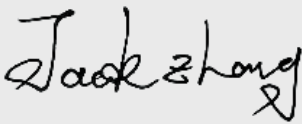


Test report No:
2450463R-RF-US-P06V01

FCC TEST REPORT

Product Name	Navistar Key Fob
Trademark	Navistar
Model and /or type reference	4060791C2
FCC ID	2AFCZ-315C2
IC	20501-315C2
Applicant's name / address	Beijing Jingwei Hirain Technologies Co., Ltd 4F, Block 1, No.14 Jiuxianqiao Road,Chaoyang District, Beijing, China
Test method requested, standard	CFR 47, FCC Part 15 C ANSI C63.10: 2013 RSS-Gen: Issue5 RSS-210: Issue11
Verdict Summary	IN COMPLIANCE
Testedby (name / position & signature)	Tim Cao/ Project Manager 
Approved by (name / position & signature)	Jack Zhang/ Manager 
Date of issue	2024-08-07
Report Version	V2.0
Report template No	Template_FCC 15.231-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)	May. 20, 2024
Date (start test)	May. 21, 2024
Date (finish test)	May. 24, 2024

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
2450463R-RF-US-P06V01	V1.0	Initial issue of report.	2024-07-08
2450463R-RF-US-P06V01	V2.0	Page1, 9: Update applicant and manufacturer information. Page1,14:Update version of RSS-210. Page 10: Revise antenna gain. Page 28, 29: Revise limit and margin. (The test report No.: 2450463R-RF-US-P06V01 V2.0 is to replace the test report No.: 2450463R-RF-US-P06V01 V1.0, and test report 2450463R-RF-US-P06V01 V1.0 is obsoleted.)	2024-08-07

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, ANSI C63.10:2013, RSS-Gen: Issue5, 2020, RSS-210: Issue11, 2024.
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 Information
 - Chapter 1.3 Channel List.

USED EQUIPMENT

Radiated Emission(9KHz-1GHz) / AC2

Instrument	Manufacturer	Model No.	Serial No.	Cal. Date	Next Cal. Date	Firmware Version	Software version
EMI Test Receiver	R&S	ESCI	100573	2023.09.15	2024.09.14	4.42 SP3	N/A
Loop Antenna	R&S	HFH2-Z2E	101149	2024.03.27	2025.03.26	N/A	N/A
Bilog Antenna	Teseq GmbH	CBL6112D	27611	2023.09.13	2024.09.12	N/A	N/A
Temperature/Humidity Meter	RTS	RTS-8S	AC2-TH	2023.11.21	2024.11.20	N/A	N/A
Coaxial Cable	Huber+Suhner	SUCOFLEX 106	AC2-C	2024.03.21	2025.03.20	N/A	N/A
Dekra test software	Dekra	N/A	N/A	N/A	N/A	N/A	3

Radiated Emission (1GHz-40GHz) / AC5

Instrument	Manufacturer	Model No.	Serial No.	Cal. Date	Next Cal. Date	Firmware Version	Software version
EXA Spectrum Analyzer	Keysight	N9020B	MY60112218	2023.11.08	2024.11.07	A.31.05	N/A
Pre-Amplifier	SKET	LNPA_0118G-45	SK2021090101	2024.04.27	2025.04.26	N/A	N/A
Preamplifier	CHENGYI	EMC184045SE	980263	2023.07.09	2024.07.08	N/A	N/A
DRG Horn	ETS-Lindgren	3117	00123988	2023.09.16	2024.09.15	N/A	N/A
Broad-Band Horn Antenna	Schwarzbeck	BBHA9170	294	2023.05.31	2024.05.30	N/A	N/A
Filter Switch Box	MVE	MSW-F196	C070001S	2024.04.20	2025.04.19	N/A	N/A
Temperature/Humidity Meter	RTS	RTS-8S	AC5-TH	2023.11.21	2024.11.20	N/A	N/A
Coaxial Cable	ROSENBERGER	LA1-C011-2000/3000	AC5-40G	2024.01.25	2025.01.24	N/A	N/A
Coaxial Cable	ROSENBERGER	LA1-C011-2000/3000	AC5-40G-2	2024.01.21	2025.01.20	N/A	N/A
Cable	Rosenberger	LA1-C011-1000	0523	2024.05.21	2025.05.20	N/A	N/A
Dekra test software	Dekra	N/A	N/A	N/A	N/A	N/A	3

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%. The Uncertainties comply with standard required as below.

Test item	Uncertainty
Radiated Emission(30MHz~1GHz)	Horizontal: 30MHz~200MHz: 3.50 dB 300MHz~1GHz: 3.60 dB Vertical: 30MHz~200MHz: 3.60 dB 300MHz~1GHz: 3.50 dB
Radiated Emission(1GHz~26.5GHz)	Horizontal: 1GHz~18GHz: 5.00 dB Vertical: 1GHz~18GHz: 4.80 dB
Occupied Bandwidth	$\pm 1\text{kHz}$
Time	$\pm 0.5\text{s}$

1 GENERAL INFORMATION

1.1 General Description of the Item(s)

Product Name..... :	Navistar Key Fob
Model No. :	4060791C2
Trademark. :	Navistar
FCC ID :	2AFCZ-315C2
IC..... :	20501-315C2
Software Version..... :	V1.1
Hardware Version :	V1.1
Manufacturer..... :	Beijing Jingwei Hirain Technologies Co., Ltd
Manufacturer Address..... :	4F, Block 1, No.14 Jiuxianqiao Road,Chaoyang District, Beijing, China

Operating frequency range(s)..... :	315MHz
Type of Modulation..... :	FSK
Number of channel..... :	1

Rated power supply	Voltage and Frequency	
	☐	AC: 220 - 240 V, 50/60 Hz
	☐	AC: 100 - 240 V, 50/60 Hz
	☐	DC: 3 Vdc
	☒	Battery: 3 Vdc
	☐	Adapter:
Brand of adapter	N/A	
Adapter model	N/A	
Mounting position..... :	☐	Table top equipment
	☐	Wall/Ceiling mounted equipment
	☐	Floor standing equipment
	☐	Hand-held equipment
	☒	Other:Vehicle-Mounted equipment

1.2 Antenna Information

Antenna Delivery	☒	1TX + 1RX		
	☐	2TX + 2RX		
	☐	Others:.....		
Antenna technology.....	☒	SISO		
	☐	MIMO	☐	CDD
			☐	Beam-forming
Antenna Type.....	☐	External	☐	Dipole
			☐	Sectorized
			☒	Internal
	☒	PCB		
	☐	Metal Monopole Antenna		
	☐	Ceramic chip		
	☐	Others:.....		
Antenna Gain	-3.1 dBi			

1.3 Channel List

Working Frequency							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
01	315 MHz	--	--	--	--	--	--

Note: The general description of the Item(s) and channel list 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.

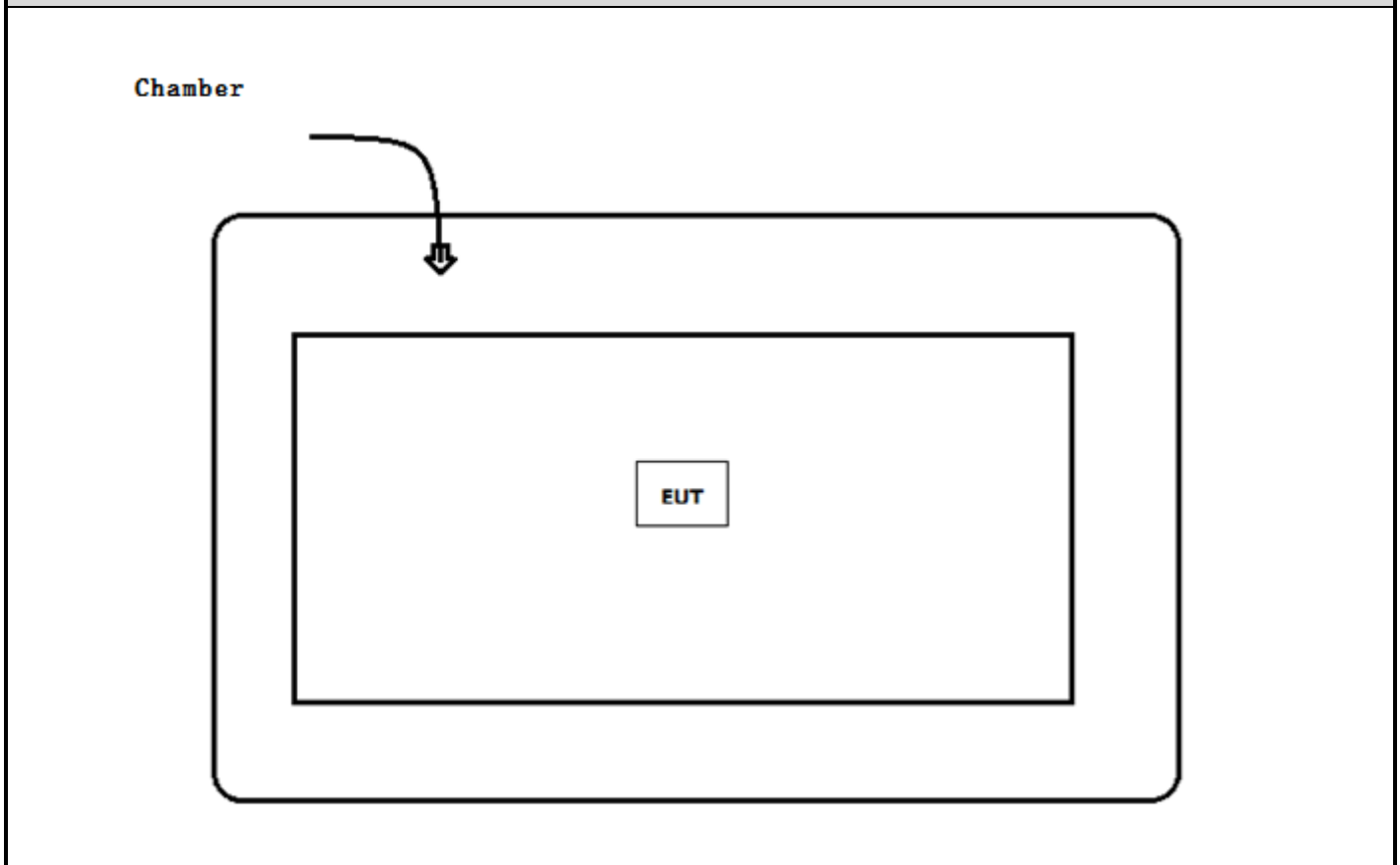
Test Mode	Mode1: Transmit
-----------	-----------------

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 Emission



2.4 Testing process

1	Setup the EUT shown in Section 2.3.
2	Configure the test mode, the test channel, and the data rate.
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 15.231	2024	Periodic operation in the band 40.66-40.70 MHz and above 70 MHz.
ANSI C63.10	2013	American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices
RSS-Gen Issue5 Amendment2	2021	General Requirements for Compliance of Radio Apparatus
RSS-210 Issue11	2024	Licence-Exempt Radio Apparatus: Category I Equipment

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

For FCC:

Requirement – Test case	Basic standard(s)	Verdict	Remark
Field strength of fundamental	FCC 15.231(b)(1)	PASS	Test data please refer to Appendix A
Field strength of spurious emissions	FCC 15.231(b)(1)(2), FCC 15.209	PASS	Test data please refer to Appendix B
20dB Bandwidth	FCC 15.231(c)	PASS	Test data please refer to Appendix C
Duration Time	FCC 15.231(a)(1)	PASS	Test data please refer to Appendix D

For ISSED:

Requirement – Test case	Basic standard(s)	Verdict	Remark
General field strength limits	RSS-210 (8.2), RSS-Gen (8.9)	PASS	Test data please refer to Appendix B
Emissions falling within restricted frequency bands; Transmitters with wanted and unwanted emissions that are within the general field strength limits	RSS-210 (8.1)(8.3), RSS-Gen (8.9)	PASS	Test data please refer to Appendix B
Bandwidth of momentary signals	RSS-Gen (6.7)(8.1)	PASS	Test data please refer to Appendix C

3.4 Test Facility

USA	:	FCC Designation Number: CN1199
CA	:	ISED CAB identifier: CN0040

4 TEST RESULTS

4.1 Field strength of fundamental

VERDICT: PASS

4.1.1 Limit

Standard	FCC Part 15 Subpart C Paragraph 15.231	
Fundamental frequency (MHz)	Field strength of fundamental (μ V/m)	Field strength of fundamental (dB μ V/m)
40.66-40.70	2250	67.04
70-130	1250	61.93
130-174	1250-3750	61.93-71.48 ¹⁾
174-260	3750	71.48
260-470	3750-12500	71.48-81.93 ¹⁾
Above 470	12500	81.93

Note 1) : Linear interpolations

The field intensity in micro-volts per meter can then be determined by the following equation: $FI(V/m) = 10^{FI(dBV/m)/20}$ The FCC specified emission limits were calculated according the EUT operating frequency and obtained by following linear interpolation equations:

For fundamental frequency:

$$f_{EUT} : \text{EUT Operating Frequency Emission Limit (V/m)} = [f_{EUT}(\text{MHz}) - 260(\text{MHz})] \times \{ [12500(\text{V/m}) - 3750(\text{V/m})] / [470(\text{MHz}) - 260(\text{MHz})] \} + 3750(\text{V/m})$$

Other emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 20 dB below the level of the fundamental or comply with the radiated emissions limits specified in section 15.209 limit in the table below has to be followed.

Note:

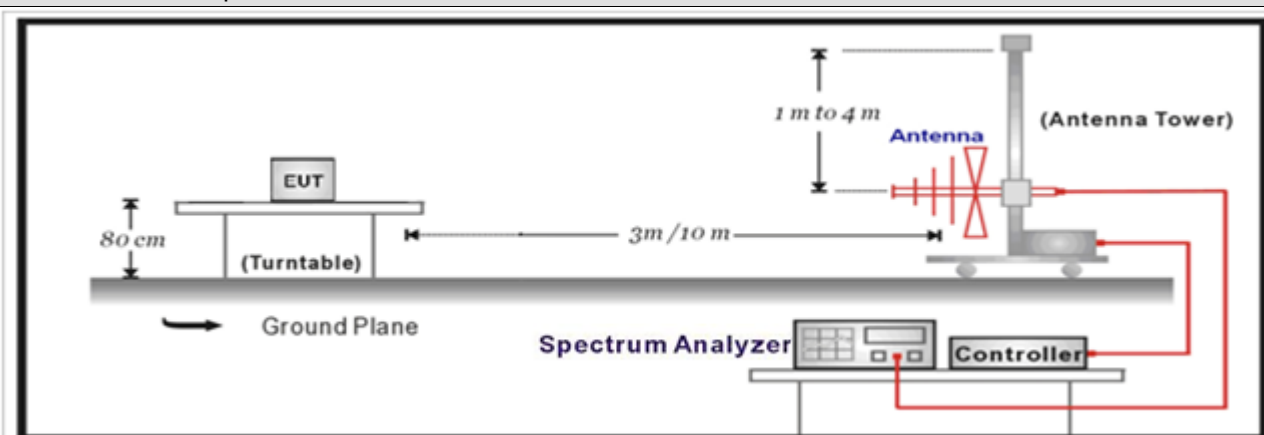
(1) The tighter limit applies at the band edges.

(2) Emission level (dBuV/m) = 20log Emission level (uV/m)

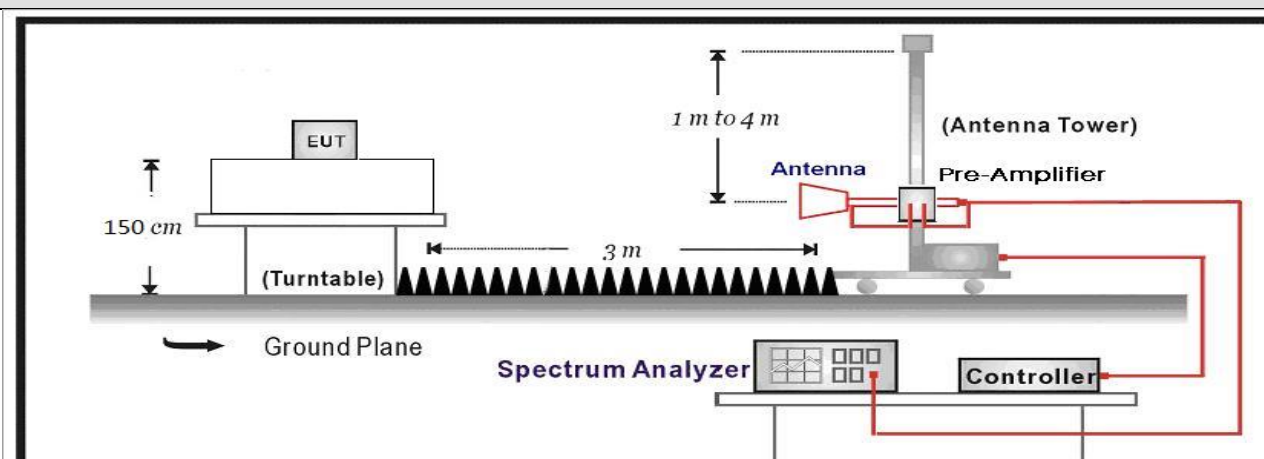
Fundamental frequency	Field strength of Fundamental
315 MHz	AV: 80.84 dBuV/m at 3m distance
	PK: 100.84 dBuV/m at 3m distance

4.1.2 Test Setup

30MHz-1GHz Test Setup:



Above 1GHz Test Setup:



4.1.3 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 Field strength of spurious emissions**VERDICT: PASS****4.2.1 Limit**

Standard	FCC 15.231(b)(1)(2)	
Fundamental frequency (MHz)	Field strength of spurious emission (μ V/m)	Field strength of spurious emission (dB μ V/m)
40.66-40.70	225	47.04
70-130	125	41.93
130-174	125-375	41.93-51.48 ^(Note 1)
174-260	375	51.48
260-470	375-1250	51.48-61.93 ^(Note 1)
Above 470	1250	61.93

Note 1: Linear interpolations

The above field strength limits are specified at a distance of 3 meters. The tighter limits apply at the band edges.

Intentional radiators operating under the provisions of this section shall demonstrate compliance with the limits on the field strength of emissions, as shown in the above table, based on the average value of the measured emissions. As an alternative, compliance with the limits in the above table may be based on the use of measurement instrumentation with a CISPR quasi-peak detector. The specific method of measurement employed shall be specified in the application for equipment authorization. If average emission measurements are employed, the provisions in §15.35 for averaging pulsed emissions and for limiting peak emissions apply. Further, compliance with the provisions of §15.205 shall be demonstrated using the measurement instrumentation specified in that section.

The limits on the field strength of the spurious emissions in the above table are based on the fundamental frequency of the intentional radiator. Spurious emissions shall be attenuated to the average (or, alternatively, CISPR quasi-peak) limits shown in this table or to the general limits shown in §15.209, whichever limit permits a higher field strength.

FCC 15.209			
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 2: 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 3: 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).

RSS-Gen section 8.9

General field strength limits at frequencies above 30MHz

Frequency (MHz)	Field strength (μ V/m at 3m)
30 -88	100
88-216	150
216 - 960	200
Above 960	500

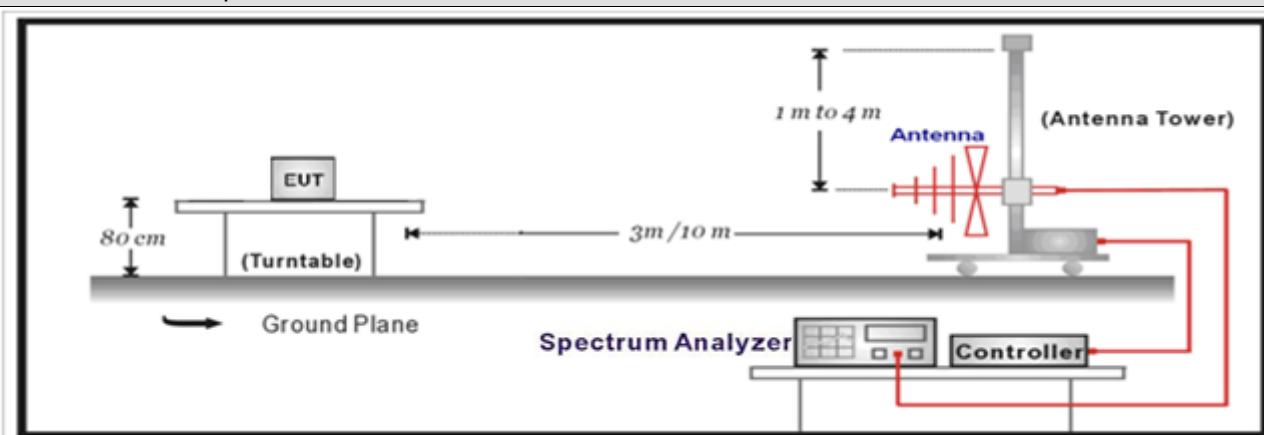
General field strength limits at frequencies below 30MHz

Frequency	Magnetic Field strength(H-Field) (μ A/m)	Measurement distance (m)
9 -490 kHz	6.37/F (F in kHz)	300
490 -1705 kHz	63.7/F (F in kHz)	30
1.705 – 30 MHz	0.08	30

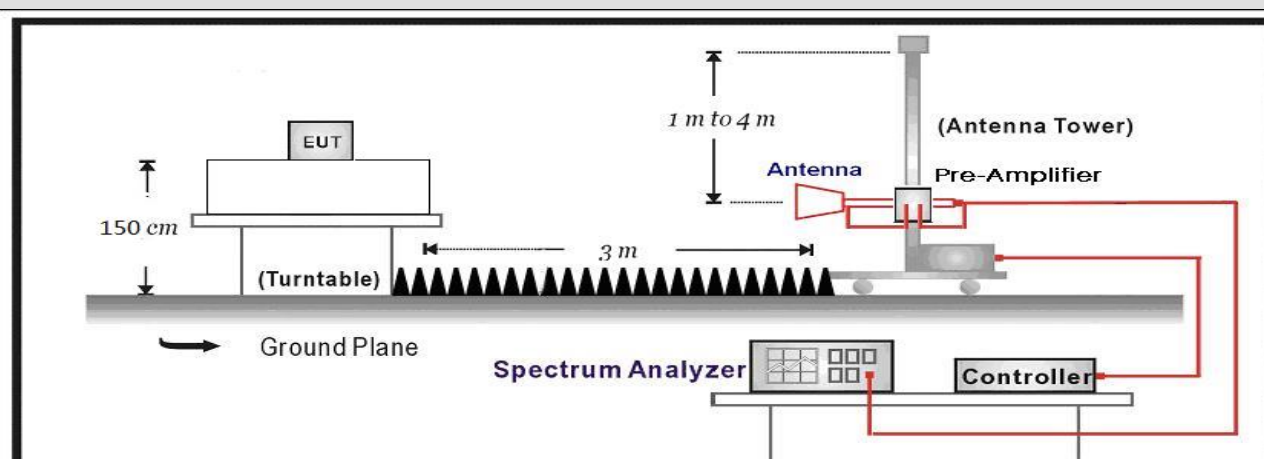
Note 1: The emission limits for the ranges 9-90 kHz and 110-490 kHz are based on measurements employing a linear average detector

4.2.2 Test Setup

30MHz-1GHz Test Setup:



Above 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

4.3 DTS Bandwidth

VERDICT: PASS

4.3.1 Limit

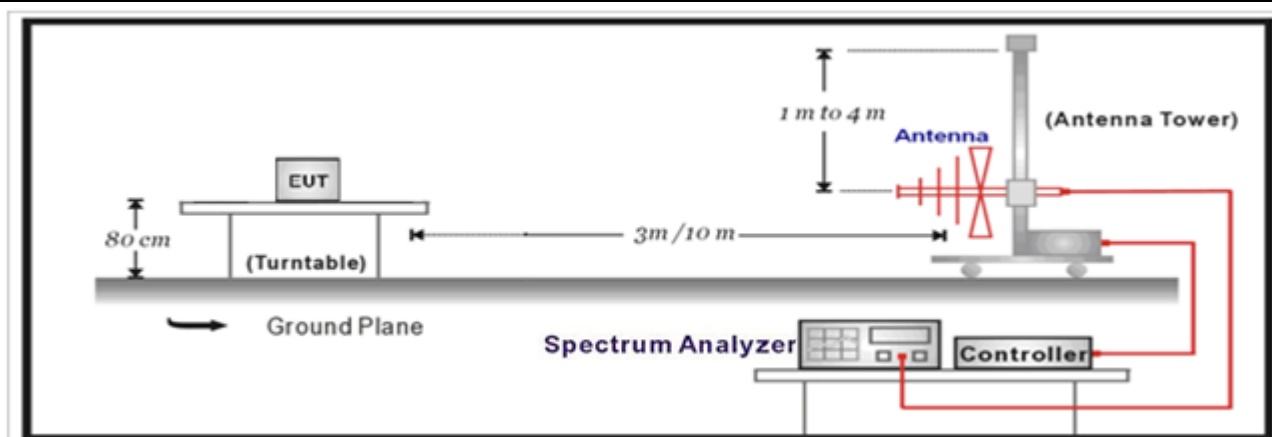
Standard	FCC 15.231(c)
-----------------	---------------

The bandwidth of the emission shall be no wider than 0.25% of the center frequency for devices operating above 70 MHz and below 900 MHz. For devices operating above 900 MHz, the emission shall be no wider than 0.5% of the center frequency. Bandwidth is determined at the points 20 dB down from the modulated carrier.

Standard	RSS-Gen Issue5 (6.7)
-----------------	----------------------

For the 99% emission bandwidth, the trace data points are recovered and directly summed in linear power level terms. The recovered amplitude data points, beginning at the lowest frequency, are placed in a running sum until 0.5% of the total is reached, and that frequency recorded. The process is repeated for the highest frequency data points (starting at the highest frequency, at the right side of the span, and going down in frequency). This frequency is then recorded. The difference between the two recorded frequencies is the occupied bandwidth (or the 99% emission bandwidth).

4.3.2 Test Setup



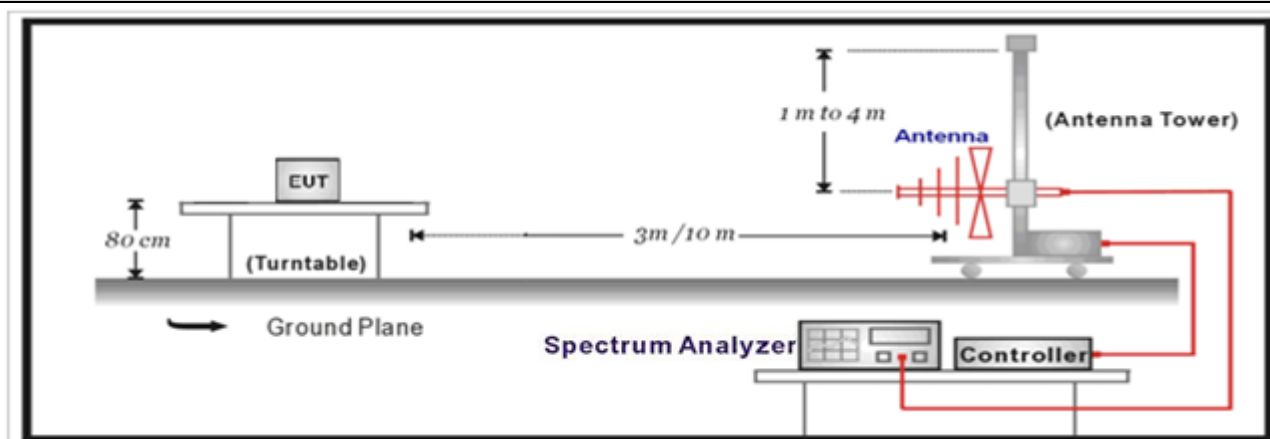
4.3.3 Test Procedure

	Reference Rule	Chapter	Description
☒	ANSI C63.10	6.9	Occupied bandwidth tests
☒	ANSI C63.10	6.9.2	Occupied bandwidth—relative measurement procedure
☒	ANSI C63.10	6.9.3	Occupied bandwidth—power bandwidth (99%) measurement procedure

4.4 Duration Time**VERDICT: PASS****4.4.1 Limit****Standard**

FCC Part 15 Subpart C Paragraph 15.247 (b)(3)

(1) A manually operated transmitter shall employ a switch that will automatically deactivate the transmitter within not more than 5 seconds of being released.

4.4.2 Test Setup**4.4.3 Test Procedure**

1. According to the follow Test-setup, keep the relative position between the artificial antenna and the EUT.
2. Set the EUT to proper test channel.
3. Single scan the transmission, and read the transmission time.

5 TEST SETUP PHOTO AND EUT PHOTO

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

6 APPENDIX A-TEST DATA: FIELD STRENGTH OF FUNDAMENTAL

Frequency (MHz)	Measure Level (dBμV/m)	Limit Line (dBμV/m)	Over Limit (dB)	Polarization	Type
315(X Axis)	79.807	100.84	-21.03	Horizontal	PK
315(X Axis)	72.064	100.84	-28.78	Vertical	PK

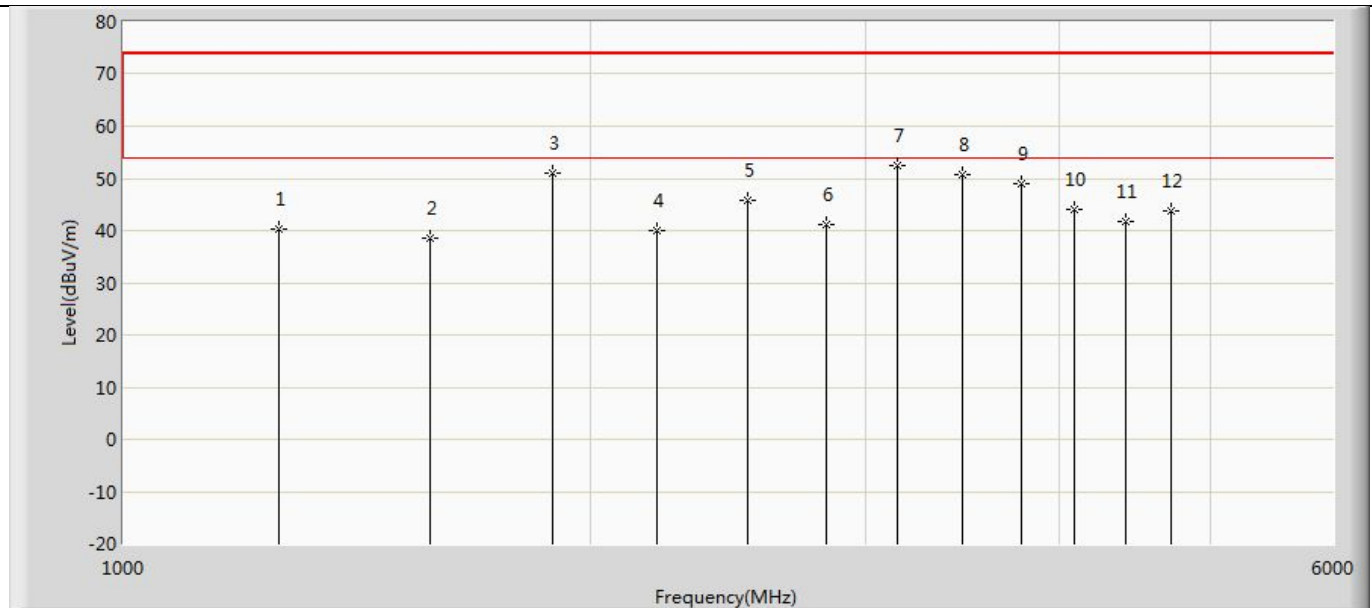
Frequency (MHz)	Measure Level (dBμV/m)	Limit Line (dBμV/m)	Over Limit (dB)	Polarization	Type
315(X Axis)	79.807	80.84	-1.033	Horizontal	AV
315(X Axis)	72.064	80.84	-8.78	Vertical	AV

Note 1:

We have evaluated three orthogonal positions (X , Y , Z) and the position with the highest emission level(X Axis) was recorded and shown in the report.

7 APPENDIX B-TEST DATA: FIELD STRENGTH OF SPURIOUS EMISSIONS

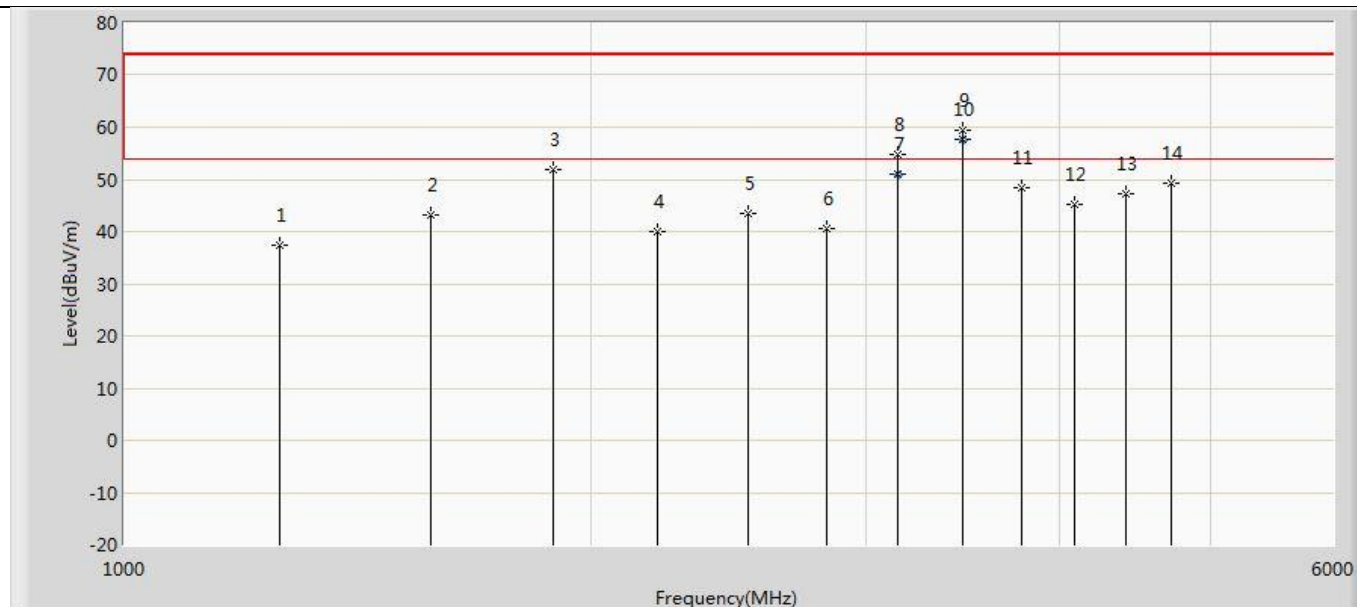
Profile: 2450463R	Page No.: 1
Engineer: Yuliu	
Site: AC5	Time: 2024/05/23 - 09:33
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: NAVISTAR KEY FOB	Power: 3Vdc
Note: Mode 1 : Transmit at 315MHz	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		1260.000	40.189	61.037	-95.434	135.623	-20.848	PK
2		1575.000	38.627	60.011	-35.373	74.000	-21.384	PK
3		1890.000	51.051	69.037	-84.572	135.623	-17.986	PK
4		2205.000	39.877	57.405	-34.123	74.000	-17.528	PK
5		2520.000	45.760	61.992	-89.863	135.623	-16.231	PK
6		2835.000	41.236	57.109	-32.764	74.000	-15.873	PK
7	*	3150.000	52.494	67.708	-83.129	135.623	-15.214	PK
8		3465.000	50.833	65.671	-84.790	135.623	-14.838	PK
9		3780.000	49.078	63.391	-24.922	74.000	-14.312	PK
10		4095.000	44.041	58.020	-29.959	74.000	-13.979	PK
11		4410.000	41.620	54.076	-94.003	135.623	-12.456	PK
12		4725.000	43.870	56.086	-30.130	74.000	-12.217	PK

Note: Marks 1,3,5,7,8,9 belong to non-restricted frequency bands. The limits in the figure are not appropriate. The correct limits have been filled in the table.

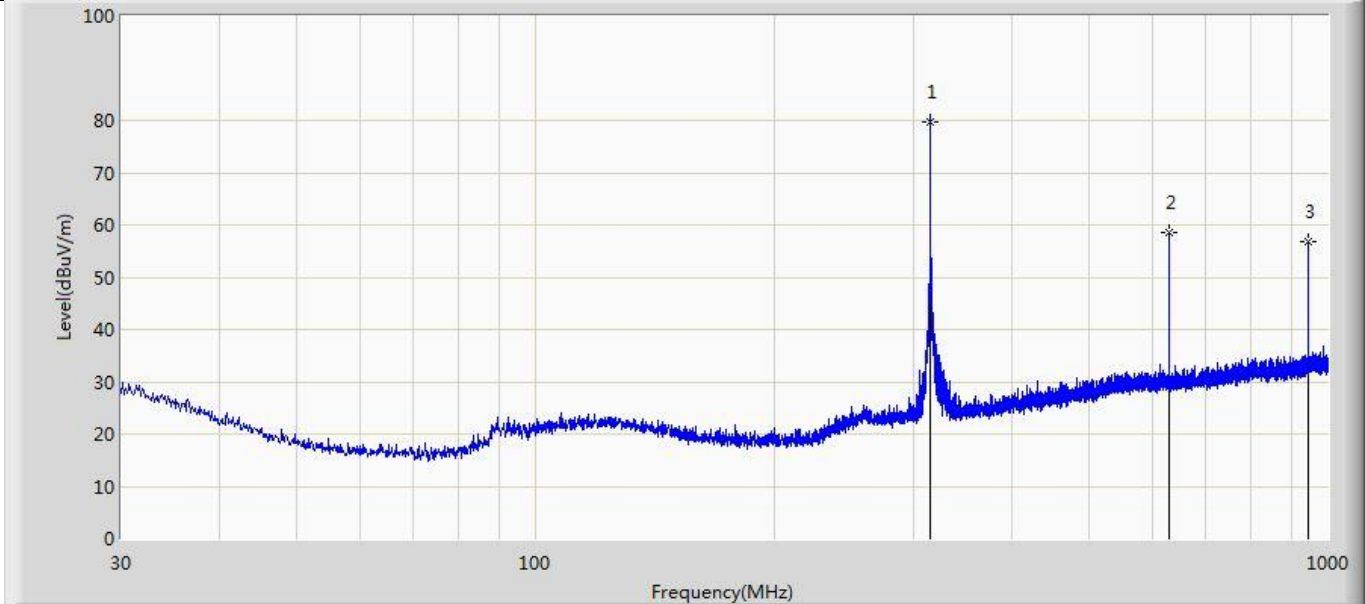
Profile: 2450463R	Page No.: 2
Engineer: Yuliu	
Site: AC5	Time: 2024/05/23 - 09:33
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: NAVISTAR KEY FOB	Power: 3Vdc
Note: Mode 1 : Transmit at 315MHz	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		1260.000	37.470	58.318	-98.153	135.623	-20.848	PK
2		1575.000	43.096	64.480	-30.904	74.000	-21.384	PK
3		1890.000	51.790	69.776	-83.833	135.623	-17.986	PK
4		2205.000	39.900	57.428	-34.100	74.000	-17.528	PK
5		2520.000	43.532	59.764	-92.091	135.623	-16.231	PK
6		2835.000	40.496	56.369	-33.504	74.000	-15.873	PK
7		3149.920	51.067	66.280	-64.556	115.623	-15.213	AV
8		3150.000	54.706	69.920	-80.917	135.623	-15.214	PK
9		3465.000	59.295	74.133	-76.328	135.623	-14.838	PK
10	*	3465.160	57.672	72.510	-57.951	115.623	-14.839	AV
11		3780.000	48.481	62.794	-25.519	74.000	-14.312	PK
12		4095.000	45.361	59.340	-28.639	74.000	-13.979	PK
13		4410.000	47.301	59.757	-88.322	135.623	-12.456	PK
14		4725.000	49.343	61.559	-24.657	74.000	-12.217	PK

Note: Marks 1, 3, 5, 7, 8, 9, 10, 13 belong to non-restricted frequency bands. The limits in the figure are not appropriate. The correct limits have been filled in the table.

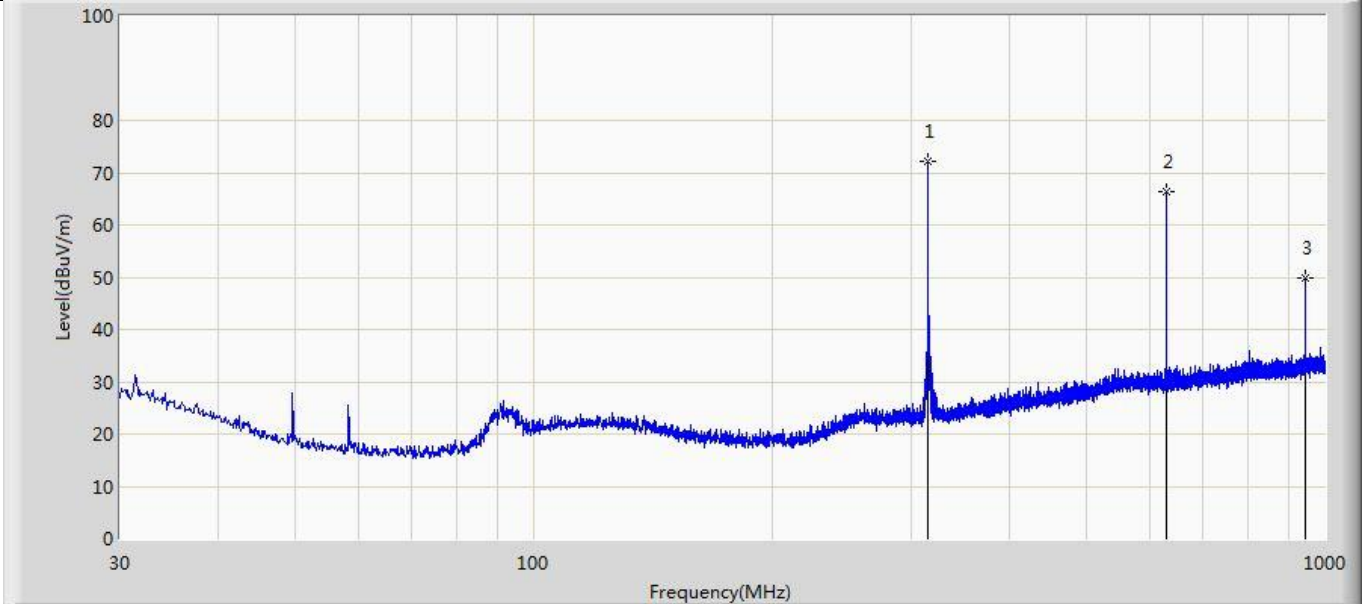
Profile: 2450463R	Page No.: 1
Engineer: Pengchengyang	
Site: AC2	Time: 2024/05/23 - 11:46
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: CBL6112D_27613(30-1000MHz)	Polarity: Horizontal
EUT: NAVISTAR KEY FOB	Power: 3V
Note: Mode 1 : Transmit at 315MHz	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		315.059	79.807	58.610	-16.99	75.6	21.197	QP
2		630.066	58.649	31.318	-14.682	46	27.331	QP
3		945.074	56.847	26.263	-19.737	46	30.585	QP

Remark: Mark 1 is fundamental emission.

Profile: 2450463R	Page No.: 2
Engineer: Pengchengyang	
Site: AC2	Time: 2024/05/23 - 11:47
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: CBL6112D_27613(30-1000MHz)	Polarity: Vertical
EUT: NAVISTAR KEY FOB	Power: 3V
Note: Mode 1 : Transmit at 315MHz	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		315.059	72.064	50.867	-24.733	75.6	21.197	QP
2		630.066	66.498	39.167	-6.833	46	27.331	QP
3		945.074	49.715	19.131	-26.869	46	30.585	QP

Remark: Mark 1 is fundamental emission.

Note:

1. Measured Level = Reading Level + Factor.
2. The test frequency range, 9kHz~30MHz, both of the worst case are at least 20dB below the limits, therefore no data appear in the report.
3. This limit applies for using average detector, if the test result on peak is lower than average limit, then average measurement needn't be performed.
4. As the radiated emission was performed, so conducted emission was not tested.
5. We have evluaed three orthogonal positions (X , Y , Z) and the position with the highest emission level(X Axis) was recorded and shown in the report.

8 APPENDIX C-TEST DATA: 20DB BANDWIDTH

Mode	CH.	Test Freq. (MHz)	99% Occupied Bandwidth (kHz)	20dB Occupied Bandwidth (kHz)	Limit (kHz)	Result
1	00	315	87.92	27.41	Within band	Pass

Keysight Spectrum Analyzer - Occupied BW

RF 50 Ω AC SENSE:INT ALIGN AUTO 04:22:50 PM May 22, 2024

10 dB/div Ref -13.00 dBm

Mkr1 314.9558 MHz -74.795 dBm

Center 315 MHz Span 200 kHz

#Res BW 3 kHz #VBW 10 kHz Sweep 27.27 ms

Occupied Bandwidth 87.924 kHz Total Power -43.9 dBm

Transmit Freq Error -330 Hz % of OBW Power 99.00 %

x dB Bandwidth 27.41 kHz x dB -20.00 dB

Frequency

Center Freq 315.000000 MHz

CF Step 20.000 kHz Man

Freq Offset 0 Hz

9 APPENDIX D-TEST DATA: DURATION TIME

Frequency (MHz)	Duration Time (S)	Limit (S)	Result
315	0.124	< 5.0	Pass

The End