g GE Energy	**Functional Testing Specification**
Parts & Repair Services ***Louisville, KY***	**LOU-GED-DS3800HMPG**

Test Procedure for a DS3800HMPG card

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

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DATE	**DATE**	**DATE**	**DATE**
7/15/2011			7/15/2011

1. SCOPE

1.1 This is a functional testing procedure for a DS3800HMPG.

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

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

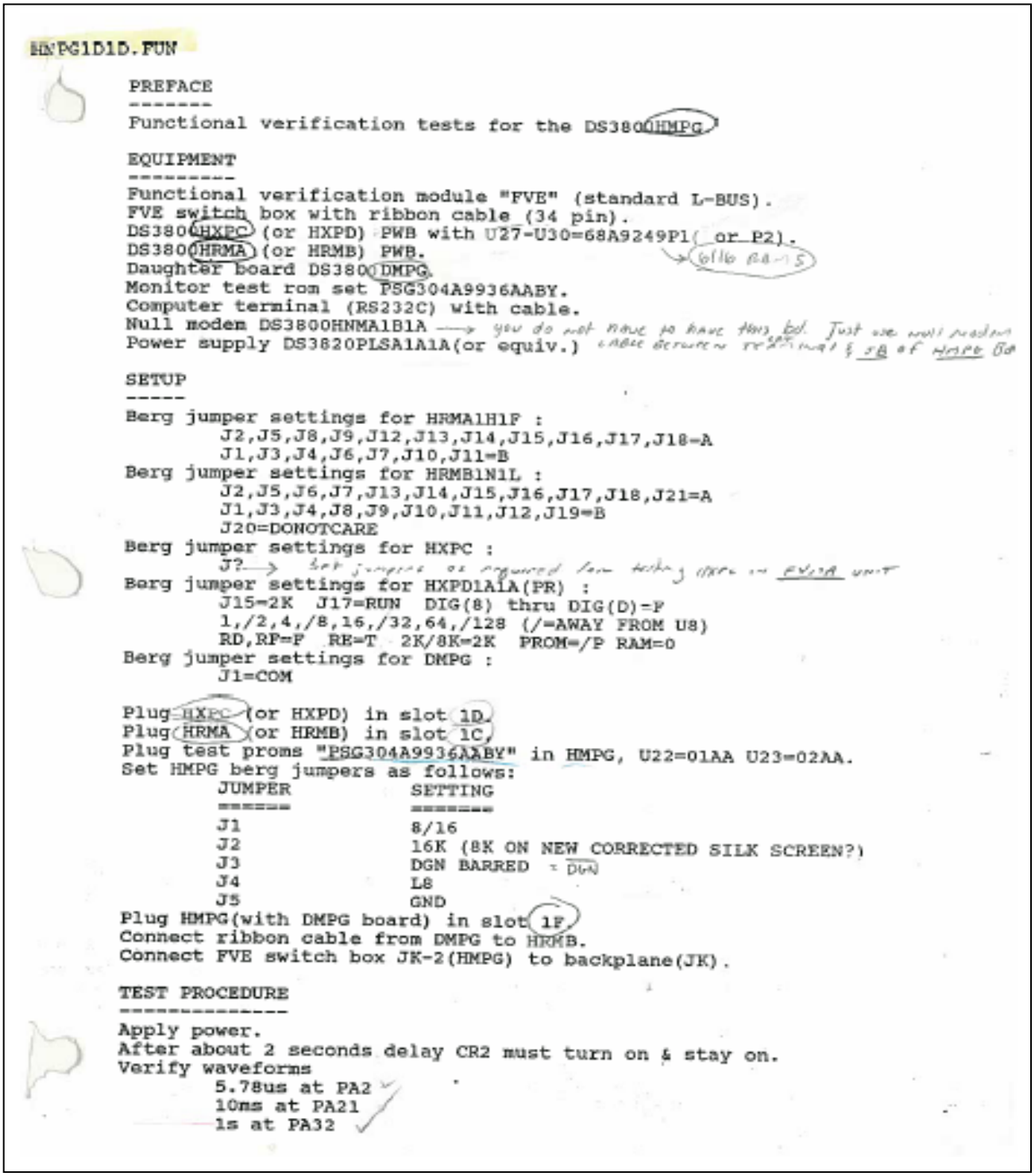
5. EQUIPMENT REQUIRED

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		FVE Module
1		See equipment section in the following page scanned test

6. Testing Process

6.1 Page 1 of scanned HMPG instruction



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HMPG1D1D.FUN

        PREFACE
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        Punctional verification tests for the DS3800HMPG.

        EQUIPMENT
        ---------
        Functional verification module "FVE" (standard L-BUS).
        FVE switch box with ribbon cable (34 pin).
        DS3800HXPC (or HXPD) PWB with U27-U30=68A9249P1( or P2).
        DS3800HRMA (or HRMB) PWB.
        Daughter board DS3800DMPG.
        Monitor test rom set PSG304A9936AABY.
        Computer terminal (RS232C) with cable.
        Null modem DS3800HNMA1B1A ---> you do not have to have this bd. Just use null modem
        Power supply DS3820PLSA1A1A(or equiv.) cable between terminal & SB of HMPG bd

        SETUP
        -----
        Berg jumper settings for HRMA1H1F :
                J2,J5,J8,J9,J12,J13,J14,J15,J16,J17,J18=A
                J1,J3,J4,J6,J7,J10,J11=B
        Berg jumper settings for HRMB1N1L :
                J2,J5,J6,J7,J13,J14,J15,J16,J17,J18,J21=A
                J1,J3,J4,J8,J9,J10,J11,J12,J19=B
                J20=DONOTCARE
        Berg jumper settings for HXPC :
                J?---> Set jumpers as required for testing these in FVE/A unit
        Berg jumper settings for HXPD1A1A(PR) :
                J15=2K  J17=RUN  DIG(8) thru DIG(D)=F
                1,/2,4,/8,16,/32,64,/128 (/=AWAY FROM U8)
                RD,RP=F  RE=T  2K/8K=2K  PROM=/P RAM=0
        Berg jumper settings for DMPG :
                J1=COM

        Plug HXPC (or HXPD) in slot 1D.
        Plug HRMA (or HRMB) in slot 1C.
        Plug test proms "PSG304A9936AABY" in HMPG, U22=01AA U23=02AA.
        Set HMPG berg jumpers as follows:
                JUMPER          SETTING
                ======          =======
                J1              8/16
                J2              16K (8K ON NEW CORRECTED SILK SCREEN?)
                J3              DGN BARRED = DGN
                J4              L8
                J5              GND
        Plug HMPG(with DMPG board) in slot 1F.
        Connect ribbon cable from DMPG to HRMB.
        Connect FVE switch box JK-2(HMPG) to backplane(JK).

        TEST PROCEDURE
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        Apply power.
        After about 2 seconds delay CR2 must turn on & stay on.
        Verify waveforms
                5.78us at PA2
                10ms at PA21
                1s at PA32
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6.2 Page 2 of scanned HMPG instruction

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Verify -11.3 +/-1 VDC at JB2(with CRT terminal not connected to JB).
Verify +11.3 +/-1 VDC at JB4(with CRT terminal not connected to JB).
Connect computer terminal(CRT) to null modem JB.
Connect null modem JA to HMPG JB.
Place berg-jumper on null modem to "SPEC" position.
Set CRT baud-rate to any of the following speeds:
      300 600 1200 2400 4800 9600 19200.
Type "B" and verify CR2 turns off.  BOTTOM LED ON HMPG Bd.
Type "B" again and verify CR1 turns on & CRT displays "HMPG".
Type "OBFE6,Ø<" and verify CR1 turns off with no-delay. ("<"=return)
Type "OBFE8,Ø<" and verify CR1 turns on.  TOP LED ON HMPG Bd.
Type "OBFE0,Ø<" and verify CR1 turns off after about 2 seconds delay.
Make the following connections and verify the CRT display :
      PA71    PA63    PA65    PA62    "IBFEØ,<"
      ----    ----    ----    ----    ---------
      F       F       F       F       "FF"
      0       F       F       F       "FE"
      F       0       F       F       "FD"
      F       F       0       F       "FB"
      F       F       F       0       "F7"

      F = switch open  (input floating).
      0 = switch closed(input tied to dcom).

Type "I9Ø8Ø," and verify CR6 turns on. Type "<".   2nd LED from bottom on HMPG Bd.
Type "OBFE4,Ø<" and verify CR6 turns off.
Type "I8000,<" and verify CR6 does not turn on.
                    . Verify CRT Displays "AA"   IF THIS PART OF TEST DOES NOT WORK BOARD IS BAD
Type "OBFE8,Ø<" and verify CR1 is on.
Close PA8 to DCOM and verify CR1 turns off.
Open PA8 from DCOM.
Type "IBFFC," and verify CRT displays "Øx"      (x=don't care).
Close PA22 to DCOM. Type "," and verify CRT displays "4x". Open PA22.
Close PA23 to DCOM. Type "," and verify CRT displays "2x". Open PA23.
Close PA24 to DCOM. Type "," and verify CRT displays "1x". Open PA24.
Close PA25 to DCOM. Type "," and verify CRT displays "8x". Open PA25.
Type "<"
Type "OBFE2,n<" and verify outputs at PA as follows:
                        PA69 PA80 PA78 PA67
      ----------        ---- ---- ---- ----
      "OBFE2,Ø<"          Ø    Ø    Ø    Ø (Ø=LED on, 1=LED off)
      "OBFE2,1<"          Ø    Ø    Ø    1
      "OBFE2,2<"          Ø    Ø    1    Ø
      "OBFE2,4<"          Ø    1    Ø    Ø
      "OBFE2,8<"          1    0    0    Ø

Type "T" and verify CRT displays "TEST RAM>"
Type "T<" and verify CRT displays "LOW ADDRESS "
Type "Ø:1ØØØ<" and verify CRT displays "HIGH ADDRESS "
Type "3FFF<" and observe the CRT display:
      If the tests do not fail then the CRT display will be
            BEGIN TEST n
            FINISH TEST n          where n is 1 thru 9
      If any test fails the CRT will indicate locations failed.
      This test requires about 13 minutes to complete.
After the CRT displays "TEST RAM>" then
Type "T<" and verify CRT displays "LOW ADDRESS "
Type "0:3000 <" and verify CRT displays "HIGH ADDRESS "
Type "3FFF<" and observe the CRT display:
      If the tests do not fail then the CRT display will be:
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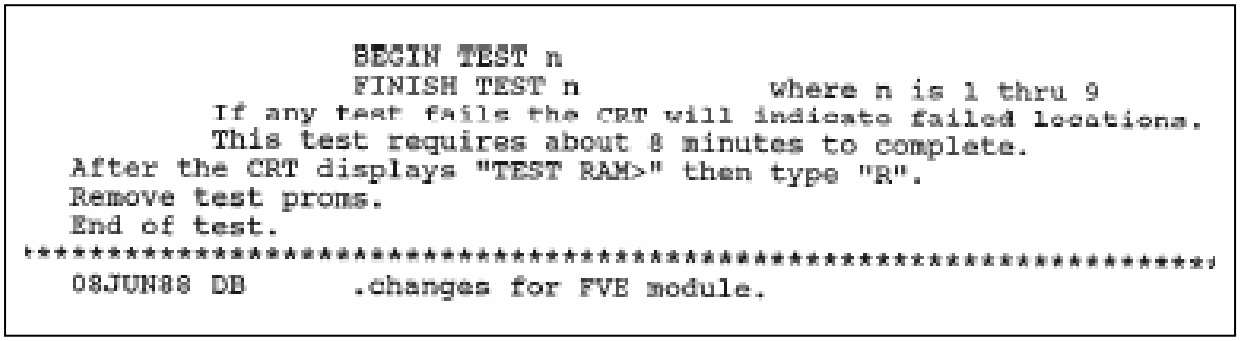
6.3 Page 3 of scanned HMPG instruction



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                BEGIN TEST n
                FINISH TEST n            where n is 1 thru 9
          If any test fails the CRT will indicate failed locations.
          This test requires about 8 minutes to complete.
   After the CRT displays "TEST RAM>" then type "R".
   Remove test proms.
   End of test.
*****************************************************************************
   08JUN88 DB       .changes for FVE module.
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6.4 ******TEST COMPLETE******

7. Attachments

7.1 None at this time.