

M5AEBT Antenna Datasheet

Date: 2026-01-02

Doc. Version: 1.0

Designer: Simon Wu

Brand	SONOVA
Model	M5AEBT
Type	FPC Antenna
Manufacture	Sonova Consumer Hearing GmbH
Manufacturer's Address	Im Heidkampe 9, 30659 Hannover, Germany

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1. Introduction

1.1 Antenna

Part	Antenna
Location	Earphone
Antenna Type	FPC

1.2 SoC

SoC Mfr. Nr:	Qualcomm QCC-5181
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2. Revision History

Date	Version	Revision History
2025-10-28	1.0	New Release
2026-01-02	2.0	Add Material parameters & update antenna to human ear distance

3. Matching circuit

Matching circuit used:		☒ Yes	☐ No
[20250210 TI] Add RF test point for production test			
Designator	MFR	MFR. Nr:	Description:
L302			N/A
R303		WR04X0R0JT_ERJ2GEY0R00V	0Ω
L303			N/A

4. Test Setup

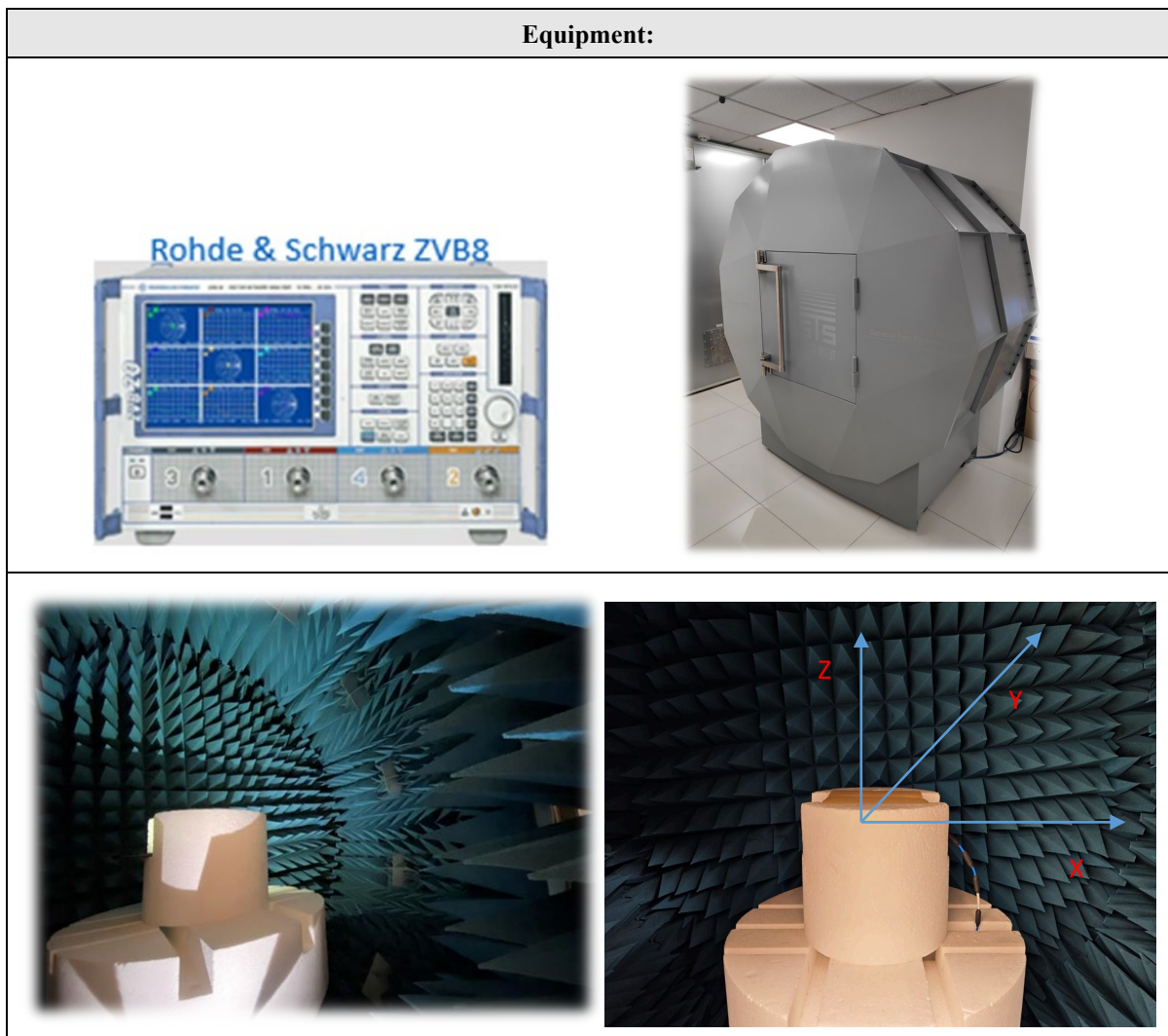
4.1 Test equipment

Tested P/N:	General Test Systems RayZone 1800 Measurement System
Tested Antenna Model:	Vivaldi Antennas
Test Equipment	ZVB 8 Vector Network Analyzer – Rohde&Schwarz
Test Chamber	General Test Systems RayZone 1800
Testers:	Simon Wu
Test Software:	General Test Systems Libra

4.2 Antenna Efficiency Measurement Setup

4.2.1 Test Description

The Antenna Anechoic Chamber Measurement



4.3 Antenna Gain & Radiation Pattern Test Setup

4.3.1 Radiation Pattern Test Description

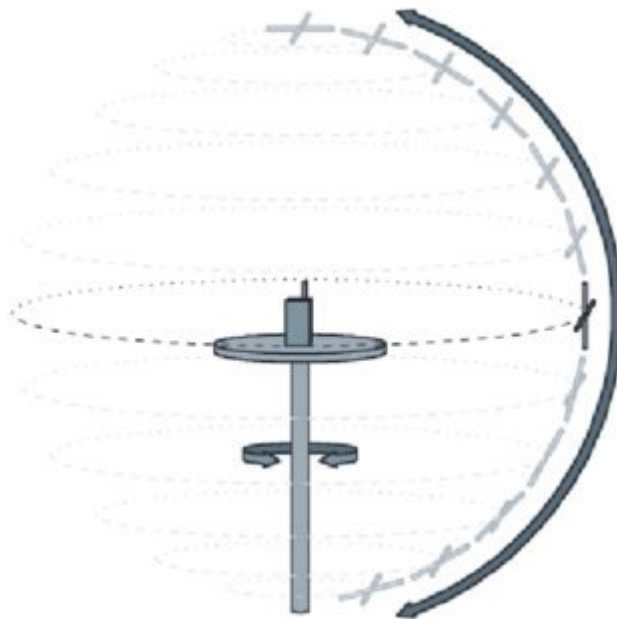
The antenna radiation pattern test is performed to characterize the directional distribution of radiated power from the antenna under test (DUT). This test determines how the antenna radiates energy in space, typically measured in an anechoic chamber to minimize reflections and external interference.

The DUT is mounted on a positioner that allows for rotation in azimuth. A signal generator feeds the antenna, while a receiving antenna—connected to a spectrum analyzer or receiver—captures the radiated signal strength at different angles. Measurements are taken over a full 360-degree sweep (or as required) to generate a complete 2D or 3D radiation pattern.

4.3.2 Gain Test Description

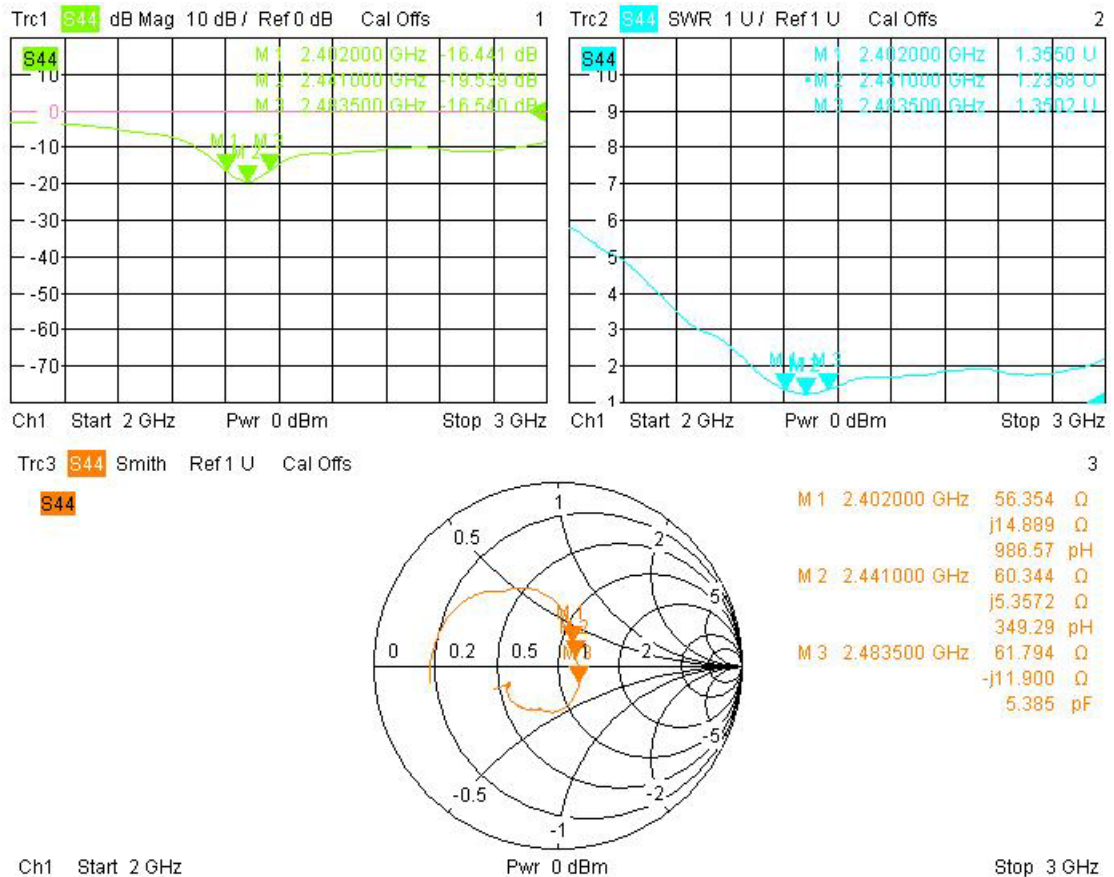
The antenna gain test is conducted to quantify the ability of the DUT to direct input power into a particular direction, compared to a reference antenna (typically an isotropic radiator or a known-gain standard antenna).

The test is usually performed in an anechoic chamber or an open-area test site (OATS). The DUT is fed with a known power level, and the received power at a fixed distance is measured by a calibrated receiving antenna. Alternatively, substitution or comparison methods are used—where the DUT is replaced by a reference antenna, and the difference in received power is used to compute the gain.



5. Antenna Performance

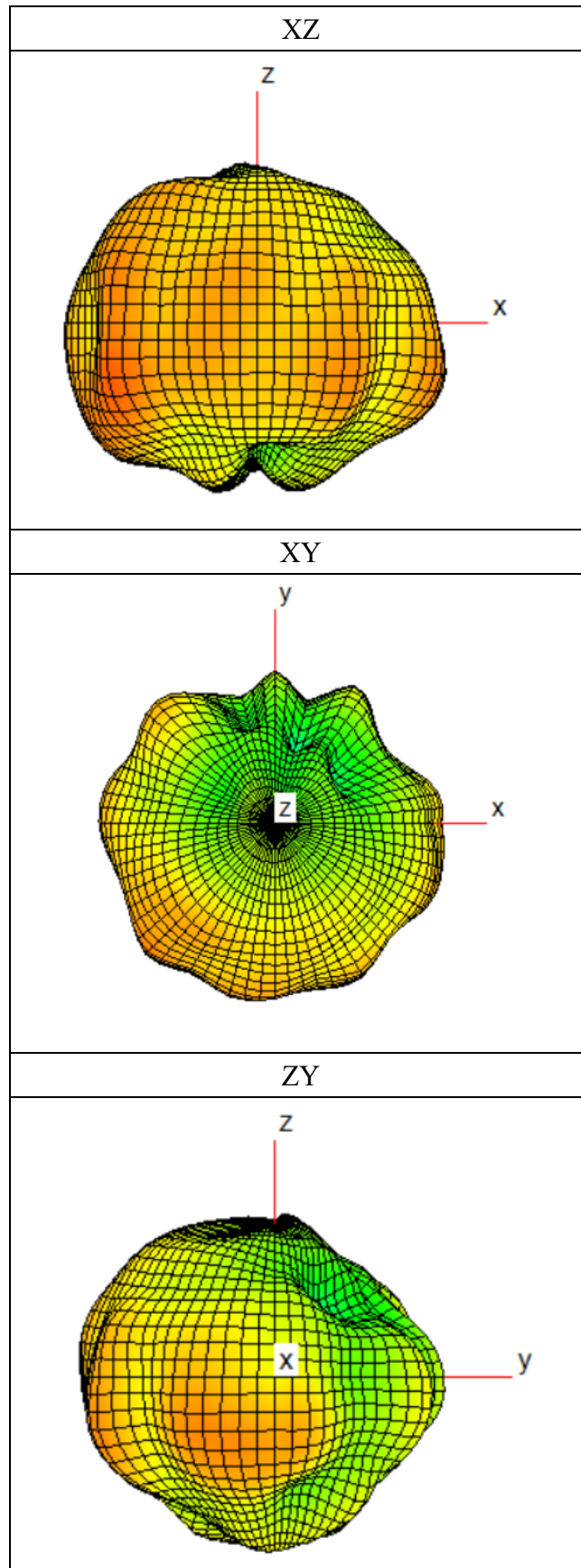
5.1 VSWR, Return Loss, Smith Chart



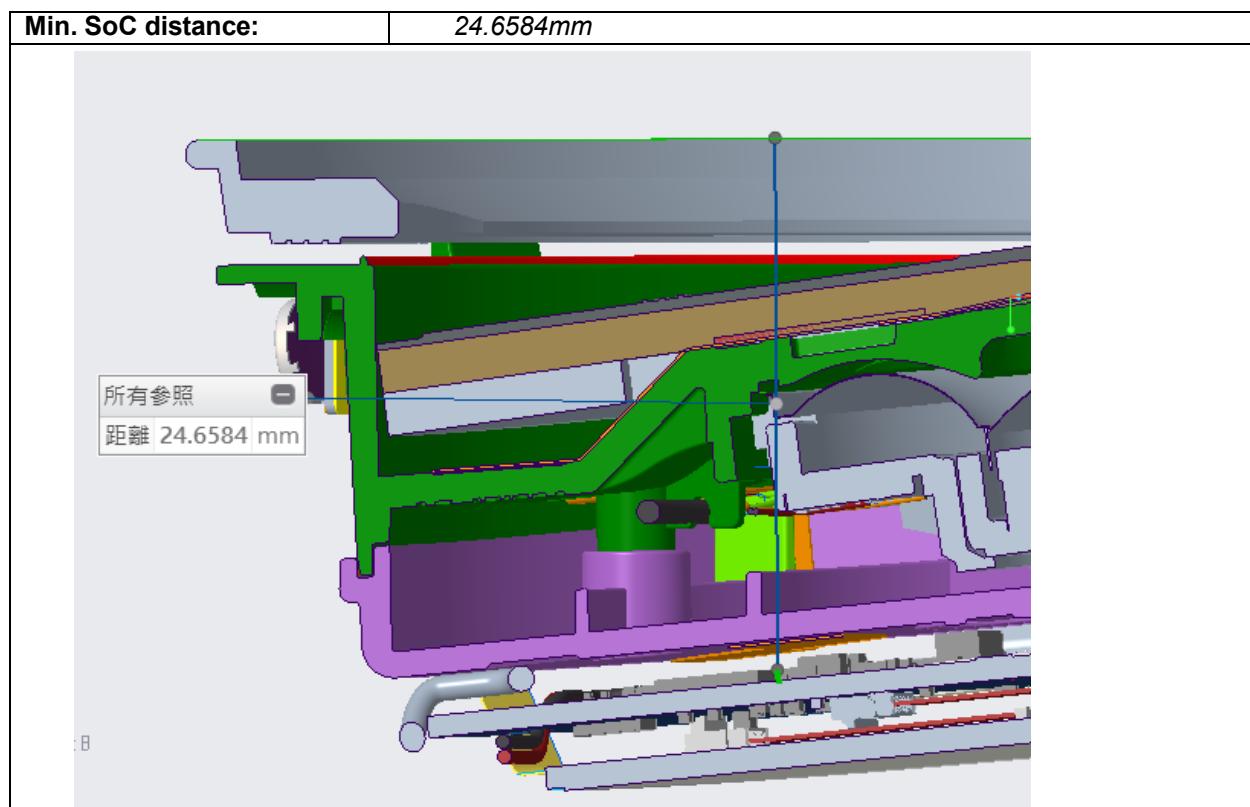
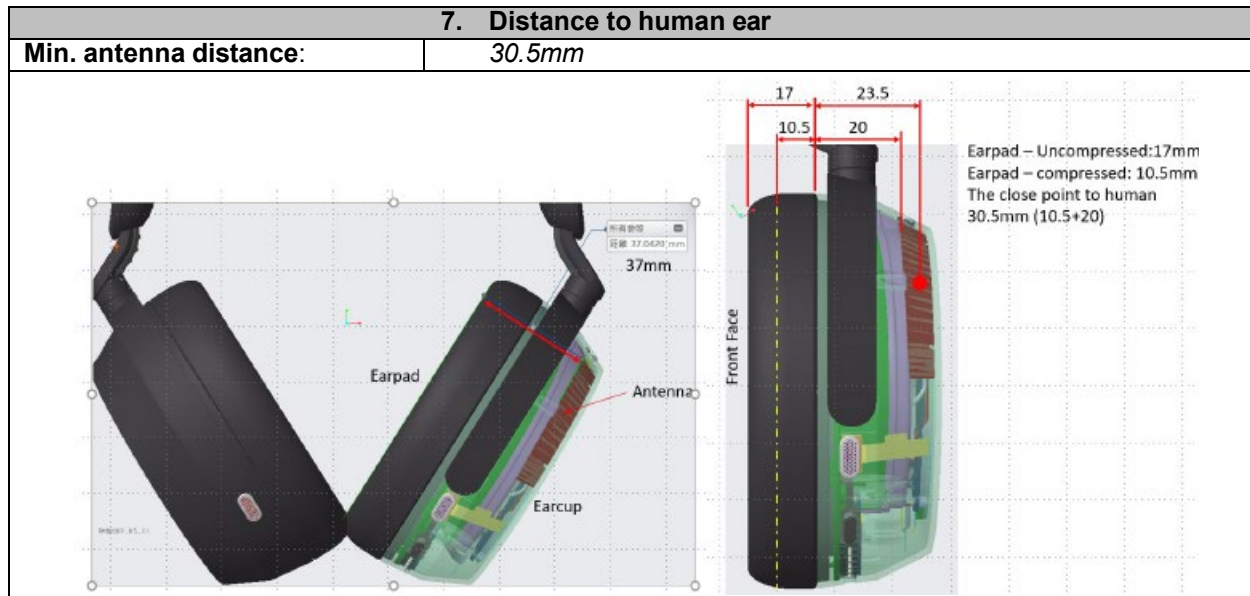
5.2 Antenna Gain and Efficiency

	2.4 GHz	2.441 GHz	2.4835 GHz
Gain (dBi)	1.23	1.64	1.44
Efficiency (%)	40.68	44.65	39.54

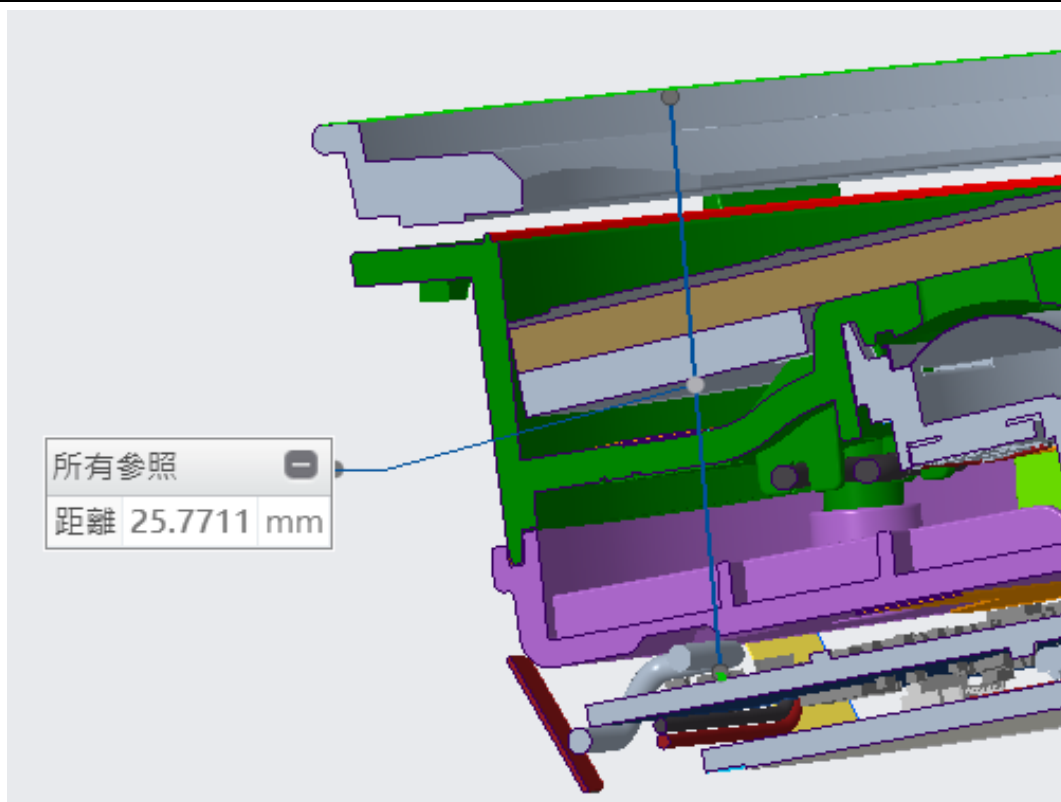
5.3 Antenna Radiation Pattern



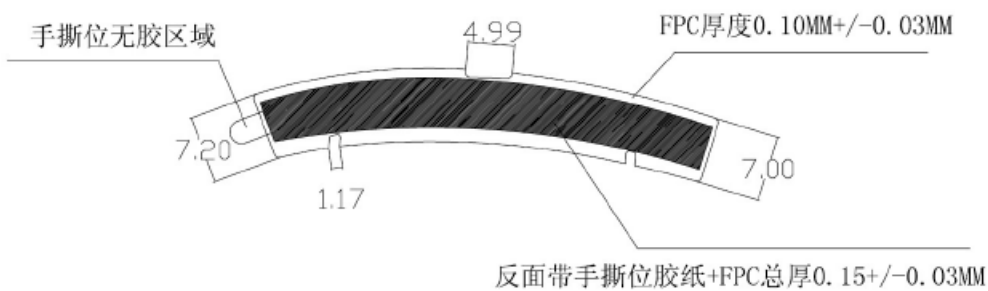
6. Distance to human ear



Min. matching circuit distance: 27.7711mm



7. Material parameters



叠构图

	叠构	叠构名称	厚度 (UM)	规格	厂商	品 名	FPC 板厚公差: (0.10±0.03mm)
C.V.L		PI	12.5	ACS	宝康	FC015SIT1	
		AD	15				
单面板		CU	18	ASL	恒驰	HAREK051014S	
		AD	13				
		PI	25				
		kapton	50			德莎 8853	
		kapton					
		总厚度	134 (um)/0.134 (mm) 胶纸处厚度公差 : (0.15±0.05mm)				