
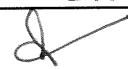


# ***HFE-LAN***

## ***EN61000***

### ***DATA***

APPD	CHK	DWG
26/12/17 	Arie G. 25/12/17	 25/12/17

**TDK-LAMBDA**

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The above data is typical value.

The values are considered to be actual capability data.

List of equipment used

EQUIPMENT USED		MANUFACTURER	MODEL No.
1	Storage oscilloscope	Yokogawa	DL7100
2	Storage oscilloscope	Yokogawa	DL1740
3	Digital multimeter	HP	34401A
4	Digital power meter	Yokogawa	WT130
5	Digital power meter	Yokogawa	WT230
6	Autotransformer	Metrel	HSN 260/30
7	Autotransformer	Metrel	HTN 450/20
8	Resistive load	NLI	10V
9	Resistive load	NLI	600V
10	AC source	Chroma	6590
11	ESD simulator system	NOISEKEN	ESS2000
12	EFT/B Generator	TESEQ	NSG3060
13	Surge Generator	TESEQ	NSG3060 CDN3063
14	RF Signal Generator 150kHz-230MHz	SCHLODER	CDG-6000
15	Coupling/Decoupling Network	COMPOWER	ATTN-6-100W
16	Coupling/Decoupling Network	SCHLODER	CDN-RJ45-S
17	Coupling/Decoupling Network	SCHLODER	CDN-M4-32A
18	Current Injection Probe	FISCHER	F-120-9A
19	Anechoic test chamber	Hermon Labs	AC-2
20	Antenna,biconical, 20-300MHz,1kW	A.H.Systems inc.	SAS-200/543
21	Antenna,1-18GHz,300W	EMC Test Systems	3115
22	RF signal generator,10kHz-1.05GHz	Fluke	6061A
23	Monitor,field,10kHz-1GHz,1-300V/m	Amplifier Research	FM1000
24	Coupling-decoupling network according	Hermon Labs	50141S1
25	RF amplifier,500MHz -1000MHz,120W	Hermon Labs	A-120
26	RF amplifier,1 to 4 GHz,55W	Milmega	AS 0104-55/55
27	RF power meter	Boonton	4200

# 1. Electrostatic discharge (ESD) (IEC 61000-4-2)

(1) Tested Models - HFE2500-LAN with 1 HFE2500-48/S Power Supply

(2) Equipment used:

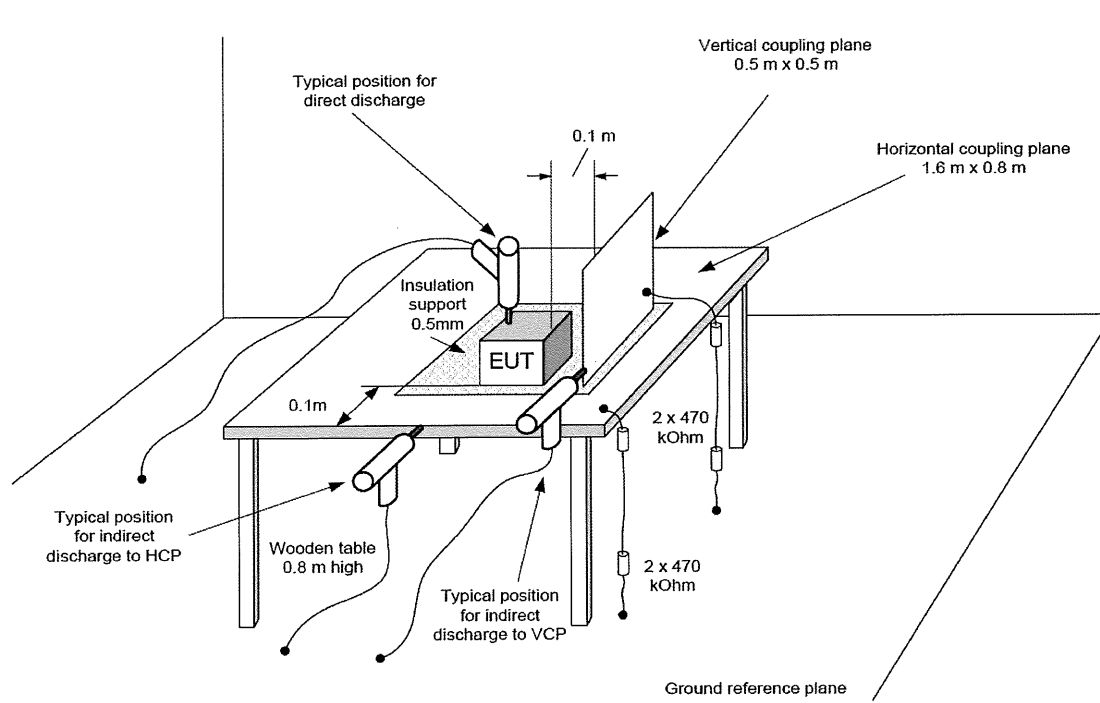
ESD simulator system: ESS-2000 Noise Ken  
TC-815R Noise Ken

(3) Test conditions:

Input voltage: 230V AC      Output voltage: Nominal  
Output current: Full Load      Polarity: -, +

(3) Test setup:

Contact discharge: FG, Case screw  
Air discharge: Input and Output terminal



(4) Acceptable conditions:

1. No output change
2. No damage to the EUT

(5) Test result:

	condition discharge	Result
Air discharge	10 pulses of $\pm 8$ kV with 1sec interval between pulses.	PASS

## 2. Radiated immunity to radio frequency electromagnetic field (IEC 61000-4-3)

(1) Tested Models - HFE2500-LAN with 1 HFE2500-48/S Power Supply

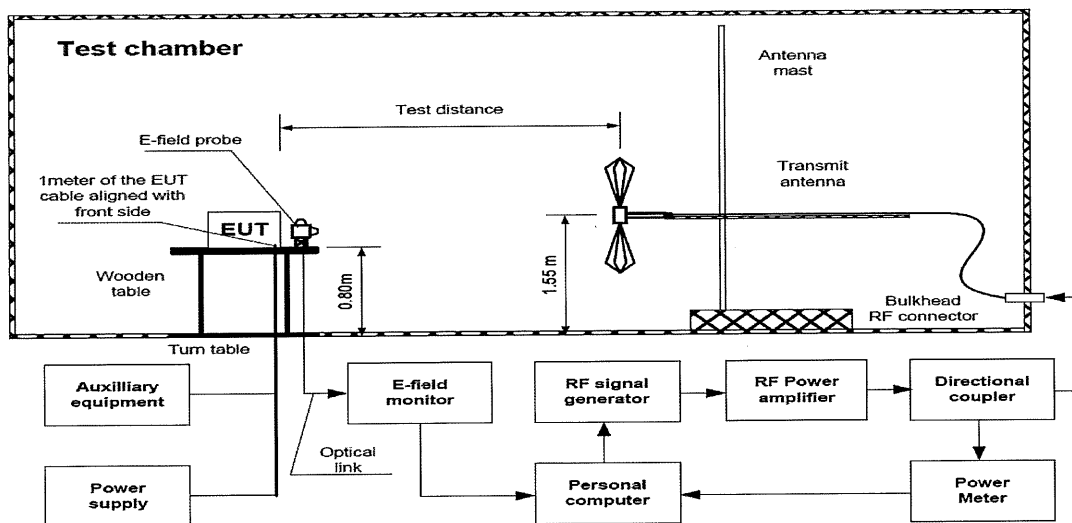
(2) Equipment used:

Anechoic test chamber

(3) Test conditions and test setup:

Input voltage: 230V AC  
 Output current: Full Load  
 Electromagnetic Frequency: 80~1000MHz  
 Dwell Time: 2.8s  
 Frequency step: 1% of current frequency

Output voltage: Nominal  
 Amplitude Modulated: 80% AM, 1kHz  
 Ambient temperature: 25°C



(4) Acceptable conditions:

1. No damage to the UUT
2. No output change
3. No abnormalities

(5) Test Result:

EUT orientation	Antenna polarization	Field strength Vrms/m	Result
FRONT	Vertical	10	PASS
	Horizontal		
REAR	Vertical		PASS
	Horizontal		

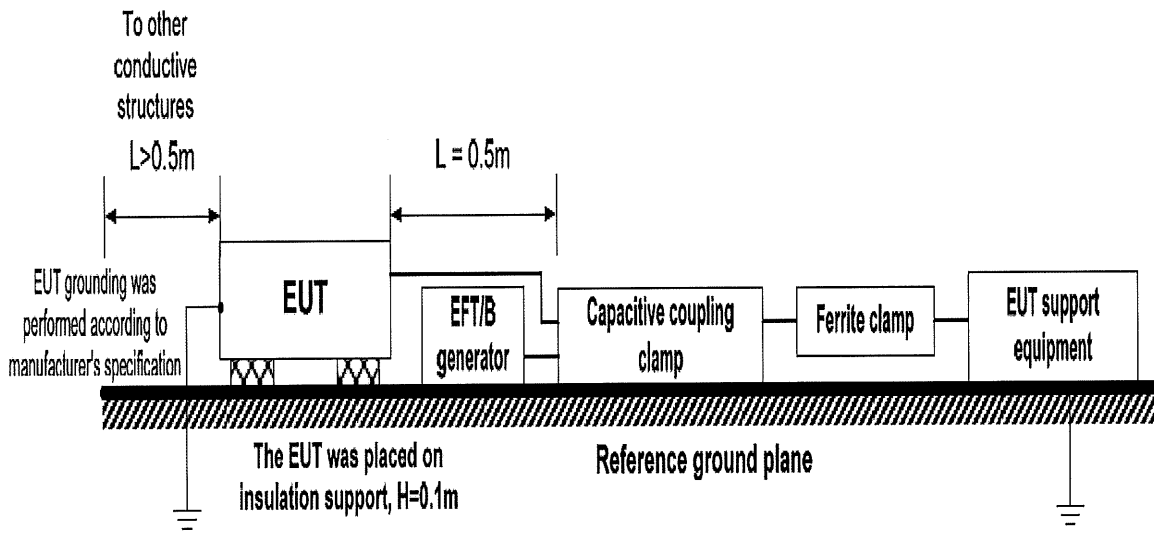
### 3. Eelectrical fast transient/ burst (EFT/ B) (IEC 61000-4-4)

(1) Tested Models - HFE2500-LAN with 1 HFE2500-48/S Power Supply

(2) **Equipment used:**

EFT/B Generator: TESEQ NSG3060, CDN3063

(3) **Test setup**



(4) **Acceptable conditions:**

1. No damage to the UUT
2. No Output change
3. No abnormalities

(5) **Test Conditions:**

$T_a=25^{\circ}C$   
 Repetition freq. - 5kHz  
 Pulse rise time/duration - 5/50ns  
 Burst duration/period - 15/300msec  
 Input voltage - 230Vac  
 Load - Full Load  
 Output voltage - Nominal

(6) **SIGNAL AND COMMUNICATION LINES PORTS**

Surge Vol.	Polarity	
0.5kV	+	OK
0.5kV	-	OK

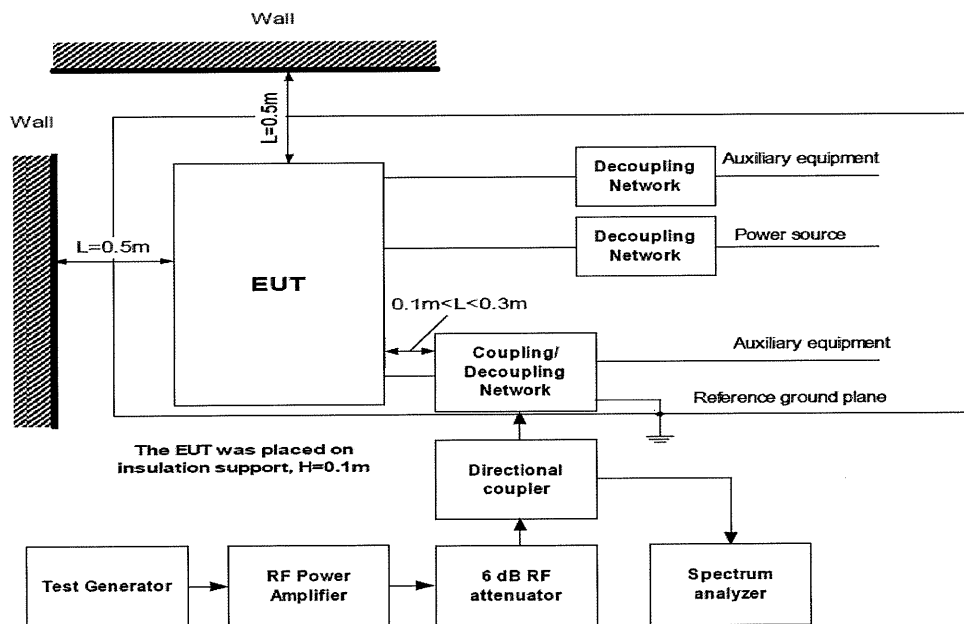
## 4. Conducted immunity to disturbances by radio frequency field (IEC 61000-4-6)

(1) Tested Models - HFE2500-LAN with 1 HFE2500-48/S Power Supply

(2) Test condition:

FREQUENCY RANGE: 0.15 – 80 MHz  
 SELECTED FREQUENCIES: 0.2; 1; 7.1; 13.56; 21; 27.12; 40.68 MHz  
 TYPE OF MODULATION: AM 80% @ 1 kHz  
 TEST VOLTAGE: 3 Vrms prior to modulation (4Vrms)  
 DWELL TIME: 2.8 s  
 FREQUENCY STEP: 1 % of current frequency  
 Input voltage - 230Vac  
 Load - Full Load  
 Output voltage - Nominal

(3) Test setup:



(4) Test result:

Type of disturbed line	Test coupling	Result
Signal and communication lines	CDN-RJ45 S	Pass