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ICT COST Action 280

Channel Modelling and Propagation Impairment Mitigation for Millimetre Wave Radio Systems. Chair: M. Filip, UK

Descriptions are provided by the Actions directly via e-COST.

The objectives of COST 280 were to improve the design and planning of present and future millimetre wave broadband telecommunication systems (including broadcast) and services (especially multimedia) through the development of knowledge and tools for a refined evaluation of their performance.

Many important and not well-known issues associated with the generation of attenuation time-series channel models, were critically evaluated. A number of flexible approaches to SHF/EHF earth-space attenuation channel modelling were developed, as was a framework for their evaluation against real data. The Action considered the systems aspects of fade mitigation in SHF/EHF radio systems. This work was set against a number of so-called "generic systems", meaning that the work was not limited to GEO slant-path, Earth-space propagation. The application of fade mitigation techniques to terrestrial fixed-access systems, high-altitude platform systems and slant-path LEO systems were all considered.

The main outcomes and achievements of the Action were the results and procedures for the design and implementation of fade mitigation systems. The research and associated results of the Action provide guidance and a framework for the design of future low-margin millimetre-wave communication systems, both terrestrial and satellite.

In particular, the channel modelling work developed a number of channel simulators capable of producing simulated fade signals with various characteristics on-demand. Simulators of this type will be invaluable not only in the design-phase of fade mitigation techniques and sub-systems but one can also envisage their use in the manufacture and test phases of millimetre-wave communications systems (hardware-in-the-loop testing and verification).

Until relatively recently the dynamic behaviour of the millimetre wave propagation was not well understood. COST 280 was successful in filling this knowledge void which is essential to the efficient use of Ka-band and higher frequency allocations. In addition to merely understanding the dynamics of the channel behaviour, systems modelling carried out in the Action provided insights on how this new information may actually be used in real systems.

These results and many others were presented at numerous conferences and workshops. Many of the results have been formally presented in learned professional journals e.g., IEEE Transactions on Antennas and Propagation. Results and models from this Action are being considered for incorporation in ITU-R Recommendations.

Information and Communication Technologies COST Action 280

- ▶ **Description**
- ▶ Parties
- ▶ Management Committee



General Information*

- Chair of the Action:**
[Dr Misha FILIP](#) (UK)
- Science officer of the Action:**
[Mr Ralph STUEBNER](#)
- Administrative officer of the Action:**
[Ms Aranzazu SANCHEZ](#)

Downloads*

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- Memorandum of Understanding**
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Websites*

- Action website:**
<http://www.cost280.rl.ac.uk>
- Domain website:**
<http://www.cost.eu/ict>

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