RN00348

PN7220/PN7221 Firmware release v03.02.05

Rev. 1.0 — 17 December 2025 **Release notes**

Document information

Information	Content
Keywords	PN7220, PN7221, FW, NFC
Abstract	PN7220/PN7221 release note

1 Introduction

This document provides information on the content of the FW delivery v03.02.05 for PN7220/PN7221. It includes the following sections:

- FW release content list
- FW Revision history
- Known firmware issues and limitations

Note: *For more information, refer to the PN7220 product page on nxp.com ref.[1].*

2 Scope of the release

This release package is an official release of the PN7220/PN7221 firmware v03.02.05 in secure binary format.

The release is tested with PN7220/PN7221 customer evaluation board consisting of PN7220/PN7221 IC and reference host controller with 45 mm x 45 mm RF antenna (see ref.[2] and ref.[3]).

The PN7221 chip type is based on the PN7220 and supports all features of PN7220 plus "Enhanced Contactless Polling" (ECP) by Apple - this description is not part of this document. Note that the ECP feature is available after formal authorization only.

3 Test environment used for the release

3.1 Default SW/HW configuration

The table below details the default configuration about some important parameters:

For PN7220/PN7221:

Parameters	Values
Board used	PN7220/PN7221 Customer evaluation board with PN7220/PN7221 IC (see ref.[2] and ref.[3])
Antenna	45 * 45
Clock configuration	XTAL
Firmware version	03.02.05

4 Features released

Table 1. RF features list

Mode	Protocol	Techno	NFCEE	Other	Completeness
R/W – NFC Forum	ISO-DEP	NFC-A	DH	Frame RF IF 106 kb/s	Functional verified
				ISO-DEP RF IF 106 kb/s	Functional verified
				ISO-DEP RF IF 212, 424, 848 kb/s	Functional verified
		NFC-B	DH	Frame RF IF 106 kb/s	Functional verified
				ISO-DEP RF IF 106 kb/s	Functional verified
				ISO-DEP RF IF 212, 424, 848 kb/s	Functional verified
	MIFARE Cl.	NFC-A	DH	TAG-CMD IF 106 kb/s	Functional verified
	T2T	NFC-A	DH	Frame RF IF 106 kb/s	Functional verified
				TAG-CMD IF 106 kb/s	Functional verified
	FeliCa / T3T	NFC-F	DH	Frame RF IF 212, 424 kb/s	Functional verified
	ISO 15693	ISO 15693	DH	Frame RF IF 26, 53 kb/s	Functional verified
R/W – EMVCo Mode	ISO-DEP	NFC-A	DH	ISO-DEP RF IF 106 kb/s	Functional verified
		NFC-B	DH	ISO-DEP RF IF 106 kb/s	Functional verified
	FeliCa / T3T	NFC-F	DH	Frame RF IF 212, 424 kb/s	Functional verified
Card Emulation	ISO-DEP	NFC-A	HCE	ISO-DEP RF IF 106 kb/s	Functional verified
				ISO-DEP RF IF 212, 424, 848 kb/s	Functional verified

Table 2. Other FW features released

Sl.no	Feature	Completeness
1	Secure FW download	Functional verified
2	Mode Switch GPIO	Functional verified
3	Standby mode	Functional verified
4	PRBS	Functional verified
5	Contact Interface support using ISO7816 Interface	Functional verified
6	Dynamic Power Control (DPC)	Functional verified
7	External DC-DC support	Functional verified
9	Automatic Waveshape Control	Functional verified
10	LPCD - Tag detector	Functional verified
11	Clock management (PLL / XTAL)	Functional verified

Table 3. Certifications

Sl.no	Feature	Completeness
1	NFC Forum CR13 - Digital Compliance (Internal)	Functional verified
2	NFC Forum CR13 - Analog Compliance (Internal)	Functional verified

Table 3. Certifications...*continued*

Sl.no	Feature	Completeness
3	EMVCo 3.1a L1 Digital Compliance (Internal)	Functional verified
4	EMVCo 3.1a L1 analog Compliance (Internal)	Functional verified
5	EMVCo 4.3d L1 CT Compliance (Internal)	Functional verified

5 Firmware release content

The release contains a firmware subpackage, intended for use with PN722x IC.

The zip file of this release contains:

- FW (code and data) in secure format *PN7220.sfwu* to perform firmware update on the PN7220 IC, part of the customer evaluation board (see ref.[2] and ref.[3]).
- C file *phDnldNfc_UpdateSeq.c* containing secure firmware image sequence of the above binary in C programing format.
- *pn7220_64bits.so* file which is an android compliant file of the secure firmware image used for downloading the PN7220 firmware on Android integrations.
- SCR and license file.

Table 4. FW version corresponding to this release note

FW version	Antenna type	IC revision	ROM version	Flash version	Build number
03.02.05	45 mm x 45 mm	PN722x HW 0x53	03	02.05	NA

6 Firmware release history

Table 5. PN722x FW release history

FW version	Link to release content
03.02.05	Section 6.1
03.02.04	RN00311
03.02.03	RN00310
03.02.02	RN00309

6.1 v03.02.05

Table 6. V03.02.05

Sl no.	Description
1	PN7220 maintenance release - December, 2025

The following issues have been fixed from FW v03.02.04 to FW v03.02.05.

- Fixed card detection in different NCI statemachine flow and data exchange issue with Type A card compliant to ISO-DEP configured with SAK - 0x60.

7 Known issues and limitations

7.1 Firmware

- Higher baud rates are not supported with SAK 0x60 cards. Card will always respond with 106 kbit/s.

7.2 PN722x NFCC

- Limitation:
  - Incompliance to Digital CT EMVCo 4.3d specs – 4 test failures related to handling of CWT and EGT where both values are same (i.e. min = max) – TC_1800.DTS112, TC_1800.DTS113,TC_1800.DTS212 and TC_1800.DTS213 test cases fail.
- Cautions/Recommendations:
  - It is advisable not to disable the DPC. The TX drivers may be damaged due to overcurrent.
  - Firmware update shall only be performed in a stable power supply condition, otherwise a full firmware download could be required once again. Therefore, it is recommended not to interrupt the FW update procedure.

8 Precautionary notes

Table 7. Precautions and recommendations

Limitation	Recommendation
TX driver may be damaged due to overcurrent.	Do not disable DPC on PN7220.

9 Abbreviations

Table 8. Abbreviations

Abbreviation	Reference
DH	device host
FW	firmware
HIF-1	Host Interface 1
HIF-2	Host Interface 2
MW	middleware
NCI	NFC controller interface
NFC	near-field communication
NFCC	NFC controller
NFCEE	NFC execution environment
LPCD	low power card detection
PRBS	pseudo random binary sequence
RF	radio frequency
R/W	NFC reader/writer mode

10 References

[1] Webpage - PN7220: High-Performance, One-Chip NFC Controller for EMVCo 3.1 and NFC Forum Operation (link)

[2] Webpage - PNEV7220BP1 - Development Board for PN7220 NFC Controller for EMVCo and NFC Forum Operation (link)

[3] Webpage - PNEV7220BP2 - Development Board for PN7220 NFC Controller with Two Host Configuration (link)

[4] Release note - RN00311 - PN7220/PN7221 Firmware release v03.02.04 (link)

[5] Release note - RN00310 - PN7220/PN7221 Firmware release v03.02.03 (link)

[6] Release note - RN00309 - PN7220/PN7221 Firmware release v03.02.02 (link)

11 Revision history

Table 9. Revision history

Document ID	Release date	Description
RN00348 v.1.0	17 December 2025	• Initial version

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