

Annex A – IST-050 RTG TAP

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|--|---|--|--------|---|---|----------------|------|--|-------------------|--|-----|---------------|------------|----|--|
| ACTIVITY | IST-050 | HF INTERFERENCE, PROCEDURES AND TOOLS | | | | | | | | | | | 2003 | | |
| Activity REF. Number | RTG-022 | | | | | | | | | | | | April 2003 | | |
| PRINCIPAL MILITARY REQUIREMENTS | 1 | 2 | 3 | 4 | 5 | 6 | | | | | UU | December 2006 | | | |
| MILITARY FUNCTIONS | 1 | 2 | 3 | | | | 7 | | | | 11 | 12 | 13 | 14 | |
| PANEL AND COORDINATION | IST (Information Systems Technology) | | | | | | | | | | | | | | |
| LOCATION AND DATES | 01 Mtg: RTA Paris (FRA), 29-31 March 2004 02 Mtg: Kjeller (NOR), 23-26 August 2004 03 Mtg: Wachtberg (DEU), 18-21 January 2005 04 Mtg: RTA Paris (FRA), 26-29 April 2005 05 Mtg: Ottawa (CAN), 20-23 Sept. 2005 06 Mtg: Kjeller (NOR), 28 Nov. - 01 Dec. 2005 07 Mtg: Wachtberg (DEU), 13-16 March 2006 08 Mtg: Ottawa (CAN), 13-16 June 2006 09 Mtg: RTA Paris (FRA), 23-27 October 2006 | | | | | | | | | | P-I | | | | |
| PUBLICATION DATA | TR (Final Report) | | | | | | 2007 | | 200 | | UU | | | | |
| KEYWORDS | Power Line | | PLT | | | PLC | | | HF Communications | | | | | | |
| | Digital Subscriber Line (xDSL) | | COMINT | | | Reconnaissance | | | EMC | | | | | | |

I. BACKGROUND AND JUSTIFICATION (RELEVANCE TO NATO)

Power Line TeleCommunications (PLT, PLC) and various forms of Digital Subscriber Line (xDSL) transmissions are recent and rapidly evolving technologies using the existing electricity power or telephone lines for data transmission with rates higher than 1 MBit/s. As these lines were not designed for transmission of high data rates, they will produce noiselike interferences in the HF-range. The intensity depends on the electrical characteristics of the lines (balance, match, screening) as well as on the density and area coverage of these new systems. Exact calculations are impossible at this time because of missing models for the new wirebound communication systems with respect to emission of radio noise in HF band. First measurements and estimations show that radio noise from PLT and xDSL will bring up big problems for military HF radio communications and Communication Intelligence (COMINT) in all NATO countries. HF is still and will be further used for near (ground wave) and far (sky wave) distance communications, as its equipment is easily and rapidly deployable. It permits fully military-controlled command links across long distances with secured transmissions without additional costs and easy frequency co-ordination.

II. OBJECTIVE(S)

The objective of this task group will be to find out procedures, models and tools for being able to calculate and measure radio noise produced by PLT and xDSL systems in HF range. This will then enable NATO and its countries to determine the threat to military HF radio communications and COMINT systems by PLT and xDSL and to take the appropriate steps.

III. TOPIC TO BE COVERED

Identify the effects of PLT and xDSL systems contributing to HF radio noise.

Find out technical characteristics of PLT and xDSL systems that may be modelled as HF radio noise sources.

Establish the corresponding models including procedures and tools for determination of the technical parameters describing the HF radio noise sources (power, antenna characteristic, gain).

Determine these technical parameters theoretically and by measurement.

IV. DELIVERABLE

Technical Report.

V. TECHNICAL TEAM LEADER AND LEAD NATION

Chair: Dr. Arto CHUBUKJIAN Canada.

Lead Nation: Canada.

VI. NATIONS WILLING/INVITED TO PARTICIPATE

Canada, Georgia, Germany, Norway, Slovak Republic.

VII. NATIONAL AND/OR NATO RESOURCES NEEDED

Nations are expected to fund the travel and subsistence of the participants and to provide access to relevant national data, experimental sensors, test beds, computer models, computer time, national range facilities, etc.

Host Nations will provide meeting arrangements. No special needs are foreseen except for Internet access.

VIII. RTA RESOURCES NEEDED

Support could be asked if needed for one of two Consultants per year.

IX. ADDITIONAL INFORMATION

Liaison Members:

Dr. Malcolm R. VANT, Canada.

Limited Participation Technical Team:

No.