

RINA concludes a study on equivalence between ETCS L2 and CTCS L3, in terms of requirements related to GSM-R

Shanghai, China, September 6, 2013 – Huawei, a leading global information and communications technology (ICT) solutions provider, today announced that it has been provided by RINA, a well established notified body in the European Rail environment, with a detailed study comparing Control-Command and Signalling Subsystem used in Europe (ETCS L2, European Train Control System level 2) and China (CTCS L3, Chinese Train Control System Level 3), in terms of requirements related to GSM-R.

The Certification division of RINA has successfully concluded their analysis on coherent-ship of Control-Command and Signalling Subsystem ETCS L2 and CTCS L3, regarding GSM-R requirements.

The detailed study analyzed requirements related to the GSM-R network, that is used to operate ERTMS/ETCS L2 or CTCS L3 services. Aim of the study was to find out whether ETCS L2 or CTCS L3 networks have different requirements towards their GSM-R bearer network.

As part of the study individual requirements of ETCS L2 and CTCS L3 were set aside and studied in regards to their impact towards the GSM-R layer.

Huawei says that RINA found no differences in QoS requirements related to GSM-R data communication between ETCS-L2 and CTCS-L3. Both Control-Command and Signalling Subsystems define the same QoS indicators for the GSM-R data communication layer with the same target values. Some differences in the specification have been identified such as frequency requirements of data terminals (EDORs), classification of some optional features in CTCS L3 and low level ETCS-2 functionality details that were not referenced in CTCS L3.

As a result RINA concluded that considering the results of the equivalence analysis of ETCS-L2 and CTCS-L3 Specifications, based on the set of available documents for the CTCS-L3 part,

it can be concluded that, excluding the aspects outlined above, the GSM-R requirements and performances for ETCS-L2 and CTCS-L3 are globally equivalent.

To further study coherent-ship between ETCS L2 and CTC L3 RINA analyzed the GSM-R network of the HADA line implementation, as a reference implementation for CTCS-L3. The HADA line is a high speed passenger line of 893 Km length and design speed of 350Km/h. Huawei is the GSM-R network supplier and Bombardier is the signalling supplier for CTCS-L3. HADA line was put into commercial operation on December 2012.

The analysis of the HADA line technical documents showed that the HADA line implementation meets all the ETCS-L2 QoS requirements and mandatory ETCS-L2 requirements, regarding GSM-R functionalities.

About RINA

RINA is a multi-national group which delivers verification, certification, conformity assessment, ship classification, environmental enhancement, product testing, site and vendor supervision, training and engineering consultancy across a wide range of industries and services. With a turnover of around 300 million Euros in 2012, over 2,100 employees, and 140 offices in 49 countries worldwide, RINA is recognized as an authoritative member of key international organizations and an important contributor to the development of new legislative standards. www.rina.org.

The Railway Certification Business Line offers: Notified Body services according to the EU Directive 2008/57, Independent Safety Assessment services (ISA) according to the CENELEC 5012x norms, ISA for the Railway National Safety Authority for placing in services vehicles and subsystems, Assessment Body services according to the EU Regulation CSM 352. The Business Line has also its own laboratory for testing ERTMS onboard and trackside signalling equipment, according to the applicable norms.

About Bombardier

Bombardier is the world's only manufacturer of both planes and trains. Looking far ahead while delivering today, Bombardier is evolving mobility worldwide by answering the call for

more efficient, sustainable and enjoyable transportation everywhere. Our vehicles, services and, most of all, our employees are what make us a global leader in transportation.

Bombardier is headquartered in Montréal, Canada. Our shares are traded on the Toronto Stock Exchange (BBD) and we are listed on the Dow Jones Sustainability World and North America Indexes. In the fiscal year ended December 31, 2012, we posted revenues of \$16.8 billion. News and information are available at bombardier.com or follow us on Twitter [@Bombardier](https://twitter.com/Bombardier).

About Huawei

Huawei is a leading global information and communications technology (ICT) solutions provider. Through our dedication to customer-centric innovation and strong partnerships, we have established end-to-end advantages in telecom networks, devices and cloud computing. We are committed to creating maximum value for telecom operators, enterprises and consumers by providing competitive solutions and services. Our products and solutions have been deployed in over 140 countries, serving more than one third of the world's population. For more information, visit Huawei online: www.huawei.com , on Twitter: www.twitter.com/huaweipress and YouTube: <http://www.youtube.com/user/HuaweiPress>

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