

U3851A: RF Microwave Circuit Design, Simulation and Measurement Courseware, 5G NR n3

RF circuit design, with elements of 5G New Radio n3

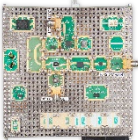



RF and microwave engineering covers the physical layer of wireless communication, and is incorporated into almost everything that transmits or receives a radio wave, such as mobile phones, radios and WLAN. Emerging trends such as 5G and microwave sensing imaging drive rapid innovations in the technology landscape and imposes new requirements on RF components, resulting in design challenges such as increased integration and exponential demands on performance. The increasing complexity brought about by these trends means many companies will need additional expertise to execute the technology in the design of their devices.

To prepare industry-ready students, Keysight's RF Microwave Teaching Solution focuses on the complete RF circuit design flow, from design specifications and simulation to prototype building and validation, operating on the 5G New Radio Band n3 downlink frequency. This gives students a solid foundation in RF microwave fundamentals and paves the way for them to specialize in more advanced wireless applications in areas such as 5G and IoT.

Designed to work hand-in-hand with industry-standard test and measurement instruments and electronic design automation (EDA) software, the RF Microwave Teaching Solution provides students the engineering essentials, practical skills and real-world application knowledge that will make them highly sought after by the industry.

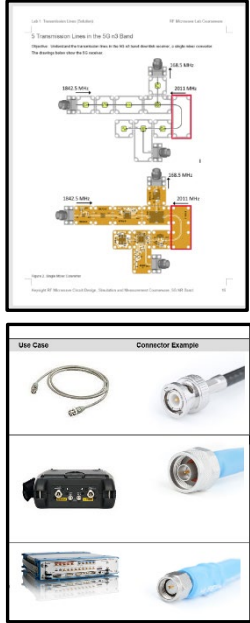
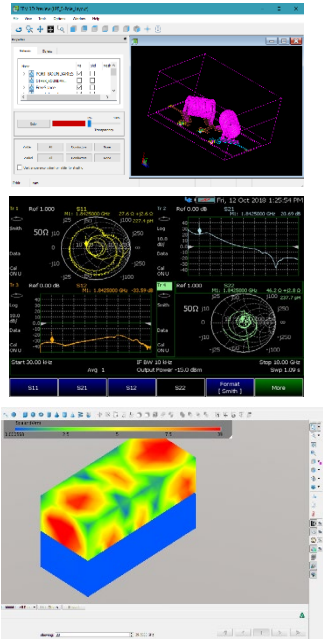
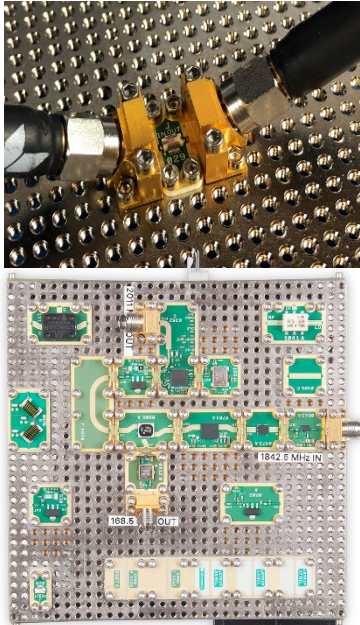
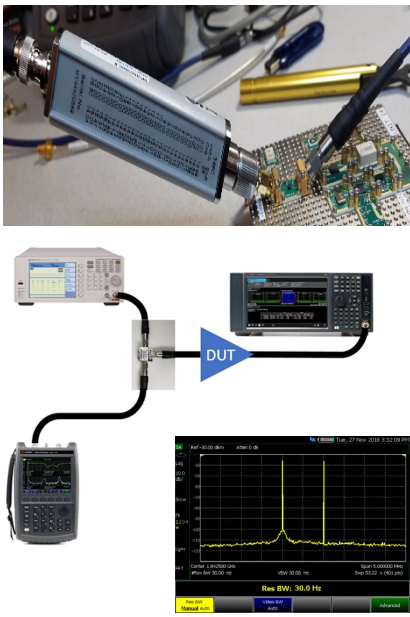
Courseware Contents

- Training Kit
 - RF education hardware kit (1)
 - Kit controller (2)
 - RF adapters, splitter
 - Cables (RF, power, LAN, BNC)
 - Power adapter and carry case
- Editable lab sheets and model answers (3)
 - Problem-based assignments
- Covers 50 hours of lab sessions

RF Microwave Teaching Solution	
Lab Courseware	Reference Lab Solutions
<p>List of Lab Sheets:</p> <ul style="list-style-type: none"> • Lab 1 - Transmission Lines • Lab 2 - Filter • Lab 3 - Low Noise Amplifiers • Lab 4 - Driver and Power Amplifiers • Lab 5 - Oscillator and Synthesizers • Lab 6 - Mixers • Lab 7 - 5G Receiver Design, Simulation and Measurement 	<p>Required Keysight Instruments:</p> <ul style="list-style-type: none"> • Signal Generator: N9310A • Spectrum Analyzer: N9000B CXA Analyzer • Network Analyzer: N9917A FieldFox VNA • Noise Source: 346B Noise Source • Power Supply: E36312A • Oscilloscope: DSOX1102G • Calibration Kit: 85521A <p>Required Design and Automation Software:</p> <ul style="list-style-type: none"> • PathWave ADS, Genesys, EMPro and SystemVue • FieldFox Data Link software <p>Optional Software:</p> <ul style="list-style-type: none"> • PathWave BenchVue
<p>(1) </p> <p>(2) </p> <p>(3) </p>	

More Information: www.keysight.com/find/rfuw

Learning outcomes: Industrial experience

Design Specifications	Design and Simulation	Prototype Building	Design Verification
 <p>The image shows two parts: a schematic diagram of a transmission line with various components and labels, and a 'Use Case Connector Example' section displaying several different types of connectors and cables.</p>	 <p>The image displays screenshots from simulation software. It includes a 3D model of a component, a graph showing frequency response, and a 3D heatmap representing electromagnetic field distribution.</p>	 <p>The image shows a physical prototype of an RF receiver system. It consists of a metal PCB populated with various components, including a large yellow component and several smaller green and silver components.</p>	 <p>The image illustrates the design verification process. A Device Under Test (DUT) is connected to various Keysight instruments, including a spectrum analyzer and a network analyzer, to evaluate its performance.</p>
<p>Learn and understand the fundamentals of the transmission specification, which is crucial for component design</p>	<p>Design and simulate using industrial design and automation software such as PathWave ADS, PathWave Genesys, PathWave EMPro, PathWave SystemVue and FieldFox Data Link software</p>	<p>Experience the prototype building of RF receiver system at the 5G New Radio band</p>	<p>Evaluate system design and validate the 5G receiver design module with Keysight instruments</p>

For more information on Keysight Technologies' products, applications or services, please contact your local Keysight office. The complete list is available at:

www.keysight.com/find/contactus

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