AVT9152 EVB USER MANUAL

This purpose of this document is to guide the user in terms of using the AVT9152 EVB to achieve what it has been intended for.

Contents

Introduction 2
Features 3
Definitions 4
Ordering Information 4
Hardware layout and configuration 5
Regulatory and Compliance Information 6
FCC 6

Introduction

This evaluation kit (EVK) serves as a carrier board for users to evaluate Avnet's AVT9152 module. The module consists of a Nordic nRF9160 dual mode LTE-M/NB-IoT modem and Nordic nRF52840 Bluetooth 5.0 SoC.

The EVK comes with temperature, humidity, pressure, accelerometer, gyroscope and motion sensors. It serves as an enabling platform for users to develop their IoT applications.

The on-board BLE antenna provides ease of development. Users can select to have NB-IoT antenna in SMA or µ.FL connectors, according to their actual product. An µ.FL connector is available for passive or active GPS antenna. The evaluation kit is included with an external SMA LTE swivel antenna and an active GPS ceramic patch antenna terminated with µ.FL connector.

An Arduino Interface is provided for users to customize their applications using this EVK, be it additions of sensors, security IC, user interfaces, etc.

Power input is available via a DC Jack or Lithium battery connector. Users can develop their solutions with actual power source. A wall mount AC-DC universal power adaptor is included also.

Figure 1: AVT9152 EVB

Features

AVT9152 Module (Cellular IoT with BLE)

Dual mode LTE-M/NB-IoT SoC

- 3GPP R13 Cat-M1 & NB1 compliant
- 3GPP R14 NB1 & NB2 compliant
- Output power: -40dBm to 23 dBm
- -108 dBm sensitivity (LTE-M)
- -114 dBm sensitivity (CAT-NB1/NB2)

BLE

- BT5.0
- Output power: -20dBm to +8dBm
- -95 dBm sensitivity (1Mbps BLE mode)
- NFC
- USB
- On-board chip antenna

General

- GPS with active/passive antenna
- ARM TrustZone

Interfaces

- Arduino Interface
- USB Devices
- LTE Antenna Ports (SMA & µ.FL)
- GPS Antenna Port (µ.FL)
- NFC Antenna Port.
- Micro-SIM Card Connector

Sensors

- 3-Axis Accelerometer
- 3-Axis Gyroscope
- Pressure
- Temperature
- Humidity
- Ambient Light
- Motion (PIR)

Power Input

- DC Jack (5V)
- Lithium Battery Input (3.6V)

Target Applications

- Logistic & asset tracking
- Vending machine
- POS terminal
- Smart building automation
- Medical devices
- Beacon based application

Definitions

Table 1 below provides the definition of some conventions used in this document.

Abbreviation	Definition
JPx ON	Jumper fitted
JPx OFF	Jumper not fitted

Table 1: Definition Used

Ordering Information

To order the AVT9152 EVB cellular IoT kit please refer to Table 2.

MPN	Desription
AES-CELLIOT-AVT9152KIT	AVT9152 cellular IoT evaluation kit

Table 2: Ordering Information

Hardware layout and configuration

The AVT9152 evaluation kit has been designed around the AVT9152 LTE-M/NB with BLE module comprises of the Nordic nRF52840 and nRF9160 RF SoC.

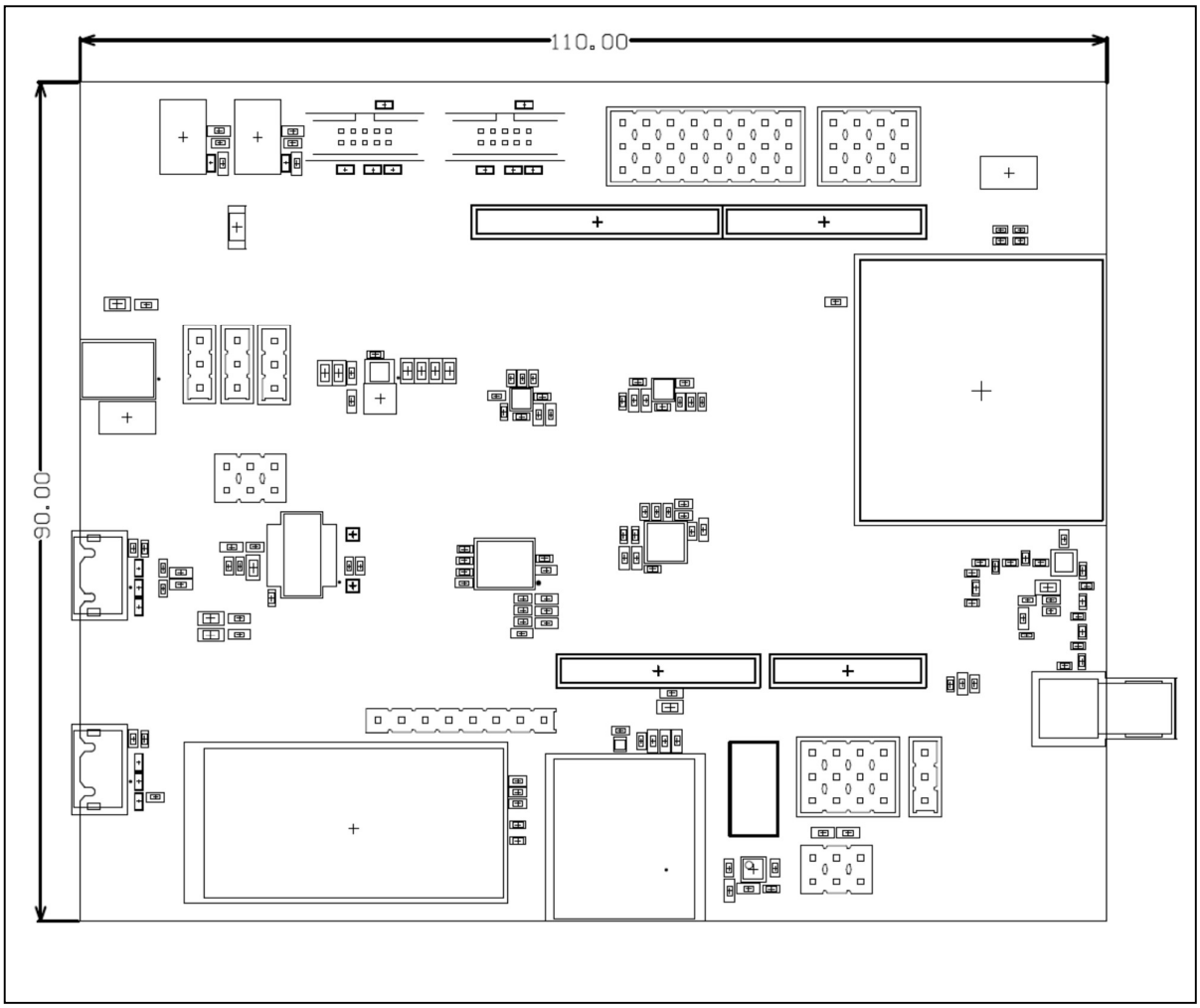

Figure 5: AVT9152 EVB mechanical drawing

Regulatory and Compliance Information

The module (AES-CELLIOT-AVT9152MOD) had been certified to conform with following Standards: FCC, CE, ACMA and BQB.

For certifications of LTE modem (nRF9160) with PTCRB, GCF, various local authorities and telecom operators, please refer to Nordic semiconductor's website.

FCC

Contains FCC ID: 2AW4N00AVT9152MOD00
Contains FCC ID: 2ANPO00NRF9160

FCC Interference Statement
This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.

- Increase the separation between the equipment and receiver.

- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

- Consult the dealer or an experienced radio/TV technician for help.

FCC Caution: Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

This device and its antenna(s) must not be co-located or operating in conjunction with any other antenna or transmitter.

IMPORTANT NOTE:

FCC Radiation Exposure Statement:

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.