

Frequency Usage of Unmanned Aerial Vehicle System

According to the regulations of P.R. China, the frequency bands of 840.5-845MHz, 1430-1444MHz and 2408-2440MHz are approved for unmanned aircraft systems. The details are as follows:

- 1) Approved frequency band: 840.5-845MHz、 1430-1444MHz and 2408-2440MHz.
- 2) The frequency of 840.5-845MHz is used as upstream remote control link of unmanned aircraft systems. Moreover, 841-845MHz can also be employed as remote control uplink and telemetry downlink by Time Division.
- 3) The frequency of 1430-1444MHz can be used as downstream telemetry and data transmission link. Meanwhile, 1430-1438MHz is applied for video transmission of police unmanned aircraft and helicopter; the other unmanned aircraft could use the frequency band of 1438-1444MHz.
- 4) The frequency of 2408-2440MHz can be used as the backup frequency band of remote control uplink, telemetry downlink, and information transmission link of unmanned aircraft system.
- 5) The channel configuration, radio transmit power, unwanted emission limit value, and receivers' adjacent Channel selection of above-mentioned frequency band should comply with relevant requirements (see the attachment).
- 6) Usage of frequency, radio station settings, and radio transmission equipment should conform to the relevant regulations of National Radio Management and Unmanned Aerial Vehicle Systems Management.

Attachment

Wireless Channel Configuration and RF Requirement of Unmanned Aircraft System

A1. Channel bandwidth and center frequency

Operating frequency	Working Mode	Channel Spacing	Centre Frequency(MHz)	Remarks
840.5-845MHz	Frequency Hopping	25KHz	$840.4875+0.025n$ ($n=1,2,\dots,180$)	Channels can be used in combination according to different transmission capacity requirements
1430-1444MHz	Channel Assignment	2MHz	$1429+2n$ ($n=1,2,\dots,7$)	

A2. RF requirement

1. Transmission power

The level of transmission power	effective isotropic radiated power(EIRP) limit value				
	840.5-845MHz		14430-1444MHz Down (dB/channels)	2408-2440MHz	
	Up (dBm/channels)	Down (dBm/channels)		Up (dBm/channels)	Down (dBm/channels)
1	46	34	42	-	-
2	42	30	35	27	27
3	20	20	23	23	20

2. unwanted emission

a. Adjacent channel leakage ratio of the transmitter

Operation frequency	The first Adjacent Channel	The second Adjacent Channel	Remarks
840.5-845MHz	≥ 60 dB	-	The channel should be executed in a single channel indicator When used in combination.
1430-1444MHz	≥ 40 dB	≥ 60 dB	

b. Unwanted transmission limit value

Range of Frequency	The maximum level
2483.5MHz-2500MHz	-65dBm/MHz

c. Other band spurious emission

Range of Frequency	The maximum level	Measuring bandwidth
9kHz-150kHz	-36dBm	1kHz
150kHz-30MHz	-36dBm	10kHz
30MHz-1GHz	-36dBm	100kHz
1GHz 以上	-30dBm	1MHz

3. Receiver adjacent channel selectivity

Range of Frequency	The first Adjacent Channel	The second Adjacent Channel	Remarks
840.5-845MHz	$\geq 60\text{dB}$	-	The channel should be executed in a single channel indicator When used in combination.
1430-1444MHz	$\geq 40\text{dB}$	$\geq 60\text{dB}$	