MOTOROLA

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

3 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:

1000 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 of icons
- 4 lines of text with 12 characters per line
- Status icons including battery and power indicator

MODEL III:

Same as XTS Model I features plus the following:

1000 channels

Dial from pre-stored lists or free-form entry

Programmable soft keys for easy access to radio menu

Backlit Keypad
- 3 soft keys
- 3 navigation keys
- 4 x 3 keypad

Full Bitmap Display
- 2 lines of icons
- 4 lines of text with 12 characters per line
- Status icons including battery and power indicator

The XTS 5000 Project 25 Digital Radio is the toughest and most interoperable radio Motorola makes. It assures seamless, high quality communication in a robust design that stands up to the most demanding environments.

Motorola's IP-enabled portable two-way performer offers a full array of sophisticated features and progressive technology. Designed specifically for law enforcement, firefighters, emergency medical, military and federal agencies, the XTS 5000 digital portable radio is the preferred tool of life-saving professionals.

SPECIFICATION SHEET

ASTRO® XTS® 5000
Digital Portable Radio

FEATURES AND BENEFITS

GPS enabled using GPS Radio Speaker Microphone

Available in the 700/800 MHz, VHF, UHF R1 and R2 bands

Trunking standards supported: clear or digital 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)

Embedded digital signaling (ASTRO & ASTRO 25)

Enhanced audio features
- High quality, error corrected digital voice
- Noise Shield™ Enhanced Noise Reduction Software
- Audio Gain Control

Convenience Features
- Time / Date
- Digital 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

XTS 5000 VHF is now approved for FCC Rule Part 80, Maritime Services

Compatible with most MTS and XTS accessories

Interchangeable display labels

TRANSMITTER – TYPICAL PERFORMANCE SPECIFICATIONS

	700/800 MHz	VHF	UHF R1	UHF R2
Frequency Range/Bandsplits	700 MHz: 764-777, 794-806, 800 MHz: 806-824, 851-870	136-174 MHz	380-470 MHz	450-512 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 6 W	1 to 5 W	1 to 5 W
Frequency Stability* (–30°C to +60°C; +25°C Ref.)	±0.00015%	±0.00020%	±0.00020%	±0.00020%
Modulation Limiting*:				
25 kHz channel	±5.0 kHz	±5.0 kHz	±5.0 kHz	±5.0 kHz
NPSPAC 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	–75 dBc	–70 dBc	–75 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	–45 dB	–48 dB	–45 dB	–45 dB
12.5 kHz	–40 dB	–42 dB	–40 dB	–40 dB
Audio Distortion*	1.50%	1%	1.50%	1.50%

VOICE CODER

Voice Coding Method IMBE (CAI)	Improved Multi Band Excitation (IMBE) (4.4 Kbps IMBE, 2.8 Kbs Error Correction Coding 2.4 Kbps Embedded Signaling)
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

** 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*
Specifications subject to change without notice.

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ASTRO® XTS® 5000
Digital Portable Radio

RECEIVER – TYPICAL PERFORMANCE SPECIFICATIONS

		700/800 MHz	VH1	UHF R1	UHF R2
Frequency Range/Bandsplits		700 MHz: 764-777 800 MHz: 851-870	136-174 MHz	380-470 MHz	450-512 MHz
Channel Spacing		12.5 / 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%	±0.00020%	±0.00020%	±0.00020%
Analog Sensitivity*	12 dB SINAD	.25 µV	.20 µV	.25 µV	.20 µV
Digital Sensitivity**	1% BER	.40 µV	.25 µV	.40 µV	.25 µV
	5% BER	.25 µV	.20 µV	.25 µV	.20 µV
Selectivity*	25 kHz channel	–72 dB	–80 dB	–78 dB	–79 dB
	12.5 kHz channel	–63 dB	–63 dB	–63 dB	–65 dB
Intermodulation*		–75 dB	–78 dB	–75 dB	–77 dB
Spurious Rejection*		–75 dB	–80 dB	–80 dB	–85 dB
FM Hum and Noise*	25 kHz	–48 dB	–56 dB	–54 dB	–53 dB
	12.5 kHz	–40 dB	–50 dB	–45 dB	–45 dB
Audio Distortion*		1.5%	1%	1%	1%

RADIO MODELS

	Display	Keypad	Channel Capacity	FLASHport Memory	700/800 MHz Band (764-870 MHz)	VHF (136-174 MHz)	UHF R1 Band (380-470 MHz)	UHF R2 Band (450-520 MHz)
Model I	none	none	16/48	8MB	H18UCC9PW5_N	H18KEC9PW5_N	H18QDC9PW5_N	H18SDC9PW5_N
Model II	2 lines of icons 4 lines 12 characters per line LCD	3x2	1000	8MB	H18UCF9PW6_N	H18KEF9PW6_N	H18QDF9PW6_N	H18SDF9PW6_N
Model III	2 lines of icons 4 lines 12 characters per line LCD	3x6	1000	8MB	H18UCH9PW7_N	H18KEH9PW7_N	H18QDH9PW7_N	H18SDH9PW7_N
FCC Designation					AZ489FT5806	AZ489FT3804	AZ489FT4855	AZ489FT4864
FCC Emissions Designators	8K10F1E, 20K0F1E, 16K0F3E, 8K10F1D, 11K0F3E							
Power Supply	700/800 MHz: One rechargeable nickel-cadmium, or one optional nickel-metal hydride of lithium ion battery VHF/UHF R1&2: 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	12.5 oz							

BATTERIES FOR ASTRO DIGITAL XTS 5000

Battery Capacity /Type	Dimensions (HxWxD)	Weight	Battery Part Numbers	Smart Battery	Battery Capacity
High Capacity NiCD	6.15" x 2.3" x .92"	11.10 oz	HNN9031	Y	1525 mAH
High Capacity NiCD FM	6.15" x 2.3" x .92"	11.10 oz	HNN9032	Y	1525 mAH
High Capacity NiCD Rugged FM	6.15" x 2.3" x .92"	11.10 oz	NTN8297	N	1525 mAH
High Capacity NiMH	6.15" x 2.3" x .92"	9.53 oz	NNTN4435	Y	1800 mAH
High Capacity NiMH FM	6.15" x 2.3" x .92"	9.53 oz	NNTN4436	Y	1750 mAH
High Capacity NiMH Rugged FM	6.15" x 2.3" x .92"	9.53 oz	NNTN4437	Y	1750 mAH
Ultra High Capacity NiMH	6.15" x 2.3" x .92"	13.18 oz	RNN4006	N	3000 mAH
Ultra High Capacity NiMH FM	6.15" x 2.3" x .92"	13.18 oz	RNN4007	N	3000 mAH
High Capacity Lithium Ion	6.15" x 2.3" x .60"	6.98 oz	NTN8810	N	1650 mAH
High Capacity Lithium Ion	6.15" x 2.3" x .60"	6.98 oz	NTN9862	Y	2000 mAH

SPECIFICATION SHEET

ASTRO® XTS® 5000
Digital Portable Radio

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	I	509.2	I	509.3	I	509.4	**
Blowing Dust	510.1	I	510.2	I	510.3	I	510.4	**
Immersion*	512.1	I	512.2	I	512.3	I	512.4	I
Vibration	514.2	VIII/F, Curve-W, XI	514.3	I/10, II/3	514.4	I/10, II/3	514.5	I/24
Mechanical Shock	516.2	I, II	516.3	I, IV	516.4	I/IV	516.5	I, IV

ENCRYPTION

Supported Encryption Algorithms	ADP, AES, DES, DES-XL and DES-OFB, DVP-XL, DVI-XL
Encryption Algorithm Capacity	8
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	• FIPS 46-2 • FIPS 140-2 • FIPS 197

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*

** For rugged models only.*
*** Only single procedure defined.*
Specifications subject to change without notice.

MOTOROLA

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