



Third International Conference on Electronic Warfare - EWCI 2014
NSSC, Indian Institute of Science, Bangalore, India (17 to 20 February 2014)
PROGRAMME SUMMARY

17 Feb 2014, Monday		Pre Conference Tutorials	Seminar Hall A
08:00 to 08:30 Hrs	Registration for the Tutorials		
08:30 to 09:00 Hrs	Inauguration of the Pre Conference Tutorials, By Chief Guest, Dr A T Kalghatgi, Director (R&D), BEL, Bangalore, India		
09:00 to 11:00 Hrs	Tutorial 1: EW Systems Operational Support, By Dr Andrea De Martino and Dr Graziano L Lincenti, Elettronica, Italy		
11:00 to 11:30 Hrs	Tea Break		
11:30 to 13:00 Hrs	Tutorial 2: New Generation (NG) Jammer for Cyber Warfare, By Dr Andrea De Martino, Elettronica, Italy		
13:00 to 14:00 Hrs	Lunch Break		
14:00 to 16:00 Hrs	Tutorial 3: EW Evolution on Future Naval Systems, By Mr Jose M Pascual, INDRA, SPAIN		
16:00 to 16:30 Hrs	Tea Break		
16:30 to 18:00 Hrs	Tutorial 4: Advanced Concepts in Radar And Electronic Warfare, By Mr Harold Screven, Northrop Grumman Systems, USA		
18 Feb 2014, Tuesday		Day 1 : Inaugural, Plenary and Technical Sessions	
08:00 to 08:45 Hrs	Registration for the Conference at the Event's Venue		
09:00 to 10:35 Hrs	Inaugural Session at J N Tata Auditorium: Introductory Address, Inauguration of the Conference and Exhibition, Release of Souvenir, Keynote Address and Addresses by Conference Chair, Technical Committee Chair and Chief Guest		
10:35 to 11:30 Hrs	Hi Tea		
11:30 to 13:00 Hrs	Plenary Session - I at J N Tata Auditorium: EW Technologies – Current and Future Trends, By Mr S P Dash, Director, DLRL, Hyderabad, DRDO, India Requirement of Coordinated EW/IO Strategies and Need to Adopt Advanced EW Systems in the Indian Armed Services By Air Marshal Matheswaran, AVSM, VM, PhD, DCIDS (PP and FD), HQ IDS, Ministry of Defence, India A Production and Operational Roadmap of EW/IO Systems in India, By Dr A Kalghatgi, Director (R&D), BEL, Bangalore, India		
13:00 to 14:00 Hrs	Lunch Break		
14:00 to 15:30 Hrs	Plenary Session - II at J N Tata Auditorium: State-of-the-Art U.S. Electronic Warfare (EW) and Information Operations (IO) Technologies By Wayne L. Shaw III, Lt. Col., USAF (Retired), President, Association of Old Crows, USA Defence Market Opportunities for RF Technologies Spanning EW and Radar Technologies, By Mr Asif Anwar, Strategy Analytics Ltd. UK The Evolution of Off-Board RF Countermeasures, By Geoff Tithcott, Selex ES Ltd., UK		
15:30 to 16:30 Hrs	Session 1 at JN Tata Auditorium	: EW SYSTEMS AND DF TECHNIQUES - I	
	Session 2 at Seminar Hall A	: EW RECEIVERS AND RF SUB SYSTEMS - I	
	Session 3 at Seminar Hall B	: ELECTRONIC ATTACK AND HIGH POWER TRANSMITTERS - I	
16:30 to 17:00 Hrs	Tea Break		
17:00 to 18:00 Hrs	Session 4 at JN Tata Auditorium	: ESM/ELINT - I	
	Session 5 at Seminar Hall A	: EW ANTENNAS & ACTIVE PHASED ARRAY SYSTEMS - I	
	Session 6 at Seminar Hall B	: COMMUNICATION EW & RCIED - I	
19:30 Hrs	Cultural Programme followed by Conference Dinner. Venue: Kalinga Hall, Hotel Lalit Ashok, High Grounds, Bangalore		
19 Feb 2014, Wednesday		Day 2 : Invited Talks and Technical Sessions	
09:00 to 09:30 Hrs	Invited Talk 1 at J N Tata Auditorium	: Future Naval Systems: Integrated Sensor Mast, By José Miguel Pascual Ruiz, INDRA, Spain	
09:30 to 11:00 Hrs	Session 7 at JN Tata Auditorium	: EW RECEIVERS AND RF SUB SYSTEMS - II	
	Session 8 at Seminar Hall A	: EW SYSTEMS AND DF TECHNIQUES - II	
	Session 9 at Seminar Hall B	: ESM/ELINT - II	
11:00 to 11:30 Hrs	Tea Break		
11:30 to 13:00 Hrs	Session 10 at JN Tata Auditorium	: EW ANTENNAS & ACTIVE PHASED ARRAY SYSTEMS - II	
	Session 11 at Seminar Hall A	: EW SIGNAL PROCESSORS AND DIGITAL RECEIVERS- I	
	Session 12 at Seminar Hall B	: COMMUNICATION EW & RCIED - II	
13:00 to 14:00 Hrs	Lunch Break		
14:00 to 14:30 Hrs	Invited Talk 2 at J N Tata Auditorium	: Future RF Technology Trends for Electronic Warfare Systems, By Asif Anwar, Strategy Analytics, Ltd., UK	
14:30 to 15:30 Hrs	Session 13 at JN Tata Auditorium	: EW ANTENNAS & ACTIVE PHASED ARRAY SYSTEMS - III	
	Session 14 at Seminar Hall A	: ELECTRONIC ATTACK AND HIGH POWER TRANSMITTERS - II	
	Session 15 Seminar Hall B	: EW SIGNAL PROCESSORS AND DIGITAL RECEIVERS – II	
15:30 to 16:00 Hrs	Tea Break		
16:00 to 18:00 Hrs	Session 16 at JN Tata Auditorium	: EO BASED EW SYSTEMS	
	Session 17 at Seminar Hall A	: ELECTRONIC ATTACK AND HIGH POWER TRANSMITTERS - III	
	Session 18 at Seminar Hall B	: EW SYSTEMS SOFTWARE ENGINEERING, MODELLING/SIMULATION & PRODUCTION	
20 Feb 2014, Thursday		Day 3 : Invited Talks, Technical Sessions and Panel Discussions	
09:00 to 09:30 Hrs	Invited Talk 3 at J N Tata Auditorium	: New Generation (NG) Jammer Architecture for Shared Apertures and for Cyber Warfare Applications, By Dr Andrea De Martino & Dr Graziano L Lincenti, Elettronica ,Italy	
09:30 to 10:30 Hrs	Session 19 at JN Tata Auditorium	: EW/EO THREAT STIMULATORS AND EW TESTING/EVALUATION - I	
	Session 20 at Seminar Hall A	: ELECTRONIC ATTACK AND HIGH POWER TRANSMITTERS - IV	
	Session 21 at Seminar Hall B	: COMMUNICATION EW & RCIED - III	
10:30 to 11:00 Hrs	Tea Break		
11:00 to 12:00 Hrs	Session 22 at JN Tata Auditorium	: EW/EO THREAT STIMULATORS AND EW TESTING/EVALUATION – II	
	Session 23 at Seminar Hall A	: EW SIGNAL PROCESSORS AND DIGITAL RECEIVERS- III	
	Session 24 at Seminar Hall B	: EW SYSTEMS PLATFORM & NETCENTRIC OPERATION	
12:00 to 13:00 Hrs	Panel Discussion and Closing Function at J N Tata Auditorium Distribution of Certificates, Discussions on Feedback, Future Course of EWCI and AOC India Chapter, Vote of Thanks		
13:00 to 14:00 Hrs	Lunch Break		
14:00 to 16:00 Hrs	Final Opportunity to visit stalls and interact with Exhibitors and End of the Conference		



Tutorial 1: 09:00 to 11:00 Hrs

EW Systems Operational Support

By Dr Andrea De Martino and Dr Graziano L Lincenti, Elettronica, Italy



The Speaker of Tutorial 1 and 2, **Dr Andrea De Martino** graduated in Nuclear Engineering (Electronic Track) and Ph.D. in Automatic Control Systems. He worked in Selenia S.p.A From 1972 to 1985 where he was involved in design of variety of Radar Systems. Since 1985 he worked in Elettronica where he developed New EW Products, Microwave to EFA-DASS. He held the position of Technical Director of the Euro-DASS Consortium. He currently holds position of CTO in Elettronica. Dr De Martino is holder of some patents, and author of the book "Introduction to Modern EW Systems" and many technical Papers on radar and EW equipment techniques and technologies.



The Co-Speaker of Tutorial 1, **Dr Graziano Lubello Lincenti**, graduated in Electronic Engineering from University of Bari (ITALY).He began his career as Digital Signal Processing designer at the TELETTRA Military Communications Laboratory on Adaptive Channel Equalizers for HF communications. He was responsible for the development of a Fast Adaptive Echo Canceller for EUROCOM Military Phone, New Generation Digital TV Transmitters at ITELCO and Analogue and Digital Radio and TV Transmitters at Unicom SpA. In 2005, he joined ELETTRONICA, responsible for COMINT/ELINT Systems and currently involved in the development of a new generation ELINT/COMINT systems for different platforms including UAV. Dr. Lubello is the author of several technical papers on signal processing topics and Electronic Warfare system architectures

Coverage: The operation of the EW Systems require a number of gathered (by HUMINT, ELINT, etc.), processed and stored intelligence data to be supplied in order to provide them with the threat identification and classification and the effective Electronic Countering. These processes are performed in an EW System Support Facility (EWSSF) that provides Pre-mission Threat Library Preparation, Library Validation and Threat Countering Effectiveness for all the EW system of a combat aircraft or ship. The prepared Library, downloaded into the EW System, and the latter are then tested in a Laboratory of the EWSSF provided with Test Systems capable to generate a number of emitter signals which simulate the environmental scenario of the combat aircraft or ship envisaged mission. This phase is called Emitter Library Validation.

Jamming Programs can be applied by an EW system against an identified threat downloaded into the EW system and their effectiveness is tested in a Laboratory of the EWSSF provided with Threat Simulators. The tested jamming programs are ranked according to their effectiveness and the most effective ones are downloaded into the EW system of the combat mission completing the Mission Library Validation phase of an EW system of a combat aircraft or ship.

At the Workshop the above phases will be described in detail and reference will be made to the EWSSF of the Italian MoD supplied by Elettronica.

Tea Break: 11:00 to 11:30 Hrs

Tutorial 2: 11:30 to 13:00 Hrs

New Generation (NG) Jammer for Cyber Warfare

By Dr Andrea De Martino Elettronica, Italy



Coverage: In modern EW scenarios the success of an intruder A/C wing attack is provided with the presence of at least a couple of Escort Jammers, capable to impair not only the operation of the radars but also the Communication Network of the Integrated Air Defence System(IADS). Elettronica has developed a modular and scalable New Generation (NG) Jammer Architecture that copes with all the required jamming and Cyber Attack capabilities associated to the roles of the intruder wing A/C components (for SPJ/ESJ/SOJ/CSJ Jammers. IADS Networks and especially the battlefield ones are operating through RF communication links. Cyber Warfare against IADS, usually connected to a Command, Control, and Communication Centre (C4) through a wireless network, can be conducted by two methods, either by introducing some malware into opponent computer network or by preventing it to receive the correct information data. The second method can be pursued through a NG RF Jammer capable to produce a variety of deceptive messages that generate confusion among the various nodes of the opponent wireless IADS Network.

The Tutorial will deal first with the NG Jammer Architecture by illustrating examples of its modularity and scalability in the provision of the different required capabilities (SPJ, ESJ, CSJ, and SOJ) and then with the applicable jamming principles to wireless Defence Network of Elettronica NG Jammer provided with Cyber Warfare capabilities.

Lunch Break: 13:00 to 14:00 Hrs

Tutorial 3: 14:00 to 16:00 Hrs

EW Evolution on Future Naval Systems

By Mr Jose M Pascual, INDRA, SPAIN

The Speaker, **Mr José Miguel Pascual Ruiz**



is a Telecommunication Engineer from the Universidad Politécnica de Madrid (Spain). He has lead technological innovations at INDRA in SIGINT, DRFM and Digital Reception Technology presently deployed on INDRA EW products. Mr. Pascual has been involved on most of Spanish Intelligence and EW Tactical programs and on numerous international projects; also participated in several study groups including NIAG reports on geolocation and ESM systems.

Mr. Pascual has authored many Technical Papers and delivered invited speeches on Specialised University Courses, Study Groups or Military Academies. Presently he is Technology and Product Development Deputy Director at INDRA.

Coverage: Introducing the Context and the Requirements to be supported by EW Naval Systems, the evolution of present naval operations, scenario and ship threat evolution together with platform integration constraints it is reviewed. Basics of the core technology that provides an answer to the previous requirements, with emphasis on the Radar Band EW are presented, as Digital Reception capabilities and processing.

Future Naval Systems Integration concepts and Integrated Design Approaches are described. A development strategy is defined; taking into account the synergistic opportunities for integrated/common design on the different functions but maintaining full specification or improved performances with an example on EW & Radar architecture convergence. Main development elements - Digital Transmitter & Receiver Modules or digital Combiner/Distributor modules together with Power Amplifier Technology are introduced.

Development examples for these and other synergistic cases like Communications EW are also presented. For ESM, Evolution on EW Naval Systems, state of the art DRX based architectures to provide full bandwidth, dynamic range, complete parameter measurements by Digital Reception is presented. Also integration of ESM and ECM based on modern DRFM techniques explained.

On the countermeasures analysis side, High ERP based on mechanical pointing or electronically pointing devices is explained. Other important issues to consider on the analysis of new EW systems as logistics, maintainability or training are also described.

Tea Break: 16:00 to 16:30 Hrs

Tutorial 4: 16:30 to 18:00 Hrs

Advanced Concepts in Radar And Electronic Warfare

By Mr Harold Screven, Northrop Grumman Systems, USA

The Speaker, **Mr Harold Screven** is the



Product Architect for the CEESIM Product Line and Manages the Product Architecture Group at Northrop Grumman Amherst Systems. He has been actively involved with the Radar and Electronic Warfare communities for 25 Years and has been an employee of Northrop Grumman for a total of 20 years.

In the past Mr. Screven has held positions as a Principal Radar Systems Engineer, Product Development Manager, Staff Systems and Software Engineer. In addition, Mr. Screven is currently serving as the Vice President of the Niagara Frontier Chapter of the AOC.

Coverage: This presentation will focus on the critical details of radar and Electronic Warfare (EW) systems function and operation. Recent advancements that have been made in the fields of radar and EW, and their impact on performance, will be discussed.

The types and functions of radar systems encountered on the electronic battlefield are examined. The Electronic Counter Measure (ECM) methods commonly used against these radars, as well as the radars' methods of countering ECM (ECCM), are explored.

EW Receivers' processing of received pulses, and methods used to determine important threat parameters such as frequency, power, and angle of arrival, are also discussed. This tutorial is aimed at participants with a basic knowledge of radar and EW principles.

**EWCI 2014: INAUGURAL FUNCTION PROGRAMME (FINAL)**On **TUESDAY, 18 February 2014**Venue: **J N Tata Auditorium, Duration 09:00 to 10:35 Hrs**

09:00 to 09:10 Hrs	Invocation and Lighting the Lamp	
09:10 to 09:20 Hrs	Introductory Address	By Conference Chair Dr U K Revankar , President, AOC India Chapter, Bangalore, India
09:20 to 09:25 Hrs	Inauguration of Conference, Release of Souvenir	By Chief Guest Mr S K Sharma , Chairman & MD, BEL, Bangalore, India
09:25 to 09:35 Hrs	About the Conference	By Chair, Conference Technical Committee Mr J Shanker Rao , Scientist G, DLRL, Hyderabad, India
09:35 to 09:45 Hrs	Dignitary Address	By Mr S S Sundaram Director General (ECS), DRDO, New Delhi, India
09:45 to 10:00 Hrs	Keynote Address	By Air Marshal M Matheswaran AVSM VM, Ph D, DCIDS (PP&FD), IDS, New Delhi, India
10:00 to 10:15 Hrs	Keynote Address	By Col. Wayne L Shaw III USAF (Retd), President, AOC HQ, USA
10:15 to 10:30 Hrs	Inaugural Address	By Chief Guest Mr S K Sharma , Chairman & MD, BEL, Bangalore, India
10:30 to 10:35 Hrs	Vote of Thanks	By Conference Co-Chair Mr T N Yadgiri Rao , Vice President, AOC India Chapter
10:35 Hrs	Inauguration and Visit of Technical Exhibition	By the Chief Guest and Dignitaries
10:35 to 11:30 Hrs	Hi Tea	

Day 1 : PLENARY SESSION I**TUESDAY, 18 February 2014**Venue: **J N Tata Auditorium**Chair: **Mr I V Sarma**, Former Director (R&D), Bharat Electronics Limited, Bangalore, IndiaCo-Chair: **Mr J Shanker Rao**, Scientist G, Defence Electronics Research Laboratory, Hyderabad, DRDO, India

Duration: 11:30 to 13:00 Hrs

Plenary Talk 1	EW Technologies – Current and Future Trends Mr S P Dash Director, DLRL, Hyderabad, DRDO, India	11:30 to 12:00 Hrs
Plenary Talk 2	Requirement of Coordinated EW/IO Strategies and Need to Adopt Advanced EW Systems in the Indian Armed Services Air Marshal M Matheswaran , AVSM, VM, PhD DCIDS (PP and FD), HQ Integrated Defence Services, Ministry of Defence, India	12:00 to 12:30 Hrs
Plenary Talk 3	A Production and Operational Roadmap of EW/IO Systems in India Dr A T Kalghatgi Director (R&D), Bharat Electronics Limited (BEL), Bangalore, India	12:30 to 13:00 Hrs

13:00 to 14:00 Hrs : Lunch Break**Day 1 : PLENARY SESSION II****TUESDAY, 18 February 2014**Venue: **J N Tata Auditorium**Chair: **Dr U K Revankar**, Former Director DARE, DRDO & President AOC India Chapter, Bangalore, IndiaCo-Chair: **Mr H V Harish**, CEO, Spur India Limited & Secretary AOC India Chapter, Bangalore, India

Duration: 14:00 to 15:30 Hrs

Plenary Talk 4	State-of-the-Art U.S. Electronic Warfare (EW) and Information Operations (IO) Technologies Wayne L. Shaw III, Lt. Col., USAF (Retired) President, Association of Old Crows, USA	14:00 to 14:30 Hrs
Plenary Talk 5	Defence Market Opportunities for RF Technologies Spanning EW and Radar Technologies Mr Asif Anwar Strategy Analytics Ltd. UK	14:30 to 15:00 Hrs
Plenary Talk 6	The Evolution of Off-Board RF Countermeasures Geoff Tithecott Selex ES Ltd., UK	15:00 to 15:30 Hrs



Day 1: TECHNICAL SESSIONS 1 and 4

TUESDAY, 18 February 2014

Venue: J N Tata Auditorium

Session 1		EW SYSTEMS AND DF TECHNIQUES - I	
Chairman: Air Marshal M Matheswaran, AVSM VM, Ph D DCIDS (PP & FD) IDS, India Co Chairman: S K Acharya GM,BEL, India Duration: 15:30 to 16:30 Hrs	015R007	Ground-Based Passive Emitter Geo-Location in Mountainous Terrains Hafedh Trigui Ultra Electronics TCS, Canada	15:30 to 15:50 Hrs
	082R059	10 Gigabit Sensor Processing Simplifies EW System Development Dr. Dipak Roy D-TA Systems Inc., Canada	15:50 to 16:10 Hrs
	033R004	Dual Band TDOA Based RF Emitter Location System Y Sree Ramya, G Nagendra Rao ICOMM Tele Ltd, Hyderabad	16:10 to 16:30 Hrs
16:30 Hrs to 17:00 Hrs : Tea Break			
Session 4		ESM/ELINT - I	
Chairman: Asif Anwar Strategy Analytics Ltd., UK Co Chairman: M Balachary Scientist G DLRL, DRDO Duration: 17:00 to 18:00 Hrs	069R048	A Novel Compact DF Processor for UAV Based ESM/ELINT Applications M A Satish Babu, R V Hara Prasad, R Rama Rao, J Shanker Rao Defence Electronics Research Laboratory, Hyderabad	17:00 to 17:20 Hrs
	043R037	Two Dimensional Base Line Interferometer Antenna Array for ELINT System Ezharul Ansari, K Bhramaramba, B Rama Krishna, H Sudhir, M Balachary Defence Electronics Research Laboratory, Hyderabad	17:20 to 17:40 Hrs
	044R035	A Novel Direction of Arrival Estimation Method Based on K-means Clustering and Base Line Interferometry Nilotpal Saikia, Sudeshna Das, S Bhupender Singh, M K Das Defence Electronics Research Laboratory, Hyderabad	17:40 to 18:00 Hrs

TUESDAY, 18 February 2014		Day 1: TECHNICAL SESSIONS 2 and 5		Venue: Seminar Hall A
Session 2		EW RECEIVERS AND RF SUB SYSTEMS - I		
Chairman: Lt Gen Rajesh Pant VSM AVSM, Commandant, MCTE, MHOW Co Chairman: M V Gowtama GM, BEL, India Duration: 15:30 to 16:30 Hrs	037R042	The Design of Ultra Narrow-band Amplifiers Using Small Signal Varactor Up-Converters for ESM, ECM, ECCM, and ELINT Applications Dr Alfred I, Grayzel, Dr Ashok K Gorwara, Paul Kuhn Planar Monolithics Industries, Inc	15:30 to 15:50 Hrs	
	067R054	Amplitude and Phase Tracking of a Multi-Channel RF-Front-End System/Receiver A R P Mallika Defence Electronics Research Laboratory, Hyderabad	15:50 to 16:10 Hrs	
	004R022	Broadband Extended Dynamic Range Detector LOG Video Amplifier Raghvendra Rai, R Sivakumar, Amit Kumar, R Manjunath, L Shantha Kumar Bharat Electronics Limited, Bangalore	16:10 to 16:30 Hrs	
16:30 Hrs to 17:00 Hrs : Tea Break				
Session 5		EW ANTENNAS & ACTIVE PHASED ARRAY SYSTEMS - I		
Chairman: Geoff Tithecott Selex ES Ltd, UK Co Chairman: Dr M Lakshminarayana Scientist G DLRL, DRDO Duration: 17:00 to 18:00 Hrs	041R063	Radiation Pattern Estimation of Electrically Large Structures using Measured Primary Sources and Advanced Numerical Modelling L J Foged, B. Bencivenga, F Saccardi, L Scialacqua, F Mioc, G Arcidiacono, M Sabbadini, S Filippone, E di Giampaolo Microwave Vision Group, Italy	17:00 to 17:20 Hrs	
	050R044	Ultra Broadband Helix Spiral Antenna for Amplitude Comparison Direction Finding System Dr M Chakravarthy, M Balachary, BrahmaDev Shaw, P Sowmya Defence Electronics Research Laboratory, Hyderabad	17:20 to 17:40 Hrs	
	070R028	Broad Band Antenna Analysis for Electronic Warfare Systems Ir Kalyan Vaddagiri, Kannaiyan Pandurangan Computer Simulation Technology, India	17:40 to 18:00 Hrs	



Session 3		ELECTRONIC ATTACK AND HIGH POWER TRANSMITTERS - I	
Chairman: T N Yadgiri Rao Vice President AOC India Chapter, India Co Chairman: M K Das Scientist G DLRL, DRDO Duration: 15:30 to 16:30 Hrs	031R002	Advances in the Development of Multi-Octave Band Mini-TWTs for MPMs in EW Applications Tushar K Ghosh, Anthony Tokeley, Michael J Duffield, Kevin Rushbrook, Ian Poston, Daniel Scott, Alan Jacob, Darrin Bowler e2v Technologies Ltd, UK	15:30 to 15:50 Hrs
	020R014	Design & Development of Compact 1.5KW Pulsed Electronic Power Conditioner Jinan OK, Jayaraju KM, Sandeep Kumar Singh, Balaji P, Sandhya Rani SR Bharat Electronics Limited, Bangalore	15:50 to 16:10 Hrs
	005R013	Design & Development of 100W L Band Power Amplifier Pankaj Gupta, Ms Nagaveni H, Prakash S P Bharat Electronics Limited, Bangalore	16:10 to 16:30 Hrs
16:30 Hrs to 17:00 Hrs : Tea Break			
Session 6		COMMUNICATION EW & RCIED - I	
Chairman: Wayne L. Shaw III, Lt. Col., USAF (Retired) President AOC, USA Co Chairman: R V Hara Prasad Scientist G DLRL, DRDO Duration: 17:00 to 18:00 Hrs	034R006	Fast Reaction Counter RCIED Comm-Jam System Capable of Trigger-Man Localisation Andrea De Martino, Graziano Lubello Linceni Elettronica S.p.A, Italy	17:00 to 17:20 Hrs
	051R080	Challenges and Opportunities of Modern Radio and Wireless Communication Technologies for Electronic Warfare Wimpie Van Den Berg GEW Technologies, South Africa	17:20 to 17:40 Hrs
	032R009	Multi Band Multi-Function Receiver For Communication EW Y Padma, G Nagendra Rao ICOMM Tele Ltd, Hyderabad	17:40 to 18:00 Hrs

Cultural Programme and Conference Dinner

Cultural Programme by: Krishna Fusion Band

Date and Time: Tuesday, 18 February 2012 (Day 1) at 19:00 Hrs

Venue: Kalinga Hall, Hotel Lalit Ashok, High Grounds, Bangalore



Krishna Fusion Band: The Krishna Fusion Band is focused around the magnificent instrument called the 'bansuri' or the bamboo flute. It is a beautiful amalgamation of various genres of music that are prevalent in the country and hence the name. It has variety ranging from the classical ragas to rock, from the folklore to jazz, from Carnatic to Bollywood etc which makes it unique and probably the only band which can cater to a wide range of music lovers. What is most attractive is the fact that Pravin Godkhindi, the founder and the lead bansuri artiste of the band never compromises with the aesthetic appeal of the basic Indian ragas around which all the build-up of the concert happens.

With the band, a classical music lover gets his share of the purity of raga and the calm soothing effect of the traditional music, a teenager gets his share of foot-tapping or head-banging-stuff, the general music lover gets his share of the popular folk and film music.

Day 2: TECHNICAL SESSIONS 7, 10, 13 and 16			
WEDNESDAY, 19 February 2014		Venue: J N Tata Auditorium	
Invited Talk 1	INV 1	Future Naval systems: Integrated Sensor Mast José Miguel Pascual Ruiz, INDRA, Spain	09:00 to 09:30 Hrs
Session 7			
Chairman: Dr Robert S Andrews EWST Ltd, UK Co Chairman: Anupam Sharma Scientist G DLRL, DRDO	088R056	Frequency Synthesis Techniques Mark Elo, Gigatronics, USA	09:30 to 09:50 Hrs
	096R079	Software Defined COMINT Extraction Receiver for Communication EW Applications Gaurav Lohiya, KSC Mouleswara Rao, Lakshminarayana Merugu Defence Electronics Research Laboratory, Hyderabad	09:50 to 10:10 Hrs
	021R025	Dual Band Broadband Filter for Electronic Warfare Systems D Packiaraj, Bharat Electronics Limited, Bangalore	10:10 to 10:30 Hrs
	068R031	Design and Development of V/UHF Tuner (20-3000 MHz) Sheesh Ram, N Leela Madhuri, Defence Electronics Research Laboratory, Hyderabad	10:30 to 10:50 Hrs
Duration: 09:30 to 11:00 Hrs	002R017	Designing of Ultra-wide Band High Pass Filter Using Element Absorption Technique in Suspended Substrate Strip Line Mahadev Sarkar, Shantha Kumar L, Bharat Electronics Limited, Bangalore	10:50 to 11:10 Hrs
11:00 to 11:30 Hrs : Tea Break			
Session 10			
Chairman: Prof K J Vinoy IISc, India Co Chairman: Dr M Lakshminarayana Scientist G DLRL, DRDO Duration: 11:30 to 13:00 Hrs	045R041	Compact Discone Antenna with Small Form Factor in VHF Band Takeshore Khumanthem, C Sairam, S D Ahirwar, M Balachary Defence Electronics Research Laboratory, Hyderabad	11:30 to 11:50 Hrs
	092R078	Active Array Elements for EW Phased Array Priya Suresh N, Dr K Maheshwara Reddy and Prof K J Vinoy Defence Avionics Research Establishment and Prof IISc, Bangalore	11:50 to 12:10 Hrs
	091R062	Versatile In-Situ Near-Field Measurement System for EW Testing Scenarios A Gandois, P Garreau, P O Iversen, F Saccardi, L J Foged, Microwave Vision Group, Italy	12:10 to 12:30 Hrs
	001R016	Design of Monopulse Network for C Band Array Rahul Sadhu, ShanthaKumar L, Bharat Electronics Limited, Bangalore	12:30 to 12:50 Hrs
13:00 to 14:00 Hrs : Lunch Break			
Invited Talk 2	INV 2	Future RF Technology Trends for Electronic Warfare Systems Asif Anwar, Strategy Analytics, Ltd., UK	14:00 to 14:30 Hrs
Session 13			
Chairman: Dr K Maheshwara Reddy, Sc 'H' DARE, DRDO Co Chairman: Raghurama Aithal, AGM, BEL Duration: 14:30 to 15:30 Hrs	064R069	High Power Dual Polarized Horn Antenna K Bhramaramba, Madhavi Chandra, H Sudhir, M Balachary Defence Electronics Research Laboratory, Hyderabad	14:30 to 14:50 Hrs
	058R040	Three Bay Antenna Sub-System for Direction Finding Applications in 20-3000 MHz C Sairam, S D Ahirwar, Takeshore Khumanthem, M Balachary Defence Electronics Research Laboratory, Hyderabad	14:50 to 15:10 Hrs
	061R045	Miniaturized Broadband Spiral Antenna Using Hybrid Loading for Phase Comparison Direction Finding System Dr M Chakravarthy, M. Balachary, Ajoy Kumar Mondal, P Sowmya Defence Electronics Research Laboratory, Hyderabad	15:10 to 15:30 Hrs
15:30 to 16:00 Hrs : Tea Break			
Session 16			
Chairman: Dr A K Gupta OS & Director IRDE, DRDO Co Chairman: N Srinivasa Rao Scientist G DLRL, DRDO Duration: 16:00 to 18:00 Hrs	072R066	The Next Generation in Aircraft Protection against Advanced MANPADS Stuart Chapman, Selex ES Ltd., UK	16:00 to 16:20 Hrs
	052R067	Laser-Based DIRCM Systems for Commercial and Military Aircraft Dr Linda Neumann, Elbit Systems Electro-Optics, Elop, Israel	16:20 to 16:40 Hrs
	029R047	DIRCM Jamming Effect Analysis For First Generation Missile Seekers Mandar Naik, Vijaya Kumar, DV Renuka Defence Avionics Research Establishment, Bangalore	16:40 to 17:00 Hrs
	053R030	Innovative Military Electro-Optics Dr Linda Neumann, Andrew Lovett, Moshe Ziv, Ron Nadler Elbit Systems Electro-Optics, Elop, Israel	17:00 to 17:20 Hrs

EW SYSTEMS AND DF TECHNIQUES - II			
Session 8 Chairman: Dr A T Kalghatgi Director R&D BEL, India Co Chairman: V Mahesh, Chief Scientist CRL, India Duration: 09:30 to 11:00 Hrs	038R021	TDOA based LF System Architecture and Implementation Anubhav Adak, K Srinivasa Raju, Y Purushottam, KSC Mouleswar Rao Defence Electronics Research Laboratory, Hyderabad	09:30 to 09:50 Hrs
	039R073	New Emerging Trends In ES Systems For Accurate Geo Location of Radar Emitters Prof G Kumaraswamy Rao Head R&D BIET R R District, Hyderabad	09:50 to 10:10 Hrs
	081R---	All-in-Small™ – An advanced Unified EW Suite for Helicopter Protection Jonathan Aybes, Eilon Brenner, Elbit Systems EW and SIGINT Elbit Systems EW and SIGINT – Elisra, Israel	10:10 to 10:30 Hrs
	098R---	Electronic Surveillance and the Asia Pacific Region Mr Jeff Walsh, AOC Director – International Region II Australian Chapter Association of Old Crows, Australia	10:30 to 10:50 Hrs
11:00 to 11:30 Hrs : Tea Break			
EW SIGNAL PROCESSORS AND DIGITAL RECEIVERS - I			
Session 11 Chairman: Philip Jacob GM BEL, India Co Chairman: L Ramakrishna AGM CRL, India Duration: 11:30 to 13:00 Hrs	035R001	A Robust Machine Learning Approach to Emitter De-Interleaving and Characterization Simone Filice, Danilo Croce, Roberto Basili Elettronica S.p.A, Italy	11:30 to 11:50 Hrs
	056R---	Augmented Identification System for Modern Radars OK Singh, Sarada, Srikanth, T Ravi Kishore Defence Electronics Research Laboratory, Hyderabad	11:50 to 12:10 Hrs
	055R043	Implementation of Multiple Signal Classification Algorithm on PXI Hardware using Graphical Programming Language Sampathkumar Desai, Abraham George, Nikhil Kumar NI Systems (India) Private Limited, Bangalore	12:10 to 12:30 Hrs
	087R064	Intra-Pulse Processing Algorithm for Linear Frequency Modulated Radar Signal Analysis A R Sachin, Hemant Vasant Paranjape and Dr K Maheswara Reddy Defence Avionics Research Establishment, Bangalore	12:30 to 12:50 Hrs
13:00 to 14:00 Hrs : Lunch Break			
ELECTRONIC ATTACK AND HIGH POWER TRANSMITTERS - II			
Session 14 Chairman: Dr Lalit Kumar Director MTRDC, DRDO Co Chairman: Dr Sudhir Kamat Scientist MTRDC, DRDO Duration: 14:30 to 15:30 Hrs	006R015	Development of Compact, Wideband Power Amplifier in VUHF band Chandrashekar K, Ms Nagaveni H, Prakash S P, Bharat Electronics Limited, Bangalore	14:30 to 14:50 Hrs
	060R036	Advanced Noise Jamming Techniques for Radar EA Systems Sourabh Kesharwani, N S K Reddy, Uttam M Magdum, R Anand, DD Sarma, J Shanker Rao, Defence Electronics Research Laboratory, Hyderabad	14:50 to 15:10 Hrs
	095R074	Design and Development of C-Ku Band MPM Based Transmitter for Airborne EW Applications Neeraj Kumar, AK Singh, K. Mirjith, M SrinivasRao, Ganapati Hegde, P Sidharthan, M. Santra, SUM Reddy, Nagabhushana R, Kavitha M and Lalit Kumar Microwave Tube Research & Development Centre (MTRDC), Bangalore	15:10 to 15:30 Hrs
15:30 to 16:00 Hrs : Tea Break			
ELECTRONIC ATTACK AND HIGH POWER TRANSMITTERS - III			
Session 17 Chairman: Jeff Walsh Director International Region 2 AOC, Australia Co Chairman: R V Hara Prasad Scientist G DLRL, DRDO Duration: 16:00 to 17:00 Hrs	030R005	EA Performance Evaluation of a Short Range Surface to Air Missile Weapon Platform using a LPI Radar in a Dense Jamming Environment Prof G Kumaraswamy Rao, Dr K V Ranga Rao, R&D BIET, Professor Emeritus, Hyderabad	16:00 to 16:20 Hrs
	046R---	DRFM Based Implementation of Cross Eye Jamming Sourabh Kesharwani, N S K Reddy, Uttam M Magdum, R Anand, DD Sarma, J Shanker Rao, Defence Electronics Research Laboratory, Hyderabad	16:20 to 16:40 Hrs
	097R081	Design and Development of Microwave Power Module for Shipborne EW Application Naveen Kumar Sharma, Khilawan Choudhary, Santosh Kumar Jha, Zabiula A.J, K.Mirjith, P.Sidharthan, R Seshadri, Sudhir Kamath and Lalit Kumar Microwave Tube Research & Development Centre (MTRDC), Bangalore	16:40 to 17:00 Hrs

WEDNESDAY, 19 February 2014			
Session 9		ESM/ELINT – II	
Chairman: S Bimal Khedkar Chief Mentor EWAS, India Co Chairman: DVSR Murthy Scientist G DLRL, DRDO Duration: 09:30 to 11:00 Hrs	047R046	Feature Based Radar Antenna Scan Pattern Recognition Technique for ESM Systems Nidhi Verma, Dipankar Nath, M M K P S S Sriram Sista Defence Electronics Research Laboratory, Hyderabad	09:30 to 09:50 Hrs
	057R038	Efficient Memory Utilization Technique for Electronic Support Processor in high Pulse Density Environment M Srinivasa, Seshachary, K Radha Krishna Defence Electronics Research Laboratory, Hyderabad	09:50 to 10:10 Hrs
	010R024	High-Pressure Frame Assembly for Submarine Based ESM System Ch D Maheswara Roy Bharat Electronics Limited, Hyderabad	10:10 to 10:30 Hrs
	073R052	Digital Rx Based ELINT System Architecture For Airborne Application Deepti A, Om Prakash, Gautam Kumar, J Vijayalakshmi, A K Singh, R V Hara Prasad R Rama Rao (retd) Defence Electronics Research Laboratory, Hyderabad	10:30 to 10:50 Hrs
11:00 to 11:30 Hrs : Tea Break			
Session 12		COMMUNICATION EW & RCIED - II	
Chairman: CVS Sastry OS & Director ANURAG, DRDO Co Chairman: S D Malleswara Rao Scientist G DLRL, DRDO Duration: 11:30 to 13:00 Hrs	026R012	Adaptive Antenna Array Processing For Co-Site Interference Cancellation in Tactical Radios Venkatamuni T, Vasudha C, Rambabu G, Kalyani Murthi Bharat Electronics Limited, Bangalore	11:30 to 11:50 Hrs
	028R019	Intelligent Receivers for Electronic Warfare Applications A K Karthik, Jameer Ali M S, A Bhagavathi Rao Uurmi system Pvt. Ltd, Hyderabad	11:50 to 12:10 Hrs
	008R020	Miniaturization of Wideband COMINT Systems for Tactical Applications Gaurav Jyoti Phukan Bharat Electronics Limited, Bangalore	12:10 to 12:30 Hrs
	027R051	A Novel Method for Spectrum Sensing of Linear Modulation Schemes A K Karthik, Jameer Ali M S, Zafar Ali Khan, A Bhagavathi Rao Uurmi system Pvt. Ltd, Hyderabad	12:30 to 12:50 Hrs
	085R034	Latest Technologies in countering Radio Controlled Improvised Explosive Devices KBSN Srinivasa Rao, Bhanu Prakash. M Bharat Electronics Limited, Hyderabad	12:50 to 13:10 Hrs
13:00 to 14:00 Hrs : Lunch Break			
Session 15		EW SIGNAL PROCESSORS AND DIGITAL RECEIVERS – II	
Chairman: José Miguel Pascual Ruiz INDRA, Spain Co Chairman: D D Sarma Scientist G DLRL, DRDO Duration: 14:30 to 15:30 Hrs	090R058	Comparative Analysis of Algorithms for Frequency Measurement in Monobit Receivers Sarath Kundumatathil Mohanan, Hemant Paranjape, Abhijit Kulkarni, K Maheswara Reddy Defence Avionics Research Establishment, Bangalore	14:30 to 14:50 Hrs
	007R023	Product Design of FDM De-Multiplexer Using DFSS Methodologies Ravinder Kumar, Karthikeyan A Bharat Electronics Limited, Hyderabad	14:50 to 15:10 Hrs
	086R065	Study and Analysis of an Integrated Circuit Design of a Compressed Sampling Ultra Wideband Digital Receiver For Electronic Warfare Chandan C Mishra, K Krishna Naik, M Sreenivasa Rao, K Maheshwara Reddy Defence Avionics Research Establishment, Bangalore	15:10 to 15:30 Hrs
15:30 to 16:00 Hrs : Tea Break			
Session 18		EW SYSTEMS SOFTWARE ENGINEERING, MODELLING/SIMULATION & PRODUCTION	
Chairman: Col (Retd) H S Shankar CEO, ADTL, India Co Chairman: Wg Cdr (Retd) Athmaram CEO, AEDS & ED, India Duration: 16:00 to 18:00 Hrs	083R070	Physics-Based EW Environment Simulation Graham James, ESL Defence Ltd, UK	16:00 to 16:20 Hrs
	022R076	A Modernized Approach for effective Situation Awareness R Pitchammal, Vikrant Sudda Defence Avionics Research Establishment, Bangalore	16:20 to 16:40 Hrs
	076R033	Realistic Models Development For EW Scenario Simulation J Nanda Kishore, G Siva Prasad Defence Electronics Research Laboratory, Hyderabad	16:40 to 17:00 Hrs
	019R026	Certification Aspects of Mission Critical Software Prodeep Kalita Bharat Electronics Limited, Bangalore	17:00 to 17:20 Hrs
	078R032	Designing EW System Power Sources to Pass the CS101 Requirement of MIL-STD-461D-F Kevin Seaton, Leonard Leslie, VPT Incorporated, USA	17:20 to 17:40 Hrs
	011R018	EW Antennas – Criticalities in Production Ch Viswanadham, Chinna Nagesh Bharat Electronics Limited, Hyderabad	17:40 to 18:00 Hrs

THURSDAY, 20 February 2014		Day 3: TECHNICAL SESSION 19 and 22		Venue: J N Tata Auditorium
Invited Talk 3	INV 3	New Generation (NG) Jammer Architecture for Shared Apertures and for Cyber Warfare Applications Andrea De Martino and Graziano Lubello Lincinti , Elettronica S.p.A.-Italy		09:00 to 09:30 Hrs
Session 19		EW/EO THREAT STIMULATORS AND EW TESTING/EVALUATION - I		
Chairman: Dr Andrea De Martino CTO Elettronica, Italy	054R055	Evolving Requirements for EW Threat Simulation Harold Screven Northrop Grumman Systems Corporation, USA		09:30 to 09:50 Hrs
	016R061	A Ground and/or Ship Based Integrated Electronic Warfare Trainer/Test System Robby Miles Ultra Electronics TCS, Canada		09:50 to 10:10 Hrs
	071R049	EW Operational Support for End-to-End Capability Dr Richard Birchenall Selex ES Ltd., UK		10:10 to 10:30 Hrs
Co Chairman: Dr R Pragasam Scientist G DLRL, DRDO				
Duration: 09:30 to 10:30 Hrs				
10:30 to 11:00 Hrs : Tea Break				
Session 22		EW/EO THREAT STIMULATORS AND EW TESTING/EVALUATION - II		
Chairman: Harold J Screven Northrop Grumman, USA	079R071	New Modelling Techniques for Real Time RCS and Radar Target Generation Dr Robert S Andrews EW Simulation Technology Ltd, UK		11:00 to 11:20 Hrs
	042R075	Creating and Analysing Multi-Emitter Environment Test Signals with COTS Equipment Ashutosh Dwivedi Agilent Technologies India Pvt Limited, Bangalore		11:20 to 11:40 Hrs
	040R029	Novel Approach to FPGA Based Automated Direction Finding Algorithm in Multi-Emitter Environment Tarun Gupta, Hardik Asawa, Shivansh Chaudhary NI Systems (India) Private Limited, Bangalore		11:40 to 12:00 Hrs
Co Chairman: Dr B Rama Krishna Rao Scientist G DLRL, DRDO				
Duration: 11:00 to 12:00 Hrs				

THURSDAY, 20 February 2014		Day 3: TECHNICAL SESSIONS 20 and 23		Venue: Seminar Hall A
Session 20		ELECTRONIC ATTACK AND HIGH POWER TRANSMITTERS - IV		
Chairman: Dr Graziano L Lincinti Elettronica, Italy	077R068	MPMs Meet EW Challenges with Advances in High Power Design Steve Walley dB Control, USA		09:30 to 09:50 Hrs
	093R---	The Impact of GaN RF Technology on C-IED and Electronic Warfare Capability T Dekker, C Harris, R Pengelly and S Wood Cree Inc., USA		09:50 to 10:10 Hrs
	080R067	High Power Surface Mount Switch-Limiter Module Chandu Sirimalla, Rick Cory Aeroflex, USA		10:10 to 10:30 Hrs
Co Chairman: K S C Mouleswara Scientist G DLRL, DRDO				
Duration: 09:30 to 10:30 Hrs				
10:30 to 11:00 Hrs: Tea Break				
Session 23		EW SIGNAL PROCESSORS AND DIGITAL RECEIVERS - III		
Chairman: R C Agarwal OS & Director DEAL, DRDO	049R039	Pulse De-interleaving and Emitter Processing Using Support Vector Clustering B Babu Lal, K Radhakrishna Defence Electronics Research Laboratory, Hyderabad		11:00 to 11:20 Hrs
	089R057	A Simulation Study on PRI De-interleaving (PRIDE) Algorithm for EW Receivers Resmi Johnson, Riya George, NNSRK Prasad Aeronautical Development Agency (ADA), Bangalore		11:20 to 11:40 Hrs
	075R053	LPI Digital Receiver For The Interception and Analysis of Pulse Compression Radar Signals VVSRN Raju, Gautam Kumar, Y Uttara Kumari, A K Singh, R V Hara Prasad, R Rama Rao (Retd) Defence Electronics Research Laboratory, Hyderabad		11:40 to 12:00 Hrs
Co Chairman: O K Singh Scientist G DLRL, DRDO				
Duration: 11:00 to 12:00 Hrs				

THURSDAY, 20 February 2014		Day 3: TECHNICAL SESSIONS 21 and 24		Venue: Seminar Hall B
Session 21		COMMUNICATION EW & RCIED - III		
Chairman: Manjula J Sc 'H', DLRL, DRDO Co Chairman: V Revathi Scientist G DLRL, DRDO Duration: 09:30 to 10:30 Hrs	025R011	A Novel Spectrum Management Scheme for Uninterrupted Communication in Electronic Warfare Nanda Kishore Chavali, Syed Zeeshan Ismail, A Bhagavathi Rao Uurmi system Pvt. Ltd, Hyderabad	09:30 to 09:50 Hrs	
	013R003	Design and Implementation of FPGA Based Modem for Hand Held Radio Satyendra Kumar, Nidhi Srivastava, M S S D Senapathy Bharat Electronics Limited, Bangalore	09:50 to 10:10 Hrs	
	024R008	Intelligent Electronic Counter Measure Solution To Defeat The Growing Menace of Remotely Controlled Improvised Devices (RCIED) in a Low Intensity Combat (LIC) War Prof G Kumaraswamy Rao, Dr R Sreehari Rao Head R&D BIET R R District, V C KL University Guntur	10:10 to 10:30 Hrs	
10:30 to 11:00 Hrs : Tea Break				
Session 24		EW SYSTEMS PLATFORM & NETCENTRIC OPERATION		
Chairman: Dr Balaji C G Scientist H DLRL, DRDO Co Chairman: Y Gopala Krishna Scientist G DLRL, DRDO Duration: 11:00 to 12:00 Hrs	084R072	Design of Quad-Copter 'ADITYA' For Surveillance Applications Rajendra S Gad , Narayan T Vetrekar, Jivan S Parab, Gourish M Naik Department of Electronics-Goa University, Goa, India	11:00 to 11:20 Hrs	
	036R060	WSN Based First Level Ground Defense for Antitank Missile Santanu Chatterjee, Vinod K Mahor, A Kalidasu, Sandip Roy Research Center Imarat, DRDO, Hyderabad	11:20 to 11:40 Hrs	
	017R027	Cyber Warfare Raju G M K Bharat Electronics Limited, Bangalore	11:40 to 12:00 Hrs	

THURSDAY, 20 February 2014		Day 3: Panel Discussion and Closing Function		Venue: J N Tata Auditorium
Panel Discussion	Topic: EW Technologies – Trends in R&D and Production Scenario			
Duration: 12:00 to 13:00 Hrs	Panellists: Representatives from DRDO, DPSU, IDS, AOC, Private Industry			
13:00 to 14:00 Hrs: Lunch Break				
14:00 to 16:00 Hrs: Final opportunity to visit stalls and interact with Exhibitors				
16:00 Hrs : End of the Conference				

CONTACT DETAILS

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