GENESYS™ 7.5kW

EN61000

DATA

DWG: IA922-58-01A		
APPD	CHK	DWG
Yaniv Nisinman 10/08/2023	Barak Marmor 10/08/2023	Amichai Wald 10/08/2023

TDK-LAMBDA

INDEX PAGE

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	ESD simulator system	NOISEKEN	TC-815R
2	ESD simulator system	NOISEKEN	ESS-2000
3	EFT/B Generator	NOISEKEN	FNS-AX4-B63
4	Lightning Surge Generator	NOISEKEN	LLS-F03
5	RF Signal Generator 150kHz-230MHz	SCHLODER	CDG-6000
6	Anechoic test chamber	Hermon Labs	AC-2
7	Antenna, biconical, high power 20-300MHz, 1kW	A.H.Systems inc.	SAS-200/543
8	Antenna, double-ridged waveguide horn, 1-18GHz, 300W	EMC Test Systems	3115
9	Synthesized RF signal generator, 10kHz-1.05GHz	Fluke	6061A
10	Monitor, field, 10kHz-1GHz, 1-300V/m, w/fiberoptic	Amplifier Research	FM1000
11	Coupling-decoupling network according to ENV 50141 (S1)	Hermon Labs	50141S1
12	RF amplifier, 500MHz to 1000MHz, 120W	Hermon Labs	A-120
13	RF amplifier, 1 to 4 GHz, 55W	Milmega AS	0104-55/55B
14	RF power meter	Boonton	4200
15	Current Generator	FCC Fischer	F-1000-4-8-125A
16	Magnetic Loop	FCC Fischer	F-1000-4-8/9/10-L-1M
17	Surge Generator	EM TEST	UCS500 -M4
18	AC Power Source	EM TEST	UCS500 -M4

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

(1) Equipment used:

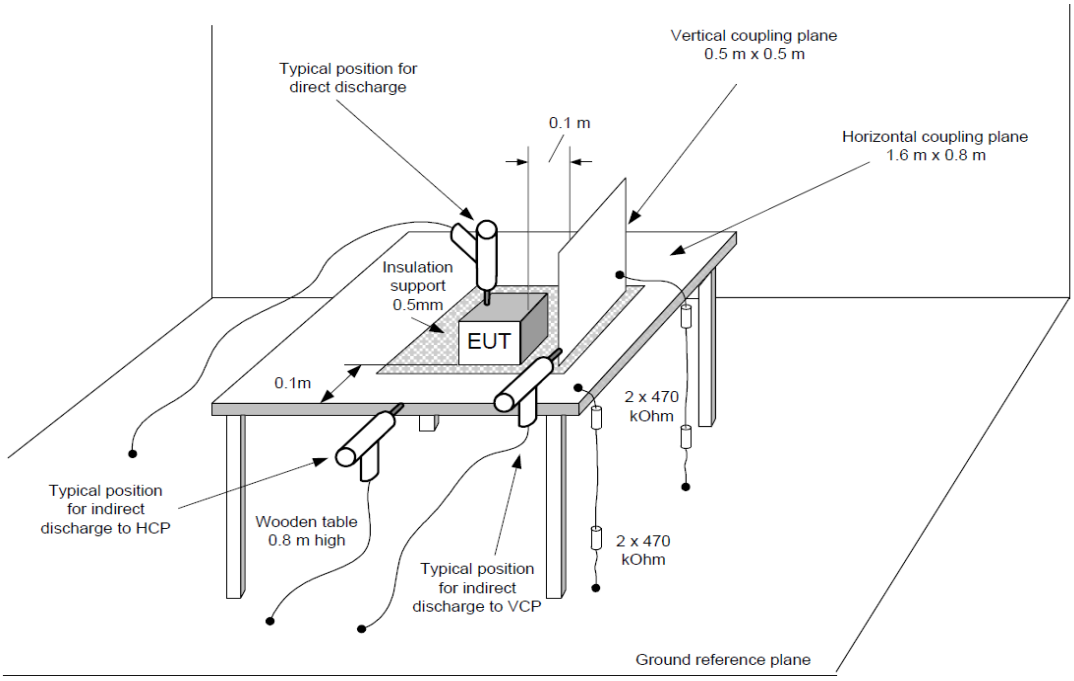
ESD simulator system: ESS-2000 Noise Ken
TC-815R Noise Ken

(2) Test conditions:

Ambient temperature: 25°C
Input voltage - Rated
Output voltage - 100%
Output current - 100%

(3) Test setup:

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



(4) 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 failre.

(5) Test result:

Test	Condition discharge	Model G+7.5KW 20-375	
		3P208	3P480
Contact discharge	10 pulse of ± 5kV	Pass	Pass
Air discharge	10 pulse of ± 10kV	Pass	Pass

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

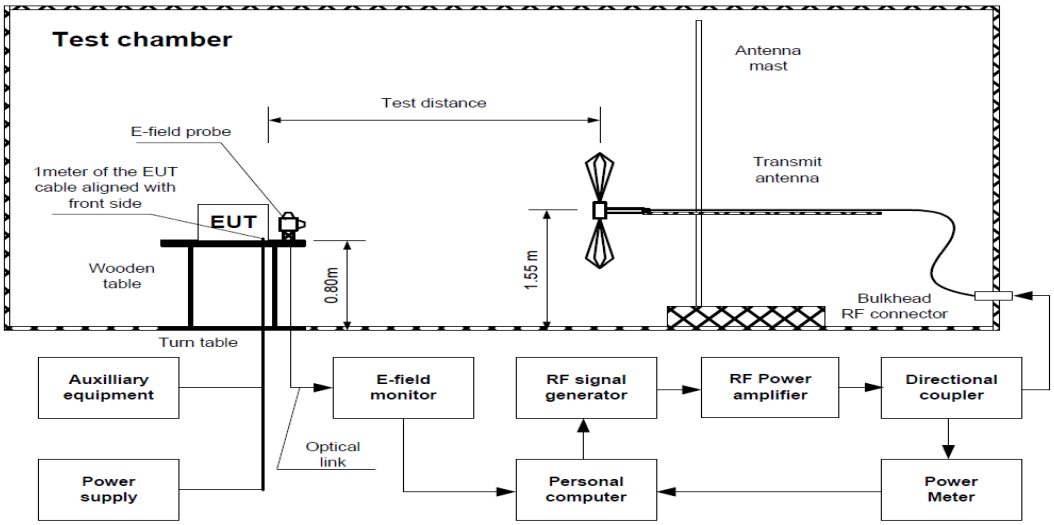
(1) Equipment used:

Anechoic test chamber	Hermon Labs AC-2
Antenna, biconical, high power 20-300MHz, 1kW	A.H.Systems inc. SAS-200/543
Antenna, double-ridged waveguide horn, 1-18GHz, 300W	EMC Test Systems 3115
Synthesized RF signal generator, 10kHz-1.05GHz	Fluke 6061A
Monitor, field, 10kHz-1GHz, 1-300V/m, w/fiberoptic	Amplifier Research FM1000
Coupling-decoupling network according to ENV 50141 (S	Hermon Labs 50141S1
RF amplifier, 500MHz to 1000MHz, 120W	Hermon Labs A-120
RF amplifier, 1 to 4 GHz, 55W	Milmega AS 0104-55/55B
RF power meter	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^{-3} 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 failre.

(4) Test Result:

Frequency	Radiated Field Strength	G20-375	G600-12.5
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:

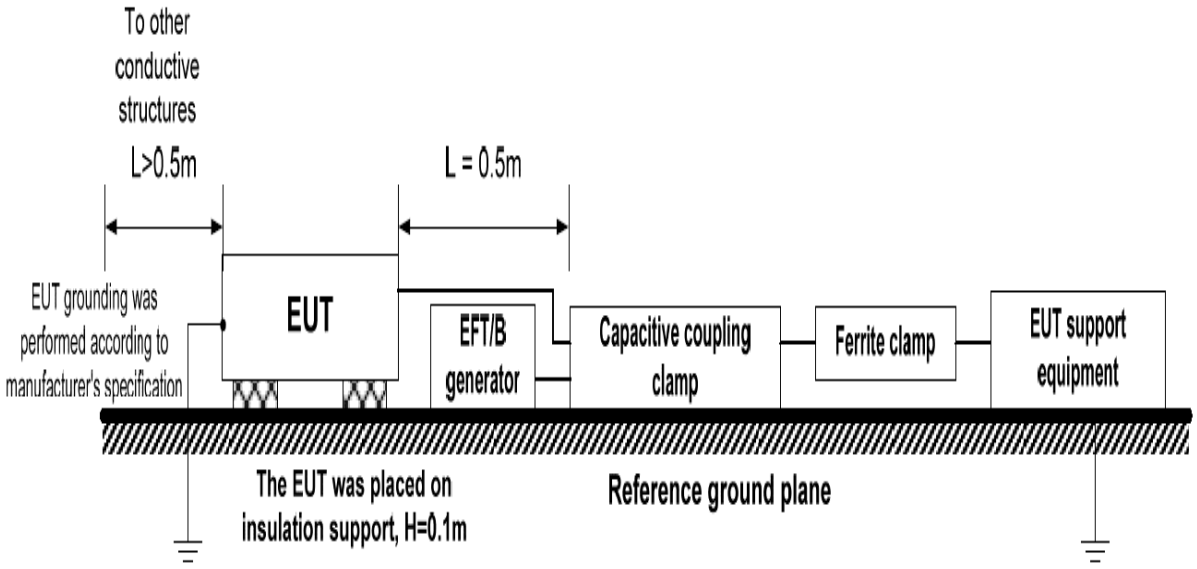
EFT/B Generator: FNS-AX4-B63 NoiseKen.

(2) Test conditions:

Ambient temperature: 25°C
Input voltage - Rated
Output voltage - 100%
Output current - 100%

Repetition freq. - 5kHz,100kHz
Pulse rise time/duration - 5/50ns
Burst duration/period - 15/300msec

(3) Test setup



(4) 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 failre.

(5) Test result:

Type of disturbed line	Pulse and Polarity	Result	Result
		G+20-375 3P208	G+20-375 3P480
AC power	2.4 kV (+) & (-)	Pass	Pass
LAN	2.4 kV (+) & (-)	Pass	Pass
RS232	1.2 kV (+) & (-)	Pass	Pass
USB	1.2 kV (+) & (-)	no need*	no need*
OUTPUT	1.2 kV (+) & (-)	Pass	Pass
SENS	1.2 kV (+) & (-)	Pass	Pass

*required to define USB cable under 3 meters lenthg

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

(1) Equipment used:

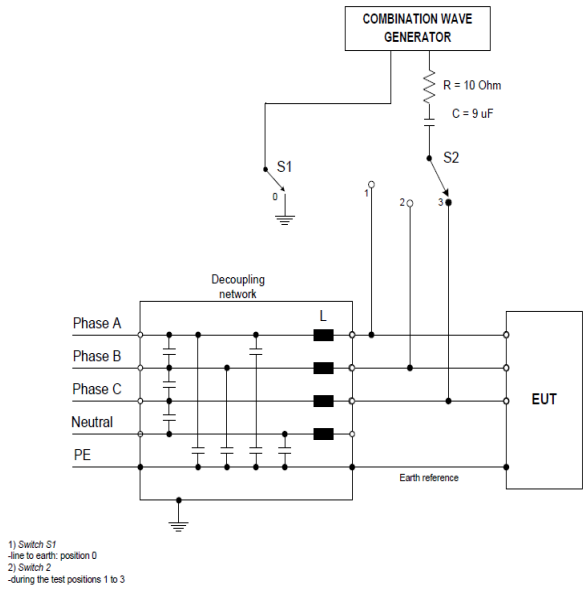
Surge Generator: NoiseKen LSS-F03

(2) Test conditions and test setup:

Input voltage - Rated
Output voltage - 100%
Output current - 100%

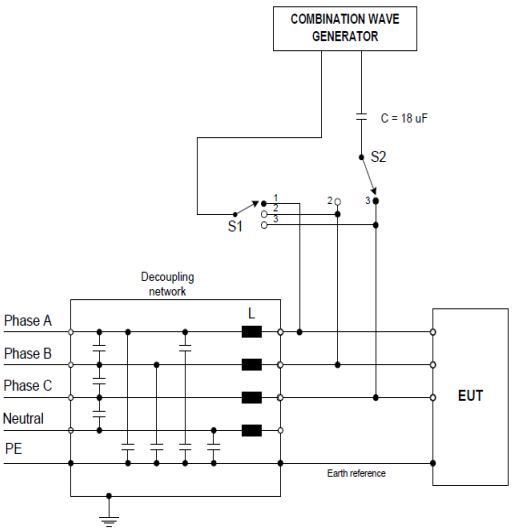
Ambient temperature: 25°C
Mode: Common, Normal
LAN communication

Common mode



1) Switch S1
-line to earth: position 0
2) Switch 2
-during the test positions 1 to 3

Differential mode



(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 failre.

(4) Test Result:

Model G+20-375	Surge Vol.	Polarity	Common mode	Differential mode
Input 3P208/3P480	1.2kV	(+) & (-)	Pass	
	2.4kV	(+) & (-)		Pass

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

(1) Equipment used:

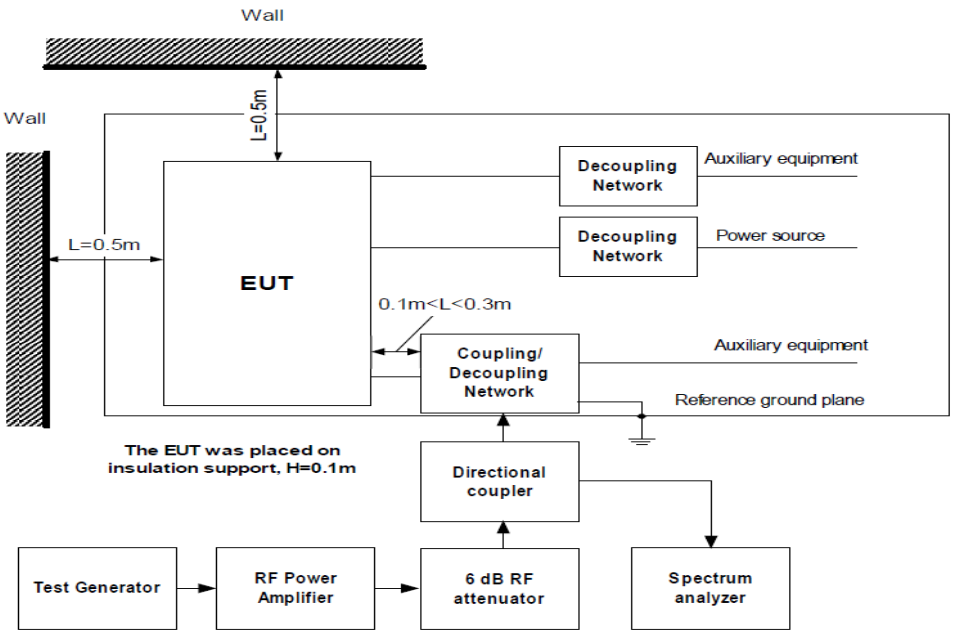
RF Signal Generator 150kHz-230MHz: SCHLODER CDG-6000

(2) Test condition:

Ambient temperature: 25°C
Input voltage - Rated
Output voltage - 100%
Output current - 100%

Freq. range: 0.15 ~ 80MHz
Type of modulation: AM 80% @ 1kHz
DWELL Time: 2.8s
Freq. step: 1% of current freq.
Test voltage: 12 Vrms prior to modulation

(3) Test setup:



(4) 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.

(5) Test result:

Type of disturbed line	Test coupling	Result	Result
		G+20-375 3P208	G+20-375 3P480
AC power	CDN M4	Pass	Pass
LAN	CDN RJ45-S	Pass	Pass
RS232	CDN RJ45-S	Pass	Pass
USB	100 Ω	no need*	no need*
OUTPUT	F-120-9A	Pass	Pass
SENS	F-120-9A	Pass	Pass

*required to define USB cable under 3 meters lenthg

6. Radiated immunity to power frequency magnetic field (IEC 61000-4-8; IEC 61204-3)

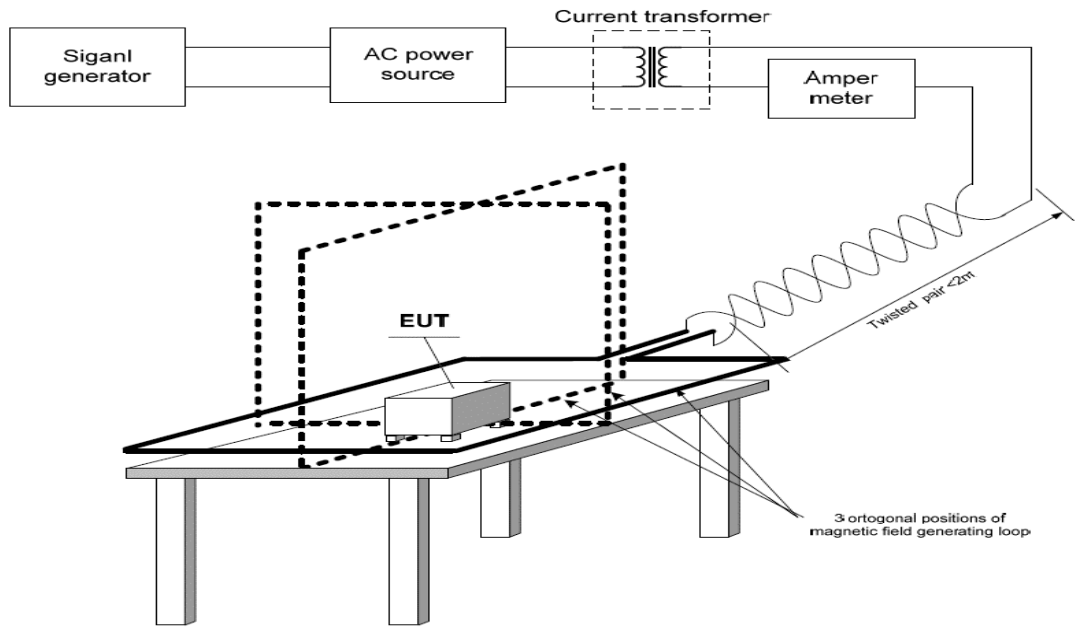
(1) Equipment used:

Current Generator:	F-1000-4-8-125A	FCC
Magnetic Loop:	F-1000-4-8/9/10-L-1M	FCC

(2) Test Condition:

Input voltage:	Rated	Duration: 10 min
Output current:	100%	Freq.: 50Hz & 60 Hz
Output voltage:	Rated	
Ambient temperature:	25°C	

(3) Test setup:



(4) 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 failre.

(5) Test result:

Position	Strenght of magnetic field (A/m)	G20-375 G1500-5
Vertical	30	PASS
Vertical at 90^0	30	PASS
Horizontal	30	PASS

7. Voltage dips and short interruptions (IEC 61000-4-11; EN 61204-3/ IEC 61204-3)

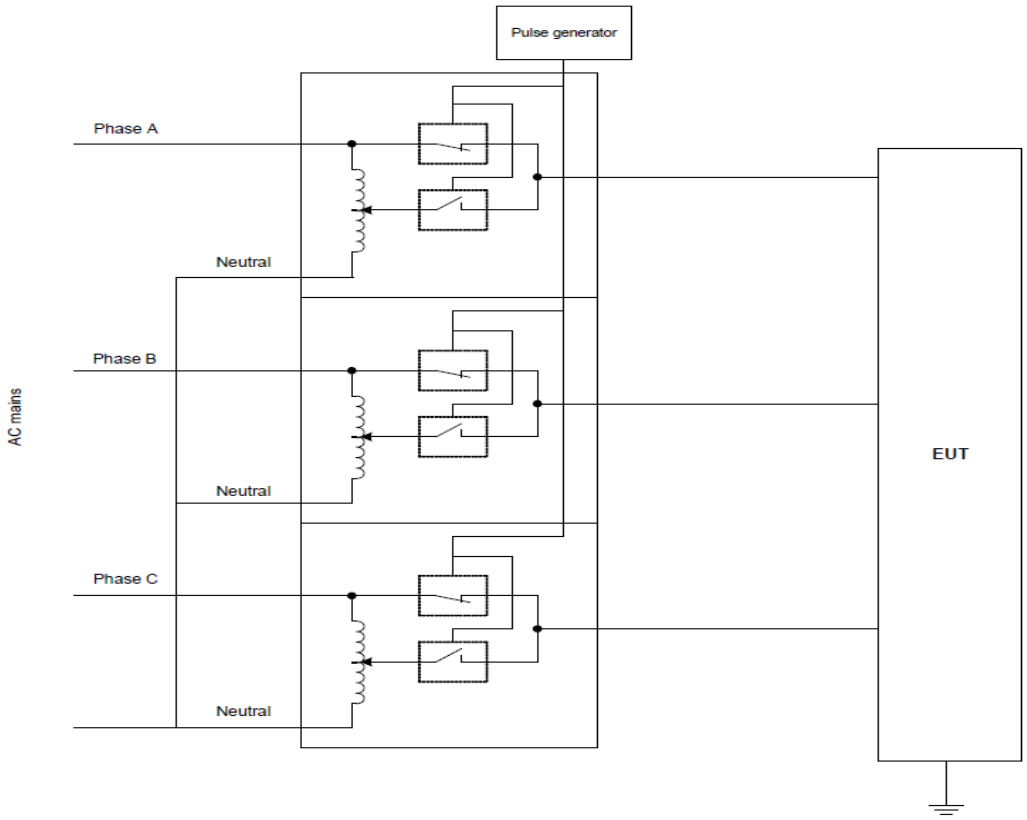
(1) Equipment used:

Surge Generator: UCS500 -M4 EM TEST
AC Power Source: UCS500 -M4 EM TEST

(2) Test Condition:

Input voltage: Rated Number of dips: 3
Output current: 100% Repetition rate: 0.1 Hz
Output voltage: Rated
Ambient temperature: 25°C

(3) Test setup:



(4) Acceptable conditions:

1. Output voltage to be within output voltage regulation specification after the test
2. No discharge of fire or smoke.

(5) Test Result:

For Phase A, B, C				
Test level	DIP rate	Duration	G20-375/G1500-5	
0%	100%	10ms	PASS	(criteria B)
0%	100%	20ms	PASS	(criteria B)
70%	30%	10ms	PASS	(criteria B)
70%	30%	500ms	PASS	(criteria C)
40%	60%	100ms	PASS	(criteria C)
40%	60%	200ms	PASS	(criteria C)
80%	20%	5000ms	PASS	(criteria C)
0%	100%	5000ms	PASS	(criteria C)