

SONOS

Antenna Test Report

June 14, 2026

FCC ID:	SBVRM059
IC:	5373A-RM059
Model:	S59
Product Description:	Radio 0: 802.11 a/b/g/n/ac/ax 2x2 Client Device with BT and BLE Radio 1: 802.11 a/b/g/n/ac/ax 2x2 Master Device

1. Measurement Method

Antenna Measurements in Anechoic Chambers

The influence of atmospheric conditions and surrounding objects are non-ideal for accurate antenna measurements. An anechoic chamber offers a non-reflective, no-echo room for performing the antenna measurements. The anechoic chamber can simulate outer space, which is the most ideal location for antenna measurements. All gain measurements were performed in accordance with IEEE Std. 149 (IEEE Standard Procedures for Antenna Measurements). Losses of any test cables were calibrated out post-measurement. Please refer to Figure 1 as the measurement chamber diagram

1. Perform chamber calibration using reference antennas.
2. Center the EUT in the chamber using the laser alignment system.
3. Connect the antenna micro-coax cable to the mast cable.
4. Capture antenna gain pattern using the automated measurement software.
5. Export the measurement data.
6. De-embed any additional cable losses in the setup (i.e., losses of any test cables that are not present in the actual product assembly).
7. Post-process the measured data to extract the peak gain.

2. Antenna Information

Antenna Name (Cable Color)	Location*	Primary Polarization*	Operating Bands (GHz)	Internal P/N	Description
Ant-1 (Red)	Left, Rear	Vertical	2.4, 5	105-00354	Monopole antenna with Coax Cable (WiFi)
Ant-2 (Blue)	Right, Rear	Vertical	2.4, 5	105-00355	Monopole antenna with Coax Cable (WiFi)
Ant-3 (Black)	Right, Front	Vertical	2.4, 5, 6	105-00357	Monopole antenna with Coax Cable (BT/BLE/WiFi)
Ant-4 (Green)	Left, Front	Vertical	5, 6	105-00356	Monopole antenna with Coax Cable (WiFi)

*: Referenced from when the DUT is placed **upright**

Antenna Gain

S59 WIFI ANTENNA GAINS						
Band	SISO Gain			MIMO Correlated Gain		MIMO Uncorrelated Gain
	Antenna	Lowest Peak (dBi)	Highest Peak (dBi)	Antenna Combination	Highest Peak (dBi)	Highest Peak (dBi)
2.4G 2400-2483 MHz	Ant-1	2.3	2.7	Ant-1 + Ant-2	4.7	1.7
	Ant-2	2.7	3.1			
	Ant-3	2.9	3.7			
	Ant-4					
5G U-NII 1 5150-5250 MHz	Ant-1	3.2	3.4	Ant-1 + Ant-2	6.2	3.2
	Ant-2	4.4	4.6	Ant-3 + Ant-4	5.3	2.3
	Ant-3	3.7	3.8			
	Ant-4	2.5	2.6			
5G U-NII 2A 5250-5350 MHz	Ant-1	3.5	3.5	Ant-1 + Ant-2	6.1	3.1
	Ant-2	4.5	4.5	Ant-3 + Ant-4	5.6	2.7
	Ant-3	4.4	4.4			
	Ant-4	2.7	2.7			
5G U-NII 2C 5470-5725 MHz	Ant-1	2.7	3.4	Ant-1 + Ant-2	5.7	2.8
	Ant-2	4.0	4.3	Ant-3 + Ant-4	6.0	3.3
	Ant-3					
	Ant-4					
5G U-NII 3 5725-5850 MHz	Ant-1	3.8	3.8	Ant-1 + Ant-2	5.6	2.6
	Ant-2	4.0	4.0	Ant-3 + Ant-4	5.2	2.3
	Ant-3					
	Ant-4					
6G U-NII 5 5925-6425 MHz	Ant-1			Ant-3 + Ant-4	5.9	3.0
	Ant-2					
	Ant-3	3.1	4.2			
	Ant-4	1.9	2.9			
6G U-NII 6 6425-6525 MHz	Ant-1			Ant-3 + Ant-4	3.9	1.0
	Ant-2					
	Ant-3	3.0	3.1			
	Ant-4	1.1	1.2			

6G U-NII 7 6525-6875 MHz	Ant-1			Ant-3 + Ant-4	4.2	1.2
	Ant-2					
	Ant-3	2.9	3.0			
	Ant-4	0.8	1.3			
6G U-NII 8 6875-7125 MHz	Ant-1			Ant-3 + Ant-4	3.6	1.4
	Ant-2					
	Ant-3	2.8	3.9			
	Ant-4	0.9	1.2			

S59 BLE ANTENNA GAINS				
Band	Type	Peak (in dBi)	Antenna	Polarization
BT & BLE 2.4G	SISO Lowest Peak Gain	2.9	Ant-3	Vertical
	SISO Highest Peak Gain	3.7	Ant-3	Vertical

1. Antenna Test Setup (tested in Shenzhen ZTX Co.,Ltd. China)

The test setup for the S59 antenna gain measurements is shown below:

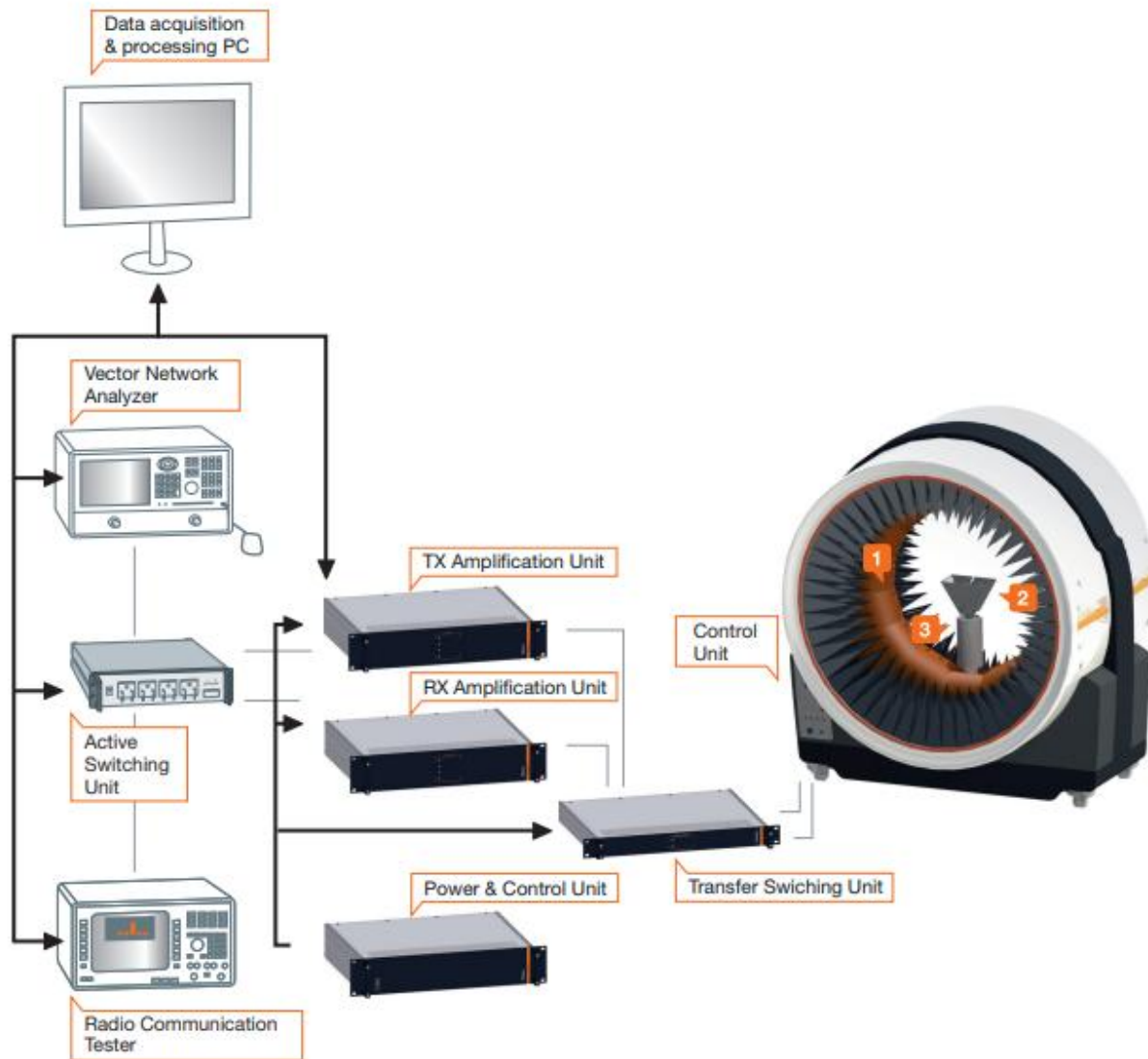


Figure 1 - Measurement Chamber Diagram

2. Test location

Shenzhen ZTX Co.,Ltd., Shenzhen, China.

Peak Gain was measured using the antenna test chamber. The antennas for S59 were measured in the full product assembly.

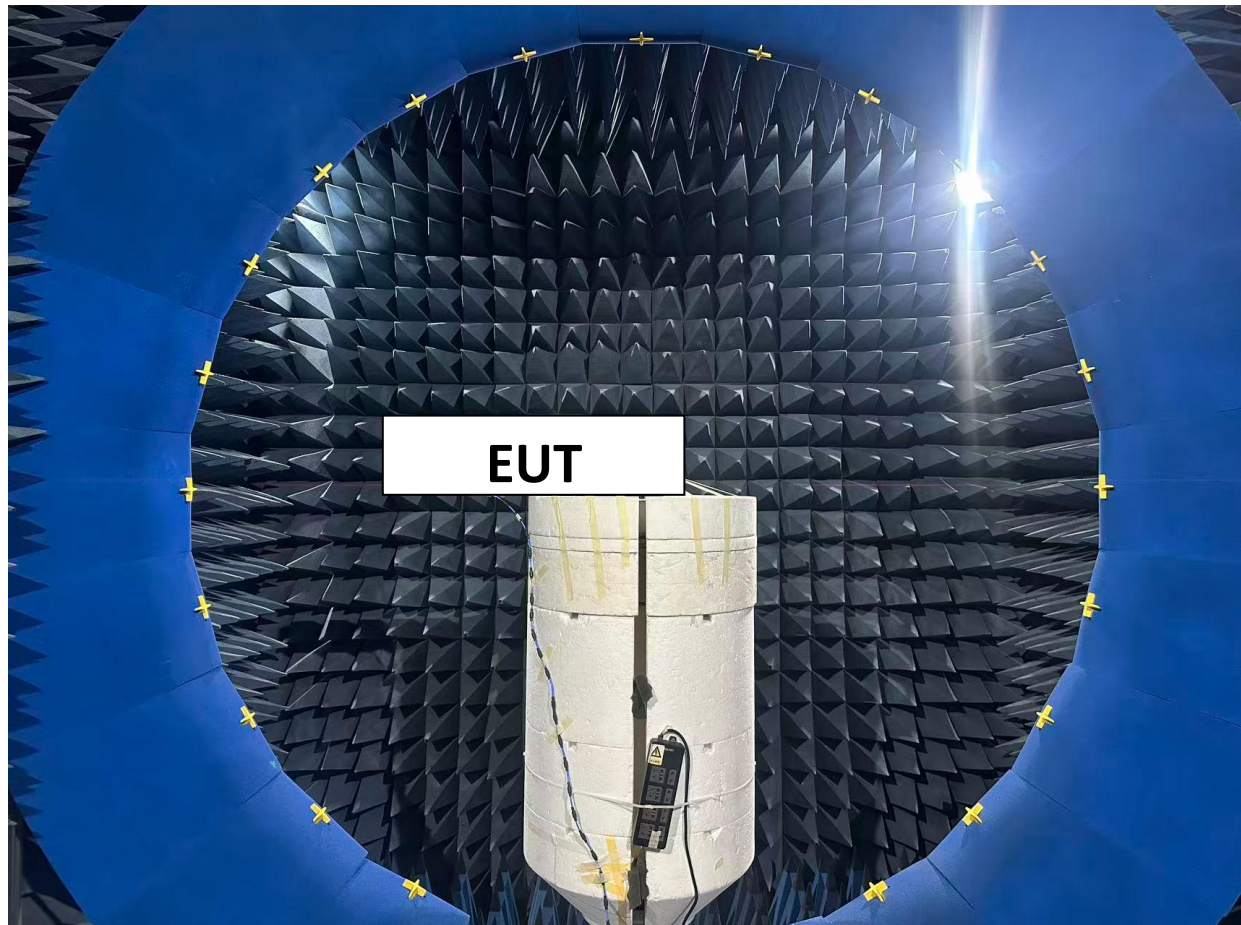


Figure 2 - EUT in the test chamber

Test Method and Environment - Gain Substitution Method in an Anechoic Environment

Resolution – 2° in both azimuth and elevation

Calibration Method - Efficiency Calibration using Standard Reference Dipoles and Standard Reference Horns.

6. Test Equipment list

Description	Manufacturer	ID number
Antenna measurement system	Satimo SG24S, Rohde&Schwarz, Keysight(Agilent)	HKG0534S

Calibrated test equipment:

ZTX-SG24S-HKG0534S

E5071C ENA

MVG Standard Reference Horns

1. SH400

2. SH2000

MVG Standard Reference Dipoles

1. SD900

2. SD2450

3. SD5150

4. SD5650

The chamber is calibrated annually by the vendor.

3. Test Personnel

Test Engineer(s)	Test Date
Zekui Fu (ICT Luxshare)	01/23/2026 to 01/27/2026