



Test report No:
2330084R-RF-US-P06V02

FCC&IC TEST REPORT

Product Name	Wireless Phone Charger
Trademark	Tesla
Model and /or type reference	WC5
FCC ID	2AEIM-WC5
IC	20098-WC5
Applicant's name / address	Tesla, Inc 3500 Deer Creek Road, Palo Alto, 94304 California, United State
Test method requested, standard	CFR 47, Part 15 C RSS-210 Issue 10 (2019-12)
Verdict Summary	IN COMPLIANCE
Documented by (name / position & signature)	Feng Jiao/ Project Engineer 
Approved by (name / position & signature)	Jack Zhang/ Manager 
Date of issue	2023-04-21
Report Version	V1.0
Report template No	Template_FCC 15.225-RF-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.

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-P06V02	V1.0	Initial issue of report.	2023-04-21

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 Part 15 Subpart C Paragraph 15.225 and RSS-210 Issue 10 (2019-12), RSS-Gen Issue 5 (2019-03).
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	± 2.02 dB
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	± 1 kHz

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
IC ID..... :	20098-WC5
Manufacturer	Tesla, Inc
Manufacturer address	3500 Deer Creek Road, Palo Alto, 94304 California, United State

Wireless Specification..... :	NFC
Operating frequency range(s)..... :	13.56 MHz
Type of modulation	ASK
Number of channel..... :	1

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

1.2. Antenna information

Antenna model / type number	N/A		
Antenna serial number	N/A		
Antenna Delivery	<input checked="" type="checkbox"/>	1TX + 1RX	
	<input type="checkbox"/>	2TX + 2RX	
	<input type="checkbox"/>	Others:.....	
Antenna technology	<input checked="" type="checkbox"/>	SISO	
	<input type="checkbox"/>	MIMO	<input type="checkbox"/> CDD
			<input type="checkbox"/> Beam-forming
Antenna Type	<input type="checkbox"/>	External	<input type="checkbox"/> Dipole
			<input type="checkbox"/> Sectorized
			<input type="checkbox"/> Ceramic Chip
	<input checked="" type="checkbox"/>	Internal	<input type="checkbox"/> PIFA
			<input type="checkbox"/> PCB
			<input checked="" type="checkbox"/> Others: Coil antenna
Antenna Gain.....	N/A		

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.

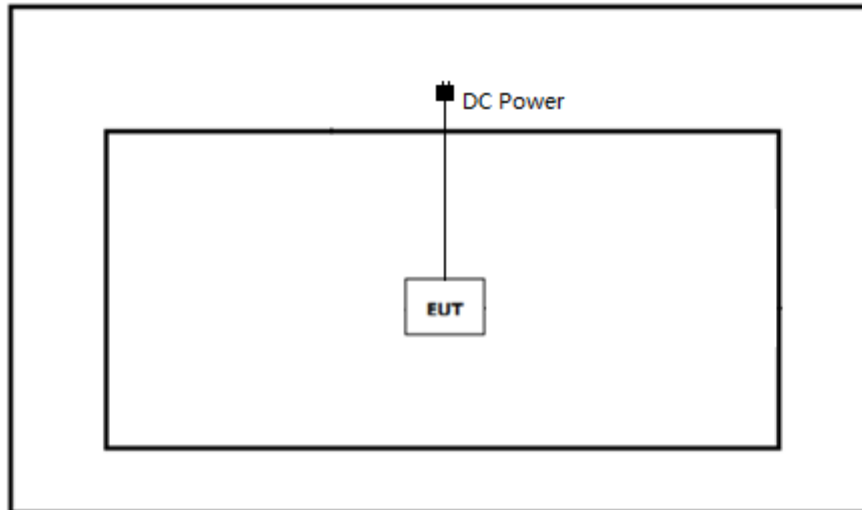
Test Mode	Mode 1: Transmit by NFC
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2.2 Support / Auxiliary equipment / unit / Test software for the EUT

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

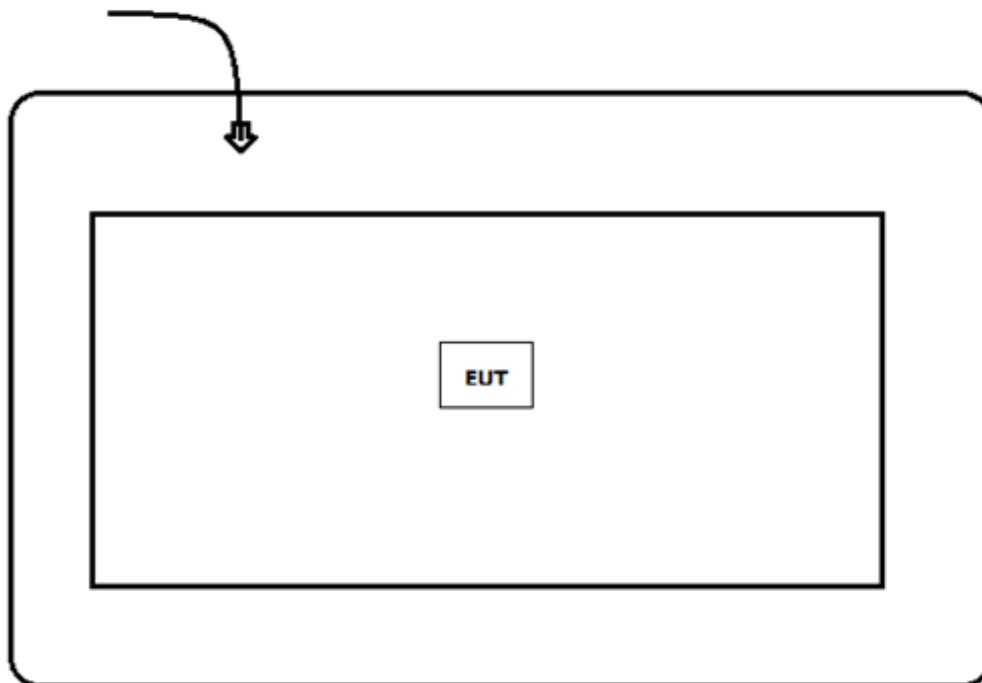
2.3 Test Configuration / Block diagram used for tests

Test setup Diagram- AC Line Conducted Emission Test



Test setup Diagram- Radiated Emission

Chamber



2.4 Testing process

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

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
FCC CFR Title 47 Part 15 Subpart C Section 15.225	2023	Operation within the band 13.110-14.010 MHz
RSS-210 Issue 10	2019	Band 13.110-14.010 MHz

3.2 Overview of results

For FCC

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 Fundamental	FCC CFR Title 47 Part 15 Subpart C Section 15.225(a)(b)(c)	PASS	---
Field Strength of Spurious	FCC CFR Title 47 Part 15 Subpart C Section 15.209 & 15.225(d)	PASS	---
Frequency Tolerance	FCC CFR Title 47 Part 15 Subpart C Section 15.225(e)	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	---
<u>Supplementary information:</u>			

For ISCED

Requirement – Test case	Basic standard(s)	Verdict	Remark
Conducted Emission	RSS-Gen Issue 5 Section 8.8	N/A	---
Field Strength of Fundamental	RSS-210 Issue 10 Section B.6	PASS	---
Field Strength of Spurious	RSS-210 Issue 10, Section B.6 RSS-Gen Issue 5, Section 8.9	PASS	---
Frequency Tolerance	RSS-210 Issue 10 Section B.6	PASS	---
Channel Bandwidth	RSS-Gen Section 6.7	PASS	---
Antenna Requirement	RSS-Gen Section 8.3	PASS	---
<u>Supplementary information:</u>			

3.3 Test Facility

USA : **FCC Designation Number: CN1199**

Canada : **CAB identifier Number: CN0040**

4 TEST RESULTS

4.1 AC Power Line Conducted Emission	VERDICT: N/A
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4.1.1 Limit

Standard	FCC Part 15 Subpart E 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

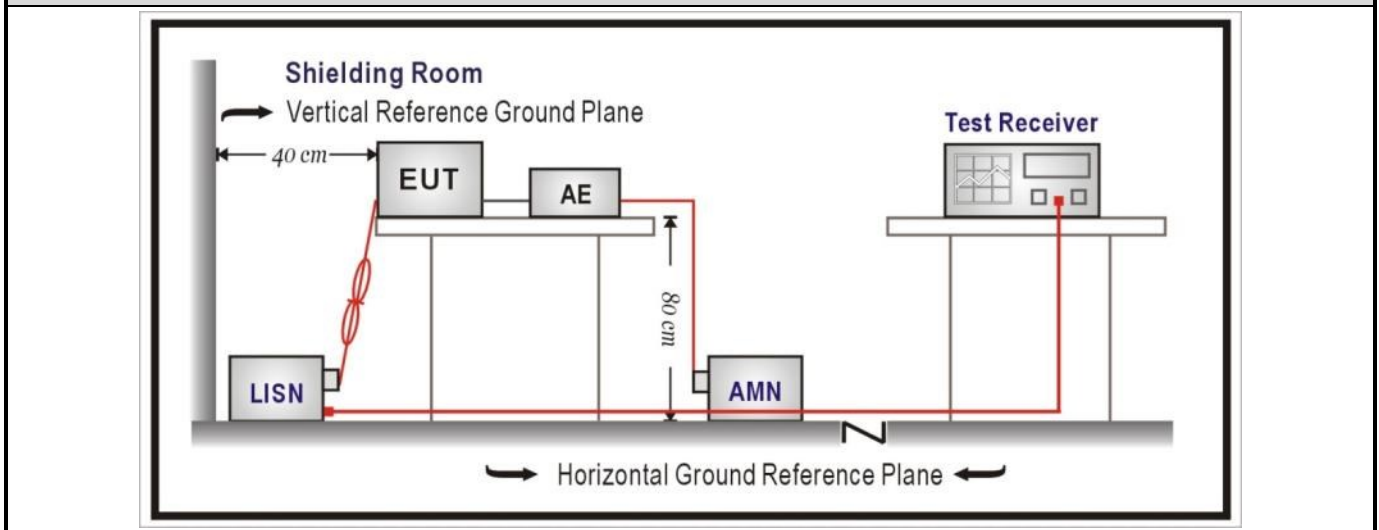
¹⁾ At the transition frequency, the lower limit applies.

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
<input checked="" type="checkbox"/>	ANSI C63.10-2013	6.2	Standard test method for ac power-line conducted emissions from unlicensed wireless devices

4.1.4 Test Data

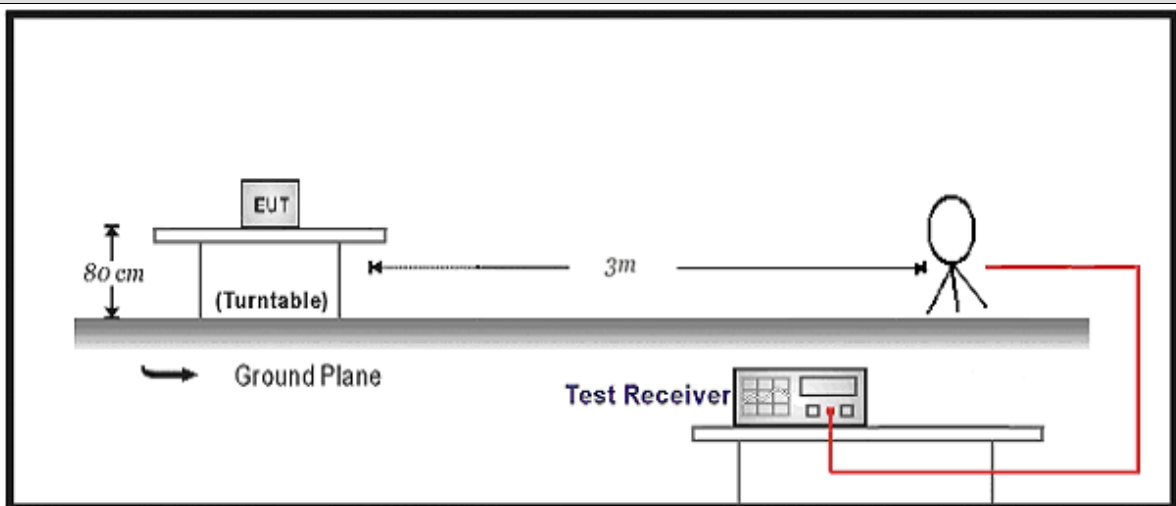
Note : The product is DC powered, no testing required for evaluation.

4.2 E-field Emission	VERDICT: PASS
-----------------------------	----------------------

4.2.1 Limit	
Standard	FCC Part 15 Subpart C Paragraph 15.225
<p>(a) The field strength of any emissions within the band 13.553-13.567 MHz shall not exceed 15,848 microvolts/meter at 30 meters.</p> <p>(b) Within the bands 13.410-13.553 MHz and 13.567-13.710 MHz, the field strength of any emissions shall not exceed 334 microvolts/meter at 30 meters.</p> <p>(c) Within the bands 13.110-13.410 MHz and 13.710-14.010 MHz the field strength of any emissions shall not exceed 106 microvolts/meter at 30 meters.</p> <p>(d) The field strength of any emissions appearing outside of the 13.110-14.010 MHz band shall not exceed the general radiated emission limits in §15.209.</p>	

4.2.2 Test Setup

Below 30MHz Test Setup:

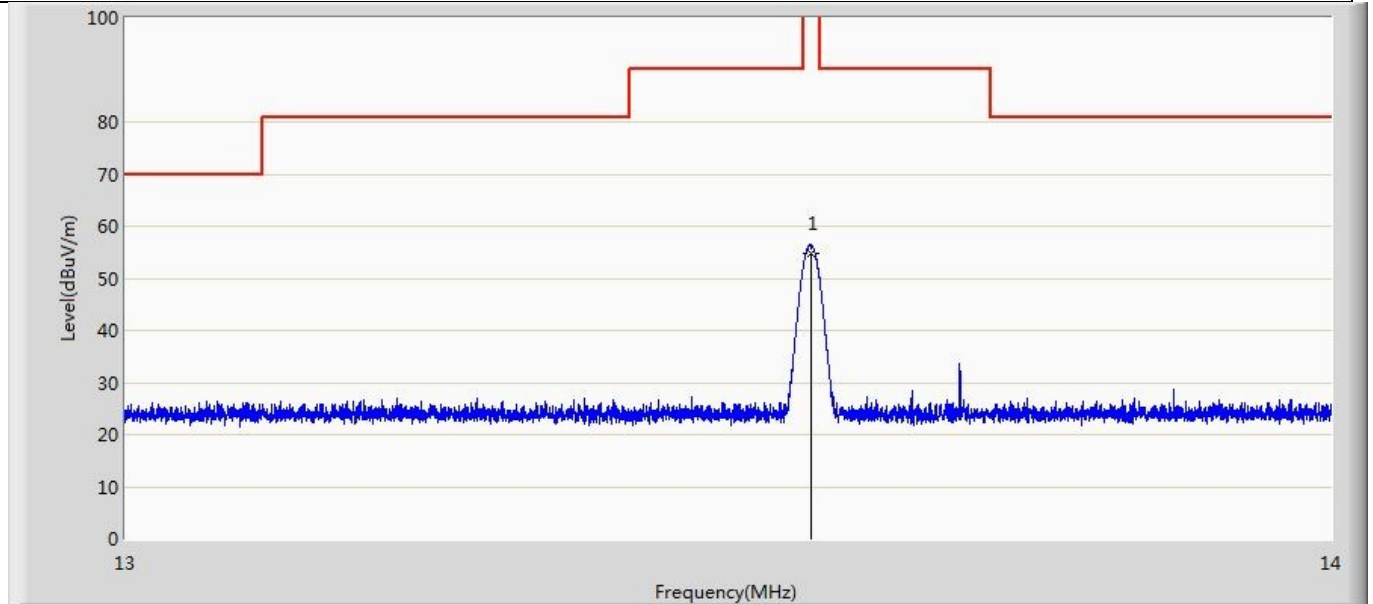


4.2.3 Test Procedure

	References Rule	Chapter	Description
<input checked="" type="checkbox"/>	ANSI C63.10	6.4	Radiated emissions from unlicensed wireless devices below 30 MHz
<input type="checkbox"/>	ANSI C63.10	6.5	Radiated emissions from unlicensed wireless devices in the frequency range of 30 MHz to 1000 MHz
<input type="checkbox"/>	ANSI C63.10	6.6	Radiated emissions from unlicensed wireless devices above 1 GHz

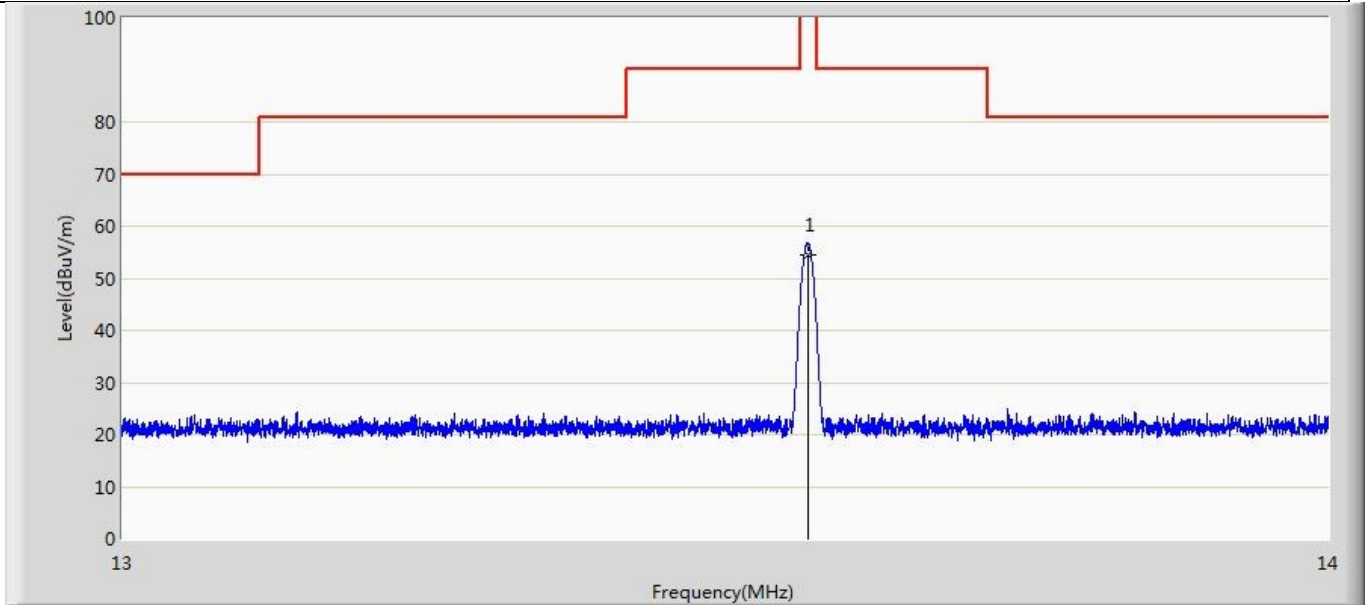
4.2.4 Test Data

Profile: 2330084R	Page No.: 13
Engineer: Yuliu	
Site: AC2	Time: 2023/03/16 - 18:58
Limit: 13.56 mask	Margin: 0
Probe: RF(0.009-30MHz)	Polarity: Horizontal
EUT: WC5	Power: DC 13.5V
Note: Mode 1 : Transmit by NFC	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	13.560	54.689	33.637	-69.311	124.000	21.052	QP

Profile: 2330084R	Page No.: 14
Engineer: Yuliu	
Site: AC2	Time: 2023/03/16 - 18:58
Limit: 13.56 mask	Margin: 0
Probe: RF(0.009-30MHz)	Polarity: Vertical
EUT: WC5	Power: DC 13.5V
Note: Mode 1 : Transmit by NFC	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	13.560	54.453	33.901	-69.547	124.000	20.552	QP

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

4.3 Radiated Emissions	VERDICT: PASS
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4.3.1 Limit	
Standard	FCC Part 15 Subpart C Paragraph 15. 209

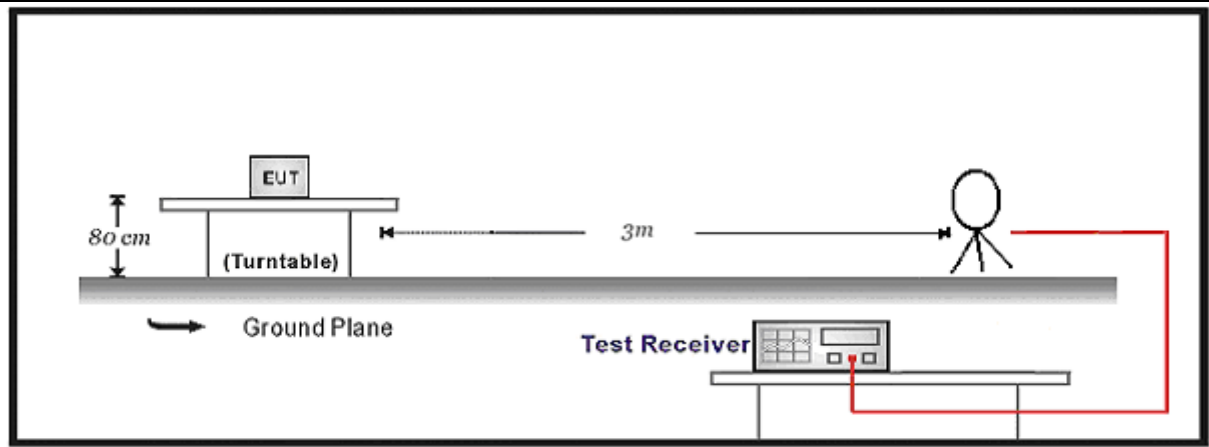
Restricted Band Emissions Limit			
Frequency (MHz)	Field strength (μ V/m)	Field strength (dB μ V/m)	Measurement distance (m)
0.009 - 0.49	2400/F(kHz)	48.5 – 13.8	300 _(Note 1)
0.49 - 1.705	24000/F(kHz)	33.8 - 23	30 _(Note 1)
1.705 - 30	30	29.5	30 _(Note 1)
30 - 88	100	40	3 _(Note 2)
88 - 216	150	43.5	3 _(Note 2)
216 - 960	200	46	3 _(Note 2)
Above 960	500	54	3 _(Note 2)

Note 1: At frequencies below 30 MHz, measurements may be performed at a distance closer than that specified in the regulations; however, an attempt should be made to avoid making measurements in the near field. Pending the development of an appropriate measurement procedure for measurements performed below 30 MHz, when performing measurements at a closer distance than specified, the results shall be extrapolated to the specified distance by either making measurements at a minimum of two distances on at least one radial to determine the proper extrapolation factor or by using the square of an inverse linear distance extrapolation factor (40 dB/decade).

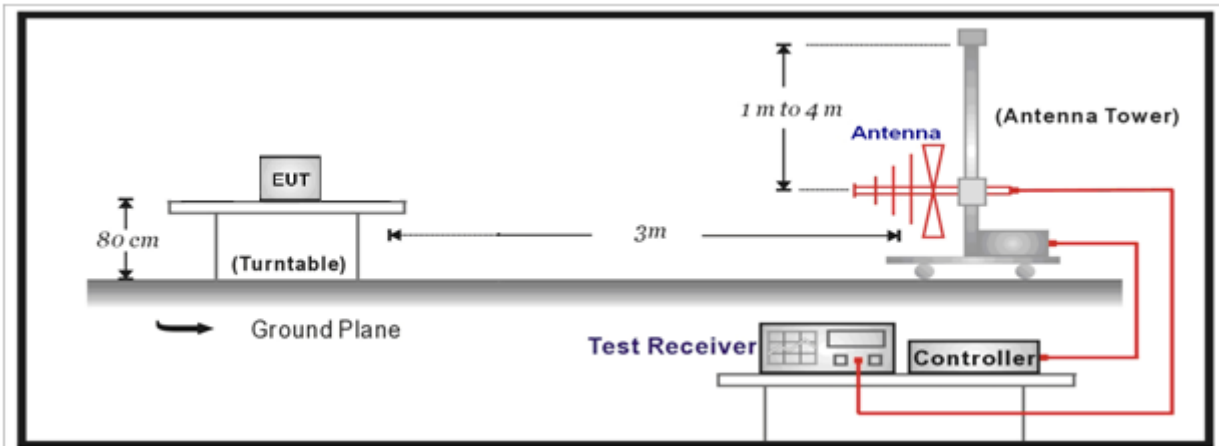
Note 2: At frequencies at or above 30 MHz, measurements may be performed at a distance other than what is specified provided: measurements are not made in the near field except where it can be shown that near field measurements are appropriate due to the characteristics of the device; and it can be demonstrated that the signal levels needed to be measured at the distance employed can be detected by the measurement equipment. Measurements shall not be performed at a distance greater than 30 meters unless it can be further demonstrated that measurements at a distance of 30 meters or less are impractical. When performing measurements at a distance other than that specified, the results shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade (inverse linear-distance for field strength measurements; inverse-linear-distance-squared for power density measurements).

4.3.2 Test Setup

Below 30MHz Test Setup:



30MHz-1GHz Test Setup:

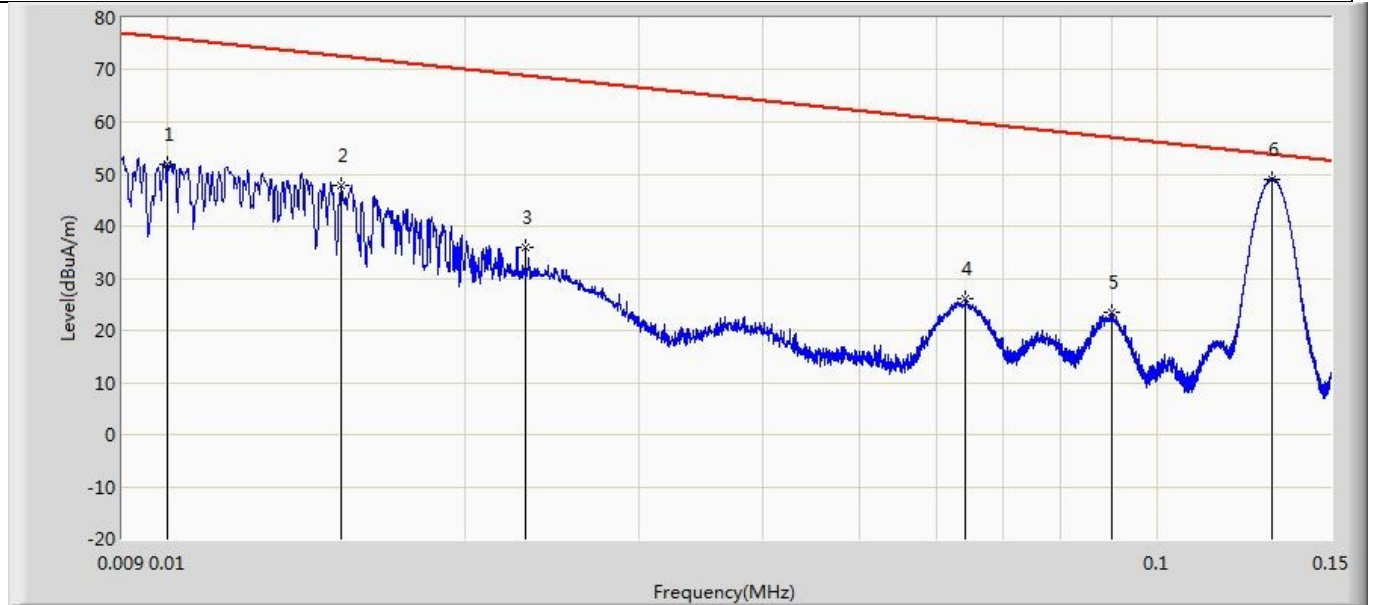


4.3.3 Test Procedure

	References Rule	Chapter	Description
<input checked="" type="checkbox"/>	ANSI C63.10	6.4	Radiated emissions from unlicensed wireless devices below 30 MHz
<input checked="" type="checkbox"/>	ANSI C63.10	6.5	Radiated emissions from unlicensed wireless devices in the frequency range of 30 MHz to 1000 MHz
<input type="checkbox"/>	ANSI C63.10	6.6	Radiated emissions from unlicensed wireless devices above 1 GHz

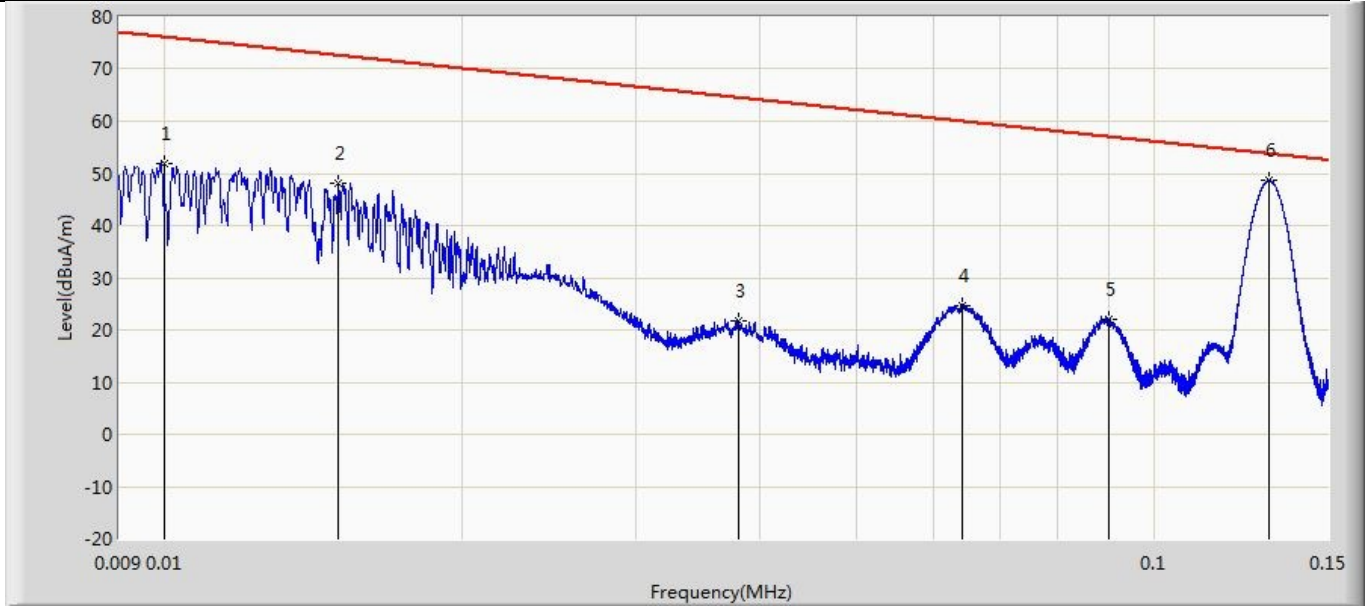
4.3.4 Test Data

Profile: 2330084R	Page No.: 1
Engineer: Yuliu	
Site: AC2	Time: 2023/03/17 - 19:35
Limit: 15.225-part-1	Margin: 0
Probe: RF(0.009-30MHz)	Polarity: Horizontal
EUT: WC5	Power: DC 13.5V
Note: Mode 1: Transmit at 13.56MHz by NFC	



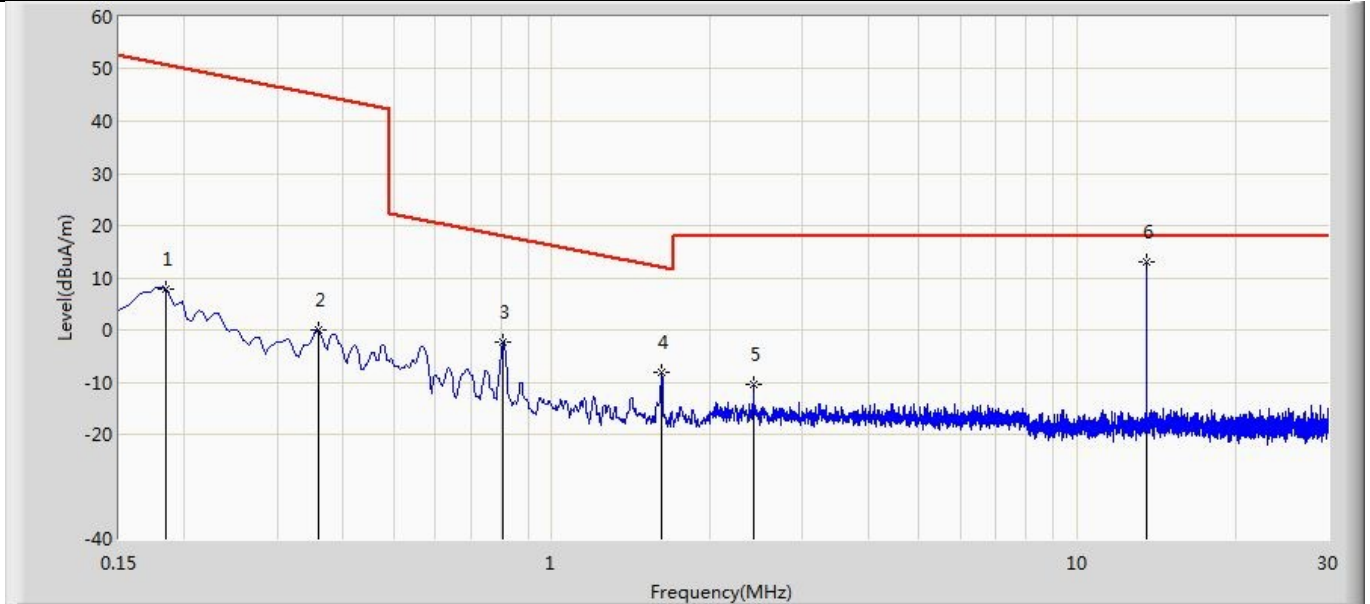
No	Mark	Frequency (MHz)	Measure Level (dBuA/m)	Reading Level (dBuA)	Over Limit (dB)	Limit (dBuA/m)	Factor (dB)	Type
1		0.010	51.935	30.873	-24.150	76.085	21.062	PK
2		0.015	47.757	26.539	-24.809	72.565	21.218	PK
3		0.023	36.058	14.592	-32.797	68.855	21.466	PK
4		0.064	26.215	4.280	-33.756	59.971	21.935	PK
5		0.090	23.451	1.546	-33.560	57.011	21.905	PK
6	*	0.131	49.109	27.250	-4.643	53.752	21.859	PK

Profile: 2330084R	Page No.: 3
Engineer: Yuliu	
Site: AC2	Time: 2023/03/17 - 19:40
Limit: 15.225-part-1	Margin: 0
Probe: RF(0.009-30MHz)	Polarity: Vertical
EUT: WC5	Power: DC 13.5V
Note: Mode 1: Transmit at 13.56MHz by NFC	



No	Mark	Frequency (MHz)	Measure Level (dBuA/m)	Reading Level (dBuA)	Over Limit (dB)	Limit (dBuA/m)	Factor (dB)	Type
1		0.010	52.011	31.449	-24.074	76.085	20.562	PK
2		0.015	48.133	27.415	-24.433	72.565	20.718	PK
3		0.038	21.803	0.372	-42.693	64.496	21.431	PK
4		0.064	24.653	3.218	-35.318	59.971	21.435	PK
5		0.090	22.098	0.693	-34.913	57.011	21.405	PK
6	*	0.131	48.586	27.227	-5.166	53.752	21.359	PK

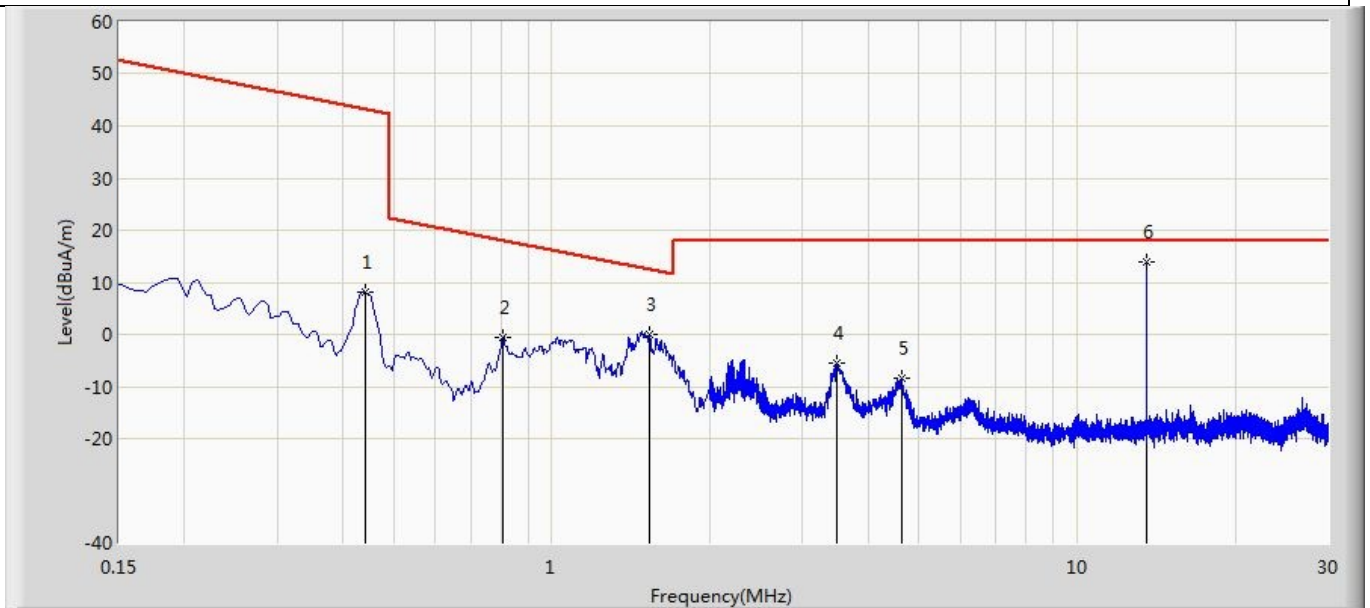
Profile: 2330084R	Page No.: 2
Engineer: Yuliu	
Site: AC2	Time: 2023/03/17 - 19:38
Limit: 15.225-part-1	Margin: 0
Probe: RF(0.009-30MHz)	Polarity: Horizontal
EUT: WC5	Power: DC 13.5V
Note: Mode 1: Transmit at 13.56MHz by NFC	



No	Mark	Frequency (MHz)	Measure Level (dBuA/m)	Reading Level (dBuA)	Over Limit (dB)	Limit (dBuA/m)	Factor (dB)	Type
1		0.184	7.954	-13.846	-42.849	50.803	21.801	PK
2		0.359	0.051	-21.576	-44.950	45.001	21.627	PK
3		0.807	-2.351	-22.888	-20.329	17.979	20.537	PK
4		1.616	-8.206	-28.770	-20.170	11.964	20.564	PK
5		2.422	-10.352	-31.258	-28.352	18.000	20.906	PK
6	*	13.560	13.001	-8.051	-4.999	18.000	21.052	PK

Note: The Mark 6 is the fundamental emission.

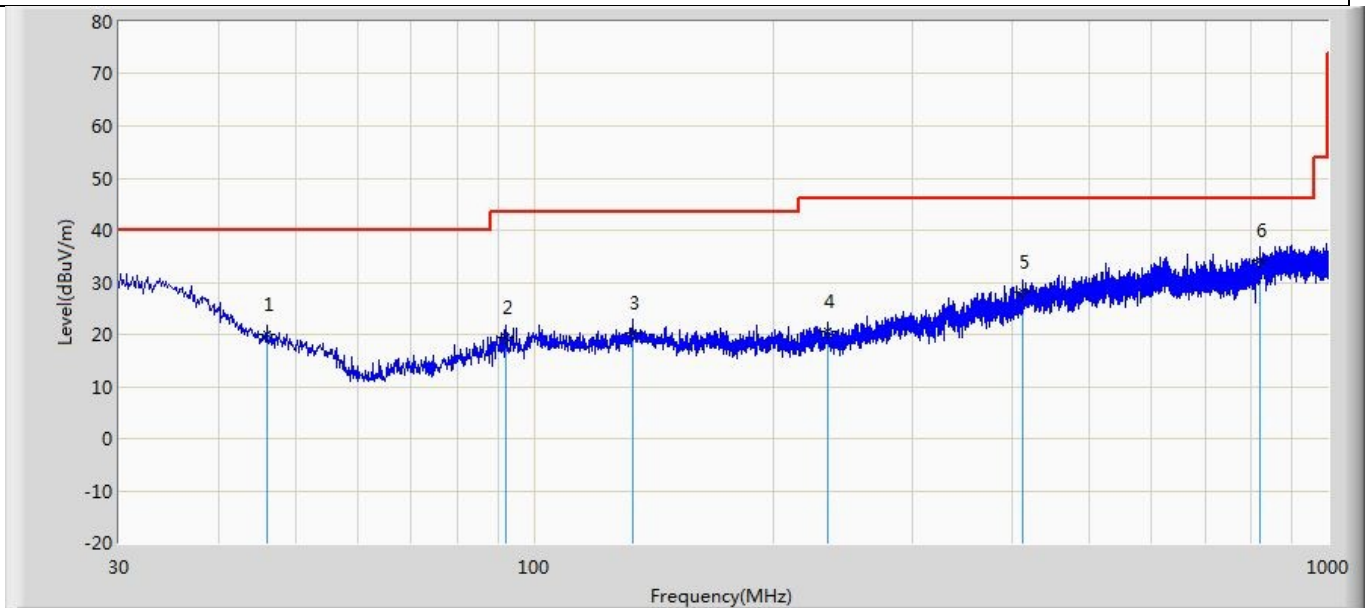
Profile: 2330084R	Page No.: 4
Engineer: Yuliu	
Site: AC2	Time: 2023/03/17 - 19:42
Limit: 15.225-part-1	Margin: 0
Probe: RF(0.009-30MHz)	Polarity: Vertical
EUT: WC5	Power: DC 13.5V
Note: Mode 1: Transmit at 13.56MHz by NFC	



No	Mark	Frequency (MHz)	Measure Level (dBuA/m)	Reading Level (dBuA)	Over Limit (dB)	Limit (dBuA/m)	Factor (dB)	Type
1		0.441	8.252	-12.797	-34.962	43.215	21.050	PK
2		0.807	-0.529	-20.566	-18.507	17.979	20.037	PK
3		1.531	-0.032	-20.006	-12.464	12.432	19.974	PK
4		3.475	-5.366	-25.649	-23.366	18.000	20.283	PK
5		4.642	-8.425	-28.558	-26.425	18.000	20.133	PK
6	*	13.560	13.993	-6.559	-4.007	18.000	20.552	PK

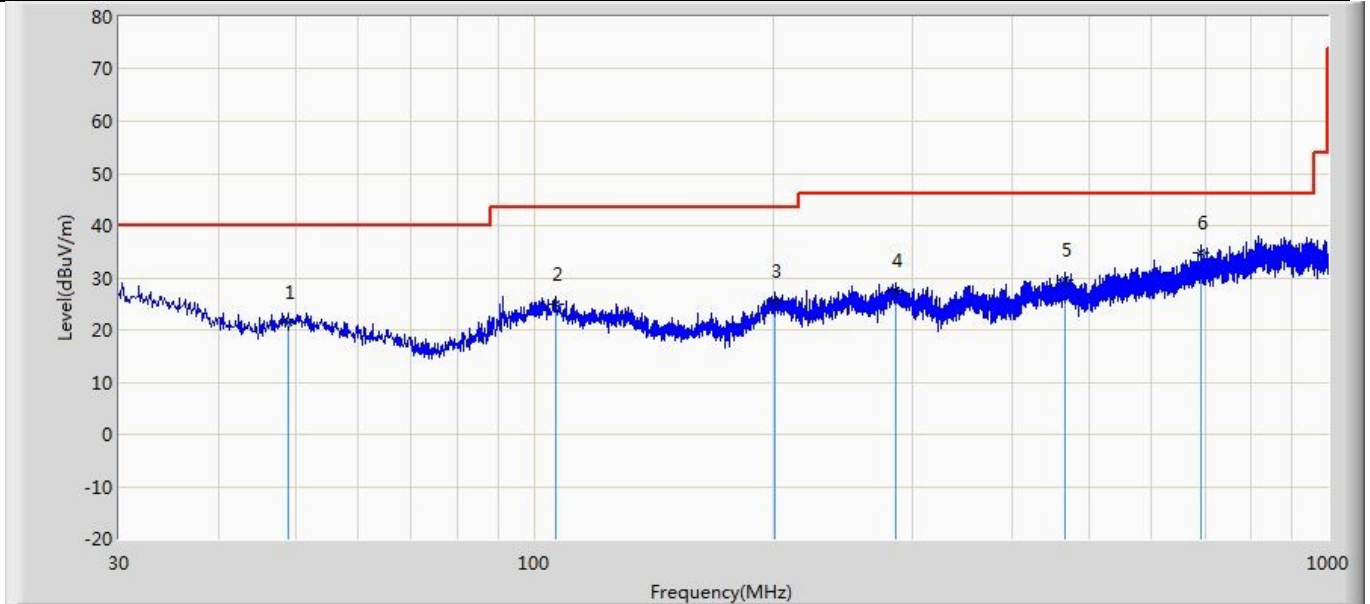
Note: The Mark 6 is the fundamental emission.

Profile: 2330084R	Page No.: 1
Engineer: Yuliu	
Site: AC2	Time: 2023/03/31 - 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: Transmit at 13.56MHz by NFC	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		46.005	19.915	3.273	-20.085	40.000	16.642	QP
2		92.323	19.525	5.410	-23.975	43.500	14.115	QP
3		132.941	20.197	2.522	-23.303	43.500	17.675	QP
4		234.064	20.714	2.887	-25.286	46.000	17.828	QP
5		412.908	28.109	2.096	-17.891	46.000	26.014	QP
6	*	820.671	34.309	3.153	-11.691	46.000	31.156	QP

Profile: 2330084R	Page No.: 2
Engineer: Yuliu	
Site: AC2	Time: 2023/03/31 - 08:51
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: Transmit at 13.56MHz by NFC	

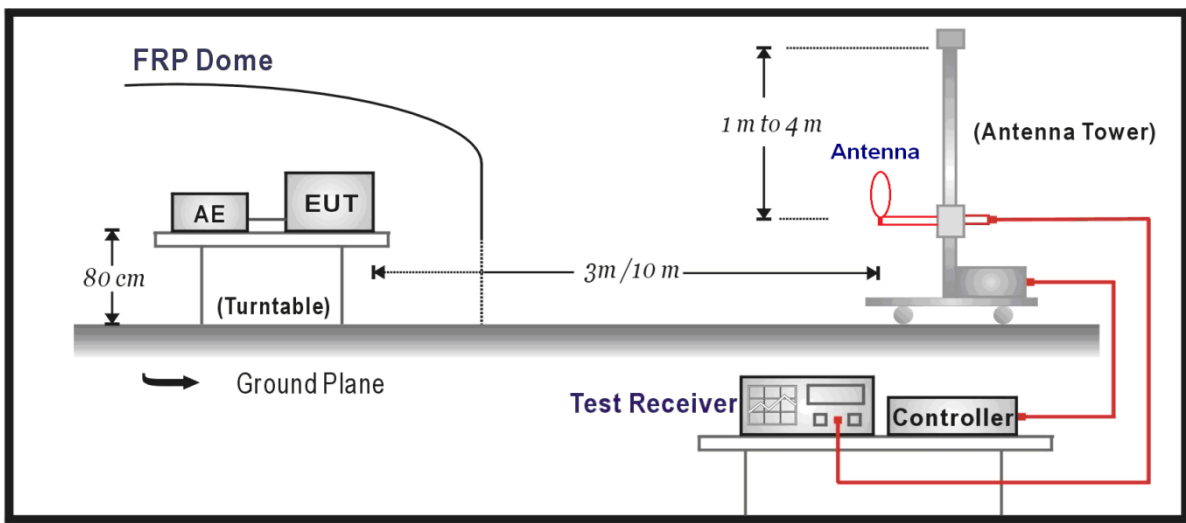


No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		48.915	21.449	2.222	-18.551	40.000	19.227	QP
2		106.266	24.817	2.843	-18.683	43.500	21.974	QP
3		201.326	25.607	2.155	-17.893	43.500	23.452	QP
4		286.080	27.419	2.352	-18.581	46.000	25.067	QP
5		467.349	29.559	2.802	-16.441	46.000	26.758	QP
6	*	692.146	34.826	4.605	-11.174	46.000	30.221	QP

4.4 Emission bandwidth	VERDICT: PASS
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4.4.1 Limit	
Standard	FCC Part 15 Subpart C Paragraph 15.215
Within the band.	

4.4.2 Test Setup

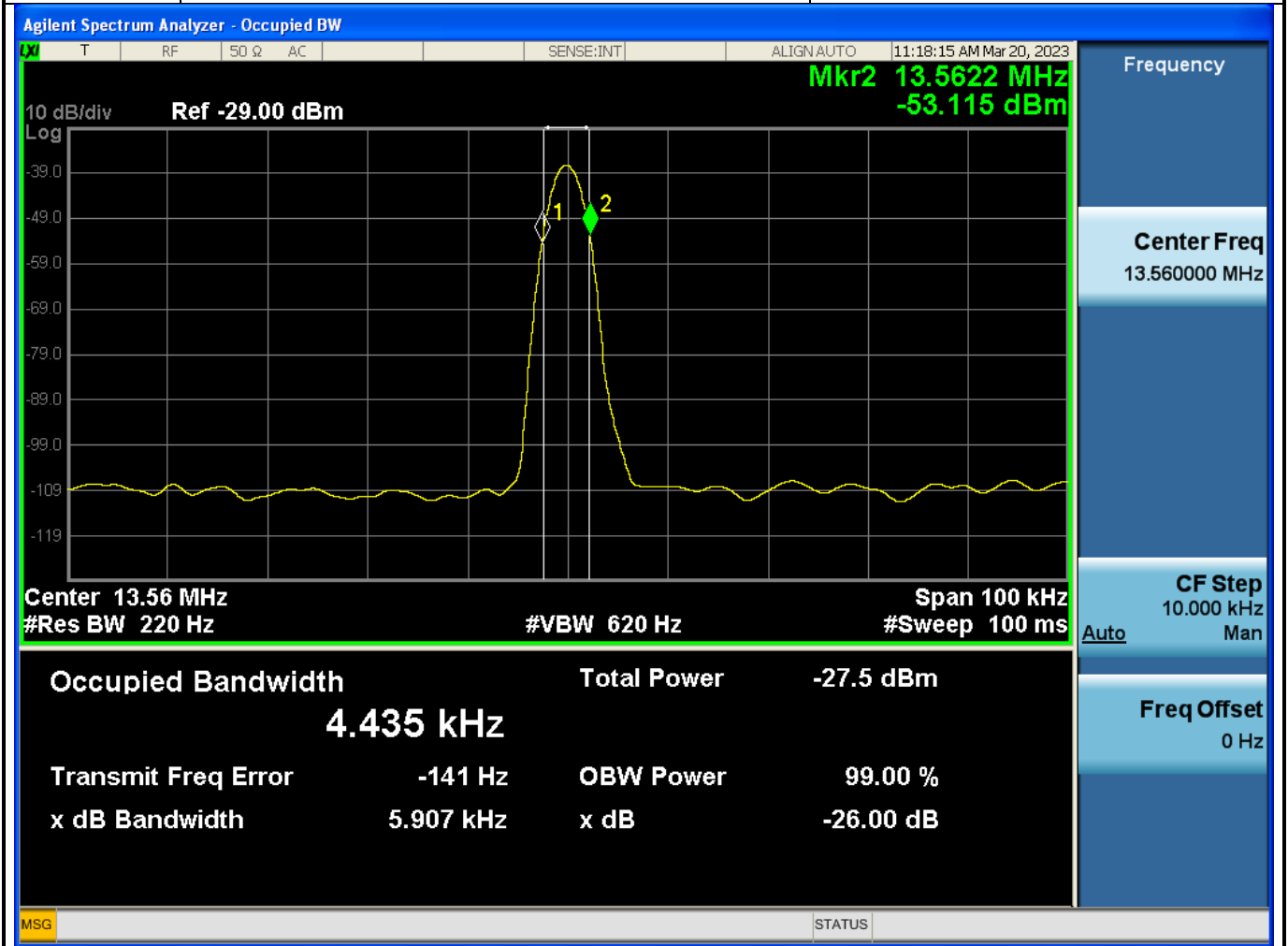


4.4.3 Test Procedure

	Reference Rule	Chapter	Description
<input checked="" type="checkbox"/>	ANSI C63.10	6.9.2	Occupied bandwidth—relative measurement procedure

4.4.4 Test Data

Frequency (MHz)	Frequency Range Limit (MHz)	Result
13.56	13.553 ~ 13.567	Pass

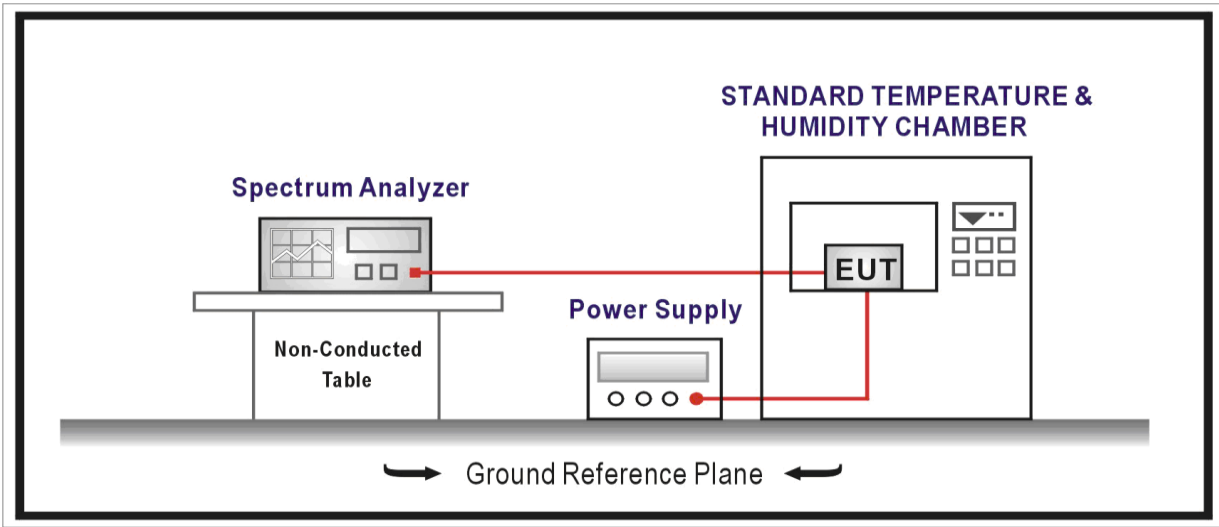


4.5 Frequency Stability	VERDICT: PASS
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4.5.1 Limit:

Standard	FCC Part 15 Subpart C Paragraph 15.225(e)
<input checked="" type="checkbox"/>	The frequency tolerance of the carrier signal shall be maintained within $\pm 0.01\%$ of the operating frequency over a temperature variation of -20 degrees to $+ 50$ degrees C at normal supply voltage, and for a variation in the primary supply voltage from 85% to 115% of the rated supply voltage at a temperature of 20 degrees C. For battery operated equipment, the equipment tests shall be performed using a new battery.

4.5.2 Test Setup



4.5.3 Test Procedure

	References Rule	Chapter	Description
<input checked="" type="checkbox"/>	ANSI C63.10	6.8	Frequency stability tests
<input checked="" type="checkbox"/>	ANSI C63.10	6.8.1	Frequency stability with respect to ambient temperature
<input checked="" type="checkbox"/>	ANSI C63.10	6.8.2	Frequency stability when varying supply voltage

4.5.4 Test Data

Frequency Stability under Temperature at 0min

Temperature Interval (°C)	Test Frequency (MHz)	Deviation (Hz)	Limit (ppm)
0	13.56	100	±100
10	13.56	95	±100
20	13.56	25	±100
30	13.56	86	±100
35	13.56	75	±100

Frequency Stability under Temperature at 2min

Temperature Interval (°C)	Test Frequency (MHz)	Deviation (Hz)	Limit (ppm)
0	13.56	100	±100
10	13.56	55	±100
20	13.56	36	±100
30	13.56	94	±100
35	13.56	87	±100

Frequency Stability under Temperature at 5min

Temperature Interval (°C)	Test Frequency (MHz)	Deviation (Hz)	Limit (ppm)
0	13.56	82	±100
10	13.56	87	±100
20	13.56	99	±100
30	13.56	49	±100
35	13.56	83	±100

Frequency Stability under Temperature at 10min

Temperature Interval (°C)	Test Frequency (MHz)	Deviation (Hz)	Limit (ppm)
0	13.56	75	±100
10	13.56	68	±100
20	13.56	69	±100
30	13.56	62	±100
35	13.56	59	±100

Frequency Stability under Voltage			
DC Voltage (V)	Test Frequency (MHz)	Deviation (Hz)	Limit (ppm)
2.55	13.56	77	±100
3.00	13.56	82	±100
3.45	13.56	68	±100

4.6 Antenna Requirement	VERDICT: PASS
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4.6.1 Limit:

Standard	FCC Part 15 Subpart E Paragraph 15.203
<p>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 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 electrical 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 installed, 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 installer shall be responsible for ensuring that the proper antenna is employed so that the limits in this part are not exceeded.</p>	

4.6.2 Antenna Connector Construction:

<input checked="" type="checkbox"/>	The use of a permanently attached antenna
<input type="checkbox"/>	The antenna use of a unique coupling to the intentional radiator
<input type="checkbox"/>	The use of a nonstandard antenna jack or electrical connector
Please refer to the attached document "Internal Photograph" to show the antenna connector.	

5 TEST SETUP PHOTO AND EUT PHOTO	VERDICT: PASS
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Remark: The test setup photo and EUT Photo please see appendix.

_____ The End _____