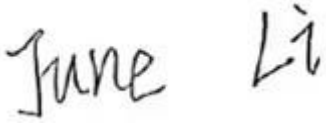
TEST REPORT

Application No.:	BTEK241211060A01-T01
Applicant:	SHENZHEN ECARE ELECTRONICS CO., LTD
Address of Applicant:	B201/B401/B501/B601, Hua Li Industrial Building, 404 Yu An Road, Bao An, Shenzhen, Guang Dong, China
Manufacturer:	SHENZHEN ECARE ELECTRONICS CO., LTD
Address of Manufacturer:	B201/B401/B501/B601, Hua Li Industrial Building, 404 Yu An Road, Bao An, Shenzhen, Guang Dong, China
Equipment Under Test (EUT):	
EUT Name:	Thermometer
Test Model.:	TP210B
Adding Model(s):	TP210BW,B210B
Trade Mark:	/
FCC ID:	2AATP-TP210B
Standard(s) :	47 CFR Part 15, Subpart C 15.249
Date of Receipt Sample(s):	2024-12-25
Date of Test:	2024-12-25 to 2025-01-06
Date of Issue:	2025-01-07
Test Result:	**Pass***

* In the configuration tested, the EUT complied with the standards specified above.

Lion Cai/ Approved & Authorized
EMC Laboratory Manager

Revision Record			
Version	**Issue Date**	**Revisions**	**Remarks**
V0	*2025-01-07*	Initial	Valid

Authorized for issue by				
		 **Karl Liu / File Editor**		
		 **June Li/Reviewer**		

Remarks:

The results shown in this test report refer only to the sample(s) tested, this test report cannot be reproduced, except in full without prior written permission of the company. The report would be invalid without specific stamp of test institute and the signatures of compiler and approver.

2 Test Summary

Radio Spectrum Technical Requirement				
Standard	**Item**	**Method**	**Requirement**	**Result**
47 CFR Part 15, Subpart C 15.249	Antenna Requirement	N/A	47 CFR Part 15, Subpart C 15.203	Pass

Radio Spectrum Matter Part				
Standard	**Item**	**Method**	**Requirement**	**Result**
47 CFR Part 15, Subpart C 15.249	Conducted Emissions at AC Power Line (150kHz-30MHz)	ANSI C63.10 (2013) Section 6.2	47 CFR Part 15, Subpart C 15.207	Pass
	20dB Bandwidth	ANSI C63.10 (2013) Section 6.9	47 CFR Part 15, Subpart C 15.215	Pass
	Field strength of the Fundamental signal	ANSI C63.10 (2013) Section 6.5	47 CFR Part 15, Subpart C 15.249	Pass
	Radiation Spurious Emission	ANSI C63.10 (2013) Section 6.4,6.5,6.6	47 CFR Part 15, Subpart C 15.209/15.249	Pass

Note:
N/A: Not applicable.

3 Contents

4 General Information

4.1 Details of E.U.T.

Power supply:	Input:DC 5V recharge by USB port Capacity: DC 3.7V 500mAh 1.85Wh from battery
Frequency Range:	915MHz
Modulation Type:	ASK
Number of Channels:	1
Antenna Type:	Spring antenna
Antenna Gain:	-8.55dBi
Sample No.:	BTEK241211060A01-1/1
Model(s) Difference Statement	☐Singel Model.
	☒Multi-Models:TP210B, TP210BW, B210B Only the model TP210B was tested. According to the declaration from the applicant, the electrical circuit design, layout, components used, internal wiring and functions of other models are identical for the above models, with only difference on Model No.

4.2 EUT Test Mode and Test Condition

Test Mode	Description	Remark
1	TX	Continue TX
Remark:1.only show the worst case in the test report.		

Test Conditions	
Temperature:	22.52 ℃
Relative Humidity:	45.56 %
ATM Pressure:	1010 mbar

4.3 Description of Support Units

Description	Manufacturer	Model No.	Serial No.
/	/	/	/

4.4 Measurement Uncertainty

Test Item	**Measurement Uncertainty**
Conducted Peak Output Power	± 0.76dB
20dB Bandwidth	± 3%
Conducted Spurious Emissions	± 0.8dB
Radiated Emissions which fall in the restricted bands	±5.1dB (1GHz-6GHz); ±5.2dB(above 6GHz)
Radiated Spurious Emissions (Below 1GHz)	±5.1dB
Radiated Spurious Emissions (Above 1GHz)	±5.1dB (1GHz-6GHz); ±5.2dB(above 6GHz)

4.5 Test Location

All tests were performed at:
Shenzhen BANTEK Testing Co., Ltd.,
A5&A6, Building B1&B2, No.45 Gangtou Road, Bogang Community, Shajing Street, Bao'an District, Shenzhen, Guangdong, China 518104
Tel:0755-2334 4200 Fax: 0755-2334 4200
FCC Registration Number: 264293
Designation Number: CN1356
No tests were sub-contracted.

4.6 Deviation from Standards

None

4.7 Abnormalities from Standard Conditions

None

5 Equipment List

Conducted Test					
Description	**Manufacturer**	**Model**	**Serial No.**	**Cal. Date**	**Cal. Due**
Shielding Room	YIHENG ENECTRONIC	9*5*3.3	YH-BT-220304-04	2022-03-03	2025-03-02
EMI Test Receiver	Rohde&Schwarz	ESCI	101021	2024-06-11	2025-06-10
Measurement Software	Fara	EZ_EMC Ver. FA-03A2	N/A	N/A	N/A
LISN	Rohde&Schwarz	ENV216	101472	2024-06-11	2025-06-10
LISN	Schwarzbeck	NSLK 8128	05127	2024-06-11	2025-06-10

RF Conducted					
Equipment	**Manufacturer**	**Model No**	**Serial No**	**Cal Date**	**Cal Due Date**
Shielding Room	YIHENG ENECTRONIC	5.5*3.1*3	YH-BT-220304-03	2022-03-03	2025-03-02
EXA Signal Analyzer	KEYSIGHT	N9020A	MY54230486	2024-06-11	2025-06-10
DC Power Supply	E3632A	E3642A	KR75304416	2024-06-11	2025-06-10
Attenuator	RswTech	SMA-JK-6dB	N/A	2024-06-11	2025-06-10
Attenuator	RswTech	SMA-JK-3dB	N/A	2024-06-11	2025-06-10
RF Control Unit	Techy	TR1029-1	N/A	2024-06-11	2025-06-10
RF Sensor Unit	Techy	TR1029-2	N/A	2024-06-11	2025-06-10
WIDEBAND RADIO COMMUNICATION TESTER	R&S	CMW 500	141258	2024-06-11	2025-06-10
MXG Vector Signal Generator	Agilent	N5182A	US46240522	2024-06-11	2025-06-10
Programmable Temperature&Humidity Chamber	GRT	GR-HWX1000	GR22051001	2024-06-11	2025-06-10
Measurement Software	TACHOY	RF TestSoft	N/A	N/A	N/A

RSE					
Equipment	**Manufacturer**	**Model No**	**Serial No**	**Cal Date**	**Cal Due Date**
3m Semi-Anechoic Chamber	YIHENG ENECTRONIC	966	YH-BT-220304-01	2022-05-06	2025-05-05
EMI Test Receiver	Rohde&Schwarz	ESCI	100694	2024-06-11	2025-06-10
TRILOG Broadband Antenna	Schwarzbeck	VULB 9168	01324	2024-06-16	2025-06-15
Pre-Amplifier	Schwarzbeck	BBV 9745	#180	2024-06-11	2025-06-10
Measurement Software	Fara	EZ_EMC Ver. FA-03A2	N/A	2024-06-11	2025-06-10
EXA Signal Analyzer	Keysight	N9020A	MY54440290	2024-06-11	2025-06-10
Horn Antenna	Schwarzbeck	BBHA 9120D	02695	2024-06-15	2025-06-14
Pre-Amplifier	Tonscend	TAP0118045	AP20K806109	2024-06-11	2025-06-10

Horn Antenna	SCHWARZBECK	BBHA9170	1157	2024-06-15	2025-06-14
Low Noise Pre-amplifier	SKET	LNPA-1840G-50	SK2022032902	2024-06-11	2025-06-10
Signal analyzer	ROHDE&SCHWARZ	FSQ40	100010	2024-06-11	2025-06-10
Loop Antenna	ETS	6502	00201177	2024-06-15	2025-06-14
Cable	BTEK	LMR400UF-NMNM-7.00M	/	2024-06-15	2025-06-14
Cable	BTEK	LMR400UF-NMNM-2.50M	/	2024-06-15	2025-06-14
Cable	BTEK	LMR400UF-NMNM-3.00M	/	2024-06-15	2025-06-14
Cable	BTEK	SFT205PUR-MNSWSM-7.00M	/	2024-06-15	2025-06-14
Cable	BTEK	SFT205PUR-MNSWSM-2.50M	/	2024-06-15	2025-06-14
Cable	BTEK	SFT205PUR-MNSWSM-2.50M	/	2024-06-15	2025-06-14
Cable	BTEK	SFT205PUR-MNSWSM-0.30M	/	2024-06-15	2025-06-14

6 Radio Spectrum Technical Requirement

6.1 Antenna Requirement

6.1.1 Test Requirement:

47 CFR Part 15, Subpart C 15.203

6.1.2 Conclusion

This product has a Spring antenna, fulfill the requirement of this section.

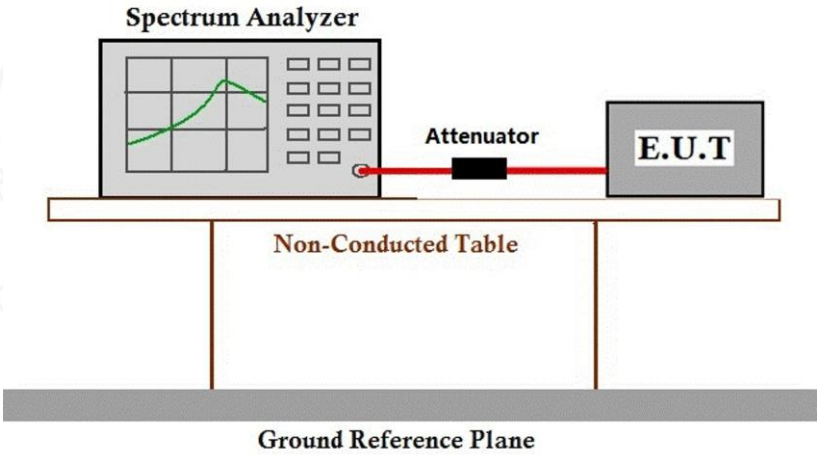
7 Radio Spectrum Matter Test Results

7.1 20dB Bandwidth

Test Requirement 47 CFR Part 15, Subpart C 15.215 c

Limit: N/A

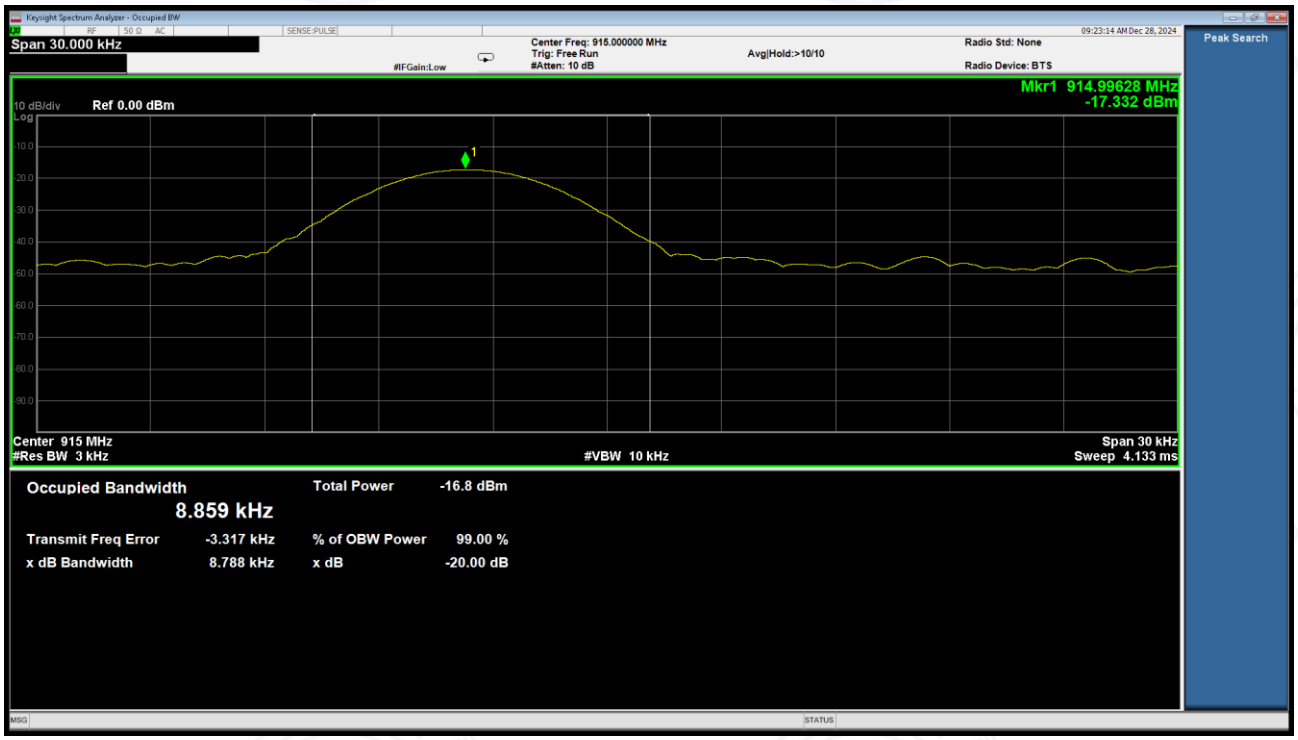
7.1.1 Test Setup Diagram



7.1.2 Measurement Procedure and Data

Set span = 1MHz, centered on a transmitting channel
RBW ≥1% 20dB Bandwidth, VBW ≥RBW
Sweep = auto
Detector function = peak
Trace = max hold
All the trace to stabilize, use the marker-to-peak function to set the marker to the peak of the emission, use the marker-delta function to measure and record the 20dB down

Test Frequency(MHz)	Bandwidth(kHz)
915	8.788



7.2 Radiated Emissions

Test Requirement 47 CFR Part 15, Subpart C 15.209&15.249

Limit:

Field strength of the Fundamental signal

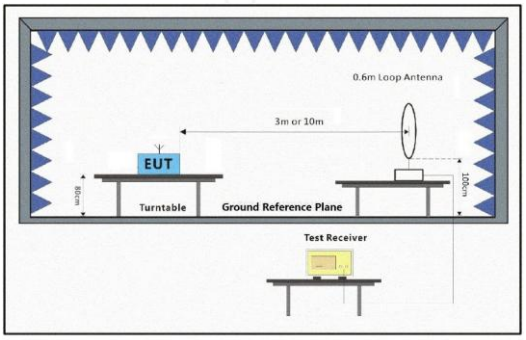
Fundamental Frequency (MHz)	Field strength of fundamental (milli-volts/meter)	Field strength of Harmonics (micro-volts/meter)
902-928	50	500
2400-2483.5	50	500
5725-5875	50	500
24.0-24.25	250	2500

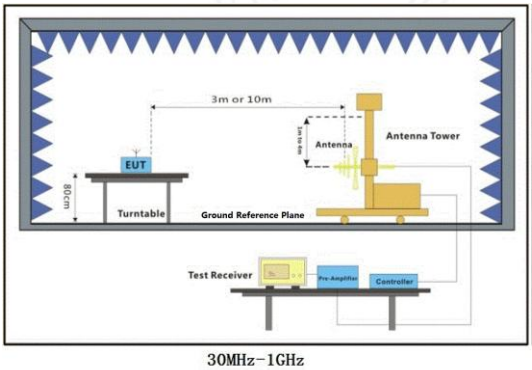
Radiation Spurious Emission

Frequency (MHz)	Field strength(microvolts/meter)	Measurement distance(meters)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30.0	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3
Remark: The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9-90kHz, 110-490kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation.		

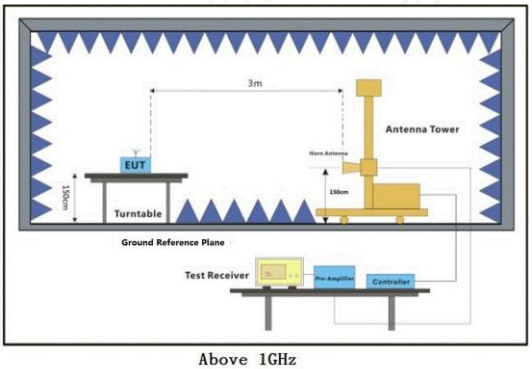
(d) Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in §15.209, whichever is the lesser attenuation.

7.2.1 Test Setup Diagram





30MHz-1GHz



Above 1GHz

7.2.2 Test Setup Diagram

a. For below 1GHz, the EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 or 10 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.

b. The EUT was set 3 or 10 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.

c. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.

e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

f. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

g. Test the EUT in the lowest channel, the middle channel, the Highest channel.

h. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is the worst case.

i. Repeat above procedures until all frequencies measured was complete.

a. For above 1GHz, the EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter fully-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.

b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.

c. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.

e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

f. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

g. Test the EUT in the lowest channel, the middle channel, the Highest channel.

h. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is the worst case.

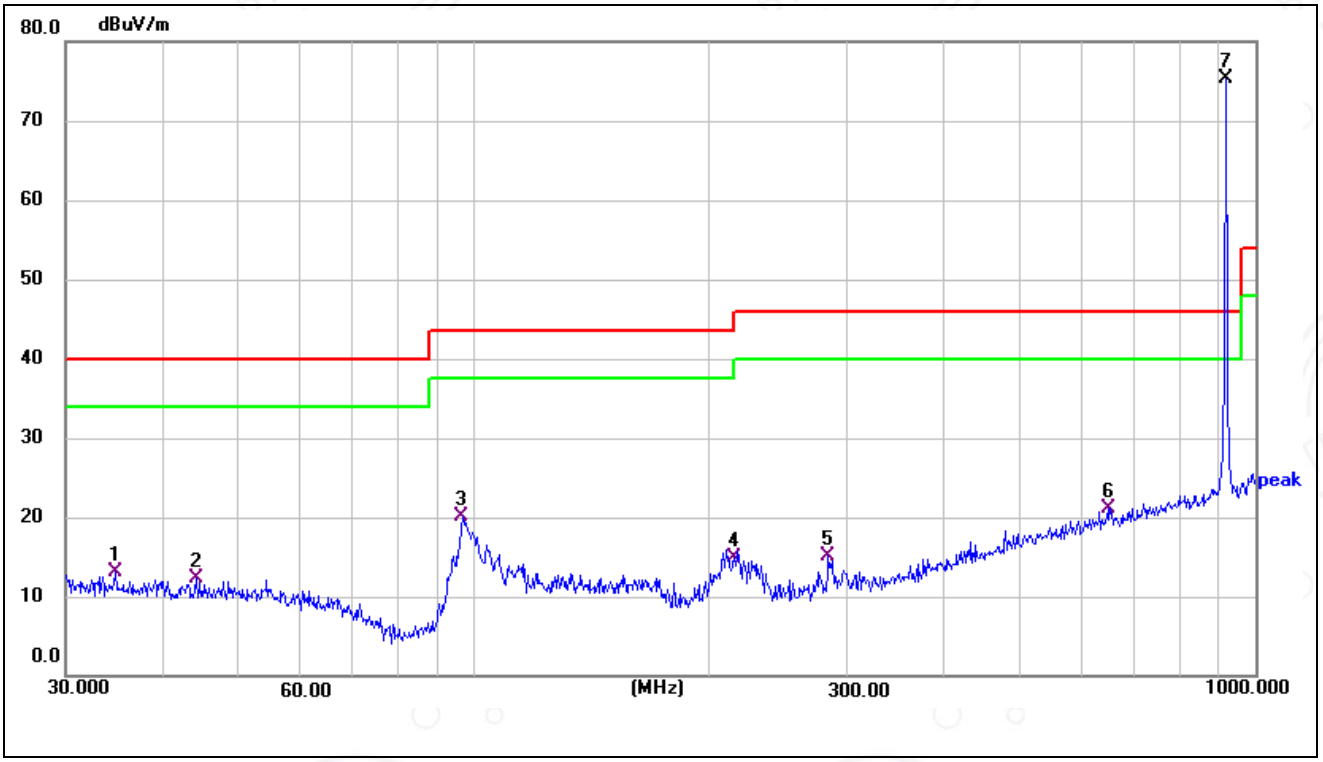
i. Repeat above procedures until all frequencies measured was complete.

Remark 1: Level= Reading Level + Factor

Remark 2: For frequencies above 1GHz, the field strength limits are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation. For the emissions whose peak level is lower than the average limit, only the peak measurement is shown in the report.

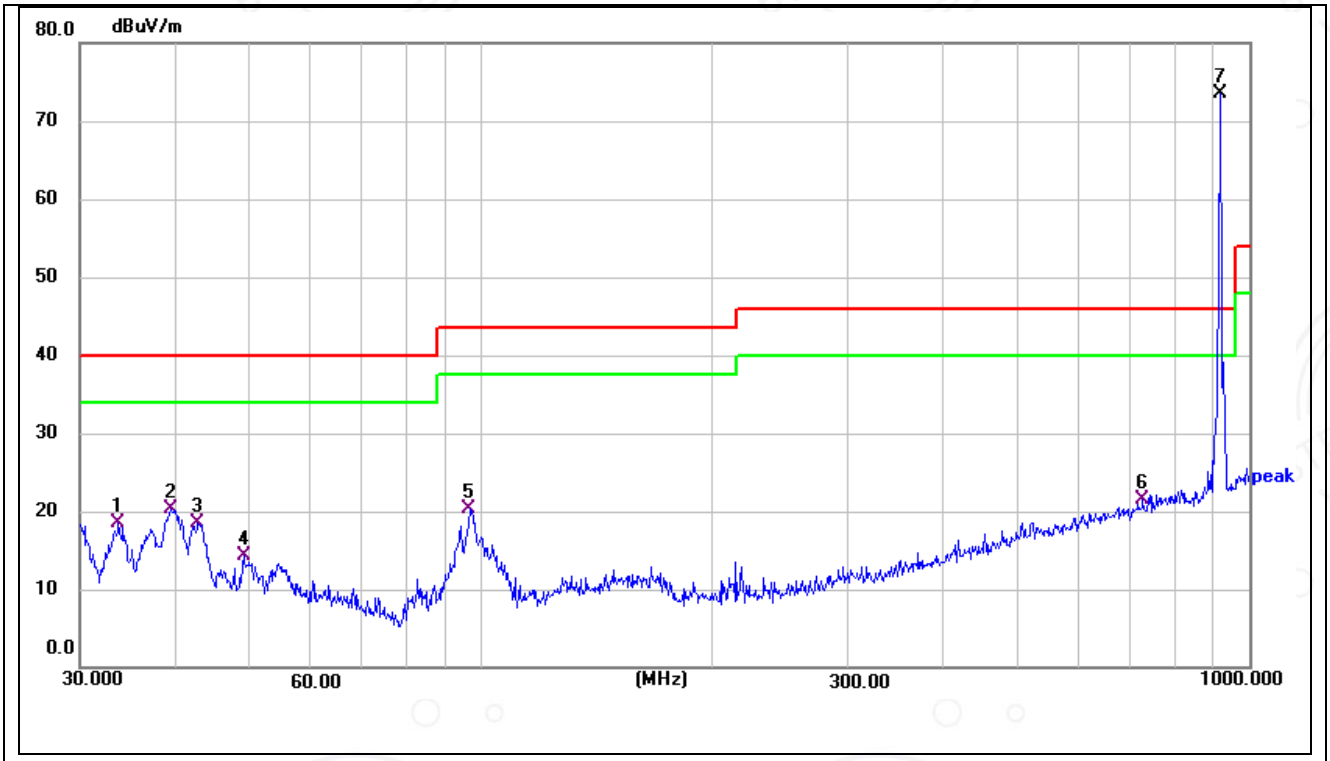
➢ Below 1GHz

Test Channel	Low	Polarity:	Horizontal



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	34.7602	27.50	-14.37	13.13	40.00	-26.87	QP	199	0	P	
2	44.1202	26.85	-14.56	12.29	40.00	-27.71	QP	199	0	P	
3	96.7749	39.35	-19.18	20.17	43.50	-23.33	QP	199	0	P	
4	215.2678	31.55	-16.67	14.88	43.50	-28.62	QP	199	0	P	
5	283.9791	30.45	-15.36	15.09	46.00	-30.91	QP	199	0	P	
6	647.3856	29.08	-7.88	21.20	46.00	-24.80	QP	199	0	P	
7 *	916.0685	79.47	-4.24	75.23	94.00	-18.77	peak	199	0	F	Fundamental

Test Channel	Low	Polarity:	Vertical



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	33.6802	32.76	-14.34	18.42	40.00	-21.58	QP	199	0	P	
2	39.4371	34.94	-14.54	20.40	40.00	-19.60	QP	199	0	P	
3	42.7496	33.12	-14.55	18.57	40.00	-21.43	QP	199	0	P	
4	49.0145	28.93	-14.54	14.39	40.00	-25.61	QP	199	0	P	
5	96.7749	39.47	-19.18	20.29	43.50	-23.21	QP	199	0	P	
6	726.8052	28.33	-6.82	21.51	46.00	-24.49	QP	199	0	P	
7 *	916.0685	77.75	-4.24	73.51	94.00	-20.49	peak	199	0	F	Fundamental

Above 1GHz

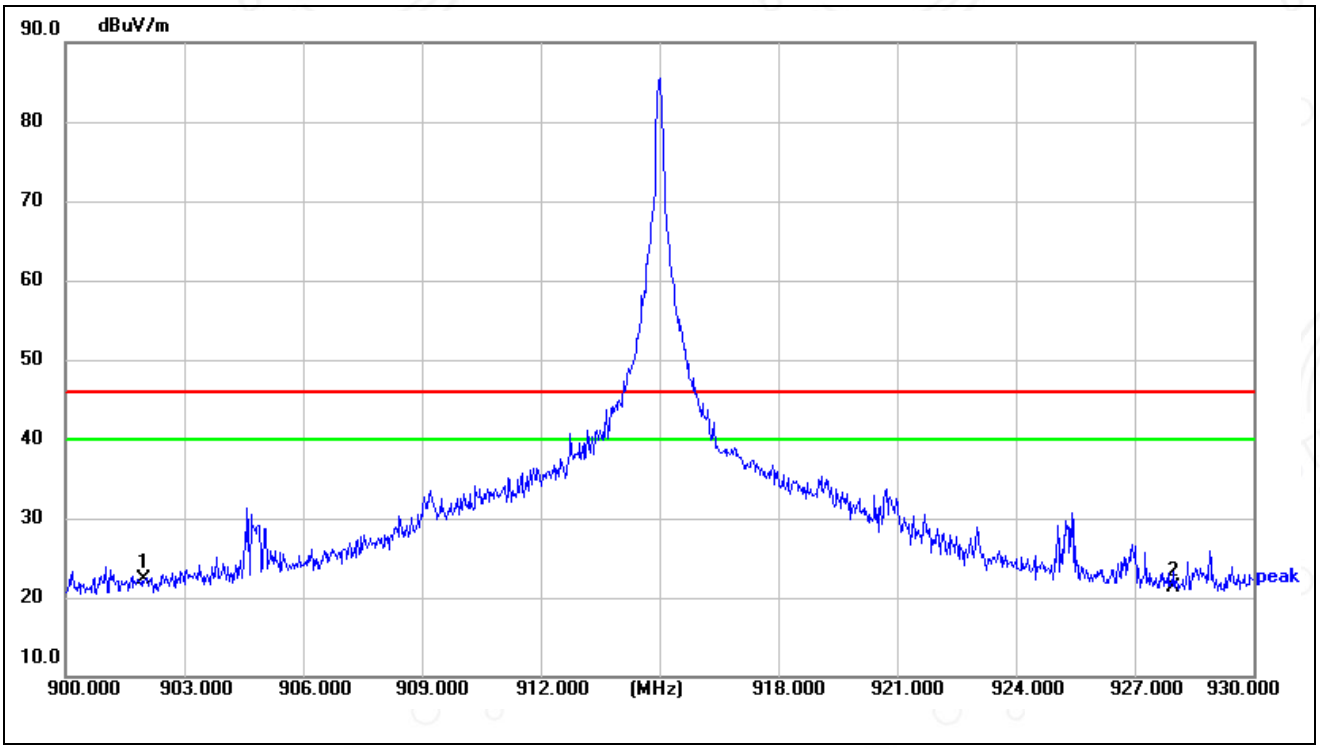
Polarity: Horizontal; Modulation:GFSK

No.	Frequency (MHz)	Reading (dBuv)	Factor (dB/m)	Level (dBuv/m)	Limit (dBuv/m)	Margin(dB)	Detector	P/F
1	1830.000	67.59	-24.14	43.45	74	-30.55	peak	P
2	2745.000	69.64	-23.92	45.72	74	-28.28	peak	P
3	3660.000	74.82	-23.92	50.9	74	-23.1	peak	P

Polarity: Vertical; Modulation:GFSK

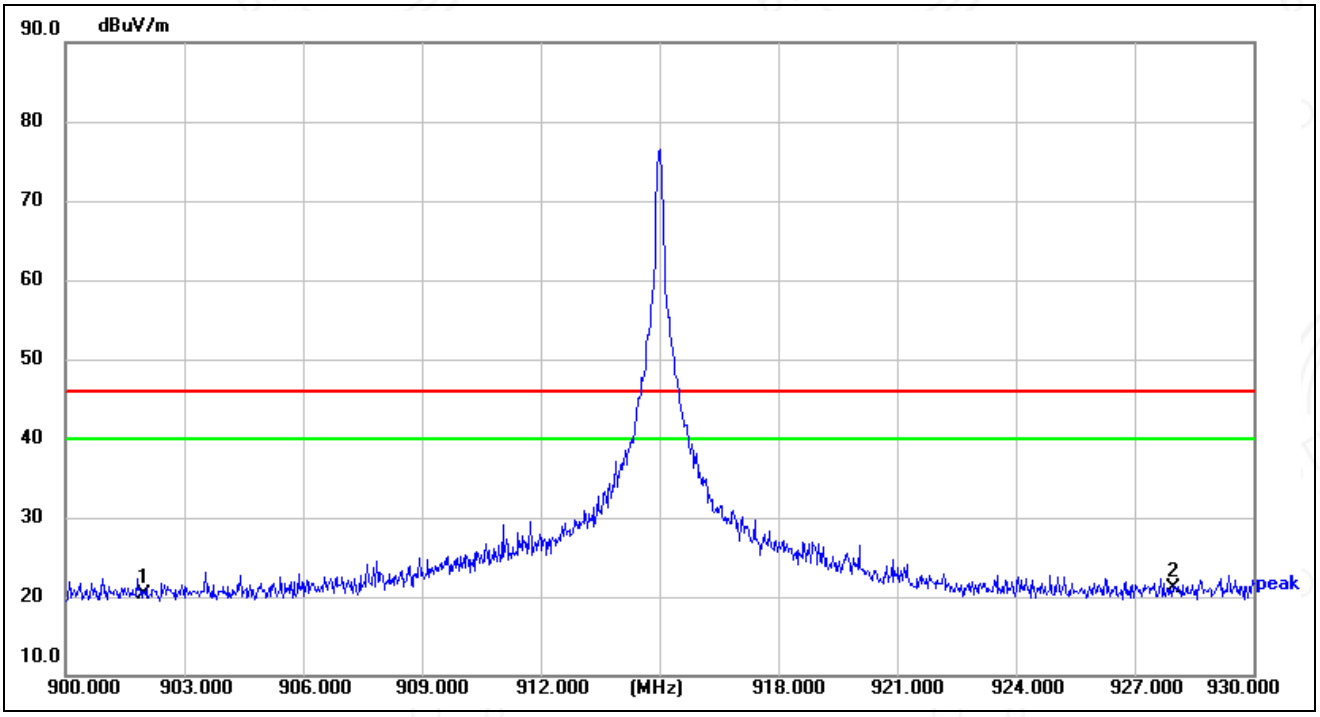
No.	Frequency (MHz)	Reading (dBuv)	Factor (dB/m)	Level (dBuv/m)	Limit (dBuv/m)	Margin(dB)	Detector	P/F
1	1830.000	68.19	-24.14	44.05	74	-29.95	peak	P
2	2745.000	69.06	-23.92	45.14	74	-28.86	peak	P
3	3660.000	74.1	-23.92	50.18	74	-23.82	peak	P

Test Bandedge	/	Polarity:	Horizontal



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 *	902.0000	26.54	-4.22	22.32	46.00	-23.68	peak	150	3	P	
2	928.0000	25.63	-4.25	21.38	46.00	-24.62	peak	150	3	P	

Test Bandedge	/	Polarity:	Vertical



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	902.0000	24.45	-4.22	20.23	46.00	-25.77	peak	150	355	P	
2 *	928.0000	25.34	-4.25	21.09	46.00	-24.91	peak	150	355	P	

7.3 Conducted Emissions at AC Power Line (150kHz-30MHz)

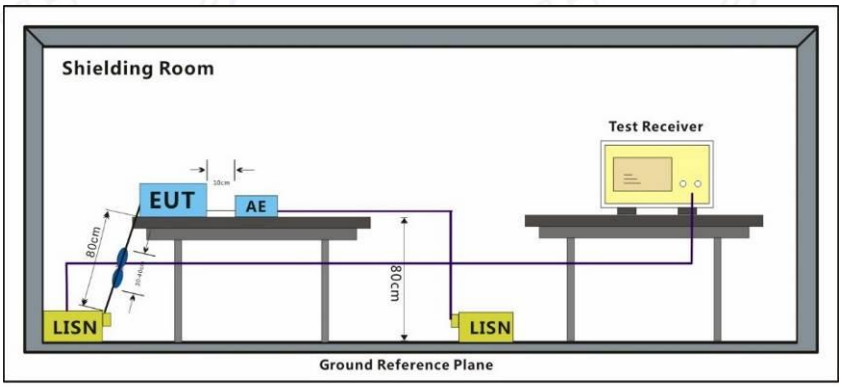
Test Requirement 47 CFR Part 15, Subpart C 15.207

Test Method: ANSI C63.10 (2013) Section 6.2

Limit:

Frequency of emission(MHz)	Conducted limit(dBμV)	
	Quasi-peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50
*Decreases with the logarithm of the frequency.		
Detector: Peak for pre-scan (9kHz resolution bandwidth) 0.15M to 30MHz		

7.3.1 Test Setup Diagram



7.3.2 Measurement Procedure and Data

1) The mains terminal disturbance voltage test was conducted in a shielded room.

2) The EUT was connected to AC power source through a LISN 1 (Line Impedance Stabilization Network) which provides a 50ohm/50μH + 5ohm linear impedance. The power cables of all other units of the EUT were connected to a second LISN 2, which was bonded to the ground reference plane in the same way as the LISN 1 for the unit being measured. A multiple socket outlet strip was used to connect multiple power cables to a single LISN provided the rating of the LISN was not exceeded.

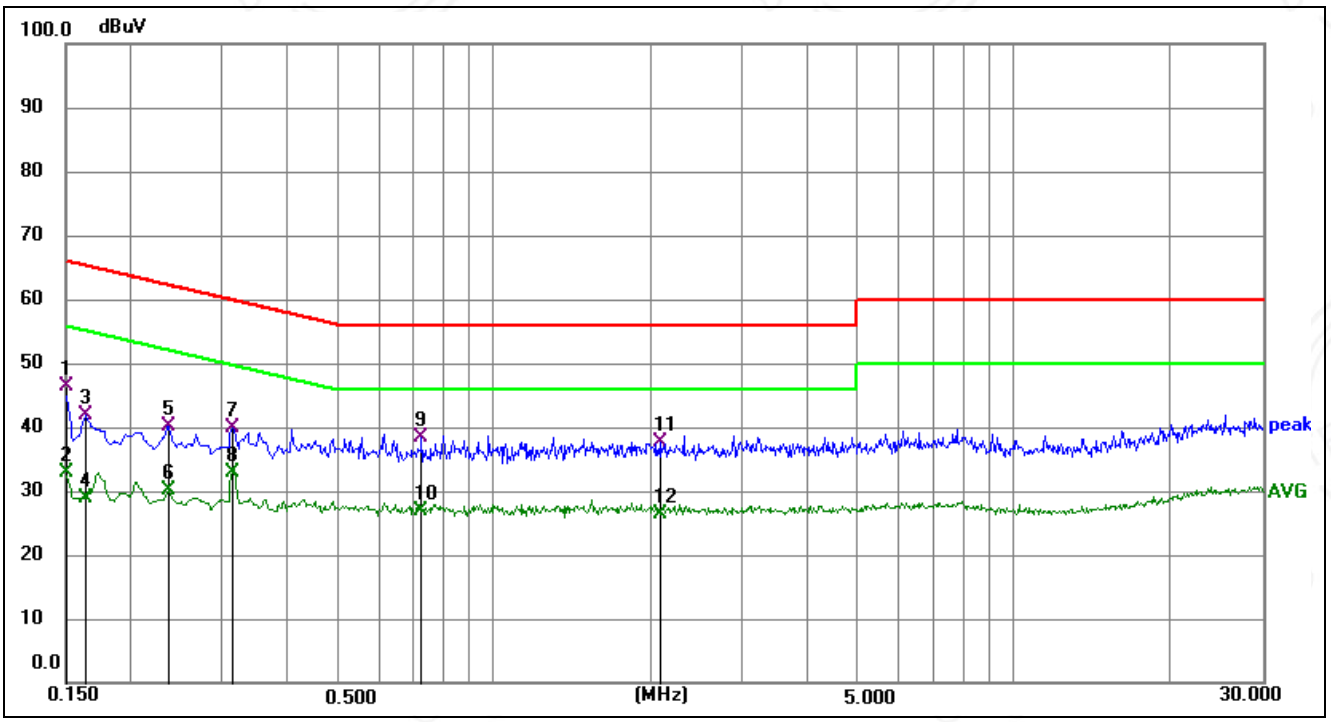
3) The tabletop EUT was placed upon a non-metallic table 0.8m above the ground reference plane. And for floor-standing arrangement, the EUT was placed on the horizontal ground reference plane.

4) The test was performed with a vertical ground reference plane. The rear of the EUT shall be 0.4 m from the vertical ground reference plane. The vertical ground reference plane was bonded to the horizontal ground reference plane. The LISN 1 was placed 0.8 m from the boundary of the unit under test and bonded to a ground reference plane for LISNs mounted on top of the ground reference plane. This distance was between the closest points of the LISN 1 and the EUT. All other units of the EUT and associated equipment was at least 0.8 m from the LISN 2.

5) In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.10 on conducted measurement.

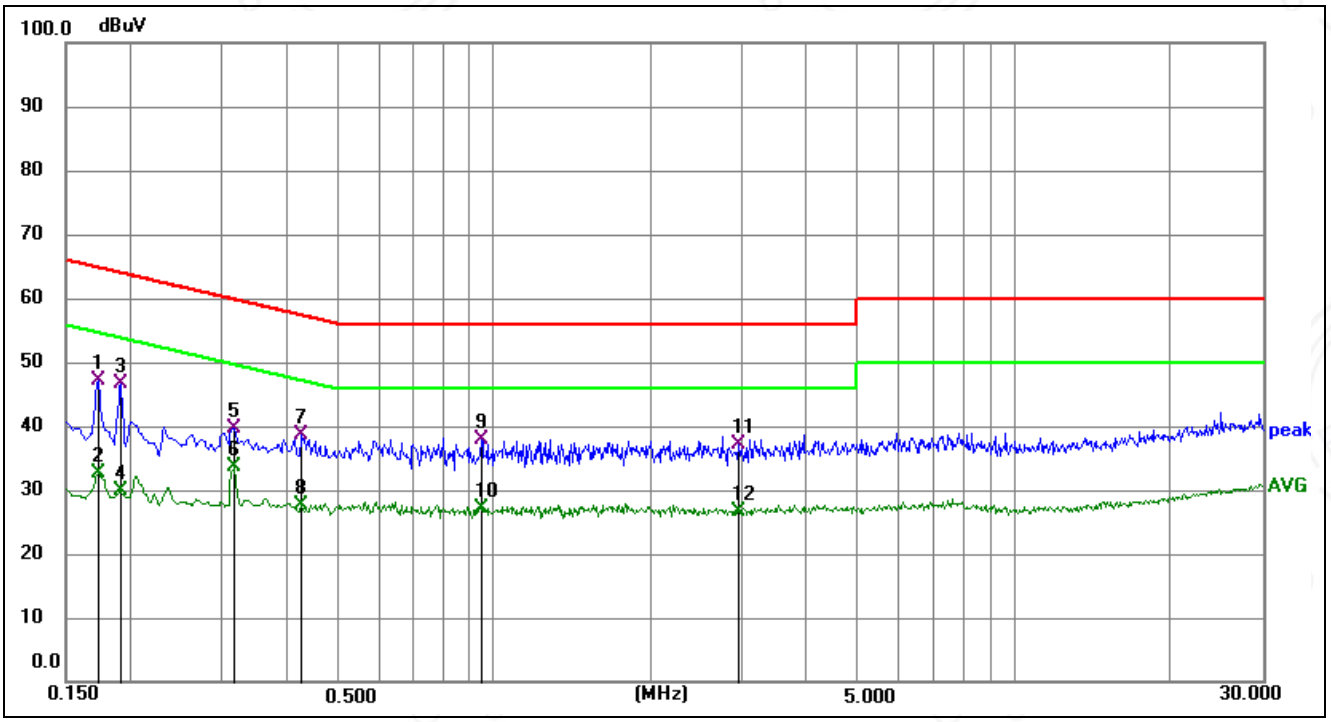
Remark: LISN=Read Level+ Cable Loss+ LISN Factor

Test Mode	Communication	Polarity:	Neutral



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F	Remark
1	0.1500	26.40	19.91	46.31	66.00	-19.69	QP	P	
2	0.1500	13.08	19.91	32.99	56.00	-23.01	AVG	P	
3	0.1635	22.07	19.91	41.98	65.28	-23.30	QP	P	
4	0.1635	9.05	19.91	28.96	55.28	-26.32	AVG	P	
5	0.2355	20.13	19.94	40.07	62.25	-22.18	QP	P	
6	0.2355	10.09	19.94	30.03	52.25	-22.22	AVG	P	
7	0.3120	19.94	19.95	39.89	59.92	-20.03	QP	P	
8 *	0.3120	12.96	19.95	32.91	49.92	-17.01	AVG	P	
9	0.7260	18.46	20.01	38.47	56.00	-17.53	QP	P	
10	0.7260	6.96	20.01	26.97	46.00	-19.03	AVG	P	
11	2.0850	17.57	20.17	37.74	56.00	-18.26	QP	P	
12	2.0850	6.20	20.17	26.37	46.00	-19.63	AVG	P	

Test Mode	Communication	Polarity:	Line



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F	Remark
1	0.1725	27.31	19.86	47.17	64.84	-17.67	QP	P	
2	0.1725	12.75	19.86	32.61	54.84	-22.23	AVG	P	
3	0.1905	26.72	19.86	46.58	64.01	-17.43	QP	P	
4	0.1905	9.98	19.86	29.84	54.01	-24.17	AVG	P	
5	0.3165	19.83	19.88	39.71	59.80	-20.09	QP	P	
6 *	0.3165	13.70	19.88	33.58	49.80	-16.22	AVG	P	
7	0.4245	18.81	19.87	38.68	57.36	-18.68	QP	P	
8	0.4245	7.84	19.87	27.71	47.36	-19.65	AVG	P	
9	0.9465	17.84	20.00	37.84	56.00	-18.16	QP	P	
10	0.9465	7.13	20.00	27.13	46.00	-18.87	AVG	P	
11	2.9490	16.79	20.22	37.01	56.00	-18.99	QP	P	
12	2.9490	6.44	20.22	26.66	46.00	-19.34	AVG	P	

8 Test Setup Photo

Please Refer to Appendix – Test Setup Photos.

9 EUT Constructional Details (EUT Photos)

Please Refer to Appendix - External and Internal Appendix EUT Photos

- End of the Report -