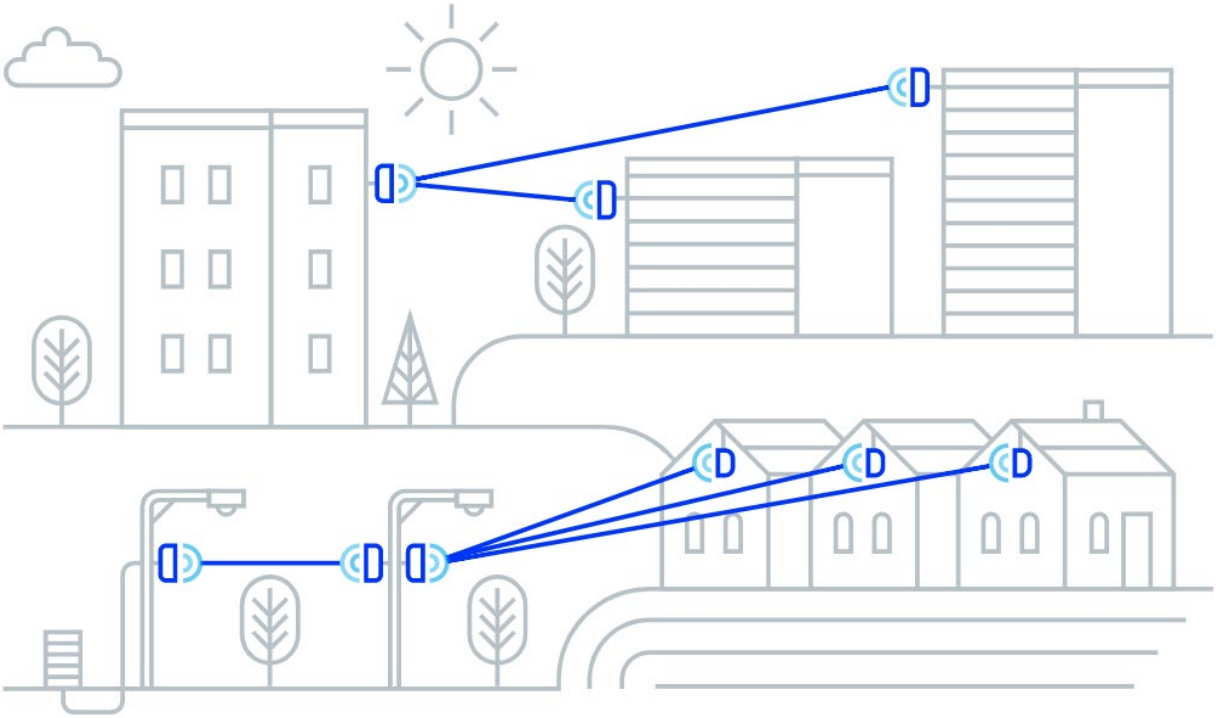

Architectural and Engineering Specification
Altowav K60

March 14, 2025

1. Summary

A. The intent of this document is to specify the minimum criteria for the design, supply, and installation of the Altowav K60 60GHz wireless radio.

B. Product: V band radio that provides wireless point-to-point and point-to-multipoint connectivity based on the 802.11ay standard, with 1GbE Ethernet support.

C. AltoPlex radios provide carrier-grade network connectivity for Ethernet applications such as high-definition megapixel cameras, multi-sensor cameras, and network video recorders (NVRs), as well as extending networks at fiber-quality speeds to provide Wi-Fi backhaul, smart city municipal building-top and street-level implementations, and connecting law enforcement locations.

D. Related requirements:

- Features and functionality
  - Operation
  - Connectivity
  - Security
  - System management
- Device Power
- Device dimensions
- Physical installation
- Enclosure
- Certifications

2. Specification

E. The Altowav K60 shall include the following features and functionality:
   1. The K60 shall be able to function as a Hub or a Remote.
   2. When operating in Hub mode, the K60 shall support up to 8 connections to Remotes.
   3. The K60 shall provide 90° horizontal and +/-20° vertical coverage.
   4. The K60 shall operate in the unlicensed 57-66GHz band.
      a) The K60 shall provide 3 non-overlapping 2.16GHz channels within the 57-66GHz band.
      b) Channel access shall be TDD.
   5. The K60 shall have 8 levels of Modulation and Coding Schemes from MCS-0 (BPSK) to MCS-8 (QPSK).
   6. The K60 shall have a capacity of up to 1.8Gbps aggregate.
   7. The K60 shall have less than 1ms latency.
   8. Ethernet ports:
      a) The K60 shall have 2 RJ-45 1G BASE-T Ethernet ports (with auto-negotiation speeds of 1Gbps/100Mbps).
         i. One K60 Ethernet port shall be used to provide power to the device by using 802.3af/at/bt Power over Ethernet (PoE).
         ii. One K60 Ethernet port shall be used as active 802.3af/at PoE output up to 30W.
      b) The K60 Ethernet ports shall have IP67-rated ingress protection (requires HARTING IP67 connectors).
   9. The K60 shall have transparent Ethernet bridging types including VLAN and VLAN stacking.
   10. The K60 shall utilize hardware-based AES-128 encryption.
   11. The K60 shall have an operating temperature range of -40° to +131°F (-40° to +55°C.)

F. System Management:
   1. The K60 shall provide a WebUI accessed from a desktop browser for configuration, management, and monitoring.
      a) The K60 shall also be optionally supported with AltoCommand, Altowav's enterprise management and monitoring UI.
      b) The K60 shall be able to be operated without AltoCommand.
   2. The K60 shall support various management protocols: HTTPS, SSH.
   3. The K60 shall provide a REST API for management and monitoring.
   4. The K60 shall provide the ability to save the unit configuration and upload it from local and remote connection.
      a) Configuration backup and restore shall be supported via the REST API.
   5. The K60 shall provide the ability to update configuration over the network (in-band).
   6. The K60 shall provide the ability to upgrade software over the network (in-band).
   7. The K60 shall default to using a preconfigured, unique static IP address.

8. The K60 shall be able to be configured to use dynamic IP address assignment (DHCP).
9. The K60 shall have a single green/red bi-color LED.
    a) The LED shall provide visual indication of the status of the device, including:
        i. When the device is in Hub mode and is the device operating normally.
        ii. When the device is in Remote mode and is waiting to form a link to a hub.
        iii. When the device is in Remote mode and is connected to a hub.
        iv. When the device is powering up.
        v. When the device is in an error condition.
    b) The K60 shall provide the ability to set the LED into "locate mode" which flashes a specific sequence to allow the device to be located.
    c) The K60 shall provide the ability to disable the LED.

G. Power:
1. The K60 shall have Power over Ethernet (PoE) support:
    a) One K60 Ethernet port shall be used to provide power to the device by using 802.3af/at/bt Power over Ethernet (PoE).
    b) One K60 Ethernet port shall be used as active 802.3af/at PoE output up to 30W.
2. The K60 shall have a 8W maximum power consumption, not including PoE output.
    a) Including PoE output, the K60 shall have a total power consumption of up to 38W.

H. Dimensions:
1. The K60 shall be 6.2 x 3.9 x 1.9 inches (157 x 99 x 48 mm).
2. The K60 shall weigh 14 oz (400g)

I. Physical installation
1. The K60 shall provide a pole/wall mounting bracket which allows for adjusting the vertical tilt.
2. The K60 shall have an optional wall standoff bracket that allows for azimuth adjustment when mounting the device to a wall.
3. The K60 shall provide an IP67-rated cable gland for installation of an Ethernet cable.

J. Enclosure
1. Mechanical installation of the K60 shall not require special tools.
2. The K60 enclosure shall include all necessary link components:
    a) Baseband.
    b) Radio.
    c) Scanning antenna.
3. The enclosure shall include the ability to be grounded.

K. The K60 shall include the following certifications:
   1. Radio:
      a) FCC ID: 2AMP5K60
      b) IC: 22992-K60
   2. ESD: IEC EN 61000-4-2
   3. EMC: IEC EN 61000-4-3