

## ANTENNA TEST REPORT

FOR

**Product Name:** Mono Bluetooth Headset

**Brand Name:** FreeHand By Plantronics

**Model Name:** FreeHand 100

**Report No.:** EF/2010/10002

**Issue Date:** Jan. 27, 2010

**Prepared for:** Plantronics, Inc.  
345 Encinal Street, Santa Cruz, CA95060 USA

**Prepared by:** SGS Taiwan Ltd.  
Electronics & Communication Laboratory  
No. 134, Wu Kung Rd., Wuku Industrial Zone,  
Taipei County, Taiwan.

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Test By:

Bondi Liu

Date:

Jan. 27, 2010

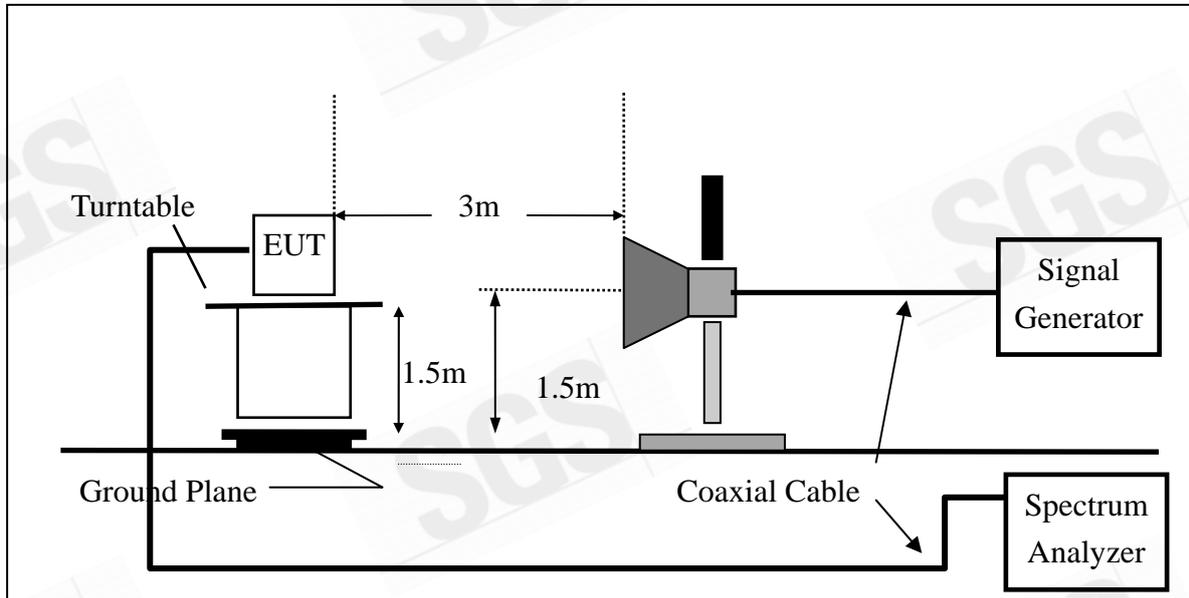
Bondi Liu / Engineer

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## 1. Test SET-UP (Block Diagram of Configuration)



Measurement Equipment Used:

EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.	Cal. Lab.	Note
Horn antenna	Schwarzbeck	BBHA 9120D	309	05/09/2008	05/10/2010	ETC	Calibration based on the article 24-2-4-2-Ha of the radio law
Horn antenna	Schwarzbeck	BBHA 9120D	673	05/09/2008	05/08/2010	Schwarzbeck	
Signal Generator	R&S	SMR40	100210	01/21/2009	01/21/2010	ETC	
Spectrum Analyzer	Agilent	E4407B	MY41444896	12/07/2007	12/06/2009	Agilent	
Turn Table	HD	DT420	N/A	N.C.R	N.C.R	N/A	
Antenna Tower	HD	MA240-N	240/657	N.C.R	N.C.R	N/A	
Controller	Chance Most	886	N/A	N.C.R	N.C.R	N/A	
844 chamber	Chance Most	Fully chamber	S0009174	N.C.R	N.C.R	N/A	

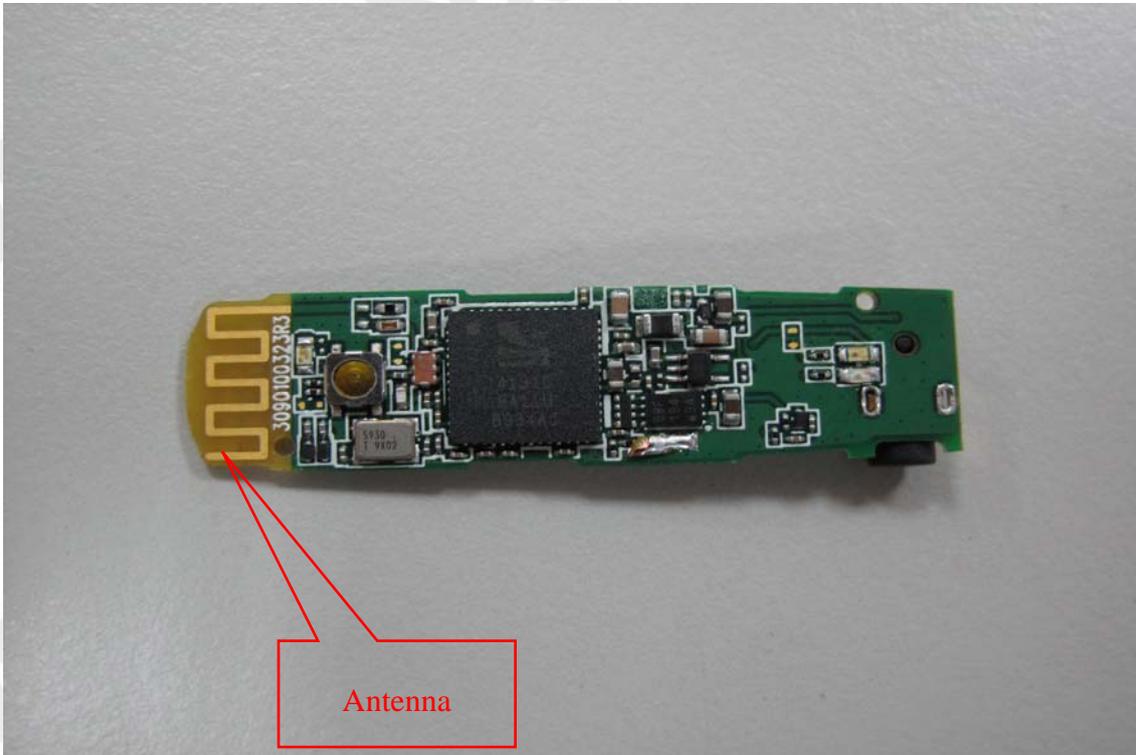
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## Geometry of structure

Figure 1



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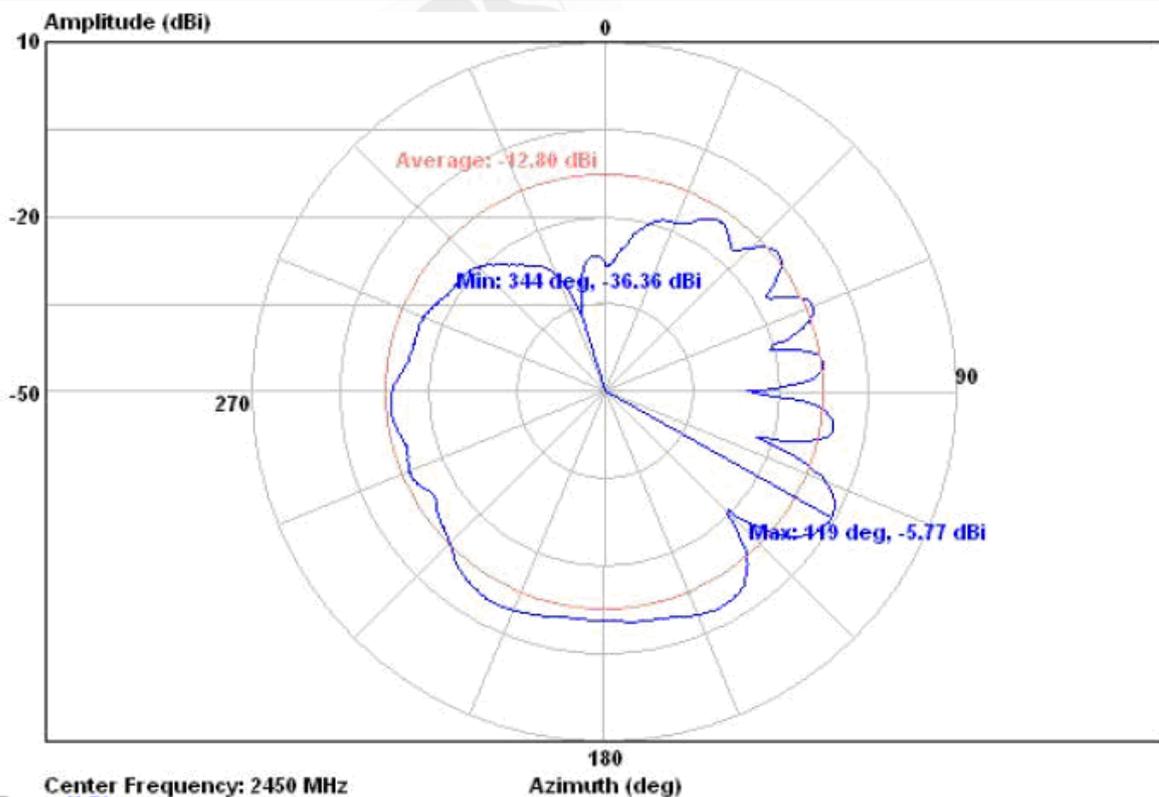
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### 3. Test Result:

2450 MHz Test Result:	
Antenna type	Printed antenna
E2-Plane antenna Peak Gain	= -5.77dBi
E2-Plane antenna Average Gain	= -12.80 dBi
H-Plane antenna Peak Gain	= -7.37 dBi
H-Plane antenna Average Gain	= -14.58 dBi
Impedence	= 50.1 ohms
VSWR	≤ 2

#### E2-plane



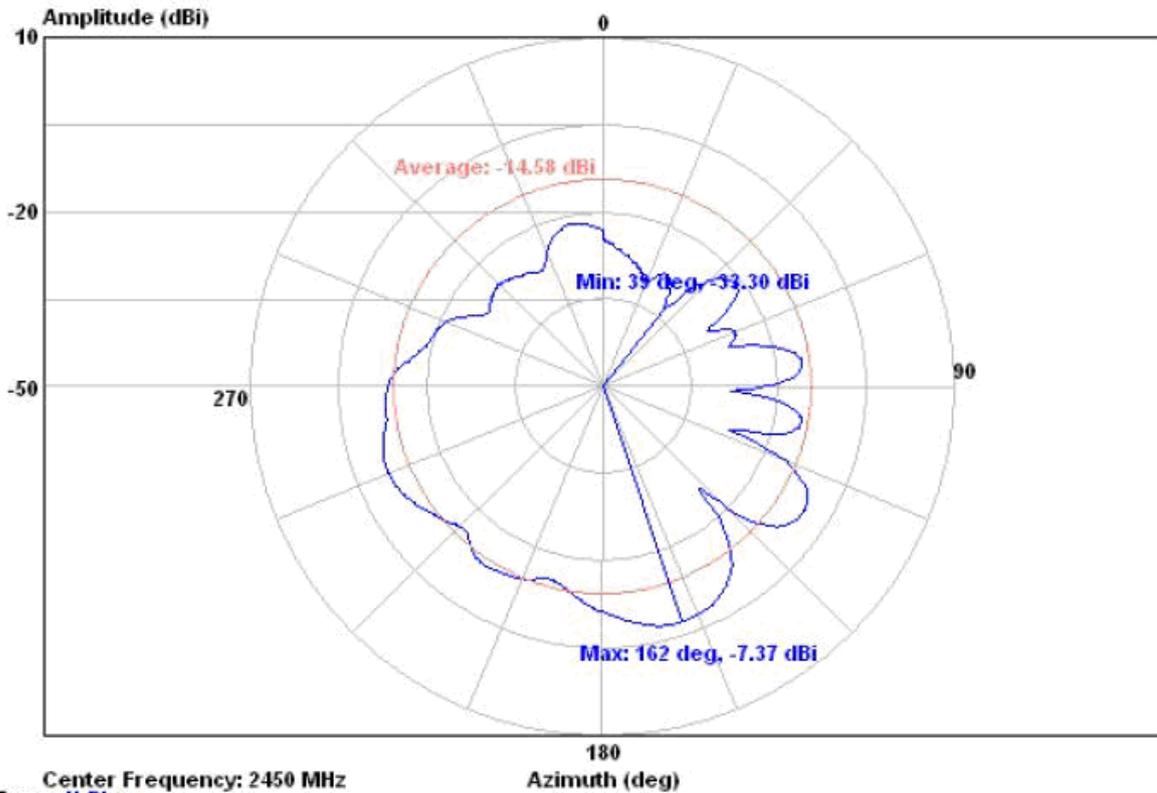
Site : site  
H-Plan : Avg: -12.80dBi ,Max:119.0deg -5.77dBi ,Min:344.0deg -36.36dBi  
Project No : EF/2010/10002  
Applicant : Plantronics, Inc.  
EUT Description: Mono Bluetooth headset  
EUT Model : FreeHand 100  
EUT Pol. : E2 plan  
ANT. Type : printed  
Temp./Humid. : 23/63  
Operator : Bondi

#### H-plane

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Center Frequency: 2450 MHz  
Trace: H-Plan

Site : site  
H-Plan : Avg: -14.58dBi, Max: 162.0deg -7.37dBi, Min: 38.0deg -33.30dBi  
Project No : EF/2010/10002  
Applicant : Plantronics, Inc.  
EUT Description: Mono Bluetooth headset  
EUT Model : FreeHand 100  
EUT Pol. : H plan  
ANT. Type : printed  
Temp. /Humid. : 23/63  
Operator : Bondi

**-End of Report-**

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