

# SPECIFICATIONS

**PRODUCT NAME : WiFi Dual Band & BT Antenna**

**MODEL NAME : LGSBWAC92 Ant.**

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Designed	Checked	Approved	<b>LG Innotek Co., Ltd.</b>	
Y.U.Jeong				
2017.04.02	-		DOCUMENT No.	2018RF-LGE001
			PAGE	<b>10</b>



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**SPECIFICATION**

REV.NO : 1.0

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MODEL NAME : LGE DBDC (LGIT)

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## 1. ANT Features

- Dual Bands Wi-Fi & BT ANT
- Main Frequency: 2.45GHz, 5.5GHz
- Frequency range  
: From 2.40 to 2.50GHz, 5GHz~6GHz
- Operating temperature range  
: -35 to +95°C (typ.)
- Wi-Fi ANT Material : Metal press + Printed of FR-4
- BT ANT material : Printed of FR-4

## 2. Antenna Characteristics

- Dual Band ANT0

Antenna Performance				
Parameter	Min	Typ	Max	Unit
Frequency Range	2400	2450	2500	MHz
	5000	5500	6000	MHz
Directivity	-	Omni	-	-
Full Bands Average Gain	-	-2.5	-	dBi
Full Bands Peak Gain		-	1.5	
V.S.W.R	3:1	-	-	Under
Isolation			-10	dB under
Impedance		50		Ohm
Radiation Material		Metal		

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**- Dual Band ANT1**

<b>Antenna Performance</b>				
<b>Parameter</b>	<b>Min</b>	<b>Typ</b>	<b>Max</b>	<b>Unit</b>
Frequency Range	2400	2450	2500	MHz
	5000	5500	6000	MHz
Directivity	-	Omni	-	-
Full Bands Average Gain	-	-2.44	-	dBi
Full Bands Peak Gain		-	1.5	
V.S.W.R	3:1	-	-	Under
Isolation			-10	dB under
Impedance		50		Ohm
Radiation Material		Metal		

**- BT ANT**

<b>Antenna Performance</b>				
<b>Parameter</b>	<b>Min</b>	<b>Typ</b>	<b>Max</b>	<b>Unit</b>
Frequency Range	2400	2450	2500	MHz
Directivity	-	Omni	-	-
Full Bands Average Gain	-	-3.52	-	dBi
Full Bands Peak Gain		-	0.49	
V.S.W.R	3:1	-	-	Under
Isolation			-20	dB under
Impedance		50		Ohm
Radiation Material		Printed		

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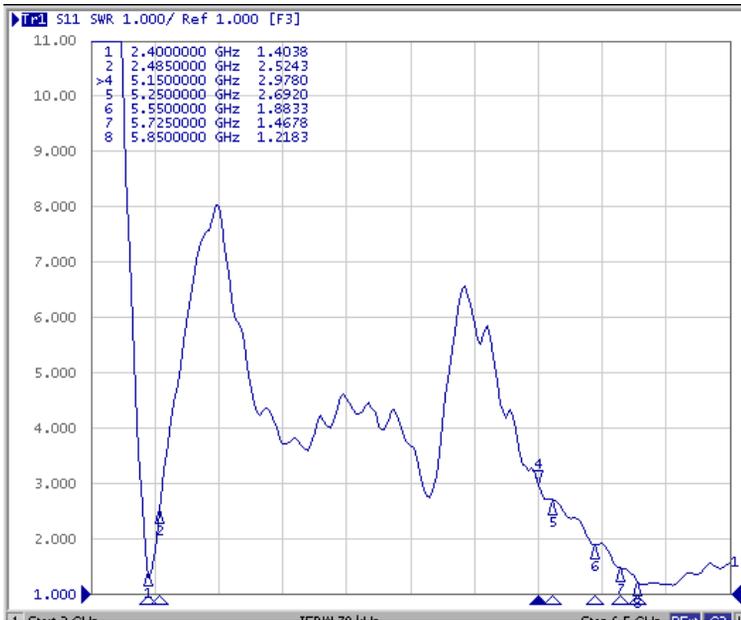
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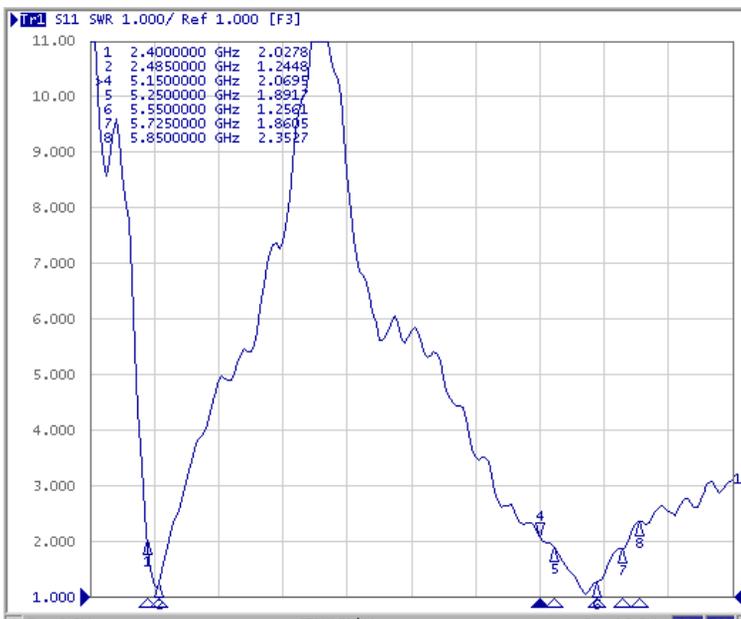
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### 2.1 Network Data

#### ANT 0\_VSWR



#### ANT 1\_VSWR



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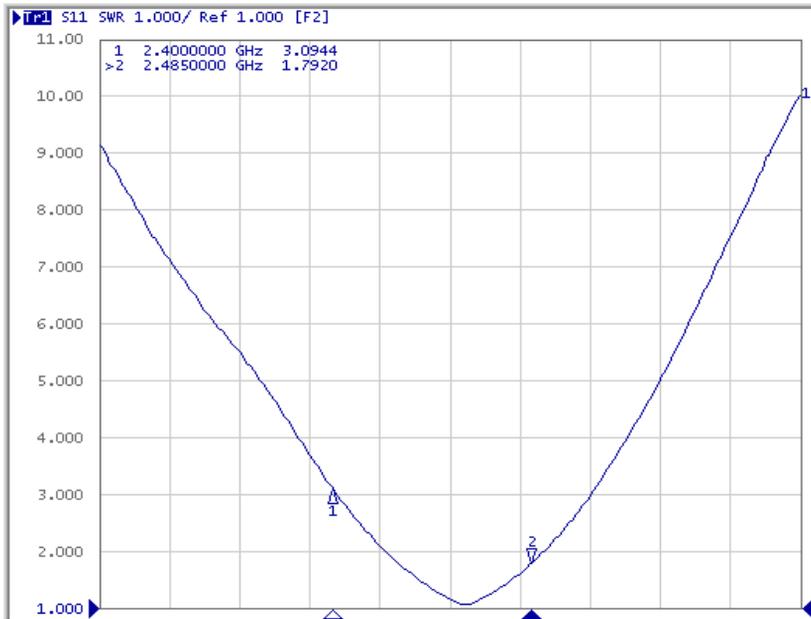
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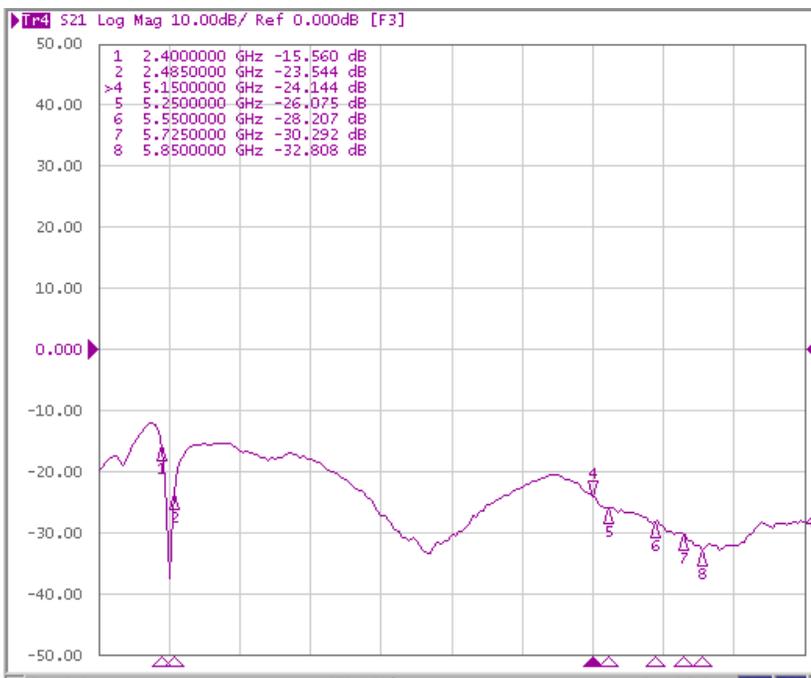
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**BT\_VSWR**



**ANT 0 <->ANT 1\_Isolation**



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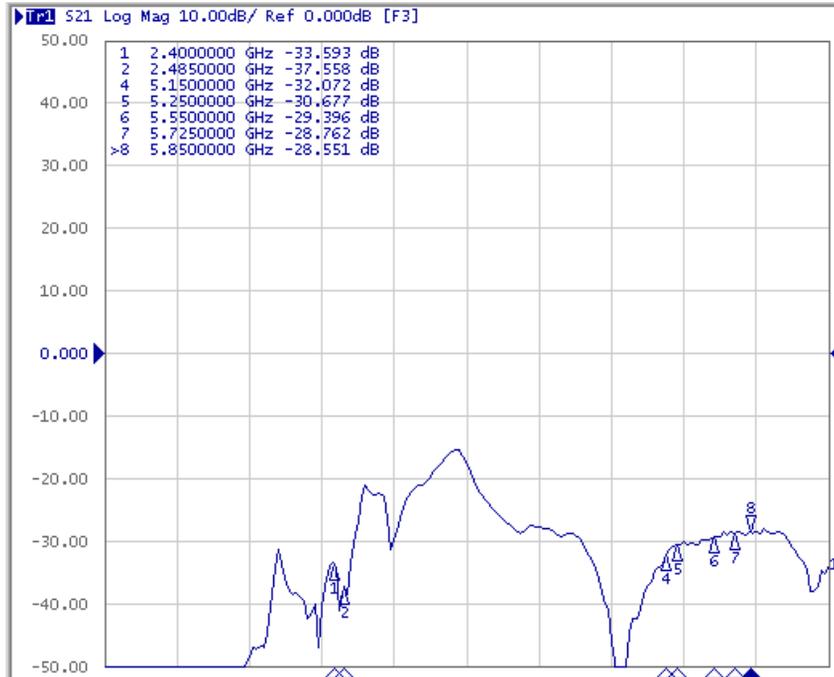
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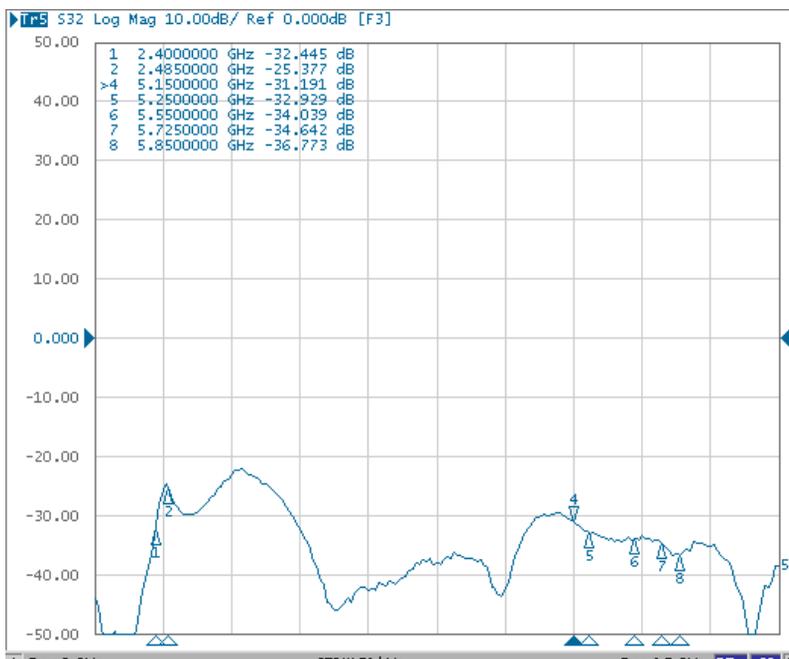
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### ANT 0 <-> BT\_Isolation



### ANT 1 <-> BT\_Isolation



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## 2.2. Efficiency

### ANT0

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Frequency(MHz)	2412	2420	2450	2460	2485	5150	5200	5250	5300	5350	5400	5450	5500	5550	5600	5650	5700	5750	5800	5850
Efficiency(dB)	-4.20	-3.83	-2.69	-2.52	-2.74	-2.98	-1.82	-2.43	-2.52	-2.37	-2.71	-2.14	-2.42	-2.43	-2.56	-2.18	-2.27	-1.99	-2.19	-1.80
Efficiency(%)	38.01	41.44	53.88	56.04	53.21	50.34	65.72	57.12	55.94	57.95	53.61	61.15	57.26	57.13	55.47	60.57	59.33	63.30	60.40	66.08
TRG(dB)	-4.20	-3.83	-2.69	-2.52	-2.74	-2.98	-1.82	-2.43	-2.52	-2.37	-2.71	-2.14	-2.42	-2.43	-2.56	-2.18	-2.27	-1.99	-2.19	-1.80
TRG <sub>Theta</sub> (dB)	-8.28	-7.73	-6.03	-5.79	-5.70	-3.40	-2.27	-3.12	-3.26	-3.15	-3.62	-3.38	-3.93	-4.13	-4.34	-3.62	-3.77	-3.62	-3.75	-3.33
TRG <sub>Phi</sub> (dB)	-6.35	-6.09	-5.38	-5.28	-5.80	-13.37	-11.96	-10.77	-10.60	-10.20	-9.95	-8.17	-7.75	-7.32	-7.28	-7.67	-7.61	-7.03	-7.39	-7.07
UHRG(dB)	-7.52	-7.09	-5.87	-5.81	-6.09	-5.87	-4.72	-5.50	-5.44	-5.31	-5.72	-5.16	-5.57	-5.51	-5.70	-5.49	-5.61	-5.17	-5.48	-5.02
UHRG/TRG(%)	46.58	47.19	48.00	46.87	46.20	51.42	51.36	49.32	51.03	50.79	49.92	49.86	48.40	49.18	48.52	46.65	46.35	48.05	46.89	47.60
H-Plane	-9.16	-7.72	-6.19	-6.28	-6.00	-1.26	-0.44	-1.57	-1.99	-1.75	-2.52	-2.40	-2.78	-2.78	-2.89	-2.76	-3.14	-3.16	-3.32	-2.96
E1-Plane, AVG(dB)	-5.82	-5.17	-3.40	-3.14	-2.78	-4.88	-3.59	-4.15	-4.09	-4.72	-4.35	-4.00	-4.50	-5.12	-5.33	-3.56	-3.63	-3.78	-3.85	-3.82
E2-Plane, AVG(dB)	-11.05	-11.07	-10.75	-10.49	-10.00	-5.01	-3.60	-4.06	-4.15	-4.49	-4.80	-4.40	-4.97	-4.84	-5.30	-5.20	-5.08	-4.74	-4.78	-4.13
Peak Gain(dB)	-0.57	-0.38	0.48	1.01	1.37	1.46	1.47	1.48	1.48	1.50	1.45	1.48	1.47	1.50	1.49	1.47	1.48	1.41	1.44	1.44
Directivity(dB)	3.63	3.44	3.17	3.52	4.12	4.44	3.29	3.91	4.00	3.87	4.16	3.61	3.89	3.93	4.05	3.65	3.75	3.40	3.63	3.24
Minimum Gain(dB)	-15.16	-14.30	-11.84	-12.52	-14.43	-10.81	-10.78	-10.41	-11.40	-11.02	-12.38	-12.46	-13.69	-12.66	-10.22	-11.71	-14.75	-13.77	-13.55	-15.74
Test Condition	FS																			
Antenna Type																				
Average Efficiency	-2.50 dB, 56.20 %																			

### ANT1

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Frequency(MHz)	2412	2420	2450	2460	2485	5150	5200	5250	5300	5350	5400	5450	5500	5550	5600	5650	5700	5750	5800	5850
Efficiency(dB)	-2.36	-2.61	-2.43	-2.07	-2.66	-2.59	-2.80	-2.82	-2.05	-1.79	-1.95	-1.83	-2.08	-2.26	-2.28	-2.59	-2.96	-2.98	-3.00	-3.11
Efficiency(%)	58.08	54.80	57.12	62.14	54.20	55.12	52.52	52.23	62.33	66.18	63.89	65.66	61.92	59.46	59.17	55.13	50.56	50.33	50.12	48.88
TRG(dB)	-2.36	-2.61	-2.43	-2.07	-2.66	-2.59	-2.80	-2.82	-2.05	-1.79	-1.95	-1.83	-2.08	-2.26	-2.28	-2.59	-2.96	-2.98	-3.00	-3.11
TRG <sub>Theta</sub> (dB)	-6.29	-4.88	-5.30	-5.21	-5.86	-6.10	-6.40	-6.43	-5.45	-5.16	-5.11	-4.79	-5.63	-5.79	-5.86	-5.84	-6.21	-6.27	-6.69	-6.62
TRG <sub>Phi</sub> (dB)	-4.61	-6.52	-5.60	-4.95	-5.48	-5.14	-5.28	-5.31	-4.70	-4.47	-4.81	-4.89	-4.61	-4.80	-4.79	-5.37	-5.75	-5.73	-5.42	-5.67
UHRG(dB)	-4.69	-4.77	-4.27	-4.02	-4.33	-4.02	-4.24	-4.19	-3.99	-3.76	-3.90	-3.72	-3.99	-4.40	-4.24	-4.17	-4.30	-4.37	-4.46	-4.42
UHRG/TRG(%)	58.41	60.83	65.49	63.84	68.03	71.97	71.75	73.03	64.06	63.60	63.79	64.74	64.52	61.11	63.70	69.45	73.43	72.67	71.39	73.90
H-Plane	-8.32	-7.54	-6.55	-6.70	-7.37	-9.29	-9.51	-8.03	-6.82	-5.06	-4.76	-5.16	-5.54	-8.12	-9.61	-9.15	-9.56	-9.74	-9.53	-9.35
E1-Plane, AVG(dB)	-5.33	-5.90	-5.98	-6.12	-8.13	-6.13	-6.33	-5.40	-4.59	-4.73	-5.34	-5.14	-5.51	-5.58	-5.44	-5.46	-5.64	-5.68	-7.08	-5.88
E2-Plane, AVG(dB)	-6.30	-4.69	-6.61	-6.62	-5.22	-6.15	-6.98	-6.54	-5.42	-5.66	-6.26	-5.74	-6.15	-8.29	-7.74	-7.41	-7.76	-7.84	-7.97	-8.40
Peak Gain(dB)	1.48	1.44	1.47	1.49	1.49	1.46	1.50	1.49	1.50	1.46	1.46	1.48	1.50	1.46	1.49	1.48	1.43	1.49	1.41	1.34
Directivity(dB)	3.84	4.05	3.90	3.56	4.15	4.05	4.30	4.31	3.55	3.25	3.41	3.30	3.58	3.72	3.77	4.07	4.39	4.47	4.41	4.44
Minimum Gain(dB)	-16.99	-10.79	-10.99	-11.26	-11.74	-14.77	-16.41	-16.64	-15.03	-14.07	-13.84	-15.20	-15.54	-13.35	-13.61	-18.73	-18.41	-17.59	-19.53	-17.20
Test Condition	FS																			
Antenna Type																				
Average Efficiency	-2.44 dB, 56.99 %																			

### BT

	1	2	3	4	5	6	7	8	9	10
Frequency(MHz)	2412	2420	2430	2440	2445	2450	2460	2470	2480	2485
Efficiency(dB)	-3.89	-3.74	-3.68	-3.13	-2.85	-3.28	-3.39	-3.61	-3.77	-4.03
Efficiency(%)	40.86	42.31	42.89	48.66	51.92	47.01	45.79	43.55	41.94	39.51
TRG(dB)	-3.89	-3.74	-3.68	-3.13	-2.85	-3.28	-3.39	-3.61	-3.77	-4.03
TRG <sub>Theta</sub> (dB)	-7.48	-7.20	-7.40	-6.16	-6.07	-6.22	-6.45	-6.63	-6.58	-6.77
TRG <sub>Phi</sub> (dB)	-6.38	-6.34	-6.08	-6.12	-5.65	-6.36	-6.36	-6.61	-7.00	-7.34
UHRG(dB)	-5.66	-5.28	-5.05	-4.75	-4.81	-4.78	-4.73	-5.06	-5.15	-5.24
UHRG/TRG(%)	66.44	70.06	72.84	68.92	63.66	70.82	73.43	71.70	72.91	75.78
H-Plane	-8.60	-8.23	-9.28	-6.60	-7.48	-7.39	-7.32	-8.57	-8.74	-7.57
E1-Plane, AVG(dB)	-8.41	-7.92	-6.77	-5.70	-6.58	-6.34	-5.74	-6.43	-6.63	-6.73
E2-Plane, AVG(dB)	-6.51	-6.12	-5.87	-4.63	-4.86	-6.36	-5.79	-5.35	-5.31	-5.78
Peak Gain(dB)	0.25	0.30	0.40	0.48	0.48	0.48	0.49	0.40	0.41	0.33
Directivity(dB)	4.14	4.04	4.07	3.61	3.33	3.76	3.89	4.01	4.18	4.36
Minimum Gain(dB)	-14.86	-14.85	-14.97	-14.21	-12.34	-14.07	-14.84	-14.52	-14.62	-14.91
Test Condition	FS									
Antenna Type										
Average Efficiency	-3.52 dB, 44.44 %									

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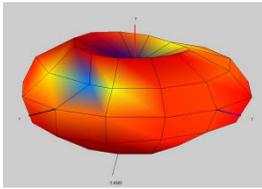
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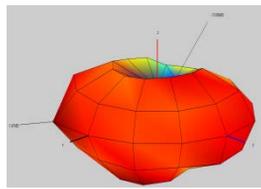
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**2.3. Radiation Pattern**

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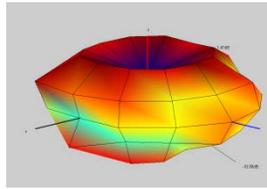


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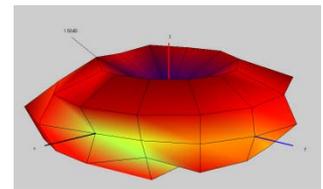


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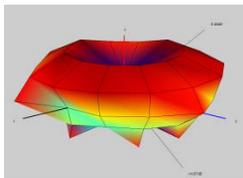


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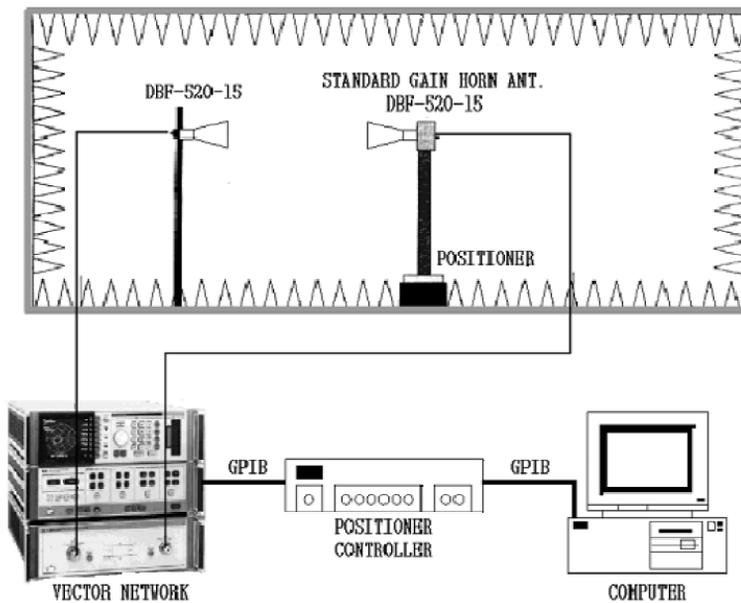
**BT**



<2.45GHz>

**3. ANT Test Condition**

CTIA-OTA Test Chamber : 3x6x3m



### 4. ANT Dimensions

**Wi-Fi Antenna.1**



**Wi-Fi Antenna.0**

**Bluetooth Tx Antenna**