

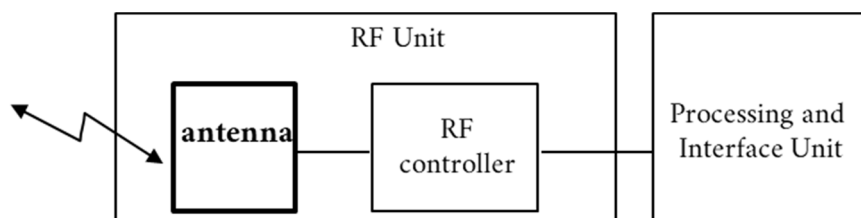
Antenna Under Test (AUT) Report for SWR-A001

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1. Overview

This document is reporting the result of measuring characteristics of the antenna of SWR-A001.



Figurer 1. Block diagram of the radar

2. Specification of Antenna

Table 1 shows antenna specifications.

Table 1. Antenna specifications

No	ITEM	DESCRIPTION
1	Type	Patch antenna on PCB
2	Frequency range	61 to 61.5GHz
3	Polarization	Vertical
4	Aperture area	2.0 x 10.9 mm

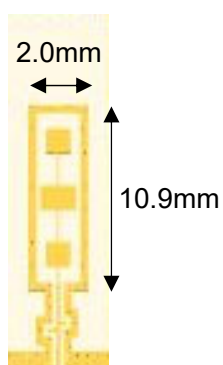


Figure 2. Antenna appearance

3. Measurement of the antenna

The measurement was operated as follows:

(1) Test date

November 15, 2022

(2) Location

Sumitomo Electric Industries, Ltd. 1-1-3, Konohana-ku, Osaka, 554-0024, Japan

(3) Test personnel

Yusuke Yahata, Junpei Nagareda, Kiyonobu Harada

(4) Measuring equipment

Table2. Measuring equipment

No	Description	Manufacturer	Model	Serial No.
1	Vector Network Analyzer	Keysight	N5225B	MY58422090
2	Millimeter-wave Converter	Keysight	N5262AW12	US52250014 US55250015
3	Horn Antenna	MI-WAVE	261V-25/385	501YRD
4	Horn Antenna	FMI	26240-25	27



Figure 3. Vector Network Analyzer



Figure 4. Millimeter-wave Converter with Power Supplies

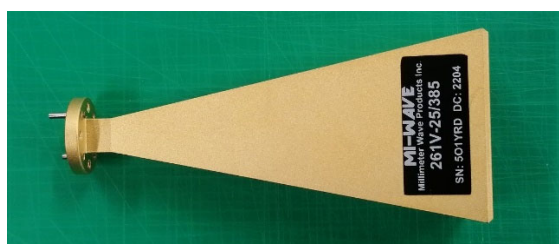


Figure 5. Horn Antenna (Model: 261V-25/385)



Figure 6. Horn Antenna (Model: 26240-25)

(5) Test setup

Antenna gain is measured by comparison with a standard gain antenna.

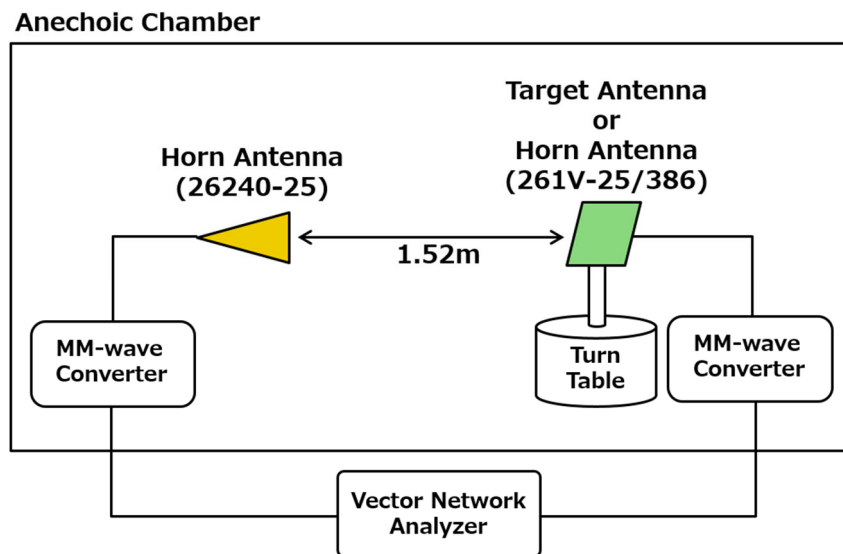


Figure 7. Test setup

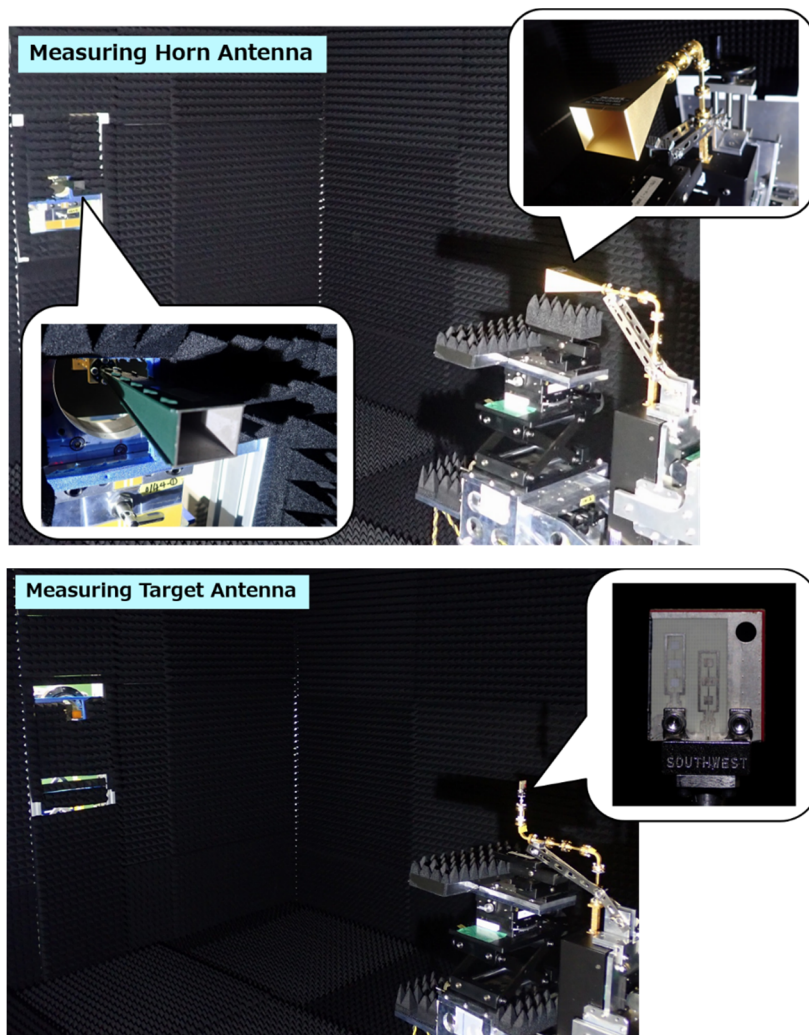


Figure 8. Test Scene

4. Results of Measurement

The characteristics measured with the test in the previous section are as follows:

(1) Summary of the characteristics

Table 3. Summary of the measurement results

No	ITEM	FREQUENCY				
		61.02 GHz	61.13 GHz	61.25 GHz	61.36 GHz	61.48 GHz
1	Maximum antenna gain	8.01 dBi	8.11 dBi	8.21 dBi	8.24 dBi	8.24 dBi
2	Horizontal beam width	64.15°	64.80°	63.77°	64.44°	65.45°
3	Vertical beam width	25.33°	25.33°	25.68°	24.99°	24.64°

(2) Directivity of the antenna

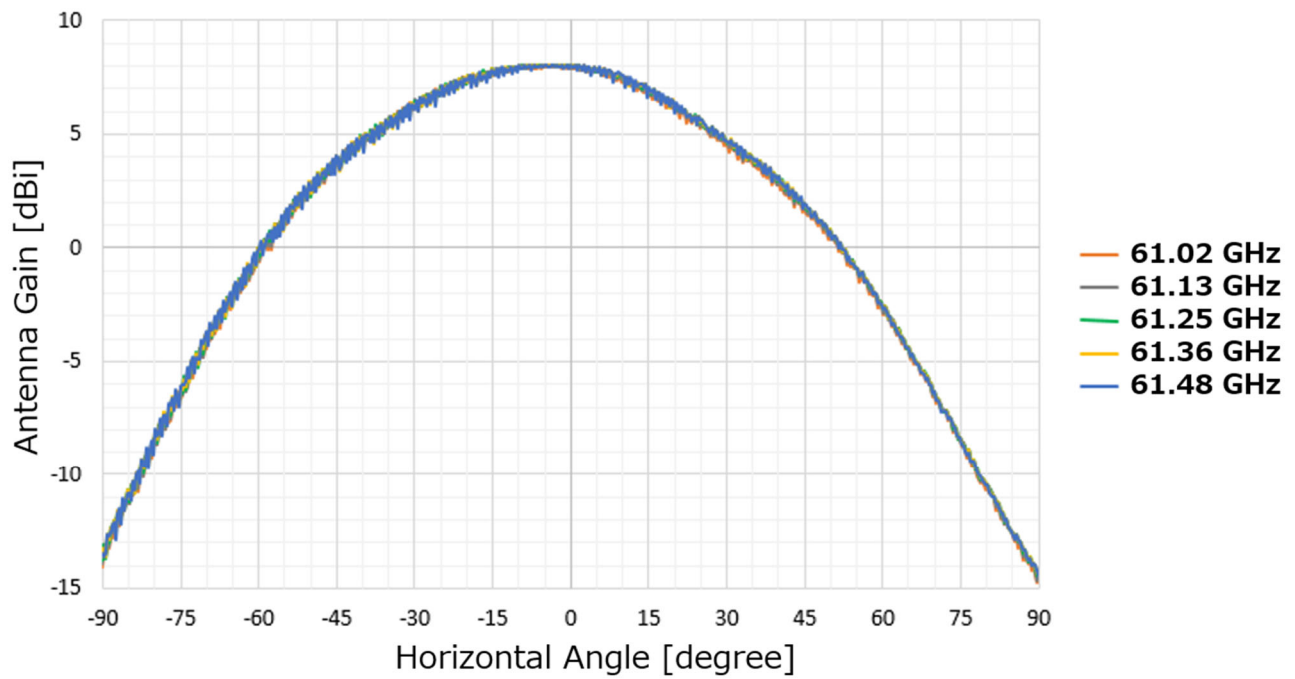


Figure 9. Horizontal pattern of antenna

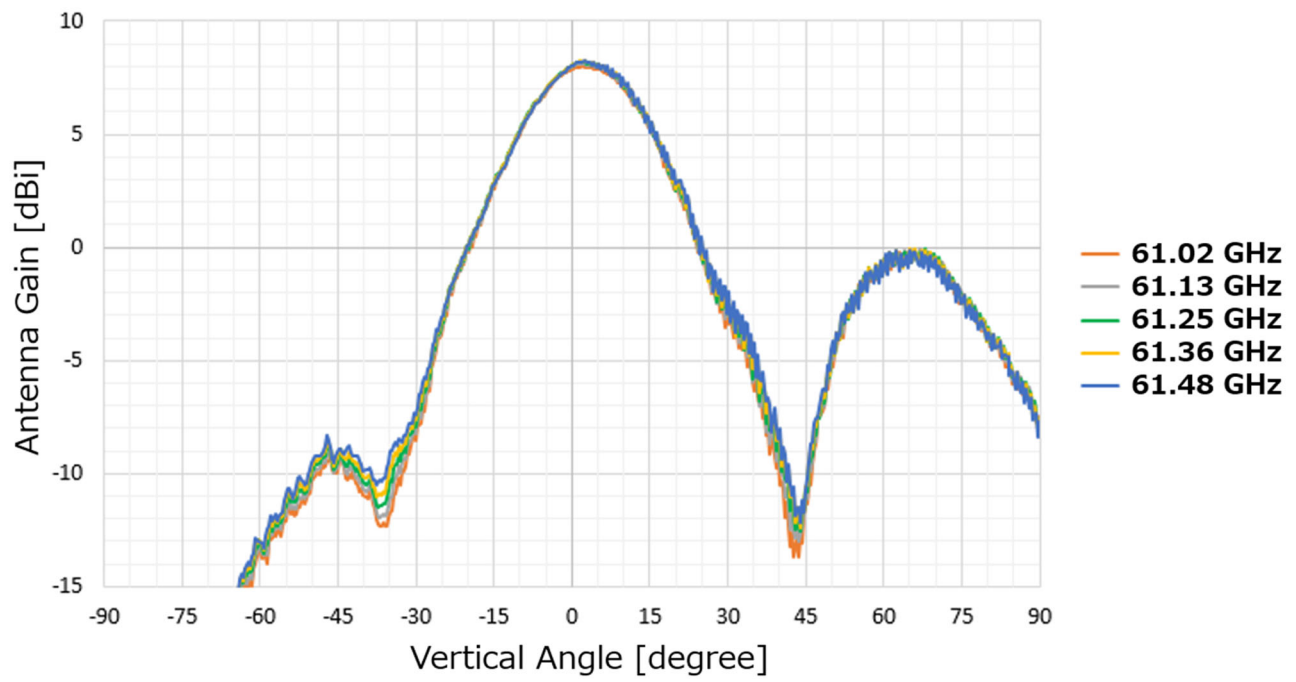


Figure 10. Vertical pattern of antenna