

# Contents & Commentary

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## Listen before talk

Only recently, in August 2015, did we look at the Zigbee standard in Environmental Engineering. And so it is timely that an acquaintance of the Editor should have contacted us to air his concerns that a new harmonised standard may well cause more problems than it solves. Tony Ingham runs Sensor Technology, making torque measurement systems in Oxfordshire.

The standards body, ETSI (European Telecommunications Standard Institute) has a new harmonised standard, EN 300 328 V1.8.1, which came into force on 1 January 2015. Unfortunately, says Ingham, this has thrown the wireless community into something of a turmoil, because of the way the draft standard specifies that wireless devices should operate.

It has long been the case that equipment should comply with both the Low Voltage Directive and the EMC Directive. Now, factors such as RF power output, frequency hopping, duty cycle, transmission cycle and transmission gap must be considered. This will typically cover equipment employing IEEE 802.11 (WiFi), Bluetooth, Zigbee and other similar protocols, as well as other technologies that use the 2.4GHz ISM band. In practice, any cross-plant wireless communication systems, wireless sensor monitoring systems and wireless LAN installations will all come under the scope of the new harmonised standard.

However, the core problem is the requirement for 'listen before talk' (LBT) communications as a means of preserving bandwidth. LBT requires each wireless device to check first whether another is transmitting before it can initiate its own communications. If the channel is not free, it must wait. It is easy to see how this might cause random and unpredictable delays in communications, perhaps even in critical systems.

**Ingham:**  
The new harmonised standard EN 300 328 V1.8.1 is set to cause a problem where none previously existed

Ingham concedes that, without greater regulation, there may well be future interference problems in the consumer world. However, the industrial environment has long been well-served by wireless technologies, and any emerging interference problems could be easily and more effectively dealt with through swapping operating frequencies or reducing transmission power.

Fortunately, the new standard does not apply to equipment with an EIRP (effective isotropically radiated power) output of less than 10mW, nor to equipment that operates in a non-adaptive mode.

But users of wireless devices will have to look very carefully at the devices they employ and the standard they adhere to in order to ensure compliance. There is still hope, says Ingham, that with increasing pressure from industry, trade bodies and device manufacturers, the LBT aspect will be dropped.

Andy Pye, Editor



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