Indoor Short-Range Radio Propagation Measurements at 60 and 70 GHz

Author(s) - Institution(s):
Katsuyuki Haneda, AALTO
Jan Järveläinen, AALTO
Aki Karttunen, AALTO
Mikko Kyrö, AALTO
Jyri Putkonen, NSN

Corresponding author email: katsuyuki.haneda@aalto.fi

Corresponding WG group: TWGI, WG1

Abstract:

Millimeter-wave radios operating at unlicensed 60 GHz and licensed 70 GHz bands are attractive solutions to realize short-range backhaul networks. In this work, we report directional radio channel sounding performed at 60 and 70 GHz in large indoor short-range scenarios such as offices, a shopping mall, and a railway station. Initial channel characterization is reported through propagation path detection and analyses on diffuse scattering power and delay spread. The characterization reveals that specular mechanisms represented by propagation paths dominate over diffuse scattering in the measured scenarios because of the large area size of physical environments. The results furthermore show that the delay spread does not change much between 60 and 70 GHz, suggesting that the same channel model framework can be used for modeling the radio channels at the two frequencies.