PART A - SECTION SUMMARY

A.1 Executive Summary

- Section Executive Committee Member List

  Chair: Richard Harris
  Vice-Chair: Murray Milner
  Secretary: Pawel Dmochowski
  Treasurer: Gourab Sen Gupta
  Web Master: Keith Morris
  Women in Engineering: (Vacant)
  Membership Officer: Ramesh Rayudu
  Student Representative: Fahim Abbasi
  Committee Members: Subhas Mukhopadhyay, Mansoor Shafi, Edmund Lai, Mengjie Zhang, Winston Seah, Christopher Hollitt

During the year, Sajal Palit and Theresa Shaw had to retire from the committee for various reasons.

- Highlights extracted from the Chairman's Report for 2010:

  It has been another busy year for the IEEE New Zealand Central Section. I would like to personally thank all members of the Central Section committee for their continuing efforts to promote the IEEE and assist in the establishment of new chapters and organization of events that support our membership.

  I believe that we have had some significant achievements during the year and I would like to highlight some of these as:

  - Participation in the Region 10 Meeting held in Cebu, Philippines
  - Formation of two new Chapters, viz: Instrumentation and Measurement Chapter and, quite recently we learned that the IEEE New Zealand Central Section Power & Energy Society Chapter had been approved as well.
  - NZCS was listed as one (Fourth) of the top 6 BEST R10 sections in this year's R10 MD report in terms of total member retention (89.1%).
  - On-going success of our Postgraduate Student presentation competition
  - The technical seminar program

We have had some disappointments too. We have tried unsuccessfully to start a “Women in Engineering” activity but we lost our champion for this program early in the year and we were never able to find an appropriate replacement. We have tried hard to get a fully functional Student Chapter at Massey, but getting students to establish membership and to have them sign
the appropriate petition forms is continuing to prove difficult. We have completed the paperwork except for getting the requisite number of signatures, so this has become rather frustrating. Hopefully, both of these activities can be resurrected in 2011 and we shall be able to report success for both ventures ... in time.

In February, the IEEE Region 10 meeting was held in Cebu, Philippines and was attended by delegates from all of the Sections in the Region. It was an intensive 2 days, but most informative for all concerned. On the eve of the main meeting, the New Zealand and Australian Councils held a joint meeting to discuss ways in which we could collaborate. Kevin Sowerby represented the New Zealand Council at this meeting. Discussions were quite wide-ranging and we were able to share some of our initiatives and discuss bids for IEEE conferences and meetings in the Region.

Reflecting on the year, I find that we have had some excellent activities. Early in the year (January) we had a visit from Glenn Zorpette who is the Executive Editor of IEEE Spectrum. We had hoped to have a seminar and discussion for a wider audience but Glenn was in New Zealand on the way to/from Antarctica to prepare stories for the IEEE Spectrum Magazine and the rather fickle weather conditions in Antarctica played havoc with his schedule; and eventually we cancelled the seminar as we could not give people enough notice to come and participate. All was not lost, however, as we were able to gather together a group of members and have a meal and discussion with Glenn about how the Spectrum magazine is put together and to provide feedback on the types of articles that might appeal to the Section’s membership.

In March we had an excellent talk by Alan Coulson from IRL on the topic of Cognitive Radio. This talk attracted quite a few members and resulted in some very stimulating discussions both during and after the talk. We chatted over pizzas and learned a great deal from Alan’s experience and knowledge of this field.

The inaugural meeting of the IEEE Instrumentation and Measurement Chapter, New Zealand, was officially held on 15th April 2010 and the event took place at Massey University, Palmerston North campus. The event was celebrated with a one day workshop on Sensors and Instrumentation Research in New Zealand and was attended by 23 people.

In May we saw an event organized by the newly formed Joint Chapter of Communications, Signal Processing and Information Theory in which Professor Bastiaan Kleijn took us through an interesting view of Source Coding: Principles and Outlook. A Smart Grids Workshop was held in Wellington during July which was conducted by Dr Bruno Meyer and organized by Ramesh Rayudu. Also in May we had a replay of the talk at Massey Palmerston North by Professor Emeritus Bob Hodgson that had been originally presented for the 125th Anniversary Event back in 2009. Once again it proved to be a very entertaining event and so students as well as our regular members derived great pleasure from it.

In August we had our traditional post-graduate day. This year we came to Massey University at Palmerston North (Manawatu Campus) where we had
another enthralling afternoon hearing research work being conducted at the two universities within the IEEE Central Section boundaries (Victoria University and Massey University). Approximately 46 students came along to present or support this event. All the students who gave talks were presented with a certificate for their participation in the event. The winner (for the second year in a row!) was Keith Cassell from Victoria University with a number of other very creditable performances which made the work of the judging panel very difficult indeed. Our thanks go to Fahim Abbasi and Yousuf Mughal for their fine efforts in staging this event.

Late in August, an IEEE Distinguished Lecturer from the University of Anchorage in Alaska visited us to talk about "Bridging the Broadband Divide". The presenter was Professor Heather Hudson and she gave a most interesting presentation on her work involving strategic planning of broadband access in rural and developing regions. The seminar room was filled with people from many different local organizations and was a great success. Our thanks go to Edmund Lai for helping to organize this event.

Our newly formed Instrumentation and Measurement Chapter held a second workshop on Sensors and Instrumentation in Environmental, Health and Agricultural Applications during early September that was once again well supported by researchers and industry participants. Our thanks go to Subhas Mukhopadhyay for helping to organize this event - and for managing this new Chapter.

In October we had an interesting talk by Syed Jafar from the University of California Irvine on the topic of Interference Alignment. This was held at Victoria University and once again attracted a good turnout of members and students. The talk presented a summary of the interference alignment concept and how it is applied in a variety of communication settings ranging from wireless interference networks to wired distributed data storage networks.

Finally, in late October, we had an excellent talk from our Deputy Chairman, Murray Milner on the topic of Ultra-Fast Broadband Impact on New Zealand Transport. We were able to video link this presentation to the Manawatu campus of Massey University to enable a wide audience to participate and listen to Murray’s talk.

As you can see, we have had an excellent year in which many things consolidated and we grew our services to assist the membership in a variety of different ways. As mentioned earlier, we initiated two new chapters and my thanks go to Subhas Mukhopadhyay for establishing the Instrumentation and Measurement Chapter which was a New Zealand-wide venture. Ramesh Rayudu helped to establish the New Zealand Central Section Power & Energy Society Chapter. My thanks go to all those people who worked very hard to achieve these goals. Of course, last year Edmund Lai helped to get our first technical chapter underway, viz: the Joint Chapter of Communications, Signal Processing and Information Theory. Hence, you can see that we have been very pro-active in trying to identify areas that would be of interest and benefit to our membership. Thus, if other members feel that additional chapters, representing the special interests of members in our Section, could be formed, we would be very happy to find ways of supporting these
ventures. Now that these three chapters have been formed, we need to continue to support each of these groups in the coming years.

In a number of cases we have worked with sister organizations such as IPENZ and IET to support and sponsor different events. We were unlucky this year when we attempted to set up the traditional Breakfast meeting. Unfortunately, the three speakers that we approached were all unable to commit to our event and we had to reluctantly abandon this year's event. Hopefully we can arrange another one more successfully next year!

During the year we generated a number of Newsletters to keep the membership informed. Unfortunately, the frequency of these Newsletters was not as I had hoped, but we shall try to improve on this for the future. My thanks to our Webmaster Keith for helping to find novel ways of keeping the membership informed of our events!

- Major Events (International, National)

  Our Section technically co-sponsored a number of successful conferences in our region and these included:
  - DELTA 2010
  - ATNAC 2010

- Major Chapter Activities

  **Inaugural Meeting and Workshop for IEEE New Zealand Instrumentation and Measurement Society**

  The inaugural meeting and Workshop for the IEEE Instrumentation and Measurement Chapter, New Zealand, took place on 15th April 2010 at Massey University’s Palmerston North campus. The inaugural meeting was celebrated with a one day workshop on Sensors and Instrumentation Research in New Zealand. This event was attended by 23 people.

  Subhas Mukhpadhyay welcomed all participants at the meeting and workshop. The chapter had been officially approved by IEEE HQ in March 2010. Its members represent all parts of New Zealand and thus the Chapter is affiliated with all the three IEEE Sections in New Zealand.

  At the opening ceremony, Professor Emeritus Bob Hodgson elaborated upon the usefulness of a learned society such as the IEEE in the lives of academics and the scientific community. He has recently become a Life Member of IEEE. He has regularly acted as a Student Councillor and enjoys motivating students to join the IEEE.

  He shared his feelings that, during 1970s, the presence of IEEE in New Zealand was limited and at that the time the IEEE South section was formed and he was involved in its activities from its inception. He was also very much involved and helped with the formation of IEEE NZ Central section in 2005. He concluded by noting that there is a shortage of volunteers for IEEE activities and that any help would be very much appreciated.

  **Election of office bearers:**

  The following members of the Executive Committee were elected by the attendees:

  **Chair:** Assoc. Prof. Subhas Mukhpadhyay
Vice-chair: Dr. Ian Woodhead
Secretary: Dr. Rainer Kunnemeyer
Treasurer: Dr. Ramesh Rayudu
Industry Liaison Chair: Dr. Robin Dijkstra
Members: Dr. Keith Jones, Dr. Poul Nielsen, Prof. Adnan Al-Anbuky

Joint Chapter of Communications, Signal Processing and Information Theory

This joint chapter has also become established during 2010 and recently hosted an event in Wellington in which Professor Heather Hudson spoke on “Bridging the Broadband Divide – Strategies for Rural and Developing Region”.

Seminar by Professor Heather Hudson for the Joint Chapter of Communications, Signal Processing and Information Theory

A seminar by Professor Heather Hudson, an IEEE Communication Society Distinguished Lecturer, was held on 30 August 2010 at the Terrace Conference Centre. It was jointly sponsored by the IEEE NZ Central Section, the Joint Chapter of Communications, Signal Processing and Information Theory, and the IET Wellington Network. Professor Hudson spoke on “Bridging the Broadband Divide – Strategies for Rural and Developing Region”. Professor Hudson is particularly well qualified to speak on this topic as she is the Director of the Institution of Social and Economic Research and Professor of Public Policy at the University of Alaska, Anchorage. She has also planned and evaluated communication projects in Alaska, northern Canada and more than 50 developing countries and emerging economies in Africa, Asia, Latin America, the Caribbean, the Middle East, Eastern Europe and the South Pacific. In 2009, she held the Fulbright Visiting North American Policy Research Chair at Carleton University in Ottawa to conduct a comparative study of Canadian and US broadband policies.

The seminar was well attended by 26 members and non-members who also enjoyed a light lunch that was provided by the sponsors. The talk was well received and generated a fair amount of discussion. The slides from the talk can be obtained from Dr Edmund Lai (e.lai@massey.ac.nz).

- Major Student and Affinity Group Activities
  - Student Activities
    There were a total of 46 people registered for the Postgraduate Student event. There were approximately 18 presentations with about half of the students from Massey University and half from Victoria University. We had 3 judges on the panel, and a number of students ventured out from Victoria University on a wet and blustery day to act as supporters for their presenters. A number of supervisors of PhD students also attended during the session. The event was held at Massey University in Palmerston North. Our thanks go to Fahim Abbasi and Yousuf Mughal for their fine efforts in staging this event.
  - Women in Engineering
    We were unable to develop this project any further in 2010 due to loss of key member who was driving this initiative.
- Awards
  There were three very noteworthy awards to members of our Section in 2010:
o Professor Emeritus Bob Hodgson became a Life Member of the IEEE.
o Assoc. Prof. Subhas Mukhopadhyay was awarded as a Fellow of the IEEE.
o Dr Mansoor Shafi was awarded a joint best IEEE Paper Award.

We are very proud of these accomplishments and for the recognition of these individuals by the IEEE.

For our Postgraduate student event, the winner was Keith Cassell, for the second year in a row!

In addition, it was once again resolved that our Section would subsidise students and their fees for IEEE Student Membership and consequently we awarded 13 students the cost of the joining fee as student members of the IEEE.

A.2 Financial Report

- Summary (as per submitted L50)

  Opening bank balance $11,617.14
  Receipts $5658.73
  Payments $3747.32
  Closing Balance $13528.55

  (more details available on the L50 form)

- Any other financial activities
  o Nil

PART B - ORGANIZATIONAL ACTIVITIES

B.1 Membership Development Activities

- Total number of active members in the past 3 years. **This has been growing; membership is 238 members as of 2010.**
- Summary and evidence of work done to improve the value of membership, which leads to retention and growth of members
  - Our Section has been identified by Region 10 Industry Relations Coordinator Rajendra Asthana as having a significant number of Industry members. Here are some of the factors that were identified as reasons for this result:
    - We actually have managed to recruit a good mix of Section Committee members from industry and academia over the short time that our Section has been in existence. (We are entering our fourth year, having been a subsection of the IEEE NZ South Section for many years.)
    - This has helped to encourage attendance at our technical and AGM meetings from the industry group and this has flowed on to encourage their on-going participation in our events.
    - We have arranged joint meetings with IET and IPENZ who also have a good range of industry members. We have had a “traditional breakfast meeting” around July of each year where an industry-relevant speaker has been recruited to, once again, involve and appeal to our industry members.
    - Our membership is not large by IEEE standards, as we are in a small population country and opportunities are limited; however, we are
mindful of the overall need for industry and academia to work together for the overall prosperity of the country. We try to support each other and to retain competency and on-going development in our fields of interest and expertise.

- We attempted to have a special industry seminar evening in 2010, but ran out of time in trying to finalise the logistics of this exercise and so we plan to try once more in 2011.
- Students have been encouraged to join our Section and to form a Student Chapter. Each year we have run a Postgraduate Seminar where we showcase postgraduate work being undertaken in the two universities that form part of our Section’s region. The seminar runs for approximately half a day and industry members are encouraged to attend this event as well as undergraduate and academic staff. The objective is to show the relevance of the student work to both academia and industry. This event is rated among the highlights of our year in addition to the joint breakfast meeting mentioned above.

- Our Section has already been identified as 4th out of the top six Region 10 Sections in terms of membership retention which was rated at 89.1%. Potential reasons for this are the following initiatives:
  - Development of new chapters that meet the needs of members in our region. Two were created in 2010.
  - A Newsletter to members on a semi-regular basis reporting on past events and pointing to future activities.
  - Active lobbying by Section and Chapter executive committees.

B.2 Chapter Activities

- Total number of Chapters in the Section: 3 Chapters inclusive of Joint Chapters.
- Number of Chapters formed in the current year: 2 Chapters
- Number of Active Chapters (Chapters who have reported required number of meetings during the year): 2 Chapters
- Summary of Chapter activities chapter wise with attachment table / information: See above for details already presented.

B.3 Professional and Continuing Education Activities

Summary of continuing Educational activities including conferences, technical activities, training courses, and distinguished lecture programs with attachment table / information: See above for details already presented.

B.4 Students’ Activities

- Total number of Student branches in the Section: 0
- Number of Student branches formed in the current year: 0
- Section level student activities (student congress, paper and other contests, awards etc): Postgraduate Seminar Day with awards for best presentation. Details of 2010 event given above.
- Number of Active Student branches (Student branches who have reported required number of meetings during the year): 0
- Summary of Student branch activities student branch wise with attachment table / information: 0
B.5 Affinity Group Activities

- GOLD: Propose to investigate the formation of a GOLD group in 2011.
- WIE: Awaiting an appropriate executive committee member to push this forward.
- Life Member: One new Life member awarded in 2010, Membership/Development Officer to review potential candidates.

B.6 Awards & Recognition Activities

- Award constituted by the section: Postgraduate Seminar presentation awards.
- Award(s) received from R10: Nil
- Award(s) received from IEEE HQ: IEEE Fellow and IEEE Best Paper awards (see above for details.)

B.7 Communication Activities (Newsletter, Home Page, E-mail etc.)

- Newsletter (Name and number of issues in the year): 3 Issues in 2010
- Home Page of the Section (give the URL and frequency which it is updated) Our Web page is updated regularly for new events. Our front page is updated annually. URL: http://ewh.ieee.org/r10/nzc/
- Other means of contacts with section members: Email to members associated with release of each newsletter and every event.

B.8 Community Activities

- Robotics in schools program through Massey University supported by the IEEE.

B.9 Other Organizational Activities

- Nil

PART C - OTHERS

C.1 Relationship with National Societies

- Common membership at Committee level
- Participation in joint events – annual breakfast is collaboration between IET, IPENZ and our IEEE Section.
- Regular attendance at IET committee meetings – we have an official representative on those meetings.
- Share meeting notices with IET and IPENZ
- Partnership agreement between the three key institutions representing engineers in New Zealand, viz: IET, IPENZ and the IEEE.

C.2 Special Events

- Repeat of 125th Anniversary Talk for students and staff at Palmerston North campus as presented by Professor Emeritus Bob Hodgson.
C.3 Problems to be anticipated
- There is a continual need to attract members to Section events, regular requests for member feedback have been made, but there has been little response – how to engage with members better is a key challenge for the Section.

C.4 Best Practices of your section (which you would like share with other sections for the benefits of members)
- We are still a young Section and we are still learning.

PART D - GOALS AND PLANS

D.1 Continuation of Project/Activity in Progress and Their Implementation Plans
- Establishing two Student Chapters (one in Palmerston North and the other in Wellington) and determining suitable events that will attract student members and thence retain them once they graduate and enter the workforce.
- We also plan to further enhance the very successful Postgraduate Day by the addition of new features which may include special speakers, activities and a more extended program.
- We wish to begin implementation of a GOLD Affinity group during this year.
- We wish to further develop a “Women in Engineering” program from the momentum generated through implementation created from initiating a search for women in engineering positions around our Region so that we may begin engaging them in targeted events.

D.2 Goals and Future Plans
The following goals and plans have been identified for the Section in 2011 and beyond.
- Foster affiliated technical chapters
- Identify more chapter opportunities
- Seek to upgrade members’ grades and encourage more IEEE Fellow nominations.
- Women in Engineering promotion within the region
- Foster our public lecture series
- Revitalise and foster the annual joint breakfast event
- Develop student engagement, membership and the student chapter
- Enhance the IEEE Distinguished Lecture series by encouraging more DLT visits to New Zealand
- Define a targeted support program for local conferences and seminars