

# GNSS Radio Equipment Directive (RED): 2014/53/EU

## The Challenge of the RED

The challenge for receiver manufacturers, product developers and integrators lies in creating a test bed to run all tests specified by ETSI - from setting up the appropriate simulators and other test equipment, to writing the test scripts, running the tests on the receiver unit, and recording the results. The standard specifies a range of testing criteria, including:

- Noise type and power
- Injection frequencies (five in total)
- Received GNSS signal power
- Allowed degradation of signal

It also includes the type of interference test signal required (an average white Gaussian noise with a 1MHz bandwidth) –and, crucially, the specific measurement parameter: carrier-to-noise ratio (C/N).

*Spirent has developed a set of test scenarios to help developers to verify the compliance of receivers to the new GNSS Radio Equipment Directive—or RED - 2014/53/EU.*

## What is the RED 2014/53/EU?

The RED 2014/53/EU - OJ L153 22 May 2014, replaces the Radio & Telecommunication Terminal Equipment Directive (R&TTE) 1999/5/EC. Designed to make sure GNSS-reliant devices are protected against RF interference in adjacent frequency bands, the new European Telecommunications Standard Institute (ETSI) standard mandated by RED marks the first testing regulations for GNSS chipset manufacturers and system integrators operating in EU territories.

From 13 June 2017, all new or “significantly changed” GNSS-reliant devices launched in the EU must be tested to ensure they are, on each GNSS frequency used, compliant with ETSI standard EN 303 413.

## Benefits and Value

With a complete GNSS RED test package:

- Conduct all relevant tests quickly and easily as per ETSI EN 303 413
- Free up engineer hours for other essential work
- Accelerate GNSS RED compliance for faster time to market
- Future proofing - the test shows that your product is unlikely to suffer from degraded performance if adjacent spectrum is utilised by other services

## About Spirent Communications

Spirent Communications (LSE: SPT) is a global leader with deep expertise and decades of experience in testing, assurance, analytics and security, serving developers, service providers, and enterprise networks.

We help bring clarity to increasingly complex technological and business challenges.

Spirent's customers have made a promise to their customers to deliver superior performance. Spirent assures that those promises are fulfilled.

For more information, visit: [www.spirent.com](http://www.spirent.com)

The standard also includes a spurious emissions test to ensure a device isn't radiating on unnecessary frequency bands, and demands tests are conducted at certain temperature and humidity levels - so a temperature and humidity sensor are also required.

To do all this from scratch will take a significant amount of time and potentially require the help of external specialists - which could tie up valuable engineering time and increase time to market.

## The Spirent Solution

The test set consists of 2 test scenarios (Low GNSS band and High GNSS band). Required signal levels are set per ETSI standard requirement. These scenarios can be re-used for testing various constellations/frequencies.

In order to run the scenarios, one of Spirent's GNSS simulators (GSS6300M, GSS7000 or GSS9000), interference generators (GSS7765 or GSS7725), and software packages (SimGEN®, SimREPLAYplus™ or SimTEST) is required. Also, a spectrum analyser (30MHz - 8.3GHz) is necessary for spurious emissions tests. The tests reference "normal" environmental conditions so temperature and humidity in the test area also need to be monitored to ensure they are in the specified normal range at the time of the test.

For more details on test scenarios, or to learn about Spirent's Test Audit service, please contact a Spirent representative.

## RED Compliance Made Easy with Spirent

AMERICAS 1-800-SPIRENT  
+1-800-774-7368  
[sales@spirent.com](mailto:sales@spirent.com)

US Government & Defense  
[info@spirentfederal.com](mailto:info@spirentfederal.com)  
[spirentfederal.com](http://spirentfederal.com)

EUROPE AND THE MIDDLE EAST  
+44 (0) 1293 767979  
[emeainfo@spirent.com](mailto:emeainfo@spirent.com)

ASIA AND THE PACIFIC  
+86-10-8518-2539  
[salesasia@spirent.com](mailto:salesasia@spirent.com)

