Unity® XG-100M Mobile
Full-Spectrum Multiband

The Unity XG-100M is the only mobile radio that provides:

- *Full-spectrum multiband frequency coverage*
- *Harris' proprietary noise suppression capability*
- *Next-generation touchscreen color user interface*
- *Built-in GPS and Bluetooth® wireless technology*

The Unity XG-100M Full-Spectrum Multiband Radio's user-centric design delivers unprecedented interoperability, ease of use, and advanced capabilities in a radio that users can depend on for years to come.

Unprecedented Interoperability
The XG-100M covers all land mobile radio frequency bands in a *single* radio:

- VHF band (136-174 MHz)
- UHF bands (380-520 MHz)
- 700/800 MHz bands (762-870 MHz)
- In addition, the XG-100M is capable of receiving low-band VHF transmissions (30-50 MHz)

The XG-100M is a truly interoperable solution, capable of supporting:

- APCO P25 Trunking
- P25 Conventional
- 800 MHz Enhanced Digital Access Communications (EDACS®) (with CH-721)
- Analog FM Wideband and Narrowband Modes

The XG-100M can scan continuously across all bands and encryption types. Additionally the radio can scan Conventional and P25 Conventional channels while on a P25 Trunked system. The Unity XG-100M puts unprecedented connectivity in the hands of its user.

Next-Generation User Interface
The user-centric design of the XG-100M includes options for remote and front-mounted control units. The CH-100 option provides a next-generation graphical user interface (GUI) that incorporates a large 4.3-inch touchscreen color display that provides significant capability and flexibility. The radio also supports the CH-721 traditional control unit with a 3-line 12-character alphanumeric display.

Operation in High-Noise Environments
Using the CH-100 control unit, the XG-100M features Harris' proprietary noise suppression capability to provide clear and crisp voice quality in high-noise environments for use in any mode. The CH-100 is designed with a built-in microphone and advanced signal processing technology which, when combined with the hand held microphone, provide built-in noise suppression.

GPS-Enabled Situational Awareness
The XG-100M incorporates a Global Positioning System (GPS), enabling user position to be displayed directly on the CH-100 control unit display, available from the radio's accessory connector, and in an upcoming software release, to be sent securely over the air for personnel position tracking and rapid response for emergencies. This positional information can also be received by other Unity radios and displayed directly on screen for tactical situational awareness of all radio users.

Bluetooth Wireless Technology
Wireless audio and data accessories for the CH-100 control unit are supported by built-in Bluetooth technology. Additionally, the wireless data interface can be used to connect a computer for programming and configuring radios, with no cable connections required. For security purposes, pairing management is controlled from the radio interface and can be secured using AES encryption. Additionally, the Bluetooth transceiver can be disabled, if desired.

Extended Channel Capacity
Using the CH-100 control unit, the XG-100M is designed to maximize interoperability by providing the channel capacity necessary to operate on many systems across all frequency bands:

- Able to store 1,250 channels/talkgroups and 512 system profiles per mission plan
- Able to store up to 10 mission plans for a total of 12,500 channels/talkgroups and 500 system profiles
- Can be completely reconfigured from the front panel by loading different mission plans for different situations

Software-Defined Radio Architecture
Harris has a long history of fielding mission-critical software-defined radios that support evolving customer requirements through software-only upgrades. The XG-100M builds upon this experience and expertise, featuring a true software-defined radio architecture that allows flexibility for future growth, including a software-only upgrade to the APCO P25 Phase 2 standards when available.

Future-Proof Investment
Every XG-100M is built to exceed the MIL-STD-810G military standards for ruggedness. With a 3-year standard radio warranty, the XG-100M Full-Spectrum Multiband Radio is a future-proof investment.

Technical specifications represent typical performance and are subject to change without notice.
Product sales are subject to applicable U.S. export control laws.

General Specifications

Dimensions (H x W x D):

Radio Only (50W):
2.0 x 6.9 x 9.7 in.
(50 x 175 x 247 mm)

RU and CH-721 CU (Includes Knobs):
2.4 x 6.9 x 12.8 in.
(60 x 175 x 325 mm)

CH-721 CU (Remote):
2.4 x 7.0 x 4.0 in.
(60 x 175 x 100 mm)

RU and CH-100 CU (Includes Knobs):
3.3 x 7.0 x 11.6 in.
(84 x 178 x 295 mm)

CH-100 CU (Remote):
3.3 x 7.0 x 2.8 in.
(84 x 178 x 71 mm)

System Voltage:
10.8 to 16.6 VDC Negative Ground

Operating Temperature Range:
-4 to 140°F (-20 to +60°C)

Relative Humidity:
Per MIL-STD-810G

Altitude:
Operational: 15,000 ft (4,572 m)
In Transit: 40,000 ft (12,192 m)

Channel/Talkgroup Capacity:
CH-100: 12,500 (1,250 per mission plan)
CH-721: 1,250

Speaker:
External, 15W

Control Unit Options
CH-100: Touchscreen, 16-bit color, 480 pixels x 272 pixels, 4.3 in., sunlight readable LCD
CH-721: System and Scan models available, 3-line 12-character alphanumeric display

Options and Accessories

Remote and front mount kits, hand held controller, mobile mic, DTMF mic, desk mic, desktop control station, and motorcycle kit

Transmitter

Typical Performance	Full-Spectrum Multiband
Frequency Range (MHz):	136-174 (VHF), 380-520 (UHF), 762-870 (700/800)
Rated RF Power Trunked (W):	VHF: 5-50, UHF: 5-50, 700: 2-30, 800: 2-35
Rated RF Power Talkaround (W):	VHF: 5-50, UHF: 5-50, 700: 2-30, 800: 2-35
Frequency Stability (-30 to +60°C) (ppm):	±0.5
Modulation Limiting (kHz):	2.5, 4, 5 (FM)
Audio Response (dB):	+1/-3
Spurious and Harmonics (dBc):	-70, FCC Part 90
FM Hum and Noise @ 25 kHz (dB):	VHF-low : 48.2, VHF: 48.8, UHF: 48.6, 700/800: 48.0
FM Hum and Noise @ 12.5 kHz (dB):	VHF-low : 47.1, VHF: 45.9, UHF: 46.2, 700/800: 44.4
Audio Distortion (%):	<1.0
P25 Modulation Fidelity (%):	<1.00
P25 Adjacent Channel Power (dBc):	>70
Emission Designators:	11K0F3E, 8K4F1E, 8K4F1D, 12K00G1E, 12K00G1D, 14K0F3E

Receiver

Typical Performance	Full-Spectrum Multiband
Frequency Range (MHz):	30-50 (VHF-low), 136-174 (VHF), 380-520 (UHF), 762-870 (700/800)
Channel Spacing (kHz):	12.5, 20, 25
Sensitivity (12 dB SINAD) (dBm):	VHF-low: -121.5, VHF:-122.1, UHF: -121.8, 700/800:121.2
P25 Reference Sensitivity (5% BER) (dBm):	VHF-low: -121.5, VHF:-122.1, UHF: -121.8, 700/800:121.2
Adjacent Channel Rejection @ 25 kHz (dB):	VHF-low : 80.6, VHF: 82.5, UHF: 77.4, 700/800: 77.0
P25 Adjacent Channel Rejection @ 12.5 kHz (dB):	VHF: 63.9, UHF: 62.9, 700/800: 61.9
Intermodulation (dB):	VHF-low : 81.9, VHF: 81.9, UHF: 81.8, 700/800: 82.5
Spurious and Image Rejection (dB):	VHF-low : 86.6, VHF: 83.0, UHF: 92.4, 700/800: 94.4
FM Hum and Noise @ 25 kHz (dB):	VHF-low : 49.5, VHF: 54.8, UHF: 48.2, 700/800: 52.0
FM Hum and Noise @ 12.5 kHz (dB):	VHF-low : 46.6, VHF: 54.6, UHF: 45.0, 700/800: 44.9
Rated/Max. Audio Output (W):	VHF-low : 80.6, VHF: 82.5, UHF: 77.4, 700/800: 77.0
Audio Distortion (%):	<1.0 @ rated power

Environmental Specifications

Standard	Parameter	Methods &Procedures
MIL-STD-810G*	Low Pressure	500.5, Proc. I, II
	High Temperature	501.5, Proc. I, II
	Low Temperature	502.5, Proc. I, II
	Temperature Shock	503.5, Proc. I
	Solar Radiation	505.5, Proc. II
	Blowing Rain**	506.5, Proc. I
	Humidity	507.5, Proc. II
	Salt Fog	509.5, Proc. I
	Blowing Dust	510.5, Proc. I
	Minimum Integrity Vibration	514.6, Proc. I, Category 24
	Functional/Basic Shock	516.6, Proc. I
	Transit Drop	516.6, Proc. IV
U.S. Forest Service	Vibration Stability	Par. 2.15

*Also meets equivalent superseded MIL-STD-810C, -D, -E, and -F.
**CH-100 and CH-721 control units meet IP-65/MIL-STD-810, XG-100M radio unit meets IP-54.

Digital Operation

	APCO Project 25
Vocoding Method:	AMBE+2™ Enhanced Full Rate & Enhanced Half Rate
Data Rate:	9.6
Modulation:	C4FM
Encryption Algorithms:	AES, DES-OFB, DES-CFB
Encryption Keys:	128 keys (64 AES, 64 DES)
Encryption Keying:	Harris Keyloader, P25 Conventional and Trunked OTAR, KVL-3000+ with CH-100

Regulatory Data

Frequency Range (MHz)	RF Output (W)	Frequency Stability (ppm)	FCC Type Acceptance Number	Applicable FCC Rules	Industry Canada Certification Number	Applicable Industry Canada Rules	NTIA Certification Number
30-50	0.009	0.5	AQZ-XG-100M00	80, 90	122D-XG100M00	RSS-119	NA
136-174	50	0.5	AQZ-XG-100M00	80, 90	122D-XG100M00	RSS-119	JF-129952
156-162	50	0.5	AQZ-XG-100M00	80	122D-XG100M00	RSS-119	JF-129952
380-520	50	0.5	AQZ-XG-100M00	90	122D-XG100M00	RSS-119	JF-129952
763-775, 793-805	30	0.5	AQZ-XG-100M00	90	122D-XG100M00	RSS-119	NA
806-824, 851-869	35	0.5	AQZ-XG-100M00	90	122D-XG100M00	RSS-119	NA

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