



# **Evaluation Report on** **5.3\*2.0mm T5 Ceramic Chip antenna** **For Netvox Project Module**



**Version:1**

**R&D – HF Ceramic**

**Antenna Team 2010/04/22**



## Application Note of BT Antenna

### 1. Purpose

Our valued customer need a ceramic chip antenna in 2.4-2.5GHz application. Therefore Yageo carried out an evaluation for reference.

We use 5320 T5 ceramic chip antenna for Bluetooth . Here we use a real board and measure 3D efficiency .

The matching circuit and test result are show as below.



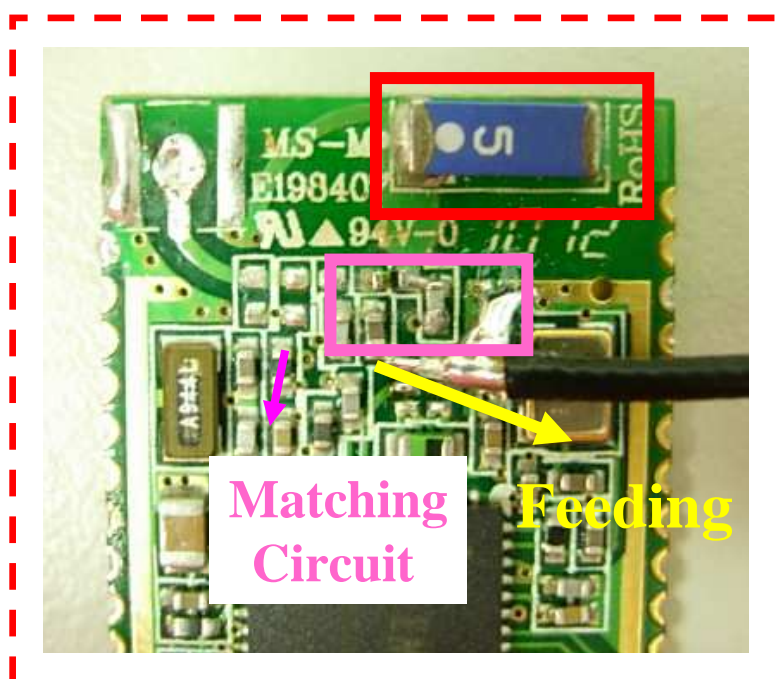


## Application Note of BT Antenna

### 2. Experiment

#### 2-1. 5.3\*2.0 mm T5 Ceramic Chip Antenna

##### Position and Matching Circuit

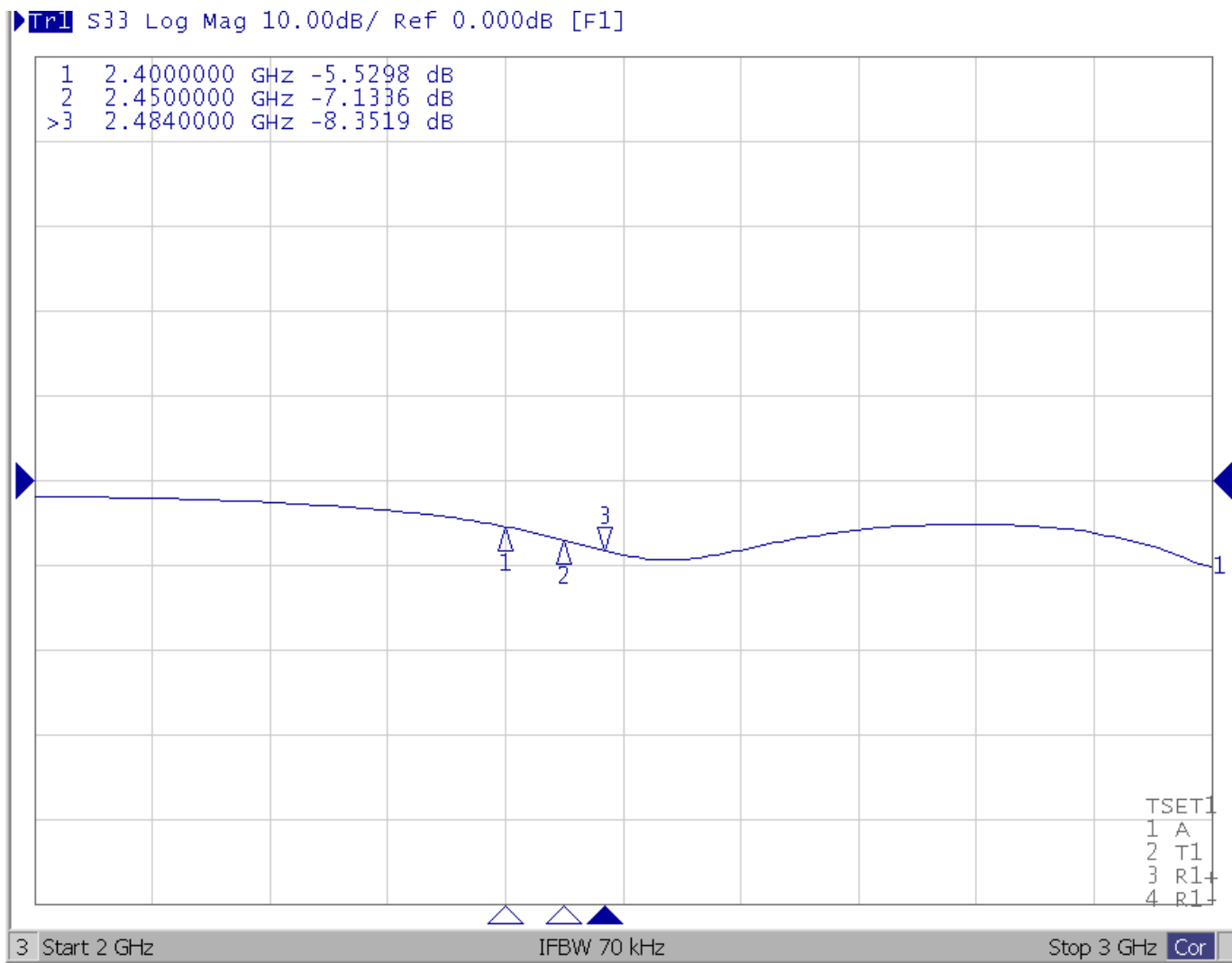


**5.3\*2.0 mm T5 Ceramic Chip Antenna**



## Application Note of BT Antenna

### The Measurement of S-Parameter



Frequency	S11 (dB)
2.40 GHz	-5.5298
2.45 GHz	-7.1336
2.484GHz	-8.3519



## Application Note of BT Antenna

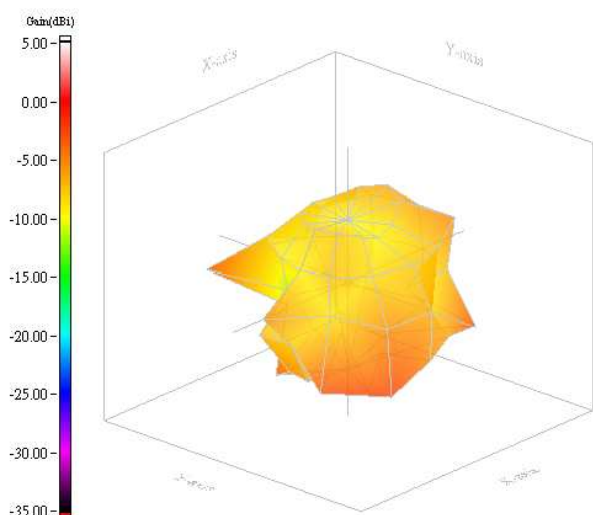
### The Measurement of Radiation efficiency

Model name  
5320 T5

Test mode  
0422

Test frequency / Polarization  
2400.00 MHz / Vector

Test date  
2010/4/22



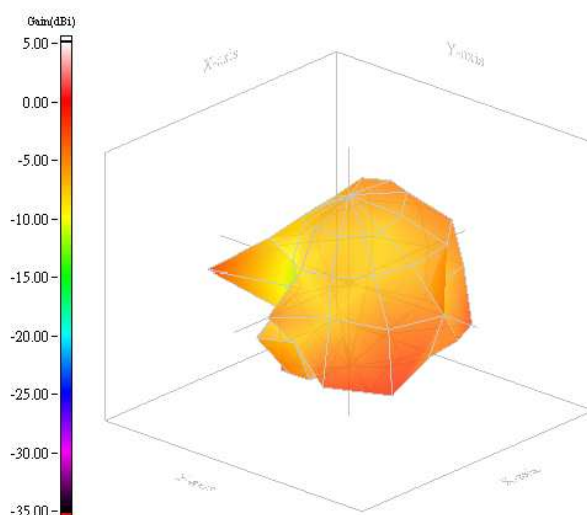
Max gain=-2.51dBi, at (120, 60)  
MEG (mean effective gain)=-7.28dBi  
Directivity(dB)= 4.49  
Efficiency=-7.00dB, 19.97%

Model name  
5320 T5

Test mode  
0422

Test frequency / Polarization  
2450.00 MHz / Vector

Test date  
2010/4/22



Max gain=-1.31dBi, at (120, 60)  
MEG (mean effective gain)=-6.14dBi  
Directivity(dB)= 4.78  
Efficiency=-6.09dB, 24.59%

**Frequency 2.40 GHz**

**Max gain -2.51 dBi**

**Efficiency 19.97 %**

**Frequency 2.45 GHz**

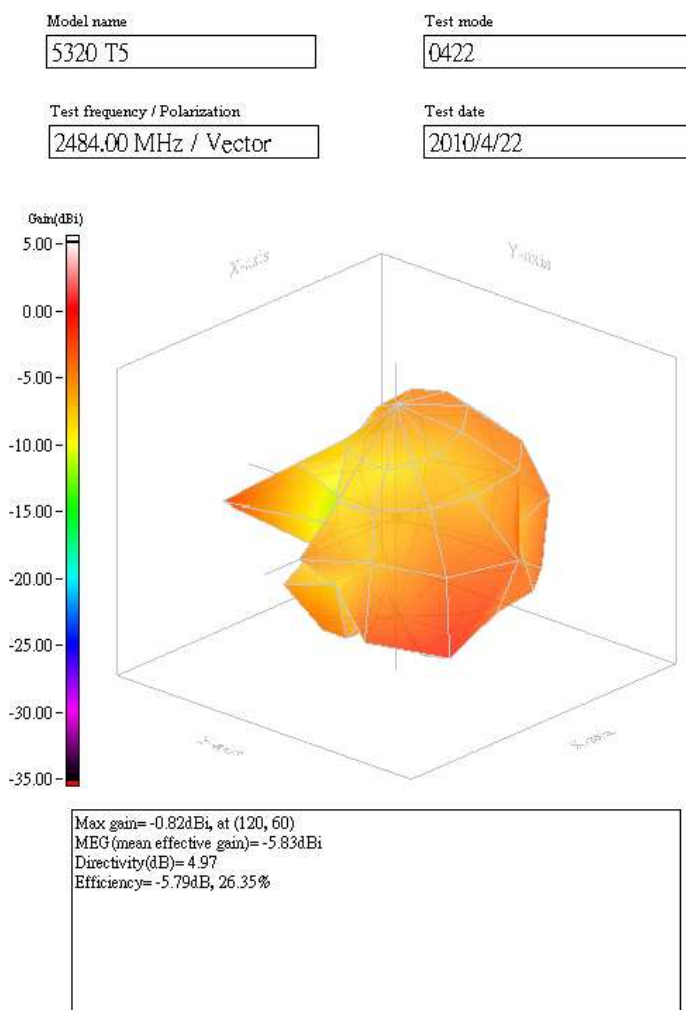
**Max gain -1.31 dBi**

**Efficiency 24.59 %**



## Application Note of BT Antenna

### The Measurement of Radiation efficiency



**Frequency 2.484GHz**

**Max gain -0.82 dBi**

**Efficiency 26.35 %**



### 3. Conclusion

From the result , we don't change the customer's layout.  
The efficiency is 24% . The peak gain is less than -  
0.82dB.

The measurement result are show as below.

Bluetooth	Freq(MHz)	Return loss (dB)	Peak Gain(dBi)	Efficiency(%)
Yageo 5320 T5	2400	-5.5298	<b>-2.51</b>	<b>19.97</b>
	2450	-7.1336	<b>-1.31</b>	<b>24.59</b>
	2484	-8.3519	<b>-0.82</b>	<b>26.35</b>



*Application Note of BT Antenna*

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