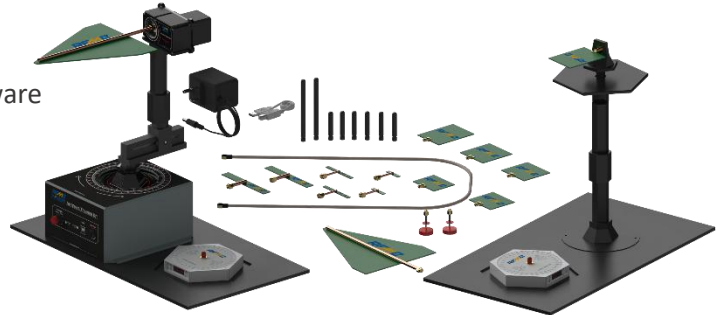# Antenna Trainer Kit
RFATK608-01D-0.3A

Features:

- Self-Contained Simple and Student Friendly platform
- Hands on set-up for measuring and plotting radiation Patterns of different Antennas in 2D & 3D
- Battery Operated Signal Source & Power Detector
- Transmitting and Receiving levels observed in Software
- Free Space Loss (FSL) Measurement
- Total Radiated Power (TRP) Test
- Gain Measurement
- Compact Design
- Lightweight
- User-Friendly Software For Effortless Analyses

Description:

The RFATK608-01D-0.3A is a comprehensive Antenna Trainee Kit designed for hands-on experimentation with antennas operating in the 50 MHz to 6 GHz frequency bands. This versatile and powerful antenna measurement system is not only ideal for training purposes but can also be utilized by design and research teams. The kit includes a variety of antennas, an RF signal source, an RF power detector, an automated antenna mast, and radiation pattern software for 2D and 3D radiation pattern plotting. Additionally, it comes with various other accessories to enhance the user experience and support a wide range of antenna measurement and analysis tasks.

Applications:

- Antenna Gain Measurement
- 2D & 3D Radiation Pattern
- Antenna Analysis
- FSL Calculation
- Antenna Learning
- TRP Measurement

Accessories:

- RF Adaptors
- 12V Supply Adaptor
- USB Type-B 1m Cable
- Multiple Types of Antennas

Antenna Type (General):

- Yagi - UDA
- Log - Periodic
- Loop Antenna
- Slot Antenna
- Inverted F

- Monopole
- Disc Cone Antenna
- Helical RHP
- Stamped Antenna

- Dipole
- Patch Antenna
- Helical LHP
- Phase Array Antenna

*Note: We provide antenna on basis of selected Signal Source.

Antenna Trainer Kit
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Antenna Training Kit Hardware Specifications:

	Min	Typical	Max
Antenna Mast (RFAMV018-036-001D):			
Input Voltage	8.0 V	9.0 V	12.0 V
Input Current	1.0 A	1.5 A	2.0 A
Step Size [1]	1°		30°
Angular Coverage Theta (θ)	0°		180°
Angular Coverage Phi (φ)	0°		360°
Step Coverage Time [2]:			
< 10°		1 sec	
> 10°		3 sec	
Step Accuracy		± 1°	
Signal Source:			
Frequency Range		As par table 1.0	
Amplitude [3]		0 ± 3 dBm	
Power Detector (RFRx016-109):			
Frequency Range	10 MHz		6.0 GHz
Dynamic Range	- 55.00 dB		- 5.00 dB
Pre Amplifire (RFPRDC-608-A16):			
Frequency Range	50.00 MHz		6.00 GHz
Gain	12.00 dB	14.00 dB	16.00 dB
Input Power			+ 5.00 dB
Noise Figure		1.1 dB	
Input Voltage			+5.00 V
Power Consumption			0.96 W

Note[X]:

[1] The step size is adjusted through software, allowing for precise control within a range of 1 degree to 30 degrees.
[2] Step coverage time is the time required to change the degree.
   Step Size <= 10° → Step Delay should be minimum 1 sec
   Step Size > 10° → Step Delay should be minimum 3 sec
[3] The amplitude may vary depending on the selected signal source model, as each model has different output characteristics and signal strengths.

Antenna Mast:

The antenna mast is designed to facilitate the measurement of radiation patterns in both 2D and 3D dimensions. By enabling the rotation of the antenna across both the azimuthal and elevation planes, this trainer mast allows for comprehensive analysis of antenna performance in space. This capability simplifies the process of characterizing and optimizing antenna radiation patterns across multiple orientations.
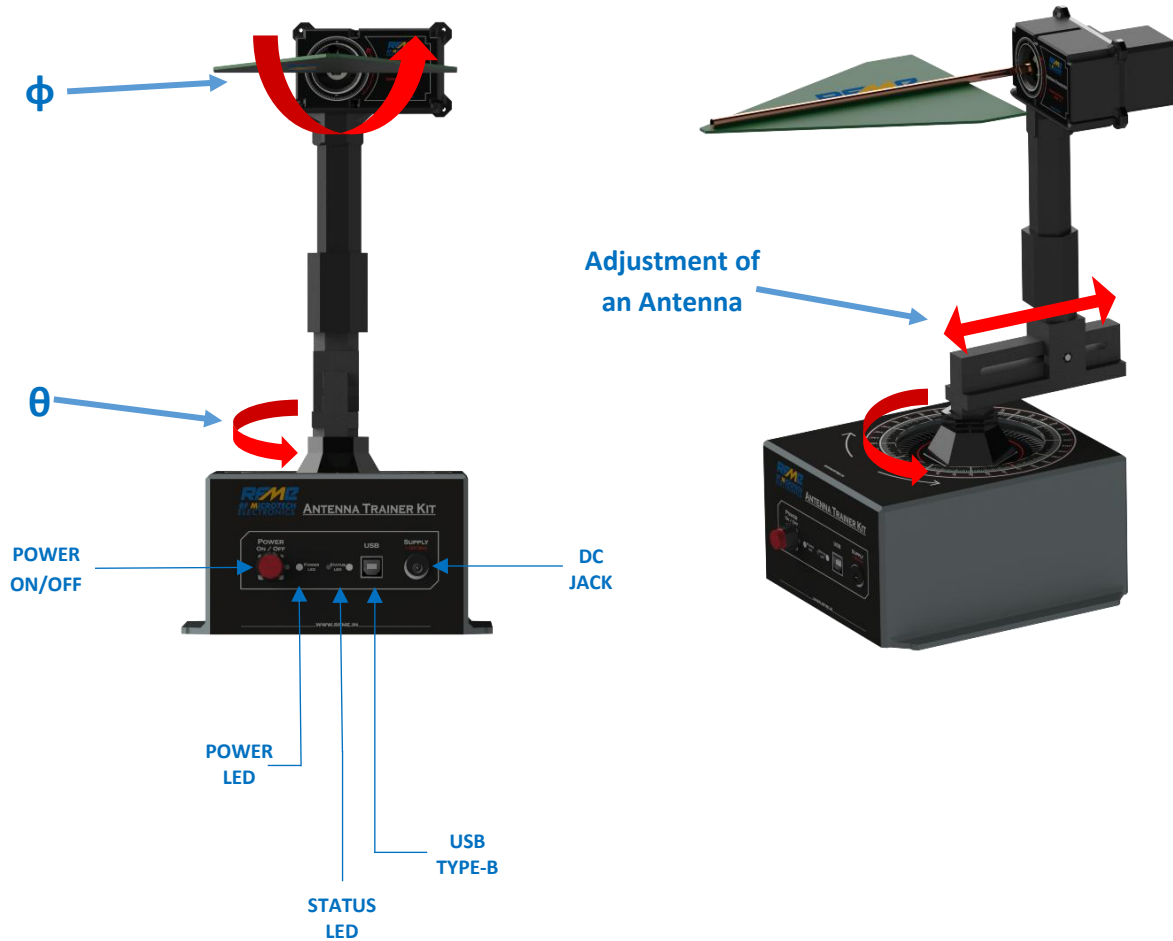

Image 1.0

- **Dual-Axis Rotation:** The antenna mast offers precise control over the antenna's orientation through two independent axes of rotation:

  - **Theta (θ):** Controls the vertical elevation angle.(0 to 180 Degree)
  - **Phi (φ):** Controls the horizontal azimuth angle.(0 to 359 Degree)

- **Adjustment of an Antenna:** The mast allows for the adjustment of the antenna before rotating on either the Theta or Phi axis. This feature ensures accurate positioning and optimal signal reception. Refer image 1.0

Antenna Trainer Kit
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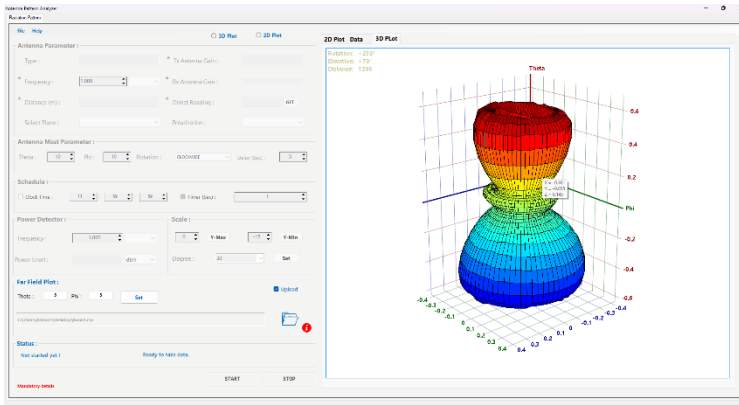## RFME Radiation Pattern Analyzer Software (RPA):

The RPA is a Windows – Based (Windows 10 or 11) Software that is included in Antenna Trainee kit. It helps to Plotting Antenna Radiation Pattern in 2D and 3D. (Read RPA User manual for more Details)
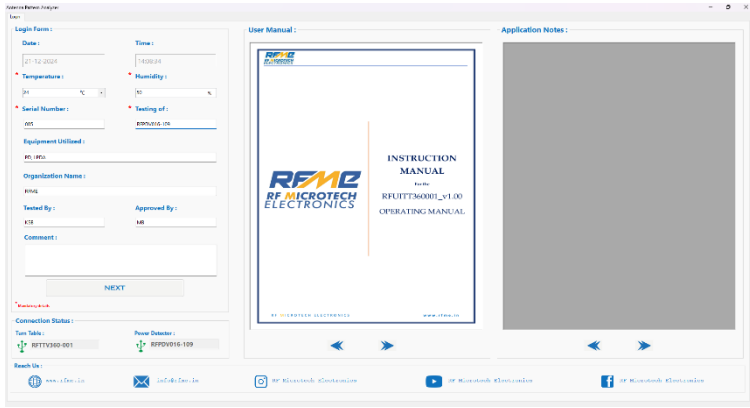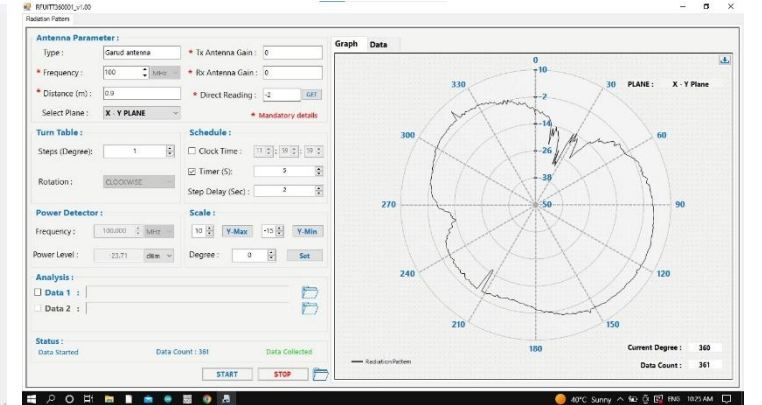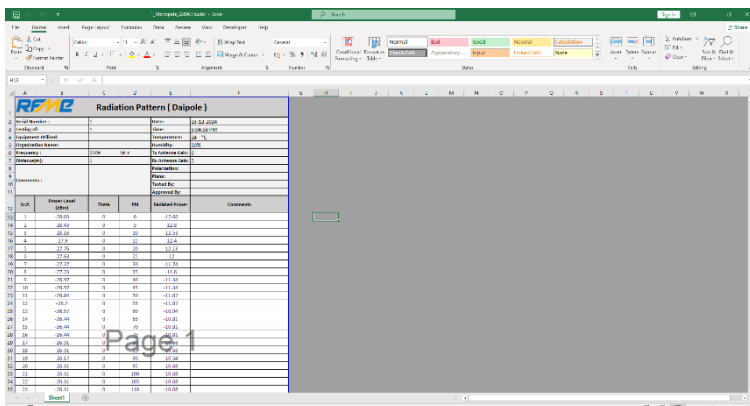

A) Login Page
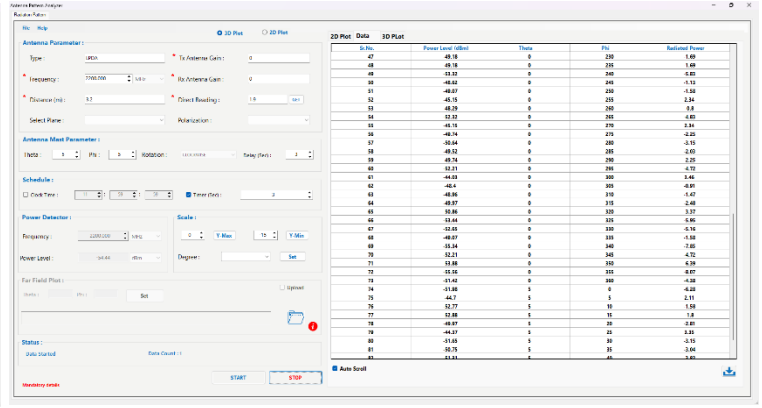
B) System Live Data

C) 3D Radiation Pattern

D) 2D Radiation Pattern

E) Exported Data in Excel

F) 3D Radiation Pattern

A. Electrical specification and Performance data contained in this specification document are based on RFME's applicable established test performance criteria and measurement instruction.

B. The parts covered by this specification document are subject to RFME standard limited warranty and terms & conditions.
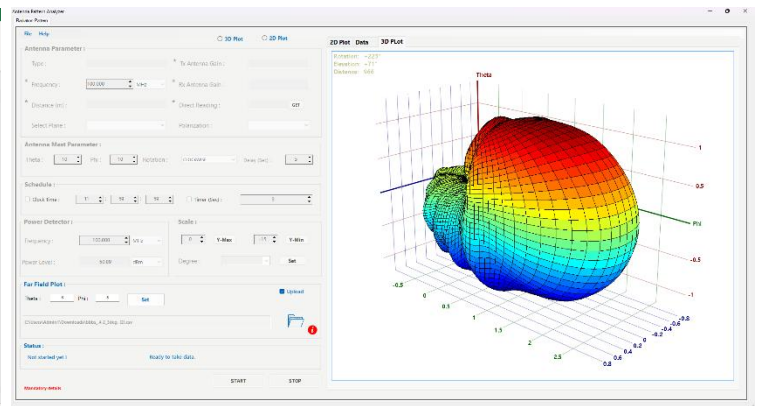
Signal Source:

Sr.No	Model No.	Frequency Range	Sr.No	Model No.	Frequency Range
1	RFTxV516-636	51MHz- 63MHz	12	RFTxV198-238	1.93GHz- 2.31GHz
2	RFTxV107-127	100MHz-129MHz	13	RFTxV218-268	2.13GHz- 2.6GHz
3	RFTxV197-257	194MHz -255MHz	14	RFTxV228-258	2.23GHz- 2.54GHz
4	RFTxV337-447	330MHz- 466MHz	15	RFTxV248-288	2.41GHz-2.87GHz
5	RFTxV497-657	494MHz -655MHz	16	RFTxV268-328	2.68GHz- 3.21GHz
6	RFTxV787-927	781MHz -920MHz	17	RFTxV298-368	2.93GHz- 3.61GHz
7	RFTxV807-967	802MHz- 966MHz	18	RFTxV328-378	3.27GHz -3.72GHz
8	RFTxV887-108	880MHz 1.02GHz	19	RFTxV358-408	3.51GHz -4.09GHz
9	RFTxV108-128	1.01GHz 1.28GHz	20	RFTxV388-468	3.84GHz- 4.68GHz
10	RFTxV208-218	2.02GHz- 2.16GHz	21	RFTxV428-528	4.27GHz- 5.22GHz
11	RFTxV208-228	2.05GHz- 2.25GHz	22	RFTxV478-578	4.74GHz- 5.75GHz

Table 1.1

Optional Accessories:

- RF Cable Assemebly
- RF Adapters
- Conductive Copper Tape
- Customized Antenna
- Power Detector
- Signal Source
- Attenuators
- Filters
- Pre Amplifier