NATO ACTIVITIES AS AN AID TOWARD INTERNATIONAL HARMONIZATION OF EMF STANDARDS

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INTRODUCTION

The North Atlantic Treaty Organization: Structure and Purpose

The North Atlantic Treaty Organization (NATO) was established by the 1949 North Atlantic Treaty, commonly referred to as the Treaty of Washington. The North Atlantic Alliance is a defensive alliance based on political and military cooperation among independent member countries, established in accordance with Article 51 of the United Nations Charter. At present, NATO comprises 16 member states including: Belgium, Canada, Denmark, France, Germany (since 1955), Greece (since 1952), Iceland, Italy, Luxembourg, Norway, Portugal, Spain (since 1982), Turkey (since 1982), The Netherlands, The United Kingdom, and The United States.

NATO decisions are taken on the basis of consensus, after discussion and consultation among the member nations. As a multinational, inter-governmental association of free and independent states, NATO has no supranational authority or independent policy-making function. Decisions taken by NATO are therefore decisions taken by all its member countries.

NATO Standardization Programs

NATO is the world’s largest producer of international standardization agreements. The Military Agency for Standardization (MAS) is the principal military agency for standardization within NATO. The MAS was established in London in 1951 and moved to NATO headquarters in 1971 with the goal of meeting the need for “more efficient methods of producing military equipment and of the standardization of parts and end products of military equipment.” Its purpose is to facilitate operational, procedural, and materiel standardization among member nations to enable NATO forces to operate together in the most effective manner. Standardization and interoperability between NATO forces make a vital contribution to the combined operational effectiveness of the military forces of the Alliance and enable opportunities to be exploited for making better use of economic resources.

The MAS reports directly to the Military Committee, which is the highest military authority in the Alliance under the political authority of the North Atlantic Council and Defence Planning Committee. The MAS includes the Naval Board, Army Board, Air Board, Joint Service Board, and the Terminology Coordinator. Each Board has membership from each NATO nation except Iceland, which has no military, and Luxembourg, whose interests are represented by Belgium.

Standardization is voluntary, and is achieved by agreement, not compulsion. Each member has an equal voice. The MAS is an administrative agency with a consultative alliance. Therefore, MAS cannot enforce any agreement; nor can it require national conformity to any policy. MAS authority about standardization only comes from formal agreement of nations, through their representative, within the rule of consensus.

The Working Parties are the most important element of the MAS. These groups are formed by their respective Service Boards and are comprised of groups of experts. It is at the Working Party level that Standardization Agreements (STANAGs) are developed.

Development of NATO Standardization Agreements (STANAGs)

NATO Standardization Agreements for procedures and systems know as STANAGs are developed and promulgated by the NATO Military Agency for Standardization. A STANAG is the official record of agreement among several or all
nations to adopt like or similar materiel or procedures. STANAGs are usually implemented by means of national or NATO command documents.

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STANAGs first undergo a process of validation, which ensures that the nations and commands agree that a standardization agreement is required. Next, a standing working party or a special panel carries out the development of a draft agreement. The nation leading the drafting process will normally become the custodian responsible for preparation of the draft and circulating it for comment, collating comments received from nations/commands, and producing the final draft in consonance with comments received or agreements reached at meetings. Ratification is the stage where an informally agreed draft is formally accepted by nations. Following ratification, the MAS Chairman’s signature formally promulgates the STANAG. The STANAGs are reviewed at least once every two years.

**Historical Perspective of Non-Ionizing Radiation Standardization at NATO**

NATO historically has encouraged and supported scientific projects concerning Non-Ionizing Radiation (NIR) effects on military personnel, ordinance and fuel. The need for assessment and harmonization of NIR safety guidance continues today, as safety standards are updated throughout the world, and as new NIR systems come on line. Most NIR systems in use and those in development are unique to military applications. The adoption of a scientifically acceptable and defensible standard for human exposure to NIR that is applicable across national boundaries is of significant importance to commanders and operators. Rapidly expanding technologies require that systems hardware and operation be integrated and compatible within NATO.

NATO first recognized, in 1970, the need for coordinated evaluation of NIR impact on military operations. The French proposed to NATO Defense Research Group (DRG) AC/2431 Panel III (Physics and Electronics) to form Research Study Group 2 (RSG2) to study the possibility of cooperation in the protection of personnel against NIR. This marked the beginning of twenty five years of cooperative NATO sponsored research and personnel safety standards development for exposure to NIR.

In June 1973, the RSG2 proposed to the NATO MAS General Medical Working Party (MED WP) to coordinate actions on the development of a STANAG concerning personnel safety standards for exposure to NIR. Initially named, “Biological Effects and Protection of Electromagnetic Radiation,” RSG2 had its first meeting in Aug 1973 in Rijswijk, Netherlands. Member nations included Germany, The Netherlands, Norway, the United States, and the United Kingdom. Canada joined as an active member in Jan 1975.

The Aerospace Medical Panel of the Advisory Group for Aerospace Research and Development (AGARD) cosponsored Lecture Series No. 78 Radiation Hazards, in 1975, in the Netherlands, Germany, and Norway, on the subject of Radiation Hazards to provide a review and critical analysis of the available information and concepts. Following that meeting, in the same year, RSG2 proposed a revision to STANAG 2345. The intent of the proposal was to revise the STANAG to incorporate frequency-dependent-NIR safety guidelines. In 1978, several important recommendations were forwarded through the DRG to the MED WP including use of frequency dependent scaling, use of a continuous curve, and elimination of numerous procedures and restrictions such as the need for EEG and ophthalmic examinations. These changes were documented in STANAG 2345, Control and Evaluation of Personnel Exposure to Radiofrequency Radiation, promulgated in 1979.

In 1981, Panel VIII sponsored a workshop at the Royal Air Force Institute of Aviation Medicine (IAM), Royal Aircraft Establishment, Farnborough, U.K. to develop and/or compile sufficient knowledge on the long-term effects of pulsed NIR fields to maintain safe procedures and to minimize unnecessary operational constraints. That workshop brought together eighteen scientists from six NATO countries and resulted in USAF/SAM Aeromedical Review 3-81; A Workshop On The Protection Of Personnel Against Radiofrequency Electromagnetic Radiation.

Also in 1981, a NATO Advanced Studies Institute (ASI) on Advances in Biological Effects and Dosimetry of Low Energy Electromagnetic Fields was held in Erice, Sicily, Italy. This meeting resulted in a NATO ASI publication; Biological Effects and Dosimetry of Non-ionizing Radiation: Radiofrequency and Microwave Energies.

In 1984, Panel VIII sponsored another workshop held in Wachtberg-Werthoven, Federal Republic of Germany, with over 40 scientists from five NATO countries attending. The proceedings of the second workshop were published as USAFSAM-TP-85-14: Proceedings Of A Workshop On Radiofrequency Radiation Bioeffects. The proceedings begin with an address by Prof Dr. R. Bernotat (GE) Chairman of Panel VIII, wherein he stated “...this panel has been and is responsible for fostering and coordinating research in the NIR area as well as for transferring knowledge to applications.” The need for transfer of technological knowledge on safety guidance and the procedures for implementing that guidance to military organizations is greater in 1997 then it was a decade ago.