TEST REPORT

Product Name : Hot Wheels RIFT RALLY
Model Number : VEL001
FCC ID : 2A8JSVEL001

Prepared for	:	Velan Studios
Address	:	#5 3rd street, suite 300, Troy NY 12180 USA.
Prepared by	:	EMTEK (DONGGUAN) CO., LTD.
Address	:	-1&2/F.,Building 2, Zone A, Zhongda Marine Biotechnology Research and Development Base, No.9, Xincheng Avenue, Songshanhu High-technology Industrial Development Zone, Dongguan, Guangdong, China TEL: +86-0769-22807078 FAX: +86-0769-22807079

Report Number	:	EDG2209220058E00202R
Date(s) of Tests	:	September 22, 2022 to October 22, 2022
Date of issue	:	October 22, 2022

1 TEST RESULT CERTIFICATION

Applicant	:	Velan Studios
Address	:	#5 3rd street, suite 300, Troy NY 12180 USA.
Manufacturer	:	Velan Studios
Address	:	#5 3rd street, suite 300, Troy NY 12180 USA.
Factory	:	Shenzhen King Chuang Tech&Electronic Co., Ltd
Address	:	Building 7th, Yongchang Industrial Park, 58th Guangtian Rd, Bao'an District,Shenzhen
EUT	:	Hot Wheels RIFT RALLY
Model Name	:	VEL001
Trademark	:	N/A

Measurement Procedure Used:

APPLICABLE STANDARDS	
STANDARD	**TEST RESULT**
FCC 47 CFR Part 2, Subpart J FCC 47 CFR Part 15, Subpart E	**PASS**

The above equipment was tested by EMTEK (DONGGUAN) CO., LTD. The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in ANSI C63.10 (2013) and the energy emitted by the sample EUT tested as described in this report is in compliance with the requirements of FCC Rules Part 2, Part 15.407.

The test results of this report relate only to the tested sample identified in this report.

Date of Test : September 22, 2022 to October 22, 2022

Prepared by : Warren Deng /Editor

Reviewer : Tim Dong /Supervisor

Approve & Authorized Signer : Sam Lv / Manager

Modified History

Version	Report No.	Revision Date	Summary
V1.0	EDG2209220058E00202R	/	Original Report

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2 EUT TECHNICAL DESCRIPTION

Characteristics	Description
Product:	Hot Wheels RIFT RALLY
Model Number:	VEL001
Sample Number:	2#
Wifi Type:	Wifi 5G with 5150MHz-5250MHz Band Wifi 5G with 5250MHz-5350MHz Band Wifi 5G with 5470MHz-5725MHz Band Wifi 5G with 5725MHz-5850MHz Band
WLAN Supported:	802.11a/n/ac
Data Rate :	802.11a: 54/48/36/24/18/12/9/6Mbps 802.11n: MCS0-MCS15 802.11ac: MCS0-MCS9
Modulation:	OFDM with BPSK/QPSK/16QAM/64QAM for 802.11a/n OFDM with BPSK/QPSK/16QAM/64QAM/256QAM for 802.11ac
Frequency Range:	UNII-1: 5150MHz-5250MHz Band 5180-5240MHz for 802.11a/n(HT20)/ac(VHT20); 5190-5230MHz for 802.11n(HT40)/ac(VHT40); 5210MHz for 802.11ac(VHT80);
	UNII-2A: 5250MHz-5350MHz Band 5260-5320MHz for 802.11a/n(HT20)/ac(VHT20); 5270-5310MHz for 802.11n(HT40)/ac(VHT40); 5290MHz for 802.11ac(VHT80);
	UNII-2C: 5470MHz-5725MHz Band 5500-5700MHz for 802.11a/n(HT20)/ac(VHT20); 5510-5670MHz for 802.11n(HT40)/ac(VHT40); 5530MHz for 802.11ac(VHT80);
	UNII-3 with 5725MHz-5850MHz Band 5745-5825MHz for 802.11a/n(HT20)/ac(VHT20); 5755-5795MHz for 802.11n(HT40)/ac(VHT40); 5775MHz for 802.11ac(VHT80);
TPC Function:	Applicable
Antenna Type:	Metal plate Antenna
Antenna Gain:	ANT : -0.08 dBi

Transmit Power:	UNII-1 Band: 16.42 dBm UNII-2A Band: 9.61 dBm UNII-2C Band: 7.4 dBm UNII-3 Band: 14.9 dBm
Power Supply :	DC 5V from USB DC 3.7V/1800mAh from battery
Date of Received:	October 22, 2022
Temperature Range:	0°C ~ +40°C

Note: *For more details, please refer to the User's manual of the EUT.*

3 SUMMARY OF TEST RESULT

FCC Part Clause	Test Parameter	Verdict	Remark
15.407 (a) 15.407 (e) 2.1049	99% , 6dB and 26dB Bandwidth	PASS	
15.407 (a)	Maximum Conducted Output Power	PASS	
15.407 (a)	Peak Power Spectral Density	PASS	
15.407 (b) 15.209 15.205	Radiated Spurious Emission	PASS	
15.207	Power Line Conducted Emission	PASS	
15.407(a) 15.203	Antenna Application	PASS	

RELATED SUBMITTAL(S) / GRANT(S):

This submittal(s) (test report) is intended for **FCC ID: 2A8JSVEL001** filing to comply with Section 15.247 of the FCC Part 15, Subpart C Rules.

4 TEST METHODOLOGY

4.1 GENERAL DESCRIPTION OF APPLIED STANDARDS

According to its specifications, the EUT must comply with the requirements of the following standards:
FCC 47 CFR Part 2, Subpart J
FCC 47 CFR Part 15, Subpart E
FCC KDB 662911 D01 Multiple Transmitter Output v02r01
FCC KDB 789033 D2 General UNII Test Procedures New Rules v02r01

4.2 MEASUREMENT EQUIPMENT USED

Conducted Emission Test Equipment

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
Test Receiver	Rohde& Schwarz	ESCI	100137	2022/05/19	1Year
L.I.S.N.	Rohde& Schwarz	ENV216	101209	2022/05/19	1Year
RF Switching Unit	CDS	RSU-M2	38401	2022/05/19	1Year

For Spurious Emissions Test

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
EMI Test Receiver	Rohde & Schwarz	ESCI	101415	2022/05/19	1Year
Power Amplifier	HP	8447F	OPTH64	2022/05/19	1Year
Bilog Antenna	Schwarzbeck	VULB9163	141	2022/05/22	1Year
Horn antenna	Schwarzbeck	BBHA9120D	1272	2022/05/22	1Year
Power Amplifier	LUNAR EM	LNA1G18-40	J10100000081	2022/05/19	1Year
Loop Antenna	Schwarzbeck	FMZB1513	1513-60	2022/05/22	2 Year
Signal Analyzer	R&S	FSV30	103039	2022/05/19	1Year
Bilog Antenna	Schwarzbeck	VULB9163	141	2022/05/22	1Year
Band reject Filter(50dB)	WI/DE	WRCGV-2400(2400-2485MHz)	2	2022/05/20	1 Year

For other test items:

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
Wireless Connectivity Tester	R&S	CMW270	102543	2022/06/21	1Year
Automatic Control Unit	Tonscend	JS0806-2	21I8060480	2022/06/21	1Year
Signal Analyzer	KEYSIGHT	N9010B	MY60242456	2022/06/21	1Year
Analog Signal Generator	KEYSIGHT	N5173B	MY61252625	2022/06/21	1Year
UP/DOWN-Converter	R&S	CMW-Z800A	100274	2022/06/21	1Year
Vector Signal Generator	KEYSIGHT	N5182B	MY61252674	2022/06/21	1Year
Frequency Extender	KEYSIGHT	N5182BX07	MY59362541	2022/06/21	1Year
Temperature&Humidity test chamber	ESPEC	EL-02KA	12107166	2022/06/21	1 Year

4.3 DESCRIPTION OF TEST MODES

The EUT has been tested under its typical operating condition.
The EUT configuration for testing is installed on RF field strength measurement to meet the Commissions requirement and operating in a manner which intends to maximize its emission characteristics in a continuous normal application.
The Transmitter was operated in the normal operating mode. The TX frequency was fixed which was for the purpose of the measurements.
Test of channel included the lowest and middle and highest frequency to perform the test, then record on this report.
Those data rates (802.11a: 54 Mbps; 802.11n(HT20): MCS0; 802.11ac(VHT20): MCS0; 802.11n(HT40): MCS0; 802.11ac(VHT40): MCS0; 802.11ac(VHT80): MCS0;) were used for all test.

Pre-defined engineering program for regulatory testing used to control the EUT for staying in continuous transmitting and receiving mode is programmed.

Wifi 5G with U-NII - 1

Frequency and Channel list for 802.11a, 802.11n (HT20), 802.11ac (VHT20):

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
36	5180	44	5220		
40	5200	48	5240		

Frequency and Channel list for 802.11n (HT40), 802.11ac (VHT40):

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
38	5190	46	5230		

Frequency and Channel list for 802.11ac (VHT80):

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
42	5210				

Test Frequency and Channel for 802.11a, 802.11n (HT20), 802.11ac (VHT20):

Lowest Frequency		Middle Frequency		Highest Frequency	
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
36	5180	40	5200	48	5240

Test Frequency and channel for 802.11n (HT40), 802.11ac (VHT40):

Lowest Frequency		Middle Frequency		Highest Frequency	
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
38	5190	N/A	N/A	46	5230

Test Frequency and channel for 802.11ac (VHT80):

Lowest Frequency		Middle Frequency		Highest Frequency	
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
42	5210	N/A	N/A	N/A	N/A

Wifi 5G with U-NII -2A

Frequency and Channel list 802.11a, 802.11n (HT20), 802.11ac (VHT20):

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
52	5260	60	5300		
56	5280	64	5320		

Frequency and Channel list for 802.11n (HT40), 802.11ac (VHT40):

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
54	5270				
62	5310				

Frequency and Channel list for 802.11ac (VHT80):

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
58	5290				

Test Frequency and Channel for 802.11a, 802.11n (HT20), 802.11ac (VHT20):

Lowest Frequency		Middle Frequency		Highest Frequency	
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
52	5260	56	5280	64	5320

Test Frequency and channel for 802.11n (HT40), 802.11ac (VHT40):

Lowest Frequency		Middle Frequency		Highest Frequency	
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
54	5270	N/A	N/A	62	5310

Test Frequency and channel for 802.11ac (VHT80):

Lowest Frequency		Middle Frequency		Highest Frequency	
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
58	5290				

Wifi 5G with U-NII -2C

Frequency and Channel list for 802.11a, 802.11n (HT20), 802.11ac (VHT20):

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
100	5500	116	5580	132	5660
104	5520	120	5600	136	5680
108	5540	124	5620	140	5700
112	5560	128	5640		

Frequency and Channel list for 802.11n (HT40), 802.11ac (VHT40):

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
102	5510	118	5590	134	5670
110	5550	126	5630		

Frequency and Channel list for 802.11ac (VHT80):

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
106	5530	122	5610		

Test Frequency and Channel for 802.11a, 802.11n (HT20), 802.11ac (VHT20):

Lowest Frequency		Middle Frequency		Highest Frequency	
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
100	5500	120	5600	140	5700

Test Frequency and channel for 802.11n (HT40), 802.11ac (VHT40):

Lowest Frequency		Middle Frequency		Highest Frequency	
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
102	5510			134	5670

Test Frequency and channel for 802.11ac (VHT80):

Lowest Frequency		Middle Frequency		Highest Frequency	
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
106	5530				

Wifi 5G with U-NII -3

Frequency and Channel list for 802.11a, 802.11n (HT20), 802.11ac (VHT20):

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
149	5745	157	5785	165	5825
153	5765	161	5805		

Frequency and Channel list for 802.11n (HT40), 802.11ac (VHT40):

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
151	5755	159	5795		

Frequency and Channel list for 802.11ac (VHT80):

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
155	5775				

Test Frequency and Channel for 802.11a, 802.11n (HT20), 802.11ac (VHT20):

Lowest Frequency		Middle Frequency		Highest Frequency	
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
149	5745	157	5785	165	5825

Test Frequency and channel for 802.11n (HT40), 802.11ac (VHT40):

Lowest Frequency		Middle Frequency		Highest Frequency	
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
151	5755	N/A	N/A	159	5795

Test Frequency and channel for 802.11ac (VHT80):

Lowest Frequency		Middle Frequency		Highest Frequency	
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
155	5775				

Multi-antenna correlation:

☐	Transmit Signals are Correlated
	Directional gain = 10 log[$(10^{G1/20} + 10^{G2/20} + \ldots + 10^{GN/20})^2 / N_{ANT}$] dBi
☐	All Transmit Signals are Completely Uncorrelated
	Directional gain = 10 log[$(10^{G1/10} + 10^{G2/10} + \ldots + 10^{GN/10}) / N_{ANT}$] dBi

Directional gain = 10 log $[(10^{4.69/20} + 10^{4.82/20})^2/2]$ dBi=7.77 dBi

5 FACILITIES AND ACCREDITATIONS

5.1 FACILITIES

All measurement facilities used to collect the measurement data are located at:

EMTEK (DONGGUAN) CO., LTD.
-1&2/F.,Building 2, Zone A, Zhongda Marine Biotechnology Research and Development Base, No.9, Xincheng Avenue, Songshanhu High-technology Industrial Development Zone, Dongguan, Guangdong, China

5.2 EQUIPMENT

Radiated emissions are measured with one or more of the following types of linearly polarized antennas: tuned dipole, biconical, log periodic, bi-log, and/or ridged waveguide, horn. Spectrum analyzers with preselectors and quasi-peak detectors are used to perform radiated measurements.

Conducted emissions are measured with Line Impedance Stabilization Networks and EMI Test Receivers.

Calibrated wideband preamplifiers, coaxial cables, and coaxial attenuators are also used for making measurements.

All receiving equipment conforms to CISPR Publication 16-1, “Radio Interference Measuring Apparatus and Measurement Methods.”

5.3 LABORATORY ACCREDITATIONS AND LISTINGS

Site Description		
EMC Lab.	:	Accredited by CNAS, 2020.08.27 The certificate is valid until 2024.07.05 The Laboratory has been assessed and proved to be in compliance with CNAS/CL01:2018 The Certificate Registration Number is L3150 Accredited by FCC Designation Number: CN1300 Test Firm Registration Number: 945551 Accredited by A2LA, April 05, 2021 The Certificate Registration Number is 4321.02 Accredited by Industry Canada The Certificate Registration Number is CN0113
Name of Firm	:	EMTEK (DONGGUAN) CO., LTD.
Site Location	:	-1&2/F.,Building 2, Zone A, Zhongda Marine Biotechnology Research and Development Base, No.9, Xincheng Avenue, Songshanhu High-technology Industrial Development Zone, Dongguan, Guangdong, China

6 TEST SYSTEM UNCERTAINTY

The following measurement uncertainty levels have been estimated for tests performed on the apparatus:

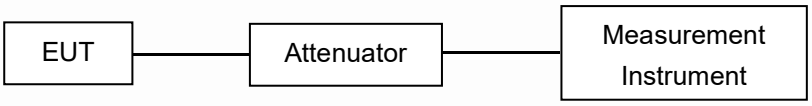
Test Parameter	Measurement Uncertainty
Radio Frequency	±1x10^-5
Maximum Peak Output Power Test	±1.0dB
Conducted Emissions Test	±2.0dB
Radiated Emission Test	±2.0dB
Power Density	±2.0dB
Occupied Bandwidth Test	±1.0dB
Band Edge Test	±3dB
All emission, radiated	±3dB
Antenna Port Emission	±3dB
Temperature	±0.5℃
Humidity	±3%

Measurement Uncertainty for a level of Confidence of 95%

7 SETUP OF EQUIPMENT UNDER TEST

7.1 RADIO FREQUENCY TEST SETUP

The WLAN component's antenna ports(s) of the EUT are connected to the measurement instrument per an appropriate attenuator. The EUT is controlled by PC/software to emit the specified signals for the purpose of measurements.



7.2 RADIO FREQUENCY TEST SETUP

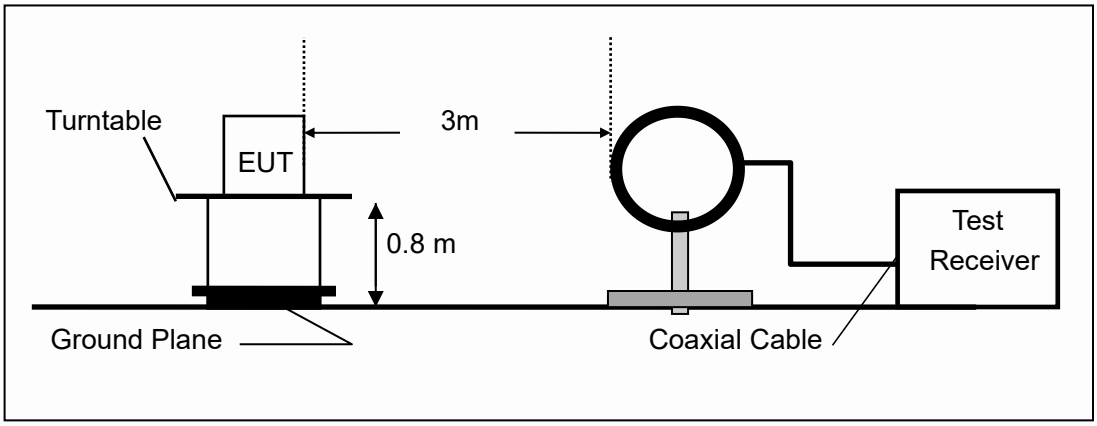
The test site semi-anechoic chamber has met the requirement of NSA tolerance 4 dB according to the standards: ANSI C63.10. The test distance is 3m.The setup is according to the requirements in Section 13.1.4.1 of ANSI C63.10-2013 and CAN/CSA-CEI/IEC CISPR 22.

Below 30MHz：
The EUT is placed on a turntable 0.8 meters above the ground in the chamber, 3 meter away from the antenna (loop antenna). The Antenna should be positioned with its plane vertical at the specified distance from the EUT and rotated about its vertical axis for maximum response at each azimuth about the EUT. The center of the loop shall be 1 m above the ground. For certain applications, the loop antenna plane may also need to be positioned horizontally at the specified distance from the EUT.

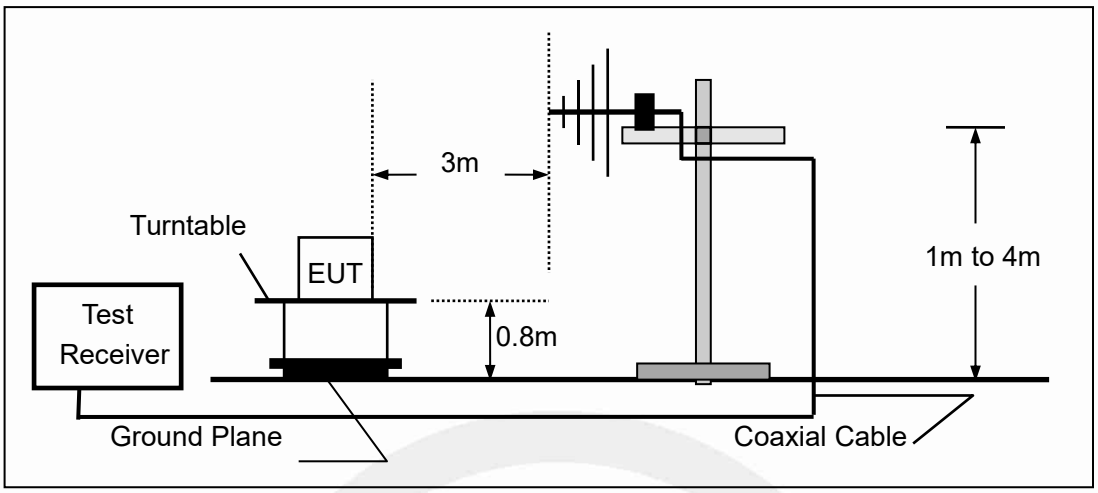
Above 30MHz：
The EUT is placed on a turntable 0.8 meters above the ground in the chamber, 3 meter away from the antenna. The maximal emission value is acquired by adjusting the antenna height, polarisation and turntable azimuth. Normally, the height range of antenna is 1 m to 4 m, the azimuth range of turntable is 0° to 360°, and the receive antenna has two polarizations Vertical (V) and Horizontal (H).

Above 1GHz：
(Note: the FCC's permission to use 1.5m as an alternative per TCBC Conf call of Dec. 2, 2014.)
The EUT is placed on a turntable 1.5 meters above the ground in the chamber, 3 meter away from the antenna. The maximal emission value is acquired by adjusting the antenna height, polarisation and turntable azimuth. Normally, the height range of antenna is 1 m to 4 m, the azimuth range of turntable is 0° to 360°, and the receive antenna has two polarizations Vertical (V) and Horizontal (H).

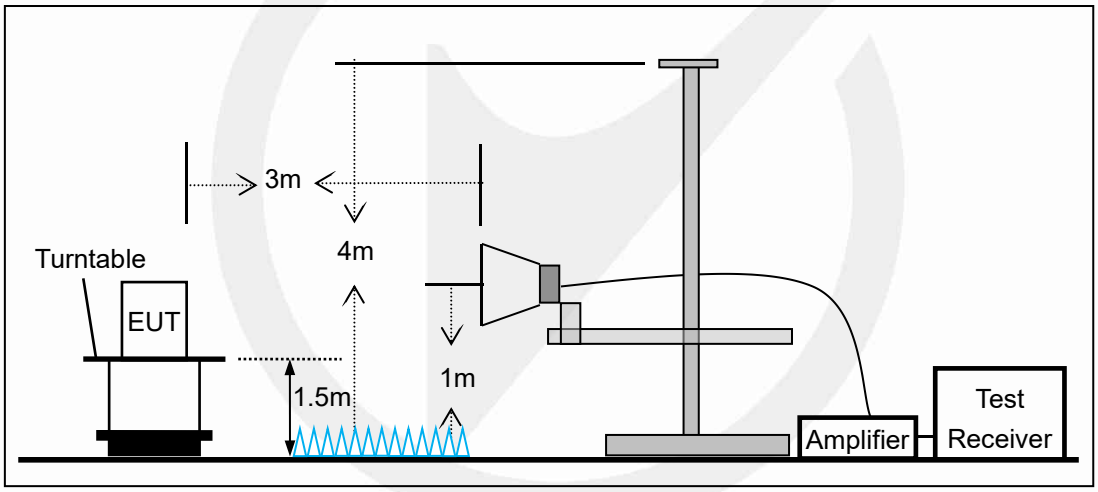
(a) Radiated Emission Test Set-Up, Frequency Below 30MHz



(b) Radiated Emission Test Set-Up, Frequency Below 1000MHz



(c) Radiated Emission Test Set-Up, Frequency above 1000MHz

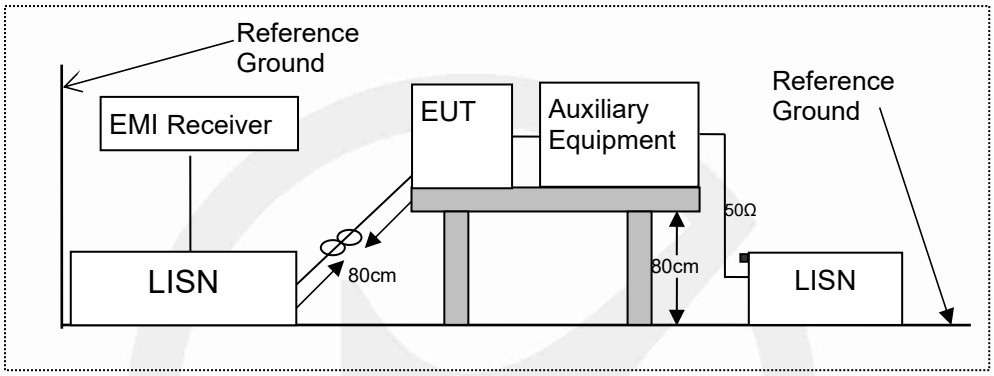


7.3 CONDUCTED EMISSION TEST SETUP

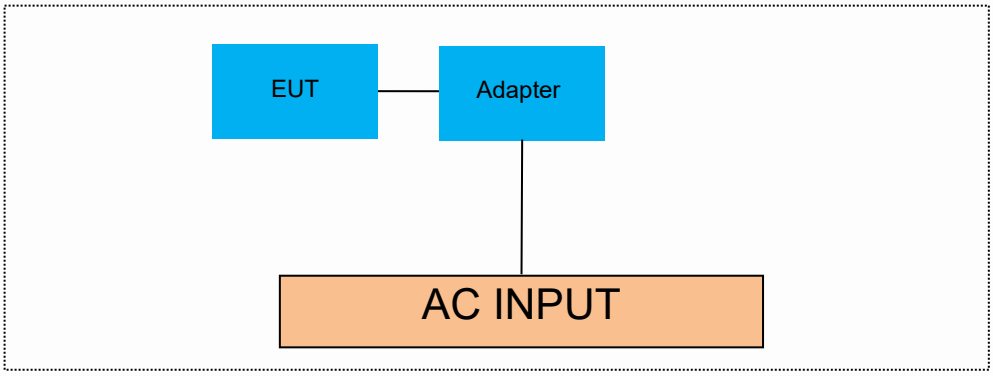
The mains cable of the EUT (maybe per AC/DC Adapter) must be connected to LISN. The LISN shall be placed 0.8 m from the boundary of EUT and bonded to a ground reference plane for LISN mounted on top of the ground reference plane. This distance is between the closest points of the LISN and the EUT. All other units of the EUT and associated equipment shall be at least 0.8m from the LISN.

Ground connections, where required for safety purposes, shall be connected to the reference ground point of the LISN and, where not otherwise provided or specified by the manufacturer, shall be of same length as the mains cable and run parallel to the mains connection at a separation distance of not more than 0.1 m.

According to the requirements in Section 13.1.4.1 of ANSI C63.10-2013 Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30 MHz using CISPR Quasi-Peak and average detector mode.



7.4 BLOCK DIAGRAM CONFIGURATION OF TEST SYSTEM



7.5 SUPPORT EQUIPMENT

EUT Cable List and Details			
Cable Description	Length (m)	Shielded/Unshielded	With / Without Ferrite
DC cable	0.3	Unshielded	Without Ferrite

Auxiliary Cable List and Details			
Cable Description	Length (m)	Shielded/Unshielded	With / Without Ferrite
/	/	/	/

Auxiliary Equipment List and Details			
Description	Manufacturer	Model	Serial Number
Notebook	Lenovo	E46L	11S168003748Z0LR06E0HG
Adapter	Apple	/	/

Notes:

*1.*All the equipment/cables were placed in the worst-case configuration to maximize the emission during the test.

*2.*Grounding was established in accordance with the manufacturer's requirements and conditions for the intended use.

8 TEST REQUIREMENTS

8.1 BANDWIDTH MEASUREMENT

8.1.1 Applicable Standard

According to FCC Part 15.407(a)(1) for UNII Band I
According to FCC Part 15.407(a)(2) for UNII Band II-A and UNII Band II-C
According to FCC Part 15.407(a)(3) for UNII Band III
According to FCC Part 15.407(e) for UNII Band III
According to 789033 D02 Section II(C)
According to 789033 D02 Section II(D)

8.1.2 Conformance Limit

The 26dB bandwidth is used to determine the conducted power limits.
Within the 5.725-5.85 GHz band, the minimum 6 dB bandwidth of U-NII devices shall be at least 500 kHz.

8.1.3 Test Configuration

Test according to clause 7.1 radio frequency test setup

8.1.4 Test Procedure

According to 789033 D02 v02r01 section C&D, the following is the measurement procedure.

1. Emission Bandwidth (EBW)
a) Set RBW = approximately 1% of the emission bandwidth.
b) Set the VBW > RBW.
c) Detector = Peak.
d) Trace mode = max hold.
e) Measure the maximum width of the emission that is 26 dB down from the maximum of the emission. Compare this with the RBW setting of the analyzer. Readjust RBW and repeat measurement as needed until the RBW/EBW ratio is approximately 1%.

2. Minimum Emission Bandwidth for the band 5.725-5.85 GHz
Section 15.407(e) specifies the minimum 6 dB emission bandwidth of at least 500 KHz for the band 5.715-5.85 GHz. The following procedure shall be used for measuring this bandwidth:
a) Set RBW = 100 kHz.
b) Set the video bandwidth (VBW) $\geqslant$ 3 $\times$ RBW.
c) Detector = Peak.
d) Trace mode = max hold.
e) Sweep = auto couple.
f) Allow the trace to stabilize.
g) Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.
Note: The automatic bandwidth measurement capability of a spectrum analyzer or EMI receiver may be employed if it implements the functionality described above.

D. 99 Percent Occupied Bandwidth
The 99-percent occupied bandwidth is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers are each equal to 0.5 % of the total mean power of the given emission. Measurement of the 99-percent occupied bandwidth is required only as a condition for using the optional band-edge measurement techniques described in section II.G.3.d). Measurements of 99-percent occupied bandwidth may also optionally be used in lieu of the EBW to 789033 D02 v01r02 General UNII Test Procedures New Rules v01 define the minimum frequency range over which the spectrum is integrated when measuring maximum conducted output power as described in section II.E. However, the EBW must be measured to determine bandwidth dependent limits on maximum conducted

output power in accordance with 15.407(a).

The following procedure shall be used for measuring (99 %) power bandwidth:
1. Set center frequency to the nominal EUT channel center frequency.
2. Set span = 1.5 times to 5.0 times the OBW.
3. Set RBW = 1 % to 5 % of the OBW
4. Set VBW ≥ 3 • RBW
5. Video averaging is not permitted. Where practical, a sample detection and single sweep mode shall be used. Otherwise, peak detection and max hold mode (until the trace stabilizes) shall be used.
6. Use the 99 % power bandwidth function of the instrument (if available).
7. If the instrument does not have a 99 % power bandwidth function, the trace data points are recovered and directly summed in power units. The recovered amplitude data points, beginning at the lowest frequency, are placed in a running sum until 0.5 % of the total is reached; that frequency is recorded as the lower frequency. The process is repeated until 99.5 % of the total is reached; that frequency is recorded as the upper frequency. The 99% occupied bandwidth is the difference between these two frequencies.

8.1.5 Test Results

Temperature:	25°C
Relative Humidity:	45%
ATM Pressure:	1011 mbar

Note: N/A

TestMode	Antenna	Frequency[MHz]	26db EBW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11A	Ant1	5180	23.360	5169.960	5193.320	---	---
11A	Ant1	5220	27.080	5209.680	5236.760	---	---
11A	Ant1	5240	24.200	5229.720	5253.920	---	---
11A	Ant1	5260	20.480	5249.640	5270.120	---	---
11A	Ant1	5300	20.480	5289.640	5310.120	---	---
11A	Ant1	5320	20.480	5309.680	5330.160	---	---
11A	Ant1	5500	20.440	5489.680	5510.120	---	---
11A	Ant1	5580	20.360	5569.680	5590.040	---	---
11A	Ant1	5700	20.520	5689.440	5709.960	---	---
11A	Ant1	5745	27.880	5733.120	5761.000	---	---
11A	Ant1	5785	23.960	5774.720	5798.680	---	---
11A	Ant1	5825	23.600	5814.680	5838.280	---	---
11AC20SISO	Ant1	5180	21.000	5169.520	5190.520	---	---
11AC20SISO	Ant1	5220	22.120	5209.080	5231.200	---	---
11AC20SISO	Ant1	5240	21.040	5229.440	5250.480	---	---
11AC20SISO	Ant1	5260	20.960	5249.520	5270.480	---	---
11AC20SISO	Ant1	5300	21.120	5289.320	5310.440	---	---
11AC20SISO	Ant1	5320	21.080	5309.440	5330.520	---	---
11AC20SISO	Ant1	5500	21.520	5489.200	5510.720	---	---
11AC20SISO	Ant1	5580	21.200	5569.320	5590.520	---	---
11AC20SISO	Ant1	5700	21.200	5689.320	5710.520	---	---
11AC20SISO	Ant1	5745	25.800	5734.040	5759.840	---	---
11AC20SISO	Ant1	5785	24.360	5774.360	5798.720	---	---
11AC20SISO	Ant1	5825	21.000	5814.720	5835.720	---	---
11AC40SISO	Ant1	5190	41.040	5169.600	5210.640	---	---
11AC40SISO	Ant1	5230	41.280	5209.120	5250.400	---	---
11AC40SISO	Ant1	5270	41.680	5249.280	5290.960	---	---
11AC40SISO	Ant1	5310	41.600	5289.120	5330.720	---	---
11AC40SISO	Ant1	5510	41.760	5489.040	5530.800	---	---
11AC40SISO	Ant1	5550	41.760	5529.120	5570.880	---	---
11AC40SISO	Ant1	5670	42.640	5648.400	5691.040	---	---
11AC40SISO	Ant1	5755	41.520	5734.040	5775.560	---	---
11AC40SISO	Ant1	5795	43.120	5774.120	5817.240	---	---
11AC80SISO	Ant1	5210	81.120	5169.520	5250.640	---	---
11AC80SISO	Ant1	5290	82.400	5249.200	5331.600	---	---
11AC80SISO	Ant1	5530	82.240	5489.040	5571.280	---	---
11AC80SISO	Ant1	5610	82.720	5568.720	5651.440	---	---
11AC80SISO	Ant1	5775	82.080	5734.360	5816.440	---	---
11N20SISO	Ant1	5180	20.840	5169.640	5190.480	---	---
11N20SISO	Ant1	5220	20.960	5209.600	5230.560	---	---
11N20SISO	Ant1	5240	21.160	5229.480	5250.640	---	---
11N20SISO	Ant1	5260	21.320	5249.240	5270.560	---	---
11N20SISO	Ant1	5300	21.040	5289.320	5310.360	---	---
11N20SISO	Ant1	5320	21.000	5309.400	5330.400	---	---
11N20SISO	Ant1	5500	21.440	5489.240	5510.680	---	---
11N20SISO	Ant1	5580	21.200	5569.320	5590.520	---	---
11N20SISO	Ant1	5700	21.040	5689.360	5710.400	---	---
11N20SISO	Ant1	5745	26.200	5732.680	5758.880	---	---
11N20SISO	Ant1	5785	21.600	5774.200	5795.800	---	---

11N20SISO	Ant1	5825	21.440	5814.200	5835.640	---	---
11N40SISO	Ant1	5190	41.120	5169.520	5210.640	---	---
11N40SISO	Ant1	5230	41.760	5209.040	5250.800	---	---
11N40SISO	Ant1	5270	41.760	5249.120	5290.880	---	---
11N40SISO	Ant1	5310	41.280	5289.360	5330.640	---	---
11N40SISO	Ant1	5510	41.440	5489.440	5530.880	---	---
11N40SISO	Ant1	5550	41.680	5528.800	5570.480	---	---
11N40SISO	Ant1	5670	41.520	5648.960	5690.480	---	---
11N40SISO	Ant1	5755	43.280	5734.280	5777.560	---	---
11N40SISO	Ant1	5795	42.720	5773.720	5816.440	---	---

11A-Ant1-5180

11A-Ant1-5220

11A-Ant1-5240

11A-Ant1-5260

11A-Ant1-5300

11A-Ant1-5320

11A-Ant1-5500

11A-Ant1-5580

11A-Ant1-5700

11A-Ant1-5745

11A-Ant1-5785

11A-Ant1-5825

11AC20SISO-Ant1-5180

11AC20SISO-Ant1-5220

11AC20SISO-Ant1-5240

11AC20SISO-Ant1-5260

11AC20SISO-Ant1-5300

11AC20SISO-Ant1-5320

11AC20SISO-Ant1-5500

11AC20SISO-Ant1-5580

11AC20SISO-Ant1-5700

11AC20SISO-Ant1-5745

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11AC80SISO-Ant1-5210

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11AC80SISO-Ant1-5610

11AC80SISO-Ant1-5775

11N20SISO-Ant1-5180

11N20SISO-Ant1-5220

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11N20SISO-Ant1-5825

11N40SISO-Ant1-5190

11N40SISO-Ant1-5230

11N40SISO-Ant1-5270

11N40SISO-Ant1-5310

11N40SISO-Ant1-5510

11N40SISO-Ant1-5550

11N40SISO-Ant1-5670

11N40SISO-Ant1-5755

11N40SISO-Ant1-5795

TestMode	Antenna	Frequency[MHz]	OCB [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11A	Ant1	5180	17.184	5171.3747	5188.5587	---	---
11A	Ant1	5220	17.444	5211.3402	5228.7842	---	---
11A	Ant1	5240	17.282	5231.3641	5248.6461	---	---
11A	Ant1	5260	16.898	5251.510	5268.408	---	---
11A	Ant1	5300	16.937	5291.482	5308.419	---	---
11A	Ant1	5320	16.943	5311.499	5328.442	---	---
11A	Ant1	5500	16.872	5491.527	5508.399	---	---
11A	Ant1	5580	16.928	5571.471	5588.399	---	---
11A	Ant1	5700	16.916	5691.493	5708.409	---	---
11A	Ant1	5745	17.614	5736.2386	5753.8526	---	---
11A	Ant1	5785	17.314	5776.2911	5793.6051	---	---
11A	Ant1	5825	17.206	5816.3231	5833.5291	---	---
11AC20SISO	Ant1	5180	17.919	5171.0385	5188.9575	---	---
11AC20SISO	Ant1	5220	18.013	5211.0071	5229.0201	---	---
11AC20SISO	Ant1	5240	17.942	5231.0217	5248.9637	---	---
11AC20SISO	Ant1	5260	17.914	5251.071	5268.985	---	---
11AC20SISO	Ant1	5300	17.862	5291.039	5308.901	---	---
11AC20SISO	Ant1	5320	17.940	5311.019	5328.959	---	---
11AC20SISO	Ant1	5500	17.988	5490.988	5508.976	---	---
11AC20SISO	Ant1	5580	17.925	5571.067	5588.992	---	---
11AC20SISO	Ant1	5700	17.932	5691.005	5708.937	---	---
11AC20SISO	Ant1	5745	18.187	5735.9358	5754.1228	---	---
11AC20SISO	Ant1	5785	18.042	5775.9630	5794.0050	---	---
11AC20SISO	Ant1	5825	18.000	5815.9705	5833.9705	---	---
11AC40SISO	Ant1	5190	36.496	5171.8141	5208.3101	---	---
11AC40SISO	Ant1	5230	36.493	5211.8116	5248.3046	---	---
11AC40SISO	Ant1	5270	36.304	5251.855	5288.159	---	---
11AC40SISO	Ant1	5310	36.325	5291.878	5328.203	---	---
11AC40SISO	Ant1	5510	36.427	5491.816	5528.243	---	---
11AC40SISO	Ant1	5550	36.344	5531.845	5568.189	---	---
11AC40SISO	Ant1	5670	36.402	5651.753	5688.155	---	---
11AC40SISO	Ant1	5755	36.689	5736.7333	5773.4223	---	---
11AC40SISO	Ant1	5795	36.626	5776.7061	5813.3321	---	---
11AC80SISO	Ant1	5210	75.317	5172.4918	5247.8088	---	---
11AC80SISO	Ant1	5290	75.972	5252.104	5328.076	---	---
11AC80SISO	Ant1	5530	76.009	5492.002	5568.011	---	---
11AC80SISO	Ant1	5610	76.009	5571.945	5647.954	---	---
11AC80SISO	Ant1	5775	75.364	5737.3329	5812.6969	---	---
11N20SISO	Ant1	5180	17.893	5171.0273	5188.9203	---	---
11N20SISO	Ant1	5220	17.952	5211.0364	5228.9884	---	---
11N20SISO	Ant1	5240	17.939	5231.0274	5248.9664	---	---
11N20SISO	Ant1	5260	17.901	5251.041	5268.942	---	---
11N20SISO	Ant1	5300	17.933	5291.000	5308.933	---	---
11N20SISO	Ant1	5320	17.955	5311.044	5328.999	---	---
11N20SISO	Ant1	5500	17.892	5491.060	5508.952	---	---
11N20SISO	Ant1	5580	17.900	5571.024	5588.924	---	---
11N20SISO	Ant1	5700	17.928	5690.990	5708.918	---	---
11N20SISO	Ant1	5745	18.178	5735.9223	5754.1003	---	---
11N20SISO	Ant1	5785	18.024	5775.9596	5793.9836	---	---
11N20SISO	Ant1	5825	17.981	5815.9800	5833.9610	---	---
11N40SISO	Ant1	5190	36.499	5171.8059	5208.3049	---	---
11N40SISO	Ant1	5230	36.510	5211.8528	5248.3628	---	---
11N40SISO	Ant1	5270	36.307	5251.858	5288.165	---	---
11N40SISO	Ant1	5310	36.394	5291.821	5328.215	---	---
11N40SISO	Ant1	5510	36.235	5491.930	5528.165	---	---
11N40SISO	Ant1	5550	36.422	5531.820	5568.242	---	---
11N40SISO	Ant1	5670	36.327	5651.795	5688.122	---	---
11N40SISO	Ant1	5755	36.690	5736.7174	5773.4074	---	---
11N40SISO	Ant1	5795	36.603	5776.7162	5813.3192	---	---

11A-Ant1-5180

11A-Ant1-5220

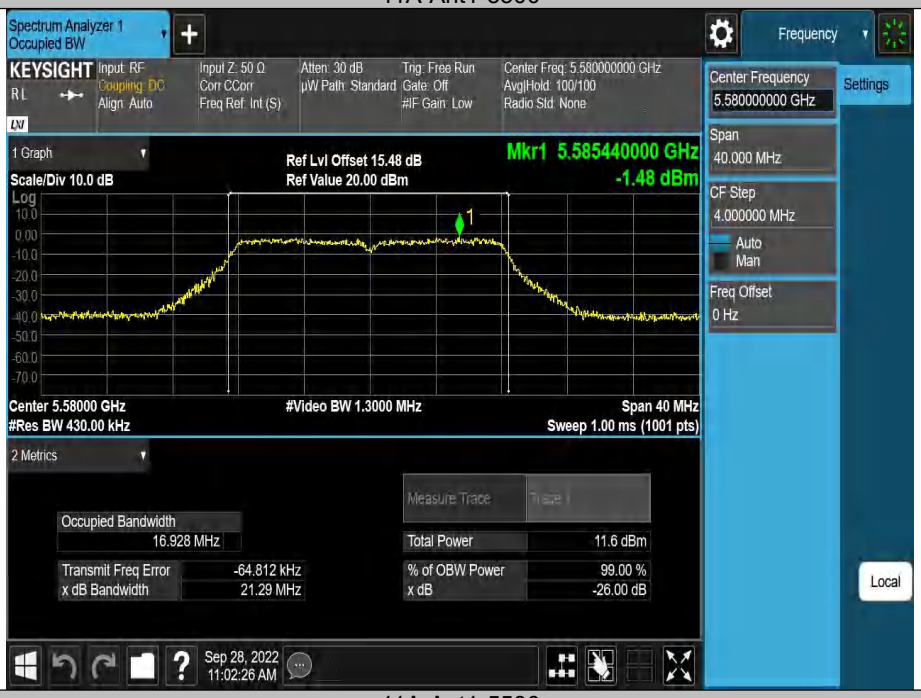
11A-Ant1-5240

11A-Ant1-5260

11A-Ant1-5300

11A-Ant1-5320

11A-Ant1-5500



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11A-Ant1-5700

11A-Ant1-5745

11A-Ant1-5785

11A-Ant1-5825

11AC20SISO-Ant1-5180

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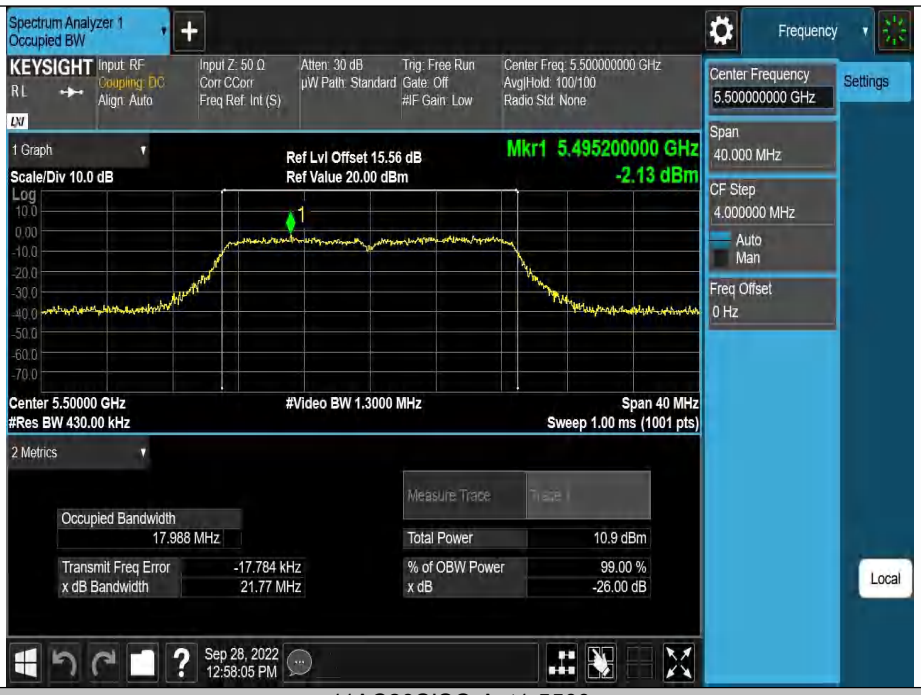

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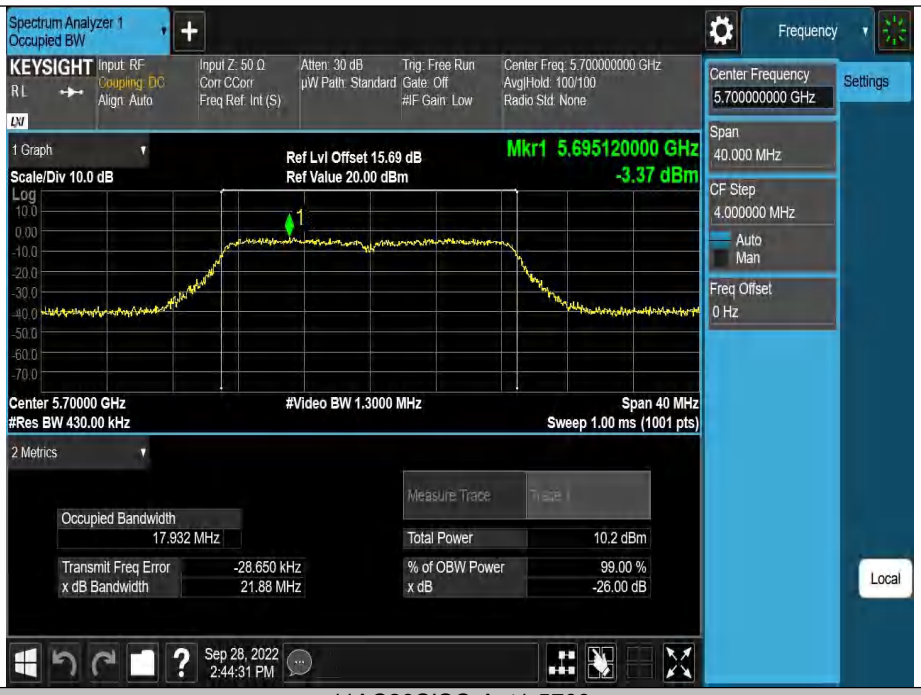

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11AC20SISO-Ant1-5825

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11AC40SISO-Ant1-5230

11AC40SISO-Ant1-5270

11AC40SISO-Ant1-5310

11AC40SISO-Ant1-5510

11AC40SISO-Ant1-5550

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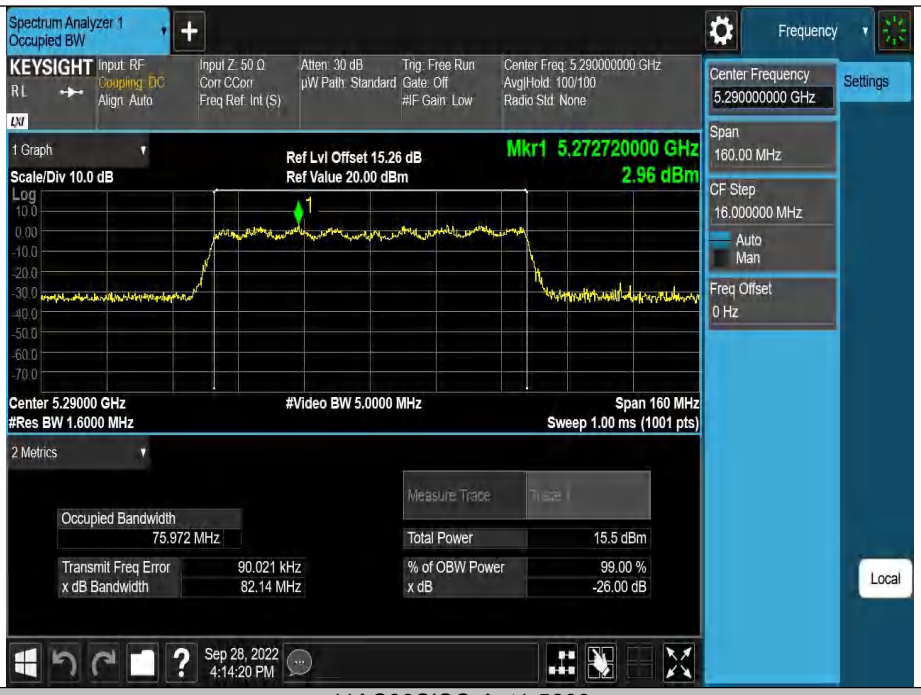

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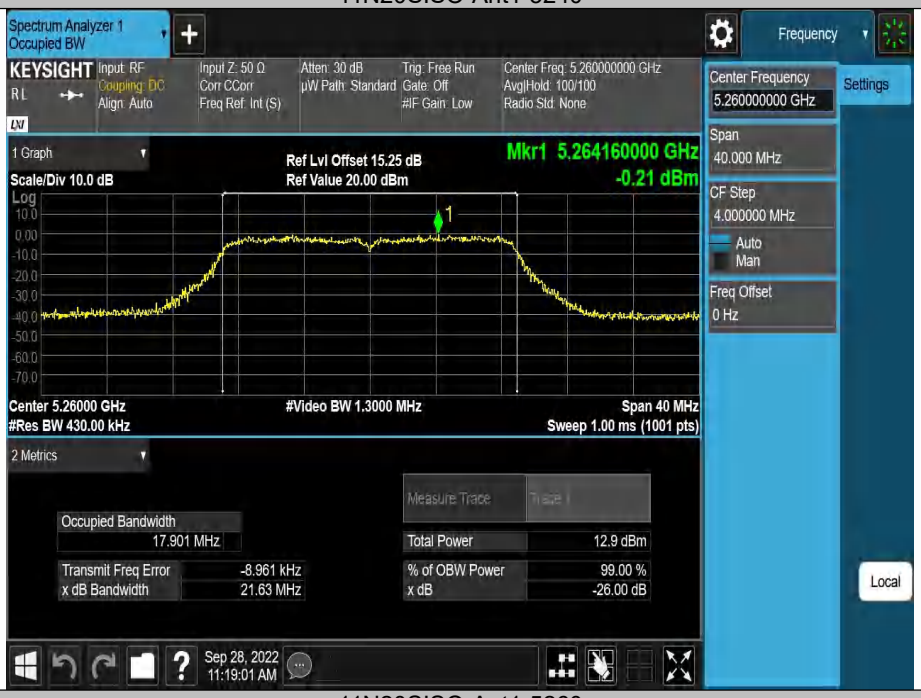

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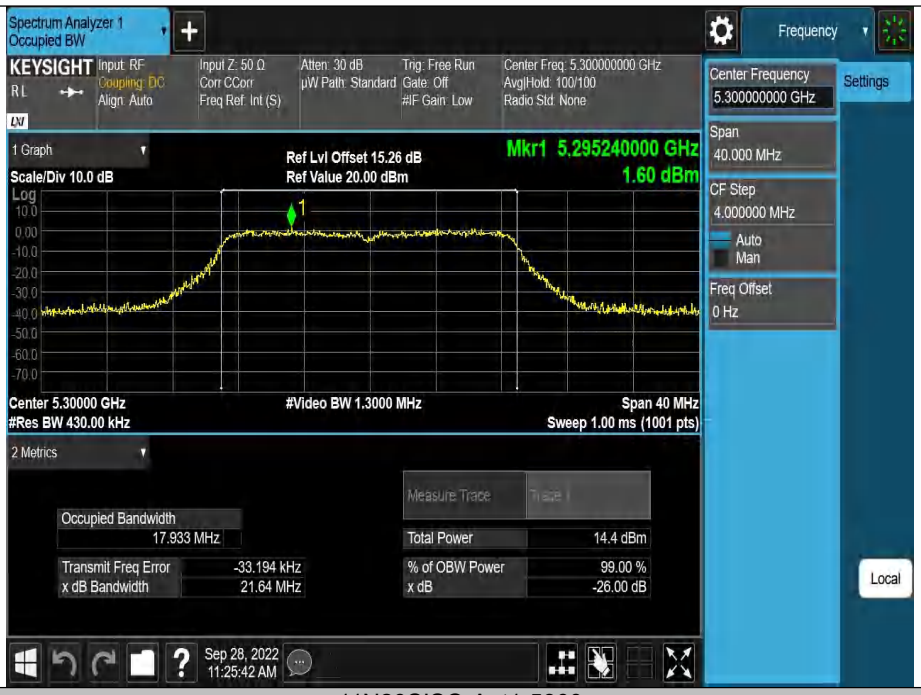

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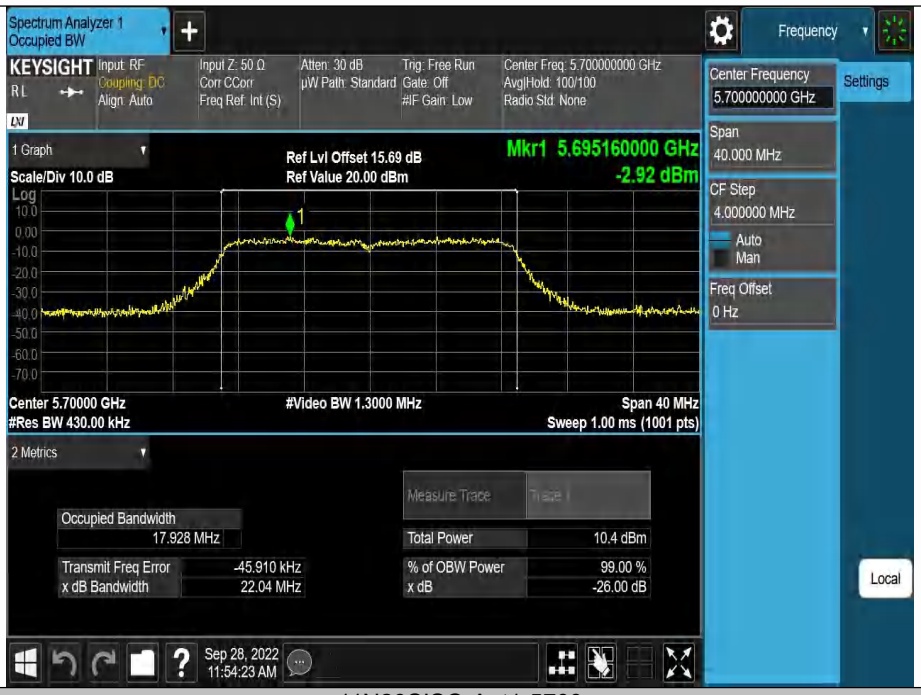

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11N20SISO-Ant1-5785

11N20SISO-Ant1-5825

11N40SISO-Ant1-5190

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11N40SISO-Ant1-5510

11N40SISO-Ant1-5550

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11N40SISO-Ant1-5755

11N40SISO-Ant1-5795