

TECHNICAL COMMITTEE SURVEY

DEMOGRAPHICS

DATE: **16 March 1999**

1. COMMITTEE: **Satellite and Space Communications**
2. COMMITTEE CHAIR: **Walter J. Ciesluk**
YEARS IN POSITION: **Newly elected in December 1998**
3. REPORT AUTHOR: **Walter J. Ciesluk et al.**
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4. How many active committee members do you have? How many members do you have in each of the Asia Pacific, European, South American and North American regions?

47 active members
13 Asia Pacific (includes 1 Pakistan, 2 India)
6 European (includes 1 Israel)
2 South American
26 North American

DISCIPLINES

5. What is your research focus?

Waveform design and processing to improve the power and bandwidth efficiency of satellite and space communications.

Network protocol design and processing to enhancement the throughput efficiency and delay of data communications via satellite communications

Satellite communications networks utilizing satellites in non-geostationary orbits.

Seamless integration of satellite and terrestrial networks.

Ka/Q/V multibeam satellite antennas and transmitter electronics, spaceborne waveform processing, circuit and packet switching, and statistical multiplexing.

6. What are the major technical disciplines (devices, systems, applications, techniques, technologies, theoretical areas, etc) addressed by your committee. Estimate the approximate year of the first committee activity on each discipline. Is each area growing, stable or declining?
- Satellite-based personal communications systems (PCS) and networks. (Growing)
 - ISDN and BISDN applications and networks via satellite including ATM. (Stable)
 - Mobile satellite communications systems.(Growing)
 - Advanced modulation/demodulation and on-board signal processing (Growing)
 - Spaceborne circuit and packet switching (Growing)
 - Direct broadcast television and high-definition television. (Growing)
 - Very small aperture and handheld satellite systems and networks. (Growing)
 - Ka/Q/V band satellite communications systems (Growing)
7. What are the major new disciplines that you envision your committee will address in the next 5 years?
- Ka/Q/V band satellite communications systems (Growing)
 - Satellite and terminal miniaturization (Growing)
 - Satellite-based location systems as components of satellite cellular type systems (Growing)
 - Provisions for satellite based Internet services (Growing)
 - Inteference management between Geo-stationary and non-geostationary satellites (Growing)

ACTIVITIES

8. What are the key objectives of your committee?

The Committee attempts to promote and facilitate technical interchange in the field of satellite and space communications by regularly sponsoring technical sessions and workshops at ICC, Globecom, and MILCOM conferences. Members of the committee also periodically sponsor IEEE Communications magazine feature topic issues on various topics associated with satellite communications. The Committee is also involved in the development of emerging standards for Ka-band fixed satellite service.

9. What were the major activities of your committee over the past three years? Please address activities at major conferences and outside major conferences. Do you have any involvement in standards activities?

Organized and chaired on the average of two technical sessions per ICC and Globecom conferences. Organized and chaired unclassified technical session at MILCOM'98.

Workshops on satellite communications topics at ICC'99, Globecom'98, ICC'98, Globecom'97, ICC'97.

Communications Magazine Feature Topic issue on Satellite ATM Network Architectures (SSC member, Sastri Kota, guest editor)

SSC member, Sastri Kota, is active in ITU-R Ka-band Fixed Satellite Service standards development activities

Serve as area editors on radio and satellite communications for the IEEE "Communications Surveys" electronic magazine.

10. What have been the major issues, if any, of your committee over the past three years and what actions or approaches would you suggest to resolve these?

A major issue for our committee is the interfacing of the satellite portions of systems to the terrestrial portions. This leads to requirements for communication protocols to deal effectively with the satellite link delay. It also leads to jurisdictional issues with other technical committees

11. Have there been any specific activities that the committee wished to do, but could not engage in over the past three years? What were the problems encountered, and what help or resources could you have used to address these activities?

Membership drive to recruit members particularly from the satellite communications industry in NA, Europe and Asia. Currently, formulating plans to promote the committee and to attract new members from satellite industries

12. Are you satisfied with the typical arrangements between technical program committees (TPC) and your technical committee? Is there any turnover in TPC representation from your committee? If there is low turnover, does that represent a problem?

I think that there ought to be closer liaison among a number of TC's including satellite, radio, PCS and theory. Until recently, other committees have sponsored major tutorials and workshops, IEEE communications magazine feature topic editions on satellite communications topics without coordinating with the SSC TC.

13. Do you have any current or planned collaborative activities with other committees, societies or groups, internal or external to IEEE? Briefly discuss any competition that you have with these groups in your technical discipline.

We have developed a cooperative alliance with the CSIM TC because they have been actively promoting satellite systems and technology activities. We have arranged jointly to organize and sponsor a workshop at ICC'99 on Satellite Architectures and Networks.

We are also attempting to develop a collaborative effort with the AIAA Technical Committee for Communications Systems. The AIAA has traditionally organized the bi-annual Satellite Communications Symposium, which has been the best conference of its kind on satellite communications. It is our understanding that the AIAA TCCS will approach the IEEE Communications Society to propose a joint sponsorship of an annual symposium on Satellite Communications. Dr. Ron P. Smith, Secretary of the SSC TC, is also a member of the AIAA TCCS and is

member of the steering committee formulating plans for the next Symposium.

We are also interested in attempting to establish a more active relationship with the International Journal of Satellite Communications.

14. What are some of the major successes and innovations that you have had that would set an example for other committees to emulate?

[See item 21.] Newly renovated web page includes list of reviewers with preferred topics for conference and publication reviews, list of TPC representatives and liaisons, past newsletters, meeting minutes, calls for papers and other information to help members be active without needing to attend committee meetings.

15. What are some of the major activities or functions that your committee should consider for the future?

Applications oriented workshops focused on industry. Most satellite work takes place in the corporate environment and this is where the committee draws or should draw much of its support. In addition, we are working toward an objective of co-sponsorship of an annual symposium on satellite communications systems with the AIAA.

16. What do you feel that you need most to facilitate, improve, or expand (if warranted) your committee operation? What can Comsoc, the Board of Governors, IEEE, or any other group do to help you in the near and far terms?

We need to convince the satellite communications industry that their participation in IEEE SSC TC is of value. Participation from industry has declined in recent years. Yet most of the exciting and cutting edge work in satellite communications is taking place in industry. Perhaps some help from COMSOC in formulating a story would be of help.

We also need to develop applications oriented sessions at each of the major conferences containing primarily papers solicited from major satellite system manufacturers and service providers.

COMMUNICATIONS

17. How do you learn about Comsoc activities and actions relating to technical committees? Are you aware of the by-laws and guidelines relating to technical committees? Do you attend Technical Activities Council meetings?

In the past, the committee chair would attend the TAC meeting and orally summarize the happenings at the SSC TC meetings. This method of reporting TAC activities has been cursory at best. TAC minutes should be published in a timely manner and more widely distributed to the committees. As chair, I plan to start attending the TAC meetings.

I have become aware of the by-laws and guidelines relating to technical committees via the annually published "The ComSoc Community 199x" Booklet.

18. What is the primary mechanism of communicating with your committee members? Do you have any ideas for improved communications?

E-mail (as needed) and Newsletter (twice per year). Experimenting with setting up an e-mail list server through ComSoc, but current features are limited, particularly in maintaining current e-mail addresses.

19. Do you ever hear about other technical committee activities? Would more information about other committees be helpful to you?

Inter-committee communications leaves a lot to be desired. We plan to appoint liaisons to other committees that have significant common interests, i.e, Personal Communications Systems, Tactical Communications, Radio Communications, Communications Systems Integration and Modeling.

20. How frequently does your committee meet?

Twice a year at the ICC and Globecom conferences.

21. Does your committee have a web page? What is its URL? How do you keep it current? Are there innovative features others may benefit from hearing about?

URL is <http://www.comsoc.org/socstr/techcom/ssc/>

Secretary maintains web site. New items from members added by e-mail to secretary. Newly renovated web page includes list of reviewers with preferred topics for conference and publication reviews, list of TPC representatives and liaisons, past newsletters, meeting minutes, calls for papers and other information to help members be active without needing to attend committee meetings.

MEMBERSHIP AND LEADERSHIP

22. Do you feel that you need more members presently and for the future? Do you think that you have the appropriate turnover, or flow of members through your committee? Could the committee manage a larger membership?

Active membership needs to be increased. This requires generating or regenerating active support from industry. The officers have been actively recruiting within their own organizations and when making new contacts. We have also prepared a letter of welcome for new members that describes the nature of our goals and activities. Our goal is to bring on new members willing to accept an assignment or organize and activity, not to expand the membership list of inactive members.

23. What are your plans to increase your global membership and industry membership?

At the request of the GCN editor, we have prepared an "SSC Committee Overview" article for publication in the April 1999 GCN. We are excited that this article will lead to new interest in our committee.

24. How much interaction does your committee have with the Comsoc membership? Do you have interactions with ComSoc student members or ComSoc Chapters? How do you attempt to meet members needs? Do you get feedback from Comsoc members or the Board of Governors on your activity?

Virtually none. We need to improve this situation.

25. Do you see any problem with rotating the committee chair position every 2 or 3 years? FYI, it's two years per the Bylaws.

No. We think that this is a healthy state of affairs. However, each candidate for incoming chair should be

asked to prepare a two year plan in terms of goals and activities he would like to set for the committee. This plan could be used by the officer appointment committee in their officer selection deliberations. The goals of the plan can also be used in the recruitment of new members.

PLANNING

26. How do you determine the needs of Comsoc in your committee discipline?

This is currently not part of our discipline. We must be missing something.

27. How does your committee enter new technology areas? Do you use inputs from the ComSoc Strategic Plan?

Staying abreast of developments in the field of satellite communications. We are not familiar with the ComSoc Strategic plan.

28. Is there any effort by the committee to consider any business aspects related to the technical discipline? If so, are both industry and government areas considered. How are connections made to these areas? Do you have a committee member responsible for Application Sessions at GLOBECOM/ICC or at other conferences?

This is a relatively new focus, but an important one. We believe more activities in this area will enhance industry's interest in our committee. For the first time, we submitted a proposal for an SAS Session for Globecom'99 in Rio de Janeiro on "Satellite Communications in Latin America". We are very hopeful that this will be a new success for our committee.

NEW AREAS

29. Can you suggest any potential areas for Comsoc that do not fit in the current technical committee structure and may require the establishment of a new committee?

No comment

30. Are there any technical areas that are currently covered by a technical committee that in the future may grow in scope to ultimately require a technical committee unto

itself? Which other technical committees do you collaborate most with? Are there areas that would benefit from further multidisciplinary collaboration across your technical committee and others (which ones)?]

We have been collaborating the most with the CSIM committee because the CSIM has been very aggressively organizing and sponsoring satellite communications systems and technology activities

31. Are there any current technical committees that are no longer needed as an independent committee?

We believe that the following committees are too narrowly focussed and specialized to draw significant participation and interest: Communications Quality and Reliability, Signal Processing for Storage.

ADDITIONAL COMMENTS

32. Do you have any additional comments you would like to make on any aspect of this survey, or on other areas that impact your committee?

We believe that the set of technical committees should be restructured to minimize the overlap and competition between committees. For instance, there is no reason why two separate committees, such as SSC and CSIM, should be independently promoting "Satellite Communications Systems and Technology" activities. There should also be some policy and guidelines developed on inter committee interaction and cooperation, and committee roles in evaluating/participating in feature topic/special issue proposals. Today, some proposals are made and accepted without any input or interaction with the Technical Committees