

## LED LIGHTING INTERFERENCE GOOD INSTALLATION PRACTICE FOR PROFESSIONALS

LED lighting is an energy efficient source of illumination that is becoming increasingly popular. However there have been many reports of interference to radio reception from these lights. Note this can affect AM, FM and DAB radio reception.

### BACKGROUND

In 2011 the EU issued a report<sup>1</sup> on its EMC Market Surveillance Campaign on LED Lighting Products.

This reported:

'In general, the level of compliance of the LED lighting equipment with the technical and administrative requirements was considered insufficient. Overall, only 29 (17.3%) of the products were in line with both technical and administrative requirements. The assessment of the technical documentation and of the immunity requirements were performed on an optional basis, the results of this assessment have not been taken in account in the overall level of compliance. This means that the overall level of compliance could be lower if both requirements had been assessed.'

To avoid interference requires two things:

1. LED lights that are compliant with the relevant standards.
2. Correct installation.

The survey just mentioned shows that the first is difficult. Obtaining lights from a traceable source may help, but unfortunately is no guarantee.

Correct installation is discussed below.

### RECOMMENDATIONS

- Installations can readily be checked by tuning a portable radio to a weak station and checking if interference is heard when the lights are switched on.
- This interference can occur with low voltage (12 volt) lights such as the popular MR16 reflector lamps. This can happen where conventional halogen lights are replaced with LED lights as this substantially reduces the load on the transformer (normally of the electronic type, using a switch mode power supply), which in turn can be the cause of radio interference. The interference is normally resolved by replacing the transformer with a correctly rated one.
- When installing new systems it is important to ensure that correctly rated transformers are used and that excessively large transformers be avoided. The manufacturer will normally specify the correct rating range for the transformer, and it should not be used outside this range.

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<sup>1</sup> [http://ec.europa.eu/enterprise/sectors/electrical/files/emc/ms-campaign-fourth\\_en.pdf](http://ec.europa.eu/enterprise/sectors/electrical/files/emc/ms-campaign-fourth_en.pdf)

## LED LIGHTING INTERFERENCE GUIDANCE FOR PUBLIC

### IS YOUR LED LIGHTING CAUSING RADIO INTERFERENCE?

LED lighting is an energy efficient source of illumination that is becoming increasingly popular. However there have been many reports of interference to radio reception from these lights. This can affect AM, FM and DAB radio reception, so please check if your lighting is operating correctly.

This interference occurs with low voltage (12 volt) lights such as the popular MR16 lamps (see Figure). This can happen where conventional halogen lights are replaced with LED lights as this substantially reduces the load on the transformer (normally of the electronic type, using a switch mode power supply), which in turn can then become a cause of radio interference. The interference is normally resolved by replacing the transformer with a correctly rated one.

Consumers can check their lights by tuning a radio to a weak station and checking if interference is heard when the lights are switched on. If this happens an electrician should be asked to resolve this.



Figure: (L) MR16 halogen and (R) MR16 smd LED lamps