Measurement Protocol PAX

# General Information:

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| --- | --- | --- |
| Test date: 21/07/20 | Date prev. test: | Test number: 1 |
| Tested by: Alex Pollak | PAX number: PB-026 | Installed at ant.:1K |
| Comments: Revision: 1.10 pax controller | | |
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|  | | |
|  | | |
| Known problems: | | |
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|  | | |

# Setup:

|  |  |  |  |
| --- | --- | --- | --- |
| Power supply: | OK 🗹 NOK 🗆 | Communication: | OK 🗹 NOK 🗆 |
| Supply current +6V: 1.164A | | ssh obs@antcntl | |
| Supply current -6V: 0.177A | | ssh ataant@paxtester | pw: q@n@t |
| Supply current +5V: 0.203A | | telnet pax | “help” |
|  | | CTRL + ] | “close” |

# RF Test with VNA:

### VNA Setup:

|  |  |  |
| --- | --- | --- |
| 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):

|  |
| --- |
| X |

A screenshot of a cell phone

Description automatically generated

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

|  |
| --- |
| Y |

A screenshot of a cell phone

Description automatically generated

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

### Power Sweep (Complete Link):

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

|  |
| --- |
| X |

A screenshot of a cell phone

Description automatically generated

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

|  |
| --- |
| Y |

A screenshot of a cell phone

Description automatically generated

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

### Detector Calibration and Attenuator Sweep Pol X:

|  |  |  |
| --- | --- | --- |
| 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 | |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| X | | | | |
| CW Input Power [dBm]: | Attenuator Value A [dB]: | Attenuator Value: B [dB]: | Detector Value: | Power Meter  Value [dBm]: |
| -40.6 | 0 | 0 | - | 13.3 |
| -40.6 | 0 | 3 | - | 13.4 |
| -40.6 | 0 | 6 | - | 13.0 |
| -40.6 | 0 | 9 | - | 11.1 |
| -40.6 | 0 | 12 | - | 8.3 |
| -40.6 | 0 | 15 | 0.8526 | 5.6 |
| -40.6 | 0 | 18 | 0.5903 | 2.2 |
| -40.6 | 0 | 21 | 0.3399 | -0.8 |
| -40.6 | 3 | 21 | 0.1729 | -4.3 |
| -40.6 | 6 | 21 | 0.0927 | -7.3 |
| -40.6 | 9 | 21 | 0.0485 | -10.3 |
| -40.6 | 12 | 21 | 0.0256 | -13.3 |
| -40.6 | 15 | 21 | 0.0136 | -16.3 |
| -40.6 | 18 | 21 | 0.0071 | -19.6 |
| -40.6 | 21 | 21 | 0.0041 | -22.6 |
| -40.6 | 24 | 21 | 0.0028 | -25.5 |
| -40.6 | 27 | 21 | 0.0020 | -28.6 |
| -40.6 | 30 | 21 | 0.0016 | -31.7 |
| -40.6 | 30 | 24 | 0.0015 | -34.3 |
| -40.6 | 30 | 27 | 0.0014 | -36.8 |
| -40.6 | 30 | 30 | 0.0013 | -39.2 |

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

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| X | | | | |
| Input Power [dBm]: | Attenuator Value A [dB]: | Attenuator Value: B [dB]: | Detector Value: | Power Meter  Value [dBm]: |
| -41.8 | 0 | 0 | - | 11.8 |
| -41.8 | 0 | 3 | - | 10.9 |
| -41.8 | 0 | 6 | - | 9.4 |
| -41.8 | 0 | 9 | - | 7.4 |
| -41.8 | 0 | 12 | 0.8522 | 4.7 |
| -41.8 | 0 | 15 | 0.7650 | 2.3 |
| -41.8 | 0 | 18 | 0.4230 | -0.9 |
| -41.8 | 0 | 21 | 0.2367 | -3.8 |
| -41.8 | 3 | 21 | 0.1247 | -6.8 |
| -41.8 | 6 | 21 | 0.0637 | -9.9 |
| -41.8 | 9 | 21 | 0.0337 | -12.8 |
| -41.8 | 12 | 21 | 0.0175 | -15.8 |
| -41.8 | 15 | 21 | 0.0101 | -18.5 |
| -41.8 | 18 | 21 | 0.0055 | -21.8 |
| -41.8 | 21 | 21 | 0.0035 | -24.8 |
| -41.8 | 24 | 21 | 0.0025 | -27.8 |
| -41.8 | 27 | 21 | 0.0020 | -30.6 |
| -41.8 | 30 | 21 | 0.0018 | -33.8 |
| -41.8 | 30 | 24 | 0.0017 | -36.3 |
| -41.8 | 30 | 27 | 0.0016 | -38.4 |
| -41.8 | 30 | 30 | 0.0016 | -40.4 |

### Detector Calibration and Attenuator Sweep Pol Y:

|  |  |  |
| --- | --- | --- |
| 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 | |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Y | | | | |
| CW Input Power [dBm]: | Attenuator Value A [dB]: | Attenuator Value: B [dB]: | Detector Value: | Power Meter  Value [dBm]: |
| -40.6 | 0 | 0 | - | 13.0 |
| -40.6 | 0 | 3 | - | 13.1 |
| -40.6 | 0 | 6 | - | 12.4 |
| -40.6 | 0 | 9 | 0.8465 | 10.2 |
| -40.6 | 0 | 12 | 0.6523 | 7.3 |
| -40.6 | 0 | 15 | 0.3925 | 4.5 |
| -40.6 | 0 | 18 | 0.2086 | 1.2 |
| -40.6 | 0 | 21 | 0.1124 | -1.8 |
| -40.6 | 3 | 21 | 0.0541 | -5.3 |
| -40.6 | 6 | 21 | 0.0281 | -8.3 |
| -40.6 | 9 | 21 | 0.0146 | -11.3 |
| -40.6 | 12 | 21 | 0.0078 | -14.3 |
| -40.6 | 15 | 21 | 0.0044 | -17.4 |
| -40.6 | 18 | 21 | 0.0025 | -20.6 |
| -40.6 | 21 | 21 | 0.0017 | -23.7 |
| -40.6 | 24 | 21 | 0.0014 | -26.6 |
| -40.6 | 27 | 21 | 0.0012 | -29.7 |
| -40.6 | 30 | 21 | 0.0010 | -32.8 |
| -40.6 | 30 | 24 | 0.0010 | -35.5 |
| -40.6 | 30 | 27 | 0.0010 | -38.0 |
| -40.6 | 30 | 30 | 0.0010 | -40.3 |

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

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Y | | | | |
| Input Power [dBm]: | Attenuator Value A [dB]: | Attenuator Value: B [dB]: | Detector Value: | Power Meter  Value [dBm]: |
| -41.8 | 0 | 0 | - | 11.5 |
| -41.8 | 0 | 3 | - | 10.4 |
| -41.8 | 0 | 6 | 0.8457 | 8.7 |
| -41.8 | 0 | 9 | 0.7917 | 6.6 |
| -41.8 | 0 | 12 | 0.4735 | 3.8 |
| -41.8 | 0 | 15 | 0.2795 | 1.2 |
| -41.8 | 0 | 18 | 0.1414 | -1.9 |
| -41.8 | 0 | 21 | 0.0742 | -4.8 |
| -41.8 | 3 | 21 | 0.0377 | -7.8 |
| -41.8 | 6 | 21 | 0.0190 | -10.9 |
| -41.8 | 9 | 21 | 0.0103 | -13.9 |
| -41.8 | 12 | 21 | 0.0057 | -16.9 |
| -41.8 | 15 | 21 | 0.0036 | -19.6 |
| -41.8 | 18 | 21 | 0.0023 | -22.9 |
| -41.8 | 21 | 21 | 0.0018 | -26.0 |
| -41.8 | 24 | 21 | 0.0015 | -29.0 |
| -41.8 | 27 | 21 | 0.0014 | -31.8 |
| -41.8 | 30 | 21 | 0.0013 | -35.0 |
| -41.8 | 30 | 24 | 0.0013 | -37.6 |
| -41.8 | 30 | 27 | 0.0012 | -39.6 |
| -41.8 | 30 | 30 | 0.0012 | -41.6 |

# Inspection:

### Visual:

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| --- | --- | --- |
| Fibre Connectors Clean | Comments: | OK 🗹 NOK 🗆 |
| Fibre Connector Mechanical | Comments: | OK **🗹** NOK **🗆** |
| RF Cable | Comments: | OK **🗹** NOK **🗆** |
| RF Connectors Clean | Comments: | OK **🗹** NOK **🗆** |

### Functions:

|  |  |  |
| --- | --- | --- |
| Read Temperature Value | Comments: 34.2 | OK 🗹 NOK 🗆 |
| LNA Settings | Comments: | OK**🗹** NOK **🗆** |
| Temperature Stabilisation | Comments: | OK 🗆 NOK **🗆** |
|  |  | OK 🗆 NOK **🗆** |