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**North Atlantic Treaty Organization**



**SCIENCE AND TECHNOLOGY ORGANIZATION  
COLLABORATION SUPPORT OFFICE  
BP 25, F 92201 NEUILLY-SUR-SEINE - FRANCE**

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***STO***

***COLLABORATIVE  
PROGRAMME OF WORK AND BUDGET***

***FOR YEAR 2015***

**JAN 7 2015**

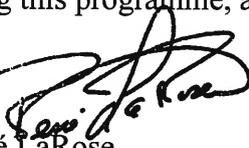
This document contains the fully STB approved  
2015 Collaborative Programme of Work  
(CPoW) and Budget.

It is my pleasure to present the NATO Science and Technology Organization's Collaborative Programme of Work and Budget for 2015. In this document, we describe our entire portfolio of activities for the 2015 programme, this includes new and continuing activities. The STO's seven level 2 committees have developed and proposed 60 new activities for 2015: 28 Task Groups, 3 Symposia, 2 Specialists Teams, 8 Specialist Meetings, 7 Workshops, 11 Lecture Series and 1 Technical Course. When added to the on-going activities, the STO will oversee approximately 222 cooperative research efforts conducted by a network of over 3,000 technical experts from over 30 nations. As always, this impressive body of work is only possible because of the strong support of the NATO, Partner and Contact nations who provide participants and resources from their respective scientific communities.

Within the STO, the Collaboration Support Office—located in Neuilly-sur-Seine, France—is tasked to enable participating nations to execute these technical activities. The CSO is the interface between the scientific communities of the contributing nations and NATO's military bodies and constitutes the central node of NATO's S&T network. The CSO provides executive, financial, and Information Technology support to this international network of science professionals.

2015 challenges include building the STO Collaborative Program of Work into the *Collaborative Framework of Choice* through improved synergy between the STO collaborative programme and the programmes of other NATO bodies; implementing the NAC-approved NATO S&T strategy; responding to S&T demands from the NATO structure, building on the "Supply and Demand" model for S&T collaboration with other NATO organizations; and finally building a collaborative environment in which technology demonstrations become a more frequent outcome. Each of these challenges requires commitment from all levels within the STO, and the CSO is stands committed to meeting them and has thus engaged in rigorous management and business planning in order to meet the challenges of 2015.

As the CSO Director, I am proud to be a member of the community of S&T professionals executing this impressive portfolio. Together, NATO nations, contributing non-NATO nations, and NATO bodies will accomplish much more collectively than any one nation could achieve on its own. Our 2015 Collaborative Programme of Work is the result of their planning over the past year, and builds on many years of their voluntary, collective efforts. I look forward to playing a small part in executing this programme, and eagerly await its results.



Mr. René LaRose  
Neuilly-sur-Seine, France  
S&T Collaboration Support Office Director

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## 2015 PROPOSED TECHNICAL PROGRAMME OBSERVATIONS

The STO Collaborative Programme of Work for 2015 includes the activities summarized in Table 1. These activities are a combination of the new and continuing STB approved activities for 2015. The book is laid out to include only a summary of the activities for each of the level 2 committees, the details of which can be found in the CSO database at the following address:

<http://www.cso.nato.int/>

where you can use your user logon credentials to access all the relevant data for the activities that you are interested in.

**Table 1: CSO 2015 CPoW Snapshot**

Task Groups	157
Symposia	8
Specialist Meetings	17
Workshops	11
Lectures Series	16
Specialist Teams	3
Technical Courses	1
AGARDagraphs	4
TOTAL	217

The 2015 STO Collaborative Programme of work continues to enhance the linkage between STO activities and the priorities/requirements from our customers and the Nations. For 2015, there are 50 new activities. The projected on-going program will also include activities from previous years, therefore, during 2015, the Panels/Group will be managing a total program of 216 technical activities. With the intent of sharing the developing knowledge, a significant percentage of the activities in 2015 will be open to Non-NATO nations including Partner for Peace nations, Mediterranean Dialogue nations, Global Partners and Contact nations.

The initial projection for 2015 funding is approximately EUR 5,387 million and is broken out in Table 2. The S&T Collaboration Support Office projects to be able to support its activities within this sum.

## 2015 BUDGET GENERALITIES

(Unofficial - for information only)

The 2015 Collaboration Support Office (CSO) funding requirements under the NATO Budget Committee are presented in Table 2.

The 2015 CSO budget estimate is approximately 5,478 million Euros and is funded by the NATO Military Budget. This amount is in line with the anticipated budget development as stated in the Medium-Term Resource Plan (MTRP), includes some additional one-off projects and sufficient to meet all of the foreseen requirements of the Office.

The STO CPoW activities open for NATO Partners under the Partnership for Peace (PfP) and Mediterranean Dialogue (MD) are funded separately under authorizations out of the IMS PfP and Med Dialogue Budgets. These budgets are also delegated to the CSO for control and management.

**Table 2: 2014 and 2015 CSO Budget roll-up**

Expense Categories	2014	2015
	Authorization	Initial Projection
<b>CSO</b>		
<i>Personnel</i>	4,192	4,210
<i>Operations</i>	1,220	1,192
<i>Investments</i>	50	50
<b><i>Total BC (Military) Funded</i></b>	<b>5,462</b>	<b>5,452</b>
<b><i>PfP Activities (IMS funded)*</i></b>	<b>23</b>	<b>23</b>
<b><i>Med Dialogue (IMS funded)*</i></b>	<b>5</b>	<b>5</b>
<b><i>Total NATO Funded Effort</i></b>	<b>5,488</b>	<b>5,478</b>

(Unofficial - for information only; in 1,000€)

## LECTURE SERIES/TECHNICAL COURSES/SYMPOSIA/WORKSHOPS FOR 2015

The following table provides a forecast of STO Collaborative Program Lecture Series, Technical Course, Symposia and Workshop activities for 2015 for which the broadest possible participation is desired and highly encouraged. To aid in participation planning, the dates and locations for the activities have been included.

**Table 3: Lecture Series/Technical Course/Symposia Forecast for 2015**

ACTIVITY	TITLE	MEETING DATES	MEETING LOCATIONS	DISTRIBUTION and PARTNER PARTICIPATION
AVT-220 (RLS)	Structural Health Monitoring of Military Vehicles	13-14 July 2015	Vancouver, BC Canada	NATO UNCLASSIFIED Non-NATO Invited
AVT-242 (RWS)	Coated Component Condition Assessment and Remaining Life Prediction for Advanced Military Air Vehicles	20-24 April 2015	Rzeszow, Poland	NATO UNCLASSIFIED
		12-16 October 2015	Prague, Czech Republic	
AVT-259 (RWS)	Identification and modeling of flight mechanics and control methodologies for micro-air vehicles	TBD	TBD	NATO UNCLASSIFIED Non-NATO Invited
AVT-260 (RWS)	Ship Design Guidance for Aircraft Operations	TBD	TBD	NATO UNCLASSIFIED
AVT-261 (RLS)	Porous media in high temperature and high speed flows	7-9 September 2015	VKI, Belgium	NATO UNCLASSIFIED Non-NATO Invited
AVT-262 (RLS)	Space Debris Reentry and Mitigation	1-5 June 2015	VKI, Belgium	NATO UNCLASSIFIED Non-NATO Invited
AVT-263 (RLS)	Electric Propulsion Systems: From Recent Research Developments to Industrial Space Applications	3 <sup>rd</sup> quarter of 2015	VKI, Belgium	NATO UNCLASSIFIED Non-NATO Invited
HFM-256 (RTC)	Aerospace Medicine Going to extremes	TBD	TBD	NATO UNCLASSIFIED Non-NATO Invited
IST-SAS-139 (RWS)	Visual Analytics for Exploring, Analysing and Understanding Vast, Complex and Dynamic Data	TBD	TBD	NATO UNCLASSIFIED Non-NATO Invited
MSG 132 (RSY)	MSG/MSCO Support to International Training & Education Conferences ITEC 2015, I/ITSEC 2015 and CAX Forum 2015	27-30 April 2015	Prague, Czech Republic	NATO UNCLASSIFIED Non-NATO Invited
		30 November to 4 December 2015	Orlando, USA	

<b>ACTIVITY</b>	<b>TITLE</b>	<b>MEETING DATES</b>	<b>MEETING LOCATIONS</b>	<b>DISTRIBUTION and PARTNER PARTICIPATION</b>
		28 September to 2 October 2015	CAX Italy	
MSG 133 (RSY)	M&S Support to Operational Tasks Including War Gaming, Logistics, Cyber Defence	15 16 October 2015	Munich, Germany	NATO UNCLASSIFIED
MSG 137 (RWS)	Commercial Technologies and Games for Use in NATO - 14th WS	TBD	TBD	NATO UNCLASSIFIED
MSG-141 (RLS)	C2 to Simulation Interoperability (C2SIMI)	June 2015	DGA-CATOD, Arcueil France (TBC)	NATO UNCLASSIFIED Non-NATO Invited
SAS-115 (RWS)	SMART cooperation on Operation Analysis simulation models	April 2015	Paris, France	NATO UNCLASSIFIED Non-NATO Invited
SCI-269 (RSY)	Flight Testing of Unmanned Aerial Systems (UAS)	12-13 May 2015	Ottawa, Canada	NATO UNCLASSIFIED Non-NATO Invited
SCI-271 (RLS)	Command and Reporting Standards and Associated Development Tools for UxS	26-27 January 2015	Lisbon, Portugal	NATO UNCLASSIFIED Non-NATO Invited
		9-10 February 2015	La Spezia, Italy	
		12-13 February 2015	Brussels, Belgium	
SCI-275 (RWS)	Maritime Situational Awareness Enabled by Space-based Systems	24-26 February 2015	CMRE, La Spezia, Italy	NATO UNCLASSIFIED
SCI-276 (RLS)	Systems of Systems Engineering for NATO Defence Applications	30-31 January 2015	Lisbon, Portugal	NATO UNCLASSIFIED
		8-9 June 2015	Sofia, Bulgaria	
		11-12 June 2015	Mannheim, Germany	
SCI-283 (RSY)	Considerations for Space and Space-Enabled Capabilities in NATO Coalition Operations	May 2016	TBD	NATO UNCLASSIFIED Non-NATO Invited
SCI-285 (RLS)	Space Domain Effects on NATO Operations	TBD	TBD	NATO UNCLASSIFIED
SET-214 (RLS)	Navigation Sensors and Systems in Global Navigation Satellite Systems (GNSS) Denied Environments	12-13 January 2015	Madrid, Spain	NATO UNCLASSIFIED Non-NATO Invited
		15-16 January 2015	Karlsruhe Germany	
SET-216 (RLS)	Cognition and Radar Sensing	3rd quarter 2015	Wachtberg, Germany	NATO UNCLASSIFIED Non-NATO Invited
		3rd quarter 2015	Warsaw, Poland	

<b>ACTIVITY</b>	<b>TITLE</b>	<b>MEETING DATES</b>	<b>MEETING LOCATIONS</b>	<b>DISTRIBUTION and PARTNER PARTICIPATION</b>
		3rd quarter 2015	Columbus, USA	
		3rd quarter 2015	Oklahoma, USA	
SET-221 (RLS)	Active Passive Electro-optic/Infrared (EO/IR) Automatic Target Recognition (ATR)	January 2015	Fort Belvoir, USA	NATO UNCLASSIFIED Non-NATO Invited
		January 2015	Ankara, Turkey	

Note for activities designated “Non-NATO Invited”: the activity may not be open to Non-NATO members in its entirety. Final determination is contingent on the publishing of the final agenda for each activity. Please contact the relevant Panel Executive Office for each activity.

# APPLIED VEHICLE TECHNOLOGY PANEL

**Panel Chairman: Dr. Dennis GOEGE (DEU)**  
**Vice Chairman: Mr. Michael HUGGINS (USA)**  
**Panel Executive: Dirk ZIMPER**  
**Panel Assistant: Sandra CHEYNE**

## Terms of Reference

### MISSION

The mission of the Applied Vehicle Technology (AVT) Panel is to improve the performance, affordability, and safety of vehicle, platform, propulsion and power systems through the advancement of appropriate technologies.

### SCOPE

The scope of activity of AVT is to address technology issues related to vehicle, platform, propulsion and power systems operating in all environments (land, sea, air, and space), for both new and ageing systems.

The activities of AVT may be grouped into two broad areas:

#### Vehicle and platform technologies, including:

- Vehicle and platform design
- Configurational fluid dynamics
- Fluid mechanics
- Stability and control
- Noise and vibration control
- Structural loads and dynamics
- Smart structures
- Structural materials
- Manufacturing processes
- Non-structural materials
- Environmental effects
- Affordability, availability, survivability and supportability
- Reliability, maintenance and repair
- Test facilities, techniques, and instrumentation

#### Propulsion and power technologies, including:

- Air breathing engine design (piston, gas turbine, ramjet/scramjet)
- Rocket motors and rocket based combined cycles
- Electric propulsion including hybrid systems
- Engine control and thrust vectoring
- Power generation and storage
- Fuels and combustion
- Power plant materials and structures
- Propellants and explosives
- Operation, condition monitoring, reliability, maintenance and affordability
- Environmental impact
- Test facilities, techniques, and instrumentation

**Table 4: AVT activities continuing in 2015**

<b>ACTIVITY</b>	<b>NUMBER</b>	<b>TITLE</b>
AVT-196	RTG-062	Impact of Scarcity of Materials on Military Structural, Mechanical, Propulsion and Power Systems
AVT-201	RTG-065	Extended Assessment of Reliable Stability & Control Prediction Methods for NATO Air Vehicles
AVT-204	RTG-068	Assess the Ability to Optimize Hull Forms of Sea Vehicles for Best Performance in a Sea Environment
AVT-212	RTG-070 CDT	Application of Integrated Munition Health Management (IMHM): Developing Methodologies for Implementation
AVT-213	RTG-071	Assessment of Volcanic Ash Effects on Military Platforms
AVT-216	RTG-072	Evaluation of Prediction Methods for Ship Manoeuvring and Control
AVT-217	RTG-073	Ship Design Guidance for Aircraft Operations
AVT-220	RLS-034	Structural Health Monitoring of Military Vehicles
AVT-225	RTG-074	Future Technological and Operational Challenges Connected with Application of Synthetic Fuels
AVT-226	RTG-075	Validation of Thermal Models for Air, Land, Sea and Space Vehicles
AVT-227	RTG-076	Balancing energy storage with safety in large format battery packs
AVT-229	RSY-030	Test Cell and Controls Instrumentation and EHM Technologies for Military Air, Land and Sea Turbine Engines
AVT-230	RSM-033	Advanced Aircraft Propulsion Systems
AVT-232	RTG-077	Joint Exercise on IR signature prediction
AVT-233	RTG-078	Aeroacoustics of Engine/Rotor Installation for Military Air Vehicles
AVT-236	RTG-079	Unified generic model and data-base for early screening and basic layout of a missile propulsion subsystem
AVT-241	RSM-039	Technological and Operational Problems Connected with UGV Application for Future Military Operations
AVT-244	RSM-036	Munitions Related Contamination
AVT-245	RSM-037	Future Rotorcraft Requirements
AVT-246	RSM-038	Experimental Validation Specialists Meeting

**Table 5: AVT activities starting in 2015**

ACTIVITY	NUMBER	TITLE
AVT-237	RTG-080	Benchmarks in Multidisciplinary Optimization and Design for Affordable Military Vehicles
AVT-238	RTG-081	Early stage warship design & procurement for operational effectiveness and affordability
AVT-239	RTG-082	Innovative Control Effectors for Manoeuvring of Air Vehicles
AVT-240	RTG-083	Hypersonic Boundary-Layer Transition Prediction
AVT-242	RWS-023	Coated Component Condition Assessment and Remaining Life Prediction for Advanced Military Air Vehicles
AVT-257	RSM-041	Best Practices for Risk Reduction for Overall Space Systems
AVT-258	RSM-042	Additive manufacturing for military hardware
AVT-259	RWS-024	Identification and modelling of flight mechanics and control methodologies for micro-air vehicles
AVT-260	RWS-025	Ship Design Guidance for Aircraft Operations
AVT-261	RLS-038 (VKI)	Porous media in high temperature and high speed flows
AVT-262	RLS-039 (VKI)	Space Debris Re-entry and Mitigation
AVT-263	RLS-040 (VKI)	Electric Propulsion Systems: From Recent Research Developments to Industrial Space Applications
AVT-264	RSM-043	Design, manufacturing and application of metallic lightweight material components for military vehicles
AVT-ST-003	ST-003	Impact of Scarcity of Materials and Scarcity of Rare Earth Materials

**Table 6: AVT activities starting in 2016**

ACTIVITY	NUMBER	TITLE
AVT-247	RTG-084	Environmentally Compliant Materials & Processes for Military Vehicles
AVT-248	RTG-085	Next-Generation NATO Reference Mobility Model (NRMM) Development
AVT-249	RTG-086/CDT	Munitions Related Contamination: Military Live-Fire Range Characterization
AVT-250	RTG-087	Gas Turbine Engine Environmental Particulate Foreign Object Damage [EP-FOD]
AVT-251	RTG-088	Multi-disciplinary design and performance assessment of effective, agile NATO air vehicles
AVT-252	RTG-089	Stochastic Design Optimization for Naval and Aero Military Vehicles
AVT-253	RTG-090	Assessment of Prediction Methods for Large Amplitude Dynamic Manoeuvres for Naval Vehicles
AVT-254	RTG-091	Assessment of Plasma Actuator Technologies for Internal Flows
AVT-255	RTG-092	Unmanned Systems Mission Performance Potential for Autonomous Operations

# HUMAN FACTORS AND MEDICINE PANEL

**Panel Chairman: Prof Dr John TANGNEY (USA)**  
**Vice Chairman: BGen Prof Corinne CROUMES (FRA)**  
**Panel Executive: Lt Col Frank WESSELS**  
**Panel Assistant: Mrs Marie-Agnes LINET**

## Terms of Reference

### MISSION

The mission of the Human Factors and Medicine (HFM) Panel is to provide the science and technology base for optimizing health, human protection, well being and performance of the human in operational environments with consideration of affordability. This involves understanding and ensuring the physical, physiological, psychological and cognitive compatibility among military personnel, technological systems, missions, and environments. This is accomplished by exchange of information, collaborative experiments, and shared field trials.

### SCOPE

The Health, Medicine and Protection Area provides the scientific basis for establishing an operationally fit and healthy force, restoring health, minimizing disease and injury, optimizing human protection, sustainability and survivability. This encompasses research in the field of military medicine, physiology, psychology and human protection technology. Areas of interest include, among others, medical diagnosis, prevention, treatment and evacuation. HMP also focuses on enhancing human protection research on physiological and physical influences, e.g. of cold, heat, air pressure, noise, vibration, ionizing and non-ionizing radiation, acceleration, motion, biological and chemical effects on the human body, and developing appropriate countermeasures

The Human Effectiveness Area optimizes individual readiness and organizational effectiveness by addressing psycho-social, organizational, cultural and cognitive aspects in military action. Contributions on individual readiness cover values and ethics, leadership, multi-national operations and coping with new demands on the individual. Contributions on organizational effectiveness encompass human resource management, training, interoperability, shared decision-making, synchronized situational awareness, understanding terrorism, psychological operations and coping with new demands on military organizations.

The Human System Integration Area optimizes the performance of human-operated technical systems by addressing the human-machine interactions, processes, tools and measures of effectiveness. Specific contributions cover complexity, total life-cycle affordability, human error and fatigue management, intelligent agent, human-system communication, human cognitive and physical resources management, anthropometry, interface, design of information displays and controls, human-human communications and teamwork, performance enhancement and aiding, training and function allocation in automated systems.

**Table 7: HFM Activities continuing in 2015**

<b>ACTIVITY</b>	<b>NUMBER</b>	<b>TITLE</b>
HFM-175	RTG	Medically Unexplained Physical Symptoms in Military Health
HFM-179	RTG	Moral Decisions in Military Operations and Mental Health
HFM-186	RTG	State-of-the-art in Research on Medical Countermeasures against Biological Agents
HFM-189	RTG	Bio-effects and Standardization of Exposure Limits of Military Relevant High Energetic Electromagnetic Pulses (HEEP)
HFM-190	RTG	Oxygen Requirements in Unpressurized Aircraft Operating below 18,000 ft.
HFM-192	RTG	Optimal use of Hyperbaric Oxygen Therapy in Military Medical Facilities
HFM-194	RTG	Development of Evidence-based Guidelines for the Management of Severely Burnt Patients
HFM-195	RTG	Integrative Medicine Interventions for Military Personnel
HFM-198	RTG	Injury assessment methods for vehicle active and passive protection systems
HFM-199	RTG	Integration of CBRN Physical Protective Measures to Lessen the Burden on Personnel
HFM-203	RTG	Mental Health Training
HFM-211	RTG	An Applied-Scientific Approach to Field Assessments
HFM-212	RTG	Advancements in Distributed Learning Environment Support of Transformation
HFM-214	RTG	Human Systems Integration for Robust Operations of UAVs.
HFM-215	RTG	Advanced Training Technologies for Medical healthcare professionals
HFM-216	RTG	Synthetic Environments for HSI Application, Assessment and Improvement
HFM-218	RTG	Military Suicide
HFM-221	RTG	Live-Virtual-Constructive (LVC) Training to Enhance Performance Effectiveness
HFM-222	RTG	Ionizing Radiation Bio-effects and Countermeasures
HFM-226	RTG	Civilian and Military Personnel Work Culture and Relations in Defence Organisations
HFM-227	RTG	Building Effective Collaboration in a Comprehensive Approach
HFM-229	RTG	Optimizing Hearing Loss Prevention and Treatment, Rehabilitation and Reintegration of Soldiers with Hearing Impairment.
HFM-230	RTG	Development of Depository of fast and reliable Detection Methods for Zoonotic Agents
HFM-233	RTG	Sensitive Equipment Decontamination Technologies
HFM-234	RTG	Environmental Toxicology of Blast Exposures: Injury Metrics, Modelling, Methods and Standards
HFM-237	RTG	Assessment of Intelligent Tutoring System Technologies and Opportunities
HFM-238	RTG	Reducing the Dismounted Soldiers Burden
HFM-239	RSY	State-of-the-Art in Research on Medical Countermeasures Against Biological Agents
HFM-240	RLS	Mild Traumatic Brain Injury: Post Concussive Symptoms in a Deployed Setting

<b>ACTIVITY</b>	<b>NUMBER</b>	<b>TITLE</b>
HFM-241	RWS	Social Media and Information Technology for Disaster and Crisis Response
HFM-243	RWS	Regenerative Medicine
HFM-245	RLS	Hyperbaric Oxygen Therapy Application in an Operational Military Setting
HFM-246	RLS	Development of Evidence-Based Guidelines for the Management of Severely Burnt Patients
HFM-247	RTG	Human-Autonomy Teaming: Supporting Dynamically Adjustable Collaboration
HFM-248	RTG	Social Media and Information Technology for Disaster and Crisis Response
HFM-249	RSY	Emerging Technological Advances in Tactical Casualty Care
HFM-252	RTG	Aircrew Neck Pain
HFM-253	RTG	Medical Chemical Defence against Chemical Warfare Agent Threats
HFM-254	RSY	Advances in Health Informatics: Optimizing Health Protection and Care
HFM-255	RWS	Cold Extreme Environmental Operations
HFM-258	RTG	The Impact of Military Life on Children from Military Families

**Table 8: HFM Activities starting in 2015**

<b>ACTIVITY</b>	<b>NUMBER</b>	<b>TITLE</b>
HFM-242	RTG	Technology Alternatives for Medical Training: Minimizing Live Tissue Use
HFM-250	RTG	Improving Anesthesia and Sedation through the Battlefield
HFM-251	RTG	Occupational Cardiology in Military Aircrew
HFM-256	RTC	Aerospace Medicine Going to extremes
HFM-257	RTG	Modelling and Simulation Technologies for Training Medical/Healthcare Professionals
HFM-259	RTG	Human Systems Integration Approach to Cyber Security
HFM-260	RTG	Enhancing Warfighter Effectiveness with Wearable Bio Sensors and Physiological Models

# INFORMATION SYSTEMS TECHNOLOGY PANEL

**Panel Chairperson: Dr. John McCLEAN (USA)**  
**Vice-Chairman: Dr.-Ing Michael WUNDER (GER)**  
**Panel Executive (acting): Mr Philippe SOËTE**  
**Panel Assistant: Mrs. Aysegül APAYDIN**

## Terms of Reference

### MISSION

The mission of the Information Systems Technology (IST) Panel is to advance and exchange techniques and technologies in order to:

- improve C3I systems, with a special focus on Interoperability and Cyber Security; and
- provide timely, affordable, dependable, secure and relevant information to war fighters, planners and strategists.

### SCOPE

The scope of responsibility of IST shall include the following domains and disciplines:

#### Information Warfare and Assurance

- INFOSEC
- COMPUSEC
- COMSEC
- TRANSEC
- Information Assurance
- System Assurance

#### Information and Knowledge Management

- Decision Support Architectures
- Data Mining
- Data Warehousing
- Information Fusion
- Information Filtering
- Visualisation
- Knowledge-based Systems
- Artificial Intelligence

#### Communications and Networks

- Voice Data and Video over disadvantaged links
- Network Management
- Network Security
- Mobile Communications
- Satellite Communications

#### Architectures and Enabling Technologies

- Software Engineering Technologies
- Computing Technologies
- Requirements Capture
- Modelling and Simulation Technologies
- Modelling and Simulation Architectures and Standards
- Speech and Natural Language Processing
- Groupware and Collaboration Tools

**Table 9: IST Activities continuing in 2015**

ACTIVITY	NUMBER	TITLE
IST-102	RTG-048	Meeting Translation for NATO Operations (Speech and Language Processing, Project 8)
IST-104	RTG-050	Cognitive Radio in NATO - II
IST-108	RTG-053	Cyber Defence Situational Awareness
IST-109	RTG-054	Dynamic Wireless Network Security in Coalition Environments
IST-110	RTG-055	Visualization for Analysis
IST-113	RTG-056	NATO NEC over SATCOM
IST-114	RTG-057	Trusted Information Sharing for Partnerships
IST-118	RTG-058	SOA Recommendations for Disadvantaged Grids in the Tactical Domain
IST-119	RTG-059	Maturing and Validation of SILF Feasibility Study
IST-121	RTG-060	Machine Learning Techniques for Autonomous Computer Generated Entities
IST-124	RTG-061	Heterogeneous Tactical Networks - Improving Connectivity and Network Efficiency
IST-125	RSM-002	Defence Implications of Cloud Computing at Tactical Edge
IST-127	RSM-003	Intelligence & Autonomy (Robotics)
IST-128	RWS-019	Cyber Attack Detection, Forensics and Attribution for Assessment of Mission Impact
IST-130	RST-001	Method for Architecture Definition and Evaluation in-line with NATO Architecture Framework
IST-133	RSM-005	Visual Analytics (Cyber Security)
IST-137	RSM-006	Secure Future Internet Architecture for Military Applications (SFIAMA)
IST-SET-126	RSY-031	Information Fusion (Hard and Soft) for ISR

**Table 10: IST Activities starting in 2015**

ACTIVITY	NUMBER	TITLE
IST-129	RTG-062	Predictive Analysis of Adversarial Cyber Operations
IST-132	RTG-063	Multi-Level Fusion of Hard and Soft Information
IST-134	RLS-007	Advanced Algorithms for Effectively Fusing Hard and Soft Information
IST-135	RLS-008	Horizon Scanning and Strategic Futures Analysis
IST-136	RSM-007	Security Challenges for Multi-domain Autonomous and Unmanned C4ISR Systems (e.g., UxVs, Robotic Systems Security)
IST-140	RTG-065	Cognitive Radio Networks – Efficient Solutions for Routing, Topology Control, Data Transport, and Network Management
IST-SAS-139	RWS-020	Visual Analytics for Exploring, Analysing and Understanding Vast, Complex and Dynamic Data

# **NATO MODELLING AND SIMULATION GROUP (NMSG)**

**Group Chairman: Mr. Wim HUISKAMP (NLD)**  
**Vice – Chairman: ICA Eric BUJON (FRA)**  
**Group Executive & Head: Lt Col Francisco GOMEZ-RAMOS**  
**Deputy Head and Scientific Advisor: VACANT**  
**Technical Officer: Mr Adrian VOICULET**  
**Assistant: Ms Illeana GANZ**

## **Terms of Reference**

### MISSION

The mission of the NATO Modelling and Simulation (M&S) Group (NMSG) is to:

- promote cooperation among Alliance bodies, NATO member nations and Partner nations to maximize the effective utilization of M&S, including: M&S Standardization, education and associated science and technology;
- coordinate customers, users and suppliers in the five areas of Simulation (Support to Operations, Capability Development, Mission Rehearsal, Training and Education, and Procurement);
- support customers in defining the operational needs regarding M&S, support users to fulfil these operational needs and support suppliers to provide the simulation assets in the five identified areas of simulation, helping NATO M&S stakeholders and subject matter experts to meet to initiate, coordinate and oversee the implementation of the NATO M&S Master Plan (NMSMP);
- monitor the degree of consistency with NMSMP in NATO organizations, being the Custodian of the NMSMP;
- report on those situations (and decisions) in which inconsistency with NMSMP can or will introduce interoperability issues between NATO Members (and Partners).

### SCOPE

The Group:

- Is governed by the Strategy and Implementation Plan as approved by the STB;
- Guides implementation of the M&S Master Plan and promoting best practices in the Alliance;
- Is NATO's Delegated Tasking Authority for standardization in NATO M&S domain (ref. CNAD Letter DI(2003)243 dated 29 August 2003). Hence, develops, advocates and guides implementation of M&S Standardization documents;
- Maintains a permanent link with operational people in order to collect operational needs and to validate the work of the Group and disseminate the Group results;
- Fosters appropriate levels of M&S interoperability and reuse of models and simulations;
- Develops, advocates and guides programs to facilitate education and information exchange in M&S science and technology, application methods and standards;
- Identifies, advocates and executes science and technology projects to improve M&S tools, standards, interoperability, network concepts and databases;
- As required, provides M&S expertise to support pertinent projects of the other STO Level 2 Committees or NATO Bodies and Organizations;

**Table 11: MSG Activities continuing in 2015**

<b>ACTIVITY</b>	<b>NUMBER</b>	<b>TITLE</b>
MSG-098	RTG-052	Urban Combat Advanced Training Technology (UCATT) – Architecture
MSG-099	RTG-053	Urban Combat Advanced Training Technology (UCATT) – Standards
MSG-106	RTG-055	Enhanced CAX Architecture, Design and Methodology – SPHINX
MSG-116	RTG-056	Simulation for Training and Operation Group (STOG)
MSG-117	RTG-057	Exploiting Modelling and Simulation to support Cyber Defence
MSG-118	RTG-058	Development of Common Image Generator Interface (CIGI) v.4 Compliance Testing Tools
MSG-120	RTG-059	NATO M&S Glossary of Terms
MSG-122	RWS-028	Simulation in Support of Coalition Operations
MSG-124	RTG-060	Developing Actionable Data Farming Decision Support for NATO
MSG-127	RTG-061	Reference Architecture for Human Behaviour Modelling in Military Training Applications
MSG-128	RTG-062	Incremental Implementation of NATO Mission Training through Distributed Simulation Operations

**Table 12: MSG Activities starting in 2015**

<b>ACTIVITY</b>	<b>NUMBER</b>	<b>TITLE</b>
MSG-132	RSY-024	MSG/MSCO Support to International Training & Education Conferences ITEC 2015, I/ITSEC 2015 and CAX Forum 2015
MSG-133	RSY-025	M&S Support to Operational Tasks Including War Gaming, Logistics, Cyber Defence
MSG-134	RTG-063	NATO Distributed Simulation Architecture & Design, Compliance Testing and Certification
MSG-135	RTG-064	NATO M&S Resources/Standards Support Working Group
MSG-136	RTG-065	Modelling and Simulation as a Service (MSaaS) Rapid deployment of interoperable and credible simulation environments
MSG-137	RWS-031	Commercial Technologies and Games for Use in NATO - 14th WS
MSG-139	RTG-066	M&S Use Risk Identification and Management
MSG-141	RLS-001	C2 to Simulation Interoperability (C2SIM)
MSG-140	RTG-067	Urban Combat Advanced Training Technology - Live Simulation Standards (UCATT-LSS)

# SYSTEM ANALYSIS AND STUDIES PANEL

**Chairman: Mr. Jocelyn TREMBLAY (CAN)**  
**Vice Chairman: Col (ret) Pavel ZÛNA (CZK)**  
**Panel Executive: Lt Col Taylor EDWARDS**  
**Panel Assistant: Ms. Rina TAHAR**

## Terms of Reference

### MISSION

The mission of the System Analysis and Studies (SAS) Panel is:

- To conduct studies and analyses of an operational and technological nature.
- To promote the exchange and development of methods and tools for Operational Analysis (OA) as applied to defense problems.

### SCOPE

The scope of the Panel's activity is as follows:

#### System Analysis and Studies

The Panel will conduct studies, analysis and information exchange activities that explore how operational capability can be provided and enhanced through the exploitation of new technologies, new forms of organization or new concepts of operation. Such studies will, where appropriate, give explicit consideration to financial and other resource issues. The Panel will be responsive to requests for such studies from a variety of sources, including nations, the Science and Technology Board (STB), the Military Committee, the Conference of National Armament Directors (CNAD), the Main Armaments Groups, Allied Command Operations (ACO), Allied Command Transformation (ACT), the NATO Communications and Information Agency (NCIA), the NATO Industrial Advisory Group (NIAG), and industry. The Panel can also perform studies of a more purely technological nature if such studies are not appropriate for another NATO body.

#### Methodology

The Panel will undertake activities to develop and promote improved analysis methods and techniques to support defense decision-making. This aspect of the Panel's work will focus particularly on the methods required to address the new issues thrown up by the evolving strategic environment and the responses that both individual nations and NATO as a whole are making to it. Activities may include information exchange on OA modelling concepts and best practice, research into new methodological approaches and the development and exchange of models.

**Table 13: SAS Activities continuing in 2015**

<b>ACTIVITY</b>	<b>NUMBER</b>	<b>TITLE</b>
SAS-092	RTG-037	Costing Support for Force Structure Studies
SAS-093	RTG-038	Risk-Based Planning
SAS-094	RTG-039	Analytical Support to the Development and Experimentation of NLW Concepts of Operation and Employment
SAS-095	RTG-040	Cost/Benefit Analysis of Military Training
SAS-096	RTG-041	Key Performance Indicators in Measuring Military Outputs
SAS-097	RTG-042	Robotics Underpinning Future NATO Operations
SAS-099	RTG-044	Economics for Evaluating Fleet Replacement
SAS-104	RTG-046	C2 Agility: Next Steps
SAS-107	RTG-047	Factoring Situational Awareness and Communications in Operational Models of Dismounted Combat
SAS-108	RTG-048	Methods to Support Decision Making for Joint Fires
SAS-109	RTG-049	Risk Analysis for Acquisition Programs
SAS-110	RTG-050	Irregular Warfare and Operations Assessment
SAS-111	RTG-051	Collection and Management of Data for Analysis Support to Operations
SAS-112	RTG-052	Comparative Analysis of Private-Public Partnership in the Management of Military-Industry Activities
SAS-IST-102	RTG-045	Intelligence Exploitation of Social Media

**Table 14: SAS Activities starting in 2015**

<b>ACTIVITY</b>	<b>NUMBER</b>	<b>TITLE</b>
SAS-113	ST-009	Future Defence Budget Constraints: Challenges and Opportunities
SAS-114	RTG-053	Assessment and Communication of Risk and Uncertainty to Support Decision-Making
SAS-115	RWS-001	SMART cooperation on Operation Analysis simulation models
SAS-116	RTG-054	Military Strategic Level Decision Making within a (future) framework of Cyber Resilience
SAS-117	RTG-055	Information Operations for Influence (IOI)

# SYSTEMS CONCEPTS AND INTEGRATION PANEL

**Panel Chairman: Mr. Bharat PATEL (GBR)**  
**Vice Chairman: Dr Benjamin LAUWENS (BEL)**  
**Executive: LTC Todd KELLY**  
**Assistant: Ms. Carlotta ROSSI**

## Terms of Reference

### MISSION

The mission of the Systems, Concepts and Integration (SCI) Panel is to advance knowledge concerning advanced system concepts, integration, engineering techniques and technologies across the spectrum of platforms and operating environments to assure cost-effective mission area capabilities. Integrated defense systems, including air, land, sea, and space systems (manned and unmanned), and associated weapon and countermeasure integration are covered. Panel activities focus on NATO and national mid- to long-term system level operational needs.

### SCOPE

The scope of Panel activities covers a multidisciplinary range of theoretical concepts, design, development, and evaluation methods applied to integrated defence systems. Areas of interest include:

- Integrated mission systems including weapons and countermeasures
- System architecture/mechanization
- Vehicle integration
- Mission management
- System engineering technologies and testing

**Table 15: SCI Activities continuing in 2015**

ACTIVITY	NUMBER	TITLE
SCI-224	RTG-075	EO and IR-Countermeasures against Anti-ship Missiles
SCI-236	AG-300	Safety and Risk Management in Flight Testing
SCI-237	RTG-072	Directed Infrared Countermeasure (DIRCM) State of the Art and Flight Testing Methodology
SCI-245	AG-300	Reduced Friction Runway Surface Flight Testing
SCI-246	RTG	Exploration and Development of Denial and Deception Doctrine to Support NATO
SCI-248	RTG	NATO Vulnerability to Hostile Use of Civilian-Space-based SAR
SCI-255	AG	High Altitude Rotary Wing Flight Testing
SCI-256	RTG-073	Route Threat Detection and Clearance Technologies
SCI-258	RTG	Scientific Support to NNAG Above Water Warfare Capability Group (AWWCG)
SCI-260	RTG	Platform-level EW Architectures for Joint/Coalition Air Operations
SCI-264	RTG	High Energy Laser Weapons: Tactical Employment in the Shared Battlespace
SCI-266	AG-160	Application of Digital Data Recorder Standards for Flight Test

<b>ACTIVITY</b>	<b>NUMBER</b>	<b>TITLE</b>
SCI-270	RTG	Process Development for D&D Field Trials and Associated Data Analysis
SCI-271	RLS	Command and Reporting Standards and Associated Development Tools for UxS
SCI-273	RTG	Guidelines for Toxicity Testing of Smokes, Obscurants, and Pyrotechnic Mixtures
SCI-279	RTG	Enabling Technical Considerations for a NATO-Common Space Domain Operating Picture

**Table 16: SCI Activities starting in 2015**

<b>ACTIVITY</b>	<b>NUMBER</b>	<b>TITLE</b>
SCI-269	RSY	Flight Testing of Unmanned Aerial Systems (UAS)
SCI-275	RWS	Maritime Situational Awareness Enabled by Space-based Systems
SCI-276	RLS	Systems of Systems Engineering for NATO Defence Applications
SCI-280	RTG	System-of-systems approach to task driven sensor resource management for maritime situational awareness (SoSMSA)
SCI-281	RTG	Solutions Advancing Next Generation Radar Electronic Attack
SCI-282	RTG	Countermeasures Against Anti-Aircraft EO/IR Imaging Seeker Threats
SCI-284	RSM	Countering Directed Energy Weapons and Devices
SCI-285	RLS	Space Domain Effects on NATO Operations

**Table 17: SCI Activities starting in 2016**

<b>ACTIVITY</b>	<b>NUMBER</b>	<b>TITLE</b>
SCI-277	RLS	Lecture Series on Store Separation and Trajectory Prediction
SCI-283	RSY	Considerations for Space and Space-Enabled Capabilities in NATO Coalition Operations

# **SENSORS & ELECTRONICS TECHNOLOGY PANEL**

**Panel Chairman: Dr. Murat EREN (TUR)**  
**Vice - Chairman: Dr. Augustus FOUNTAIN III (USA)**  
**Panel Executive: Maj Mauro RODDI**  
**Panel Assistant: Ms. Ewelina GLINSKA-LEWIS**

## **Terms of Reference**

### MISSION

The mission of the Sensors and Electronics Technology (SET) Panel is to foster co-operative research, the exchange of information, and the advancement of science and technology among the NATO Nations in the field of sensors and electronics for defence and security. The SET Panel addresses electronic technologies and passive/active sensors as they pertain to Reconnaissance, Surveillance and Target Acquisition (RSTA), Electronic Warfare (EW), Communications, and Navigation and to the enhancement of sensor capabilities through multi-sensor integration and fusion. To fulfil this mission, the SET Panel has three Focus Groups: Radio-Frequency Technology (RFT); Optical Technology (OT); and Multi-Sensors & Electronics (MSE).

### SCOPE

Research activities of the SET Panel predominantly address phenomenologies related to target signature, propagation and battlespace environments, electro-optic (EO) / radio-frequency (RF)/acoustic/magnetic sensors, antennas, signal and image processing, components, sensor hardening, electromagnetic compatibility, and any other phenomena associated with sensors and electronics that assist NATO warfighters during future warfare and peace-keeping scenarios. In particular, the scope of activity in the SET Panel includes the following disciplines:

#### Phenomenology:

- Target/background signatures;
- Propagation;
- Battlespace environment characterization;
- Sensor hardening; and
- Electronic protection measures and electromagnetic compatibility.

#### Sensors:

- EO sensors (ultraviolet, laser radar (ladar), lidar, imaging infra-red (IR), IR search and track);
- RF sensors (radar, radiometers, goniometers) and related technologies, including passive RF sensors;
- Acoustic, seismic, magnetic, chemical, and inertial sensors;
- Urban, indoor, and subterranean navigation sensors;
- Terahertz (THz) sensors (from the point of view of military technology, especially in the context of urban warfare and DAT);
- Communications, electromagnetic warfare devices (electronic attack, electronic support measures, electronic intelligence), and dual-use sensors for a wide range of applications (urban/high intensity to security/low intensity).

Electronics:

Processing:

- Antenna processing and aperture control;
- Signal processing;
- Image processing;
- Multi-sensor fusion;
- Pattern recognition, including automatic target recognition.

Components:

- EO (optics, integrated optics, fibre optics, focal plane arrays, lasers);
- RF (antennas, amplifiers, filters, digital radio frequency memories (DRFMs), monolithic microwave integrated circuits, high-power microwave sources);
- Micro-electronics;
- Micro-mechanics;
- Displays;
- Mechanical, chemical, etc.

Sensor hardening:

- Electronic protection measures;
- Electromagnetic compatibility

**Table 18: SET Activities continuing in 2015**

ACTIVITY	NUMBER	TITLE
SET-128	RTG-070	Impact of Wind Turbines on Radar
SET-140	RTG-076	Super-Resolution and Advanced Signal Processing for EO/IR Sensor Performance
SET-145	RTG-080	Extraction of Geospatial Intelligence Information from Space Borne SAR Sensors
SET-146	RTG-StC	Steering Committee for the NRC(SPS) STANDEX Programme (Stand-off detection of explosives and suicide bombers)
SET-147	RTG-081	Microsatellites and Surveillance of Space
SET-153	RTG-083	Multi Sensors Integration for Urban Operations
SET-155	RTG-085	Advancing Sensing Through the Walls (STTW) Technologies
SET-166	RTG-093	Signature Management System for Underwater Signatures of Surface Ships
SET-167	RTG-094	Navigation Sensors and Systems in GNSS Denied Environments
SET-174	RTG-097	EO-TDA Modeling
SET-179	RTG-098	Dynamic Waveform Diversity and Design
SET-180	RTG-099	Analysis and Recognition of Radar Signatures for Non-Cooperative Identification of Unmanned Aerial Vehicles
SET-182	RTG-101	Radar Spectrum Engineering and Management
SET-184	RTG-102	Capabilities of Noise Radar
SET-185	RTG-103	Maritime Radar Surface Surveillance Techniques and the High Grazing Angle Challenge
SET-186	RTG-104	Airborne Passive Radars and their Applications APRA
SET-189	RTG-105	Battlefield Acoustic Sensing, Multi-modal Sensing and Networked Sensing for ISR Applications
SET-190	RTG-106	Phenomenology and Exploitation of Thermal Hyperspectral Sensing
SET-193	RTG-107	THz technology for stand-off detection of explosives: from laboratory spectroscopy to detection in the field
SET-195	RTG-108	DMPAR short term solution verification
SET-196	RTG-109	Multi-channel/Multi-static radar imaging for non-cooperative targets

<b>ACTIVITY</b>	<b>NUMBER</b>	<b>TITLE</b>
SET-198	RTG-110	Visible Laser Dazzle Effects and Protection
SET-199	RTG-111	Evaluating the Effectiveness of Coordination Methods for Distributed Mobile Sensors
SET-200	RTG-112	Electromagnetic scattering prediction of small complex aerial platforms for NCTI purposes
SET-203	RTG-113	Ship radar signature management system accuracy, sensitivity and confidence level
SET-205	RTG-114	Active Electro-optic Sensing for Target identification and Tactical Applications
SET-206	RTG-115	Energy Generation for Manwearable/Manportable Applications and Remote Sensors
SET-207	RTG-116	Advanced situation-specific modelling, sensing and vulnerability mitigation using passive radar technology
SET-208	RTG-117	Signal processing for implementation in hand-held multi sensor ground penetrating system
SET-209	RTG-118	Exploitation of Human Signatures for Threat Determination
SET-211	RTG-119	Naval Platform Protection in the EO/IR Domain
SET-212	RTG-120	Multi-Function RF Sensors Specification, Test & Evaluation
SET-218	RTG-123	Interoperability & Networking of Disparate Sensors and Platforms for ISR Applications

**Table 19: SET Activities starting in 2015**

<b>ACTIVITY</b>	<b>NUMBER</b>	<b>TITLE</b>
SET-214	RLS-017	Navigation Sensors and Systems in Global Navigation Satellite Systems (GNSS) Denied Environments
SET-215	RTG-121	Model-based SAR Automatic Target Recognition
SET-216	RLS-018	Cognition and Radar Sensing
SET-219	RTG-124	Simulation of Active Imaging Systems
SET-220	RTG-125	Geospatial Information Extraction From space-Borne SAR-Images for NATO-Operations
SET-221	RLS-019	Active Passive Electro-optic/Infrared (EO/IR) Automatic Target Recognition (ATR)
SET-222	RSM-023	Swarm centric solution for Intelligent Sensor Networks
SET-223	RTG-126	Adaptive Radar Resource Management
SET-224	RTG-127	Coherent Mid-Infrared Fiber Source Technology
SET-225	RTG-128	Spatial and Waveform Diverse Noise Radar
SET-226	RTG-129	Turbulence mitigation for Electro Optics (EO) and laser systems
SET-227	RTG-130	Cognitive Radar
SET-228	RSM-024	Radar Imaging for Target Identification

**Table 20: SET Activities starting in 2016**

<b>ACTIVITY</b>	<b>NUMBER</b>	<b>TITLE</b>
SET-217	RTG-122	Assessing and Modeling the Performance of Digital Night Vision Image Fusion
SET-229	RTG-131	Cooperative Navigation in GNSS Degraded and Denied Environments

## ACTIVITIES BY TYPE FOR 2015

**Table 21: 2015 AGARDagraphs**

ACTIVITY	TITLE	MEETING DATES	MEETING LOCATIONS	DISTRIBUTION and PARTNER PARTICIPATION
SCI-236 (AG)	Safety and Risk Management in Flight Testing	TBD	TBD	Publicly Releasable Non-NATO Invited
SCI-245 (AG)	Reduced Friction Runway Surface Flight Testing	TBD	TBD	Publicly Releasable Non-NATO Invited
SCI-255 (AG)	High Altitude Rotary Wing Flight Testing	TBD	TBD	NATO UNCLASSIFIED Non-NATO Invited
SCI-266 (AG)	Application of Digital Data Recorder Standards for Flight Test	TBD	TBD	Publicly Releasable Non-NATO Invited

**Table 22: 2015 Lecture Series**

ACTIVITY	TITLE	MEETING DATES	MEETING LOCATIONS	DISTRIBUTION and PARTNER PARTICIPATION
AVT-220 (RLS)	Structural Health Monitoring of Military Vehicles	13-14 July 2015	Vancouver, BC Canada	NATO UNCLASSIFIED Non-NATO Invited
AVT-261 (RLS)	Porous media in high temperature and high speed flows	7-9 September 2015	VKI, Belgium	NATO UNCLASSIFIED Non-NATO Invited
AVT-262 (RLS)	Space Debris Reentry and Mitigation	1-5 June 2015	VKI, Belgium	NATO UNCLASSIFIED Non-NATO Invited
AVT-263 (RLS)	Electric Propulsion Systems: From Recent Research Developments to Industrial Space Applications	3rd quarter of 2015	VKI, Belgium	NATO UNCLASSIFIED Non-NATO Invited
HFM-240 (RLS)	Mild Traumatic Brain Injury: Post Concussive Symptoms in a Deployed Setting	Dates TBD	Washington (USA) France Eastern Europe	Publicly Releasable Non-NATO Invited
HFM-245 (RLS)	Hyperbaric Oxygen Therapy Application in an Operational Military Setting	19 Mar 2015 to 20 Mar 2015	Pensacola, FL, United States	Publicly Releasable Non-NATO Invited
		23 Oct 2014 to 24 Oct 2014	Lisbon, Portugal	
		20 Oct 2014 to 21 Oct 2014	Brussels, Belgium	
HFM-246 (RLS)	Development of Evidence-Based Guidelines for the Management of Severely Burnt Patients	from 19 Mar 2015 to 20 Mar 2015	Pensacola, FL, United States	Publicly Releasable Non-NATO Invited
		08 Sep 2014 to 09 Sep 2014	Brussels, Belgium	

<b>ACTIVITY</b>	<b>TITLE</b>	<b>MEETING DATES</b>	<b>MEETING LOCATIONS</b>	<b>DISTRIBUTION and PARTNER PARTICIPATION</b>
		11 Sep 2014 to 12 Sep 2014	Prague, Czech Republic	
IST-134 (RLS)	Advanced Algorithms for Effectively Fusing Hard and Soft Information	Fall 2015	Ottawa, CANADA Tallinn, ESTONIA Wachtberg, GERMANY Adelphi, MD, UNITED STATES	Publicly Releasable Non-NATO Invited
IST-135 (RLS)	Horizon Scanning and Strategic Futures Analysis	Dates TBD	TUBITAK Research Center, Turkey NICA, NLD Defence Academy of the UK, UK	NATO UNCLASSIFIED Non-NATO Invited
MSG-141 (RLS)	C2 to Simulation Interoperability (C2SIMI)	June 2015	DGA-CATOD, Arcueil France (TBC)	NATO UNCLASSIFIED Non-NATO Invited
SCI-271 (RLS)	Command and Reporting Standards and Associated Development Tools for UxS	26-27 January 2015	Lisbon, Portugal	NATO UNCLASSIFIED Non-NATO Invited
		9-10 February 2015	La Spezia, Italy	
		12-13 February 2015	Brussels, Belgium	
SCI-276 (RLS)	Systems of Systems Engineering for NATO Defence Applications	30-31 January 2015	Lisbon, Portugal	NATO UNCLASSIFIED
		8-9 June 2015	Sofia, Bulgaria	
		11-12 June 2015	Mannheim, Germany	
SCI-285 (RLS)	Space Domain Effects on NATO Operations			NATO UNCLASSIFIED
SET-214 (RLS)	Navigation Sensors and Systems in Global Navigation Satellite Systems (GNSS) Denied Environments	12-13 January 2015	Madrid, Spain	NATO UNCLASSIFIED Non-NATO Invited
		15-16 January 2015	Karlsruhe Germany	
SET-216 (RLS)	Cognition and Radar Sensing	3rd quarter 2015	Wachtberg, Germany	NATO UNCLASSIFIED

ACTIVITY	TITLE	MEETING DATES	MEETING LOCATIONS	DISTRIBUTION and PARTNER PARTICIPATION
		3rd quarter 2015	Warsaw, Poland	Non-NATO Invited
		3rd quarter 2015	Columbus, USA	
		3rd quarter 2015	Oklahoma, USA	
SET-221 (RLS)	Active Passive Electro-optic/Infrared Automatic Target Recognition (ATR)	January 2015	Fort Belvoir, USA	NATO UNCLASSIFIED Non-NATO Invited
		January 2015	Ankara, Turkey	

**Table 23: 2015 Task Groups**

ACTIVITY	TITLE	DISTRIBUTION and PARTNER PARTICIPATION
AVT-196 (RTG)	Impact of Scarcity of Materials on Military Structural, Mechanical, Propulsion and Power Systems	NATO UNCLASSIFIED
AVT-201 (RTG)	Extended Assessment of Reliable Stability & Control Prediction Methods for NATO Air Vehicles	NATO UNCLASSIFIED Non-NATO Invited
AVT-204 (RTG)	Assess the Ability to Optimize Hull Forms of Sea Vehicles for Best Performance in a Sea Environment	NATO UNCLASSIFIED
AVT-212 (RTG)	Application of Integrated Munition Health Management (IMHM): Developing Methodologies for Implementation	NATO UNCLASSIFIED Non-NATO Invited
AVT-213 (RTG)	Assessment of Volcanic Ash Effects on Military Platforms	NATO UNCLASSIFIED Non-NATO Invited
AVT-216 (RTG)	Evaluation of Prediction Methods for Ship Maneuvering and Control	NATO UNCLASSIFIED Non-NATO Invited
AVT-217 (RTG)	Ship Design Guidance for Aircraft Operations	NATO UNCLASSIFIED
AVT-225 (RTG)	Future Technological and Operational Challenges Connected with Application of Synthetic Fuels	NATO UNCLASSIFIED Non-NATO Invited
AVT-226 (RTG)	Validation of Thermal Models for Air, Land, Sea and Space Vehicles	NATO UNCLASSIFIED
AVT-227 (RTG)	Balancing energy storage with safety in large format battery packs	NATO UNCLASSIFIED
AVT-232 (RTG)	Joint Exercise on IR signature prediction	NATO UNCLASSIFIED Non-NATO Invited
AVT-233 (RTG)	Aeroacoustics of Engine/Rotor Installation for Military Air Vehicles	NATO UNCLASSIFIED Non-NATO Invited
AVT-236 (RTG)	Unified generic model and data-base for early screening and basic layout of a missile propulsion subsystem	NATO UNCLASSIFIED
AVT-237	Benchmarks in Multidisciplinary Optimization and Design for	NATO

<b>ACTIVITY</b>	<b>TITLE</b>	<b>DISTRIBUTION and PARTNER PARTICIPATION</b>
(RTG)	Affordable Military Vehicles	UNCLASSIFIED Non-NATO Invited
AVT-238 (RTG)	Early stage warship design & procurement for operational effectiveness and affordability	NATO UNCLASSIFIED Non-NATO Invited
AVT-239 (RTG)	Innovative Control Effectors for Manoeuvring of Air Vehicles	NATO UNCLASSIFIED Non-NATO Invited
AVT-240 (RTG)	Hypersonic Boundary-Layer Transition Prediction	NATO UNCLASSIFIED Non-NATO Invited
HFM-175 (RTG)	Medically Unexplained Physical Symptoms in Military Health	Publicly Releasable Non-NATO Invited
HFM-179 (RTG)	Moral Decisions in Military Operations and Mental Health	Publicly Releasable Non-NATO Invited
HFM-186 (RTG)	State-of-the-art in Research on Medical Countermeasures against Biological Agents	Publicly Releasable Non-NATO Invited
HFM-189 (RTG)	Bioeffects and Standardization of Exposure Limits of Military Relevant High Energetic Electromagnetic Pulses (HEEP)	Publicly Releasable Non-NATO Invited
HFM-190 (RTG)	Oxygen Requirements in Unpressurized Aircraft Operating below 18,000 ft.	Publicly Releasable Non-NATO Invited
HFM-192 (RTG)	Optimal use of Hyperbaric Oxygen Therapy in Military Medical Facilities	Publicly Releasable Non-NATO Invited
HFM-194 (RTG)	Development of Evidence-based Guidelines for the Management of Severely Burnt Patients	Publicly Releasable Non-NATO Invited
HFM-195 (RTG)	Integrative Medicine Interventions for Military Personnel	Publicly Releasable Non-NATO Invited
HFM-198 (RTG)	Injury assessment methods for vehicle active and passive protection systems	Publicly Releasable Non-NATO Invited
HFM-199 (RTG)	Integration of CBRN Physical Protective Measures to Lessen the Burden on Personnel	Publicly Releasable Non-NATO Invited
HFM-203 (RTG)	Mental Health Training	Publicly Releasable Non-NATO Invited
HFM-211 (RTG)	An Applied-Scientific Approach to Field Assessments	Publicly Releasable Non-NATO Invited
HFM-212 (RTG)	Advancements in Distributed Learning Environment Support of Transformation	Publicly Releasable Non-NATO Invited
HFM-214 (RTG)	Human Systems Integration for Robust Operations of UAVs.	Publicly Releasable Non-NATO Invited
HFM-215 (RTG)	Advanced Training Technologies for Medical healthcare professionals	Publicly Releasable Non-NATO Invited
HFM-216 (RTG)	Synthetic Environments for HSI Application, Assessment and Improvement	Publicly Releasable Non-NATO Invited
HFM-218 (RTG)	Military Suicide	Publicly Releasable Non-NATO Invited
HFM-221 (RTG)	Live-Virtual-Constructive (LVC) Training to Enhance Performance Effectiveness	Publicly Releasable Non-NATO Invited
HFM-222 (RTG)	Ionizing Radiation Bioeffects and Countermeasures	Publicly Releasable Non-NATO Invited

<b>ACTIVITY</b>	<b>TITLE</b>	<b>DISTRIBUTION and PARTNER PARTICIPATION</b>
HFM-226 (RTG)	Civilian and Military Personnel Work Culture and Relations in Defence Organisations	Publicly Releasable Non-NATO Invited
HFM-227 (RTG)	Building Effective Collaboration in a Comprehensive Approach	Publicly Releasable Non-NATO Invited
HFM-229 (RTG)	Optimizing Hearing Loss Prevention and Treatment, Rehabilitation and Reintegration of Soldiers with Hearing Impairment.	Publicly Releasable Non-NATO Invited
HFM-230 (RTG)	Development of Depository of fast and reliable Detection Methods for Zoonotic Agents	Publicly Releasable Non-NATO Invited
HFM-233 (RTG)	Sensitive Equipment Decontamination Technologies	Publicly Releasable Non-NATO Invited
HFM-234 (RTG)	Environmental Toxicology of Blast Exposures: Injury Metrics, Modeling, Methods and Standards	Publicly Releasable Non-NATO Invited
HFM-237 (RTG)	Assessment of Intelligent Tutoring System Technologies and Opportunities	Publicly Releasable Non-NATO Invited
HFM-238 (RTG)	Reducing the Dismounted Soldiers Burden	Publicly Releasable Non-NATO Invited
HFM-242 (RTG)	Technology Alternatives for Medical Training: Minimizing Live Tissue Use	Publicly Releasable Non-NATO Invited
HFM-247 (RTG)	Human-Autonomy Teaming: Supporting Dynamically Adjustable Collaboration	Publicly Releasable Non-NATO Invited
HFM-248 (RTG)	Social Media and Information Technology for Disaster and Crisis Response	Publicly Releasable Non-NATO Invited
HFM-250 (RTG)	Improving Anesthesia and Sedation through the Battlefield	Publicly Releasable Non-NATO Invited
HFM-251 (RTG)	Occupational Cardiology in Military Aircrew	Publicly Releasable Non-NATO Invited
HFM-252 (RTG)	Aircrew Neck Pain	Publicly Releasable Non-NATO Invited
HFM-253 (RTG)	Medical Chemical Defence against Chemical Warfare Agent Threats	Publicly Releasable Non-NATO Invited
HFM-257 (RTG)	Modeling and Simulation Technologies for Training Medical/Healthcare Professionals	Publicly Releasable Non-NATO Invited
HFM-258 (RTG)	The Impact of Military Life on Children from Military Families	Publicly Releasable Non-NATO Invited
HFM-259 (RTG)	Human Systems Integration Approach to Cyber Security	NATO UNCLASSIFIED Non-NATO Invited
HFM-260 (RTG)	Enhancing Warfighter Effectiveness with Wearable Bio sensors and Physiological Models	Publicly Releasable Non-NATO Invited
IST-102 (RTG)	Meeting Translation for NATO Operations (Speech and Language Processing, Project 8)	Publicly Releasable Non-NATO Invited
IST-104 (RTG)	Cognitive Radio in NATO - II	NATO UNCLASSIFIED
IST-108 (RTG)	Cyber Defence Situational Awareness	NATO UNCLASSIFIED Non-NATO Invited
IST-109 (RTG)	Dynamic Wireless Network Security in Coalition Environments	NATO SECRET

<b>ACTIVITY</b>	<b>TITLE</b>	<b>DISTRIBUTION and PARTNER PARTICIPATION</b>
IST-110 (RTG)	Visualization for Analysis	NATO UNCLASSIFIED Non-NATO Invited
IST-113 (RTG)	NATO NEC over SATCOM	NATO UNCLASSIFIED
IST-114 (RTG)	Trusted Information Sharing for Partnerships	NATO UNCLASSIFIED Non-NATO Invited
IST-118 (RTG)	SOA Recommendations for Disadvantaged Grids in the Tactical Domain	NATO UNCLASSIFIED
IST-119 (RTG)	Maturing and Validation of SILF Feasibility Study	NATO UNCLASSIFIED Non-NATO Invited
IST-121 (RTG)	Machine Learning Techniques for Autonomous Computer Generated Entities	Publicly Releasable Non-NATO Invited
IST-124 (RTG)	Heterogeneous Tactical Networks - Improving Connectivity and Network Efficiency	Publicly Releasable Non-NATO Invited
IST-129 (RTG)	Predictive Analysis of Adversarial Cyber Operations	NATO UNCLASSIFIED
IST-132 (RTG)	Multi-Level Fusion of Hard and Soft Information	NATO UNCLASSIFIED Non-NATO Invited
IST-140 (RTG)	Cognitive Radio Networks - Efficient Solutions for Routing, Topology Control, Data Transport, and Network Management	NATO UNCLASSIFIED Non-NATO Invited
MSG-098 (RTG)	Urban Combat Advanced Training Technology (UCATT) - Architecture	Publicly Releasable Non-NATO Invited
MSG-099 (RTG)	Urban Combat Advanced Training Technology (UCATT) - Standards	Publicly Releasable Non-NATO Invited
MSG-106 (RTG)	Enhanced CAX Architecture, Design and Methodology - SPHINX	Publicly Releasable Non-NATO Invited
MSG-116 (RTG)	Simulation for Training and Operation Group (STOG)	Publicly Releasable Non-NATO Invited
MSG-117 (RTG)	Exploiting Modelling and Simulation to support Cyber Defence	NATO RESTRICTED
MSG-118 (RTG)	Development of Common Image Generator Interface (CIGI) v.4 Compliance Testing Tools	Publicly Releasable Non-NATO Invited
MSG-120 (RTG)	NATO M&S Glossary of Terms	Publicly Releasable Non-NATO Invited
MSG-124 (RTG)	Developing Actionable Data Farming Decision Support for NATO	Publicly Releasable Non-NATO Invited
MSG-127 (RTG)	Reference Architecture for Human Behaviour Modelling in Military Training Applications	Publicly Releasable Non-NATO Invited
MSG-128 (RTG)	Incremental Implementation of NATO Mission Training through Distributed Simulation Operations	NATO SECRET
MSG-134 (RTG)	NATO Distributed Simulation Architecture & Design, Compliance Testing and Certification	Publicly Releasable Non-NATO Invited
MSG-135 (RTG)	NATO M&S Resources/Standards Support Working Group	Publicly Releasable Non-NATO Invited

<b>ACTIVITY</b>	<b>TITLE</b>	<b>DISTRIBUTION and PARTNER PARTICIPATION</b>
MSG-136 (RTG)	Modelling and Simulation as a Service (MSaaS) Rapid deployment of interoperable and credible simulation environments	Publicly Releasable Non-NATO Invited
MSG-139 (RTG)	M&S Use Risk Identification and Management	Publicly Releasable Non-NATO Invited
MSG 140 (RTG)	Urban Combat Advanced Training Technology - Live Simulation Standards (UCATT-LSS)	Publicly Releasable Non-NATO Invited
SAS-092 (RTG)	Costing Support for Force Structure Studies	Publicly Releasable Non-NATO Invited
SAS-093 (RTG)	Risk-Based Planning	NATO RESTRICTED
SAS-094 (RTG)	Analytical Support to the Development and Experimentation of NLW Concepts of Operation and Employment	NATO SECRET
SAS-095 (RTG)	Cost/Benefit Analysis of Military Training	Publicly Releasable Non-NATO Invited
SAS-096 (RTG)	Key Performance Indicators in Measuring Military Outputs	NATO UNCLASSIFIED Non-NATO Invited
SAS-097 (RTG)	Robotics Underpinning Future NATO Operations	Publicly Releasable Non-NATO Invited
SAS-099 (RTG)	Economics for Evaluating Fleet Replacement	Publicly Releasable Non-NATO Invited
SAS-104 (RTG)	C2 Agility: Next Steps	Publicly Releasable Non-NATO Invited
SAS-107 (RTG)	Factoring Situational Awareness and Communications in Operational Models of Dismounted Combat	Publicly Releasable Non-NATO Invited
SAS-108 (RTG)	Methods to Support Decision Making for Joint Fires	Publicly Releasable Non-NATO Invited
SAS-109 (RTG)	Risk Analysis for Acquisition Programs	NATO UNCLASSIFIED Non-NATO Invited
SAS-110 (RTG)	Irregular Warfare and Operations Assessment	NATO UNCLASSIFIED Non-NATO Invited
SAS-111 (RTG)	Collection and Management of Data for Analysis Support to Operations	NATO UNCLASSIFIED Non-NATO Invited
SAS-112 (RTG)	Comparative Analysis of Private-Public Partnership in the Management of Military-Industry Activities	NATO UNCLASSIFIED Non-NATO Invited
SAS-114 (RTG)	Assessment and Communication of Risk and Uncertainty to Support Decision-Making	NATO SECRET Non-NATO Invited
SAS-116 (RTG)	Military Strategic Level Decision Making within a (future) framework of Cyber Resilience	NATO UNCLASSIFIED Non-NATO Invited
SAS-117 (RTG)	Information Operations for Influence (IOI)	NATO UNCLASSIFIED Non-NATO Invited

<b>ACTIVITY</b>	<b>TITLE</b>	<b>DISTRIBUTION and PARTNER PARTICIPATION</b>
SAS-IST-102 (RTG)	Intelligence Exploitation of Social Media	NATO RESTRICTED
SCI-224 (RTG)	EO and IR-Countermeasures against Anti-ship Missiles	NATO SECRET
SCI-237 (RTG)	Directed Infrared Countermeasure (DIRCM) State of the Art and Flight Testing Methodology	NATO SECRET
SCI-246 (RTG)	Exploration and Development of Denial and Deception Doctrine to Support NATO	NATO SECRET
SCI-248 (RTG)	NATO Vulnerability to Hostile Use of Civilian-Space-based SAR	NATO SECRET
SCI-256 (RTG)	Route Threat Detection and Clearance Technologies	NATO SECRET
SCI-258 (RTG)	Scientific Support to NNAG Above Water Warfare Capability Group (AWWCG)	NATO SECRET
SCI-260 (RTG)	Platform-level EW Architectures for Joint/Coalition Air Operations	NATO SECRET
SCI-264 (RTG)	High Energy Laser Weapons: Tactical Employment in the Shared Battlespace	NATO SECRET
SCI-270 (RTG)	Process Development for D&D Field Trials and Associated Data Analysis	NATO SECRET
SCI-273 (RTG)	Guidelines for Toxicity Testing of Smokes, Obscurants, and Pyrotechnic Mixtures	NATO RESTRICTED
SCI-279 (RTG)	Enabling Technical Considerations for a NATO-Common Space Domain Operating Picture	NATO UNCLASSIFIED Non-NATO Invited
SCI-280 (RTG)	System-of-systems approach to task driven sensor resource management for maritime situational awareness (SoSMSA)	NATO UNCLASSIFIED
SCI-281 (RTG)	Solutions Advancing Next Generation Radar Electronic Attack	NATO SECRET
SCI-282 (RTG)	Countermeasures Against Anti-Aircraft EO/IR Imaging Seeker Threats	NATO SECRET
SET-128 (RTG)	Impact of Wind Turbines on Radar	NATO SECRET
SET-140 (RTG)	Super-Resolution and Advanced Signal Processing for EO/IR Sensor Performance	NATO CONFIDENTIAL
SET-145 (RTG)	Extraction of Geospatial Intelligence Information from Space Borne SAR Sensors	NATO CONFIDENTIAL
SET-146 (RTG)	Steering Committee for the NRC(SPS) STANDEX Programme (Stand-off detection of explosives and suicide bombers)	NATO/RUSSIA SECRET
SET-147 (RTG)	Microsatellites and Surveillance of Space	NATO SECRET
SET-153 (RTG)	Multi Sensors Integration for Urban Operations	NATO SECRET
SET-155 (RTG)	Advancing Sensing Through the Walls (STTW) Technologies	NATO SECRET
SET-166 (RTG)	Signature Management System for Underwater Signatures of Surface Ships	NATO SECRET

<b>ACTIVITY</b>	<b>TITLE</b>	<b>DISTRIBUTION and PARTNER PARTICIPATION</b>
SET-167 (RTG)	Navigation Sensors and Systems in GNSS Denied Environments	NATO UNCLASSIFIED
SET-174 (RTG)	EO-TDA Modeling	NATO SECRET
SET-179 (RTG)	Dynamic Waveform Diversity and Design	NATO UNCLASSIFIED Non-NATO Invited
SET-180 (RTG)	Analysis and Recognition of Radar Signatures for Non-Cooperative Identification of Unmanned Aerial Vehicles	NATO SECRET
SET-182 (RTG)	Radar Spectrum Engineering and Management	NATO UNCLASSIFIED Non-NATO Invited
SET-184 (RTG)	Capabilities of Noise Radar	NATO UNCLASSIFIED Non-NATO Invited
SET-185 (RTG)	Maritime Radar Surface Surveillance Techniques and the High Grazing Angle Challenge	NATO UNCLASSIFIED Non-NATO Invited
SET-186 (RTG)	Airborne Passive Radars and their Applications APRA	NATO UNCLASSIFIED Non-NATO Invited
SET-189 (RTG)	Battlefield Acoustic Sensing, Multi-modal Sensing and Networked Sensing for ISR Applications	NATO UNCLASSIFIED Non-NATO Invited
SET-190 (RTG)	Phenomenology and Exploitation of Thermal Hyperspectral Sensing	NATO SECRET
SET-193 (RTG)	THz technology for stand-off detection of explosives: from laboratory spectroscopy to detection in the field	NATO UNCLASSIFIED
SET-195 (RTG)	DMPAR short term solution verification	NATO UNCLASSIFIED
SET-196 (RTG)	Multi-channel/Multi-static radar imaging for non-cooperative targets	NATO UNCLASSIFIED Non-NATO Invited
SET-198 (RTG)	Visible Laser Dazzle Effects and Protection	NATO UNCLASSIFIED Non-NATO Invited
SET-199 (RTG)	Evaluating the Effectiveness of Coordination Methods for Distributed Mobile Sensors	NATO UNCLASSIFIED Non-NATO Invited
SET-200 (RTG)	Electromagnetic scattering prediction of small complex aerial platforms for NCTI purposes	NATO SECRET
SET-203 (RTG)	Ship radar signature management system accuracy, sensitivity and confidence level	NATO SECRET
SET-205 (RTG)	Active Electro-optic Sensing for Target identification and Tactical Applications	NATO SECRET
SET-206 (RTG)	Energy Generation for Manwearable/Manportable Applications and Remote Sensors	NATO UNCLASSIFIED Non-NATO Invited

<b>ACTIVITY</b>	<b>TITLE</b>	<b>DISTRIBUTION and PARTNER PARTICIPATION</b>
SET-207 (RTG)	Advanced situation-specific modeling, sensing and vulnerability mitigation using passive radar technology	NATO UNCLASSIFIED Non-NATO Invited
SET-208 (RTG)	Signal processing for implementation in hand-held multi sensor ground penetrating system	NATO UNCLASSIFIED Non-NATO Invited
SET-209 (RTG)	Exploitation of Human Signatures for Threat Determination	NATO UNCLASSIFIED Non-NATO Invited
SET-211 (RTG)	Naval Platform Protection in the EO/IR Domain	NATO SECRET
SET-212 (RTG)	Multi-Function RF Sensors Specification, Test & Evaluation	NATO UNCLASSIFIED Non-NATO Invited
SET-215 (RTG)	Model-based SAR Automatic Target-Recognition	NATO SECRET
SET-218 (RTG)	Interoperability & Networking of Disparate Sensors and Platforms for ISR Applications	NATO UNCLASSIFIED Non-NATO Invited
SET-219 (RTG)	Simulation of Active Imaging Systems	NATO UNCLASSIFIED Non-NATO Invited
SET-220 (RTG)	Geospatial Information Extraction From space-Borne SAR-Images for NATO-Operations	NATO RESTRICTED
SET-223 (RTG)	Adaptive Radar Resource Management	NATO UNCLASSIFIED Non-NATO Invited
SET-224 (RTG)	Coherent Mid-Infrared Fiber Source Technology	NATO UNCLASSIFIED
SET-225 (RTG)	Spatial and Waveform Diverse Noise Radar	NATO UNCLASSIFIED Non-NATO Invited
SET-226 (RTG)	Turbulence mitigation for Electro Optics (EO) and laser systems	NATO UNCLASSIFIED Non-NATO Invited
SET-227 (RTG)	Cognitive Radar	NATO UNCLASSIFIED Non-NATO Invited

**Table 24: 2015 Specialist's Meetings**

<b>ACTIVITY</b>	<b>TITLE</b>	<b>MEETING DATES</b>	<b>MEETING LOCATIONS</b>	<b>DISTRIBUTION and PARTNER PARTICIPATION</b>
AVT-230 (RSM)	Advanced Aircraft Propulsion Systems	20 Apr 2015 to 22 Apr 2015	Rzeszow, Poland	NATO UNCLASSIFIED
AVT-241 (RSM)	Technological and Operational Problems Connected with UGV Application for Future Military Operations	20-24 April 2015	Rzeszow, Poland	NATO UNCLASSIFIED Non-NATO Invited

<b>ACTIVITY</b>	<b>TITLE</b>	<b>MEETING DATES</b>	<b>MEETING LOCATIONS</b>	<b>DISTRIBUTION and PARTNER PARTICIPATION</b>
AVT-244 (RSM)	Munitions Related Contamination	12-16 October 2015	Prague, Czech Republic	NATO UNCLASSIFIED Non-NATO Invited
AVT-245 (RSM)	Future Rotorcraft Requirements	12-16 October 2015	Prague, Czech Republic	NATO UNCLASSIFIED Non-NATO Invited
AVT-246 (RSM)	Experimental Validation Specialists Meeting	20-24 April 2015	Rzeszow, Poland	NATO UNCLASSIFIED Non-NATO Invited
AVT-256 (RSM)	Augmented Reality for Improved Situational Awareness and Survivability of Combat Vehicles	12-16 October 2015	Prague, Czech Republic	NATO UNCLASSIFIED
AVT-257 (RSM)	Best Practices for Risk Reduction for Overall Space Systems	12-16 October 2015	Prague, Czech Republic	NATO UNCLASSIFIED Non-NATO Invited
AVT-258 (RSM)	Additive manufacturing for military hardware	With AVT Fall PBM		NATO UNCLASSIFIED Non-NATO Invited
AVT-264 (RSM)	Design, manufacturing and application of metallic lightweight material components for military vehicles	12-16 October 2015	Prague, Czech Republic	NATO UNCLASSIFIED Non-NATO Invited
IST-125 (RSM)	Defence Implications of Cloud Computing at Tactical Edge	18 Jun 2015 to 19 Jun 2015	Ankara, Turkey	NATO UNCLASSIFIED Non-NATO Invited
IST-127 (RSM)	Intelligence & Autonomy (Robotics)	Fall 2015	Wachtberg, Germany,	Publicly Releasable Non-NATO Invited
IST-133 (RSM)	Visual Analytics (Cyber Security)	12-13/14 October 2015 (in connection with IST PBM)	Copenhagen, Denmark	NATO UNCLASSIFIED
IST-136 (RSM)	Security Challenges for Multi-domain Autonomous and Unmanned C4ISR Systems (e.g., UxVs, Robotic Systems Security)	TBD	TBD	Publicly Releasable Non-NATO Invited
IST-137 (RSM)	Secure Future Internet Architecture for Military Applications (SFIAMA)	TBD	TBD	Publicly Releasable Non-NATO Invited
SCI-284 (RSM)	Countering Directed Energy Weapons and Devices	TBD	TBD	NATO SECRET
SET-222 (RSM)	Swarm centric solution for Intelligent Sensor Networks	4th quarter of 2015	Rome, Italy	NATO UNCLASSIFIED Non-NATO Invited
SET-228 (RSM)	Radar Imaging for Target Identification	October 2015	Pisa Italy	NATO UNCLASSIFIED Non-NATO Invited

**Table 25: 2015 Workshops**

<b>ACTIVITY</b>	<b>TITLE</b>	<b>MEETING DATES</b>	<b>MEETING LOCATIONS</b>	<b>DISTRIBUTION and PARTNER PARTICIPATION</b>
AVT-242 (RWS)	Coated Component Condition Assessment and Remaining Life Prediction for Advanced Military Air Vehicles	20-24 April 2015	Rzeszow, Poland	NATO UNCLASSIFIED
		12-16 October 2015	Prague, Czech Republic	
AVT-259 (RWS)	Identification and modeling of flight mechanics and control methodologies for micro-air vehicles	TBD	TBD	NATO UNCLASSIFIED Non-NATO Invited
AVT-260 (RWS)	Ship Design Guidance for Aircraft Operations	TBD	TBD	NATO UNCLASSIFIED
HFM-243 (RWS)	Regenerative Medicine	19-21 May 2014,	Berlin (DEU), Officers Club / Conference Center of the Julius-Leber-Kaserne.	Publicly Releasable Non-NATO Invited
HFM-255 (RWS)	Cold Extreme Environmental Operations	28-30 Oct 2014	Kjeller, NOR	Publicly Releasable Non-NATO Invited
IST-128 (RWS)	Cyber Attack Detection, Forensics and Attribution for Assessment of Mission Impact	Tentatively scheduled on 15-17 June 2015	Kavacik Campus, Medipol University, Istanbul, Turkey	NATO UNCLASSIFIED Non-NATO Invited
IST-SAS-139 (RWS)	Visual Analytics for Exploring, Analysing and Understanding Vast, Complex and Dynamic Data	TBD	TBD	NATO UNCLASSIFIED Non-NATO Invited
MSG-122 (RWS)	Simulation in Support of Coalition Operations	½ day during ITEC 2013, 22-24 May 2013	Rome, Italy	Publicly Releasable Non-NATO Invited
MSG 137 (RWS)	Commercial Technologies and Games for Use in NATO - 14th WS	TBD	TBD	NATO UNCLASSIFIED
SAS-115 (RWS)	SMART cooperation on Operation Analysis simulation models	April 2015	Paris, France	NATO UNCLASSIFIED Non-NATO Invited
SCI-275 (RWS)	Maritime Situational Awareness Enabled by Space-based Systems	24-26 February 2015	CMRE, La Spezia, Italy	NATO UNCLASSIFIED

**Table 26: 2015 Symposia**

<b>ACTIVITY</b>	<b>TITLE</b>	<b>MEETING DATES</b>	<b>MEETING LOCATIONS</b>	<b>DISTRIBUTION and PARTNER PARTICIPATION</b>
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AVT-229 (RSY)	Test Cell and Controls Instrumentation and EHM Technologies for Military Air, Land and Sea Turbine Engines	In conjunction with AVT Spring 2015 PBW	Poland	NATO UNCLASSIFIED Non-NATO Invited
HFM-239 (RSY)	State-of-the-Art in Research on Medical Countermeasures Against Biological Agents	13 Oct 2014 to 15 Oct 2014	Vilnius, Lithuania	Publicly Releasable Non-NATO Invited
HFM-249 (RSY)	Emerging Technological Advances in Tactical Casualty Care	20 Apr 2015 to 22 Apr 2015	Warsaw, Poland	Publicly Releasable Non-NATO Invited
HFM-254 (RSY)	Advances in Health Informatics: Optimizing Health Protection and Care	12-14 October 2015	Bordeaux, France	Publicly Releasable Non-NATO Invited
IST-SET-126 (RSY)	Information Fusion (Hard and Soft) for ISR	04 May 2015 to 05 May 2015	Norfolk, United States	Publicly Releasable Non-NATO Invited
MSG 132 (RSY)	MSG/MSCO Support to International Training & Education Conferences ITEC 2015, IITSEC 2015 and CAX Forum 2015	27-30 April 2015	Prague, Czech Republic	NATO UNCLASSIFIED Non-NATO Invited
		30 November to 4 December 2015	Orlando, USA	
		28 September to 2 October 2015	CAX Italy	
MSG 133 (RSY)	M&S Support to Operational Tasks Including War Gaming, Logistics, Cyber Defence	15 16 October 2015	Munich, Germany	NATO UNCLASSIFIED
SCI-269 (RSY)	Flight Testing of Unmanned Aerial Systems (UAS)	12-13 May 2015	Ottawa, Canada	NATO UNCLASSIFIED Non-NATO Invited

**Table 27: 2015 Specialist Teams**

ACTIVITY	TITLE	MEETING DATES	MEETING LOCATIONS	DISTRIBUTION and PARTNER PARTICIPATION
AVT-003 (RST)	Impact of Scarcity of Materials and Scarcity of Rare Earth Materials	TBD	TBD	NATO UNCLASSIFIED
IST-130 (RST)	Method for Architecture Definition and Evaluation in-line with NATO Architecture Framework	mid-January 2015 (Tentatively) Meetings on a quaterly basis	Paris (CSO)	NATO UNCLASSIFIED
SAS-113 (RST)	Future Defence Budget Constraints: Challenges and Opportunities	January 2015	Rome, Italy	NATO UNCLASSIFIED

**Table 28: 2015 Technical Courses**

<b>ACTIVITY</b>	<b>TITLE</b>	<b>MEETING DATES</b>	<b>MEETING LOCATIONS</b>	<b>DISTRIBUTION and PARTNER PARTICIPATION</b>
HFM-256 (RTC)	Aerospace Medicine Going to extremes	11 Mar 2015 to 13 Mar 2015	Ramstein, Germany	Publicly Releasable Non-NATO Invited

**PREVIEW OF 2016 ACTIVITIES BY TYPE****Table 29: 2016 Research Task Groups**

<b>ACTIVITY</b>	<b>NUMBER</b>	<b>DISTRIBUTION and PARTNER PARTICIPATION</b>
AVT-247 (RTG)	Environmentally Compliant Materials & Processes for Military Vehicles	NATO UNCLASSIFIED Non-NATO Invited
AVT-248 (RTG)	Next-Generation NATO Reference Mobility Model (NRMM)	NATO UNCLASSIFIED Non-NATO Invited
AVT-249 (RTG)	Munitions Related Contamination: Military Live-Fire Range Characterization	NATO UNCLASSIFIED Non-NATO Invited
AVT-250 (RTG)	Gas Turbine Engine Environmental Particulate Foreign Object Damage [EP-FOD]	NATO UNCLASSIFIED
AVT-251 (RTG)	Multi-disciplinary design and performance assessment of effective, Agile NATO Air Vehicles	NATO UNCLASSIFIED Non-NATO Invited
AVT-252 (RTG)	Stochastic Design Optimization for Naval and Aero Military Vehicles	NATO UNCLASSIFIED
AVT-253 (RTG)	Assessment of Prediction Methods for Large Amplitude Dynamic Manoeuvres for Naval Vehicles	NATO UNCLASSIFIED Non-NATO Invited
AVT-254 (RTG)	Assessment of Plasma Actuator Technologies for Internal Flows	NATO UNCLASSIFIED Non-NATO Invited
AVT-255 (RTG)	Unmanned Systems Mission Performance Potential for Autonomous Operations	NATO UNCLASSIFIED Non-NATO Invited
SET-217 (RTG)	Assessing and Modeling the Performance of Digital Night Vision Image Fusion	NATO CONFIDENTIAL
SET-229 (RTG)	Cooperative Navigation in GNSS Degraded and Denied Environments	NATO UNCLASSIFIED

**Table 30: 2016 Lecture Series**

<b>ACTIVITY</b>	<b>NUMBER</b>	<b>DISTRIBUTION and PARTNER PARTICIPATION</b>
SCI-277 (RLS)	Lecture Series on Store Separation and Trajectory Prediction	Publicly Releasable Non-NATO Invited

**Table 31: 2016 Symposia**

<b>ACTIVITY</b>	<b>NUMBER</b>	<b>DISTRIBUTION and PARTNER PARTICIPATION</b>
SCI-283 (RSY)	Considerations for Space and Space-Enabled Capabilities in NATO Coalition Operations	NATO UNCLASSIFIED Non-NATO Invited

## TABLE OF ABBREVIATIONS

ACO	Allied Command Operations
ACT	Allied Command Transformation
AG	AGARDograph (Advanced Guidance for Alliance Research and Development)
AVT	Applied Vehicle Technology (STO Level 2 Committee)
BM	Business Meeting
BUDFIN	Budget and Finance Branch (CSO)
CASG	Chairman's Advisory Sub-group (STB Sub-group)
CMRE	Centre for Maritime Research and Experimentation (STO Executive Body)
CNAD	Conference of National Armament Directors
COMPUSEC	Computer Security
COMSEC	Communications Security
CSO	Collaboration Support Office (STO Executive Body)
DACOS	Deputy Assistant Chief Of Staff (ACT, ACO)
DID	Defence Investment Division (IS)
EAP	Euro-Atlantic Partnership
EAPC	Euro-Atlantic Partnership Council (PfP Nations)
EN	Educational Note
EO	Electro-Optical/Optics
ESCD	Emerging Security Challenges Division (IS)
ET	Exploratory Team
EW	Electronic Warfare
FASG	Finance & Audit Sub-group (STB Sub-group)
HFM	Human Factors and Medicine (STO Level 2 Committee)
ICI	Istanbul Cooperation Initiative
KIMC	Knowledge/Information Management Committee (STB Experts Committee)
IMP	International Military Personnel
IMS	International Military Staff (NATO HQ)
IMSB	Information Management and Systems Branch (CSO)
IPCP	Individual Partnership and Cooperation Programme
IR	Infra-Red
IS	International Staff (NATO HQ)
IST	Information Systems Technology (STO Level 2 Committee)
L2CC	Level 2 Coordination Committee (STB Experts Committee)
L&R	Logistics and Resources (IMS Division)
LPTT	Limited Participation Technical Team
LTCR	Long Term Capability Requirements (ACT)
LTSS	Long Term Scientific Study
M&S	Modelling & Simulation
MaL	Member at Large (STO Level 2 Committees, KIMC)
MAS	Military Application Study
MASG	Maritime S&T Sub-group (STB Sub-group)
MC	Military Committee (IMS)
MD	Mediterranean Dialogue
MNE	Multinational Exercise (LTSS)
MoD	Ministry of Defence
MP	Meeting Proceeding
MSCO	Modelling and Simulation Coordination Office (CSO)
MSG	Modelling and Simulation Group (STO Level 2 Committee – also called

	NMSG)
MSTC	Maritime S&T Experts Committee (STB Experts Committee)
NAAG	NATO Army Armament Group (IS/DID)
NAC	North Atlantic Council
NAFAG	NATO Air Force Armaments Group (IS/DID)
NASA	National Aeronautics and Space Administration (USA)
NATO	North Atlantic Treaty Organisation
NBC	Nuclear, Biological and Chemical
NCIO/A	NATO Communications and Information Organisation/Agency
NC	NATO CONFIDENTIAL
NCC	National Coordinators' Committee (STB Experts Committee)
NIAG	NATO Industrial Advisory Group (IS)
NMA	NATO Military Authority
NMSG	NATO Modelling and Simulation Group (STO Level 2 Committee – also called MSG)
NMSMP	NATO M&S Master Plan
NNAG	NATO Naval Armaments Group (IS/DID)
NOS	NATO Office of Security
NR	NATO RESTRICTED
NS	NATO SECRET
NST	NATO Staff Targets
NU	NATO UNCLASSIFIED
OA	Operational Analysis
OCD	Operations and Coordination Division (CSO)
OCS	Office of the Chief Scientist (STO Executive Body)
ONST	Outline NATO Staff Targets
PCM	Partnership Cooperation Menu
PIF	Partnership for Peace
PoW	Programme of Work
RF	Radio Frequency
RLS	Research Lecture Series
RSM	Research Specialists' Meeting
RSY	Research Symposium
RTC	Research Technical Course
RTG	Research Task Group
RWS	Research Workshop
SAS	System Analysis and Studies (STO Level 2 Committee)
SASG	Scientific Awards Sub-group (STB Sub-group)
SC	NATO Strategic Command(er)
SCI	Systems Concepts and Integration (STO Level 2 Committee)
SISO	Simulation Interoperability Standards Organization
SET	Sensors and Electronics Technology (STO Level 2 Committee)
ST	Specialist Team
STANAG	NATO Standardization Agreement
STB	Science and Technology Board (STO)
STO	Science and Technology Organisation
TAP	Technical Activity Proposal
TBA	To Be Approved
TER	Technical Evaluation Report
TM	Technical Memorandum

ToR	Terms of Reference
TP	Technical Publication
TR	Technical Report
TT	Technical Team
VKI	Von Kármán Institute
VNC	Voluntary National Contribution