TEST REPORT

FCC ID: 2BML9-HN-028S

Report No.	:	SSP24110210-1E
Applicant	:	ZhongShan Honey Electronic Co.,LTD
Product Name	:	SOLAR CRANK RADIO WITH FLASHLIGHT
Model Name	:	HN-028S
Test Standard	:	FCC Part 15 Subpart B
Date of Issue	:	2024-12-09

Shenzhen CCUT Quality Technology Co., Ltd.
1F, Building 35, Changxing Technology Industrial Park, Yutang Street, Guangming District, Shenzhen, Guangdong, China; (Tel.:+86-755-23406590 website: www.ccuttest.com)

Test Report Basic Information

Applicant.....:	ZhongShan Honey Electronic Co.,LTD
Address of Applicant.....:	2/F,Building D, No. 6, Qianjin 2nd Road, Tanzhou Town, Zhongshan City, China
Manufacturer.....:	ZhongShan Honey Electronic Co.,LTD
Address of Manufacturer.....:	2/F,Building D, No. 6, Qianjin 2nd Road, Tanzhou Town, Zhongshan City, China
Product Name.....:	SOLAR CRANK RADIO WITH FLASHLIGHT
Brand Name.....:	-
Main Model.....:	HN-028S
Series Models.....:	HN-016S
Test Standard.....:	FCC Part 15 Subpart B ANSI C63.4-2014
Date of Test .....:	2024-11-15 to 2024-12-09
Test Result.....:	PASS

Tested By .....: Coke Huang (Coke Huang)

Reviewed By.....: Lieber Ouyang (Lieber Ouyang)

Authorized Signatory.....: Lahm Peng (Lahm Peng)

Shenzhen CCUT Quality Technology Co., Ltd. APPROVED

Note : This test report is limited to the above client company and the product model only. It may not be duplicated without prior permitted by Shenzhen CCUT Quality Technology Co., Ltd.. All test data presented in this test report is only applicable to presented test sample.

CONTENTS

Revision History

Revision	Issue Date	Description	Revised By
V1.0	2024-12-09	Initial Release	Lahm Peng

1. General Information

1.1 Product Information

Product Name:	SOLAR CRANK RADIO WITH FLASHLIGHT
Trade Name:	-
Main Model:	HN-028S
Series Models:	HN-016S
Class of Equipment:	☐ Class A ☒ Class B
Highest Internal Frequency:	<108MHz
Rated Voltage:	DC 3.7V by battery, USB 5V Charging
Battery:	DC 3.7V, 2000mAh
Note 1: The test data is gathered from a production sample, provided by the manufacturer. Note 2: The appearance color, model name and appearance of the listed series models are different from those of the main model, but the circuit and electronic structure are the same, which shall be declared by the manufacturer.	

1.2 Test Setup Information

List of Test Modes		
Test Mode	Description	Remark
TM1	Charging & FM mode & LED	AC 120V/60Hz
TM2	Working	USB Output: 5V1A

List and Details of Auxiliary Cable			
Description	Length (cm)	Shielded/Unshielded	With/Without Ferrite
-	-	-	-
-	-	-	-
-	-	-	-

List and Details of Auxiliary Equipment			
Description	Manufacturer	Model	Serial Number
adapter	HUAWEI	HW-110600C02	JL28L4P2D06114
-	-	-	-
-	-	-	-

The equipment under test (EUT) was configured to measure its highest possible emission and immunity level. The test modes were adapted according to the operation manual for use.

1.3 Compliance Standards

Compliance Standards	
FCC Part 15 Subpart B	FEDERAL COMMUNICATIONS COMMISSION, RADIO FREQUENCY DEVICES, Unintentional Radiators
All measurements contained in this report were conducted with all above standards	
According to standards for test methodology	
FCC Part 15 Subpart B	FEDERAL COMMUNICATIONS COMMISSION, RADIO FREQUENCY DEVICES, Unintentional Radiators
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.
Maintenance of compliance is the responsibility of the manufacturer or applicant. Any modification of the product, which result is lowering the emission, should be checked to ensure compliance has been maintained.	

1.4 Test Facilities

Laboratory Name:	**Shenzhen CCUT Quality Technology Co., Ltd.** 1F, Building 35, Changxing Technology Industrial Park, Yutang Street, Guangming District, Shenzhen, Guangdong, China
CNAS Laboratory No.:	L18863
A2LA Certificate No.:	6893.01
FCC Registration No:	583813
ISED Registration No.:	CN0164
All measurement facilities used to collect the measurement data are located at 1F, Building 35, Changxing Technology Industrial Park, Yutang Street, Guangming District, Shenzhen, Guangdong, China.	

1.5 Measurement Uncertainty

Test Item	Conditions	Uncertainty
Conducted Disturbance	9kHz ~30MHz	±1.64 dB
Radiated Disturbance	30MHz ~ 1GHz	±3.32 dB
Radiated Disturbance	1GHz ~ 18GHz	±3.50 dB

1.6 List of Test and Measurement Instruments

Description	Manufacturer	Model	Serial Number	Cal. Date	Due. Date
Conducted Emissions					
AMN	ROHDE&SCHWARZ	ENV216	101097	2024-08-07	2025-08-06
EMI Test Receiver	ROHDE&SCHWARZ	ESPI	100242	2024-08-07	2025-08-06
EMI Test Software	FARA	EZ-EMC	EMEC-3A1+	N/A	N/A
Radiated Emissions					
EMI Test Receiver	ROHDE&SCHWARZ	ESPI	100154	2024-08-07	2025-08-06
Spectrum Analyzer	KEYSIGHT	N9020A	MY48030972	2024-08-07	2025-08-06
Amplifier	SCHWARZBECK	BBV 9743B	00251	2024-08-07	2025-08-06
Amplifier	HUABO	YXL0518-2.5-45	--	2024-08-07	2025-08-06
Loop Antenna	DAZE	ZN30900C	21104	2024-08-03	2025-08-02
Broadband Antenna	SCHWARZBECK	VULB 9168	01320	2024-08-03	2025-08-02
Horn Antenna	SCHWARZBECK	BBHA 9120D	02553	2024-08-03	2025-08-02
EMI Test Software	FARA	EZ-EMC	FA-03A2 RE+	N/A	N/A

2. Summary of Test Results

FCC Rule	Description of Test Item	Result
FCC Part 15.107	Conducted Emissions	Passed
FCC Part 15.109	Radiated Emissions	Passed
Passed: The EUT complies with the essential requirements in the standard Failed: The EUT does not comply with the essential requirements in the standard N/A: Not applicable		

3. Conducted Emissions

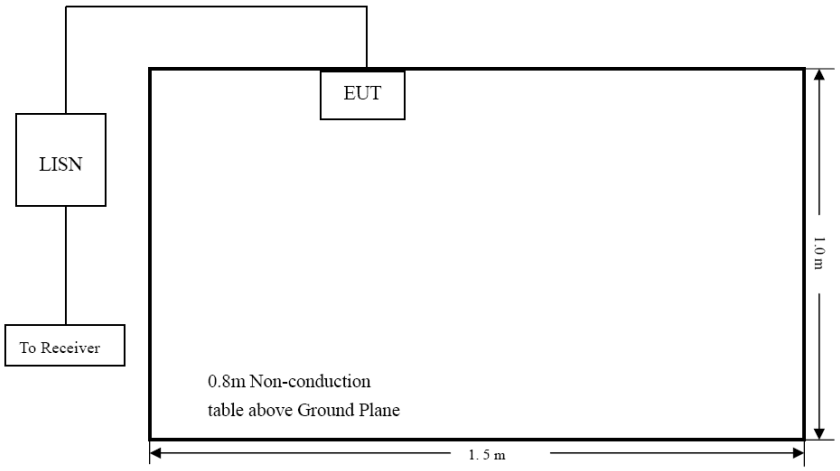
3.1 Standard and Limit

According to the rule FCC Part 15.107, Conducted limit, the limit for a class A and class B device as below:

Frequency of Emission (MHz)	Class A (dBuV)		Class B (dBuV)	
	Quasi-peak	Average	Quasi-peak	Average
0.15-0.5	79	66	66 to 56	56 to 46
0.5-5	73	60	56	46
5-30	73	60	60	50
Note 1: Decreases with the logarithm of the frequency in the range 0.15 MHz to 0.5 MHz Note 2: The lower limit applies at the band edges				

3.2 Test Procedure

Test is conducting under the description of 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.



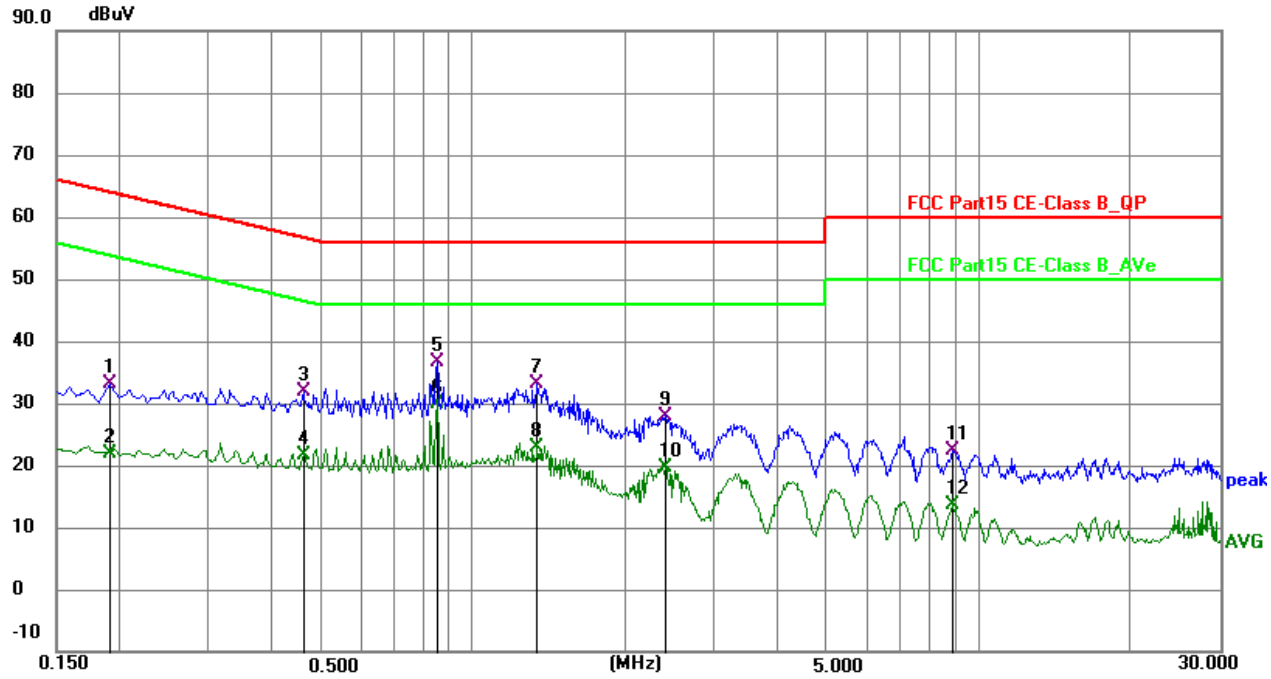
Test Setup Block Diagram

3.3 Test Data and Results

Based on all tested data, the EUT complied with the FCC Part 15.107 standard limit for a Class B device, and with the worst case as below:

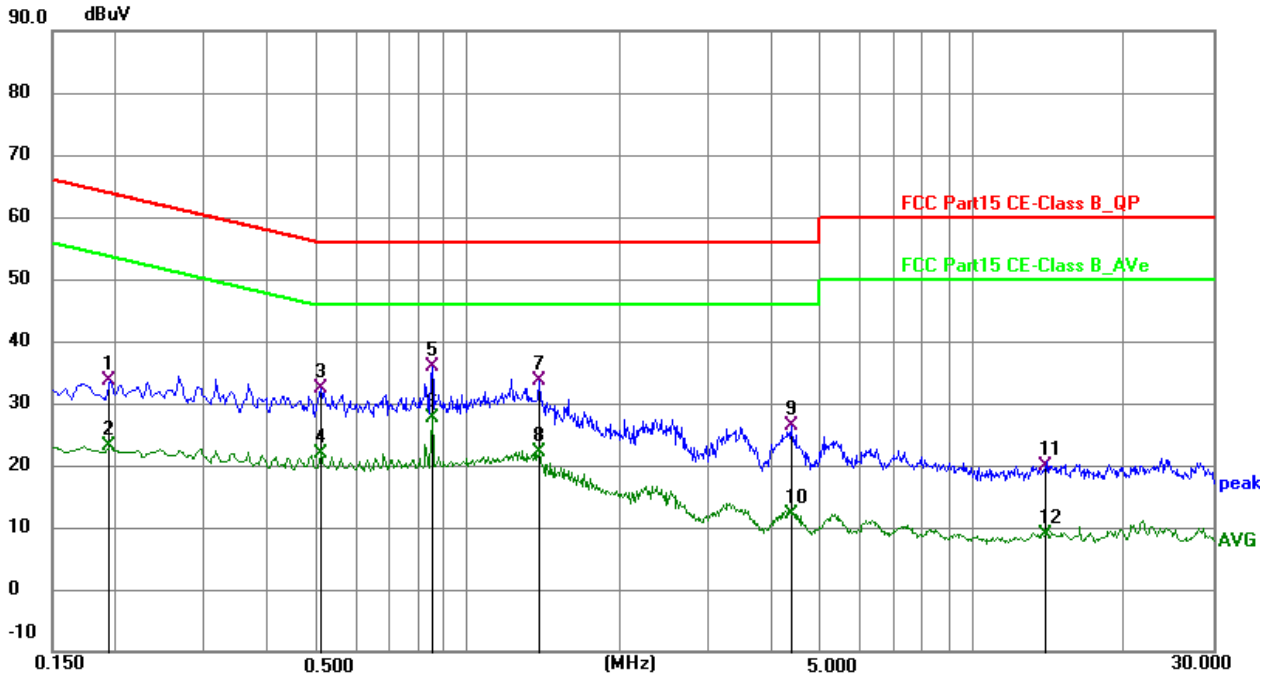
Remark: Level = Reading + Factor, Margin = Level - Limit

Test Plots and Data of Conducted Emissions	
Tested Model:	HN-028S
Tested Mode:	TM1
Test Voltage:	AC 120V/60Hz
Test Power Line:	Neutral
Remark:	



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F	Remark
1	0.1905	23.80	9.21	33.01	64.01	-31.00	QP	P	
2	0.1905	12.79	9.21	22.00	54.01	-32.01	AVG	P	
3	0.4605	22.48	9.39	31.87	56.68	-24.81	QP	P	
4	0.4605	12.30	9.39	21.69	46.68	-24.99	AVG	P	
5	0.8520	27.17	9.39	36.56	56.00	-19.44	QP	P	
6 *	0.8520	20.50	9.39	29.89	46.00	-16.11	AVG	P	
7	1.3380	23.59	9.44	33.03	56.00	-22.97	QP	P	
8	1.3380	13.46	9.44	22.90	46.00	-23.10	AVG	P	
9	2.4045	18.52	9.48	28.00	56.00	-28.00	QP	P	
10	2.4045	10.11	9.48	19.59	46.00	-26.41	AVG	P	
11	8.8890	12.81	9.57	22.38	60.00	-37.62	QP	P	
12	8.8890	3.95	9.57	13.52	50.00	-36.48	AVG	P	

Test Plots and Data of Conducted Emissions	
Tested Model:	HN-028S
Tested Mode:	TM1
Test Voltage:	AC 120V/60Hz
Test Power Line:	Live
Remark:	



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F	Remark
1	0.1949	24.23	9.39	33.62	63.83	-30.21	QP	P	
2	0.1949	13.63	9.39	23.02	53.83	-30.81	AVG	P	
3	0.5100	22.83	9.58	32.41	56.00	-23.59	QP	P	
4	0.5100	12.26	9.58	21.84	46.00	-24.16	AVG	P	
5	0.8520	26.30	9.58	35.88	56.00	-20.12	QP	P	
6 *	0.8520	18.01	9.58	27.59	46.00	-18.41	AVG	P	
7	1.3875	24.00	9.64	33.64	56.00	-22.36	QP	P	
8	1.3875	12.53	9.64	22.17	46.00	-23.83	AVG	P	
9	4.3800	16.55	9.73	26.28	56.00	-29.72	QP	P	
10	4.3800	2.46	9.73	12.19	46.00	-33.81	AVG	P	
11	13.9290	10.17	9.73	19.90	60.00	-40.10	QP	P	
12	13.9290	-0.82	9.73	8.91	50.00	-41.09	AVG	P	

4. Radiated Disturbance

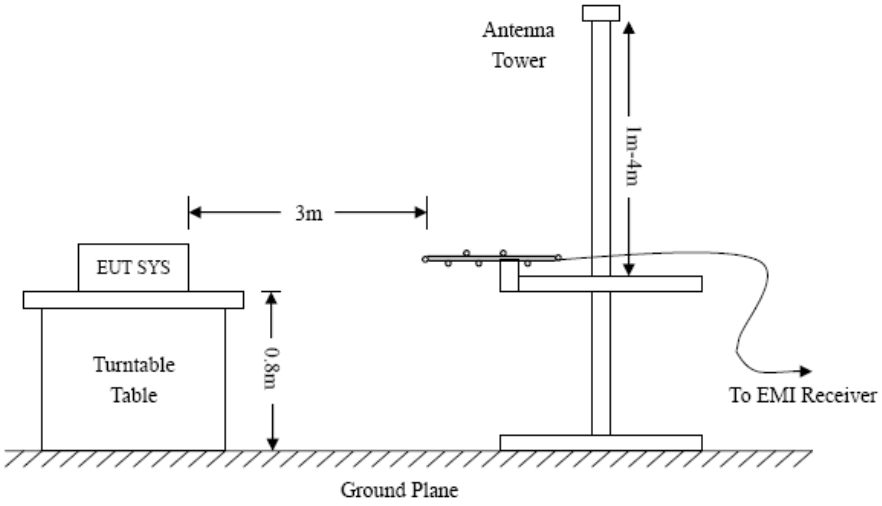
4.1 Standard and Limit

According to the rule FCC Part 15.109, Radiated emission limit for a class A and class B device as below:

Frequency of Emission (MHz)	Class A (3m)	Class B (3m)
	Quasi-peak (dBuV/m)	Quasi-peak (dBuV/m)
30-88	50	40
88-216	54.0	43.5
216-960	57.0	46
Above 960	60	54
Note: The more stringent limit applies at transition frequencies.		

4.2 Test Procedure

Test is conducting under the description of 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.



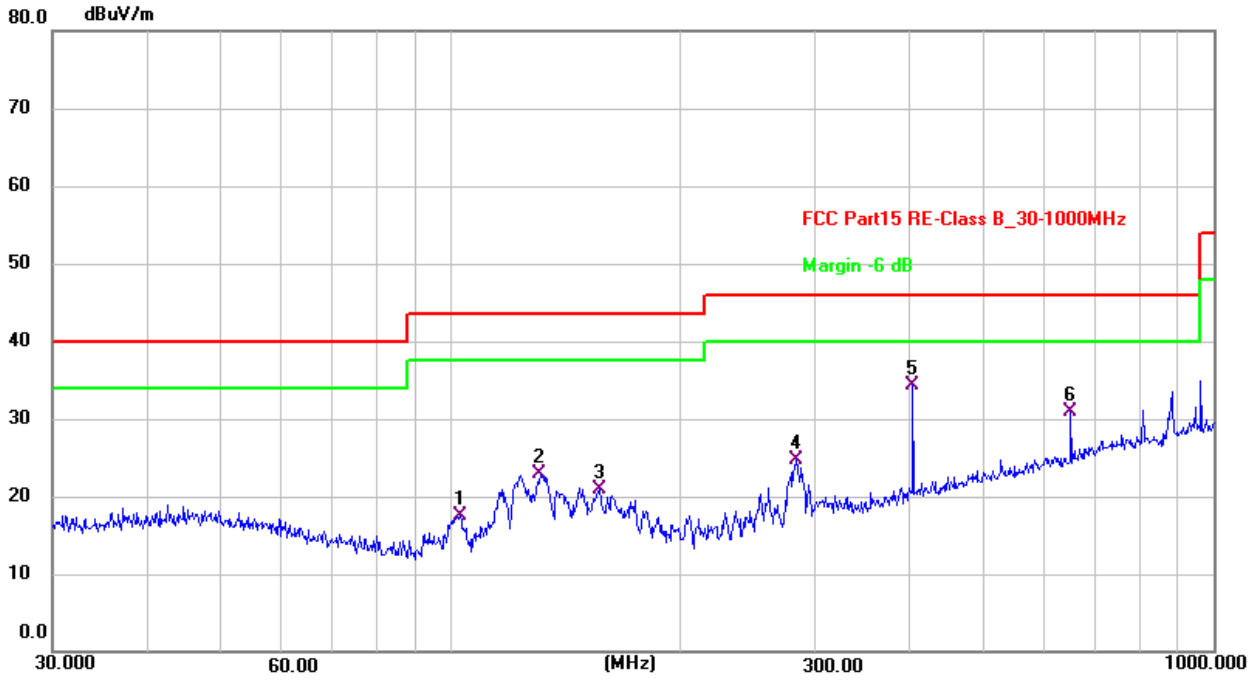
Test Setup Block Diagram

4.3 Test Data and Results

Based on all tested data, the EUT complied with the FCC Part 15.109 standard limit for a Class B device, and with the worst case as below:

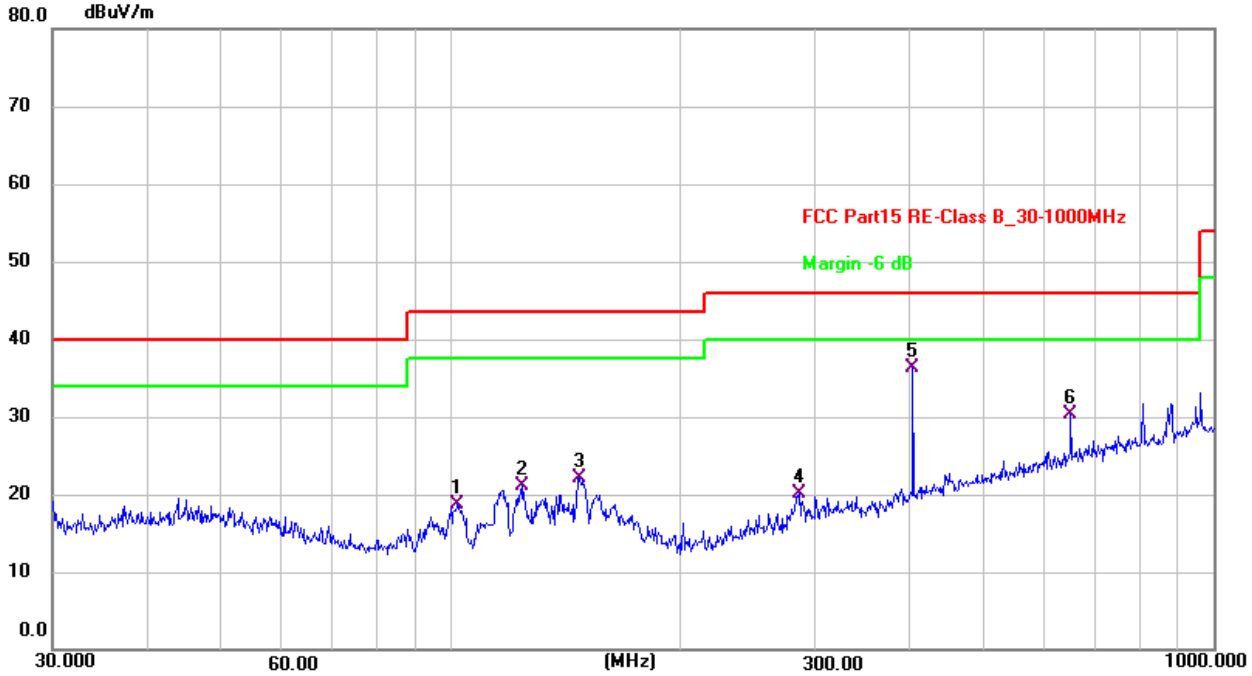
Remark: Level = Reading + Factor, Margin = Level - Limit

Test Plots and Data of Radiated Emissions	
Tested Model:	HN-028S
Tested Mode:	TM1
Test Voltage:	AC 120V/60Hz
Test Antenna Polarization:	Horizontal
Remark:	



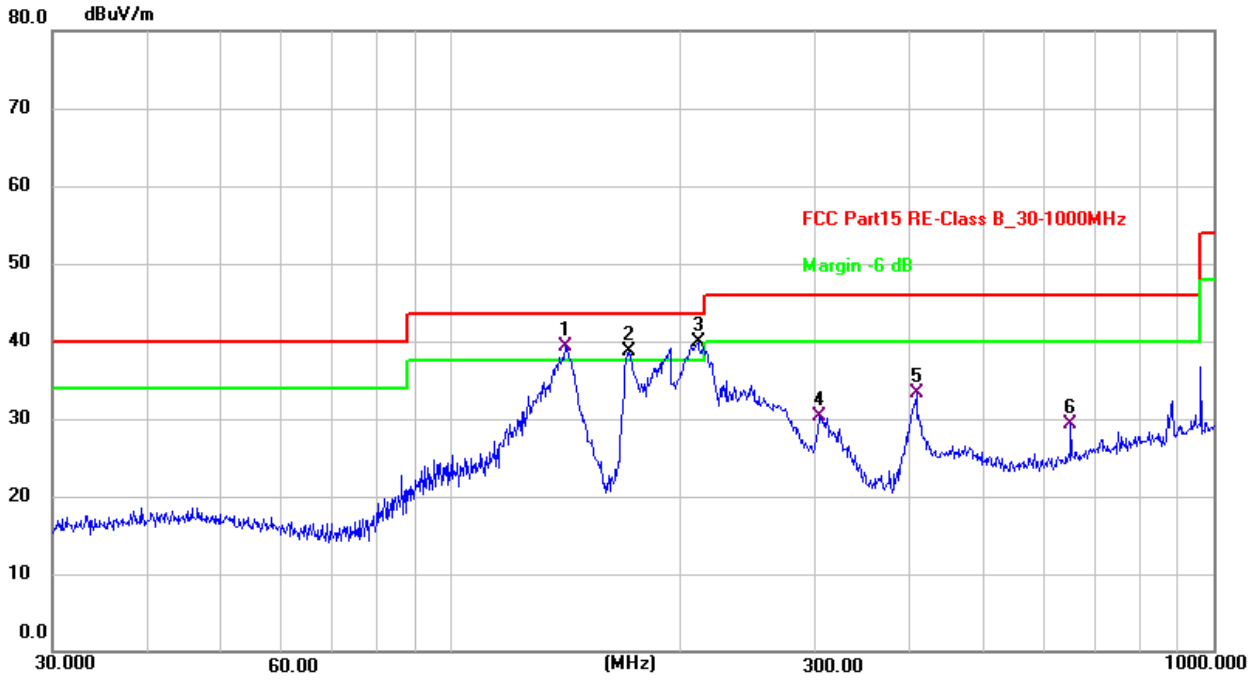
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	102.7192	29.33	-11.87	17.46	43.50	-26.04	QP	199	349	P	
2	130.8369	31.76	-8.78	22.98	43.50	-20.52	QP	199	349	P	
3	156.4578	28.82	-7.82	21.00	43.50	-22.50	QP	199	349	P	
4	283.9791	33.66	-8.87	24.79	46.00	-21.21	QP	199	349	P	
5 *	403.2500	39.90	-5.51	34.39	46.00	-11.61	QP	100	21	P	
6	649.6597	31.68	-0.85	30.83	46.00	-15.17	QP	199	157	P	

Test Plots and Data of Radiated Emissions	
Tested Model:	HN-028S
Tested Mode:	TM1
Test Voltage:	AC 120V/60Hz
Test Antenna Polarization:	Vertical
Remark:	



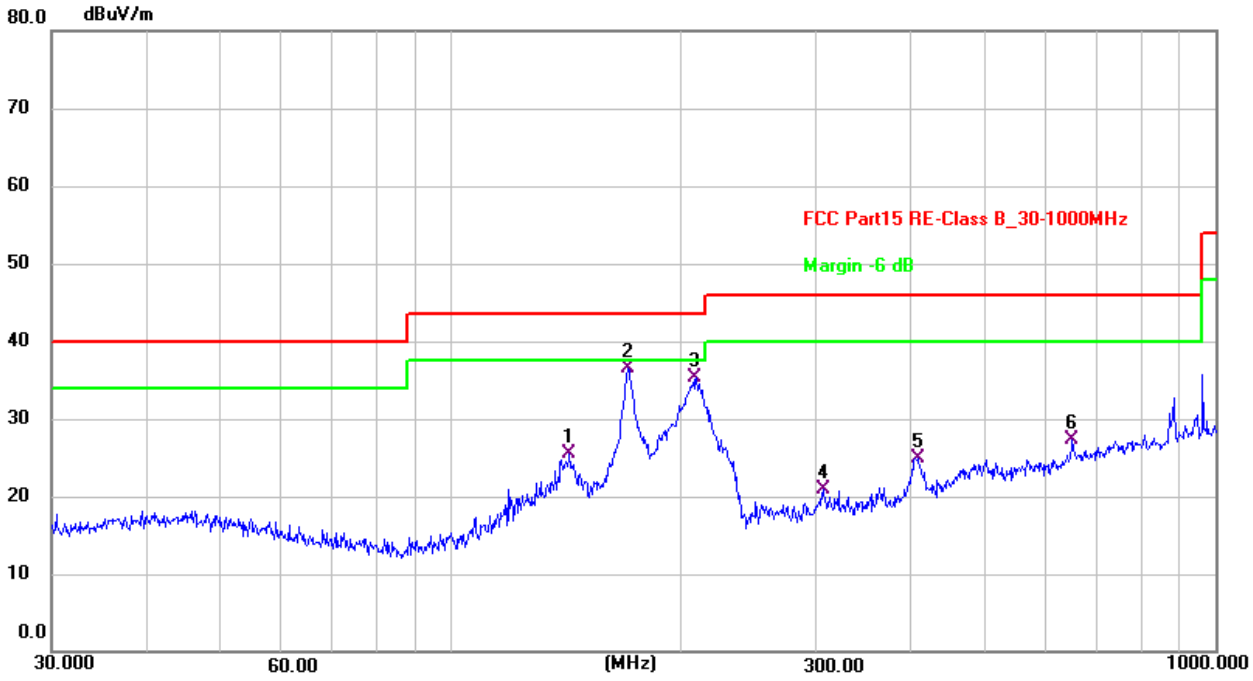
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	102.0013	30.69	-11.95	18.74	43.50	-24.76	QP	100	64	P	
2	124.1330	30.38	-9.37	21.01	43.50	-22.49	QP	100	348	P	
3	147.4036	30.04	-7.86	22.18	43.50	-21.32	QP	100	116	P	
4	285.9777	28.77	-8.76	20.01	46.00	-25.99	QP	100	348	P	
5 *	403.2500	41.86	-5.51	36.35	46.00	-9.65	QP	100	348	P	
6	649.6596	31.06	-0.85	30.21	46.00	-15.79	QP	100	348	P	

Test Plots and Data of Radiated Emissions	
Tested Model:	HN-028S
Tested Mode:	TM2
Test Voltage:	USB Output: 5V1A
Test Antenna Polarization:	Horizontal
Remark:	



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1 !	141.3298	47.42	-8.16	39.26	43.50	-4.24	QP	200	21	P	
2 !	170.7925	47.52	-8.90	38.62	43.50	-4.88	QP	200	146	P	
3 *	210.7860	51.86	-11.90	39.96	43.50	-3.54	QP	200	248	P	
4	304.6099	38.20	-7.86	30.34	46.00	-15.66	QP	100	349	P	
5	407.5145	38.76	-5.42	33.34	46.00	-12.66	QP	100	167	P	
6	649.6597	30.13	-0.85	29.28	46.00	-16.72	QP	200	273	P	

Test Plots and Data of Radiated Emissions	
Tested Model:	HN-028S
Tested Mode:	TM2
Test Voltage:	USB Output: 5V1A
Test Antenna Polarization:	Vertical
Remark:	



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	142.8243	33.55	-8.08	25.47	43.50	-18.03	QP	100	153	P	
2 *	170.1948	45.24	-8.80	36.44	43.50	-7.06	QP	100	306	P	
3	209.3129	47.16	-11.95	35.21	43.50	-8.29	QP	100	112	P	
4	306.7537	28.76	-7.79	20.97	46.00	-25.03	QP	100	83	P	
5	407.5145	30.35	-5.42	24.93	46.00	-21.07	QP	100	63	P	
6	649.6597	28.25	-0.85	27.40	46.00	-18.60	QP	100	72	P	