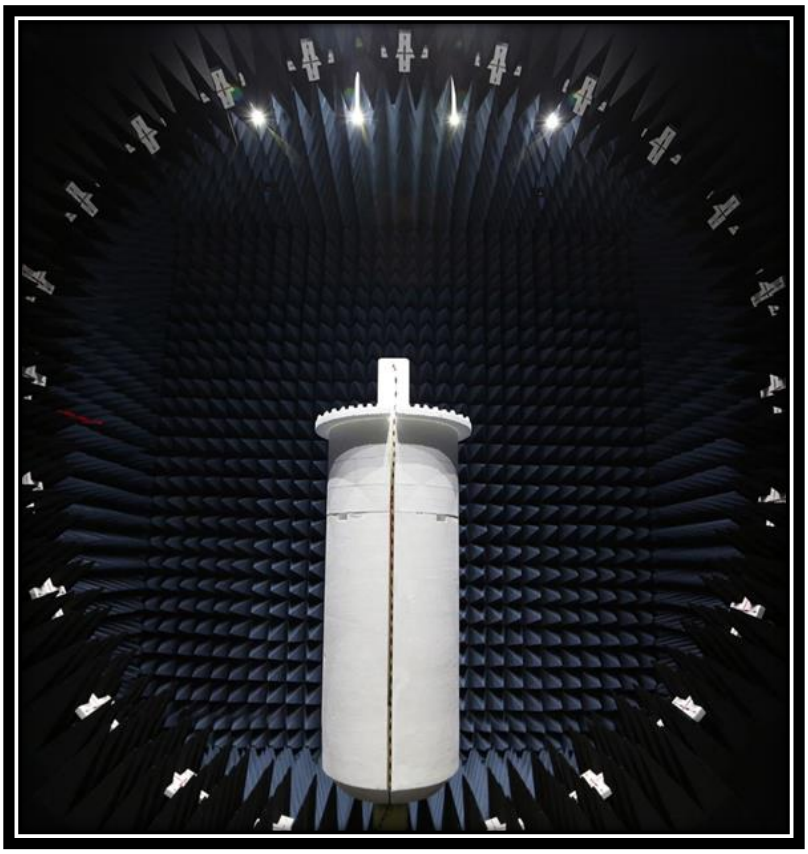
Exigent Sensors LLC

Omni 2.0

Antenna Pattern Measurements

Report: EXIG0024.1 Rev. 1, Issue Date: December 12, 2024



Approved by:

Johnny Candelas, Operations Manager

TABLE OF CONTENTS

element
2023.04.17

Section	Page Number

REVISION HISTORY

Revision Number	Description	Date (yyyy-mm-dd)	Page Number
01	Added picture of internal antenna	2024-11-26	6
	Added configurations page	2024-11-26	7
	Added test description page, including test equipment	2024-11-26	9

ACCREDITATIONS AND AUTHORIZATIONS

element
2021.09.01

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.

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.

European Union

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

United Kingdom

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

Australia/New Zealand

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

Korea

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

Japan

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

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.

Singapore

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

Israel

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

Hong Kong

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

Vietnam

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

SCOPE

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

California Minnesota Oregon Texas Washington

FACILITIES

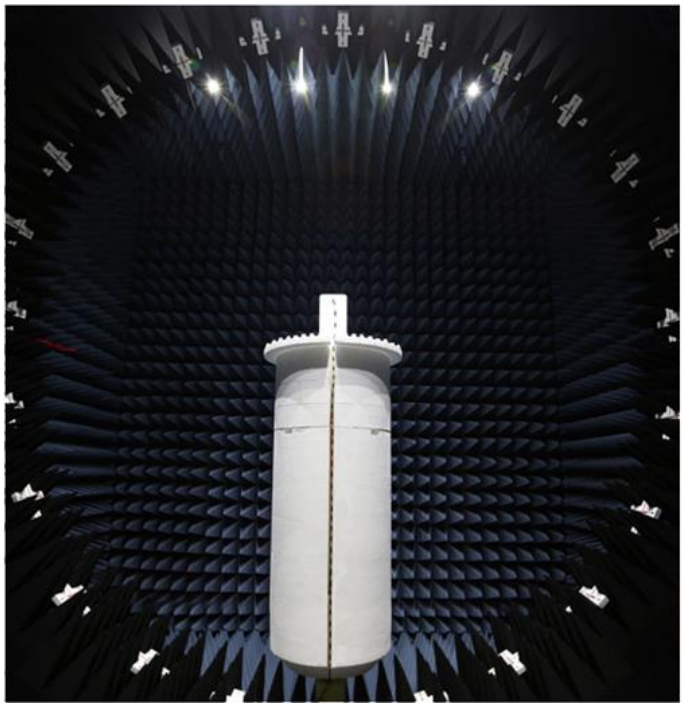
element
2024.08.21

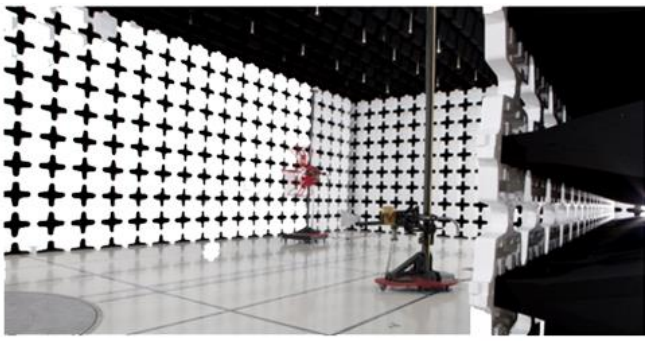
Testing was performed at the following location(s)

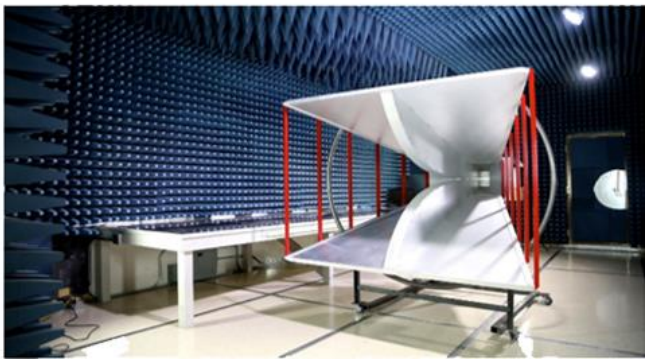
	Location	Labs (1)	Address	A2LA (2)	ISED (3)	BSMI (4)	VCCI (5)	CAB (6)	FDA (7)
☒	California	OC01-17	41 Tesla Irvine, CA 92618 (949) 861-8918	3310.04	2834B	SL2-IN-E-1154R	A-0029	US0158	TL-55
☐	Minnesota	MN01-11	9349 W Broadway Ave. Brooklyn Park, MN 55445 (612) 638-5136	3310.05	2834E	SL2-IN-E-1152R	A-0109	US0175	TL-57
☐	Oregon	EV01-12	6775 NE Evergreen Pkwy #400 Hillsboro, OR 97124 (503) 844-4066	3310.02	2834D	SL2-IN-E-1017	A-0108	US0017	TL-56
☐	Plano Texas	PT01-15	1701 E Plano Pkwy, Ste 150 Plano, TX 75074 (972) 509-2566	214.19	32637	SL2-IN-E-057R	A-0426	US0054	N/A
☐	Texas	TX01-09	3801 E Plano Pkwy Plano, TX 75074 (469) 304-5255	3310.03	2834G	SL2-IN-E-1158R	N/A	US0191	TL-54
☐	Washington	NC01-05	19201 120th Ave NE Bothell, WA 98011 (425) 984-6600	3310.06	2834F	SL2-IN-E-1153R	A-0110	US0157	TL-67
☐	Offsite	N/A	See Product Description	N/A	N/A	N/A	N/A	N/A	N/A

See data sheets for specific labs

(1) The lab designations denote individual rooms within each location. (OC01, OC02, OC03, etc.)
(2) A2LA Certificate No.
(3) ISED Company No.
(4) BSMI No.
(5) VCCI Site Filing No.
(6) CAB Identifier. Recognized Phase I CAB for ISED, ACMA, BSMI, IDA, KCC/RRA, MIC, MOC, NCC, OFCA
(7) FDA ASCA No.







PRODUCT DESCRIPTION

Client and Equipment under Test (EUT) Information

Company Name:	Exigent Sensors LLC
Address:	11441 Markon Dr #1402
City, State, Zip:	Garden Grove, CA 92841
Test Requested By:	Chad Christensen
EUT:	Omni 2.0
First Date of Test:	August 21, 2024
Last Date of Test:	August 21, 2024
Receipt Date of Samples:	August 21, 2024
Equipment Design Stage:	Production
Equipment Condition:	No Damage
Purchase Authorization:	Verified

Information Provided by the Party Requesting the Test

Functional Description of the EUT:

A photoelectric smoke and carbon monoxide alarm with a supplemental heat detector, designed for residential environments to detect dangerous levels of smoke, carbon monoxide, and heat. The device includes wireless interconnectivity, allowing it to alert nearby alarms. It operates using a proprietary radio protocol in the 902 - 928 MHz frequency band.

Testing Objective:

To obtain 3D antenna pattern measurements and calculated antenna performance values (gain, 3dB Beamwidth, etc)

Antenna Photo:

CONFIGURATIONS

Configuration EXIG0024-4

EUT			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
OMNI 2.0	Exigent Sensors LLC	OSSCO20AC	E7

MODIFICATIONS

Equipment Modifications

Item	Date	Test	Modification	Note	Disposition of EUT
1	2024-08-21	Active 3D Antenna Pattern Measurements	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Element following the test.

2D ANTENNA PATTERN MEASUREMENTS

PSA-ESCI 2023.04.25.0

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

Sig Gen transmitting: 905.2 MHz, CW, 0 dB
Sig Gen transmitting: 913.2 MHz, CW, 0 dB

POWER SETTINGS INVESTIGATED

Battery

CONFIGURATIONS INVESTIGATED

EXIG0024-4

FREQUENCY RANGE INVESTIGATED

Start Frequency	902 MHz	Stop Frequency	915 MHz

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Cal. Due
Analyzer - Spectrum Analyzer	Agilent	N9010A	AFJ	2024-02-14	2025-02-14
Cable	ESM Cable Corp.	30-1GHz Cables	OCW	2023-12-29	2024-12-29
Antenna - Biconilog	EMCO	3142	AXA	2024-01-05	2026-01-05
Antenna - Dipole	A.H. Systems, Inc.	FCC-4	ADCA	2023-08-23	2025-08-23
Power Sensor	Agilent	E4412A	SQE	2023-12-06	2024-12-06
Meter - Power	Hewlett Packard	E4418A	SPQ	2023-12-06	2024-12-06
Generator - Signal	Agilent	E8257D	TGU	2023-11-08	2026-11-08

TEST DESCRIPTION

was covered with RF absorbing cones. The reference antenna and EUT were placed on a block of approximately 1.8 m low permittivity foam.

A direct connect sample of the AUT was configured to transmit at Low and High channels. The output power of the conducted sample was mesaured and recorded in this report.

A signal generator was connected to the reference antenna with a low loss RF cable. To minimize the influence of the RF cable in the radiating pattern, the cable was lined with snap on ferrites at a separating distance of 10 cm.

A CW tone was then provided to the calibrated reference antenna and reference scan was then collected at the frequencies noted in this test report. The amplitude of the CW tone was measured and adjusted until it was confirmed to be the same level that was measured on the conducted sample.

Using the same test setup, the antenna under test (AUT) was placed into the chamber.

A polar plot was then collected at the antenna height of maximum field strength. This plot was then compared to the reference antenna scan. Using the antenna gain (dBi) of the reference antenna the absolute gain of the AUT was calculated.

RELATIVE GAIN

EmiR5 2023.08.29.0 PSA-ESCI 2023.12.23.0

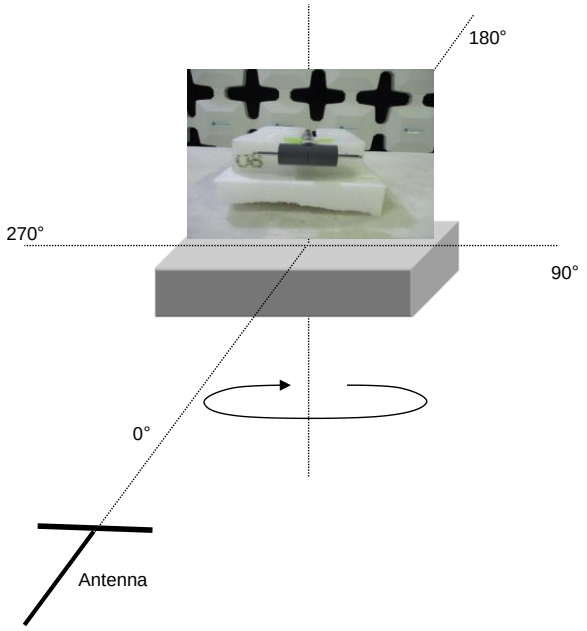
Work Order:	EXIG0024	**Date:**	2024-08-21		
Project:	None	**Temperature:**	24.9°C		
Job Site:	OC07	**Humidity:**	43.80%		
Serial Number:	E7	**Barometric Pres.:**	1013 mbar	**Tested by:**	Nolan De Ramos
EUT:	Omni 2.0				
Configuration:	EXIG0024-4				
Customer:	Exigent Sensors LLC				
Attendees:	Kevin Tain				
EUT Power:	Battery				
Operating Mode:	Sig Gen transmitting: 905.2 MHz, CW, 0 dB				
Deviations:	None				
Comments:	6 dB attenuator				

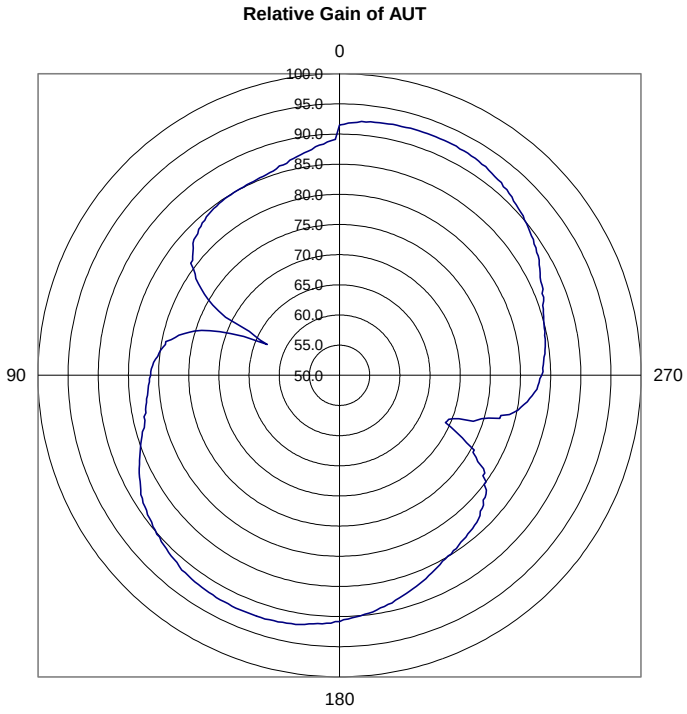
Frequency (MHz) **905.2**

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

Maximum Amplitude (dBuV/m) **92.63156**
Azimuth at Maximum **343°**
Minimum Amplitude (dBuV/m) **63.03156**
Azimuth at Minimum **66°**
3 dB Beamwidth **54°**

Run #	44	**Test Distance (m)**	3	**Antenna Height(s)**	1.5		





RELATIVE GAIN

EmiR5 2023.08.29.0 PSA-ESCI 2023.12.23.0

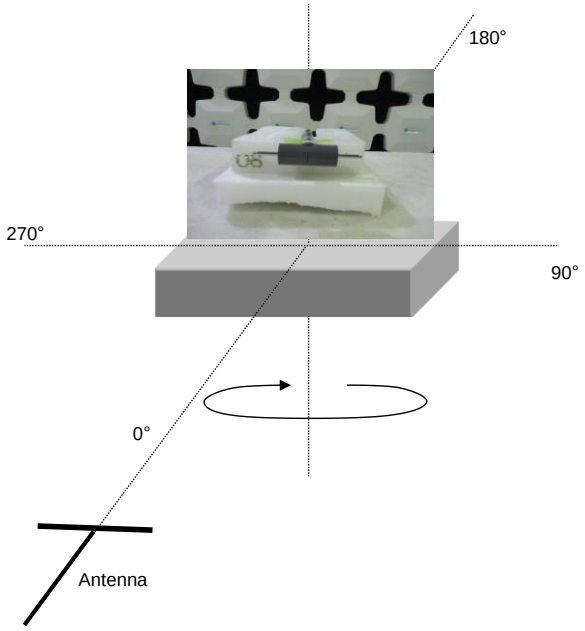
Work Order:	EXIG0024	**Date:**	2024-08-21		
Project:	None	**Temperature:**	24.9°C		
Job Site:	OC07	**Humidity:**	43.80%		
Serial Number:	E7	**Barometric Pres.:**	1013 mbar	**Tested by:**	Nolan De Ramos
EUT:	Omni 2.0				
Configuration:	EXIG0024-4				
Customer:	Exigent Sensors LLC				
Attendees:	Kevin Tain				
EUT Power:	Battery				
Operating Mode:	Sig Gen transmitting: 913.2 MHz, CW, 0 dB				
Deviations:	None				
Comments:	6 dB attenuator				

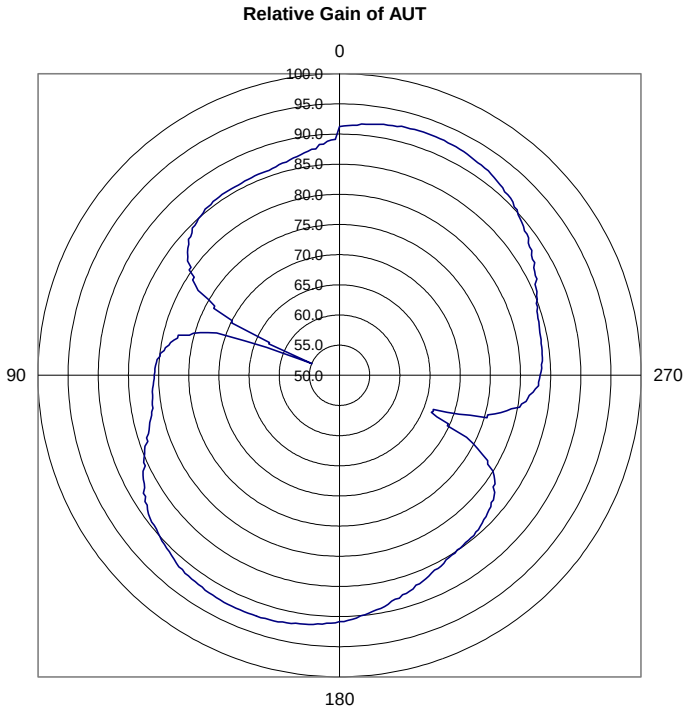
Frequency (MHz) **913.2**

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

Maximum Amplitude (dBuV/m) **92.64096**
Azimuth at Maximum **342°**
Minimum Amplitude (dBuV/m) **54.94096**
Azimuth at Minimum **66°**
3 dB Beamwidth **50°**

Run #	45	**Test Distance (m)**	3	**Antenna Height(s)**	1.5		





RELATIVE GAIN

EmiR5 2023.08.29.0 PSA-ESCI 2023.12.23.0

Work Order:	EXIG0024	**Date:**	2024-08-21		
Project:	None	**Temperature:**	24.9°C		
Job Site:	OC07	**Humidity:**	43.80%		
Serial Number:	E7	**Barometric Pres.:**	1013 mbar	**Tested by:**	Nolan De Ramos
EUT:	Omni 2.0				
Configuration:	EXIG0024-4				
Customer:	Exigent Sensors LLC				
Attendees:	Kevin Tain				
EUT Power:	Battery				
Operating Mode:	Sig Gen transmitting: 905.2 MHz, CW, 0 dB				
Deviations:	None				
Comments:	6 dB attenuator				

Frequency (MHz) **905.2**

Measurement Antenna Polarity **Vertical**

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

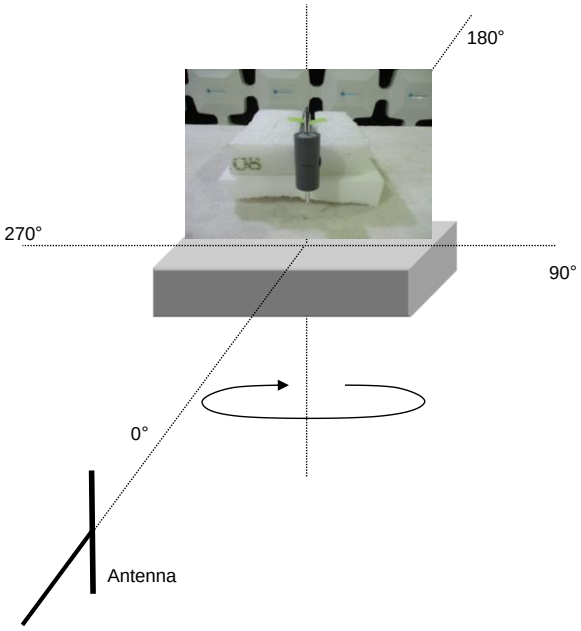
Maximum Amplitude (dBuV/m) **89.53156**

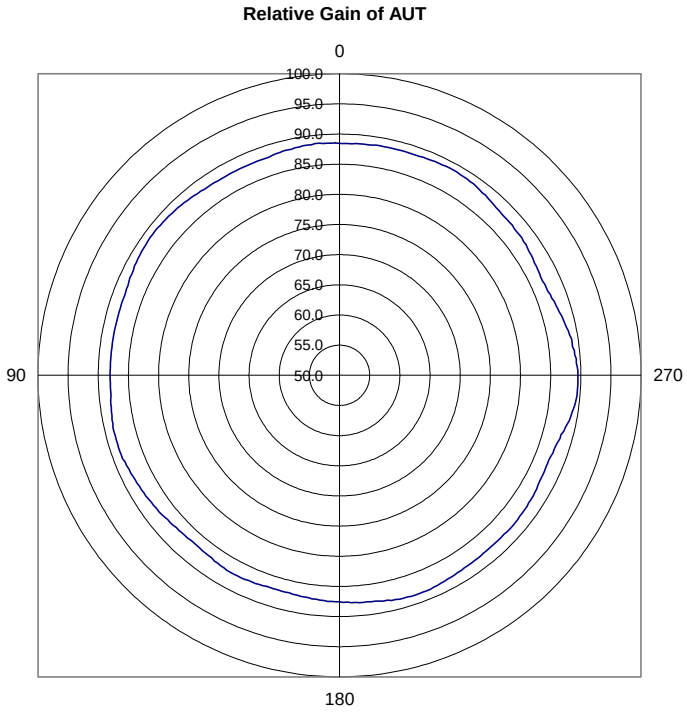
Azimuth at Maximum **270°**

Minimum Amplitude (dBuV/m) **86.83156**

Azimuth at Minimum **140°**

Run #	46	**Test Distance (m)**	3	**Antenna Height(s)**	1.5		





RELATIVE GAIN

EmiR5 2023.08.29.0 PSA-ESCI 2023.12.23.0

Work Order:	EXIG0024	**Date:**	2024-08-21		
Project:	None	**Temperature:**	24.9°C		
Job Site:	OC07	**Humidity:**	43.80%		
Serial Number:	E7	**Barometric Pres.:**	1013 mbar	**Tested by:**	Nolan De Ramos
EUT:	Omni 2.0				
Configuration:	EXIG0024-4				
Customer:	Exigent Sensors LLC				
Attendees:	Kevin Tain				
EUT Power:	Battery				
Operating Mode:	Sig Gen transmitting: 913.2 MHz, CW, 0 dB				
Deviations:	None				
Comments:	6 dB attenuator				

Frequency (MHz) **913.2**

Measurement Antenna Polarity **Vertical**

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

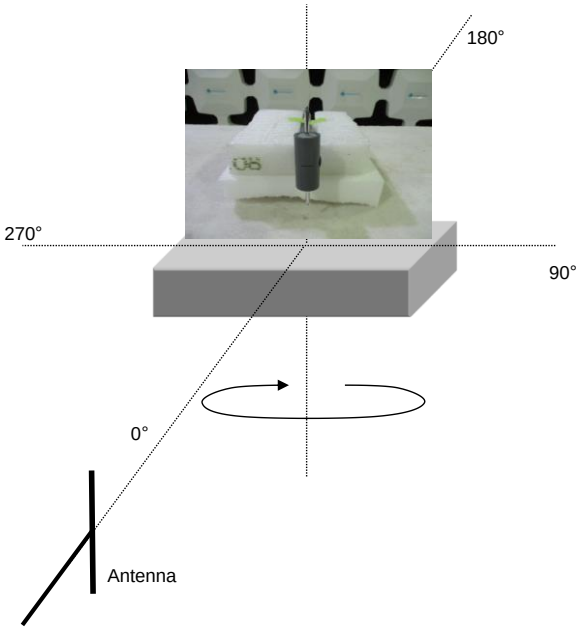
Maximum Amplitude (dBuV/m) **90.04096**

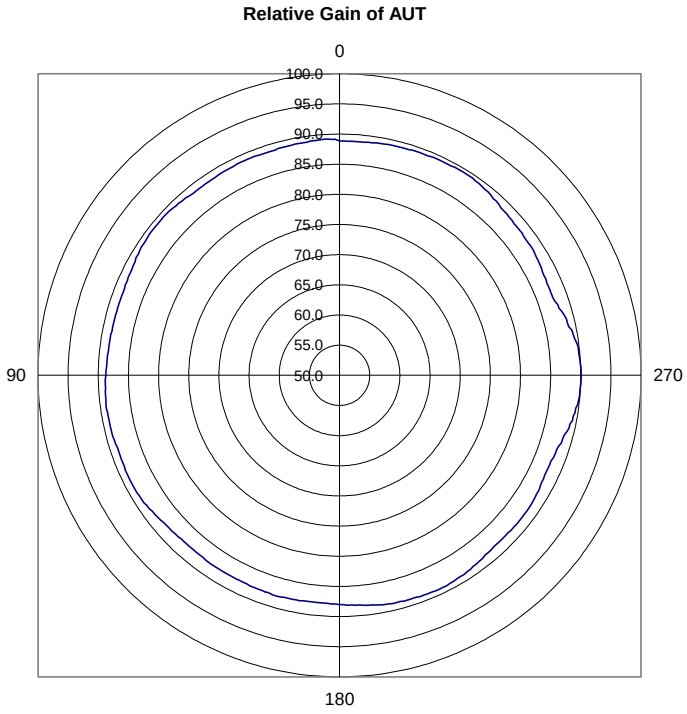
Azimuth at Maximum **271°**

Minimum Amplitude (dBuV/m) **87.64096**

Azimuth at Minimum **293°**

Run #	47	**Test Distance (m)**	3	**Antenna Height(s)**	1.5		





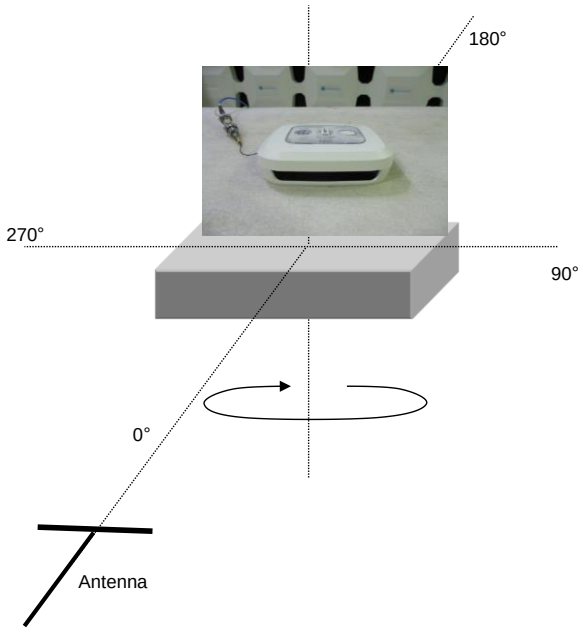
ABSOLUTE GAIN

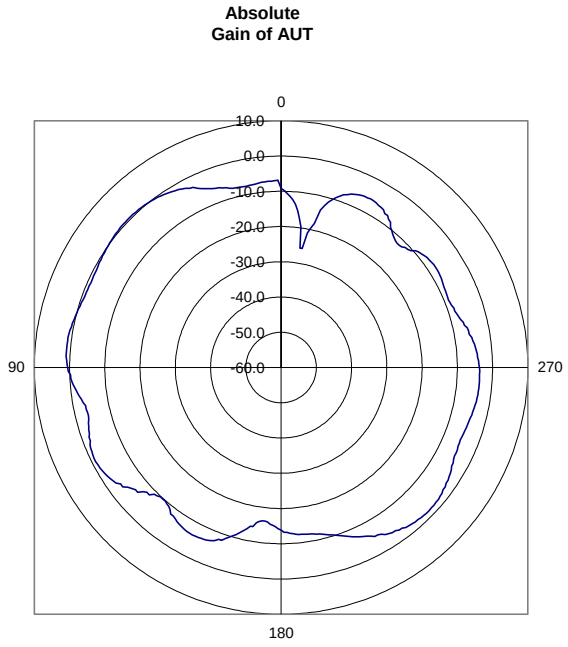
EmiR5 2023.08.29.0 PSA-ESCI 2023.12.23.0

Work Order:	EXIG0024	**Date:**	2024-08-21		
Project:	None	**Temperature:**	24.9°C		
Job Site:	OC07	**Humidity:**	43.80%		
Serial Number:	E7	**Barometric Pres.:**	1013 mbar	**Tested by:**	Nolan De Ramos
EUT:	Omni 2.0				
Configuration:	EXIG0024-4				
Customer:	Exigent Sensors LLC				
Attendees:	Kevin Tain				
EUT Power:	Battery				
Operating Mode:	Sig Gen transmitting: 905.2 MHz, CW, 0 dB				
Deviations:	None				
Comments:	6 dB attenuator				

Frequency	**905.2**	Absolute Gain of Reference Antenna (dBi)	0.95
Measurement Antenna Polarity	**Horizontal**	Reference Antenna Relative Gain Max (dBuV/m)	92.63
Antenna Under Test (AUT) Polarity	**Horizontal**	AUT Relative Gain Max (dBuV/m)	92.63
Maximum Absolute Gain of AUT (dBi)	**1.05**	Difference (Reference Antenna - AUT) (dB)	0.00
Average Absolute Gain of AUT (dBi)	**-5.85**	AUT Setup Loss (dB)	**0.1**
		Correction Factor (Convert Relative to Absolute Gain) (dB)	**91.58**
3 dB Beamwidth	**69°**		

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





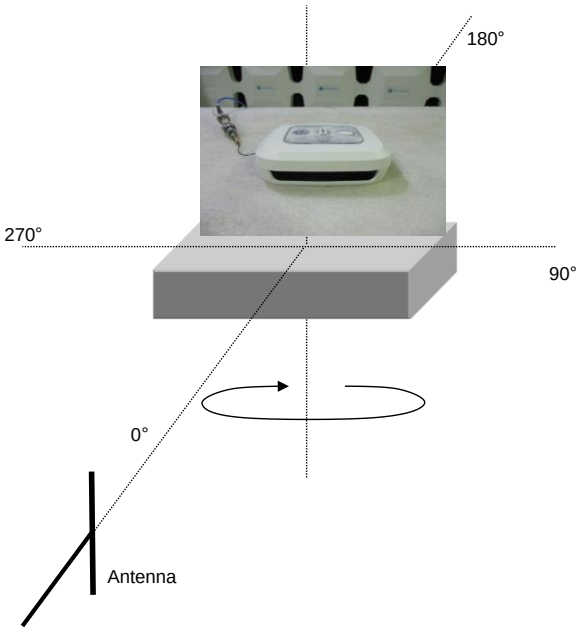
ABSOLUTE GAIN

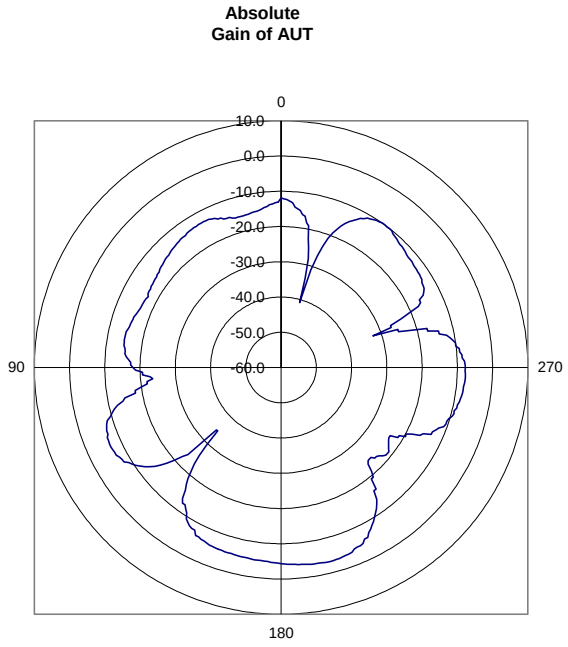
EmiR5 2023.08.29.0 PSA-ESCI 2023.12.23.0

Work Order:	EXIG0024	**Date:**	2024-08-21		
Project:	None	**Temperature:**	24.9°C		
Job Site:	OC07	**Humidity:**	43.80%		
Serial Number:	E7	**Barometric Pres.:**	1013 mbar	**Tested by:**	Nolan De Ramos
EUT:	Omni 2.0				
Configuration:	EXIG0024-4				
Customer:	Exigent Sensors LLC				
Attendees:	Kevin Tain				
EUT Power:	Battery				
Operating Mode:	Sig Gen transmitting: 905.2 MHz, CW, 0 dB				
Deviations:	None				
Comments:	6 dB attenuator				

Frequency	**905.2**	Absolute Gain of Reference Antenna (dBi)	0.95
Measurement Antenna Polarity	**Vertical**	Reference Antenna Relative Gain Max (dBuV/m)	89.53
Antenna Under Test (AUT) Polarity	**Horizontal**	AUT Relative Gain Max (dBuV/m)	85.23
Maximum Absolute Gain of AUT (dBi)	**-3.25**	Difference (Reference Antenna - AUT) (dB)	4.30
Average Absolute Gain of AUT (dBi)	**-13.42**	AUT Setup Loss (dB)	**0.1**
		Correction Factor (Convert Relative to Absolute Gain) (dB)	**88.48**
3 dB Beamwidth	**53°**		

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





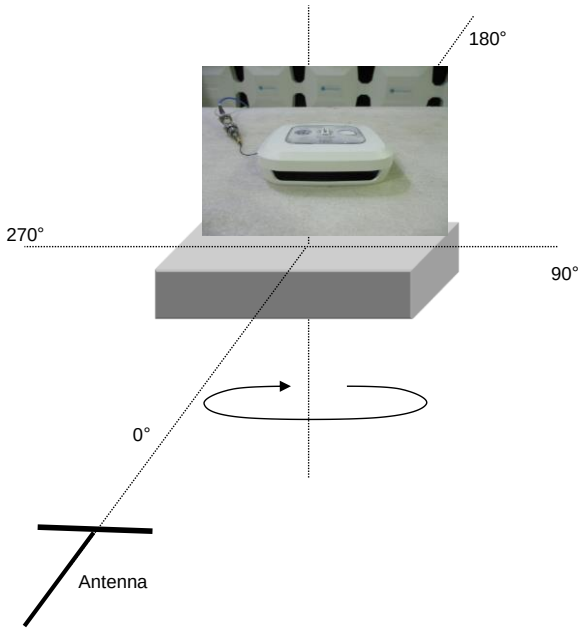
ABSOLUTE GAIN

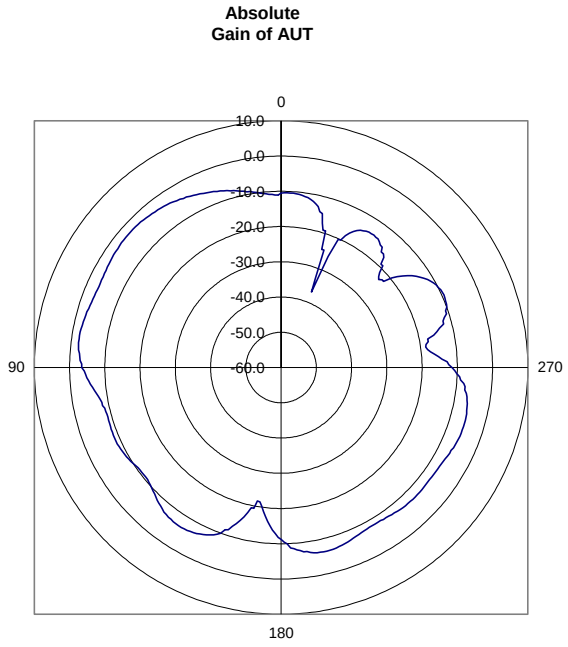
EmiR5 2023.08.29.0 PSA-ESCI 2023.12.23.0

Work Order:	EXIG0024	**Date:**	2024-08-21		
Project:	None	**Temperature:**	24.9°C		
Job Site:	OC07	**Humidity:**	43.80%		
Serial Number:	E7	**Barometric Pres.:**	1013 mbar	**Tested by:**	Nolan De Ramos
EUT:	Omni 2.0				
Configuration:	EXIG0024-4				
Customer:	Exigent Sensors LLC				
Attendees:	Kevin Tain				
EUT Power:	Battery				
Operating Mode:	Sig Gen transmitting: 913.2 MHz, CW, 0 dB				
Deviations:	None				
Comments:	6 dB attenuator				

Frequency	**913.2**	Absolute Gain of Reference Antenna (dBi)	0.87
Measurement Antenna Polarity	**Horizontal**	Reference Antenna Relative Gain Max (dBuV/m)	92.64
Antenna Under Test (AUT) Polarity	**Horizontal**	AUT Relative Gain Max (dBuV/m)	89.54
Maximum Absolute Gain of AUT (dBi)	**-2.13**	Difference (Reference Antenna - AUT) (dB)	3.10
Average Absolute Gain of AUT (dBi)	**-9.28**	AUT Setup Loss (dB)	**0.1**
		Correction Factor (Convert Relative to Absolute Gain) (dB)	**91.67**
3 dB Beamwidth	**67°**		

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





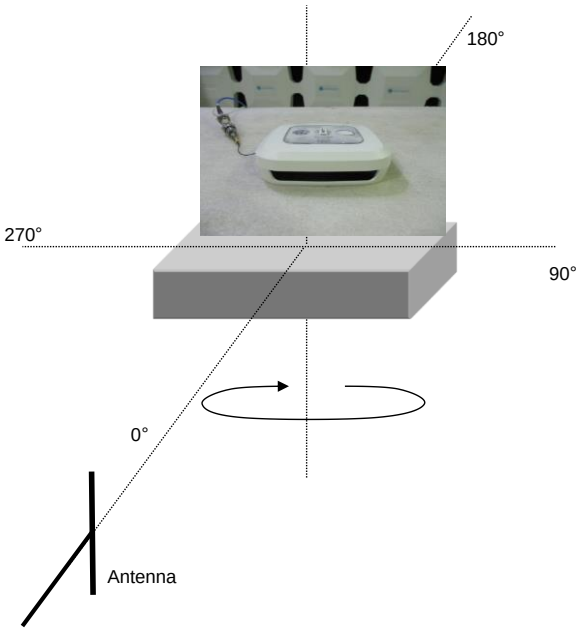
ABSOLUTE GAIN

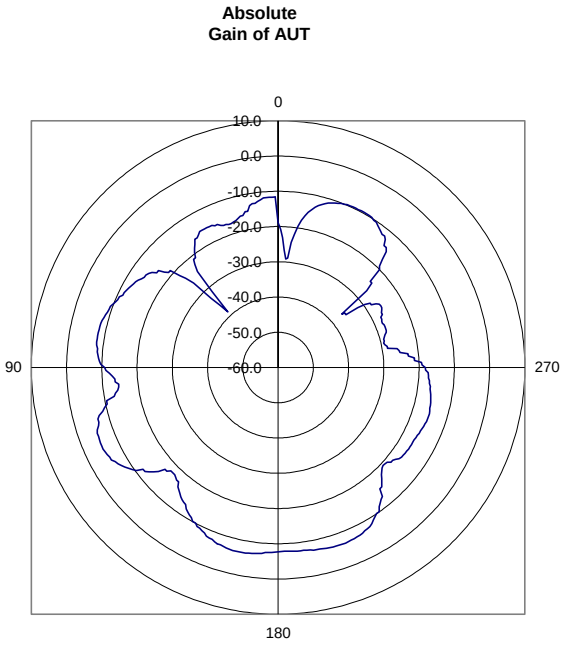
EmiR5 2023.08.29.0 PSA-ESCI 2023.12.23.0

Work Order:	EXIG0024	**Date:**	2024-08-21		
Project:	None	**Temperature:**	24.9°C		
Job Site:	OC07	**Humidity:**	43.80%		
Serial Number:	E7	**Barometric Pres.:**	1013 mbar	**Tested by:**	Nolan De Ramos
EUT:	Omni 2.0				
Configuration:	EXIG0024-4				
Customer:	Exigent Sensors LLC				
Attendees:	Kevin Tain				
EUT Power:	Battery				
Operating Mode:	Sig Gen transmitting: 913.2 MHz, CW, 0 dB				
Deviations:	None				
Comments:	6 dB attenuator				

Frequency	**913.2**	Absolute Gain of Reference Antenna (dBi)	0.87
Measurement Antenna Polarity	**Vertical**	Reference Antenna Relative Gain Max (dBuV/m)	90.04
Antenna Under Test (AUT) Polarity	**Horizontal**	AUT Relative Gain Max (dBuV/m)	83.94
Maximum Absolute Gain of AUT (dBi)	**-5.23**	Difference (Reference Antenna - AUT) (dB)	6.10
Average Absolute Gain of AUT (dBi)	**-14.52**	AUT Setup Loss (dB)	**0**
		Correction Factor (Convert Relative to Absolute Gain) (dB)	**89.17**
3 dB Beamwidth	**20°**		

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





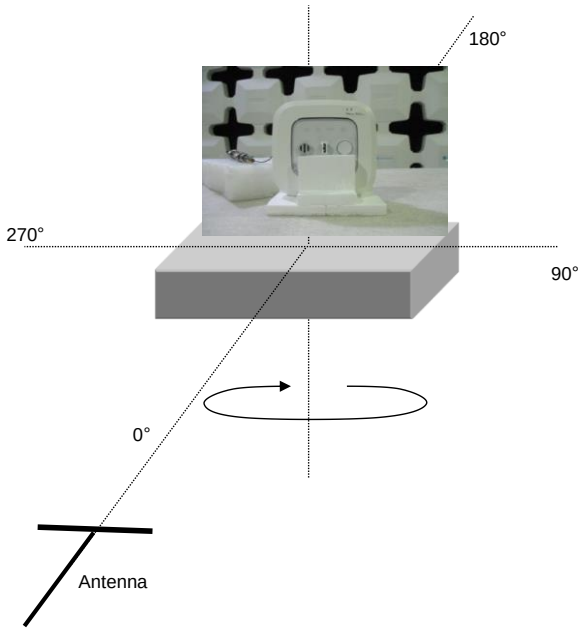
ABSOLUTE GAIN

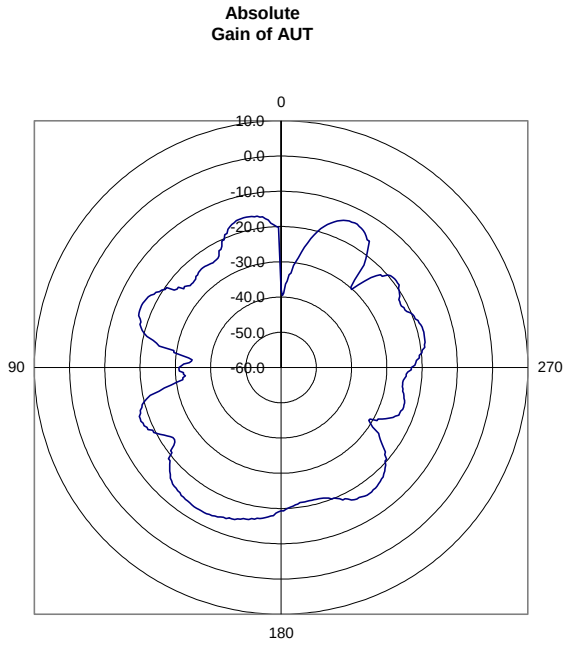
EmiR5 2023.08.29.0 PSA-ESCI 2023.12.23.0

Work Order:	EXIG0024	**Date:**	2024-08-21		
Project:	None	**Temperature:**	24.9°C		
Job Site:	OC07	**Humidity:**	43.80%		
Serial Number:	E7	**Barometric Pres.:**	1013 mbar	**Tested by:**	Nolan De Ramos
EUT:	Omni 2.0				
Configuration:	EXIG0024-4				
Customer:	Exigent Sensors LLC				
Attendees:	Kevin Tain				
EUT Power:	Battery				
Operating Mode:	Sig Gen transmitting: 905.2 MHz, CW, 0 dB				
Deviations:	None				
Comments:	6 dB attenuator				

Frequency	**905.2**	Absolute Gain of Reference Antenna (dBi)	0.95
Measurement Antenna Polarity	**Horizontal**	Reference Antenna Relative Gain Max (dBuV/m)	92.63
Antenna Under Test (AUT) Polarity	**Vertical**	AUT Relative Gain Max (dBuV/m)	78.23
Maximum Absolute Gain of AUT (dBi)	**-13.45**	Difference (Reference Antenna - AUT) (dB)	14.40
Average Absolute Gain of AUT (dBi)	**-20.91**	AUT Setup Loss (dB)	**0**
		Correction Factor (Convert Relative to Absolute Gain) (dB)	**91.68**
3 dB Beamwidth	**38°**		

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





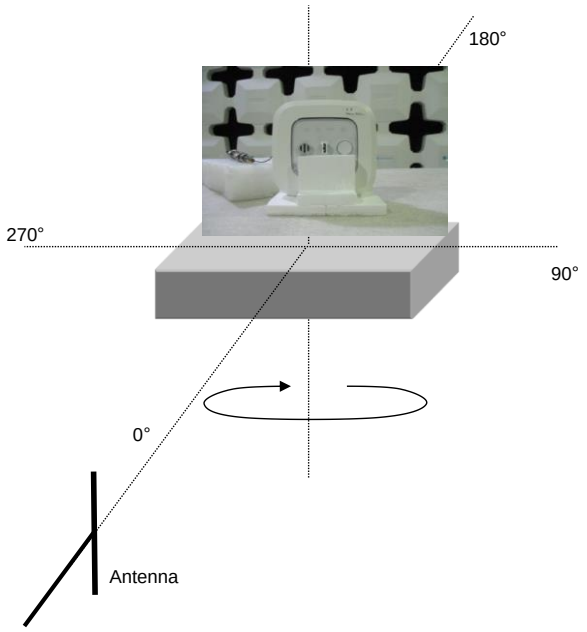
ABSOLUTE GAIN

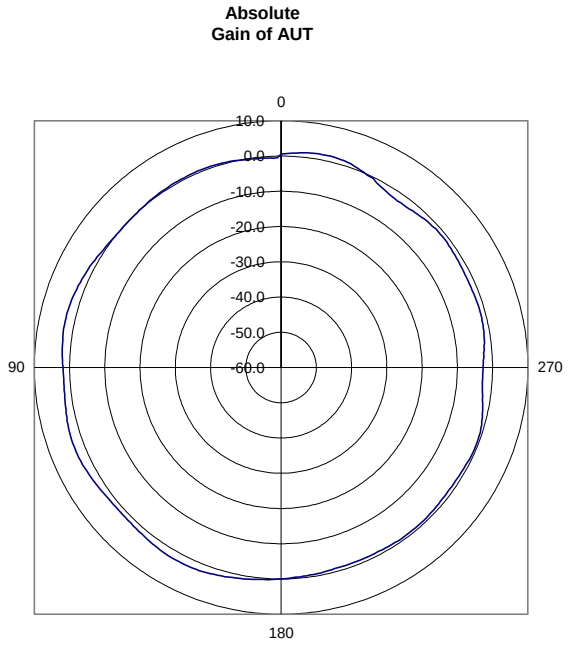
EmiR5 2023.08.29.0 PSA-ESCI 2023.12.23.0

Work Order:	EXIG0024	**Date:**	2024-08-21		
Project:	None	**Temperature:**	24.9°C		
Job Site:	OC07	**Humidity:**	43.80%		
Serial Number:	E7	**Barometric Pres.:**	1013 mbar	**Tested by:**	Nolan De Ramos
EUT:	Omni 2.0				
Configuration:	EXIG0024-4				
Customer:	Exigent Sensors LLC				
Attendees:	Kevin Tain				
EUT Power:	Battery				
Operating Mode:	Sig Gen transmitting: 905.2 MHz, CW, 0 dB				
Deviations:	None				
Comments:	6 dB attenuator				

Frequency	**905.2**	Absolute Gain of Reference Antenna (dBi)	0.95
Measurement Antenna Polarity	**Vertical**	Reference Antenna Relative Gain Max (dBuV/m)	89.53
Antenna Under Test (AUT) Polarity	**Vertical**	AUT Relative Gain Max (dBuV/m)	91.43
Maximum Absolute Gain of AUT (dBi)	**2.85**	Difference (Reference Antenna - AUT) (dB)	-1.90
Average Absolute Gain of AUT (dBi)	**0.20**	AUT Setup Loss (dB)	**0**
		Correction Factor (Convert Relative to Absolute Gain) (dB)	**88.58**
3 dB Beamwidth	**172°**		

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





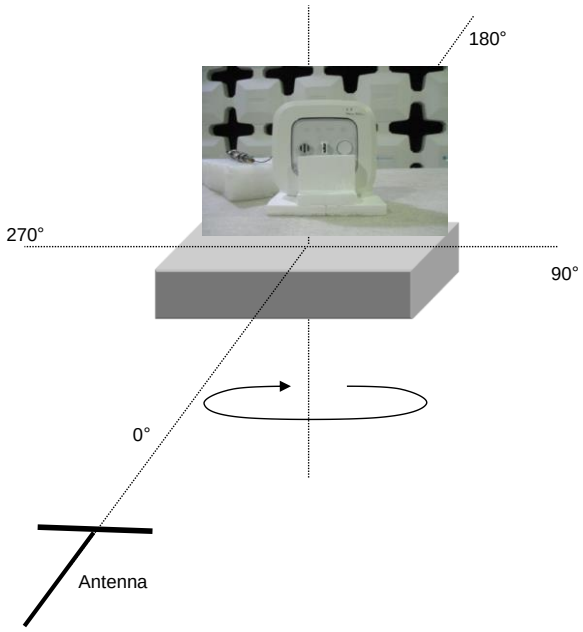
ABSOLUTE GAIN

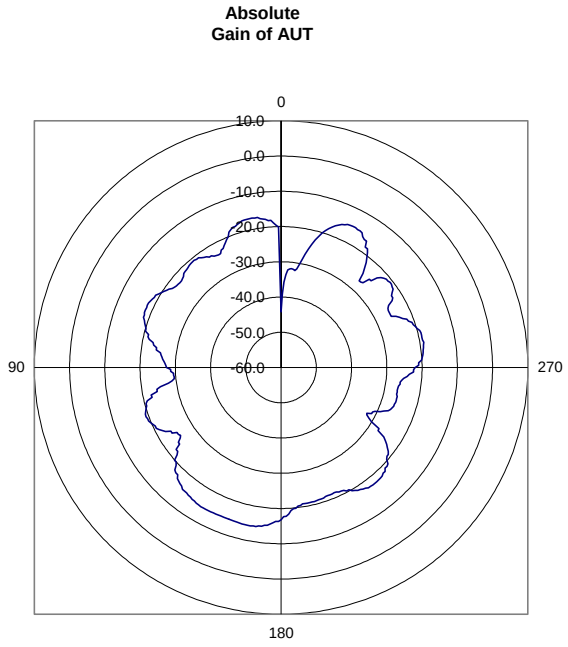
EmiR5 2023.08.29.0 PSA-ESCI 2023.12.23.0

Work Order:	EXIG0024	**Date:**	2024-08-21		
Project:	None	**Temperature:**	24.9°C		
Job Site:	OC07	**Humidity:**	43.80%		
Serial Number:	E7	**Barometric Pres.:**	1013 mbar	**Tested by:**	Nolan De Ramos
EUT:	Omni 2.0				
Configuration:	EXIG0024-4				
Customer:	Exigent Sensors LLC				
Attendees:	Kevin Tain				
EUT Power:	Battery				
Operating Mode:	Sig Gen transmitting: 913.2 MHz, CW, 0 dB				
Deviations:	None				
Comments:	6 dB attenuator				

Frequency	**913.2**	Absolute Gain of Reference Antenna (dBi)	0.87
Measurement Antenna Polarity	**Horizontal**	Reference Antenna Relative Gain Max (dBuV/m)	92.64
Antenna Under Test (AUT) Polarity	**Vertical**	AUT Relative Gain Max (dBuV/m)	77.54
Maximum Absolute Gain of AUT (dBi)	**-14.23**	Difference (Reference Antenna - AUT) (dB)	15.10
Average Absolute Gain of AUT (dBi)	**-21.23**	AUT Setup Loss (dB)	**0**
		Correction Factor (Convert Relative to Absolute Gain) (dB)	**91.77**
3 dB Beamwidth	**45°**		

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





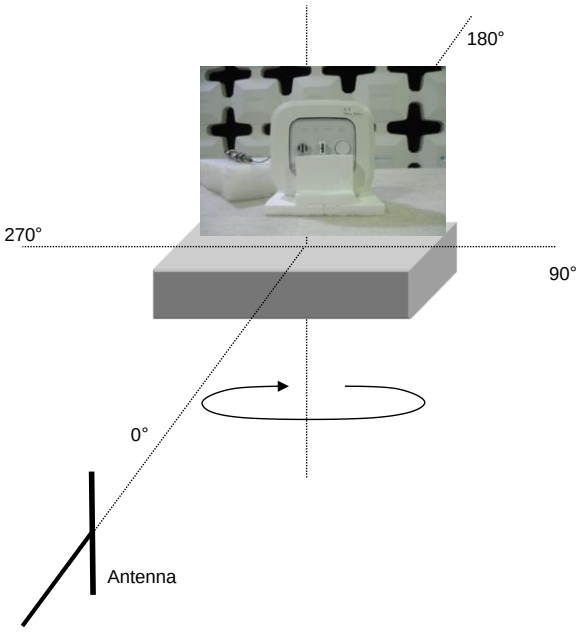
ABSOLUTE GAIN

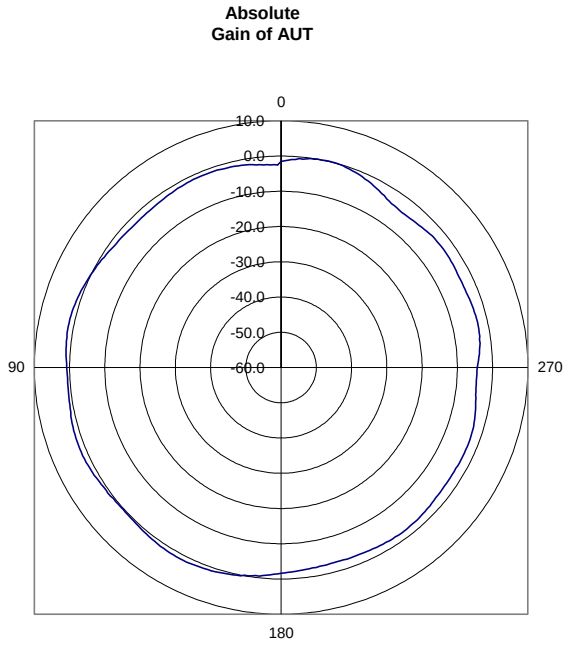
EmiR5 2023.08.29.0 PSA-ESCI 2023.12.23.0

Work Order:	EXIG0024	**Date:**	2024-08-21		
Project:	None	**Temperature:**	24.9°C		
Job Site:	OC07	**Humidity:**	43.80%		
Serial Number:	E7	**Barometric Pres.:**	1013 mbar	**Tested by:**	Nolan De Ramos
EUT:	Omni 2.0				
Configuration:	EXIG0024-4				
Customer:	Exigent Sensors LLC				
Attendees:	Kevin Tain				
EUT Power:	Battery				
Operating Mode:	Sig Gen transmitting: 913.2 MHz, CW, 0 dB				
Deviations:	None				
Comments:	6 dB attenuator				

Frequency	**913.2**	Absolute Gain of Reference Antenna (dBi)	0.87
Measurement Antenna Polarity	**Vertical**	Reference Antenna Relative Gain Max (dBuV/m)	90.04
Antenna Under Test (AUT) Polarity	**Vertical**	AUT Relative Gain Max (dBuV/m)	90.74
Maximum Absolute Gain of AUT (dBi)	**1.57**	Difference (Reference Antenna - AUT) (dB)	-0.70
Average Absolute Gain of AUT (dBi)	**-1.31**	AUT Setup Loss (dB)	**0**
		Correction Factor (Convert Relative to Absolute Gain) (dB)	**89.17**
3 dB Beamwidth	**125°**		

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





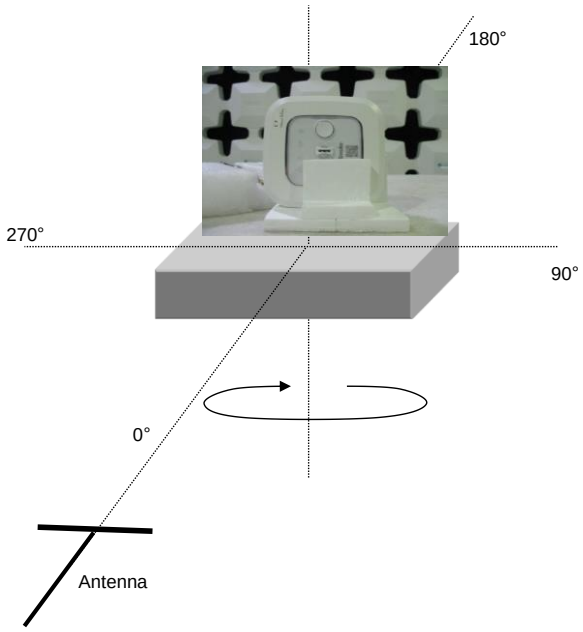
ABSOLUTE GAIN

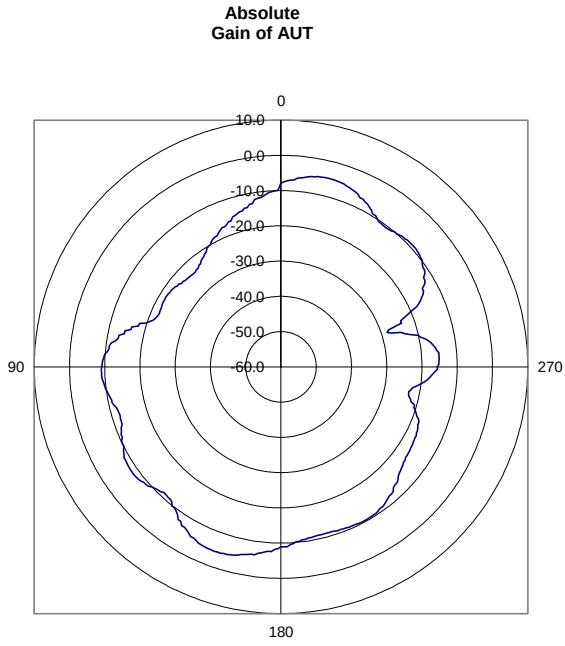
EmiR5 2023.08.29.0 PSA-ESCI 2023.12.23.0

Work Order:	EXIG0024	**Date:**	2024-08-21		
Project:	None	**Temperature:**	24.9°C		
Job Site:	OC07	**Humidity:**	43.80%		
Serial Number:	E7	**Barometric Pres.:**	1013 mbar	**Tested by:**	Nolan De Ramos
EUT:	Omni 2.0				
Configuration:	EXIG0024-4				
Customer:	Exigent Sensors LLC				
Attendees:	Kevin Tain				
EUT Power:	Battery				
Operating Mode:	Sig Gen transmitting: 905.2 MHz, CW, 0 dB				
Deviations:	None				
Comments:	6 dB attenuator				

Frequency	**905.2**	Absolute Gain of Reference Antenna (dBi)	0.95
Measurement Antenna Polarity	**Horizontal**	Reference Antenna Relative Gain Max (dBuV/m)	92.63
Antenna Under Test (AUT) Polarity	**on Side**	AUT Relative Gain Max (dBuV/m)	87.33
Maximum Absolute Gain of AUT (dBi)	**-4.35**	Difference (Reference Antenna - AUT) (dB)	5.30
Average Absolute Gain of AUT (dBi)	**-13.10**	AUT Setup Loss (dB)	**0**
		Correction Factor (Convert Relative to Absolute Gain) (dB)	**91.68**
3 dB Beamwidth	**29°**		

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





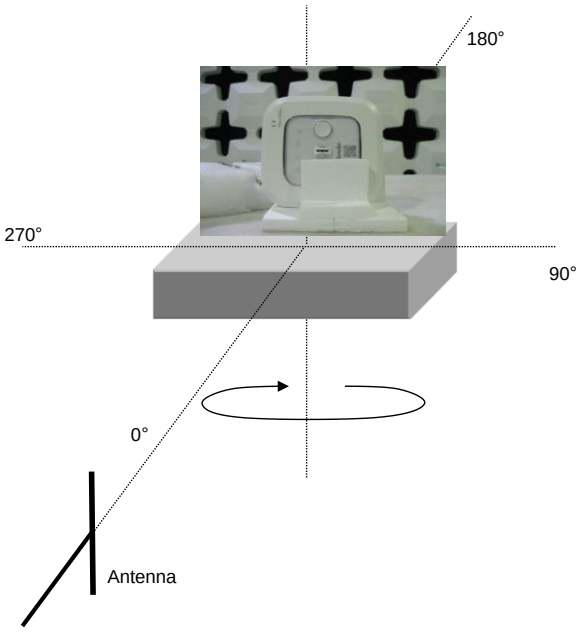
ABSOLUTE GAIN

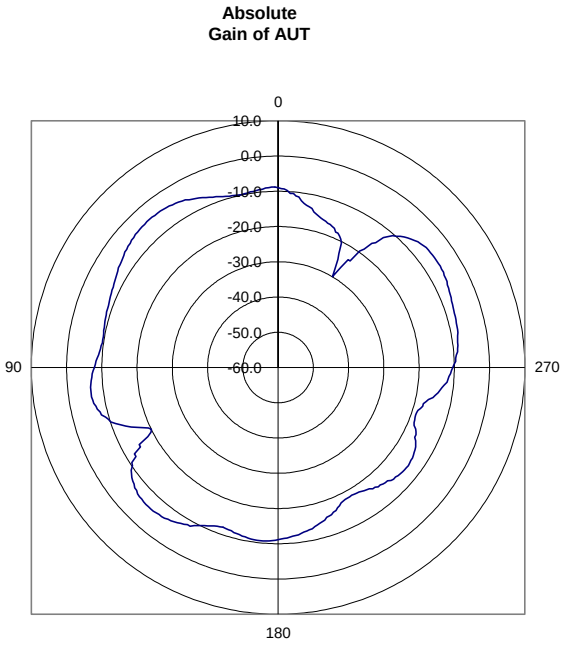
EmiR5 2023.08.29.0 PSA-ESCI 2023.12.23.0

Work Order:	EXIG0024	**Date:**	2024-08-21		
Project:	None	**Temperature:**	24.9°C		
Job Site:	OC07	**Humidity:**	43.80%		
Serial Number:	E7	**Barometric Pres.:**	1013 mbar	**Tested by:**	Nolan De Ramos
EUT:	Omni 2.0				
Configuration:	EXIG0024-4				
Customer:	Exigent Sensors LLC				
Attendees:	Kevin Tain				
EUT Power:	Battery				
Operating Mode:	Sig Gen transmitting: 905.2 MHz, CW, 0 dB				
Deviations:	None				
Comments:	6 dB attenuator				

Frequency	**905.2**	Absolute Gain of Reference Antenna (dBi)	0.95
Measurement Antenna Polarity	**Vertical**	Reference Antenna Relative Gain Max (dBuV/m)	89.53
Antenna Under Test (AUT) Polarity	**on Side**	AUT Relative Gain Max (dBuV/m)	84.23
Maximum Absolute Gain of AUT (dBi)	**-4.35**	Difference (Reference Antenna - AUT) (dB)	5.30
Average Absolute Gain of AUT (dBi)	**-11.00**	AUT Setup Loss (dB)	**0**
		Correction Factor (Convert Relative to Absolute Gain) (dB)	**88.58**
3 dB Beamwidth	**38°**		

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





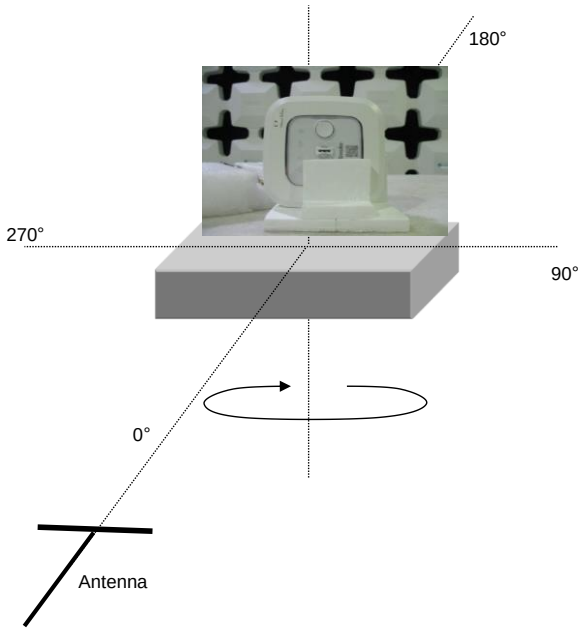
ABSOLUTE GAIN

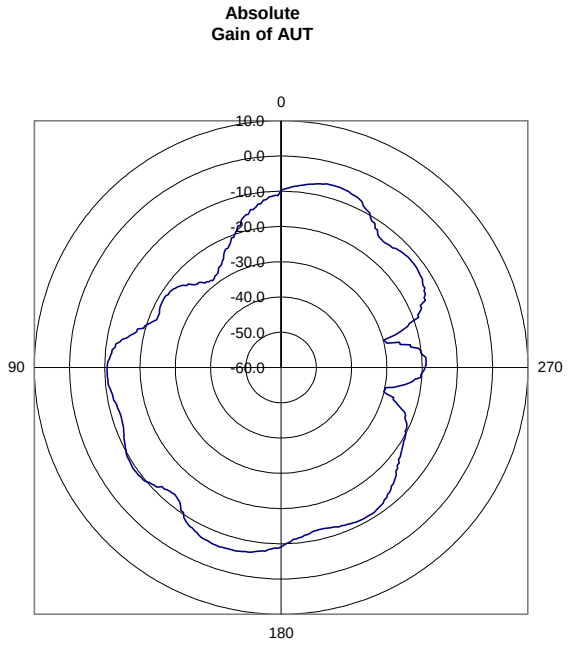
EmiR5 2023.08.29.0 PSA-ESCI 2023.12.23.0

Work Order:	EXIG0024	**Date:**	2024-08-21		
Project:	None	**Temperature:**	26.1°C		
Job Site:	OC07	**Humidity:**	43.30%		
Serial Number:	E7	**Barometric Pres.:**	1012 mbar	**Tested by:**	Nolan De Ramos
EUT:	Omni 2.0				
Configuration:	EXIG0024-4				
Customer:	Exigent Sensors LLC				
Attendees:	Kevin Tain				
EUT Power:	Battery				
Operating Mode:	Sig Gen transmitting: 913.2 MHz, CW, 0 dB				
Deviations:	None				
Comments:	6 dB attenuator				

Frequency	**913.2**	Absolute Gain of Reference Antenna (dBi)	0.87
Measurement Antenna Polarity	**Horizontal**	Reference Antenna Relative Gain Max (dBuV/m)	92.64
Antenna Under Test (AUT) Polarity	**on Side**	AUT Relative Gain Max (dBuV/m)	85.54
Maximum Absolute Gain of AUT (dBi)	**-6.23**	Difference (Reference Antenna - AUT) (dB)	7.10
Average Absolute Gain of AUT (dBi)	**-14.99**	AUT Setup Loss (dB)	**0**
		Correction Factor (Convert Relative to Absolute Gain) (dB)	**91.77**
3 dB Beamwidth	**28°**		

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





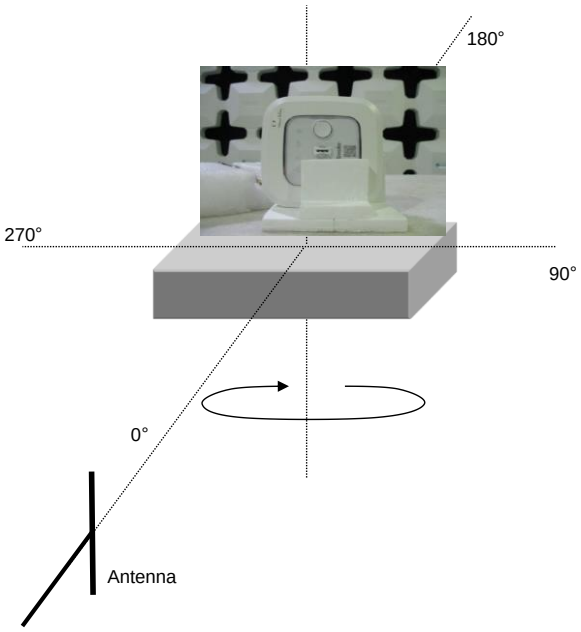
ABSOLUTE GAIN

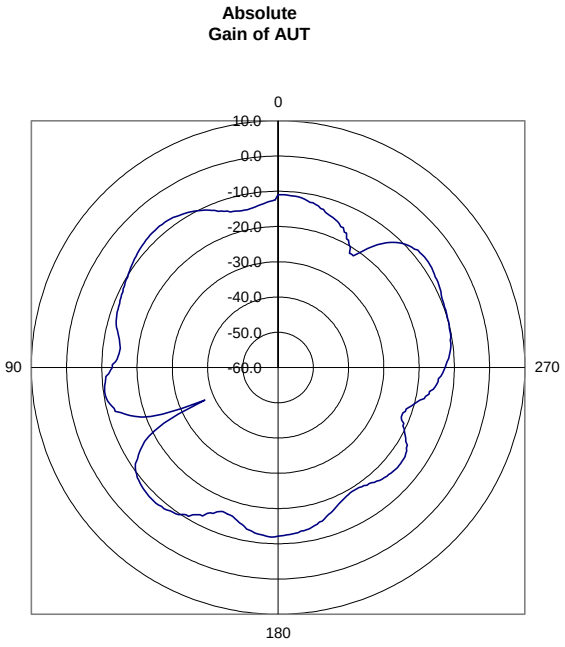
EmiR5 2023.08.29.0 PSA-ESCI 2023.12.23.0

Work Order:	EXIG0024	**Date:**	2024-08-21		
Project:	None	**Temperature:**	26.1°C		
Job Site:	OC07	**Humidity:**	43.30%		
Serial Number:	E7	**Barometric Pres.:**	1012 mbar	**Tested by:**	Nolan De Ramos
EUT:	Omni 2.0				
Configuration:	EXIG0024-4				
Customer:	Exigent Sensors LLC				
Attendees:	Kevin Tain				
EUT Power:	Battery				
Operating Mode:	Transmitting: Low Channel 905.2 MHz, High Channel 913.2 MHz, Data Rate: FSK 10, Power Setting: 0XC0				
Deviations:	None				
Comments:	None				

Frequency	**913.2**	Absolute Gain of Reference Antenna (dBi)	0.87
Measurement Antenna Polarity	**Vertical**	Reference Antenna Relative Gain Max (dBuV/m)	90.04
Antenna Under Test (AUT) Polarity	**on Side**	AUT Relative Gain Max (dBuV/m)	81.54
Maximum Absolute Gain of AUT (dBi)	**-7.63**	Difference (Reference Antenna - AUT) (dB)	8.50
Average Absolute Gain of AUT (dBi)	**-13.37**	AUT Setup Loss (dB)	**0**
		Correction Factor (Convert Relative to Absolute Gain) (dB)	**89.17**
3 dB Beamwidth	**37°**		

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





End of Test Report