Errata

CC274xx-Q1 SimpleLink™ Wireless MCU Device Revision E

ABSTRACT

This document describes the known exceptions to functional specifications (advisories) of the CC274XX-Q1 SimpleLink™ device.

This document supports the following devices:

- CC2744R74E0WRHARQ1
- CC2745R74E0WRHARQ1
- CC2745R10E0WRHARQ1
- CC2745P10E0WRHARQ1

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1 Advisories Matrix

Table 1-1 lists all advisories, modules affected, and the applicable silicon revisions.

Table 1-1. Advisories Matrix

MODULE	DESCRIPTION	SILICON REVISIONS AFFECTED
		E
ADC	Advisory ADC_08 — ADC BUSY bit not cleared in repeat single, sequence and repeat sequence conversion modes	Yes
ADC	Advisory ADC_09— ADC can have random conversion errors.	Yes
BATMON	Advisory BATMON_01 — Incorrect temperature measurement	Yes
BATMON	Advisory BATMON_02— Spurious temperature update interrupts from BATMON in standby	Yes
SYS	Advisory SYS_204 — SysTimer may not always generate a compare event when previously programmed with a value	Yes
SYS	Advisory SYS_206 — The RF phase jumps during HFXT amplitude compensation and HFXT amplitude control	Yes
SYS	Advisory SYS_207 — Standby entry may not be gated if FLTSETTLED bit is read too soon	Yes
APU	Advisory APU_201 — APU Data memory write operation fails	Yes

2 Nomenclature, Package Symbolization, and Revision Identification

2.1 Device and Development Support—Tool Nomenclature

To designate the stages in the product development cycle, Texas Instruments™ assigns prefixes to the part numbers of all devices and support tools. Each device has one of three prefixes: X, P, or null (for example, XCC2745P10-Q1). Texas Instruments recommends two of three possible prefix designators for its support tools: TMDX and TMDS. These prefixes represent evolutionary stages of product development from engineering prototypes (X/TMDX) through fully qualified production devices/tools (null/TMDS).

Device development evolutionary flow:

X	Experimental device that is not necessarily representative of the final device's electrical specifications and may not use production assembly flow.
P	Prototype device that is not necessarily the final silicon die and may not necessarily meet final electrical specifications.
null	Production version of the silicon die that is fully qualified.

Support tool development evolutionary flow:

TMDX	Development-support product that has not yet completed Texas Instruments internal qualification testing.
TMDS	Fully-qualified development-support product.

X and P devices and TMDX development-support tools are shipped against the following disclaimer:

"Developmental product is intended for internal evaluation purposes."

Production devices and TMDS development-support tools have been characterized fully, and the quality and reliability of the device have been demonstrated fully. TI's standard warranty applies.

Predictions show that prototype devices (X or P) have a greater failure rate than the standard production devices. Texas Instruments recommends that these devices not be used in any production system because their expected end-use failure rate still is undefined. Only qualified production devices are to be used.

2.2 Devices Supported

This document supports the following devices:

- CC2744R74E0WRHARQ1
- CC2745R74E0WRHARQ1
- CC2745R10E0WRHARQ1
- CC2745P10E0WRHARQ1

2.3 Package Symbolization and Revision Identification

Package Symbolization and Table 2-1 describe package symbolization and the device revision code.

Figure 2-1. Package Symbolization

Table 2-1. Revision Identification

Device Revision Code	Silicon Revision
E	PG2.0

3 Advisories

ADC_08 ***ADC BUSY bit not cleared in repeat single, sequence, and repeat sequence conversion modes.***

Revisions Affected E

Description When the ADC is configured in repeat single, sequence, or repeat sequence conversion modes with trigger policy as trigger next in the MEMCTLx register, software attempting to stop the conversion sequence by clearing the ENC bit does not clear the BUSY bit in the STATUS register. In the case of sequence conversion mode with trigger next policy, the BUSY bit is cleared at the end of the conversion sequence.

Workaround To stop the conversions and to clear the BUSY bit in the above-mentioned ADC operating scenario, the following software sequence can be followed.

1. Write CTL0.ENC = 0
2. Change CTL1.TRIGSRC to SOFTWARE
3. Write CTL1.SC=1

ADC_09 *ADC can have random conversion errors.*

Revisions Affected

E

Description

ADC can have errors at a rate as high as 1 in 400 million ADC conversions. When a conversion error occurs, the error results in a jump in the digital output of the ADC without a corresponding change in the ADC input voltage, otherwise known as a ‘sparkle code’. The magnitude of the jump is 64 LSBs higher or lower than the expected ADC output when ADC is used in a 12-bit resolution setting. The magnitude of the jump decreases to +/-16 LSBs for 10-bit resolution and +/-4 LSBs when set to 8-bit resolution.

Workaround

The error rate can be reduced to 1 error in 100 billion ADC conversions by setting ADC.DEBUG1:CTRL[10:9] bits high.

Other software workarounds like a best-out-of-three, where out of three consecutive samples, the one with the highest standard deviation is discarded and the other two averaged to generate the ADC output can also be considered.

Software averaging of 16 consecutive ADC outputs decreases the deviation of the ADC output to +/- 4 LSBs when set to 12-bit resolution.

This workaround would be incorporated into future releases of SimpleLink™ Low Power F3 software development kit (SDK).

BATMON_01 *Incorrect temperature measurement.*

Revisions Affected

E

Description

BATMON can report incorrect temperatures when hysteresis is enabled. To prevent potential incorrect temperature reports, the user must always disable BATMON hysteresis.

Workaround

Hysteresis is controlled by the PMUD.CLT[2] HYST_EN bit.

Hysteresis is enabled by default (reset value = 1) and, therefore, must actively be disabled during boot.

Hysteresis can be disabled by clearing the PMUD.CLT[2] HYST_EN bit using the following command:

```
HWREG( PMUD_BASE + PMUD_O_CTL ) = ( PMUD_CTL_CALC_EN |
PMUD_CTL_MEAS_EN )
```

This workaround is incorporated into the SimpleLink™ Low Power F3 software development kit (SDK) version 8.10 and newer.

BATMON_02 *Spurious temperature update interrupts from BATMON in standby.*

Revisions Affected

E

Description

BATMON can issue spurious temperature update interrupts when PMUD.EVENT.TEMP_UPDATE is used as a wake-up source from standby.

Workaround

Instead of using PMUD.EVENT.TEMP_UPDATE as the wake-up source, PMUD.EVENT.TEMP_OVER_UL (current temperature over a set upper limit) or PMUD.EVENT.TEMP_BELOW_LL (current temperature below a set lower limit) shall be considered.

When using PMUD.EVENT.TEMP_OVER_UL or PMUD.EVENT.TEMP_BELOW_LL as wake-up interrupts, these are the other settings that have to be enabled:

- Select GLDO as the source for VDDR regulation by setting PMCTL.VDDRCTL.SELECT to 0x0.

Note

This causes a slight increase in standby power consumption. Please check the ‘Power Consumption – Power Modes’ section of the data sheet for exact details.

- Set SYS0.TMUTE4.RECHCOMPREFLVL to 0x2
- Set SYS0.TMUTE5.GLDOISSET to 0x1E

This workaround would be incorporated into future releases of SimpleLink™ Low Power F3 software development kit (SDK).

SYS_204 *SysTimer may not always generate a compare event when previously programmed with a value.*

Revisions Affected

E

Description

SysTimer does not always generate a compare event during the initialization/sync up phase, when SysTimer has previously been programmed with a value.

Workaround

Wait to program SysTimer until SYSTIM.STATUS.SYNCUP is cleared. This workaround is incorporated into the SimpleLink™ Low Power F3 software development kit (SDK) version 8.10 and newer.

SYS_206 *The RF phase jumps during HFXT amplitude compensation and HFXT amplitude control.*

Revisions Affected

E

Description

The RF phase jumps during HFXT amplitude compensation and HFXT amplitude control. This issue only applies after start-up of the device is complete, and then later programmatically adjusting the cap array values while using HFXT. If the cap array values are set during startup, this issue is not seen.

Workaround

The setting or modification of cap array steps should only be done during start-up, and before any RF operations. Do not modify the cap array steps dynamically during run-time after that point. The Q1 and Q2 cap array steps can be modified in SysConfig.

SYS_207 *Standby entry may not be gated if FLTSETTLED bit is read too soon.*

Revisions Affected

E

Description

Standby entry may not be gated if attempted before LFINC filter settles and is read too soon. This issue is not seen when using LFXT.

Workaround

In order to workaround this, when using LFOSC:

1. Clear both the interrupts.
2. Check for CKMD.RIS.HFXTGOOD.
3. Check for CKMD.RIS.LFTICK.
4. Check for FLTSETTLED.

Standby entry should be triggered only when the LFINC filter has settled which can be confirmed by reading the memory masked register (MMR) CKMD.LFCLKSTAT.FLTSETTLED bit.

Alternatively, LFXT can be used and this can be avoided. This workaround is incorporated into the SimpleLink™ Low Power F3 software development kit (SDK) version 8.40 and newer.

APU_201 ***APU Data memory write operation fails.***

Revisions Affected

E

Description

APU Data memory write operation fails if two write operations occur back-to-back.

Workaround

Customers must always use the TI APU driver to access APU data memory. This workaround is incorporated into the SimpleLink™ Low Power F3 software development kit (SDK) version 8.40 and newer.

4 Revision History

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

DATE	REVISION	NOTES
December 2024	*	Initial Release

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