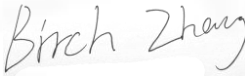




# SAR

## Dipole Performance Measurement Report

**Company Name:** BTF Testing Lab (Shenzhen) Co., Ltd.  
**Address:** Plant 101, 201 and 301, Building 1, Block 2, Tantou Industrial Park, Tantou Community, Songgang Street, Bao'an District, Shenzhen, Guangdong, China  
**Test System Name:** SATIMO  
**Test System Version:** Open SAR V5.3.15.8  
**Probe:** 0125-EPGO-445  
**Date (s) of performance of tests:** 2026-04-23  
**Date of Issue:** 2026-04-24

**Tested By:**   
Birch Zhang / Tester

**Date:** 2026-04-24

**Reviewed By:**   
Amenda Zhong / Project Engineer

**Date:** 2026-04-24

**Approved By:**   
Ryan.CJ / EMC Manager

**Date:** 2026-04-24





## Test Equipment List

| Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Manufacturer | Model   | Serial No./Version  | Cal. Date  | Cal. Due   |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|---------|---------------------|------------|------------|
| ENA Series Network Analyzer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Agilent      | E5071B  | MY42301221          | 2025/10/17 | 2026/10/16 |
| Mechanical Calibration Kit                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | PNA          | N/A     | N/A                 | 2025/10/21 | 2026/10/20 |
| 450MHz Validation Dipole                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | MVG          | SID450  | 07/22 DIP 0G450-654 | 2025/05/26 | 2028/05/25 |
| 750MHz Validation Dipole                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | MVG          | SID750  | 07/22 DIP 0G750-655 | 2025/05/26 | 2028/05/25 |
| 835MHz Validation Dipole                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | MVG          | SID835  | 07/22 DIP 0G835-656 | 2025/05/26 | 2028/05/25 |
| 1800MHz Validation Dipole                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | MVG          | SID1800 | 07/22 DIP 1G800-657 | 2025/05/26 | 2028/05/25 |
| 1900MHz Validation Dipole                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | MVG          | SID1900 | 07/22 DIP 1G900-658 | 2025/05/26 | 2028/05/25 |
| 2000MHz Validation Dipole                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | MVG          | SID2000 | 07/22 DIP2G000-659  | 2025/05/26 | 2028/05/25 |
| 2100MHz Validation Dipole                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | MVG          | SID2100 | 07/22 DIP2G100-660  | 2025/05/26 | 2028/05/25 |
| 2300MHz Validation Dipole                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | MVG          | SID2300 | 07/22 DIP 2G300-661 | 2025/05/26 | 2028/05/25 |
| 2450MHz Validation Dipole                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | MVG          | SID2450 | 07/22 DIP 2G450-662 | 2025/05/26 | 2028/05/25 |
| 2600MHz Validation Dipole                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | MVG          | SID2600 | 07/22 DIP 2G600-663 | 2025/05/26 | 2028/05/25 |
| 3500MHz Validation Dipole                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | MVG          | SID3500 | 07/22 DIP3G500-664  | 2025/05/26 | 2028/05/25 |
| 3700MHz Validation Dipole                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | MVG          | SID3700 | 07/22 DIP3G700-665  | 2025/05/26 | 2028/05/25 |
| 3900MHz Validation Dipole                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | MVG          | SID3900 | 07/22 DIP3G900-666  | 2025/05/26 | 2028/05/25 |
| 4200MHz Validation Dipole                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | MVG          | SID4200 | 07/22 DIP4G200-667  | 2025/05/26 | 2028/05/25 |
| 4600MHz Validation Dipole                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | MVG          | SID4600 | 07/22 DIP4G600-668  | 2025/05/26 | 2028/05/25 |
| 4900MHz Validation Dipole                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | MVG          | SID4900 | 07/22 DIP4G900-669  | 2025/05/26 | 2028/05/25 |
| 5200MHz-5800MHz Validation Dipole                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | MVG          | SID5000 | 07/22 DIP5G000-670  | 2025/05/26 | 2028/05/25 |
| <p>Note: For dipole antennas, BTF has adopted 3 years as calibration intervals, and on annual basis, every measurement dipole has been evaluated and is in compliance with the following criteria:</p> <ol style="list-style-type: none"><li>1. There is no physical damage on the dipole;</li><li>2. System validation with specific dipole is within 10% of calibrated value;</li><li>3. Return-loss in within 20% of calibrated measurement.</li><li>4. Impedance (real or imaginary parts) in within 5 Ohms of calibrated measurement.</li></ol> |              |         |                     |            |            |

## SAR Dipole Performance Measurement

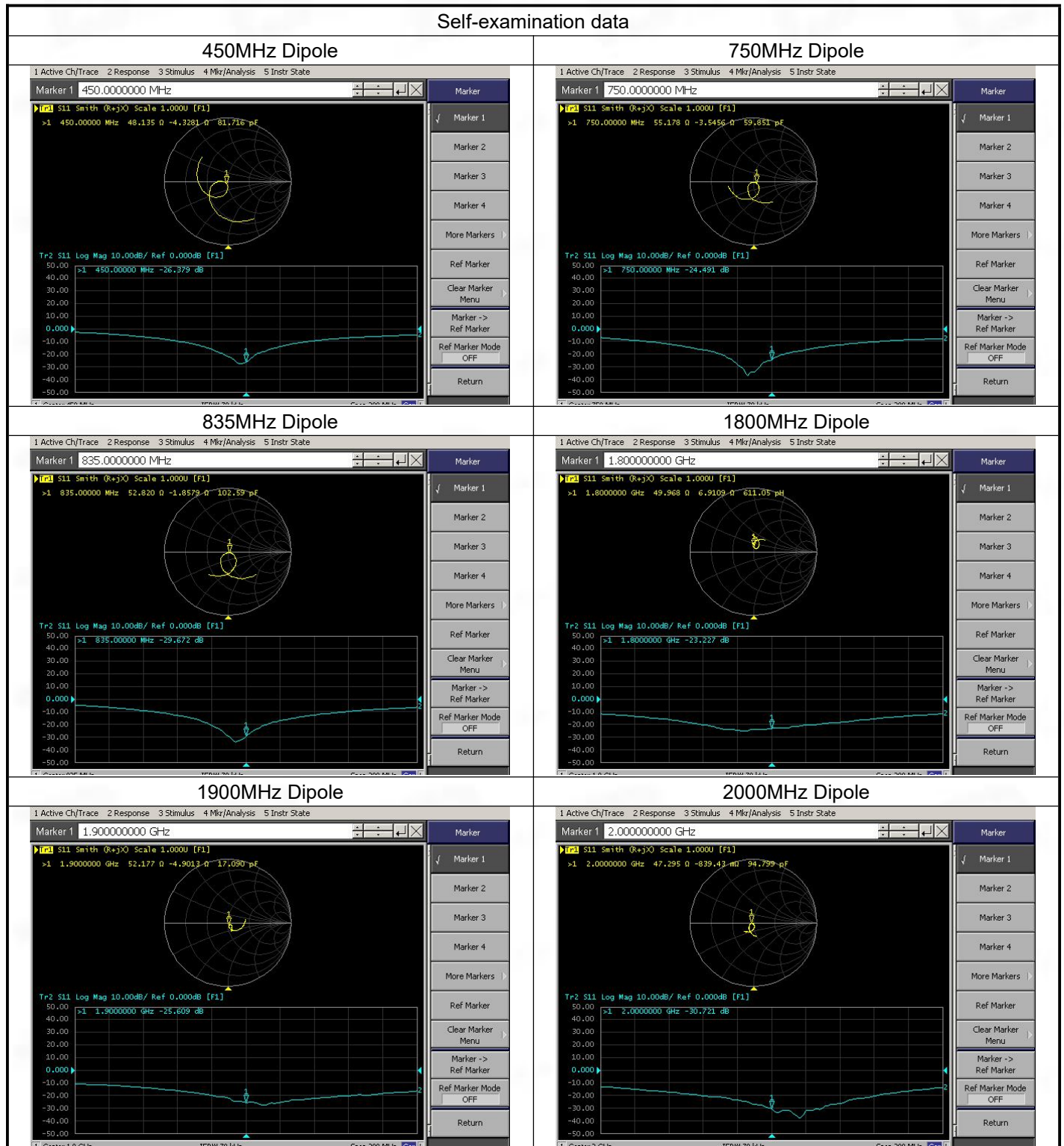
### Justification for Extended SAR Dipole Calibrations

Referring to KDB 865664D01V01r04, if dipoles are verified in return loss ( $<-20\text{dB}$ , within 20% of prior calibration) and in impedance (within 5 ohm of prior calibration), the annual calibration is not necessary and the calibration interval can be extended. While calibration intervals not exceed 3 years.

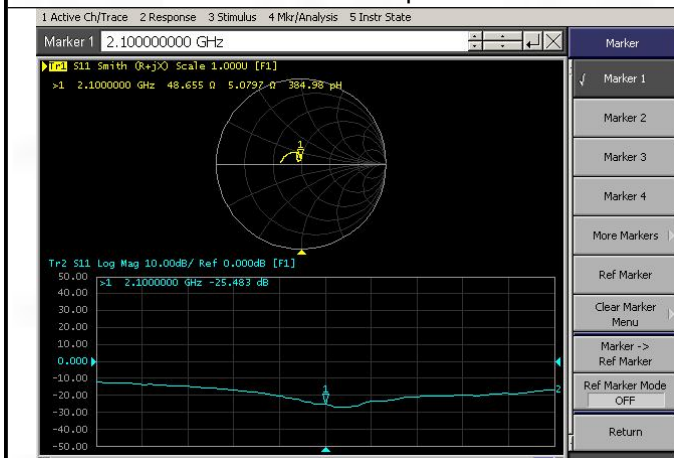
| Frequency<br>(MHz) | Return loss(dB) |        | Impedance(Ω) |                   |           |                   | error range ( % )    |                | Results | Date of<br>Measurement |
|--------------------|-----------------|--------|--------------|-------------------|-----------|-------------------|----------------------|----------------|---------|------------------------|
|                    | measurement     | target | measurement  |                   | target    |                   | Return<br>loss(±20%) | Impedance(±5Ω) | (P/F)   |                        |
|                    |                 |        | real part    | imaginary<br>part | real part | imaginary<br>part |                      |                |         |                        |
| CW450              | -26.38          | -26.43 | 48.13        | -4.3              | 48.8      | -4.5              | 0.19%                | 0.5            | P       | 23/4/2025              |
| CW750              | -24.49          | -27.92 | 55.18        | -3.6              | 53.6      | +1.4              | -12.29%              | 3.4            | P       | 23/4/2025              |
| CW835              | -29.67          | -30.97 | 52.82        | -1.9              | 50.7      | -2.7              | -4.20%               | -3.0           | P       | 23/4/2025              |
| CW1800             | -23.23          | -26.91 | 49.97        | 6.9               | 50.8      | +4.3              | -13.7%               | -1.8           | P       | 23/4/2025              |
| CW1900             | -25.61          | -27.04 | 52.18        | -4.9              | 50.8      | -4.3              | -5.29%               | -0.8           | P       | 23/4/2025              |
| CW2000             | -30.72          | -28.21 | 47.30        | -0.8              | 47.9      | +2.9              | 8.90%                | 4.3            | P       | 23/4/2025              |
| CW2100             | -25.48          | -25.91 | 48.66        | 5.1               | 48.1      | +4.5              | -1.66%               | -1.2           | P       | 23/4/2025              |
| CW2300             | -27.60          | -25.23 | 53.62        | -2.4              | 49.3      | +5.3              | 9.39%                | 3.4            | P       | 23/4/2025              |
| CW2450             | -20.41          | -22.28 | 46.16        | 8.4               | 49.2      | +7.4              | -8.39%               | 2.0            | P       | 23/4/2025              |
| CW2600             | -26.6           | -28.70 | 53.2         | 3.6               | 50.0      | +3.7              | -9.41%               | -3.1           | P       | 23/4/2025              |
| CW3500             | -23.97          | -24.35 | 56.36        | -2.2              | 56.3      | +1.1              | -1.56%               | 3.2            | P       | 23/4/2025              |
| CW3700             | -35.99          | -31.40 | 51.43        | 0.7               | 47.4      | +0.7              | 14.62%               | -4.0           | P       | 23/4/2025              |
| CW3900             | -26.48          | -26.52 | 51.55        | 4.6               | 53.8      | +2.8              | 0.15%                | 0.5            | P       | 23/4/2025              |
| CW4200             | -25.62          | -24.72 | 55.5         | 0.14              | 52.4      | +5.3              | 3.64%                | 2.0            | P       | 23/4/2025              |
| CW4600             | -22.47          | -26.69 | 45.21        | 5.4               | 45.9      | +1.6              | -15.8%               | -3.1           | P       | 23/4/2025              |
| CW4900             | -31.19          | -29.55 | 48.65        | 2.4               | 47.3      | 1.6               | 5.55%                | -2.2           | P       | 23/4/2025              |
| CW5200             | -20.31          | -20.10 | 58.2         | -6.5              | 49.9      | +2.4              | 1.04%                | 0.6            | P       | 23/4/2025              |
| CW5400             | -31.53          | -32.19 | 50.02        | 2.65              | 50.4      | +1.5              | -2.05%               | -0.8           | P       | 23/4/2025              |
| CW5600             | -26.93          | -25.19 | 48.4         | -0.3              | 48.4      | +1.8              | 6.91%                | -4.2           | P       | 23/4/2025              |
| CW5800             | -29.28          | -27.17 | 51.3         | -3.2              | 51.1      | -1.5              | 7.77%                | -4.9           | P       | 23/4/2025              |

The return loss is  $<-20\text{dB}$ , within 20% of prior calibration; the impedance is within 5 ohm of prior calibration. Therefore the verification result should support extended calibration.

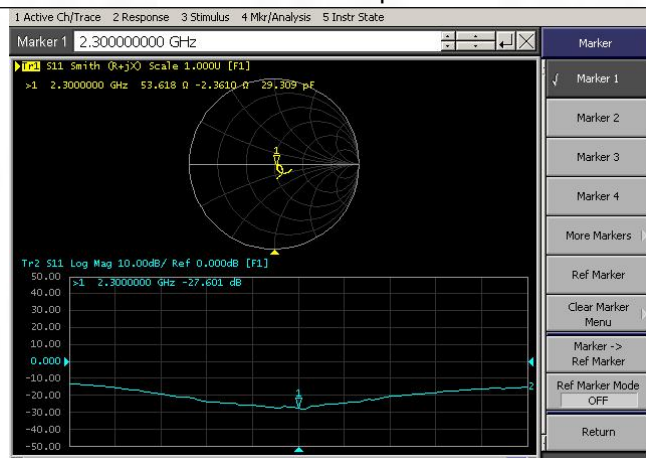
## data comparison



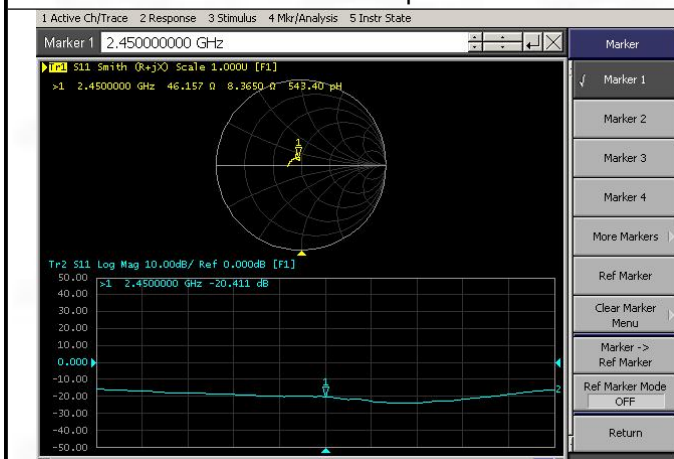
### 2100MHz Dipole



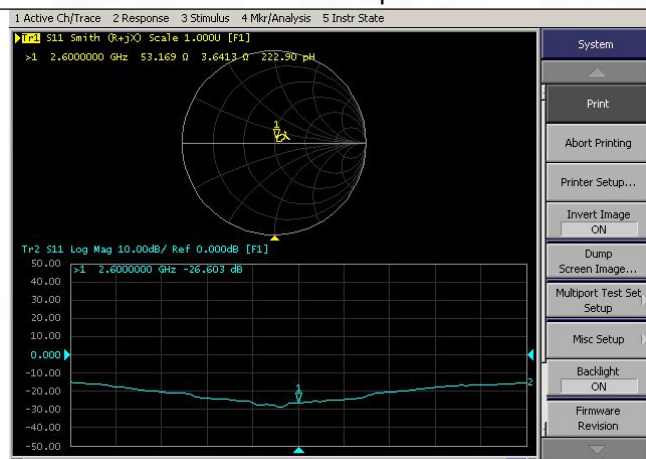
### 2300MHz Dipole



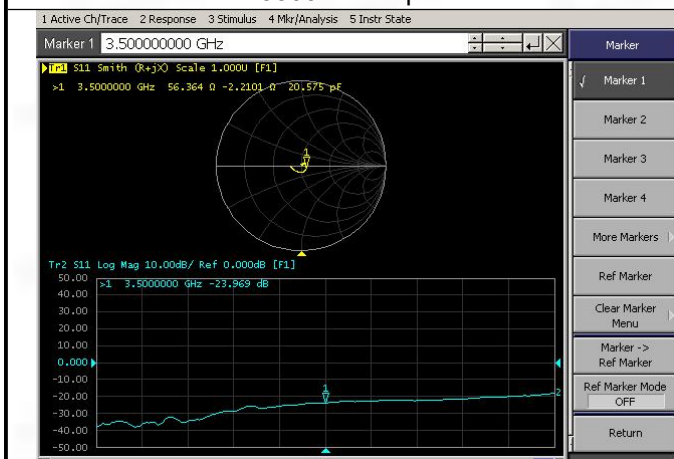
### 2450MHz Dipole



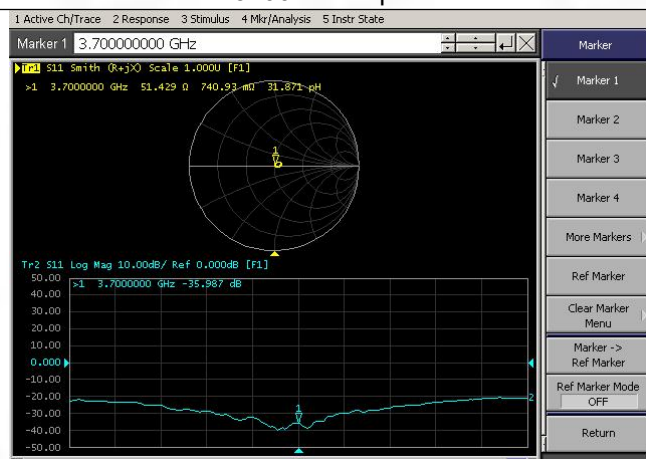
### 2600MHz Dipole



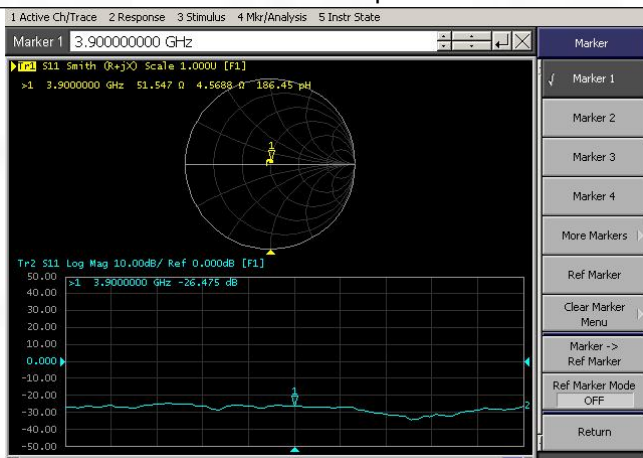
### 3500MHz Dipole



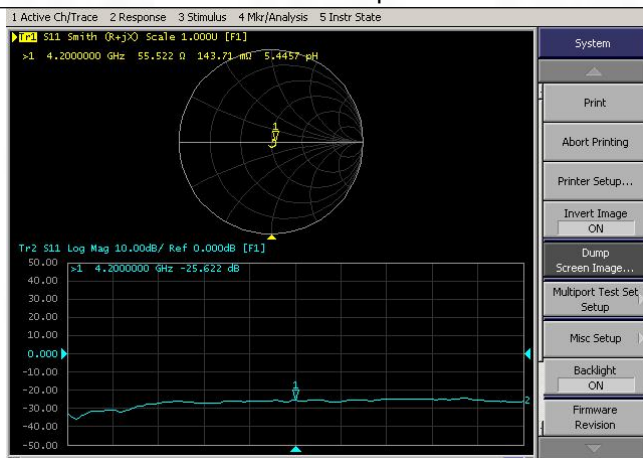
### 3700MHz Dipole



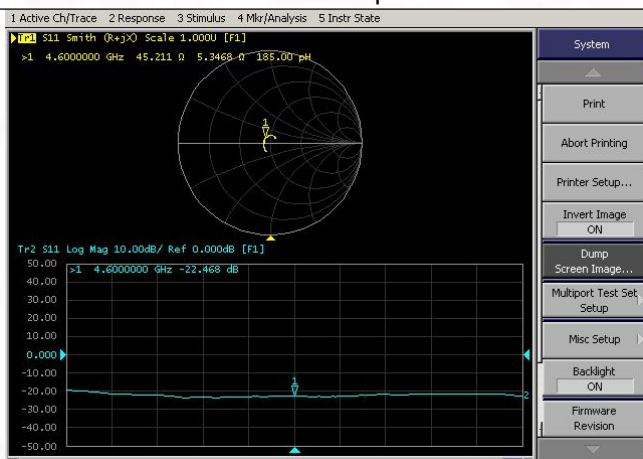
### 3900MHz Dipole



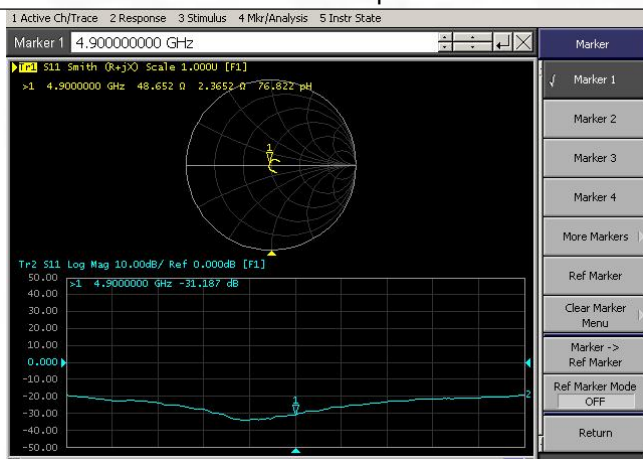
### 4200MHz Dipole



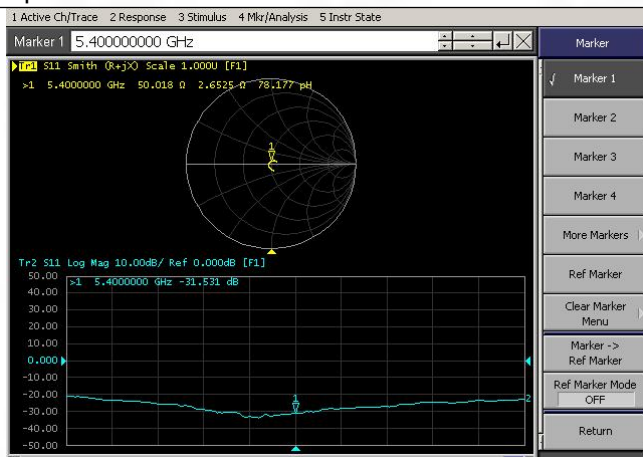
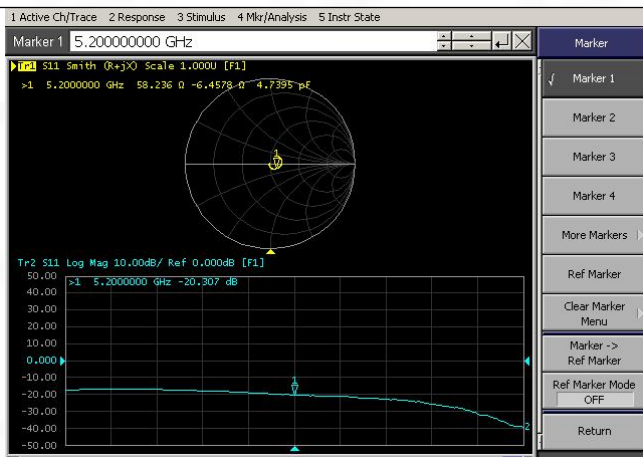
### 4600MHz Dipole

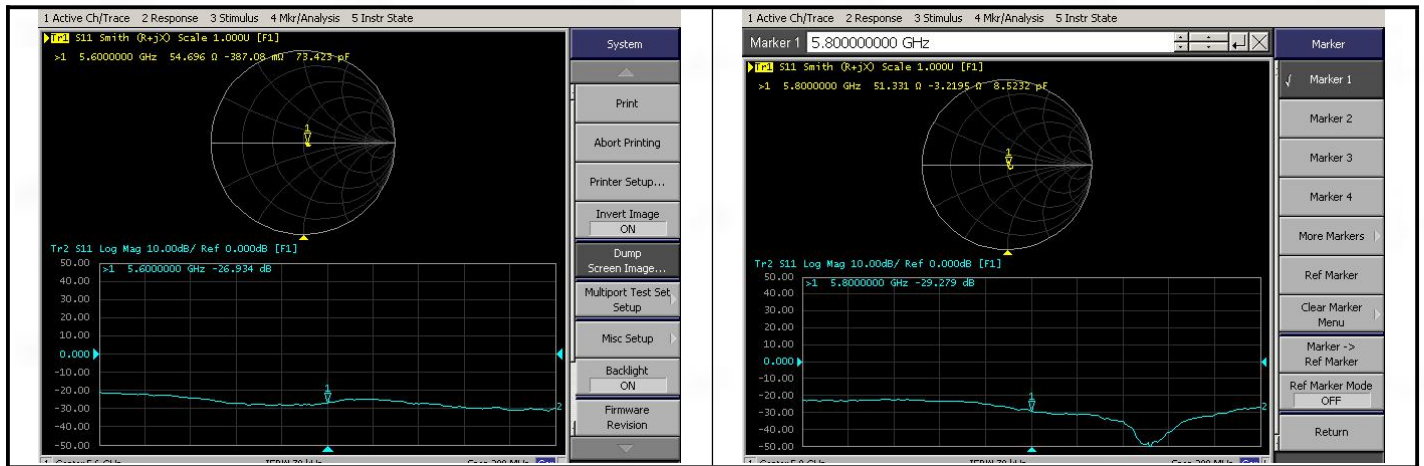


### 4900MHz Dipole



### 5000MHz Dipole





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**--END OF REPORT--**