



element

BACtrack

Z9 Series

Antenna Report

Report: BACT0015.6 Rev. 0, Issue Date: October 20, 2025

Approved by:

Trevor Buls, Principal EMC Test Engineer
Signed for and on behalf of Element

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REVISION HISTORY



Revision Number		Description	Date (yyyy-mm-dd)	Page Number
00		None		

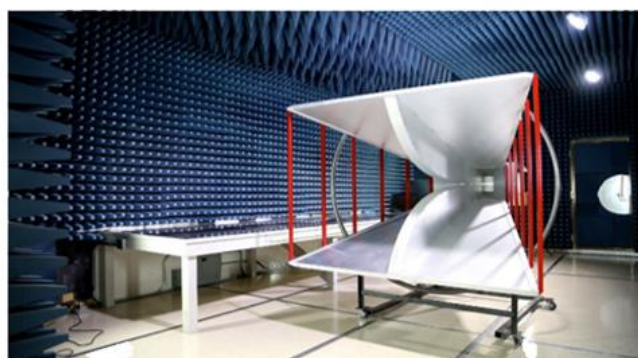
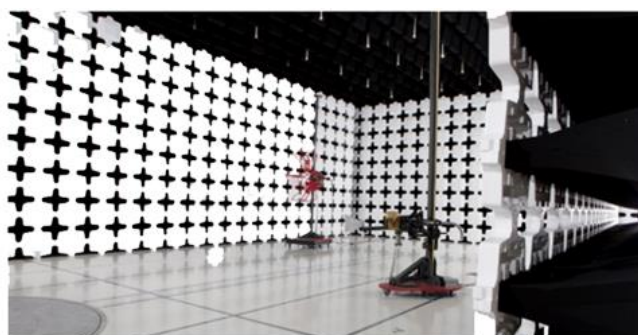
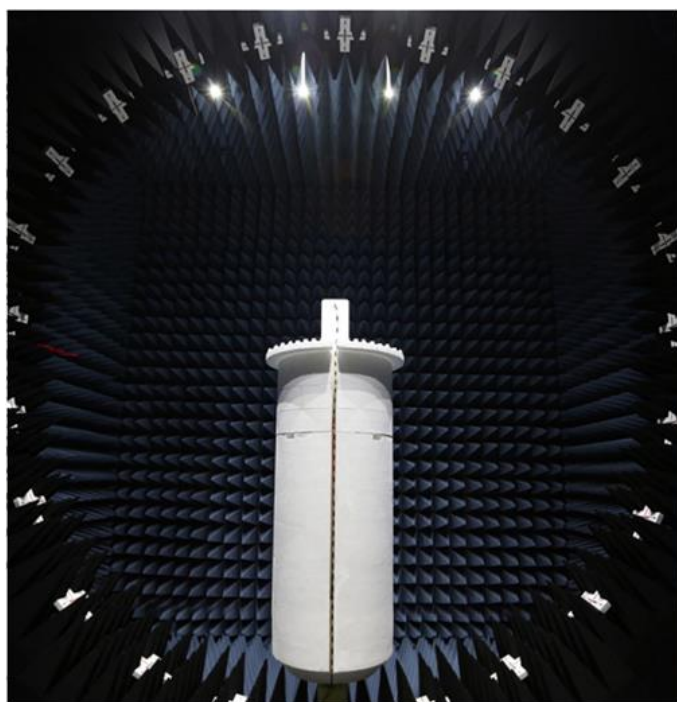
FACILITIES

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
☐	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/RRR, MOC, NCC, OFCA
- (7) FDA ASCA No.



PRODUCT DESCRIPTION

Client and Equipment under Test (EUT) Information

Company Name:	BACtrack
Address:	200 Green Street 2nd Floor
City, State, Zip:	San Francisco, CA 94111
Test Requested By:	Byron Benitez
EUT:	Z9 Series
First Date of Test:	September 5, 2025
Last Date of Test:	September 5, 2025
Receipt Date of Samples:	September 5, 2025
Equipment Design Stage:	Prototype
Equipment Condition:	No Damage
Purchase Authorization:	Verified

Information Provided by the Party Requesting the Test

Functional Description of the EUT:

The BACtrack is a Breath Alcohol Detector that contains a Bluetooth LE radio with custom integrated antenna. The custom integrated antenna is a meander-inverted-F antenna design implemented as a printed circuit board trace on the product's main logic board.

Testing Objective:

To obtain 2D antenna pattern measurements and calculated antenna performance values (Peak gain, 3dB Beamwidth, etc.)

AUT Photo:



CONFIGURATIONS



Configuration BACT0015-11

EUT			
Description	Manufacturer	Model/Part Number	Serial Number
BAC Meter w/ direct connect cable (has UFL)	BACtrack	Z9 Series	69

MODIFICATIONS



Equipment Modifications

Item	Date	Test	Modification	Note	Disposition of EUT
1	2025-09-05	Absolute Gain	Tested as delivered to test Station.	No EMI suppression devices were added or modified during this test.	Scheduled testing was completed.

ABSOLUTE GAIN

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.

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

Where:

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

E_{ref} = Electric field strength in dB μ V/m of the reference antenna

E_{aut} = Electric field strength in dB μ V/m of the AUT

L_c = AUT setup loss (dB)

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Cal. Due
Analyzer - Spectrum Analyzer	Keysight	N9010A	AFO	2024-11-25	2025-11-25
Generator - Signal	Keysight	N5182B	TFU	2025-03-21	2027-03-21
Antenna - Double Ridge	EMCO	3115	AHC	2024-07-18	2026-07-18
Attenuator	S.M. Electronics	18N-06	AWN	2024-11-14	2025-11-14
Cable	N/A	Double Ridge Horn Cables	EVB	2025-05-02	2026-05-02
Antenna - Double Ridge	ETS Lindgren	3115	AIZ	2024-03-08	2026-03-08

CONFIGURATIONS INVESTIGATED

BACT0015-11

MODES INVESTIGATED

CW

ABSOLUTE GAIN

Band	Serial Number	Frequency	Gain	Measurement Antenna Polarity	Antenna Under Test Polarity
2402-2480	66	2402	-14.25	Vertical	On Side
	66	2402	-3.95	Horizontal	Horizontal
	66	2402	-2.65	Vertical	Vertical
	66	2402	-1.35	Horizontal	Vertical
	66	2402	0.55	Vertical	Horizontal
	66	2402	0.65	Horizontal	On Side
	66	2442	-14.39	Vertical	On Side
	66	2442	-4.19	Horizontal	Horizontal
	66	2442	-2.39	Vertical	Vertical
	66	2442	-1.09	Horizontal	Vertical
	66	2442	0.81	Vertical	Horizontal
	66	2442	1.61	Horizontal	On Side
	66	2480	-15.83	Vertical	On Side
	66	2480	-4.03	Vertical	Vertical
	66	2480	-3.13	Horizontal	Horizontal
	66	2480	-0.73	Horizontal	Vertical
	66	2480	0.97	Horizontal	On Side
	66	2480	1.57	Vertical	Horizontal

ABSOLUTE GAIN

EUT:	Z9 Series	Work Order:	BACT0015
Serial Number:	66	Date:	2025-09-05
Customer:	BACtrack	Temperature:	22.2°C
Attendees:	None	Relative Humidity:	54.1%
Customer Project:	None	Bar. Pressure (PMSL):	1010 mb
Tested By:	Jeff Alcock and Christopher Pinkham	Job Site:	EV01
Power:	N/A	Configuration:	BACT0015-11

COMMENTS

None

EUT OPERATING MODES

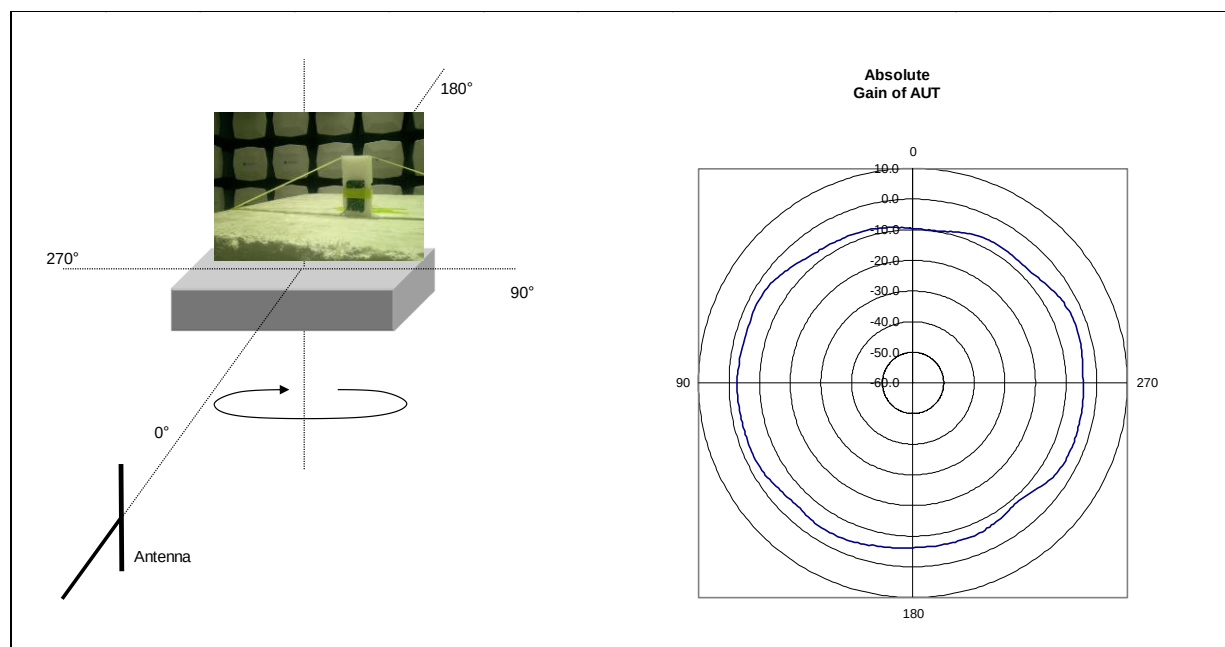
CW

DEVIATIONS FROM TEST STANDARD

None

TEST PARAMETERS

Frequency (MHz):	2402	Measurement Ant. Pol.:	Vertical	Ant. Under Test (AUT) Pol.:	Vertical
Maximum Absolute Gain of AUT (dBi):	-2.65	AUT Relative Gain Max (dBuV/m):	91.78		
Average Absolute Gain of AUT (dBi):	-5.47	Difference (Reference Antenna - AUT) (dB):	12.80		
Absolute Gain of Reference Antenna (dBi):	9.45	AUT Setup Loss (dB):	0.7		
Reference Antenna Relative Gain Max (dBuV/m):	104.58	Correction Factor (Convert Relative to Absolute Gain) (dB):	94.43		
Reference Antenna Measured Input Power (dBm):	NA	EUT Conducted Output Power (dBm):	NA		
Power Delta (Antenna Power-Output Power) (dB):	NA	3 dB Beamwidth:	126°		



Jeff Alcock
Tested By

ABSOLUTE GAIN

EUT:	Z9 Series	Work Order:	BACT0015
Serial Number:	66	Date:	2025-09-05
Customer:	BACtrack	Temperature:	22.2°C
Attendees:	None	Relative Humidity:	54.1%
Customer Project:	None	Bar. Pressure (PMSL):	1011 mb
Tested By:	Jeff Alcock and Christopher Pinkham	Job Site:	EV01
Power:	N/A	Configuration:	BACT0015-11

COMMENTS

None

EUT OPERATING MODES

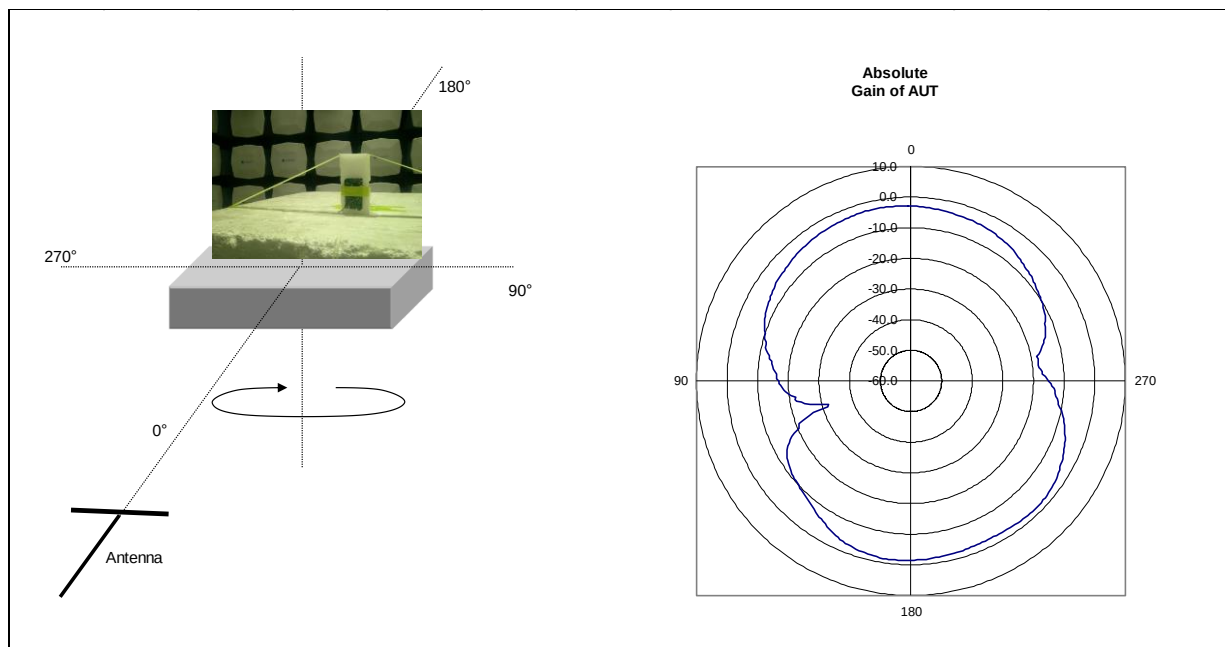
CW

DEVIATIONS FROM TEST STANDARD

None

TEST PARAMETERS

Frequency (MHz):	2402	Measurement Ant. Pol.:	Horizontal	Ant. Under Test (AUT) Pol.:	Vertical
Maximum Absolute Gain of AUT (dBi):	-1.35	AUT Relative Gain Max (dBuV/m):	93.08		
Average Absolute Gain of AUT (dBi):	-7.56	Difference (Reference Antenna - AUT) (dB):	11.50		
Absolute Gain of Reference Antenna (dBi):	9.45	AUT Setup Loss (dB):	0.7		
Reference Antenna Relative Gain Max (dBuV/m):	104.58	Correction Factor (Convert Relative to Absolute Gain) (dB):	94.43		
Reference Antenna Measured Input Power (dBm):	NA	EUT Conducted Output Power (dBm):	NA		
Power Delta (Antenna Power-Output Power) (dB):	NA	3 dB Beamwidth:	92°		



Jeff Alcock
Tested By

ABSOLUTE GAIN

EUT:	Z9 Series	Work Order:	BACT0015
Serial Number:	66	Date:	2025-09-05
Customer:	BACtrack	Temperature:	22.2°C
Attendees:	None	Relative Humidity:	54.1%
Customer Project:	None	Bar. Pressure (PMSL):	1011 mb
Tested By:	Jeff Alcock and Christopher Pinkham	Job Site:	EV01
Power:	N/A	Configuration:	BACT0015-11

COMMENTS

None

EUT OPERATING MODES

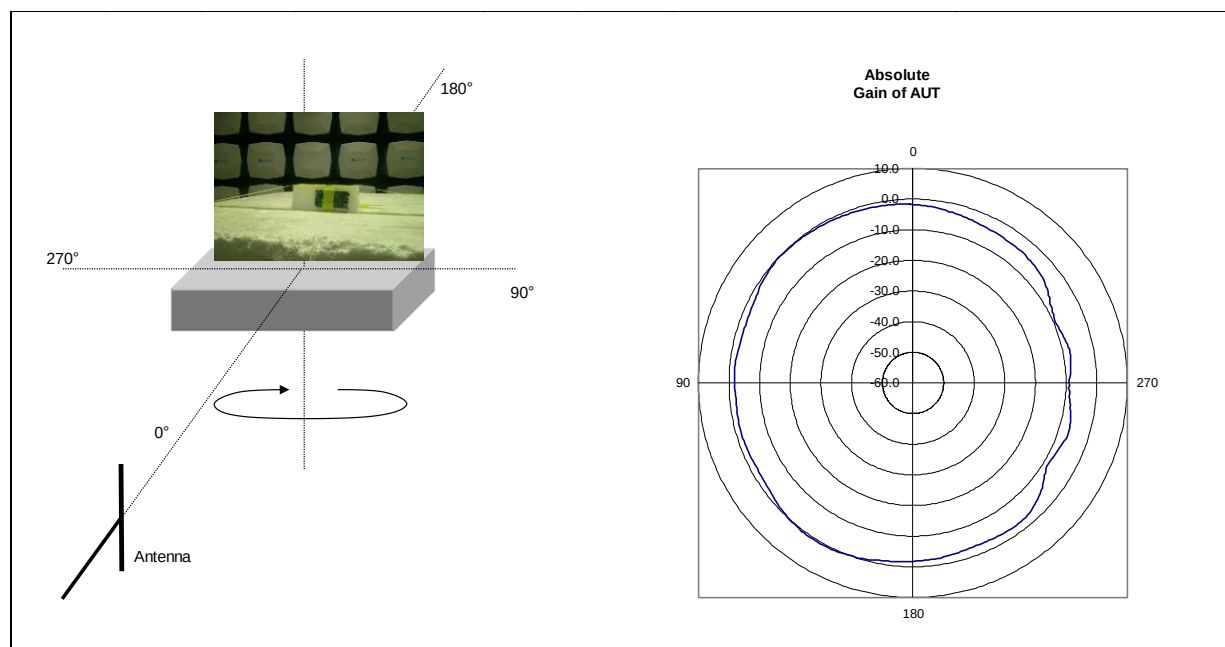
CW

DEVIATIONS FROM TEST STANDARD

None

TEST PARAMETERS

Frequency (MHz):	2402	Measurement Ant. Pol.:	Vertical	Ant. Under Test (AUT) Pol.:	Horizontal
Maximum Absolute Gain of AUT (dBi):	0.55	AUT Relative Gain Max (dBuV/m):		94.98	
Average Absolute Gain of AUT (dBi):	-3.18	Difference (Reference Antenna - AUT) (dB):		9.60	
Absolute Gain of Reference Antenna (dBi):	9.45	AUT Setup Loss (dB):		0.7	
Reference Antenna Relative Gain Max (dBuV/m):	104.58	Correction Factor (Convert Relative to Absolute Gain) (dB):		94.43	
Reference Antenna Measured Input Power (dBm):	NA	EUT Conducted Output Power (dBm):		NA	
Power Delta (Antenna Power-Output Power) (dB):	NA	3 dB Beamwidth:		201°	



Jeff Alcock
Tested By

ABSOLUTE GAIN

EUT:	Z9 Series	Work Order:	BACT0015
Serial Number:	66	Date:	2025-09-05
Customer:	BACtrack	Temperature:	22.2°C
Attendees:	None	Relative Humidity:	54.1%
Customer Project:	None	Bar. Pressure (PMSL):	1011 mb
Tested By:	Jeff Alcock and Christopher Pinkham	Job Site:	EV01
Power:	N/A	Configuration:	BACT0015-11

COMMENTS

None

EUT OPERATING MODES

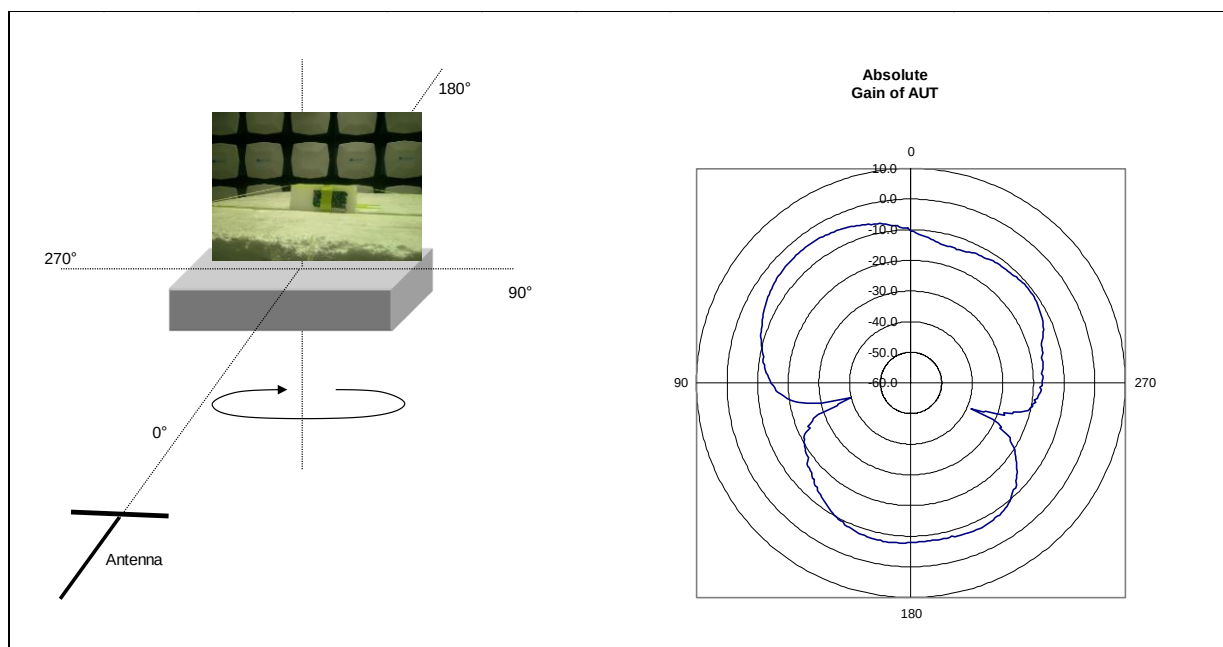
CW

DEVIATIONS FROM TEST STANDARD

None

TEST PARAMETERS

Frequency (MHz):	2402	Measurement Ant. Pol.:	Horizontal	Ant. Under Test (AUT) Pol.:	Horizontal
Maximum Absolute Gain of AUT (dBi):	-3.95	AUT Relative Gain Max (dBuV/m):	90.48		
Average Absolute Gain of AUT (dBi):	-12.65	Difference (Reference Antenna - AUT) (dB):	14.10		
Absolute Gain of Reference Antenna (dBi):	9.45	AUT Setup Loss (dB):	0.7		
Reference Antenna Relative Gain Max (dBuV/m):	104.58	Correction Factor (Convert Relative to Absolute Gain) (dB):	94.43		
Reference Antenna Measured Input Power (dBm):	NA	EUT Conducted Output Power (dBm):	NA		
Power Delta (Antenna Power-Output Power) (dB):	NA	3 dB Beamwidth:	54°		



Jeff Alcock
Tested By

ABSOLUTE GAIN

EUT:	Z9 Series	Work Order:	BACT0015
Serial Number:	66	Date:	2025-09-05
Customer:	BACtrack	Temperature:	22.2°C
Attendees:	None	Relative Humidity:	54.1%
Customer Project:	None	Bar. Pressure (PMSL):	1011 mb
Tested By:	Jeff Alcock and Christopher Pinkham	Job Site:	EV01
Power:	N/A	Configuration:	BACT0015-11

COMMENTS

None

EUT OPERATING MODES

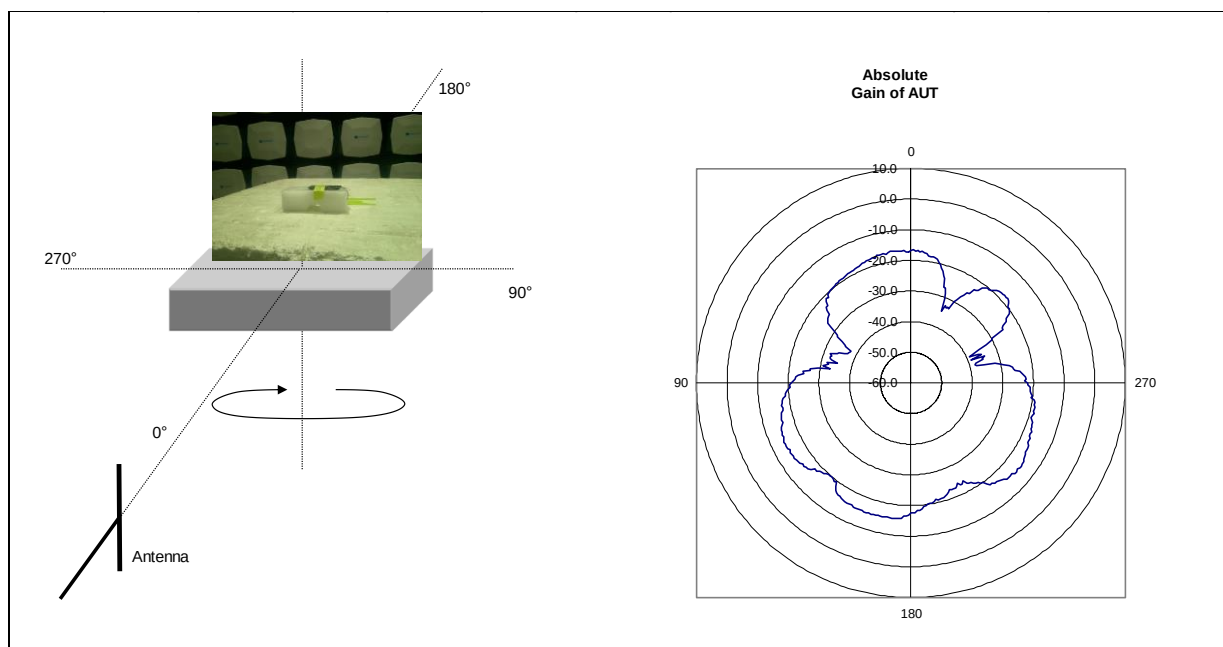
CW

DEVIATIONS FROM TEST STANDARD

None

TEST PARAMETERS

Frequency (MHz):	2402	Measurement Ant. Pol.:	Vertical	Ant. Under Test (AUT) Pol.:	On Side
Maximum Absolute Gain of AUT (dBi):	-14.25	AUT Relative Gain Max (dBuV/m):	80.18		
Average Absolute Gain of AUT (dBi):	-21.16	Difference (Reference Antenna - AUT) (dB):	24.40		
Absolute Gain of Reference Antenna (dBi):	9.45	AUT Setup Loss (dB):	0.7		
Reference Antenna Relative Gain Max (dBuV/m):	104.58	Correction Factor (Convert Relative to Absolute Gain) (dB):	94.43		
Reference Antenna Measured Input Power (dBm):	NA	EUT Conducted Output Power (dBm):	NA		
Power Delta (Antenna Power-Output Power) (dB):	NA	3 dB Beamwidth:	30°		



Jeff Alcock
Tested By

ABSOLUTE GAIN

EUT:	Z9 Series	Work Order:	BACT0015
Serial Number:	66	Date:	2025-09-05
Customer:	BACtrack	Temperature:	22.2°C
Attendees:	None	Relative Humidity:	54.1%
Customer Project:	None	Bar. Pressure (PMSL):	1011 mb
Tested By:	Jeff Alcock and Christopher Pinkham	Job Site:	EV01
Power:	N/A	Configuration:	BACT0015-11

COMMENTS

None

EUT OPERATING MODES

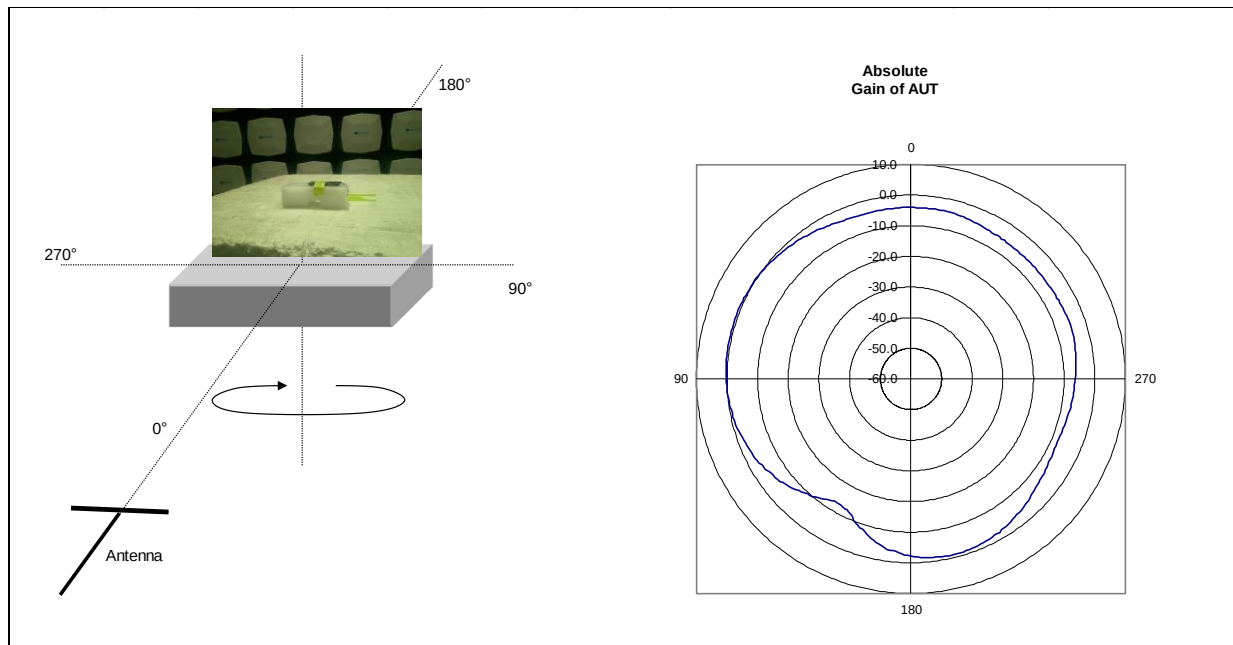
CW

DEVIATIONS FROM TEST STANDARD

None

TEST PARAMETERS

Frequency (MHz):	2402	Measurement Ant. Pol.:	Horizontal	Ant. Under Test (AUT) Pol.:	On Side
Maximum Absolute Gain of AUT (dBi):	0.65	AUT Relative Gain Max (dBuV/m):	95.08		
Average Absolute Gain of AUT (dBi):	-4.23	Difference (Reference Antenna - AUT) (dB):	9.50		
Absolute Gain of Reference Antenna (dBi):	9.45	AUT Setup Loss (dB):	0.7		
Reference Antenna Relative Gain Max (dBuV/m):	104.58	Correction Factor (Convert Relative to Absolute Gain) (dB):	94.43		
Reference Antenna Measured Input Power (dBm):	NA	EUT Conducted Output Power (dBm):	NA		
Power Delta (Antenna Power-Output Power) (dB):	NA	3 dB Beamwidth:	78°		



Jeff Alcock
Tested By

ABSOLUTE GAIN

EUT:	Z9 Series	Work Order:	BACT0015
Serial Number:	66	Date:	2025-09-05
Customer:	BACtrack	Temperature:	22.2°C
Attendees:	None	Relative Humidity:	54.1%
Customer Project:	None	Bar. Pressure (PMSL):	1011 mb
Tested By:	Jeff Alcock and Christopher Pinkham	Job Site:	EV01
Power:	N/A	Configuration:	BACT0015-11

COMMENTS

None

EUT OPERATING MODES

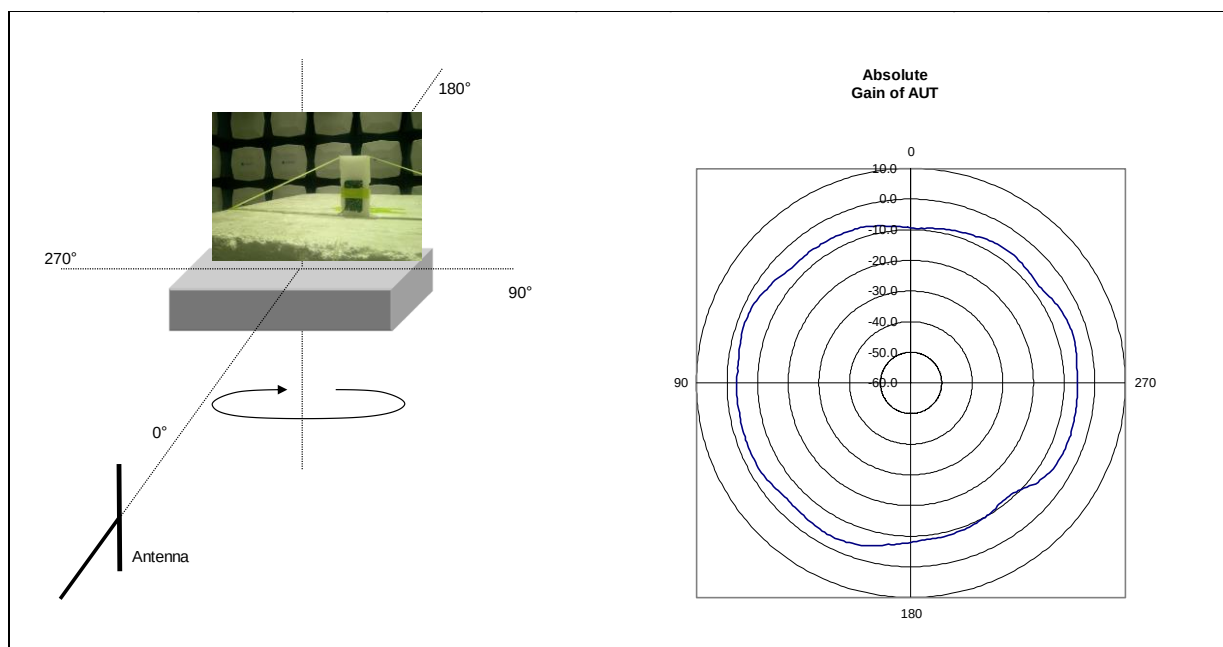
CW

DEVIATIONS FROM TEST STANDARD

None

TEST PARAMETERS

Frequency (MHz):	2442	Measurement Ant. Pol.:	Vertical	Ant. Under Test (AUT) Pol.:	Vertical
Maximum Absolute Gain of AUT (dBi):	-2.39	AUT Relative Gain Max (dBuV/m):		91.80	
Average Absolute Gain of AUT (dBi):	-6.02	Difference (Reference Antenna - AUT) (dB):		12.70	
Absolute Gain of Reference Antenna (dBi):	9.61	AUT Setup Loss (dB):		0.7	
Reference Antenna Relative Gain Max (dBuV/m):	104.50	Correction Factor (Convert Relative to Absolute Gain) (dB):		94.19	
Reference Antenna Measured Input Power (dBm):	NA	EUT Conducted Output Power (dBm):		NA	
Power Delta (Antenna Power-Output Power) (dB):	NA	3 dB Beamwidth:		118°	



Jeff Alcock
Tested By

ABSOLUTE GAIN

EUT:	Z9 Series	Work Order:	BACT0015
Serial Number:	66	Date:	2025-09-05
Customer:	BACtrack	Temperature:	22.2°C
Attendees:	None	Relative Humidity:	54.1%
Customer Project:	None	Bar. Pressure (PMSL):	1011 mb
Tested By:	Jeff Alcock and Christopher Pinkham	Job Site:	EV01
Power:	N/A	Configuration:	BACT0015-11

COMMENTS

None

EUT OPERATING MODES

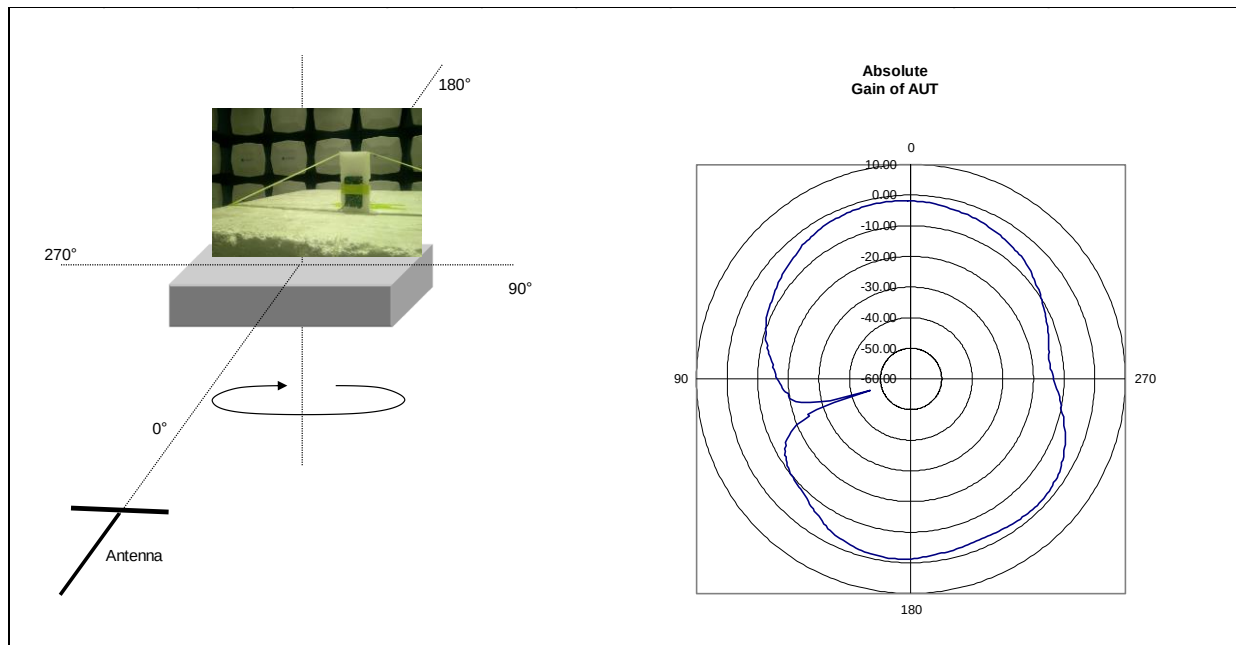
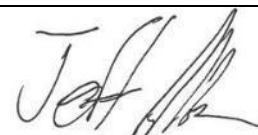
CW

DEVIATIONS FROM TEST STANDARD

None

TEST PARAMETERS

Frequency (MHz):	2442	Measurement Ant. Pol.:	Horizontal	Ant. Under Test (AUT) Pol.:	Vertical
Maximum Absolute Gain of AUT (dBi):	-1.09	AUT Relative Gain Max (dBuV/m):	93.10		
Average Absolute Gain of AUT (dBi):	-7.23	Difference (Reference Antenna - AUT) (dB):	11.40		
Absolute Gain of Reference Antenna (dBi):	9.61	AUT Setup Loss (dB):	0.7		
Reference Antenna Relative Gain Max (dBuV/m):	104.50	Correction Factor (Convert Relative to Absolute Gain) (dB):	94.19		
Reference Antenna Measured Input Power (dBm):	NA	EUT Conducted Output Power (dBm):	NA		
Power Delta (Antenna Power-Output Power) (dB):	NA	3 dB Beamwidth:	92°		

Tested By

ABSOLUTE GAIN

EUT:	Z9 Series	Work Order:	BACT0015
Serial Number:	66	Date:	2025-09-05
Customer:	BACtrack	Temperature:	22.2°C
Attendees:	None	Relative Humidity:	54.1%
Customer Project:	None	Bar. Pressure (PMSL):	1011 mb
Tested By:	Jeff Alcock and Christopher Pinkham	Job Site:	EV01
Power:	N/A	Configuration:	BACT0015-11

COMMENTS

None

EUT OPERATING MODES

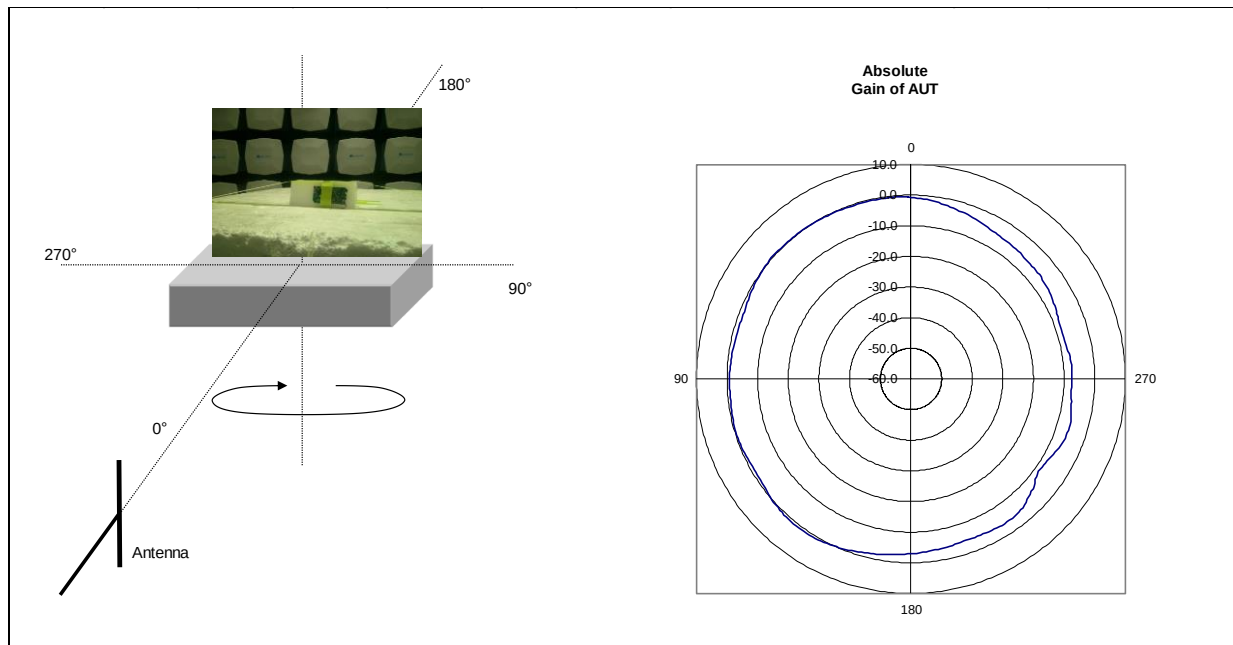
CW

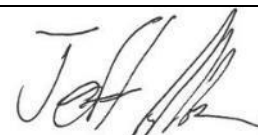
DEVIATIONS FROM TEST STANDARD

None

TEST PARAMETERS

Frequency (MHz):	2442	Measurement Ant. Pol.:	Vertical	Ant. Under Test (AUT) Pol.:	Horizontal
Maximum Absolute Gain of AUT (dBi):	0.81	AUT Relative Gain Max (dBuV/m):	95.00		
Average Absolute Gain of AUT (dBi):	-2.99	Difference (Reference Antenna - AUT) (dB):	9.50		
Absolute Gain of Reference Antenna (dBi):	9.61	AUT Setup Loss (dB):	0.7		
Reference Antenna Relative Gain Max (dBuV/m):	104.50	Correction Factor (Convert Relative to Absolute Gain) (dB):	94.19		
Reference Antenna Measured Input Power (dBm):	NA	EUT Conducted Output Power (dBm):	NA		
Power Delta (Antenna Power-Output Power) (dB):	NA	3 dB Beamwidth:	184°		





Tested By

ABSOLUTE GAIN

EUT:	Z9 Series	Work Order:	BACT0015
Serial Number:	66	Date:	2025-09-05
Customer:	BACtrack	Temperature:	22.2°C
Attendees:	None	Relative Humidity:	54.1%
Customer Project:	None	Bar. Pressure (PMSL):	1011 mb
Tested By:	Jeff Alcock and Christopher Pinkham	Job Site:	EV01
Power:	N/A	Configuration:	BACT0015-11

COMMENTS

None

EUT OPERATING MODES

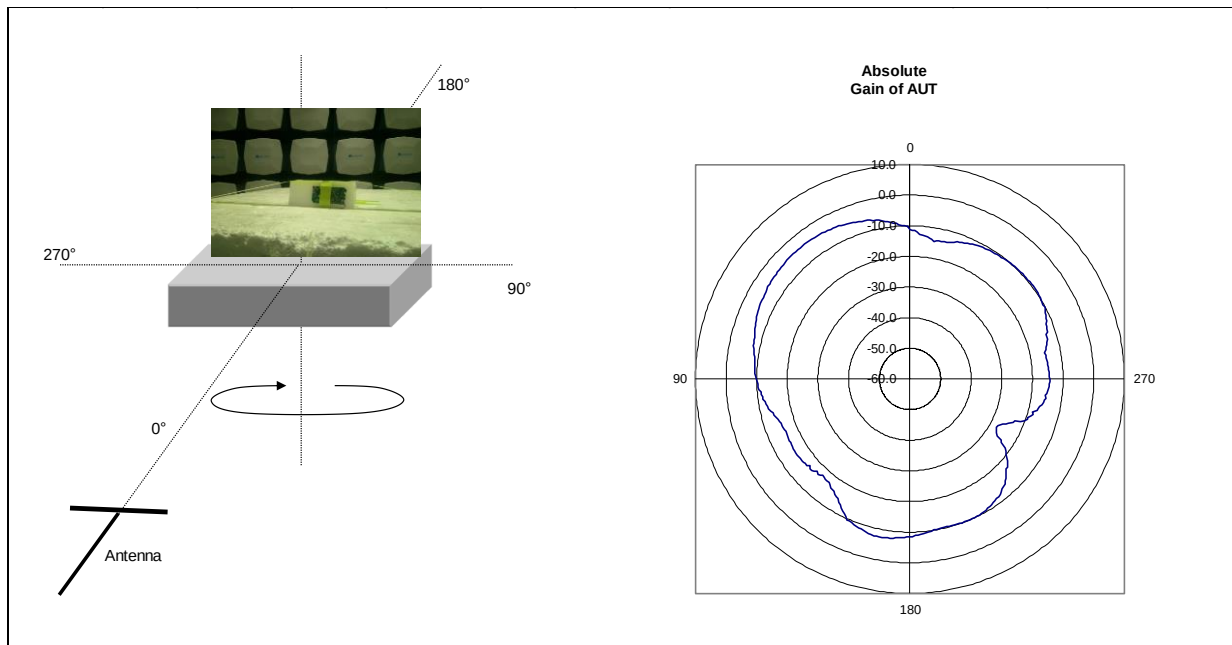
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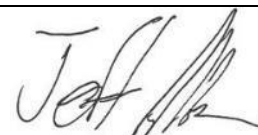
DEVIATIONS FROM TEST STANDARD

None

TEST PARAMETERS

Frequency (MHz):	2442	Measurement Ant. Pol.:	Horizontal	Ant. Under Test (AUT) Pol.:	Horizontal
Maximum Absolute Gain of AUT (dBi):	-4.19	AUT Relative Gain Max (dBuV/m):	90.00		
Average Absolute Gain of AUT (dBi):	-11.61	Difference (Reference Antenna - AUT) (dB):	14.50		
Absolute Gain of Reference Antenna (dBi):	9.61	AUT Setup Loss (dB):	0.7		
Reference Antenna Relative Gain Max (dBuV/m):	104.50	Correction Factor (Convert Relative to Absolute Gain) (dB):	94.19		
Reference Antenna Measured Input Power (dBm):	NA	EUT Conducted Output Power (dBm):	NA		
Power Delta (Antenna Power-Output Power) (dB):	NA	3 dB Beamwidth:	63°		




 Tested By

ABSOLUTE GAIN

EUT:	Z9 Series	Work Order:	BACT0015
Serial Number:	66	Date:	2025-09-05
Customer:	BACtrack	Temperature:	22.2°C
Attendees:	None	Relative Humidity:	54.1%
Customer Project:	None	Bar. Pressure (PMSL):	1011 mb
Tested By:	Jeff Alcock and Christopher Pinkham	Job Site:	EV01
Power:	N/A	Configuration:	BACT0015-11

COMMENTS

None

EUT OPERATING MODES

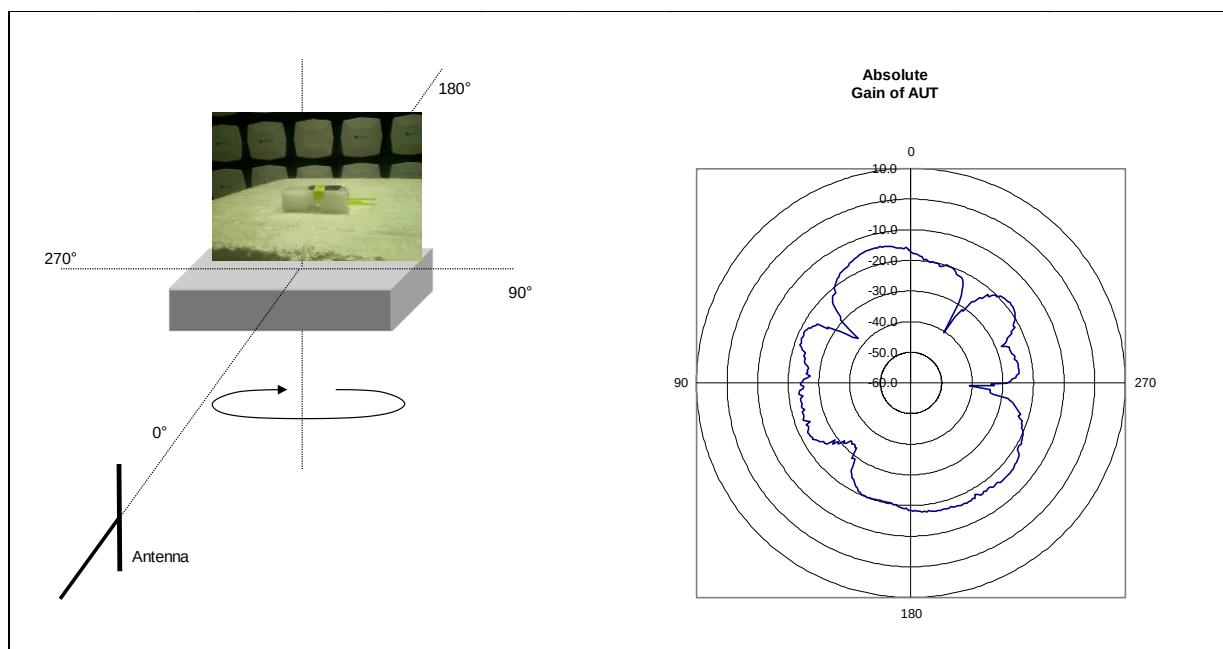
CW

DEVIATIONS FROM TEST STANDARD

None

TEST PARAMETERS

Frequency (MHz):	2442	Measurement Ant. Pol.:	Vertical	Ant. Under Test (AUT) Pol.:	On Side
Maximum Absolute Gain of AUT (dBi):	-14.39	AUT Relative Gain Max (dBuV/m):	79.80		
Average Absolute Gain of AUT (dBi):	-22.10	Difference (Reference Antenna - AUT) (dB):	24.70		
Absolute Gain of Reference Antenna (dBi):	9.61	AUT Setup Loss (dB):	0.7		
Reference Antenna Relative Gain Max (dBuV/m):	104.50	Correction Factor (Convert Relative to Absolute Gain) (dB):	94.19		
Reference Antenna Measured Input Power (dBm):	NA	EUT Conducted Output Power (dBm):	NA		
Power Delta (Antenna Power-Output Power) (dB):	NA	3 dB Beamwidth:	34°		



Jeff Alcock
Tested By

ABSOLUTE GAIN

EUT:	Z9 Series	Work Order:	BACT0015
Serial Number:	66	Date:	2025-09-05
Customer:	BACtrack	Temperature:	22.2°C
Attendees:	None	Relative Humidity:	54.1%
Customer Project:	None	Bar. Pressure (PMSL):	1011 mb
Tested By:	Jeff Alcock and Christopher Pinkham	Job Site:	EV01
Power:	N/A	Configuration:	BACT0015-11

COMMENTS

None

EUT OPERATING MODES

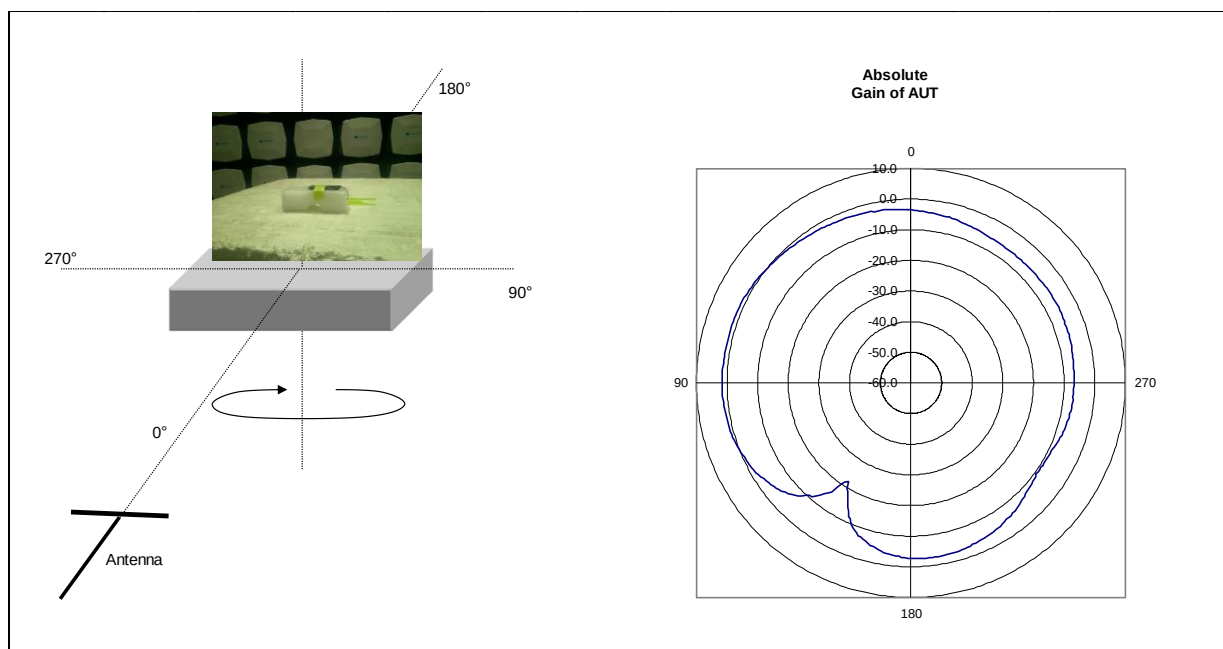
CW

DEVIATIONS FROM TEST STANDARD

None

TEST PARAMETERS

Frequency (MHz):	2442	Measurement Ant. Pol.:	Horizontal	Ant. Under Test (AUT) Pol.:	On Side
Maximum Absolute Gain of AUT (dBi):	1.61	AUT Relative Gain Max (dBuV/m):	95.80		
Average Absolute Gain of AUT (dBi):	-4.46	Difference (Reference Antenna - AUT) (dB):	8.70		
Absolute Gain of Reference Antenna (dBi):	9.61	AUT Setup Loss (dB):	0.7		
Reference Antenna Relative Gain Max (dBuV/m):	104.50	Correction Factor (Convert Relative to Absolute Gain) (dB):	94.19		
Reference Antenna Measured Input Power (dBm):	NA	EUT Conducted Output Power (dBm):	NA		
Power Delta (Antenna Power-Output Power) (dB):	NA	3 dB Beamwidth:	83°		



Jeff Alcock
Tested By

ABSOLUTE GAIN

EUT:	Z9 Series	Work Order:	BACT0015
Serial Number:	66	Date:	2025-09-05
Customer:	BACtrack	Temperature:	22.2°C
Attendees:	None	Relative Humidity:	54.1%
Customer Project:	None	Bar. Pressure (PMSL):	1011 mb
Tested By:	Jeff Alcock and Christopher Pinkham	Job Site:	EV01
Power:	N/A	Configuration:	BACT0015-11

COMMENTS

None

EUT OPERATING MODES

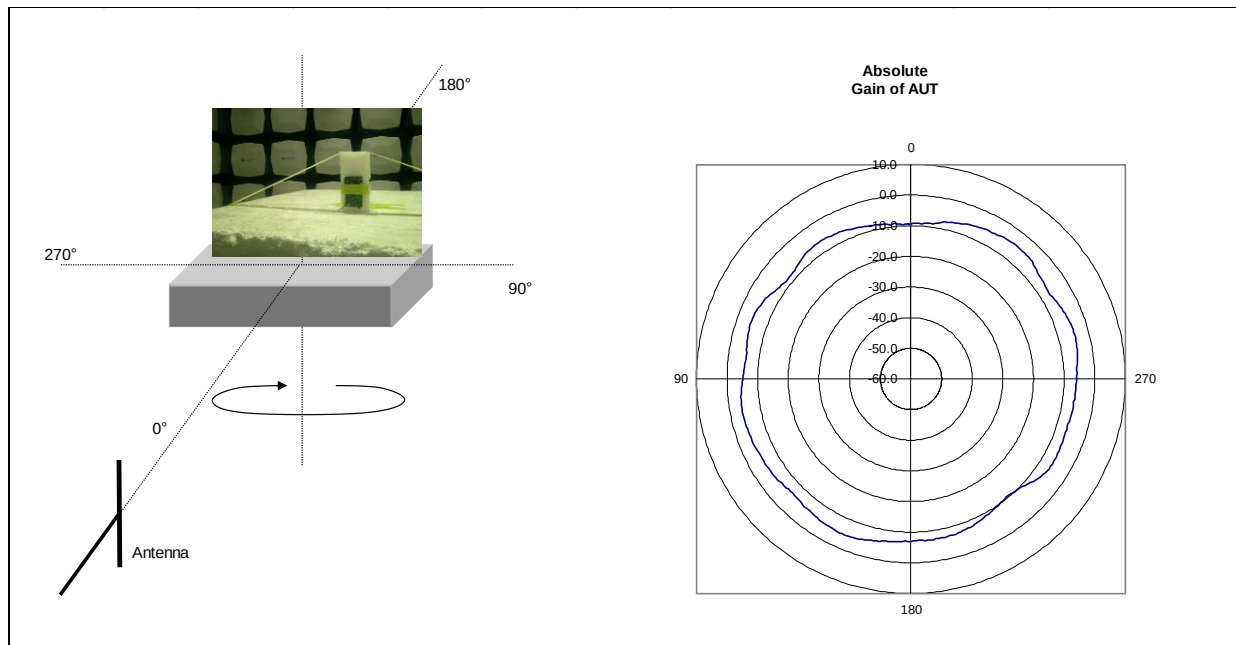
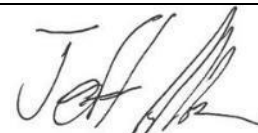
CW

DEVIATIONS FROM TEST STANDARD

None

TEST PARAMETERS

Frequency (MHz):	2480	Measurement Ant. Pol.:	Vertical	Ant. Under Test (AUT) Pol.:	Vertical
Maximum Absolute Gain of AUT (dBi):	-4.03	AUT Relative Gain Max (dBuV/m):	89.48		
Average Absolute Gain of AUT (dBi):	-6.41	Difference (Reference Antenna - AUT) (dB):	14.60		
Absolute Gain of Reference Antenna (dBi):	9.87	AUT Setup Loss (dB):	0.7		
Reference Antenna Relative Gain Max (dBuV/m):	104.08	Correction Factor (Convert Relative to Absolute Gain) (dB):	93.51		
Reference Antenna Measured Input Power (dBm):	NA	EUT Conducted Output Power (dBm):	NA		
Power Delta (Antenna Power-Output Power) (dB):	NA	3 dB Beamwidth:	121°		

Tested By

ABSOLUTE GAIN

EUT:	Z9 Series	Work Order:	BACT0015
Serial Number:	66	Date:	2025-09-05
Customer:	BACtrack	Temperature:	22.2°C
Attendees:	None	Relative Humidity:	54.1%
Customer Project:	None	Bar. Pressure (PMSL):	1011 mb
Tested By:	Jeff Alcock and Christopher Pinkham	Job Site:	EV01
Power:	N/A	Configuration:	BACT0015-11

COMMENTS

None

EUT OPERATING MODES

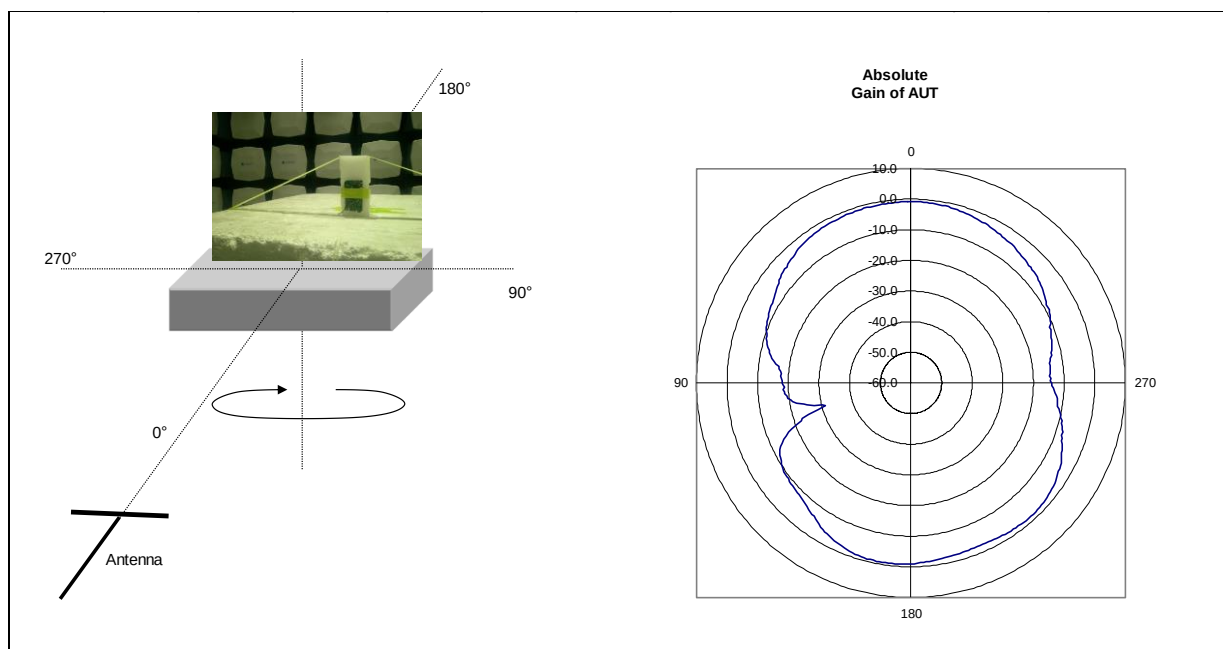
CW

DEVIATIONS FROM TEST STANDARD

None

TEST PARAMETERS

Frequency (MHz):	2480	Measurement Ant. Pol.:	Horizontal	Ant. Under Test (AUT) Pol.:	Vertical
Maximum Absolute Gain of AUT (dBi):	-0.73	AUT Relative Gain Max (dBuV/m):	92.78		
Average Absolute Gain of AUT (dBi):	-6.63	Difference (Reference Antenna - AUT) (dB):	11.30		
Absolute Gain of Reference Antenna (dBi):	9.87	AUT Setup Loss (dB):	0.7		
Reference Antenna Relative Gain Max (dBuV/m):	104.08	Correction Factor (Convert Relative to Absolute Gain) (dB):	93.51		
Reference Antenna Measured Input Power (dBm):	NA	EUT Conducted Output Power (dBm):	NA		
Power Delta (Antenna Power-Output Power) (dB):	NA	3 dB Beamwidth:	77°		



Jeff Alcock
Tested By

ABSOLUTE GAIN

EUT:	Z9 Series	Work Order:	BACT0015
Serial Number:	66	Date:	2025-09-05
Customer:	BACtrack	Temperature:	22.2°C
Attendees:	None	Relative Humidity:	54.1%
Customer Project:	None	Bar. Pressure (PMSL):	1011 mb
Tested By:	Jeff Alcock and Christopher Pinkham	Job Site:	EV01
Power:	N/A	Configuration:	BACT0015-11

COMMENTS

None

EUT OPERATING MODES

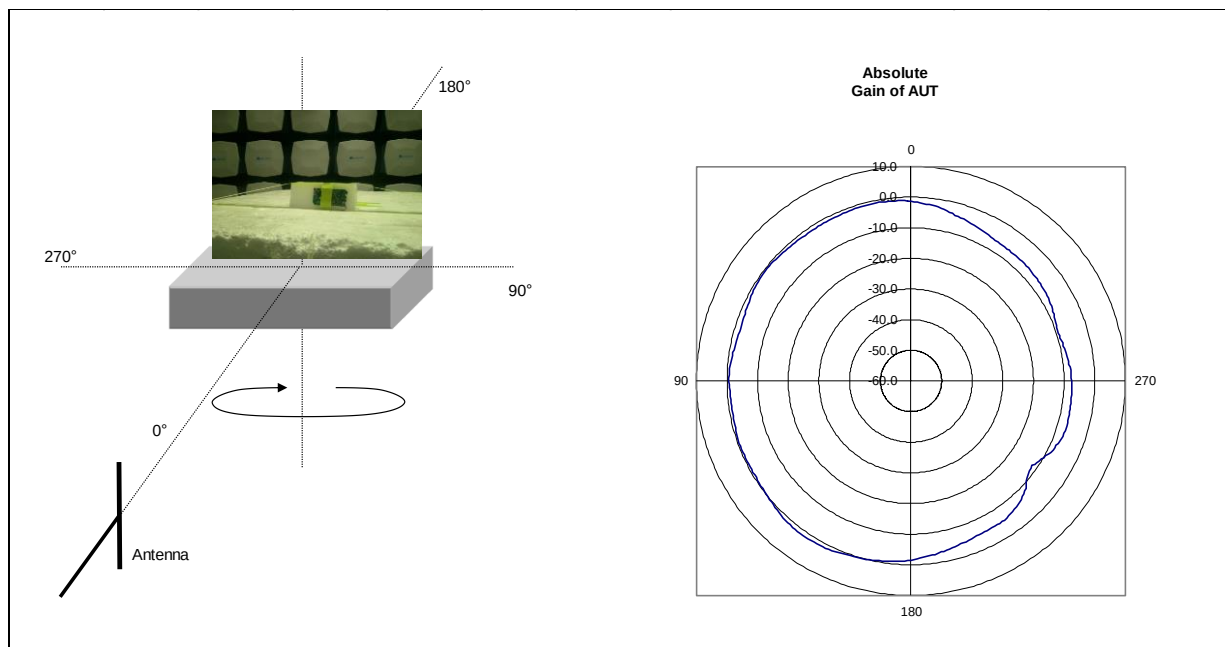
CW

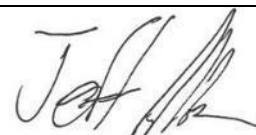
DEVIATIONS FROM TEST STANDARD

None

TEST PARAMETERS

Frequency (MHz):	2480	Measurement Ant. Pol.:	Vertical	Ant. Under Test (AUT) Pol.:	Horizontal
Maximum Absolute Gain of AUT (dBi):	1.57	AUT Relative Gain Max (dBuV/m):	95.08		
Average Absolute Gain of AUT (dBi):	-3.51	Difference (Reference Antenna - AUT) (dB):	9.00		
Absolute Gain of Reference Antenna (dBi):	9.87	AUT Setup Loss (dB):	0.7		
Reference Antenna Relative Gain Max (dBuV/m):	104.08	Correction Factor (Convert Relative to Absolute Gain) (dB):	93.51		
Reference Antenna Measured Input Power (dBm):	NA	EUT Conducted Output Power (dBm):	NA		
Power Delta (Antenna Power-Output Power) (dB):	NA	3 dB Beamwidth:	101°		




 Tested By

ABSOLUTE GAIN

EUT:	Z9 Series	Work Order:	BACT0015
Serial Number:	66	Date:	2025-09-05
Customer:	BACtrack	Temperature:	22.2°C
Attendees:	None	Relative Humidity:	54.1%
Customer Project:	None	Bar. Pressure (PMSL):	1011 mb
Tested By:	Jeff Alcock and Christopher Pinkham	Job Site:	EV01
Power:	N/A	Configuration:	BACT0015-11

COMMENTS

None

EUT OPERATING MODES

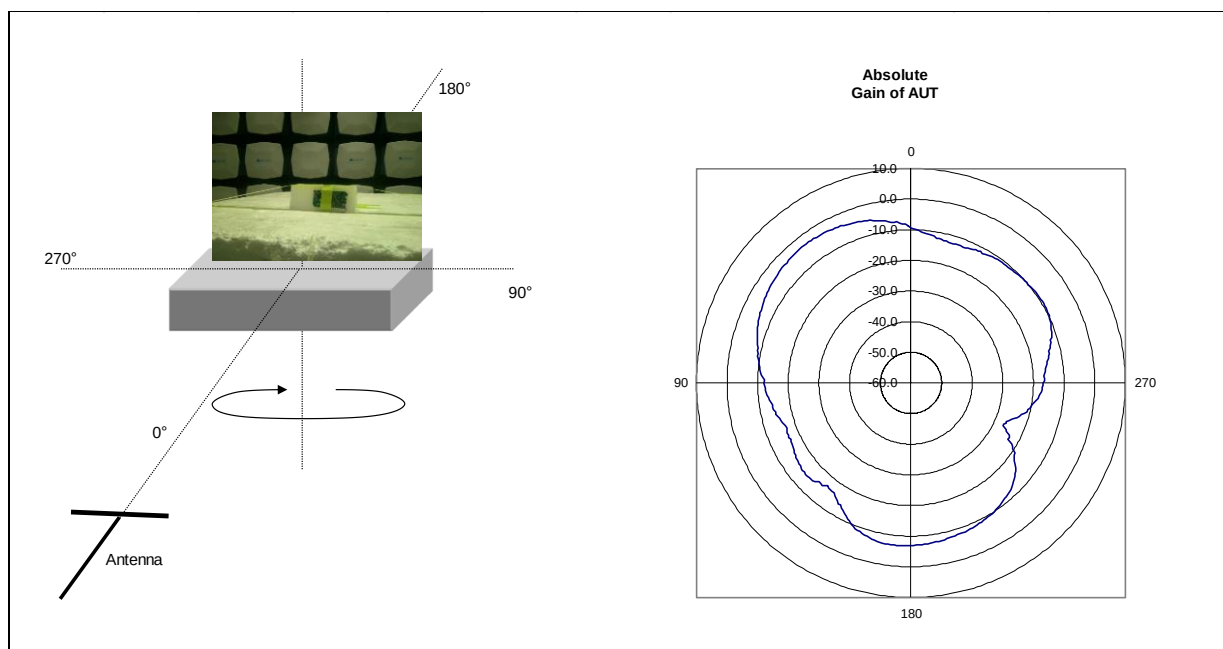
CW

DEVIATIONS FROM TEST STANDARD

None

TEST PARAMETERS

Frequency (MHz):	2480	Measurement Ant. Pol.:	Horizontal	Ant. Under Test (AUT) Pol.:	Horizontal
Maximum Absolute Gain of AUT (dBi):	-3.13	AUT Relative Gain Max (dBuV/m):	90.38		
Average Absolute Gain of AUT (dBi):	-11.27	Difference (Reference Antenna - AUT) (dB):	13.70		
Absolute Gain of Reference Antenna (dBi):	9.87	AUT Setup Loss (dB):	0.7		
Reference Antenna Relative Gain Max (dBuV/m):	104.08	Correction Factor (Convert Relative to Absolute Gain) (dB):	93.51		
Reference Antenna Measured Input Power (dBm):	NA	EUT Conducted Output Power (dBm):	NA		
Power Delta (Antenna Power-Output Power) (dB):	NA	3 dB Beamwidth:	58°		



Jeff Alcock
Tested By

ABSOLUTE GAIN

EUT:	Z9 Series	Work Order:	BACT0015
Serial Number:	66	Date:	2025-09-05
Customer:	BACtrack	Temperature:	22.2°C
Attendees:	None	Relative Humidity:	54.1%
Customer Project:	None	Bar. Pressure (PMSL):	1011 mb
Tested By:	Jeff Alcock and Christopher Pinkham	Job Site:	EV01
Power:	N/A	Configuration:	BACT0015-11

COMMENTS

None

EUT OPERATING MODES

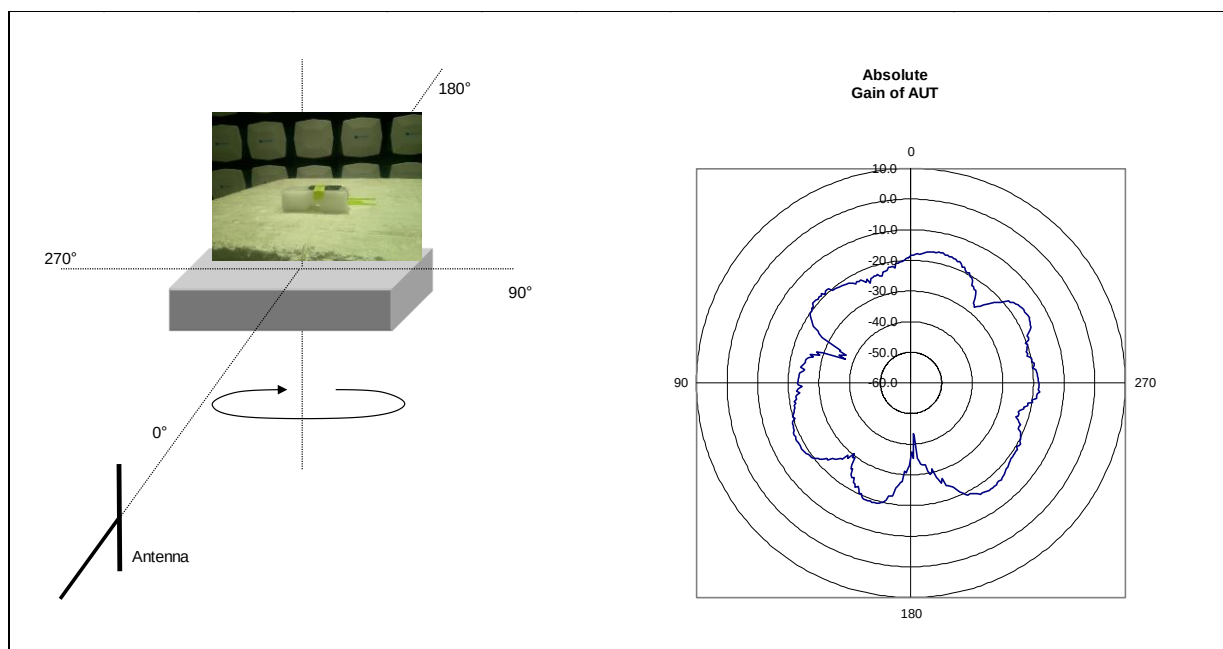
CW

DEVIATIONS FROM TEST STANDARD

None

TEST PARAMETERS

Frequency (MHz):	2480	Measurement Ant. Pol.:	Vertical	Ant. Under Test (AUT) Pol.:	On Side
Maximum Absolute Gain of AUT (dBi):	-15.83	AUT Relative Gain Max (dBuV/m):	77.68		
Average Absolute Gain of AUT (dBi):	-21.83	Difference (Reference Antenna - AUT) (dB):	26.40		
Absolute Gain of Reference Antenna (dBi):	9.87	AUT Setup Loss (dB):	0.7		
Reference Antenna Relative Gain Max (dBuV/m):	104.08	Correction Factor (Convert Relative to Absolute Gain) (dB):	93.51		
Reference Antenna Measured Input Power (dBm):	NA	EUT Conducted Output Power (dBm):	NA		
Power Delta (Antenna Power-Output Power) (dB):	NA	3 dB Beamwidth:	19°		



Jeff Alcock
Tested By

ABSOLUTE GAIN

EUT:	Z9 Series	Work Order:	BACT0015
Serial Number:	66	Date:	2025-09-05
Customer:	BACtrack	Temperature:	22.2°C
Attendees:	None	Relative Humidity:	54.1%
Customer Project:	None	Bar. Pressure (PMSL):	1011 mb
Tested By:	Jeff Alcock and Christopher Pinkham	Job Site:	EV01
Power:	N/A	Configuration:	BACT0015-11

COMMENTS

None

EUT OPERATING MODES

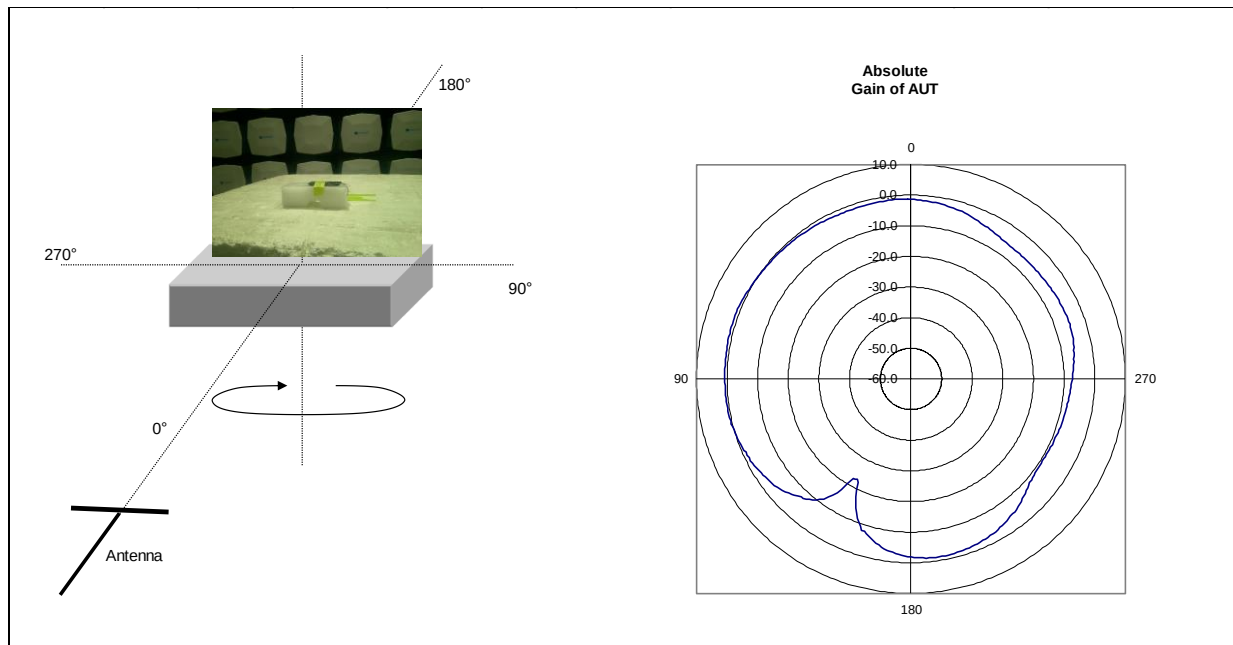
CW

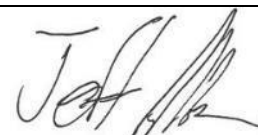
DEVIATIONS FROM TEST STANDARD

None

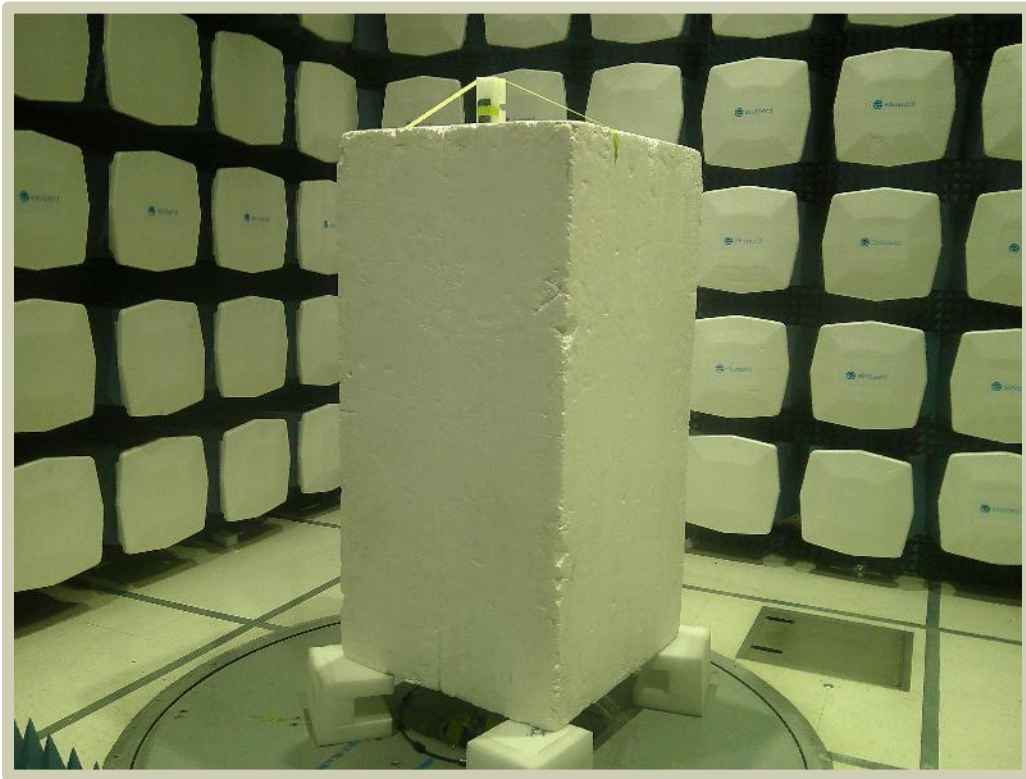
TEST PARAMETERS

Frequency (MHz):	2480	Measurement Ant. Pol.:	Horizontal	Ant. Under Test (AUT) Pol.:	On Side
Maximum Absolute Gain of AUT (dBi):	0.97	AUT Relative Gain Max (dBuV/m):	94.48		
Average Absolute Gain of AUT (dBi):	-4.14	Difference (Reference Antenna - AUT) (dB):	9.60		
Absolute Gain of Reference Antenna (dBi):	9.87	AUT Setup Loss (dB):	0.7		
Reference Antenna Relative Gain Max (dBuV/m):	104.08	Correction Factor (Convert Relative to Absolute Gain) (dB):	93.51		
Reference Antenna Measured Input Power (dBm):	NA	EUT Conducted Output Power (dBm):	NA		
Power Delta (Antenna Power-Output Power) (dB):	NA	3 dB Beamwidth:	130°		




 Tested By

ABSOLUTE GAIN



End of Test Report