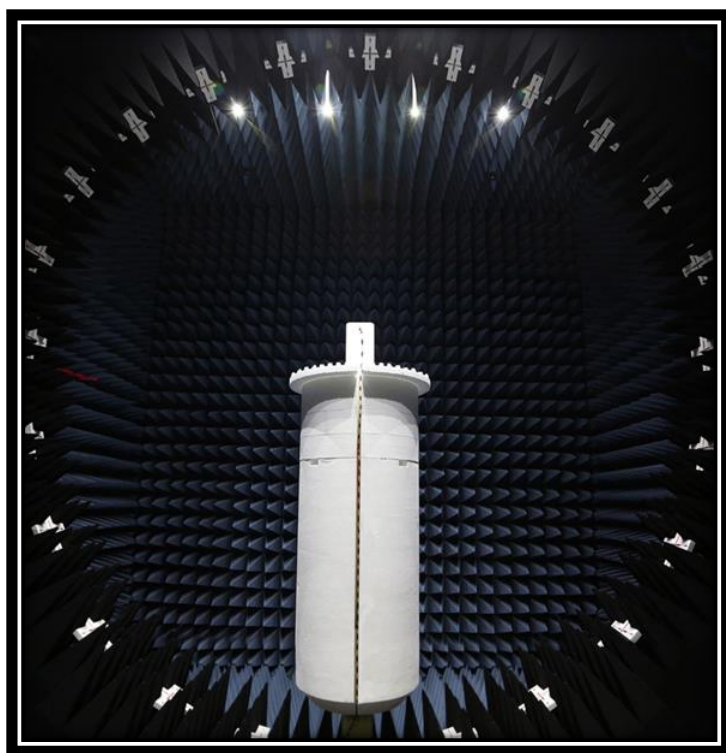




**Ademco, Inc.**

**C7089R3013 Antenna**

**Report: ADEM0034 Rev 1, Issue Date: November 3, 2022**



# REVISION HISTORY



| Revision Number | Description                                      | Date<br>(yyyy-mm-dd) | Page Number |
|-----------------|--------------------------------------------------|----------------------|-------------|
| 01              | Removed reference to A2LA and ILAC accreditation | 2022-11-03           | 1           |

# ACCREDITATIONS AND AUTHORIZATIONS



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## United States

**FCC** - Designated by the FCC as a Telecommunications Certification Body (TCB). Certification chambers, Open Area Test Sites, and conducted measurement facilities are listed with the FCC.

**A2LA** - Each laboratory is accredited by A2LA to ISO / IEC 17025, and as a product certifier to ISO / IEC 17065 which allows Element to certify transmitters to FCC and IC specifications.

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## Canada

**ISED** - Recognized by Innovation, Science and Economic Development Canada as a Certification Body (CB) and as a CAB for the acceptance of test data.

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## European Union

**European Commission** – Recognized as an EU Notified Body validated for the EMCD and RED Directives.

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## United Kingdom

**BEIS** – Recognized by the UK as an Approved Body under the UK Radio Equipment and UK EMC Regulations.

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## Australia/New Zealand

**ACMA** - Recognized by ACMA as a CAB for the acceptance of test data.

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## Korea

**MSIT / RRA** - Recognized by KCC's RRA as a CAB for the acceptance of test data.

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## Japan

**VCCI** - Associate Member of the VCCI. Conducted and radiated measurement facilities are registered.

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## Taiwan

**BSMI** – Recognized by BSMI as a CAB for the acceptance of test data.

**NCC** - Recognized by NCC as a CAB for the acceptance of test data.

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## Singapore

**IDA** – Recognized by IDA as a CAB for the acceptance of test data.

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## Israel

**MOC** – Recognized by MOC as a CAB for the acceptance of test data.

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## Hong Kong

**OFCA** – Recognized by OFCA as a CAB for the acceptance of test data.

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## Vietnam

**MIC** – Recognized by MIC as a CAB for the acceptance of test data.

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## SCOPE

For details on the Scopes of our Accreditations, please visit:

[California](#)

[Minnesota](#)

[Oregon](#)

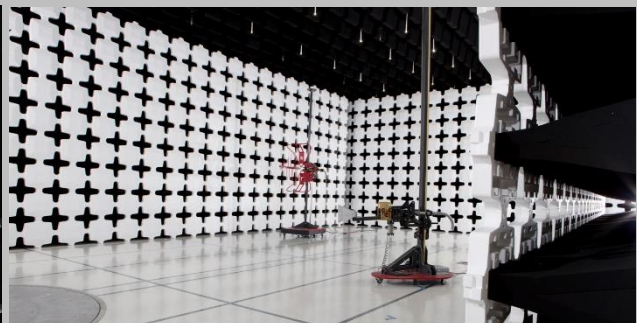
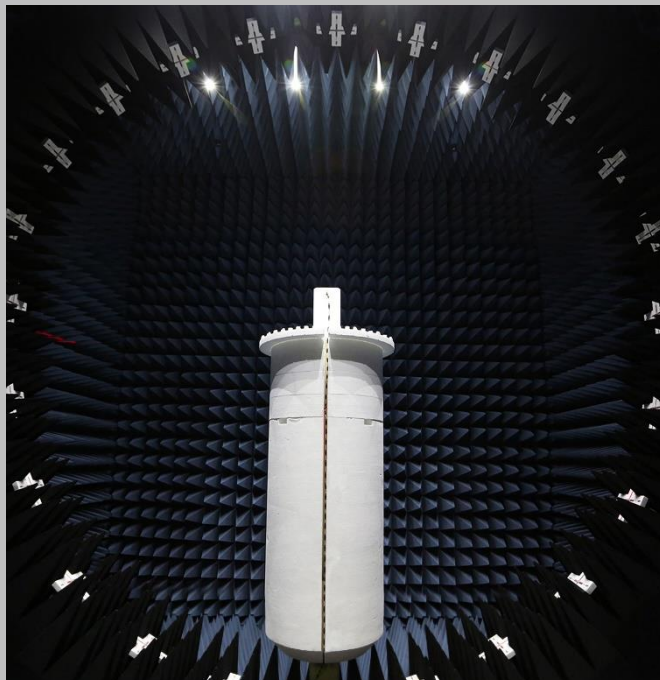
[Texas](#)

[Washington](#)

# FACILITIES



|                                                                                       |                                                                                                       |                                                                                                       |                                                                                        |                                                                                                           |
|---------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------|
| <b>California</b><br>Labs OC01-17<br>41 Tesla<br>Irvine, CA 92618<br>(949) 861-8918   | <b>Minnesota</b><br>Labs MN01-11<br>9349 W Broadway Ave.<br>Brooklyn Park, MN 55445<br>(612)-638-5136 | <b>Oregon</b><br>Labs EV01-12<br>6775 NE Evergreen Pkwy #400<br>Hillsboro, OR 97124<br>(503) 844-4066 | <b>Texas</b><br>Labs TX01-09<br>3801 E Plano Pkwy<br>Plano, TX 75074<br>(469) 304-5255 | <b>Washington</b><br>Labs NC01-05<br>19201 120 <sup>th</sup> Ave NE<br>Bothell, WA 98011<br>(425)984-6600 |
| <b>A2LA</b>                                                                           |                                                                                                       |                                                                                                       |                                                                                        |                                                                                                           |
| Lab Code: 3310.04                                                                     | Lab Code: 3310.05                                                                                     | Lab Code: 3310.02                                                                                     | Lab Code: 3310.03                                                                      | Lab Code: 3310.06                                                                                         |
| <b>Innovation, Science and Economic Development Canada</b>                            |                                                                                                       |                                                                                                       |                                                                                        |                                                                                                           |
| 2834B-1, 2834B-3                                                                      | 2834E-1, 2834E-3                                                                                      | 2834D-1                                                                                               | 2834G-1                                                                                | 2834F-1                                                                                                   |
| <b>BSMI</b>                                                                           |                                                                                                       |                                                                                                       |                                                                                        |                                                                                                           |
| SL2-IN-E-1154R                                                                        | SL2-IN-E-1152R                                                                                        | SL2-IN-E-1017                                                                                         | SL2-IN-E-1158R                                                                         | SL2-IN-E-1153R                                                                                            |
| <b>VCCI</b>                                                                           |                                                                                                       |                                                                                                       |                                                                                        |                                                                                                           |
| A-0029                                                                                | A-0109                                                                                                | A-0108                                                                                                | A-0201                                                                                 | A-0110                                                                                                    |
| <b>Recognized Phase I CAB for ISED, ACMA, BSMI, IDA, KCC/RRA, MIC, MOC, NCC, OFCA</b> |                                                                                                       |                                                                                                       |                                                                                        |                                                                                                           |
| US0158                                                                                | US0175                                                                                                | US0017                                                                                                | US0191                                                                                 | US0157                                                                                                    |



# PRODUCT DESCRIPTION

## Client and Equipment Under Test (EUT) Information

|                          |                        |
|--------------------------|------------------------|
| Company Name:            | Ademco, Inc.           |
| Address:                 | 251 Little Falls Drive |
| City, State, Zip:        | Wilmington, DE 19808   |
| Test Requested By:       | Christian Fouth        |
| EUT:                     | C7089R3013 Antenna     |
| First Date of Test:      | October 20, 2022       |
| Last Date of Test:       | October 20, 2022       |
| Receipt Date of Samples: | October 20, 2022       |
| Equipment Design Stage:  | Prototype              |
| Equipment Condition:     | No Damage              |
| Purchase Authorization:  | Verified               |

## Information Provided by the Party Requesting the Test

### Functional Description of the EUT:

Battery powered wireless outdoor temperature and humidity sensor containing a 902-928 MHz radio with 1 antenna intended to operate outside of the house.

AUT description: Single PCB monopole antenna.



### Testing Objective:

To obtain 2D antenna pattern measurements and calculated antenna performance values (gain, efficiency, TRP, etc).

## Approved by:



Adam Bruno, Operations Manager

# PRODUCT DESCRIPTION



# MODIFICATIONS



## Equipment Modifications

| Item | Date       | Test          | Modification                         | Note                                                                | Disposition of EUT               |
|------|------------|---------------|--------------------------------------|---------------------------------------------------------------------|----------------------------------|
| 1    | 2022-10-20 | Antenna Plots | Tested as delivered to Test Station. | No EMI suppression devices were added or modified during this test. | Scheduled testing was completed. |

# POLAR PLOTS



PSA-ESCI 2022.08.23.0

Testing was performed using the mode(s) of operation and configuration(s) noted within the report. The individuals and/or the organization requesting the test provided the modes, configurations and settings used to complete the evaluation. The actual test parameters are specified in the test data, this includes items such as investigated frequency range (scanned) and test levels. The testing methods and performance specifications, as well as the test site used for the evaluation are indicated in the test data. The test data represents the configuration / operating mode/ model that produced the highest emission levels as compared to the specification limit.

## MODES OF OPERATION

Transmitting a CW tone at 0 dBm from a Signal Generator, with a 6 dB attenuator inline at Low 903 MHz, Mid 914.6 MHz and High 926.4 MHz frequencies.

## POWER SETTINGS INVESTIGATED

N/A

## CONFIGURATIONS INVESTIGATED

ADEM0034 - 1

## FREQUENCY RANGE INVESTIGATED

|                 |         |                |           |
|-----------------|---------|----------------|-----------|
| Start Frequency | 903 MHz | Stop Frequency | 926.4 MHz |
|-----------------|---------|----------------|-----------|

## SAMPLE CALCULATIONS

Radiated Emissions: Field Strength = Measured Level + Antenna Factor + Cable Factor - Amplifier Gain + Distance Adjustment Factor + External Attenuation

## TEST EQUIPMENT

| Description         | Manufacturer       | Model          | ID   | Last Cal.  | Cal. Due   |
|---------------------|--------------------|----------------|------|------------|------------|
| Filter - Low Pass   | Micro-Tronics      | LPM50004       | HHV  | 2022-07-22 | 2023-07-22 |
| Attenuator          | Fairview Microwave | SA18N-06       | TZT  | 2022-09-13 | 2023-09-13 |
| Generator - Signal  | Keysight           | N5171B-506     | TEW  | 2021-05-07 | 2024-05-07 |
| Antenna - Dipole    | ETS Lindgren       | 3121D-DB4      | ADVD | 2020-06-04 | 2023-06-04 |
| Cable               | Northwest EMC      | RE 9kHz - 1GHz | TXB  | 2022-06-10 | 2023-06-10 |
| Antenna - Biconilog | ETS Lindgren       | 3143B          | AYF  | 2022-09-02 | 2024-09-02 |

## TEST DESCRIPTION

The single antenna to be used with the EUT was tested. Low, mid and high channel frequencies were tested.

A reference scan was made with a reference  $\frac{1}{2}$  wave dipole antenna at 3m test distance. A signal generator was connected to the dipole antenna and cw signal was used to obtain a reference scan polar plot.

The AUT was then put into the chamber in place of the reference dipole. The AUT was connected to the signal generator using the same cable and connector setup. A polar plot was then done at the antenna height of maximum field strength. This plot was then compared to the reference  $\frac{1}{2}$  wave dipole antenna scan, and, using the antenna gain (dBi) of the reference  $\frac{1}{2}$  wave dipole antenna the absolute gain of the AUT was calculated.

# RELATIVE GAIN



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|                                 |                                                                                        |                          |            |                                                                                    |
|---------------------------------|----------------------------------------------------------------------------------------|--------------------------|------------|------------------------------------------------------------------------------------|
| <b>Work Order:</b>              | ADEM0034                                                                               | <b>Date:</b>             | 2022-10-20 |  |
| <b>Project:</b>                 | None                                                                                   | <b>Temperature:</b>      | 21.9 °C    |                                                                                    |
| <b>Job Site:</b>                | TX02                                                                                   | <b>Humidity:</b>         | 28.2% RH   |                                                                                    |
| <b>Serial Number:</b>           | N/A                                                                                    | <b>Barometric Pres.:</b> | 1018 mbar  |                                                                                    |
| <b>Tested by:</b> Brandon Hobbs |                                                                                        |                          |            |                                                                                    |
| <b>EUT:</b>                     | Reference Dipole Antenna                                                               |                          |            |                                                                                    |
| <b>Configuration:</b>           | 1                                                                                      |                          |            |                                                                                    |
| <b>Customer:</b>                | ADemco, Inc                                                                            |                          |            |                                                                                    |
| <b>Attendees:</b>               | None                                                                                   |                          |            |                                                                                    |
| <b>EUT Power:</b>               | N/A                                                                                    |                          |            |                                                                                    |
| <b>Operating Mode:</b>          | Transmitting a CW tone at 0 dBm from a Signal Generator, with a 6 dB attenuator inline |                          |            |                                                                                    |
| <b>Deviations:</b>              | None                                                                                   |                          |            |                                                                                    |
| <b>Comments:</b>                | Reference antenna                                                                      |                          |            |                                                                                    |

Frequency (MHz) **903**

Maximum Amplitude (dBuV/m) **92.18736**

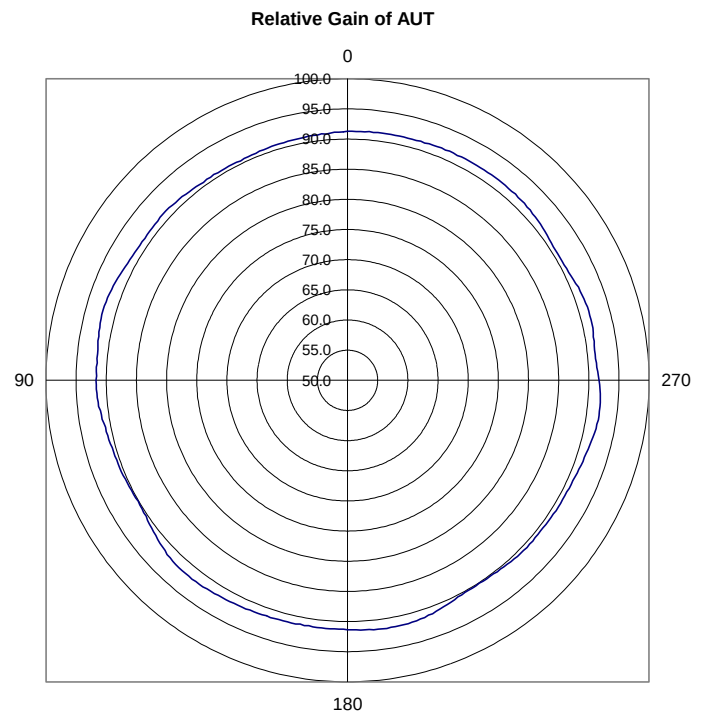
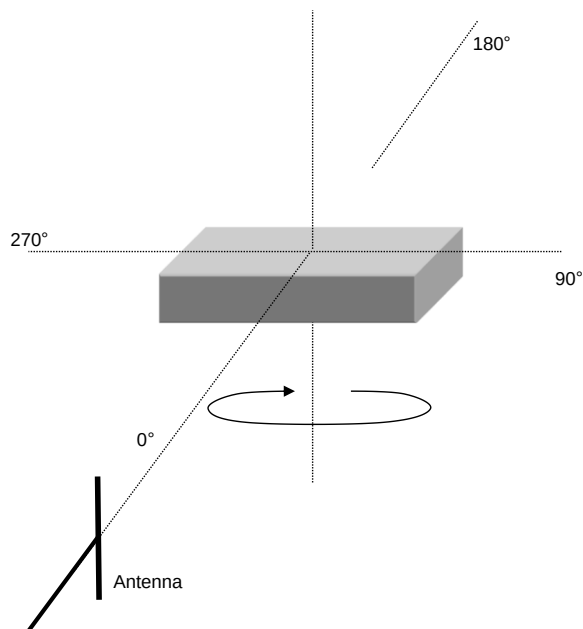
Azimuth at Maximum **74°**

Measurement Antenna Polarity **Vertical**  
Antenna Under Test (AUT) Polarity **Vertical**

Minimum Amplitude (dBuV/m) **90.08736**

Azimuth at Minimum **212°**

|              |   |                          |   |                          |      |  |  |
|--------------|---|--------------------------|---|--------------------------|------|--|--|
| <b>Run #</b> | 3 | <b>Test Distance (m)</b> | 3 | <b>Antenna Height(s)</b> | 2.08 |  |  |
|--------------|---|--------------------------|---|--------------------------|------|--|--|



# RELATIVE GAIN



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|                                 |                                                                                        |                          |            |                                                                                    |
|---------------------------------|----------------------------------------------------------------------------------------|--------------------------|------------|------------------------------------------------------------------------------------|
| <b>Work Order:</b>              | ADEM0034                                                                               | <b>Date:</b>             | 2022-10-20 |  |
| <b>Project:</b>                 | None                                                                                   | <b>Temperature:</b>      | 21.9 °C    |                                                                                    |
| <b>Job Site:</b>                | TX02                                                                                   | <b>Humidity:</b>         | 28.2% RH   |                                                                                    |
| <b>Serial Number:</b>           | N/A                                                                                    | <b>Barometric Pres.:</b> | 1018 mbar  |                                                                                    |
| <b>Tested by:</b> Brandon Hobbs |                                                                                        |                          |            |                                                                                    |
| <b>EUT:</b>                     | Reference Dipole Antenna                                                               |                          |            |                                                                                    |
| <b>Configuration:</b>           | 1                                                                                      |                          |            |                                                                                    |
| <b>Customer:</b>                | ADemco, Inc                                                                            |                          |            |                                                                                    |
| <b>Attendees:</b>               | None                                                                                   |                          |            |                                                                                    |
| <b>EUT Power:</b>               | N/A                                                                                    |                          |            |                                                                                    |
| <b>Operating Mode:</b>          | Transmitting a CW tone at 0 dBm from a Signal Generator, with a 6 dB attenuator inline |                          |            |                                                                                    |
| <b>Deviations:</b>              | None                                                                                   |                          |            |                                                                                    |
| <b>Comments:</b>                | Reference antenna                                                                      |                          |            |                                                                                    |

Frequency (MHz) **914.6**

Maximum Amplitude (dBuV/m) **92.73418**

Azimuth at Maximum **264°**

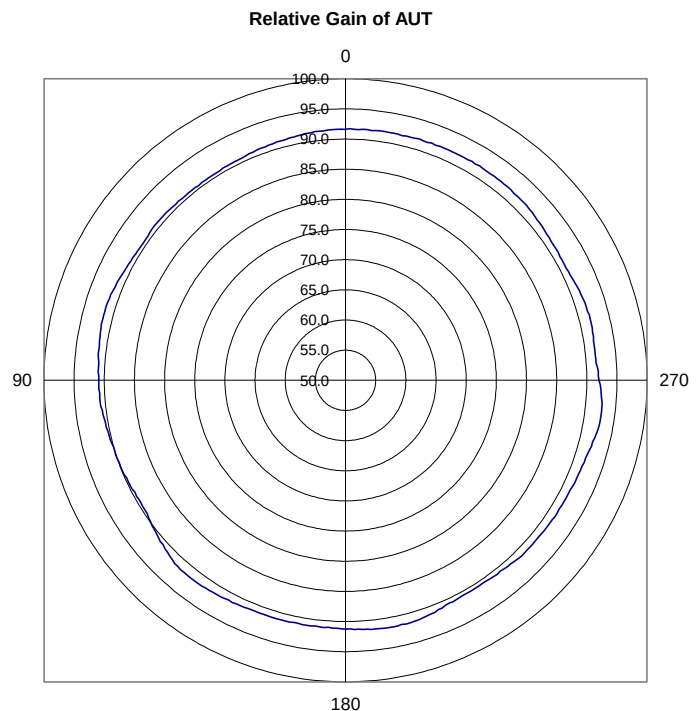
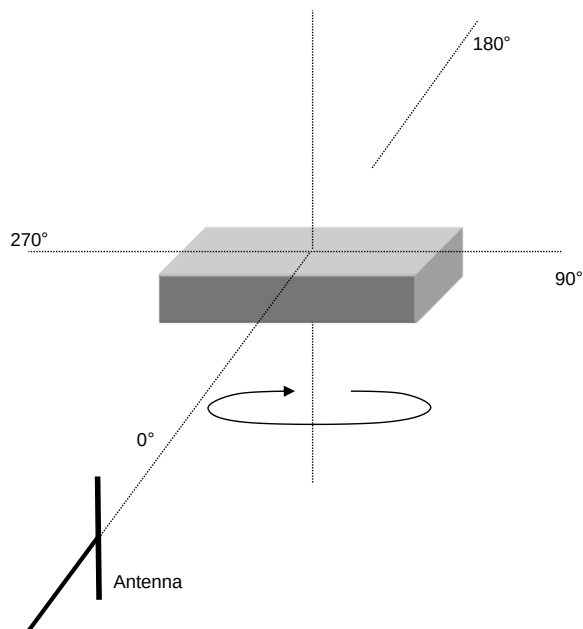
Minimum Amplitude (dBuV/m) **89.53418**

Azimuth at Minimum **120°**

3 dB Beamwidth **350°**

Measurement Antenna Polarity **Vertical**  
Antenna Under Test (AUT) Polarity **Vertical**

|              |   |                          |   |                          |      |  |  |
|--------------|---|--------------------------|---|--------------------------|------|--|--|
| <b>Run #</b> | 4 | <b>Test Distance (m)</b> | 3 | <b>Antenna Height(s)</b> | 2.03 |  |  |
|--------------|---|--------------------------|---|--------------------------|------|--|--|



# RELATIVE GAIN



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|                                 |                                                                                        |                          |            |                                                                                    |
|---------------------------------|----------------------------------------------------------------------------------------|--------------------------|------------|------------------------------------------------------------------------------------|
| <b>Work Order:</b>              | ADEM0034                                                                               | <b>Date:</b>             | 2022-10-20 |  |
| <b>Project:</b>                 | None                                                                                   | <b>Temperature:</b>      | 21.9 °C    |                                                                                    |
| <b>Job Site:</b>                | TX02                                                                                   | <b>Humidity:</b>         | 28.2% RH   |                                                                                    |
| <b>Serial Number:</b>           | N/A                                                                                    | <b>Barometric Pres.:</b> | 1018 mbar  |                                                                                    |
| <b>Tested by:</b> Brandon Hobbs |                                                                                        |                          |            |                                                                                    |
| <b>EUT:</b>                     | Reference Dipole Antenna                                                               |                          |            |                                                                                    |
| <b>Configuration:</b>           | 1                                                                                      |                          |            |                                                                                    |
| <b>Customer:</b>                | ADemco, Inc                                                                            |                          |            |                                                                                    |
| <b>Attendees:</b>               | None                                                                                   |                          |            |                                                                                    |
| <b>EUT Power:</b>               | N/A                                                                                    |                          |            |                                                                                    |
| <b>Operating Mode:</b>          | Transmitting a CW tone at 0 dBm from a Signal Generator, with a 6 dB attenuator inline |                          |            |                                                                                    |
| <b>Deviations:</b>              | None                                                                                   |                          |            |                                                                                    |
| <b>Comments:</b>                | Reference antenna                                                                      |                          |            |                                                                                    |

Frequency (MHz) **926.4**

Maximum Amplitude (dBuV/m) **92.54727**

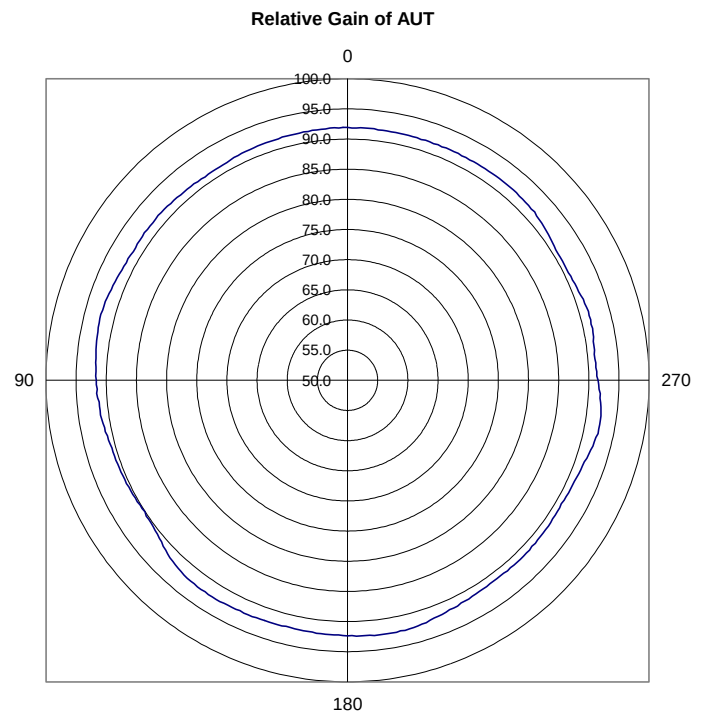
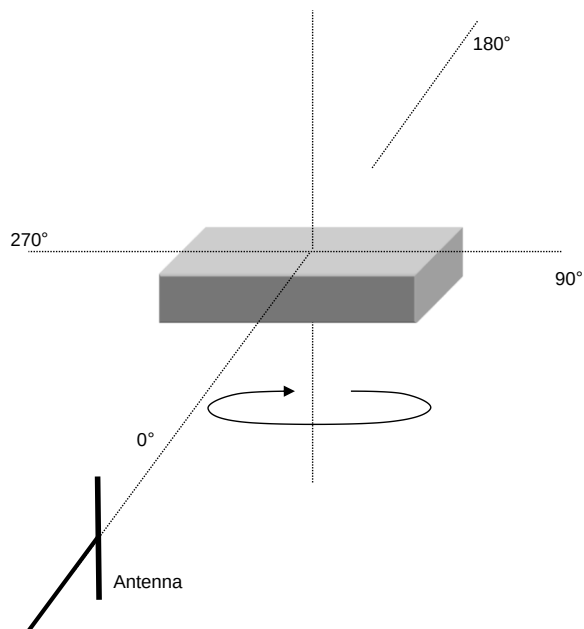
Azimuth at Maximum **192°**

Measurement Antenna Polarity **Vertical**  
Antenna Under Test (AUT) Polarity **Vertical**

Minimum Amplitude (dBuV/m) **90.04727**

Azimuth at Minimum **122°**

|              |   |                          |   |                          |      |  |  |
|--------------|---|--------------------------|---|--------------------------|------|--|--|
| <b>Run #</b> | 5 | <b>Test Distance (m)</b> | 3 | <b>Antenna Height(s)</b> | 2.02 |  |  |
|--------------|---|--------------------------|---|--------------------------|------|--|--|



# RELATIVE GAIN



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PSA-ESCI 2022.08.23.0

|                 |                                                                                        |                   |            |                                                                                    |
|-----------------|----------------------------------------------------------------------------------------|-------------------|------------|------------------------------------------------------------------------------------|
| Work Order:     | ADEM0034                                                                               | Date:             | 2022-10-20 |  |
| Project:        | None                                                                                   | Temperature:      | 21.9 °C    |                                                                                    |
| Job Site:       | TX02                                                                                   | Humidity:         | 28.2% RH   |                                                                                    |
| Serial Number:  | DUT_0059                                                                               | Barometric Pres.: | 1018 mbar  |                                                                                    |
| EUT:            | C7089R3013 Antenna                                                                     |                   |            | Tested by: Brandon Hobbs                                                           |
| Configuration:  | 1                                                                                      |                   |            |                                                                                    |
| Customer:       | ADemco, Inc                                                                            |                   |            |                                                                                    |
| Attendees:      | None                                                                                   |                   |            |                                                                                    |
| EUT Power:      | N/A                                                                                    |                   |            |                                                                                    |
| Operating Mode: | Transmitting a CW tone at 0 dBm from a Signal Generator, with a 6 dB attenuator inline |                   |            |                                                                                    |
| Deviations:     | None                                                                                   |                   |            |                                                                                    |
| Comments:       | None                                                                                   |                   |            |                                                                                    |

Frequency (MHz) 926.4

Maximum Amplitude (dBuV/m) 97.44727

Azimuth at Maximum 151°

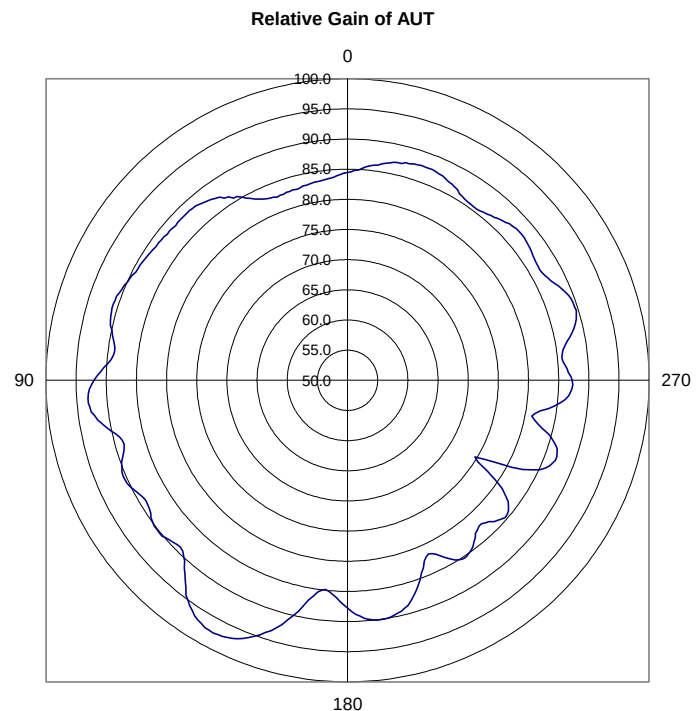
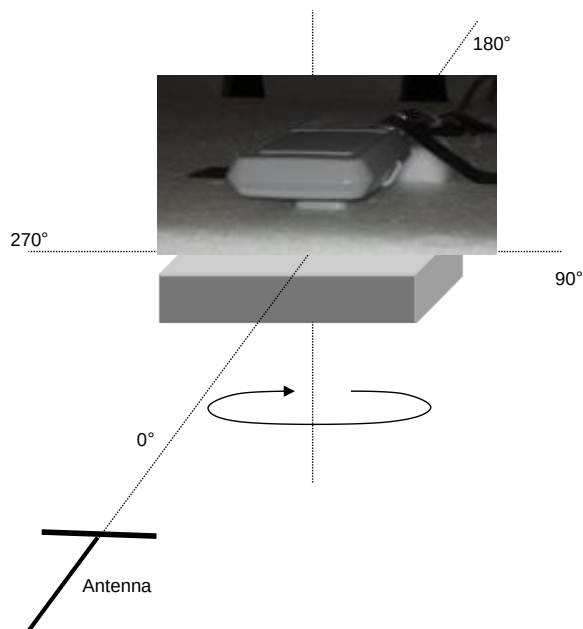
Measurement Antenna Polarity Horizontal  
Antenna Under Test (AUT) Polarity Horizontal

Minimum Amplitude (dBuV/m) 74.64727

Azimuth at Minimum 238°

3 dB Beamwidth 20°

|       |   |                   |   |                   |      |  |  |
|-------|---|-------------------|---|-------------------|------|--|--|
| Run # | 6 | Test Distance (m) | 3 | Antenna Height(s) | 1.31 |  |  |
|-------|---|-------------------|---|-------------------|------|--|--|



# ABSOLUTE GAIN



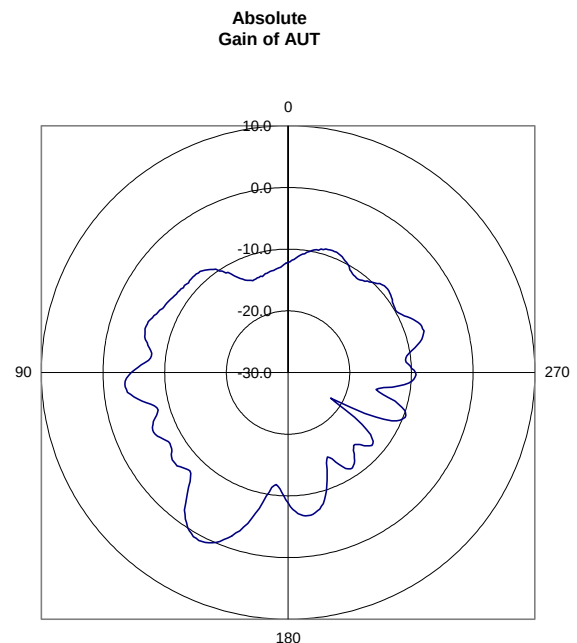
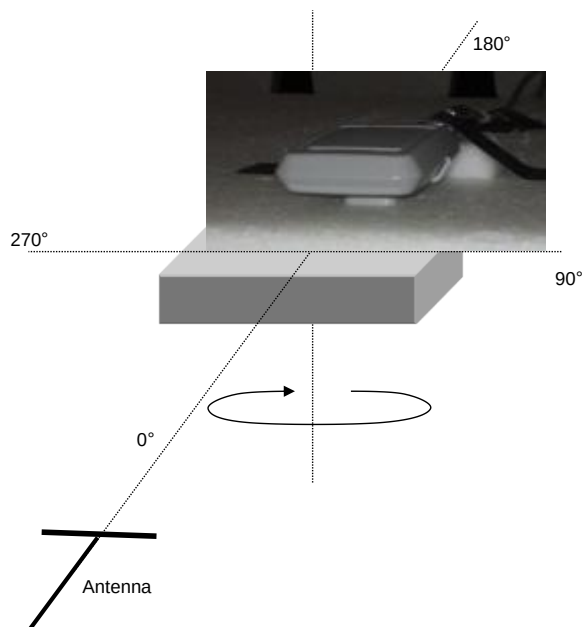
EmiR5 2022.07.06.0

PSA-ESCI 2022.08.23.0

|                         |                                                                                        |                   |            |                                                                                    |
|-------------------------|----------------------------------------------------------------------------------------|-------------------|------------|------------------------------------------------------------------------------------|
| Work Order:             | ADEM0034                                                                               | Date:             | 2022-10-20 |  |
| Project:                | None                                                                                   | Temperature:      | 21.9 °C    |                                                                                    |
| Job Site:               | TX02                                                                                   | Humidity:         | 28.2% RH   |                                                                                    |
| Serial Number:          | DUT_0059                                                                               | Barometric Pres.: | 1018 mbar  |                                                                                    |
| EUT: C7089R3013 Antenna |                                                                                        |                   |            | Tested by: Brandon Hobbs                                                           |
| Configuration:          | 1                                                                                      |                   |            |                                                                                    |
| Customer:               | ADemco, Inc                                                                            |                   |            |                                                                                    |
| Attendees:              | None                                                                                   |                   |            |                                                                                    |
| EUT Power:              | N/A                                                                                    |                   |            |                                                                                    |
| Operating Mode:         | Transmitting a CW tone at 0 dBm from a Signal Generator, with a 6 dB attenuator inline |                   |            |                                                                                    |
| Deviations:             | None                                                                                   |                   |            |                                                                                    |
| Comments:               | None                                                                                   |                   |            |                                                                                    |

|                                    |            |                                                            |       |
|------------------------------------|------------|------------------------------------------------------------|-------|
| Frequency                          | 926.4      | Absolute Gain of Reference Antenna (dBi)                   | 0.83  |
| Measurement Antenna Polarity       | Horizontal | Reference Antenna Relative Gain Max (dBuV/m)               | 97.45 |
| Antenna Under Test (AUT) Polarity  | Horizontal | AUT Relative Gain Max (dBuV/m)                             | 97.45 |
| Maximum Absolute Gain of AUT (dBi) | 0.83       | Difference (Reference Antenna - AUT) (dB)                  | 0.00  |
| Average Absolute Gain of AUT (dBi) | -9.09      | AUT Setup Loss (dB)                                        | 0     |
|                                    |            | Correction Factor (Convert Relative to Absolute Gain) (dB) | 96.62 |
| 3 dB Beamwidth                     | 20°        |                                                            |       |

| Run # | Test Distance (m) | Antenna Height(s) | Results |
|-------|-------------------|-------------------|---------|
|       |                   |                   | NA      |



# RELATIVE GAIN



EmiR5 2022.07.06.0

PSA-ESCI 2022.08.23.0

|                 |                                                                                        |                   |            |                                                                                    |
|-----------------|----------------------------------------------------------------------------------------|-------------------|------------|------------------------------------------------------------------------------------|
| Work Order:     | ADEM0034                                                                               | Date:             | 2022-10-20 |  |
| Project:        | None                                                                                   | Temperature:      | 19.9 °C    |                                                                                    |
| Job Site:       | TX02                                                                                   | Humidity:         | 35.6% RH   |                                                                                    |
| Serial Number:  | DUT_0059                                                                               | Barometric Pres.: | 1018 mbar  |                                                                                    |
| EUT:            | C7089R3013 Antenna                                                                     |                   |            | Tested by: Brandon Hobbs                                                           |
| Configuration:  | 1                                                                                      |                   |            |                                                                                    |
| Customer:       | ADemco, Inc                                                                            |                   |            |                                                                                    |
| Attendees:      | None                                                                                   |                   |            |                                                                                    |
| EUT Power:      | N/A                                                                                    |                   |            |                                                                                    |
| Operating Mode: | Transmitting a CW tone at 0 dBm from a Signal Generator, with a 6 dB attenuator inline |                   |            |                                                                                    |
| Deviations:     |                                                                                        |                   |            |                                                                                    |
| Comments:       | None                                                                                   |                   |            |                                                                                    |

Frequency (MHz) 926.4

Maximum Amplitude (dBuV/m) 91.34727

Azimuth at Maximum 152°

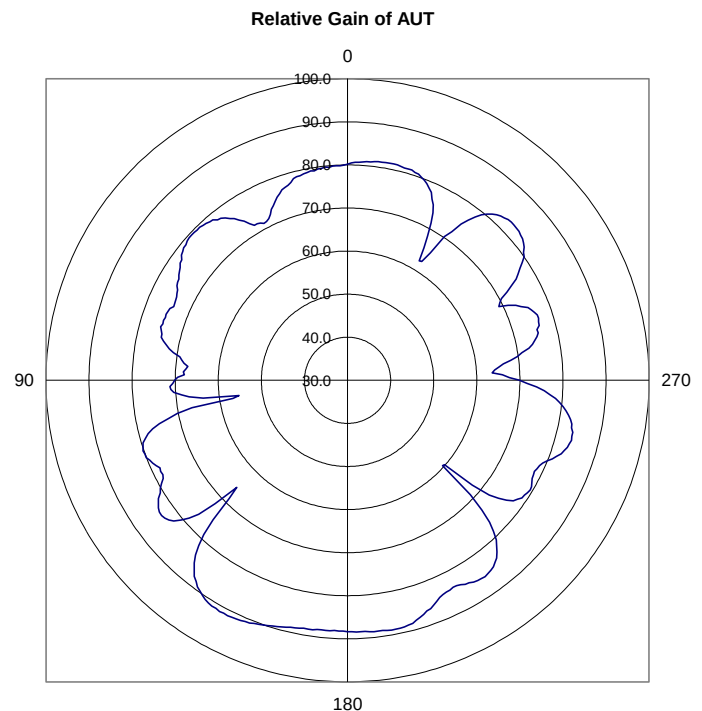
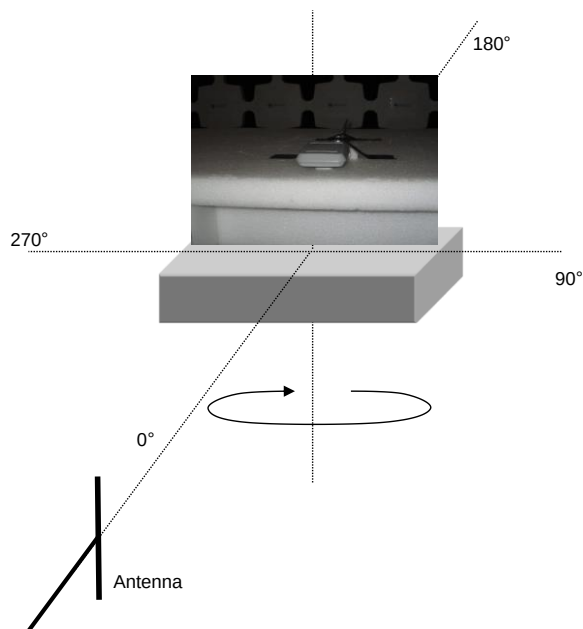
Measurement Antenna Polarity Vertical  
Antenna Under Test (AUT) Polarity Horizontal

Minimum Amplitude (dBuV/m) 55.44727

Azimuth at Minimum 97°

3 dB Beamwidth 31°

|       |   |                   |   |                   |   |  |  |
|-------|---|-------------------|---|-------------------|---|--|--|
| Run # | 7 | Test Distance (m) | 3 | Antenna Height(s) | 1 |  |  |
|-------|---|-------------------|---|-------------------|---|--|--|



# ABSOLUTE GAIN



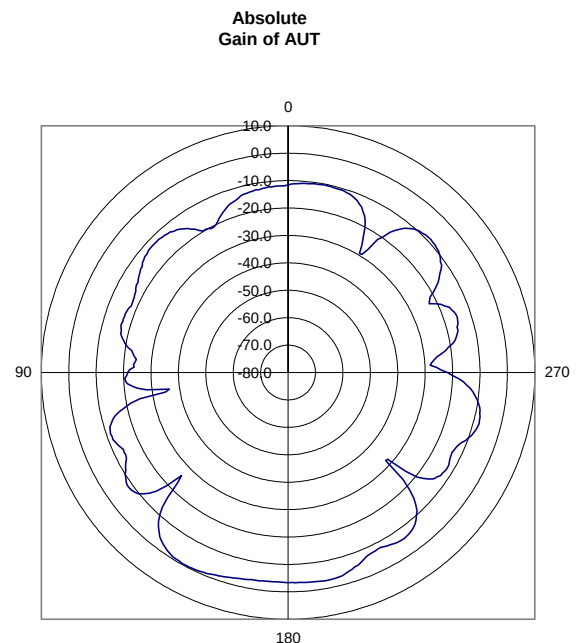
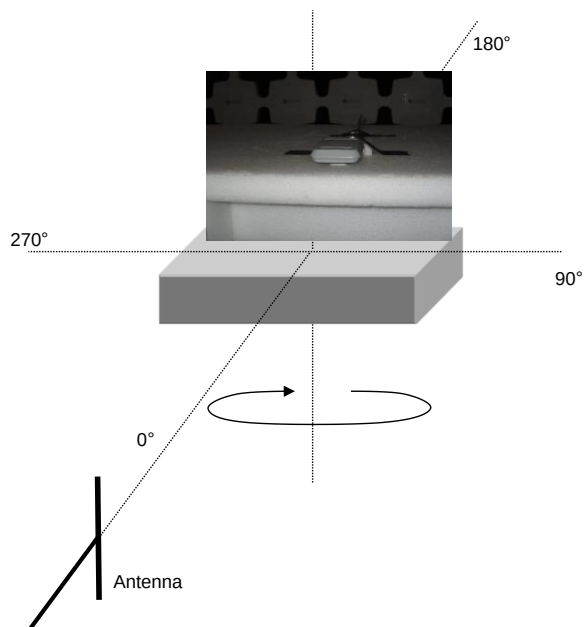
EmiR5 2022.07.06.0

PSA-ESCI 2022.08.23.0

|                         |                                                                                        |                   |            |                                                                                    |
|-------------------------|----------------------------------------------------------------------------------------|-------------------|------------|------------------------------------------------------------------------------------|
| Work Order:             | ADEM0034                                                                               | Date:             | 2022-10-20 |  |
| Project:                | None                                                                                   | Temperature:      | 19.9 °C    |                                                                                    |
| Job Site:               | TX02                                                                                   | Humidity:         | 35.6% RH   |                                                                                    |
| Serial Number:          | DUT_0059                                                                               | Barometric Pres.: | 1018 mbar  |                                                                                    |
| EUT: C7089R3013 Antenna |                                                                                        |                   |            | Tested by: Brandon Hobbs                                                           |
| Configuration:          | 1                                                                                      |                   |            |                                                                                    |
| Customer:               | ADemco, Inc                                                                            |                   |            |                                                                                    |
| Attendees:              | None                                                                                   |                   |            |                                                                                    |
| EUT Power:              | N/A                                                                                    |                   |            |                                                                                    |
| Operating Mode:         | Transmitting a CW tone at 0 dBm from a Signal Generator, with a 6 dB attenuator inline |                   |            |                                                                                    |
| Deviations:             |                                                                                        |                   |            |                                                                                    |
| Comments:               | None                                                                                   |                   |            |                                                                                    |

|                                    |            |                                                            |       |
|------------------------------------|------------|------------------------------------------------------------|-------|
| Frequency                          | 926.4      | Absolute Gain of Reference Antenna (dBi)                   | 0.83  |
| Measurement Antenna Polarity       | Vertical   | Reference Antenna Relative Gain Max (dBuV/m)               | 92.55 |
| Antenna Under Test (AUT) Polarity  | Horizontal | AUT Relative Gain Max (dBuV/m)                             | 91.35 |
| Maximum Absolute Gain of AUT (dBi) | -0.37      | Difference (Reference Antenna - AUT) (dB)                  | 1.20  |
| Average Absolute Gain of AUT (dBi) | -12.79     | AUT Setup Loss (dB)                                        | 0     |
|                                    |            | Correction Factor (Convert Relative to Absolute Gain) (dB) | 91.72 |
| 3 dB Beamwidth                     | 31°        |                                                            |       |

| Run # | Test Distance (m) | Antenna Height(s) | Results |
|-------|-------------------|-------------------|---------|
|       |                   |                   | NA      |



# RELATIVE GAIN



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|                        |                                                                                        |                          |            |                                                                                     |
|------------------------|----------------------------------------------------------------------------------------|--------------------------|------------|-------------------------------------------------------------------------------------|
| <b>Work Order:</b>     | ADEM0034                                                                               | <b>Date:</b>             | 2022-10-20 |  |
| <b>Project:</b>        | None                                                                                   | <b>Temperature:</b>      | 19.9 °C    |                                                                                     |
| <b>Job Site:</b>       | TX02                                                                                   | <b>Humidity:</b>         | 35.6% RH   |                                                                                     |
| <b>Serial Number:</b>  | DUT_0059                                                                               | <b>Barometric Pres.:</b> | 1018 mbar  |                                                                                     |
| <b>EUT:</b>            | C7089R3013 Antenna                                                                     |                          |            | <b>Tested by:</b> Brandon Hobbs                                                     |
| <b>Configuration:</b>  | 1                                                                                      |                          |            |                                                                                     |
| <b>Customer:</b>       | ADemco, Inc                                                                            |                          |            |                                                                                     |
| <b>Attendees:</b>      | None                                                                                   |                          |            |                                                                                     |
| <b>EUT Power:</b>      | N/A                                                                                    |                          |            |                                                                                     |
| <b>Operating Mode:</b> | Transmitting a CW tone at 0 dBm from a Signal Generator, with a 6 dB attenuator inline |                          |            |                                                                                     |
| <b>Deviations:</b>     |                                                                                        |                          |            |                                                                                     |
| <b>Comments:</b>       | None                                                                                   |                          |            |                                                                                     |

Frequency (MHz) **914.6**

Maximum Amplitude (dBuV/m) **90.73418**

Azimuth at Maximum **149°**

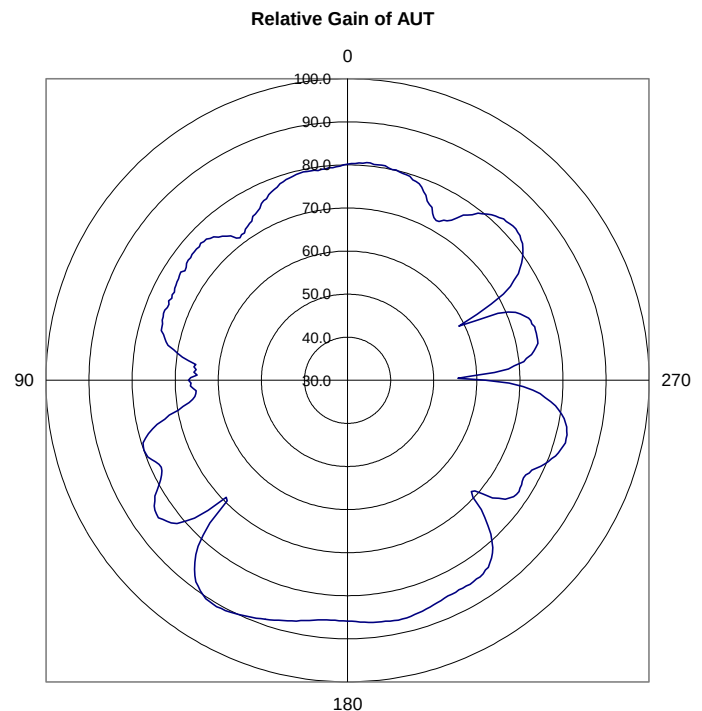
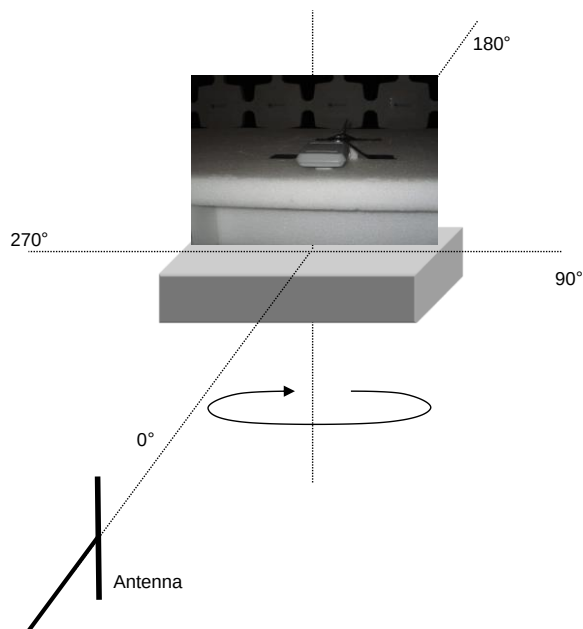
Measurement Antenna Polarity **Vertical**  
Antenna Under Test (AUT) Polarity **Horizontal**

Minimum Amplitude (dBuV/m) **55.63418**

Azimuth at Minimum **270°**

3 dB Beamwidth **23°**

|              |   |                          |   |                          |   |  |  |
|--------------|---|--------------------------|---|--------------------------|---|--|--|
| <b>Run #</b> | 8 | <b>Test Distance (m)</b> | 3 | <b>Antenna Height(s)</b> | 1 |  |  |
|--------------|---|--------------------------|---|--------------------------|---|--|--|



# ABSOLUTE GAIN



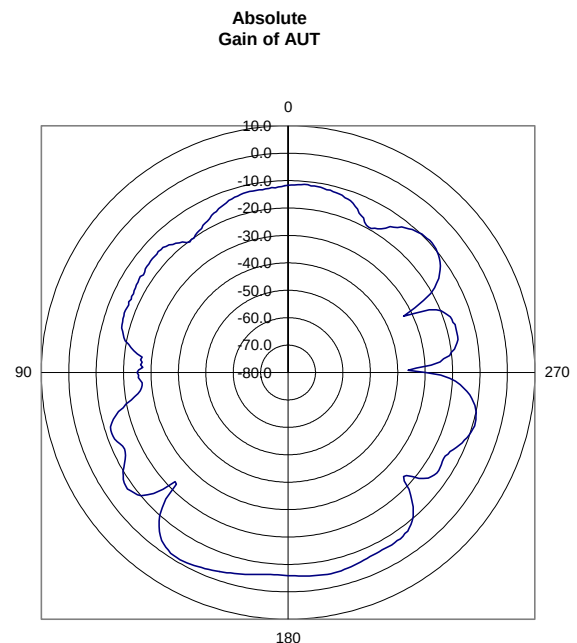
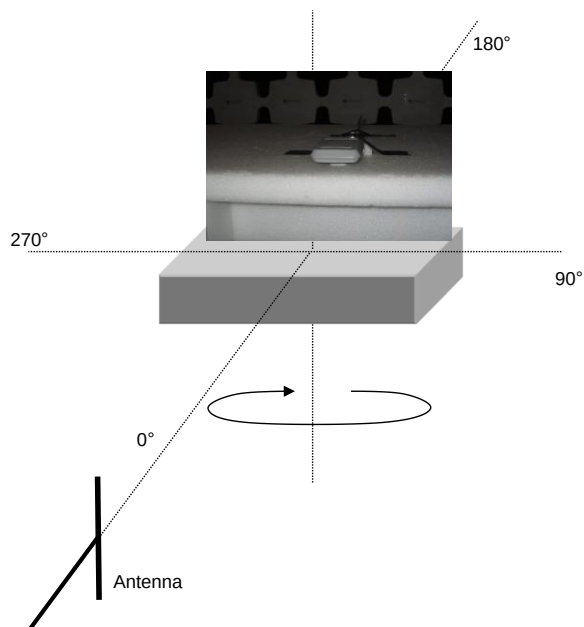
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|                         |                                                                                        |                   |            |                          |
|-------------------------|----------------------------------------------------------------------------------------|-------------------|------------|--------------------------|
| Work Order:             | ADEM0034                                                                               | Date:             | 2022-10-20 |                          |
| Project:                | None                                                                                   | Temperature:      | 19.9 °C    |                          |
| Job Site:               | TX02                                                                                   | Humidity:         | 35.6% RH   |                          |
| Serial Number:          | DUT_0059                                                                               | Barometric Pres.: | 1018 mbar  |                          |
| EUT: C7089R3013 Antenna |                                                                                        |                   |            | Tested by: Brandon Hobbs |
| Configuration:          | 1                                                                                      |                   |            |                          |
| Customer:               | ADemco, Inc                                                                            |                   |            |                          |
| Attendees:              | None                                                                                   |                   |            |                          |
| EUT Power:              | N/A                                                                                    |                   |            |                          |
| Operating Mode:         | Transmitting a CW tone at 0 dBm from a Signal Generator, with a 6 dB attenuator inline |                   |            |                          |
| Deviations:             |                                                                                        |                   |            |                          |
| Comments:               | None                                                                                   |                   |            |                          |

|                                    |            |                                                            |       |
|------------------------------------|------------|------------------------------------------------------------|-------|
| Frequency                          | 914.6      | Absolute Gain of Reference Antenna (dBi)                   | 0.87  |
| Measurement Antenna Polarity       | Vertical   | Reference Antenna Relative Gain Max (dBuV/m)               | 92.73 |
| Antenna Under Test (AUT) Polarity  | Horizontal | AUT Relative Gain Max (dBuV/m)                             | 90.73 |
| Maximum Absolute Gain of AUT (dBi) | -1.13      | Difference (Reference Antenna - AUT) (dB)                  | 2.00  |
| Average Absolute Gain of AUT (dBi) | -13.45     | AUT Setup Loss (dB)                                        | 0     |
|                                    |            | Correction Factor (Convert Relative to Absolute Gain) (dB) | 91.86 |
| 3 dB Beamwidth                     | 23°        |                                                            |       |

| Run # | Test Distance (m) | Antenna Height(s) | Results |
|-------|-------------------|-------------------|---------|
|       |                   |                   | NA      |



# RELATIVE GAIN



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|                 |                                                                                        |                   |            |                                                                                    |
|-----------------|----------------------------------------------------------------------------------------|-------------------|------------|------------------------------------------------------------------------------------|
| Work Order:     | ADEM0034                                                                               | Date:             | 2022-10-20 |  |
| Project:        | None                                                                                   | Temperature:      | 19.9 °C    |                                                                                    |
| Job Site:       | TX02                                                                                   | Humidity:         | 35.6% RH   |                                                                                    |
| Serial Number:  | DUT_0059                                                                               | Barometric Pres.: | 1018 mbar  |                                                                                    |
| EUT:            | C7089R3013 Antenna                                                                     |                   |            | Tested by: Brandon Hobbs                                                           |
| Configuration:  | 1                                                                                      |                   |            |                                                                                    |
| Customer:       | ADemco, Inc                                                                            |                   |            |                                                                                    |
| Attendees:      | None                                                                                   |                   |            |                                                                                    |
| EUT Power:      | N/A                                                                                    |                   |            |                                                                                    |
| Operating Mode: | Transmitting a CW tone at 0 dBm from a Signal Generator, with a 6 dB attenuator inline |                   |            |                                                                                    |
| Deviations:     |                                                                                        |                   |            |                                                                                    |
| Comments:       | None                                                                                   |                   |            |                                                                                    |

Frequency (MHz) **914.6**

Maximum Amplitude (dBuV/m) **97.03418**

Azimuth at Maximum **150°**

Measurement Antenna Polarity **Horizontal**

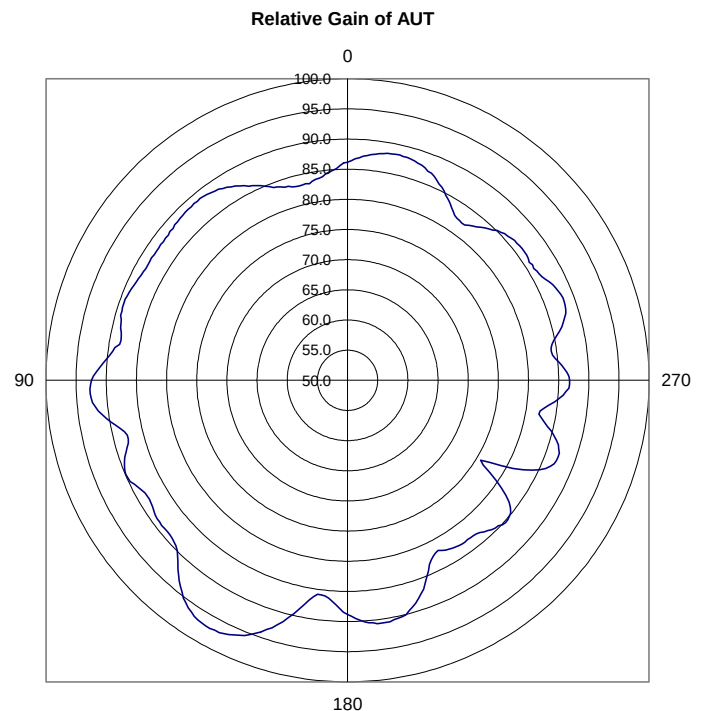
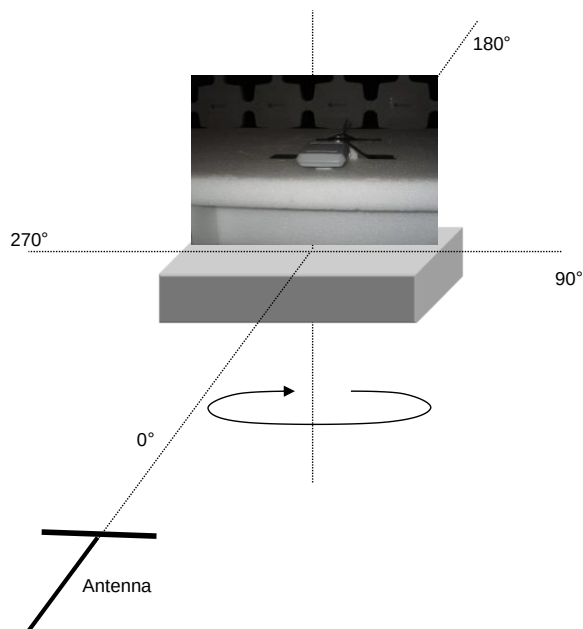
Minimum Amplitude (dBuV/m) **75.73418**

Antenna Under Test (AUT) Polarity **Horizontal**

Azimuth at Minimum **238°**

3 dB Beamwidth **21°**

|       |   |                   |   |                   |      |  |  |
|-------|---|-------------------|---|-------------------|------|--|--|
| Run # | 9 | Test Distance (m) | 3 | Antenna Height(s) | 1.33 |  |  |
|-------|---|-------------------|---|-------------------|------|--|--|



# ABSOLUTE GAIN



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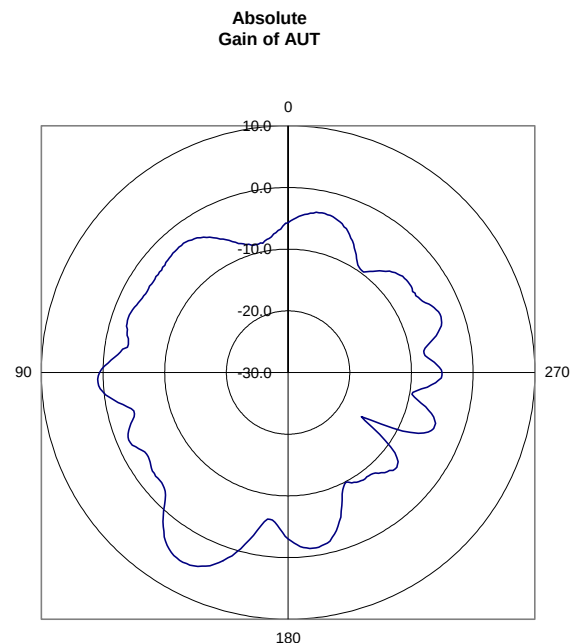
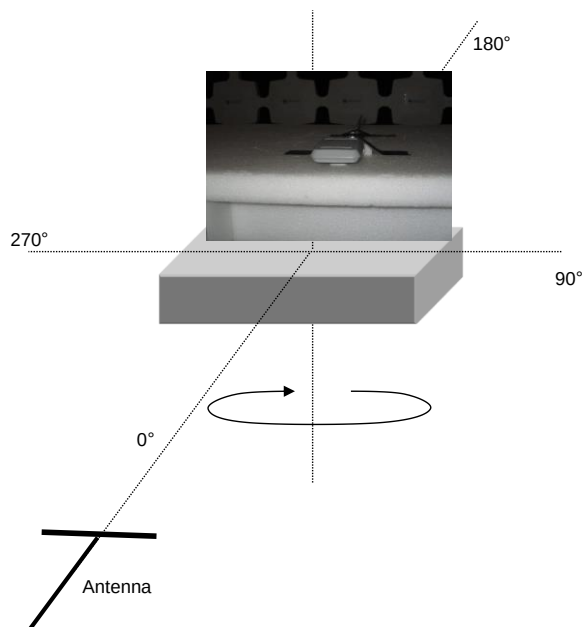
PSA-ESCI 2022.08.23.0

|                         |                                                                                        |                   |            |                          |
|-------------------------|----------------------------------------------------------------------------------------|-------------------|------------|--------------------------|
| Work Order:             | ADEM0034                                                                               | Date:             | 2022-10-20 |                          |
| Project:                | None                                                                                   | Temperature:      | 19.9 °C    |                          |
| Job Site:               | TX02                                                                                   | Humidity:         | 35.6% RH   |                          |
| Serial Number:          | DUT_0059                                                                               | Barometric Pres.: | 1018 mbar  |                          |
| EUT: C7089R3013 Antenna |                                                                                        |                   |            | Tested by: Brandon Hobbs |
| Configuration:          | 1                                                                                      |                   |            |                          |
| Customer:               | ADemco, Inc                                                                            |                   |            |                          |
| Attendees:              | None                                                                                   |                   |            |                          |
| EUT Power:              | N/A                                                                                    |                   |            |                          |
| Operating Mode:         | Transmitting a CW tone at 0 dBm from a Signal Generator, with a 6 dB attenuator inline |                   |            |                          |
| Deviations:             |                                                                                        |                   |            |                          |
| Comments:               | None                                                                                   |                   |            |                          |

|                                    |            |                                                            |       |
|------------------------------------|------------|------------------------------------------------------------|-------|
| Frequency                          | 914.6      | Absolute Gain of Reference Antenna (dBi)                   | 0.87  |
| Measurement Antenna Polarity       | Horizontal | Reference Antenna Relative Gain Max (dBuV/m)               | 92.73 |
| Antenna Under Test (AUT) Polarity  | Horizontal | AUT Relative Gain Max (dBuV/m)                             | 97.03 |
| Maximum Absolute Gain of AUT (dBi) | 5.17       | Difference (Reference Antenna - AUT) (dB)                  | -4.30 |
| Average Absolute Gain of AUT (dBi) | -4.49      | AUT Setup Loss (dB)                                        | 0     |
|                                    |            | Correction Factor (Convert Relative to Absolute Gain) (dB) | 91.86 |

3 dB Beamwidth 21°

| Run # | Test Distance (m) | Antenna Height(s) | Results |
|-------|-------------------|-------------------|---------|
|       |                   |                   | NA      |



# RELATIVE GAIN



EmiR5 2022.07.06.0

PSA-ESCI 2022.08.23.0

|                 |                                                                                        |                   |            |                                                                                    |
|-----------------|----------------------------------------------------------------------------------------|-------------------|------------|------------------------------------------------------------------------------------|
| Work Order:     | ADEM0034                                                                               | Date:             | 2022-10-20 |  |
| Project:        | None                                                                                   | Temperature:      | 19.9 °C    |                                                                                    |
| Job Site:       | TX02                                                                                   | Humidity:         | 35.6% RH   |                                                                                    |
| Serial Number:  | DUT_0059                                                                               | Barometric Pres.: | 1018 mbar  |                                                                                    |
| EUT:            | C7089R3013 Antenna                                                                     |                   |            | Tested by: Brandon Hobbs                                                           |
| Configuration:  | 1                                                                                      |                   |            |                                                                                    |
| Customer:       | ADemco, Inc                                                                            |                   |            |                                                                                    |
| Attendees:      | None                                                                                   |                   |            |                                                                                    |
| EUT Power:      | N/A                                                                                    |                   |            |                                                                                    |
| Operating Mode: | Transmitting a CW tone at 0 dBm from a Signal Generator, with a 6 dB attenuator inline |                   |            |                                                                                    |
| Deviations:     |                                                                                        |                   |            |                                                                                    |
| Comments:       | None                                                                                   |                   |            |                                                                                    |

Frequency (MHz) 903

Maximum Amplitude (dBuV/m) 96.48736

Azimuth at Maximum 151°

Measurement Antenna Polarity Horizontal

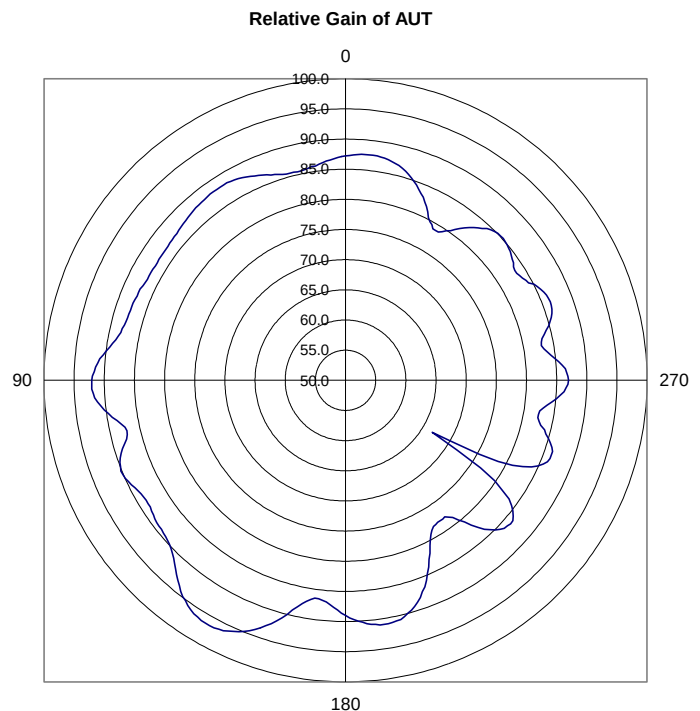
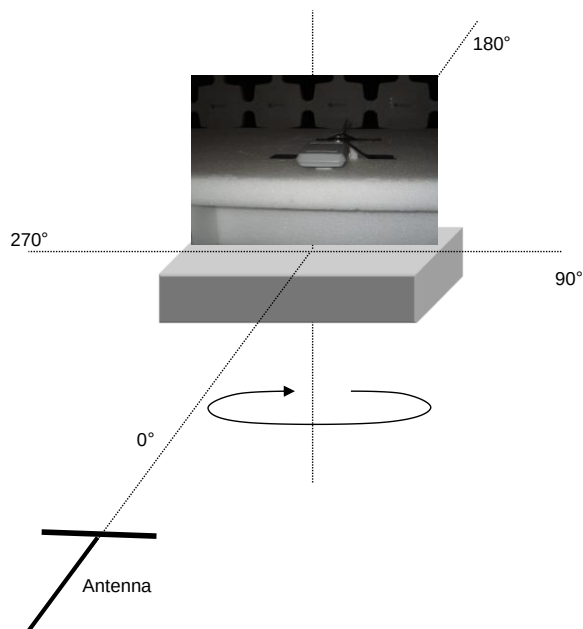
Minimum Amplitude (dBuV/m) 66.78736

Antenna Under Test (AUT) Polarity Horizontal

Azimuth at Minimum 238°

3 dB Beamwidth 21°

|       |    |                   |   |                   |       |  |  |
|-------|----|-------------------|---|-------------------|-------|--|--|
| Run # | 10 | Test Distance (m) | 3 | Antenna Height(s) | 1.339 |  |  |
|-------|----|-------------------|---|-------------------|-------|--|--|



# ABSOLUTE GAIN



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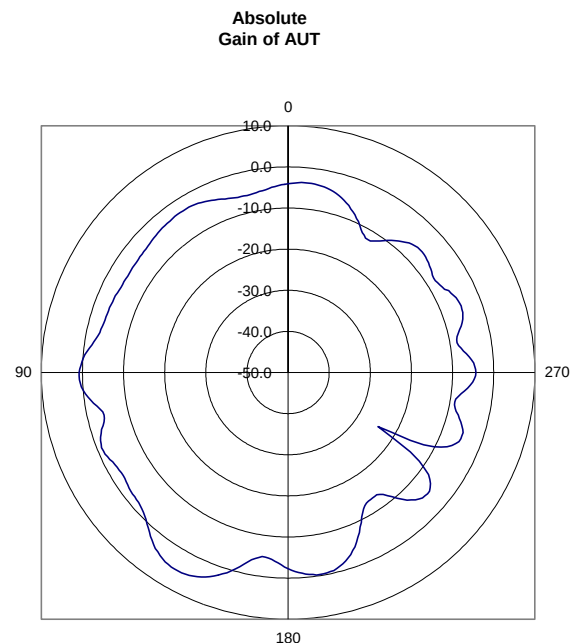
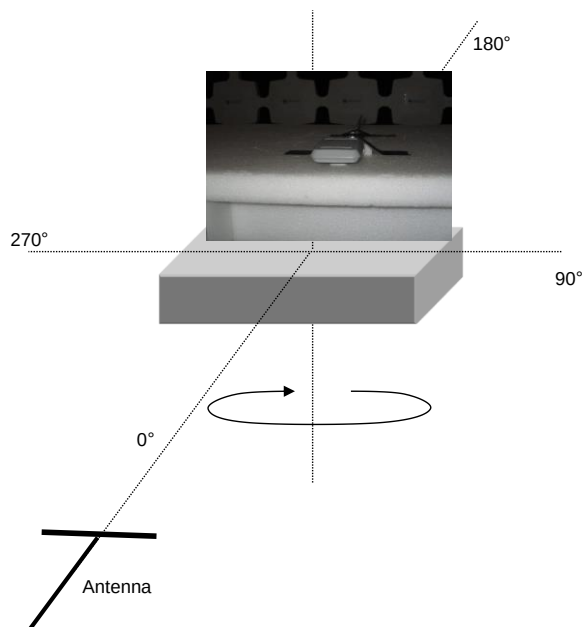
PSA-ESCI 2022.08.23.0

|                         |                                                                                        |                   |            |                                                                                    |
|-------------------------|----------------------------------------------------------------------------------------|-------------------|------------|------------------------------------------------------------------------------------|
| Work Order:             | ADEM0034                                                                               | Date:             | 2022-10-20 |  |
| Project:                | None                                                                                   | Temperature:      | 19.9 °C    |                                                                                    |
| Job Site:               | TX02                                                                                   | Humidity:         | 35.6% RH   |                                                                                    |
| Serial Number:          | DUT_0059                                                                               | Barometric Pres.: | 1018 mbar  |                                                                                    |
| EUT: C7089R3013 Antenna |                                                                                        |                   |            | Tested by: Brandon Hobbs                                                           |
| Configuration:          | 1                                                                                      |                   |            |                                                                                    |
| Customer:               | ADemco, Inc                                                                            |                   |            |                                                                                    |
| Attendees:              | None                                                                                   |                   |            |                                                                                    |
| EUT Power:              | N/A                                                                                    |                   |            |                                                                                    |
| Operating Mode:         | Transmitting a CW tone at 0 dBm from a Signal Generator, with a 6 dB attenuator inline |                   |            |                                                                                    |
| Deviations:             |                                                                                        |                   |            |                                                                                    |
| Comments:               | None                                                                                   |                   |            |                                                                                    |

|                                    |            |                                                            |       |
|------------------------------------|------------|------------------------------------------------------------|-------|
| Frequency                          | 903        | Absolute Gain of Reference Antenna (dBi)                   | 0.9   |
| Measurement Antenna Polarity       | Horizontal | Reference Antenna Relative Gain Max (dBuV/m)               | 92.19 |
| Antenna Under Test (AUT) Polarity  | Horizontal | AUT Relative Gain Max (dBuV/m)                             | 96.49 |
| Maximum Absolute Gain of AUT (dBi) | 5.20       | Difference (Reference Antenna - AUT) (dB)                  | -4.30 |
| Average Absolute Gain of AUT (dBi) | -4.57      | AUT Setup Loss (dB)                                        | 0     |
|                                    |            | Correction Factor (Convert Relative to Absolute Gain) (dB) | 91.29 |

3 dB Beamwidth 21°

| Run # | Test Distance (m) | Antenna Height(s) | Results |
|-------|-------------------|-------------------|---------|
|       |                   |                   | NA      |



# RELATIVE GAIN



EmiR5 2022.07.06.0

PSA-ESCI 2022.08.23.0

|                 |                                                                                        |                   |            |                          |
|-----------------|----------------------------------------------------------------------------------------|-------------------|------------|--------------------------|
| Work Order:     | ADEM0034                                                                               | Date:             | 2022-10-20 |                          |
| Project:        | None                                                                                   | Temperature:      | 19.9 °C    |                          |
| Job Site:       | TX02                                                                                   | Humidity:         | 35.6% RH   |                          |
| Serial Number:  | DUT_0059                                                                               | Barometric Pres.: | 1018 mbar  |                          |
| EUT:            | C7089R3013 Antenna                                                                     |                   |            | Tested by: Brandon Hobbs |
| Configuration:  | 1                                                                                      |                   |            |                          |
| Customer:       | ADemco, Inc                                                                            |                   |            |                          |
| Attendees:      | None                                                                                   |                   |            |                          |
| EUT Power:      | N/A                                                                                    |                   |            |                          |
| Operating Mode: | Transmitting a CW tone at 0 dBm from a Signal Generator, with a 6 dB attenuator inline |                   |            |                          |
| Deviations:     |                                                                                        |                   |            |                          |
| Comments:       | None                                                                                   |                   |            |                          |

Frequency (MHz) **903**

Maximum Amplitude (dBuV/m) **90.68736**

Azimuth at Maximum **148°**

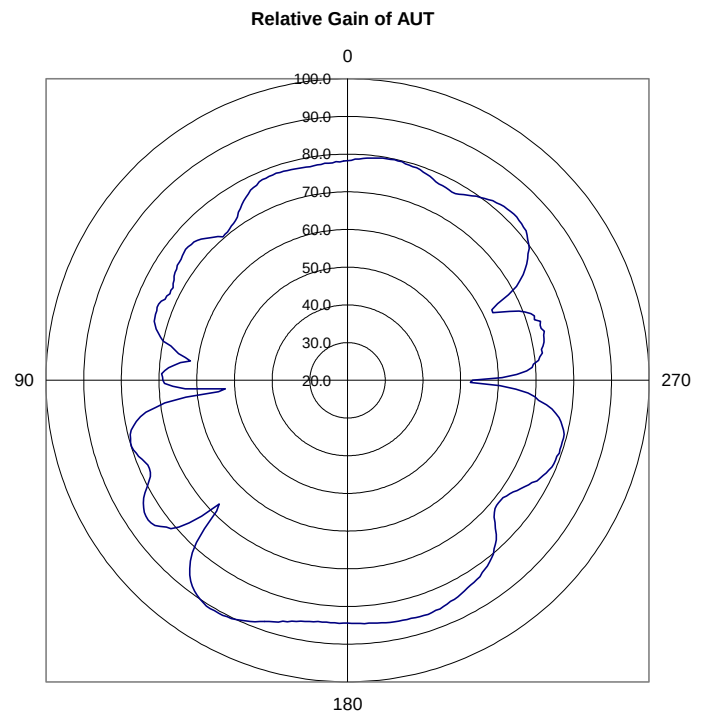
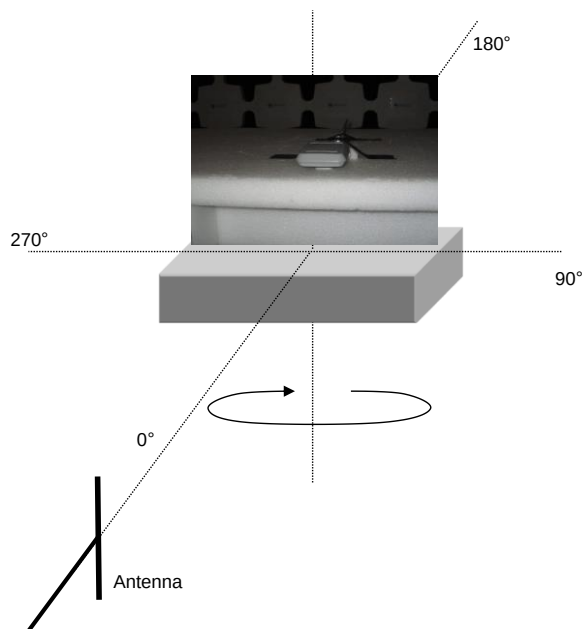
Measurement Antenna Polarity **Vertical**  
Antenna Under Test (AUT) Polarity **Horizontal**

Minimum Amplitude (dBuV/m) **52.48736**

Azimuth at Minimum **93°**

3 dB Beamwidth **19°**

|       |    |                   |   |                   |   |  |  |
|-------|----|-------------------|---|-------------------|---|--|--|
| Run # | 11 | Test Distance (m) | 3 | Antenna Height(s) | 1 |  |  |
|-------|----|-------------------|---|-------------------|---|--|--|



# ABSOLUTE GAIN



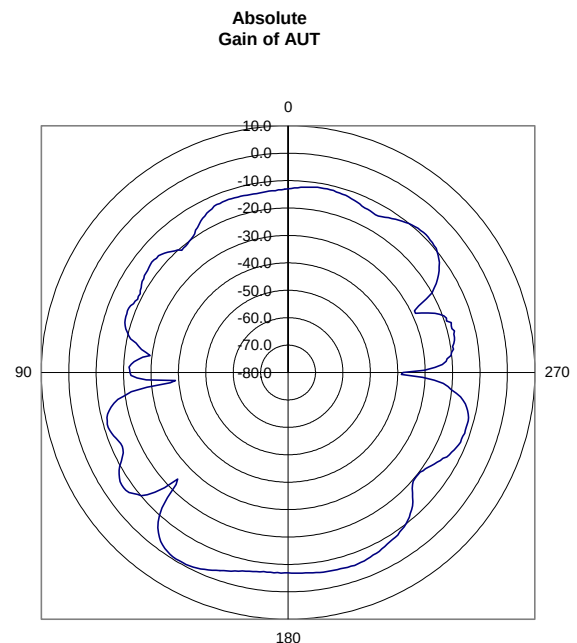
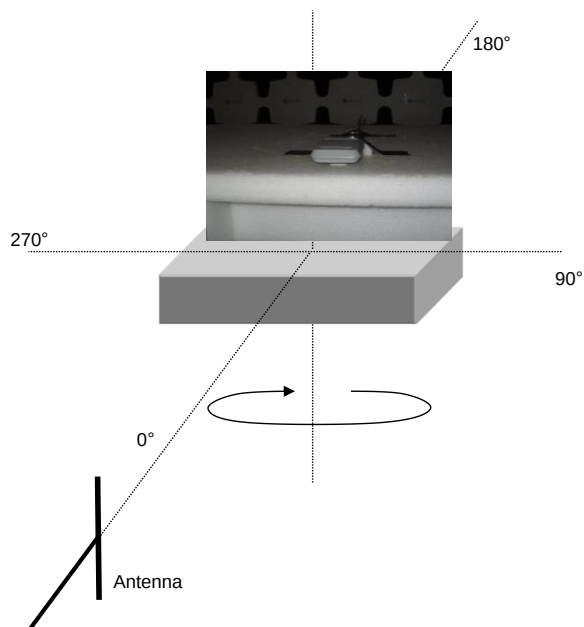
EmiR5 2022.07.06.0

PSA-ESCI 2022.08.23.0

|                 |                                                                                        |                   |            |                                                                                    |
|-----------------|----------------------------------------------------------------------------------------|-------------------|------------|------------------------------------------------------------------------------------|
| Work Order:     | ADEM0034                                                                               | Date:             | 2022-10-20 |  |
| Project:        | None                                                                                   | Temperature:      | 19.9 °C    |                                                                                    |
| Job Site:       | TX02                                                                                   | Humidity:         | 35.6% RH   |                                                                                    |
| Serial Number:  | DUT_0059                                                                               | Barometric Pres.: | 1018 mbar  |                                                                                    |
|                 |                                                                                        | Tested by:        |            | Brandon Hobbs                                                                      |
| EUT:            | C7089R3013 Antenna                                                                     |                   |            |                                                                                    |
| Configuration:  | 1                                                                                      |                   |            |                                                                                    |
| Customer:       | ADemco, Inc                                                                            |                   |            |                                                                                    |
| Attendees:      | None                                                                                   |                   |            |                                                                                    |
| EUT Power:      | N/A                                                                                    |                   |            |                                                                                    |
| Operating Mode: | Transmitting a CW tone at 0 dBm from a Signal Generator, with a 6 dB attenuator inline |                   |            |                                                                                    |
| Deviations:     |                                                                                        |                   |            |                                                                                    |
| Comments:       | None                                                                                   |                   |            |                                                                                    |

|                                    |            |                                                            |       |
|------------------------------------|------------|------------------------------------------------------------|-------|
| Frequency                          | 903        | Absolute Gain of Reference Antenna (dBi)                   | 0.9   |
| Measurement Antenna Polarity       | Vertical   | Reference Antenna Relative Gain Max (dBuV/m)               | 92.19 |
| Antenna Under Test (AUT) Polarity  | Horizontal | AUT Relative Gain Max (dBuV/m)                             | 90.69 |
| Maximum Absolute Gain of AUT (dBi) | -0.60      | Difference (Reference Antenna - AUT) (dB)                  | 1.50  |
| Average Absolute Gain of AUT (dBi) | -13.75     | AUT Setup Loss (dB)                                        | 0     |
|                                    |            | Correction Factor (Convert Relative to Absolute Gain) (dB) | 91.29 |
| 3 dB Beamwidth                     | 19°        |                                                            |       |

| Run # | Test Distance (m) | Antenna Height(s) | Results |
|-------|-------------------|-------------------|---------|
|       |                   |                   | NA      |



# RELATIVE GAIN



EmiR5 2022.07.06.0

PSA-ESCI 2022.08.23.0

|                 |                                                                                        |                   |            |                                                                                     |
|-----------------|----------------------------------------------------------------------------------------|-------------------|------------|-------------------------------------------------------------------------------------|
| Work Order:     | ADEM0034                                                                               | Date:             | 2022-10-20 |  |
| Project:        | None                                                                                   | Temperature:      | 19.9 °C    |                                                                                     |
| Job Site:       | TX02                                                                                   | Humidity:         | 35.6% RH   |                                                                                     |
| Serial Number:  | DUT_0059                                                                               | Barometric Pres.: | 1018 mbar  |                                                                                     |
| EUT:            | C7089R3013 Antenna                                                                     |                   |            | Tested by: Brandon Hobbs                                                            |
| Configuration:  | 1                                                                                      |                   |            |                                                                                     |
| Customer:       | ADemco, Inc                                                                            |                   |            |                                                                                     |
| Attendees:      | None                                                                                   |                   |            |                                                                                     |
| EUT Power:      | N/A                                                                                    |                   |            |                                                                                     |
| Operating Mode: | Transmitting a CW tone at 0 dBm from a Signal Generator, with a 6 dB attenuator inline |                   |            |                                                                                     |
| Deviations:     |                                                                                        |                   |            |                                                                                     |
| Comments:       | None                                                                                   |                   |            |                                                                                     |

Frequency (MHz) **903**

Maximum Amplitude (dBuV/m) **92.08736**

Azimuth at Maximum **147°**

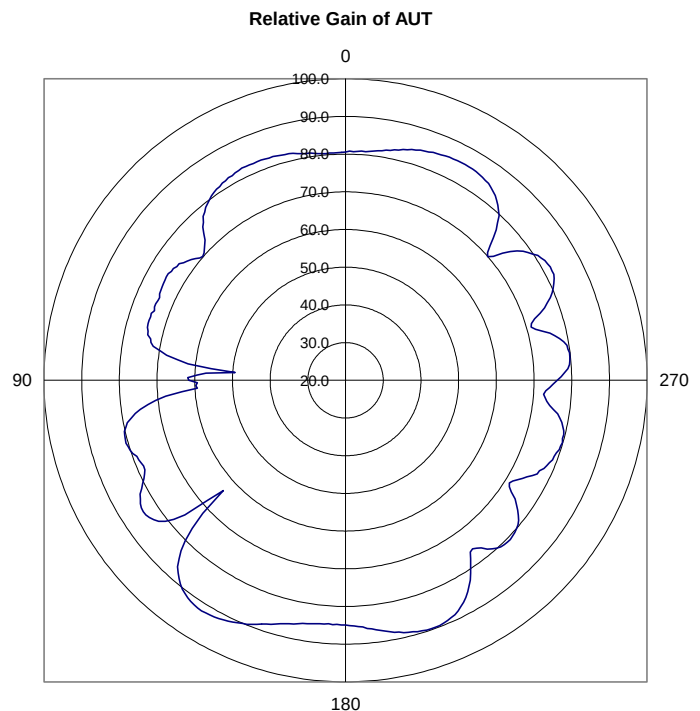
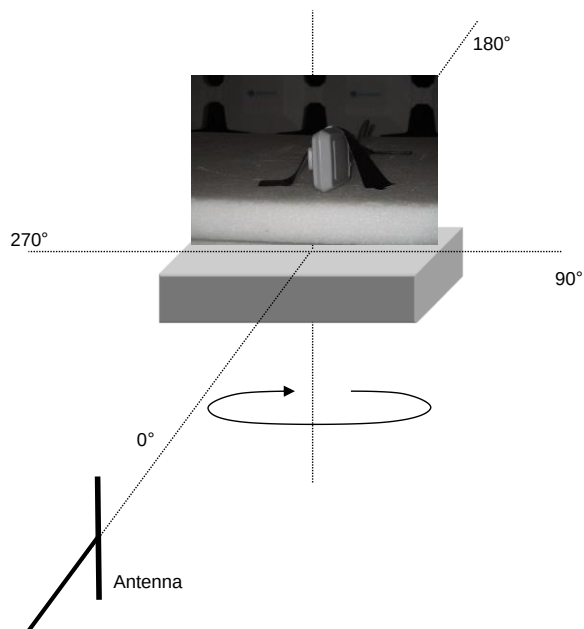
Measurement Antenna Polarity **Vertical**  
Antenna Under Test (AUT) Polarity **on Side**

Minimum Amplitude (dBuV/m) **49.38736**

Azimuth at Minimum **85°**

3 dB Beamwidth **20°**

|       |    |                   |   |                   |   |  |  |
|-------|----|-------------------|---|-------------------|---|--|--|
| Run # | 12 | Test Distance (m) | 3 | Antenna Height(s) | 1 |  |  |
|-------|----|-------------------|---|-------------------|---|--|--|



# ABSOLUTE GAIN



EmiR5 2022.07.06.0

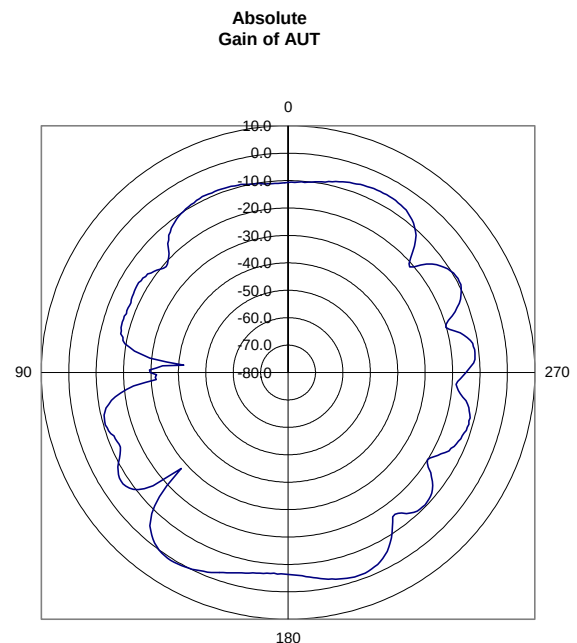
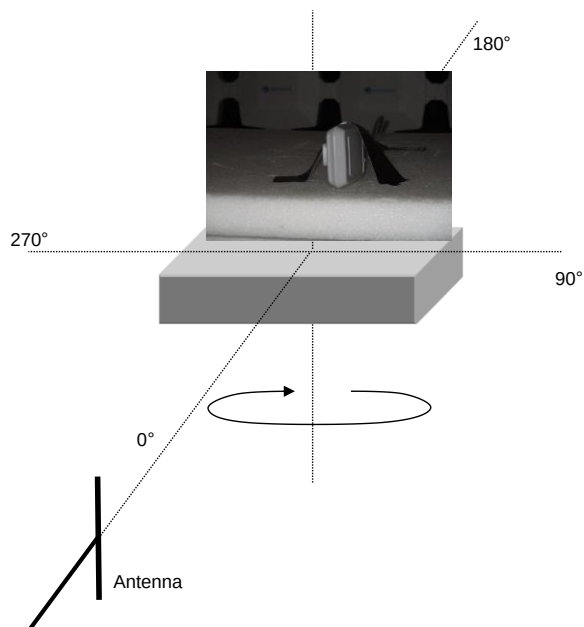
PSA-ESCI 2022.08.23.0

|                         |                                                                                        |                   |            |                                                                                    |
|-------------------------|----------------------------------------------------------------------------------------|-------------------|------------|------------------------------------------------------------------------------------|
| Work Order:             | ADEM0034                                                                               | Date:             | 2022-10-20 |  |
| Project:                | None                                                                                   | Temperature:      | 19.9 °C    |                                                                                    |
| Job Site:               | TX02                                                                                   | Humidity:         | 35.6% RH   |                                                                                    |
| Serial Number:          | DUT_0059                                                                               | Barometric Pres.: | 1018 mbar  |                                                                                    |
| EUT: C7089R3013 Antenna |                                                                                        |                   |            | Tested by: Brandon Hobbs                                                           |
| Configuration:          | 1                                                                                      |                   |            |                                                                                    |
| Customer:               | ADemco, Inc                                                                            |                   |            |                                                                                    |
| Attendees:              | None                                                                                   |                   |            |                                                                                    |
| EUT Power:              | N/A                                                                                    |                   |            |                                                                                    |
| Operating Mode:         | Transmitting a CW tone at 0 dBm from a Signal Generator, with a 6 dB attenuator inline |                   |            |                                                                                    |
| Deviations:             |                                                                                        |                   |            |                                                                                    |
| Comments:               | None                                                                                   |                   |            |                                                                                    |

|                                    |          |                                                            |       |
|------------------------------------|----------|------------------------------------------------------------|-------|
| Frequency                          | 903      | Absolute Gain of Reference Antenna (dBi)                   | 0.9   |
| Measurement Antenna Polarity       | Vertical | Reference Antenna Relative Gain Max (dBuV/m)               | 92.19 |
| Antenna Under Test (AUT) Polarity  | on Side  | AUT Relative Gain Max (dBuV/m)                             | 92.09 |
| Maximum Absolute Gain of AUT (dBi) | 0.80     | Difference (Reference Antenna - AUT) (dB)                  | 0.10  |
| Average Absolute Gain of AUT (dBi) | -11.46   | AUT Setup Loss (dB)                                        | 0     |
|                                    |          | Correction Factor (Convert Relative to Absolute Gain) (dB) | 91.29 |

3 dB Beamwidth 20°

| Run # | Test Distance (m) | Antenna Height(s) | Results |
|-------|-------------------|-------------------|---------|
|       |                   |                   | NA      |



# RELATIVE GAIN



EmiR5 2022.07.06.0

PSA-ESCI 2022.08.23.0

|                 |                                                                                        |                   |            |                                                                                     |
|-----------------|----------------------------------------------------------------------------------------|-------------------|------------|-------------------------------------------------------------------------------------|
| Work Order:     | ADEM0034                                                                               | Date:             | 2022-10-20 |  |
| Project:        | None                                                                                   | Temperature:      | 19.9 °C    |                                                                                     |
| Job Site:       | TX02                                                                                   | Humidity:         | 35.6% RH   |                                                                                     |
| Serial Number:  | DUT_0059                                                                               | Barometric Pres.: | 1018 mbar  |                                                                                     |
| EUT:            | C7089R3013 Antenna                                                                     |                   |            | Tested by: Brandon Hobbs                                                            |
| Configuration:  | 1                                                                                      |                   |            |                                                                                     |
| Customer:       | ADemco, Inc                                                                            |                   |            |                                                                                     |
| Attendees:      | None                                                                                   |                   |            |                                                                                     |
| EUT Power:      | N/A                                                                                    |                   |            |                                                                                     |
| Operating Mode: | Transmitting a CW tone at 0 dBm from a Signal Generator, with a 6 dB attenuator inline |                   |            |                                                                                     |
| Deviations:     |                                                                                        |                   |            |                                                                                     |
| Comments:       | None                                                                                   |                   |            |                                                                                     |

Frequency (MHz) **903**

Maximum Amplitude (dBuV/m) **93.88736**

Azimuth at Maximum **193°**

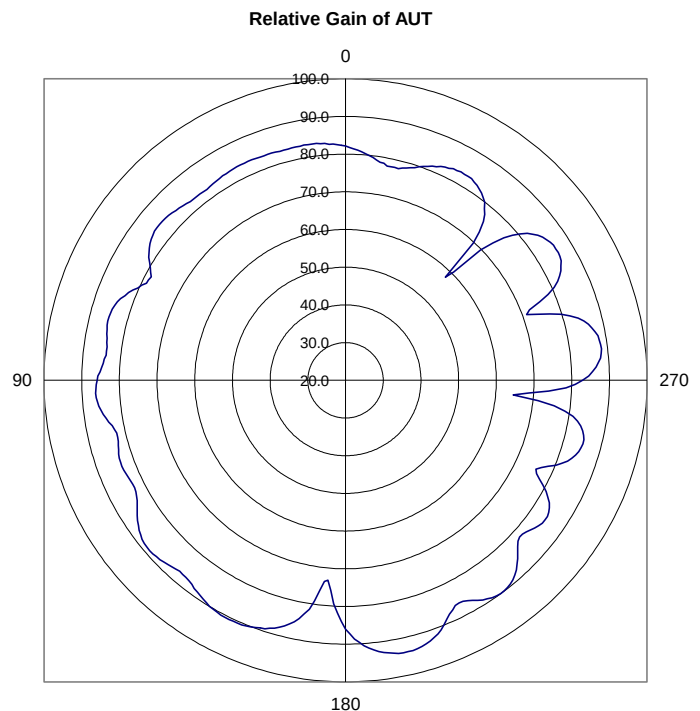
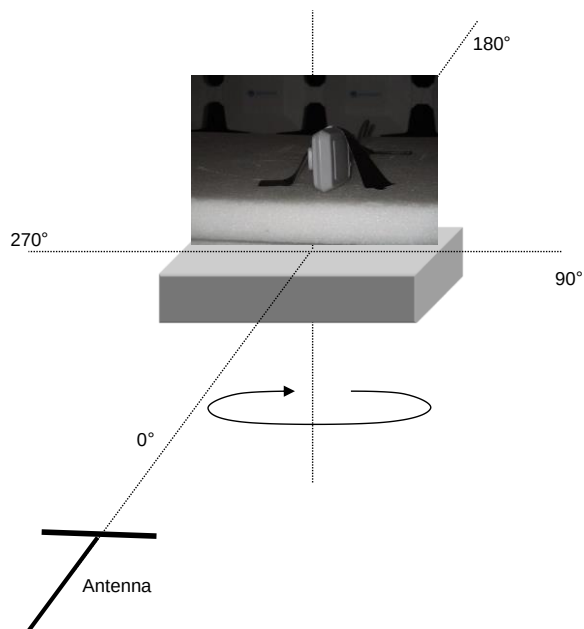
Measurement Antenna Polarity **Horizontal**  
Antenna Under Test (AUT) Polarity **on Side**

Minimum Amplitude (dBuV/m) **58.08736**

Azimuth at Minimum **315°**

3 dB Beamwidth **17°**

|       |    |                   |   |                   |   |  |  |
|-------|----|-------------------|---|-------------------|---|--|--|
| Run # | 13 | Test Distance (m) | 3 | Antenna Height(s) | 1 |  |  |
|-------|----|-------------------|---|-------------------|---|--|--|



# ABSOLUTE GAIN



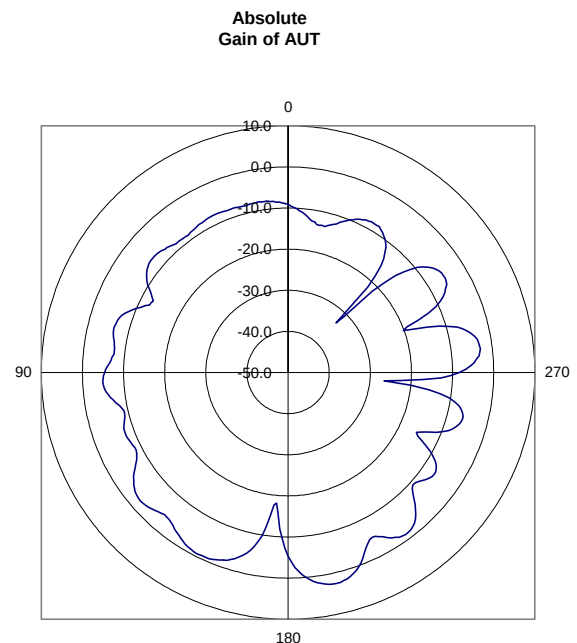
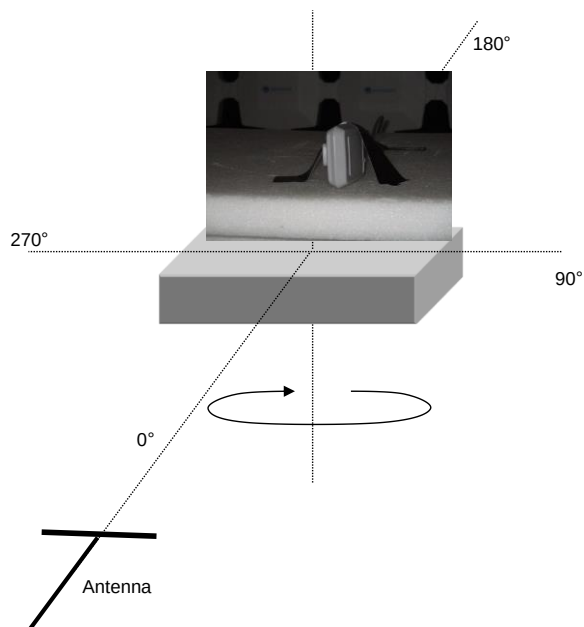
EmiR5 2022.07.06.0

PSA-ESCI 2022.08.23.0

|                         |                                                                                        |                   |            |                          |
|-------------------------|----------------------------------------------------------------------------------------|-------------------|------------|--------------------------|
| Work Order:             | ADEM0034                                                                               | Date:             | 2022-10-20 |                          |
| Project:                | None                                                                                   | Temperature:      | 19.9 °C    |                          |
| Job Site:               | TX02                                                                                   | Humidity:         | 35.6% RH   |                          |
| Serial Number:          | DUT_0059                                                                               | Barometric Pres.: | 1018 mbar  |                          |
| EUT: C7089R3013 Antenna |                                                                                        |                   |            | Tested by: Brandon Hobbs |
| Configuration:          | 1                                                                                      |                   |            |                          |
| Customer:               | ADemco, Inc                                                                            |                   |            |                          |
| Attendees:              | None                                                                                   |                   |            |                          |
| EUT Power:              | N/A                                                                                    |                   |            |                          |
| Operating Mode:         | Transmitting a CW tone at 0 dBm from a Signal Generator, with a 6 dB attenuator inline |                   |            |                          |
| Deviations:             |                                                                                        |                   |            |                          |
| Comments:               | None                                                                                   |                   |            |                          |

|                                    |            |                                                            |       |
|------------------------------------|------------|------------------------------------------------------------|-------|
| Frequency                          | 903        | Absolute Gain of Reference Antenna (dBi)                   | 0.9   |
| Measurement Antenna Polarity       | Horizontal | Reference Antenna Relative Gain Max (dBuV/m)               | 92.19 |
| Antenna Under Test (AUT) Polarity  | on Side    | AUT Relative Gain Max (dBuV/m)                             | 93.89 |
| Maximum Absolute Gain of AUT (dBi) | 2.60       | Difference (Reference Antenna - AUT) (dB)                  | -1.70 |
| Average Absolute Gain of AUT (dBi) | -7.47      | AUT Setup Loss (dB)                                        | 0     |
|                                    |            | Correction Factor (Convert Relative to Absolute Gain) (dB) | 91.29 |
| 3 dB Beamwidth                     | 17°        |                                                            |       |

| Run # | Test Distance (m) | Antenna Height(s) | Results |
|-------|-------------------|-------------------|---------|
|       |                   |                   | NA      |



# RELATIVE GAIN



EmiR5 2022.07.06.0

PSA-ESCI 2022.08.23.0

|                         |                                                                                        |                   |            |                                                                                     |
|-------------------------|----------------------------------------------------------------------------------------|-------------------|------------|-------------------------------------------------------------------------------------|
| Work Order:             | ADEM0034                                                                               | Date:             | 2022-10-20 |  |
| Project:                | None                                                                                   | Temperature:      | 19.9 °C    |                                                                                     |
| Job Site:               | TX02                                                                                   | Humidity:         | 35.6% RH   |                                                                                     |
| Serial Number:          | DUT_0059                                                                               | Barometric Pres.: | 1018 mbar  |                                                                                     |
| EUT: C7089R3013 Antenna |                                                                                        |                   |            | Tested by: Brandon Hobbs                                                            |
| Configuration:          | 1                                                                                      |                   |            |                                                                                     |
| Customer:               | ADemco, Inc                                                                            |                   |            |                                                                                     |
| Attendees:              | None                                                                                   |                   |            |                                                                                     |
| EUT Power:              | N/A                                                                                    |                   |            |                                                                                     |
| Operating Mode:         | Transmitting a CW tone at 0 dBm from a Signal Generator, with a 6 dB attenuator inline |                   |            |                                                                                     |
| Deviations:             |                                                                                        |                   |            |                                                                                     |
| Comments:               | None                                                                                   |                   |            |                                                                                     |

Frequency (MHz) **914.6**

Maximum Amplitude (dBuV/m) **94.83418**

Azimuth at Maximum **152°**

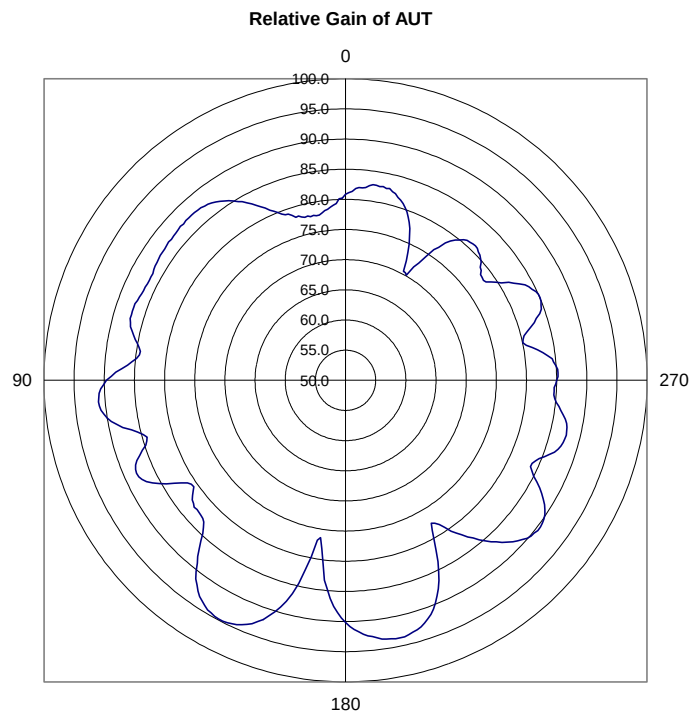
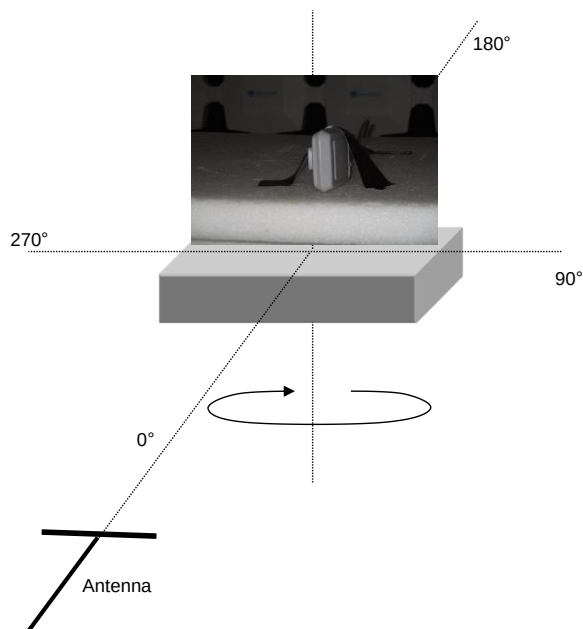
Measurement Antenna Polarity **Horizontal**  
Antenna Under Test (AUT) Polarity **on Side**

Minimum Amplitude (dBuV/m) **70.13418**

Azimuth at Minimum **329°**

3 dB Beamwidth **19°**

|       |    |                   |   |                   |     |  |  |
|-------|----|-------------------|---|-------------------|-----|--|--|
| Run # | 14 | Test Distance (m) | 3 | Antenna Height(s) | 1.3 |  |  |
|-------|----|-------------------|---|-------------------|-----|--|--|



# ABSOLUTE GAIN



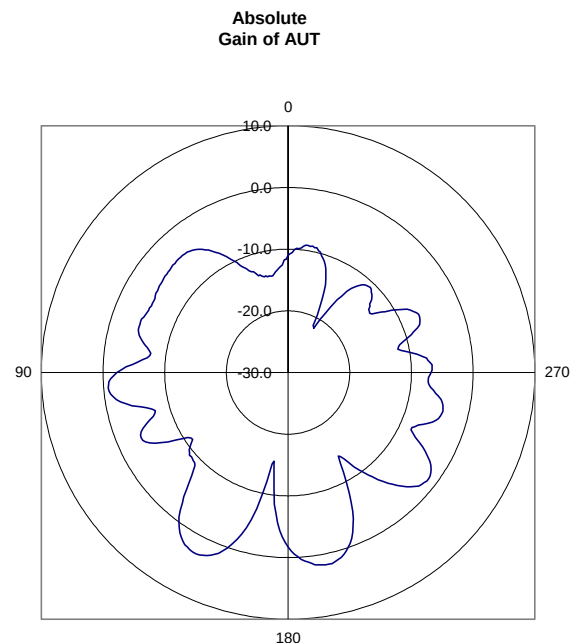
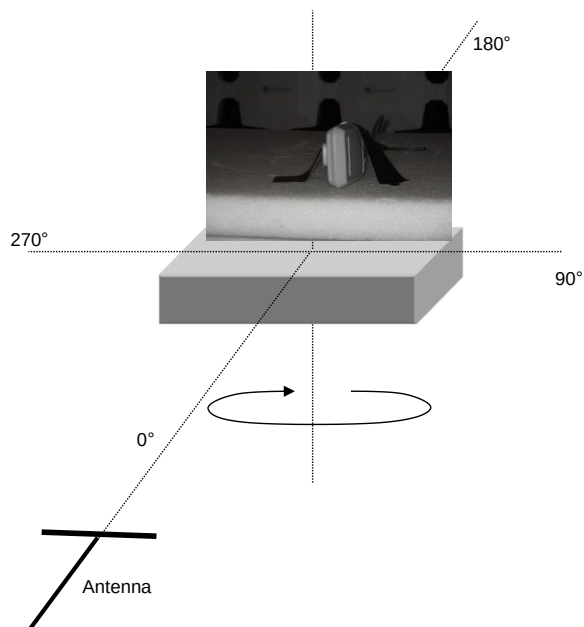
EmiR5 2022.07.06.0

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|                         |                                                                                        |                   |            |                                                                                     |
|-------------------------|----------------------------------------------------------------------------------------|-------------------|------------|-------------------------------------------------------------------------------------|
| Work Order:             | ADEM0034                                                                               | Date:             | 2022-10-20 |  |
| Project:                | None                                                                                   | Temperature:      | 19.9 °C    |                                                                                     |
| Job Site:               | TX02                                                                                   | Humidity:         | 35.6% RH   |                                                                                     |
| Serial Number:          | DUT_0059                                                                               | Barometric Pres.: | 1018 mbar  |                                                                                     |
| EUT: C7089R3013 Antenna |                                                                                        |                   |            | Tested by: Brandon Hobbs                                                            |
| Configuration:          | 1                                                                                      |                   |            |                                                                                     |
| Customer:               | ADemco, Inc                                                                            |                   |            |                                                                                     |
| Attendees:              | None                                                                                   |                   |            |                                                                                     |
| EUT Power:              | N/A                                                                                    |                   |            |                                                                                     |
| Operating Mode:         | Transmitting a CW tone at 0 dBm from a Signal Generator, with a 6 dB attenuator inline |                   |            |                                                                                     |
| Deviations:             |                                                                                        |                   |            |                                                                                     |
| Comments:               | None                                                                                   |                   |            |                                                                                     |

|                                    |            |                                                            |       |
|------------------------------------|------------|------------------------------------------------------------|-------|
| Frequency                          | 914.6      | Absolute Gain of Reference Antenna (dBi)                   | 0.87  |
| Measurement Antenna Polarity       | Horizontal | Reference Antenna Relative Gain Max (dBuV/m)               | 92.73 |
| Antenna Under Test (AUT) Polarity  | on Side    | AUT Relative Gain Max (dBuV/m)                             | 94.83 |
| Maximum Absolute Gain of AUT (dBi) | 2.97       | Difference (Reference Antenna - AUT) (dB)                  | -2.10 |
| Average Absolute Gain of AUT (dBi) | -6.94      | AUT Setup Loss (dB)                                        | 0     |
|                                    |            | Correction Factor (Convert Relative to Absolute Gain) (dB) | 91.86 |
| 3 dB Beamwidth                     | 19°        |                                                            |       |

| Run # | Test Distance (m) | Antenna Height(s) | Results |
|-------|-------------------|-------------------|---------|
|       |                   |                   | NA      |



# RELATIVE GAIN



EmiR5 2022.07.06.0

PSA-ESCI 2022.08.23.0

|                        |                                                                                        |                          |            |                                                                                    |
|------------------------|----------------------------------------------------------------------------------------|--------------------------|------------|------------------------------------------------------------------------------------|
| <b>Work Order:</b>     | ADEM0034                                                                               | <b>Date:</b>             | 2022-10-20 |  |
| <b>Project:</b>        | None                                                                                   | <b>Temperature:</b>      | 19.9 °C    |                                                                                    |
| <b>Job Site:</b>       | TX02                                                                                   | <b>Humidity:</b>         | 35.6% RH   |                                                                                    |
| <b>Serial Number:</b>  | DUT_0059                                                                               | <b>Barometric Pres.:</b> | 1018 mbar  |                                                                                    |
| <b>EUT:</b>            | C7089R3013 Antenna                                                                     |                          |            | <b>Tested by:</b> Brandon Hobbs                                                    |
| <b>Configuration:</b>  | 1                                                                                      |                          |            |                                                                                    |
| <b>Customer:</b>       | ADemco, Inc                                                                            |                          |            |                                                                                    |
| <b>Attendees:</b>      | None                                                                                   |                          |            |                                                                                    |
| <b>EUT Power:</b>      | N/A                                                                                    |                          |            |                                                                                    |
| <b>Operating Mode:</b> | Transmitting a CW tone at 0 dBm from a Signal Generator, with a 6 dB attenuator inline |                          |            |                                                                                    |
| <b>Deviations:</b>     |                                                                                        |                          |            |                                                                                    |
| <b>Comments:</b>       | None                                                                                   |                          |            |                                                                                    |

Frequency (MHz) **914.6**

Maximum Amplitude (dBuV/m) **92.53418**

Azimuth at Maximum **147°**

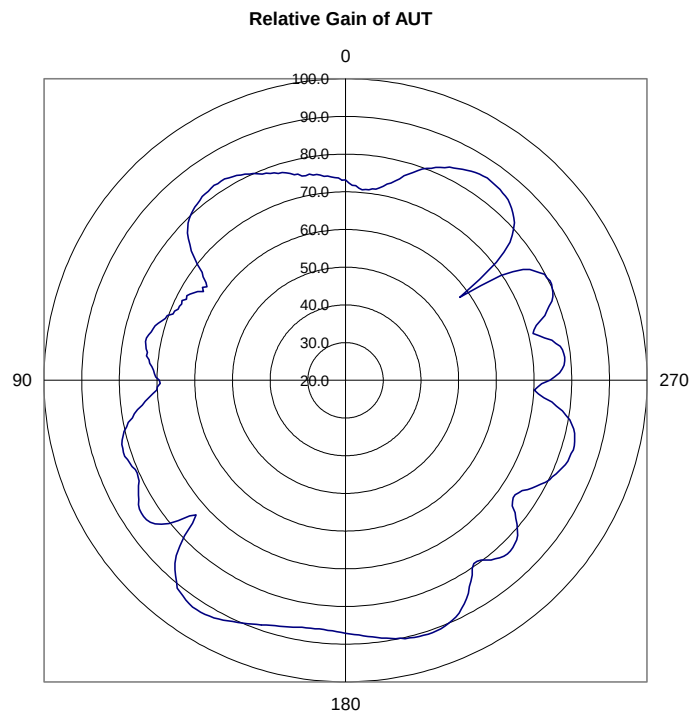
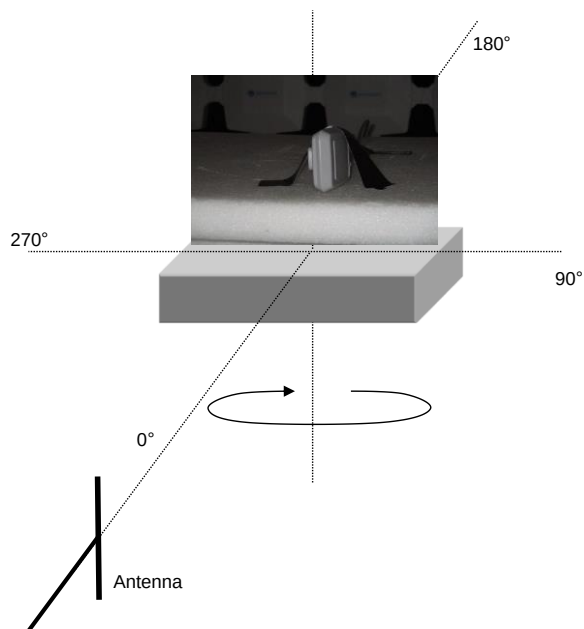
Measurement Antenna Polarity **Vertical**  
Antenna Under Test (AUT) Polarity **on Side**

Minimum Amplitude (dBuV/m) **57.43418**

Azimuth at Minimum **305°**

3 dB Beamwidth **20°**

|              |    |                          |   |                          |      |  |  |
|--------------|----|--------------------------|---|--------------------------|------|--|--|
| <b>Run #</b> | 15 | <b>Test Distance (m)</b> | 3 | <b>Antenna Height(s)</b> | 1.01 |  |  |
|--------------|----|--------------------------|---|--------------------------|------|--|--|



# ABSOLUTE GAIN



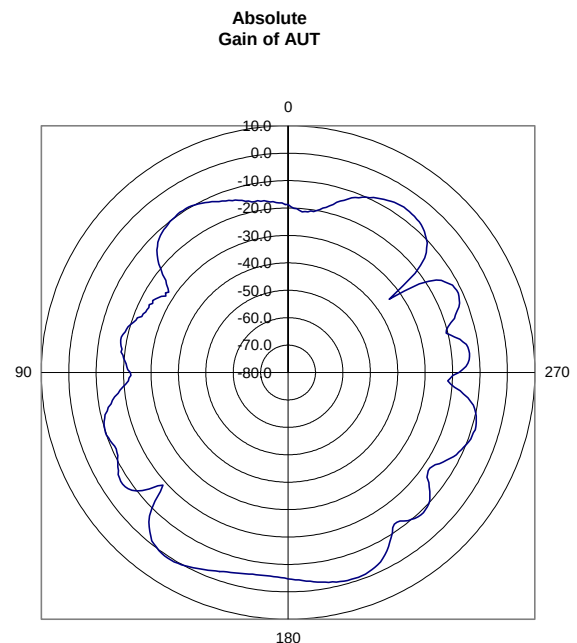
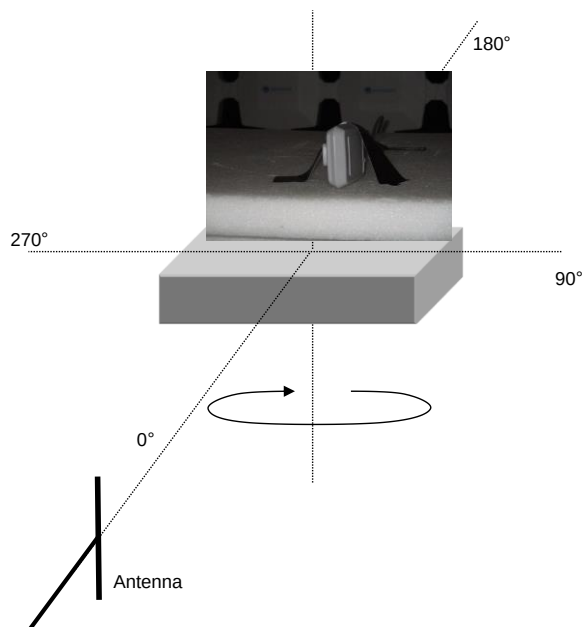
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|                        |                                                                                        |                          |            |                                                                                    |
|------------------------|----------------------------------------------------------------------------------------|--------------------------|------------|------------------------------------------------------------------------------------|
| <b>Work Order:</b>     | ADEM0034                                                                               | <b>Date:</b>             | 2022-10-20 |  |
| <b>Project:</b>        | None                                                                                   | <b>Temperature:</b>      | 19.9 °C    |                                                                                    |
| <b>Job Site:</b>       | TX02                                                                                   | <b>Humidity:</b>         | 35.6% RH   |                                                                                    |
| <b>Serial Number:</b>  | DUT_0059                                                                               | <b>Barometric Pres.:</b> | 1018 mbar  |                                                                                    |
| <b>EUT:</b>            | C7089R3013 Antenna                                                                     |                          |            | <b>Tested by:</b> Brandon Hobbs                                                    |
| <b>Configuration:</b>  | 1                                                                                      |                          |            |                                                                                    |
| <b>Customer:</b>       | ADemco, Inc                                                                            |                          |            |                                                                                    |
| <b>Attendees:</b>      | None                                                                                   |                          |            |                                                                                    |
| <b>EUT Power:</b>      | N/A                                                                                    |                          |            |                                                                                    |
| <b>Operating Mode:</b> | Transmitting a CW tone at 0 dBm from a Signal Generator, with a 6 dB attenuator inline |                          |            |                                                                                    |
| <b>Deviations:</b>     |                                                                                        |                          |            |                                                                                    |
| <b>Comments:</b>       | None                                                                                   |                          |            |                                                                                    |

|                                    |          |                                                            |       |
|------------------------------------|----------|------------------------------------------------------------|-------|
| Frequency                          | 914.6    | Absolute Gain of Reference Antenna (dBi)                   | 0.87  |
| Measurement Antenna Polarity       | Vertical | Reference Antenna Relative Gain Max (dBuV/m)               | 92.73 |
| Antenna Under Test (AUT) Polarity  | on Side  | AUT Relative Gain Max (dBuV/m)                             | 92.53 |
| Maximum Absolute Gain of AUT (dBi) | 0.67     | Difference (Reference Antenna - AUT) (dB)                  | 0.20  |
| Average Absolute Gain of AUT (dBi) | -12.15   | AUT Setup Loss (dB)                                        | 0     |
|                                    |          | Correction Factor (Convert Relative to Absolute Gain) (dB) | 91.86 |
| 3 dB Beamwidth                     | 20°      |                                                            |       |

| Run # | Test Distance (m) | Antenna Height(s) | Results |
|-------|-------------------|-------------------|---------|
|       |                   |                   | NA      |



# RELATIVE GAIN



EmiR5 2022.07.06.0

PSA-ESCI 2022.08.23.0

|                         |                                                                                        |                   |            |                          |
|-------------------------|----------------------------------------------------------------------------------------|-------------------|------------|--------------------------|
| Work Order:             | ADEM0034                                                                               | Date:             | 2022-10-20 |                          |
| Project:                | None                                                                                   | Temperature:      | 19.9 °C    |                          |
| Job Site:               | TX02                                                                                   | Humidity:         | 35.6% RH   |                          |
| Serial Number:          | DUT_0059                                                                               | Barometric Pres.: | 1018 mbar  |                          |
| EUT: C7089R3013 Antenna |                                                                                        |                   |            | Tested by: Brandon Hobbs |
| Configuration:          | 1                                                                                      |                   |            |                          |
| Customer:               | ADemco, Inc                                                                            |                   |            |                          |
| Attendees:              | None                                                                                   |                   |            |                          |
| EUT Power:              | N/A                                                                                    |                   |            |                          |
| Operating Mode:         | Transmitting a CW tone at 0 dBm from a Signal Generator, with a 6 dB attenuator inline |                   |            |                          |
| Deviations:             |                                                                                        |                   |            |                          |
| Comments:               | None                                                                                   |                   |            |                          |

Frequency (MHz) 926.4

Maximum Amplitude (dBuV/m) 93.04727

Azimuth at Maximum 148°

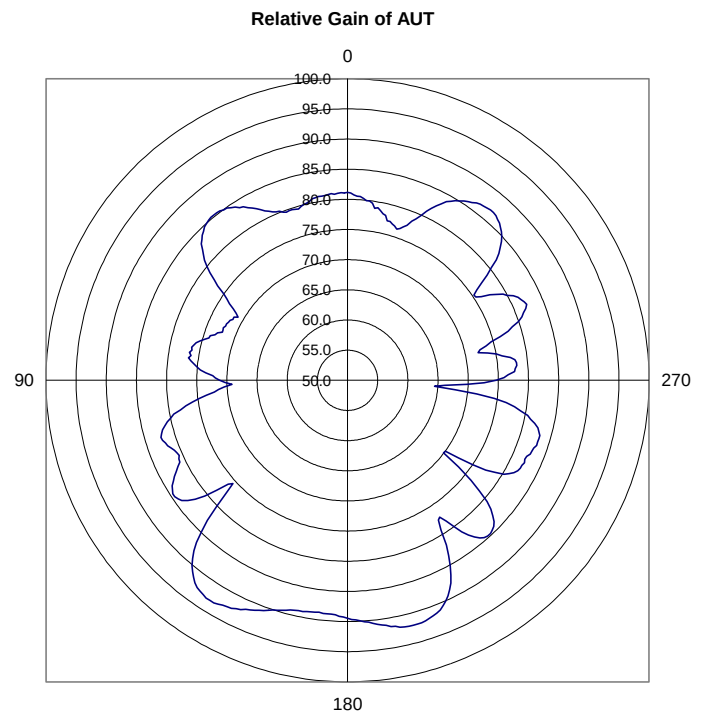
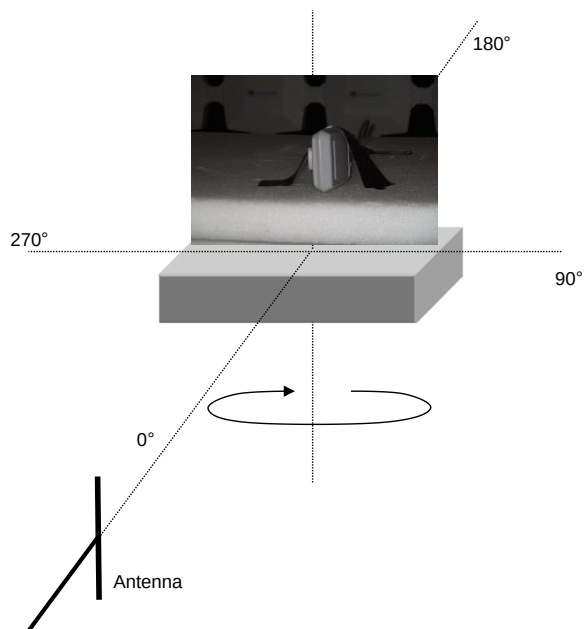
Measurement Antenna Polarity Vertical  
Antenna Under Test (AUT) Polarity on Side

Minimum Amplitude (dBuV/m) 64.44727

Azimuth at Minimum 265°

3 dB Beamwidth 23°

|       |    |                   |   |                   |   |  |  |
|-------|----|-------------------|---|-------------------|---|--|--|
| Run # | 16 | Test Distance (m) | 3 | Antenna Height(s) | 1 |  |  |
|-------|----|-------------------|---|-------------------|---|--|--|



# ABSOLUTE GAIN



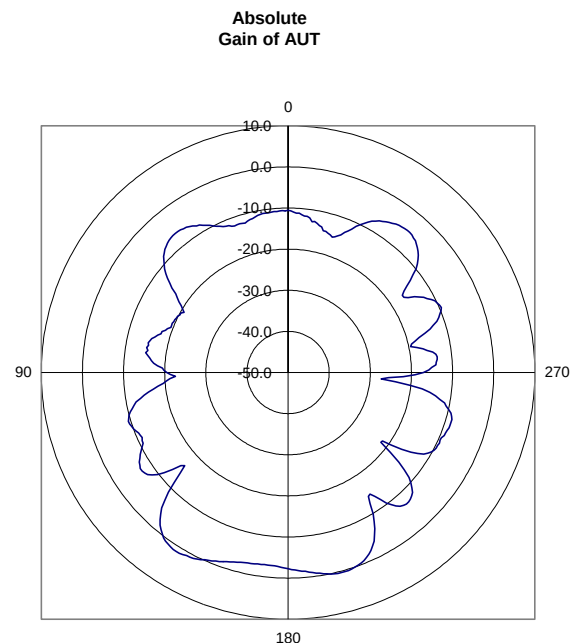
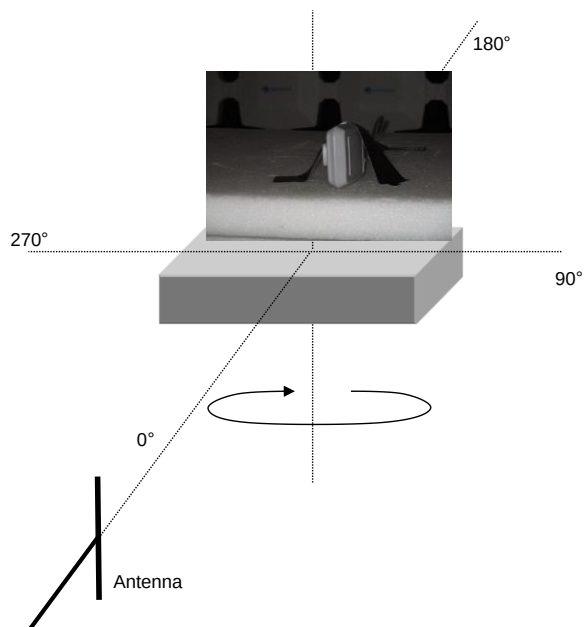
EmiR5 2022.07.06.0

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|                 |                                                                                        |                    |            |                                                                                    |
|-----------------|----------------------------------------------------------------------------------------|--------------------|------------|------------------------------------------------------------------------------------|
| Work Order:     | ADEM0034                                                                               | Date:              | 2022-10-20 |  |
| Project:        | None                                                                                   | Temperature:       | 19.9 °C    |                                                                                    |
| Job Site:       | TX02                                                                                   | Humidity:          | 35.6% RH   |                                                                                    |
| Serial Number:  | DUT_0059                                                                               | Barometric Pres.:  | 1018 mbar  |                                                                                    |
| EUT:            |                                                                                        | C7089R3013 Antenna |            |                                                                                    |
| Configuration:  | 1                                                                                      |                    |            |                                                                                    |
| Customer:       | ADemco, Inc                                                                            |                    |            |                                                                                    |
| Attendees:      | None                                                                                   |                    |            |                                                                                    |
| EUT Power:      | N/A                                                                                    |                    |            |                                                                                    |
| Operating Mode: | Transmitting a CW tone at 0 dBm from a Signal Generator, with a 6 dB attenuator inline |                    |            |                                                                                    |
| Deviations:     |                                                                                        |                    |            |                                                                                    |
| Comments:       | None                                                                                   |                    |            |                                                                                    |

|                                    |          |                                                            |       |
|------------------------------------|----------|------------------------------------------------------------|-------|
| Frequency                          | 926.4    | Absolute Gain of Reference Antenna (dBi)                   | 0.83  |
| Measurement Antenna Polarity       | Vertical | Reference Antenna Relative Gain Max (dBuV/m)               | 92.55 |
| Antenna Under Test (AUT) Polarity  | on Side  | AUT Relative Gain Max (dBuV/m)                             | 93.05 |
| Maximum Absolute Gain of AUT (dBi) | 1.33     | Difference (Reference Antenna - AUT) (dB)                  | -0.50 |
| Average Absolute Gain of AUT (dBi) | -10.06   | AUT Setup Loss (dB)                                        | 0     |
|                                    |          | Correction Factor (Convert Relative to Absolute Gain) (dB) | 91.72 |

|                |                   |                   |         |    |  |
|----------------|-------------------|-------------------|---------|----|--|
| 3 dB Beamwidth |                   | 23°               |         |    |  |
| Run #          | Test Distance (m) | Antenna Height(s) | Results | NA |  |



# RELATIVE GAIN



EmiR5 2022.07.06.0

PSA-ESCI 2022.08.23.0

|                         |                                                                                        |                   |            |                                                                                     |
|-------------------------|----------------------------------------------------------------------------------------|-------------------|------------|-------------------------------------------------------------------------------------|
| Work Order:             | ADEM0034                                                                               | Date:             | 2022-10-20 |  |
| Project:                | None                                                                                   | Temperature:      | 19.9 °C    |                                                                                     |
| Job Site:               | TX02                                                                                   | Humidity:         | 35.6% RH   |                                                                                     |
| Serial Number:          | DUT_0059                                                                               | Barometric Pres.: | 1018 mbar  |                                                                                     |
| EUT: C7089R3013 Antenna |                                                                                        |                   |            | Tested by: Brandon Hobbs                                                            |
| Configuration:          | 1                                                                                      |                   |            |                                                                                     |
| Customer:               | ADemco, Inc                                                                            |                   |            |                                                                                     |
| Attendees:              | None                                                                                   |                   |            |                                                                                     |
| EUT Power:              | N/A                                                                                    |                   |            |                                                                                     |
| Operating Mode:         | Transmitting a CW tone at 0 dBm from a Signal Generator, with a 6 dB attenuator inline |                   |            |                                                                                     |
| Deviations:             |                                                                                        |                   |            |                                                                                     |
| Comments:               | None                                                                                   |                   |            |                                                                                     |

Frequency (MHz) 926.4

Maximum Amplitude (dBuV/m) 95.34727

Azimuth at Maximum 153°

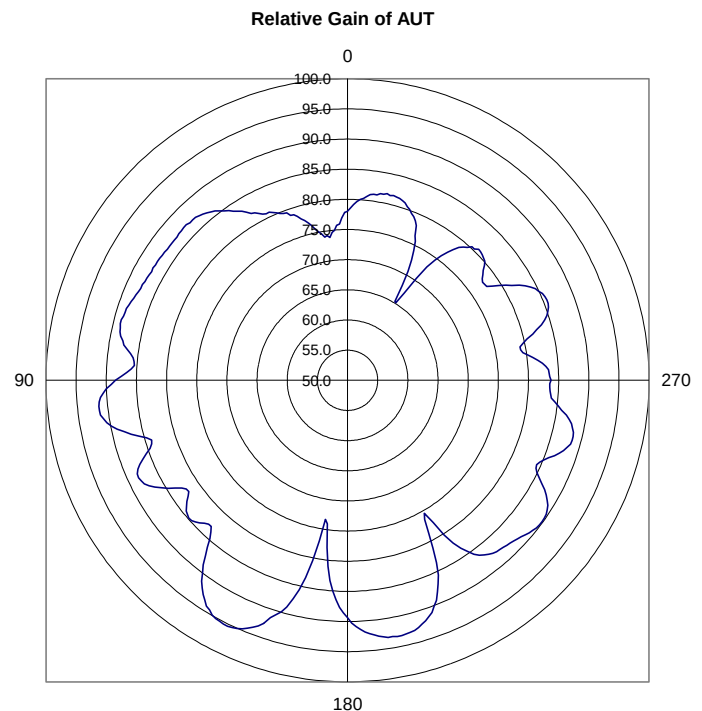
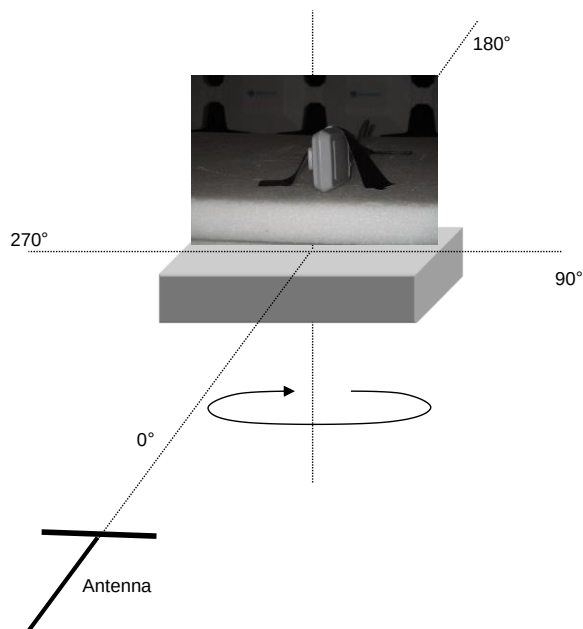
Measurement Antenna Polarity Horizontal  
Antenna Under Test (AUT) Polarity on Side

Minimum Amplitude (dBuV/m) 65.14727

Azimuth at Minimum 327°

3 dB Beamwidth 17°

|       |    |                   |   |                   |      |  |  |
|-------|----|-------------------|---|-------------------|------|--|--|
| Run # | 17 | Test Distance (m) | 3 | Antenna Height(s) | 1.28 |  |  |
|-------|----|-------------------|---|-------------------|------|--|--|



# ABSOLUTE GAIN



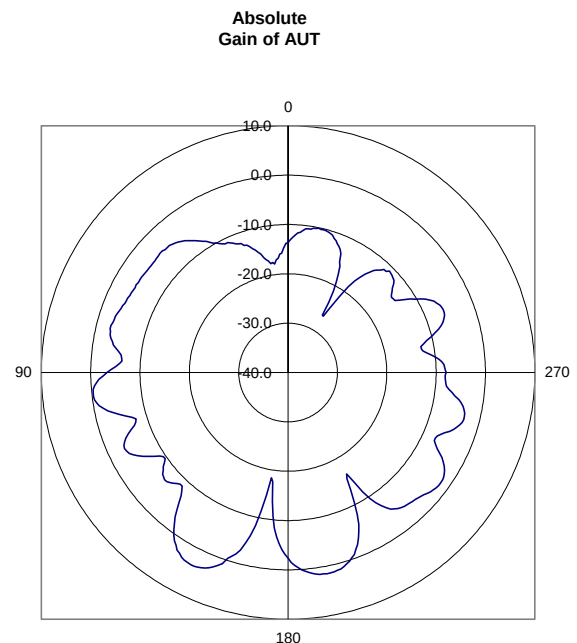
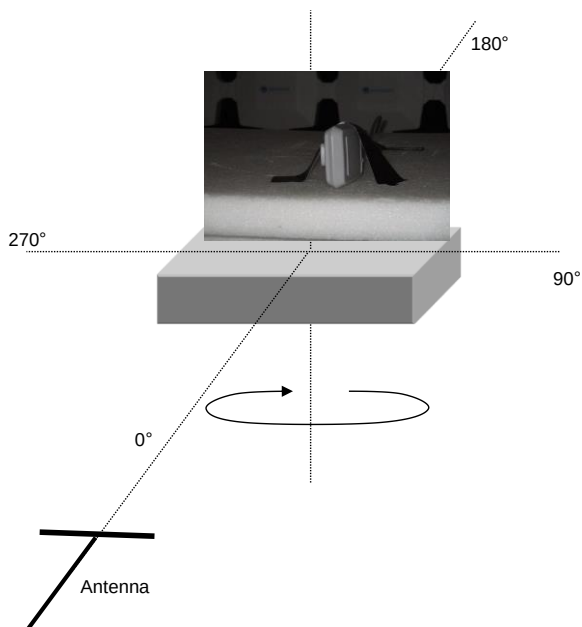
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|                         |                                                                                        |                   |            |                          |
|-------------------------|----------------------------------------------------------------------------------------|-------------------|------------|--------------------------|
| Work Order:             | ADEM0034                                                                               | Date:             | 2022-10-20 |                          |
| Project:                | None                                                                                   | Temperature:      | 19.9 °C    |                          |
| Job Site:               | TX02                                                                                   | Humidity:         | 35.6% RH   |                          |
| Serial Number:          | DUT_0059                                                                               | Barometric Pres.: | 1018 mbar  |                          |
| EUT: C7089R3013 Antenna |                                                                                        |                   |            | Tested by: Brandon Hobbs |
| Configuration:          | 1                                                                                      |                   |            |                          |
| Customer:               | ADemco, Inc                                                                            |                   |            |                          |
| Attendees:              | None                                                                                   |                   |            |                          |
| EUT Power:              | N/A                                                                                    |                   |            |                          |
| Operating Mode:         | Transmitting a CW tone at 0 dBm from a Signal Generator, with a 6 dB attenuator inline |                   |            |                          |
| Deviations:             |                                                                                        |                   |            |                          |
| Comments:               | None                                                                                   |                   |            |                          |

|                                    |            |                                                            |       |
|------------------------------------|------------|------------------------------------------------------------|-------|
| Frequency                          | 926.4      | Absolute Gain of Reference Antenna (dBi)                   | 0.83  |
| Measurement Antenna Polarity       | Horizontal | Reference Antenna Relative Gain Max (dBuV/m)               | 92.55 |
| Antenna Under Test (AUT) Polarity  | on Side    | AUT Relative Gain Max (dBuV/m)                             | 95.35 |
| Maximum Absolute Gain of AUT (dBi) | 3.63       | Difference (Reference Antenna - AUT) (dB)                  | -2.80 |
| Average Absolute Gain of AUT (dBi) | -7.06      | AUT Setup Loss (dB)                                        | 0     |
|                                    |            | Correction Factor (Convert Relative to Absolute Gain) (dB) | 91.72 |
| 3 dB Beamwidth                     | 17°        |                                                            |       |

| Run # | Test Distance (m) | Antenna Height(s) | Results |
|-------|-------------------|-------------------|---------|
|       |                   |                   | NA      |



# RELATIVE GAIN



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|                 |                                                                                        |                   |            |                                                                                     |
|-----------------|----------------------------------------------------------------------------------------|-------------------|------------|-------------------------------------------------------------------------------------|
| Work Order:     | ADEM0034                                                                               | Date:             | 2022-10-20 |  |
| Project:        | None                                                                                   | Temperature:      | 19.9 °C    |                                                                                     |
| Job Site:       | TX02                                                                                   | Humidity:         | 35.6% RH   |                                                                                     |
| Serial Number:  | DUT_0059                                                                               | Barometric Pres.: | 1018 mbar  |                                                                                     |
| EUT:            | C7089R3013 Antenna                                                                     |                   |            | Tested by: Brandon Hobbs                                                            |
| Configuration:  | 1                                                                                      |                   |            |                                                                                     |
| Customer:       | ADemco, Inc                                                                            |                   |            |                                                                                     |
| Attendees:      | None                                                                                   |                   |            |                                                                                     |
| EUT Power:      | N/A                                                                                    |                   |            |                                                                                     |
| Operating Mode: | Transmitting a CW tone at 0 dBm from a Signal Generator, with a 6 dB attenuator inline |                   |            |                                                                                     |
| Deviations:     |                                                                                        |                   |            |                                                                                     |
| Comments:       | None                                                                                   |                   |            |                                                                                     |

Frequency (MHz) 926.4

Maximum Amplitude (dBuV/m) 86.64727

Azimuth at Maximum 153°

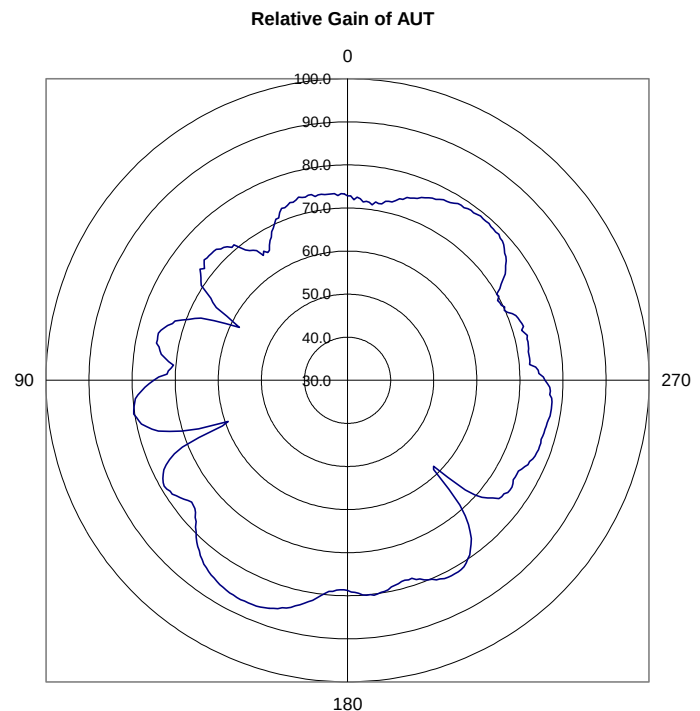
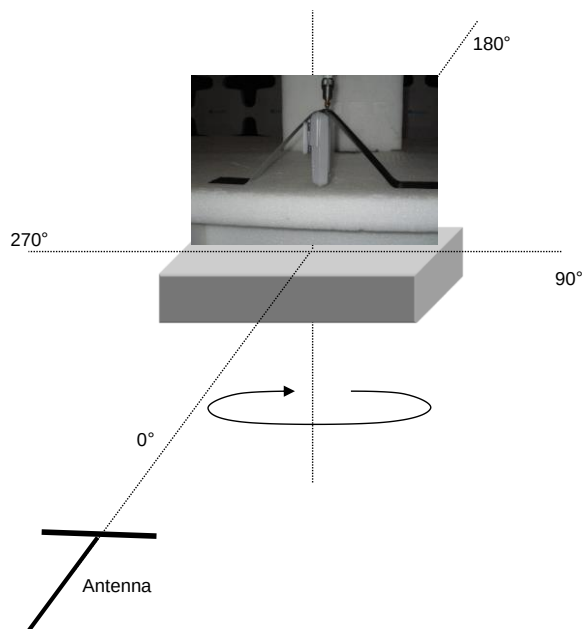
Measurement Antenna Polarity **Horizontal**  
Antenna Under Test (AUT) Polarity **Vertical**

Minimum Amplitude (dBuV/m) 57.94727

Azimuth at Minimum 63°

3 dB Beamwidth 27°

| Run # | 18 | Test Distance (m) | 3 | Antenna Height(s) | 1 |  |  |
|-------|----|-------------------|---|-------------------|---|--|--|
|-------|----|-------------------|---|-------------------|---|--|--|



# ABSOLUTE GAIN



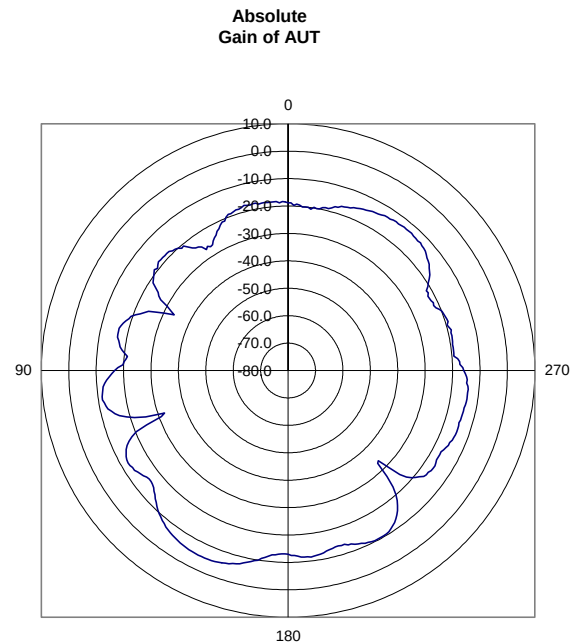
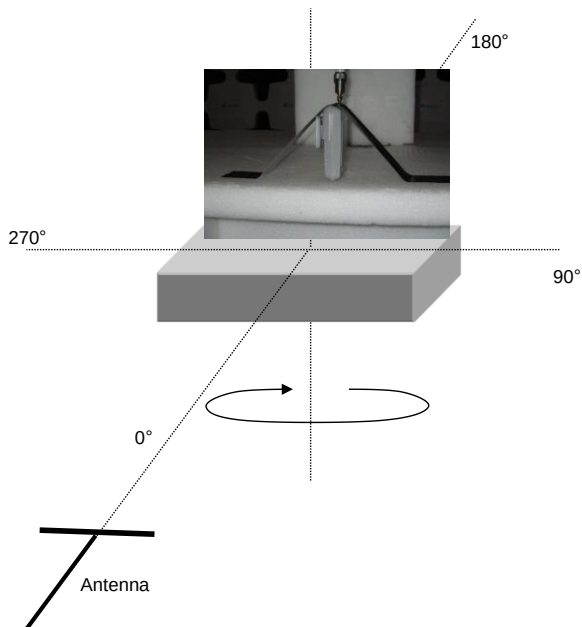
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PSA-ESCI 2022.08.23.0

|                 |                                                                                        |                   |            |                                                                                    |               |
|-----------------|----------------------------------------------------------------------------------------|-------------------|------------|------------------------------------------------------------------------------------|---------------|
| Work Order:     | ADEM0034                                                                               | Date:             | 2022-10-20 |  |               |
| Project:        | None                                                                                   | Temperature:      | 19.9 °C    |                                                                                    |               |
| Job Site:       | TX02                                                                                   | Humidity:         | 35.6% RH   |                                                                                    |               |
| Serial Number:  | DUT_0059                                                                               | Barometric Pres.: | 1018 mbar  | Tested by:                                                                         | Brandon Hobbs |
| EUT:            | C7089R3013 Antenna                                                                     |                   |            |                                                                                    |               |
| Configuration:  | 1                                                                                      |                   |            |                                                                                    |               |
| Customer:       | ADemco, Inc                                                                            |                   |            |                                                                                    |               |
| Attendees:      | None                                                                                   |                   |            |                                                                                    |               |
| EUT Power:      | N/A                                                                                    |                   |            |                                                                                    |               |
| Operating Mode: | Transmitting a CW tone at 0 dBm from a Signal Generator, with a 6 dB attenuator inline |                   |            |                                                                                    |               |
| Deviations:     |                                                                                        |                   |            |                                                                                    |               |
| Comments:       | None                                                                                   |                   |            |                                                                                    |               |

|                                    |            |                                                            |       |
|------------------------------------|------------|------------------------------------------------------------|-------|
| Frequency                          | 926.4      | Absolute Gain of Reference Antenna (dBi)                   | 0.83  |
| Measurement Antenna Polarity       | Horizontal | Reference Antenna Relative Gain Max (dBuV/m)               | 92.55 |
| Antenna Under Test (AUT) Polarity  | Vertical   | AUT Relative Gain Max (dBuV/m)                             | 86.65 |
| Maximum Absolute Gain of AUT (dBi) | -5.07      | Difference (Reference Antenna - AUT) (dB)                  | 5.90  |
| Average Absolute Gain of AUT (dBi) | -16.25     | AUT Setup Loss (dB)                                        | 0     |
|                                    |            | Correction Factor (Convert Relative to Absolute Gain) (dB) | 91.72 |
| 3 dB Beamwidth                     | 27°        |                                                            |       |

| Run # | Test Distance (m) | Antenna Height(s) | Results |
|-------|-------------------|-------------------|---------|
|       |                   |                   | NA      |



# RELATIVE GAIN



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|                 |                                                                                        |                   |            |                                                                                    |
|-----------------|----------------------------------------------------------------------------------------|-------------------|------------|------------------------------------------------------------------------------------|
| Work Order:     | ADEM0034                                                                               | Date:             | 2022-10-20 |  |
| Project:        | None                                                                                   | Temperature:      | 19.9 °C    |                                                                                    |
| Job Site:       | TX02                                                                                   | Humidity:         | 35.6% RH   |                                                                                    |
| Serial Number:  | DUT_0059                                                                               | Barometric Pres.: | 1018 mbar  |                                                                                    |
| EUT:            | C7089R3013 Antenna                                                                     |                   |            | Tested by: Brandon Hobbs                                                           |
| Configuration:  | 1                                                                                      |                   |            |                                                                                    |
| Customer:       | ADemco, Inc                                                                            |                   |            |                                                                                    |
| Attendees:      | None                                                                                   |                   |            |                                                                                    |
| EUT Power:      | N/A                                                                                    |                   |            |                                                                                    |
| Operating Mode: | Transmitting a CW tone at 0 dBm from a Signal Generator, with a 6 dB attenuator inline |                   |            |                                                                                    |
| Deviations:     |                                                                                        |                   |            |                                                                                    |
| Comments:       | None                                                                                   |                   |            |                                                                                    |

Frequency (MHz) **926.4**

Maximum Amplitude (dBuV/m) **95.04727**

Azimuth at Maximum **142°**

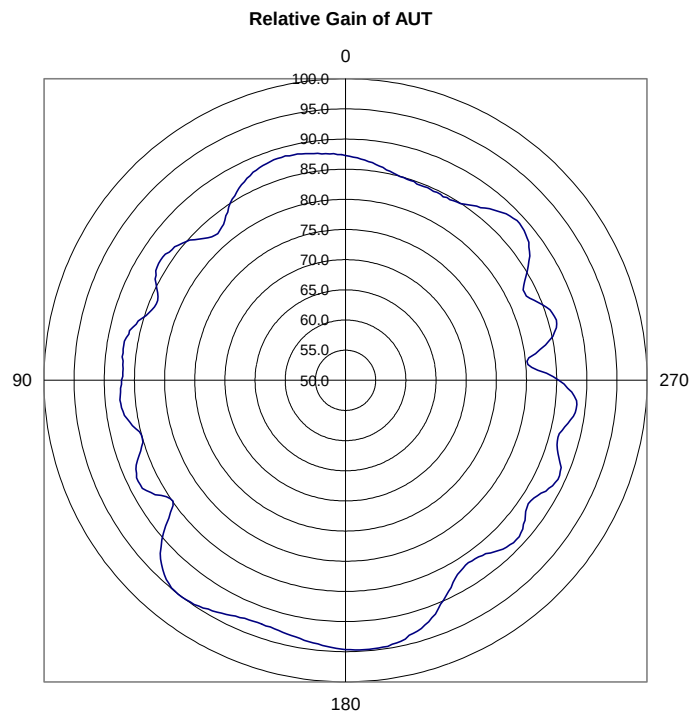
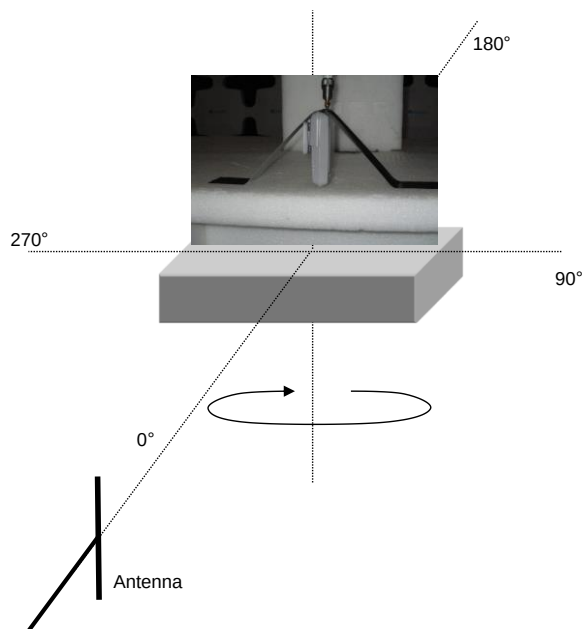
Measurement Antenna Polarity **Vertical**  
Antenna Under Test (AUT) Polarity **Vertical**

Minimum Amplitude (dBuV/m) **80.24727**

Azimuth at Minimum **275°**

3 dB Beamwidth **67°**

|       |    |                   |   |                   |      |  |  |
|-------|----|-------------------|---|-------------------|------|--|--|
| Run # | 19 | Test Distance (m) | 3 | Antenna Height(s) | 1.04 |  |  |
|-------|----|-------------------|---|-------------------|------|--|--|



# ABSOLUTE GAIN



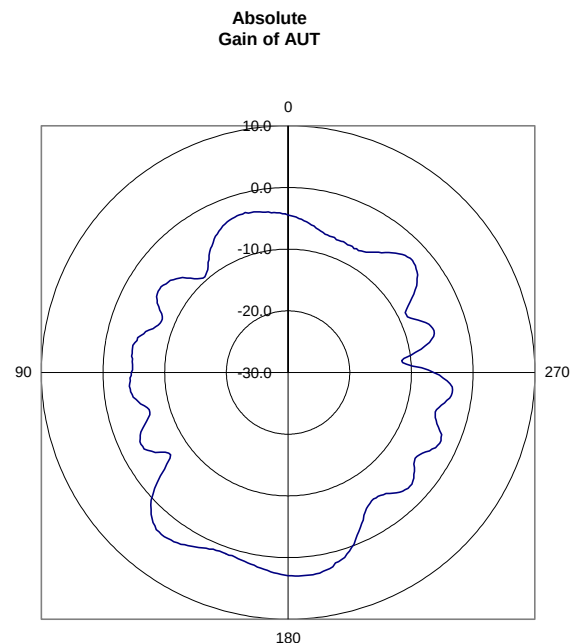
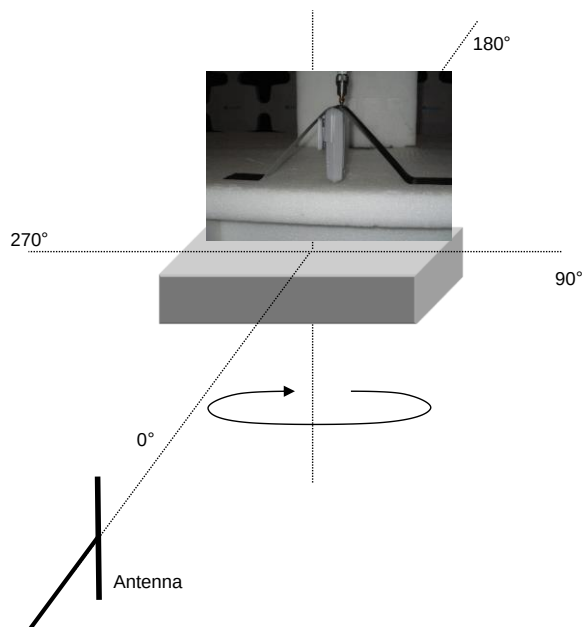
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PSA-ESCI 2022.08.23.0

|                         |                                                                                        |                   |            |                          |
|-------------------------|----------------------------------------------------------------------------------------|-------------------|------------|--------------------------|
| Work Order:             | ADEM0034                                                                               | Date:             | 2022-10-20 |                          |
| Project:                | None                                                                                   | Temperature:      | 19.9 °C    |                          |
| Job Site:               | TX02                                                                                   | Humidity:         | 35.6% RH   |                          |
| Serial Number:          | DUT_0059                                                                               | Barometric Pres.: | 1018 mbar  |                          |
| EUT: C7089R3013 Antenna |                                                                                        |                   |            | Tested by: Brandon Hobbs |
| Configuration:          | 1                                                                                      |                   |            |                          |
| Customer:               | ADemco, Inc                                                                            |                   |            |                          |
| Attendees:              | None                                                                                   |                   |            |                          |
| EUT Power:              | N/A                                                                                    |                   |            |                          |
| Operating Mode:         | Transmitting a CW tone at 0 dBm from a Signal Generator, with a 6 dB attenuator inline |                   |            |                          |
| Deviations:             |                                                                                        |                   |            |                          |
| Comments:               | None                                                                                   |                   |            |                          |

|                                    |          |                                                            |       |
|------------------------------------|----------|------------------------------------------------------------|-------|
| Frequency                          | 926.4    | Absolute Gain of Reference Antenna (dBi)                   | 0.83  |
| Measurement Antenna Polarity       | Vertical | Reference Antenna Relative Gain Max (dBuV/m)               | 92.55 |
| Antenna Under Test (AUT) Polarity  | Vertical | AUT Relative Gain Max (dBuV/m)                             | 95.05 |
| Maximum Absolute Gain of AUT (dBi) | 3.33     | Difference (Reference Antenna - AUT) (dB)                  | -2.50 |
| Average Absolute Gain of AUT (dBi) | -3.89    | AUT Setup Loss (dB)                                        | 0     |
|                                    |          | Correction Factor (Convert Relative to Absolute Gain) (dB) | 91.72 |
| 3 dB Beamwidth                     | 67°      |                                                            |       |

| Run # | Test Distance (m) | Antenna Height(s) | Results |
|-------|-------------------|-------------------|---------|
|       |                   |                   | NA      |



# RELATIVE GAIN



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|                        |                                                                                        |                          |            |                                                                                    |
|------------------------|----------------------------------------------------------------------------------------|--------------------------|------------|------------------------------------------------------------------------------------|
| <b>Work Order:</b>     | ADEM0034                                                                               | <b>Date:</b>             | 2022-10-20 |  |
| <b>Project:</b>        | None                                                                                   | <b>Temperature:</b>      | 19.9 °C    |                                                                                    |
| <b>Job Site:</b>       | TX02                                                                                   | <b>Humidity:</b>         | 35.6% RH   |                                                                                    |
| <b>Serial Number:</b>  | DUT_0059                                                                               | <b>Barometric Pres.:</b> | 1018 mbar  |                                                                                    |
| <b>EUT:</b>            | C7089R3013 Antenna                                                                     |                          |            | <b>Tested by:</b> Brandon Hobbs                                                    |
| <b>Configuration:</b>  | 1                                                                                      |                          |            |                                                                                    |
| <b>Customer:</b>       | ADemco, Inc                                                                            |                          |            |                                                                                    |
| <b>Attendees:</b>      | None                                                                                   |                          |            |                                                                                    |
| <b>EUT Power:</b>      | N/A                                                                                    |                          |            |                                                                                    |
| <b>Operating Mode:</b> | Transmitting a CW tone at 0 dBm from a Signal Generator, with a 6 dB attenuator inline |                          |            |                                                                                    |
| <b>Deviations:</b>     |                                                                                        |                          |            |                                                                                    |
| <b>Comments:</b>       | None                                                                                   |                          |            |                                                                                    |

Frequency (MHz) **914.6**

Maximum Amplitude (dBuV/m) **94.23418**

Azimuth at Maximum **143°**

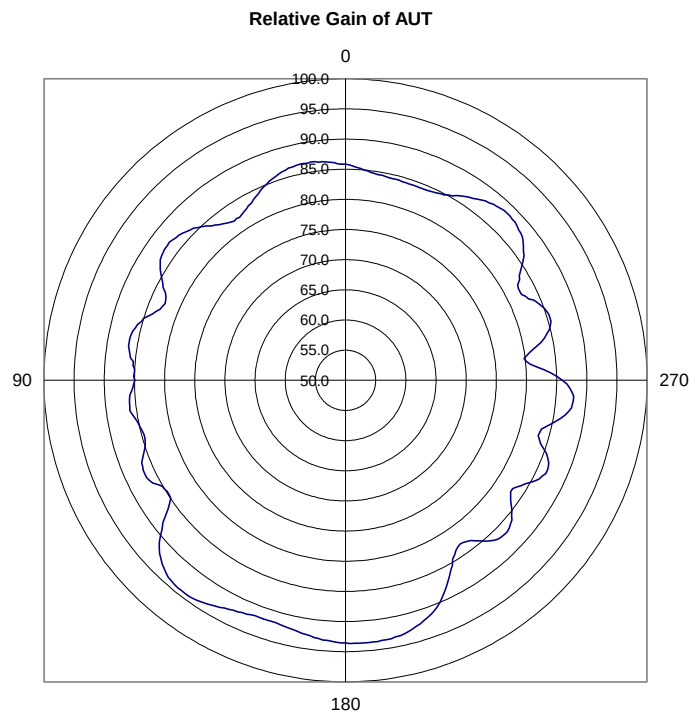
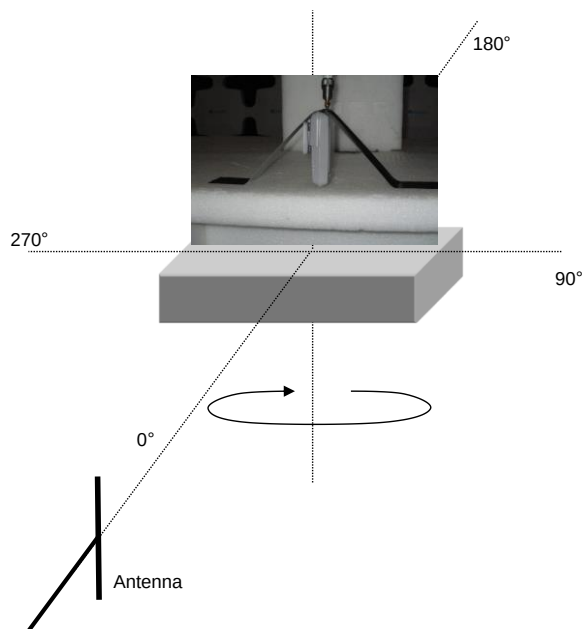
Measurement Antenna Polarity **Vertical**  
Antenna Under Test (AUT) Polarity **Vertical**

Minimum Amplitude (dBuV/m) **79.83418**

Azimuth at Minimum **276°**

3 dB Beamwidth **70°**

|              |    |                          |   |                          |      |  |  |
|--------------|----|--------------------------|---|--------------------------|------|--|--|
| <b>Run #</b> | 20 | <b>Test Distance (m)</b> | 3 | <b>Antenna Height(s)</b> | 1.04 |  |  |
|--------------|----|--------------------------|---|--------------------------|------|--|--|



# ABSOLUTE GAIN



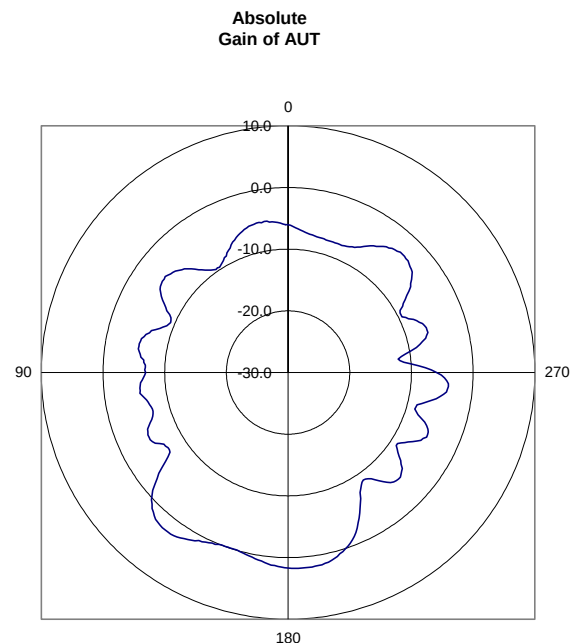
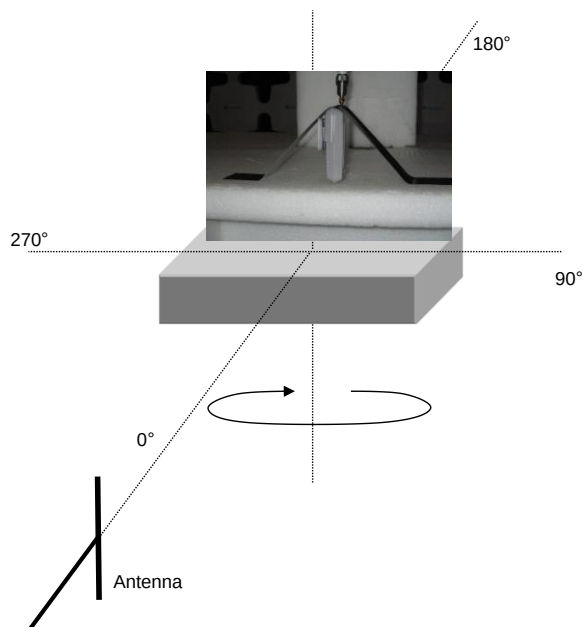
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|                 |                                                                                        |                   |            |                                                                                    |
|-----------------|----------------------------------------------------------------------------------------|-------------------|------------|------------------------------------------------------------------------------------|
| Work Order:     | ADEM0034                                                                               | Date:             | 2022-10-20 |  |
| Project:        | None                                                                                   | Temperature:      | 19.9 °C    |                                                                                    |
| Job Site:       | TX02                                                                                   | Humidity:         | 35.6% RH   |                                                                                    |
| Serial Number:  | DUT_0059                                                                               | Barometric Pres.: | 1018 mbar  |                                                                                    |
|                 |                                                                                        | Tested by:        |            | Brandon Hobbs                                                                      |
| EUT:            | C7089R3013 Antenna                                                                     |                   |            |                                                                                    |
| Configuration:  | 1                                                                                      |                   |            |                                                                                    |
| Customer:       | ADemco, Inc                                                                            |                   |            |                                                                                    |
| Attendees:      | None                                                                                   |                   |            |                                                                                    |
| EUT Power:      | N/A                                                                                    |                   |            |                                                                                    |
| Operating Mode: | Transmitting a CW tone at 0 dBm from a Signal Generator, with a 6 dB attenuator inline |                   |            |                                                                                    |
| Deviations:     |                                                                                        |                   |            |                                                                                    |
| Comments:       | None                                                                                   |                   |            |                                                                                    |

|                                    |          |                                                            |       |
|------------------------------------|----------|------------------------------------------------------------|-------|
| Frequency                          | 914.6    | Absolute Gain of Reference Antenna (dBi)                   | 0.87  |
| Measurement Antenna Polarity       | Vertical | Reference Antenna Relative Gain Max (dBuV/m)               | 92.73 |
| Antenna Under Test (AUT) Polarity  | Vertical | AUT Relative Gain Max (dBuV/m)                             | 94.23 |
| Maximum Absolute Gain of AUT (dBi) | 2.37     | Difference (Reference Antenna - AUT) (dB)                  | -1.50 |
| Average Absolute Gain of AUT (dBi) | -5.06    | AUT Setup Loss (dB)                                        | 0     |
|                                    |          | Correction Factor (Convert Relative to Absolute Gain) (dB) | 91.86 |
| 3 dB Beamwidth                     | 70°      |                                                            |       |

| Run # | Test Distance (m) | Antenna Height(s) | Results |
|-------|-------------------|-------------------|---------|
|       |                   |                   | NA      |



# RELATIVE GAIN



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|                 |                                                                                        |                   |            |                                                                                     |
|-----------------|----------------------------------------------------------------------------------------|-------------------|------------|-------------------------------------------------------------------------------------|
| Work Order:     | ADEM0034                                                                               | Date:             | 2022-10-20 |  |
| Project:        | None                                                                                   | Temperature:      | 19.9 °C    |                                                                                     |
| Job Site:       | TX02                                                                                   | Humidity:         | 35.6% RH   |                                                                                     |
| Serial Number:  | DUT_0059                                                                               | Barometric Pres.: | 1018 mbar  |                                                                                     |
| EUT:            | C7089R3013 Antenna                                                                     |                   |            | Tested by: Brandon Hobbs                                                            |
| Configuration:  | 1                                                                                      |                   |            |                                                                                     |
| Customer:       | ADemco, Inc                                                                            |                   |            |                                                                                     |
| Attendees:      | None                                                                                   |                   |            |                                                                                     |
| EUT Power:      | N/A                                                                                    |                   |            |                                                                                     |
| Operating Mode: | Transmitting a CW tone at 0 dBm from a Signal Generator, with a 6 dB attenuator inline |                   |            |                                                                                     |
| Deviations:     |                                                                                        |                   |            |                                                                                     |
| Comments:       | None                                                                                   |                   |            |                                                                                     |

Frequency (MHz) **914.6**

Maximum Amplitude (dBuV/m) **86.43418**

Azimuth at Maximum **154°**

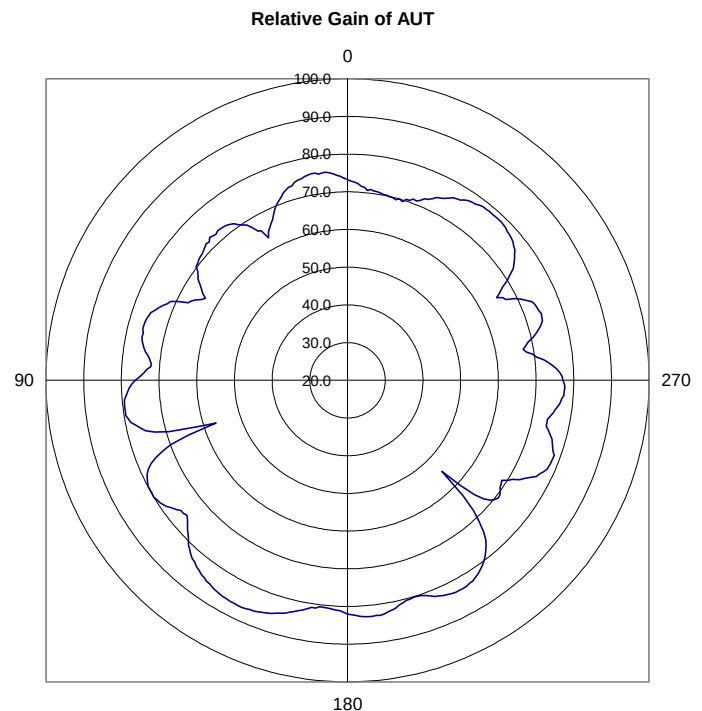
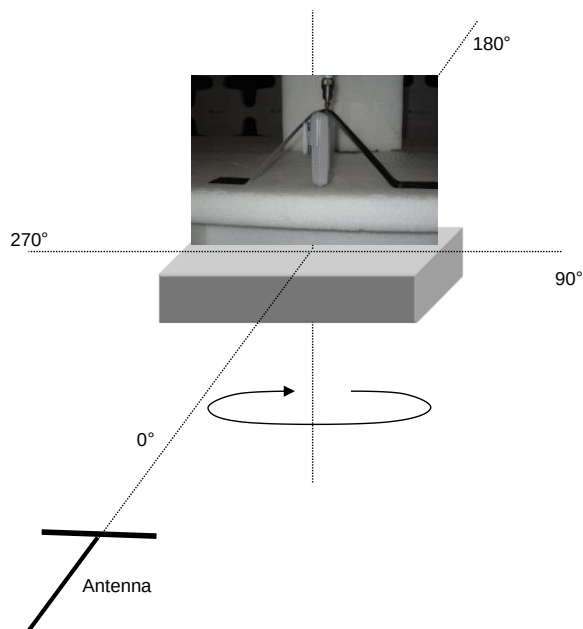
Measurement Antenna Polarity **Horizontal**  
Antenna Under Test (AUT) Polarity **Vertical**

Minimum Amplitude (dBuV/m) **54.83418**

Azimuth at Minimum **225°**

3 dB Beamwidth **26°**

|       |    |                   |   |                   |      |  |  |
|-------|----|-------------------|---|-------------------|------|--|--|
| Run # | 21 | Test Distance (m) | 3 | Antenna Height(s) | 1.02 |  |  |
|-------|----|-------------------|---|-------------------|------|--|--|



# ABSOLUTE GAIN



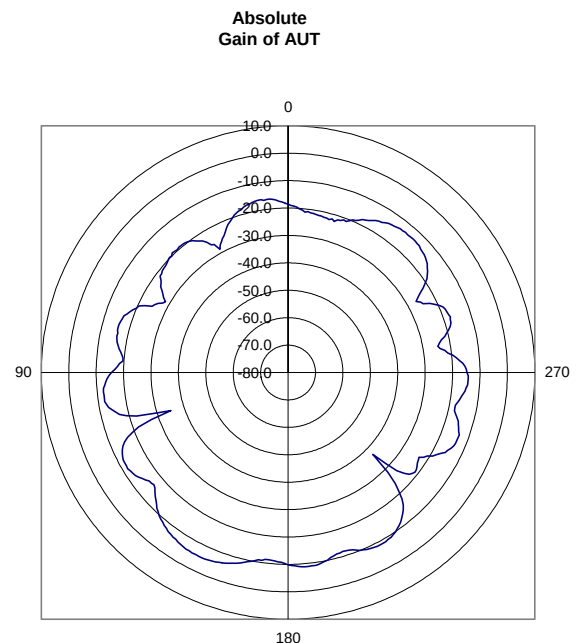
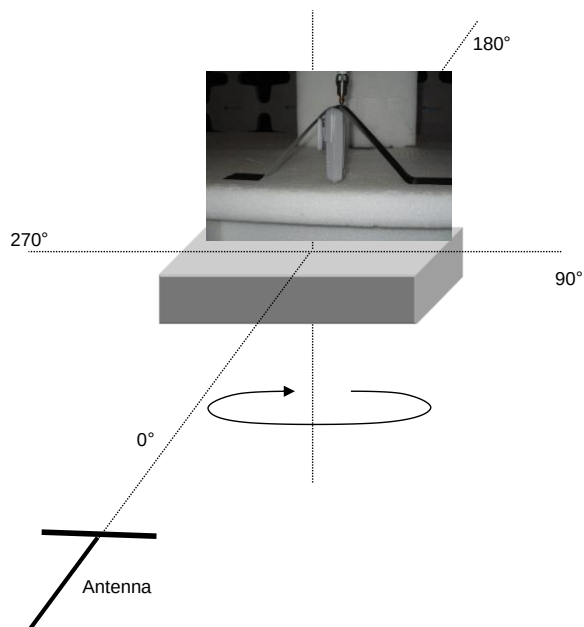
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|                         |                                                                                        |                   |            |                          |
|-------------------------|----------------------------------------------------------------------------------------|-------------------|------------|--------------------------|
| Work Order:             | ADEM0034                                                                               | Date:             | 2022-10-20 |                          |
| Project:                | None                                                                                   | Temperature:      | 19.9 °C    |                          |
| Job Site:               | TX02                                                                                   | Humidity:         | 35.6% RH   |                          |
| Serial Number:          | DUT_0059                                                                               | Barometric Pres.: | 1018 mbar  |                          |
| EUT: C7089R3013 Antenna |                                                                                        |                   |            | Tested by: Brandon Hobbs |
| Configuration:          | 1                                                                                      |                   |            |                          |
| Customer:               | ADemco, Inc                                                                            |                   |            |                          |
| Attendees:              | None                                                                                   |                   |            |                          |
| EUT Power:              | N/A                                                                                    |                   |            |                          |
| Operating Mode:         | Transmitting a CW tone at 0 dBm from a Signal Generator, with a 6 dB attenuator inline |                   |            |                          |
| Deviations:             |                                                                                        |                   |            |                          |
| Comments:               | None                                                                                   |                   |            |                          |

|                                    |            |                                                            |       |
|------------------------------------|------------|------------------------------------------------------------|-------|
| Frequency                          | 914.6      | Absolute Gain of Reference Antenna (dBi)                   | 0.87  |
| Measurement Antenna Polarity       | Horizontal | Reference Antenna Relative Gain Max (dBuV/m)               | 92.73 |
| Antenna Under Test (AUT) Polarity  | Vertical   | AUT Relative Gain Max (dBuV/m)                             | 86.43 |
| Maximum Absolute Gain of AUT (dBi) | -5.43      | Difference (Reference Antenna - AUT) (dB)                  | 6.30  |
| Average Absolute Gain of AUT (dBi) | -16.36     | AUT Setup Loss (dB)                                        | 0     |
|                                    |            | Correction Factor (Convert Relative to Absolute Gain) (dB) | 91.86 |
| 3 dB Beamwidth                     | 26°        |                                                            |       |

| Run # | Test Distance (m) | Antenna Height(s) | Results |
|-------|-------------------|-------------------|---------|
|       |                   |                   | NA      |



# RELATIVE GAIN



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PSA-ESCI 2022.08.23.0

|                 |                                                                                        |                   |            |                                                                                    |
|-----------------|----------------------------------------------------------------------------------------|-------------------|------------|------------------------------------------------------------------------------------|
| Work Order:     | ADEM0034                                                                               | Date:             | 2022-10-20 |  |
| Project:        | None                                                                                   | Temperature:      | 19.9 °C    |                                                                                    |
| Job Site:       | TX02                                                                                   | Humidity:         | 35.6% RH   |                                                                                    |
| Serial Number:  | DUT_0059                                                                               | Barometric Pres.: | 1018 mbar  |                                                                                    |
| EUT:            | C7089R3013 Antenna                                                                     |                   |            | Tested by: Brandon Hobbs                                                           |
| Configuration:  | 1                                                                                      |                   |            |                                                                                    |
| Customer:       | ADemco, Inc                                                                            |                   |            |                                                                                    |
| Attendees:      | None                                                                                   |                   |            |                                                                                    |
| EUT Power:      | N/A                                                                                    |                   |            |                                                                                    |
| Operating Mode: | Transmitting a CW tone at 0 dBm from a Signal Generator, with a 6 dB attenuator inline |                   |            |                                                                                    |
| Deviations:     |                                                                                        |                   |            |                                                                                    |
| Comments:       | None                                                                                   |                   |            |                                                                                    |

Frequency (MHz) **903**

Maximum Amplitude (dBuV/m) **88.38736**

Azimuth at Maximum **193°**

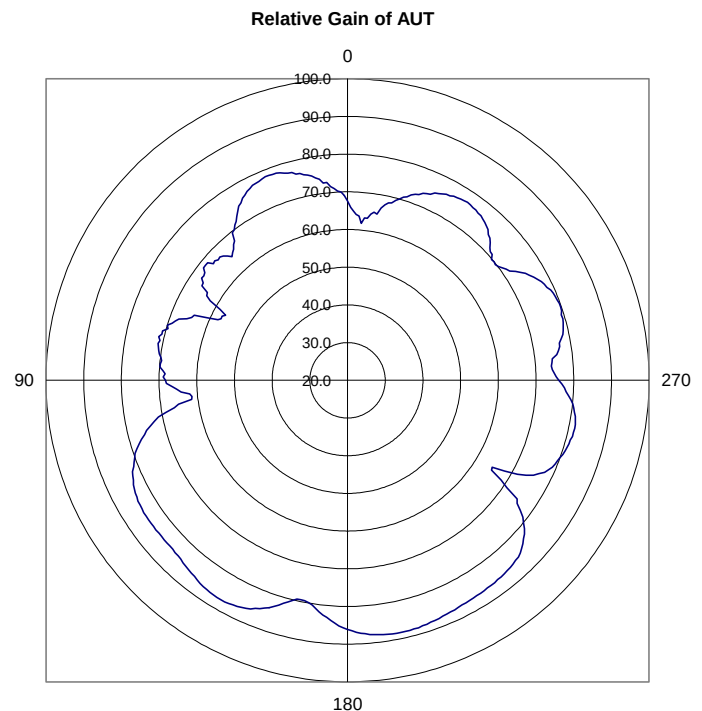
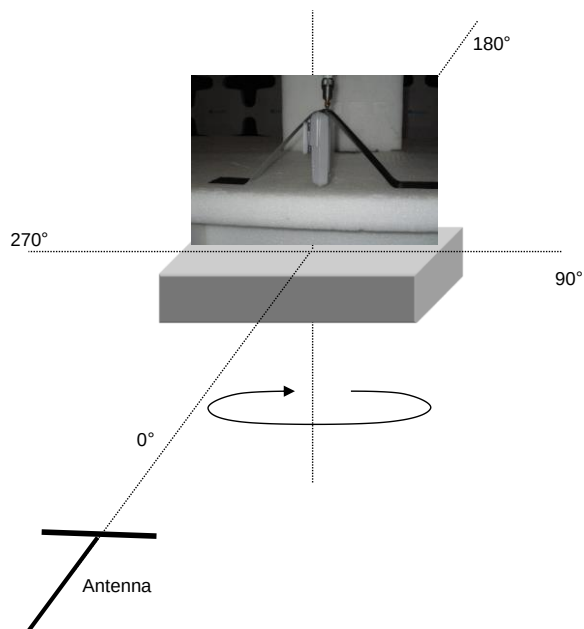
Measurement Antenna Polarity **Horizontal**  
Antenna Under Test (AUT) Polarity **Vertical**

Minimum Amplitude (dBuV/m) **56.68736**

Azimuth at Minimum **61°**

3 dB Beamwidth **45°**

|       |    |                   |   |                   |      |  |  |
|-------|----|-------------------|---|-------------------|------|--|--|
| Run # | 22 | Test Distance (m) | 3 | Antenna Height(s) | 1.96 |  |  |
|-------|----|-------------------|---|-------------------|------|--|--|



# ABSOLUTE GAIN



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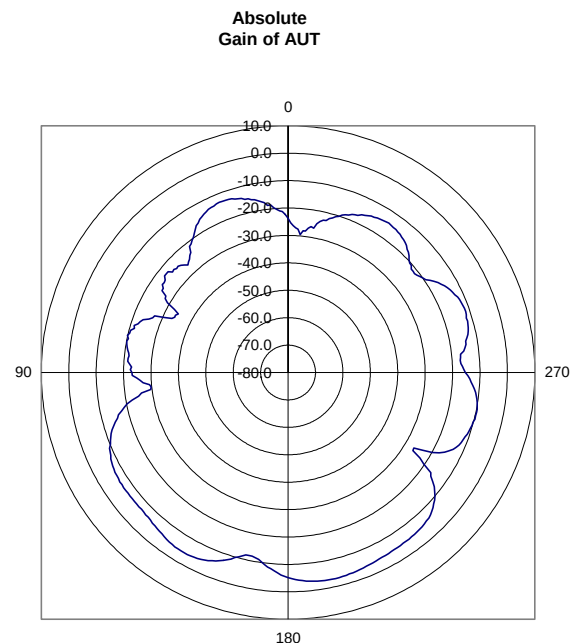
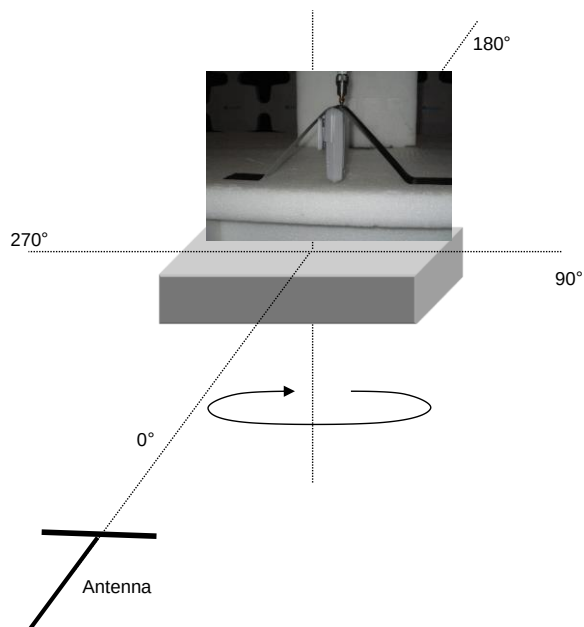
PSA-ESCI 2022.08.23.0

|                        |                                                                                        |                          |            |                                                                                    |
|------------------------|----------------------------------------------------------------------------------------|--------------------------|------------|------------------------------------------------------------------------------------|
| <b>Work Order:</b>     | ADEM0034                                                                               | <b>Date:</b>             | 2022-10-20 |  |
| <b>Project:</b>        | None                                                                                   | <b>Temperature:</b>      | 19.9 °C    |                                                                                    |
| <b>Job Site:</b>       | TX02                                                                                   | <b>Humidity:</b>         | 35.6% RH   |                                                                                    |
| <b>Serial Number:</b>  | DUT_0059                                                                               | <b>Barometric Pres.:</b> | 1018 mbar  |                                                                                    |
| <b>EUT:</b>            | C7089R3013 Antenna                                                                     |                          |            | <b>Tested by:</b> Brandon Hobbs                                                    |
| <b>Configuration:</b>  | 1                                                                                      |                          |            |                                                                                    |
| <b>Customer:</b>       | ADemco, Inc                                                                            |                          |            |                                                                                    |
| <b>Attendees:</b>      | None                                                                                   |                          |            |                                                                                    |
| <b>EUT Power:</b>      | N/A                                                                                    |                          |            |                                                                                    |
| <b>Operating Mode:</b> | Transmitting a CW tone at 0 dBm from a Signal Generator, with a 6 dB attenuator inline |                          |            |                                                                                    |
| <b>Deviations:</b>     |                                                                                        |                          |            |                                                                                    |
| <b>Comments:</b>       | None                                                                                   |                          |            |                                                                                    |

|                                    |            |                                                            |       |
|------------------------------------|------------|------------------------------------------------------------|-------|
| Frequency                          | 903        | Absolute Gain of Reference Antenna (dBi)                   | 0.9   |
| Measurement Antenna Polarity       | Horizontal | Reference Antenna Relative Gain Max (dBuV/m)               | 92.19 |
| Antenna Under Test (AUT) Polarity  | Vertical   | AUT Relative Gain Max (dBuV/m)                             | 88.39 |
| Maximum Absolute Gain of AUT (dBi) | -2.90      | Difference (Reference Antenna - AUT) (dB)                  | 3.80  |
| Average Absolute Gain of AUT (dBi) | -14.45     | AUT Setup Loss (dB)                                        | 0     |
|                                    |            | Correction Factor (Convert Relative to Absolute Gain) (dB) | 91.29 |

3 dB Beamwidth 45°

| Run # | Test Distance (m) | Antenna Height(s) | Results |
|-------|-------------------|-------------------|---------|
|       |                   |                   | NA      |



# RELATIVE GAIN



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|                        |                                                                                        |                          |            |                                                                                    |
|------------------------|----------------------------------------------------------------------------------------|--------------------------|------------|------------------------------------------------------------------------------------|
| <b>Work Order:</b>     | ADEM0034                                                                               | <b>Date:</b>             | 2022-10-20 |  |
| <b>Project:</b>        | None                                                                                   | <b>Temperature:</b>      | 19.9 °C    |                                                                                    |
| <b>Job Site:</b>       | TX02                                                                                   | <b>Humidity:</b>         | 35.6% RH   |                                                                                    |
| <b>Serial Number:</b>  | DUT_0059                                                                               | <b>Barometric Pres.:</b> | 1018 mbar  |                                                                                    |
| <b>EUT:</b>            | C7089R3013 Antenna                                                                     |                          |            | <b>Tested by:</b> Brandon Hobbs                                                    |
| <b>Configuration:</b>  | 1                                                                                      |                          |            |                                                                                    |
| <b>Customer:</b>       | ADemco, Inc                                                                            |                          |            |                                                                                    |
| <b>Attendees:</b>      | None                                                                                   |                          |            |                                                                                    |
| <b>EUT Power:</b>      | N/A                                                                                    |                          |            |                                                                                    |
| <b>Operating Mode:</b> | Transmitting a CW tone at 0 dBm from a Signal Generator, with a 6 dB attenuator inline |                          |            |                                                                                    |
| <b>Deviations:</b>     |                                                                                        |                          |            |                                                                                    |
| <b>Comments:</b>       | None                                                                                   |                          |            |                                                                                    |

Frequency (MHz) **903**

Maximum Amplitude (dBuV/m) **93.68736**

Azimuth at Maximum **139°**

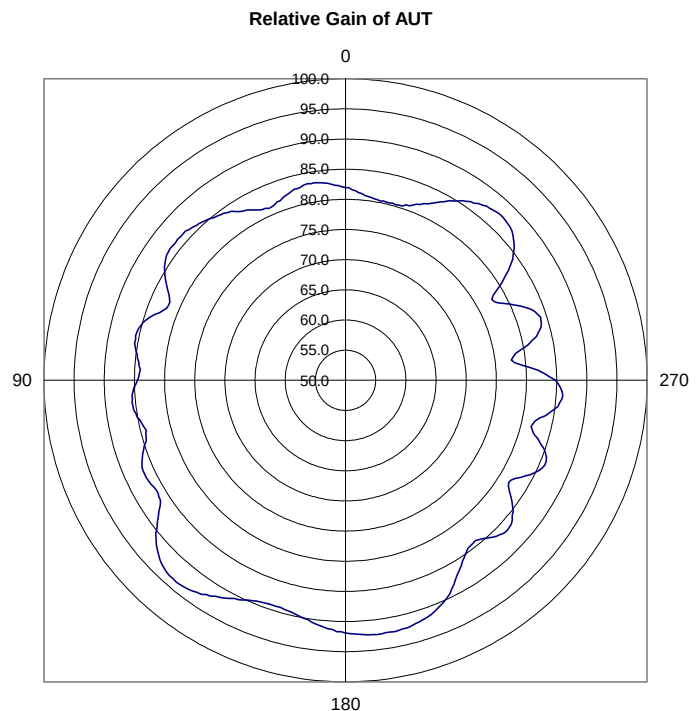
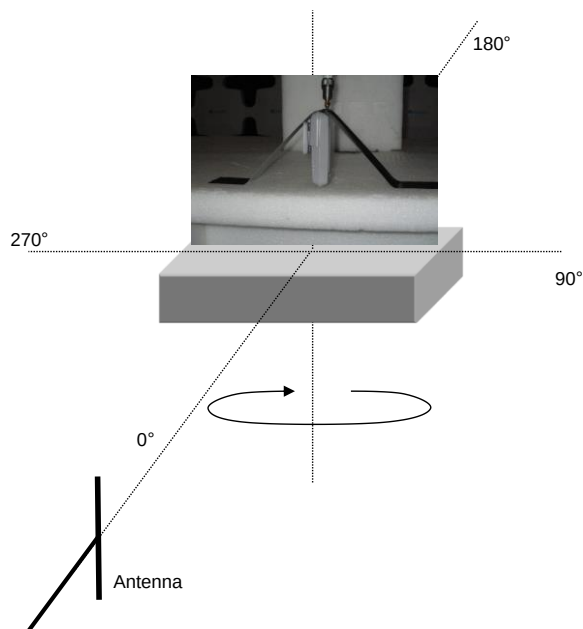
Measurement Antenna Polarity **Vertical**  
Antenna Under Test (AUT) Polarity **Vertical**

Minimum Amplitude (dBuV/m) **77.68736**

Azimuth at Minimum **298°**

3 dB Beamwidth **24°**

|              |    |                          |   |                          |       |  |  |
|--------------|----|--------------------------|---|--------------------------|-------|--|--|
| <b>Run #</b> | 23 | <b>Test Distance (m)</b> | 3 | <b>Antenna Height(s)</b> | 1.129 |  |  |
|--------------|----|--------------------------|---|--------------------------|-------|--|--|



# ABSOLUTE GAIN



EmiR5 2022.07.06.0

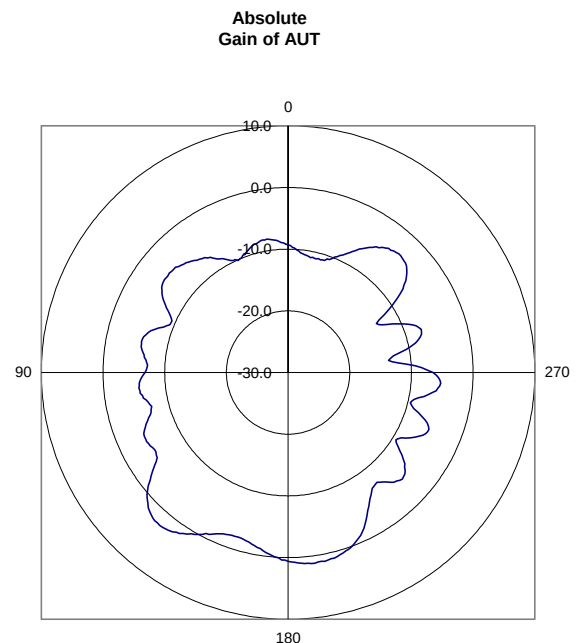
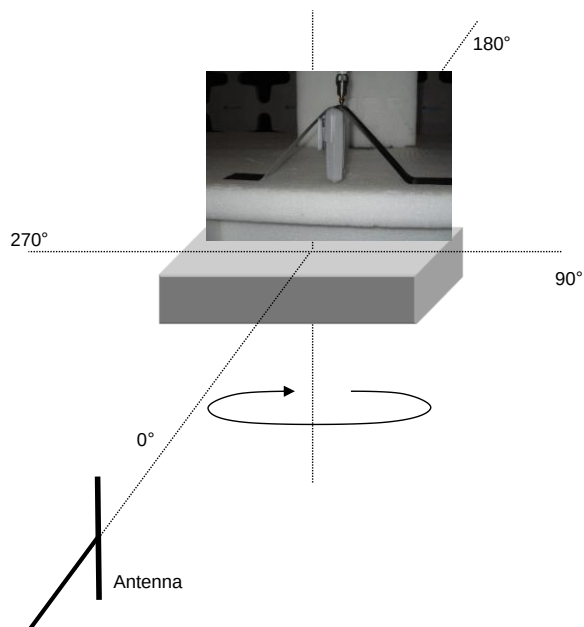
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|                 |                                                                                        |                   |            |                                                                                    |
|-----------------|----------------------------------------------------------------------------------------|-------------------|------------|------------------------------------------------------------------------------------|
| Work Order:     | ADEM0034                                                                               | Date:             | 2022-10-20 |  |
| Project:        | None                                                                                   | Temperature:      | 19.9 °C    |                                                                                    |
| Job Site:       | TX02                                                                                   | Humidity:         | 35.6% RH   |                                                                                    |
| Serial Number:  | DUT_0059                                                                               | Barometric Pres.: | 1018 mbar  |                                                                                    |
|                 |                                                                                        | Tested by:        |            | Brandon Hobbs                                                                      |
| EUT:            | C7089R3013 Antenna                                                                     |                   |            |                                                                                    |
| Configuration:  | 1                                                                                      |                   |            |                                                                                    |
| Customer:       | ADemco, Inc                                                                            |                   |            |                                                                                    |
| Attendees:      | None                                                                                   |                   |            |                                                                                    |
| EUT Power:      | N/A                                                                                    |                   |            |                                                                                    |
| Operating Mode: | Transmitting a CW tone at 0 dBm from a Signal Generator, with a 6 dB attenuator inline |                   |            |                                                                                    |
| Deviations:     |                                                                                        |                   |            |                                                                                    |
| Comments:       | None                                                                                   |                   |            |                                                                                    |

|                                    |          |                                                            |       |
|------------------------------------|----------|------------------------------------------------------------|-------|
| Frequency                          | 903      | Absolute Gain of Reference Antenna (dBi)                   | 0.9   |
| Measurement Antenna Polarity       | Vertical | Reference Antenna Relative Gain Max (dBuV/m)               | 92.19 |
| Antenna Under Test (AUT) Polarity  | Vertical | AUT Relative Gain Max (dBuV/m)                             | 93.69 |
| Maximum Absolute Gain of AUT (dBi) | 2.40     | Difference (Reference Antenna - AUT) (dB)                  | -1.50 |
| Average Absolute Gain of AUT (dBi) | -5.71    | AUT Setup Loss (dB)                                        | 0     |
|                                    |          | Correction Factor (Convert Relative to Absolute Gain) (dB) | 91.29 |

3 dB Beamwidth 24°

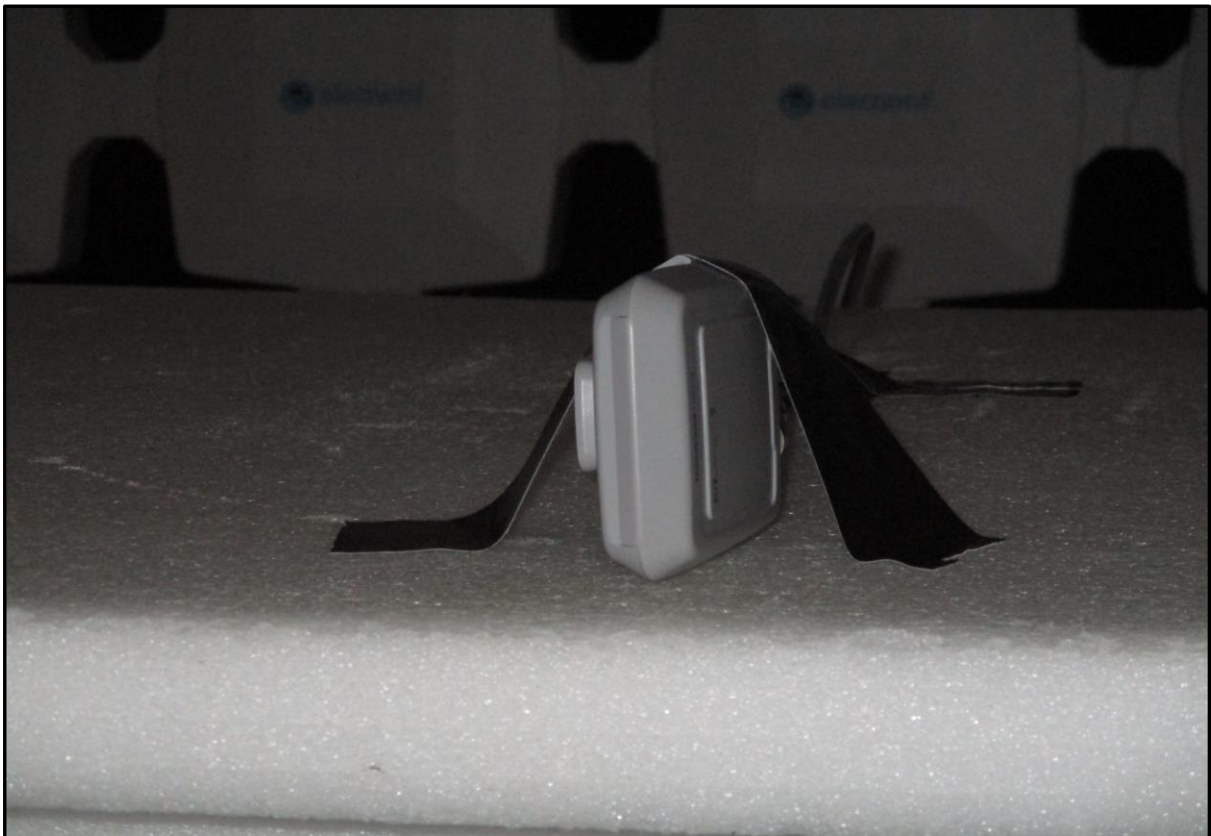
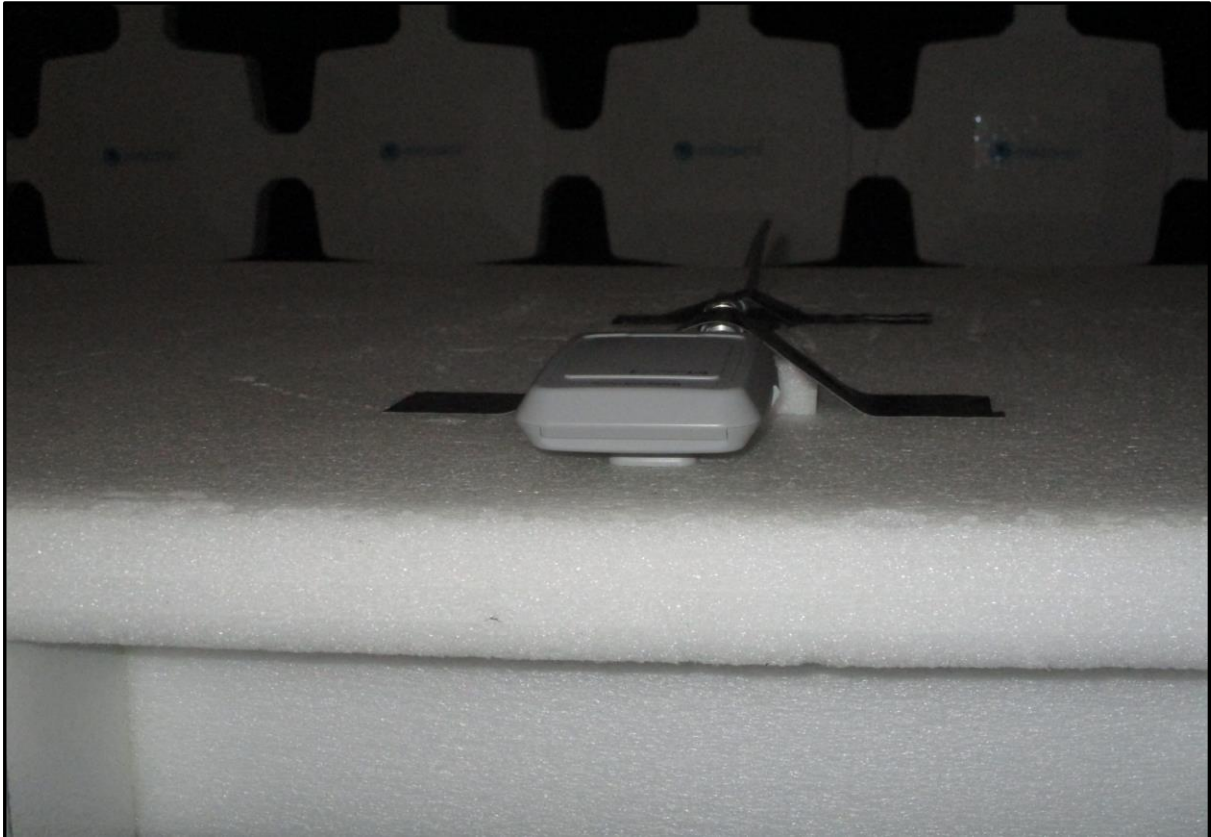
| Run # | Test Distance (m) | Antenna Height(s) | Results |
|-------|-------------------|-------------------|---------|
|       |                   |                   | NA      |



# POLAR PLOTS



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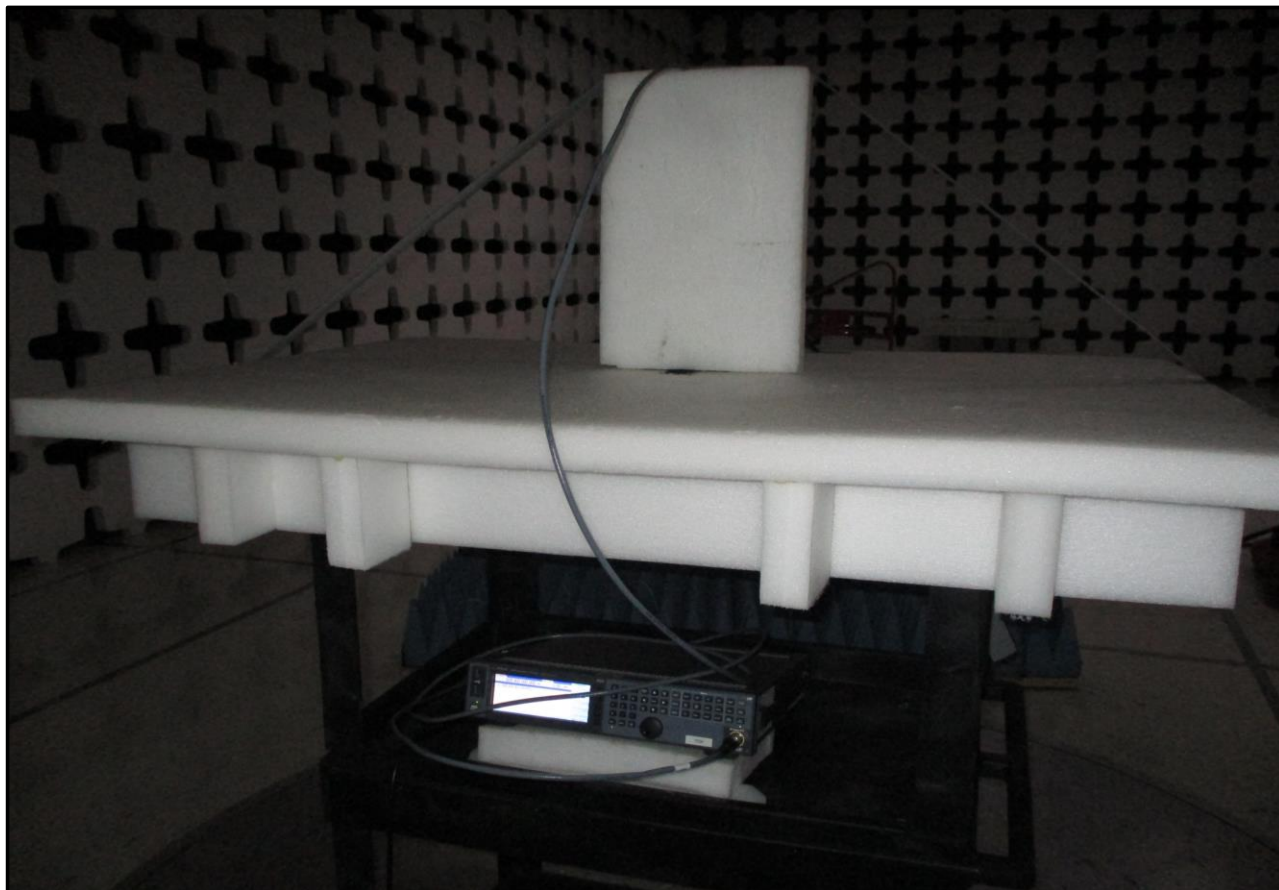
# POLAR PLOTS



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# POLAR PLOTS



## End of Test Report