COMMUNICATIONS PRODUCTS AGREEMENT NO. P-7288-05B-002

AMENDMENT ONE

This Amendment One to Agreement No. P-7288-05 is made this 17 day of JULY, 2003, by and between Motorola, Inc. (Motorola) and the City of Phoenix (City). The Agreement shall be amended as follows:

1. In **Section 2, DEFINITIONS**, strike the definition of "Contract Release Order" in its entirety.

2. In **Section 3.3, ORDER AND DELIVERY**, strike "Contract Release Order (CRO) or similar" from the first sentence, replace "CRO" with "purchase order" in the second sentence, and strike "CRO or the" from the third sentence.

3. Replace **Section 3.3.1**, in its entirety, with the following:

   Purchase orders for Phoenix must be issued by the Purchasing Division of the City of Phoenix Finance Department.

4. Per the terms of **Section 3.6, TECHNOLOGY UPGRADES**, Motorola further agrees to provide the XTL 5000 mobile in the following categories: (1) Dual Band Mobile, Trunk-Mount, Top Line; and (2) Dual Band Mobile, Under-Dash, Top Line. Specifications are defined in Exhibit H, attached hereto and incorporated by reference.

5. In **Section 3.10, PURCHASES BY CUSTOMER**, strike "Contract Release Order or" from the first sentence and from the third paragraph.

Other than the amended terms set forth herein, the terms and conditions of the Agreement shall remain unchanged and in full force and effect.

The Effective Date of this Amendment shall be July 7, 2003.

CITY OF PHOENIX, a municipal corporation
FRANK A. FAIRBANKS
City Manager

By: _____
Danny W. Murphy
Chief Information Officer

MOTOROLA, INC.

By: _____

Name: PHILIP F. DOBOSZ

Its: MCEI VICE PRESIDENT

2003 JUL 16 AM 10:17
CITY CLERK DEPT.

APPROVED AS TO FORM:

_____
Acting City Attorney

ATTEST:

_____
City Clerk

REVIEWED AND APPROVED
AS TO FORM

BOB SELF 7-10-03
DATE

MOTOROLA
CONTRACTS AND COMPLIANCE DEPT.

MOTOROLA

Exhibit H

June 13, 2003

Mr. Jim Campion, Procurement Supervisor
Purchasing Division
The City of Phoenix
251 West Washington Street, 8th Floor
Phoenix, Arizona 85003-2299

Subject: Agreement No. P-7288-05

Mr. Campion:

As provided in Section 3.6: (Technology Upgrades), Motorola submits the XTL 5000 mobile for addition to Agreement P-7288-05, in the in the following categories:

Dual Band Mobile, Trunk-Mount, Top Line
Dual Band Mobile, Under-Dash, Top Line

Pricing offered is as specified in the pricing schedule of Motorola's Response to City of Phoenix Request for Proposal P03-011, Phoenix Regional Wireless Network Project, 800MHz Subscriber Equipment, dated December 13, 2002.

Attached please find the specification sheet for the XTL 5000 mobile.

We at Motorola look forward to your response. If you should have any questions, Please contact your Account Manager, Paul Punske at (602) 271-7581.

Sincerely,

Richard P. Neal
Vice President, Motorola, Inc.,
General Manager, Western Division, North America Group. CGISS

Specification Sheet

ASTRO XTL 5000 Digital Mobile Radio

MOTOROLA
intelligence everywhere

MODEL FEATURES

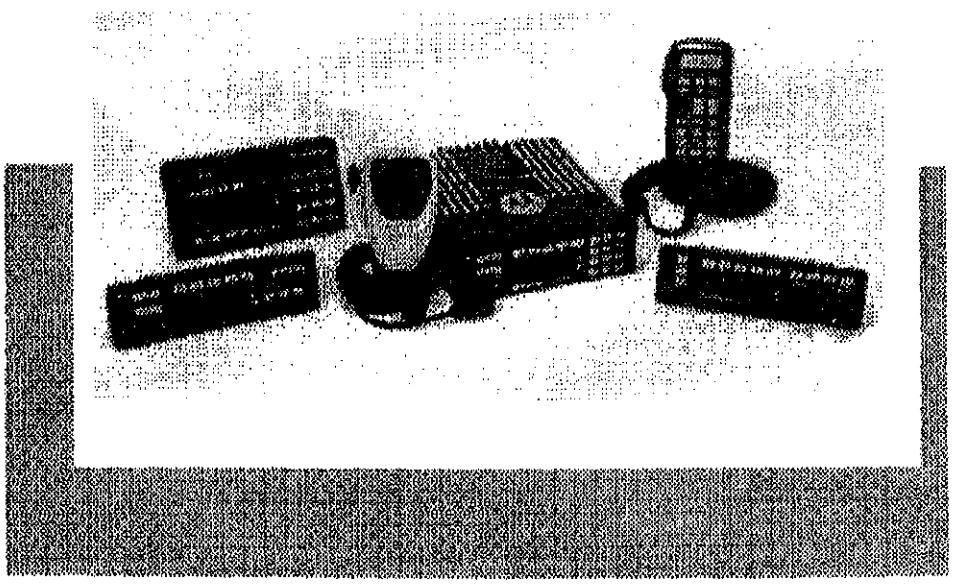
- 764-870 MHz Frequency Band in one radio
- 10-35 watt variable power
- Motorcycle 10-15 watt variable power configuration
- Multiple modes of operation in a single radio (ASTRO digital clear and encrypted, and Analog)
- Full 9600 Baud Features
- Limited 3600 Baud Features
- Project 25 capable on Trunking systems
- Project 25 compliance interoperable voice signaling features
- 12.5/20/25 kHz bandwidth receiver – analog
- 12.5 kHz bandwidth receiver – digital
- Encryption capability (optional):
  - ▶ 48 Encryption keys
  - ▶ DVI-XL, DVP-XL, DES, DES-XL, DES-OFB, AES
- Integrated voice and data capable
- Meets Mil Specs 810 (C, D, E and F)
- Programmable Buttons
- Dash and Remote Mount Configurations
- Utilizes Windows®-based Customer Programming Software (CPS)
- Built in FLASHport™ support
- Optional Siren/PA
- Dual Control Head Operation (optional for W4, W5, W7, W9 control heads)

Motorola's XTL 5000 Project 25 compliant Mobile Radio is one tough performer for local law enforcement groups, utility and transportation users. Whether you are enroute or on site, across the street or across the state, this robust mobile radio assures crisp, continuous and high quality communication.

The XTL 5000 digital mobile radio supports APCO Project 16 and 25 and is available in 764-870 MHz in one frequency band.

It also supports ASTRO Spectra legacy Accessories and existing ASTRO Spectra Control Heads.

Specially designed for your organization's most demanding needs the XTL 5000 digital mobile radio is the most preferred radio for users who need high performance, quality and reliability in their daily communications.



GENERAL PERFORMANCE SPECIFICATIONS

Frequency Range	764-776 MHz (Talk-around) 794-806 MHz 806-825 MHz 851-870 MHz (Talk-around)
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	12.5/20/25 kHz
Digital	12.5 kHz

VOICE CODER

Voice Coding Method	
IMBE (CAI)	Improved Multi Band Excitation
CVSD	Continuously Variable Slope Delta Modulation (for SECURENET mode)
Voice Truncation	None (250 mSec for SECURENET Mode)
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/4094 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.

ENCRYPTION

Encryption Algorithm Capacity	8 algorithms per radio
Encryption Keys per Radio	48 keys (ASTRO compatible)
Encryption Frame Re-sync Interval	Project 25-CAI: 360 mSec
Encryption Keying	Key Variable Loader
Synchronization	Counter Addressing and Cipher Feedback and Output Feedback
Code Key Generator	External hand held microprocessor controlled Key Variable Loader and Key Management Controller
Encryption Key Tag Capacity per System	65,000
Number of Unique Keys	Dependent on encryption algorithm
Code Key Initialization	Internally derived pseudo-random initializing vector
Key Storage	Volatile electronic memory or non-volatile electronic memory
Key Erasure	Keyboard command and tamper detection

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. (0.7 kg)

TRANSMITTER

Frequencies	764-776 MHz (Talk-around) 794-806 MHz 806-825 MHz 851-870 MHz (Talk-around)
RF Power Output 764-870 MHz Mobile	3.5W to 30W from 764-806 MHz 3.5W to 35W from 806-869 MHz 2 watt 700 MHz (itinerant channels)
Maximum Frequency Separation	Full Bandsplit
Frequency Stability Operating Frequency Accuracy (-30C to +60C; +25C Ref.)	1.5 ppm
Modulation Limiting	
25/20 kHz channel	±5 kHz. ± 4 kHz (NPSPAQC)
12.5 kHz channel	±2.5 kHz
Modulation Fidelity (C4FM) 12.5 kHz digital channel	±2.8 kHz
Channel Spacing Analog	12.5/20/25 kHz
FM Hum and Noise	
20/25 kHz	40 dB
12.5 kHz	34 dB
Emissions (Conducted & Radiated)	-70 dBc/-85 dBc (CNSS)
Audio Response (6 db/Octave Pre-emphasis from 300 to 3000 Hz)	+1, -3 dB (EIA)
Audio Distortion per EIA	2%

POWER AND BATTERY DRAIN

Model Type	764-870
Minimum RF Power Output	10-35 Watt
Operation	12V DC Negative Ground
Standby at 13.8V	0.7A
Receive at Rated Audio at 13.8V	3.0A
Transmit at Rated Power	8A (15W), 13A (35W)

RECEIVER

Frequencies	764-776 MHz 851-870 MHz
Channel Spacing	12.5 / 25 kHz
Maximum Frequency Separation	Full Bandsplit
Optional Pre-Amp	No
Analog Sensitivity	
20 db Quieting	.30 uV
12 db SINAD per EIA	.25 uV
Digital Sensitivity	
1% BER (12.5 kHz channel)	.30 uV
5% BER (12.5 kHz channel)	.25 uV
Intermodulation	80 dB
Spurious Response Rejection	80 dB
Audio Output Power at 3% distortion	7.5W into 8 Ohm 13W into 3.2 Ohm
Adjacent Channel Rejection Selectivity (12.5 kHz/25 kHz)	65 dB / 80 dB

FCC TYPE ACCEPTANCE ID

Band	Transmitter Power Output	Number
764-806 MHz	3.5-30 Watt	AZ492FT5823
806-869 MHz	3.5-35 Watt	AZ492FT5823
700 MHz (Itinerant Channels)	2 watt	AZ492FT5823

MODEL TYPE	W3	W4	W5	W7	W9
Display	2 Line/14-Characters per line Liquid Crystal Display	1 Line/8-Characters Vacuum Fluorescent Display	1 Line/8-Characters Vacuum Fluorescent Display	1 Line/9-Characters Vacuum Fluorescent Display	1 Line/11-Characters Vacuum Fluorescent Display
Hardware Configuration	Hand Held Control Head	Rotary Mode & Volume Select	Electronic Mode & Volume Select	Electronic Mode & Volume Select	Electronic Mode & Volume Select
Numeric Keypad	Yes	No	No	Yes	Yes
Channel Capability	512	512	512	512	512
Remote Mount Control Head Dimensions (HxWxD)	5.4"x 2.4"x 1.2"* (137.2 x 60.0 x 30.7 mm)	2.0"x 7.1"x 2.2" (50.8 x 180.3 x 55.9 mm)	2.0"x 7.1"x 2.2" (50.8 x 180.3 x 55.9 mm)	2.0"x 7.1"x 2.2" (50.8 x 180.3 x 55.9 mm)	3.4"x6.5"x1.7" (86.4x165.0 x43.2 mm)
Dash Mount Radio	NA	2.0"x 7.1"x 9.1" (50.8 x 180.3 x 231.1 mm)	2.0"x7.1"x 9.1" (50.8 x 180.3 x 231.1 mm)	2.0"x 7.1"x 9.1" (50.8 x 180.3 x 231.1 mm)	NA
Weight*	6.1 lbs. (2.8 kg)	6.1 lbs. (2.8 kg)	6.1 lbs. (2.8 kg)	6.1 lbs. (2.8 kg)	6.1 lbs. (2.8 kg)

** Measurement shown is without Hang-up Clip. With Hang-up Clip W3 depth increases to 1.4".*

*** Weight is for Dash Mount configuration. Remote Mount weight represents only transceiver weight*

NOTE. Analog specifications measured per TIA/EIA 603.

Digital mode specifications measured per TIA/EIA TSB102.CAAB.

ENVIRONMENTAL SPECIFICATIONS

Operating Temperature	-30°C / +60°C
Storage Temperature	-55°C / +85°C

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 Operational	501.1	II	501.2	II/A1	501.3	II/A1	501.4	II/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

Malcolm Baldrige National Quality Award 2002 Award Recipient

Motorola's Commercial, Government and Industrial Solutions Sector is a recipient of the prestigious 2002 Malcolm Baldrige National Quality Award. This honor demonstrates our commitment to performance excellence and quality achievement.

MOTOROLA
intelligence everywhere

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Specifications subject to change without notice.

R3-1-2008