Technical Specifications for Image Transmission Board

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1.Overview

This video transmission board is specifically designed for high-performance,high-reliability data transmission requirements. It adopts an advanced star-shaped networking architecture, supporting one central node to efficiently connect and manage up to 16 sub-nodes, thereby constructing a stable and scalable network topology.

Its video transmission module integrates core communication technologies such as OFDM (Orthogonal Frequency Division Multiplexing) and MIMO (Multiple-Input Multiple-Output), significantly enhancing spectrum efficiency and link reliability. It supports flexible multi-bandwidth allocation (1.4MHz, 3MHz, 5MHz, 10MHz, 20MHz) to optimize resource utilization based on specific application scenarios. At maximum configuration, it achieves transmission rates up to 30Mbps, effectively reducing system latency and substantially enhancing overall data transmission capacity. Key performance advantages include:

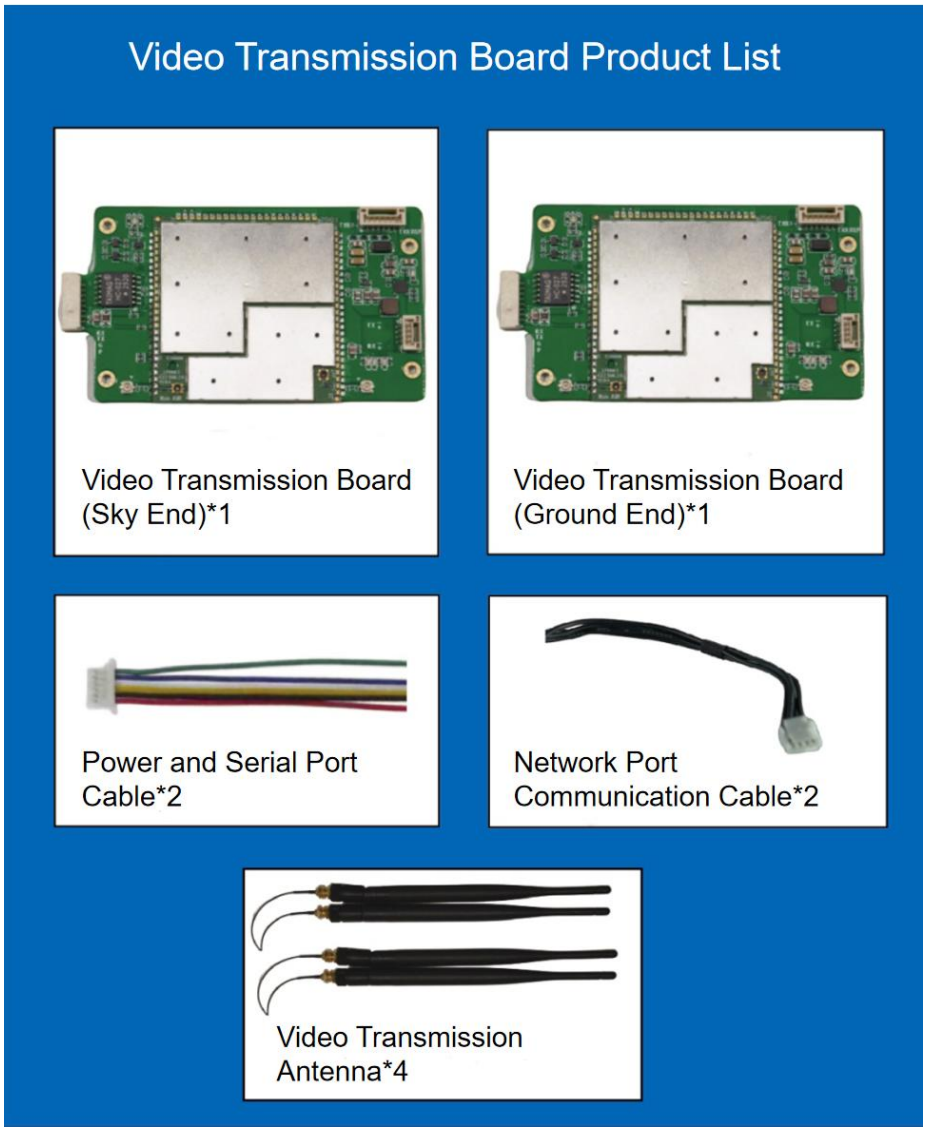
(1) Long transmission distance: Supports 15km long-range transmission to meet extended flight requirements.

(2) High Data Throughput: Ensures smooth transmission of large data volumes through high-speed and wide-bandwidth support.

(3) Superior Interference Resistance: Maintains stable and reliable communication in complex electromagnetic environments by integrating OFDM and MIMO technologies.

2.Package Contents

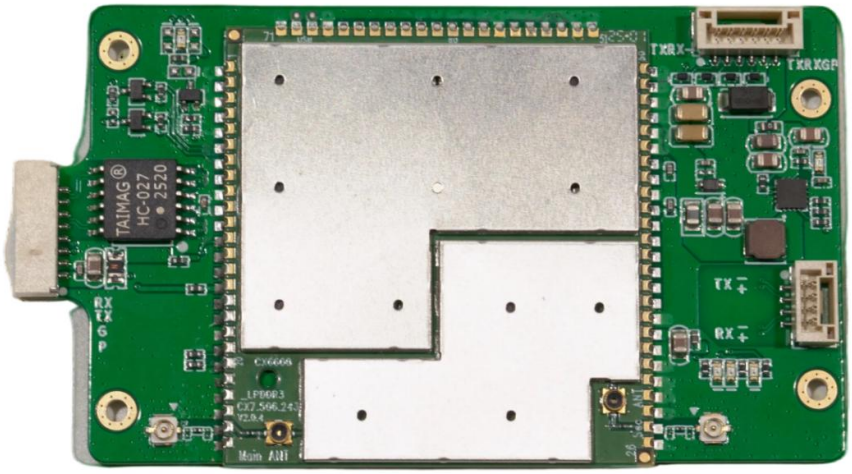
- Video Transmission Board - Sky End*1
- Video Transmission Board - Ground End*1
- Power Supply and Serial Port Cable*2
- Ethernet Communication Cable*2
- Video Transmission Antenna*4

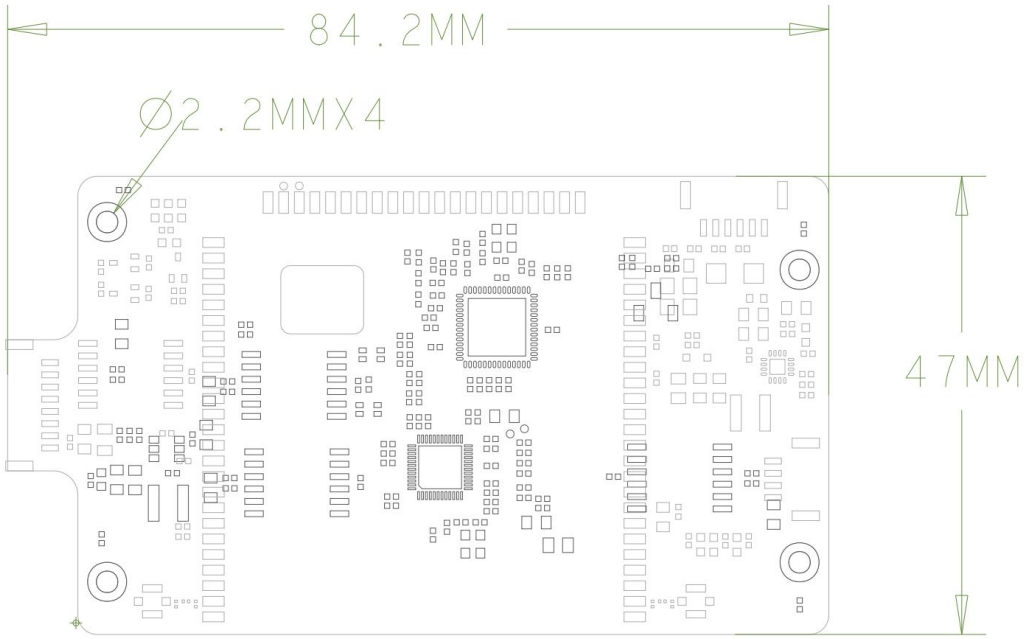


3.Product Dimensions and Interfaces

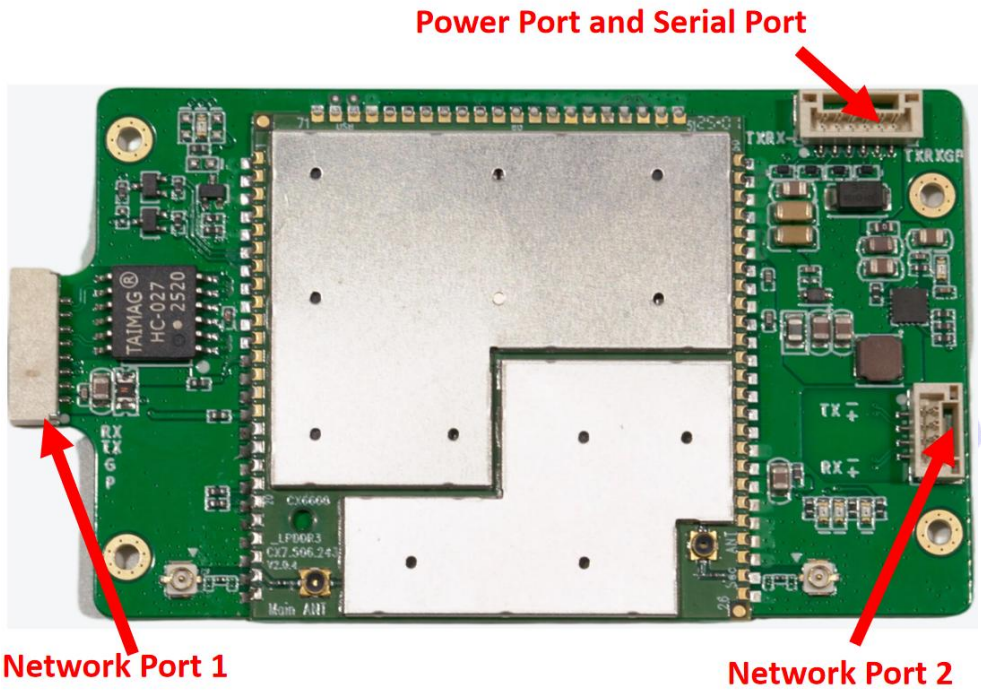
3.1.Mechanical Parameters

Video Transmission Board Dimensions (Length × Width): 84.2mm × 47mm





3.2.Interface Definitions and Functions



3.2.1.Video Transmission Board Power Port and Serial Port Pin Definitions

Pin	Signal	Voltage
P1	UART_TX	3.3V
P2	UART_RX	3.3V
P3	UART_COM_TX	3.3V
P4	UART_COM_RX	3.3V
P5	GND	GND
P6	VCC	12V

3.2.2.Pin Definitions for Ethernet Port 1 on the Video Transmission Board

Pin	Signal	Voltage
P1	12V	12V
P2	GND	GND
P3	UART_COM_TX	3.3V

P4	UART_COM_RX	3.3V
P5	RX+	Default
P6	RX-	Default
P7	TX+	Default
P8	TX-	Default

3.2.3.Pin Definitions for Ethernet Port 2 on the Video Transmission Board

Pin	Signal	Voltage
P1	TX-	Default
P2	TX+	Default
P3	RX-	Default
P4	RX+	Default

4.Features and Functions

- Star-shaped networking:
  Utilizes key technologies such as OFDM and MIMO
- Dual-antenna configuration:
  Single-antenna transmission, dual-antenna reception
- Supported wireless operating bands:
  2401.5-2481.5MHz, 1427.9-1447.9MHz, 806-826MHz
- Configurable wireless bandwidth:
  1.4MHz/3MHz/5MHz/10MHz/20MHz, supporting up to 30Mbps unidirectional throughput between two nodes
- Modulation schemes:
  Supports QPSK, 16QAM, and 64QAM modulation
- Encryption methods:
  Selectable encryption options include ZUC, SNOW3G, and AES
- Maximum transmit power: 25dBm±2
- Maximum transmission distance: 15km
- Node capacity:
  Supports up to 16 access nodes
- Configuration management:
  Basic configuration/reporting/query functions via WEB UI

5.Technical Specifications

Parameter Category	Parameter Item	Detailed Parameters
Basic Parameters	Supply Voltage	12V
	Weight	70g
	Image Transmission Board Dimensions (Length × Width)	84.2mm×47mm
RF	Power Level	2.4G/1.4G/800M ， 25dBm±2
	RF Frequency Bands	2401.5-2481.5MHz 1427.9-1447.9MHz 806-826MHz
	Sensitivity (Access)	2.4G（Channel 24415）: 20MHz -99dBm 10MHz -103dBm 5MHz -104dBm 3MHz-106dBm
		1.4G（Channel 14379） 20MHz -99dBm 10MHz -103dBm 5MHz -104dBm 3MHz -106dBm
		800M（Channel 8160） 20MHz -99dBm 10MHz -103dBm 5MHz -104dBm 3MHz -106dBm
	Sensitivity (BLER≤3%)	2.4G（Frequency 24415）: 20MHz -97dBm(5Mbps) 10MHz -96dBm(5Mbps) 5MHz -93dBm(5Mbps) 3MHz -98dBm(2Mbps)
		1.4G（Frequency 14379）: 20MHz -97dBm(5Mbps) 10MHz -96dBm(5Mbps) 5MHz -91dBm(5Mbps) 3MHz -97dBm(2Mbps)
		800M（Frequency 8160）: 20MHz -97dBm(5Mbps) 10MHz -97dBm(5Mbps)

		5MHz -94dBm(5Mbps) 3MHz -98dBm(2Mbps
Transmission Mode	**Unicast,Multicast,Broadcast**	Supported
	Transmission Mode	Single antenna for transmission, dual antennas for reception
	Data Link	Bidirectional master-slave data communication
	Uplink-Downlink Ratio	The central node supports uplink-downlink timeslot ratios of 2D3U/3D2U/4D1U/1D4U
Operating Bandwidth	**Supported Bandwidth**	1.4MHz/3MHz/5MHz/10MHz/20MHz
Rate	**Peak Rate**	Maximum one-way 30Mbps supported between two nodes
	Rate Level	Adaptive average allocation of system rate
Encryption	**Encryption Algorithm**	Three optional encryption algorithms including ZUC, SNOW3G, and AES
Modulation	**Modulation Methods**	Supports QPSK, 16QAM, 64QAM modulation methods
Anti-Interference	**Dynamic Frequency Modulation**	Supports frequency hopping
Retransmission	**HARQ Retransmission**	Supported
Network Capacity	**Number of Network Nodes**	Up to 16 access nodes
Sleep	**DRX**	Controlled by the master node; slave nodes are allowed to enter DRX, with wake-up cycle of 160ms
Transmission Distance	**Extreme Transmission Distance**	15km
Latency	**Module Air Interface Latency**	UL (Uplink) one-way, latency ≤15ms; DL (Downlink) one-way, latency ≤15ms
	Boot Latency	Boot latency of central node/slave node: 15s
System Control	**Parameter Configuration**	Transmit power/frequency point/bandwidth (real-time change), frequency band (non-real-time change)
	Status/Parameter Reporting	Connection status, rsrp, snr, distance, uplink/downlink throughput, etc.

Configuration Management	**WEB UI**	Meets basic configuration/reporting/query functions
Software Upgrade	**OTA**	Supports OTA upgrade, including local and remote upgrades
Transmitter Spurious Emissions	**<-36dBm@BW=1kHz**	9KHz=<f<150KHz
	<-36dBm@BW=10kHz	150KHz=<f<30MHz
	<-36dBm@BW=100kHz	30MHz=<f<1000MHz
	<-36dBm@BW=1MHz	1GHz=<f<12.75GHz
Adjacent Channel Leakage Ratio	**ACLR**	<-29.2dBc@E-UTRA1; <-32.2dBc@UTRA1; <-35.2dBc@UTRA2
Power Consumption	**Peak**	Power consumption at maximum rate: 700mA±15%
Temperature Range	**Operating Temperature**	-20°C～75°C
	Storage Temperature	-40°C～85°C
Humidity Range	**Operating Humidity**	5%～95% (without condensation)