

SIG SAUER

K2400ABS Rangefinder

Wireless Operational Description

GENERAL DESCRIPTION

The BM77 is a Bluetooth Version 4.0 (BR/EDR/LE) module. The Bluetooth SIG certified module provides a complete wireless solution with Bluetooth stack onboard supporting GAP, SDP, SPP, and GATT profiles. Data is transferred over the Bluetooth link by sending/receiving data via transparent UART mode. Configuration can be made directly via UART by a MCU.

DEVICE OVERVIEW

The BM77 is a complete, self-contained, embedded 2.4 GHz Bluetooth version 4.0 (BR/EDR/LE) wireless module. It incorporates an on-board Bluetooth stack, cryptographic accelerator, power management subsystem, 2.4 GHz transceiver, and RF power amplifier.

The BM77 can independently maintain a low-power wireless connection. Low-power usage and flexible power management maximize the module's lifetime in battery-operated devices.

The BM77 module comes in two varieties. The BM77SPPS3MC2 is a complete, fully regulatory certified module with integral ceramic chip antenna and shield. The BM77SPP03MC2 is a lower cost alternative with external antenna and no shield. The integrator is responsible for the antenna, antenna matching, and regulatory certifications. The K2400ABS uses the latter version.

The BM77 is a small, compact, surface mount module with castellated pads for easy and reliable host PCB mounting. The module is compatible with standard pick-and-place equipment.

At the heart of the BM77 is the ISSC IS1677SM Bluetooth IC (Microchip internal mask name "BT5050") is designed for both MFi (The Made for iPhone, iPad and iPod badge) and Bluetooth SPP App-Enabled Accessories solution. The ISSC IS1677SM is a 40 pin QFN single-chip Bluetooth IC. It is available in the 2.4GHz ISM band Class 2 Radio, compatible with Bluetooth Core Specification Version 3.0/ 4.0 +EDR dual mode. The single chip IC solution combines transceiver and baseband function to decrease the external component count. In addition, it includes a voltage sensor for battery monitoring, an internal boost

converter, a switching regulator and LDOs. An optimized power design minimizes power consumption to extend battery life. The module contains an RF matching network between the IC and the antenna.

RADIO CHARACTERISTICS AND TESTING CRITERION

Frequency band:	2402-2480MHz.
Number of channels:	79 channels (1MHz) for Bluetooth V3.0 + EDR
	40 channels (2MHz) for low energy.
RF frequency calibration:	< 10KHz
RF TX power verify:	> -5dBm
8852 output power:	-2dBm~+4dBm
Initial carrier test	+/- 30KHz
Single slot sensitivity	> -70dBm
Multi slot sensitivity	> -70dBm
Modulation index test	$140\text{KHz} \leq f_{1\text{avg}} \leq 175\text{KHz}$ $f_{2\text{max}} \geq 115\text{KHz}$ $f_2/f_{1\text{avg}} \geq 0.8$