Measurement Protocol PAM

# General Information:

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| Test date: 10/8/22 | Date prev. test: 8/28/21 | Test number: 2 |
| Tested by: Sarah Schoultz | PAM number: 25 | Installed at ant.: 2L & 5E |
| Comments: Out of PAX 14 | | |
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| Known problems: Detectors on X pole don’t work when installed on antenna | | |
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# Setup:

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| Power supply: | OK 🗹 NOK 🗆 | Communication: | OK 🗹 NOK 🗆 |
| Supply current +6V: 1.106mA | | ssh obs@antcntl | |
| Supply current -6V: 0.107mA | | ssh ataant@ant0 | pw: q@n@t |
| Supply current +5V: 0.103mA | | 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 picture containing table

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 |

Chart

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 | - | 13.9 |
| -40.6 | 0 | 3 | - | 12.8 |
| -40.6 | 0 | 6 | - | 11.7 |
| -40.6 | 0 | 9 | 0.8465 | 9.4 |
| -40.6 | 0 | 12 | 0.6008 | 6.5 |
| -40.6 | 0 | 15 | 0.3742 | 3.7 |
| -40.6 | 0 | 18 | 0.2072 | 0.5 |
| -40.6 | 0 | 21 | 0.1152 | -2.6 |
| -40.6 | 3 | 21 | 0.0571 | -6.0 |
| -40.6 | 6 | 21 | 0.0302 | -9.0 |
| -40.6 | 9 | 21 | 0.0158 | -12.0 |
| -40.6 | 12 | 21 | 0.0084 | -15.0 |
| -40.6 | 15 | 21 | 0.0046 | -18.0 |
| -40.6 | 18 | 21 | 0.0026 | -21.3 |
| -40.6 | 21 | 21 | 0.0017 | -24.4 |
| -40.6 | 24 | 21 | 0.0012 | -27.2 |
| -40.6 | 27 | 21 | 0.0010 | -30.3 |
| -40.6 | 30 | 21 | 0.0009 | -33.4 |
| -40.6 | 30 | 24 | 0.0008 | -36.0 |
| -40.6 | 30 | 27 | 0.0008 | -38.5 |
| -40.6 | 30 | 30 | 0.0008 | -40.8 |

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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 | - | 11.3 |
| -41.8 | 0 | 3 | - | 10.2 |
| -41.8 | 0 | 6 | 0.8466 | 8.6 |
| -41.8 | 0 | 9 | 0.7653 | 6.6 |
| -41.8 | 0 | 12 | 0.5468 | 3.9 |
| -41.8 | 0 | 15 | 0.3451 | 1.4 |
| -41.8 | 0 | 18 | 0.1864 | -1.8 |
| -41.8 | 0 | 21 | 0.1008 | -4.7 |
| -41.8 | 3 | 21 | 0.0528 | -7.6 |
| -41.8 | 6 | 21 | 0.0267 | -10.7 |
| -41.8 | 9 | 21 | 0.0139 | -13.6 |
| -41.8 | 12 | 21 | 0.0073 | -16.6 |
| -41.8 | 15 | 21 | 0.0043 | -19.3 |
| -41.8 | 18 | 21 | 0.0024 | -22.6 |
| -41.8 | 21 | 21 | 0.0016 | -25.6 |
| -41.8 | 24 | 21 | 0.0011 | -28.6 |
| -41.8 | 27 | 21 | 0.0010 | -31.3 |
| -41.8 | 30 | 21 | 0.0009 | -34.4 |
| -41.8 | 30 | 24 | 0.0009 | -37.0 |
| -41.8 | 30 | 27 | 0.0008 | -39.1 |
| -41.8 | 30 | 30 | 0.0008 | -41.2 |