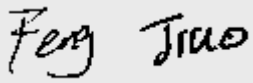
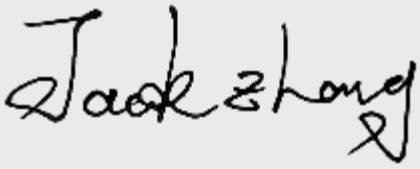
DEKRA Testing and Certification (Suzhou) Co., Ltd.
No.99 Hongye Rd., Suzhou Industrial Park, Suzhou, 215006, Jiangsu, China
TEL: +86-512-6251-5088 / FAX: +86-512-6251-5098

Test report No:
2330084R-RF-US-P06V01

FCC TEST REPORT

Product Name	Wireless Phone Charger
Trademark	Tesla
Model and /or type reference	WC5
FCC ID	2AEIM-WC5
Applicant´s name / address	Tesla, Inc 3500 Deer Creek Road, Palo Alto, 94304 California, United State
Test method requested, standard	CFR 47, FCC Part 15 C
Verdict Summary	IN COMPLIANCE
Documented by (name / position & signature)	Feng Jiao/ Project Engineer 
Approved by (name / position & signature)	Jack Zhang/ Manager 
Date of issue	2023-04-26
Report Version	V1.1
Report template No	Template_FCC Part 15C-RF-V1.0

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page

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.

IMPORTANT: No parts of this report may be reproduced or quoted out of context, in any form or by any means, except in full, without the previous written permission of DEKRA.

GENERAL CONDITIONS

Test Location	No. 99, Hongye Road, Suzhou Industrial Park Suzhou, 215006, P.R. China
Date(receive sample)	Mar. 06, 2023
Date (start test)	Mar. 08, 2023
Date (finish test)	Mar. 24, 2023

1. This report is only referred to the item that has undergone the test.
2. This report does not constitute or imply on its own an approval of the product by the Certification Bodies or Competent Authorities.
3. This document is only valid if complete; no partial reproduction can be made without previous written permission of DEKRA.
4. This test report cannot be used partially or in full for publicity and/or promotional purposes without previous written permission of DEKRA.

ENVIRONMENTAL CONDITIONS

The climatic conditions during the tests are within the limits specified by the manufacturer for the operation of the EUT and the test equipment. The climatic conditions during the tests were within the following limits:

Ambient temperature	15 °C – 35 °C
Relative Humidity air	30% - 60%

If explicitly required in the basic standard or applied product / product family standard the climatic values are recorded and documented separately in this test report.

POSSIBLE TEST CASE VERDICTS

Test case does not apply to test object	N/A
Test object does meet requirement	P (Pass) / PASS
Test object does not meet requirement	F (Fail) / FAIL
Not measured	N/M

ABBREVIATIONS

For the purposes of the present document, the following abbreviations apply:

EUT : Equipment Under Test
QP : Quasi-Peak
CAV : CISPR Average
AV : Average
CDN : Coupling Decoupling Network
SAC : Semi-Anechoic Chamber
OATS : Open Area Test Site
BW : Bandwidth
AM : Amplitude Modulation
PM : Pulse Modulation
HCP : Horizontal Coupling Plane
VCP : Vertical Coupling Plane
U_N : Nominal voltage
*T*x : Transmitter
*R*x : Receiver
N/A : Not Applicable
N/M : Not Measured

DOCUMENT HISTORY

Report No.	Version	Description	Issued Date
2330084R-RF-US-P06V01	V1.0	Initial issue of report.	2023-04-21
2330084R-RF-US-P06V01	V1.1	P9 Remove color annotations and modify frequency range.	2023-04-26

REMARKS AND COMMENTS

1. The equipment under test (EUT) does meet the essential requirements of the stated standard(s)/test(s).
2. These test results on a sample of the device are for the purpose of demonstrating Compliance with CFR 47, FCC Part 15 C .
3. The measurement result is considered in conformance with the requirement if it is within the prescribed limit, It is not necessary to account the uncertainty associated with the measurement result.
4. The test results presented in this report relate only to the object tested.
5. The test report shall not be reproduced without the written approval of DEKRA Testing and Certification (Suzhou) Co., Ltd.
6. This report will not be used for social proof function in China market.
7. DEKRA declines any responsibility with the following test data provided by customer that may affect the validity of result:
   - Chapter 1.1 General Description of the Item(s);
   - Chapter 1.2 Antenna Informaion;
   - Chapter 1.3 Channel List.

USED EQUIPMENT

AC Power Line Conducted Emission / TR1

Instrument	Manufacturer	Model No.	Serial No.	Cal. Date	Next Cal. Date
EMI Test Receiver	R&S	ESR7	102086	2023.02.25	2024.02.24
Two-Line V-Network	R&S	ENV216	101190	2023.01.07	2024.01.06
Two-Line V-Network	R&S	ENV216	101044	2023.01.07	2024.01.06
Current Probe	R&S	EZ-17	100678	2023.01.13	2024.01.12
50ohm Coaxial Switch	Anritsu	MP59B	6200464462	N/A	N/A
Temperature/Humidity Meter	RTS	RTS-8S	TR1-TH	2022.07.07	2023.07.06
Coaxial Cable	Suhner	RG 223	TR1-C1	2022.03.30	2023.03.29
Dekra test software	Dekra	-	-	-	-

Radiated Emission(9KHz-1GHz) / AC2

Instrument	Manufacturer	Model No.	Serial No.	Cal. Date	Next Cal. Date
EMI Test Receiver	R&S	ESCI	100573	2022.09.17	2023.09.16
Bilog Antenna	Teseq GmbH	CBL6112D	27613	2022.08.28	2023.08.27
Temperature/Humidity Meter	RTS	RTS-8S	AC2-TH	2022.07.07	2023.07.06
Coaxial Cable	Huber+Suhner	RG 214	AC2-C	2022.03.30	2023.03.29
Loop Antenna	R&S	HFH2-Z2	833799/003	2022.04.15	2023.04.14
Dekra test software	Dekra	-	-	-	-

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% .

Test item	Uncertainty
AC Power Line Conducted Emission	150kHz~30MHz: 2.40dB
Radiated Emission(9KHz~30MHz)	Horizontal: 9KHz~30MHz: 2.10 dB Vertical: 30MHz~200MHz: 2.30 dB
Radiated Emission(30MHz~1GHz)	± 3.80 dB
Occupied Bandwidth	±150Hz

1 GENERAL INFORMATION

1.1 General Description of the Item(s)

Product Name..... :	Wireless Phone Charger
Model No. ..... :	WC5
Trademark ..... :	Tesla
FCC ID ..... :	2AEIM-WC5
Manufacturer..... :	Tesla, Inc
Manufacturer address ..... :	3500 Deer Creek Road, Palo Alto, 94304 California, United State

Operating Frequency Range ..... :	122.72~132.72kHz
Type of Modulation..... :	ASK
Number of Channel..... :	1
Operating Temperature Range..... :	-40℃ ~ 85℃

Rated power supply .....:	Voltage and Frequency	
	☐	AC: 220 – 240 V, 50 / 60 Hz,
	☐	AC: 100 – 240 V, 50 / 60 Hz
	☒	DC: 13.5 V
	☐	Battery: 12 Vdc
	☐	Adapter:
Adapter.....:	N/A	
	N/A	
Mounting position.....:	☐	Table top equipment
	☐	Wall/Ceiling mounted equipment
	☐	Floor standing equipment
	☐	Hand-held equipment
	☒	Other: Equipment for vehicular use

1.2 Antenna Information

Antenna model / type number.....:	N/A			
Antenna serial number .....:	N/A			
Antenna Delivery .....:	☒	1TX + 1RX		
	☐	2TX + 2RX		
	☐	Others:……		
Antenna technology.....:	☒	SISO		
	☐	MIMO	☐	CDD
			☐	Beam-forming
Antenna Type.....:	☐	External	☐	Dipole
			☐	Sectorized
	☒	Internal	☐	Ceramic Chip
			☐	PIFA
			☐	PCB
			☒	Others: Coil antenna
Antenna Gain.....:	N/A			

1.3 Channel List

Working Frequency of Each Channel:							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
01	127.7 kHz	--	--	--	--	--	--
--	--	--	--	--	--	--	--

Note: The General Description of the Item , antenna information and Channel List for the EUT in clause 1 are provided and confirmed by the client.

2 DESCRIPTION OF TEST SETUP

2.1 Operating mode(s) used for tests

During the tests the following operating mode(s) has(have) been used.

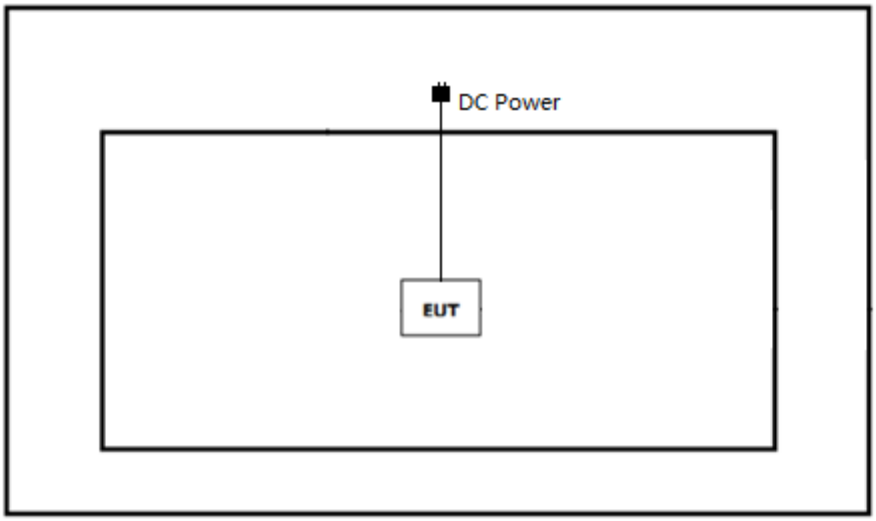
Test Mode For WPT	Mode 1: Transmit

2.2 Auxiliary equipment / Test software for the EUT

Auxiliary equipment	Type / Version	Manufacturer	Supplied by
N/A	N/A	N/A	N/A
software	Type / Version	Manufacturer	Supplied by
N/A	N/A	N/A	N/A

2.3 Test Configuration / Block diagram used for tests

Test setup Diagram- Radiated Test



2.4 Testing process

1	Setup the EUT as shown in Section 2.3.
2	Turn on the power of equipment.
3	Verify that the EUT works properly.

Note: We use the resistor provided by the customer as the load, and we have verified the charging test under each power supply. The worst state is included in the report.

3 VERDICT SUMMARY SECTION

This chapter presents an overview of standards and results. Refer to the next chapters for details of measured test results and applied test levels.

3.1 Standards

Standard	Year	Description
CFR 47, FCC Part 15 C	2023	Intentional Radiators
ANSI C63.10	2013	American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices

3.2 Deviation(s) from the Standard(s) / Test Specification(s)

The following deviation(s) was / were made from the published requirements of the listed standards: N/A.

(Please define the deviations from the standard(s) if applicable)

3.3 Overview of results

Requirement – Test case	Basic standard(s)	Verdict	Remark
Conducted Emission	FCC CFR Title 47 Part 15 Subpart C Section 15.207	N/A	---
Field Strength of Spurious	FCC CFR Title 47 Part 15 Subpart C Section 15.209	PASS	---
Channel Bandwidth	FCC CFR Title 47 Part 15 Subpart C Section 15.215(c)	PASS	---
Antenna Requirement	FCC CFR Title 47 Part 15 Subpart C: Section 15.203	PASS	---

3.4 Test Facility

USA	**:**	**FCC Designation Number: CN1199**

4 TEST RESULTS

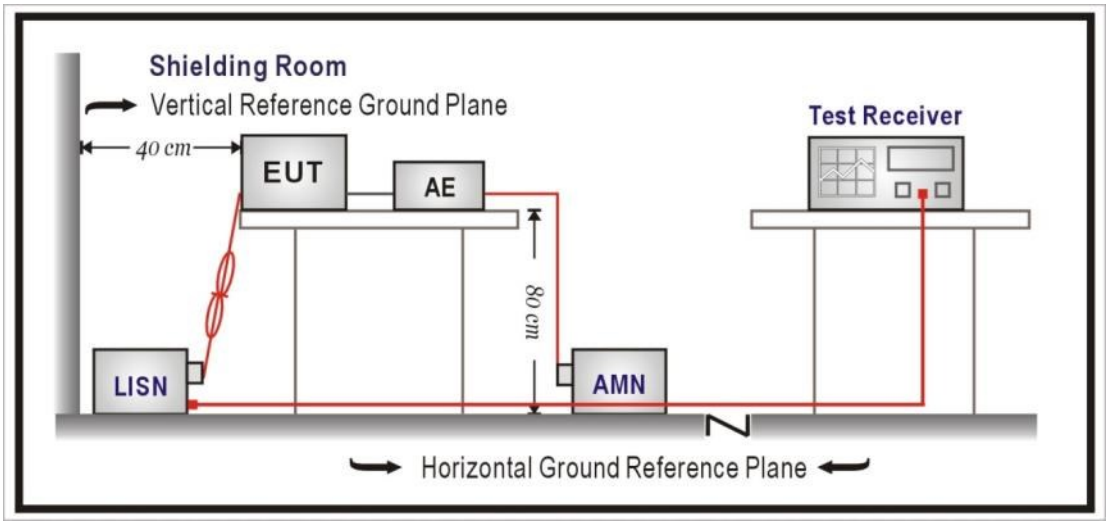
4.1 AC Power Line Conducted Emission	VERDICT: N/A

4.1.1 Limit

Standard	FCC Part 15 Subpart C Paragraph 15.207	
Frequency range [MHz]	Limit: QP [dB(μV)[1)]]	Limit: AV [dB(μV) [1)]]
0,15 - 0,50	66 – 56 [2)]	56 - 46 [2)]
0,50 - 5,0	56	46
5,0 - 30	60	50

[1)] At the transition frequency, the lower limit applies.
[2)] The limit decreases linearly with the logarithm of the frequency.
NOTE 1: The exclusion band for transmitters shall be considered for transmitters operating at frequencies below 30 MHz.
NOTE 2: Where the AC output port is directly connected (or via a circuit breaker) to the AC power input port of the EUT the AC power output port need not to be tested.

4.1.2 Test Setup



4.1.3 Test Procedure

	References Rule	Chapter	Item
☒	ANSI C63.10-2013	6.2	Standard test method for ac power-line conducted emissions from unlicensed wireless devices

4.1.4 Test Data

Note : The product is DC powered, no testing required for evaluation.

4.2 Radiated emission — VERDICT: PASS

4.2.1 Limit

Standard	FCC Part 15 Subpart C Paragraph 15.209		
Frequency (MHz)	Field strength (μV/m)	Field strength (dBμV/m)	Measurement distance (m)
0.009 - 0.49	2400/F(kHz)	48.5 – 13.8	300(Note 1)
0.49 - 1.705	24000/F(kHz)	33.8 - 23	30(Note 1)
1.705 - 30	30	29.5	30(Note 1)
30 - 88	100	40	3(Note 2)
88 - 216	150	43.5	3(Note 2)
216 - 960	200	46	3(Note 2)
Above 960	500	54	3(Note 2)

Note 1: The tighter limits apply at the band edges.

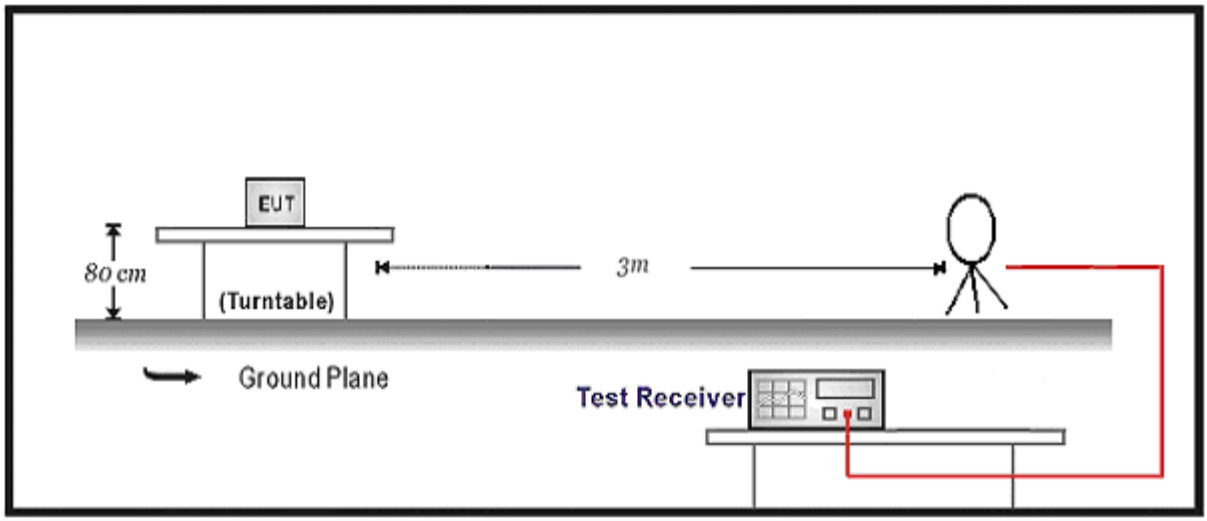
Note 2: Measurements were performed at 10m and the data was extrapolated to the specified measurement distance of 300m using the square of an inverse linear distance extrapolation factor (40 dB/decade) as specified in §15.31(f)(2). Extrapolation Factor = 40 log10(300/10) = 59dB for example.

Measurements were performed at 10m and the data was extrapolated to the specified measurement distance of 30m using the square of an inverse linear distance extrapolation factor (40 dB/decade) as specified in §15.31(f)(2). Extrapolation Factor = 40 log10(30/10) = 19dB for example.

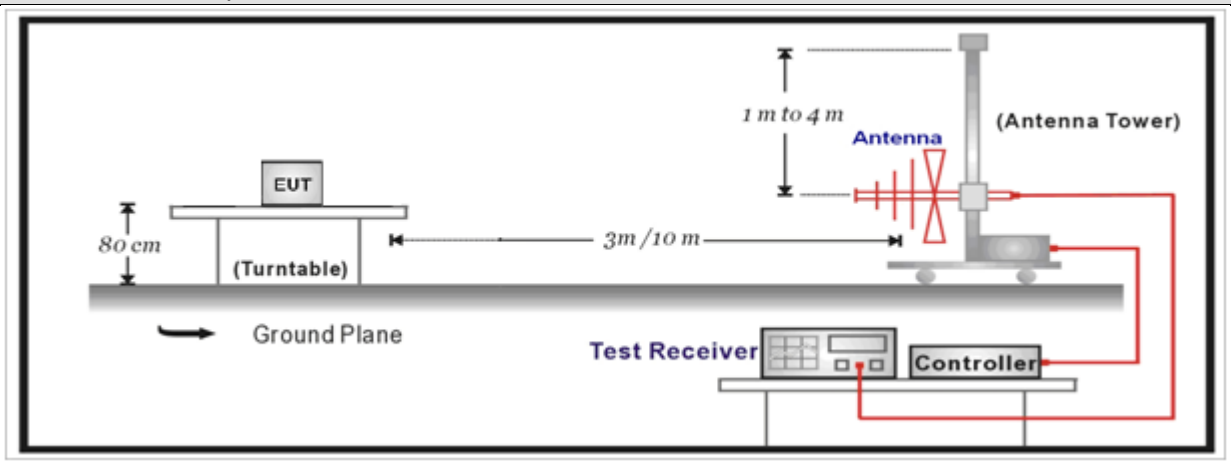
Note 3: All measurements were performed using a loop antenna. The antenna was positioned in three orthogonal positions (X front, Y side, Z top) and the position with the highest emission level was recorded.

4.2.2 Test Setup

Below 30MHz Test Setup:



30MHz-1GHz Test Setup:

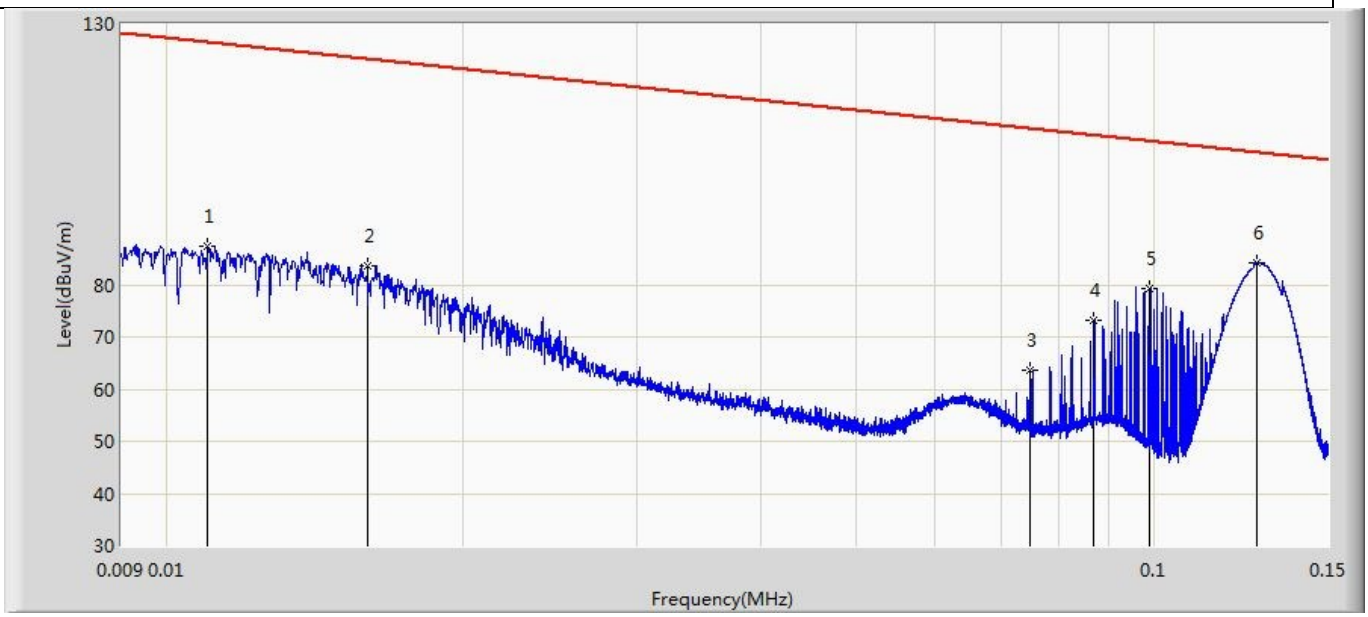


4.2.3 Test Procedure

	References Rule		Chapter	Description
☒	ANSI C63.10		11.12	Emissions in restricted frequency bands
	☒ ANSI C63.10		11.12.1	Radiated emission measurements
	☒ ANSI C63.10		11.12.2.7	Radiated spurious emission test
		☒ ANSI C63.10	6.4	Radiated emissions from unlicensed wireless devices below 30 MHz
		☒ ANSI C63.10	6.5	Radiated emissions from unlicensed wireless devices in the frequency range of 30 MHz to 1000 MHz
		☐ ANSI C63.10	6.6	Radiated emissions from unlicensed wireless devices above 1 GHz

4.2.4 Test Data

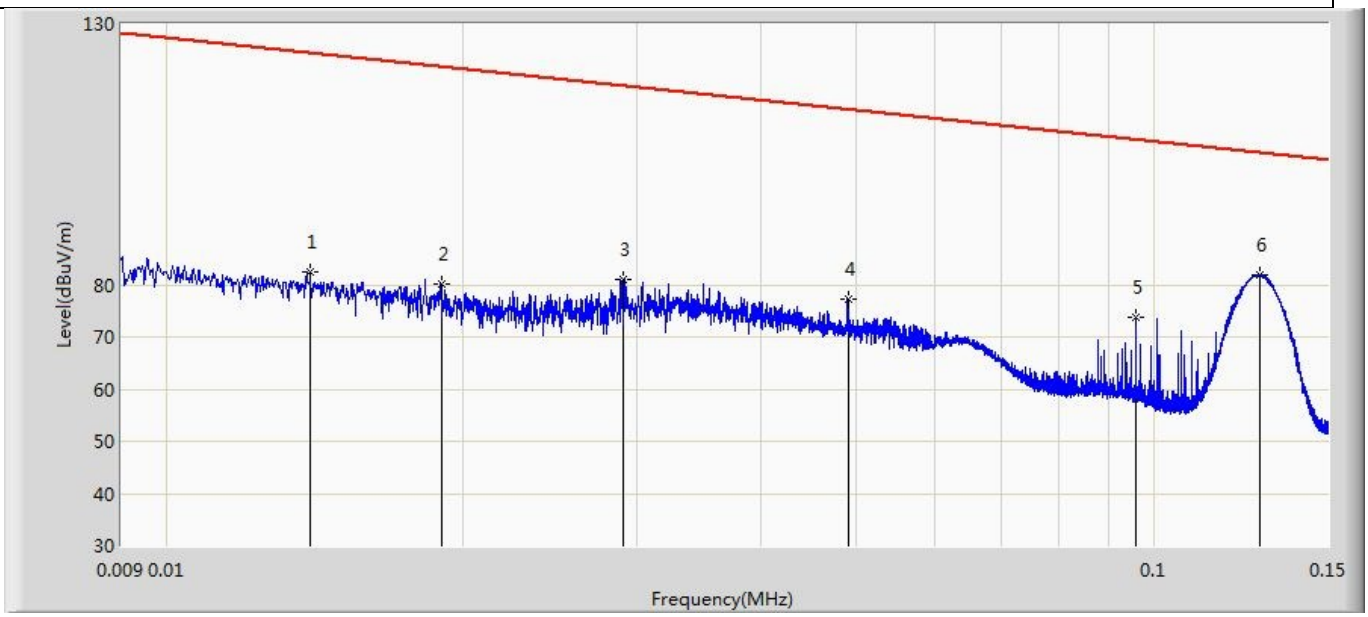
Profile: 2330084R	Page No.: 1
Engineer: Yuliu	
Site: AC2	Time: 2023/03/17 - 19:25
Limit: 15.209	Margin: 0
Probe: RF(0.009-30MHz)	Polarity: Horizontal
EUT: WC5	Power: DC 13.5V
Note: Mode 1: Transmit	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		0.011	87.258	66.165	-39.400	126.658	21.094	PK
2		0.016	83.570	62.321	-39.835	123.405	21.248	PK
3		0.075	63.640	41.717	-46.354	109.994	21.923	PK
4		0.087	73.256	51.348	-35.449	108.705	21.908	PK
5		0.099	79.273	57.379	-28.311	107.584	21.894	PK
6	*	0.127	84.204	62.341	-21.217	105.421	21.863	PK

Note: Mark 6 is the fundamental emission.

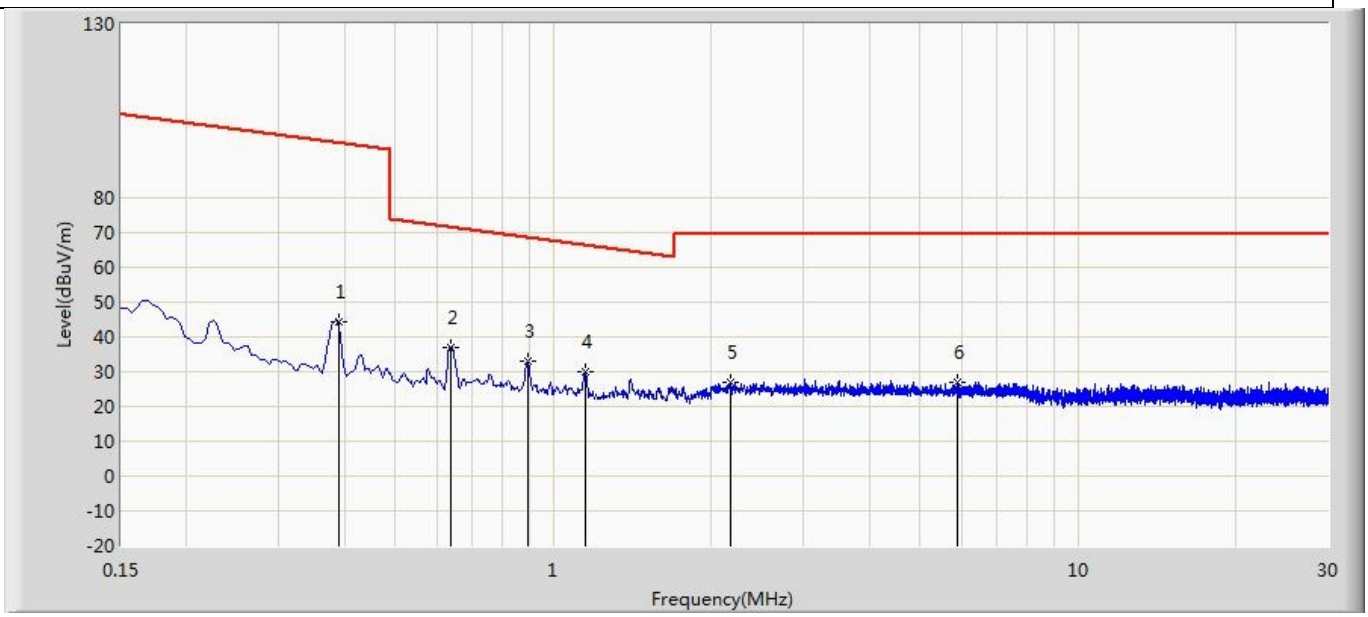
Profile: 2330084R	Page No.: 3
Engineer: Yuliu	
Site: AC2	Time: 2023/03/17 - 20:46
Limit: 15.209	Margin: 0
Probe: RF(0.009-30MHz)	Polarity: Vertical
EUT: WC5	Power: DC 13.5V
Note: Mode 1: Transmit	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		0.014	82.539	61.852	-42.025	124.564	20.687	PK
2		0.019	80.272	59.430	-41.641	121.913	20.841	PK
3		0.029	81.121	59.969	-37.121	118.242	21.152	PK
4		0.049	77.162	55.711	-36.527	113.689	21.451	PK
5		0.096	73.773	52.375	-34.078	107.851	21.398	PK
6	*	0.128	82.020	60.658	-23.333	105.353	21.362	PK

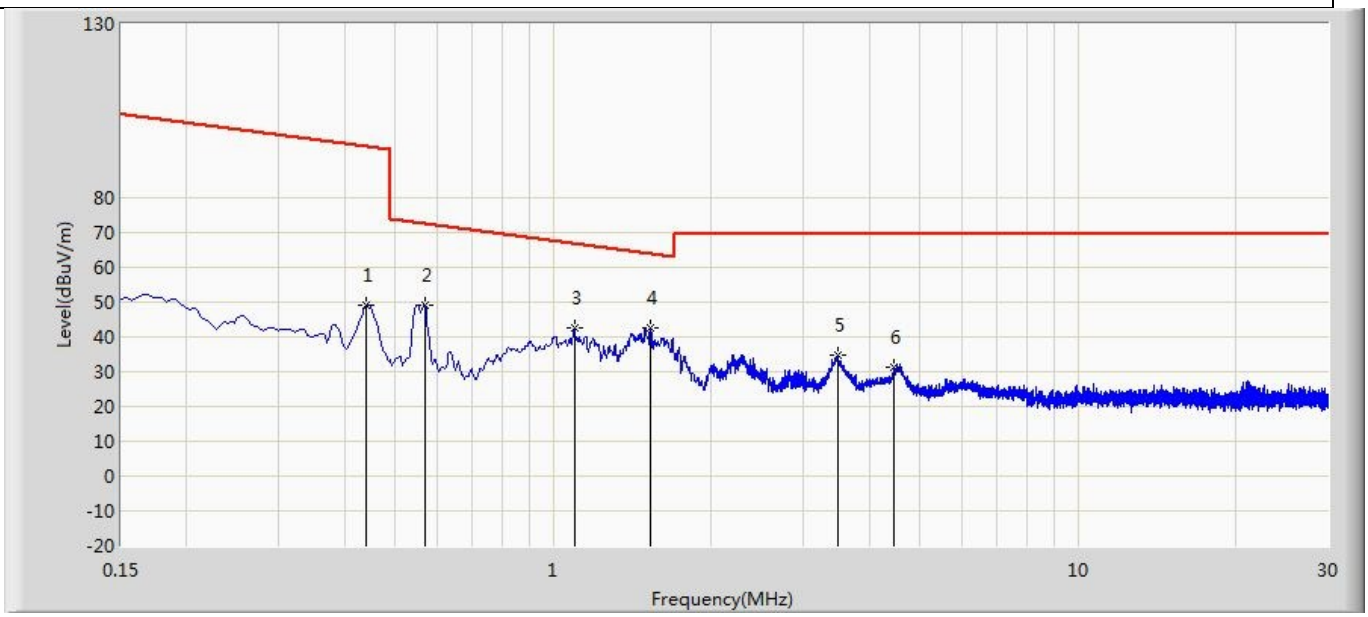
Note: Mark 6 is the fundamental emission.

Profile: 2330084R	Page No.: 2
Engineer: Yuliu	
Site: AC2	Time: 2023/03/17 - 20:08
Limit: 15.209	Margin: 0
Probe: RF(0.009-30MHz)	Polarity: Horizontal
EUT: WC5	Power: DC 13.5V
Note: Mode 1: Transmit	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		0.389	44.523	22.929	-51.181	95.704	21.594	PK
2	*	0.639	37.154	16.102	-34.246	71.400	21.052	PK
3		0.893	32.929	12.656	-35.573	68.502	20.273	PK
4		1.150	29.932	9.839	-36.379	66.311	20.093	PK
5		2.172	26.866	5.935	-42.534	69.400	20.931	PK
6		5.911	27.010	6.438	-42.390	69.400	20.572	PK

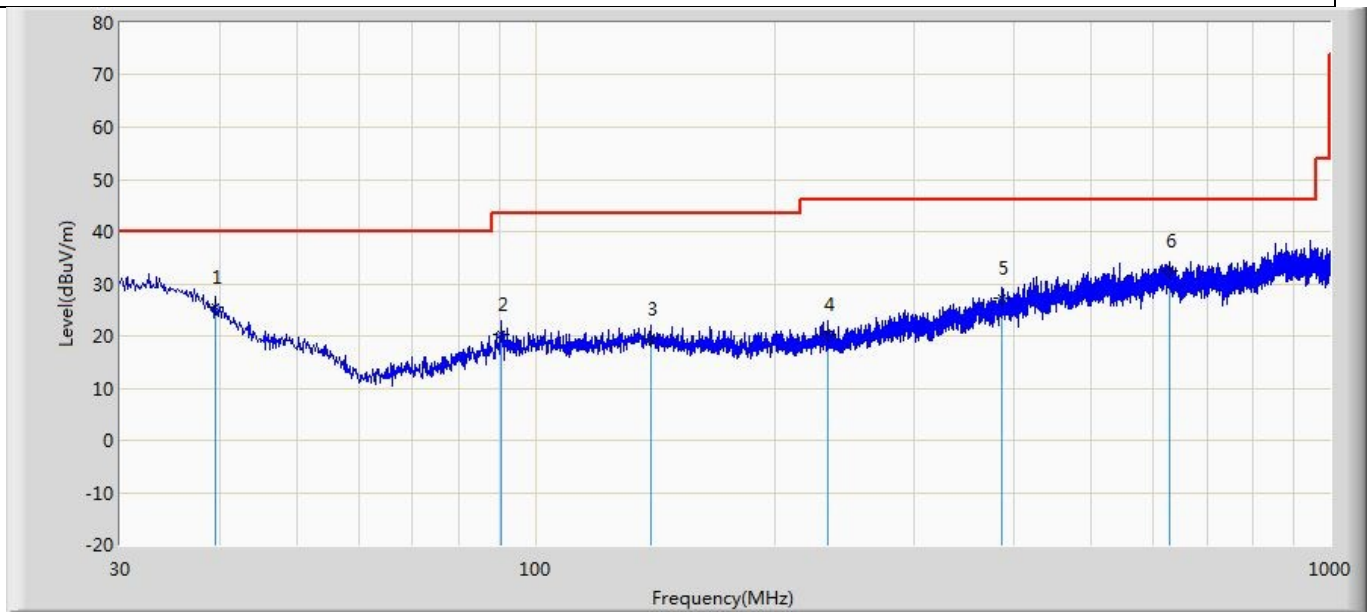
Profile: 2330084R	Page No.: 4
Engineer: Yuliu	
Site: AC2	Time: 2023/03/17 - 20:48
Limit: 15.209	Margin: 0
Probe: RF(0.009-30MHz)	Polarity: Vertical
EUT: WC5	Power: DC 13.5V
Note: Mode 1: Transmit	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		0.441	49.246	28.197	-45.369	94.615	21.050	PK
2		0.568	49.123	28.358	-23.298	72.421	20.764	PK
3		1.098	42.652	23.106	-24.060	66.712	19.545	PK
4	*	1.531	42.683	22.709	-21.149	63.832	19.974	PK
5		3.482	34.656	14.369	-34.744	69.400	20.287	PK
6		4.471	31.486	11.332	-37.914	69.400	20.153	PK

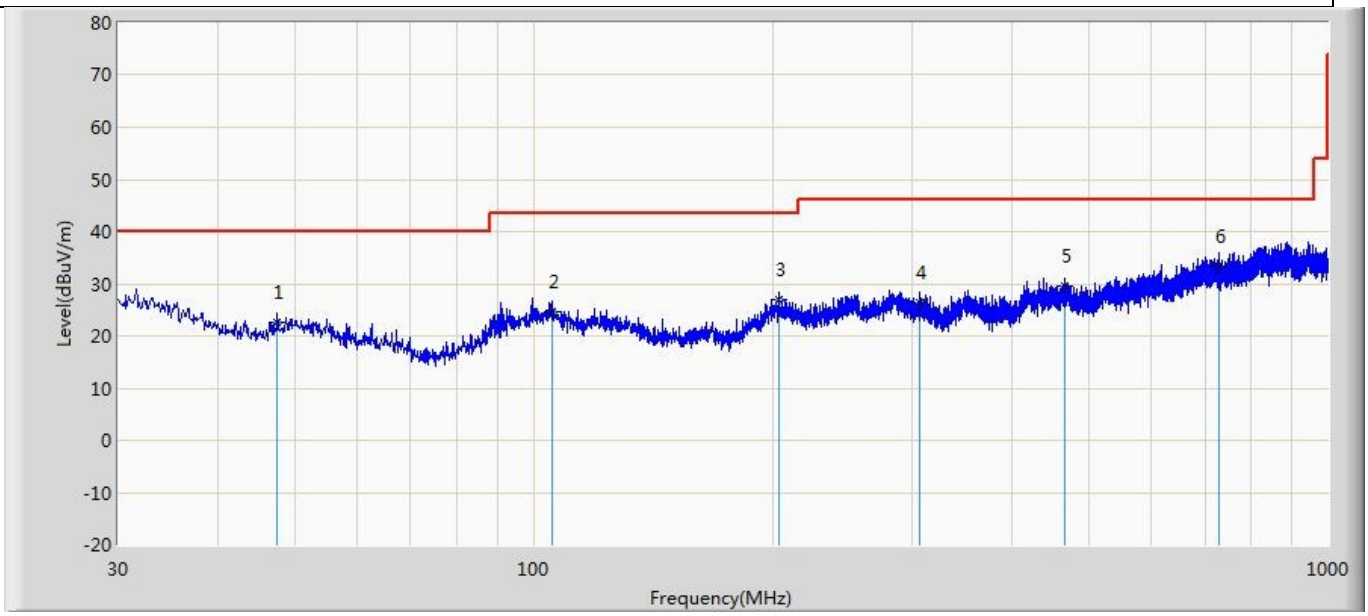
Note : We test the three polarities of X Y Z, and the report shows the two worst limits.

Profile: 2330084R	Page No.: 1
Engineer: Yuliu	
Site: AC2	Time: 2023/03/24 - 08:50
Limit: FCC_Part15.109_RE(3m)_ClassB	Margin: 0
Probe: AC2_3M(30-1000M)	Polarity: Horizontal
EUT: WC5	Power: DC 13.5V
Note: Mode 1	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		39.458	25.634	2.901	-14.366	40.000	22.733	QP
2		90.504	20.159	6.517	-23.341	43.500	13.642	QP
3		139.489	19.364	2.004	-24.136	43.500	17.359	QP
4		232.851	20.176	2.277	-25.824	46.000	17.899	QP
5		385.626	27.201	2.440	-18.799	46.000	24.762	QP
6	*	627.156	32.413	1.991	-13.587	46.000	30.422	QP

Profile: 2330084R	Page No.: 2
Engineer: Yuliu	
Site: AC2	Time: 2023/03/24 - 08:50
Limit: FCC_Part15.109_RE(3m)_ClassB	Margin: 0
Probe: AC2_3M(30-1000M)	Polarity: Vertical
EUT: WC5	Power: DC 13.5V
Note: Mode 1	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		47.581	22.630	3.909	-17.370	40.000	18.721	QP
2		105.539	24.501	2.347	-18.999	43.500	22.154	QP
3		203.994	26.969	3.511	-16.531	43.500	23.458	QP
4		306.329	26.518	2.403	-19.482	46.000	24.115	QP
5		465.772	29.511	2.720	-16.489	46.000	26.791	QP
6	*	729.128	33.359	2.674	-12.641	46.000	30.685	QP

Note 1: " * ", means this data is the worst emission level.
Note 2: Measurement Level = Reading Level + Factor(Probe+Cable-Amp).
Note 3: The orthogonal orientations (x/y/z) of the shielded loop antenna are evaluated, shown in the report is the worst data.

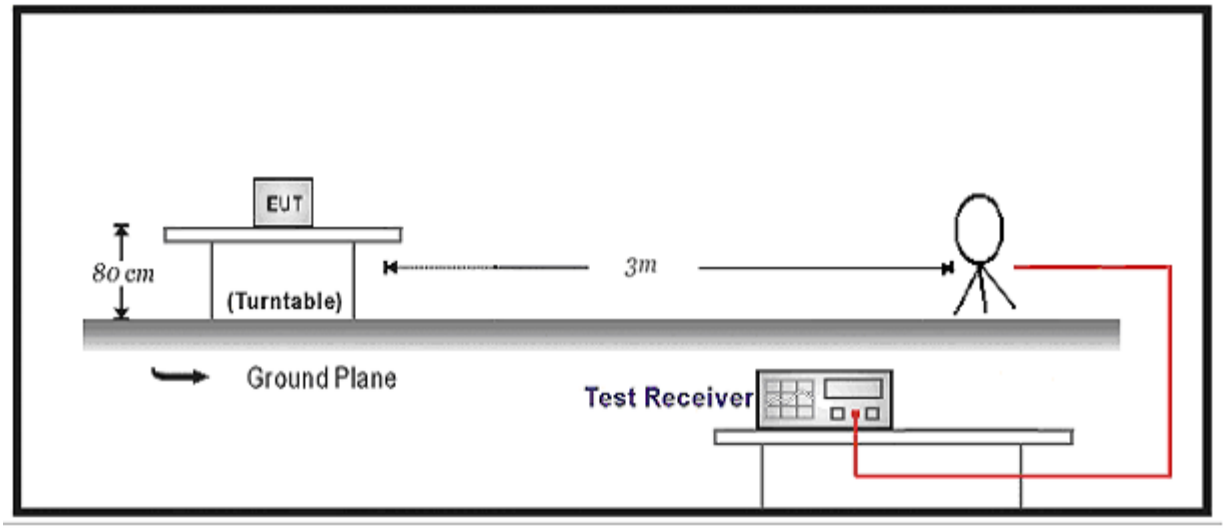
4.3 20dB Bandwidth	VERDICT: PASS

4.3.1 Limit

Standard	FCC Part 15 Subpart C

Intentional radiators operating under the alternative provisions to the general emission limits, as contained in §§15.215(c), must be designed to ensure that the 20 dB bandwidth of the emission, or whatever bandwidth may otherwise be specified in the specific rule section under which the equipment operates, is contained within the frequency band designated in the rule section under which the equipment is operated.

4.3.2 Test Setup

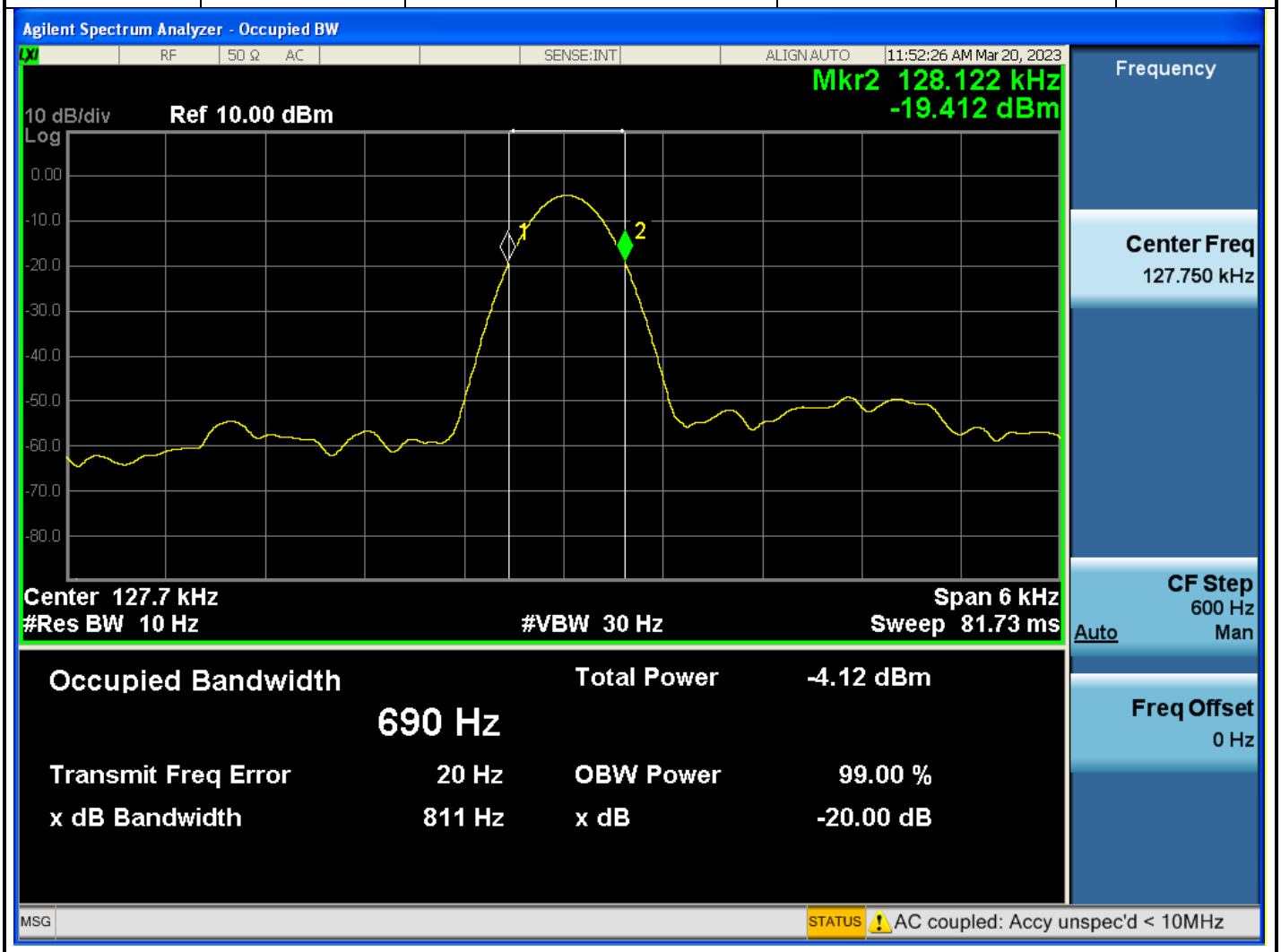


4.3.3 Test Procedure

The bandwidth of the fundamental frequency was measured by spectrum analyzer with the RBW 1%~5% of 20dBc bandwidth and the VBW three times of the RBW. The 20dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 20dB.

4.3.4 Test Data

Mode	Test Freq. (kHz)	20dB Occupied Bandwidth (Hz)	99% Occupied Bandwidth (Hz)	Result
1	127.7	811	690	Pass



4.4 Antenna Requirement	VERDICT: PASS

4.4.1 Limit:	
Standard	FCC Part 15 Subpart C Paragraph 15.203

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsibby LE 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 shall be considered sufficient to comply with the provisions of this section. 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 eby LEctrical connector is prohibited. This requirement does not apply to carrier current devices or to devices operated under the provisions of §15.211, §15.213, §15.217, §15.219, or §15.221. Further, this requirement does not apply to intentional radiators that must be professionally instalby LEd, such as perimeter protection systems and some field disturbance sensors, or to other intentional radiators which, in accordance with §15.31(d), must be measured at the installation site. However, the instalby LEr shall be responsibby LE for ensuring that the proper antenna is employed so that the limits in this part are not exceeded.

4.4.2 Antenna Connector Construction:	
☒	The use of a permanently attached antenna
☐	The antenna use of a unique coupling to the intentional radiator
☐	The use of a nonstandard antenna jack or eby LEctrical connector

Pby LEase refer to the attached document “Internal Photograph” to show the antenna connector.

5 TEST SETUP PHOTO AND EUT PHOTO

Remark: The test setup photo and EUT Photo please see appendix.

The End