Tanner Declaration Exhibit D
Introduction of ROSA™
Railroad Open System Architecture

Presentation of Goals and Principles
DCC Working Group Meeting
ROSA Goals

- Realistic Model Railroad Operations
- International Compatibility
- Data Exchange between Applications (ROSA Level 1)
- Cooperation of several Applications in Networks (ROSA Level 2)
Kompetenz und Sicherheit für Digital-Modellbahner

ROSA Basic Concept: Security Element

- Entry Point A Signal
- Entry Sensor (Trigger Pulse) (optional)
- Switch (optional)
- Entry Point C Signal
- Block Detector (Level Trigger) (optional)
- Entry Point B Signal
- Entry Sensor (Trigger Pulse) (optional)
ROSA Data Structure II

- Trains
  - Locomotives
  - Wagons

- Rolling Stock
- Routes
- Security Element
  - Independant Signals
  - Entry Signals
  - Switches
  - Feedback Sensors
• Offline-Data Exchange through ASCII-File

• Point-to-Point Connection (Interface)

• alternatively connectable Point-to-Point Connection

Digital Command Control
Kompetenz und Sicherheit für Digital-Modellbahner

ROSA Level 2 Application with Model Railroad Network

- Model Railroad
- System Bus, e.g. CAN- or LocoNet-Bus

Digital Command Control

additional ROSA Network

local DB
Digital Command Control

- Model Railroad System Bus, e.g. CAN- or LocoNet-Bus

local ROSA Component
locale ROSA Component
locale ROSA Component
locale DB
ROSA Level 2 Application with use of Multiple Network

- ROSA Networks, e.g.
  - Local Area Network
  - Local LocoNet
  - Internet

- Point-to-Point Connection (Interface)

Digital Command Control

local DB

additional ROSA Network

Digital Command Control

local DB

Point-to-Point Connection (Interface)
ROSA compatible software application

Driver
Model Railroad Command System Interface

Driver
ROSA-Network-Interface

ROSA Interface Concept

ROSA DB
Object based communication within ROSA Networks

- Client
- Object Adapter
- Answer
- Network
- Request
- Object Implementation
- Object Adapter
• ROSA implements
  – Data Exchange between software applications of different manufacturers
  – Standardized Data Structures and Driver Interfaces

• ROSA allows
  – realistic Model Railroad Operations with stand alone computers as well as in Networks
  – Dynamic Data Exchange between Software Applications and hardware based modules in the model railroad framework