Report No.: NTC1905279FV00 FCC ID: ZKWUA231905001



RADIO TEST REPORT

The device described below is tested by Dongguan Nore Testing Center Co., Ltd. to determine the maximum emission levels emanating from the device, the severe levels which the device can endure and E.U.T.'s performance criterion. The test results, data evaluation, test procedures, and equipment of configurations shown in this report were made in accordance with the procedures in ANSI C63.10(2013).

Applicant/ Manufacturer : Chenghai Udirc Toys Co., Ltd.

Address : Dengfeng Industrial Zone, Chenghai District, Shantou, Guangdong, China

Factory : Chenghai Udirc Toys Co., Ltd.

Address

Dengfeng Industrial Zone, Chenghai District, Shantou, Guangdong, China

E.U.T. : 2.4G WIFI FPV DRONE

Brand Name : N/A

Model No. : UA23 /For additional models refer to section 1.

FCC ID : ZKWUA231905001

Measurement Standard : FCC PART 15.249: 2017

Date of Receiver : May 23, 2019

Date of Test : May 23, 2019 to June 06, 2019

Date of Report : June 06, 2019

This Test Report is Issued Under the Authority of :

Prepared by

Rose Hu / Engineer

Approved & Authorized Signer

Iori Fan Authorized Signatory

This test report is for the customer shown above and their specific product only. This report applies to above tested sample only and shall not be reproduced in part without written approval of Dongguan Nore Testing Center Co., Ltd.

Dongguan Nore Testing Center Co., Ltd. Report No.: NTC1905279FV00 FCC ID: ZKWUA231905001



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Revision History of This Test Report

Report Number	Description	Issued Date
NTC1905279FV00	Initial Issue	2019-06-06

Report No.: NTC1905279FV00 FCC ID: ZKWUA231905001



1. GENERAL INFORMATION

1.1 Product Description for Equipment under Test

Product Name : 2.4G WIFI FPV DRONE

Main model number : UA23

Additional Model

number

: See Page 5-6

Brand Name : N/A

Power Supply : 4*DC 1.5V AA battery

Test voltage : 4*DC 1.5V AA battery

Model Difference

Description

: Those models have the same circuit schematic, construction, PCB Layout and critical components.

The difference is model number only due to trading

purpose.

Hardware version : V00

Software version : V00

Note : N/A

Remark : According to the model difference, all tests were performed on

model UA23.

Technical Specification:

2.4G Function:

Frequency Range : 2425-2470MHz

Modulation Type : GFSK

Number of Channel : 26

Antenna Type : Copper Tube

Antenna Gain : 0dBi (Declaration by manufacturer)

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Model List:

U01,U01S,UDI001,VR1,VR-1,I-18MT, U02,U02S,UDI002,VR2,VR-2,I-18SC,
U03,U03S,UDI003,VR3,VR-3,MT18, U04,U04S,UDI004,VR4,VR-4,SC18,
U05,U05S,UDI005,VR5,VR-5,B18, U06,U06S,UDI006,VR6,VR-6,T18,
U07,U07S,UDI007,VR7,VR-7,TC18, U08,U08S,UDI008,VR8,VR-8,D18,
U09,U09S,UDI009,VR9,VR-9 C18, U10 U10S,UDI010,VR10,VR-10,B18,
U11,U11S,UDI011, U12,U12S,UDI012, U13,U13S,UDI013, U14,U14S,UDI014,
U15,U15S,UDI015, U16,U16S,UDI016, U17,U17S,UDI017, U18,U18S,UDI018,
U19,U19S,UDI019, U20,U20S,UDI020, U21,U21S,UDI021, U22,U22S,UDI022,UA22
U23,U23S,UDI023, U24,U24S,UDI024, U25,U25S,UDI025, U26,U26S,UDI026,
U27,U27S,UDI027, U28,U28S,U28W,U28-1,UDI028,
U29,U29S,U29D,U29W,U29S,U29S-E,U29Plus,U29Plus-G,UDI029,
U30,U30S,UDI030, U31,U31S,U31W,U31R,U31D, U32,U32S, U33,U33S,
U34,U34S,U34W, U35,U35S,U818A Plus,U818A Plus-C,U818A Plus-G,
U36,36S,U36W,U36D, U37,U37S, U38,U38S, U39,U39S,
U40,U40S,U40W, U41,U41S,U41W, U42,U42S,U42W,U42HW, U43,U43S,U43W,
U44,U44S,U44W, U45,U45S,U45W, U46,U46S,U46W,U46C,U46C-W,
U47,U47S,U47B,U47W, U48,U48S,U48W, U49,U49S,U49C,U49W, U50,U50S,
U51,U51S,U51W, U52,U52S,U52G,U52W, U53,U53S, U54,U54S,U54W,U54Plus,
U55,U55S, U56,U56S, U57,U57S, U58,U58S, U59,U59S, U60,U60S, U61W,
U61,U61S, U62,U62S, U63,U63S, U64,U64S, U65,U65S, U66,U66S,
U67,U67S, U68,U68S, U69,U69S, U70,U70S, U71,U71S, U72,U72S, U73,U73S,
U74,U74S, U75,U75S, U76,U76S, U77,U77S, U78,U78S, U79,U79S, U80,U80S,
U81,U81S, U82,U82S, U83,U83S, U84,U84S, U85,U85S, U86,U86S, U87,U87S,
U88,U88S,U88Plus,U88Plus-G, U89,U89S, U90,U90S, U91,U91S, U92,U92S,
U93,U93S, U94,U94S, U95,U95S, U96,U96S, U97,U97S, U98,U98S, U99,U99S,
U100,U100S, U101,U101S, U102,U102S, U103,U103S, U104,U104S, U105,U105S,
U106,U106S, U107,U107S, U108,U108S, U109,U109S, U110,U110S, U111,U111S,
U112,U112S, U113,U113S, U114,U114S, U115,U115S, U116,U116S, U117,U117S,
U118,U118S, U119,U119S, U120,U120S, U121,U121S, U122,U122S, U123,U123S,
U124,U124S, U125,U125S, U126,U126S, U127,U127S, U128,U128S, U129,U129S,

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U130,U130S, U131,U131S, U132,U132S, U133,U133S, U134,U134S, U135,U135S, U136,U136S, U137,U137S, U138,U138S, U139,U139S, U140,U140S, U141,U141S, U142,U142S, U143,U143S, U144,U144S, U145,U145S, U146,U146S, U147,U147S, U148,U148S, U149,U149S, U150,U150S, U151,U151S, U152,U152S, U153,U153S, U154.U154S. U155.U155S. U156.U156S. U157.U157S. U158.U158S. U159.U159S. U160,U160S, U161,U161S, U162,U162S, U163,U163S, U164,U164S, U165,U165S, U166.U166S, U167.U167S, U168.U168S, U169.U169S, U170.U170S, U171.U171S, U172,U172S, U173,U173S, U174,U174S, U175,U175S, U176,U176S, U177,U177S, U178,U178S, U179,U179S, U180,U180S, U181,U181S, U182,U182S, U183,U183S, U184,U184S, U185,U185S, U186,U186S, U187,U187S, U188,U188S, U189,U189S, U190,U190S, U191,U191S, U192,U192S, U193,U193S, U194,U194S, U195,U195S, U196,U196S, U197,U197S, U198,U198S, U199,U199S, U200,U200S, 6182-7SN,6182-7S DIL,6182-7S,6182-7RC DIL,6182-7RC,6182-7RC STE, 6182-7SN MCE.6182-7S BI.6182-7RCHA WAL.6182-7RCH MCE.6182-7SH. ACDRVR, Archos Drone VR, U818A, U818A HD, U818A WIFI, U842-1, U842 WIFI.U845.U841-1.U841-1.Xerall.X-TankCopter.3A-U46-BL.SYRIO. DRAKO, U829A, U842, U845WIFI, U835, U28-1, U28W, U42, U42W, VR-2, Falcon Pro, U820, U843, D2, ZX-TTN, ZX-ATL, ZXRHD, ZXNVA. ZXRAP. ZXSPT,6182-7RB TM1, titan, hydra,ZX-HRA,ARCHOS DRONE WW, ARCHOS PICO DRONE, A15W, CW4, U48A, U48HW, TDFT0019, TDFT0014,TDLB0010,RC60706,RC49581,RC46892,DRONE 200, DRONE 400.25197.25163.T5176.T5177.AA108.AA818.AA101. AA102.AA200.A20,A20W,A30,A30W,D20,D50,D60,D35,D58,D65, D68,D52,25196,25194,25159,25160,23938,NT.SS9,NT.SF1M,RC18167, RC18168.RC15771.RC46892.RC49580.T5147.T5170.RGR3000.TDFT0005, TDFT0006.EC16238.EC16242.EC16241.EC16239.EC16243.6182-7RC AEO. 6182-7SN AEO,6182-7RB TM1,6182-7SC BUR,ACPIDR,ACDRONE,CW10, U88WIFI.6182-7RCHA.6182-1GH.6182-1GHB.6182-1GXA.6182-1GE. 6182-1GB,8073472,8073473,RC60706,TDFT0020,TDFT0021,TDFT0027, TDFT0028,TDFT0031,TDLB0002,Robin FPV,U60Pro-WCH,U61W,U48, A15,T20,D28,6182-7RCHB

Dongguan Nore Testing Center Co., Ltd. Report No.: NTC1905279FV00

FCC ID: ZKWUA231905001



Channel List:

Channel	Frequency MHz	Channel	Frequency MHz	Channel	Frequency MHz
1	2425	10	2450	19	2459
2	2439	11	2451	20	2460
3	2440	12	2452	21	2461
4	2441	13	2453	22	2462
5	2442	14	2454	23	2466
6	2443	15	2455	24	2467
7	2444	16	2456	25	2469
8	2445	17	2457	26	2470
9	2446	18	2458		

Note: The Lowest, middle, and the Highest frequency of channel were selected to perform the test. The frequency selected see below:

The Lowest frequency: 2425MHz The middle frequency: 2454MHz The Highest frequency: 2470MHz

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1.2 Related Submittal(s) / Grant (s)

This submittal(s) (test report) is intended for FCC ID: ZKWUA231905001 filing to comply with Section 15.249 of the FCC Part 15 (2017), Subpart C Rule.

1.3 Test Methodology

Radiated emission measurements were performed according to the procedures in ANSI C63.10 (2013). Radiated emission measurement was performed in semi-anechoic chamber and conducted emission measurement was performed in shield room. For radiated emission measurement, preliminary scans were performed in the semi-anechoic chamber only to determine the worst case modes. All radiated tests were performed at an antenna to EUT distance of 3 meters.

1.4 Equipment Modifications

Not available for this EUT intended for grant.

1.5 Support Device

N/A

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1.6 Test Facility and Location

Site Description

EMC Lab : Listed by CNAS, August 13, 2018

The certificate is valid until August 13, 2024

The Laboratory has been assessed and proved to

be in compliance with CNAS/CL01

The Certificate Registration Number is L5795.

Listed by A2LA, November 01, 2017

The certificate is valid until December 31, 2019 The Laboratory has been assessed and proved to

be in compliance with ISO17025

The Certificate Registration Number is 4429.01

Listed by FCC, November 06, 2017 The Designation Number is CN1214 Test Firm Registration Number: 907417

Listed by Industry Canada, June 08, 2017

The Certificate Registration Number. Is 46405-9743

Name of Firm : Dongguan Nore Testing Center Co., Ltd.

(Dongguan NTC Co., Ltd.)

Site Location : Building D, Gaosheng Science and Technology

park, Hongtu road, Nancheng district, Dongguan

city, Guangdong province, China

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1.7 Summary of Test Results

FCC Rules	Description Of Test	Uncertainty	Result
§15.207(a)	AC Power Conducted Emission	±1.06dB	Not Applicable
§15.249(a)/ 15.209	Radiated Emissions	±3.70dB	Compliant
§15.249(d)/ 15.205	Band Edge	±1.70dB	Compliant
§15.215(c)	20dB Bandwidth	±1.42 x10 ⁻⁴ %	Compliant
§15.203	Antenna Requirement		Compliant

Note: 1. The EUT has been tested as an independent unit. And Continual transmitting in maximum power (The new battery be used during test)

- 2. Due to this EUT is powered by battery only, the AC Power Conducted Emission is not applicable.
- 3. The EUT powered by battery and operating multiple positions, so the EUT shall be performed two or three orthogonal planes. The worst plane is Z.

X Plane
X Plane
Z Plane

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2. System Test Configuration

2.1 EUT Configuration

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.

2.2 Special Accessories

Not available for this EUT intended for grant.

2.3 Description of test modes

The EUT has been tested under operating condition. The Lowest, middle and highest frequencies were chosen for testing.

2.4 EUT Exercise

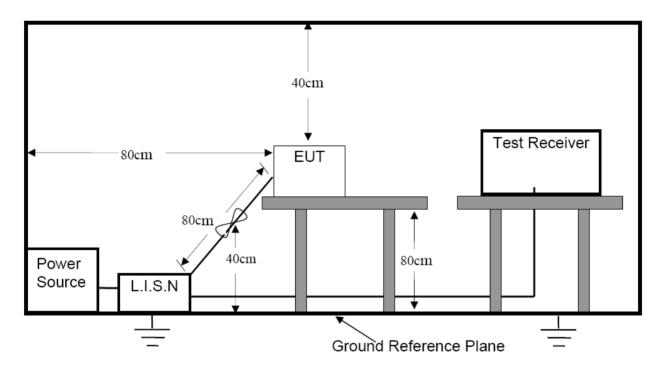
The EUT was operated in the engineering mode to fix the Tx frequency that was for the purpose of the measurements.

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3. Conducted Emissions Test

3.1 Test SET-UP (Block Diagram of Configuration)



3.2 Test Condition

Test Requirement: FCC Part 15.207

Frequency Range: 150KHz ~ 30MHz

Detector: RBW 9KHz, VBW 30KHz

Operation Mode: TX

3.3 Measurement Results

Not Applicable.

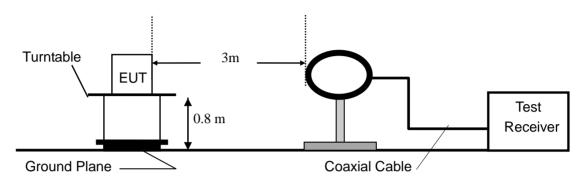
FCC ID: ZKWUA231905001

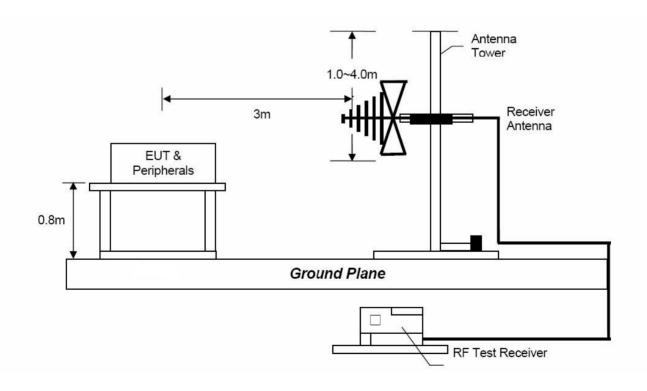


4. Radiated Emission Test

4.1 Test SET-UP (Block Diagram of Configuration)

4.1.1 Radiated Emission Test Set-Up, Frequency Below 30MHz

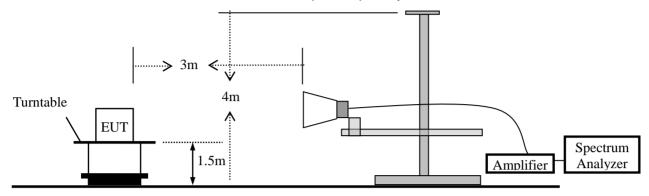




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4.1.2 Radiated Emission Test Set-Up, Frequency above 1GHz



4.2 Measurement Procedure

- a. Blow 1GHz, the EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi- anechoic chamber room.
- b. For the radiated emission test above 1GHz:
 - The EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter full anechoic chamber room. The table was rotated 360 degrees to determine the position of the highest radiation. 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.
- c. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- d. The height of antenna is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- e. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading. The test-receiver system was set to peak detect function and specified bandwidth with maximum hold mode.
- f. A Quasi-peak measurement was then made for that frequency point for below 1GHz test. PK and AV for above 1GHz emission test.

During the radiated emission test, the spectrum analyzer was set with the following configurations:

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Frequency Band (MHz)	Level	Resolution Bandwidth	Video Bandwidth
30 to 1000	QP	120 kHz	300 kHz
Above 1000	Peak	1 MHz	3 MHz
Above 1000	Average	1 MHz	10 Hz

4.3 Limit

Frequency range	Distance Meters	Field Strengths	Limit (15.209)	
MHz		μV_{ℓ}	/m	
0.009 ~ 0.490	300	2400/F	(kHz)	
0.490 ~ 1.705	30	24000/	F(kHz)	
1.705 ~ 30	30	30	0	
30 ~ 88	3	10	00	
88 ~ 216	3	15	50	
216 ~ 960	3	200		
Above 960	3	50	00	
Frequency range	Distance Meters	Field Strengths	Limit (15.249)	
MHz		mV/m	μV/m	
		(Field strength of	(Field strength of	
		fundamental)	Harmonics)	
902 ~ 928	3	50	500	
2400 ~ 2483.5	3	50	500	
5725 ~ 5875	3	50	500	
24000 ~ 2425000	3	250	2500	

Remark: (1) Emission level (dB) μ V = 20 log Emission level μ V/m

- (2) The smaller limit shall apply at the cross point between two frequency bands.
- (3) As shown in 15.35(b), for frequencies above 1000MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20dB under any condition of modulation.
- (4) The frequency range scanned is from the lowest radio frequency signal generated in the device which is greater than 9 kHz to the tenth harmonic of the highest fundamental frequency or 40 GHz, whichever is lower.
- (5) Sample of data calculate:

Level=Reading + Factor; Margin= Level-Limit

Factor=CF+AF+AG

Where CF=Cable attenuation factor in dB

AF= Antenna factor in dB AG=Amplifier Gain in dB

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4.4 Measurement Results

Please refer to following the test plots of the worst case: Low channel.

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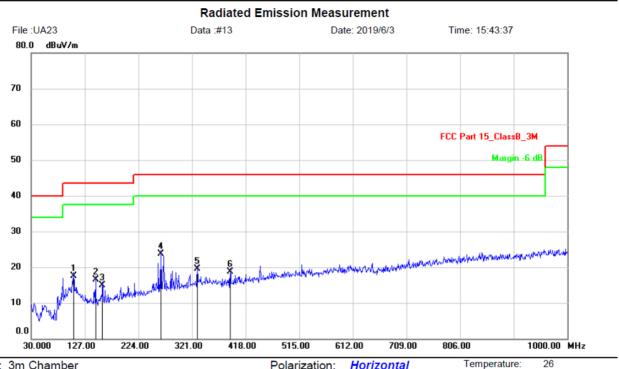


47 %



Dongguan NTC Co., Ltd. Tel:+86-769-22022444 Fax:+86-769-22022799

Web: Http://www.ntc-c.com



Site: 3m Chamber

Limit: FCC Part 15_ClassB_3M

EUT: 2.4G WIFI FPV DRONE

M/N: UA23 Mode: TX Note:

Polarization: Horizontal Power:

DC 6V Humidity:

Distance: 3m

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		106.6300	29.77	-12.17	17.60	43.50	-25.90	QP			
2		146.4000	32.08	-15.58	16.50	43.50	-27.00	QP			
3		159.0100	30.10	-15.20	14.90	43.50	-28.60	QP			
4	*	264.7400	35.11	-11.31	23.80	46.00	-22.20	QP			
5		330.7000	29.10	-9.60	19.50	46.00	-26.50	QP			
6		389.8700	27.85	-9.15	18.70	46.00	-27.30	QP			

Note: Below 30MHz, the emissions are lower than 20dB below the allowable limit.

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Dongguan NTC Co., Ltd.

Tel:+86-769-22022444 Fax:+86-769-22022799

Web: Http://www.ntc-c.com

Radiated Emission Measurement File: UA23 Data :#14 Date: 2019/6/3 Time: 15:50:58 80.0 dBuV/m 70 60 FCC Part 15_ClassB_3M Margin -6 dB 50 40 30 20 10 0.0 30.000 127.00 224.00 321.00 418.00 515.00 612.00 709.00 1000.00 MHz

Site: 3m Chamber

Limit: FCC Part 15_ClassB_3M

EUT: 2.4G WIFI FPV DRONE

M/N: UA23 Mode: TX Note: Polarization: Vertical

Power: DC 6V

Temperature: 26 Humidity: 47 %

Distance: 3m

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1	*	47.4600	44.00	-13.50	30.50	40.00	-9.50	QP			
2		84.3200	39.71	-18.31	21.40	40.00	-18.60	QP			
3		145.4299	45.09	-18.59	26.50	43.50	-17.00	QP			
4		171.6200	37.51	-17.71	19.80	43.50	-23.70	QP			
5		261.8299	41.68	-13.38	28.30	46.00	-17.70	QP			
6		378.2300	32.39	-11.19	21.20	46.00	-24.80	QP			

Note: Below 30MHz, the emissions are lower than 20dB below the allowable limit.

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Frequency Range: 1-25GHz Test Date: May 24, 2019

Test Result: PASS Temperature : 21 $^{\circ}$ C Measured Distance: 3m Humidity : 55 $^{\circ}$

Test By: Sance

			P			. 11	1.116	0	N.4	
Freq.	Ant.Po		ding	Factor	Emissio		Limit			rgin
(MHz)	(H/V)	Levei(dBuV)	(dB/m)	(dBı		(dBu)	, ,	`	B)
(1711 12)	(1.7.4)	PK	AV		PK	AV	PK	AV	PK	AV
			Ope	ration M	ode: TX N	/lode (Lo	ow)			
2425	V	96.33	45.63	0.09	96.42	45.72	114.00	94.00	-17.58	-48.28
4850	V	53.62	33.24	6.48	60.10	39.72	74.00	54.00	-13.90	-14.28
7275	V	47.48	31.40	10.52	58.00	41.92	74.00	54.00	-16.00	-12.08
2425	Н	102.27	48.82	0.09	102.36	48.91	114.00	94.00	-11.64	-45.09
4850	Н	59.04	34.75	6.48	65.52	41.23	74.00	54.00	-8.48	-12.77
7275	Н	46.15	31.21	10.52	56.67	41.73	74.00	54.00	-17.33	-12.27
			Оре	ration M	ode: TX I	Mode (M	id)			
2454	V	96.39	40.80	0.28	96.67	41.08	114.00	94.00	-17.33	-52.92
4908	V	52.35	32.24	6.70	59.05	38.94	74.00	54.00	-14.95	-15.06
7362	V	44.91	31.37	10.56	55.47	41.93	74.00	54.00	-18.53	-12.07
2454	Н	101.72	44.90	0.28	102.00	45.18	114.00	94.00	-12.00	-48.82
4908	Н	56.75	33.83	6.70	63.45	40.53	74.00	54.00	-10.55	-13.47
7362	Н	45.05	31.39	10.56	55.61	41.95	74.00	54.00	-18.39	-12.05
			Ope	ration M	ode: TX N	lode (Hi	gh)			'
2470	V	95.84	39.88	0.31	96.15	40.19	114.00	94.00	-17.85	-53.81
4940	V	53.21	33.06	6.82	60.03	39.88	74.00	54.00	-13.97	-14.12
7410	V	46.23	31.30	10.58	56.81	41.88	74.00	54.00	-17.19	-12.12
2470	Н	102.26	45.18	0.31	102.57	45.49	114.00	94.00	-11.43	-48.51
4940	Н	52.94	34.30	6.82	59.76	41.12	74.00	54.00	-14.24	-12.88
7410	Н	45.67	31.27	10.58	56.25	41.85	74.00	54.00	-17.75	-12.15

Note: (1) All Readings are Peak Value and AV.

- (2) Emission Level= Reading Level + Factor
- (3) Factor= Antenna Gain + Cable Loss Amplifier Gain
- (4) Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 10dB below the permissible limits.
- (5) Measurement uncertainty: ±3.7dB.
- (6) Horn antenna used for the emission over 1000MHz.

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5. 20dB Bandwidth

5.1 Measurement Procedure

The 20dB bandwidth of the emission was contained within the frequency band designated which the EUT operated. The effects, if any, from frequency sweeping, frequency hopping, other modulation techniques and frequency stability over excepted variations in temperature and supply voltage were considered, FCC Rule 15.215(c):

The antenna port of the EUT was connected to the input of a spectrum analyzer. Analyzer RBW was chosen so that the display was a result of the hopping channel modulation. For each RF output channel investigated, the spectrum analyzer center frequency was set to the channel carrier. Use the spectrum 20dB down delta function to measure the bandwidth.

5.2 Test SET-UP (Block Diagram of Configuration)

FUT	Spectrum Analyzer
	Opectium Analyzei

5.3 Measurement Results

Refer to attached data chart.

RBW: 30KHz VBW: 100KHz Spectrum Detector: PK Temperature: 22 $^{\circ}$ C Test By: Sance Humidity: 54 $^{\circ}$

Test Result: PASS Test Date: June 06, 2019

Channel frequency (MHz)	20dB Down BW(kHz)			
2425	1144			
2454	1102			
2470	1116			

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Lowest Channel



Middle Channel



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Highest Channel



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6. Band Edge

6.1 Measurement Procedure

Same as Radiated Emission Test.

6.2 Limit

Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in §15.209, whichever is the lesser attenuation.

6.3 Measurement Results

Operation Mode: TX Mode Test Date: May 24, 2019

Temperature : 21 $^{\circ}$ C Humidity : 55 $^{\circ}$ M Test Result: PASS Test By: Sance

Measured Distance: 3m

Freq. (MHz)	Ant.Pol. (H/V)	Reading Level(dBuV)		Factor (dB/m)	Emission Level (dBuV)		Limit 3m (dBuV/m)		Margin (dB)	
		PK	AV	(ub/III)	PK	AV	PK	AV	PK	AV
2390.000	Н	58.19	36.54	0.09	58.28	36.63	74.00	54.00	-15.72	-17.37
2390.000	V	53.11	37.18	0.09	53.20	37.27	74.00	54.00	-20.8	-16.73
2483.500	Н	66.38	34.51	0.35	66.73	34.86	74.00	54.00	-7.27	-19.14
2483.500	V	60.25	34.77	0.35	60.60	35.12	74.00	54.00	-13.4	-18.88

Note: (1) Emission Level= Reading Level + Factor

(2) Factor= Antenna Gain + Cable Loss - Amplifier Gain

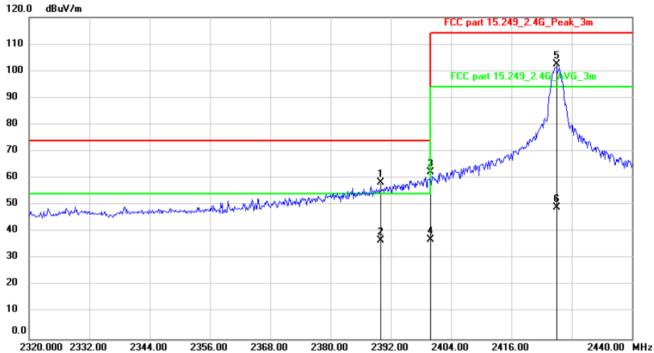
(3) Horn antenna used for the emission over 1000MHz.

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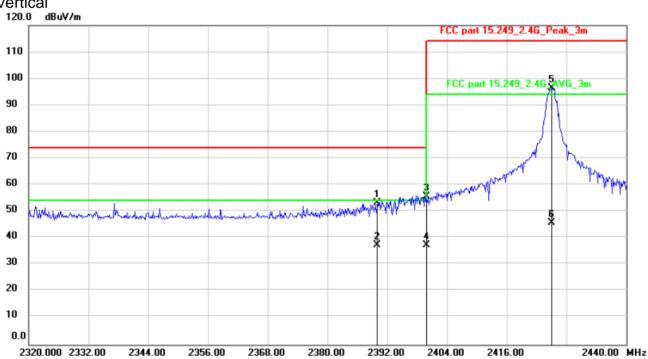


Low channel





Vertical

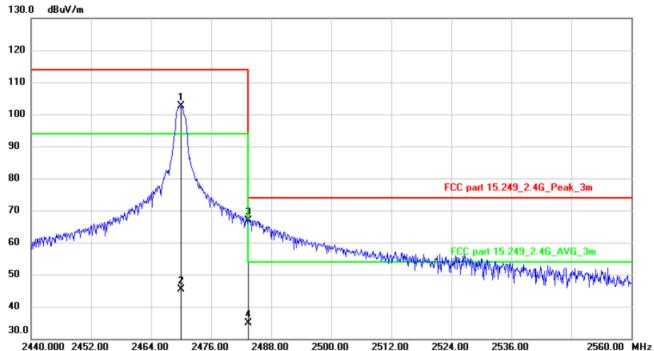


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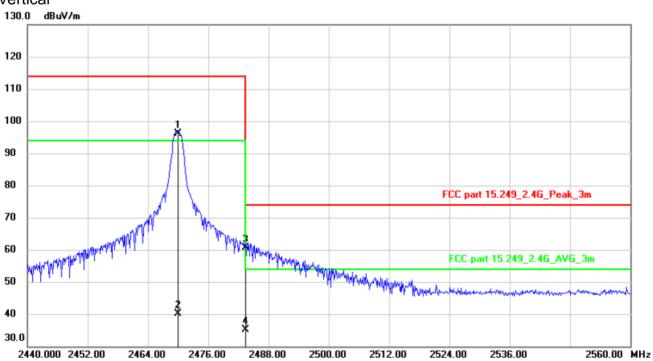


High channel





Vertical



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7. Antenna requirement

7.1 Measurement Procedure

According to of FCC part 15C section 15.203:

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.

Systems operating in the 2400-2483.5MHz band that are used exclusively for fixed, point-to-point operations may employ transmitting antennas with directional gain greater than 6dBi provided the maximum peak output power of the intentional radiator is reduced by 1dB for every 3dB that the directional gain of the antenna exceeds 6dBi.

7.2 Measurement Results

The antenna is Copper tube antenna and no consideration of replacement, and the best case gain of the antenna is 0 dBi. So, the antenna is consider meet the requirement.

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8. Test Equipment List

No.	Equipment	Manufacturer	Model No.	Serial No.	Characteristics	Last Cal.	Cal. Interval
1.	Test Receiver	Rohde & Schwarz	ESCI7	100837	9KHz~7GHz	Mar. 13, 2019	Mar. 12, 2020
2.	Antenna	Schwarzbeck	VULB9162	9162-010	30MHz~7GHz	Mar. 22, 2019	Mar. 21, 2020
3.	Spectrum Analyzer	Rohde & Schwarz	FSU26	200409/026	20Hz~26.5GHz	Mar. 13, 2019	Mar. 12, 2020
4.	Spectrum Analyzer	Keysight	N9020A	MY5420083 1	20Hz~26.5GHz	Apr. 23, 2019	Apr. 22, 2020
5.	Spectrum Analyzer	Rohde & Schwarz	FSV40	101003	10Hz~40GHz	Apr. 23, 2019	Apr. 22, 2020
6.	Horn Antenna	Schwarzbeck	BBHA9170	9170-372	15GHz~40GHz	Mar. 22, 2019	Mar. 21, 2020
7.	Pre-Amplifier	EMCI	EMC 184045	980102	18GHz~40GHz	Apr. 23, 2019	Apr. 22, 2020
8.	Power Sensor	DARE	RPR3006W	15I00041SN O64	100MHz~6GHz	Mar. 13, 2019	Mar. 12, 2020
9.	Communicat ion Tester	Rohde & Schwarz	CMW500	149004	70MHz~6GHz	Mar. 13, 2019	Mar. 12, 2020
10.	Horn Antenna	COM-Power	AH-118	071078	500MHz~18GHz	Mar. 22, 2019	Mar. 21, 2020
11.	Pre-Amplifier	HP	HP 8449B	3008A00964	1GHz~26.5GHz	Mar. 13, 2019	Mar. 12, 2020
12.	Pre-Amplifier	HP	HP 8447D	1145A00203	100KHz~1.3GHz	Mar. 13, 2019	Mar. 12, 2020
13.	Loop Antenna	Schwarzbeck	FMZB 1513	1513-272	9KHz~30MHz	Apr. 23, 2019	Apr. 22, 2020
14.	Temperature & Humidity Chamber	REMAFEE	SYHR225L	N/A	-40~150℃	Apr. 23, 2019	Apr. 22, 2020
15.	DC Source	MY	MY8811	N/A	0~30V	Apr. 21, 2019	Apr. 20, 2020
16.	Temporary antenna connector	TESCOM	SS402	N/A	9KHz~25GHz	N/A	N/A
17.	Test Receiver	Rohde & Schwarz	ESCI	101152	9KHz~3GHz	Mar. 13, 2019	Mar. 12, 2020
18.	L.I.S.N	Rohde & Schwarz	ENV 216	101317	N/A	Mar. 13, 2019	Mar. 12, 2020
19.	L.I.S.N	Schwarzbeck	NNLK8129	8129212	N/A	Mar. 06, 2019	Mar. 05, 2020
20.	RF Switching Unit	Compliance Direction Systems Inc.	RSU-M2	38311	N/A	Mar. 13, 2019	Mar. 12, 2020
21.	Test Software	EZ	EZ_EMC	N/A	N/A	N/A	N/A

Note: The temporary antenna connector is soldered on the PCB board in order to perform conducted tests and this temporary antenna connector is listed in the equipment list.