

# ***GSP 15kW/10kW***

## ***EN61000***

### ***DATA***

DWG: IA852-58-01		
APPD	CHK	DWG
Yaniv 19/11/18	Yaniv 19/11/18	MICHAEL G. 19.11.2018

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The above data is typical value.

The values are considered to be actual capability data.

## 1-2 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	Digital power meter	Yokogawa	WT330
7	Autotransformer	Metrel	HSN 260/30
8	Autotransformer	Metrel	HTN 450/20
9	Resistive load	NLI	10V
10	Resistive load	NLI	600V
11	AC source	Chroma	6590
12	ESD simulator system	NOISEKEN	ESS2000
13	EFT/B Generator	TESEQ	NSG3060
14	Surge Generator	TESEQ	NSG3060 CDN3063
15	RF Signal Generator 150kHz-230MHz	SCHLODER	CDG-6000
16	Coupling/Decoupling Network	COMPOWER	ATTN-6-100W
17	Coupling/Decoupling Network	SCHLODER	CDN-RJ45-S
18	Coupling/Decoupling Network	SCHLODER	CDN-M4-32A
19	Current Injection Probe	FISCHER	F-120-9A
20	Anechoic test chamber	Hermon Labs	AC-2
21	Antenna,biconical, 20-300MHz,1kW	A.H.Systems inc.	SAS-200/543
22	Antenna,1-18GHz,300W	EMC Test Systems	3115
23	RF signal generator,10kHz-1.05GHz	Fluke	6061A
24	Monitor,field,10kHz-1GHz,1-300V/m	Amplifier Research	FM1000
25	Coupling-decoupling network according	Hermon Labs	50141S1
26	RF amplifier,500MHz -1000MHz,120W	Hermon Labs	A-120
27	RF amplifier,1 to 4 GHz,55W	Milmega	AS 0104-55/55
28	RF power meter	Boonton	4200

# 1. Electrostatic discharge (ESD) (IEC 61000-4-2; EN 61204-3/ IEC 61204-3)

## (1) Equipment used:

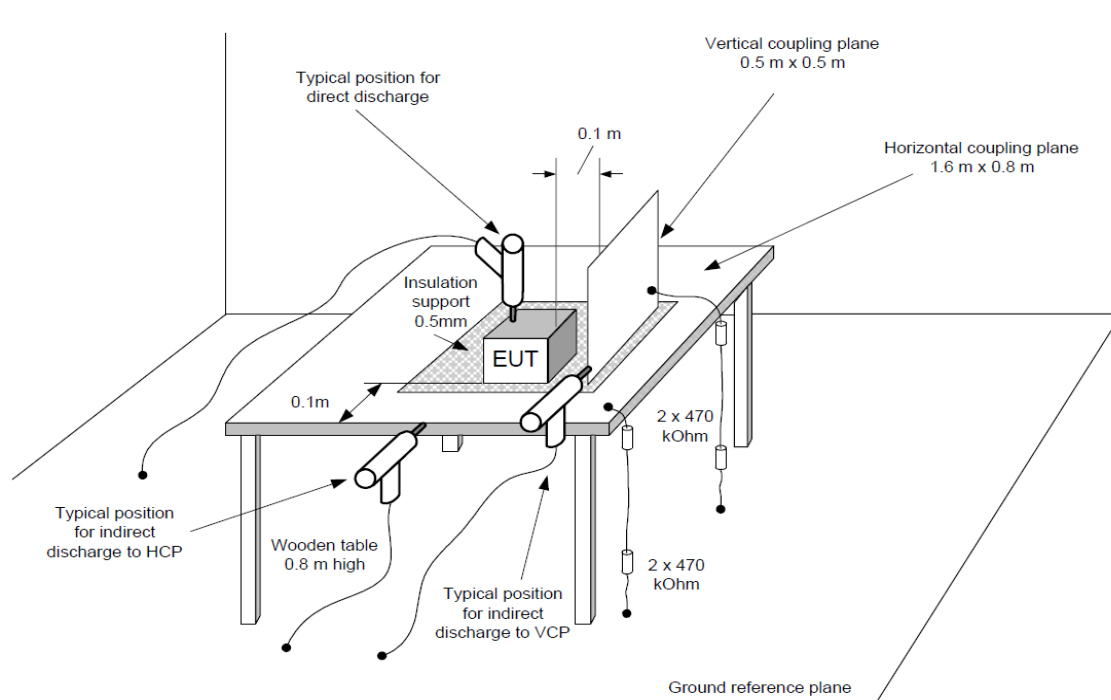
ESD simulator system: NOISEKEN ESS2000  
 Discharge resistance: 330Ω Capacitor: 150pF

## (2) Test conditions:

Input voltage:	Rated	Output voltage:	Rated
Output current:	100%	Polarity:	-,+
Number of tests:	10 Positive/ 10 Negative	Discharge interval:	>1 Second

## (3) Test setup:

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



## (4) Acceptable conditions:

1. Output voltage regulation not to exceed  $\pm 5\%$  of initial (before test) value during test.
2. Output voltage to be within regulation specification after the test.
3. Along with 1 and 2, no discharge of fire or smoke, as well as no output failure.

## (5) Test result:

Contact discharge			Air discharge		
Discharge (kV)	GSP10-1500	GSP600-25.5	Discharge (kV)	GSP10-1500	GSP600-25.5
2	PASS	PASS	2	PASS	PASS
4	PASS	PASS	4	PASS	PASS
			8	PASS	PASS

## 2. Radiated immunity to radio frequency electromagnetic field (IEC 61000-4-3; EN 61204-3/ IEC 61204-3)

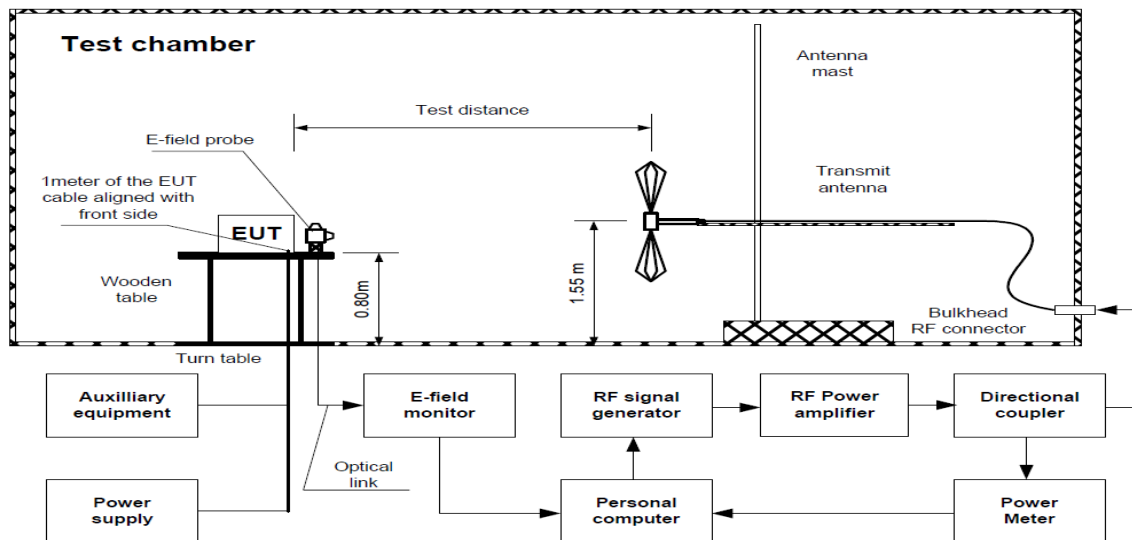
### (1) Equipment used:

Anechoic test chamber  
 Antenna, biconical, high power 20-300MHz, 1kW  
 Antenna, double-ridged waveguide horn, 1-18GHz, 300W  
 Synthesized RF signal generator, 10kHz-1.05GHz  
 Monitor, field, 10kHz-1GHz, 1-300V/m, w/fiberoptic  
 Coupling-decoupling network according to ENV 50141 (S1)  
 RF amplifier, 500MHz to 1000MHz, 120W  
 RF amplifier, 1 to 4 GHz, 55W  
 RF power meter

Hermon Labs AC-2  
 A.H.Systems inc. SAS-200/543  
 EMC Test Systems 3115  
 Fluke 6061A  
 Amplifier Research FM1000  
 Hermon Labs 50141S1  
 Hermon Labs A-120  
 Milmega AS 0104-55/55B  
 Boonton 4200

### (2) Test conditions and test setup:

Input voltage:	Rated	Output voltage:	Rated
Output current:	100%	Amplitude Modulated:	80%, 1kHz
Electromagnetic Frequency:	80~2700MHz	Ambient temperature:	25°C
Sweep Condition:	1.5 x 10 <sup>-3</sup> Decade/Second, 1.0 Second Hold		



### (3) Acceptable conditions:

1. Output voltage regulation not to exceed ± 5% of initial (before test) value during test.
2. Output voltage to be within regulation specification after the test.
3. Along with 1 and 2, no discharge of fire or smoke, as well as no output failure.

### (4) Test Result:

Frequency (GHz)	Radiated Field Strength (Vrms/m)	GSP10-1500	GSP600-25.5
0.08-1	10	PASS	PASS
1.4-2	3	PASS	PASS
2-2.7	1	PASS	PASS

### 3. Eelectrical fast transient/ burst (EFT/ B) (IEC 61000-4-4; EN 61204-3/ IEC 61204-3)

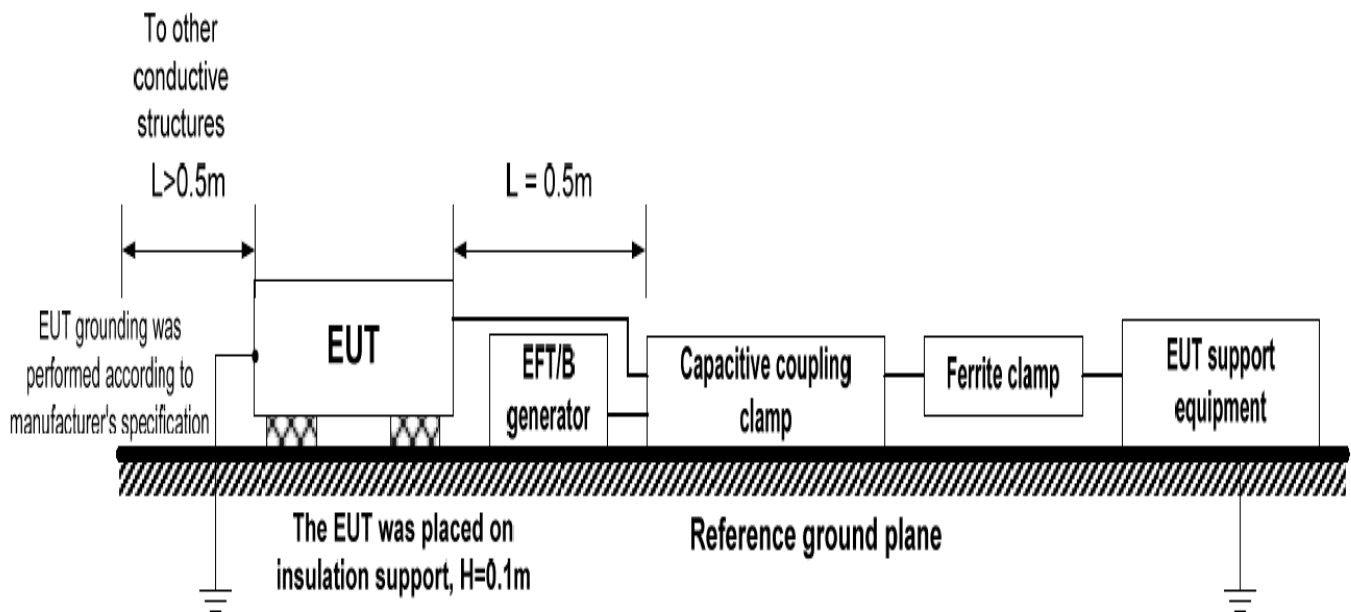
**(1) Equipment used:**

EFT/B Generator: TESEQ NSG3060

**(2) Test conditions:**

Input voltage:	Rated	Output voltage:	Rated
Output current:GSP10-1500	67%	Test time:	1minute
Output current:GSP600-25.5	100%	Test time:	1minute
Polarity:	-,+	Ambient temperature:	25°C
Number of tests:	3 times		

**(3) Test setup**



**(4) Acceptable conditions:**

1. Output voltage regulation not to exceed  $\pm 5\%$  of initial (before test) value during test.
2. Output voltage to be within regulation specification after the test.
3. Along with 1 and 2, no discharge of fire or smoke, as well as no output failre.

**(5) Test result:**

Test Voltage (kV)	Repetition Rate (kHz)	GSP10-1500	GSP600-25.5
2	5	PASS	PASS
2	100	PASS	PASS

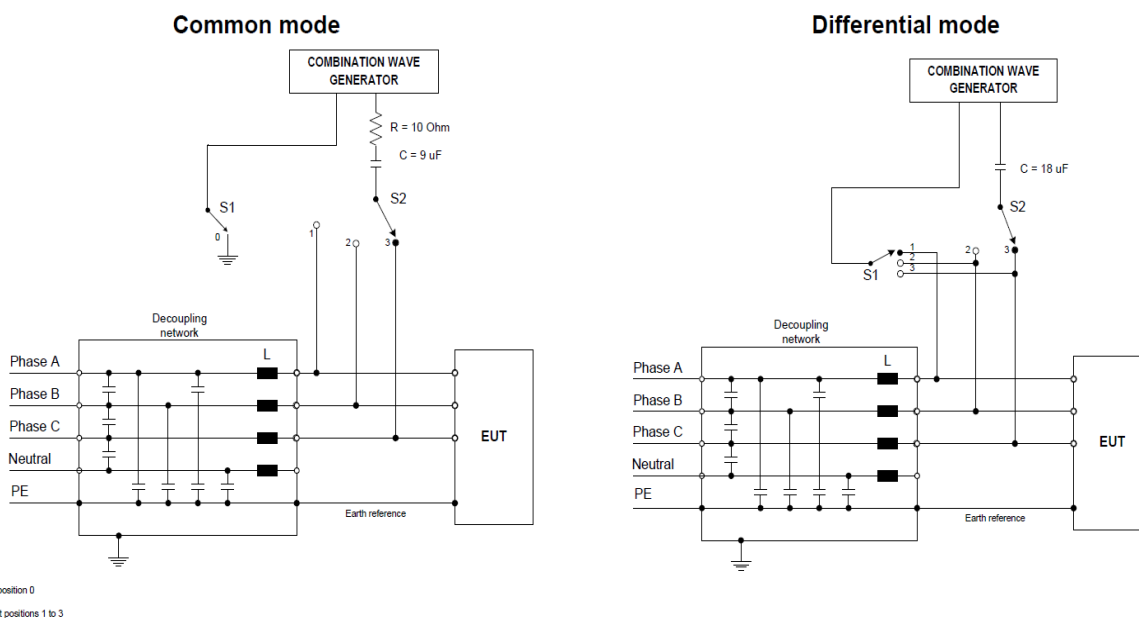
## 4. Conducted immunity to voltage surges (IEC 61000-4-5; EN 61204-3/ IEC 61204-3)

### (1) Equipment used:

Surge Generator: TESEQ - NSG3060 CDN3063  
 Coupling impedance: Common - 12 OHm  
 Normal - 2 OHm  
 Coupling capacitance: Common - 9uF  
 Normal - 18uF  
 Coupling network: SCHLODER - CDN-M4-32A

### (2) Test conditions and test setup:

Input voltage:	Rated	Output voltage:	Rated
Output current:GSP10-1500	67%	Number of tests:	5 times
Output current:GSP600-25.5	100%	Number of tests:	5 times
Polarity:	-,+	Mode:	Common, Normal
Phase:	0,90 DEG.	Ambient temperature:	25°C



### (3) Acceptable conditions:

1. Output voltage regulation not to exceed  $\pm 5\%$  of initial (before test) value during test.
2. Output voltage to be within regulation specification after the test.
3. Along with 1 and 2, no discharge of fire or smoke, as well as no output failure.

### (4) Test Result:

Test Voltage (kV)	GSP10-1500	GSP600-25.5	Test Voltage (kV)	GSP10-1500	GSP600-25.5
Common			Normal		
2.0	PASS	PASS	1.0	PASS	PASS

## 5. Conducted immunity to disturbances by radio frequency field (IEC 61000-4-6; EN 61204-3/ IEC 61204-3)

### (1) Equipment used:

RF Signal Generator 150kHz-230MHz  
Coupling/Decoupling Network  
Coupling/Decoupling Network

SCHLODER CDG-6000  
SCHLODER CDN-RJ45-S  
SCHLODER CDN-M4-32A

### (2) Test condition:

Ambient temperature: 25°C

Input voltage:

Output current:GSP10-1500

Output current:GSP600-25.5

Output voltage:

Rated

67%

100%

Rated

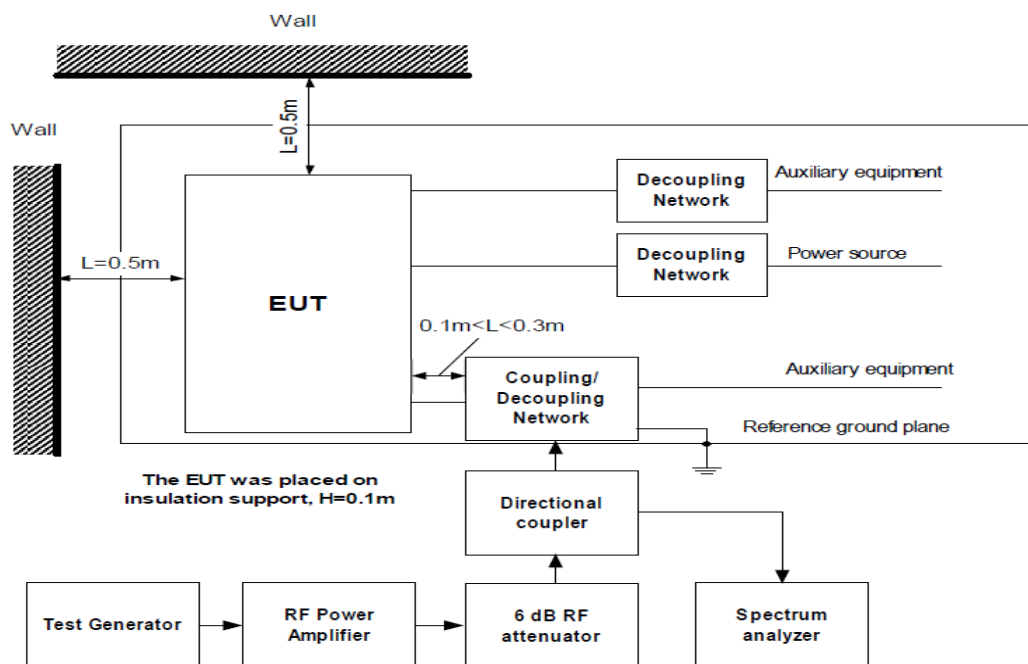
Freq. range: 0.15 ~ 80MHz

Type of modulation: AM 80% @ 1kHz

DWELL Time: 2.8s

Freq. step: 1% of current freq.

### (3) Test setup:



### (4) Acceptable conditions:

1. Output voltage regulation not to exceed  $\pm 5\%$  of initial (before test) value during test.
2. Output voltage to be within regulation specification after the test.
3. Along with 1 and 2, no discharge of fire or smoke, as well as no output failure.

### (5) Test result:

Voltage Level (Vrms)	GSP10-1500	GSP600-25.5
10	PASS	PASS