

PRODUCT SPECIFICATIONS

Product type	WLAN PIFA antenna
Customer model	FREESIA
Part number	SS-02-03-003

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Amphenol K.A.E. Co. Ltd.

436-2, Changkok-Ri, Paltan-Myeon, Hwasung-City,

Kyunggi-Do, KOREA 445-913

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Table of contents

1. Specifications	
1.1 Electrical specifications	3
1.2 Mechanical specifications	3
1.3 Packing specifications	3
2. Test methodology	
2.1 Test equipment	4
2.2 Test setup	4
2.2.1 Frequency range	4
2.2.2 VSWR	4
2.2.3 Radiation pattern and gain	5
2.2.4 Mechanical tests	5
3. Performance data	
3.1.1 VSWR and input impedance	6
3.1.2 Radiation pattern and gain	7
1. E1-plane	7
2. E2-plane	7
3. H-plane	8
4. Antenna drawing	9
5. Mechanical tests	10

1. Specifications

1.1 Electrical specifications

Frequency range (GHz)	2.4 ~ 2.4835
VSWR (Max)	3.0
Peak/Average gain (dBi)	0max / -5.0min
Impedance	50 ohms
Polarization	Linear
Radiation pattern	Omni-Directional

1.2 Mechanical specifications

Antenna dimensions (mm)	Length	Width	Height
	25	3	4.45
Weight (include the cable)	TBD		
Operating temperature	-20°C ~ +70°C		

1.3 Packing specifications

	Volume	Material
Inner tray	50	Vinyl pack
Carton box	500	Paper

2. Test methodology

2.1 Test equipment

The equipment for the antenna measurement we used is as follows.

- A. Agilent 8720ES Network Analyzer to measure the VSWR and input impedance.
- B. Three-dimensional anechoic chamber to measure the gain (Standard dipole and horn were used to calibrate the chamber)
- C. Digital caliper to measure the dimensions.
- D. Climatic chamber for mechanical tests.

2.2 Test setup

2.2.1 Frequency Range

2.4GHz ~ 2.4835GHz for WLAN

2.2.2 VSWR

The VSWR characteristics must satisfy the electrical demands.

The VSWR is measured with Agilent 8720ES network analyzer. All the measurements are performed with the customer provided fixture. Figure 1 shows the schematic diagram for measuring VSWR.

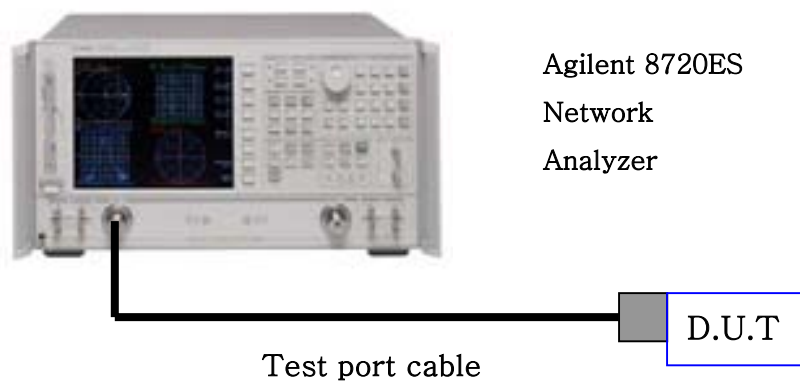


Figure 1. The schematic diagram for measuring VSWR

2.2.3 Radiation pattern and gain

The radiation pattern must have the omni-directional characteristic in both positions. The radiation pattern measurements are performed in the three-dimensional anechoic chamber. The chamber provides less than -30dB reflectivity from 800MHz through 6GHz . The chamber is calibrated using both standard dipole and horn antenna. The gain here is expressed as dBi that standardizes the isotropic antenna. The gain measurements are also performed in the same chamber described previously. Figure 2 shows the schematic diagram for measuring radiation pattern and gain.

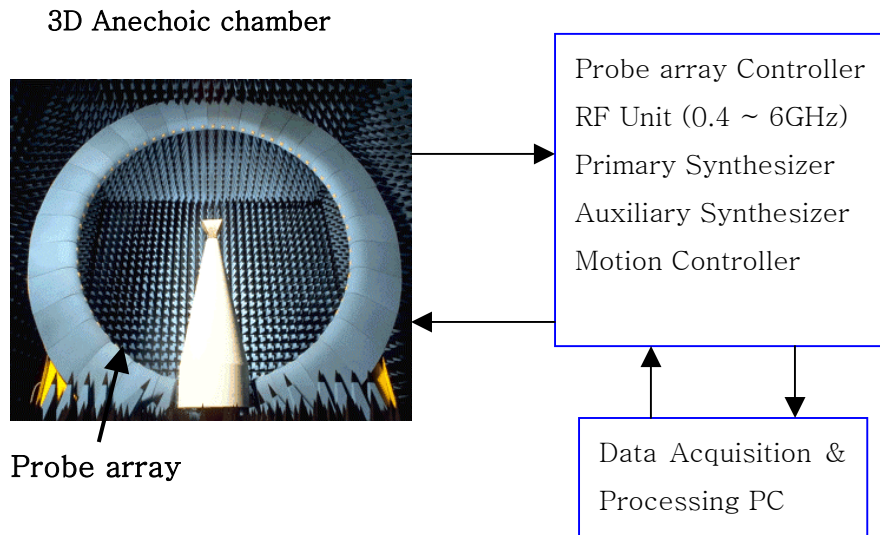


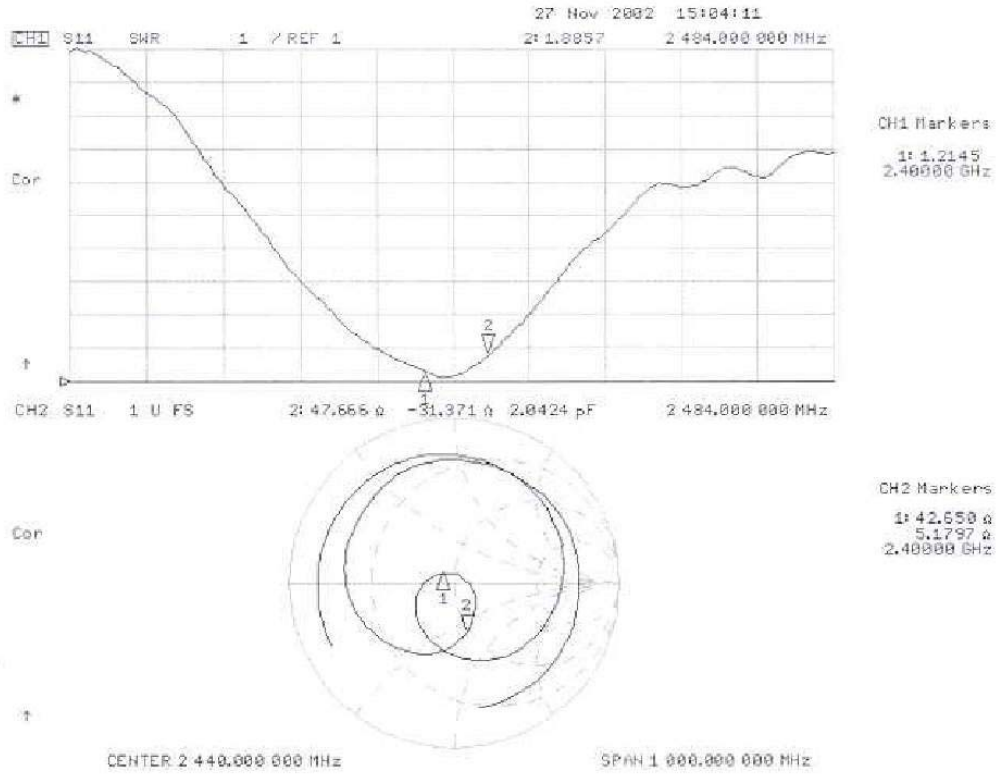
Figure 2. The schematic diagram for measuring radiation pattern and gain

2.2.4 Mechanical test

All mechanical tests are performed in the climatic chamber.

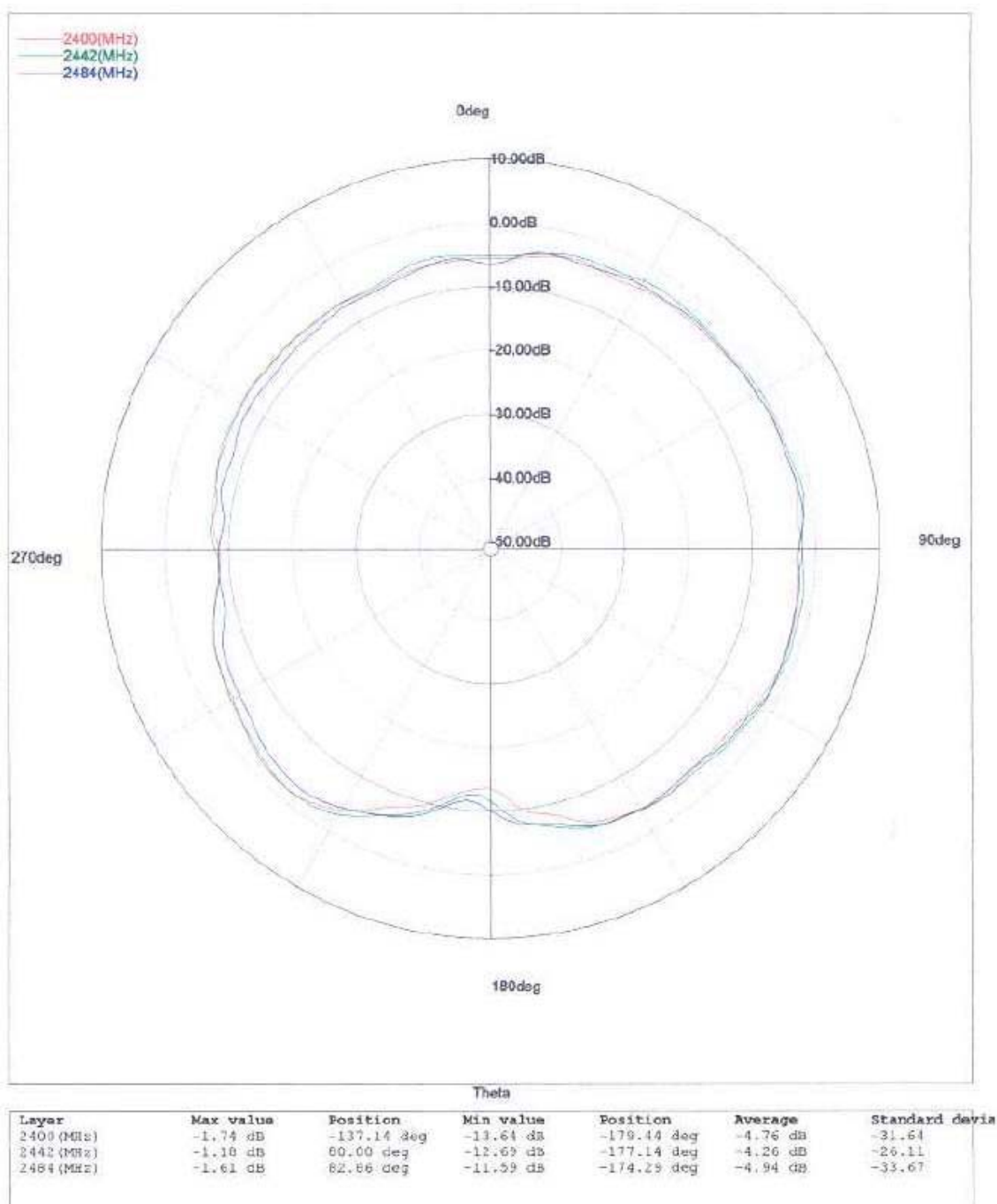
3. Performance Data

3.1.1 VSWR and input impedance

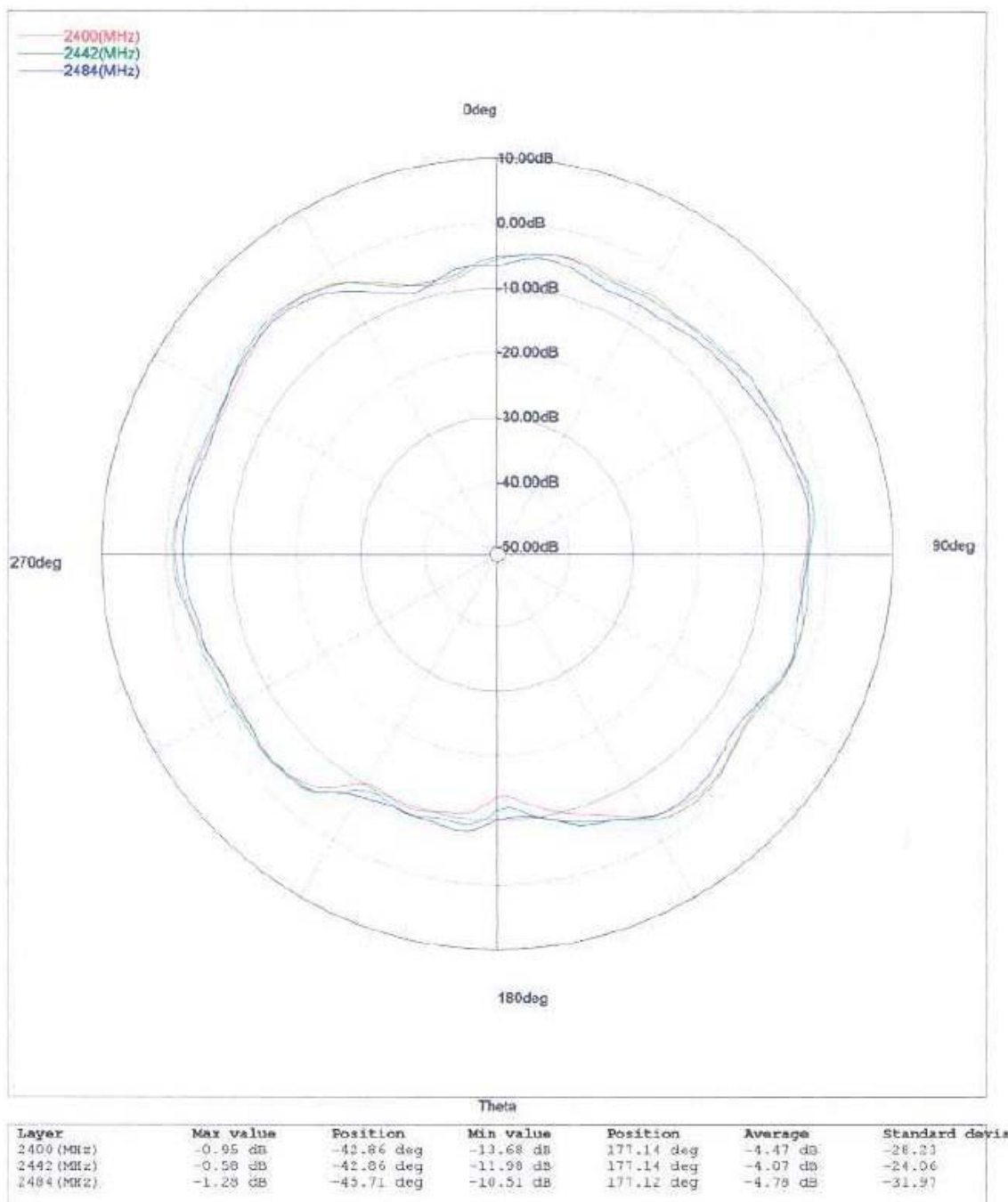


3.1.2 Radiation pattern and gain

1. E1-plane



2. E2-plane



3. H-plane

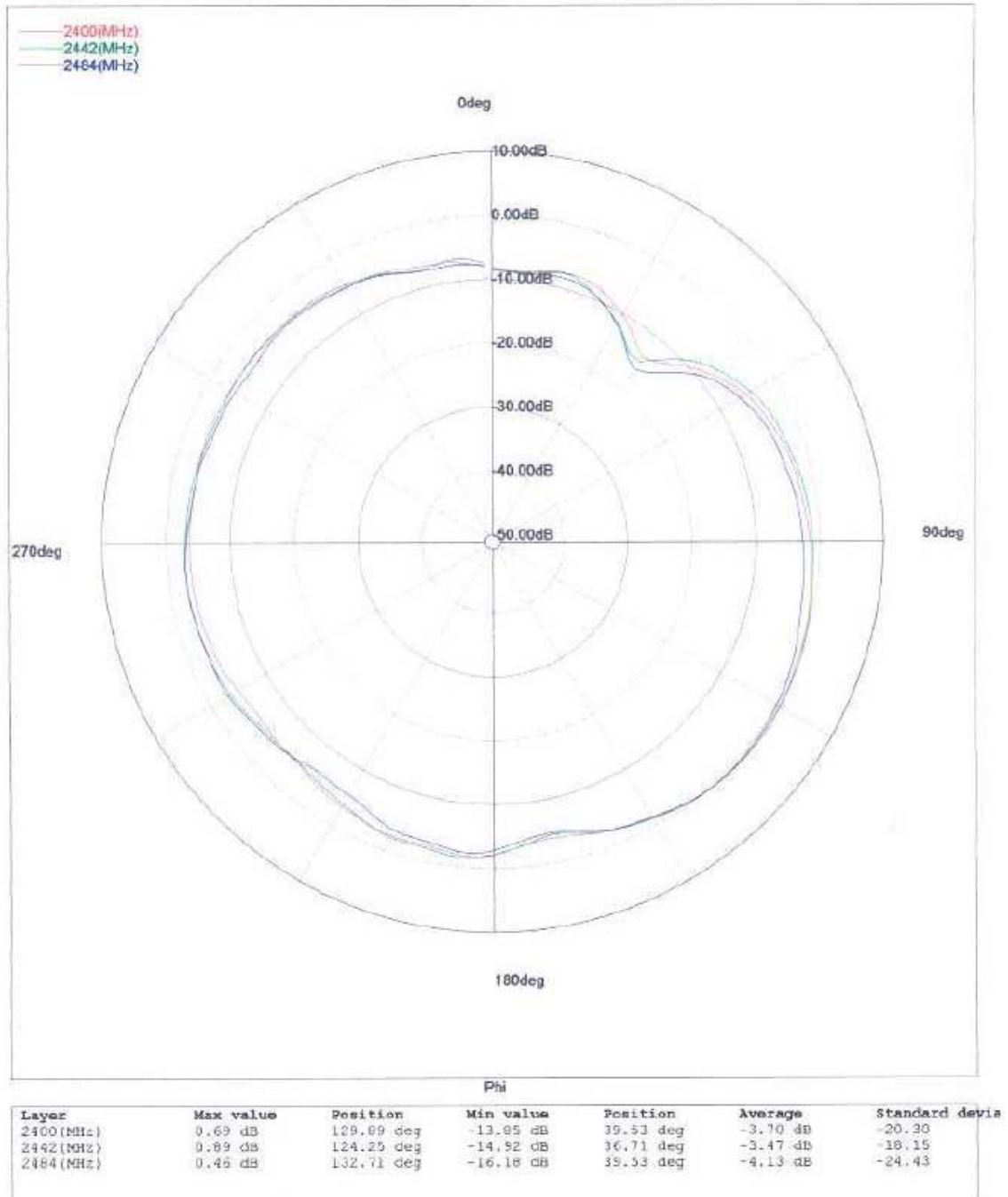


Table 1. Average gain (dBi) summary for main antenna

Frequency (MHz)	E1-plane	E2-plane	H-plane
2400	-4.76	-4.47	-3.70
2442	-4.26	-4.07	-3.47
2484	-4.94	-4.78	-4.13

5. Mechanical tests

Item	Specifications	Conditions
Temperature cycle	No damage or cracks	Temperature (time): -40°C(40min) → 5 to 35°C(5min) → +90°C(30min) → 5 to 35°C(5min)
Salt spray	No excessive corrosion	48 hours continuous exposure to 5% salt water
Humidity resistance	No damage or cracks	Temperature of 40°C, humidity of 95%, let stand of 96 hours