# Exposure Assessment from s-Health Solutions Based on WLAN/WBAN Systems

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Wireless transceivers and Body Area Networks (BAN) will play a fundamental role in the adoption of context aware environments with application in multiple scenarios as healthcare, where the introduction of wireless communication systems can promote the improvement in the efficiency of patient care and health management, resulting in the definition of smart health (s-Health) concept. Typically BAN devices are incorporating Wi-Fi interfaces to support Wireless Local Area Network (WLAN) connectivity. In this work, estimation of E-field values to enable exposure assessment for WiFi based wearable transceiver in a complex scenario is presented. Both situations in which the transceivers are placed with the human body and within a large indoor environment are studied through in-house developed 3D ray launching simulation code, as well as with measurements with a Wifly GSX 802.11 b/g wireless LAN module. The results show the influence of the human body in the multipath propagation as a consequence of its absorptive and dispersive nature. On the other hand, it can be seen that under usual operating conditions the levels of E-field caused by the tested device do not exceed the limits of personal exposure according to ICNIRP 1998 guideline.

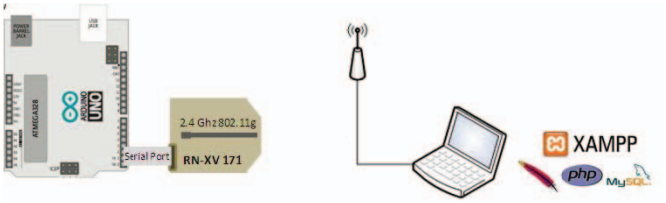
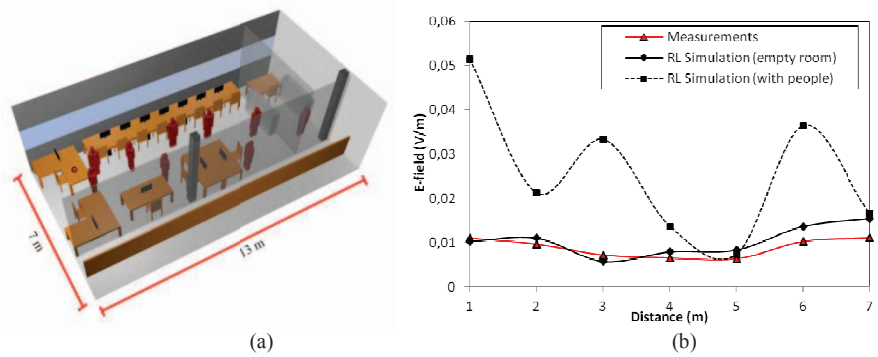



Figure 1. Components of the system to generate the communication from the Wi-Fi module. It consist in a Wi-Fi module connected to an Arduino microcontroller and an access point connected to a Xampp application server.




(a) (b)

Figure 1. (a) 3D representation of the scenario where the situation of Wflly is depicted(red point).(b) Received electric field values vs distance of measurements and RL simulation in empty scenario and with people.