1. (informative)  
   Patent licensing
   1. Scope

The Time-Triggered Ethernet technology specified within this standard is based on patents from the following parties:

* Airbus for AFDX
* TTTech for patents listed in A.2

With respect to the patents owned by TTTech and the ones owned jointly with Honeywell, the patent licensing described below in section A.2 applies.

A license agreement on usage of these patents for implementing a product compliant to this ECSS standard in a space project can be obtained from ESA. The TTE Patent licence request forms to be filled are provided in Annex A.3.

* 1. Time-Triggered Ethernet Patent Overview

: Clock Synchronization

|  |  |  |
| --- | --- | --- |
| Short | Patent # | Description |
| F30 | WO 2009/146472 | Method for synchronizing local clocks in a distributed computer network\* |
| F31 | EP 2 148 474 | Multirouter for time-controlled communication systems\* |
| F9 | WO 2001/84286 | Multi-master Clock-Synchronization\* |
| T32/F31 | WO 2009/146471 | Method for Synchronizing Local Clocks\*\* |
| F37 | WO 2011/123877 | Method and Device for Fault-tolerant Time-Triggered Real-Time Communication\* |
| NOTES:  \* Solely owned by TTTech  \*\* Jointly owned by TTTech and Honeywell and joint right of disposal | | |

: Time-Triggered Communication

|  |  |  |
| --- | --- | --- |
| Short | Patent # | Description |
| F12 | WO 2002/075557 | Realization of Event-Channels in a TT Communication System\* |
| F14 | WO 2003/107609 | Time-Triggered Ethernet\* |
| F16 | WO 2004/107670 | Transmission of Messages in a TT System\* |
| F23 | WO 2008/124854 | Communication Method and Device for Efficient and Secure Transmission of TT Ethernet Messages\* |
| F28 | WO2009/121087 | Method for Secure Dynamic Bandwidth Allocation in TT Ethernet\* |
| F53 | WO2013/170285 | Method and Device for Relaying TT and ET Messages\* |
| NOTES:  \* Solely owned by TTTech | | |

: Dependability

|  |  |  |
| --- | --- | --- |
| Short | Patent # | Description |
| F41 | WO 2009/146472 | Method for synchronizing local clocks in a distributed computer network\* |
| F15 | WO 2004/023302 | Error Detection Method\* |
| S06 | EP 1 222 542 | Method for Enforcing the Fail-Silent Property in a Distributed Computer System and Distributor Unit of Such a System\* |
| T10 | WO 2007/000007 | Safe start-up of a network\*\* |
| F23 | EP 2 145 431 | Procedure and Architecture for the protection of real time data\* |
| F56 | WO 2014/134652 | Method for Increasing the Reliability in a TT System\* |
| NOTES:  \* Solely owned by TTTech  \*\* Jointly owned by TTTech and Honeywell and joint right of disposal | | |

* 1. TTE Patent licence request form

|  |  |
| --- | --- |
| Licensee | |
| Entity Complete Name and Legal Nature (1) |  |
| Entity Address of its Seat  (or Business Unit, if applicable) |  |
| Post code |  |
| City |  |
| Country (ISO Code) |  |
| Contact person to whom all communication related to the request should be addressed | |
| Name: |  |
| Telephone no.: |  |
| Fax no.: |  |
| Email address: |  |
| Licensor | |
| Entity Complete Name and Legal Nature (1) | TTTech Computertechnik AG (TTTech) |
| Entity Address of its Seat  (or Business Unit, if applicable) | Schoenbrunner Strasse 7 |
| Post code | 1040 |
| City | Vienna |
| Country (ISO Alpha 3 Code) | Austria (AUT) |
| Contact person to whom all communication related to the request should be addressed | |
| Name: |  |
| Telephone no.: |  |
| Fax no.: |  |
| Email address: | [XXXXX@tttech.com](mailto:XXXXX@tttech.com) |
| (1) Specify here the type of business entity to which the company belongs (e.g. Limited Company, Société Anonyme, AG etc.). | |

|  |  |  |
| --- | --- | --- |
| Licensed TTE Patents | | |
| Short | Patent # | Description |
| F30 | WO 2009/146472 | Method for synchronizing local clocks in a distributed computer network |
| F31 | EP 2 148 474 | Multirouter for time-controlled communication systems |
| F9 | WO 2001/84286 | Multi-master Clock-Synchronization |
| …. | … | …. |
|  |  |  |
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|  |  |  |

**Licensed Patents information**

The **Licensee** hereby requests from the **Licensor** the authorisation to use the **Licensed TTE Patents** according to the terms and conditions of the Agreement between ESA, acting on behalf of the members of the European Cooperation for Space Standardization (ECSS), and TTTech on the use of the TTE Patents and TTE Products, reference …, dated … (hereinafter referred to as Agreement).

The Licensee confirms that the licence and the Licensed TTE Patents shall be used solely for space applications based on the ECSS TTE Standard (ECSS-E-ST-50-16C) in line with the terms and conditions of the Agreement.

*(if applicable)*

The licence and the Licensed TTE Patents shall be used for a limited period, starting from […] and ending on […].

Date: ***..............................***

Signature: ***..............................***

Name and title of the signatory: *........................ (Full name and function)* duly authorized to commit the requesting entity for this purpose.