



Systems & Projects

Universal Car Radio Test System,
Pioneer Electronics Manufacturing NV, Erpe-Mere, Belgium

Introduction

The Universal Car Radio Test System UCRTS of Pioneer Electronics Manufacturing contains all necessary instruments and features for full automatic car radio testing.

Rohde & Schwarz Belgium has realised this test system in close co-operation with Pioneer Electronics Manufacturing. It was an ideal combination of experiences in car radio (hifi) and test & measurement.

In fact, there are **two test systems** available at Pioneer.

- One is used for **quality assurance** purposes. For each model of car radio, the system measures extensively the quality of all relevant parameters on an amount of samples from every production batch.
- The second system is used for **EUT Monitoring during EMC immunity tests**. In fact, there is a constant need for a useful RF signal and a DC supply to feed the EUT. Together with an audio analyser the audio performance and general behaviour of the EUT is monitored during the application of interference signals.

System Software

A special application software has been developed by Rohde & Schwarz Belgium. It allows execution of full automatic test sequences.

The software consists of the following modules :

- a set of **instrument drivers** for the measuring instruments of the test system
- a set of **measurement applications** (Application Libraries) and **universal routines** (Utility Libraries)
- a set of **test procedures**, for all possible EUTs
- a **measuring sequence** application for each EUT, that calls different test procedures and applies limit values
- data storage and reporting
- identification and management of EUTs, batches, etc...
- a user **interface module** leads the user through measurement procedures

The software has been developed in Labwindows. Of course, this man-machine interface is Windows-based, menu driven and mouse controlled.

The test system is able to generate basic test reports on the laserprinter.

Finally, measurement data are transferred to the Pioneer Computer System, which processes the test results and performs statistical analysis on the car radio quality.

System Hardware

The full UCRTS consists of:

- one RF signal generator **SMT02** with audio generator
- a stereo coder **MSC2**
- an RDS coder **DMC01**
- a **PSU** antenna selector
- a **PSN** audio selector
- an audio analyser **UPD05** mounted in a 19" system rack on wheels, and
- a programmable DC power supply **NGSM**
- an industrial process controller **PSM** and a ruggedized keyboard, with external shielded colour display and laserprinter

mounted on a mobile 19" trolley.

