



SAR Dipole Performance Measurement Report

EUT Type: SAR Validation Dipole and Waveguide
Model Name: DIP0G750-331, DIP0G835-332, DIP1G800-329, DIP1G900-333, DIP 2G450-335, DIP2G600-336
Brand Name: SATIMO
Test Conclusion: Pass
Test Date: 16 Aug. 2018
Date of Issue: 17 Aug. 2018

Testing Engineer : Aaron Bu

(Aaron Bu)

Technical Manager : Jason Lu

(Jason Lu)

Authorized Signatory : Vita Li

(Vita Li)



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1. Equipment List

| Kind of Equipment | Manufacturer | Type No. | Serial No. | Last Calibration | Calibrated Until |
|----------------------|--------------|---------------------|--------------------|------------------|------------------|
| PC | Acer | N/A | N/A | N/A | N/A |
| E-Field Probe | MVG | SSE5 | SN 14/16 EP309 | 2017.12.15 | 2018.12.14 |
| Dielectric Probe Kit | MVG | SCLMP | SN 32/14 OCPG67 | 2017.12.03 | 2018.12.02 |
| Phantom1 | MVG | SAM | SN 32/14 SAM115 | N/A | N/A |
| Phantom2 | MVG | SAM | SN 32/14 SAM116 | N/A | N/A |
| Attenuator | Agilent | 99899 | DC-18GHz | N/A | N/A |
| Directional coupler | Narda | 4226-20 | 3305 | N/A | N/A |
| Network Analyzer | Agilent | 8753ES | US38432810 | 2018.03.08 | 2019.03.07 |
| Multi Meter | Keithley | Multi Meter 2000 | 4050073 | 2017.10.15 | 2018.10.14 |
| Signal Generator | Agilent | N5182A | MY50140530 | 2017.10.15 | 2018.10.14 |
| Power Amplifier | DESAY | ZHL-42W | 9638 | 2017.10.15 | 2018.10.14 |
| Power Meter | R&S | NRP | 100510 | 2017.10.15 | 2018.10.14 |
| Power Sensor | R&S | NRP-Z11 | 101919 | 2017.10.15 | 2018.10.14 |
| Power Sensor | Agilent | E9301A | MY41497725 | 2017.10.15 | 2018.10.14 |
| hygrothermograph | MiEO | HH660 | N/A | 2017.10.18 | 2018.10.17 |



2.<Justification of the extended calibration>

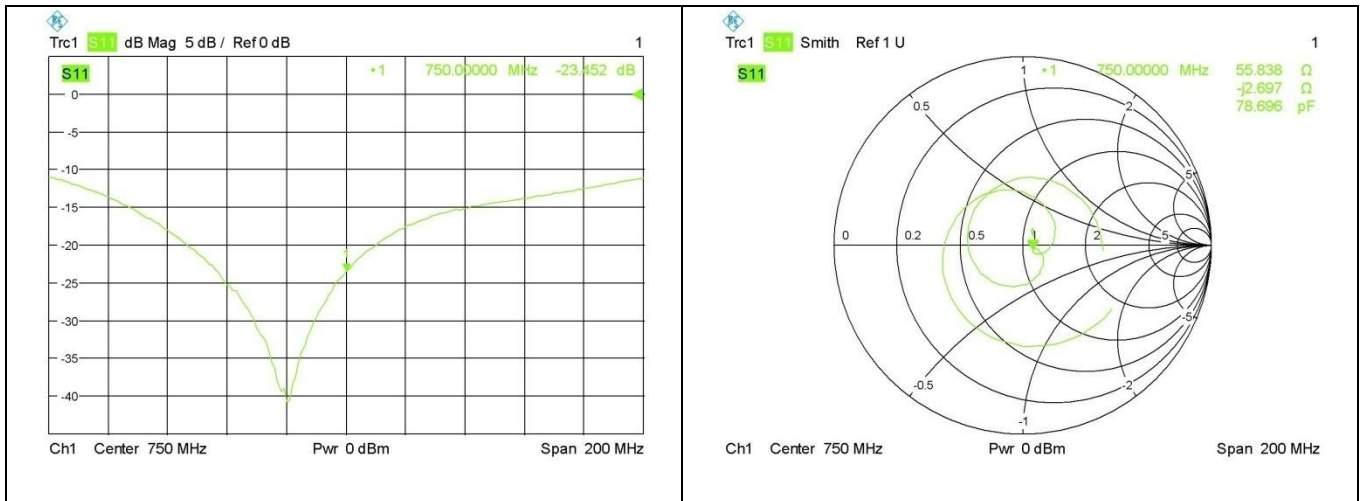
Referring to KDB 865664 D01, if dipoles are verified in return loss<-20dB, (within 20% of prior calibration),and in impedance (within 5 ohm of prior calibration), the annual calibration is not necessary and the calibration interval can be extended.

| Head 750 MHz | | | | |
|---------------------|------------------|-----------|-----------|------------|
| Date of Measurement | Return Loss (dB) | Delta (%) | Impedance | Delta(ohm) |
| 2017.08.15 | -25.42 | - | 55.1 | - |
| 2018.08.15 | -23.45 | -7.75 | 55.84 | 0.74 |

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

<Dipole Verification Data>

Head 750 MHz



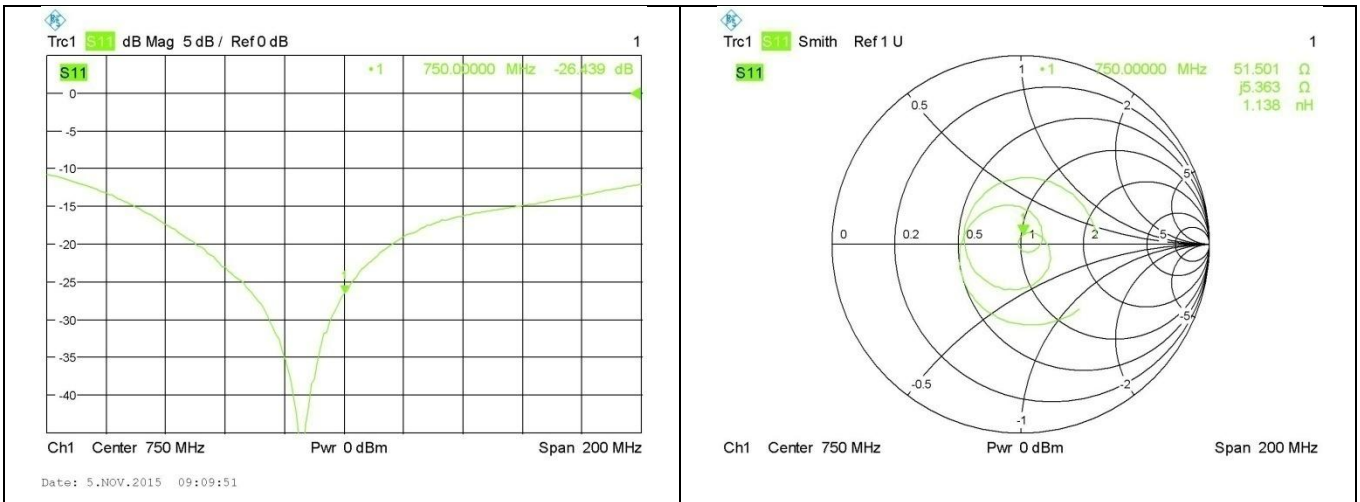


| Body 750 MHz | | | | |
|---------------------|------------------|-----------|-----------|------------|
| Date of Measurement | Return Loss (dB) | Delta (%) | Impedance | Delta(ohm) |
| 2017.08.15 | -27.21 | - | 51.3 | - |
| 2018.08.15 | -26.44 | -2.82 | 51.50 | 0.2 |

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

<Dipole Verification Data>

Body 750 MHz



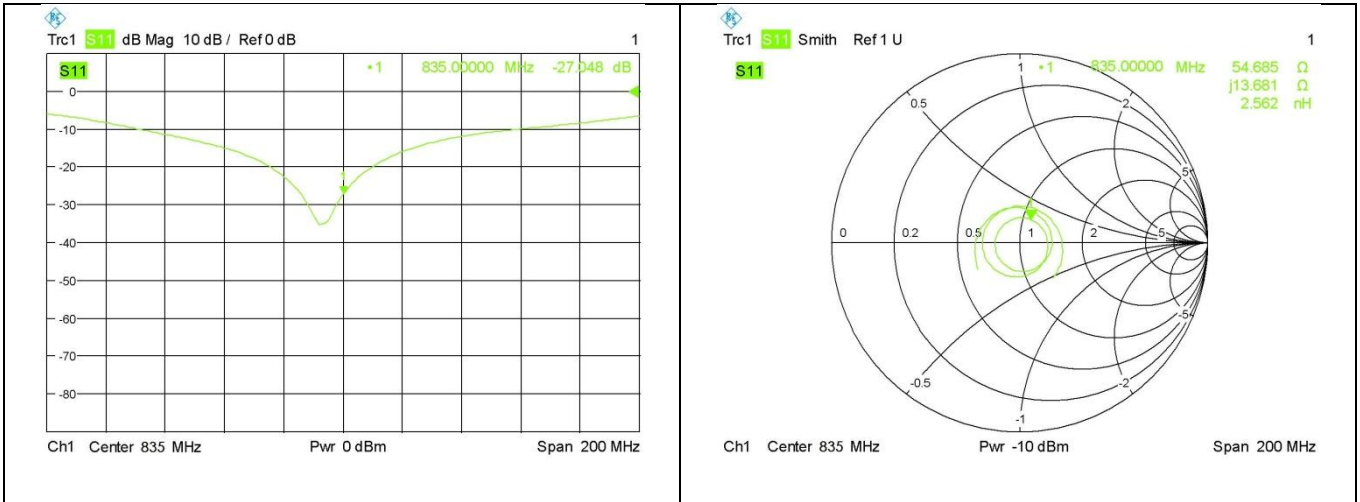


| Head 835 MHz | | | | |
|---------------------|------------------|-----------|-----------|------------|
| Date of Measurement | Return Loss (dB) | Delta (%) | Impedance | Delta(ohm) |
| 2017.08.15 | -28.11 | - | 51.6 | - |
| 2018.08.15 | -27.05 | -3.77 | 54.69 | 3.09 |

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

<Dipole Verification Data>

Head 835MHz



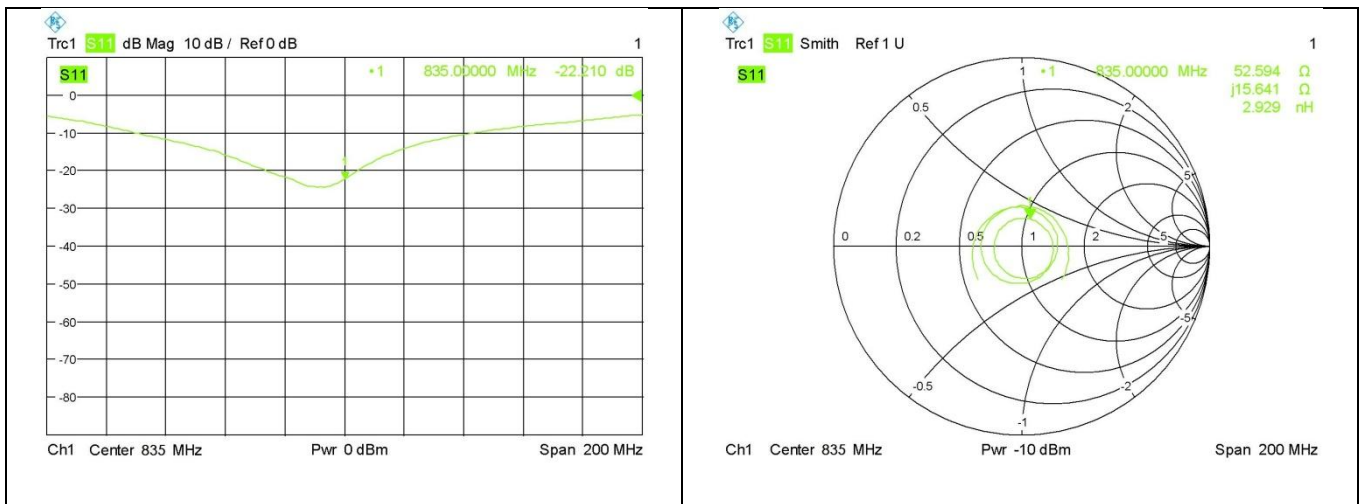


| Body 835 MHz | | | | |
|---------------------|------------------|-----------|-----------|------------|
| Date of Measurement | Return Loss (dB) | Delta (%) | Impedance | Delta(ohm) |
| 2017.08.15 | -23.87 | - | 49.0 | - |
| 2018.08.15 | -22.21 | -6.95 | 52.59 | 3.59 |

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

<Dipole Verification Data>

Body 835MHz



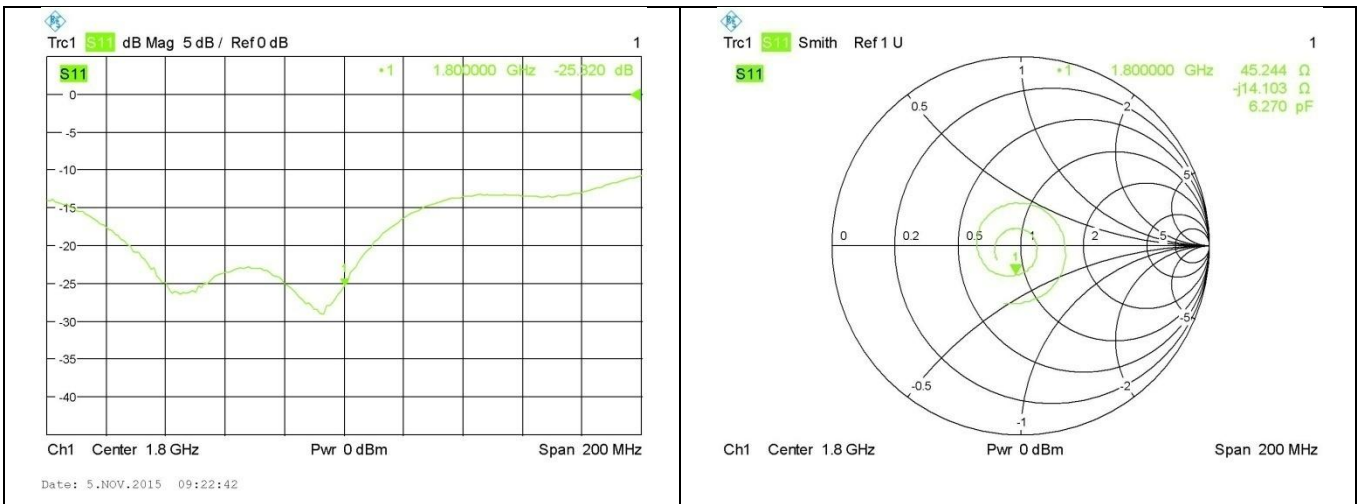


| Head 1800 MHz | | | | |
|---------------------|------------------|-----------|-----------|------------|
| Date of Measurement | Return Loss (dB) | Delta (%) | Impedance | Delta(ohm) |
| 2017.08.15 | -29.51 | - | 46.7 | - |
| 2018.08.16 | -25.32 | -14.2 | 45.24 | -1.46 |

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

<Dipole Verification Data>

Head 1800 MHz



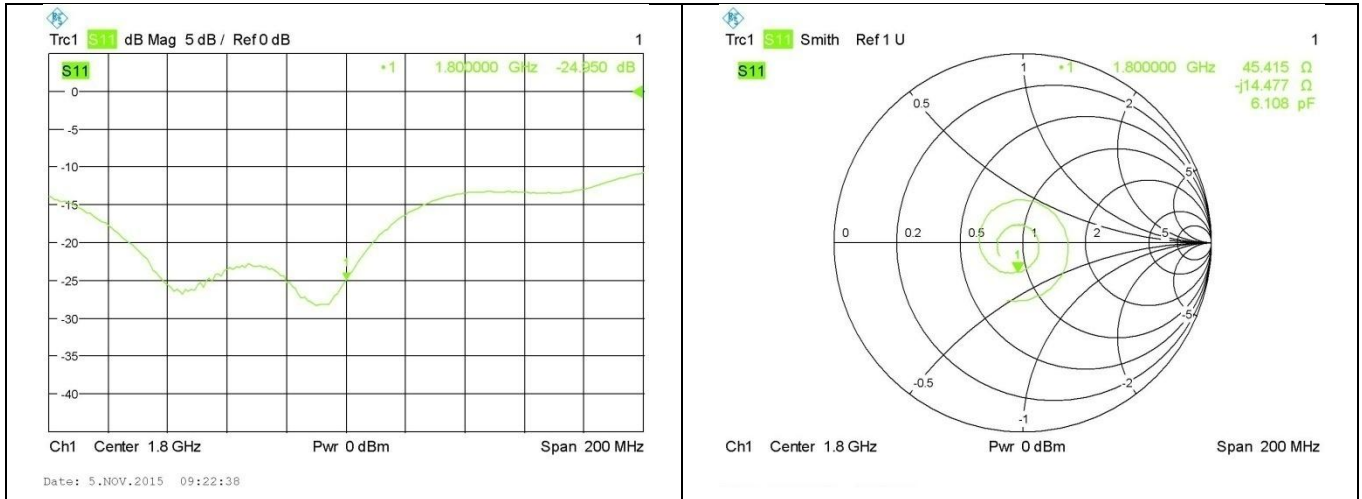


| Body 1800 MHz | | | | |
|---------------------|------------------|-----------|-----------|------------|
| Date of Measurement | Return Loss (dB) | Delta (%) | Impedance | Delta(ohm) |
| 2017.08.15 | -24.59 | - | 48.8 | - |
| 2018.08.16 | -24.95 | 1.46 | 45.42 | -3.38 |

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

<Dipole Verification Data>

Body 1800 MHz



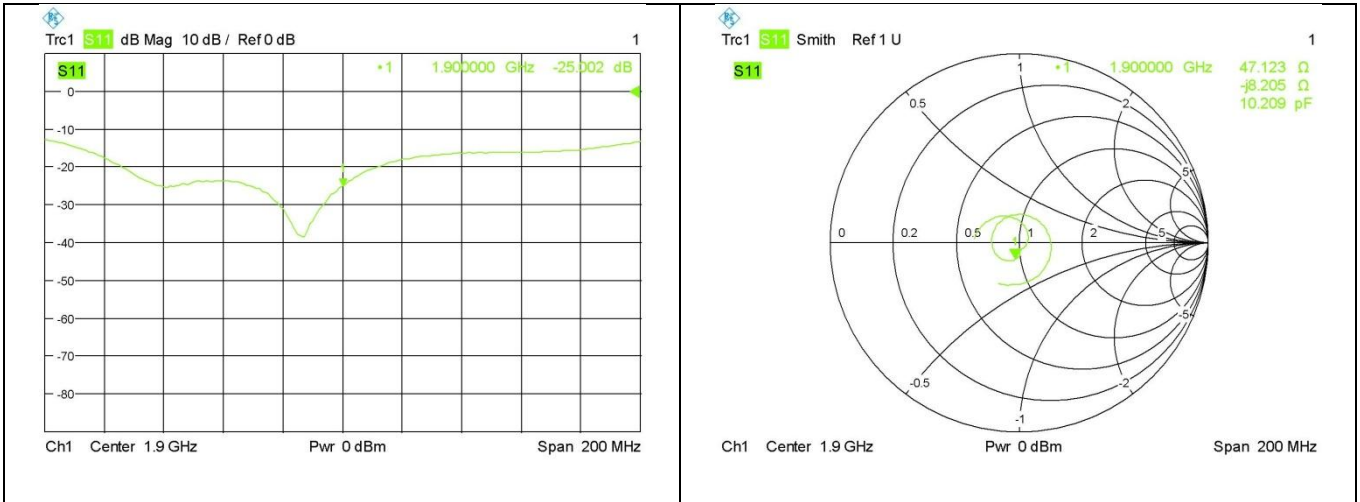


| Head 1900 MHz | | | | |
|---------------------|------------------|-----------|-----------|------------|
| Date of Measurement | Return Loss (dB) | Delta (%) | Impedance | Delta(ohm) |
| 2017.08.15 | -23.68 | - | 51.2 | - |
| 2018.08.16 | -25.00 | 5.57 | 47.12 | -4.08 |

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

<Dipole Verification Data>

Head 1900 MHz



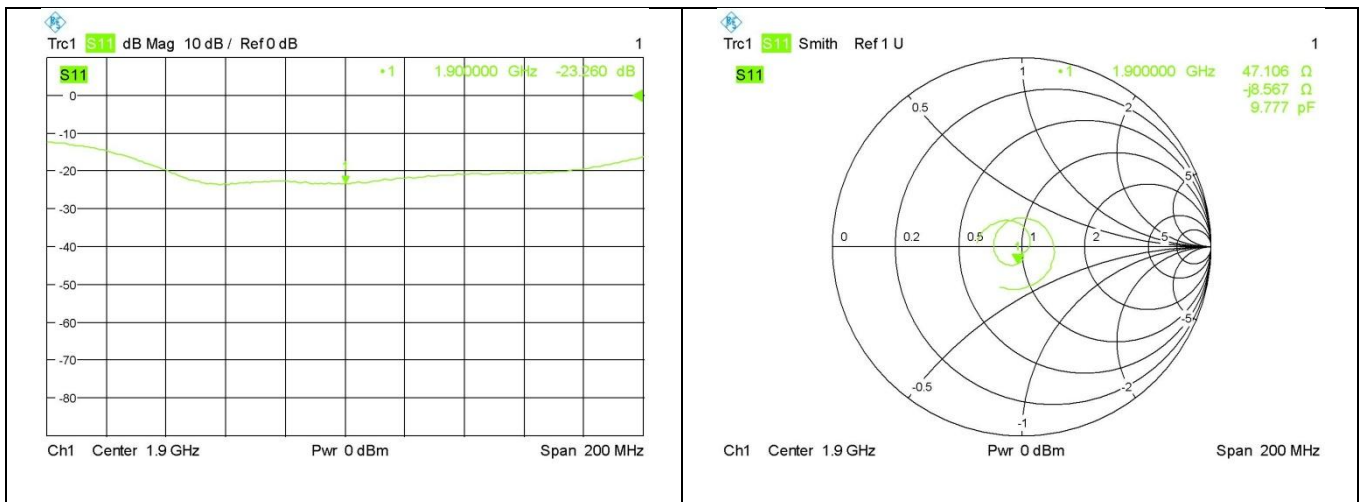


| Body 1900 MHz | | | | |
|---------------------|------------------|-----------|-----------|------------|
| Date of Measurement | Return Loss (dB) | Delta (%) | Impedance | Delta(ohm) |
| 2017.08.15 | -20.22 | - | 48.8 | - |
| 2018.08.16 | -23.26 | 15.03 | 47.11 | -1.79 |

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

<Dipole Verification Data>

Body 1900 MHz



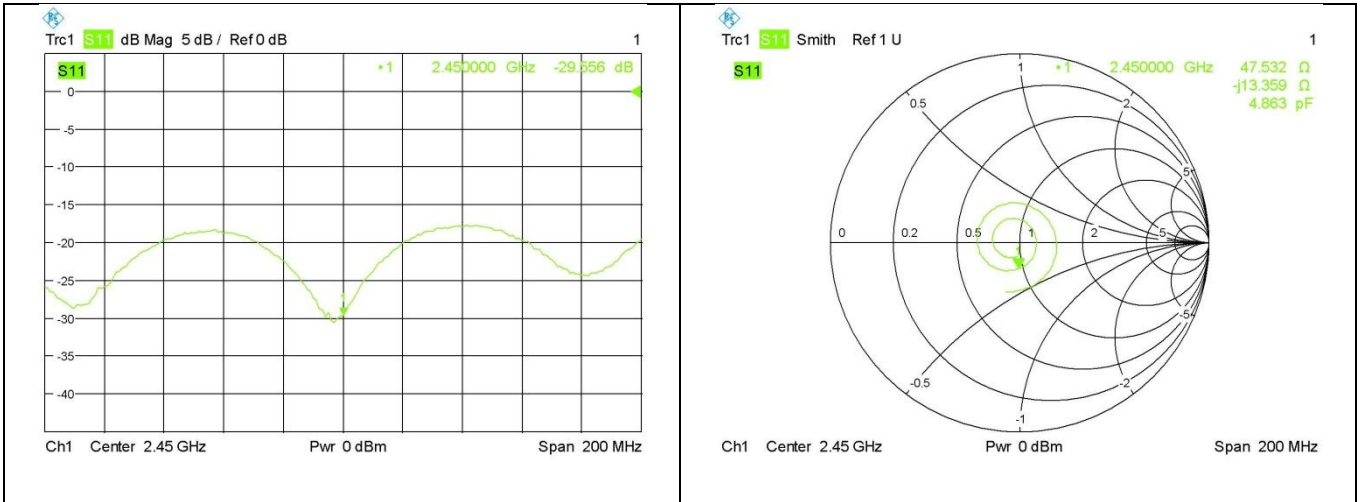


| Head 2450 MHz | | | | |
|---------------------|------------------|-----------|-----------|------------|
| Date of Measurement | Return Loss (dB) | Delta (%) | Impedance | Delta(ohm) |
| 2017.08.15 | -26.00 | - | 46.1 | - |
| 2018.08.16 | -29.56 | 13.69 | 47.53 | 1.43 |

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

<Dipole Verification Data>

Head 2450 MHz



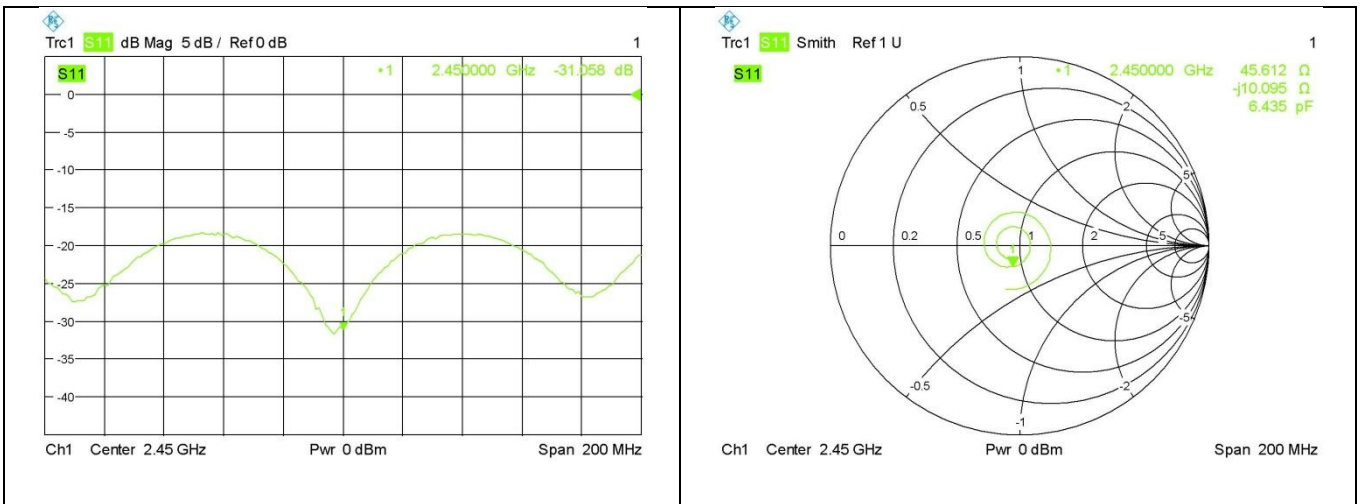


| Body 2450 MHz | | | | |
|---------------------|------------------|-----------|-----------|------------|
| Date of Measurement | Return Loss (dB) | Delta (%) | Impedance | Delta(ohm) |
| 2017.08.15 | -32.75 | - | 48.8 | - |
| 2018.08.16 | -31.06 | -5.16 | 45.61 | -3.19 |

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

<Dipole Verification Data>

Body 2450 MHz



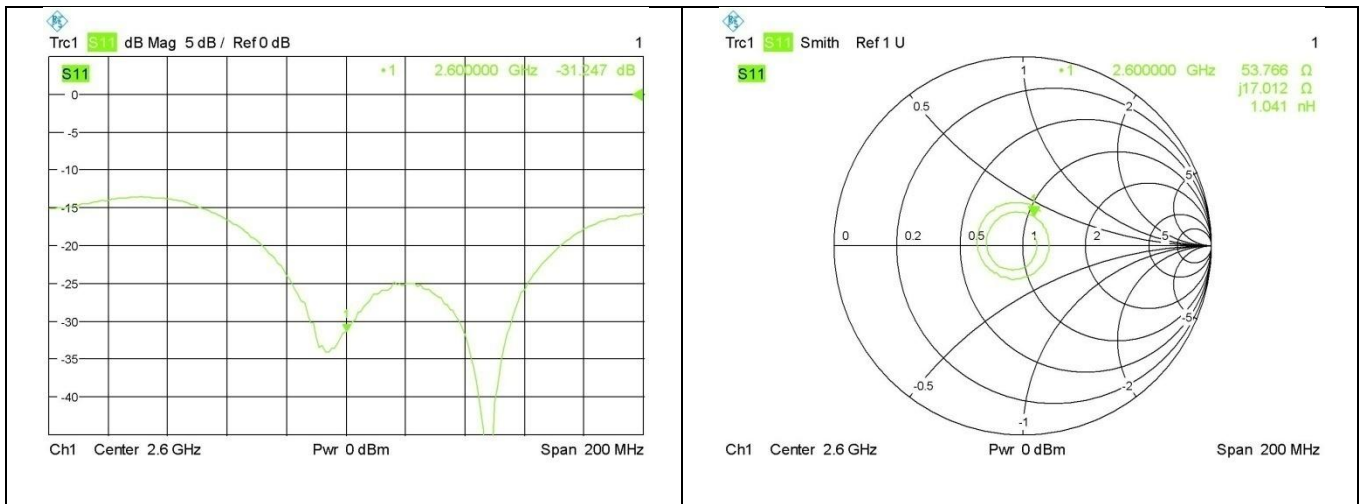


| Head 2600 MHz | | | | |
|---------------------|------------------|-----------|-----------|------------|
| Date of Measurement | Return Loss (dB) | Delta (%) | Impedance | Delta(ohm) |
| 2017.08.15 | -34.35 | - | 50.2 | - |
| 2018.08.16 | -31.25 | -9.02 | 53.76 | 3.56 |

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

<Dipole Verification Data>

Head 2600 MHz



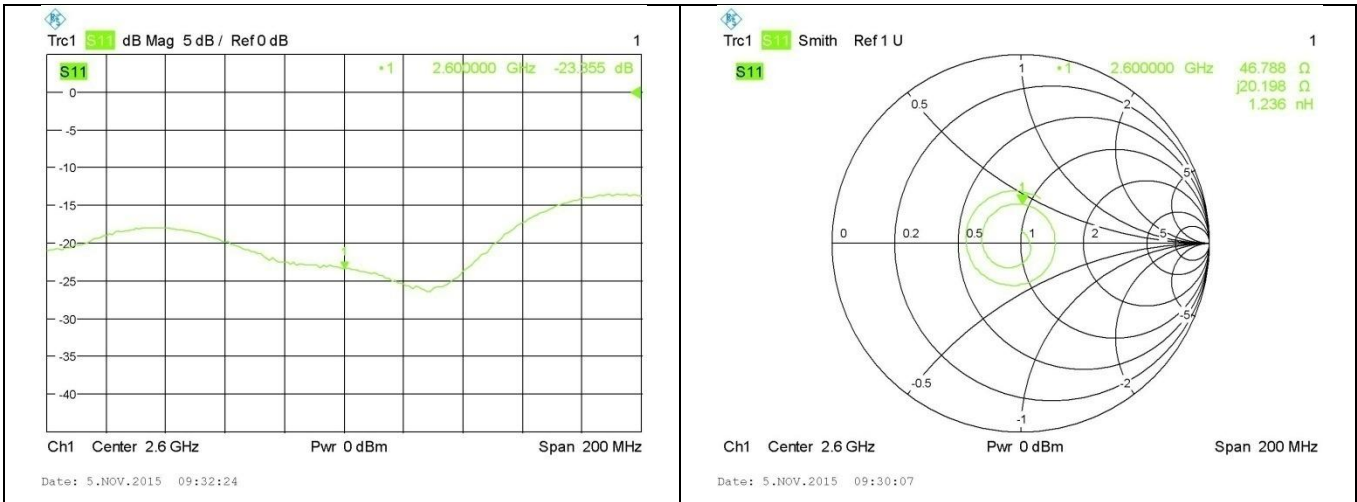


| Body 2600 MHz | | | | |
|---------------------|------------------|-----------|-----------|------------|
| Date of Measurement | Return Loss (dB) | Delta (%) | Impedance | Delta(ohm) |
| 2017.08.15 | -24.18 | - | 45.7 | - |
| 2018.08.16 | -23.36 | -7.52 | 46.79 | 1.09 |

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

<Dipole Verification Data>

Body 2600 MHz





| Body 5000 MHz | | | | |
|---------------------|------------------|-----------|-----------|------------|
| Date of Measurement | Return Loss (dB) | Delta (%) | Impedance | Delta(ohm) |
| 2017.08.15 | < 13.94 | - | - | - |
| 2018.08.16 | < 13.52 | - | - | - |

The return loss is <-8dB, within 20% of prior calibration; Therefore the verification result should support extended calibration.

<Dipole Verification Data>

Body 5000MHz

