

# [Automotive Radar]

## 24, 76, and 79 GHz Band Tx/Rx and Components Evaluation

For design verification of millimeter wave collision avoidance radar with high resolution and wide viewing angle



79 GHz band automotive radar design verification solution  
(N9041B UXA Signal Analyzer for up to 110 GHz)

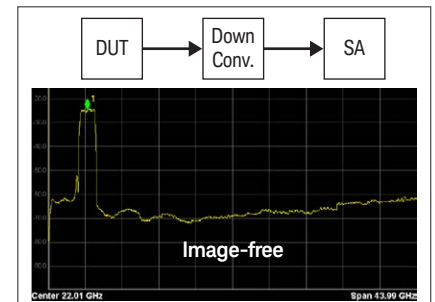
“Want to grasp spurious signals and spectrum and prepare for specification tests?”

“Want to improve the FM linearity directly linked to the target discriminating power?”

“Want to verify the characteristics of a millimeter wave device with high accuracy to solve the root of problems?”

### Realizes image-free spectrum analysis

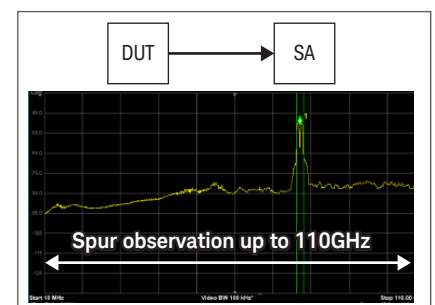
Images captured from an harmonic mixer overlaps the signals being observed. To avoid this, Keysight's solution offers both narrowband and wideband downconverters. They enable in-band measurement such as OBW even with a spectrum analyzer that does not cover millimeter wave bands.



### Industry's first

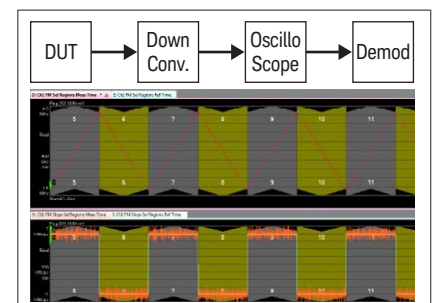
#### Checks for up to 110 GHz spurious signals with one sweep

The upper limit frequency of the N9041B UXA signal analyzer has been extended to 110 GHz. It also achieves, low noise of -150 dBm/Hz over the entire band. This allows you to check for unnecessary radiation of 3 Hz to 110 GHz without inserting anything between the analyzer and the device under test. It also enables in-band measurement without an external downconverter.



#### Measurement of FM linearity in 4 GHz band

By combining an oscilloscope, which simulates a low-noise level similar to that of a signal analyzer, and modulation analysis software, modulation analysis (FM linearity) of a wideband FMCW signal can be performed with high accuracy and in a simple manner. The device automatically detects frequency slopes and analyzes important parameters such as frequency error during transition. It provides information such as histogram display, useful tips necessary for design improvement.





### Up to 110 GHz UXA Signal Analyzer

The new option 5CX lets you to check for spurious signals from 3 Hz to 110 GHz at a time. Keysight's new technology has achieved -150 dBm/Hz DANL over the entire band. It doesn't miss even small signals.



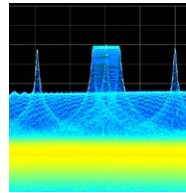
### Modulation analysis of 4 GHz band made easy

Wideband FM analysis is made possible by the S series oscilloscope with a 10-bit A/D converter achieving the industry's lowest level of noise and the 89601B modulation analysis software.



### Two types of downconverters to suit the application

We have prepared downconverters for conventional narrowband radars (up to 2.5 GHz band) and for future broadband radars (up to 8 GHz band). They can be used flexibly without limitation on the measuring instrument to be combined.



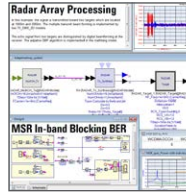
### Real-time spectrum analysis

UXA enables real-time analysis up to 500 MHz band. It doesn't miss any of tiny unnecessary signals hidden under the radar signals.



### Broadband FM output for receiving system evaluation

Are you looking for a signal source to replace an internal oscillator for research and development of proprietary modulation, signal processing methods, etc.? Keysight offers solutions for generation of various signals, including FMCW in the 4 GHz super-band.



### Linkage between system level design and measurement

SG outputs a signal generated by ESL design tool SystemVue. The signal acquired by SA is returned to SystemVue and compared with the waveform at the design stage. This makes it possible to study the influence of parts on the system.



### Oscillator phase noise and FM linearity

Our signal source analyzer is specially made for the analysis of signal sources such as VOC and PLL. It allows characteristics verification even of an unstable oscillator that cannot be measured with a typical SA. Contact us for any problems you may have.



### Evaluation of characteristics of S-parameter, NF, etc. in millimeter wave

Multiple methods and environments are available for obtaining millimeter wave characteristics of a mixer, amplifier, and other multi-port differential devices. Let us know how we can meet your needs.

## Configuration

Model Number	Description
N9041B	UXA-Series Signal Analyzer
N9041B-5CX	Frequency range: 3 Hz to 110 GHz
N9041B-CRW	Wideband IF output
DSOS804A	Infiniium S-Series Oscilloscopes
DSOS000-200	200 Mpts/ch memory
PS-X30-W10117A	Ultra-wideband block downconverter, 8 GHz band
M1971E	Waveguide harmonic mixer (smart mixer)
M1971E-001	Frequency range: 60 to 90 GHz, 2.5 GHz band
89601B	VSA (modulation analysis) software
89601B-200	Basic signal analysis
89601B-BHP	FMCW modulation analysis

Contact / Support:

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](http://www.keysight.com/find/contactus)