

## SPECIFICATION SHEET

ASTRO® XTS® 2500 AND XTS® 25001  
Digital Portable Radios

### FEATURES AND BENEFITS

- Available in 700/800 MHz, VHF, UHF R1, UHF R2 and 900 MHz\* bands
- Trunking standards supported
  - APCO Project 16 (3600 control channel) and
  - APCO Project 25 (9600 control channel)
- System configurations
  - ASTRO® Analog and Digital Trunking with Mutual Aid and
  - ASTRO®25 Digital Trunking with Mutual Aid
- Narrow and wide bandwidth digital receiver (12.5 kHz, 20 kHz, 25 kHz)
- Embedded digital signaling (ASTRO & ASTRO 25)
- Enhanced Audio Features
  - High quality, error corrected digital voice
  - Noise Reduction Software
  - Audio Gain Control
- Convenience Features
  - Time / Date
  - Caller ID
- Utilizes Windows-Based Customer Programming Software (CPS)
  - Supports USB and RS-232 communications
  - Built in FLASHport support
- Meets Mil Specs 810 C, D, E and F
- Compatible with most MTS and XTS accessories
- Available with an Immersible Housing Option
- Available with Secure Hardware Encryption

### TRANSMITTER – TYPICAL PERFORMANCE SPECIFICATIONS

	700/800 MHz	UHF R1	VHF	UHF R2
Frequency Range	700 MHz: 764-776, 794-806 800 MHz: 806-870	380-470 MHz	136-174 MHz	450-520 MHz
Channel Spacing	12.5 / 20 / 25 kHz	12.5/25 kHz	12.5/25 kHz	12.5/25 kHz
Maximum Frequency Separation	Full Bandsplit	Full Bandsplit	Full Bandsplit	Full Bandsplit
Rated RF Output Power Adj**	764-806 MHz: 1 to 3 W 806-870 MHz: 1 to 3 W	1 to 5 W	1 to 5 W	1 to 5 W
Frequency Stability** (-30°C to +60°C; +25°C Ref.)	±0.00015%	±0.0002%	±0.00025%	±0.0002%
Modulation Limiting**:				
25 kHz channel	±5.0 kHz	±5.0 kHz	±5.0 kHz	±5.0 kHz
NPSAC channel	±4.0 kHz	N/A	N/A	N/A
12.5 kHz channel	±2.5 kHz	±2.5 kHz	±2.5 kHz	±2.5 kHz
Emissions** (Conducted & Radiated)	-75 dBc	-70 dBc	-73 dBc (<1 GHz)	-70 dBc
Audio Response** (6 dB/Octave Pre-emphasis from 300 to 3000 Hz)	+1, -3 dB	+1, -3 dB	+1, -3 dB	+1, -3 dB
FM Hum & Noise Radio**				
25 kHz	-43 dB	-45 dB	-46 dB	-45 dB
12.5 kHz	-40 dB	-40 dB	-42 dB	-40 dB
Audio Distortion**	2.0%	2.0%	1.0%	2.0%

### VOICE CODER

Voice Coding Method	IMBE (CAI) Improved Multi Band Excitation (IMBE)
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

\* Separate 900 MHz specification sheets available.  
\*\* Measured in the analog mode per TIA / EIA 603  
\*\*\* Measured in digital mode per TIA/EIA IS 102.CAAA

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ASTRO® XTS® 2500 AND XTS® 2500I  
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**RECEIVER - TYPICAL PERFORMANCE SPECIFICATIONS**

	700/800 MHz	UHF R1	VHF	UHF R2
Frequency Range	700 MHz: 764-776 800 MHz: 851-870	380-470 MHz	136-174 MHz	450-520 MHz
<i>Note: Radio covers entire 700 MHz and 800 MHz frequency ranges.</i>				
Channel Spacing	12.5 / 20 / 25 kHz	12.5/25 kHz	12.5 / 25 kHz	12.5/25 KHz
Maximum Frequency Separation	Full Bandsplit	Full Bandsplit	Full Bandsplit	Full Bandsplit
Audio Output Power at Rated**	500 mW	500 mW	500 mW	500 mW
Frequency Stability** (-30°C to +60°C; 25°C Ref.)	±0.00015%	±0.0002%	±0.00025%	±0.0002%
Analog Sensitivity** 12 dB SINAD	.25 µV	.25 µV	.25 µV	.25 µV
Digital Sensitivity*** 1% BER	.40 µV	.35 µV	.25 µV	.35 µV
5% BER	.25 µV	.25 µV	.20 µV	.25 µV
Selectivity** 25 kHz chnl	-72 dB	-73 dB	-80 dB	-73 dB
12.5 kHz chnl	-63 dB	-63 dB	-63 dB	-63 dB
Intermodulation**	-75 dB	-73 dB	-78 dB	-75 dB
Spurious Rejection**	-75 dB	-75 dB	-80 dB	-75 dB
FM Hum and Noise** 25 kHz	-47 dB	-47 dB	-52 dB	-50 dB
12.5 kHz	-40 dB	-40 dB	-40 dB	-47 dB
Audio Distortion**	2.5%	2.0%	1.0%	2.0%

**RADIO MODELS**

	Display	Keypad	Channel Capacity	700/800 MHz Band (764-870 MHz)	UHF R1 (380-470 MHz)	VHF (136-174 MHz)	UHF R2 (450-520 MHz)
Model I	N/A	N/A	48	H46UCC9PW5BN	H46ODC9PW5BN	H46KDC9PW5BN	H46SDC9PW5BN
Model I.5	2 lines of icons 4 lines 12 characters per line LCD	N/A	96	H46JCD9PW5BN	H46ODD9PW5BN	H46KDD9PW5BN	H46SDD9PW5BN
Model II	2 lines of icons 4 lines 12 characters per line LCD	3x2	870	H46UCF9PW6BN	H46ODF9PW6BN	H46KDF9PW6BN	H46SDF9PW6BN
Model III	2 lines of icons 4 lines 12 characters per line LCD	3x6	870	H46UCH9PW7BN	H46ODH9PW7BN	H46KDH9PW7BN	H46SDH9PW7BN
FCC Designation				AZ489FT5804	UHF: AZ489FT4865	VHF: AZ489FT3807	AZ489FT4866
FCC Emissions Designators	11K0F3E, 16K0F3E, 8K10F1E, 8K10F1D, 20K0F1E						
Power Supply	One rechargeable nickel-cadmium, nickel-metal hydride, or lithium ion battery						
Dimensions without battery (HxWxD)	6.00" x 2.30" x 1.50"						
Weight without battery	11.0 oz						

**BATTERIES FOR ASTRO DIGITAL XTS 2500**

Battery Type	Dimensions (HxWxD)	Weight	Battery Part Numbers	mAh	Duty Cycle
NICD	4.86" x 2.37" x .968"	8.85 oz	NTN9815	1525	5-5-90 / 8 hr
NICD FM	4.86" x 2.37" x .968"	8.85 oz	NTN9816	1525	5-5-90 / 8 hr
IMPRES™ NIMH	4.86" x 2.37" x .968"	9.63 oz	NTN9858	2100	5-5-90 / 10 hr
IMPRES NIMH FM	4.86" x 2.37" x .968"	9.63 oz	NTN9857	2000	5-5-90 / 10 hr
IMPRES Immersible NIMH FM	4.86" x 2.37" x .968"	10.16 oz	NNTN6263	2000	5-5-90 / 10 hr
IMPRES High Capacity Immersible Lilon	4.86" x 2.37" x .968"	6.70 oz	NNTN7335	2700	5-5-90 / 13 hr

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**PORTABLE 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	501.1	I, II	501.2	I/A1, II/A1	501.3	I/A1, II/A1	501.4	I/Hot, II/Hot
Low Temperature	502.1	I	502.2	I/C3, II/C1	502.3	I/C3, II/C1	502.4	I/C3, II/C1
Temperature Shock	503.1	I*	503.2	I/A1C3	503.3	I/A1C3	503.4	I
Solar Radiation	505.1	II	505.2	I	505.3	I	505.4	I
Rain	506.1	I, II	506.2	I, II	506.3	I, II	506.4	I, III
Humidity	507.1	II	507.2	II	507.3	II	507.4	I*
Salt Fog	509.1	I*	509.2	I*	509.3	I*	509.4	I*
Blowing Dust	510.1	I	510.2	I	510.3	I	510.4	I
Vibration	514.2	VIII/F, Curve-W	514.3	I/10, II/3	514.4	I/10, II/3	514.5	I/24
Shock	516.2	I, II	516.3	I, IV	516.4	I/IV	516.5	I, IV

\* Military Standards specify a single procedure for this test.

**ENCRYPTION**

Supported Encryption Algorithms	ADP, AES, DES, DES-XL and DES-OFB, DVP-XL
Encryption Algorithm Capacity	1
Encryption Keys per Radio	Module capable of storing 1024 keys. Programmable for 48 common Key Reference (CKR) or 16 Physical Identifier (PID)
Encryption Frame Re-sync Interval	P25 CAI 360 mSec
Encryption Keying	Key Loader
Synchronization	CFB - Cipher Feedback XL - Counter Addressing OFB - Output Feedback
Vector Generator	National Institute of Standards and Technology (NIST) approved random number generator
Encryption Type	Digital and 12 k-bit Analog Conventional
Key Storage	Tamper protected volatile or non volatile memory
Key Erasure	Keyboard command and tamper detection
Standards	<ul style="list-style-type: none"> <li>• FIPS 46-2</li> <li>• FIPS 140-2</li> <li>• FIPS 197</li> </ul>

Specifications subject to change without notice.

**ENVIRONMENTAL SPECIFICATIONS**

Operating Temperature	-30°C / +60°C
Storage Temperature	-40°C / +85°C
Humidity	Per MIL-STD
ESD	IEC 801-2KV
Water & Dust Intrusion	IP54, MIL-STD, IP67**

**IMMERSIBLE OPTION SPECIFICATIONS**

MIL-STD-810, C, D, E, F
IP67 rating
** For XTS2500I (immersion) models only.

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