

ROHDE & SCHWARZ

Make ideas real



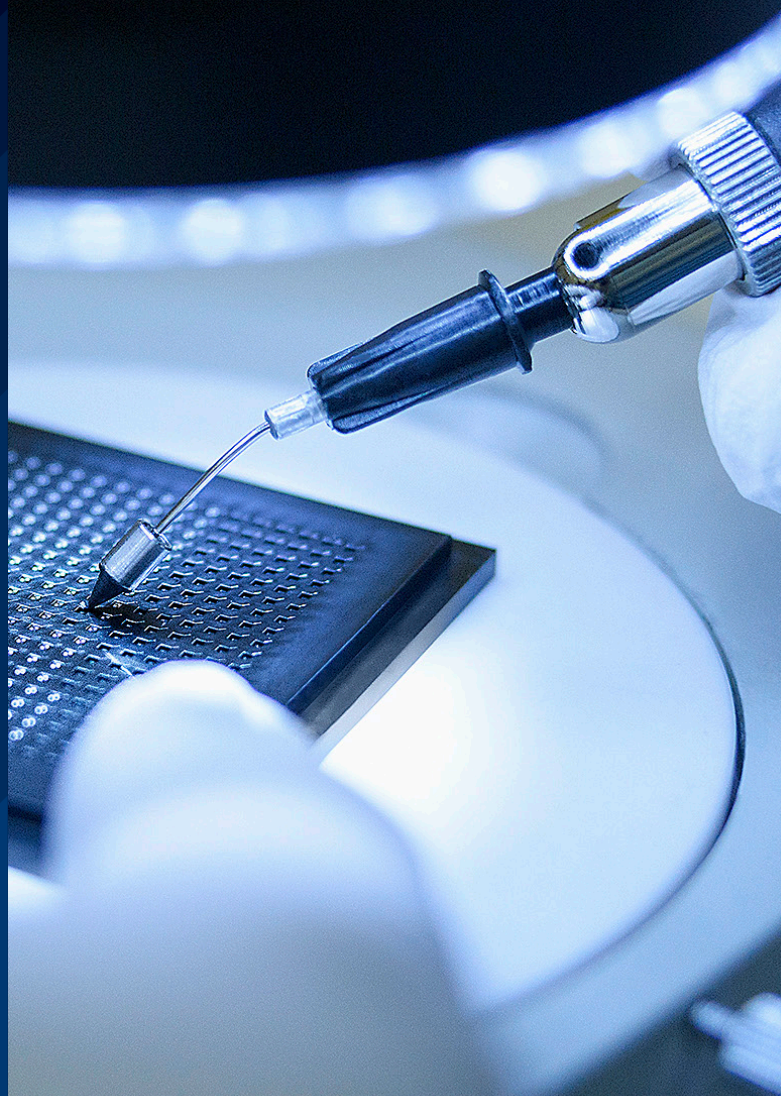
Case Study

MIXCOMM

Addressing new challenges in mmWave device characterization and validation through unique process

CHALLENGE

- ▶ Finding a T&M specialist for close collaboration with a small, dynamic company
- ▶ Finding T&M equipment to match very fast DUT switching speeds
- ▶ Meeting the requirement for easy-to-use 5G personalities in vector signal generators and analyzers



At a glance

MixComm is a fabless semiconductor company developing mmWave antennas to Algorithms™ solutions using a CMOS process called RF-SOI (Radio Frequency Silicon on Insulator). The unique RF-SOI based architecture enables a one-of-a-kind combination of breakthrough output power, efficiency and integration. MixComm's frontend modules are particularly useful for 5G mmWave infrastructure and user equipment applications.

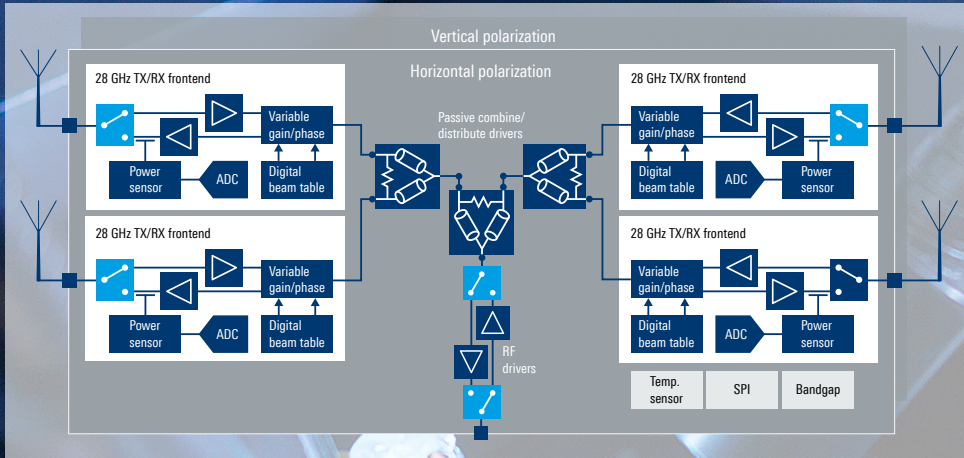
To create appropriate solutions, MixComm needs rapid, complete device characterization and validation to address challenges such as fast beam switching. Beam switching speed tests must match the channel changes in the MixComm device. Consequently, precise signal generator and signal analyzer synchronization matching the DUT switching is required.

MixComm needed T&M equipment allowing exact time synchronization between signal generator and analyzer equipment. To address this requirement, Rohde & Schwarz and MixComm collaborated to develop a special approach. On-site discussions between Rohde & Schwarz local application specialists and MixComm engineers led to the creation of a working test solution.

For further information visit
www.rohde-schwarz.com



MixComm's SUMMIT 2629™ 28 GHz beamforming frontend IC



Discover the details

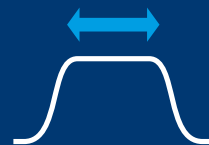
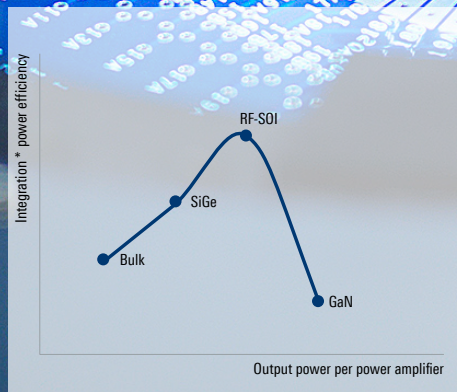
CMOS technology is affordable, but has limited RF performance. RF-SOI offers a unique advantage with transistors, substrate and backend engineered for improved RF performance. In addition, RF-SOI has digital integration not possible in III-V processes such as GaN. For these reasons, RF-SOI is ideal for highly integrated mmWave products.

The unique MixComm architecture builds on the advantages of RF-SOI to enable higher output power while offering exceptional efficiency and integration. This breakthrough solution requires dedicated RF test equipment. Choosing Rohde&Schwarz to verify and ensure the capabilities of MixComm's frontends was a logical step. For Rohde&Schwarz, the opportunity to work with a new technology leader with novel solutions encouraged a close collaboration.

MIXCOMM mmWAVE RF-SOI

Application fields

- ▶ 5G infrastructure
- ▶ 5G user equipment
- ▶ Satellite communications



Fully integrated
2 GHz bandwidth
for multi-carrier
measurements



Mastering complex
5G scenarios



Cooperative
solution finding



R&S®SMW200A vector signal generator and R&S®FSW signal and spectrum analyzer from Rohde & Schwarz

Our solution

Rohde & Schwarz helped MixComm achieve its goal by providing rapid and full characterization and validation of their devices. The deployed T&M setup consisted of an R&S®SMW200A vector signal generator and an R&S®FSW signal and spectrum analyzer for 5G FR2 applications. The cooperation between Rohde & Schwarz and MixComm goes beyond mere customer-supplier responsibility. The companies developed a method to characterize the switching speed from one beam direction to another, an important figure of merit showing the capability to adapt to a fast changing channel with a fast changing main lobe as seen in 5G.

The benefit

MixComm depends upon the class-leading T&M equipment from Rohde & Schwarz to help characterize MixComm's mmWave frontend solutions at high speed. An additional benefit is the ability to remotely access and control the Rohde & Schwarz equipment, as this provides the MixComm team with high flexibility to deploy the equipment onsite and offsite. For MixComm, exceptional professional know-how and local support, irrespective of the company's size, were the initial, decisive reasons to enter into a cooperation with Rohde & Schwarz. Another reason was the unparalleled 2 GHz internal modulation and demodulation bandwidth offered by the R&S®SMW200A and R&S®FSW, meeting every technical requirement MixComm had. MixComm's products are initially being deployed in 5G mmWave infrastructure applications. The MixComm Summit 2629™ won the "Broadband Innovation of the Year" award in the 2020 Mobile Breakthrough Awards program. With the support of Rohde & Schwarz, MixComm's award-winning advanced technology is driving mmWave performance to reach its potential for 5G and other rapidly growing applications.

"Rohde & Schwarz solutions offer the raw performance that enables evaluation of the most stringent test cases without limitations arising from the instrumentation, while offering the flexibility to run a wide range of tests across a range of performance points with minimal reconfiguration."

Dr. Harish Krishnaswamy, Co-Founder and CTO of MixComm



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