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-030 | Installed at ant.:1K |
| Comments: Revision: 1.10 pax controller | | |
| X passband is 10dBm less than Y’s | | |
|  | | |
|  | | |
| Known problems: | | |
|  | | |
|  | | |
|  | | |

# Setup:

|  |  |  |  |
| --- | --- | --- | --- |
| Power supply: | OK 🗹 NOK 🗆 | Communication: | OK 🗹 NOK 🗆 |
| Supply current +6V: 1.098A | | ssh obs@antcntl | |
| Supply current -6V: 0.079A | | ssh ataant@paxtester | pw: q@n@t |
| Supply current +5V: 0.209A | | 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 | | |

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

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

|  |  |  |  |
| --- | --- | --- | --- |
| 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 | - | 14.2 |
| -40.6 | 0 | 3 | - | 14.2 |
| -40.6 | 0 | 6 | - | 13.0 |
| -40.6 | 0 | 9 | 0.8623 | 10.4 |
| -40.6 | 0 | 12 | 0.8024 | 7.4 |
| -40.6 | 0 | 15 | 0.5055 | 4.6 |
| -40.6 | 0 | 18 | 0.2802 | 1.3 |
| -40.6 | 0 | 21 | 0.1559 | -1.8 |
| -40.6 | 3 | 21 | 0.0779 | -5.2 |
| -40.6 | 6 | 21 | 0.0404 | -8.2 |
| -40.6 | 9 | 21 | 0.0210 | -11.2 |
| -40.6 | 12 | 21 | 0.0111 | -14.2 |
| -40.6 | 15 | 21 | 0.0063 | -17.2 |
| -40.6 | 18 | 21 | 0.0036 | -20.5 |
| -40.6 | 21 | 21 | 0.0025 | -23.7 |
| -40.6 | 24 | 21 | 0.0019 | -26.6 |
| -40.6 | 27 | 21 | 0.0016 | -29.7 |
| -40.6 | 30 | 21 | 0.0015 | -33.0 |
| -40.6 | 30 | 24 | 0.0013 | -35.7 |
| -40.6 | 30 | 27 | 0.0013 | -38.2 |
| -40.6 | 30 | 30 | 0.0013 | -40.6 |

|  |  |  |
| --- | --- | --- |
| 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 | - | 12.4 |
| -41.8 | 0 | 3 | - | 11.1 |
| -41.8 | 0 | 6 | - | 9.1 |
| -41.8 | 0 | 9 | 0.8622 | 6.7 |
| -41.8 | 0 | 12 | 0.8552 | 3.8 |
| -41.8 | 0 | 15 | 0.5530 | 1.1 |
| -41.8 | 0 | 18 | 0.3050 | -2.1 |
| -41.8 | 0 | 21 | 0.1713 | -5.0 |
| -41.8 | 3 | 21 | 0.0931 | -8.0 |
| -41.8 | 6 | 21 | 0.0473 | -11.2 |
| -41.8 | 9 | 21 | 0.0251 | -14.0 |
| -41.8 | 12 | 21 | 0.0130 | -17.1 |
| -41.8 | 15 | 21 | 0.0077 | -19.9 |
| -41.8 | 18 | 21 | 0.0043 | -23.2 |
| -41.8 | 21 | 21 | 0.0029 | -26.3 |
| -41.8 | 24 | 21 | 0.0022 | -29.3 |
| -41.8 | 27 | 21 | 0.0018 | -32.1 |
| -41.8 | 30 | 21 | 0.0016 | -35.5 |
| -41.8 | 30 | 24 | 0.0016 | -37.9 |
| -41.8 | 30 | 27 | 0.0016 | -40.0 |
| -41.8 | 30 | 30 | 0.0015 | -42.0 |

### 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 | - | 14.2 |
| -40.6 | 0 | 3 | - | 14.2 |
| -40.6 | 0 | 6 | - | 13.3 |
| -40.6 | 0 | 9 | 0.8620 | 10.8 |
| -40.6 | 0 | 12 | 0.6736 | 7.7 |
| -40.6 | 0 | 15 | 0.4207 | 4.9 |
| -40.6 | 0 | 18 | 0.2235 | 1.5 |
| -40.6 | 0 | 21 | 0.1224 | -1.5 |
| -40.6 | 3 | 21 | 0.0587 | -4.9 |
| -40.6 | 6 | 21 | 0.0302 | -8.0 |
| -40.6 | 9 | 21 | 0.0156 | -11.0 |
| -40.6 | 12 | 21 | 0.0082 | -14.0 |
| -40.6 | 15 | 21 | 0.0045 | -17.0 |
| -40.6 | 18 | 21 | 0.0025 | -20.3 |
| -40.6 | 21 | 21 | 0.0016 | -23.3 |
| -40.6 | 24 | 21 | 0.0012 | -26.2 |
| -40.6 | 27 | 21 | 0.0010 | -29.3 |
| -40.6 | 30 | 21 | 0.0009 | -32.4 |
| -40.6 | 30 | 24 | 0.0008 | -35.2 |
| -40.6 | 30 | 27 | 0.0008 | -37.7 |
| -40.6 | 30 | 30 | 0.0007 | -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 | - | 12.4 |
| -41.8 | 0 | 3 | - | 11.0 |
| -41.8 | 0 | 6 | - | 9.0 |
| -41.8 | 0 | 9 | 0.8615 | 6.7 |
| -41.8 | 0 | 12 | 0.5420 | 3.8 |
| -41.8 | 0 | 15 | 0.3368 | 1.2 |
| -41.8 | 0 | 18 | 0.1760 | -2.1 |
| -41.8 | 0 | 21 | 0.0968 | -4.9 |
| -41.8 | 3 | 21 | 0.0516 | -8.0 |
| -41.8 | 6 | 21 | 0.0259 | -11.1 |
| -41.8 | 9 | 21 | 0.0138 | -14.0 |
| -41.8 | 12 | 21 | 0.0072 | -17.0 |
| -41.8 | 15 | 21 | 0.0043 | -19.7 |
| -41.8 | 18 | 21 | 0.0025 | -23.1 |
| -41.8 | 21 | 21 | 0.0016 | -26.2 |
| -41.8 | 24 | 21 | 0.0013 | -29.2 |
| -41.8 | 27 | 21 | 0.0011 | -32.0 |
| -41.8 | 30 | 21 | 0.0010 | -35.3 |
| -41.8 | 30 | 24 | 0.0009 | -37.9 |
| -41.8 | 30 | 27 | 0.0010 | -39.9 |
| -41.8 | 30 | 30 | 0.0010 | -41.9 |

# Inspection:

### Visual:

|  |  |  |
| --- | --- | --- |
| 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: 30.3 | OK 🗹 NOK 🗆 |
| LNA Settings | Comments: | OK**🗹** NOK **🗆** |
| Temperature Stabilisation | Comments: | OK 🗆 NOK **🗆** |
|  |  | OK 🗆 NOK **🗆** |