

Test Report for:

**Nexite**

**READER 2.0 Antennas:**

**915 MHz**

**(902 – 928 MHz)**

### REVISION STATUS

| Revision Level | Date       | Responsible Person | Description of Change |
|----------------|------------|--------------------|-----------------------|
| 1.0            | 12.10.2023 | Benny Laufer       | New release           |
| 1.1            | 06.02.2024 | Benny Laufer       | Change gain unit      |

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# General View

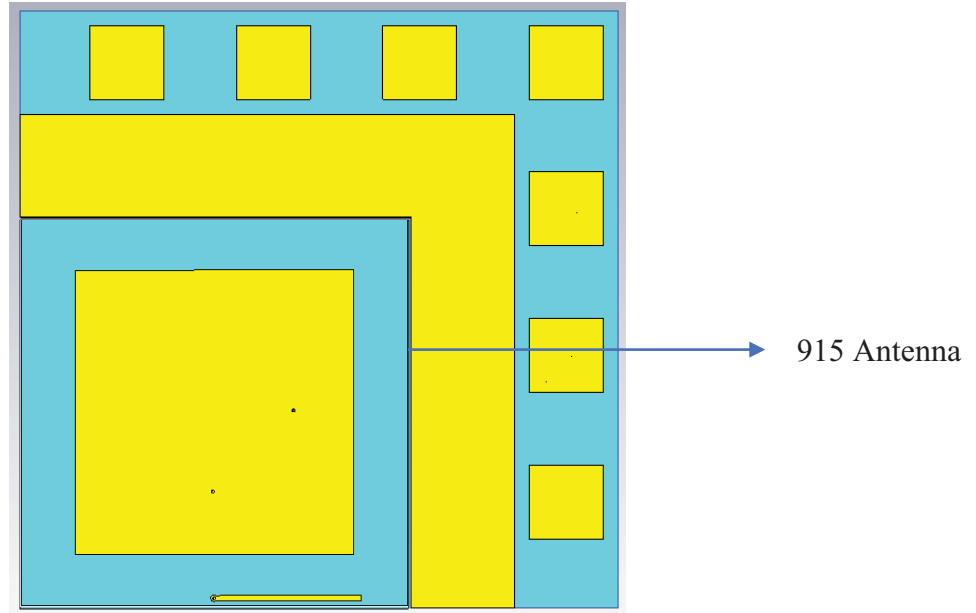


Figure 1 – Reader 2.0 - 915MHz - Antenna Design – Top View

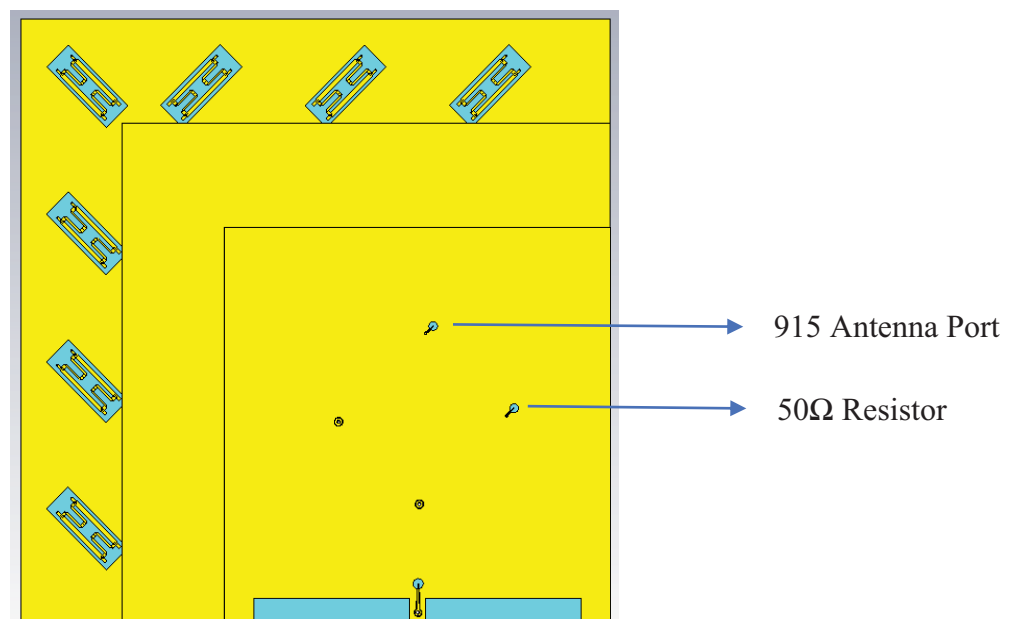


Figure 2 – Reader 2.0 - 915MHz - Antenna Design – Bottom View

## 1. Antenna Details

Antenna Model: NR000005

Antenna Manufacturer: Nexite LTD.

Address: Igal Alon 126, Tel Aviv, Israel.

Test Organization: Motorola

## 2. Test Equipment List

The following table contains a list of the test equipment with which the test was performed.

| <b>Nexite Lab Equipment</b>          | <b>Model Type</b> | <b>Manufacturer</b> |
|--------------------------------------|-------------------|---------------------|
| Network Analyzer                     | E5063A            | KEYSIGHT            |
|                                      |                   |                     |
| <b>OutSource Chamber in Motorola</b> | <b>Model Type</b> | <b>Manufacturer</b> |
| Chamber                              | 3100              | The Howland Company |
| Network Analyzer                     | ENA-E5071B        | Agilent             |
| Signal Generator                     | MXG Vector SG     | Agilent             |
| Spectrum Analyzer                    | FSP7              | R&S                 |

**Table 1 - Test Equipment List**

### 3. Test List

| Test Name               | Equipment  | Location                      |
|-------------------------|------------|-------------------------------|
| Return Loss - S11 – 915 | VNA        | Lab                           |
| Radiation Patterns      | Test range | OutSource Chamber in MOTOROLA |
| Axial Ratio             | Test range |                               |
| Gain                    | Test range |                               |
| Beam Width              | Test range |                               |

Table 2 - List of test

### 4. Frequency List

| Band    | Frequency List [MHz] |
|---------|----------------------|
| 915 MHz | 902, 915, 928        |

Table 3 - List of Frequency

## 5. Antenna Summary of Results

### 5.1. Laboratory test results

#### 5.1.1. Return Loss – S11 - Results

##### 5.1.1.1. 915 MHz Antenna

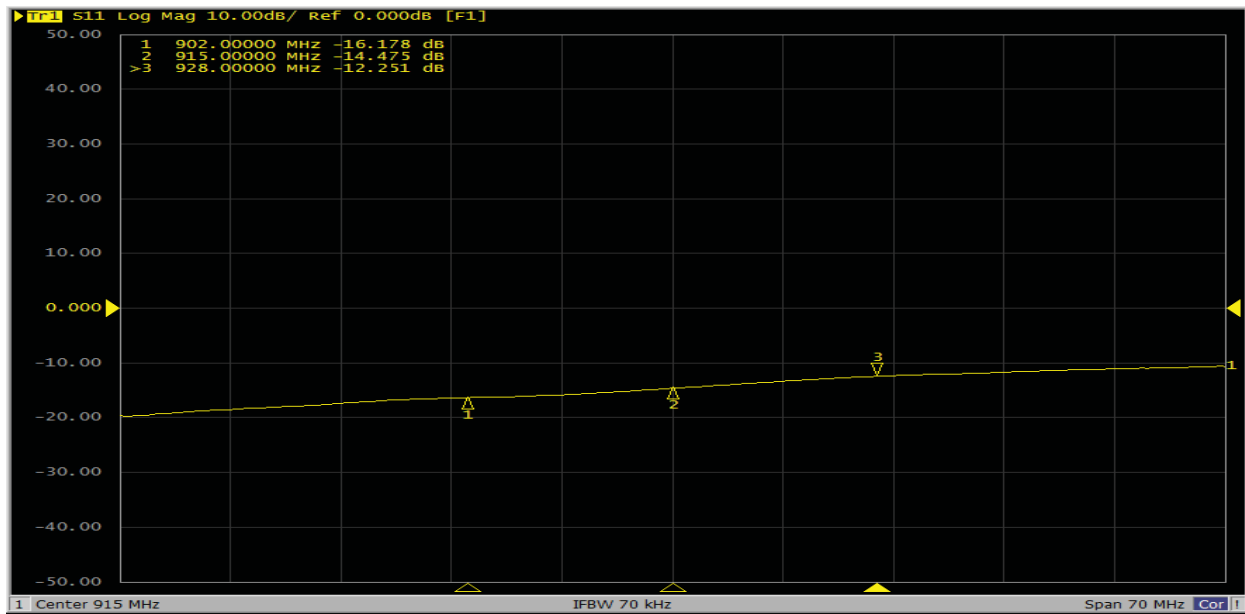


Figure 3 – S11 – Reader 2.0 - 915MHz Antenna

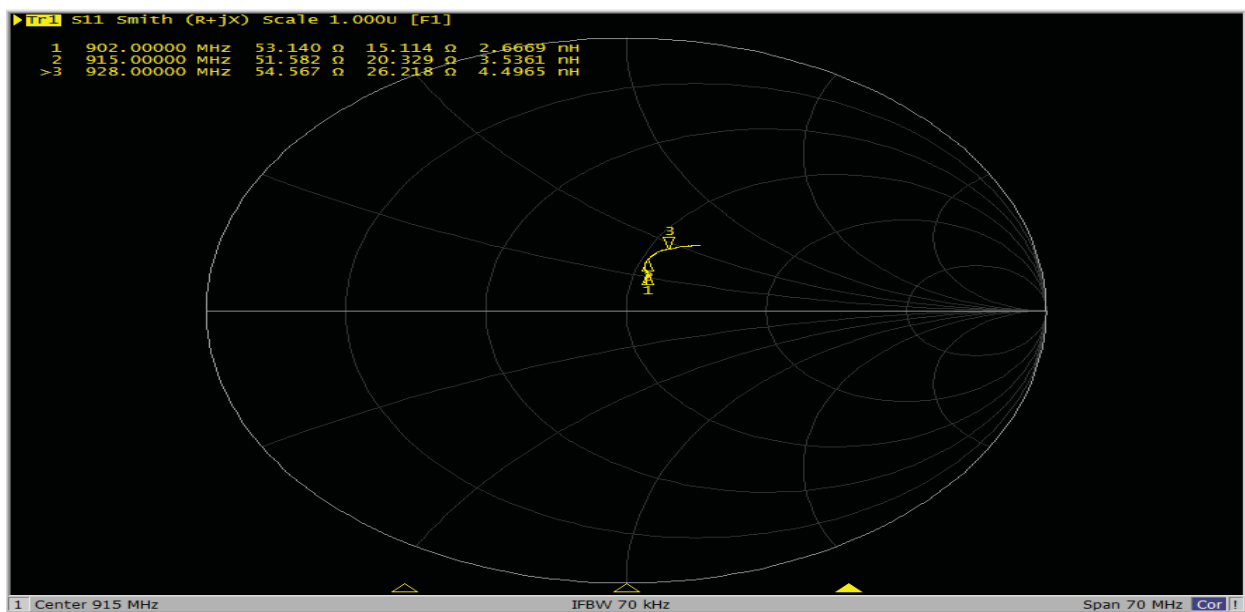


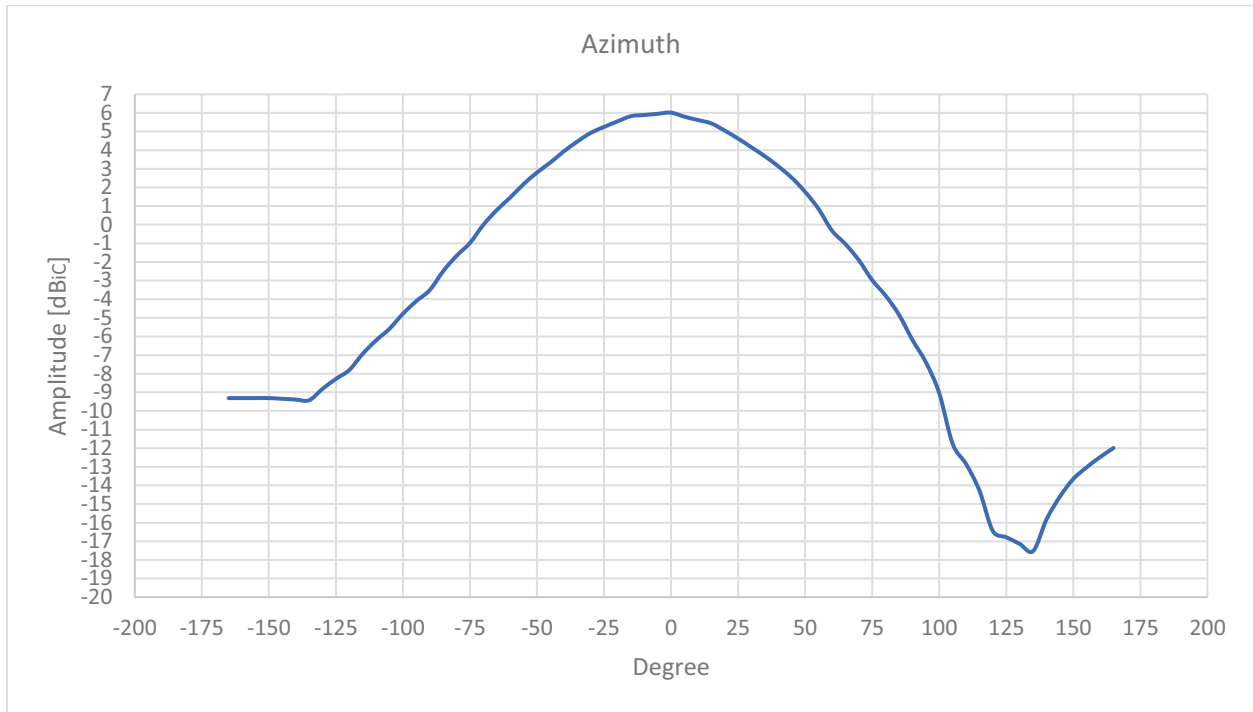
Figure 4 – Smith – Reader 2.0 - 915MHz Antenna

## 5.2. Chamber test results

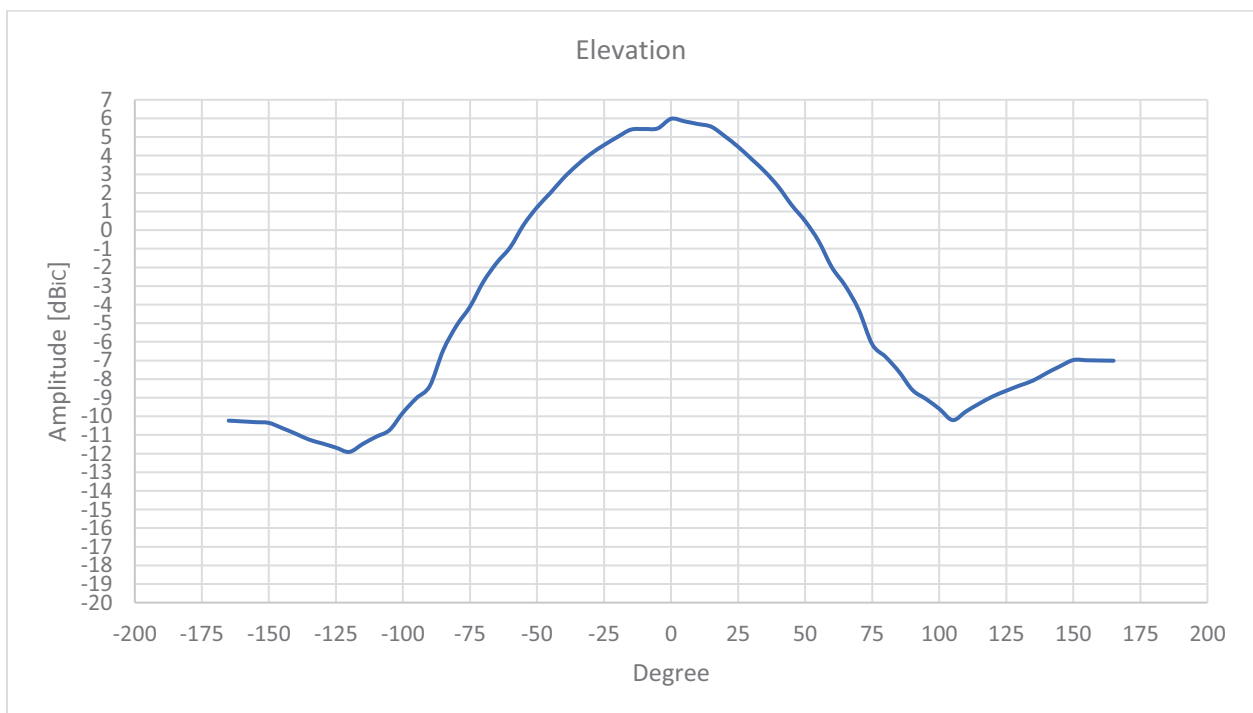
### 5.2.1. Radiation Patterns

#### 5.2.1.1. Radiation Pattern for 915 MHz Antenna

##### 5.2.1.1.1. Frequency: 902 MHz

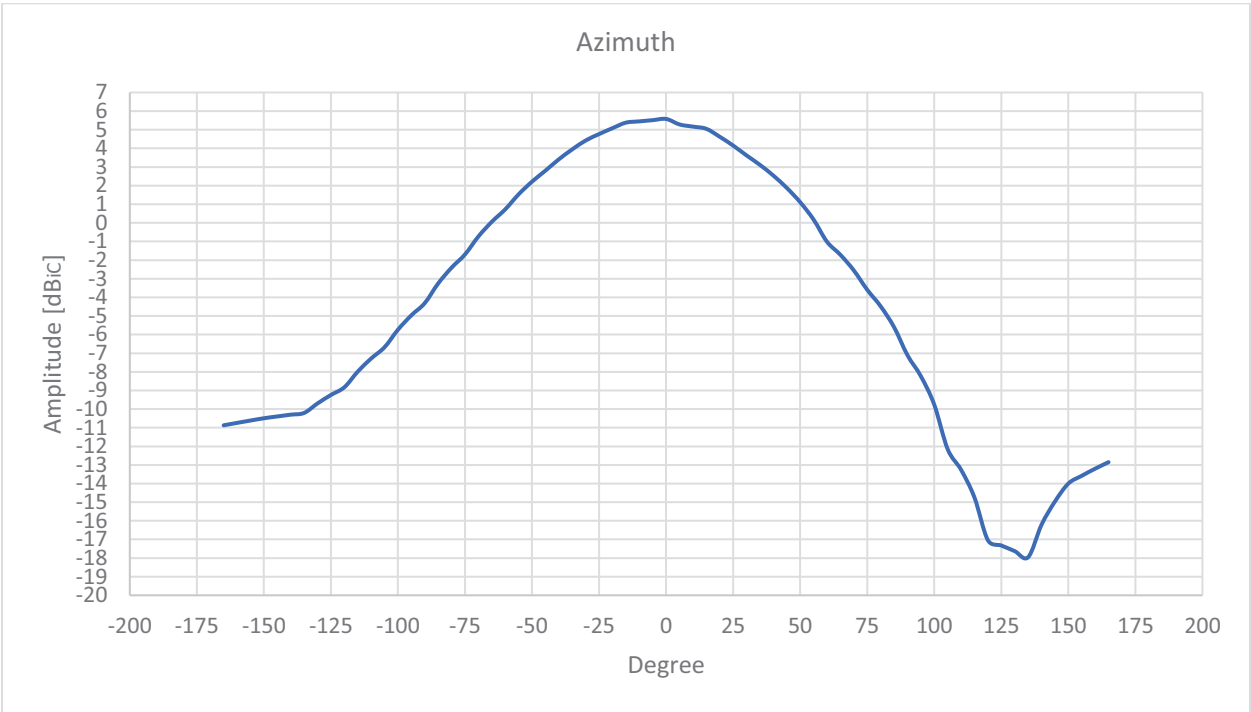


**Graph 1 - Reader 2.0 - 915MHz Antenna – Freq: 902MHz – Azimuth**

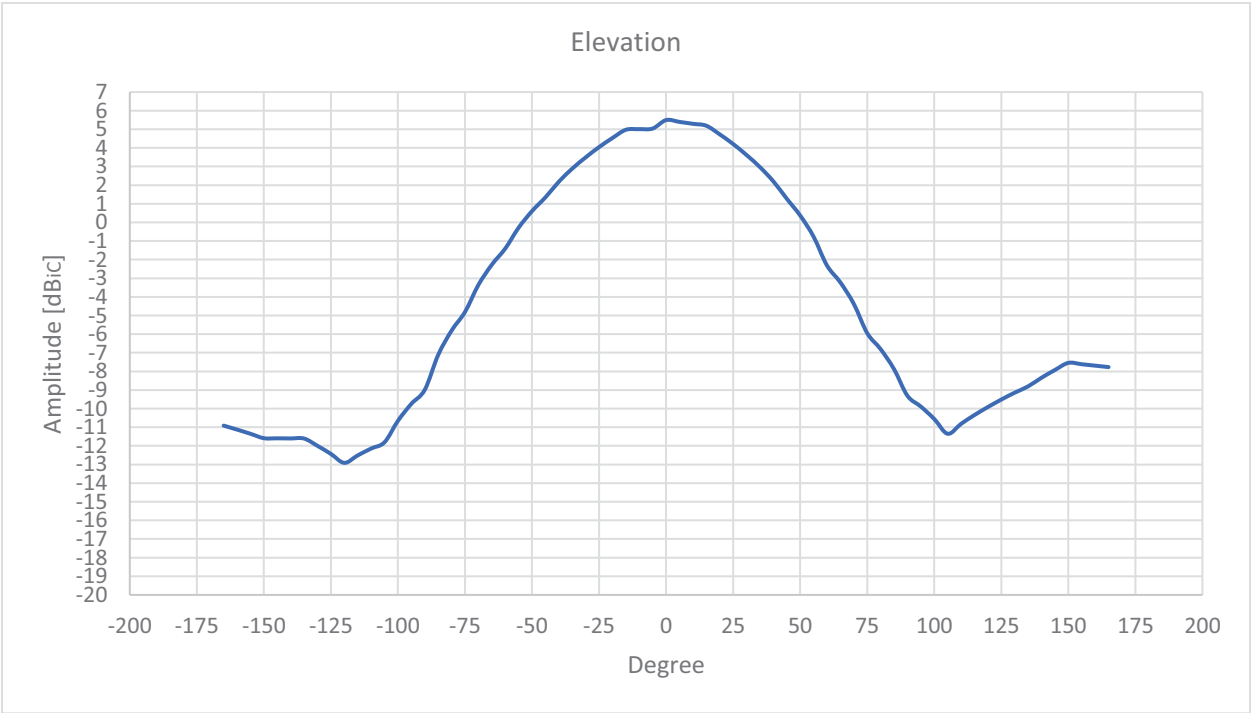


**Graph 2 - Reader 2.0 - 915MHz Antenna – Freq: 902MHz - Elevation**

5.2.1.1.2.Frequency: 915 MHz

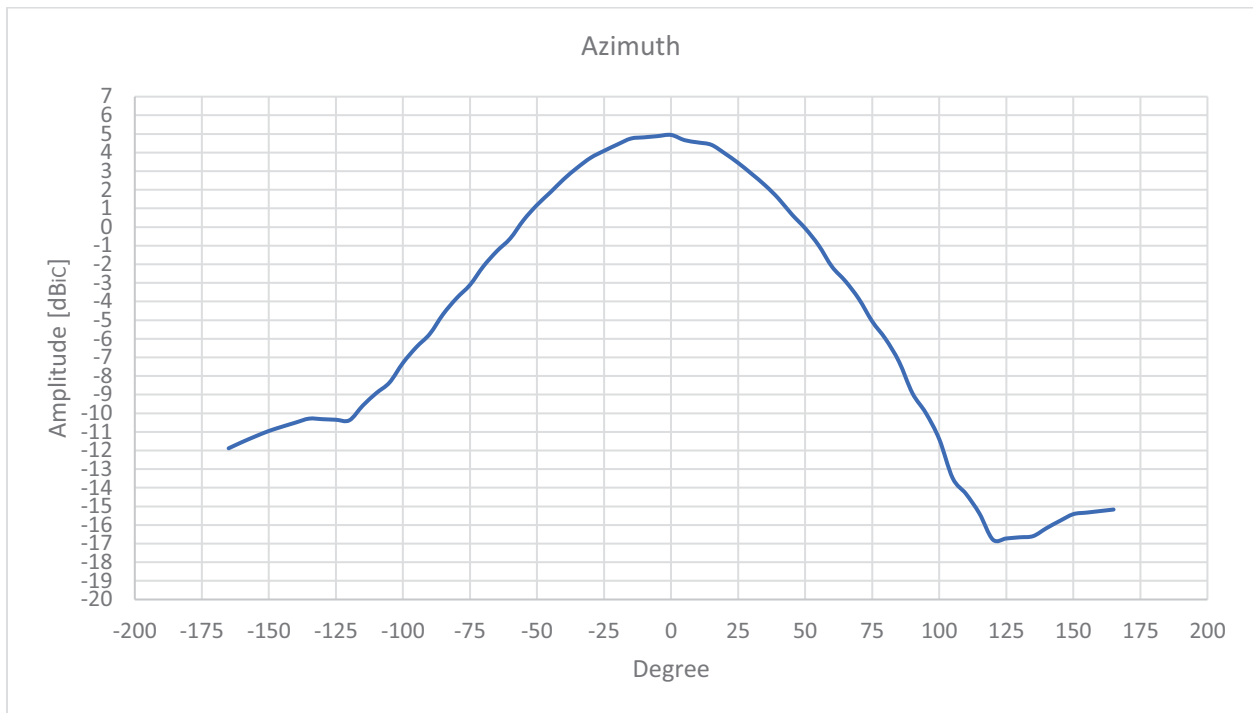


Graph 3 - Reader 2.0 - 915MHz Antenna – Freq: 915MHz - Azimuth

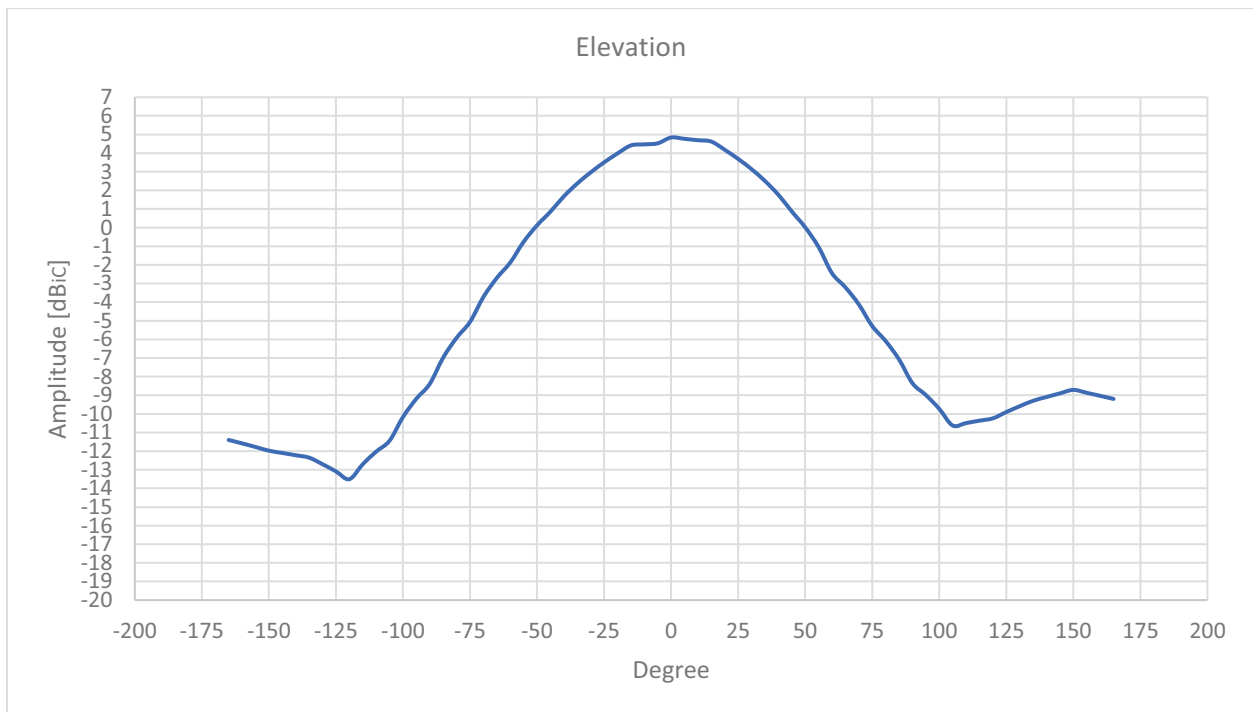


Graph 4 - Reader 2.0 - 915MHz Antenna – Freq: 915MHz - Elevation

### 5.2.1.1.3.Frequency: 928 MHz



**Graph 5 - Reader 2.0 - 915MHz Antenna – Freq: 928MHz - Azimuth**



**Graph 6 - Reader 2.0 - 915MHz Antenna – Freq: 928MHz - Elevation**

## 5.2.2. Gain Results

### 5.2.2.1. Gain for Reader 2.0 - 915 MHz Antenna

| Gain Results    |             |
|-----------------|-------------|
| Frequency [MHz] | Gain [dBiC] |
| 902             | 6.02        |
| 915             | 5.58        |
| 928             | 4.94        |

**Table 4 – Reader 2.0 - 915MHz Antenna - Gain Results**

## 5.2.3. Beam Width Results

### 5.2.3.1. BW for Reader 2.0 - 915 MHz Antenna

|                             | Frequency [MHz] | -3 dB Beam Width [deg] |     |
|-----------------------------|-----------------|------------------------|-----|
|                             |                 | Ver                    | Hor |
| <b>Reader 2.0 - 915 MHz</b> | 902             | 85                     | 70  |
|                             | 915             | 85                     | 70  |
|                             | 928             | 80                     | 70  |

**Table 5 – Reader 2.0 - 915MHz Antenna - BW Results**

## 6. Signature

|                            | Title            | Name         | Signature                                                                           | Date       |
|----------------------------|------------------|--------------|-------------------------------------------------------------------------------------|------------|
| Test Report<br>Prepared By | Antenna Engineer | Benny Laufer |  | 27.09.2023 |

**Table 6 – Signature**