

CEL Dual-Band Planar Antenna 0033 Datasheet

Equipment : **Antenna**
Brand Name : **California Eastern Laboratories**
Model Name : **Dual-Band Planar Antenna 0033**
Manufacturer : **California Eastern Laboratories**
N58 W14690 Shawn Circle
Menomonee Falls, WI 53051
Standard : **IEEE Std 149-2021**

The tested sample has been evaluated in accordance with procedures pursuant to IEEE Std 149-2021 and has demonstrated compliance with the applicable technical standard(s).

The test results in this report apply exclusively to the tested model and sample under the condition(s) and mode(s) of operation described herein. Measurement uncertainties were not considered. This report is published for informational purposes only and is to be used to support regulatory compliance with the aforementioned standard(s).

Table of Contents

GENERAL DESCRIPTION.....	4
1.1 Antenna Information	4
1.2 Support Equipment	4
1.3 Applied Technical Standard(s)	4
1.4 Test Location.....	4
1.5 Test Channel Frequencies Configuration.....	4
2. ANTENNA TEST RESULT(S)	5
2.1 Test Configuration	5
2.2 Test Measurement	5
3. TEST EQUIPMENT AND CALIBRATION DATA	6
4. APPENDIX A: TABLE OF MEASURED GAIN	7
5. APPENDIX B: POLARIZATION PLOTS	8
6. APPENDIX C: RETURN LOSS (S_{11})	12

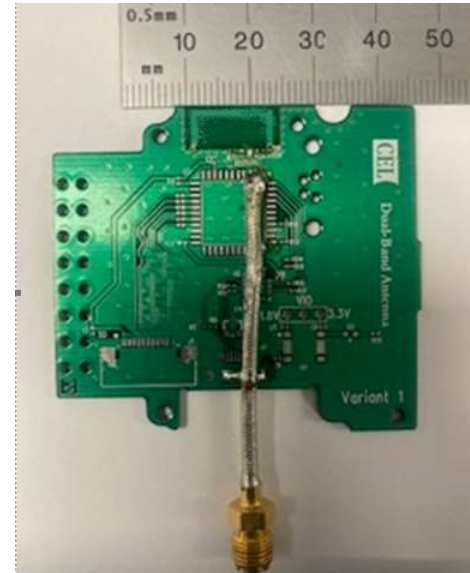
Revision History

Previous Versions	Changes to current version	Page(s)
Issue A	Initial release	All
Issue B	Updated antenna type to “Split Ring”	4
Issue C	Corrected the peak gain for 2.4 GHz under section 1.1	4

GENERAL DESCRIPTION

1.1 Antenna Information

Manufacturer	California Eastern Laboratories
Model Name	Dual-Band Planar Antenna 0033
Frequency (MHz)	2400-2500 5150-5350, 5470-5850
Peak Gain (dBi)	1.0 in 2.4 GHz band 4.4 in 5 GHz band
VSWR	2.2:1
Power (W)	1
Impedance (Ohms)	50
Antenna Type	Split Ring
Dimensions (mm)	14.5 x 6 x 1.6
Operating Temperature (deg C)	-40C to +85C



1.2 Support Equipment

Support Equipment				
No.	Equipment	Brand Name	Model Name	Remarks
1	Signal Generator	HP	83623L	N/A

1.3 Applied Technical Standard(s)

IEEE Std 149-2021

1.4 Test Location

California Eastern Laboratories
N58 W14690 Shawn Circle
Menomonee Falls, WI 53051

1.5 Test Channel Frequencies Configuration

Test Channel Frequency Configuration	
2400-2480 MHz Test Channel Frequency	
Low band	2405 MHz
Mid band	2440 MHz
High band	2480 MHz

Test Channel Frequency Configuration	
5150-5350 MHz Test Channel Frequency	
Low band	5150 MHz
Mid band	5250 MHz
High band	5350 MHz

Test Channel Frequency Configuration	
5470-5850 MHz Test Channel Frequency	
Low band	5470 MHz
Low mid band	5560 MHz
Mid band	5725 MHz
High mid band	5790 MHz
High band	5850 MHz

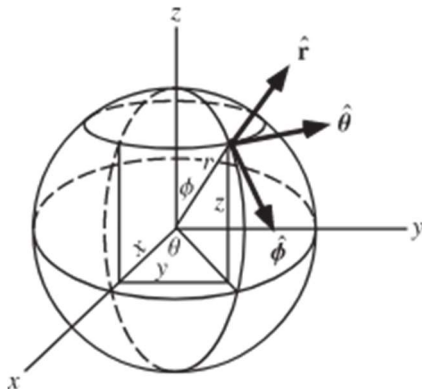
2. ANTENNA TEST RESULT(S)

2.1 Test Configuration

The great-circle-cut method was used to measure the gain of the antenna under test (AUT) in a qualified anechoic chamber. The center of projection of the AUT was located at the center of the turntable. The distance between the AUT and the measurement antenna was 3 meters.

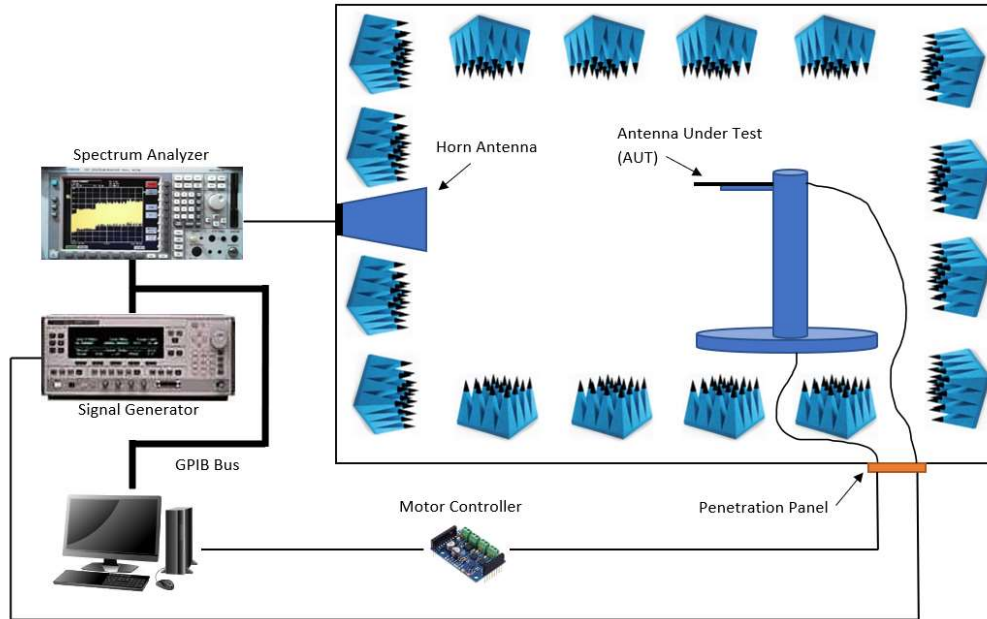
2.2 Test Measurement

Spherical coordinate system



The spherical coordinate system is used to map the measured radiation pattern of the AUT onto a 3D surface. ϕ is restricted from 0 to 2π radian. θ is restricted from 0 to π radian. As the AUT is rotated, radiation intensity is sampled and recorded.

Test Setup



3. TEST EQUIPMENT AND CALIBRATION DATA

Instrument	Manufacturer	Model No.	Serial No.	Characteristics
Spectrum analyzer	Rohde & Schwarz	1093.4495.13	100037	9 kHz – 13.6 GHz
Double-ridged guide horn antenna	ETS-Lindgren	3115	00128177	750 MHz – 18 GHz
Signal generator	HP	83623L	3722A00187	10 MHz – 20 GHz
2.45 GHz reference sleeve dipole	Microwave Vision Italy s.r.l.	SD2450	SD2450-396	2330 – 2650 MHz
5 GHz reference sleeve dipole	Microwave Vision Italy s.r.l.	SD5150	SD5150-A-185	4900 - 5400 MHz
Network Analyzer	Agilent	E5071B	MY42301848	300 kHz – 8.5 GHz

4. APPENDIX A: TABLE OF MEASURED GAIN

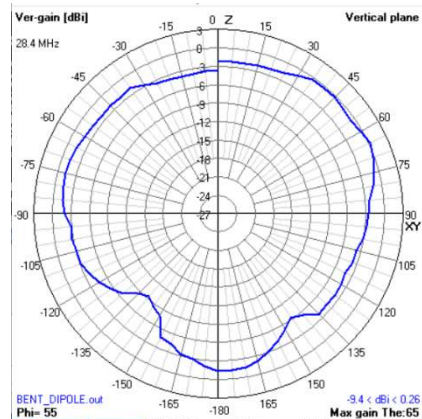
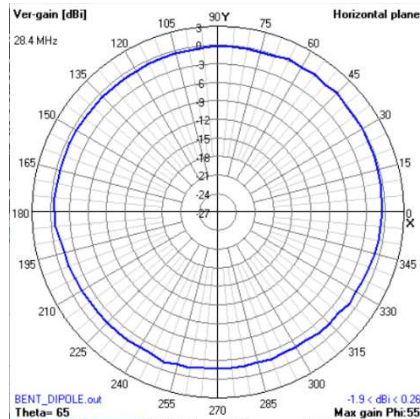
2400 – 2480 MHz		
Name	Frequency (MHz)	Peak gain (dBi)
Low band	2405	0.3
Mid band	2440	0.8
High band	2480	1.0

5150 - 5350 MHz		
Name	Frequency (MHz)	Peak gain (dBi)
Low band	5150	4.3
Mid band	5250	4.4
High band	5350	2.7

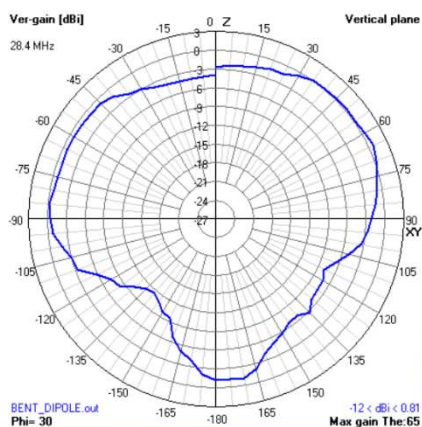
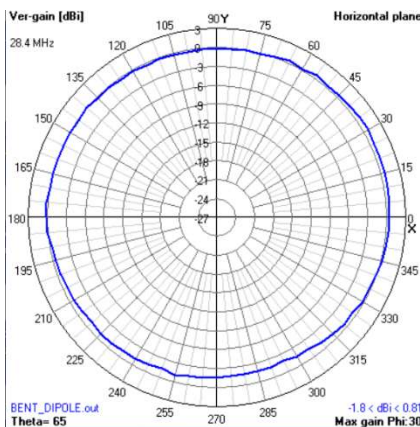
5470 - 5850 MHz		
Name	Frequency (MHz)	Peak gain (dBi)
Low band	5470	0.9
Low mid band	5560	2.3
Mid band	5725	4.0
High mid band	5790	4.3
High band	5850	3.5

5. APPENDIX B: POLARIZATION PLOTS

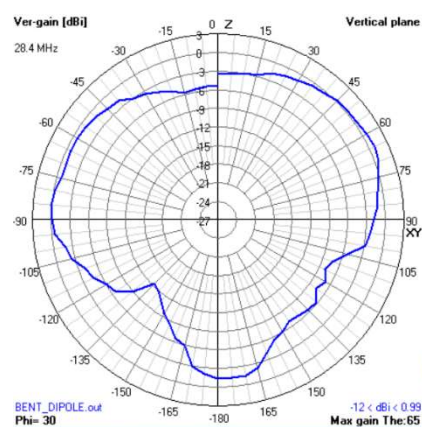
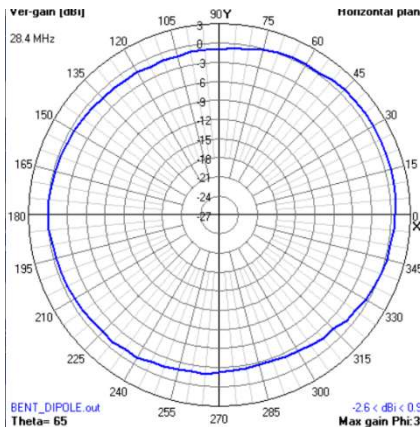
2405 MHz



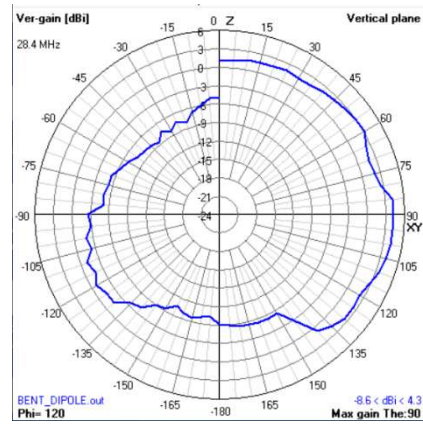
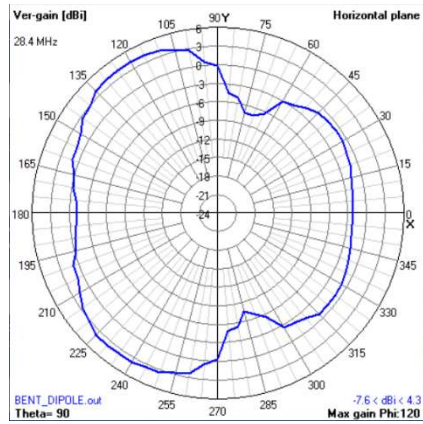
2440 MHz



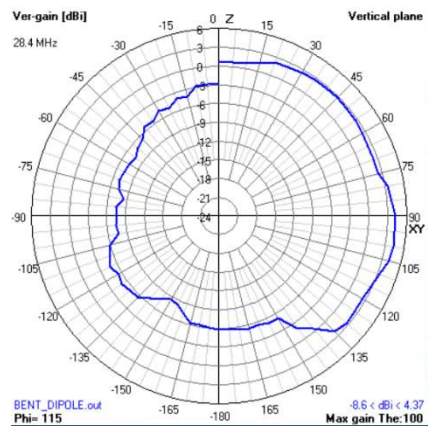
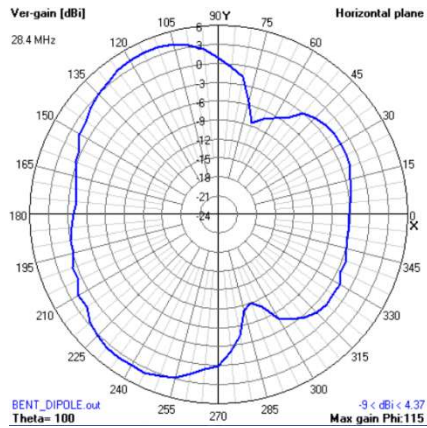
2480 MHz



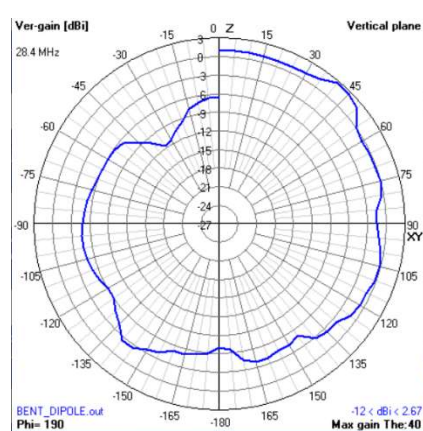
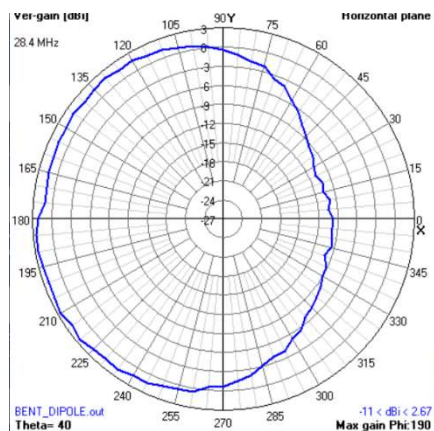
5150 MHz



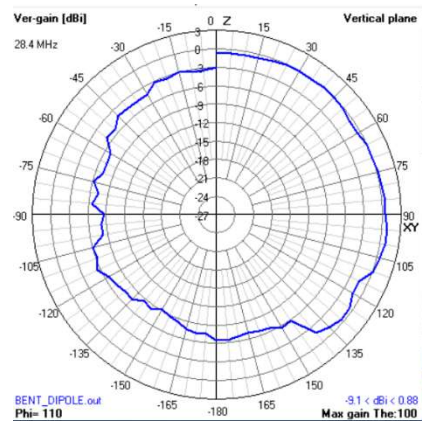
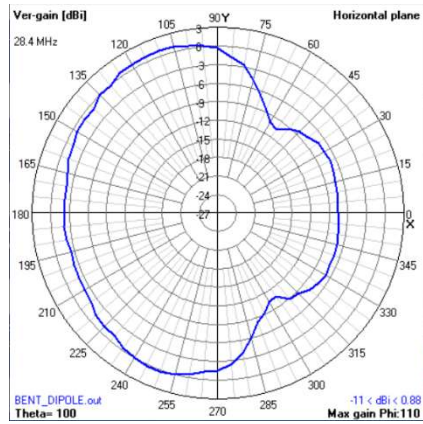
5250 MHz



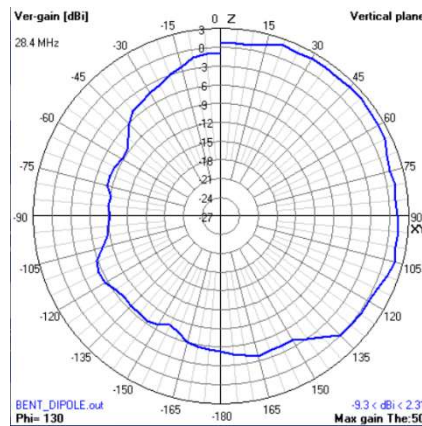
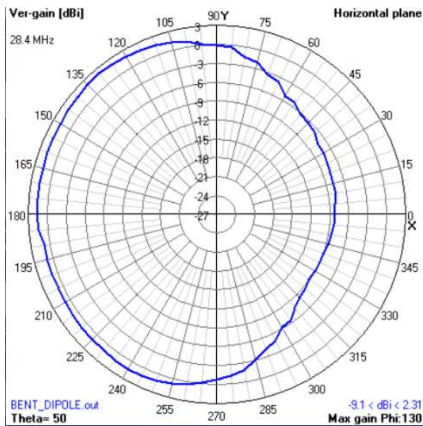
5350 MHz



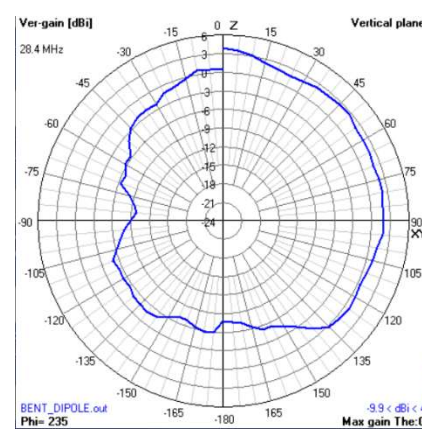
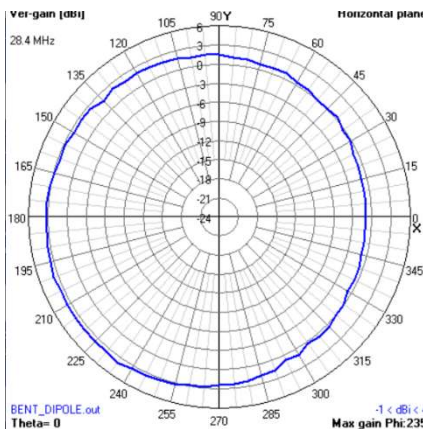
5470 MHz



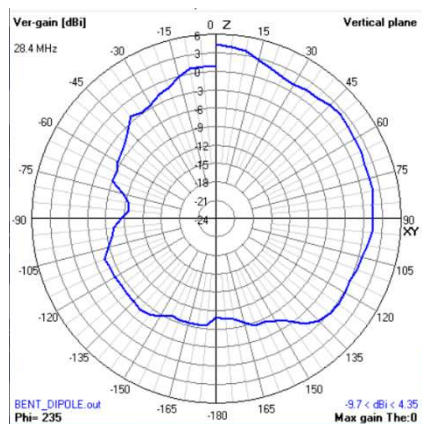
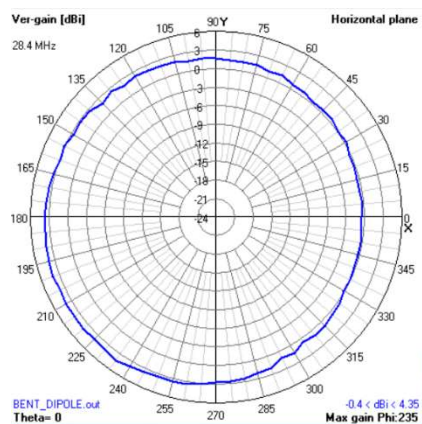
5560 MHz



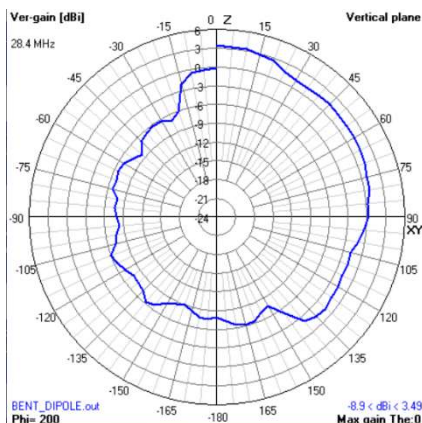
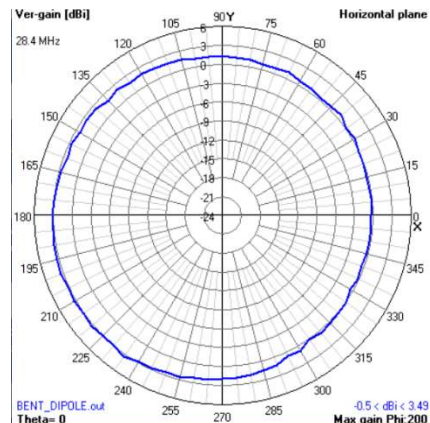
5725 MHz



5790 MHz



5850 MHz



6. APPENDIX C: RETURN LOSS (S_{11})

