DM3730/AM3703 SOM Pre-RMA Testing Procedure
Application Note xxx

Logic PD // Products
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Abstract

This application note explains how to set up and run a prescreening test for the DM3730/AM3703 Torpedo System on Module (SOM), DM3730/AM3703 Torpedo + Wireless SOM, and DM3730/AM3703 SOM-LV that will determine if the SOM should be returned to Logic PD under the Return Material Authorization (RMA) process.

Revision History

REV	EDITOR	DESCRIPTION	APPROVAL	DATE
A	SK	-Initial Release	SWE, SO	11/xx/13

Table of Contents

1 Introduction

This application note explains how to set up a system and test a DM3730/AM3703 Torpedo SOM, DM3730/AM3703 Torpedo + Wireless SOM, or DM3730/AM3703 SOM-LV in a DM3730 Development Kit to determine if it should be returned to Logic PD under the Return Material Authorization (RMA) process.

The intent of this document is to reduce the number of "No Trouble Found" RMAs that are sent to Logic PD. Many of the issues with RMA modules received by Logic PD are due to incorrect programming and the SOM can often be recovered easily without being shipped back to Logic PD. An engineering design team can take this document and create a process for their manufacturing line to follow, enabling them to reset the SOM back to factory defaults.

The prescreening testing will be limited to reprogramming of the serial EEPROM and the NOR or NAND flash if their contents do not match the expected contents. Information gathered from this testing can be used to determine if a module should be shipped back to Logic PD for RMA or if it can be reprogrammed on site.

If the module can be reprogrammed on site, either an Ethernet connection or a Compact Flash (CF) card can be used to reprogram the golden image file back into the SOM's flash memory. The golden image file is used by Logic PD initially to program blank cards with custom software during manufacturing. The file can be used during this recovery process to "reset" the card back to factory-fresh condition.

NOTE: The process outlined in this document can only be completed on NOR-based SOMs. NAND-based SOMs must be returned to Logic PD to have the custom New Product Introduction (NPI) golden image programmed on Logic PD's manufacturing line.

1.1 Nomenclature

- This document applies to the DM3730/AM3703 Torpedo SOM, DM3730/AM3703 Torpedo + Wireless SOM, and DM3730/AM3703 SOM-LV. Use of "DM3730/AM3703 SOM" suggests text that applies to all three platforms; information specific to one platform will call out the precise name.

- Use of "DM3730 Development Kit" suggests text that applies to both the DM3730 Torpedo Development Kit and the DM3730 SOM-LV Development Kit; information specific to one development kit will call out the precise name.

1.2 *DM3730-AM3703_SOM_Pre-RMA_Testing_Procedure_Files* Directory

Accompanying this application note within the *102xxxA_ANxxx_DM3730-AM3703_SOM_Pre-RMA_Testing_Procedure.zip* archive are software files to be used with the instructions found here. The *DM3730-AM3703_SOM_Pre-RMA_Testing_Procedure_Files* directory should contain the following sub-directories and files that will be referenced throughout this document:

- *images*: Directory that holds images used by *capture_golden_<x>.losh*, *program_module.losh*, and *test_module.losh* scripts.

- *capture_golden_3.losh*: LogicLoader script that captures standard YAFFS2 memory contents across three different partitions for SOMs configured to run Windows CE. This script will capture 8 MB of NOR memory contents if present.

- *capture_golden_6.losh*: LogicLoader script that captures standard YAFFS2 memory contents across six different partitions for SOMs configured to run Linux. This script will capture 8 MB of NOR memory contents if present.

- *continue.losh*: LogicLoader script called by different scripts to prompt the user for input.

> **Comment [SO1]:** There is still a *capture_golden_7.losh* file in the support files folder. Please remove it from the support files folder.

- *file_7MB.bin*: Linux randomly generated binary file used by *test_module.losh* to test various memories.

- *lboot.elf*: File used to boot LogicLoader 2.5.2 from an SD card.

- *MLO*: File used to boot NoLo from an SD card.

- *PART.TXT* – Sample file generally created by *capture_golden_<x>.losh* script and used by *program_module.losh* and *test_module.losh* scripts.

- *program_module.losh*: LogicLoader script used to program images captured by the *capture_golden_ <x>.losh* script.

- *test_module.losh:* LogicLoader script used to test NAND, NOR, CF_CARD, SD_CARD, and Ethernet.

- *HPUSBFW.zip*: HP Formatting Tool v 2.0.6 used to properly format an SD card.

1.3 Prerequisites

In addition to the files noted above, the following items are needed to complete the procedures in this application note:

- DM3730 Development Kit

  □ DM3730/AM3703 SOM
  □ Baseboard
  □ Null-modem serial cable
  □ Ethernet cable (optional)
  □ AC/DC power adapter

- 2 GB SD card (FAT format) with a copy of the contents in the *DM3730-AM3703_SOM_Pre-RMA_Testing_Procedure_Files* directory on the card. **NOTE:** Copy the *MLO* file first; then copy the remaining files.

- Windows host PC running a terminal emulator program (i.e., TeraTerm)

- Ethernet connection to network with DHCP enabled

1.4 Test Environment

1.4.1 Software

The name and version of the software components used in writing this document are noted below.

- LogicLoader v2.5.2
- DM37x Linux BSP v2.3-2
- DM37x Windows CE BSP v3.0.1
- DM3730/AM3703 Android Gingerbread 2.3.4 BSP v1.4

IMPORTANT NOTE: Windows CE software is not supported for use on the DM3730/AM3703 Torpedo + Wireless SOM.

1.4.2 Hardware

The part number and revision status of the hardware components used in writing this document are noted below.

Hardware	Model Number (Part Number & Rev)
DM3730 Torpedo SOM	SOMDM3730-20-2780AGCR-A (1017878 Rev B)

Comment [SO2]: Newer versions of all of these software components are now available - should we test with the updated versions? Also - do we want to include Android here or did we want to remove all references?

Comment [SK3]: I think we want to go ahead and release so that we can have something on the webpage. We can go back and test newer versions later.

Yes, all references to Android should be removed for this version. I must have just missed this one.

Hardware	Model Number (Part Number & Rev)
DM3730 Torpedo + Wireless SOM	SOMDM3730-30-2780AKCR-A (1021711 Rev B)
Torpedo Launcher 3 Baseboard	(1021669 Rev D)
SDK2 Baseboard	(1017984 Rev B)

1.5 Partitions

The sections below address two common NAND partition configurations. If your system does not match any of the configurations below, please contact Logic PD[1] for support.

1.5.1 Three NAND Partitions

Three NAND partitions are commonly used with Windows CE binary loads. The provided scripts that use three partitions have the following YAFFS partition at the LogicLoader prompt:

```
losh> info part /dev/nand0

Partition Mounted Type   ECC Method  Name    Start   Length
--------- ------- ----  ------------- ----  -------- --------
   a:        Y      6c       bch4      a        1       17
   b:        Y      6c       bch4      b       18     4078
   c:        N      00      ----------- Empty -----------
   d:        N      00      ----------- Empty -----------

losh>
```

1.5.2 Six NAND Partitions

Six NAND partitions are commonly used with Linux YAFFS2 binary loads. The provided scripts that use six partitions have the following YAFFS partition at the Linux prompt:

```
DM-37xx# cat /proc/mtd
dev:    size   erasesize  name
mtd0: 00080000 00020000 "x-loader"
mtd1: 001a0000 00020000 "u-boot"
mtd2: 00060000 00020000 "u-boot-env"
mtd3: 00500000 00020000 "kernel"
mtd4: 01400000 00020000 "ramdisk"
mtd5: 1e480000 00020000 "fs"
```

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[1] http://support.logicpd.com/TechnicalSupport/AskAQuestion.aspx

2 Setup

This section provides information on how to set up your system for testing.

2.1 Set Up DM3730 Development Kit

Using information provided in the _DM3730 Torpedo Development Kit QuickStart Guide_[2] or the _DM3730 SOM-LV Development Kit QuickStart Guide_,[3] please ensure the steps below have been completed.

- Connect serial cable to the host PC running Tera Term.

- If using an Ethernet download, connect an Ethernet cable to the same network as the host PC.

- If using a CF card, ensure the files from the _DM3730-AM3703_SOM_Pre-RMA_Testing_Procedure_Files_ directory are copied onto the CF card and that the card is inserted into the CF card slot on the baseboard.

At this time, do not connect power to the baseboard; this will be completed in a later step.

2.2 Configure Tera Term

1. Start the Tera Term program.

2. From the menu, select Setup > Serial Port.

3. Select the appropriate COM port for your workstation and change the port settings to:

   a. Baud rate: **115200**
   b. Data: **8 bit**
   c. Parity: **None**
   d. Stop: **1 bit**
   e. Flow control: **None**
   f. Transmit delay: **25 msec/line**

4. Click OK.

2.3 Golden Images

To compare the NAND memory of the DM3730/AM3703 SOM to the golden image, you must first create or locate the golden image files for your SOM. Golden images are files used to configure systems in manufacturing. This section will describe how to create golden image files from a known good module if the golden image files cannot be acquired by the customer's manufacturer. The procedures here may also be used if the golden image cannot be used because a different method was used when creating the golden image files used in manufacturing.

If you are not interested in comparing the contents of flash memory against a golden image and simply want to test whether or not flash can be erased, written, and verified, skip to Section **Error! Reference source not found.**.

> **Comment [SO6]:** Section 3?
>
> **Comment [SK7]:** Yes, this should go to section 3

2.3.1 Design-Specific Golden Image Files

Manufacturing typically uses golden image files to program SOMs for production. Customers may have these files available to them within their own manufacturing department. Consider contacting your manufacturing engineer to see if you can obtain golden image files that are programmed with the _dd_ command in LogicLoader.

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[2] http://support.logicpd.com/DesktopModules/Bring2mind/DMX/Download.aspx?portalid=0&EntryId=603
[3] http://support.logicpd.com/DesktopModules/Bring2mind/DMX/Download.aspx?portalid=0&EntryId=714

If your design uses custom software pre-programmed into NAND flash and/or NOR flash on the DM3730/AM3703 SOM, contact Logic PD for a copy of your golden image files and instructions for programming the files onto a card.

If you are able to locate the golden image files, place them on an SD card along with the files provided in the *DM3730-AM3703_SOM_Pre-RMA_Testing_Procedure_Files* directory. Create a file named *part.txt* and add a line to the file indicating the number of partitions represented in your system. The example of *part.txt* below represents what the file should read if your system is only configured for three partitions.

```
partitions = 3
```

2.3.2 Extract Images from Golden Module

Before we begin testing, this section will explain how to first extract the golden images. Two scripts have been provided to capture golden images as examples for NAND configurations with both three and five configurations. If your system does not fit directly into either example but does use a YAFFS file system, consider modifying the example scripts provided.

More information about how to use the *dd* command to create a software load image can be found in *AN 542 DM3730/AM3703 SOM Programming for End-Product Manufacturing*[4] if customization is required.

Table 2.1: Capture Script Examples

Script Name	Number of Partitions	Typical Software Load	Notes
capture_golden_3.losh	3	1. NoLo 2. LogicLoader 3. Windows CE	---
capture_golden_6.losh	6	1. X-Loader 2. U-Boot 3. U-Boot environment variables 4. Linux kernel 5. RAMdisk filesystem 6. YAFFS2 root filesystem	1

TABLE NOTES:

1. This example follows the configuration created using the _makeyaffsboot environment variable.

To begin the extraction process, locate a golden module and follow the steps below.

1. Connect the golden module to a system that is set up as described in Section 2.1.
2. Power on the system.
3. At the losh> prompt, run the capture script appropriate for your partition setup.

```
losh> source /lboot/capture_golden_3.losh

or

losh> source /lboot/capture_golden_6.losh
```

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[4] http://support.logicpd.com/DesktopModules/Bring2mind/DMX/Download.aspx?portalid=0&EntryId=700

Capture_golden_3.losh will create the files in e. The files will be placed in the *golden* directory of the SD card.

Table 2.2 with contents from the flash memory of your golden module. The files will be placed in the *golden* directory of the SD card.

Table 2.2: Three-partition Script

File	Description
GOLD_N	Golden NoLo partition file
MD5_N	MD5SUM report of GOLD_N
GOLD_L	Golden LogicLoader partition file
MD5_L	MD5SUM report of GOLD_L
GOLD_OS	Golden OS partition file
MD5_OS	MD5SUM report of GOLD_OS
GOLD_NOR	Golden NOR partition file, if NOR is present
NOR_MD5	MD5SUM report of GOLD_NOR, if NOR is present
PART.TXT	File used by test_module.losh to determine the partition configuration of your SOM

Capture_golden_6.losh will create the files in Table 2.3 with contents from the flash memory of your golden module. The files will be placed in the *golden_linux* directory of the SD card.

Table 2.3: Six-partition Script

File	Description
GOLD_X	Golden X-Loader partition file
MD5_X	MD5SUM report of GOLD_X
GOLD_U	Golden U-Boot partition file
MD5_U	MD5SUM report of GOLD_U
GOLD_ENV	Golden U-Boot environment variable partition file
MD5_ENV	MD5SUM report of GOLD_ENV
GOLD_OS	Golden OS partition file
MD5_OS	MD5SUM report of GOLD_OS
GOLD_RDK	Golden RAMdisk partition file
MD5_RDK	MD5SUM report of GOLD_RDK
GOLD_RFS	Golden RFS partition file
MD5_RFS	MD5SUM report of GOLD_RFS
GOLD_NOR	Golden NOR partition file, if NOR is present
NOR_MD5	MD5SUM report of GOLD_NOR, if NOR is present
PART.TXT	File used by test_module.losh to determine the partition configuration of your SOM

If you see a *%error: dd: failed to read* error message, it is likely caused by the presence of bad blocks. To verify if bad blocks exist, enter the commands below.

```
losh> info mem

Configuration of /dev/nand0:
        Total Blocks:           4096
        Bytes Per Block:        135168
        Has Chunks:             yes
        Bad Block:              871
        Bad Block:              2934
        Total Chunks:           262144
        Chunks Per Block:       64
        Bytes Per Chunk:        2112
        Bytes Per Spare:        64

losh> info id

ID Database Revision:           003
Part Number:                    1017878
Serial Number:                  2611M02645
Maturity:                       02
Model Spec Revision             _
Model Number:                   SOMDM3730-20-2780AGCR-A
WIFI Trim Value:                00
NAND0 Size:                     0x20000000 (512 MB)
SDRAM 0 Size:                   0x10000000 (256 MB)
CPU Speed Grade:                02 (1.0GHz)
CPU Temp Grade:                 0 (Commercial)
CPU Reserved:                   04 (DM3730)
Platform Specific Bits:         00000001 (Torpedo SOM-20)
Hardware Rev Enumeration:       00000006
```

In the example output above, notice the two blocks marked as bad. Both blocks exist in the OS partition. To prevent this error on your SOM, the script must capture no more than 4076 blocks in the OS partition. The script allows for bad blocks, but the number of bad blocks on your SOM might exceed the total number allowed by the script. See Section 2.3.2.1, Section 2.3.2.2, or Section 2.3.2.23 for additional information about the number of bad blocks allowed depending on your configuration.

It may still be possible to extract a valuable golden image depending on the location and the number of bad blocks. If your data requires less blocks than the partition minus the bad blocks, your golden image should be fine. Follow the steps in Section 2.3.3 to verify your golden image files.

Depending on the space used and placement of the files in NAND, you could also pull a much smaller golden image. Ideally, a golden module is first erased and then the files are written before the image is captured. This creates data in NAND that is not fragmented and makes for a smaller golden image file.

Consider saving the output from the *info id* and *info mem* commands to a *gold_mem.txt* file in case you need access to this information in the future.

2.3.2.1 *dd* Commands in *capture_golden_3.losh* Script File

This section provides additional information about how the *dd* command was assembled in the *capture_golden_3.losh* script file. If you do not need to modify this script, you may skip to Section **Error! Reference source not found.**.

Comment [SO8]: Section 2.3.3?

Comment [SK9]: Yes, section 2.3.3

Using output information from the *info mem* command in Section 2.3.2, we can create the *dd* commands used to extract data from DM3730/AM3703 SOMs with three partitions.

```
#256 MB SDRAM / 512 MB NAND flash density Micron PoP component
   a:        Y      6c        bch4    a        1       17
   b:        Y      6c        bch4    b        18    4078
```

Table 2.5 provides block information for three-partition configurations.

Table 2.5: Three-partition Representation across Memory Options

Memory Configuration	Partition	Start Block	End Block	Number of Blocks	Allowed Bad Blocks	Total Blocks Captured	Bit Errors ($nandecc)
256 MB SDRAM/ 512 MB NAND flash	NoLo	0	0	1	0	1	1
	LogicLoader	1	17	17	2	15	4
	OS	18	4095	4078	10	4068	4

To capture the contents from the NoLo NAND partitions, use the following command with the provided values:

```
dd of:/lboot/GOLD_N if:/dev/nand0 bs:135168 count:1 skip:0 skip_bad:1
ber:1
```

To capture the contents from the LogicLoader NAND partitions, use the following command with the provided values:

```
dd of:/lboot/GOLD_L if:/dev/nand0 bs:135168 count:$
max_blocks_captured_lolo_part skip:1 skip_bad:1 ber:$nandecc
```

To capture the contents from the OS NAND partitions, use the following command with the provided values:

```
dd of:/lboot/GOLD_OS if:/dev/nand0 bs:135168 count:$
max_blocks_captured_os_part skip:18 skip_bad:1 ber:$nandecc
```

2.3.2.2 *dd* Commands in *capture_golden_6.losh* Script File

This section provides additional information that explains how the *dd* command was assembled in the *capture_golden_6.losh* script file. If you do not need to modify this script, you may skip to Section **Error! Reference source not found.**.

Using information from the *cat /proc/mtd* Linux command, we can create the *dd* commands used to extract data from DM3730/AM3703 SOMs with six partitions.

```
#256 MB SDRAM / 512 MB NAND flash density Micron PoP component
DM-37x# cat /proc/mtd
dev:    size   erasesize  name
mtd0: 00080000 00020000 "x-loader"
mtd1: 001a0000 00020000 "u-boot"
mtd2: 00060000 00020000 "u-boot-env"
mtd3: 00500000 00020000 "kernel"
mtd4: 01400000 00020000 "ramdisk"
```

Comment [SO10]: Section 2.3.3?

Comment [SK11]: Yes, section 2.3.3

```
mtd5: 1e480000 00020000 "fs"
```

Table 2.6 provides block information for six-partition configurations.

Table 2.6: Six-partition Representation across Memory Options

Memory Configuration	Partition	Start Block	End Block	Number of Blocks	Allowed Bad Blocks	Total Blocks Captured	Bit Errors ($nandecc)
256 MB SDRAM/ 512 MB NAND flash	X-Loader	0	4	4	1	3	1
	U-Boot	4	17	13	1	12	4
	U-Boot ENV	17	19	2	1	1	4
	Kernel	19	59	40	2	38	4
	RAMdisk	59	219	160	8	152	4
	Filesystem	219	4095	3876	10	3866	4

To capture the contents from the X-Loader NAND partitions, use the following command with the provided values:

```
dd of:/lboot/GOLD_X if:/dev/nand0 bs:135168
count:$max_blocks_captured_xload_part skip:0 skip_bad:1 ber:1
```

To capture the contents from the U-Boot NAND partitions, use the following command with the provided values:

```
dd of:/lboot/GOLD_U if:/dev/nand0 bs:135168
count:$max_blocks_captured_uboot_part skip:4 skip_bad:1 ber:$nandecc
```

To capture the contents from the U-Boot environment variables NAND partitions, use the following command with the provided values:

```
dd of:/lboot/GOLD_ENV if:/dev/nand0 bs:135168
count:$max_blocks_captured_ubootenv_part skip:17 skip_bad:1
ber:$nandecc
```

To capture the contents from the Linux OS NAND partitions, use the following command with the provided values:

```
dd of:/lboot/GOLD_OS if:/dev/nand0 bs:135168
count:$max_blocks_captured_os_part skip:19 skip_bad:1 ber:$nandecc
```

To capture the contents from the RAMdisk NAND partitions, use the following command with the provided values:

```
dd of:/lboot/GOLD_RDK if:/dev/nand0 bs:135168
count:$max_blocks_captured_ramdisk_part skip:59 skip_bad:1 ber:$nandecc
```

To capture the contents from the Linux Root Filesystem NAND partitions, use the following command with the provided values:

```
dd of:/lboot/GOLD_RFS if:/dev/nand0 bs:135168
count:$max_blocks_captured_rootfs_part skip:219 skip_bad:1 ber:$nandecc
```

2.3.3 Verify Golden Image

You can verify your golden image file by running the *program_module.losh* script on another know good DM3730/AM3703 SOM. Substitute the *program_module.losh* file in the instructions below with the file specific to your system.

1. Install the known good DM3730/AM3703 SOM on the system with the SD card and the golden images.
2. Power on the system.
3. At the losh> prompt, run the *program_module.losh* script to program the SOM.
4. When asked if you wish to continue, press the **y** key.

```
The area you are trying to write to is protected
Do you wish to continue? (y/n) y
```

5. Type **confirm** when asked to confirm your choice; you may see these prompts more than once.

```
Please type 'confirm' to confirm: confirm
```

6. Verify the recently updated DM3730/AM3703 SOM on your system has been correctly programmed.

2.3.4 Resize Golden Image

It may be possible to resize the golden image files by removing blocks from the end of the file that program the NAND memory to the values representing erased flash. Resizing the golden image will speed up testing and programming of DM3730/AM3703 SOMs. Special care must be taken when resizing the file, as updates to the *program_module.losh* script will be required. If needed, contact Logic PD for assistance.

3   Procedure

This section will explain how to determine whether your DM3730/AM3703 SOM has passed or failed the prescreening test. It will also provide the procedure for reprogramming the SOM if necessary.

3.1   Attempt LogicLoader Boot

1. Start Tera Term.

2. Ensure the DM3730 Development Kit is set up as described in Section 2.1; connect a known good DM3730/AM3703 SOM.

3. Power on the DM3730 Development Kit.

4. Verify a losh> prompt appears in the terminal window.

5. Power off the system.

6. Swap the DM3730/AM3703 SOM with one believed to be ready for RMA.

7. Power on the DM3730 Development Kit.

8. If the losh> prompt does not appear, proceed to Section 3.3 for additional information about how to return the SOM.

9. If the losh> prompt appears, you may want to stop testing and investigate possible issues resulting from the SOM being connected to the carrier board. If you would still like to run the prescreening test, proceed to the Section 3.2.

3.2   Test a DM3730/AM3703 SOM

The steps below will test the serial I/F, NAND, NOR, Ethernet, SD card, CF card, and LCD. More comprehensive testing can be done by the Logic PD RMA team if required.

1. Start Tera Term.

2. Ensure the DM3730 Development Kit is set up as described in 2.1; connect a DM3730/AM3703 SOM that is believed to be ready for RMA.

3. Power on the DM3730 Development Kit.

4. At the losh> prompt, run the *test_module.losh* script and answer the questions in the script.

```
losh> source /lboot/test_module.losh
```

The script will:

a. Compare the contents in NAND and NOR memory to any images created from a golden module (Section **Error! Reference source not found.** must be completed for this portion of the test to pass)

b. Test that NOR memory is blank (skip test if NOR memory is not present)

c. Verify successful read/writes to NOR and NAND memory

d. Verify Ethernet connectivity

e. Verify read from a CF card

f. Verify read/write from an SD card

Comment [SO12]: I don't know which section we are supposed to be referring to here.

Comment [SK13]: This should link to section 2

g. Display the test image on 4.3" LCD (visual inspection needed to verify passing case)
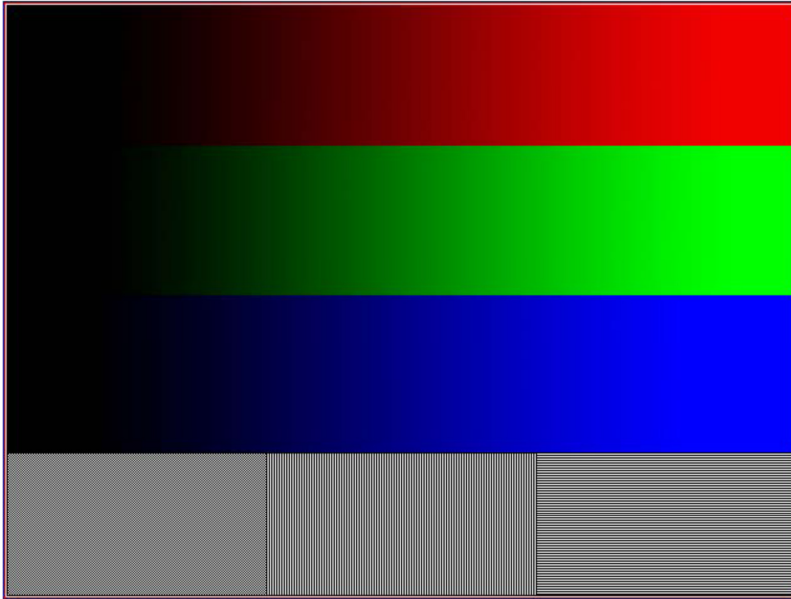

Figure 3.1: LogicLoader Test Image

Logic PD recommends the engineer responsible for programming the golden image review any errors related to failure when comparing a questionable DM3730/AM3703 SOM against a golden image. The example below provides the expected output when all memory and peripheral test cases pass. Some tests may not apply and can be skipped, if desired.

```
DM37x: **************************************************
DM37x: Testing RESULTS ********************************
DM37x: **************************************************


DM37x: ONE OR MORE PRESCREENING FAILED or BYPASSED
DM37x: PASSED NOR Erase Testing
DM37x: PASSED NOR Write/Read Testing
DM37x: PASSED NOR Memory Erased Testing
DM37x: PASSED NAND Copy Testing
DM37x: PASSED Ethernet Testing
DM37x: PASSED CF Card Read Testing
DM37x: PASSED SD Card Read/Write Testing
```

If a FAILURE is seen in the memory and peripheral section of the testing, assuming a known good DM3730/AM3703 SOM passed the tests initially, proceed to Section 3.3 for information about how to return the SOM under the Logic PD RMA process.

3.3 Return DM3730/AM3703 SOM to Logic PD under RMA

To return a DM3730/AM3703 SOM to Logic PD under the RMA process, follow the instructions on the _Return Material Authorization & Warranties_ web page.[5]

In your request, please include the following information:

- Does the SOM boot at all?
- Have you tried to boot the SOM on the DM3730 Development Kit to confirm the failure is the SOM? If not, do so before proceeding.
- Do you see activity from LogicLoader on the serial port?
  - □ If so, please provide a log of the failing SOM.
  - □ Also provide a log of a passing SOM so the output can be compared.
- If the board is booting, what is the failure you see? (e.g., audio, LCD)
- What is the failure rate you see per SOM? Is the failure seen 100% of the time or less?
- What is the failure rate per lot? How many SOMs are failing within the same lot? How many SOMs are passing within the same lot? What is the total number of SOMs not yet tested?

4 Summary

This application note provided instructions to capture and test the contents of a DM3730/AM3703 SOM's flash memory. If testing fails due to flash memory corruption, the capture log file can be compared to help more quickly isolate the failure. In additional to testing and evaluating flash memory, additional peripherals supported by LogicLoader were also tested within this document. Instructions were provided to collect information necessary to return the SOM to Logic PD under the RMA process.

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[5] http://www.logicpd.com/support/returns-and-warranties/