Compare

Project number: INCO-CT-2006-517623

Project acronym: Compare

Project title: **Development and Validation of a Standards Comparison Methodology**

Instrument: **Integrating and Strengthening the European Research Area**

Thematic Priority: **D2 - Adjusting the system of industrial production and communication**

FINAL ACTIVITY REPORT

Period covered: **from 01//07/2006 to 30/06/2007**

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Start date of project: 01/07/2006 **Duration: 12 months**

Project coordinator name: **W. Gericke** **Version: 1**

Project coordinator organisation name: **ASTRIUM Space Transportation**

Section 1 - Project Execution

This report summarises the project objectives, work performed and results achieved by the contractors involved in the performance of the **Compare** project performed as Specific Support Action (SSA) within the specific European Commission's 6th framework programme for research, technological development and demonstration (RTD), i.e. "Integrating and strengthening the European Research Area". This project - conducted as "Specific measures in support of International Cooperation (INCO)" - is contributing to the explicitly stated research priority D.2 for Russia and the other NIS "Adjusting the System of Industrial Production and Communication".

The project has been jointly executed by Yuzhnoye State Design Office (Yuzhnoye SDO), located in Dniepropetrovsk / Ukraine, and ASTRIUM Space Transportation, a company of the EADS group, located in Bremen / Germany, with ASTRIUM acting as project coordinator vis-à-vis the European Commission (EC). Both contractors are major players in the space business in their countries as well as on international level.

1.1 Project Objectives

Among the most important tasks to be addressed during the process of the European Research Area (ERA) creation is ensuring that scientists from the various parts of Europe speak “the same language”, in particular with regard to the standards used. In order to achieve this, one should be able to compare different standardisation systems with the ultimate aim to appropriately adjust them to each other.

The main goal of the **Compare** project was to develop a methodology allowing to compare (management level) standards from different internationally recognised standardisation bodies and to prove its viability by means of comparison of a set of the selected standards, namely three "European Cooperation for Space Standardisation" (ECSS) standards, with the corresponding ones applied for Ukrainian space projects, e.g. GOST Standards originating from the former Soviet Union.

Subordinated to this goal, the following objectives had been imposed on the project:

1. To validate the defined methodology by means of comparison of a set of the selected standards, namely three "European Cooperation for Space Standardisation" (ECSS) standards, with the corresponding ones applied by Yuzhnoye for Ukrainian space projects, e.g. GOST Standards originating from the former Soviet Union . As a result, it would be possible to draw a conclusion about the level of the methodology’s acceptability in terms of reaching the main goal, as well as about necessary modifications of the methodology to be made.
2. To harmonise selected (management level) standards so that they meet both the Ukrainian/NIS and the European space industries needs. Availability of proposals for harmonised standards will represent a measurable project’s outcome intended for use in joint European space projects.
3. To define the methodology application, enabling standards comparison activities for various types of standards in different industry domains originating from various international standardisation bodies/systems.

4. To identify the exploitation/dissemination potential of the present project results, as well as ones of some past related projects, and to plan future activities within the framework of the European Community's RTD and External Relations (in particular TACIS) policies, capitalizing on the project outcome.

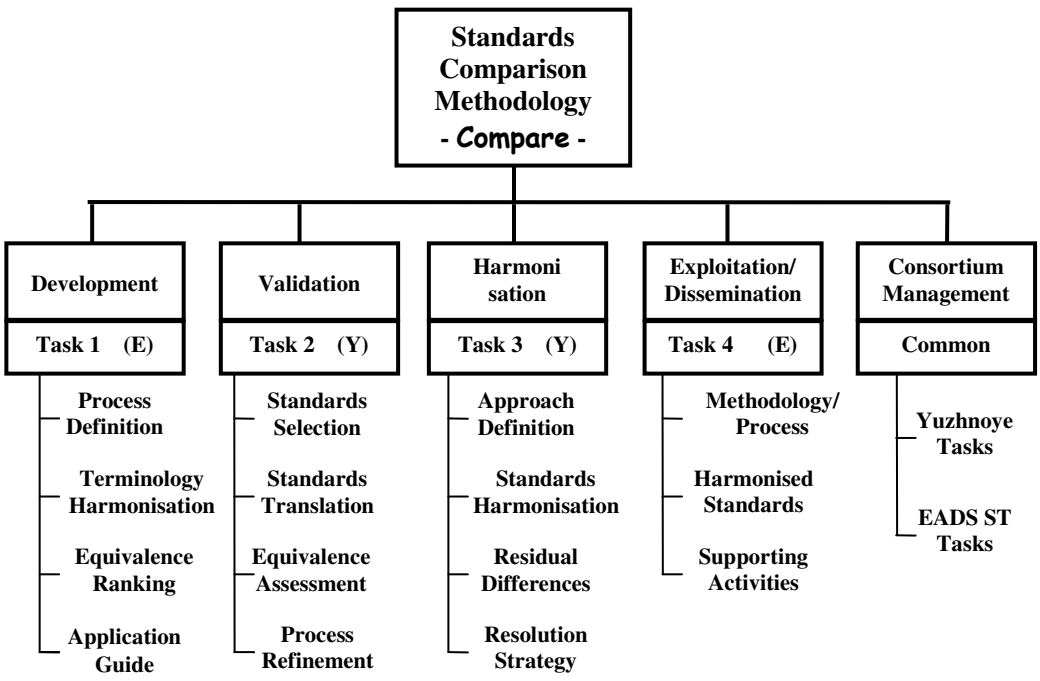
The project objectives and goals have been achieved by elaboration and provision of

- a *methodology* for comparison of Standards originating from different standardisation bodies, which has proven its viability by comparing ECSS and Ukrainian space standards
- *comparison results* for three selected Standard domains, i.e. project organisation, configuration management and quality assurance, for Space Standards applied in Ukraine and ESA member states
- *harmonisation potentials* for above Standards aiming at facilitation of cooperative projects between Ukraine (covering also Russia and other NIS as their Standards are essentially originating from the same source) and ESA member states
- identification of *exploitation / dissemination potentials* with respect to the further use of the developed methodology, achieved comparison results and identified harmonisation potentials

Achievement of the **Compare** project results is documented in detail in four task reports (one for each bullet above) as further elaborated in § 1.3 below.

1.2 Work Performed

The **Compare** project activities had been grouped into four (4) self-standing, but strongly interrelated technical tasks (work-packages/WP's) plus one management work-package with defined subtasks as shown in the figure below.



In order to ensure compatibility of the envisaged results of each task and the associated subtasks with the overall project objectives, the technical responsibility for each task was assigned to one of the participants acting as task-leader. The task leading participant is identified in the figure above by (E) for EADS ASTRIUM Space Transportation and (Y) for Yuzhnoye SDO. Subtasks had been allocated to the participants in accordance with their particular knowledge and industrial background.

At first, a four-step process has been developed in Task 1 - derived from a previously developed methodology in the frame of a European Space Agency (ESA) study contract in 1995 with ASTRIUM Space Transportation participation. These four steps are comparison entity determination, keyword identification, comparison entity linking and similarity/equivalence ranking. A comparison entity is defined as a single requirement requesting accomplishment of one dedicated task or objective. A two-level (major and minor) keyword approach has been selected in order to achieve a comprehensive and unequivocal comparison. These first two steps, i.e. comparison entity determination and keyword identification, have to be performed for each individual standard being subjected to a detailed comparison process. In a next step a linking will be performed between the two standards to be compared based on identical level 1 (major) keywords; these links identify whether the requirement subject is addressed at all in both standards under comparison. For all level 1 links established, a further search will be performed in the standards under comparison for common level 2 keywords, thus revealing commonalities and differences concerning requirement details. After all links have been established the real comparison work can start. In order to discriminate the various degrees of requirements commonality, a ranking scheme has been established which allows for classification of different levels of similarity (i.e. comparability of contents for scope and detail) and equivalence (i.e. ability to meet same objectives). - The methodology developed has been described in detail including an application guide to enable generic process application in the Task 1 Report (see § 1.3 below).

The defined comparison methodology has been validated in Task 2 by subjecting three (3) selected standards from the "European Cooperation for Space Standardisation" (ECSS) with the corresponding ones applied by Yuzhnoye for Ukrainian space projects. As originally identified in the **Compare** project proposal, the following ECSS standards have been used for this methodology validation:

- ECSS-M-20 Project Organisation
- ECSS-M-40 Configuration Management
- ECSS-Q-20 Quality Assurance

The standards proposed and used for validation of the developed methodology have been selected such as to allow for rapid implementation of the companies (especially Yuzhnoye) strategic approach towards international cooperation in the space domain. - The table below identifies those Ukrainian space standards which have been compared with the above ECSS standards after translation into English language by Yuzhnoye.

ECSS and corresponding Ukrainian Standards					
ECSS Specifications			Ukrainian (GOST, OST, etc.) Specifications		
Reference -No	Iss./Rev. Date	Title	Reference -No	Iss./Rev. Date	Title / Applicable Section
ECSS-M-20	B 13.06.2003	Project Organisation	URKT-01.01	1 16.07.2003	Development, production and operation of the rocket & space technology
ECSS-M-40	B 20.05.2005	Configuration Management	39.5601.103 P Regulations including Attachment 1 - GEN YZH PLN 001 00	1 23.11.2001 1 30.12.2000	Regulations. Organization and the configuration control procedure applied during design, development and operation of the rocket & space technology. Launch system. Yuzhnoye and Yuzhny configuration and data management plan (Yuzhnoye internal standard)
			URKT- 01.01	1 16.07.2003	Development, production and operation of the rocket & space technology
			GOST 2.102-68	1 01.01.1971	Unified system for design documentation. Types and sets of design documentation
			GOST 2.105-95	1 01.07.1996	Unified system for design documentation. General requirements for textual documents
			GOST 2.501-88	1 01.01.1989	Unified system for design documentation. Registration and storage rules
			GOST 2.503-90	1 01.01.1991	Unified system for design documentation. Rules of making modifications

ECSS and corresponding Ukrainian Standards					
ECSS Specifications			Ukrainian (GOST, OST, etc.) Specifications		
Reference -No	Iss./Rev. Date	Title	Reference -No	Iss./Rev. Date	Title / Applicable Section
ECSS-Q-20	B 08.03.2002	Quality Assurance	SOU- N NSAU 0022:2005	1 16.05.2005	Industrial quality management system. Quality Program. Development, coordination and approval procedures.

Besides the detailed comparison results as described in the Task 2 Report (see § 1.3 below), the validation of the methodology revealed that adaptation of the methodology is necessary if standards from totally different standardisation systems (e.g. GOST, ECSS) are compared. In those cases it is considered necessary

- to account thoroughly for differences in terminology by linking synonymous terms rather than searching for identical terms
- to deviate from the comparison approach with two levels of keywords (major = level 1 and minor = level 2) as it is considered as too strict (and sometimes even leads to falsified results) and to replace it by a search run using level 1 keywords only with subsequent thorough textual comparison of requirements objectives and contexts

These limitations are reflected in the final comparison methodology and process description. However, the methodology as such remains generally applicable although the detailed process may need adaptation depending on the origin, structure and general level of detail of the standards being under comparison.

Task 3 was devoted to the elaboration of harmonisation potentials supporting the mutual acceptance of the subject standards. Considering the comparison results achieved during Task 2, it became evident that space standards currently applied in Ukraine and the European Union (EU) are differing in scope, contents and/or objectives. Striving of Ukraine for general integration into the world economy including European one requires harmonization of the Ukrainian contemporary technical regulation and consumer policy system with corresponding European systems. In this respect YUZHNOYE SDO - as the industrial Ukrainian partner in the **Compare** project and as a national state industrial enterprise - proposes the following generic approach for harmonisation of space standards, which is strongly supported by ASTRIUM Space Transportation as the European project partner:

- *adaptation* of Ukrainian standards requirements to requirements of ECSS standards by means of amending effective Ukrainian standards. Such approach can be applied if the corresponding Ukrainian standard regulating the same standardization area exists and if its requirements cover no less than 50% of the ECSS standard comparison entities;
- *development* of a new Ukrainian standard applying revision procedure for an effective standard and including into it those requirements of the corresponding ECSS standard which were identified as not covered during comparison process. Such approach can be used when existing Ukrainian standards requirements cover less than 50% of the ECSS standard comparison entities.

For any residual differences between Ukrainian and ECSS space standards still remaining after such harmonisation attempts, YUZHNOYE SDO and ASTRIUM Space Transportation recommend the following proceedings:

- clear and unambiguous identification of non-harmonized requirements (comparison entities) in Ukrainian space standards;
- classification (ranking) of such Ukrainian space standard requirements (depending on their influence on the final results);
- making coordinated decisions by the customer and contractor on the rules of the work performance if there are any residual differences in applicable standards;
- identification of rules for such standards application during implementation of joint Ukrainian-European space projects.

Finally, exploitation and dissemination potentials were elaborated during Task 4. While the methodology is considered as exploitable result (e.g. offering comparison services to standardisation organisations or internationally cooperating industries, development and marketing of a comparison tool based on the developed methodology), the comparison results and the derived harmonisation potentials are considered for dissemination (e.g. during standardisation dedicated workshops and/or publication in standardisation specific journals). These activities initiated with international as well as Ukrainian national standardisation organisations and EUROSPACE - the association of European space industry - will be further followed up beyond the lead-time of the **Compare** project in the future.

1.3 Project Results

All the **Compare** project results, i.e.

- a validated *methodology* for comparison of Standards originating from different standardisation bodies
- *comparison results* for three selected Standard domains, i.e. project organisation, configuration management and quality assurance, for Space Standards applied in Ukraine and ESA member states
- *harmonisation potentials* for above Standards aiming at facilitation of cooperative projects between Ukraine (covering also Russia and other NIS as their Standards are essentially originating from the same source) and ESA member states
- *exploitation / dissemination potentials* with respect to the further use of the developed methodology, achieved comparison results and identified harmonisation potentials

are documented in detail in dedicated Task Reports. In line with the **Compare** project proposal, the following deliverable reports have been established:

- D1: Task 1 Report - Standards Comparison Process and Methodology -
- D2: Task 2 Report - Equivalence of Space Industry Management Standards -
- D3: Task 3 Report - Harmonisation Approach -
- D4: Task 4 Report - Exploitation/Dissemination Planning -

All these reports are classified as PU (≙ public) and form part of this Final Activity Report. Further details with respect to dissemination and use of the **Compare** project results including exploitable knowledge are provided in section 2 below.

Section 2 - Dissemination and Use

Specific Support Actions (SSA) in the frame of FP6 - like the **Compare** project - cannot be expected to reveal a large amount and variety of exploitable results and / or dissemination potentials due to their limited funding and resources. However, the **Compare** project team has started already initiatives during the lead-time of the project aiming at

- exploitation of the developed standards comparison methodology and the underlying process
- dissemination of standards comparison results and identified harmonisation potentials

The comparison methodology and the underlying process - which had been developed as a generic process independent of any standardisation body's peculiarities and/or any prescribed standard structure - is considered as a widely exploitable result of the **Compare** project, the use of which may be advantageous to different standardisation bodies like ECSS, ISO, CEN, etc. and various industry branches. - Furthermore, automation of the process by an appropriate database tool could be a subsequent development with the potential to provide a new product and eventually an associated service applying the tool on a contracting basis. As the methodology serves the purpose to finally determine the similarity and equivalence of two or more Standards covering identical subjects, standardisation bodies like ECSS, CEN, ISO, etc. as well as industry working in international consortia could make use of the structured comparison approach.

The detailed comparison results achieved during the validation of the methodology will be subject to dissemination to the space community only, as ECSS and Ukrainian Space Standards have been subjected to the validation. These validation results are specific for space applications and do not have any further real exploitation potential beyond the space community. - European space industry is seeking more and more collaboration with space industry from the NIS - including in particular Ukraine. One of the most essential prerequisites for a successful cooperation is the compatibility, i.e. similarity and equivalence, of applied Standards and / or the knowledge of their incompatibilities, i.e. non-compliances and missing coverage. - Similarly, the comparison results and the identified harmonisation potentials are considered as a valid input to the daily work of standardisation bodies being active in the area of space standards.

The **Compare** project partners have already taken initiatives

- to conduct workshops at (space) industry or standardisation organisations to familiarise a broader audience with the methodology and/or the detailed comparison results achieved
- to publish the comparison process and / or the detailed comparison results in the Ukrainian journal "Standardisation, Certification, Quality"
- to apply the methodology to any given Standards on behalf of (space) industry or standardisation bodies on a contracting basis
- to develop a database-driven tool implementing the developed methodology on a contracting basis

The detailed exploitation / dissemination planning, i.e. D4: Task 4 Report, is provided as annex to this Final Activity Report.

Annex - Exploitation / Dissemination Planning (D4: Task 4 Report)

EADS astrium

Compare

YUZHNOYE design office

Task 4 Report
Issue 1

Exploitation / Dissemination Planning

Autor: Prepared by:	COMPARE Team	**Org. Einh.:** Organ. Unit:		**Unternehmen:** Company:	ASTRIUM Space Transportation
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Table of Contents

1. Introduction

This Task 4 Report presents the results achieved within Work-Package 4 (WP 4) of the project

Compare - Development and Validation of a Standards Comparison Method

which addresses dissemination and exploitation of results achieved throughout the previous three Work-Packages (WP's). WP 1 has revealed a generic methodology for comparison of management level Standards from different internationally recognised standardisation bodies, which are defining requirements in qualitative terms rather than in quantitative terms. The developed methodology has been validated in WP 2 by comparison of three Standards issued by the "European Cooperation for Space Standardisation" (ECSS) with corresponding ones applied for Ukrainian space projects (e.g. GOST, OST, etc.). The detailed validation results identifying the level of similarity and equivalence of ECSS and Ukrainian space standards have been used in WP 3 to identify potential ways of harmonising these space standards in order to achieve a high level of commonality.

The **Compare** project (Contract n° INCO-CT2006-517623 - COMPARE) is a Specific Support Action (SSA) as part of the European Commission (EC) Sixth Framework Programme in the domain of "Integrating and strengthening the European Research Area" (Priority D2 - Adjusting the system of industrial production and communication).

1.1 Purpose and Scope

This report sets out in a detailed and verifiable manner, the terms of exploitation, use and dissemination of the knowledge arising from the **Compare** project. It provides a complete picture of all activities undertaken and most importantly will provide information on the future route to full use (exploitation or use in further research) and dissemination of the knowledge.

Under due consideration of the results achieved during the previous tasks, i.e.

- Development of process and methodology for Standards comparison (Task 1),
- Methodology validation using three ECSS Standards and related Ukrainian Standards (Task 2),
- Elaboration of harmonisation potentials for compared Standards (Task 3),

this report describes the overall approach to exploitation, use and dissemination of **Compare** project results. Furthermore, it provides an overview on exploitation and dissemination initiatives already undertaken during the lead-time of the contract as well as the planning for their follow-up and the anticipated future implementation of promotional knowledge sharing and public awareness.

Due to the particular nature of the products generated by the **Compare** project, i.e. a methodology and methodology application results, this report discriminates between exploitable knowledge and its use on one hand and dissemination of knowledge acquired during the course of the project on the other hand.

1.2 References

The following data have been used during the development of the Standards Comparison Method described in this report.

[R-1] INCO-CT2006-517623 - COMPARE
Annex I - Description of Work, 28.02.2006

[R-2] COMPARE Task 1 Report
Standard Comparison Process and Methodology
Issue 2, 28.03.2007

[R-3] COMPARE Task 2 Report
Equivalence of Space Industry Management Standards
Issue 3, 13.04.2007

[R-4] COMPARE Task 3 Report
Harmonisation Approach
Issue 2, 25.04.2007

[R-5] European Research
A guide to successful communications
http://ec.europa.eu/research/conferences/2004/cer2004/pdf/rtd_2004_guide_success_communication.pdf

2. Exploitation / Dissemination Approach

Exploitation, use and dissemination of project results are major objectives of the European Commission's (EC) Sixth Framework Programme (FP6) for research, technological development and demonstration (RTD). This is in particular true for projects being performed under the research priority D2, i.e. Adjusting the system of industrial production and communication, for Russia and the other NIS.

2.1 Objectives

Dissemination of results is a contractual obligation of participation in research initiatives supported under the European Union's Sixth RTD Framework Programme (FP6). The specific aims of this provision are to promote knowledge sharing, greater public awareness, transparency, and education. Participants in the Sixth RTD Framework Programme need to provide tangible proof that collaborative research not only exists, but also pays dividends in terms of academic excellence, industrial competitiveness, employment opportunities, environmental improvements and enhanced quality of life for all.

At the same time, the communication of successes and the announcement of exploitable developments are of direct value to the participants themselves. Suitably framed messages can help by:

- Drawing the attention of national governments, regional authorities and other public and private funding sources to the needs and eventual benefits of the research;
- Attracting the interest of potential partners and / or correspondents;
- Encouraging talented students and scientists to join the partner institutes and enterprises;
- Enhancing the reputation of participants, at local, national and international level;
- Where appropriate, aiding the search for financial backers, licensees or industrial implementers to exploit the results; and
- Generating market demand for the developed products or services.

Considering these overall objectives as stated in [R-5], which can be easily accessed via the link given in § 1.2 above, the following results of the **Compare** project will be subjected to exploitation and dissemination:

- a methodology for comparison of Standards originating from different standardisation bodies
- comparison results for three selected Standard domains, i.e. project organisation, configuration management and quality assurance, for Space Standards applied in Ukraine and ESA member states
- harmonisation potentials for above Standards aiming at facilitation of cooperative projects between Ukraine (covering also Russia and other NIS as their Standards are essentially originating from the same source) and ESA member states

These results are mainly aiming at improvement of industrial competitiveness with particular emphasis on standards commonality between EU / ESA member states and Ukraine and other NIS. Moreover, the comparison results achieved and the derived harmonisation potentials may finally lead to closer cooperation in common EU / ESA / NIS space projects.

2.2 Generic Methodology / Process

The methodology developed within the **Compare** project [R-2] is considered suitable for all kinds of management level standards defining the necessary means to conduct (manage) successfully international/cross-border projects. Standards comparison becomes vital in particular if international partners are used to apply Standards originating from different standardisation bodies. Thus, a methodology / process needs to be in place allowing for easy identification of standards similarity, equivalence and distinct differences.

The methodology developed and described in [R-2] can be easily used by organisations, like national and international standardisation bodies, international industry consortia, as well as a variety of industry branches cooperating with countries being governed by a different standardisation system. It allows quantifying the level of similarity and equivalence and it identifies those requirements which are differing in terms of means to achieve required objectives or which have different objectives.

Unfortunately, it was not possible during the **Compare** project to develop a database driven tool to facilitate the comparison process. However, development and marketing of such a **Compare** tool is considered as an additional exploitation of the knowledge acquired during the project besides the manual application of the comparison process.

2.3 Specific Comparison Results

As the validation of the **Compare** methodology has been performed using three ECSS Standards and their corresponding Ukrainian counterparts [R-3], detailed comparison results for these Standards are worth being disseminated. The comparison results of Ukrainian Space Standards with

- ECSS-M-20B - Project Organisation
- ECSS-M-40B - Configuration Management
- ECSS-Q-20B - Quality Assurance

are considered to be of interest for European space industry performing - or intending to perform - common projects with Ukrainian space industry respectively Yuzhnoye as the major Ukrainian space company. Similarly, dissemination of these results to Ukrainian space industry will facilitate co-operative space projects with West-European partners.

Based on the identified differences and incompatibilities between the above ECSS Standards and the related Ukrainian ones, the **Compare** project has identified potential ways to ameliorate the Standards' similarity and equivalence level in favour of improving Ukrainian competitiveness in joint European / Ukrainian space projects [R-4]. These harmonisation potentials can be considered as support for the Ukrainian (space) standardisation activities aiming at facilitation of cooperation with West-European (space) industry.

2.4 General Planning and Implementation Approach

Exploitation and dissemination of **Compare** project results has already started during the lead-time of the project. The comparison of standards performed as validation of the methodology can be considered as a very first step in exploitation of one the project results. Similarly, the comparison results achieved and the harmonisation potentials derived are contributing to dissemination of project results within the project partner's company organisations.

Exploitation and dissemination of **Compare** project results beyond the project and the participating industrial partners has also been initiated during the lead-time of the project. Summaries of project results have been communicated in written form to standardisation organisations in Ukraine and West-Europe and West-European space industry with the objective to draw their attention to the detailed project results and to attract their interest for using the results within their domain of activities. Also the possibilities to conduct workshops and to publish an article in a Ukrainian journal for standardisation issues are being explored.

Most likely none of the exploitation and dissemination possibilities will materialise during the lead-time of the project. Therefore, a planning is necessary to further pursue the initiated exploitation and dissemination activities beyond the contractual lead-time of the **Compare** project. Related schedule aspects are to be elaborated but they have to be revisited regularly as timely implementation is not only dependent on the willingness of the project team but is also constrained by potential users of the project results.

3. Methodology / Process Exploitation

The comparison methodology for management level standards, defining what needs to be accomplished (as opposed to lower level standards defining how to achieve requirements objectives), had been developed as a generic process independent of any standardisation body's peculiarities and/or any prescribed standard structure. Although the methodology has been validated using Space Standards, the application of the methodology is neither limited to any particular industry branch nor to any dedicated standardisation body.

Thus, the methodology and the underlying process is considered as a widely exploitable result of the **Compare** project, the use of which may be advantageous to different standardisation bodies like ECSS, ISO, CEN, etc. and various industry branches. - Furthermore, automation of the process by an appropriate database tool could be a subsequent development with the potential to provide a new product and eventually an associated service applying the tool on a contracting basis.

3.1 General

The finally developed methodology, which is described in the **Compare** project Task 1 Report [R-2], has been continuously upgraded to its final state during the course of the project based on experience gained during its application. Although the methodology has proven its viability only for Space Standards, there are no reasons seen by the **Compare** project team why this methodology could not be applied for other industry branches' Standards.

As international projects - including space projects - are applying in most cases those Standards, which the various international contractors are used to apply and which may well originate from different standardisation bodies, the comparability and compatibility of these Standards is an issue to be solved at the beginning of such international projects. As a minimum, these different Standards need to have an overall acceptable level of similarity and equivalence in order to achieve the required project objectives and performance attributes. The methodology developed within the **Compare** project serves this purpose by supporting in a structured manner the determination of similarity and equivalence of two or more Standards covering identical subjects and thus can support both, standardisation bodies like ECSS, CEN, ISO, etc. as well as industry working in international consortia.

3.2 Standardisation Bodies

Whenever international or national standardisation bodies are going to issue new standards - which in most cases are derived from available national standards or international ones from other standardisation organisations - comparison of available standards is mandatory in order to suit the needs of all nationalities being associated to the originating standardisation organisation. For support of such activities, the **Compare** project team has announced the availability of a comparison methodology - as developed and validated in the **Compare** project - and has offered support to eventually conduct Standards comparison activities in accordance with the developed methodology to the following (internationally) recognised standardisation bodies:

- ECSS - European Cooperation for Space Standardisation
- CEN - Comité Européen de Normalisation (≙ European Committee for Standardisation)

- ISO - International Organisation for Standardisation
- Derzhspozhyvstandard – State Committee of Ukraine for Technical Regulation and Consumer Policy, which is Ukrainian National Standardisation Authority
- Dniprostandardmetrology – Dniepropetrovsk Regional State Scientific & Technical Center for Standardization, Metrology and Certification, which is subordinated to Derzhspozhyvstandard

The initiating letters written to the above organisations are included in Annex 1 to this report, offering also the presentation of the methodology (as well as the comparison results achieved) to a broader audience e.g. in form of a workshop. At the time of writing this report no response had been received so far; corresponding follow-up activity planning is elaborated in § 5 below.

As it can be seen from the various letters in Annex 1, the **Compare** project team has also used the letters to ECSS, CEN and ISO to potentially acquire a follow-on contract for the development of a database-driven comparison tool implementing the methodology and the related process developed during the lead-time of the **Compare** project.

3.3 Industrial Use

Similar to the approach taken for methodology exploitation by standardisation bodies (see § 3.2 above), the use and application of the developed Standards comparison methodology has been offered to European space industry.

European space industry has been approached by submitting a letter to "EUROSPACE - The Association of European Space Industry" -, which was founded in 1961 as a non-profit European organisation and which member companies represent 90% of the annual turn-over of all European space industry. This letter (see Annex 2) aims at offering the use of the methodology to all EUROSPACE members working in international consortia and having the need to use a consolidated set of Standards in their projects even if Standards are originating from different national and international sources. Within this context EUROSPACE has also been kindly requested to evaluate a potential funding for a database-driven Standards comparison tool.

Once a reply has been received from the above mentioned two Ukrainian standardisation organisations (see § 3.2 above), Ukrainian space industry might be approached as well. Due to the prevailing responsibility distribution in Ukraine, Ukrainian space industry can only be approached via the National Space Agency of Ukraine (NSAU) after Derzhspozhyvstandard has agreed to do so.

As for methodology exploitation by standardisation bodies, no industry response had been received at the time of writing this report. For follow-up of the initiated industrial exploitation, reference is made to § 5 below.

4. Dissemination of Comparison Results

Unlike the exploitation of the developed comparison methodology and the related process, the comparison results achieved during the validation of the methodology will be subject to dissemination to the space community only, as ECSS and Ukrainian Space Standards have been subjected to the validation. These validation results are specific for space applications and do not have any further real exploitation potential.

4.1 General

The comparison of dedicated Space Standards in the frame of methodology validation has revealed the level of similarity and equivalence [R-3] as well as distinct non-compliances between considered Ukrainian and ECSS Standards [R-4]. Dissemination of these results will facilitate Ukrainian / European cooperation in space projects as well as harmonisation of Standards originating from different standardisation bodies.

4.2 European Space Industry

European space industry is seeking more and more collaboration with space industry from the NIS including in particular Ukraine. One of the most essential prerequisites for a successful cooperation is the compatibility, i.e. similarity and equivalence, of applied Standards and / or the knowledge of their incompatibilities, i.e. non-compliances and missing coverage. Thus, the results of comparing

- ECSS-M-20B - Project Organisation
- ECSS-M-40B - Configuration Management
- ECSS-Q-20B - Quality Assurance

with related Ukrainian Space Standards has been offered to EUROSPACE with the objective to achieve further dissemination to associated European space industry (see letter to EUROSPACE in Annex 2). EUROSPACE is encouraged to ask for the **Compare** project Task 2 Report [R-3] and Task 3 Report [R-4], which are detailing the results of the comparison activities respectively the derived harmonisation approach for achieving a higher degree of compatibility of Ukrainian and ECSS Space Standards.

4.3 ECSS and International Standardisation Organisations

Similar to the dissemination of Standards comparison results ([R-3], [R-4]) to European space industry (see § 4.2 above), these results have also been offered to ECSS as the originator of the Standards having been compared. This has been done with the objectives to provide an input to ECSS for Standards maintenance and updating as well as to enhance and facilitate communication with Ukrainian space standardisation organisations.

As ECSS Standards are taking into account ISO Standards - at least those of the ISO 9000 family - the detailed comparison results are considered of interest for the ISO organisation as well. Therefore, the comparison results ([R-3], [R-4]) are offered to ISO for consideration besides the methodology [R-2].

Last but not least, also CEN has been approached to take note of the above comparison results. This has been done in view of the expected EC mandate to CEN to develop European Standards for a wide range of

space applications, which well might include equipment being developed and manufactured by one or more of the NIS countries.

All three organisations, i.e ECSS, ISO, CEN, have been made aware of the availability of detailed comparison results for the three ECSS Standards mentioned above (see § 4.2) and have been encouraged to make use of them during their daily work. The corresponding letters to these organisations are given in Annex 1; these letters are intended to serve both, exploitation and dissemination of knowledge acquired by the project partners during the course of the **Compare** project.

4.4 Ukrainian Space Industry and Standardisation Organisations

Depending on the feed-back to the letter written to Derzhspozhyvstandard and Dniprostandardmetrology (see § 3.2and § 3.3), Ukrainian space industry will be offered to make use of the results achieved during the Compare project implementation for the purpose of facilitating international cooperation. This is intended to be achieved in two ways, i.e.

- Publishing a joint Astrium / Yuzhnoye's article in the scientific and technical journal "Standardisation, Certification, Quality" issued regularly by Derzhspozhyvstandard with emphasis on the developed methodology, the validation results obtained as well as on the approach for harmonization of Ukrainian space standards with requirements of ECSS standards
- Conducting a workshop in Ukraine for standardisation specialists from the national Ukrainian standardisation bodies and (space) industry with emphasis on methodology application and adaptation / harmonisation of Ukrainian Standards with European and / or International standards.

Moreover, Yuzhnoye will consider possibility of publication of the Compare project results in Yuzhnoye's web site www.yuzhnoye.com.

5. Detailed Implementation Planning

After having elaborated envisaged exploitation and dissemination possibilities in the previous sections, a preliminary planning is provided in this section. This planning is to be considered as preliminary because exploitation and dissemination has only been initiated at the end of the project lead-time (see Annex 1 and Annex 2) and the detailed exploitation / dissemination implementation is depending on the reply of the potential beneficiaries.

5.1 Methodology / Process

The comparison methodology and the underlying process is considered as exploitable knowledge, which might be used by industrial entities or standardisation organisations

- in research activities concerning standardisation issues
- for developing, creating or marketing a supporting tool implementing the comparison process
- for creating or providing a service to Standards users

Both, space industry and recognised standardisation bodies, have already been made aware of the availability of the validated Standards comparison methodology (see § 3 above, Annex 1 and Annex 2) and it is up to them to notify their interest in details of the developed comparison methodology and its application. The **Compare** project partners have also announced to be prepared

- for conducting workshops at (space) industry or standardisation organisations to familiarise a broader audience with the methodology
- to publish the comparison process in the Ukrainian journal for "Standardisation, Certification, Quality"
- to apply the methodology to any given Standards on behalf of (space) industry or standardisation bodies on a contracting basis
- to develop a database-driven tool implementing the developed methodology on a contracting basis

If there is no reply to these offers within a reasonable time (e.g. six weeks), space industry and standardisation organisations will be contacted again to obtain their feed-back. It is estimated that one or two attempts need to be undertaken reminding the addressees for feed-back. Once a positive feed-back has been obtained a more detailed planning can be elaborated.

Considering the necessary preparatory work for performance of workshop, it is assumed that such workshops can be conducted earliest in the first quarter of 2008. Similarly, publishing of an article in an official journal needs a similar amount of preparatory work and thus the article would earliest be printed in an issue appearing in first quarter of 2008. Any subcontracted activity is estimated to start earliest in the second quarter of 2008 considering the time needed for preparing and finally negotiating proposals.

Further exploitation potentials may evolve from the above exploitation steps. However, a more detailed planning of these "second level" exploitation possibilities can only be derived after implementation of the exploitation activities currently foreseen by the **Compare** project partners.

5.2 Comparison Results

The results achieved during the validation of the Standards comparison methodology and the derived harmonisation potentials for ECSS and Ukrainian Space Standards are considered subject of dissemination rather than exploitation. Besides drawing the attention of space industry and recognised standardisation bodies to the developed comparison methodology (see § 5.1 above), they have also been made aware of the availability of dedicated comparison results (see § 4) with the objective to support their future activities in the standardisation and standards application domain.

Dissemination of the comparison results and the derived harmonisation potentials is intended by essentially two different ways, i.e.

- Workshops
- Publication in an official journal for Standardisation

As Ukrainian space industry is prepared to adopt ECSS Standards rather than to insist on application of Ukrainian Space Standards, dissemination of **Compare** project results in Ukraine is judged to be more important than dissemination in West-Europe. Thus, emphasis is put on workshops and publication in Ukraine not neglecting dissemination of comparison results in West-Europe. Therefore, the conduct of a workshop and the publication of **Compare** project results has been explicitly addressed in the letters to Derzhspozhyvstandard and Dniprostandardmetrology, while workshops in West-Europe are only addressed implicitly in the letters to ECSS, CEN, ISO and EUROSPACE (see § 3.2 above and Annex 1).

The implementation of the identified dissemination possibilities will be followed up as described for the exploitation of the developed methodology (see § 5.1 above) in intervals of approximately six weeks. As stated in § 5.1 above, performance of a workshop in Ukraine and publication of an article in the Ukrainian journal "Standardisation, Certification, Quality" is targeted for the first quarter of 2008.

As a result of the envisaged workshops and the publication of the comparison results achieved, the need for further dissemination might arise. Similar to the "second level" exploitation potentials (see § 5.1 above), implementation of these additional dissemination needs can only be planned in more detail after their identification.

Annex 1

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ESA ESTEC, TEC-QR
ECSS Secretariat
Attn.: Mr. K. Ehrlich

P.O. Box 299
2200 AG Noordwijk

The Netherlands

Reference: LET-TOQ4-WG-01-07
06.07.2007

European Commission FP6 Project Results

Dear Mr. Ehrlich,

this letter is addressed to you in your role as ECSS secretary to make you aware of results achieved within a FP6 project of the European Commission concerning standardisation. This project is entitled

Development and Validation of a Standards Comparison Methodology

using the project acronym **Compare**. It is commonly conducted by Yuzhnoye SDO in Dnepropetrovsk / Ukraine and ASTRIUM Space Transportation in Bremen / Germany, with ASTRIUM being the prime contractor. The primary objectives of the **Compare** project are

- development of a methodology and process for comparison of qualitative (management-level) standards
- validation of the developed methodology by comparison of three ECSS standards (M-20B, M40B and Q20B) with corresponding Ukrainian space standards
- elaboration of standards harmonisation potentials in view of mutual standards acknowledgement and acceptance

The **Compare** project has started in July 2006 and is due to be finalised by mid of 2007 with the Final Report to be available approximately six weeks after the final project meeting scheduled for beginning of July 2007. Currently, dedicated project reports to each of the three bullets above are already available and a dissemination and exploitation planning for the project results is under preparation.

Based on the above brief description of the **Compare** project objectives and status, we like to open a discussion with the ECSS organisation concerning broader usage of **Compare** project results and potential follow-on activities.

Having used three ECSS Standards for validation of the comparison methodology developed in the frame of the **Compare** project and considering that Yuzhnoye is the leading space company in Ukraine, which is seeking for active cooperation with ESA member states' space programmes, the detailed results of the comparison might be of interest for ECSS. In summary, it can be stated that Ukrainian space standards provide a low coverage for ECSS-M20B (Project Organisation) and ECSS-Q20B (Quality Assurance) requirements, whereas the coverage of ECSS-M40B (Configuration Management) is very high. However, it is to be noted that the high degree of commonality of Configuration Management requirements (ECSS-M-40B) is based on a Yuzhnoye internal standard rather than on a general national standard. - Details of similarity and equivalence of Ukrainian space standards with ECSS standards are documented in a dedicated report (**Compare** Task 2 Report) and potential approaches to achieve a higher level of space standards commonality between Ukrainian and ECSS standards are elaborated in **Compare** Task 3 Report. As these reports are in the public domain, the **Compare** project partners - i.e. Yuzhnoye SDO and ASTRIUM Space Transportation - would be pleased to provide these reports to ECSS in case of interest.

Furthermore, the comparison methodology developed - described **Compare** Task 1 Report - might be of interest for ECSS when similarity and equivalence of national (space) standards with ECSS standards needs to be assessed and evaluated. This methodology has been derived from a methodology developed earlier (1993 - 1995) by RST and DASA (today both members of EADS ASTRIUM) in the frame of an ESA study contract (10647/93/NL/NB(SC)). Unfortunately, there was no budget allocated in the **Compare** project to implement the methodology as a database driven tool, which would facilitate the comparison process as well as the documentation of comparison results and which would allow for a gradual build-up of a standard comparison library. - To be quite open, the **Compare** project partners are prepared to develop such a tool, if ECSS and/or ESA could provide a suitable supporting funding. On the other hand, the **Compare** project partners are also ready to perform standards comparisons - applying the developed methodology with or without supporting tool - on the basis of an ECSS or ESA subcontract.

Last but not least, Yuzhnoye has the urgent need to get trained in the application of ECSS standards, as they are getting involved in more and more space projects requiring ECSS standards application. Preferably, such a training should take place at Yuzhnoye facilities in order to allow for maximum participation of Yuzhnoye personnel. On the other hand, a training of selected Yuzhnoye employees at ESA/Estec would also be appreciated; trained Yuzhnoye personnel could then further disseminate their

acquired knowledge at their homebase. - ECSS and/or ESA are kindly requested to provide their position to the aforementioned Yuzhnoye needs and to indicate possible ways to implement such a training.

Yuzhnoye and ASTRIUM - having jointly conducted the **Compare** project in the frame of the European Commission's 6th Framework Programme (FP6) - would be very much pleased, if the above short description of the **Compare** project and its main results would pave the way for a more extensive dialogue on space standardisation issues between ECSS and Ukraine. Please, do not hesitate to request more information and/or above mentioned project reports, if needed prior to initiation of a fruitful dialogue. The **Compare** project partners are also prepared to present the project and its results to ECSS and/or ESA including their associated member states and organisations if this is considered appropriate by you.

We are looking forward to your early feed-back on the issues raised as well as to future detailed discussions on ECSS/Ukrainian space standardisation matters.

Sincerely

Wolfgang Gericke
Compare Project Manager
ASTRIUM Space Transportation

Alexander Degtyarev
Compare Project Co-Manager
Yuzhnoye SDO

P.S.
Please, address all communication related to this letter to ASTRIUM Space Transportation (see above for address details); ASTRIUM will ensure that all information will also be made available to Yuzhnoye SDO.

EADS astrium

CEN - European Committee for Standardisation

Attn.: Mr. H. W. Ahls
Secretary-General, CEN

36, Rue de Stassart
B-1050 Brussels

Belgium

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Referenz: LET-TOQ4-WG-02-07
06.07.2007

European Commission FP6 Project Results

Dear Mr. Ahls,

this letter is addressed to you in your role as CEN Secretary-General to make you aware of results achieved within a FP6 project of the European Commission concerning standardisation. This project is entitled

Development and Validation of a Standards Comparison Methodology

using the project acronym **Compare**. It is commonly conducted by Yuzhnoye SDO in Dnepropetrovsk / Ukraine and ASTRIUM Space Transportation in Bremen / Germany, with ASTRIUM being the prime contractor. The primary objectives of the **Compare** project are

- development of a methodology and process for comparison of qualitative (management-level) standards
- validation of the developed methodology by comparison of three ECSS standards (M-20B, M40B and Q20B) with corresponding Ukrainian space standards
- elaboration of standards harmonisation potentials in view of mutual standards acknowledgement and acceptance

The **Compare** project has started in July 2006 and is due to be finalised by mid of 2007 with the Final Report to be available approximately six weeks after the final project meeting scheduled for beginning of July 2007. Currently, dedicated project reports to each of the three bullets above are already available and a dissemination and exploitation planning for the project results is under preparation.

Based on the above brief description of the **Compare** project objectives and status, we like to open a discussion with the CEN organisation concerning broader usage of **Compare** project results and potential follow-on activities. Moreover, such a dialogue could support your development efforts for European Standards for space applications under mandate of the European Commission.

Having used three ECSS Standards for validation of the comparison methodology developed in the frame of the **Compare** project and considering that Yuzhnoye is the leading space company in Ukraine, which is seeking for active cooperation in European space programmes, the detailed results of the comparison might be of interest for CEN. In summary, it can be stated that Ukrainian space standards provide a low coverage for ECSS-M20B (Project Organisation) and ECSS-Q20B (Quality Assurance) requirements, whereas the coverage of ECSS-M40B (Configuration Management) is very high. However, it is to be noted that the high degree of commonality of Configuration Management requirements (ECSS-M-40B) is based on a Yuzhnoye internal standard rather than on a general national standard. - Details of similarity and equivalence of Ukrainian space standards with ECSS standards are documented in a dedicated report (**Compare** Task 2 Report) and potential approaches to achieve a higher level of space standards commonality between Ukrainian and ECSS standards are elaborated in **Compare** Task 3 Report. As these reports are in the public domain, the **Compare** project partners - i.e. Yuzhnoye SDO and ASTRIUM Space Transportation - would be pleased to provide these reports to CEN in case of interest.

Furthermore, the comparison methodology developed - described **Compare** Task 1 Report - might be of interest for CEN when similarity and equivalence of national space standards with European (CEN) standards needs to be assessed and evaluated. Unfortunately, there was no budget allocated in the **Compare** project to implement the methodology as a database driven tool, which would facilitate the comparison process as well as the documentation of comparison results and which would allow for a gradual build-up of a standard comparison library. - To be quite open, the **Compare** project partners are prepared to develop such a tool, if CEN could provide a suitable supporting funding. On the other hand, the **Compare** project partners are also ready to perform standards comparisons - applying the developed methodology with or without supporting tool - on the basis of a CEN subcontract or work-order.

Yuzhnoye and ASTRIUM - having jointly conducted the **Compare** project in the frame of the European Commission's 6th Framework Programme (FP6) - would be very much pleased, if the above short description of the **Compare** project and its main results would pave the way for a more extensive dialogue on space standardisation issues between CEN and European/Ukrainian space industry. Please, do not hesitate to request more information and/or above mentioned project reports, if needed prior to initiation

of a fruitful dialogue. The **Compare** project partners are also prepared to present the project and its results to CEN including associated member states and organisations, if this is considered appropriate by you.

We are looking forward to your early feed-back on the issues raised as well as to future detailed discussions on CEN space standardisation matters.

Sincerely

Wolfgang Gericke
Compare Project Manager
ASTRIUM Space Transportation

Alexander Degtyarev
Compare Project Co-Manager
Yuzhnoye SDO

P.S.
Please, address all communication related to this letter to ASTRIUM Space Transportation (see above for address details); ASTRIUM will ensure that all information will also be made available to Yuzhnoye SDO.

EADS astrium

ISO Central Secretariat
Attn.: Mr. Alan Bryden

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Case postale 56

CH-1211 Geneva 20

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Referenz: LET-TOQ4-WG-03-07
06.07.2007

European Commission FP6 Project Results

Dear Mr. Bryden,

this letter is addressed to you in your role as ISO Secretary-General to make you aware of results achieved within a FP6 project of the European Commission concerning standardisation. This project is entitled

Development and Validation of a Standards Comparison Methodology

using the project acronym **Compare**. It is commonly conducted by Yuzhnoye SDO in Dnepropetrovsk / Ukraine and ASTRIUM Space Transportation in Bremen / Germany, with ASTRIUM being the prime contractor. The primary objectives of the **Compare** project are

- development of a methodology and process for comparison of qualitative (management-level) standards
- validation of the developed methodology by comparison of three ECSS standards (M-20B, M40B and Q20B) with corresponding Ukrainian space standards
- elaboration of standards harmonisation potentials in view of mutual standards acknowledgement and acceptance

The **Compare** project has started in July 2006 and is due to be finalised by mid of 2007 with the Final Report to be available approximately six weeks after the final project meeting scheduled for beginning of July 2007. Currently, dedicated project reports to each of the three bullets above are already available and a dissemination and exploitation planning for the project results is under preparation.

Based on the above brief description of the **Compare** project objectives and status, we like to open a discussion with the ISO organisation concerning broader usage of **Compare** project results and potential follow-on activities.

Although having used three ECSS Standards for space projects and applications for validation of the comparison methodology developed in the frame of the **Compare** project, the detailed results of the comparison might be of interest for ISO as ECSS standards are taking into account the existing ISO 9000 family of documents. In summary, it can be stated that Ukrainian space standards provide a low coverage for ECSS-M20B (Project Organisation) and ECSS-Q20B (Quality Assurance) requirements, whereas the coverage of ECSS-M40B (Configuration Management) is very high. From these ECSS specific results a similar coverage of Ukrainian (space) standards with the ISO 9000 family of standards could be extrapolated. However, it is to be noted that the high degree of commonality of Configuration Management requirements (ECSS-M-40B) is based on a Yuzhnoye internal standard rather than on a general national standard. - Details of similarity and equivalence of Ukrainian space standards with ECSS standards are documented in a dedicated report (**Compare** Task 2 Report) and potential approaches to achieve a higher level of space standards commonality between Ukrainian and ECSS standards are elaborated in **Compare** Task 3 Report. As these reports are in the public domain, the **Compare** project partners - i.e. Yuzhnoye SDO and ASTRIUM Space Transportation - would be pleased to provide these reports to ISO in case of interest.

Furthermore, the comparison methodology developed - described **Compare** Task 1 Report - might be of interest for ISO when similarity and equivalence of national (space) standards with ISO standards needs to be assessed and evaluated. The methodology development has been performed without considering any particular industry branch and thus the methodology is considered applicable for all types of standards which are defining what needs to be done rather than how it needs to be done. Unfortunately, there was no budget allocated in the **Compare** project to implement the methodology as a database driven tool, which would facilitate the comparison process as well as the documentation of comparison results and which would allow for a gradual build-up of a standard comparison library. - To be quite open, the **Compare** project partners are prepared to develop such a tool, if ISO could provide a suitable supporting funding. On the other hand, the **Compare** project partners are also ready to perform standards comparisons - applying the developed methodology with or without supporting tool - on the basis of a ISO subcontract or work-order.

Yuzhnoye and ASTRIUM - having jointly conducted the **Compare** project in the frame of the European Commission's 6th Framework Programme (FP6) - would be very much pleased, if the above short description of the **Compare** project and its main results would pave the way for a more extensive dialogue

on space standardisation issues between ISO and European/Ukrainian space industry. Please, do not hesitate to request more information and/or above mentioned project reports, if needed prior to initiation of a fruitful dialogue. The **Compare** project partners are also prepared to present the project and its results to ISO including associated member states and organisations, if this is considered appropriate by you.

We are looking forward to your early feed-back on the issues raised as well as to future detailed discussions on ISO space standardisation matters.

Sincerely

Wolfgang Gericke
Compare Project Manager
ASTRIUM Space Transportation

Alexander Degtyarev
Compare Project Co-Manager
Yuzhnoye SDO

P.S.
Please, address all communication related to this letter to ASTRIUM Space Transportation (see above for address details); ASTRIUM will ensure that all information will also be made available to Yuzhnoye SDO.

To: Head of Derzhspozhyvstandard of Ukraine
Mr. Olexander Shnypko
174, Gor'kogo Str.
03680, Kyiv-150, Ukraine
E-mail: dssu@dssu.gov.ua

Dear Mr. Shnypko,

We would like to inform you that under the Sixth Framework Programme of the European Commission on Research, Technological Development and Demonstration the joint project entitled Development and Validation of a Standards Comparison Methodology (COMPARE) is being implemented by EADS Astrium Space Transportation company (Bremen, Germany) and Yuzhnoye State Design Office (Dniepropetrovsk, Ukraine) during 2006 – 2007 years.

The main objectives of this project are:

- development of a methodology and process for comparison of standards
- validation of the developed methodology by comparison of selected European ECSS standards with corresponding Ukrainian space standards
- elaboration of harmonisation potentials for standards developed within different standardization systems.

The methodology developed within the COMPARE project is versatile and can be applied for comparison of effective European or International standards with standards which are being developed, introduced or applied in Ukraine. Results of validation of the mentioned methodology confirm its practical efficiency and enable impartial assessment of harmonization level of the compared standards.

Taking into account policy of Derzhspozhyvstandard of Ukraine dedicated to adaptation of Ukrainian national legislation in the technical regulation and consumer policy area to European requirements we believe, that the developed methodology can be very useful for the State Committee for Technical Regulation and Consumer Policy as one of the practical measures for harmonization of the national standards with corresponding regional and / or International standards.

Unfortunately, the COMPARE project does not provide for funds for dissemination of the developed methodology. In our opinion, it will be advisable to organize and conduct in Ukraine a dedicated workshop for specialists in the technical regulation area as one of the measures aimed at adaptation and harmonization of Ukrainian standards with European and / or International standards.

Moreover, it will be also expedient to provide possibilities to European and Ukrainian participants of the COMPARE project to publish the project results in scientific & technical journal being issued by Derzhspozhyvstandard of Ukraine.

Best regards,

Wolfgang Gericke
COMPARE project manager
EADS Astrium Space
Transportation

Alexander Degtyarev
COMPARE project co-manager
Yuzhnoye State Design Office

To: General Director
State Enterprise
"Dniprostandardmetrology"
Mr. Sergiy Kachanov
23, Barykadna Str.
49044, Dniepropetrovsk, Ukraine
E-mail: dgcsms@dgcsms.dp.ua

Dear Mr. Kachanov,

We would like to inform you that under the Sixth Framework Programme of the European Commission on Research, Technological Development and Demonstration the joint project entitled Development and Validation of a Standards Comparison Methodology (COMPARE) is being implemented by EADS Astrium Space Transportation company (Bremen, Germany) and Yuzhnoye State Design Office (Dniepropetrovsk, Ukraine) during 2006 – 2007 years.

The main objectives of this project are:

- development of a methodology and process for comparison of standards
- validation of the developed methodology by comparison of selected European ECSS standards with corresponding Ukrainian space standards
- elaboration of harmonisation potentials for standards developed within different standardization systems.

The methodology developed within the COMPARE project is versatile and can be applied for comparison of effective European or International standards with standards which are being developed, introduced or applied in Ukraine. Results of validation of the mentioned methodology confirm its practical efficiency and enable impartial assessment of harmonization level of the compared standards.

Taking into account policy of Derzhspozhyvstandard of Ukraine dedicated to adaptation of Ukrainian national legislation in the technical regulation and consumer policy area to European requirements we believe, that the developed methodology can be very useful for the State Committee for Technical Regulation and Consumer Policy and State Enterprise "Dniprostandardmetrology" as one of the practical measures for harmonization of the national standards with corresponding regional and / or International standards.

Unfortunately, the COMPARE project does not provide for funds for dissemination of the developed methodology. In our opinion, it will be advisable to organize and conduct in Ukraine a dedicated workshop for specialists in the technical regulation area as one of the measures aimed at adaptation and harmonization of Ukrainian standards with European and / or International standards.

Moreover, it will be also expedient to provide possibilities to European and Ukrainian participants of the COMPARE project to publish the project results in scientific & technical journal being issued by Derzhspozhyvstandard of Ukraine.

Best regards,

Wolfgang Gericke
COMPARE project manager
EADS Astrium Space
Transportation

Alexander Degtyarev
COMPARE project co-manager
Yuzhnoye State Design Office

Annex 2

EADS astrium

Astrium Space Transportation
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EUROSPACE
Secretary General
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15-17 avenue de Ségur
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France

Reference: LET-TOQ4-WG-04-07
06.07.2007

European Commission FP6 Project Results

Dear Mr. Gaubert,

this letter is addressed to you in your role as EUROSPACE Secretary-General to make you aware of results achieved within a FP6 project of the European Commission concerning standardisation. This project is entitled

Development and Validation of a Standards Comparison Methodology

using the project acronym **Compare**. It is commonly conducted by Yuzhnoye SDO in Dnepropetrovsk / Ukraine and ASTRIUM Space Transportation in Bremen / Germany, with ASTRIUM being the prime contractor. The primary objectives of the **Compare** project are

- development of a methodology and process for comparison of qualitative (management-level) standards
- validation of the developed methodology by comparison of three ECSS standards (M-20B, M40B and Q20B) with corresponding Ukrainian space standards
- elaboration of standards harmonisation potentials in view of mutual standards acknowledgement and acceptance

The **Compare** project has started in July 2006 and is due to be finalised by mid of 2007 with the Final Report to be available approximately six weeks after the final project meeting scheduled for beginning of July 2007. Currently, dedicated project reports to each of the three bullets above are already available and a dissemination and exploitation planning for the project results is under preparation.

Based on the above brief description of the **Compare** project objectives and status, we like to open a discussion with the EUROSPACE concerning broader usage of **Compare** project results and potential follow-on activities.

Having used three ECSS Standards for validation of the comparison methodology developed in the frame of the **Compare** project and considering that Yuzhnoye is the leading space company in Ukraine, which is seeking for active cooperation with ESA member states' space programmes, the detailed results of the comparison might be of interest for all European space industry being associated to EUROSPACE. In summary, it can be stated that Ukrainian space standards provide a low coverage for ECSS-M20B (Project Organisation) and ECSS-Q20B (Quality Assurance) requirements, whereas the coverage of ECSS-M40B (Configuration Management) is very high. However, it is to be noted that the high degree of commonality of Configuration Management requirements (ECSS-M-40B) is based on a Yuzhnoye internal standard rather than on a general national standard. - Details of similarity and equivalence of Ukrainian space standards with ECSS standards are documented in a dedicated report (**Compare** Task 2 Report) and potential approaches to achieve a higher level of space standards commonality between Ukrainian and ECSS standards are elaborated in **Compare** Task 3 Report. As these reports are in the public domain, the **Compare** project partners - i.e. Yuzhnoye SDO and ASTRIUM Space Transportation - would be pleased to provide these reports to ECSS in case of interest.

Furthermore, the comparison methodology developed - described **Compare** Task 1 Report - might be of interest for European space industry when similarity and equivalence of national (space) standards with ECSS standards needs to be assessed and evaluated. This methodology has been derived from a methodology developed earlier (1993 - 1995) by RST and DASA (today both members of EADS ASTRIUM) in the frame of an ESA study contract (10647/93/NL/NB(SC)). Unfortunately, there was no budget allocated in the **Compare** project to implement the methodology as a database driven tool, which would facilitate the comparison process as well as the documentation of comparison results and which would allow for a gradual build-up of a standard comparison library. - To be quite open, the **Compare** project partners are prepared to develop such a tool, if EUROSPACE could provide a suitable supporting funding. On the other hand, the **Compare** project partners are also ready to perform standards comparisons - applying the developed methodology with or without supporting tool - on the basis of an EUROSPACE or European space industry lead subcontract.

Yuzhnoye and ASTRIUM - having jointly conducted the **Compare** project in the frame of the European Commission's 6th Framework Programme (FP6) - would be very much pleased, if the above short description of the **Compare** project and its main results would pave the way for a more extensive dialogue on space standardisation issues between EUROSPACE respectively European space industry and Ukraine. Please, do not hesitate to request more information and/or above mentioned project reports, if

needed prior to initiation of a fruitful dialogue. The **Compare** project partners are also prepared to present the project and its results to EUROSPACE and/or other (associated) European space industry, if this is considered appropriate by you.

We are looking forward to your early feed-back on the issues raised as well as to future detailed discussions on ECSS/Ukrainian space standardisation matters.

Sincerely

Wolfgang Gericke
Compare Project Manager
ASTRIUM Space Transportation

Alexander Degtyarev
Compare Project Co-Manager
Yuzhnoye SDO

P.S.
Please, address all communication related to this letter to ASTRIUM Space Transportation (see above for address details); ASTRIUM will ensure that all information will also be made available to Yuzhnoye SDO.