

APPLICATION FOR VERIFICATION
On Behalf of
Hornady Manufacturing Company

98215 Hornady RADiD Night Guard
Model No.:98215

FCC ID: 2AFJZ-98215

Prepared for : Hornady Manufacturing Company
Address : 3625 Old Potash Hwy Grand Island, Nebraska 68803,
United States

Prepared by : Shenzhen Accurate Technology Co., Ltd.
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Report No. : ATE20191657
Date of Test : November 15-18, 2019
Date of Report : November 20, 2019

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Test Report Declaration

Applicant& address : Hornady Manufacturing Company
3625 Old Potash Hwy Grand Island, Nebraska 68803, United States

Manufacturer& address : Hornady Manufacturing Company
3625 Old Potash Hwy Grand Island, Nebraska 68803, United States

Product : 98215 Hornady RADiD Night Guard

Model No. : 98215

Trade name : N/A


Measurement Procedure Used:


FCC Rules and Regulations Part 15 Subpart C 15.207&15.209 ANSI C63.10: 2013

The device described above is tested by Shenzhen Accurate Technology Co., Ltd. to determine the maximum emission levels emanating from the device. The maximum emission levels are compared to the FCC Part 15 Subpart C limits both radiated and conducted emissions. The measurement results are contained in this test report and Shenzhen Accurate Technology Co., Ltd. is assumed full responsibility for the accuracy and completeness of these measurements. Also, this report shows that the Equipment Under Test (EUT) is to be technically compliant with the FCC requirements.

This report applies to above tested sample only. This report shall not be reproduced in part without written approval of Shenzhen Accurate Technology Co., Ltd.

Date of Test : November 15-18, 2019
Date of Report : November 20, 2019

Prepared by : 
(Bob Liang, Engineer)

Approved & Authorized Signer : 
(Sean Liu, Manager)

1. TEST RESULTS SUMMARY

| Test Items | Test Standard | Test Results |
|-------------------------------|-----------------|--------------|
| Power Line Conducted Emission | FCC Part 15.207 | Pass |
| Radiated Emission | FCC Part 15.209 | Pass |

2. GENERAL INFORMATION

2.1. Description of Device (EUT)

The submitted sample is a 98215 Hornady RADiD Night Guard . The sample is powered by DC 12V (Power by Adapter).

| | | |
|--------------------|---|--|
| | | 98215 Hornady RADiD Night Guard |
| Frequency | : | 125KHz |
| Number of Channels | : | 1 |
| Modulation Type | : | ASK |
| Type of Antenna | : | Internal Antenna |
| Max antenna gain | : | 1dBi |
| Power Supply | : | DC 12V (Power by Adapter) |
| Adapter | : | Model: RK-1201000 Input: AC 100-240V; 50/60Hz Output: DC 12V; 1.0A |

2.2. Special Accessory and Auxiliary Equipment

N/A

2.3. Description of Test Facility

| | | |
|---------------|---|--|
| EMC Lab | : | Recognition of accreditation by Federal Communications Commission (FCC) The Designation Number is CN1189 The Registration Number is 708358 |
| | | Listed by Innovation, Science and Economic Development Canada (ISED) The Registration Number is 5077A-2 |
| | | Accredited by China National Accreditation Service for Conformity Assessment (CNAS) The Registration Number is CNAS L3193 |
| | | Accredited by American Association for Laboratory Accreditation (A2LA) The Certificate Number is 4297.01 |
| Name of Firm | : | Shenzhen Accurate Technology Co., Ltd. |
| Site Location | : | 1/F., Building A, Changyuan New Material Port, Science & Industry Park, Nanshan District, Shenzhen, Guangdong, P.R. China |

2.4. Measurement Uncertainty

| | | |
|--|---|---------------|
| Radiated emission expanded uncertainty (9kHz-30MHz) | : | U=2.66dB, k=2 |
| Radiated emission expanded uncertainty (30MHz-1000MHz) | : | U=4.28dB, k=2 |
| Radiated emission expanded uncertainty (1G-18GHz) | : | U=4.98dB, k=2 |
| Radiated emission expanded uncertainty (18G-26.5GHz) | : | U=5.06dB, k=2 |
| Conduction Emission Expanded Uncertainty (Mains ports, 9kHz-30MHz) | : | U=2.72dB, k=2 |
| Conduction Emission Expanded Uncertainty (Telecommunication ports, 150kHz-30MHz) | : | U=2.94dB, k=2 |
| Power disturbance Expanded Uncertainty | : | U=2.92dB, k=2 |
| Harmonic current expanded uncertainty | : | U=0.512%, k=2 |

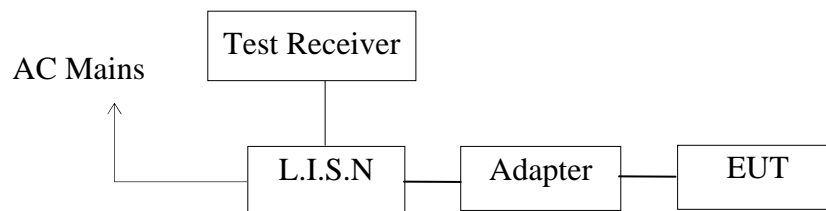
3. POWER LINE CONDUCTED MEASUREMENT

3.1. For Power Line Conducted Emission

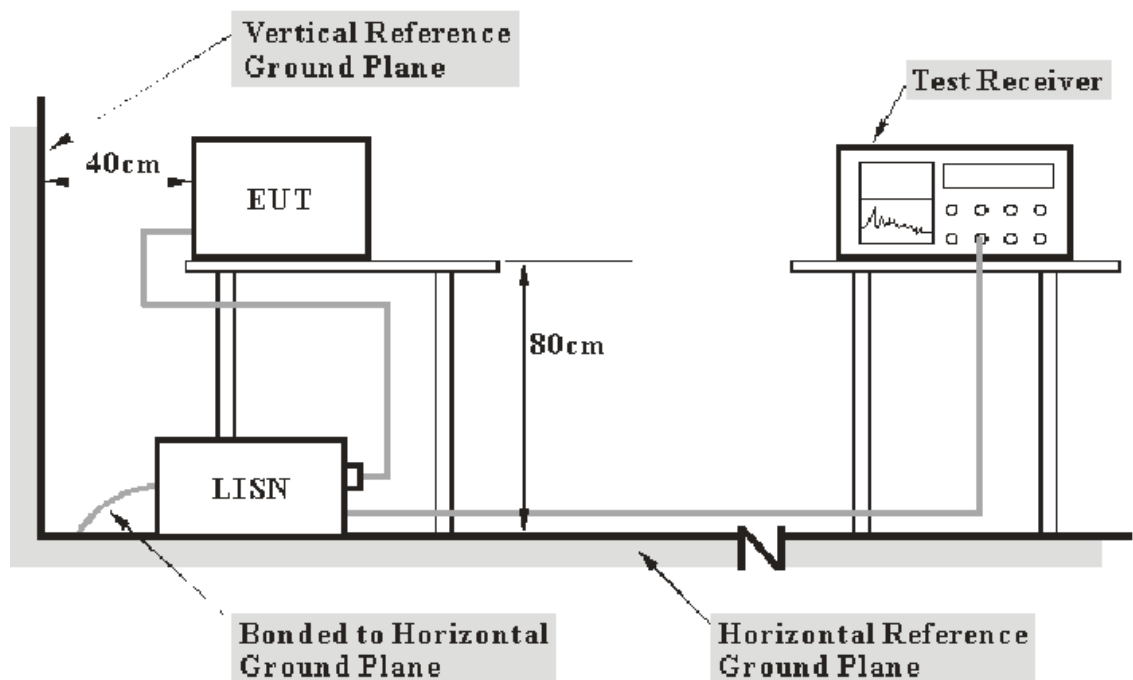
| Item | Equipment | Manufacturer | Model No. | Serial No. | Last Cal. | Cal. Interval |
|--------------------------------------|--------------------|-----------------|-----------|------------|--------------|---------------|
| 1. | Test Receiver | Rohde & Schwarz | ESCS30 | 100307 | Jan.05, 2019 | 1 Year |
| 2. | L.I.S.N. | Schwarzbeck | NLSK8126 | 8126431 | Jan.05, 2019 | 1 Year |
| 3. | Pulse Limiter | Rohde & Schwarz | ESH3-Z2 | 100815 | Jan.05, 2019 | 1 Year |
| 4. | 50Ω Coaxial Switch | Anritsu Corp | MP59B | 6200283933 | Jan.05, 2019 | 1 Year |
| Expanded Uncertainty: U= 2.23dB, k=2 | | | | | | |

3.2. Block Diagram of Test Setup

3.2.1. Block diagram of connection between the EUT and simulators



3.2.2. Test System Setup



- Note: 1. Support units were connected to second LISN.
2. Both of LISNs (AMN) 80 cm from EUT and at the least 80 cm from other units and other metal planes support units.

3.3. Power Line Conducted Emission Measurement Limits (Class B)

| Frequency MHz | Limits dB(μ V) | |
|------------------|---------------------|---------------|
| | Quasi-peak Level | Average Level |
| 0.15—0.50 | 66—56* | 56—46* |
| 0.50—5.00 | 56 | 46 |
| 5.00—30.0 | 60 | 50 |

Notes: 1. *Decreasing linearly with logarithm of frequency.

2. The lower limit shall apply at the transition frequencies.

3.4. Manufacturer

The following equipments are installed on Power Line Conducted Emission Measurement to meet the commission requirement and operating regulations in a manner, which tends to maximize its emission characteristics in a normal application.

3.4.1. Power bank (EUT)

Model Number: 98215

Manufacturer: Hornady Manufacturing Company

3.5. Operating Condition of EUT

3.5.1. Setup the EUT and simulator as shown as Section 3.2.

3.5.2. Turn on the power of all equipment.

3.5.3. Let the EUT work in test mode (On) and measure it.

3.6. Test Procedure

The EUT is put on the plane 0.8m high above the ground by insulating support and is connected to the power mains through a line impedance stabilization network (L.I.S.N.). This provides a 50ohm coupling impedance for the EUT system. Please refer the block diagram of the test setup and photographs. Both sides of AC lines are checked to find out the maximum conducted emission. In order to find the maximum emission levels, the relative positions of equipment and all of the interface cables shall be changed according to ANSI C63.10: 2013 on Conducted Emission Measurement.

The bandwidth of test receiver (R & S ESCS30) is set at 9kHz.

The frequency range from 150kHz to 30MHz is checked.

3.7.Data Sample

| Frequency (MHz) | Transducer value (dB) | QuasiPeak Level (dBμV) | Average Level (dBμV) | QuasiPeak Limit (dBμV) | Average Limit (dBμV) | QuasiPeak Margin (dB) | Average Margin (dB) | Remark (Pass/Fail) |
|--------------------|-----------------------------|------------------------------|----------------------------|------------------------------|----------------------------|-----------------------------|---------------------------|-----------------------|
| X.XX | 10.6 | 25.3 | 17.0 | 59.0 | 49.0 | 33.4 | 31.7 | Pass |

Frequency(MHz) = Emission frequency in MHz

Transducer value(dB) = Insertion loss of LISN + Cable Loss

Level(dBμV) = Quasi-peak Reading/Average Reading + Transducer value

Limit (dBμV) = Limit stated in standard

Margin = Limit (dBμV) - Level (dBμV)

Calculation Formula:

Margin = Limit (dBμV) - Level (dBμV)

3.8. Power Line Conducted Emission Measurement Results

PASS.

The frequency range from 150kHz to 30MHz is checked.

| | | | | | | | | |
|--|---------------|--------------|---------------|--------------|----------|------|-----|--|
| Test mode : On (AC 120V/60Hz) | | | | | | | | |
| EUT mode : 98215 | | | | | | | | |
| MEASUREMENT RESULT: "YH-1115-04_fin" | | | | | | | | |
| 11/15/2019 4:56PM | | | | | | | | |
| Frequency MHz | Level dBμV | Transd dB | Limit dBμV | Margin dB | Detector | Line | PE | |
| 0.360000 | 33.70 | 10.6 | 59 | 25.0 | QP | N | GND | |
| 0.390000 | 44.20 | 10.7 | 58 | 13.9 | QP | N | GND | |
| 1.720000 | 31.50 | 10.9 | 56 | 24.5 | QP | N | GND | |
| 4.100000 | 40.60 | 11.1 | 56 | 15.4 | QP | N | GND | |
| 10.510000 | 39.70 | 11.3 | 60 | 20.3 | QP | N | GND | |
| 13.360000 | 39.60 | 11.3 | 60 | 20.4 | QP | N | GND | |
| MEASUREMENT RESULT: "YH-1115-04_fin2" | | | | | | | | |
| 11/15/2019 4:56PM | | | | | | | | |
| Frequency MHz | Level dBμV | Transd dB | Limit dBμV | Margin dB | Detector | Line | PE | |
| 0.320000 | 26.60 | 10.6 | 50 | 23.1 | AV | N | GND | |
| 0.425000 | 34.70 | 10.7 | 47 | 12.6 | AV | N | GND | |
| 1.575000 | 25.60 | 10.9 | 46 | 20.4 | AV | N | GND | |
| 4.120000 | 32.00 | 11.1 | 46 | 14.0 | AV | N | GND | |
| 10.075000 | 29.20 | 11.3 | 50 | 20.8 | AV | N | GND | |
| 13.420000 | 29.50 | 11.3 | 50 | 20.5 | AV | N | GND | |
| MEASUREMENT RESULT: "YH-1115-03_fin" | | | | | | | | |
| 11/15/2019 4:52PM | | | | | | | | |
| Frequency MHz | Level dBμV | Transd dB | Limit dBμV | Margin dB | Detector | Line | PE | |
| 0.195000 | 36.30 | 10.5 | 64 | 27.5 | QP | L1 | GND | |
| 0.420000 | 37.50 | 10.7 | 57 | 19.9 | QP | L1 | GND | |
| 1.710000 | 24.90 | 10.9 | 56 | 31.1 | QP | L1 | GND | |
| 3.540000 | 37.20 | 11.1 | 56 | 18.8 | QP | L1 | GND | |
| 10.465000 | 40.80 | 11.3 | 60 | 19.2 | QP | L1 | GND | |
| 13.180000 | 35.40 | 11.3 | 60 | 24.6 | QP | L1 | GND | |
| MEASUREMENT RESULT: "YH-1115-03_fin2" | | | | | | | | |
| 11/15/2019 4:52PM | | | | | | | | |
| Frequency MHz | Level dBμV | Transd dB | Limit dBμV | Margin dB | Detector | Line | PE | |
| 0.165000 | 23.80 | 10.5 | 55 | 31.4 | AV | L1 | GND | |
| 0.425000 | 28.50 | 10.7 | 47 | 18.8 | AV | L1 | GND | |
| 1.780000 | 16.20 | 11.0 | 46 | 29.8 | AV | L1 | GND | |
| 4.010000 | 27.00 | 11.1 | 46 | 19.0 | AV | L1 | GND | |
| 10.225000 | 26.90 | 11.3 | 50 | 23.1 | AV | L1 | GND | |
| 13.615000 | 27.50 | 11.3 | 50 | 22.5 | AV | L1 | GND | |

Test mode : On (AC 240V/60Hz)

EUT mode : 98215

MEASUREMENT RESULT: "YH-1115-02_fin"

11/15/2019 4:48PM

| Frequency MHz | Level dBμV | Transd dB | Limit dBμV | Margin dB | Detector | Line | PE |
|------------------|---------------|--------------|---------------|--------------|----------|------|-----|
| 0.155000 | 39.10 | 10.5 | 66 | 26.6 | QP | L1 | GND |
| 0.420000 | 37.60 | 10.7 | 57 | 19.8 | QP | L1 | GND |
| 2.000000 | 30.50 | 11.0 | 56 | 25.5 | QP | L1 | GND |
| 3.890000 | 43.10 | 11.1 | 56 | 12.9 | QP | L1 | GND |
| 10.420000 | 46.90 | 11.3 | 60 | 13.1 | QP | L1 | GND |
| 13.195000 | 37.00 | 11.3 | 60 | 23.0 | QP | L1 | GND |

MEASUREMENT RESULT: "YH-1115-02_fin2"

11/15/2019 4:48PM

| Frequency MHz | Level dBμV | Transd dB | Limit dBμV | Margin dB | Detector | Line | PE |
|------------------|---------------|--------------|---------------|--------------|----------|------|-----|
| 0.190000 | 21.90 | 10.5 | 54 | 32.1 | AV | L1 | GND |
| 0.425000 | 27.60 | 10.7 | 47 | 19.7 | AV | L1 | GND |
| 2.090000 | 19.40 | 11.0 | 46 | 26.6 | AV | L1 | GND |
| 3.860000 | 31.80 | 11.1 | 46 | 14.2 | AV | L1 | GND |
| 10.450000 | 31.30 | 11.3 | 50 | 18.7 | AV | L1 | GND |
| 13.570000 | 28.90 | 11.3 | 50 | 21.1 | AV | L1 | GND |

MEASUREMENT RESULT: "YH-1115-01_fin"

11/15/2019 4:44PM

| Frequency MHz | Level dBμV | Transd dB | Limit dBμV | Margin dB | Detector | Line | PE |
|------------------|---------------|--------------|---------------|--------------|----------|------|-----|
| 0.360000 | 37.10 | 10.6 | 59 | 21.6 | QP | N | GND |
| 0.395000 | 42.80 | 10.7 | 58 | 15.2 | QP | N | GND |
| 1.585000 | 37.40 | 10.9 | 56 | 18.6 | QP | N | GND |
| 3.820000 | 43.90 | 11.1 | 56 | 12.1 | QP | N | GND |
| 10.450000 | 46.20 | 11.3 | 60 | 13.8 | QP | N | GND |
| 13.765000 | 42.60 | 11.3 | 60 | 17.4 | QP | N | GND |

MEASUREMENT RESULT: "YH-1115-01_fin2"

11/15/2019 4:44PM

| Frequency MHz | Level dBμV | Transd dB | Limit dBμV | Margin dB | Detector | Line | PE |
|------------------|---------------|--------------|---------------|--------------|----------|------|-----|
| 0.270000 | 30.50 | 10.6 | 51 | 20.6 | AV | N | GND |
| 0.420000 | 36.00 | 10.7 | 47 | 11.4 | AV | N | GND |
| 1.625000 | 30.10 | 10.9 | 46 | 15.9 | AV | N | GND |
| 3.930000 | 37.90 | 11.1 | 46 | 8.1 | AV | N | GND |
| 10.420000 | 33.80 | 11.3 | 50 | 16.2 | AV | N | GND |
| 13.660000 | 32.30 | 11.3 | 50 | 17.7 | AV | N | GND |

Emissions attenuated more than 20 dB below the permissible value are not reported.

The spectral diagrams are attached as below.

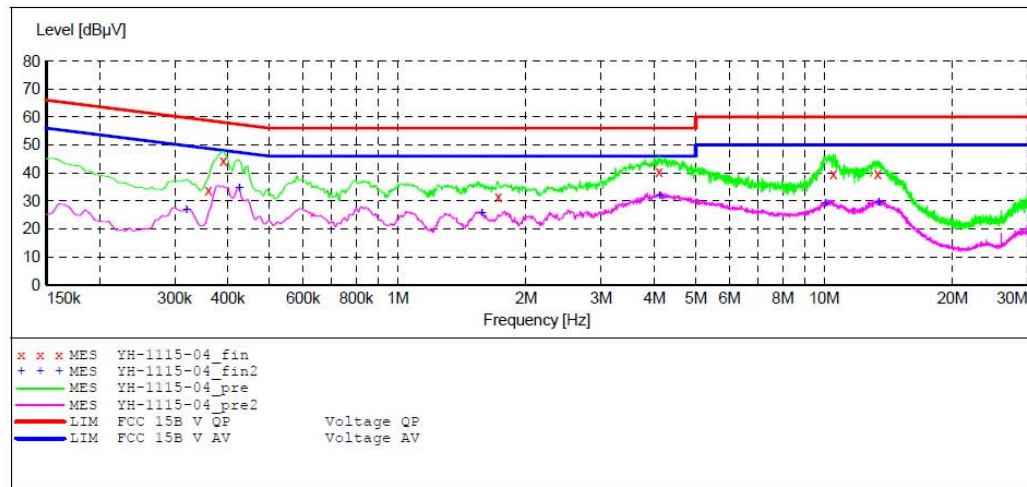
ACCURATE TECHNOLOGY CO., LTD

CONDUCTED EMISSION STANDARD FCC PART 15B

EUT: 98215 Hornady RAPiD Night Guard M/N:98215
Manufacturer: Hornaday
Operating Condition: ON
Test Site: 1#Shielding Room
Operator: Ben
Test Specification: N 120V/60Hz
Comment: Report NO.:ATE20191657
Start of Test: 11/15/2019 / 4:53:09PM

SCAN TABLE: "V 9K-30MHz fin"

Short Description: _SUB_STD_VTERM2 1.70
Start Stop Step Detector Meas. IF Transducer
Frequency Frequency Width Time Bandw.
9.0 kHz 150.0 kHz 100.0 Hz QuasiPeak 1.0 s 200 Hz NSLK8126 2008
Average
150.0 kHz 30.0 MHz 5.0 kHz QuasiPeak 1.0 s 9 kHz NSLK8126 2008
Average



MEASUREMENT RESULT: "YH-1115-04_fin"

11/15/2019 4:56PM

| Frequency MHz | Level dBμV | Transd dB | Limit dBμV | Margin dB | Detector | Line | PE |
|------------------|---------------|--------------|---------------|--------------|----------|------|-----|
| 0.360000 | 33.70 | 10.6 | 59 | 25.0 | QP | N | GND |
| 0.390000 | 44.20 | 10.7 | 58 | 13.9 | QP | N | GND |
| 1.720000 | 31.50 | 10.9 | 56 | 24.5 | QP | N | GND |
| 4.100000 | 40.60 | 11.1 | 56 | 15.4 | QP | N | GND |
| 10.510000 | 39.70 | 11.3 | 60 | 20.3 | QP | N | GND |
| 13.360000 | 39.60 | 11.3 | 60 | 20.4 | QP | N | GND |

MEASUREMENT RESULT: "YH-1115-04_fin2"

11/15/2019 4:56PM

| Frequency MHz | Level dBμV | Transd dB | Limit dBμV | Margin dB | Detector | Line | PE |
|------------------|---------------|--------------|---------------|--------------|----------|------|-----|
| 0.320000 | 26.60 | 10.6 | 50 | 23.1 | AV | N | GND |
| 0.425000 | 34.70 | 10.7 | 47 | 12.6 | AV | N | GND |
| 1.575000 | 25.60 | 10.9 | 46 | 20.4 | AV | N | GND |
| 4.120000 | 32.00 | 11.1 | 46 | 14.0 | AV | N | GND |
| 10.075000 | 29.20 | 11.3 | 50 | 20.8 | AV | N | GND |
| 13.420000 | 29.50 | 11.3 | 50 | 20.5 | AV | N | GND |

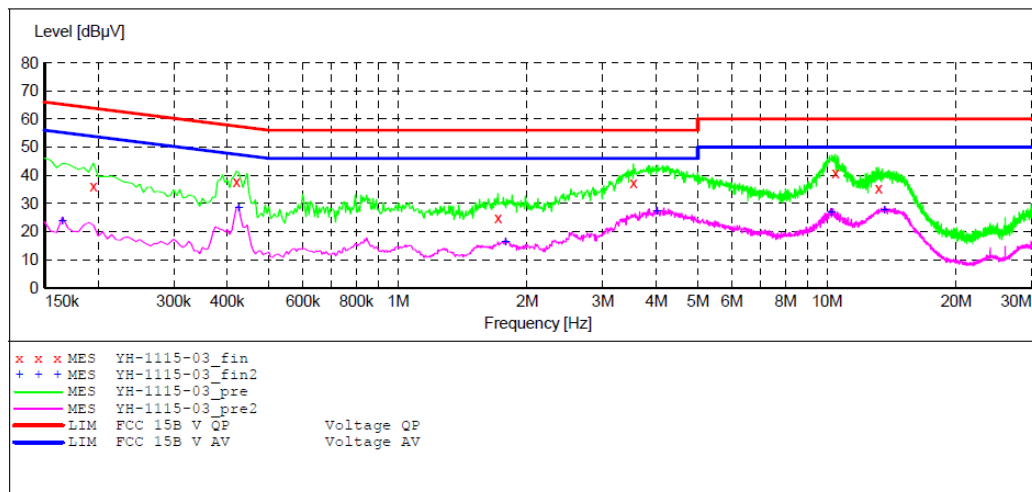
ACCURATE TECHNOLOGY CO., LTD

CONDUCTED EMISSION STANDARD FCC PART 15B

EUT: 98215 Hornady RAPiD Night Guard M/N:98215
 Manufacturer: Hornday
 Operating Condition: ON
 Test Site: 1#Shielding Room
 Operator: Ben
 Test Specification: L 120V/60Hz
 Comment: Report NO.:ATE20191657
 Start of Test: 11/15/2019 / 4:49:09PM

SCAN TABLE: "V 9K-30MHz fin"

Short Description: _SUB_STD_VTERM2 1.70
 Start Stop Step Detector Meas. IF Transducer
 Frequency Frequency Width Time Bandw.
 9.0 kHz 150.0 kHz 100.0 Hz QuasiPeak 1.0 s 200 Hz NSLK8126 2008
 Average
 150.0 kHz 30.0 MHz 5.0 kHz QuasiPeak 1.0 s 9 kHz NSLK8126 2008
 Average



MEASUREMENT RESULT: "YH-1115-03_fin"

11/15/2019 4:52PM

| Frequency MHz | Level dBμV | Transd dB | Limit dBμV | Margin dB | Detector | Line | PE |
|------------------|---------------|--------------|---------------|--------------|----------|------|-----|
| 0.195000 | 36.30 | 10.5 | 64 | 27.5 | QP | L1 | GND |
| 0.420000 | 37.50 | 10.7 | 57 | 19.9 | QP | L1 | GND |
| 1.710000 | 24.90 | 10.9 | 56 | 31.1 | QP | L1 | GND |
| 3.540000 | 37.20 | 11.1 | 56 | 18.8 | QP | L1 | GND |
| 10.465000 | 40.80 | 11.3 | 60 | 19.2 | QP | L1 | GND |
| 13.180000 | 35.40 | 11.3 | 60 | 24.6 | QP | L1 | GND |

MEASUREMENT RESULT: "YH-1115-03_fin2"

11/15/2019 4:52PM

| Frequency MHz | Level dBμV | Transd dB | Limit dBμV | Margin dB | Detector | Line | PE |
|------------------|---------------|--------------|---------------|--------------|----------|------|-----|
| 0.165000 | 23.80 | 10.5 | 55 | 31.4 | AV | L1 | GND |
| 0.425000 | 28.50 | 10.7 | 47 | 18.8 | AV | L1 | GND |
| 1.780000 | 16.20 | 11.0 | 46 | 29.8 | AV | L1 | GND |
| 4.010000 | 27.00 | 11.1 | 46 | 19.0 | AV | L1 | GND |
| 10.225000 | 26.90 | 11.3 | 50 | 23.1 | AV | L1 | GND |
| 13.615000 | 27.50 | 11.3 | 50 | 22.5 | AV | L1 | GND |

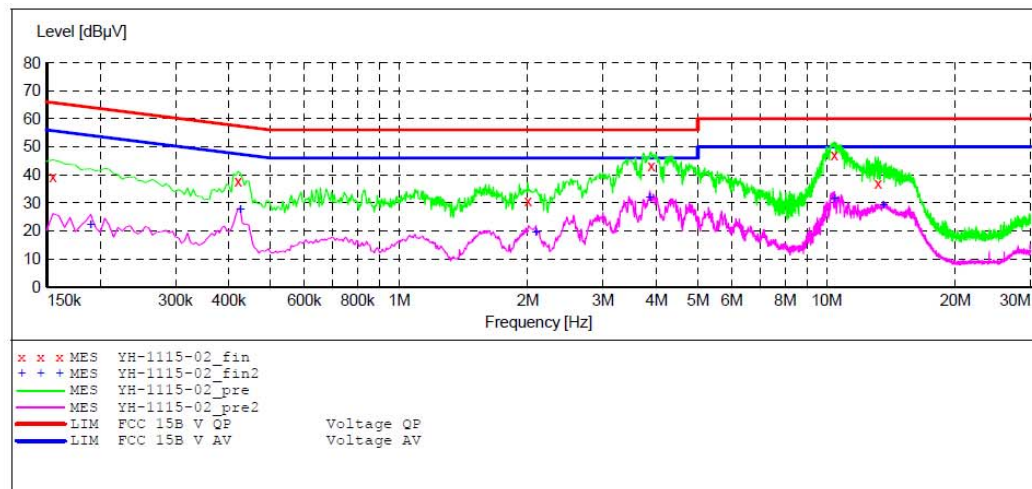
ACCURATE TECHNOLOGY CO., LTD

CONDUCTED EMISSION STANDARD FCC PART 15B

EUT: 98215 Hornady RAPiD Night Guard M/N:98215
 Manufacturer: Hornday
 Operating Condition: ON
 Test Site: 1#Shielding Room
 Operator: Ben
 Test Specification: L 240V/60Hz
 Comment: Report NO.:ATE20191657
 Start of Test: 11/15/2019 / 4:45:05PM

SCAN TABLE: "V 9K-30MHz fin"

Short Description: _SUB_STD_VTERM2 1.70
 Start Stop Step Detector Meas. IF Transducer
 Frequency Frequency Width Time Bandw.
 9.0 kHz 150.0 kHz 100.0 Hz QuasiPeak 1.0 s 200 Hz NSLK8126 2008
 Average
 150.0 kHz 30.0 MHz 5.0 kHz QuasiPeak 1.0 s 9 kHz NSLK8126 2008
 Average



MEASUREMENT RESULT: "YH-1115-02_fin"

11/15/2019 4:48PM

| Frequency MHz | Level dBuV | Transd dB | Limit dBuV | Margin dB | Detector | Line | PE |
|------------------|---------------|--------------|---------------|--------------|----------|------|-----|
| 0.155000 | 39.10 | 10.5 | 66 | 26.6 | QP | L1 | GND |
| 0.420000 | 37.60 | 10.7 | 57 | 19.8 | QP | L1 | GND |
| 2.000000 | 30.50 | 11.0 | 56 | 25.5 | QP | L1 | GND |
| 3.890000 | 43.10 | 11.1 | 56 | 12.9 | QP | L1 | GND |
| 10.420000 | 46.90 | 11.3 | 60 | 13.1 | QP | L1 | GND |
| 13.195000 | 37.00 | 11.3 | 60 | 23.0 | QP | L1 | GND |

MEASUREMENT RESULT: "YH-1115-02_fin2"

11/15/2019 4:48PM

| Frequency MHz | Level dBuV | Transd dB | Limit dBuV | Margin dB | Detector | Line | PE |
|------------------|---------------|--------------|---------------|--------------|----------|------|-----|
| 0.190000 | 21.90 | 10.5 | 54 | 32.1 | AV | L1 | GND |
| 0.425000 | 27.60 | 10.7 | 47 | 19.7 | AV | L1 | GND |
| 2.090000 | 19.40 | 11.0 | 46 | 26.6 | AV | L1 | GND |
| 3.860000 | 31.80 | 11.1 | 46 | 14.2 | AV | L1 | GND |
| 10.450000 | 31.30 | 11.3 | 50 | 18.7 | AV | L1 | GND |
| 13.570000 | 28.90 | 11.3 | 50 | 21.1 | AV | L1 | GND |

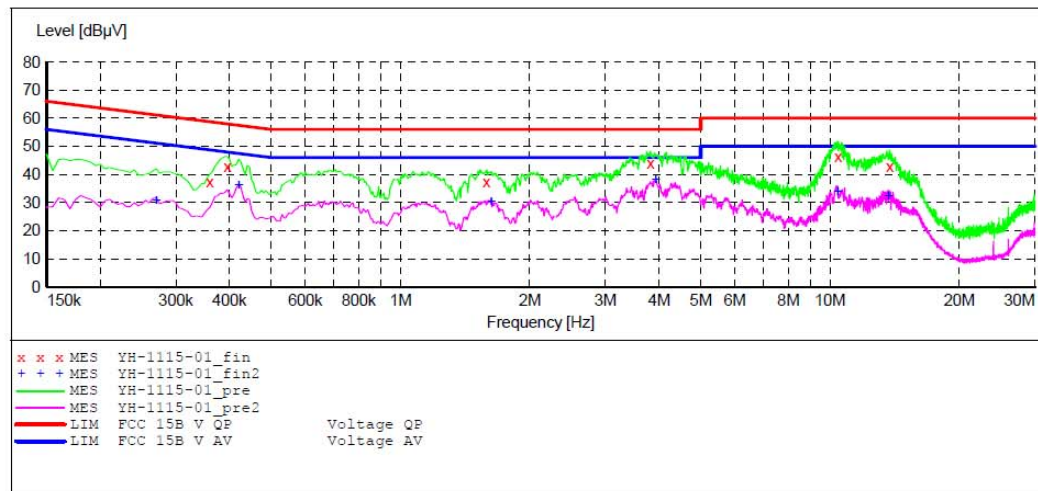
ACCURATE TECHNOLOGY CO., LTD

CONDUCTED EMISSION STANDARD FCC PART 15B

EUT: 98215 Hornady RAPiD Night Guard M/N:98215
 Manufacturer: Hornday
 Operating Condition: ON
 Test Site: 1#Shielding Room
 Operator: Ben
 Test Specification: N 240V/60Hz
 Comment: Report NO.:ATE20191657
 Start of Test: 11/15/2019 / 4:40:48PM

SCAN TABLE: "V 9K-30MHz fin"

Short Description: _SUB_STD_VTERM2 1.70
 Start Stop Step Detector Meas. IF Transducer
 Frequency Frequency Width Time Bandw.
 9.0 kHz 150.0 kHz 100.0 Hz QuasiPeak 1.0 s 200 Hz NSLK8126 2008
 Average
 150.0 kHz 30.0 MHz 5.0 kHz QuasiPeak 1.0 s 9 kHz NSLK8126 2008
 Average



MEASUREMENT RESULT: "YH-1115-01_fin"

11/15/2019 4:44PM

| Frequency MHz | Level dBμV | Transd dB | Limit dBμV | Margin dB | Detector | Line | PE |
|------------------|---------------|--------------|---------------|--------------|----------|------|-----|
| 0.360000 | 37.10 | 10.6 | 59 | 21.6 | QP | N | GND |
| 0.395000 | 42.80 | 10.7 | 58 | 15.2 | QP | N | GND |
| 1.585000 | 37.40 | 10.9 | 56 | 18.6 | QP | N | GND |
| 3.820000 | 43.90 | 11.1 | 56 | 12.1 | QP | N | GND |
| 10.450000 | 46.20 | 11.3 | 60 | 13.8 | QP | N | GND |
| 13.765000 | 42.60 | 11.3 | 60 | 17.4 | QP | N | GND |

MEASUREMENT RESULT: "YH-1115-01_fin2"

11/15/2019 4:44PM

| Frequency MHz | Level dBμV | Transd dB | Limit dBμV | Margin dB | Detector | Line | PE |
|------------------|---------------|--------------|---------------|--------------|----------|------|-----|
| 0.270000 | 30.50 | 10.6 | 51 | 20.6 | AV | N | GND |
| 0.420000 | 36.00 | 10.7 | 47 | 11.4 | AV | N | GND |
| 1.625000 | 30.10 | 10.9 | 46 | 15.9 | AV | N | GND |
| 3.930000 | 37.90 | 11.1 | 46 | 8.1 | AV | N | GND |
| 10.420000 | 33.80 | 11.3 | 50 | 16.2 | AV | N | GND |
| 13.660000 | 32.30 | 11.3 | 50 | 17.7 | AV | N | GND |

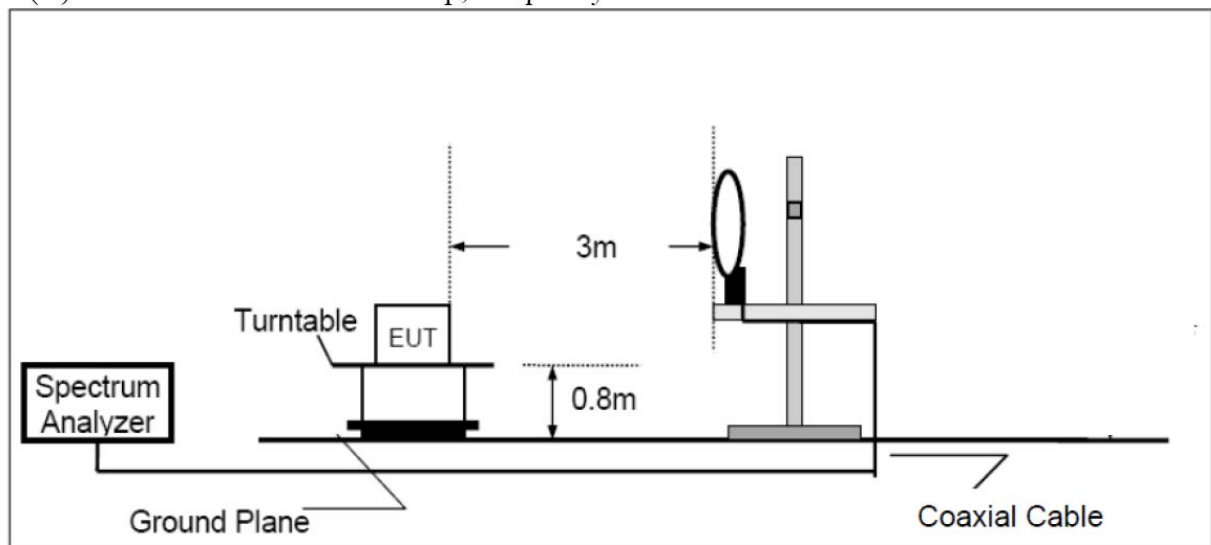
4. RADIATED EMISSION MEASUREMENT

4.1. For Radiated Emission Measurement

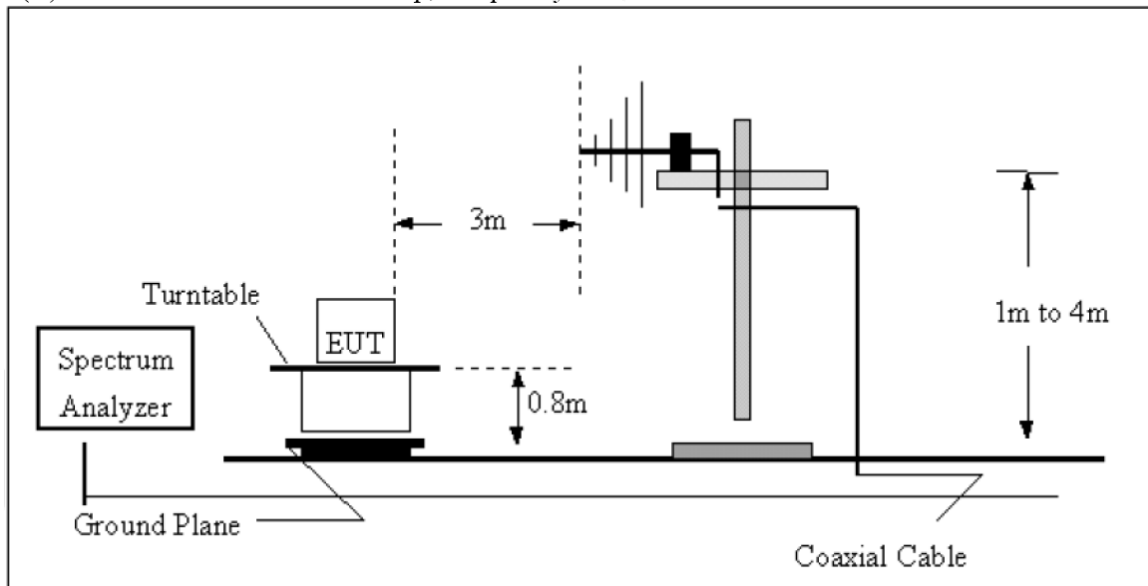
| Item | Equipment | Manufacturer | Model No. | Serial No. | Last Cal. | Cal. Interval |
|---|-------------------|-----------------|--------------------|------------|--------------|---------------|
| 1. | Spectrum Analyzer | Agilent | E7405A | MY45115511 | Jan.05, 2019 | 1 Year |
| 2. | Test Receiver | Rohde & Schwarz | ESCS30 | 100307 | Jan.05, 2019 | 1 Year |
| 3. | Bilog Antenna | Schwarzbeck | VULB9163 | 9163-323 | Jan.05, 2019 | 1 Year |
| 4. | Loop Antenna | Schwarzbeck | FMZB1516 | 1516131 | Jan.05, 2019 | 1 Year |
| 5. | Horn Antenna | Schwarzbeck | BBHA9120D | 9120D-655 | Jan.05, 2019 | 1 Year |
| 6. | 50 Coaxial Switch | Anritsu Corp | MP59B | 6200506474 | Jan.05, 2019 | 1 Year |
| 12. | Pre-Amplifier | Rohde & Schwarz | CBLU11835 40-01 | 3791 | Jan.05, 2019 | 1 Year |
| Expanded Uncertainty (9kHz-30MHz): U=3.08dB, k=2 Expanded Uncertainty (30MHz-1000MHz): U=4.42dB, k=2 Expanded Uncertainty (Above 1GHz): U=4.06dB, k=2 | | | | | | |

4.2. TEST CONFIGURATION

(A) Radiated Emission Test Set-Up, Frequency below 30MHz

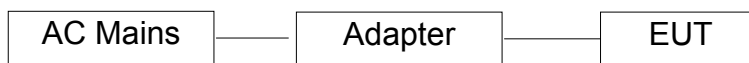


(B) Radiated Emission Test Set-Up, Frequency 30-1000MHz



4.3. Block Diagram of Test Setup

4.3.1. Block diagram of connection between the EUT and simulators



4.4. Radiated Emission Limit

| Frequency (MHz) | Field Strength Limitation | | Field Strength Limitation at 3m Measurement Dist | |
|-----------------|---------------------------|------|--|-------------------------|
| | (uV/m) | Dist | (uV/m) | (dBuV/m) |
| 0.009 – 0.490 | 2400 / F(KHz) | 300m | 10000 * 2400/F(KHz) | 20log 2400/F(KHz) + 80 |
| 0.490 – 1.705 | 24000 / F(KHz) | 30m | 100 * 24000/F(KHz) | 20log 24000/F(KHz) + 40 |
| 1.705 – 30.00 | 30 | 30m | 100* 30 | 20log 30 + 40 |
| 30.0 – 88.0 | 100 | 3m | 100 | 20log 100 |
| 88.0 – 216.0 | 150 | 3m | 150 | 20log 150 |
| 216.0 – 960.0 | 200 | 3m | 200 | 20log 200 |
| Above 960.0 | 500 | 3m | 500 | 20log 500 |

Limit: $2400/125=19.2\mu\text{V/m}@300\text{m}$

Distance Correction Factor= $40\log(\text{test distance}/\text{specific distance})$

4.5. EUT Configuration on Measurement

The equipment is installed on Radiated Emission Measurement to meet the commission requirements and operating regulations in a manner which tends to maximize its emission characteristics in normal application.

4.6. Operating Condition of EUT

4.6.1. Setup the EUT and simulator as shown as Section 4.2.

4.6.2. Turn on the power of all equipment.

4.6.3. Let the EUT work in test mode and measure it.

4.7. Test Procedure

The EUT and its simulators are placed on a turntable, which is 0.8 meter high above ground. The turntable can rotate 360 degrees to determine the position of the maximum emission level. EUT is set 3.0 meters away from the receiving antenna, which is mounted on an antenna tower. The antenna can be moved up and down between 1.0 meter and 4 meters to find out the maximum emission level. Broadband antenna (calibrated bilog antenna) is used as receiving antenna. Both horizontal and vertical polarizations of the antenna are set on measurement. In order to find the maximum emission levels, all of the interface cables must be manipulated according to ANSI C63.10:2013 on radiated emission measurement.

From 9kHz to 30MHz at distance 3m The EUT was rotated a full revolution in order to obtain the maximum value of the electric field intensity.

From 30MHz to 1000MHz at distance 3m The measuring antenna height varied between 1 and 4m and EUT was rotated a full revolution in order to obtain the maximum value of the electric field intensity. The measurements were performed for both vertical and horizontal antenna polarization.

The final measurement will be performed with an EMI Receiver set to Quasi Peak detector for the frequency bands 9kHz to 90kHz and 110 to 490 kHz where an average detector will be used according to Section 15.209(d)(2).

The final level, expressed in dBuV/m, is arrived at by taking the reading from the EMI receiver (Level dBuV) and adding the antenna correction factor and cable loss factor (Factor dB) to it. This result then has to be compared with the relevant FCC limit. The resolution bandwidth during the measurement is as follows:

9kHz – 150kHz: ResBW:200Hz

150kHz – 30MHz: ResBW:9kHz

The bandwidth of the EMI test receiver (R&S ESCS30) is set at 120kHz from 30MHz to 1000MHz.

4.8. Radiated Emission Noise Measurement Result

PASS.

From 9 kHz to 30MHz

| Frequency (MHz) | Quasi Peak (dB μ V/m) | Azimuth | Polarity (H/V) | Factors (dB μ V/m) | Limit (dB μ V/m) | Margin (dB) |
|-----------------|---------------------------|---------|----------------|------------------------|----------------------|-------------|
| 0.125 | 72.58 | 147 | H | -56.36 | 105.7 | -33.12 |
| 2.21 | 38.74 | 34 | H | -54.15 | 69.5 | -30.76 |
| 2.59 | 39.25 | 210 | H | -53.01 | 69.5 | -30.25 |
| 0.125 | 74.44 | 220 | V | -56.36 | 105.7 | -31.26 |
| 2.66 | 43.51 | 320 | V | -51.27 | 69.5 | -25.99 |
| 3.56 | 34.77 | 54 | V | -51.25 | 69.5 | -34.73 |

Part 15 Section 15.31(f)(2) (9kHz-30MHz)

Limit at 3m=Limit at 300m-40*log(300(m)/3(m))

Limit at 3m=Limit at 30m-40*log(30(m)/3(m))



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Job No.: JPYS #1

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

Temp.(C)/Hum.(%) 25 C / 55 %

EUT: 98215 Hornady RAPiD Night Guard

Mode: TX 125kHz

Model: 98215

Manufacturer: Hornady

Polarization: Vertical

Power Source: AC 120V/60Hz

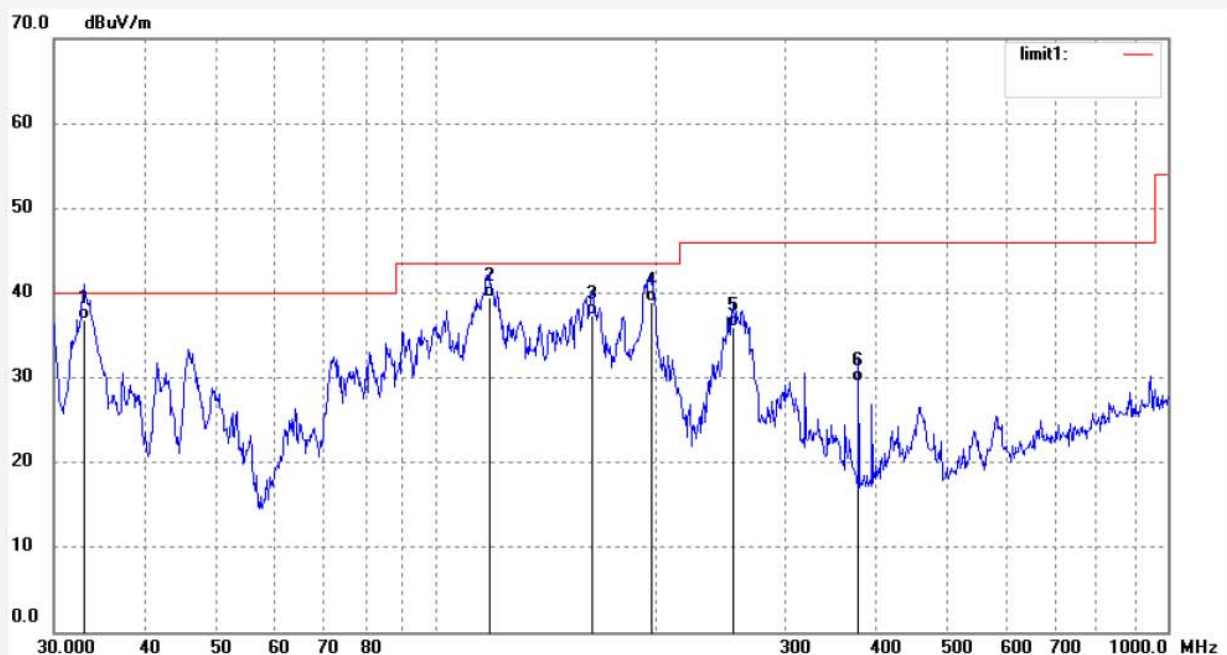
Date: 19/11/18/

Time: 9/55/06

Engineer Signature:

Distance: 3m

Note: Report NO.:ATE20191657



| No. | Freq. (MHz) | Reading (dBuV/m) | Factor (dB) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector | Height (cm) | Degree (deg.) | Remark |
|-----|----------------|---------------------|----------------|--------------------|-------------------|----------------|----------|----------------|------------------|--------|
| 1 | 32.9853 | 57.75 | -20.95 | 36.80 | 40.00 | -3.20 | QP | 100 | 102 | |
| 2 | 118.0957 | 66.80 | -27.40 | 39.40 | 43.50 | -4.10 | QP | 100 | 136 | |
| 3 | 163.1623 | 64.13 | -26.73 | 37.40 | 43.50 | -6.10 | QP | 100 | 165 | |
| 4 | 197.2514 | 63.51 | -24.51 | 39.00 | 43.50 | -4.50 | QP | 100 | 198 | |
| 5 | 254.9253 | 59.35 | -23.35 | 36.00 | 46.00 | -10.00 | QP | 100 | 215 | |
| 6 | 377.8481 | 48.16 | -18.66 | 29.50 | 46.00 | -16.50 | QP | 100 | 296 | |

Job No.: JPYS #2

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

Temp.(C)/Hum.(%) 25 C / 55 %

EUT: 98215 Hornady RAPiD Night Guard

Mode: TX 125kHz

Model: 98215

Manufacturer: Hornady

Polarization: Horizontal

Power Source: AC 120V/60Hz

Date: 19/11/18/

Time: 9/55/51

Engineer Signature:

Distance: 3m

Note: Report NO.:ATE20191657



| No. | Freq. (MHz) | Reading (dBuV/m) | Factor (dB) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector | Height (cm) | Degree (deg.) | Remark |
|-----|-------------|------------------|-------------|-----------------|----------------|-------------|----------|-------------|---------------|--------|
| 1 | 32.8697 | 48.21 | -20.91 | 27.30 | 40.00 | -12.70 | QP | 200 | 106 | |
| 2 | 102.6115 | 65.89 | -28.09 | 37.80 | 43.50 | -5.70 | QP | 200 | 153 | |
| 3 | 116.4475 | 67.48 | -27.38 | 40.10 | 43.50 | -3.40 | QP | 200 | 196 | |
| 4 | 163.1622 | 67.03 | -26.73 | 40.30 | 43.50 | -3.20 | QP | 200 | 210 | |
| 5 | 195.8701 | 64.89 | -24.59 | 40.30 | 43.50 | -3.20 | QP | 200 | 263 | |
| 6 | 261.2730 | 65.56 | -22.96 | 42.60 | 46.00 | -3.40 | QP | 200 | 301 | |

5. ANTENNA REQUIREMENT

5.1.The Requirement

According to Section 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

5.2.Antenna Construction

Device is equipped with permanent attached antenna, which isn't displaced by other antenna. The Antenna gain of EUT is 1dBi. Therefore, the equipment complies with the antenna requirement of Section 15.203.



Antenna