White Paper
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CC256x Series: Why Classic Bluetooth® (BR/EDR)?

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Trademarks

1 Why Classic *Bluetooth*®?

Bluetooth® technology is a proven, robust, and widely spread technology. According to Bluetooth SIG®, there are more than 8 billion devices are in circulation, including a strong presence in approximately 95% of all existing mobile phones and smartphones. This technology presents a complete solution for wirelessly transmitting audio, voice, and data. Bluetooth is a well-defined protocol up to the application level, which creates leading interoperability and compatibility between different devices and manufacturers.

The CC256x series presents Bluetooth single- and dual-mode devices (that is, Bluetooth Classic BR/EDR and Bluetooth low energy). The CC256x device family is designed to mainly address classic Bluetooth BR/EDR scenarios and would be a great solution for the following applications:

- Audio application, including Bluetooth speakers, headsets, and sound bars:
  - The Bluetooth specification defined A2DP profile supports audio devices. Over the years, this technology dominated the market due to the following reasons:
    - The A2DP profile is defined up to the application level, and supports profiles for a complete audio user experience (for example, AVRCP remote control profile).
    - The A2DP profile offers reliability and a retransmission mechanism to ensure high-quality sound without interruptions.
    - The CC256x family offers embedded SBC encoding and decoding along with optional high-end codec support in software (for example, AAC).
    - Most importantly, A2DP offers interoperability with hundreds of millions of audio devices in the market today.
- Voice call applications, including infotainment system or emergency call capabilities:
  - The Bluetooth specification defines hands-free profile (HFP) and headset profile (HSP), which are well-defined applications integrated in the vast majority of mobile phones and smartphone devices in the market today. HFP and HSP are by far the leading wireless technology in infotainment systems and headsets.
- Legacy infrastructures supporting classic Bluetooth, including feature phones and previous-generation devices for optimal interoperability:
  - Because Bluetooth Classic (BR/EDR) is widely spread since the early 1990s, in many feature phones and infrastructures this is the only wireless technology available. This creates a clear advantage for Bluetooth Classic applications, including:
    - POS
    - Medical
    - Digital metering
    - Other Bluetooth classic products in emerging markets where feature phones have more presence

The CC256x device series from Texas Instruments™ has a Bluetooth transceiver up to the HCI layer, which offers Bluetooth classic technology with the option of Bluetooth low energy working concurrently. For a complete Bluetooth solution, TI also offers a royalty-free Bluetooth software stack with dozens of profiles and applications on various platforms, including ARM® Cortex®-M4 microcontrollers (MCUs) and Linux® microprocessors (MPUs). These options allow the flexibility of using different application processors. More details on the different solutions can be seen at the Bluetooth dual-mode portal page, Wireless Connectivity: Dual-Mode Bluetooth®.

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