Modular Multifunction Information Transfer System (MMITS) Forum
September 22, 23, 24 1998

The Eleventh Modular Multifunction Information Transfer System Forum General Meeting was sponsored by Rohde & Schwarz and was held on September 22,23,23 1998 at the Forum Hotel in Munich Germany.

September 22, 1998

Stephen Blust opened the meeting at 8:30 AM with an overview of the meeting agenda. He read the anti-trust statement prepared by the Forum's legal counsel and asked if the participants had any knowledge of patents which are essential to the standards being developed; there were no affirmative responses.

Mr. Blust noted that there are now three core committees: Technical, Markets, and Regulatory Advisory and that the Technical Committee has added an additional working group, the Base Station Working Group

Committee Reports

Technical Committee Mark Cummings noted that there has been a significant amount of activity since the last general meeting with four major Technical Committee working sessions in Ft Wayne, IN; Chicago, IL; Motorola, UK; and Roke Manor (UK). He provided an overview of work accomplished including download scenarios for handheld and mobile units, a review of the initial API development, and some look at regulatory issues. The workplan for the remainder of 1998 includes final detailed APIs for the download and switcher functions from the Handheld Working Group by December and the Mobile Working Group will try to meet that same schedule. Cummings noted that version 1.2 of the Technical Report on Architecture and Elements of Software Defined Radios has been distributed to members and that it is available for purchase by non-members.

Download Working Group: Nigel Drew discussed the plans for the Handheld WG to include developing the Download protocol from scenario ladder diagrams that have been defined, develooping detailed Download API, writing a discussion of the impact of download on standards, aligning MMITS Forum work with the ITU proposal for a global control channel and the wireless application protocols.

Base Station Working Group: Dave Murotake discussed the activities of the Base Station WG from the organizational meeting in San Jose, one day prior to the Stanford Smart Antenna Research Group (SARG) workshop, a one day meeting in Boulder Colorado prior to the 1998 International Symposium on Advanced Radio Technologies, and then a one day meeting on 21 September immediately prior to the Forum meeting in Munich. They have asked the Forum for any and all examples of what members believe is a base station. Another area being examined is the Smart Antenna API which has been introduced by Scott Andrews (Logic Devices) and was developed by DARPA within the GloMo program.

Mobile Working Group: Pete Cook presented two proposals from the Mobile WG. One is a possible implementation for an object oriented architecture using CORBA. Motorola is using this in their WITS radio under development. There some comments about using CORBA especially when real-time performance is required. Those in favor of the approach felt that the standards is still in development and presumably those issues will eventually be resolved, and there is a definite trend in industry towards this approach over all others. Real-Time-CORBA ORB processes (in beta version) have been created.

The second proposal was for an Object-Oriented MMITS Framework. The critical event for this type of architecture will be the selection of a DSP and its corresponding software. DSP manufacturers and Operating System (OS) suppliers to DSP manufacturers need to work together so that OS suppliers support the CORBA ORB; this does not currently exist at any significant level today.

Joe Mitola, guest editor of the February 1999 IEEE Communications issue with emphasis on SDR, invited MMITS to provide articles for this issue. Mark Cummings and Steve Heath will provide a discussion of the Switcher API concept and co-editor Nick Haruyama (Keio University) will provide a tutorial article on A/D design for SDR.

Markets Committee Mr. Blust announced that the Chair of the Markets Committee, Chris Mangum, has left BellSouth Cellular and has resigned his position in the Forum. However, Robert Moton has worked with Mr. Blust and the Markets Report is proceeding with the help of Mr. Muratake, Mr. Climek and others.

Operations Committee Allan Margulies noted that the Operations Committee has distributed the latest edition of the Technical Report and that the next meeting of the Forum will be December 8,9,10 at the Holiday Inn in Fort Worth Texas; further information will be posted on the website.

The plenary session adjourned at 10:30 AM for committee sessions.

September 23, 1998

The meeting opened at 8:15 AM

Mr. Blust asked for a review of the relevant meetings attended by MMITS members

Mr. Blust reported on the June 98 ACTS Summit in Rhodes, Greece where Forum members presented a Workshop on Software Radio in conjunction with the European Commission.

In August, Dr. Larry Williams (ITT) briefed FCC Director of Office of Communications and Technology, Dale Hatfield on MMITS accomplishments. Hatfield wanted to stay closely in touch with the Forum to understand the issues that the FCC would need to address in the near future.

And, also in August, there was a teleconference with Hoerst Menninga (RegTP-Germany), Phil Inglis (FCC-US), Al Margulies (MITRE-US), and Mike Marcus (Mansfield fellow - appointed as liaison to Japanese regulatory agencies) to discuss regulatory issues related to interoperability and approval to operate in different countries.

Also in August, several members including Mr. Blust and Mr. Climek, made presentations at the Symposium on Advanced Radio Technologies inBoulder Colorado.

In September Mr. Margulies made a presentation on software radios at the International Symposium on Spread Spectrum Techniques and Applications. Software Radios were presented as a transition vehicle between 2nd and 3rd generation systems. Mr John Spicer also presented a discussion of software radios at that meeting.

As for future meetings, Mr. Margulies and Mr. Mitola will present a paper at MILCOM in October 1998. Describing the results of their survey of cost savings in non-recurring engineering on radio programs for 1) new development, 2) modifications to an existing radio, and 3) special purpose radio development for military use, they said that responders reported an average of 40% savings in time and money on NRE. There was a wide variation in opinions; some thought there would be no savings, but some thought much greater than this.

And the Mobile Software Forum will present a special conference on Software Defined Radio October 22, 1998 Claridges, Mayfair, London in conjunction with the conference on Enabling Wireless Applications, London Marriot Hotel, London October 20-21, 1998

Robert Moton reported on Market Committee progress yesterday; two of the four documents had been reviewed and he hoped to finish today.

Mr. Cummings said that the Technical Committee had voted not to submit an input to the ITU regarding the Global Control Channel in time for the November meeting because of a lack of resources to do a credible job.

The plenary session adjourned at 9:30 AM for committee sessions.

September 24, 1998

The meeting opened at 1:30 PM

The committees and working groups reviewed their progress.

The Mobile Working Group has reached a turning point in the architecture and API development and will move to the next level of detail on the APIs. Raytheon currently working on the Wideband Networking Radio, Motorola working on WITS in UML code, and ITT working on APIs as well. These are reaching maturity and Motorola and Raytheon APIs will be publicly released soon. From the previous Ft Wayne meeting, they found that they had a great deal of commonality and ITT also thinks they are not very far from those two. These companies would like to bring at least their high level structure to the group, and perhaps even implementation details. The MMITS API details will then be worked out. A meeting of the Mobile Working Group (again in Ft Wayne) is planned for October 28 - 30, 1998 to delve into the architectural details of APIs.

The Handheld Working Group is concerned about the use of CORBA. Since the handheld unit consists of a single processor, it is mainly ASIC oriented. That may change as the devices get smaller such as in reconfigurable FPGAs. There may come a time in the near future when the handheld unit does have more than one processor and therefore CORBA would be a consideration.

The Handheld WG plans to take the point-to-point download and create a simplified real implementation to take to ETSI or IMT-2000 to get hooks into the standards bodies for MMITS Download. They will then look at the broadcast and installation areas as well; they will create a paper that shows how their view is modeled and they will also do a paper that addresses the regulatory issues.

The Markets Committee has completed its review of the four documents that were available and that will be part of the Committee's report; their plans for the December meeting include:

1. Review of civil-segment forcast
2. Develop Framework for base station forecast
3. Develop Framework for applications forecast

The meeting adjourned at 3:00 PM