

10 years
in motorsport

eWings

RF &
Wireless
Solutions

eWings

Bright ideas make life easier
Motorsport

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eWings has been active for almost 10 years in the motorsport environment: its work has been mainly focused on telemetry systems for data/control and voice transmission.

In conjunction with its main partner Magneti Marelli Motorsport, eWings developed several systems always increasing channel capacity, frequency agility, integration of new features in all-in-one radio (data, voice, control).

eWings in-depth knowledge of telecommunication systems and its high profile technical background have been the key-factor in the success obtained facing the difficult scenarios that characterize racing circuits.

CAMERA CAR, AUDIO AND RACING CONTROL SYSTEM

The camera car control system is a bi-directional high capacity low latency radio system developed in un-licensed 5GHz ISM band.

The system is based on 802.11g/n standard modified to satisfy the requirements of low-latency, no packet loss and high speed tolerance of the particular application.

The system throughput is 600kbits net for each car. The emitted output power is less than 30mW and guarantees full circuit coverage with zero data packet loss together with full worldwide emission mask compliance. The system is used in motorsport championships from 2011.

This control system can also transmit audio and is currently used as telemetry system and control race system in endurance championships.

V2X-R SYSTEM

The V2X-R Communication System establishes a broadband two-way wireless link between the racing cars and the pits. It provides very high rate full coverage realtime data telemetry (up to 18

Mbit/s per car) and radio voice communication (up to 64 kbit/s). The service can be provided to a single Racing Team and to ALL the Racing Teams during Race Events, Collective Tests and Private Tests. In addition to Data Telemetry & Voice the V2X-R technology can enable:

- Car-to-Car Communication: in case of accident, slow car or other hazardous situations the race cars can automatically communicate warnings between each other
- Race Control : the Race Director will be able to interact with the cars, the drivers, the marshals sending/receiving commands as well as speech warnings with a High Priority Communication Channel.

V2X-R constitutes a wireless Wide-Area high rate IP-network with the following main technical specifications:

- Wide frequency range 1.2-1.7GHz with variable channel bandwidth and various OFDM modulation schemes
- 1 to 18Mbits net data rate with possibly shared RF channel occupation.

- Configurable output power to 1.5W
- Very Low latency network
- High quality audio communication
- All-in-one car radio device includes data telemetry and voice management.
- Two-way communication with 100% coverage HD VoIP Team <-> Driver voice

X-BAND ADVANCED HIGH CAPACITY SYSTEM

The X-Band Communication System is currently under test in motorsport championships.

The X-band system is an high capacity system with wide bandwidth (8-12GHz) that includes in one radio all on Board motorsport services.

All cars will be equipped with the new system for:

- Unified Team Telemetry System
- HD TV on Board Cameras
- Team Radio
- Camera Control Data

The X-Band system can provide very high rate full coverage real-time data of 18 Mbit/s per car (at 360kmph speed) and radio voice

communication (up to 64 kbit/s). It has been developed for communication between 26CAR in 1GHz channel bandwidth. The frequency channels can be set in X-band with 4GHz agility to optimize spectrum occupation.