

CE-EMC TEST REPORT

Based On Test Report No. :E7/2017/80015

Applicant : TRACO ELECTRONIC AG

Address : Sihlbruggstrasse 111 CH-6340 Baar Switzerland

Manufacturer : TRACO ELECTRONIC AG

Address : Sihlbruggstrasse 111 CH-6340 Baar Switzerland

Equipment Under Test (EUT) :

Name : AC-DC POWER SUPPLY



Brand Name :

Model No.: TPP 30-105A-J; TPP 30-105; TPP 30-105BA-J

Added Model(s) : Please refer to Section 1.1

Standards:

EN 55014-1 : 2006+A1:2009+A2:2011	CISPR 16-2-3 : 2010+A1:2010+A2:2014
EN 61000-3-2 : 2014	EN 61000-3-3 : 2013
EN 55014-2 : 2015, Category IV	
IEC 61000-4-2 : 2008	IEC 61000-4-3 : 2006+A1:2007+A2:2010
IEC 61000-4-4 : 2012	IEC 61000-4-5 : 2014
IEC 61000-4-6 : 2013	IEC 61000-4-11 : 2004

In the configuration tested, the EUT complied with the standards specified above.

Date of Receipt : Apr. 19, 2018

Date of Issue : Jul. 19, 2018

Remarks:

This report details the results of the testing carried out on one sample, the results contained in this test report do not relate to other samples of the same product. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report.

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Approved By

Bill Cheng

Date

Jul. 19, 2018

Bill Cheng (Section Manager)

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Version

Report Number	Revision	Description	Issue Date
MH/2018/40098	Rev.00	Initial creation of document	Jul. 19, 2018

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1. General Description

1.1 General Description of EUT

Name of EUT	: AC-DC POWER SUPPLY
Brand Name	: 
Model No.(s)	: TPP 30-105A-J; TPP 30-105; TPP 30-105BA-J
Added Model(s)	: TPP 30-103A-J; TPP 30-107A-J; TPP 30-109A-J; TPP 30-112A-J; TPP 30-112.1A-J; TPP 30-115A-J; TPP 30-115.1A-J; TPP 30-118A-J; TPP 30-124A-J; TPP 30-128A-J; TPP 30-136A-J; TPP 30-148A-J; TPP 30-153A-J; TPP 30-103-J; TPP 30-105-J; TPP 30-107-J; TPP 30-109-J; TPP 30-112-J; TPP 30-112.1-J; TPP 30-115-J; TPP 30-115.1-J; TPP 30-118-J; TPP 30-124-J; TPP 30-128-J; TPP 30-136-J; TPP 30-148-J; TPP 30-153-J; TPP 30-103A; TPP 30-105A; TPP 30-107A; TPP 30-109A; TPP 30-112A; TPP 30-112.1A; TPP 30-115A; TPP 30-115.1A; TPP 30-118A; TPP 30-124A; TPP 30-128A; TPP 30-136A; TPP 30-148A; TPP 30-153A; TPP 30-103; TPP 30-107; TPP 30-109; TPP 30-112; TPP 30-112.1; TPP 30-115; TPP 30-115.1; TPP 30-118; TPP 30-124; TPP 30-128; TPP 30-136; TPP 30-148; TPP 30-153; TPP 30-103A-M; TPP 30-105A-M; TPP 30-107A-M; TPP 30-109A-M; TPP 30-112A-M; TPP 30-112.1A-M; TPP 30-115A-M; TPP 30-115.1A-M; TPP 30-118A-M; TPP 30-124A-M; TPP 30-128A-M; TPP 30-136A-M; TPP 30-148A-M; TPP 30-153A-M; TPP 30-103-M; TPP 30-105-M; TPP 30-107-M; TPP 30-109-M; TPP 30-112-M; TPP 30-112.1-M; TPP 30-115-M; TPP 30-115.1-M; TPP 30-118-M; TPP 30-124-M; TPP 30-128-M; TPP 30-136-M; TPP 30-148-M; TPP 30-153-M; TPP 30-103A-D; TPP 30-105A-D; TPP 30-107A-D; TPP 30-109A-D; TPP 30-112A-D; TPP 30-112.1A-D; TPP 30-115A-D; TPP 30-115.1A-D; TPP 30-118A-D; TPP 30-124A-D; TPP 30-128A-D; TPP 30-136A-D; TPP 30-148A-D; TPP 30-153A-D; TPP 30-103-D; TPP 30-105-D; TPP 30-107-D; TPP 30-109-D; TPP 30-112-D; TPP 30-112.1-D; TPP 30-115-D; TPP 30-115.1-D; TPP 30-118-D; TPP 30-124-D; TPP 30-128-D; TPP 30-136-D; TPP 30-148-D; TPP 30-153-D; TPP 30-103A2-J; TPP 30-105A2-J; TPP 30-107A2-J; TPP 30-109A2-J;

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Added Model(s)

TPP 30-112A2-J; TPP 30-112.1A2-J; TPP 30-115A2-J; TPP 30-115.1A2-J; TPP 30-118A2-J; TPP 30-124A2-J; TPP 30-128A2-J; TPP 30-136A2-J; TPP 30-148A2-J; TPP 30-153A2-J; TPP 30-103A2-M; TPP 30-105A2-M; TPP 30-107A2-M; TPP 30-109A2-M; TPP 30-112A2-M; TPP 30-112.1A2-M; TPP 30-115A2-M; TPP 30-115.1A2-M; TPP 30-118A2-M; TPP 30-124A2-M; TPP 30-128A2-M; TPP 30-136A2-M; TPP 30-148A2-M; TPP 30-153A2-M; TPP 30-103A2; TPP 30-105A2; TPP 30-107A2; TPP 30-109A2; TPP 30-112A2; TPP 30-112.1A2; TPP 30-115A2; TPP 30-115.1A2; TPP 30-118A2; TPP 30-124A2; TPP 30-128A2; TPP 30-136A2; TPP 30-148A2; TPP 30-153A2; TPP 30-103BA-J; TPP 30-107BA-J; TPP 30-109BA-J; TPP 30-112BA-J; TPP 30-112.1BA-J; TPP 30-115BA-J; TPP 30-115.1BA-J; TPP 30-118BA-J; TPP 30-124BA-J; TPP 30-128BA-J; TPP 30-136BA-J; TPP 30-148BA-J; TPP 30-153BA-J; TPP 30-103B-J; TPP 30-105B-J; TPP 30-107B-J; TPP 30-109B-J; TPP 30-112B-J; TPP 30-112.1B-J; TPP 30-115B-J; TPP 30-115.1B-J; TPP 30-118B-J; TPP 30-124B-J; TPP 30-128B-J; TPP 30-136B-J; TPP 30-148B-J; TPP 30-153B-J; TPP 30-103BA; TPP 30-105BA; TPP 30-107BA; TPP 30-109BA; TPP 30-112BA; TPP 30-112.1BA; TPP 30-115BA; TPP 30-115.1BA; TPP 30-118BA; TPP 30-124BA; TPP 30-128BA; TPP 30-136BA; TPP 30-148BA; TPP 30-153BA; TPP 30-103B; TPP 30-105B; TPP 30-107B; TPP 30-109B; TPP 30-112B; TPP 30-112.1B; TPP 30-115B; TPP 30-115.1B; TPP 30-118B; TPP 30-124B; TPP 30-128B; TPP 30-136B; TPP 30-148B; TPP 30-153B; TPP 30-103BA-M; TPP 30-105BA-M; TPP 30-107BA-M; TPP 30-109BA-M; TPP 30-112BA-M; TPP 30-112.1BA-M; TPP 30-115BA-M; TPP 30-115.1BA-M; TPP 30-118BA-M; TPP 30-124BA-M; TPP 30-128BA-M; TPP 30-136BA-M; TPP 30-148BA-M; TPP 30-153BA-M; TPP 30-103B-M; TPP 30-105B-M; TPP 30-107B-M; TPP 30-109B-M; TPP 30-112B-M; TPP 30-112.1B-M; TPP 30-115B-M; TPP 30-115.1B-M; TPP 30-118B-M; TPP 30-124B-M; TPP 30-128B-M; TPP 30-136B-M; TPP 30-148B-M; TPP 30-153B-M; TPP 30-103BA2-J; TPP 30-105BA2-J; TPP 30-107BA2-J; TPP 30-109BA2-J; TPP 30-112BA2-J; TPP 30-112.1BA2-J; TPP 30-115BA2-J; TPP 30-115.1BA2-J; TPP 30-118BA2-J; TPP 30-124BA2-J; TPP 30-128BA2-J; TPP 30-136BA2-J; TPP 30-148BA2-J; TPP 30-153BA2-J; TPP 30-103BA2-M; TPP 30-105BA2-M;

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Added Model(s)	TPP 30-107BA2-M; TPP 30-109BA2-M; TPP 30-112BA2-M; TPP 30-112.1BA2-M; TPP 30-115BA2-M; TPP 30-115.1BA2-M; TPP 30-118BA2-M; TPP 30-124BA2-M; TPP 30-128BA2-M; TPP 30-136BA2-M; TPP 30-148BA2-M; TPP 30-153BA2-M; TPP 30-103BA2; TPP 30-105BA2; TPP 30-107BA2; TPP 30-109BA2; TPP 30-112BA2; TPP 30-112.1BA2; TPP 30-115BA2; TPP 30-115.1BA2; TPP 30-118BA2; TPP 30-124BA2; TPP 30-128BA2; TPP 30-136BA2; TPP 30-148BA2; TPP 30-153BA2
Variant Description	See the following note

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Note: 1. The different between of model numbers are list as below.

Model Name	Output Voltage (Vdc)	Output Current (mA)	Max Output Power (W)	Case Type
TPP 30-103A-J	3.3	6000	19.8	2
TPP 30-105A-J	5	6000	30	2
TPP 30-107A-J	7.5	4000	30	2
TPP 30-109A-J	9	3340	30.06	2
TPP 30-112A-J	12	2500	30	2
TPP 30-112.1A-J	12	2500	30	2
TPP 30-115A-J	15	2000	30	2
TPP 30-115.1A-J	15	2000	30	2
TPP 30-118A-J	18	1670	30.06	2
TPP 30-124A-J	24	1250	30	2
TPP 30-128A-J	28	1080	30.24	2
TPP 30-136A-J	36	840	30.24	2
TPP 30-148A-J	48	630	30.24	2
TPP 30-153A-J	53	580	30.74	2
TPP 30-103-J	3.3	6000	19.8	1
TPP 30-105-J	5	6000	30	1
TPP 30-107-J	7.5	4000	30	1
TPP 30-109-J	9	3340	30.06	1
TPP 30-112-J	12	2500	30	1
TPP 30-112.1-J	12	2500	30	1
TPP 30-115-J	15	2000	30	1
TPP 30-115.1-J	15	2000	30	1
TPP 30-118-J	18	1670	30.06	1
TPP 30-124-J	24	1250	30	1
TPP 30-128-J	28	1080	30.24	1
TPP 30-136-J	36	840	30.24	1
TPP 30-148-J	48	630	30.24	1
TPP 30-153-J	53	580	30.74	1
TPP 30-103A	3.3	6000	19.8	2
TPP 30-105A	5	6000	30	2
TPP 30-107A	7.5	4000	30	2
TPP 30-109A	9	3340	30.06	2
TPP 30-112A	12	2500	30	2
TPP 30-112.1A	12	2500	30	2
TPP 30-115A	15	2000	30	2
TPP 30-115.1A	15	2000	30	2

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Model Name	Output Voltage (Vdc)	Output Current (mA)	Max Output Power (W)	Case Type
TPP 30-118A	18	1670	30.06	2
TPP 30-124A	24	1250	30	2
TPP 30-128A	28	1080	30.24	2
TPP 30-136A	36	840	30.24	2
TPP 30-148A	48	630	30.24	2
TPP 30-153A	53	580	30.74	2
TPP 30-103	3.3	6000	19.8	1
TPP 30-105	5	6000	30	1
TPP 30-107	7.5	4000	30	1
TPP 30-109	9	3340	30.06	1
TPP 30-112	12	2500	30	1
TPP 30-112.1	12	2500	30	1
TPP 30-115	15	2000	30	1
TPP 30-115.1	15	2000	30	1
TPP 30-118	18	1670	30.06	1
TPP 30-124	24	1250	30	1
TPP 30-128	28	1080	30.24	1
TPP 30-136	36	840	30.24	1
TPP 30-148	48	630	30.24	1
TPP 30-153	53	580	30.74	1
TPP 30-103A-M	3.3	6000	19.8	2
TPP 30-105A-M	5	6000	30	2
TPP 30-107A-M	7.5	4000	30	2
TPP 30-109A-M	9	3340	30.06	2
TPP 30-112A-M	12	2500	30	2
TPP 30-112.1A-M	12	2500	30	2
TPP 30-115A-M	15	2000	30	2
TPP 30-115.1A-M	15	2000	30	2
TPP 30-118A-M	18	1670	30.06	2
TPP 30-124A-M	24	1250	30	2
TPP 30-128A-M	28	1080	30.24	2
TPP 30-136A-M	36	840	30.24	2
TPP 30-148A-M	48	630	30.24	2
TPP 30-153A-M	53	580	30.74	2
TPP 30-103-M	3.3	6000	19.8	1
TPP 30-105-M	5	6000	30	1
TPP 30-107-M	7.5	4000	30	1

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Model Name	Output Voltage (Vdc)	Output Current (mA)	Max Output Power (W)	Case Type
TPP 30-109-M	9	3340	30.06	1
TPP 30-112-M	12	2500	30	1
TPP 30-112.1-M	12	2500	30	1
TPP 30-115-M	15	2000	30	1
TPP 30-115.1-M	15	2000	30	1
TPP 30-118-M	18	1670	30.06	1
TPP 30-124-M	24	1250	30	1
TPP 30-128-M	28	1080	30.24	1
TPP 30-136-M	36	840	30.24	1
TPP 30-148-M	48	630	30.24	1
TPP 30-153-M	53	580	30.74	1
TPP 30-103A-D	3.3	6000	19.8	2
TPP 30-105A-D	5	6000	30	2
TPP 30-107A-D	7.5	4000	30	2
TPP 30-109A-D	9	3340	30.06	2
TPP 30-112A-D	12	2500	30	2
TPP 30-112.1A-D	12	2500	30	2
TPP 30-115A-D	15	2000	30	2
TPP 30-115.1A-D	15	2000	30	2
TPP 30-118A-D	18	1670	30.06	2
TPP 30-124A-D	24	1250	30	2
TPP 30-128A-D	28	1080	30.24	2
TPP 30-136A-D	36	840	30.24	2
TPP 30-148A-D	48	630	30.24	2
TPP 30-153A-D	53	580	30.74	2
TPP 30-103-D	3.3	6000	19.8	1
TPP 30-105-D	5	6000	30	1
TPP 30-107-D	7.5	4000	30	1
TPP 30-109-D	9	3340	30.06	1
TPP 30-112-D	12	2500	30	1
TPP 30-112.1-D	12	2500	30	1
TPP 30-115-D	15	2000	30	1
TPP 30-115.1-D	15	2000	30	1
TPP 30-118-D	18	1670	30.06	1
TPP 30-124-D	24	1250	30	1
TPP 30-128-D	28	1080	30.24	1

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Model Name	Output Voltage (Vdc)	Output Current (mA)	Max Output Power (W)	Case Type
TPP 30-136-D	36	840	30.24	1
TPP 30-148-D	48	630	30.24	1
TPP 30-153-D	53	580	30.74	1
TPP 30-103A2-J	3.3	6000	19.8	1
TPP 30-105A2-J	5	6000	30	1
TPP 30-107A2-J	7.5	4000	30	1
TPP 30-109A2-J	9	3340	30.06	1
TPP 30-112A2-J	12	2500	30	1
TPP 30-112.1A2-J	12	2500	30	1
TPP 30-115A2-J	15	2000	30	1
TPP 30-115.1A2-J	15	2000	30	1
TPP 30-118A2-J	18	1670	30.06	1
TPP 30-124A2-J	24	1250	30	1
TPP 30-128A2-J	28	1080	30.24	1
TPP 30-136A2-J	36	840	30.24	1
TPP 30-148A2-J	48	630	30.24	1
TPP 30-153A2-J	53	580	30.74	1
TPP 30-103A2-M	3.3	6000	19.8	1
TPP 30-105A2-M	5	6000	30	1
TPP 30-107A2-M	7.5	4000	30	1
TPP 30-109A2-M	9	3340	30.06	1
TPP 30-112A2-M	12	2500	30	1
TPP 30-112.1A2-M	12	2500	30	1
TPP 30-115A2-M	15	2000	30	1
TPP 30-115.1A2-M	15	2000	30	1
TPP 30-118A2-M	18	1670	30.06	1
TPP 30-124A2-M	24	1250	30	1
TPP 30-128A2-M	28	1080	30.24	1
TPP 30-136A2-M	36	840	30.24	1
TPP 30-148A2-M	48	630	30.24	1
TPP 30-153A2-M	53	580	30.74	1
TPP 30-103A2	3.3	6000	19.8	1
TPP 30-105A2	5	6000	30	1
TPP 30-107A2	7.5	4000	30	1
TPP 30-109A2	9	3340	30.06	1
TPP 30-112A2	12	2500	30	1

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Model Name	Output Voltage (Vdc)	Output Current (mA)	Max Output Power (W)	Case Type
TPP 30-112.1A2	12	2500	30	1
TPP 30-115A2	15	2000	30	1
TPP 30-115.1A2	15	2000	30	1
TPP 30-118A2	18	1670	30.06	1
TPP 30-124A2	24	1250	30	1
TPP 30-128A2	28	1080	30.24	1
TPP 30-136A2	36	840	30.24	1
TPP 30-148A2	48	630	30.24	1
TPP 30-153A2	53	580	30.74	1
TPP 30-103BA-J	3.3	6000	19.8	2
TPP 30-105BA-J	5	6000	30	2
TPP 30-107BA-J	7.5	4000	30	2
TPP 30-109BA-J	9	3340	30.06	2
TPP 30-112BA-J	12	2500	30	2
TPP 30-112.1BA-J	12	2500	30	2
TPP 30-115BA-J	15	2000	30	2
TPP 30-115.1BA-J	15	2000	30	2
TPP 30-118BA-J	18	1670	30.06	2
TPP 30-124BA-J	24	1250	30	2
TPP 30-128BA-J	28	1080	30.24	2
TPP 30-136BA-J	36	840	30.24	2
TPP 30-148BA-J	48	630	30.24	2
TPP 30-153BA-J	53	580	30.74	2
TPP 30-103B-J	3.3	6000	19.8	1
TPP 30-105B-J	5	6000	30	1
TPP 30-107B-J	7.5	4000	30	1
TPP 30-109B-J	9	3340	30.06	1
TPP 30-112B-J	12	2500	30	1
TPP 30-112.1B-J	12	2500	30	1
TPP 30-115B-J	15	2000	30	1
TPP 30-115.1B-J	15	2000	30	1
TPP 30-118B-J	18	1670	30.06	1
TPP 30-124B-J	24	1250	30	1
TPP 30-128B-J	28	1080	30.24	1
TPP 30-136B-J	36	840	30.24	1
TPP 30-148B-J	48	630	30.24	1
TPP 30-153B-J	53	580	30.74	1

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Model Name	Output Voltage (Vdc)	Output Current (mA)	Max Output Power (W)	Case Type
TPP 30-103BA	3.3	6000	19.8	2
TPP 30-105BA	5	6000	30	2
TPP 30-107BA	7.5	4000	30	2
TPP 30-109BA	9	3340	30.06	2
TPP 30-112BA	12	2500	30	2
TPP 30-112.1BA	12	2500	30	2
TPP 30-115BA	15	2000	30	2
TPP 30-115.1BA	15	2000	30	2
TPP 30-118BA	18	1670	30.06	2
TPP 30-124BA	24	1250	30	2
TPP 30-128BA	28	1080	30.24	2
TPP 30-136BA	36	840	30.24	2
TPP 30-148BA	48	630	30.24	2
TPP 30-153BA	53	580	30.74	2
TPP 30-103B	3.3	6000	19.8	1
TPP 30-105B	5	6000	30	1
TPP 30-107B	7.5	4000	30	1
TPP 30-109B	9	3340	30.06	1
TPP 30-112B	12	2500	30	1
TPP 30-112.1B	12	2500	30	1
TPP 30-115B	15	2000	30	1
TPP 30-115.1B	15	2000	30	1
TPP 30-118B	18	1670	30.06	1
TPP 30-124B	24	1250	30	1
TPP 30-128B	28	1080	30.24	1
TPP 30-136B	36	840	30.24	1
TPP 30-148B	48	630	30.24	1
TPP 30-153B	53	580	30.74	1
TPP 30-103BA-M	3.3	6000	19.8	2
TPP 30-105BA-M	5	6000	30	2
TPP 30-107BA-M	7.5	4000	30	2
TPP 30-109BA-M	9	3340	30.06	2
TPP 30-112BA-M	12	2500	30	2
TPP 30-112.1BA-M	12	2500	30	2
TPP 30-115BA-M	15	2000	30	2
TPP 30-115.1BA-M	15	2000	30	2

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Model Name	Output Voltage (Vdc)	Output Current (mA)	Max Output Power (W)	Case Type
TPP 30-118BA-M	18	1670	30.06	2
TPP 30-124BA-M	24	1250	30	2
TPP 30-128BA-M	28	1080	30.24	2
TPP 30-136BA-M	36	840	30.24	2
TPP 30-148BA-M	48	630	30.24	2
TPP 30-153BA-M	53	580	30.74	2
TPP 30-103B-M	3.3	6000	19.8	1
TPP 30-105B-M	5	6000	30	1
TPP 30-107B-M	7.5	4000	30	1
TPP 30-109B-M	9	3340	30.06	1
TPP 30-112B-M	12	2500	30	1
TPP 30-112.1B-M	12	2500	30	1
TPP 30-115B-M	15	2000	30	1
TPP 30-115.1B-M	15	2000	30	1
TPP 30-118B-M	18	1670	30.06	1
TPP 30-124B-M	24	1250	30	1
TPP 30-128B-M	28	1080	30.24	1
TPP 30-136B-M	36	840	30.24	1
TPP 30-148B-M	48	630	30.24	1
TPP 30-153B-M	53	580	30.74	1
TPP 30-103BA2-J	3.3	6000	19.8	1
TPP 30-105BA2-J	5	6000	30	1
TPP 30-107BA2-J	7.5	4000	30	1
TPP 30-109BA2-J	9	3340	30.06	1
TPP 30-112BA2-J	12	2500	30	1
TPP 30-112.1BA2-J	12	2500	30	1
TPP 30-115BA2-J	15	2000	30	1
TPP 30-115.1BA2-J	15	2000	30	1
TPP 30-118BA2-J	18	1670	30.06	1
TPP 30-124BA2-J	24	1250	30	1
TPP 30-128BA2-J	28	1080	30.24	1
TPP 30-136BA2-J	36	840	30.24	1
TPP 30-148BA2-J	48	630	30.24	1
TPP 30-153BA2-J	53	580	30.74	1

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Model Name	Output Voltage (Vdc)	Output Current (mA)	Max Output Power (W)	Case Type
TPP 30-103BA2-M	3.3	6000	19.8	1
TPP 30-105BA2-M	5	6000	30	1
TPP 30-107BA2-M	7.5	4000	30	1
TPP 30-109BA2-M	9	3340	30.06	1
TPP 30-112BA2-M	12	2500	30	1
TPP 30-112.1BA2-M	12	2500	30	1
TPP 30-115BA2-M	15	2000	30	1
TPP 30-115.1BA2-M	15	2000	30	1
TPP 30-118BA2-M	18	1670	30.06	1
TPP 30-124BA2-M	24	1250	30	1
TPP 30-128BA2-M	28	1080	30.24	1
TPP 30-136BA2-M	36	840	30.24	1
TPP 30-148BA2-M	48	630	30.24	1
TPP 30-153BA2-M	53	580	30.74	1
TPP 30-103BA2	3.3	6000	19.8	1
TPP 30-105BA2	5	6000	30	1
TPP 30-107BA2	7.5	4000	30	1
TPP 30-109BA2	9	3340	30.06	1
TPP 30-112BA2	12	2500	30	1
TPP 30-112.1BA2	12	2500	30	1
TPP 30-115BA2	15	2000	30	1
TPP 30-115.1BA2	15	2000	30	1
TPP 30-118BA2	18	1670	30.06	1
TPP 30-124BA2	24	1250	30	1
TPP 30-128BA2	28	1080	30.24	1
TPP 30-136BA2	36	840	30.24	1
TPP 30-148BA2	48	630	30.24	1
TPP 30-153BA2	53	580	30.74	1

2. There are two types of appearance for sales. The difference of two types is with/without case. Please refer to the following table and external photograph for detail information.

Type	Case
Type 1	○
Type 2	X

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1.2 Details of EUT

Power Supply	: AC 100~240V, 50~60Hz
Modes/Function	: Mode 1: TPP 30-105A-J / Operation(Full Load) Mode 2: TPP 30-105BA-J / Operation(Full Load) + ground Mode 3: TPP 30-105 / Operation(Full Load)
Highest operate description	: <108MHz

1.3 Description of Support Units

Mode 1~3:

PRODUCT	MANUFACTURER	MODEL NO.	SERIAL NO.
Load	SGS	N/A	N/A
Meter (EMS)	YU Fong	YF-370A	N/A

Support Equipment Used in Tested Cable

Mode 1~3:

Cable Type	Core	Length	Shielding/Non-shielding
N/A	N/A	N/A	N/A

1.4 Operation Procedure

Mode 1~3:

1. EUT link to power and load.
2. Begin the test.

1.5 The worst case of the EUT

EUT will be carried out in the worst case as followings:

Worst Case	
CE	Mode 1 ~ 3
RE	Mode 1 ~ 3

1.6 Modification List

No modification by SGS Taiwan Electronics & Communication Laboratory.

1.7 Configuration of Tested System

EMI

Mode 1~3:



EMS

Mode 1~3:



1.8 Accessories Cable List

Cable Type	Core	Length	Shielding/Non-shielding
N/A	N/A	N/A	N/A

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1.9 Summary of Results

Highest Emission					
Standard	Test Type	Result	Phase/Pol.	Frequency(MHz)	Margin(dB)
EN 55014-1: 2006+A1:2009 +A2:2011	Conducted Emission	Pass	Line	0.4790	-3.47 (AVG)
			Neutral	0.1660	-4.16 (QP)
	Disturbance Power	N/A	N/A	N/A	N/A
	Radiated Emission	Pass	Ver.	44.4700	-4.11 (QP)
EN 61000-3-2 : 2014	Harmonic current emissions	Pass	Meet the requirements		
EN 61000-3-3 : 2013	Voltage changes, voltage fluctuations & flicker	Pass	Meet the requirements		

Immunity(EN 55014-2:2015, Category IV)				
Standard	Test Type	Result	Performance Criteria	Test Judgment
IEC 61000-4-2:2008	ESD test	Pass	Criterion B	Meets the requirements of Performance Criterion A
IEC 61000-4-3: 2006+A1:2007 +A2:2010	RS test	Pass	Criterion A	Meets the requirements of Performance Criterion A
IEC 61000-4-4:2012	EFT test	Pass	Criterion B	Meets the requirements of Performance Criterion A
IEC 61000-4-5:2014	Surge test	Pass	Criterion B	Meets the requirements of Performance Criterion A
IEC 61000-4-6:2013	CS test	Pass	Criterion A	Meets the requirements of Performance Criterion A
IEC 61000-4-11:2004	Dip test	Pass	Test level in % Ut 1. 0% residual- Performance Criterion C 2. 40% residual- Performance Criterion C 3. 70% residual- Performance Criterion C	Test level in % Ut 1. 0% residual- Performance Criterion A 2. 40% residual- Performance Criterion A 3. 70% residual- Performance Criterion A

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2. EMISSION

EN 55014-1 : 2006+A1:2009+A2:2011

2.1 Test Results

EN 55014-1	Result
Conducted Emission	Pass
Disturbance Power	N/A
Radiated Emission(CISPR 16-2-3)	Pass

2.2 Frequency Range

Conducted Emission: 150 kHz - 30 MHz

Disturbance Power : 30 MHz - 300 MHz

Radiated Emission : 30 MHz - 1000 MHz

2.3 Methods and Procedures

Standard	Edition	Description
EN 55014-1	2006+A1:2009 +A2:2011	Limits and methods of measurement of radio disturbance characteristics of electrical motor-operated and thermal appliances for household and similar purposes, electric tools and similar electric apparatus.
CISPR 16-2-3	2010+A1:2010 +A2:2014	Specification for radio disturbance and immunity measuring apparatus and methods-part 2-3 : Methods of measurement of disturbance and immunity-Radiated disturbance measurements.

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2.4. Test of Conducted Emission

2.4.1 Test Instruments

SGS Conducted_Emission HWAYA Conducted Room No.A_EMC					
EQUIPMENT TYPE	Manufacturer	Model Number	Serial Number	Calibration Date	Calibration Due
EMI Test Receiver	R&S	ESCI 3	101311	2017/6/23	2018/6/22
Coaxial Cables	EMC Instruments Corp	EMCRG58-BM-BM-3000	160812	2017/8/30	2018/8/29
LISN	SCHWARZBECK	NSLK 8127	8127-648	2017/6/18	2018/6/17
Pulse Limiter	Narda S.T.S.	PMM PL01	1110X30602	2017/8/12	2018/8/11
LISN	Schwarzbeck	NSLK 8128	NSLK8128-300	2017/9/4	2018/9/3
Test S/W	Farad	EZ-EMC	Ver. SGS-03A2	N.C.R.	N.C.R.

SGS Taiwan LTD. Electronics & Communication Laboratory
No.2, Keji 1st Rd., Guishan Dist., Taoyuan City 333, Taiwan (R.O.C.)
Measurement Uncertainty of Conducted Emission
Expanded uncertainty (K=2) of conducted emission is 2.25 dB
Expanded uncertainty (K=2) of ISN conducted emission is 2.57 dB

2.4.2 EUT Operating Condition

Environment :

Temperature	Humidity
24 °C	65 %RH

Test setup : Please refer to photo of CE testing setup

2.4.3 Measurement Level Calculation

Factor = LISN insertion loss + Cable loss

Measurement Level = Reading Level + Factor

Over (Margin) = Measurement Level – Limit

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2.4.4 Measurement Data

Model No.: TPP 30-105A-J
Mode_1_L

Site : Conduction Room Phase: L1 Temperature: 24 °C
Limit: EN55014-1 Conduction(QP) Power: AC 230V/50Hz Humidity: 65 %
Mode: Mode_1
Note:

Conducted Emission



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Detector	Comment
		MHz	dBuV	dB	dBuV	dBuV	dB		
1		0.1620	40.50	19.50	60.00	65.36	-5.36	QP	
2		0.1620	29.10	19.50	48.60	58.17	-9.57	AVG	
3		0.2220	33.30	19.53	52.83	62.74	-9.91	QP	
4		0.2220	23.30	19.53	42.83	54.77	-11.94	AVG	
5		0.4780	24.30	19.95	44.25	56.37	-12.12	QP	
6 *		0.4780	22.90	19.95	42.85	46.49	-3.64	AVG	
7		0.4980	18.99	19.99	38.98	56.03	-17.05	QP	
8		0.4980	15.40	19.99	35.39	46.04	-10.65	AVG	
9		1.0980	20.13	19.78	39.91	56.00	-16.09	QP	
10		1.0980	17.84	19.78	37.62	46.00	-8.38	AVG	
11		1.4420	15.12	20.02	35.14	56.00	-20.86	QP	
12		1.4420	10.62	20.02	30.64	46.00	-15.36	AVG	
13		1.9100	13.22	20.36	33.58	56.00	-22.42	QP	

*:Maximum data x:Over limit !:over margin

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No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Detector	Comment
		MHz	dBuV	dB	dBuV	dBuV	dB		
14		1.9100	7.95	20.36	28.31	46.00	-17.69	AVG	
15		3.6420	15.33	20.16	35.49	56.00	-20.51	QP	
16		3.6420	8.72	20.16	28.88	46.00	-17.12	AVG	
17		5.4580	13.36	19.95	33.31	60.00	-26.69	QP	
18		5.4580	7.79	19.95	27.74	50.00	-22.26	AVG	
19		9.6100	10.69	19.94	30.63	60.00	-29.37	QP	
20		9.6100	5.24	19.94	25.18	50.00	-24.82	AVG	
21		20.1380	8.70	20.06	28.76	60.00	-31.24	QP	
22		20.1380	3.40	20.06	23.46	50.00	-26.54	AVG	
23		29.9660	7.19	20.45	27.64	60.00	-32.36	QP	
24		29.9660	2.49	20.45	22.94	50.00	-27.06	AVG	

*:Maximum data x:Over limit !:over margin

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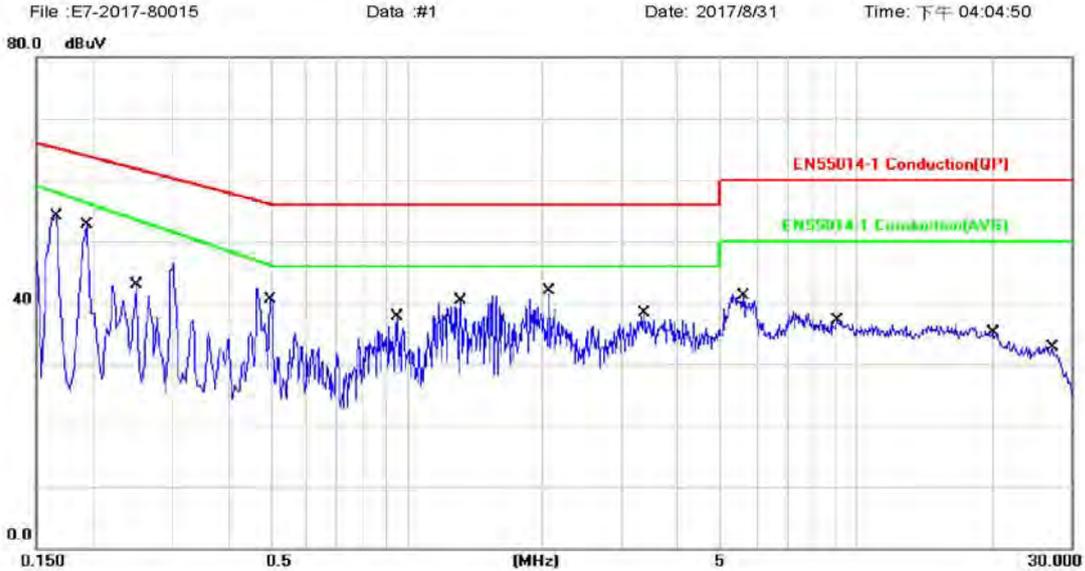
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Mode_1_N

Site : Conduction Room Phase: **N** Temperature: 24 ℃
 Limit: EN55014-1 Conduction(QP) Power: AC 230V/50Hz Humidity: 65 %
 Mode: Mode_1
 Note:

Conducted Emission



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector	Comment
1	*	0.1660	41.50	19.50	61.00	65.16	-4.16	QP	
2		0.1660	29.20	19.50	48.70	57.91	-9.21	AVG	
3		0.1940	37.30	19.49	56.79	63.86	-7.07	QP	
4		0.1940	26.00	19.49	45.49	56.22	-10.73	AVG	
5		0.2500	13.93	19.57	33.50	61.76	-28.26	QP	
6		0.2500	5.75	19.57	25.32	53.48	-28.16	AVG	
7		0.4980	23.80	19.99	43.79	56.03	-12.24	QP	
8		0.4980	19.60	19.99	39.59	46.04	-6.45	AVG	
9		0.9540	13.90	19.74	33.64	56.00	-22.36	QP	
10		0.9540	7.80	19.74	27.54	46.00	-18.46	AVG	
11		1.3180	12.90	19.93	32.83	56.00	-23.17	QP	
12		1.3180	6.51	19.93	26.44	46.00	-19.56	AVG	
13		2.0660	14.50	20.41	34.91	56.00	-21.09	QP	

*:Maximum data x:Over limit !:over margin

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No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Detector	Comment
		MHz	dBuV	dB	dBuV	dBuV	dB		
14		2.0660	8.80	20.41	29.21	46.00	-16.79	AVG	
15		3.3780	8.42	20.20	28.62	56.00	-27.38	QP	
16		3.3780	3.04	20.20	23.24	46.00	-22.76	AVG	
17		5.6180	12.45	19.96	32.41	60.00	-27.59	QP	
18		5.6180	6.51	19.96	26.47	50.00	-23.53	AVG	
19		9.0780	8.09	19.94	28.03	60.00	-31.97	QP	
20		9.0780	2.90	19.94	22.84	50.00	-27.16	AVG	
21		20.0700	7.54	20.06	27.60	60.00	-32.40	QP	
22		20.0700	2.41	20.06	22.47	50.00	-27.53	AVG	
23		27.3260	6.90	20.34	27.24	60.00	-32.76	QP	
24		27.3260	2.10	20.34	22.44	50.00	-27.56	AVG	

*:Maximum data x:Over limit !:over margin

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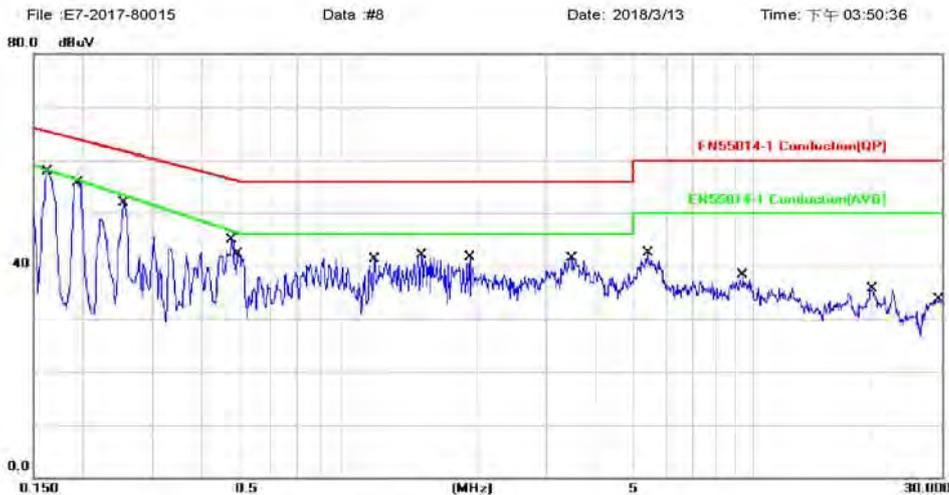
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Model No.: TPP 30-105BA-J Mode_2_L

Site: Conduction Room Phase: **L1** Temperature: 24 °C
Limit: EN55014-1 Conduction(QP) Power: AC 230V/50Hz Humidity: 65 %
Mode: Mode_2
Note:

Conducted Emission



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector	Comment
1		0.1640	40.20	19.65	59.85	65.26	-5.41	QP	
2		0.1640	28.70	19.65	48.35	58.04	-9.69	AVG	
3		0.1930	34.80	19.64	54.44	63.91	-9.47	QP	
4		0.1930	24.20	19.64	43.84	56.28	-12.44	AVG	
5		0.2520	31.20	19.73	50.93	61.69	-10.76	QP	
6		0.2520	21.60	19.73	41.33	53.40	-12.07	AVG	
7		0.4790	24.60	20.09	44.69	56.36	-11.67	QP	
8 *		0.4790	22.90	20.09	42.99	46.46	-3.47	AVG	
9		0.4970	15.53	20.12	35.65	56.05	-20.40	QP	
10		0.4970	11.63	20.12	31.75	46.06	-14.31	AVG	
11		1.0960	14.75	19.92	34.67	56.00	-21.33	QP	
12		1.0960	11.24	19.92	31.16	46.00	-14.84	AVG	
13		1.4480	20.33	20.16	40.49	56.00	-15.51	QP	

*:Maximum data x:Over limit !:over margin

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No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Detector	Comment
		MHz	dBuV	dB	dBuV	dBuV	dB		
14		1.4480	17.28	20.16	37.44	46.00	-8.56	AVG	
15		1.9170	14.66	20.50	35.16	56.00	-20.84	QP	
16		1.9170	8.78	20.50	29.28	46.00	-16.72	AVG	
17		3.4510	20.85	20.33	41.18	56.00	-14.82	QP	
18		3.4540	14.53	20.33	34.86	46.00	-11.14	AVG	
19		5.4160	14.12	20.09	34.21	60.00	-25.79	QP	
20		5.4160	8.28	20.09	28.37	50.00	-21.63	AVG	
21		9.4450	8.96	20.07	29.03	60.00	-30.97	QP	
22		9.4450	3.85	20.07	23.92	50.00	-26.08	AVG	
23		19.9880	7.25	20.22	27.47	60.00	-32.53	QP	
24		19.9880	2.34	20.22	22.56	50.00	-27.44	AVG	
25		29.5410	6.86	20.52	27.38	60.00	-32.62	QP	
26		29.5410	2.53	20.52	23.05	50.00	-26.95	AVG	

*:Maximum data x:Over limit l:over margin

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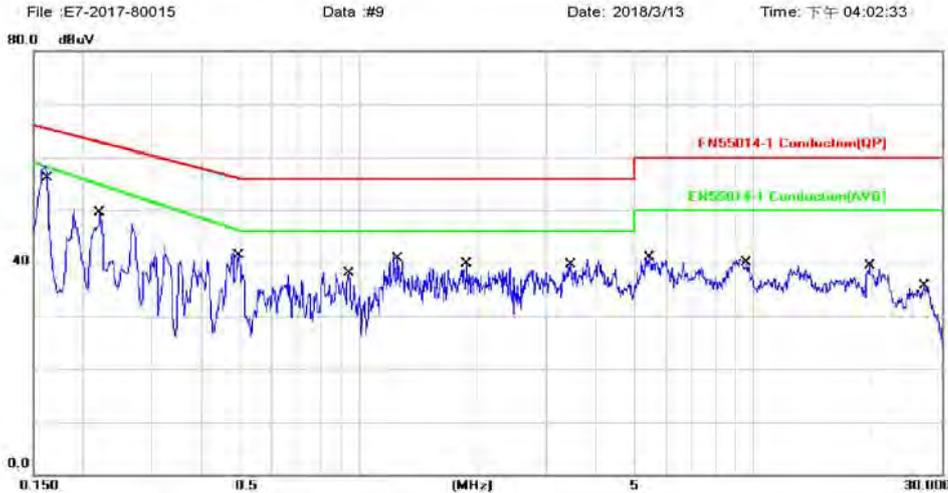
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Mode_2_N

Site : Conduction Room Phase: **N** Temperature: 24 °C
 Limit: EN55014-1 Conduction(QP) Power: AC 230V/50Hz Humidity: 65 %
 Mode: Mode_2
 Note:

Conducted Emission



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Detector	Comment
		MHz	dBuV	dB	dBuV	dBuV	dB		
1	*	0.1640	39.38	19.50	58.88	65.26	-6.38	QP	
2		0.1640	27.43	19.50	46.93	58.04	-11.11	AVG	
3		0.2200	31.78	19.52	51.30	62.82	-11.52	QP	
4		0.2200	20.48	19.52	40.00	54.86	-14.86	AVG	
5		0.4960	17.86	19.98	37.84	56.07	-18.23	QP	
6		0.4960	13.45	19.98	33.43	46.09	-12.66	AVG	
7		0.9480	15.42	19.74	35.16	56.00	-20.84	QP	
8		0.9480	12.23	19.74	31.97	46.00	-14.03	AVG	
9		1.2660	13.78	19.90	33.68	56.00	-22.32	QP	
10		1.2660	9.54	19.90	29.44	46.00	-16.56	AVG	
11		1.8850	13.80	20.34	34.14	56.00	-21.86	QP	
12		1.8850	9.50	20.34	29.84	46.00	-16.16	AVG	
13		3.4480	16.60	20.19	36.79	56.00	-19.21	QP	

*:Maximum data x:Over limit | :over margin

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No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Detector	Comment
		MHz	dBuV	dB	dBuV	dBuV	dB		
14		3.4480	12.30	20.19	32.49	46.00	-13.51	AVG	
15		5.4710	14.26	19.95	34.21	60.00	-25.79	QP	
16		5.4710	8.71	19.95	28.66	50.00	-21.34	AVG	
17		9.6160	11.25	19.94	31.19	60.00	-28.81	QP	
18		9.6160	6.38	19.94	26.32	50.00	-23.68	AVG	
19		19.8400	7.56	20.06	27.62	60.00	-32.38	QP	
20		19.8400	2.23	20.06	22.29	50.00	-27.71	AVG	
21		27.1370	7.32	20.34	27.66	60.00	-32.34	QP	
22		27.1370	2.56	20.34	22.90	50.00	-27.10	AVG	

*:Maximum data x:Over limit l:over margin

File: E7-2017-80015\Data #9

Page: 2



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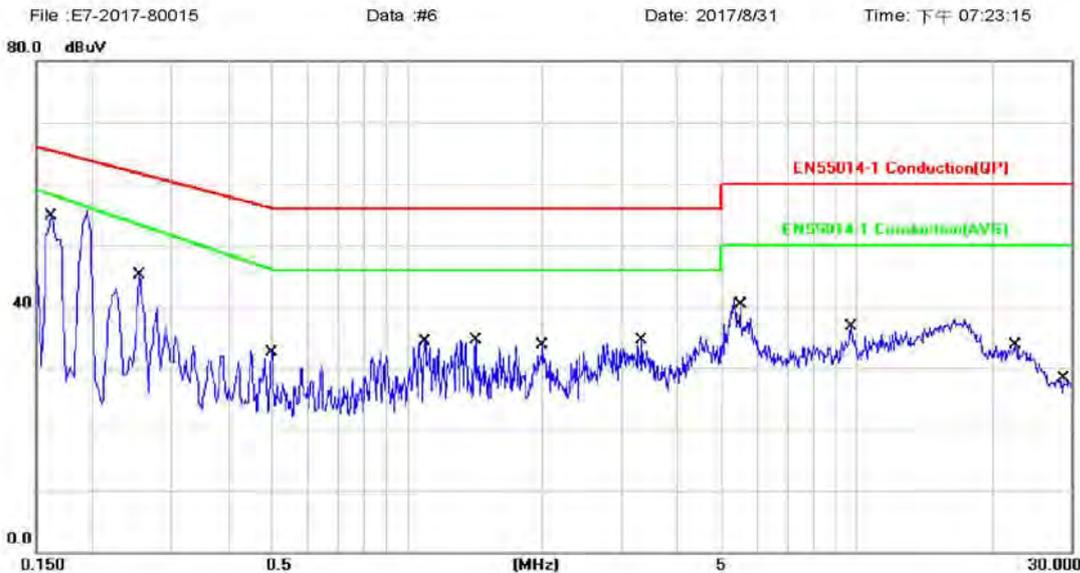
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Model No.: TPP 30-105
Mode_3_L

Site : Conduction Room Phase: **L1** Temperature: 24 °C
Limit: EN55014-1 Conduction(QP) Power: AC 230V/50Hz Humidity: 65 %
Mode: Mode_3
Note:

Conducted Emission



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector	Comment
1	*	0.1620	38.53	19.65	58.18	65.36	-7.18	QP	
2		0.1620	26.61	19.65	46.26	58.17	-11.91	AVG	
3		0.2540	29.50	19.73	49.23	61.63	-12.40	QP	
4		0.2540	21.50	19.73	41.23	53.31	-12.08	AVG	
5		0.5020	13.60	20.13	33.73	56.00	-22.27	QP	
6		0.5020	8.10	20.13	28.23	46.00	-17.77	AVG	
7		1.0980	11.94	19.92	31.86	56.00	-24.14	QP	
8		1.0980	6.27	19.92	26.19	46.00	-19.81	AVG	
9		1.4220	11.43	20.15	31.58	56.00	-24.42	QP	
10		1.4220	6.57	20.15	26.72	46.00	-19.28	AVG	
11		2.0060	9.27	20.56	29.83	56.00	-26.17	QP	
12		2.0060	3.73	20.56	24.29	46.00	-21.71	AVG	
13		3.3340	10.59	20.34	30.93	56.00	-25.07	QP	

*:Maximum data x:Over limit l:over margin

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No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Detector	Comment
		MHz	dBuV	dB	dBuV	dBuV	dB		
14		3.3340	4.93	20.34	25.27	46.00	-20.73	AVG	
15		5.5220	15.02	20.09	35.11	60.00	-24.89	QP	
16		5.5220	7.36	20.09	27.45	50.00	-22.55	AVG	
17		9.7500	10.54	20.08	30.62	60.00	-29.38	QP	
18		9.7500	5.06	20.08	25.14	50.00	-24.86	AVG	
19		22.6220	7.71	20.31	28.02	60.00	-31.98	QP	
20		22.6220	2.82	20.31	23.13	50.00	-26.87	AVG	
21		28.7660	5.53	20.49	26.02	60.00	-33.98	QP	
22		28.7660	1.39	20.49	21.88	50.00	-28.12	AVG	

*:Maximum data x:Over limit !:over margin

File :E7-2017-80015\Data :#6

Page 2

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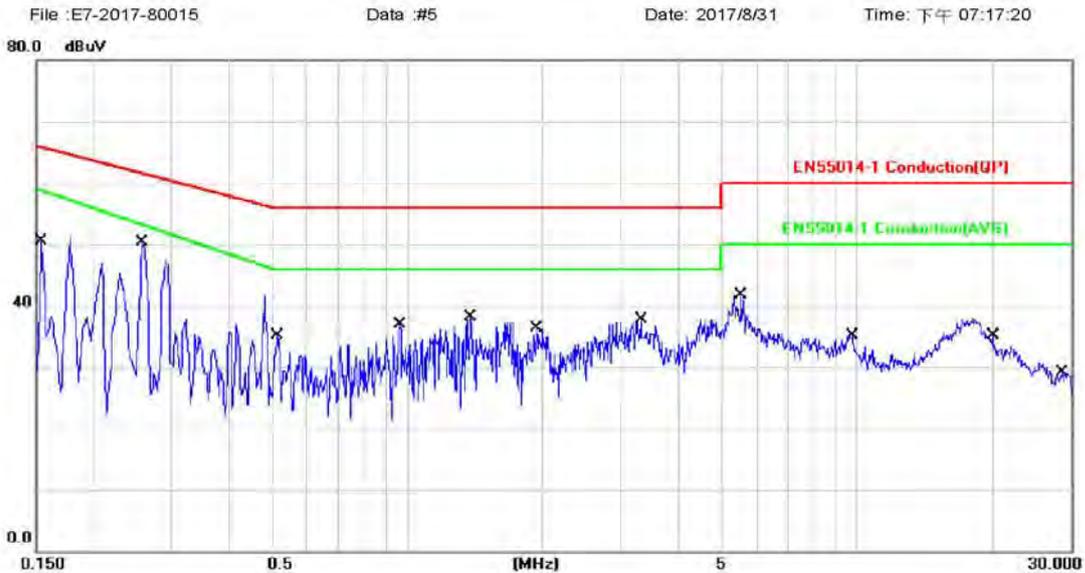
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Mode_3_N

Site : Conduction Room Phase: **N** Temperature: 24 °C
 Limit: EN55014-1 Conduction(QP) Power: AC 230V/50Hz Humidity: 65 %
 Mode: Mode_3
 Note:

Conducted Emission



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector	Comment
1		0.1540	28.50	19.50	48.00	65.78	-17.78	QP	
2		0.1540	16.90	19.50	36.40	58.72	-22.32	AVG	
3		0.2580	29.34	19.59	48.93	61.50	-12.57	QP	
4		0.2580	23.02	19.59	42.61	53.14	-10.53	AVG	
5		0.5180	19.50	19.98	39.48	56.00	-16.52	QP	
6 *		0.5180	16.70	19.98	36.68	46.00	-9.32	AVG	
7		0.9660	14.09	19.73	33.82	56.00	-22.18	QP	
8		0.9660	7.84	19.73	27.57	46.00	-18.43	AVG	
9		1.3860	15.30	19.98	35.28	56.00	-20.72	QP	
10		1.3860	6.27	19.98	26.25	46.00	-19.75	AVG	
11		1.9420	10.60	20.38	30.98	56.00	-25.02	QP	
12		1.9420	4.30	20.38	24.68	46.00	-21.32	AVG	
13		3.3180	13.76	20.21	33.97	56.00	-22.03	QP	

*:Maximum data x:Over limit l:over margin

File :E7-2017-80015>Data :#5

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No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Detector	Comment
		MHz	dBuV	dB	dBuV	dBuV	dB		
14		3.3180	7.73	20.21	27.94	46.00	-18.06	AVG	
15		5.5420	15.40	19.96	35.36	60.00	-24.64	QP	
16		5.5420	9.12	19.96	29.08	50.00	-20.92	AVG	
17		9.8180	10.14	19.94	30.08	60.00	-29.92	QP	
18		9.8180	4.83	19.94	24.77	50.00	-25.23	AVG	
19		20.0820	9.88	20.06	29.94	60.00	-30.06	QP	
20		20.0820	5.15	20.06	25.21	50.00	-24.79	AVG	
21		28.6660	2.68	20.40	23.08	60.00	-36.92	QP	
22		28.6660	-2.07	20.40	18.33	50.00	-31.67	AVG	

*:Maximum data x:Over limit !:over margin

File :E7-2017-80015\Data :#5

Page 2

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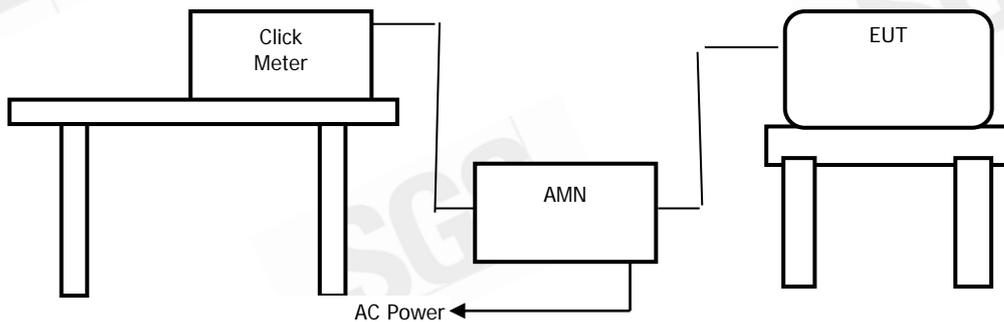
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2.5 Discontinuous Disturbance Voltage (Click)

2.5.1 Operating Environment

Temperature:	N/A	Atmospheric Pressure:	N/A
Relative Humidity:	N/A	Test Voltage:	N/A

2.5.2 Test Procedure



The mains terminal disturbance voltage was measured with the equipment under test (EUT) in a screened room. The EUT was connected to an artificial mains network (AMN) and was placed on a non-metallic table 0.4 meter above a metallic grounded floor. The EUT was placed 0.4 meter from the reference ground plane (RGP) wall and 0.8 meters from the AMN.

The click meter designed according to the standard and controlled by a computer. It was connected to the AMN. The disturbance of the frequency 150kHz, 500kHz, 1.4MHz and 30MHz, and the click numbers which over the limit were counted and analyzed by the click meter.

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2.5.3 Test equipment

SGS Click HWAYA EMC					
EQUIPMENT TYPE	Manufacturer	Model Number	Serial Number	Calibration Date	Calibration Due
EMI Test Receiver	R&S	ESCI 3	101311	2017/6/23	2018/6/22
LISN	Schwarzbeck	NSLK 8127	8127-648	2017/6/18	2018/6/17
LISN	FCC	FCC-LISN-50/250-25-2-01	4034	2017/3/19	2018/3/18
Coaxial Cables	EMC Instruments Corp.	EMCRG58-BM-BM-3000	160812	2017/8/30	2018/8/29
Test Software	R&S	V1.7	22.01.2009	N.C.R.	N.C.R.

SGS Taiwan LTD. Electronics & Communication Laboratory
No.2, Keji 1st Rd., Guishan Dist., Taoyuan City 333, Taiwan (R.O.C.)

2.5.4 Test Results

N/A

No click consideration for these products.

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2.6 Disturbance Power EN 55014-1 : 2006+A1:2009+A2:2011

2.6.1 Test Instruments

SGS RP (Disturbance Power) HWAYA EMC					
EQUIPMENT TYPE	Manufacturer	Model Number	Serial Number	Calibration Date	Calibration Due
EMI Test Receiver	R&S	ESCI 3	101311	2017/6/23	2018/6/22
Coaxial Cables	N/A	RP Cable	N/A	2016/11/26	2017/11/25
Absorbing Clamp	Rolf-Heine	MWZ-1000	03/10008	2017/3/24	2018/3/23
Test S/W	Farad	EZ-EMC	Ver. SGS-03A2	N.C.R.	N.C.R.

SGS Taiwan LTD. Electronics & Communication Laboratory
No.2, Keji 1st Rd., Guishan Dist., Taoyuan City 333, Taiwan (R.O.C.)
Measurement Uncertainty of Radiated Power
Expanded uncertainty (K=2) of Radiated Power is 2.28 dB.

2.6.2 EUT Operating Condition

Environment :

Temperature	Humidity
N/A °C	N/A %RH

Test setup : Please refer to photo of RP testing setup

2.6.3 Measurement Level Calculation

Factor = Clamp Insertion loss + Cable loss
Measurement Level = Reading Level + Factor
Over (Margin) = Measurement Level – Limit

2.6.4 Measurement Data

N/A

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2.7 Test of Radiated Emission

2.7.1 Test Instruments

Below 1GHz

SGS Radiated_Below_1GHz HWAYA 10m_EMC					
EQUIPMENT TYPE	Manufacturer	Model Number	Serial Number	Calibration Date	Calibration Due
EMI Test Receiver	R&S	ESCI 7	100924	2016/9/30	2017/9/29
EMI Test Receiver	R&S	ESCI 3	101343	2016/12/21	2017/12/20
Broadband Antenna	SCHWAZBECK	VULB9168	9168-628	2016/9/22	2017/9/21
Broadband Antenna	SCHWAZBECK	VULB9168	9168-629	2016/9/22	2017/9/21
Pre Amplifier	EMC Instruments Corp.	EMC330	980178	2017/3/31	2018/3/30
Pre Amplifier	EMC Instruments Corp.	EMC330	980179	2017/3/31	2018/3/30
Coaxial Cable	EMC Instruments	EMCCFD400-NM-NM	150917	2016/9/18	2017/9/17
Coaxial Cable	EMC Instruments	EMCCFD400-NM-NM	150919	2016/9/18	2017/9/17
Coaxial Cable	EMC Instruments	EMCCFD400-NM-NM	150820	2016/9/18	2017/9/17
Coaxial Cable	EMC Instruments	EMCCFD400-NM-NM	150918	2016/9/18	2017/9/17
Coaxial Cable	EMC Instruments	EMCCFD400-NM-NM	150821	2016/9/18	2017/9/17
Coaxial Cable	EMC Instruments	EMCCFD400-NM-NM	150822	2016/9/18	2017/9/17
Controller	MF	MF-7802	N/A	N.C.R.	N.C.R.
Controller	MF	MF-7802	N/A	N.C.R.	N.C.R.
Antenna Master	MF	N/A	N/A	N.C.R.	N.C.R.
Antenna Master	MF	N/A	N/A	N.C.R.	N.C.R.
Antenna Master	MF	N/A	N/A	N.C.R.	N.C.R.
Turn Table	MF	N/A	N/A	N.C.R.	N.C.R.
Site NSA	Chance Most	10M Chamber	10M SAC	2016/12/31	2017/12/31
Test S/W	Farad	EZ-EMC	Ver. SGS-03A2	N.C.R.	N.C.R.

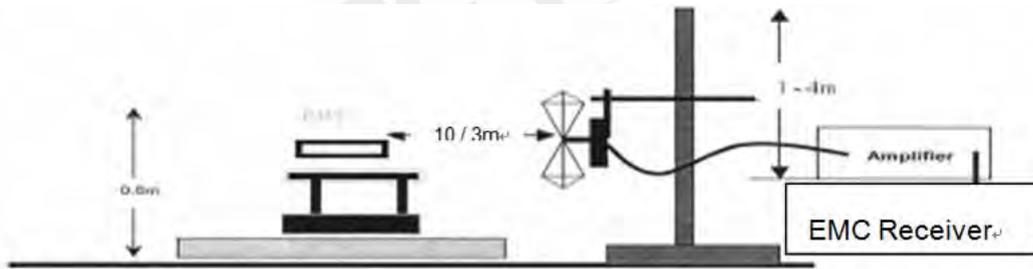
SGS Taiwan LTD. Electronics & Communication Laboratory
No.2, Keji 1st Rd., Guishan Dist., Taoyuan City 333, Taiwan (R.O.C.)
Measurement Uncertainty of Radiated Emission
Expanded uncertainty of radiated emission is 4.09 dB. (30MHz ~ 1000MHz)

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2.7.2 Test Setup



2.7.3 Test Procedure

The EUT and its simulators are placed on a turn table which is 0.8 meter above ground. The table can rotate 360 degrees to determine the position of the maximum emission level. The EUT was positioned such that the distance from antenna to the EUT was 10 / 3 meters.

The antenna can move up and down between 1 meter and 4 meters to find out the maximum emission level.

Both horizontal and vertical polarization of the antenna are set on Measurement. In order to find the maximum emission, all of the interface cables must be manipulated according to CISPR 16-2-3 : 2010+A1:2010+A2:2014 on radiated measurement.

Radiated emissions were investigated over the frequency range from 30MHz to 1 GHz using a receiver bandwidth of 120kHz. Radiated was performed at an antenna to EUT distance of 10 / 3 meters.

2.7.4 EUT Operating Condition

Environment :

Temperature	Humidity
22 °C	70 %RH

Test setup : Please refer to photo of RE testing setup

2.7.5 Measurement Level Calculation

Correction Factor = Antenna Factor + Cable loss- Amplifier Gain

Measurement Level = Reading Level + Correction Factor

Over (Margin) = Measurement Level – Limit

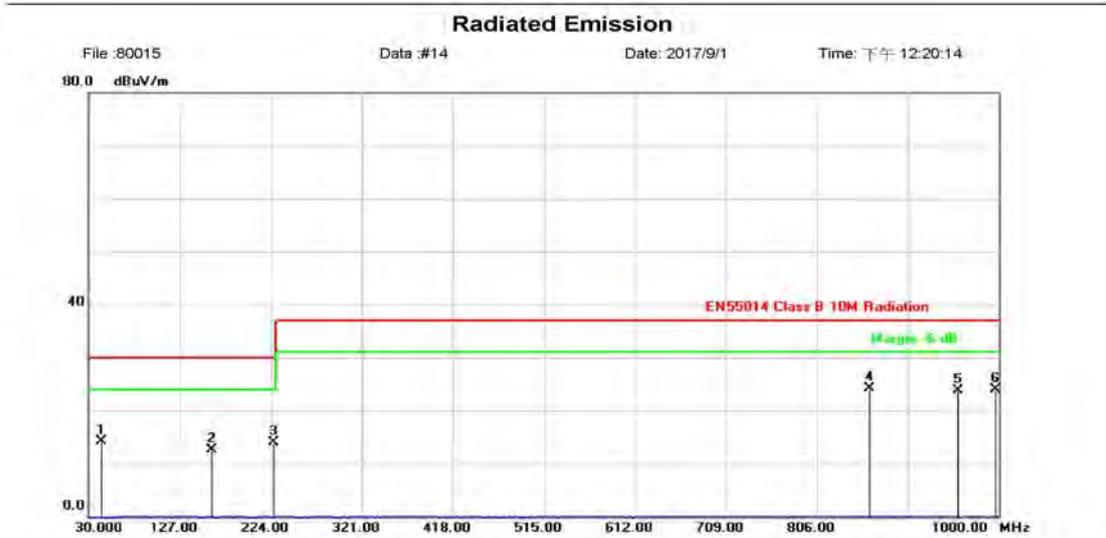
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2.7.6 Measurement Data Below 1GHz

Model No.: TPP 30-105A-J
Mode_1_H

Site: SGS 10m Chamber	Polarization: Horizontal	Temperature: 22 °C
Limit: EN55014 Class B 10M Radiation	Power: AC 230V/50Hz	Humidity: 70 %
Mode: Full Load	Distance:	
Note: Mode 1		



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Detector	Comment
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB		
1		43.5800	25.99	-11.88	14.11	30.00	-15.89	QP	
2		160.9500	24.30	-11.77	12.53	30.00	-17.47	QP	
3		226.9100	28.00	-14.02	13.98	30.00	-16.02	QP	
4	*	862.2600	24.30	-0.28	24.02	37.00	-12.98	QP	
5		956.3500	22.96	0.73	23.69	37.00	-13.31	QP	
6		996.1200	23.60	0.25	23.85	37.00	-13.15	QP	

*:Maximum data x:Over limit !:over margin

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Mode_1_V

Site: SGS 10m Chamber Polarization: **Vertical** Temperature: 22 °C
 Limit: EN55014 Class B 10M Radiation Power: AC 230V/50Hz Humidity: 70 %
 Mode: Full Load Distance:
 Note: Mode 1

Radiated Emission



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Detector	Comment
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB		
1	*	44.4700	37.72	-11.83	25.89	30.00	-4.11	QP	
2		69.4400	28.97	-14.10	14.87	30.00	-15.13	QP	
3		155.1300	27.31	-11.99	15.32	30.00	-14.68	QP	
4		224.0000	32.17	-14.14	18.03	30.00	-11.97	QP	
5		902.0300	24.43	0.13	24.56	37.00	-12.44	QP	
6		987.3900	24.52	0.36	24.88	37.00	-12.12	QP	

*:Maximum data x:Over limit !:over margin

File :80015\Data :#13

Page: 1

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Model No.: TPP 30-105BA-J
Mode_2_H

Site: SGS 10m Chamber Polarization: **Horizontal** Temperature: 22 °C
Limit: EN55014 Class B 10M Radiation Power: AC 230V/50Hz Humidity: 70 %
Mode: Full Load Distance:
Note: Mode 2

Radiated Emission



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Detector	Comment
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB		
1		43.5800	26.53	-11.88	14.65	30.00	-15.35	QP	
2		160.9500	25.39	-11.77	13.62	30.00	-16.38	QP	
3		226.9100	28.01	-14.02	13.99	30.00	-16.01	QP	
4		862.2600	23.13	-0.28	22.85	37.00	-14.15	QP	
5	*	956.3500	23.24	0.73	23.97	37.00	-13.03	QP	
6		996.1200	23.41	0.25	23.66	37.00	-13.34	QP	

*:Maximum data x:Over limit !:over margin

File :80015\Data :#16

Page: 1

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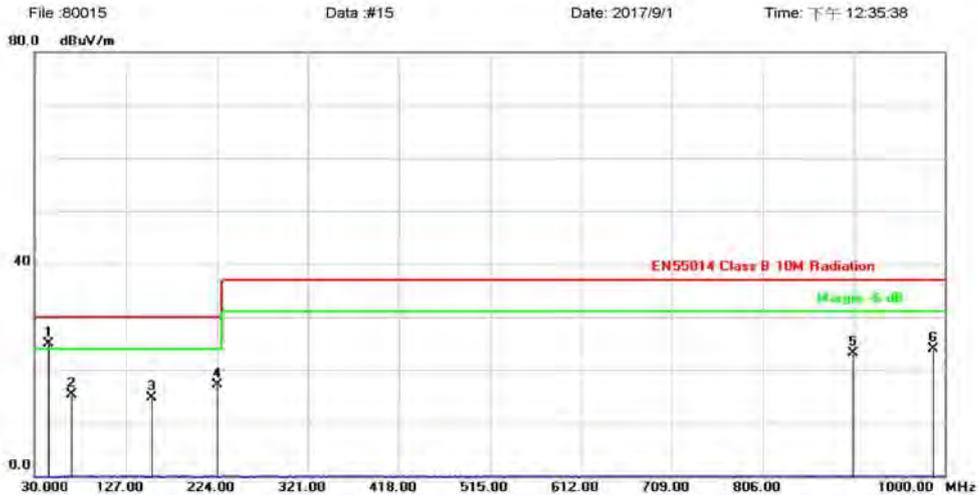
Mode_2_V

Site: SGS 10m Chamber
Limit: EN55014 Class B 10M Radiation
Mode: Full Load
Note: Mode 2

Polarization: **Vertical**
Power: AC 230V/50Hz
Distance:

Temperature: 22 °C
Humidity: 70 %

Radiated Emission



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Detector	Comment
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB		
1	*	44.4700	36.70	-11.83	24.87	30.00	-5.13	QP	
2		69.4400	29.43	-14.10	15.33	30.00	-14.67	QP	
3		155.1300	26.61	-11.99	14.62	30.00	-15.38	QP	
4		224.0000	31.27	-14.14	17.13	30.00	-12.87	QP	
5		902.0300	22.92	0.13	23.05	37.00	-13.95	QP	
6		987.3900	23.52	0.36	23.88	37.00	-13.12	QP	

*:Maximum data x:Over limit !:over margin

File: 80015\Data: #15

Page: 1

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Model No.: TPP 30-105
Mode_3_H

Site: SGS 10m Chamber Polarization: **Horizontal** Temperature: 22 °C
Limit: EN55014 Class B 10M Radiation Power: AC 230V/50Hz Humidity: 70 %
Mode: Full Load Distance:
Note: Mode 3

Radiated Emission



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB/m	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1		43.5800	25.90	-11.88	14.02	30.00	-15.98	QP	
2		160.9500	24.84	-11.77	13.07	30.00	-16.93	QP	
3		226.9100	28.57	-14.02	14.55	30.00	-15.45	QP	
4		862.2600	23.66	-0.28	23.38	37.00	-13.62	QP	
5		956.3500	23.23	0.73	23.96	37.00	-13.04	QP	
6	*	996.1200	23.93	0.25	24.18	37.00	-12.82	QP	

*:Maximum data x:Over limit !:over margin

File :80015\Data :#18

Page: 1

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Mode_3_V

Site: SGS 10m Chamber Polarization: **Vertical** Temperature: 22 °C
 Limit: EN55014 Class B 10M Radiation Power: AC 230V/50Hz Humidity: 70 %
 Mode: Full Load Distance:
 Note: Mode 3

Radiated Emission



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB/m	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1	*	44.4700	36.45	-11.83	24.62	30.00	-5.38	QP	
2		69.4400	30.23	-14.10	16.13	30.00	-13.87	QP	
3		155.1300	26.84	-11.99	14.85	30.00	-15.15	QP	
4		224.0000	30.76	-14.14	16.62	30.00	-13.38	QP	
5		902.0300	22.74	0.13	22.87	37.00	-14.13	QP	
6		987.3900	23.56	0.36	23.92	37.00	-13.08	QP	

*:Maximum data x:Over limit !:over margin

File :80015\Data :#17

Page: 1

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3. Harmonics

EN 61000-3-2 : 2014

3.1 Test Results

EN 61000-3-2 : 2014

Pass

3.2 Methods and Procedures

Standard	Edition	Description
EN 61000-3-2	2014	Limits - Limits for harmonic current emissions (equipment input current up to and including 16 A per phase)

3.3 Test Instruments

SGS Harmonic EN61000-3-2 HWAYA EMC					
EQUIPMENT TYPE	Manufacturer	Model Number	Serial Number	Calibration Date	Calibration Due
Power Analyzer	TESEQ	CCN 1000-1	1504A02654	2017/3/20	2018/3/19
AC Power Source	TESEQ	NSG 1007	1504A02654	2017/3/20	2018/3/19
Test Software	TESEQ	Win2100 V4	Ver. 4.5.8	N.C.R.	N.C.R.

SGS Taiwan LTD. Electronics & Communication Laboratory
No.2, Keji 1st Rd., Guishan Dist., Taoyuan City 333, Taiwan (R.O.C.)

3.4 EUT Operating Condition

Environment :

Temperature	Humidity
24 °C	60 %RH

Test setup : Please refer to photo of HARMONIC testing setup

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3.5 Measurement Data

Model No.: TPP 30-105A-J
Mode_1

Teseq Profiline
4542 Luterbach, Switzerland

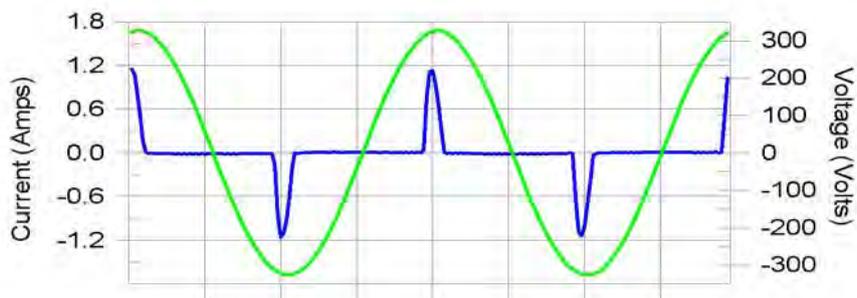
8/31/2017
11:34 PM

Harmonics – Class-A per Ed. 4.0 (2014)(Run time)

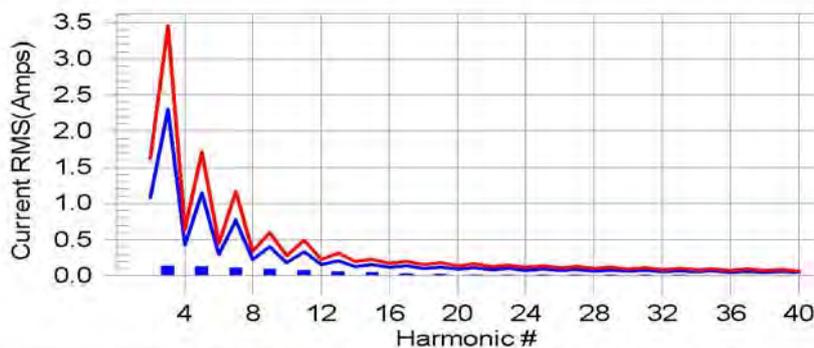
EUT: **Test category: Class-A per Ed. 4.0 (2014) (European limits)** Tested by:
Test date: 2017/8/31 Start time: 下午 10:39:02 Test Margin: 100
Test duration (min): 10 Data file name: H-000069.cts_data End time: 下午 10:49:13
 Comment:
 Customer:

Test Result: Pass Source qualification: Normal

Current & voltage waveforms



Harmonics and Class A limit line European Limits



Test result: Pass Worst harmonics H15-20.2% of 150% limit, H15-29.6% of 100% limit

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Teseq Profile
4542 Luterbach, Switzerland

8/31/2017
11:34 PM

Current Test Result Summary (Run time)

EUT: **Tested by:**
Test category: Class-A per Ed. 4.0 (2014) (European limits) **Test Margin: 100**
Test date: 2017/8/31 **Start time: 下午 10:39:02** **End time: 下午 10:49:13**
Test duration (min): 10 **Data file name: H-000069.cts_data**
Comment:
Customer:

Test Result: Pass **Source qualification: Normal**
THC(A): 0.262 **I-THD(%): 188.5** **POHC(A): 0.032** **POHC Limit(A): 0.251**

Highest parameter values during test:

V_RMS (Volts): 230.75 **Frequency(Hz): 50.00**
I_Peak (Amps): 1.177 **I_RMS (Amps): 0.298**
I_Fund (Amps): 0.139 **Crest Factor: 3.966**
Power (Watts): 31.7 **Power Factor: 0.463**

Harm#	Harms(avg)	100%Limit	%of Limit	Harms(max)	150%Limit	%of Limit	Status
2	0.000	1.080	N/A	0.000	1.620	N/A	Pass
3	0.133	2.300	5.8	0.133	3.450	3.9	Pass
4	0.000	0.430	N/A	0.000	0.645	N/A	Pass
5	0.124	1.140	10.9	0.124	1.710	7.3	Pass
6	0.000	0.300	N/A	0.000	0.450	N/A	Pass
7	0.111	0.770	14.5	0.112	1.155	9.7	Pass
8	0.000	0.230	N/A	0.000	0.345	N/A	Pass
9	0.096	0.400	23.9	0.096	0.600	16.1	Pass
10	0.000	0.184	N/A	0.000	0.276	N/A	Pass
11	0.079	0.330	23.8	0.079	0.495	16.0	Pass
12	0.000	0.153	N/A	0.000	0.230	N/A	Pass
13	0.061	0.210	29.1	0.062	0.315	19.7	Pass
14	0.000	0.131	N/A	0.000	0.197	N/A	Pass
15	0.044	0.150	29.6	0.045	0.225	20.2	Pass
16	0.000	0.115	N/A	0.000	0.173	N/A	Pass
17	0.030	0.132	22.4	0.031	0.198	15.5	Pass
18	0.000	0.102	N/A	0.000	0.153	N/A	Pass
19	0.018	0.118	15.3	0.019	0.178	10.7	Pass
20	0.000	0.092	N/A	0.000	0.138	N/A	Pass
21	0.012	0.107	11.1	0.012	0.161	7.7	Pass
22	0.000	0.084	N/A	0.000	0.125	N/A	Pass
23	0.011	0.098	11.7	0.012	0.147	7.9	Pass
24	0.000	0.077	N/A	0.000	0.115	N/A	Pass
25	0.013	0.090	14.5	0.013	0.135	9.8	Pass
26	0.000	0.071	N/A	0.000	0.107	N/A	Pass
27	0.014	0.083	16.4	0.014	0.125	11.0	Pass
28	0.000	0.066	N/A	0.001	0.099	N/A	Pass
29	0.013	0.078	16.4	0.013	0.116	11.1	Pass
30	0.000	0.061	N/A	0.000	0.092	N/A	Pass
31	0.011	0.073	14.5	0.011	0.109	10.0	Pass
32	0.000	0.058	N/A	0.001	0.086	N/A	Pass
33	0.008	0.068	11.4	0.008	0.102	8.0	Pass
34	0.000	0.054	N/A	0.000	0.081	N/A	Pass
35	0.005	0.064	7.9	0.005	0.096	5.7	Pass
36	0.000	0.051	N/A	0.000	0.077	N/A	Pass
37	0.004	0.061	N/A	0.004	0.091	N/A	Pass
38	0.000	0.048	N/A	0.000	0.073	N/A	Pass
39	0.004	0.058	N/A	0.004	0.087	N/A	Pass
40	0.000	0.046	N/A	0.000	0.069	N/A	Pass

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Teseq Profline
4542 Luterbach, Switzerland

8/31/2017
11:34 PM

Voltage Source Verification Data (Run time)

EUT: Tested by:
 Test category: Class-A per Ed. 4.0 (2014) (European limits) Test Margin: 100
 Test date: 2017/8/31 Start time: 下午 10:39:02 End time: 下午 10:49:13
 Test duration (min): 10 Data file name: H-000069.cts_data
 Comment:
 Customer:

Test Result: Pass Source qualification: Normal

Highest parameter values during test:

Voltage (Vrms): 230.75	Frequency(Hz): 50.00
I_Peak (Amps): 1.177	I_RMS (Amps): 0.298
I_Fund (Amps): 0.139	Crest Factor: 3.966
Power (Watts): 31.7	Power Factor: 0.463

Harm#	Harmonics V-rms	Limit V-rms	% of Limit	Status
2	0.022	0.461	4.81	OK
3	0.461	2.077	22.21	OK
4	0.020	0.461	4.33	OK
5	0.038	0.923	4.15	OK
6	0.016	0.461	3.38	OK
7	0.035	0.692	5.06	OK
8	0.014	0.461	3.13	OK
9	0.046	0.461	9.86	OK
10	0.012	0.461	2.51	OK
11	0.043	0.231	18.66	OK
12	0.010	0.231	4.20	OK
13	0.035	0.231	14.97	OK
14	0.004	0.231	1.62	OK
15	0.030	0.231	13.02	OK
16	0.004	0.231	1.76	OK
17	0.022	0.231	9.73	OK
18	0.011	0.231	4.73	OK
19	0.018	0.231	7.92	OK
20	0.015	0.231	6.33	OK
21	0.014	0.231	6.21	OK
22	0.004	0.231	1.74	OK
23	0.012	0.231	5.11	OK
24	0.003	0.231	1.21	OK
25	0.014	0.231	6.26	OK
26	0.002	0.231	0.99	OK
27	0.019	0.231	8.42	OK
28	0.002	0.231	1.01	OK
29	0.015	0.231	6.38	OK
30	0.004	0.231	1.58	OK
31	0.015	0.231	6.33	OK
32	0.002	0.231	0.92	OK
33	0.011	0.231	4.73	OK
34	0.002	0.231	0.87	OK
35	0.009	0.231	3.94	OK
36	0.002	0.231	0.98	OK
37	0.008	0.231	3.59	OK
38	0.002	0.231	0.97	OK
39	0.010	0.231	4.52	OK
40	0.013	0.231	5.56	OK

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Model No.: TPP 30-105BA-J
Mode_2

Teseq Proflin
4542 Luterbach, Switzerland

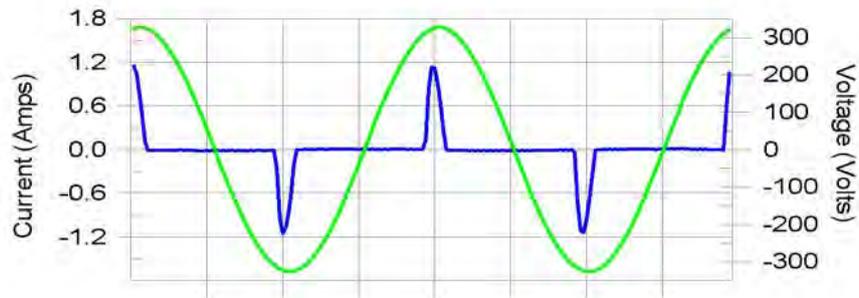
8/31/2017
11:34 PM

Harmonics – Class-A per Ed. 4.0 (2014)(Run time)

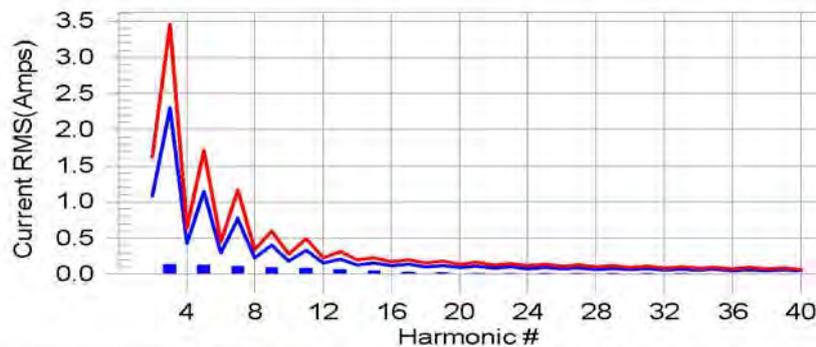
EUT:
Test category: Class-A per Ed. 4.0 (2014) (European limits) **Tested by:**
Test date: 2017/8/31 **Start time:** 下午 10:26:35 **Test Margin:** 100
Test duration (min): 10 **Data file name:** H-000068.cts_data **End time:** 下午 10:36:46
Comment:
Customer:

Test Result: Pass **Source qualification:** Normal

Current & voltage waveforms



Harmonics and Class A limit line European Limits



Test result: Pass **Worst harmonics H15-20.1% of 150% limit, H15-29.8% of 100% limit**

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.

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Teseq Profline
4542 Luterbach, Switzerland

8/31/2017
11:34 PM

Current Test Result Summary (Run time)

EUT: Tested by:
 Test category: Class-A per Ed. 4.0 (2014) (European limits) Test Margin: 100
 Test date: 2017/8/31 Start time: 下午 10:26:35 End time: 下午 10:36:46
 Test duration (min): 10 Data file name: H-000068.cts_data
 Comment:
 Customer:

Test Result: Pass Source qualification: Normal
 THC(A): 0.263 I-THD(%): 188.6 POHC(A): 0.032 POHC Limit(A): 0.251

Highest parameter values during test:

V_RMS (Volts): 230.75	Frequency(Hz): 50.00
I_Peak (Amps): 1.186	I_RMS (Amps): 0.299
I_Fund (Amps): 0.140	Crest Factor: 3.983
Power (Watts): 31.8	Power Factor: 0.463

Harm#	Harms(avg)	100%Limit	%of Limit	Harms(max)	150%Limit	%of Limit	Status
2	0.000	1.080	N/A	0.000	1.620	N/A	Pass
3	0.134	2.300	5.8	0.134	3.450	3.9	Pass
4	0.000	0.430	N/A	0.000	0.645	N/A	Pass
5	0.125	1.140	10.9	0.125	1.710	7.3	Pass
6	0.000	0.300	N/A	0.000	0.450	N/A	Pass
7	0.112	0.770	14.5	0.112	1.155	9.7	Pass
8	0.000	0.230	N/A	0.000	0.345	N/A	Pass
9	0.096	0.400	24.0	0.096	0.600	16.1	Pass
10	0.000	0.184	N/A	0.000	0.276	N/A	Pass
11	0.079	0.330	23.9	0.079	0.495	16.0	Pass
12	0.000	0.153	N/A	0.000	0.230	N/A	Pass
13	0.061	0.210	29.2	0.062	0.315	19.6	Pass
14	0.000	0.131	N/A	0.000	0.197	N/A	Pass
15	0.045	0.150	29.8	0.045	0.225	20.1	Pass
16	0.000	0.115	N/A	0.000	0.173	N/A	Pass
17	0.030	0.132	22.6	0.030	0.198	15.4	Pass
18	0.000	0.102	N/A	0.001	0.153	N/A	Pass
19	0.018	0.118	15.5	0.019	0.178	10.6	Pass
20	0.000	0.092	N/A	0.000	0.138	N/A	Pass
21	0.012	0.107	11.3	0.012	0.161	7.7	Pass
22	0.000	0.084	N/A	0.000	0.125	N/A	Pass
23	0.012	0.098	11.9	0.012	0.147	8.0	Pass
24	0.000	0.077	N/A	0.000	0.115	N/A	Pass
25	0.013	0.090	14.6	0.013	0.135	9.9	Pass
26	0.000	0.071	N/A	0.000	0.107	N/A	Pass
27	0.014	0.083	16.5	0.014	0.125	11.1	Pass
28	0.000	0.066	N/A	0.001	0.099	N/A	Pass
29	0.013	0.078	16.5	0.013	0.116	11.1	Pass
30	0.000	0.061	N/A	0.000	0.092	N/A	Pass
31	0.011	0.073	14.7	0.011	0.109	9.9	Pass
32	0.000	0.058	N/A	0.001	0.086	N/A	Pass
33	0.008	0.068	11.5	0.008	0.102	7.9	Pass
34	0.000	0.054	N/A	0.000	0.081	N/A	Pass
35	0.005	0.064	8.1	0.005	0.096	5.6	Pass
36	0.000	0.051	N/A	0.000	0.077	N/A	Pass
37	0.004	0.061	N/A	0.004	0.091	N/A	Pass
38	0.000	0.048	N/A	0.000	0.073	N/A	Pass
39	0.004	0.058	N/A	0.004	0.087	N/A	Pass
40	0.000	0.046	N/A	0.000	0.069	N/A	Pass

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Teseq Profline
4542 Luterbach, Switzerland

8/31/2017
11:34 PM

Voltage Source Verification Data (Run time)

EUT: Tested by:
 Test category: Class-A per Ed. 4.0 (2014) (European limits) Test Margin: 100
 Test date: 2017/8/31 Start time: 下午 10:26:35 End time: 下午 10:36:46
 Test duration (min): 10 Data file name: H-000068.cts_data
 Comment:
 Customer:

Test Result: Pass Source qualification: Normal

Highest parameter values during test:

Voltage (Vrms): 230.75	Frequency(Hz): 50.00
I_Peak (Amps): 1.186	I_RMS (Amps): 0.299
I_Fund (Amps): 0.140	Crest Factor: 3.983
Power (Watts): 31.8	Power Factor: 0.463

Harm#	Harmonics V-rms	Limit V-rms	% of Limit	Status
2	0.022	0.461	4.75	OK
3	0.461	2.077	22.19	OK
4	0.020	0.461	4.29	OK
5	0.039	0.923	4.18	OK
6	0.017	0.461	3.68	OK
7	0.035	0.692	5.10	OK
8	0.014	0.461	3.08	OK
9	0.046	0.461	9.86	OK
10	0.012	0.461	2.53	OK
11	0.043	0.231	18.71	OK
12	0.010	0.231	4.15	OK
13	0.035	0.231	15.06	OK
14	0.004	0.231	1.62	OK
15	0.030	0.231	12.98	OK
16	0.004	0.231	1.78	OK
17	0.023	0.231	9.81	OK
18	0.012	0.231	5.10	OK
19	0.018	0.231	8.02	OK
20	0.015	0.231	6.43	OK
21	0.015	0.231	6.32	OK
22	0.004	0.231	1.82	OK
23	0.012	0.231	5.17	OK
24	0.003	0.231	1.40	OK
25	0.015	0.231	6.35	OK
26	0.003	0.231	1.12	OK
27	0.019	0.231	8.44	OK
28	0.002	0.231	1.00	OK
29	0.015	0.231	6.45	OK
30	0.004	0.231	1.68	OK
31	0.015	0.231	6.40	OK
32	0.002	0.231	0.91	OK
33	0.011	0.231	4.73	OK
34	0.002	0.231	1.01	OK
35	0.009	0.231	3.96	OK
36	0.003	0.231	1.10	OK
37	0.009	0.231	3.69	OK
38	0.002	0.231	1.01	OK
39	0.010	0.231	4.45	OK
40	0.013	0.231	5.57	OK

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Model No.: TPP 30-105
Mode_3

Teseq Proflin
4542 Luterbach, Switzerland

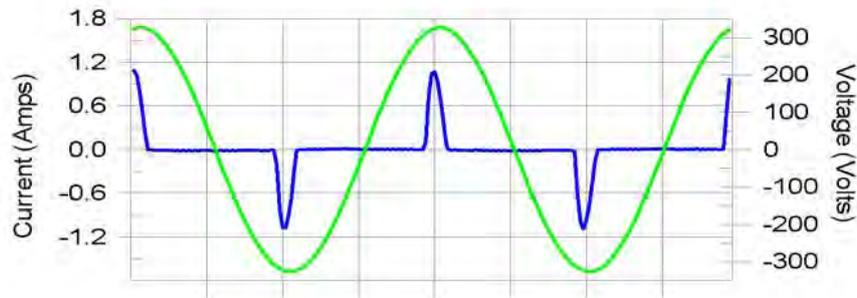
8/31/2017
11:34 PM

Harmonics – Class-A per Ed. 4.0 (2014)(Run time)

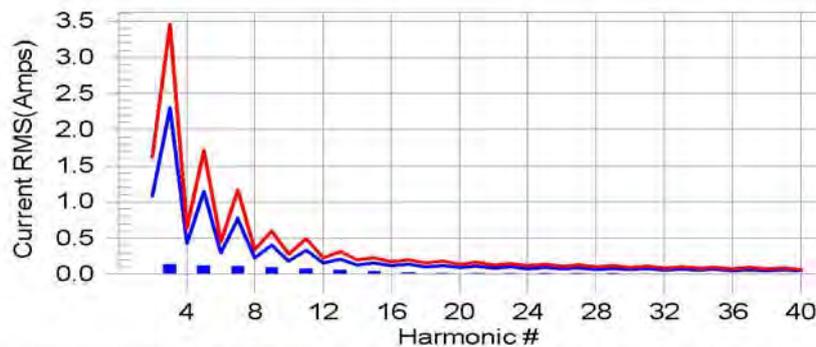
EUT:
 Test category: Class-A per Ed. 4.0 (2014) (European limits) Tested by:
 Test date: 2017/8/31 Start time: 下午 09:42:22 Test Margin: 100
 Test duration (min): 10 Data file name: H-000065.cts_data End time: 下午 09:52:34
 Comment:
 Customer:

Test Result: Pass Source qualification: Normal

Current & voltage waveforms



Harmonics and Class A limit line European Limits



Test result: Pass Worst harmonics H13-17.4% of 150% limit, H13-25% of 100% limit

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.

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Teseq Profline
4542 Luterbach, Switzerland

8/31/2017
11:34 PM

Current Test Result Summary (Run time)

EUT: Tested by:
 Test category: Class-A per Ed. 4.0 (2014) (European limits) Test Margin: 100
 Test date: 2017/8/31 Start time: 下午 09:42:22 End time: 下午 09:52:34
 Test duration (min): 10 Data file name: H-000065.cts_data
 Comment:
 Customer:

Test Result: Pass Source qualification: Normal
 THC(A): 0.253 I-THD(%): 176.8 POHC(A): 0.029 POHC Limit(A): 0.251

Highest parameter values during test:

V_RMS (Volts): 230.74	Frequency(Hz): 50.00
I_Peak (Amps): 1.113	I_RMS (Amps): 0.291
I_Fund (Amps): 0.143	Crest Factor: 3.830
Power (Watts): 32.5	Power Factor: 0.492

Harm#	Harms(avg)	100%Limit	%of Limit	Harms(max)	150%Limit	%of Limit	Status
2	0.000	1.080	N/A	0.000	1.620	N/A	Pass
3	0.134	2.300	5.8	0.136	3.450	3.9	Pass
4	0.000	0.430	N/A	0.000	0.645	N/A	Pass
5	0.124	1.140	10.8	0.124	1.710	7.2	Pass
6	0.000	0.300	N/A	0.000	0.450	N/A	Pass
7	0.109	0.770	14.1	0.109	1.155	9.4	Pass
8	0.000	0.230	N/A	0.000	0.345	N/A	Pass
9	0.091	0.400	22.7	0.092	0.600	15.3	Pass
10	0.000	0.184	N/A	0.000	0.276	N/A	Pass
11	0.071	0.330	21.7	0.073	0.495	14.8	Pass
12	0.000	0.153	N/A	0.000	0.230	N/A	Pass
13	0.052	0.210	25.0	0.055	0.315	17.4	Pass
14	0.000	0.131	N/A	0.000	0.197	N/A	Pass
15	0.035	0.150	23.3	0.038	0.225	16.8	Pass
16	0.000	0.115	N/A	0.000	0.173	N/A	Pass
17	0.021	0.132	15.7	0.023	0.198	11.8	Pass
18	0.000	0.102	N/A	0.000	0.153	N/A	Pass
19	0.012	0.118	10.1	0.013	0.178	7.6	Pass
20	0.000	0.092	N/A	0.000	0.138	N/A	Pass
21	0.011	0.107	10.0	0.011	0.161	7.0	Pass
22	0.000	0.084	N/A	0.000	0.125	N/A	Pass
23	0.013	0.098	12.9	0.013	0.147	9.1	Pass
24	0.000	0.077	N/A	0.000	0.115	N/A	Pass
25	0.013	0.090	15.0	0.014	0.135	10.1	Pass
26	0.000	0.071	N/A	0.000	0.107	N/A	Pass
27	0.012	0.083	14.9	0.013	0.125	10.4	Pass
28	0.000	0.066	N/A	0.000	0.099	N/A	Pass
29	0.010	0.078	12.8	0.011	0.116	9.4	Pass
30	0.000	0.061	N/A	0.000	0.092	N/A	Pass
31	0.007	0.073	9.4	0.008	0.109	7.4	Pass
32	0.000	0.058	N/A	0.001	0.086	N/A	Pass
33	0.004	0.068	N/A	0.005	0.102	N/A	Pass
34	0.000	0.054	N/A	0.000	0.081	N/A	Pass
35	0.004	0.064	N/A	0.004	0.096	N/A	Pass
36	0.000	0.051	N/A	0.000	0.077	N/A	Pass
37	0.004	0.061	N/A	0.005	0.091	N/A	Pass
38	0.000	0.048	N/A	0.000	0.073	N/A	Pass
39	0.005	0.058	N/A	0.005	0.087	N/A	Pass
40	0.000	0.046	N/A	0.000	0.069	N/A	Pass

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.

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Teseq Profline
4542 Luterbach, Switzerland

8/31/2017
11:34 PM

Voltage Source Verification Data (Run time)

EUT: Tested by:
 Test category: Class-A per Ed. 4.0 (2014) (European limits) Test Margin: 100
 Test date: 2017/8/31 Start time: 下午 09:42:22 End time: 下午 09:52:34
 Test duration (min): 10 Data file name: H-000065.cts_data
 Comment:
 Customer:

Test Result: Pass Source qualification: Normal

Highest parameter values during test:

Voltage (Vrms): 230.74	Frequency(Hz): 50.00
I_Peak (Amps): 1.113	I_RMS (Amps): 0.291
I_Fund (Amps): 0.143	Crest Factor: 3.830
Power (Watts): 32.5	Power Factor: 0.492

Harm#	Harmonics V-rms	Limit V-rms	% of Limit	Status
2	0.023	0.461	4.91	OK
3	0.463	2.076	22.28	OK
4	0.020	0.461	4.31	OK
5	0.038	0.923	4.12	OK
6	0.017	0.461	3.61	OK
7	0.034	0.692	4.95	OK
8	0.014	0.461	3.00	OK
9	0.044	0.461	9.56	OK
10	0.012	0.461	2.53	OK
11	0.041	0.231	17.55	OK
12	0.010	0.231	4.33	OK
13	0.031	0.231	13.38	OK
14	0.004	0.231	1.62	OK
15	0.027	0.231	11.83	OK
16	0.004	0.231	1.59	OK
17	0.017	0.231	7.41	OK
18	0.010	0.231	4.47	OK
19	0.014	0.231	5.96	OK
20	0.015	0.231	6.33	OK
21	0.012	0.231	5.10	OK
22	0.004	0.231	1.68	OK
23	0.014	0.231	5.88	OK
24	0.003	0.231	1.29	OK
25	0.015	0.231	6.47	OK
26	0.002	0.231	0.92	OK
27	0.018	0.231	7.78	OK
28	0.002	0.231	0.97	OK
29	0.012	0.231	5.36	OK
30	0.004	0.231	1.73	OK
31	0.011	0.231	4.81	OK
32	0.002	0.231	0.89	OK
33	0.007	0.231	3.24	OK
34	0.002	0.231	0.85	OK
35	0.008	0.231	3.29	OK
36	0.002	0.231	0.99	OK
37	0.010	0.231	4.45	OK
38	0.002	0.231	0.91	OK
39	0.011	0.231	4.87	OK
40	0.013	0.231	5.54	OK

Note : Equipment with a rated power of 75 W or less other than lighting equipment, the limits are not specified in this edition of the standard.

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.
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4. Flicker

EN 61000-3-3 : 2013

4.1 Test Results

EN 61000-3-3 : 2013	Pass
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4.2 Methods and Procedures

Standard	Edition	Description
EN 61000-3-3	2013	Limits - Limitation of voltage changes, voltage fluctuations and flicker in public low-voltage supply systems, for equipment with rated current ≤ 16 A per phase and not subject to conditional connection

4.3 Test Instruments

SGS Flicker EN61000-3-3 HWAYA EMC					
EQUIPMENT TYPE	Manufacturer	Model Number	Serial Number	Calibration Date	Calibration Due
Power Analyzer	TESEQ	CCN 1000-1	1504A02654	2017/3/20	2018/3/19
AC Power Source	TESEQ	NSG 1007	1504A02654	2017/3/20	2018/3/19
Test Software	TESEQ	Win2100 V4	Ver. 4.5.8	N.C.R.	N.C.R.

SGS Taiwan LTD. Electronics & Communication Laboratory
No.2, Keji 1st Rd., Guishan Dist., Taoyuan City 333, Taiwan (R.O.C.)

4.4 EUT Operating Condition

Environment :

Temperature	Humidity
24 °C	60 %RH

Test setup : Please refer to photo of FLICKER testing setup

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4.5 Measurement Data

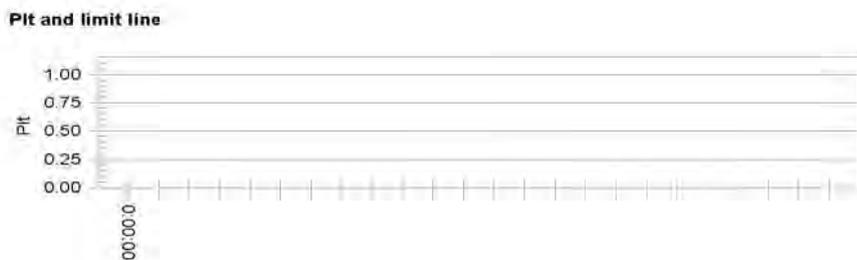
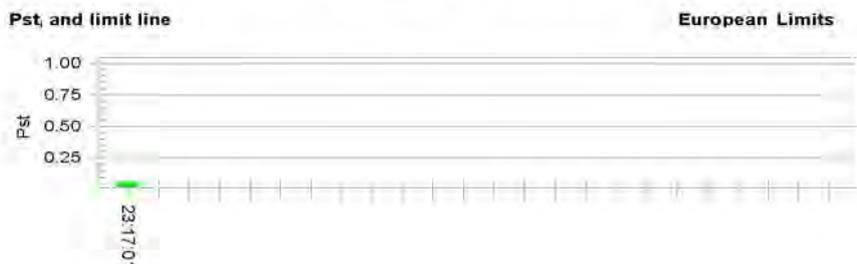
Model No.: TPP 30-105A-J
Mode_1

Teseq Profiline 4542 Luterbach, Switzerland 8/31/2017 11:33 PM

Flicker Test Summary per EN/IEC61000-3-3 Ed. 3.0 (2013) (Run time)

EUT: Test category: All parameters (European limits) Test date: 2017/8/31 Test duration (min): 10 Comment: Customer:
Tested by: Test Margin: 100 Start time: 下午 11:06:40 End time: 下午 11:17:07 Data file name: F-000071.cts_data

Test Result: Pass Status: Test Completed



Parameter values recorded during the test:			
Vrms at the end of test (Volt):	230.67		
Highest dt (%):	0.00	Test limit (%):	N/A
T-max (mS):	0	Test limit (mS):	500.0
Highest dc (%):	0.00	Test limit (%):	3.30
Highest dmax (%):	0.00	Test limit (%):	4.00
Highest Pst (10 min. period):	0.064	Test limit:	1.000
Highest Plt (2 hr. period):	0.028	Test limit:	0.650
			Pass

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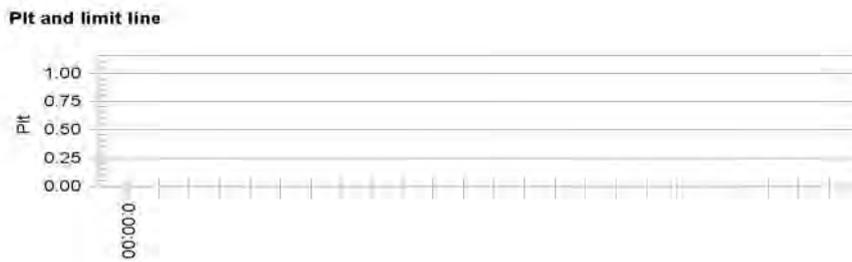
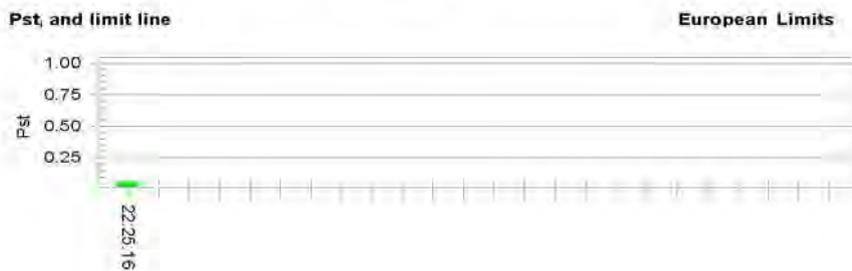
Model No.: TPP 30-105BA-J
Mode_2

Teseq Profile 8/31/2017
4542 Luterbach, Switzerland 11:33 PM

Flicker Test Summary per EN/IEC61000-3-3 Ed. 3.0 (2013) (Run time)

EUT: Tested by:
 Test category: All parameters (European limits) Test Margin: 100
 Test date: 2017/8/31 Start time: 下午 10:14:55 End time: 下午 10:25:22
 Test duration (min): 10 Data file name: F-000067.cts_data
 Comment:
 Customer:

Test Result: Pass Status: Test Completed



Parameter values recorded during the test:			
Vrms at the end of test (Volt):	230.65	Test limit (%):	N/A
Highest dt (%):	0.00	Test limit (mS):	500.0
T-max (mS):	0	Test limit (%):	3.30
Highest dc (%):	0.00	Test limit (%):	4.00
Highest dmax (%):	0.00	Test limit:	1.000
Highest Pst (10 min. period):	0.064	Test limit:	0.650
Highest Plt (2 hr. period):	0.028		

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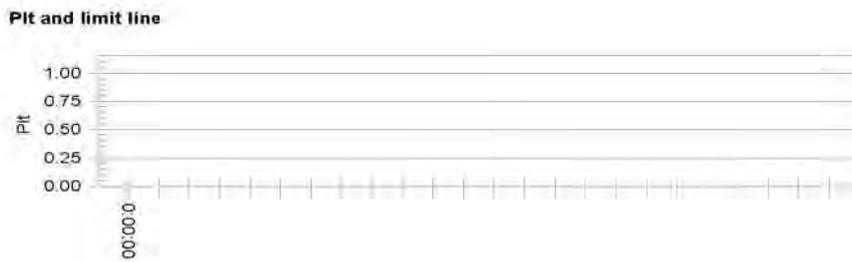
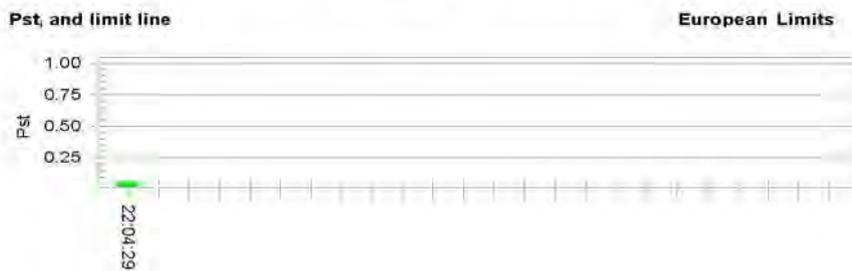
Model No.: TPP 30-105
Mode_3

Teseq Profile 8/31/2017
4542 Luterbach, Switzerland 11:34 PM

Flicker Test Summary per EN/IEC61000-3-3 Ed. 3.0 (2013) (Run time)

EUT: Tested by:
 Test category: All parameters (European limits) Test Margin: 100
 Test date: 2017/8/31 Start time: 下午 09:54:08 End time: 下午 10:04:35
 Test duration (min): 10 Data file name: F-000066.cts_data
 Comment:
 Customer:

Test Result: Pass Status: Test Completed



Parameter values recorded during the test:			
Vrms at the end of test (Volt):	230.67	Test limit (%):	N/A
Highest dt (%):	0.00	Test limit (mS):	500.0
T-max (mS):	0	Test limit (%):	3.30
Highest dc (%):	0.00	Test limit (%):	4.00
Highest dmax (%):	0.00	Test limit:	1.000
Highest Pst (10 min. period):	0.064	Test limit:	0.650
Highest Plt (2 hr. period):	0.028		

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5. IMMUNITY

EN 55014-2 : 2015, Category IV

5.1 Test Results

Test Standard	Performance Criteria	Result
IEC 61000-4-2 : 2008	B	Pass
IEC 61000-4-3 : 2006+A1:2007+A2:2010	A	Pass
IEC 61000-4-4 : 2012	A	Pass
IEC 61000-4-5 : 2014	A	Pass
IEC 61000-4-6 : 2013	A	Pass
IEC 61000-4-11 : 2004	B	Pass

5.2 Performance Criteria Description

Criterion A - The apparatus shall continue to operate as intended. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer, when the apparatus is used as intended.

Criterion B - The apparatus shall continue to operate as intended after the test. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer, when the apparatus is used as intended.

Criterion C - Temporary loss of function is allowed, provided the function is self recoverable or can be restored by the operation of the controls.

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5.3 Test of IEC 61000-4-2

5.3.1 Methods and Procedures

Standard	Edition	Description
IEC 61000-4-2	2008	Electrostatic Discharge (ESD)

5.3.2 Test Instruments

SGS ESD EN61000-4-2 HwaYa No.1_EMC					
EQUIPMENT TYPE	Manufacturer	Model Number	Serial Number	Calibration Date	Calibration Due
ESD Simulator	Thermo	MiniZap	612312	2017/6/16	2018/6/15
HCP	N/A	1.6 x 0.8 m	N/A	N.C.R.	N.C.R.
VCP	N/A	0.5 x 0.5 m	N/A	N.C.R.	N.C.R.

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5.3.3 EUT Operating Condition

Environment :

Temperature	Humidity
21 °C	45 %RH

Test setup : Please refer to photo of ESD testing setup

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5.4 Test of IEC 61000-4-3

5.4.1 Methods and Procedures

Standard	Edition	Description
IEC 61000-4-3	2006+A1:2007 +A2:2010	Radio-Frequency Electromagnetic Field Susceptibility Test, RS

5.4.2 Test Instruments

SGS RS EN61000-4-3 HWAYA SAC-B EMC					
EQUIPMENT TYPE	Manufacturer	Model Number	Serial Number	Calibration Date	Calibration Due
RS Test Site	Chance Most	9X6X6	SAC-B	2016/12/13	2017/12/12
Signal Generator	R&S	SMJ 100A	101258	2016/9/19	2017/9/18
Power Sensor	R&S	NRP-Z11	111682	2017/3/29	2018/3/28
Power Sensor	R&S	NRP-Z11	112186	2017/3/21	2018/3/20
Power Amplifier	R&S	BBA100	101075	N.C.R.	N.C.R.
Power Amplifier	R&S	BBA100	101021	N.C.R.	N.C.R.
E-Field Generating Antenna	ifi	EFG-3	U2137-0217	N.C.R.	N.C.R.
High Gain Log-Per. Antenna	R&S	HL046E	9149-151	N.C.R.	N.C.R.
Calibrated Broadband Log-Per. Test-Antenna	Schwarzbeck	STLP 9149	9149-151	N.C.R.	N.C.R.
Field Probes	Narda	NBM-550	V8.F-0375	2017/1/17	2018/1/16
Test Software	R&S	EMC 32	V9.21.00	N.C.R.	N.C.R.

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5.4.3 EUT Operating Condition

Environment :

Temperature	Humidity
21 °C	45 %RH

Test setup : Please refer to photo of RS testing setup

5.4.4 Results of Radiated Radio Frequency Electromagnetic (RS)

Model No.: TPP 30-105A-J; TPP 30-105; TPP 30-105BA-J

Test Mode : Mode 1~3
 Basic Standard : IEC 61000-4-3
 Frequency range : 80 MHz - 1000 MHz
 Field strength : 20 V/m
 Modulation : 80% AM (1KHz)
 Frequency step : 1 % of fundamental
 Dwell Time : 3 seconds
 Test distance : 3 m

No.	Frequency (MHz)	Antenna Orientation	Observation	EUT Orientation
1	80 - 1000	Vertical/Horizontal	A	0 degree
2	80 - 1000	Vertical/Horizontal	A	90 degree
3	80 - 1000	Vertical/Horizontal	A	180 degree
4	80 - 1000	Vertical/Horizontal	A	270 degree

Remark: A : No degradation of performance or loss of function.
 N/A : Not Applicable.

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5.5 Test of IEC 61000-4-4

5.5.1 Methods and Procedures

Standard	Edition	Description
IEC 61000-4-4	2012	Electrical fast transient/burst requirements

5.5.2 Test Instruments

SGS EFT EN61000-4-4 HWAYA EMC					
EQUIPMENT TYPE	Manufacturer	Model Number	Serial Number	Calibration Date	Calibration Due
Burst Generator	TESEQ	NSG 3025	35177	2016/12/6	2017/12/5
EFT Clamp	Thermo	CCL	612359	2016/12/6	2017/12/5

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5.5.3 EUT Operating Condition

Environment :

Temperature	Humidity
21 °C	45 %RH

Test setup : Please refer to photo of EFT testing setup

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5.5.4 Results of Electrical Fast Transient (EFT)

Model No.: TPP 30-105A-J; TPP 30-105; TPP 30-105BA-J

Test Mode : Mode 1~3

Basic Standard : IEC 61000-4-4

Test Voltage : AC Input/Output : ± 2 kV, DC Input/Output : ± 0.5 kV, Signal port : ± 0.5 kV

Polarity : Positive/Negative

Impulse Frequency: 5 kHz

Tr/Tn : 5/50ns

Burst : 15ms/300ms

Observation :

Test Point	Polarity	Test Level (kV)	Results
AC Input	+/-	2	A
DC Input	+/-	0.5	N/A
Signal/Comm.	+/-	0.5	N/A

Remark: A : No degradation of performance or loss of function.

N/A : Not Applicable.

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5.6 Test of IEC 61000-4-5

5.6.1 Methods and Procedures

Standard	Edition	Description
IEC 61000-4-5	2014	Surge immunity test

5.6.2 Test Instruments

SGS Surge EN61000-4-5 HWAYA EMC					
EQUIPMENT TYPE	Manufacturer	Model Number	Serial Number	Calibration Date	Calibration Due
Surge Tester	EMC Partner	MIG0603IN2 S-T	1515	2017/5/16	2018/5/15
Universal Surge CDN	EMC Partner	CDN-UTP8	CDN-UTP8-1516	2017/5/19	2018/5/18

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5.6.3 EUT Operating Condition

Environment :

Temperature	Humidity
21 °C	45 %RH

Test setup : Please refer to photo of SURGE testing setup

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5.6.4 Results of Surge Test

Model No.: TPP 30-105A-J; TPP 30-105; TPP 30-105BA-J

Test Mode : Mode 1~3
Test Rate : 1 pulse every minute
No. of Tests : 5 positive and 5 negative pulses
Waveform : 1.2/50 μ s (8/20 μ s)

Observation Description

AC Power line:

Test Point	Phase Angle (degree)	Polarity (+/-)	Test Level (kV)	Observation
L – N	0, 90, 180, 270	+/-	1	A
L – PE	0, 90, 180, 270	+/-	2	A (For Mode 2)
N – PE	0, 90, 180, 270	+/-	2	A (For Mode 2)

Remark: A : No degradation of performance or loss of function.
N/A : Not Applicable.

DC Power line:

Test Point	Phase Angle (degree)	Polarity (+/-)	Test Level (kV)	Observation
DC input	N/A	+/-	0.5	N/A

Remark: N/A : Not Applicable.

Signal line:

Test Rate : 1 pulse every minute
No. of Tests : 5 positive and 5 negative pulses
Waveform : 10/700 μ s

Observation Description

Telecommunication line:

Test Point	Phase Angle (degree)	Polarity (+/-)	Test Level (kV)	Observation
Signal I/O	N/A	+/-	1	N/A
POE LAN	N/A	+/-	1	N/A

Remark: N/A : Not Applicable.

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5.7 Test of IEC 61000-4-6

5.7.1 Methods and Procedures

Standard	Edition	Description
IEC 61000-4-6	2013	Immunity to conducted disturbances, induced by radio-frequency fields.

5.7.2 Test Instruments

SGS CS EN61000-4-6 HWAYA SR-D_EMC					
EQUIPMENT TYPE	Manufacturer	Model Number	Serial Number	Calibration Date	Calibration Due
Signal Generator	Agilent	8648C	4108A05772	2017/3/4	2018/3/3
Power Sensor	R&S	NRVD	837794/029	2017/8/10	2018/8/9
Power Sensor	R&S	URV5-Z2	835640/015	2017/8/10	2018/8/9
Power Sensor	R&S	URV5-Z2	835640/016	2017/8/10	2018/8/9
Dual Directional Coupler	OSR	C21A8	33	N.C.R.	N.C.R.
Conducted Immunity System	Frankonia	CIT-10	102D3226	N.C.R.	N.C.R.
CDN	TESEQ	CDN M116	37673	2017/4/24	2018/4/23
CDN	TESEQ	CDN M016	35853	2016/11/3	2017/11/2
CDN	TESEQ	CDN T8-10	37212	2017/4/24	2018/4/23
CDN	TESEQ	CDN ST08A	30191	2017/2/24	2018/2/23
EM Injection Clamp	TESEQ	KEMZ 801A	33430	2017/5/12	2018/5/11
Test Software	ar	emcware	V3.4.0	N.C.R.	N.C.R.

SGS Taiwan LTD. Electronics & Communication Laboratory
No.2, Keji 1st Rd., Guishan Dist., Taoyuan City 333, Taiwan (R.O.C.)

5.7.3 EUT Operating Condition

Environment :

Temperature	Humidity
21 °C	45 %RH

Test setup : Please refer to photo of CS testing setup

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5.7.4 Results of Immunity to Conducted Disturbances (CS)

Model No.: TPP 30-105A-J; TPP 30-105; TPP 30-105BA-J

Test Mode : Mode 1~3
 Basic Standard : IEC 61000-4-6
 Frequency range : 0.15 MHz - 80 MHz
 Field strength : 20 Vrms
 Modulation : 80% AM, 1 kHz Sinewave
 Frequency step : 1 % of fundamental
 Dwell Time : 3 seconds
 Coupling Method : CDN 2 Lines (For Mode 1, 3)
 CDN 3 Lines (For Mode 2)

Cable Description	Frequency (MHz)	Observation
AC input	0.15 – 80	A
DC input	0.15 – 80	N/A
Signal/Comm.	0.15 – 80	N/A

Remark: A : No degradation of performance or loss of function.
 N/A : Not Applicable.

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5.8 Test of IEC 61000-4-11

5.8.1 Methods and Procedures

Standard	Edition	Description
IEC 61000-4-11	2004	Voltage dips, short interruptions and voltage variations immunity tests

5.8.2 Test Instruments

SGS DIP EN61000-4-11 HWAYA EMC					
EQUIPMENT TYPE	Manufacturer	Model Number	Serial Number	Calibration Date	Calibration Due
EMS Multi-Tester	EMC Partner	TRANSIENT 3000D	D-1500	2017/5/5	2018/5/4
SGS Taiwan LTD. Electronics & Communication Laboratory No.2, Keji 1st Rd., Guishan Dist., Taoyuan City 333, Taiwan (R.O.C.)					

5.8.3 EUT Operating Condition

Environment :

Temperature	Humidity
21 °C	45 %RH

Test setup : Please refer to photo of DIP testing setup

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5.8.4 Results of Voltage Dips Immunity Test

Model No.: TPP 30-105A-J; TPP 30-105; TPP 30-105BA-J

Test Mode : Mode 1~3

EUT Rated Voltage: AC 230V/50Hz

Voltage : 0, 40, 70 % Ut

Phase Angle : 0, 90, 180, 270 degree

Total events : 3 dropouts

Event interval : 10 seconds

Environmental phenomena		Test level in % Ut	Duration (in periods of the rated frequency)	Observation
Voltage dips in % Ut	100	0	0.5	A
	60	40	10	A
	30	70	25	A

Remark: A : No degradation of performance or loss of function.

N/A : Not Applicable.

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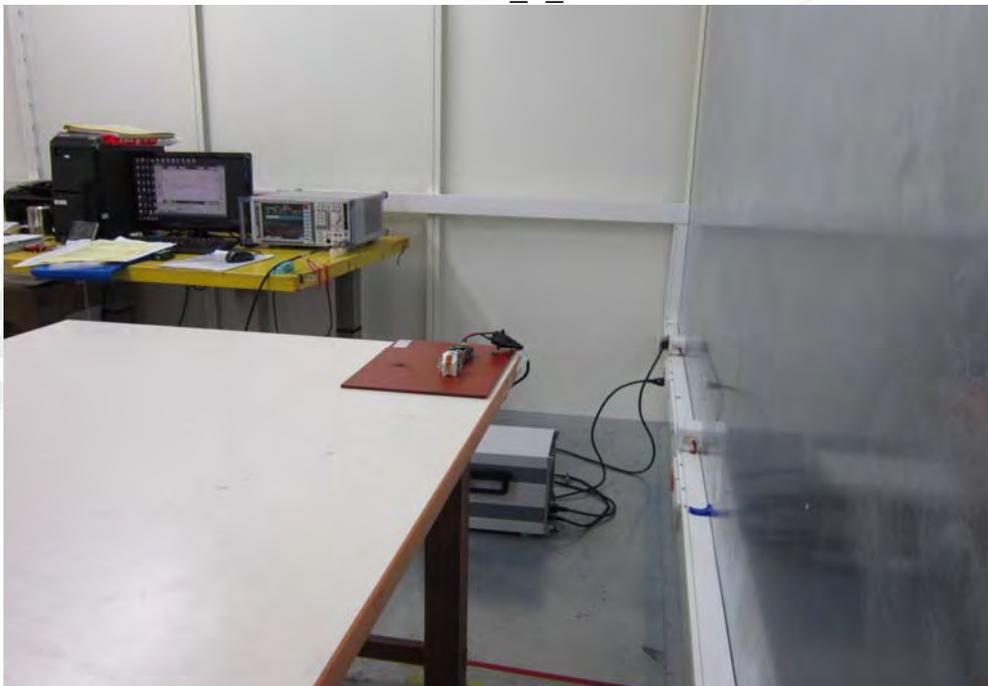
**Photography of General Testing Set-up
CE Testing Set-up**

Model No.: TPP 30-105A-J

Mode_1_+



Mode_1_-



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Model No.: TPP 30-105BA-J

Mode_2_+



Mode_2_-



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Model No.: TPP 30-105

Mode_3_+



Mode_3_-



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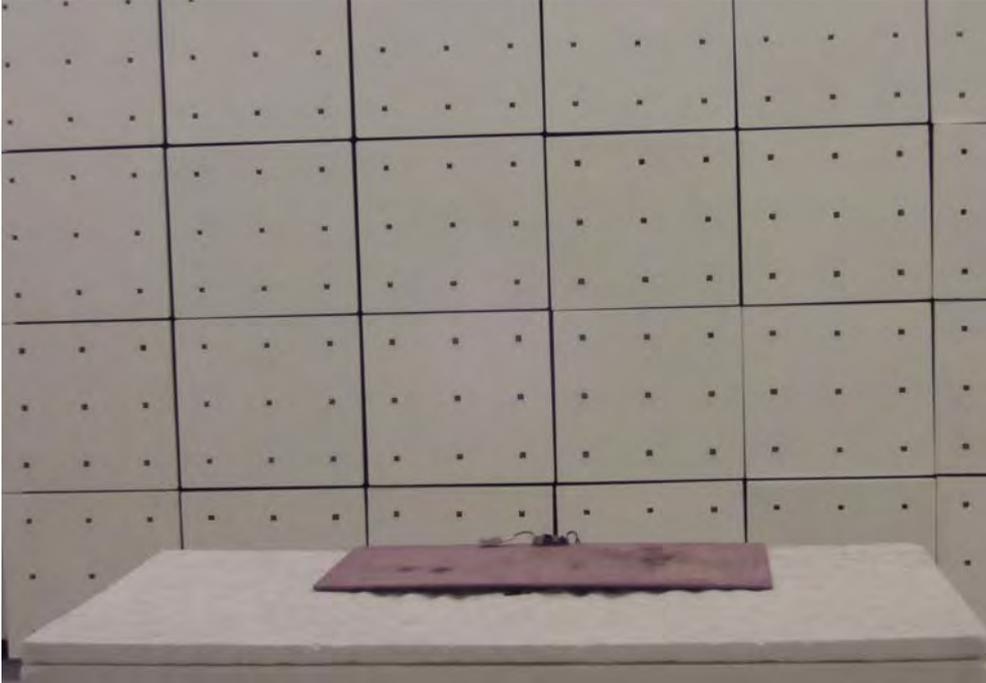
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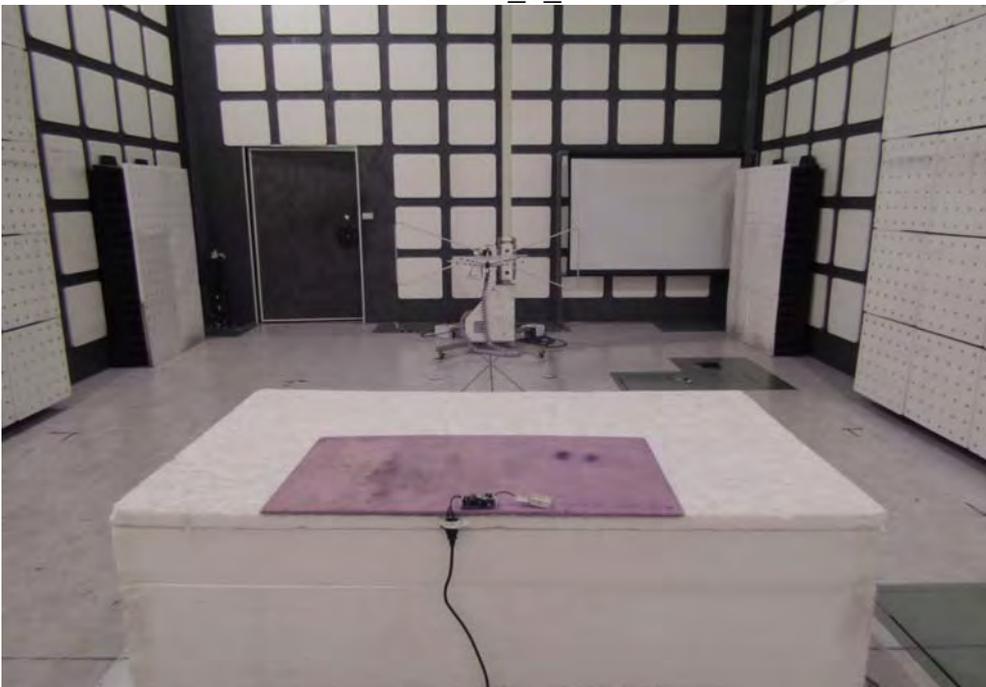
RE Testing Set-up Below 1GHz

Model No.: TPP 30-105A-J

Mode_1_+



Mode_1_-



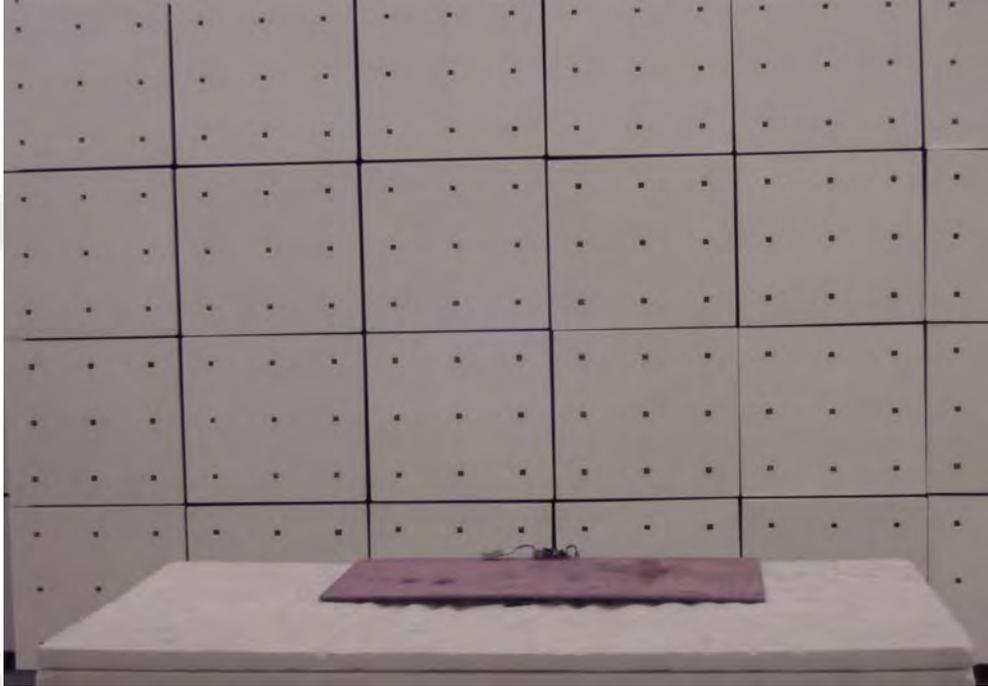
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Model No.: TPP 30-105BA-J

Mode_2_+



Mode_2_-



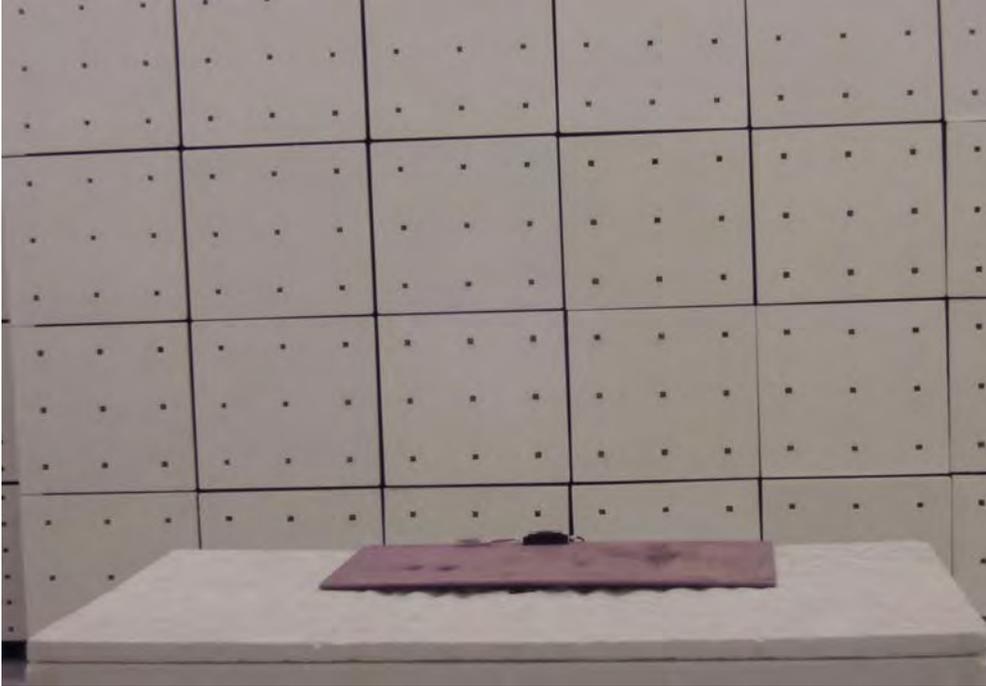
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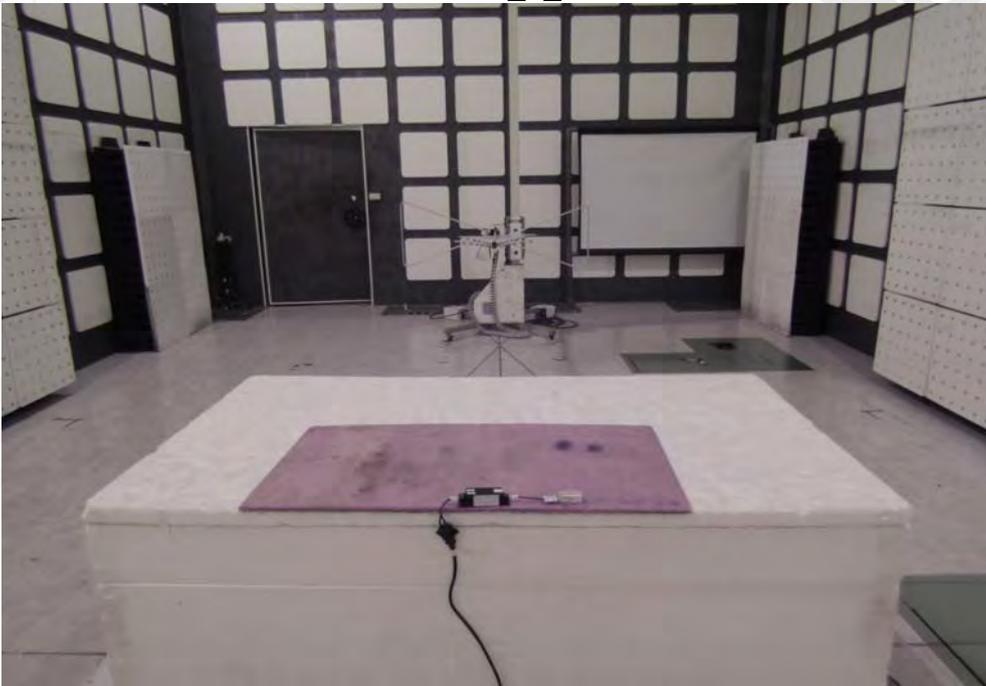
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Model No.: TPP 30-105

Mode_3_+



Mode_3_-



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HARMONIC Testing Set-up

Model No.: TPP 30-105A-J

Mode_1



Model No.: TPP 30-105BA-J

Mode_2



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Model No.: TPP 30-105
Mode_3



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FLICKER Testing Set-up

Model No.: TPP 30-105A-J

Mode_1



Model No.: TPP 30-105BA-J

Mode_2



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Model No.: TPP 30-105

Mode_3



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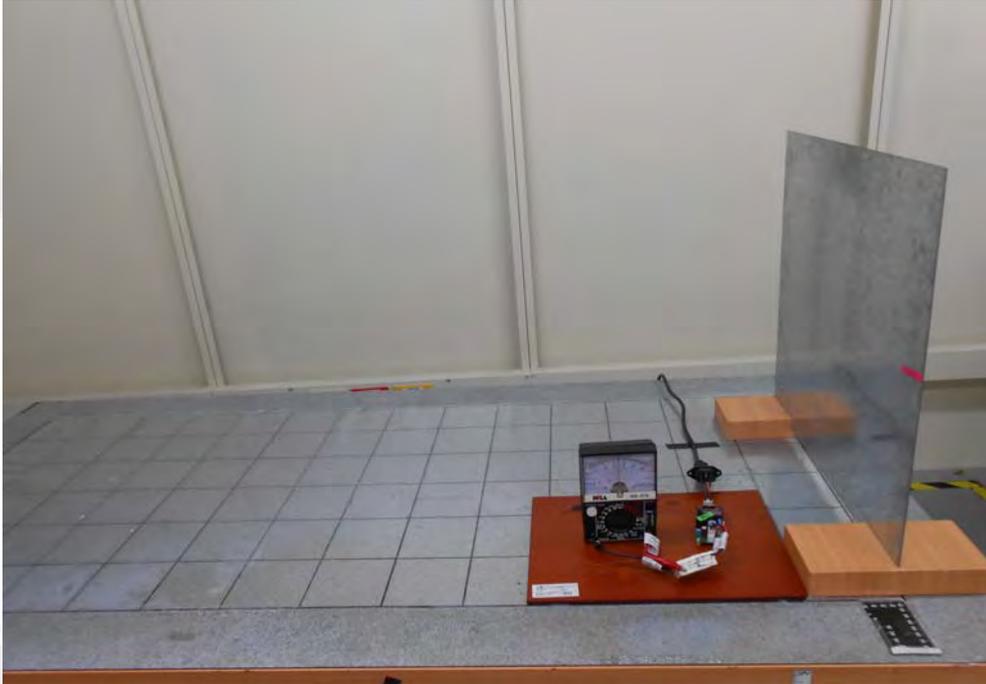
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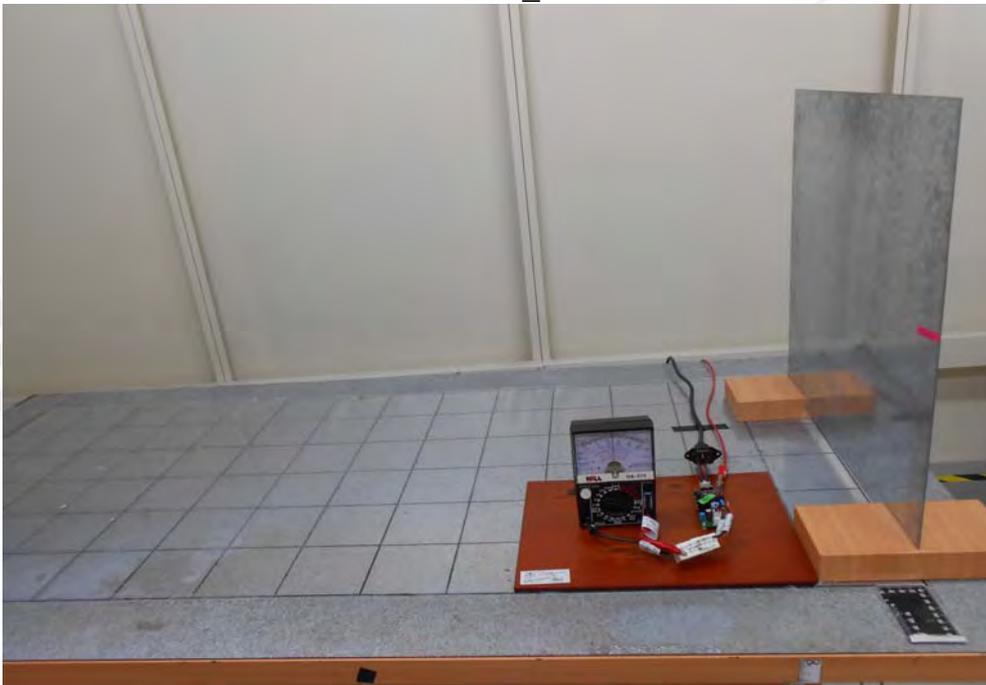
Model No.: TPP 30-105A-J

Mode_1



Model No.: TPP 30-105BA-J

Mode_2



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Model No.: TPP 30-105

Mode_3



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RS Testing Set-up

Model No.: TPP 30-105A-J

Mode_1



Model No.: TPP 30-105BA-J

Mode_2



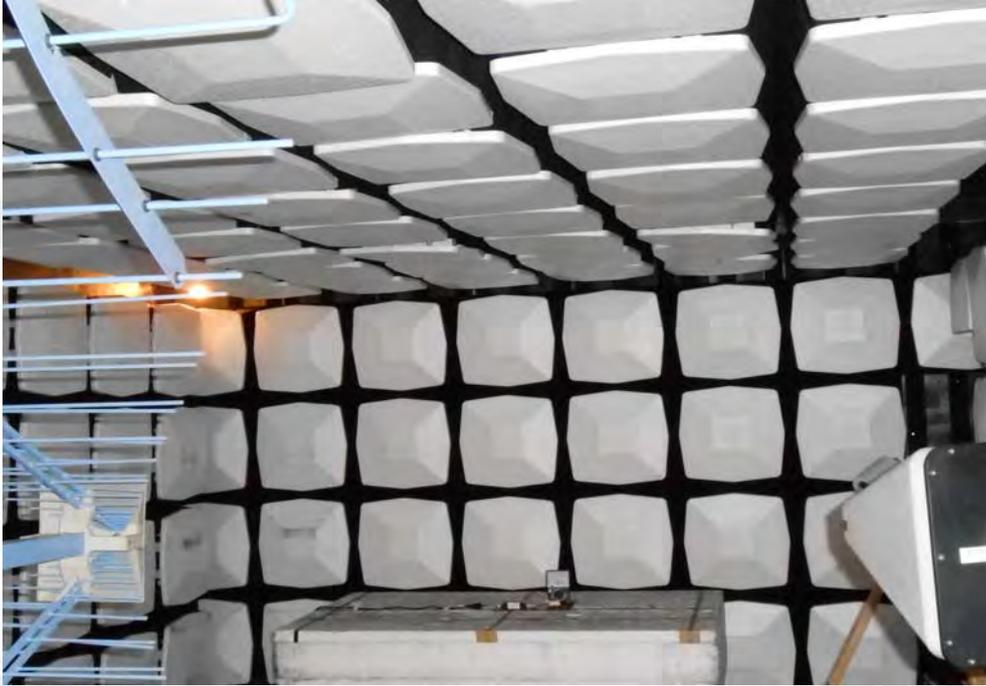
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Model No.: TPP 30-105

Mode_3



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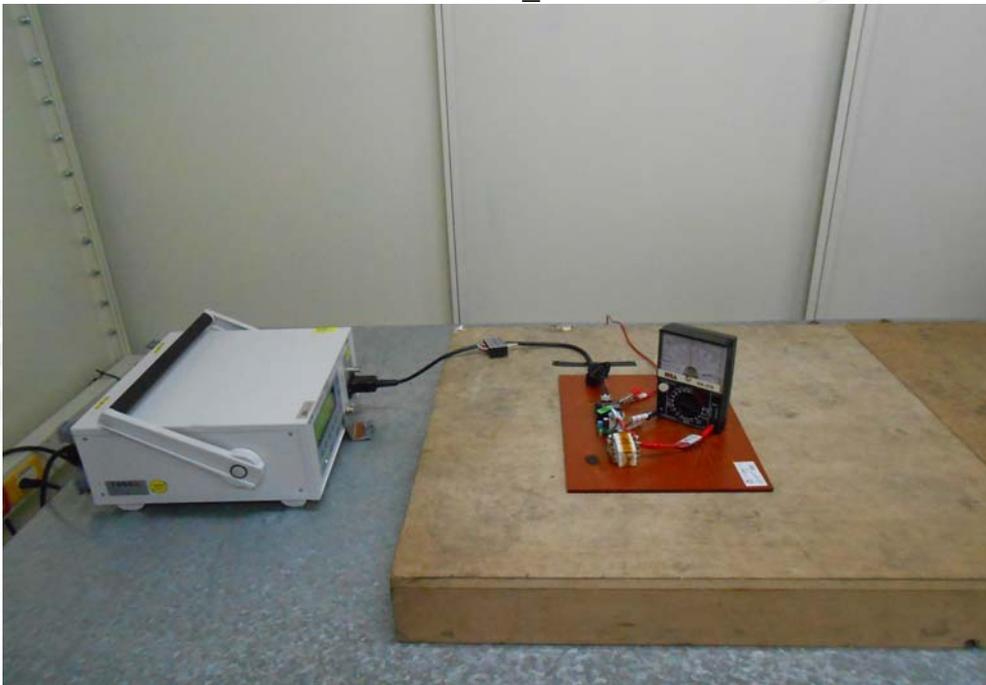
Model No.: TPP 30-105A-J

Mode_1



Model No.: TPP 30-105BA-J

Mode_2



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Model No.: TPP 30-105

Mode_3



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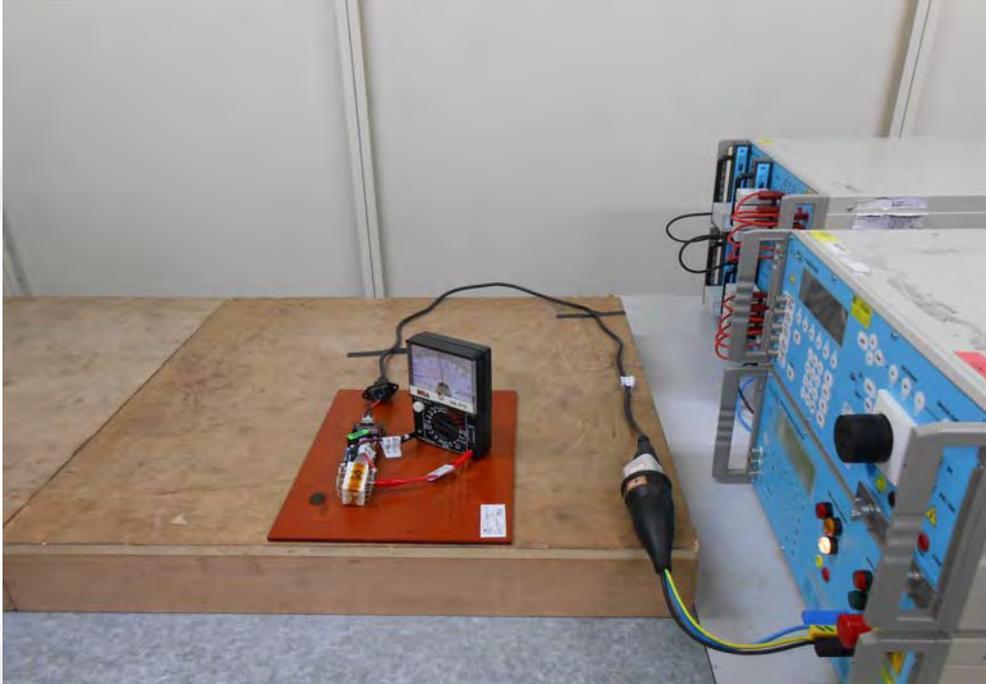
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SURGE Testing Set-up

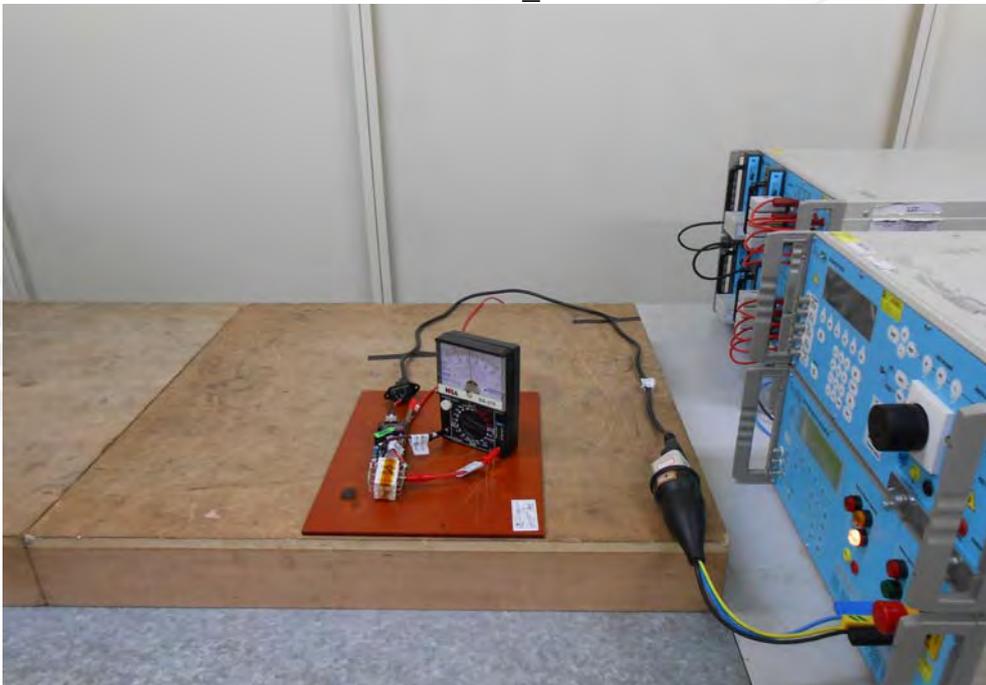
Model No.: TPP 30-105A-J

Mode_1



Model No.: TPP 30-105BA-J

Mode_2

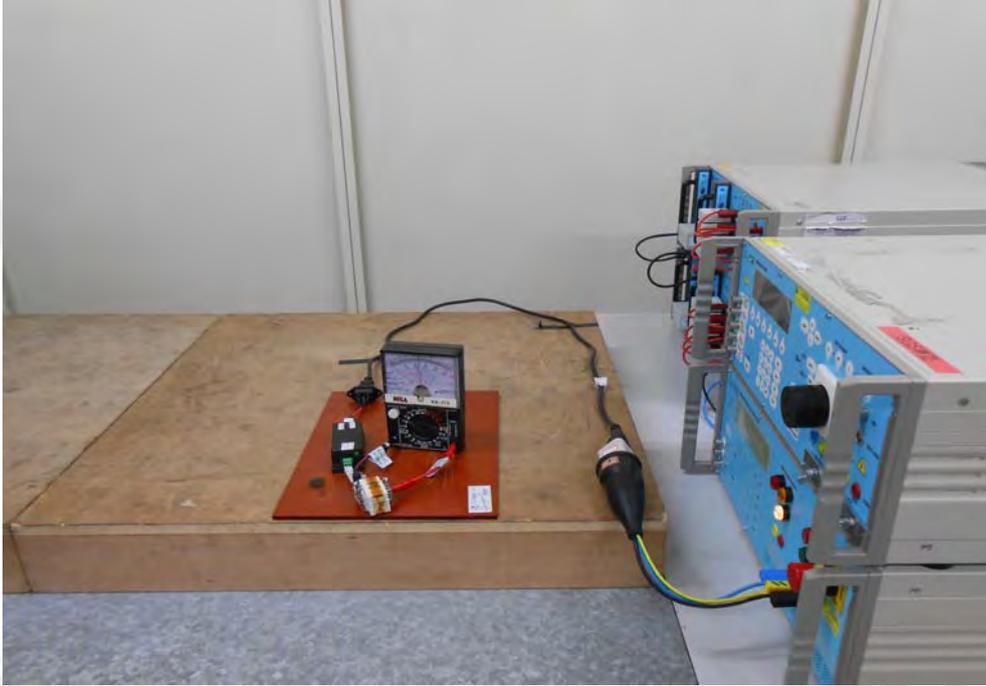


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Mode_3



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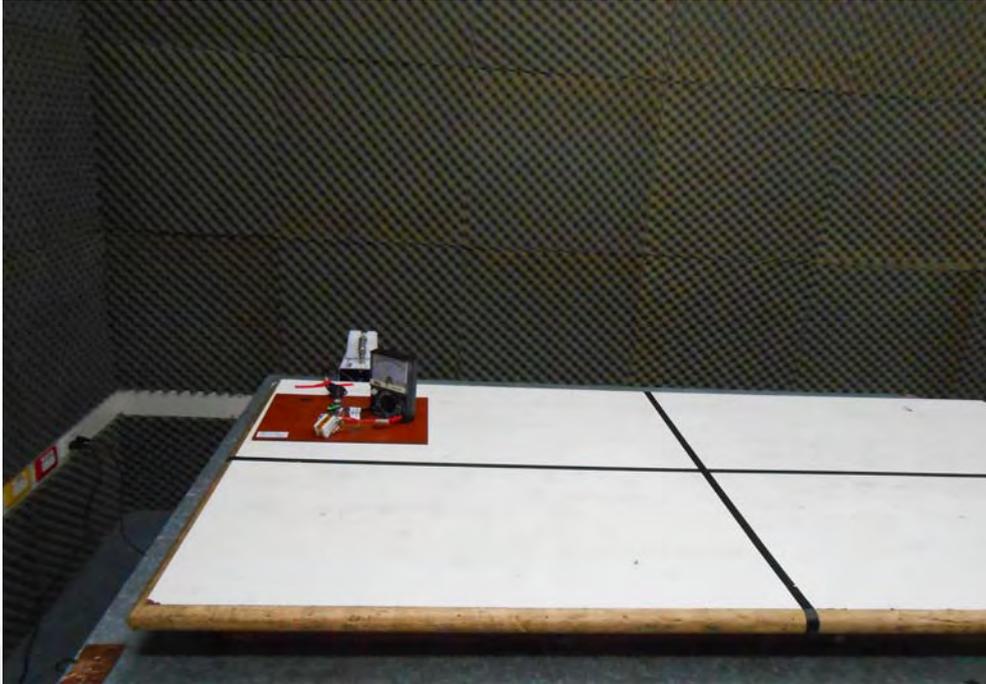
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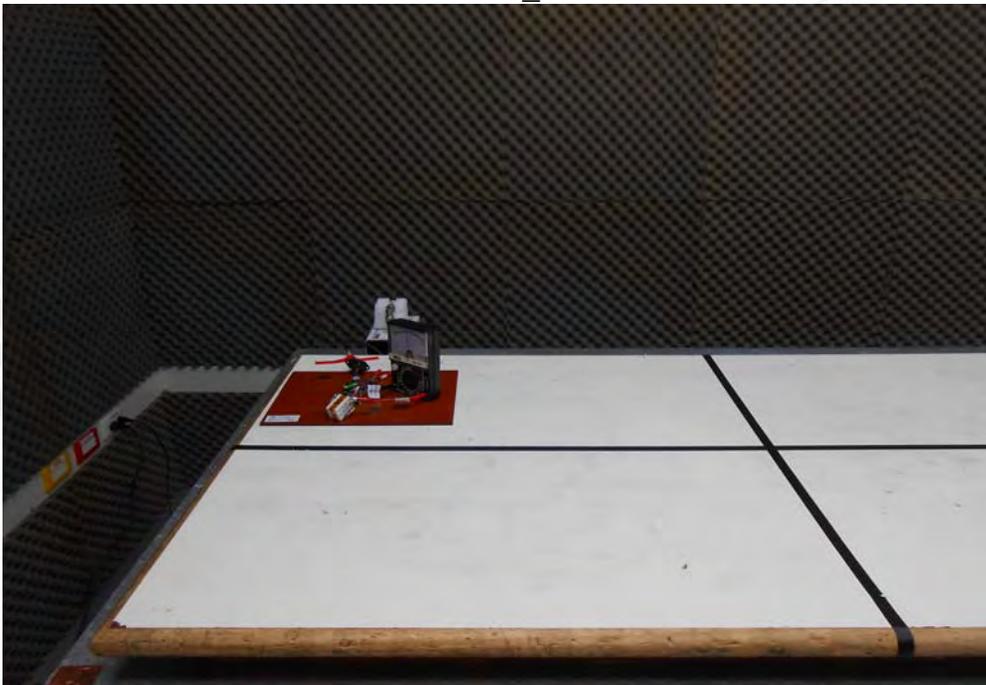
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Mode_1



Model No.: TPP 30-105BA-J

Mode_2



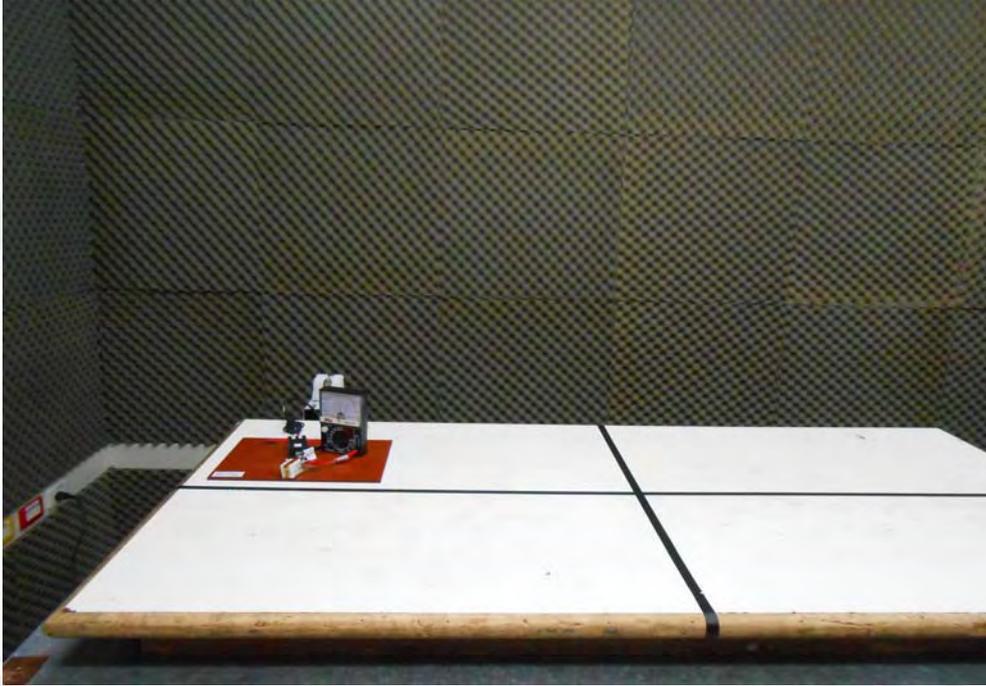
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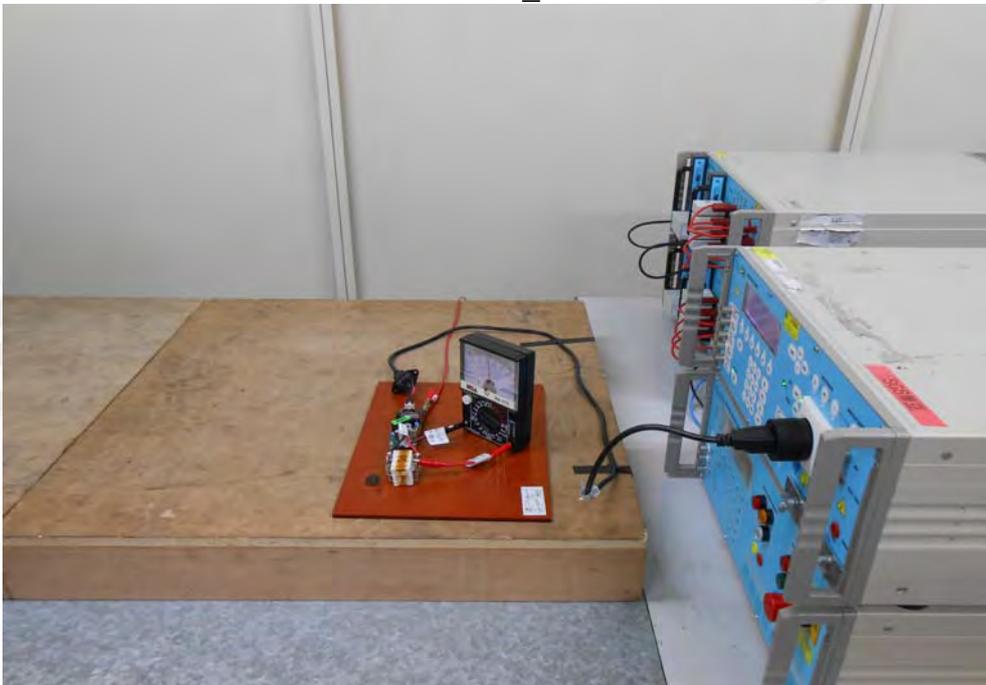
Model No.: TPP 30-105A-J

Mode_1



Model No.: TPP 30-105BA-J

Mode_2

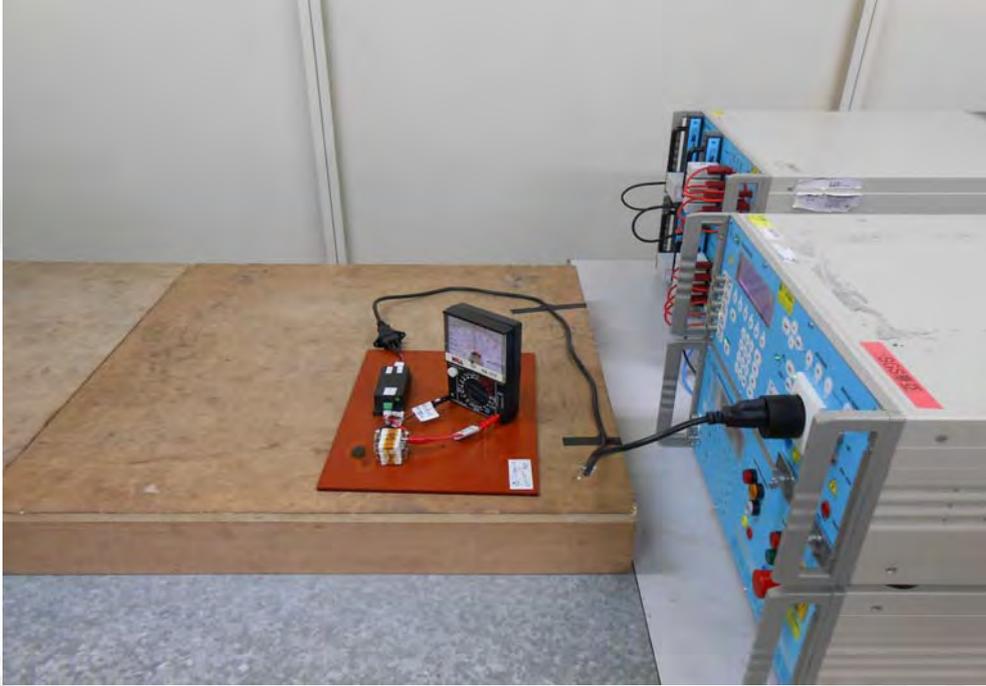


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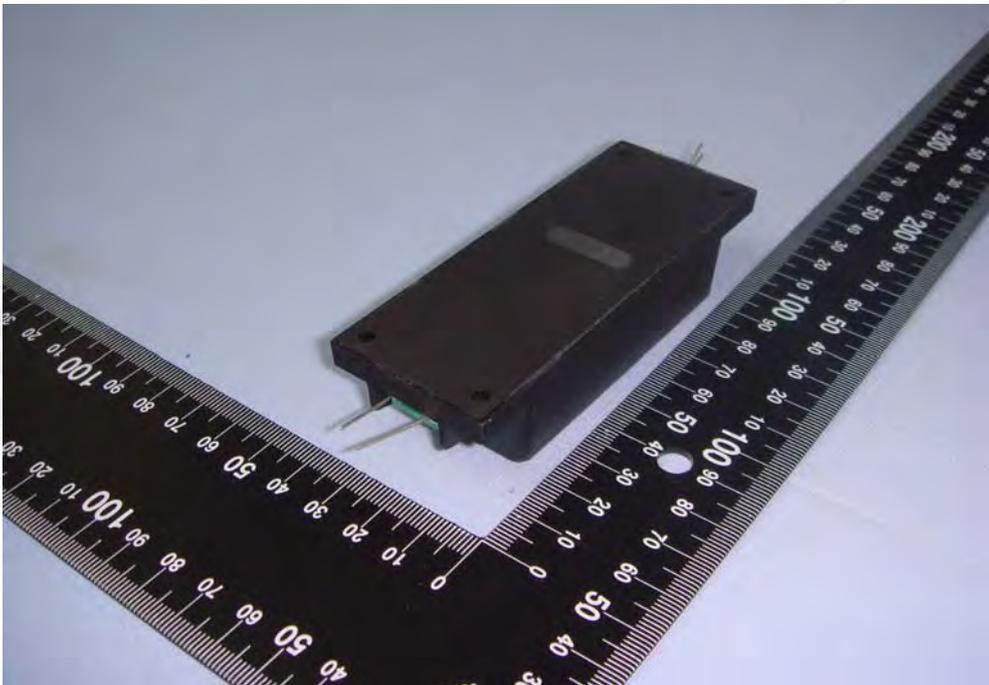
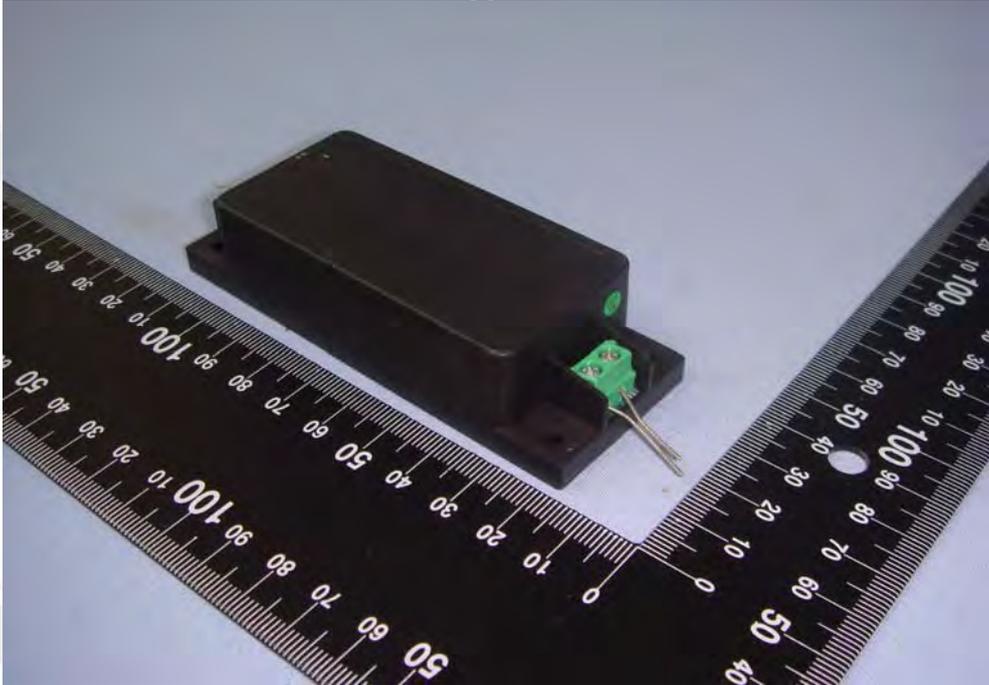
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Photographs of Product

Exterior

Type 1

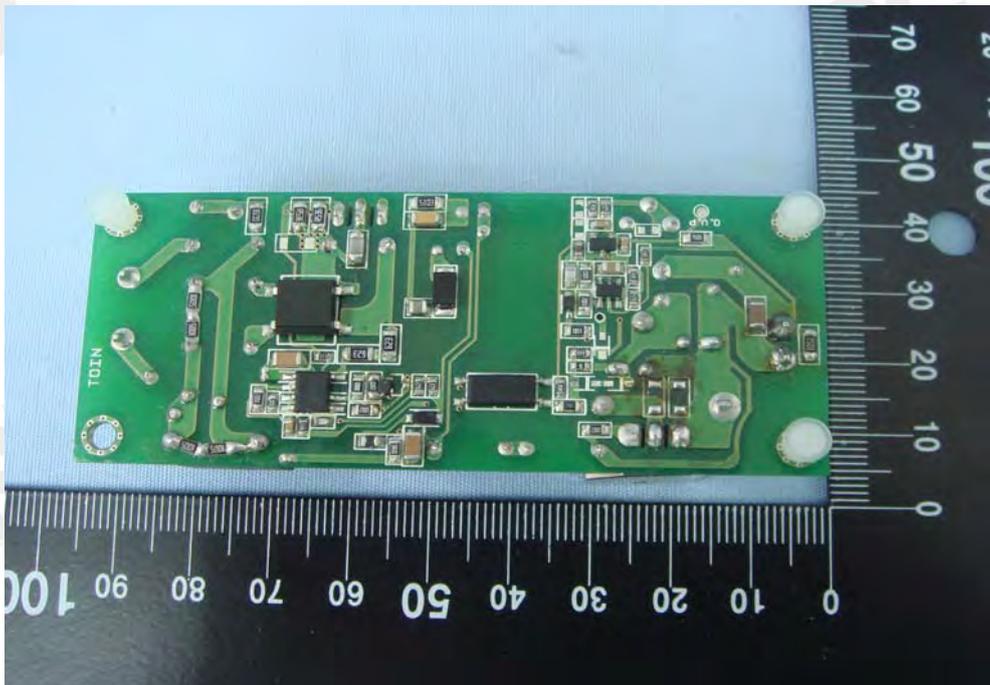
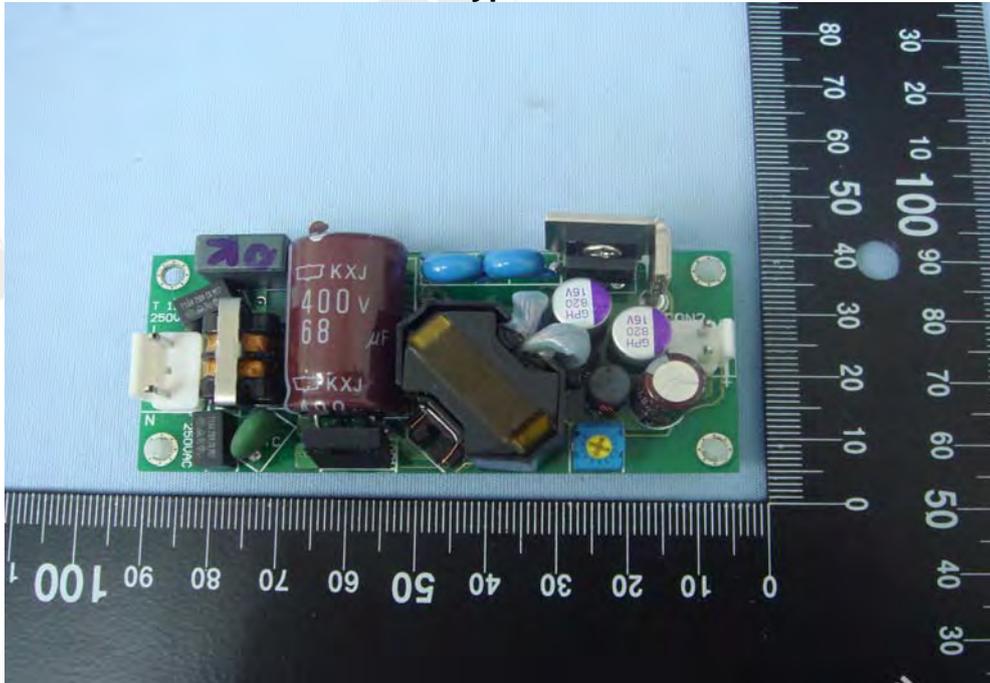


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Type 2



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