



2Watts×2  
Standard



2Watts×2  
+HDMI/SDI



4Watts×2/5Watts×2  
+Longer Battery



1T2R  
Dual-band Switching



2Watts×2/4Watts×2/5Watts×2



ULSC Modular Amplifier



2Watts×2  
+5G Routing



2Watts×2  
+Camera&Display



2Watts×2  
+DMR&PDT



Dual-band Operation Simultaneously/  
ULSC Four-band Selection Operate

# Multiple Handheld-Wireless MESH/Data Link Technical Specifications

## General

SDR Platform, Waveform	AD936X+FPGA (7Z020, 7Z030, 7Z035, 7Z100), Mobile network MANET+MIMO
MIMO Technology	Space-time coding, Receive Diversity, TX /RX beamforming, Spatial multiplexing
Receive Sensitivity	-103dBm@5MHz BW
Channel Bandwidth	1.25/2.5/5/10/20MHz (7Z020, 7Z030)/40MHz (7Z035)/80MHz (7Z100, 40MHz+40MHz dual antenna frequency transceiver of carrier aggregation), configurable
Data Rate	1-70Mbps (20MHz BW, 7Z020)/1-130Mbps (20MHz BW, beamforming by 7Z030)/1-252Mbps (40MHz BW, 7Z035)/1-350Mbps (80MHz BW, 7Z100) Adaptive, QoS
Modulation Mode	TD-COFDM, BPSK/QPSK/16QAM/64QAM/256QAM/1024QAM Adaptive (Fixed setting optional)
RF Output Power (Support TPC, transmission power control, 1dBm adjustable)	2Watts*2 4Watts*2 5Watts*2
Single Hop Communication Distance	50-200KM (LOS), 1-30KM (urban area)
Mode	Distributed centerless Point-to-point/Point-to-multipoint/Multipoint-to-multipoint, Layer 2 or 3 of Dynamic routing, Multi-hop relay, Star/Line/Network/Hybrid
Single Hop Delay	Average 6ms (Unidirectional, 20MHz BW)
Encryption	DES, AES128/256 (SM4/SNOW3G/ZUC optional, Chip/TF card encryption customized or external encryption machine)
Anti-Jamming Mode	Channel selection for manual spectrum scanning, across the entire frequency band (single-band/dual-band/triple-band) to enhanced intelligent frequency selection (spectrum awareness)/adaptive frequency hopping (FHSS) (up to 1000hops/second)/roaming mode, and multi-level anti-interference capabilities.
Local/Remote Management	Operating frequency, channel bandwidth, network ID, transmit power and other parameter settings, spectrum scanning, real-time display and statistical records of network topology, link field strength signal-to-noise ratio, upload and download traffic, node distance, BD/GPS(GNSS) positioning electronic map, temperature/voltage/jamming Monitoring, software upgrade (remote silence and wake-up optional)
Others	The startup time is less than 28 seconds, and the network access/update/switchover time is less than 1 second; There is no limit on the user capacity of a single system (256 nodes or more) and the number of hops in Mesh networks (Data 15+ hops, voice 10+ hops, video 8+ hops); The total transmission rate loss for more than three hops is less than 70%; Automatic carrier tracking, adapted to a Doppler frequency deviation of ±6kHz frequency offset, supports mobile communication at speeds above 7200 kilometers per hour (6 Mach, 2000 meters per second)

## Mechanical

Size/Weight	19.0×6.8×3.8cm/769g, with 11.1V/77.7Wh battery 26.0×6.8×3.8cm/1.04kg, with 11.1V/114Wh battery (4Watts*2/5Watts*2) 22.2×6.8×4.0cm/894g, with 11.1V/77.7Wh battery (HDMI/SDI) 20.7×6.9×5.5cm/1.30kg, with 11.1V/114Wh battery (5G Routing) 21.0×6.8×5.2cm/972g, with 11.1V/77.7Wh battery (Four-band) 15.5×6.6×3.2cm/430g, Contains lithium battery, does not include antenna and back clip
Installation/Color	Handheld/Black (Iron Gray, Army Green optional)

## Power

Supply Voltage	12-36V DC, 2Watts*2/4Watts*2/5Watts*2
Power consumption	Operation 1-2A/Standby 0.4-0.6A@12V, 2Watts*2 Operation 2-4A/Standby 0.5-0.7A@12V, 4Watts*2/5Watts*2
Power Selection	6-8 hours for 77.7Wh polymer lithium battery (Default); 8-10 hours for 114Wh polymer lithium battery

## Interface

Basic interface	2xTNC RF, 1-2xRJ45 Ethernet 100/1000BaseT, RS232, Wi-Fi AP, DC input, BD/GPS (GNSS), TTL (UART)/SBUS/Bluetooth 1.2-230.4Kbps available. Supports transparent transmission over Ethernet and serial ports, and all communication protocols, including MAVLink. Selectable service priority
Push to talk/Auxiliary interface	MIC, SPK, PTT, GND/1xRS232, TTL, SBUS
Network Extension Optional	Public Network Routing/4G LTE, WB-NB integration, Fiber, Satellite
Video Extension Optional	Low Delay HDMI/SDI/CVBS, 4K/2K/1080P/720P/D1
LINK Indicator	Steady red - The network is not connected Blinking red - Starting/not connected to the network Steady green - The network is connected Blinking green - Push-To-Talk has been pushed
RSSI Indicator	Steady green - The link quality is excellent Steady blue - The link quality is good Steady yellow - The link quality is medium Steady purple - The link quality is slightly worse Steady red - The link quality is poor Off - The link is interrupted
Management Interface/Control Interface	Web-based network management/GUI, API for secondary development interface/SNMP

## Environmental

Operation Temperature	-40°C ~+80°C	Protection Level	IP66 (IP67/IP68 Customized)
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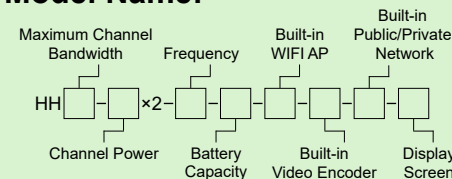
### Bands(70M-6GHz/Uper C-X-Ku customizable. Same frequency or different frequency of TDD, single-band/dual-band/tri-band of 2T2R)

BAND	Frequency range	BAND	Frequency range
VHF/UHF (MHz)	360-450/450-550/570-700/800-950, 225-400/225-678/320-470*	S Band (GHz)	2.0-2.2/2.2-2.4/2.3-2.5/2.5-2.7/2.7-2.9/3.2-3.4/3.4-3.6/3.6-3.8, 1.9-2.7/2.0-2.7/2.1-2.7/2.7-3.6*, 2-4GHz Customization
L Band (GHz)	1.0-1.2/1.1-1.3/1.3-1.5/1.5-1.7/1.6-1.8, 1.0-1.5/1.1-1.6/1.2-1.7/1.3-1.8/1.6-2.3/1.7-2.4/1.8-2.5*, 500M-2GHz Customization	C Band (GHz)	4.4-5.0/5.25-5.85, 4.2-5.2/5.5-6.0/6.4-7.2*, 4-6GHz Customization
MIIT (MHz)	336-344/512-592/566-626/606-678/1420-1520/1430-1444		

(Note: RF power, Dimensions, Weight is different)

### Product Model Approval Certificate of Radio Administration of The Ministry of Industry and Information Technology of China: 2018FP5238, 2018FP6081, 2021FP0114, 2021DP10060, 2022FP15779

#### Model Name:



Maximum Channel Bandwidth (MHz)	Channel Power (W)	Frequency (MHz)	Battery Capacity (Wh)	Built-in WIFI AP	Built-in Video Encoder	Built-in Public/Private Network	Display Screen
20	2	600, U	0(N)	0(N)	0(N)	0(N)	0(N)
40	4	1400, L	77.7	1(Y)	HDMI	4G/5G	2(2")
80	5	2300, S	114		SDI/AV	4G LTE CPE	3(3.2")
		4500, C					4(4")

HH20-2×2-1400-7.7-1-HDMI-4G/5G-0-0 Express: Maximum Channel Bandwidth 20MHz, 2Watts\*2, 1400MHz, With 77.7Wh Battery, With WIFI AP, Built-in HDMI Coding, Built-in 4G/5G Public Network Module, Without Display Screen Handheld Radio.

#### Accessories/Options:

**Digital voice**      **Battery charger**      **Camera**      **MESH PTZ Camera**      **Smart Helmet**

**Primary Cable/ Auxiliary Cable**      **Handheld**      **Antenna**      **Command Dispatch Desk (Scheduling software optional)**      **Monitor Station**

#### Application Diagram: