

RF430CL330H Device Erratasheet

1 Silicon Revision D

See [Section 4](#) for prior silicon revisions.

✓ The checkmark means that the issue is present in the specified revision.

| Device | Rev: | DID | RF_Lock |
|-------------|------|-----|---------|
| RF430CL330H | D | ✓ | ✓ |

2 Package Marking

PW14

TSSOP (PW), 14 Pin



YM = Year and Month Date Code
 S = Assembly Site Code (Per QSS 005-120)
 LLLL = Lot Trace Code
 # = Die Revision
 ○ = Pin 1

3 Detailed Bug Description

DID *DID – Bug description*

Description RF430CL330H does not respond to PCD commands issued using a DID value other than 0x00.

Workaround PCD must issue commands with DID value of 0x00 or no DID present.

RF_Lock *RF_Lock – Bug description*

Description The RF430CL330H might become unresponsive in RF Enable Mode in a very small percentage of RF interactions between the RF430CL330H and the reader.

Workaround To ensure that this behavior does not happen in any case, an additional initialization sequence needs to be added. The following code snippet shows this initialization sequence.

This sequence has to be applied only once after every power-on and reset.

```

/*****
/* Errata Fix : Unresponsive RF - recommended firmware */
// Write_Register (address_16_bit, data_16_bit);
// data_16_bit Read_Register (address_16_bit);
*****/
{
//Please implement this fix as given in this block. It is important that
//no line be removed or changed.
unsigned int version;
version = Read_Register(VERSION_REG); // read the version register.
// The fix changes based on what version of the RF430
// is being used. Version C and D have the issue.
// Next versions are expected to have this issue corrected.
// Ver C = 0x0101, Ver D = 0x0201
if (version == 0x0101 || version == 0x0201)
{ // the issue exists in these two versions
Write_Register(0xFFE0, 0x004E);
Write_Register(0xFFFF, 0x0080);
if (version == 0x0101)
{ // Ver C
Write_Register(0x2a98, 0x0650);
}
else
{ // Ver D
Write_Register(0x2a6e, 0x0650);
}
Write_Register(0x2814, 0);
Write_Register(0xFFE0, 0);
}
//Upon exit of this block, the control register is set to 0x0

```

4 Prior Silicon Revisions

4.1 Silicon Revision C

✓ The checkmark means that the issue is present in the specified revision.

| Device | Rev: | BIP-8 | ATQB_1 | ATQB_2 | ATTRIB_1 | ATTRIB_2 | INV_CMD | RF_Lock | RFU_BLK | ATQB_3 | LAYER4_2 |
|-------------|------|-------|--------|--------|----------|----------|---------|---------|---------|--------|----------|
| RF430CL330H | C | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |

4.2 Detailed Bug Description

BIP-8 *BIP-8 - Bug description*

Description Addressing a device other than RF430CL330H on the same I2C bus results in incorrect data returned when BIP-8 is enabled on a multi-device I2C system.

Workaround BIP-8 must not be used on multi device I2C systems.

ATQB_1 *ATQB_1 - Bug description*

Description NFC Forum specifies that tag must respond with '00' in bits 2 and 3 of the protocol_type field, but RF430CL330H responds with '10'.

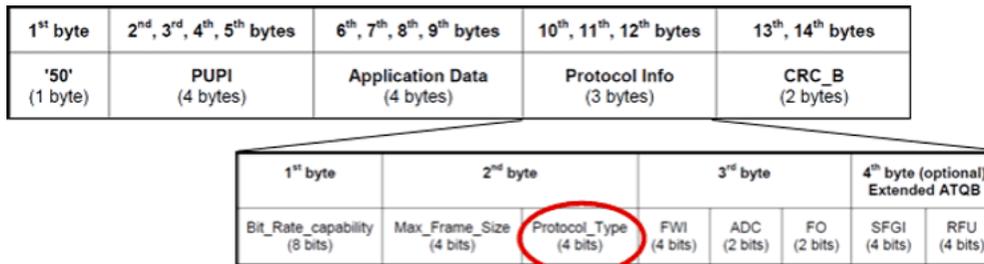


Figure 1. ATQB Response

Workaround The ATQB response is hard coded and cannot be changed. A fix is scheduled for silicon revision D.

ATQB_2 *ATQB_2 - Bug description*

Description NFC Forum specifies that FWI (frame waiting time integer) must be between 0 and 8. RF430CL330H responds with FWI of 10, which is allowed per ISO 14443-3.

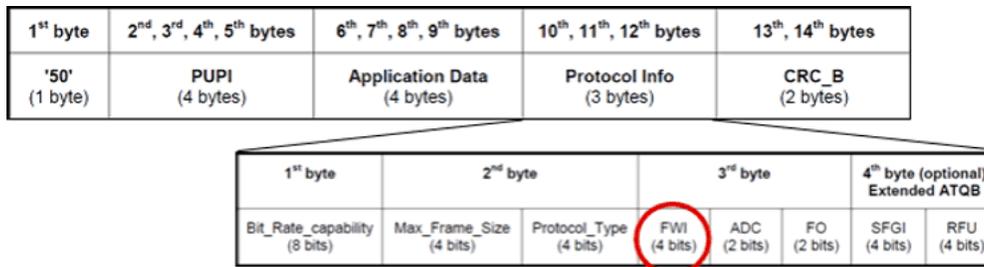


Figure 2. ATQB Response

Workaround The ATQB response is hard coded and cannot be changed. A fix is scheduled for silicon revision D.

ATTRIB_1 *ATTRIB_1 – Bug description*

Description NFC Forum requires accepting a Higher Layer INF command with ATTRIB, but does not require supporting its functionality (must respond to only the base message). RF430CL330H does not respond to commands containing the Higher Layer INF field included.

| | | | | | | | |
|----------------------|---|----------------------|----------------------|----------------------|----------------------|--|--------------------|
| 1 st byte | 2 nd , 3 rd , 4 th , 5 th bytes | 6 th byte | 7 th byte | 8 th byte | 9 th byte | 10 thbytes | |
| '1D' (1 byte) | Identifier (4 bytes) | Param 1 (1 byte) | Param 2 (1 byte) | Param 3 (1 byte) | Param 4 (1 byte) | Higher layer INF (optional – 0 or more bytes) | CRC_B (2 bytes) |

Figure 3. ATTRIB Command

Workaround No workaround for revision C. A fix is scheduled for silicon revision D.

ATTRIB_2 *ATTRIB_2 – Bug description*

Description NFC Forum specifies that the answer to ATTRIB must be '0h'. RF430CL330H responds with '8h' to indicate the MBLI (maximum buffer length index).

| | | |
|----------------------|-----------------------------------|------------------------------------|
| 1 st byte | 2 ndbytes | |
| MBLI (1 byte) | CID (optional 0 or more bytes) | Higher layer Response (2 bytes) |
| | | CRC_B (2 bytes) |

Figure 4. Answer to ATTRIB

Workaround The answer to ATTRIB is hard coded and cannot be changed. A fix is scheduled for silicon revision D.

INV_CMD *INV_CMD – Bug description*

Description RF430CL330H responds to invalid ATTRIB commands. NFC Forum specifies that the tag should not respond to invalid commands.

Invalid ATTRIB Commands:

1D + NFCID0 + '00 F8 01 00' (indicates 848kbps when 106kbps should be used)

1D + NFCID0 + '00 08 00 00' (indicates PICC not compliant to 14443-4)

1D + NFCID0 + '00 08 0F 00' (RFU bits must be set to '0' in PARAM3)

Workaround No workaround available in revision C. A fix is scheduled for silicon revision D.

RFU_BLK
RFU_BLK – Bug description

Description

RF430CL330H does not respond to I-, R-, and S-Block commands with RFU bits set. NFC Forum specifies that the tag must ignore these bits and respond to the base message.

Workaround

No workaround available in revision C. A fix is scheduled for silicon revision D.

ATQB_3
ATQB_3 – Bug description

Description

REQB command with b5 set (Extended SENSB_RES supported) is responded with standard ATQB.

Workaround

No workaround available in revision C. A fix is scheduled for revision D.

LAYER4_2
LAYER4_2 – Bug description

Description

Upon receiving an unsupported C-APDU select command, RF430CI330H responds with a PCB byte and it's PUPI. The response should be PCB byte and an error code.

Workaround

No workaround available in revision C. A fix is scheduled for revision D.

Document Revision History

| Changes from C Revision (September 2013) to D Revision | Page |
|--|-------------|
| • Changed current silicon revision from C to D | 1 |
| • Updated bug list applicable to silicon revision D | 1 |
| • Added Section 2 | 1 |
| • Added DID description | 2 |
| • Moved silicon revision C information and all bug descriptions that do not apply to silicon revision D to Section 4 | 3 |

NOTE: Page numbers for previous revisions may differ from page numbers in the current version.

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