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PSAS Propagation Test of the "ATV" Cylindrical Patch Antenna

Design frequency: 1.277 GHz
Actual frequency: 1.243 GHz
Polarization: Vertical

Plots included in this PDF file:

| Test Run # | Configuration | Rec. Ant. | Polarization |
|------------|------------------|-----------|--------------|
| 13 | 1 (rotated 180°) | | V |
| 14 | 1 (rotated 180°) | | H |
| 24 | 2 | | V |
| 23 | 2 | | H |
| 21 | 3 | | V |
| 22 | 3 | | H |

ABSOLUTE GAIN DATA SHEET

| | | | |
|-----------------|---|----------------------|----------|
| EUT: | 1.2GHz ATV Antenna | Work Order: | PTLD0001 |
| Serial Number: | | Date: | 12/09/03 |
| Customer: | Portland State Aerospace Society / PSU AESS | Temperature: | 73 |
| Attendees: | none | Humidity: | 32% |
| Cust. Ref. No.: | | Barometric Pressure: | 30.18 |
| Tested by: | Holly Ashkannejhad | Power: | N/A |
| | | Job Site: | EV01 |

SAMPLE CALCULATIONS

COMMENTS

1.24259GHz. Antenna height = Rocket antenna height = 2.91m.

EUT OPERATING MODES

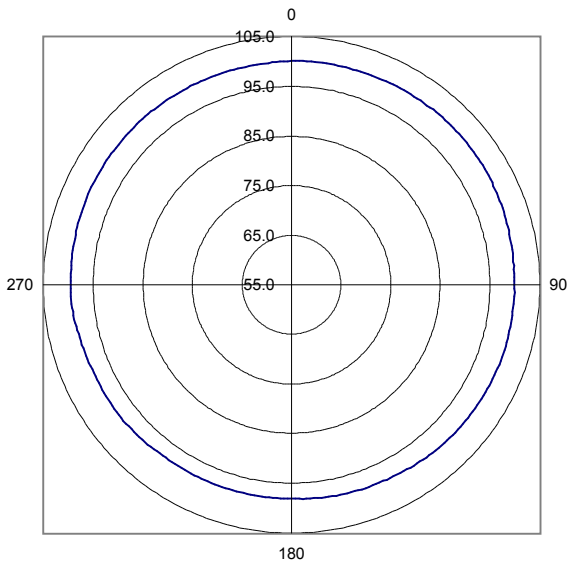
10dBm input power

| | | |
|--|--------------------------|--------------|
| | Test Distance (m) | Run # |
| | 3 | 13 |

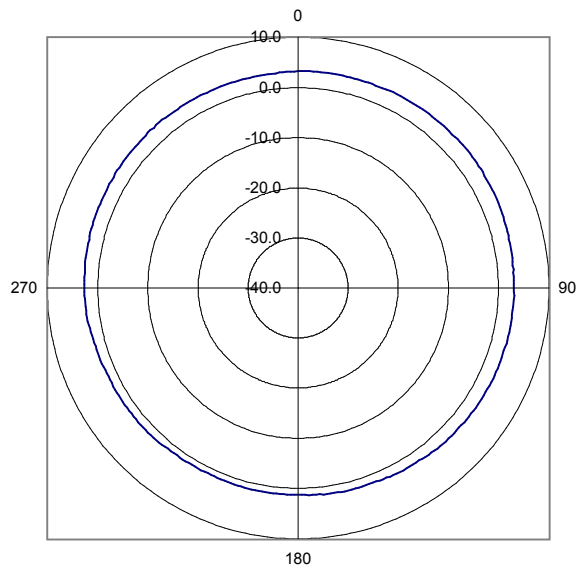
Other

Tested By: _____

Relative Gain of AUT



Absolute Gain of AUT



| | |
|---|-------------|
| Frequency | 1242.59 |
| Absolute Gain of Reference Antenna (dBi) | 7.62 |
| Reference Antenna Relative Gain Max (dBuV/m) | 104.50 |
| AUT Relative Gain Max (dBuV/m) | 100.40 |
| Difference (Reference Antenna - AUT) (dB) | 4.10 |
| AUT Setup Loss (dB) | 0.00 |
| Maximum Absolute Gain of AUT (dBi) | 3.52 |
| Correction Factor (Convert From Relative to Absolute Gain) (dB) | 96.88 |
| Measurement Antenna Polarity | Vertical |
| Antenna Under Test (AUT) Polarity | Config 1 |

ABSOLUTE GAIN DATA SHEET

| | | | |
|-----------------|---|----------------------|----------|
| EUT: | 1.2GHz ATV Antenna | Work Order: | PTLD0001 |
| Serial Number: | | Date: | 12/09/03 |
| Customer: | Portland State Aerospace Society / PSU AESS | Temperature: | 73 |
| Attendees: | none | Humidity: | 32% |
| Cust. Ref. No.: | | Barometric Pressure: | 30.18 |
| Tested by: | Holly Ashkannejhad | Power: | N/A |
| | | Job Site: | EV01 |

SAMPLE CALCULATIONS

COMMENTS

1.24259GHz. Antenna height = Rocket antenna height = 2.91m.

EUT OPERATING MODES

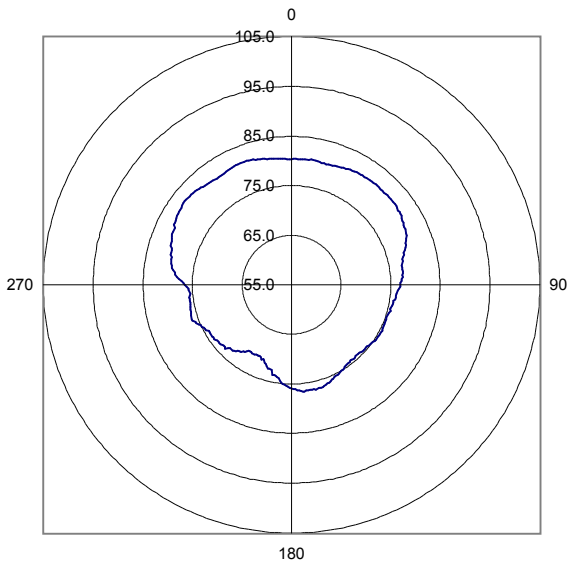
10dBm input power

| | | |
|--|--------------------------|--------------|
| | Test Distance (m) | Run # |
| | 3 | 14 |

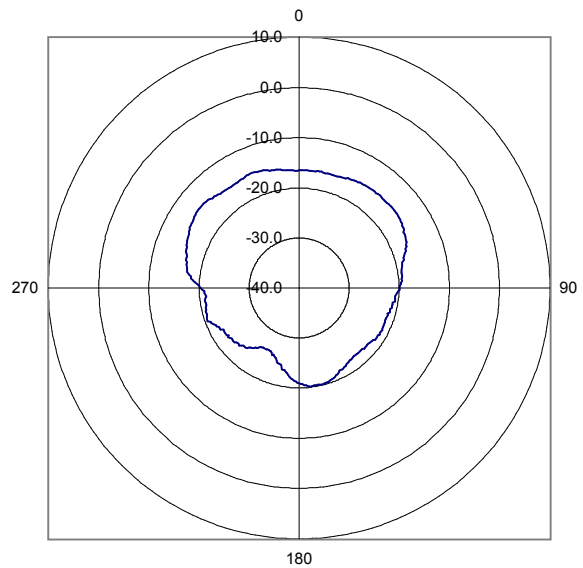
Other

Tested By:

**Relative
Gain of AUT**



**Absolute
Gain of AUT**



| | |
|---|---------------|
| Frequency | 1242.59 |
| Absolute Gain of Reference Antenna (dBi) | 7.62 |
| Reference Antenna Relative Gain Max (dBuV/m) | 104.50 |
| AUT Relative Gain Max (dBuV/m) | 82.30 |
| Difference (Reference Antenna - AUT) (dB) | 22.20 |
| AUT Setup Loss (dB) | 0.00 |
| Maximum Absolute Gain of AUT (dBi) | -14.58 |
| Correction Factor (Convert From Relative to Absolute Gain) (dB) | 96.88 |
| Measurement Antenna Polarity | Horizontal |
| Antenna Under Test (AUT) Polarity | Config 1 |

ABSOLUTE GAIN DATA SHEET

| | | | |
|-----------------|---|----------------------|----------|
| EUT: | ATV Antenna | Work Order: | PTLD0001 |
| Serial Number: | | Date: | 12/09/03 |
| Customer: | Portland State Aerospace Society / PSU AESS | Temperature: | 73 |
| Attendees: | none | Humidity: | 32% |
| Cust. Ref. No.: | | Barometric Pressure: | 30.18 |
| Tested by: | Holly Ashkannejhad | Power: | N/A |
| | | Job Site: | EV01 |

SAMPLE CALCULATIONS

COMMENTS

1.24259GHz. Antenna height = Rocket height = 1.77m.

EUT OPERATING MODES

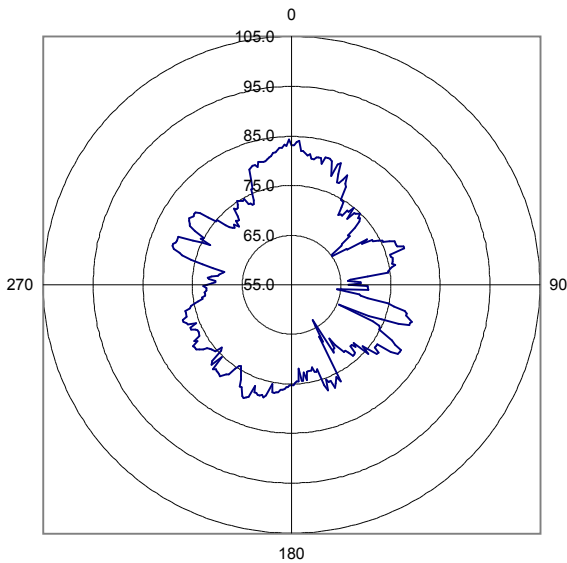
10dBm input power

| | | |
|--|-------------------|-------|
| | Test Distance (m) | Run # |
| | 3 | 24 |

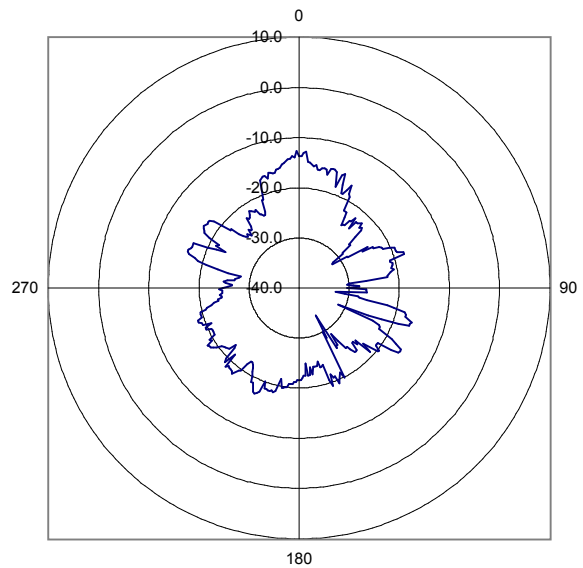
Other

Tested By: _____

Relative Gain of AUT



Absolute Gain of AUT



| | |
|---|---------------|
| Frequency | 1242.59 |
| Absolute Gain of Reference Antenna (dBi) | 7.62 |
| Reference Antenna Relative Gain Max (dBuV/m) | 104.50 |
| AUT Relative Gain Max (dBuV/m) | 84.20 |
| Difference (Reference Antenna - AUT) (dB) | 20.30 |
| AUT Setup Loss (dB) | 0.00 |
| Maximum Absolute Gain of AUT (dBi) | -12.68 |
| Correction Factor (Convert From Relative to Absolute Gain) (dB) | 96.88 |
| Measurement Antenna Polarity | Vertical |
| Antenna Under Test (AUT) Polarity | Config 2 |

ABSOLUTE GAIN DATA SHEET

| | |
|--|-----------------------------------|
| EUT: ATV Antenna | Work Order: PTLD0001 |
| Serial Number: | Date: 12/09/03 |
| Customer: Portland State Aerospace Society / PSU AESS | Temperature: 73 |
| Attendees: none | Humidity: 32% |
| Cust. Ref. No.: | Barometric Pressure: 30.18 |
| Tested by: Holly Ashkannejhad | Power: N/A |
| | Job Site: EV01 |

SAMPLE CALCULATIONS

COMMENTS

1.24259GHZ. Antenna height = Rocket height = 1.77m.

EUT OPERATING MODES

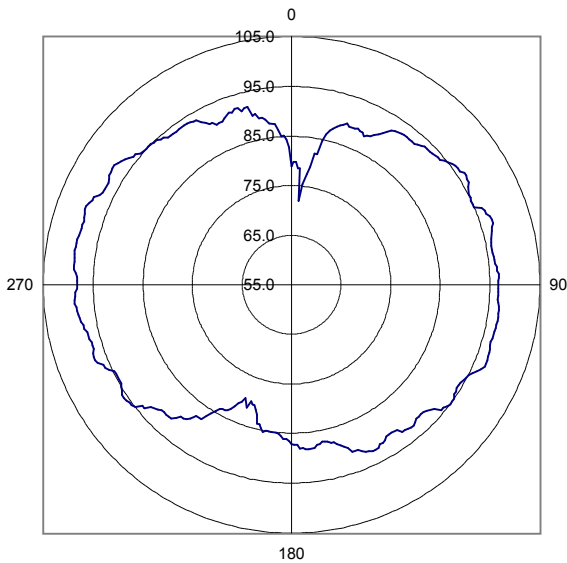
10dBm input power

| | | |
|--|--------------------------|--------------|
| | Test Distance (m) | Run # |
| | 3 | 23 |

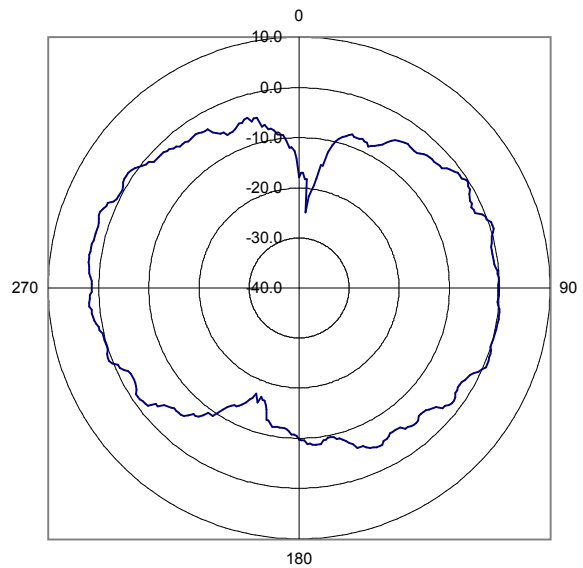
Other

Tested By: _____

Relative Gain of AUT



Absolute Gain of AUT



| | |
|---|-------------|
| Frequency | 1242.59 |
| Absolute Gain of Reference Antenna (dBi) | 7.62 |
| Reference Antenna Relative Gain Max (dBuV/m) | 104.50 |
| AUT Relative Gain Max (dBuV/m) | 99.30 |
| Difference (Reference Antenna - AUT) (dB) | 5.20 |
| AUT Setup Loss (dB) | 0.00 |
| Maximum Absolute Gain of AUT (dBi) | 2.42 |
| Correction Factor (Convert From Relative to Absolute Gain) (dB) | 96.88 |
| Measurement Antenna Polarity | Horizontal |
| Antenna Under Test (AUT) Polarity | Config 2 |

ABSOLUTE GAIN DATA SHEET

| | | | |
|-----------------|---|----------------------|----------|
| EUT: | ATV Antenna | Work Order: | PTLD0001 |
| Serial Number: | | Date: | 12/09/03 |
| Customer: | Portland State Aerospace Society / PSU AESS | Temperature: | 73 |
| Attendees: | none | Humidity: | 32% |
| Cust. Ref. No.: | | Barometric Pressure: | 30.18 |
| Tested by: | Holly Ashkannejhad | Power: | N/A |
| | | Job Site: | EV01 |

SAMPLE CALCULATIONS

COMMENTS

1.24259GHZ. Antenna height = Rocket height = 1.77m.

EUT OPERATING MODES

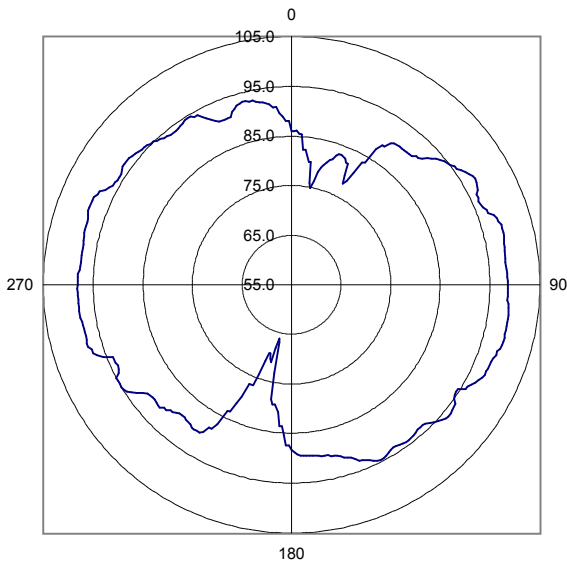
10dBm input power

| | | |
|--|--------------------------|--------------|
| | Test Distance (m) | Run # |
| | 3 | 21 |

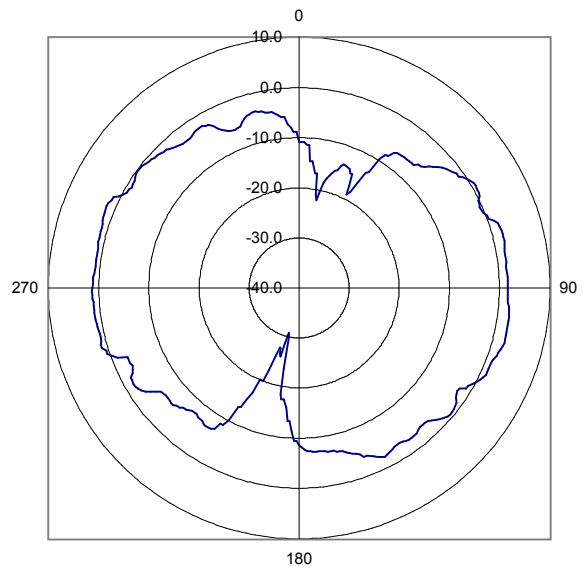
Other

Tested By: _____

Relative Gain of AUT



Absolute Gain of AUT



| | |
|---|-------------|
| Frequency | 1242.59 |
| Absolute Gain of Reference Antenna (dBi) | 7.62 |
| Reference Antenna Relative Gain Max (dBuV/m) | 104.50 |
| AUT Relative Gain Max (dBuV/m) | 99.20 |
| Difference (Reference Antenna - AUT) (dB) | 5.30 |
| AUT Setup Loss (dB) | 0.00 |
| Maximum Absolute Gain of AUT (dBi) | 2.32 |
| Correction Factor (Convert From Relative to Absolute Gain) (dB) | 96.88 |
| Measurement Antenna Polarity | Horizontal |
| Antenna Under Test (AUT) Polarity | Config 3 |

ABSOLUTE GAIN DATA SHEET

| | |
|--|-----------------------------------|
| EUT: ATV Antenna | Work Order: PTLD0001 |
| Serial Number: | Date: 12/09/03 |
| Customer: Portland State Aerospace Society / PSU AESS | Temperature: 73 |
| Attendees: none | Humidity: 32% |
| Cust. Ref. No.: | Barometric Pressure: 30.18 |
| Tested by: Holly Ashkannejhad | Power: N/A |
| | Job Site: EV01 |

SAMPLE CALCULATIONS

COMMENTS

1.24259GHZ. Antenna height = Rocket height = 1.77m.

EUT OPERATING MODES

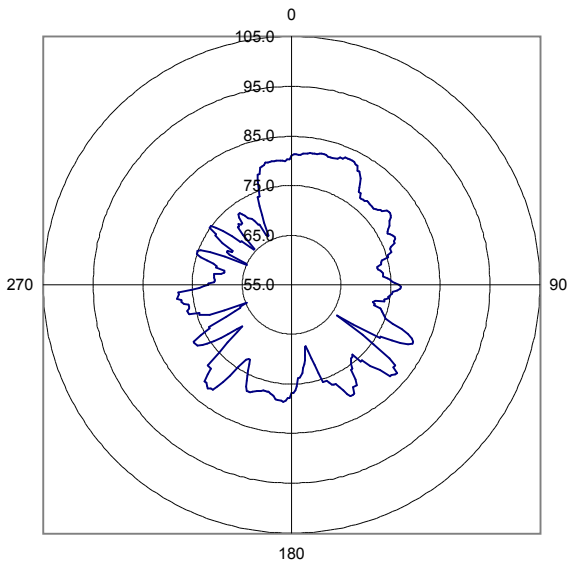
10dBm input power

| | | |
|--|--------------------------|--------------|
| | Test Distance (m) | Run # |
| | 3 | 22 |

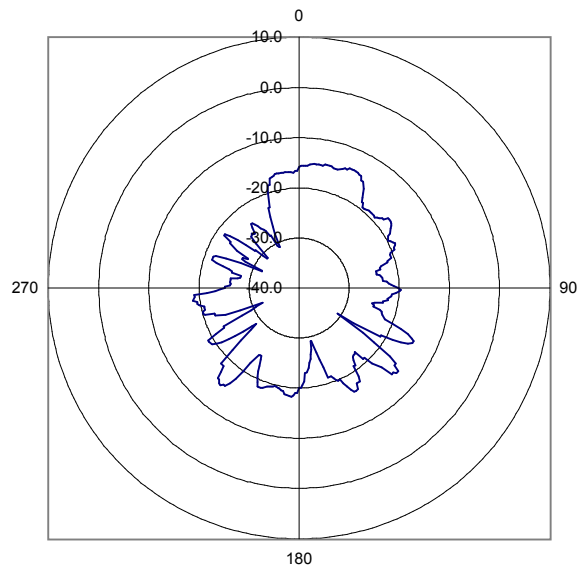
Other

Tested By: _____

Relative Gain of AUT



Absolute Gain of AUT



| | |
|---|---------------|
| Frequency | 1242.59 |
| Absolute Gain of Reference Antenna (dBi) | 7.62 |
| Reference Antenna Relative Gain Max (dBuV/m) | 104.50 |
| AUT Relative Gain Max (dBuV/m) | 82.80 |
| Difference (Reference Antenna - AUT) (dB) | 21.70 |
| AUT Setup Loss (dB) | 0.00 |
| Maximum Absolute Gain of AUT (dBi) | -14.08 |
| Correction Factor (Convert From Relative to Absolute Gain) (dB) | 96.88 |
| Measurement Antenna Polarity | Vertical |
| Antenna Under Test (AUT) Polarity | Config 3 |