

NEXEDGE®

Release Notes

NX-3000 Series R2.00

KPG-D3/D3N R2.00

NX-5000 Series R3.00

KPG-D1/D1N R3.00

Last Updated:	31 st January 2019
Language:	English
Document No.:	RN-19-0001

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3 Release Information

This document is described to inform NX-3000 Series R2.00 with KPG-D3/D3N and NX-5000 Series R3.00 with KPG-D1/D1N for version up features. In this document, "SU" shows "Subscriber Unit", "Programming Software" shows "Field Programming Unit (FPU)".

3.1 DMR Features

This section introduce new features for DMR mode.

3.1.1 DMR Tier III Trunking

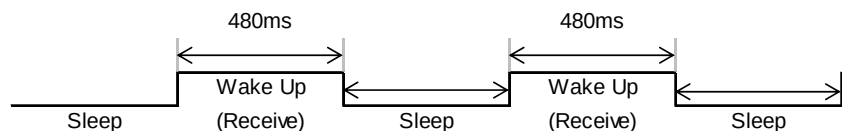
NX-5000 Series and NX-3000 Series support DMR Tier III Trunking. They support features full compatible DMR ETSI standard (ETSI TS 102 361-4 V1.9.2) and KENWOOD original features. KENWOOD original features are non-compatible with DMR ETSI standard. The available features are as follows:

[Full Compatible]

- **Group Call**
Group Call makes a call in two-way group voice calls by initiating a call to a group ID. All SUs can receive a voice call by initiating a call using All Group ID (\$FFFFFF). Trunking Method allows Message trunking, Transmission trunking and Quasi-Transmission trunking. The method depends on the system configuration.
- **Individual Call (FOACSU/OACSU)**
Individual Call makes a call to Unit ID of SU. There is two types for the call. FOACSU initiates a call on payload channel after receiving the response from target SU. OACSU initiates a call without the response of the SU. Trunking Method allows Message trunking, Transmission trunking and Quasi-Transmission trunking.
- **Broadcast Call**
Broadcast Call makes a call in one-way group call by initiating a call to the specified group ID.
- **Telephone Call**
Telephone Call makes a voice call between SU and telephone by connecting to PSTN/PABX via IP Gateway. How to do telephone call is used Autodial or Fleet Dialing Plan.
- **Status Call**
Status call is simple message function to notice SU status. Status ID range is available from 0 to 99.
- **Short Data Call**
Short Data Call is data service to transfer text message. Data format supports DMR standard only. KENWOOD-defined Data does not support for DMR Tier III Trunking. Maximum character is different each call type. For Individual Call it is up to 489 bytes, and for Group Call it is up to 365 bytes. 46 bytes or less message is defined in DMR standard. 47 bytes or more is in non-standard.

- **Emergency Call**
Emergency Call is a function to transmit/receive a call for emergency.
- **Emergency Alarm**
Emergency Alarm is transmitted to notice Emergency situation reliably when the SU enters in Emergency mode.
- **Encryption Call**
Encryption Call is a function to make a secure call. Supported Encryption algorithm is Enhanced Encryption (ARC-4), DES, AES and Bit Scrambler.
- **Power Save**
Power Save is a function to reduce power consumption by intermittent receiving following the message from a system. A SU sends battery saver information to the system during registration and the system responses wake up timing. The SU repeats sleep and wake up condition with selected timing, Short, Medium and Long. The system hold the call request if the SU is in sleep condition. It is able to confirm on Maintenance Display of a SU whether the system is activating the function.

Battery Saver	Sleep Time
Short	480ms
Medium	1440ms
Long	3360ms



- **Authentication**
Authentication is a function to manage access from an invalid SU to keep secure the system. The SU which is successfully authenticated by the system can work in the system. Authentication Key consists with 32 characters. Same key should be configured at both SU and system.
SU doesn't require SCM board or encryption library to program Authentication key by FPU.
- **Remote Stun/Revive/Kill**
Remote Stun/Revive/Kill is a function to control a SU condition by remote control command from the system. SU is able to decodes the command but impossible to encode. For Stun/Revive, it can be configured without the authentication key. For Kill, an authentication key must be required. The function gives more security with the authentication function.
- **Remote Monitor**
Remote Monitor is a function to operate by remote control command from the system. When a SU receives the command, it automatically initiates a continuous transmission to be monitored surrounding sound. Remote monitor command can also be sent from a SU.
- **Group Subscription**
Group Subscription is a function to register group ID that a SU is selecting. By the function, the system recognizes the site where the SU is waiting for Group Call. If active Group Subscription, the system is able to manage the transmit sites and avoid unnecessary

transmission effectively for multiple sites system.

- GPS
A SU transmits own location data to the base station.
- Dialing (Fleet Dialing Plan)
Dialing (Fleet Dialing Plan) is a function to make a voice call and data transmission using dialing code. Dialing code is compliant with ETSI TS 102 361-4 Annex E. DMR ID is converted to Number Prefix (NP) + Fleet Individual Number (FIN) / Fleet Group Number (FGN) + Individual Number (IN) / Group Number (GN). Below Dialing codes are supported.

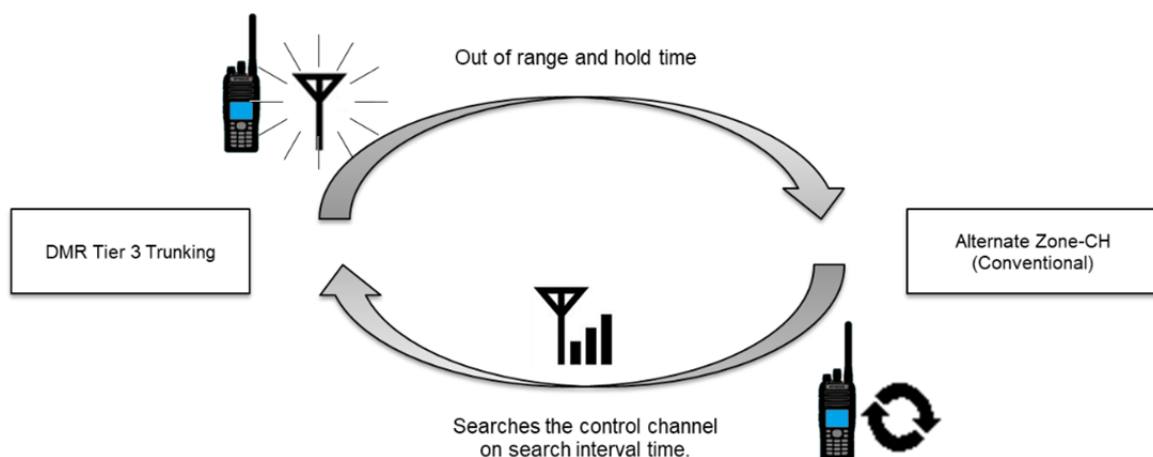
	Normal Call	High Priority Call	Emergency Call
Individual Call nn... = 8 digit (NP+FIN+IN) nn... = 5 digit (FIN+IN) nn... = 3 digit (IN)	nn...	*8*nn...	*9*nn...
Group Call nn... = 8 digits (NP+FGN+GN) nn... = 5 digits (FGN+GN) nn... = 3 digits (GN)	nn...	*8*nn...	*9*nn...
Broadcast Call nn... = 8 digits (NP+FGN+GN) nn... = 5 digits (FGN+GN) nn... = 3 digits (GN)	*11*nn...	*11*8*nn... *8*11*nn...	*11*9*nn... *9*11*nn...
All Call Destination is ALLMSID(FFFFFF)	*1987	*1981	*1982
PSTN Call nn... = 4 to 32 digits	01nn...	*8*01nn...	*9*01nn...
PABX Call nn... = 4 to 32 digits	02nn...	*8*02nn...	*9*02nn...
Status Call ss = 00~99 (Status Number) nn... = 8 digits (NP+FIN/FGN+IN/GN) nn... = 5 digits (FIN/FGN+IN/GN) nn... = 3 digits (IN/GN)	*0ss*nn...		
Short Data Call nn... = 8 digits (NP+FIN/FGN+IN/GN) nn... = 5 digits (FIN/FGN+IN/GN) nn... = 3 digits (IN/GN) dddd... = Max. 489 digits (Short Message)	*2*nn...*dddd...		

- Control Channel Hunt
Control Channel Hunt is a function to search for and acquire automatically an available control channel in the system when a SU is powered ON or lost the signal from the control channel. Channel hunt sequence is proceeded Resuming a Control Channel Sequence, Preferential Hunt Sequence, Short Hunt Sequence and Comprehensive Hunt Sequence.
 - Resuming a Control Channel Sequence: Search the last control channel.
 - Preferential Hunt Sequence: Search the specified two control channels.
 - Short Hunt Sequence: Search from the Normal Hunt Control Channel list.
 - Comprehensive Hunt Sequence: Search each 64 channels from the Trunked Channel Plan.

- OAA (Over-the-Air Alias)
OAA is a function to display Unit ID Name of the transmitter.

[Non-compatible]

- Emergency Status
Emergency Status is transmits to notice an Emergency situation reliably when a SU enters in Emergency mode. Emergency status is configured to each trigger (Emergency Key, Lone Worker, Man-down, Stationary, Motion). Configuration of Emergency Alarm and Emergency Status are exclusive.
- Group ID Scan/Single Zone Scan
Group ID Scan uses Group ID list. The scan target IDs are all the IDs registered in the Group ID List. Single Zone Scan is available by enabling scan function.
- Long Data Call
Long Data Call is data service with long text message. It transmits/receives via PC interface. Maximum character is 4096 bytes.
- Transparent
Transparent is a function to do data communication using DMR protocol.
- Radio Check
Radio Check is a function to check whether the specified SU is operated in the system. Radio check command can be sent from a SU. Radio Check is used status polling on DMR standard.
- Alternate Zone-Channel
The function is that a SU can move to conventional zone-channel automatically when the SU is out of range of the trunking system. Select the conventional Zone-Channel for Alternate Zone-Channel. When the SU loses Control Channel and hold time is expired, it moves to the Alternate Zone-Channel automatically to work with conventional mode. During operating with conventional mode "Failsoft" is shown on the SU display. The SU checks the control channel signal of the previous system with the cycle configured at search interval time. The searching sequence is as follows:
1. Resuming a Control Channel -> 2. Preferential Hunt -> 3. Normal Hunt



Note:

- It can be registered to the DMR Tier III Trunking system without System Key File (SKF).
- “KWD-5301TR” license is required to use the DMR Tier III Trunking for NX-5000 series.
- “KWD-3302TR” license is required to use the DMR Tier III Trunking for NX-3000 series.
- To use “Fleet Dialing Plan” it is required to be enabled checkbox on FPU.
- In case of NX-5000 series, “KWD-5304AP” license is required to use Over-the-Air Programming (OTAP) using KPG-180AP. NX-3000 series is available the function without the license for OTAP.

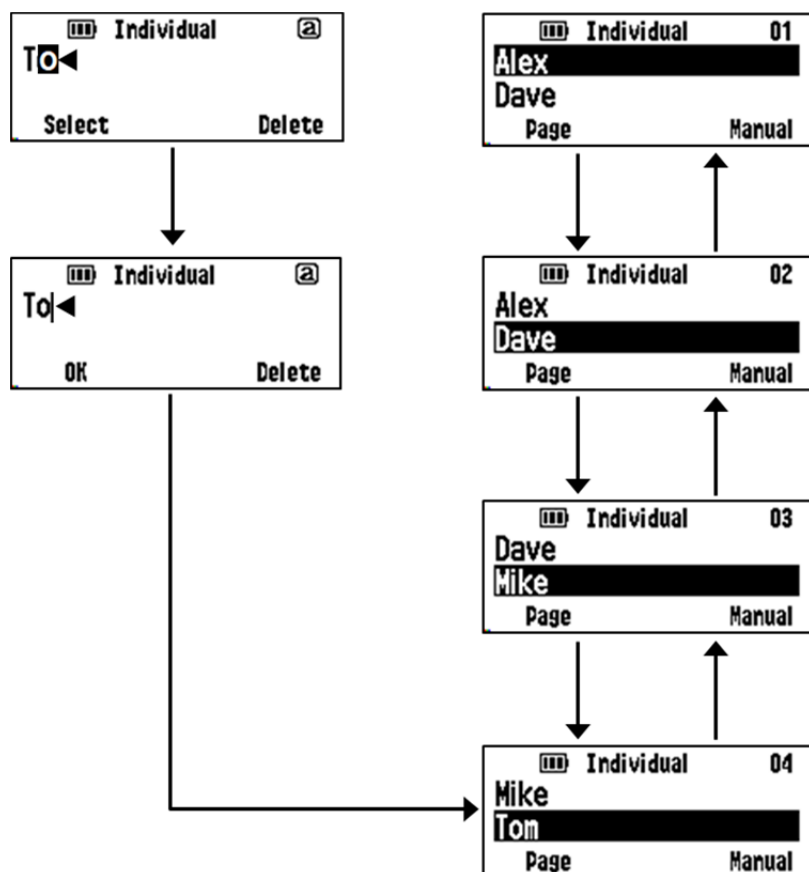
3.1.2 Individual ID Name Search improvement (E-type)

Alphabet Individual ID search is added to current ID List number search. The ID list is sorted by alphabet. It's easy to find the Individual ID Name of the target ID by searching using Alphabet. This function is supported for E-type only.

[FPU Setting on KPG-D3]

No.	ID	ID Name	Type
1	1	Dave	TX and RX
2	2	Tom	TX and RX
3	3	Alex	TX and RX
4	4	Mike	TX and RX

[Display image]



3.2 Feature Improvement

This section introduces the improved features by firmware version up.

3.2.1 External PTT (Direct Channel)

External PTT (Direct Channel) is a port function for transmission request using Direct Channel. A SU changes Zone-Channel by AUX port and starts a call and return to original Zone Channel after finishing the call and Hold Timer.

When the External PTT (Direct CH 1 Voice) port is low level, the SU changes to Zone-Channel configured on Direct Channel 1 and initiate a call. The Port Name is External PTT (Direct CH 1 Voice)、External PTT (Direct CH 2 Voice)、External PTT (Direct CH 3 Voice)、External PTT (Direct CH 4 Voice)、External PTT (Direct CH 5 Voice).

[FPU Setting on KPG-D3]

Function Settings				
Pin No.	I/O	Function	Active	Debounce
DB-15 6pin	Input	External PTT (Direct CH 1 Voice)	Low	☐
DB-15 7pin	Input	External PTT (Direct CH 2 Voice)	Low	☐
DB-15 8pin	Input	External PTT (Direct CH 3 Voice)	Low	☐
DB-15 9pin	Input	External PTT (Direct CH 4 Voice)	Low	☐
DB-15 10pin	Input	External PTT (Direct CH 5 Voice)	Low	☐

3.2.2 Bluetooth LE Reconnect

Bluetooth LE Reconnect is a function to reconnect to bluetooth devices from a SU. The devices to be reconnected are one Heart Rate Service device and two Automatic Injury Detection devices. If those devices exist in the connection range of the SU, the devices are reconnected automatically. By the function, the user can continue to use the devices without the connect operation. The operating conditions of this function are as follows.

- The Bluetooth function of the SU is turned on.
- The SU moves out of the operation range of Bluetooth Low Energy and is disconnected.

Note:

- The reconnection procedure starts with a small list number in Bluetooth My Devices Mode.

3.3 New Model Information

This section informs the new model.

3.3.1 NX-5700H High Power Model

NX-5700H High Power mobile radio is released. RF transmit power range is 25W to 110W. Basic features are same as for the NX-5700, with the following exceptions:

- Support Analog, NXDN and P25 Phase1/Phase2 only
- Remote mount only and configurable without KRK-15B
- Support dedicated micro USB port for programming
- Support Built in Horn alert and Public Address and configurable without KAP-2

3.3.2 NX-3000 Series 800/900MHz Model

NX-3000 series 800/900 MHz model is released. Basic features are same as for the NX-3000 previous models. Portable radio has two types. NX-3400 has Universal connector and NX-3420 has 2pin connector. Portable radio is dual band that supports 800MHz and 900MHz.

[NX-3400/3420]

Frequency range: Rx 851 – 870MHz, 935 – 941MHz
Tx 806 – 870MHz, 896 – 941MHz

Mobile radio separates frequency into 800MHz and 900MHz. NX-3920 is 800MHz model. NX-3921 is 900MHz model.

[NX-3920]

Frequency range: Rx 851 – 870MHz
Tx 806 – 825MHz, 851 – 870MHz

[NX-3921]

Frequency range: Rx 935 – 941MHz
Tx 896 – 902MHz, 935 – 941MHz

Note:

- “KWD-3201TR” license is required to use the NXDN Type-C Trunking. The license is activated at the factory.
- “KWD-3301CV” license is required to use the DMR Tier II Conventional.

4 Compatibility of programming software

4.1 KPG-D1/D1N

This section describes backward compatibility of previous version of Firmware and programming software (KPG-D1/D1N).

[Definition]

Open: Opening a Data File by programming software
 Read: Reading programming data from subscriber unit
 Write: Writing programming data to subscriber unit
 New Data: A data file was generated by programming software Version 3.00
 Old Data: A data file was generated by programming software version prior to 2.60

4.1.1 Compatibility of Opening a Data File

				New Data	Old Data
Programming Software KPG-D1/D1N	Version	3.00	Open	✓	✓
		Prior to 2.60	Open	N/A	✓

4.1.2 Compatibility of Writing and Reading a Data File

			Write / Read	Firmware version	
				3.00	Prior 2.60
Programming Software KPG-D1/D1N	Version	3.00	Read	✓	✓
			Write	✓	✓ ^{*1}
		Prior to 2.60	Read	N/A	✓
			Write	✓	✓ ^{*1}

4.2 KPG-D3/D3N

This section describes backward compatibility of previous version of Firmware and programming software (KPG-D3/D3N).

[Definition]

Open: Opening a Data File by programming software
Read: Reading programming data from subscriber unit
Write: Writing programming data to subscriber unit
New Data: A data file was generated by programming software Version 2.00
Old Data: A data file was generated by programming software version prior to 1.40

4.2.1 Compatibility of Opening a Data File

Programming Software KPG-D3/D3N	Version			New Data	Old Data
				2.00	Prior 1.40
		2.00	Open	✓	✓
		Prior 1.40	Open	N/A	✓

4.2.2 Compatibility of Writing and Reading a Data File

Programming Software KPG-D3/D3N	Version		Write / Read	Firmware version	
				2.00	Prior to 1.40
		2.00	Read	✓	✓
			Write	✓	✓ ^{*1}
		Prior to 1.40	Read	N/A	✓
			Write	✓	✓ ^{*1}

Note:

^{*1}:

writable

- In case if unsupported functions for older firmware are not included.
- In case that there will not be a possibility to cause trouble even if unsupported functions for older firmware are included. This case, the warning message will be shown.
(This is judged by Programming Software according to Firmware version and the contents of Programing data)

unwritable

- In case that there will be a possibility to cause trouble if unsupported functions for older firmware are included. This case, the error message will be shown.

5 Product Version

Product	Supported Version in Release
Subscriber Units: NX-5000 Series	Since 3.00
Programming Software for NX-5000 Series: KPG-D1/D1N	Since 3.00
Subscriber Units: NX-3000 Series	Since 2.00
Programming Software for NX-3000 Series: KPG-D3/D3N	Since 2.00