

ANTENNA SPECIFICATIONS

Product Name	BLE Antenna
Model Name	C306 Antenna

Document Information

Modified Date	11,Sep, 2025
Document Title	Antenna Specification
Application Model	Remote control
Document Description	Antenna features
Manufacture	Ohsung Electronics Co., LTD
Department	R&D Center
Document Writer/Approval	Dohan Kim, 
Address	335-4, Sanho-daero, Gumi-si, Gyeongsangbuk-do, Korea

CONTENTS

1. Document Detail	3
1.1 Purpose of document	3
1.2 Project Information	3
1.3 Related/Applicable Documents	3
1.4 Abbreviations and Acronyms	3
2. RF Antenna Features	3
3. Antenna Characteristics	3
4. Antenna Performance	3
5. Test Equipment	3
6. Test Set up	4
7. Analysis Data	5
7.1 DUT RF Circuit	5
7.2 S11 SWR & SMITH CHART	6
7.3 Efficiency (%)	6
7.4 Radiation Pattern	7

1. Document Detail

1.1 Purpose of document

The purpose of this report is to document the results of **Antenna feature test** of the DUT.

1.2 Project Information

Date Test Completed	15 May 2024
Test Description	Antenna feature test
Project Description	-
Manufacture	Ohsung Electronics
Department	R&D
Test Performed By	DH Kim

1.3 Related/Applicable Documents

Reference	Document Title
-	-

1.4 Abbreviations and Acronyms

Abbreviation	Description
MR	Meets Requirements
DNMR	Does Not Meet Requirements
N/A	Not Applicable
DUT/EUT/UUR	Device Under Test/ Equipment Under Test/ Unit Under Test

2. RF Antenna Features

- BLE Antenna
- Frequency range : 2.4GHz ~ 2.5GHz
- PCB Pattern Antenna

3. Antenna Characteristics

4. Antenna Performance

Parameter	Min.	Typ	Max.	Unit
Frequency Range	2400	2450	2500	MHz
Directivity		Omni		-
Polarization		Linear		-
VSWR	3:1			Under
Impedance		50		Ohm

5. Test Equipment

Equipment	Manufacturer	Model Number	Calibration date
Vector Network Analyzer	Rohde Schwarz	ZNB8	2025.04.29.
Test Chamber	CTIA OTA	6.0 x 3.0 x 3.0 m	-

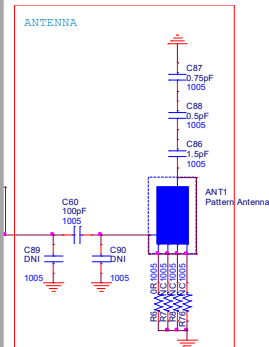
6. Test Set up

CONFIDENTIAL

[Passive Test System Fig]

7. Analysis Data

CONFIDENTIAL



Pattern Antenna Parts

[Schematic]

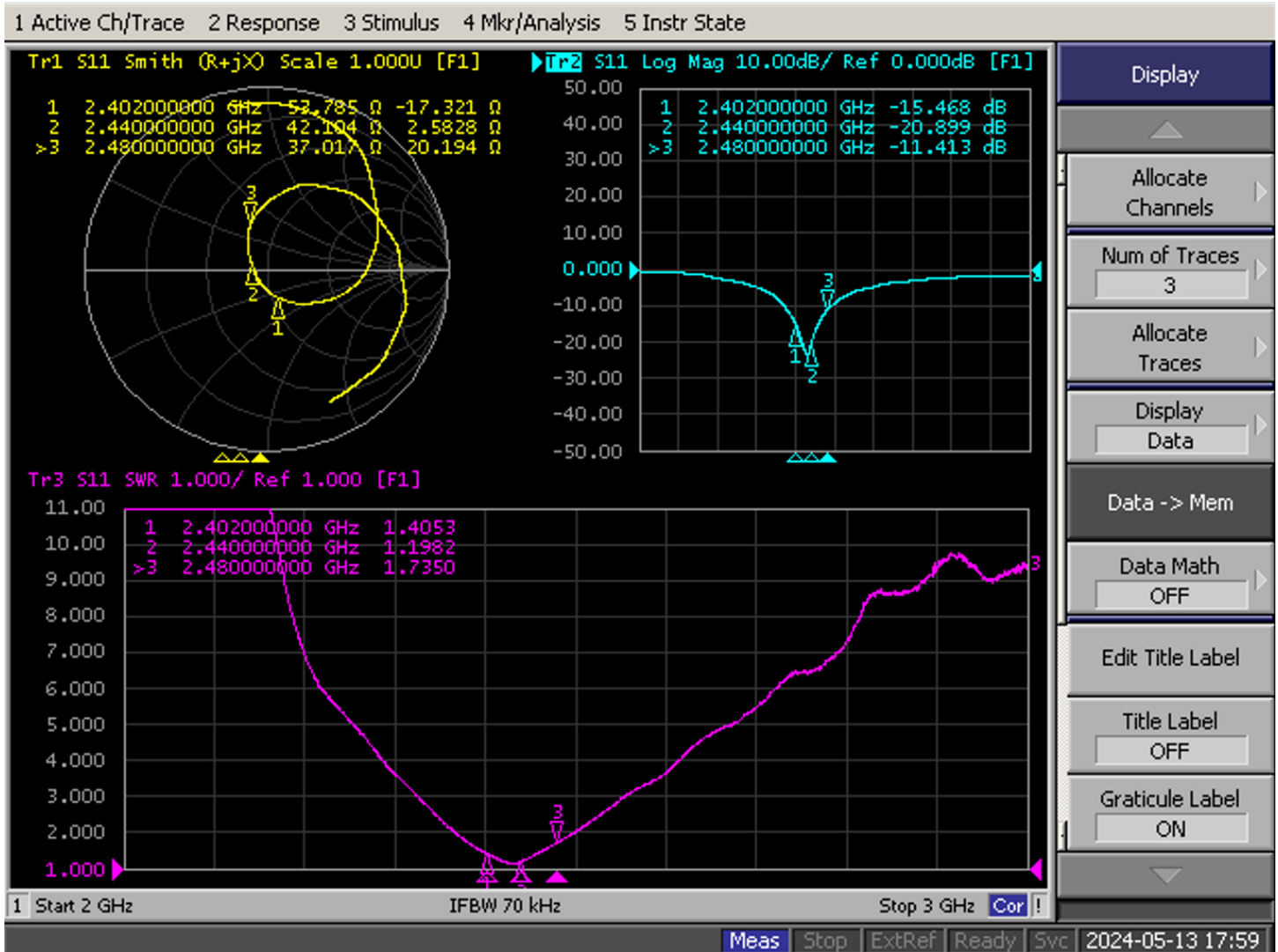
CONFIDENTIAL

[PCB Drawing]

CONFIDENTIAL

[DUT Antenna Configuration]

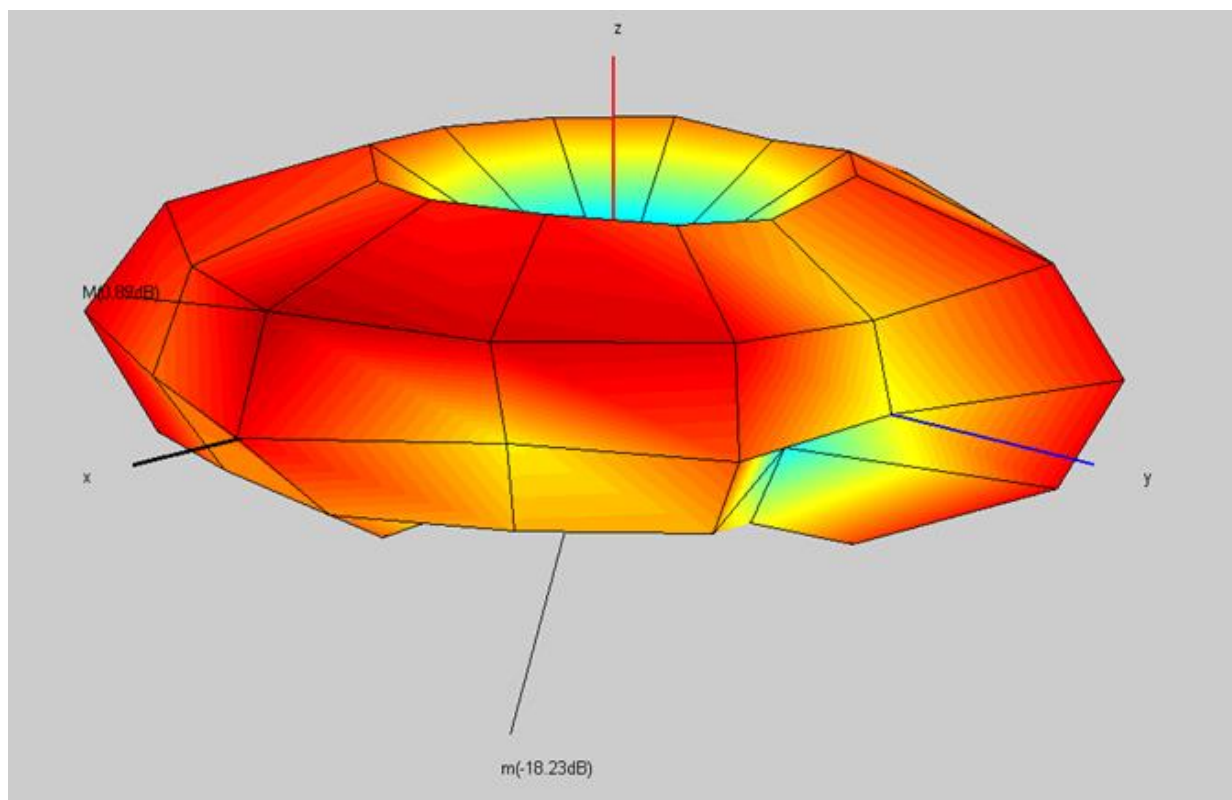
7.2 S11 SWR & SMITH CHART



7.3 Efficiency (%)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Frequency [MHz]	2400	2405	2410	2415	2420	2425	2430	2435	2440	2445	2450	2455	2460	2465	2470	2475	2480	2485	2490	2500
Efficiency [dB]	-4.65	-4.47	-4.49	-4.14	-4.20	-4.04	-3.89	-3.69	-3.63	-3.41	-3.32	-3.28	-3.18	-3.19	-3.10	-3.03	-3.00	-2.93	-2.88	-2.84
Efficiency [%]	34.30	35.69	35.58	38.53	37.98	39.49	40.81	42.73	43.38	45.59	46.52	47.02	48.09	47.94	49.02	49.72	50.16	50.88	51.56	52.00
TRG [dB]	-4.65	-4.47	-4.49	-4.14	-4.20	-4.04	-3.89	-3.69	-3.63	-3.41	-3.32	-3.28	-3.18	-3.19	-3.10	-3.03	-3.00	-2.93	-2.88	-2.84
TRG ₀ [dB]	-8.93	-8.72	-8.73	-8.40	-8.45	-8.13	-8.16	-7.98	-7.90	-7.71	-7.62	-7.59	-7.46	-7.50	-7.42	-7.34	-7.31	-7.30	-7.22	-7.16
Gain _{0,Peak} [dB]	-1.90	-1.65	-1.68	-1.27	-1.31	-0.95	-1.03	-0.79	-0.68	-0.51	-0.35	-0.39	-0.25	-0.24	-0.09	0.00	0.00	0.04	0.19	0.29
Gain _{0,Min} [dB]	-29.47	-28.59	-27.72	-26.48	-26.57	-26.97	-29.12	-30.71	-32.08	-32.09	-30.49	-30.78	-31.66	-32.35	-32.64	-32.64	-32.07	-31.11	-30.05	-31.01
TRG ₀ [dB]	-6.67	-6.52	-6.54	-6.18	-6.25	-6.18	-5.93	-5.72	-5.66	-5.43	-5.34	-5.29	-5.21	-5.21	-5.10	-5.05	-5.00	-4.91	-4.87	-4.85
Gain _{0,Peak} [dB]	-1.85	-1.75	-1.76	-1.52	-1.60	-1.60	-1.35	-1.15	-1.09	-0.87	-0.84	-0.80	-0.69	-0.69	-0.51	-0.35	-0.28	-0.07	-0.08	-0.02
Gain _{0,Min} [dB]	-25.35	-24.78	-24.40	-23.83	-23.84	-23.84	-23.94	-24.26	-24.77	-25.33	-25.92	-26.94	-27.70	-28.22	-28.42	-28.64	-28.66	-28.48	-28.22	-27.66
UHRG [dB]	-6.80	-6.62	-6.64	-6.30	-6.36	-6.19	-6.08	-5.89	-5.83	-5.63	-5.56	-5.51	-5.41	-5.42	-5.32	-5.25	-5.20	-5.13	-5.06	-5.01
UHRG/TRG [%]	60.94	61.04	60.95	60.90	60.82	60.95	60.43	60.32	60.16	59.93	59.82	59.78	59.82	59.90	59.97	60.10	60.27	60.29	60.45	60.69
H-Plane	-10.20	-10.08	-10.15	-9.89	-9.99	-9.72	-9.82	-9.69	-9.67	-9.56	-9.58	-9.64	-9.61	-9.75	-9.85	-9.86	-10.02	-10.15	-10.16	-10.23
E1-Plane, AVG [dB]	-7.20	-7.05	-7.11	-6.79	-6.88	-6.61	-6.66	-6.52	-6.46	-6.28	-6.18	-6.15	-6.03	-6.06	-5.97	-5.89	-5.88	-5.86	-5.83	-5.83
E2-Plane, AVG [dB]	-10.74	-10.51	-10.47	-10.09	-10.10	-9.77	-9.83	-9.71	-9.66	-9.53	-9.46	-9.50	-9.44	-9.52	-9.53	-9.50	-9.55	-9.57	-9.53	-9.56
Peak Gain [dB]	-0.89	-0.72	-0.79	-0.35	-0.45	-0.19	-0.08	0.16	0.25	0.42	0.68	0.70	0.83	0.90	1.05	1.21	1.25	1.38	1.42	1.52
Directivity [dB]	3.75	3.75	3.70	3.79	3.76	3.84	3.81	3.85	3.88	3.83	4.00	3.98	4.01	4.10	4.15	4.25	4.25	4.31	4.29	4.36
Minimum Gain [dB]	-18.24	-18.02	-17.94	-17.71	-18.20	-18.48	-18.71	-18.85	-19.15	-19.24	-19.42	-19.50	-19.38	-19.37	-19.30	-19.25	-19.38	-19.37	-19.26	-19.09
Test Condition	FS																			
Antenna Type																				
FS=Free Space, BHR=Beside Head Right Side, BHL=Beside Head Left Side, HR=Hand Right, HL=Hand Left, BHRH=Beside Head and Hand Right Side, BHHL=Beside Head and Hand Left Side, NB=Notebook																				
Average Efficiency	-3.53 dB, 44.35 %																			

7.4 Radiation Pattern



[2450 MHz]

- End