Certification Guidelines for End Products Using the i.MX 8M PLUS SOM

Application Note 640

Beacon EmbeddedWorks
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Revision History

REV	EDITOR	DESCRIPTION	APPROVAL	DATE
A	EF	Initial draft	AF NK	9/26/2023 10/06/2023

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1 Introduction

The i.MX 8M Plus SOM contains a modular transmitter, AW-CM276NF, from AzureWave Technologies, Inc. Customers who wish to use 802.11a/b/g/n/ac and/or Bluetooth/BLE in their end-product must follow region-specific regulations.

2 Certification Overview

2.1 Unintentional vs Intentional Radiation

The FCC, ISED, and EU require end products to comply with both unintentional and intentional radiation regulations.

Unintentional radiation occurs from a product that inherently or unwillingly transmits RF signals.

Intentional radiation occurs from a product that is designed to radiate or transmit RF signals for the purpose of wireless communication. The i.MX 8M Plus SOM is an intentional radiation emitter.

2.2 Modular Transmitter Approval

A modular transmitter is an intentional radiator device, such as the AzureWave AW-CM276NF, that is designed to be installed in a host device. Obtaining modular transmitter approval allows the modular transmitter to be integrated into an end-product without the need for additional intentional radiation testing of the final end-product assembly, as long as the modular transmitter is installed and operated in accordance with certain guidelines.

NOTE: Unintentional conducted and radiated emissions testing of the end-product is still required to ensure compliance with the rules governing unintentional radiators. It is the responsibility of the end-product manufacturer to verify the end-product meets these regulations. Additionally, the customer is responsible for any and all tests and/or certifications pertaining to their end product. This may include, but is not limited to, Specific Absorption Rate (SAR) compliance and potential recertification as an intentional radiation emitter if the SOM is installed or operated in a manner that differs from the instructions herein.

3   Product Approvals

The i.MX 8M Plus SOM was tested to comply with the same US, Canada, and Europe regulatory standards as the AzureWave AW-CM276NF; this testing showed that the SOM design did not affect the characteristics of the radio. Therefore, the SOM utilizes the certifications of the AzureWave AW-CM276NF. When integrating the SOM into an end-product, the AzureWave AW-CM276NF certifications can be utilized, as long as the end product follows the guidelines provided in the AzureWave [Regulatory Information Document](#)[1]. This document includes information about Labeling Requirements and Antenna requirements. Note: the i.MX 8M Plus SOM was tested using the Molex 1461531100 antenna on both antenna ports; other antennas certified with the AW-CM276NF should also pass testing, however the customer is required to verify this in their end application and/or regulatory partner.

3.1   Software Requirements

The firmware for use on the radio is provided by NXP in a binary format from their website at their discretion. The OEM is provided with no instructions on how to modify the files and no source code is provided for the firmware, so modification is not possible. It is the responsibility of the OEM to integrate the software into their host device. Updates on the host are the responsibility of the OEM. Policy and security of these updates on the host is the responsibility of the OEM.

Different firmware files are available for use in different countries, and only firmware designated for a given country should be used in the respective country.

The Beacon EmbeddedWorks BSP is set up to utilize the NXP FCC firmware by default. Please contact Beacon EmbeddedWorks, support@beaconembedded.com, for help integrating firmware for other countries or updating firmware.

US/Canada Region   txpower_bcn_US.bin

EU Region   txpower_bcn_ETSI.bin

4   Summary

Using the SOM with 802.11a/b/g/n/ac and/or Bluetooth/BLE in an end-product requires compliance with region-specific regulations pertaining to certified modular transmitters. This compliance includes, but is not limited to, following the integration, end-product labeling, and antenna requirements.

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[1] https://www.azurewave.com/img/nxp/AW-CM276NF%20(W8997)_Certification%20Guide_Rev.B.pdf