

The Road Ahead for RED:

Navigating Compliance in the EU's New Radio Equipment Directive



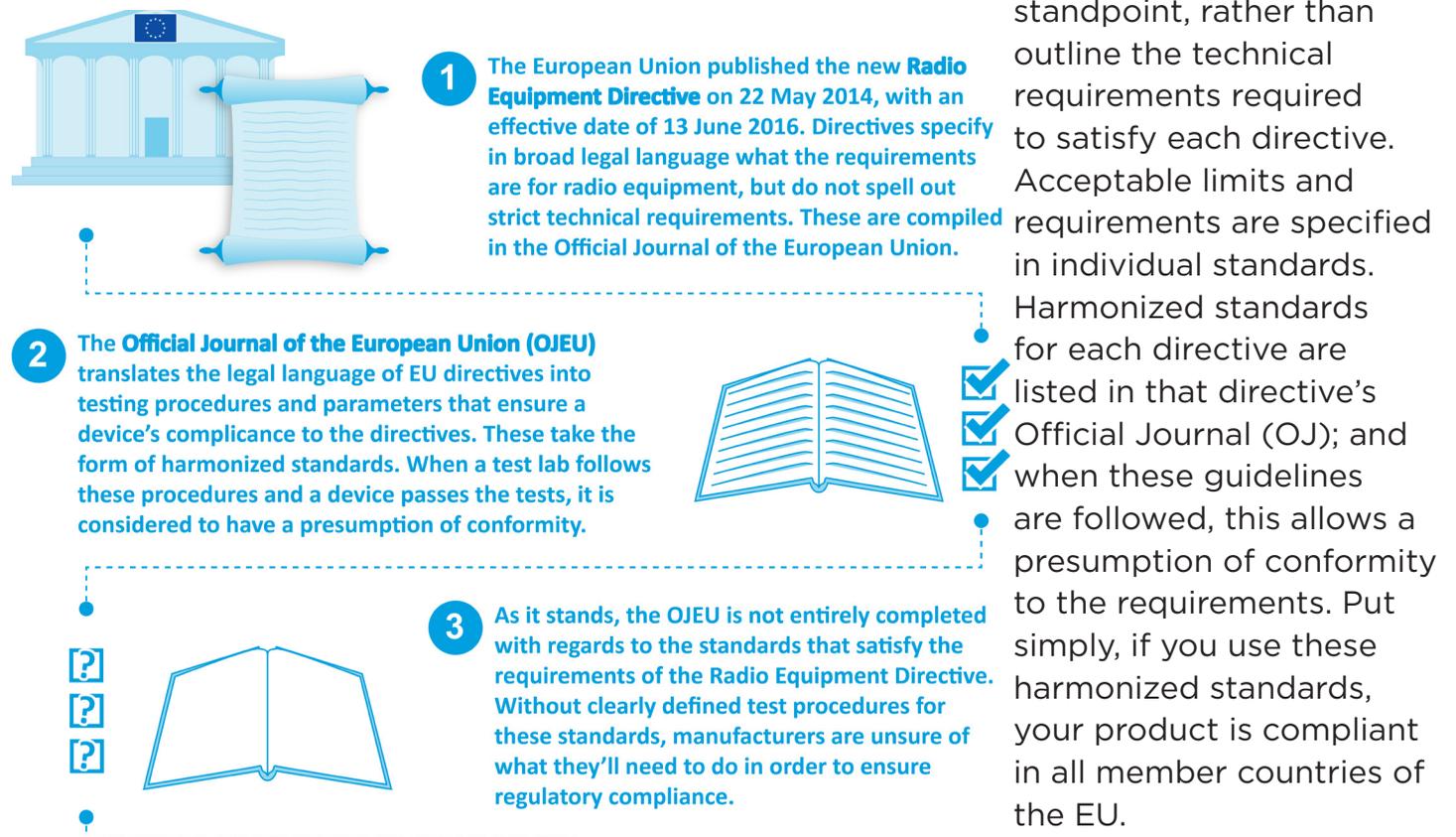
a Laird Business

The European Union published The Radio Equipment Directive (RED) 2014/53/EU on April 16, 2014 as part of an effort to implement the EU's New Legislative Framework (NLF), which hopes to harmonize and simplify the CE marking process across many directives.

When the RED was published, it specified a timeline for manufacturers of applicable wireless products to transition from the current Radio and Telecommunications Terminal Equipment (R&TTE) directive to the RED. Beginning on June 13, 2016, manufacturers could declare conformity to either the R&TTE directive or the RED. However, after June 13, 2017, manufacturers must be compliant to the Radio Equipment directive. This approaching deadline has device manufacturers asking many questions: Will my existing certifications be valid under the RED? What requirements will apply to my design? How soon do I need to begin testing to be compliant in the EU by June 13, 2017?

WHAT ARE RED AND THE OJEU?

It is important to understand the difference between EU directives and the standards that result from them. The EU's directives communicate requirements from a broad legislative



Each standard has a committee which is required to address how the new legislation introduced into the rewritten directives affects their technical requirements. When the OJ was published for the Radio Equipment Directive, many of these committees had not finished updating the technical requirements conforming to the new directive requirements. As a result, only a few harmonized standards were published within. Over the past few months, additional standards (with updated requirements) have been added to the RED's OJ.

If a product cannot be tested to a harmonized standard published in the RED's Official Journal, it requires review and type examination by a Notified Body. Notified Bodies are authorized experts who act as an authority for the EU, and are capable of issuing type examinations, which confirm the essential requirements of the

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directive have been met.

Along with the changes within the RED, there are new requirements for laboratories to be recognized as Notified Bodies under the directive. These requirements differ from those imposed for the R&TTE directive, and many laboratories must implement significant changes to meet these new requirements. This may present new obstacles for the OEM by limiting routes to compliance which were open under the previous directives.

These obstacles are manifold, and don't just affect manufacturers. Navigating a path to compliance will require a combination of experience, good planning, and a close monitoring of the developments within the OJ.

DO I NEED TO RETEST?

To be compliant to the RED, most wireless devices will require new and additional testing. However, the specifics of the testing are directly related to the changes in specific standards that the product was previously tested against. All products must be compliant to the latest requirements of RED by June 13, 2017.

Many companies have asked whether it is possible to leverage previous test data from older versions of the standard to support compliance to the latest revision. It may be possible to leverage data; however, the test data and reports must be reviewed thoroughly to ensure all aspects of the new standard are met. In some cases, small changes in the requirements (such as the number of sampling points and sweep rate of the test) are no

longer sufficient to gain compliance, even though the limits themselves have not changed in the standard. Since the new Directive is an approaching requirement, it may be a convenient time to consolidate all this testing data into one new refreshed report that lists the updated directive and associated standards.

WHAT'S THE LATEST WITH THE RED-RELATED STANDARDS?

Progress on the requirements and testing methods for the RED directive varies by each standard. The following are a selected series of common standards for wireless devices being impacted by the changes.

EN 300 328 v2.1.1

ETSI EN 300 328 v2.1.1 was cited in the OJ on January 13th, 2017 and is now a harmonized standard. This is the main emissions standard for all 2.4 GHz ISM band radios using wide band modulation techniques including Wi-Fi and Bluetooth/Bluetooth Low Energy radios. Since this is now a harmonized standard, testing can be performed to these requirements without a Notified Body, which allows for quicker approvals. Once each product is successfully tested, the DoC (Declaration of Conformity) verifying the harmonized standards to which it complies can be created.

The specific changes in the EN 300 328 standard which impact testing include a change in limits for Adaptivity and TX/RX Spurious emissions, as well as the addition of RX sensitivity/blocking measurements (this testing was not previously required for many products).

This RX Sensitivity/blocking measurement requirement may provide the biggest challenge for compliance. Since this testing is a new requirement most equipment and manufacturers do not have readily available test setup and firmware to support this testing. To properly exercise and evaluate this testing customers must be able to monitor Packet Error Rate (PER), ideally conducted through the antenna port, on all data rates/modes of operation.

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EN 301 893

ETSI 301 893 applies to Broadband Radio Access Network (BRAN); 5 GHz high performance RLAN radios including 5GHz Wi-Fi radios. There is currently no listed harmonized standard in the OJ for this, so these radio types are required to go through a Notified Body type examination; testing must be performed to the latest available version of the standards. Currently EN 301 893 is not expected to be cited in the OJ until Mid-December 2017. Depending on any changes that occur between the draft version and the final version of the standard, additional testing may be required after the June 13th deadline. This delay is acceptable to the EU.

The draft version of ETSI EN 301 893 v2.0.7 contains major changes in the Adaptivity measurement method. These changes have caused an increase in failures. In some cases, there has been a reduction in the threshold level of >10dB.

EN 301 489-1 and ETSI EN 301 489-17

EN 301 489-1 and ETSI EN 301 489-17 applies to all RF equipment, and is to ensure that the device under test works correctly in the presence of a high degree of RF radiation, i.e. radiated immunity testing. Changes to ETSI EN 301 489-1 and ETSI EN 301 489-17 will require additional testing, since radiated RF immunity requirements now extend to 6 GHz. The updated versions of these standards have been published and are expected to enter the RED's OJ in May. Previously, testing stopped at 2.7GHz, so the expanded range may have impact on both the 2.4GHz and 5.8GHz devices.

WHAT STEPS ARE NEXT FOR MY PRODUCT?

As the committees responsible for organizing harmonized standards continue to codify and populate the OJEU, a clearer picture of the regulatory path forward will continue to emerge. But to avoid costly retesting, duplicated efforts, or even a failure of compliance, it will continue to be important to watch these developments closely.

While this is developing, there are some things that OEMs can do now in the pursuit of compliance. The more complete harmonized standards in some cases are defined to a degree that it is possible to determine whether retesting is necessary, with enough time to test again if required before June 13. In other cases, it will only become clearer as time progresses what the new standards will be, and easier to determine what will be required.

Laird's EMC and Test Services divisions are staying on top of any new developments with this directive and its associated standards daily and can help you navigate the changing

circumstances to ensure your product meets compliance before the established deadlines. LSR, now a Laird business, has been performing compliance testing to ETSI standards for 20 years, most of that time as a Notified Body and now working with Notified Bodies recognized by the EU. This experience and proximity to the regulatory bodies places Laird in a unique position of qualification to help shepherd your design through shifting circumstances and to ultimately secure regulatory compliance.

In the immediate future, the best path forward is to pay close attention as developments progress. In absence of parameters to test to, LSR recommends that customers wait until clearer requirements are in place before deciding whether to retest. LSR can be a valuable partner in making this decision, and can provide insight and strategy in moving forward. For more information, [contact our EMC and Test Services teams](#).

WHAT ABOUT RED COMPLIANCE FOR LSR AND LAIRD'S EMBEDDED MODULES?

Laird has also been confronted directly with these developments, and we have released a memorandum on our modules' compliance to RED to clarify concerns about our Declaration of Conformity and the approvals that extend to customers. For the full details, see our memorandum at the [Embedded Wireless Blog](#).



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