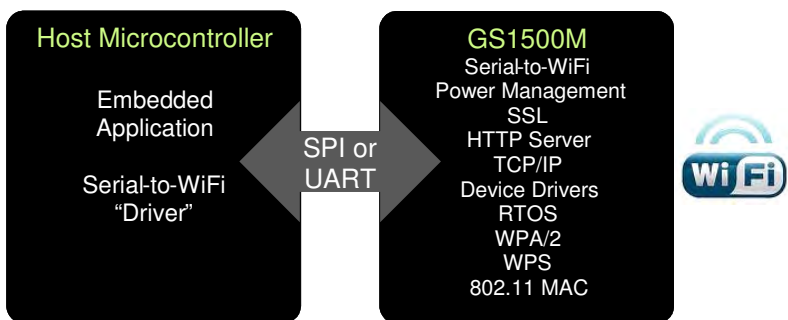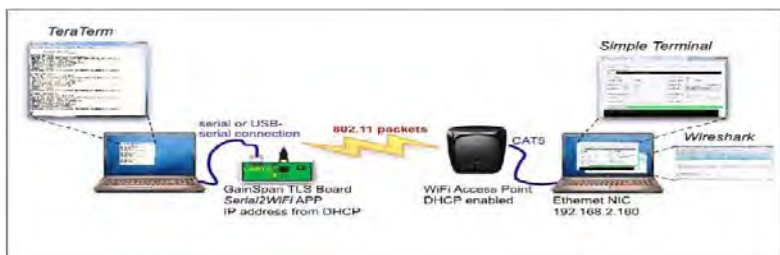# GainSpan GS1500M EVK Mrk II Evaluation Kit

PRODUCT OVERVIEW

The GS1500M EVK Mrk II Evaluation Kit provides GainSpan customers the means to evaluate capabilities of the GS1500M low power wireless module together with Serial-to-WiFi embedded software for Wi-Fi networks. The Serial-to-WiFi embedded software allows devices and appliances manufacturers to easily add Wi-Fi capabilities to their products with minimal impact on the host microcontroller firmware.

The GS1500M EVK Mrk II Evaluation Kit provides all the hardware and software necessary to quickly set up a serial (UART or SPI) based link to a PC or external microcontroller. In order to evaluate the ease of adding secure Wi-Fi communications to a product using the GainSpan AT command set, the kit includes all the software tools necessary for configuration of Serial-to-Wi-Fi and GS1500M module, data transfer using "AT" command-set and protocol analyzer for validation of packet & frame fields. For module details please refer to the GS1500M module product brief.

The GS1500M EVK Mrk II Evaluation Kit enables GainSpan customers to develop software on their existing microcontrollers to support the "AT" command set, and connect it to either UART or SPI interface on the evaluation kit reference board.

BENEFITS:

- **GS1500M highly integrated advanced 802.11b/g/n Wi-Fi radio**
- **Pin-pin, footprint and software architecture compatibility with GS1011M**
- **Easy device provisioning with WPS or embedded configuration web pages**
- **Easy integration of Wi-Fi and web connectivity to devices with existing microcontroller and UART or SPI interface**
- **Serial-to-Wi-Fi software allows easy addition of Wi-Fi capabilities to embedded system**
- **Offloads Wi-Fi and TCP/ IP networking from smaller host microcontrollers**
- **Simple AT commands for configuration and data communication**
- **Support for over the air firmware updates using external flash**

FEATURES:

- **Supports Infrastructure, Limited AP and Adhoc networking**
- **Support for peer to peer networking**
- **Two UART/SPI ports. Clock data rates are**
  - **UART: up to 921 Kbps**
  - **SPI: up to 3 Mbps**
- **Push button for Alarms and firmware restore from External Flash**
- **Full Wi-Fi and networking stack services including TCP/UDP/IP, DNS, DHCP, HTTP and SSL**
- **Wi-Fi Security**
  - **WEP, WPA/WPA2 Personal**
  - **WPA/WPA2 Enterprise**
  - **Wi-Fi Protected Setup (WPS)**
- **802.11 b/g/n WiFi Alliance Certified Module**
- **Power Save Modes – PS-Poll, Sleep, Deep sleep, Standby**

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AT COMMAND SET

The 'AT' command set supports the full range of capabilities provided by the underlying GainSpan network services software that abstracts the complexity of IP networking and Wi-Fi communication from the embedded application while giving it complete control over the AT command set.

Types	Commands
Serial Interface Configuration	Set Serial Parameters (baud rate, flow control)
Profile Management	Load/Save/Restore profiles
Wi-Fi Interface	Scan/associate/disassociate
Security	Enable/set security
Network Management	Static or DHCP, DNS
Connection management	UDP, TCP, HTTP
Power management	Enable/disable PS-Poll, deep sleep and standby
Services	Upgrade firmware

EVALUATION BOARD SPECIFICATIONS

Feature	Description
Radio Protocol	IEEE 802.11b/g/n single stream
RF Module	GS1500M – Low Power Module
RF Output Power (Typical)	14dBm (802.11b), 12dBm (802.11n)
Radio Frequency	2.412 – 2.484 GHz
Antenna Type	PCB Trace or u.FL connector for external antenna
I/O Port	6-pin serial UART interface, 15540 compatible; DB9 RS232 Connector; SPI
Power Source	1.5 V Lithium Batteries (2x) or Line Powered
GS1500M Firmware	Serial to Wi-Fi
Dimensions	3.5 in X 3.0 in (includes module and RS232 connector)

EVALUATION KIT CONTENTS

ITEM	Description
GS1500M Evaluation Board	Evaluation board based on low-power GS1500M module (IEEE 802.11b/g/n)
USB Memory Stick	Installation software for Serial to Wi-Fi firmware, Documentation and Tools
Batteries	Two 1.5V Lithium AA Batteries
Wi-Fi Access Point	Off the Shelf Wi-Fi Access Point for out of box functionality
Cable	6-pin serial UART to USB cable to connect to host PC
Software Tools	TeraTerm --- Open Source Serial Terminal Emulator Wireshark --- Open Source, Network Protocol Analyzer GS Flash Program --- GainSpan tool for Firmware Upgrade
Documentation	Quick Start Guide, Programmers Guide, Schematics

EVALUATION KIT ORDERING INFORMATION

ITEM	PART NUMBER	Description
GS1500M EVK2 Evaluation Kit	GS1500M-EVK2-S2W-WEB	GS1500M EVK2 Evaluation Kit based on the low power GS1500M module base board. The Serial to Wi-Fi firmware supports embedded web-server for provisioning.