

TEST REPORT

Application No.: SZEM2101001356CR
Applicant: Harman International Industries, Inc.
Address of Applicant: 8500 Balboa Boulevard, Northridge, California, 91329, United States
Manufacturer: Harman International Industries, Inc.
Address of Manufacturer: 8500 Balboa Boulevard, Northridge, California, 91329, United States
Factory: ASAP Technology (Jiangxi) Co., Ltd.
Address of Factory: Ji'an Industrial Park, Ji'an, Jiangxi 343100 China
Equipment Under Test (EUT):
EUT Name: Wireless Charging Station
Model No.: ILINSSTAND
Trade Mark: INFINITYLAB
FCC ID: APIINFILINSSTAND
Standard(s) : 47 CFR Part 15, Subpart C
Date of Receipt: 2021-01-29
Date of Test: 2021-02-05 to 2021-02-23
Date of Issue: 2021-03-30

Test Result:	Pass*
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* In the configuration tested, the EUT complied with the standards specified above.

Keny Xu

Keny Xu
EMC Laboratory Manager



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Revision Record				
Version	Chapter	Date	Modifier	Remark
01		2021-03-30		Original

Authorized for issue by:				
		Benson Wang		
		Benson Wang/Project Engineer		
		Eric Fu		
		Eric Fu/Reviewer		

2 Test Summary

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

Radio Spectrum Matter Part				
Item	Standard	Method	Requirement	Result
Conducted Emissions at AC Mains Power Port (150kHz-30MHz)	47 CFR Part 15, Subpart C	ANSI C63.10 (2013) Section 6.2	47 CFR Part 15, Subpart C 15.207	Pass
Radiated Emissions (9kHz-30MHz)		ANSI C63.10 (2013) Section 6.4	47 CFR Part 15, Subpart C 15.205 & 15.209	Pass
Radiated Emissions (30MHz-1GHz)		ANSI C63.10 (2013) Section 6.5	47 CFR Part 15, Subpart C 15.205 & 15.209	Pass
20dB Bandwidth		ANSI C63.10 (2013) Section 6.9.2	47 CFR Part 15, Subpart C 15.215	Pass
Restricted Bands		ANSI C63.10 (2013) Section 6.10.5	47 CFR Part 15, Subpart C 15.205	Pass



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4 General Information

4.1 Details of E.U.T.

Power supply:	Powered by adapter: Adapter Model: ILADPT33W Input: AC 100 - 240V, 50/60Hz, 1.5A; Output: DC 21.0V / 2.14A, 44.9W
Cable(s):	DC cable of adapter: 146cm unshielded
Operation frequency:	126.500kHz to 129.000kHz
Modulation Type:	Load Modulation
Antenna Type:	Loop Antenna Remark: The transfer system includes only single primary and secondary coils, the clients that are able to detect and allow coupling only between individual pairs of coils.
Remark:	This device has been tested the worst status of full load and the device has been tested with load at 5W, 7.5W 10W and 15W, the worst case 15W working with primary coil is reported only.

4.2 Description of Support Units

Description	Manufacturer	Model No.	Serial No.
Mobile Phone	SAMSUNG	SM-G9810	REF. No.SEA16K00
Electronic load	Provided by SGS	N/A	N/A

4.3 Measurement Uncertainty

Test Item	Measurement Uncertainty
Conducted Emissions at AC Mains Power Port (150kHz-30MHz)	$\pm 3.0\text{dB}$ (150kHz to 30MHz)
Radiated Emissions (30MHz-1GHz)	$\pm 4.5\text{dB}$
Radiated Emissions (9kHz-30MHz)	$\pm 4.5\text{dB}$
20dB Bandwidth	$\pm 3\%$
Restricted Bands	$\pm 3\%$

Remark:

The U_{lab} (lab Uncertainty) is less than U_{CISPR} (CISPR Uncertainty), so the test results

- compliance is deemed to occur if no measured disturbance level exceeds the disturbance limit;
- non-compliance is deemed to occur if any measured disturbance level exceeds the disturbance limit.

4.4 Test Location

All tests were performed at:

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen Branch

No. 1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, Guangdong, China. 518057.

Tel: +86 755 2601 2053 Fax: +86 755 2671 0594

No tests were sub-contracted.

4.5 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

- **A2LA (Certificate No. 3816.01)**

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory is accredited by the American Association for Laboratory Accreditation(A2LA). Certificate No. 3816.01.

- **VCCI**

The 3m Fully-anechoic chamber for above 1GHz, 10m Semi-anechoic chamber for below 1GHz, Shielded Room for Mains Port Conducted Interference Measurement and Telecommunication Port Conducted Interference Measurement of SGS-CSTC Standards Technical Services Co., Ltd. have been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: G-20026, R-14188, C-12383 and T-11153 respectively.

- **FCC –Designation Number: CN1178**

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory has been recognized as an accredited testing laboratory.

Designation Number: CN1178. Test Firm Registration Number: 406779.

- **Innovation, Science and Economic Development Canada**

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory has been recognized by ISED as an accredited testing laboratory.

CAB identifier: CN0006.

IC#: 4620C.

4.6 Deviation from Standards

None

4.7 Abnormalities from Standard Conditions

None



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5 Equipment List

Conducted Emissions at AC Mains Power Port (150kHz-30MHz)					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
Shielding Room	ZhongYu Electron	GB-88	SEM001-06	2019-06-13	2022-06-12
EMI Test Receiver	Rohde&Schwarz	ESCI	SEM004-02	2020-03-24	2021-03-23
Measurement Software	AUDIX	e3 V8.2014-6-27	N/A	N/A	N/A
Coaxial Cable	SGS	N/A	SEM024-01	2020-07-10	2021-07-09
LISN	Rohde&Schwarz	ENV216	SEM007-01	2020-09-23	2021-09-22
LISN	ETS-LINDGREN	3816/2	SEM007-02	2020-04-01	2021-03-31

Radiated Emissions (30MHz-1GHz)					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
10m Semi-Anechoic Chamber	SAEMC	FSAC1018	SEM001-03	2018-03-31	2021-03-30
MXE EMI receiver	KEYSIGHT	N9038A	SEM004-16	2020-11-02	2021-11-01
Trilog-Broadband Antenna	Schwarzbeck	VULB9168	SEM003-18	2019-08-08	2022-08-07
Pre-amplifier	Sonoma Instrument Co	310N	SEM005-04	2020-04-09	2021-04-08
Loop Antenna	ETS-Lindgren	6502	SEM003-08	2020-08-14	2023-08-13
Measurement Software	AUDIX	e3 V8.2014-6-27	N/A	N/A	N/A
Coaxial Cable	SGS	N/A	SEM029-01	2020-07-10	2021-07-09

Radiated Emissions (9kHz-30MHz)					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
10m Semi-Anechoic Chamber	SAEMC	FSAC1018	SEM001-03	2018-03-31	2021-03-30
MXE EMI receiver	KEYSIGHT	N9038A	SEM004-16	2020-11-02	2021-11-01
Trilog-Broadband Antenna	Schwarzbeck	VULB9168	SEM003-18	2019-08-08	2022-08-07
Pre-amplifier	Sonoma Instrument Co	310N	SEM005-04	2020-04-09	2021-04-08
Loop Antenna	ETS-Lindgren	6502	SEM003-08	2020-08-14	2023-08-13
Measurement Software	AUDIX	e3 V8.2014-6-27	N/A	N/A	N/A
Coaxial Cable	SGS	N/A	SEM029-01	2020-07-10	2021-07-09



20dB Bandwidth					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
Shielding Room	SAEMC	MSR733	SEM001-09	2019-06-13	2022-06-12
DC Power Supply	Rohde & Schwarz	NGSM 32/10	SEM011-04	2020-03-24	2021-03-23
Spectrum Analyzer	Rohde & Schwarz	FSU43	SEM004-08	2020-04-01	2021-03-31
Signal Generator	KEYSIGHT	N5173B	SEM006-05	2020-09-23	2021-09-22
Measurement Software	TST	TST PASS V1.0.5	N/A	N/A	N/A
Coaxial Cable	SGS	N/A	SEM031-02	2020-07-10	2021-07-09
Attenuator	Huber+Suhner	6620_SMA-50-1	SEM021-09	2020-05-21	2021-05-20
Programmable Temperature & Humidity Chamber	Votsch Industrietechnik GmbH	VT 4002	SEM002-15	2020-03-25	2021-03-24

Restricted Bands					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
Shielding Room	SAEMC	MSR733	SEM001-09	2019-06-13	2022-06-12
DC Power Supply	Rohde & Schwarz	NGSM 32/10	SEM011-04	2020-03-24	2021-03-23
Spectrum Analyzer	Rohde & Schwarz	FSU43	SEM004-08	2020-04-01	2021-03-31
Signal Generator	KEYSIGHT	N5173B	SEM006-05	2020-09-23	2021-09-22
Measurement Software	TST	TST PASS V1.0.5	N/A	N/A	N/A
Coaxial Cable	SGS	N/A	SEM031-02	2020-07-10	2021-07-09
Attenuator	Huber+Suhner	6620_SMA-50-1	SEM021-09	2020-05-21	2021-05-20
Programmable Temperature & Humidity Chamber	Votsch Industrietechnik GmbH	VT 4002	SEM002-15	2020-03-25	2021-03-24

General used equipment					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
Humidity/ Temperature Indicator	Shanghai Meteorological Industry Factory	ZJ1-2B	SEM002-04	2020-09-15	2021-09-14
Humidity/ Temperature Indicator	Mingle	N/A	SEM002-08	2020-09-15	2021-09-14
Barometer	Changchun Meteorological Industry Factory	DYM3	SEM002-01	2020-04-07	2021-04-06



6 Radio Spectrum Technical Requirement

6.1 Antenna Requirement

6.1.1 Test Requirement:

47 CFR Part 15, Subpart C 15.203

Standard Requirement:

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. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

6.1.2 Conclusion

EUT Antenna:

The antenna is integrated on the main PCB and no consideration of replacement.

Refer to internal photos



7 Radio Spectrum Matter Test Results

7.1 Conducted Emissions at AC Mains Power Port (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.

7.1.1 E.U.T. Operation

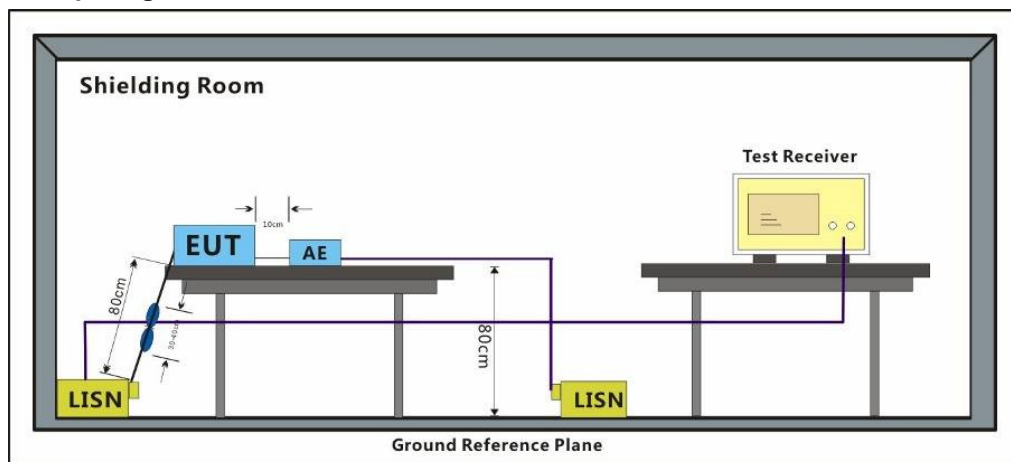
Operating Environment:

Temperature: 25.2 °C Humidity: 57.6 % RH Atmospheric Pressure: 1010 mbar

7.1.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	03	Discharge mode(WPC): Keep the EUT discharging by WPC function and the worst case which support 15W.

7.1.3 Test Setup Diagram



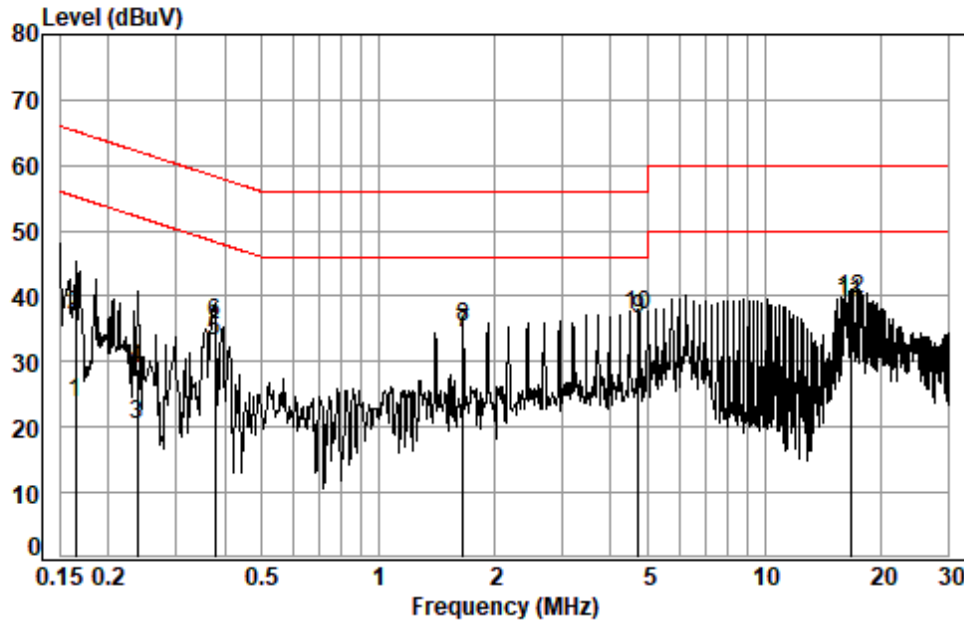
7.1.4 Measurement Procedure and Data

- 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: 03; Line: Live line

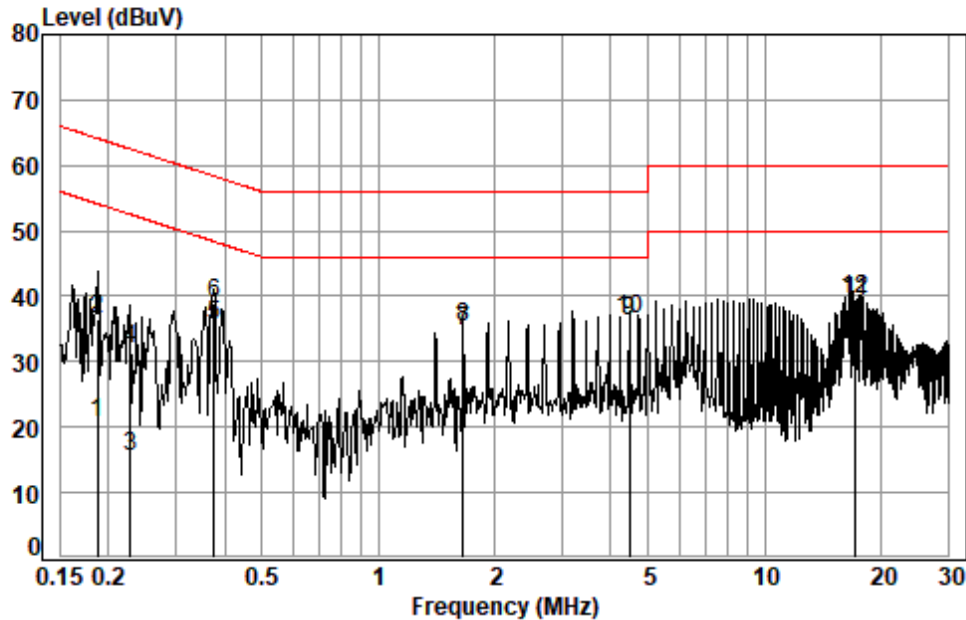


Site : Shielding Room
Condition: Line
Job No. : 01356CR
Test mode: 03

	Freq	Cable Loss	LISN Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB	dBuV	dBuV	dBuV	dB	
1	0.1641	0.03	9.71	13.96	23.70	55.25	-31.55	Average
2	0.1641	0.03	9.71	27.47	37.21	65.25	-28.04	QP
3	0.2378	0.04	9.74	10.71	20.49	52.17	-31.68	Average
4	0.2378	0.04	9.74	19.13	28.91	62.17	-33.26	QP
5	0.3771	0.06	9.76	23.31	33.13	48.34	-15.21	Average
6	0.3771	0.06	9.76	25.97	35.79	58.34	-22.55	QP
7	1.6625	0.12	9.80	24.49	34.41	46.00	-11.59	Average
8	1.6625	0.12	9.80	25.32	35.24	56.00	-20.76	QP
9	4.7277	0.16	9.92	26.46	36.54	46.00	-9.46	Average
10	4.7277	0.16	9.92	26.94	37.02	56.00	-18.98	QP
11	16.7380	0.16	10.66	28.17	38.99	50.00	-11.01	Average
12	16.7380	0.16	10.66	28.81	39.63	60.00	-20.37	QP



Test Mode: 03; Line: Neutral Line



Site : Shielding Room
Condition: Neutral
Job No. : 01356CR
Test mode: 03

	Freq	Cable Loss	LISN Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB	dBuV	dBuV	dBuV	dB	
1	0.1874	0.03	9.72	11.05	20.80	54.15	-33.35	Average
2	0.1874	0.03	9.72	26.86	36.61	64.15	-27.54	QP
3	0.2280	0.04	9.73	5.75	15.52	52.52	-37.00	Average
4	0.2280	0.04	9.73	22.26	32.03	62.52	-30.49	QP
5	0.3751	0.06	9.75	25.77	35.58	48.39	-12.81	Average
6	0.3751	0.06	9.75	29.13	38.94	58.39	-19.45	QP
7	1.6625	0.12	9.80	24.85	34.77	46.00	-11.23	Average
8	1.6625	0.12	9.80	25.49	35.41	56.00	-20.59	QP
9	4.4730	0.16	9.91	26.19	36.26	46.00	-9.74	Average
10	4.4730	0.16	9.91	26.46	36.53	56.00	-19.47	QP
11	17.2513	0.16	10.68	28.33	39.17	50.00	-10.83	Average
12	17.2513	0.16	10.68	28.69	39.53	60.00	-20.47	QP



7.2 Radiated Emissions (9kHz-30MHz)

Test Requirement 47 CFR Part 15, Subpart C 15.205 & 15.209
Test Method: ANSI C63.10 (2013) Section 6.4
Measurement Distance: 3m

Limit:

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

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. 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.

If field strength is measured at only a single point, then that point shall be at the radial from the EUT that produces the maximum emission at the frequency being measured, as described in 5.4. If that point is closer to the EUT than $\lambda/2\pi$ and the limit distance is greater than $\lambda/2\pi$, the measurement shall be extrapolated to the limit distance by conservatively presuming that the field strength decreases at a 40 dB/decade of distance rate to the $\lambda/2\pi$ distance, and at a 20 dB/decade of distance rate beyond $\lambda/2\pi$. This shall be accomplished using Equation (2):

$$FS_{(10m)} = FS_{(30/300m)} + 40\log\{d_{(near\ field)}/d_{(10m)}\} + 20\log\{d_{(30/300m)}/d_{(near\ field)}\} \quad (2)$$

If the single point measured is at a distance greater than $\lambda/2\pi$, then extrapolation to the limit distance shall be calculated using Equation (3):

$$FS_{(10m)} = FS_{(30/300m)} + 20\log\{d_{(30/300m)}/d_{(10m)}\} \quad (3)$$

If both the single point and the limit distance are equal to or closer to the EUT than $\lambda/2\pi$, then extrapolation to the limit distance shall be calculated using Equation (4):

$$FS_{(10m)} = FS_{(30/300m)} + 40\log\{d_{(30/300m)}/d_{(10m)}\} \quad (4)$$

Remark:

$$d_{near\ field} = 47.77 / f_{MHz}$$

where f_{MHz} is the frequency of the emission being measured in MHz.



7.2.1 E.U.T. Operation

Operating Environment:

Temperature: 25.1 °C

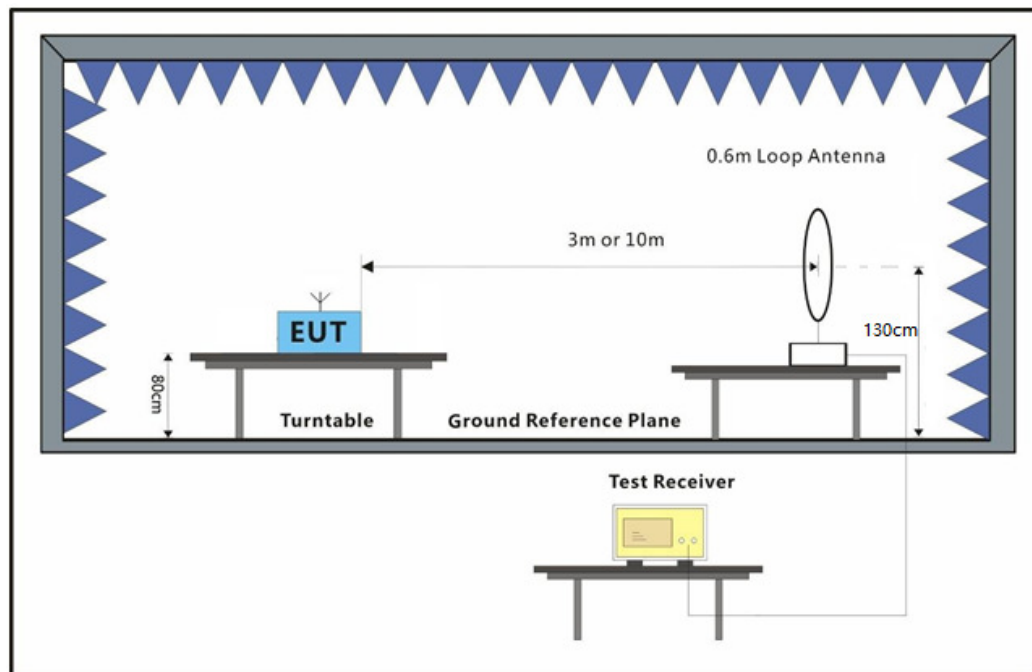
Humidity: 46.2 % RH

Atmospheric Pressure: 1010 mbar

7.2.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	03	Discharge mode(WPC): Keep the EUT discharging by WPC function and the worst case which support 15W.

7.2.3 Test Setup Diagram



7.2.4 Measurement Procedure and Data

- a. All radiated emission measurements in terms of magnetic field strength shall be performed with a shielded loop antenna.
- b. For all radiated emission measurements in terms of magnetic field strength, the loop antenna were placed such that:
 - i. its centre shall be at 1.3 m height above the ground plane;
 - ii. the projection of its centre onto the ground plane shall be at the specified measurement distance from the projection on the ground plane of the closest point on the boundary of the equipment under test (EUT); and
 - iii. measurements shall be performed with the loop antenna placed vertically, in turn, in two polarizations (the measurement axis specified below is the line segment connecting the projections on the ground plane of the centre of the loop antenna and the centre of the EUT arrangement):
 - coaxial (loop plane perpendicular to the ground plane and to the measurement axis); and
 - coplanar (loop plane perpendicular to the ground plane and coplanar with the measurement axis).

Only the worst position of coaxial was shown in the report.

Remark 1: Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor



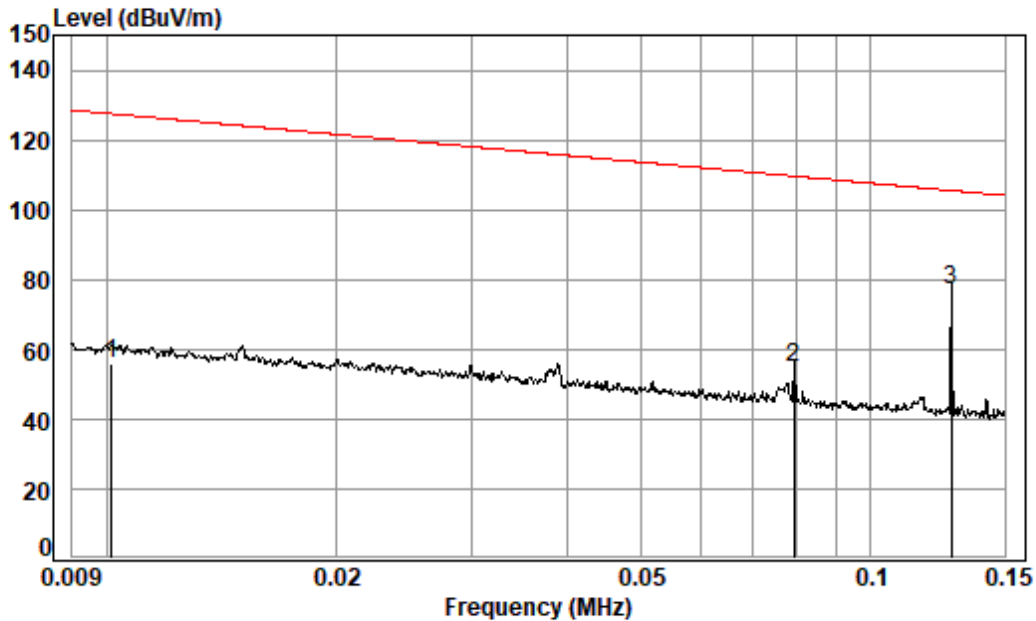
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9KHz to 30MHz



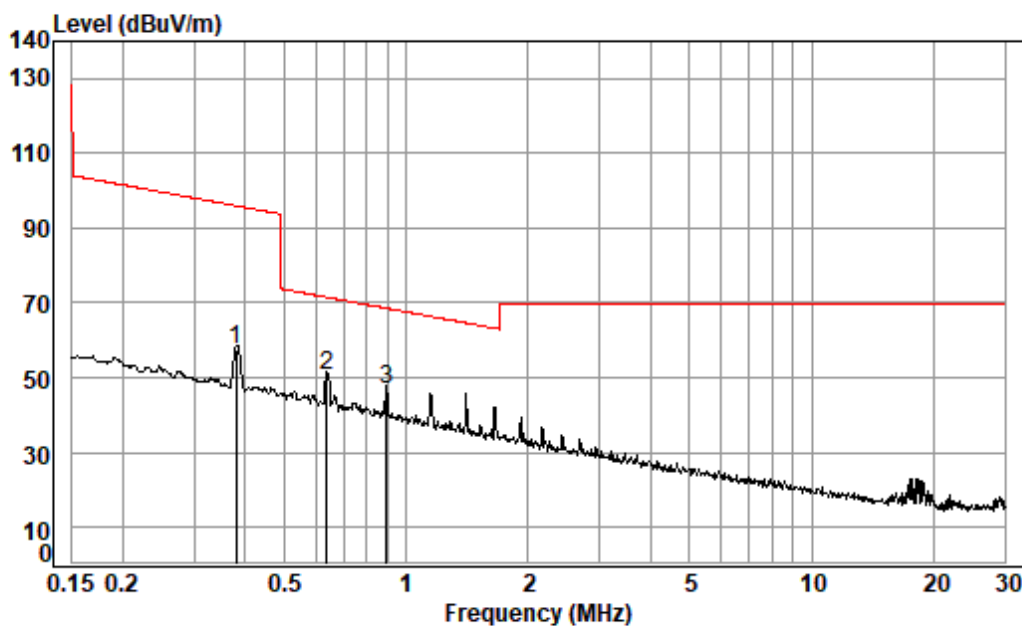
Condition: 3m

Job No. : 01356CR

Test Mode: 03

	Freq	Read Level	Ant Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	0.010	69.17	18.47	0.01	31.48	56.17	127.49	-71.32	Average
2	0.079	76.03	11.18	0.01	32.50	54.72	109.61	-54.89	Average
3 pp	0.128	98.52	11.02	0.02	32.50	77.06	105.48	-28.42	Average





Condition: 3m

Job No. : 01356CR

Test Mode: 03

		Read	Ant	Cable	Preamp	Limit	Over	
	Freq	Level	Factor	Loss	Factor	Level	Line	Limit Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB
1	av	0.381	78.92	10.87	0.33	32.50	57.62	95.98 -38.36 Average
2	pp	0.637	71.66	10.84	0.58	32.50	50.58	71.52 -20.94 QP
3		0.894	67.94	10.83	0.56	32.50	46.83	68.57 -21.74 QP



7.3 Radiated Emissions (30MHz-1GHz)

Test Requirement 47 CFR Part 15, Subpart C 15.205 & 15.209
Test Method: ANSI C63.10 (2013) Section 6.5
Measurement Distance: 10m

Limit:

Frequency(MHz)	Field strength(microvolts/meter)	Measurement distance(meters)
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.

7.3.1 E.U.T. Operation

Operating Environment:

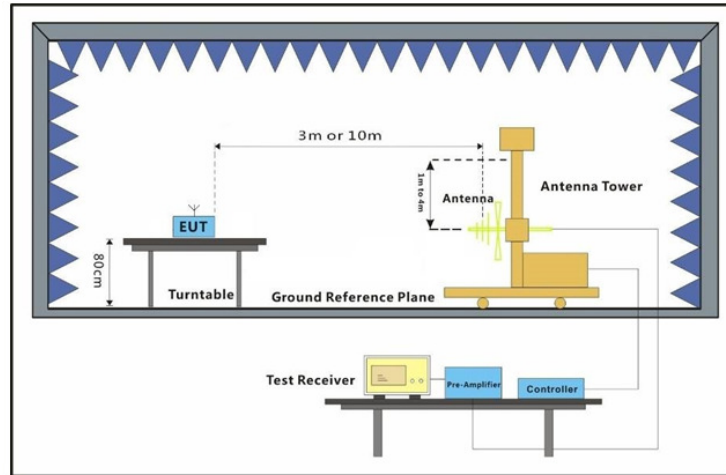
Temperature: 25.1 °C Humidity: 46.2 % RH Atmospheric Pressure: 1010 mbar

7.3.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	03	Discharge mode(WPC): Keep the EUT discharging by WPC function and the worst case which support 15W.



7.3.3 Test Setup Diagram



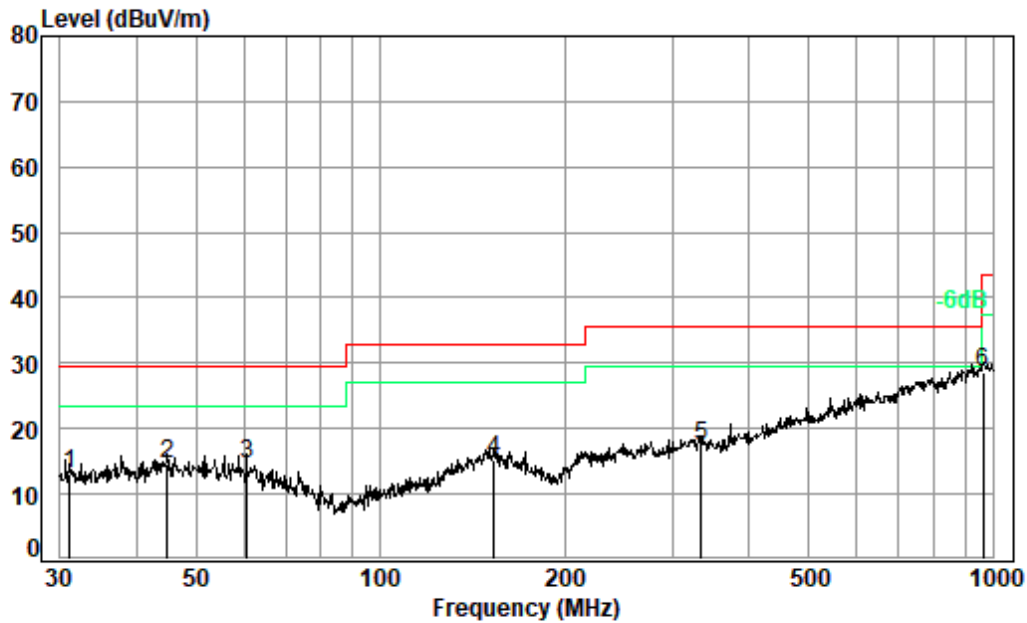
7.3.4 Measurement Procedure and Data

- The EUT was placed on the top of a rotating table 0.8 meters above the ground for below 1GHz at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- 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.
- 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.
- The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- 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.
- Repeat above procedures until all frequencies measured was complete.

Remark: Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor



Test Mode: 03; Polarity: Horizontal



Condition: 10m HORIZONTAL

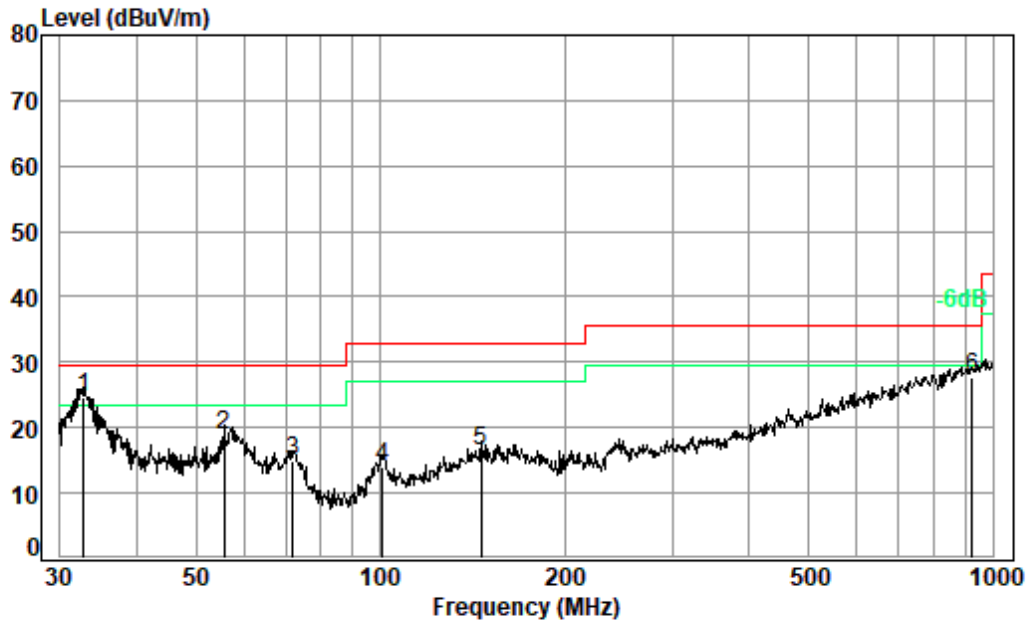
Job No. : 01356CR

Test Mode: 03

		Ant	Preamp	Cable	Read		Limit	Over	
	Freq	Factor	Factor	Loss	Level	Level	Line	Limit	Remark
	MHz	dB/m	dB	dB	dBuV	dBuV/m	dBuV/m	dB	
1	31.071	18.65	32.50	0.88	26.04	13.07	29.50	-16.43	QP
2	44.901	20.39	32.50	0.95	25.67	14.51	29.50	-14.99	QP
3	60.492	19.10	32.49	1.05	26.84	14.50	29.50	-15.00	QP
4	153.200	20.07	32.42	1.50	26.09	15.24	33.00	-17.76	QP
5	333.687	20.50	32.36	2.27	26.98	17.39	35.60	-18.21	QP
6 pp	965.542	29.98	31.00	3.60	25.93	28.51	43.50	-14.99	QP



Test Mode: 03; Polarity: Vertical



Condition: 10m VERTICAL

Job No. : 01356CR

Test Mode: 03

		Ant	Preamp	Cable	Read		Limit	Over	
	Freq	Factor	Factor	Loss	Level	Level	Line	Limit	Remark
	MHz	dB/m	dB	dB	dBuV	dBuV/m	dBuV/m	dB	
1	pp	32.749	18.97	32.50	0.89	37.29	24.65	29.50	-4.85 QP
2		55.609	19.62	32.49	1.01	30.59	18.73	29.50	-10.77 QP
3		72.084	16.88	32.47	1.10	29.50	15.01	29.50	-14.49 QP
4		100.934	15.49	32.45	1.27	29.58	13.89	33.00	-19.11 QP
5		145.861	20.00	32.42	1.47	27.46	16.51	33.00	-16.49 QP
6		925.756	29.80	31.36	3.50	25.81	27.75	35.60	-7.85 QP



The test was performed at a 10m test site. According to below formulate and the test data at 10m test distance,

$$L_3 / L_{10} = D_{10} / D_3$$

Note:

L₃: Level @ 3m distance. Unit: uV/m;

L₁₀: Level @ 10m distance. Unit: uV/m;

D₃: 3m distance. Unit: m

D₁₀: 10m distance. Unit: m

The level at 3m test distance is below:

Frequency (MHz)	Level @ 10m (dBuV/m)	Level @ 10m (uV/m)	Level @ 3m (uV/m)	Level @ 3m (dBuV/m)	Limit @ 3m (dBuV/m)	Margin (dB)	Ant. Polarization
32.75	24.65	17.08	56.93	35.11	40.00	-4.89	V
55.61	18.73	8.64	28.80	29.19	40.00	-10.81	V
72.08	15.01	5.63	18.77	25.47	40.00	-14.53	V
100.93	13.89	4.95	16.50	24.35	43.50	-19.15	V
145.86	16.51	6.69	22.30	26.97	43.50	-16.53	V
925.76	27.75	24.41	81.35	38.21	46.00	-7.79	V
31.07	13.07	4.50	15.01	23.53	40.00	-16.47	H
44.90	14.51	5.31	17.72	24.97	40.00	-15.03	H
60.49	14.50	5.31	17.70	24.96	40.00	-15.04	H
153.20	15.24	5.78	19.27	25.70	43.50	-17.80	H
333.69	17.39	7.40	24.68	27.85	46.00	-18.15	H
965.54	28.51	26.64	88.79	38.97	54.00	-15.03	H



7.4 20dB Bandwidth

Test Requirement 47 CFR Part 15, Subpart C 15.215
Test Method: ANSI C63.10 (2013) Section 6.9.2
Limit: For report reference only

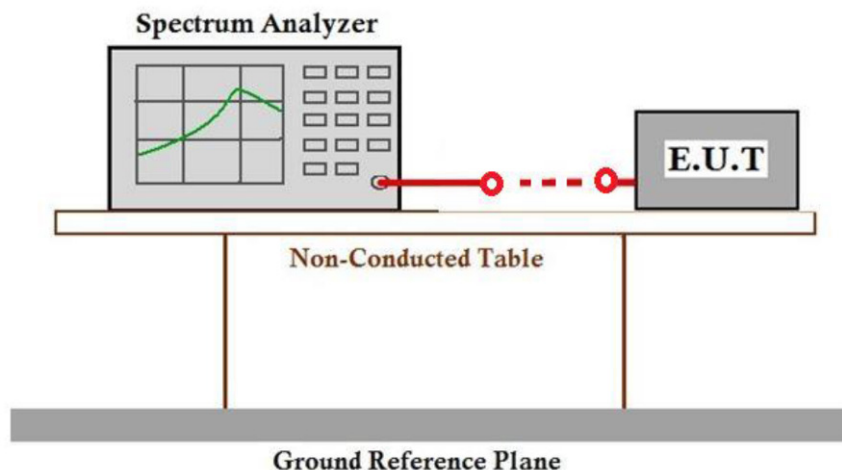
7.4.1 E.U.T. Operation

Operating Environment:
Temperature: 25.8 °C Humidity: 31.0 % RH Atmospheric Pressure: 1010 mbar

7.4.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	03	Discharge mode(WPC): Keep the EUT discharging by WPC function and the worst case which support 15W.

7.4.3 Test Setup Diagram



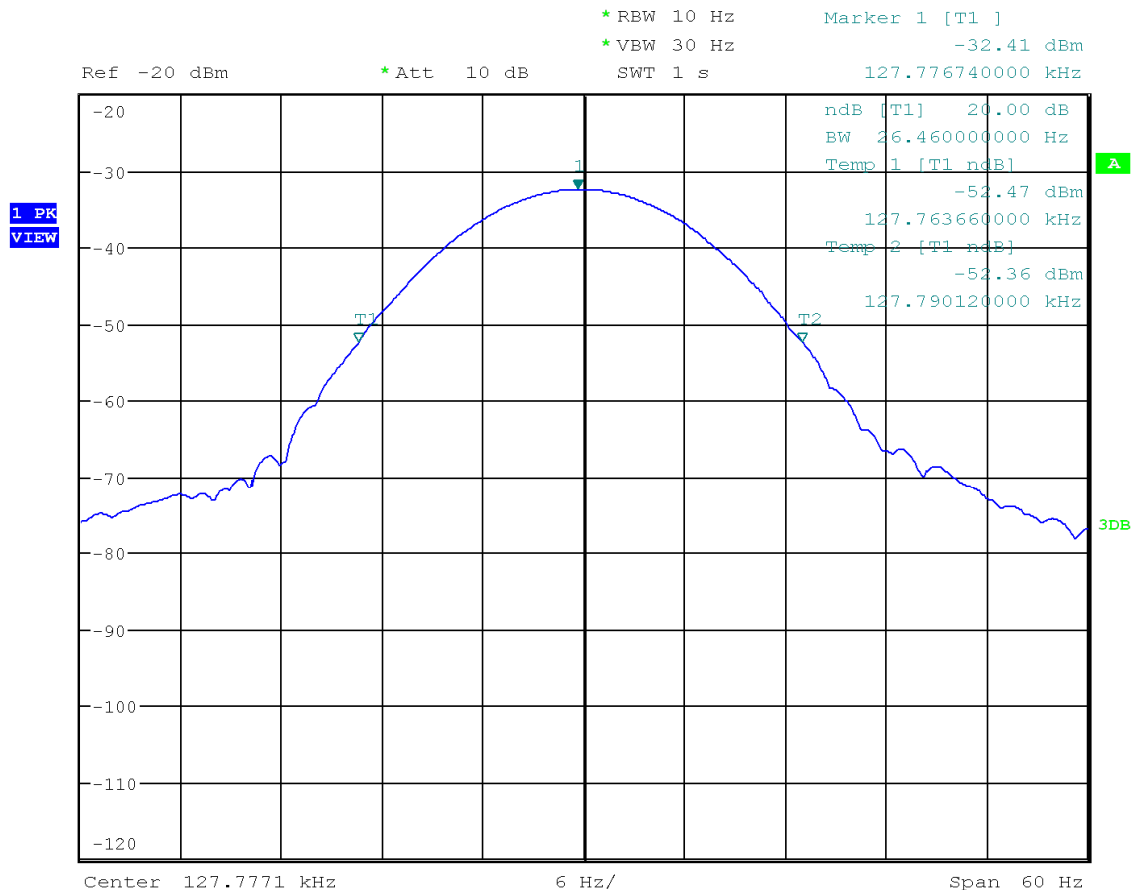
7.4.4 Measurement Procedure and Data



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Test Frequency(KHz)	20dB bandwidth (KHz)	Limit (KHz)	Results
127.777	0.026	N/A	Pass



7.5 Restricted Bands

Test Requirement: 47 CFR Part 15, Subpart C 15.205
 Test Method: ANSI C63.10 (2013) Section 6.10.5
 Limit: The fundamental wave could not fall in the restricted band 90KHz-110KHz

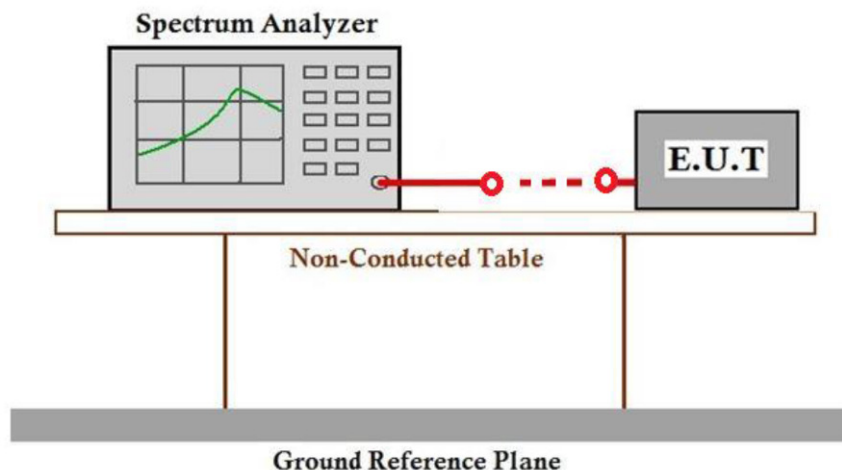
7.5.1 E.U.T. Operation

Operating Environment:
 Temperature: 25.8 °C Humidity: 31.0 % RH Atmospheric Pressure: 1010 mbar

7.5.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	03	Discharge mode(WPC): Keep the EUT discharging by WPC function and the worst case which support 15W.

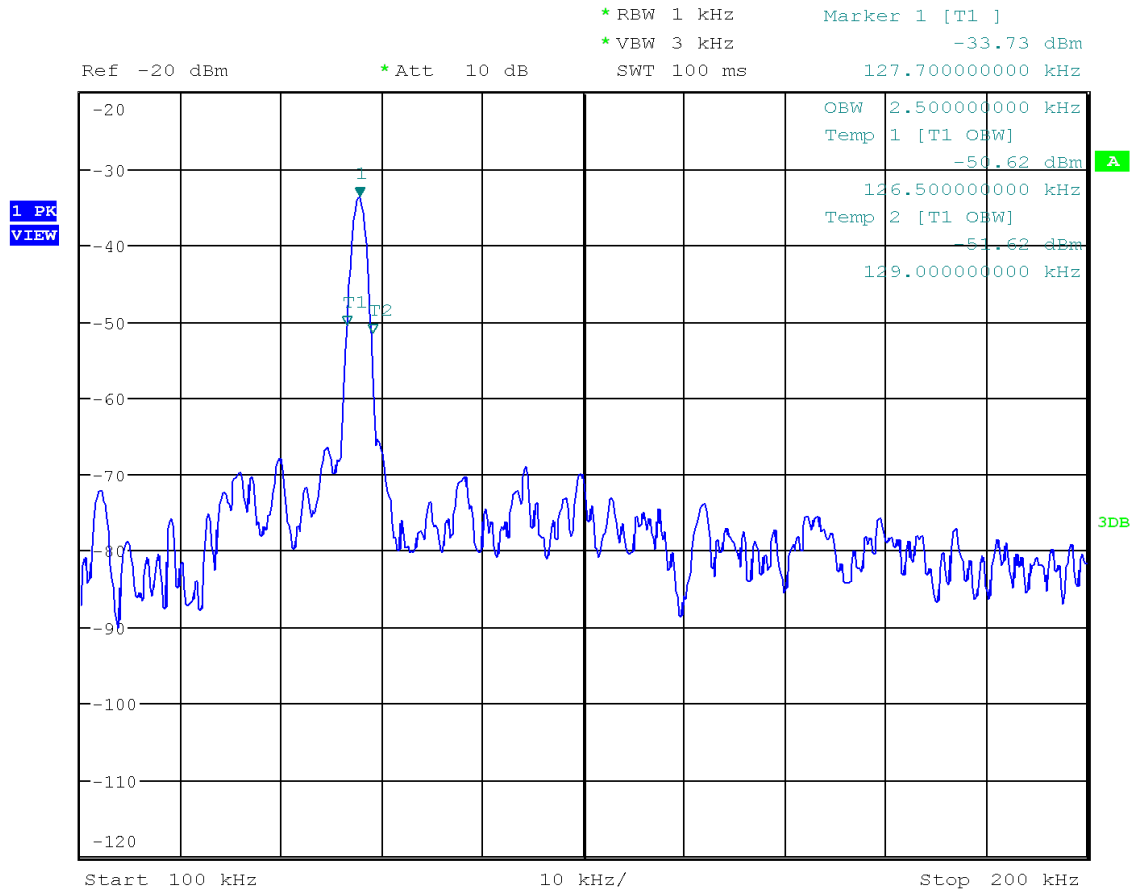
7.5.3 Test Setup Diagram



7.5.4 Measurement Procedure and Data



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According the test data above, the fundamental wave is not fall in the restricted band 90kHz-110kHz, the field strength also meet the 15.209 requirement, so this test is Pass.



8 Test Setup Photo

Refer to test setup photos for SZEM2101001356CR.

9 EUT Constructional Details (EUT Photos)

Refer to external and internal photos for SZEM2101001356CR.

- End of the Report -

