

APPLICATION FOR VERIFICATION
On Behalf of
Hornady Manufacturing Company
HOM115 Hornady H Concept Safe Box

Model No.: 98141

FCC ID: 2AFJZ-98141

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

Prepared by : Shenzhen Accurate Technology Co., Ltd.
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Report No. : ATE20172031
Date of Test : Oct. 09, 2017--Oct. 11, 2017
Date of Report : Oct. 12, 2017

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Test Report Declaration

Applicant& address : Hornady Manufacturing Company
3625 Old Potash Hwy Grand Island, United States, 68803
Manufacturer& address : Zaifengda (Shenzhen) Industries Co., Ltd.
BLDS 1-5, FUDIGANG 2nd Industrial Zone, Pingdi Longgang
Shenzhen, China
Product : HOM115 Hornady H Concept Safe Box
Model No. : 98141
Trade name : Hornady

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 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 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 Accurate Technology Co., Ltd.

Date of Test : Oct. 09, 2017--Oct. 11, 2017
Date of Report : Oct. 12, 2017

Prepared by : 
(Tim [unclear] 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 wireless transmitter which declared TX channel frequency is 125kHz.

		HOM115 Hornady H Concept Safe Box
Frequency	:	125kHz
Number of Channels	:	1
Modulation Type	:	ASK
Type of Antenna	:	Integral Antenna
Max antenna gain	:	5dBi
Power Supply	:	DC 12V(Powered by adapter)
Adapter information	:	Model: RK-1201000 Input: AC 100-240V 50/60Hz 0.6A Output: 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

Conducted emission expanded uncertainty	:	U=2.23dB, k=2
Power disturbance expanded uncertainty	:	U=2.92dB, k=2
Radiated emission expanded uncertainty (9kHz-30MHz)	:	U=3.08dB, k=2
Radiated emission expanded uncertainty (30MHz-1000MHz)	:	U=4.42dB, k=2
Radiated emission expanded uncertainty (Above 1GHz)	:	U=4.06dB, k=2

3. MEASURING DEVICE AND TEST EQUIPMENT

3.1. For Radiated Emission Measurement

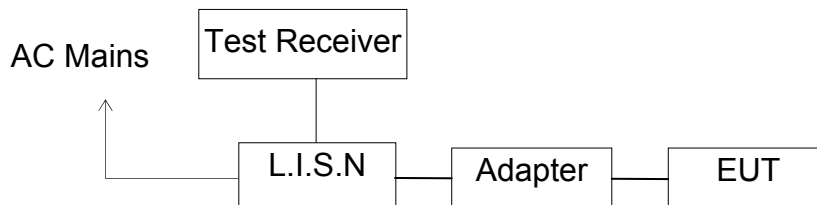
Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Spectrum Analyzer	Agilent	E7405A	MY45115511	Jan.07, 2017	1 Year
2.	Spectrum Analyzer	Rohde&Schwarz	FSV40	101495	Jan.07, 2017	1 Year
3.	Test Receiver	Rohde&Schwarz	ESCS30	100307	Jan.07, 2017	1 Year
4.	Test Receiver	Rohde& Schwarz	ESPI	100396/003	Jan.07, 2017	1 Year
5.	Test Receiver	Rohde& Schwarz	ESPI	101526/003	Jan.07, 2017	1 Year
6.	Test Receiver	Rohde& Schwarz	ESR	101817	Jan.07, 2017	1 Year
7.	Bilog Antenna	Schwarzbeck	VULB9163	9163-194	Jan.13, 2017	1 Year
8.	Bilog Antenna	Schwarzbeck	VULB9163	9163-323	Jan.13, 2017	1 Year
9.	Log.-Per.Antenna	Schwarzbeck	VUSLP 9111B	9111B-074	Jan.13, 2017	1 Year
10.	Biconical Broad Band Antenna	Schwarzbeck	VHBB 9124+BBA 9106	9124-617	Jan.13, 2017	1 Year
11.	Loop Antenna	Schwarzbeck	FMZB1516	1516131	Jan.13, 2017	1 Year
12.	Horn Antenna	Schwarzbeck	BBHA9120D	9120D-655	Jan.13, 2017	1 Year
13.	Horn Antenna	Schwarzbeck	BBHA9120D	9120D-1067	Jan.13, 2017	1 Year
14.	Vertical Active Monopole Antenna	Schwarzbeck	VAMP 9243	9243-370	Jan.13, 2017	1 Year
15.	RF Switching Unit+PreAMP	Compliance Direction	RSU-M2	38322	Jan.07, 2017	1 Year
16.	Pre-Amplifier	Agilent	8447D	294A10619	Jan.07, 2017	1 Year
17.	Pre-Amplifier	Rohde&Schwarz	CBLU11835 40-01	3791	Jan.07, 2017	1 Year
18.	50 Coaxial Switch	Anritsu Corp	MP59B	6200237248	Jan.07, 2017	1 Year
19.	50 Coaxial Switch	Anritsu Corp	MP59B	6200506474	Jan.07, 2017	1 Year
20.	RF Coaxial Cable	Schwarzbeck	N-5m	No.1	Jan.07, 2017	1 Year
21.	RF Coaxial Cable	Schwarzbeck	N-1m	No.6	Jan.07, 2017	1 Year
22.	RF Coaxial Cable	Schwarzbeck	N-1m	No.7	Jan.07, 2017	1 Year
23.	RF Coaxial Cable	SUHNER	N-3m	No.8	Jan.07, 2017	1 Year
24.	RF Coaxial Cable	RESENBERGER	N-3.5m	No.9	Jan.07, 2017	1 Year
25.	RF Coaxial Cable	SUHNER	N-6m	No.10	Jan.07, 2017	1 Year
26.	RF Coaxial Cable	RESENBERGER	N-12m	No.11	Jan.07, 2017	1 Year
27.	RF Coaxial Cable	RESENBERGER	N-0.5m	No.12	Jan.07, 2017	1 Year
28.	RF Coaxial Cable	SUHNER	N-2m	No.13	Jan.07, 2017	1 Year
29.	RF Coaxial Cable	SUHNER	N-0.5m	No.15	Jan.07, 2017	1 Year
30.	RF Coaxial Cable	SUHNER	N-2m	No.16	Jan.07, 2017	1 Year
31.	RF Coaxial Cable	RESENBERGER	N-6m	No.17	Jan.07, 2017	1 Year

3.2.The Equipment Used to Measure Conducted Disturbance (L.I.S.N)

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Test Receiver	Rohde & Schwarz	ESCS30	100307	Jan.07, 2017	1 Year
2.	Test Receiver	Rohde & Schwarz	ESPI3	100396/003	Jan.07, 2017	1 Year
3.	Test Receiver	Rohde & Schwarz	ESPI3	101526/003	Jan.07, 2017	1 Year
4.	L.I.S.N.	Schwarzbeck	NLSK8126	8126431	Jan.07, 2017	1 Year
5.	L.I.S.N.	Rohde & Schwarz	ESH3-Z5	100305	Jan.07, 2017	1 Year
6.	L.I.S.N.	Rohde & Schwarz	ESH3-Z5	100310	Jan.07, 2017	1 Year
7.	L.I.S.N.	Rohde & Schwarz	ESH3-Z6	100132	Jan.07, 2017	1 Year
8.	Pulse Limiter	Rohde & Schwarz	ESH3-Z2	100305	Jan.07, 2017	1 Year
9.	Pulse Limiter	Rohde & Schwarz	ESH3-Z2	100312	Jan.07, 2017	1 Year
10.	Pulse Limiter	Rohde & Schwarz	ESH3-Z2	100815	Jan.07, 2017	1 Year
11.	50Ω Coaxial Switch	Anritsu Corp	MP59B	6200283936	Jan.07, 2017	1 Year
12.	50Ω Coaxial Switch	Anritsu Corp	MP59B	6200283933	Jan.07, 2017	1 Year
13.	50Ω Coaxial Switch	Anritsu Corp	MP59B	6200506474	Jan.07, 2017	1 Year
14.	VOLTAGE PROBE	Schwarzbeck	TK9416	N/A	Jan.07, 2017	1 Year
15.	RF CURRENT PROBE	Rohde & Schwarz	EZ-17	100048	Jan.07, 2017	1 Year
16.	8-Wire Impedance Stabilisation Network	Schwarzbeck	CAT5 8158	8158-0035	Jan.07, 2017	1 Year
17.	RF Coaxial Cable	SUHNER	N-2m	No.2	Jan.07, 2017	1 Year
18.	RF Coaxial Cable	SUHNER	N-2m	No.3	Jan.07, 2017	1 Year
19.	RF Coaxial Cable	SUHNER	N-2m	No.14	Jan.07, 2017	1 Year

4. POWER LINE CONDUCTED MEASUREMENT

4.1. Block Diagram of Test Setup



(EUT: HOM115 Hornady H Concept Safe Box)

4.2. Power Line Conducted Emission Measurement Limits

Frequency (MHz)	Limit dB(μV)	
	Quasi-peak Level	Average Level
0.15 - 0.50	66.0 – 56.0 *	56.0 – 46.0 *
0.50 - 5.00	56.0	46.0
5.00 - 30.00	60.0	50.0

NOTE1: The lower limit shall apply at the transition frequencies.
NOTE2: The limit decreases linearly with the logarithm of the frequency in the range 0.15MHz to 0.50MHz.

4.3. Configuration of EUT on Measurement

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.

4.4. Operating Condition of EUT

- 4.4.1. Setup the EUT and simulator as shown as Section 4.1.
- 4.4.2. Turn on the power of all equipment.
- 4.4.3. Let the EUT work in test mode and measure it.

4.5.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.

4.6.DATA SAMPLE

Frequency (MHz)	Quasi Peak Level (dB μ V)	Average Level (dB μ V)	Transducer value (dB)	QuasiPeak Result (dB μ V)	Average Result (dB μ V)	Quasi Peak Limit (dB μ V)	Average Limit (dB μ V)	QuasiPeak Margin (dB)	Average Margin (dB)	Remark (Pass/Fail)
X.XX	29.4	18.3	11.1	40.5	29.4	56.0	56.0	15.5	16.6	Pass

Transducer value = Insertion loss of LISN + Cable Loss

Result = Quasi-peak Level/Average Level + Transducer value

Limit = Limit stated in standard

Calculation Formula:

Margin = Limit – Reading level value – Transducer value

4.7.Measurement Uncertainty

All measurements involve certain levels of uncertainties, especially in field of EMC. The factors contributing to uncertainties are spectrum analyzer, cable loss, and LISN.

The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of any conducted emissions measurement at ATC is +2.23dB.

4.8.Power Line Conducted Emission Measurement Results

PASS.

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

Test mode : 125kHz TX								
Test Voltage: 120V/60Hz								
MEASUREMENT RESULT: "ZD101102_fin"								
2017-10-11 9:56								
Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE	
0.244000	31.30	10.9	62	30.7	QP	N	GND	
0.774000	34.30	11.1	56	21.7	QP	N	GND	
1.508000	33.70	11.2	56	22.3	QP	N	GND	
2.125000	29.70	11.3	56	26.3	QP	N	GND	
11.500000	44.40	11.6	60	15.6	QP	N	GND	
12.740000	30.80	11.6	60	29.2	QP	N	GND	
MEASUREMENT RESULT: "ZD101102_fin2"								
2017-10-11 9:56								
Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE	
0.358000	24.90	10.9	49	23.9	AV	N	GND	
0.778000	30.80	11.1	46	15.2	AV	N	GND	
1.800000	30.00	11.2	46	16.0	AV	N	GND	
2.970000	19.40	11.3	46	26.6	AV	N	GND	
11.500000	21.80	11.6	50	28.2	AV	N	GND	
16.575000	17.00	11.7	50	33.0	AV	N	GND	
MEASUREMENT RESULT: "ZD101101_fin"								
2017-10-11 9:51								
Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE	
0.360000	35.90	10.9	59	22.8	QP	L1	GND	
0.414000	40.30	11.0	58	17.3	QP	L1	GND	
1.362000	36.30	11.2	56	19.7	QP	L1	GND	
4.950000	34.50	11.4	56	21.5	QP	L1	GND	
10.880000	43.50	11.6	60	16.5	QP	L1	GND	
15.585000	34.20	11.7	60	25.8	QP	L1	GND	
MEASUREMENT RESULT: "ZD101101_fin2"								
2017-10-11 9:51								
Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE	
0.342000	29.90	10.9	49	19.3	AV	L1	GND	
0.416000	33.90	11.0	48	13.6	AV	L1	GND	
1.364000	29.50	11.2	46	16.5	AV	L1	GND	
4.950000	22.40	11.4	46	23.6	AV	L1	GND	
11.870000	22.00	11.6	50	28.0	AV	L1	GND	
13.730000	20.60	11.6	50	29.4	AV	L1	GND	

Test mode : 125kHz TX
Test Voltage: 240V/60Hz

MEASUREMENT RESULT: "ZD101103_fin"

2017-10-11 10:13

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.356000	31.00	10.9	59	27.8	QP	N	GND
0.846000	31.10	11.1	56	24.9	QP	N	GND
1.800000	35.10	11.2	56	20.9	QP	N	GND
2.350000	29.90	11.3	56	26.1	QP	N	GND
11.630000	39.70	11.6	60	20.3	QP	N	GND
17.195000	27.50	11.7	60	32.5	QP	N	GND

MEASUREMENT RESULT: "ZD101103_fin2"

2017-10-11 10:13

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.360000	25.30	10.9	49	23.4	AV	N	GND
0.774000	30.20	11.1	46	15.8	AV	N	GND
1.800000	30.00	11.2	46	16.0	AV	N	GND
2.350000	23.20	11.3	46	22.8	AV	N	GND
10.270000	19.10	11.6	50	30.9	AV	N	GND
13.355000	16.50	11.6	50	33.5	AV	N	GND

MEASUREMENT RESULT: "ZD101104_fin"

2017-10-11 10:16

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.354000	39.20	10.9	59	19.7	QP	L1	GND
0.412000	41.10	11.0	58	16.5	QP	L1	GND
1.790000	34.70	11.2	56	21.3	QP	L1	GND
2.970000	36.20	11.3	56	19.8	QP	L1	GND
11.255000	45.60	11.6	60	14.4	QP	L1	GND
12.500000	36.00	11.6	60	24.0	QP	L1	GND

MEASUREMENT RESULT: "ZD101104_fin2"

2017-10-11 10:16

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.352000	31.10	10.9	49	17.8	AV	L1	GND
0.492000	35.30	11.0	46	10.8	AV	L1	GND
1.980000	28.20	11.3	46	17.8	AV	L1	GND
2.970000	24.90	11.3	46	21.1	AV	L1	GND
11.255000	27.50	11.6	50	22.5	AV	L1	GND
12.500000	20.80	11.6	50	29.2	AV	L1	GND

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

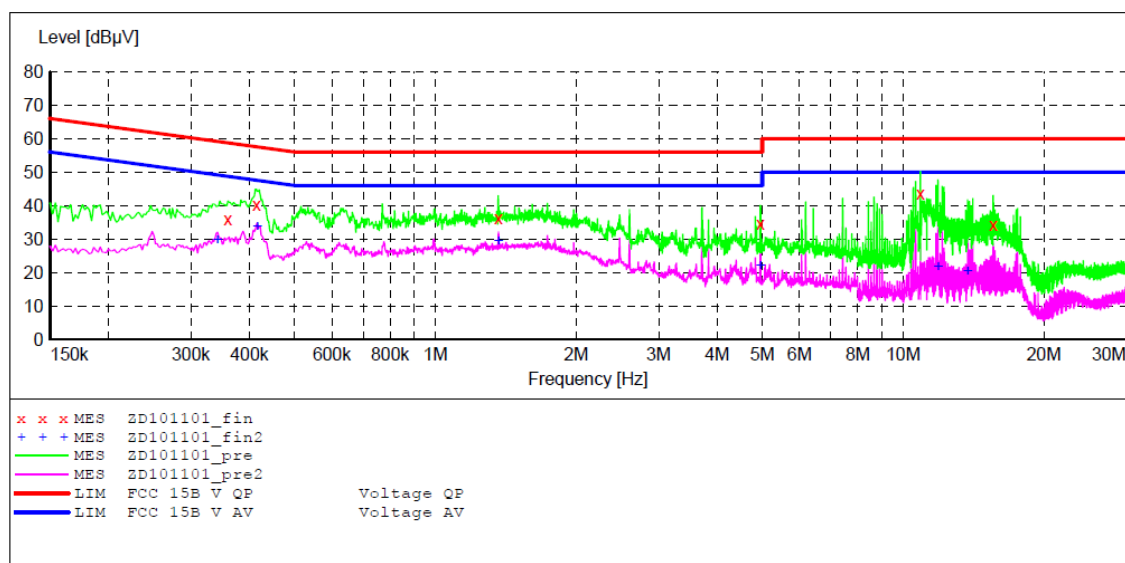
ACCURATE TECHNOLOGY CO., LTD

CONDUCTED EMISSION STANDARD FCC PART 15B

EUT: HOM115 Hornady H Concept Safe Box M/N:98141
 Manufacturer: Zaifengda
 Operating Condition: 125kHz TX
 Test Site: 1#Shielding Room
 Operator: DING
 Test Specification: L 120V/60Hz
 Comment: Report NO.:ATE20172031
 Start of Test: 2017-10-11 / 9:49:27

SCAN TABLE: "V 150K-30MHz fin"

Short Description: SUB STD VTERM2 1.70
 Start Stop Step Detector Meas. IF Transducer
 Frequency Frequency Width Time Bandw.
 150.0 kHz 30.0 MHz 4.5 kHz QuasiPeak 1.0 s 9 kHz NSLK8126 2008
 Average



MEASUREMENT RESULT: "ZD101101_fin"

2017-10-11 9:51

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.360000	35.90	10.9	59	22.8	QP	L1	GND
0.414000	40.30	11.0	58	17.3	QP	L1	GND
1.362000	36.30	11.2	56	19.7	QP	L1	GND
4.950000	34.50	11.4	56	21.5	QP	L1	GND
10.880000	43.50	11.6	60	16.5	QP	L1	GND
15.585000	34.20	11.7	60	25.8	QP	L1	GND

MEASUREMENT RESULT: "ZD101101_fin2"

2017-10-11 9:51

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.342000	29.90	10.9	49	19.3	AV	L1	GND
0.416000	33.90	11.0	48	13.6	AV	L1	GND
1.364000	29.50	11.2	46	16.5	AV	L1	GND
4.950000	22.40	11.4	46	23.6	AV	L1	GND
11.870000	22.00	11.6	50	28.0	AV	L1	GND
13.730000	20.60	11.6	50	29.4	AV	L1	GND

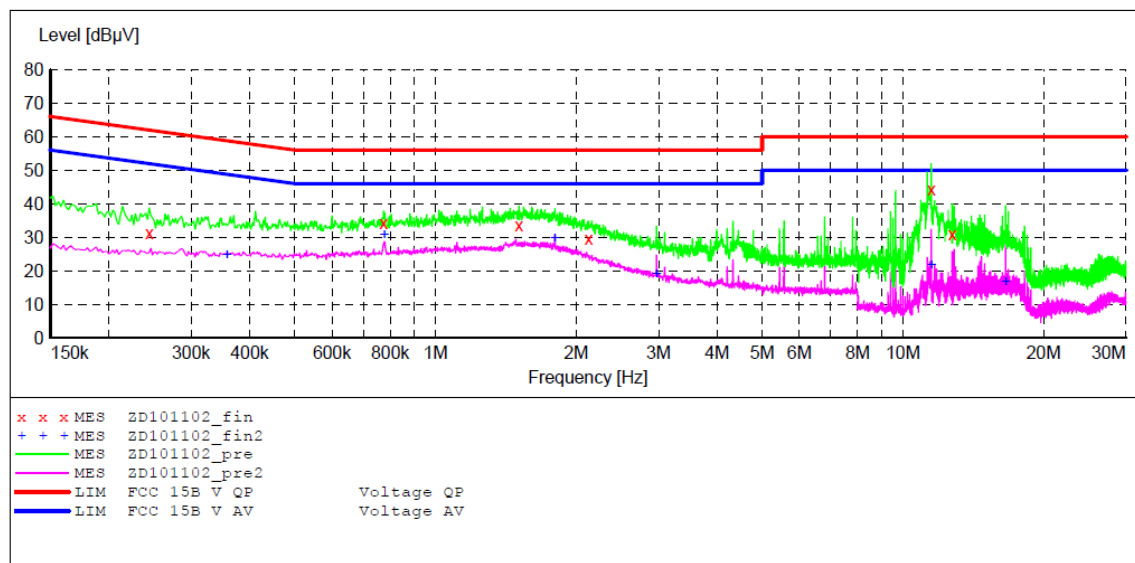
ACCURATE TECHNOLOGY CO.,LTD

CONDUCTED EMISSION STANDARD FCC PART 15B

EUT: HOM115 Hornady H Concept Safe Box M/N:98141
 Manufacturer: Zaifengda
 Operating Condition: 125kHz TX
 Test Site: 1#Shielding Room
 Operator: DING
 Test Specification: N 120V/60Hz
 Comment: Report NO.:ATE20172031
 Start of Test: 2017-10-11 / 9:54:16

SCAN TABLE: "V 150K-30MHz fin"

Short Description: SUB STD VTERM2 1.70
 Start Stop Step Detector Meas. IF Transducer
 Frequency Frequency Width Time Bandw.
 150.0 kHz 30.0 MHz 4.5 kHz QuasiPeak 1.0 s 9 kHz NSLK8126 2008
 Average



MEASUREMENT RESULT: "ZD101102_fin"

2017-10-11 9:56

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.244000	31.30	10.9	62	30.7	QP	N	GND
0.774000	34.30	11.1	56	21.7	QP	N	GND
1.508000	33.70	11.2	56	22.3	QP	N	GND
2.125000	29.70	11.3	56	26.3	QP	N	GND
11.500000	44.40	11.6	60	15.6	QP	N	GND
12.740000	30.80	11.6	60	29.2	QP	N	GND

MEASUREMENT RESULT: "ZD101102_fin2"

2017-10-11 9:56

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.358000	24.90	10.9	49	23.9	AV	N	GND
0.778000	30.80	11.1	46	15.2	AV	N	GND
1.800000	30.00	11.2	46	16.0	AV	N	GND
2.970000	19.40	11.3	46	26.6	AV	N	GND
11.500000	21.80	11.6	50	28.2	AV	N	GND
16.575000	17.00	11.7	50	33.0	AV	N	GND

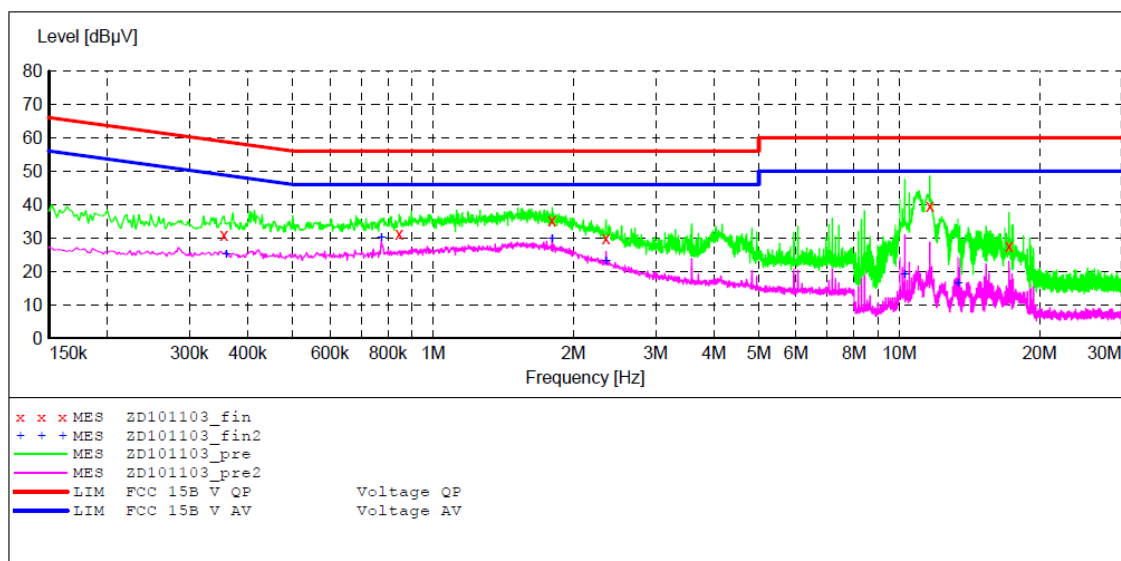
ACCURATE TECHNOLOGY CO., LTD

CONDUCTED EMISSION STANDARD FCC PART 15B

EUT: HOM115 Hornady H Concept Safe Box M/N:98141
 Manufacturer: Zaifengda
 Operating Condition: 125kHz TX
 Test Site: 1#Shielding Room
 Operator: DING
 Test Specification: N 240V/60Hz
 Comment: Report NO.:ATE20172031
 Start of Test: 2017-10-11 / 10:09:57

SCAN TABLE: "V 150K-30MHz fin"

Short Description: SUB STD VTERM2 1.70
 Start Stop Step Detector Meas. IF Transducer
 Frequency Frequency Width Time Bandw.
 150.0 kHz 30.0 MHz 4.5 kHz QuasiPeak 1.0 s 9 kHz NSLK8126 2008
 Average



MEASUREMENT RESULT: "ZD101103_fin"

2017-10-11 10:13

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.356000	31.00	10.9	59	27.8	QP	N	GND
0.846000	31.10	11.1	56	24.9	QP	N	GND
1.800000	35.10	11.2	56	20.9	QP	N	GND
2.350000	29.90	11.3	56	26.1	QP	N	GND
11.630000	39.70	11.6	60	20.3	QP	N	GND
17.195000	27.50	11.7	60	32.5	QP	N	GND

MEASUREMENT RESULT: "ZD101103_fin2"

2017-10-11 10:13

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.360000	25.30	10.9	49	23.4	AV	N	GND
0.774000	30.20	11.1	46	15.8	AV	N	GND
1.800000	30.00	11.2	46	16.0	AV	N	GND
2.350000	23.20	11.3	46	22.8	AV	N	GND
10.270000	19.10	11.6	50	30.9	AV	N	GND
13.355000	16.50	11.6	50	33.5	AV	N	GND

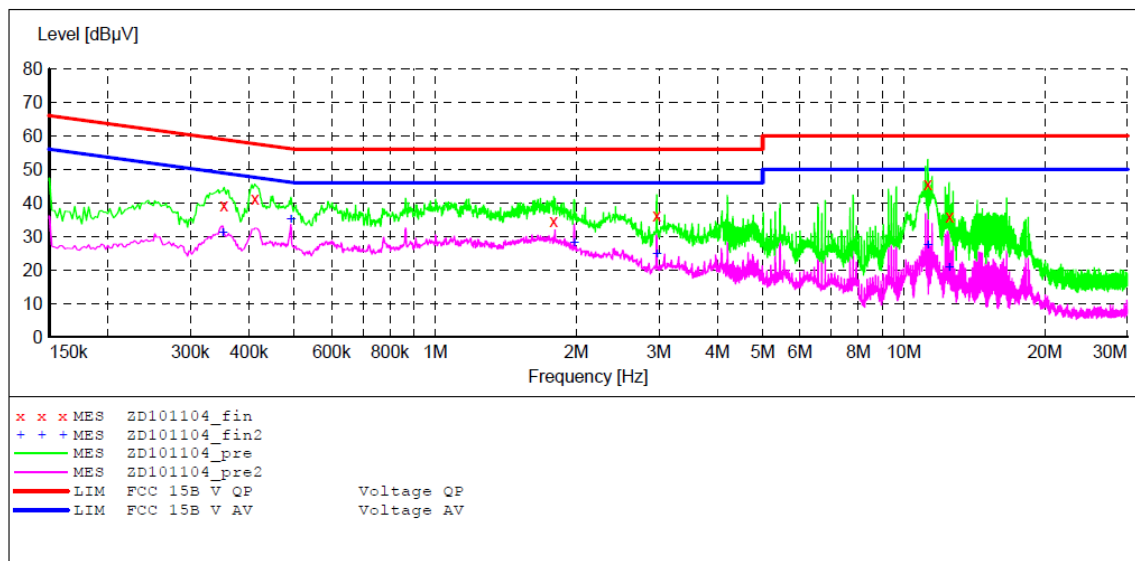
ACCURATE TECHNOLOGY CO., LTD

CONDUCTED EMISSION STANDARD FCC PART 15B

EUT: HOM115 Hornady H Concept Safe Box M/N:98141
 Manufacturer: Zaifengda
 Operating Condition: 125kHz TX
 Test Site: 1#Shielding Room
 Operator: DING
 Test Specification: L 240V/60Hz
 Comment: Report NO.:ATE20172031
 Start of Test: 2017-10-11 / 10:14:47

SCAN TABLE: "V 150K-30MHz fin"

Short Description: SUB STD VTERM2 1.70
 Start Stop Step Detector Meas. IF Transducer
 Frequency Frequency Width Time Bandw.
 150.0 kHz 30.0 MHz 4.5 kHz QuasiPeak 1.0 s 9 kHz NSLK8126 2008
 Average



MEASUREMENT RESULT: "ZD101104_fin"

2017-10-11 10:16

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.354000	39.20	10.9	59	19.7	QP	L1	GND
0.412000	41.10	11.0	58	16.5	QP	L1	GND
1.790000	34.70	11.2	56	21.3	QP	L1	GND
2.970000	36.20	11.3	56	19.8	QP	L1	GND
11.255000	45.60	11.6	60	14.4	QP	L1	GND
12.500000	36.00	11.6	60	24.0	QP	L1	GND

MEASUREMENT RESULT: "ZD101104_fin2"

2017-10-11 10:16

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.352000	31.10	10.9	49	17.8	AV	L1	GND
0.492000	35.30	11.0	46	10.8	AV	L1	GND
1.980000	28.20	11.3	46	17.8	AV	L1	GND
2.970000	24.90	11.3	46	21.1	AV	L1	GND
11.255000	27.50	11.6	50	22.5	AV	L1	GND
12.500000	20.80	11.6	50	29.2	AV	L1	GND

5. RADIATED EMISSION MEASUREMENT

5.1. Block Diagram of Test

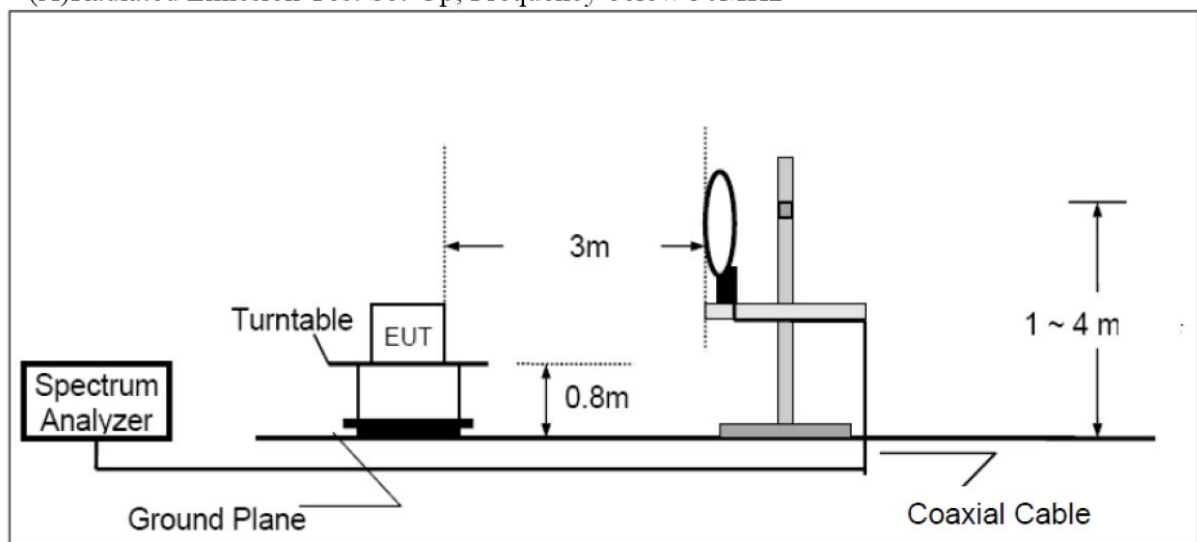
5.1.1. Block diagram of connection between the EUT and simulators



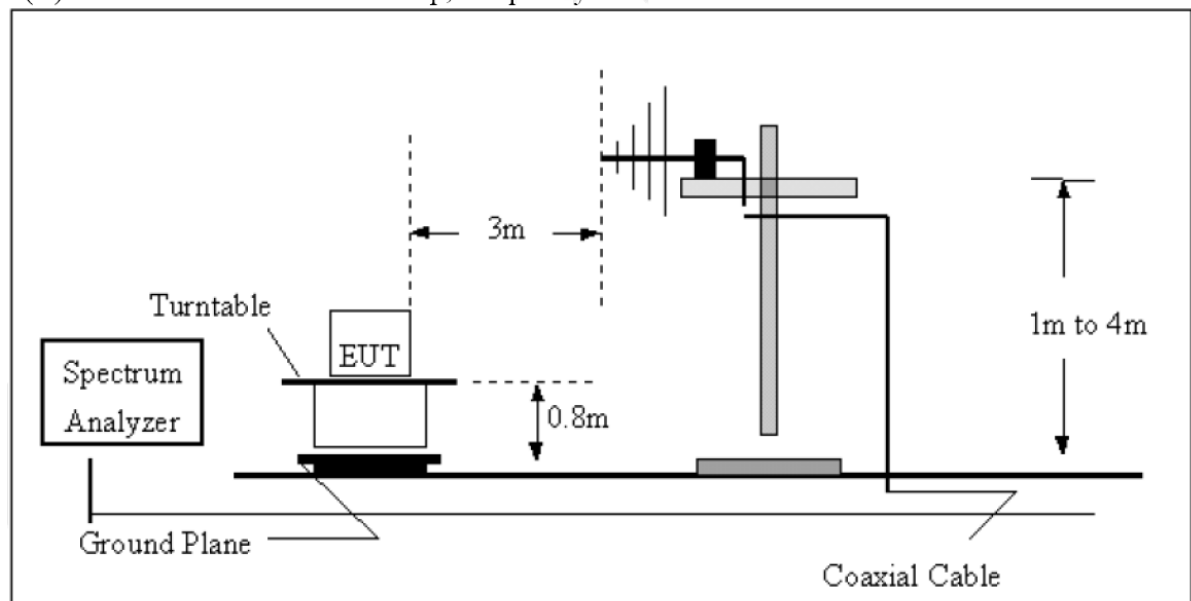
(EUT: HOM115 Hornady H Concept Safe Box)

5.1.2. Block diagram of test setup (In chamber)

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



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



5.2.Radiated Emission Limit (Class B)

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

5.3.Manufacturer

The following equipments are 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.

5.3.1.HOM115 Hornady H Concept Safe Box (EUT)

Model Number: 98141

Manufacturer: Zaifengda (Shenzhen) Industries Co., Ltd.

5.4.Operating Condition of EUT

5.4.1.Setup the EUT and simulator as shown as Section 5.1.

5.4.2.Turn on the power of all equipment.

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

5.5.DATA SAMPLE

Frequency (MHz)	Reading (dB μV)	Factor (dB/m)	Result (dB $\mu\text{V/m}$)	Limit (dB $\mu\text{V/m}$)	Margin (dB)	Remark
X.XX	49.83	-22.03	27.80	43.50	-15.70	QP

Frequency(MHz) = Emission frequency in MHz

Reading(dB μV) = Uncorrected Analyzer/Receiver reading

Factor (dB/m)= Antenna factor + Cable Loss – Amplifier gain

Result(dB $\mu\text{V/m}$) = Reading + Factor

Limit (dB $\mu\text{V/m}$)= Limit stated in standard

Margin (dB) = Result(dB $\mu\text{V/m}$) - Limit (dB $\mu\text{V/m}$)

Calculation Formula:

$$\begin{aligned}\text{Margin(dB)} &= \text{Result (dB}\mu\text{V/m)} - \text{Limit(dB}\mu\text{V/m)} \\ \text{Result(dB}\mu\text{V/m)} &= \text{Reading(dB}\mu\text{V)} + \text{Factor(dB/m)}\end{aligned}$$

The “Margin” column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of -7dB means the emission is 7dB below the limit.

5.1. 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.

5.2. Radiated Emission Noise Measurement Result

PASS.

From 9kHz to 30MHz

Frequency (MHz)	Quasi Peak (dB μ V/m)	Detector	Azimuth	Height (cm)	Limit @3m (dB μ V/m)	Margin (dB)
0.125	98.26	AV	153	136	105.7	-7.44
2.21	36.05	QP	352	169	69.5	-33.45
2.59	35.48	QP	205	225	69.5	-34.02
0.125	89.99	AV	185	158	105.7	-15.71
2.66	33.05	QP	352	169	69.5	-36.45
3.56	34.63	QP	15	151	69.5	-34.87

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

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

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

From 30MHz to 1000MHz



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Fax:+86-0755-26503396

Job No.: DING11 #1071

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

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

EUT: HOM115 Hornady H Concept Safe Box

Mode: TX 125kHz

Model: 98141

Manufacturer: Zaifengda

Polarization: Horizontal

Power Source: AC 120V/60Hz

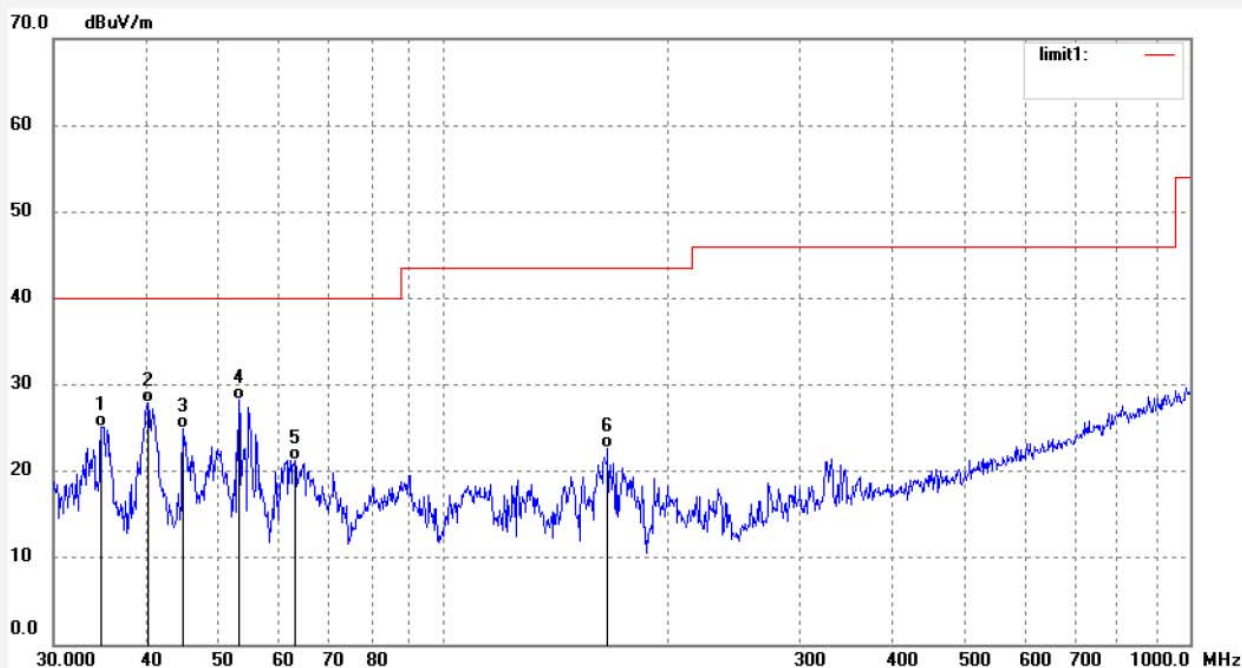
Date: 17/10/11/

Time: 15/51/41

Engineer Signature: DING

Distance: 3m

Note: Report NO.:ATE20172031



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	34.7705	41.05	-15.89	25.16	40.00	-14.84	QP	100	29	
2	40.1581	45.99	-18.13	27.86	40.00	-12.14	QP	100	203	
3	44.7793	43.90	-18.88	25.02	40.00	-14.98	QP	100	291	
4	53.1922	49.64	-21.32	28.32	40.00	-11.68	QP	100	304	
5	63.1857	43.09	-21.87	21.22	40.00	-18.78	QP	100	50	
6	166.0540	43.33	-20.72	22.61	43.50	-20.89	QP	100	129	



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Site: 1# Chamber

Tel:+86-0755-26503290

Fax:+86-0755-26503396

Job No.: DING11 #1072

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

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

EUT: HOM115 Hornady H Concept Safe Box

Mode: TX 125kHz

Model: 98141

Manufacturer: Zaifengda

Polarization: Vertical

Power Source: AC 120V/60Hz

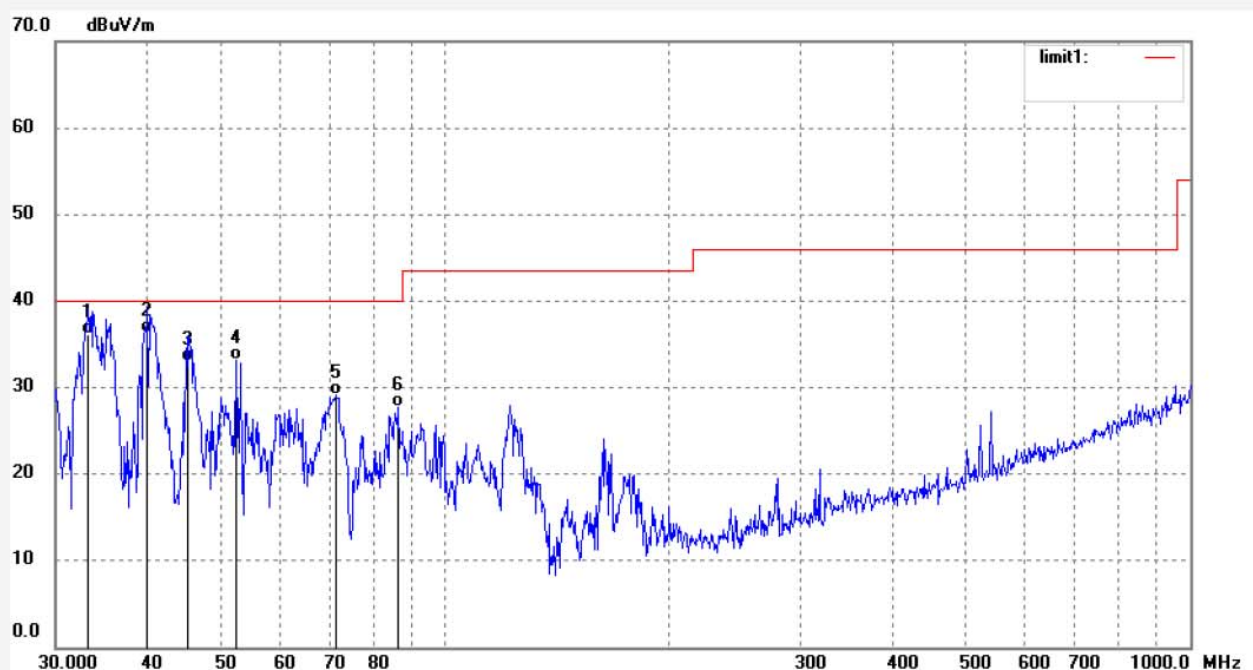
Date: 17/10/11/

Time: 15/53/05

Engineer Signature: DING

Distance: 3m

Note: Report NO.:ATE20172031



No.	Freq. (MHz)	Reading (dBUV/m)	Factor (dB)	Result (dBUV/m)	Limit (dBUV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	33.2180	51.60	-15.50	36.10	40.00	-3.90	QP	100	109	
2	39.8769	54.32	-18.04	36.28	40.00	-3.72	QP	100	218	
3	45.2538	52.06	-19.01	33.05	40.00	-6.95	QP	100	178	
4	52.4498	54.40	-21.20	33.20	40.00	-6.80	QP	100	35	
5	71.4539	51.36	-22.14	29.22	40.00	-10.78	QP	100	90	
6	86.6867	49.61	-21.95	27.66	40.00	-12.34	QP	100	321	

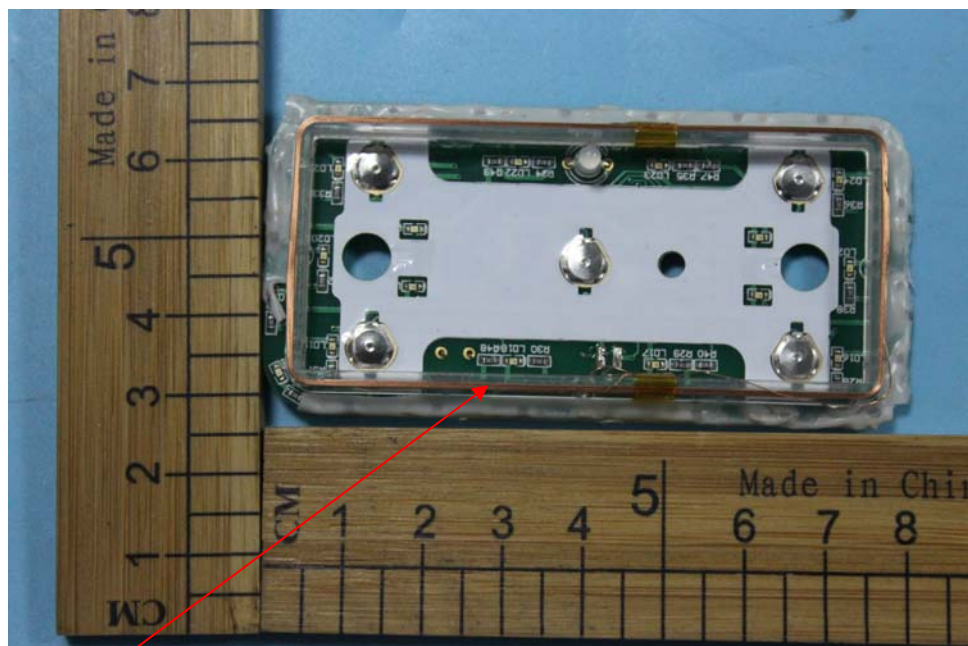
6. ANTENNA REQUIREMENT

6.1.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.

6.2.Antenna Construction

Device is equipped with permanent attached antenna, which isn't displaced by other antenna. The max Antenna gain of EUT is 5dBi. Therefore, the equipment complies with the antenna requirement of Section 15.203.



Antenna