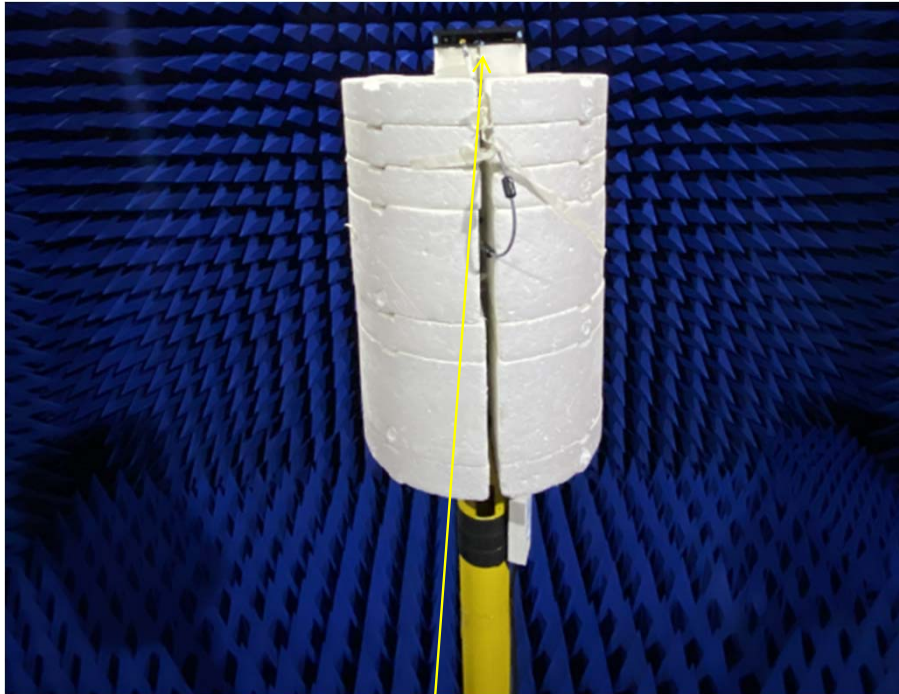


## Antenna Study

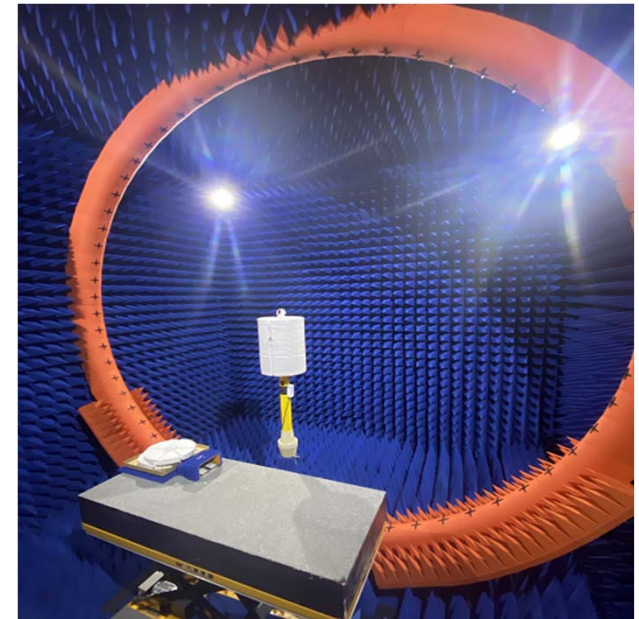
- **Client Name:COLINSE INC.**
- **Project Name:4DS Tactile System**
- **Debugging frequency band: 5150-5850MHz**
- **Valuation date: 2023.04.24**

# PCB Antenna

Dongguan UB Electronics Co., Ltd



Testing environment



Testing 3D microwave darkroom(6m\*6m\*6m)

# PCB Antenna

Dongguan UB Electronics Co., Ltd

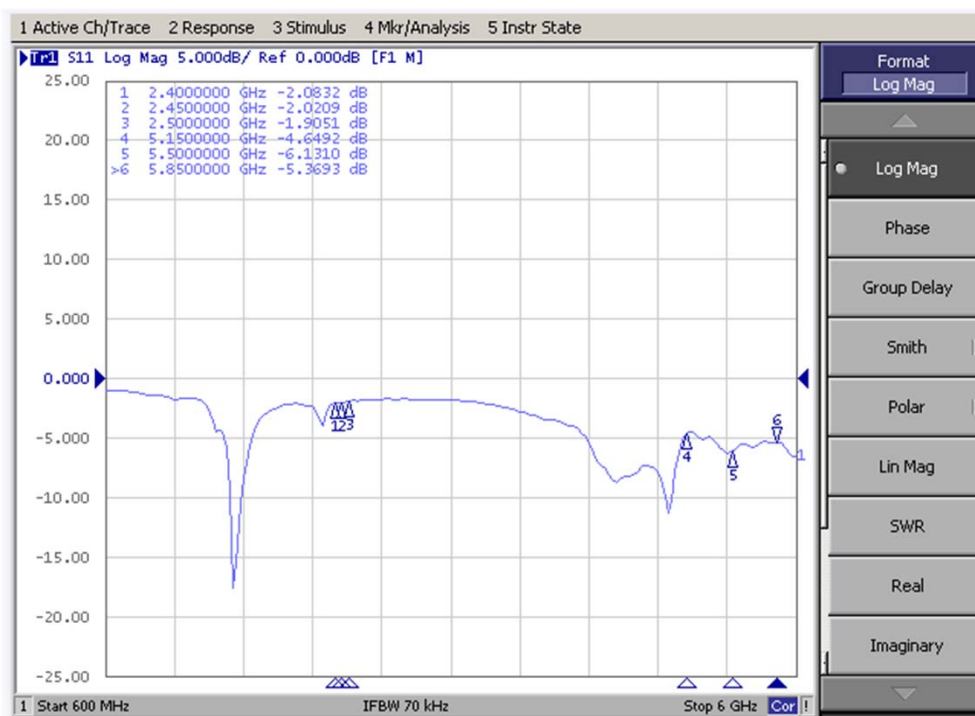
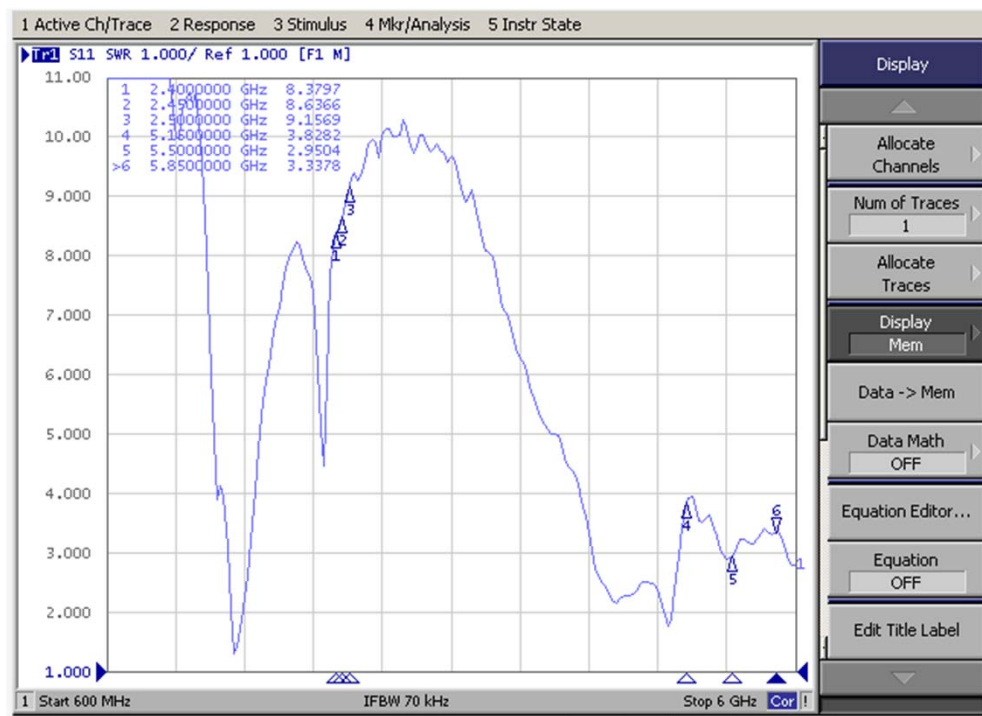


Antenna

- Antenna name: PCB Antenna
- Antenna Type: PCB
- Covers : 5150-5850MHz

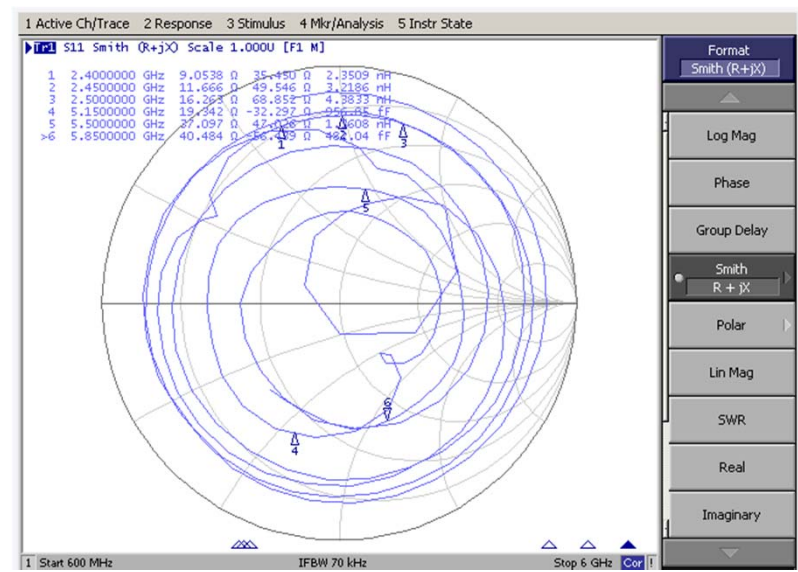
# S Parameter\_Return Loss&VSWR

Dongguan UB Electronics Co., Ltd



# Efficiency and Gain-Smith

Dongguan UB Electronics Co., Ltd



| Frequency ID    | 1      | 2      | 3      | 4      | 5      | 6      | 7      | 8      | 9      | 10     | 11     | 12     | 13     | 14     | 15     |
|-----------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| Frequency (MHz) | 5150.0 | 5200.0 | 5250.0 | 5300.0 | 5350.0 | 5400.0 | 5450.0 | 5500.0 | 5550.0 | 5600.0 | 5650.0 | 5700.0 | 5750.0 | 5800.0 | 5850.0 |
| Gain (dBi)      | -3.77  | -3.75  | -4.77  | -5.63  | -6.32  | -6.21  | -4.64  | -2.37  | -1.83  | -2.21  | -2.90  | -3.50  | -3.95  | -4.74  | -5.87  |
| Efficiency (%)  | 6.15   | 6.27   | 5.36   | 4.97   | 5.02   | 5.44   | 7.80   | 11.16  | 11.88  | 10.61  | 9.03   | 7.96   | 7.40   | 6.65   | 5.91   |



