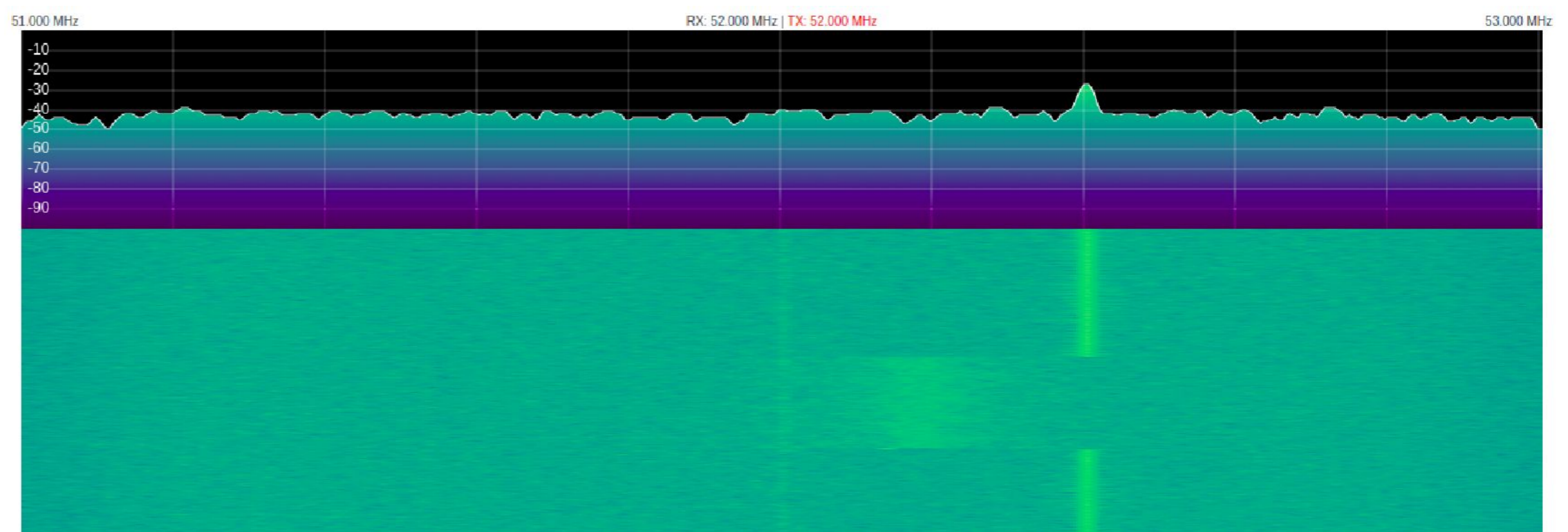


OFDMA communication scheme for sub GHz band

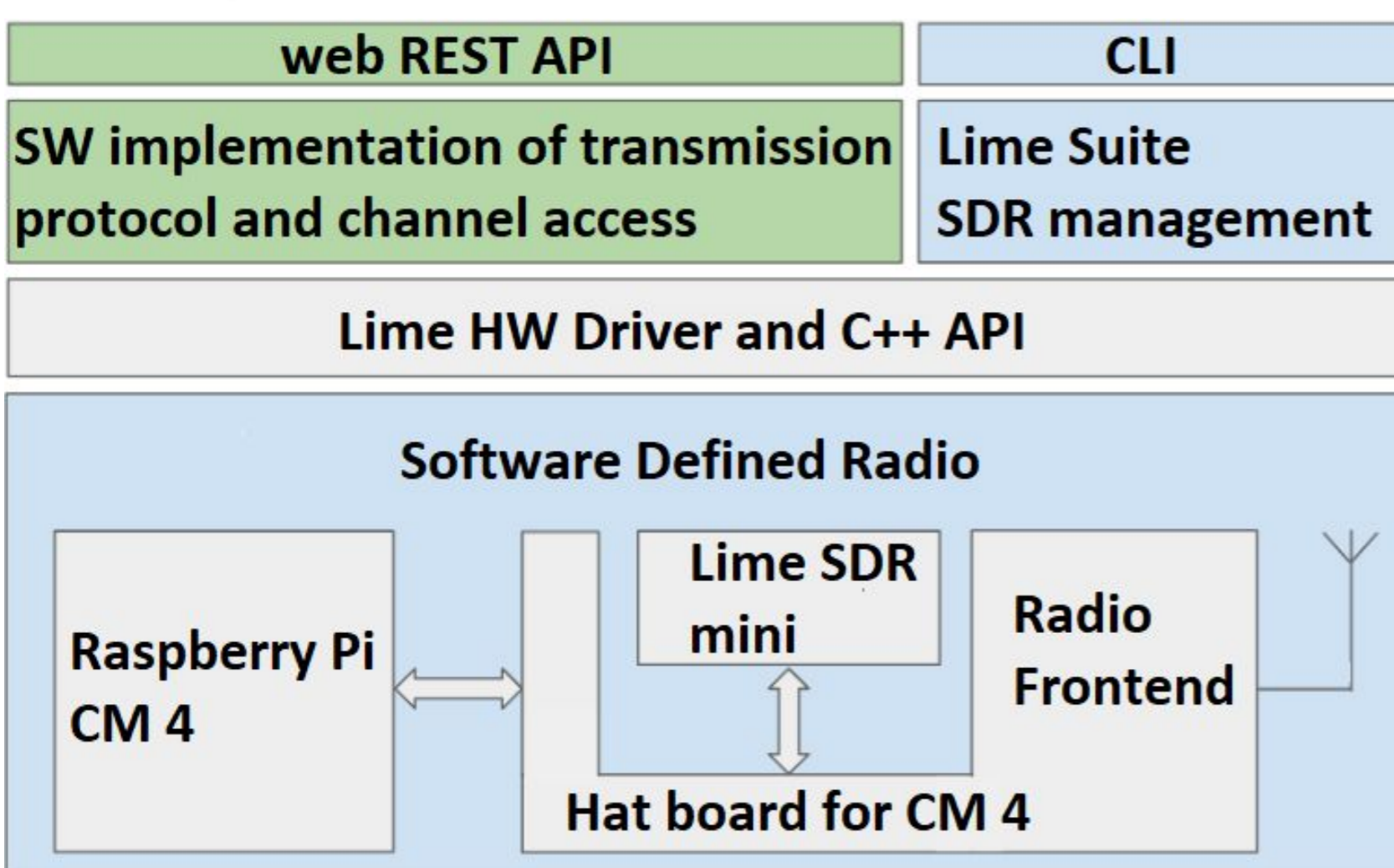
Marek Honek, Bernhard Isemann, Christoph Mecklenbräuer

In order to provide new possibilities as last mile access to HAMNET, three diploma theses topics were published at Institute of Telecommunication at TU Wien with focus on different layers of OSI model. This article, based on one of the thesis, describes physical layer and data link layer of newly prepared communication scheme and about prototype connection link.

- for HAMNET
- SDR based
- 50-54 MHz, 144-146 MHz and 430-440 MHz
- follows IEEE 802.22
- RPX-100 prototype implementation



- up to 4 overlapping BS in the same band
- up to 63 users per BS
- 160 ms superframe with 16 frames
- self-coexistence window and opportunistic window (MC-CDMA)
- 1/4, 1/8, 1/16 and 1/32 CP lengths
- 14 PHY modes (combinations of modulation and FEC coding)
- 14 management messages



- simplified frame implemented using liquid-dsp library
- 27 km long NLOS test link with estimated attenuation 161 dB
- two RPX-100 with HB9CV antennas
- insufficient power of PA for proper transmission in current version of RPX-100

