Antenna information

Antenna is a printed inverted F design (PCB Copper) – (Omni-directional).

Antenna is part of CyberOptics Semiconductor PCB 505-0206-02.


Inverted F Antenna
Manufactured by
CyberOptics
Gain = 0.0 dBi
C9
C10
U6
C38
C39
C40
C41
C42
C44
C43
C45
TP10
TP9
TP11
TP12
TP16
E1
R1
U5

ANTENNA GAIN

Testing was performed using the mode(s) of operation and configuration(s) noted within the report. The individuals and/or the organization requesting the test provided the modes, configurations and settings used to complete the evaluation. The actual test parameters are specified in the test data, this includes items such as investigated frequency range (scanned) and test levels. The testing methods and performance specifications, as well as the test site used for the evaluation are indicated in the test data.

MODES OF OPERATION
Transmit Bluetooth GFSK modulation, Mid channel

POWER SETTINGS INVESTIGATED
Battery

FREQUENCY RANGE INVESTIGATED			
Start Frequency	2400 MHz	Stop Frequency	2483.5 MHz

SAMPLE CALCULATIONS
Radiated Emissions: Field Strength = Measured Level + Antenna Factor + Cable Factor - Amplifier Gain + Distance Adjustment Factor + External Attenuation

TEST EQUIPMENT					
Description	Manufacturer	Model	ID	Last Cal.	Interval
Spectrum Analyzer	Agilent	E4446A	AAT	12/7/2006	13
EV01 cables g,h,j			EVB	10/23/2007	13

MEASUREMENT BANDWIDTHS				
	Frequency Range (MHz)	**Peak Data (kHz)**	**Quasi-Peak Data (kHz)**	**Average Data (kHz)**
	0.01 - 0.15	1.0	0.2	0.2
	0.15 - 30.0	10.0	9.0	9.0
	30.0 - 1000	100.0	120.0	120.0
	Above 1000	1000.0	N/A	1000.0
Measurements were made using the bandwidths and detectors specified. No video filter was used.				

MEASUREMENT UNCERTAINTY

Measurement uncertainty is used to reflect the accuracy of the measured result as compared with its "true" or theoretically correct value. Our measurement data meets or exceeds the measurement uncertainty requirements of CISPR 16-4. In the case of transient tests our test equipment has been demonstrated by calibration to provide at least a 95% confidence that it complies with the test specification requirements. The measurement uncertainty for any test is available upon request.

TEST DESCRIPTION

The EUT antenna gain was derived from taking the radiated EiRP measurement an output power measurement:

The peak output power was determined by measuring using a direct connection betw spectrum analyzer. The test cable and attenuator were calibrated and an offset entered the loss. The EUT was made to transmit in a no hop mode at the low, mid, and modulation type of GFSK. For this product the mid channel was determined to be the pe

The radiated fundamental emission from the EUT was maximized by rotating the EUT, height (1-4 meters) and polarization. The EUT set to the same mid channel frequency three orthogonal orientations to determine the maximum fundamental emission.

9.1 dBm (Radiated EiRP) – 9.1 dBm (conducted at 8.23 mW) = 0.0 dBi

NORTHWEST
EMC

ANTENNA GAIN

PSA 2007.05.07
EMI 2006.11.29

EUT:	AGS-300			Work Order:	CYBR0072
Serial Number:	unknown			Date:	10/29/07
Customer:	CyberOptics Semiconductor, Inc.			Temperature:	20°C
Attendees:	Greg Huntziger			Humidity:	34%
Project:				Barometric Pres.:	1023.3 mb
Tested by:	Rod Peloquin	Power:	Battery	Job Site:	EV06

TEST SPECIFICATIONS	Test Method

TEST PARAMETERS			
Antenna Height(s) (m)	N/A	Test Distance (m)	N/A

COMMENTS

Testing CyberOptics Inverted F antenna on AGS-300 device with Mitsumi WML-C40 radio.

EUT OPERATING MODES

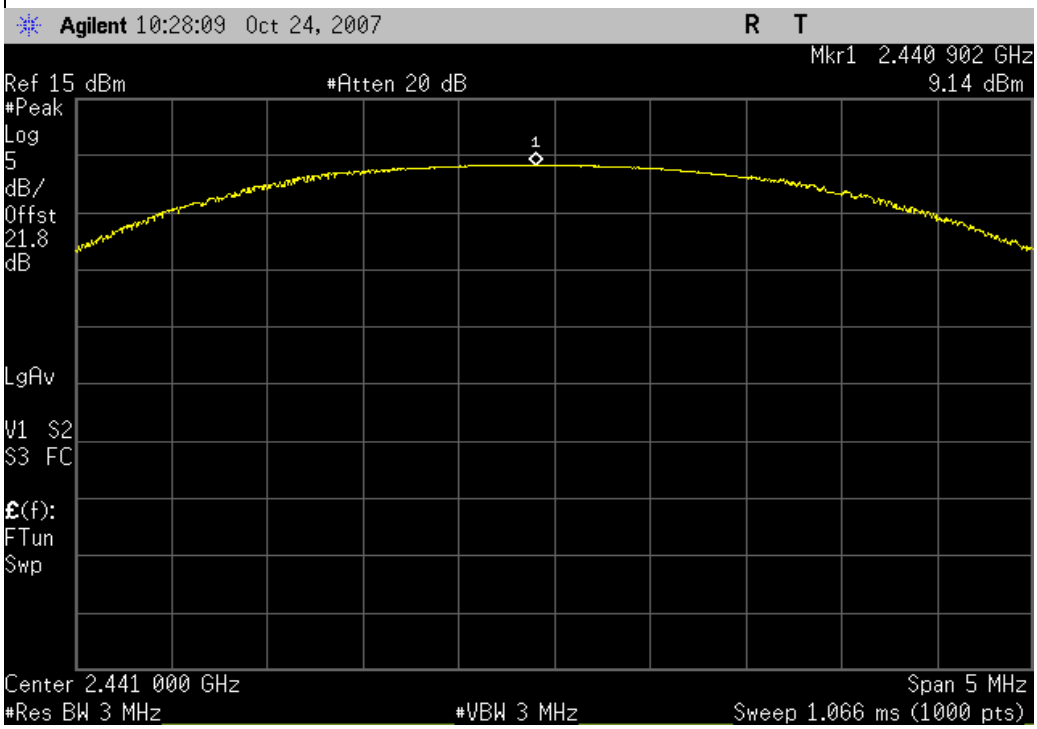
Transmit Bluetooth GFSK modulation, Mid channel

DEVIATIONS FROM TEST STANDARD

No deviations.

Run #	5
Configuration #	3
Results	Evaluation

Signature



NORTHWEST EMC

ANTENNA GAIN

PSA 2007.05.07
EMI 2006.11.29

EUT:	AGS-300			Work Order:	CYBR0072
Serial Number:	unknown			Date:	10/29/07
Customer:	CyberOptics Semiconductor, Inc.			Temperature:	20°C
Attendees:	Greg Huntziger			Humidity:	34%
Project:				Barometric Pres.:	1023.3 mb
Tested by:	Rod Peloquin	Power:	Battery	Job Site:	EV01

TEST SPECIFICATIONS	Test Method

TEST PARAMETERS			
Antenna Height(s) (m)	1 - 4	Test Distance (m)	3

COMMENTS

Testing CyberOptics Inverted F antenna on AGS-300 device with Mitsumi WML-C40 radio.

EUT OPERATING MODES

Transmit Bluetooth GFSK modulation, mid channel

DEVIATIONS FROM TEST STANDARD

No deviations.

Run #	5
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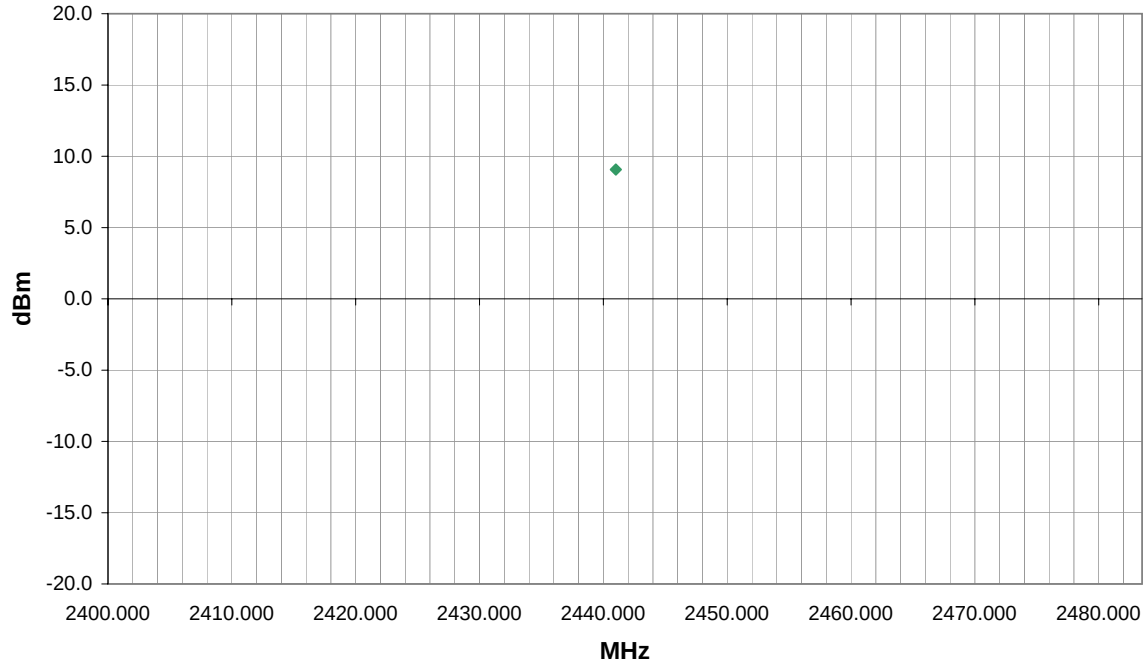

Freq (MHz)			Azimuth (degrees)	Height (meters)			Polarity	Detector	EIRP (Watts)	EIRP (dBm)		
2441.008			82.0	1.7			H-Horn	PK	8.07E-03	9.1		

ANTENNA GAIN