RF Exposure Evaluation Declaration

FCC ID:	2ACS5-YUNFBD
APPLICANT:	Yuneec Technology Co., Limited

Application Type:	Certification
Product:	Firebird FPV
Model No.:	YUNFBD
Brand Name:	YUNEEC
FCC Classification:	Digital Transmission System (DTS) Unlicensed National Information Infrastructure (UNII)
Test Procedure(s):	KDB 447498 D01v06
Test Date:	November 24 ~ December 07, 2017

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Testing Laboratory
3261

Revision History

Report No.	Version	Description	Issue Date	Note
1711TW0109-U4	Rev. 01	Initial Report	01-04-2018	Valid

1. PRODUCT INFORMATION

1.1. Equipment Description

Product Name	Firebird FPV
Model No.	YUNFBD
Brand Name	YUNEEC
Wi-Fi Specification	802.11a/n-HT20
ZigBee Specification	802.15.4

1.2. Antenna Description

Antenna Type	Manufacturer	Frequency Band (MHz)	Max Peak Gain (dBi)
Omni-directional Antenna	Cortec Technology Inc.	2400 ~ 2483.5	1.5
Omni-directional Antenna	Yuneec International (China) Co., Ltd.	5180 ~ 5240	3.0
		5745 ~ 5825	3.0

2. RF Exposure Evaluation

2.1. Limits

According to FCC 1.1310: The criteria listed in the following table shall be used to evaluate the environment impact of human exposure to radio frequency (RF) radiation as specified in 1.1307(b)

LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm^2)	Average Time (Minutes)
(A) Limits for Occupational/ Control Exposures				
300-1500	--	--	f/300	6
1500-100,000	--	--	5	6
(B) Limits for General Population/ Uncontrolled Exposures				
300-1500	--	--	f/1500	6
1500-100,000	--	--	1	30

f= Frequency in MHz

Calculation Formula: $Pd = (Pout*G)/(4*pi*r^2)$

Where
Pd = power density in mW/cm^2
Pout = output power to antenna in mW
G = gain of antenna in linear scale
Pi = 3.1416
r = distance between observation point and center of the radiator in cm

Pd is the limit of MPE, $1mW/cm^2$. If we know the maximum gain of the antenna and the total power input to the antenna, through the calculation, we will know the distance r where the MPE limit is reached.

2.2. Test Result of RF Exposure Evaluation

Product	Firebird FPV
Test Item	RF Exposure Evaluation

Antenna Gain: Refer to Clause 1.2 of antenna description.

Test Mode	Frequency Band (MHz)	Maximum Average Output Power (dBm)	Power Density at R = 20 cm (mW/cm^2)	Limit (mW/cm^2)
802.15.4	2405 ~ 2475	17.77	0.0168	1
802.11a/n-HT20	5180 ~ 5240	23.93	0.0981	1
	5745 ~ 5825			

CONCLUSION:

The Zig-Bee 2.4GHz and WLAN 5GHz can transmit simultaneously. Therefore, the Max Power Density at R (20 cm) = $0.0168mW/cm^2 + 0.0981mW/cm^2 = 0.1149mW/cm^2 < 1mW/cm^2$.
So the EUT complies with the requirement.

The End