

**Report of the Final Acceptance Test (FAT)  
Spectrum Management System for Developing Countries (SMS4DC), Version 3**

**1. Introduction**

The SMS4DC acceptance testing team (ATT), the SMS4DC software development team (SDT), BR experts and Rohde & Schwarz (R&S) engineers met at ITU Telecommunications Development Bureau (BDT), Geneva, from 16th April to 17th April 2009 to perform the final acceptance of the Version 3 of the software which contains an upgrade to: display results on Google Earth; provide links between SMS4DC and the ARGUS monitoring software of R&S (Spectrum Management Database Interface, SMDI and Order Report Module, ORM); and to review and test additional enhancements to the Version 2 of the software. For live testing, the link between SMS4DC and ARGUS one Monitoring Control and Measurement Unit with one monitoring receiver with antenna was used. An expert from the EBU participated as an observer. ITU-R Study Group 1 representatives could not attend the meeting.

In January of 2009, a test had been carried out for the monitoring module, in Munich, at the Headquarters of R&S. R&S also provided their existing protocol for information and data exchange and controlling communication between spectrum management and monitoring systems. This protocol is available free of charge.

For the final test the new version of the software was distributed and installed on participants' laptops at the start of the meeting.

**2. Summary description of the acceptance tests and the results**

The members of the SDT gave detailed presentations about the features of Version 3 of the software.

Then live demonstration were given for the different features of the monitoring modules.

Some bugs, and errors identified in Version 2 have also been corrected and tested.

After the presentations, participants were given the opportunity to run their own tests using their laptops connected to the monitoring system. All the test exercises were completed successfully and gave the correct results.

BR also presented a document about the results of their testing of the GE-06 features. The problems identified by the BR tests have been analysed, discussed and it was agreed to continue the comparison of the GE-06 calculations. BR will provide a set of test cases for which calculation results have already been published on the ITU web.

### **3. Modifications required**

A requirement for minor modifications have been identified during the testing (e.g. displaying a status message by SMS4DC when Get System Parameters (GSP) requests are sent and when an ORM monitoring order is running). Also a link in the order file-names is requested in order to identify more easily the connected input and output file.

### **4. Opportunities for further/future development**

During testing several observations were made resulting in proposals for future enhancement:

- identifying the type of service and class of station for the measurement.
- providing recommended values for the different measurements type. This could be obtained from R&S, based on their existing Excel table of recommended values.

BR recommended that the linking of SMS4DC and ARGUS could help to provide reports for regular monitoring program in accordance with the BR Circular Letter CR/159.

### **5. Comments from the Software Development Team**

The representatives of the SDT recalled their statement made at the outset of the project that their most important goal was to produce SMS4DC and enhancements as a complete tool to satisfy the real needs and requirements of the developing countries.

### **6. Comments from the Project Co-ordinator**

The Co-ordinator thanked the ATT and SDT for their work on the SMS4DC project. In addition he thanked the BR experts and the EBU observer for their valuable comments. He said that he would continue the practice that a copy of the SMS4DC software should be provided to each member of the ATT, SDT, BR experts and the observer so that they could continue to gain further experience in its use and to identify further opportunities for enhancement and for training.

### **7. Continuing co-operation between BR and BDT in the SMS4DC project, contribution of ITU-R Study Group 1**

The development of the SMS4DC project would not have been possible without the considerable assistance and excellent co-operation between BR and BDT. Based on the Resolution ITU-R 11-4 (revision approved by RA 2007) it is recommended to continue this assistance and additional assistance is required from ITU-R Study Group 1 as this will ensure successful deployment and possibilities for future enhancement of the software.

It was agreed to inform ITU-R SG-1 about the availability of Version 3 and to highlight further developments where assistance would be helpful (eg. Maritime mobile, MF/LF broadcasting) The testing identified a need for a standard protocol for the connection of

spectrum management and monitoring systems based on some existing protocols. SG1 was invited to consider the development of this common protocol.

It is also recommended to bring the availability of the Version 3 of the software to the attention of the relevant Advisory Groups (TDAG and RAG).

#### **8. Overall conclusions of the Acceptance Testing Team**

The members of the ATT are pleased to confirm that Version 3 of the software contains the required functions for the display of results on Google Earth, to provide links between SMS4DC and ARGUS and the amendments and corrections to Version 2.

The ATT congratulates the SDT for their dedication to ensure the success of the project and their willingness to cooperate in solving problems and explaining the detail of SMS4DC processes.