

**Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554**

In the Matter of)	
)	
Implementing a Nationwide, Broadband, Interoperable Public Safety Network in the 700 MHz Band)	PS Docket No. 06-229
)	
)	
Development of Operational, Technical and Spectrum Requirements for Meeting Federal, State, and Local Public Safety Communications Requirements Through the Year 2010)	WT Docket No. 96-86
)	
)	
Petition for Rulemaking, Louisiana Statewide Interoperability Executive Committee)	RM No. 11577
)	

COMMENTS OF HARRIS CORPORATION

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November 18, 2009

EXECUTIVE SUMMARY

The State of Louisiana, Statewide Interoperability Executive Committee has filed a Petition for Rulemaking with the Federal Communications Commission (“Commission”) to revisit and consider modifying the 700 MHz narrowband migration date requiring 6.25 kHz spectrum efficiency from December 31, 2016 to December 31, 2024. Through this filing, Harris Corporation (“Harris”) seeks to remind the Commission of its decisions in establishing the current 6.25 kHz narrowband migration path and refresh the record as to the availability of 6.25 kHz compliant technology. Moreover, in order to address the problems of individual jurisdictions the Commission should consider granting relief on a case by case basis. Harris encourages the Commission to examine the record in its entirety including the rationale behind the Commission’s previous actions, the current public safety and equipment manufacturer narrowbanding landscape, and whether Commission action is in the public interest.

According to the Commission, the migration plan it originally adopted in 2002 struck a balance between providing the public safety community with rapid access to the 700 MHz public safety band and ensuring efficient spectrum use. When establishing the 700 MHz narrowband migration plan the Commission considered a number of factors including equipment availability, the benefits of narrowbanding in regards to spectrum efficiency, and the financial impact on public safety entities. In 2005 the Commission extended certain interim transition benchmark dates from December 31, 2006 to December 31, 2014. However, the Commission’s analysis still included an evaluation of the factors previously mentioned.

The Commission may need to take specific action to provide aide to Louisiana, it is not clear based on Louisiana’s Petition for Rulemaking that a blanket extension of the narrowbanding migration deadline is in the public interest. In fact, one of Louisiana’s primary

reasons for requesting to modify the mandatory transition deadline is based on a lack of available subscriber equipment capable of transmitting on the required spectrum. However, Harris has specific evidence of its development, testing, and deployment of 6.25 kHz equipment that will satisfy the Commission's one voice path per 6.25 kHz efficiency standard.

Harris respectfully submits these comments for consideration by the Commission. Harris supports the Commission's efforts to ensure users are being spectrally efficient and looks forward to working with the Commission and public safety community to develop products that are efficient, but also meet the needs of public safety users.

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To: The Commission

COMMENTS OF HARRIS CORPORATION

This filing is submitted on behalf of Harris Corporation (“Harris”) before the Federal Communications Commission (“Commission”) in response to the Commission’s Public Notice¹ seeking comment on the Louisiana Statewide Interoperability Executive Committee’s (“Louisiana”) Petition for Rulemaking² (“Petition”) to modify the mandatory narrowband

¹ See In the Matter of Implementing a Nationwide, Broadband, Interoperable Public Safety Network in the 700 MHz Band; Development of Operational, Technical and Spectrum Requirements for Meeting Federal, State and Local Public Safety Communications Requirements Through the Year 2010, *Public Notice*, Report No. 2902, Rulemaking No. 11577 (rel. Oct. 19, 2009).

² See Petition for Rulemaking of the Louisiana Statewide Interoperability Executive Committee, In the Matter of Implementing a Nationwide, Broadband, Interoperable Public Safety Network in the 700 MHz Band; Development of Operational, Technical and Spectrum Requirements for Meeting Federal, State and Local Public Safety Communications Requirements Through the Year 2010, WT Docket No. 9686 (filed Oct. 5, 2009) (“Louisiana Petition”).

6.25 kHz migration date³ from December 31, 2016 to December 31, 2024. Specifically, Louisiana believes that the current migration date will have considerable negative impact and create an undue hardship on all users of its Louisiana Wireless Information Network (“LWIN”).⁴ Through this filing Harris seeks to remind the Commission of its decisions and rationale for establishing the current 700 MHz narrowband migration path and refresh the record as to the availability of 6.25 kHz compliant technology.⁵ Moreover, in order to address the problems of individual jurisdictions that believe they will be unable to meet the 2016 transition deadline, the Commission should consider granting relief on a case by case basis. The Commission has based the timing of its 700 MHz narrowband migration plan to 6.25 kHz technology on various factors including equipment availability, the spectrum efficiency benefits of narrowbanding, and the financial impact on public safety entities. The Commission should take into account its original reasoning for adopting the current migration plan, the current state of narrowbanding in the public safety community and equipment marketplace, and whether Commission action is in the public interest.

I. Corporate Background

Harris is an international communications and information technology company serving government and commercial markets in more than 150 countries. Harris has an extensive background in the telecommunications industry. Through the acquisition of Tyco Electronics Wireless Systems Division—formerly known as M/A-COM—Harris Corporation has

³ See 47 C.F.R. § 90.535 (2009).

⁴ Louisiana Petition, *supra* note 2, at 3.

⁵ See M/A-COM Inc.’s Petition for Reconsideration of the *Fifth Memorandum Opinion and Order*, In the Matter of The Development of Operational, Technical and Spectrum Requirements for Meeting Federal, State and Local Public Safety Communications Requirements Through the Year 2010, WT Docket No. 96-86, 6-8, nn. 19-23 (filed May 27, 2005) (“M/A-COM Petition for Reconsideration”) (providing specific evidence of M/A-COM’s development, testing and deployment of 6.25 kHz equipment that will satisfy the Commission’s 700 MHz narrowband efficiency standard).

strengthened its place as a leader in the public safety market. Harris' new Public Safety and Professional Communications Business Unit has a total of 120 years of experience in communications technology with more than 400 critical communications systems deployed world-wide. Harris is a leading technology developer and manufacturer of mission-critical wireless communications for the public safety communications market. Harris has revolutionized public safety communications through the deployment of end-to-end Internet Protocol ("IP") based land mobile radio systems for mission critical communications, including IP based 6.25 kHz- equivalent efficient public safety solutions in the 700 MHz band. As a pioneer in the development of IP based networks for private radio and broadband applications, Harris supplies industry-leading brands such as VIDA Broadband™, EDACS®, OpenSky®, NetworkFirst™, and Provoice™. In addition, Harris now offers first responders full-spectrum multiband products for joint public safety operations on the local, state, and federal levels: the Harris Unity XG-100 and RF-1033M. Harris is also an active member of numerous standards and technical committees including the TR-8 Mobile and Personal Private Radio Committee of the Telecommunications Industry Association.

II. The Commission's Decision To Establish A Migration Path to 6.25 kHz Narrowband Technology Was Adopted To Provide Public Safety Immediate 700 MHz Access and Encourage Spectrum Efficiency.

Harris believes it is in the public interest for the Commission to mandate the highest spectrum efficiency, wherever conditions permit, in order to optimize the use of scarce spectrum.⁶ However, mandates requiring increased spectrum efficiency should not be imposed in a vacuum. Harris recognizes the inherent difficulties that jurisdictions, such as Louisiana, face

⁶ Such an approach is consistent with the Commission's goals that were pursued in the 'Refarming proceeding.' *See* In the Matter of Replacement of Part 90 by Part 88 to Revise the Private Land Mobile Radio Services and Modify the Policies Governing Them and Examination of Exclusivity and Frequency Assignments Policies of the Private Land Mobile Services, PR Docket No. 92-235 (developing an overall strategy for using the spectrum in the private land mobile radio allocations more efficiently to meet future communications requirements).

when they are required to meet new efficiency mandates and migrate to new technology. Therefore, the Commission should consider granting regulatory relief on a case by case basis. Furthermore, just as mandates to increase spectral efficiency should not be established in a void, modifying such requirements should not either. Harris urges the Commission to examine the entire record by taking into account the rationale underlying the Commission's 700 MHz narrowbanding migration plan and examining the actual status of public safety and equipment manufacturers' narrowbanding activities and planning.

A. In Adopting, and Subsequently Amending, the 700 MHz Narrowband Migration Plan the Commission Sought to Balance the Benefits and Burdens of Migration With the Needs of Public Safety.

In August 2002 the Commission adopted the *Fifth Report and Order*⁷ ("*Fifth Report*") which established a phased migration path to 6.25 kHz voice efficiency for General Use and State License channels in the public safety 700 MHz narrowband spectrum. The Commission established December 31, 2016, as the mandatory transition date after which all licensees operating in the General Use and State License channels would have to cease operation with 12.5 kHz equipment and operate exclusively with 6.25 kHz equipment.⁸ In order to facilitate this migration the Commission established certain interim deadlines including (1) prohibiting type certifications for 12.5 kHz equipment after December 31, 2006; (2) banning the marketing, manufacture, and importation of equipment that is exclusively capable of operating in the 12.5 kHz mode after December 31, 2006; and (3) accepting applications after December 31, 2006, for new systems only if they employ 6.25 kHz equipment.⁹ The Commission believed that the

⁷ See In the Matter of The Development of Operational, Technical and Spectrum Requirements for Meeting Federal, State and Local Public Safety Agency Communications Requirements Through the Year 2010, *Fifth Report and Order*, WT Docket No. 96-86, 17 FCC Rcd. 14999 (rel. Aug. 2, 2009) ("*Fifth Report*").

⁸ *Id.*, at ¶ 1.

⁹ *Id.*

interim and final migration deadlines would allow “both manufactures and public safety entities to engage in strategic long-range planning.”¹⁰

While some public safety entities suggested that the Commission adopt a longer 21 year migration plan,¹¹ the Commission chose to adopt a shorter migration period in order to prevent public safety from becoming embedded in the 700 MHz band using 12.5 kHz equipment.¹² Specifically, the Commission determined that “by allowing for the continued use of 12.5 kHz equipment through the normal life-span of the equipment as well as providing for interoperability with 6.25 kHz systems, [the Commission] expect[s] that the migration will be efficient and orderly.”¹³ According to the Commission, the migration plan it adopted struck an “appropriate balance between providing the public safety community with rapid access to the 700 MHz public safety band and ensuring efficient spectrum use.”¹⁴ In arriving at this balance the Commission considered two key factors: equipment availability and financial impact.

In the *Fifth Report* the Commission concluded that “the transition to 6.25 kHz efficiency will be driven by equipment availability,”¹⁵ and established the transition benchmarks relying on data from various manufacturers.¹⁶ To ensure equipment availability the Commission determined that a “uniform nationwide, predictable migration to 6.25 kHz offers economies of scale and

¹⁰ Id., at ¶ 15.

¹¹ Id., at ¶ 7.

¹² Id., at ¶ 9.

¹³ Id.

¹⁴ Id., at ¶ 8.

¹⁵ Id., at ¶ 11.

¹⁶ Id., at ¶ 11, n. 38.

other incentives that promote a competitive equipment market by encouraging new entrants.”¹⁷ In fact, the Commission noted that interested parties were less concerned about which date was ultimately chosen and more concerned that the Commission chose a date certain.¹⁸ The Commission viewed the migration path it adopted as a way to “commence and promote competition among public safety radio equipment manufacturers”¹⁹ and “...give radio equipment manufacturers sufficient time to research, develop and manufacture compliant equipment.”²⁰

The financial impact on public safety entities was also an important factor considered by the Commission when it established its phased migration timetable. In particular, costs were examined with regards to the lifespan of existing or soon to be deployed 700 MHz public safety voice systems and the cost of replacing those systems to comply with the migration plan. The implementation of interim migration deadlines was part of the approach the Commission used to provide public safety legacy systems a full lifecycle and reduce overall system replacement costs to meet 6.25 kHz efficiency standards.²¹ Through its original migration plan the Commission aimed to provide public safety entities that purchase 12.5 kHz equipment a reasonable equipment lifespan, which the Commission considered to be approximately ten (10) years.²²

In January 2003 Motorola filed a Petition for Reconsideration requesting that the Commission reassess two of the its interim deadlines: (1) banning the marketing manufacture and importation of equipment that is exclusively capable of operating in the 12.5 kHz mode after

¹⁷ Id., at ¶ 16.

¹⁸ Id., at ¶ 14.

¹⁹ Id., at ¶ 15.

²⁰ Id.

²¹ Id., at ¶¶ 9 and 16.

²² Id., at ¶ 15.

December 31, 2006; and (2) accepting applications after December 31, 2006, for new systems only if they employed 6.25 kHz equipment.²³ Motorola advocated for either the elimination of these two interim deadlines, or an extension of the deadlines to December 31, 2011.²⁴ Motorola claimed that these two prohibitions would “impose a substantial financial burden on public safety entities and [would] limit these entities’ equipment choices without providing an offsetting benefit that justifies their imposition.”²⁵ Additionally, Motorola contended that it was “not aware of any credible ongoing development worldwide of digital equipment designed to provide a single voice path within a discrete 6.25 kHz channel.”²⁶ In response to Motorola’s claims, M/A-COM demonstrated in several Commission filings that Motorola based its request for reconsideration on “unsubstantiated assertions regarding cost-benefit ratios”²⁷ and “commercially-motivated conjecture regarding the lack of availability of spectrally efficient equipment.”²⁸ In fact, on numerous occasions within this proceeding M/A-COM has presented evidence directly contradicting Motorola’s claims regarding insufficient equipment availability.²⁹

²³ Petition for Reconsideration of Motorola Inc. regarding the Fifth Report and Order, In the Matter of The Development of Operational, Technical and Spectrum Requirements for Meeting Federal, State and Local Public Safety Agency Communications Requirements Through the Year 2010, WT Docket No. 96-86, ii (filed Jan. 13, 2003). (“Motorola 2003 Petition for Reconsideration”).

²⁴ Id., at 1.

²⁵ Id., at ii.

²⁶ Id., at 7.

²⁷ M/A-COM Petition for Reconsideration, *supra* note 5, at 10.

²⁸ Id.

²⁹ *See Id.* (requesting the Commission revert its migration dates back to those established in the Fifth Report and presenting evidence of 6.25 kHz compliant technology); *See* Opposition by M/A-com, Inc. to the Petition for Reconsideration of the *Fifth Report and Order* filed by Motorola, Inc., In the Matter of The Development of Operational, Technical and Spectrum Requirements for Meeting Federal, State and Local Public Safety Agency Communications Requirements Through the Year 2010, WT Docket No. 96-86 (filed Apr. 1, 2003) (opposing Motorola’s Petition for Reconsideration to extend certain interim migration dates); *See* Reply by M/A-COM, Inc. to the Comments in support of the Petition for Reconsideration of the *Fifth Report and Order* filed by Motorola, Inc., In the Matter of The Development of Operational, Technical and Spectrum Requirements for Meeting Federal, State

In January 2005 the Commission adopted the *Fifth Memorandum Opinion and Order*³⁰ (“*Fifth Memorandum*”) and extended the interim migration benchmark dates by eight years, until December 31, 2014.³¹ The Commission deferred mandating efficient use of 700 MHz public safety spectrum because Motorola and other parties persuaded it that a 6.25 kHz product could not be brought to market consistent within the original migration benchmark dates.³² However, even with the modification of the interim migration deadlines, the Commission still believed that public safety entities’ existing equipment would be provided a sufficient lifespan³³ and that the 700 MHz narrowband migration to 6.25 kHz would move ahead as planned.³⁴

In the *Fifth Memorandum*, the Commission acted in furtherance of the balancing rationale it used in the *Fifth Report*, focusing on equipment availability and the financial impact on public safety. First, the Commission concluded that extending the interim deadlines would “provide an incentive for all manufacturers to timely develop dual mode equipment and 6.25 kHz equipment in advance of the mandatory transition to 6.25 kHz technology, on January 1,

and Local Public Safety Agency Communications Requirements Through the Year 2010, WT Docket No. 96-86 (filed Apr. 11, 2003) (responding to support of Motorola’s Petition for Reconsideration and restating its opposition to the modifying various interim migration dates); *See* Reply of M/A-COM Inc., In the Matter of The Development of Operational, Technical and Spectrum Requirements for Meeting Federal, State and Local Public Safety Agency Communications Requirements Through the Year 2010, WT Docket No. 96-86 (filed Sept. 12, 2005) (responding to opposition against M/A-COM’s Petition for Reconsideration).

³⁰ In the Matter of The Development of Operational, Technical and Spectrum Requirements for Meeting Federal, State and Local Public Safety Agency Communications Requirements Through the Year 2010, *Fifth Memorandum Opinion and Order*, WT Docket No. 96-86, 20 FCC Rcd. 831 (rel. Jan. 7, 2005) (“*Fifth Memorandum*”).

³¹ *Id.*, at ¶ 2.

³² *Id.*, at ¶ 12.

³³ The Commission determined that by delaying the prohibition on the marketing, manufacture and importation of 12.5 kHz equipment public safety entities would be given at least a seven year period to voluntarily transition to dual band equipment, thus lowering the financial burden on public safety entities when replacing non-compliant equipment. *Id.*

³⁴ In the *Fifth Memorandum* the Commission stated that it “remain[s] committed to ensuring a complete and expeditious transition to 6.25 kHz equipment in the 700 MHz band....” *Id.*, at ¶ 14.

2017.”³⁵ Second, the Commission believed that its actions would better situate public safety entities to comply with the final narrowband migration deadline by “allow[ing] licenses to construct system that best suit their needs”³⁶ and easing the financial burden on public safety entities by “only requiring these entities to possibly undertake the replacement of thirty percent of their equipment.”³⁷

While it is apparent, based on its Petition, that Louisiana has obstacles it must overcome in order to meet the December 31, 2016 migration deadline, the Commission should take note that many of the arguments presented by Louisiana’s Petition are reminiscence of those advanced by Motorola in its 2003 Petition for Reconsideration. Harris urges the Commission to carefully examine the complete record, including an evaluation of the current landscape of public safety narrowbanding, prior to making any modifications to the 700 MHz narrowband migration plan.

B. To Address Individual Jurisdictions Problems The Commission Should Consider Granting Relief On A Case By Case Basis.

In its Petition, Louisiana contends that the current transition date shortens the lifespan of existing equipment and raises the cost associated with purchasing equipment today that will soon be obsolete.³⁸ Throughout the *Fifth Report* the Commission makes clear that the migration path being implemented is meant to afford certainty with respect to the migration by equipment availability and reducing the financial burdens on public safety entities through providing public safety entities a reasonable lifecycle for its existing equipment. Louisiana’s filing is unclear as to the precise number of public safety entities that are encountering similar problems. While the

³⁵ *Id.*, at ¶ 13.

³⁶ *Id.*, at ¶ 14.

³⁷ *Id.*, at ¶ 13.

³⁸ Louisiana Petition, *supra* note 2, at 3-4.

Commission should explore ways to help solve Louisiana’s current issues, individual jurisdiction’s problems may be more appropriately solved on a case by case basis.

Although Commission action may be required to provide aide to Louisiana, before implementing a blanket extension of the narrowbanding migration deadline the Commission must better understand the current status of narrowbanding efforts within the public safety community. The Commission should also take into account public safety entities and manufacturers that have started to implement the 700 MHz narrowband migration plan and continue to encourage those entities to move forward.

III. Harris Has Developed, Tested, and Deployed 6.25 kHz Equipment That Will Satisfy the Commission’s 700 MHz Narrowbanding Requirement.

According to Louisiana’s Petition, one of its primary reasons for requesting to modify the mandatory transition deadline is based on a lack of available subscriber equipment capable of transmitting on the required spectrum. Specifically, Louisiana states that “while some manufacturers are currently marketing 700 MHz radios that will be upgradeable to the required channel efficiency of 6.25 kHz, none are currently available for delivery.”³⁹ In determining whether to explore the transition date as requested by Louisiana, the Commission must gain a better understanding of the marketplace with regards to 700 MHz narrowband equipment.

Since May 2005 equipment manufacturers have been developing, testing, and deploying 6.25 kHz equipment.⁴⁰ In May 2005 M/A-COM submitted a Petition for Reconsideration of the Commission’s *Fifth Memorandum*.⁴¹ In its Petition for Reconsideration, M/A-COM provided specific evidence of its development, testing, and deployment of 6.25 kHz equipment that would

³⁹ *Id.*, at 3.

⁴⁰ “...there is clear evidence as of May 2005 that equipment manufacturers have developed, tested and even deployed 6.25 kHz equipment.” M/A-COM Petition for Reconsideration, *supra* note 5, at 5.

⁴¹ *See Id.*

satisfy the Commission's one voice path per 6.25 kHz efficiency standard.⁴² Harris would like to refresh the record by demonstrating how over the past four (4) years 6.25 kHz equipment has continued to be developed, tested, and deployed. For example, Harris has developed the Harris model P7200 dual-band, multi-mode portable radio that operates in both the 700MHz and 800MHz bands.⁴³ This product is in production and uses 4 slot TDMA technology in both 25kHz wide channels and NPSPAC 20 kHz channels. This Radio is P25 Phase I ready and is P25 Phase II compliant.

Not only have manufacturers of land mobile radio products been actively working to comply with the Commission's narrowband mandates, but the public safety community has as well. The Las Vegas Metropolitan Police Department ("LVMPD") is in the process of installing a new multi-band/multi-mode 700 MHz, IP-based, Project 25 capable radio system to enhance interoperability within the State of Nevada. Full implementation of the new 700 MHz narrowband system is expected in late spring of 2010 and fully complies with the Commission's 6.25 kHz spectrum efficiency mandate, more than six (6) years in advance of the final migration deadline.

While Harris is the market leader in development of 6.25 kHz efficiency systems, its ability to provide 6.25 kHz efficiency systems is not unique. In 2008, iCOM introduced a series of land mobile radio products that combines the channel allocation efficiency of trunking with the spectrum efficiency of 6.25 kHz channel spacing.⁴⁴ The iCOM Digital Advanced System (iDAS) uses the non-proprietary NXDN™ common air interface standard jointly developed by Icom and Kenwood Corp.

⁴² *Id.*, at 6-8, nn. 19-23.

⁴³ See Appendix I, Harris P7200 Portable 700/800 MHz Product Description.

⁴⁴ See Appendix II, iCOM, "6.25 kHz Trunking Make Migration Easy!" (November 2008).

Appendix I
Harris P7200 Portable 700/800 MHz Product Description

Comments of Harris Corporation
November 18, 2009

Louisiana Statewide Interoperability Executive Committee
Petition for Rulemaking
PS Docket No. 06-229
WT Docket No. 96-86
RM-11577



P7200 Portable 700/800 MHz

The P7200 portable is a public safety digital two-way radio that provides

- Dual-band TDMA-capable operation
- Multi-Mode functionality
- Digital voice and IP data



P7230 P7250 P7270

The 700/800 MHz dual-band P7200 portable radio delivers end-to-end encrypted digital voice and IP data communication. The P7200 was designed to meet the critical communication demands of public safety users. It is a high specification, feature-rich portable built to provide superior performance.

Multiple Operating Modes

The P7200 portable supports multiple operating modes, including OpenSky[®] digital trunked mode, Enhanced Digital Access Communications System (EDACS[®]) or ProVoice[™] trunked mode, P25 digital trunked mode, P25 conventional mode, and conventional analog mode. As software-defined radios, the P7200 units can include all of these modes, some, or just one. Additional modes can be added later with software updates.

Advanced Digital Trunking Features

The P7200 supports the full range of OpenSky digital trunking features, including voice group calls, priority scanning, pre-emptive emergency calls, late call entry, and dynamic reconfiguration. It performs autonomous roaming for wide-area applications. High-quality voice coding and robust audio components assure speech clarity, even in noisy environments.

Mobile Data Capability

The P7200 portable can be used in high-performance wireless data systems in all operating modes listed. For mobile data applications, the P7200 serves as an Internet Protocol (IP) network node, providing end-to-end IP connectivity for an external portable computer connected to the radio's data port. For OpenSky, the 19.2-kbps data airlink rate is a standard operating feature. Users can talk and send or receive data on the same channel at the same time with just one radio.

Over-the-Air Programming

OpenSky radios benefit from a flexible, software-based design. Features and user profiles are software-defined and can be reprogrammed over the air. The radio personality, features, and operating software can all be updated over the air. Over-the-Air Rekeying (OTAR) of encryption keys is also available for OpenSky or P25 trunking operation.

Encrypted Communications

The optional Advanced Encryption Standard (AES) is available for maximum security on OpenSky, ProVoice, and P25. OpenSky operates the most advanced vocoder on a private wireless Intranet that provides maximum digital voice clarity. As an additional measure of security, P7270 radios may be

password-protected, preventing unauthorized use.

Lightweight with Heavy-Duty Performance

The P7200 is more than just new electronics and software, it is the most robust mechanical package ever offered in a Harris portable radio.

- MIL-STD-810F rugged – including 1-meter drop per TIA (even the knobs)
- Optional Immersion – 1 meter for 4 hours per MIL-STD-810F
- Non-Slip grips on the side
- Knobs with large blades for excellent tactile feel, yet rounded and with set-screws to prevent accidental changes
- Tx/Rx LED and improved clarity display for more visible signaling (including new features such as a battery-level gauge)
- Large speaker and amplified microphone for loud and clear audio
- Intrinsically safe certification (optional)
- P7100[®] accessory compatibility – including batteries, chargers, vehicular chargers, carrying accessories, and audio accessories.

General Specifications

P7200 Portables are available in 3 models:

P7270: System Model with LCD and full keypad

P7250: Scan Model with LCD and limited keypad

P7230: Select Model with LCD and no front keypad

Dimensions (H x W x D):
(Without Knobs and Antenna)

With battery:

6.75 x 2.58 x 1.79 in.

(171.4 x 65.5 x 44.7 mm)

Weight (with Battery):

Li-Ion 19.8 oz (561g)

NiCd: 22.9 oz (649g)

NiMH: 23.9 oz (678g)

Input Voltage:

7.5 VDC (nominal)

Vibration:

5 G (per U.S. Forest Service)

Shock:

1 meter drop (per TIA/EIA-603-A)

Immersion*:

1 meter for 4 hours with 49°F (27°C) differential (MIL-STD-810F)

*P7200 immersion model only.

Battery Life (at 5% Tx, 5% Rx, and 90% standby):

Li-Ion: 14 hours (3200 mAh)

NiCd: 8 hours (1600 mAh)

NiMH: 11 hours (2400 mAh)

Operating Temperature Range:

Li-Ion: +14 to +122°F

(-10 to +50°C)

NiCd: -22 to +140°F

(-30 to +60°C)

NiMH: +14 to +122°F

(-10 to +50°C)

Relative Humidity:

90% @ 122°F (+50°C)

Altitude:

Operational: 15,000 ft (4,572 m)

In Transit: 50,000 ft (15,240 m)

Color (case):

Black

Options and Accessories

Headset, earpiece, speaker microphones, PC programming software and cables, subminiature surveillance accessories, antennas, cases, straps, belt loops and swivel mounts, desk chargers, wall chargers, and vehicular chargers.

Intrinsically Safe Options

Factory Mutual Intrinsically Safe for Class I, II, and III, Division 1, Groups C, D, E, F, and G, Temp T3C, TA=+60°C; Nonincendive for Class I, Division 2, Groups A, B, C, and D, Temp T4, TA=+60°C.

Transmitter

700/800	
Frequency Range (MHz):	764-776, 794-825, 851-869
Rated RF Power Trunked (W):	3 (0.5-3 under software control)
Rated RF Power Talkaround (W):	3 (0.5-3 under software control)
Frequency Stability (-30 to +60°C) (ppm):	±1.5
Modulation Deviation (kHz):	2.5, 4, or 5 FM 3.75 OpenSky Trunking
FM Hum and Noise (Companion Receiver) (dB):	>40 (non-NPSPAC), >38 (NPSPAC)
Audio Response (dB):	+1/-3
Spurious and Harmonics (dBm/dBc):	Meets FCC Part 90: emission mask "G" and "H" for 800 MHz
Frequency Separation (MHz):	Full bandwidth
Audio Distortion:	<2% at rated audio @ 1000 Hz, 3 kHz deviation
P25 Modulation Fidelity (%):	<5
P25 Adjacent Channel Power (dBc):	>67

Receiver

700/800	
Frequency Range (MHz):	764-776, 851-869
Channel Spacing (kHz):	12.5, 25, PLL Step
Sensitivity (12 dB SINAD) (µV/dBm):	0.25/-119
P25 Reference Sensitivity (5% bit error rate) (µV/dBm):	0.25/-119
Digital Sensitivity (5% block error rate, OpenSky protocol, AWGN) (dBm):	-110
Adjacent Channel Rejection @ 25 kHz (dB):	>72
P25 Adjacent Channel Rejection @ 12.5 kHz (dB):	>60
Offset Channel Selectivity @ NPSPAC (dB):	>20
Intermodulation (dB):	>70
Spurious and Image Rejection (dB):	>70
FM Hum and Noise (dB):	>37 (non-NPSPAC), >35 (NPSPAC)
Frequency Stability (-30 to +60°C) (ppm):	±1.5
Frequency Separation (MHz):	Full bandwidth
Rated Audio Output (mW):	500
Audio Distortion:	2.5% @ rated power
Measurements per TIA/EIA-603-A except where noted as "P25" per TIA/EIA-102.	

Environmental Specifications

Standard	Parameter	Methods & Procedures
MIL-STD-810F*	Low Pressure	500.4/1.2
	High Temperature	501.4/1.2
	Low Temperature	502.4/1.2
	Temperature Shock	503.4/1
	Solar Radiation	505.4/2
	Blowing Rain	506.4/1
	Humidity	507.4
	Salt Fog	509.4
	Blowing Dust	510.4/1
	Immersion**	512.4/1
	Vibration (Minimum Integrity)	514.5/1, Category 24
	Vibration (Basic Transportation)	514.5/1, Category 4
	Shock (Functional/Basic)	516.5/1
	Shock (Transit Drop)	516.5/4
IEC 60529	Dust-tight and Water Immersion**	IP-67
U.S. Forest Service	Vibration (10-60 Hz)	USDA LMR Standard, Section 2.15
TIA/EIA-603-A	Shock	Paragraph 3.3.5.3

*Also meets equivalent superseded MIL-STD-810C, -D, and -E.
**P7200 immersion model only. Available option that must be ordered.

Digital Operation

	OpenSky	ProVoice	P25
Vocoding Method:	Advanced MultiBand Excitation (AMBE®)	Improved MultiBand Excitation (IMBE™)	Improved MultiBand Excitation (IMBE)
Data Rate (kbps):	19.2	9.6	9.6
Modulation:	4-Level GFSK	GFSK	C4FM

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
764-806	3	1.5, 0.4*	BV8P7200	15, 90	NA	NA
806-869	3	1.5	BV8P7200	15, 90	3670A-P7200	RSS-119

*Only in OpenSky Trunking Protocol and P25 trunking modes.



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Appendix II
iCOM, “6.25 kHz Trunking Make Migration Easy!” (November 2008)

Comments of Harris Corporation
November 18, 2009

Louisiana Statewide Interoperability Executive Committee
Petition for Rulemaking
PS Docket No. 06-229
WT Docket No. 96-86
RM-11577



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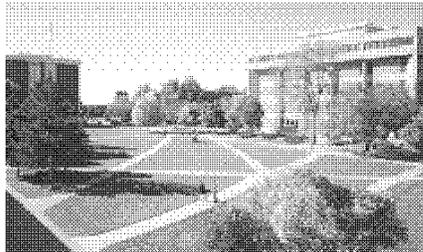
6.25 kHz Trunking Makes Migration Easy!

from November 2008

Trunking has long been the bedrock of land mobile radio. The de facto trunking standard, LTR, has allowed efficient channel management by sharing a small number of channels with a large number of users since the late 1970s.

The Icom Digital Advanced System (IDAS) catapults land mobile radio into the digital age, combining the channel allocation efficiency of trunking with the spectrum efficiency of 6.25 kHz channel spacing. IDAS Trunking is now an integral function in the F3161D/F4161D, F5061D/F6061D & FR5000/FR6000 series land mobile radios.

"Current analog radios require 25 kHz, most commonly, or 12.5kHz channels to deliver voice over RF," said Mark Behrends, Icom Land Mobile National Sales Manager. "With IDAS, the voice is digitized and compressed using



trunking capabilities, trunking controller programming over the Internet, limited remote repeater management over the Internet and auto home channel back-up. Icom hopes to release more features soon. These features may include operation monitoring, dispatch control and FR5000 programming all performed over the Internet.

IDAS' versatility makes it a viable solution for many users and operators. It can be used in smaller sites that have only a few radios and several channels in conventional mode or larger sites that currently use analog trunking.

"IDAS is ideal for single site campuses, such as colleges, hospitals, factories, resorts and casinos," Behrends said. "The trunking feature allows dealers to pursue larger facilities that may have hundreds of radios with numerous talk groups, perhaps one talk group per department. The IDAS niche is quite large."

While new customer sites that have no radio systems will be target market segments, IDAS is designed with backward compatibility with dual-mode analog/digital radios and scanning to appeal those customers with existing analog trunked or conventional radio systems.

"IDAS radios can operate in both analog and digital mode, sometimes called mixed mode or dual mode operation," Behrends said. "You can have

a graceful transition from analog to digital by replacing subscriber radios over time rather than all at once in a forklift upgrade." Existing IDAS FR5000/FR6000 conventional repeaters can be upgraded to trunking with the UC-FR5000 Trunking/Network Controller board.

This capability makes it so a university, for example, can install the FR5000 today, put its security department on digital tomorrow, and move the maintenance department over later.

Similar to LTR®, IDAS Trunking is a single site transmission-based. The resemblance ends there, however. IDAS trunking features 30 channels per site, a third more than LTR®; 2,000 units or groups per home channel, a giant increase over LTR® with only 250, which adds up to a maximum of 60,000 ID's per system, compared to 5,000 addresses in an LTR® system.

IDAS allows the user to program the trunking controller using Internet Protocol connection. With an IP connection, an operator can reach the controller from anywhere there is an Internet connection available.

"Using the IDAS FR5000/6000 at site with IP connectivity will now allow you to configure IDAS trunking remotely with more features like ROIP, radio reprogramming, and possible firmware upgrading on the way," Behrends said.

IDAS, launched by Icom last February as a bridge between analog systems and digital narrowband systems, uses the non-proprietary NXDN™ common air interface. The NXDN™ standard was jointly developed by Icom and Kenwood Corp.

IDAS
ICOM DIGITAL ADVANCED SYSTEM
Now
with
Trunking

AMBE+2™ vocoder so a single voice can be delivered in 6.25kHz channels, which allows more channels across a given frequency range." 6.25 kHz gives you more flexibility and capacity in licensing as you are freed from several of the constraints inherent with 25 kHz and 12.5 kHz licensing schemes.

Icom released Phase 1 of IDAS Trunking, which is a platform for future IDAS features. Phase one includes IDAS