FCC TEST REPORT

FCC ID: QOB-NOA0025

for

Product: photocell Dusk to Dawn Receiver

Model: NOA0025

Additional model: SPC1234AT/27

Brand: JASCO

Report No.: PTC23031505101E-FC01

Issued for

Jasco Products Company LLC

10 e memorial road Office oklahoma city, OK 73114

Issued by

Precise Testing & Certification Co., Ltd.

Building 1, No. 6, Tongxin Road, Dongcheng Street, Dongguan, Guangdong, China.

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1. TEST CERTIFICATION

Product:	photocell Dusk to Dawn Receiver
Model:	NOA0025
Additional model:	SPC1234AT/27
Applicant :	Jasco Products Company LLC
Address:	10 e memorial road Office oklahoma city, OK 73114
Manufacturer:	QUANGDONG VUHAO ELECTRONICS CO LTD
Address:	TOAN MY VILLAGE, VOI TOWN, LANG GIANG DISTRICT, BAC GIANG PROVINCE, VIET NAM
Test Date:	March 20, 2023 to March 31, 2023
Issued Date:	April 19, 2023
Test Voltage:	Input:AC120V/60Hz
Applicable Standards:	FCC Part 15, Subpart B Class B ANSI C63.4:2014

The above equipment has been tested by Precise Testing & Certification Co., Ltd. and found compliance with the requirements in the technical standards mentioned above. The test results presented in this report only relate to the product/system tested. The Other similar equipment will not necessarily produce the same results due to production tolerance and measurement uncertainties.

Test Engineer:

Simon Pu/ Engineer

Technical Manager:

Ronnie Liu/ Manager

2. TEST SUMMARY

EMISSION			
Standard	**Item**	**Result**	**Remarks**
FCC 47 CFR Part 15 Class B	Conducted Emission (Main Port)	PASS	Complied with limit
	Radiated Emission	PASS	Complied with limit

Note: 1) The test result verdict is decided by the limit of test standard.

2) The information of measurement uncertainty is available upon the customer's request.

3. TEST SITE

3.1. TEST FACILITY

Precise Testing & Certification Co., Ltd.

Address:Building 1, No. 6, Tongxin Road, Dongcheng Street, Dongguan, Guangdong, China

☆ CNAS Registration No.: CNAS L5772

☆ FCC Registration No.: 790290

☆ A2LA Certificate No.: 4408.01

☆ IC Registration No.: 12191A

☆ FCC Designation Number: CN1219

3.2. MEASUREMENT UNCERTAINTY

Parameter	Uncertainty
Temperature	±1° C
Humidity	±5%
DC and Low Frequency Voltages	±3%
Conducted Emission(150KHz-30MHz)	±3.60dB
Radiated Emission(30MHz-1GHz)	±4.76dB
Radiated Emission (1GHz-18GHz)	±4.44dB

Note 1: This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

3.3. LIST OF TEST AND MEASUREMENT INSTRUMENTS

3.3.1. For conducted emission at the mains terminals test

Name of Equipment	Manufacturer	Model	Serial No.	Calibration Due
EMI Test Receiver	Rohde&Schwarz	ESCI	101417	Aug 21, 2023
Artificial Mains Network	Rohde&Schwarz	ENV216	102453	Aug 21, 2023
ISN	SCHWARZBECK	NTFM8131	00257	Aug 21, 2023
Test S/W	Tonscend	JS32-CE/4.0.0.3		

3.3.2. For radiated emission test (30MHz-1GHz)

Name of Equipment	Manufacturer	Model	Serial No.	Calibration Due
EMI Test Receiver	Rohde&Schwarz	ESCI	101417	Aug 21, 2023
Bilog Antenna	SCHWARZBECK	VULB 9160	9160-3355	Aug 21, 2023
Preamplifier (low frequency)	SCHWARZBECK	BBV 9475	9745-0013	Aug 21, 2023
Test S/W	Tonscend	JS32-RE/4.0.0.0		

3.3.3. For radiated emission test (1GHz above)

Name of Equipment	Manufacturer	Model	Serial No.	Calibration Due
EMI Test Receiver	Rohde&Schwarz	ESCI	101417	Aug 21, 2023
Spectrum Analyzer	Agilent	E4407B	MY45109572	Aug 21, 2023
Horn Antenna	SCHWARZBECK	9120D	9120D-1246	Aug 21, 2023
High NOISE AMPLIFIER	ZHINAN	ZN3380C	15002	Aug 21, 2023
Test S/W	Tonscend	JS32-RE/4.0.0.0		

4. EUT DESCRIPTION

Product	photocell Dusk to Dawn Receiver
Model	NOA0025, SPC1234AT/27
Supplied Voltage	INPUT: AC 120V/60Hz
Operation Frequency	433.92MHz
Antenna Gain	-10.53 dBi
Test sample No.	PTC23031505101E-1/2, PTC23031505101E-2/2

I/O PORT

I/O PORT TYPES	Q'TY	TESTED WITH
AC Port	1	☒
DC Port	1	☐

Models Difference
Different model names, the test model is NOA0025.

5. TEST METHODOLOGY

5.1. TEST MODE

The EUT was tested together with the thereinafter additional components, and a configuration, which produced the worst emission levels, was selected and recorded in this report.

The following test mode(s) were assessed.

Test Items		Test Mode
Emission	Conducted Emission	Working
	Radiated Emission	Working

5.2. EUT SYSTEM OPERATION

1. Set up EUT with the support equipment.
2. Make sure the EUT work normally during the test.

6. SETUP OF EQUIPMENT UNDER TEST

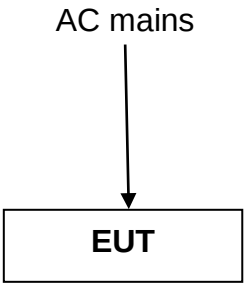
6.1. DESCRIPTION OF SUPPORT UNITS

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

No.	Equipment	Model	Serial No.	Trade Name
1.	N/A	N/A	N/A	N/A

Note: 1) All the equipment/cables were placed in the worst-case configuration to maximize the emission during the test.
2) Grounding was established in accordance with the manufacturer's requirements and conditions for the intended use.

6.2. CONFIGURATION OF SYSTEM UNDER TEST



(EUT: photocell Dusk to Dawn Receiver)

7. CONDUCTED EMISSION MEASUREMENT

7.1. LIMITS

FREQUENCY (MHz)	Class A		Class B	
	Quasi-peak dB(μV)	Average dB(μV)	Quasi-peak dB(μV)	Average dB(μV)
0.15 - 0.5	79	66	66-56	56-46
0.5 - 5.0	73	60	56	46
5.0 - 30.0	73	60	60	50

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

2) The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50 MHz.

3) All emanations from a class A/B digital device or system, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strengths specified above.

7.2. TEST PROCEDURES

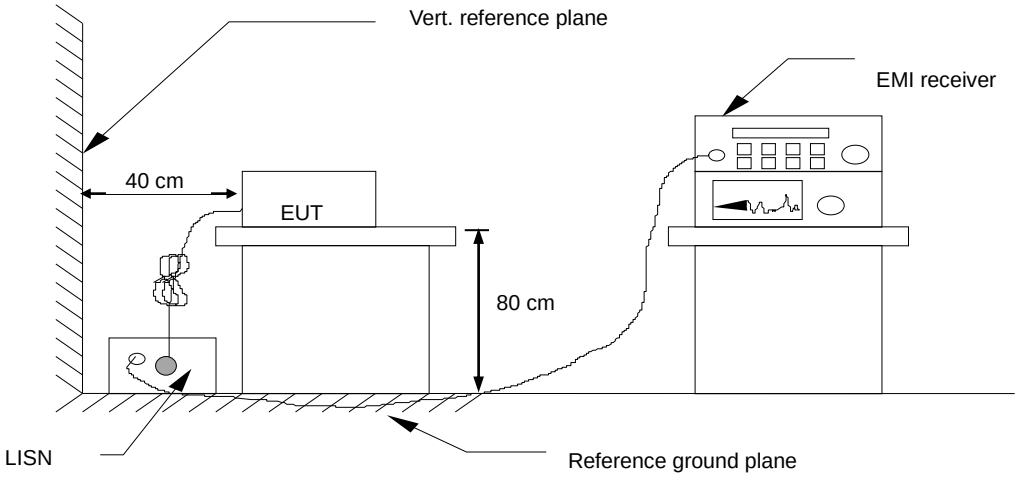
The EUT and Support equipment, if needed, was set up as per the test configuration to simulate typical usage per the user's manual. When the EUT is a tabletop system, a wooden table with a height of 0.8 meters is used and is placed on the ground plane. When the EUT is floor standing equipment, it is placed on the ground plane, which has a 3-12 mm non-conductive covering to insulate the EUT from the ground plane. The EUT should be 0.8 m apart from the AMN, where the mains cable supplied by the manufacturer is longer than 1 m, the excess should be folded at the centre into a bundle no longer than 0.4 m, Details please refer to test setup photography.

The Receiver scanned from 150 kHz to 30 MHz for emissions in each of the test modes.
During the above scans, the emissions were maximized by cable manipulation.

A scan was taken on both of the power lines, Line and neutral, recording at least the six highest emissions. Emission frequency and amplitude were recorded into a computer in which correction factors were used to calculate the emission level and compare reading to the applicable limit. The test data of the worst-case condition(s) was recorded.

Note: Test Software Name: e3, Software Version: 1.0.0.0.

7.3. TEST SETUP



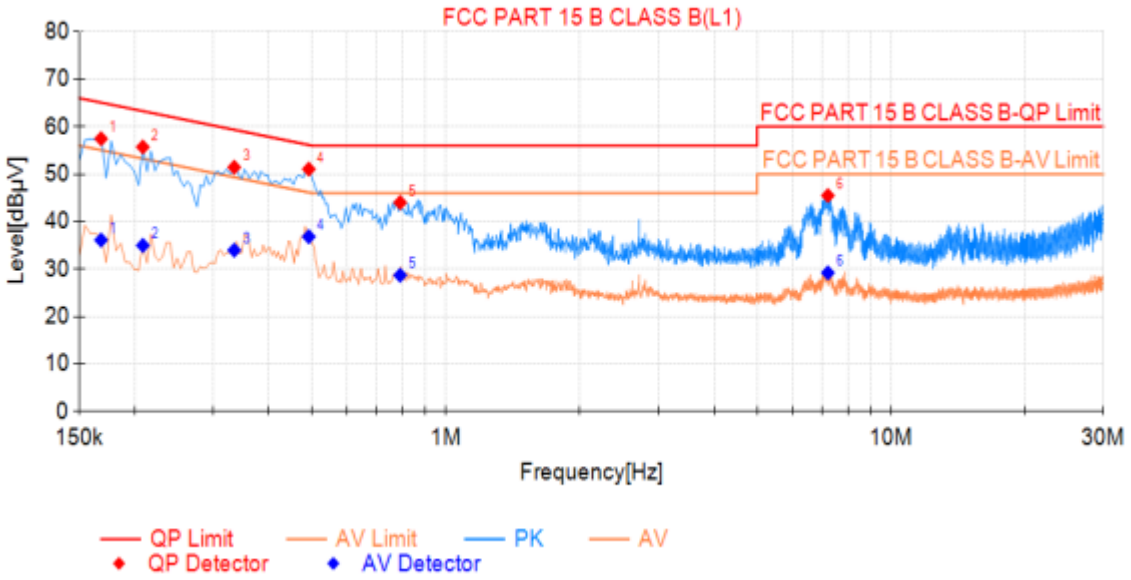
For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.

7.4. TEST RESULT

Product name	photocell Dusk to Dawn Receiver	Tested By	MING ZHI
Model	NOA0025	Detector Function	Peak / Quasi-peak/AV
Test Mode	Working	6 dB Bandwidth	9 kHz
Environmental Conditions	25.0℃, 60 % RH, 101.2 kPa	Test Result	Pass

Note:
L = Line Line, N = Neutral Line
Freq. = Emission frequency in MHz
Reading level (dBμV) = Receiver reading
Corr. Factor (dB) = attenuator + Cable loss
Level (dBμV) = Reading level (dBμV) + Corr. Factor (dB)
Limit (dBμV) = Limit stated in standard
Over Limit (dB) = Level (dBμV) – Limit (dBμV)
QP = Quasi-Peak
AV = Average

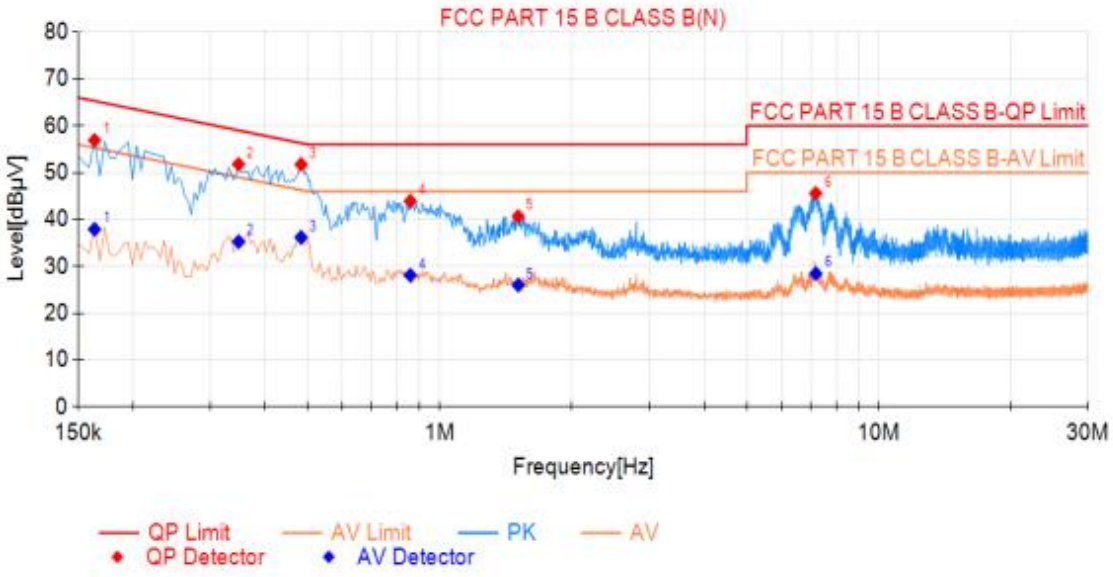
Please refer to the following diagram:
Line:



Final Data List								
NO.	Freq. [MHz]	QP Value [dBµV]	QP Limit [dBµV]	QP Margin [dB]	AV Value [dBµV]	AV Limit [dBµV]	AV Margin [dB]	Verdict
1	0.168	57.45	65.06	7.61	36.12	55.06	18.94	PASS
2	0.209	55.70	63.26	7.56	34.99	53.26	18.27	PASS
3	0.335	51.44	59.34	7.90	33.98	49.34	15.36	PASS
4	0.492	51.05	56.13	5.08	36.83	46.13	9.30	PASS
5	0.789	44.01	56.00	11.99	28.71	46.00	17.29	PASS
6	7.211	45.49	60.00	14.51	29.22	50.00	20.78	PASS

Note:QP Margin[dB]=QP Limit[dBµV]- QP Value[dBµV], AV Margin[dB]=AV Limit[dBµV]- AV Value[dBµV].

Neutral:



Final Data List								
NO.	Freq. [MHz]	QP Value [dBuV]	QP Limit [dBuV]	QP Margin [dB]	AV Value [dBuV]	AV Limit [dBuV]	AV Margin [dB]	Verdict
1	0.164	56.90	65.28	8.38	37.93	55.28	17.35	PASS
2	0.348	51.80	59.01	7.21	35.26	49.01	13.75	PASS
3	0.483	51.76	56.29	4.53	36.21	46.29	10.08	PASS
4	0.857	43.93	56.00	12.07	28.12	46.00	17.88	PASS
5	1.509	40.67	56.00	15.33	26.01	46.00	19.99	PASS
6	7.184	45.58	60.00	14.42	28.46	50.00	21.54	PASS

Note:QP Margin[dB]= QP Limit[dBµV]- QP Value[dBµV], AV Margin[dB]= AV Limit[dBµV]- AV Value[dBµV].

8. RADIATED EMISSION MEASUREMENT

8.1. LIMITS

Maximum permissible level of Radiated Emission measured at 3 meter distance.

FREQUENCY (MHz)	dBμV/m (At 3m)	
	Class A digital device	Class B digital device
30~88	49.00	40.00
88~216	53.50	43.50
216~960	56.40	46.00
960~1000	59.50	54.00

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

2) Emission level (dBμV/m) = 20 log Emission level (μV/m).

8.2. TEST PROCEDURE

The equipment was set up as per the test configuration to simulate typical usage per the user's manual. When the EUT is a tabletop system, a wooden turntable with a height of 0.8 meters is used which is placed on the ground plane. When the EUT is floor standing equipment, it is placed on the ground plane which has a 0.1 m non-conductive covering to insulate the EUT from the ground plane.

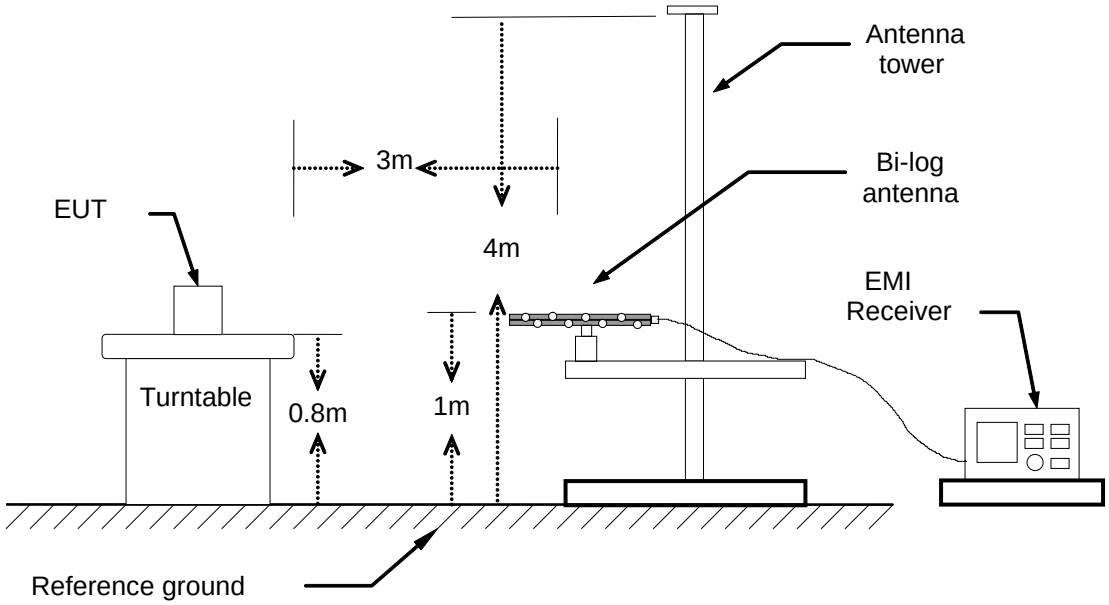
The antenna was placed at 3 meter away from the EUT. The antenna connected to the spectrum analyzer via a cable and at times a pre-amplifier would be used.

The analyzer / receiver quickly scanned from 30 MHz to 1000 MHz. The EUT test program was started. Emissions were scanned and measured rotating the EUT to 360 degrees and positioning the antenna 1 to 4 meters above the ground plane, in both the vertical and the horizontal polarization, to maximize the emission reading level.

During the above scans, the emissions were maximized by cable manipulation. Each modes is measured, recorded at least the six highest emissions. The emission frequency, amplitude, antenna position, polarization and turntable position were recorded into a computer in which correction factors were used to calculate the emission level and compare reading to the applicable limit and only Q.P. reading is presented.
The test data of the worst-case condition(s) was recorded.

Note: Test Software Name: e3, Software Version: 8.2.1.0.

8.3. TEST SETUP



For the actual test configuration, please refer to the related item – Photographs of the Test Configuration

8.4. TEST RESULT

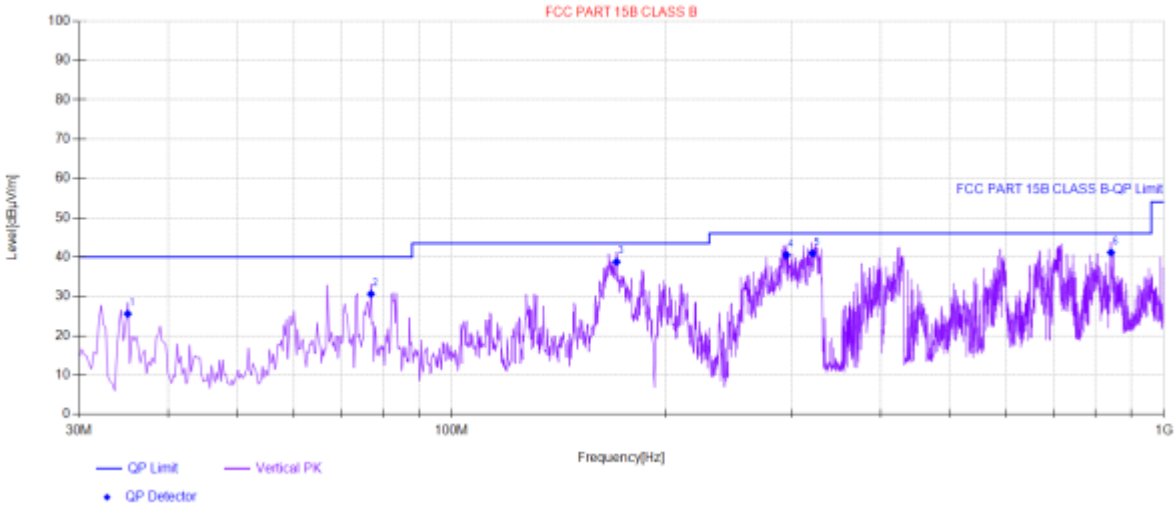
Product name	photocell Dusk to Dawn Receiver	Antenna Distance	3 m
Model	NOA0025	Antenna Pole	Vertical / Horizontal
Test Mode	Working	Detector Function	Peak / Quasi-peak
Environmental Conditions	25℃, 60 % RH, 101.3 kPa	6 dB Bandwidth	120 kHz
Tested by	Mi Jiawei	Test Result	Pass

Note:
Freq. = Emission frequency in MHz
Reading level (dBμV) = Receiver reading(dBμV)
Corr.Factor (dB/m)=Antenna factor(dB/m)+Cable loss(dB)-Preamp Factor(dB)
Measurement (dBμV/m)=Reading level(dBμV)+ Corr. Factor (dB/m)
Limit (dBμV/m) = Limit stated in standard
Over Limit (dB) = Measurement (dBμV/m) – Limit (dBμV/m)
QP = Quasi-Peak

The highest frequency of the internal sources of the EUT was less than 108 MHz, so the measurement was only made up to 1 GHz.

Please refer to the following diagram: (Radiated Emission test Result below 1G)

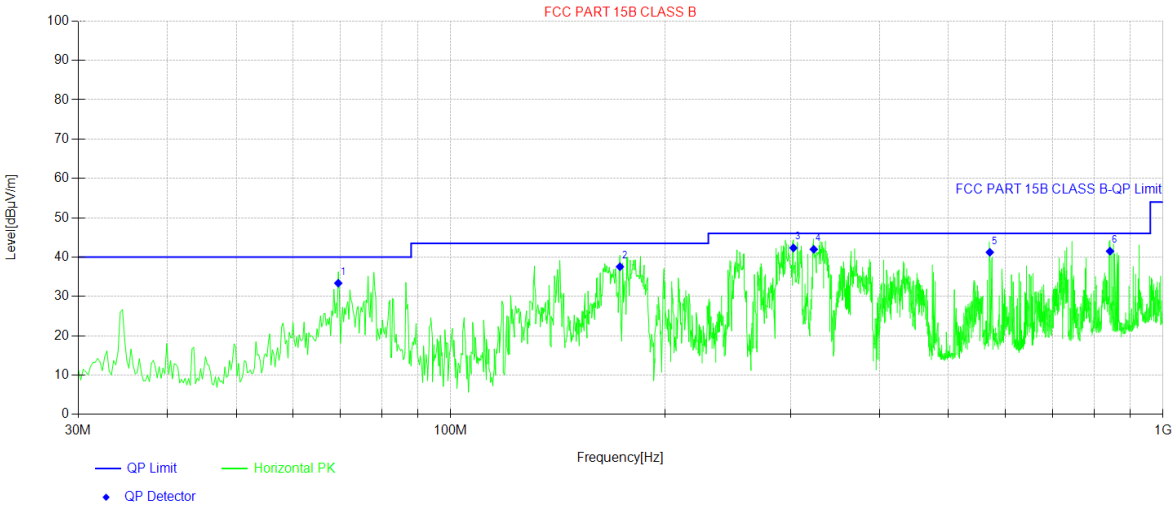
Vertical:



Final Data List[QP]								
NO.	Freq. [MHz]	QP Reading [dBµV/m]	Factor [dB]	QP Value [dBµV/m]	QP Limit [dBµV/m]	QP Margin [dB]	Polarity	Verdict
1	35.09	43.72	-18.16	25.56	40.00	14.44	Vertical	PASS
2	77.05	51.52	-20.90	30.62	40.00	9.38	Vertical	PASS
3	170.41	55.1	-16.33	38.77	43.50	4.73	Vertical	PASS
4	295.05	56.18	-15.66	40.52	46.00	5.48	Vertical	PASS
5	321.00	55.82	-14.83	40.99	46.00	5.01	Vertical	PASS
6	842.62	44.92	-3.76	41.16	46.00	4.84	Vertical	PASS

Note:QP Value[dBµV/m]=QP Reading[dBµV/m]+ Factor[dB],QP Margin[dB]= QP Limit[dBµV/m]-QP Value[dBµV/m].

Horizontal:

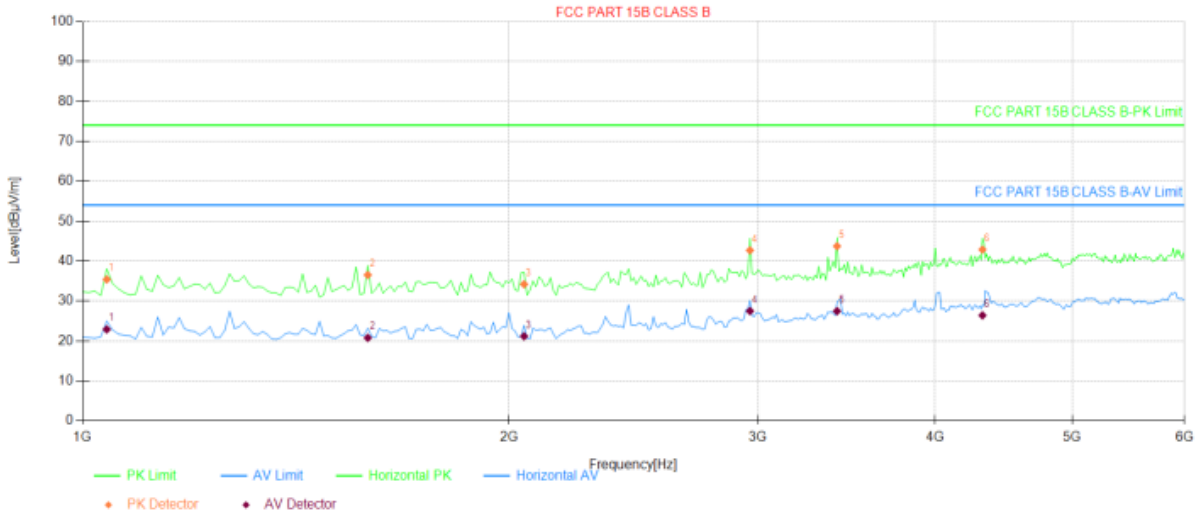


Final Data List[QP]								
NO.	Freq. [MHz]	QP Reading [dBµV/m]	Factor [dB]	QP Value [dBµV/m]	QP Limit [dBµV/m]	QP Margin [dB]	Polarity	Verdict
1	69.53	52.52	-19.15	33.37	40.00	6.63	Horizontal	PASS
2	172.83	54.07	-16.51	37.56	43.50	5.94	Horizontal	PASS
3	302.81	57.7	-15.37	42.33	46.00	3.67	Horizontal	PASS
4	323.43	56.73	-14.76	41.97	46.00	4.03	Horizontal	PASS
5	571.26	50.23	-9.00	41.23	46.00	4.77	Horizontal	PASS
6	842.62	45.27	-3.76	41.51	46.00	4.49	Horizontal	PASS

Note:QP Value[dBµV/m]=QP Reading[dBµV/m]+ Factor[dB],QP Margin[dB]= QP Limit[dBµV/m]-QP Value[dBµV/m].

Please refer to the following diagram: (Radiated Emission test Result Above 1G)

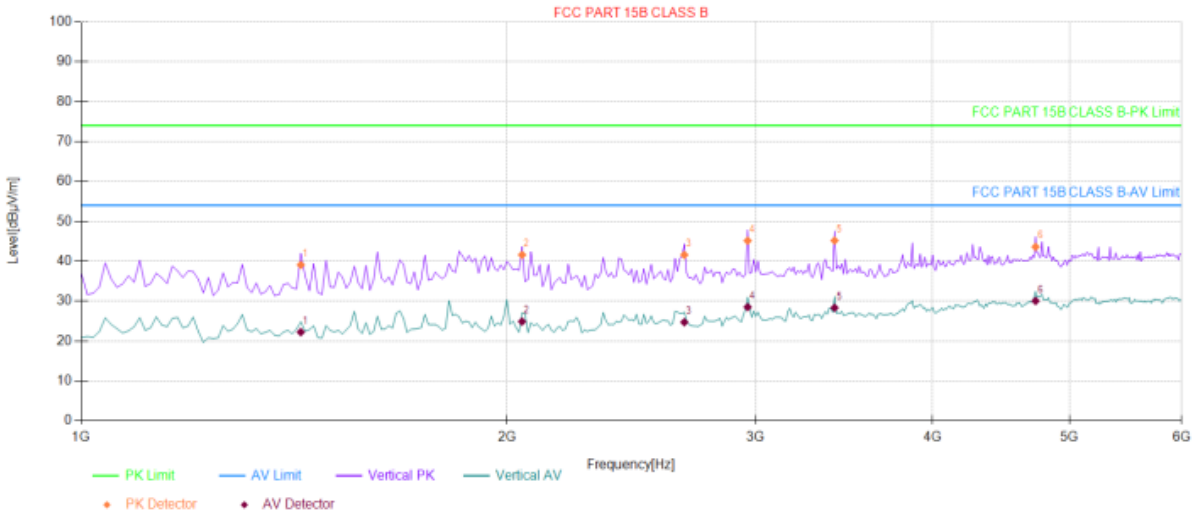
Horizontal:



NO.	Freq. [MHz]	Factor [dB]	PK Value [dBµV/m]	PK Limit [dBµV/m]	PK Margin [dB]	Detector	Height [cm]	Angle [°]	Polarity
1	1040.00	-2.86	35.40	74.00	38.60	Peak	100	325	Horizontal
2	1590.00	-3.30	36.53	74.00	37.47	Peak	100	336	Horizontal
3	2050.00	-2.87	34.20	74.00	39.80	Peak	100	303	Horizontal
4	2960.00	0.91	42.69	74.00	31.31	Peak	100	138	Horizontal
5	3410.00	1.77	43.72	74.00	30.28	Peak	100	357	Horizontal
6	4320.00	4.38	42.88	74.00	31.12	Peak	100	265	Horizontal

NO.	Freq. [MHz]	Factor [dB]	AV Value [dBµV/m]	AV Limit [dBµV/m]	AV Margin [dB]	Detector	Height [cm]	Angle [°]	Polarity
1	1040.00	-2.86	22.90	54.00	31.10	AV	100	325	Horizontal
2	1590.00	-3.30	20.79	54.00	33.21	AV	100	336	Horizontal
3	2050.00	-2.87	21.18	54.00	32.82	AV	100	303	Horizontal
4	2960.00	0.91	27.50	54.00	26.50	AV	100	138	Horizontal
5	3410.00	1.77	27.48	54.00	26.52	AV	100	357	Horizontal
6	4320.00	4.38	26.41	54.00	27.59	AV	100	265	Horizontal

Vertical:



NO.	Freq. [MHz]	Factor [dB]	PK Value [dBµV/m]	PK Limit [dBµV/m]	PK Margin [dB]	Detector	Height [cm]	Angle [°]	Polarity
1	1430.00	-2.83	39.08	74.00	34.92	Peak	100	174	Vertical
2	2050.00	-2.87	41.60	74.00	32.40	Peak	100	185	Vertical
3	2670.00	-0.01	41.59	74.00	32.41	Peak	100	24	Vertical
4	2960.00	0.91	45.13	74.00	28.87	Peak	100	146	Vertical
5	3410.00	1.77	45.18	74.00	28.82	Peak	100	64	Vertical
6	4730.00	5.58	43.60	74.00	30.40	Peak	100	51	Vertical

NO.	Freq. [MHz]	Factor [dB]	AV Value [dBµV/m]	AV Limit [dBµV/m]	AV Margin [dB]	Detector	Height [cm]	Angle [°]	Polarity
1	1430.00	-2.83	22.24	54.00	31.76	AV	100	174	Vertical
2	2050.00	-2.87	24.88	54.00	29.12	AV	100	185	Vertical
3	2670.00	-0.01	24.72	54.00	29.28	AV	100	24	Vertical
4	2960.00	0.91	28.51	54.00	25.49	AV	100	146	Vertical
5	3410.00	1.77	28.33	54.00	25.67	AV	100	64	Vertical
6	4730.00	5.58	30.05	54.00	23.95	AV	100	51	Vertical

Note: 1.PK Value[dBµV/m]=PK Reading[dBµV/m]+ Factor[dB],PK Margin[dB]= PK Limit[dBµV/m]-PK Value[dBµV/m].

2.AV Value[dBµV/m]=AV Reading[dBµV/m]+ Factor[dB],AV Margin[dB]= AV Limit[dBµV/m]-AV Value[dBµV/m].

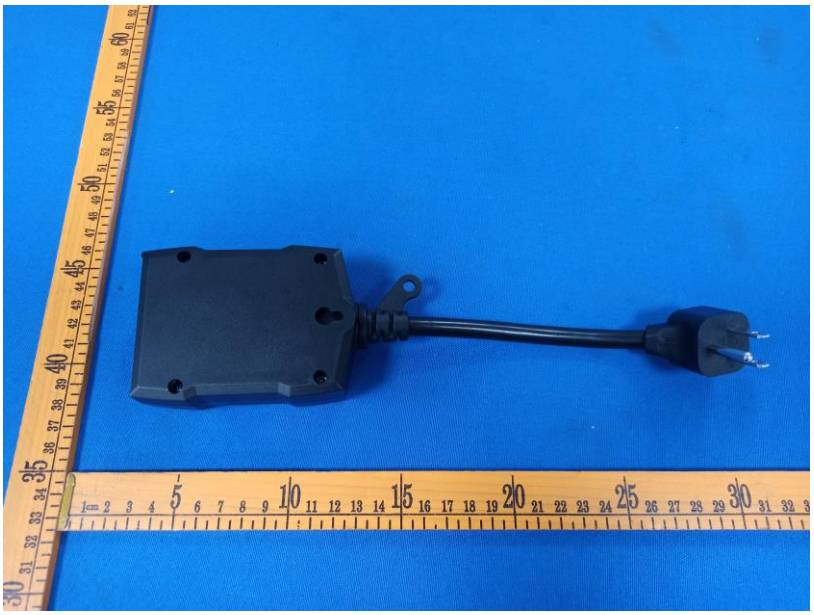
9. PHOTOGRAPHS OF THE TEST CONFIGURATION

CONDUCTED EMISSION TEST

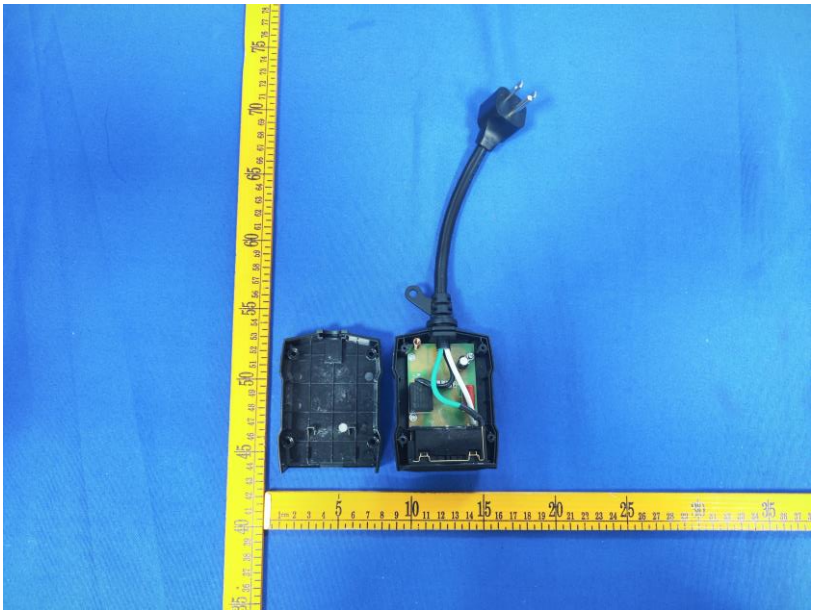
RADIATED EMISSION TEST

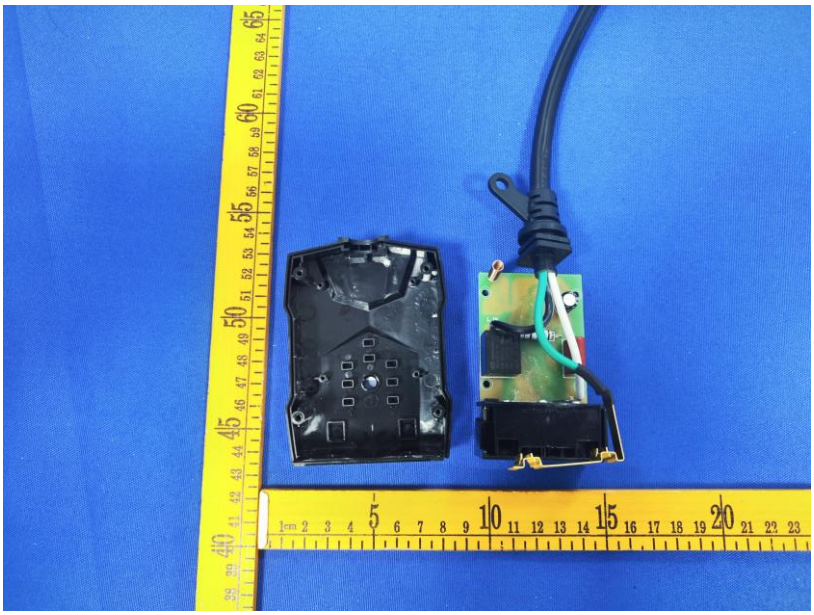
RADIATED EMISSION TEST

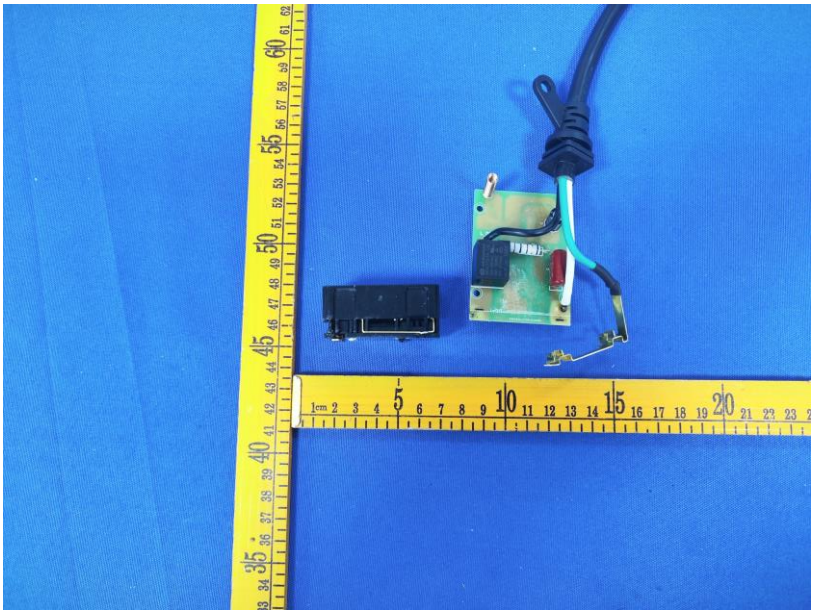
10. PHOTOGRAPHS OF EUT

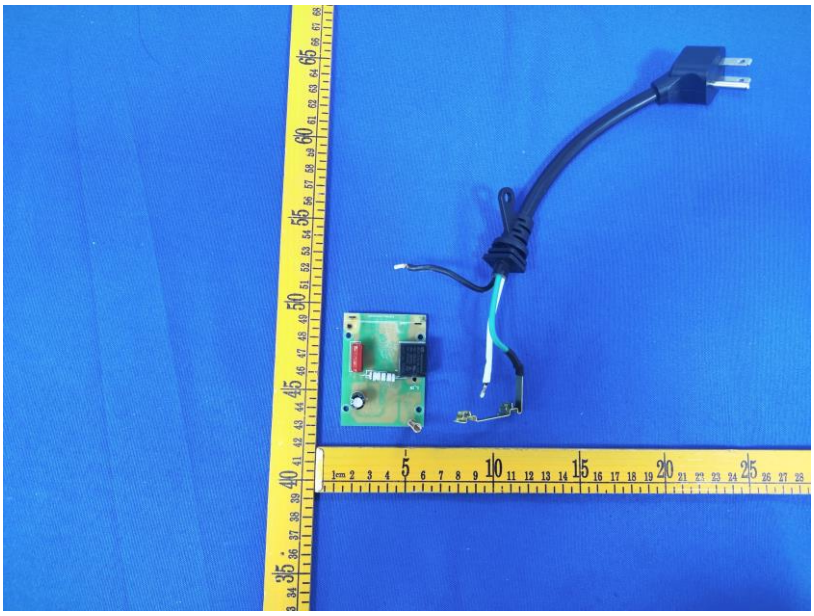


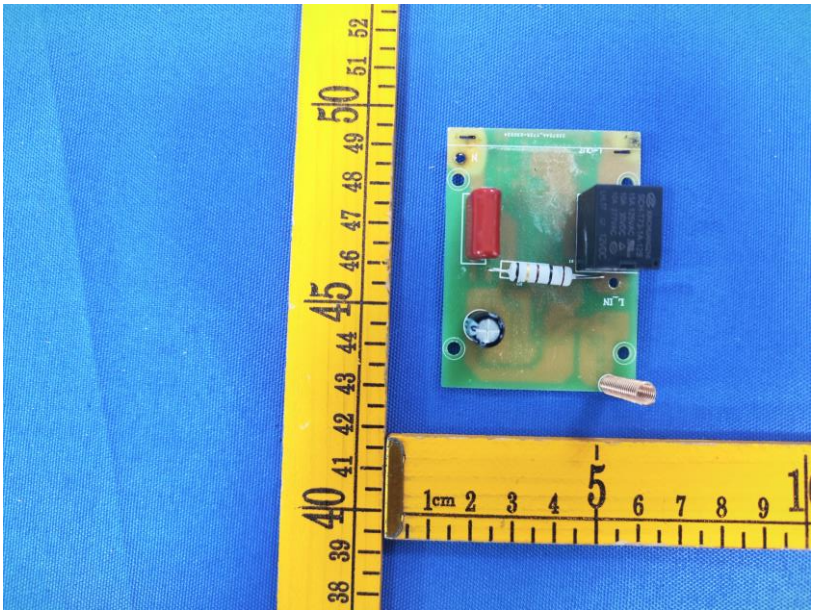

POWER
DUSK DAWN

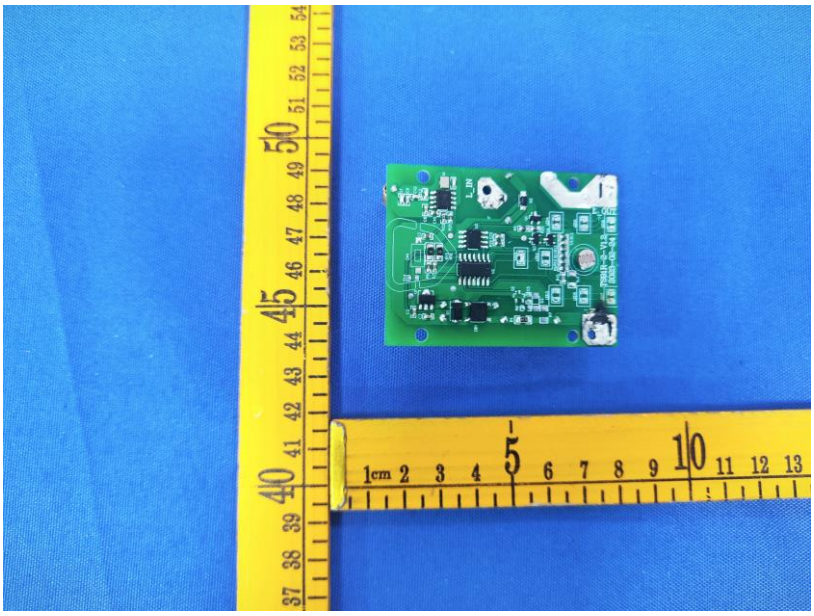











1cm 2 3 4 5 6 7 8 9 10 11 12 13

11. LABELING REQUIREMENTS

According to FCC Part 15 Section 15.19, a device subject to certification or Supplier's Declaration of Conformity shall be labelled as follows:

"This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation."

The device shall bear the statement in a conspicuous location on the device.

Devices subject to authorization under Supplier's Declaration of Conformity may be labeled with the FCC logo on a voluntary basis as a visual indication that the product complies with the applicable FCC requirements.
Note: The Commission concluded that if the labeling and regulatory information cannot be displayed to the intended recipient "in a manner that effects its purpose," the device is incapable of digitally displaying the required information as required by the E-LABEL Act. Electronic labeling information must be electronically displayed in a manner that is "clearly legible without the aid of magnification" Similarly, because electronic labels cannot be easily removed or replaced if they are to be effective, manufacturers that choose to display required labeling information electronically must ensure that the information may not be removed or modified by anyone other than the responsible party.

12. INFORMATION TO USER

If a product must be tested and authorized under Supplier's Declaration of Conformity, a compliance information statement shall be supplied with product at the time of marketing or importation, containing the following information:

(1) Identification of the product, e.g., name and model number;

(2) A compliance statement as applicable, e.g., for devices subject to part 15 of this chapter as specified in 15.19(a)(3) of this chapter, that the product complies with the rules; and

(3) The identification, by name, address and telephone number or Internet contact information, of the responsible party. The responsible party for Supplier's Declaration of Conformity must be located within the United States.

According to FCC Part 15 section 15.21, the users manual or instruction manual for an intentional or unintentional radiator shall caution the user that:

"Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment".

Also, refer to FCC Part 15 section 15.105, the instructions furnished the user shall include the following or similar statement, placed in a prominent location in the text of the manual:

"Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

-Reorient or relocate the receiving antenna.

-Increase the separation between the equipment and receiver.

-Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

-Consult the dealer or an experienced radio/TV technician for help."

********THE END REPORT********