

SSTD Outgoing Inspection Report

Spacecraft/Project HERSCHELL/SPIRE

Document Number SPIRE-RAL-REP- 002922

Issue 1.1

Sub System BDA SN 006

Date 22nd Jun 2007

Model CQM

OUTGOING INSPECTION REPORT

| FROM |
|---|
| Project Rutherford Appleton Laboratory Space Science and Technology Department Chilton DIDCOT OXON OX11 0QX |

| TO |
|-------------------------|
| JPL Los Angeles, USA |

| Applicable sections | |
|----------------------------|-----|
| Containers | Yes |
| External Visual Inspection | Yes |
| External Connector | Yes |
| Documentation | No |
| Verification of Interfacs | No |
| Extra Comments Sheets | Yes |

| Drawings / Documents Attached |
|--|
| Photos |
| Electrical test results added at issue 1.1 |
| |
| |
| |

INSPECTION CONDUCTED BY

WITNESS BY

| NAME |
|--------------------|
| Alan Pearce & Mark |

| DATE |
|---------------|
| 22nd Jun 2007 |

| NAME |
|-----------------|
| Eric Clark (PA) |

| DATE |
|---------------|
| 22nd Jun 2007 |

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CONTAINER INSPECTION

| TRANSPORT CONTAINERS EXTERNAL CONDITION | REMARKS | Status |
|---|---|-------------|
| Mechanical damage to container fasteners, locks, clips or handling provisions | | None |
| Security / Locking Fitted | | N/A |
| Markings for destination and description | | Checked |
| Warning labels relating to handling lifting and stacking limits | | Checked |
| Any additional Comments | 1 original BDA shipping containers i.e. Bowling Ball, inside transit box, inside metal box, inside Cardboard shipping box | See Remarks |

| TRANSPORT CONTAINERS INTERNAL CONDITION | REMARKS | Status |
|---|--|-------------|
| Check Mounting fixtures fitted internal packaging | | Checked |
| Internal padding / packaging required | | Checked |
| Mounting provisions secure | | Checked |
| Any additional Comments | All containers from a previous BDA Incoming shipment. Bowling bal purged with nitrogen before final closure | See Remarks |

| ENVIROMENTAL MONITORS | | | | | | | | | |
|-----------------------|----------------------------------|--------------------------|----------------------------------|---|-----|-----|-----|-----|-----|
| Temp Monitors | | Humidity Monitors | | Shock Sensors Triggerd Information | | | | | |
| Fitted: | <input type="text" value="No"/> | Fitted: | <input type="text" value="No"/> | 5g | 10g | 15g | 20g | 50g | |
| Condition: | <input type="text" value="N/A"/> | Condition: | <input type="text" value="N/A"/> | X Axis | N/F | OK | N/F | OK | N/F |
| | | | | Y Axis | N/F | N/F | OK | OK | N/F |
| | | | | Z Axis | N/F | N/F | N/F | OK | N/F |

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INSTRUMENT VISUAL INSPECTION

| CHECK LIST | REMARKS | RESULTS |
|--|--|-------------|
| Contents against shipping list | | Correct |
| All closure procedures | Re assembled and packed into Bowling Ball by Mark W from JPL | See Remarks |
| Instrument label | | Correct |
| Note status of external contamination | | Acceptable |
| Degradation of paintwork or Coating? | | None |
| Fasteners correctly locked? | | Correct |
| Check protective covers are correctly labelled and fitted? | | N/A |
| Double bagged? | Item is in a purpose made container purged with Nitrogen Baging not required | See Remarks |
| Additional Comments | Returned to JPL for investigation of broken Kevlar cord. | See Remarks |

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INSPECTION OF ALL CONNECTORS

| CHECK LIST | REMARKS (LIST CONNECTOR NUMBERS) | RESULTS |
|---------------------------------------|----------------------------------|---------|
| Pin Alignment | | Pass |
| Damaged Sockets | | None |
| Internal Debris | | None |
| Connector Covers fitted | | None |
| Connector Savers Fitted | | None |
| EMC Covers Fitted | | None |
| RED Tag Item / Green Tag Items fitted | | None |
| Additional Comments | | None |

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DOCUMENTATION CHECK LIST

| Check | REMARKS | RESULTS |
|----------------------------------|--|-------------|
| End Item Data Pack | | No |
| Transportaion Documents | | Yes |
| Packing un- Packing instructions | | No |
| Additional Comments | Item returned to supplier no requirement for further instructions. | See Remarks |

Verification of Interfaces

Mechanical interface: dimensions specified in the interface control documents such as mass, flatness of surfaces, location of fixing holes and overall dimensions should be measured accurately and recorded. Record Test Report Number, or confirm that measurement result is included in delivery documentation, (EIDP).

INSPECTION / TEST REPORT NUMBER **CHECKED**

Electrical interfaces: verifying the location and types of connectors against interface control document is normally carried as part of mechanical verification, confirm this has been done. Functional testing: final functional test report number should be noted.

INSPECTION / TEST REPORT NUMBER **CHECKED**

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EXTRA COMMENT SHEET

HR-SP-RAL-NCR-172v2 raised to cover non-conformance.
Electrical Test results added at issue 1.1 of OIR

SPIRE-RAL-REP-002922 BDA SN 006 OIR Photos

NOTE

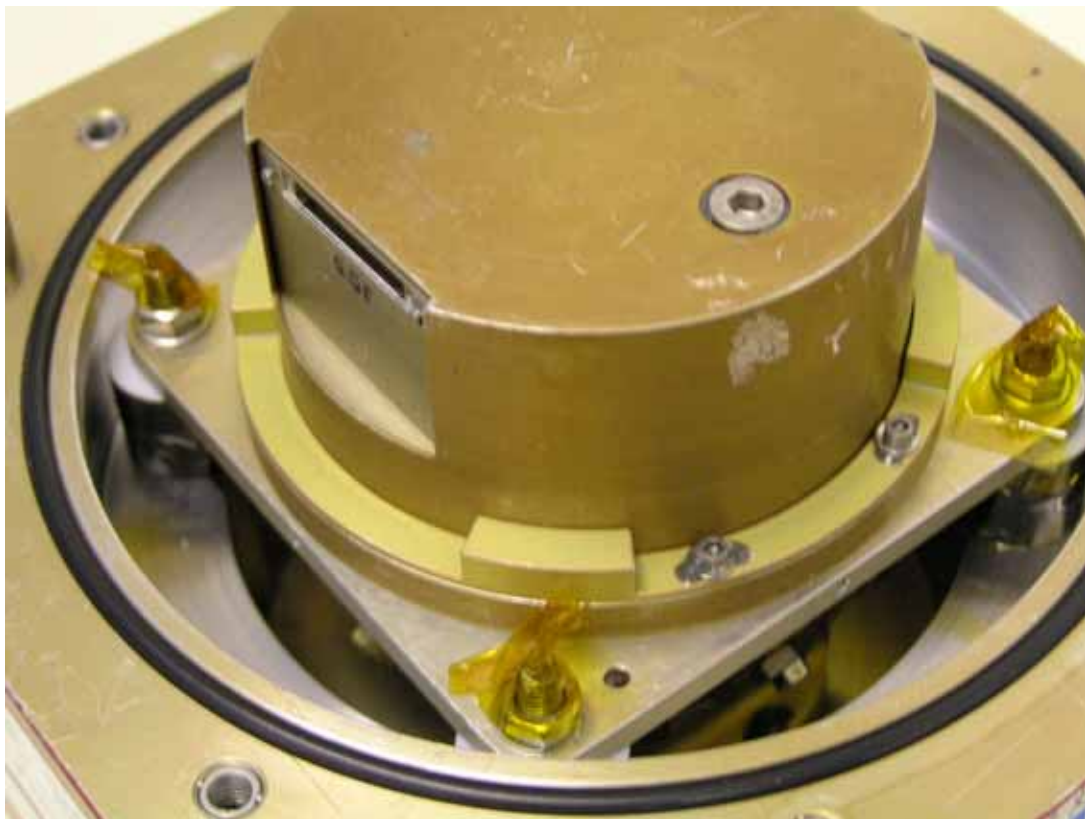
The following photographs are selected from a host of photographs taken at the time, the first part of the title is the Photograph title the second part in brackets is additional information

SN 006 6 Jun 07 003 (Showing Broken cord)

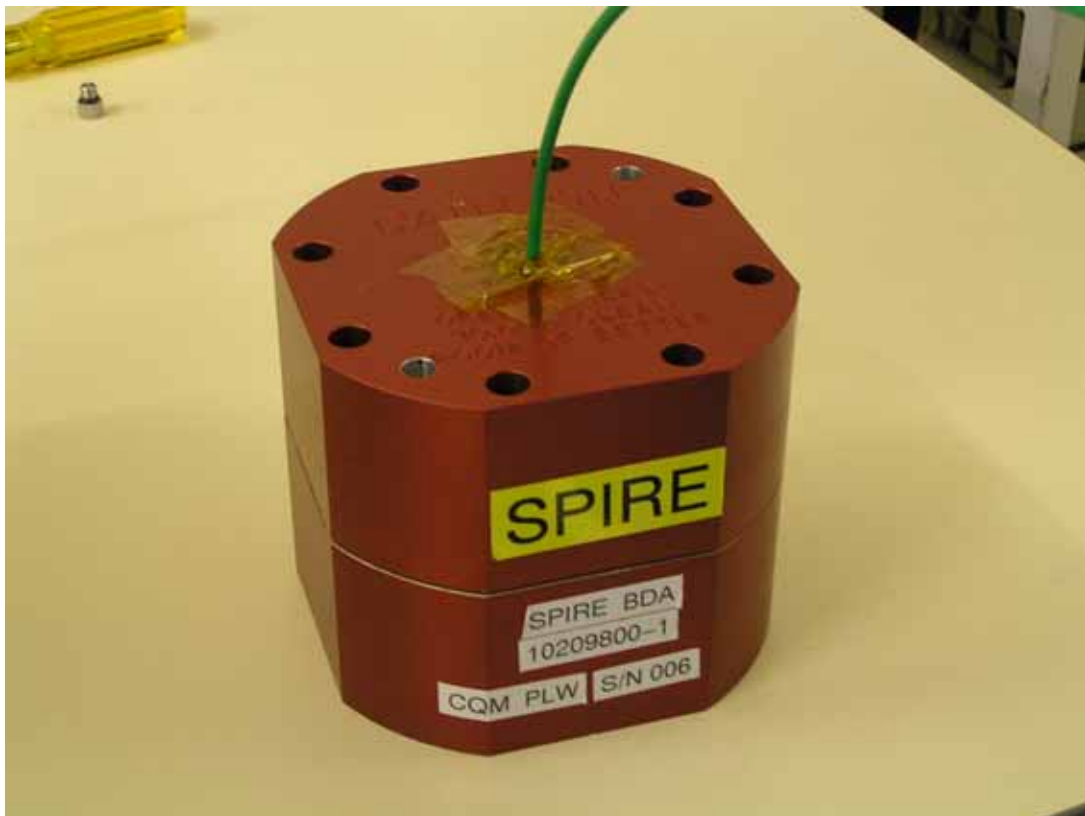


SPIRE-RAL-REP-002922 BDA SN 006 OIR Photos

SN 006 22 Jun 07 Pre Ship IIR (showing nuts secured with Kapton Tape)



SN 006 22 Jun 07 Purgeing

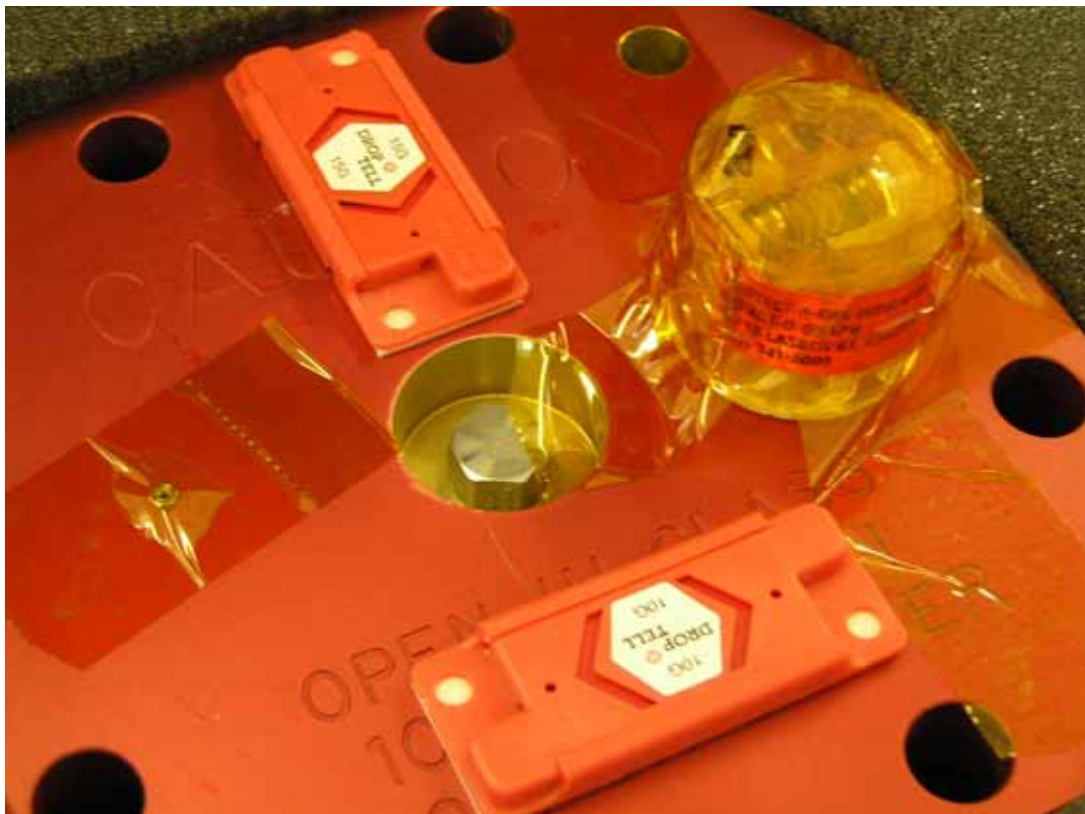


SPIRE-RAL-REP-002922 BDA SN 006 OIR Photos

SN 006 22 Jun 07 Post Purge (ready to be packed into Transit box)



SN 006 22 Jun 07 10 & 15g Drop & Tell monitors and 20g (JPL TYPE) shock monitors fitted (Inside transit box)



SN 006 22 Jun 07 Bowling ball in transit case



SN 006 22 Jun 07 Transit case in Outer Metal case



SPIRE-RAL-REP-002922 BDA SN 006 OIR Photos

SN 006 22 Jun 07 Metal case closed



SN 006 22 Jun 07 Shipping Box



| Signal | Nanonics Pin From | Nanonics Pin To | Detector Label | Resistance (ohms) | Post delivery Health check | | Post Instrument Coldvibe Resistance (Ohms) |
|-----------|----------------------|--------------------|-------------------|----------------------|-------------------------------|---------|---|
| 1 | 1 | 26 | R1 | 20.92 M | 20.95 M | 0.14% | 20.95 |
| 2 | 2 | 27 | A8 | 6.10 k | 5.97 k | -2.13% | 5.9 |
| 3 | 3 | 28 | A7 | 5.96 k | 5.85 k | -1.85% | 5.76 |
| 4 | 4 | 29 | A6 | 5.77 k | 5.66 k | -1.91% | 5.57 |
| 5 | 5 | 30 | A9 | 5.90 k | 5.79 k | -1.86% | 5.71 |
| 6 | 6 | 31 | C9 | 6.19 k | 6.10 k | -1.45% | 6.03 |
| 7 | 7 | 32 | B8 | 5.94 k | 5.84 k | -1.68% | 5.77 |
| 8 | 8 | 33 | B7 | 5.75 k | 5.63 k | -2.09% | 5.57 |
| 9 | 9 | 34 | C7 | 5.75 k | 5.65 k | -1.74% | 5.55 |
| 10 | 10 | 35 | B5 | 21.14 M | 21.20 M | 0.28% | 21.14 |
| 11 | 11 | 36 | B6 | 21.16 M | 21.27 M | 0.52% | 21.18 |
| 12 | 12 | 37 | A5 | 5.25 k | 5.12 k | -2.48% | 5.05 |
| 13 | 13 | 38 | T1 | 3.97 k | 3.89 k | -1.94% | 3.873 |
| 14 | 14 | 39 | B4 | 5.70 k | 5.55 k | -2.63% | 5.61 |
| 15 | 15 | 40 | C4 | 5.86 k | 5.74 k | -2.05% | 5.64 |
| 16 | 16 | 41 | B3 | 5.80 k | 5.70 k | -1.72% | 5.58 |
| 17 | 17 | 42 | C2 | 6.13 k | 6.03 k | -1.63% | 5.93 |
| 18 | 18 | 43 | B2 | 6.11 k | 6.00 k | -1.80% | 5.88 |
| 19 | 19 | 44 | B1 | 6.28 k | 6.17 k | -1.75% | 6.08 |
| 20 | 20 | 45 | A3 | 6.16 k | 6.02 k | -2.27% | 5.95 |
| 21 | 21 | 46 | A4 | 6.20 k | 6.08 k | -1.94% | 5.98 |
| 22 | 22 | 47 | A1 | 24.80 k | 57.00 k | 129.84% | 173 |
| 23 | 23 | 48 | DK1 | 6.48 k | 6.38 k | -1.54% | 6.37 |
| 24 | 24 | 49 | A2 | 6.54 k | 6.43 k | -1.68% | 6.37 |
| V+ to V- | 25 | 50 | | 0.92 M | 0.96 M | 4.35% | 0.961 |
| V- to Gnd | 50 | 51 | | 10.92 M | 10.00 M | -8.42% | 9.96 |
| V+ to Gnd | 25 | 51 | | 10.00 M | 11.00 M | 10.00% | 10.92 |

| Signal | Nanonics Pin From | Nanonics Pin To | Detector Label | Resistance (ohms) | Post-delivery health check Resistance (Ohms) | Post Instrument Coldvibe Resistance (Ohms) |
|-----------|-------------------|-----------------|----------------|-------------------|--|--|
| 1 | 1 | 26 | E1 | 24.64 M | 24.5 M | 24.4 |
| 2 | 2 | 27 | E2 | 6.46 k | 6.33 k | 6.29 |
| 3 | 3 | 28 | E3 | 24.56 M | 24.56 M | 24.36 |
| 4 | 4 | 29 | E4 | 6.08 k | 5.97 k | 5.92 |
| 5 | 5 | 30 | D1 | 6.41 k | 6.31 k | 6.21 |
| 6 | 6 | 31 | D2 | 6.27 k | 6.13 k | 6.04 |
| 7 | 7 | 32 | D3 | 6.15 k | 6.05 k | 5.96 |
| 8 | 8 | 33 | D4 | 5.93 k | 5.79 k | 5.72 |
| 9 | 9 | 34 | C1 | 6.25 k | 6.14 k | 6.12 |
| 10 | 10 | 35 | C3 | 6.16 k | 6.05 k | 5.98 |
| 11 | 11 | 36 | C5 | 5.84 k | 5.76 k | 5.66 |
| 12 | 12 | 37 | T2 | 4.21 k | 4.13 k | 4.12 |
| 13 | 13 | 38 | E5 | 5.87 k | 5.76 k | 5.72 |
| 14 | 14 | 39 | C6 | 6.13 k | 6.02 k | 5.93 |
| 15 | 15 | 40 | C8 | 6.22 k | 6.12 k | 6.05 |
| 16 | 16 | 41 | D5 | 24.52 M | 25.3 M | 24.55 |
| 17 | 17 | 42 | D6 | 6.37 k | 6.26 k | 6.19 |
| 18 | 18 | 43 | D7 | 6.51 k | 6.4 k | 6.34 |
| 19 | 19 | 44 | D8 | 25.03 M | 25 M | 24.88 |
| 20 | 20 | 45 | E7 | 6.87 k | 6.77 k | 6.74 |
| 21 | 21 | 46 | E6 | 6.58 k | 6.48 k | 6.45 |
| 22 | 22 | 47 | E8 | 6.91 k | 6.8 k | 6.74 |
| 23 | 23 | 48 | DK2 | 7.28 k | 7.18 k | 7.12 |
| 24 | 24 | 49 | E9 | 7.21 k | 7.11 k | 7.06 |
| V+ to V- | 25 | 50 | | 1.18 M | 1.18 M | 1.178 |
| V- to Gnd | 50 | 51 | | >30M | Open Circuit | open circuit |
| V+ to Gnd | 25 | 51 | | >30M | Open Circuit | open circuit |

| Signal | Detector Label | Resistance V+ to S+ (Mohms) | Resistance V- to S- (Mohms) | Post-delivery health check | | | | Post Instrument Coldvibe | | | |
|--------|----------------|-----------------------------|-----------------------------|----------------------------|------------------|----------------|------------------|--------------------------|------------------|----------------|------------------|
| | | | | Pins (V+ & S+) | Resistance Mohms | Pins (V- & S-) | Resistance Mohms | Pins (V+ & S+) | Resistance Mohms | Pins (V- & S-) | Resistance Mohms |
| 1 | R1 | 10.11 | 10.02 | 25 & 1 | 10.08 | 50 & 26 | 10.03 | 25 & 1 | 10.3 | 50 & 26 | 9.97 |
| 2 | A8 | 5.32 | 5.32 | 25 & 2 | 5.3 | 50 & 27 | 5.3 | 25 & 2 | 5.26 | 50 & 27 | 5.28 |
| 3 | A7 | 5.3 | 5.29 | 25 & 3 | 5.28 | 50 & 28 | 5.28 | 25 & 3 | 5.27 | 50 & 28 | 5.28 |
| 4 | A6 | 5.33 | 5.33 | 25 & 4 | 5.31 | 50 & 29 | 5.3 | 25 & 4 | 5.28 | 50 & 29 | 5.3 |
| 5 | A9 | 5.32 | 5.32 | 25 & 5 | 5.3 | 50 & 30 | 5.3 | 25 & 5 | 5.28 | 50 & 30 | 5.28 |
| 6 | C9 | 5.32 | 5.32 | 25 & 6 | 5.3 | 50 & 31 | 5.29 | 25 & 6 | 5.28 | 50 & 31 | 5.28 |
| 7 | B8 | 5.32 | 5.32 | 25 & 7 | 5.29 | 50 & 32 | 5.29 | 25 & 7 | 5.28 | 50 & 32 | 5.29 |
| 8 | B7 | 5.32 | 5.31 | 25 & 8 | 5.29 | 50 & 33 | 5.29 | 25 & 8 | 5.27 | 50 & 33 | 5.28 |
| 9 | C7 | 5.32 | 5.31 | 25 & 9 | 5.29 | 50 & 34 | 5.29 | 25 & 9 | 5.27 | 50 & 34 | 5.28 |
| 10 | B5 | 10.15 | 10.13 | 25 & 10 | 10.12 | 50 & 35 | 10.11 | 25 & 10 | 10.1 | 50 & 35 | 10.09 |
| 11 | B6 | 10.17 | 10.17 | 25 & 11 | 10.14 | 50 & 36 | 10.15 | 25 & 11 | 10.11 | 50 & 36 | 10.13 |
| 12 | A5 | 5.32 | 5.32 | 25 & 12 | 5.3 | 50 & 37 | 5.3 | 25 & 12 | 5.28 | 50 & 37 | 5.29 |
| 13 | T1 | 5.32 | 5.32 | 25 & 13 | 5.29 | 50 & 38 | 5.29 | 25 & 13 | 5.28 | 50 & 38 | 5.28 |
| 14 | B4 | 5.33 | 5.33 | 25 & 14 | 5.3 | 50 & 39 | 5.3 | 25 & 14 | 5.28 | 50 & 39 | 5.3 |
| 15 | C4 | 5.32 | 5.32 | 25 & 15 | 5.3 | 50 & 40 | 5.3 | 25 & 15 | 5.27 | 50 & 40 | 5.28 |
| 16 | B3 | 5.31 | 5.31 | 25 & 16 | 5.18 | 50 & 41 | 5.19 | 25 & 16 | 5.28 | 50 & 41 | 5.28 |
| 17 | C2 | 5.31 | 5.31 | 25 & 17 | 5.18 | 50 & 42 | 5.19 | 25 & 17 | 5.27 | 50 & 42 | 5.28 |
| 18 | B2 | 5.31 | 5.31 | 25 & 18 | 5.29 | 50 & 43 | 5.29 | 25 & 18 | 5.28 | 50 & 43 | 5.28 |
| 19 | B1 | 5.32 | 5.32 | 25 & 19 | 5.29 | 50 & 44 | 5.29 | 25 & 19 | 5.28 | 50 & 44 | 5.28 |
| 20 | A3 | 5.31 | 5.31 | 25 & 20 | 5.28 | 50 & 45 | 5.29 | 25 & 20 | 5.28 | 50 & 45 | 5.27 |
| 21 | A4 | 5.33 | 5.32 | 25 & 21 | 5.3 | 50 & 46 | 5.3 | 25 & 21 | 5.31 | 50 & 46 | 5.3 |
| 22 | A1 | 5.33 | 5.32 | 25 & 22 | 5.3 | 50 & 47 | 5.3 | 25 & 22 | 5.32 | 50 & 47 | 5.32 |
| 23 | DK1 | 5.3 | 5.3 | 25 & 23 | 5.28 | 50 & 48 | 5.28 | 25 & 23 | 5.27 | 50 & 48 | 5.27 |
| 24 | A2 | 5.31 | 5.31 | 25 & 24 | 5.29 | 50 & 49 | 5.29 | 25 & 24 | 5.25 | 50 & 49 | 5.28 |

| Signal | Detector Label | Resistance V+ to S+ (Mohms) | Resistance V- to S- (Mohms) | Post-delivery health check | | | | Post-delivery health check | | | |
|--------|----------------|-----------------------------|-----------------------------|----------------------------|------------------|----------------|------------------|----------------------------|------------------|--------------------|------------------|
| | | | | Pins (V+ & S+) | Resistance Mohms | Pins (V- & S-) | Resistance Mohms | Pins (V+ & S+) | Resistance Mohms | Pins (V- & S-) | Resistance Mohms |
| 1 | E1 | 11.77 | 11.5 | 25 & 1 | 11.7 | 50 & 26 | 11.56 | 25 & 1 | 11.74 | 50 & 26 | 11.56 |
| 2 | E2 | 6.13 | 6.12 | 25 & 2 | 6.1 | 50 & 27 | 6.04 | 25 & 2 | 6.1 | 50 & 27 | 6.08 |
| 3 | E3 | 11.78 | 11.58 | 25 & 3 | 11.74 | 50 & 28 | 11.54 | 25 & 3 | 11.7 | 50 & 28 | 11.52 |
| 4 | E4 | 6.16 | 6.15 | 25 & 4 | 6.13 | 50 & 29 | 6.13 | 25 & 4 | 6.13 | 50 & 29 | 6.08 |
| 5 | D1 | 6.15 | 6.14 | 25 & 5 | 6.12 | 50 & 30 | 6.12 | 25 & 5 | 6.11 | 50 & 30 | 6.12 |
| 6 | D2 | 6.17 | 6.16 | 25 & 6 | 6.14 | 50 & 31 | 6.14 | 25 & 6 | 6.13 | 50 & 31 | 6.13 |
| 7 | D3 | 6.17 | 6.16 | 25 & 7 | 6.14 | 50 & 32 | 6.14 | 25 & 7 | 6.13 | 50 & 32 | 6.12 |
| 8 | D4 | 6.18 | 6.17 | 25 & 8 | 6.15 | 50 & 33 | 6.15 | 25 & 8 | 6.14 | 50 & 33 | 6.13 |
| 9 | C1 | 6.2 | 6.19 | 25 & 9 | 6.17 | 50 & 34 | 6.17 | 25 & 9 | 6.16 | 50 & 34 | 6.15 |
| 10 | C3 | 6.18 | 6.17 | 25 & 10 | 6.15 | 50 & 35 | 6.15 | 25 & 10 | 6.15 | 50 & 35 | 6.13 |
| 11 | C5 | 6.2 | 6.19 | 25 & 11 | 6.18 | 50 & 36 | 6.18 | 25 & 11 | 6.16 | 50 & 36 | 6.16 |
| 12 | T2 | 6.21 | 6.21 | 25 & 12 | 6.19 | 50 & 37 | 6.19 | 25 & 12 | 6.17 | 50 & 37 | 6.18 |
| 13 | E5 | 6.13 | 6.14 | 25 & 13 | 6.1 | 50 & 38 | 6.12 | 25 & 13 | 6.1 | 50 & 38 | 6.1 |
| 14 | C6 | 6.21 | 6.21 | 25 & 14 | 6.19 | 50 & 39 | 6.19 | 25 & 14 | 6.18 | 50 & 39 | 6.17 |
| 15 | C8 | 6.18 | 6.18 | 25 & 15 | 6.16 | 50 & 40 | 6.17 | 25 & 15 | 6.14 | 50 & 40 | 6.15 |
| 16 | D5 | 11.74 | 11.76 | 25 & 16 | 11.7 | 50 & 41 | 11.6 | 25 & 16 | 11.69 | 50 & 41 | 11.75 |
| 17 | D6 | 6.27 | 6.26 | 25 & 17 | 6.21 | 50 & 42 | 6.21 | 25 & 17 | 6.23 | 50 & 42 | 6.23 |
| 18 | D7 | 6.26 | 6.25 | 25 & 18 | 6.24 | 50 & 43 | 6.23 | 25 & 18 | 6.24 | 50 & 43 | 6.23 |
| 19 | D8 | 12.05 | 11.86 | 25 & 19 | 12.02 | 50 & 44 | 11.83 | 25 & 19 | 12 | 50 & 44 | 11.8 |
| 20 | E7 | 6.3 | 6.29 | 25 & 20 | 6.28 | 50 & 45 | 6.27 | 25 & 20 | 6.25 | 50 & 45 | 6.26 |
| 21 | E6 | 6.29 | 6.28 | 25 & 21 | 6.27 | 50 & 46 | 6.26 | 25 & 21 | 6.26 | 50 & 46 | 6.25 |
| 22 | E8 | 6.31 | 6.3 | 25 & 22 | 6.28 | 50 & 47 | 6.27 | 25 & 22 | 6.27 | 50 & 47 | 6.25 |
| 23 | DK2 | 6.27 | 6.28 | 25 & 23 | 6.26 | 50 & 48 | 6.26 | 25 & 23 | 6.26 | 50 & 48 | 6.24 |
| 24 | E9 | 6.33 | 6.1 | 25 & 24 | 6.3 | 50 & 49 | 6.3 | 25 & 24 | 6.29 | 50 & 49 | 6.28 |