

# Honeywell

## OneWireless Adapter for wired HART Devices, Model: OWA 100

Report No. HONE0057.3

Report Prepared By



[www.nwemc.com](http://www.nwemc.com)  
1-888-EMI-CERT

© 2010 Northwest EMC, Inc

EMC Test Report

Revision Number	Description	Date	Page Number
00	None		

**Barometric Pressure**

The recorded barometric pressure has been normalized to sea level.



## Northwest EMC Locations



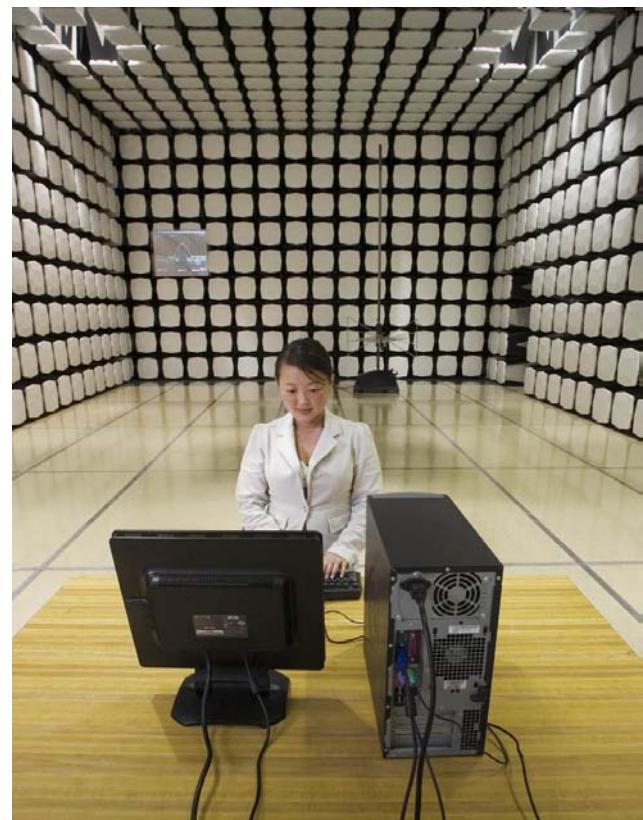
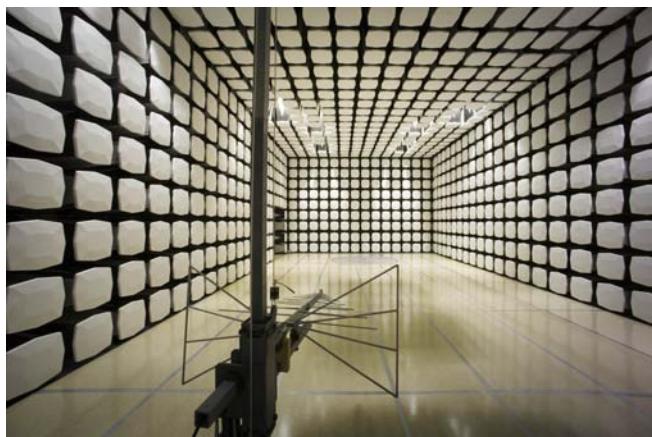
Oregon  
Labs EV01-EV12  
22975 NW Evergreen Pkwy  
Suite 400  
Hillsboro, OR 97124  
(503) 844-4066

California  
Labs OC01-OC13  
41 Tesla  
Irvine, CA 92618  
(949) 861-8918

Minnesota  
Labs MN01-MN08  
9349 W Broadway Ave.  
Brooklyn Park,  
MN 55445  
(763) 425-2281

Washington  
Labs SU01-SU07  
14128 339<sup>th</sup> Ave. SE  
Sultan, WA 98294  
(360) 793-8675

New York  
Labs WA01-WA04  
4939 Jordan Rd.  
Elbridge, NY 13060  
(315) 685-0796



**Party Requesting the Test**

<b>Company Name:</b>	Honeywell
<b>Address:</b>	2500 W. Union Hills Road
<b>City, State, Zip:</b>	Phoenix, AZ 85027
<b>Test Requested By:</b>	David Shipley
<b>Model:</b>	OneWireless Adapter for wired HART Devices, Model: OWA 100
<b>First Date of Test:</b>	October 18, 2010
<b>Last Date of Test:</b>	October 18, 2010
<b>Receipt Date of Samples:</b>	September 16, 2010
<b>Equipment Design Stage:</b>	Production
<b>Equipment Condition:</b>	No Damage

**Information Provided by the Party Requesting the Test****Functional Description of the EUT (Equipment Under Test):**

OneWireless Adapter for wired HART Devices

**Testing Objective:**

To provide antenna polar plots as requested by the client.

**CONFIGURATION 1 HONE0057**

<b>EUT</b>				
<b>Description</b>		<b>Manufacturer</b>	<b>Model/Part Number</b>	<b>Serial Number</b>
OneWireless Adapter for wired HART Devices		Honeywell	Model: OWA 100	None

<b>Cables</b>					
<b>Cable Type</b>	<b>Shield</b>	<b>Length (m)</b>	<b>Ferrite</b>	<b>Connection 1</b>	<b>Connection 2</b>
Ground Strap	Yes	3m	No	OneWireless Adapter for wired HART Devices	Ground

PA = Cable is permanently attached to the device. Shielding and/or presence of ferrite may be unknown.

<b>Equipment modifications</b>					
Item	Date	Test	Modification	Note	Disposition of EUT
1	10/18/2010	Absolute Gain	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	Scheduled testing was completed.

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.

**MODES OF OPERATION**

10dBm by Signal Generator

**FREQUENCY RANGE INVESTIGATED**

Start Frequency 2405 Stop Frequency 2475

**FREQUENCIES TESTED**

2405 MHz, 2440 MHz, 2475 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.	Interval
Antenna, Horn	EMCO	3115	AHB	9/11/2009	24
Signal Generator	Agilent	E8257D	TGU	12/20/2008	24
Antenna, Horn	ETS	3117	AHQ	2/26/2010	24
OC10 Cables	N/A	1-8GHz RE Cables	OCJ	3/26/2010	13
Spectrum Analyzer	Agilent	E4446A	AAY	1/15/2010	12

**MEASUREMENT BANDWIDTHS**

	Frequency Range	Peak Data	Quasi-Peak Data	Average Data
	(MHz)	(kHz)	(kHz)	(kHz)
	0.01 - 0.15	1.0	0.2	0.2
	0.15 - 30.0	10.0	9.0	9.0
	30.0 - 1000	100.0	120.0	120.0
	Above 1000	1000.0	N/A	1000.0

Measurements were made using the bandwidths and detectors specified. No video filter was used.

**MEASUREMENT UNCERTAINTY**

A measurement uncertainty estimation has been performed for each test per our internal quality document WP 342. The estimation is used to compare the measured result with its "true" or theoretically correct value. Our measurement data meets or exceeds the measurement uncertainty requirements of CISPR 16-4. The measurement uncertainty estimation is available upon request.

**TEST DESCRIPTION**

The single antenna to be used with the EUT was tested. Testing was performed using the high, mid and low channels.

A reference scan was made with a reference antenna at a three meter test distance. A signal generator was connected to the reference antenna and CW signal was used to obtain a reference scan polar plot.

The Antenna Under Test (AUT) was then put into the chamber in place of the reference antenna. 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 antenna scan, and, using the antenna gain (dBi) of the reference antenna the absolute gain of the AUT was calculated.

NORTHWEST

EMC

## ABSOLUTE GAIN DATA SHEET

EUT:	OneWireless Adapter for wired HART Devices, Model: OWA 100	Work Order:	HONE0057
Serial Number:	None	Date:	10/18/10
Customer:	Honeywell	Temperature:	22.42 °C
Attendees:	David Shipley	Humidity:	44%
Project:	None	Barometric Pres.:	1011.2
Tested by:	Jaemi Suh	Job Site:	OC10

## TEST SPECIFICATIONS

Test Method

## TEST PARAMETERS

Antenna Height(s) (m)	Test Distance (m)	3
-----------------------	-------------------	---

## COMMENTS

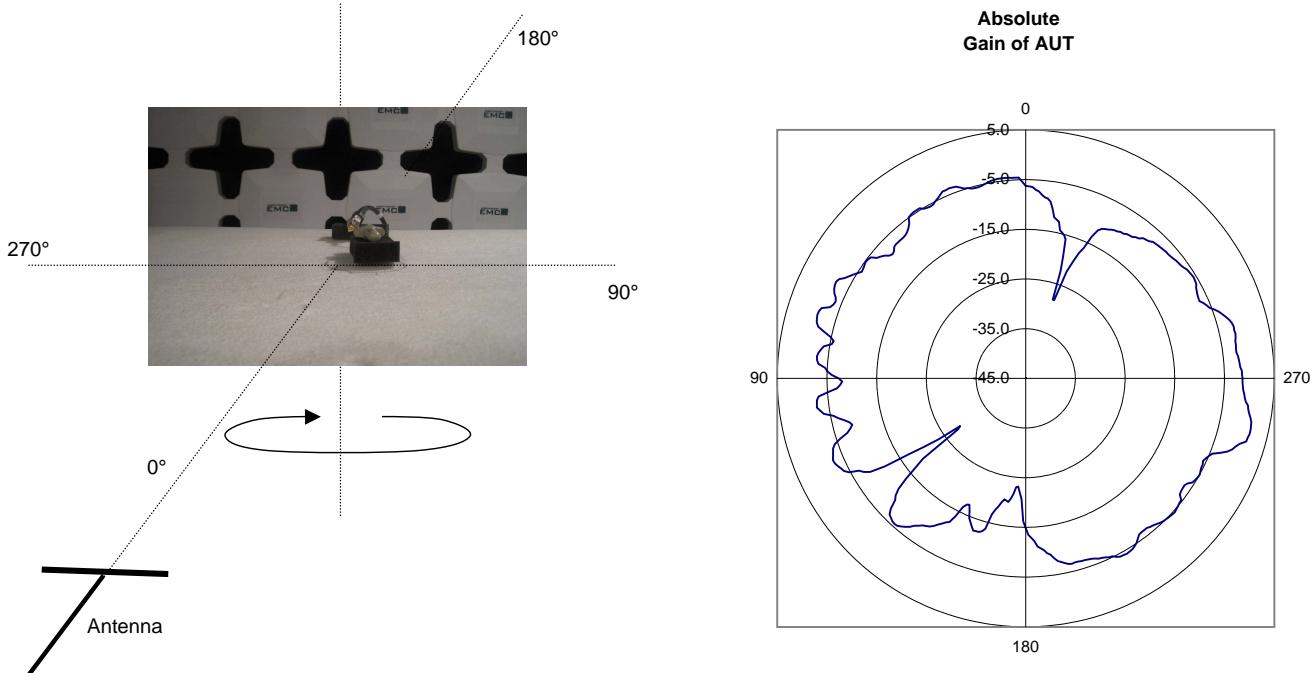
Antenna only powered by signal generator.

## EUT OPERATING MODES

10dBm by Signal Generator

## DEVIATIONS FROM TEST STANDARD

Run #	13
Configuration #	1
Results	

*[Signature]*

Frequency	2405.00
Absolute Gain of Reference Antenna (dBi)	9.13
Reference Antenna Relative Gain Max (dBuV/m)	106.80
AUT Relative Gain Max (dBuV/m)	99.10
Difference (Reference Antenna - AUT) (dB)	7.70
AUT Setup Loss (dB)	0.00
<b>Maximum Absolute Gain of AUT (dBi)</b>	<b>1.43</b>
Correction Factor (Convert From Relative to Absolute Gain) (dB)	97.67
Measurement Antenna Polarity	Horizontal
Antenna Under Test (AUT) Polarity	Horizontal

NORTHWEST

EMC

## ABSOLUTE GAIN DATA SHEET

**EUT:** OneWireless Adapter for wired HART Devices, Model: OWA 100  
**Serial Number:** None  
**Customer:** Honeywell  
**Attendees:** David Shipley  
**Project:** None  
**Tested by:** Jaemi Suh

**Work Order:** HONE0057  
**Date:** 10/18/10  
**Temperature:** 22.42 °C  
**Humidity:** 44%  
**Barometric Pres.:** 1011.2  
**Job Site:** OC10

## TEST SPECIFICATIONS

Test Method

## TEST PARAMETERS

Antenna Height(s) (m) | Test Distance (m) | 3

## COMMENTS

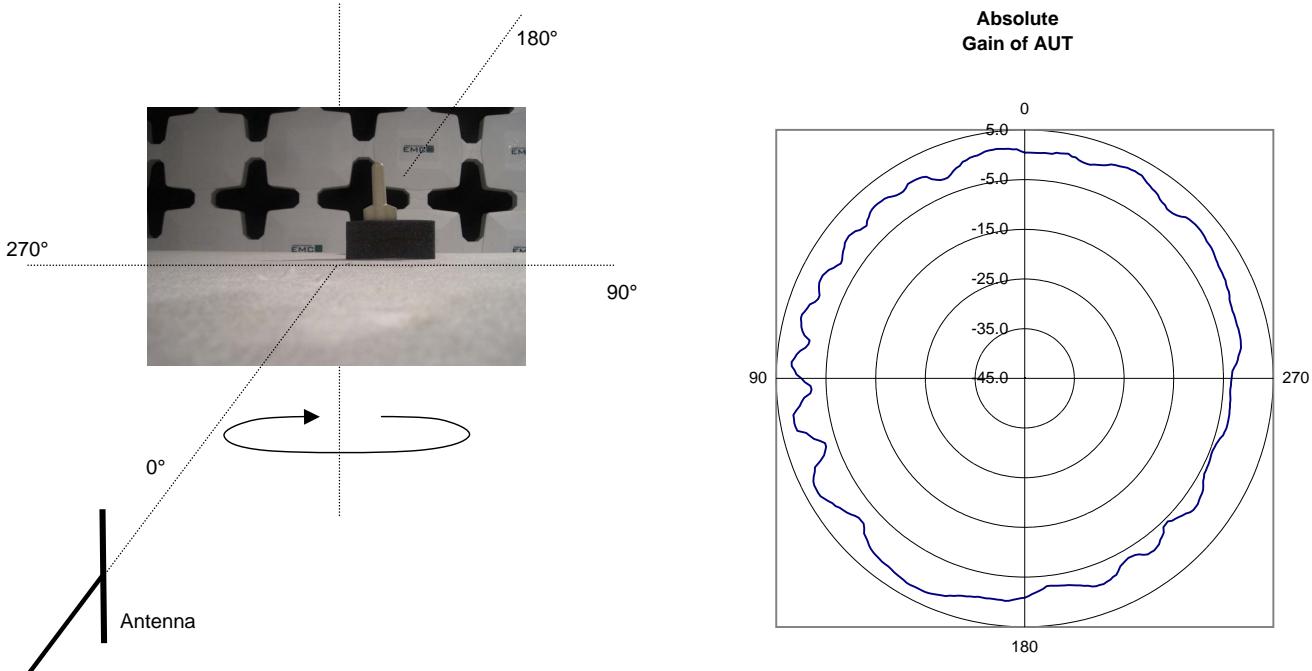
Antenna only powered by signal generator.

## EUT OPERATING MODES

10dBm by Signal Generator

## DEVIATIONS FROM TEST STANDARD

Run #	14
Configuration #	1
Results	

*[Signature]*

Frequency	2405.00
Absolute Gain of Reference Antenna (dBi)	9.13
Reference Antenna Relative Gain Max (dBuV/m)	106.60
AUT Relative Gain Max (dBuV/m)	100.00
Difference (Reference Antenna - AUT) (dB)	6.60
AUT Setup Loss (dB)	0.00
<b>Maximum Absolute Gain of AUT (dBi)</b>	<b>2.53</b>
Correction Factor (Convert From Relative to Absolute Gain) (dB)	97.47
Measurement Antenna Polarity	Vertical
Antenna Under Test (AUT) Polarity	Vertical

NORTHWEST

EMC

## ABSOLUTE GAIN DATA SHEET

EUT:	OneWireless Adapter for wired HART Devices, Model: OWA 100	Work Order:	HONE0057
Serial Number:	None	Date:	10/18/10
Customer:	Honeywell	Temperature:	22.42 °C
Attendees:	David Shipley	Humidity:	44%
Project:	None	Barometric Pres.:	1011.2
Tested by:	Jaemi Suh	Job Site:	OC10

## TEST SPECIFICATIONS

Test Method

## TEST PARAMETERS

Antenna Height(s) (m)	Test Distance (m)	3
-----------------------	-------------------	---

## COMMENTS

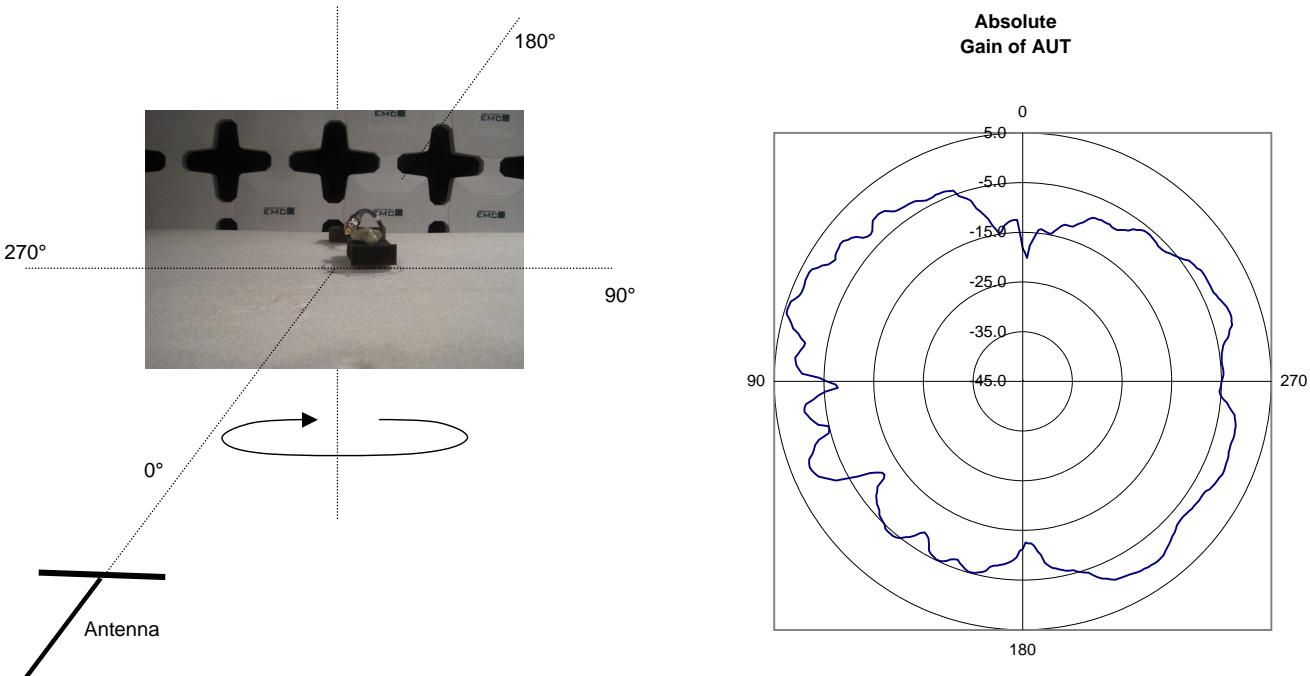
Antenna only powered by signal generator.

## EUT OPERATING MODES

10dBm by Signal Generator

## DEVIATIONS FROM TEST STANDARD

Run #	12	Signature
Configuration #	1	
Results		



Frequency	2440.00
Absolute Gain of Reference Antenna (dBi)	9.23
Reference Antenna Relative Gain Max (dBuV/m)	105.70
AUT Relative Gain Max (dBuV/m)	101.00
Difference (Reference Antenna - AUT) (dB)	4.70
AUT Setup Loss (dB)	0.00
<b>Maximum Absolute Gain of AUT (dBi)</b>	<b>4.53</b>
Correction Factor (Convert From Relative to Absolute Gain) (dB)	96.47
Measurement Antenna Polarity	Horizontal
Antenna Under Test (AUT) Polarity	Horizontal

## ABSOLUTE GAIN DATA SHEET

EUT:	OneWireless Adapter for wired HART Devices, Model: OWA 100	Work Order:	HONE0057
Serial Number:	None	Date:	10/18/10
Customer:	Honeywell	Temperature:	22.42 °C
Attendees:	David Shipley	Humidity:	44%
Project:	None	Barometric Pres.:	1011.2
Tested by:	Jaemi Suh	Job Site:	OC10

## TEST SPECIFICATIONS

## Test Method

## TEST PARAMETERS

Antenna Height(s) (m)	Test Distance (m)	3
-----------------------	-------------------	---

## COMMENTS

Antenna only powered by signal generator.

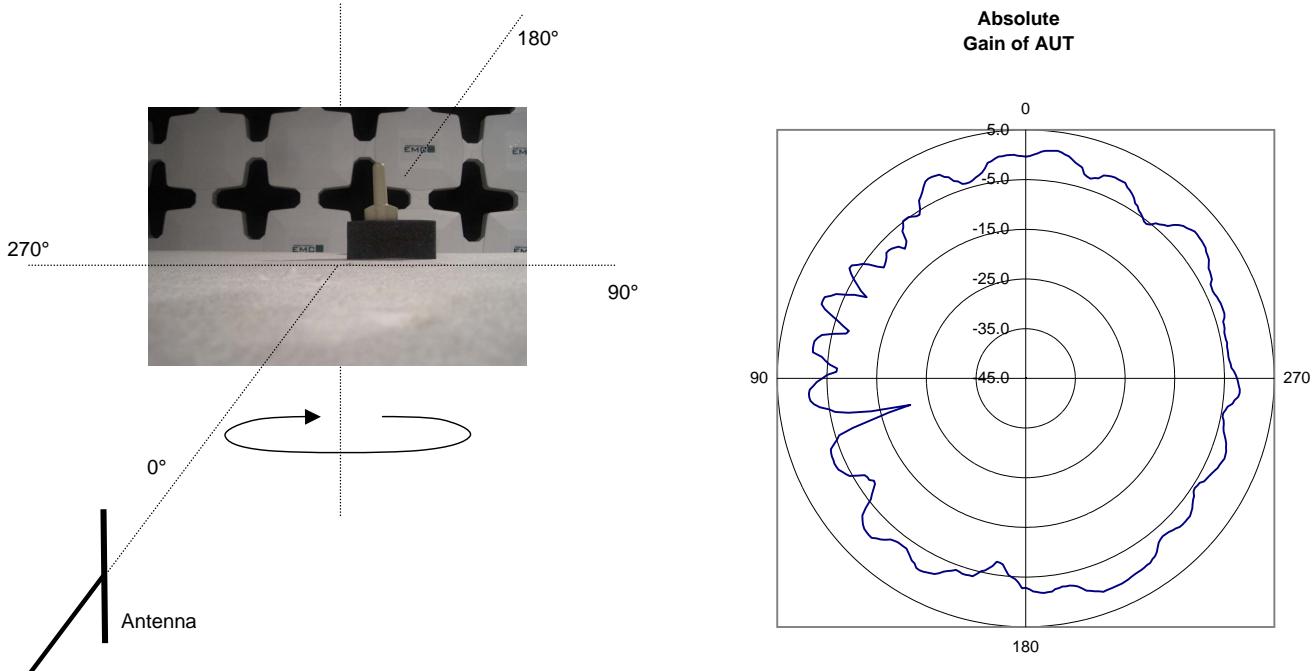
## EUT OPERATING MODES

10dBm by Signal Generator

## DEVIATIONS FROM TEST STANDARD

Run #	9
Configuration #	1
Results	

*[Signature]*



Frequency	2440.00
Absolute Gain of Reference Antenna (dBi)	9.23
Reference Antenna Relative Gain Max (dBuV/m)	106.10
AUT Relative Gain Max (dBuV/m)	98.10
Difference (Reference Antenna - AUT) (dB)	8.00
AUT Setup Loss (dB)	0.00
<b>Maximum Absolute Gain of AUT (dBi)</b>	<b>1.23</b>
Correction Factor (Convert From Relative to Absolute Gain) (dB)	96.87
Measurement Antenna Polarity	Vertical
Antenna Under Test (AUT) Polarity	Vertical

NORTHWEST

EMC

## ABSOLUTE GAIN DATA SHEET

EUT:	OneWireless Adapter for wired HART Devices, Model: OWA 100	Work Order:	HONE0057
Serial Number:	None	Date:	10/18/10
Customer:	Honeywell	Temperature:	22.42 °C
Attendees:	David Shipley	Humidity:	44%
Project:	None	Barometric Pres.:	1011.2
Tested by:	Jaemi Suh	Job Site:	OC10

## TEST SPECIFICATIONS

Test Method

## TEST PARAMETERS

Antenna Height(s) (m)		Test Distance (m)	3
-----------------------	--	-------------------	---

## COMMENTS

Antenna only powered by signal generator.

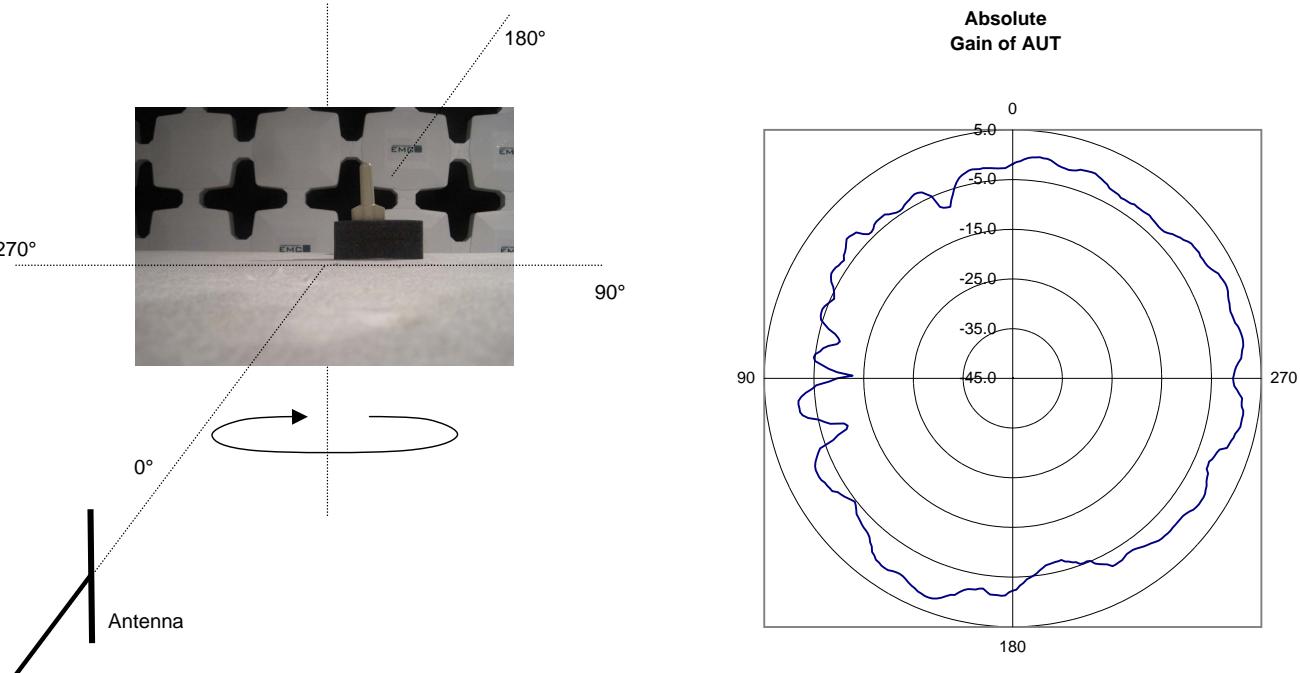
## EUT OPERATING MODES

10dBm by Signal Generator

## DEVIATIONS FROM TEST STANDARD

Run #	10	
Configuration #	1	
Results		

Signature



Frequency	2475.00
Absolute Gain of Reference Antenna (dBi)	9.33
Reference Antenna Relative Gain Max (dBuV/m)	106.10
AUT Relative Gain Max (dBuV/m)	99.00
Difference (Reference Antenna - AUT) (dB)	7.10
AUT Setup Loss (dB)	0.00
<b>Maximum Absolute Gain of AUT (dBi)</b>	<b>2.23</b>
Correction Factor (Convert From Relative to Absolute Gain) (dB)	96.77
Measurement Antenna Polarity	Vertical
Antenna Under Test (AUT) Polarity	Vertical

NORTHWEST

EMC

## ABSOLUTE GAIN DATA SHEET

EUT:	OneWireless Adapter for wired HART Devices, Model: OWA 100	Work Order:	HONE0057
Serial Number:	None	Date:	10/18/10
Customer:	Honeywell	Temperature:	22.42 °C
Attendees:	David Shipley	Humidity:	44%
Project:	None	Barometric Pres.:	1011.2
Tested by:	Jaemi Suh	Job Site:	OC10

## TEST SPECIFICATIONS

Test Method

## TEST PARAMETERS

Antenna Height(s) (m)	Test Distance (m)	3
-----------------------	-------------------	---

## COMMENTS

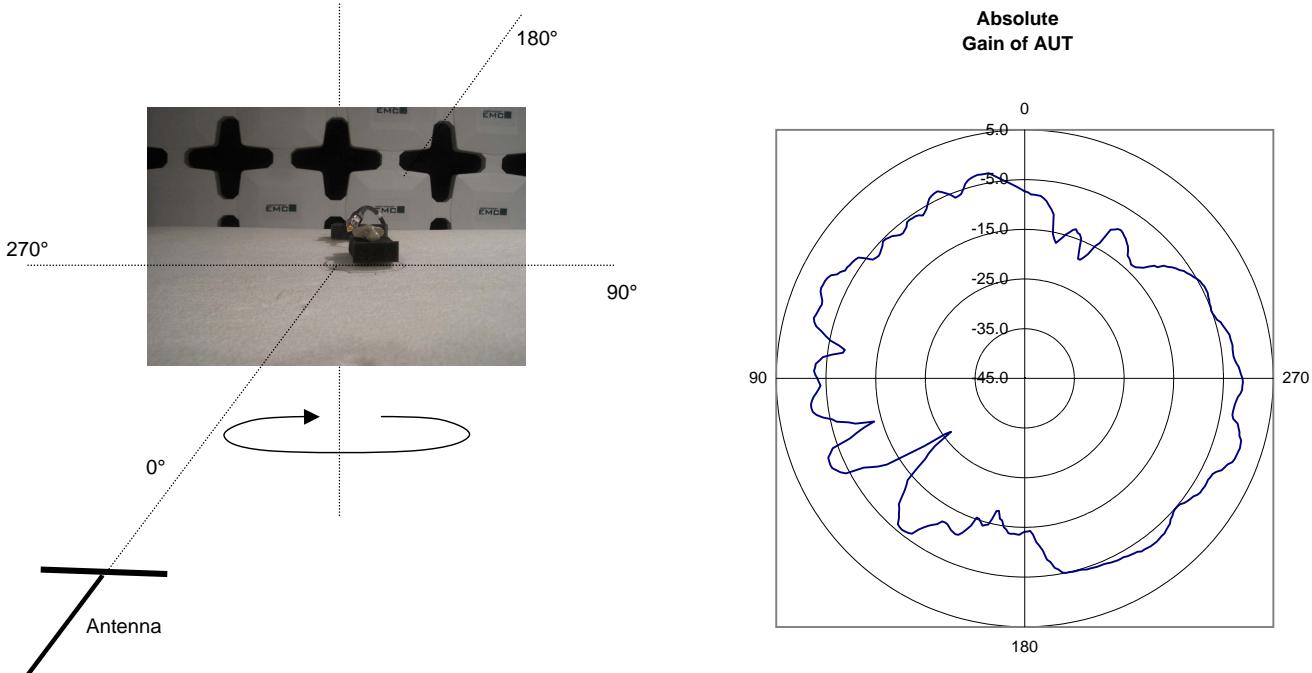
Antenna only powered by signal generator.

## EUT OPERATING MODES

10dBm by Signal Generator

## DEVIATIONS FROM TEST STANDARD

Run #	11
Configuration #	1
Results	

*[Signature]*

Frequency	2475.00
Absolute Gain of Reference Antenna (dBi)	9.33
Reference Antenna Relative Gain Max (dBuV/m)	106.00
AUT Relative Gain Max (dBuV/m)	97.20
Difference (Reference Antenna - AUT) (dB)	8.80
AUT Setup Loss (dB)	0.00
<b>Maximum Absolute Gain of AUT (dBi)</b>	<b>0.53</b>
Correction Factor (Convert From Relative to Absolute Gain) (dB)	96.67
Measurement Antenna Polarity	Horizontal
Antenna Under Test (AUT) Polarity	Horizontal

