MRF24WB0MA/MRF24WB0MB RF Transceiver Module Errata and Data Sheet Clarification

The MRF24WB0MA/MRF24WB0MB RF Transceiver Module that you have received conform functionally to the current Device Data Sheet (DS70632**B**), except for the anomalies described in this document.

A detailed description and possible work around for each of the issues are available on page 2, following the Table 1 Module Issue Summary.

Data Sheet clarifications and corrections are available on page 3, following the discussion of product issues. The product revision level can be identified by locating the seven digit manufacturing date code located on the module.

Note:	For more information on extracting the product date code, refer to the product Data Sheet or contact your local Microchip sales office.

TABLE 1: MODULE ISSUE SUMMARY

Item Number	Issue Summary	Affected Date Code			
		<1039XXX	≥1039XXX	>1108XXX	>1222XXX
1.	Power Save (PS) bit is set incorrectly in the PS-Poll frame.	X			
2.	If the WPA or WPA2 keys are incorrectly entered, the host code will hang waiting to connect.	X	X		
3.	Large Beacon frames	X	X	X	
4.	TX Buffer not available	X	X	X	
5.	High Traffic Loss of Connection handling	X	X	X	
6.	High Traffic Probe request	X	X	X	

TABLE 2: DATE CODE FIRMWARE VERSION

Version	Date Code
1201	< 1013, some 1014, 1015
1204	> 1016
1205	>= 1039
1207	> 1108
120C	> 1222

Module Errata Issues

1. Incorrect PS bit handling

The Power Save (PS) bit is set incorrectly in the PS-Poll frame when the module comes out of Power Save (PS) mode. This causes some routers to revert the module back to PS mode disabling any data transfer.

Work around

This does not affect all routers; hence, there is no work around for those that respond to the PS bit within a PS-Poll frame.

Affected Silicon Revisions

<1039XXX	≥1039XXX						
X							

2. Incorrect WPA error handling

When the WPA or WPA2 keys are incorrectly entered, the module firmware asserts causing the host code to hang in a state waiting to connect to the module.

Work around

Detect a time-out condition when trying to connect through WPA or WPA2 and have the host code restart or send a failure message to the user.

Affected Silicon Revisions

<1039XXX	≥1039XXX	>1108XXX
X	X	

Some (older) 1108xxx date code parts do not have the fix.

3. Module: Large Beacon Frames

Some new platforms such as the iPhone 4 and some 802.11n routers send beacon frames larger than 128 bytes which can causes abnormal behavior and possible system failure.

Work around

None. Must update to 120A or greater.

Affected Silicon Revisions

<1039XXX	≥1039XXX	>1108XXX	>1222XXX
X	X	X	

4. Module: TX Buffer Not Available

There is a rare corner case when the module TX Buffer is not available to handle any further host management requests and will always return False to the MACIsTXReady() request causing a deadlock condition.

Work around

A watchdog timer must be used to detect the condition and reset the module when the event occurs.

Affected Silicon Revisions

<1039XXX	≥1039XXX	>1108XXX	>1222XXX
X	X	X	

5. Module: High Traffic Loss of Connection Handling

When the module is connected to an AP and host initiates a scan, if the module cannot hear the AP, or the AP turns off, the module does not notify the host of the lost connection.

Work around

Do not use host scan or use watchdog timer to detect the condition and reset the module when the event occurs.

Affected Silicon Revisions

<1039XXX	≥1039XXX	>1108XXX	>1222XXX
X	X	X	

6. Module: High Traffic Probe Request

When trying to establish a connection or reconnecting (automatic) in an extremely high traffic environment, the module may not get an opportunity to send a probe request which may cause the system to hang.

Work around

A watchdog timer must be used to detect the condition and reset the module when the event occurs.

Affected Silicon Revisions

<1039XXX	≥1039XXX	>1108XXX	>1222XXX
X	X	X	

Data Sheet Clarifications

The following typographic corrections and clarifications are to be noted for the latest version of the Device Data Sheet (DS70632**B**).

1. Operating temperature of part has been increased to -20°C to +85°C.
2. SPI mode 3 is CPOL=CPHA=1
3. Debug serial interface operates at 19200, 8, N, 1, N

APPENDIX A: REVISION HISTORY

Revision A Document (December 2010)

This is the Initial release of the document.

Issue 1 – Incorrect PS bit handling

Issue 2 – Incorrect WPA error handling

Revision B Document (May 2011)

1. Updated Table 1: Removed “Feature” column and added new column for Data Code.
2. Updated Issue 1. Incorrect PS bit handling: Changed Affected Product Date Codes to Affected Silicon Revisions.
3. Updated Issue 2. Incorrect WPA error handling: Changed Affected Product Date Codes to Affected Silicon Revisions, and added new data code.

Revision C Document (September 2012)

Added silicon issues 3 (Large Beacon Frames), 4 (TX Buffer Not Available), 5 (High Traffic Loss of Connection Handling), and 6 (High Traffic Probe Request).

Added the **“>1222XXX” Affected Date Code** column in Table 1**.**

Added Table 2.

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