

# 3D Antenna Measurement Summary Report

**REPORT NO.:** OR-W7L-P20120005

**PLATFORM  
MANUFACTURER:** Dongguan Chuand Electronics Technology Co., Ltd.

**PLATFORM NAME:** Dongle

**ANTENNA TYPE:** Onboard Antenna

**TESTED DATE:** 2020.12.09

**ISSUED:** 2020.12.11

**APPLICANT:** Dongguan Chuand Electronics Technology Co., Ltd.

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## RELEASE CONTROL RECORD

REPORT NO.	REASON FOR CHANGE	DATE ISSUED
OR-W7L-P20120005	Original release	2020.12.11

### Table of Contents

GENERAL INFORMATION.....	3
1. Test Equipment List.....	4
2. Measurement Uncertainty.....	4
3. Characteristics of antenna .....	5
4. Antenna Pattern .....	7
Appendix A. Testing Setup Photo.....	10

## GENERAL INFORMATION

<b>APPLICANT:</b>	Dongguan Chuand Electronics Technology Co., Ltd.
<b>MANUFACTURER:</b>	Dongguan Chuand Electronics Technology Co., Ltd.
<b>MODEL NO.:</b>	Dongle Antenna

Test Standard: ANSI/IEEE Std. 149 1979.

PREPARED BY : Li Bo , DATE : 2020.12.11  
Li Bo / Engineer

APPROVED BY : Luke Lu , DATE : 2020.12.11  
Luke Lu / Manager

## 1. Test Equipment List

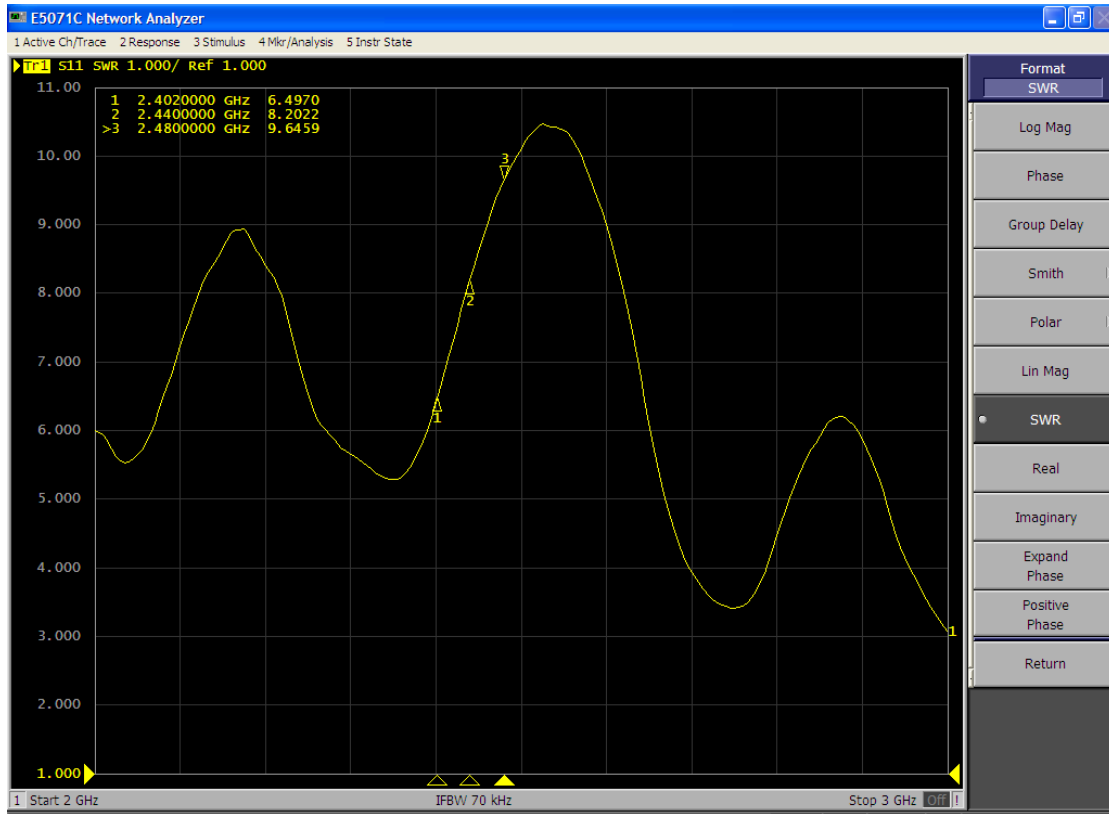
TYPE OF EQUIPMENT	MODEL NUMBER	SERIAL NUMBER	CALIBRATION DUE DATE
Network Analyzer	E5071C	MY46214638	2021.06.02
OTA Chamber	ETS AMS8500	N/A	N/A
RF Switch	ETS EMCenter	N/A	N/A
Measurement Antenna	ETS 3165-01	N/A	N/A

## 2. Measurement Uncertainty

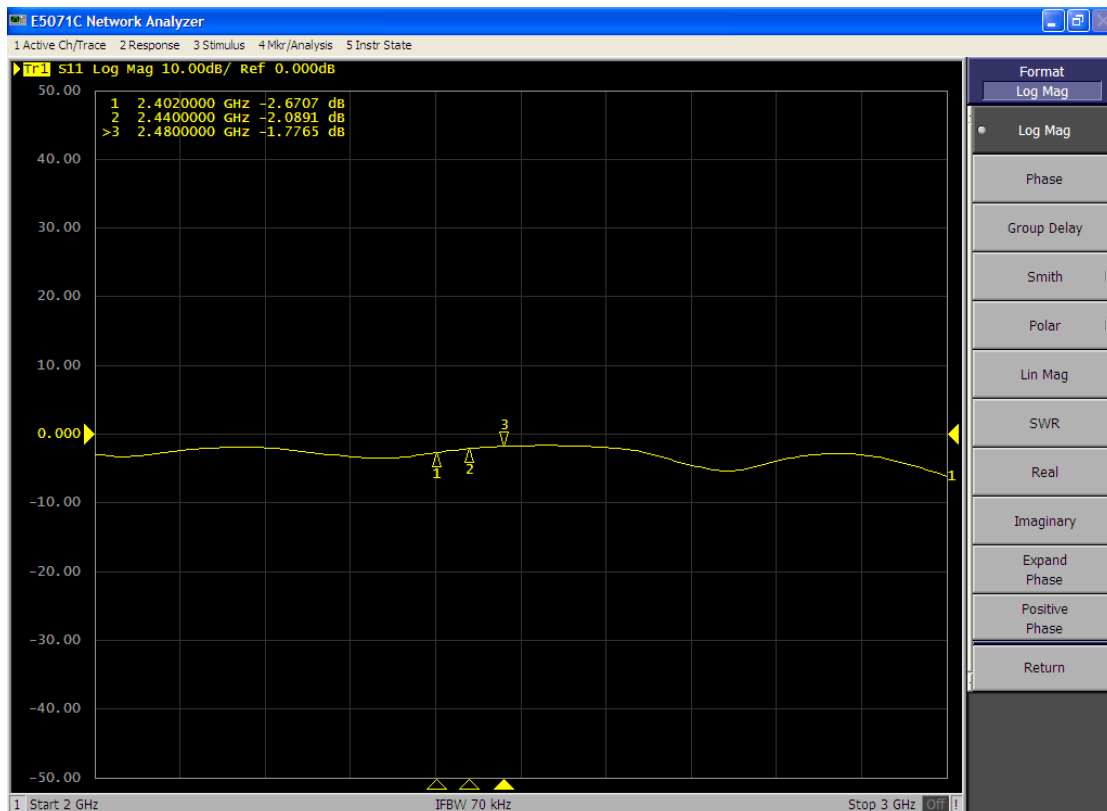
Expanded Uncertainty for Measurement (k=2 or 95% Confidence Level) at Passive antenna test over frequency range 780 – 2200MHz is +/- 1.52 dB.

### 3. Characteristics of antenna

#### 3.1. S11-VSWR



#### 3.2. S11-ReturnLoss



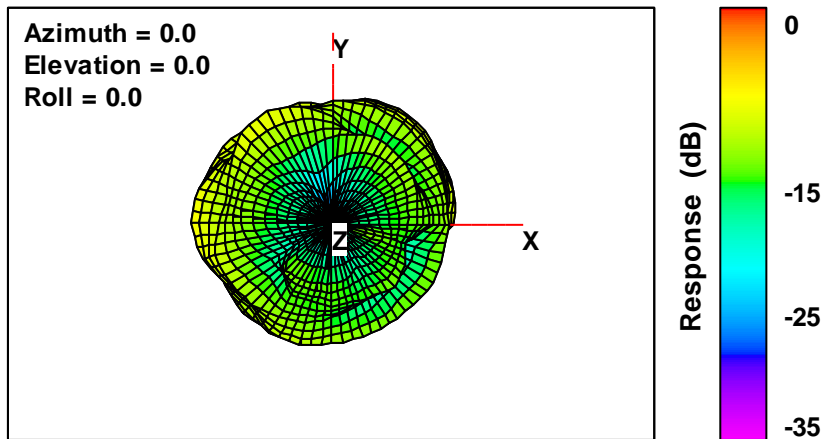


### 3.3. 3D Antenna Gain-Free Space

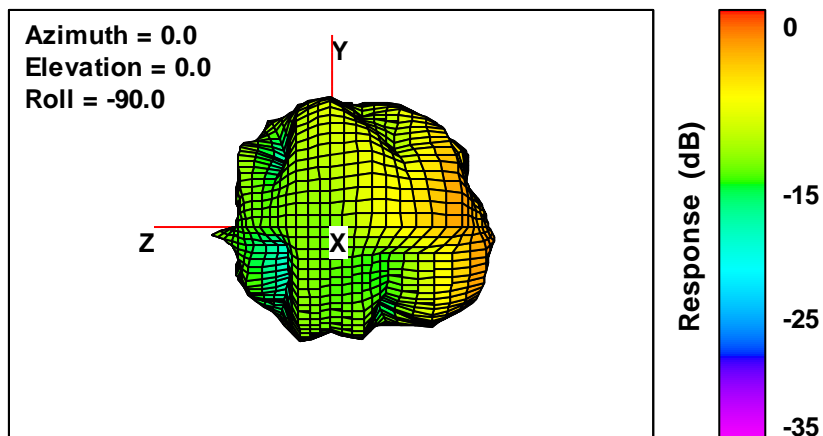
Frequency (MHz)	Directivity (dBi)	Efficiency (dB)	Efficiency (%)	Gain (dBi)
2402	8.10	-8.87	12.97	-0.77
2404	8.11	-8.86	13.01	-0.75
2406	8.11	-8.88	12.96	-0.76
2408	8.10	-8.91	12.84	-0.81
2410	8.10	-8.91	12.86	-0.80
2412	8.12	-8.94	12.76	-0.83
2414	8.16	-8.92	12.83	-0.76
2416	8.15	-8.96	12.70	-0.82
2418	8.13	-9.02	12.53	-0.89
2420	8.15	-9.04	12.46	-0.90
2422	8.14	-9.09	12.32	-0.95
2424	8.17	-9.18	12.08	-1.01
2426	8.17	-9.18	12.08	-1.01
2428	8.16	-9.22	11.98	-1.05
2430	8.16	-9.34	11.65	-1.18
2432	8.13	-9.35	11.62	-1.21
2434	8.15	-9.42	11.44	-1.26
2436	8.13	-9.55	11.09	-1.42
2438	8.16	-9.55	11.09	-1.39
2440	8.18	-9.60	10.97	-1.41
2442	8.17	-9.73	10.65	-1.56
2444	8.19	-9.69	10.73	-1.50
2446	8.21	-9.77	10.55	-1.56
2448	8.21	-9.83	10.40	-1.62
2450	8.21	-9.87	10.30	-1.66
2452	8.17	-9.94	10.15	-1.77
2454	8.20	-9.91	10.21	-1.71
2456	8.21	-9.94	10.14	-1.73
2458	8.26	-9.98	10.04	-1.72
2460	8.21	-10.07	9.83	-1.86
2462	8.20	-10.15	9.66	-1.95
2464	8.18	-10.23	9.49	-2.04
2466	8.21	-10.28	9.37	-2.07
2468	8.20	-10.25	9.44	-2.05
2470	8.23	-10.24	9.47	-2.01
2472	8.24	-10.23	9.48	-1.99
2474	8.24	-10.23	9.49	-1.99
2476	8.23	-10.20	9.54	-1.98
2478	8.25	-10.21	9.53	-1.95
2480	8.25	-10.23	9.48	-1.98

# Antenna Pattern

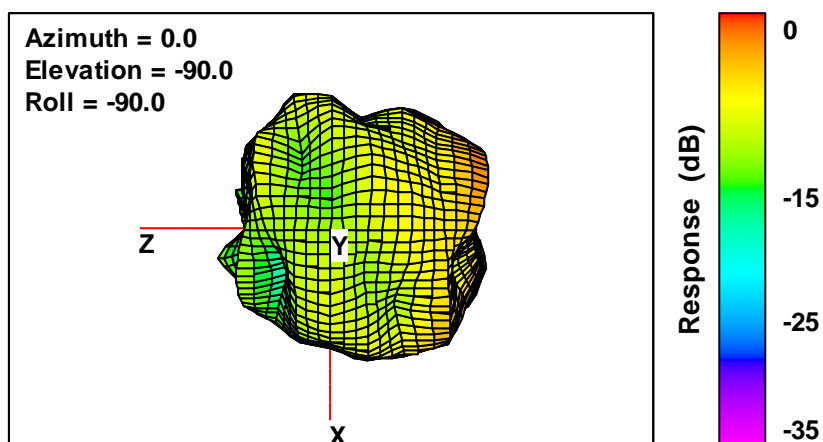
2402MHz  
Total



Total

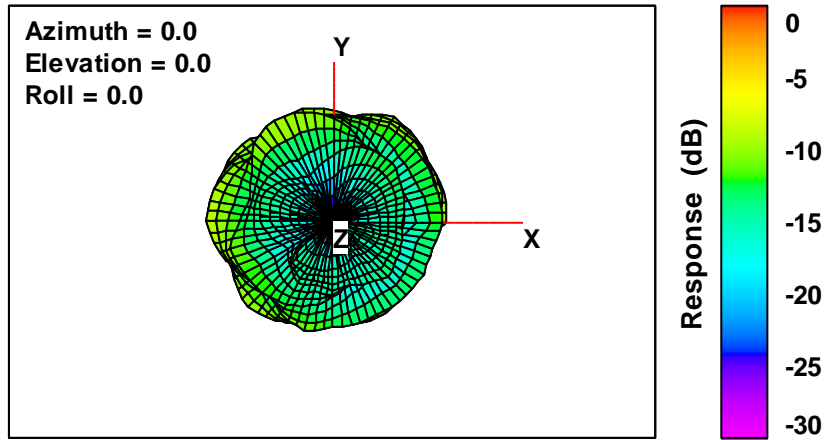


Total

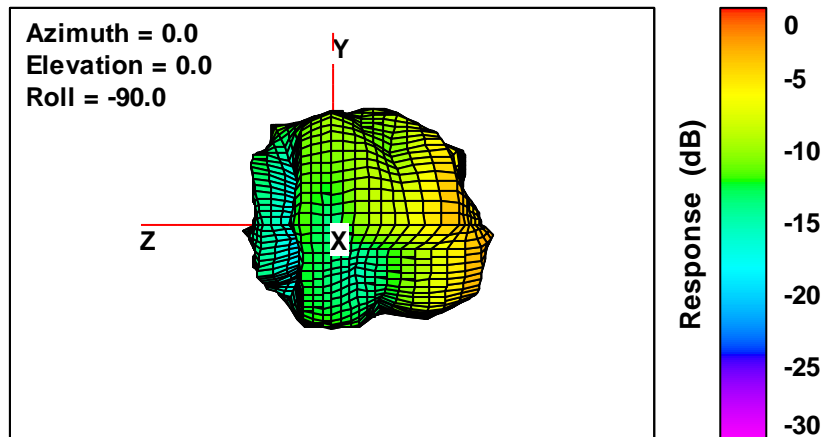


2440MHz

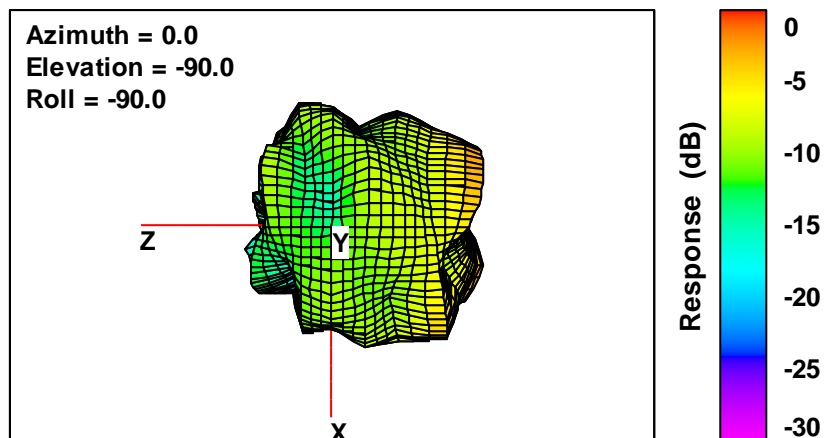
Total



Total



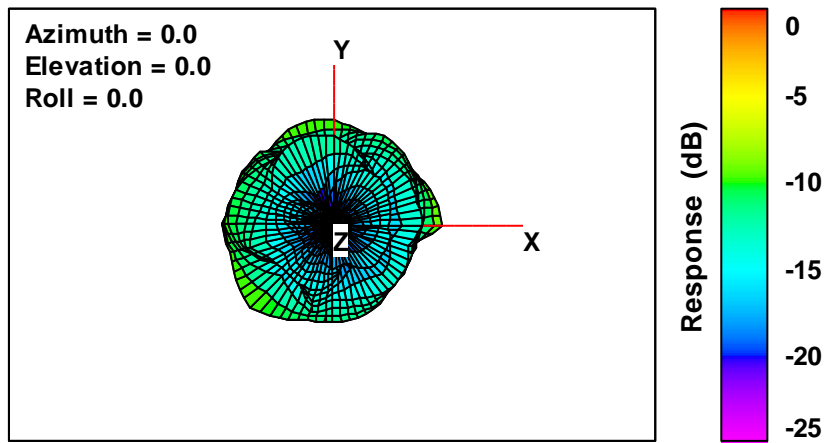
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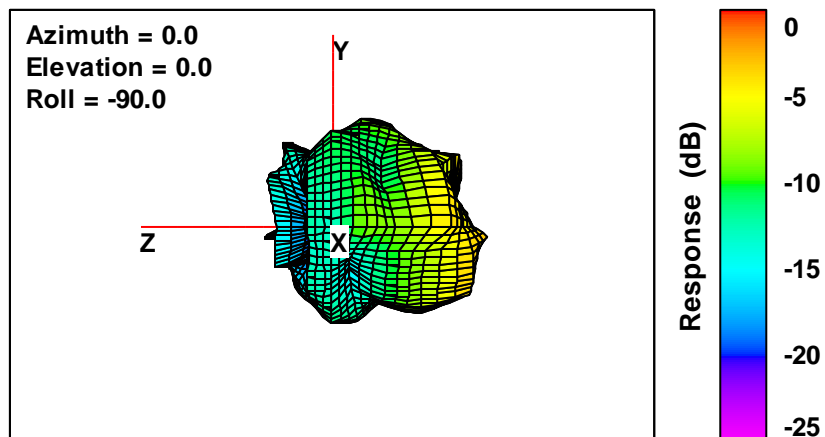


2480MHz

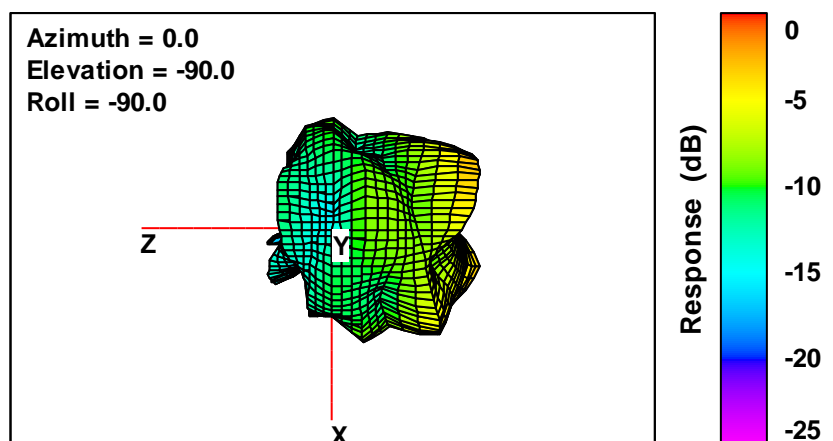
Total



Total



Total



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### Appendix A. Testing Setup Photo



Free Space

