
SUPPORT TO PRIVATE SECTOR TELECOMMUNICATIONS ACTIVITIES:

ITU-R Standards Activities

Outputs

- Approval by Working Party 8B of NTIA methodology for radar spurious emission measurements in WP 8B as ITU-R Draft New Recommendation.
- Conference at ITS Boulder laboratory for WP 8B International Radar Correspondence Group to consider radar spurious emission measurements.
- Contribution for WP 8B describing how dynamic frequency sharing (DFS) techniques can allow use of radar spectrum bands by wireless communication systems.
- Contributions for WP 8B describing results of signal interference tests in maritime, air traffic control, and weather surveillance radars.

In Study Group 8 (SG 8) of the International Telecommunication Union — Radiocommunication Sector (ITU-R), a number of proposals have been made by non-U.S. Administrations to introduce communication systems into bands that have heretofore been allocated to radiolocation (“radar”) use on a primary basis. The U.S. Administration has made an enormous investment in the development and deployment of radars in these bands, including thousands of military and civil systems that play critical roles in national defense, transportation, and atmospheric and space science. Therefore, it is essential to the U.S. Administration that new systems proposed for spectrum sharing with radars be shown to be electromagnetically compatible with existing and future radar operations. To this end, ITS engineers have actively and critically supported the U.S. Administration in ITU-R SG 8, particularly in Working Party 8B (WP 8B).



The RSMS transmits radar signals during demonstration of U.S. spectrum measurement techniques for the ITU-R Radar Correspondence Group in Boulder (photograph by F.H. Sanders).



Meeting of ITU-R Working Party 8B in Geneva, Switzerland (photograph by F.H. Sanders).

In FY 2002, ITS engineers addressed the problem of dynamic frequency selection (DFS) and wrote a Contribution for WP 8B on the topic. DFS is a proposed methodology in which wireless communication systems share spectrum with radars by detecting radar signals and then avoiding those frequencies for data transmission. This approach has never been implemented and presents a number of difficult, unsolved problems. These include developing a methodology for identifying radar signals and determination of the amount of time that must be allocated for detection of radar signals. The Contribution written by ITS engineers and co-authored by NTIA Office of Spectrum Management (OSM) engineers was the first and so far the only attempt made by any Administration to develop a practical DFS approach that solves these problems. The Contribution represents both a workable solution and a challenge to other Administrations to develop a better approach, if such exists.

ITS engineers have played a key role in WP 8B development of techniques for measuring radar emission spectra, and have developed world-recognized expertise in this difficult field. In August 2002, ITS hosted a meeting of the WP 8B Radar Correspondence Group (RCG) in Boulder for the

purpose of discussing an ITS WP 8B Contribution that describes such techniques. At the meeting, ITS engineers demonstrated the use of these techniques for measuring radar emissions. The U.S. Contribution was subsequently approved as a Draft New Recommendation by WP 8B.

ITS and OSM performed a complicated series of radar interference measurements in 2002 to determine levels at which interference caused observable degradation in radar receiver performance. Utilizing these measurements, ITS authors jointly authored several WP 8B Contributions with OSM engineers. These papers challenged the thresholds at which existing documentation indicated that such interference effects should be observable in a variety of radar types. Radars that were tested included maritime surface search radars, air traffic control radars, and a weather surveillance radar. ITS engineers also supported the U.S. Administration with critiques of Contributions from other Administrations in Working Parties 8B, 8D, and 8F.

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