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Figure 2. Two different field power measurements of an antenna radiation pattern.

(a) Principal plane - No directive gain
(b) Yoke plane - No directive gain
(c) Principal plane - Directive gain
(d) Yoke plane - Directive gain

**Problem:**

Calculate the directivity of the antenna radiation pattern shown in Figure 2. The directivity is defined as the ratio of the maximum radiation intensity in a particular direction to the average radiation intensity over all directions. The maximum radiation intensity is measured at the far field of the antenna.

**Solution:**

The directivity of an antenna can be calculated using the formula:

\[ D = \frac{I_{\text{max}}}{I_{\text{avg}}} \]

where \( I_{\text{max}} \) is the maximum radiation intensity and \( I_{\text{avg}} \) is the average radiation intensity.

For the principal plane, the maximum radiation intensity is measured along the maximum radiation direction, and the average radiation intensity is calculated over the entire plane.

For the yoke plane, the maximum radiation intensity is measured along the maximum radiation direction, and the average radiation intensity is calculated over the entire plane.

**Calculation:**

- **Principal Plane:**
  - \( I_{\text{max}} \) (Max) = 1.27 W/m²
  - \( I_{\text{avg}} \) (Avg) = 0.707 W/m²
  - Directivity = \( \frac{1.27}{0.707} = 1.79 \)

- **Yoke Plane:**
  - \( I_{\text{max}} \) (Max) = 0.70 W/m²
  - \( I_{\text{avg}} \) (Avg) = 0.50 W/m²
  - Directivity = \( \frac{0.70}{0.50} = 1.40 \)

**Conclusion:**

The directivity of the principal plane is 1.79, and the directivity of the yoke plane is 1.40. These values indicate that the antenna is more directive in the principal plane compared to the yoke plane.
Optimum receiver performance is achieved when the receiver gain is set at a level that optimizes the receiver's signal-to-noise ratio. The gain is adjusted to provide the best possible signal-to-noise ratio for the given application.

Gain Measurements

The gain of the receiver is adjusted to provide the best possible signal-to-noise ratio. The gain is increased until the signal-to-noise ratio is maximized. The gain is then decreased until the noise level is minimized. The gain is then adjusted to provide the best possible signal-to-noise ratio.

Type A Antenna

Type A antennas are designed to provide the best possible signal-to-noise ratio for a given application. The antenna is designed to provide the best possible signal-to-noise ratio for a given application.

Antenna Efficiency—Antenna Efficiency

Antenna efficiency is a measure of the antenna's ability to convert electrical power into radiated power. The efficiency of an antenna is determined by the antenna's design and the frequency of operation.

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The 2nd Computation of direction gain and attenuation for reverberant spectrum

A high-passed audio path is depicted in Table 1, where the audio signal is split into two sections: one for the original audio and one for the processed audio. The processed audio is then recombined with the original audio, resulting in the final output.

The attenuation is calculated as follows:

\[ \text{Attenuation} = \frac{1}{2} \times \text{Gain} \]

where \( \text{Gain} \) is the gain of the audio signal.

The output of the audio signal is then passed through a filter to remove any unwanted frequencies, resulting in the final output audio signal.

The audio signal is then divided into two sections, each with a gain of 0 and 69, respectively. The gain of each section is then calculated as follows:

\[ \text{Gain} = \frac{1}{2} \times \text{Input Gain} \]

where \( \text{Input Gain} \) is the gain of the input audio signal.

The output of the audio signal is then passed through a filter to remove any unwanted frequencies, resulting in the final output audio signal.

The processing of the audio signal is then repeated for each section, resulting in the final output audio signal.

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