

An Industry First — Three Digital Protocols for Enterprise and Public Safety

> NX-5000 Series NEXEDGE<sup>®</sup> VHF/UHF/700-800 MHz

MULTI-PROTOCOL DIGITAL & ANALOG RADIOS







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# The NX-5000 Series – Supporting Digital Protocols plus FM Analog





# NXDN<sup>®</sup>, DMR and P25

Radios are a lifeline for those who work on the front lines – crews tackling a four-alarm fire, utility engineers repairing ice-storm damage, or school guards responding to a security alert. They demand and deserve equipment that is truly fit for purpose, and then some.

To meet this demand KENWOOD has drawn on its extensive experience, its renowned technologies, and an expert analysis of market needs to develop NEXEDGE<sup>®</sup>. This innovative digital solution satisfies the most stringent requirements of today's mission-critical radio users. And now NEXEDGE leaps further ahead of the competition with NX-5000 Series portable and mobile radios, ready to serve in all public safety, public sector and commercial roles with flawless performance and advanced feature sets.

With a capacity over 1,000 sites, Gen2 is designed for NEXEDGE system operators and users, particularly public safety, utilities and large-scale manufacturing and other facilities with multiple sites and systems distributed over a wide area.

## The NX-5000 Series truly sets a new standard.

From nationwide enterprises looking to create large-scale digital trunked networks with NXDN<sup>®</sup> to staff staying in touch via DMR and first responders maintaining vital contact with P25 – the NX-5000 Series can serve everyone, including those still using analog radios.

NXD

SECURITY

# An efficient, economical solution for dynamic businesses looking to upgrade their communications

DMR radios provide smooth communications and coordination between staff members in a wide variety of commercial environments, including retail, hospitality and manufacturing. Compatibility with the DMR AIS IP Console Interface facilitates radio dispatch operations, while Call Interruption and the Lone Worker function are ideal for security guards. Digital DMR Data Services and Remote Monitoring are among many additional benefits.

# The Enterprise Network Solution with cutting-edge digital technologies for scalable operation-critical communications

Providing all the benefits of advanced digital technology such as increased effective coverage area and low noise for superior clarity, NXDN<sup>®</sup> has become established throughout the world, serving customers ranging from business & industrial to mission-critical. And now NEXEDGE<sup>®</sup> 2nd Generation (Gen2) delivers a quantum leap in network scale and capability – supporting networks with as many as 1,000 sites or 24 networks for wide area roaming and calling.

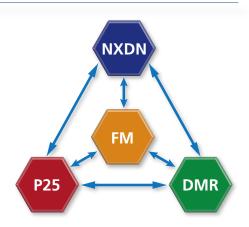
# The established mission-critical protocol for first responders, with proven reliability and interoperability

Round-the-clock public safety operations – involving the police and fire departments as well as EMS – can be extremely demanding for both personnel and equipment. That is why P25 radios are ruggedly robust and able to offer clear mission-critical communications in hot, dusty, noisy environments – even with sirens in the background. Additionally, features like Man-down Detection contribute to enhanced safety in the line of duty.

## NX-5000 SERIES FEATURES

### **ONE-RADIO, MULTI-PROTOCOL SUPPORT**

The NX-5000 Series offers unsurpassed interoperability for a wide variety of users as it supports three digital CAIs — NXDN, DMR and P25 (Phase 1 & 2) — plus FM analog in a single radio. Best of all, a desired CAI can be selected at will, giving you the freedom to migrate at your own pace — whether you are intent on going fully digital, undecided about which digital system to pick, or just wanting to maintain both digital and analog for a while. An NX-5000 radio can simultaneously support two digital protocols plus analog, offering the following combinations: FM/DMR/ NXDN, FM/NXDN/P25, and FM/DMR/P25.



- NXDN: The NXDN air interface can fit into the very narrow 6.25 kHz bandwidth using FDMA technology. Ensuring spectrum efficiency, wide coverage and virtually unlimited scalability, it provides for nationwide expansion: Type-C Trunking Gen2 offers enhanced features, flexibility and performance, linking up to 1,000 sites or 24 networks.
- **DMR:** For simple conventional communications, making use of existing infrastructure, DMR is an excellent, cost-effective solution. Being energy-efficient, it offers longer battery life. And thanks to 2-slot TDMA, it is possible to obtain 2 talk paths within an analog 12.5 kHz bandwidth, thus doubling the capacity. The NX-5000 Series supports both Tier 2 Conventional mode & Tier 3 Trunking mode.
  - **P25:** This digital CAI ensures interoperability among public safety agencies in North America, Australia and New Zealand. The NX-5000 Series is compatible with P25 Conventional, P25 Phase1 Trunked, and Phase 2 Trunked modes.



## **AUTOMATIC CALL SIGNAL IDENTIFICATION**

An NX-5000 Series radio automatically identifies a call signal – whether it's NXDN, DMR, P25, or FM analog – and transmits in the same mode received. Setting your radio to Mixed Mode allows the radio to wait for a call in both digital and analog modes in a digital/analog environment. Moreover, the new Geographical Zone function allows these radios to operate in any mode – conventional or trunked – in the same zone.



The 65,536-color TFT display allows the user to check at a glance on operating status, shown in multi-line text to convey more information. The portables feature a 1.74-inch (240 x 180 pixel) LCD that can be viewed

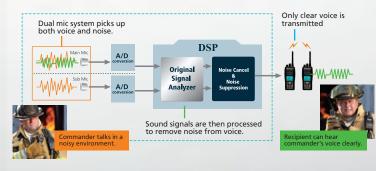
clearly in direct sunlight or in the dark, even while wearing polarised sunglasses. The mobile models feature a 2.55-inch (154 x 422 pixel) TFT display with

integrated luminance sensor that automatically adjusts the brightness of the backlight. What's more, the optional remote control panel (KCH-20R) features a 2.75-inch (240 x 400 pixel) TFT display with Auto LCD Brightness mode to adjust display intensity for round-theclock operation.

Further enhancing operating ease is the 4-way Directional-pad (D-pad) and 2-position lever switch, which offer intuitive control and can be operated with gloves on.

## **RENOWNED KENWOOD AUDIO**

Benefitting from decades of KENWOOD experience and expertise, the NX-5000 Series offers superb audio guality even in very noisy environments. In addition to sophisticated sound analysis and optimization technologies, these radios feature Active Noise Cancelling based on leading-edge digital technology. Clear communications are assured.





NX-5200/5300/5400 (actual size)

DISPATCH -A004 Emergency Response required at 370 Johns Creek Court STE 100 Suwanee, GA 30024

NX-5700/5800/5900 (actual size)



## **TOUGH & ROBUST**



During the development stage, NX-5000 Series radios go through a number of stringent tests to make sure they can withstand harsh usage. In addition to MIL-STD-810 C/D/E/F/G environmental standards, NX-5000 portable radios comply with IP67/68 immersion standards, offering max. 2 hour protection at a depth of 1 meter\*.

The rugged mobile radios comply with IP54/55\*\* dust/water ingress protection standards.

\*Applies for IP68 \*\* IP54: RF Deck of the mobile radio; IP55: Remote Control Head for the mobile radio







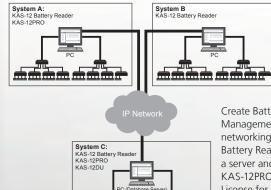
## NX-5000 SERIES FEATURES

## INTELLIGENT BATTERY MANAGEMENT SYSTEM (Portables: option)

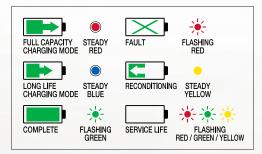
The Intelligent Battery System helps to extend battery lifetime and ensure that the batteries are optimally maintained so as to be ready for mission-critical operations. The system comprises the optional high-capacity Li-ion and Ni-MH Batteries (KNB-L1/L2/L3/N4), Intelligent Charger (KSC-Y32), and Battery Reader software (KAS-12 or KAS-12PRO, an upgrade option). Up to 60 Rapid Chargers can be chain-connected to a PC installed with the KAS-12 Battery Reader software, which can display and manage information: battery type, model name, voltage, temperature, discharge cycle, expected life, and remaining capacity.

Additionally, with KAS-12PRO (software upgrade license), data can be stored for up to 5,000 batteries for centralized management of their initial date of use, elapsed days, discharge cycle, remaining capacity and deterioration (end-of-life).

- Long Life Charging Mode: stops recharging at 80 % capacity to extend life.
- Up to 5,000 batteries can be managed at a time (requires KAS-12PRO).
- Deterioration (end-of-life) notification (requires KAS-12PRO).



Create Battery Reader Management System over IP networking by installing KAS-12DU Battery Reader Database Utility on a server and authenticating the KAS-12PRO Software Upgrade License for the system. Monitoring is enabled only on a system with KAS-12PRO authentication.

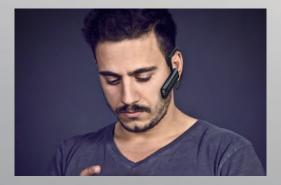


Battery conditions are displayed in color illuminated indicators on the charger, which are also displayed on a connected PC with the same color scheme. Colorcoordinated patterns provide users with at-a-glance information for comprehensive battery management.

## **BUILT-IN BLUETOOTH®**



Hands-free operation is vital for many NX-5000 users. The radios' built-in Bluetooth<sup>®</sup> module is compatible with Headset and Serial Port Profiles and keeps your hands open for other important tasks you are into.



## **GPS TO TRANSMIT YOUR POSITION**



Featuring an integrated GPS module and antenna, NX-5000 portable radios can transmit positional data, enabling effective management when used with tracking applications like KAS-10 software. Mobile models can support GPS with the optional KRA-40G GPS Active Antenna.

## **ENCRYPTION EQUIPPED**



Secure communications are an essential requirement, especially for public safety applications. NX-5000 radios are equipped with 56-bit key Data Encryption Standard (DES) Encryption. For even higher protection there is the optional KWD-AE30/31 Secure Cryptographic Module, which supports the 256-bit Advanced Encryption Standard (AES) Encryption.

## MULTIPLE CONFIGURATION (Mobiles: option)

The NX-5000 mobile series allows users to create a variety of configurations to suit diverse requirements by combining different options.

#### 1. Single Remote Control Head x Single RF Deck

Suited for distribution and courier services, this is the simplest configuration. The detachable front control panel of the NX-5000 mobile series is used as a Remote Control Head.



#### 2. Single Remote Control Head x Multi RF Decks

You can operate multiple radios (e.g. VHF and UHF) as if they were one by adding an NX-5000 mobile series RF Deck. This configuration is recommended for law enforcement agencies.

#### 3. Dual Remote Control Heads x Single RF Deck

4. Dual Remote Control Heads x Multi RF Decks

heads. Best suited for battalion chiefs.

One controller can be mounted on the dashboard, with the other at the rear. Useful for EMS applications.

This adds the convenience of a dual control head to the multi RF decks (3 max.) configuration. Two operators can control 2 radios (e.g. VHF and UHF) from separate control





### **SD CARD SLOT**

For storing voice and data, memory capacity can be increased by up to a huge 32 GB.\*



\* Purchase a card separately.

### SENSORS FOR USER SAFETY

Life-critical detection is built-in. When unusual behavior is detected by the acceleration and tilt sensors, one of three Emergency Modes – Man-down Detection, Stationary Detection, and Motion Detection – will be automatically engaged.

In addition to the built-in motion sensor, these portables feature a Lone Worker function that automatically places the

radio in Emergency Mode if it is not operated for a certain period of time. Also the bright orange Emergency Button is located at the top (portables) or front (mobiles) of the radio for high visibility and instant access when needed.

Product shown is laying on its side viewing the top of the radio.



## NX-5200/5300/5400

NEXEDGE VHF/UHF/700-800MHz **MULTI-PROTOCOL DIGITAL & ANALOG PORTABLE RADIOS** 



Choose between two portable configurations one without a numeric keypad and the other with numeric keypad (16-key model).

- **GENERAL FEATURES**  Multi-Digital + FM Analog Operation FleetSync<sup>®</sup>/II, MDC-1200, QT/DQT, - Gen2 & NXDN Type-C Trunked Operation 2-Tone (Analog mode) NXDN Conventional Operation DMR Tier 2 Conventional DMR Tier 3 Trunking Number of Zones = 128 P25 Conventional/Trunking (Phase 1/Phase 2) Group ID's = 512• FM Analog Conventional & LTR Zones Maximum Number of P25 • Large, Color 1.74" (240 x 180 pixel) Conventional Talkgroup ID's = 1,500 Transflective TFT Display Frequency Range Easy-to-follow GUI and Multi-line VHF: 136-174 MHz (NX-5200) Text Display • 1,000 mW Speaker Audio (NX-5300) (@8  $\Omega$ , 5 % distortion) • 700-800 MHz: RX: 763-776, 851-870 MHz •4-way Directional-pad (D-pad) and TX: 763-776, 793-806, 2-Position Lever Switch for intuitive control and operation RF Output • 6 Front & 2 Side PF keys •VHF: 6-1 W (NX-5200) • 12-Key Keypad Models Available •UHF: 5-1 W (NX-5300) Emergency / AUX Key •700-800MHz: 3-1 W (NX-5400) **OPTIONAL ACCESSORIES** KNB-L1/L2/L3 ■ KRA-22 Li-ion BATTERY PACK (IP67/68 immersion) VHF HELICAL ANTENNA (Low Profile) ■ KRA-23 UHF HELICAL ANTENNA (Low Profile) KNB-L1 7.4 V/2000 mAh KRA-26 KNR-I2 KNR-I 3 7.4 V/2600 mAh 4 V/3400 mAh VHF HELICAL ANTENNA (Standard Length) KNB-LS5CU Intrinsically Safe Li-Ion Battery KRA-27 (7.4V @ 3800mAh) UHF WHIP ANTENNA (Standard Length) KNB-LS7M Intrinsically Safe Li-Ion Battery ■ KRA-32 (7.4V @ 3800mAh) 700/800 MHz WHIP ANTENNA ■ KNB-N4 Ni-MH BATTERY PACK KRA-41 (7.2V/2500 mAh) VHF STUBBY ANTENNA KRA-42 **KSC-Y32** UHF STUBBY ANTENNA **RAPID CHARGER** KSC-32 KMC-42WD RAPID CHARGER SPEAKER MICROPHONE (IP54/55/67) KSC-326AK MULTIPLE CHARGER (6-unit Rapid Rate) KMC-54WD SPEAKER MICROPHONE KBP-8 • 2-mic digital noise **BATTERY CASE** cancelling via the radio's DSP (12 AA Alkaline Batteries not included) • 3.5mm-diameter earphone jack
  - KAS-12/12PRO BATTERY READER/PRO (PC Software)
  - KWD-AE30/AE31 SECURE CRYPTOGRAPHIC MODULE
  - KPG-180AP OTAP MANAGER (PC Software)
  - **KAS-20** AVL & DISPATCH SOFTWARE
- Intrinsically Safe Batteries are also available. Contact your local KENWOOD dealer for details.

- Maximum Channels per radio = 1,024 (up to 4,000 channels with options)
- Maximum Number of P25 Trunked
- •UHF: 450-520 MHz, 380-470 MHz,
- 806-825, 851-870 MHz (NX-5400)

- Complies with MIL-STD 810C/D/E/F/G
- IP65/67 Dust & Water\*
  - \*The earphone jack cap must be closed tightly

KBH-11 BEIT CLIP

## NX-5700/5800/5900

## NEXEDGE VHF/UHF/700-800MHz **MULTI-PROTOCOL DIGITAL & ANALOG MOBILE RADIOS**

#### **GENERAL FEATURES**

- Multi-Digital + FM Analog Operation
  - Gen2 & NXDN Type-C Trunked Operation
  - NXDN Conventional Operation
  - DMR Tier 2 Conventional
  - DMR Tier 3 Trunking
  - P25 Conventional/Trunking (Phase 1/Phase 2)
  - FM Analog Conventional & LTR Zones
- Large, Color 2.55" (154 x 422 pixel) TFT Display
- Easy-to-follow GUI and Multi-line Text Display
- Speaker Audio: 4 W/4  $\Omega$ ; 3 W/4  $\Omega$  for the Remote Control Head
- 6 Front PF keys & 4 Up / Down Selectors
- Emergency Button
- FleetSync<sup>®</sup>/II, MDC-1200, QT/DQT, 2-Tone (Analog mode)
- Maximum Channels per radio = 1.024 (up to 4,000 channels with options)
- **OPTIONAL ACCESSORIES**

- Number of Zones = 128
- Maximum Number of P25 Trunked Group ID's = 512 • Maximum Number of P25 Conventional Talkgroup ID's = 1,500
- Frequency Range
  - •VHF: 136-174 MHz (NX-5700/5700B)
  - •UHF: 450-520 MHz, 380-470 MHz (NX-5800/5800B)
  - •700-800 MHz:
  - RX: 763-776, 851-870 MHz
- TX: 763-776, 793-806, 806-825, 851-870 MHz (NX-5900/5900B)
- RF Output
  - •VHF: 50-5 W (NX-5700/5700B)
  - UHF: 45-5 W (NX-5800/5800B)
  - 700 MHz: 30-2 W (NX-5900/5900B)
  - 800 MHz: 35-2 W (NX-5900/5900B)

- NX-5700B/5800B/5900B **RF DECK**
- KCH-19 BASIC CONTROL HEAD KIT
- KCH-20R FEATURED CONTROL HEAD
- KCH-21RM FEATURED CONTROL HEAD
- ■KRK-14H CONTROL HEAD ooEe INTERFACE KIT (Adapter for the Head)
- KRK-15B CONTROL HEAD REMOTE KIT (Adapter for the RF Deck)
- **KCT-71**
- REMOTE CONTROL CABLE (Available in 3 lengths of 5.2 m, 7.6 m, 0.5 m)



EXTERNAL ACCESSORY

KMC-35 MICROPHONE

■ KCT-72

- KMC-36 **KEYPAD MICROPHONE**
- KES-3 EXTERNAL SPEAKER (Compact low profile; 3.5 mm plug)
- KFS-5 EXTERNAL SPEAKER (40 W max input, Requires KAP-2)







- KCT-46 **IGNITION SENSE CABLE**
- KLF-2 LINE FILTER

KCT-23



- KAP-2 HORN ALERT/P.A. RELAY UNIT
- KRA-40G **GPS ACTIVE ANTENNA**
- KPS-15 DC POWER SUPPLY (23 A max)





#### **SPECIFICATIONS**

			Portable Radios			Mobile Radios			
ENERAL		NX-5200	NX-5300	NX-5400	NX-5700	NX-5800	NX-5900		
requency Range		136-174 MHz	Type 1: 450-520 MHz Type 2: 380-470 MHz	RX: 763-776, 851-870 MHz TX: 763-776, 793-806, 806-825, 851-870 MHz	136-174 MHz	Type 1: 450-520 MHz Type 2: 380-470 MHz	RX: 763-776, 851-870 MHz TX: 763-776, 793-806, 806-825, 851-870 MHz		
lax. Channels Per Radio					4,000 channels with option)		000 025, 051 070 1112		
umber of Zones				1,021 (00 10	128				
Max. # of P25 Trunked Group ID's		512							
lax. # of P25 Conv. Talkgroup ID					1,500				
hannel Spacing	Analog	12.5/15/20/25*/30* kHz	12.5/25* kHz	12.5/25 kHz	12.5/15/20/25*/30* kHz	12.5/25* kHz	12.5/25 kHz		
	Digital	6.25/12.5 kHz	6.25/12.5 kHz	12.5 kHz (6.25 kHz)		6.25/12.5 kHz			
ower Supply			7.5 V DC ±20 %		13.6 V DC ±15 %				
urrent Drain	Standby				0.45 A				
	RX	_			2.3 A				
	TX				13 A				
ittery Life	KNB-L1 (2,000 mAh)		10 hours / 6.5 hours						
-5-90/10-10-80 duty cycle)	KNB-L2 (2,600 mAh)	12.5 hours / 8.5 hours							
	KNB-L3 (3,400 mAh)	17 hours / 11 hours			]				
	KNB-N4 (2,500 mAh)		12 hours / 8.5 hours						
	KBP-8 (w/AA x12)	High Power: Approx. 11 hours / 8 hours,							
		Low	Power: Approx. 26 hours / 18						
perating Temperature				-22° F to +	+140 °F (-30 °C to +60 °C)				
equency Stability		±0.5 ppm ±0.5		±0.5 ppm	A 84 1 1 1				
mensions (W x H x D)	Radio w / Control Head (KCH-19)		-		6.69 x 1.89 x 6.93 in (170.0 x 48.0 x 176.0 mm)         6.73 x 1.89 x 7.72 (171.0 x 48.0 x 196 r)		6.73 x 1.89 x 7.72 in (171.0 x 48.0 x 196 mm)		
	KNB-L1 (2,000 mAh)	2.28 x 5.47 x 1.44 in (58.0 x 138.9 x 36.5 mm)				_			
imensions (W x H x D)	KNB-L2 (2,600 mAh)		2.28 x 5.47 x 1.56 in (58.0 x 138.9 x 39.5 mm)		_				
adio w/ Battery,	KNB-L3 (3,400 mAh)		2.28 x 5.47 x 1.77 in (58.0 x 138.9 x 44.9 mm)						
Projections Not Included	KNB-N4 (2,500 mAh)	2.28 x 6.55 x 1.78 in (58.0 x 166.4 x 45.2 mm)			-				
	KBP-8 (w/AA x12)	2.64 x 8.59 x 2.12 in (67.0 x 218.3 x 53.9 mm)							
/eight (Net)	Radio w / Control Head (KCH-19)				3.53 lbs (1.6 kg)				
	KNB-L1 (2,000 mAh)	13.5 oz (382 g)							
/eight (Net)	KNB-L2 (2,600 mAh)		14.3 oz (406 g)		-				
adio w/ Battery	KNB-L3 (3,400 mAh)	15.8 oz (449 g)			-				
	KNB-N4 (2,500 mAh)		20.4 oz (579 g)		-				
	KBP-8 (w/AA x12)		25.1 oz (712 g)						
CC ID	Type 1	K44431400	K44431500	ALH442000	K44471100	K44471200	K44478500		
	Type 2	-	K44431501	-		K44471201	-		
Certification	Type 1	282F-431400	_	282D-442000	282F-471100	-	282F-478500		
	Type 2	—	282F-431501	-	—	282F-471201	_		
CEIVER		NX-5200	NX-5300	NX-5400	NX-5700	NX-5800	NX-5900		
nsitivity	NXDN 6.25 kHz Digital (3 % BER)	0.20 µV 0.25 µV							
	NXDN 12.5 kHz Digital (3 % BER)								
	DMR Digital (5% BER)	0.25 µV							
	DMR Digital (1% BER)	0.40 µV							
	P25 Digital (5 % BER)	0.25 µV							
	P25 Digital (1 % BER)	0.40 µV							
- 1 - 1 - 1	Analog (12 dB SINAD)			0.25 μV					
Selectivity	Analog @ 12.5 kHz	67 dB 64 dB		71 dB		70 dB			
	Analog @ 25 kHz	73 dB		81 dB 78 dB					
ntermodulation		73 dB 75 dB			80 dB				
ourious Rejection		OU UD	80 dB 75 dB			85 dB			
Audio Distortion Audio Output Power		3 % 500 mW/8 Ω (3 % Distortion) / 1,000 mW /8 Ω (5 % Distortion)			2 % 4 W/4 Ω (Remote Control Head: 3 W/4 Ω)				
TRANSMITTER		NX-5200	NX-5300	NX-5400	NX-5700	NX-5800	NX-5900		
Power Output Power		6 to 1 W	5 to 1 W	3 to 1 W	50 to 5 W	45 to 5 W	30 to 2 W (700 MHz) 35 to 2 W (800 MHz)		
ourious Emission			-70 dB	1	-73 dB	-75 dB	-80 dB		
1 Hum & Noise	Applog @ 13 E kt-					-80 dB 40 dB			
n muitt & Noise	Analog @ 12.5 kHz Analog @ 25 kHz	40 dB			45 dB 40 dB 50 dB 45 dB				
1. D	Androy & 25 KHZ	45 dB			2 %				
Audio Distortion		2 % 16K0F3E, 14K0F3E**, 11K0F3E, 8K10F1E, 8K10F1D, 8K10F1W, 8K30F1E, 8K30F1D, 8K30F7W, 16K0F3E, 14K0F3E**, 11K0F3E, 8K10F1E, 8K10F1D, 8K10F1W, 8K30F1E, 8K30F1D, 8K30F7W, 7K60F							
Jaio Distortion		16K0F3F 14K0E2E** 11K0F	SE SKIDELE SKIDELD SKIDELM	8K30F1F 8K30F1D 9K20F7M	16K0E3E 1/K0E3E** 11/0F3	E SKINEIE SKINEID OVINEIM OVO	DE1E 8K30E1D 8K30E7W 7K60FVF 7		

\*25 and 30 kHz are not included in the models sold in the USA or US territories. \*\*800MHz band only for NX-5400 and NX-5900. P25 Digital measurements made per TIA 102CAAA, analog measurements made per EN Standards or TIA 603 and specifications shown are typical. Specifications are subject change without notice, due to advancements in technology.

#### **APPLICABLE MIL-STD & IP**

MIL Standard	810C Methods/ Procedures	810D Methods/ Procedures	810E Methods/ Procedures	810F Methods/ Procedures	810G Methods/ Procedures				
Low Pressure	500.1/1	500.2/ I, II	500.3/ I, II	500.4/ I, II	500.5/ I, II				
High Temperature	501.1/I, II	501.2/ I, II	501.3/ I, II	501.4/ I, II	501.5/ I, II				
Low Temperature	502.1/1	502.2/ I, II	502.3/1,11	502.4/ I, II	502.5/ I, II				
Temp. Shock	503.1/1	503.2/1	503.3/ I	503.4/ I, II	503.5/ I				
Solar Radiation	505.1/I	505.2/1	505.3/1	505.4/1	505.5/ I				
Rain	506.1/I, II	506.2/ I, II	506.3/ I, II	506.4/ I, III	506.5/ I, III				
Humidity	507.1/I, II	507.2/ II, III	507.3/ II, III	507.4	507.5/ II				
Salt Fog	509.1/1	509.2/1	509.3/ I	509.4	509.5				
Dust	510.1/1	510.2/1	510.3/ I	510.4/ I, III	510.5/ I				
Vibration	514.2/ VIII, X	514.3/ I	514.4/ I	514.5/ I	514.6/ I				
Shock	516.2/ I, II, V	516.3/ I, IV, V*1	516.4/ I, IV, V*1	516.5/ I, IV, V*1	516.6/ I, IV, V*1				
Immersion*2	—	—	—	512.4/I	512.5/I				
International Protection Standard	÷			÷					
Dust & Water	IP54, IP55*3								
Immersion*2	IP67, IP68*4								

\*1: Shock (Crash Hazard) standard for 810D/E/F/G Method/Procedure V applies only for the mobile radios \*2: Immersion standard applies only for the portable radios \*3: IP54: RF Deck of the mobile radio; IP55: Remote Control Head for the mobile radio \*4: Conditions: Portable radio immersed for 2 hours at a depth of 1 meter

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