

Wireless microphone

This product consists of receiver part for sound absorption and DAC circuit which converts analogue signal to digital signal by amplifying absorbed sound and processing it for necessary acoustic band width. Consisting of RF device for transmitting signal converted to digital, switching part and LNA which is switched automatically by transmitting/receiving action for reinforcing the responsiveness of transmitting/receiving signal and RF power amplifier. Accompanying functions hereupon are power supply, chargeable battery and automatic charge control device, and it consists of transmitting and receiving part.

Description by each part.

1. CODE part: this device absorbs voice signal received from microphone by high sensitive electronic microphone, amplifies required signal by differential amplifier and controls sound volume automatically for immunity enlargement responding to noise so that voice can be articulate and clear by responding to the variation of absorbed signal.

Parasitic-oscillation by acoustic feedback which is hard to control in high performance microphone.

Sound is controlled by applying active response automatic volume controller with equalizer to improve plastic oscillation and howling and volume can be controlled automatically as well according to the acoustic band width of absorbed sound, so that optimized voice signal can be delivered. In order to reduce noise interfering with the received sound from microphone, microphone circuit is composed of differential amplifier.

-ADC: Signal converter device converting analogue signal to digital is to be controlled by SPI communication technique, and is composed of automatic control microphone bias scheme in order to supply optimum bias voltage to electronic

microphone.

Digitally processed signal is finally sorted into right and left channel, and performs 16bits quantization signal processing and digital sampling in 32KHz so that sustaining of high “ signal to noise ratio “ and transmitting original sound with little distortion are available

The digitally processed signal from the acoustic source received from microphone carries out bilateral communication with persisting short latency and low BER, so that frequency efficiency has been improved by hopping method and real time transmission technique is used by fast signal compression and continuous streaming.

-DAC: Digital signal is converted to analogue here. The signal that has been sorted into R/L channels by word-selector is restored in de-compressor that restores compressed data back to original size, and then is converted to analogue signal after correction of its minimum error rate at CRC (Cyclic Redundancy check). Accordingly, setting value is applied in order to activate built-in path converting switch and to reproduce original sound by setting equalizing level to minimize acoustic feedback of filtering device activation to eliminate noisy voltage interfering with suitable digital signal.

Detection of signal transmitted with receiving part can sustain high fidelity and low distortion by 16bits quantization and 32 KHz sampling. On the other, output terminal is designed to realize original sound reproduction by the technique that outputs BTL signal and DC coupled headphone and omits coupling capacitor in order to maintain response even in low impedance.

2. RF transmission part: RF device consists of SPI communication, digital signal processing and high frequency transmission part. Spurious level is minimized by using of 16MHz of standard oscillation frequency and the communication with MCU and ADC is to be done by SPI communication for required information.

In order to transfer the digital signal that transmitted from ADC, data is to be

compress at least and compliance of synchronization between transmitter and receiver refers "master clock". Data is to be transmitted according to word selector for R/L channel sorting, data section, transmission action is classified as ACK receiving period for determining whether received or not in future and composes of communication algorithm by "time deviation" and according to such program routine, the communication between "RF device- ADC" uses MISO, MOSI, DACSCL and SCSN lines. Quick re-connection enables sustaining of optimized communication by controlling of variable elements which determine RF linkage and seamless communication through setting of auxiliary device to minimize induction of popping noise in re-linkage when link failure.

R/TX contains switching part which converts automatically according to the communication format, RX action is mixed with received signal via LNA of high frequency area and continues to IF area by internal circuit, and afterward signal results processed by digital processing can be output through data line.

Since then, TX action is converted automatically in data transmission section by R/TX automatic conversion according to time deviation, transmission level is determined by program set and it is operated by frequency hopping method in order to improve frequency efficiency and to secure channel. Digital signal processing and transmission are classified into respective areas and power consumption has separated path as well.