

MODEL FEATURES

Frequency Bands

- 136-174 MHz
- 380-470MHz
- 450-520 MHz
- 764-870 MHz

Power Levels

- 10-50 Watt (136-174 MHz)
- 10-40 Watt (380-470 MHz)
- 10-45 Watt (450-520 MHz)
- 10-35 Watt (764-870 MHz)
- 25-110 Watt (136-174 MHz)
- 25-110 Watt (380-470 MHz)

256 Channels (Standard)

Dual mode operation (ASTRO Digital and Analog)

9600 and 3600 Baud capable

Project 25 capability on Conventional and Trunking systems

Type II Trunking Only

Project 25 compliance interoperable voice signaling features

Integrated voice and data capable

Bandwidth Receiver

- 12.5/30 kHz (analog) – 136-174 MHz
- 12.5/25 kHz (analog) – 380-470 MHz and 450-520 MHz
- 12.5/20/25 kHz (analog) – 764-870 MHz

12.5 kHz bandwidth receiver (digital)

5 Programmable buttons x4 deep in menu functions

14 digit character display

Tri-color Backlit LCD display

Emergency button

Multi level DIM button

Dash/Remote mount

Meets Military Specs 810 (C,D, E and F)

Utilizes Windows®-based customer programming

Built in FLASHport™ support

Optional Keypad microphone

External Speaker

USB/RS232 connectivity

Optional Siren PA

Optional DEK

Upgradeable

Encryption Capable:

- Type III (optional)
- Allows for MultiKey for single algorithms ONLY
- Algorithms supported:
 - DVI-XL
 - DVP-XL
 - DES
 - DES-XL
 - DES-OFB
 - AES
 - Advanced Digital Privacy (ADP)

Reuse of most ASTRO/MCS accessories

ASTRO® XTLL™ 2500

Digital Mobile Radio



Motorola's XTLL 2500 Project 25 compliant mobile radio is tough and well suited for users in Police, Fire, EMS, State/Local/Federal Government agencies. Taking into consideration your work environment and various job responsibilities, this robust mobile radio will support the type of consistent, high quality communication you need.

The XTLL 2500 digital mobile radio supports APCO Project 25 and is available in 136-174 MHz, 380-470MHz, 450-520 MHz 764-870 MHz frequency bands and supports the accessories common to the XTLL 5000 mobile radio.

The XTLL 2500 digital mobile radio is specifically designed to meet the needs of your organization. When you want high performance, quality, and reliability in your daily communications, the XTLL 2500 digital mobile radio is the radio of choice.

GENERAL PERFORMANCE SPECIFICATIONS

Frequency range	136-174 MHz 380-470MHz 450-520 MHz 764-870 MHz
Modulation	C4FM of QPSK-C family (Compatible Quadrature Phase Shift Keying)
Protocol	
Project 25-CAI	4.4 kbps IMBE, 2.8 kbs Error Correction Coding, 2.4 kbps Embedded Signaling
Channel Bandwidth	
Analog	12.5/30 kHz (136-174 MHz) 12.5/25 kHz (380-470 MHz and 450-520 MHz); 12.5/20/25 kHz (764-870 MHz)
Digital	12.5 kHz

VOICE CODER

Voice Coding Method IMBE (CAI)	Improved Multi Band Excitation
Voice Truncation	None
Frame Re-sync Interval	180 mSec (Clear Digital Mode)
Forward Error Correction	Golay code
Error Mitigation Project 25-CAI (IMBE)	
Dual Level	Level 1: Extrapolates and replaces 20 mSec voice frames that exceed the error correction algorithm tolerance. Level 2: Progressive muting of 20 mSec voice frames that are too severely damaged for Level 1 replacement.
Code Book Structure	APCO Project 25 (IMBE): No code book

SIGNALLING (ASTRO MODE)

Signalling 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.

SPEAKER

Dimensions	5.5" x 5.5" x 2.5" (139.7 x 139.7 x 63.5 mm) (Excluding mounting bracket)
Weight	1.5 lbs (0.68 kg)

MOBILE

Dimensions	Mid Power Radio Transceiver 2" x 7" x 7.8" (50.8 x 177.8 x 198.1 mm) Control Head 2.35" x 7.1" x 2.5" (59.7 x 180.3 x 63.5 mm) Mid Power Radio Transceiver and Control Head – Dash Mount 2.35" x 7.1" x 9.1" (59.7 x 180.3 x 231.1 mm) High Power Transceiver 2.765" x 8.08" x 12.31" (70.2 x 205.2 x 312.7 mm)
Weight	Mid Power Radio Transceiver and Control Head 6.1 lbs (2.77 kg) (764-870 MHz and 136-174 MHz) 6.1 lbs (2.77 kg) (380-470 MHz and 450-520 MHz) High Power Radio Transceiver with Handle 8.8 lbs (3.99 kg) (136-174 MHz and 380-470 MHz)

TRANSMITTER

Frequency	764-776 MHz 794-806 MHz 806-825 MHz 851-870 MHz	380-470 MHz and 136-174 MHz	136-174 MHz
RF Power	10-35W	25-110W	25-110W
Max Freq Separation	Full Bandsplit	Ref Above Bandsplit	Full Bandsplit
Freq Stability Operating Freq Accuracy (-30C to +60C;+25C Ref) - 700/800 & UHF (+/- 2ppm (-30C to +60C) - VHF			
	1.5 ppm	2 ppm	2.5 ppm
Modulation Limiting			
25/20 kHz, 25 kHz, 25/30 kHz channel	±5 kHz, +/-4 kHz (NPSAQC)	±5 kHz	±5 kHz
12.5 kHz channel	±2.5 kHz	±2.5 kHz	±2.5 kHz
Modulation Fidelity (C4FM)			
12.5 kHz digital channel	±2.8 kHz	±2.8 kHz	±2.8 kHz
Channel Spacing Analog	12.5/20/25 kHz	12.5/25 kHz	12.5/30kHz
FM Hum and Noise			
20/25 kHz, 25 kHz, 20/25 kHz	40 dB	45 dB	50 dB
12.5 kHz	34 dB	40 dB	40 dB
Emissions			
	Conducted Radiated -70 dBc -85 dBc	Conducted Radiated -85 dBc -20 dBc	Conducted Radiated -85 dBc -85 dBc
Audio Response (6db/Octave Pre-emphasis from 300 to 3000 Hz)			
	+1, -3 dB (EIA)	+1, -3 dB (EIA)	+1, -3 dB (EIA)
Audio Distortion per EIA	2%	2%	2%

POWER AND BATTERY DRAIN

Model Type	136-174 MHz 380-470MHz 450-520 MHz 764-870 MHz
Minimum RF Power Output	10-50 Watt (136-174 MHz) 10-40 Watt (380-470 MHz) 10-45 Watt (450-520 MHz) 10-35 Watt (764-870 MHz) 25-110 Watt (136-174 MHz) 25-110 Watt (380-470 MHz)
Operation	12V DC Negative Ground
Standby at 13.8V	
136-174 MHz	0.5A-0.7A
380-470 MHz and 450-520 MHz	0.65A-0.85A
764-870 MHz	0.7A
Receive at Rate Audio at 13.8V	
136-174 MHz	1.3A-3.0A
380-470 MHz and 450-520 MHz	1.5A-3.2A
764-870 MHz	3.0A
Transmit at Rated Power	
136-174 MHz	7A-10A
380-470 MHz	5.7A-13.7A
450-520 MHz	13A (45W)
764-870 MHz	8A (15W), 13A (35W)

FCC TYPE ACCEPTANCE ID

Band	Transmitter Power	
	Output	Number
136-174 MHz	10-50 W	AZ492FT3806
380-470MHz	10-40 W	AZ492FT4862
450-520 MHz	10-45 W	AZ492FT4867
764-870 MHz	10-35 W	AZ492FT5823
136-174 MHz	25-110 W	AZ492FT3808
380-470 MHz	25-110 W	AZ492FT4870

ENVIRONMENTAL SPECIFICATIONS

Operating Temperature	-30°C / +60°C
Storage Temperature	-55°C / +85°C
International Protection	IP54 certified

RECEIVER

Frequency	700/800 MHz	UHF		VHF	
Channel Spacing	12.5 / 20 / 25 kHz	12.5 / 25 kHz		12.5 / 30 kHz	
Maximum Frequency Separation	Full Bandsplit	Full Bandsplit		Full Bandsplit	
Analog Sensitivity					
20 db Quieting	.30 μ V	0.25 μ V	0.40 μ V	0.25 μ V	0.40 μ V
12 db SINAD per EIA	.25 μ V	0.20 μ V	0.30 μ V	0.20 μ V	0.30 μ V
Digital Sensitivity					
1% BER (12.5 kHz channel)	.30 μ V	0.25 μ V	0.40 μ V	0.25 μ V	0.40 μ V
5% BER (12.5 kHz channel)	.25 μ V	0.20 μ V	0.30 μ V	0.20 μ V	0.30 μ V
Intermodulation	80 dB	80 dB	85 dB	85 dB	85 dB
Spurious Response Rejection	80 dB	90 dB	90 dB	90 dB	90 dB
Audio Output Power at 3% distortion (External/Internal Speaker)	7.5 W (ext. speaker) 3 W (int. speaker)	7.5 W (ext. speaker) 3 W (int. speaker)	7.5 W (ext. speaker) 3 W (int. speaker)	7.5 W (ext. speaker) 3 W (int. speaker)	7.5 W (ext. speaker) 3 W (int. speaker)
Adjacent Channel Rejection Selectivity (12.5 kHz/25 kHz)	65 dB 80 dB	75 dB	82 dB	85 dB	85 dB 70 dB 70 dB

MILITARY STANDARDS 810 C, D, E, & F

	MIL-STD 810C		MIL-STD 810D		MIL-STD 810E		MIL-STD 810F	
	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
High Temperature Storage	501.1	I	501.2	I/A1	501.3	I/A1	501.4	I/Hot
High Temperature Storage	501.1	II	501.2	II/A1	501.3	II/A1	501.4	I/Hot
Low Temperature Storage	502.1	I	502.2	I/C3	502.3	I/C3	502.4	I/C3
Low Temperature Operational	502.1	I	502.2	II/C1	502.3	II/C1	502.4	II/C1
Temperature Shock	503.1	-	503.2	I/A1-C3	503.3	I/A1-C3	503.4	I/Hot-C3
Solar Radiation	505.1	II	505.2	I	505.3	I	505.4	I
Rain Blowing	506.1	I	506.2	I	506.3	I	506.4	I
Rain Steady	506.1	II	506.2	II	506.3	II	506.4	III
Humidity	507.1	II	507.2	II	507.3	II	507.4	-
Salt Fog	509.1	-	509.2	-	509.3	-	509.4	-
Blowing Dust	510.1	I	510.2	I	510.3	I	510.4	I
Blowing Sand			510.2	II	510.3	II	510.4	II
Vibration Minimum Integrity	514.2	VIII/F, Curve-W	514.3	I/10	514.4	I/10	514.5	I/24
Vibration Loose Cargo			514.3	II/3	514.4	II/3	514.5	II/5
Shock Functional	516.2	I	516.3	I	516.4	I	516.5	I
Shock Crash Hazard	516.2	III	516.3	V	516.4	V	516.5	V
Shock Bench Handling	516.2	V	516.3	VI	516.4	VI	516.5	VI



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