TEST REPORT

Application No.:	SZCR2311003610AT
Applicant:	Anker Innovations Limited
Address of Applicant:	Room 1318-19, Hollywood Plaza, 610 Nathan Road, Mongkok, Kowloon, HongKong
Manufacturer:	Anker Innovations Limited
Address of Manufacturer:	Room 1318-19, Hollywood Plaza, 610 Nathan Road, Mongkok, Kowloon, HongKong
Equipment Under Test (EUT):	
EUT Name:	Anker MagGo Wireless Charging Station
Model No.:	A25M3
Trade Mark:	Anker
FCC ID:	2AOKB-A25M3
Standard(s) :	47 CFR Part 15, Subpart C
Date of Receipt:	2023-11-09
Date of Test:	2023-11-16 to 2023-11-24
Date of Issue:	2023-11-29
Test Result:	**Pass***

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

Keny Xu
EMC Laboratory Manager

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Revision Record				
Version	**Chapter**	**Date**	**Modifier**	**Remark**
01		2023-11-29		Original

Authorized for issue by:				
		Charlie Dai		
		Charlie Dai/Project Engineer		
		Eric Fu		
		Eric Fu/Reviewer		

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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**
20dB Bandwidth	47 CFR Part 15, Subpart C	ANSI C63.10 (2013) Section 6.9.2	47 CFR Part 15, Subpart C 15.215	Pass
Conducted Emissions at AC Mains Power Port (150kHz-30MHz)		ANSI C63.10 (2013) Section 6.2	47 CFR Part 15, Subpart C 15.207	Pass
Restricted Bands		ANSI C63.10 (2013) Section 6.10.5	47 CFR Part 15, Subpart C 15.205	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

3 Contents

4 General Information

4.1 Details of E.U.T.

Power supply:	Adapter: Model: ASPD53a-P40W20 Input: 100-240V~50/60HZ 1.0A Output: 5.0V/3.0A, 9.0V/3.0A, 12.0V/3.0A, 15.0V/2.66A, 20.0V/2.0A Wireless output: Output 1: 5W/7.5W/15W(for iphone) Output 2: 5W(for iwatch) Output 3: 5W(for TWS)
Cable(s):	USB-C to USB-C 150cm unshielded
Operation frequency:	Output 1 (for iphone): 119.20-141.20kHz & 356.60-369.60kHz Output 2 (for iwatch): 325.32-327.60kHz & 1.776-1.779MHz Output 3 (for TWS): 111.40-180.00kHz
Modulation type:	Load modulation
Antenna type:	Loop Antenna
Duty Cycle:	100%

Remark:The information in this section is provided by the applicant or manufacturer, SGS is not liable to the accuracy, suitability, reliability or/and integrity of the information.

4.2 Description of Support Units

Description	Manufacturer	Model No.	Serial No.
iPhone 13	Apple	MLDYCH/A	REF. No.SEA16Q00
iWatch	Apple	Apple Watch 3	N/A
TWS	Anker	A3930	N/A
iWatch	Apple	Apple Watch Series 7	N/A
E-loading	SGS	N/A	REF. No.SEA42A00

4.3 Measurement Uncertainty

Test Item	Measurement Uncertainty
20dB Bandwidth	± 0.3%
Conducted Emissions at AC Mains Power Port (150kHz-30MHz)	± 3.1dB
Restricted Bands	± 0.3%
Radiated Emissions (9kHz-30MHz)	± 3.6dB
Radiated Emissions (30MHz-1GHz)	± 6.0dB for 3m; ± 5.0dB for 10m

Remark:
The U_{lab} (lab Uncertainty) is less than $U_{cispr/ETSI}$ (CISPR/ETSI 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, Nanshan District, 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 (Member No. 1937)

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. Shenzhen EMC laboratory 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: CN1336

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

Designation Number: CN1336. Test Firm Registration Number: 787754.

• 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

5 Equipment List

20dB Bandwidth					
Equipment	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal Date**	**Cal Due Date**
DC Power Supply	Zhao Xin	PS-305D	SEM011-13	2023-09-20	2024-09-19
Spectrum Analyzer	Rohde & Schwarz	FSP30	SEM004-06	2023-09-19	2024-09-18
Measurement Software	TST PASS	TST PASS V2.0	N/A	N/A	N/A
Coaxial Cable	SGS	N/A	SEM031-01	2023-07-07	2024-07-06
Attenuator	Huber+Suhner	6620_SMA-50-1	SEM021-09	2023-03-31	2024-03-30

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	2022-05-14	2025-05-13
EMI Test Receiver	Rohde&Schwarz	ESCI	SEM004-02	2023-03-20	2024-03-19
Measurement Software	AUDIX	e3 V8.2014-6-27a	N/A	N/A	N/A
Coaxial Cable	SGS	N/A	SEM024-01	2023-07-07	2024-07-06
LISN	Rohde&Schwarz	ENV216	SEM007-01	2023-09-19	2024-09-18
LISN	ETS-LINDGREN	3816/2	SEM007-02	2023-03-20	2024-03-19

Restricted Bands					
Equipment	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal Date**	**Cal Due Date**
DC Power Supply	Zhao Xin	PS-305D	SEM011-13	2023-09-20	2024-09-19
Spectrum Analyzer	Rohde & Schwarz	FSP30	SEM004-06	2023-09-19	2024-09-18
Measurement Software	TST PASS	TST PASS V2.0	N/A	N/A	N/A
Coaxial Cable	SGS	N/A	SEM031-01	2023-07-07	2024-07-06
Attenuator	Huber+Suhner	6620_SMA-50-1	SEM021-09	2023-03-31	2024-03-30

Radiated Emissions (9kHz-30MHz)					
Equipment	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal Date**	**Cal Due Date**
10m Semi-Anechoic Chamber	SAEMC	FSAC1018	SEM001-03	2021-03-27	2024-03-26
MXE EMI receiver	KEYSIGHT	N9038A	SEM004-16	2023-10-19	2024-10-18
Trilog-Broadband Antenna	Schwarzbeck	VULB9168	SEM003-18	2023-09-23	2025-09-22
Pre-amplifier	Sonoma Instrument Co	310N	SEM005-04	2023-03-31	2024-03-30

Loop Antenna	ETS-Lindgren	6502	SEM003-08	2023-11-20	2025-11-19
Measurement Software	AUDIX	e3 V8.2014-6-27	N/A	N/A	N/A
Coaxial Cable	SGS	N/A	SEM029-01	2023-07-07	2024-07-06

Radiated Emissions (30MHz-1GHz)

Equipment	Manufacturer	Model No.	Inventory No.	Cal Date	Cal Due Date
10m Semi-Anechoic Chamber	SAEMC	FSAC1018	SEM001-03	2021-03-27	2024-03-26
MXE EMI receiver	KEYSIGHT	N9038A	SEM004-16	2023-10-19	2024-10-18
Trilog-Broadband Antenna	Schwarzbeck	VULB9168	SEM003-18	2023-09-23	2025-09-22
Pre-amplifier	Sonoma Instrument Co	310N	SEM005-04	2023-03-31	2024-03-30
Loop Antenna	ETS-Lindgren	6502	SEM003-08	2023-11-20	2025-11-19
Measurement Software	AUDIX	e3 V8.2014-6-27	N/A	N/A	N/A
Coaxial Cable	SGS	N/A	SEM029-01	2023-07-07	2024-07-06

General used equipment

Equipment	Manufacturer	Model No.	Inventory No.	Cal Date	Cal Due Date
Humidity/ Temperature Indicator	deli	8838	SEM002-32	2023-07-28	2024-07-27
Humidity/ Temperature Indicator	deli	8838	SEM002-33	2023-07-28	2024-07-27
Barometer	Changchun Meteorological Industry Factory	DYM3	SEM002-01	2023-03-23	2024-03-22

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

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

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 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

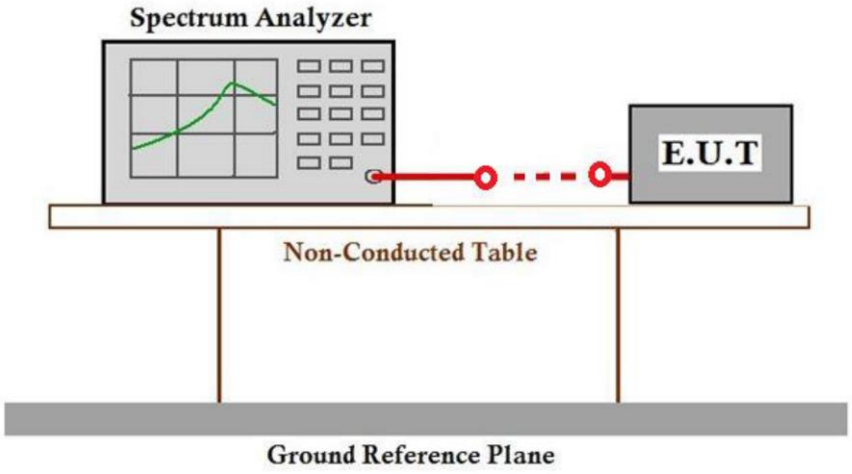
7.1.1 E.U.T. Operation

Operating Environment:
Temperature: 23.7 °C Humidity: 46.8 % RH Atmospheric Pressure: 1000 mbar

7.1.2 Test Mode Description

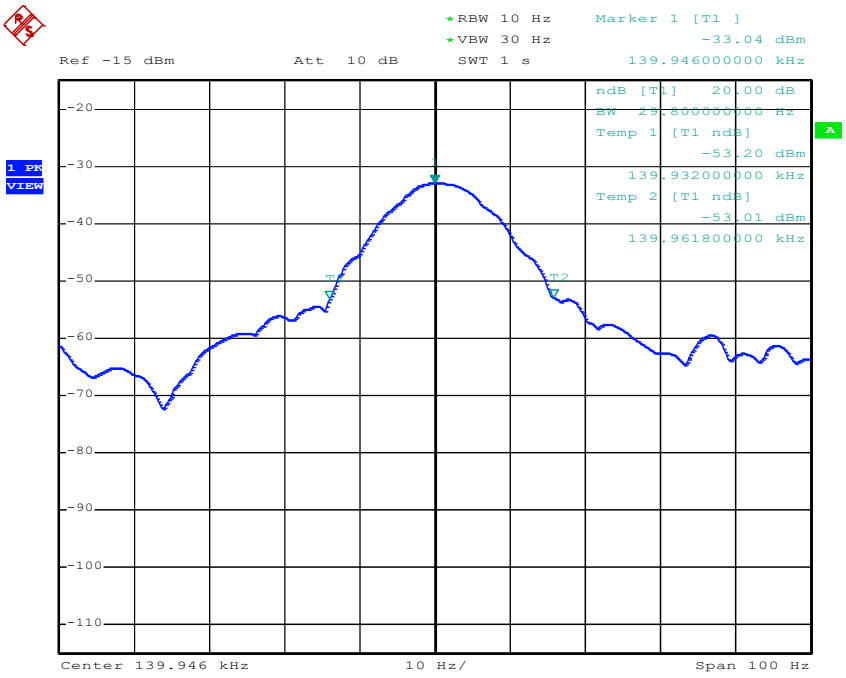
Pre-scan / Final test	Mode Code	Description
Final test	00	Operation(Wireless):Keep the EUT pairing with other devices(Output1: 5W).
Pre-scan	01	Operation(Wireless):Keep the EUT pairing with other devices(Output1: 7.5W).
Final test	02	Operation(Wireless):Keep the EUT pairing with other devices(Output1: 15W).
Final test	03	Operation(Wireless):Keep the EUT pairing with other devices(Output2: 5W).
Final test	04	Operation(Wireless):Keep the EUT pairing with other devices(Output3: 5W).

7.1.3 Test Setup Diagram

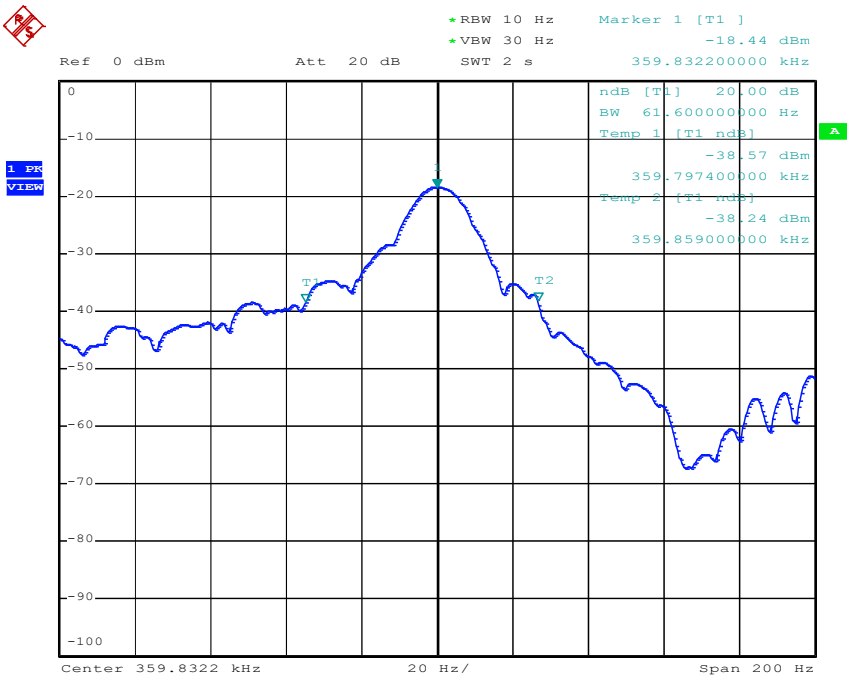


7.1.4 Measurement Procedure and Data

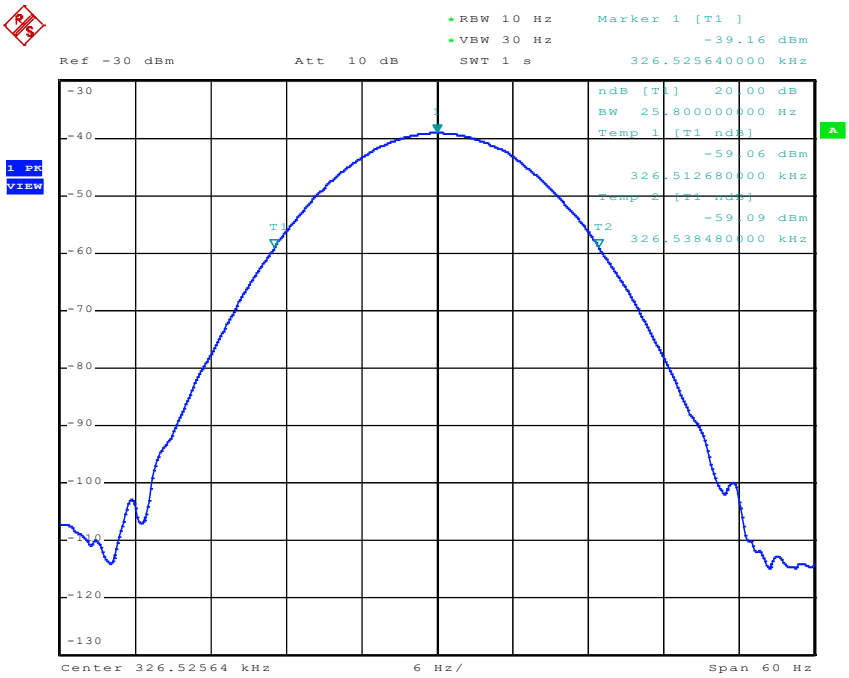
Mode 00

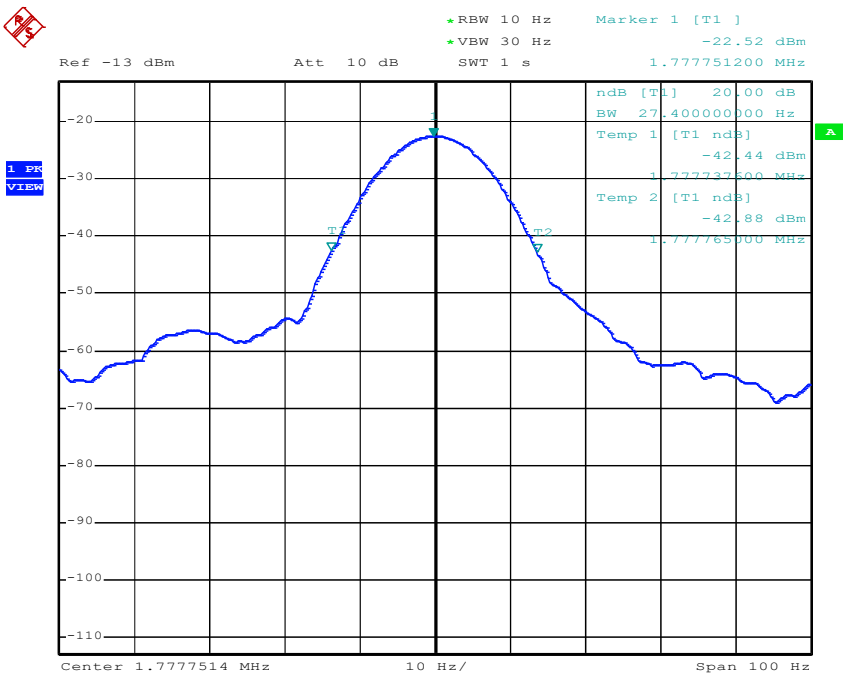


Mode 02

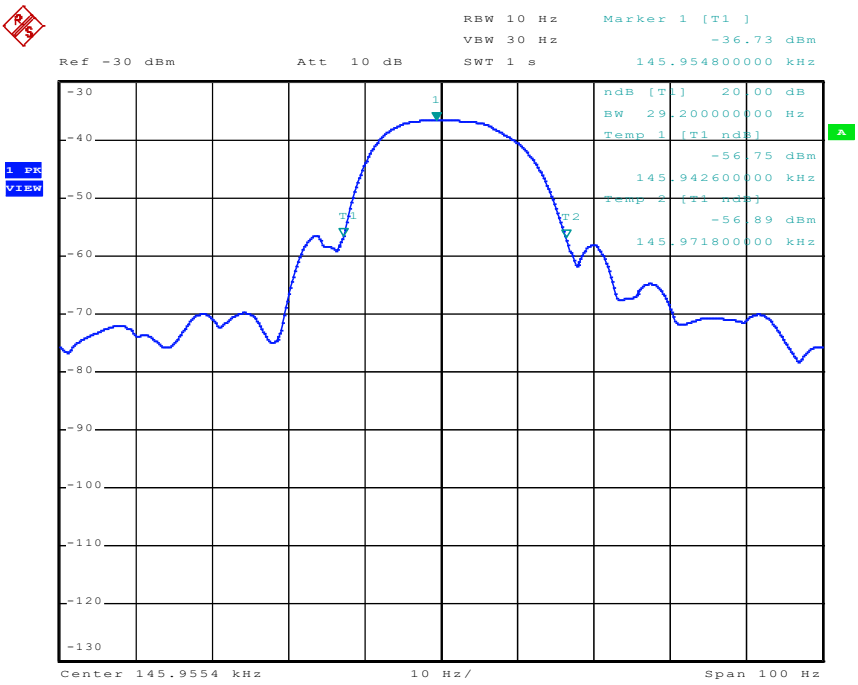


Mode 03





Mode 04



7.2 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.		

7.2.1 E.U.T. Operation

Operating Environment:

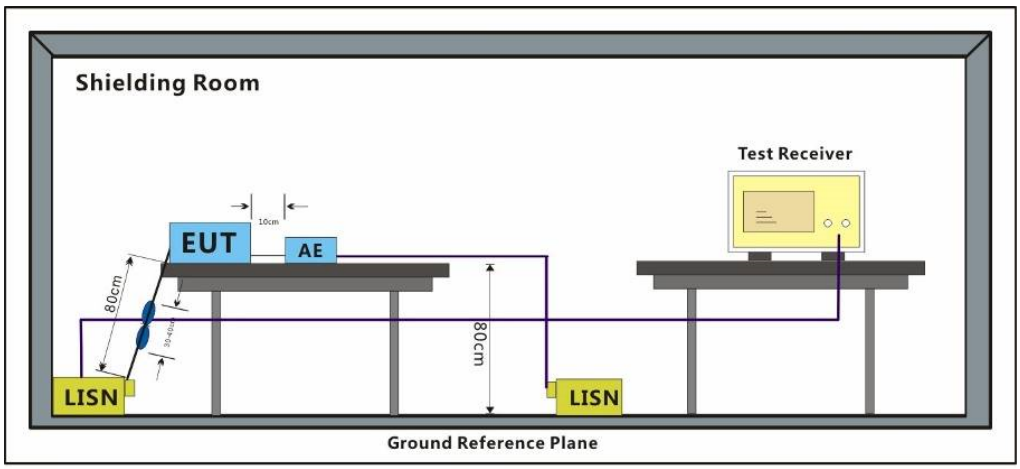
Temperature: 23.4 °C Humidity: 47.3 % RH Atmospheric Pressure: 1000 mbar

7.2.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Pre-scan	00	Operation(Wireless):Keep the EUT pairing with other devices(Output1: 5W).
Pre-scan	01	Operation(Wireless):Keep the EUT pairing with other devices(Output1: 7.5W).
Pre-scan	02	Operation(Wireless):Keep the EUT pairing with other devices(Output1: 15W).
Pre-scan	03	Operation(Wireless):Keep the EUT pairing with other devices(Output2: 5W).
Pre-scan	04	Operation(Wireless):Keep the EUT pairing with other devices(Output3: 5W).
Pre-scan	05	Operation(Wireless):Keep the EUT pairing with other devices(Output1: 5W+Output2: 5W).
Pre-scan	06	Operation(Wireless):Keep the EUT pairing with other devices(Output1: 7.5W+Output2: 5W).
Pre-scan	07	Operation(Wireless):Keep the EUT pairing with other devices(Output1: 15W+Output2: 5W).
Pre-scan	08	Operation(Wireless):Keep the EUT pairing with other devices(Output1: 5W+Output 3: 5W).
Pre-scan	09	Operation(Wireless):Keep the EUT pairing with other devices(Output1: 7.5W+Output3: 5W).
Pre-scan	10	Operation(Wireless):Keep the EUT pairing with other devices(Output1: 15W+Output 3: 5W).
Pre-scan	11	Operation(Wireless):Keep the EUT pairing with other devices(Output2: 5W+Output 3: 5W).
Pre-scan	12	Operation(Wireless):Keep the EUT pairing with other devices(Output1: 5W+Output2: 5W+Output 3: 5W).

Pre-scan	13	Operation(Wireless):Keep the EUT pairing with other devices(Output1: 7.5W+Output2: 5W+Output 3: 5W).
Final test	14	Operation(Wireless):Keep the EUT pairing with other devices(Output1: 15W+Output2: 5W+Output 3: 5W).

7.2.3 Test Setup Diagram



7.2.4 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.

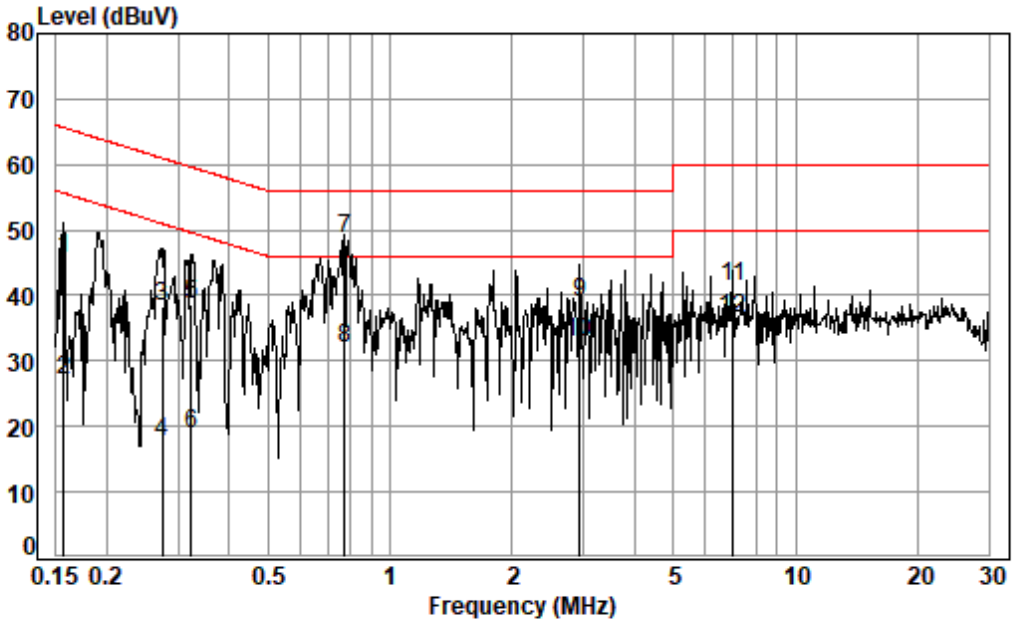
3) The tabletop EUT was placed upon a non-metallic table 0.8m above the ground reference plane. And for floor-standing arrangement, the EUT was placed on the horizontal ground reference plane,

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: Level=Read Level+ Cable Loss+ LISN Factor

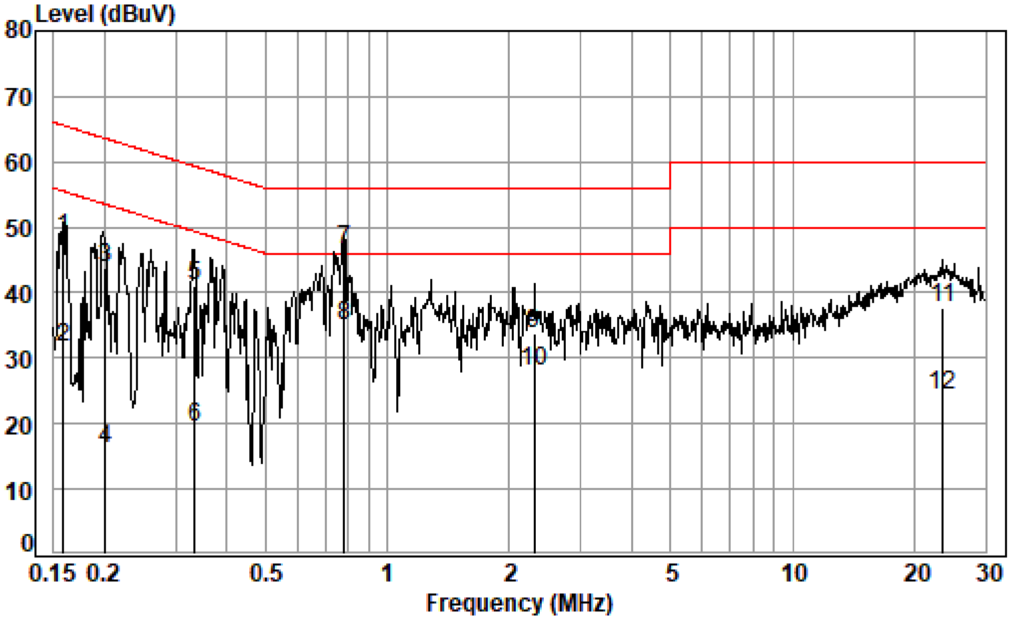
Test Mode: 14; Line: Live line



Site : Shielding Room
Condition: Line
Job No. : 03610AT
Test mode: 14

		Freq	Cable Loss	LISN Factor	Read Level	Level	Limit Line	Over Limit	Remark
		MHz	dB	dB	dBuV	dBuV	dBuV	dB	
1		0.156	0.02	11.12	34.40	45.54	65.65	-20.11	QP
2		0.156	0.02	11.12	15.96	27.10	55.65	-28.55	Average
3		0.274	0.03	10.76	27.46	38.25	60.98	-22.73	QP
4		0.274	0.03	10.76	6.71	17.50	50.98	-33.48	Average
5		0.323	0.03	10.77	27.89	38.69	59.62	-20.93	QP
6		0.323	0.03	10.77	7.96	18.76	49.62	-30.86	Average
7	*	0.771	0.05	10.99	37.70	48.74	56.00	-7.26	QP
8		0.771	0.05	10.99	20.98	32.02	46.00	-13.98	Average
9		2.931	0.07	10.84	27.96	38.87	56.00	-17.13	QP
10	*	2.931	0.07	10.84	22.04	32.95	46.00	-13.05	Average
11		7.025	0.12	11.15	30.09	41.36	60.00	-18.64	QP
12		7.025	0.12	11.15	25.14	36.41	50.00	-13.59	Average

Test Mode: 14; Line: Neutral Line



Site : Shielding Room
Condition: Neutral
Job No. : 03610AT
Test mode: 14

	Freq	Cable Loss	LISN Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB	dBuV	dBuV	dBuV	dB	
1	0.158	0.02	10.83	37.39	48.24	65.56	-17.32	QP
2	0.158	0.02	10.83	20.68	31.53	55.56	-24.03	Average
3	0.201	0.02	10.83	33.03	43.88	63.58	-19.70	QP
4	0.201	0.02	10.83	5.39	16.24	53.58	-37.34	Average
5	0.334	0.03	10.60	30.56	41.19	59.35	-18.16	QP
6	0.334	0.03	10.60	8.72	19.35	49.35	-30.00	Average
7 *	0.783	0.05	10.76	35.62	46.43	56.00	-9.57	QP
8 *	0.783	0.05	10.76	24.11	34.92	46.00	-11.08	Average
9	2.309	0.07	10.90	22.64	33.61	56.00	-22.39	QP
10	2.309	0.07	10.90	16.91	27.88	46.00	-18.12	Average
11	23.511	0.30	10.76	26.59	37.65	60.00	-22.35	QP
12	23.511	0.30	10.76	13.13	24.19	50.00	-25.81	Average

7.3 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

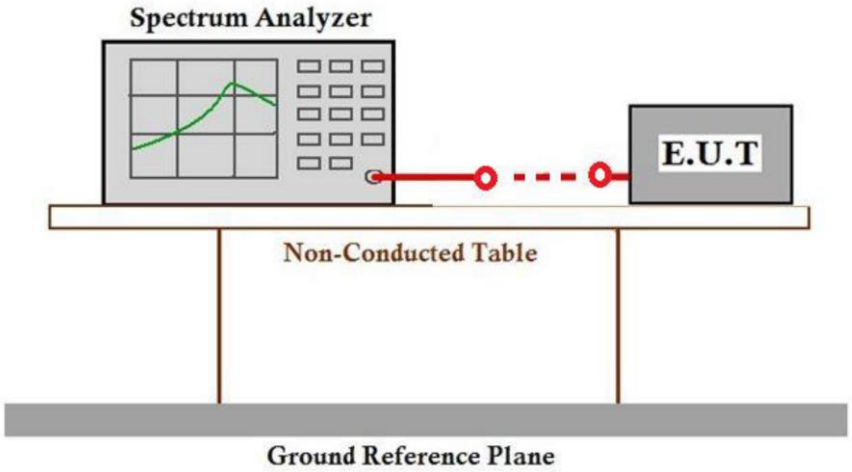
7.3.1 E.U.T. Operation

Operating Environment:
Temperature: 23.7 °C Humidity: 46.8 % RH Atmospheric Pressure: 1000 mbar

7.3.2 Test Mode Description

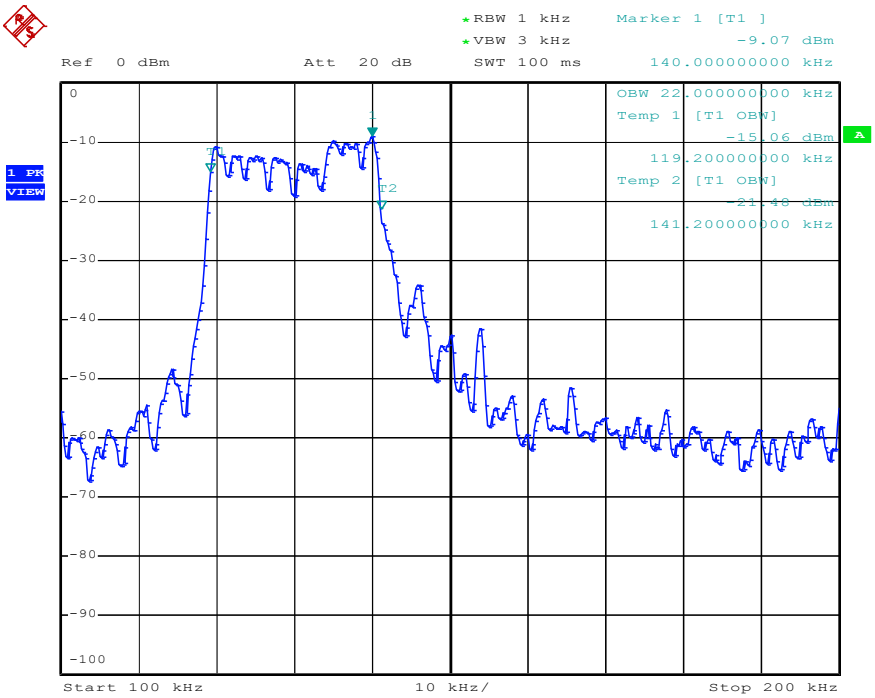
Pre-scan / Final test	Mode Code	Description
Final test	00	Operation(Wireless):Keep the EUT pairing with other devices(Output1: 5W).
Pre-scan	01	Operation(Wireless):Keep the EUT pairing with other devices(Output1: 7.5W).
Final test	02	Operation(Wireless):Keep the EUT pairing with other devices(Output1: 15W).
Final test	03	Operation(Wireless):Keep the EUT pairing with other devices(Output2: 5W).
Final test	04	Operation(Wireless):Keep the EUT pairing with other devices(Output3: 5W).

7.3.3 Test Setup Diagram

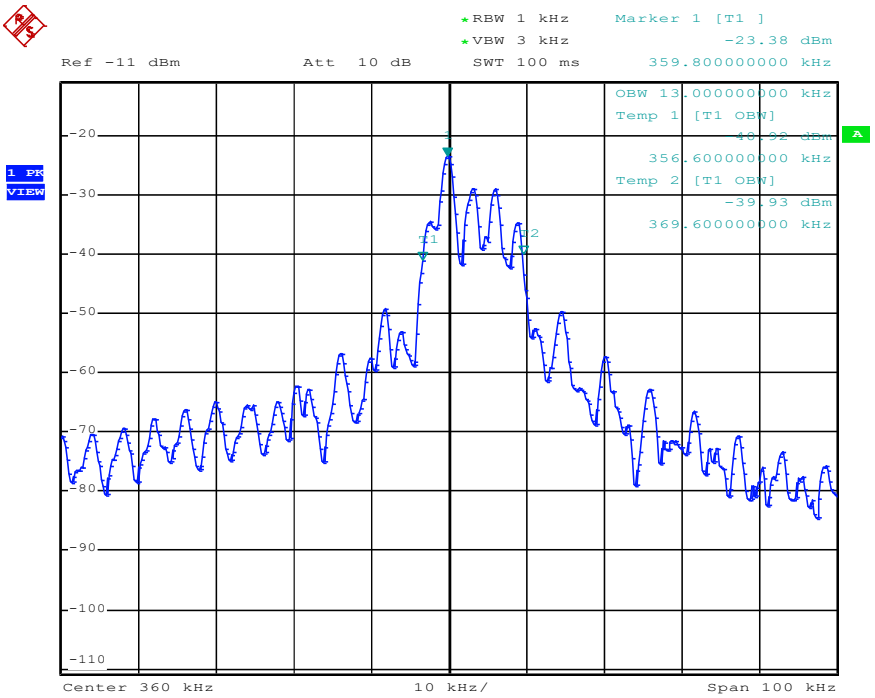


7.3.4 Measurement Procedure and Data

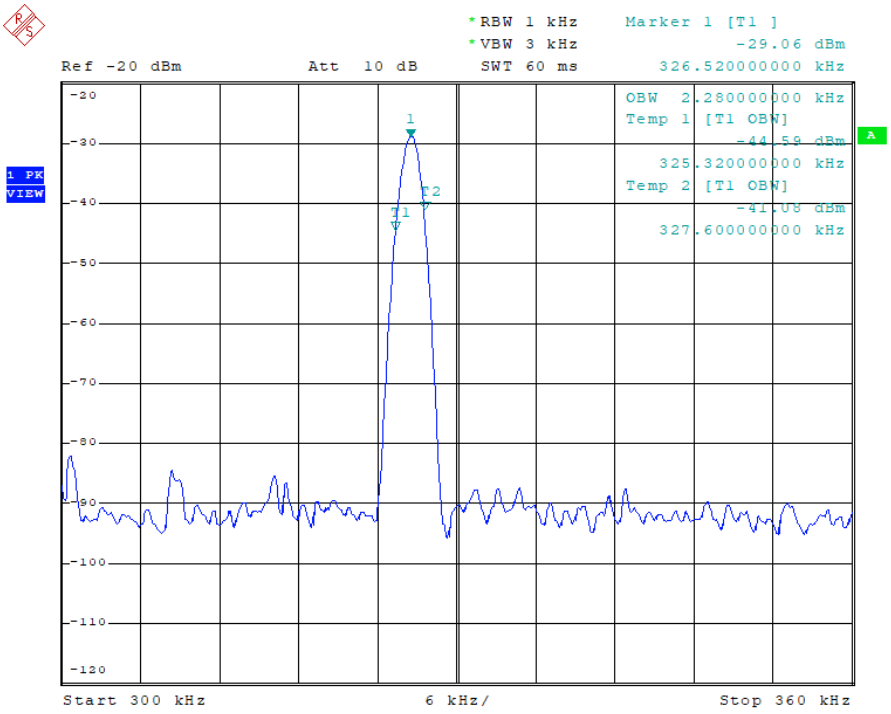
Mode 00_output 1

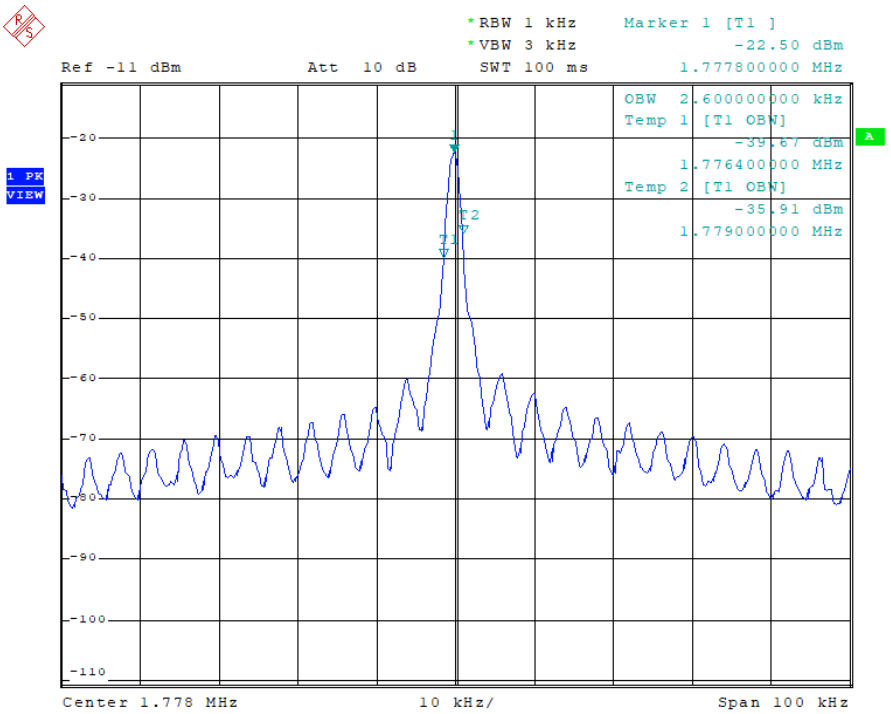


Mode 02_output 1

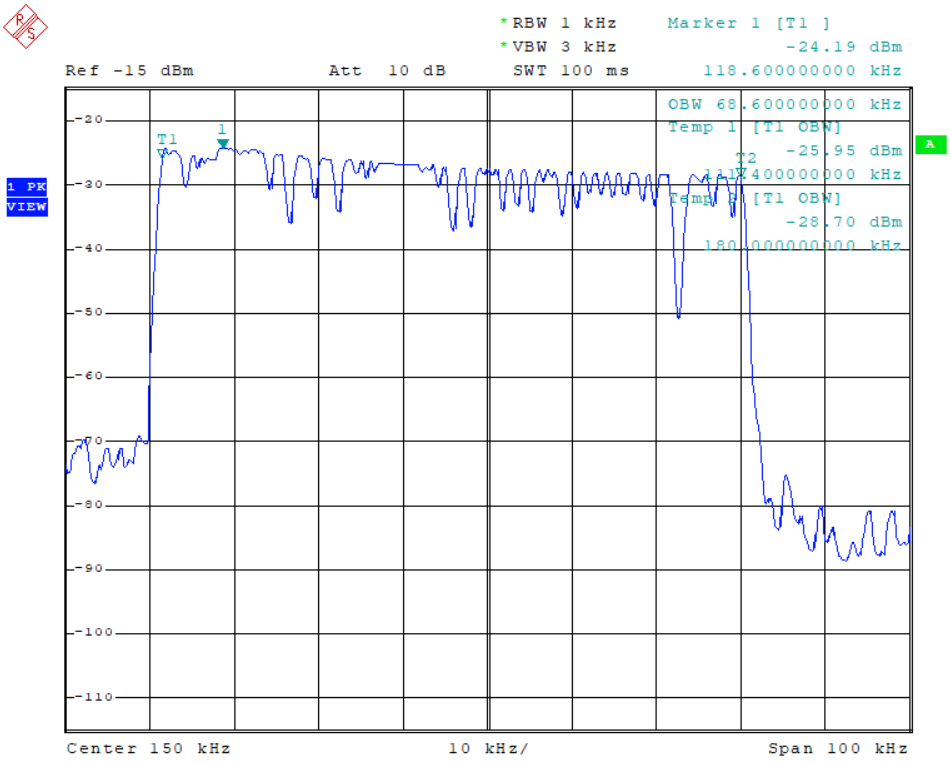


Mode 03_output 2





Mode 04_output 3



7.4 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 λ/2π and the limit distance is greater than λ/2π, 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 λ/2π distance, and at a 20 dB/decade of distance rate beyond λ/2π. This shall be accomplished using Equation (2):

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

If the single point measured is at a distance greater than λ/2π, 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 λ/2π, 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:

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

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

7.4.1 E.U.T. Operation

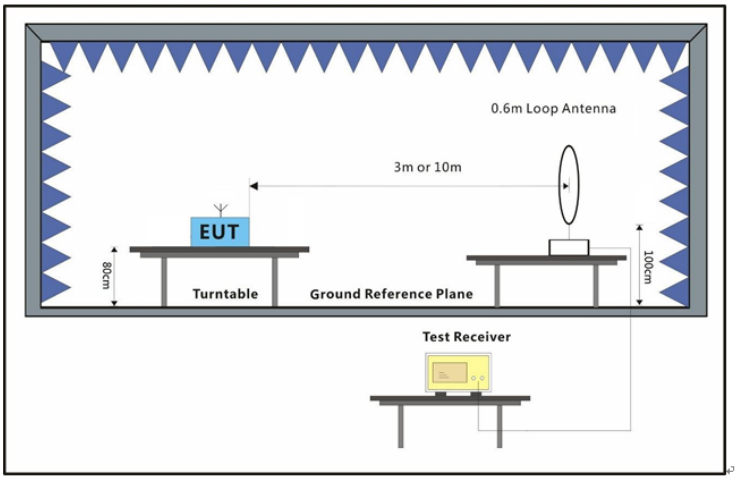
Operating Environment:

Temperature: 23.6 °C Humidity: 51.5 % RH Atmospheric Pressure: 1000 mbar

7.4.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Pre-scan	00	Operation(Wireless):Keep the EUT pairing with other devices(Output1: 5W).
Pre-scan	01	Operation(Wireless):Keep the EUT pairing with other devices(Output1: 7.5W).
Pre-scan	02	Operation(Wireless):Keep the EUT pairing with other devices(Output1: 15W).
Pre-scan	03	Operation(Wireless):Keep the EUT pairing with other devices(Output2: 5W).
Pre-scan	04	Operation(Wireless):Keep the EUT pairing with other devices(Output3: 5W).
Pre-scan	05	Operation(Wireless):Keep the EUT pairing with other devices(Output1: 5W+Output2: 5W).
Pre-scan	06	Operation(Wireless):Keep the EUT pairing with other devices(Output1: 7.5W+Output2: 5W).
Pre-scan	07	Operation(Wireless):Keep the EUT pairing with other devices(Output1: 15W+Output2: 5W).
Pre-scan	08	Operation(Wireless):Keep the EUT pairing with other devices(Output1: 5W+Output 3: 5W).
Pre-scan	09	Operation(Wireless):Keep the EUT pairing with other devices(Output1: 7.5W+Output3: 5W).
Pre-scan	10	Operation(Wireless):Keep the EUT pairing with other devices(Output1: 15W+Output 3: 5W).
Pre-scan	11	Operation(Wireless):Keep the EUT pairing with other devices(Output2: 5W+Output 3: 5W).
Final test	12	Operation(Wireless):Keep the EUT pairing with other devices(Output1: 5W+Output2: 5W+Output 3: 5W).
Pre-scan	13	Operation(Wireless):Keep the EUT pairing with other devices(Output1: 7.5W+Output2: 5W+Output 3: 5W).
Final test	14	Operation(Wireless):Keep the EUT pairing with other devices(Output1: 15W+Output2: 5W+Output 3: 5W).

7.4.3 Test Setup Diagram



7.4.4 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

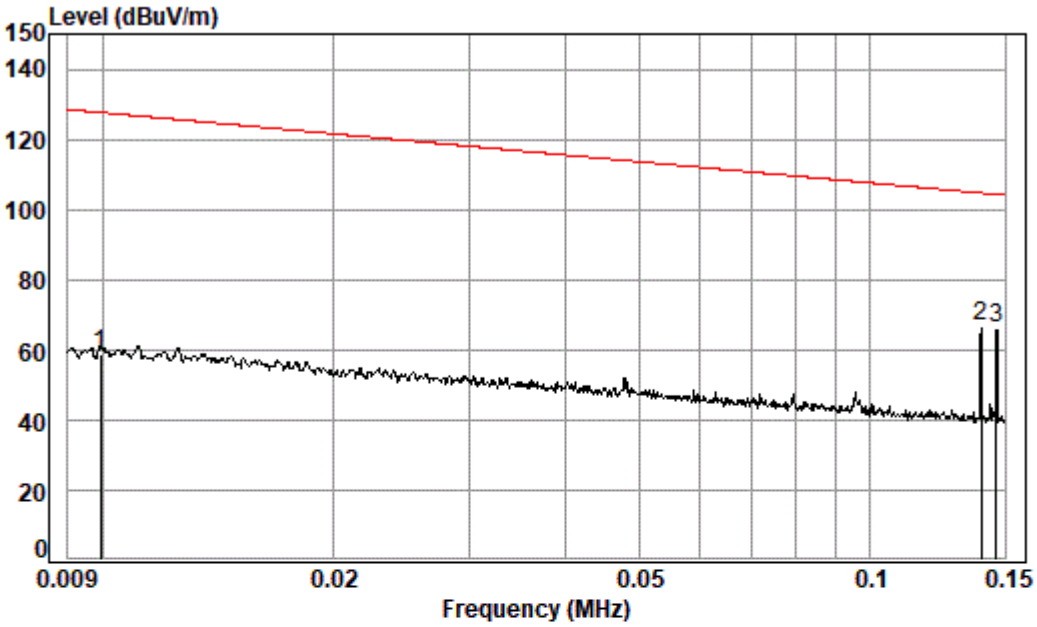
iii. measurements shall be performed with the loop antenna placed vertically, in turn, in two polarizations (the measurement axis specified below is the line segment connecting the projections on the ground plane of the centre of the loop antenna and the centre of the EUT arrangement):

· 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).

Apple Watch 3

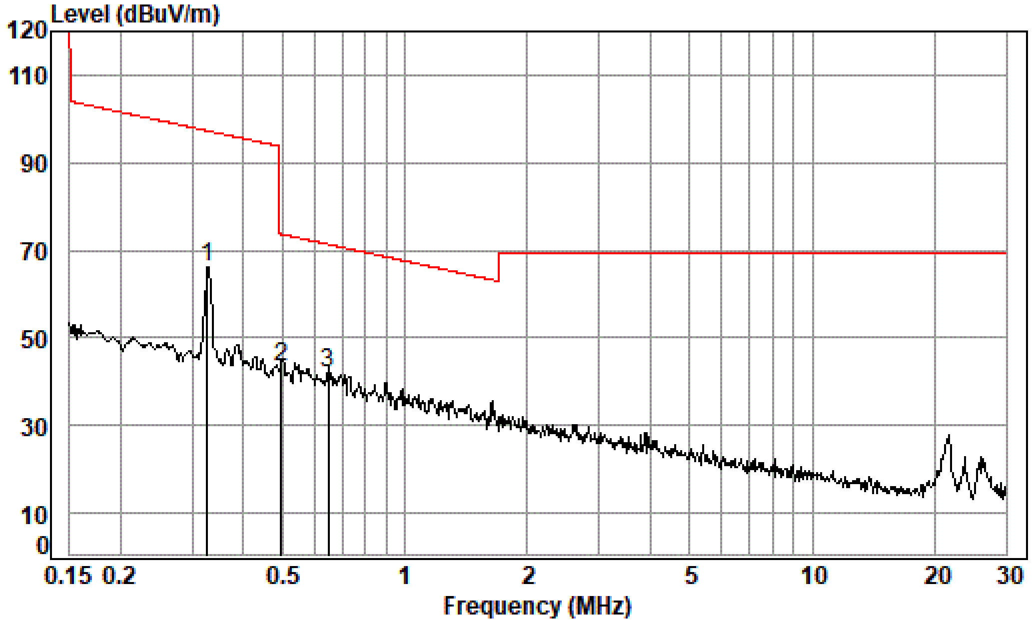
Test Mode: 12



Condition: 3m
Job No. : 03610AT
Test Mode:

	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	71.20	18.32	0.31	31.36	58.47	127.65	-69.18	Average
2 pp	0.140	88.35	10.43	0.30	32.50	66.58	104.69	-38.11	Average
3	0.146	87.84	10.42	0.30	32.50	66.06	104.30	-38.24	Average

Test Mode: 12



Condition: 3m
Job No. : 03610AT
Test Mode:

	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 av	0.327	88.18	10.32	0.32	32.50	66.32	97.32	-31.00	Average
2	0.497	64.97	10.31	0.35	32.50	43.13	73.68	-30.55	QP
3 pp	0.647	63.65	10.29	0.37	32.50	41.81	71.36	-29.55	QP

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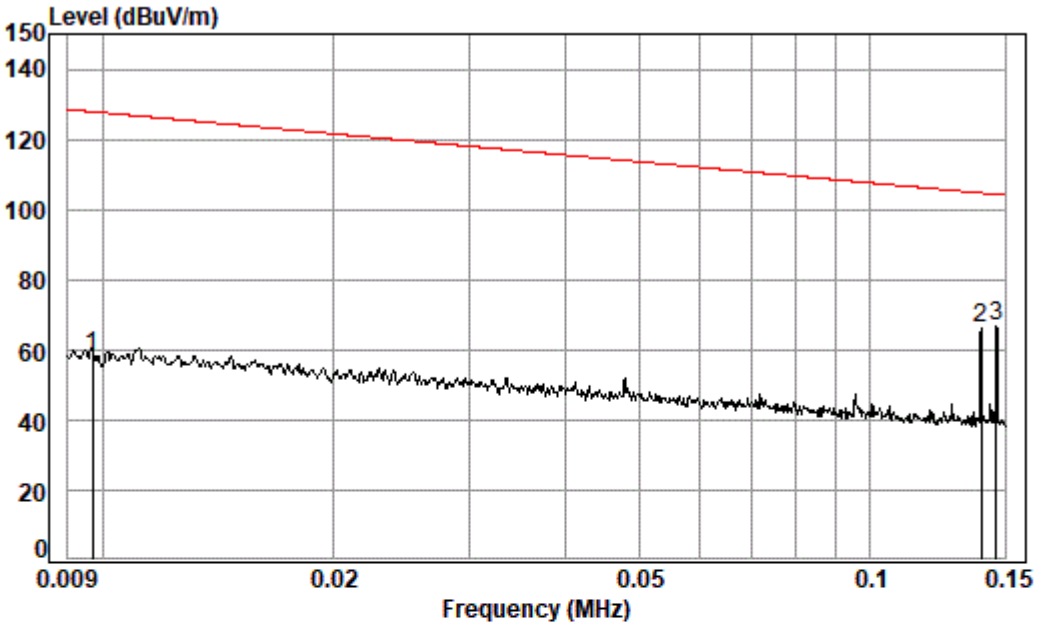
Apple Watch Series 7

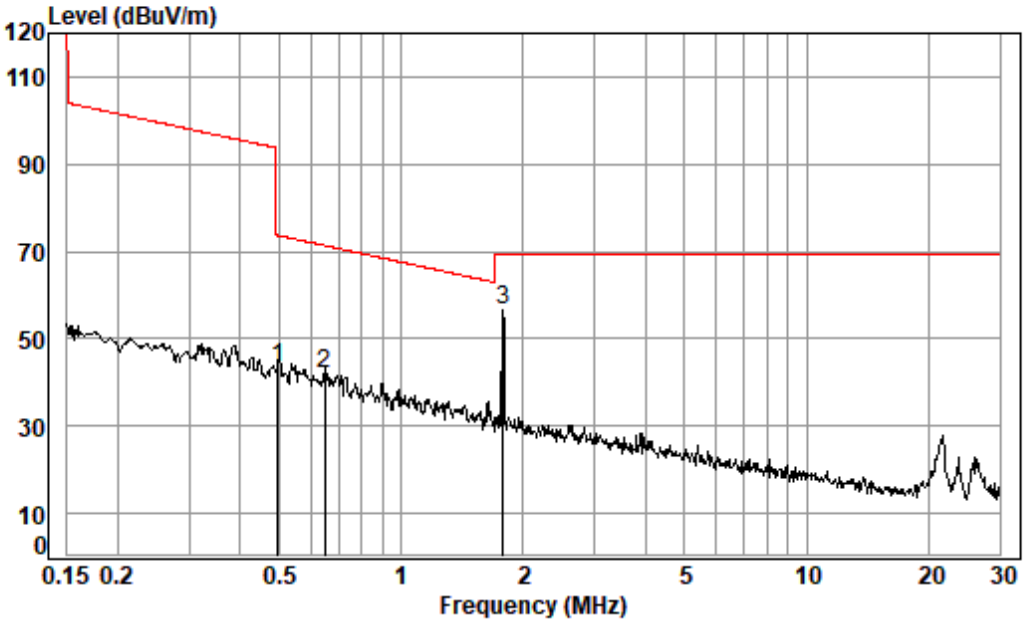
Test Mode: 12



Condition: 3m
Job No. : 03610AT
Test Mode: 1.77M

	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 av	0.010	70.89	18.50	0.31	31.35	58.35	127.86	-69.51	Average
2	0.140	87.93	10.43	0.30	32.50	66.16	104.69	-38.53	Average
3 pp	0.146	88.47	10.42	0.30	32.50	66.69	104.30	-37.61	Average

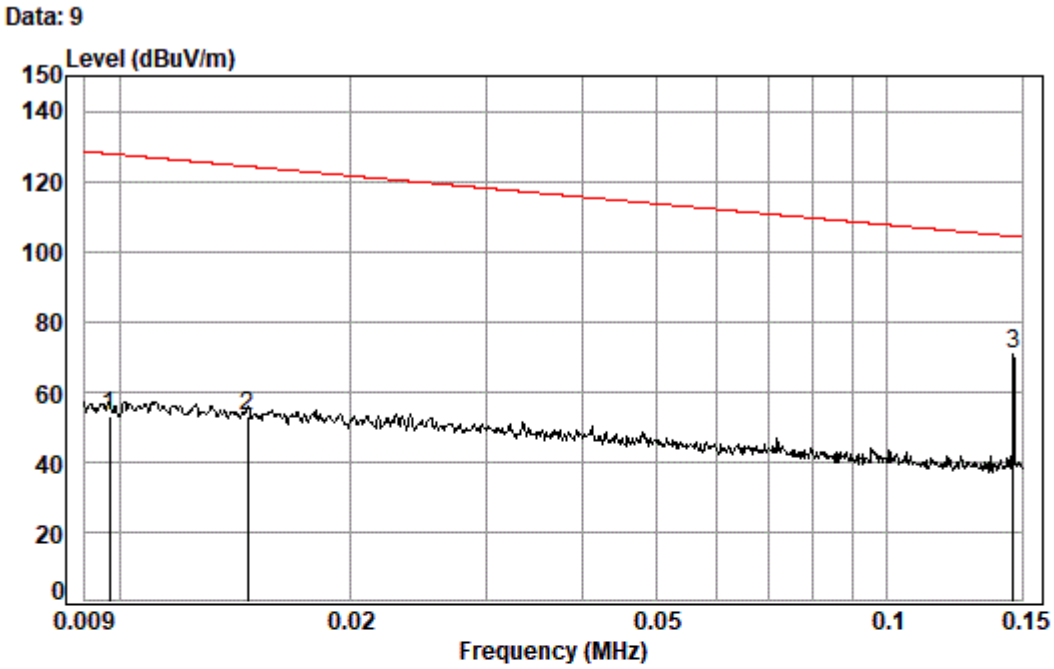
Test Mode: 12



Condition: 3m
Job No. : 03610AT
Test Mode: 1.77M

	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	0.497	64.97	10.31	0.35	32.50	43.13	73.68	-30.55	QP
2	0.647	63.65	10.29	0.37	32.50	41.81	71.36	-29.55	QP
3 pp	1.781	78.21	10.30	0.49	32.50	56.50	69.50	-13.00	QP

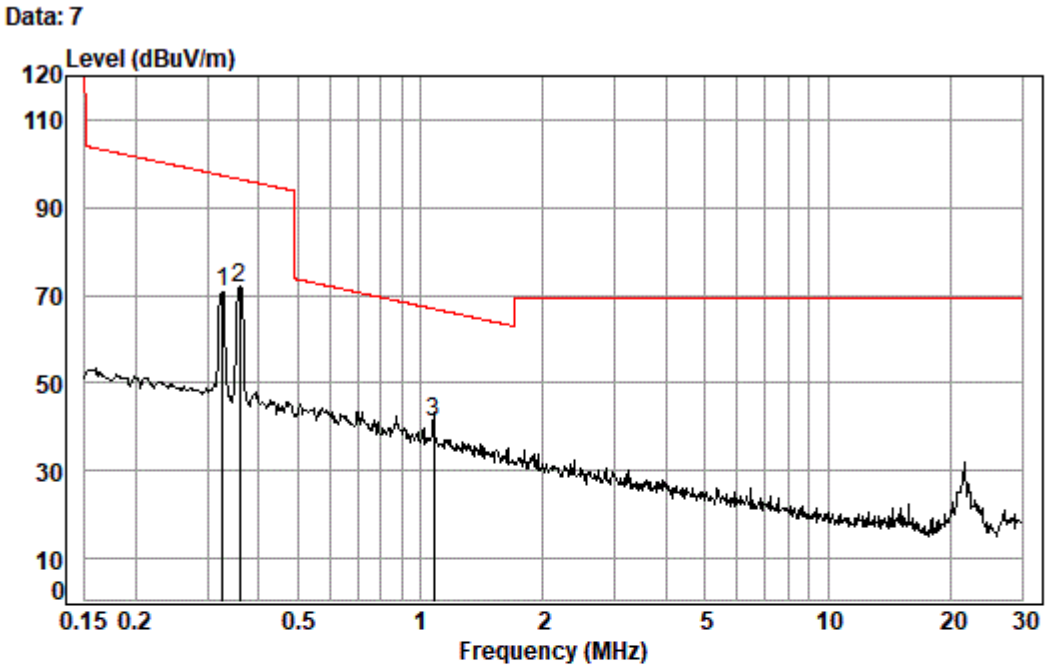
Test Mode: 14



Condition: 3m
Job No. : 03610AT
Test Mode: 14

	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	65.69	18.50	0.31	31.35	53.15	127.86	-74.71	Average
2	0.015	68.26	16.10	0.31	31.69	52.98	124.25	-71.27	Average
3 pp	0.146	92.41	10.42	0.30	32.50	70.63	104.30	-33.67	Average

Test Mode: 14



Condition: 3m
Job No. : 03610AT
Test Mode: 14

	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	0.326	92.41	10.32	0.32	32.50	70.55	97.33	-26.78	Average
2 pp	0.360	93.37	10.32	0.33	32.50	71.52	96.49	-24.97	Average
3 qp	1.077	62.78	10.28	0.43	32.50	40.99	66.92	-25.93	QP

7.5 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.		

7.5.1 E.U.T. Operation

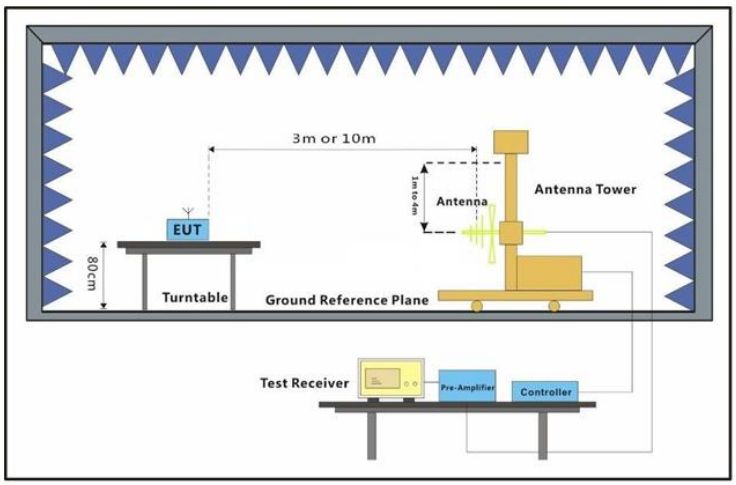
Operating Environment:
Temperature: 23.6 °C Humidity: 51.5 % RH Atmospheric Pressure: 1000 mbar

7.5.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Pre-scan	00	Operation(Wireless):Keep the EUT pairing with other devices(Output1: 5W).
Pre-scan	01	Operation(Wireless):Keep the EUT pairing with other devices(Output1: 7.5W).
Pre-scan	02	Operation(Wireless):Keep the EUT pairing with other devices(Output1: 15W).
Pre-scan	03	Operation(Wireless):Keep the EUT pairing with other devices(Output2: 5W).
Pre-scan	04	Operation(Wireless):Keep the EUT pairing with other devices(Output3: 5W).
Pre-scan	05	Operation(Wireless):Keep the EUT pairing with other devices(Output1: 5W+Output2: 5W).
Pre-scan	06	Operation(Wireless):Keep the EUT pairing with other devices(Output1: 7.5W+Output2: 5W).
Pre-scan	07	Operation(Wireless):Keep the EUT pairing with other devices(Output1: 15W+Output2: 5W).
Pre-scan	08	Operation(Wireless):Keep the EUT pairing with other devices(Output1: 5W+Output 3: 5W).
Pre-scan	09	Operation(Wireless):Keep the EUT pairing with other devices(Output1: 7.5W+Output3: 5W).
Pre-scan	10	Operation(Wireless):Keep the EUT pairing with other devices(Output1: 15W+Output 3: 5W).

Pre-scan	11	Operation(Wireless):Keep the EUT pairing with other devices(Output2: 5W+Output 3: 5W).
Pre-scan	12	Operation(Wireless):Keep the EUT pairing with other devices(Output1: 5W+Output2: 5W+Output 3: 5W).
Pre-scan	13	Operation(Wireless):Keep the EUT pairing with other devices(Output1: 7.5W+Output2: 5W+Output 3: 5W).
Final test	14	Operation(Wireless):Keep the EUT pairing with other devices(Output1: 15W+Output2: 5W+Output 3: 5W).

7.5.3 Test Setup Diagram



7.5.4 Measurement Procedure and Data

a. The EUT was placed on the top of a rotating table 0.8 meters above the ground for below 1GHz 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.

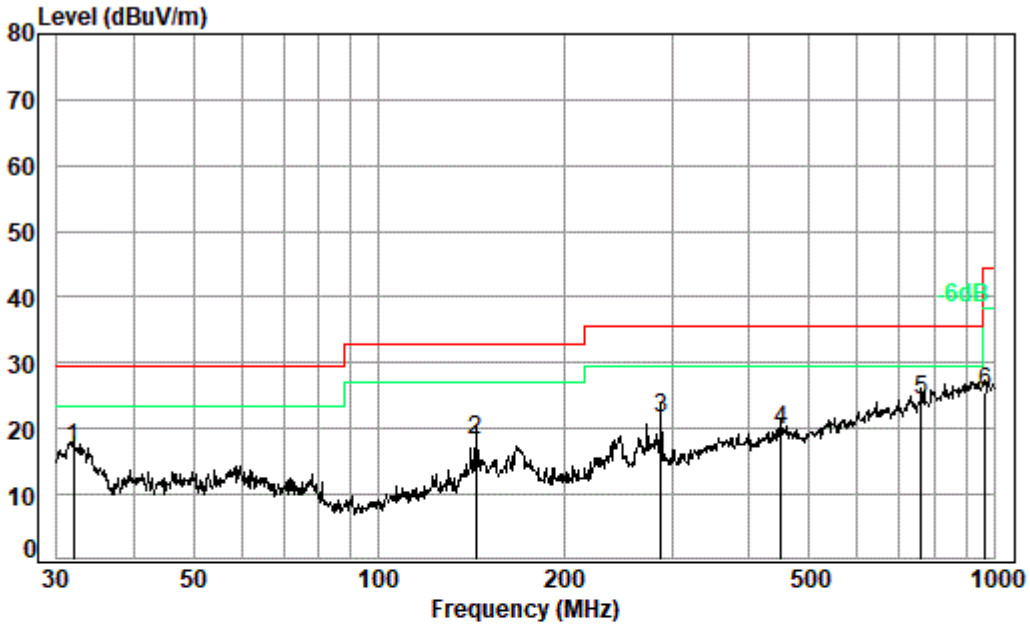
g. Test the EUT in the lowest channel,the middle channel,the Highest channel

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

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

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

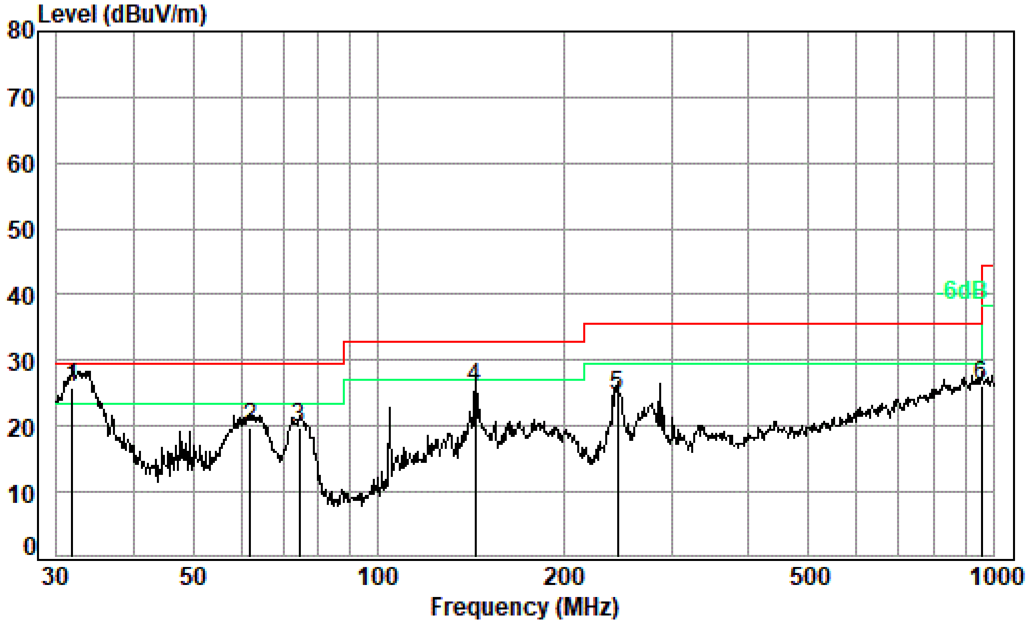
Test Mode: 14; Polarity: Horizontal



Condition: 10m HORIZONTAL
Job No. : 03610AT
Test Mode: 14

	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	31.955	32.80	16.25	0.40	32.50	16.95	29.50	-12.55	QP
2	143.830	32.56	17.22	0.90	32.40	18.28	33.00	-14.72	QP
3	287.990	35.13	17.50	1.38	32.31	21.70	35.60	-13.90	QP
4	451.135	29.13	21.16	1.73	32.30	19.72	35.60	-15.88	QP
5 pp	760.704	28.11	25.83	2.37	32.12	24.19	35.60	-11.41	QP
6	968.934	25.93	28.23	2.65	31.26	25.55	44.40	-18.85	QP

Test Mode: 14; Polarity: Vertical



Condition: 10m VERTICAL
Job No. : 03610AT
Test Mode: 14

	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 pp	31.843	41.71	16.26	0.40	32.50	25.87	29.50	-3.63	QP
2	61.995	35.02	16.78	0.56	32.48	19.88	29.50	-9.62	QP
3	74.396	37.16	14.35	0.62	32.45	19.68	29.50	-9.82	QP
4	143.830	40.24	17.22	0.90	32.40	25.96	33.00	-7.04	QP
5	245.090	39.80	16.00	1.25	32.35	24.70	35.60	-10.90	QP
6	955.438	26.55	28.42	2.63	31.29	26.31	35.60	-9.29	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:

L_3: Level @ 3m distance. Unit: uV/m;

L_{10}: Level @ 10m distance. Unit: uV/m;

D_3: 3m distance. Unit: m

D_{10}: 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
31.955	16.95	7.04	23.46	27.41	40.00	-12.59	H
143.830	18.28	8.20	27.35	28.74	43.50	-14.76	H
287.990	21.70	12.16	40.54	32.16	46.00	-13.84	H
451.135	19.72	9.68	32.28	30.18	46.00	-15.82	H
760.704	24.19	16.20	54.00	34.65	46.00	-11.35	H
968.934	25.55	18.95	63.15	36.01	54.00	-17.99	H
31.843	25.87	19.66	65.52	36.33	40.00	-3.67	V
61.995	19.88	9.86	32.88	30.34	40.00	-9.66	V
74.396	19.68	9.64	32.13	30.14	40.00	-9.86	V
143.830	25.96	19.86	66.20	36.42	43.50	-7.08	V
245.090	24.70	17.18	57.26	35.16	46.00	-10.84	V
955.438	26.31	20.68	68.93	36.77	46.00	-9.23	V

8 Test Setup Photo

Refer to Appendix - Test Setup Photo for SZCR2311003610AT

9 EUT Constructional Details (EUT Photos)

Refer to External and Internal Photos for SZCR2311003610AT

- End of the Report -