

RF430CL331H Device Errata Sheet

1 Revision History

✓ The check mark indicates that the issue is present in the specified revision.

Errata	Rev A
LOOPING_READ	✓
RF_UNRESPONSIVE	✓
MISSING_WAIT_TIME_EXTENSION	✓

2 Package Markings

PW14

TSSOP (PW), 14 Pin

```

+-----+
|      CL331H      |
|  \T/YMSG4       |
| O   LLLL #      |
+-----+
O = PIN 1

\T/ = TI LOGO
YM = YEAR MONTH DATE CODE
LLLL = ASSEMBLY LOT CODE
S = ASSEMBLY SITE CODE (PER QSS 005-120)
# = DIE REVISION

7 CHARACTERS MAX LINE 1

#SYMBOL ECAT          : G4      MUST BE SYMBOLIZED WITH AN UNDERSCORE
#SYMBOL DEVICE NAME1  : CL331H
#SYMBOL LOGO          : TI LOGO
  
```

RGT16

VQFN (RGT), 16 Pin

```

+-----+
!O          !      \T/ = TI LOGO
! CL331H   !      YM = YEAR MONTH DATE CODE
!  \T/ YMS !      S = ASSEMBLY SITE CODE PER QSS 005-120
! LLLL # !      LLLL = ASSY LOT CODE
+-----+
O - PIN 1 (MARKED)
# = DIE REVISION

LINE 1 MAXIMUM IS 6 CHARACTERS

*#SYMBOL PIN 1 QUADRANT : 1
*#SYMBOL DEVICE NAME: CL331H
*#SYMBOL LOGO : TI
  
```

3 Detailed Bug Description

LOOPING_READ

Description

This issue manifests itself on some readers by a repetitive NDEF read as long as the reader is in the read range.

The device initializes the block number to 1 only on reset. On further activation sequences the block number is not set to 1. The correct behavior is defined in NFC Digital Protocol 15.2.4.1 and can be seen in the following table.

Poll Mode		Listen Mode	
15.2.4.1	The block number of the Reader/Writer MUST be initialized to 0 for the current activated Card Emulator.	15.2.4.2	The block number of the Card Emulator MUST be initialized to 1 at activation.

Workaround

To ensure that this behavior does not happen in any case, an additional initialization sequence must be added. The following code snippet shows this initialization sequence. This sequence must be applied only once after every power-on and reset and does not reduce the memory allocated for the user. Note that this fixes three different errata, LOOPING_READ, RF_UNRESPONSIVE, and MISSING_WAIT_TIME_EXTENSION.

```
uint8_t errata_fixes[] = { 0xB2, 0xF0, 0xFF, 0xFB, 0x00, 0x07, 0xB2, 0xF0,
0xFF, 0xFD, 0x00, 0x07, 0xA2, 0xC3, 0x00, 0x07, 0x08, 0x3C, 0xB2, 0xF0, 0xFF,
0xFB, 0x00, 0x07, 0xB2, 0xF0, 0xFF, 0xFD, 0x00, 0x07, 0xA2, 0xC3, 0x00, 0x07,
0xB2, 0xB0, 0x04, 0x04, 0x00, 0x07, 0xF4, 0x23, 0x30, 0x41, 0x0F, 0x12, 0x0E,
0x12, 0xB2, 0xB0, 0x00, 0x01, 0x00, 0x07, 0x08, 0x24, 0x3E, 0x40, 0x1D, 0x00,
0x1F, 0x42, 0xB2, 0x2A, 0x6E, 0x9F, 0x02, 0x20, 0x92, 0x43, 0x2E, 0x2A, 0x3E,
0x41, 0x3F, 0x41, 0x30, 0x41};

void RF430ErrataFix(void){
    //Fixes LOOPING_READ, RF_UNRESPONSIVE, and MISSING_WAIT_TIME_EXTENSION erratas

    //Add to initial section after status byte returns okay
    CL331H_Write_Register(0xFFE0, 0x004E);
    CL331H_Write_Register(0xFFFE, 0x0080);

    Write_Continuous (0x2AD0, (uint8_t *) &errata_fixes, sizeof(errata_fixes));

    CL331H_Write_Register(0x2A90, 0x2AFC);    // looping fix
    CL331H_Write_Register(0x2AAE, 0x2AD0);    // wait time extension fix
    CL331H_Write_Register(0x2A66, 0x0000);    // rf unresponsive fix

    CL331H_Write_Register(0x27B8, 0);
    CL331H_Write_Register(0xFFE0, 0);
    // Upon execution of the preceding firmware, the control register is set to 0
}
}
```

RF_UNRESPONSIVE

Description	<p>When this issue manifests, the device does not receive or transmit RF packets. The RF430CL331H does not assert the INTO signal for RF requests, even when it is exposed to an active NFC reader.</p> <p>This issue does not appear in all of the devices—some devices function correctly without this fix.</p>
Workaround	Use the provided firmware in the LOOPING_READ errata. This fixes the issue.

MISSING_WAIT_TIME_EXTENSION

Description	In some cases, the device automatic wait time extension request is not issued when required. This request must be issued when the interrupt the RF430CL331H is not serviced in time.
Workaround	Use the provided firmware in the LOOPING_READ errata. This fixes the issue.

Revision History

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

Changes from September 23, 2015 to July 8, 2016	Page
• Updated description of RF_UNRESPONSIVE	3

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