# **Environmental Test**

## **TEST UNIT AND EQUIPMENT:**

CU20045-KTW228A.v4 #767573 was tested between 11-Mar and 12-Mar, 2008.

Weiss WKL 100 Environmental Chamber serial 2200299200 calibrated 14-Aug-2007. 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	3kV	8kV		
Temporary spurious ON/OFF of pixels	7kV	14kV		
Module reset or lock-up	None	None		
Permanent damage	None	None		
Highest voltage discharged	9kV	16kV		

### CONDUCTED RF EMISSION TEST:

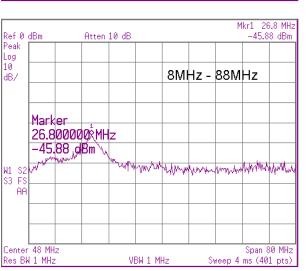
The 50-ohm input of the Agilent E4402B spectrum analyser was AC-coupled to the 5V supply of the module. While the module performed self-test, the spectra shown overleaf were taken:

Start	Stop	Spectra	Significant UUT peaks			
50 kHz	2050 kHz	UUT	-45dBm @290kHz			
1 MHz	11 MHz	UUT	None			
8 MHz	88 MHz	UUT	-45dBm @26.8MHz			
80 MHz	280 MHz	UUT, background	None			
0.2 GHz	3 GHz	UUT	None			

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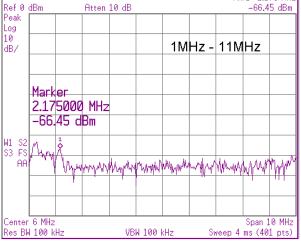
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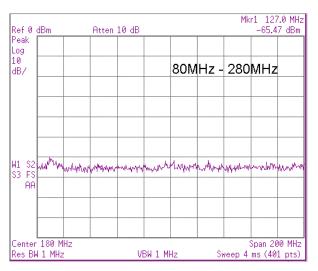
#### Mkr1 290 kHz -45.59 dBm Ref Ø dBm Atten 10 dB Peak Log 10 dB/ 50kHz - 2050kHz Marker 290.000 kHz -45.99 dBm W1 S2 S3 FS ÂÂ WW WALLAND WA MW W ΨV μĄ ΨW hall Center 1.05 MHz Span 2 MHz VBW 10 kHz Sweep 25.77 ms (401 pts) Res BW 10 kHz



Ref 0	dBm Atten		10 dB			Mkr1 858 MHz -60.34 dBm				
Peak Log 10										
dB/						0.20	GHz	- 3G	iHz	
	Spar 2.80	1 0000	000	GHz						
					prover	mahala	wanter	man	William	mm
W1 S2 S3 FS	Ada: cara d		opus y	1 v. 10 P						
AA										
Center	1.6 GH	lz							Span 2	.8 GHz
Res Bk	I 3 MHz			VI	BW 3 MF	łz	Sweep	4.667	ms (40	1 pts)

# CU20045-KTW228A





CONTACT

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## NORITAKE ITRON VFD MODULES

## CU20045-KTW228A