

GENERAL DESCRIPTION

This document reassumes the analysis for the radiation pattern and gain on different bands for the antenna MV7 based on the data provided by the customer.

EXTERNAL REFERENCES

MV7 antenna manual

MV7 coil dimension

MV7 tuning and data from the customer

ANALYSIS APPROACH

Analysis has been conducted with FEM software capable of analyzing the structure of the MV7 in detail, using material characteristics and proper ground structure.

The farfields graphs have been simulated in each operative band, and presented in 2D pattern for Azimut (H-Plane) and Elevation (E-Plane) planes, and 3D representation.

SYSTEM SPECIFICATION REVIEW

00242500010125-SSR ed.D0

DATA CLASSIFICATION: L2 - PRIVATE

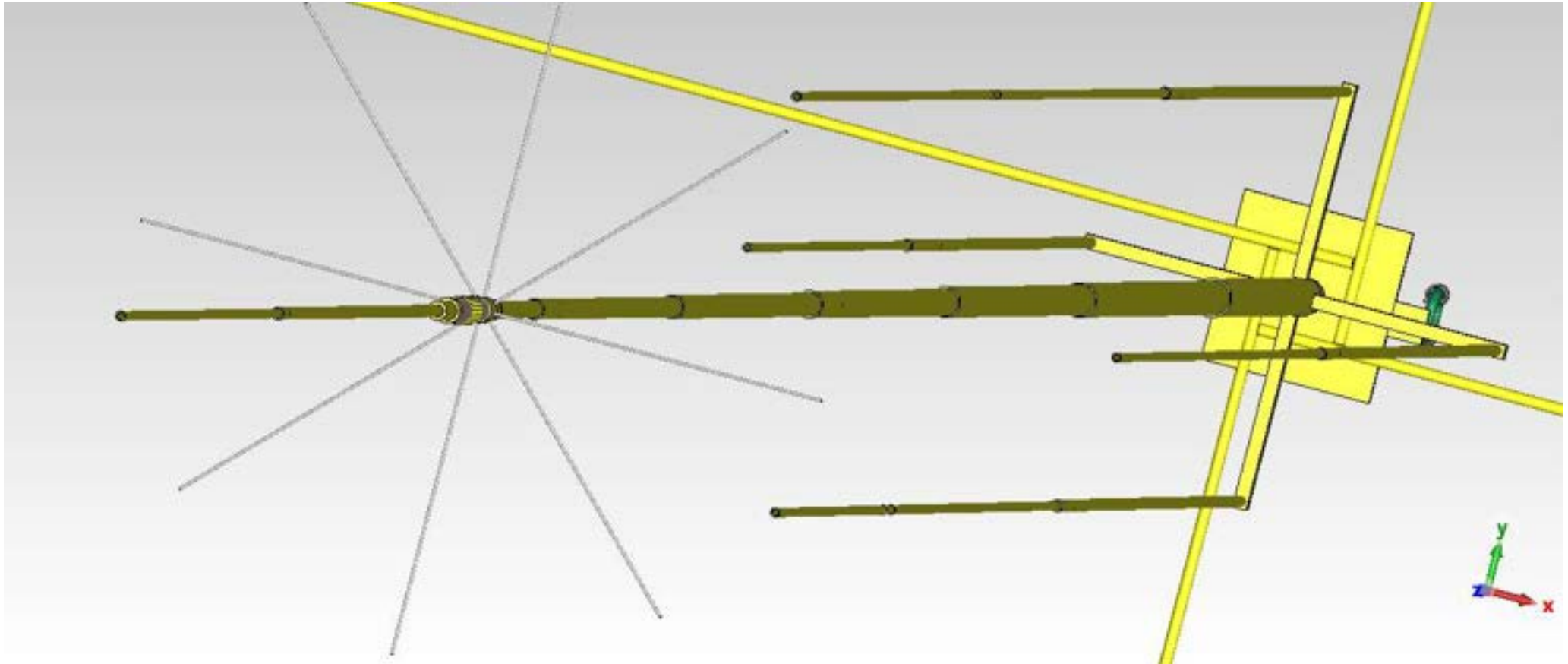
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3D ANTENNA MODEL



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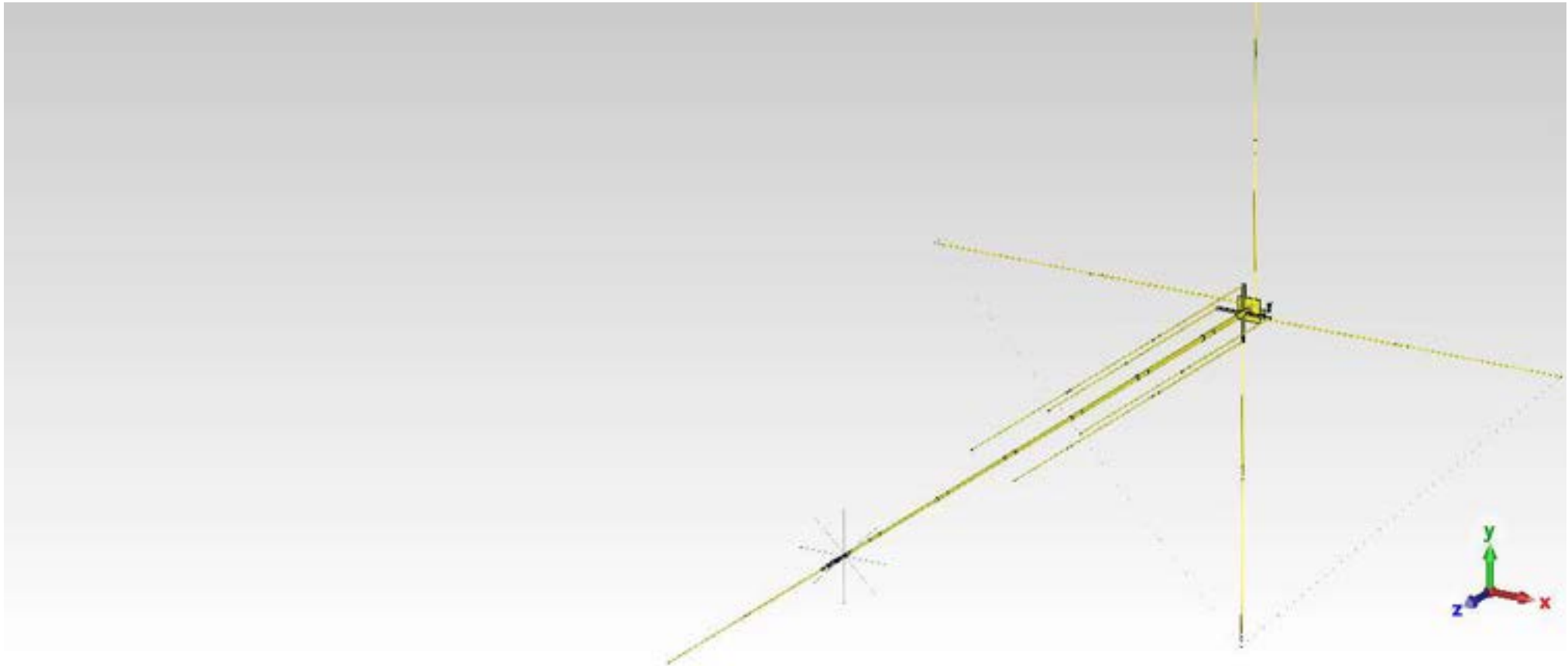
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18 & 50 MHz

Top view of the antenna (viewed from above), stubs orientation is indicated with the labels on the four radials

28 MHz

24 MHz

21 MHz



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24 MHz

28 MHz

Side view of the antenna (viewed from the side), stubs orientation is indicated with the labels on right and left to know the orientation of the antenna.

18 & 50 MHz stub is in front of the main element of the antenna, while the 21 MHz stub is behind the main element



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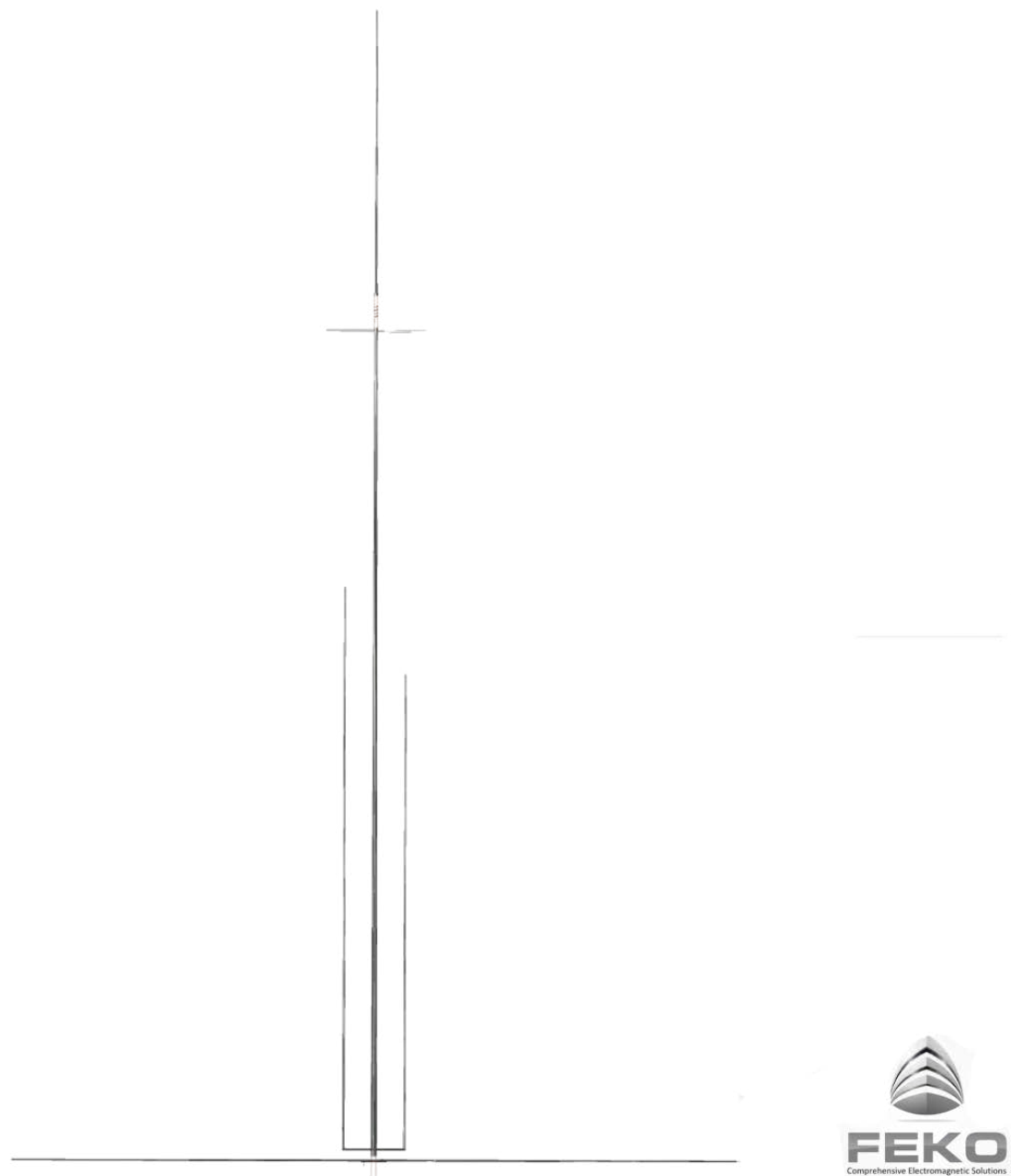
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Z axis, in blue, shows the vertical axis of the antenna, 3D radiation pattern is shows as its best orientation to indicate the particular behavior at each frequency.



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Normal soil analysis with antenna placed at 10 meters from ground

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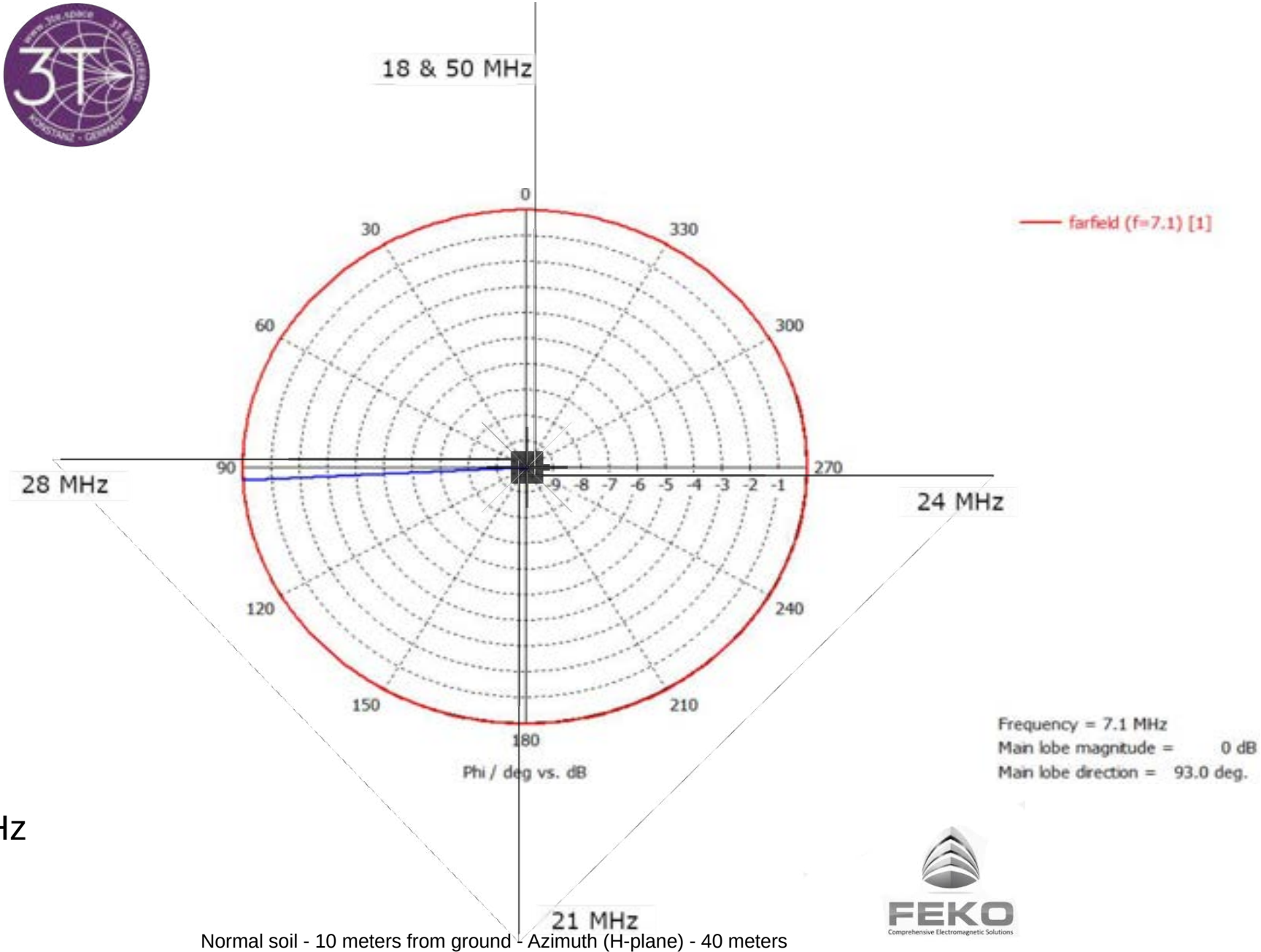
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7.1 MHz



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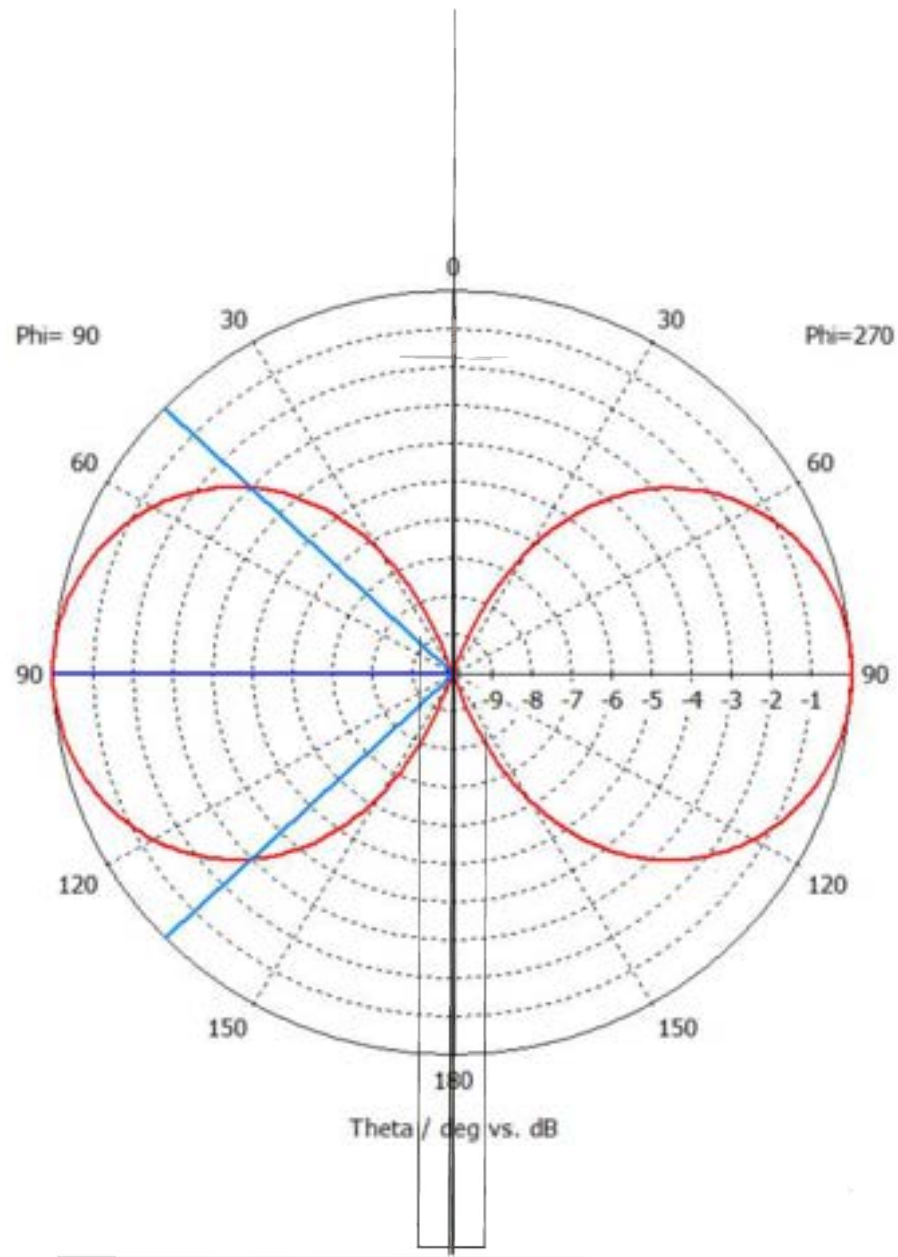
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24 MHz

7.1 MHz



— farfield (f=7.1) [1]

28 MHz

Frequency = 7.1 MHz
Main lobe magnitude = 0 dB
Main lobe direction = 90.0 deg.
Angular width (3 dB) = 87.8 deg.



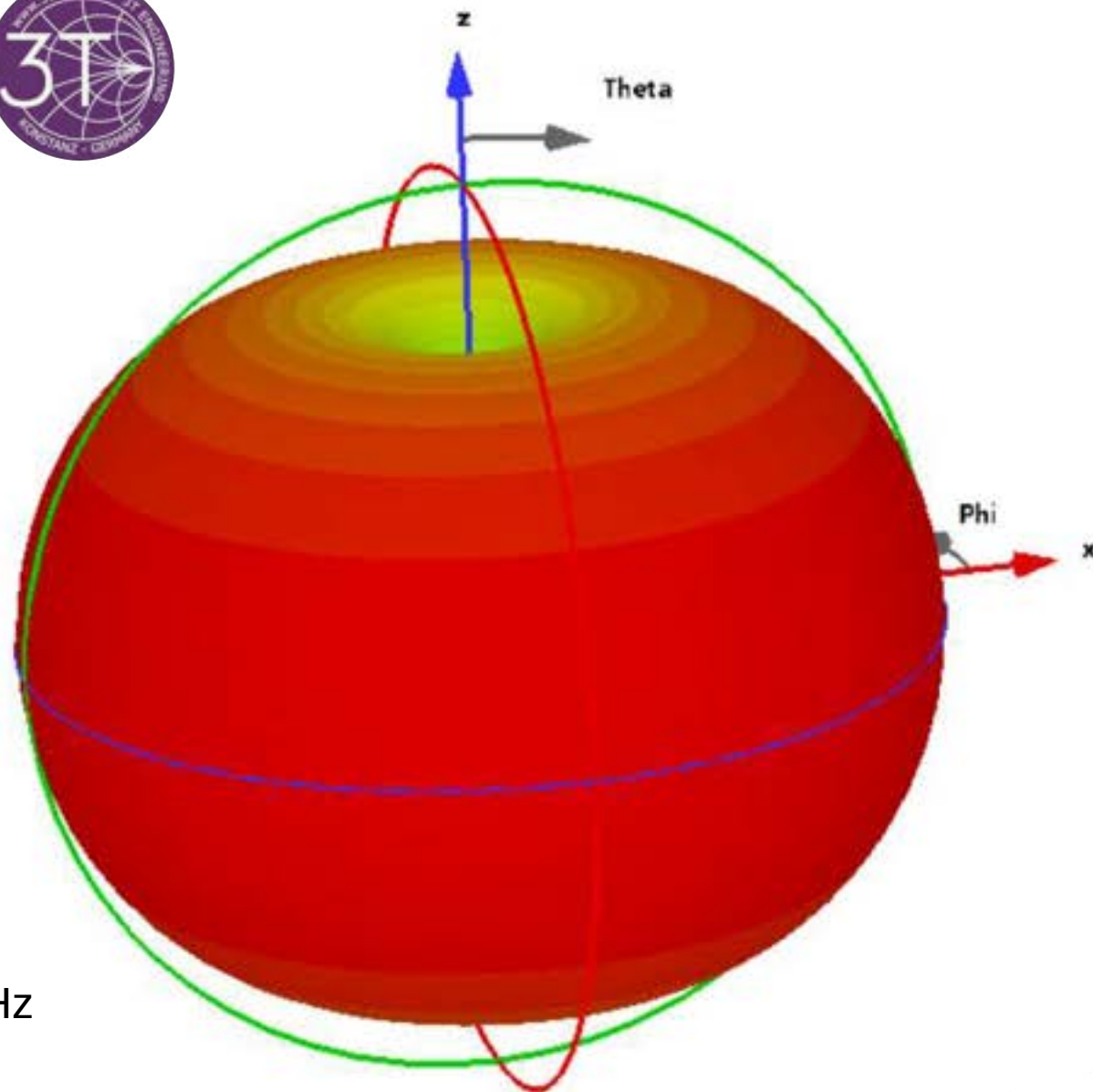
Normal soil - 10 meters from ground - Elevation (E-plane) - 40 meters

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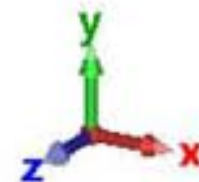
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7.1 MHz

Normal soil - 10 meters from ground – 3D radiation pattern - 40 meters

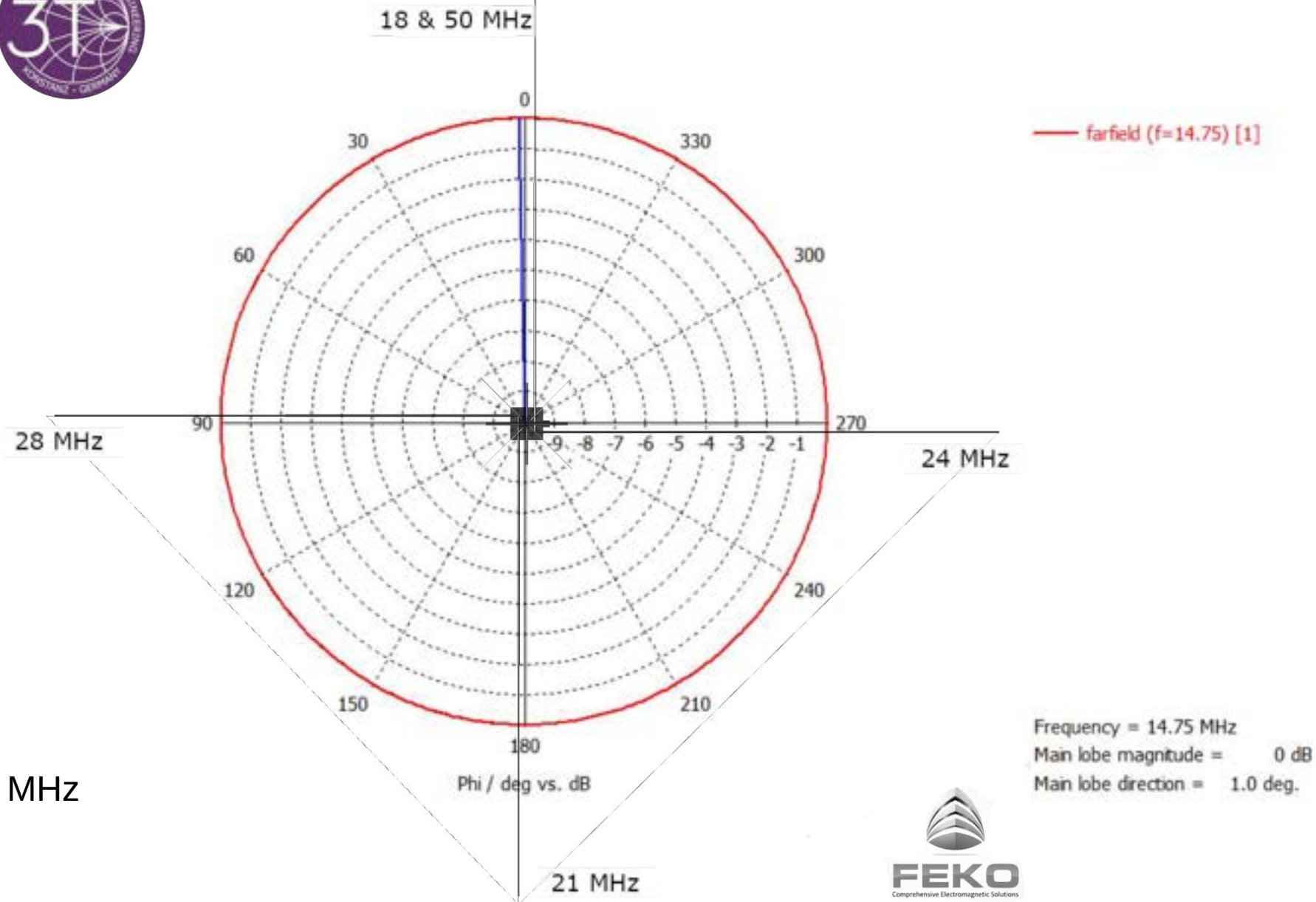


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Normal soil - 10 meters from ground - Azimuth (H-plane) - 20 meters

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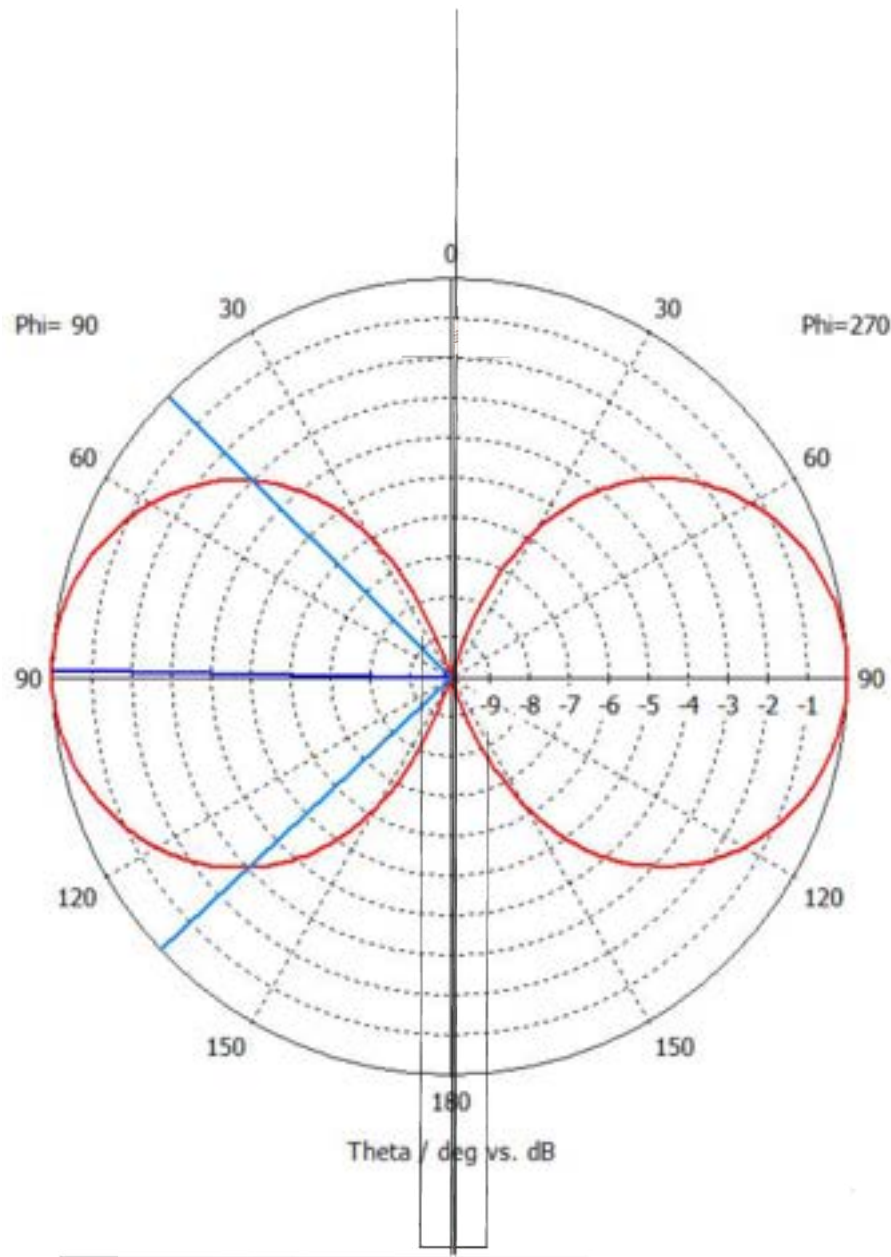
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24 MHz

14.175 MHz



28 MHz

Frequency = 14.75 MHz
Main lobe magnitude = 0 dB
Main lobe direction = 89.0 deg.
Angular width (3 dB) = 87.8 deg.



Normal soil - 10 meters from ground - Elevation (E-plane) - 20 meters

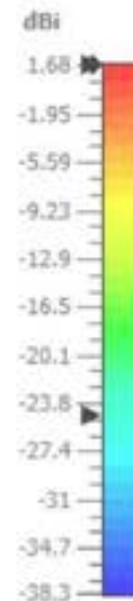
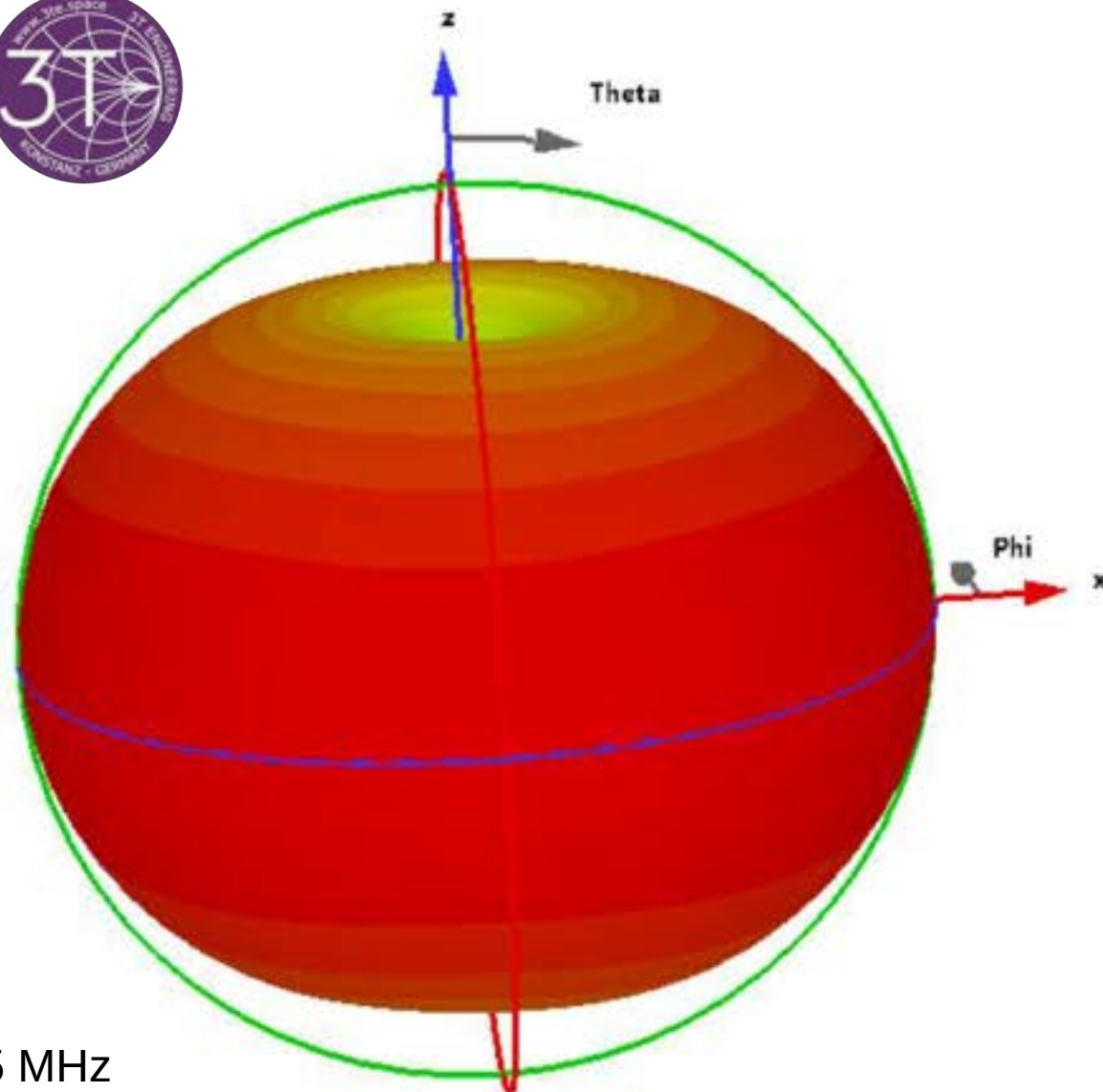
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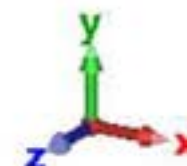
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14.175 MHz



Normal soil - 10 meters from ground – 3D radiation pattern – 20 meters

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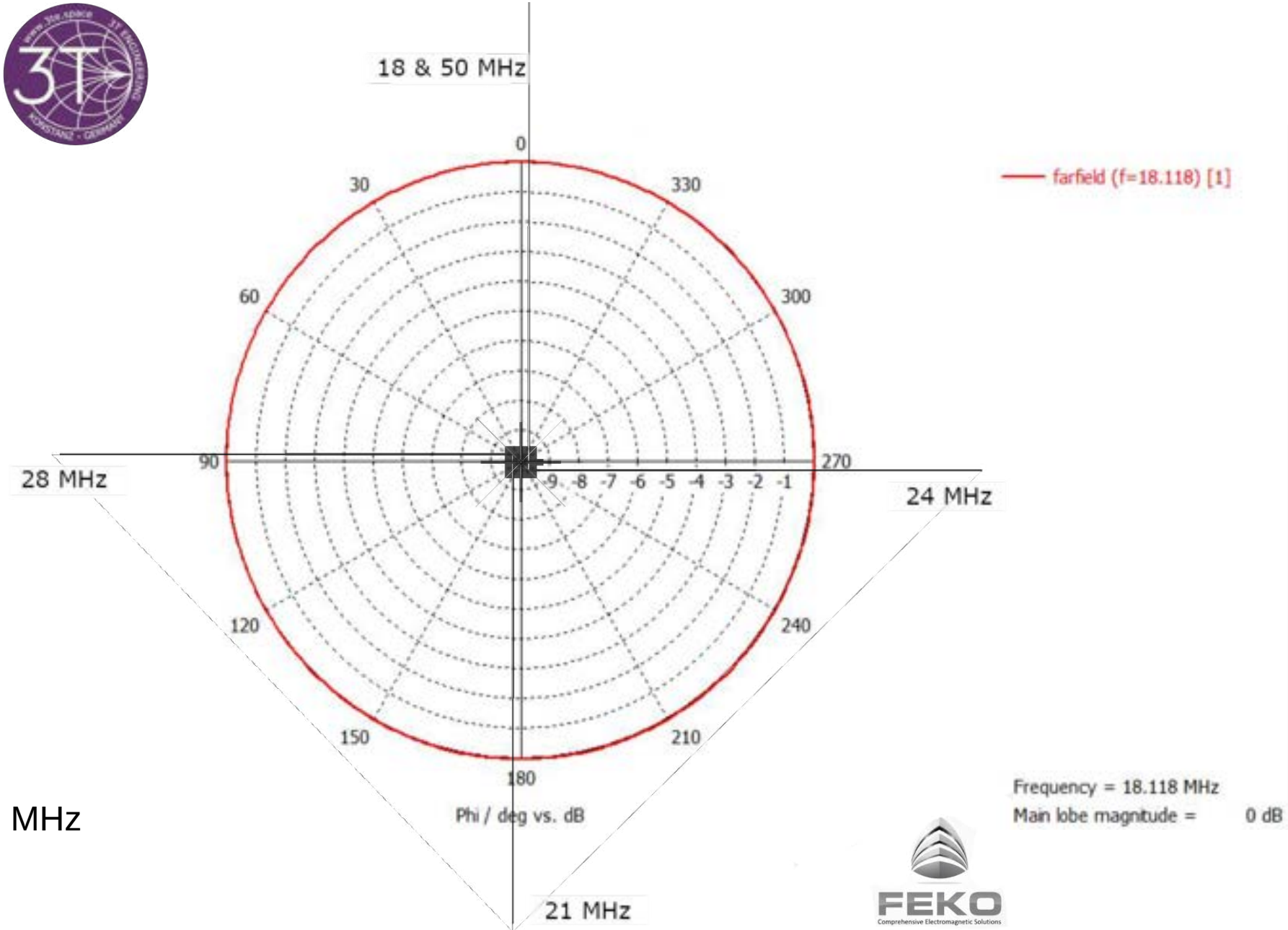
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18.118 MHz



Normal soil - 10 meters from ground - Azimuth (H-plane) - 17 meters



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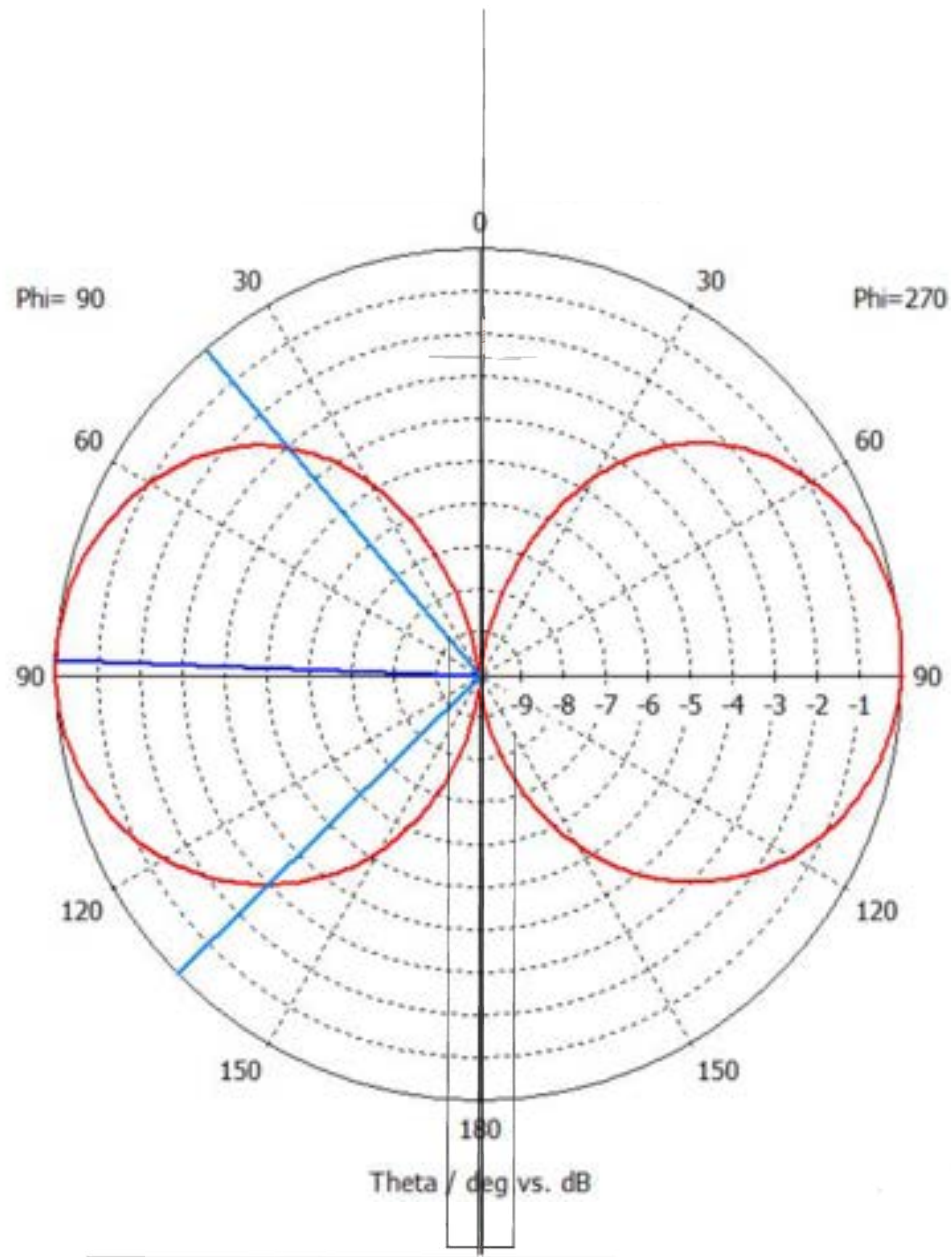
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24 MHz

18.118 MHz



— farfield (f=18.118) [1]

28 MHz

Frequency = 18.118 MHz
Main lobe magnitude = 0 dB
Main lobe direction = 88.0 deg.
Angular width (3 dB) = 94.2 deg.



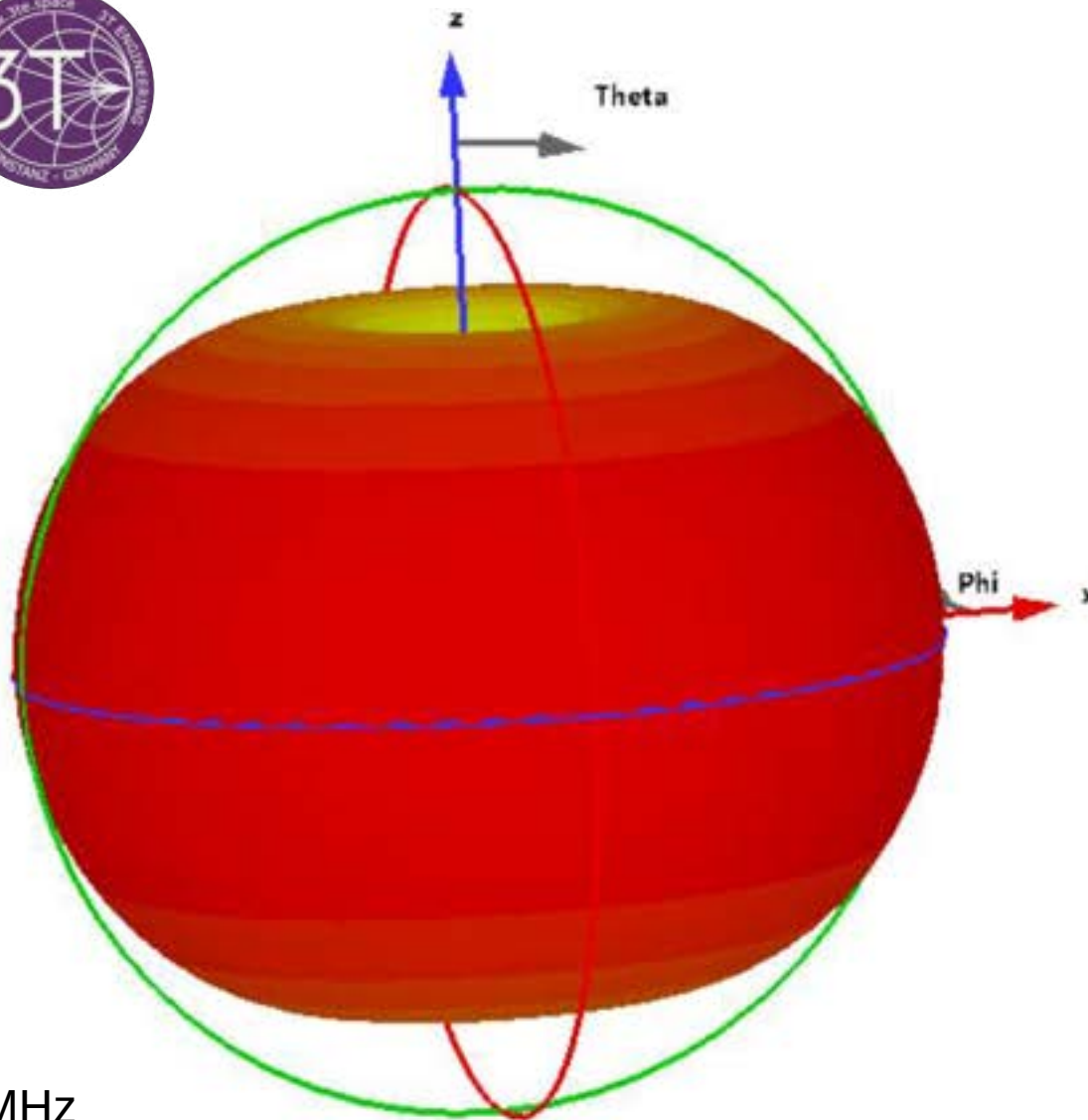
Normal soil - 10 meters from ground - Elevation (E-plane) - 17 meters

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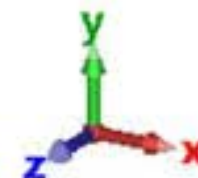
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18.118 MHz

Normal soil - 10 meters from ground – 3D radiation pattern – 17 meters



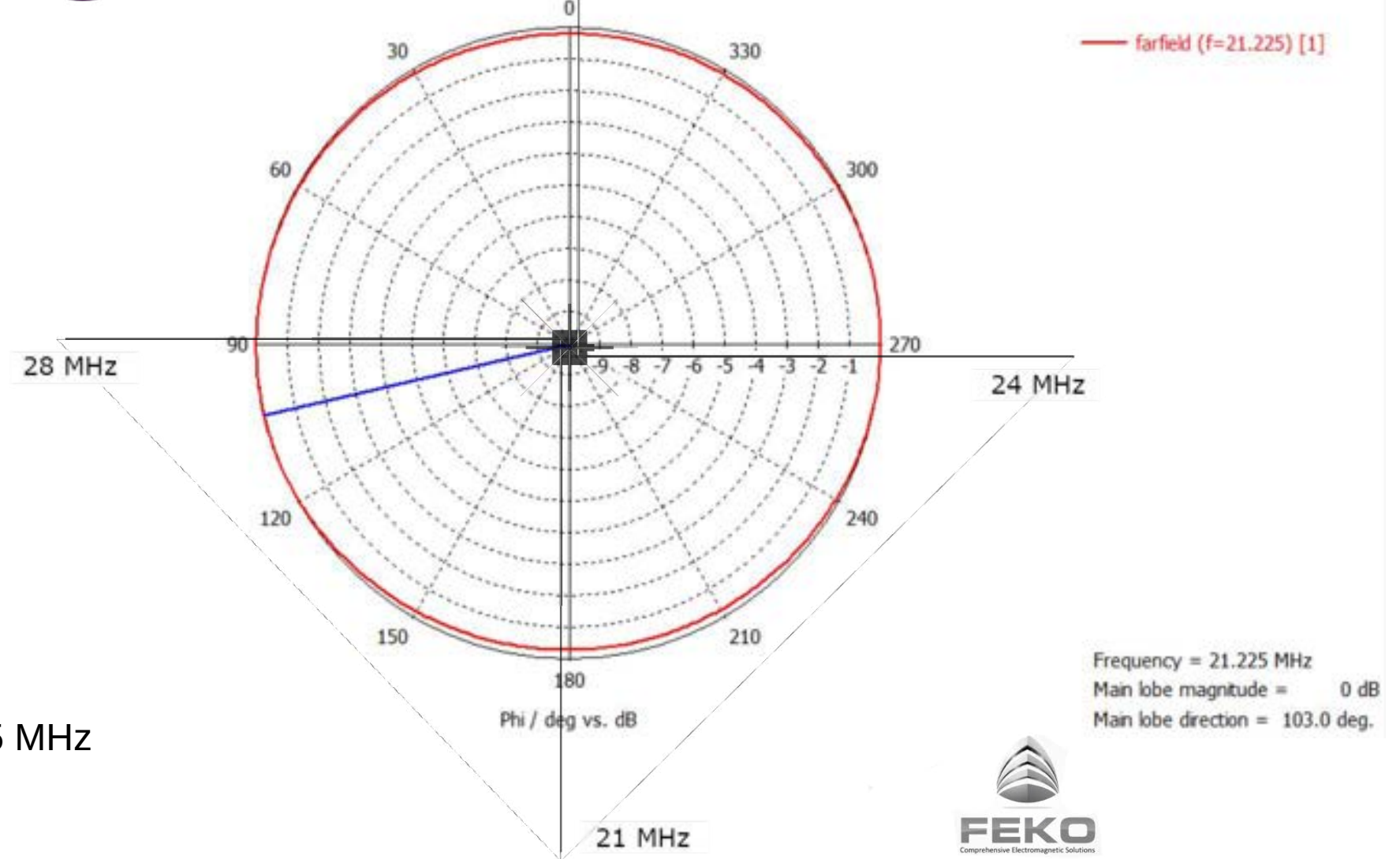
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21.225 MHz

Normal soil - 10 meters from ground - Azimuth (H-plane) - 15 meters

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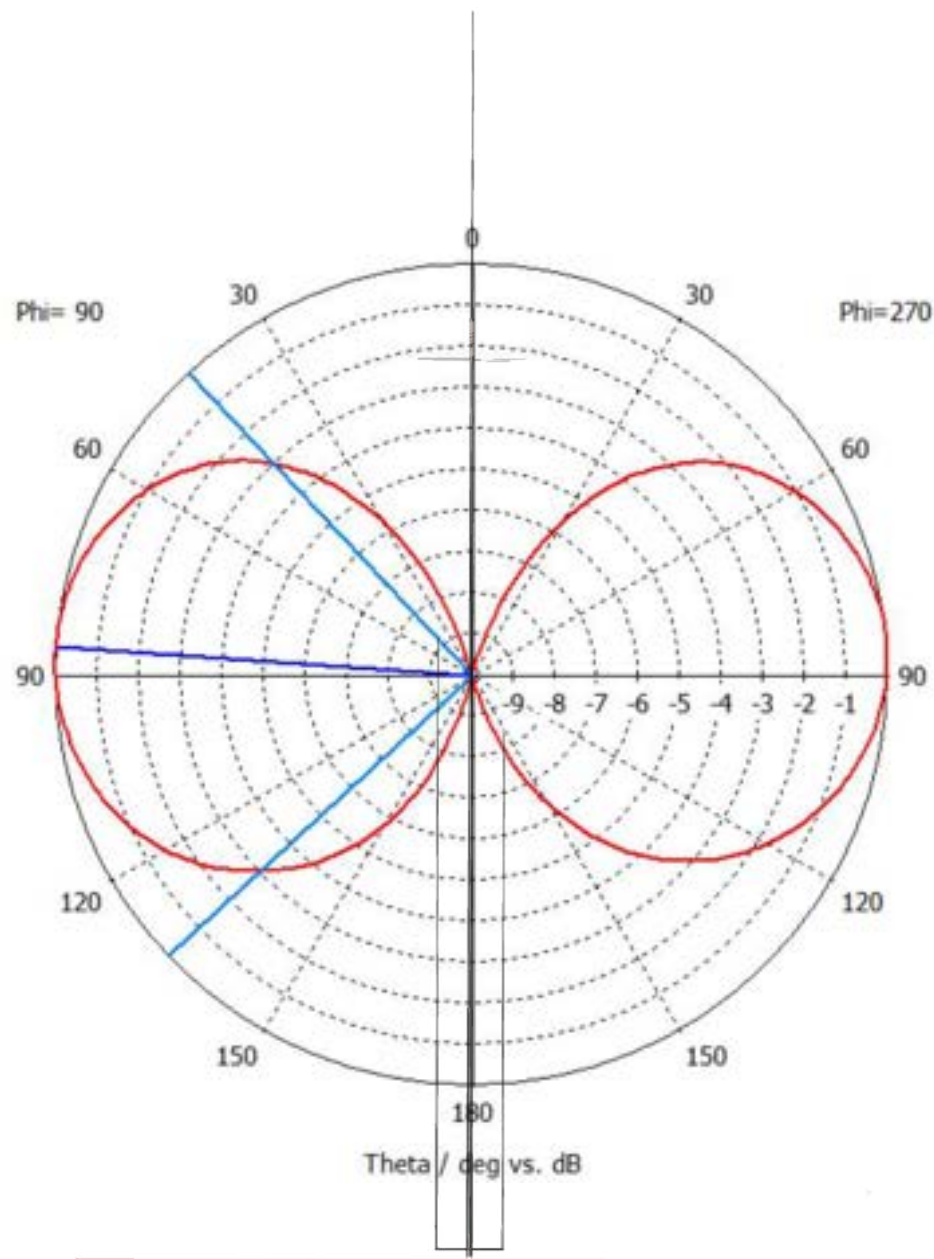
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24 MHz

21.225 MHz



— farfield (f=21.225) [1]

28 MHz

Frequency = 21.225 MHz
Main lobe magnitude = 0 dB
Main lobe direction = 86.0 deg.
Angular width (3 dB) = 90.2 deg.



Normal soil - 10 meters from ground - Elevation (E-plane) - 15 meters

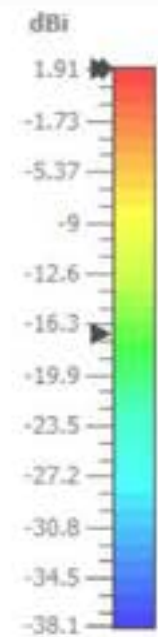
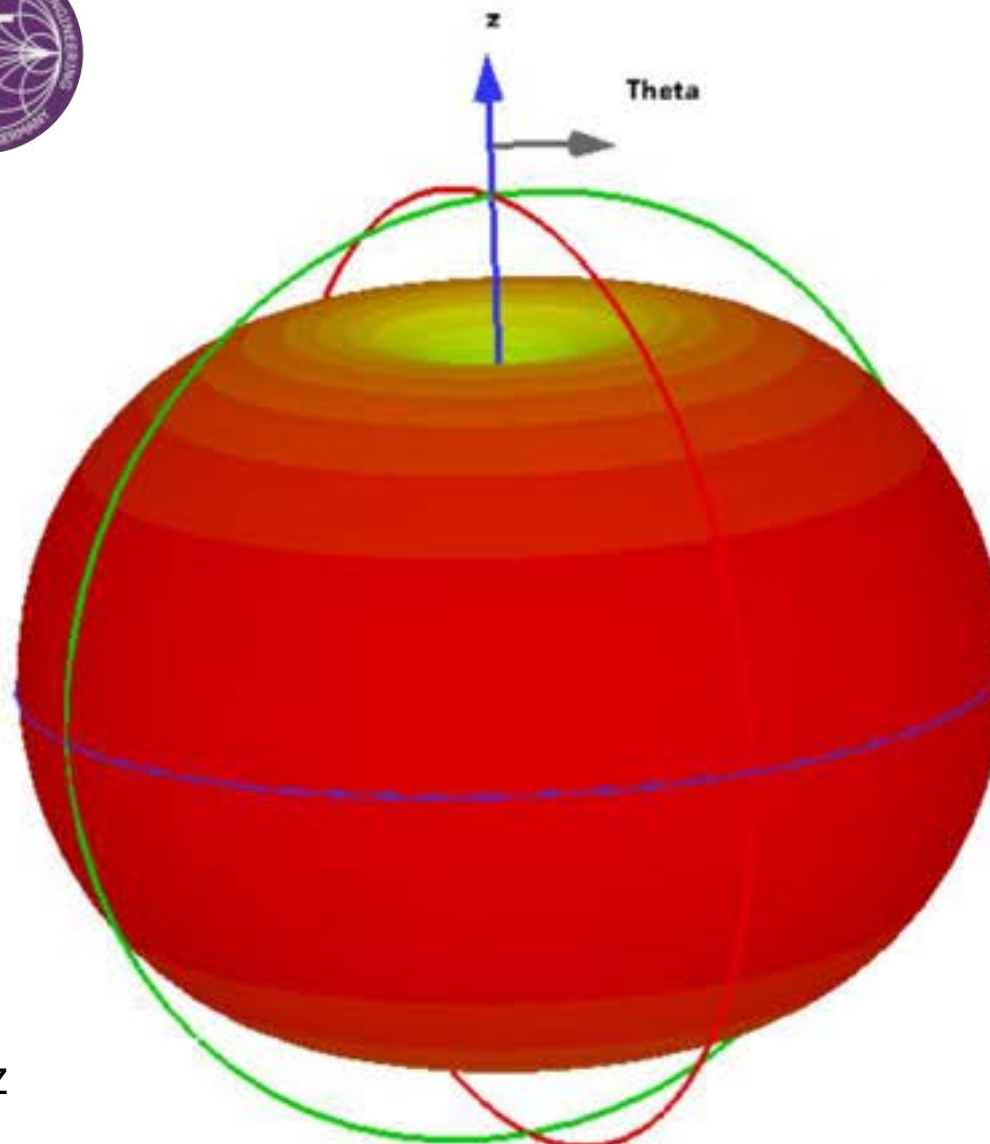
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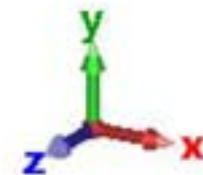
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21.225 MHz

Normal soil - 10 meters from ground – 3D radiation pattern – 15 meters



SYSTEM SPECIFICATION REVIEW

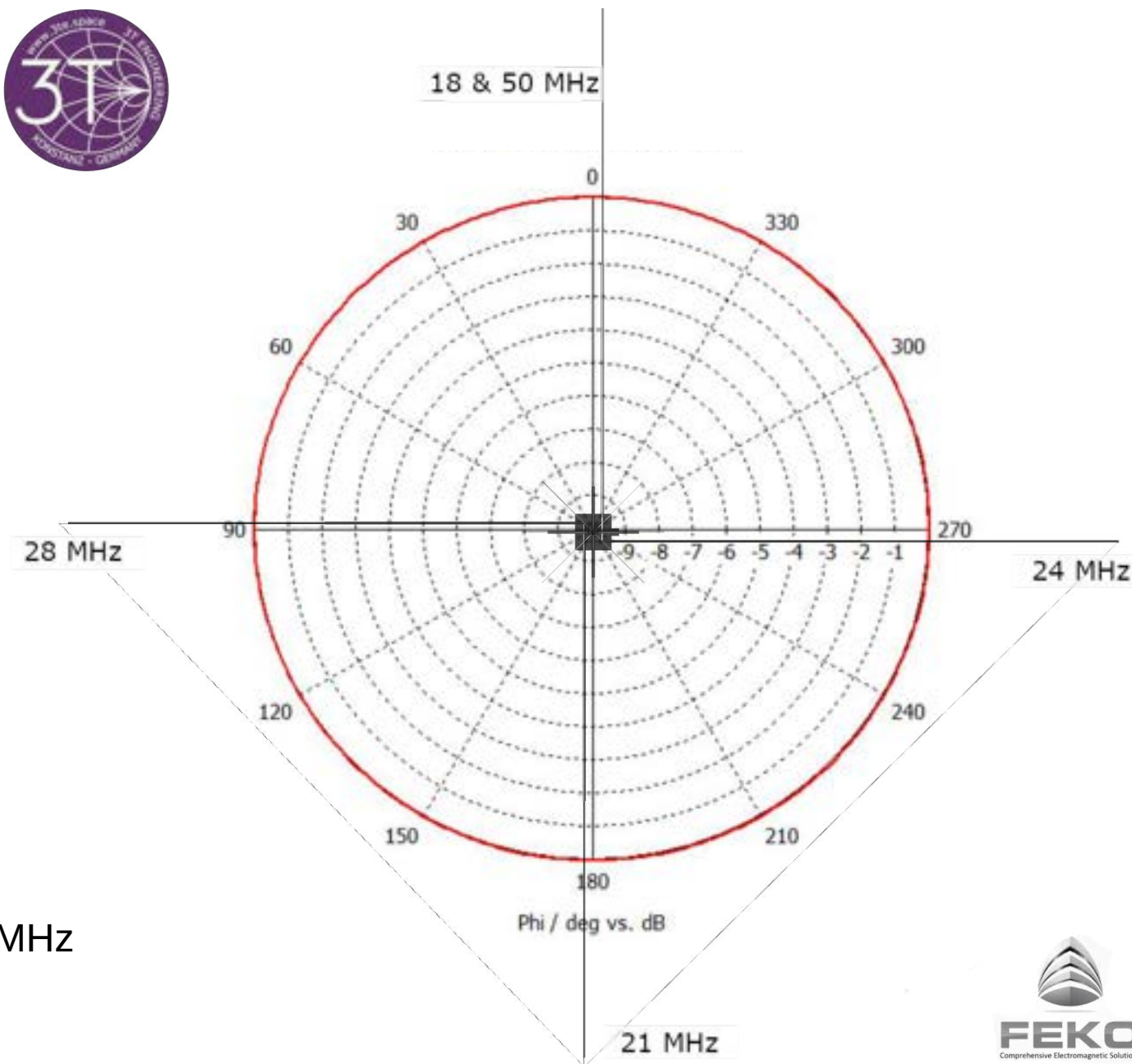
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24.94 MHz



— farfield (f=24.94) [1]

Frequency = 24.94 MHz
Main lobe magnitude = 0 dB



Normal soil - 10 meters from ground - Azimuth (H-plane) - 12 meters

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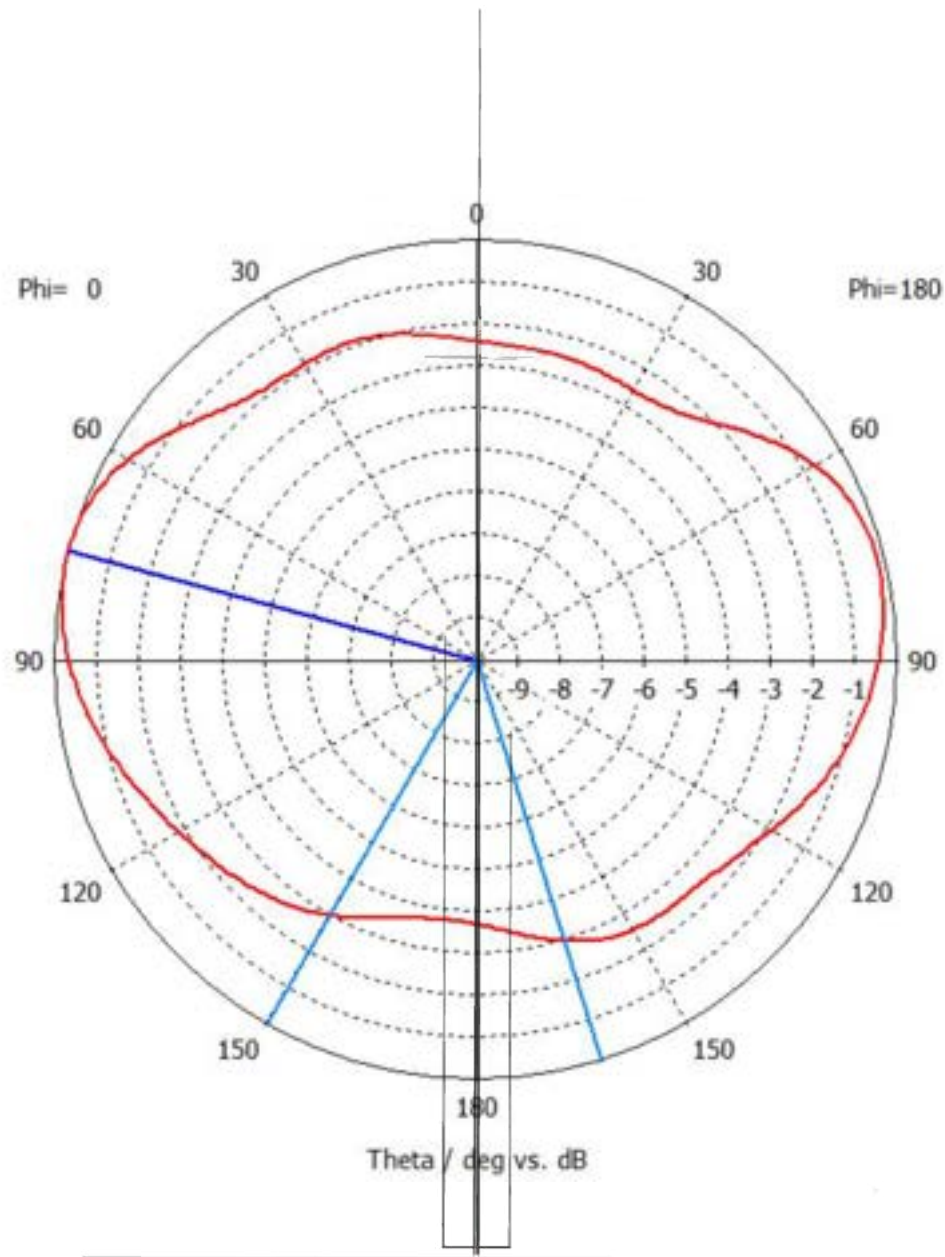
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24 MHz

24.94 MHz



28 MHz

Frequency = 24.94 MHz
Main lobe magnitude = 0 dB
Main lobe direction = 75.0 deg.
Angular width (3 dB) = 312.8 deg.



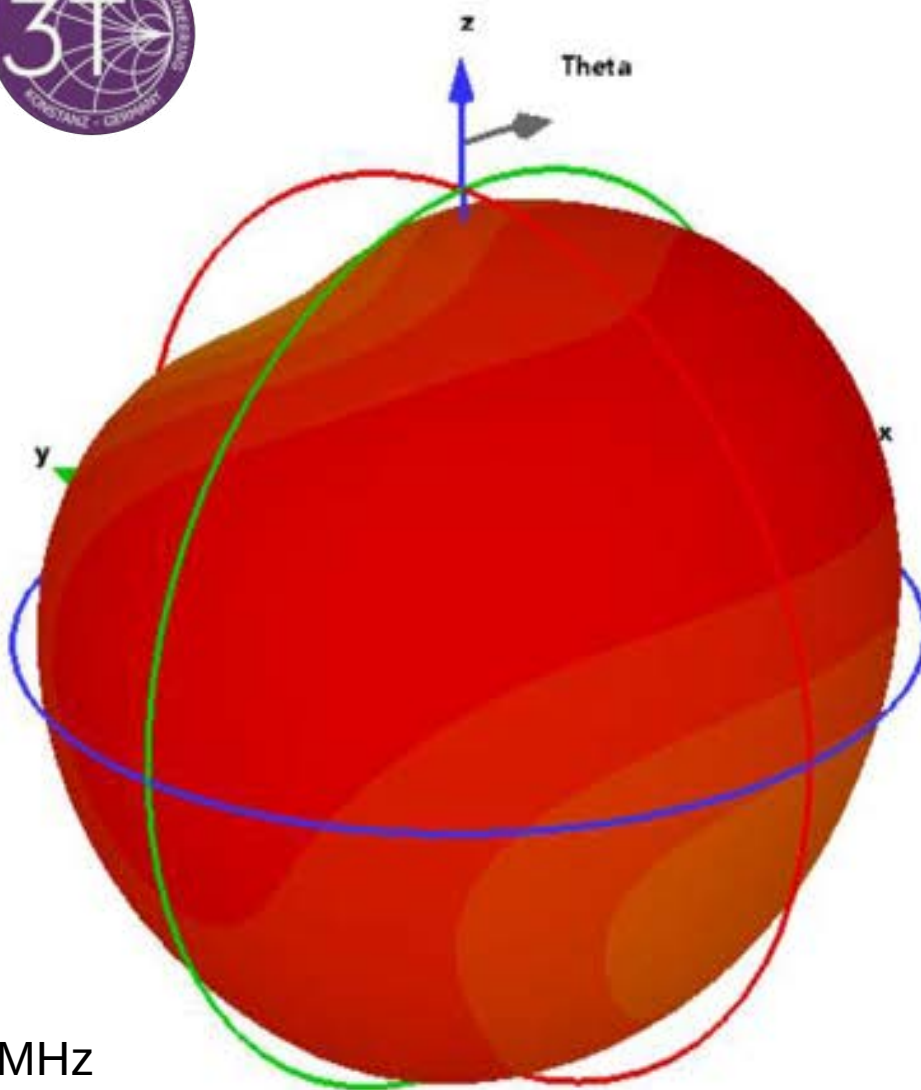
Normal soil - 10 meters from ground - Elevation (E-plane) - 12 meters

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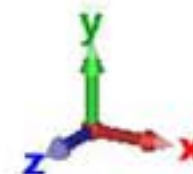
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24.94 MHz

Normal soil - 10 meters from ground – 3D radiation pattern – 12 meters



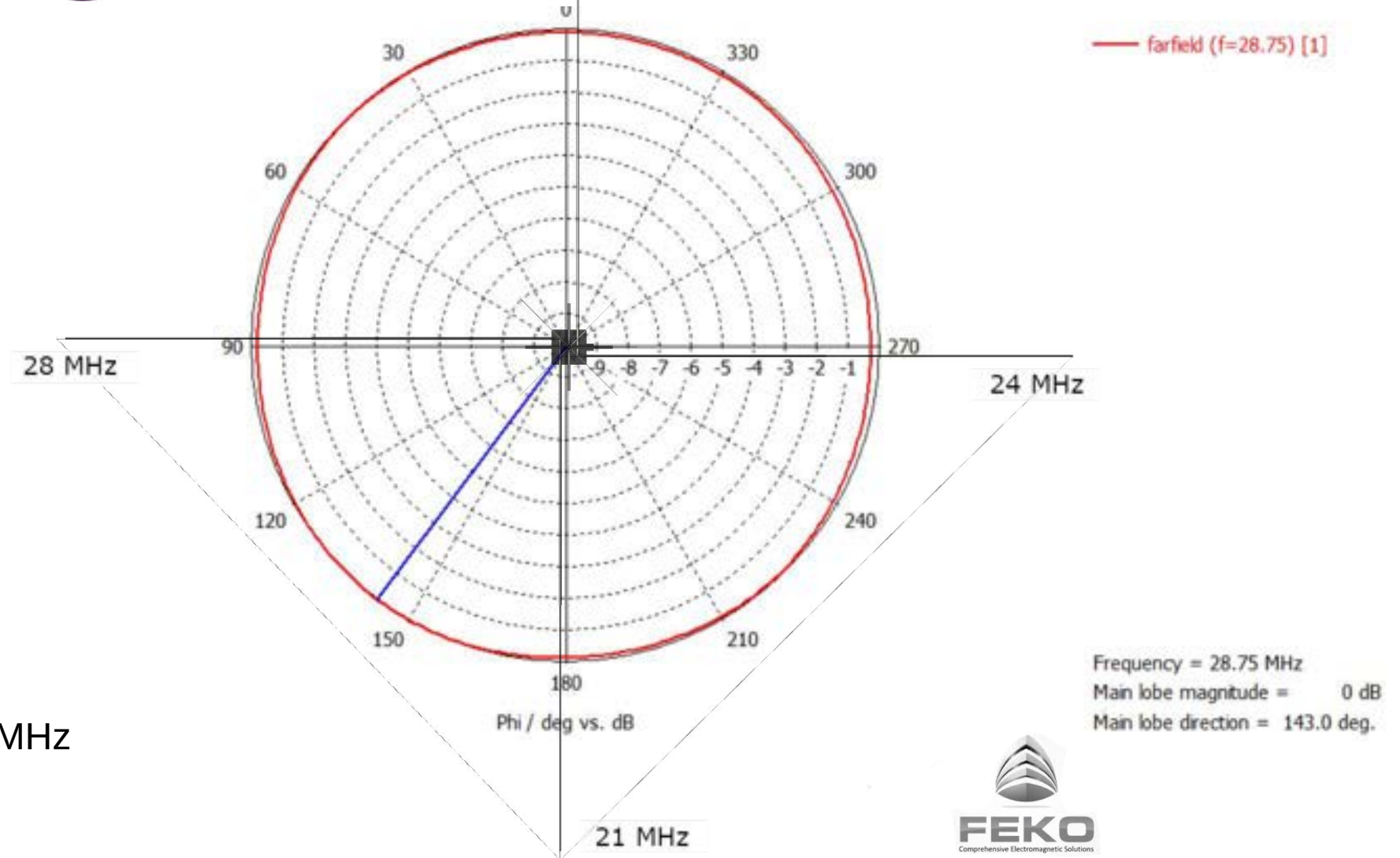
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28.75 MHz

Normal soil - 10 meters from ground - Azimuth (H-plane) - 10 meters

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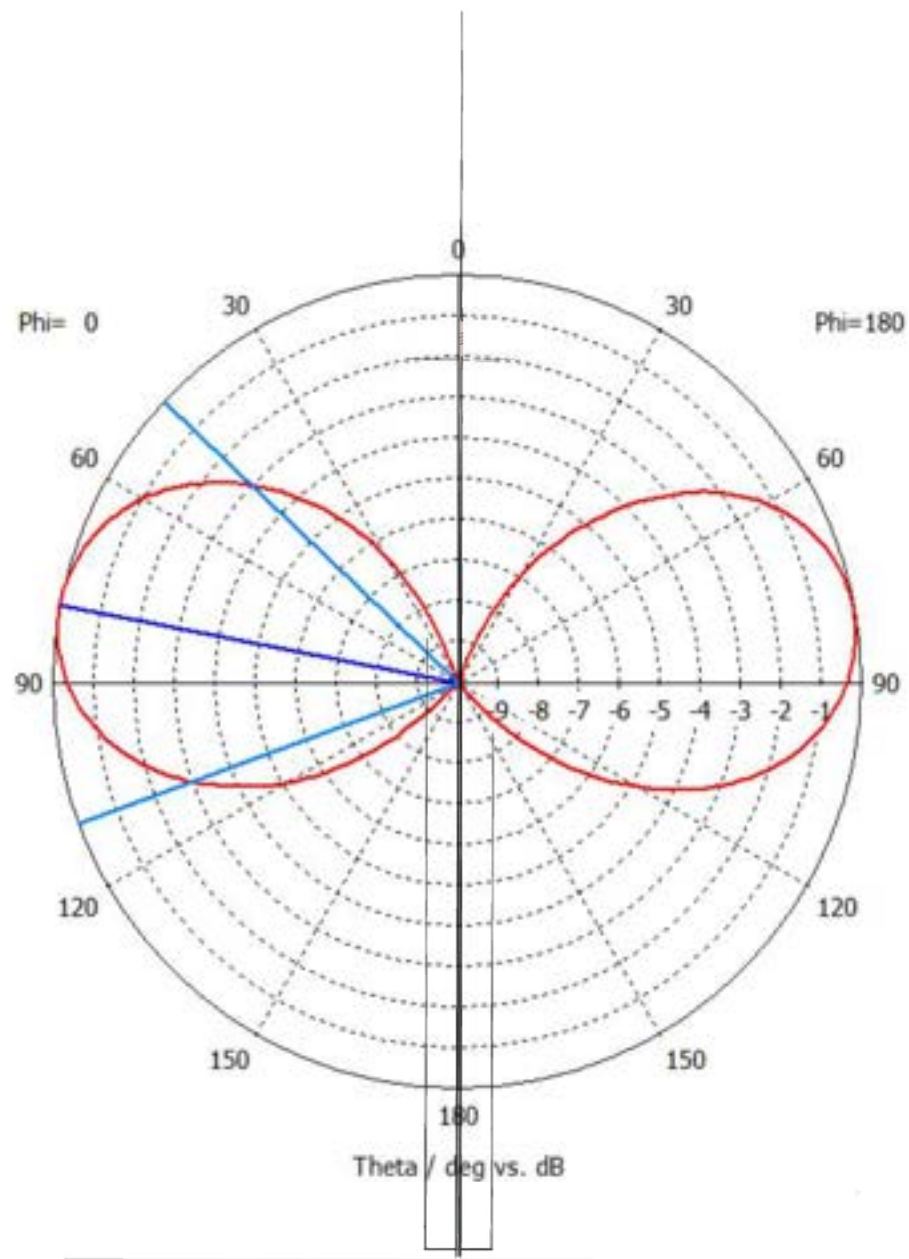
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24 MHz

28.75 MHz



— farfield (f=28.75) [1]

28 MHz

Frequency = 28.75 MHz
Main lobe magnitude = 0 dB
Main lobe direction = 79.0 deg.
Angular width (3 dB) = 64.0 deg.



Normal soil - 10 meters from ground - Elevation (E-plane) - 10 meters

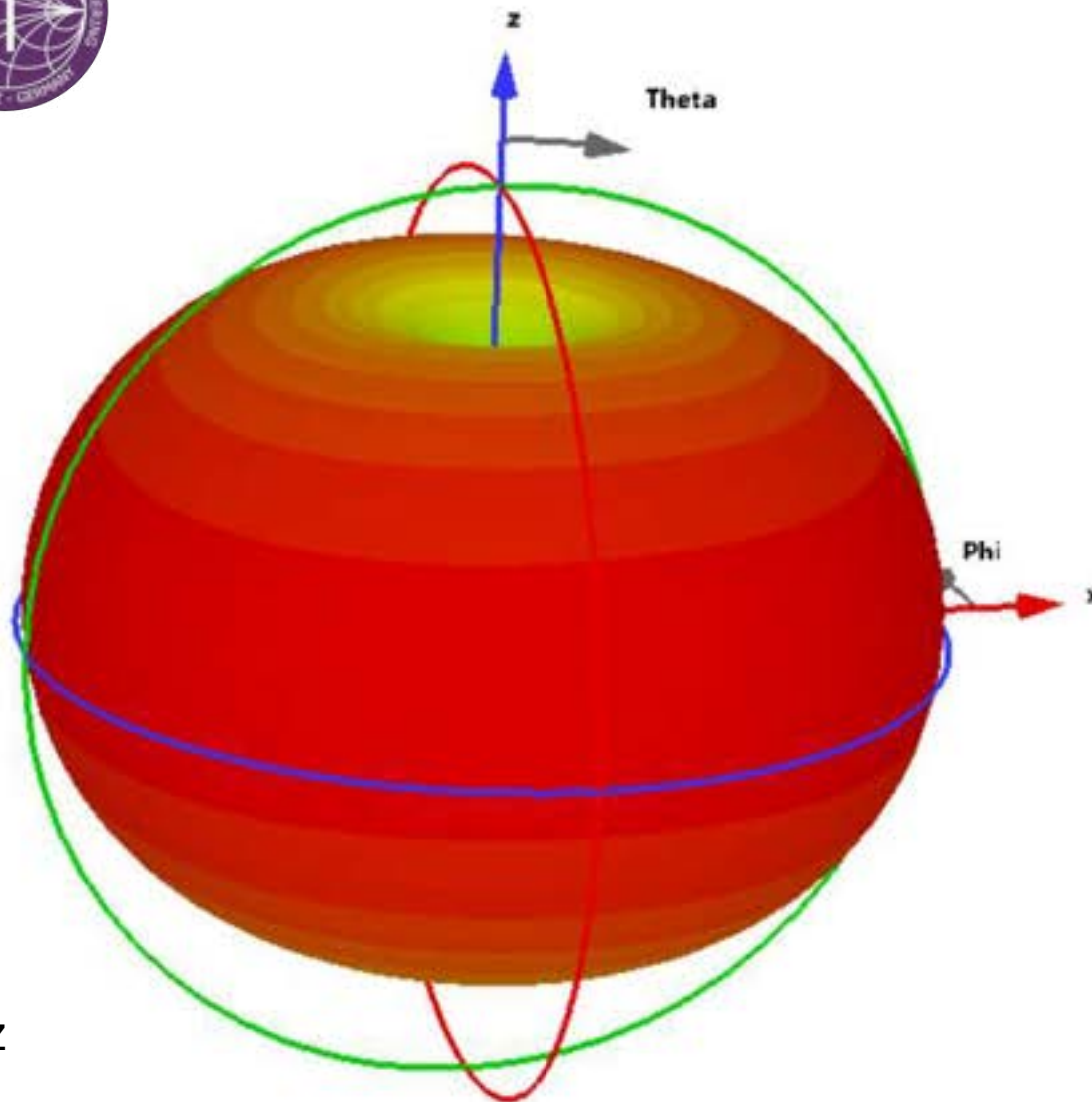
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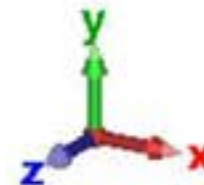
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28.75 MHz

Normal soil - 10 meters from ground – 3D radiation pattern – 10 meters



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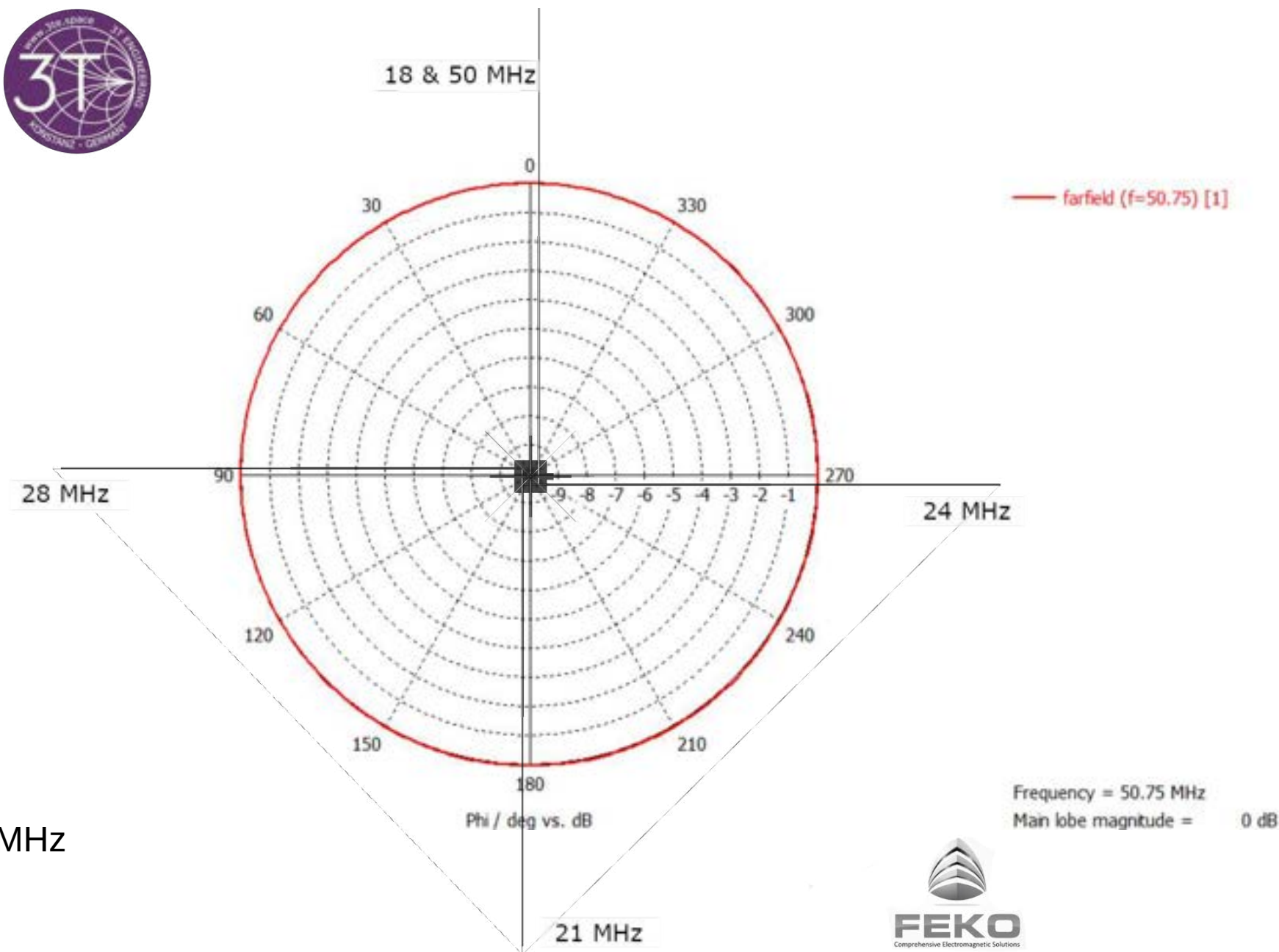
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50.75 MHz



Normal soil - 10 meters from ground - Azimuth (H-plane) - 6 meters

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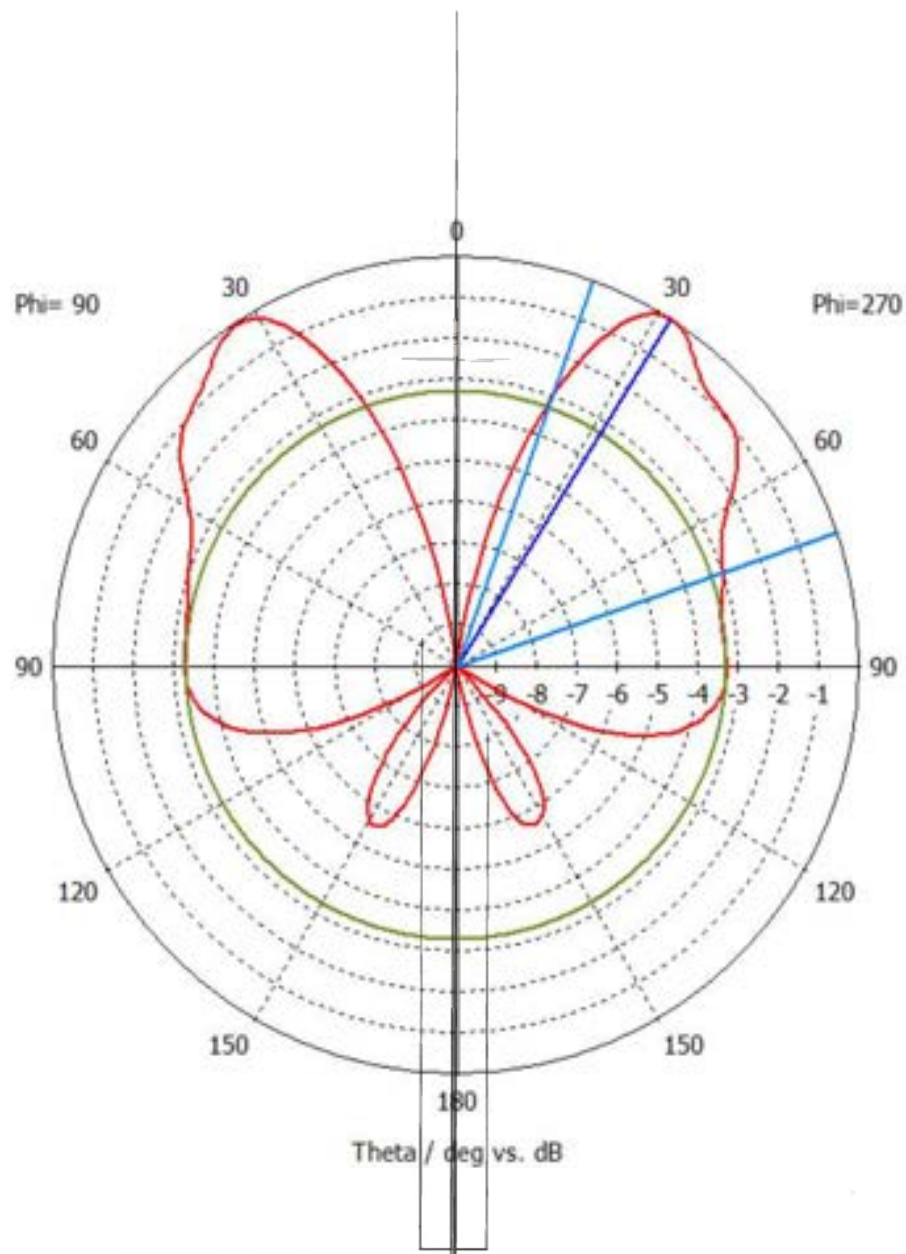
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24 MHz

50.75 MHz



28 MHz

Frequency = 50.75 MHz
Main lobe magnitude = 0 dB
Main lobe direction = 32.0 deg.
Angular width (3 dB) = 51.0 deg.
Side lobe level = -3.3 dB



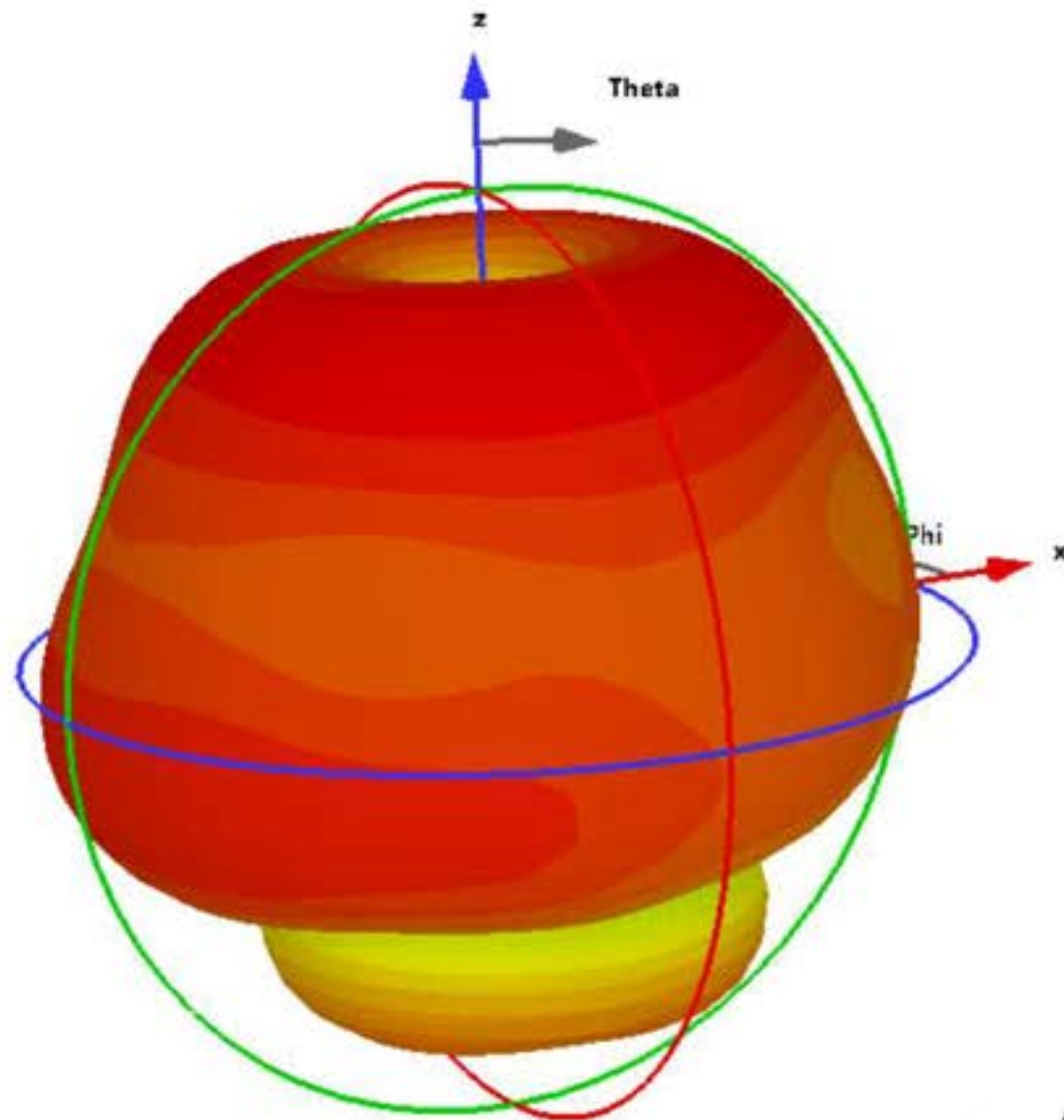
Normal soil - 10 meters from ground - Elevation (E-plane) – 6 meters

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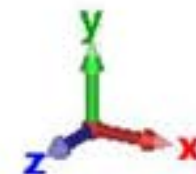
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50.75 MHz

Normal soil - 10 meters from ground – 3D radiation pattern – 6 meters



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