

## **JRG 1A-1C-8B Proposed Terms of Reference and Draft Work Program**

The following is taken from the Chairman's Report of the 14<sup>th</sup> meeting of Working Party 8B (Geneva, 25 November to 2 December 2003), Document 8B/35-E, 3 February 2004

### **6.1 Proposed Terms of Reference - Joint Rapporteur's Group 1A-1C-8B - Radars and unwanted emissions**

The Joint Rapporteur's Group will:

- 1** review the current ITU-R limits for unwanted emissions in the out-of-band domain contained in Annex 8 of Recommendation ITU-R SM.1541, and assess the feasibility of establishing guidance to promote more effective and efficient use of the spectrum by radar stations in the radiodetermination service. Propose draft revisions to ITU-R SM.1541 as appropriate;
- 2** conduct studies on the boundary between the out-of-band and spurious domains of primary radars using magnetrons taking into consideration ITU-R Recommendation 75 (WRC-03);
- 3** review and propose modifications to other ITU Recommendations and Reports associated with radar unwanted emissions as appropriate;
- 4** make efforts to conduct the work of JRG 1A/1C/8B by correspondence to the extent possible.

### **6.2 Draft work programme of JRG 1A-1C-8B - Studies of unwanted emissions of radiodetermination radar systems in the OOB domain relating to design objectives of Recommendation ITU-R SM.1541, Annex 8**

#### **Background**

Unwanted emission masks in the out-of-band domain for radiodetermination radar systems are contained in Recommendation ITU-R SM.1541, Annex 8. The ITU-R out-of-band emission masks for primary radars systems are intended to recommend an acceptable degree of electromagnetic compatibility among radar systems, and between such systems and those of other radio services sharing the frequency spectrum.

In the development of the out-of-band emission masks for radiodetermination radar systems, it was the view of several administrations that there was a need to further investigate the state-of-the-art radar systems and their ability to suppress unwanted emissions. This review of radar unwanted emissions in the out-of-band domain is to be completed by 2006. See Recommendation ITU-R SM.1541, Annex 8, Note 3. The

outstanding issue concerns the “design objectives” highlighted in this document. This “design objective” concerns the possibility of making more stringent the requirement for radars with regard to the “roll-off” of out-of-band (OOB) emissions.

The outcome of this study may result in revisions to Recommendation ITU-R SM.1539, which addresses the boundary between the out-of-band and spurious domains, and Recommendation ITU-R SM.1541, which addresses out-of-band emissions domain.

Pursuant to initiating this study, Working Party 8B revised Question 202/8 to provide guidance to administrations in conducting their investigation.

### **Objectives**

The objectives of this work programme are to:

- a) Review the current ITU-R limits for unwanted emissions in the out-of-band domain contained in Annex 8 of Recommendation ITU-R SM.1541, and assess the feasibility of establishing guidance to promote more effective and efficient use of the spectrum.

### **Approach**

In order to accomplish the above objectives, the following tasks will be undertaken:

- a) Develop a software tool that will provide current ITU-R emission masks and alternative emission masks for comparison with measured radar emission data.
- b) Identify, through measurements, characteristic radar emission spectra considering such parameters as: waveforms (e.g. pulse shape and modulation); types of output devices; RF filter technologies; and antenna types.
- c) Analyse the measured emission characteristics to assess the feasibility of establishing more spectrum efficient emission masks.
- d) Encourage radar manufacturers, measurement experts, and radar output device manufacturers, preferably through the ITU-R JRG, to discuss draft revised emission masks, and identify state-of-the-art capabilities which may allow radars to operate more efficiently while recognizing economic impacts and mission requirements to achieve efficient and effective operation.
- e) Report the results of these studies to Working Party 1A, 1C and 8B.

### **Milestones**

Completion of the aforementioned approach should correspond to the following task milestone dates:

- a) February 2004
- b) June 2004
- c) January 2005
- d) June 2005
- e) November 2005