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## PSAS Propagation Test of the "GPS" Cylindrical Patch Antenna

Design frequency: 1.575 GHz  
Actual frequency: 1.524GHz  
Polarization: Vertical

Plots included in this PDF file:

Test Run #	Configuration	Rec. Ant.	Polarization
16	1 (rotated 180°)		V
15	1 (rotated 180°)		H
17	2		V
18	2		H
20	3		V
19	3		H

# ABSOLUTE GAIN DATA SHEET

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

**SAMPLE CALCULATIONS**

**COMMENTS**

1.52438GHZ. Antenna height = Rocket antenna height = 3.03m.

**EUT OPERATING MODES**

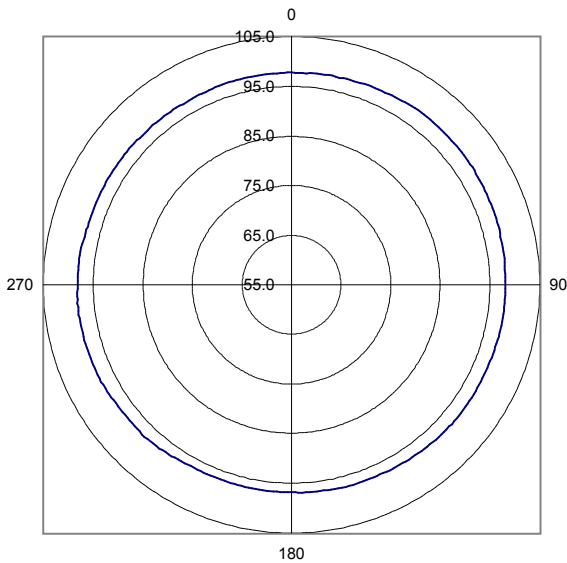
10dBm input power

	<b>Test Distance (m)</b>	<b>Run #</b>
	3	16

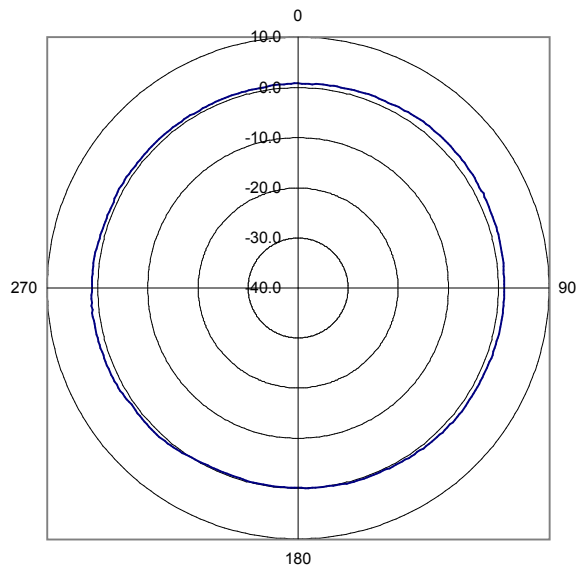
Other

\_\_\_\_\_  
Tested By:

**Relative Gain of AUT**



**Absolute Gain of AUT**



Frequency	1524.38
Absolute Gain of Reference Antenna (dBi)	8.62
Reference Antenna Relative Gain Max (dBuV/m)	105.60
AUT Relative Gain Max (dBuV/m)	98.40
Difference (Reference Antenna - AUT) (dB)	7.20
AUT Setup Loss (dB)	0.00
<b>Maximum Absolute Gain of AUT (dBi)</b>	<b>1.42</b>
Correction Factor (Convert From Relative to Absolute Gain) (dB)	96.98
Measurement Antenna Polarity	Vertical
Antenna Under Test (AUT) Polarity	Config 1

# ABSOLUTE GAIN DATA SHEET

EUT:	GPS 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**

1.52438GHZ. Antenna height = Rocket antenna height = 3.03m.

**EUT OPERATING MODES**

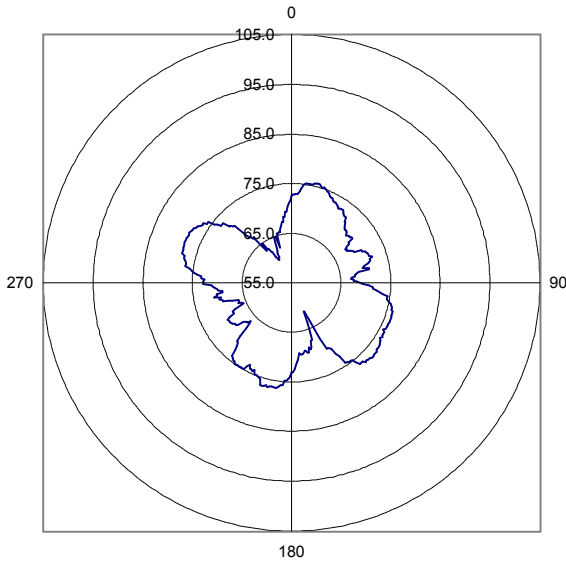
10dBm input power

	<b>Test Distance (m)</b>	<b>Run #</b>
	3	15

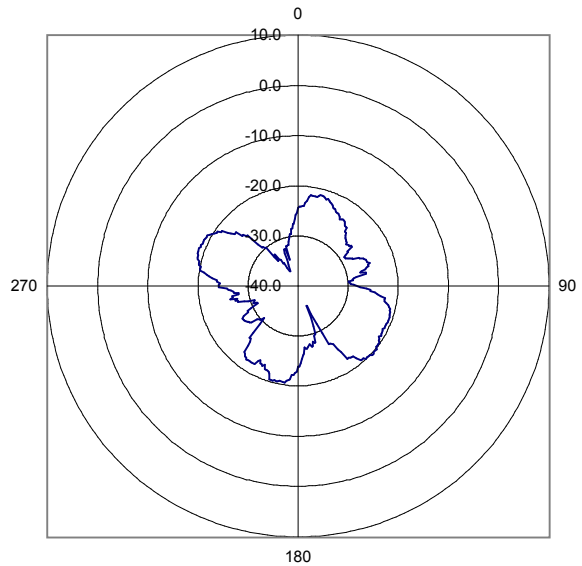
Other

Tested By: \_\_\_\_\_

**Relative Gain of AUT**



**Absolute Gain of AUT**



Frequency	1524.38
Absolute Gain of Reference Antenna (dBi)	8.62
Reference Antenna Relative Gain Max (dBuV/m)	105.60
AUT Relative Gain Max (dBuV/m)	78.10
Difference (Reference Antenna - AUT) (dB)	27.50
AUT Setup Loss (dB)	0.00
<b>Maximum Absolute Gain of AUT (dBi)</b>	<b>-18.88</b>
Correction Factor (Convert From Relative to Absolute Gain) (dB)	96.98
Measurement Antenna Polarity	Horizontal
Antenna Under Test (AUT) Polarity	Config 1

# ABSOLUTE GAIN DATA SHEET

EUT:	GPS 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**

1.52438GHZ. Antenna height = Rocket height = 1.77m.

**EUT OPERATING MODES**

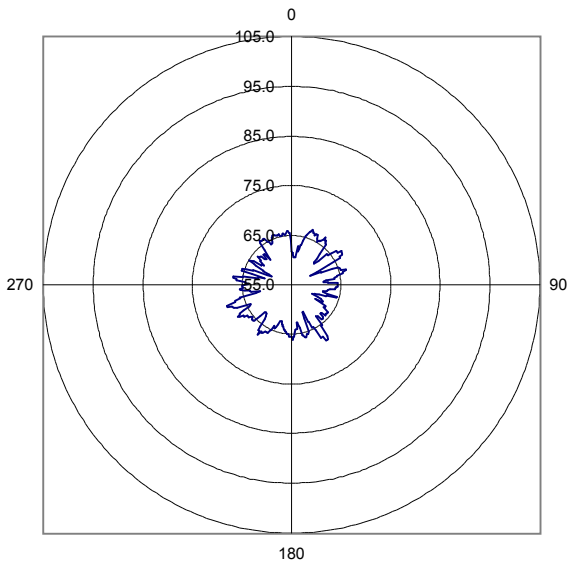
10dBm input power

	<b>Test Distance (m)</b>	<b>Run #</b>
	3	17

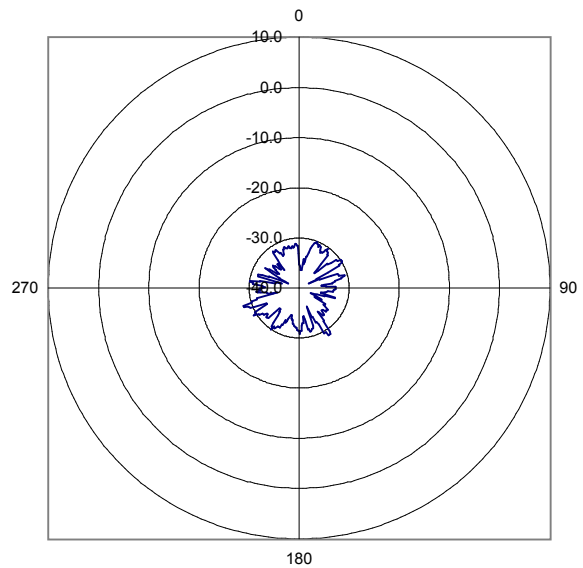
Other

\_\_\_\_\_  
Tested By:

**Relative Gain of AUT**



**Absolute Gain of AUT**



Frequency	1524.38
Absolute Gain of Reference Antenna (dBi)	8.62
Reference Antenna Relative Gain Max (dBuV/m)	105.60
AUT Relative Gain Max (dBuV/m)	68.60
Difference (Reference Antenna - AUT) (dB)	37.00
AUT Setup Loss (dB)	0.00
<b>Maximum Absolute Gain of AUT (dBi)</b>	<b>-28.38</b>
Correction Factor (Convert From Relative to Absolute Gain) (dB)	96.98
Measurement Antenna Polarity	Vertical
Antenna Under Test (AUT) Polarity	Config 2

# ABSOLUTE GAIN DATA SHEET

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

**SAMPLE CALCULATIONS**

**COMMENTS**

1.52438GHZ. Antenna height = Rocket height = 1.77m.

**EUT OPERATING MODES**

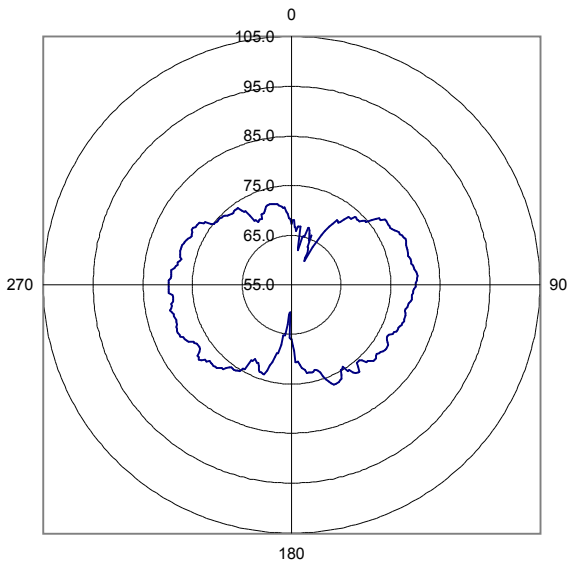
10dBm input power

	<b>Test Distance (m)</b>	<b>Run #</b>
	3	18

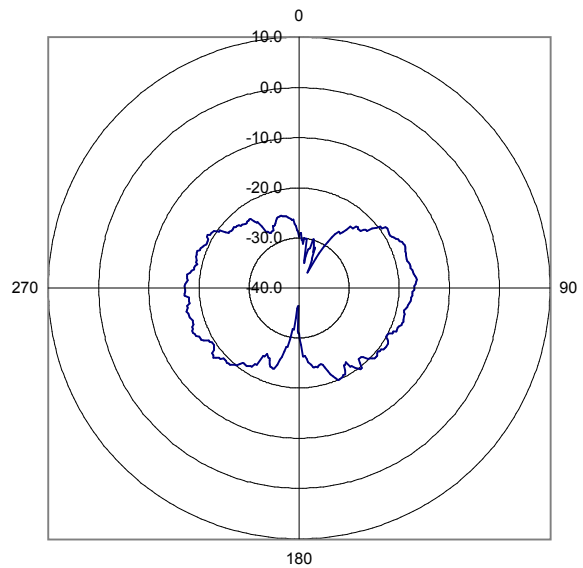
Other

Tested By: \_\_\_\_\_

**Relative Gain of AUT**



**Absolute Gain of AUT**



Frequency	1524.38
Absolute Gain of Reference Antenna (dBi)	8.62
Reference Antenna Relative Gain Max (dBuV/m)	105.60
AUT Relative Gain Max (dBuV/m)	80.40
Difference (Reference Antenna - AUT) (dB)	25.20
AUT Setup Loss (dB)	0.00
<b>Maximum Absolute Gain of AUT (dBi)</b>	<b>-16.58</b>
Correction Factor (Convert From Relative to Absolute Gain) (dB)	96.98
Measurement Antenna Polarity	Horizontal
Antenna Under Test (AUT) Polarity	Config 2

# ABSOLUTE GAIN DATA SHEET

EUT:	GPS 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**

1.52438GHZ. Antenna height = Rocket height = 1.77m.

**EUT OPERATING MODES**

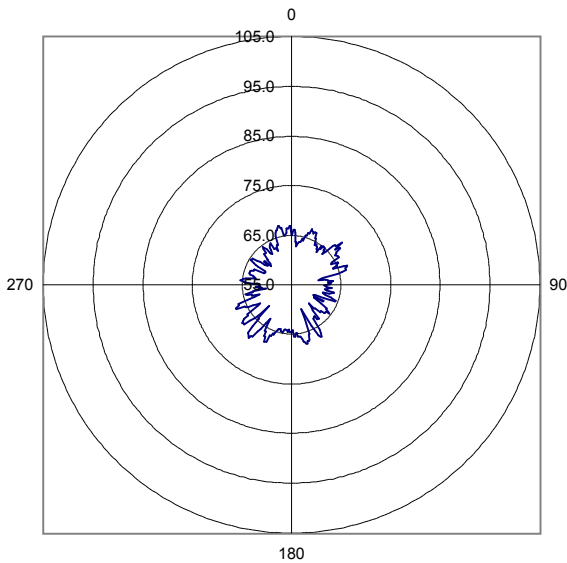
10dBm input power

	<b>Test Distance (m)</b>	<b>Run #</b>
	3	20

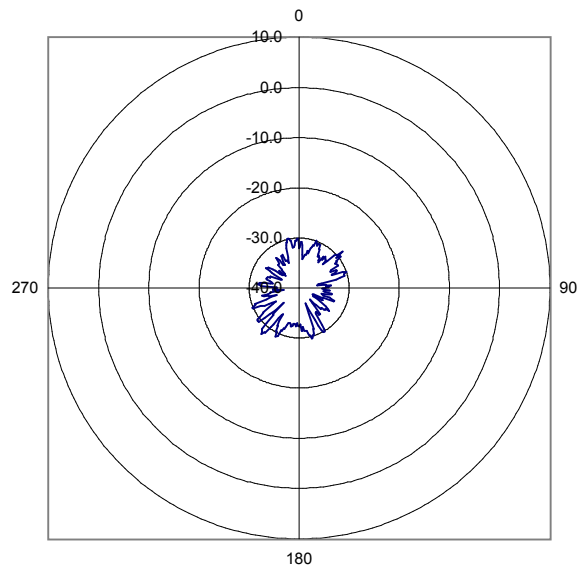
Other

\_\_\_\_\_  
Tested By:

**Relative  
Gain of AUT**



**Absolute  
Gain of AUT**



Frequency	1524.38
Absolute Gain of Reference Antenna (dBi)	8.62
Reference Antenna Relative Gain Max (dBuV/m)	105.60
AUT Relative Gain Max (dBuV/m)	68.80
Difference (Reference Antenna - AUT) (dB)	36.80
AUT Setup Loss (dB)	0.00
<b>Maximum Absolute Gain of AUT (dBi)</b>	<b>-28.18</b>
Correction Factor (Convert From Relative to Absolute Gain) (dB)	96.98
Measurement Antenna Polarity	Vertical
Antenna Under Test (AUT) Polarity	Config 3

# ABSOLUTE GAIN DATA SHEET

EUT:	GPS 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**

1.52438GHZ. Antenna height = Rocket height = 1.77m.

**EUT OPERATING MODES**

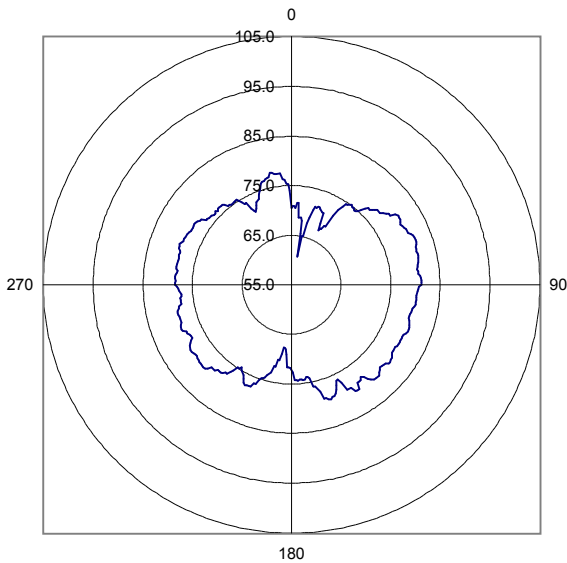
10dBm input power

	<b>Test Distance (m)</b>	<b>Run #</b>
	3	19

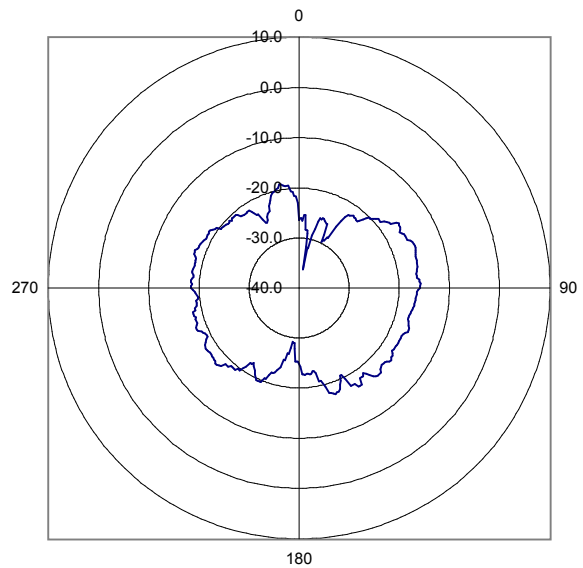
Other

\_\_\_\_\_  
Tested By:

**Relative  
Gain of AUT**



**Absolute  
Gain of AUT**



Frequency	1524.38
Absolute Gain of Reference Antenna (dBi)	8.62
Reference Antenna Relative Gain Max (dBuV/m)	105.60
AUT Relative Gain Max (dBuV/m)	81.60
Difference (Reference Antenna - AUT) (dB)	24.00
AUT Setup Loss (dB)	0.00
<b>Maximum Absolute Gain of AUT (dBi)</b>	<b>-15.38</b>
Correction Factor (Convert From Relative to Absolute Gain) (dB)	96.98
Measurement Antenna Polarity	Horizontal
Antenna Under Test (AUT) Polarity	Config 3