

FCC ID:2AM72-BAPX-BT2

Operational Description

The APx Platform consists of a common set of chassis and backplane assemblies that can be configured to accommodate 2 to 16 Audio Input channels and 2 to 8 Audio Generator channels. The APx is used in R&D and professional production environments for the purpose of measuring audio performance characteristics such as THD, IMD, Noise, crosstalk, etc. of audio or digital audio devices.

The APx is controlled by an external PC with connection via a rear panel USB port. Internally the APx uses 8.00 MHz and 6.44 MHz clocks for bus control and signal synchronization. A 49.152 MHz clock is used for digital audio routing and processing internally. The Audio Precision Azul II radio provides Bluetooth Source and Sink functions in the APx platform and is located in the lower rightmost portion of the front panel.

The Azul II assembly consist of two Bluetooth subsystems (radios) on a single 3 in by 8 inch shielded PCB. Each radio has its own antenna on the front panel. Each subsystem contains a single CSR 8675 System on a Chip (SOC) that performs all Bluetooth Radio v. 4.2, bandwidth, frequency hopping, Basic Rate (BR), Enhanced Data Rate (EDR) modulation and protocol functions. Signal power is controlled via internal 8675 structure using look up tables, with a maximum user selected power of + 8 dBm. LE functions and protocols are not supported.

The Azul II uses a single secondary 8 MHz clock (X1) for bus control of the data. A single master 26 MHz oscillator (X2) provides clocking functions for both the CSR 8675 subsystems. Each subsystem feeds its own output filter (FL1) and (FL51) and its own Antenna. The antennas used for each subsystem are identical. Only one subsystem can transmit at a time.

The first Bluetooth subsystem (U4) is used for profile A2DP (Advanced Audio Distribution Profile) Source, AVRCP Target, HFP (Hands Free Profile) or HSP (Headset Profile) Audio Gateway. In this use case, the module emulates a Bluetooth smart phone by sending A2DP audio or sending and receiving voice band audio over SCO using the HFP or HSP profile

The second Bluetooth subsystem (U29) is used for A2DP Sink, AVRCP Controller, HFP or HSP Hands Free. In this use case, the module emulates a Bluetooth Hands Free device (e.g., headset or automotive speaker phone) by receiving A2DP audio or sending and receiving voice band audio over SCO using the HFP or HSP profile.

The CSR 8675 uses frequency hopping techniques, FSK, $\pi/4$ DQPSK, 8DPSK: modulation, operating frequency between 2.402 to 2480 MHz, with channel spacing of 1 MHz and a capability of 79 channels. Its compliance with 15.247 receiver's input bandwidth requirements, hopping channel bandwidth of the corresponding transmitter, the method used to shift frequencies in synchronization with the transmitted signal, and the ability to coordinate with other FHSS systems are inherently controlled in the chip design and demonstrated by compliance with Bluetooth V 4.2 specification and FCC requirements.