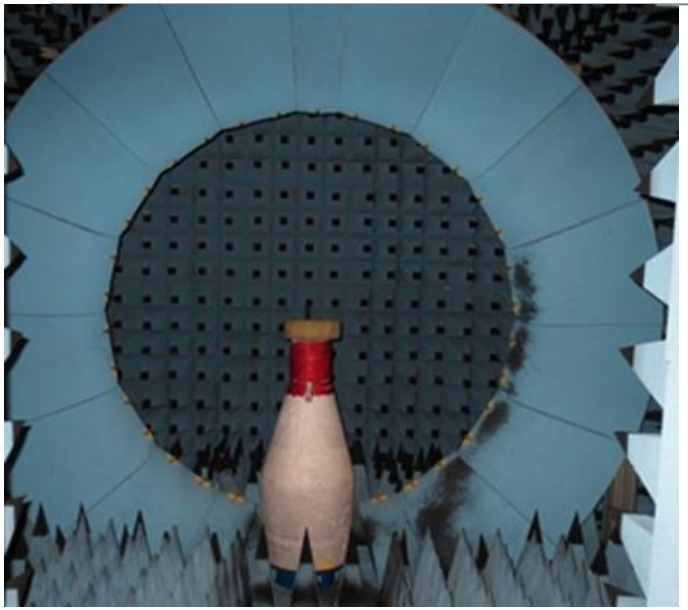
Type1UR
Antenna Under Test Report

1. Test method for antenna gain measurement

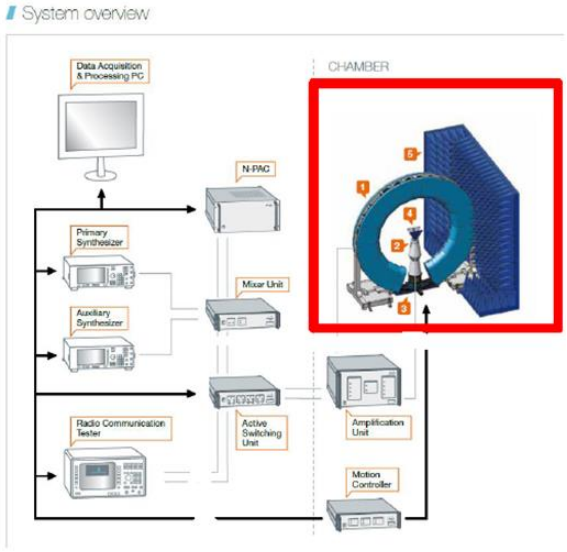
- Test method for antenna gain measurement:
  Standard antenna method (comparative method)
  * Comparing a measured antenna to a standard antenna with a known gain factor

- Equipment used for antenna gain measurement (model name, serial number, calibration date, etc.);
  - Measurement system
    Microwave Vision Group (former SATIMO) SG32 (details next page)
  - Equipment
    PAC (MW 000021H-0068)
    E4428C (MY45280451, MY45280466)
  - Calibration date
    November 11, 2022
  - Antenna gain measurement date / Measurement person
    April 26, 2023 / Harumi matsuoka

2. Test Equipment (Details of SG32)



Anechoic chamber size		Approximately 3.5m x 3.5m x 3m (H)		
Frequency band		800~6000MHz (18~40GHz compatible with Option)		
Measurement time	Elevation 1 cut	Real time		
	Global surface measurement	< Approx. 20 seconds (when measuring 10 frequencies)		
Measurement uncertainty	Peak gain	< +/-0.75dB (1.0~6.0GHz)		
		< +/-1.0dB (0.8~1.0GHz)		
	Low gain	< +/-2dB (@-20dB from peak)		
Dynamic range		70dB		
Cross Polar Isolation		> 45dB		
DUT size	0.8 GHz	1.8 GHz	2.5 GHz	6 GHz
	75 cm	75 cm	65 cm	30 cm



Peak gain variation is secured within ±0.75 dB by system calibration.

4. Measurement result

Antenna 1 : Chip Antenna(WLAN)

Part number: VGAP-CLB-AS-A1
Supplier: INPAQ TECHNOLOGY

<Efficiency>

*Red color shows peak gain

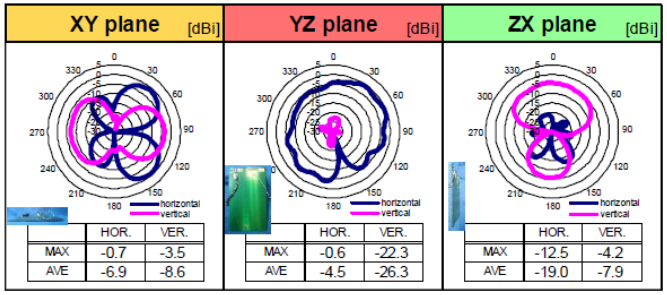
[dBi] [dB]

LINEAR POLAMIZATION		XY-plane hor.	XY-plane ver.	YZ-plane hor.	YZ-plane ver.	ZX-plane hor.	ZX-plane ver.	Total Efficiency
2400 MHz	MAX.	-1.5	-4.1	-1.2	-23.6	-12.2	-5.0	
	AVE.	-7.7	-9.1	-5.3	-27.7	-18.7	-8.5	-5.5
2442 MHz	**MAX.**	**-0.7**	**-3.5**	**-0.6**	**-22.3**	**-12.5**	**-4.2**	
	AVE.	**-6.9**	**-8.6**	**-4.5**	**-26.3**	**-19.0**	**-7.9**	**-4.7**
2484 MHz	MAX.	-1.4	-4.4	-1.6	-22.9	-14.6	-5.1	
	AVE.	-7.6	-9.5	-5.4	-27.1	-21.1	-8.9	-5.6

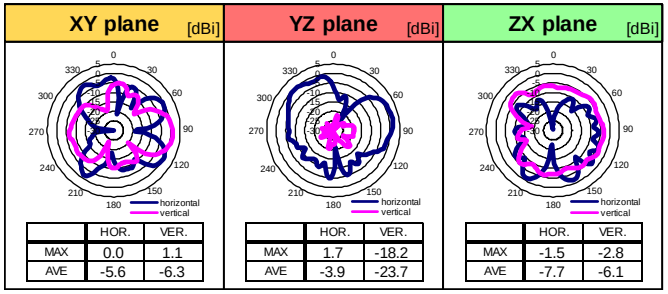
[dBi] [dB]

LINEAR POLAMIZATION		XY-plane hor.	XY-plane ver.	YZ-plane hor.	YZ-plane ver.	ZX-plane hor.	ZX-plane ver.	Total Efficiency
5150 MHz	MAX.	-0.6	0.3	1.4	-21.4	-2.1	-9.1	
	AVE.	-6.6	-7.0	-4.9	-26.5	-9.2	-13.1	-5.4
5500 MHz	**MAX.**	**0.0**	**1.1**	**1.7**	**-18.2**	**-1.5**	**-2.8**	
	AVE.	**-5.6**	**-6.3**	**-3.9**	**-23.7**	**-7.7**	**-6.1**	**-3.8**
5850 MHz	MAX.	-1.7	-1.8	-1.4	-16.0	-3.9	-2.3	
	AVE.	-6.9	-8.3	-6.1	-22.3	-10.2	-5.7	-5.2

<Directivity>



@2442MHz



@5500MHz

4. Measurement result

Antenna 2 : Pattern Antenna(BT)

Part number: BT_IFA
Designer: Forvia

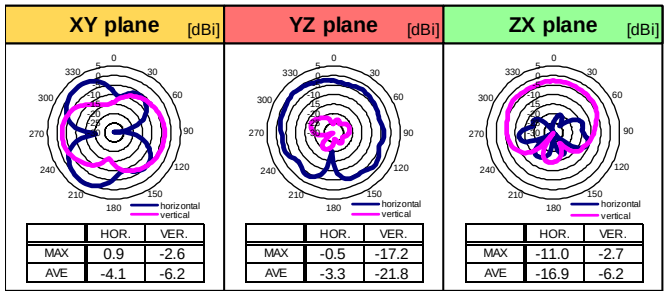
<Efficiency>

*Red color shows peak gain

[dBi] [dB]

LINEAR POLAMIZATION		XY-plane		YZ-plane		ZX-plane		Total
		hor.	ver.	hor.	ver.	hor.	ver.	Efficiency
2400 MHz	MAX.	0.9	-2.0	-1.1	-16.8	-11.4	-3.0	
	AVE.	-4.1	-6.0	-3.1	-21.0	-16.8	-6.1	-2.4
2442 MHz	**MAX.**	**0.9**	**-2.6**	**-0.5**	**-17.2**	**-11.0**	**-2.7**	
	AVE.	**-4.1**	**-6.2**	**-3.3**	**-21.8**	**-16.9**	**-6.2**	**-2.6**
2484 MHz	MAX.	**1.0**	-2.5	0.3	-17.9	-10.7	-3.5	
	AVE.	-3.7	-5.6	-3.0	-21.6	-17.1	-6.9	-2.3

<Directivity>



@2442MHz

end