


# GY3LE - Antenna Approval sheet

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- PCB Overview & Matching Value
- VSWR & Smith Chart / 3D Gain data
- 2D Radiation Pattern & Gain
- 3D Radiation pattern

By designed	By checked	By approved
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Rev 1.0

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# Specification

## 1. Features and Application :

This product is for BT band ( 2402 ~ 2480 MHz )

# Measurement Process

SWR / Return Loss

Use Network Analyzer when measuring SWR/Return loss and selecting standard SPL.

## **E5071B Agilent Network Analyzer**

Additional Features:

300 kHz to 8.5 GHz

125 dB dynamic range at test port (typical)

9.6 us/point sweep speed

0.001 dB RMS trace noise

Integrated 2-, 3- and 4-ports with balanced measurements

Fixture embedding/de-embedding and port characteristic impedance conversion

Frequency-offset mode for frequency translated devices.

Built-in Visual Basic for Applications (VBA)

Measurement Wizard Assistant (MWA) software

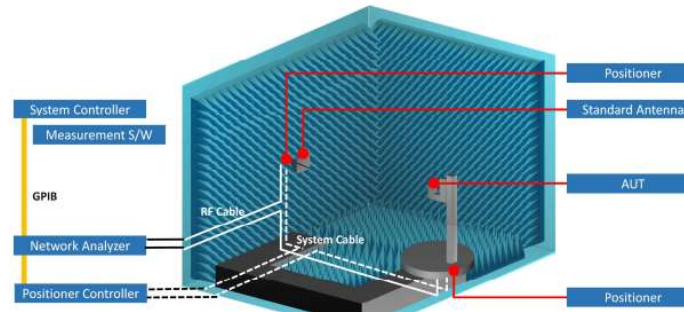
# Measurement Process






## Gain

Antenna gain is measured in the Anechoic Chamber



- o Size: 5.5(L) m × 5.5(W) m × 5.0(H) m
- o Frequency range: 700 MHz to 8.0 GHz (Far Field)



	
Network Analyzer : R&C ZVA24 (10MHz ~ 24GHz)	GSM, CDMA, WCDMA : Agilent 5515C
	
4G, LTE Cat.M, NB-IoT : Anritsu MT8821C	WLAN (802.11 a,b,g,n,ac) : Anritsu MT8862A
	
5G (Sub6G, mmWave) : Anritsu MT8000A	

### 휴대폰 안테나 측정 시스템

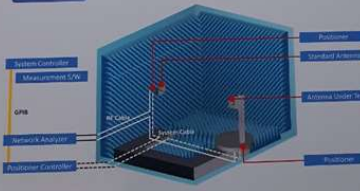
Mobile Antenna Measurement System

**측정내용**  
소형 안테나 성능 측정 및 모바일 단말기, 모듈의 수신감도 측정

**측정대상**  
무선접속(블루투스, WiFi)기기, 이동통신(4G, 5G) 기기 등

**특성**  
규모 : 5.5(L) m × 5.5(W) m × 5.0(H) m    주파수 범위 : 700 MHz ~ 8 GHz  
Quiet Zone : 0.8 m × 0.8 m @ 800 MHz    챔버 타입 : Rectangular  
피복정 안테나 무게 : <12kg

**구성도**



# Electrical Characteristics

This specification covers the dielectric pattern antenna **GY3LE** used in Bluetooth

Manufacturer : Remote Solution

Name : RS ANT1

ITEM		SPECIFICATION				
Frequency Range		2402 ~ 2480 MHz				
VSWR		3:1 Max				
Polarization		Linear				
Frequency [MHz]		2410	2430	2450	2470	2480
Gain [dBi]	Peak	2.81	2.72	2.5	2.04	1.95
	Average	-2.39	-2.33	-2.61	-3.08	-3.23
Efficiency [%]		57.74	58.51	54.78	49.18	47.55

# Electrical Characteristics

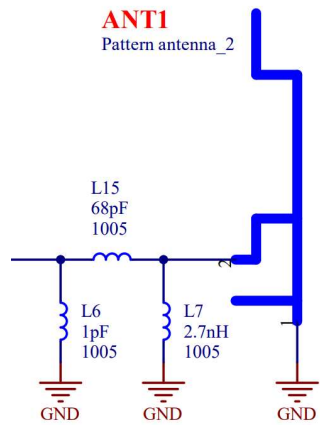
This specification covers the dielectric pattern antenna **GY3LE** used in Bluetooth

Manufacturer : Remote Solution

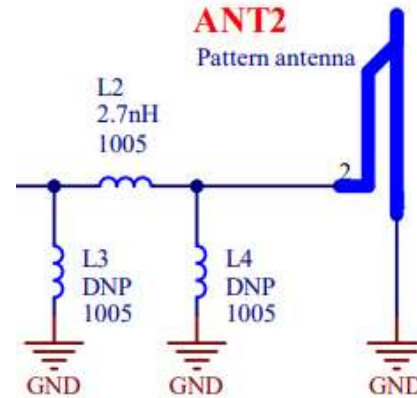
Name : RS ANT2

ITEM		SPECIFICATION				
Frequency Range		2402 ~ 2480 MHz				
VSWR		3:1 Max				
Polarization		Linear				
Frequency [MHz]		2410	2430	2440	2470	2480
Gain [dBi]	Peak	3.58	3.98	4.16	3.99	3.57
	Average	-1.86	-1.75	-1.61	-1.91	-2.34
Efficiency [%]		65.12	66.85	69.02	64.35	58.33

# PCB Overview & Matching Value

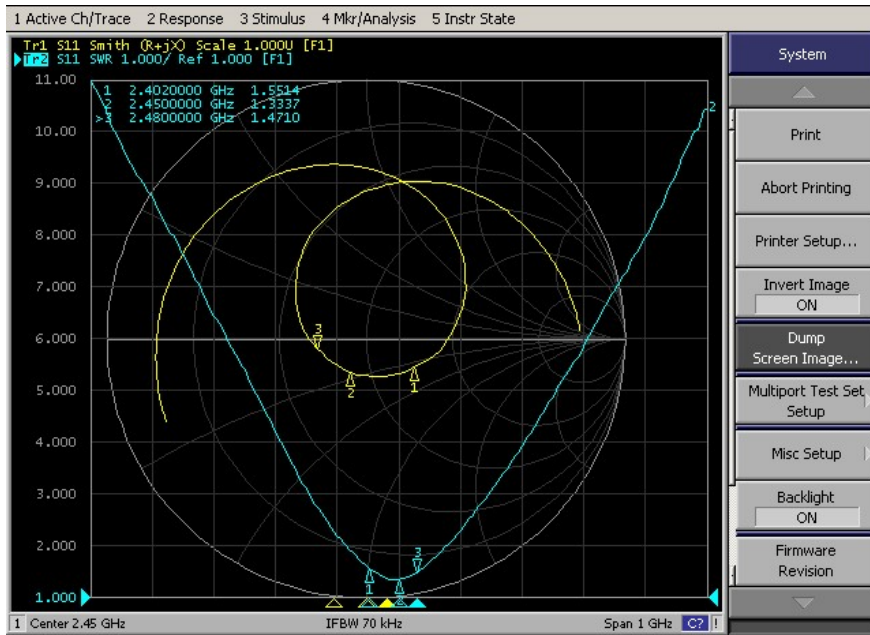


Manufacturer : Remote Solution  
Name : RS ANT1

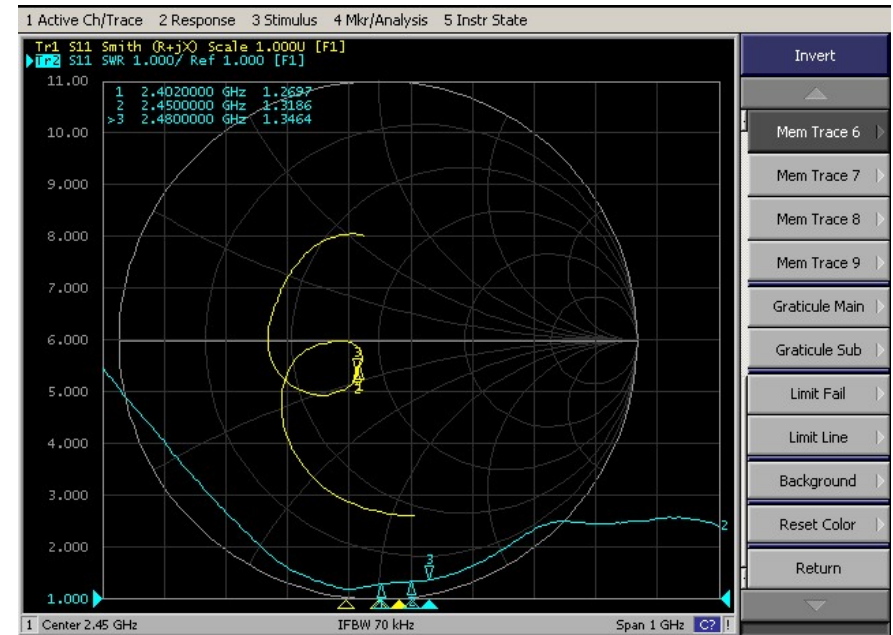


Manufacturer : Remote Solution  
Name : RS ANT2

# VSWR & Smith Chart / 3D Gain data



[ RS ANT1 ]



[ RS ANT2 ]

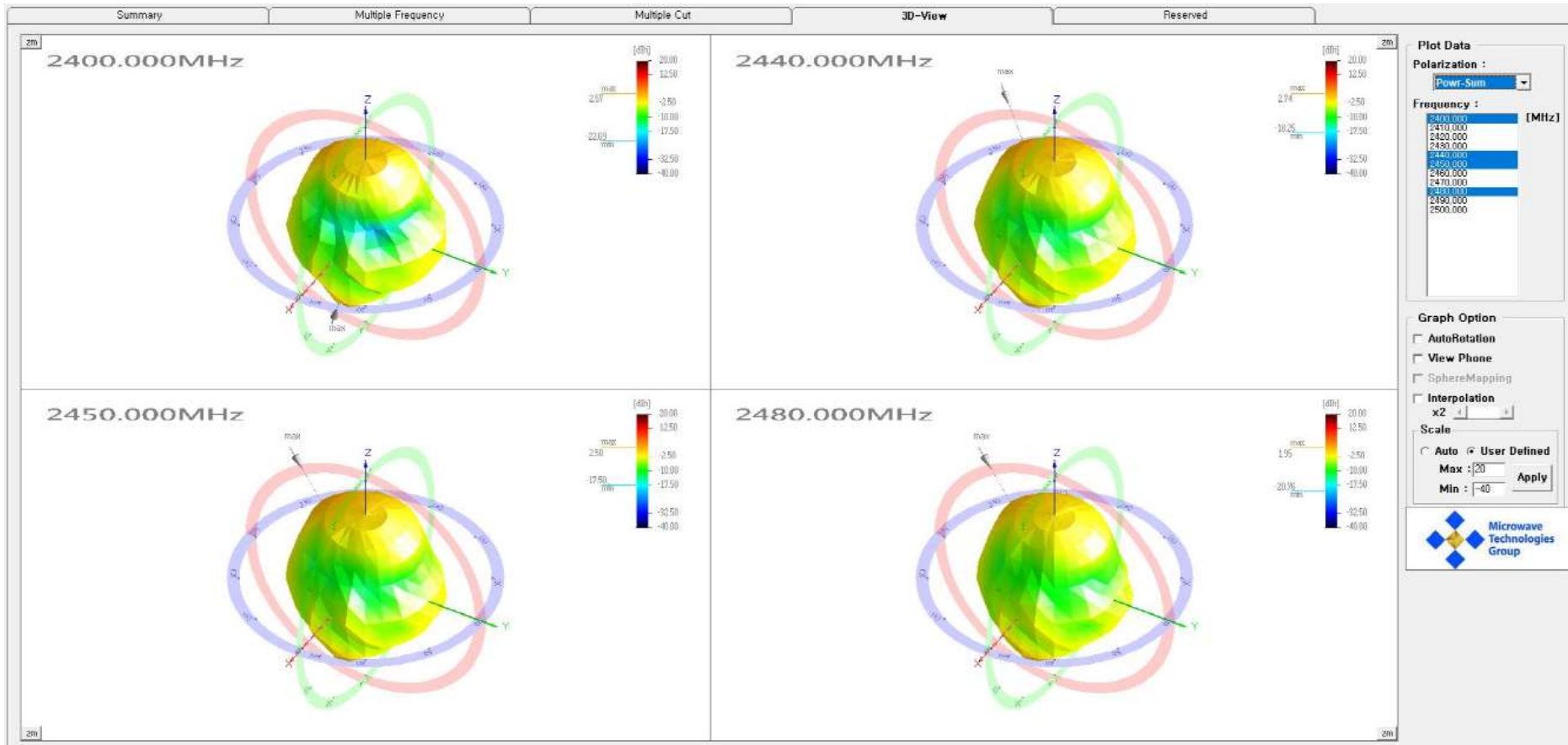


## 2D Radiation Pattern & Gain ( RS ANT1)

### 3D Result Summary :

No	Freq.[MHz]	Theta-Pc			Phi-Pol(\		Pwr Sum			Theta		Phi[de				
		Eff.[%]	Avg.[dBi]	Peak[dBi]	Theta	Phi[de	Eff.[%]	Avg.[dBi]	Peak[dBi]	Theta	Phi[de	Eff.[%]	Avg.[dBi]	Peak[dBi]	Theta	Phi[de
1	2400.000	28.21	-5.50	1.15	165.00	285.00	24.01	-6.20	1.00	105.00	270.00	52.22	-2.82	2.57	165.00	270.00
2	2410.000	31.65	-5.00	1.59	165.00	285.00	26.09	-5.84	1.25	120.00	270.00	57.74	-2.39	2.81	165.00	270.00
3	2420.000	31.72	-4.99	1.38	165.00	285.00	25.16	-5.99	0.96	120.00	270.00	56.87	-2.45	2.61	165.00	270.00
4	2430.000	32.95	-4.82	1.48	165.00	285.00	25.55	-5.93	0.96	105.00	270.00	58.51	-2.33	2.72	45.00	240.00
5	2440.000	32.70	-4.85	1.37	165.00	285.00	25.15	-5.99	0.87	105.00	270.00	57.85	-2.38	2.74	45.00	240.00
6	2450.000	30.85	-5.11	1.06	165.00	285.00	23.93	-6.21	0.65	30.00	240.00	54.78	-2.61	2.50	45.00	255.00
7	2460.000	27.99	-5.53	0.33	45.00	195.00	21.26	-6.72	0.21	30.00	240.00	49.25	-3.08	2.11	45.00	255.00
8	2470.000	28.48	-5.45	0.19	45.00	195.00	20.70	-6.84	0.19	30.00	240.00	49.18	-3.08	2.04	45.00	255.00
9	2480.000	28.17	-5.50	-0.19	45.00	195.00	19.38	-7.13	-0.07	30.00	240.00	47.55	-3.23	1.95	45.00	255.00
10	2490.000	28.49	-5.45	-0.09	135.00	0.00	18.77	-7.27	-0.06	30.00	240.00	47.26	-3.26	1.84	45.00	255.00
11	2500.000	28.68	-5.42	-0.07	135.00	0.00	17.72	-7.52	-0.30	30.00	240.00	46.40	-3.33	1.70	45.00	255.00

# 3D Radiation pattern ( RS ANT1 )

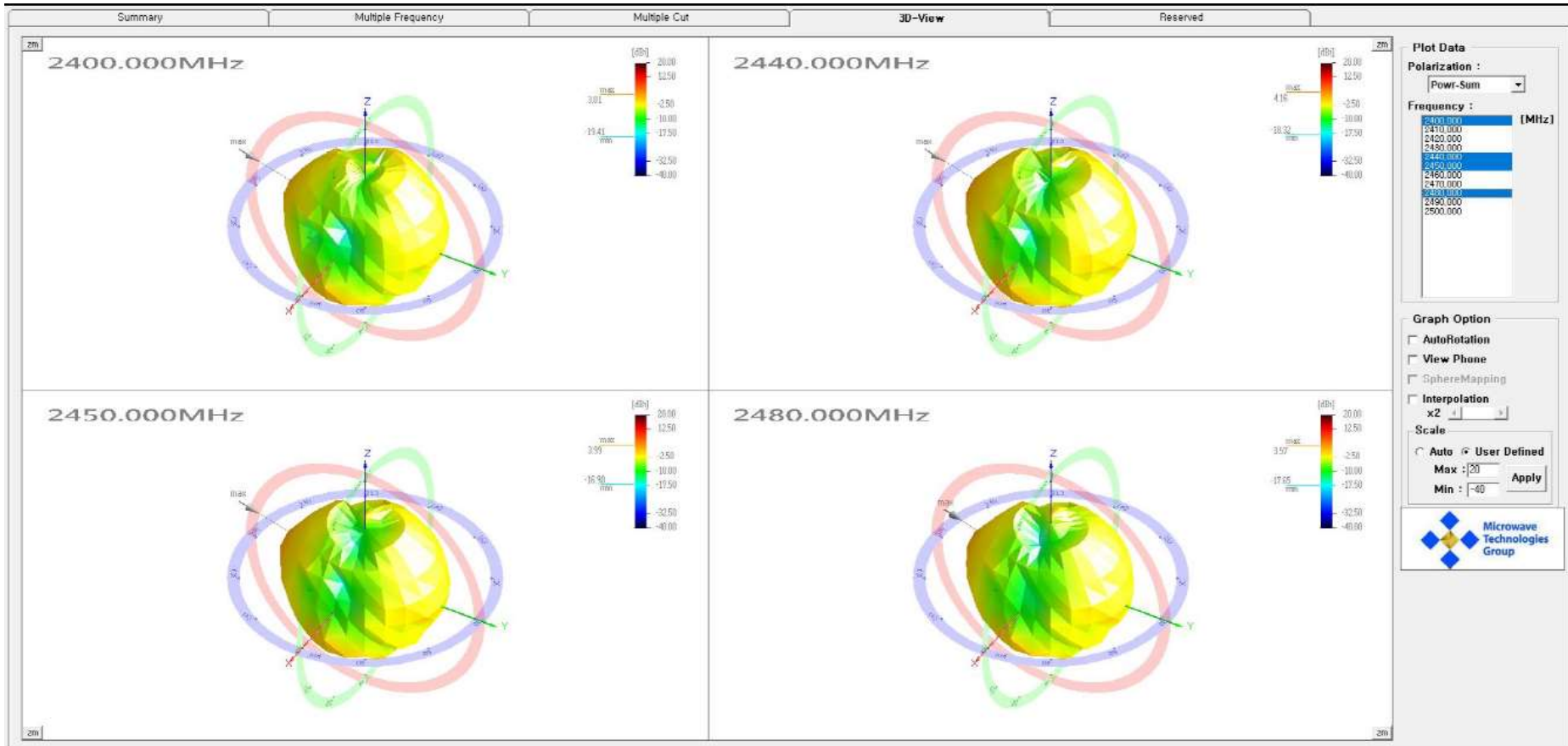


## 2D Radiation Pattern & Gain ( RS ANT2 )

### 3D Result Summary :

No	Freq.[MHz]	Theta-Pc					Phi-Pol(\					Pwr Sum				
		Eff.[%]	Avg.[dBi]	Peak[dBi]	Theta]	Phi[de]	Eff.[%]	Avg.[dBi]	Peak[dBi]	Theta]	Phi[de]	Eff.[%]	Avg.[dBi]	Peak[dBi]	Theta]	Phi[de]
1	2400.000	23.33	-6.32	2.46	180.00	330.00	36.19	-4.41	2.93	75.00	270.00	59.52	-2.25	3.01	75.00	270.00
2	2410.000	24.93	-6.03	2.99	180.00	330.00	40.19	-3.96	3.51	75.00	270.00	65.12	-1.86	3.58	75.00	270.00
3	2420.000	23.78	-6.24	2.96	180.00	330.00	40.00	-3.98	3.59	75.00	270.00	63.79	-1.95	3.66	75.00	270.00
4	2430.000	24.24	-6.15	2.92	180.00	165.00	42.60	-3.71	3.90	75.00	270.00	66.85	-1.75	3.98	75.00	270.00
5	2440.000	24.35	-6.13	3.07	180.00	165.00	44.67	-3.50	4.08	75.00	270.00	69.02	-1.61	4.16	75.00	270.00
6	2450.000	22.35	-6.51	2.84	180.00	165.00	42.77	-3.69	3.89	75.00	270.00	65.12	-1.86	3.99	75.00	270.00
7	2460.000	21.05	-6.77	2.62	180.00	165.00	41.40	-3.83	3.71	75.00	270.00	62.45	-2.04	3.81	75.00	270.00
8	2470.000	21.50	-6.68	2.76	180.00	165.00	42.85	-3.68	3.91	90.00	255.00	64.35	-1.91	3.99	90.00	255.00
9	2480.000	19.33	-7.14	2.26	180.00	165.00	39.00	-4.09	3.49	90.00	255.00	58.33	-2.34	3.57	90.00	255.00
10	2490.000	20.83	-6.81	2.67	180.00	165.00	42.48	-3.72	3.86	90.00	255.00	63.30	-1.99	3.93	90.00	255.00
11	2500.000	18.47	-7.34	2.20	180.00	165.00	37.50	-4.26	3.35	90.00	255.00	55.97	-2.52	3.42	90.00	255.00

# 3D Radiation pattern ( RS ANT2 )



Thank you