Measurement Protocol PAM

# General Information:

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| --- | --- | --- |
| Test date: 24/08/19 | Date prev. test: | Test number: 1 |
| Tested by: Sarah Schoultz | PAM number: 5 | Installed at ant.: NA |
| Comments: | | |
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| Known problems: Low gain probably caused by at least one broken amplifier | | |
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# Setup:

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| Power supply: | OK 🗹 NOK 🗆 | Communication: | OK 🗹 NOK 🗆 |
| Supply current +6V: 0.982mA | | ssh obs@antcntl | |
| Supply current -6V: 0.111mA | | ssh ataant@ant0 | pw: q@n@t |
| Supply current +5V: 0.346mA | | telnet pax | “help” |
|  | | CTRL + ] | “close” |

# RF Test with VNA:

### VNA Setup:

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| Load configuration: Passband\_PAX.csa | | |
| Freq Start: 1.0 GHz | Freq Stop: 13.0 GHz | Power Level: -20 dBm |
| Averaging: enabled | Averaging count: 15 | N. Points: 801 |
| VNA : Agilent N5230C 10MHz - 20GHz | | |

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| --- | --- | --- | --- | --- |
| VNA to PAX connection: | 1m ABC-CA18 Cable + 20dB Attenuator | | | |
| Input Power Level to PAX: (Measured) | @1GHz:  -40.2dBm | @4GHz:  -40.7dBm | @8GHz: -41.2dBm | @12GHz: -41.4dBm |

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| PAX to VNA connection: | 2m Fibre Cable + Fibre Diode + AOX Amplifier + 1m ABC-CA18 Cable |

### Measured Passband with Attenuator set to 7dB each (Complete Link):

A close up of a map

Description automatically generated

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| Flatness: | OK 🗆 NOK 🗹 | Unwanted Features: | Yes 🗹 No 🗆 |

### Power Sweep (Complete Link):

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| Load configuration: Power\_Sweep\_PAX.csa | | |
| Power Start: -40dBm | Power Stop: -20dBm | Frequency : 4.0GHz |
| PAM Attenuator: 0dB |  | N. Points: 801 |

A screenshot of a cell phone

Description automatically generated

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| Compression point: | OK 🗆 NOK 🗹 | Unwanted Features: | Yes 🗹 No 🗆 |

### Detector Calibration and Attenuator Sweep:

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| Load configuration: Detector\_Calibration\_PAX.csa | | |
| Freq : 4.0 GHz | Power Level: -20dBm | Sweep Time: -20sec |
| Sweep Mode: CW | Power Level at PAX Input (Measured): -40.6dBm | |

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|  | | | | |
| CW Input Power [dBm]: | Attenuator Value A [dB]: | Attenuator Value: B [dB]: | Detector Value: | Power Meter  Value [dBm]: |
| -40.6 | 0 | 0 | 0.7090 | 7.5 |
| -40.6 | 0 | 3 | 0.3927 | 4.8 |
| -40.6 | 0 | 6 | 0.2071 | 1.9 |
| -40.6 | 0 | 9 | 0.1056 | -1.2 |
| -40.6 | 0 | 12 | 0.0538 | -4.3 |
| -40.6 | 0 | 15 | 0.0279 | -7.2 |
| -40.6 | 0 | 18 | 0.0143 | -10.4 |
| -40.6 | 0 | 21 | 0.0077 | -13.4 |
| -40.6 | 3 | 21 | 0.0042 | -16.5 |
| -40.6 | 6 | 21 | 0.0025 | -19.5 |
| -40.6 | 9 | 21 | 0.0017 | -22.5 |
| -40.6 | 12 | 21 | 0.0013 | -25.5 |
| -40.6 | 15 | 21 | 0.0011 | -28.6 |
| -40.6 | 18 | 21 | 0.0009 | -31.7 |
| -40.6 | 21 | 21 | 0.0009 | -34.8 |
| -40.6 | 24 | 21 | 0.0009 | -37.8 |
| -40.6 | 27 | 21 | 0.0008 | -41.0 |
| -40.6 | 30 | 21 | 0.0008 | -44.1 |
| -40.6 | 30 | 24 | 0.0009 | -46.4 |
| -40.6 | 30 | 27 | 0.0008 | -48.4 |
| -40.6 | 30 | 30 | 0.0008 | -49.8 |

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| Use Noise Source: Atlantic AS6333 | | |
| Freq : 1.0 - 12.0GHz | Power Level: -41.8dBm |  |
| DC Supply: 28V |  | |

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| --- | --- | --- | --- | --- |
|  | | | | |
| CW Input Power [dBm]: | Attenuator Value A [dB]: | Attenuator Value: B [dB]: | Detector Value: | Power Meter  Value [dBm]: |
| -41.8 | 0 | 0 | 0.5090 | 3.9 |
| -41.8 | 0 | 3 | 0.2849 | 1.3 |
| -41.8 | 0 | 6 | 0.1472 | -1.6 |
| -41.8 | 0 | 9 | 0.0737 | -4.7 |
| -41.8 | 0 | 12 | 0.0374 | -7.6 |
| -41.8 | 0 | 15 | 0.0205 | -10.4 |
| -41.8 | 0 | 18 | 0.0107 | -13.4 |
| -41.8 | 0 | 21 | 0.0064 | -16.1 |
| -41.8 | 3 | 21 | 0.0037 | -19.3 |
| -41.8 | 6 | 21 | 0.0025 | -22.4 |
| -41.8 | 9 | 21 | 0.0018 | -25.5 |
| -41.8 | 12 | 21 | 0.0016 | -28.6 |
| -41.8 | 15 | 21 | 0.0014 | -31.4 |
| -41.8 | 18 | 21 | 0.0013 | -34.7 |
| -41.8 | 21 | 21 | 0.0013 | -37.7 |
| -41.8 | 24 | 21 | 0.0013 | -40.8 |
| -41.8 | 27 | 21 | 0.0013 | -43.6 |
| -41.8 | 30 | 21 | 0.0013 | -46.4 |
| -41.8 | 30 | 24 | 0.0013 | -48.3 |
| -41.8 | 30 | 27 | 0.0012 | -49.5 |
| -41.8 | 30 | 30 | 0.0012 | -50.4 |