53.3	56.0		41.8	46.0	
2.390	53.2	56.0		39.8	46.0	
2.403	52.8	56.0		43.1	46.0	

Freq MHz	Quasi-peak Level dB μ V	Quasi-peak Limit dB μ V	Excessive Quasi-peak Emissions	Average Level dB μ V	Average Limit dB μ V	Excessive Average Emissions
2.435	52.8	56.0		43.6	46.0	
2.448	53.2	56.0		41.7	46.0	
2.466	52.6	56.0		43.7	46.0	
2.480	53.2	56.0		42.1	46.0	
2.493	53.3	56.0		44.7	46.0	
2.507	52.7	56.0		41.7	46.0	
2.525	53.4	56.0		43.2	46.0	
2.538	52.9	56.0		38.5	46.0	
2.552	53.0	56.0		42.5	46.0	
2.570	53.0	56.0		42.8	46.0	
2.583	53.2	56.0		44.2	46.0	
2.597	52.6	56.0		41.5	46.0	
2.615	53.4	56.0		42.6	46.0	
2.628	53.1	56.0		42.4	46.0	
2.642	52.9	56.0		43.3	46.0	
2.646	53.1	56.0		42.6	46.0	
2.660	53.3	56.0		41.5	46.0	
2.673	53.1	56.0		43.7	46.0	
2.687	52.6	56.0		41.8	46.0	
2.705	53.0	56.0		43.6	46.0	
2.718	53.4	56.0		43.3	46.0	
2.736	52.8	56.0		42.8	46.0	
2.750	53.5	56.0		42.5	46.0	
2.763	53.2	56.0		44.2	46.0	
2.777	52.7	56.0		39.6	46.0	
2.795	53.2	56.0		43.8	46.0	
2.808	53.2	56.0		41.3	46.0	
2.822	52.7	56.0		42.5	46.0	
2.840	53.1	56.0		39.8	46.0	
2.853	53.4	56.0		43.9	46.0	
2.871	52.6	56.0		41.4	46.0	
2.885	53.4	56.0		43.9	46.0	
2.898	53.0	56.0		41.3	46.0	
2.916	53.1	56.0		43.3	46.0	
2.930	53.2	56.0		41.1	46.0	
2.943	53.1	56.0		42.5	46.0	
2.961	52.8	56.0		39.6	46.0	
2.975	53.1	56.0		41.6	46.0	
2.988	53.0	56.0		40.0	46.0	
3.006	52.7	56.0		42.2	46.0	
3.020	53.0	56.0		42.2	46.0	
3.033	52.9	56.0		43.7	46.0	
3.051	52.8	56.0		39.4	46.0	
3.065	53.0	56.0		42.4	46.0	
3.078	52.9	56.0		39.7	46.0	
3.096	52.8	56.0		42.9	46.0	
3.110	52.9	56.0		41.7	46.0	
3.123	52.7	56.0		41.7	46.0	
3.140	52.8	56.0		39.8	46.0	
5.000	42.8	56.0		32.0	46.0	
11.772	31.6	60.0		19.5	50.0	
16.520	30.3	60.0		19.7	50.0	

FCC Part 15 Subpart B Conducted Emissions Test Cumulative Data

VBR8 04/23/2015

Manufacturer : CHAMBERLAIN
Model : 8575W
DUT Revision : 1.0
Serial Number : HBW1D8088-1
DUT Mode : NORMAL OPERATION (802.11B - TX @ 2412MHZ)
Line Tested : 120VAC HIGH LINE
Scan Step Time [ms] : 30
Meas. Threshold [dB] : -10
Notes :
Test Engineer : T. Jozefczyk
Limit : Class B
Test Date : Oct 18, 2017 03:26:11 PM



Emissions Meet QP Limit
Emissions Meet Ave Limit

FCC Part 15 Subpart B Conducted Emissions Test

Significant Emissions Data

VBR8 04/23/2015

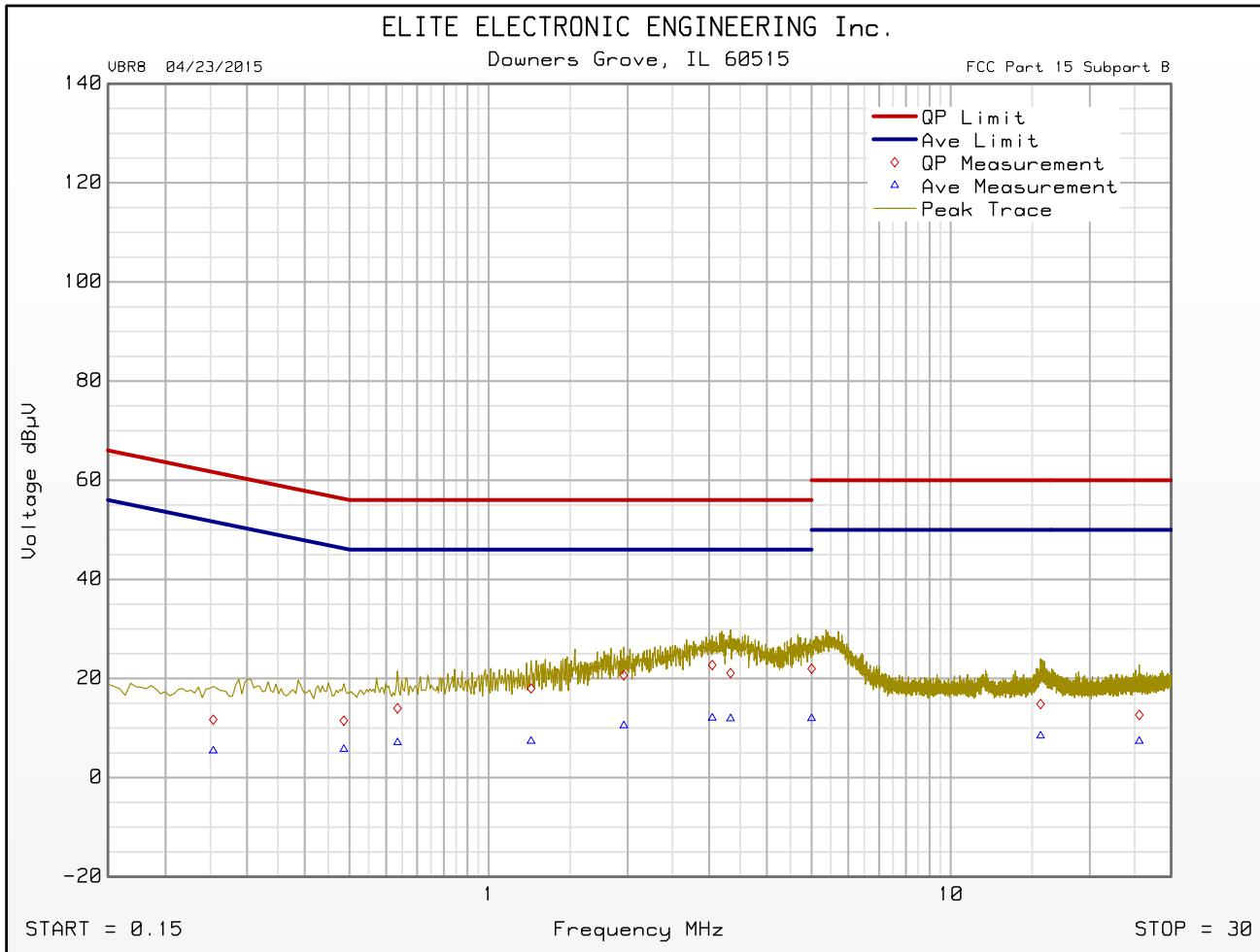
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Model : 8575W
DUT Revision : 1.0
Serial Number : HBW1D8088-1
DUT Mode : NORMAL OPERATION (802.11B - TX @ 2412MHZ)
Line Tested : 120VAC NEUTRAL LINE
Scan Step Time [ms] : 30
Meas. Threshold [dB] : -10
Notes :
Test Engineer : T. Jozefczyk
Limit : Class B
Test Date : Oct 18, 2017 02:50:21 PM
Data Filter : Up to 80 maximum levels detected with 6 dB level excursion threshold over 10 dB margin below limit

Freq MHz	Quasi-peak Level dB μ V	Quasi-peak Limit dB μ V	Excessive Quasi-peak Emissions	Average Level dB μ V	Average Limit dB μ V	Excessive Average Emissions
0.254	11.7	61.6		5.4	51.6	
0.486	11.5	56.2		5.7	46.2	
0.635	14.0	56.0		7.1	46.0	
1.236	18.0	56.0		7.4	46.0	
1.961	20.7	56.0		10.5	46.0	
3.047	22.7	56.0		12.0	46.0	
5.000	22.0	56.0		11.9	46.0	
15.651	14.9	60.0		8.4	50.0	
25.592	12.6	60.0		7.4	50.0	

FCC Part 15 Subpart B Conducted Emissions Test Cumulative Data

VBR8 04/23/2015

Manufacturer : CHAMBERLAIN
Model : 8575W
DUT Revision : 1.0
Serial Number : HBW1D8088-1
DUT Mode : NORMAL OPERATION (802.11B - TX @ 2412MHZ)
Line Tested : 120VAC NEUTRAL LINE
Scan Step Time [ms] : 30
Meas. Threshold [dB] : -10
Notes :
Test Engineer : T. Jozefczyk
Limit : Class B
Test Date : Oct 18, 2017 02:50:21 PM



Emissions Meet QP Limit
Emissions Meet Ave Limit

DATA PAGE

Manufacturer : Chamberlain Group Inc.
Test Item : Stronghold Garage Door Opener
Model No. : 8575W
Mode : 802.11b
Test Specification : FCC-15.247, RSS-247 Peak Output Power
Date : October 16-18, 2017

Freq. (MHz)	Ant Pol	Wide BW Meter Reading (dB μ V)	Matched Sig. Gen. Reading (dBm)	Equivalent Antenna Gain (dB)	Cable Loss (dB)	EIRP (dBm)	Limit (dBm)	Margin (dBm)
2412.00	H	75.6	13.6	5.9	2.8	16.7	36.0	-19.3
2412.00	V	76.6	14.9	5.9	2.8	18.0	36.0	-18.0
2437.00	H	77.1	15.2	5.9	2.8	18.3	36.0	-17.7
2437.00	V	77.3	15.7	5.9	2.8	18.8	36.0	-17.2
2462.00	H	73.4	11.5	5.9	2.8	14.7	36.0	-21.3
2462.00	V	74.4	12.8	5.9	2.8	15.9	36.0	-20.1

DATA PAGE

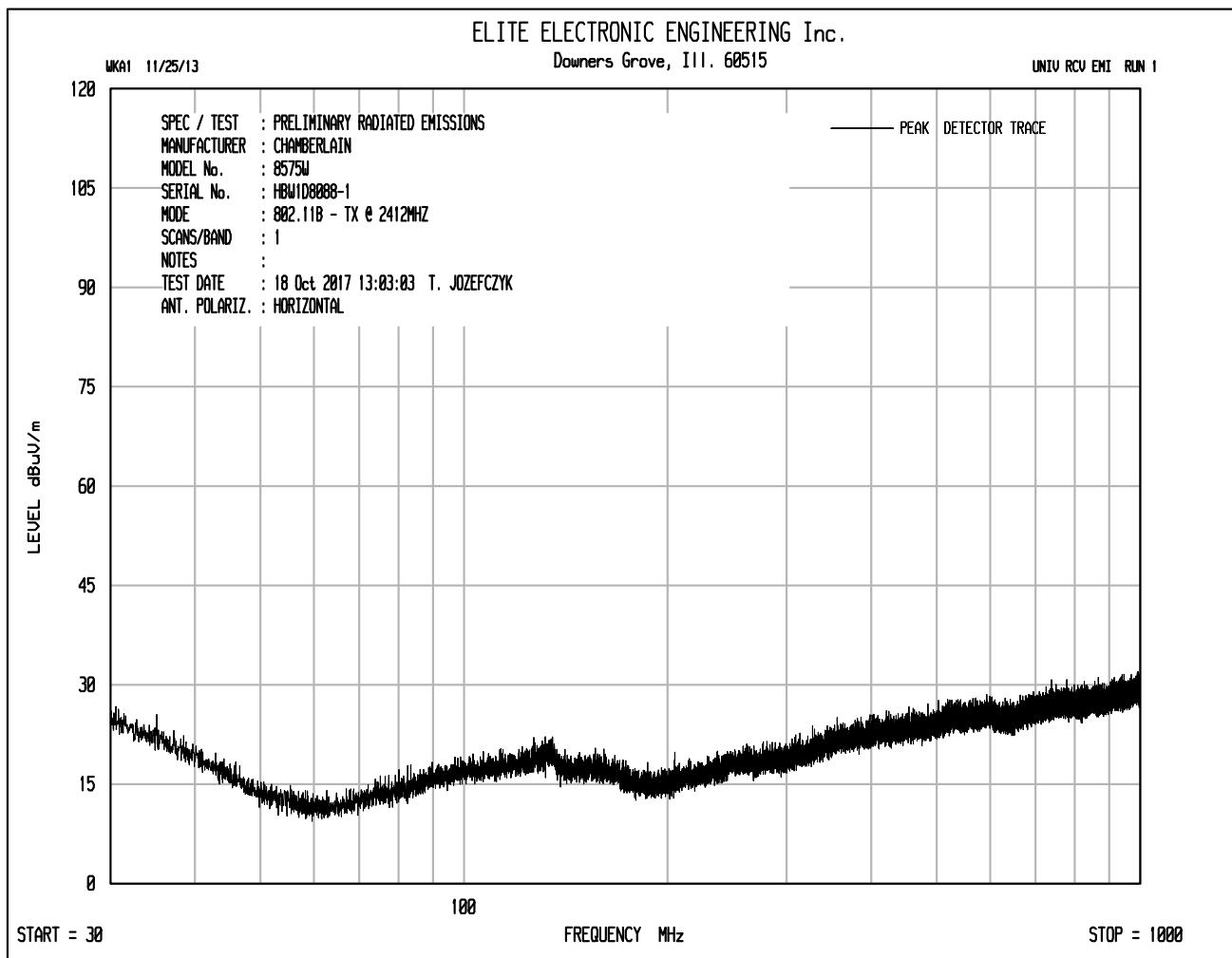
Manufacturer : Chamberlain Group Inc.
Test Item : Stronghold Garage Door Opener
Model No. : 8575W
Mode : 802.11g
Test Specification : FCC-15.247, RSS-247 Peak Output Power
Date : October 16-18, 2017

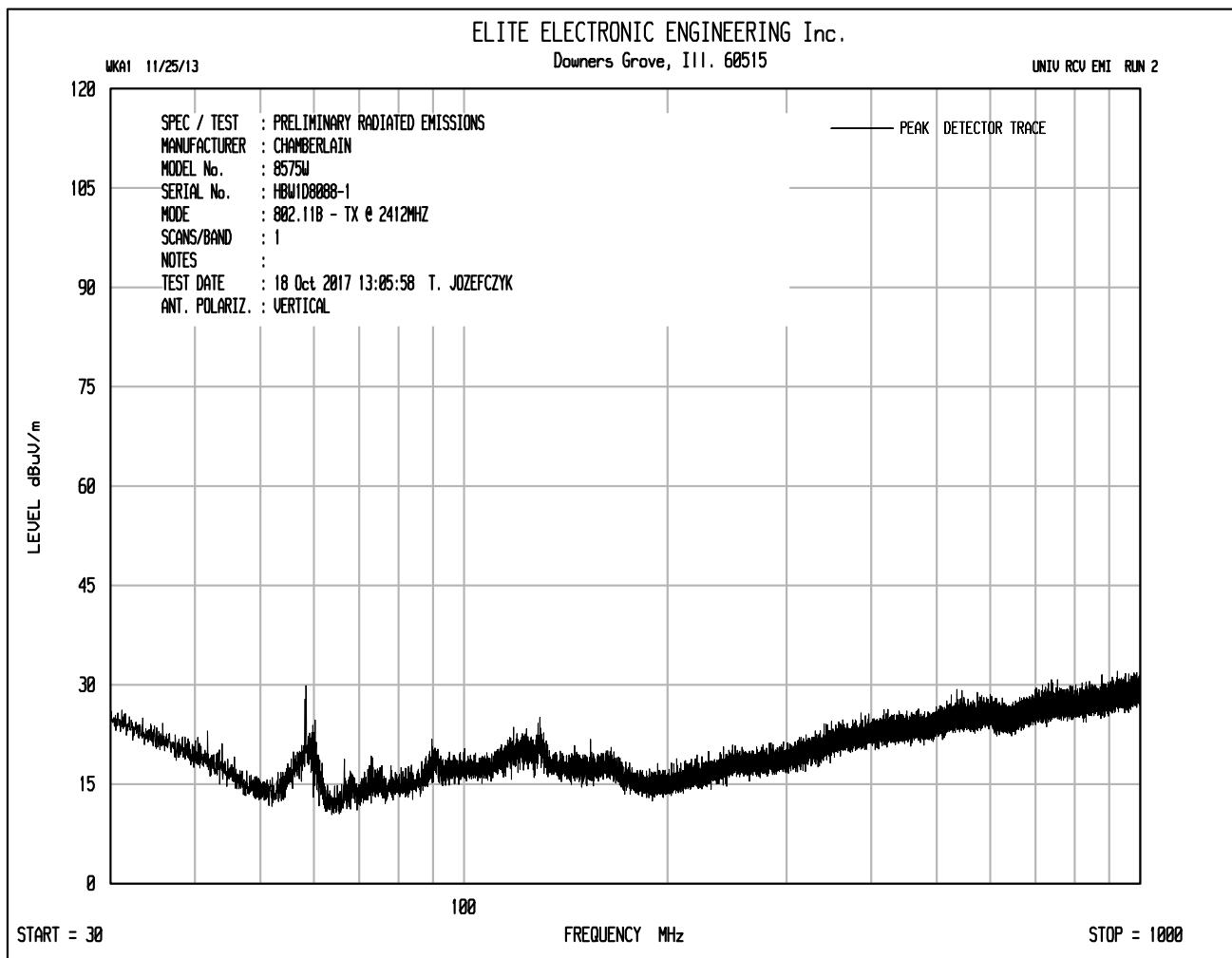
Freq. (MHz)	Ant Pol	Wide BW Meter Reading (dB μ V)	Matched Sig. Gen. Reading (dBm)	Equivalent Antenna Gain (dB)	Cable Loss (dB)	EIRP (dBm)	Limit (dBm)	Margin (dBm)
2412.00	H	82.5	20.5	5.9	2.8	23.6	36.0	-12.4
2412.00	V	80.2	18.5	5.9	2.8	21.6	36.0	-14.4
2437.00	H	80.2	18.3	5.9	2.8	21.4	36.0	-14.6
2437.00	V	79.6	18.0	5.9	2.8	21.1	36.0	-14.9
2462.00	H	78.1	16.3	5.9	2.8	19.4	36.0	-16.6
2462.00	V	79.2	17.6	5.9	2.8	20.7	36.0	-15.3

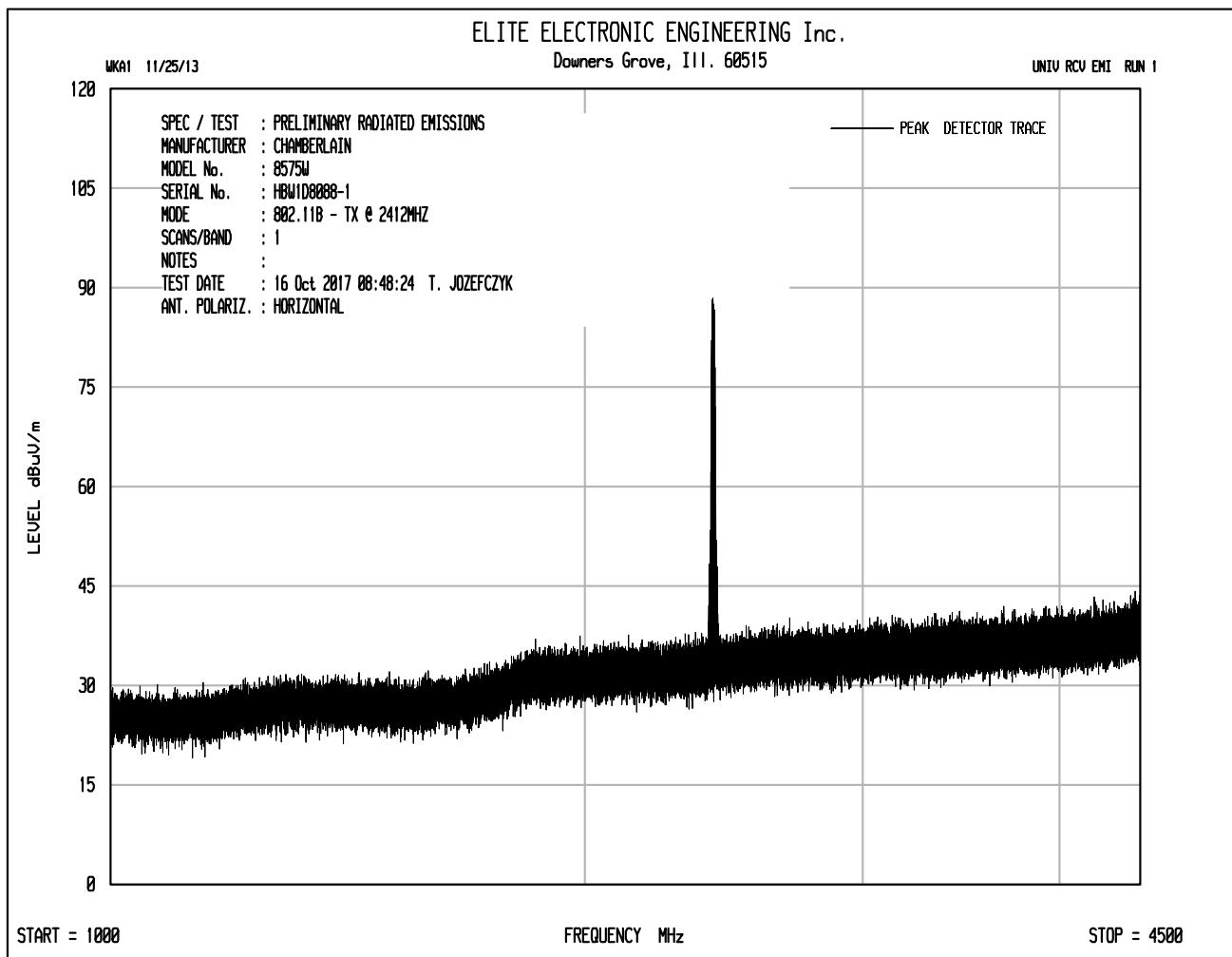
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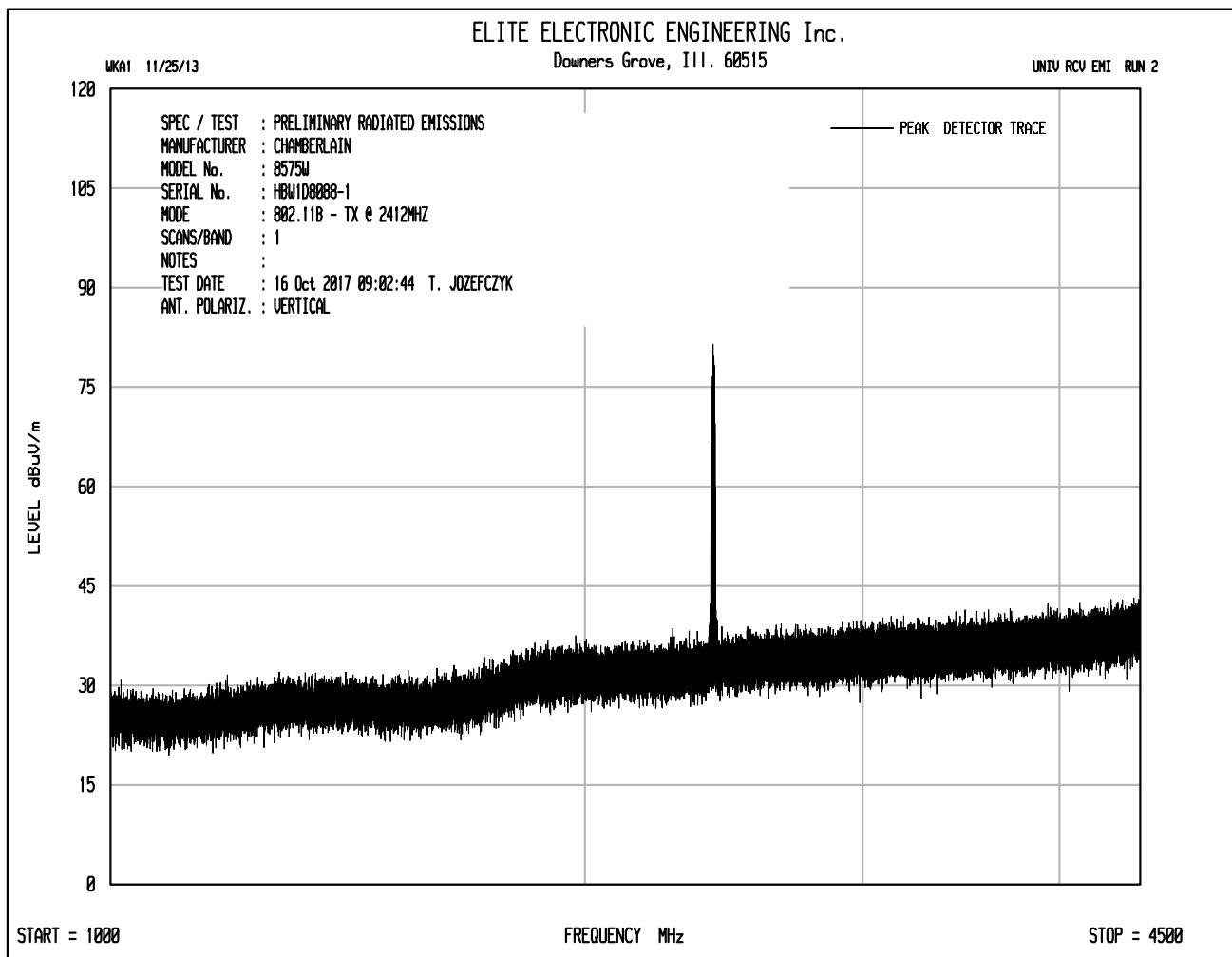
Manufacturer : Chamberlain Group Inc.
Test Item : Stronghold Garage Door Opener
Model No. : 8575W
Mode : 802.11n
Test Specification : FCC-15.247, RSS-247 Peak Output Power
Date : October 16-18, 2017

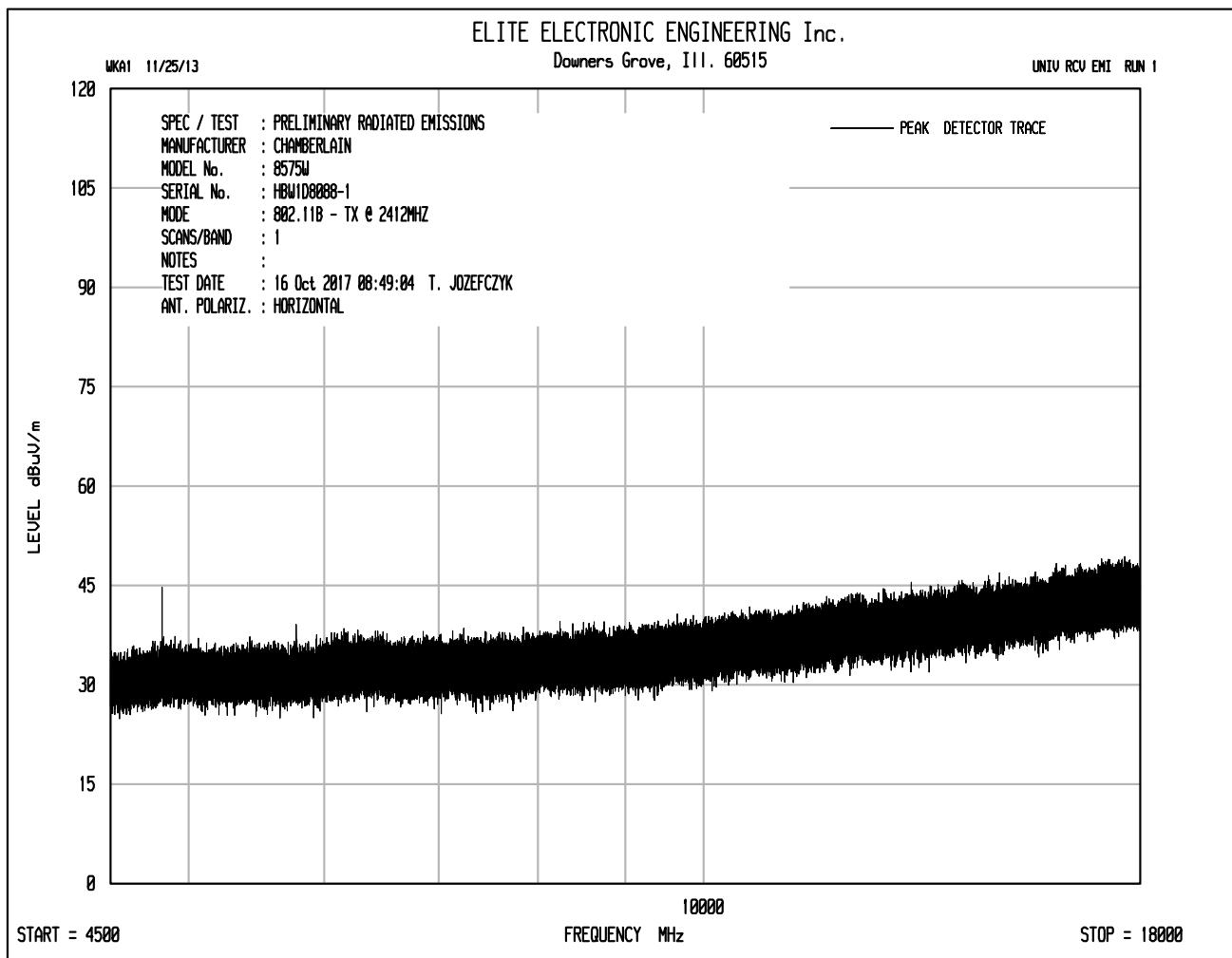
Freq. (MHz)	Ant Pol	Wide BW Meter Reading (dB μ V)	Matched Sig. Gen. Reading (dBm)	Equivalent Antenna Gain (dB)	Cable Loss (dB)	EIRP (dBm)	Limit (dBm)	Margin (dBm)
2412.00	H	79.5	17.6	5.9	2.8	20.7	36.0	-15.3
2412.00	V	80.7	19.0	5.9	2.8	22.1	36.0	-13.9
2437.00	H	80.6	18.7	5.9	2.8	21.8	36.0	-14.2
2437.00	V	79.9	18.2	5.9	2.8	21.3	36.0	-14.7
2462.00	H	77.1	15.3	5.9	2.8	18.4	36.0	-17.6
2462.00	V	77.3	15.7	5.9	2.8	18.8	36.0	-17.2

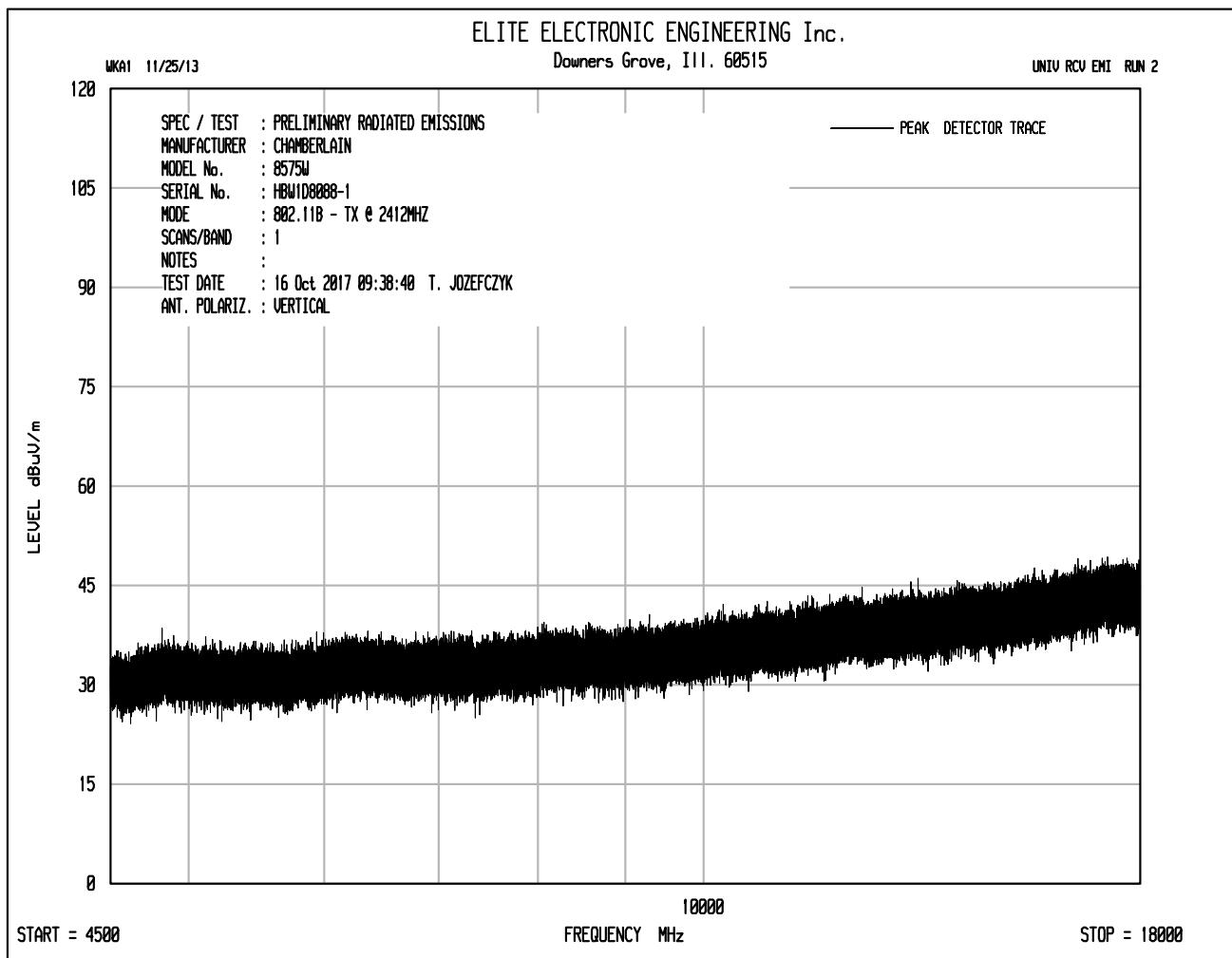








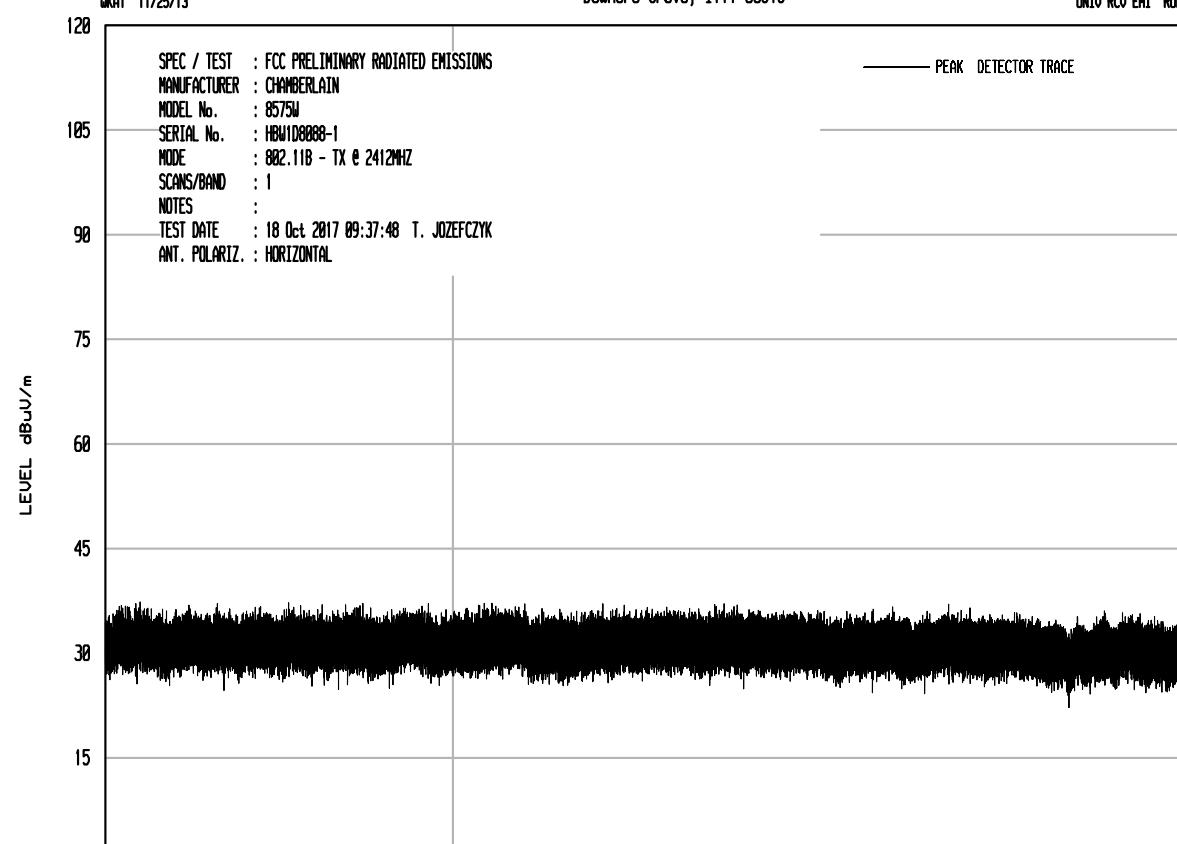




ELITE ELECTRONIC ENGINEERING Inc.

Downers Grove, Ill. 60515

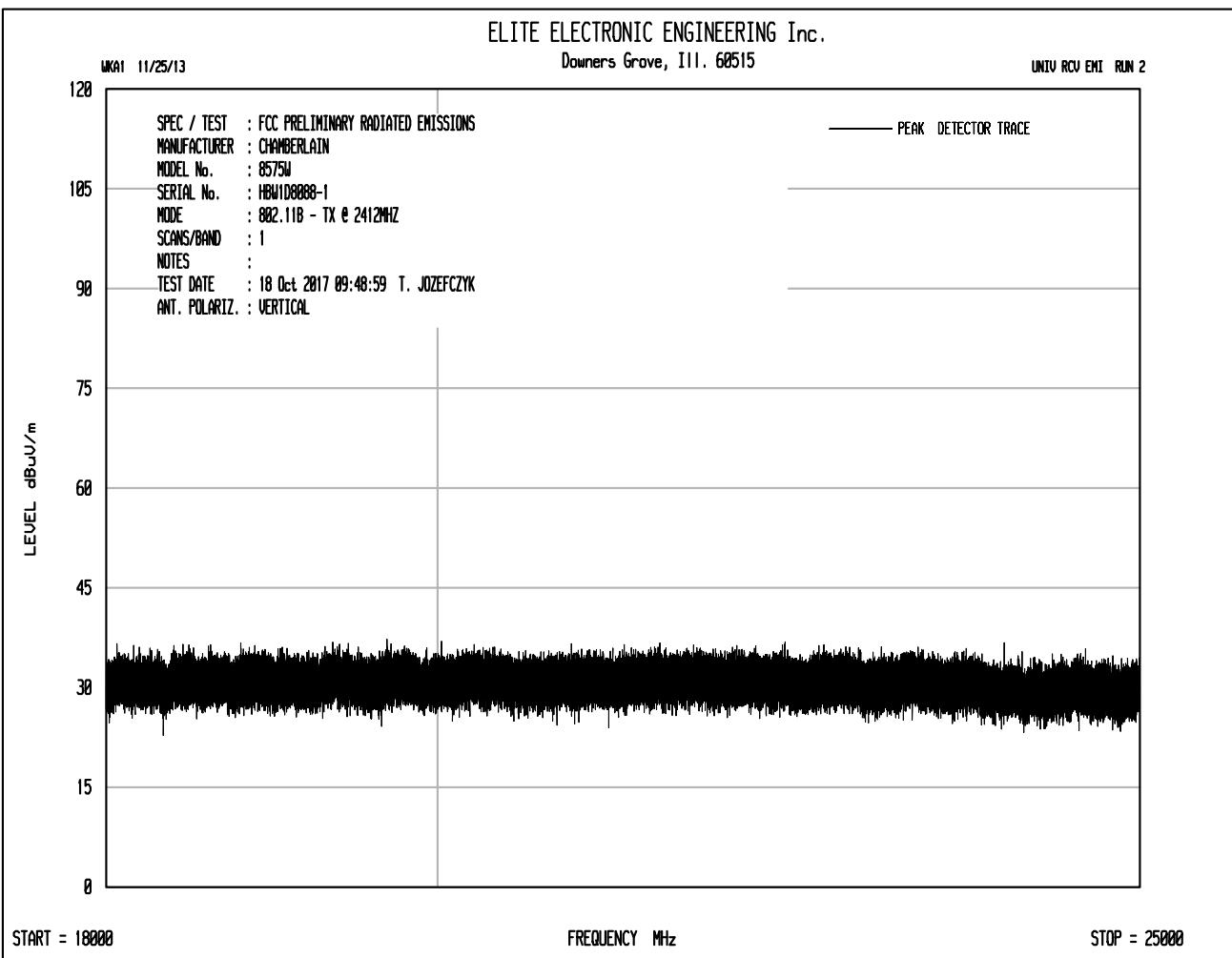
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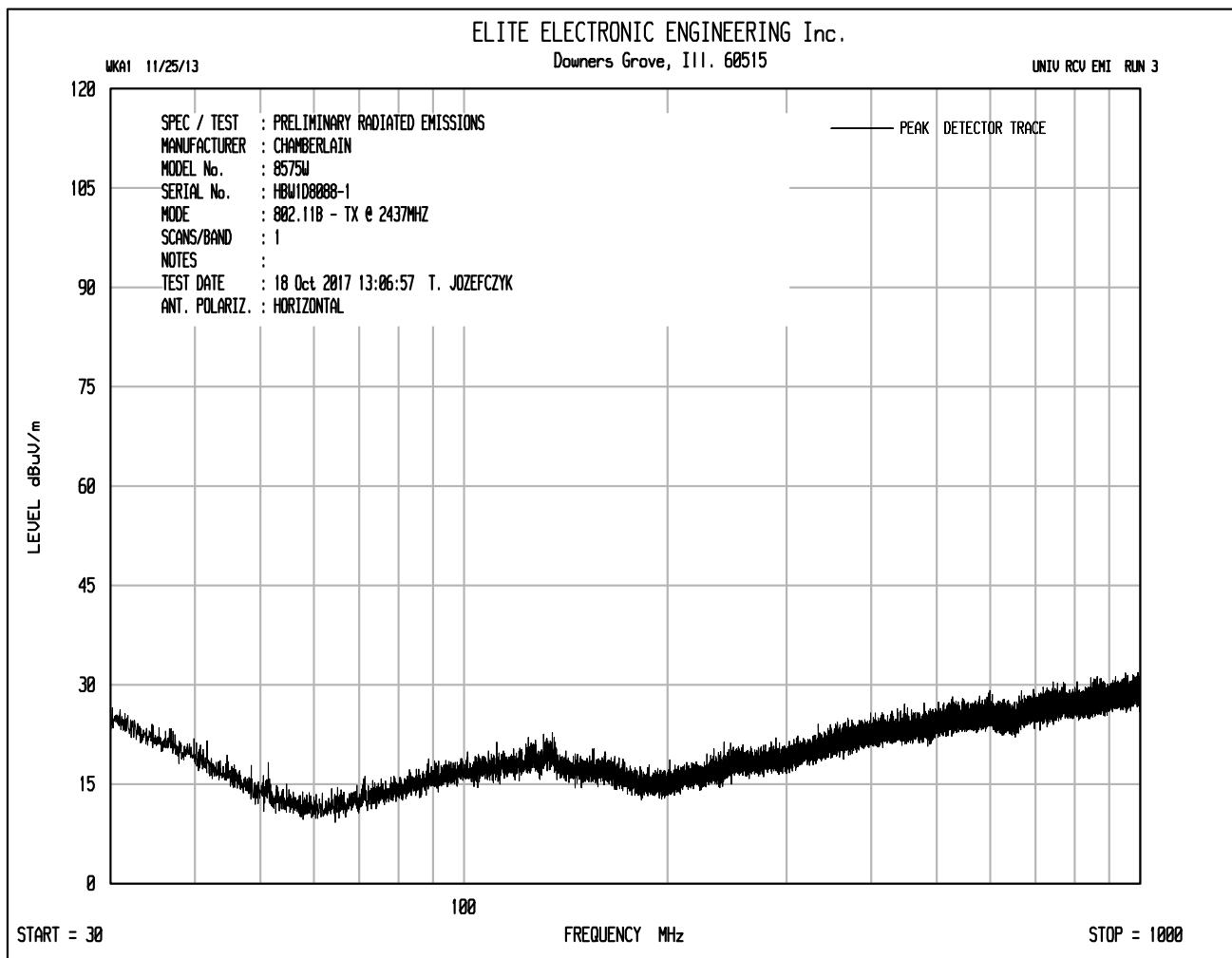


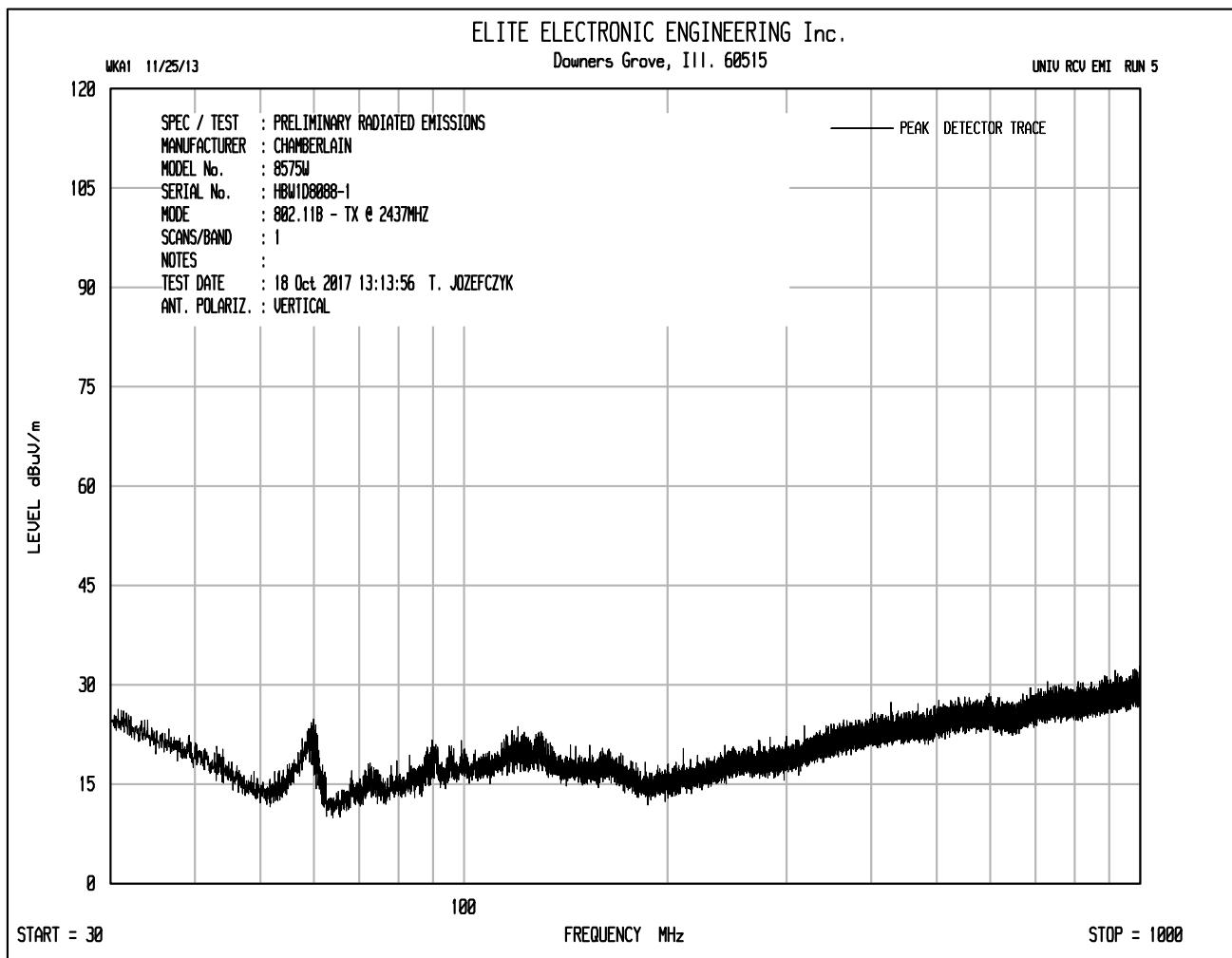
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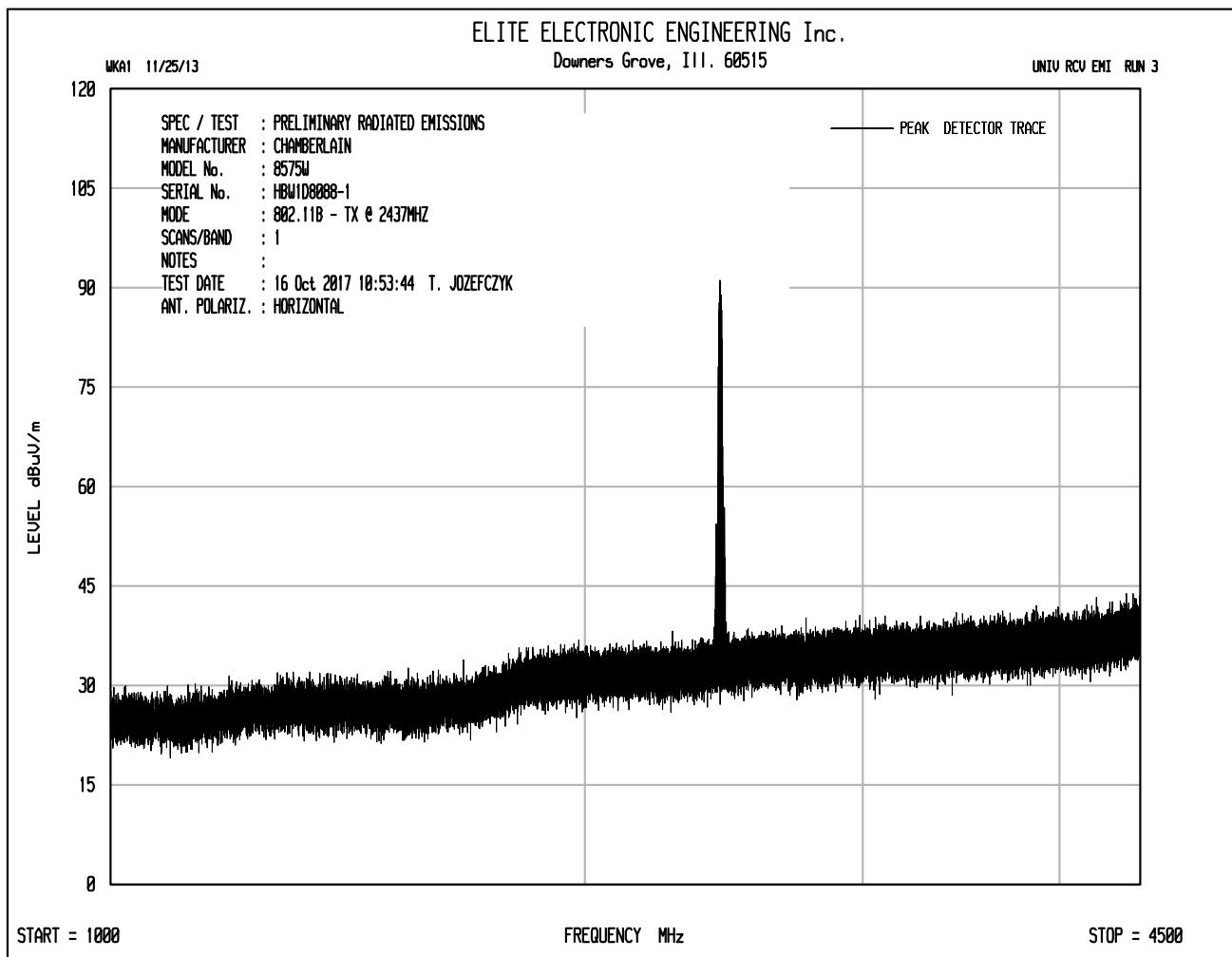
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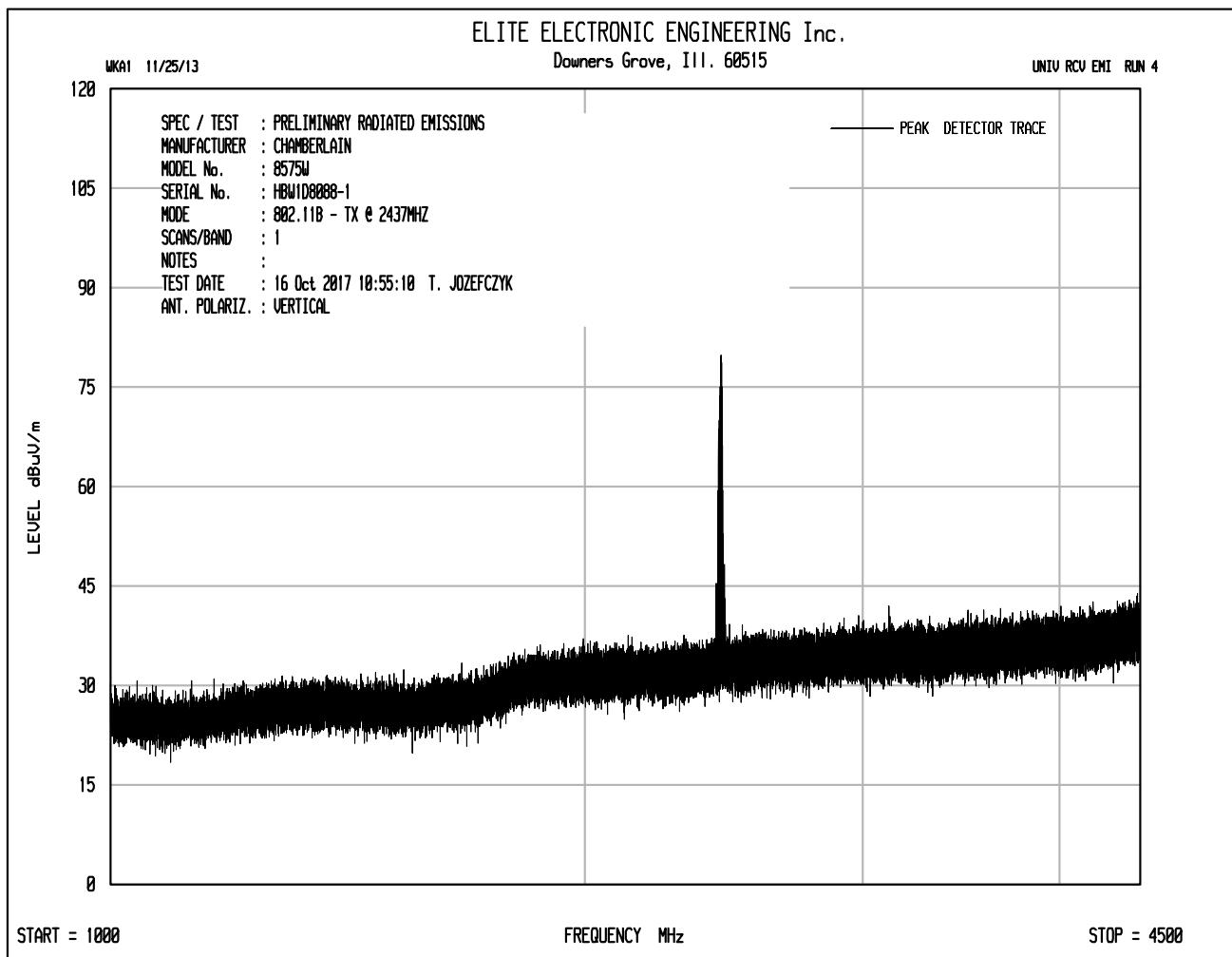
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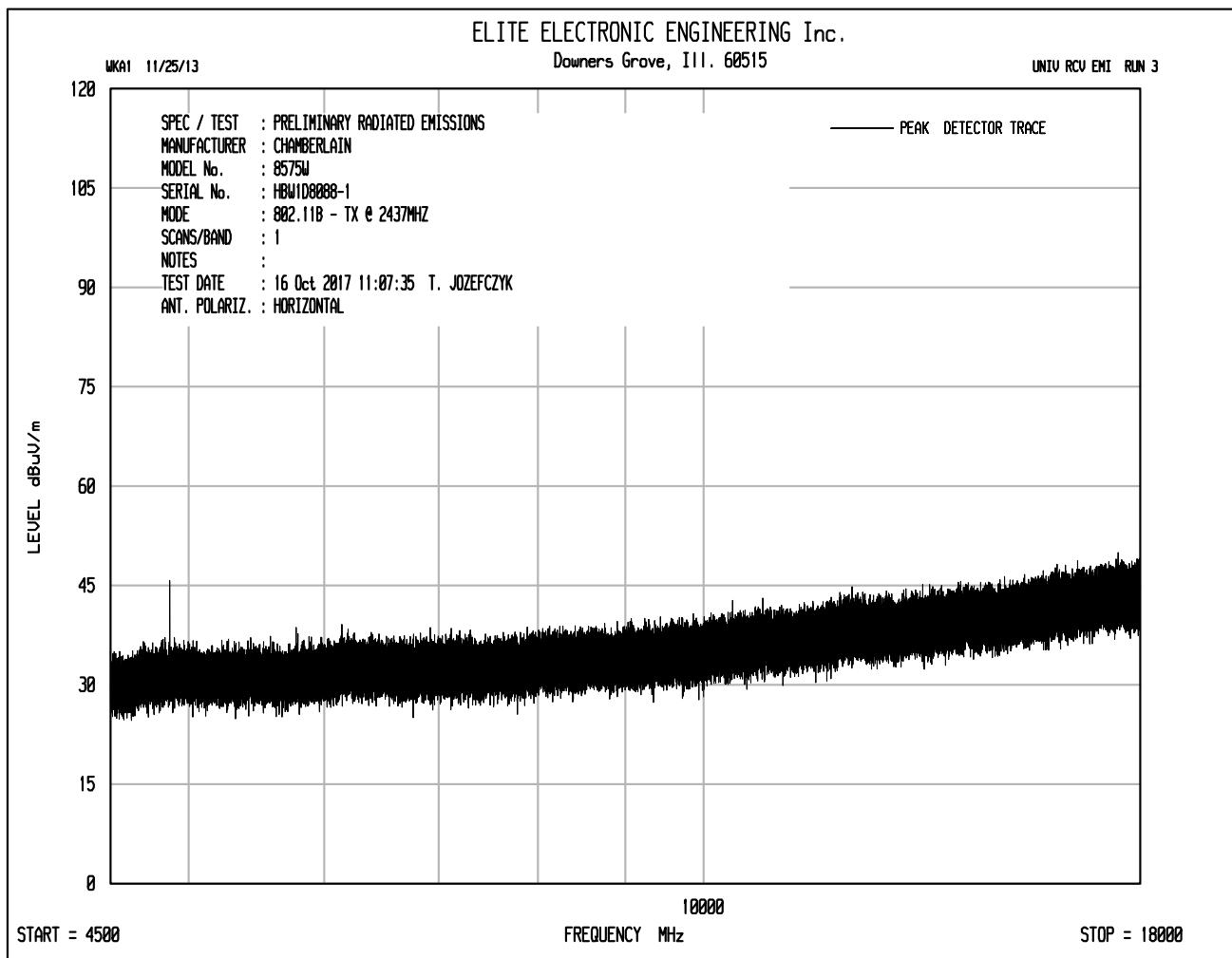


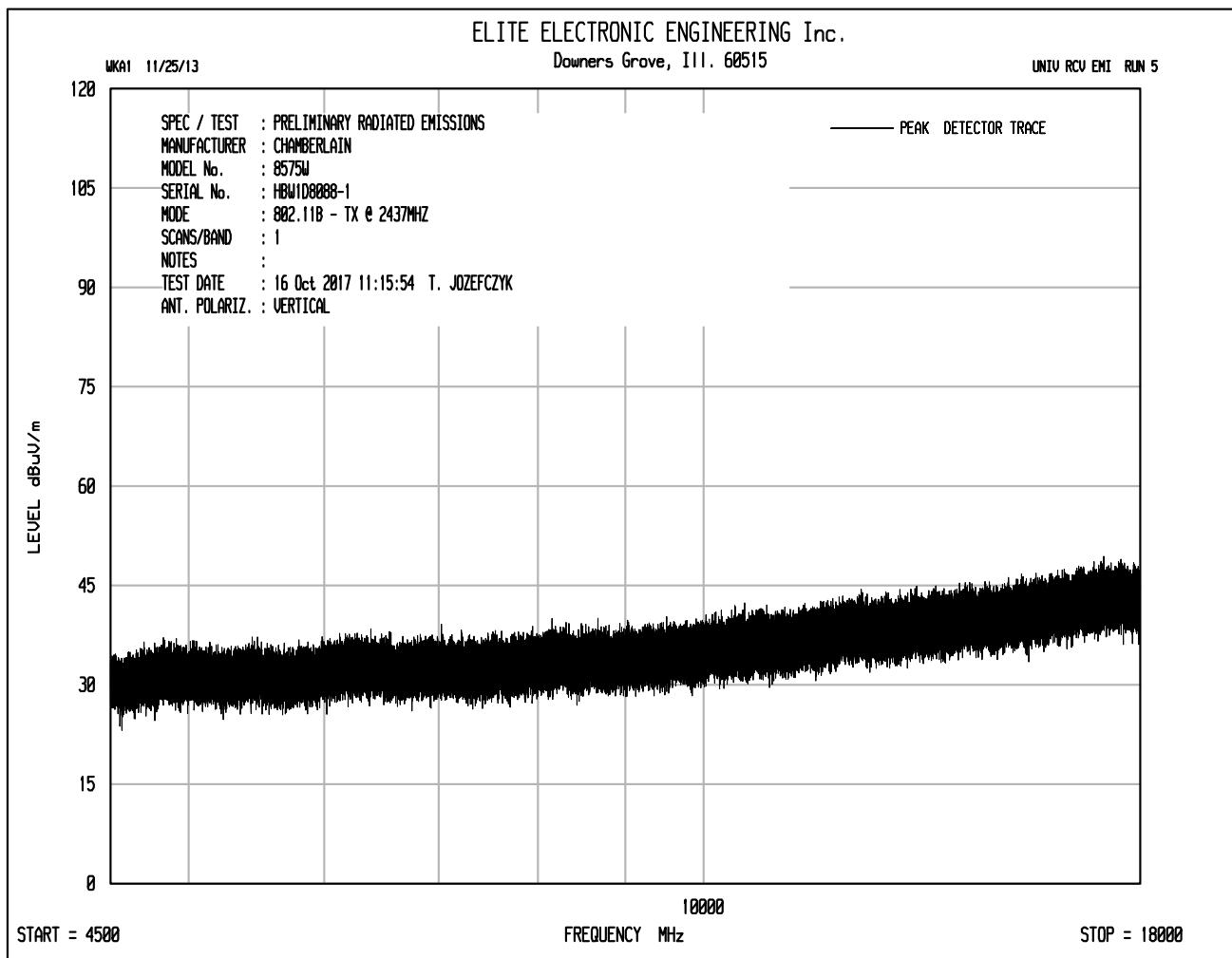


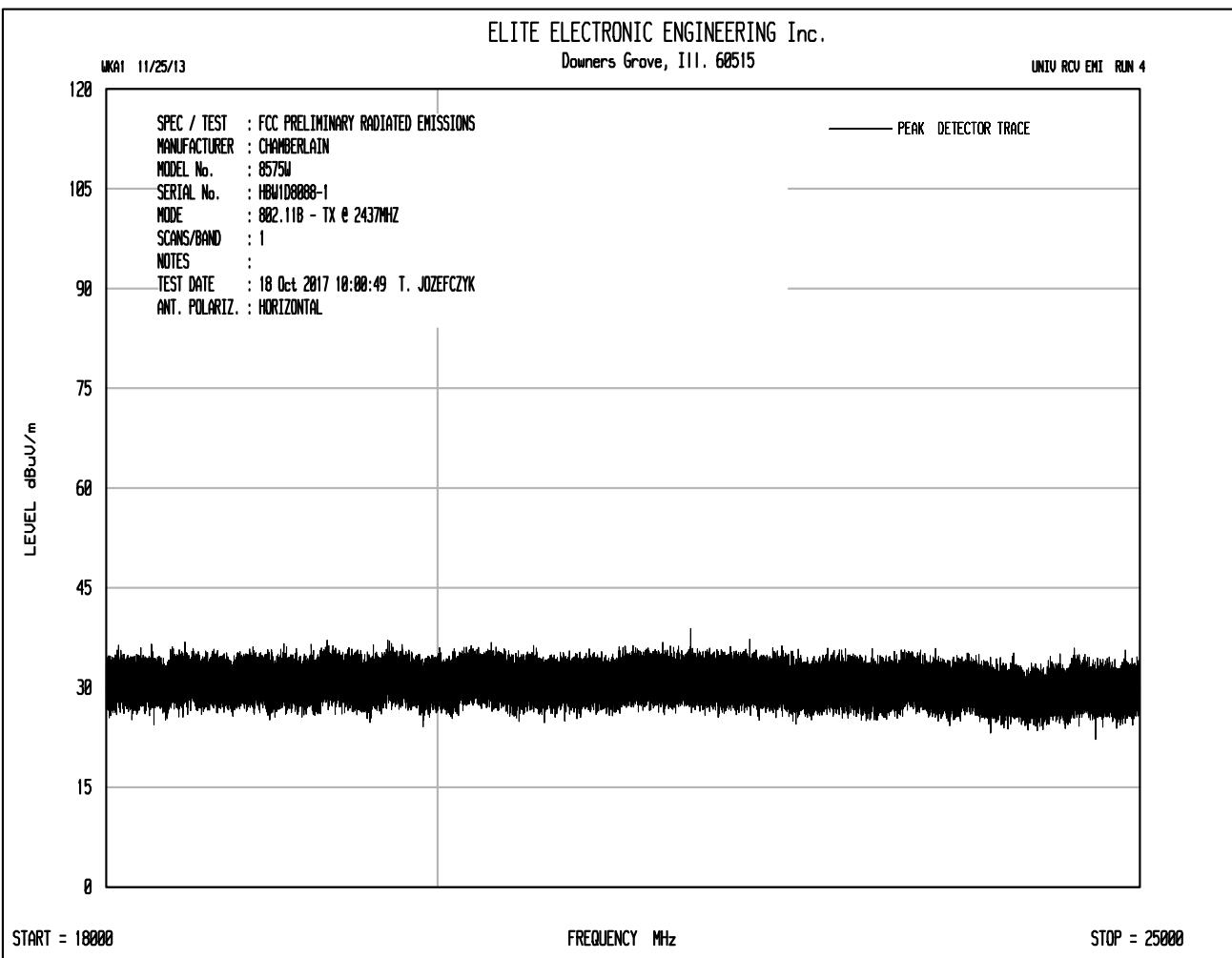


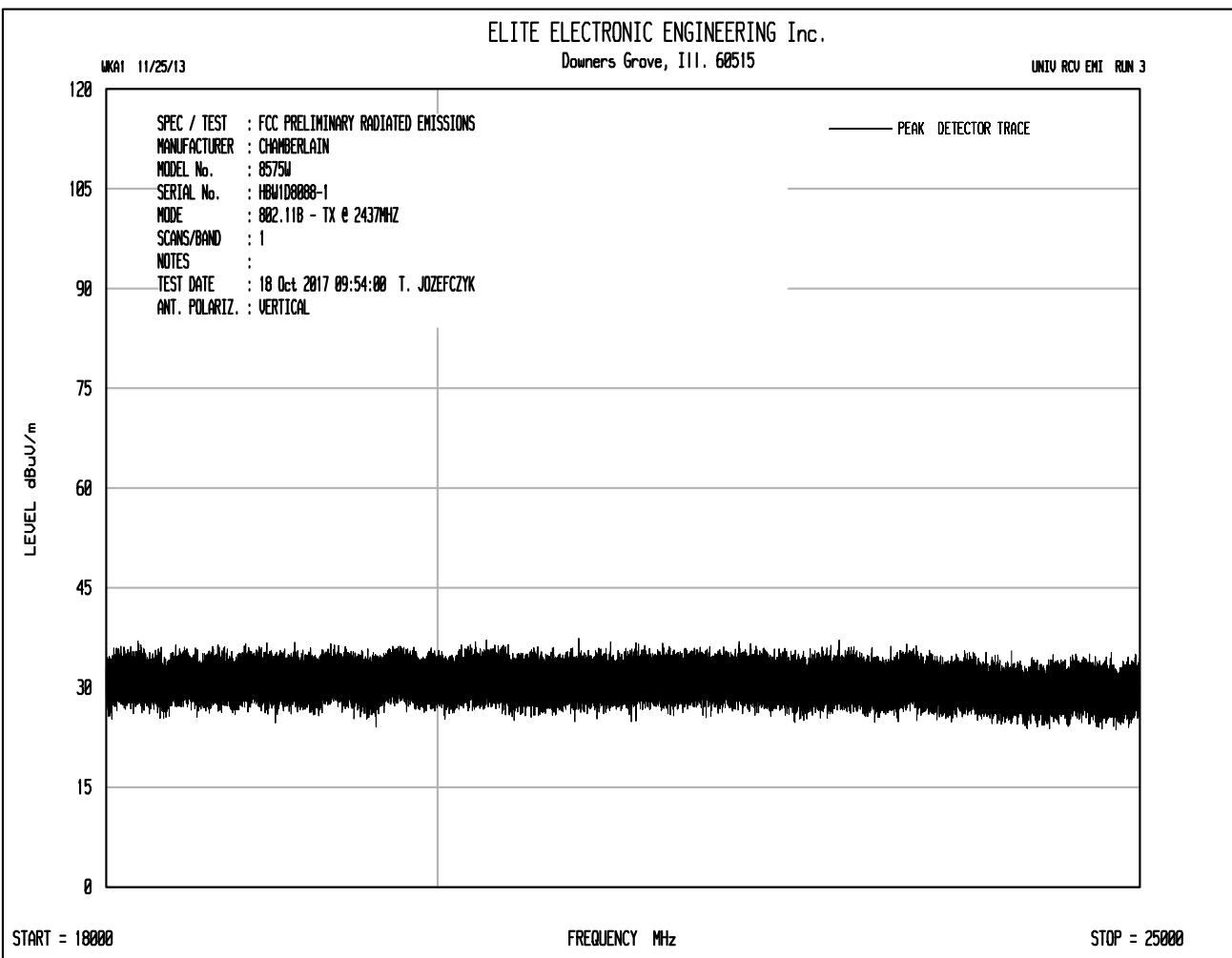


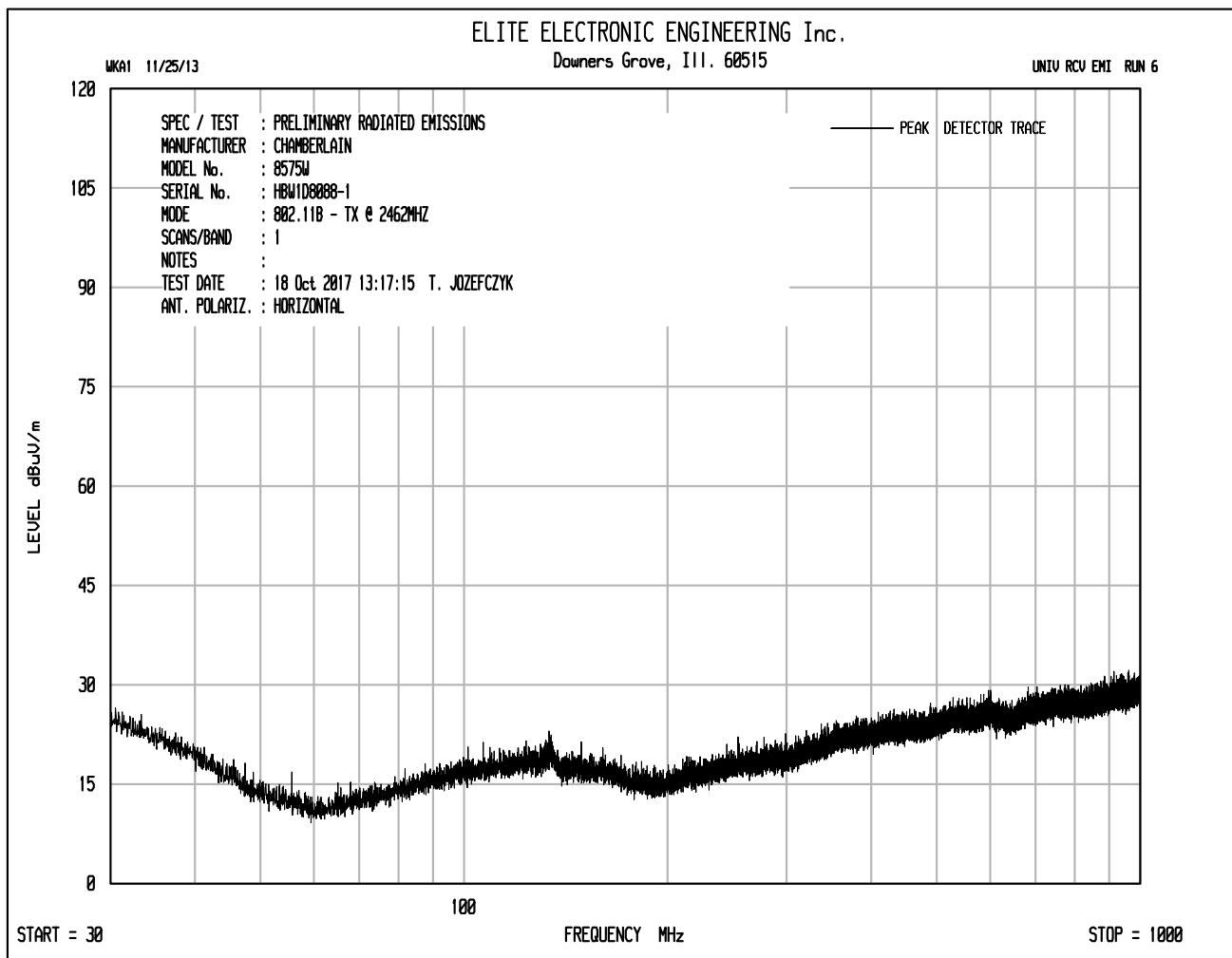


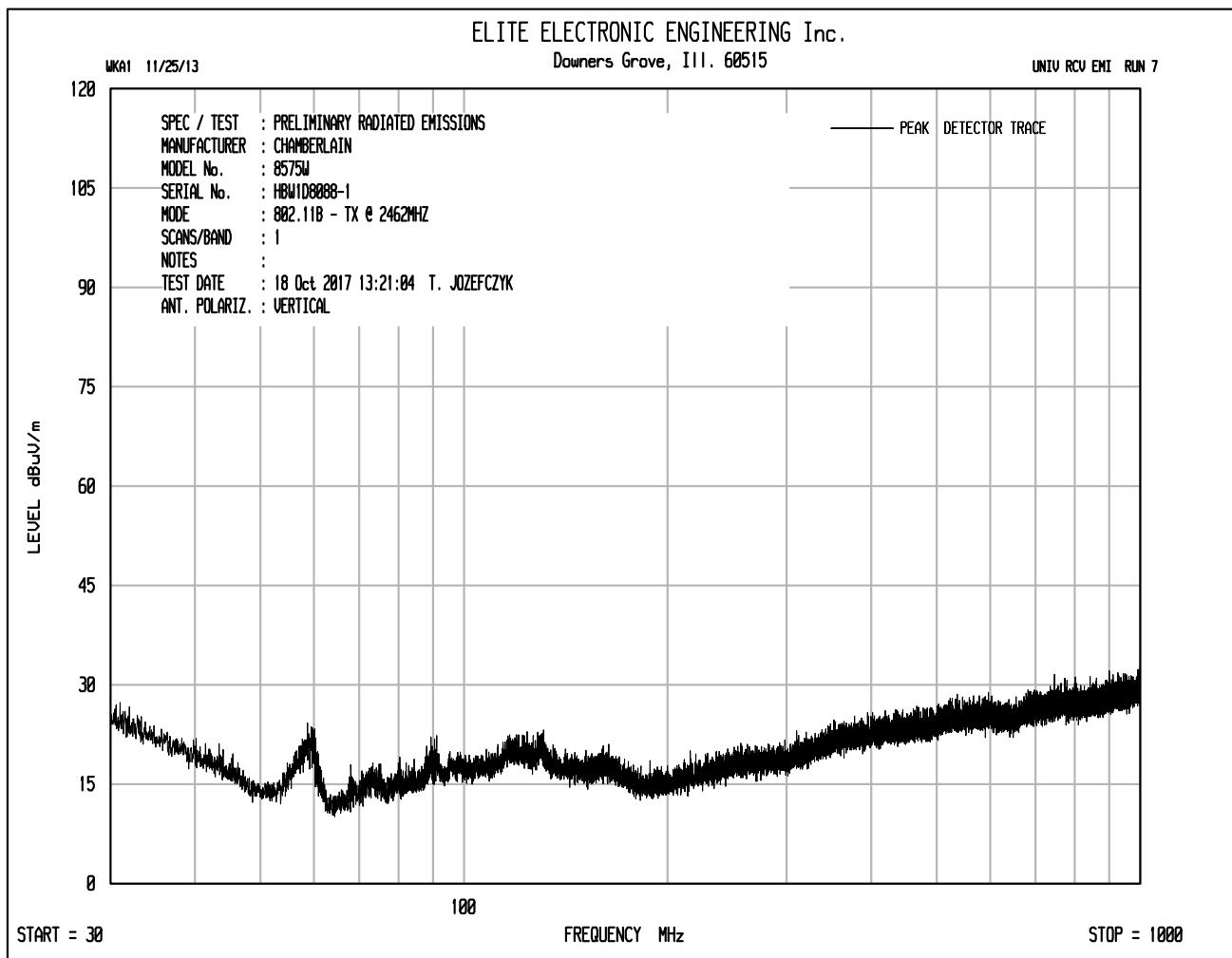


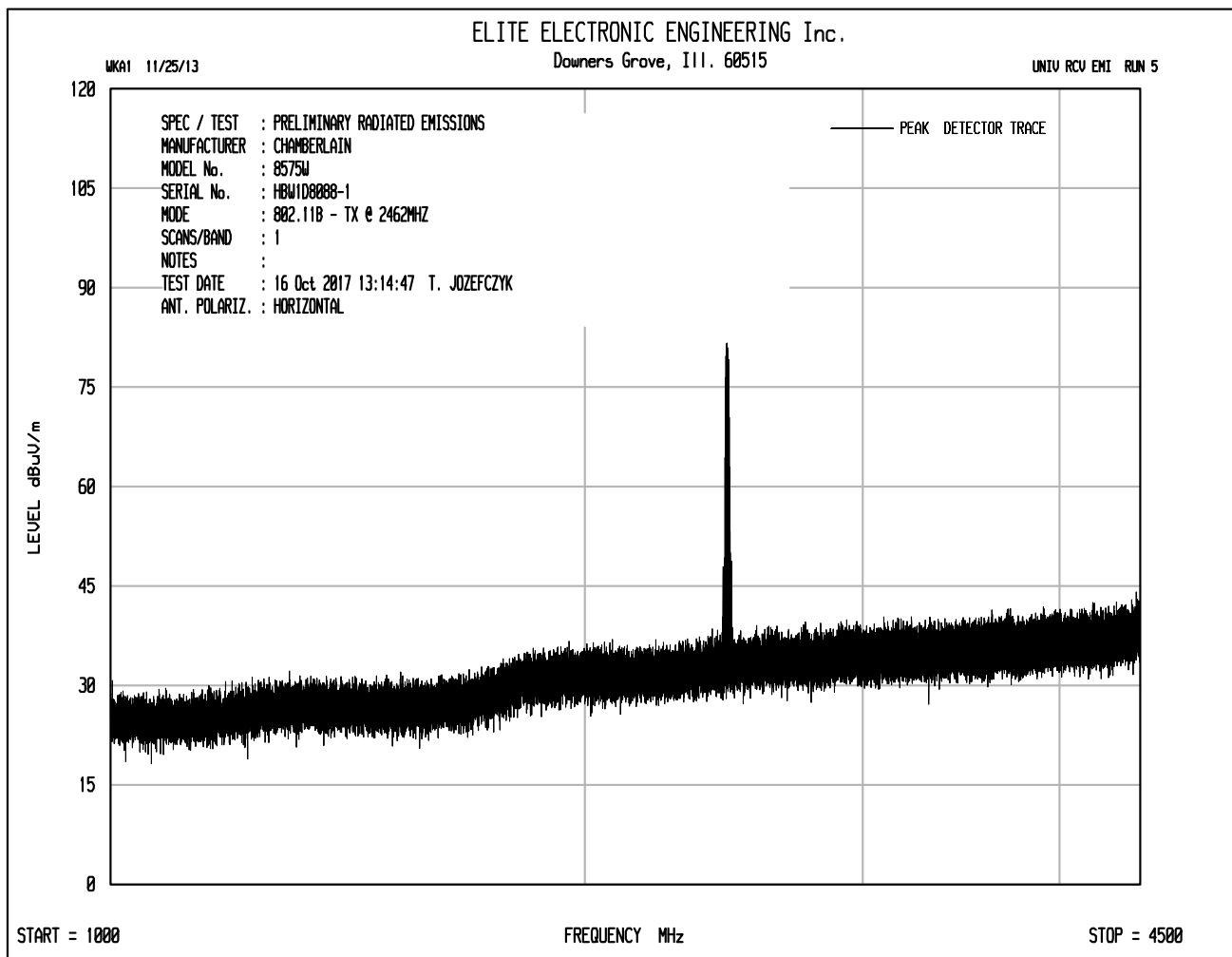


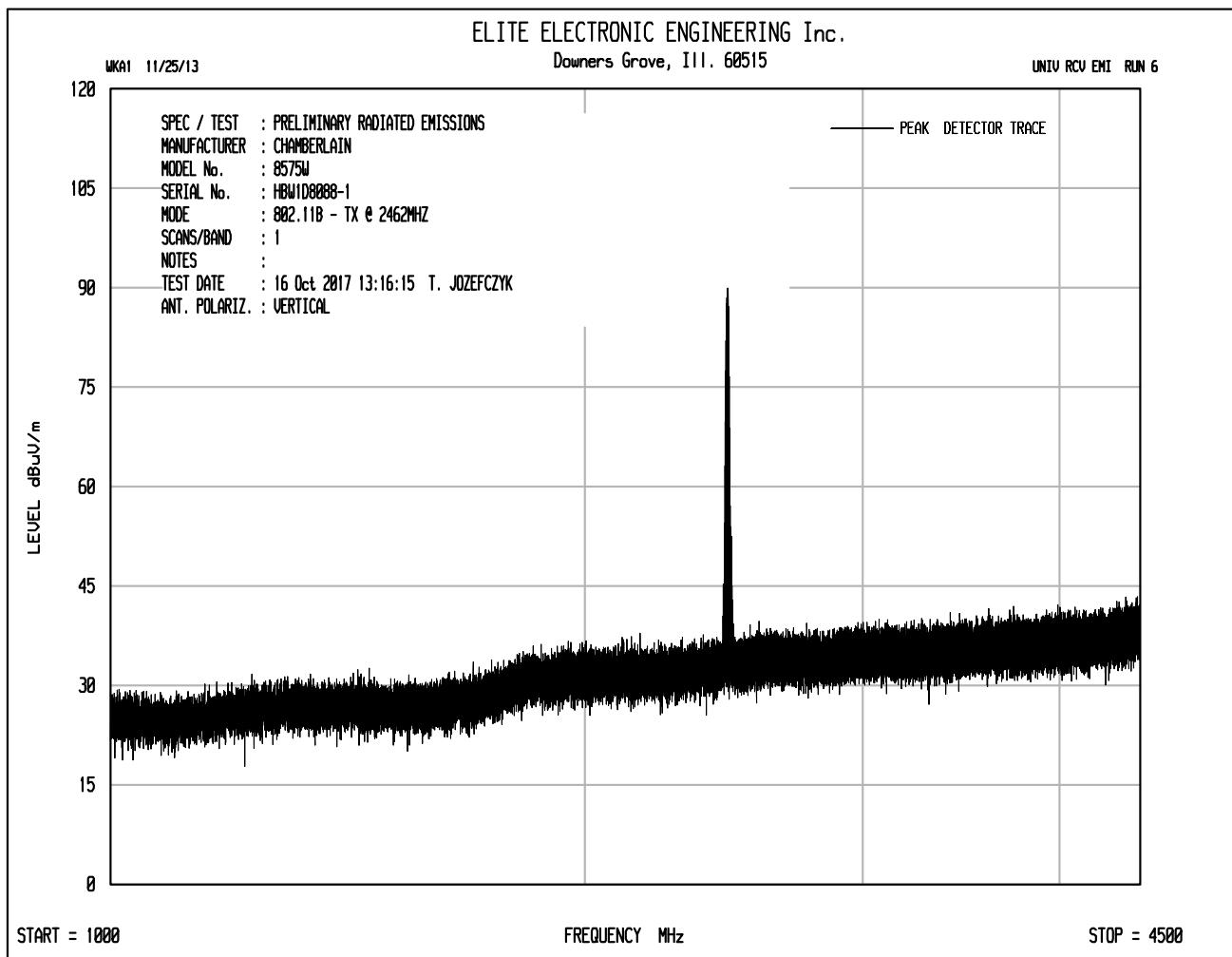


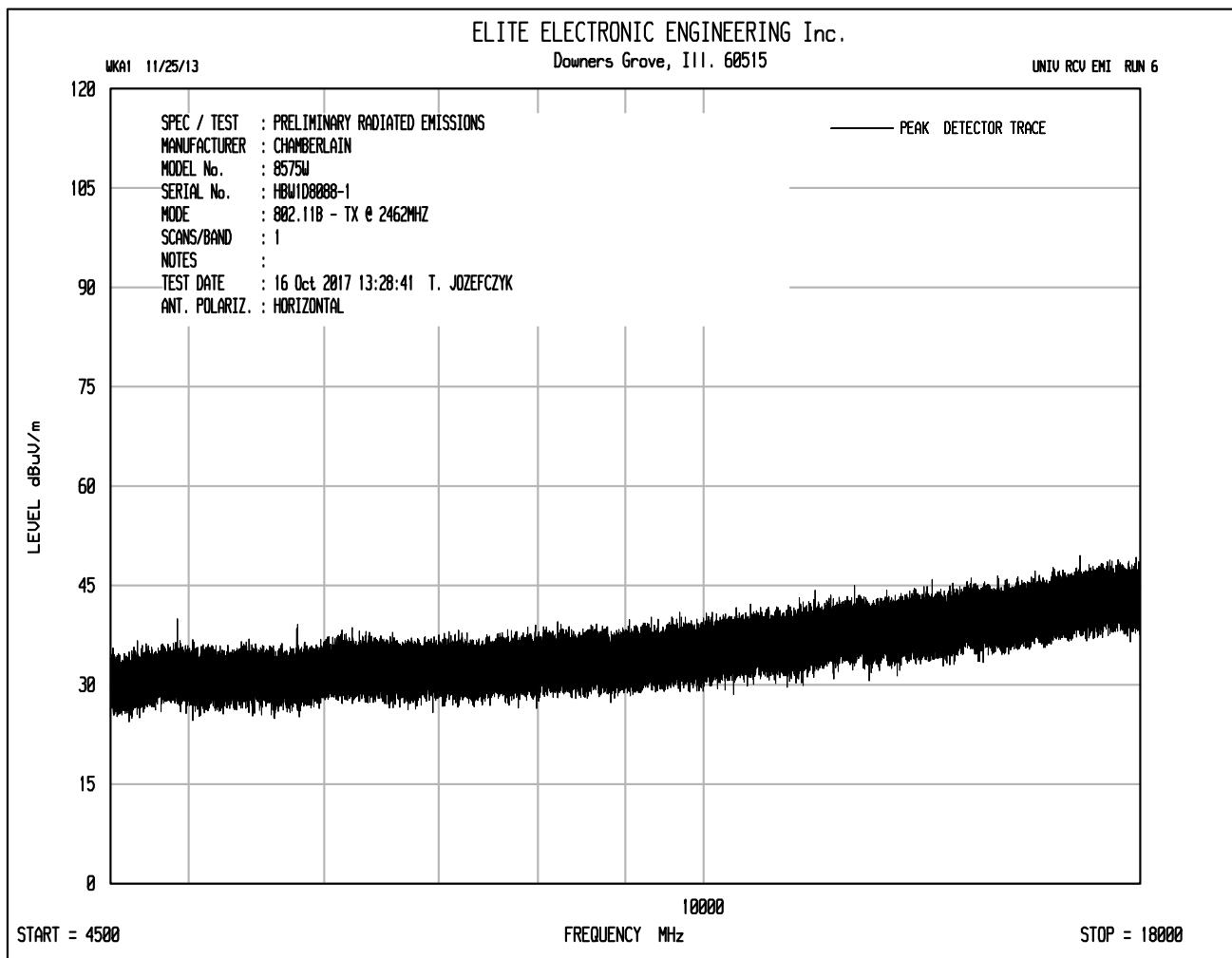


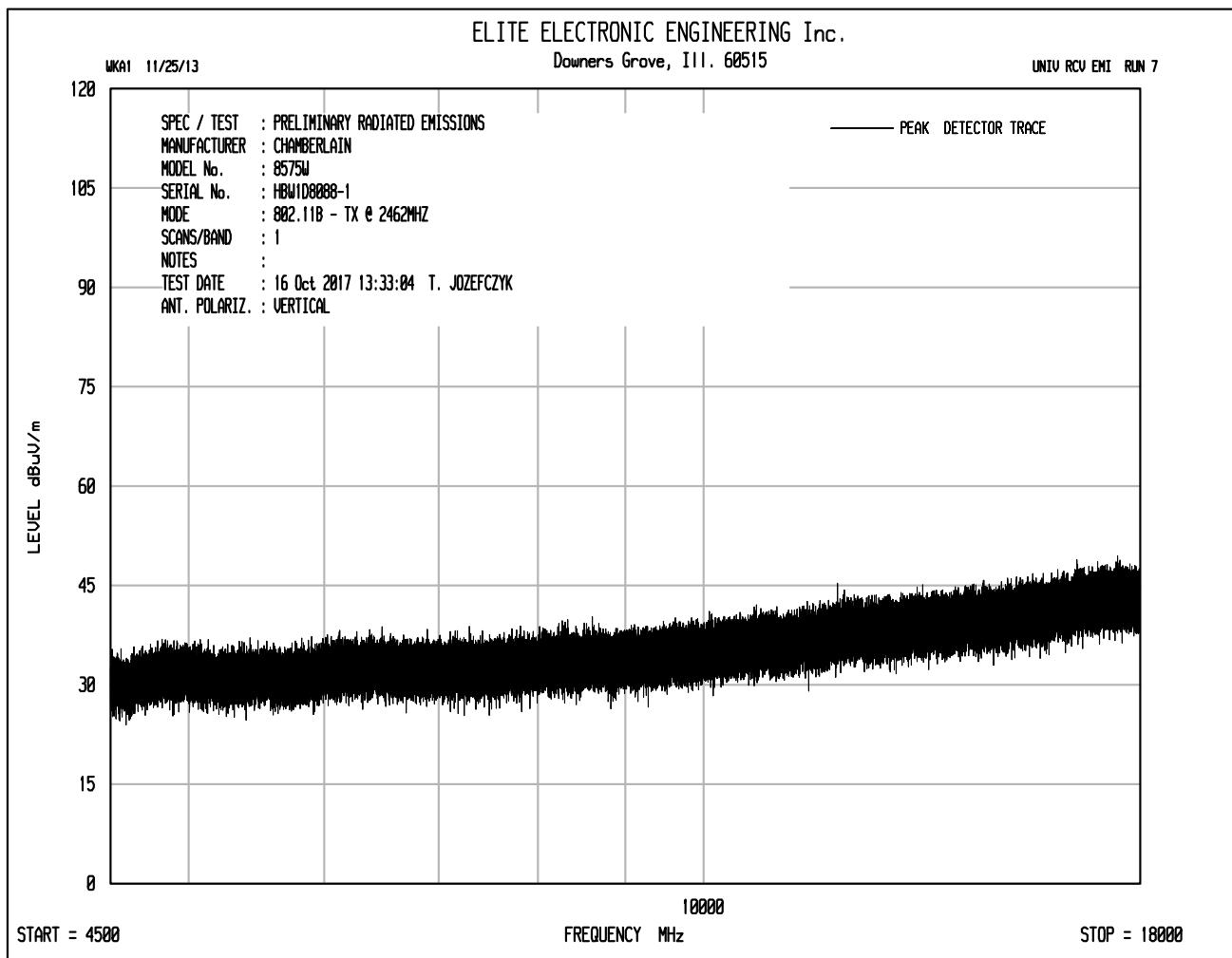


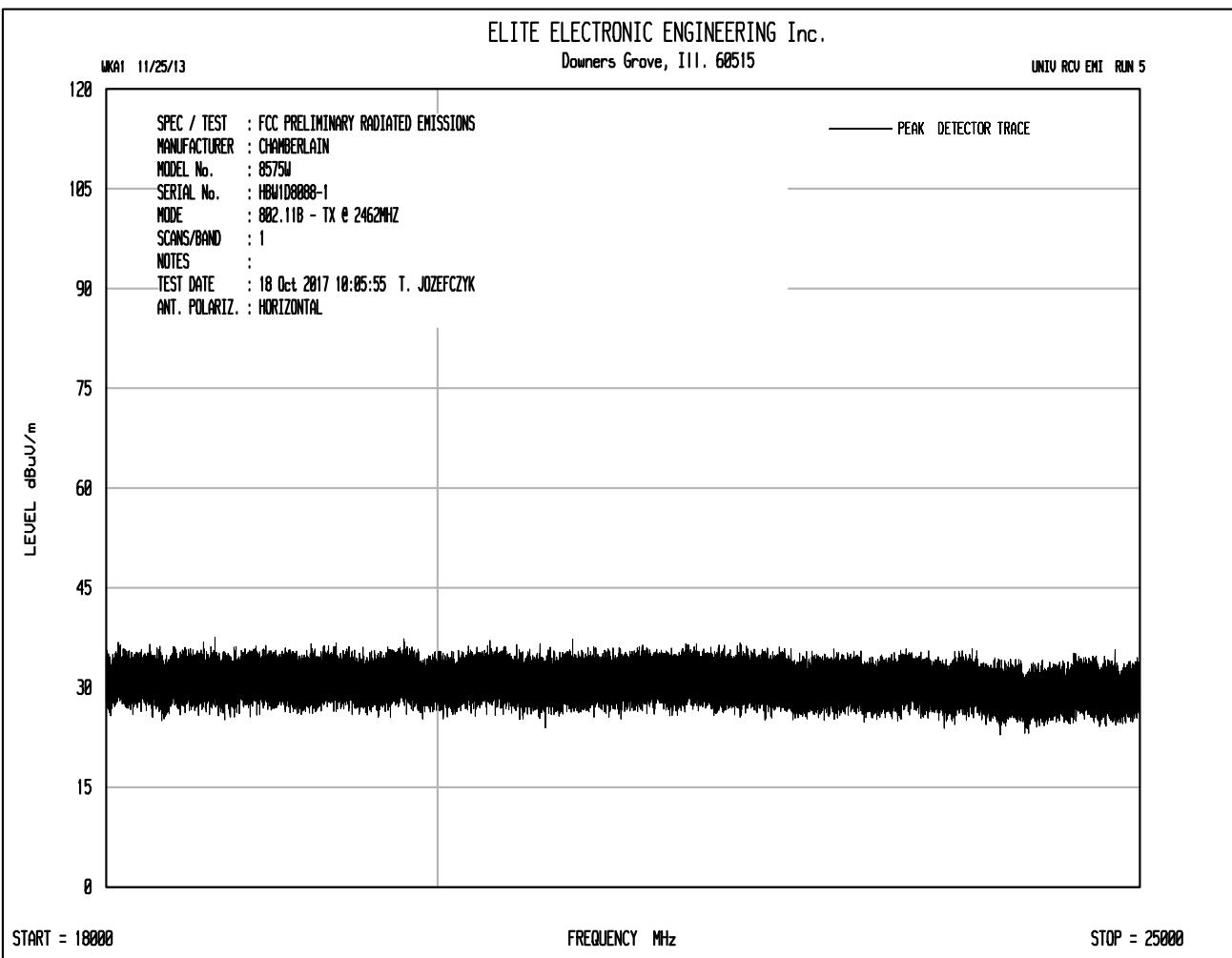










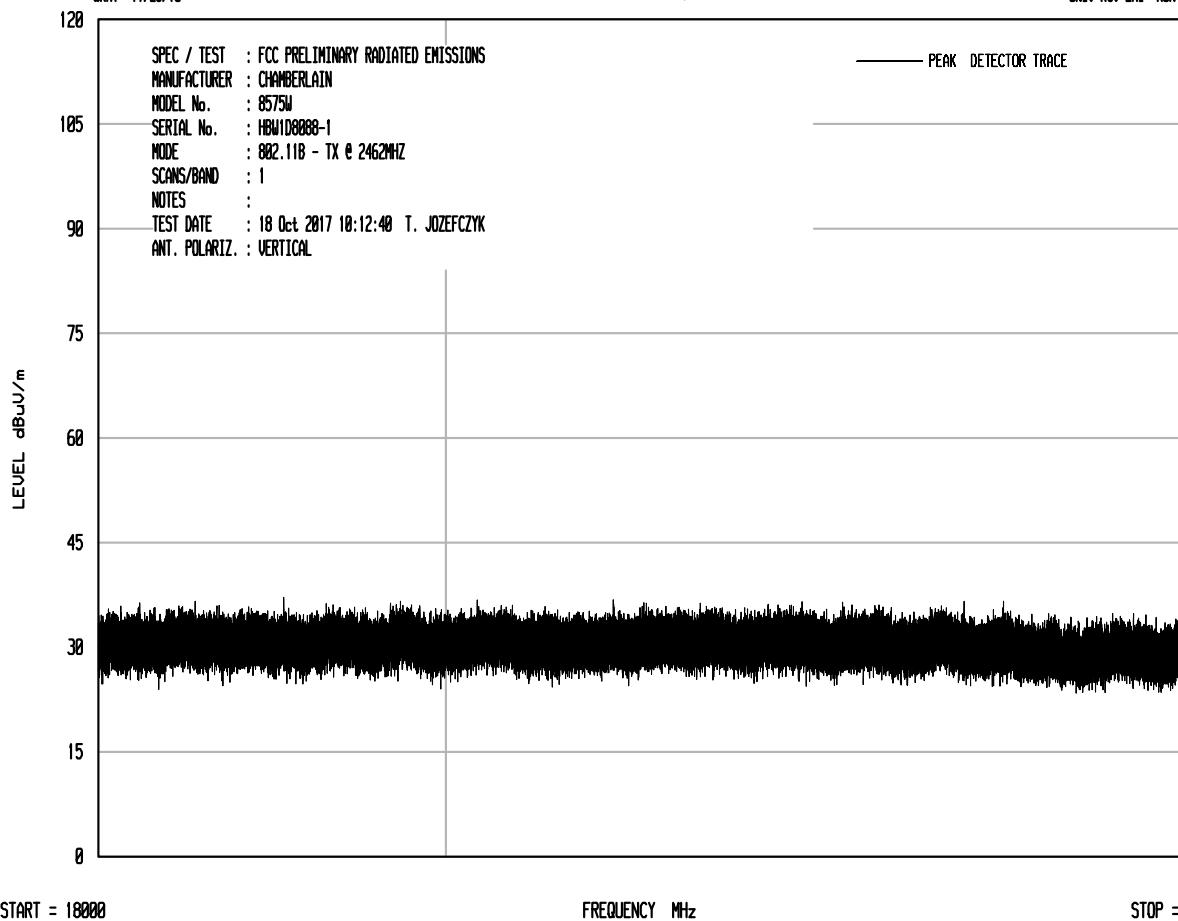


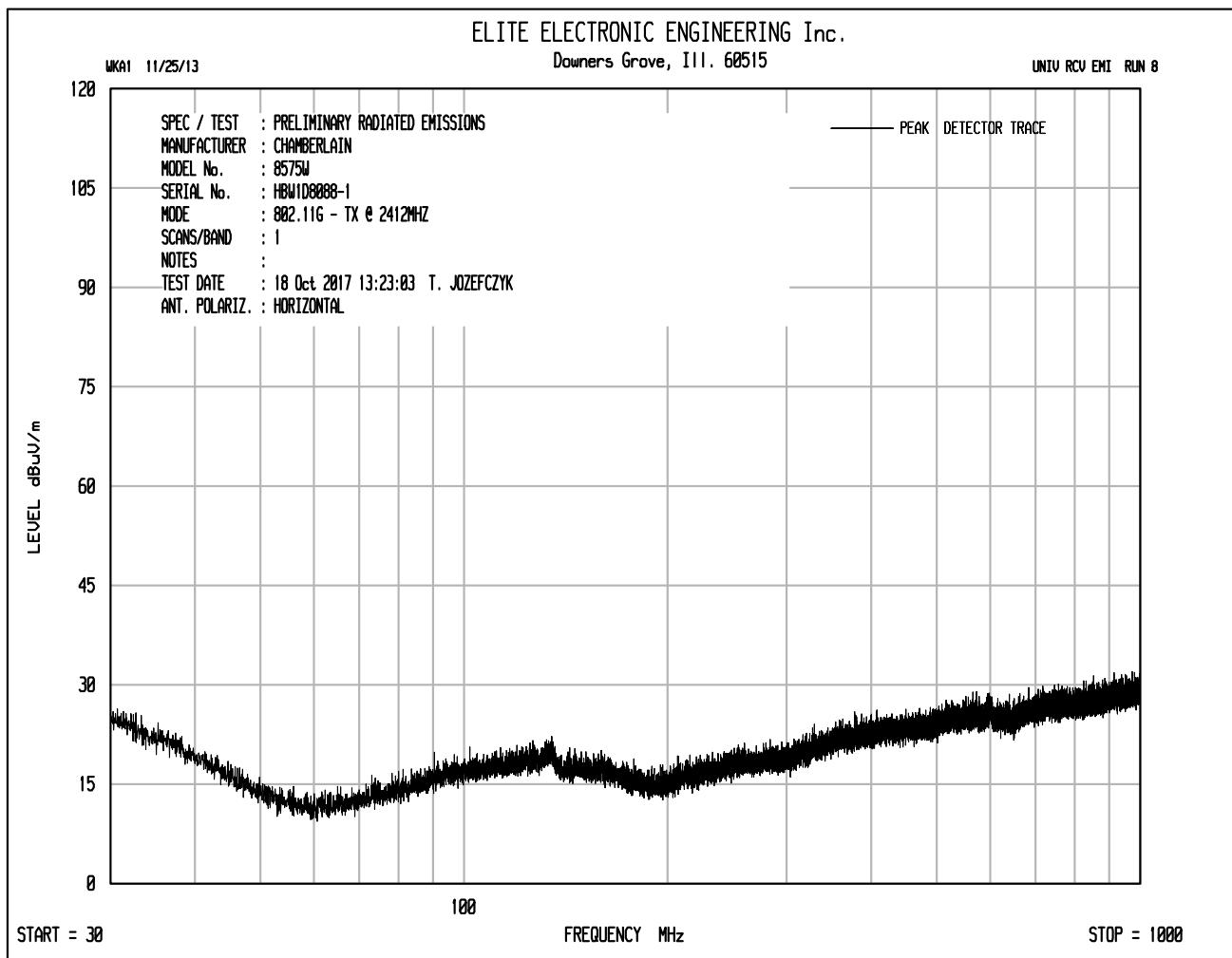
ELITE ELECTRONIC ENGINEERING Inc.

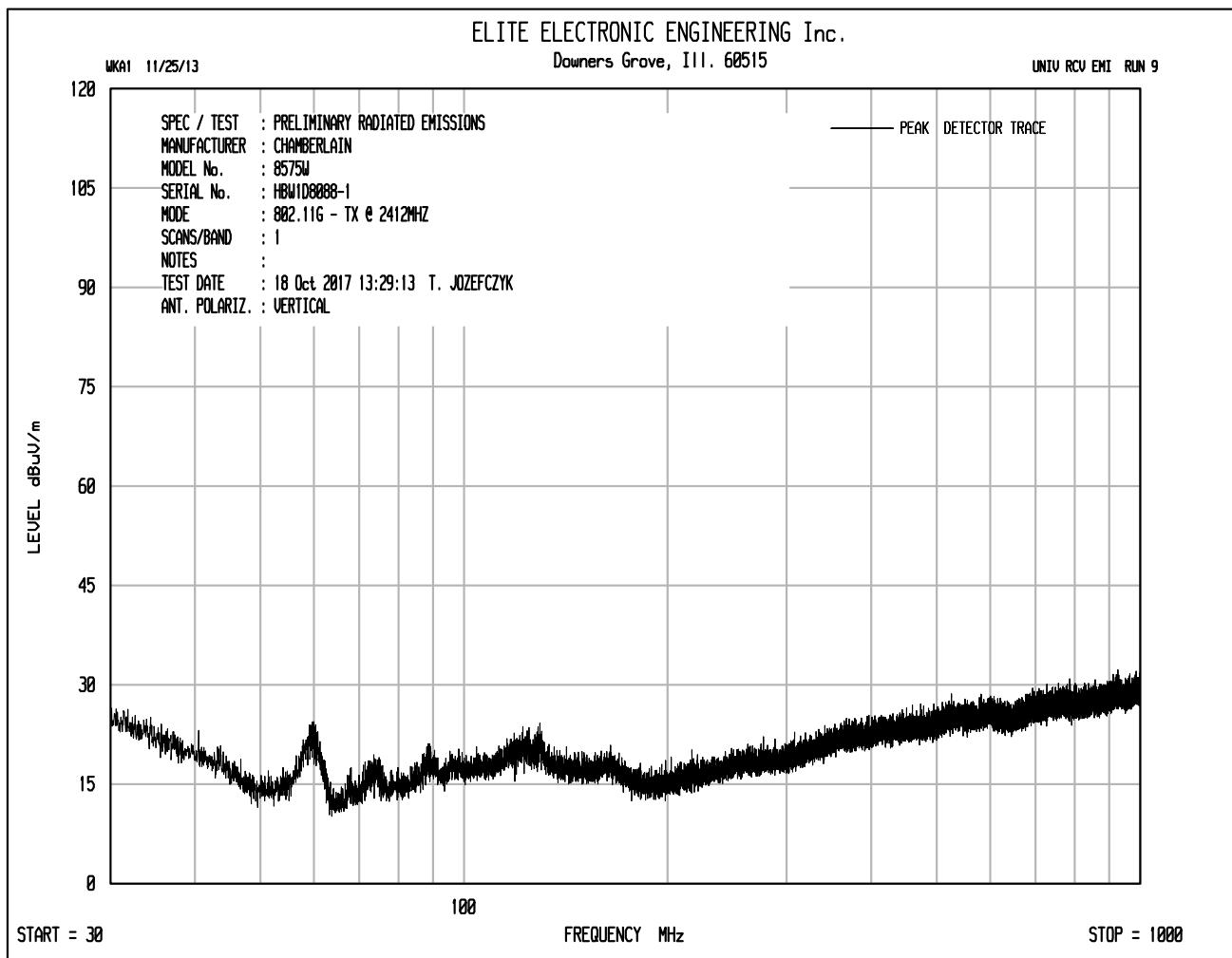
Downers Grove, Ill. 60515

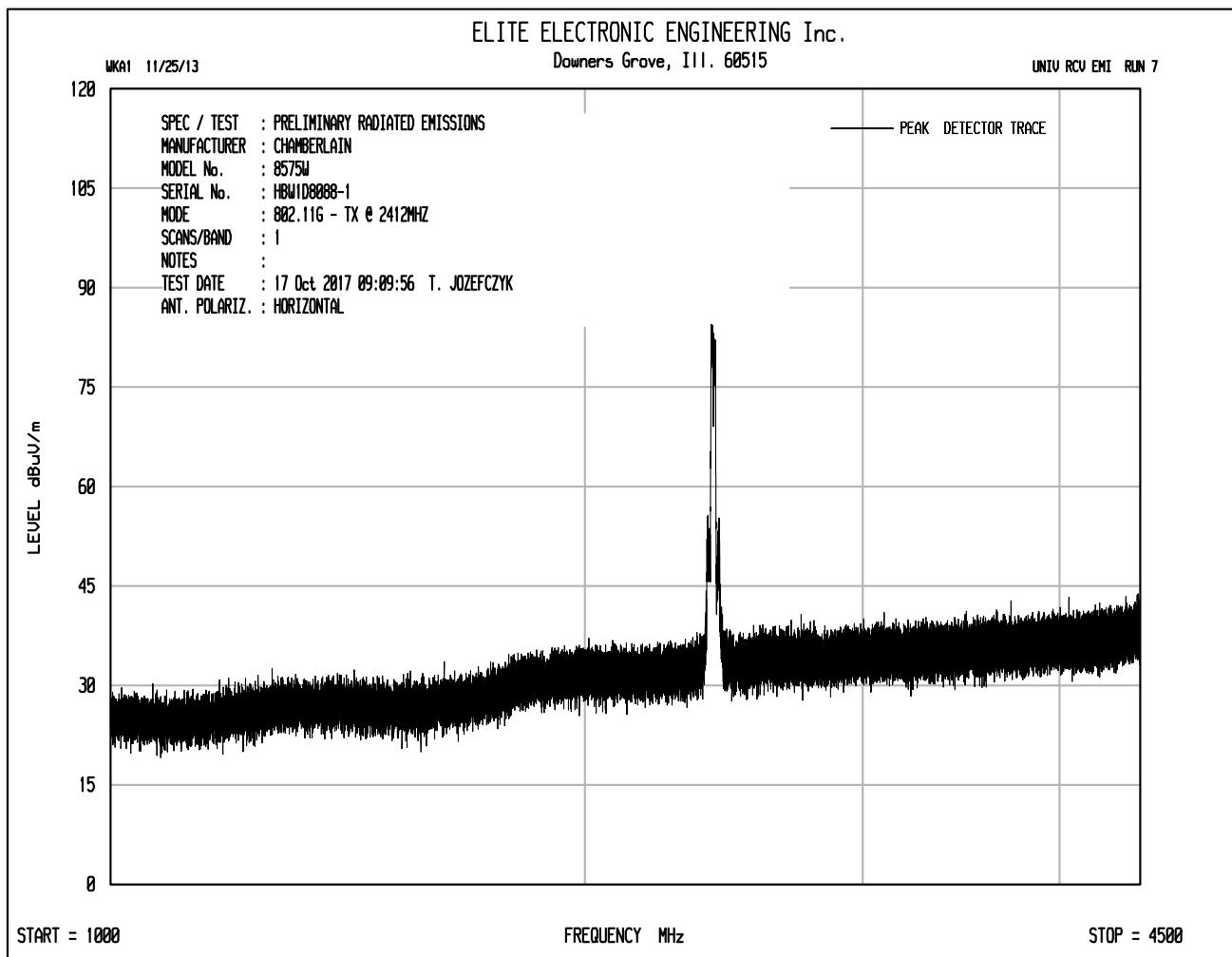
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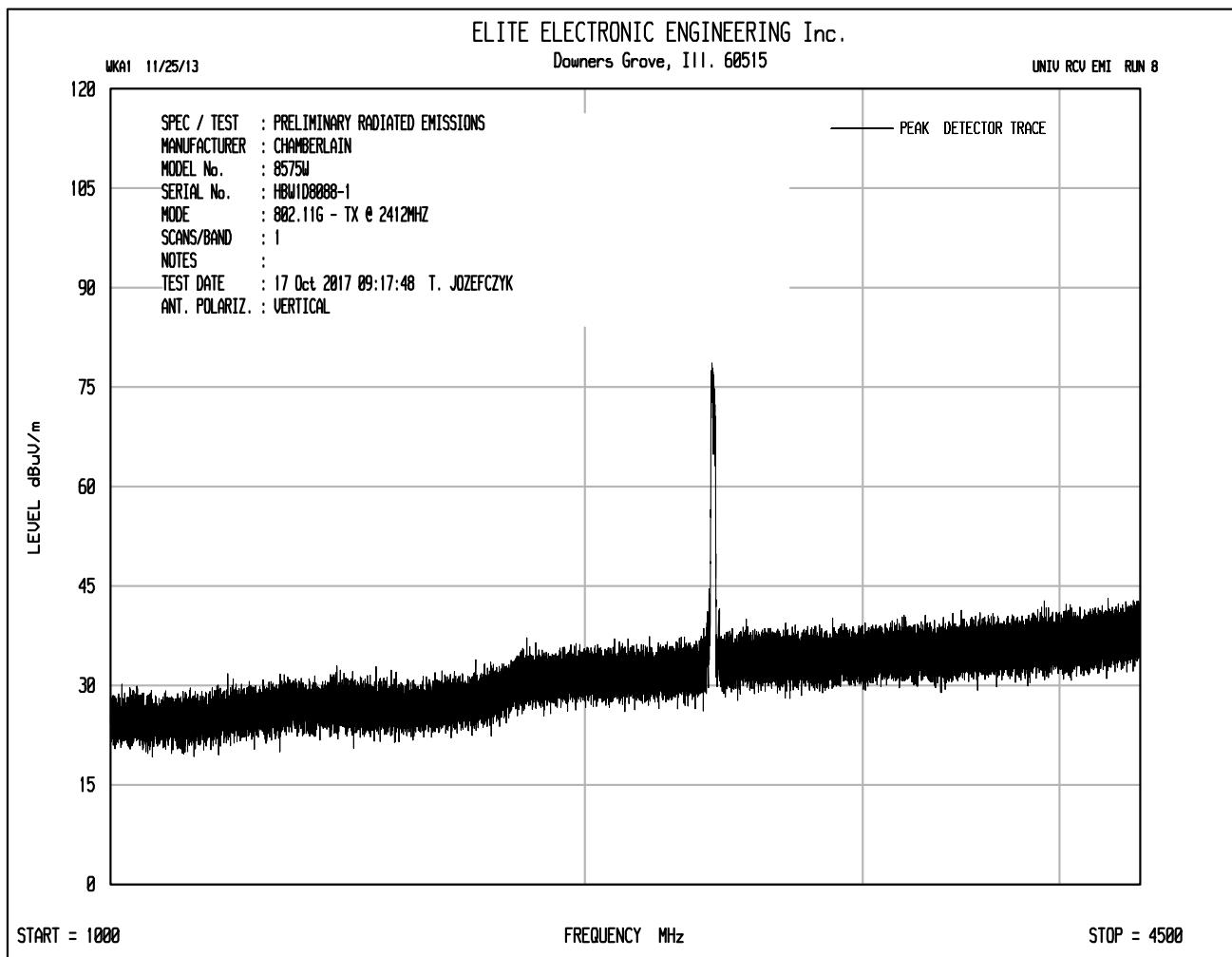
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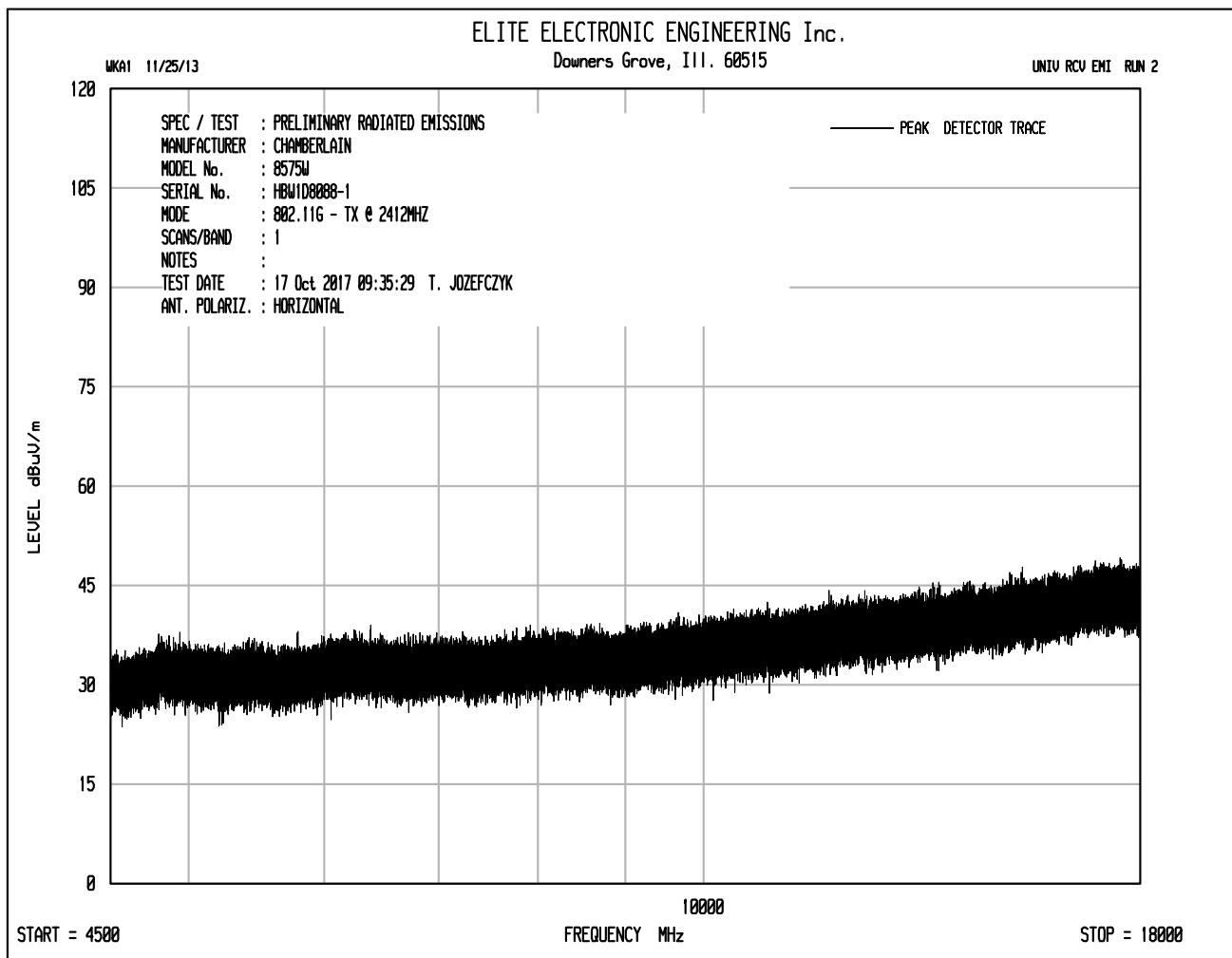


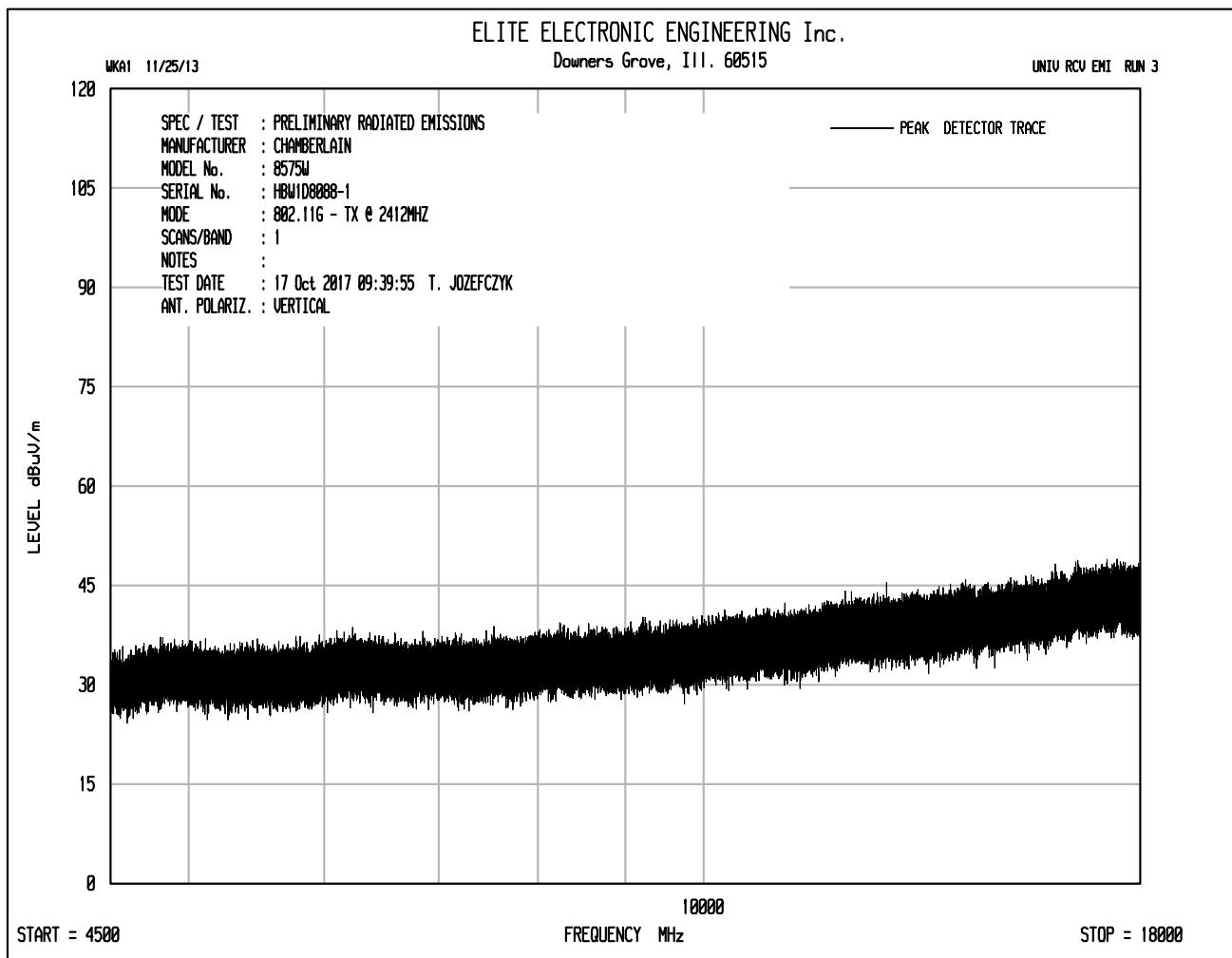


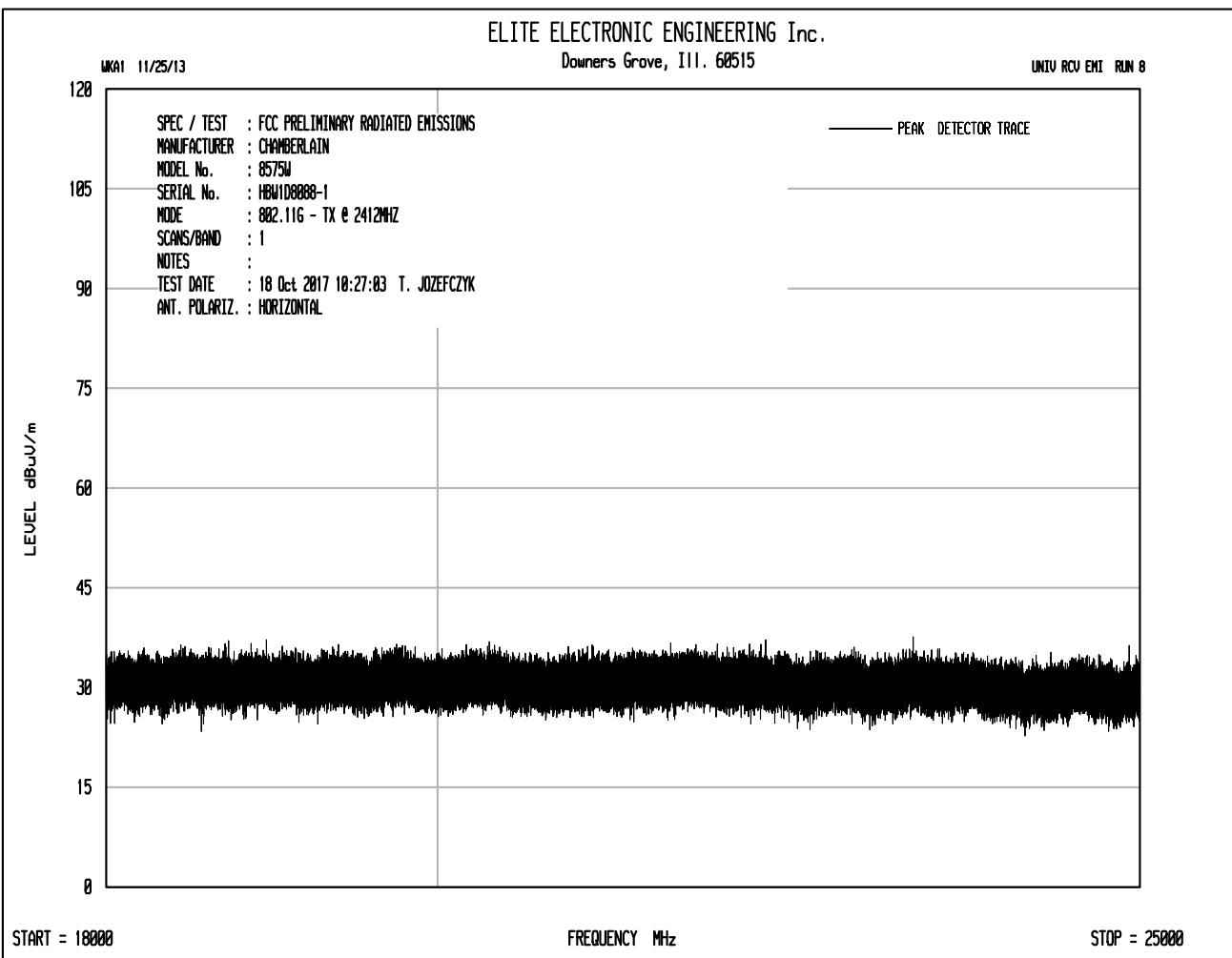


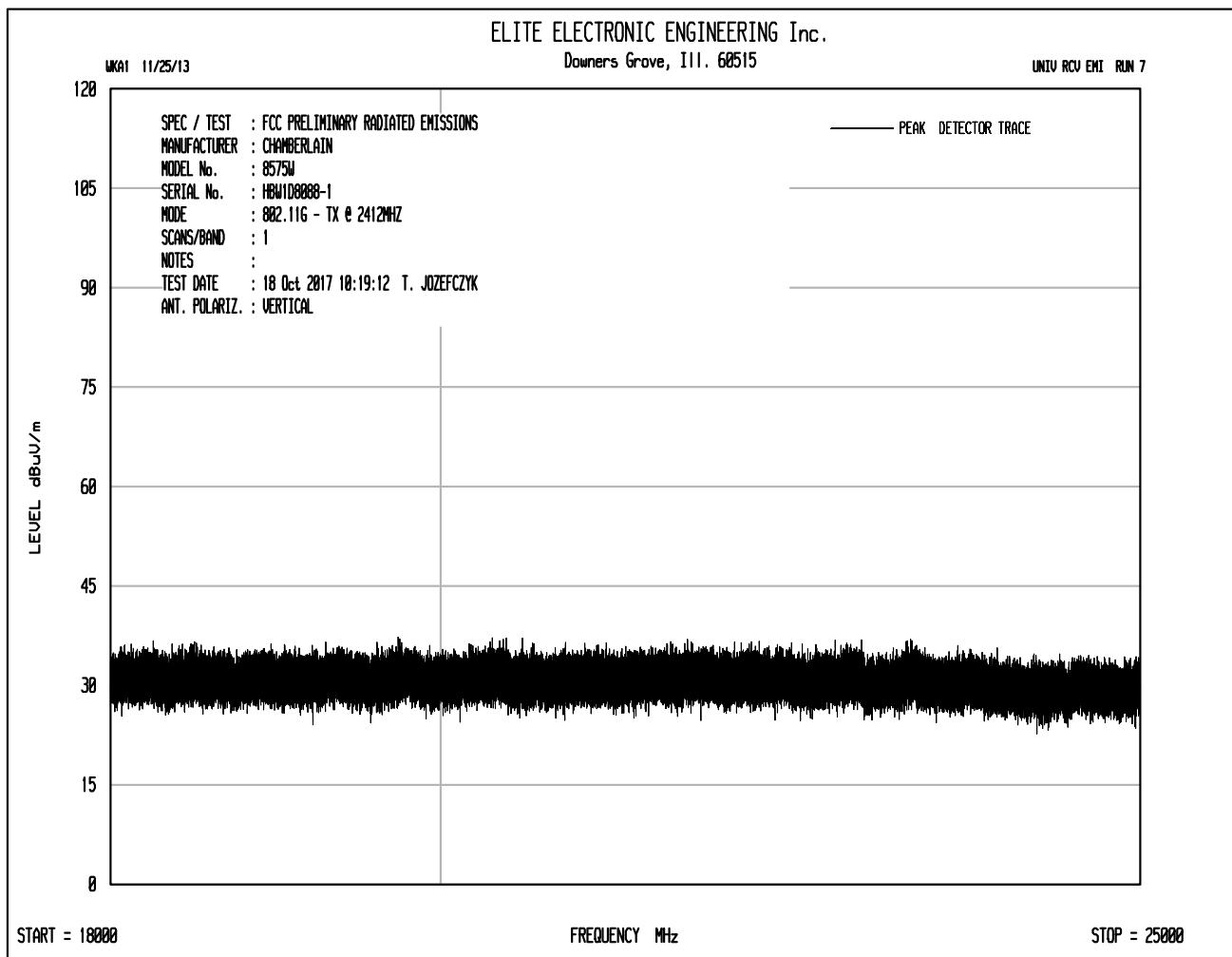


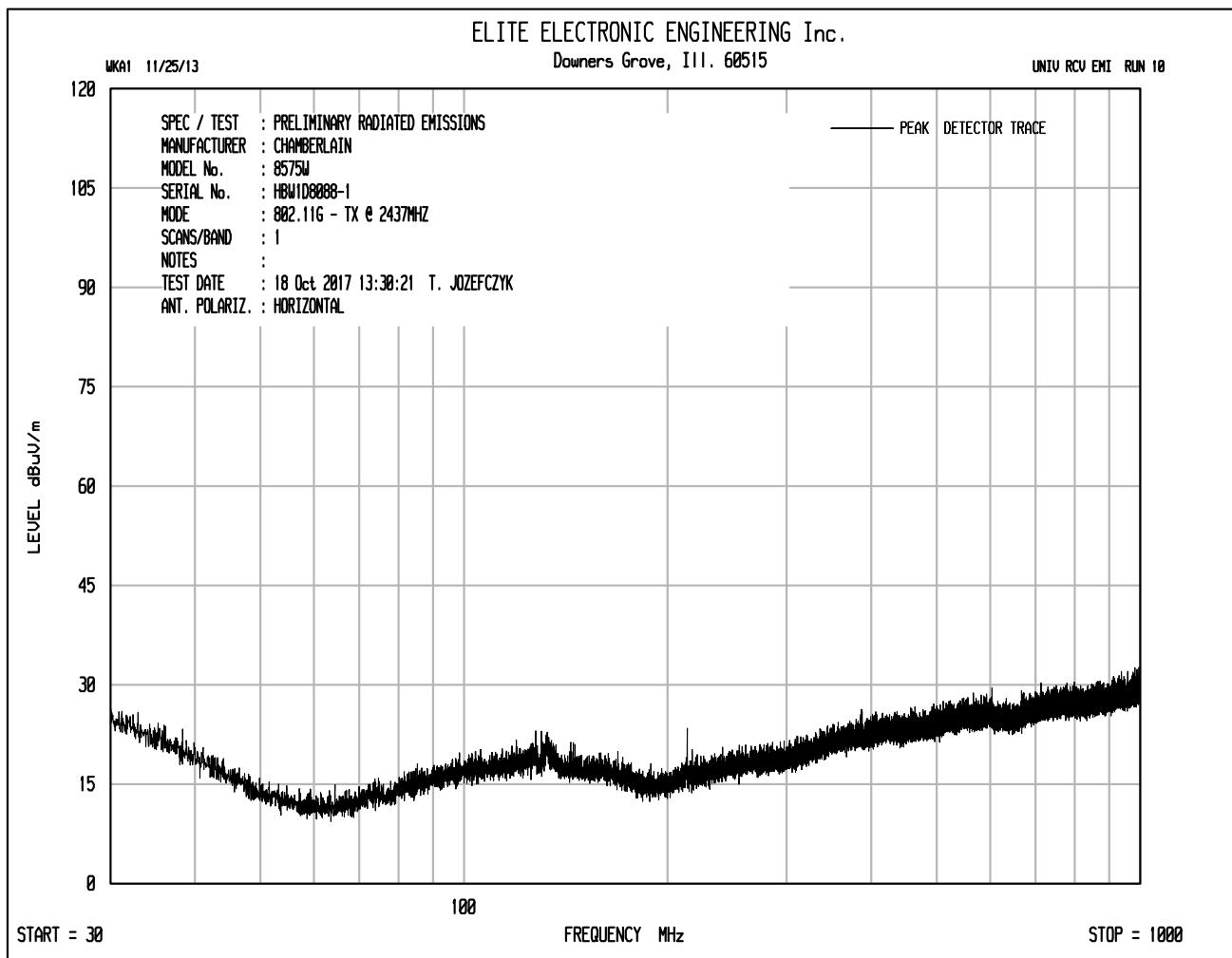


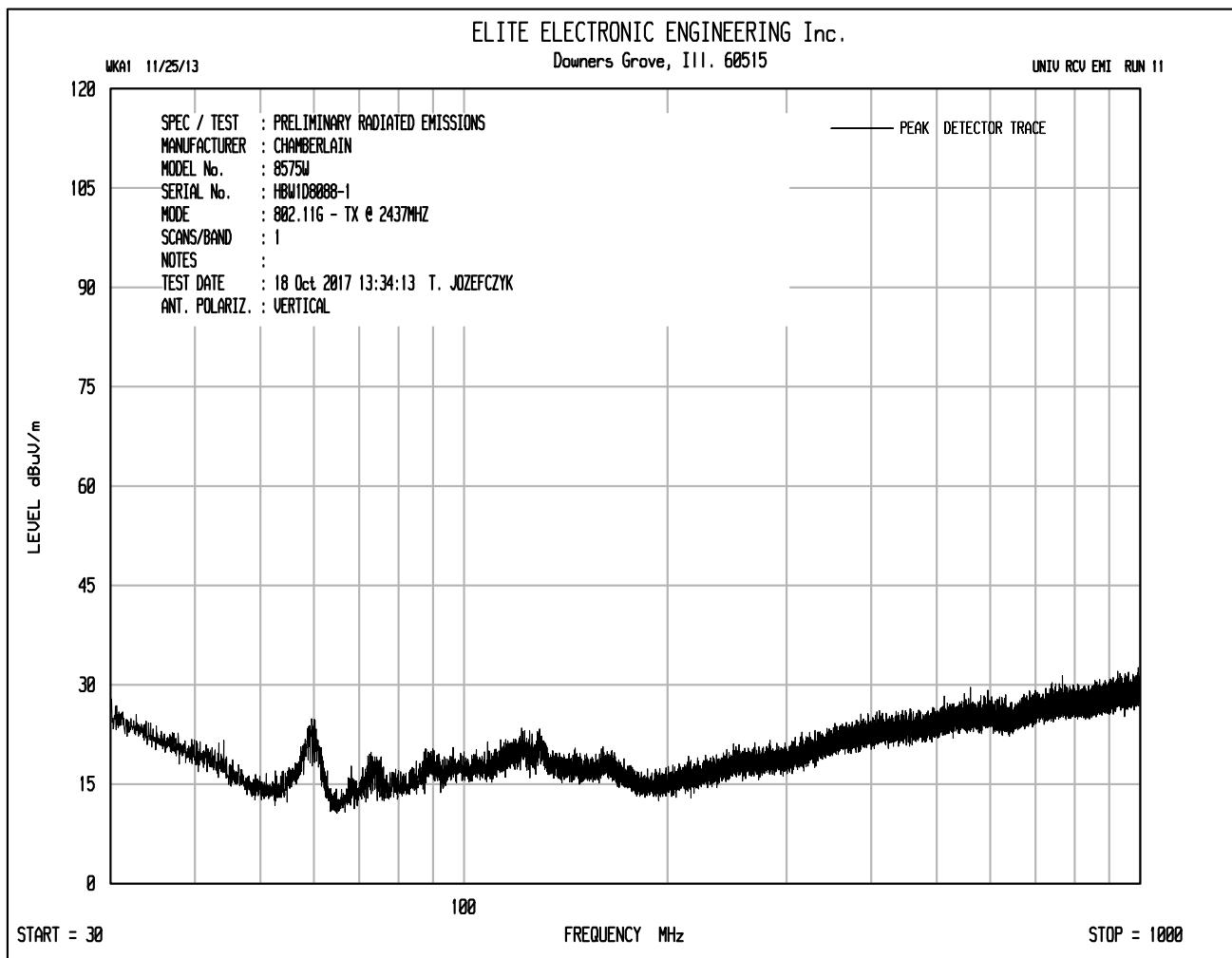


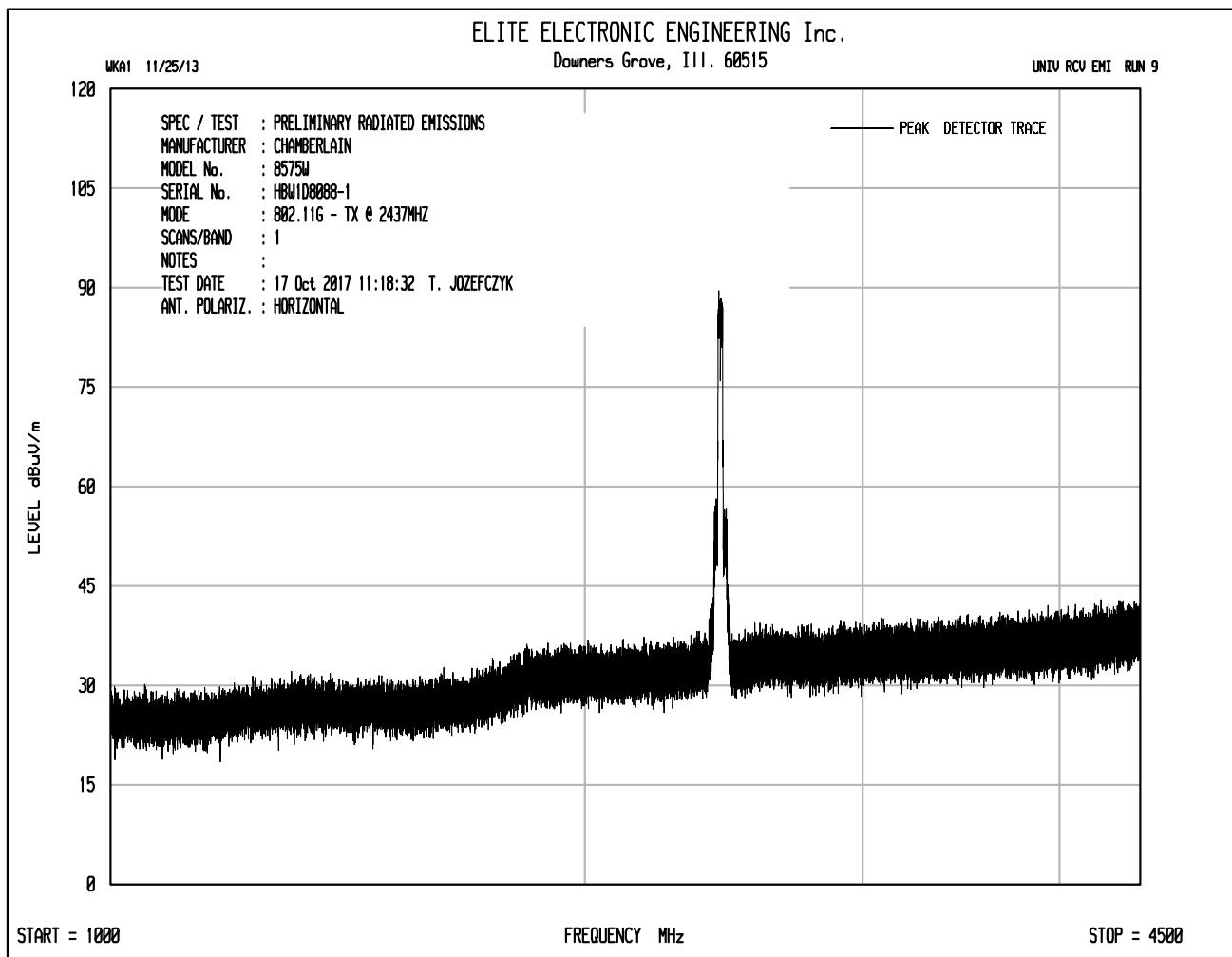


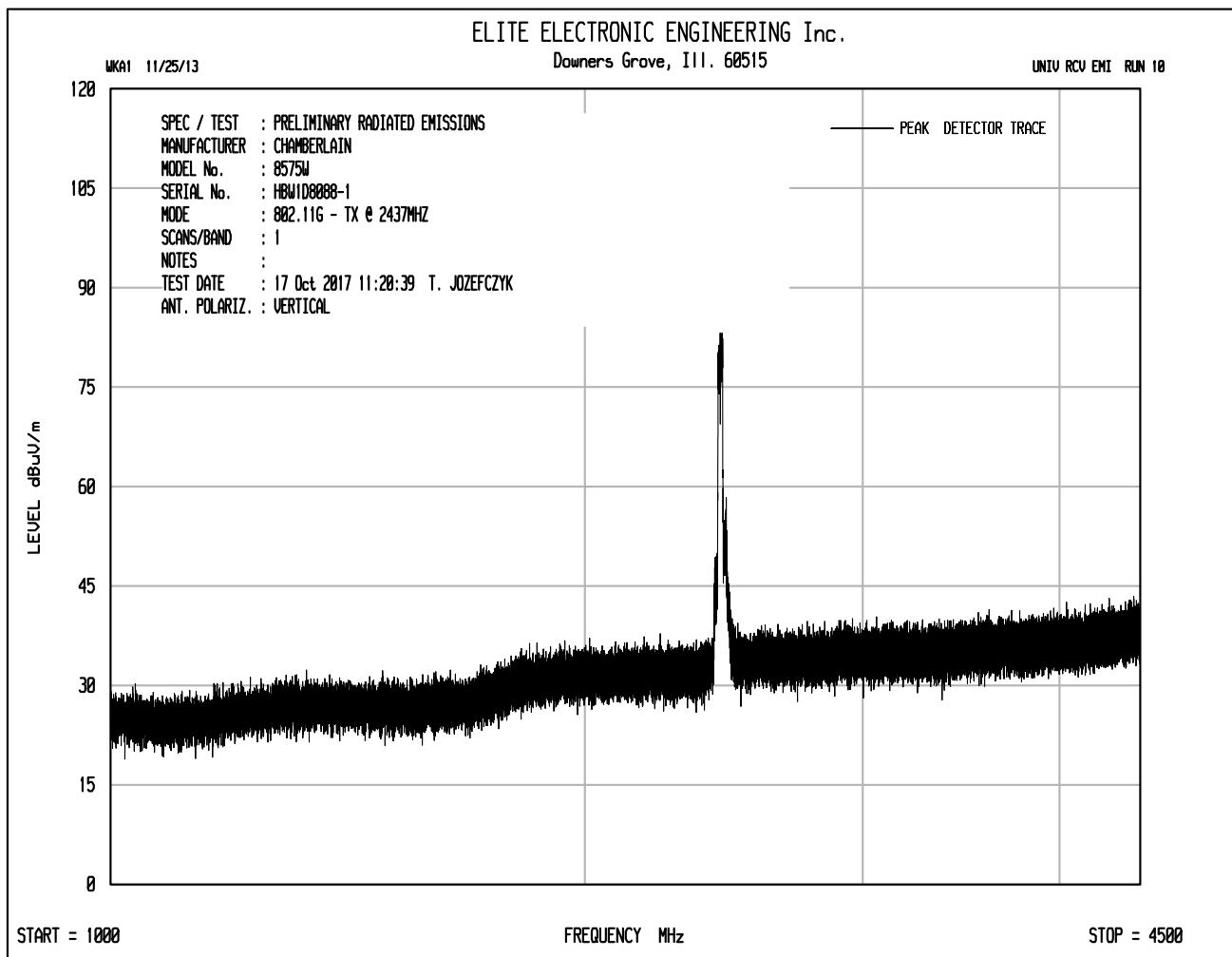


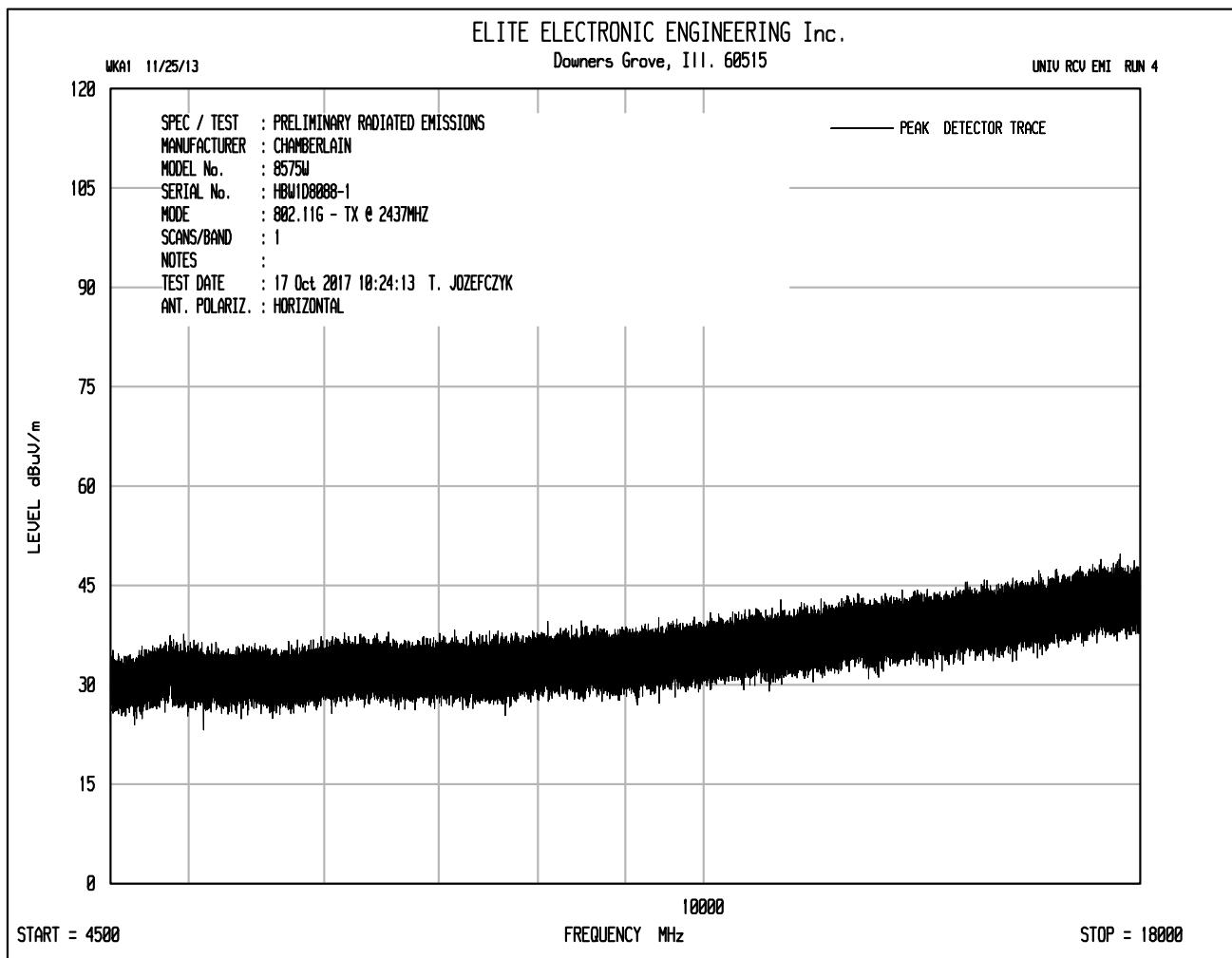


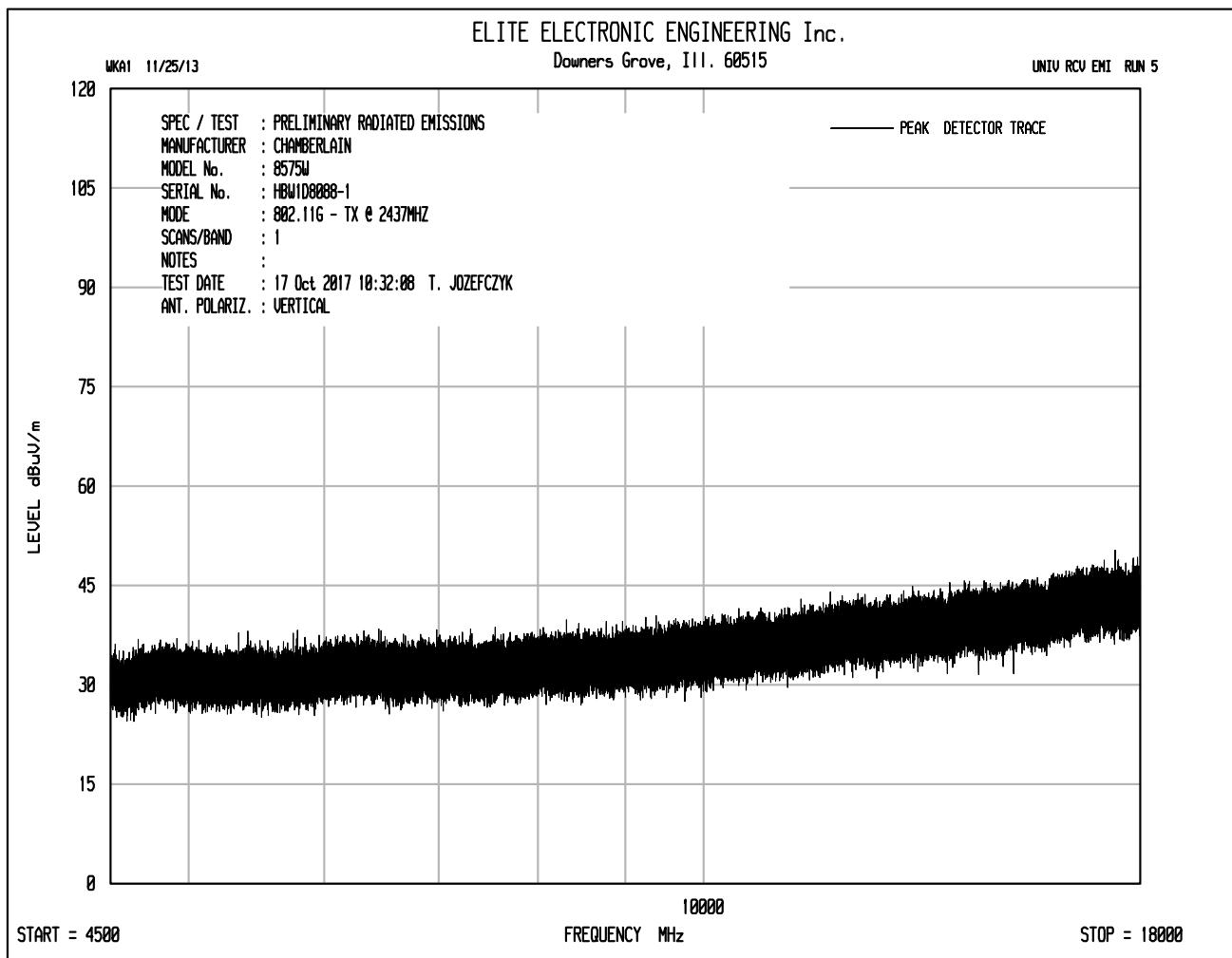


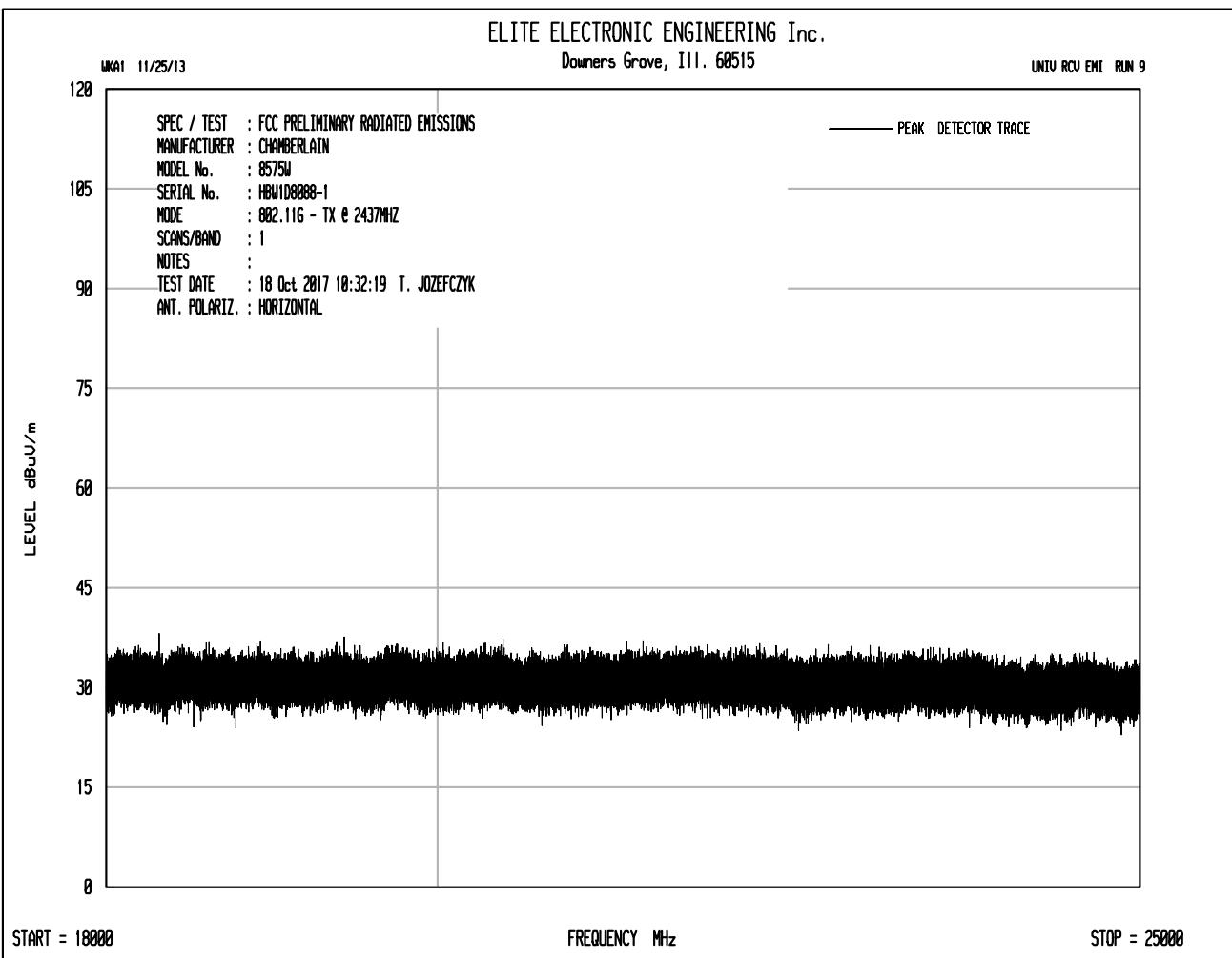


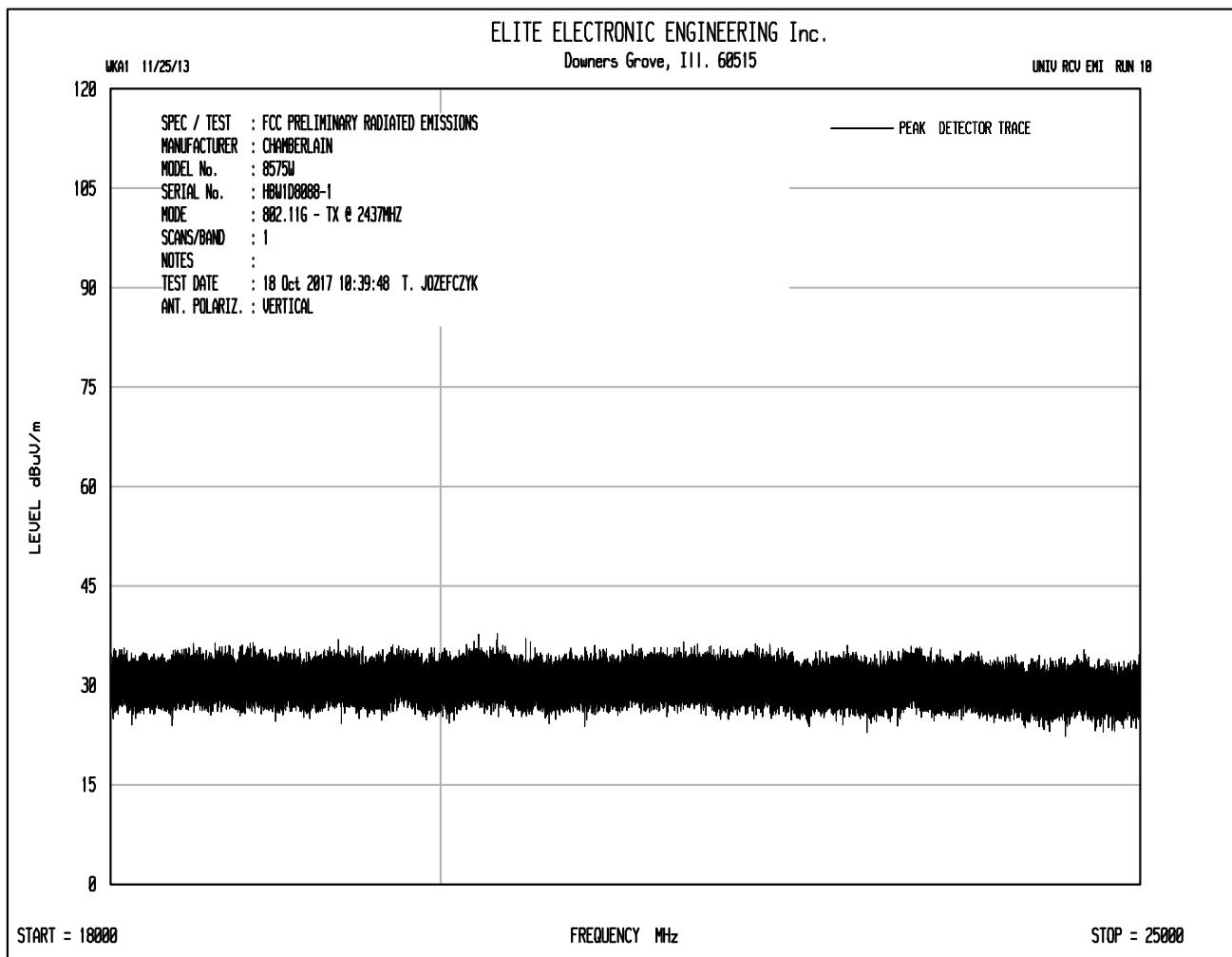


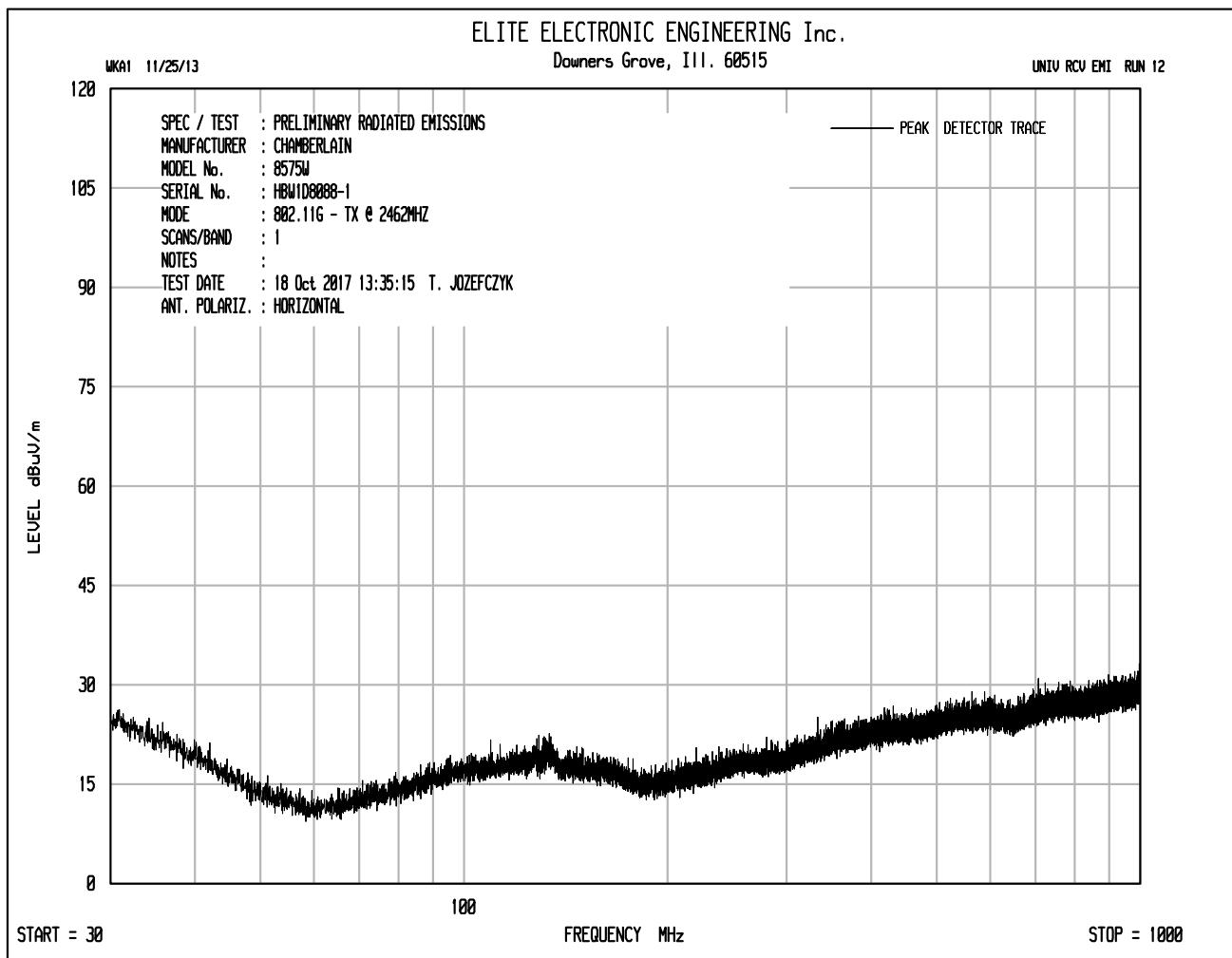


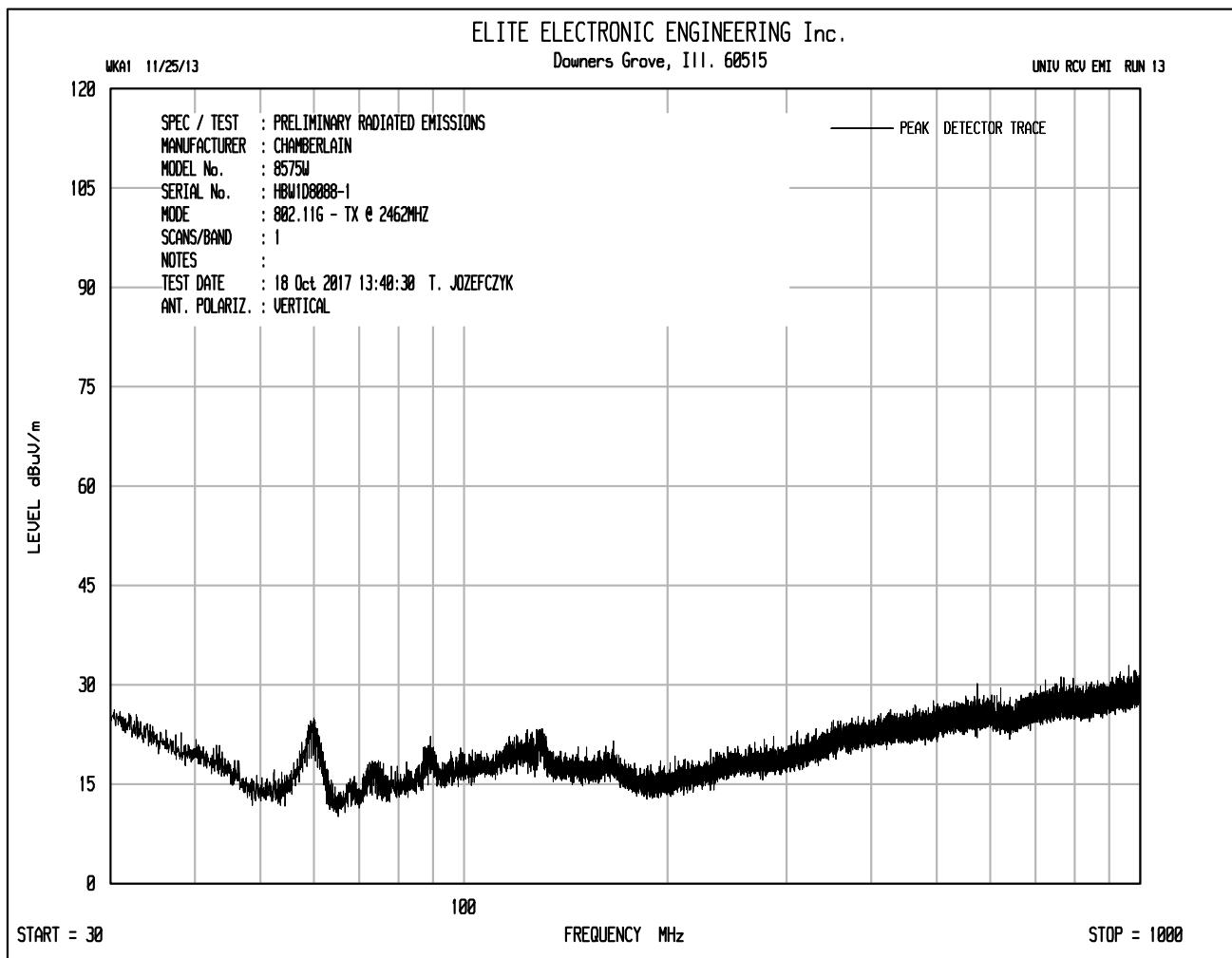


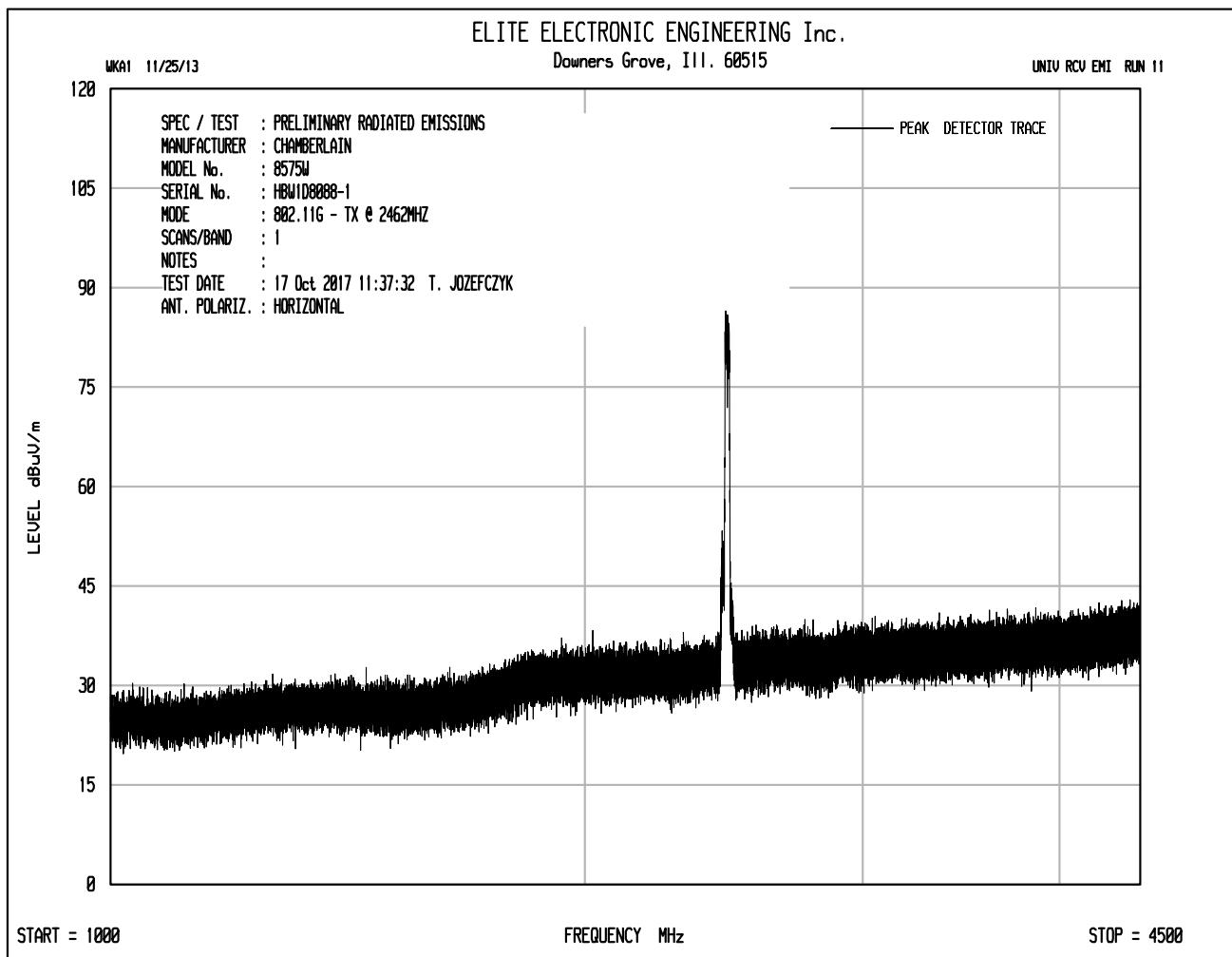


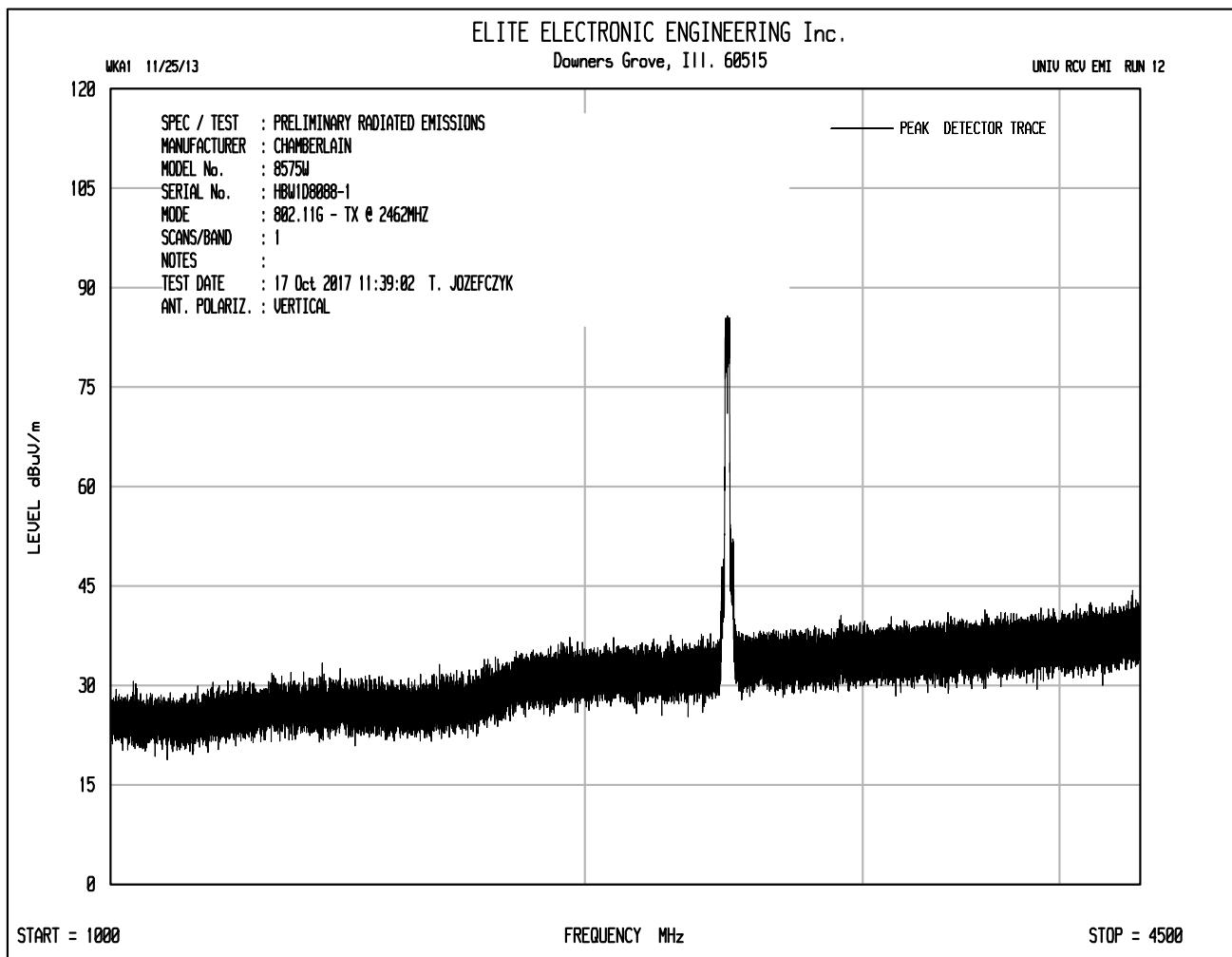


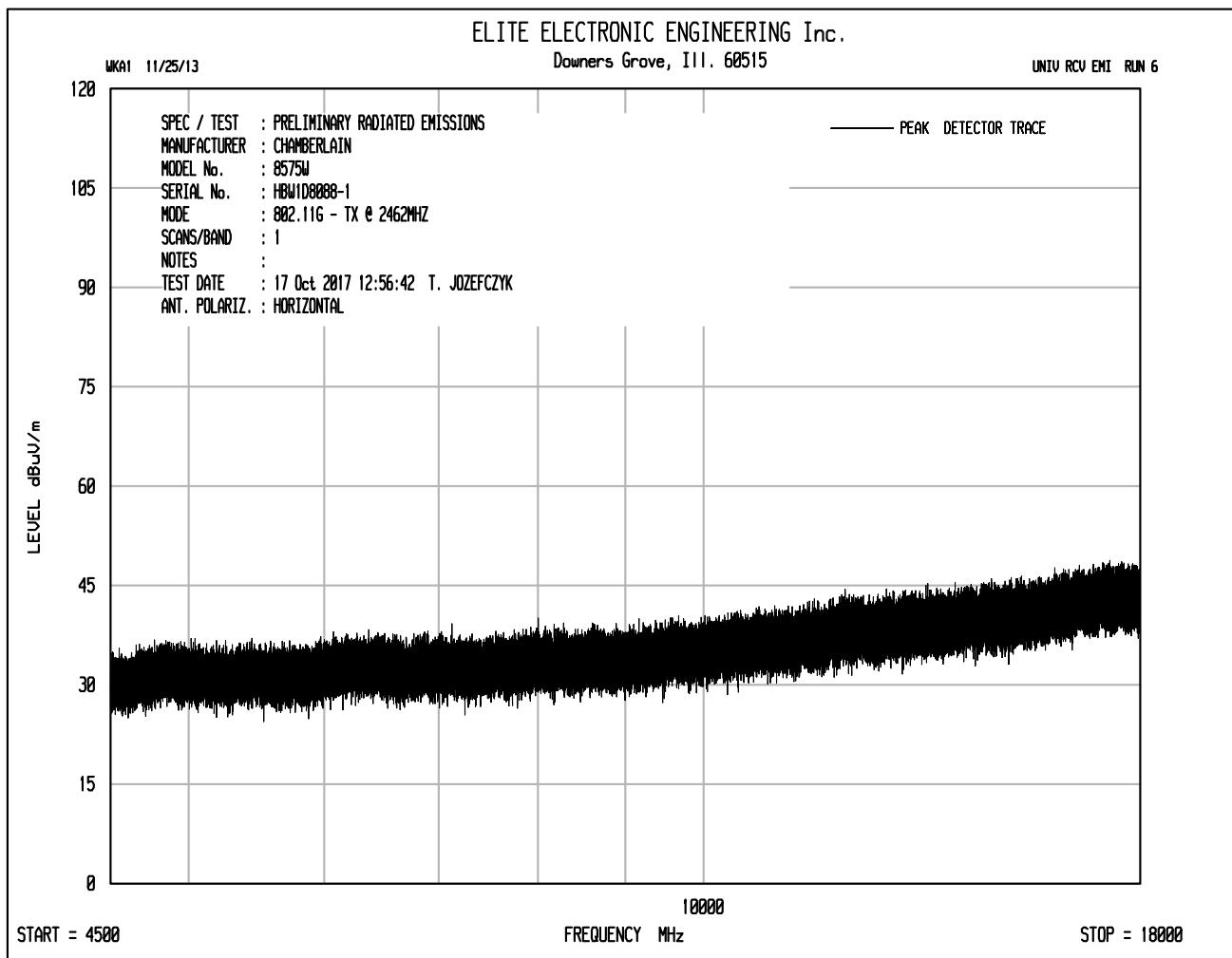


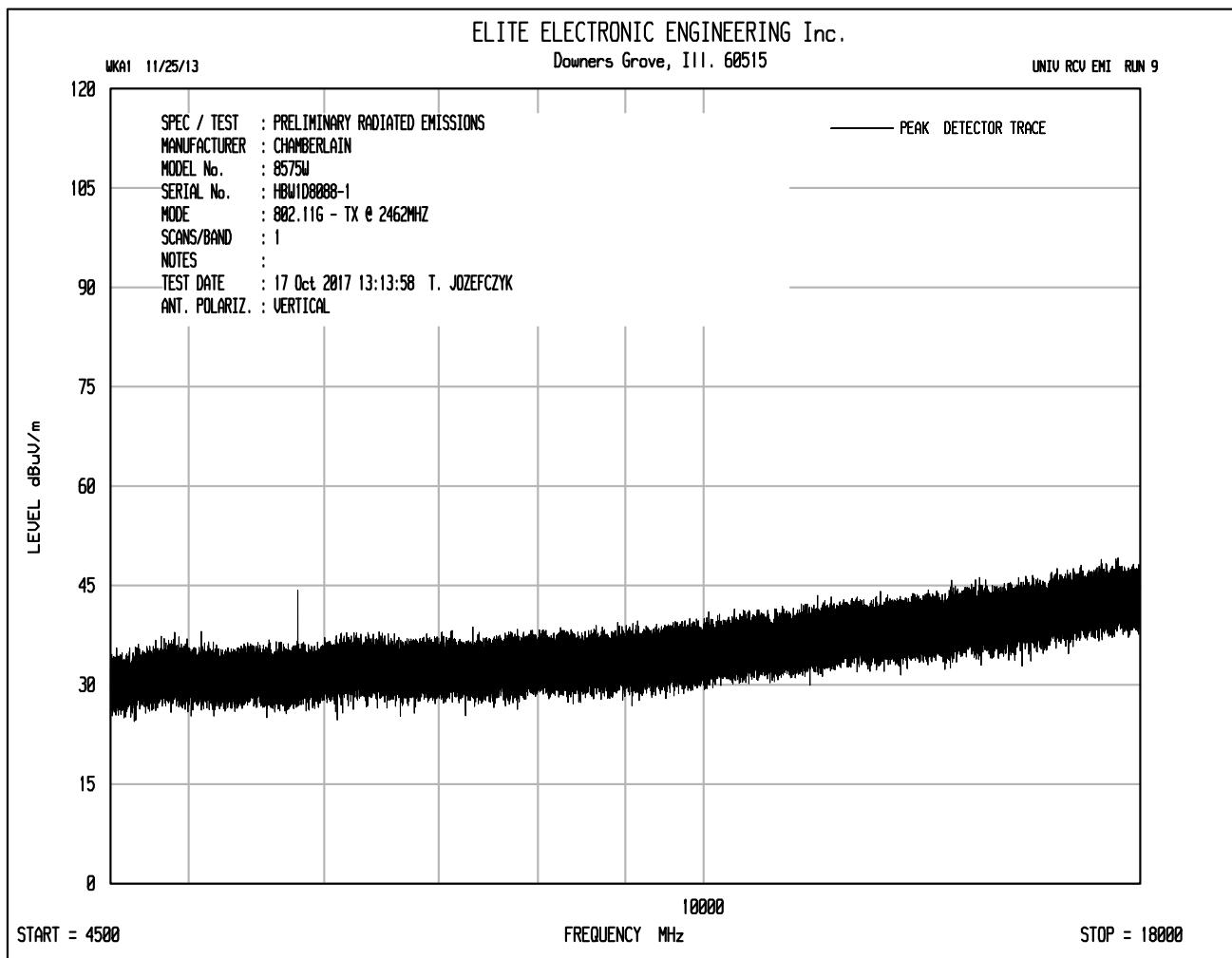


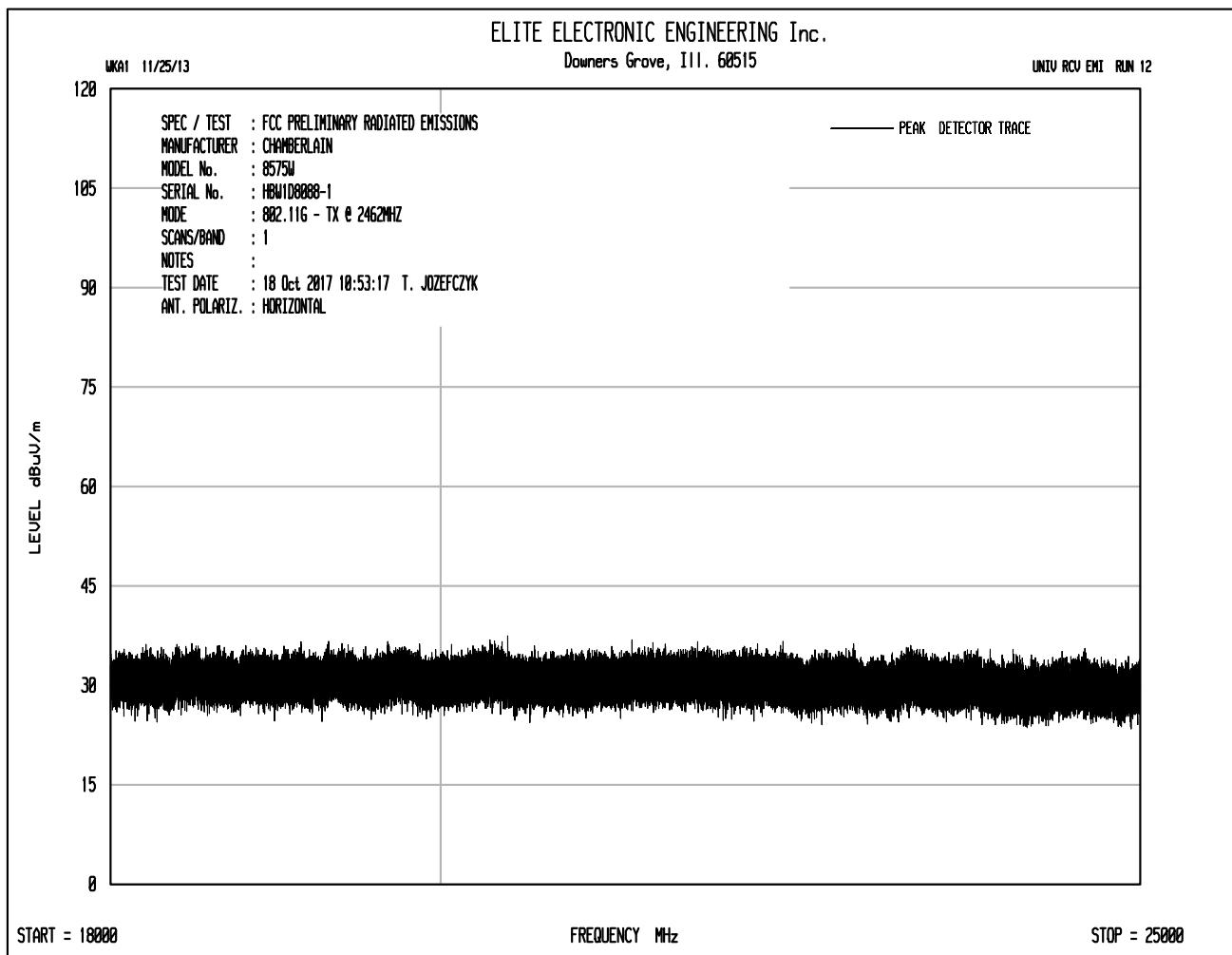


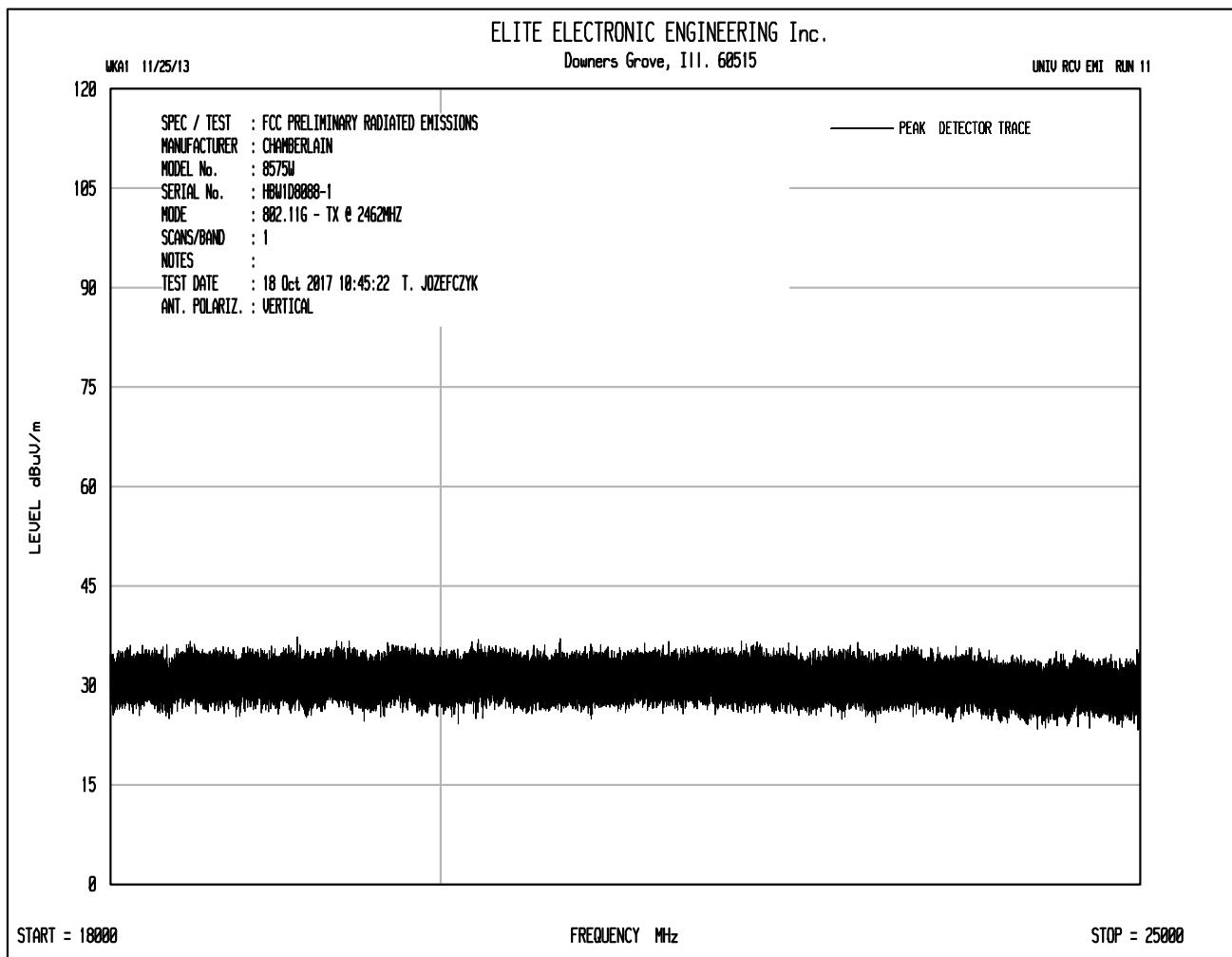


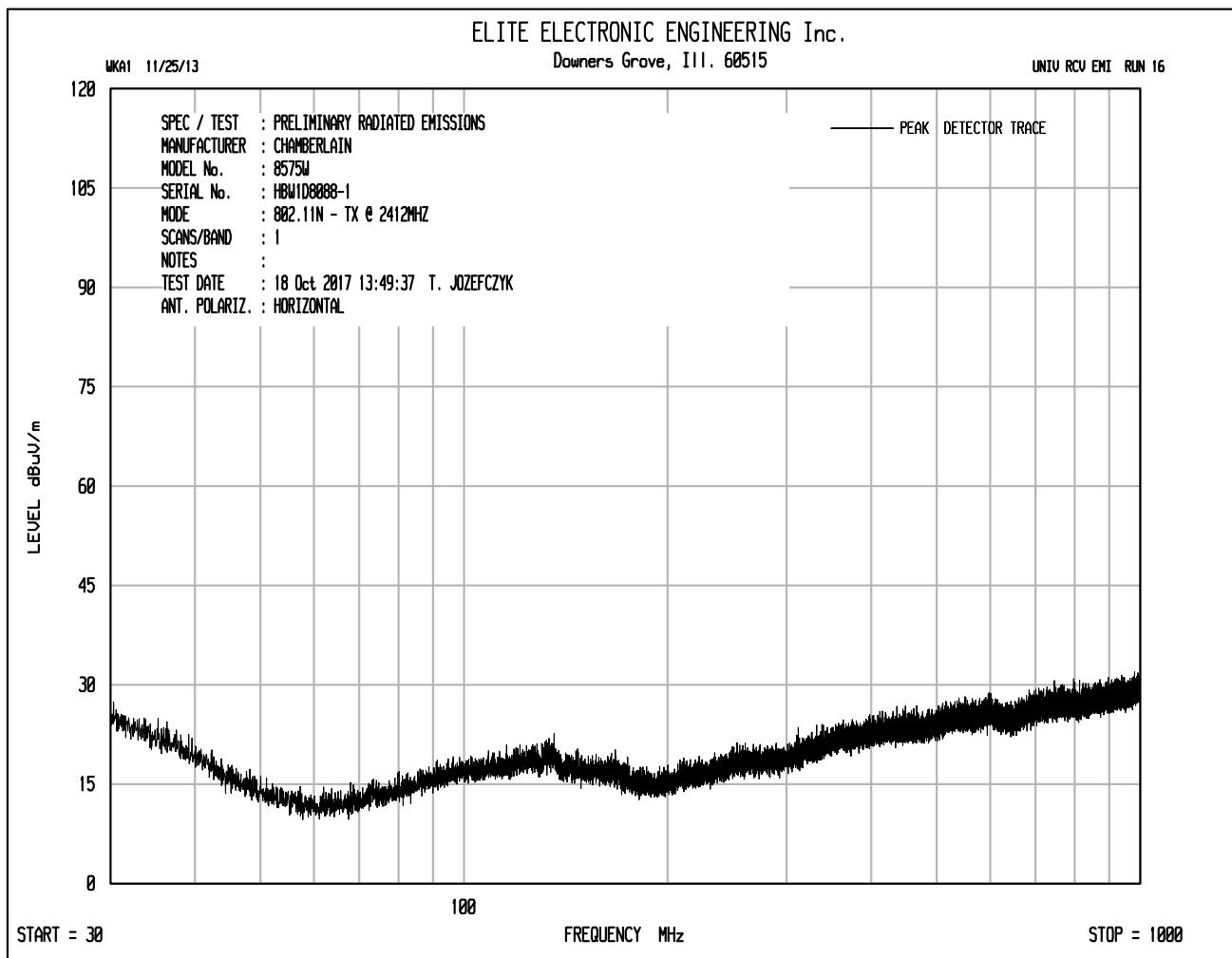


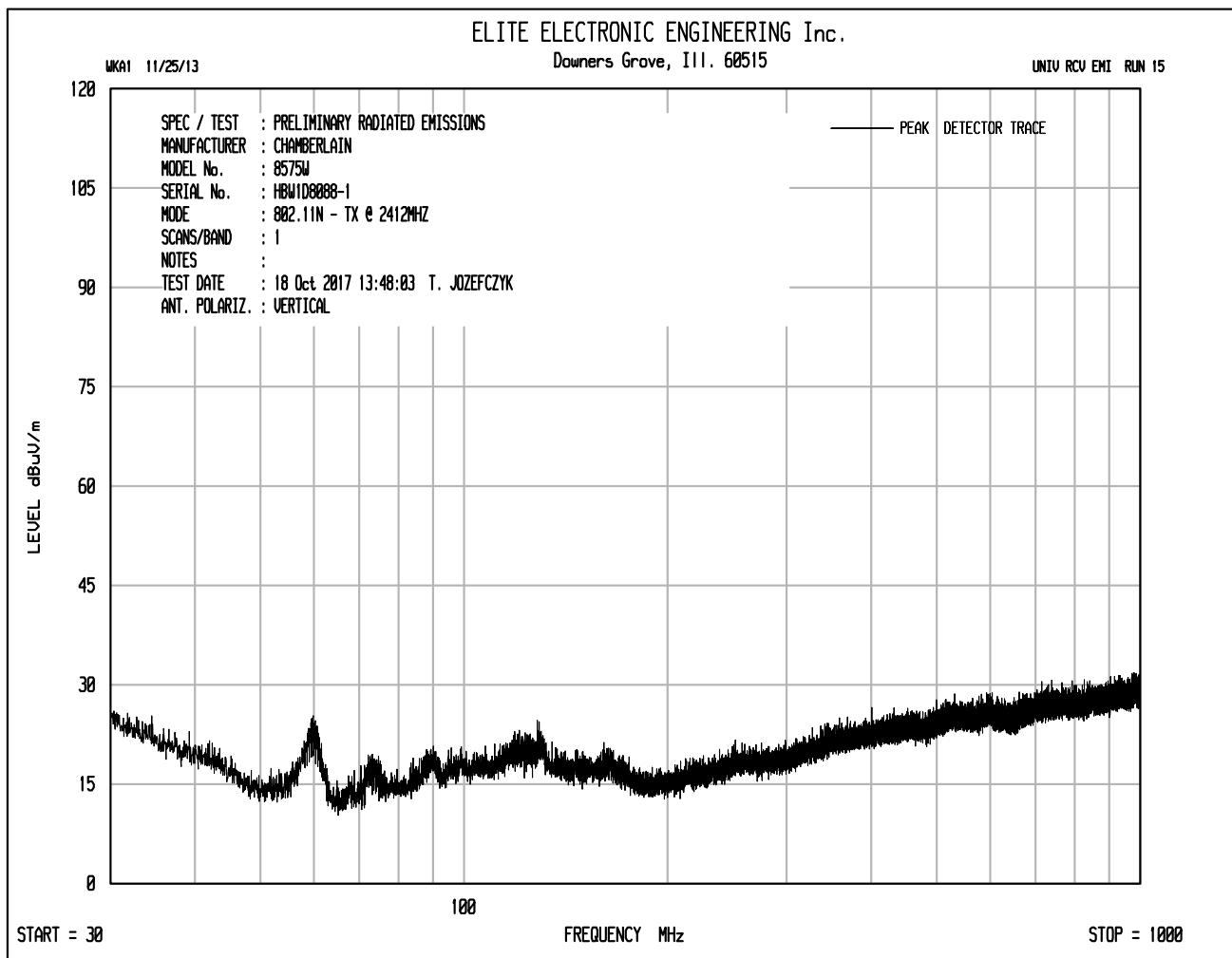


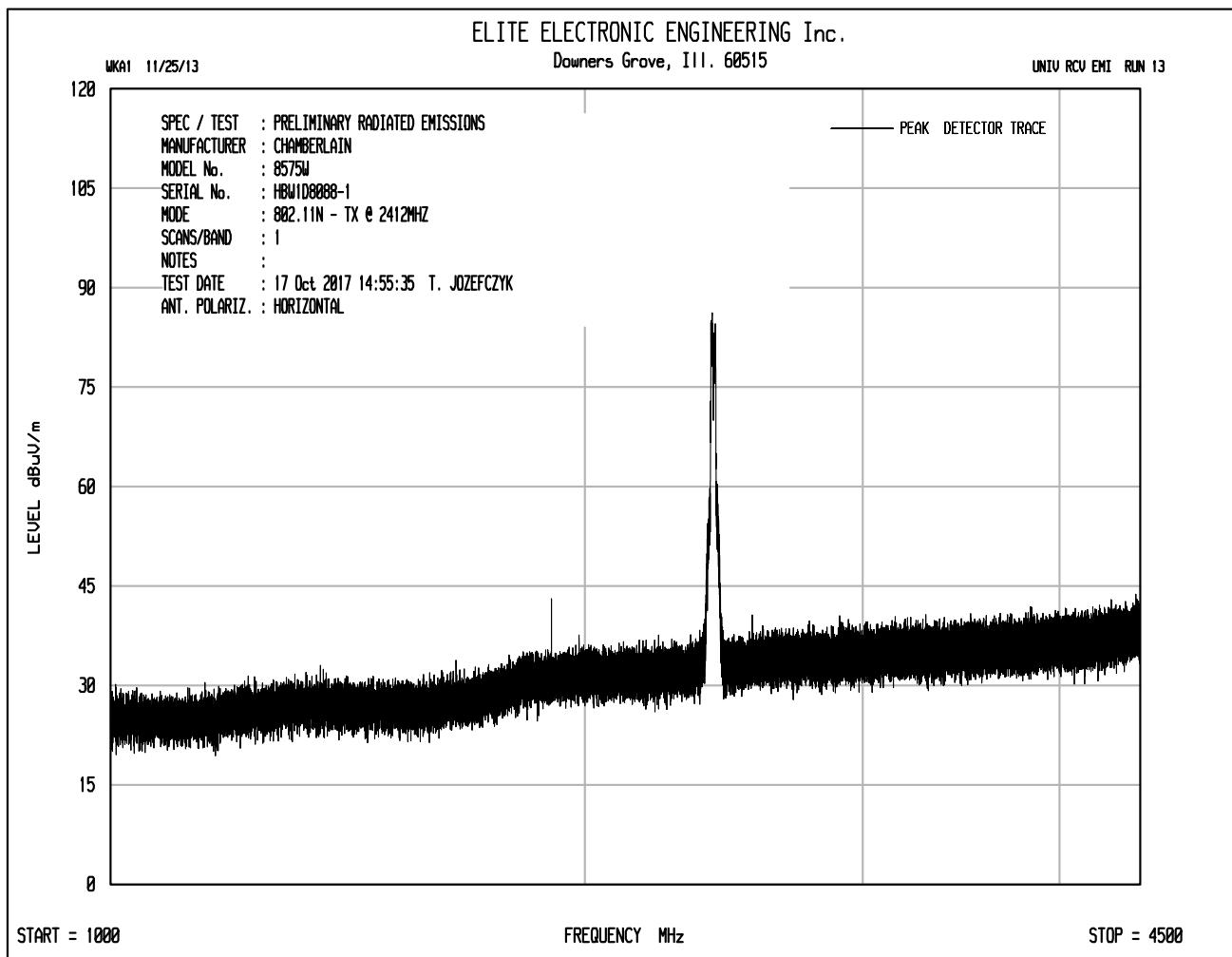


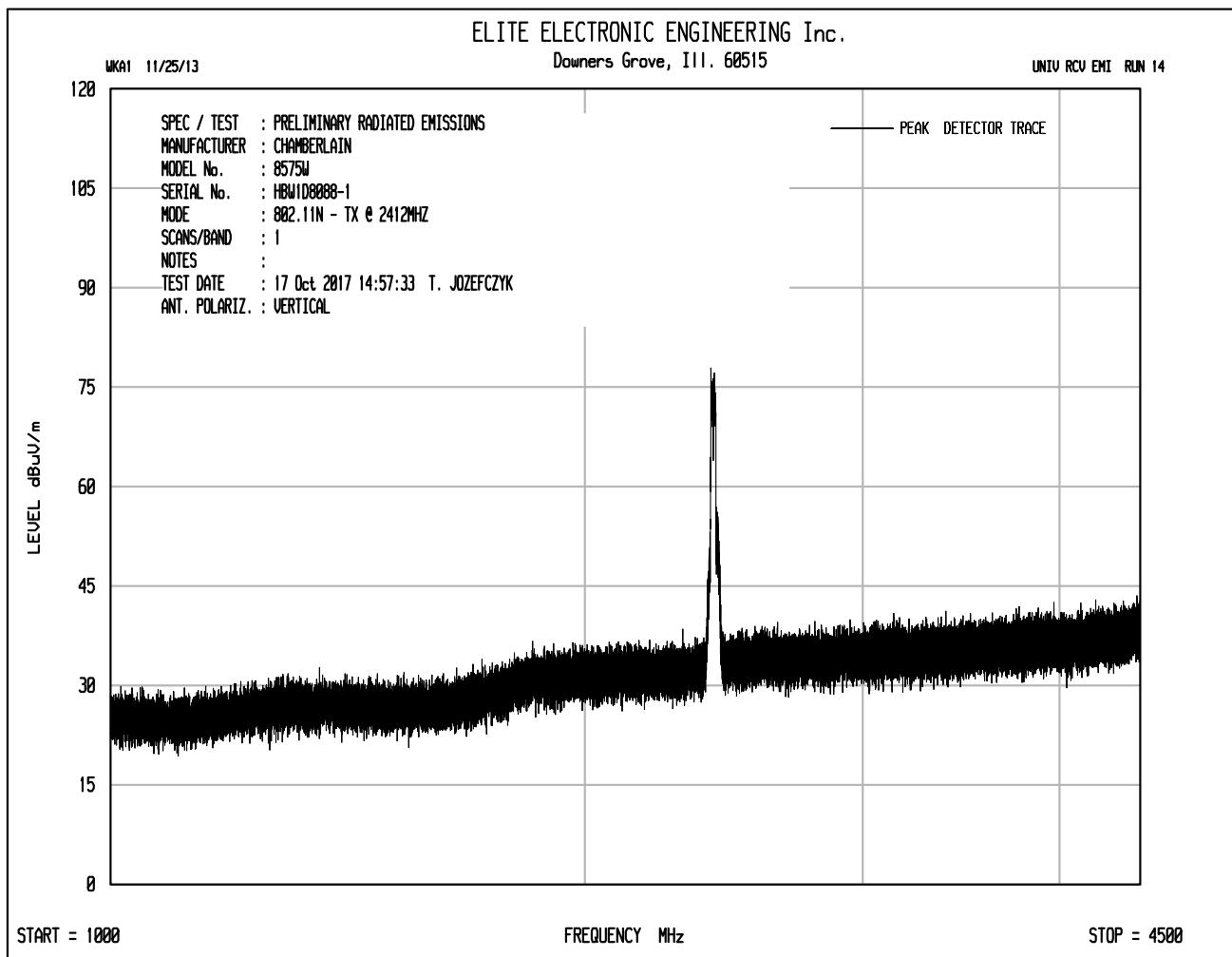


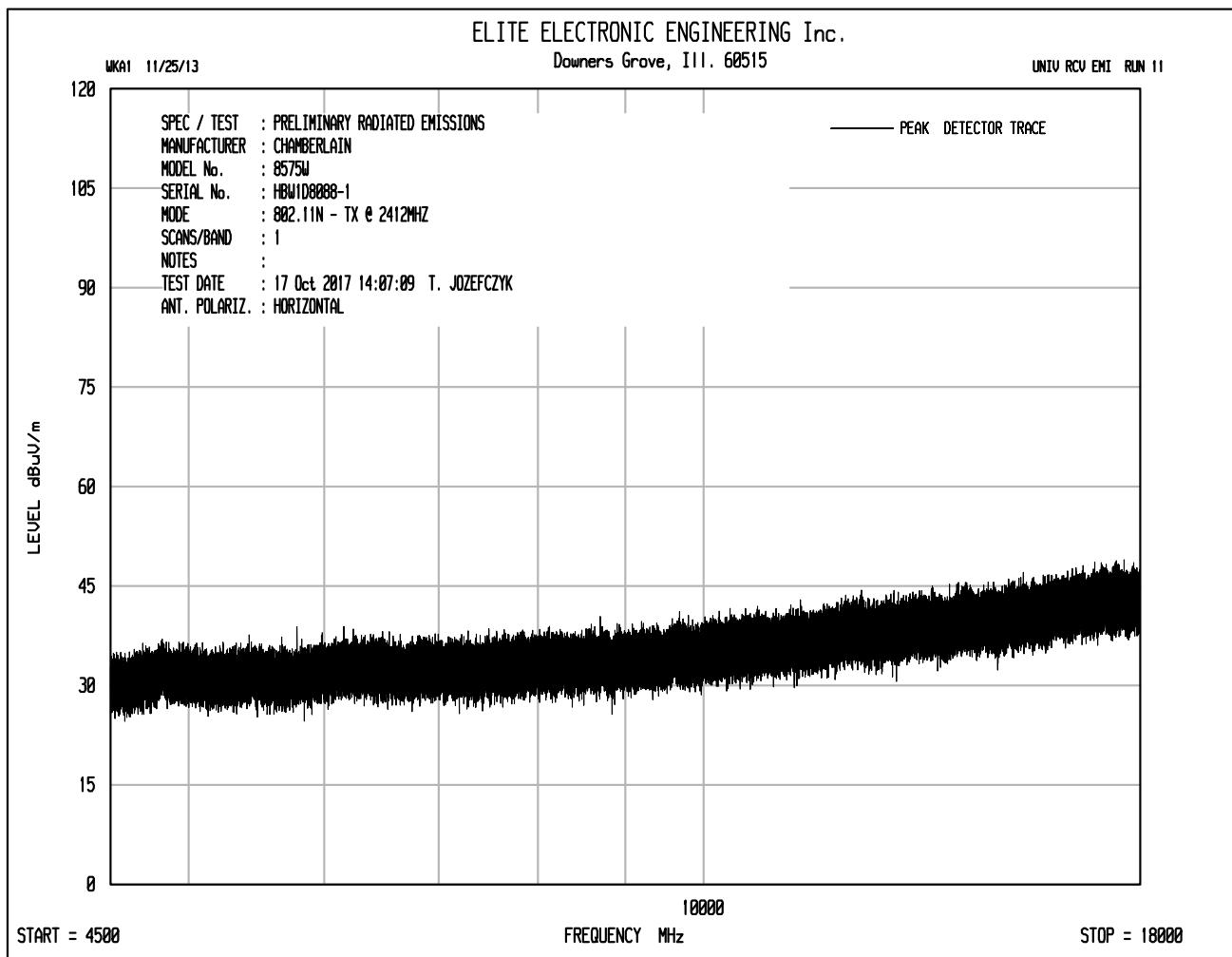


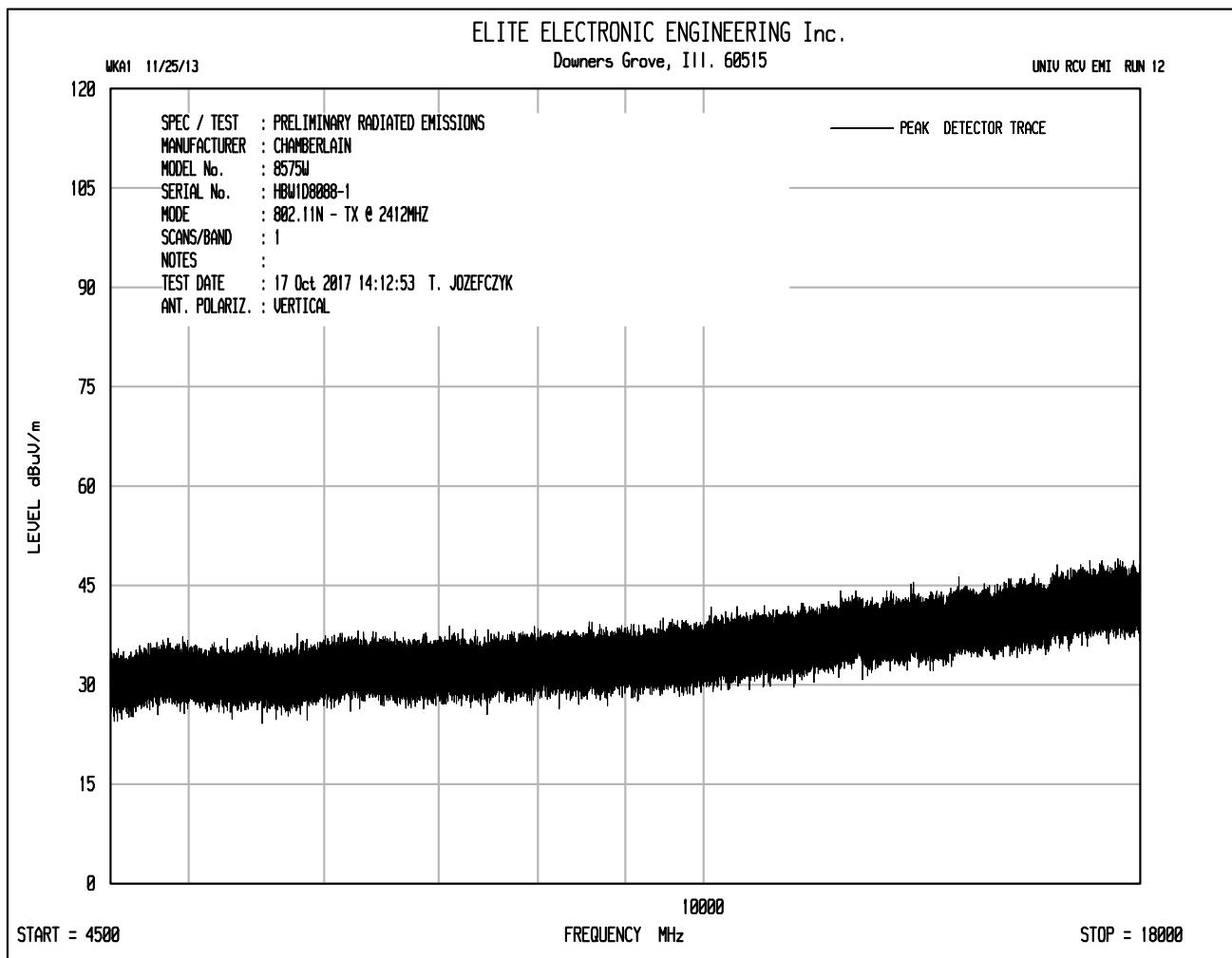


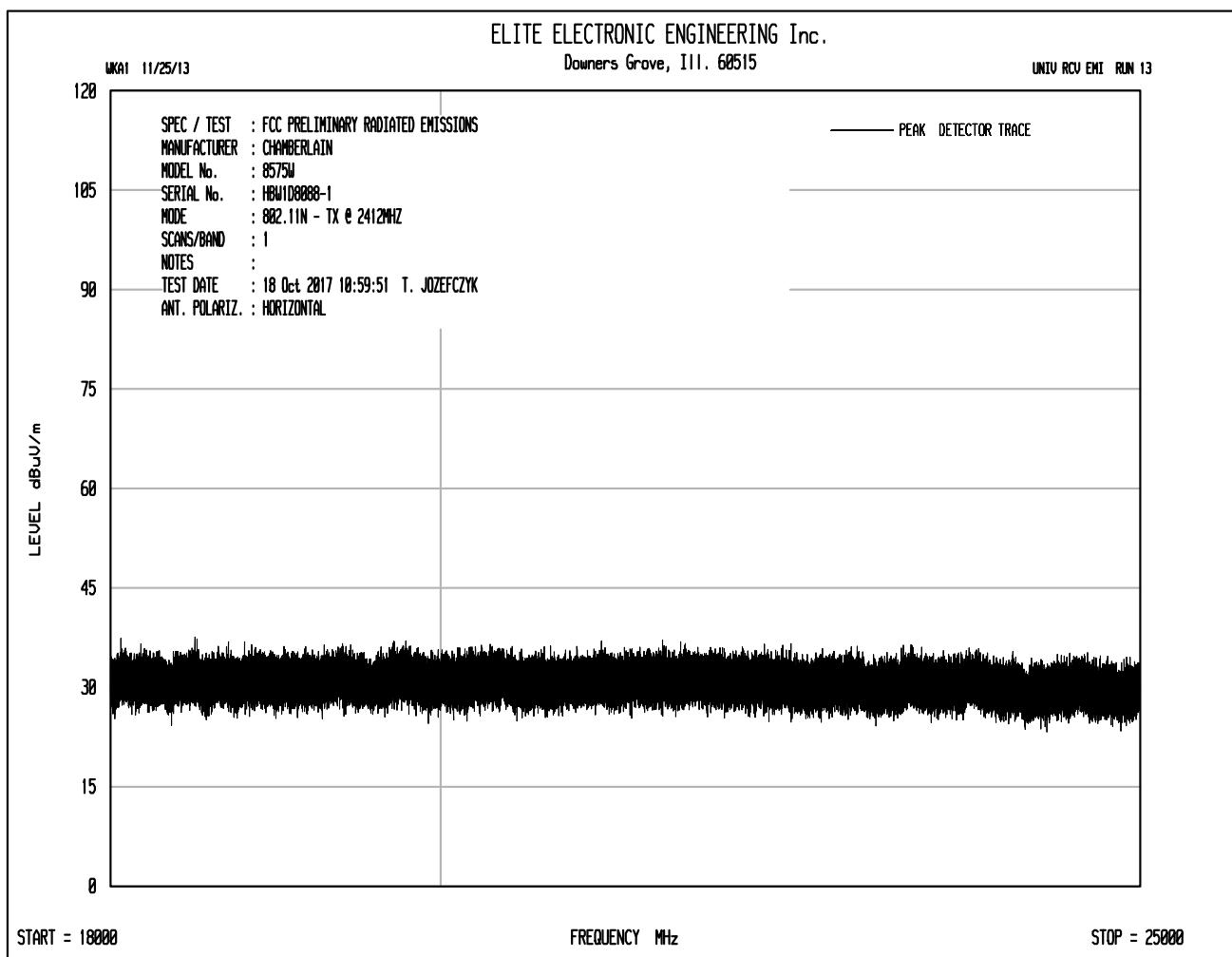


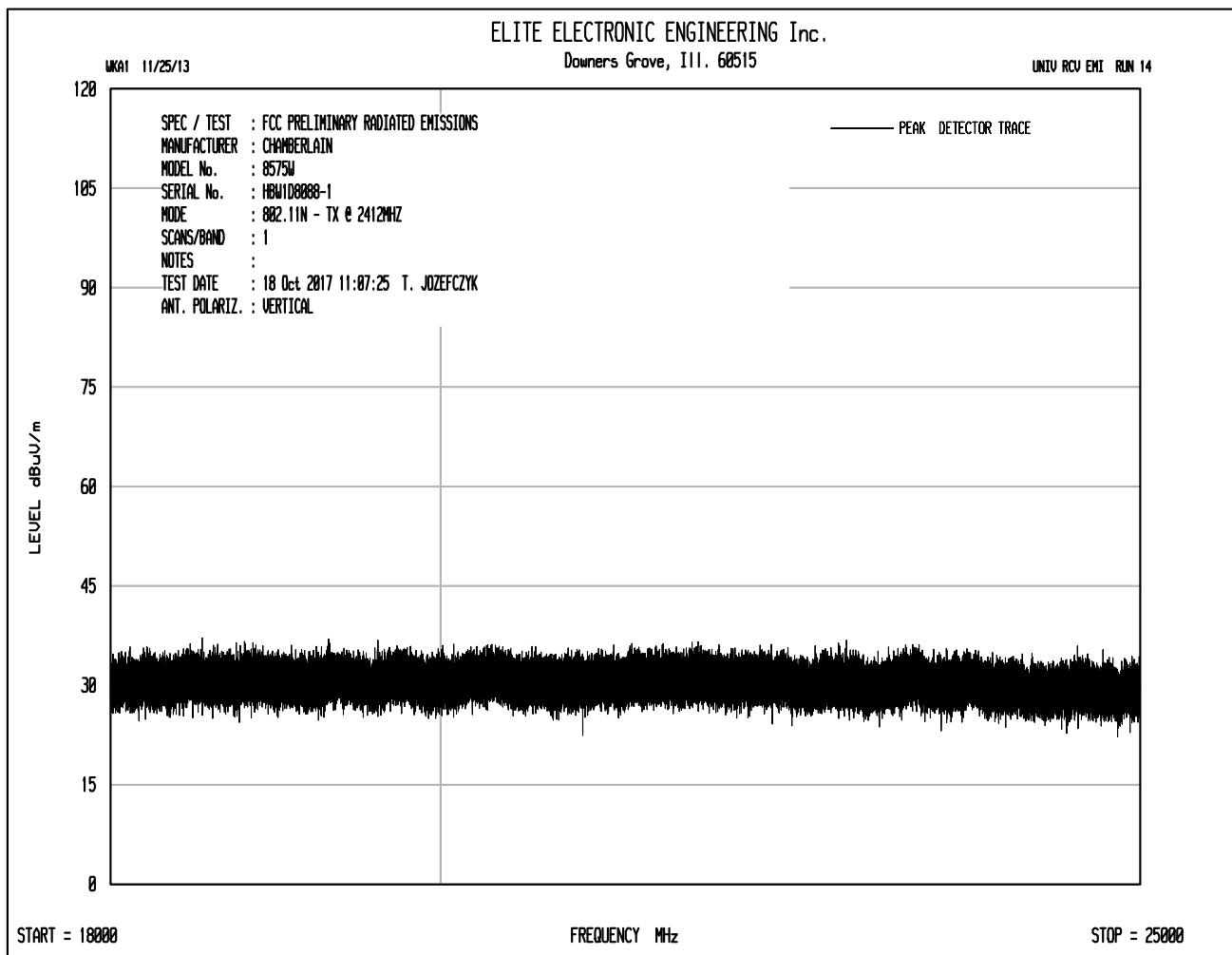


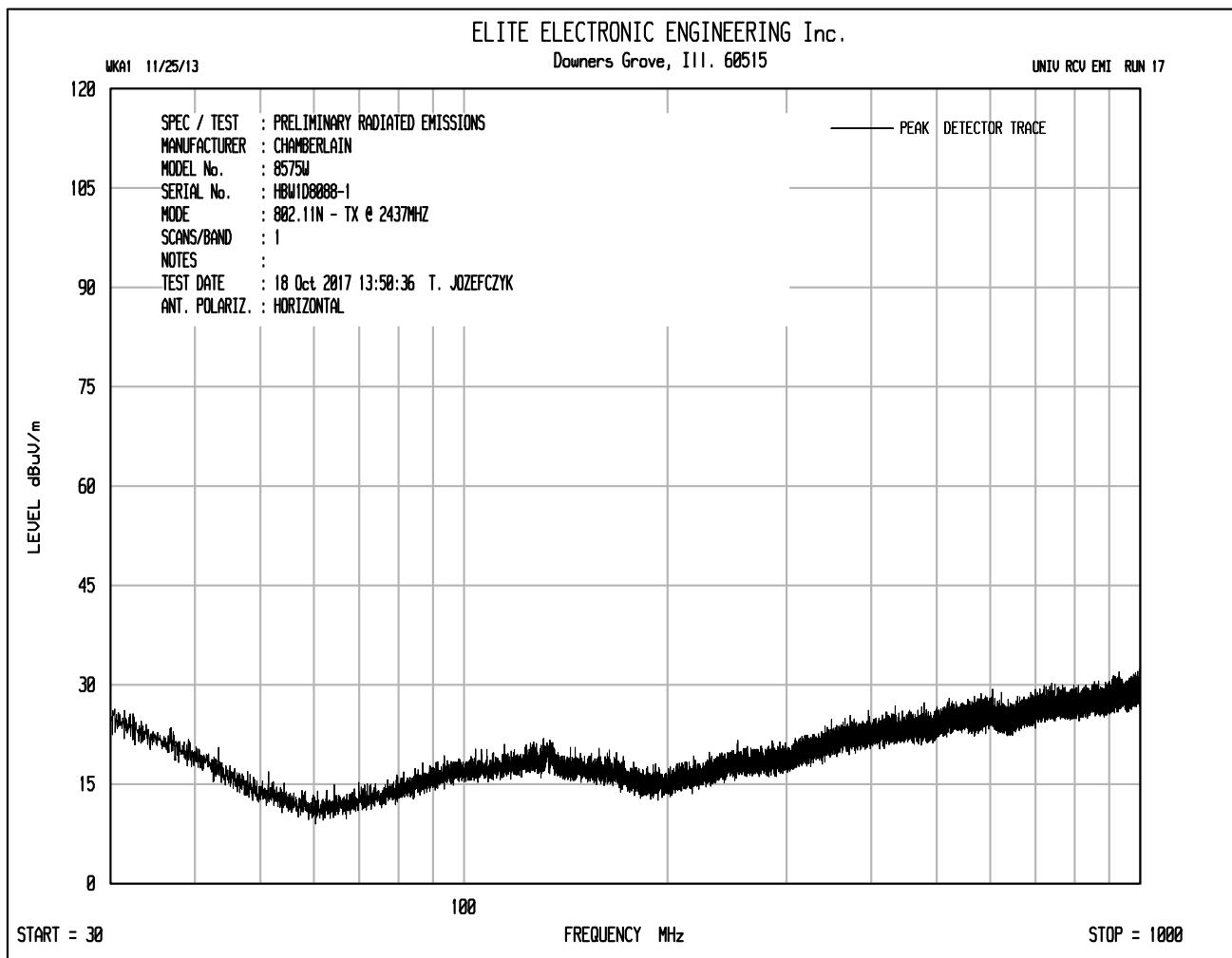


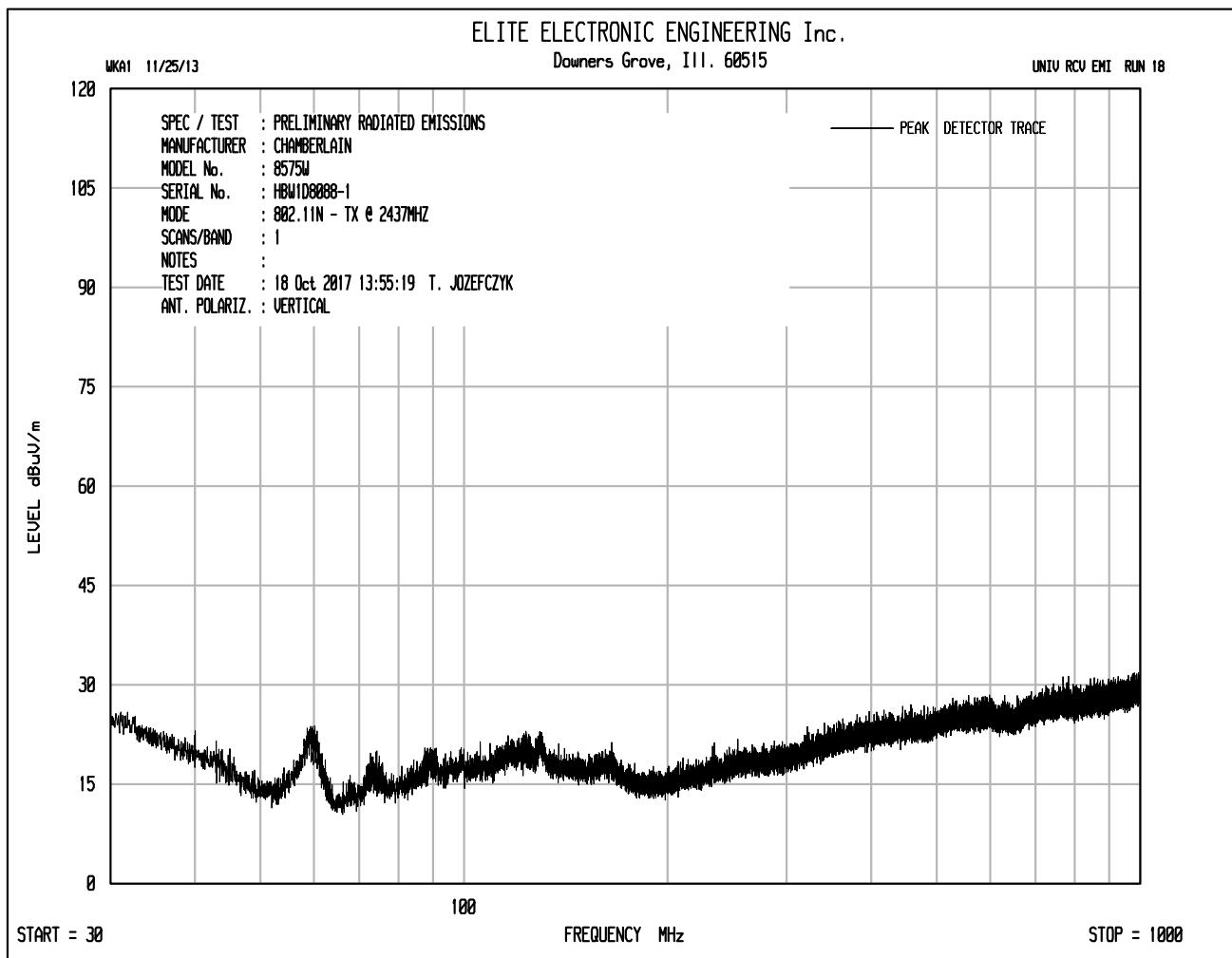


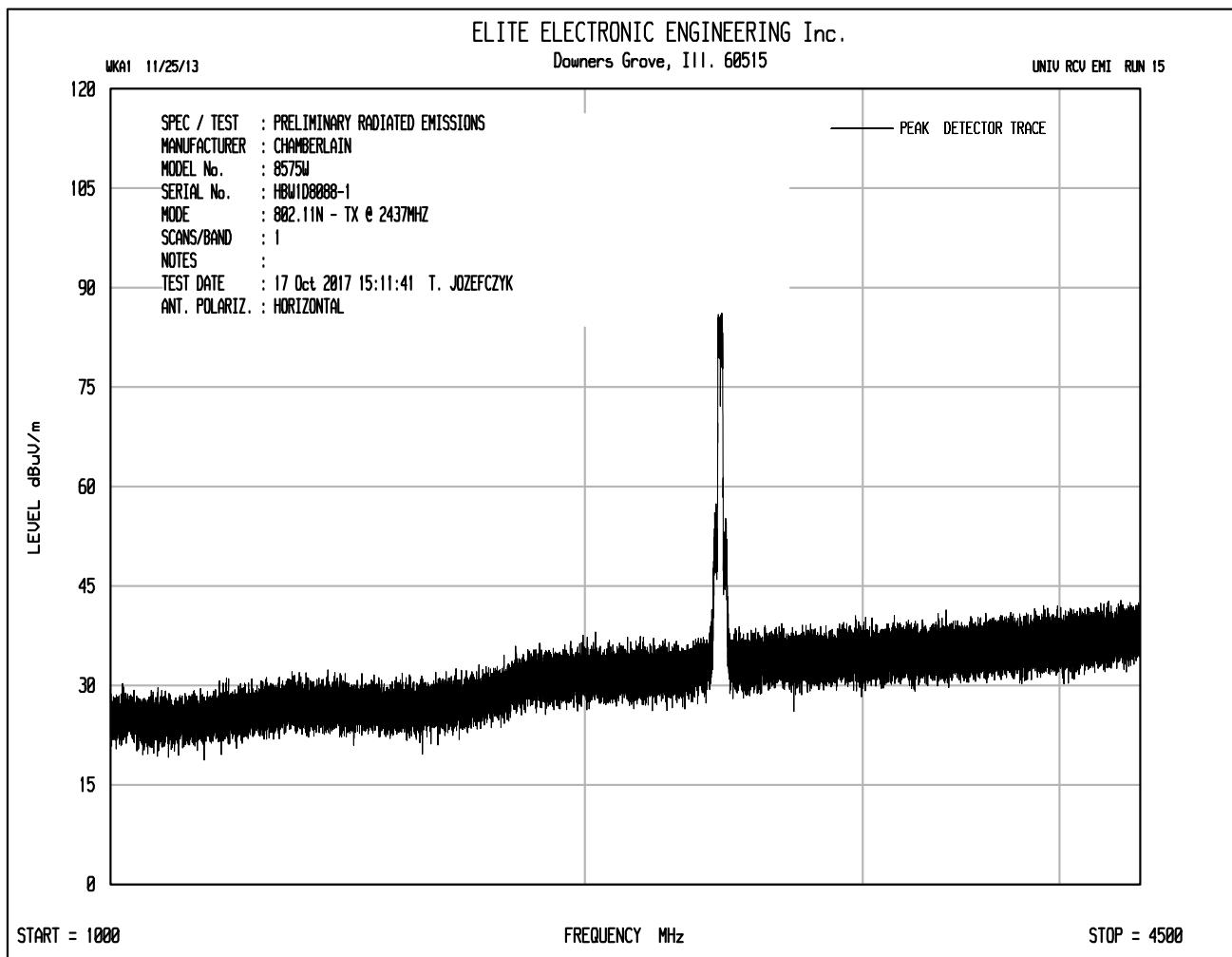


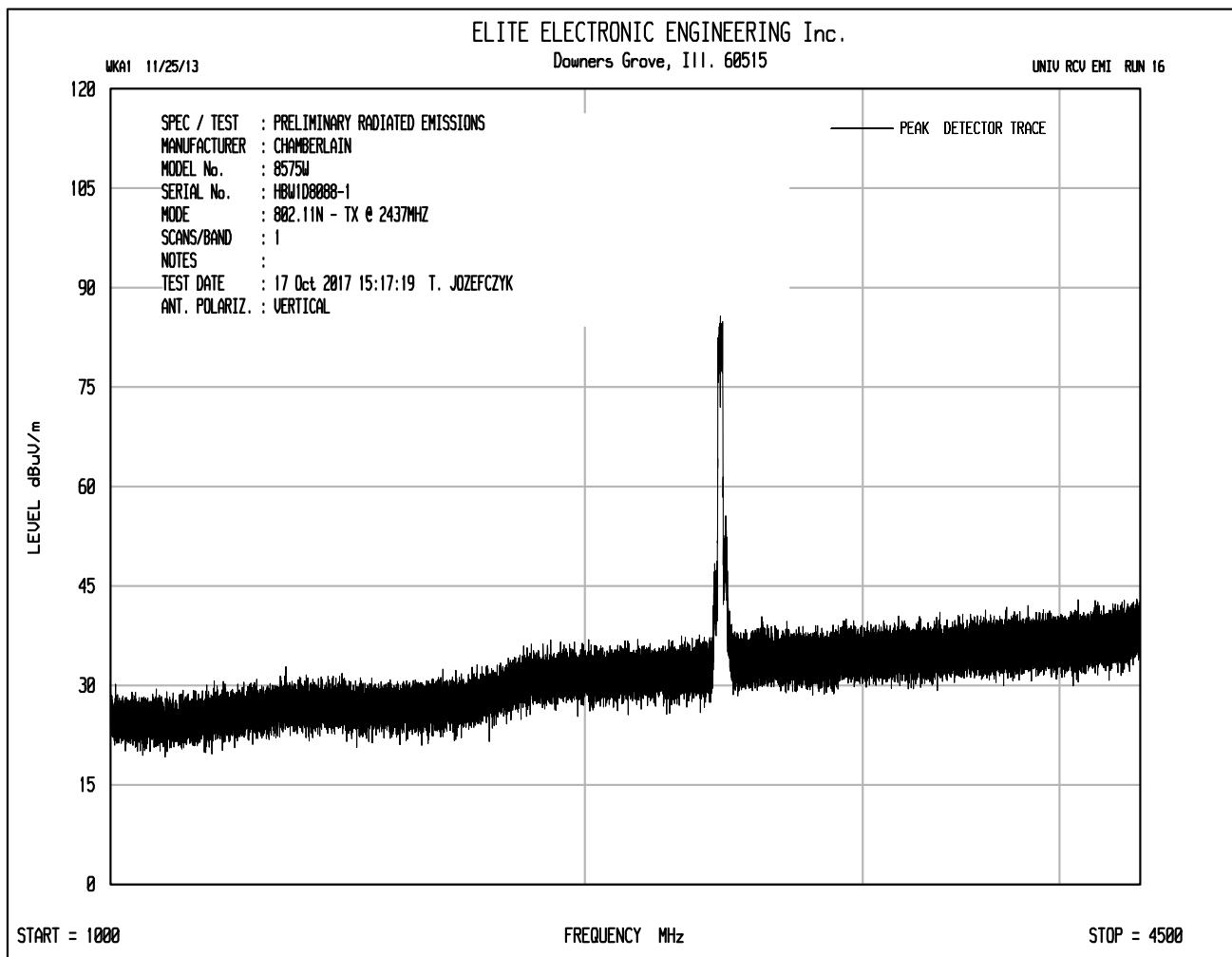


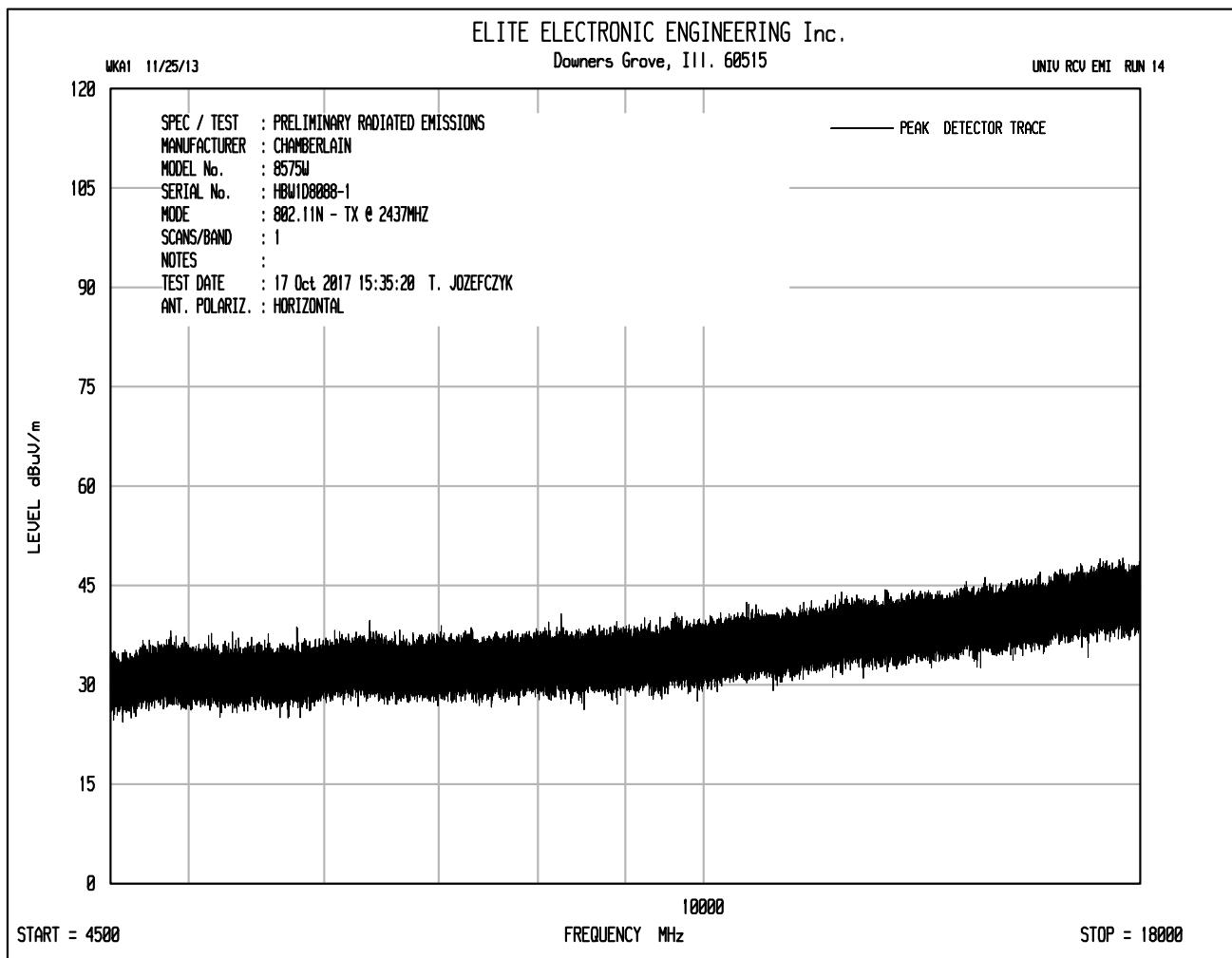


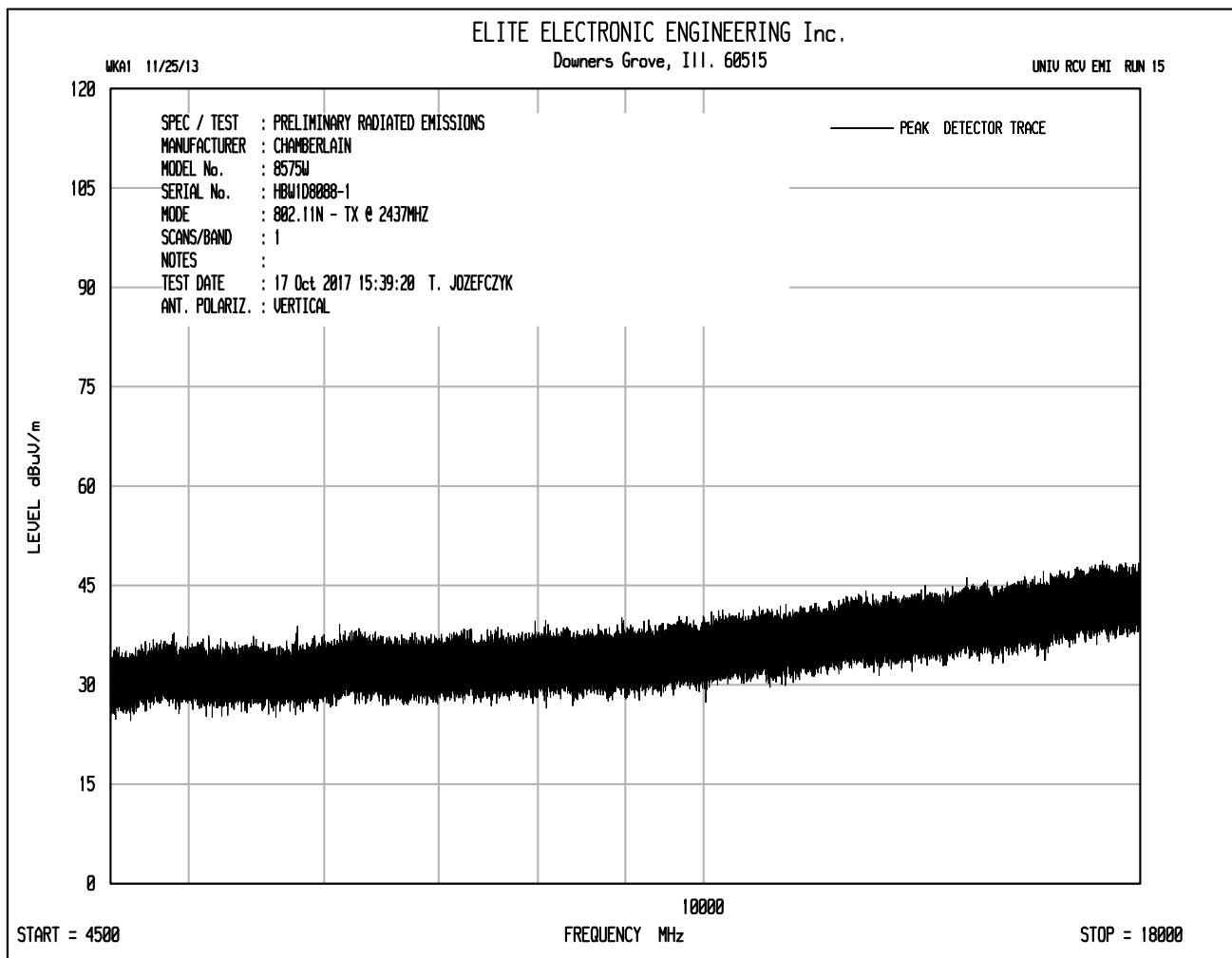


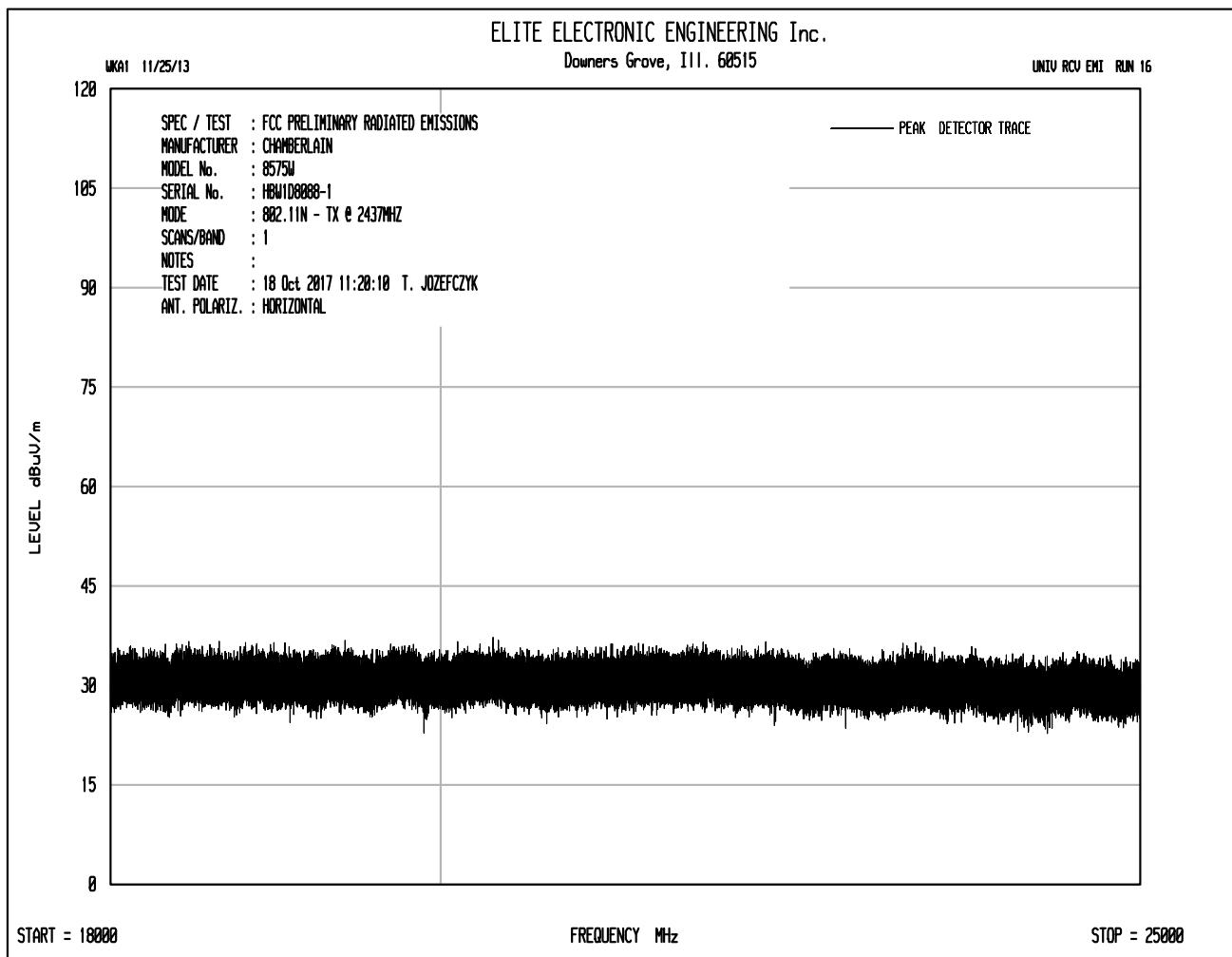


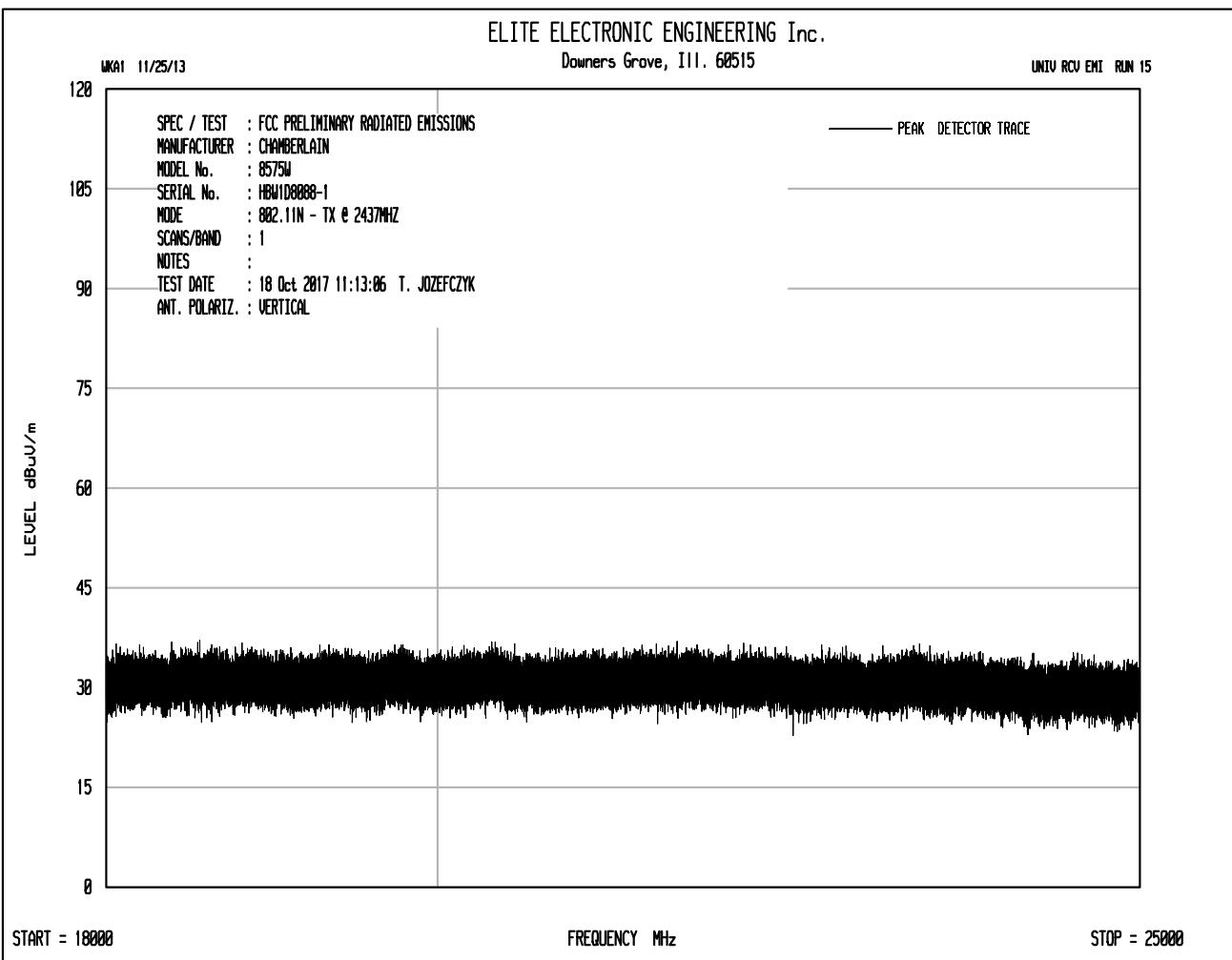


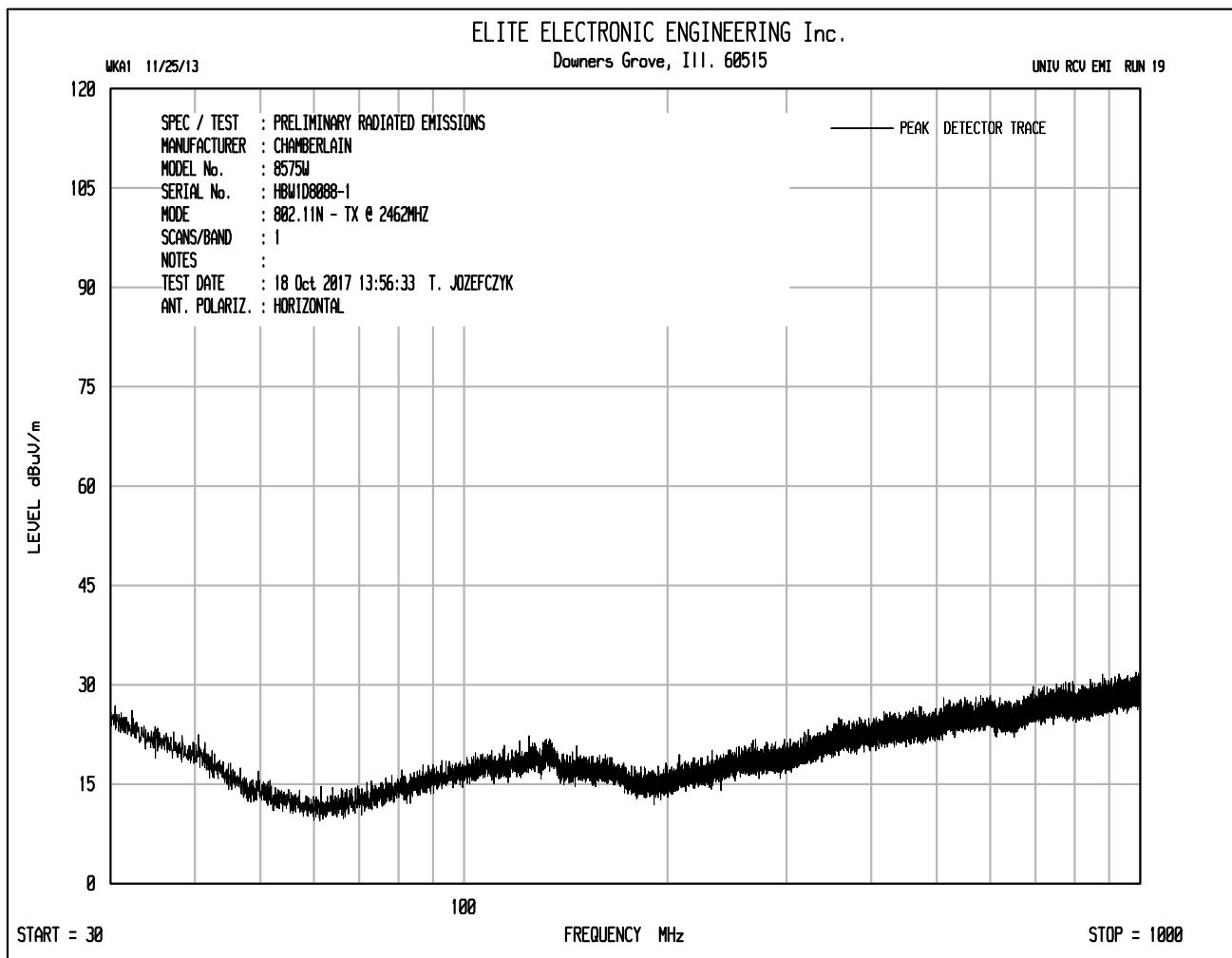


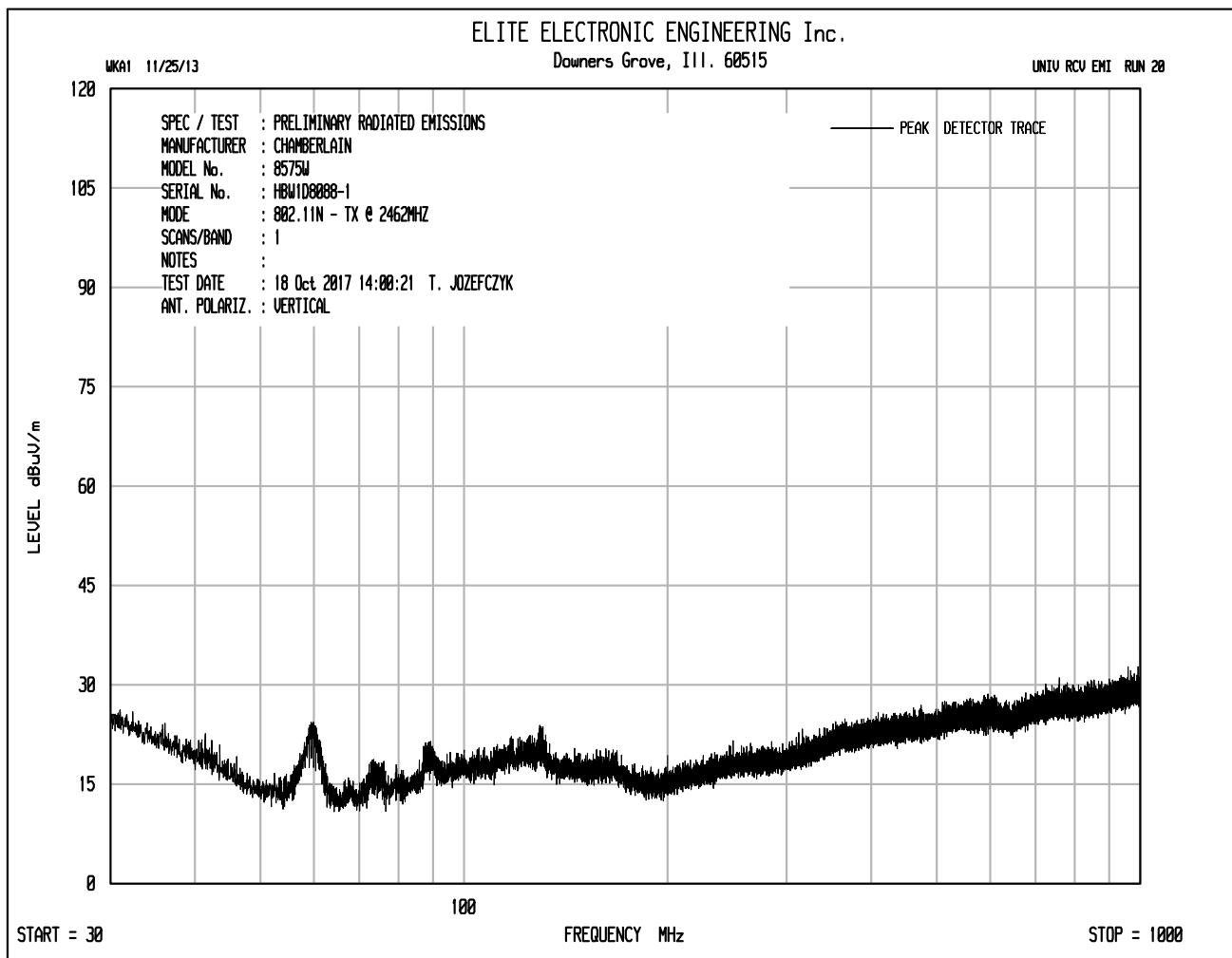


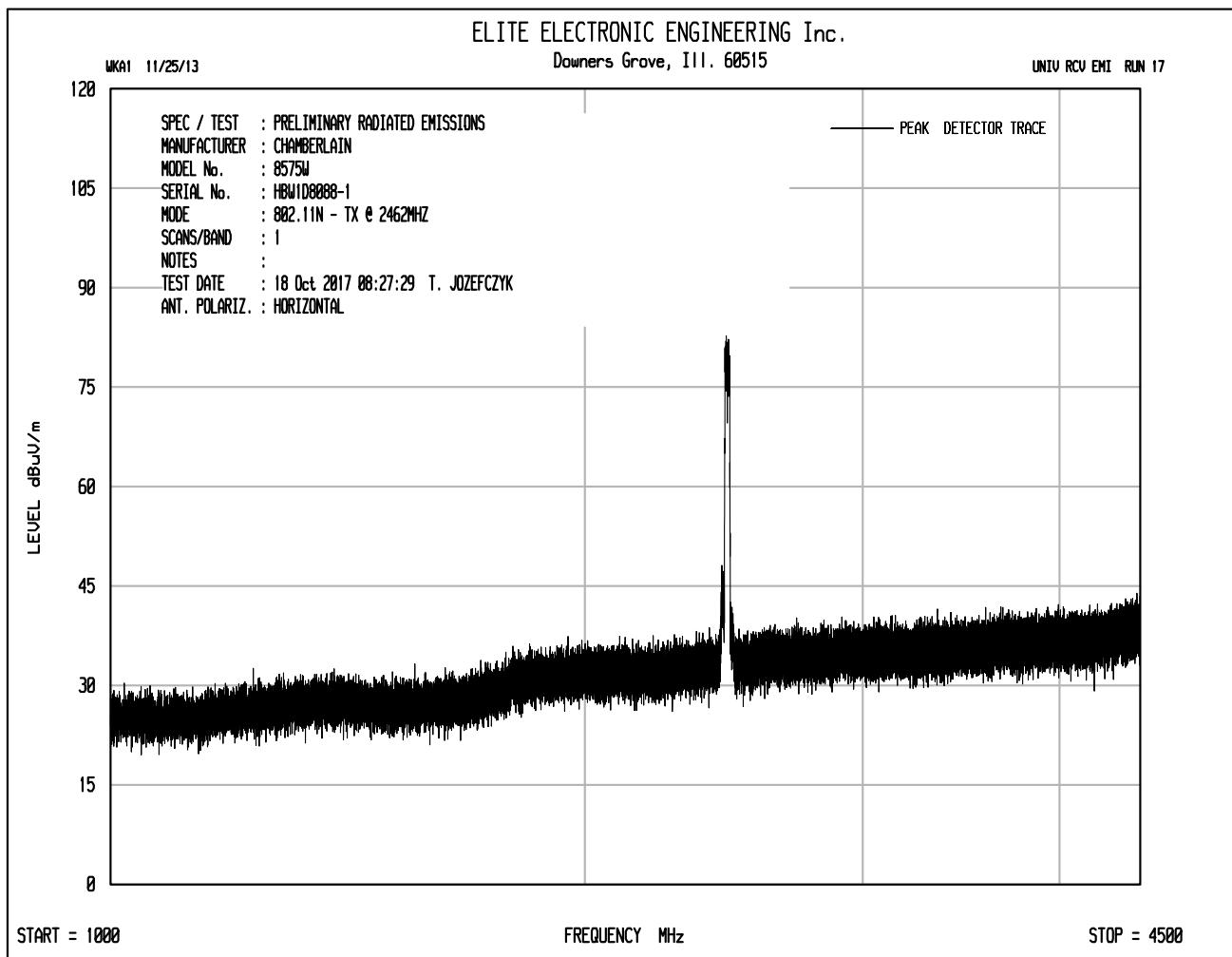


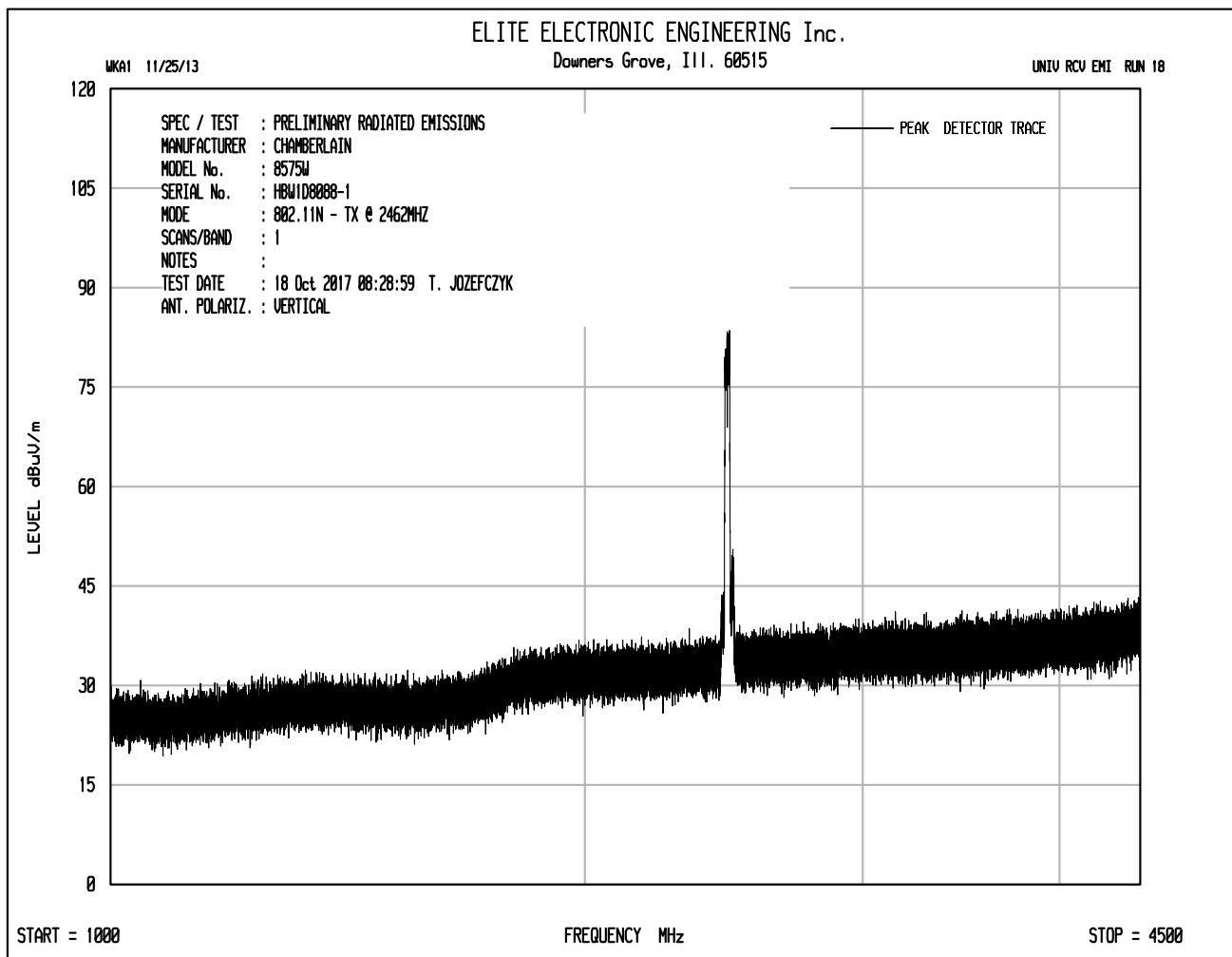


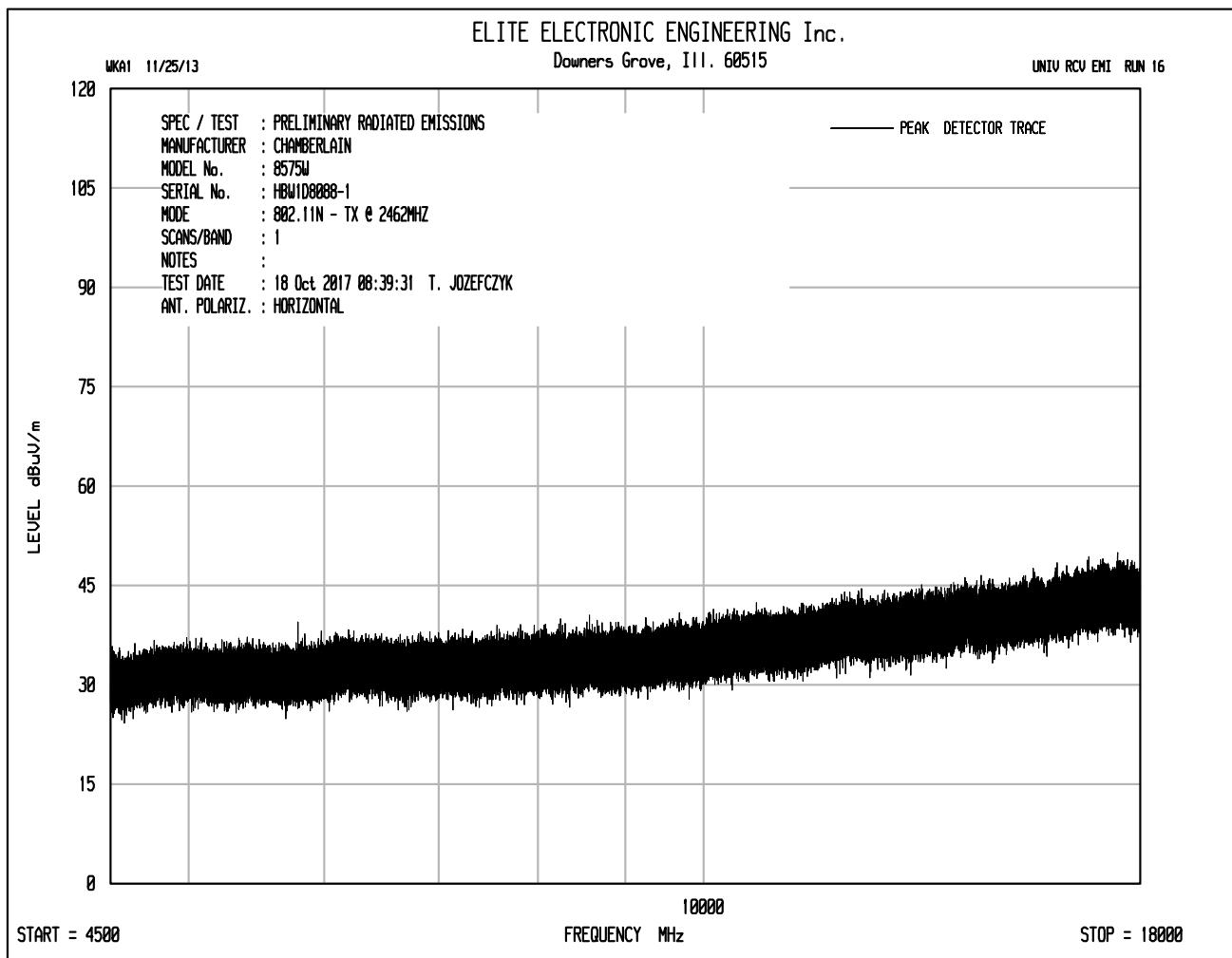


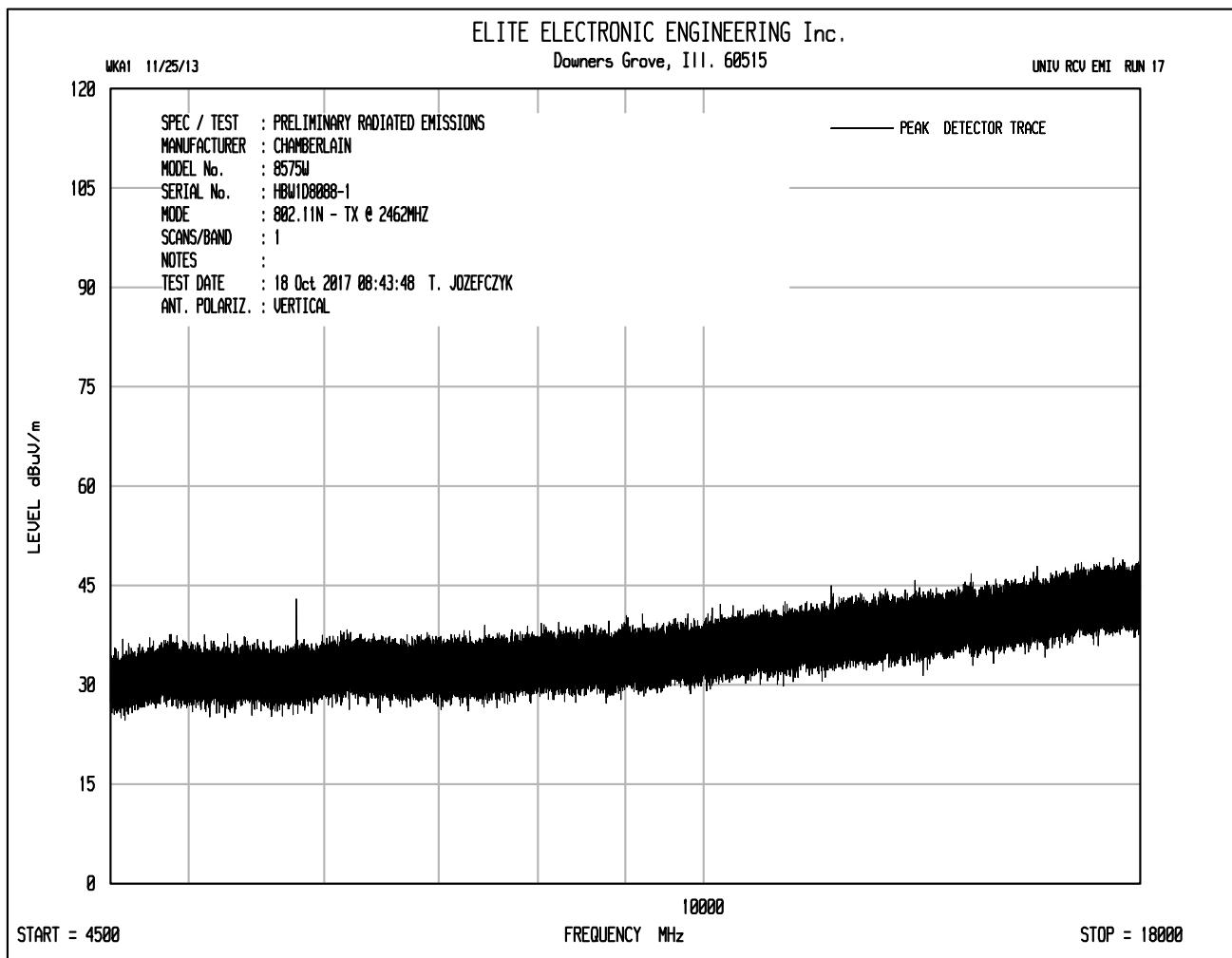


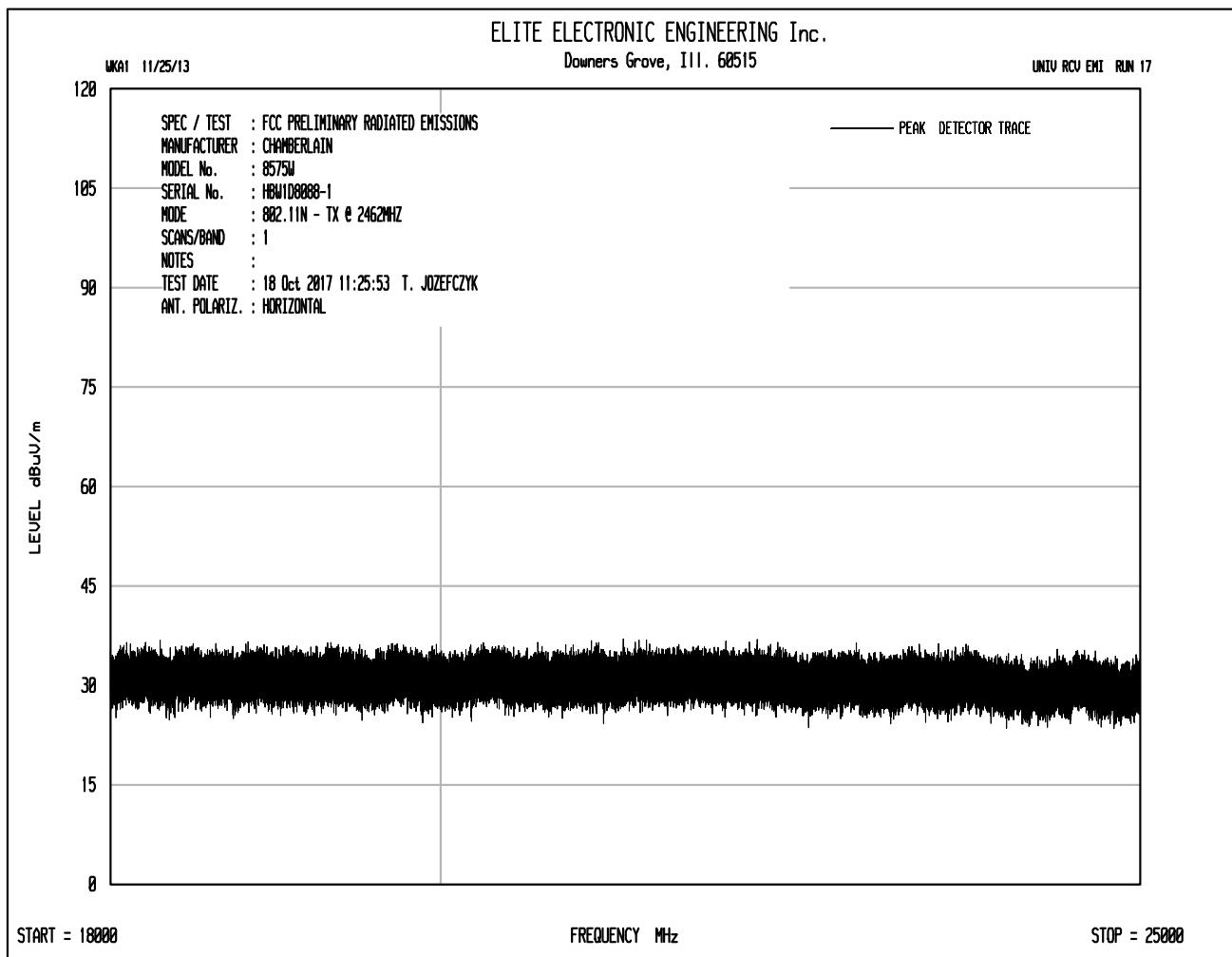


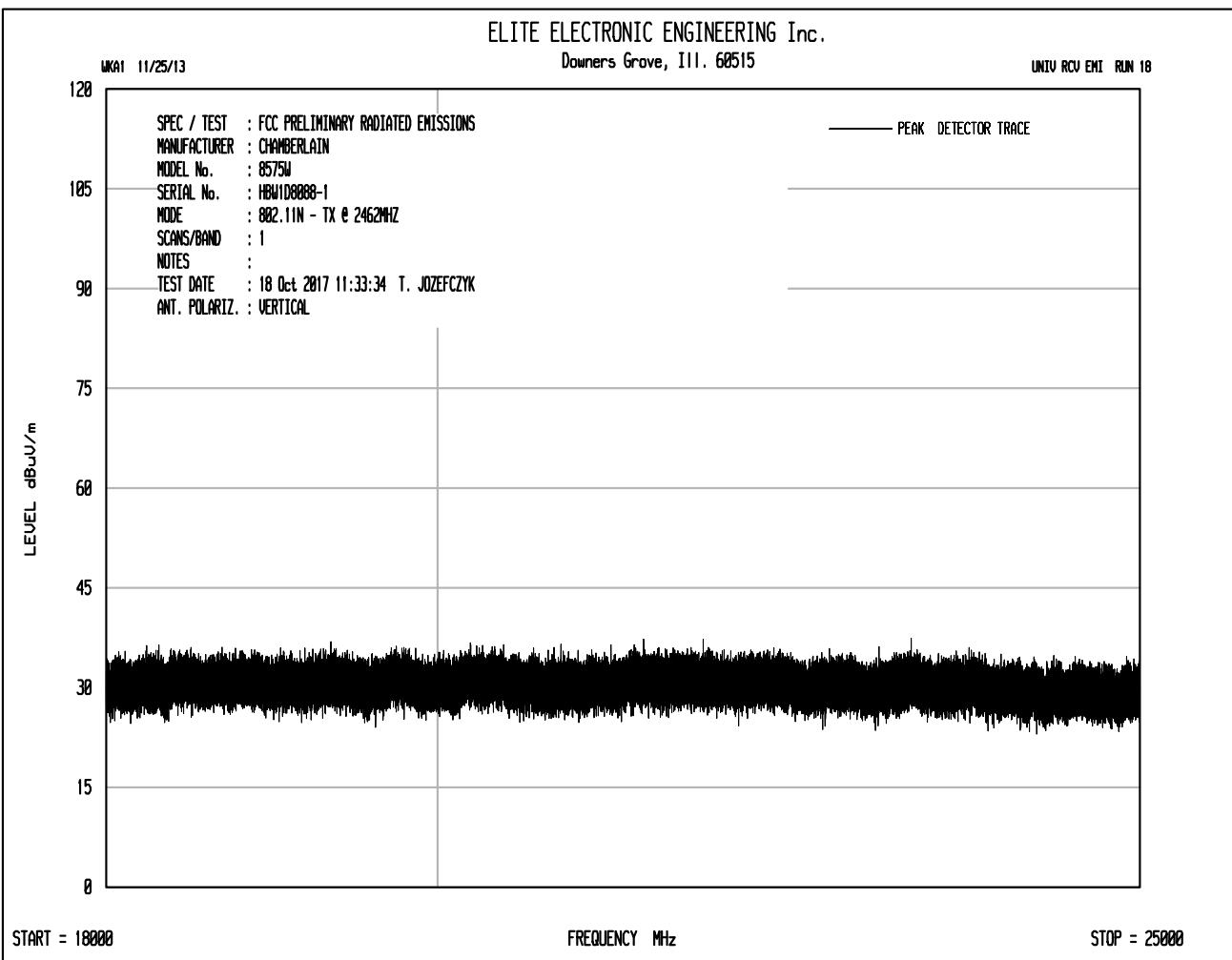












DATA SHEET

Manufacturer : Chamberlain Group Inc.
 Test Item : Stronghold Garage Door Opener
 Model No. : 8575W
 Mode : 802.11b – 2412MHz
 Test Specification : FCC-15.247, RSS-247 Radiated Spurious Emissions - Harmonics in Non-Restricted Bands

Freq. MHz	Ant Pol	Meter Reading (dB μ V)	CBL Fac (dB)	Ant Fac (dB)	Pre Amp (dB)	Peak Total dB μ V/m at 3m	Peak Total μ V/m at 3 m	Peak Limit μ V/m at 3 m	Margin (dB)
2412.00	H	66.9	4.3	32.0	0.0	103.2	145086.6		
2412.00	V	67.9	4.3	32.0	0.0	104.2	162228.6		
7236.00	H	48.7	6.9	36.0	-39.4	52.1	402.9	16222.9	-32.1
7236.00	V	48.5	6.9	36.0	-39.4	51.9	395.5	16222.9	-32.3
9648.00	H	49.9	8.2	36.9	-39.3	55.7	610.8	16222.9	-28.5
9648.00	V	49.5	8.2	36.9	-39.3	55.3	584.7	16222.9	-28.9
16884.00	H	48.1	11.0	41.6	-37.5	63.2	1437.6	16222.9	-21.0
16884.00	V	48.0	11.0	41.6	-37.5	63.1	1421.2	16222.9	-21.1
21708.00	H	34.9	2.2	40.6	-28.9	48.8	274.3	16222.9	-35.4
21708.00	V	35.0	2.2	40.6	-28.9	48.9	277.5	16222.9	-35.3
24120.00	H	33.4	2.2	40.6	-30.5	45.7	192.9	16222.9	-38.5
24120.00	V	33.8	2.2	40.6	-30.5	46.1	202.9	16222.9	-38.1

DATA SHEET

Manufacturer : Chamberlain Group Inc.
Test Item : Stronghold Garage Door Opener
Model No. : 8575W
Mode : 802.11b – 2412MHz
Test Specification : FCC-15.247, RSS-247 Radiated Spurious Emissions - Harmonics in Restricted Band

Freq. MHz	Ant Pol	Meter Reading (dB μ V)	CBL Fac (dB)	Ant Fac (dB)	Pre Amp (dB)	Peak Total dB μ V/m at 3m	Peak Total μ V/m at 3 m	Peak Limit μ V/m at 3 m	Margin (dB)
4824.00	H	54.2	5.7	34.1	-39.3	54.6	539.2	5000.0	-19.3
4824.00	V	58.2	5.7	34.1	-39.3	58.7	857.5	5000.0	-15.3
12060.00	H	49.1	8.6	38.5	-39.1	57.1	712.4	5000.0	-16.9
12060.00	V	49.1	8.6	38.5	-39.1	57.1	714.1	5000.0	-16.9
14472.00	H	49.0	9.6	39.4	-38.3	59.8	972.7	5000.0	-14.2
14472.00	V	49.0	9.6	39.4	-38.3	59.7	971.6	5000.0	-14.2
19296.00	H	35.0	2.2	40.4	-28.5	49.0	282.7	5000.0	-25.0
19296.00	V	35.0	2.2	40.4	-28.5	49.0	282.1	5000.0	-25.0

DATA SHEET

Manufacturer : Chamberlain Group Inc.
Test Item : Stronghold Garage Door Opener
Model No. : 8575W
Mode : 802.11b – 2412MHz
Test Specification : FCC-15.247, RSS-247 Radiated Spurious Emissions – Restricted Band Averages

Freq. MHz	Ant Pol	Meter Reading (dB μ V)	CBL Fac (dB)	Ant Fac (dB)	Pre Amp (dB)	Duty Cycle (dB)	Average Total dB μ V/m at 3m	Average Total μ V/m at 3 m	Average Limit μ V/m at 3 m	Margin (dB)
4824.00	H	42.4	5.7	34.1	-39.3	0.0	42.9	139.7	500.0	-11.1
4824.00	V	46.5	5.7	34.1	-39.3	0.0	46.9	221.9	500.0	-7.1
12060.00	H	35.0	8.6	38.5	-39.1	0.0	43.0	140.5	500.0	-11.0
12060.00	V	34.9	8.6	38.5	-39.1	0.0	42.9	139.4	500.0	-11.1
14472.00	H	34.9	9.6	39.4	-38.3	0.0	45.6	191.0	500.0	-8.4
14472.00	V	34.9	9.6	39.4	-38.3	0.0	45.6	190.3	500.0	-8.4
19296.00	H	20.9	2.2	40.4	-28.5	0.0	35.0	56.2	500.0	-19.0
19296.00	V	20.5	2.2	40.4	-28.5	0.0	34.6	53.6	500.0	-19.4

DATA SHEET

Manufacturer : Chamberlain Group Inc.
 Test Item : Stronghold Garage Door Opener
 Model No. : 8575W
 Mode : 802.11b – 2437MHz
 Test Specification : FCC-15.247, RSS-247 Radiated Spurious Emissions – Harmonics in Non-Restricted Bands

Freq. MHz	Ant Pol	Meter Reading (dB μ V)	CBL Fac (dB)	Ant Fac (dB)	Pre Amp (dB)	Peak Total dB μ V/m at 3m	Peak Total μ V/m at 3 m	Peak Limit μ V/m at 3 m	Margin (dB)
2437.00	H	68.7	4.3	32.1	0.0	105.1	179608.9		
2437.00	V	68.1	4.3	32.1	0.0	104.5	167042.8		
9748.00	H	48.9	8.2	37.0	-39.3	54.8	551.8	17960.9	-30.3
9748.00	V	49.5	8.2	37.0	-39.3	55.5	594.7	17960.9	-29.6
14622.00	H	48.8	9.7	39.5	-38.2	59.8	974.9	17960.9	-25.3
14622.00	V	48.5	9.7	39.5	-38.2	59.4	938.5	17960.9	-25.6
17059.00	H	48.5	11.0	41.5	-37.5	63.3	1466.5	17960.9	-21.8
17059.00	V	48.1	11.0	41.5	-37.5	62.9	1403.8	17960.9	-22.1
21933.00	H	34.7	2.2	40.6	-29.4	48.1	253.8	17960.9	-37.0
21933.00	V	35.1	2.2	40.6	-29.4	48.5	266.7	17960.9	-36.6
24370.00	H	35.3	2.2	40.6	-30.4	47.7	244.1	17960.9	-37.3
24370.00	V	35.7	2.2	40.6	-30.4	48.2	256.1	17960.9	-36.9

DATA SHEET

Manufacturer : Chamberlain Group Inc.
 Test Item : Stronghold Garage Door Opener
 Model No. : 8575W
 Mode : 802.11b – 2437MHz
 Test Specification : FCC-15.247, RSS-247 Radiated Spurious Emissions - Harmonics in Restricted Bands

Freq. MHz	Ant Pol	Meter Reading (dB μ V)	CBL Fac (dB)	Ant Fac (dB)	Pre Amp (dB)	Peak Total dB μ V/m at 3m	Peak Total μ V/m at 3 m	Peak Limit μ V/m at 3 m	Margin (dB)
4874.00	H	56.3	5.7	34.1	-39.3	56.9	697.2	5000.0	-17.1
4874.00	V	58.1	5.7	34.1	-39.3	58.6	852.8	5000.0	-15.4
7311.00	H	49.1	6.9	36.0	-39.4	52.5	424.1	5000.0	-21.4
7311.00	V	49.4	6.9	36.0	-39.4	52.8	438.5	5000.0	-21.1
12185.00	H	49.6	8.9	38.5	-39.1	57.9	787.8	5000.0	-16.1
12185.00	V	49.2	8.9	38.5	-39.1	57.5	751.5	5000.0	-16.5
19496.00	H	34.8	2.2	40.4	-28.8	48.6	268.6	5000.0	-25.4
19496.00	V	34.3	2.2	40.4	-28.8	48.1	254.7	5000.0	-25.9

DATA SHEET

Manufacturer : Chamberlain Group Inc.
 Test Item : Stronghold Garage Door Opener
 Model No. : 8575W
 Mode : 802.11b – 2437MHz
 Test Specification : FCC-15.247, RSS-247 Radiated Spurious Emissions – Restricted Band Averages

Freq. MHz	Ant Pol	Meter Reading (dB μ V)	CBL Fac (dB)	Ant Fac (dB)	Pre Amp (dB)	Duty Cycle (dB)	Average Total dB μ V/m at 3m	Average Total μ V/m at 3 m	Average Limit μ V/m at 3 m	Margin (dB)
4874.00	H	44.9	5.7	34.1	-39.3	0.0	45.4	187.0	500.0	-8.5
4874.00	V	46.2	5.7	34.1	-39.3	0.0	46.7	217.0	500.0	-7.3
7311.00	H	34.18	6.9	36.0	-39.4	0.0	37.6	75.8	500.0	-16.4
7311.00	V	34.7	6.9	36.0	-39.4	0.0	38.1	80.2	500.0	-15.9
12185.00	H	34.7	8.9	38.5	-39.1	0.0	43.1	142.2	500.0	-10.9
12185.00	V	34.7	8.9	38.5	-39.1	0.0	43.0	141.9	500.0	-10.9
19496.00	H	20.6	2.2	40.4	-28.8	0.0	34.4	52.4	500.0	-19.6
19496.00	V	20.6	2.2	40.4	-28.8	0.0	34.4	52.5	500.0	-19.6

DATA SHEET

Manufacturer : Chamberlain Group Inc.
 Test Item : Stronghold Garage Door Opener
 Model No. : 8575W
 Mode : 802.11b – 2462MHz
 Test Specification : FCC-15.247, RSS-247 Radiated Spurious Emissions - Harmonics in Non-Restricted Bands

Freq. MHz	Ant Pol	Meter Reading (dB μ V)	CBL Fac (dB)	Ant Fac (dB)	Pre Amp (dB)	Peak Total dB μ V/m at 3m	Peak Total μ V/m at 3 m	Peak Limit μ V/m at 3 m	Margin (dB)
2462.00	H	64.3	4.3	32.1	0.0	100.8	109393.3		
2462.00	V	66.1	4.3	32.1	0.0	102.5	133964.8		
9848.00	H	49.4	8.3	37.0	-39.2	55.5	593.8	13396.5	-27.1
9848.00	V	49.3	8.3	37.0	-39.2	55.3	585.0	13396.5	-27.2
14772.00	H	48.5	9.8	39.6	-38.2	59.7	967.1	13396.5	-22.8
14772.00	V	48.3	9.8	39.6	-38.2	59.5	940.7	13396.5	-23.1
17234.00	H	48.9	11.0	41.5	-37.7	63.8	1543.5	13396.5	-18.8
17234.00	V	48.7	11.0	41.5	-37.7	63.5	1499.7	13396.5	-19.0
24620.00	H	35.7	2.2	40.6	-30.7	47.8	246.3	13396.5	-34.7
24620.00	V	34.9	2.2	40.6	-30.7	47.1	226.0	13396.5	-35.5

DATA SHEET

Manufacturer : Chamberlain Group Inc.
 Test Item : Stronghold Garage Door Opener
 Model No. : 8575W
 Mode : 802.11b – 2462MHz
 Test Specification : FCC-15.247, RSS-247 Radiated Spurious Emissions – Harmonics in Restricted Bands

Freq. MHz	Ant Pol	Meter Reading (dB μ V)	CBL Fac (dB)	Ant Fac (dB)	Pre Amp (dB)	Peak Total dB μ V/m at 3m	Peak Total μ V/m at 3 m	Peak Limit μ V/m at 3 m	Margin (dB)
4924.00	H	50.4	5.8	34.2	-39.3	50.9	352.4	5000.0	-23.0
4924.00	V	57.3	5.8	34.2	-39.3	57.9	787.0	5000.0	-16.1
7386.00	H	48.2	6.9	35.9	-39.4	51.6	379.3	5000.0	-22.4
7386.00	V	48.9	6.9	35.9	-39.4	52.3	414.0	5000.0	-21.6
12310.00	H	49.0	9.3	38.5	-39.0	57.7	770.6	5000.0	-16.2
12310.00	V	49.0	9.3	38.5	-39.0	57.8	776.0	5000.0	-16.2
19696.00	H	34.9	2.2	40.4	-28.5	49.0	283.0	5000.0	-24.9
19696.00	V	34.4	2.2	40.4	-28.5	48.5	267.1	5000.0	-25.4
22158.00	H	34.7	2.2	40.6	-29.3	48.2	256.4	5000.0	-25.8
22158.00	V	34.4	2.2	40.6	-29.3	47.9	247.2	5000.0	-26.1

DATA SHEET

Manufacturer : Chamberlain Group Inc.
 Test Item : Stronghold Garage Door Opener
 Model No. : 8575W
 Mode : 802.11b – 2462MHz
 Test Specification : FCC-15.247, RSS-247 Radiated Spurious Emissions – Restricted Band Averages

Freq. MHz	Ant Pol	Meter Reading (dB μ V)	CBL Fac (dB)	Ant Fac (dB)	Pre Amp (dB)	Duty Cycle (dB)	Average Total dB μ V/m at 3m	Average Total μ V/m at 3 m	Average Limit μ V/m at 3 m	Margin (dB)
4924.00	H	38.7	5.8	34.2	-39.3	0.0	39.2	91.7	500.0	-14.7
4924.00	V	40.3	5.8	34.2	-39.3	0.0	40.9	110.7	500.0	-13.1
7386.00	H	34.26	6.9	35.9	-39.4	0.0	37.7	76.4	500.0	-16.3
7386.00	V	34.0	6.9	35.9	-39.4	0.0	37.4	74.5	500.0	-16.5
12310.00	H	34.9	9.3	38.5	-39.0	0.0	43.7	152.7	500.0	-10.3
12310.00	V	34.9	9.3	38.5	-39.0	0.0	43.7	152.4	500.0	-10.3
19696.00	H	20.6	2.2	40.4	-28.5	0.0	34.7	54.4	500.0	-19.3
19696.00	V	20.4	2.2	40.4	-28.5	0.0	34.6	53.5	500.0	-19.4
22158.00	H	20.7	2.2	40.6	-29.3	0.0	34.2	51.5	500.0	-19.7
22158.00	V	20.7	2.2	40.6	-29.3	0.0	34.2	51.1	500.0	-19.8

DATA SHEET

Manufacturer : Chamberlain Group Inc.
 Test Item : Stronghold Garage Door Opener
 Model No. : 8575W
 Mode : 802.11g – 2412MHz
 Test Specification : FCC-15.247, RSS-247 Radiated Spurious Emissions - Harmonics in Non-Restricted Bands

Freq. MHz	Ant Pol	Meter Reading (dB μ V)	CBL Fac (dB)	Ant Fac (dB)	Pre Amp (dB)	Peak Total dB μ V/m at 3m	Peak Total μ V/m at 3 m	Peak Limit μ V/m at 3 m	Margin (dB)
2412.00	H	71.2	4.3	32.0	0.0	107.5	238027.6		
2412.00	V	68.8	4.3	32.0	0.0	105.1	179732.8		
7236.00	H	51.5	6.9	36.0	-39.4	55.0	560.0	23802.8	-32.6
7236.00	V	52.5	6.9	36.0	-39.4	55.9	623.3	23802.8	-31.6
9648.00	H	49.6	8.2	36.9	-39.3	55.5	594.9	23802.8	-32.0
9648.00	V	49.4	8.2	36.9	-39.3	55.2	576.0	23802.8	-32.3
16884.00	H	48.1	11.0	41.6	-37.5	63.1	1436.0	23802.8	-24.4
16884.00	V	48.0	11.0	41.6	-37.5	63.0	1414.6	23802.8	-24.5
21708.00	H	34.2	2.2	40.6	-28.9	48.1	254.0	23802.8	-39.4
21708.00	V	34.7	2.2	40.6	-28.9	48.6	269.6	23802.8	-38.9
24120.00	H	33.8	2.2	40.6	-30.5	46.1	202.9	23802.8	-41.4
24120.00	V	33.4	2.2	40.6	-30.5	45.7	193.6	23802.8	-41.8

DATA SHEET

Manufacturer : Chamberlain Group Inc.
Test Item : Stronghold Garage Door Opener
Model No. : 8575W
Mode : 802.11g – 2412MHz
Test Specification : FCC-15.247, RSS-247 Radiated Spurious Emissions - Harmonics in Restricted Bands

Freq. MHz	Ant Pol	Meter Reading (dB μ V)	CBL Fac (dB)	Ant Fac (dB)	Pre Amp (dB)	Peak Total dB μ V/m at 3m	Peak Total μ V/m at 3 m	Peak Limit μ V/m at 3 m	Margin (dB)
4824.00	H	54.8	5.7	34.1	-39.3	55.3	580.4	5000.0	-18.7
4824.00	V	58.1	5.7	34.1	-39.3	58.6	852.5	5000.0	-15.4
12060.00	H	49.6	8.6	38.5	-39.1	57.6	759.9	5000.0	-16.4
12060.00	V	49.4	8.6	38.5	-39.1	57.4	740.0	5000.0	-16.6
14472.00	H	48.2	9.6	39.4	-38.3	59.0	889.2	5000.0	-15.0
14472.00	V	48.1	9.6	39.4	-38.3	58.8	874.9	5000.0	-15.1
19296.00	H	35.0	2.2	40.4	-28.5	49.0	282.4	5000.0	-25.0
19296.00	V	34.9	2.2	40.4	-28.5	48.9	279.2	5000.0	-25.1

DATA SHEET

Manufacturer : Chamberlain Group Inc.
 Test Item : Stronghold Garage Door Opener
 Model No. : 8575W
 Mode : 802.11g – 2412MHz
 Test Specification : FCC-15.247, RSS-247 Radiated Spurious Emissions – Restricted Band Averages

Freq. MHz	Ant Pol	Meter Reading (dB μ V)	CBL Fac (dB)	Ant Fac (dB)	Pre Amp (dB)	Duty Cycle (dB)	Average Total dB μ V/m at 3m	Average Total μ V/m at 3 m	Average Limit μ V/m at 3 m	Margin (dB)
4824.00	H	40.4	5.7	34.1	-39.3	0.0	40.8	110.0	500.0	-13.2
4824.00	V	44.0	5.7	34.1	-39.3	0.0	44.5	167.4	500.0	-9.5
12060.00	H	34.7	8.6	38.5	-39.1	0.0	42.6	135.6	500.0	-11.3
12060.00	V	34.7	8.6	38.5	-39.1	0.0	42.6	135.3	500.0	-11.4
14472.00	H	33.8	9.6	39.4	-38.3	0.0	44.5	168.1	500.0	-9.5
14472.00	V	33.7	9.6	39.4	-38.3	0.0	44.5	167.5	500.0	-9.5
19296.00	H	20.6	2.2	40.4	-28.5	0.0	34.7	54.3	500.0	-19.3
19296.00	V	20.6	2.2	40.4	-28.5	0.0	34.7	54.3	500.0	-19.3

DATA SHEET

Manufacturer : Chamberlain Group Inc.
 Test Item : Stronghold Garage Door Opener
 Model No. : 8575W
 Mode : 802.11g – 2437MHz
 Test Specification : FCC-15.247, RSS-247 Radiated Spurious Emissions - Harmonics in Non-Restricted Bands

Freq. MHz	Ant Pol	Meter Reading (dB μ V)	CBL Fac (dB)	Ant Fac (dB)	Pre Amp (dB)	Peak Total dB μ V/m at 3m	Peak Total μ V/m at 3 m	Peak Limit μ V/m at 3 m	Margin (dB)
2437.00	H	64.5	4.3	32.1	0.0	100.9	111001.2		
2437.00	V	66.2	4.3	32.1	0.0	102.6	135309.4		
9748.00	H	49.3	8.2	37.0	-39.3	55.2	578.5	13530.9	-27.4
9748.00	V	49.7	8.2	37.0	-39.3	55.7	609.9	13530.9	-26.9
14622.00	H	48.7	9.7	39.5	-38.2	59.7	964.8	13530.9	-22.9
14622.00	V	48.9	9.7	39.5	-38.2	59.9	983.9	13530.9	-22.8
17059.00	H	48.2	11.0	41.5	-37.5	63.1	1424.9	13530.9	-19.6
17059.00	V	48.1	11.0	41.5	-37.5	63.0	1415.1	13530.9	-19.6
21933.00	H	34.9	2.2	40.6	-29.4	48.3	259.7	13530.9	-34.3
21933.00	V	34.7	2.2	40.6	-29.4	48.2	255.9	13530.9	-34.5
24370.00	H	35.6	2.2	40.6	-30.4	48.1	254.7	13530.9	-34.5
24370.00	V	35.1	2.2	40.6	-30.4	47.5	238.5	13530.9	-35.1

DATA SHEET

Manufacturer : Chamberlain Group Inc.
Test Item : Stronghold Garage Door Opener
Model No. : 8575W
Mode : 802.11g – 2437MHz
Test Specification : FCC-15.247, RSS-247 Radiated Spurious Emissions - Harmonics in Restricted Bands

Freq. MHz	Ant Pol	Meter Reading (dB μ V)	CBL Fac (dB)	Ant Fac (dB)	Pre Amp (dB)	Peak Total dB μ V/m at 3m	Peak Total μ V/m at 3 m	Peak Limit μ V/m at 3 m	Margin (dB)
4874.00	H	55.3	5.7	34.1	-39.3	55.9	621.4	5000.0	-18.1
4874.00	V	59.4	5.7	34.1	-39.3	59.9	993.9	5000.0	-14.0
7311.00	H	49.4	6.9	36.0	-39.4	52.8	434.5	5000.0	-21.2
7311.00	V	54.5	6.9	36.0	-39.4	57.9	782.5	5000.0	-16.1
12185.00	H	49.5	8.9	38.5	-39.1	57.9	783.3	5000.0	-16.1
12185.00	V	49.0	8.9	38.5	-39.1	57.3	736.0	5000.0	-16.6
19496.00	H	34.5	2.2	40.4	-28.8	48.3	259.2	5000.0	-25.7
19496.00	V	34.1	2.2	40.4	-28.8	47.9	248.9	5000.0	-26.1

DATA SHEET

Manufacturer : Chamberlain Group Inc.
 Test Item : Stronghold Garage Door Opener
 Model No. : 8575W
 Mode : 802.11g – 2437MHz
 Test Specification : FCC-15.247, RSS-247 Radiated Spurious Emissions – Restricted Band Averages

Freq. MHz	Ant Pol	Meter Reading (dB μ V)	CBL Fac (dB)	Ant Fac (dB)	Pre Amp (dB)	Duty Cycle (dB)	Average Total dB μ V/m at 3m	Average Total μ V/m at 3 m	Average Limit μ V/m at 3 m	Margin (dB)
4874.00	H	42.5	5.7	34.1	-39.3	0.0	43.0	141.0	500.0	-11.0
4874.00	V	45.0	5.7	34.1	-39.3	0.0	45.5	187.9	500.0	-8.5
7311.00	H	35.79	6.9	36.0	-39.4	0.0	39.2	91.2	500.0	-14.8
7311.00	V	38.9	6.9	36.0	-39.4	0.0	42.3	129.7	500.0	-11.7
12185.00	H	34.6	8.9	38.5	-39.1	0.0	42.9	139.8	500.0	-11.1
12185.00	V	34.6	8.9	38.5	-39.1	0.0	42.9	140.3	500.0	-11.0
19496.00	H	20.5	2.2	40.4	-28.8	0.0	34.3	51.7	500.0	-19.7
19496.00	V	20.3	2.2	40.4	-28.8	0.0	34.1	50.9	500.0	-19.8

DATA SHEET

Manufacturer : Chamberlain Group Inc.
 Test Item : Stronghold Garage Door Opener
 Model No. : 8575W
 Mode : 802.11g – 2462MHz
 Test Specification : FCC-15.247, RSS-247 Radiated Spurious Emissions - Harmonics in Non-Restricted Bands

Freq. MHz	Ant Pol	Meter Reading (dB μ V)	CBL Fac (dB)	Ant Fac (dB)	Pre Amp (dB)	Peak Total dB μ V/m at 3m	Peak Total μ V/m at 3 m	Peak Limit μ V/m at 3 m	Margin (dB)
2462.00	H	65.6	4.3	32.1	0.0	102.0	126470.9		
2462.00	V	67.8	4.3	32.1	0.0	104.2	162551.4		
9848.00	H	49.1	8.3	37.0	-39.2	55.2	573.7	16255.1	-29.0
9848.00	V	49.4	8.3	37.0	-39.2	55.4	589.7	16255.1	-28.8
14772.00	H	48.4	9.8	39.6	-38.2	59.6	950.5	16255.1	-24.7
14772.00	V	48.4	9.8	39.6	-38.2	59.6	953.8	16255.1	-24.6
17234.00	H	49.2	11.0	41.5	-37.7	64.0	1588.6	16255.1	-20.2
17234.00	V	48.0	11.0	41.5	-37.7	62.9	1391.6	16255.1	-21.3
24620.00	H	35.1	2.2	40.6	-30.7	47.3	230.7	16255.1	-37.0
24620.00	V	35.0	2.2	40.6	-30.7	47.2	227.8	16255.1	-37.1
5809.70	H	61.7	6.1	35.0	-39.4	63.5	1492.2	16255.1	-20.7
5779.70	V	60.3	6.1	35.0	-39.4	62.0	1264.7	16255.1	-22.2

DATA SHEET

Manufacturer : Chamberlain Group Inc.
 Test Item : Stronghold Garage Door Opener
 Model No. : 8575W
 Mode : 802.11g – 2462MHz
 Test Specification : FCC-15.247, RSS-247 Radiated Spurious Emissions - Harmonics in Restricted Bands

Freq. MHz	Ant Pol	Meter Reading (dB μ V)	CBL Fac (dB)	Ant Fac (dB)	Pre Amp (dB)	Peak Total dB μ V/m at 3m	Peak Total μ V/m at 3 m	Peak Limit μ V/m at 3 m	Margin (dB)
4924.00	H	50.8	5.8	34.2	-39.3	51.4	371.1	5000.0	-22.6
4924.00	V	50.9	5.8	34.2	-39.3	51.5	375.8	5000.0	-22.5
7386.00	H	49.4	6.9	35.9	-39.4	52.8	437.0	5000.0	-21.2
7386.00	V	51.4	6.9	35.9	-39.4	54.8	547.0	5000.0	-19.2
12310.00	H	48.8	9.3	38.5	-39.0	57.6	756.6	5000.0	-16.4
12310.00	V	49.2	9.3	38.5	-39.0	58.0	792.2	5000.0	-16.0
19696.00	H	34.3	2.2	40.4	-28.5	48.4	264.1	5000.0	-25.5
19696.00	V	34.5	2.2	40.4	-28.5	48.7	271.8	5000.0	-25.3
22158.00	H	34.6	2.2	40.6	-29.3	48.1	253.5	5000.0	-25.9
22158.00	V	35.3	2.2	40.6	-29.3	48.8	276.7	5000.0	-25.1

DATA SHEET

Manufacturer : Chamberlain Group Inc.
 Test Item : Stronghold Garage Door Opener
 Model No. : 8575W
 Mode : 802.11g – 2462MHz
 Test Specification : FCC-15.247, RSS-247 Radiated Spurious Emissions – Restricted Band Averages

Freq. MHz	Ant Pol	Meter Reading (dB μ V)	CBL Fac (dB)	Ant Fac (dB)	Pre Amp (dB)	Duty Cycle (dB)	Average Total dB μ V/m at 3m	Average Total μ V/m at 3 m	Average Limit μ V/m at 3 m	Margin (dB)
4924.00	H	35.5	5.8	34.2	-39.3	0.0	36.1	63.8	500.0	-17.9
4924.00	V	35.5	5.8	34.2	-39.3	0.0	36.1	63.6	500.0	-17.9
7386.00	H	34.67	6.9	35.9	-39.4	0.0	38.1	80.1	500.0	-15.9
7386.00	V	34.5	6.9	35.9	-39.4	0.0	37.9	78.7	500.0	-16.1
12310.00	H	35.0	9.3	38.5	-39.0	0.0	43.7	153.6	500.0	-10.3
12310.00	V	35.0	9.3	38.5	-39.0	0.0	43.7	153.9	500.0	-10.2
19696.00	H	20.4	2.2	40.4	-28.5	0.0	34.6	53.5	500.0	-19.4
19696.00	V	20.5	2.2	40.4	-28.5	0.0	34.7	54.1	500.0	-19.3
22158.00	H	20.7	2.2	40.6	-29.3	0.0	34.1	51.0	500.0	-19.8
22158.00	V	20.8	2.2	40.6	-29.3	0.0	34.3	51.7	500.0	-19.7

DATA SHEET

Manufacturer : Chamberlain Group Inc.
 Test Item : Stronghold Garage Door Opener
 Model No. : 8575W
 Mode : 802.11n – 2412MHz
 Test Specification : FCC-15.247, RSS-247 Radiated Spurious Emissions - Harmonics in Non-Restricted Bands

Freq. MHz	Ant Pol	Meter Reading (dB μ V)	CBL Fac (dB)	Ant Fac (dB)	Pre Amp (dB)	Peak Total dB μ V/m at 3m	Peak Total μ V/m at 3 m	Peak Limit μ V/m at 3 m	Margin (dB)
2412.00	H	68.5	4.3	32.0	0.0	104.9	175036.0		
2412.00	V	68.6	4.3	32.0	0.0	105.0	176859.1		
7236.00	H	49.4	6.9	36.0	-39.4	52.8	437.7	17685.9	-32.1
7236.00	V	50.7	6.9	36.0	-39.4	54.1	507.8	17685.9	-30.8
9648.00	H	49.5	8.2	36.9	-39.3	55.3	582.7	17685.9	-29.6
9648.00	V	50.0	8.2	36.9	-39.3	55.9	623.6	17685.9	-29.1
16884.00	H	48.7	11.0	41.6	-37.5	63.7	1529.8	17685.9	-21.3
16884.00	V	47.5	11.0	41.6	-37.5	62.6	1341.7	17685.9	-22.4
21708.00	H	35.0	2.2	40.6	-28.9	48.9	277.8	17685.9	-36.1
21708.00	V	35.1	2.2	40.6	-28.9	49.0	281.4	17685.9	-36.0
24120.00	H	33.6	2.2	40.6	-30.5	45.9	197.6	17685.9	-39.0
24120.00	V	33.2	2.2	40.6	-30.5	45.5	188.7	17685.9	-39.4

DATA SHEET

Manufacturer : Chamberlain Group Inc.
Test Item : Stronghold Garage Door Opener
Model No. : 8575W
Mode : 802.11n – 2412MHz
Test Specification : FCC-15.247, RSS-247 Radiated Spurious Emissions - Harmonics in Restricted Bands

Freq. MHz	Ant Pol	Meter Reading (dB μ V)	CBL Fac (dB)	Ant Fac (dB)	Pre Amp (dB)	Peak Total dB μ V/m at 3m	Peak Total μ V/m at 3 m	Peak Limit μ V/m at 3 m	Margin (dB)
4824.00	H	53.0	5.7	34.1	-39.3	53.4	470.1	5000.0	-20.5
4824.00	V	50.8	5.7	34.1	-39.3	51.3	366.6	5000.0	-22.7
12060.00	H	49.5	8.6	38.5	-39.1	57.4	745.2	5000.0	-16.5
12060.00	V	49.5	8.6	38.5	-39.1	57.5	748.6	5000.0	-16.5
14472.00	H	48.7	9.6	39.4	-38.3	59.4	936.4	5000.0	-14.5
14472.00	V	48.6	9.6	39.4	-38.3	59.3	922.5	5000.0	-14.7
19296.00	H	34.9	2.2	40.4	-28.5	49.0	281.1	5000.0	-25.0
19296.00	V	35.4	2.2	40.4	-28.5	49.5	297.1	5000.0	-24.5

DATA SHEET

Manufacturer : Chamberlain Group Inc.
 Test Item : Stronghold Garage Door Opener
 Model No. : 8575W
 Mode : 802.11n – 2412MHz
 Test Specification : FCC-15.247, RSS-247 Radiated Spurious Emissions – Restricted Band Averages

Freq. MHz	Ant Pol	Meter (dB μ V)	CBL Fac (dB)	Ant Fac (dB)	Pre Amp (dB)	Duty Cycle (dB)	Average Total dB μ V/m at 3m	Average Total μ V/m at 3 m	Average Limit μ V/m at 3 m	Margin (dB)
4824.00	H	36.0	5.7	34.1	-39.3	0.0	36.5	66.6	500.0	-17.5
4824.00	V	35.7	5.7	34.1	-39.3	0.0	36.1	64.1	500.0	-17.8
12060.00	H	34.8	8.6	38.5	-39.1	0.0	42.8	137.5	500.0	-11.2
12060.00	V	34.8	8.6	38.5	-39.1	0.0	42.8	137.5	500.0	-11.2
14472.00	H	33.8	9.6	39.4	-38.3	0.0	44.5	168.1	500.0	-9.5
14472.00	V	33.7	9.6	39.4	-38.3	0.0	44.4	166.7	500.0	-9.5
19296.00	H	20.7	2.2	40.4	-28.5	0.0	34.8	54.9	500.0	-19.2
19296.00	V	20.5	2.2	40.4	-28.5	0.0	34.5	53.4	500.0	-19.4

DATA SHEET

Manufacturer : Chamberlain Group Inc.
 Test Item : Stronghold Garage Door Opener
 Model No. : 8575W
 Mode : 802.11n – 2437MHz
 Test Specification : FCC-15.247, RSS-247 Radiated Spurious Emissions - Harmonics in Non-Restricted Bands

Freq. MHz	Ant Pol	Meter Reading (dB μ V)	CBL Fac (dB)	Ant Fac (dB)	Pre Amp (dB)	Peak Total dB μ V/m at 3m	Peak Total μ V/m at 3 m	Peak Limit μ V/m at 3 m	Margin (dB)
2437.00	H	68.5	4.3	32.1	0.0	104.9	175116.8		
2437.00	V	68.7	4.3	32.1	0.0	105.0	178783.7		
9748.00	H	49.0	8.2	37.0	-39.3	54.9	556.9	17878.4	-30.1
9748.00	V	49.1	8.2	37.0	-39.3	55.1	566.6	17878.4	-30.0
14622.00	H	48.5	9.7	39.5	-38.2	59.4	935.3	17878.4	-25.6
14622.00	V	48.4	9.7	39.5	-38.2	59.3	924.6	17878.4	-25.7
17059.00	H	49.0	11.0	41.5	-37.5	63.8	1553.4	17878.4	-21.2
17059.00	V	48.2	11.0	41.5	-37.5	63.1	1424.9	17878.4	-22.0
21933.00	H	34.9	2.2	40.6	-29.4	48.3	261.2	17878.4	-36.7
21933.00	V	34.9	2.2	40.6	-29.4	48.4	261.5	17878.4	-36.7
24370.00	H	35.0	2.2	40.6	-30.4	47.5	236.3	17878.4	-37.6
24370.00	V	35.5	2.2	40.6	-30.4	48.0	250.3	17878.4	-37.1

DATA SHEET

Manufacturer : Chamberlain Group Inc.
Test Item : Stronghold Garage Door Opener
Model No. : 8575W
Mode : 802.11n – 2437MHz
Test Specification : FCC-15.247, RSS-247 Radiated Spurious Emissions - Harmonics in Restricted Bands

Freq. MHz	Ant Pol	Meter Reading (dB μ V)	CBL Fac (dB)	Ant Fac (dB)	Pre Amp (dB)	Peak Total dB μ V/m at 3m	Peak Total μ V/m at 3 m	Peak Limit μ V/m at 3 m	Margin (dB)
4874.00	H	54.0	5.7	34.1	-39.3	54.6	534.4	5000.0	-19.4
4874.00	V	56.5	5.7	34.1	-39.3	57.0	708.5	5000.0	-17.0
7311.00	H	50.7	6.9	36.0	-39.4	54.1	508.1	5000.0	-19.9
7311.00	V	53.5	6.9	36.0	-39.4	56.9	703.0	5000.0	-17.0
12185.00	H	49.0	8.9	38.5	-39.1	57.3	733.5	5000.0	-16.7
12185.00	V	49.1	8.9	38.5	-39.1	57.4	745.4	5000.0	-16.5
19496.00	H	35.1	2.2	40.4	-28.8	48.9	280.0	5000.0	-25.0
19496.00	V	34.4	2.2	40.4	-28.8	48.2	256.5	5000.0	-25.8

DATA SHEET

Manufacturer : Chamberlain Group Inc.
 Test Item : Stronghold Garage Door Opener
 Model No. : 8575W
 Mode : 802.11n – 2437MHz
 Test Specification : FCC-15.247, RSS-247 Radiated Spurious Emissions – Restricted Band Averages

Freq. MHz	Ant Pol	Meter Reading (dB μ V)	CBL Fac (dB)	Ant Fac (dB)	Pre Amp (dB)	Duty Cycle (dB)	Average Total dB μ V/m at 3m	Average Total μ V/m at 3 m	Average Limit μ V/m at 3 m	Margin (dB)
4874.00	H	39.2	5.7	34.1	-39.3	0.0	39.7	96.8	500.0	-14.3
4874.00	V	44.0	5.7	34.1	-39.3	0.0	44.5	168.8	500.0	-9.4
7311.00	H	34.39	6.9	36.0	-39.4	0.0	37.8	77.6	500.0	-16.2
7311.00	V	35.4	6.9	36.0	-39.4	0.0	38.8	86.7	500.0	-15.2
12185.00	H	35.1	8.9	38.5	-39.1	0.0	43.4	148.7	500.0	-10.5
12185.00	V	34.7	8.9	38.5	-39.1	0.0	43.0	141.7	500.0	-11.0
19496.00	H	20.5	2.2	40.4	-28.8	0.0	34.3	52.0	500.0	-19.7
19496.00	V	20.4	2.2	40.4	-28.8	0.0	34.2	51.5	500.0	-19.7

DATA SHEET

Manufacturer : Chamberlain Group Inc.
 Test Item : Stronghold Garage Door Opener
 Model No. : 8575W
 Mode : 802.11n – 2462MHz
 Test Specification : FCC-15.247, RSS-247 Radiated Spurious Emissions - Harmonics in Non-Restricted Bands

Freq. MHz	Ant Pol	Meter Reading (dB μ V)	CBL Fac (dB)	Ant Fac (dB)	Pre Amp (dB)	Peak Total dB μ V/m at 3m	Peak Total μ V/m at 3 m	Peak Limit μ V/m at 3 m	Margin (dB)
2462.00	H	64.1	4.3	32.1	0.0	100.5	106167.3		
2462.00	V	64.9	4.3	32.1	0.0	101.4	117082.1		
9848.00	H	49.1	8.3	37.0	-39.2	55.2	573.0	11708.2	-26.2
9848.00	V	49.0	8.3	37.0	-39.2	55.1	567.1	11708.2	-26.3
14772.00	H	48.4	9.8	39.6	-38.2	59.5	946.1	11708.2	-21.9
14772.00	V	48.1	9.8	39.6	-38.2	59.3	922.5	11708.2	-22.1
17234.00	H	48.4	11.0	41.5	-37.7	63.2	1447.2	11708.2	-18.2
17234.00	V	48.1	11.0	41.5	-37.7	62.9	1402.9	11708.2	-18.4
24620.00	H	35.3	2.2	40.6	-30.7	47.4	234.4	11708.2	-34.0
24620.00	V	34.6	2.2	40.6	-30.7	46.8	218.3	11708.2	-34.6

DATA SHEET

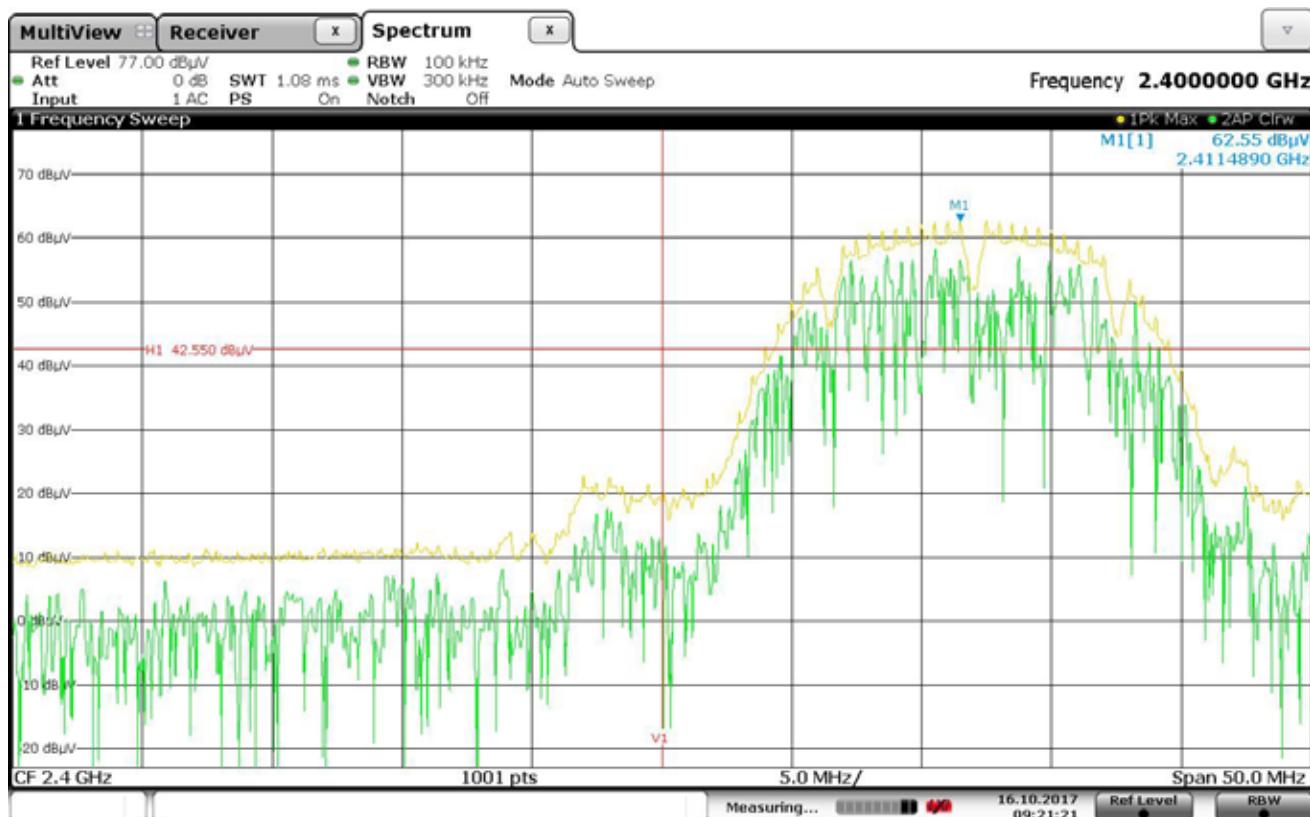
Manufacturer : Chamberlain Group Inc.
 Test Item : Stronghold Garage Door Opener
 Model No. : 8575W
 Mode : 802.11n – 2462MHz
 Test Specification : FCC-15.247, RSS-247 Radiated Spurious Emissions - Harmonics in Restricted Bands

Freq. MHz	Ant Pol	Meter Reading (dB μ V)	CBL Fac (dB)	Ant Fac (dB)	Pre Amp (dB)	Peak Total dB μ V/m at 3m	Peak Total μ V/m at 3 m	Peak Limit μ V/m at 3 m	Margin (dB)
4924.00	H	50.5	5.8	34.2	-39.3	51.0	356.4	5000.0	-22.9
4924.00	V	50.1	5.8	34.2	-39.3	50.6	340.8	5000.0	-23.3
7386.00	H	48.8	6.9	35.9	-39.4	52.2	409.3	5000.0	-21.7
7386.00	V	48.5	6.9	35.9	-39.4	51.9	395.4	5000.0	-22.0
12310.00	H	49.2	9.3	38.5	-39.0	57.9	787.7	5000.0	-16.1
12310.00	V	48.8	9.3	38.5	-39.0	57.6	755.7	5000.0	-16.4
19696.00	H	35.3	2.2	40.4	-28.5	49.4	296.0	5000.0	-24.6
19696.00	V	34.5	2.2	40.4	-28.5	48.7	270.9	5000.0	-25.3
22158.00	H	35.0	2.2	40.6	-29.3	48.5	267.0	5000.0	-25.4
22158.00	V	34.0	2.2	40.6	-29.3	47.5	236.6	5000.0	-26.5

DATA SHEET

Manufacturer : Chamberlain Group Inc.
 Test Item : Stronghold Garage Door Opener
 Model No. : 8575W
 Mode : 802.11n – 2462MHz
 Test Specification : FCC-15.247, RSS-247 Radiated Spurious Emissions – Restricted Band Averages

Freq. MHz	Ant Pol	Meter Reading (dB μ V)	CBL Fac (dB)	Ant Fac (dB)	Pre Amp (dB)	Duty Cycle (dB)	Average Total dB μ V/m at 3m	Average Total μ V/m at 3 m	Average Limit μ V/m at 3 m	Margin (dB)
4924.00	H	35.5	5.8	34.2	-39.3	0.0	36.1	64.0	500.0	-17.9
4924.00	V	35.5	5.8	34.2	-39.3	0.0	36.1	63.8	500.0	-17.9
7386.00	H	34.15	6.9	35.9	-39.4	0.0	37.6	75.4	500.0	-16.4
7386.00	V	34.2	6.9	35.9	-39.4	0.0	37.6	75.7	500.0	-16.4
12310.00	H	35.0	9.3	38.5	-39.0	0.0	43.8	154.3	500.0	-10.2
12310.00	V	35.0	9.3	38.5	-39.0	0.0	43.7	153.9	500.0	-10.2
19696.00	H	20.6	2.2	40.4	-28.5	0.0	34.8	54.8	500.0	-19.2
19696.00	V	20.4	2.2	40.4	-28.5	0.0	34.5	53.2	500.0	-19.5
22158.00	H	20.6	2.2	40.6	-29.3	0.0	34.1	50.9	500.0	-19.8
22158.00	V	20.3	2.2	40.6	-29.3	0.0	33.7	48.7	500.0	-20.2

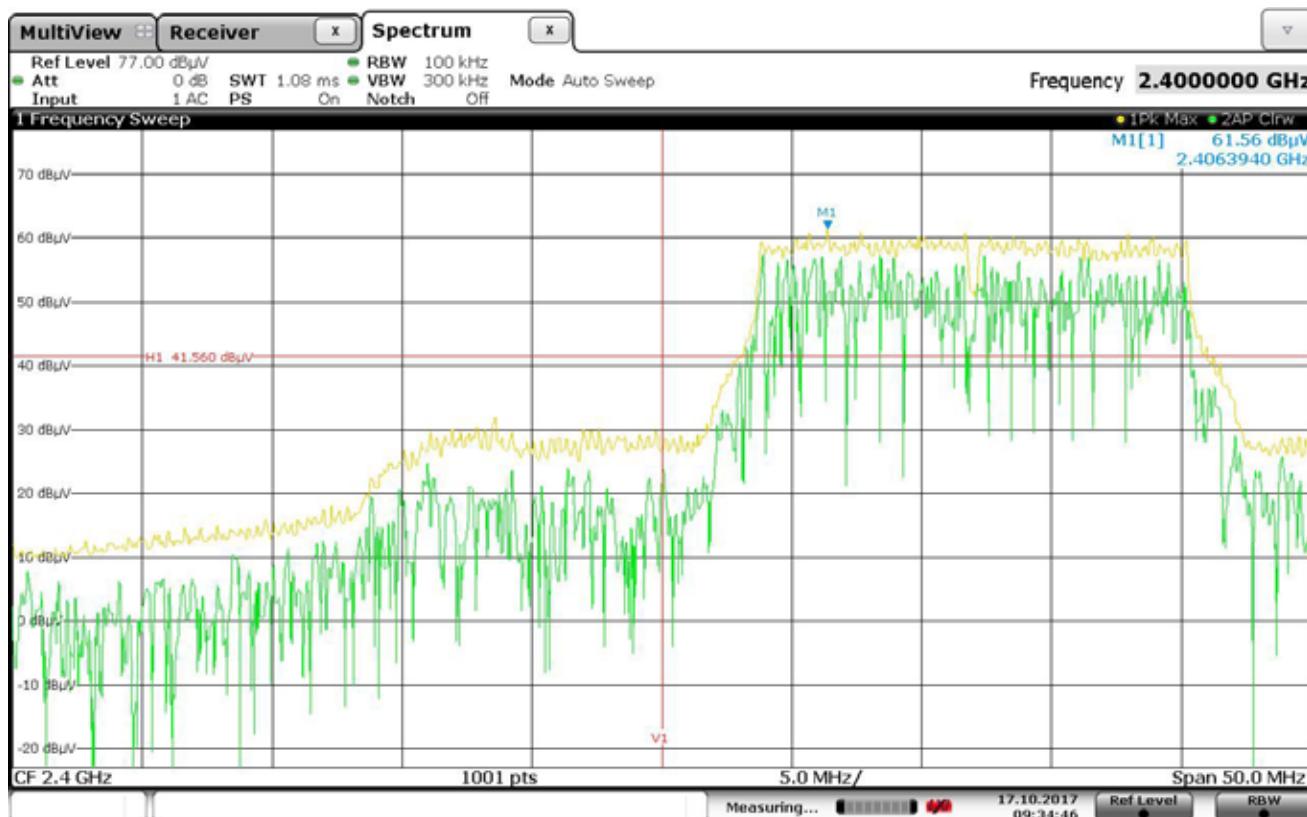


Date: 16.OCT.2017 09:21:21

BAND EDGE

MANUFACTURER : Chamberlain Group Inc.
 TEST ITEM : Stronghold Garage Door Opener
 MODEL NUMBER : 8575W
 TEST MODE : 802.11b – 2412MHz

NOTES



Date: 17.OCT.2017 09:34:46

BAND EDGE

MANUFACTURER : Chamberlain Group Inc.
 TEST ITEM : Stronghold Garage Door Opener
 MODEL NUMBER : 8575W
 TEST MODE : 802.11g – 2412MHz

NOTES



Date: 17.OCT.2017 15:11:58

BAND EDGE

MANUFACTURER : Chamberlain Group Inc.
 TEST ITEM : Stronghold Garage Door Opener
 MODEL NUMBER : 8575W
 TEST MODE : 802.11n – 2412MHz

NOTES

DATA SHEET

Manufacturer : Chamberlain Group Inc.
 Test Item : Stronghold Garage Door Opener
 Model No. : 8575W
 Test Specification : FCC-15.247, RSS-247 Band Edge Compliance and Restricted Band Averages

Mode	Freq. MHz	Ant Pol	Meter Reading (dB μ V)	CBL Fac (dB)	Ant Fac (dB)	Pre Amp (dB)	Peak Total dB μ V/m at 3m	Peak Total μ V/m at 3 m	Peak Limit μ V/m at 3 m	Margin (dB)
802.11b	2483.50	H	34.8	4.3	32.2	0.0	71.3	3673.8	5000.0	-2.7
802.11b	2483.50	V	34.8	4.3	32.2	0.0	71.3	3690.7	5000.0	-2.6
802.11g	2483.50	H	32.7	4.3	32.2	0.0	69.2	2881.4	5000.0	-4.8
802.11g	2483.50	V	33.7	4.3	32.2	0.0	70.3	3255.4	5000.0	-3.7
802.11n	2483.50	H	36.4	4.3	32.2	0.0	72.9	4406.7	5000.0	-1.1
802.11n	2483.50	V	35.5	4.3	32.2	0.0	72.0	3977.5	5000.0	-2.0

Mode	Freq. MHz	Ant Pol	Meter Reading (dB μ V)	CBL Fac (dB)	Ant Fac (dB)	Pre Amp (dB)	Duty Cycle (dB)	Average Total dB μ V/m at 3m	Average Total μ V/m at 3 m	Average Limit μ V/m at 3 m	Margin (dB)
802.11b	2483.50	H	17.2	4.3	32.2	0.0	0.0	53.7	483.7	500.0	-0.3
802.11b	2483.50	V	16.5	4.3	32.2	0.0	0.0	53.0	447.3	500.0	-1.0
802.11g	2483.50	H	12.4	4.3	32.2	0.0	0.0	49.0	280.9	500.0	-5.0
802.11g	2483.50	V	15.3	4.3	32.2	0.0	0.0	51.8	390.9	500.0	-2.1
802.11n	2483.50	H	17.0	4.3	32.2	0.0	0.0	53.6	476.0	500.0	-0.4
802.11n	2483.50	V	15.3	4.3	32.2	0.0	0.0	51.8	389.6	500.0	-2.2