Testing and Verification of 5.8GHz Channel Setting and Frequency in Different Products

Preface:

Recently there is an increasing number of piloting RC (radio control) Aircraft or RC Vehicles implemented with 5.8GHz Wireless Video Camera for the FPV (First-person view) applications*

Very often we would think that all 5.8GHz products in the market are using standardized frequency band with same channel switch setting. We thought that too. BUT… the truth we found different product makers give their own product specifications, without pay additional attention in channel setting, you may very easy to set your 5.8GHz device at an unknown frequency, and get confused if your device is not working correctly.

We thought it would be helpful if we can point out the difference between models so buyers will not get confused with channel setting when they using different brands of transmitter or receiver in their RC system.

In this report, we use a well calibrated wireless camera detector with built-in frequency counter** to verify the channel setting in between different 5.8GHz Transmitter / Receiver models.

* Appendix I
** Lawmate Model No. WCH-250X (we do sell WCH-250X in our eBay store)

eBay store (USA): iat101
eBay store (Canada): ia-tecs
www.peephole-store.com
www.iat101.com

We use a well calibrated wireless camera hunter to verify the channel setting difference between 5.8GHz products.

900MHz to 6 GHz Camera Hunter with built-in frequency counter having a minimum frequency resolution of 1MHz

Lawmate Model No. WCH-250X
(you may buy it from our eBay store)

IAT
A Smart DIY Surveillance Company

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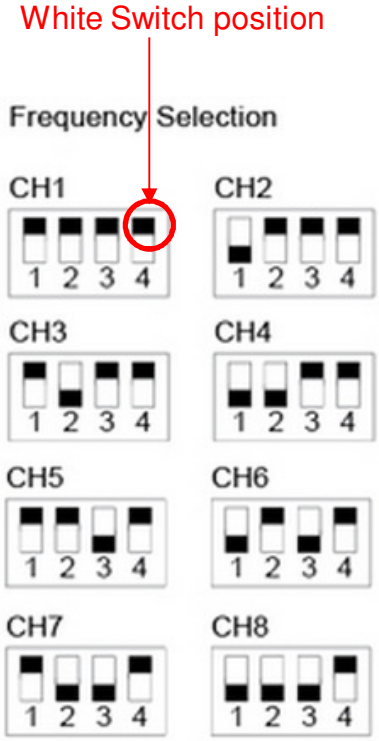
Tested product 1: Boscam 5.8GHz E Band 200mW Transmitter Model # TS-351

Product Specifications shown in ads



CH1---5705---MHz
CH2---5685---MHz
CH3---5665---MHz
CH4---5645---MHz
CH5---5885---MHz
CH6---5905---MHz
CH7---5925---MHz
CH8---5945---MHz

Our Test Results

TS351	
CH1	5687-5716 MHz Center Frequency: 5701MHz
CH2	5668-5697 MHz Center Frequency: 5682 MHz
CH3	5647-5678 MHz Center Frequency: 5662 MHz
CH4	5927-5956 MHz Center Frequency: 5941MHz
CH5	5868-5898 MHz Center Frequency: 5883MHz
CH6	5899-5910 MHz Center Frequency: 5904 MHz
CH7	5917-5930 MHz Center Frequency: 5923 MHz
CH8	5939-5950 MHz Center Frequency: 5944 MHz

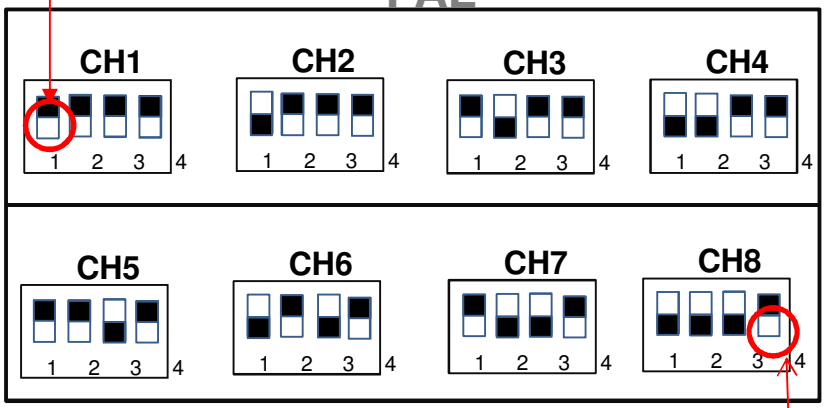
Tested product 2: 5.8GHz 10mW Camera with built-in microphone and RC 305 AV Receiver

Product Specifications

CH1---5705---MHz
CH2---5685---MHz
CH3---5665---MHz
CH4---5645---MHz
CH5---5885---MHz
CH6---5905---MHz
CH7---5925---MHz
CH8---5945---MHz

White Switch position

PAL*



Our Test Results

5.8GHz 10mW Mini Camera & RC305	
CH1	5687-5716 MHz Center Frequency: 5701MHz
CH2	5668-5697 MHz Center Frequency: 5682 MHz
CH3	5647-5678 MHz Center Frequency: 5662 MHz
CH4	5627-5658 MHz Center Frequency: 5652 MHz
CH5	5868-5898 MHz Center Frequency: 5883MHz
CH6	5887-5918 MHz Center Frequency: 5902 MHz
CH7	5907-5936 MHz Center Frequency: 5921 MHz
CH8	5927-5956 MHz Center Frequency: 5941MHz

*For NTSC, the white switch position at the 4 need switch to up.
For PAL, the white switch is positioned at down position.

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Tested product 3: 5.8GHz Model RC 832 32 Channel AV Receiver

Product Specifications

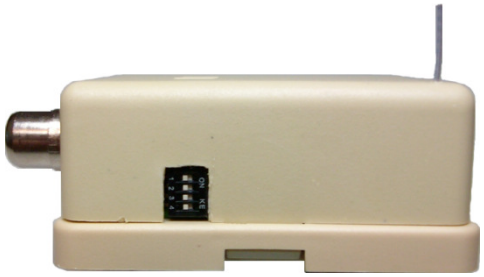
CH / FR		CH							
		CH1	CH2	CH3	CH4	CH5	CH6	CH7	CH8
FR	FR1 (A)	5865M	5845M	5825M	5805M	5785M	5765M	5745M	5725M
	FR2 (B)	5733M	5752M	5771M	5790M	5809M	5828M	5847M	5866M
	FR3 (E)	5705M	5685M	5665M	5645M	5885M	5905M	5925M	5945M
	FR4 (F)	5740M	5760M	5780M	5800M	5820M	5840M	5860M	5880M

Our Test Results for E band

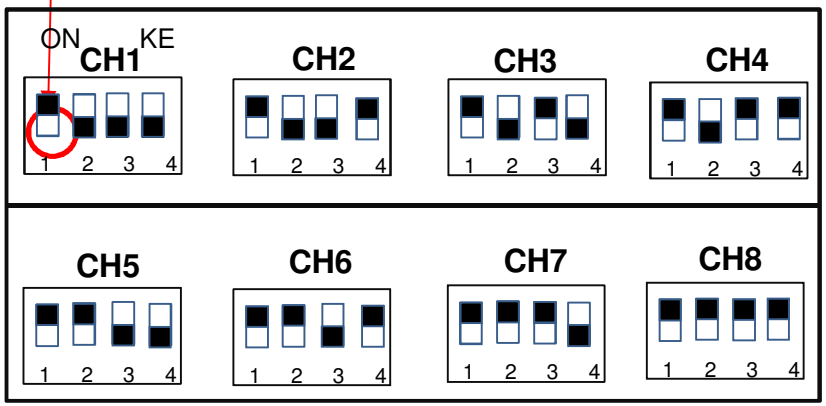
RC832	
FR3 CH1	5687-5716 MHz Center: 5701MHz
FR3 CH2	5668-5697 MHz Center: 5682MHz
FR3 CH3	5647-5678 MHz Center: 5662MHz
FR3 CH4	5627-5658 MHz Center: 5652MHz
FR3 CH5	5868-5898 MHz Center: 5883MHz
FR3 CH6	5887-5918 MHz Center: 5902 MHz
FR3 CH7	5907-5936 MHz Center: 5921 MHz
FR3 CH8	5927-5956 MHz Center: 5941MHz

Tested product 4: 5.8GHz IAT101 Video Transmitter

Product Specifications



White Switch position



Our Test Results

IAT 101 Transmitter	
CH1	5687-5716 MHz Center Frequency: 5701MHz
CH2	5668-5697 MHz Center Frequency: 5682 MHz
CH3	5647-5678 MHz Center Frequency: 5662 MHz
CH4	5927-5956 MHz Center Frequency: 5941MHz
CH5	5868-5898 MHz Center Frequency: 5883MHz
CH6	5899-5910 MHz Center Frequency: 5904 MHz
CH7	5917-5930 MHz Center Frequency: 5923 MHz
CH8	5939-5950 MHz Center Frequency: 5944 MHz

Test Results suggesting followings:

1. For **Model TS-351 Transmitter**: the channel switch position is shows as **black** color in product specification. If you treat the white color dot in specs as the channel switch position, you will get wrong frequency in channel setting.

2. For **10mW mini Camera and RC305 receiver**: the channel switch position is shows as **white** color. If you treat the black color dot in specs as the channel switch position, you will get wrong channel setting. **Note:** please pay attention to channel switch position in this report. Our channel position is totally different from other seller's product specification. Based on our testing result, we thought their information in channel setting could be incorrect.

3. For product **RC832 receiver** shows good channel selection based on channel number indicated

4. For product **IAT101 Transmitter**: the channel switch position is shows as **white** color. If you treat the black color dot in specs as the channel switch position, you will get wrong channel setting.

For any further questions, please email us ia-tecs@hotmail.com

Appendix I.

Comparison of different operation frequency in RC with FPV function

Frequency	Pros	Cons
900MHz	Best transmission distance Still be able to see video with RC plane/ quadcopter /helicopter goes behind a tree	Can be interfered with Cell Phone and GPS
1.2GHz	Good transmission distance Still be able to see video with RC device goes behind a tree	It is a restricted frequency band in certain countries
2.4GHz	Better transmission distance than 5.8GHz not as great as 1.2GHz bandwidths and below	This is an overcrowded frequency. There are many signal surround could interfere on this bandwidth (such as WiFi, cordless phones, RC transmitters).
5.8GHz	People can get several miles out using high-power transmitter, high-gain antenna, and high-sensitivity receiver	Require a clear line of sight

Recommended piloting RC (radio control) Aircraft or RC Vehicles with FPV function is using 2.4GHz for the RC control system and 5.8GHz for video system.