KENWOOD

NEXEDGE®

Release Notes

NX-3000 Series R3.00

KPG-D3/D3N R3.00

NX-5000 Series R4.00

KPG-D1/D1N R4.00

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2 Disclaimer

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3 Release Information

This document is described to inform the NX-3000 Series R3.00 with the KPG-D3/D3N and the NX-5000 Series R4.00 with the KPG-D1/D1N for version up features. In this document, “SU” shows “Subscriber Unit”, “Programing Software” shows “Field Programing Unit (FPU)”.

3.1 S-Trunking Features

This section introduces S-Trunking features.

3.1.1 Overview

S-Trunking is JVCKENWOOD proprietary DMR-based TDMA Trunking system.
Presently, we support DMR Tier III Trunking, and it’s a centralized trunked relay system that has exclusive control channel (FB8)*. In this system, each site has a Trunking Station Control Channel (TSCC) which transmits continuously. Therefore, it can provide large-scale and stably communication service to a Subscriber Unit (SU). However, DMR Tier III Trunking doesn’t conform shared channel (FB6)* licenses for private carriers, a user shares frequencies with anther user/agencies, because a site’s TSCC exclusively occupies a frequency.
JVCKENWOOD newly supports S-Trunking to conform shared channel licenses environment. In order to conform it, a TSCC is basically transmitted intermittently, please refer the following table and figure. So, our customer can deploy trunked systems under private carrier licenses.

Table: System specification

	S-Trunking system	DMR Tier III Trunking system
Specifications	JVCKENWOOD proprietary	ETSI TS 102 361-4
TSCC transmission	intermittently	continuously

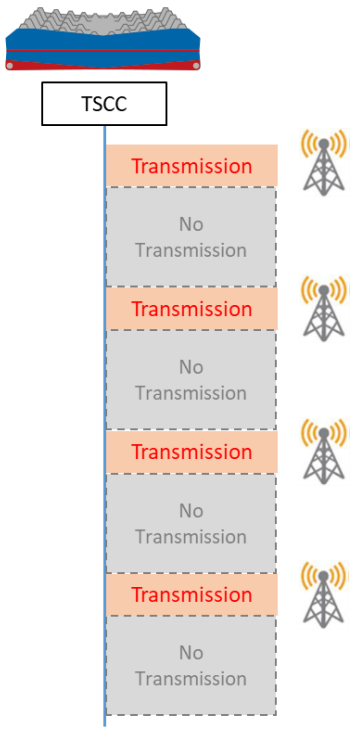


Figure: S-Trunking site

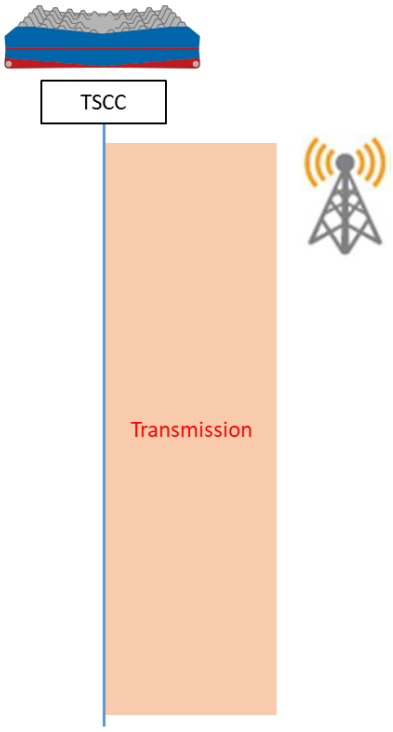


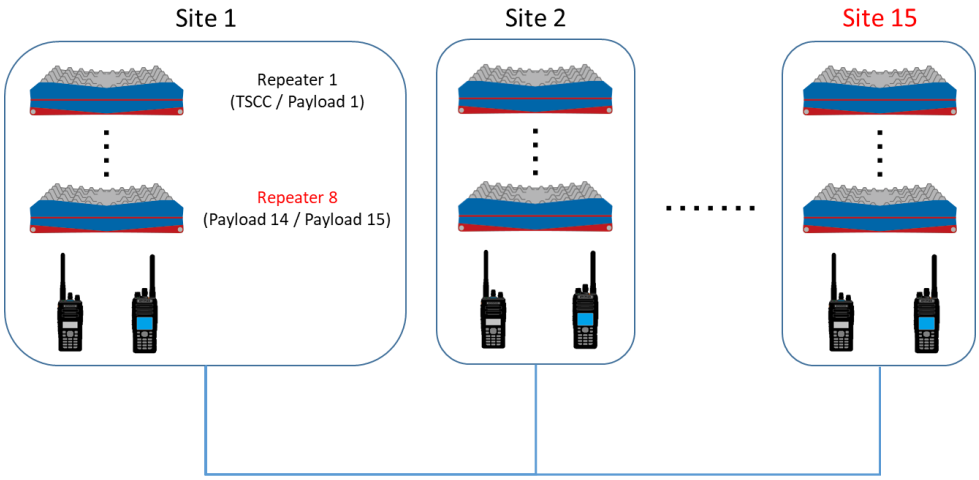
Figure: DMR Tier III Trunking site

Note:

Shared channel (FB6) and Exclusive control channel (FB8) are Station Class Codes defined by the FCC of United States. The code describes the purpose for which a particular station is used.

➢ **System Size**

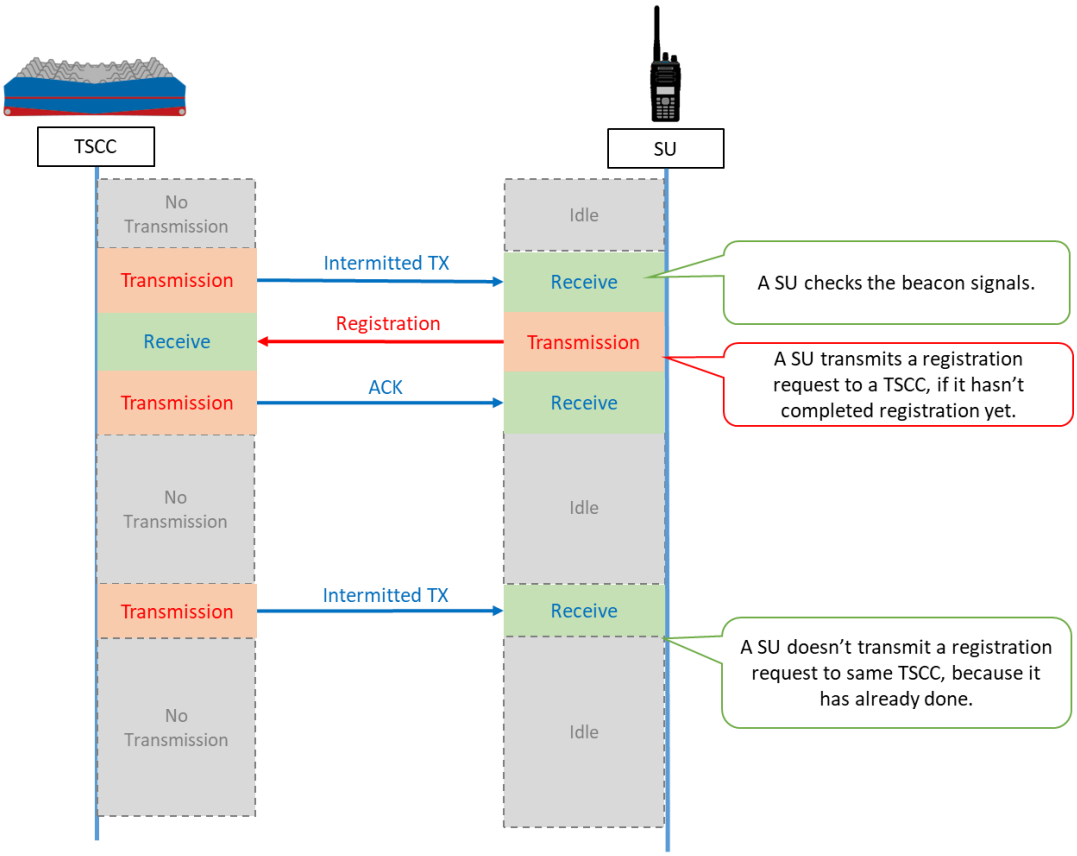
S-Trunking consists with up to 15 sites and 8 repeaters (1 TSCC and 15 Payload) for each site.



➢ **Hunt and Registration**

A SU (Subscriber Unit) has to register own ID to the S-Trunking system to use various services.

A TSCC of each site periodically transmits a beacon signal containing system information. So, a SU is scanning and checking the beacon signals to register automatically when it detects an available system. If it couldn't register to any system for a certain period time, it will indicate "Out of Range" by beep sounds or warning display.



Note:

System Key File (SKF) is not required to register to a system.

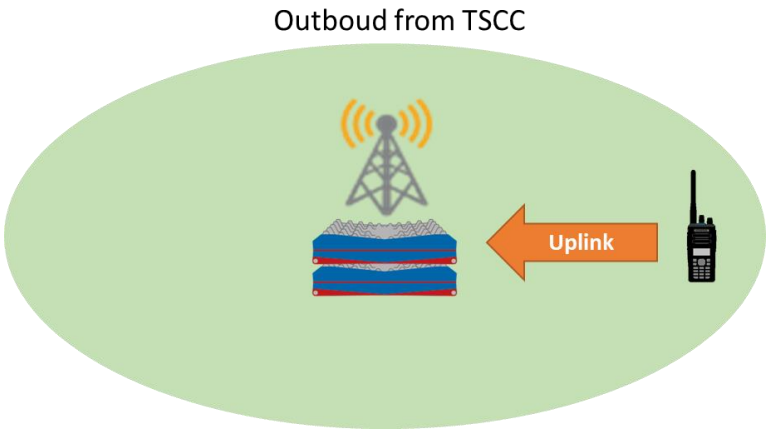
➢ **Carrier Sense (Busy Channel Lockout)**

Under shared channel licenses environment, a SU basically should conduct carrier sense before transmitting to avoid interference with another user/agencies.

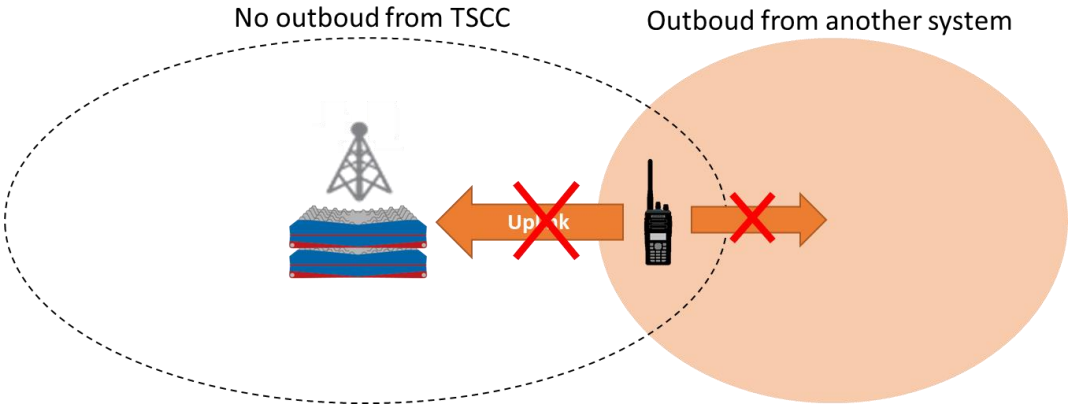
Note:

To restrict transmission actually, “Busy Channel Lockout” should be enable on FPU.

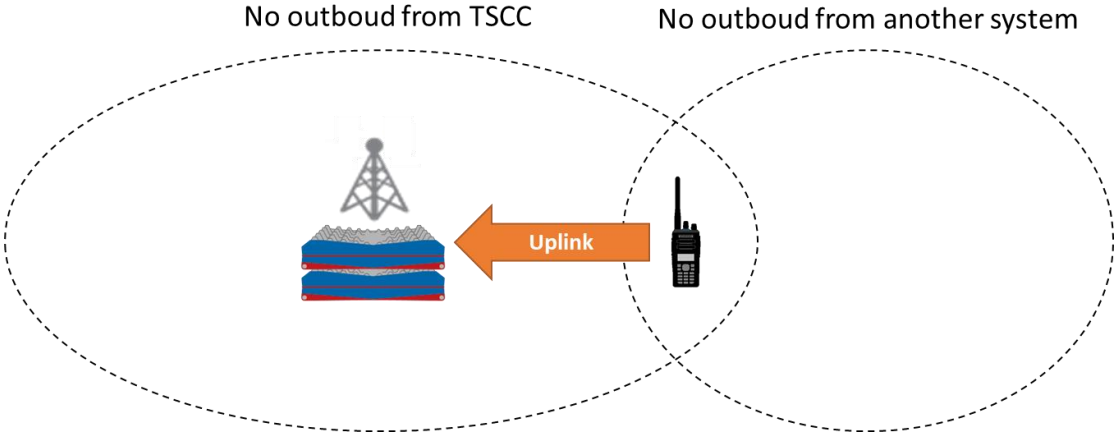
- If a SU receives an outbound signaling of an available TSCC, it is able to transmit uplink.



- If a SU detects a carrier of another system, uplink transmission is restricted by Busy Channel Lockout (BCL) feature.



- If a SU doesn’t receive any outbound signal, it is able to transmit uplink.



3.1.2 Features Compalison

Features		S-Trunking System	DMR Tier III Trunking System
Control Channel Hunt	Resuming Hunt	✓	✓
	Preferential Hunt	✓	✓
	Short (Normal) Hunt	✓	✓
	Comprehensive Hunt	N/A	✓
System Search Policy		✓	✓
Background Hunt		✓	✓
Group Subscription		✓	✓
Authentication		✓	✓
Battery Saver (Power Save)		Kenwood proprietary	ETSI TS 102 361-4
Group Call		✓	✓
Individual Call (FOACSU)		✓	✓
Individual Call (OACSU)		✓	✓
Broadcast Call		✓	✓
Telephone Call		TBD	✓
Status Call		✓	✓
Short Data Call		✓	✓
Long Data Call		✓	✓
GPS		✓	✓
Transparent		✓	✓
OTAP (Over-the-Air Programming)		✓	✓
Emergency Call		✓	✓
Emergency Alarm		✓	✓
Emergency Status		✓	✓
Encryption Call	Enhanced Encryption (ARC-4)	N/A	✓
	DES	✓	✓
	AES	✓	✓
	Bit Scrambler	✓	✓
Remote Stun/Revive/Kill		✓	✓
Remote Monitor		✓	✓
Radio Check		✓	✓
OAA (Over-the-Air Alias)		✓	✓
Dialing (Fleet Dialing Plan)		✓	✓
Group ID Scan/Single Zone Scan		✓	✓
Alternate Zone-Channel		N/A	✓
Busy Channel Lockout (Carrier Sense)		✓	N/A

Note:

- To use “Fleet Dialing Plan”, checkbox should be enabled on FPU.
- In case of S-Trunking system, “Battery Saver” always enable during intermitted downlink without any configuration on FPU.

3.1.3 Radio Feature Licenses

➢ **NX-5000 Series**

Following license is required to use the S-Trunking for NX-5000 series.

Model Name	License Key	Description
NX-5000 Series	KWD-5300CV (DMR Conventional)	License for DMR Conventional and S-Trunking

➢ **NX-3000 Series**

Following license is required to use the S-Trunking for NX-3000 series.

Model Name	License Key	Description
NX-32x0 Series *1 **NX-33x0 Series *1** **NX-37x0 Series *1** **NX-38x0 Series *1** **(NX-3x27 Series) *2**	KWD-3501TR (DIGITAL TRUNKING OPTION)	License for NXDN Type-C Trunking and S-Trunking
NX-34x0 Series **NX-392x Series**	KWD-3301CV (DMR CONVENTIONAL)	License for DMR Conventional and S-Trunking

Note:

*1. If Market Code is E, E2 or E3, “KWD-3501TR” is activated by default.

*2. If Model Name is NX-3x27 Series, “KWD-3501TR” is activated by default.

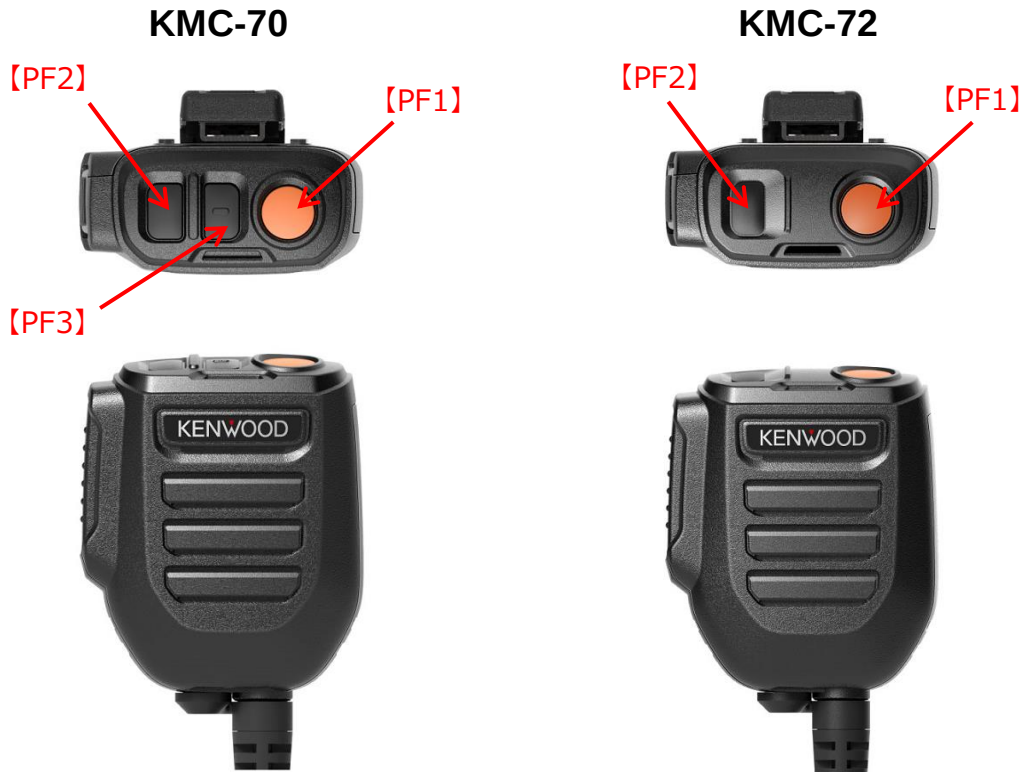
3.2 New Mic Information

This section informs a new Mic.

3.2.1 Three PF keys Mic Model

NX-3000/5000 supports KMC-70 and KMC-72, a microphone for portable model with universal connector. In addition, KMC-70 equips three PF keys.

	Type	Connector	Portable	Mobile	PF 1	PF 2	PF3
KMC-70	M	Universal	✔	N/A	✔	✔	✔
KMC-72	M	Universal	✔	N/A	✔	✔	N/A



An audio condition for KMC-70 and KMC-72 should be set as follow.

- KPG-D1: Transceiver Settings > Audio Profile > General
- KPG-D3: Radio Configuration > Special Settings > Customization > Audio Profiles > General

	Speaker Type	Microphone Type
KMC-70	Speaker 1	Microphone 5
KMC-72	Speaker 2	Microphone 5

A function for PF1 and PF2 can be set to PF3 as well.

- KPG-D1: Transceiver Settings > Key Assignment > Mic Key
- KPG-D3: Radio Configuration > Global Options > Button Assignment > Microphone

	Function	2nd Function	Hold Function	Hold Delay [s]
PF1	None	None	None	1.0
PF2	None	None	None	1.0
PF3	None	None	None	1.0

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 4.00
Old Data:	A data file was generated by programming software version prior to 3.10

4.1.1 Compatibility of Opening a Data File

				New Data	Old Data
Programming Software KPG-D1/D1N	Version	4.00	Open	✔	✔
		Prior to 3.10	Open	N/A	✔

4.1.2 Compatibility of Writing and Reading a Data File

			Write / Read	Firmware version	
				4.00	Prior 3.10
Programming Software KPG-D1/D1N	Version	4.00	Read	✔	✔
			Write	✔	✔*1
		Prior to 3.10	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 Programinng 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.

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 3.00
Old Data:	A data file was generated by programming software version prior to 2.10

4.2.1 Compatibility of Opening a Data File

				New Data	Old Data
Programming Software KPG-D3/D3N	Version	3.00	Open	✔	✔
		Prior 2.10	Open	N/A	✔

4.2.2 Compatibility of Writing and Reading a Data File

			Write / Read	**Firmware version**	
				3.00	**Prior to 2.10**
Programming Software KPG-D3/D3N	Version	3.00	Read	✔	✔
			Write	✔	✔*1
		Prior to 2.10	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 Programinng 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	4.00 or later
Programming Software for NX-5000 Series: KPG-D1/D1N	4.00 or later
Subscriber Units: NX-3000 Series	3.00 or later
Programming Software for NX-3000 Series: KPG-D3/D3N	3.00 or later