g GE Energy	**Functional Testing Specification**
Parts & Repair Services ***Louisville, KY***	**LOU-GED-DS3800HMPK**

Test Procedure for a DS3800HMPK card

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

REV.	DESCRIPTION	SIGNATURE	REV. DATE
A	Transferred from paper to electronic format	J. Wychulis	7/15/2011
B			
C			

PREPARED BY	REVIEWED BY	REVIEWED BY	QUALITY APPROVAL
J. Wychulis			Charlie Wade
DATE	**DATE**	**DATE**	**DATE**
7/15/2011			7/15/2011

1. SCOPE

1.1 This is a functional testing procedure for a DS3800HMPK.

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 HMPK instruction

```
HMPK1E1B.FUN

        PREFACE
        -------
        Functional verification for the DS3800HMPK.

        EQUIPMENT
        ---------
        Functional module "FVE".
        Extender card DS3800XEX1A1B (or equiv).
        FVE switch box and ribbon cable(34pin).
        Computer terminal (RS232C) with cable.
        Null modem DS3800HNMA1B1A.
        Power supply DS3820PLSA1A1A(or equiv).
        Daughter board DS3800DMPK.
        Monitor test proms PSG304A9936AABX.

        SETUP
        -----
        DMPK    jumpers:        J1-J14          "/p"
                                J15,J16         "p"
                                J17             "32K"
                PROMS:  U15=PSG304A9936AABX "LO"
                        U16=PSG304A9936AABX "HI"
                RAMS:   U1,U2=  68A9196P2 (HM6264P-10)
        HMPK    jumpers:        BJ1     "/1"
                                BJ2     "/2"
                                BJ3     "4"
                                BJ4     "/8"
                                BJ5     "/10"
                                BJ6     "7GND"
        Mount DMPK on HMPK.
        Plug HMPK into module slot 1F (using the extender card).
        Connect cable from backplane JK to FVE switch box JK-1(HMPK).
                                                        4700 E71 Com2
        TEST PROCEDURE
        --------------
        Apply power. Switch on side of cart
        After about 2 seconds delay CR2 must turn on & stay on.
        Verify waveforms :
                0.21us at U2 pin 32
                5.78us at PA2
                10ms at PA21
                1s at PA10      using black plug as common on front panel
        Verify -11.3 +/-1 VDC at JB2(with CRT termial disconnected from JB).
        Verify +11.3 +/-1 VDC at JB4(with CRT termial disconnected from JB).
        Connect CRT terminal to null modem JB.
        Connect null modem JA to HMPK 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.      4800 E71 Com2
        Type "B" and verify CR2 turns off.
        Type "B" again and verify CR1 turns on & CRT displays "HMPK".
        Type "OBFE6,Ø<" and verify CR1 turns off with no-delay. ("<"=return)
        Type "OBFE8,Ø<" and verify CR1 turns on.
        Type "OBFEØ,Ø<" and verify CR1 turns off after about 2 seconds delay.
        Insure that HMPK SW1 is in the OFF (center) position.
        Type "IBFE2," and verify CRT displays "Dx". ("x"=don't care)
        Type "<". RETURN
```

6.2 Page 2 of scanned HMPK instruction

Place HMPK SW1 to the UP position.
Type "IBFE2," and verify CRT displays "Cx".
Type "<".
Type "I9ØØØ," and verify CR6 turns on.
Type "<".
Type "IBFE2," and verify CRT displays "Ex".
Type "<".
Type "OBFE4,0<" and verify CR6 turns off.
Type "OBFE8,0<" and verify CR1 is on.
Close PA08 to DCOM and verify CR1 turns off. PA08 switch up on front pane
Open PA08 connection.
Close PA18 to DCOM and verify that with SW1 open(center) CR7 is on,
and with SW1 closed CR7 is off.
Open PA18 connection and verify that SW1 open does not turn CR7 on.
Type "IBFFC," and verify CRT displays "0x" (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: ← n = proper number left of table below

type	PA62	PA65	PA63	PA71	PA69	PA80	PA78	PA67
"OBFE2,Ø<"	0	0	0	0	0	0	0	0
"OBFE2,1<"	0	0	0	0	0	0	0	1
"OBFE2,2<"	0	0	0	0	0	0	1	0
"OBFE2,4<"	0	0	0	0	0	1	0	0
"OBFE2,8<"	0	0	0	0	1	0	0	0
"OBFE2,1Ø<"	0	0	0	1	0	0	0	0
"OBFE2,2Ø<"	0	0	1	0	0	0	0	0
"OBFE2,4Ø<"	0	1	0	0	0	0	0	0
"OBFE2,8Ø<"	1	0	0	0	0	0	0	0

(0=LED on, 1=LED off)

END OF TEST (for cards that have passed 2270).

The following tests may be omitted if cards have passed 2270.
Type "T" and verify CRT displays "TEST RAM>"
Type "T<" and verify CRT displays "LOW ADDRESS "
Type "0:1000<" 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 6 minutes to complete.
After the CRT displays "TEST RAM>" then type "R"

08jun88 DB .changes for FVE

6.3 ***TEST COMPLETE ***

7. Attachments

7.1 None at this time