FTDBWF039-C243U Product Specification

Field Theory
1029 Butterfield Rd,
Vernon Hills, IL 60061
Email: info@fieldtheoryinc.com

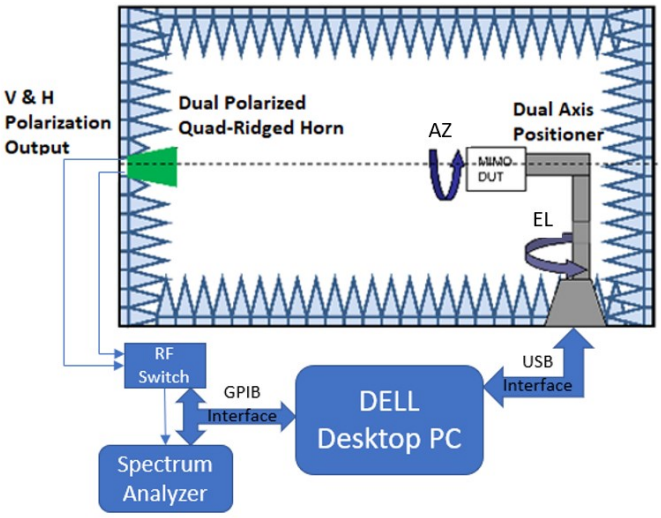
FIELDTHEORY
CUSTOM ANTENNA DESIGN & RF SOLUTIONS

TEST METHOD

Passive antenna measurement within a 5-meter anechoic antenna chamber equipped with a quad-ridged horn receiver antenna and an EL-AZ positioner with laser positioner

SITE / EQUIPMENT INFORMATION

Lab Name: Field Theory Consulting
Lab Address: 1029 Butterfield Rd, Vernon Hills, IL 60061
Size: 5m
Frequency Measurement Range: 2400 - 2480 MHz



TEST EQUIPMENT CALIBRATION STATUS

Equipment	Manufacturer	Model No.	Serial No.	last Cal.	Due Date
Network Analyzer	Anritsu	MS46122B	2135304	8/25/2023	8/24/2024
Quad-Ridge Horn Antenna	ETS-Lindgreen	3164-10	217936	8/25/2023	8/24/2024
3 Meter Anechoic Chamber	Braden Shielding Systems	NA	F70331	NA	NA
RF Cable	ENS Microwave	S160-160-MKS-MKS	3042020	8/25/2023	8/24/2024
RF Cable	ENS Microwave	S160-120-MKS-MKS	12042018	8/25/2023	8/24/2024
RF Cable	ENS Microwave	EMC1-K1K1-72	1GVT4 19002201	8/25/2023	8/24/2024
RF Cable	ENS Microwave	EMC1-K1K1-72	1GVT4 19002202	8/25/2023	8/24/2024
RF Cable	ENS Microwave	EMC1-K1K1-216	1GVT4 19002202 001	8/25/2023	8/24/2024
RF Cable	ENS Microwave	EMC1-K1K1-216	1GVT4 19002202 002	8/25/2023	8/24/2024
DUT Positioner	DE LCC	D6025	NA	NA	NA
RF Switch	Mini-Circuits	RC-1SPDT-A18	1810010005	8/25/2023	8/24/2024

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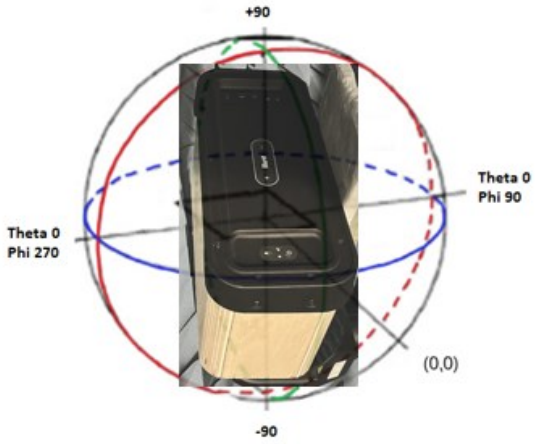
SETUP PHOTO



FORMULA AND CALCULATIONS

Gain:

$$G_{AUT} = \frac{[S_{21}{}^{2}]}{[G_{REF}]}\left(\frac{\lambda}{4\pi d}\right)^{-2}$$

Efficiency:

$$\varepsilon = \frac{\pi}{2NM}\sum_{N}\sum_{M}\frac{S_{21}^{2}(\theta_M,\phi_N)}{P_L G_T}Cos(\phi_N)$$

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Bluetooth Antenna

RADIO SPECIFICATION

Standard: BLE: 2402 - 2480 MHz

MECHANICAL

Board Dimensions (mm): 12.91 x 51.93 x 0.405

Connector: MHF1 (U.FL Compatible)

Adhesive: Standard Double Sided

ENVIRONMENTAL

Compliance: RoHS

Parameters	**Performance** (Typical as measured in Unit)		
Frequency (MHz)	2402	2440	2480
Efficiency (%)	72	76	80
Peak Gain (dB)	4.3	4.6	4.4
Impedance (ohms)	50	50	50
VSWR	≤ 2.5	≤ 2.5	≤ 2.5
Polarization	Linear	Linear	Linear
Maximum Input Power (W)	10W	10W	10W

BLE Antenna

Release 2.0: October 30,2023

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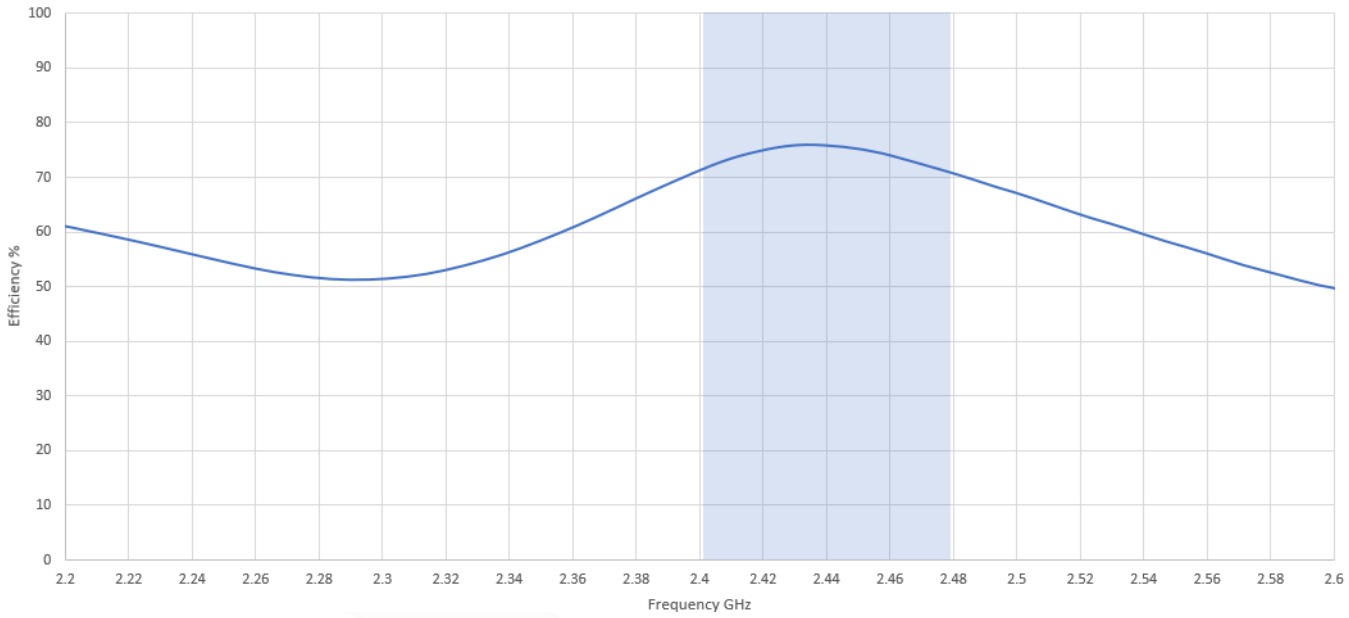
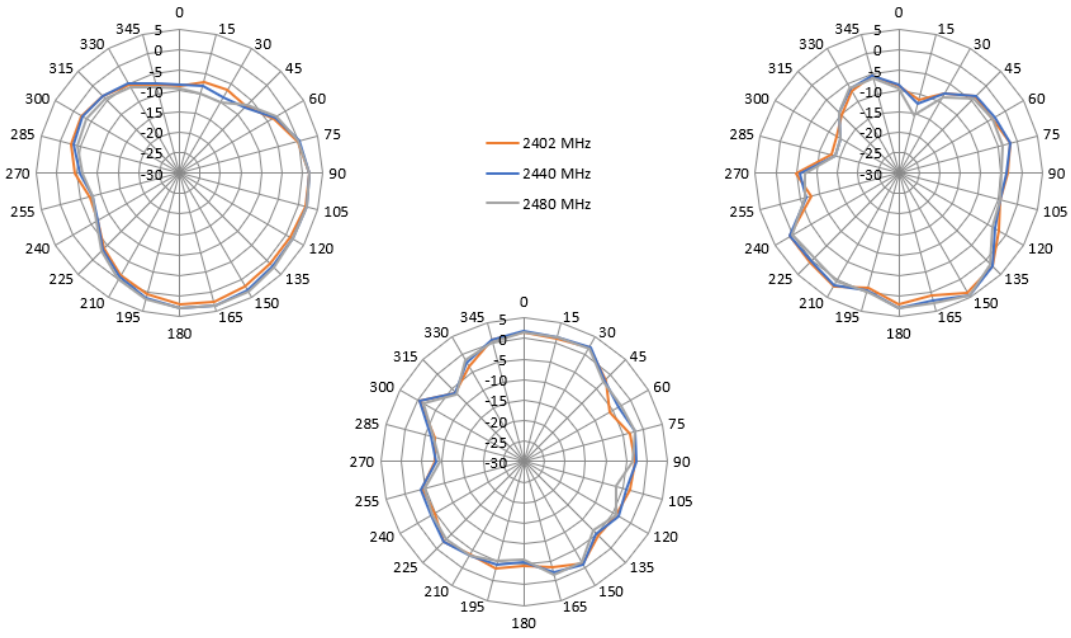
Antenna Performance — Passive Efficiency
(Typical as measured in Unit)



1-D Gain Plots
(Typical as measured in Unit)



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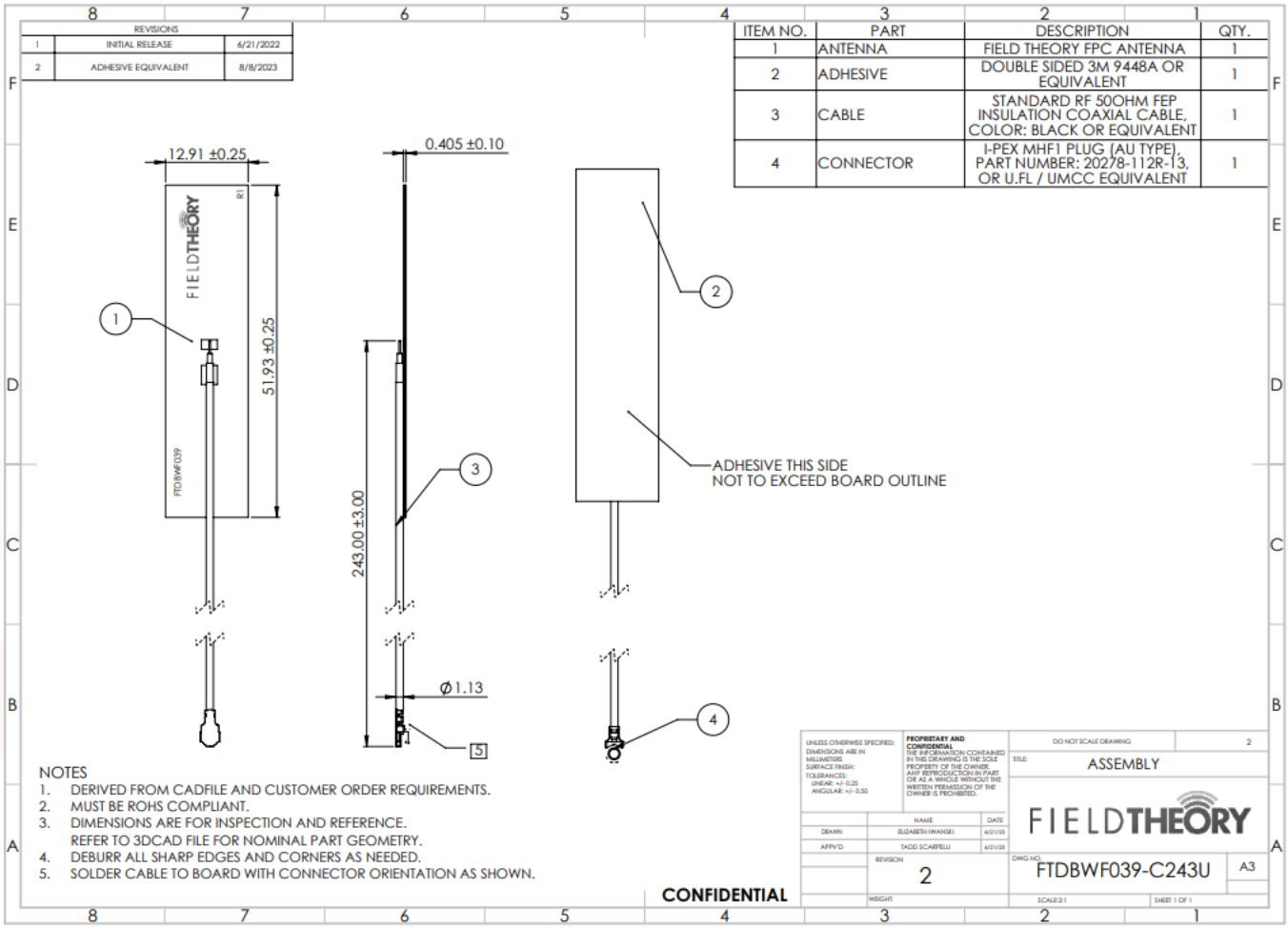
Mechanical Drawing



BLE Antenna