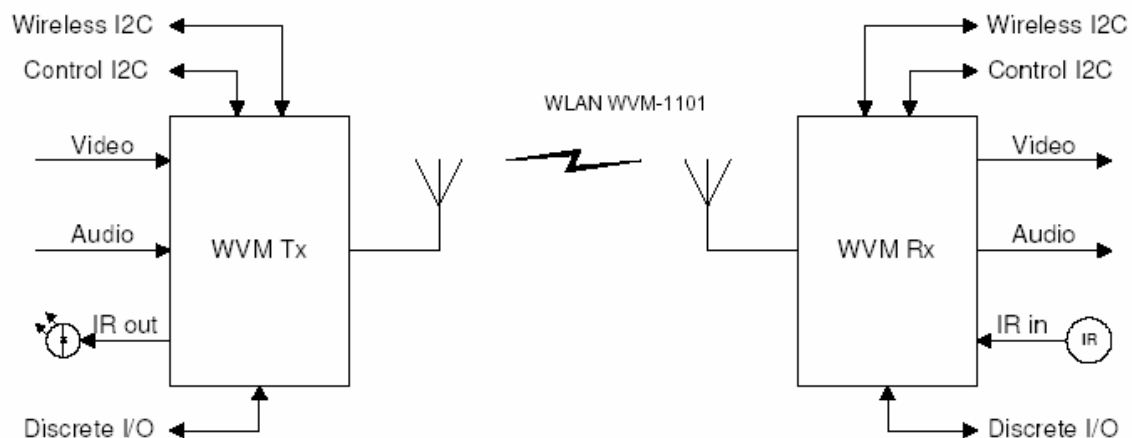


Theory of Operation

Model: WVM-1101

WVM-1101 Wireless Video Module delivers video over wireless channel. It enables a wireless connection between a video source (DVD, VCR, PVR, STB, BS or PC) and a video display (standard TV, flat screen TV or video monitor)

The WVM-1101 (operates in 5.15-5.35GHz band) system transmits audio and video signals from the (Model WVM-Tx) unit to the (Model WVM-Rx) unit, over IEEE 802.11a WLAN, by encoding the signals according to MPEG standards.



The following is a list of the key features of the WVM-1101

- 1) IEEE 802.11a standard compliant Wireless LAN communication at 5GHz.
- 2) Modular RF (WVM-1101) will only be operating in 5.15-5.35GHz band and will be sold in countries where 5.15-5.35GHz band is allowed
- 3) WLAN bit rates of 6 Mbps, 12 Mbps and 24 Mbps.

Supported Operating Frequencies

5.15-5.25GHz and 5.25-5.35GHz

Modulation Types

- DSSS: CCK
- OFDM: BPSK, QPSK, 16 QAM, 64 QAM resulting in data rates ranging from 6 to 24 Mbps.

FCC 15.407 Requirements

Frequency Stability (15.407 (g))

FCC 15.407(g) states: "Manufacturers of U-NII devices are responsible for ensuring frequency stability such that an emission is maintained within the band of operation under all conditions of normal operation as specified in the users manual."

The device operates in 5.15GHz and 5.35GHz. The carrier is 20MHz wide. For example, IEEE Channel #36 (5.18GHz) has Fc centered at 5.18GHz with a bandwidth of 20Mhz or 5.17 to 5.19 GHz. This provides a guard band of 20 MHz (5.17 GHz - 5.15 GHz).

The device also requires a +/- 20 ppm XTAL over temperature and with aging. This is required per the 802.11 specification. Based on the tolerance of the XTAL and the 20 MHz guard band, the device will maintain emissions within the UNII bands under normal operating conditions.

Ensuring Indoor Use in 5.15-5.25 GHz Band (15.407 (e))

FCC 15.407(e) states: "Within the 5.15-5.25 GHz band, U-NII devices will be restricted to indoor operations to reduce any potential for harmful interference to co-channel MSS operations."

The user manual includes the following statement:

"Radio Frequency interference requirements: This device is restricted to indoor use only. Industry Canada and FCC requires this product to be used indoors due to its operation in the frequency range 5.15 to 5.25 GHz"

Discontinue Transmitting with absence of Data or operational failure (15.407 (c))

FCC 15.407(e) states: "The device shall automatically discontinue transmission in case of either absence of information to transmit or operational failure."

Data transmission is always initiated by software, which is then passed through the MAC, through the digital and analog baseband, and finally to the RF chip. Several special packets (ACKs, CTS, PSpoll, etc...) are initiated by the MAC. These are the only ways by which the digital baseband portion will turn on the RF transmitter, which it then turns off at the end of the packet. Therefore, the transmitter will be on only while one of the aforementioned packets is being transmitted.