Testing Laboratory
3023

Test report No.: 2390736R-RFUSV06S-A

TEST REPORT

Product Name	Wireless Charger Module
Trademark	LUXSHAREICT
Model and /or type reference	LPS-15WP K
FCC ID	2APYS-LPS15WPK
Applicant´s name / address	Lanto Electronic Ltd No.399 baisheng Road,jinxi Town Kunshan, Jiangsu, China 215234
Manufacturer´s name	Lanto Electronic Ltd
Test method requested, standard	FCC CFR Title 47 Part 15 Subpart C ANSI C63.4: 2014, ANSI C63.10: 2013
Verdict Summary	IN COMPLIANCE
Documented By (Supervisor / Jinn Chen)	Jinn Chen
Tested By (Senior Engineer / Ivan Chuang)	Ivan Chuang
Approved By (Senior Engineer / Jack Hsu)	Jack Hsu
Date of Receipt	2023/09/25
Date of Issue	2023/10/26
Report Version	V1.0

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Competences and Guarantees

DEKRA is a testing laboratory competent to carry out the tests described in this report.

In order to assure the traceability to other national and international laboratories, DEKRA has a calibration and maintenance program for its measurement equipment.

DEKRA guarantees the reliability of the data presented in this report, which is the result of the measurements and the tests performed to the item under test on the date and under the conditions stated in the report and it is based on the knowledge and technical facilities available at DEKRA at the time of performance of the test.

DEKRA is liable to the client for the maintenance of the confidentiality of all information related to the item under test and the results of the test.

The results presented in this Test Report apply only to the particular item under test established in this document.

General conditions

1. The test results relate only to the samples tested.
2. The test results shown in the test report are traceable to the national/international standard through the calibration report of the equipment and evaluated measurement uncertainty herein.
3. This report must not be used to claim product endorsement by TAF or any agency of the government.
4. The test report shall not be reproduced without the written approval of DEKRA Testing and Certification Co., Ltd.
5. Measurement uncertainties evaluated for each testing system and associated connections are given here to provide the system information for reference. Compliance determinations do not take into account measurement uncertainties for each testing system, but are based on the results of the compliance measurement.

Revision History

Report No.	Version	Description	Issued Date
2390736R-RFUSV06S-A	V1.0	Initial issue of report.	2023/10/26

1. General Information

1.1. EUT Description

Product Name	Wireless Charger Module
Trademark	LUXSHAREICT
Model and /or type reference	LPS-15WP K
EUT Rated Voltage	AC 100-240V, 50-60Hz
EUT Test Voltage	AC 120V, 60Hz
Frequency Range	110 kHz - 148 kHz
Type of antenna	Coil Antenna
Test Platform	Product name: Personal Computer Brand: Lenovo Model number: IdeaCentre AIO 27ARR9 Machine Type: F0HQ******* (Where * maybe any alphanumeric, symbol or blank, for marketing purpose and no impact RF related critical components and constructions.)

Frequency of Channel:

Channel	Frequency (kHz)
1	127.75

Note:

1. The EUT is a Wireless Charger Module with a built-in 110 kHz ~ 148 kHz transceiver.
2. Only the worst case is shown in the report.
3. These tests were conducted on a sample of the equipment for the purpose of demonstrating compliance with Part 15 Subpart C Paragraph 15.209.
4. This module is “Limited Modular Approval” (LMA).

Test Mode	Mode 1: Transmit

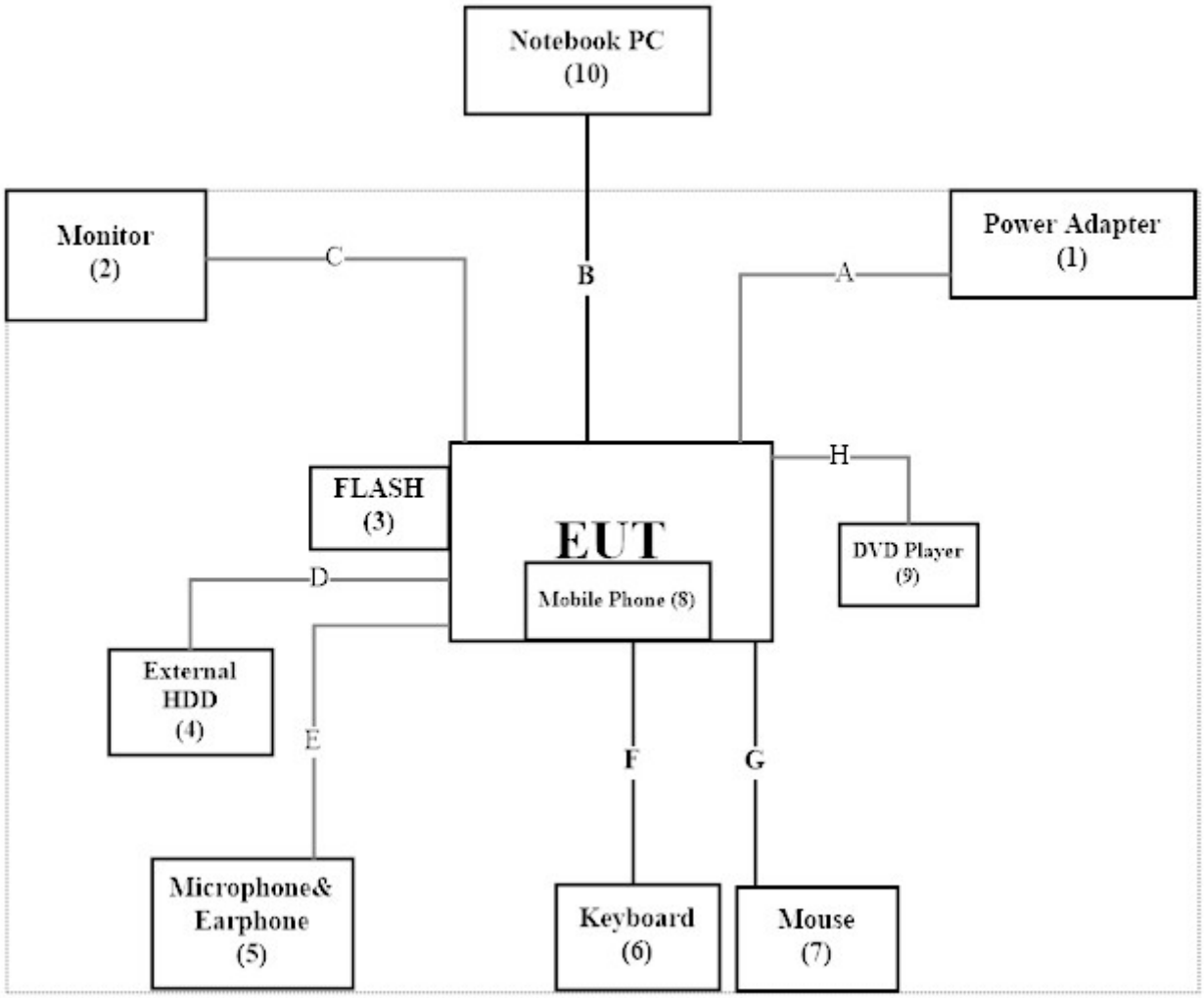
1.2. Test System Details

The types for all equipment, plus descriptions of all cables used in the tested system (including inserted cards) are:

Product		Manufacturer	Model No.	Serial No.	Power Cord
1	Power Adapter	Liteon	ADL135SLC3A	N/A	N/A
2	Monitor	DELL	U2415	CN-01RMGX-74261 -63H-09UL-A02	Non-shielded, 1.8m
3	FLASH	Transcend	JetFlash 790C/64GB	N/A	N/A
4	External HDD	Transcend	TS1TSJ25H3P	G73393-3868	N/A
5	Microphone& Earphone	Verbatim	C09024VB	N/A	N/A
6	Keyboard	Lenovo	SK-8823	N/A	N/A
7	Mouse	Lenovo	EMS-537A	N/A	N/A
8	Mobile Phone	SAMSUNG	Galaxy S22	R5CTB2S9YKW	N/A
9	DVD Player	Dowei	AV-267	ZOO-13011	Non-shielded, 1.5m
10	Notebook PC	DELL	Latitude 5491	1PL56S2	N/A

Signal Cable Type		Signal cable Description
A	Power Cable	Non-shielded, 1.7m, with one ferrite core bonded.
B	LAN Cable	Non-shielded, 3.0m
C	HDMI Cable	Shielded, 1.8m
D	USB Cable	Shielded, 0.5m
E	Microphone& Earphone Cable	Non-shielded, 1.2m
F	Keyboard Cable	Non-shielded, 1.8m
G	Mouse Cable	Non-shielded, 1.8m
H	HDMI Cable	Shielded, 1.8m

1.3. Configuration of Test System



1.4. EUT Exercise Software

(1)	Setup the EUT as shown in Section 1.3.
(2)	Turn on the power of all equipment.
(3)	Start the continuous receiver.
(4)	Verify that the EUT works properly.

1.5. Test Facility

Ambient conditions in the laboratory:

Performed Item	Items	Required	Actual
Conducted Emission	Temperature (°C)	10~40 ℃	26.7 ℃
	Humidity (%RH)	10~90 %	58.0 %
Radiated Emission	Temperature (°C)	10~40 ℃	22.6 ℃
	Humidity (%RH)	10~90 %	63.1 %

USA	FCC Registration Number: TW0033
Canada	CAB Identifier Number: TW3023 / Company Number: 26930

Site Description	Accredited by TAF
	Accredited Number: 3023

Test Laboratory	DEKRA Testing and Certification Co., Ltd.
	Linkou Laboratory
Address	No.5-22, Ruishukeng Linkou District, New Taipei City, 24451, Taiwan, R.O.C.
Performed Location	No. 26, Huaya 1st Rd., Guishan Dist.,Taoyuan City 333411, Taiwan, R.O.C.
Phone Number	+886-3-275-7255
Fax Number	+886-3-327-8031

1.6. List of Test Equipment

For Conduction Measurements / HY-SR01

	Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Due Date
V	EMI Test Receiver	R&S	ESR7	101601	2023/06/20	2024/06/19
V	Two-Line V-Network	R&S	ENV216	101306	2023/03/16	2024/03/15
V	Two-Line V-Network	R&S	ENV216	101307	2023/08/17	2024/08/16
V	Coaxial Cable	SUHNER	RG400_BNC	RF001	2023/01/10	2024/01/09

Note:

1. All equipments are calibrated every one year.
2. The test instruments marked with "V" are used to measure the final test results.
3. Test Software Version: e3 230303 dekra V9.

For Radiated Measurements /HY-CB01

	Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Due Date
V	Loop Antenna	AMETEK	HLA6121	49611	2023/02/21	2024/02/20
V	Bi-Log Antenna	SCHWARZBECK	VULB9168	9168-0675	2023/08/09	2025/08/08
	Horn Antenna	RF SPIN	DRH18-E	210802A18ES	2023/03/23	2024/03/22
	Horn Antenna	Com-Power	AH-840	101101	2021/11/30	2023/11/29
V	Pre-Amplifier	SGH	0301	20211007-7	2023/01/10	2024/01/09
	Pre-Amplifier	EMCI	EMC051845SE	980632	2023/01/10	2024/01/09
	Pre-Amplifier	EMCI	EMC05820SE	980362	2023/01/10	2024/01/09
	Pre-Amplifier	EMCI	EMC184045SE	980369	2023/01/10	2024/01/09
	Coaxial Cable	EMCI	EMC102-KM-KM-600	1160314		
	Coaxial Cable	EMCI	EMC102-KM-KM-7000	170242		
	Filter	MICRO TRONICS	BRM50702	G251	2023/01/05	2024/01/04
	Filter	MICRO TRONICS	BRM50716	067	2023/01/05	2024/01/04
V	EMI Test Receiver	R&S	ESR3	102792	2022/12/29	2023/12/28
	Spectrum Analyzer	R&S	FSV3044	101115	2023/01/06	2024/01/05
V	Coaxial Cable	SUHNER	SUCOFLEX 106	25450/6	2023/01/10	2024/01/09
	Coaxial Cable	SGH	HA800	GD20110222-8		
	Coaxial Cable	SGH	SGH18	2021003-8		
	Coaxial Cable	EMCI	EMC106	151113		

Note:

1. Bi-Log Antenna and Horn Antenna (AH-840) is calibrated every two years, the other equipments are calibrated every one year.
2. The test instruments marked with "V" are used to measure the final test results.
3. Test Software Version: e3 230303 dekra V9.

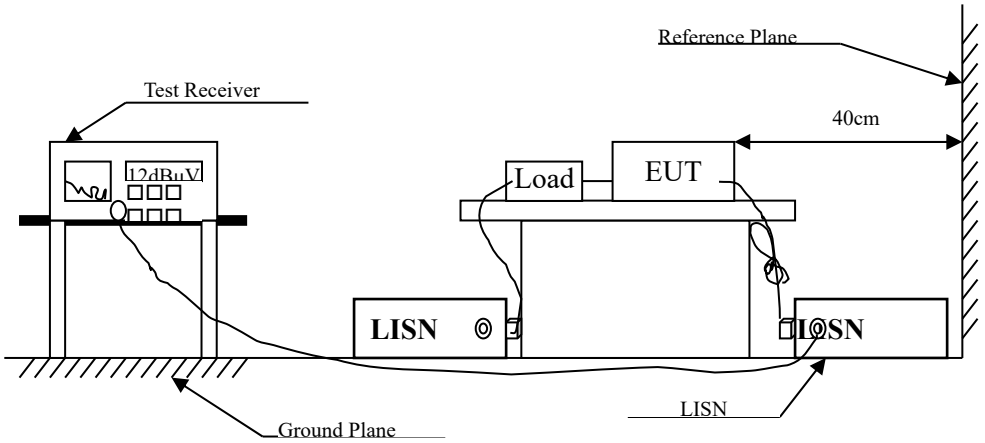
1.7. Uncertainty

Uncertainties have been calculated according to the DEKRA internal document.
The reported expanded uncertainties are based on a standard uncertainty multiplied by a coverage factor of k=2, providing a level of confidence of approximately 95%.
Measurement uncertainties evaluated for each testing system and associated connections are given here to provide the system information for reference. Compliance determinations do not take into account measurement uncertainties for each testing system, but are based on the results of the compliance measurement.

Test item	**Uncertainty**
Conducted Emission	±3.50 dB
Radiated Emission	9 kHz~30 MHz: ±3.88 dB 30 MHz~1 GHz: ±4.42 dB 1 GHz~18 GHz: ±4.28 dB 18 GHz~40 GHz: ±3.90 dB

2. Conducted Emission

2.1. Test Setup



2.2. Limits

FCC Part 15 Subpart C Paragraph 15.207 (dBµV) Limit		
Frequency MHz	Limits	
	QP	AV
0.15 - 0.50	66-56	56-46
0.50-5.0	56	46
5.0 - 30	60	50

2.3. Test Procedure

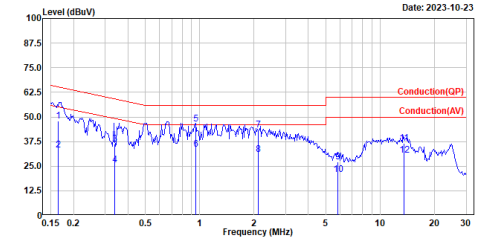
The EUT and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.). This provides a 50 ohm /50uH coupling impedance for the measuring equipment. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm /50uH coupling impedance with 50ohm termination. (Please refers to the block diagram of the test setup and photographs.)

Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.4: 2014 on conducted measurement.

Conducted emissions were invested over the frequency range from 0.15MHz to 30MHz using a receiver bandwidth of 9kHz.

2.4. Test Result of Conducted Emission

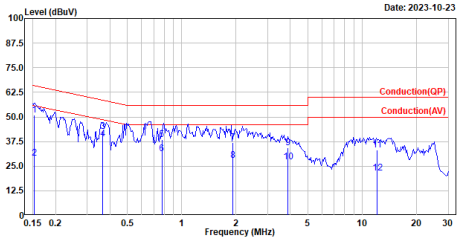
Site :HY-SR01
Condition :Line
Mode :TX_9K~30M
test by :James



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	0.165	48.11	65.21	-17.10	38.43	9.68	QP
2	0.165	33.11	55.21	-22.10	23.43	9.68	Average
3	0.340	36.19	59.21	-23.02	26.51	9.68	QP
4	0.340	25.59	49.21	-23.62	15.91	9.68	Average
5	0.953	46.41	56.00	-9.59	36.69	9.72	QP
6	0.953	33.47	46.00	-12.53	23.75	9.72	Average
7	2.115	43.55	56.00	-12.45	33.69	9.86	QP
8	2.115	31.04	46.00	-14.96	21.18	9.86	Average
9	5.804	27.15	60.00	-32.85	16.31	10.84	QP
10	5.804	20.65	50.00	-29.35	9.81	10.84	Average
11	13.560	36.61	60.00	-23.39	25.82	10.79	QP
12	13.560	30.75	50.00	-19.25	19.96	10.79	Average

Note:
1. Level = Read Level + Factor
2. Factor = LISN insertion loss + Cable loss
3. Over Limit = Level - Limit Line

Site :HY-SR01
Condition :Neutral
Mode :TX_9K~30M
test by :James



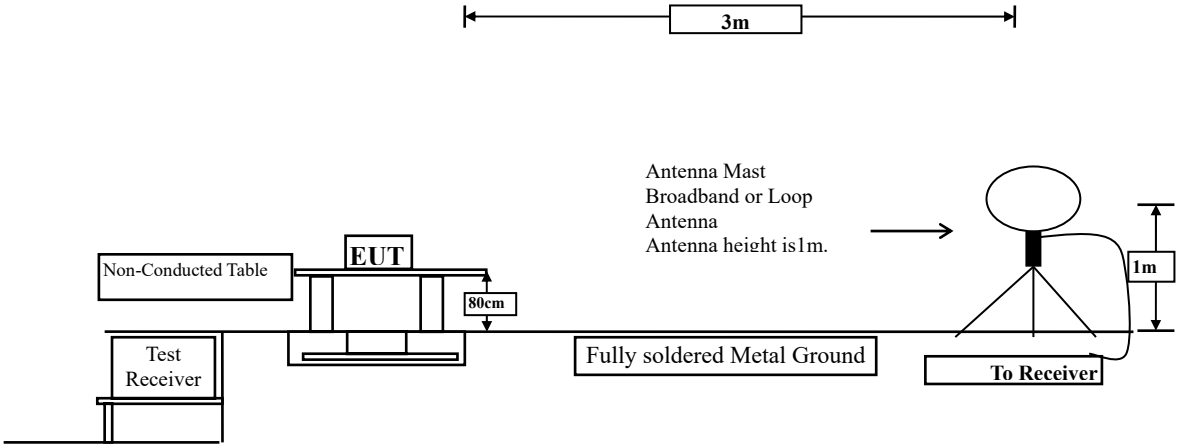
No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	0.153	51.08	65.82	-14.74	41.42	9.66	QP
2	0.153	29.22	55.82	-26.60	19.56	9.66	Average
3	0.364	42.78	58.64	-15.86	33.12	9.66	QP
4	0.364	38.96	48.64	-9.68	29.30	9.66	Average
5	0.776	38.63	56.00	-17.37	28.94	9.69	QP
6	0.776	31.37	46.00	-14.63	21.68	9.69	Average
7	1.918	36.83	56.00	-19.17	27.04	9.79	QP
8	1.918	27.97	46.00	-18.03	18.18	9.79	Average
9	3.891	34.23	56.00	-21.77	23.79	10.44	QP
10	3.891	27.10	46.00	-18.90	16.66	10.44	Average
11	12.069	33.03	60.00	-26.97	22.22	10.81	QP
12	12.069	21.52	50.00	-28.48	10.71	10.81	Average

Note:
1. Level = Read Level + Factor
2. Factor = LISN insertion loss + Cable loss
3. Over Limit = Level - Limit Line

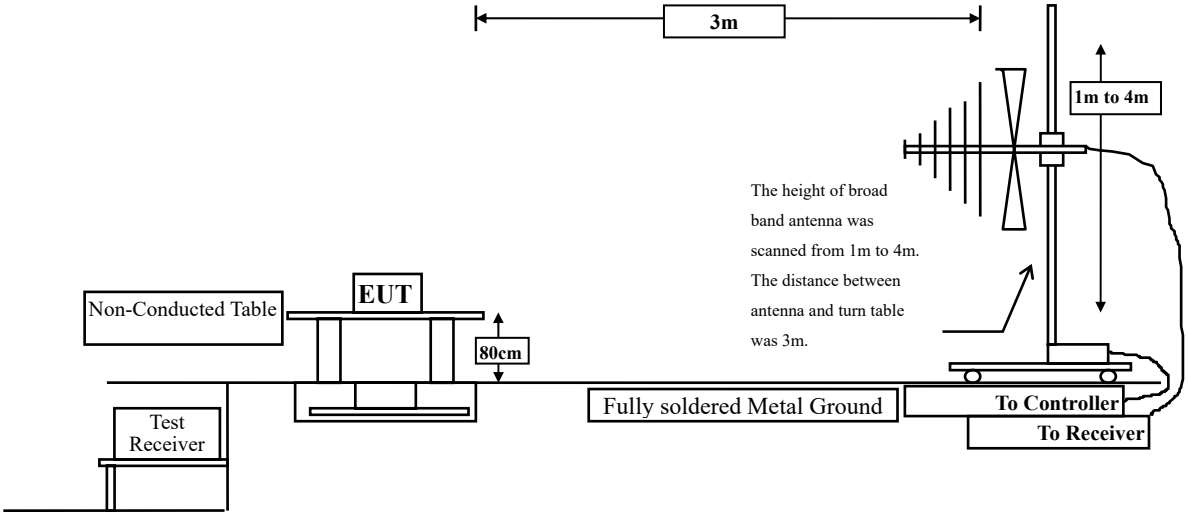
3. Radiated Emission

3.1. Test Setup

Radiated Emission Under 30MHz



Radiated Emission Below 1GHz



3.2. Limits

FCC Part 15 Subpart C Paragraph 15.209 Limits		
Frequency MHz	Field strength (microvolts/meter)	**Measurement distance (meter)**
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

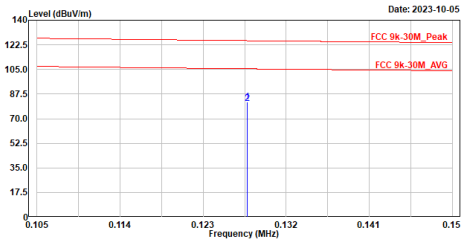
Remarks : 1. RF Voltage (dBμV) = 20 log RF Voltage (uV)
2. In the Above Table, the tighter limit applies at the band edges.
3. Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system.

3.3. Test Procedure

The EUT was setup according to ANSI C63.10, 2013 and tested compliance to FCC 47CFR 15.209 requirements.
The EUT and its simulators are placed on a turn table which is 0.8 meter above ground. The turn table can rotate 360 degrees to determine the position of the maximum emission level. The EUT was positioned such that the distance from antenna to the EUT was 3 meters.
The antenna can move up and down between 1 meter and 4 meters to find out the maximum emission level.
Both horizontal and vertical polarization of the antenna are set on measurement. In order to find the maximum emission, all of the interface cables must be manipulated according to ANSI C63.10: 2013 on radiated measurement.
The resolution bandwidth below 1GHz setting on the field strength meter is 120 kHz and above 1GHz is 1MHz. Radiated emission measurements below 1GHz are made using broadband Bilog antenna and above 1GHz are made using Horn Antennas.
The measurement is divided into the Preliminary Measurement and the Final Measurement.
The suspected frequencies are searched for in Preliminary Measurement with the measurement antenna kept pointed at the source of the emission both in azimuth and elevation, with the polarization of the antenna oriented for maximum response. The antenna is pointed at an angle towards the source of the emission, and the EUT is rotated in both height and polarization to maximize the measured emission. The emission is kept within the illumination area of the 3 dB bandwidth of the antenna.
The worst radiated emission is measured on the Final Measurement.
The measurement frequency range form 9kHz - 10th Harmonic of fundamental was investigated.

3.4. Test Result of Radiated Emission

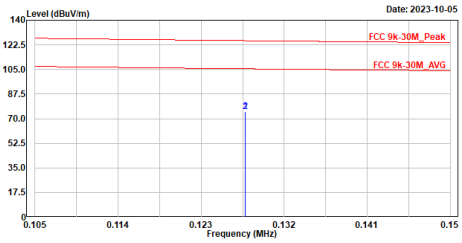
Site :HY-CB01
Condition :3m ,Horizontal
Mode :TX_Fundamental_127.75KHz
TEST BY :Sam



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	0.128	82.14	125.47	-43.33	63.20	18.94	Peak
2	0.128	80.94	105.47	-24.53	62.00	18.94	Average

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line
4. The emission under 30MHz was not included since the emission levels are very low against the limit.

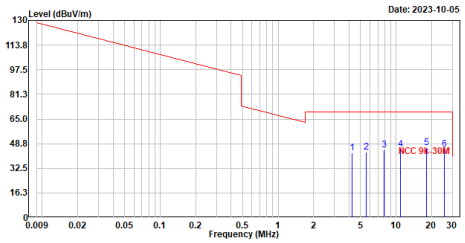
Site :HY-CB01
Condition :3m ,Vertical
Mode :TX_Fundamental_127.75KHz
TEST BY :Sam



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	0.128	75.14	125.47	-50.33	56.20	18.94	Peak
2	0.128	74.84	105.47	-30.63	55.90	18.94	Average

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line
4. The emission under 30MHz was not included since the emission levels are very low against the limit.

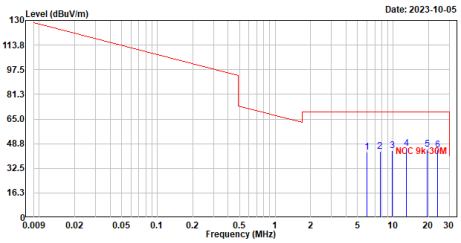
Site :HY-CB01
Condition :3m ,Horizontal
Mode :TX_9K~30M
TEST BY :Sam



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	4.247	42.63	69.50	-26.87	22.98	19.65	QP
2	5.551	43.11	69.50	-26.39	22.65	20.46	QP
3	7.868	44.60	69.50	-24.90	23.69	20.91	QP
4	10.883	45.34	69.50	-24.16	23.86	21.48	QP
5	17.996	46.27	69.50	-23.23	24.07	22.20	QP
6	25.507	44.95	69.50	-24.55	22.35	22.60	QP

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line
4. The emission under 30MHz was not included since the emission levels are very low against the limit.

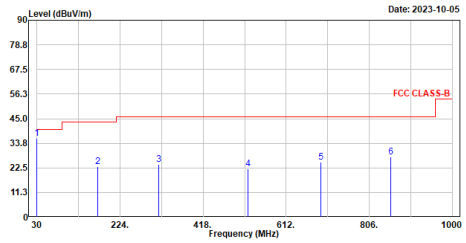
Site :HY-CB01
Condition :3m ,Vertical
Mode :TX_9K~30M
TEST BY :Sam



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	6.020	43.40	69.50	-26.10	22.40	21.00	QP
2	7.741	43.80	69.50	-25.70	22.87	20.93	QP
3	9.794	44.39	69.50	-25.11	23.17	21.22	QP
4	12.905	45.39	69.50	-24.11	24.06	21.33	QP
5	19.359	44.94	69.50	-24.56	22.64	22.30	QP
6	23.711	44.58	69.50	-24.92	22.87	21.71	QP

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line
4. The emission under 30MHz was not included since the emission levels are very low against the limit.

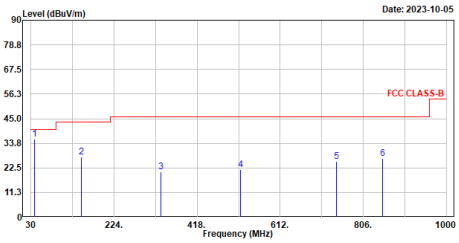
Site :HY-CB01
Condition :3m ,HORIZONTAL
Mode :TX_30M-1G
TEST BY :Sam



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	30.000	35.95	40.00	-4.05	60.77	-24.82	QP
2	172.590	23.12	43.50	-20.38	47.51	-24.39	QP
3	314.210	24.10	46.00	-21.90	46.51	-22.41	QP
4	522.760	22.05	46.00	-23.95	39.49	-17.44	QP
5	693.480	25.08	46.00	-20.92	39.04	-13.96	QP
6	855.470	27.35	46.00	-18.65	39.18	-11.83	QP

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line
4. The emission under 30MHz was not included since the emission levels are very low against the limit.

Site :HY-CB01
Condition :3m ,VERTICAL
Mode :TX_30M-1G
TEST BY :Sam



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	38.730	35.73	40.00	-4.27	59.76	-24.03	QP
2	148.340	27.51	43.50	-15.99	51.28	-23.77	QP
3	333.610	20.84	46.00	-25.16	42.67	-21.83	QP
4	519.850	21.81	46.00	-24.19	39.25	-17.44	QP
5	742.950	25.48	46.00	-20.52	38.58	-13.10	QP
6	851.590	26.78	46.00	-19.22	38.60	-11.82	QP

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line
4. The emission under 30MHz was not included since the emission levels are very low against the limit.