ULE USB Dongle

DECT-ULE Hub Platform

Datasheet

Version: 1.1

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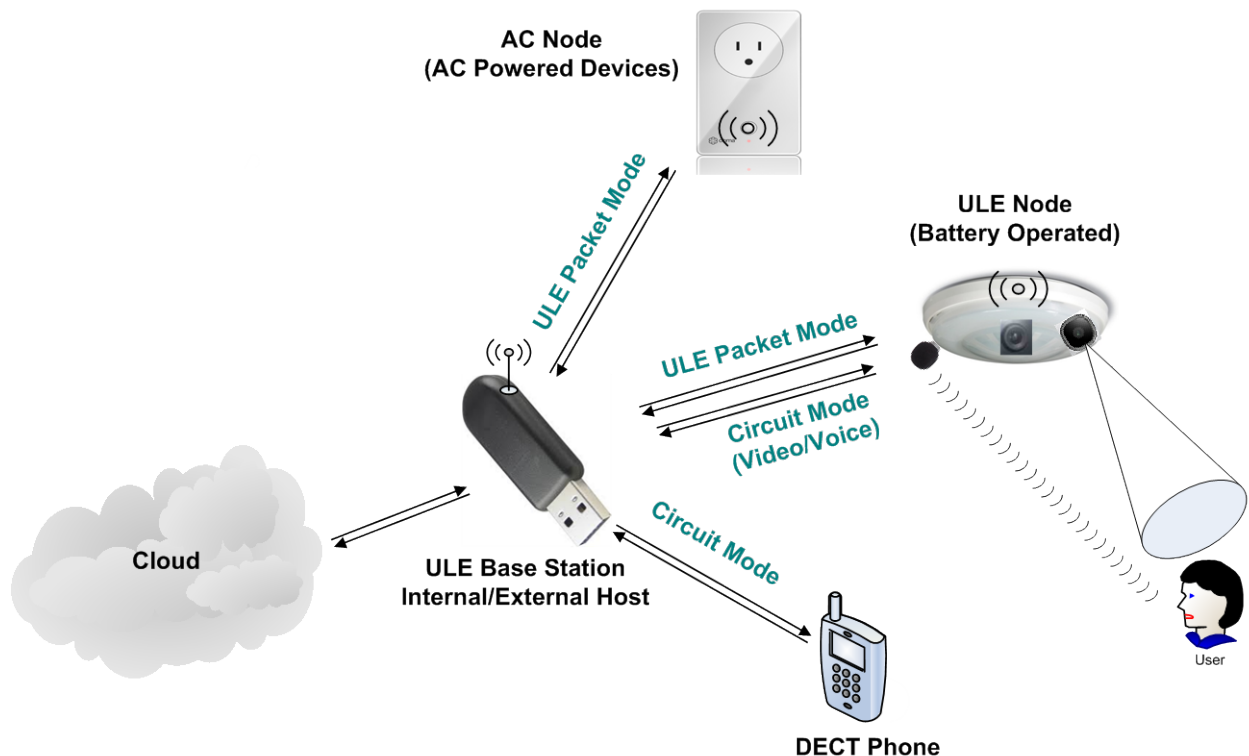Tel: 886-2-2698-8696
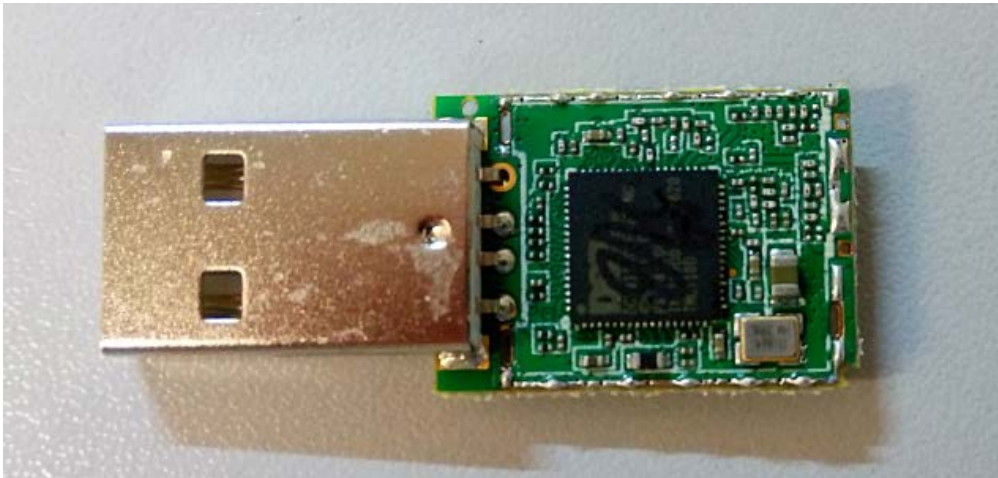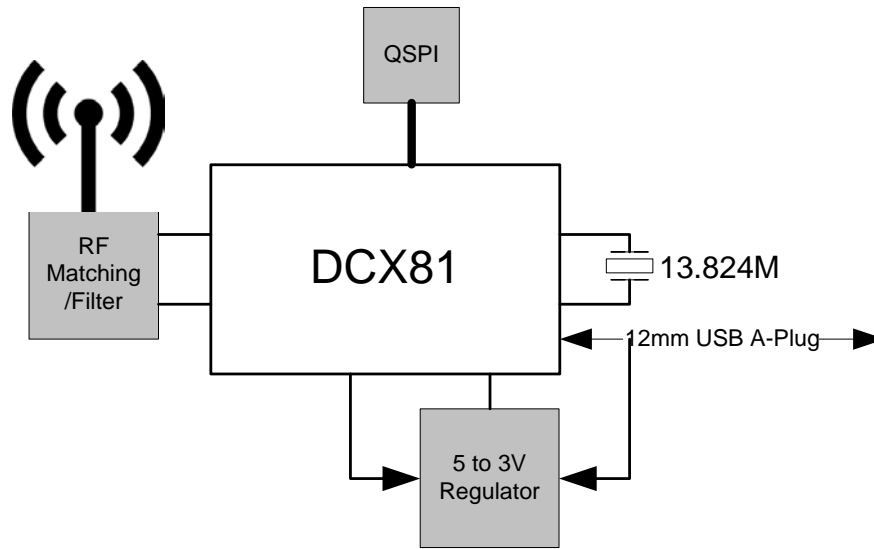Fax: 886-2-8698-2138

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Description

The DSPG ULE USB Dongle plugs into a PC (desktop, notebook or a popular low-cost "mini-PC" such as R-Pi), Home Gateway or Over-the-top (OTT) box – any device with a USB port. It functions as the Hub of a ULE (Ultra-Low Energy, a derivative of DECT) star network. As depicted in the diagram below, the ULE USB dongle can serve a wide variety of devices, ranging from traditional DECT cordless devices (using circuit-mode) to data only devices (using packet-mode) to devices that incorporate both data and voice (dual-mode).

The ULE USB Dongle is based on DSP Group's DCX81System-On-Chip. It includes a SW stack that accounts for all the Physical, MAC and Network requirements of the DECT-ULE protocol. It also includes an optimized RF and Antenna design and the dongle will soon be certified with European and US regulatory authorities. This relieves the customer of mastering the DECT-ULE protocol and of optimization of the RF performance as well avoiding the expense and effort of regulatory certification. Attention can be focused on developing the requisite system functionality via design of application SW.

Application SW written by the customer interacts with the DECT-ULE SW (called the "CMBS Target SW") resident on the Dongle via "agents", ie libraries and Server-Client modules that must be compiled and embedded by the customer onto his PC or GW network processor. DSP Group provides reference code for these agents and the customer must adapt them for the appropriate operating system. While these agents run locally on the ULE Hub, the customer application can either run locally or, in some cases, it run remotely and communicate with ULE Hub via a text based UDP socket. For more information about these agents and options for interaction with the CMBS Target SW contact your DSP Group representative and request "Connecting the DCX81 CMBS to the Network".

Dongle Hardware Block Diagram, Photo

ULE Hub (Base Station) with ULE Dongle + PC

On PC or on a remote Server

ON PC, eg R-Pi

CMBS API

HAN Server Protocol
Text Based over UDP/IP

**HAN
Application**

**HAN
Server**

HAN Client

**CMBS
Library**

Executables available for
Windows, Linux & MAC

Executables available for
Windows, Linux & MAC
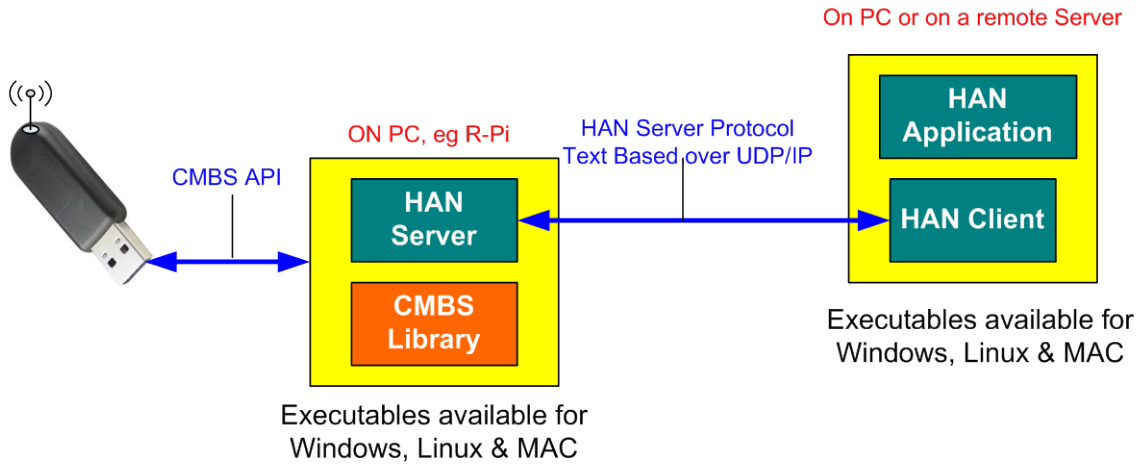
Features

- Superior range and overall radio performance

- Housing includes a rotatable antenna to help avoid obstructions

- Operates in interference-free DECT frequency bands across the globe

- Serves as the ULE Hub for any GAP-Compliant, CAT-IQ DECT phone as well as any ULE Alliance Certified Device – concurrently!

- Easily embeddable "agents" residing on customer PC (or mini-PC) or GW provide an intuitive interface for the customer application SW and minimize the "learning curve" required to implement a fully functional system

- "Agents" can also provide a text-based, UDP-IP Socket over which the application SW can communicate with the ULE Dongle from a remote server
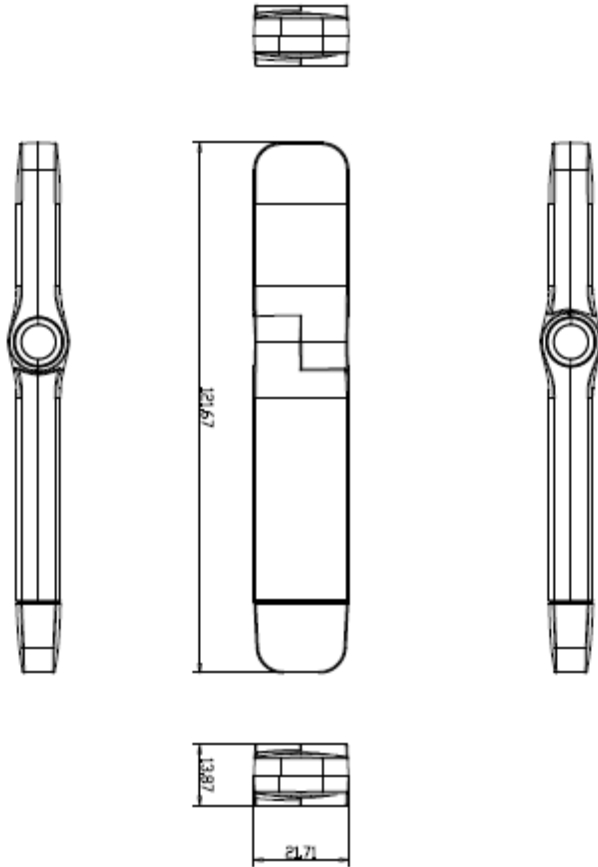
Applications

- Home Automation and Control

- Home Security and Monitoring

- Voice Enabled Smart Home

- Voice Pendants and Emergency Units

- Connected appliances

- Smart energy

Specifications

- Frequency Bands, # of channels:

  – EU has 10 channels: 1880-1898M (ETSI 300-175)

  – US (DECT6.0) has 5: 1921-1929M (FCC Part 15.323)

  - Japan has 5:1897-1905M (ARIB_STD-T101)

- Channel Spacing: 1.728MHz

- Frequency Accuracy: <10ppm over temperature range

- Output Power: +22.5dBm EU, +20.0dBm US and Japan

- Rx Sensitivity: -96dBm

- Over-the-air Data Rate: 1.152Mbs

- Operating Temperature: -10ºC to +60ºC

- Maximum Tx Current: +430mA (EU)

- Maximum Rx Current: 135mA

- PCB Dimensions: 22 x 16mm excluding USB connector (see photo in later section)

- Package Dimensions: 122x22x14mm (including USB Connector). (Note: Possibility open for miniaturization of the package to suit customer needs)

- RoHS Compliant

- USB 2.0 Compliant (Full Speed), enumerates as Virtual COM port

- USB Driver support for Windows, MAC and Linux

Mechanical Information

Supplementary Information

RFPI (DECT Radio Fixed Part Identity)

Device comes loaded with a unique RFPI which can be read by the customer application

Ordering Information

Part # for US version: TBD

Part# for Other Regions: TBD

Change Log

Table 8-1: List of Changes

REVISION	DATE	DESCRIPTION
1.0	August 2016	Baseline release
1.1	September 18, 2016	Add Context Diagram showing CMBS Library, HAN-Client Server