# Release Note

## PN533 NFC Controller

### Document information

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|---|---|
| **Doc Name** | Release--01--BL_ID_ReleaseNote |

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## 1. Document purpose

The purpose of this release note is to highlight:

- The limitation of PN5331B3HNC270 silicon
- Workaround applicable

## 2. Material list

**Table 1:Engineering samples detail**

| Description | PN5331B3HN |
|---|---|
| 12NC | N.A |
| Subpackage code | SOT618-1 |
| Die type | N.A |
| Rom code | C270 |
| Batch ID / Wafer ID | N.A |
| Delivery form | Tray |

# 3. Possible problems, known errors and restrictions

## 3.1 USB 2.0 compliancy

### 3.1.1 Description

With the current PN533, it is possible to corrupt the USB Descriptors information.

If you perform some large exchanges of data, it is possible to overwrite some USB information which is necessary during a power management state transition of the computer.

For example, you can have the following case:

**Table 2: Possible issue for the PN533**

| Step n° | Description |
|---|---|
| 1 | Plug the PN533 device on a Desktop computer. The PN533 device will be properly enumerated. |
| 2 | Perform an ePassport reading. The PN533 will read lot of Data on the ePassport. This reading should corrupt the USB information. |
| 3 | Restart the computer. The PN533 is connected to a desktop, and then the VBUS line will be set to 5V during this restart. The PN533 will not be reset. It will keep its current settings. |
| 4 | For enumeration of the PN533, the computer will ask all USB Descritpor information to the PN533. If the USB Descriptor was corrupted during the Step n°2. The PN533 will not be properly enumerated. The PN533 will be not usable. |

### 3.1.2 Consequence

Without adding a function related to power management in PN533 driver, USB 2.0 Low/Full speed compliancy can not be met.

### 3.1.3 Workaround

For reaching the USB 2.0 Low/Full speed compliancy, a function related to power management of the PN533 driver is required to be implemented.

This chapter describes:

- ⇨ Why this function is needed?
- ⇨ How this function is implemented?

- Modification to implement in the driver for fixing this issue:

USB Descriptor data are stored in a specific location of the PN533's XRam.

When the computer wants to go in suspend or shutdown state, the routine in the PCSC driver shall store the proper USB data in the PN533's XRam.

**Deleted:** writestore

This writing operation is performed in the driver Exit point.
It uses the **WriteRegister** command for performing this writing.

USB Descriptor information are stored in the PN533's XRam at the following address: [0x0019; 0x0055].

When the driver will detect a modification power state of the device (see in Msdn the enum **`Wdf_Power_Device_State`**), the driver will issue the following **`WriteRegister`** commands:

- **`08 00 19 XX 00 1A XX 00 1B XX 00 1C XX;`**
  `The driver will write the proper USB data in XRam between [0x0019; 0x001C].`

- **`08 00 1D XX 00 1E XX 00 1F XX 00 20 XX;;`**
  `The driver will write the proper USB data in XRam between [0x001D; 0x0020].`

- **`[...]`**
  `The driver will write the proper USB data in XRam between [0x0021; 0x004F].`

- **`08 00 4E XX 00 4F XX 00 50 XX 00 51 XX;`**
  `The driver will write the proper USB data in XRam between [0x004F; 0x0051].`

- **`08 00 52 XX 00 53 XX 00 54 XX 00 55 XX;`**
  `The driver will write the proper USB data in XRam between [0x0052; 0x0055].`

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