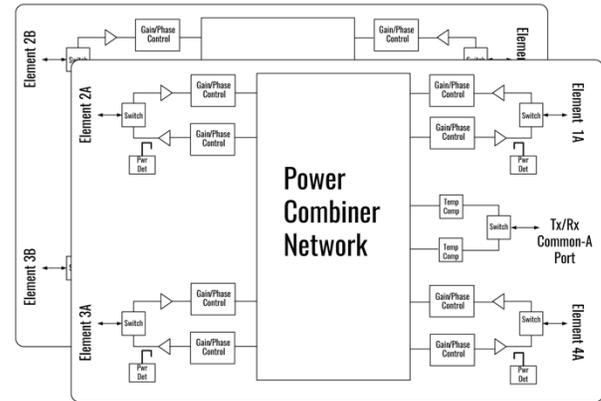


Product Features

- 37 to 40 GHz operation (3GPP bands n257 and n261)
- Supports 4 dual pol radiating elements
- Tx/Rx half duplex operation
- Supports wider signal bandwidths
- 6-bit phase control
- 5-bit gain control
- Fast beam steering
- Telemetry reporting
- Zero-Cal® phase/gain calibration free
- WLCSP package
- 1.8V supply operation



New Updates

- Supports dual polarization architectures and higher signal bandwidths
- Higher linear power and lower NF than Gen-2 ICs
- High resolution power/temp telemetry
- Automatic temperature compensation
- Zero-Cal® phase/gain calibration free
- Kinetic Green™ 3D beam steering
- 3GPP compliant Fast Beam Steering™

Related Parts

- See [AWMF-0161](#) for related IF up/down converter
- See [AWMF-0165](#) for n258 and [AWMF-0200](#) for n257/261 beamformer ICs.

Description

The AWMF-0159 is a highly integrated silicon quad-core dual pol IC intended for 5G phased array applications. The IC has eight antenna ports that can be connected to four dual-pol antenna elements to support both horizontal and vertical polarizations in a phased array. Two common ports, one for each polarization, enable simultaneous processing of both polarizations. The device includes all requisite beam steering controls for phase and gain control and operates in half duplex fashion to enable a single antenna to support both Tx and Rx operation. The IC is packaged in a WLCSP (wafer level chip scale package) for easy flip chip installation in planar phased array antennas.

The Gen-3 IC family provides extensive functionality that simplifies the design of active antenna arrays. The scalable architecture underpinning the IC family supports everything from mmW 5G macro cells to small cells to customer premises equipment (CPE).



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Document: AWMF-0159-DSB
 Rev. 3

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AWMF-0159 Developer Kit

The developer kits (AWMF-0159-DK, AWMF-0159-DL) include all hardware and software required to interface to the AWMF-0159. The kits enable full evaluation and RF testing of the developer kit with easily defined user interfaces. The test board has been carefully designed to easily replicate the performance of the device and to provide the necessary channel to channel isolation. Calibration data is included to enable the removal of test board line losses. The SPI control is supported through a high-speed cable, interposer board, and USB interface module. Driver software is supplied to provide control from a PC. DC power is supplied to the test board through a separate cable assembly. A full set of measured data is included to provide reference performance for each Developer Kit. Evaluation of the AWMF-0200 with the Developer Kits will significantly shorten the time to become familiar with the operation and performance of the product, thereby reducing system development time and cost.

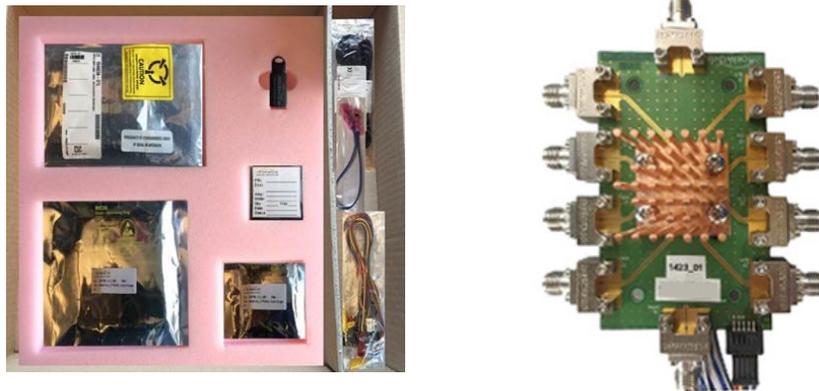


Figure 1: AWMF-0159 DK Contents and Evaluation Board

Developer Kit Contents

- 1 x Test board with 10 x RF connectors, 1 x DC connector, and 1 x SPI connector
- 1 x DC power cable assembly
- 1 x high speed SPI cable assembly
- 1 x SPI interposer board
- 1 x USB-SPI interface module
- 25 extra ICs (AWMF-0159-DK only)
- Gerber files and engineering support (AWMF-0159-DK only)
- SPI driver software
- Control software with User Guide, full test results, and board calibration
- 1 x Software Installation and Control Software User's Guide

Ordering Guide

Model	Package	MSL Rating	Package Description	Package Option	Package Marking
AWMF-0159	WLCSP	1	WLCSP		AWMF-0159 ZZZZZZZ YYWWGHIJ KLMNOP_XV
AWMF-0159-DK		N/A	Developer's Kit for evaluation (includes 25 additional ICs)		
AWMF-0159-DL		N/A	Developer's Kit Lite (without additional ICs)		

