



Maximum Permissible Exposure Evaluation

FCC ID: 2APRB-WNVR-FWR8G1

1. Client Information

Applicant	:	Guangdong Juan Intelligent Technology Joint Stock Co., Ltd.
Address	:	THE FIRST AND SECOND FLOORS OF BUILDING 2 (PLANT NO.2), WEST SIDE OF SHANXI VILLAGE, DASHI STREET, PANYU DISTRICT, GUANGZHOU, China
Manufacturer	:	Guangdong Juan Intelligent Technology Joint Stock Co., Ltd.
Address	:	THE FIRST AND SECOND FLOORS OF BUILDING 2 (PLANT NO.2), WEST SIDE OF SHANXI VILLAGE, DASHI STREET, PANYU DISTRICT, GUANGZHOU, China

2. General Description of EUT

EUT Name	:	Wireless Network Video Recorder
Models No.	:	WNVR-FWR8G1-8, WNVR-FWR8G1-81, WNVR-FWR8G1-8-VT4, FWR8-64GB-B43L, FWR8-64GB-F43L, FWR8-64GB-F83L, FWR8-64GB-B44L, WM-FWR8G64-B43L
Model Difference	:	All these models are identical in the same PCB, layout and electrical circuit, the only difference is Different camera to ship with.
Sample ID	:	HC-C-202403-0339-01-01-1#&HC-C-202403-0339-01-01-2#
Product Description	:	Operation Frequency: (REALTEK 8192FC) 802.11b/g/n(HT20): 2412MHz~2462MHz 802.11n(HT40): 2422MHz~2452MHz Bluetooth LE V5.4: 2402MHz~2480MHz 802.11b/g/n(HT20): 2412MHz~2462MHz 802.11ax(HE20): 2412MHz~2462MHz 802.11n(HT40): 2422MHz~2452MHz 802.11ax(HE40): 2422MHz~2452MHz U-NII-1: 5180MHz~5240MHz U-NII-2A: 5260MHz~5320MHz U-NII-2C: 5500MHz~5700MHz U-NII-3: 5745MHz~5825MHz
Power Rating	:	Adapter(CS-1202000) INPUT: 100-240V~50/60Hz 1.5A max OUTPUT: DC 12V/2A
Software Version	:	V1.0.8
Hardware Version	:	V300P
Connecting I/O Port(S)	:	Please refer to the User's Manual
Remark	:	the MPE report used the EUT-2(HC-C-202403-0339-01-01-2#).

MPE Calculations

1. Antenna Gain:

REALTEK 8192FC					
Antenna	Brand	Model Name	Type	Antenna Gain(dBi)	
				Ant.1	Ant.2
2.4G WIFI	N/A	N/A	PCB	4.61	5.06

AIC8800D40L					
Antenna	Brand	Model Name	Type	Antenna Gain(dBi)	
Bluetooth LE	N/A	N/A	FPC	3.23	
2.4G WIFI				3.23	
U-NII-1				4.57	
U-NII-2A				5.04	
U-NII-2C				5.37	
U-NII-3				5.30	

2. EUT Operation Condition:

Software provided by client enabled the EUT to transmit and receive data at lowest, middle and highest channel individually.

3. Exposure Evaluation:

Equation from page 18 of OET Bulletin 65, Edition 97-01

$$S=(PG)/4\pi R^2$$

Where

S: power density

P: power input to the antenna

G: power gain of the antenna in the direction of interest relative to an isotropic radiator.

R: distance to the center of radiation of the antenna

4. Simultaneous transmission MPE Considerations

According to KDB447498: All transmitters and antennas in the host must be either evaluated for MPE compliance, by measurement or computational modeling, or qualify for the standalone MPE test exclusion in section 7.1. Simultaneous transmission MPE test exclusion applies when the sum of the MPE ratios for all simultaneous transmitting antennas incorporated in a host device, based on the calculated/estimated, numerically modeled or measured field strengths or power density, is ≤ 1.0 .

This means that:

$$\sum \text{ of MPE ratios } \leq 1.0$$



5. Standalone MPE Evaluation:

Worst Maximum MPE Result(REALTEK 8192FC)							
Mode	N _{TX}	Conducted Power(max) (dBm)	Turn-up Power (dB)	Max tune up power (dBm) [P]	ANT Gain (dBi) [G]	Distance (cm) [R]	Power Density (mW/cm ²) [S]
802.11g	1	15.78	15±1	16	4.61	20	0.02289
Note: N _{TX} = Number of Transmit Antennas RF Output power specifies that Maximum Conducted Peak Output Power.							

Worst Maximum MPE Result(REALTEK 8192FC)							
Mode	N _{TX}	Conducted Power(max) (dBm)	Turn-up Power (dB)	Max tune up power (dBm) [P]	ANT Gain (dBi) [G]	Distance (cm) [R]	Power Density (mW/cm ²) [S]
802.11g	2	15.95	15±1	16	5.06	20	0.02539
Note: N _{TX} = Number of Transmit Antennas RF Output power specifies that Maximum Conducted Peak Output Power.							

Worst Maximum MPE Result(AIC8800D40L)							
Mode	N _{TX}	Conducted Power(max) (dBm)	Turn-up Power (dB)	Max tune up power (dBm) [P]	ANT Gain (dBi) [G]	Distance (cm) [R]	Power Density (mW/cm ²) [S]
Bluetooth LE	1	6.643	6±1	7	3.23	20	0.00209
2.4G WIFI		17.00	17±1	18	3.23	20	0.02640
U-NII-1		16.81	16±1	17	4.57	20	0.02855
U-NII-2A		17.05	17±1	18	5.04	20	0.04006
U-NII-2C		16.32	16±1	17	5.37	20	0.03433
U-NII-3		16.81	16±1	17	5.30	20	0.03378
Note: NTX= Number of Transmit Antennas RF Output power specifies that Maximum Conducted Peak Output Power.							

Remark:

1. Output power including turn-up tolerance;
2. Output power was adjust to duty cycle at 100% if measured duty cycle less than 98%;
3. MPE evaluate distance is 20cm from user manual provide by manufacturer.
4. Only the worst power was evaluated for each wireless function



6. Conclusion:

As specified in Table 1B of 47 CFR 1.1310- Limits for Maximum Permissible Exposure (MPE),

Limits for General Population/ Uncontrolled Exposure

Frequency Range (MHz)	Power density (mW/ cm ²)
300-1,500	F/1500
1,500-100,000	1.0

7. Summary simultaneous transmission information

The sample supports two antennas for Bluetooth and WLAN. The Bluetooth and WLAN can transmit simultaneous. The Bluetooth and WLAN with two different Antenna. According to KDB447498 for Transmitters used in mobile exposure conditions for simultaneous transmission operations;
 $\sum$ of MPE ratios ≤ 1.0

8. Summary simultaneous transmission results

Antenna1(REALTEK 8192FC) + Antenna2(REALTEK 8192FC) + Antenna1(AIC8800D40L) Maximum Simultaneous transmission MPE Ratios is

$$0.02289+0.02539+0.04006=0.08834 \leq 1.0$$

9. Conclusion:

The measurement results comply with the FCC Limit per 47 CFR 2.1091 for the uncontrolled RF Exposure of mobile device.

-----END OF THE REPORT-----

