

Specification Sheet

ASTRO XTS 5000™ Digital Portable Radio



MODEL I:

- ▶ Large PTT button
- ▶ Angled On/Off volume knob
- ▶ Orange emergency button
- ▶ Illuminated 16 position top mounted rotary knob
- ▶ 2 position concentric switch
- ▶ 3 position toggle switch
- ▶ Programmable monitor button
- ▶ 2 programmable side buttons
- ▶ Transmit LED indicator
- ▶ No keypad / No display
- ▶ Up to 48 channels

MODEL II:

- Same as XTS Model I features plus the following:
- ▶ 512 channels
 - ▶ Dial from pre-stored lists
 - ▶ Programmable soft keys for easy access to radio menu
 - ▶ Backlit Keypad
 - 3 soft keys
 - 3 navigation keys
 - ▶ Full Bitmap Display
 - 2 lines icons
 - 4 lines w/12 characters per line
 - Status icons including battery and power indicator

MODEL III:

- Same as XTS Model I features plus the following:
- ▶ 512 channels
 - ▶ Dial from pre-stored lists
 - ▶ Programmable soft keys for easy access to radio menu
 - ▶ Backlit Keypad
 - 3 soft keys
 - 3 navigation keys
 - 4 x 3 DTMF
 - ▶ Full Bitmap Display
 - 2 lines icons
 - 4 lines w/12 characters per line
 - Status icons including battery and power indicator

- ▶ Available in the 700/800 MHz and VHF bands
- ▶ Trunking standards supported: clear or encrypted APCO P16 and APCO P25
- ▶ Capable of Smartzone, Smartzone Omnilink, SMARTNET, and Conventional System Configurations and ASTRO 25 Trunked Operation
- ▶ Narrow and wide bandwidth digital receiver (12.5 kHz / 25 kHz)
- ▶ High speed and embedded digital signalling (ASTRO & ASTRO 25)
- ▶ Enhanced audio features
 - High quality, error corrected digital voice
 - Noise Reduction Software
 - Audio Gain Control
- ▶ Convenience Features
 - Time / Date
 - Caller ID
- ▶ Ruggedized housing option available in traditional black or public safety yellow
- ▶ Enhanced encryption capability (optional)
- ▶ Utilizes Windows-Based Customer Programming Software (CPS)
 - Supports USB and RS-232 communications
 - Built in FLASHport support
- ▶ Meets Applicable Mil Specs 810C, D, E and F
- ▶ Compatible with most MTS and XTS accessories
- ▶ Interchangeable display labels

TRANSMITTER

Typical Performance Specifications		
	700/800 MHz	VHF
Frequency Range/Bandsplits	700 MHz: 764-776, 773-797, 803-806 800 MHz: 806-824, 851-870	136-174 MHz
Channel Spacing	12.5 / 25 kHz	12.5 / 25 kHz
Maximum Frequency Separation	Full Bandsplit	Full Bandsplit
Rated RF Output Power Adj*	764-806 MHz: 1 to 2.5 W 806-870 MHz: 1 to 3 W	1 to 6 W
Frequency Stability* (-30°C to +60°C; +25°C Ref.)	±0.00015%	±0.00020%
Modulation Limiting*		
25 kHz chnl	±5.0 kHz	±5.0 kHz
NPSAC chnl	±4.0 kHz	N/A
12.5 kHz chnl	±2.5 kHz	±2.5 kHz
Emissions* (Conducted & Radiated)	-75 dBc	-75 dBc
Audio Response* (6 dB/Octave Pre-emphasis from 300 to 3000 Hz)	+1, -3 dB	+1, -3 dB
FM Hum & Noise Radio*		
25 kHz	-45 dB	-48 dB
12.5 kHz	-40 dB	-42 dB
Audio Distortion*	1.5%	1%

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

** Measured in digital mode per TIA / EIA IS 102.CAAA under nominal conditions

RECEIVER

Typical Performance Specifications		
	700/800 MHz	VHF
Frequency Range/Bandsplits	700 MHz: 764-767, 773-776 800 MHz: 851-870	136-174 MHz
Channel Spacing	12.5 / 25 kHz	12.5 / 25 kHz
Maximum Frequency Separation	Full Bandsplit	Full Bandsplit
Audio Output Power at Rated*	500 mW	500 mW
Frequency Stability* (-30°C to +60°C; 25°C Ref.)	±0.00015%	±0.00020%
Analog Sensitivity*		
12 dB SINAD	.25 µV	.20 µV
Digital Sensitivity**		
1% BER	.40 µV	.25 µV
5% BER	.25 µV	.20 µV
Selectivity*		
25 kHz chnl	-72 dB	-80 dB
12.5 kHz chnl	-63 dB	-63dB
Intermodulation*	-75 dB	-78 dB
Spurious Rejection*	-75 dB	-80 dB
FM Hum and Noise*		
25 kHz	-48 dB	-56 dB
12.5 kHz	-40 dB	-50 dB
Audio Distortion*	1.5%	1%

RADIO MODELS

	Display	Keypad	Channel Capacity	FLASHport Memory	700/800 MHz Band (764-870 MHz)	VHF (136-174 MHz)
Model I	None	None	16/48	8MB	H18UCC9PW5_N	H18KEC9PW5_N
Model II	2 lines of icons 4 lines of text 12 characters per line LCD	3x2	512	8MB	H18UCF9PW6_N	H18KEF9PW6_N
Model III	2 lines of icons 4 lines of text 12 characters per line LCD	3x6	512	8MB	H18UCH9PW7_N	H18KEH9PW7_N
FCC Designation					AZ489FT5806	VHF: AZ489FT3804
FCC Emissions Designators	8K10F1E, 20K0F1E, 16K0F3E, 8K10F1D, 11K0F3E					
Power Supply	700/800MHz: One rechargeable nickel-cadmium, or one optional nickel-metal hydride or lithium ion battery VHF: One rechargeable nickel-metal hydride, or one optional nickel cadmium or lithium ion battery					
Dimensions without battery (HxWxL)	6.58" x 2.44" x 1.83"					
Weight without battery	12.62 oz					

BATTERIES FOR ASTRO DIGITAL XTS 5000

Battery Capacity / Type	Dimensions (HxWxD)	Weight	Battery Part Numbers	Battery Capacity	Duty Cycle
High Capacity NiCD	6.15" x 2.3" x .92"	11.10 oz	NTN8294	1525 mAH	5-5-90 / 8 hr.
High Capacity NiCD FM	6.15" x 2.3" x .92"	11.10 oz	NTN8295	1525 mAH	5-5-90 / 8 hr.
High Capacity NiCD Rugged FM	6.15" x 2.3" x .92"	11.10 oz	NTN8297	1525 mAH	5-5-90 / 8 hr.
High Capacity NiMH	6.15" x 2.3" x .92"	9.53 oz	NTN8923	1800 mAH	5-5-90 / 9 hr.
High Capacity NiMH FM	6.15" x 2.3" x .92"	9.53 oz	NTN8299	1750 mAH	5-5-90 / 8 hr.
High Capacity Lithium Ion	6.15" x 2.3" x .60"	6.98 oz	NTN8610	1650 mAH	5-5-90 / 8 hr.

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	–	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	–
Salt Fog	509.1	–	509.2	–	509.3	–	509.4	–
Blowing Dust	510.1	I	510.2	I	510.3	I	510.4	I
Immersion*	512.1	I	512.2	I	512.3	I	512.4	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

ENCRYPTION

Supported Encryption Algorithms	AES, DES-XL and DES-OFB, DVP-XL, DVI-XL
Encryption Algorithm Capacity	8
Encryption Keys per Radio	48 common Key Reference (CKR) Encryption Keys 16 Physical Identifier (PID) Encryption Keys
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
Key Storage	Tamper protected volatile or non volatile memory
Key Erasure	Keyboard command and tamper detection
Standards	FIPS 46-2 FIPS 81 FIPS 140-1 Level 1

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, IPX7*, MIL-STD

RUGGED OPTION SPECIFICATIONS

Leakage (immersion)	MIL-STD-810 C, D, E, F Method 512.X Procedure I: IPX7*
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* For rugged models only.



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Specification Sheet

ASTRO XTS 2500™ Digital Portable Radio



MODEL I:

- ▶ PTT button
- ▶ On/Off volume knob
- ▶ Programmable orange emergency button
- ▶ 16-position top mounted rotary knob
- ▶ 3 position concentric switch
- ▶ Programmable monitor button
- ▶ 2 programmable side buttons
- ▶ Transmit LED indicator
- ▶ No keypad / No display
- ▶ Up to 48 channels

MODEL II:

Same as XTS Model I features plus the following:

- ▶ 160 channels
- ▶ Dial from pre-stored lists
- ▶ Programmable soft keys for easy access to radio menu
- ▶ Backlit Keypad
 - 3 soft keys
 - 3 navigation keys
- ▶ Large Bitmap Display
 - 2 lines icons
 - 4 lines with 12 characters per line
 - Status icons including battery and received signal strength indicator

MODEL III:

Same as XTS Model I features plus the following:

- ▶ 160 channels
- ▶ Dial from pre-stored lists
- ▶ Programmable soft keys for easy access to radio menu
- ▶ Backlit Keypad
 - 3 soft keys
 - 3 navigation keys
 - 4 x 3 alphanumeric keypad
- ▶ Large Bitmap Display
 - 2 lines icons
 - 4 lines with 12 characters per line
 - Status icons including battery and received signal strength indicator

- ▶ 700/800 MHz band
- ▶ Trunking standards supported
 - APCO Project 16 (3600 control channel)
or
 - APCO Project 25 (9600 control channel)
- ▶ System configurations
 - ASTRO® Analog and Digital Trunking with Mutual Aid
or
 - ASTRO®25 Digital Trunking with Mutual Aid
- ▶ Narrow and wide bandwidth digital receiver (12.5 kHz, 20 kHz, 25 kHz)
- ▶ High speed and embedded digital signalling (ASTRO)
- ▶ 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

TRANSMITTER

Typical Performance Specifications

Frequency Range	700 MHz: 764-776, 773-797, 803-806
Note: Radio covers entire 700 MHz and 800 MHz frequency ranges.	800 MHz: 806-824, 851-870
Channel Spacing	12.5 / 20 / 25 kHz
Maximum Frequency Separation	Full Band
Rated RF Output Power Adj*	764-806 MHz: 1 to 2.5 W 806-870 MHz: 1 to 3 W
Frequency Stability* (-30°C to +60°C; +25°C Ref.)	±0.00015%
Modulation Limiting*:	
25 kHz chnl	±5.0 kHz
NPSPEC chnl	±4.0 kHz
12.5 kHz chnl	±2.5 kHz
Emissions* (Conducted & Radiated)	-75 dBc
Audio Response* (6 dB/Octave Pre-emphasis from 300 to 3000 Hz)	+1, -3 dB
FM Hum & Noise Radio*	
25 kHz	-43 dB
12.5 kHz	-40 dB
Audio Distortion*	2.0%

* Measured in the analog mode per TIA / EIA 603

** Measured in digital mode per TIA/EIA IS 102.CAAA

Specifications subject to change without notice.

RECEIVER

Typical Performance Specifications

Frequency Range	700 MHz: 764-767, 773-776
Note: Radio covers entire 700 MHz and 800 MHz frequency ranges.	800 MHz: 851-870
Channel Spacing	12.5 / 20 / 25 kHz
Maximum Frequency Separation	Full Band
Audio Output Power at Rated*	500 mW
Frequency Stability* (-30°C to +60°C; 25°C Ref.)	±0.00015%
Analog Sensitivity*	
12 dB SINAD	.25 µV
Digital Sensitivity**	
1% BER	.40 µV
5% BER	.25 µV
Selectivity*	
25 kHz chnl	-72 dB
12.5 kHz chnl	-63 dB
Intermodulation*	-74 dB
Spurious Rejection*	-75 dB
FM Hum and Noise*	
25 kHz	-47 dB
12.5 kHz	-40 dB
Audio Distortion*	2.5%

RADIO MODELS

	Display	Keypad	Channel Capacity	FLASHport Memory	700/800 MHz Band (764-870 MHz)
Model I	None	None	16/48	4MB	H46UCC9PW5_N
Model II	2 lines of icons 4 lines 12 characters per line LCD	3x2	160	4MB	H46UCF9PW6_N
Model III	2 lines of icons 4 lines 12 characters per line LCD	3x6	160	4MB	H46UCH9PW7_N
FCC Designation	AZ489FT5804				
FCC Emissions Designators	11K0F3E, 16K0F3E, 8K10F1E, 8K10F1D				
Power Supply	One rechargeable nickel-cadmium, or nickel-metal hydride				
Dimensions without battery (HxWxL)	6.00" x 2.30" x 1.50"				
Weight without battery	11.0 oz				

BATTERIES FOR ASTRO DIGITAL XTS 2500

Battery Capacity / Type	Dimensions (HxWxD)	Weight	Battery Part Numbers	mAH	Duty Cycle
High Capacity NiCD	4.86" x 2.37" x .968"	8.85 oz	NTN9815	1525	5-5-90 / 8 hr.
High Capacity NiCD FM	4.86" x 2.37" x .968"	8.85 oz	NTN9816	1525	5-5-90 / 8 hr.
High Capacity NiMH	4.86" x 2.37" x .968"	9.63 oz	NTN9858	1800	5-5-90 / 9 hr.
High Capacity NiMH FM	4.86" x 2.37" x .968"	9.63 oz	NTN9857	1750	5-5-90 / 8 hr.

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.

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



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