Maximum Permissible Exposure Evaluation

FCC ID: 2AK4W-SPLIT

1. Client Information

Applicant	:	RunCam Technology (Shenzhen) Co., Ltd.
Address	:	Room 16E, Building B, World Trade Plaza, 9 Fuhong Rd, Futian District, Shenzhen, Guangdong, China
Manufacturer	:	RunCam Technology (Shenzhen) Co., Ltd.
Address	:	Room 16E, Building B, World Trade Plaza, 9 Fuhong Rd, Futian District, Shenzhen, Guangdong, China

2. General Description of EUT

EUT Name	:	Camera	
Models No.	:	SPLIT, SPLIT-BK, SPLIT-BK-WIFI, SPLIT-OG, SPLIT-OG-WIFI, SPLIT-RD, SPLIT-RD-WIFI, SPLIT-OR, SPLIT-OR-WIFI, SPLIT-BL, SPLIT-BL-WIFI, SPLIT-BU, SPLIT-BU-WIFI, RC-SPLIT, SPLIT* (* represents 18-digit characters, and each character can be anything ranging from 0 to 9, A to Z, and symbols like "- " or "space" and different product models. And * is targeted at different sales territories, sales regions, sales methods, varied client groups, different market positioning and different product colors, and won't affect the product safety and electromagnetic compatibility)	
Model Difference	:	All these models are identical in the same PCB layout and electrical circuit, the only difference is model name for commercial.	
Product Description	:	Operation Frequency:	802.11b/g/n(HT20): 2412MHz~2462MHz 802.11n(HT40): 2422MHz~2452MHz
		Number of Channel:	802.11b/g/n(HT20):11 channels 802.11n(HT40): 7 channels
		RF Output Power:	802.11b: 12.59dBm 802.11g: 10.41dBm 802.11n (HT20): 8.52dBm 802.11n (HT40): 7.78dBm
		Antenna Gain:	2dBi PCB Antenna

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		Modulation Type:	802.11b: DSSS(CCK, QPSK, BPSK) 802.11g: OFDM 802.11n: OFDM
		Bit Rate of Transmitter:	802.11b: 11/5.5/2/1 Mbps 802.11g: 54/48/36/24/18/12/9/6 Mbps 802.11n:up to 150Mbps
Power Supply	:	DC Voltage supplied by USB Cable.	
Power Rating	:	DC 3.7V by Host System.	
Connecting I/O Port(S)	:	Please refer to the User's Manual	
Note: More information about the RF function, please refer the RF test reports.			

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MPE Calculations for WIFI

1. **Antenna Gain:**
   FPC Antenna: 2dBi.

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. **Test Result:**

Worst Maximum MPE Result								
Mode	N_{TX}	Freq. (MHz)	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]
802.11b	1	2412	11.65	12±1	13	2	20	0.00629
		2437	12.59	12±1	13	2	20	0.00629
		2462	11.30	12±1	13	2	20	0.00629
802.11g	1	2412	10.41	9.5±1	10.5	2	20	0.00354
		2437	10.05	9.5±1	10.5	2	20	0.00354
		2462	8.65	9.5±1	10.5	2	20	0.00354
802.11n (HT20)	1	2412	6.82	7±2	9	2	20	0.00250
		2437	7.51	7±2	9	2	20	0.00250
		2462	8.52	7±2	9	2	20	0.00250
802.11n (HT40)	1	2422	6.45	7±1	8	2	20	0.00199
		2437	7.03	7±1	8	2	20	0.00199
		2452	7.78	7±1	8	2	20	0.00199

Note:
(1) N_{TX}= Number of Transmit Antennas
(2) RF Output power specifies that Maximum Conducted Peak Output Power.

5. 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

For 802.11b/g/n (2412~2462 MHz)
MPE limit S: 1 mW/cm^2
The MPE is calculated as 0.00629mW/cm^2 < limit 1 mW/cm^2. So, RF exposure limit warning or SAR test are not required.

The EUT will only be used with a separation of 20cm or greater between the antenna and nearby persons and can therefore be considered a mobile transmitter per 47 CFR2.1091 (b).

The RF Exposure Information page from the manual is included here for reference.

Note

For a more detailed features description, please refer to the RF Test Report.

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