ABB	**Functional Testing Specification**
Parts & Repair Services ***Louisville, KY***	**LOU-GED-IS200IVFB**

Test Procedure for an IS200IVFBG1A Board.

DOCUMENT REVISION STATUS: Determined by the last entry in the "REV" and "DATE" column

REV.	DESCRIPTION	SIGNATURE	REV. DATE
A	Copied original test procedure into word format	J. Francis	10/16/2012
B	Identified frequency counter test points in voltage/frequency circuit VAB – VBC Section 6.6	F. Howard	05/31/2019

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J. Francis			Charlie Wade
DATE	**DATE**	**DATE**	**DATE**
10/16/2012			10/16/2012

1. SCOPE

1.1 This is a functional testing procedure for an IS200IVFBG1A.

2. STANDARDS OF QUALITY

2.1 Refer to the current revision of the IPC-A-610 standard for workmanship standards.

3. APPLICABLE DOCUMENTS

3.1 The following document(s) shall form part of this specification to the extent specified herein. Unless otherwise indicated, the latest issue shall apply.

3.1.1 Check board's electronic folder for more information.

3.1.2 Copied original hand written test, located in the IS200IVFB folder in file cabinet by Mark VI area into Word format.

4. ENGINEERING REQUIREMENTS

4.1 Equipment Cleaning

4.1.1 Equipment should be clean and free of debris prior to applying power unless performing an initial check. Refer to site specific SRA's for cleaning guidelines.

4.2 Equipment Inspection

4.2.1 Equipment should be visually inspected for any defects prior to applying power. This inspection should include the following as a minimum:

4.2.1.1 Wires - broken, cracked, or loosely connected

4.2.1.2 Terminal strips / connectors - broken or cracked

4.2.1.3 Components - visually damaged

4.2.1.4 Capacitors - bloated or leaking

4.2.1.5 Solder joints - damaged or cold

4.2.1.6 Circuit board - burned or de-laminated

4.2.1.7 Printed wire runs / Traces - burned or damaged

5. EQUIPMENT REQUIRED

5.1 The following equipment is required to perform the process requirements. Equipment may be substituted provided that all accuracy's and test ratios are equivalent or better.

Qty	Reference #	Description
1	*	Fluke 87 DMM (or Equivalent)
1	*	Fluke 5500A Calibrator
1	*	DS200GDPAG1A power supply
1	*	HP5304A Frequency Counter

6. TESTING PROCESS

6.1 Visual inspection.

6.2 Connect the DS200GDPAG1A (GDPA) power supply.

6.2.1 Insert 120VAC supply cord in connector ACPL on GDPA.

6.2.2 Connect 3 lead connector from IGDPL on GDPA to J1 or J2 on IS200IVFBG1A (IVFB).

6.2.3 Apply 120 V source to (GDPA).

6.3 Power Supply checks.

6.3.1 On IVFB LED's PSOK on circuitry A, B, and C should illuminate, all fiber optic laser diodes should illuminate.

6.3.2 Using a DMM check for DC voltage at test points P15, N15, P5 with reference to DCOM repeat for circuits A, B, and C.

6.3.2.1 P15 = 16 VDC -/+1VDC, N15 =-16 VDC -/+1VDC, P5 = 5 VDC -/+.5VDC. Note: It is common for these LED's to burn out. Check supply voltage if they do not illuminate.

6.4 Frequency output checks

6.4.1 Setup HP Frequency counter as follows:

6.4.1.1 COM, SEP, CHK = SEP, ch A atten=x1, chA AC/DC = DC, ch A slope = +, ch A level = 0, display = OFF, freq A = AUTO

6.4.1.2 Turn on freq counter and set sample rate to the position just after the OFF detent

6.4.1.3 Connect frequency counter positive to IAFSQ and com to DCOMA2.

6.4.1.4 Output should be approximately 1 MHz

6.4.1.5 Repeat for circuits B and C

6.5 Voltage to Freq conversion

6.5.1 Connect Fluke 5500A positive to J3-3 and negative to J3-1 (shunt A)

6.5.2 Set up 5500A to output mV and move edit field cursor under first to the one place on output display.

6.5.3 Clip positive frequency counter lead on resistor R130, closest to laser diode IA

6.5.4 Increase mV source from 0 mV to 250mV while watching frequency counter

6.5.5 Frequency should increase linearly as frequency increases, at 280mV frequency should be approx. 2 MHz

6.5.6 Decrease freq to 200mV

6.5.7 Both 1A and 1AS laser diodes should be illuminated

6.5.8 Slowly increase frequency while visually monitoring 1AS output

6.5.9 1AS laser should drop out between 230mV and 240mV

6.5.10 Slowly decrease mV source while visually monitoring 1AS laser

6.5.11 1AS laser should come back on between 220 – 210mV

6.5.12 Return mV source to 0mV

6.5.13 Repeat the process above with a negative mV input

6.5.14 Freq counter will measure 0 Hz at approx., 140mV

6.5.15 At -280mV frequency should be 0 mV

6.5.16 1AS will drop out between -230mV and -240mV

6.5.17 1AS will come back on between -210mV and -220mV

6.5.18 1A laser will be very dim at these lower frequency ranges

6.5.19 Repeat for circuits B and C

6.6 Voltage to freq. conversion – VAB and VBC

6.6.1 Measure 3.735 M Ohms from STABAB1 to VATTAB

6.6.2 Measure 3.735 M Ohms from STABBC1 to VATTBC

6.6.3 Connect frequency counter positive lead to R216, end closest to VAB, ground to DCOMB

6.6.4 Connect ground of PS to R208 lead closest to R223

6.6.5 PS + to VATTAB, increase in +1V increments, 10V = 2 MHz

6.6.6 Reverse polarity PS, frequency decreases

6.6.7 Move frequency counter positive lead to R316, end closest to VBC, ground to DCOMC

6.6.8 Move PS ground to R308, lead closest to R323

6.6.9 Move PS + to VATTBC, increase in +1V increments, 10V = 2MHz.

6.6.10 Reverse polarity PS, frequency decreases

6.7 ****End of Test****

7. NOTES

7.1 None at this time.

8. ATTACHMENTS

8.1 None at this time.