**BoSL Board SIM Communications Issue Report 2019/11/21**

**Summary of Issue:**

Some BoSL boards are unable to communicate with the inserted SIM card. Issue specifically with communication between SIM7000 module and SIM card.

**Replication:**

To replicate the issue have a SIM card inserted in to the BoSL board and issue the AT command sequence to the SIM7000 module.

|  |  |  |
| --- | --- | --- |
| Command | Response (GOOD) | Response (BAD) |
| AT+CFUN=0 |  |  |
|  | +CPIN: NOT Ready | +CPIN: NOT Ready |
|  | OK | OK |
| AT+CFUN=1 |  |  |
|  | OK | OK |
|  | +CPIN = Ready | +CPIN: NOT INSERTED |
|  | SIM READY |  |

**Diagnostics Data:**

|  |  |  |
| --- | --- | --- |
| Measurement | Value (GOOD) | Value (BAD) |
| ATmega Crystal Frequency | 7.9 – 8.1 MHz | 7.9 – 8.1 MHz |
| SIM7000 – Atmega baud rate | 9540 | 9540 |

Probe of SIM7000 SIM card lines after issuing AT+CFUN=1 in the above replication command sequence.

(SIM Inserted)

|  |  |  |
| --- | --- | --- |
| PIN | Waveform (GOOD) | Waveform (BAD) |
| SIM\_VDD | A close up of a screen  Description automatically generated | A screen shot of a computer  Description automatically generated |
| SIM\_RST |  | A close up of a screen  Description automatically generated |
| SIM\_CLK | A screen shot of a computer  Description automatically generated | A screen shot of a computer  Description automatically generated |
| SIM\_DATA | A screen shot of a computer  Description automatically generated | No Reading |

(SIM Not Inserted)

|  |  |  |
| --- | --- | --- |
| PIN | Waveform (GOOD) | Waveform (BAD) |
| SIM\_VDD | A screen shot of a computer  Description automatically generated | A screen shot of a computer  Description automatically generated |
| SIM\_RST | A screen shot of a computer  Description automatically generated | A screen shot of a computer  Description automatically generated |
| SIM\_CLK | A screen shot of a computer  Description automatically generated | A screen shot of a computer  Description automatically generated |
| SIM\_DATA | A screen shot of a computer  Description automatically generated | No Reading |

**Likely Explanation:**

The issue and readings found is very similar to the issue faced in this stack exchange question: <https://arduino.stackexchange.com/questions/40043/sim800c-developer-board-sim-not-inserted>

From discussion with SimCOM engineers they concluded that it is likely a soldering issue either on the PCB or inside the SimCOM module. As the behaviour observed in this case is very similar it is likely that a similar explanation is valid.