DATA SHEET

• **Product Type**	• **WLAN / Antenna**
• **Model Name**	• **TP201SA**
• **Revision**	• **A01**
• **Part No. / Customer**	• **14008-01780200**
• **Part No. / Customer**	• **DQ630105501**
• **Part No. / TongDa**	• **T-543-3010550-A**

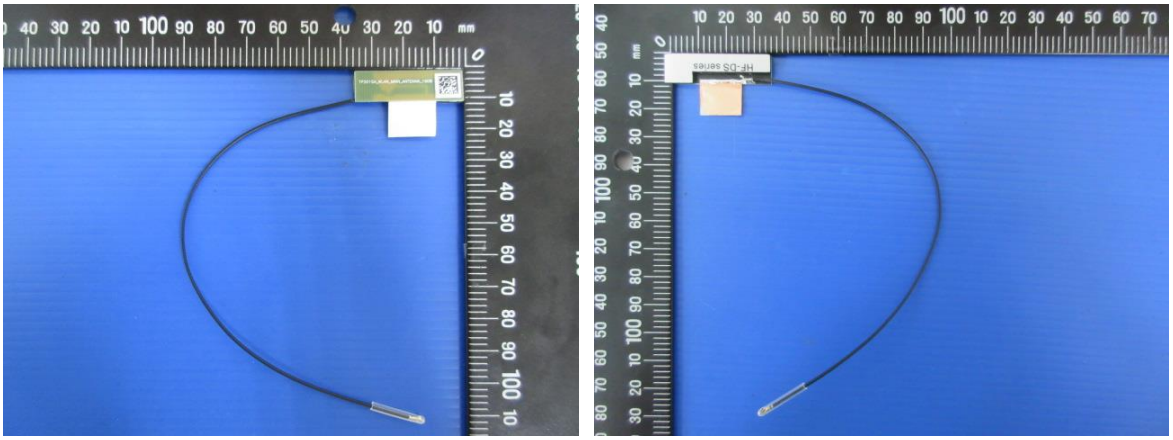
2400~2500MHz &5150~5850MHz Multiple Bands Antenna for WLAN Applications		**TongDa Part Number: T-543-3010550-A**		A01	**Mar. 22, 2016**
BY /	**Grace Chen**	DATE	**Mar. 22, 2016**		
Address : No.33, Wenxue Rd., Zuoying Dist., Kaohsiung City 813, Taiwan(R.O.C) **Phone Number :** +886-9766772 **Website :** Http://www.tongda.com					

1.Specifications

1.1Specification of WLAN Antenna

Frequency Range (MHz)	**2400~2500MHz for WLAN Antenna** **5150~5850MHz for WLAN Antenna**
NB Mode Peak Gain (dBi)	**1.19dBi for 2400MHz~2480MHz Antenna-Main** **5.42dBi for 5150MHz~5850MHz Antenna-Main**
Pad Mode Peak Gain (dBi)	**1.07dBi for 2400MHz~2480MHz Antenna-Main** **4.67dBi for 5150MHz~5850MHz Antenna-Main**
Impedance	**50Ω Nominal.**
Radio Connector	**I-Pex**
Coaxial Cable	**SY**
Antenna Dimension	**34.75*10*0.6mm**
Cable Information	**Main = 180mm / Black / 1.13mm**
Operating Temperature	**-40~90℃**
Maximum Power	**1W**
Polarization	**Linear**
Radiation Pattern	**Omni-directional**

1.2 Photos of Antenna Product



WLAN Antenna / (T-543-3010550-A)

2. Test Methodology

1.1 Test Equipment

The equipment for the antenna measurement we used is as follows:

A. Network Analyzer, support up to 8GHz, to measure the VSWR and input impedance of antenna.

B. Three-dimensional anechoic chamber to measure antenna gain and radiation pattern (Standard horn antenna was used to calibrate the chamber)

C. Digital caliper to measure the dimensions.

D. Climatic chamber for mechanical tests.

2.2 Test Setup

2.2.1 Frequency Range

2400~2500MHz, for WLAN application

5150~5850MHz, for WLAN application

2.2.2 Antenna Configuration

The antenna basically has two parts; the stamping and the cable assembly with the connector on one side. The detailed drawing is attached.

2.2.3 VSWR

The VSWR is measured with network analyzer that support up to 8GHz. All the measurements are performed with the customer provided fixture. Figure 1 shows the typical schematic diagram for measuring VSWR.

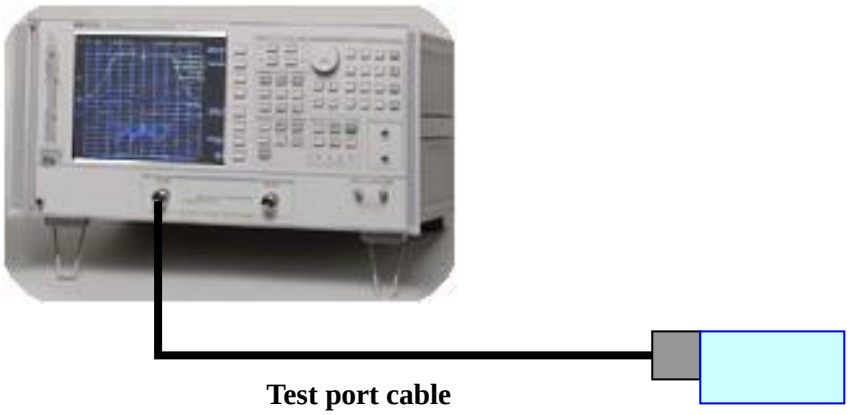
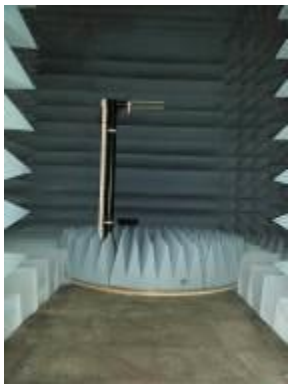


Figure1. The schematic diagram for measuring VSWR

2.2.4 Radiation Pattern and Gain

The radiation pattern of antenna is measured in both horizontal polarization and vertical polarization. The radiation pattern measurements are performed in the three-dimensional anechoic chamber. The chamber provides less than –30dB reflectivity

from 800MHz through 8GHz. The chamber is calibrated using both standard dipole antenna and horn antenna. The Gain here is expressed as dBi that standardizes the isotropic antenna. The Gain measurements and antenna radiation pattern are also performed in the same chamber described previously. Figure 2 shows the schematic diagram for measuring radiation pattern and Gain.



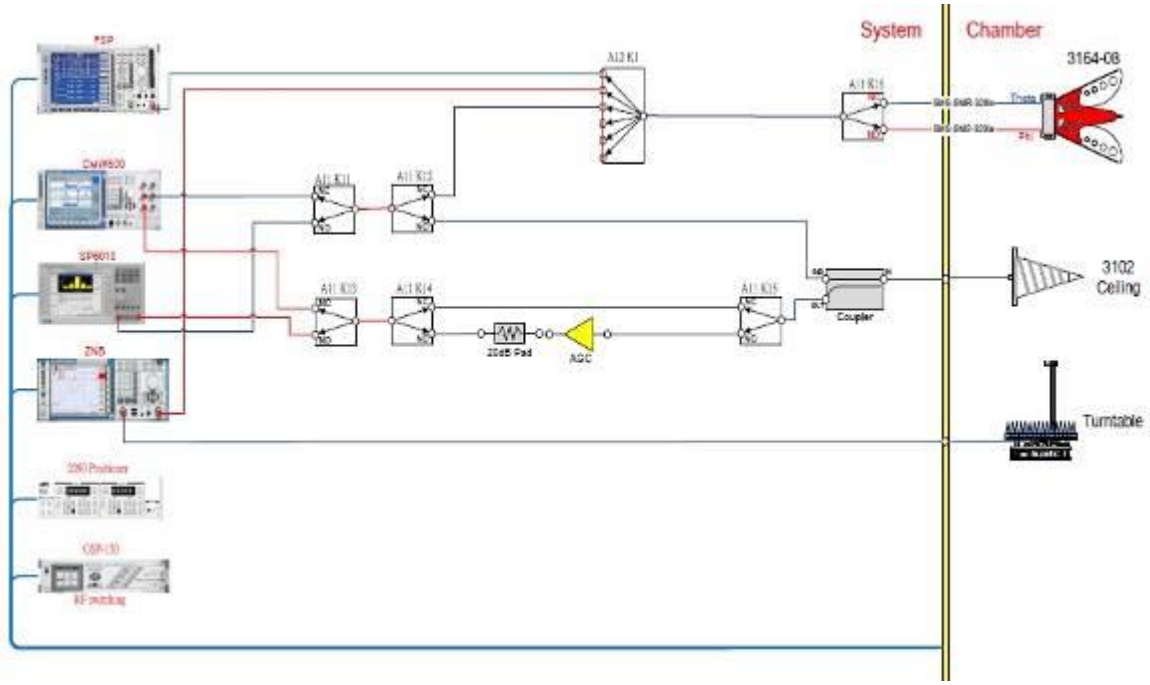
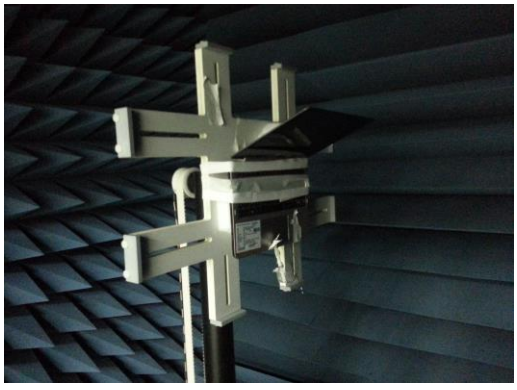


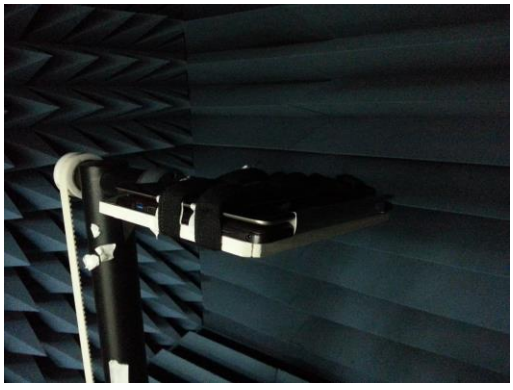
Figure2. The schematic diagram for measuring radiation pattern and Gain

2.3 Experimental Setup

NB MODE



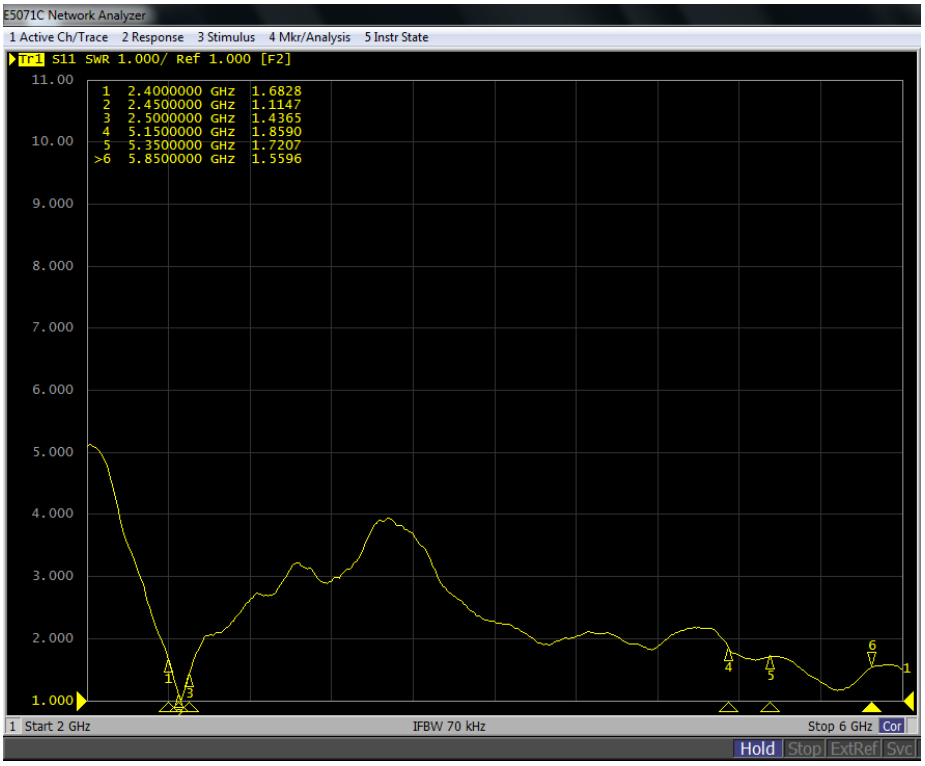
Pad MODE



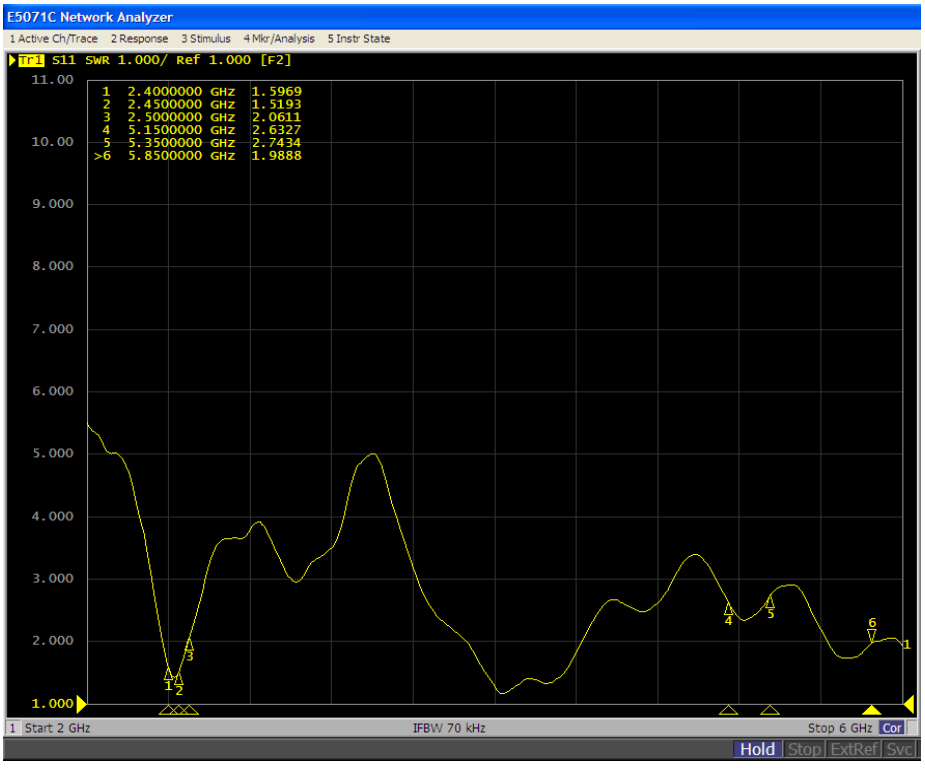
3. Performance Data

3.1 VSWR of Antenna in the Fixture

3.1.1 VSWR of Main WLAN Antenna (NB Mode)

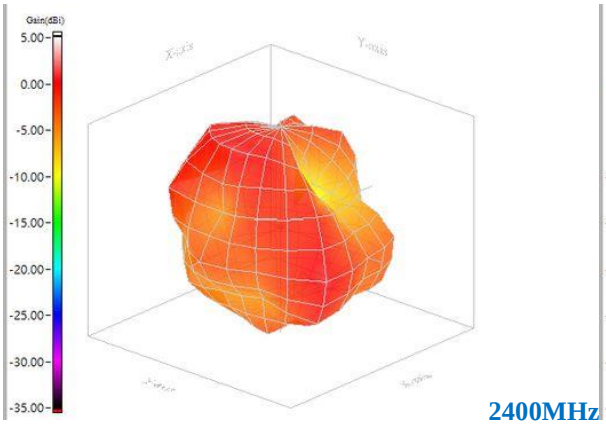


3.1.2 VSWR of Main WLAN Antenna (Pad Mode)

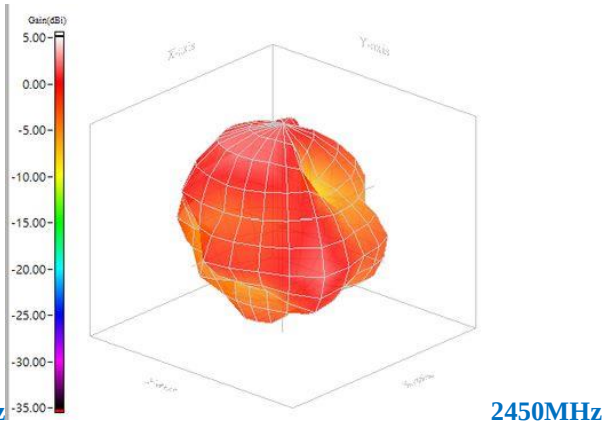


3.2 Radiation Pattern and 3D Gain

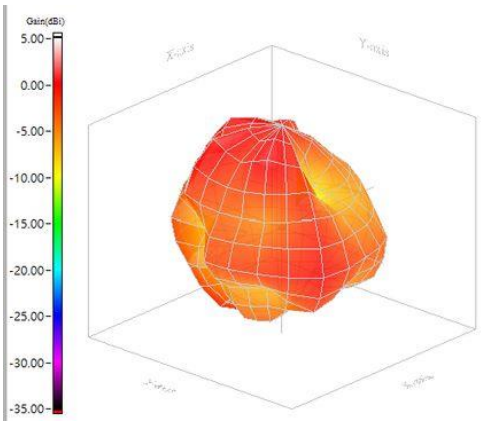
3.2.1 Radiation Pattern & Gain of WLAN NB Mode Main Antenna (2400MHz~2500MHz)



2400MHz

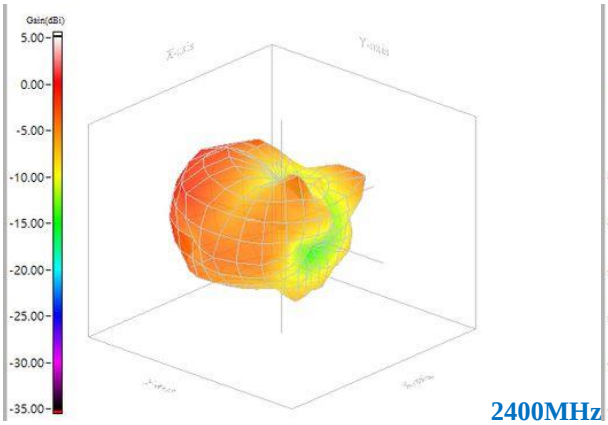


2450MHz

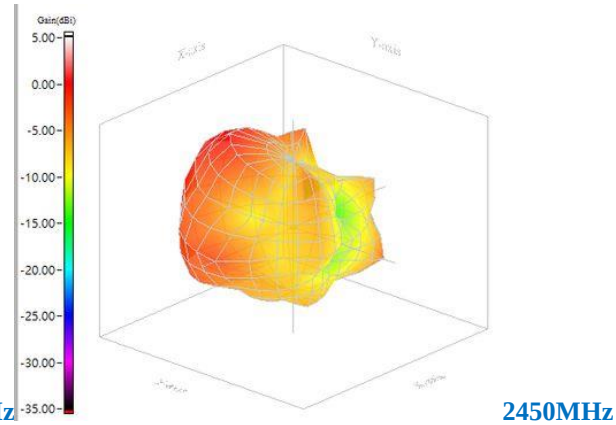


2500MHz

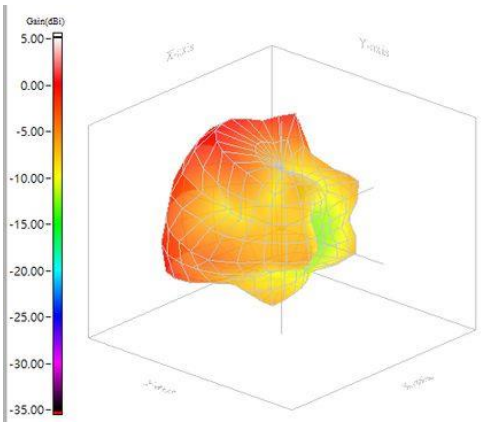
3.2.2 Radiation Pattern & Gain of WLAN Pad Mode Main Antenna (2400MHz~2500MHz)



2400MHz

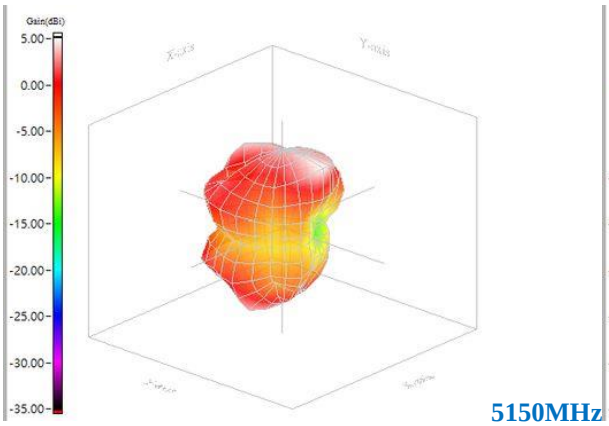


2450MHz

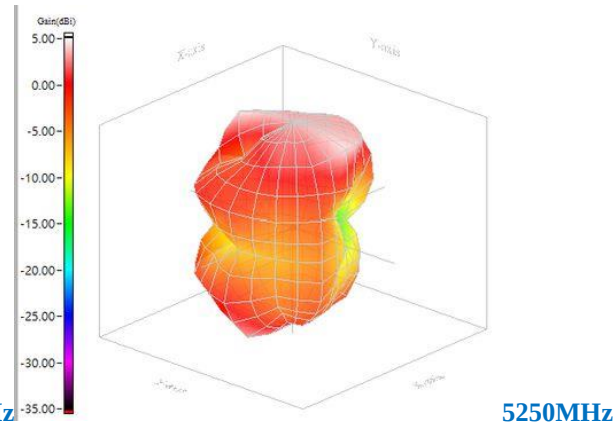


2500MHz

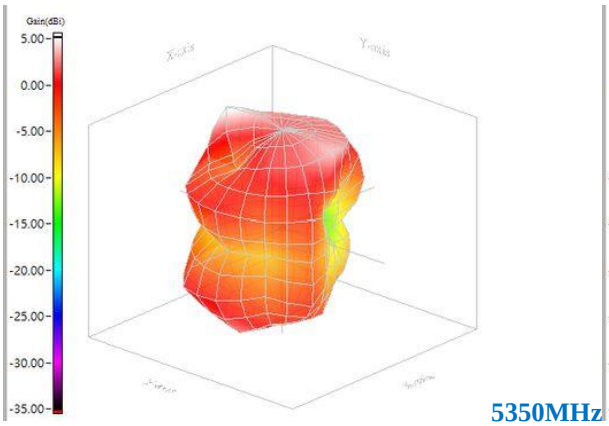
3.2.3 Radiation Pattern & Gain of WLAN NB Mode Main Antenna (5150MHz~5850MHz)



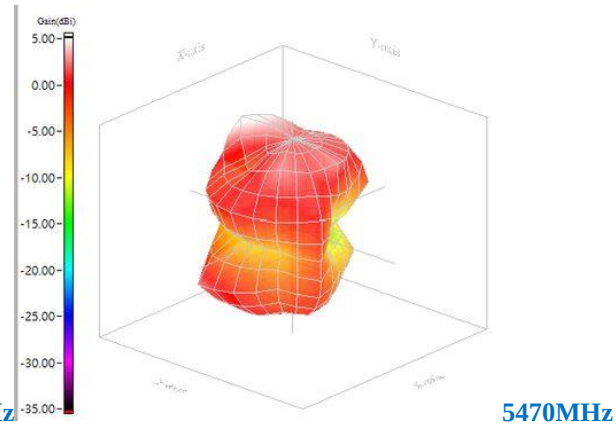
5150MHz



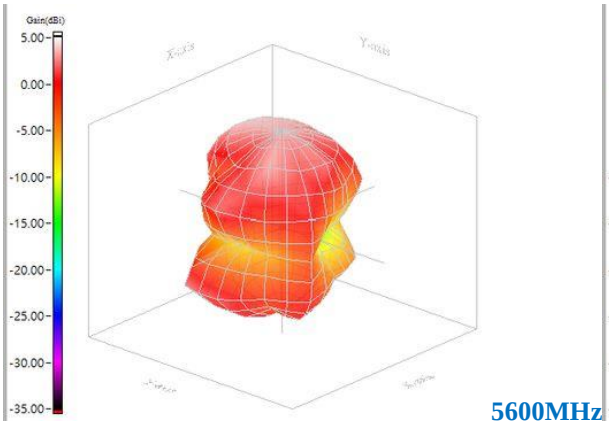
5250MHz



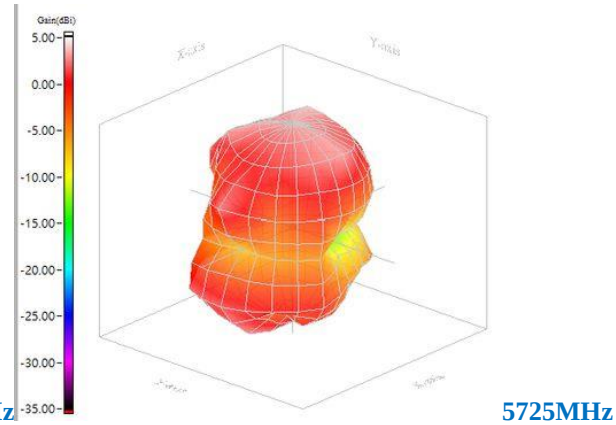
5350MHz



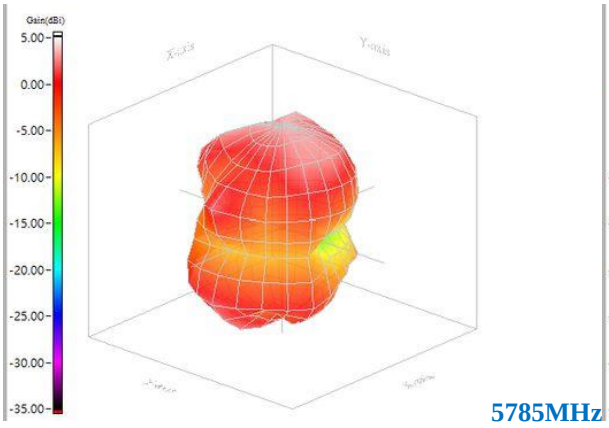
5470MHz



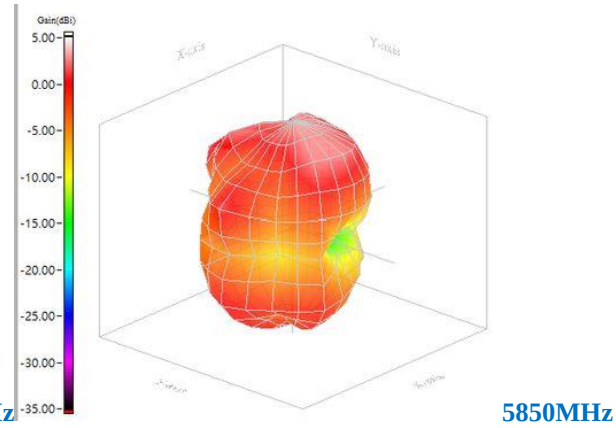
5600MHz



5725MHz

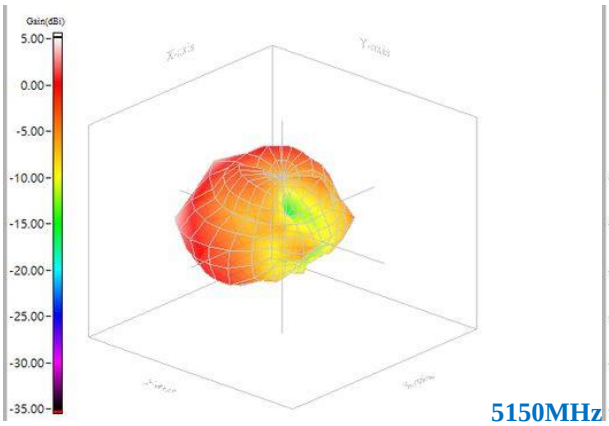


5785MHz

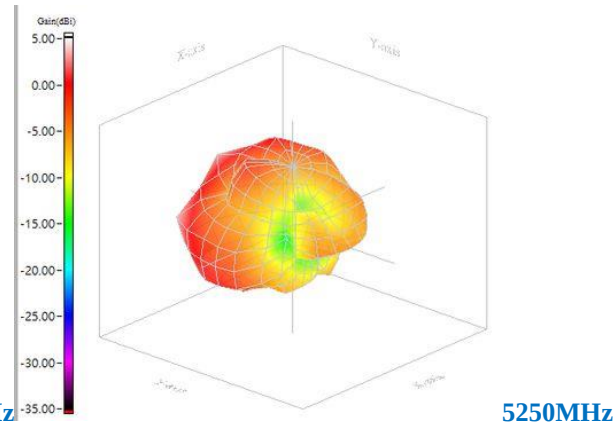


5850MHz

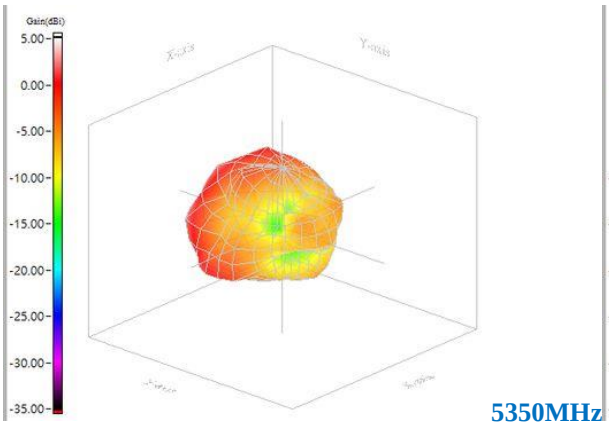
3.2.4 Radiation Pattern & Gain of WLAN NB Mode Main Antenna (5150MHz~5850MHz)



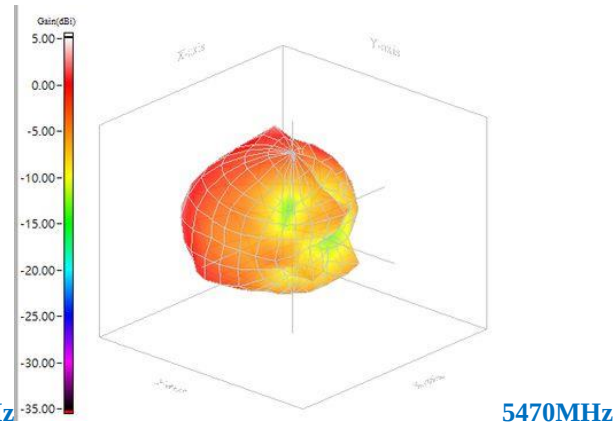
5150MHz



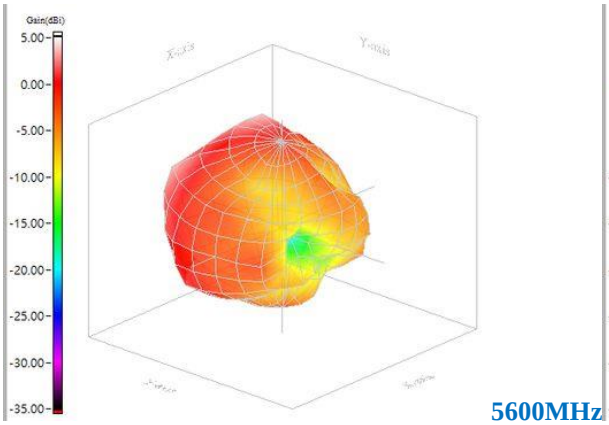
5250MHz



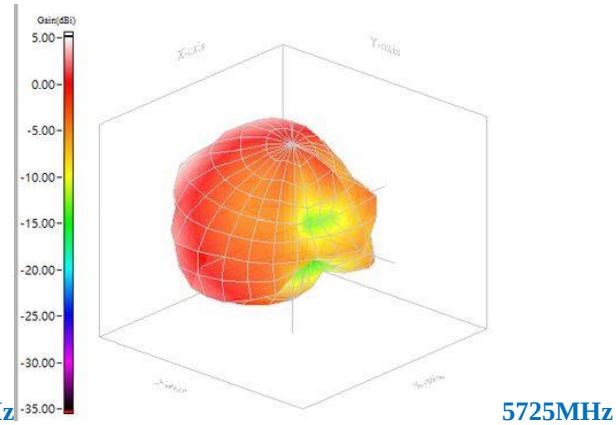
5350MHz



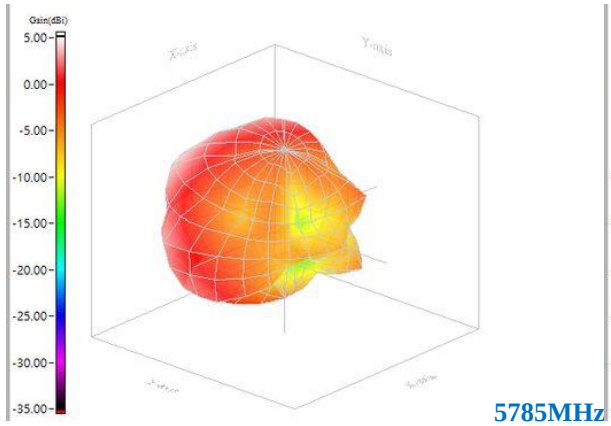
5470MHz



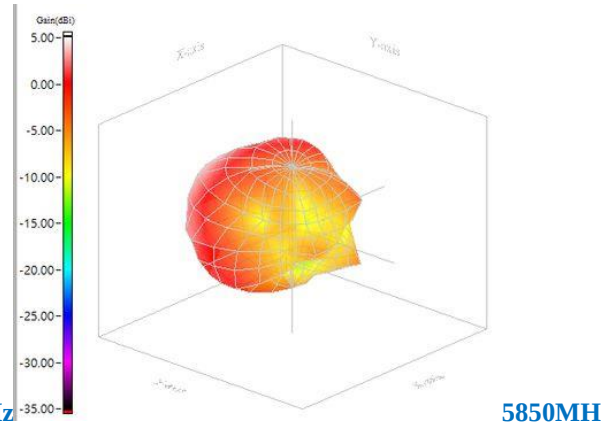
5600MHz



5725MHz



5785MHz



5850MH

3.3 Antenna Gain Table

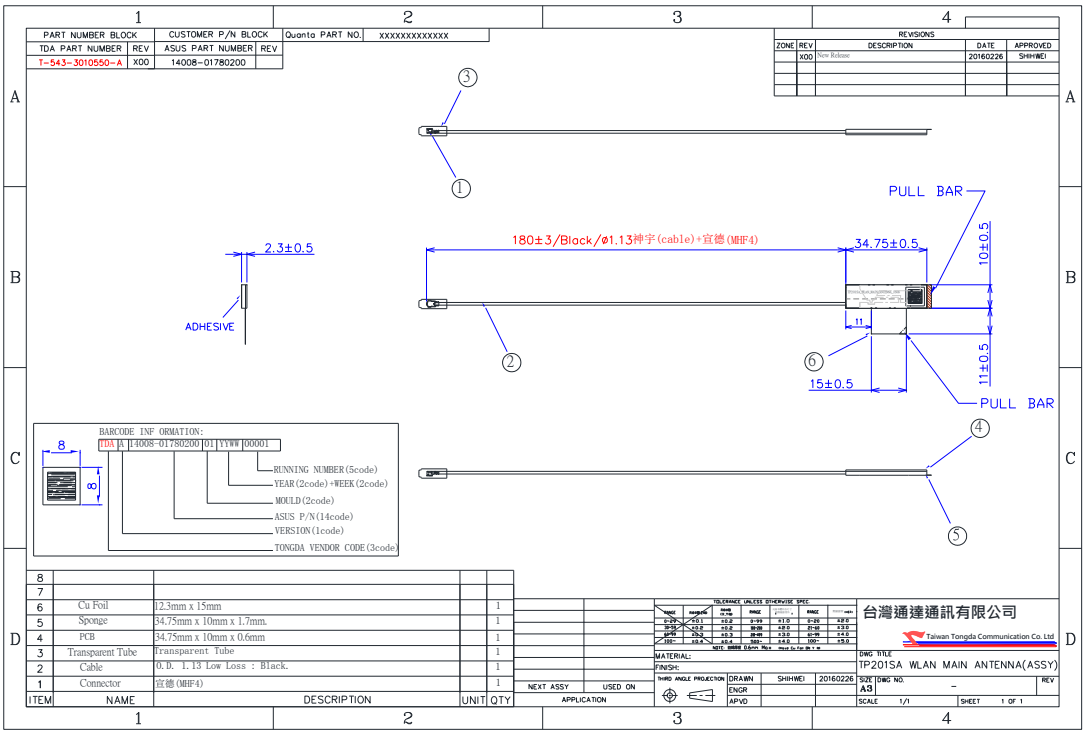
Main WLAN NB Mode Antenna Gain				
Frequency (MHz)	Max Value (dBi)		Average(dBi)	
	H-pol.	V-pol.	3D Gain	Efficiency %
2400	-0.20	-1.09	-3.90	40.7%
2450	1.19	-0.20	-2.45	56.9%
2500	-0.40	-0.73	-3.34	46.3%
5150	3.19	-0.33	-2.55	55.6%
5250	3.90	-0.45	-2.66	54.2%
5350	4.95	-1.25	-2.51	56.1%
5470	5.42	-0.23	-2.28	59.2%
5600	3.15	-0.55	-1.95	63.8%
5725	2.81	-1.10	-2.05	62.4%
5785	3.09	-0.62	-2.44	57.0%
5850	2.68	-0.44	-3.19	48.0%

Main WLAN Pad Mode Antenna Gain				
Frequency (MHz)	Max Value (dBi)		Average(dBi)	
	H-pol.	V-pol.	3D Gain	Efficiency %
2400	0.14	-2.28	-4.27	37.4%
2450	1.07	-2.45	-3.90	40.7%
2500	0.11	-1.94	-4.67	34.1%
5150	1.54	2.67	-2.30	58.9%
5250	1.75	1.90	-2.61	54.8%
5350	3.07	1.74	-2.90	51.3%
5470	4.67	0.69	-2.59	55.1%
5600	4.59	0.28	-1.80	66.1%
5725	3.22	0.53	-1.30	74.1%
5785	3.17	0.00	-1.63	68.7%
5850	3.11	-1.47	-2.32	58.6%

4.UL 資料

UL 整合表		
Cable	神宇	**E318898**
Connector	**Speed**	**E213445**
PCB	鑫科	**E231590**
保護套管	士豐	**E209436**
組裝代工廠	士豐	**E468395**

5. Antenna Drawing



6. Reliability Data For Antenna Patch (Reference To IEC / EN)

TEST Items	Limit	Test Method IEC62321:2008	Unit	MDL
Cadmium (Cd)	100	Determination of cadmium by ICP-OES	mg/kg	2
Lead (Pb)	1000	Determination of Lead by ICP-OES	mg/kg	2
Mercury (Hg)	1000	Determination of Mercury by ICP-OES	mg/kg	2
Hexavalent Chromium (Cr-VI)	1000	Determination of Hexavalent Chromium by Colorimetric Method using UV-Vis.	mg/kg	2
PBBS	1000	Determination of PBBs / PBDEs by ICP-OES	mg/kg	5
PBDES	1000	Determination of PBBs / PBDEs by ICP-OES	mg/kg	5

7. Ordering Information: TongDa Ordering P/N Code

The antennas may be ordered by using the TongDa P/N ordering code. These code numbers can be determined by the following rules:

T – 543 – 301 0550 –A

A B C D E

A. Company Name

T= TongDa

B. Company Internal Rule

543 = Company BU List

C. Antenna Function

301= Antenna Function List

D. Antenna Project

0550= Antenna Project List

E. Antenna Number

A= WLAN Antenna

8. Revision Control

Revision	Date	Content	Remark
A01	Mar. 22, 2016	New Issued.	N/A