



C-Sigma s.r.l

Ubi_Loc_01

GPS-GSM Location Reporting Board (G²LRB)

for

Wheel Slide Protection (WSP) Electronics





Existing C-Sigma product:

WSP Electronics for the control of railway type brakes



134 controllers now in service on

62 Bombardier's NB4 trams in Rostock and Leipzig



Demonstrated MTBF so far (November 2003):

1.000.000 hours with no failures





A Customer's Wish List

Modern freight applications require WSP Electronics



Radio-localization is useful to optimize goods transit times



Reduce to a minimum the suppliers for systems and sub-systems





Integrating in WSP offer the advantage of speed signals already monitored. Very useful feature when GPS signals are not available.



Comparison of GPS referenced speed with speed sensor signals allows to monitor wheel diameter wear-out rate



Supply voltage already generated (axle mounted alternator), conditioned and stored (accumulator), by the WSP Electronics





Advanced remote diagnostics of the Brake Equipment is easily implemented thanks to availability of GSM modem



On board accelerometers allow to monitor X, Y, Z accelerations for sensitive loads (feature also useful for derailment detection)



On board CAN bus Interface allows the connection of dozens of CAN bus sensors, for monitoring of any variable required by customers





**The G²LRB has been designed as a plug-in EURO Board
for the existing C-Sigma WSP Electronics**



But it can also be supplied in a battery powered stand-alone version



**Particular interface requirements can be discuss
with the customers on a case by case basis**





**Designed and tested in compliance with:
EN 50155, “Electronic Equipment Used On Rolling Stock”**

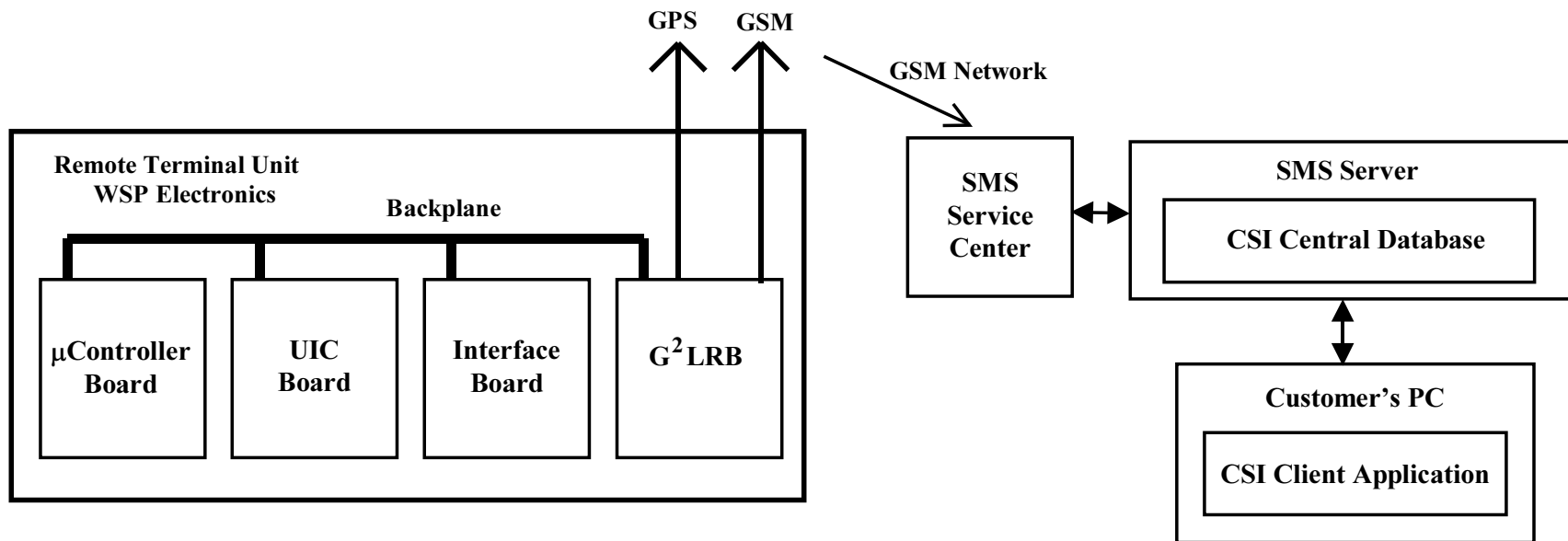


**Electromagnetic compatibility testing in compliance with:
ENV 50121-3-2, “Railway Applications – EMC”**





System Architecture





Customer Search Interface (CSI)

SMSs are received and stored on a conventional PC running an SMS Server: SysTrack DAQ, from SysTech (www.sys-tech.it)



The database can then be accessed via network connection (LAN or modem) from SysTrack Client applications running on client PCs

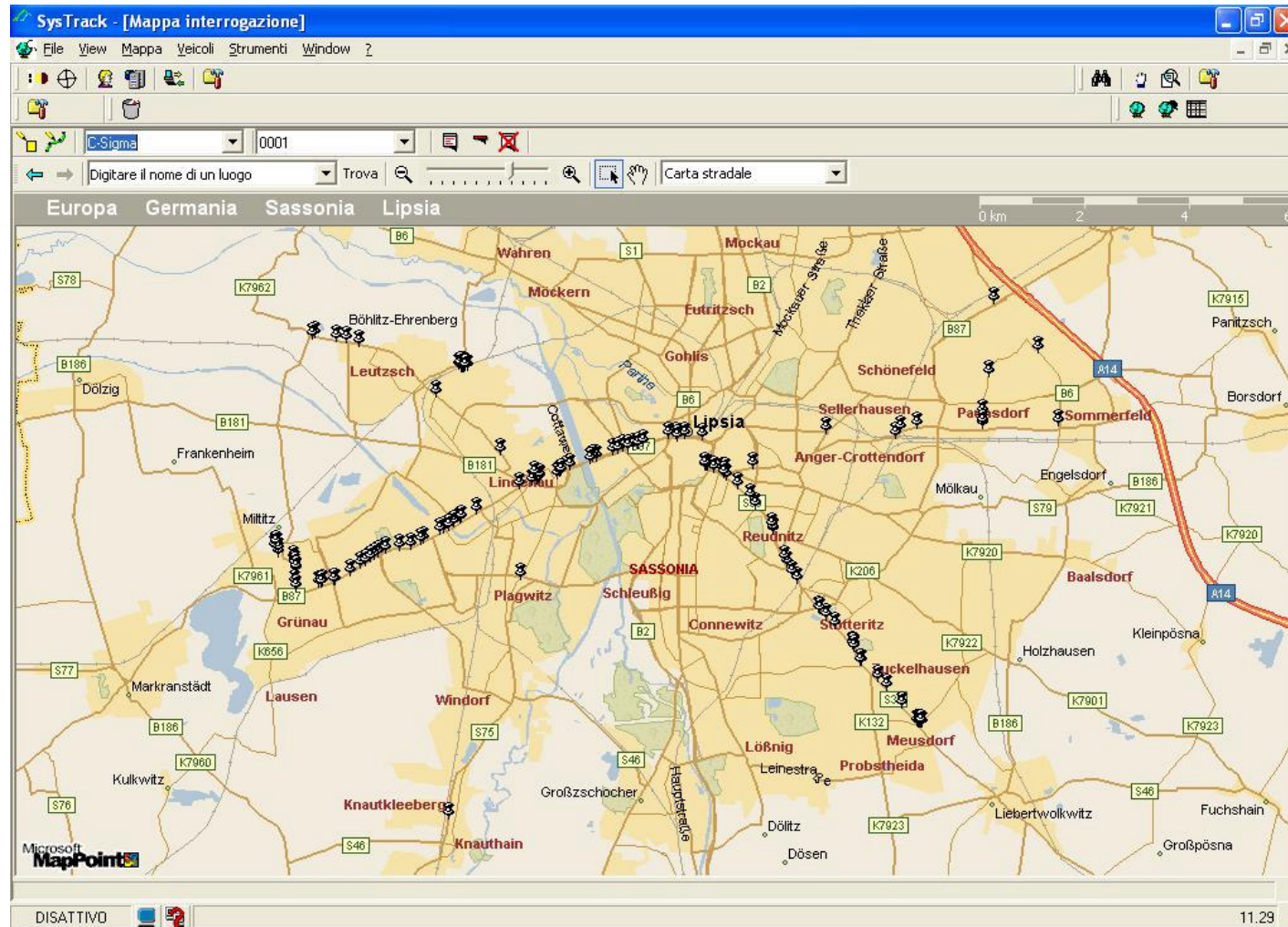


For customers with an already existing Information System, the SMS format can be adapted to satisfy specific compatibility needs



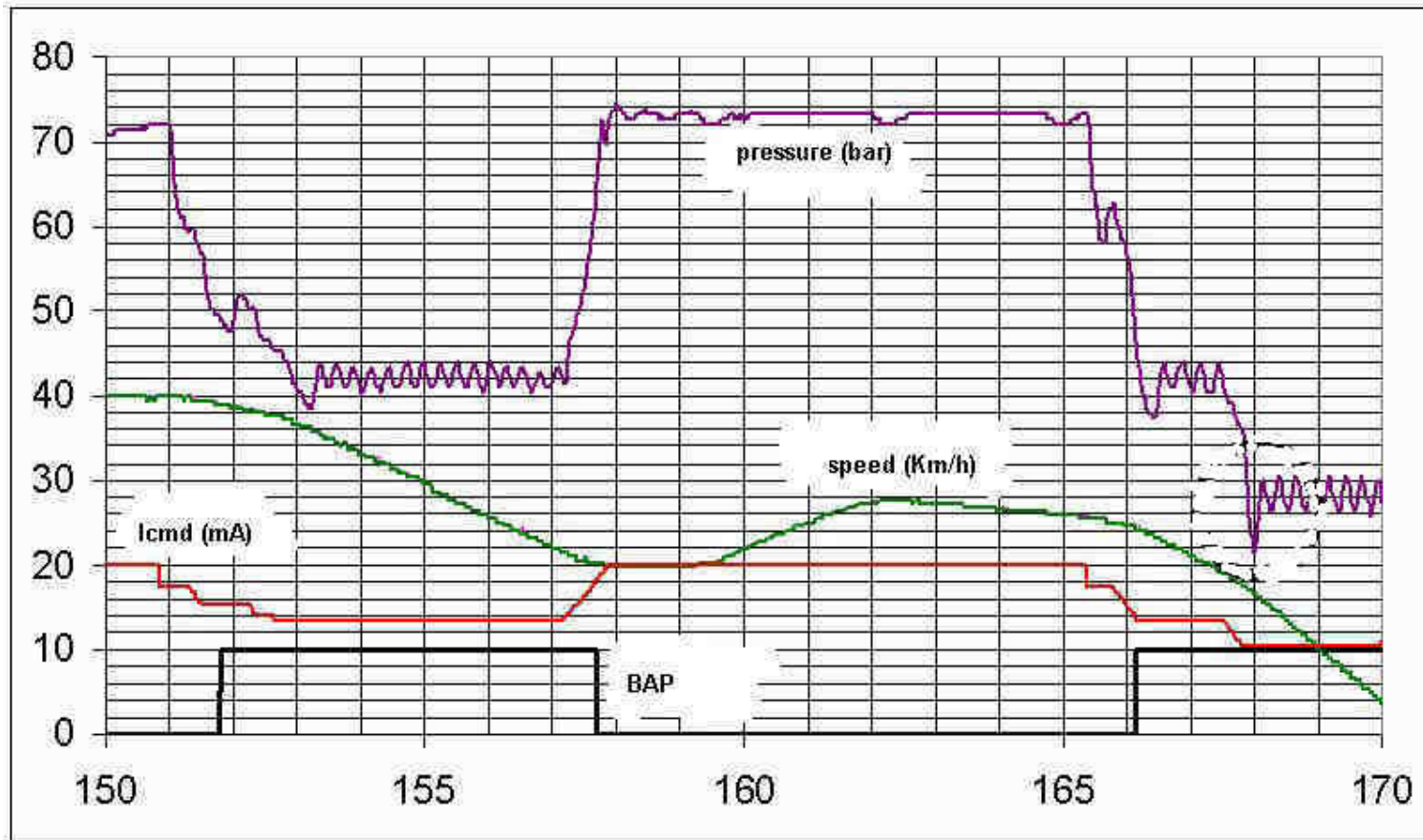


SysTrack Client Example



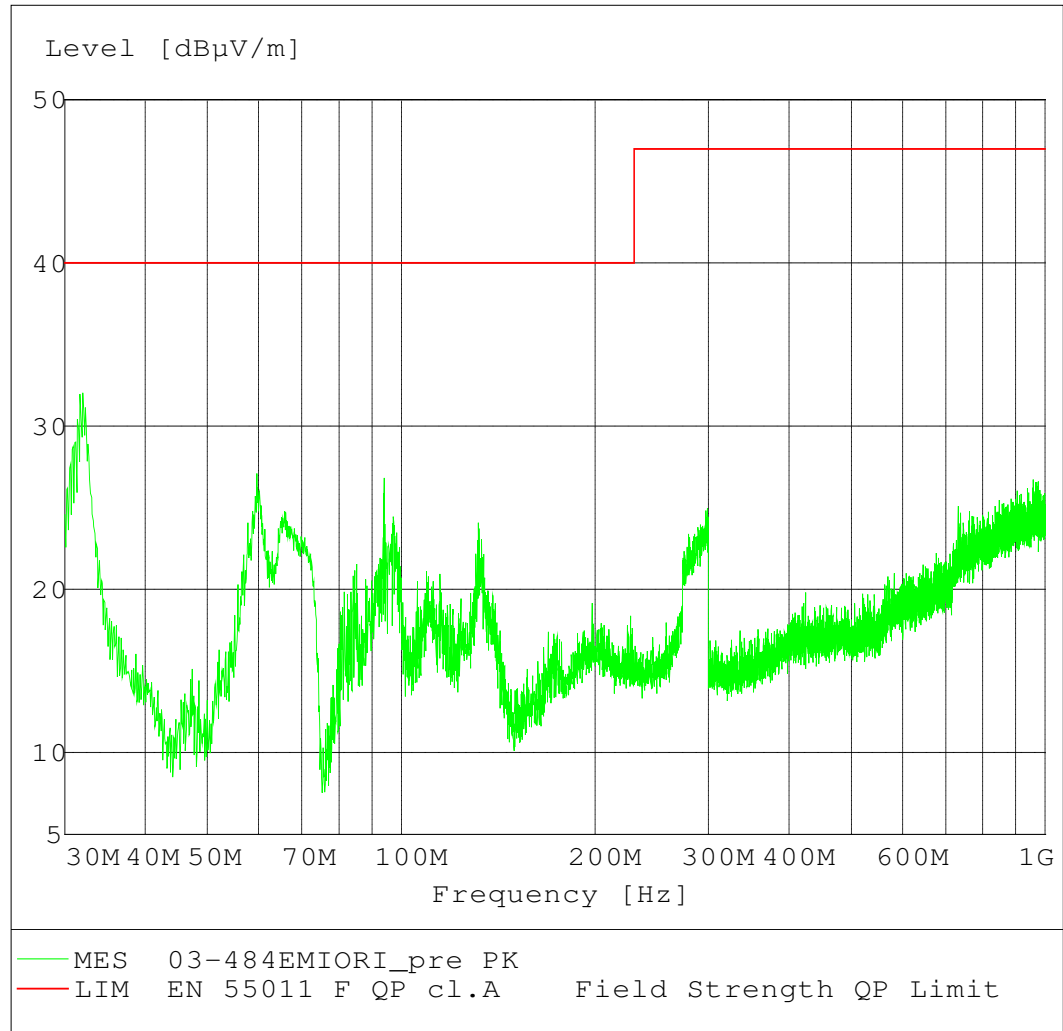


Example of Remote Diagnostics Capabilities





EMC Test: Radiated Emission





Vibration Test: Random Levels

