TEST UNIT AND EQUIPMENT:

GU128x32F-7806A #829052 was tested between 8-Sep and 9-Sep, 2008.

Weiss WKL 100 Environmental Chamber serial 2200299200 calibrated 14-Aug-2008. Shaffner NSG435 ESD simulator PA0138 uncalibrated. Agilent E4402B spectrum analyser PA0193 calibrated 9-Nov-2007.

OPERATING CONDITION:

RF emission and ESD: Vcc = 5V, GND = 0V, module operating in self-test mode. Temperature test: Vcc = 5.25V and 4.75V, module operating in self-test mode.

TEMPERATURE RANGE:

The module was brought to temperature in the Weiss-Technik chamber in the sequence, and for the durations shown. Module was powered on in self-test mode, and visual quality of display observed.

| Temp | Duration | Observation |
|------|----------|---------------|
| -40C | 2 hours | Off, storage |
| -40C | 1 hour | Operating, OK |
| +85C | 16 hours | Off, storage |
| +85C | 1 hour | Operating, OK |

ELECTRO-STATIC DISCHARGE (Method IEC 6100-4-2):

The module was powered up in self-test mode on the test table. There it was exposed to contact and air discharges applied to the ribbon cable across the module face, the horizontal conductive plane under the module, and the vertical conductive plane.

| Observation | Contact Discharge | Air Discharge |
|-------------------------------------|-------------------|---------------|
| Lowest voltage discharged | 5kV | 10kV |
| Temporary spurious ON/OFF of pixels | None | None |
| Module reset or lock-uo | None | None |
| Permanent damage | None | None |
| Highest voltage discharged | 9kV | 16kV |

CONDUCTED RF EMISSION TEST:

The 50-ohm input of the Agilent E4402B spectrum analyser was AC-coupled to the 5V supply of the module. While the module performed self-test, the spectra shown overleaf were taken:

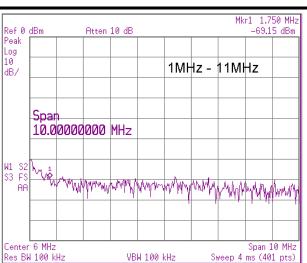
| Start | Stop | Spectra | Significant UUT peaks |
|---------|----------|-----------------|-----------------------|
| 50 kHz | 2050 kHz | UUT | -32dBm @200kHz |
| 1 MHz | 11 MHz | UUT | None |
| 8 MHz | 88 MHz | UUT | -42dBm @28MHz |
| 80 MHz | 280 MHz | UUT, background | -48dBm @106MHz |
| 0.2 GHz | 3 GHz | UUT | None |

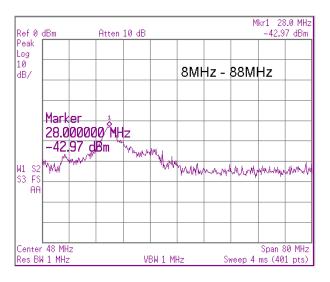
Subject to change without notice. IUK Doc Ref: 39138 Iss:1 12 Sep 08

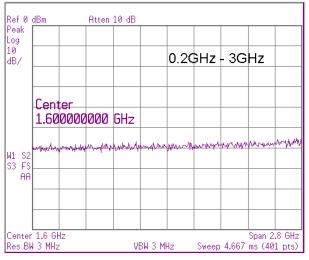
NORITAKE ITRON VFD MODULES

Environmental Test

Mkr1 200 kHz Ref 0 dBm Atten 10 dB -32.01 dBm Peak Log 10 50kHz - 2050kHz dB/ Marker 200.000 kHz #32.01 dBm W1 S2 Λ FS \$3 AA ΠA WW hw W A. WW Center 1.05 MHz Span 2 MHz Sweep 25.77 ms (401 pts) Res BW 10 kHz VBW 10 kHz







Ref 0 dBm -48.36 dBm Atten 10 dB Peak Log 10 80MHz - 280MHz dB/ Marker 106.000000 MHz -48,36 dBm WYW M W1 S2 S3 FS man you way have a hard a second way and a second way have a second of the second of t AA Center 180 MHz Res BW 1 MHz Span 200 MHz VBW 1 MHz Sweep 4 ms (401 pts)

CONTACT

Noritake Sales Office Tel Nos Nagoya Japan: +81 (0)52-561-9867 Canada: +1-416-291-2946 Chicago USA: +1-847-439-9020 Munchen (D): +49 (0)89-3214-290 Itron UK: +44 (0)1493 601144 Rest Europe: +49 (0)61-0520-9220 www.noritake-itron.com

Subject to change without notice. IUK Doc Ref: 39138 Iss:1 12 Sep 08

NORITAKE ITRON VFD MODULES

GU128x32F-7806A

GU128x32F-7806A

Mkr1 106.0 MHz