

F700T-36-1G Datasheet

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Product Overview

Huawei eKitOptiX F700T-36-1G is an GPON upstream Wi-Fi 7 optical access point (AP) that provides one GE port and 2.4 GHz & 5 GHz Wi-Fi 7 functions on the user side. The F700T-36-1G features the new Wi-Fi 7 technology which provides outdoor coverage, IP68 waterproof and dustproof performance, and strong surge protection capability. It is applicable to outdoor coverage scenarios such as squares, pedestrian streets, and amusement parks.



- Provide services simultaneously on both the 2.4 GHz (2x2 MIMO) and 5 GHz (2x2 MIMO) frequency bands, at a data rate of up to 689 Mbps at 2.4 GHz and 2.88 Gbps at 5 GHz.
- Supports 5 GHz directional and omnidirectional antennas, which can be switched based on Wi-Fi coverage requirements in different scenarios.
- Support Fit and Fat modes.
- The entire device supports a maximum access of 256 users, and each radio supports a maximum access of 128 users.

Feature Descriptions

Wi-Fi 7 (802.11be) Standard

Wi-Fi 7 complies with IEEE 802.11be Extremely High Throughput (EHT) and aims to provide higher throughput and lower latency. Based on Wi-Fi 6, Wi-Fi 7 introduces technologies such as 320 MHz bandwidth, 4096-quadrature amplitude modulation

(QAM), multi-resource unit (RU), enhanced multi-user multiple-input multiple-output (MU-MIMO), and multi-AP coordination. Drawing on these cutting-edge technologies, Wi-Fi 7 delivers a higher data transmission rate and lower latency than Wi-Fi 6.

Wi-Fi 7 vs. Wi-Fi 6

Based on the Wi-Fi 6 standard, Wi-Fi 7 introduces a plurality of new technologies. The following compares Wi-Fi 6 and Wi-Fi 7.

Parameter	Wi-Fi 6	Wi-Fi 7
Communication standard	802.11ax	802.11be
Frequency band	2.4GHz, 5GHz, 6GHz (only for Wi-Fi 6E)	2.4GHz, 5GHz, 6GHz
Channel width	20/40/80/160 MHz	20/40/80/160/320 MHz
Modulation scheme	1024-QAM	4096-QAM
Maximum theoretical rate	9.6Gbps	46Gbps

NOTE

- The maximum transmission rate of the picture is the maximum rate of a single radio. It is 5 GHz radio for Wi-Fi 6, while it is 6 GHz radio for Wi-Fi 7.
- This device does not support 6G frequency band.

New Features in Wi-Fi 7

Wi-Fi 7 aims to increase the WLAN throughput and provide low-latency access assurance. To achieve this goal, the Wi-Fi 7 standard defines modifications to both the physical layer (PHY) and MAC layer. Compared with Wi-Fi 6, Wi-Fi 7 brings the following technical innovations:

Multi-RU

- In Wi-Fi 6, each user can send or receive frames only on the RUs allocated to them, which greatly limits the flexibility of spectrum resource scheduling. To resolve this problem and further improve spectrum efficiency, Wi-Fi 7 defines a mechanism for allocating multiple RUs to a single user. To balance the implementation complexity and spectrum utilization, the Wi-Fi 7 standard specifications impose certain restrictions on RU combination. That is, small RUs (containing fewer than 242 tones) can be combined only with small RUs, and large RUs (containing greater than or equal to 242 tones) can be combined only with large RUs. Small RUs and large RUs cannot be combined together.

Higher-Order 4096-QAM

- The highest order modulation supported by Wi-Fi 6 is 1024-QAM, which allows each modulation symbol to carry up to 10 bits. To further improve the rate, Wi-Fi 7 introduces 4096-QAM so that each modulation symbol can carry 12 bits. With the same coding scheme, 4096-QAM in Wi-Fi 7 can achieve a 20% rate increase compared with 1024-QAM in Wi-Fi 6.

Multi-Link Mechanism

- To efficiently utilize all available spectrum resources, the Wi-Fi 7 standard defines multi-link aggregation technologies, including the MAC architecture of enhanced multi-link aggregation, multi-link channel access, and multi-link transmission.

All-Round Outdoor Protection

Wide temperature range of -40°C to +65°C with a metal shell and an overall heat dissipation design, IP68 waterproof and dustproof design, and 6 kV surge protection for Ethernet ports, meeting outdoor application requirements

Hardware Specifications

Product Parameters

Parameter	Description
Dimensions (H x W x D)	76mm x 230mm x 230mm
NNI	GPON
UNI	1 x GE + 2.4 GHz & 5 GHz Wi-Fi 7
Power supply mode	GE port PoE: 802.3bt, class 7
Power rating	PoE: 48V DC, 1.15A
Static power consumption	10 W
Maximum power consumption	55 W
Operating temperature	-40°C to +65°C, start up at -25°C
Operating humidity	5%RH to 95%RH (non-condensing)
Weight (without adapter)	About 2.7 kg
IP rating	IP68
Surge protection	GE: 6 kV in common mode and 1.5 kV in differential mode Surge protection current: 250 A in differential mode, 3 kA in common mode, 8-wire
Installation mode	Outdoor wall-mounted or pole-mounted installation

Wi-Fi Parameters

Parameter	Description
Communication standard	2.4GHz: IEEE 802.11 b/g/n/ax/be 5GHz: IEEE 802.11 a/n/ac/ac wave2/ax/be The 2.4 GHz and 5 GHz radios work simultaneously.
Operating frequency band	2.400 to 2.4835 GHz ISM 5.150 to 5.250 GHz U-NII-1 5.250 to 5.350 GHz U-NII-2A 5.470 to 5.725 GHz U-NII-2C 5.725 to 5.850 GHz U-NII-3/ISM NOTE The available bands and channels are dependent on the configured regulatory domain (country).
Antenna	Built-in antenna 2.4 GHz directional antenna, 5 GHz omnidirectional antenna + directional antenna NOTE In FAT AP mode, the 5GHz band only supports omnidirectional antennas.
Number of Spatial Streams	2.4GHz: 2×2 MIMO 5GHz: 2×2 MIMO
Bandwidth	20/40/80/160MHz

Parameter	Description
Antenna gain	2.4 GHz directional: 9 dBi 5G directional: 9 dBi 5G omnidirectional: 5 dBi
Air interface rate	2.4GHz: 688 Mbit/s 5GHz: 2882 Mbit/s
Maximum number of SSIDs supported by a single radio	8
Maximum number of access users	256 (Maximum number of users per radio: 128)
Maximum transmit power	2.4GHz: 27dBm 5GHz: 28dBm NOTE The actual transmit power varies according to local laws and regulations.

Port Parameters

Interface	Description
PON	- Port mode: GPON - Port type: SC/UPC - Complying with ITU-T G.984.2, Class B+ - Receiver sensitivity: -27dBm - Overload optical power: -8dBm - Transmission rate: upstream 1.244 Gbit/s, downstream 2.488 Gbit/s
GE/POE IN	- RJ-45 port - Standards compliance: IEEE802.3 10/100/1000 Mbit/s auto-sensing - Half duplex/full duplex auto-negotiation and configuration - VLAN tag/tag removal, VLAN transparent transmission, and VLAN filtering based on Ethernet ports

Product Functions

Item	Description
WLAN features	- Compliance with IEEE 802.11be and compatibility with IEEE 802.11a/b/g/n/ac/ax - Beamforming - Multi-user multiple-input multiple-output (MU-MIMO) - Multi-RU - Orthogonal frequency division multiple access (OFDMA) - BSS Color - Compliance with 4096-quadrature amplitude modulation (QAM) and compatibility with 1024-QAM, 256-QAM, 64-QAM, 16-QAM, 8-QAM, quadrature phase shift keying (QPSK), and binary phase shift keying (BPSK)

Item	Description
	• Frame aggregation, including A-MPDU (Tx/Rx) and A-MSDU (Tx/Rx) • 802.11 dynamic frequency selection (DFS) • Wi-Fi multimedia (WMM) for priority-based data processing and forwarding • WLAN channel management and channel rate adjustment • Automatic channel scanning and interference avoidance • Service set identifier (SSID) hiding configuration for each AP, supporting Chinese SSIDs • 802.11k and 802.11v smart roaming
Network features	• SSID-based VLAN assignment • Management channel of the AP's uplink port in tagged or untagged mode • DHCP client, obtaining IP addresses through DHCP • Tunnel data forwarding and direct data forwarding • STA isolation in the same VLAN • ACL • Link layer discovery protocol (LLDP) • Telemetry in Fit AP mode, quickly collecting AP status and application experience parameters • IPv6 in Fit AP mode
QoS	• Priority mapping for upstream packets and flow-based mapping for downstream packets • Queue mapping and scheduling • User-based bandwidth limiting • Adaptive bandwidth management (automatic bandwidth adjustment based on the user quantity and radio environment) to improve user experience • Airtime scheduling • Air interface HQoS scheduling
WLAN Security	• Open system authentication • WPA2-PSK authentication and encryption • WPA3-SAE authentication and encryption • WPA-WPA2 hybrid authentication • WPA2-WPA3 hybrid authentication • Wi-Fi management frame encryption
Maintenance features	• Supports centralized management and maintenance of Wi-Fi ONUs on the F series optical gateway and the EA series OLT in Fit AP mode • Automatic login, automatic configuration loading, and plug-and-play (PnP) in Fit AP mode • Automatic batch upgrade in Fit AP mode • System status alarm • OMCI/Web UI/TR069 • Variable-length OMCI • Software dual-backup and rollback • IPTV video simulation test • Rogue ONT detection and isolation initiated by OLT • PPPoE and DHCP simulation tests • One-click diagnosis (web) • Ring network detection

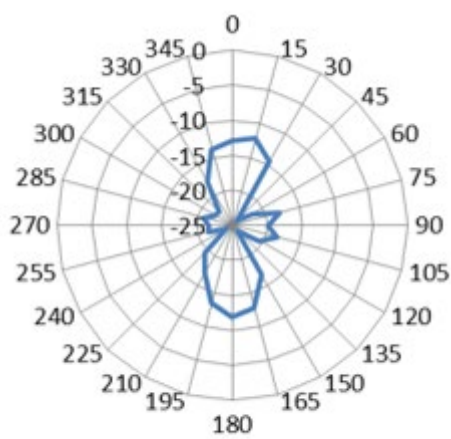
Item	Description
Multicast	• IGMP v2/v3 snooping • IGMP v2/v3 proxy • MLD v1/v2 snooping
Security	• Anti-DoS • MAC and IP address filtering • MAC address and IP address binding • MAC address authentication, 802.1X authentication, MAB authentication, and dynamic delivery of user policies (VLANs and ACLs)
L3 Feature	• PPPoE, static IP address, DHCP • NAT/NAPT • Port forwarding • ALG,UPnP • DDNS/DNS server/DNS Client • IPv6/IPv4 dual stack, DS-Lite • Static route/default route • Multiple services carried over one WAN port
Networking Protection	• Type B single-homing protection • Type B dual-homing protection

Standards Compliance

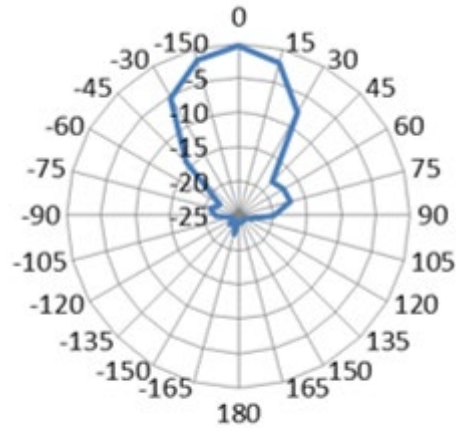
Name	Standard	
Safety standards	• EN 62368-1 • IEC 62368-1 • GB 4943.1	
Radio standards	• ETSI EN 300 328 • ETSI EN 301 893 • AS/NZS 4268	
Electromagnetic compatibility standards	• EN 301 489-1 • EN 301 489-17 • EN 55032 • EN 55035 • GB/T 9254.1	• GB 17625.1 • GB 17625.2 • AS/NZS CISPR32 • CISPR 32 • CISPR 35
IEEE standards	• IEEE 802.11a/b/g • IEEE 802.11n • IEEE 802.11ac • IEEE 802.11ax • IEEE 802.11be • IEEE 802.11h	• IEEE 802.11d • IEEE 802.11e • IEEE 802.11k • IEEE 802.11v • IEEE 802.11w
Security standards	• 802.11i, Wi-Fi Protected Access (WPA), WPA2, WPA2-Enterprise, WPA2-PSK, WPA3	

Name	Standard
	• 802.1X • Advanced Encryption Standards (AES), Temporal Key Integrity Protocol (TKIP), Open • EAP Type(s)
Electromagnetic field standards	• EN 62311 • EN 50385
ROHS	• Directive 2002/95/EC & 2011/65/EU • (EU)2015/863
Reach	• Regulation 1907/2006/EC
WEEE	• Directive 2002/96/EC & 2012/19/EU

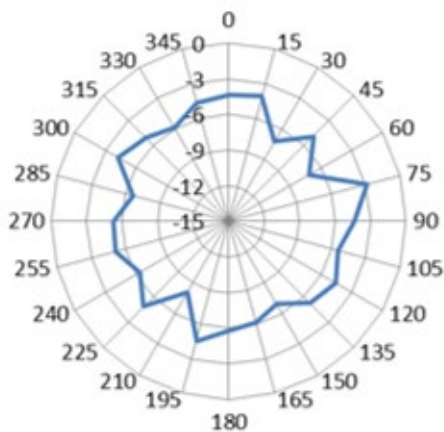
Antennas Pattern



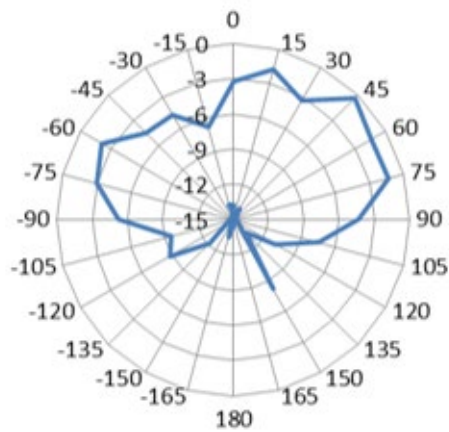
2.4GHz (horizontal)



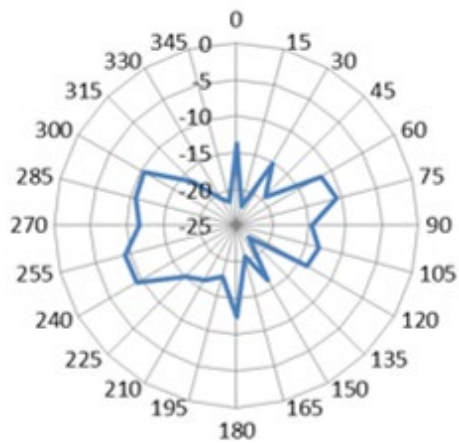
2.4GHz (vertical)



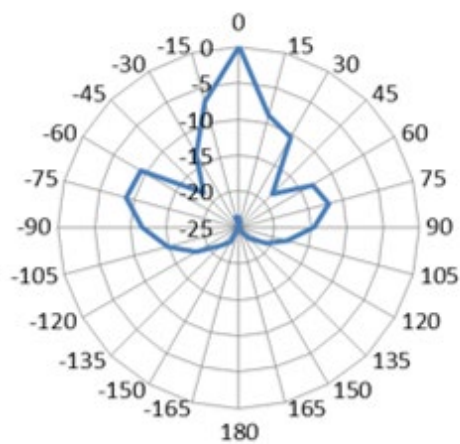
5GHz omnidirectional antenna (horizontal)



5GHz omnidirectional antenna (vertical)



5GHz directional antenna (horizontal)



5GHz directional antenna (vertical)

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