



**DEVELOPMENTAL SPECIFICATIONS
FOR
PORTABLE POP-UP NETWORK FOR INSPECTION USE**

**Effective Date
January 17, 2024**

THE STANDARD SPECIFICATIONS, SERIES 2023, ARE AMENDED BY THE FOLLOWING MODIFICATIONS AND ADDITIONS. THESE ARE DEVELOPMENTAL SPECIFICATIONS AND THEY SHALL PREVAIL OVER THOSE PUBLISHED IN THE STANDARD SPECIFICATIONS.

23048.01 DESCRIPTION.

This Developmental Specification defines the minimum requirements for portable suitcase pop-up network cases to be used in highway construction sites, equipped with dual SIM 5G mobile connectivity. The network cases shall provide reliable, high-speed wireless connectivity to support construction site inspections through digital means and safety of field staff in support of digital construction technologies.

23048.02 MATERIALS.

- A.** Pop up network case shall include the following minimum requirements:
- Rugged case (w/CAT6 port, 12.6V input, power button).
 - DC power cord, wall charger, ethernet, & antenna cables (all pre-wired).
 - Secure connectivity for network access.
 - Mobile dual SIM provider 5G LTE connection with two Wi-Fi radios (5 GHz and 2.4 GHz).
 - 1 Gbps download speed; 150 Mbps upload speed where available.
 - 300 feet of expected Wi-Fi broadcast range.
 - Ability to configure, manage, troubleshoot remotely with cloud management software.
 - Multiple simultaneous connections.
 - Advanced threat protection and cloud-managed security controls.
 - Integrated antennas and external CAT6 port with POE.
- B.** Device shall meet or exceed the following specifications:
- **Safety Certifications:** UL/CUL, CB Scheme, EN60950-1, EN 62368
 - **Material Certifications:** WEEE, RoHS, RoHS-2, California Prop 65
 - **Case Specifications:** Weatherproofing IP64
 - **Antenna Type:** Multi-MIMO
 - **Leads:** Two Cellular, two Wi-Fi, and one GPS
 - **Cellular Type:** 4G | CBRS | LTE (617-960MHz / 1710-6000MHz)
 - **Bands:** B2 B4 B5 B12 B14 B17 B25 B26 B29 B30 B41 B66 B71 n5 n25 n41 n66 n71 B2 B4 B5 B12 B14 B17 B29 B30 B48 B66 n5 B2 B4 B5 B12 B14 B17 B29 B30 B66
 - **5G NR Bands:** n77 n78 n79 n77 n78 n79 n77 n78 n79
 - **Wi-Fi Frequency Range:** 2.4GHz to 7GHz (Concurrent)

- **Isolation 4G 5G Elements:** >10dB
- **Isolation Wi-Fi Elements:** >12db
- **Correlation Co-Efficient 4G/5G Elements:** <0.2
- **Correlation Co-Efficient Wi-Fi Elements:** <0.2
- **Nominal Impedance:** 50Ω
- **Frequency Range:** 1562MHz to 1612MHz
- **LNA Gain:** 29dB ± 2dB
- **VSWR:** <2.0:1
- **Out of Band Rejection:** >45dB (@ > +/- 100MHz f)
- **Typical Noise Figure:** <-2dB
- **Notch Filter Rejection:** @787MHz 24dB
- **Operating Voltage:** 3 to 5V DC
- **Typical Current:** 15mA
- **Antenna Housing:** High Impact UV Stable ABS Polymer
- **Connector Type:** SMA
- **Operating Temp:** -40°F to +176°F
- **Battery Specifications:**
 - FAA compliant Battery Pack (up to 10 hours life)
 - Battery Type Lithium-Ion
 - Output 12V
 - Capacity 10,000 mAh
 - Short-Circuit Protection
 - Over-Current Protection
 - Overcharging Protection
 - Discharge Protection

23048.03 CONSTRUCTION.

- A. Furnish unit to the Engineer at least 24 hours before mobilization to the project.
- B. If unit fails, loses functionality due to damage, or is lost, repair or replace the unit within 10 working days. If lost or damaged by the Engineer or their representative, cost to replace the unit will be borne by the Contracting Authority.
- C. Contractor may connect to the unit, provided it doesn't significantly slow the bandwidth while the Engineer is using it.

23048.04 METHOD OF MEASUREMENT.

The Engineer will count the number of Pop-Up Network Devices furnished according to this specification.

23048.05 BASIS OF PAYMENT.

- A. Payment for each Pop-Up Network Device will be the contract unit price.
- B. Payment is full compensation for furnishing, delivery, and maintaining service (including cellular costs) to the Pop-Up Network Device for the duration of the contract.