CG-796
1320x-QE128-EVB

FCC/IC Exhibit

Freescale Semiconductor
FCC ID # RUN1320X-QE128EVB
IC ID # 6744A-1320XQE

Operational Description

The 1320x-QE128EVB is an evaluation board for developing IEEE® 802.15.4/ZigBee® software and applications ranging from simple proprietary point-to-point connectivity to complete ZigBee mesh networking on the QE microcontroller platform. The Freescale QE Microcontroller Family is unique in that the user can use an 8-bit CPU or a 32-bit CPU in a pin-compatible package and also retain the exact same peripheral and IO set. The 1320x-QE128EVB uses the MC9S08QE128 Microcontroller unit which is the first device of the pin-compatible 8-bit and 32-bit duo in the Flexis Series family. The Flexis series of controllers is the connection point of the Freescale Controller Continuum, delivering 8- and 32-bit compatibility for migration flexibility. The 1320x-QE128EVB evaluation board is based on the Freescale MC1320x transceiver and MC9S08QE128 Microcontroller unit (which is supplied as a daughter card). The 1320x-QE128EVB provides a platform to evaluate the MC1320x and MC9S08QE128 devices, develop software and applications, and demonstrate IEEE 802.15.4 and ZigBee networking capabilities. The evaluation board is supported by Freescale's BeeKit software design environment for IEEE 802.15.4/ZigBee applications. This is an evaluation kit for developers intended for use in and industrial enviroment

The MC1320x family is Freescale's second generation of ZigBee / IEEE 802.15.4 compliant integratedcircuit transceivers (see Figure 3-3). The MC1320x Family is organized as follows:

• The MC13201 - is a short range, low power, IEEE 802.15.4 2.4 GHz Industrial, Scientific, and Medical (ISM) band transceiver. The MC13201 contains a complete packet data modem which is compliant with the IEEE 802.15.4 Standard PHY (Physical) layer. It is a low cost device limited to custom applications using the 802.15.4 PHY layer, but cannot support a full 802.15.4 MAC

• The MC13202 - is compatible with the MC13201 and extends the IEEE 802.15.4 functionality to support the complete MAC functionality through a streaming data capability. The MC13202 can be used with Freescale's IEEE 802.15.4 MAC and BeeStack, which is Freescale's ZigBee-compliant protocol stack.

Features of the MC1320x transceiver include:

• Fully compliant IEEE 802.15.4 Standard transceiver supports 250 kbps O-QPSK data on one of sixteen 5.0 MHz channels and full spread-spectrum encode and decode
• Three power down modes for increased battery life
• Four internal timer comparators available to supplement MCU timer resources
• Supports both Packet Mode and Streaming Mode data transfer
• Buffered transmit and receive data packets
• -1 to 0 dBm nominal output power, programmable from -27 dBm to +3 dBm typical
• Receive sensitivity of <-92 dBm (typical) at 1% PER, 20-byte packet, much better than the 802.15.4 Standard of -85 dBm
• Integrated transmit/receive switch
• Typical range (outdoors, line of sight) of 300 meters
• Optional on-board LC filter for harmonic filtering