



# APX™ 6500

## PROJECT 25 MOBILE RADIO

We've put exceptional flexibility into an advanced mission critical mobile radio that's easy to operate and intuitive to use. The APX 6500 P25 mobile allows users to choose from 4 control heads, mid and high power models and multiple installation configurations in an easy to install design. Innovative safety features such as GPS location tracking, intelligent lighting and one-touch controls help to keep first responders safer than ever before.

Focus on the task not the technology, with the hardworking mission critical mobile that turns mission critical into mission complete.

### **FLEXIBLE PLATFORM**

- Interchangeable control heads that best support your operational needs - 02, 03, 05, 07
- Two transceiver options - high-power and mid-power
- Dual control head support offered on the 02, 05 and 07 control heads

### **EASY TO INSTALL AND EFFORTLESS TO USE**

- Mid-power model fits into any existing XTL footprint, so you can reuse mounting holes and cables
- High-power model trunnion design lets you remove the radio without removing the cables
- 12 character RF ID label helps you track information without uninstalling your radio

### **CUTTING-EDGE TECHNOLOGY AND ADVANCED FEATURES**

- Project 25 Phase 2 technology provides twice the voice capacity
- Integrated GPS lets you locate and track an individual or vehicle
- Advanced features like intelligent lighting, radio profiles and text messaging improve communication and coordination



## APX™ 6500 SPECIFICATIONS

### FEATURES AND BENEFITS:

Available in 700/800 MHz, VHF, UHF R1 and UHF R2 bands  
Channels: 870\*

Trunking Standards supported:

- Clear or digital encrypted Trunked Operation
- Capable of SmartZone®, SmartZone Omnilink, SmartNet®

Analog MDC-1200 and Digital APCO P25 Conventional System Configurations

Narrow and wide bandwidth digital receiver  
(6.25kHz/12.5kHz/20kHz/25kHz)

Embedded digital signaling (ASTRO and ASTRO 25)

Integrated GPS capable

Integrated Encryption Hardware

Intelligent lighting

Radio profiles

Unified Call List

Ships standard IP54

Utilizes Windows XP, Vista and Windows 7  
Customer Programming Software (CPS)

- Supports USB Communications
- Built in FLASHport™ support

Re-use of most XTL™ accessories, plus new IMPRES accessories

### OPTIONAL FEATURES:

Enhanced Encryption Software Options

Programming over Project 25 (POP25)

Text Messaging

Over the Air Rekeying (OTAR)

12 character RF ID asset tracking

Tactical OTAR

\*Enhancement package available

### TRANSMITTER - TYPICAL PERFORMANCE SPECIFICATIONS

|                                                       | 700 MHz                    |                          | 800 MHz                             |                     | VHF                            |                     | UHF Range 1                    |                     | UHF Range 2                                                                         |                     |
|-------------------------------------------------------|----------------------------|--------------------------|-------------------------------------|---------------------|--------------------------------|---------------------|--------------------------------|---------------------|-------------------------------------------------------------------------------------|---------------------|
| Frequency Range/Bandsplits                            | 764-776 MHz<br>794-806 MHz |                          | 806-824 MHz<br>851-870 MHz          |                     | 136-174 MHz                    |                     | 380-470 MHz                    |                     | 450-520 MHz                                                                         |                     |
| Channel Spacing                                       | 25/20/12.5 kHz             |                          | 25/20/12.5 kHz                      |                     | 25/20/12.5 kHz                 |                     | 25/20/12.5 kHz                 |                     | 25/20/12.5 kHz                                                                      |                     |
| Maximum Frequency Separation                          | Full Bandsplit             |                          | Full Bandsplit                      |                     | Full Bandsplit                 |                     | Full Bandsplit                 |                     | Full Bandsplit                                                                      |                     |
| Rated RF Output Power Adj*                            | 10-30 Watts                |                          | 10-35 Watts                         |                     | 10-50 Watts or<br>25-110 Watts |                     | 10-40 Watts or<br>25-110 Watts |                     | 10-45 Watts (450-485 MHz) 10-40<br>Watts (485-512 MHz)<br>10-25 Watts (512-520 MHz) |                     |
| Frequency Stability*<br>(-30°C to +60°C; +25°C Ref.)  | ±0.00015 %                 |                          | ±0.00015 %                          |                     | ±0.0002 %                      |                     | ±0.0002 %                      |                     | ±0.0002 %                                                                           |                     |
| Modulation Limiting*                                  | ±5 kHz / ±2.5 kHz          |                          | ±5 kHz/±4 kHz (NPSPEC)<br>/±2.5 kHz |                     | ±5 kHz / ±2.5 kHz              |                     | ±5 kHz / ±2.5 kHz              |                     | ±5 kHz / ±2.5 kHz                                                                   |                     |
| Modulation Fidelity (C4FM)<br>12.5kHz Digital Channel | ±2.8 kHz                   |                          | ±2.8 kHz                            |                     | ±2.8 kHz                       |                     | ±2.8 kHz                       |                     | ±2.8 kHz                                                                            |                     |
| Emissions*                                            | Conducted+<br>-75/-85 dBc  | Radiated+<br>-20/-40 dBm | Conducted<br>-75 dBc                | Radiated<br>-20 dBm | Conducted<br>-85 dBc           | Radiated<br>-20 dBm | Conducted<br>-85 dBc           | Radiated<br>-20 dBm | Conducted<br>-85 dBc                                                                | Radiated<br>-20 dBm |
| Audio Response*                                       | +1, -3 dB (EIA)            |                          | +1, -3 dB (EIA)                     |                     | +1, -3 dB (EIA)                |                     | +1, -3 dB (EIA)                |                     | +1, -3 dB (EIA)                                                                     |                     |
| FM Hum & Noise                                        | 25 kHz<br>12.5 kHz         | -50 dB<br>-48 dB         | -50 dB<br>-48 dB                    | -50 dB<br>-48 dB    | -53 dB<br>-52 dB               | -53 dB<br>-50 dB    | -53 dB<br>-50 dB               | -53 dB<br>-50 dB    | -53 dB<br>-50 dB                                                                    | -53 dB<br>-50 dB    |
| Audio Distortion*                                     | 2 %                        |                          | 2 %                                 |                     | 2 %                            |                     | 2 %                            |                     | 2 %                                                                                 |                     |

### DIMENSIONS

|                                                              | Inches                            | Millimeters          |
|--------------------------------------------------------------|-----------------------------------|----------------------|
| Mid Power Radio Transceiver                                  | 2 x 7 x 8.6                       | 50.8 x 177.8 x 218.4 |
| O5 Control Head                                              | 2 x 7 x 2.5                       | 50.8 x 180.3 x 63.5  |
| O2 Control Head                                              | 2.7 x 8 x 2.1                     | 68.4 x 206 x 52.83   |
| O7 Control Head                                              | 2 x 7 x 1.5                       | 50.8 x 178 x 40      |
| Mid Power Radio Transceiver and O5 Control Head-Dash Mount   | 2 x 7 x 9.6                       | 50.8 x 180.3 x 243.8 |
| Mid Power Radio Transceiver and O2 Control Head - Dash Mount | 2.7 x 8 x 10.5                    | 68.4 x 206 x 268     |
| Mid Power Radio Transceiver and O7 Control Head - Dash Mount | 2 x 7 x 10.3                      | 50.8 x 178 x 262     |
| Mid Power Radio Transceiver and Remote Mount                 | 2.0 x 7 x 9.6                     | 50.8 x 180.3 x 243.8 |
| High Power Radio Transceiver                                 | 2.9 x 11.5 x 8.8                  | 74 x 293 x 223       |
| High Power Radio Transceiver with Handle                     | 3.4 x 11.5 x 8.8                  | 87 x 293 x 223       |
| Mid Power Radio Transceiver and O5 Control Head Weight       | 6.6 lbs                           | 3.0 kg               |
| Mid Power Radio Transceiver and O2 Control Head Weight       | 7.12 lbs                          | 3.23 kg              |
| Mid Power Radio Transceiver and O7 Control Head Weight       | 6.74 lbs                          | 3.06 kg              |
| High Power Radio Transceiver Weight                          | With Trunnion<br>Without Trunnion | 14.2 lbs<br>12 lbs   |
|                                                              |                                   | 6.4 kg<br>5.4 kg     |

## APX 6500 CONTROL HEAD PORTFOLIO



### 02 RUGGED CONTROL HEAD

- Large color display with intelligent lighting
- 3 lines of text 14 characters max / 1 line of icons / 1 line of menus
- Built in 7.5 watt speaker
- Multiple control head configuration (up to 2)
- Multifunction volume/channel knob
- Night/day mode button

### 03 HAND HELD CONTROL HEAD

- Large color display with intelligent lighting
- 2 lines of text 14 characters max / 1 line of icons / 1 line of menus
- Integrated full size DTMF keypad
- Hand-held control head with intuitive user interface
- Two quick-access side buttons
- Display contrast selector

### 05 STANDARD CONTROL HEAD

- Tri-color display with intelligent lighting
- 2 lines of text 14 characters max / 1 line of icons / 1 line of menus
- Available with Keypad Microphone
- Multiple control head configuration (up to 2)
- Display contrast selector

### 07 ENHANCED CONTROL HEAD

- Large color display with intelligent lighting
- 3 lines of text 14 characters max / 1 line of icons / 1 line of menus
- Available with Lighting & Siren Controls or DTMF Keypad
- Multiple control head configuration (up to 2)
- Multifunction volume/channel knob
- Night/day mode button

## RECEIVER – TYPICAL PERFORMANCE SPECIFICATIONS

|                                                   |                              | 700 MHz             | 800 MHz             | VHF                     |                   | UHF Range 1         |                   | UHF Range 2         |                   |
|---------------------------------------------------|------------------------------|---------------------|---------------------|-------------------------|-------------------|---------------------|-------------------|---------------------|-------------------|
| Frequency Range/Bandsplits                        |                              | 764-776 MHz         | 851-870 MHz         | 136-174 MHz             |                   | 380-470 MHz         |                   | 450-520 MHz         |                   |
| Channel Spacing                                   |                              | 25/20/12.5 kHz      | 25/20/12.5 kHz      | 25/20/12.5 kHz          |                   | 25/20/12.5 kHz      |                   | 25/20/12.5 kHz      |                   |
| Maximum Frequency Separation                      |                              | Full Bandsplit      | Full Bandsplit      | Full Bandsplit          |                   | Full Bandsplit      |                   | Full Bandsplit      |                   |
| Audio Output Power at 3% distortion*              |                              | 7.5 W or 15 W ++    | 7.5 W or 15 W ++    | 7.5 W or 15 W ++        |                   | 7.5 W or 15 W ++    |                   | 7.5 W or 15 W ++    |                   |
| Frequency Stability* (-30°C to +60°C; +25°C Ref.) |                              | +/-0.8 PPM          | +/-0.8 PPM          | +/-0.8 PPM              |                   | +/-0.8 PPM          |                   | +/-0.8 PPM          |                   |
| Analog Sensitivity*                               | 12 dB SINAD                  | -121 dBm            | -121 dBm            | Pre-Amp -123 dBm        | Standard -119 dBm | Pre-Amp -123 dBm    | Standard -119 dBm | Pre-Amp -123 dBm    | Standard -119 dBm |
| Digital Sensitivity                               | 5% BER                       | -121.5 dBm          | -121.5 dBm          | -123 dBm                | -119 dBm          | -123 dBm            | -119 dBm          | -123 dBm            | -119 dBm          |
| Intermodulation                                   | 25 kHz<br>12.5 kHz           | 82 dB<br>82 dB      | 82 dB<br>82 dB      | 84 dB<br>85 dB          | 86 dB<br>86 dB    | 82 dB<br>83 dB      | 86 dB<br>85 dB    | 82 dB<br>83 dB      | 86 dB<br>85 dB    |
| Spurious Rejection                                |                              | 91 dB               | 91 dB               | 95 dB                   |                   | 93 dB               |                   | 93 dB               |                   |
| Audio Distortion at rated*                        |                              | 1.20%               | 1.20%               | 1.20%                   |                   | 1.20%               |                   | 1.20%               |                   |
| FM Hum & Noise                                    | 25 kHz<br>12.5 kHz           | 59 dB<br>50 dB      | 59 dB<br>50 dB      | 59 dB<br>50 dB          |                   | 55 dB<br>50 dB      |                   | 57 dB<br>50 dB      |                   |
| Selectivity*                                      | 25 kHz<br>12.5 kHz<br>30 kHz | 85 dB<br>75 dB<br>— | 85 dB<br>75 dB<br>— | 85 dB<br>75 dB<br>90 dB |                   | 85 dB<br>75 dB<br>— |                   | 85 dB<br>75 dB<br>— |                   |

## SIGNALING (ASTRO MODE)

|                                               |                                                                                                               |
|-----------------------------------------------|---------------------------------------------------------------------------------------------------------------|
| Signaling Rate                                | 9.6 kbps                                                                                                      |
| Digital ID Capacity                           | 10,000,000 Conventional / 48,000 Trunking                                                                     |
| Digital Network Access Codes                  | 4,096 network site addresses                                                                                  |
| ASTRO® Digital User Group Addresses           | 4,096 network site addresses                                                                                  |
| Project 25 – CAI Digital User Group Addresses | 65,000 Conventional / 4,094 Trunking                                                                          |
| Error Correction Techniques                   | Golay, BCH, Reed-Solomon codes                                                                                |
| Data Access Control                           | Slotted CSMA: Utilizes infrastructure-sourced data status bits embedded in both voice and data transmissions. |

## GPS SPECIFICATIONS

|                      |                               |
|----------------------|-------------------------------|
| Channels             | 12                            |
| Tracking Sensitivity | -153 dBm                      |
| Accuracy**           | <10 meters (95%)              |
| Cold Start           | <60 seconds (95%)             |
| Hot Start            | <10 seconds (95%)             |
| Mode of Operation    | Autonomous (Non-Assisted) GPS |

## POWER AND BATTERY DRAIN

|                                         |                                                                                                                                                                                         |                                     |                                  |                                                                                    |                                       |          |
|-----------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|----------------------------------|------------------------------------------------------------------------------------|---------------------------------------|----------|
| Model Type                              | 136-174 MHz, 380-470 MHz, 450-520 MHz, 764-870 MHz                                                                                                                                      |                                     |                                  |                                                                                    |                                       |          |
| Minimum RF Power Output                 | 10-35 Watt (764-870 MHz), 10-50 Watts or 25-110 Watts (136-174 MHz), 10-40W or 25-110 Watts (380-470 MHz), 10-45Watts (450-485 MHz), 10-40Watts (485-512 MHz), 10-25Watts (512-520 MHz) |                                     |                                  |                                                                                    |                                       |          |
| Operation                               | 13.8V DC ±20% Negative Ground                                                                                                                                                           |                                     |                                  |                                                                                    |                                       |          |
| Standby at 13.8V                        | 0.85A (764-870 MHz), 0.85A (136-174 MHz), 0.85A (380-470 MHz), 0.85A (450-520 MHz)                                                                                                      |                                     |                                  |                                                                                    |                                       |          |
| Receive Current at Rated Audio at 13.8V | 3.2A (764-870 MHz), 3.2A (136-174 MHz), 3.2A (380-470 MHz), 3.2A (450-520 MHz)                                                                                                          |                                     |                                  |                                                                                    |                                       |          |
| Transmit Current (A) at Rated Power     | 136-174 MHz (10-50 Watt)<br>380-470 MHz (10-40 Watt)<br>380-470 MHz (10-40 Watt)                                                                                                        | 13A (50W)<br>11A (40W)<br>11A (45W) | 8A (15W)<br>8A (15W)<br>8A (15W) | 764-870 MHz (10-35 Watt)<br>136-174 MHz (25-110 Watt)<br>380-470 MHz (25-110 Watt) | 12A (50W)<br>20A (110W)<br>24A (110W) | 8A (15W) |

## MOBILE MILITARY STANDARDS 810 C, D, E, F &amp; G

|                   | MIL-STD 810C |                 | MIL-STD 810D |             | MIL-STD 810E |             | MIL-STD 810F |               | MIL-STD 810G |               |
|-------------------|--------------|-----------------|--------------|-------------|--------------|-------------|--------------|---------------|--------------|---------------|
|                   | Method       | Proc./Cat.      | Method       | Proc./Cat.  | Method       | Proc./Cat.  | Method       | Proc./Cat.    | Method       | Proc./Cat.    |
| Low Pressure      | 500.1        | I               | 500.2        | II          | 500.3        | II          | 500.4        | II            | 500.5        | II            |
| High Temperature  | 501.1        | I, II           | 501.2        | I/A1, II/A1 | 501.3        | I/A1, II/A1 | 501.4        | I/Hot, II/Hot | 501.5        | I-A1, II      |
| Low Temperature   | 502.1        | I               | 502.2        | I/C3, II/C1 | 502.3        | I/C3, II/C1 | 502.4        | I/C3, II/C1   | 502.5        | I-C3, II      |
| Temperature Shock | 503.1        | 1 Proc          | 503.2        | I/A1C3      | 503.3        | I/A1C3      | 503.4        | I             | 503.5        | I-C           |
| Solar Radiation   | 505.1        | II              | 505.2        | I           | 505.3        | I           | 505.4        | I             | 505.5        | I-A1          |
| Rain              | 506.1        | I, II           | 506.2        | I, II       | 506.3        | I, II       | 506.4        | I, III        | 506.5        | I, III        |
| Humidity          | 507.1        | II              | 507.2        | II          | 507.3        | II          | 507.4        | 1 Proc        | 507.5        | II-Aggravated |
| Salt Fog          | 509.1        | 1 Proc          | 509.2        | 1 Proc      | 509.3        | 1 Proc      | 509.4        | 1 Proc        | 509.5        | 1 Proc        |
| Blowing Dust      | 510.1        | I               | 510.2        | I, II       | 510.3        | I, II       | 510.4        | I, II         | 510.5        | I, II         |
| Vibration         | 514.1w       | VIII/F, Curve-W | 514.3        | I/10, II/3  | 514.4        | I/10, II/3  | 514.5        | I/24          | 514.6        | I-cat.24      |
| Shock             | 516.2        | I, III, V       | 516.3        | I, V, VI    | 516.4        | I, V, VI    | 516.5        | I, V, VI      | 516.6        | I, V, VI      |

## ENCRYPTION

|                                   |                                                                                                                     |
|-----------------------------------|---------------------------------------------------------------------------------------------------------------------|
| Supported Encryption Algorithms   | ADP, AES, DES, DES-XL, DES-OFB, DVP-XL                                                                              |
| Encryption Algorithm Capacity     | 8                                                                                                                   |
| Encryption Keys per Radio         | Module capable of storing 1024 keys. Programmable for 64 Common Key Reference (CKR) or 16 Physical Identifier (PID) |
| Encryption Frame Re-sync Interval | P25 CAI 300 mSec                                                                                                    |
| Encryption Keying                 | Key Loader                                                                                                          |
| Synchronization                   | XL – Counter Addressing, OFB – Output Feedback                                                                      |
| Vector Generator                  | National Institute of Standards and Technology(NIST) approved random number generator                               |
| Encryption Type                   | Digital                                                                                                             |
| Key Storage                       | Tamper protected volatile or non-volatile memory                                                                    |
| Key Erasure                       | Keyboard command and tamper detection                                                                               |
| Standards                         | FIPS 140-2 Level 3<br>FIPS 197                                                                                      |

## ENVIRONMENTAL SPECIFICATIONS

|                          |               |
|--------------------------|---------------|
| Operating Temperature    | -30°C / +60°C |
| Storage Temperature      | -40°C / +85°C |
| Humidity                 | Per MIL-STD   |
| ESD                      | IEC 801-2 KV  |
| Water and Dust Intrusion | IP54, MIL-STD |

## FCC TYPE ACCEPTANCE ID

| BAND        | OUTPUT POWER | TRANSMITTER NUMBER |
|-------------|--------------|--------------------|
| 764-870 MHz | 10-35 Watts  | AZ492FT5858        |
| 136-174 MHz | 25-110 Watts | AZ492FT3821        |
| 136-174 MHz | 10-50 Watts  | AZ492FT3824        |
| 380-470 MHz | 10-40 Watts  | AZ492FT4894        |
| 380-470 MHz | 25-110 Watts | AZ492FT4897        |
| 450-520 MHz | 10-45 Watts  | AZ492FT4896        |

\* Measured in the analog mode per TIA/EIA 603 under nominal conditions

\*\* Accuracy specs are for long-term tracking  
(95th percentile values >5 satellites visible at a nominal -130 dBm signal strength)

+ Specs includes performance for the non-GNSS/GNSS bands

++ Output power in to 8 and 3.2 Ohm external speakers respectively

Specifications subject to change without notice. All specifications shown are typical.  
Radio meets applicable regulatory requirements.