

**Fifth International Conference on Electronic Warfare - EWCI 2018**  
**NSSC, Indian Institute of Science, Bangalore, India ( 13 to 16 February 2018 )**  
**TENTATIVE PROGRAMME SUMMARY**

<b>13 Feb 2018, Tuesday</b>		<b>Pre-Conference Tutorials</b>	<b>Venue : Seminar Hall A</b>
08:30 to 09:00Hrs	<b>Registration for the Tutorials</b>		
09:00 to 09:30 Hrs	<b>Inauguration of the Pre Conference Tutorials, By Chief Guest</b>		
09:30 to 11:00 Hrs	<b>Tutorial 1: Airborne SIGINT Operation</b> , By Dr. Andrea De Martino and Mr Alessio Campana, Elettronica S.p.A.-Italy		
11:00 to 11:30Hrs	<b>Tea Break</b>		
11:30 to 13:00 Hrs	<b>Tutorial 2: EW Applications vs DRONE/UAV/RPV Proliferation</b> , BY Mr José Miguel Pascual Ruiz, Mr David Lazaro Loscos, INDRA, Spain		
13:00 to 14:00 Hrs	<b>Lunch Break</b>		
14:00 to 15:30 Hrs	<b>Tutorial 3: Cross - Eye Jamming - Problems and Potential</b> , Dr. Warren du Plessis ,University of Pretoria, South Africa		
15:30 to 16:00 Hrs	<b>Tea Break</b>		
16:00 to 17:30 Hrs	<b>Tutorial 4: Cost Effective, High Performance Networked ELINT Systems for C4ISR Missions</b> , Mr Hafedh Trigui, Ultra Electronics TCS, Canada		
<b>14 Feb 2018, Wednesday</b>		<b>Day 1 : Inaugural, Plenary and Technical Sessions</b>	
08:00 to 08:45 Hrs	<b>Registration for the Conference at the Event's Venue</b>		
09:00 to 10:45Hrs	<b>Inaugural Function at J N Tata Auditorium:</b> Introductory Address, Inauguration of the Conference , Release of Souvenir, Keynote Address, Patron Address, Theme Talk and Addresses by Conference Chair, Technical Committee Chair and Chief Guest		
10:45 to 11:15Hrs	Inauguration and Visit of Technical Exhibition by Dignitaries		
10:45 to 11:15Hrs	<b>Hi Tea</b>		
11:15 to 12:00 Hrs	<b>Time to Visit Technical Exhibition</b>		
12:00 to 13:00Hrs	<b>Plenary Session - I at J N Tata Auditorium:</b> <b>Current Trends in EW Technology</b> , By Lisa K Fruge - Cirilli, President, AOC International, USA <b>Challenges in Development of Next Generation EW Systems</b> , By Dr AK Singh, OS and Director, DLRL, DRDO, Hyderabad, India		
13:00 to 13:45Hrs	<b>Lunch Break</b>		
13:45 to 14:30 Hrs	<b>Time to Visit Technical Exhibition</b>		
14:30 to 15:30 Hrs	<b>Plenary Session - II at J N Tata Auditorium:</b> <b>Current Technology EW Systems - Development to Production in Indian Scenario</b> , By Dr A T Kalghatgi, Director R & D, BEL, Bangalore <b>Modern Trends in Airborne EW / EO Systems - An Indian Overview</b> , By Dr K Maheswara Reddy, OS and Director, DARE, DRDO, Bangalore		
15:30 to 16:00 Hrs	<b>Invited Talk 1 at J N Tata Auditorium</b> : <b>Trends in International Development of Electromagnetic Spectrum Operations</b> By Dr Sue Robertson, AOC International Region 1 Director		
16:00 to 16:30 Hrs	<b>Tea Break</b>		
16:30 to 17:30 Hrs	<b>Session 1 at JN Tata Auditorium</b>	: EW SYSTEMS AND DF TECHNIQUES– I	(3 Papers)
	<b>Session 2 at Seminar Hall A</b>	: ELECTRONIC ATTACK, ECCM AND HIGH POWER TRANSMITTERS – I	(3 Papers)
	<b>Session 3 at Seminar Hall B</b>	: EW RECEIVERS AND RF SUB SYSTEMS – I	(3 Papers)
19:00 Hrs	<b>Cultural Programme followed by Conference Dinner</b> <b>Venue : Convention Hall, Hotel RG Royals, Bangalore</b>		
<b>15 Feb 2018, Thursday</b>		<b>Day 2 : Invited Talks and Technical Sessions</b>	
09:00 to 09:30Hrs	<b>Invited Talk 2 at J N Tata Auditorium</b>	<b>: EW Training with Software-Defined Radio (SDR)</b> , By Prof. Warren du Plessis, South Africa	
09:30 to 10:00Hrs	<b>Invited Talk 3 at J N Tata Auditorium</b>	<b>: Hostile Drone Protection Systems and EW UAV Application/Equipment</b> By Mr José Miguel Pascual Ruiz and Mr David Lazaro Loscos, INDRA, Spain	
10:00 to 11:00 Hrs	<b>Session 4 at JN Tata Auditorium</b>	: EW SIGNAL PROCESSORS AND DIGITAL RECEIVERS - I	(3 Papers)
	<b>Session 5 at Seminar Hall A</b>	: EW SYSTEMS AND DF TECHNIQUES– II	(3 Papers)
	<b>Session 6 at Seminar Hall B</b>	: EW THREAT SIMULATORS AND EW TESTING / EVALUATION – I	(3 Papers)
11:00 to 11:30 Hrs	<b>Tea Break</b>		
11:30 to 12:50 Hrs	<b>Session 7 at JN Tata Auditorium</b>	: EW SOFTWARE ENGINEERING AND MODELING – I	(4 Papers)
	<b>Session 8 at Seminar Hall A</b>	: NETWORK CENTRIC AND INFORMATION WARFARE	(4 Papers)
	<b>Session 9 at Seminar Hall B</b>	: EW SYSTEMS AND DF TECHNIQUES –III	(4 Papers)
12:50 to 13:30 Hrs	<b>Lunch Break</b>		
13:30 to 14:00 Hrs	<b>Time to Visit Technical Exhibition</b>		
14:00 to 14:30 Hrs	<b>Invited Talk 4 at J N Tata Auditorium</b>	<b>: Ideas and Approaches on the Past and the Future of SWaP SIGINT Receiver Architectures</b> By Volker Brands and Mark Reinhard, Narda Safety Test Solutions GmbH, Germany	
14:30 to 15:00 Hrs	<b>Invited Talk 5 at J N Tata Auditorium</b>	<b>: ELINT/ESM Systems for Unmanned Air Vehicles</b> By Hafed Trigui and Robby Miles, Ultra Electronics TCS, Canada	
15:00 to 16:00Hrs	<b>Session 10 at JN Tata Auditorium</b>	: ELECTRONIC ATTACK, ECCM AND HIGH POWER TRANSMITTERS – II	(3 Papers)
	<b>Session 11 at Seminar Hall A</b>	: EW THREAT SIMULATORS AND EW TESTING / EVALUATION – II	(3 Papers)
	<b>Session 12 at Seminar Hall B</b>	: EW SIGNAL PROCESSORS AND DIGITAL RECEIVERS – II	(3 Papers)
16:00 to 16:30 Hrs	<b>Tea Break</b>		
16:30 to 18:10 Hrs	<b>Session 13 at JN Tata Auditorium</b>	: COMMUNICATION EW - I	(3 Papers)
	<b>Session 14 at Seminar Hall A</b>	: EW RECEIVERS AND RF SUB SYSTEMS – II	(5 papers)
	<b>Session 15 at Seminar Hall B</b>	: EW SOFTWARE ENGINEERING AND MODELING – II	(5 Papers)
<b>16 Feb 2018, Friday</b>		<b>Day 3 : Invited Talks, Technical Sessions and Conclusion Session</b>	
09:00 to 09:30 Hrs	<b>Invited Talk 6 at J N Tata Auditorium</b>	<b>: Counter-Drone Solutions : The Multi-Domain, Multi-Spectral Approach</b> Alessio Campana , Sr. Eng. Sci. Office, Electronica S.p.A., Italy	
09:30 to 10:30Hrs	<b>Session 16 at JN Tata Auditorium</b>	: EW SYSTEMS AND DF TECHNIQUES – IV	(3 Papers)
	<b>Session 17 at Seminar Hall A</b>	: ELECTRONIC ATTACK, ECCM AND HIGH POWER TRANSMITTERS – III	(3 Papers)
	<b>Session 18 at Seminar Hall B</b>	: COMMUNICATION EW - II	(3 Papers)
10:30 to 11: 00Hrs	<b>Tea Break</b>		
11:00 to 12:20 Hrs	<b>Session 19 at JN Tata Auditorium</b>	: EW SIGNAL PROCESSORS AND DIGITAL RECEIVERS – III	(3 Papers)
	<b>Session 20at Seminar Hall A</b>	: EW SYSTEMS AND DF TECHNIQUES– V	(3 Papers)
	<b>Session 21 at Seminar Hall B</b>	: EW RECEIVERS AND RF SUB SYSTEMS – III	(3 Papers)
12:20 to 13:15Hrs	<b>Concluding Session at J N Tata Auditorium</b> : Distribution of Certificates, Discussions on Feedback, Vote of Thanks		
13:15 to 14:00 Hrs	<b>Lunch Break</b>		
14:00 to 16:30 Hrs	<b>Final Opportunity to Visit Stalls and Interact with Exhibitors and End of the Conference</b>		



**Tutorial 1 : 09:30 to 11:00 Hrs**

**Airborne SIGINT Operation**

**By Dr Andrea De Martino and Mr Alessio Campana, Elettronica, Italy**



**The Speaker 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 currently holds position of CTO in Elettronica, Italy. Dr De Martino is a patent holder and author of the book "Introduction to Modern EW Systems" and many Technical Papers on Radar and EW.

**Coverage:** Signals Intelligence (SIGINT) is a fundamental capability of the Electronic Warfare (EW), determining the Electronic Order of Battle (EOB), which encompasses the localisation and the identification of the Radars and Comms Nodes associated to the Weapon Systems and the Networks displaced in the adversary territory. SIGINT equipment are installed on board large aircraft, provided with powerful Signal and Data Processors, feed Monitors, large capacity Data Recorders, supervised by a number of skilled Signal Corps operators, for delivery of the mission-recorded data to the further SIGINT Ground Base analyses.



**The Co-Speaker Mr Alessio Campana** served as combat pilot in the Italian Air Force from 1994 to 2000 and while in service, obtained the Master Degree in Telecommunication Engineering at Roma Tor Vergata University in 2002. As Engineer in Telecommunication,

Modern Communications and Electronic Signals equipment are adopting a number of Electronic Protection Measures (EPM) to their Signal Generation Techniques (such as Spread Spectrum, SDR, LPI, Cognitive Waveforms etc.) in order to prevent (or at least strongly reduce) their detection and classification from the SIGINT Aircraft, operating remotely. This new situation has to be tackled by adding to the mission a number of specialised (either ELINT or COMINT) drones which are addressed by the SIGINT A/C towards the presumed zones provided with the above equipment in order to provide better detection, recording and Change Detection information of their signal transmissions. The Tutorial deals with the technical requirements of the Aircraft and drones SIGINT signal processing (SP) and equipment and shows some relevant solutions provided by Elettronica S.p.A., Roma.

he covered multiple technical and managerial roles in GSM/UMTS Networks, LTE Radio Networks and Senior Technical Trainer. In 2010, he joined Elettronica, Italy, as Senior Engineer, as Research and Development System Project Manager for Electronic Warfare Solutions. Currently, he is in the Corporate Chief Scientist Office as Senior Expert for CONOPS and Operational Scenarios, with an additional role of Technical Proposal Manager for Capability Marketing and Business Development activities.

**Tea Break : 11:00 to 11:30 Hrs**

**Tutorial 2 : 11:30 to 13:00 Hrs**

**Electronic Warfare Applications Vs DRONE/UAV/RPV Proliferation - Protection against Hostile RPV, EW Evolution and RPV Uses  
By Mr Jose Miguel Pascual Ruiz and Mr David Lazaro Loscos  
INDRA, Spain**



**The Speaker Mr José Miguel Pascual Ruiz** is a Telecommunication Engineer and has lead technological innovations at INDRA in SIGINT/ELINT, 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.

**Coverage:** UAV/RPV proliferation has resulted in an increased EW threat requiring protection and also as the platform capable to expand EW applications to improve the projection of EW assets. In urban environment, for irregular/asymmetric confrontation or terrorism protection, the use of EW EA has an advantage avoiding the risk of collateral damages, applying a proportionated response. General requirements of such a protection system will be presented, combining sensors as Radar, EO/IR cameras, and EW equipment working in combination, to defeat this threat. Military UAV or small UAVs on open range or urban environment need this multi-sensor detection combination to avoid false alarm and high probability of detection at long ranges even against very low radar cross section flying objects with different approaching profiles.

Mr. Pascual has authored many Technical Papers. Presently he is Technology and Product Development Deputy Director at INDRA, Spain.

**The Co-Speaker, Mr David Lázaro Loscos** is a Computer



Science Engineer and has lead multiple Digital Reception innovative developments for INDRA EW products. He has worked as System Engineer in multiple international projects based on RWR / ELINT / ESM INDRA products based on digital reception technology, also participated in international study groups on LPI radar detection and digital reception technology. He is Area Director at INDRA, in charge of the definition and development for new EW Sensors.

Contribution of EW Electronic Attack assets on this confrontation is achieved by special EA/Jamming modes, spoofing/deception, tracking/identification, supplantation, that can be also included as part of the inventory of Ground/Land base EA stations. Implementation of multifunctional ESM/ELINT equipment, lighter and modular scalable architectures compatible for UAV, POD or platform integrated EW equipment, result in efficient overall approach. This technology is combined with interoperability, cooperative uses. Compact EW Digital Receiver based ELINT/ESM equipment architecture suitable for lighter equipment and higher integration is also reviewed together with main component, building block evolution.

**Lunch Break : 13:00 to 14:00 Hrs**



**EWCI 2018 : PRE-CONFERENCE TUTORIALS  
on Tuesday, 13 February 2018 (Afternoon)**

**Tutorial 3 : 14:00 to 15:30 Hrs**

**Cross-eye Jamming – Problems and Potential  
By Dr. Warren du Plessis , University of Pretoria, South Africa**



**The Speaker Dr Warren du Plessis** received the B.Eng. (Electronic), M.Eng. (Electronic) and Ph.D. (Engineering) degrees from the University of Pretoria in 1998, 2003 and 2010 respectively, winning numerous academic awards

including the prestigious Vice Chancellor and Principal's Medal. He has been working in EW and radar since 2006 and is currently Associate Professor at the University of Pretoria. Prof. du Plessis is a Senior Member of the IEEE and a Lifetime Member of the AOC. He is author of 46 journal and conference papers. While best known for his work on cross-eye jamming, Prof. du Plessis has also published in a number of other fields related to EW including thinned antenna arrays, communications intelligence (COMINT), and the role of EW and its relationships to other similar fields.

**Coverage:** The concepts underlying cross-eye jamming were patented in the late 1950s, but it was only in 2000 that the first cross-eye jammers suitable for operational use were publicly disclosed. This tutorial will describe cross-eye jamming in terms of both the traditional phase-front analysis and more modern analyses. From this introduction, the unique attributes which have led to the long-term interest in cross-eye jamming will be highlighted. Comparisons to other jamming techniques with similar capabilities will be made to emphasise the unique benefits achievable by cross-eye jamming. The significant challenges associated with implementing practical cross-eye jammers will be analysed to provide an indication of their magnitudes, and possible solutions to these challenges will be described and evaluated. The tutorial will include descriptions of measurements which have been performed, by a laboratory simulation to confirm that cross-eye jamming actually works and to prove that the modern analyses of cross-eye jamming are correct. A proof-of-concept system, which was implemented and successfully tested against a monopulse radar, will also be described and evaluated.

**Tea Break : 15:30 to 16:00Hrs**

**Tutorial 4 : 16:00 to 17:30 Hrs**

**Cost Effective, High Performance Networked ELINT Systems  
for C4ISR Missions  
By Mr Hafedh Trigui, Ultra Electronics TCS, Canada**



**The Speaker Mr Hafedh Trigui** has received a Bachelor degree of Electrical Engineering from the National Engineering School of Sfax (Tunisia), a Master degree in Information Treatment and Processing from the University de

Nice Sophia Antipolis (France) and a Ph.D in Electronics and Communications from the Ecole Nationale Supérieure de Telecommunications (Paris, France) in 1994, 1995 and 1999 respectively. He has been involved in modem, antenna and wireless communications network design activities at Telecom Modus, Arraycomm, TenXc Wireless, Cartiza Networks and Reverb Networks. In 2010, he joined the Electronic Warfare department of Ultra Electronics TCS where he is involved in a number of Systems, R&D and Products Management activities.

**Coverage:** Border and coastal surveillance is a high priority for each country to counter a large number of threats to its economy and sovereignty. Collected information from various sensors is securely transmitted through radio networks to a command and control station where it is processed and used to build and maintain a common situation awareness picture of the operational environment. The network is known as command, control, communications, computers, intelligence, surveillance and reconnaissance (C4ISR). Using exemplary ELINT missions, we show in the tutorial that the requirements for the Army, the Air Force and the Navy are similar and therefore it will be possible to bring these organisations together through a common C4ISR network that can be overlaid to legacy networks and evolve with time to replace them. ELINT and radio technologies and systems that make the C4ISR network cost effective and achieve high performance are discussed. Establishing a common C4ISR network for the three organisations enables tight collaboration between them resulting in efficient strike capabilities and the creation of cross domains expertise much needed in the battlefield.

**17:30 Hrs : End of EWCI 2018 Pre-Conference Tutorials**

# Inaugural Function

**14 February 2018**

**Venue: J N Tata Auditorium**

**Duration: 09:00 to 11:15Hrs**

09:00 to 09:10 Hrs	Invocation and Lighting of 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 09:30 Hrs	Inauguration of Conference and Release of Souvenir	By Chief Guest
09:30 to 09:40 Hrs	About the Conference	By Chair, Conference Technical Committee Mr J Shanker Rao, Scientist H (Retd), DRDO, India
09:40 to 09:55 Hrs	Patron Address	Dr A K Kalghatgi, Director(R&D), BEL, Bangalore
09:55 to 10:10 Hrs	Key Note Address	
10:10 to 10:25 Hrs	Key Note Address	By Lisa K Fruge - Cirilli, President, AOC International, USA
10:25 to 10:40 Hrs	Inaugural Address	By Chief Guest
10:40 to 10:45 Hrs	Vote of Thanks	By Conference Co-Chair Mr T N Yadgiri Rao, Vice President, AOC India Chapter
10:45 to 11:15 Hrs	Inauguration and Visit of Technical Exhibition	By the Chief Guest and Dignitaries
<b>10:45 to 11:15 Hrs : Hi Tea</b>		
<b>11:15 to 12:00 Hrs : Time to Visit Technical Exhibition</b>		

**14 February 2018**

**Day 1 : PLENARY SESSION I**

**J N Tata Auditorium**

**Chair :**

**Co-Chair :**

**Duration:** 12:00 to 13:00 Hrs

<b>Plenary Talk 1</b>	<b>Current Trends in EW Technology</b> By Lisa K Fruge - Cirilli, President AOC International, USA	12:00 to 12:30 Hrs
<b>Plenary Talk 2</b>	<b>Challenges in Development of Next Generation EW Systems</b> By Dr AK Singh, OS and Director DLRL, DRDO, Hyderabad, India	12:30 to 13:00 Hrs

**13:00 to 13:45 Hrs : Lunch Break**

**13:45 to 14:30 Hrs : Time to Visit Technical Exhibition**

**14 February 2018**

**Day 1 : PLENARY SESSION II and Invited Talk 1**

**J N Tata Auditorium**

**Chair :** Dr U K Revankar, Former Director DARE, DRDO & President, AOC India Chapter Bangalore, India

**Co-Chair :** Mr H V Harish, CEO, Spur India Limited & Secretary, AOC India Chapter Bangalore, India

**Duration :** 14:00 to 16:00 Hrs

<b>Plenary Talk 3</b>	<b>Current Technology EW Systems – Development to Production in Indian Scenario</b> Dr A T Kalghatgi, Director R & D Bharat Electronics Ltd., Bangalore, India	14:00 to 14:30 Hrs
<b>Plenary Talk 4</b>	<b>Modern Trends in Airborne EW / EO Systems – An Indian Overview</b> Dr K Maheshwara Reddy, OS and Director DARE, DRDO, Bangalore, India	14:30 to 15:30Hrs
<b>Invited Talk 1</b>	<b>Trends in International Development of Electromagnetic Spectrum Operations</b> By Dr Sue Robertson, AOC International Region 1 Director	<b>15:30 to 16:00 Hrs</b>

**16:00 to 16:30 Hrs : Tea Break**

14 February 2018		Day 1 : TECHNICAL SESSION 1		J N Tata Auditorium
<b>Chairman:</b>	<b>EW SYSTEMS AND DF TECHNIQUES - I</b>			
<b>Co Chairman:</b>	040R008	<b>Hostile Drone Protection System</b> J.M.Pascual, J.P.Gómez, F. Barbero, F. Vázquez & D. Lázaro INDRA, Spain	16:30 to 16:50 Hrs	
	R011	<b>Advances in EW Technologies and Systems</b> Lt Cdr Deepak Lavaniya Indian Navy	16:50 to 17:10 Hrs	
	039R009	<b>Electronic Warfare Systems vs DRONE_UAV_RPV Proliferation</b> D.Lázaro, F.Vázquez, J.M.Pascual, M.Solano, J.A.Gismero & B.Vizoso INDRA, Spain	17:10 to 17:30 Hrs	
<b>Duration:</b> 16:30 to 17:30 Hrs				
<b>End of the Day 1. Cultural Programme and Conference Dinner at 19:00 Hrs Venue: Convention Centre, Hotel RG Royals, Bangalore</b>				

14 February 2018		Day 1 : TECHNICAL SESSION 2		Seminar Hall A
<b>Chairman:</b>	<b>ELECTRONIC ATTACK, ECCM AND HIGH POWER TRANSMITTERS – I</b>			
<b>Co Chairman:</b>	R048	<b>Novel GaN Based Solid State Power Amplifiers From Leonardo For EW Applications, Results, Advances And Comparison With Vacuum Tubes based Microwave Power Modules</b> Marco Li Vecchi, Francesco Di Maggio, Antonino Spatola, Leonardo Spa Airborne and Space System Division, via Villagrazia 79, Palermo, Italy	16:30 to 16:50 Hrs	
	R072	<b>Current Technology Trends in High Power MPMs</b> By Jacob Thampan and Steve Walley, dB Control Inc, USA	16:50 to 17:10 Hrs	
	001R004	<b>Injection of Malicious Programs by Tactical Jammers into Target Combat Systems</b> Commander TRS Kumar, Staff Officer (Communication & EW), HQWNC, Indian Navy	17:10 to 17:30 Hrs	
<b>Duration:</b> 16:30 to 17:30 Hrs				
<b>End of the Day 1. Cultural Programme and Conference Dinner at 19:00 Hrs Venue: Convention Centre, Hotel RG Royals, Bangalore</b>				

14 February 2018		Day 1 : TECHNICAL SESSION 3		Seminar Hall B
<b>Chairman:</b>	<b>EW RECEIVERS AND RF SUB SYSTEMS – I</b>			
<b>Co Chairman:</b>	043R058	<b>Challenges in the Design of ELINT Receiver for High Altitude Platforms</b> S Lalitha, Sc-E, T Abhilash, Sc-D, Defence Electronics Research Laboratory, DRDO, Hyderabad	16:30 to 16:50 Hrs	
	025R021	<b>RF Chain and ADC Interface in Radar warning (digital) receiver</b> Girish M, Sc 'D', Parvin Kumar Sc 'D', Loksha BN, Sc'F', Vengadesh Kumar, Sc 'E' Defence Avionics Research Establishment , DRDO, Bangalore	16:50 to 17:10 Hrs	
	042R061	<b>Compact RF Proximity Fuse in C-Band : A Design Approach</b> Dr.R.Pragasam, T.Abhilash, C.Vasanth Kumar and N.Leelamadhuri Defence Electronics Research Laboratory, DRDO, Hyderabad	17:10 to 17:30 Hrs	
<b>Duration:</b> 16:30 to 17:30 Hrs				
<b>End of the Day 1. Cultural Programme and Conference Dinner at 19:00 Hrs Venue: Convention Centre, Hotel RG Royals, Bangalore</b>				



<b>Invited Talk 2</b>	<b>EW Training with Software-Defined Radio (SDR)</b> Prof. Warren du Plessis, University of Pretoria, South Africa		09:00 to 09:30 Hrs
<b>Invited Talk 3</b>	<b>Hostile Drone Protection Systems and EW UAV Application/Equipment</b> Mr J.M. Pascual Ruiz and D.Lazaro, INDRA, Spain		09:30 to 10:00 Hrs
<b>Session 4</b>	<b>EW SIGNAL PROCESSORS AND DIGITAL RECEIVERS - I</b>		
<b>Chairman:</b>	033R007	<b>Recent Advances in Low latency Data Conversion for E.W. Applications</b> A. Glascott-Jones, N. Chantier, F. Bore, M. Wingender, G. Wagner, M. Stackler & R. Pilard e2V, UK	10:00 to 10:20 Hrs
<b>Co Chairman:</b>	024R022	<b>SNR considerations for detection of 100 ns pulse in a digital receiver</b> Girish M, Sc 'D', Lokesha BN, Sc 'F', Vengadesh Kumar, Sc 'E' & Parvin Kumar Sc 'D' Defence Avionics Research Establishment (DARE), DRDO, Bangalore	10:20 to 10:40 Hrs
<b>Duration:</b> 10:00 to 11:00 Hrs	007R024	<b>A method of resolving and routing name based connections for multi-processor communication</b> Anitha.K.M, Madhukesh U.H, Kathirvel. R Bharat Electronics Limited, Bangalore	10:40 to 11:00 Hrs
<b>11:00 to 11:30 Hrs : Tea Break</b>			
<b>Session 7</b>	<b>EW SOFTWARE ENGINEERING AND MODELING – I</b>		
<b>Chairman:</b>	R015	<b>Automatic Label De-cluttering for real-time Situation Monitor Display</b> Rajesh M A, Sc 'E', Rakesh K P, Sc 'C', Shibumon Alampatta, Sc 'D' Centre for Artificial Intelligence and Robotics, DRDO, Bangalore	11:30 to 11:50 Hrs
<b>Co Chairman:</b>	R030	<b>Big Data Analytics for Military Operations</b> CP Amulya Sc-E, S.K.Gupta, Sc-E, Ravi Tudu, Sc-D, CS Krishna Kumar Sc-F Defence Electronics Research Laboratory, DRDO, Hyderabad	11:50 to 12:10 Hrs
<b>Duration:</b> 11:30 to 12:50 Hrs	011R042	<b>Radar Target Classification for Electronic Warfare</b> Divya N , V Thilagavathi Central Research Laboratory, Bharat Electronics Limited, Bangalore	12:10 to 12:30 Hrs
	R034	<b>Parameters Modeling of Digital Pre-distortion for Wide Band Power Amplifier</b> Lalit Kumar Sc 'C', Kumar Gautam Sc 'F', Ch. Arun Kumar Sc 'E' , Defence Electronics Research Laboratory, DRDO, Hyderabad	12:30 to 12:50 Hrs
<b>12:50 to 13:30 Hrs: Lunch Break</b>			
<b>13:30 to 14:00 Hrs: Time to Visit Technical Exhibition</b>			
<b>Invited Talk 4</b>	<b>Ideas and Approaches on the Past and the Future of SWaP SIGINT Receiver Architectures</b> Mr Volker Brands and Mr Mark Reinhard, L3 Technologies, Narda Safety Test Solutions GmbH, Germany		14:00 to 14:30 Hrs
<b>Invited Talk 5</b>	<b>ELINT/ESM Systems for Unmanned Air Vehicles</b> Hafed Trigui and Robby Miles, Ultra Electronics TCS, Canada		14:30 to 15:00 Hrs
<b>Session 10</b>	<b>ELECTRONIC ATTACK, ECCM AND HIGH POWER TRANSMITTERS – II</b>		
<b>Chairman:</b>	005R005	<b>Realization &amp; Performance Evaluation of High Gain Fast Switching 100W L - Band SSPA</b> Pankaj Gupta , Sudip Kumar Murmu, Ambethkar.K , Prakash S.P & Kalyani Murthy Bharat Electronics Limited, Bangalore	15:00 to 15:20 Hrs
<b>Co Chairman:</b>	004R013	<b>Reliability Analysis of Ku Band Microwave Power Module Power Supply for Airborne Application</b> Khilawan Choudhary, P. Sidharthan Microwave Tube Research & Development Centre, DRDO, Bangalore	15:20 to 16:40 Hrs
<b>Duration:</b> 15:00 to 16:00 Hrs	008R012	<b>Design &amp; Development of 500W, 225-1000MHz Solid State Power Amplifier for Jammer</b> Chandrashekar K, Nagaveni H, Devendra M.C, Prakash S.P, Kalyani Murthy , Bharat Electronics Limited, Bangalore	15:40 to 16:00 Hrs
<b>16:00 to 16:30 Hrs : Tea Break</b>			
<b>Session 13</b>	<b>COMMUNICATION EW – I</b>		
<b>Chairman:</b>	R028	<b>Implementation of Hardware Efficient Programmable Wideband Demodulators in Communication ESM Receivers</b> K. Bhaskar Kumar, Sc 'C', V.Srinivas, Sc 'E', Omkar K Othekar, Sc 'D' & Kumar Gautam, Sc 'F' Defence Electronics Research Laboratory, DRDO, Hyderabad	16:30 to 16:50 Hrs
<b>Co Chairman:</b>	R033	<b>A Unique Approach to Realize Universal Voice Decoder Useful in Communication</b> Electronic Warfare Systems Parthraj Tripathi, Jitendra Chaubey & Anitha K, Defence Electronics Research Laboratory, DRDO, Hyderabad	16:50 to 17:10 Hrs
<b>Duration:</b> 16:30 to 18:10 Hrs	006R003	<b>Tactical Tethered Aerostat With COMINT Payload as Elevated Platform</b> Brigadier N Keshavan Unni, VSM (Retired), Pune	17:10 to 17:30 Hrs
			17:30 to 17:50 Hrs
			17:50 to 18:10 Hrs
<b>End of Day 2 for J N Tata Auditorium</b>			

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Day 2 : TECHNICAL SESSIONS 5, 8, 11, 14

Seminar Hall A

Session 5			
EW SYSTEMS AND DF TECHNIQUES– II			
<b>Chairman:</b>	022R018	<b>Undetected ISR/SIGINT Capabilities: new requirements and unconventional systems on midget underwater platforms</b> Alessio Campana Elettronica S.p.A., Rome-Italy	10:00 to 10:20 Hrs
<b>Co Chairman:</b>	026R019	<b>Next Generation Fighter EW</b> Mr. Fredrik Bergdahl Saab Technologies, GmbH, Germany	10:20 to 10:40 Hrs
<b>Duration:</b> 10:00 to 11:00 Hrs	31R026	<b>Cognitive Electronic Warfare (EW) Systems as a Training Aid</b> Prof. Warren du Plessis University of Pretoria, South Africa	10:40 to 11:00 Hrs

11:00 to 11:30 Hrs : Tea Break

Session 8			
NETWORK CENTRIC AND INFORMATION WARFARE			
<b>Chairman:</b>	<b>R014</b>	<b>Network Centric and Information Warfare</b>	<b>11:30 to 11:50 Hrs</b>
<b>Co Chairman:</b>	023R016	<b>Maritime Operations: Risk Management Strategy Using Network Centric Operations</b> Dr Narayan Panigrahi, Sc-'G', V Ramraj Center for Artificial Intelligence & Robotics, DRDO, Bangalore	11:50 to 12:10 Hrs
<b>Duration:</b> 11:30 to 12:50 Hrs	009R017	<b>Information Warfare – Origin, Concepts And Emphasis In Present Era</b> Cdr (Dr) Rishi Pamnani Indian Navy	12:10 to 12:30 Hrs
	015R059	<b>Tactical Communication Middleware for Network Centric Warfare Driven Battlefield</b> Subha P Eswaran , M. Bharathi Central Research Laboratory, Bharat Electronics Limited, Bangalore	12:30 to 12:50 Hrs

12:50 to 13:30 Hrs : Lunch Break

13:30 to 14:00 Hrs : Time to Visit Technical Exhibition

Session 11			
EW THREAT SIMULATORS AND EW TESTING / EVALUATION – II			
<b>Chairman:</b>	021R045	<b>Thermal Design of COTS based Electronic Equipment</b> Prashant & Karthikeyan A Bharat Electronics Limited, Bangalore	15:00 to 15:20 Hrs
<b>Co Chairman:</b>	017R050	<b>Design and Development of Mobile Wideband Radar Simulator</b> M.Sreenivasa Rao Defence Avionics Research Establishment, DRDO, Bangalore	15:20 to 16:40 Hrs
<b>Duration:</b> 15:00 to 16:00 Hrs	012R051	<b>Development of Electronic Counter Measure Simulator for Jammer STIR Applications</b> A.R. Sachin, Sc 'E' , M. Girish, Sc 'D' , Defence Avionics Research Establishment, DRDO Bangalore	15:40 to 16:00 Hrs

16:00 to 16:30 Hrs : Tea Break

Session 14			
EW RECEIVERS AND RF SUB SYSTEMS – II			
<b>Chairman:</b>	018R060	<b>Design of LO distribution Network in X band</b> Rahul Sadhu, A S Sowmya Reddy & Nagaveni H Bharat Electronics Limited, Bangalore	16:30 to 16:50 Hrs
<b>Co Chairman:</b>	003R010	<b>A 3-dB Multi-Octave Bandwidth Wilkinson Power Divider</b> Meenakshi Durga, Saurabh Shukla Defence Avionics Research Establishment, DRDO, Bangalore	16:50 to 17:10 Hrs
<b>Duration:</b> 16:30 to 18:10 Hrs	045R054	<b>Design of Hybrid Dual Band filter for on board navigation systems</b> Debapriya Sen, M. Ramesh, Central Research Laboratory, Bharat Electronics Limited, Bangalore	17:10 to 17:30 Hrs
	016R001	<b>LNA approaches for on-board receiver and its implementation for strategic &amp; EW applications</b> Kamaljeet Singh, A V Nirmal ISRO Satellite Centre, Old Airport Road, Bangalore	17:30 to 17:50 Hrs
	019R044	<b>A Wideband Antenna for Short Range Portable Guard Radar</b> Nikhil Gupta & Leena Maundekar Central Research Laboratory, Bharat Electronics Limited, Bangalore	17:50 to 18:10 Hrs

End of Day 2 for Seminar Hall A

15 February 2018

Day 2 : TECHNICAL SESSIONS 6, 9, 12, 15

Seminar Hall B

Session 6 <b>EW THREAT SIMULATORS AND EW TESTING / EVALUATION – I</b>			
<b>Chairman:</b>	020R006	<b>Framework for High Fidelity Simulation of Radar Electronic Warfare Scenarios</b> Sourabh Jaiswal Sc 'E', Shweta Singh, Sc 'C', Sumant Mukherjee, Sc 'G' & S.B. Taneja Institute for Systems Studies and Analyses, DRDO, Delhi	10:00 to 10:20 Hrs
<b>Co Chairman:</b>	002R002	<b>Test Method to Characterize the Chaff using Phased Array Tracking Radar</b> Raghavendra N A , Abhishek Kulkarni, Dodamani R L, Neelaraddi H K , Bharat Electronics Limited, Bangalore	10:20 to 10:40 Hrs
<b>Duration:</b> 10:00 to 11:00 Hrs	R039	<b>Complex Radar Simulation for Passive Surveillance Systems</b> V.Dhananjayulu, S. Sudha Rani, Dr.S.Varadarajan Defence Electronics Research Laboratory, DRDO, Hyderabad	10:40 to 11:00 Hrs

11:00 to 11:30 Hrs : Tea Break

Session 9 <b>EW SYSTEMS AND DF TECHNIQUES –III</b>			
<b>Chairman:</b>	032R025	<b>Networked ELINT/ESM systems for Ground and Naval Applications</b> Hafedh Trigui Ultra Electronics TCS, Canada	11:30 to 11:50 Hrs
<b>Co Chairman:</b>	041R046	<b>Assorted approaches for addressing local aerial surveillance and conflict operations</b> Guvanta V. Mate Bharat Electronics Limited, Bangalore	11:50 to 12:10 Hrs
<b>Co Chairman:</b>	027R020	<b>Hybrid Geo-Location for tactical C-ESM applications</b> Dr. Frank Langmann & Dr. Ulla Uebler Saab Technologies GmbH, Germany	12:10 to 12:30 Hrs
<b>Duration:</b> 11:30 to 12:50 Hrs	R023	<b>Stationary Emitter Location Using Differential Doppler Technique – A Study and Simulation</b> B.N.Loksha, Sc 'F', Girish M. Sc 'D', Amit Kumar, STA 'B' , Defence Avionics Research Establishment (DARE), DRDO, Bangalore	12:30 to 12:50 Hrs

12:50 to 13:30 Hrs : Lunch Break

13:30 to 14:00 Hrs : Time to Visit Technical Exhibition

Session 12 <b>EW SIGNAL PROCESSORS AND DIGITAL RECEIVERS – II</b>			
<b>Chairman:</b>	R027	<b>Design Considerations for S/W Defined Direct Conversion Receivers</b> V. Srinivas, Sc 'E', Kumar Gautam, Sc 'F', Omkar Kotheekar, Sc'D', K.Bhaskar Kumar, Sc'C' Defence Electronics Research Laboratory, DRDO, Hyderabad	15:00 to 15:20 Hrs
<b>Co Chairman:</b>	R056	<b>Analysis of effects of Noise on the performance of Digital Receiver</b> Santanu Kumar Sinha, Naveen Kumar S. Bharat Electronics Limited, Bangalore	15:20 to 16:40 Hrs
<b>Duration:</b> 15:00 to 16:00 Hrs	R031	<b>A New-Generation, High Sensitivity Digital ELINT Receiver</b> Lalit Kumar Sc-'C', Kumar Gautam Sc -'F', V Dhananjayalu 'Sc-'E Defence Electronics Research Laboratory, DRDO, Hyderabad	15:40 to 16:00 Hrs

16:00 to 16:30 Hrs : Tea Break

Session 15 <b>EW SOFTWARE ENGINEERING AND MODELING – II</b>			
<b>Chairman:</b>	R047	<b>A Robust Architecture for Protocol Analysis in the field of Satellite &amp; Telecommunications</b> Ramesha, Dy Manager Bharat Electronics Limited, Bangalore	16:30 to 16:50 Hrs
<b>Co Chairman:</b>	R040	<b>Data Fusion of PSS, ESM and Radar For comprehensive Air Situation Picture</b> Ch. Baby Rani Sc 'E', S. Sudha Rani Sc 'F' , Defence Electronics Research Laboratory, DRDO, Hyderabad	16:50 to 17:10 Hrs
<b>Co Chairman:</b>	010R049	<b>Nano Server for Airborne Applications</b> Sangeeta Srivastava, Nihar Ranjan, Saroj Bharti Central Research Laboratory, Bharat Electronics Limited, Bangalore	17:10 to 17:30 Hrs
<b>Duration:</b> 16:30 to 18:10 Hrs	014R055	<b>Dynamic Spectrum Moderator for Military Internet of Things (MIoT)</b> Ariharan V, Subha P Eswaran Central Research Laboratory, Bharat Electronics Limited, Bangalore	17:30 to 17:50 Hrs
	R057	<b>An Overview of System Management Solution in an open architecture based EW Receivers</b> Vinod Raphael Aranha, Santanu Kumar Sinha, Naveen Kumar S Bharat Electronics Limited, Bangalore	17:50 to 18:10 Hrs

End of Day 2 for Seminar Hall B



<b>Invited Talk 6</b>	<b>Counter-Drone Solutions : The Multi-Domain, Multi-Spectral Approach</b> Mr Alessio Campana , Sr. Eng. Sci. Office, Elettronica S.p.A., Italy		<b>09:00 to 09:30 Hrs</b>
<b>Session 16</b>	<b>EW SYSTEMS AND DF TECHNIQUES– IV</b>		
<b>Chairman:</b>	R032	<b>Implementation of a High Resolution Time Interval Counter in TDOA Direction Finding Receiver</b> V. Balakrishna, Sc 'D', Sudha Rani, Sc 'F' Defence Electronics Research Laboratory, DRDO, Hyderabad	09:30 to 09:50 Hrs
<b>Co Chairman:</b>	R037	<b>Algorithms for Passive Emitter Location</b> S. Sudha Rani, Sc 'F' Defence Electronics Research Laboratory, DRDO, Hyderabad	09:50 to 10:10 Hrs
<b>Duration:</b> 09:30 to 10:30 Hrs	R041	<b>Trends in VHF /UHF Direction Finding Systems</b> Y.Purushottam, Sanjay Pandav, P.Muralidhar Defence Electronics Research Laboratory, DRDO, Hyderabad	10:10 to 10:30 Hrs
<b>10:30 to 11:00: Tea Break</b>			
<b>Session 19</b>	<b>EW SIGNAL PROCESSORS AND DIGITAL RECEIVERS – III</b>		
<b>Chairman:</b>	035R068	<b>Threshold Estimation Technique for Improved IDR and Sensitivity of ESM Receiver</b> Pankaj R. Pacharne Bharat Electronics Limited, Hyderabad	11:00 to 11:20 Hrs
<b>Co Chairman:</b>	038R071	<b>Use of Parallel FFT and Multiple Sample Frequencies to Increase IF Bandwidth of Digital Receiver</b> M Pradeep Reddy & T N Tirupathirao Bharat Electronics Limited, Hyderabad	11:20 to 11:40 Hrs
<b>Duration:</b> 11:00 to 12:20 Hrs	044R073	<b>Wideband Digital Receivers for next generation EW systems</b> Vijay Ananth K, Muni Prasad K V, Vimal R and Mariappan S Data Patterns (India), Pvt Ltd, Chennai	11:40 to 12:00 Hrs
			12:00 to 12:20 Hrs
<b>12:25 to 13:15 Hrs</b>	<b>Conclusion Session:</b> <b>Discussion on Feedback</b> <b>Distribution of Certificates</b> <b>Draw of Lucky Dip</b> <b>Vote of thanks</b> <b>Conclusion</b>		
<b>13:15 to 14:00 Hrs : Lunch Break</b>			
<b>14:00 to 16:00 Hrs : Final opportunity to Visit Stalls and Interact with Exhibitors. End of the EWCI 2018</b>			

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Day 3: TECHNICAL SESSIONS 17 &amp; 20

Seminar Hall A

Session 17			
ELECTRONIC ATTACK, ECCM AND HIGH POWER TRANSMITTERS – III			
<b>Chairman:</b>	R029	<b>Digital Synthesis of Counter Signals for Communication ECM Systems in HF to C Band Frequency Ranges</b> Ch. Arun Kumar, Sc E, Manish Kumar Dehariya, Sc D, M.Madhusudan Reddy, Sc D, MV Ravindra Kumar, Sc-F Defence Electronics Research Laboratory, DRDO, Hyderabad	09:30 to 09:50 Hrs
<b>Co Chairman:</b>	028R064	<b>Implementation of SLB Scheme in Missile Channel of Phased Array Tracking Radar for Command Guidance System</b> Raghavendra N A, Abhishek Kulkarni, Doddamani R L & Neelaraddi H K, Bharat Electronics Limited, Bangalore	09:50 to 10:10 Hrs
<b>Duration:</b> 09:30 to 10:30 Hrs	029R065	<b>Performance Analysis of High Resolution Radar Waveforms for Naval Tracking Radar</b> Nirbhay Kumar Singh, Vikas Kumar, Fouziya C, T.Venkatmuni & Kalyani Murthy, Bharat Electronics Limited, Bangalore	10:10 to 10:30 Hrs
<b>10:30 to 11:00 Hrs : Tea Break</b>			
Session 20			
EW SYSTEMS AND DF TECHNIQUES– V			
<b>Chairman:</b>	13R052	<b>Emitter Location-Fix Algorithms based on Non-Linear Optimization</b> A.R. Sachin, Sc 'E', Dr. K. Maheswara Reddy, OS & Director, Defence Avionics Research Establishment, DRDO, Bangalore	11:00 to 11:20 Hrs
<b>Co Chairman:</b>	R062	<b>Issues in Realization of EW Systems for High Altitude Platforms</b> Anupam Sharma, N SreeLakshmi and Shilpa Gupta Defence Electronics Research Laboratory, DRDO, Hyderabad	11:20 to 11:40 Hrs
	R063	<b>Latest Developments in Position Fix Methods for RF Emissions From Diverse Platforms</b> Anupam Sharma, Sc'G' & PNaveen Kumar, Sc'E' Defence Electronics Research Laboratory, DRDO, Hyderabad	11:40 to 12:00 Hrs
<b>Duration:</b> 11:00 to 12:20 Hrs			12:00 to 12:20 Hrs
<b>13:15 to 14:00 Hrs: Lunch Break</b>			

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Day 3: TECHNICAL SESSIONS 18 &amp; 21

Seminar Hall B

Session 18			
COMMUNICATION EW – II			
<b>Chairman:</b>	R035	<b>Computing Technologies Against Advanced Encryptions for Near-Real Time Interception of Mobile Communications</b> RK Rudheesh, Sc-E , Ravi Tudu Sc D, CS Krishna Kumar, Sc- F , MV Ravindra Kumar, Sc-F Defence Electronics Research Laboratory, DRDO, Hyderabad	09:30 to 09:50 Hrs
<b>Co Chairman:</b>	R036	<b>A Comparative Study of Localization Techniques for Mobile Communications from an EW Perspective</b> Shivendra K Gupta, Sc E, CS Krishna Kumar, Sc F , Rudheesh R K, Sc E, MV Ravindra Kumar, Sc F Defence Electronics Research Laboratory, DRDO, Hyderabad	09:50 to 10:10 Hrs
<b>Duration:</b> 09:30 to 10:30 Hrs	034R067	<b>Phase based sector resolution in Angle of Arrival (AoA) computation using a five element circular array</b> Avinash Kumar Singh Bharat Electronics Limited, Hyderabad	10:10 to 10:30 Hrs
<b>10:30 to 11:00 Hrs : Tea Break</b>			
Session 21			
EW RECEIVERS AND RF SUB SYSTEMS – III			
<b>Chairman:</b>	030R066	<b>Receiver performance with Antenna switching</b> Girish M, Sc 'D', Abhijit S Kulkarni, Sc 'D', Hemant Paranjape, Sc 'E' & Vengadesh Kumar, Sc 'E' Defence Avionics Research Establishment (DARE), DRDO, Bangalore	11:00 to 11:20 Hrs
<b>Co Chairman:</b>	036R069	<b>Development of RF over Fiber module for Ultra wideband EW Receiver</b> D Arjuna Rao, D Pushpa Latha, Sk Raziya Begum & R Sarath Chandra Bharat Electronics Limited, Hyderabad	11:20 to 11:40 Hrs
	037R070	<b>Enhancement of Sensitivity and Dynamic Range of ELINT System</b> D. Pushpa Latha, SK Raziya Begum, R. Sarath Chandra, D. Arjuna Rao, Bharat Electronics Limited, Hyderabad	11:40 to 12:00 Hrs
<b>Duration:</b> 11:00 to 12:20 Hrs			12:00 to 12:20 Hrs
<b>13:15 to 14:00 Hrs: Lunch Break</b>			