

PRODUCT SPECIFICATION

Model	Description
AIR-R21A_ANT	IEEE802.15.4

APPROVAL	REMARK	APPENDIX	DESIGNED	CHECKED	APPROVED
			2023.11.01	2023.11.01	2023.11.01
			K.S.AN	J.B.KIM	I.U.KIM

SPECIFICATION			
MODEL	AIR-R21A_ANT	REV. No.	Rev 1.0
REG. DATE	2023.11.01	PAGE	6
REV. DATE	-	-	-

Revision History

[illegible]

ANTENNA SPECIFICATION

- 1. Model : AIR-R21A_ANT
- 2. Application : 2.4GHz IEEE802.15.4 compliant RF Transceiver
- 3. Electrical specification and performance

ELECTRICAL DATA	SPECIFICATIONS		REMARK
FREQUENCY RANGE	2405 ~ 2480 MHz		
IMPEDANCE	50 Ω NOMINAL		
V. S. W. R	2405 ~ 2480 MHz	Less than 2.0 : 1	#1. Attached
PEAK GAIN(Min)	2405 ~ 2480 MHz	-0.54 dBi	#2. Attached

- 4. Hardware specification and mechanical

MECHANICAL	SPECIFICATIONS	REMARK
Dimension	3.7mm x 18.0mm	#3. Attached

- 5. Company information

ATEC IoT Co.,Ltd. 289, Pangyo-ro, Bundan-gu, Seongnam-si, Gyeonggi, Republic of Korea TEL : +82-31-696-9815 PAX : +82-31-696-9899
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6. OPERATING TEMPERATURE

Temperature : - 20°C / + 60°C

Demands : Set Antenna for 48 hours each temperature.

No visual and mechanical changes.

Unchanged mechanically during the test.

The antenna shall satisfy the electrical data

7. HUMIDITY Condition

Condition : 80% / + 30°C ~ +50 °C

Measuring method

Antenna is placed in climatic chamber for 48 hours.

Antenna is taken out from the chamber and measured
after another 24 hours in room temperature

Demands : No visual and mechanical changes.

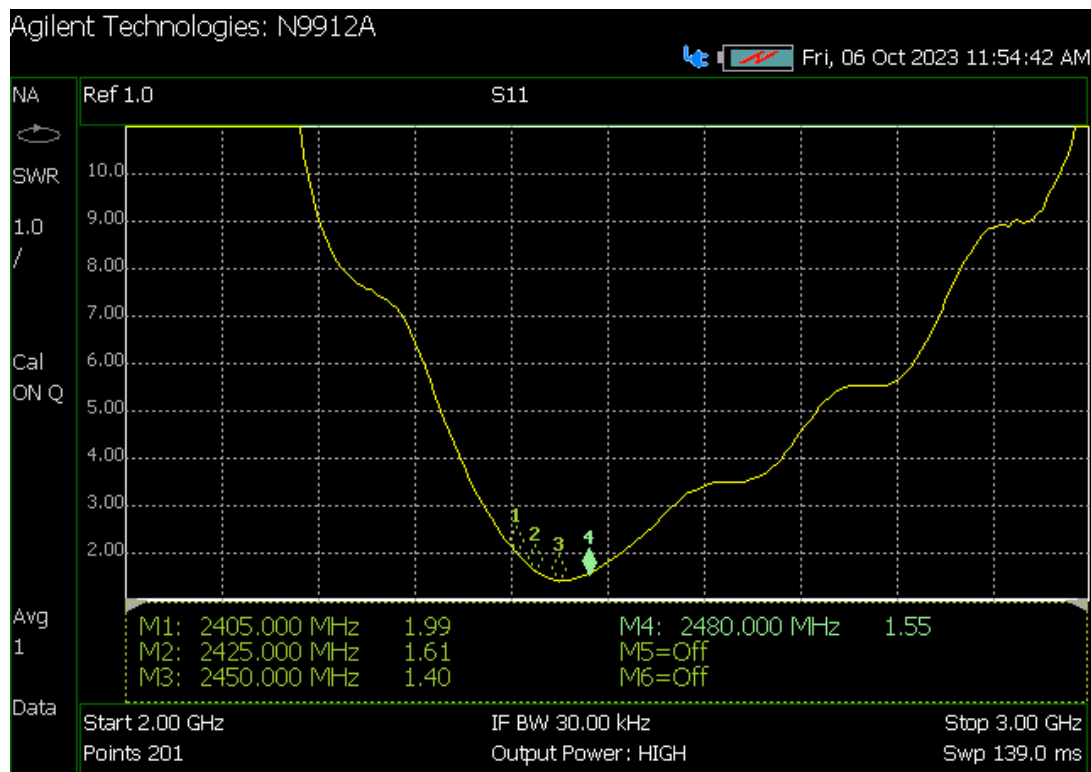
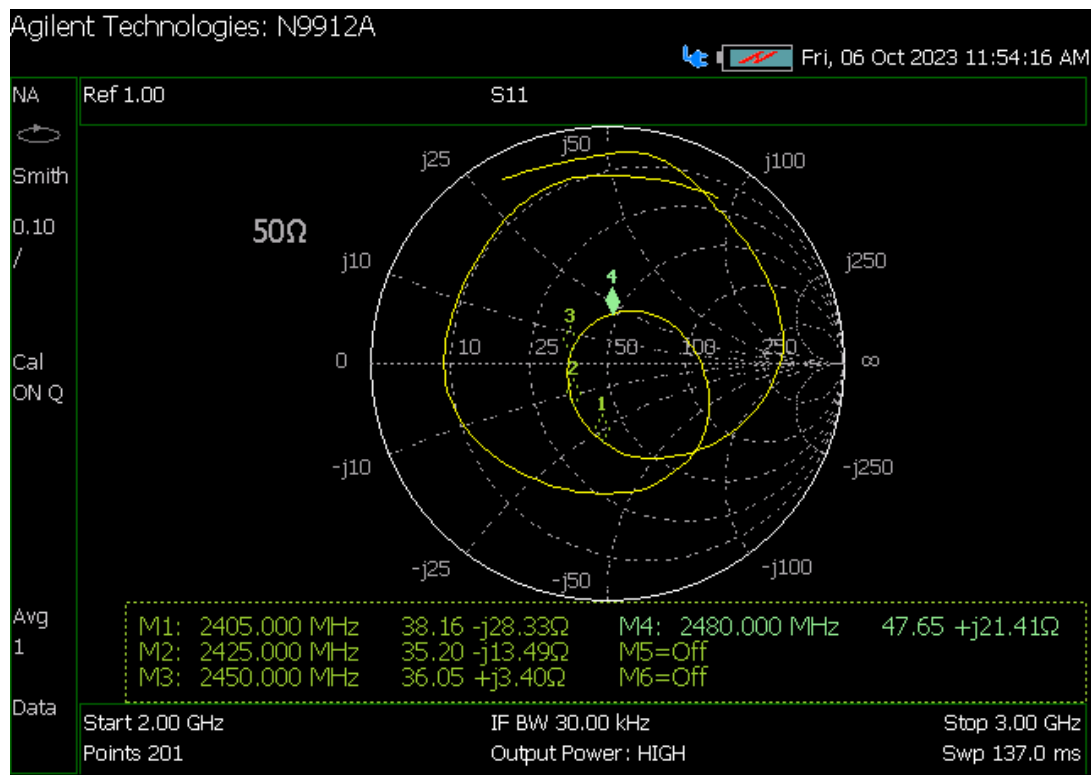
Unchanged mechanically during the test.

The antenna shall satisfy the electrical data.

8. TEST and Q/C

This specification is according to fixed demands and suitable *ATEC IoT* Q/C provision.

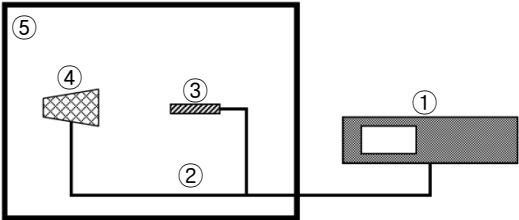
#1. Attached: VSWR



#2. Attached

▪ Radiation Pattern and Gain

TEST METHOD



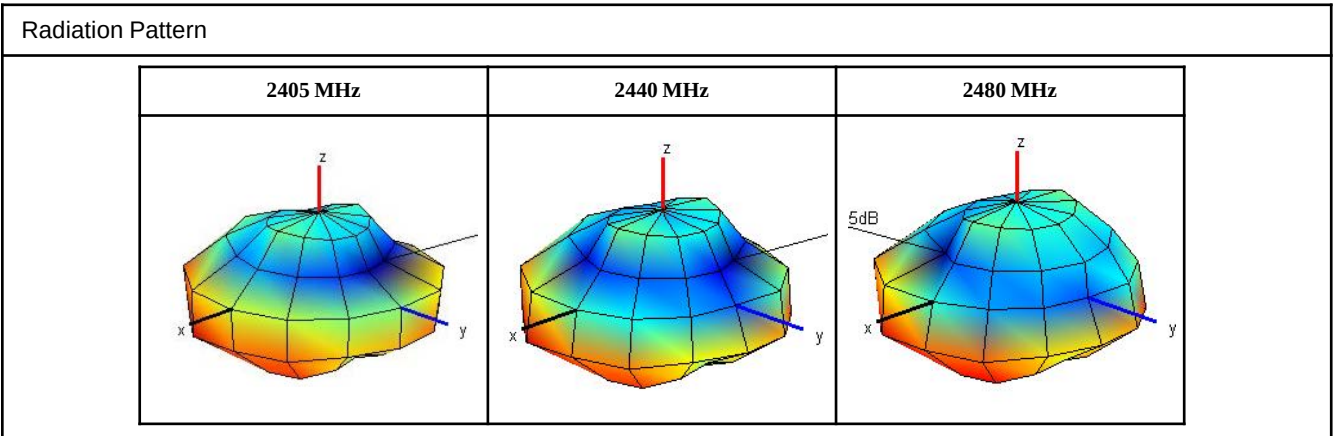
① Network Analyzer

② Signal Interface : Coaxial Cable

③ Test PCB Antenna

④ Dual Polarized Antenna

⑤ Shield Room



Efficiency

Frequency [MHz]	2405	2410	2415	2420	2425	2430	2435	2440	2445	2450	2455	2460	2465	2470	2475	2480
Efficiency [dB]	-6.50	-6.43	-6.43	-6.35	-6.38	-6.34	-6.32	-6.33	-6.44	-6.72	-6.68	-6.81	-6.75	-6.57	-6.53	-6.72
Efficiency [%]	22.4	22.8	22.8	23.2	23.0	23.2	23.3	23.3	22.7	21.3	21.5	20.8	21.1	22.1	22.2	21.3
Peak Gain [dB]	-0.81	-0.75	-0.71	-0.62	-0.67	-0.59	-0.56	-0.54	-0.65	-0.93	-0.88	-0.97	-0.91	-0.70	-0.72	-0.93
Directivity [dB]	5.69	5.68	5.71	5.72	5.72	5.76	5.76	5.78	5.78	5.79	5.80	5.84	5.84	5.86	5.81	5.79
Minimum Gain [dB]	-19.51	-19.60	-19.79	-19.27	-19.16	-18.52	-17.71	-17.11	-16.60	-17.15	-17.59	-17.99	-18.01	-17.94	-18.00	-18.15

Frequency(MHz)	2405	2440	2480	Avg.	Eff. [%]
Efficiency(dB)	-6.50	-6.33	-6.72	-6.53	22.21

#3. Attached: Drawing paper

