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XBee S2C 802.15.4 Release Notes

XBee S2C 802.15.4

Version 2003 - Aug 30, 2019

INTRODUCTION

These release notes document changes made to the 802.15.4 firmware on the XBee S2C RF modules.

- Product Information
- Documentation
- Support

SUPPORTED PRODUCTS

- XB24C - XBee S2C 2.4 GHz radio module
  - Surface Mount (SMT)
  - Through Hole (THT)
- XBP24C - XBee-PRO S2C 2.4 GHz radio module
  - Surface Mount (SMT) *[Hardware Rev L and newer]*
  - Through Hole (THT)

KNOWN ISSUES

1. If a remote radio's buffer is full due to RTS holding off incoming data, any remote AT command to this node will fail to generate a remote AT Command response. *[XBS1B-449]*

2. The **ED** command cannot be issued remotely, attempting to do so might cause the remote node to become unresponsive. *[XBS1B-425]*

UPDATE CONSIDERATIONS

XCTU (XBee Configuration and Test Utility) is recommended for updating the firmware of your radio module to the latest firmware version:www.digi.com/xctu

The following files are included in this release:

- Firmware
  - EBL: Firmware image for gateways and OEM serial updates
  - EHX: Encrypted firmware for Legacy X-CTU
  - EHX2: Encrypted firmware for XCTU-NG
- Configuration
  - MXI: X-CTU configuration file

TECHNICAL SUPPORT

Get the help you need via our Technical Support team and online resources. Digi offers multiple support levels and professional services to meet your needs. All Digi customers have access to product documentation. firmware, drivers, knowledge base and peer-to-peer support forums.

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CHANGE LOG

2003 XBee S2C 802.15.4 (Aug 30, 2019)

This is an optional release.

NEW FEATURES

- N/A

ENHANCEMENTS

- N/A

SECURITY FIXES

- N/A

BUG FIXES

1. Resolved an issue where an interrupt-driven event that occurs while entering sleep could cause unexpected behavior. *[XBS1B-454]*

2002 XBee S2C 802.15.4 (July 12, 2019)

This is an optional release.

NEW FEATURES

1. Support for RS-485 communication using an RS-485 adapter added. *[XBS1B-430]*
   - This is configured through the **D7** command.

ENHANCEMENTS

1. The **NP** command has been added for getting the maximum packet payload length. *[XBS1B-433]*
    - **NP** assumes long addressing will always be used when calculating maximum payload size.
2. The maximum value for **SP** and **DP** has increased from 0x68B0 to 15F900.

BUG FIXES

1. Fixed an issue where DTR I/O line would cause the module to draw higher current due to automatically enabling a pulldown resistor. *[XBS1B-389]*
2. Fixed an issue where RTS I/O line would cause the module to draw higher current if RTS is asserted low. *[XBS1B-415]*
3. Resolved an issue that could cause an ADC measurement to underflow and produce an incorrect value at 0VDC. *[XBS1B-421]*
4. Resolved an issue on the thru-hole variant where holding DOUT low was preventing the application from running instead of entering SPI mode and no AT command response for setting I/O lines. *[XBS1B-438]*
5. Applying changes with **AC** will no longer interrupt incoming UART traffic. *[XBS1B-344]*
6. Enabling cyclic sleep while using the default **SP** value of 0 would cause the device to go into a 0.25s cyclic sleep period. The device will now stay awake until a non-zero **SP** value is provided. *[XBS1B-431]*
7. Resolved an issue where **PR** and **PD** would not pull some IO pins correctly on the thru-hole variant. *[XBS1B-381]*
8. Added debounce code to resolve an issue where toggling DTR would sometimes not wake the module from sleep. *[XBS1B-428]*
9. Resolved an issue where the RSSI PWM signal did not accurately represent the RF packet RSSI value. *[XBS1B-401]*

2001 XBee S2C 802.15.4 (April 15, 2016)

ENHANCEMENTS

The following enhancements have been made to the S2C platform compared to the S1:

- Much lower sleep current (Less than 1 uA vs 10 uA on XBee S1)
- Lower current consumption for RX (31 mA vs 50 mA on XBee S1)
- Lower current consumption for TX on PRO (120 mA vs. 250 mA on XBee S1)
- Same current consumption for TX on non-PRO (45 mA), but greater output power (8 dBm)
- Higher throughput capacity (83kbps on XBee S2C compared with 60kbps on XBee S1)
- Addition of SMT form factor
- Addition of OTA Firmware updates
- Addition of SPI support
- UART can handle a baud rate of up to 250 kbps compared with 111 kbps on XBee S1
- Coordinator can simultaneously buffer up to 5 indirect messages for sleeping end devices compared with 2 on XBee S1

Limitations due to switching to from XBee S1 hardware to XBee S2C hardware:

- SM2 is supported, but the XBee S2C hardware does not support the fast wakeup time available on XBee S1 hardware. For comparison, in SM1 mode, XBee S1 awakens in 10.5 ms, but it awakens in 2.5 ms in SM2 mode. By contrast, SM1 and SM2 both awaken in 6.3 ms on XBee S2C. Therefore, SM2 provides no advantages over SM1 and is being deprecated.
- ADC is supported but the XBee S2C hardware only supports 4 ADC lines compared with 6 on the XBee S1 hardware.
- Space parity on the UART is not supported by the XBee S2C hardware.

BUG FIXES

- Encrypted transmissions from XBee S2C to XBee S1 now work without dropping data, regardless of baud rate. This depends on setting bit 0 of **C8** command. **C8** command implements a duty cycle on encrypted frames so that XBee S2C cannot overrun XBee S1.

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