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According to the analyst's estimations, about 50 billion devices will get connected to the Internet by this exploding Internet of Things (IoT), users, things, and cloud services connect using the Internet to enable new use cases and new business models across multiple markets and applications. The IoT is an enabling technology which is now at its inflection point. IoT scope involves wearable devices, building and home automation, smart cities, smart manufacturing, health care, and automotive.

The relevance and reliability of the data transmission from IoT wireless communication system require an advanced investigation notably for the antenna design. Indeed, during the design stage, the electromagnetic (EM) environment complexity must be taken into account. In this special issue, we solicit original research papers with technical breakthrough in the topics concerning IoT antenna design and interaction in complex EM environment.

Nowadays, with the emergence of smart objects operating at different frequency bands, with different bandwidths and power levels, an advanced antenna design and propagation channel modelling including the EM compatibility (EMC) still remains an open issue. Therefore, challenging approach on the EM modelling/characterization and antenna design needs to be overcome by antenna researchers and engineers regarding the foundations of methods. Evaluation of both signal integrity and communication quality requires optimized computational strategies (methodology, tools, and approaches) combining not only sophisticated deterministic but also stochastic modeling, respectively. The dichotomy of the modelling issue constrains designers and users to carefully integrate the increasing complexity of antenna design and propagating environment. Indeed, most systems exhibit random variations of an input parameter set due to unpredictable (e.g., environmental conditions), poorly known (e.g., production tolerances), and/or purely undetermined physical parameters. In this rather complex but at the same time realistic framework, a careful attention should be focused to propose efficient and original methods to tackle this problem satisfactorily. Due to the multiplicity of IoT working scenarios and systems, the inadequacy of purely deterministic strategies involves alternative approaches based upon statistical and probabilistic theories. Therefore, the present special issue is open to the latest research works concerning IoT antenna designs involving attractive solutions considering the EM modelling and characterization methods thus successfully integrating the working environment complexity.

Potential topics include, but are not limited to:

- ▶ IoT antenna design
- ▶ Modelling of the antenna system interaction in complex electromagnetic environment
- ▶ Environmental characterization of the IoT multiobjects (EMC, dosimetry, environment complexity including number of systems/users, and indoor/outdoor functioning)
- ▶ Deterministic-stochastic approaches for the IoT antenna analysis

Authors can submit their manuscripts via the Manuscript Tracking System at <http://mts.hindawi.com/submit/journals/ijap/aice/>.

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