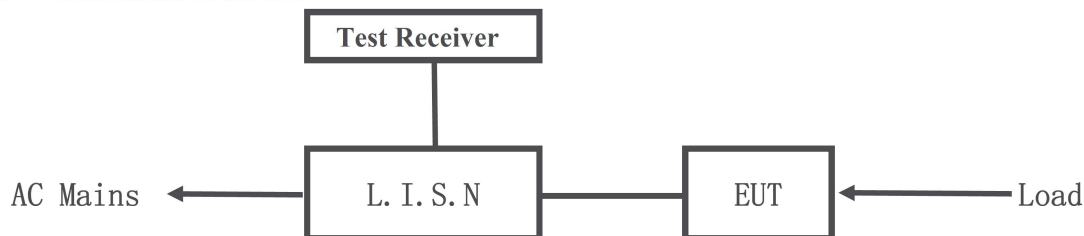




5. Power Line Conducted Emission Test

5.1 Schematics of the test

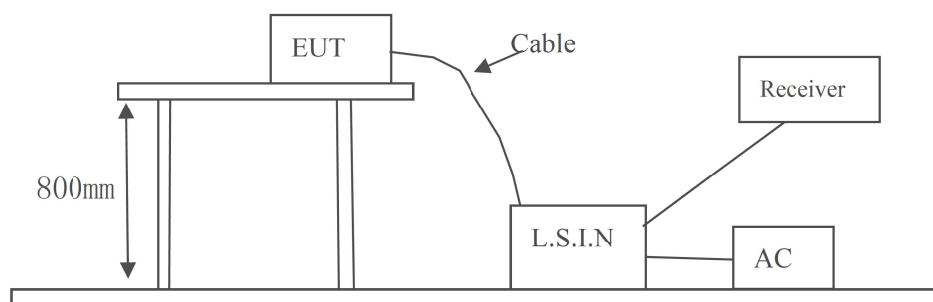


EUT: Equipment Under Test

5.2 Test Method and test Procedure

The EUT was tested according to ANSI C63.10-2013. The Frequency spectrum from 0.15MHz to 30MHz was investigated. The LISN used was 50ohm/50uH as specified by section 5.1 of ANSI C63.10-2013.

Block diagram of Test setup



5.3 Configuration of the EUT

The EUT was configured according to ANSI C63.10-2013. All interface ports were connected to the appropriate peripherals. All peripherals and cables are listed below.

A. EUT

Device	Manufacturer	Model	FCC ID
Remote Control – Transmitter	DawnSun Electronic Technology Co., Ltd.Zhongshan	TX049	A25-TX049

B. Internal Device

Device	Manufacturer	Model	FCC ID/DOC
N/A			

C. Peripherals

Device	Manufacturer	Model	FCC ID/DOC	Cable
N/A				

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5.4 EUT Operating Condition

Operating condition is according to ANSI C63.10 -2013.

A Setup the EUT and simulators as shown on follow

B Enable AF signal and confirm EUT active to normal condition

5.5 Power line conducted Emission Limit according to Paragraph 15.207

Frequency (MHz)	Limits (dB μ V)	
	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

- Notes:
1. *Decreasing linearly with logarithm of frequency.
 2. The tighter limit shall apply at the transition frequencies

5.6 Test Results

The frequency spectrum from 0.15MHz to 30MHz was investigated. All reading are quasi-peak values with a resolution bandwidth of 9kHz. (The average detector is necessary when the Quasi-peak emission level beyond the average Limit.)

Note: Due to AAA Battery operation, this test item not applicable.

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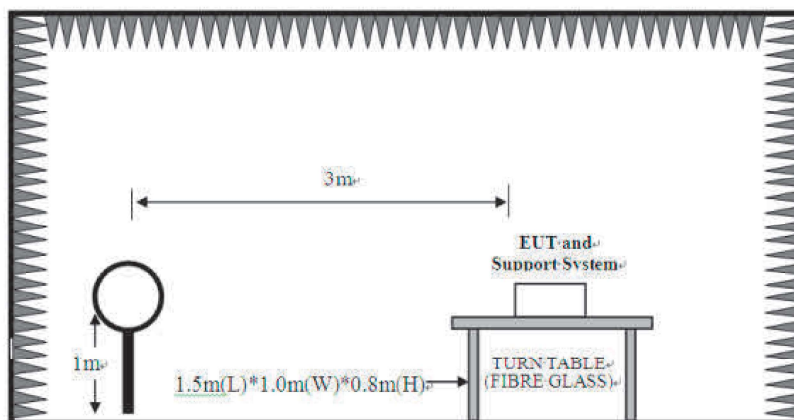
6 Radiated Emission Test

6.1 Test Method and test Procedure:

- (1) The EUT was tested according to ANSI C63.10-2013. The radiated test was performed at TIMEWAY EMC Laboratory. This site is on file with the FCC laboratory division, Registration No.744189
- (2) The EUT, peripherals were put on the turntable which table size is 1m x 1.5 m, table high 0.8 m. All set up is according to ANSI C63.10-2013.
- (3) The frequency spectrum from 30 MHz to 3.04 GHz was investigated. All readings from 30 MHz to 1 GHz are quasi-peak values with a resolution bandwidth of 120 kHz. All readings are above 1 GHz, peak values with a resolution bandwidth of 1 MHz. Measurements were made at 3 meters.
- (4) The antenna high is varied from 1 m to 4 m high to find the maximum emission for each frequency.
- (5) Maximizing procedure was performed on the six (6) highest emissions to ensure EUT compliance is with all installation combinations. All data was recorded in the peak detection mode. Quasi-peak readings was performed only when an emission was found to be marginal (within -4 dB of specification limit), and are distinguished with a "QP" in the data table.
- (6) The antenna polarization: Vertical polarization and Horizontal polarization.

Block diagram of Test setup

For radiated emissions from 9kHz to 30MHz



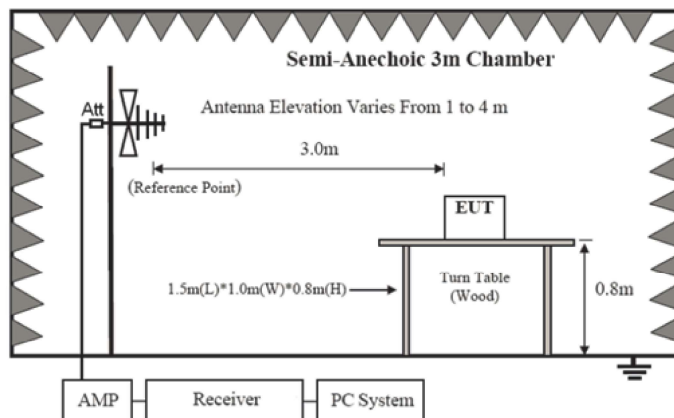
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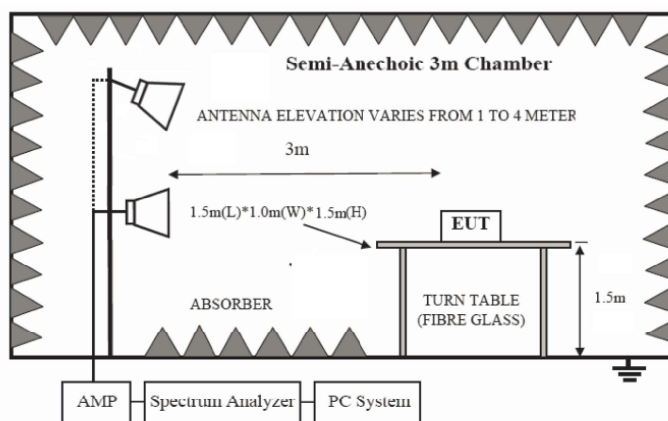
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For radiated emissions from 30MHz to 1GHz



For radiated emissions above 1GHz



6.2 Configuration of The EUT

Same as section 5.3 of this report

6.3 EUT Operating Condition

Same as section 5.4 of this report.

6.4 Radiated Emission Limit

All emission from a digital device, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strength specified below:

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A FCC Part 15 Subpart C Paragraph 15.231(a) Limit

Fundamental Frequency (MHz)	Field Strength of Fundamental		Field Strength of Spurious Emission	
	uV/m	dBuV/m	uV/m	dBuV/m
40.66-40.70	2250	67.04	225	47.04
70-130	1250	61.94	125	41.94
130-174	1250-3750	61.94-71.48	125-375	41.94-51.48
174-260	3750	71.48	375	51.48
260-470	3750-12500	71.48-81.94	375-1250	51.48-61.94
Above 470	12500	81.94	1250	61.94

- Note:
1. RF Field Strength (dBuV) = 20 log RF Voltage (uV)
 - 2.Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system.
 3. The emission limit in this paragraph is based on measurement instrumentation employing an average detector.
 - 4.Linear interpolations for frequency ranges 130-174MHz and 260-470MHz
 - 5.the above field strength limits are specified at a distance of 3-meters and the tighter limits apply at the band edges
 6. New batteries were installed in the equipment under test for radiated emission testing.
 7. This is a handheld device. The radiated emissions should be tested under 3-axes position (Lying, Side, and Stand), After pre-test. It was found that the worse radiated emission was get at the lying position.

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B. Frequencies in restricted band are compiled to limit on Paragraph 15.209.

Frequency Range (MHz)	Distance (m)	Field strength (dB μ V/m)
30-88	3	40.0
88-216	3	43.5
216-960	3	46.0
Above 960	3	54.0

- Note:
1. RF Voltage (dBuV) = 20 log RF Voltage (uV)
 2. In the Above Table, the tighter limit applies at the band edges.
 3. Distance refers to the distance in meters between the measuring instrument antenna and the EUT
 4. All scanning using PK detector. And the final emission level was get using QP detector for frequency range from 30-1000MHz.As to 1G-5G, the final emission level got using PK detector. And Average = peak(dBuV/m) – | duty cycle | (dB)

6.5 Test result

A Fundamental and Harmonics Radiated emission data

Product:	Remote Control – Transmitter	Test Mode:	Keep Transmitting	
Test Item:	Fundamental Radiated Emission and Spurious Emission Data	Temperature:	25°C	
Test Voltage:	DC3.0V	Humidity:	56%	
Test Result:	Pass			
Frequency (MHz)	Emission PK/AV (dBuV/m)	Horiz / Vert	Limits PK/AV (dBuV/m)	Margin (dB)
304	74.55 (PK)/ 64.96 (AV)	H	94.94/74.94	-20.39 (PK)/ -9.98 (AV)
304	66.23 (PK)/ 56.64 (AV)	V	94.94/74.94	-28.71 (PK)/ -18.30 (AV)
608	53.26 (PK)/ 43.67 (AV)	H	74.94/54.94	-21.68 (PK)/ -11.27 (AV)
608	52.55 (PK)/ 42.96 (AV)	V	74.94/54.94	-22.39 (PK)/ -11.98 (AV)
912	53.09 (PK)/ 43.50 (AV)	H	74.94/54.94	-21.85 (PK)/ -11.44 (AV)
912	52.85 (PK)/ 43.26 (AV)	V	74.94/54.94	-22.09 (PK)/ -11.68 (AV)
1216	48.63 (PK)/ 39.04 (AV)	H	74/54	-25.37 (PK)/ -14.96 (AV)
1216	50.10 (PK)/ 40.51 (AV)	V	74/54	-23.90 (PK)/ -13.49 (AV)
1520	48.79 (PK)/ 39.20 (AV)	H	74/54	-25.21 (PK)/ -14.80 (AV)
1520	42.68 (PK)/ 33.09 (AV)	V	74/54	-31.32 (PK)/ -20.91 (AV)
1824	--	H	74.94/54.94	--
1824	--	V	74.94/54.94	--
2128	50.73 (PK)/ 41.14 (AV)	H	74.94/54.94	-24.21 (PK)/ -13.80 (AV)
2128	43.36 (PK)/ 33.77 (AV)	V	74.94/54.94	-31.58 (PK)/ -21.17 (AV)
2432	--	H/V	74.94/54.94	--

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