

FCC Test Report

Report No.: AGC11805240901FR04

FCC ID	:	2BK8B-DSDR23A
APPLICATION PURPOSE	:	Original Equipment
PRODUCT DESIGNATION	:	ATOM 2 Drone
BRAND NAME	:	Potensic
MODEL NAME	:	DSDR23A, DSDR23B, DSDR23C, DSDR23D
APPLICANT	:	Shenzhen Potensic Intelligent Co., Ltd.
DATE OF ISSUE	:	Dec. 18, 2024
STANDARD(S)	:	FCC Part 15 Subpart C §15.247
REPORT VERSION	:	V1.0







Report Revise Record

Report Version	Revise Time	Issued Date	Valid Version	Notes
V1.0	/	Dec. 18, 2024	Valid	Initial Release



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1. General Information

Applicant	Shenzhen Potensic Intelligent Co., Ltd.	
Address	Room 1901, Jinqizhigu Building, Tangling Road, Nanshan District, Shenzhen, China	
Manufacturer	Shenzhen Potensic Intelligent Co., Ltd.	
Address	Room 1901, Jinqizhigu Building, Tangling Road, Nanshan District, Shenzhen, China	
Factory	Shenzhen Potensic Intelligent Co., Ltd.	
Address	Room 1901, Jinqizhigu Building, Tangling Road, Nanshan District, Shenzhen, China	
Product Designation	ATOM 2 Drone	
Brand Name	Potensic	
Test Model	DSDR23A	
Series Model(s)	DSDR23B, DSDR23C, DSDR23D	
Difference Description	All the same except the model name	
Date of receipt of test item	Sep. 19, 2024	
Date of Test	Sep. 19, 2024~Dec. 18, 2024	
Deviation from Standard	No any deviation from the test method	
Condition of Test Sample	Normal	
Test Result	Pass	
Test Report Form No	AGCER-FCC-2.4G-V1	

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

Bibo zhang Prepared By Bibo Zhang Dec. 18, 2024 (Project Engineer) Calvin Lin **Reviewed By** Calvin Liu Dec. 18, 2024 (Reviewer) ngole Approved By Angela Li Dec. 18, 2024 (Authorized Officer)



2. Product Information

2.1 Product Technical Description

Equipment Type	Custom IEEE 802.11 for 2.4GHz
Frequency Band	2400MHz~2483.5MHz
Operation Frequency	2415MHz~2470MHz
Output Power (Average)	16.84dBm
Output Power (Peak)	24.45dBm
Output Power (MIMO- Average)	19.69dBm
Output Power (MIMO- Peak)	27.15dBm
Modulation	OFDM (64-QAM, 16-QAM, QPSK, BPSK)
Number of channels	6
Hardware Version	V06
Software Version	V4.2.4
Antenna Designation	Dipole Antenna for ANT 1 (Chain A Port) Dipole Antenna for ANT 2 (Chain B Port)
Antenna Gain	Please refer to report section 2.9 description
Number of transmit chain	2 (Custom IEEE 802.11 support MIMO)
Power Supply	DC 7.7V by battery

2.2 Table of Carrier Frequency

Channel	Frequency	Channel	Frequency	Channel	Frequency
00	2415 MHz	01	2425 MHz	02	2435 MHz
03	2445 MHz	04	2455 MHz	05	2465 MHz
06	2470 MHz	١	١	١	١



2.4 Related Submittal(S) / Grant (S)

This submittal(s) (test report) is intended for FCC ID: **2BK8B-DSDR23A**, filing to comply with Part 2, Part 15 of the Federal Communication Commission rules.

2.5 Test Methodology

The tests were performed according to following standards:

No.	Identity	Document Title
1	FCC 47 CFR Part 2	Frequency allocations and radio treaty matters; general rules and regulations
2	FCC 47 CFR Part 15	Radio Frequency Devices
3	ANSI C63.10-2013	American National Standard for Testing Unlicensed Wireless Devices
4	KDB 662911	KDB 662911 D01 Multiple Transmitter Output v02r01Emissions Testing of Transmitters with Multiple Outputs in the Same Band (e.g., MIMO, Smart Antenna, etc)

2.6 Special Accessories

Refer to section 4.4.

2.7 Equipment Modifications

Not available for this EUT intended for grant.

2.8 Antenna Requirement

Standard Requirement

15.203 requirement:

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, 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. 15.247(b) (4) requirement:

The conducted output power limit specified in paragraph (b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi. Except as shown in paragraph (c) of this section, if transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1), (b)(2), and (b)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi

EUT Antenna:

The non-detachable antenna inside the device cannot be replaced by the user at will. For the antenna gain, please refer to the description in Chapter 2.9 of the report.



2.9 Description of Available Antennas

Antenna	Frequency	ΤХ	Bandwidth	Max Peal	k Gain (dBi)	Max Directional Gain	
Туре	Band (MHz)	Paths	(MHz)	Chain A	Chain B	(dBi)	
	Custom IEEE 802.11 FPC Antenna List (2.4GHz 2*2 MIMO)						
Dipole Antenna	2400~2483.5	2	20	2.38	3.15	6.16	

Note 1: The EUT supports Cyclic Delay Diversity (CDD) technology for Custom IEEE 802.11(OFDM) mode. Note 2: The EUT supports Cyclic Delay Diversity (CDD) mode, and CDD signals are correlated. If all antennas have the same gain, G_{ANT} , Directional gain = G_{ANT} + Array Gain, where Array Gain is as follows.

- For power spectral density (PSD) measurements on devices:
 - Array Gain = 10 log (N_{ANT}/N_{SS}) dB = 3.01;
- For power measurements on IEEE 802.11 devices:
 - Array Gain = 0 dB for $N_{ANT} \leq 4$;
 - Array Gain = 0 dB (i.e., no array gain) for channel widths \geq 40 MHz for any NANT;
 - Array Gain = 5 log (NANT/Nss) dB or 3 dB, whichever is less, for 20 MHz channel widths with $N_{ANT} \ge 5$.

If antenna gains are not equal, Directional gain may be calculated by using the formulas applicable to equal gain antennas with GANT set equal to the gain of the antenna having the highest gain.

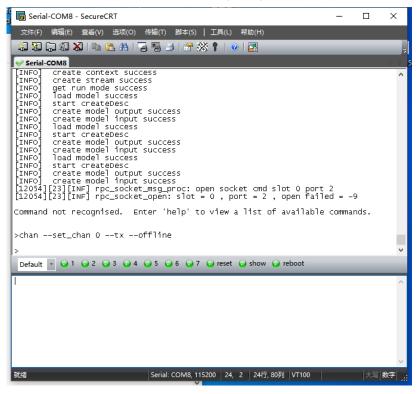


2.10 Description of Test Software

For Custom IEEE 802.11 mode:

The test utility software used during testing was "SecureCRT", and the version was "6.6.1".

Software Setting Diagram



Test Mode	Channel	Power Index		
		Chain A	Chain B	
Custom IEEE 802.11	L/M/H	18	18	



3. Test Environment

3.1 Address of The Test Laboratory

Laboratory: Attestation of Global Compliance (Shenzhen) Co., Ltd.

Address: 1-2/F, Building 19, Junfeng Industrial Park, Chongqing Road, Heping Community, Fuhai Street, Bao'an District, Shenzhen, Guangdong, China

3.2 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

CNAS-Lab Code: L5488

Attestation of Global Compliance (Shenzhen) Co., Ltd. has been assessed and proved to follow CNAS-CL01 Accreditation Criteria for Testing and Calibration Laboratories (identical to ISO/IEC17025: 2017 General Requirements for the Competence of Testing and Calibration Laboratories).

A2LA-Lab Cert. No.: 5054.02

Attestation of Global Compliance (Shenzhen) Co., Ltd. EMC Laboratory has been accredited by A2LA for technical competence in the field of electrical testing, and proved to follow ISO/IEC 17025: 2017 General Requirements for the Competence of Testing and Calibration Laboratories and any additional program requirements in the identified field of testing.

FCC-Registration No.: 975832

Attestation of Global Compliance (Shenzhen) Co., Ltd. EMC Laboratory has been registered and fully described in a report filed with the FCC (Federal Communications Commission). The acceptance letter from the FCC is maintained in our files with Registration 975832.

IC-Registration No.: 24842 (CAB identifier: CN0063)

Attestation of Global Compliance (Shenzhen) Co., Ltd. EMC Laboratory has been registered and fully described in a report filed with the Certification and Engineering Bureau of Industry Canada. The acceptance letter from the IC is maintained in our files with Registration 24842.



3.3 Environmental Conditions

	Normal Conditions
Temperature range (°C)	15 - 35
Relative humidity range	20 % - 75 %
Pressure range (kPa)	86 - 106

3.4 Measurement Uncertainty

The reported uncertainty of measurement $y\pm U$, where expended uncertainty U is based on a standard uncertainty multiplied by a coverage factor of k=2, providing a level of confidence of approximately 95%.

Item	Measurement Uncertainty
Uncertainty of Conducted Emission for AC Port	$U_c = \pm 2.9 \text{ dB}$
Uncertainty of Radiated Emission for 9kHz-30MHz	$U_c = \pm 3.9 \text{ dB}$
Uncertainty of Radiated Emission for 30MHz-1GHz	$U_c = \pm 3.9 \text{ dB}$
Uncertainty of Radiated Emission above 1GHz	$U_c = \pm 4.9 \text{ dB}$
Uncertainty of RF Power Sensor, Conducted	$U_c = \pm 0.8 \text{ dB}$
Uncertainty of total RF Power, Conducted	$U_c = \pm 1.8 \text{ dB}$
Uncertainty of RF Power Density, Conducted	$U_c = \pm 2.6 \text{ dB}$
Uncertainty of Conducted Spurious Emissions for 9kHz-40GHz	$U_c = \pm 2.7 dB$
Uncertainty of Occupied Channel Bandwidth	$U_{c} = \pm 2.0 \%$
Uncertainty of Dwell Time	$U_{c} = \pm 0.2 \%$



3.5 List of Equipment Used

• R	RF Conducted Test System									
Used	Equipment No.	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal. Date (YY-MM-DD)	Next Cal. Date (YY-MM-DD)			
\boxtimes	AGC-ER-E036	Spectrum Analyzer	Agilent	N9020A	MY49100060	2024-05-24	2025-05-23			
\boxtimes	AGC-ER-E062	Power Sensor	Agilent	U2021XA	MY54110007	2024-02-01	2025-01-31			
\boxtimes	AGC-ER-E063	Power Sensor	Agilent	U2021XA	MY54110009	2024-02-01	2025-01-31			
	AGC-ER-A001	6dB Attenuator	Eeatsheep	LM-XX-6-5W	N/A	2023-09-21	2025-09-20			
\boxtimes	N/A	RF Connection Cable	N/A	1#	N/A	Each time	N/A			
\boxtimes	N/A	RF Connection Cable	N/A	2#	N/A	Each time	N/A			

• F	Radiated Spurious Emission									
Used	Equipment No.	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal. Date (YY-MM-DD)	Next Cal. Date (YY-MM-DD)			
\boxtimes	AGC-EM-E046	EMI Test Receiver	R&S	ESCI	10096	2024-02-01	2025-01-31			
\boxtimes	AGC-EM-E116	EMI Test Receiver	R&S	ESCI	100034	2024-05-24	2025-05-23			
\boxtimes	AGC-EM-E061	Spectrum Analyzer	Agilent	N9010A	MY53470504	2024-05-28	2025-05-27			
\boxtimes	AGC-EM-E086	Loop Antenna	ZHINAN	ZN30900C	18051	2024-03-05	2026-03-04			
\boxtimes	AGC-EM-E001	Wideband Antenna	SCHWARZBECK	VULB9168	D69250	2023-05-11	2025-05-10			
\boxtimes	AGC-EM-E029	Broadband Ridged Horn Antenna	ETS	3117	00034609	2024-03-31	2025-03-30			
\boxtimes	AGC-EM-E082	Horn Antenna	SCHWARZBECK	BBHA 9170	#768	2023-09-24	2025-09-23			
\square	AGC-EM-E083	Pre-amplifier	CHENGXI	EMC184045SE	980508	2023-09-20	2025-09-19			
\boxtimes	AGC-EM-E146	Pre-amplifier	ETS	3117-PA	00246148	2024-07-24	2026-07-23			
\boxtimes	AGC-EM-A119	2.4G Filter	SongYi	N/A	N/A	2024-05-23	2025-05-22			
\boxtimes	AGC-EM-A138	6dB Attenuator	Eeatsheep	LM-XX-6-5W	N/A	2023-06-09	2025-06-08			

Test Software								
Used	Equipment No.	Test Equipment	Manufacturer	Model No.	Version Information			
	AGC-EM-S001	CE Test System	R&S	ES-K1	V1.71			
\square	AGC-EM-S003	RE Test System	FARA	EZ-EMC	VRA-03A			
	AGC-ER-S012	BT/WIFI Test System	Tonscend	JS1120-2	2.6			
	AGC-EM-S011	RSE Test System	Tonscend	TS+-Ver2.1(JS36-RSE)	4.0.0.0			



4.System Test Configuration

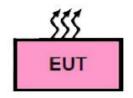
4.1 EUT Configuration

The EUT configuration for testing is installed on RF field strength measurement to meet the Commission's requirement and operating in a manner which intends to maximize its emission characteristics in a continuous normal application.

4.2 EUT Exercise

The Transmitter was operated in the normal operating mode. The TX frequency was fixed which was for the purpose of the measurements.

4.3 Configuration of Tested System



Power from battery

4.4 Equipment Used in Tested System

The following peripheral devices and interface cables were connected during the measurement:

Test Accessories Come from the Laboratory

☑ Test Accessories Come from the Manufacturer

N	p. Equipment	Manufacturer	Model No.	Specification Information	Cable
1	Battery	Xi'an SAFTY Energy Technology Co., Ltd	DSBT02B	DC 7.7V 2230mAh	N/A



4.5 Summary of Test Results

Item	FCC Rules	Description of Test	Result
1	§15.203&15.247(b)(4)	Antenna Equipment	Pass
2	§15.247 (b)(1)	RF Output Power	Pass
3	§15.247 (a)(1)	6 dB Bandwidth	Pass
4	§15.247 (e)	Power Spectral Density	Pass
5	§15.247 (d)	Conducted Band Edge and Out-of-Band Emissions	Pass
6	§15.247 (d)&15.209	Radiated Spurious Emission	Pass
7	§15.207	AC Power Line Conducted Emission	N/A

Note: The Custom IEEE 802.11 function cannot transmit when charging.



5. Description of Test Modes

Summary table of Test Cases						
Test Item	Data Rate / Modulation					
rest item	Custom IEEE 802.11(OFDM)/MCS0-MCS7 Mbps					
Radiated & Conducted Test Cases	Mode 1: Custom IEEE 802.11_TX CH00_2415 MHz_MCS0 Mbps Mode 2: Custom IEEE 802.11_TX CH03_2445 MHz_ MCS0 Mbps Mode 3: Custom IEEE 802.11_TX CH06_2470 MHz_ MCS0 Mbps					
AC Conducted Emission	N/A					
 Note: 1. The battery is full-charged during the test. 2. For Radiated Emission, 3axis were chosen for testing for each applicable mode. 3. For Conducted Test method, a temporary antenna connector is provided by the manufacture. 4. All modes and aptennes in the radiation spurious test are pre seanned. When there is no MIMO technology. 						

 All modes and antennas in the radiation spurious test are pre-scanned. When there is no MIMO technology mode, antenna 1 is evaluated. When there is MIMO technology mode, antenna 1 + antenna 2 are evaluated as the worst data.

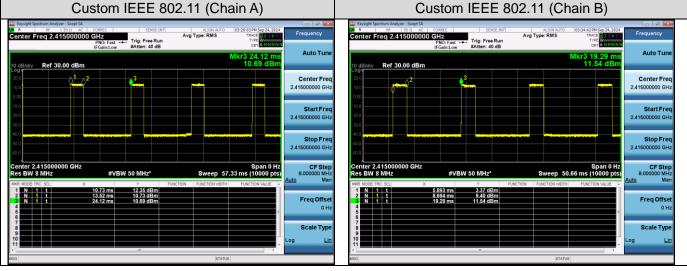


6. Duty Cycle Measurement

Custom IEEE 802.11 (DTS) operation is possible in 20MHz channel bandwidths. The maximum achievable duty cycles for all modes were determined based on measurements performed on a spectrum analyzer in zero-span mode with RBW = 8MHz, VBW = 50MHz, and detector = Average. The RBW and VBW were both greater than 50/T, where T is the minimum transmission duration, and the number of sweep points across T was greater than 100. The duty cycles are as follows:

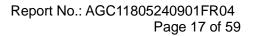
Operating mode	Data rates (Mbps)	Duty Cycle (%)	Duty Cycle Factor (dB)
Custom IEEE 802.11 (Chain A)	MCS0	21	6.78
Custom IEEE 802.11 (Chain B)	MCS0	21	6.78

The test plots as follows:



Remark:

- 1. Duty Cycle factor = 10 * log (1/ Duty cycle)
- 2. The duty cycle of each frequency band mode reflects the determination requirements of the low channel measurement value.





7. RF Output Power Measurement

7.1 Provisions Applicable

For DTSs employing digital modulation techniques operating in the bands 2400-2483.5 MHz, the maximum

peak conducted output power shall not exceed 1 W.

7.2 Measurement Procedure

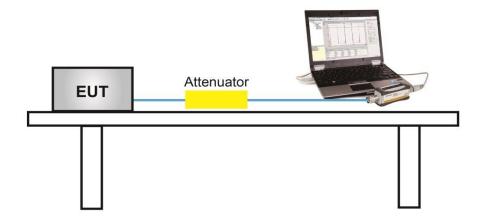
Method PM is Measurement using an RF Peak power meter. The procedure for this method is as follows:

- 1. The testing follows the ANSI C63.10 Section 11.9.1.3
- 2. The maximum peak conducted output power may be measured using a broadband peak RF power meter. The power meter shall have a video bandwidth that is greater than or equal to the DTS bandwidth and shall use a fast-responding diode detector.

Method PM is Measurement using an RF average power meter. The procedure for this method is as follows:

- 1. The testing follows the ANSI C63.10 Section 11.9.2.3
- 2. Measurements may be performed using a wideband RF power meter with a thermocouple detector or equivalent if all of the following conditions are satisfied:
- 3. The EUT is configured to transmit continuously, or to transmit with a constant duty cycle.
- 4. At all times when the EUT is transmitting, it shall be transmitting at its maximum power control level.
- 5. The integration period of the power meter exceeds the repetition period of the transmitted signal by at least a factor of five.
- 6. Determine according to the duty cycle of the equipment: when it is less than 98%, follow the steps below.
- 7. Measure the average power of the transmitter. This measurement is an average over both the ON and OFF periods of the transmitter.
- 8. Adjust the measurement in dBm by adding [10 log (1 / D)], where D is the duty cycle {e.g., [10 log (1 / 0.25)], if the duty cycle is 25%}.
- 9. Record the test results in the report.

7.3 Measurement Setup (Block Diagram of Configuration)





7.4 Measurement Result

Test Data of Conducted Output Power-Chain A							
Test Mode	Test Frequency (MHz)	Average Power (dBm)	Peak Power (dBm)	Limits (dBm)	Pass or Fail		
	2415	16.84	24.19	≤30	Pass		
Custom IEEE 802.11	2445	16.36	24.45	≤30	Pass		
	2470	16.16	23.72	≤30	Pass		

Test Data of Conducted Output Power-Chain B								
Test Mode	Test Frequency (MHz)	Average Power (dBm)	Peak Power (dBm)	Limits (dBm)	Pass or Fail			
	2415	16.51	23.89	≪30	Pass			
Custom IEEE 802.11	2445	15.94	23.80	≤30	Pass			
002.11	2470	15.79	23.88	≤30	Pass			

Test Data of Conducted Output Power-Total							
Test Mode	Test Frequency (MHz)	Average Power (dBm)	Peak Power (dBm)	Limits (dBm)	Pass or Fail		
	2412	19.69	27.05	≤30	Pass		
Custom IEEE 802.11	2437	19.17	27.15	≤30	Pass		
	2462	18.99	26.81	≤30	Pass		

Note:

The Total Average Conducted Output Power (dBm) = $10*\log \{10^{(Chain A AVG / 10)} + 10^{(Chain B AVG / 10)}\}$. The Total Peak Conducted Output Power (dBm) = $10*\log \{10^{(Chain A PK / 10)} + 10^{(Chain B PK / 10)}\}$. 1.

2.



8. 6dB Bandwidth Measurement

8.1 Provisions Applicable

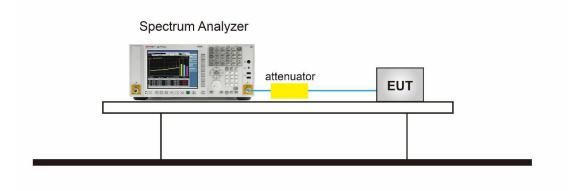
The minimum 6dB bandwidth shall be 500 kHz.

8.2 Measurement Procedure

The testing follows the ANSI C63.10 Section 6.9.3 (OBW) and 11.8.1 (6dB BW).

- 1. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
- 2. Set to the maximum power setting and enable the EUT transmit continuously.
- 3. For 6dB Bandwidth Measurement, the spectrum analyzer's resolution bandwidth (RBW) = 100 kHz. Set the Video bandwidth (VBW) = 300 kHz. In order to make an accurate measurement.
- For 99% Bandwidth Measurement, the spectrum analyzer's resolution bandwidth (RBW) is set 1-5% of the OBW and set the Video bandwidth (VBW) ≥ 3 * RBW.
- 5. Detector = peak
- 6. Trace mode = max hold.
- 7. Sweep = auto couple.
- 8. Allow the trace to stabilize.
- 9. Measure and record the results in the test report.

8.3 Measurement Setup (Block Diagram of Configuration)



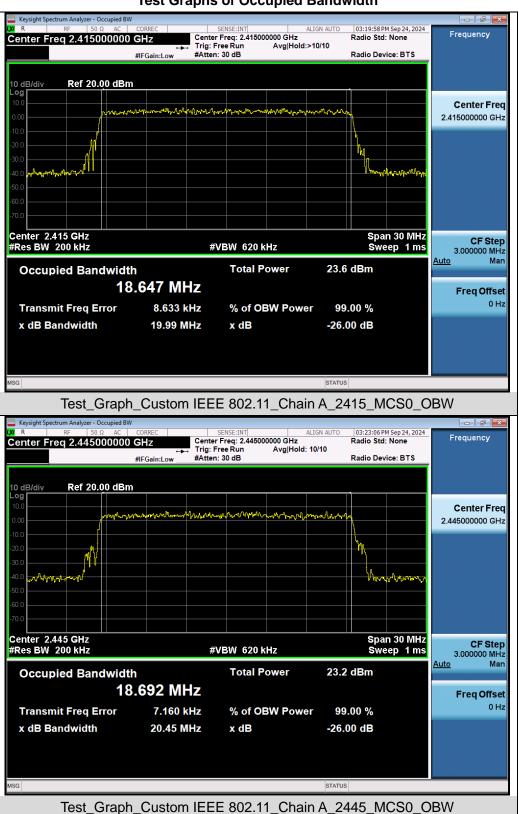


8.4 Measurement Result

Test Data of Occupied Bandwidth and DTS Bandwidth-Chain A								
Test Mode	Test Frequency (MHz)	99% Occupied Bandwidth (MHz)	DTS Bandwidth (MHz)	DTS Bandwidth Limits (MHz)	Pass or Fail			
	2415	18.647	18.873	≥0.5	Pass			
Custom IEEE 802.11	2445	18.692	18.893	≥0.5	Pass			
	2470	18.726	18.841	≥0.5	Pass			

Test Data of Occupied Bandwidth and DTS Bandwidth-Chain B								
Test Mode	Test Frequency (MHz)	99% Occupied Bandwidth (MHz)	DTS Bandwidth (MHz)	DTS Bandwidth Limits (MHz)	Pass or Fail			
	2415	18.701	18.876	≥0.5	Pass			
Custom IEEE 802.11	2445	18.677	18.793	≥0.5	Pass			
002.11	2470	18.722	18.925	≥0.5	Pass			



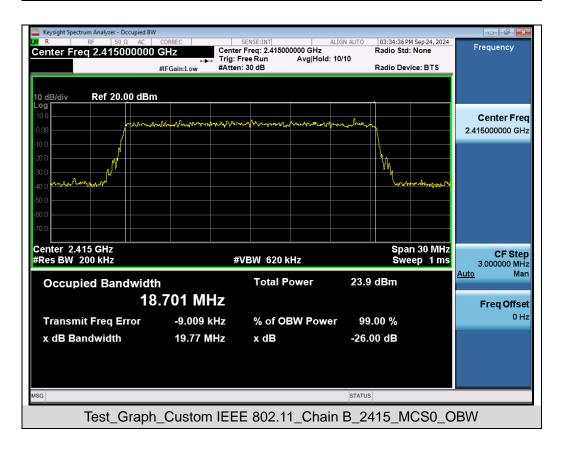


Test Graphs of Occupied Bandwidth



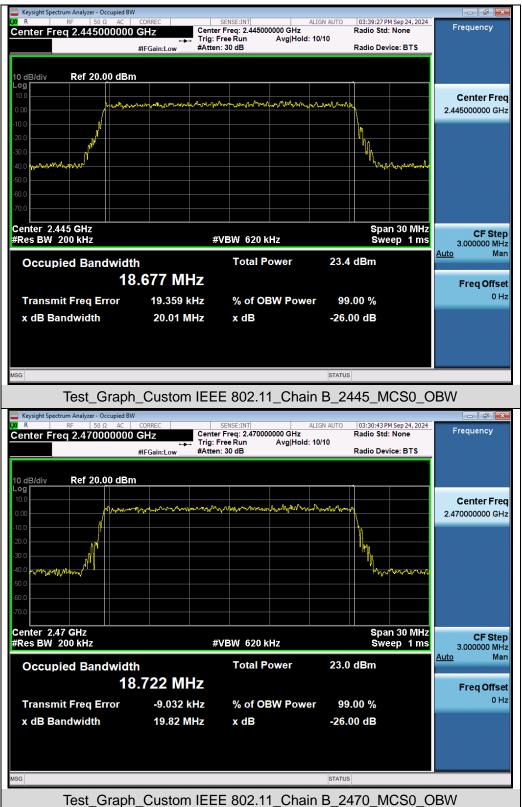
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Keysight Spectrum Analyzer - Occupied I	3W				
x R RF 50 Ω AC Center Freq 2.47000000	O GHZ Cen	SENSE:INT Iter Freq: 2.470000000 (I: Free Run Avg	ALIGN AUTO Hz Hold:>10/10	03:25:04 PM Sep 24, 2 Radio Std: None	Frequency
		ten: 30 dB		Radio Device: BTS	<u>. </u>
10 dB/div Ref 20.00 dB	<u>m</u>				
10.0	annon an anna an anna anna anna anna an	F-May	Laller Partilition	~	Center Fred
10.00					2.470000000 GH;
-20.0				<u>}</u>	
-30.0				- km	
-40.0 months and months and				manner	Awarda
-50.0					
-60.0					
-70.0					
Center 2.47 GHz #Res BW 200 kHz		#VBW 620 kHz		Span 30 N Sweep 1	IHZ CF Step ms 3.000000 MH
Occupied Bandwid	lth	Total Powe	r 24.2	2 dBm	<u>Auto</u> Mai
	8.726 MHz				Freq Offse
Transmit Freq Error	15.946 kHz	% of OBW F	ower 99	0.00 %	он
x dB Bandwidth	20.06 MHz	x dB	-26.	00 dB	
ISG			STATUS	5	
Test Gran	h_Custom IEI	EE 802 11 C	hain A 2	470 MCS0	OBW





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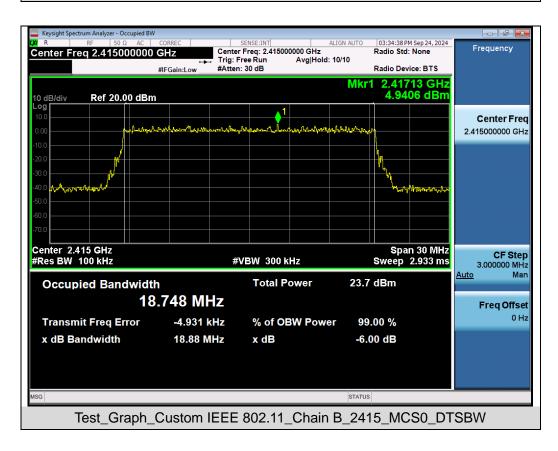




Test Graphs of DTS Bandwidth



	um Analyzer - Occupied	BW						
XI R Center Fre	RF 50 Ω AC	CORREC	SENSE:INT Center Freq: 2.4700	00000 GHz	ALIGN AUTO	03:25:05 P Radio Std	M Sep 24, 2024 : None	Frequency
		₩FGain:Low	Trig: Free Run #Atten: 30 dB	Avg Hold:	10/10	Radio Dev	/ice: BTS	
					Mkr1	2.46	763 GHz	
10 dB/div Log	Ref 20.00 dE	3m				4.29	17 dBm	
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9. Power Spectral Density Measurement

9.1 Provisions Applicable

The transmitter power spectral density conducted from the transmitter to the antenna shall not be greater than

8 dBm in any 3 kHz band during any time interval of continuous transmission.

9.2 Measurement Procedure

 \boxtimes For Peak power spectral density test:

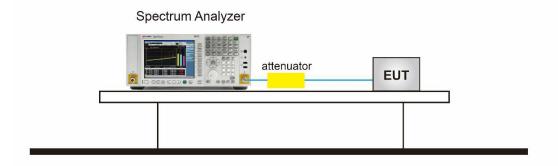
- 1. The testing follows the ANSI C63.10 Section 11.10.2 Method PKPSD.
- 2. Connect EUT RF output port to the Spectrum Analyzer through an RF attenuator
- 3. Set the RBW = 20 kHz.
- 4. Set the VBW \geq [3 × RBW].
- 5. Set the Span \geq [1.5 × DTS bandwidth].
- 6. Sweep time=Auto couple.
- 7. Detector function=Peak.
- 8. Trace Mode=Max hold.
- 9. When the measurement bandwidth of the maximum PSD is 3 kHz, a constant factor of 10*log(3kHz/20kHz)
 = -8.23 dB is added to the measurement result.
- 10. Allow trace to stabilize. Use the marker-to-peak function to set the marker to the peak of the emission.
- 11. The indicated level is the peak output power, after any corrections for external attenuators and cables.

For Average power spectral density test:

- 1. The testing follows the ANSI C63.10 Section 11.10.5 Method AVPSD.
- 2. Connect EUT RF output port to the Spectrum Analyzer through an RF attenuator.
- 3. Set Span to at least 1.5 times the OBW.
- 4. Set RBW to:3 kHz \leq RBW \leq 100 kHz.
- 5. Set VBW≥[3×RBW].
- 6. Sweep Time=Auto couple.
- 7. Detector function=RMS (i.e., power averaging).
- 8. Trace average at least 100 traces in power averaging (rms) mode.
- 9. When the measurement bandwidth of the maximum PSD is 3 kHz, a constant factor of 10*log(3kHz/20kHz)
 = -8.23 dB is added to the measurement result.
- 10. Determine according to the duty cycle of the equipment: when it is less than 98%, follow the steps below.
- 11. Add [10 log (1 / D)], where D is the duty cycle, to the measured power to compute the average power during the actual transmission times (because the measurement represents an average over both the ON and OFF times of the transmission). For example, add [10 log (1/0.25)] = 6 dB if the duty cycle is 25%.
- 12. Record the test results in the report.



9.3 Measurement Setup (Block Diagram of Configuration)



9.4 Measurement Result

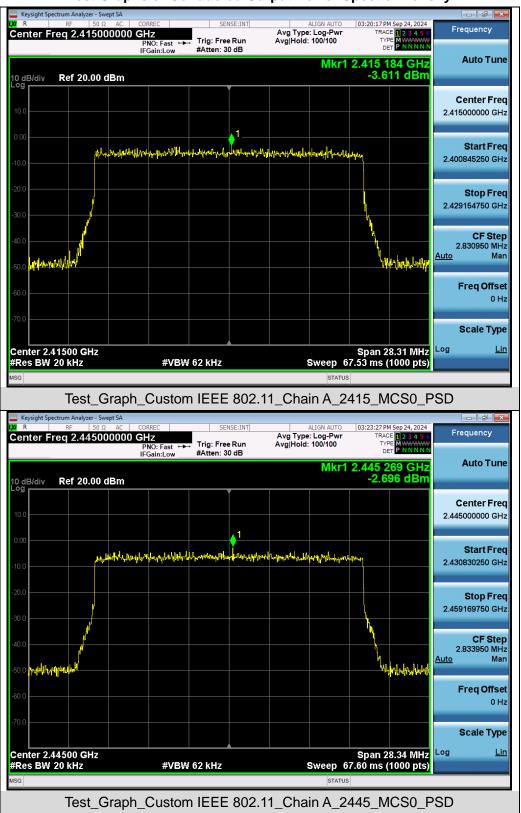
	Test Data of	Conducted Output Po	ower Spectral Density-	Chain A	
Test Mode	Test Frequency (MHz)	Power Spectral density (dBm/20kHz)	Power Spectral density (dBm/3kHz)	Limit (dBm/3kHz)	Pass or Fail
	2415	-3.611	-11.850	≪8	Pass
Custom IEEE 802.11	2445	-2.696	-10.935	≪8	Pass
002.11	2470	-4.059	-12.298	≪8	Pass

	Test Data of	Conducted Output Po	wer Spectral Density-	Chain B	
Test Mode	Test Frequency (MHz)	Power Spectral density (dBm/20kHz)	Power Spectral density (dBm/3kHz)	Limit (dBm/3kHz)	Pass or Fail
	2415	-3.281	-11.520	≪8	Pass
Custom IEEE 802.11	2445	-3.643	-11.882	≪8	Pass
	2470	-4.239	-12.478	≪8	Pass

	Test Data o	of Conducted Output F	ower Spectral Density	/-Total	
Test Mode	Test Frequency (MHz)	Power Spectral density (dBm/20kHz)	Power Spectral density (dBm/3kHz)	Limit (dBm/3kHz)	Pass or Fail
	2415	-0.43	-8.67	≪8	Pass
Custom IEEE 802.11	2445	-0.13	-8.37	≪8	Pass
002.11	2470	-1.14	-9.38	≪8	Pass

Note: The Total Power Spectral Density (dBm) = $10^{\log_{10}\{10^{(Chain A PSD/10)} + 10^{(Chain B PSD/10)}\}}$.



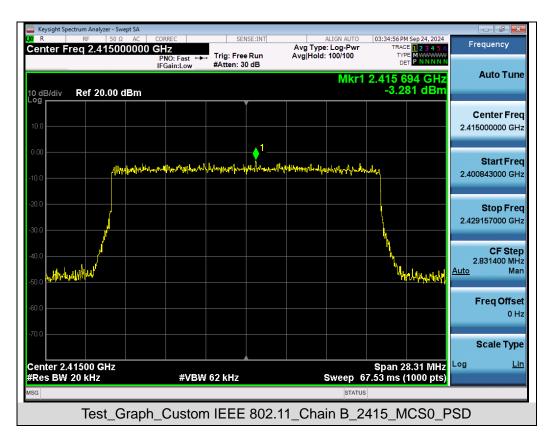


Test Graphs of Conducted Output Power Spectral Density



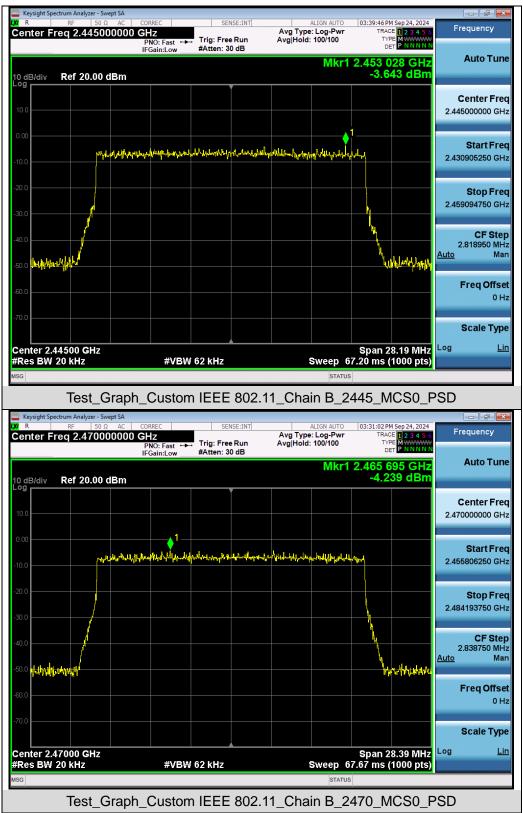
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10. Conducted Band Edge and Out-of-Band Emissions

10.1 Provisions Applicable

In any 100kHz bandwidth outside the frequency bands in which the spread spectrum intentional radiator in operating, the radio frequency power that is produced by the intentional radiator shall be at least 20dB below that in the 100kHz bandwidth within the band that contains the highest level of the desired power.

10.2 Measurement Procedure

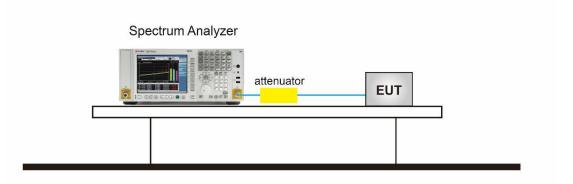
Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.

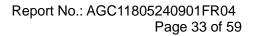
Use the following spectrum analyzer settings:

- Step 1: Measurement Procedure In-Band Reference Level
- 1. Set instrument center frequency to DTS channel center frequency.
- 2. Set the span to \geq 1.5 times the DTS bandwidth.
- 3. Set the RBW = 100 kHz.
- 4. Set the VBW \ge 3 x RBW.
- 5. Detector = peak.
- 6. Sweep time = auto couple.
- 7. Trace mode = max hold.
- 8. Allow trace to fully stabilize.
- 9. Use the peak marker function to determine the maximum PSD level.
- 10. Note that the channel found to contain the maximum PSD level can be used to establish the reference level.
- 11. For reference level values, please refer to DTS bandwidth test.
- Step 2: Measurement Procedure Out of Band Emission
 - 1. Set RBW = 100 kHz.
 - 2. Set VBW \ge 300 kHz.
 - 3. Detector = peak.
 - 4. Sweep = auto couple.
 - 5. Trace Mode = max hold.
 - 6. Allow trace to fully stabilize.
 - 7. Use the peak marker function to determine the maximum amplitude level.

Note: The cable loss and attenuator loss were offset into measure device as an amplitude offset.

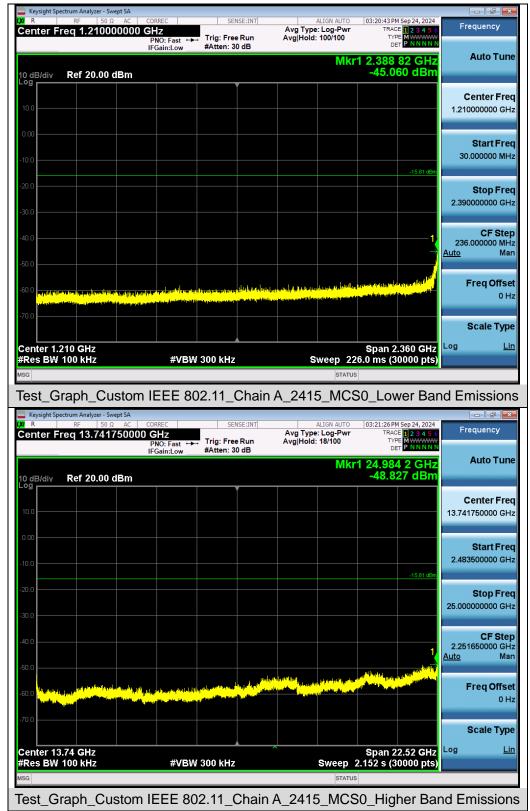
10.3 Measurement Setup (Block Diagram of Configuration)







10.4 Measurement Result



Test Graphs of Spurious Emissions in Non-Restricted Frequency Bands



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	ectrum Analyzer - Swept S					
	RF 50 Ω A req 1.2150000	000 GHz	SENSE:INT	ALIGN AUTO	03:23:54 PM Sep 24, 2024 TRACE 1 2 3 4 5 6	Frequency
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Center Fr 10 dB/div 0.00 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10	ectrum Analyzer - Swept SA RF 50 Ω AC req 13.7500000	CORREC 00 GHz PNO: Fast ←	SENSE:IN	T Avg Ty	ALIGN AUTO rpe: Log-Pwr Id: 53/100 MIKr	03:27:52 PI TRAC TYI DI <b>1 24.53</b>	M Sep 24, 2024 E 1 2 3 4 5 6 M WWWWW F P NNNN 2 0 GHz 96 dBm -15.71 dBm	Frequency Auto Tum Center Freq 13.750000000 GH Start Freq 2.500000000 GH CF Step 2.250000000 GH Auto Mai
Image: Constraint Spectra (Constraint Spect	ectrum Analyzer - Swept SA RF 50 Ω AC req 13.7500000	CORREC 00 GHz PNO: Fast ←	SENSE:IN #Atten: 30 dB	T Avg Ty Avg Ty Avg Ho	ALIGN AUTO rpe: Log-Pwr Id: 53/100 MIKr	03:27:52 PI TRAC TV D D 1 24.53 -47.2	M Sep 24, 2024 E 1 2 3 4 5 6 M WWWWW F P NNNN 2 0 GHz 96 dBm -15.71 dBm	Frequency Auto Tun Center Freq 13.750000000 GH Start Freq 2.500000000 GH CF Step 2.250000000 GH Auto Ma Freq Offset
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Io         B           10         0           00         0           00         0           00         0           00         0           00         0           00         0           00         0           00         0           00         0           000         0           100         0           100         0           100         0           100         0           100         0           100         0           100         0           100         0           100         0           100         0           100         0           100         0           100         0           100         0           100         0           100         0           100         0           100         0           100         0           100         0           100         0           100         0           100         0	ectrum Analyzer - Swept SA RF 50 Ω AC req 13.7500000	CORREC 00 GHz PNO: Fast ←	SENSE:IN #Atten: 30 dB	T Avg Ty Avg Ty Avg Ho	ALIGN AUTO rpe: Log-Pwr Id: 53/100 MIKr	03:27:52 PI TRAC TV D D 1 24.53 -47.2	M Sep 24, 2024 E 1 2 3 4 5 6 M WWWWW F P NNNN 2 0 GHz 96 dBm -15.71 dBm	Frequency Auto Tune Center Free 13.750000000 GH Start Free 2.500000000 GH Stop Free 2.500000000 GH Auto Mar Freq Offse 0 H Scale Type
Io         dB/div           0         dB/div           0         dB/div           0         0           10         0           10         0           10         0           10         0           10         0           10         0           10         0           10         0           10         0           10         0           10         0           10         0           10         0           10         0           10         0           10         0           10         0           10         0           10         0           10         0           10         0           10         0           10         0           10         0           10         0           10         0           10         0           10         0           10         0           10         0           10         0	ectrum Analyzer - Swept SA RF 50 Ω AC req 13.7500000 Ref 20.00 dBm	CORREC	SENSE:IN Trig: Free Ru #Atten: 30 dB	T Avg Ty Avg Ty Avg Ho	ALIGN AUTO rpe: Log-Pwr id: 53/100 Mkr	03:27:52PI TRAG TO DI 1 24.53: -47.2	M Sep 24, 2024	Frequency           Auto Tune           Center Freq           13.750000000 GH:           Start Freq           2.500000000 GH:           Stop Freq           25.00000000 GH:           CF Step           2.250000000 GH:           Auto           Mar           Freq Offse           0 H:
Image: Content of the second	ectrum Analyzer - Swept SA RF 50 Ω AC req 13.7500000 Ref 20.00 dBm	CORREC	SENSE:IN #Atten: 30 dB	T Avg Ty Avg Ty Avg Ho	ALIGN AUTO rpe: Log-Pwr id: 53/100 Mkr	03:27:52 PI TRAG TRAG 1 24.533 -47.2	M Sep 24, 2024	Frequency Auto Tum Center Free 13.750000000 GH Start Free 2.500000000 GH Stop Free 25.00000000 GH Auto Mai Freq Offsee 0 H Scale Type



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	ectrum Analyzer - Sw									
	RF 50 Ω req 1.21000	00000 GI	RREC	SET	e Run		ALIGN AUTO e: Log-Pwr I: 100/100	TRA	M Sep 24, 2024 CE 1 2 3 4 5 6 PE M ET P NNNN	Frequency
			Gain:Low	#Atten: 3					98 GHz	Auto Tune
10 dB/div	Ref 20.00 (	dBm					IVINI		33 dBm	
-og										Center Free
10.0										1.210000000 GH:
0.00										Ctort From
-10.0										Start Free 30.000000 MH;
									-15.06 dBm	
-20.0										Stop Fred 2.390000000 GH;
-30.0										
-40.0									1	CF Step 236.000000 MH
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-70.0										Scale Type
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#Res BW			#VBW	/ 300 kHz		S	Sweep 22	6.0 ms (:		
ISG							STATUS			
est_G	raph_Cu	stom II	EEE 80	)2.11_(	Chain	B_241	5_MCS	SO_Lo	wer Ba	nd Emission
Keysight Spe	ectrum Analyzer - Sw RF 50 Ω	ept SA	IRREC				ALIGN AUTO	03:36:54 P	M Sep 24, 2024	
Keysight Spe	ectrum Analyzer - Sw	rept SA AC CO 750000 C	RREC SHZ NO: Fast ↔	SEI	NSE:INT		ALIGN AUTO e: Log-Pwr	03:36:54 P TRA		
Keysight Spe	ectrum Analyzer - Sw RF 50 Ω	rept SA AC CO 750000 C		SEI	NSE:INT	Avg Typ	ALIGN AUTO e: Log-Pwr I: 40/100	03:36:54 P TRA TY D <b>1 24.42</b>	M Sep 24, 2024 CE 1 2 3 4 5 6 PE M WWWW ET P N N N N 3 6 GHZ	Frequency
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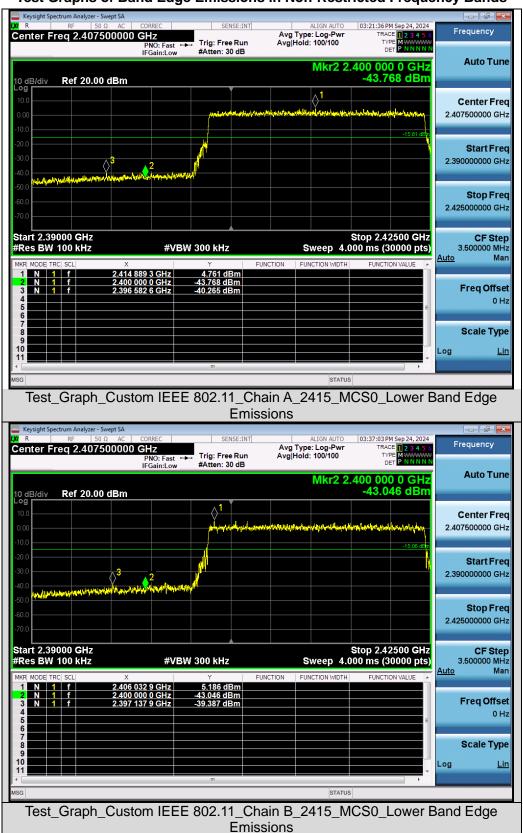
	ectrum Analyzer - Swe RF 50 Ω		REC	CEN	NSE:INT		ALIGN AUTO	03-40-14 0	4 Sep 24, 2024	
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est_G Keysight Sp R	iraph_Cus ectrum Analyzer - Swe RF 50 Ω	ept SA AC COR 50000 G	EEE 80	)2.11_( 		B_244	STATUS 5_MCS ALIGN AUTO e: Log-Pwr : 35/100	03:41:37 PI TRAC TYI DI 1 24.99	wer Bai M Sep 24, 2024 E 1 2 3 4 5 6 E M WWW N T P N N N N 1 7 GHz	Frequency
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sa est_G keysight Sp renter F o dB/div o dB/div	reaph_Cus RF 50 ກ req 13.7417	pt SA AC COR 50000 G PN IFC	REC   HZ	)2.11_( 		B_244	STATUS 5_MCS ALIGN AUTO e: Log-Pwr : 35/100	03:41:37 PI TRAC TYI DI 1 24.99	ver Bai 9 56р 24, 2024 Е 1 2 3 4 5 6 не и и и и и и т Р Мики и 1 7 GHz 96 dBm	Center Fre 13.741750000 GH 2.483500000 GH
sa est_G keysight Sp renter F o dB/div	reaph_Cus RF 50 ກ req 13.7417	pt SA AC COR 50000 G PN IFC	REC   HZ	)2.11_( 		B_244	STATUS 5_MCS ALIGN AUTO e: Log-Pwr : 35/100	03:41:37 PI TRAC TYI DI 1 24.99	ver Bai 9 56р 24, 2024 Е 1 2 3 4 5 6 не и и и и и и т Р Мики и 1 7 GHz 96 dBm	Auto Tun Center Fre 13.741750000 GH Start Fre 2.483500000 GH Stop Fre 25.000000000 GH
sa est_G keysight Sp reenter F 0 dB/div 0 0 0 0 0 0 0 0 0 0 0 0 0 0	reaph_Cus RF 50 ກ req 13.7417	pt SA AC COR 50000 G PN IFC	REC   HZ	)2.11_( 		B_244	STATUS 5_MCS ALIGN AUTO e: Log-Pwr : 35/100	03:41:37 PI TRAC TYI DI 1 24.99	ver Bai 9 56р 24, 2024 Е 1 2 3 4 5 6 не и и и и и и т Р Мики и 1 7 GHz 96 dBm	Frequency           Auto Tun           Center Fre           13.741750000 GH           Start Fre           2.483500000 GH           Stop Fre           25.00000000 GH           CF Step           2.251650000 GH
Cest_G est_G revealed to be a constrained of the second	reaph_Cus RF 50 ກ req 13.7417	pt SA AC COR 50000 G PN IFC	REC   HZ	)2.11_( 	Chain HSE:INT Run O dB	B_244	STATUS 5_MCS ALIGN AUTO e: Log-Pwr : 35/100	50_Lov 03:41:37PI TRY D 1 24.99 -48.1	ver Bai 9 56р 24, 2024 Е 1 2 3 4 5 6 не и и и и и и т Р Мики и 1 7 GHz 96 dBm	Frequency Auto Tun Center Fre 13.741750000 GH Start Fre 2.483500000 GH Stop Fre 25.000000000 GH CF Ste
Cest_G est_G revealed to be revealed to be center F center F	reaph_Cus RF 50 ກ req 13.7417	pt SA AC COR 50000 G PN IFC	REC   HZ	)2.11_( 	Chain HSE:INT Run O dB	B_244	STATUS 5_MCS ALIGN AUTO e: Log-Pwr : 35/100	03:41:37 PI TRAC TYI DI 1 24.99	ver Bai 9 56р 24, 2024 Е 1 2 3 4 5 6 не и и и и и и т Р Мики и 1 7 GHz 96 dBm	Frequency           Auto Tun           Center Fre           13.741750000 GH           Start Fre           2.483500000 GH           Stop Fre           25.000000000 GH           CF Step           2.251650000 GH           Auto           Ma           Freq Offset
Gal         Scale           est_G         est_G           est_G         est_G           cale         est_G	reaph_Cus RF 50 ກ req 13.7417	pt SA AC COR 50000 G PN IFC	REC   HZ	)2.11_( 	Chain HSE:INT Run O dB	B_244	STATUS 5_MCS ALIGN AUTO e: Log-Pwr : 35/100	50_Lov 03:41:37PI TRY D 1 24.99 -48.1	ver Bai 9 56р 24, 2024 Е 1 2 3 4 5 6 не и и и и и и т Р Мики и 1 7 GHz 96 dBm	Frequency           Auto Tun           Center Fre           13.741750000 GH           Start Fre           2.483500000 GH           Stop Fre           25.000000000 GH           CF Step           2.251650000 GH           Auto Ma
Gal         Scale           est_G         est_G           est_G         est_G           cale         est_G	reaph_Cus RF 50 ກ req 13.7417	pt SA AC COR 50000 G PN IFC	REC   HZ	)2.11_( 	Chain HSE:INT Run O dB	B_244	STATUS 5_MCS ALIGN AUTO e: Log-Pwr : 35/100	50_Lov 03:41:37PI TRY D 1 24.99 -48.1	ver Bai 9 56р 24, 2024 Е 1 2 3 4 5 6 не и и и и и и т Р Мики и 1 7 GHz 96 dBm	Frequency           Auto Tun           Center Fre           13.741750000 GH           Start Fre           2.483500000 GH           Stop Fre           25.000000000 GH           2.251650000 GH           Auto           Ma           Freq Offse           0 H
SG         SG           est_G         est_G           est_G         est_G           enter         est_G           enter         est_G           enter         est_G           est_G	reaph_Cus RF 50 ກ req 13.7417	pt SA AC COR 50000 G PN IFC	REC   HZ	)2.11_( 	Chain HSE:INT Run O dB	B_244	STATUS	SO_LOV	ver Bai	Frequency           Auto Tun           Center Fre           13.741750000 GH           Start Fre           2.483500000 GH           Stop Fre           25.000000000 GH           25.00000000 GH           CF Step           2.48350000 GH           Stop Fre           25.00000000 GH           Preq Offsec           O H           Scale Typ
Base           est_G           keysight Sp           renter F           0 dB/div           0	raph_Cus rectrum Analyzer - Swe RF   50 Ω req 13.7417 Ref 20.00 d	pt SA AC COR 50000 G PN IFC	EEE 80	)2.11_( 	Chain HSE:INT Run O dB	B_244	STATUS	SO_LOV	ver Bai	Frequency           Auto Turn           Auto Turn           Center Fre           13.741750000 GH           Start Fre           2.483500000 GH           Stop Fre           25.000000000 GH           25.00000000 GH           CF Ste           2.251650000 GH           Auto           Ma           Freq Offse           0 H           Scale Typ



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	ectrum Analyzer - Swept SA	000050	orner with		02.01.00.01.0	
	RF 50 Ω AC req 1.21500000		SENSE:INT	ALIGN AUTO Avg Type: Log-Pwr Avg Hold: 100/100	03:31:29 PM Sep 24, 2024 TRACE 1 2 3 4 5 6 TYPE M WWWW DET P N N N N N	Frequency
		IFGain:Low	#Atten: 30 dB			Auto Tune
10 dB/div	Ref 20.00 dBm			WIKT	1 2.398 58 GHz -53.488 dBm	
Log						Center Free
10.0						1.215000000 GH
0.00						
0.00						Start Free
-10.0						30.000000 MH
-20.0					-17.01 dBm	Stop Free
-30.0						2.400000000 GH
-30.0						
-40.0						CF Step 237.000000 MH
-50.0					1	<u>Auto</u> Mai
				I toot on traditional		Freq Offse
-6U.U					of a statistic statistic statistics and the statistical part is	0 H
-70.0						Scale Type
Center 1.2 #Res BW		#VBI	N 300 kHz	Sweep 22	Span 2.370 GHz 8.0 ms (30000 pts)	Log <u>Li</u> i
ISG				STATUS		
	raph_Custo	m IEEE 8	02.11_Chai	status n B_2470_MCS		nd Emission
Test_G	ectrum Analyzer - Swept SA			n B_2470_MCS	S0_Lower Bar	
Fest_G	•	CORREC	SENSE:INT	n B_2470_MCS	03:33:02 PM Sep 24, 2024	
Fest_G	ectrum Analyzer - Swept SA RF 50 Ω AC	CORREC	SENSE:INT	ALIGN AUTO Avg Type: Log-Pwr Avg Hold: 39/100	03:33:02 PM Sep 24, 2024 TRACE 0 2 3 4 5 6 TRACE 0 2 3 4 5 6 TYPE 0	Frequency
est_G	ectrum Analyzer - Swept SA RF 50 Ω AC	CORREC DOO GHZ PNO: Fast ← IFGain:Low	SENSE:INT	ALIGN AUTO Avg Type: Log-Pwr Avg Hold: 39/100	03:33:02 PM Sep 24, 2024	Frequency
est_G	ectrum Analyzer - Swept SA RF 50 Ω AC req 13.7500000	CORREC DOO GHZ PNO: Fast ← IFGain:Low	SENSE:INT	ALIGN AUTO Avg Type: Log-Pwr Avg Hold: 39/100	03:33:02 PM Sep 24, 2024 TRACE 0 2 3 4 5 6 TRACE 0 2 3 4 5 6 TYPE 0 0000000000000000000000000000000000	Frequency
Fest_G	ectrum Analyzer - Swept SA RF 50 Ω AC req 13.7500000	CORREC DOO GHZ PNO: Fast ← IFGain:Low	SENSE:INT	ALIGN AUTO Avg Type: Log-Pwr Avg Hold: 39/100	03:33:02 PM Sep 24, 2024 TRACE 0 2 3 4 5 6 TRACE 0 2 3 4 5 6 TYPE 0 0000000000000000000000000000000000	Frequency Auto Tun Center Freq
Center F	ectrum Analyzer - Swept SA RF 50 Ω AC req 13.7500000	CORREC DOO GHZ PNO: Fast ← IFGain:Low	SENSE:INT	ALIGN AUTO Avg Type: Log-Pwr Avg Hold: 39/100	03:33:02 PM Sep 24, 2024 TRACE 0 2 3 4 5 6 TRACE 0 2 3 4 5 6 TYPE 0 0000000000000000000000000000000000	Frequency Auto Tun Center Fre
Center F	ectrum Analyzer - Swept SA RF 50 Ω AC req 13.7500000	CORREC DOO GHZ PNO: Fast ← IFGain:Low	SENSE:INT	ALIGN AUTO Avg Type: Log-Pwr Avg Hold: 39/100	03:33:02 PM Sep 24, 2024 TRACE 0 2 3 4 5 6 TRACE 0 2 3 4 5 6 TYPE 0 0000000000000000000000000000000000	Frequency Auto Tun Center Free 13.75000000 GH
Fest_G	ectrum Analyzer - Swept SA RF 50 Ω AC req 13.7500000	CORREC DOO GHZ PNO: Fast ← IFGain:Low	SENSE:INT	ALIGN AUTO Avg Type: Log-Pwr Avg Hold: 39/100	03:33:02 PM Sep 24, 2024 TRACE 02 34 5 6 TYPE 00 24 5 0 TYPE 00 00 00 00 00 00 00 00 00 00 00 00 00	Frequency Auto Tun Center Free 13.75000000 GH
Center F	ectrum Analyzer - Swept SA RF 50 Ω AC req 13.7500000	CORREC DOO GHZ PNO: Fast ← IFGain:Low	SENSE:INT	ALIGN AUTO Avg Type: Log-Pwr Avg Hold: 39/100	03:33:02 PM Sep 24, 2024 TRACE 0 2 3 4 5 6 TRACE 0 2 3 4 5 6 TYPE 0 0000000000000000000000000000000000	Frequency Auto Tun Center Free 13.75000000 GH Start Free 2.50000000 GH
Fest_G Keysight Spr R Center F	ectrum Analyzer - Swept SA RF 50 Ω AC req 13.7500000	CORREC DOO GHZ PNO: Fast ← IFGain:Low	SENSE:INT	ALIGN AUTO Avg Type: Log-Pwr Avg Hold: 39/100	03:33:02 PM Sep 24, 2024 TRACE 02 34 5 6 TYPE 00 24 5 0 TYPE 00 00 00 00 00 00 00 00 00 00 00 00 00	Frequency Auto Tun Center Free 13.75000000 GH Start Free 2.50000000 GH
Keysight Spectrum     Keysight Spectrum     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R     R	ectrum Analyzer - Swept SA RF 50 Ω AC req 13.7500000	CORREC DOO GHZ PNO: Fast ← IFGain:Low	SENSE:INT	ALIGN AUTO Avg Type: Log-Pwr Avg Hold: 39/100	03:33:02 PM Sep 24, 2024 TRACE 02 34 5 6 TYPE 00 24 5 0 TYPE 00 00 00 00 00 00 00 00 00 00 00 00 00	Frequency Auto Tun Center Free 13.750000000 GH Start Free 2.500000000 GH
Lo dB/div 0 00 -10 0 -10 0 -10 0 -20 0	ectrum Analyzer - Swept SA RF 50 Ω AC req 13.7500000	CORREC DOO GHZ PNO: Fast ← IFGain:Low	SENSE:INT	ALIGN AUTO Avg Type: Log-Pwr Avg Hold: 39/100	03:33:02 PM Sep 24, 2024 TRACE 02 34 5 6 TYPE 00 24 5 0 TYPE 00 00 00 00 00 00 00 00 00 00 00 00 00	Frequency           Auto Tum           Center Freq           13.750000000 GH           Start Freq           2.50000000 GH           Stop Freq           25.0000000 GH           CF Step           2.250000000 GH
Keysight Spr     R     Center Fi      Conter F	ectrum Analyzer - Swept SA RF 50 Ω AC req 13.7500000	CORREC DOO GHZ PNO: Fast ← IFGain:Low	SENSE:INT Trig: Free Run #Atten: 30 dB	n B_2470_MCS Aug Type: Log-Pwr AvgHold: 39/100 MIK	SO_Lower Bar	Frequency Auto Tune Center Free 13.750000000 GH Start Free 2.500000000 GH CF Step 2.250000000 GH
Image: Content of the second	ectrum Analyzer - Swept SA RF 50 Ω AC req 13.7500000	CORREC DOO GHZ PNO: Fast ← IFGain:Low	SENSE:INT Trig: Free Run #Atten: 30 dB	ALIGN AUTO Avg Type: Log-Pwr Avg Hold: 39/100	03:33:02 PM Sep 24, 2024 TRACE 02 34 5 6 TYPE 00 24 5 0 TYPE 00 00 00 00 00 00 00 00 00 00 00 00 00	Frequency Auto Tun Center Free 13.750000000 GH Start Free 2.500000000 GH Stop Free 25.00000000 GH <u>CF Step</u> 2.250000000 GH <u>Auto</u> Ma
Image: Content of the second	ectrum Analyzer - Swept SA RF 50 Ω AC req 13.7500000	CORREC DOO GHZ PNO: Fast ← IFGain:Low	SENSE:INT Trig: Free Run #Atten: 30 dB	n B_2470_MCS Aug Type: Log-Pwr AvgHold: 39/100 MIK	SO_Lower Bar	Frequency Auto Tune Center Freq 13.750000000 GH Start Freq 2.500000000 GH Stop Freq 2.250000000 GH Auto Mai
Image: Content of the second	ectrum Analyzer - Swept SA RF 50 Ω AC req 13.7500000	CORREC DOO GHZ PNO: Fast ← IFGain:Low	SENSE:INT Trig: Free Run #Atten: 30 dB	n B_2470_MCS Aug Type: Log-Pwr AvgHold: 39/100 MIK	SO_Lower Bar	Frequency Auto Tum Center Freq 13.750000000 GH Start Freq 2.500000000 GH Stop Freq 2.250000000 GH Auto Mar Freq Offse 0 H
Image: Content of the second	ectrum Analyzer - Swept SA RF 50 Ω AC req 13.7500000 Ref 20.00 dBm	CORREC DOO GHZ PNO: Fast ← IFGain:Low	SENSE:INT Trig: Free Run #Atten: 30 dB	n B_2470_MCS Aug Type: Log-Pwr AvgHold: 39/100 MIK	SO_Lower Bar	Frequency Auto Tune Center Free 13.750000000 GH Start Free 2.500000000 GH Stop Free 2.50000000 GH Auto Mar Freq Offse 0 H Scale Type
Image: Content of the second	ectrum Analyzer - Swept SA RF 50 Ω AC req 13.7500000 Ref 20.00 dBm 	CORREC	SENSE:INT Trig: Free Run #Atten: 30 dB	n B_2470_MCS	SO_Lower Bar	Frequency           Auto Tune           Center Freq           13.750000000 GH:           Start Freq           2.500000000 GH:           Stop Freq           25.00000000 GH:           CF Step           2.250000000 GH:           Auto           Mar           Freq Offse           0 H
est_G           Keysight Spic           Center F           0 dB/div           0 0           10 0           0 0           10 0           0 0           10 0           0 0           10 0           0 0           10 0           0 0           10 0           10 0           10 0           20 0           10 0           20 0           10 0           20 0           10 0           20 0           10 0           20 0           10 0           20 0           10 0           20 0           10 0           10 0           10 0           10 0           10 0           10 0           10 0           10 0           10 0           10 0           10 0           10 0           10 0           10 0           10 0           10 0           10 0           10 0           10	ectrum Analyzer - Swept SA RF 50 Ω AC req 13.7500000 Ref 20.00 dBm 	CORREC	SENSE:INT	n B_2470_MCS	So_Lower Bar	Frequency Auto Tun Center Free 13.750000000 GH Start Free 2.500000000 GH Stop Free 25.00000000 GH CF Stej 2.250000000 GH Auto Ma Freq Offsee 0 H Scale Type





#### Test Graphs of Band Edge Emissions in Non-Restricted Frequency Bands



# 11. Radiated Spurious Emission

#### 11.1 Measurement Limits

15.209(a) Limit in the below table has to be followed

Frequencies (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
0.009~0.490	2400/F(kHz)	300
0.490~1.705	24000/F(kHz)	30
1.705~30.0	30	30
30~88	100	3
88~216	150	3
216~960	200	3
Above 960	500	3

Note: All modes were tested for restricted band radiated emission, the test records reported below are the worst result compared to other modes.

#### **11.2 Measurement Procedure**

- 1. The EUT was placed on the top of the turntable 0.8 or 1.5 meter above ground. The phase center of the receiving antenna mounted on the top of a height-variable antenna tower was placed 3 meters far away from the turntable.
- 2. Power on the EUT and all the supporting units. The turntable was rotated by 360 degrees to determine the position of the highest radiation.
- 3. The height of the broadband receiving antenna was varied between one meter and four meters above ground to find the maximum emissions field strength of both horizontal and vertical polarization.
- 4. For each suspected emission, the antenna tower was scan (from 1 M to 4 M) and then the turntable was rotated (from 0 degree to 360 degrees) to find the maximum reading.
- 5. Set the test-receiver system to Peak or CISPR quasi-peak Detect Function with specified bandwidth under Maximum Hold Mode.
- 6. For emissions above 1GHz, use 1MHz RBW and 3MHz VBW for peak reading. Place the measurement antenna away from each area of the EUT determined to be a source of emissions at the specified measurement distance, while keeping the measurement antenna aimed at the source of emissions at each frequency of significant emissions, with polarization oriented for maximum response. The measurement antenna may have to be higher or lower than the EUT, depending on the radiation pattern of the emission and staying aimed at the emission source for receiving the maximum signal. The final measurement antenna elevation shall be that which maximizes the emissions. The measurement antenna elevation for maximum emissions shall be restricted to a range of heights of from 1 m to 4 m above the ground or reference ground plane.
- 7. When the radiated emissions limits are expressed in terms of the average value of the emissions, and pulsed operation is employed, the measurement field strength shall be determined by averaging over one complete pulse train, including blanking intervals, as long as the pulse train does not exceed 0.1 seconds. As an alternative (provided the transmitter operates for longer than 0.1 seconds) or in cases where the



pulse train exceeds 0.1 seconds, the measured field strength shall be determined from the average absolute voltage during a 0.1 second interval during which the field strength is at its maximum values.

- 8. If the emissions level of the EUT in peak mode was 3 dB lower than the average limit specified, then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions which do not have 3 dB margin will be repeated one by one using the quasi-peak method for below 1GHz.
- 9. For testing above 1GHz, the emissions level of the EUT in peak mode was lower than average limit (that means the emissions level in peak mode also complies with the limit in average mode), then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions will be measured in average mode again and reported.
- 10. In case the emission is lower than 30MHz, loop antenna has to be used for measurement and the recorded data should be QP measured by receiver. High Low scan is not required in this case.
- Support MIMO technology. When testing a single antenna transmission, the software compensation coefficient has been added to the constant 10*Log₁₀(N) to calculate the margin, confirming that it meets the exemption test MIMO mode.

Spectrum Parameter	Setting
Start ~Stop Frequency	9kHz~150KHz/RB 200Hz for QP
Start ~Stop Frequency	150kHz~30MHz/RB 9kHz for QP
Start ~Stop Frequency	30MHz~1000MHz/RB 120kHz for QP
Start ~Stop Frequency	1GHz~26.5GHz
	1MHz/3MHz for Peak, 1MHz/3MHz for Average

• The following table is the setting of spectrum analyzer and receiver.

Receiver Parameter	Setting
Start ~Stop Frequency	9kHz~150KHz/RB 200Hz for QP
Start ~Stop Frequency	150kHz~30MHz/RB 9kHz for QP
Start ~Stop Frequency	30MHz~1000MHz/RB 120kHz for QP



### Quasi-Peak Measurements below 1GHz

- 1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
- 2. Span was set greater than 1MHz
- 3. RBW = as shown in the table above
- 4. Detector = CISPR quasi-peak
- 5. Sweep time = auto couple
- 6. Trace was allowed to stabilize

### • Peak Measurements above 1GHz

- 1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
- 2. RBW = 1MHz
- 3. VBW = 3MHz
- 4. Detector = peak
- 5. Sweep time = auto couple
- 6. Trace mode = max hold
- 7. Trace was allowed to stabilize

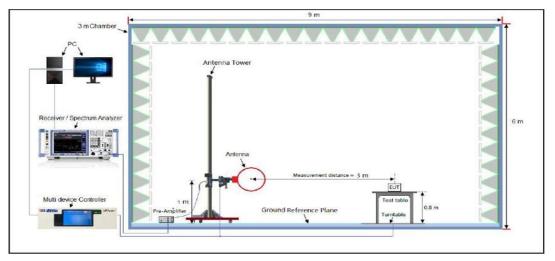
### • Average Measurements above 1GHz

- 1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
- 2. RBW = 1MHz
- 3.  $VBW \ge [3 \times RBW]$
- 4. Detector = Power averaging (rms)
- 5. Averaging type = power (i.e., rms)
- 6. Sweep time = auto
- 7. Perform a trace average of at least 100 traces.
- 8. The applicable correction factor is [10*log (1 / D)], where D is the duty cycle. The factor had been edited in the "Input Correction" of the Spectrum Analyzer.

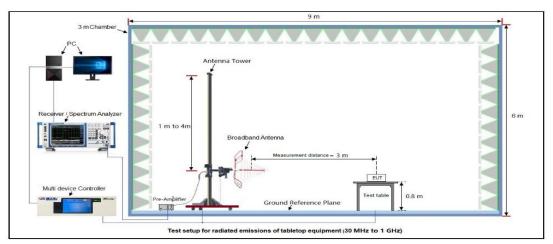


## 11.3 Measurement Setup (Block Diagram of Configuration)

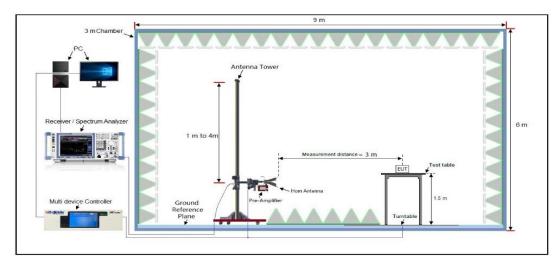




#### Radiated Emission Test Setup 30MHz-1000MHz



#### Radiated Emission Test Setup Above 1000MHz



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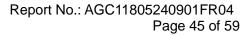


#### **11.4 Measurement Result**

#### Radiated Emission at 9kHz-30MHz

The amplitude of spurious emissions from 9kHz to 30MHz which are attenuated more than 20 dB below the permissible value need not be reported.

		Rad	iated Emiss	ion Test Res	ults at 30MH	z-1GHz		
EUT N	ame	ATOM 2 Drone			Model Nan	ne	DSDR23	4
Tempe	erature	22.6°C			Relative H	umidity	56.3%	
Pressu	ure	960hPa			Test Voltag	ge	DC 7.7V	
Test M	lode	Mode 2			Antenna P	olarity	Horizonta	I
	72.0 dB	uV/m		Marine Marine Marine Marine Marine Marine Marine	Annorma and a	4× 5	Limit: Margin:	
	30.000	40 50 60 7	0 80	(MHz)	300	400 500 60	0 700 1000.0	000
Final F	Peak Data		0 80	(MHz)	300	400 500 60	D 700 1000.0	000
Final F			Factor	(мн₂) Limit [dBµV/m]	300 Margin [dB]	400 500 60 Height [cm]	Angle	Polarity
	Peak Data	List Level [dBµV/m]	Factor	Limit	Margin	Height	Angle	
NO.	Peak Data Freq. [MHz]	List Level [dBµV/m] 7 19.01	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
NO. 1	Peak Data Freq. [MHz] 40.275	List Level [dBµV/m] 7 19.01 26 20.76	Factor [dB] 13.88	Limit [dBµV/m] 40.00	Margin [dB] 20.99	Height [cm] 100	Angle [°] 160	Polarity Horizontal
NO. 1 2	Peak Data   Freq. [MHz] 40.275 107.887	List Level [dBµV/m] 7 19.01 7 20.76 1 33.09	Factor [dB] 13.88 16.28	Limit [dBµV/m] 40.00 43.50	Margin [dB] 20.99 22.74	Height [cm] 100 100	Angle [°] 160 170	Polarity Horizontal Horizontal
NO. 1 2 3	Peak Data   Freq. [MHz] 40.2757 107.887 297.224	List Level [dBµV/m] 7 19.01 7 20.76 1 33.09 57 34.26	Factor [dB] 13.88 16.28 16.28	Limit [dBµV/m] 40.00 43.50 46.00	Margin [dB] 20.99 22.74 12.91	Height [cm] 100 100 100	Angle [°] 160 170 90	Polarity Horizontal Horizontal Horizontal





			Radiate	ed Emissi	on Test Resu	Its at 30MHz-	-1GHz			
EUT Na	ame	ATC	OM 2 Drone			Model Nan	ne	DSDR23A	L.	
Tempe	rature	25°(	C			Relative H	umidity	55.4%		
Pressu	ire	960	hPa			Test Voltag	je	DC 7.7V		
Test M	ode	Мос	de 2			Antenna P	olarity	Vertical		
72.0 dBuV/m								imit: —		
								ımıt: — largin: —		
								r		
								C		
	32					<del>2</del> 3	4	5		
						Marine	man manutur			
	-8		maryalindalan marana katala	with.						
	30.000	40	50 60 70 8	30	(MHz)	300	400 500 600	0 700 1000.00	0	
Final P	eak Data	List								
NO.	Freq. [MHz]		Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity	
1	75.977	'3	23.08	16.94	40.00	16.92	100	120	Vertical	
2	314.37	65	32.70	19.91	46.00	13.3	100	180	Vertical	
3	344.38	55	31.42	19.95	46.00	14.58	100	90	Vertical	
4	451.13	50	31.57	25.60	46.00	14.43	100	210	Vertical	
5	721.72	59	34.26	28.64	46.00	11.74	100	180	Vertical	

# **RESULT: Pass**

Note: 1. Factor=Antenna Factor + Cable loss, Margin=Measurement-Limit.

2. All test modes had been pre-tested. The mode 2 is the worst case and recorded in the report.



### Radiated Emissions Test Results above 1 GHz

EUT Name	A	OM 2 Drone	Г	Model Name	DSDR23A		
<b>F</b> emperature	2	5°C	F	Relative Humidity	55.4%		
Pressure	96	60hPa	۲	Test Voltage	DC 7.7V		
Test Mode	est Mode 1			Antenna Polarity	Horizontal	Horizontal	
	-						
Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Value Type	
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	туре	
4830.000	50.74	0.08	50.82	74.00	-23.18	peak	
4830.000	41.06	0.08	41.14	54.00	-12.86	AVG	
7245.000	48.77	2.21	50.98	74.00	-23.02	peak	
7245.000	41.36			-10.43	AVG		
Remark:		or + Cable Loss –		54.00	-10.43		
Remark:	enna Fac		Pre-amplifier.	Model Name	DSDR23A		
Remark: Factor = Ant	enna Fact	or + Cable Loss –	Pre-amplifier.				
Remark: Factor = Ant EUT Name	enna Fact	or + Cable Loss – OM 2 Drone	Pre-amplifier.	Model Name	DSDR23A		
Remark: Factor = Ant EUT Name Femperature	enna Fact A 25 96	or + Cable Loss – FOM 2 Drone	Pre-amplifier.	Model Name Relative Humidity	DSDR23A 55.4%		
Remark: Factor = Ant EUT Name Femperature Pressure	enna Fact A 25 96	or + Cable Loss – FOM 2 Drone S°C S0hPa ode 1	Pre-amplifier.	Model Name Relative Humidity Fest Voltage	DSDR23A 55.4% DC 7.7V	Value	
Remark: Factor = Ant EUT Name Femperature Pressure Fest Mode	enna Fact A 28 90 Meter	or + Cable Loss – FOM 2 Drone S°C S0hPa ode 1	Pre-amplifier.	Model Name Relative Humidity Fest Voltage Antenna Polarity	DSDR23A 55.4% DC 7.7V Vertical	Value	
Remark: Factor = Ant EUT Name Femperature Pressure Fest Mode Frequency	enna Fact A 24 96 Meter Reading	or + Cable Loss – FOM 2 Drone 5°C 50hPa ode 1 Factor	Emission Level	Model Name Relative Humidity Fest Voltage Antenna Polarity Limits	DSDR23A 55.4% DC 7.7V Vertical Margin	Value Type	
Remark: Factor = Ant EUT Name Femperature Pressure Fest Mode Frequency (MHz)	enna Factoria A A 24 90 Meter Reading (dBµV)	or + Cable Loss – FOM 2 Drone S°C S0hPa ode 1 Factor (dB)	Pre-amplifier.	Model Name Relative Humidity Fest Voltage Antenna Polarity Limits (dBµV/m)	DSDR23A 55.4% DC 7.7V Vertical Margin (dB)	Value Type peak AVG	
Remark:         Factor = Ant         EUT Name         Femperature         Pressure         Fest Mode         Frequency         (MHz)         4830.000	enna Fact A 24 96 Meter Reading (dBµV) 51.12	or + Cable Loss – FOM 2 Drone 5°C 50hPa ode 1 Factor (dB) 0.08	Emission Level (dBµV/m) 51.2	Model Name Relative Humidity Fest Voltage Antenna Polarity Limits (dBµV/m) 74.00	DSDR23A 55.4% DC 7.7V Vertical Margin (dB) -22.80	Value Type peak	
Remark:         Factor = Ant         EUT Name         Femperature         Pressure         Fest Mode         Frequency         (MHz)         4830.000         4830.000	enna Fact A 28 90 Meter Reading (dBµV) 51.12 41.05	or + Cable Loss – FOM 2 Drone i°C i0hPa ode 1 Factor (dB) 0.08 0.08	Pre-amplifier.	Model Name Relative Humidity Fest Voltage Antenna Polarity Limits (dBµV/m) 74.00 54.00	DSDR23A 55.4% DC 7.7V Vertical Margin (dB) -22.80 -12.87	Value Type peak AVG	

#### **RESULT: Pass**



### **Radiated Emissions Test Results above 1GHz**

EUT Name	ATOM 2 Drone			Model Name	DSDR23A	
Temperature	2	5°C		Relative Humidit	y 55.4%	
Pressure	ç	60hPa		Test Voltage	DC 7.7V	
est Mode	Mode Mode 2 Anten			Antenna Polarity	Horizontal	
Frequency	Meter Readin	Factor	Emission Level	Limits	Margin	Value
(MHz)	(dBµV	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Туре
4890.000	50.01	0.14	50.15	74.00	-23.85	peak
4890.000	40.37	0.14	40.51	54.00	-13.49	AVG
7335.000	49.32	2.36	51.68	74.00	-22.32	peak
7335.000	40.01	2.36	42.37	54.00	-11.63	AVG
Remark:						
			– Pre-amplifier.	Model Name		
EUT Name	F	TOM 2 Drone	– Pre-amplifier.	Model Name	DSDR23A	
	F		– Pre-amplifier.	Model Name Relative Humidit	y 55.4%	
EUT Name	A	TOM 2 Drone	– Pre-amplifier.			
EUT Name Temperature	2 2 9	TOM 2 Drone 5°C	– Pre-amplifier.	Relative Humidit	y 55.4% DC 7.7V	
EUT Name Temperature Pressure Test Mode	2 2 9 N	TOM 2 Drone 5°C 60hPa		Relative Humidit Test Voltage	y 55.4% DC 7.7V	
EUT Name Femperature Pressure	A 2 9 N Meter	TOM 2 Drone 5°C 60hPa lode 2	Emission Level	Relative Humidit Test Voltage	y 55.4% DC 7.7V	Value
EUT Name Temperature Pressure Test Mode	2 2 9 N	TOM 2 Drone 5°C 60hPa lode 2 Factor	Emission	Relative Humidit Test Voltage Antenna Polarity	y 55.4% DC 7.7V v Vertical	Value Type
EUT Name Femperature Pressure Fest Mode Frequency	A 2 9 N Meter Readin	TOM 2 Drone 5°C 60hPa lode 2 Factor	Emission Level	Relative Humidit Test Voltage Antenna Polarity Limits	y 55.4% DC 7.7V Vertical Margin	
EUT Name Femperature Pressure Fest Mode Frequency (MHz)	A 2 9 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	TOM 2 Drone 5°C 60hPa lode 2 Factor (dB)	Emission Level (dBµV/m)	Relative Humidit Test Voltage Antenna Polarity Limits (dBµV/m)	y 55.4% DC 7.7V Vertical Margin (dB)	Туре
EUT Name Femperature Pressure Fest Mode Frequency (MHz) 4890.000	А 2 9 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	TOM 2 Drone 5°C 60hPa lode 2 Factor (dB) 0.14	Emission Level (dBµV/m) 50.15	Relative Humidit Test Voltage Antenna Polarity Limits (dBµV/m) 74.00	y 55.4% DC 7.7V Vertical Margin (dB) -23.85	Type peak
EUT Name Femperature Pressure Fest Mode Frequency (MHz) 4890.000 4890.000	А 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	TOM 2 Drone 5°C 60hPa lode 2 Factor (dB) 0.14 0.14	Emission Level (dBµV/m) 50.15 40.51	Relative Humidit Test Voltage Antenna Polarity Limits (dBµV/m) 74.00 54.00	y 55.4% DC 7.7V Vertical Margin (dB) -23.85 -13.49	Type peak AVG
EUT Name Femperature Pressure Fest Mode Frequency (MHz) 4890.000 4890.000 7335.000	A 2 9 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	TOM 2 Drone 5°C 60hPa lode 2 Factor (dB) 0.14 0.14 2.36	Emission Level (dBµV/m) 50.15 40.51 51.68	Relative Humidit Test Voltage Antenna Polarity Limits (dBµV/m) 74.00 54.00 74.00	y 55.4% DC 7.7V Vertical Margin (dB) -23.85 -13.49 -22.32	Type peak AVG peak

## **RESULT: Pass**



### **Radiated Emissions Test Results above 1GHz**

EUT Name		ATON	A 2 Drone	M	lodel Name	DSDR23A		
<b>Femperature</b>		25°C		R	elative Humidity	55.4%		
Pressure		960hl	Pa	Те	est Voltage	DC 7.7V		
est Mode	t Mode 3			A	ntenna Polarity	Horizontal	Horizontal	
Frequency	Mete Read		Factor		Limits	Margin	Value	
(MHz)	(dBµ	V)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Туре	
4940.000	50.0	)1	0.22	50.23	74.00	-23.77	peak	
4940.000	40.3	39	0.22	40.61	54.00	-13.39	AVG	
7410.000	47.6	63	2.64	50.27	74.00	-23.73	peak	
7410.000	40.0	)1	2.64	42.65	54.00	-11.35	AVG	
Remark:		•						
Factor = Ant	enna F	actor -	+ Cable Loss – I	Pre-amplifier.				
			A 2 Drone		lodel Name	DSDR23A		
		ATON 25°C			lodel Name elative Humidity	DSDR23A 55.4%		
emperature				R				
emperature Pressure		25°C	Pa	R	elative Humidity	55.4%		
emperature Pressure	Mete	25°C 960hl Mode er	Pa	R	elative Humidity est Voltage	55.4% DC 7.7V	Value	
emperature Pressure est Mode		25°C 960hl Mode er ing	Pa 9 3	R Te A Emission	elative Humidity est Voltage ntenna Polarity	55.4% DC 7.7V Vertical	Value Type	
Frequency	Read	25°C 960hl Mode er ing V)	Pa 9 3 Factor	Emission Level	elative Humidity est Voltage ntenna Polarity Limits	55.4% DC 7.7V Vertical Margin		
emperature Pressure est Mode Frequency (MHz)	Read (dBµ	25°C 960hl Mode er ing V)	Pa 3 Factor (dB)	Emission Level (dBµV/m)	elative Humidity est Voltage ntenna Polarity Limits (dBµV/m)	55.4% DC 7.7V Vertical Margin (dB)	Туре	
emperature Pressure est Mode Frequency (MHz) 4940.000	Read (dBµ 48.9	25°C 960hl Mode er ing V) 96	Pa 3 Factor (dB) 0.22	R Te A Emission Level (dBµV/m) 49.18	elative Humidity est Voltage ntenna Polarity Limits (dBµV/m) 74.00	55.4% DC 7.7V Vertical Margin (dB) -24.82	Type peak	
Temperature Pressure Test Mode Frequency (MHz) 4940.000 4940.000	Read (dBµ 48.9 41.3	25°C 960hl Mode er ing V) 96 34 55	Pa 3 Factor (dB) 0.22 0.22	R           Te           Emission           Level           (dBµV/m)           49.18           41.56	elative Humidity est Voltage ntenna Polarity Limits (dBµV/m) 74.00 54.00	55.4% DC 7.7V Vertical Margin (dB) -24.82 -12.44	Type peak AVG	
Femperature Pressure Fest Mode Frequency (MHz) 4940.000 4940.000 7410.000	Read (dBµ 48.9 41.3 46.5	25°C 960hl Mode er ing V) 96 34 55	Pa 3 Factor (dB) 0.22 0.22 2.64	Emission           Level           (dBµV/m)           49.18           41.56           49.19	elative Humidity est Voltage ntenna Polarity Limits (dBµV/m) 74.00 54.00 74.00	55.4% DC 7.7V Vertical Margin (dB) -24.82 -12.44 -24.81	Type peak AVG peak	
(MHz) 4940.000 4940.000 7410.000 7410.000 Remark:	Read (dBµ 48.9 41.3 46.5 41.2	25°C 960hl Mode er ing V) 96 34 55 27	Pa 3 Factor (dB) 0.22 0.22 2.64 2.64	R           Te           A           Emission           Level           (dBµV/m)           49.18           41.56           49.19           43.91	elative Humidity est Voltage ntenna Polarity Limits (dBµV/m) 74.00 54.00 74.00	55.4% DC 7.7V Vertical Margin (dB) -24.82 -12.44 -24.81	Type peak AVG peak	
Femperature           Pressure           Fest Mode           Frequency           (MHz)           4940.000           4940.000           7410.000           7410.000           Remark:	Read (dBµ 48.9 41.3 46.5 41.2	25°C 960hl Mode er ing V) 96 34 55 27	Pa 3 Factor (dB) 0.22 0.22 2.64	R           Te           A           Emission           Level           (dBµV/m)           49.18           41.56           49.19           43.91	elative Humidity est Voltage ntenna Polarity Limits (dBµV/m) 74.00 54.00 74.00	55.4% DC 7.7V Vertical Margin (dB) -24.82 -12.44 -24.81	Type peak AVG peak	

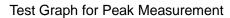
# RESULT: Pass

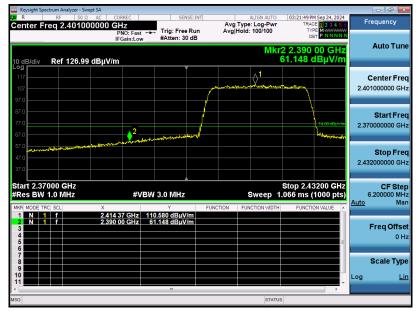
Note:

- 1. The amplitude of other spurious emissions from 1G to 26 GHz which are attenuated more than 20 dB below the permissible value need not be reported.
- 2. Factor = Antenna Factor + Cable loss Pre-amplifier gain, Margin = Emission Level-Limit.
- 3. The "Factor" value can be calculated automatically by software of measurement system.

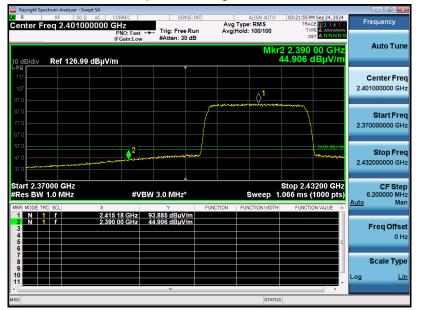


EUT Name	ATOM 2 Drone	Model Name	DSDR23A
Temperature	25°C	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	DC 7.7V
Test Mode	Mode 1	Antenna Polarity	Horizontal





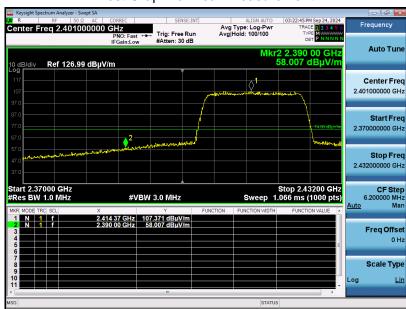
Test Graph for Average Measurement



# **RESULT: Pass**

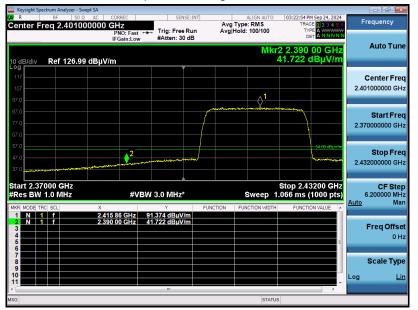


EUT Name	ATOM 2 Drone	Model Name	DSDR23A
Temperature	25°C	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	DC 7.7V
Test Mode	Mode 1	Antenna Polarity	Vertical



#### Test Graph for Peak Measurement

Test Graph for Average Measurement

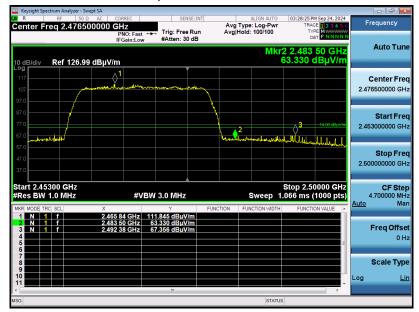


# **RESULT: Pass**

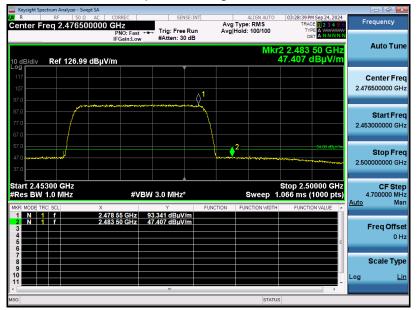


EUT Name	ATOM 2 Drone	Model Name	DSDR23A
Temperature	25°C	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	DC 7.7V
Test Mode	Mode 3	Antenna Polarity	Horizontal

Test Graph for Peak Measurement



Test Graph for Average Measurement

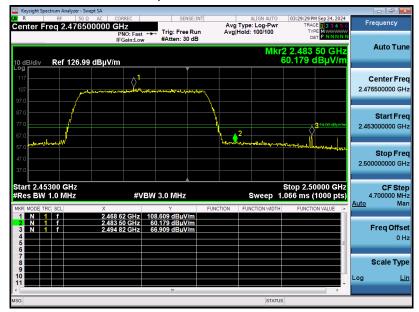


# **RESULT: Pass**

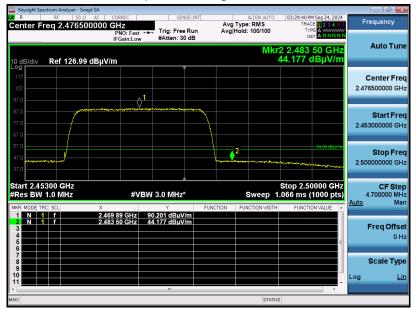


EUT Name	ATOM 2 Drone	Model Name	DSDR23A
Temperature	25°C	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	DC 7.7V
Test Mode	Mode 3	Antenna Polarity	Vertical

Test Graph for Peak Measurement



Test Graph for Average Measurement

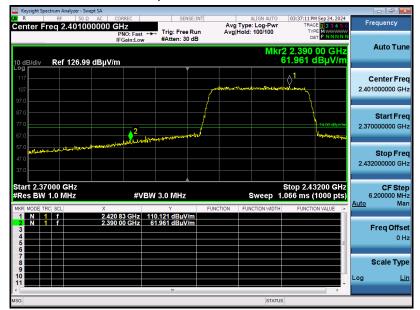


# **RESULT: Pass**

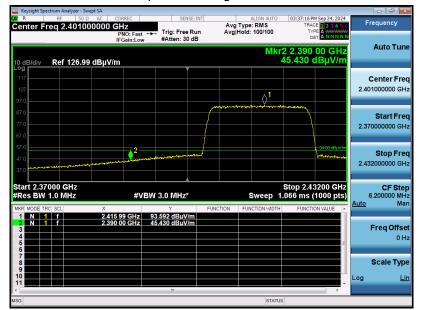


EUT	ATOM 2 Drone	Model Name	DSDR23A
Temperature	25°C	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	DC 7.7V
Test Mode	802.11b with data rate 1 2412MHz	Antenna	Horizontal

#### Test Graph for Peak Measurement



Test Graph for Average Measurement



### **RESULT: PASS**

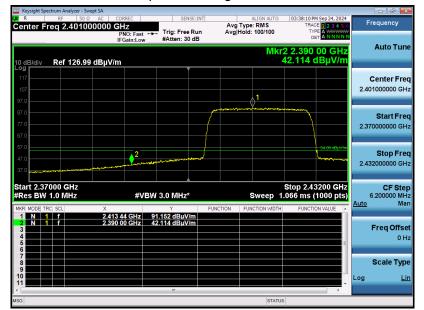


EUT	ATOM 2 Drone	Model Name	DSDR23A
Temperature	25°C	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	DC 7.7V
Test Mode	802.11b with data rate 1 2412MHz	Antenna	Vertical

#### Test Graph for Peak Measurement



Test Graph for Average Measurement

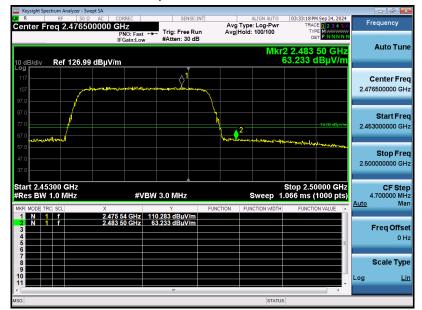


### **RESULT: PASS**

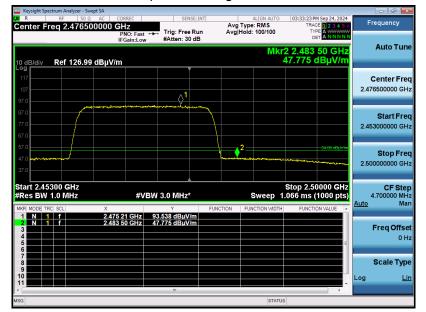


EUT	ATOM 2 Drone	Model Name	DSDR23A
Temperature	25°C	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	DC 7.7V
Test Mode	802.11b with data rate 1 2462MHz	Antenna	Horizontal

#### Test Graph for Peak Measurement



Test Graph for Average Measurement



### **RESULT: PASS**

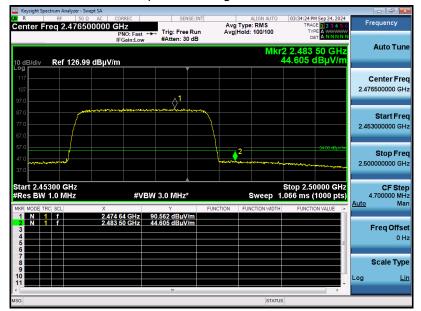


EUT	ATOM 2 Drone	Model Name	DSDR23A
Temperature	25°C	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	DC 7.7V
Test Mode	802.11b with data rate 1 2462MHz	Antenna	Vertical

#### Test Graph for Peak Measurement



Test Graph for Average Measurement



### **RESULT: PASS**

### Note: The factor had been edited in the "Input Correction" of the Spectrum Analyzer.



# **12. AC Power Line Conducted Emission**

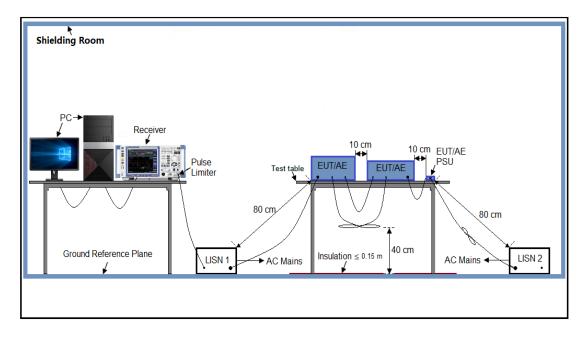
#### **12.1 Measurement Limits**

Frequency	Maximum RF Line Voltage	
Frequency	Q.P (dBµV)	Average (dBµV)
150kHz~500kHz	66-56	56-46
500kHz~5MHz	56	46
5MHz~30MHz	60	50

Note:

- 1. The lower limit shall apply at the transition frequency.
- 2. The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50 MHz

#### 12.2 Block Diagram of Line Conducted Emission Test





# 12.3 Preliminary Procedure of Line Conducted Emission Test

- 1. The equipment was set up as per the test configuration to simulate typical actual usage per the user's manual. When the EUT is a tabletop system, a wooden table with a height of 0.8 meters is used and is placed on the ground plane as per ANSI C63.10 (see Test Facility for the dimensions of the ground plane used). When the EUT is a floor-standing equipment, it is placed on the ground plane which has a 3-12 mm non-conductive covering to insulate the EUT from the ground plane.
- 2. Support equipment, if needed, was placed as per ANSI C63.10.
- 3. All I/O cables were positioned to simulate typical actual usage as per ANSI C63.10.
- 4. All support equipment received AC120V/60Hz power from a LISN, if any.
- 5. The EUT received DC 5V power from adapter which received AC120V/60Hz power from a LISN.
- 6. The test program was started. Emissions were measured on each current carrying line of the EUT using a spectrum Analyzer / Receiver connected to the LISN powering the EUT. The LISN has two monitoring points: Line 1 (Hot Side) and Line 2 (Neutral Side). Two scans were taken: one with Line 1 connected to Analyzer / Receiver and Line 2 connected to a 50 Ohm load; the second scan had Line 1 connected to a 50 Ohm load and Line 2 connected to the Analyzer / Receiver.
- 7. Analyzer / Receiver scanned from 150 kHz to 30MHz for emissions in each of the test modes.
- 8. During the above scans, the emissions were maximized by cable manipulation.
- 9. The test mode(s) were scanned during the preliminary test.

Then, the EUT configuration and cable configuration of the above highest emission level were recorded for reference of final testing.

### **12.4 Final Procedure of Line Conducted Emission Test**

- 1. EUT and support equipment was set up on the test bench as per step 2 of the preliminary test.
- A scan was taken on both power lines, Line 1 and Line 2, recording at least the six highest emissions. Emission frequency and amplitude were recorded into a computer in which correction factors were used to calculate the emission level and compare reading to the applicable limit. If EUT emission level was less – 2dB to the A.V. limit in Peak mode, then the emission signal was re-checked using Q.P and Average detector.
- 3. The test data of the worst case was reported on the Summary Data page.

### 12.5 Test Result of Line Conducted Emission Test

N/A

Note: The Custom IEEE 802.11 function cannot transmit when charging.



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# Appendix I: Photographs of Test Setup

Refer to the Report No.: AGC11805240901AP01

# Appendix II: Photographs of Test EUT

Refer to the Report No.: AGC11805240901AP02

-----End of Report-----



# Conditions of Issuance of Test Reports

1. All samples and goods are accepted by the Attestation of Global Compliance (Shenzhen) Co., Ltd (the "Company") solely for testing and reporting in accordance with the following terms and conditions. The company provides its services on the basis that such terms and conditions constitute express agreement between the company and any person, firm or company requesting its services (the "Clients").

2. Any report issued by Company as a result of this application for testing services (the "Report") shall be issued in confidence to the Clients and the Report will be strictly treated as such by the Company. It may not be reproduced either in its entirety or in part and it may not be used for advertising or other unauthorized purposes without the written consent of the Company. The Clients to whom the Report is issued may, however, show or send it, or a certified copy thereof prepared by the Company to its customer, supplier or other persons directly concerned. The Company will not, without the consent of the Clients, enter into any discussion or correspondence with any third party concerning the contents of the Report, unless required by the relevant governmental authorities, laws or court orders.

3. The Company shall not be called or be liable to be called to give evidence or testimony on the Report in a court of law without its prior written consent, unless required by the relevant governmental authorities, laws or court orders.

4. In the event of the improper use of the report as determined by the Company, the Company reserves the right to withdraw it, and to adopt any other additional remedies which may be appropriate.

5. Samples submitted for testing are accepted on the understanding that the Report issued cannot form the basis of, or be the instrument for, any legal action against the Company.

6. The Company will not be liable for or accept responsibility for any loss or damage however arising from the use of information contained in any of its Reports or in any communication whatsoever about its said tests or investigations.

7.Clients wishing to use the Report in court proceedings or arbitration shall inform the Company to that effect prior to submitting the sample for testing.

8. The Company is not responsible for recalling the electronic version of the original report when any revision is made to them. The Client assumes the responsibility to providing the revised version to any interested party who uses them.

9. Subject to the variable length of retention time for test data and report stored hereinto as otherwise specifically required by individual accreditation authorities, the Company will only keep the supporting test data and information of the test report for a period of six years. The data and information will be disposed of after the aforementioned retention period has elapsed. Under no circumstances shall we provide any data and information which has been disposed of after retention period. Under no circumstances shall we be liable for damage of any kind, including (but not limited to) compensatory damages, lost profits, lost data, or any form of special, incidental, indirect, consequential or punitive damages of any kind, whether based on breach of contract of warranty, tort (including negligence), product liability or otherwise, even if we are informed in advance of the possibility of such damages.