

Project: IEEE P802.15 Working Group for Wireless Personal Area Networks (WPANs)

Submission Title: Measured wave propagation characteristics under KIOSK use case

Date Submitted: 9 November 2015

Source: Makoto Yaita, NTT Device Technology Labs.

Address 3-1 Morinosato-Wakamiya, Atsugi, Kanagawa 243-0198, Japan

Voice: +81-46-240-3752, FAX: +81-46-240-2107, E-Mail: yaita.makoto@lab.ntt.co.jp

Abstract: This document presents measured wave propagation characteristics under KIOSK use case.

Purpose: Contribution towards developing a model of KIOSK Downloading case in CMD.

Notice: This document has been prepared to assist the IEEE P802.15. It is offered as a basis for discussion and is not binding on the contributing individual(s) or organization(s). The material in this document is subject to change in form and content after further study. The contributor(s) reserve(s) the right to add, amend or withdraw material contained herein.

Release: The contributor acknowledges and accepts that this contribution becomes the property of IEEE and may be made publicly available by P802.15.

Measured wave propagation characteristics under KIOSK use case

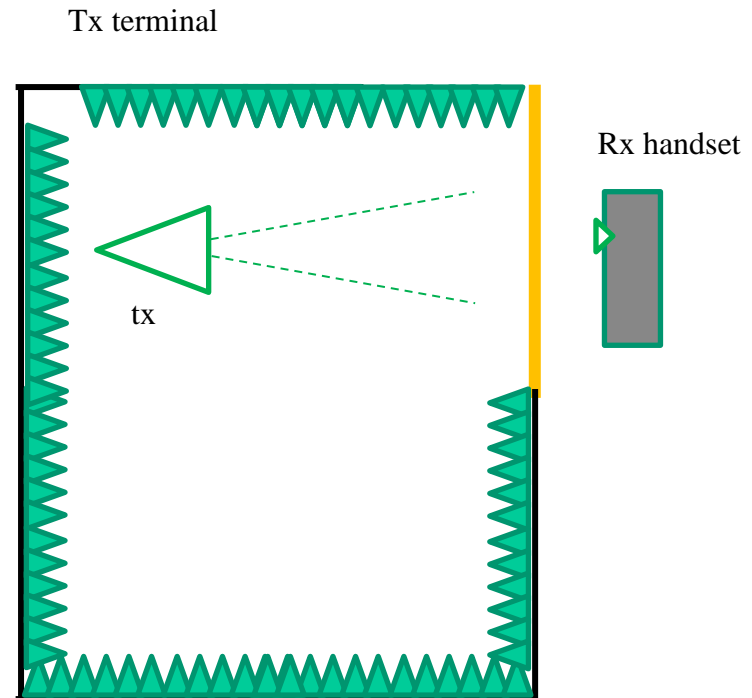
M. Yaita, H. Song

NTT Device Technology Labs

A. Kasamatsu, I. Hosako

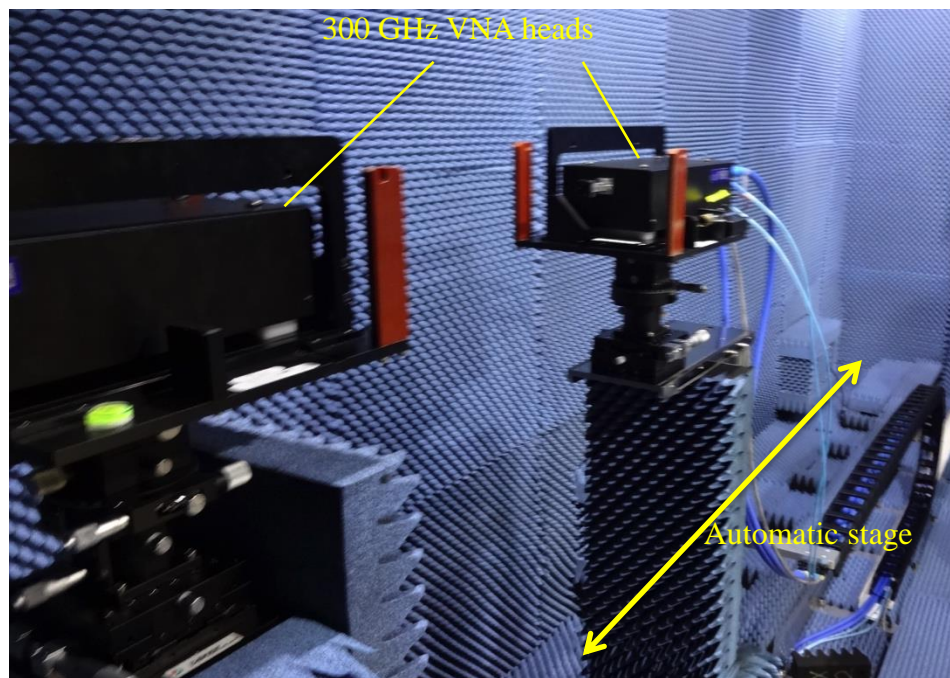
NICT

Wave propagation in KIOSK



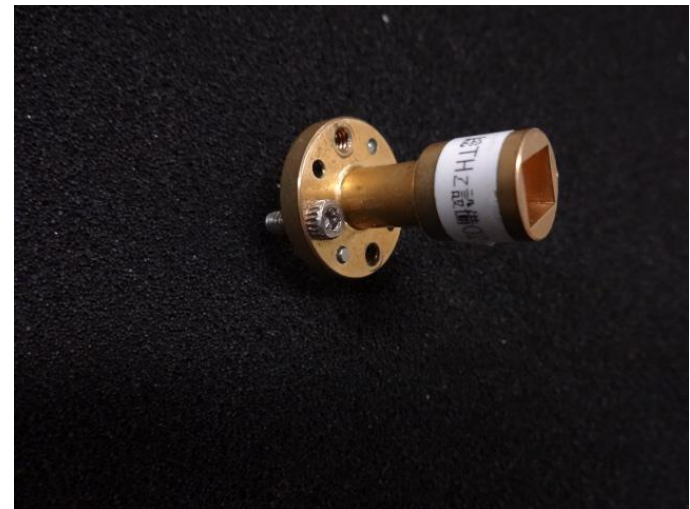
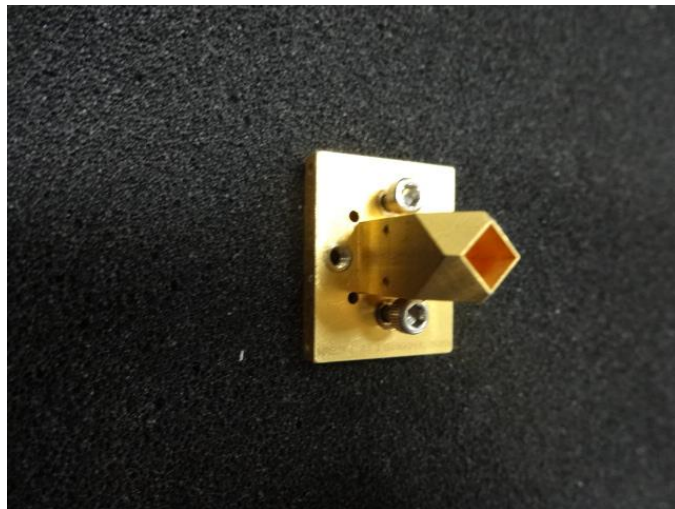
- Peer-to-peer link
- High gain antennas in pretty well-controlled environment (Tx)
- Relatively short distance (< 1 meter)

Experiments



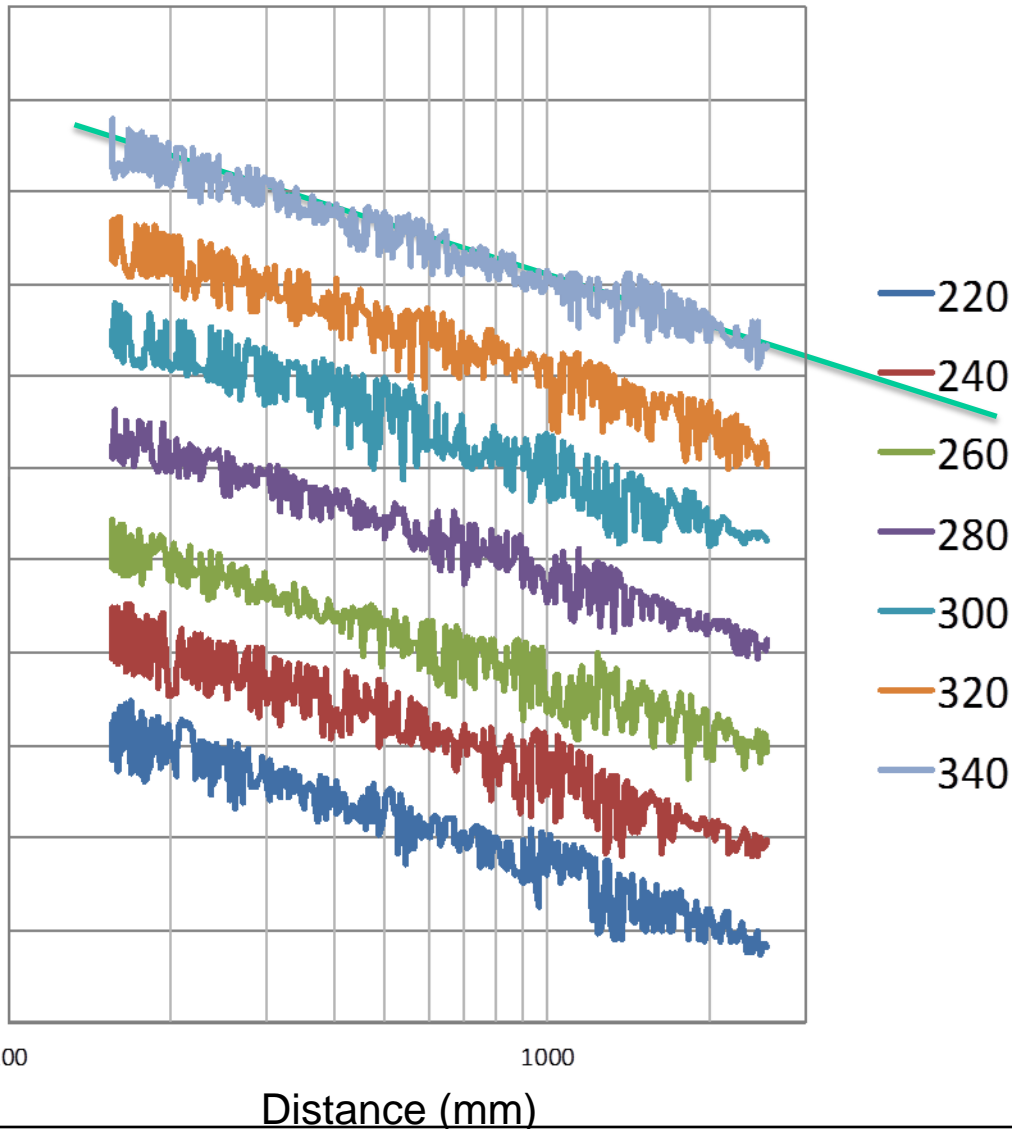
- 2-port calibrated VNA in 220 ~ 340 GHz
- 2 kinds of 25-dBi gain antenna
- Link distance up to 1.8 m

Antennas



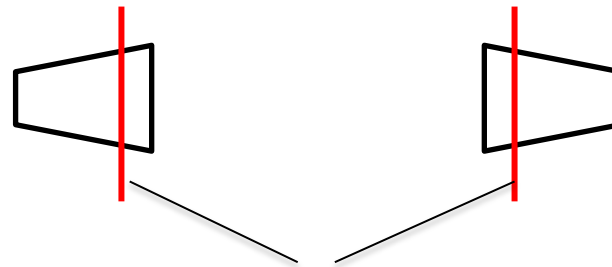
25-dBi gain antennas

Free space path loss

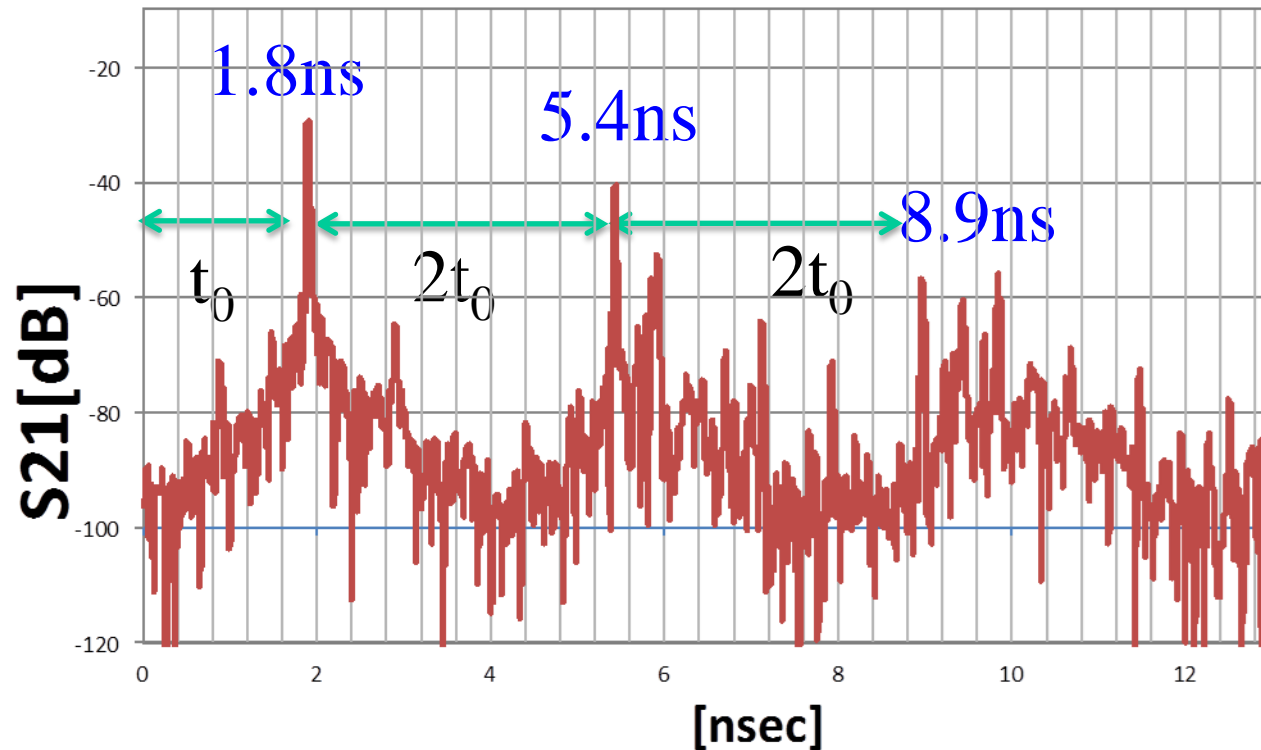


- 500 point/dec
- Loss exponent: 1.8 ~ 2.2
- Power variation: max. ± 2.5 dB

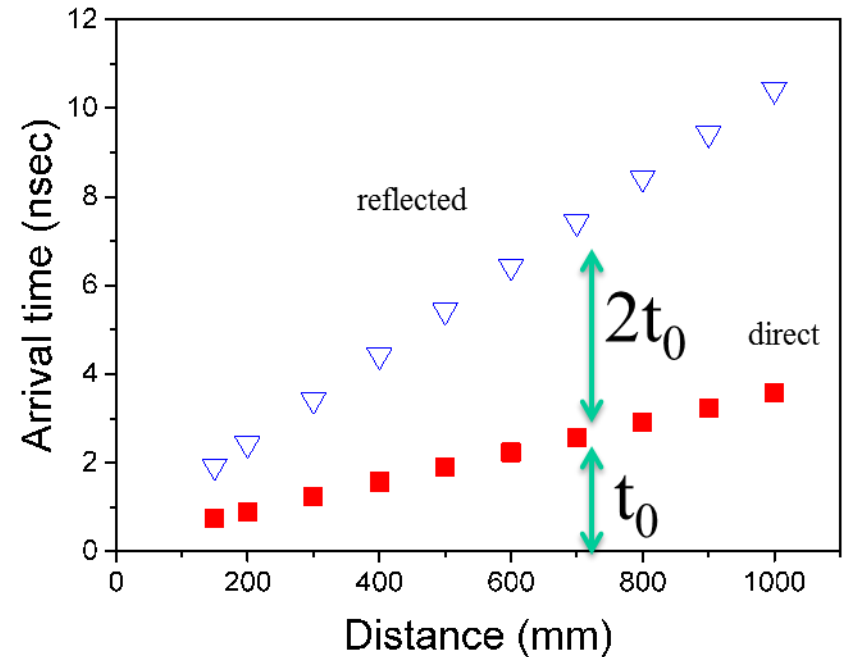
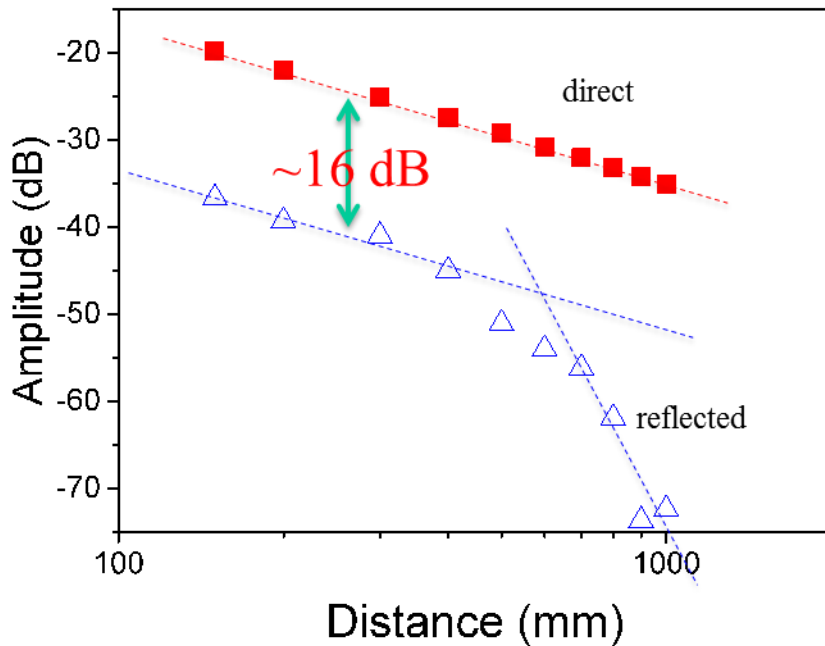
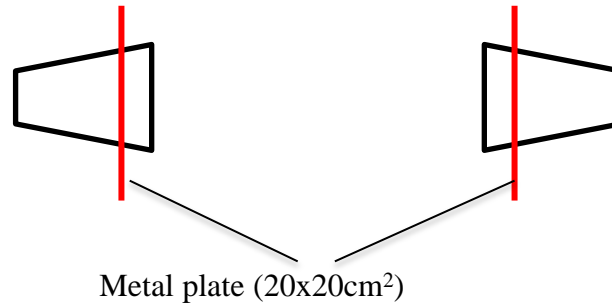
Power delay profile



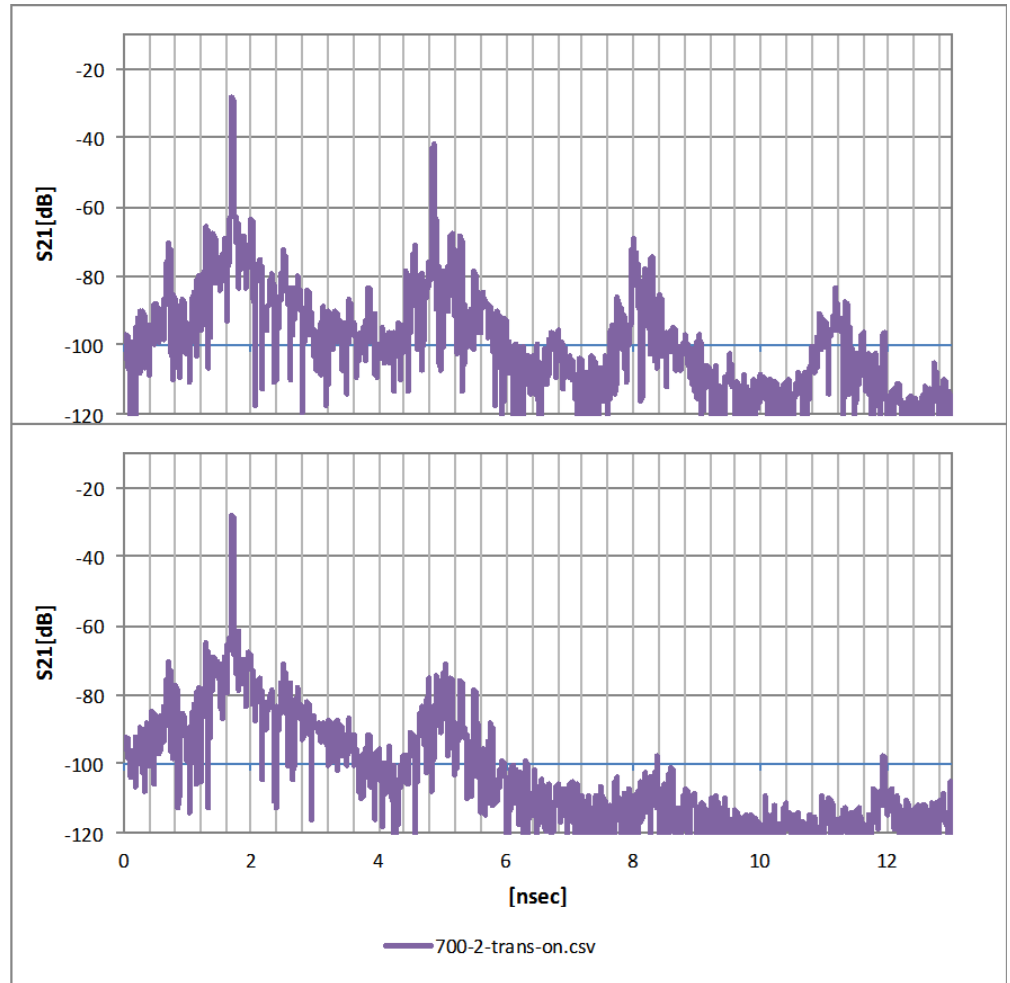
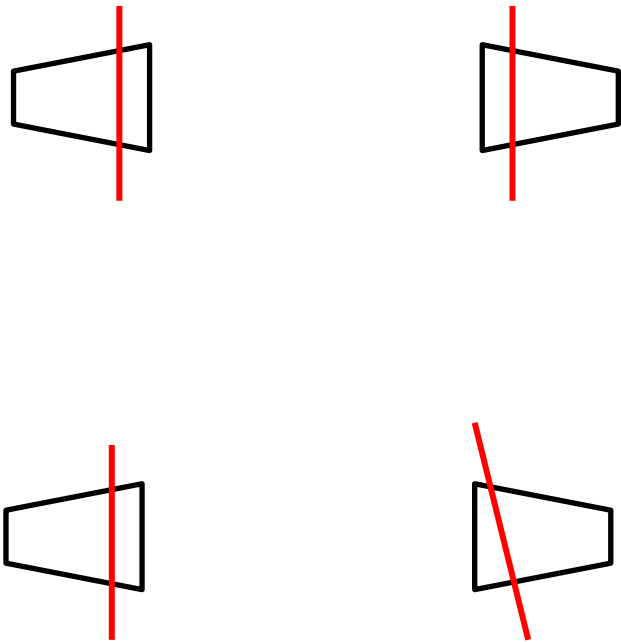
Metal plate (20x20cm²)



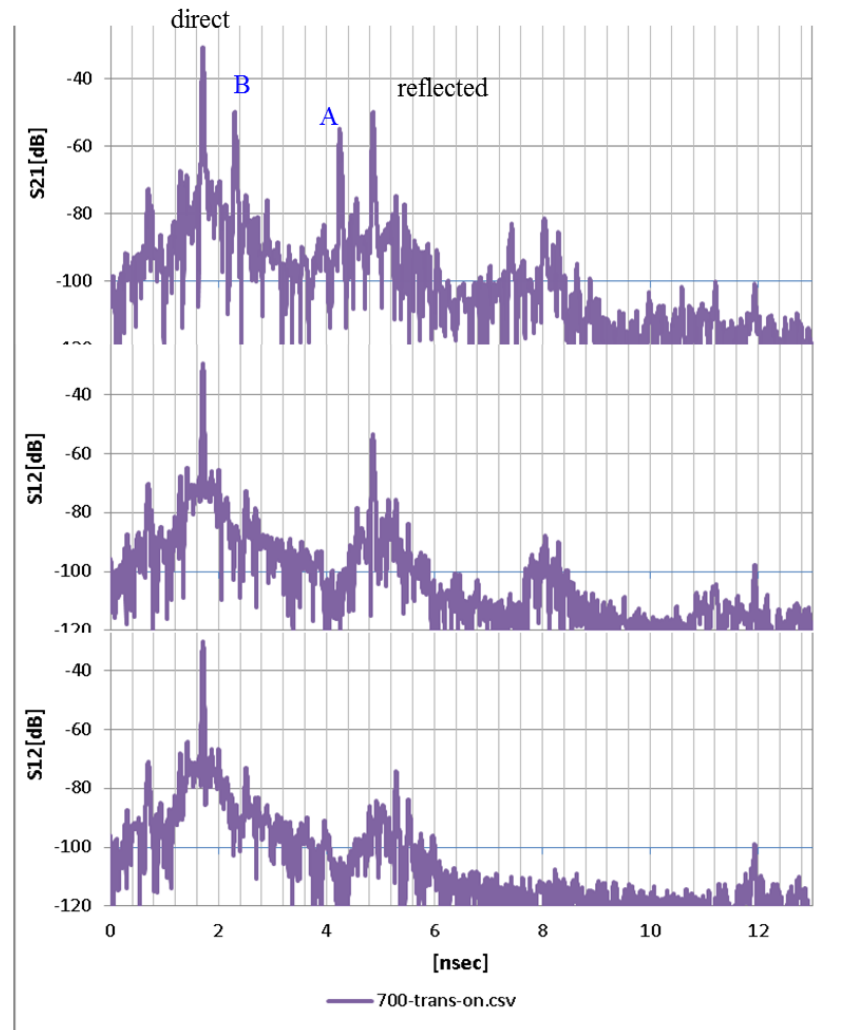
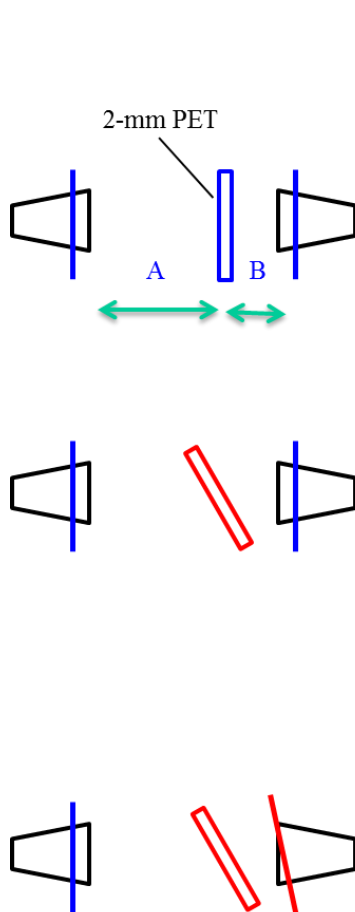
Power delay profile



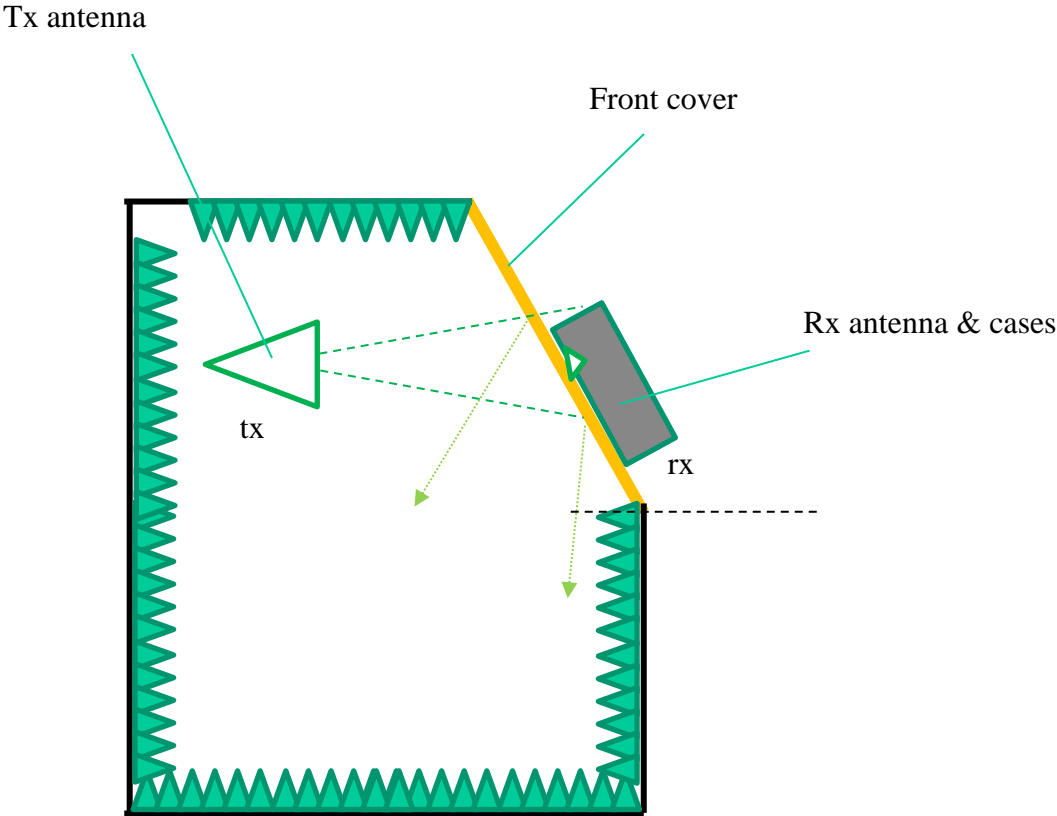
Suppressing reflection (1)



Suppressing reflection (2)



Potential KIOSK system



Acknowledgement

This work is supported in part by the Research and Development Program on Multi-ten Gigabit Wireless Communications Technology at Sub-terahertz Frequencies of the Ministry of Internal Affairs and Communications (MIC), Japan.