

Orlaco, Oct. 2007

EMC Requirements for off-road machinery:

The EU harmonized EMC standard is EN 13309, which still requires 30 v/m for the whole-machine and for most subassemblies.

The ISO EMC standard for earthmoving machines, ISO 13766, was recently updated. Among the changes, immunity levels were raised for some functions -- most notably, "functions that control machine movement" were raised to 100 v/m. Most other subassemblies (including CCTV) remain at 30 v/m in this standard.

Reasons to design our electronics to 100 v/m:

- 1) Orlaco's policy is to comply with ISO 13766 unless superseded by regional requirements. And because our electronics are typically marketed internationally (i.e. beyond the EU), ISO 13766 should prevail over EN 13309 as a design criteria.
- 2) Most electronics in off-road machinery may be incorporated into functions that control machine movement. Exceptions such as CCTV could be designed to 30 v/m, but future changes to standards are anticipated. For example:
 - a. It has been proposed that the next update to ISO 13766 expand the 100v/m immunity requirements to include "safety-related" subassemblies. If so, CCTV could be targeted.
 - b. EN 13309 will likely be re-harmonized in the near future, and it will likely adopt or exceed the requirements of ISO 13766.

In summary, today's standards only compel CCTV systems to meet 30 v/m. But good judgement would justify to meet 100 v/m for the reasons listed above and the Orlaco DDIN display with CCC camera and shielded cabling already complies to higher ratings.