Measurement Protocol PAX

# General Information:

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| Test date: 14/02/20 | Date prev. test: | Test number: 1 |
| Tested by: Alex Pollak | PAX number: PB-025 | Installed at ant.: |
| Comments: Revision: 1.10 pax controller | | |
| X-pol low gain approximately 5dB less than Y-pol | | |
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|  | | |
| Known problems: | | |
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# Setup:

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| --- | --- | --- | --- |
| Power supply: | OK 🗹 NOK 🗆 | Communication: | OK 🗹 NOK 🗆 |
| Supply current +6V: 1.011A | | ssh obs@antcntl | |
| Supply current -6V: 0.108A | | ssh ataant@paxtester | pw: q@n@t |
| Supply current +5V: 0.170A | | 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 |

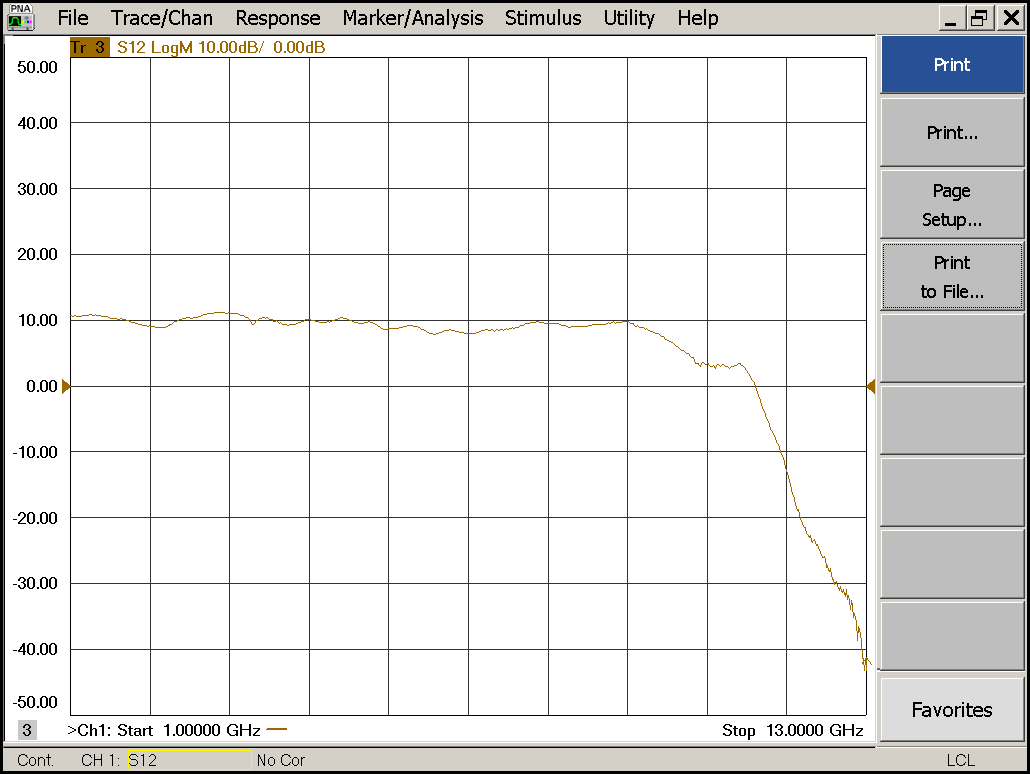
### Measured Passband with Attenuator set to 7dB each (Complete Link):

|  |
| --- |
| X |



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

|  |
| --- |
| Y |

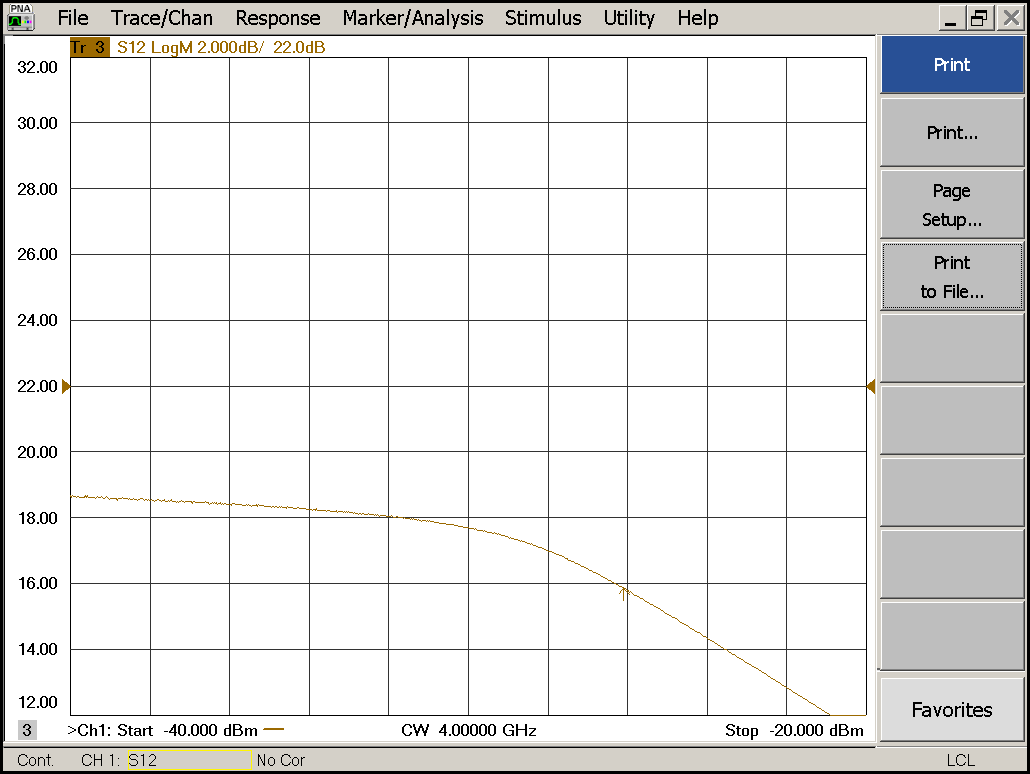


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| --- | --- | --- | --- |
| Flatness: | OK 🗹 NOK 🗆 | Unwanted Features: | Yes 🗆 No 🗹 |

### Power Sweep (Complete Link):

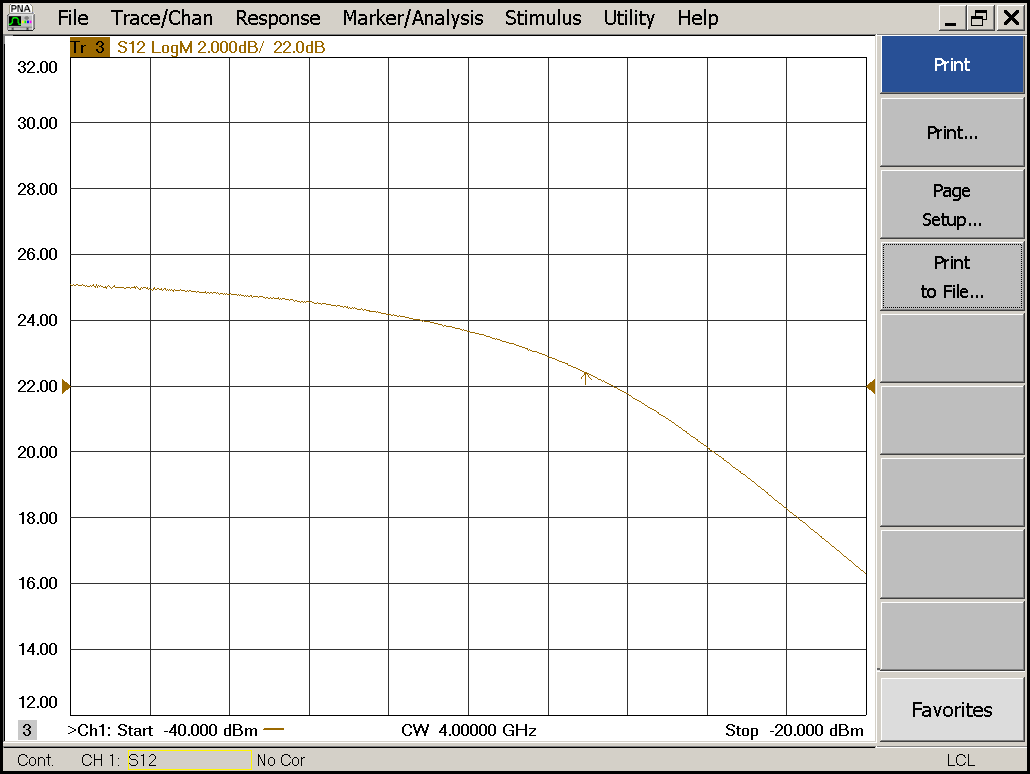
|  |  |  |
| --- | --- | --- |
| Load configuration: Power\_Sweep\_PAX.csa | | |
| Power Start: -40dBm | Power Stop: -20dBm | Frequency : 4.0GHz |
| PAM Attenuator: 0dB |  | N. Points: 801 |

|  |
| --- |
| X |



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

|  |
| --- |
| Y |



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

### Detector Calibration and Attenuator Sweep Pol X:

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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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| X | | | | |
| CW Input Power [dBm]: | Attenuator Value A [dB]: | Attenuator Value: B [dB]: | Detector Value: | Power Meter  Value [dBm]: |
| -40.6 | 0 | 0 | - | 10.9 |
| -40.6 | 0 | 3 | - | 9.8 |
| -40.6 | 0 | 6 | - | 8.2 |
| -40.6 | 0 | 9 | 0.6958 | 6.2 |
| -40.6 | 0 | 12 | 0.5289 | 3.4 |
| -40.6 | 0 | 15 | 0.3148 | 0.6 |
| -40.6 | 0 | 18 | 0.1600 | -2.7 |
| -40.6 | 0 | 21 | 0.0841 | -5.7 |
| -40.6 | 3 | 21 | 0.0408 | -9.0 |
| -40.6 | 6 | 21 | 0.0211 | -12.0 |
| -40.6 | 9 | 21 | 0.0109 | -15.1 |
| -40.6 | 12 | 21 | 0.0058 | -18.0 |
| -40.6 | 15 | 21 | 0.0033 | -21.0 |
| -40.6 | 18 | 21 | 0.0019 | -24.3 |
| -40.6 | 21 | 21 | 0.0013 | -27.3 |
| -40.6 | 24 | 21 | 0.0010 | -30.2 |
| -40.6 | 27 | 21 | 0.0009 | -33.1 |
| -40.6 | 30 | 21 | 0.0008 | -36.2 |
| -40.6 | 30 | 24 | 0.0007 | -38.8 |
| -40.6 | 30 | 27 | 0.0007 | -41.1 |
| -40.6 | 30 | 30 | 0.0007 | -43.2 |

|  |  |  |
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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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| X | | | | |
| CW Input Power [dBm]: | Attenuator Value A [dB]: | Attenuator Value: B [dB]: | Detector Value: | Power Meter  Value [dBm]: |
| -41.8 | 0 | 0 | - | 8.3 |
| -41.8 | 0 | 3 | - | 6.8 |
| -41.8 | 0 | 6 | 0.6962 | 4.9 |
| -41.8 | 0 | 9 | 0.5270 | 2.8 |
| -41.8 | 0 | 12 | 0.3072 | 0.1 |
| -41.8 | 0 | 15 | 0.1765 | -2.5 |
| -41.8 | 0 | 18 | 0.0870 | -5.7 |
| -41.8 | 0 | 21 | 0.0448 | -8.5 |
| -41.8 | 3 | 21 | 0.0224 | -11.6 |
| -41.8 | 6 | 21 | 0.0114 | -14.6 |
| -41.8 | 9 | 21 | 0.0062 | -17.4 |
| -41.8 | 12 | 21 | 0.0035 | -20.5 |
| -41.8 | 15 | 21 | 0.0023 | -23.3 |
| -41.8 | 18 | 21 | 0.0015 | -26.5 |
| -41.8 | 21 | 21 | 0.0012 | -29.6 |
| -41.8 | 24 | 21 | 0.0011 | -32.5 |
| -41.8 | 27 | 21 | 0.0010 | -35.2 |
| -41.8 | 30 | 21 | 0.0010 | -38.3 |
| -41.8 | 30 | 24 | 0.0009 | -40.7 |
| -41.8 | 30 | 27 | 0.0009 | -42.6 |
| -41.8 | 30 | 30 | 0.0009 | -44.3 |

### Detector Calibration and Attenuator Sweep Pol Y:

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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 | |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Y | | | | |
| CW Input Power [dBm]: | Attenuator Value A [dB]: | Attenuator Value: B [dB]: | Detector Value: | Power Meter  Value [dBm]: |
| -40.6 | 0 | 0 | - | 12.9 |
| -40.6 | 0 | 3 | - | 12.9 |
| -40.6 | 0 | 6 | - | 11.5 |
| -40.6 | 0 | 9 | 0.8513 | 8.8 |
| -40.6 | 0 | 12 | 0.8473 | 5.8 |
| -40.6 | 0 | 15 | 0.5326 | 3.0 |
| -40.6 | 0 | 18 | 0.2983 | -0.3 |
| -40.6 | 0 | 21 | 0.1681 | -3.4 |
| -40.6 | 3 | 21 | 0.0884 | -6.5 |
| -40.6 | 6 | 21 | 0.0473 | -9.3 |
| -40.6 | 9 | 21 | 0.0256 | -12.2 |
| -40.6 | 12 | 21 | 0.0137 | -15.0 |
| -40.6 | 15 | 21 | 0.0078 | -17.8 |
| -40.6 | 18 | 21 | 0.0040 | -21.5 |
| -40.6 | 21 | 21 | 0.0024 | -24.0 |
| -40.6 | 24 | 21 | 0.0017 | -27.1 |
| -40.6 | 27 | 21 | 0.0014 | -29.9 |
| -40.6 | 30 | 21 | 0.0012 | -33.0 |
| -40.6 | 30 | 24 | 0.0011 | -36.5 |
| -40.6 | 30 | 27 | 0.0011 | -38.02 |
| -40.6 | 30 | 30 | 0.0011 | -40.24 |

|  |  |  |
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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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| --- | --- | --- | --- | --- |
| Y | | | | |
| CW Input Power [dBm]: | Attenuator Value A [dB]: | Attenuator Value: B [dB]: | Detector Value: | Power Meter  Value [dBm]: |
| -41.8 | 0 | 0 | - | 12.0 |
| -41.8 | 0 | 3 | - | 10.7 |
| -41.8 | 0 | 6 | - | 8.8 |
| -41.8 | 0 | 9 | - | 6.4 |
| -41.8 | 0 | 12 | 0.8514 | 3.6 |
| -41.8 | 0 | 15 | 0.6326 | 0.9 |
| -41.8 | 0 | 18 | 0.3525 | -2.3 |
| -41.8 | 0 | 21 | 0.1988 | -5.2 |
| -41.8 | 3 | 21 | 0.1110 | -8.1 |
| -41.8 | 6 | 21 | 0.0578 | -11.0 |
| -41.8 | 9 | 21 | 0.0317 | -13.8 |
| -41.8 | 12 | 21 | 0.0166 | -16.7 |
| -41.8 | 15 | 21 | 0.0100 | -19.3 |
| -41.8 | 18 | 21 | 0.0049 | -22.9 |
| -41.8 | 21 | 21 | 0.0031 | -25.9 |
| -41.8 | 24 | 21 | 0.0022 | -28.6 |
| -41.8 | 27 | 21 | 0.0018 | -31.2 |
| -41.8 | 30 | 21 | 0.0015 | -34.3 |
| -41.8 | 30 | 24 | 0.0014 | -36.8 |
| -41.8 | 30 | 27 | 0.0013 | -38.9 |
| -41.8 | 30 | 30 | 0.0013 | -40.9 |

# 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:

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| --- | --- | --- |
| Read Temperature Value | Comments: 28.6 | OK 🗹 NOK 🗆 |
| LNA Settings | Comments: | OK**🗹** NOK **🗆** |
| Temperature Stabilisation | Comments: | OK 🗆 NOK **🗆** |
|  |  | OK 🗆 NOK **🗆** |