

Video Signal Wireless Distribution Using NRD Guide Transmitter and Receiver at 60GHz

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NRD guide transmitter and receiver have great advantages such as wide bandwidth operation beyond 4GHz as well as a small size less than that of the name card [1]. By using them, an video signal from digital video camera was distributed successfully at 60GHz. Figure 1 shows the photograph of the transmitter and receiver, which consist of Gunn diode oscillator, up/down converter made by Schottky barrier diode (SBD), 3dB directional coupler, and circulators. The performances of the fabricated two transceivers are summarized in Table 1. Figure 2 shows the system configuration of video signal distribution systems. An NTSC video signal from the video camera is converted to an FM signal with the intermediate frequency (IF) of broadcasting satellite (BS) in Japan, and the IF signal is up-converted to a millimeter wave in the NRD guide transmitter. In the NRD guide receiver, the IF signal is recovered and is inputted to the BS tuner. An example of this system is shown in Fig. 3, where the millimeter wave from the transmitter propagates to the receiver through four reflectors located at the corners in a room to circumvent any obstacles. The usefulness of this system is confirmed since the demodulated picture is quite clear.

Reference [1] F.Kuroki, M.Yanaguchi, and T.Yoneyama, Proc. of IEEE AP/URSI Int. Conf., 2002



Fig. 1 NRD guide transmitter(right) and receiver(left)

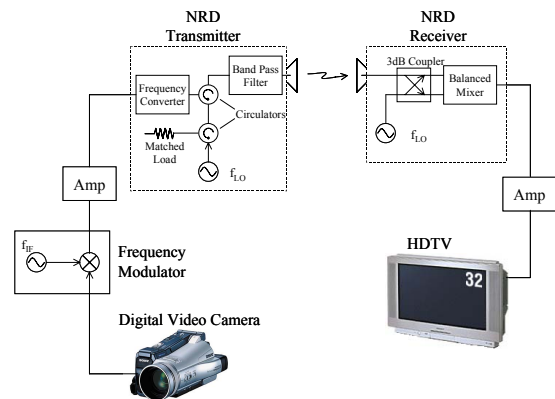


Fig.2 System configuration of video signal wireless distribution

Table 1 Performance of NRD guide transmitter and receiver

Transmitter	
LO Frequency	58.966GHz
Intermediate Frequency	0.09~1.9GHz
Transmitting Power	0 dBm (Average)
Size (Excluding Antenna)	44 × 49mm
Receiver	
LO Frequency	58.965GHz
Intermediate Frequency	0.09~1.9GHz
Conversion Loss	7 dB (Average)
Size (Excluding Antenna)	39 × 53mm

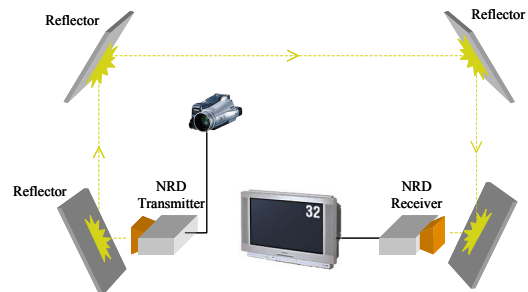


Fig.3 Schematic view of video signal wireless distribution indoors