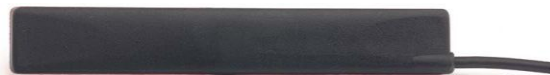
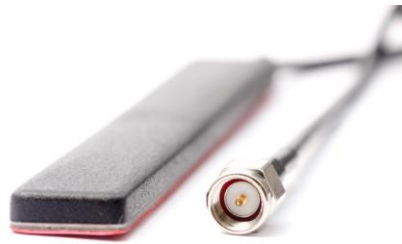




Specification

# SPECIFICATION

- Part No. : **GSA.8821**
  
- Product Name : I-Bar Penta-band GSM Antenna  
Works with GSM / CDMA / PCS / DCS /UMTS/ WCDMA
  
- Features : Low profile for easy installation  
Fully customized cable and connector  
**RoHS Compliant**
  
- Photo :



Top View



Side View

## REVISION STATUS

Version	Date	Page	Revision Description	Prepared	Approved
01	Mar 4 <sup>th</sup> 2007	All	New product	TW Product Centre	Zita Lin
02	Jun 6th 2008	All	Return Loss added New Format	TW Product Centre	Zita Lin



Specification

## 1.0 Introduction

The **GSA.8821** I-Bar Penta-band GSM Antenna is flexible and robust. Its slim-line design allows for covert and convenient installation in automotive vehicles, its omni-directional gain across all bands ensures constant reception and transmission. It is a high gain, high efficiency solution which complies with AT&T standards for high efficiency antennas. Cables and connectors are fully customizable. It comes with strong 3M double-sided adhesive for a permanent and secure fix to your vehicle interior.

## 2.0 Antenna Specifications

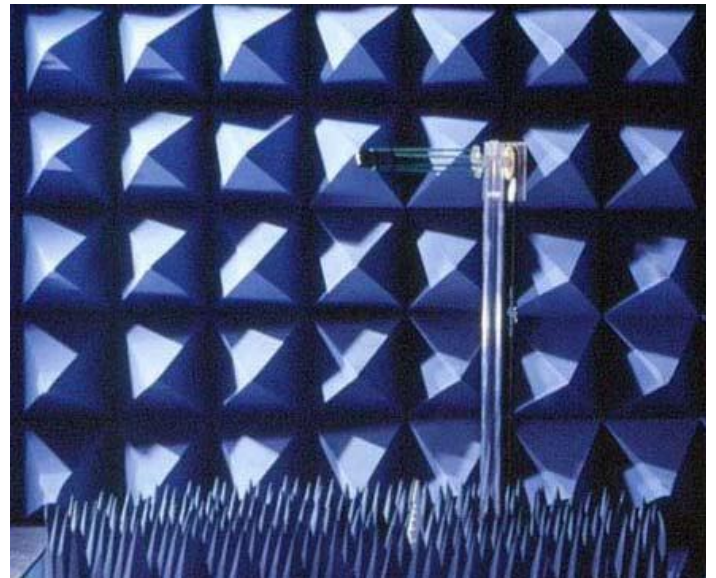
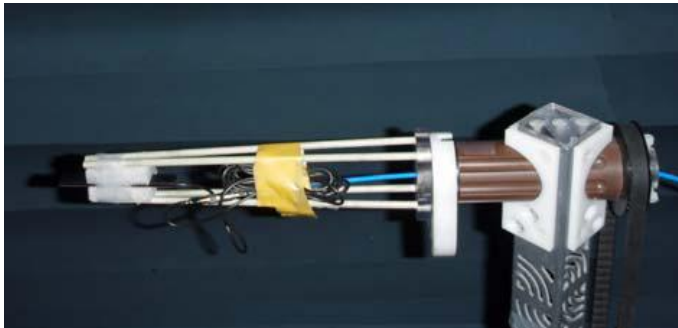
Communication System	Penta-band Cellular				
	AMPS	GSM	DCS	PCS	UMTS
Frequency (MHz)	824 ~ 896	880~960	1710~1880	1850~1990	1710~2170
Average Efficiency	47%	67%	59%	54%	57%
Average Gain (dBi)	2.1	3.9	4.1	3.2	3.2
Impedance	50 Ohm				
Radiation Pattern	Omni-directional				
Polarization	Linear (Vertical)				
Input Power	10 watts				
Input Connection	Coaxial Cable - RG174 Standard, Fully customizable				
VSWR	< 2.0 : 1				
Dimensions (mm)	106.7 x 14.7 x 5.3mm				
Weight	40g				
Casing	UV Resistant TPE				
Waterproofing	Sealing Film				
Waterproof	IP-65				
Temperature Range	-40°C to +85°C				
Thermal Shock	100 cycles -40°C to +80°C				
Humidity	Non-condensing 65°C 95% RH				
Shock (Drop Test)	1m drop on concrete 6 axes				
Cable Pull	8 KGf				



## 3.0 Antenna Electrical Characteristics

### 3.1 Test Setup

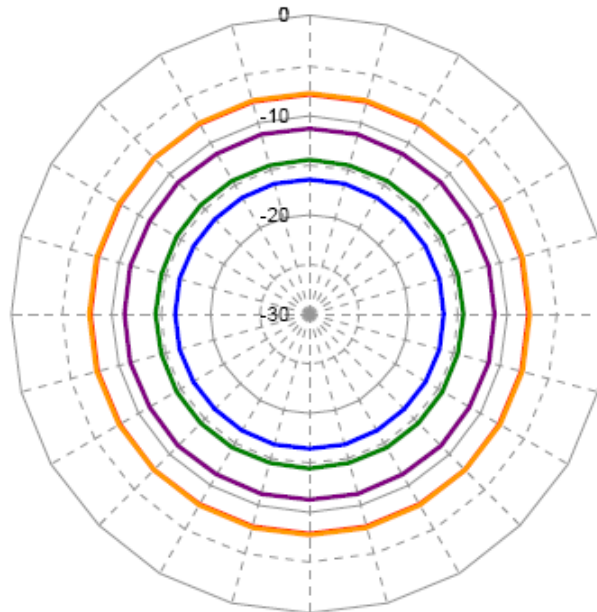
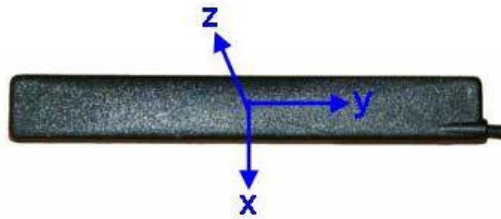
**GSA.8821** is tested in the CTIA 3D chamber for the free space radiation in a certification laboratory in Taiwan.



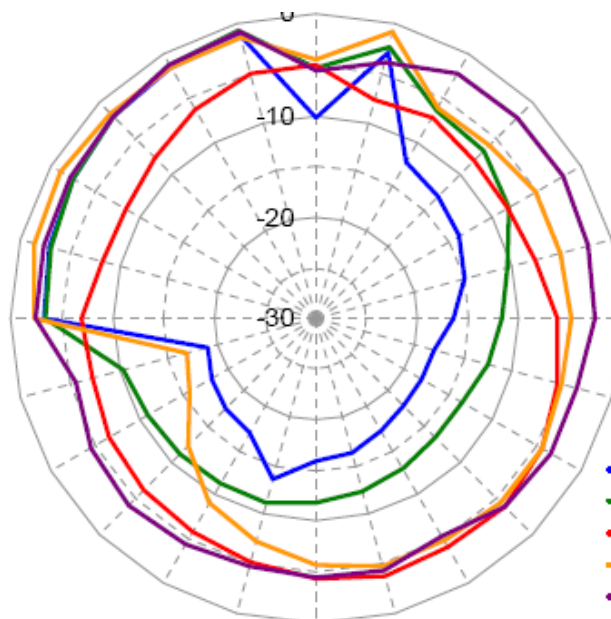
Antenna Setup in CTIA 3D Chamber



### 3.2 Radiation Pattern



x-y plane radiation pattern



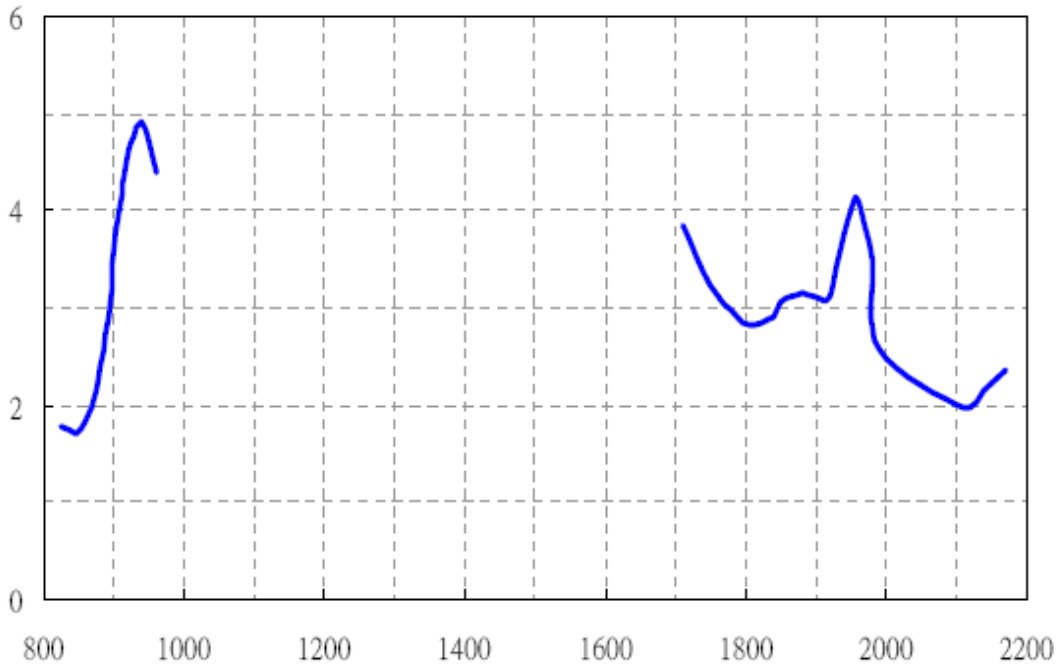
x-z plane radiation pattern

- 850MHz
- 900MHz
- 1800MHz
- 1900MHz
- 2170MHz

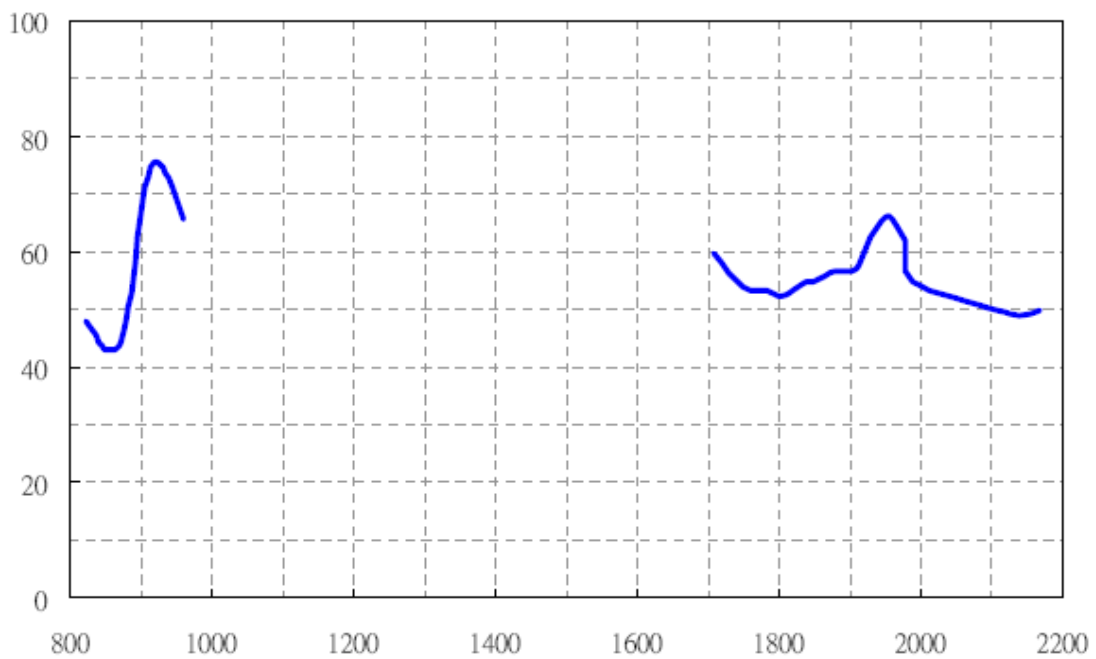


### 3.3 Gain & Efficiency Plot vs Frequency

Gain



Efficiency





Specification

### Return Loss

**GSA.8821** is placed on a piece of Styrofoam on an empty carton for measuring free space return loss. Since **GSA.8821** is designed to mount in a car, it also adheres directly on the test instrument metal box to simulate the application environment. Agilent 8753SE Network Analyzer is used for the S11 measurement.



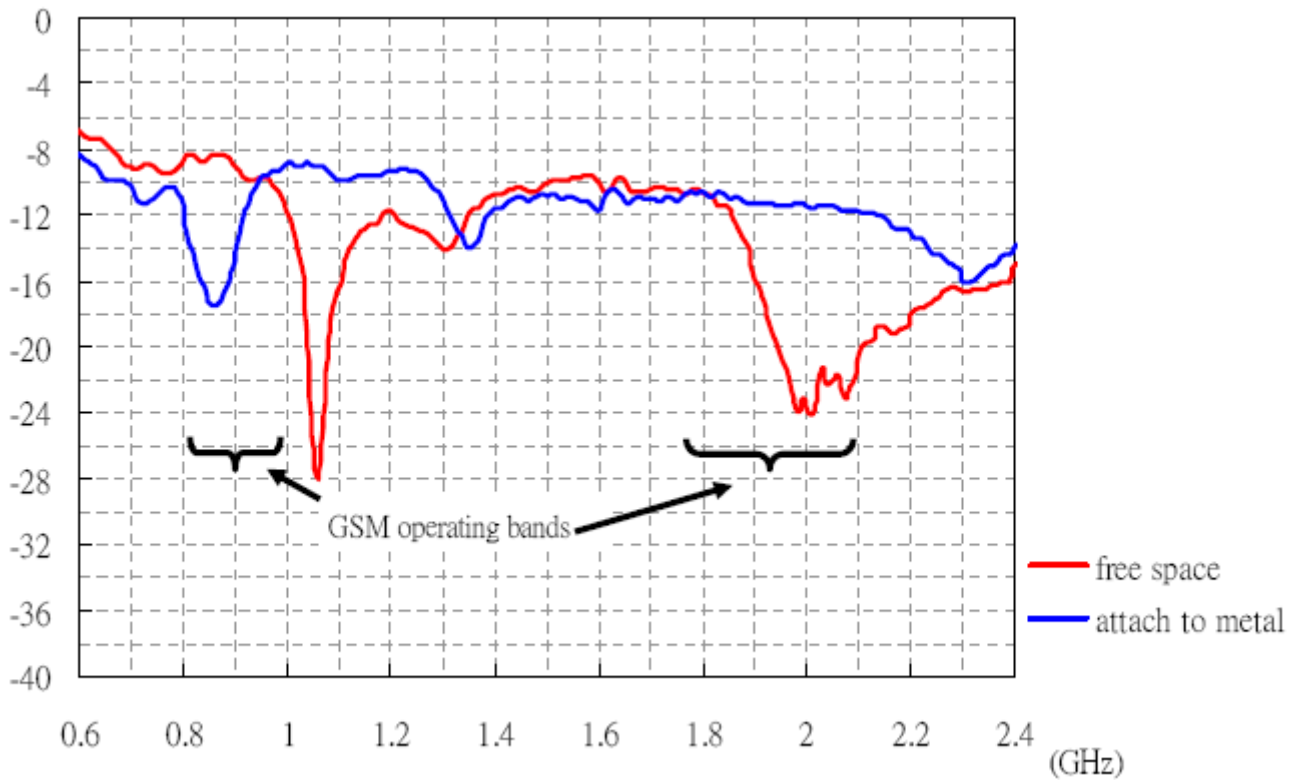
Free space Return Loss measurement setup



**GSA.8821** Adhered to Metal



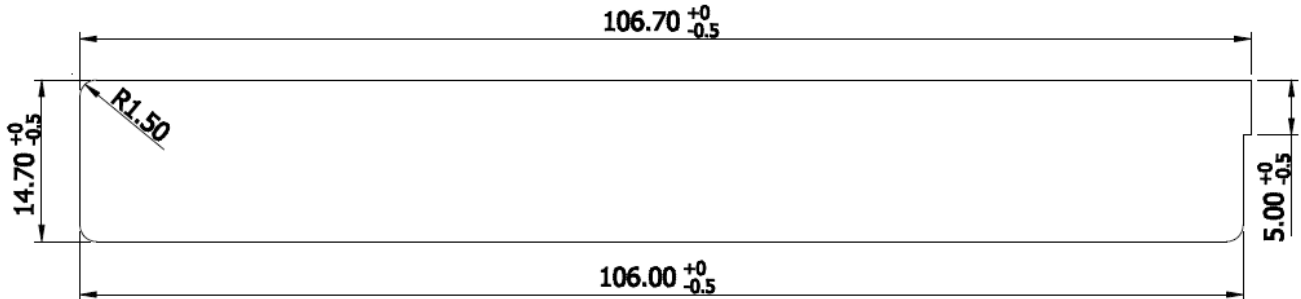
Specification



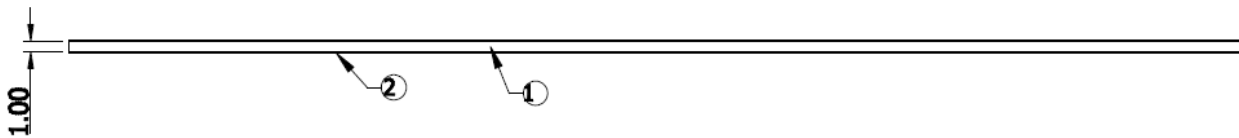
**GSA.8821** Return Loss in Free Space and adhered to Metal. The oscillation introduced by the 3m cable is smoothed with a factor of 1%.



## 4.0 Mechanical Drawing (unit:mm)



**Antenna Cover - Top**



**3M Tape ① L:106.7, W:14.7, T:1**  
**②L:106.7, W:14.7**