



Exigent Sensors LLC

CFWS10

Polar Plots (Absolute Gain) Report

Report: EXIG0020.5 Rev. 1, Issue Date: November 17, 2023



Approved by:

Johnny Candelas, Operations Manager

REVISION HISTORY



Revision Number	Description	Date (yyyy-mm-dd)	Page Number
01	Included photo of antenna in Product Description.	2023-11-17	5

ACCREDITATIONS AND AUTHORIZATIONS



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](#)

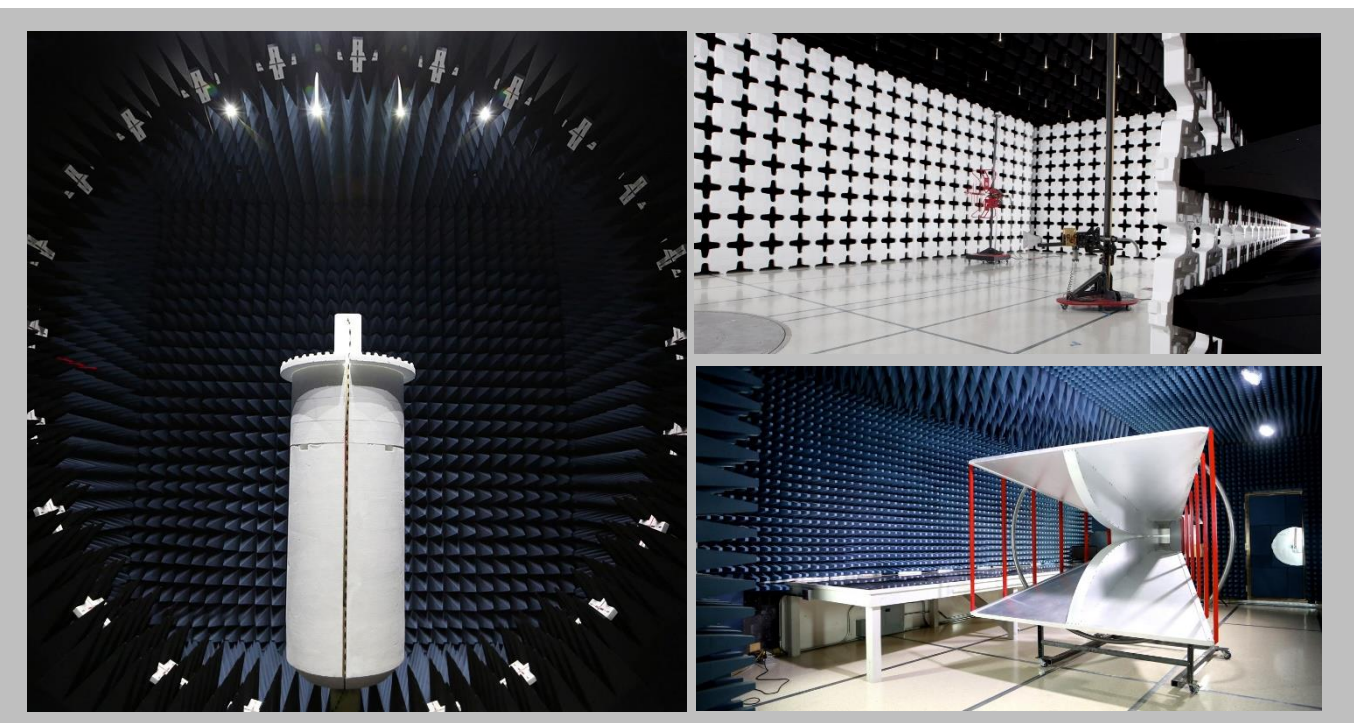
[Texas](#)

[Washington](#)

FACILITIES



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



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:	CFWS10
First Date of Test:	July 11, 2023
Last Date of Test:	July 11, 2023
Receipt Date of Samples:	July 11, 2023
Equipment Design Stage:	Production
Equipment Condition:	No Damage
Purchase Authorization:	Verified

Information Provided by the Party Requesting the Test

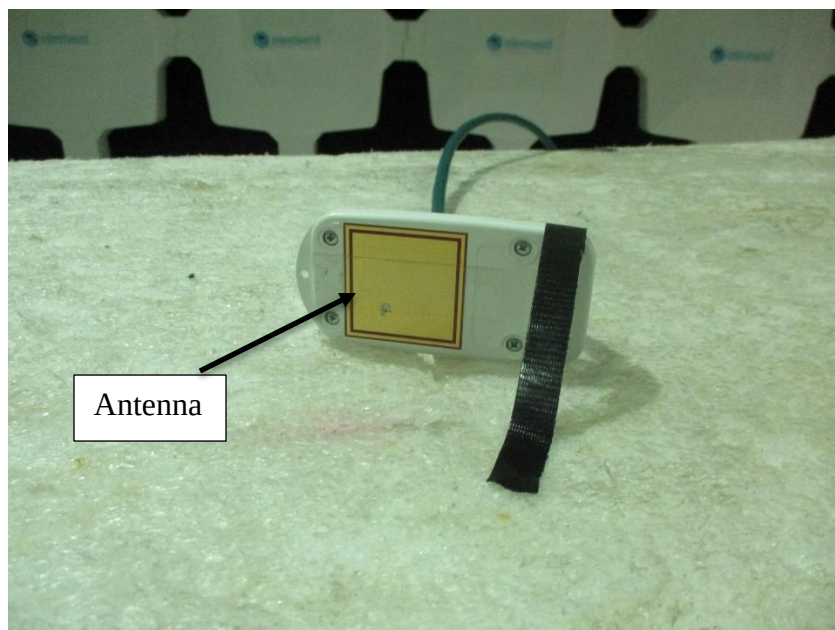
Functional Description of the EUT:

Small battery powered wireless water sensor that sends a 900 MHz wireless signal to other alarms to alert the user of a water leak.

Testing Objective:

To obtain 2D antenna pattern measurements and calculated antenna performance values.

Antenna Photo:



CONFIGURATIONS



Configuration EXIG0020-3

EUT			
Description	Manufacturer	Model/Part Number	Serial Number
Wireless Water Sensor	Exigent Sensors LLC	WS10	D3

MODIFICATIONS



Equipment Modifications

Item	Date	Test	Modification	Note	Disposition of EUT
1	2023-07-11	Polar Plots (Absolute Gain)	Tested as delivered to test Station.	No EMI suppression devices were added or modified during this test.	Schedule testing was completed.

2D POLAR PLOTS



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

Tx CW: High Channel 913.23 MHz, 0 dBm Sig Gen Output.

Tx CW: Low Channel 905.23 MHz, 0 dBm Sig Gen Output

CONFIGURATIONS INVESTIGATED

EXIG0020 - 3

FREQUENCY RANGE INVESTIGATED

Start Frequency	905.23 MHz	Stop Frequency	913.23 MHz
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SAMPLE CALCULATIONS

Max Absolute Gain of AUT = $G_{ref} - (E_{ref} - E_{aut}) + L_c$

Where:

G_{ref} = gain of reference antenna (dBi)

E_{ref} = electric field strength in dBuV/m

E_{aut} = electric field strength in dBuV/m

L_c = AUT setup loss

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Cal. Due
Antenna - Dipole	A.H. Systems, Inc.	FCC-4	ADCA	NCR	NCR
Antenna - Biconilog	EMCO	3115	AXK	2022-04-19	2024-04-19
Generator - Signal	Keysight	N5182B	TFX	2023-05-14	2026-05-14
Cable	Micro-Coax	UFD150A-1-0720-200200	OCA	2023-01-30	2024-01-30
Cable	Northwest EMC	10kHz-1GHz RE Cables	OCH	2023-05-31	2024-05-31
Analyzer - Spectrum Analyzer	Agilent	N9010A	AFJ	2023-01-20	2024-01-20

TEST DESCRIPTION

Measurements were performed in a semi-anechoic chamber at a 3 m distance. To simulate free space, the ground plane 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 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.

Using the same test setup, the antenna under test (AUT) was placed into the chamber. If an RF patch cable was provided by the manufacturer an additional offset factored into the final value.

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.

2D POLAR PLOTS



EmiR5 2022.07.06.0

PSA-ESCI 2023.04.25.0

Work Order:	EXIG0020	Date:	2023-07-11	
Project:	None	Temperature:	24.7°C	
Job Site:	OC10	Humidity:	47.30%	
Serial Number:	None	Barometric Pres.:	1011 mbar	
				Tested by: Mark Baytan
EUT:	Reference Dipole Antenna			
Configuration:	None			
Customer:	Exigent Sensors LLC			
Attendees:	Chad Christensen			
EUT Power:	None			
Operating Mode:	Tx CW: 905.23 MHz, 0 dBm Sig Gen Output			
Deviations:	None			
Comments:	6 dB Attenuator			

Frequency (MHz) **905.23**

Maximum Amplitude (dBuV/m) **91.57837**

Azimuth at Maximum **187°**

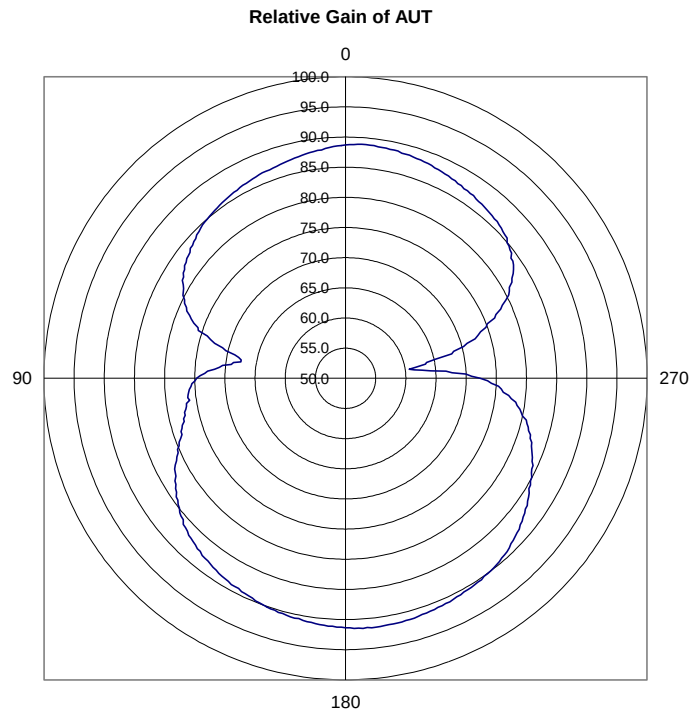
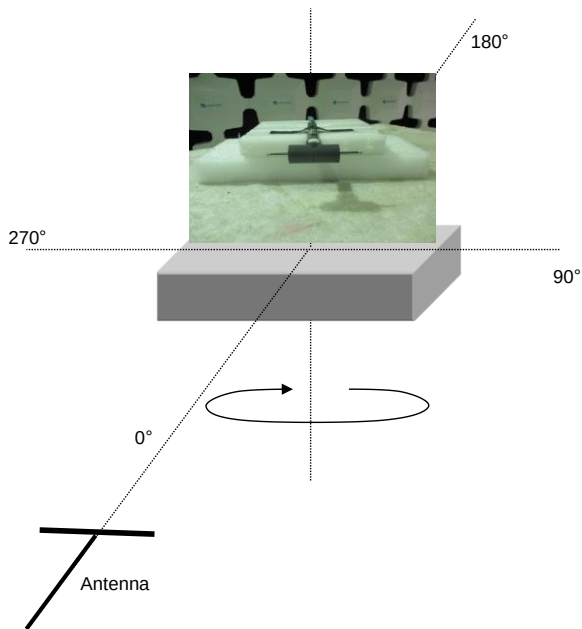
Minimum Amplitude (dBuV/m) **60.67837**

Azimuth at Minimum **277°**

3 dB Beamwidth **80°**

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

Run #	19	Test Distance (m)	3	Antenna Height(s)	1.5		
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2D POLAR PLOTS



EmiR5 2022.07.06.0

PSA-ESCI 2023.04.25.0

Work Order:	EXIG0020	Date:	2023-07-11	
Project:	None	Temperature:	24.7°C	
Job Site:	OC10	Humidity:	47.30%	
Serial Number:	None	Barometric Pres.:	1011 mbar	
				Tested by: Mark Baytan
EUT:	Reference Dipole Antenna			
Configuration:	None			
Customer:	Exigent Sensors LLC			
Attendees:	Chad Christensen			
EUT Power:	None			
Operating Mode:	Tx CW: 905.23 MHz, 0 dBm Sig Gen Output			
Deviations:	None			
Comments:	6 dB Attenuator			

Frequency (MHz) **905.23**

Maximum Amplitude (dBuV/m) **91.47837**

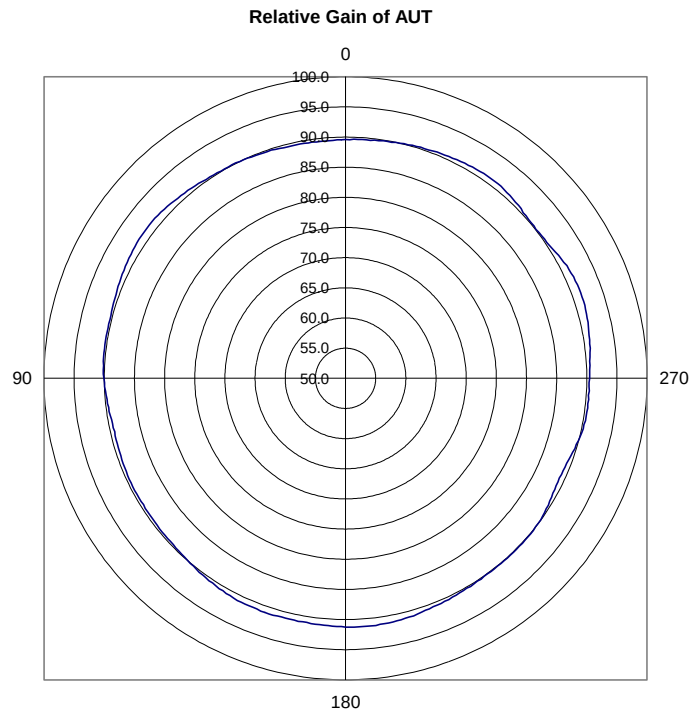
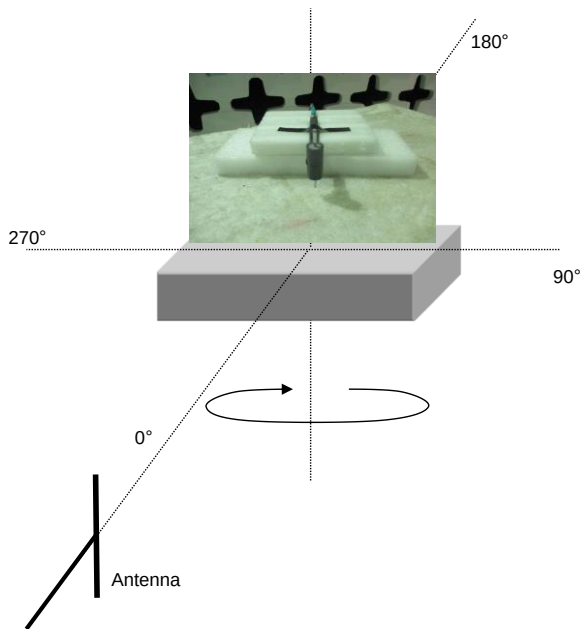
Azimuth at Maximum **291°**

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

Minimum Amplitude (dBuV/m) **89.07837**

Azimuth at Minimum **244°**

Run #	21	Test Distance (m)	3	Antenna Height(s)	1.7		
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2D POLAR PLOTS



EmiR5 2022.07.06.0

PSA-ESCI 2023.04.25.0

Work Order:	EXIG0020	Date:	2023-07-11	
Project:	None	Temperature:	24.7°C	
Job Site:	OC10	Humidity:	47.30%	
Serial Number:	None	Barometric Pres.:	1011 mbar	
EUT:	Reference Dipole Antenna			Tested by: Mark Baytan
Configuration:	None			
Customer:	Exigent Sensors LLC			
Attendees:	Chad Christensen			
EUT Power:	None			
Operating Mode:	Tx CW: 913.23 MHz, 0 dBm Sig Gen Output			
Deviations:	None			
Comments:	6 dB Attenuator			

Frequency (MHz) **913.23**

Maximum Amplitude (dBuV/m) **90.46642**

Azimuth at Maximum **192°**

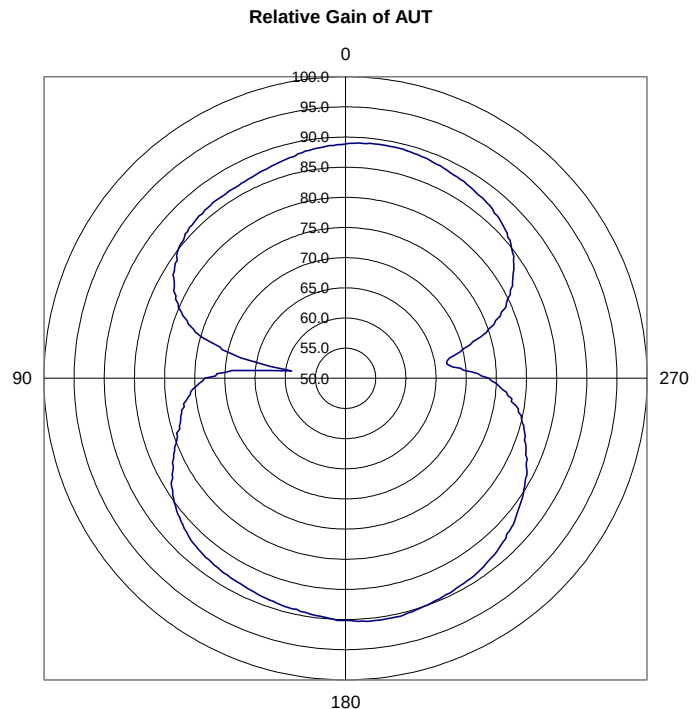
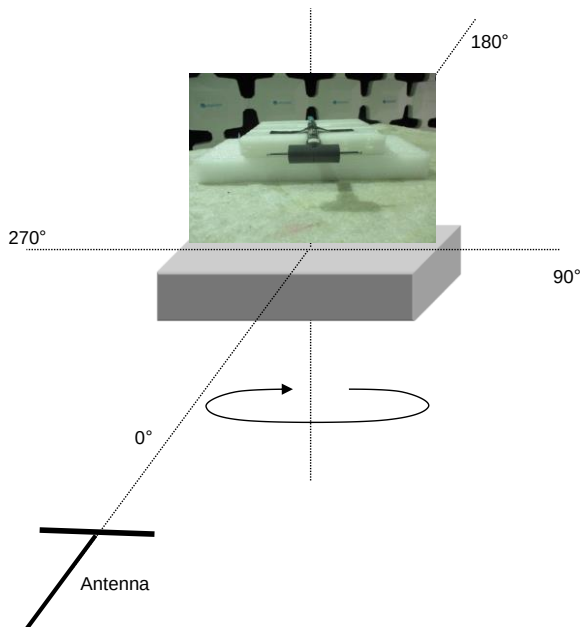
Measurement Antenna Polarity **Horizontal**
Antenna Under Test (AUT) Polarity **Horizontal**

Minimum Amplitude (dBuV/m) **59.06642**

Azimuth at Minimum **81°**

3 dB Beamwidth **86°**

Run #	20	Test Distance (m)	3	Antenna Height(s)	1.5		
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2D POLAR PLOTS



EmiR5 2022.07.06.0

PSA-ESCI 2023.04.25.0

Work Order:	EXIG0020	Date:	2023-07-11	
Project:	None	Temperature:	24.7°C	
Job Site:	OC10	Humidity:	47.30%	
Serial Number:	None	Barometric Pres.:	1011 mbar	
				Tested by: Mark Baytan
EUT:	Reference Dipole Antenna			
Configuration:	None			
Customer:	Exigent Sensors LLC			
Attendees:	Chad Christensen			
EUT Power:	None			
Operating Mode:	Tx CW: 913.23 MHz, 0 dBm Sig Gen Output			
Deviations:	None			
Comments:	6 dB Attenuator			

Frequency (MHz) **913.23**

Maximum Amplitude (dBuV/m) **91.66642**

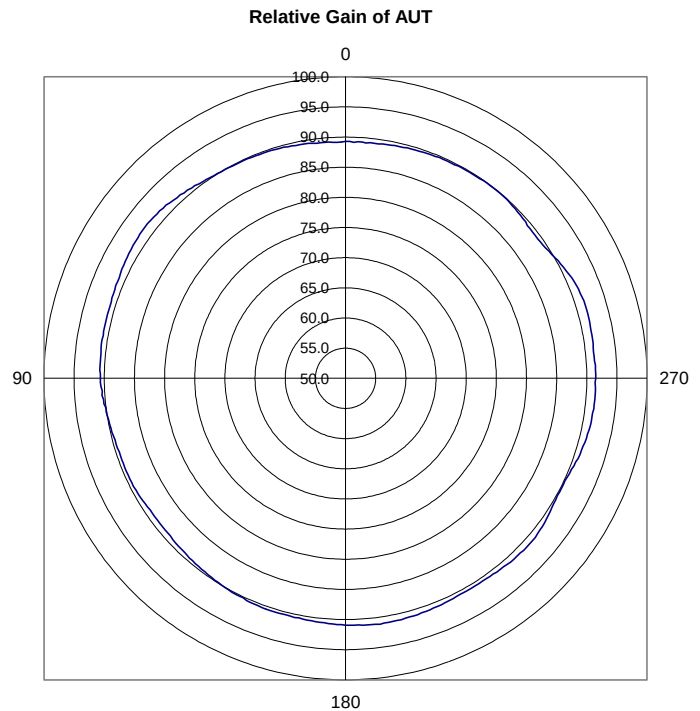
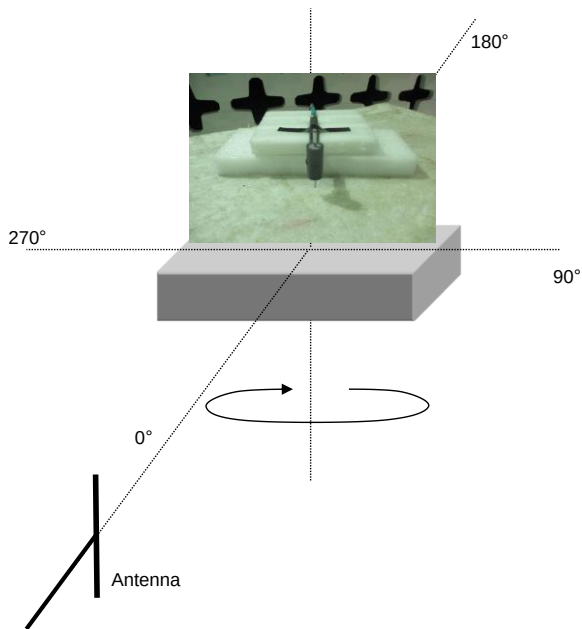
Azimuth at Maximum **54°**

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

Minimum Amplitude (dBuV/m) **89.06642**

Azimuth at Minimum **131°**

Run #	22	Test Distance (m)	3	Antenna Height(s)	1.7		
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2D POLAR PLOTS



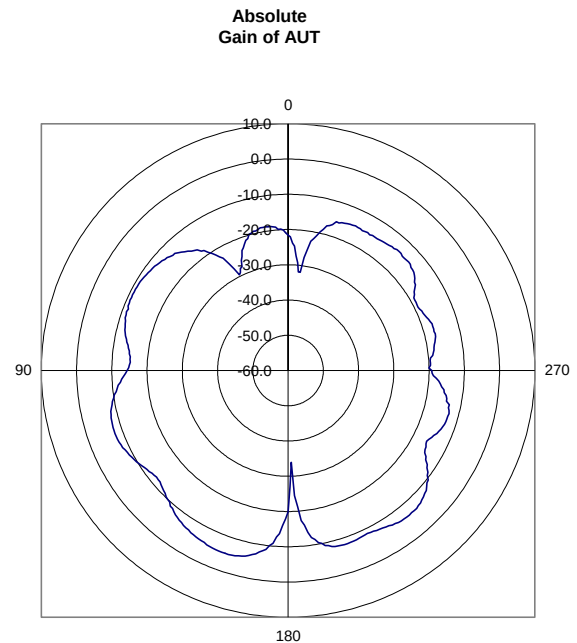
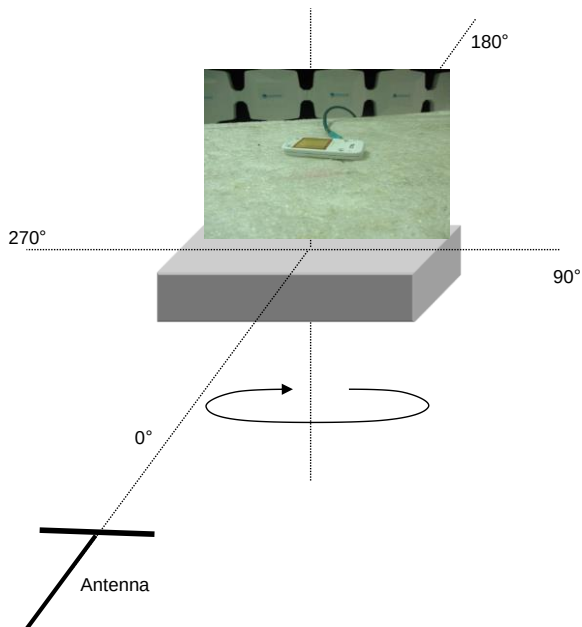
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PSA-ESCI 2023.04.25.0

Work Order:	EXIG0020	Date:	2023-07-11	
Project:	None	Temperature:	23°C	
Job Site:	OC10	Humidity:	47.40%	
Serial Number:	D3	Barometric Pres.:	1014 mbar	
EUT: CFWS10				Tested by: Mark Baytan
Configuration:	EXIG0020-3			
Customer:	Exigent Sensors LLC			
Attendees:	Chad Christensen			
EUT Power:	None			
Operating Mode:	Tx CW: Low Channel 905.23 MHz, 0 dBm Sig Gen Output.			
Deviations:	None			
Comments:	6 dB Attenuator			

Frequency	905.23	Absolute Gain of Reference Antenna (dBi)	0.95
Measurement Antenna Polarity	Horizontal	Reference Antenna Relative Gain Max (dBuV/m)	91.58
Antenna Under Test (AUT) Polarity	Horizontal	AUT Relative Gain Max (dBuV/m)	85.38
Maximum Absolute Gain of AUT (dBi)	-5.15	Difference (Reference Antenna - AUT) (dB)	6.20
Average Absolute Gain of AUT (dBi)	-13.77	AUT Setup Loss (dB)	0.1
		Correction Factor (Convert Relative to Absolute Gain) (dB)	90.53
3 dB Beamwidth	31°		

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



2D POLAR PLOTS



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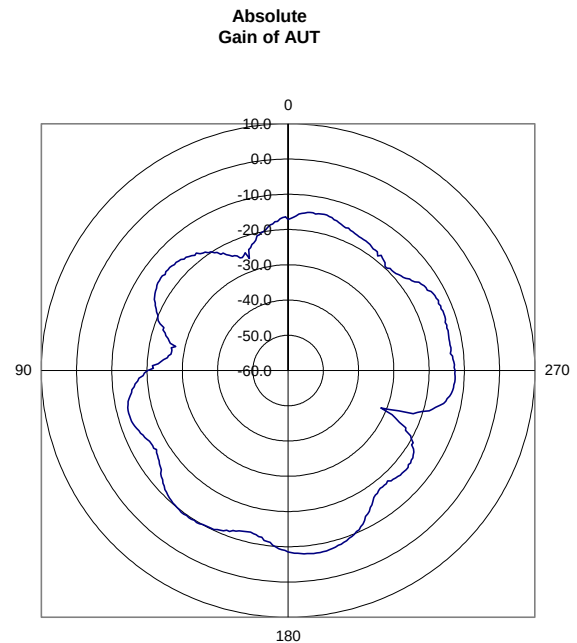
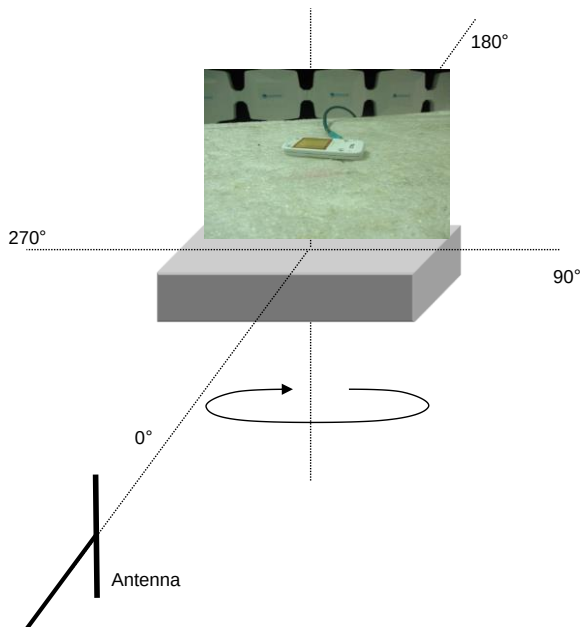
PSA-ESCI 2023.04.25.0

Work Order:	EXIG0020	Date:	2023-07-11	
Project:	None	Temperature:	23°C	
Job Site:	OC10	Humidity:	47.40%	
Serial Number:	D3	Barometric Pres.:	1014 mbar	
EUT: CFWS10				Tested by: Mark Baytan
Configuration:	EXIG0020-3			
Customer:	Exigent Sensors LLC			
Attendees:	Chad Christensen			
EUT Power:	None			
Operating Mode:	Tx CW: Low Channel 905.23 MHz, 0 dBm Sig Gen Output.			
Deviations:	None			
Comments:	6 dB Attenuator			

Frequency	905.23	Absolute Gain of Reference Antenna (dBi)	0.95
Measurement Antenna Polarity	Vertical	Reference Antenna Relative Gain Max (dBuV/m)	91.48
Antenna Under Test (AUT) Polarity	Horizontal	AUT Relative Gain Max (dBuV/m)	82.88
Maximum Absolute Gain of AUT (dBi)	-7.55	Difference (Reference Antenna - AUT) (dB)	8.60
Average Absolute Gain of AUT (dBi)	-15.88	AUT Setup Loss (dB)	0.1
		Correction Factor (Convert Relative to Absolute Gain) (dB)	90.43

3 dB Beamwidth 30°

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



2D POLAR PLOTS



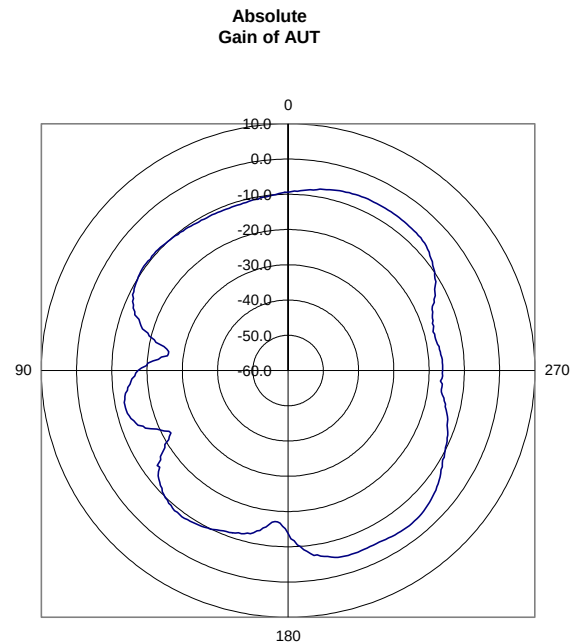
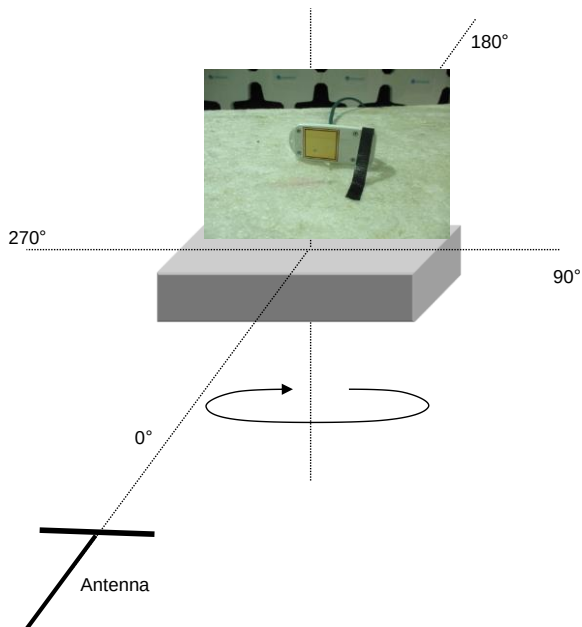
EmiR5 2022.07.06.0

PSA-ESCI 2023.04.25.0

Work Order:	EXIG0020	Date:	2023-07-11	
Project:	None	Temperature:	23°C	
Job Site:	OC10	Humidity:	47.40%	
Serial Number:	D3	Barometric Pres.:	1014 mbar	
EUT: CFWS10				Tested by: Mark Baytan
Configuration:	EXIG0020-3			
Customer:	Exigent Sensors LLC			
Attendees:	Chad Christensen			
EUT Power:	None			
Operating Mode:	Tx CW: Low Channel 905.23 MHz, 0 dBm Sig Gen Output.			
Deviations:	None			
Comments:	6 dB Attenuator			

Frequency	905.23	Absolute Gain of Reference Antenna (dBi)	0.95
Measurement Antenna Polarity	Horizontal	Reference Antenna Relative Gain Max (dBuV/m)	91.58
Antenna Under Test (AUT) Polarity	on Side	AUT Relative Gain Max (dBuV/m)	86.38
Maximum Absolute Gain of AUT (dBi)	-4.15	Difference (Reference Antenna - AUT) (dB)	5.20
Average Absolute Gain of AUT (dBi)	-11.25	AUT Setup Loss (dB)	0.1
		Correction Factor (Convert Relative to Absolute Gain) (dB)	90.53
3 dB Beamwidth	48°		

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



2D POLAR PLOTS



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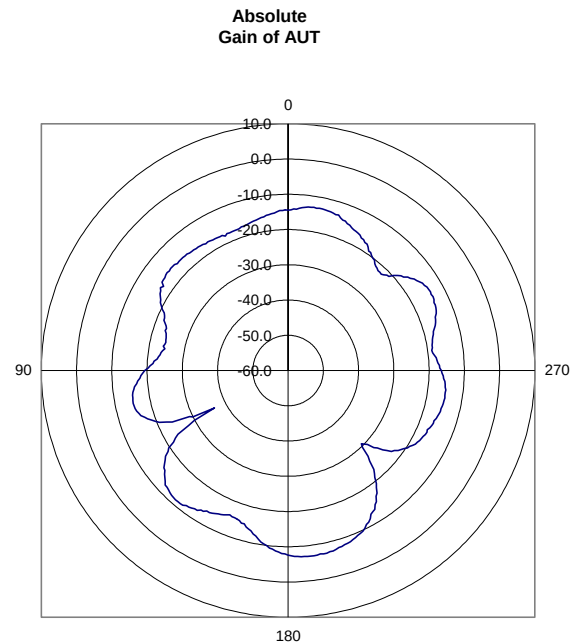
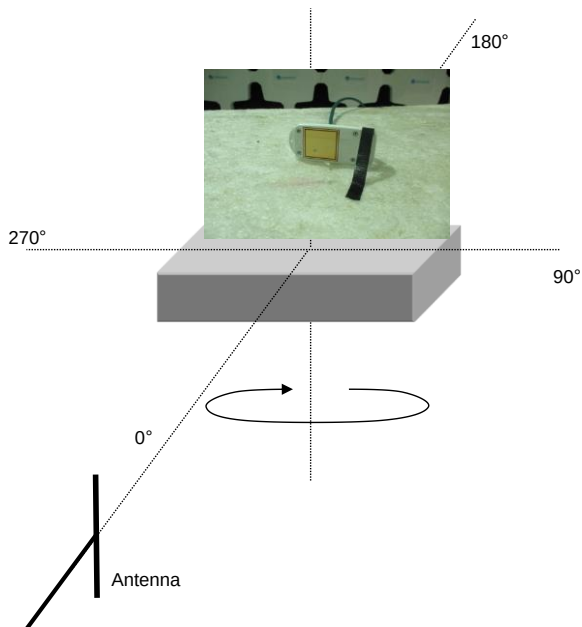
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Work Order:	EXIG0020	Date:	2023-07-11	
Project:	None	Temperature:	23°C	
Job Site:	OC10	Humidity:	47.40%	
Serial Number:	D3	Barometric Pres.:	1014 mbar	
EUT: CFWS10				Tested by: Mark Baytan
Configuration:	EXIG0020-3			
Customer:	Exigent Sensors LLC			
Attendees:	Chad Christensen			
EUT Power:	None			
Operating Mode:	Tx CW: Low Channel 905.23 MHz, 0 dBm Sig Gen Output.			
Deviations:	None			
Comments:	6 dB Attenuator			

Frequency	905.23	Absolute Gain of Reference Antenna (dBi)	0.95
Measurement Antenna Polarity	Vertical	Reference Antenna Relative Gain Max (dBuV/m)	91.48
Antenna Under Test (AUT) Polarity	on Side	AUT Relative Gain Max (dBuV/m)	83.48
Maximum Absolute Gain of AUT (dBi)	-6.95	Difference (Reference Antenna - AUT) (dB)	8.00
Average Absolute Gain of AUT (dBi)	-16.45	AUT Setup Loss (dB)	0.1
		Correction Factor (Convert Relative to Absolute Gain) (dB)	90.43

3 dB Beamwidth 33°

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



2D POLAR PLOTS



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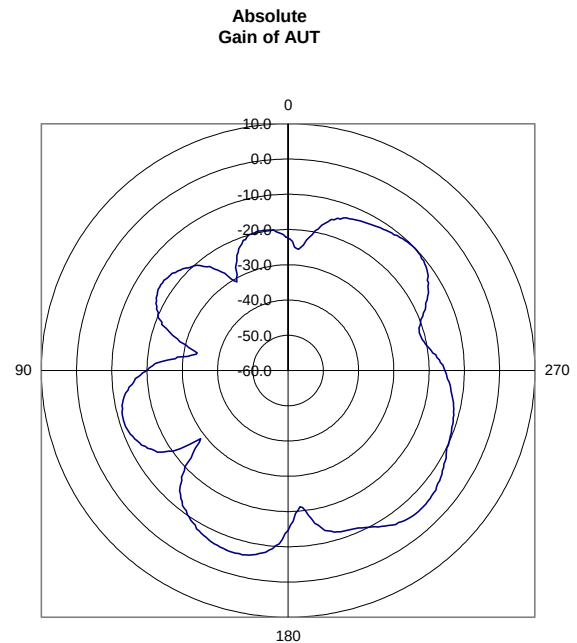
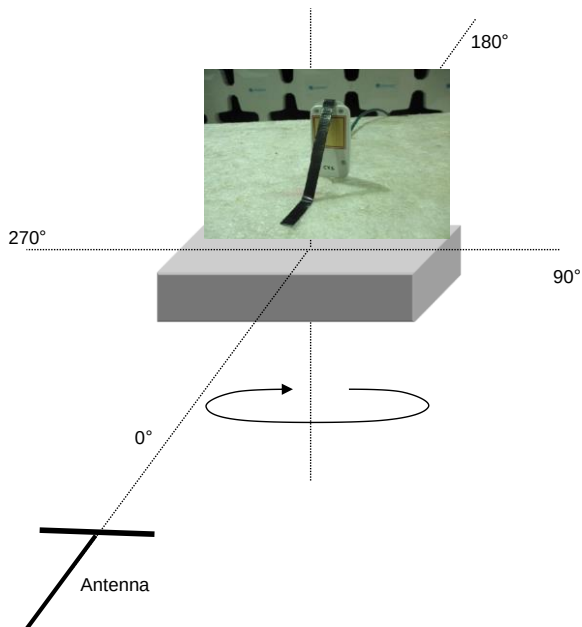
PSA-ESCI 2023.04.25.0

Work Order:	EXIG0020	Date:	2023-07-11	
Project:	None	Temperature:	23°C	
Job Site:	OC10	Humidity:	47.40%	
Serial Number:	D3	Barometric Pres.:	1014 mbar	
EUT: CFWS10				Tested by: Mark Baytan
Configuration:	EXIG0020-3			
Customer:	Exigent Sensors LLC			
Attendees:	Chad Christensen			
EUT Power:	None			
Operating Mode:	Tx CW: Low Channel 905.23 MHz, 0 dBm Sig Gen Output.			
Deviations:	None			
Comments:	6 dB Attenuator			

Frequency	905.23	Absolute Gain of Reference Antenna (dBi)	0.95
Measurement Antenna Polarity	Horizontal	Reference Antenna Relative Gain Max (dBuV/m)	91.58
Antenna Under Test (AUT) Polarity	Vertical	AUT Relative Gain Max (dBuV/m)	84.98
Maximum Absolute Gain of AUT (dBi)	-5.55	Difference (Reference Antenna - AUT) (dB)	6.60
Average Absolute Gain of AUT (dBi)	-15.41	AUT Setup Loss (dB)	0.1
		Correction Factor (Convert Relative to Absolute Gain) (dB)	90.53

3 dB Beamwidth 30°

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



2D POLAR PLOTS



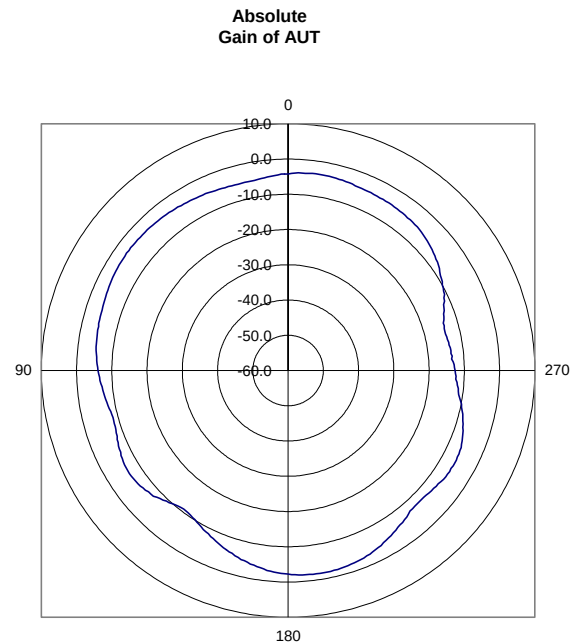
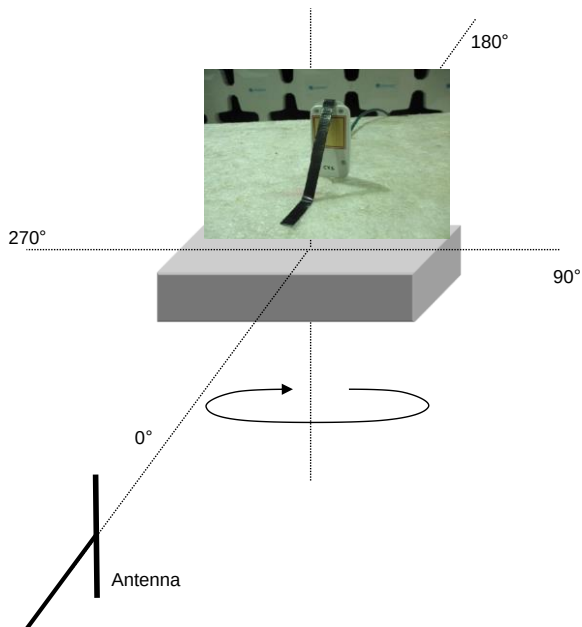
EmiR5 2022.07.06.0

PSA-ESCI 2023.04.25.0

Work Order:	EXIG0020	Date:	2023-07-11	
Project:	None	Temperature:	23°C	
Job Site:	OC10	Humidity:	47.40%	
Serial Number:	D3	Barometric Pres.:	1014 mbar	
EUT: CFWS10				Tested by: Mark Baytan
Configuration:	EXIG0020-3			
Customer:	Exigent Sensors LLC			
Attendees:	Chad Christensen			
EUT Power:	None			
Operating Mode:	Tx CW: Low Channel 905.23 MHz, 0 dBm Sig Gen Output.			
Deviations:	None			
Comments:	6 dB Attenuator			

Frequency	905.23	Absolute Gain of Reference Antenna (dBi)	0.95
Measurement Antenna Polarity	Vertical	Reference Antenna Relative Gain Max (dBuV/m)	91.48
Antenna Under Test (AUT) Polarity	Vertical	AUT Relative Gain Max (dBuV/m)	88.68
Maximum Absolute Gain of AUT (dBi)	-1.75	Difference (Reference Antenna - AUT) (dB)	2.80
Average Absolute Gain of AUT (dBi)	-6.28	AUT Setup Loss (dB)	0.1
		Correction Factor (Convert Relative to Absolute Gain) (dB)	90.43
3 dB Beamwidth	46°		

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



2D POLAR PLOTS



EmiR5 2022.07.06.0

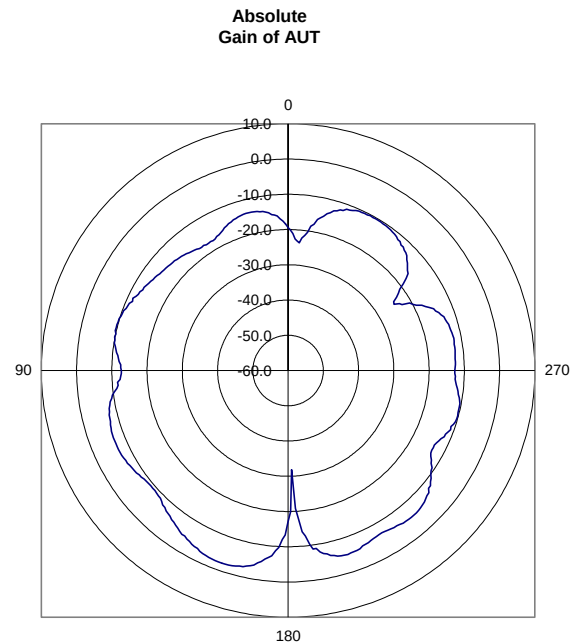
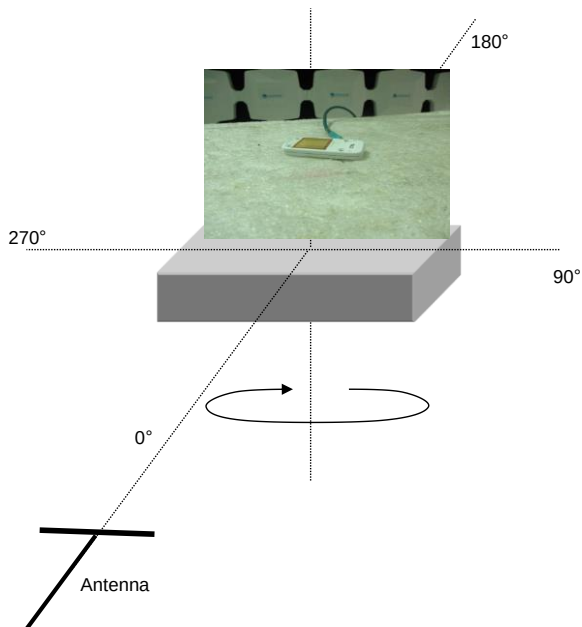
PSA-ESCI 2023.04.25.0

Work Order:	EXIG0020	Date:	2023-07-11	
Project:	None	Temperature:	23°C	
Job Site:	OC10	Humidity:	47.40%	
Serial Number:	D3	Barometric Pres.:	1014 mbar	
EUT: CFWS10				Tested by: Mark Baytan
Configuration:	EXIG0020-3			
Customer:	Exigent Sensors LLC			
Attendees:	Chad Christensen			
EUT Power:	None			
Operating Mode:	Tx CW: High Channel 913.23 MHz, 0 dBm Sig Gen Output.			
Deviations:	None			
Comments:	6 dB Attenuator			

Frequency	913.23	Absolute Gain of Reference Antenna (dBi)	0.87
Measurement Antenna Polarity	Horizontal	Reference Antenna Relative Gain Max (dBuV/m)	90.47
Antenna Under Test (AUT) Polarity	Horizontal	AUT Relative Gain Max (dBuV/m)	87.27
Maximum Absolute Gain of AUT (dBi)	-2.23	Difference (Reference Antenna - AUT) (dB)	3.20
Average Absolute Gain of AUT (dBi)	-11.29	AUT Setup Loss (dB)	0.1
		Correction Factor (Convert Relative to Absolute Gain) (dB)	89.50

3 dB Beamwidth 27°

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



2D POLAR PLOTS



EmiR5 2022.07.06.0

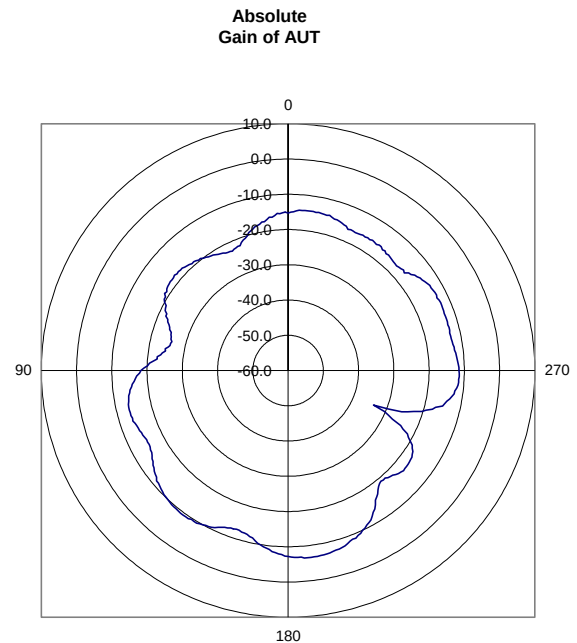
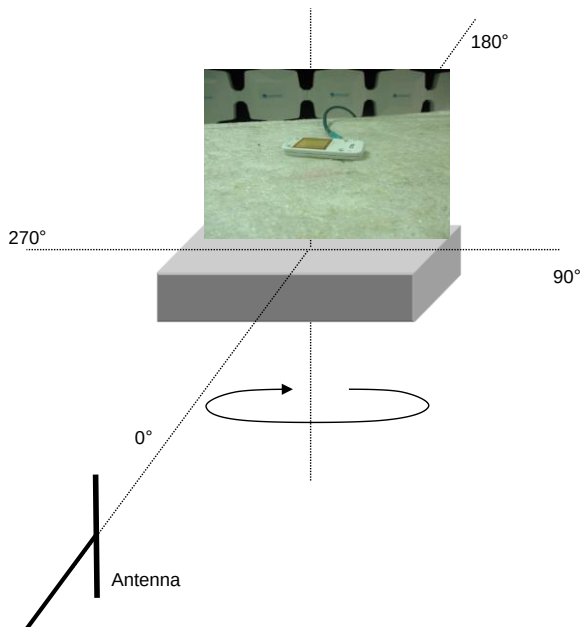
PSA-ESCI 2023.04.25.0

Work Order:	EXIG0020	Date:	2023-07-11	
Project:	None	Temperature:	23°C	
Job Site:	OC10	Humidity:	47.40%	
Serial Number:	D3	Barometric Pres.:	1014 mbar	
EUT: CFWS10				Tested by: Mark Baytan
Configuration:	EXIG0020-3			
Customer:	Exigent Sensors LLC			
Attendees:	Chad Christensen			
EUT Power:	None			
Operating Mode:	Tx CW: High Channel 913.23 MHz, 0 dBm Sig Gen Output.			
Deviations:	None			
Comments:	6 dB Attenuator			

Frequency	913.23	Absolute Gain of Reference Antenna (dBi)	0.87
Measurement Antenna Polarity	Vertical	Reference Antenna Relative Gain Max (dBuV/m)	91.67
Antenna Under Test (AUT) Polarity	Horizontal	AUT Relative Gain Max (dBuV/m)	84.07
Maximum Absolute Gain of AUT (dBi)	-6.63	Difference (Reference Antenna - AUT) (dB)	7.60
Average Absolute Gain of AUT (dBi)	-15.46	AUT Setup Loss (dB)	0.1
		Correction Factor (Convert Relative to Absolute Gain) (dB)	90.70

3 dB Beamwidth 34°

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



2D POLAR PLOTS



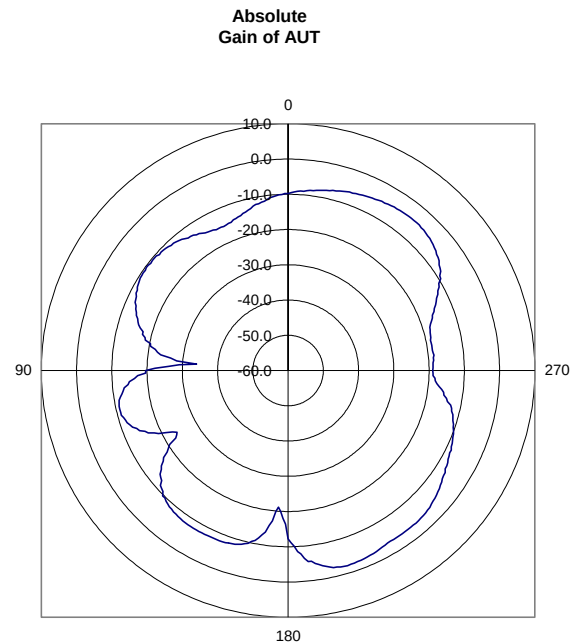
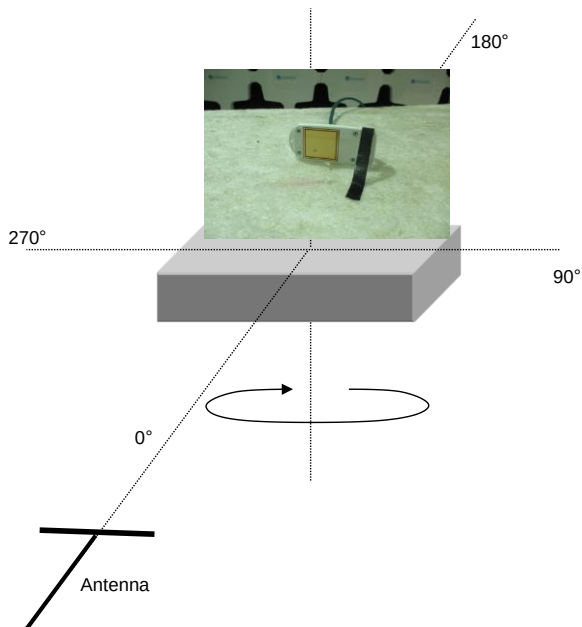
EmiR5 2022.07.06.0

PSA-ESCI 2023.04.25.0

Work Order:	EXIG0020	Date:	2023-07-11	
Project:	None	Temperature:	23°C	
Job Site:	OC10	Humidity:	47.40%	
Serial Number:	D3	Barometric Pres.:	1014 mbar	
EUT: CFWS10				Tested by: Mark Baytan
Configuration:	EXIG0020-3			
Customer:	Exigent Sensors LLC			
Attendees:	Chad Christensen			
EUT Power:	None			
Operating Mode:	Tx CW: High Channel 913.23 MHz, 0 dBm Sig Gen Output.			
Deviations:	None			
Comments:	6 dB Attenuator			

Frequency	913.23	Absolute Gain of Reference Antenna (dBi)	0.87
Measurement Antenna Polarity	Horizontal	Reference Antenna Relative Gain Max (dBuV/m)	90.47
Antenna Under Test (AUT) Polarity	on Side	AUT Relative Gain Max (dBuV/m)	87.37
Maximum Absolute Gain of AUT (dBi)	-2.13	Difference (Reference Antenna - AUT) (dB)	3.10
Average Absolute Gain of AUT (dBi)	-11.04	AUT Setup Loss (dB)	0.1
		Correction Factor (Convert Relative to Absolute Gain) (dB)	89.50
3 dB Beamwidth	44°		

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



2D POLAR PLOTS



EmiR5 2022.07.06.0

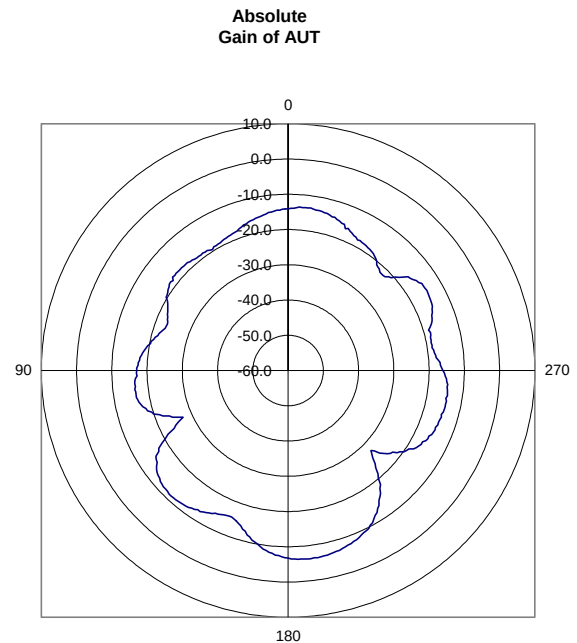
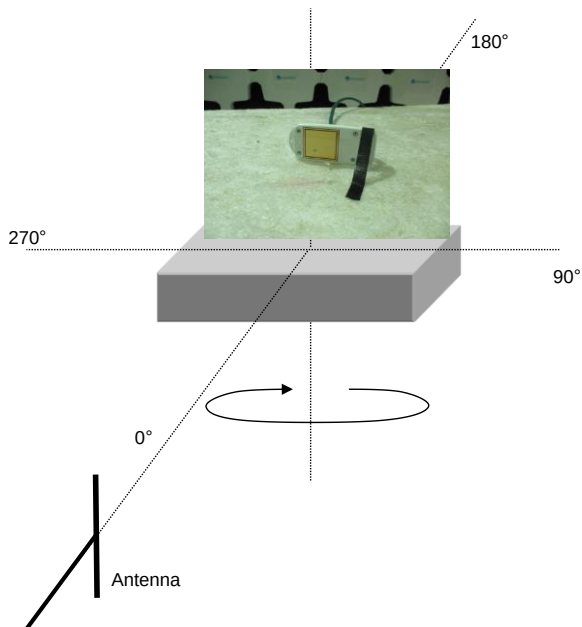
PSA-ESCI 2023.04.25.0

Work Order:	EXIG0020	Date:	2023-07-11	
Project:	None	Temperature:	23°C	
Job Site:	OC10	Humidity:	47.40%	
Serial Number:	D3	Barometric Pres.:	1014 mbar	
EUT: CFWS10				Tested by: Mark Baytan
Configuration:	EXIG0020-3			
Customer:	Exigent Sensors LLC			
Attendees:	Chad Christensen			
EUT Power:	None			
Operating Mode:	Tx CW: High Channel 913.23 MHz, 0 dBm Sig Gen Output.			
Deviations:	None			
Comments:	6 dB Attenuator			

Frequency	913.23	Absolute Gain of Reference Antenna (dBi)	0.87
Measurement Antenna Polarity	Vertical	Reference Antenna Relative Gain Max (dBuV/m)	91.67
Antenna Under Test (AUT) Polarity	on Side	AUT Relative Gain Max (dBuV/m)	84.47
Maximum Absolute Gain of AUT (dBi)	-6.23	Difference (Reference Antenna - AUT) (dB)	7.20
Average Absolute Gain of AUT (dBi)	-16.10	AUT Setup Loss (dB)	0.1
		Correction Factor (Convert Relative to Absolute Gain) (dB)	90.70

3 dB Beamwidth 34°

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



2D POLAR PLOTS



EmiR5 2022.07.06.0

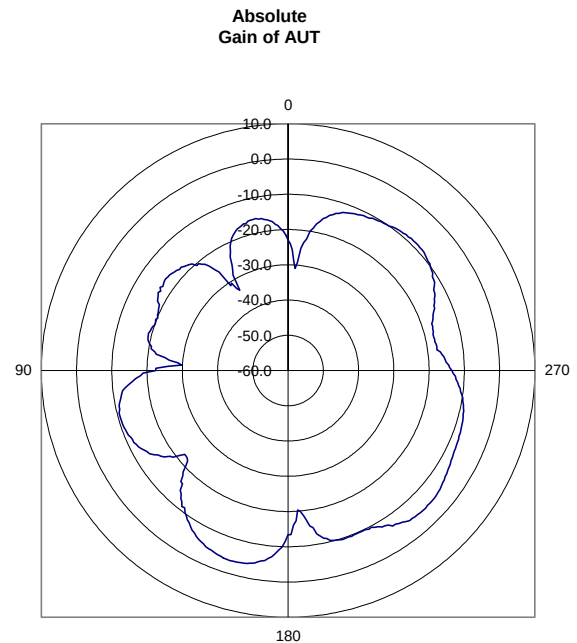
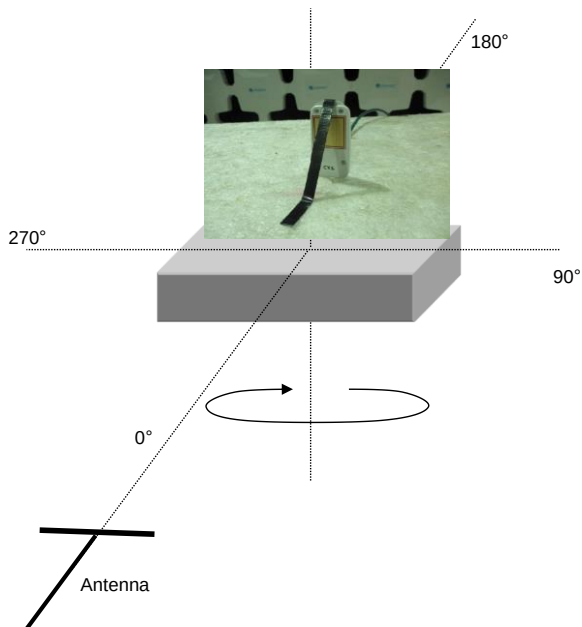
PSA-ESCI 2023.04.25.0

Work Order:	EXIG0020	Date:	2023-07-11	
Project:	None	Temperature:	23°C	
Job Site:	OC10	Humidity:	47.40%	
Serial Number:	D3	Barometric Pres.:	1014 mbar	
EUT: CFWS10				Tested by: Mark Baytan
Configuration:	EXIG0020-3			
Customer:	Exigent Sensors LLC			
Attendees:	Chad Christensen			
EUT Power:	None			
Operating Mode:	Tx CW: High Channel 913.23 MHz, 0 dBm Sig Gen Output.			
Deviations:	None			
Comments:	6 dB Attenuator			

Frequency	913.23	Absolute Gain of Reference Antenna (dBi)	0.87
Measurement Antenna Polarity	Horizontal	Reference Antenna Relative Gain Max (dBuV/m)	90.47
Antenna Under Test (AUT) Polarity	Vertical	AUT Relative Gain Max (dBuV/m)	85.87
Maximum Absolute Gain of AUT (dBi)	-3.63	Difference (Reference Antenna - AUT) (dB)	4.60
Average Absolute Gain of AUT (dBi)	-13.68	AUT Setup Loss (dB)	0.1
		Correction Factor (Convert Relative to Absolute Gain) (dB)	89.50

3 dB Beamwidth 25°

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



2D POLAR PLOTS



EmiR5 2022.07.06.0

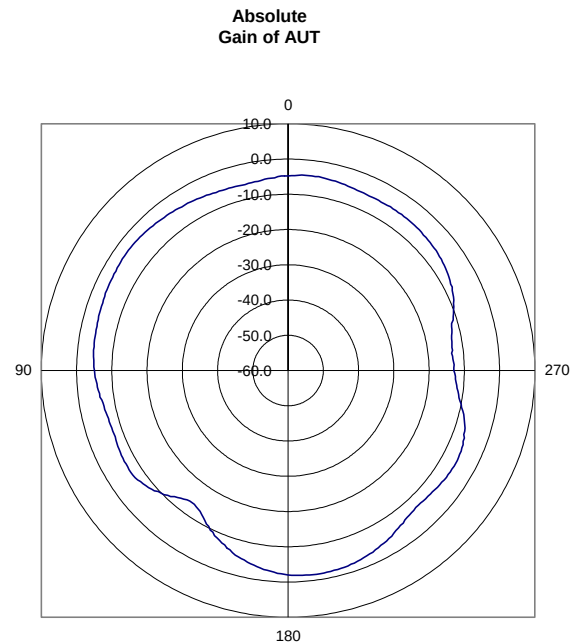
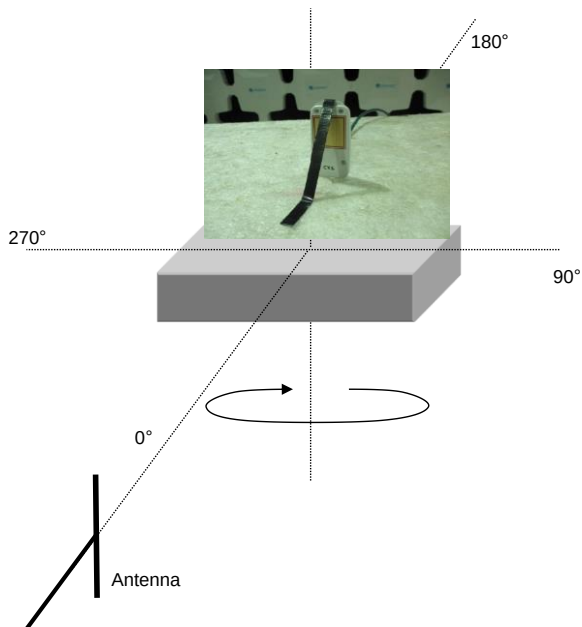
PSA-ESCI 2023.04.25.0

Work Order:	EXIG0020	Date:	2023-07-11	
Project:	None	Temperature:	23°C	
Job Site:	OC10	Humidity:	47.40%	
Serial Number:	D3	Barometric Pres.:	1014 mbar	
EUT: CFWS10				Tested by: Mark Baytan
Configuration:	EXIG0020-3			
Customer:	Exigent Sensors LLC			
Attendees:	Chad Christensen			
EUT Power:	None			
Operating Mode:	Tx CW: High Channel 913.23 MHz, 0 dBm Sig Gen Output.			
Deviations:	None			
Comments:	6 dB Attenuator			

Frequency	913.23	Absolute Gain of Reference Antenna (dBi)	0.87
Measurement Antenna Polarity	Vertical	Reference Antenna Relative Gain Max (dBuV/m)	91.67
Antenna Under Test (AUT) Polarity	Vertical	AUT Relative Gain Max (dBuV/m)	89.07
Maximum Absolute Gain of AUT (dBi)	-1.63	Difference (Reference Antenna - AUT) (dB)	2.60
Average Absolute Gain of AUT (dBi)	-6.25	AUT Setup Loss (dB)	0.1
		Correction Factor (Convert Relative to Absolute Gain) (dB)	90.70

3 dB Beamwidth 46°

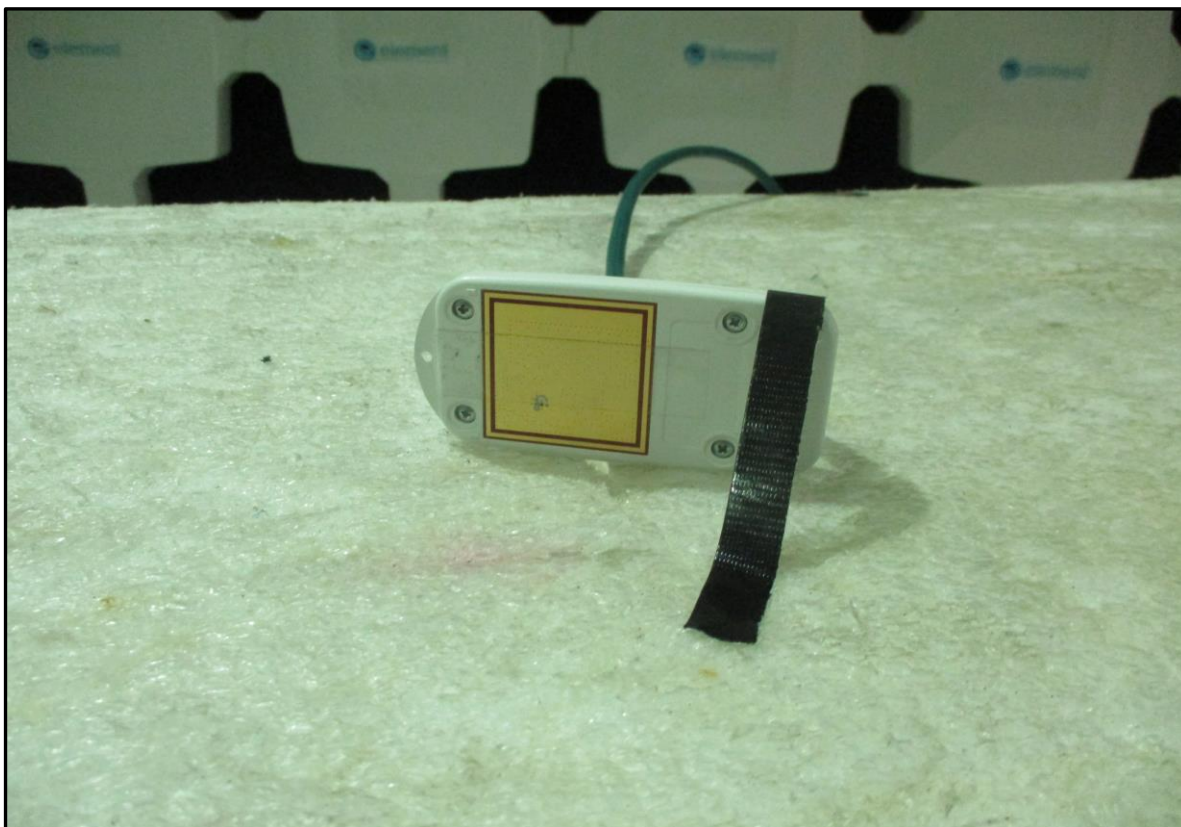
Run #	Test Distance (m)	Antenna Height(s)	Results
			NA



2D POLAR PLOTS

On Side

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Vertical



2D POLAR PLOTS

Horizontal

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End of Test Report