

TEST REPORT

Based On Test Report No. :E7/2017/80016

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 55032 : 2015+AC:2016-07	
EN 61000-3-2 : 2014	EN 61000-3-3 : 2013
EN 55024 : 2010+A1:2015	
IEC 61000-4-2 : 2008	IEC 61000-4-3 : 2006+A1:2007+A2:2010
IEC 61000-4-4 : 2012	IEC61000-4-5 : 2014
IEC 61000-4-6 : 2013	IEC 61000-4-8 : 2009
IEC 61000-4-11 : 2004	
EN 61204-3 : 2001	

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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Revision History

Report Number	Revision	Description	Issue Date
MH/2018/40099	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-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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<p>Added Model(s)</p>	<p>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;</p>
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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

Worst Case	
CE	Mode 1 ~ 3
ISN	N/A
RE	Mode 1 ~ 3

1.6 Modification List

No modification by SGS Taiwan Electronics & Communication Laboratory.

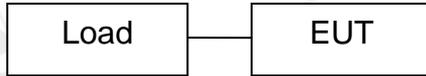
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1.7 Configuration of Tested System

EMI

Mode 1~3:



EMS

Mode 1~3:



1.8 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 55032 : 2015+AC:2016-07	Conducted Emission	Pass	Line	0.4780	-3.58 (AVG)
			Neutral	0.1666	-4.73 (QP)
	ISN	N/A	N/A	N/A	N/A
	Radiated Emission	Pass	Ver.	44.4700	-4.78 (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		

EN 61204-3 : 2001

Highest Emission					
Standard	Test Type	Result	Phase/Pol.	Frequency(MHz)	Margin(dB)
EN 61204-3 : 2001	Conducted Emission	Pass	Line	0.4780	-3.18 (AVG)
			Neutral	0.1540	-4.33 (QP)
	ISN	N/A	N/A	N/A	N/A
	Radiated Emission	Pass	Ver.	43.5800	-5.12 (QP)

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Immunity (EN 55024:2010+A1:2015)				
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 61000-4-8:2009	PMF test	PASS	Criterion A	Meets the requirements of Performance Criterion A
IEC 61000-4-11:2004	DIP Test	PASS	Criterion C/C/B	Meets the requirements of Performance Criterion B/A/A

Immunity (EN 61204-3 : 2001)				
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	Criterion B/C	Meets the requirements of Performance Criterion A/A
			Industrial environment Criterion C	Meets the requirements of Performance Criterion B

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2. EMISSION

EN 55032 : 2015+AC:2016-07
EN 61204-3 : 2001

2.1 Test Results

EN 55032 Class B EN 61204-3	Result
Conducted Emission	PASS
Radiated Emission	PASS

2.2 Limit

Maximum permissible level of Line Conducted Emission

FREQUENCY (MHz)	Class A(dBuV)		Class B(dBuV)	
	Quasi-peak	Average	Quasi-peak	Average
0.15 - 0.5	79	66	66 - 56	56 - 46
0.50 - 5.0	73	60	56	46
5.0 - 30.0	73	60	60	50

Note : The lower limit shall apply at the transition frequency.

Maximum permissible level of Common Mode Conducted Emission (Telecommunication Ports)

CLASS A

FREQUENCY (MHz)	Voltage Limit(dBuV)		Current Limit(dBuA)	
	Quasi-peak	Average	Quasi-peak	Average
0.15 - 0.5	97 - 87	84 - 74	53 - 43	40 - 30
0.5 - 30.0	87	74	43	30

CLASS B

FREQUENCY (MHz)	Voltage Limit(dBuV)		Current Limit(dBuA)	
	Quasi-peak	Average	Quasi-peak	Average
0.15 - 0.5	84 - 74	74 - 64	40 - 30	30 - 20
0.5 - 30.0	74	64	30	20

Note : The lower limit shall apply at the transition frequency.

Maximum permissible level of Radiated Emission measured at 10 meter

FREQUENCY (MHz)	Class A(dBuV/m)	Class B(dBuV/m)
	Quasi - peak	Quasi - peak
30 - 230	40	30
230 - 1000	47	37

Note : The lower limit shall apply at the transition frequency.

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Maximum permissible level of Radiated Emission measured at 3 meter

FREQUENCY (MHz)	Class A(dBuV/m)	Class B(dBuV/m)
	Quasi - peak	Quasi - peak
30 - 230	50	40
230 - 1000	57	47

Note : The lower limit shall apply at the transition frequency.

Limits above 1 GHz

Limits for radiated disturbance of Class A ITE at a measurement distance of 3m

Frequency range GHz	Average Limit dB(μV/m)	Peak Limit dB(μV/m)
1 to 3	56	76
3 to 6	60	80

Note : The lower limit applies at the transition frequency.

Limits for radiated disturbance of Class B ITE at a measurement distance of 3m

Frequency range GHz	Average Limit dB(μV/m)	Peak Limit dB(μV/m)
1 to 3	50	70
3 to 6	54	74

Note : The lower limit applies at the transition frequency.

Requirements for radiated emissions from FM receivers

Frequency range (MHz)	Measurement				Harmonics
	Facility	Distance m	Detector type / Bandwidth	Fundamental	
30 to 230	OATS/SAC	10	Quasi Peak / 120 kHz	50	42
230 to 300	OATS/SAC				42
300 to 1000	OATS/SAC				46
30 to 230	OATS/SAC	3	Quasi Peak / 120 kHz	60	52
230 to 300	OATS/SAC				52
300 to 1000	OATS/SAC				56

These relaxed limits apply only to emissions at the fundamental and harmonic frequencies of the LO. Signals at all other frequencies shall be compliant with the limits

Note : SAC : Semi Anechoic Chamber
OATS : Open Area Test Site

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2.3 Methods and Procedures

Standard	Edition	Description
EN 55032	2015 +AC:2016-07	Electromagnetic compatibility of multimedia equipment -Emission requirements
EN 61204-3	2001	Low voltage powersupplies, d.c. output-Part 3: Electromagnetic compatibility (EMC)

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2.4 Test of Conducted Emission & ISN

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, ISN testing set-up

2.4.3 Measurement Level Calculation

Factor = LISN insertion loss + Cable loss + Pulse Limiter Insertion Loss
Measurement Level = Reading Level + Factor
Over (Margin) = Measurement Level – Limit

2.4.4 Measurement Level Calculation

Factor = LISN insertion loss + Cable loss + Pulse Limiter Insertion Loss
Measurement Level = Reading Level + Factor
Over (Margin) = Measurement Level – Limit

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2.4.5 Measurement Data(CE)

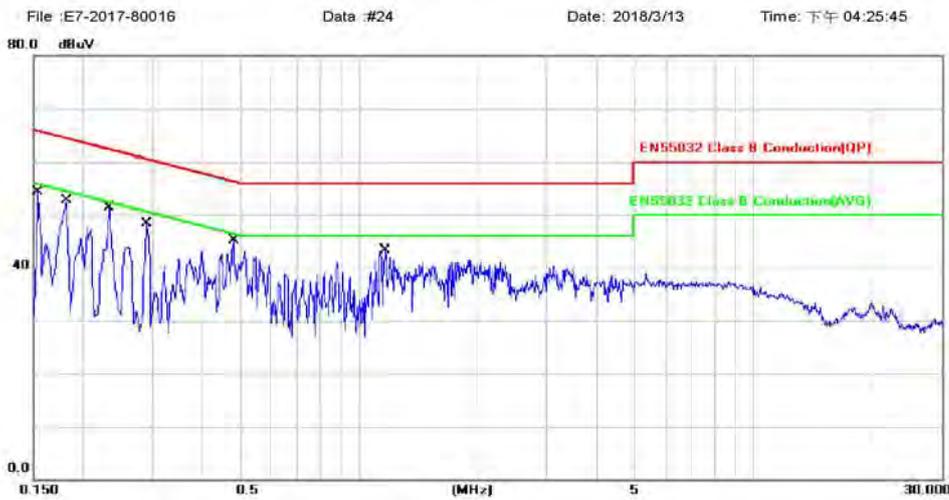
EN 55032 : 2015+AC:2016-07

Model No.:TPP 30-105A-J

Mode_1_L

Site : Conduction Room Phase: **L1** Temperature: 24 °C
 Limit: EN55032 Class B 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		0.1540	40.70	19.65	60.35	65.78	-5.43	QP	
2		0.1540	29.80	19.65	49.45	55.78	-6.33	AVG	
3		0.1820	35.50	19.64	55.14	64.39	-9.25	QP	
4		0.1820	26.60	19.64	46.24	54.39	-8.15	AVG	
5		0.2340	32.10	19.70	51.80	62.31	-10.51	QP	
6		0.2340	23.30	19.70	43.00	52.31	-9.31	AVG	
7		0.2900	26.70	19.79	46.49	60.52	-14.03	QP	
8		0.2900	18.50	19.79	38.29	50.52	-12.23	AVG	
9		0.4820	24.30	20.10	44.40	56.30	-11.90	QP	
10 *		0.4820	22.60	20.10	42.70	46.30	-3.60	AVG	
11		1.1660	20.20	19.97	40.17	56.00	-15.83	QP	
12		1.1660	18.30	19.97	38.27	46.00	-7.73	AVG	

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

File :E7-2017-80016\Data :#24

Page: 1

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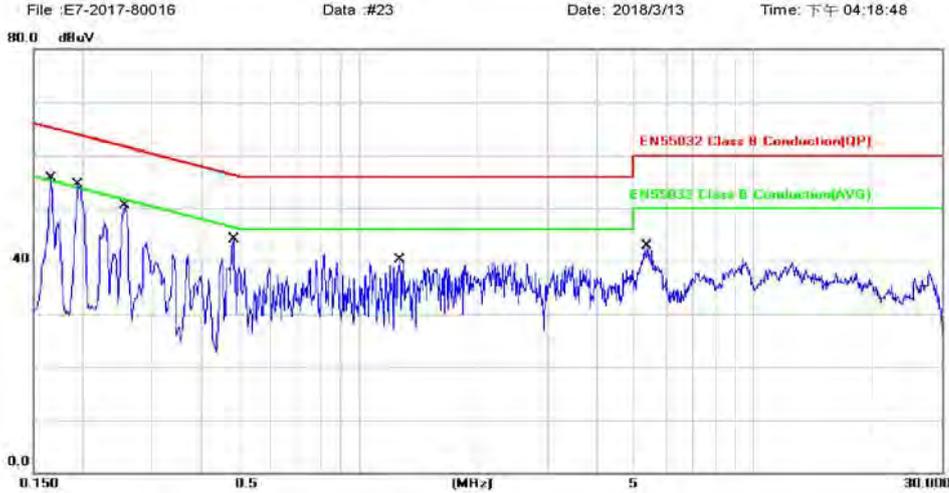
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Mode_1_N

Site: Conduction Room Phase: **N** Temperature: 24 °C
 Limit: EN55032 Class B 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	*	0.1666	40.90	19.50	60.40	65.13	-4.73	QP	
2		0.1666	29.30	19.50	48.80	55.13	-6.33	AVG	
3		0.1937	36.80	19.49	56.29	63.88	-7.59	QP	
4		0.1937	25.70	19.49	45.19	53.88	-8.69	AVG	
5		0.2570	28.90	19.58	48.48	61.53	-13.05	QP	
6		0.2570	20.30	19.58	39.88	51.53	-11.65	AVG	
7		0.4830	22.53	19.96	42.49	56.29	-13.80	QP	
8		0.4830	21.10	19.96	41.06	46.29	-5.23	AVG	
9		1.2720	18.80	19.90	38.70	56.00	-17.30	QP	
10		1.2720	16.70	19.90	36.60	46.00	-9.40	AVG	
11		5.3800	16.60	19.95	36.55	60.00	-23.45	QP	
12		5.3800	10.75	19.95	30.70	50.00	-19.30	AVG	

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

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Member of SGS Group

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

Site : Conduction Room Phase: **L1** Temperature: 24 °C
Limit: EN55032 Class B 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		0.1700	40.40	19.65	60.05	64.96	-4.91	QP	
2		0.1700	29.00	19.65	48.65	54.96	-6.31	AVG	
3		0.1980	36.00	19.64	55.64	63.69	-8.05	QP	
4		0.1980	25.00	19.64	44.64	53.69	-9.05	AVG	
5		0.2260	31.61	19.68	51.29	62.60	-11.31	QP	
6		0.2260	22.36	19.68	42.04	52.60	-10.56	AVG	
7		0.2860	26.31	19.78	46.09	60.64	-14.55	QP	
8		0.2860	16.72	19.78	36.50	50.64	-14.14	AVG	
9		0.4780	26.02	20.09	46.11	56.37	-10.26	QP	
10	*	0.4780	22.70	20.09	42.79	46.37	-3.58	AVG	
11		1.4780	21.05	20.18	41.23	56.00	-14.77	QP	
12		1.4780	18.40	20.18	38.58	46.00	-7.42	AVG	

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

File :E7-2017-80016>Data #3

Page: 1

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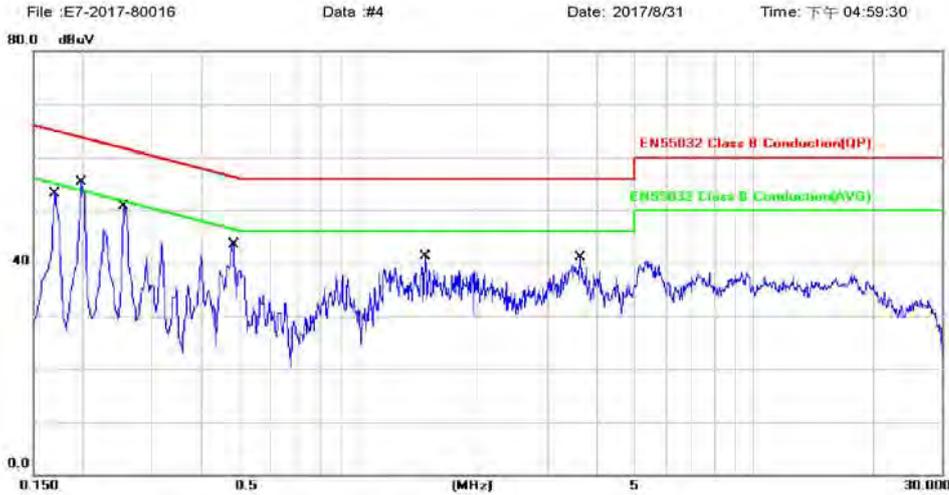
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Mode_2_N

Site : Conduction Room Phase: **N** Temperature: 24 °C
 Limit: EN55032 Class B 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	*	0.1700	40.70	19.50	60.20	64.96	-4.76	QP	
2		0.1700	28.90	19.50	48.40	54.96	-6.56	AVG	
3		0.1980	36.20	19.49	55.69	63.69	-8.00	QP	
4		0.1980	24.60	19.49	44.09	53.69	-9.60	AVG	
5		0.2540	29.24	19.58	48.82	61.63	-12.81	QP	
6		0.2540	17.77	19.58	37.35	51.63	-14.28	AVG	
7		0.4820	23.50	19.96	43.46	56.30	-12.84	QP	
8		0.4820	21.40	19.96	41.36	46.30	-4.94	AVG	
9		1.4780	19.35	20.04	39.39	56.00	-16.61	QP	
10		1.4780	16.80	20.04	36.84	46.00	-9.16	AVG	
11		3.6460	15.92	20.16	36.08	56.00	-19.92	QP	
12		3.6460	8.99	20.16	29.15	46.00	-16.85	AVG	

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

File :E7-2017-80016>Data #4

Page: 1

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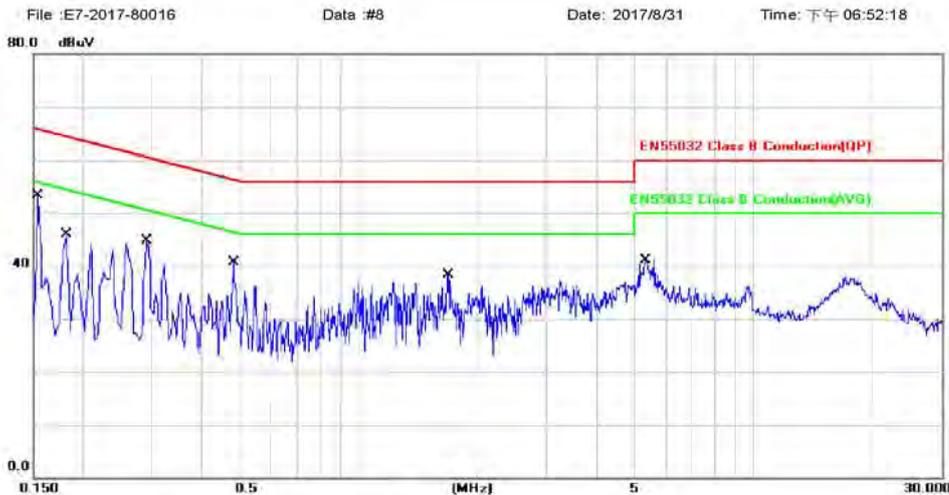
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Model No.: TPP 30-105
Mode_3_L

Site : Conduction Room Phase: **L1** Temperature: 24 °C
Limit: EN55032 Class B 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	37.20	19.50	56.70	65.78	-9.08	QP	
2		0.1540	26.80	19.50	46.30	55.78	-9.48	AVG	
3		0.1820	33.40	19.49	52.89	64.39	-11.50	QP	
4		0.1820	24.30	19.49	43.79	54.39	-10.60	AVG	
5		0.2900	25.81	19.64	45.45	60.52	-15.07	QP	
6		0.2900	21.00	19.64	40.64	50.52	-9.88	AVG	
7		0.4820	21.01	19.96	40.97	56.30	-15.33	QP	
8 *		0.4820	20.00	19.96	39.96	46.30	-6.34	AVG	
9		1.6820	15.42	20.20	35.62	56.00	-20.38	QP	
10		1.6820	5.85	20.20	26.05	46.00	-19.95	AVG	
11		5.3060	17.02	19.95	36.97	60.00	-23.03	QP	
12		5.3060	10.59	19.95	30.54	50.00	-19.46	AVG	

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

File :E7-2017-80016>Data #8

Page: 1

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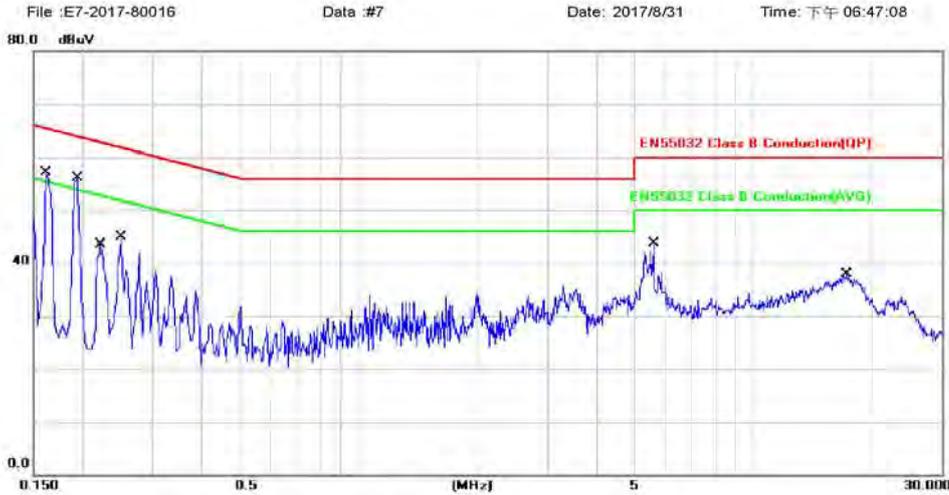
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Mode_3_N

Site : Conduction Room Phase: **N** Temperature: 24 °C
 Limit: EN55032 Class B Conduction(QP) Power: AC 230V/50Hz Humidity: 65 %
 Mode: Mode_3
 Note:

Conducted Emission



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Detector	Comment
		MHz	dBuV	dB	dBuV	dBuV	dB		
1	*	0.1620	39.61	19.50	59.11	65.36	-6.25	QP	
2		0.1620	27.56	19.50	47.06	55.36	-8.30	AVG	
3		0.1940	35.71	19.49	55.20	63.86	-8.66	QP	
4		0.1940	24.54	19.49	44.03	53.86	-9.83	AVG	
5		0.2220	32.50	19.53	52.03	62.74	-10.71	QP	
6		0.2220	22.60	19.53	42.13	52.74	-10.61	AVG	
7		0.2500	29.60	19.57	49.17	61.76	-12.59	QP	
8		0.2500	21.40	19.57	40.97	51.76	-10.79	AVG	
9		5.5820	21.40	19.96	41.36	60.00	-18.64	QP	
10		5.5820	6.79	19.96	26.75	50.00	-23.25	AVG	
11		17.2740	13.59	20.03	33.62	60.00	-26.38	QP	
12		17.2740	9.26	20.03	29.29	50.00	-20.71	AVG	

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

File :E7-2017-80016>Data #7

Page: 1

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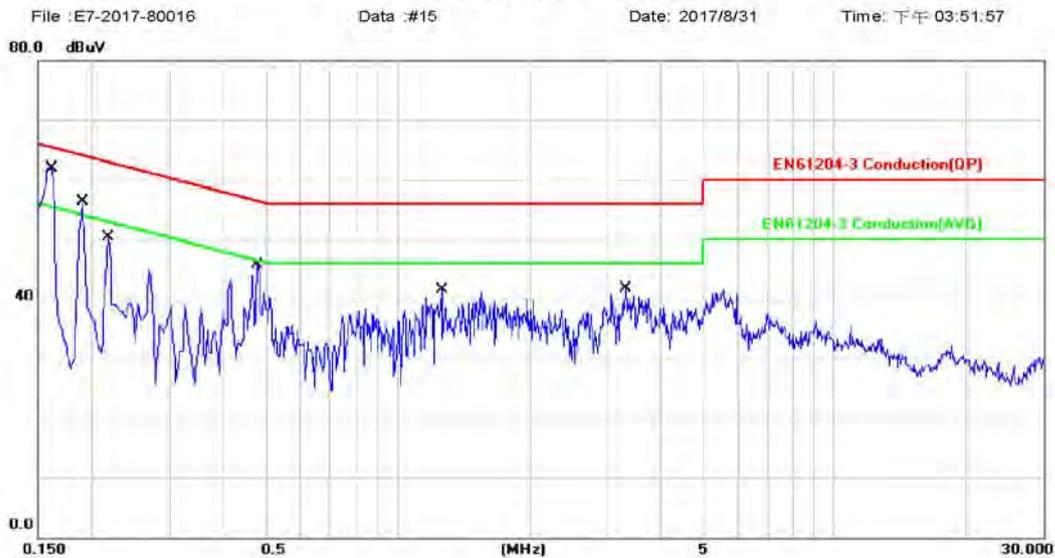
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EN 61204-3 : 2001
Model No.: TPP 30-105A-J
Mode_1_L

Site : Conduction Room Phase: L1 Temperature: 23 ℃
Limit: EN61204-3 Conduction(QP) Power: AC 230V/50Hz Humidity: 71 %
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	40.55	19.65	60.20	65.36	-5.16	QP	
2		0.1620	29.22	19.65	48.87	55.36	-6.49	AVG	
3		0.1900	36.45	19.64	56.09	64.04	-7.95	QP	
4		0.1900	24.90	19.64	44.54	54.04	-9.50	AVG	
5		0.2180	31.20	19.67	50.87	62.89	-12.02	QP	
6		0.2180	21.90	19.67	41.57	52.89	-11.32	AVG	
7		0.4780	25.33	20.09	45.42	56.37	-10.95	QP	
8	*	0.4780	23.01	20.09	43.10	46.37	-3.27	AVG	
9		1.2620	18.67	20.03	38.70	56.00	-17.30	QP	
10		1.2620	14.84	20.03	34.87	46.00	-11.13	AVG	
11		3.3260	17.10	20.34	37.44	56.00	-18.56	QP	
12		3.3260	13.30	20.34	33.64	46.00	-12.36	AVG	

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

File :E7-2017-80016\Data :#15

Page: 1

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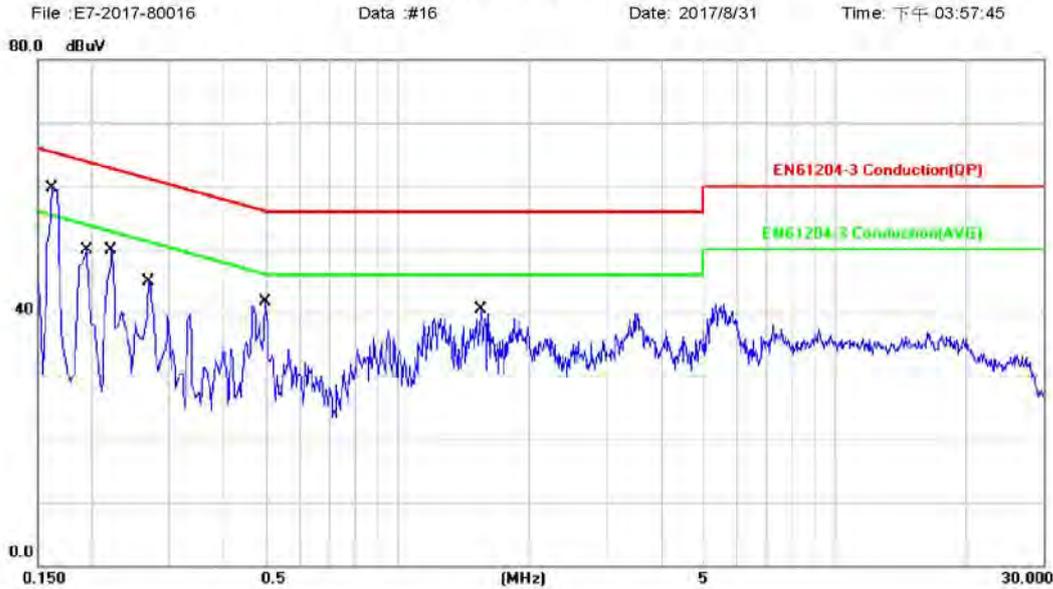
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Mode_1_N

Site : Conduction Room Phase: **N** Temperature: 23 °C
 Limit: EN61204-3 Conduction(QP) Power: AC 230V/50Hz Humidity: 71 %
 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	38.50	19.65	58.15	65.36	-7.21	QP	
2		0.1620	26.80	19.65	46.45	55.36	-8.91	AVG	
3		0.1940	34.10	19.64	53.74	63.86	-10.12	QP	
4		0.1940	23.50	19.64	43.14	53.86	-10.72	AVG	
5		0.2220	31.30	19.68	50.98	62.74	-11.76	QP	
6		0.2220	21.90	19.68	41.58	52.74	-11.16	AVG	
7		0.2700	23.73	19.76	43.49	61.12	-17.63	QP	
8		0.2700	15.51	19.76	35.27	51.12	-15.85	AVG	
9		0.4980	19.20	20.13	39.33	56.03	-16.70	QP	
10		0.4980	18.10	20.13	38.23	46.03	-7.80	AVG	
11		1.5500	18.38	20.24	38.62	56.00	-17.38	QP	
12		1.5500	15.60	20.24	35.84	46.00	-10.16	AVG	

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

File : E7-2017-80016>Data :#16

Page: 1

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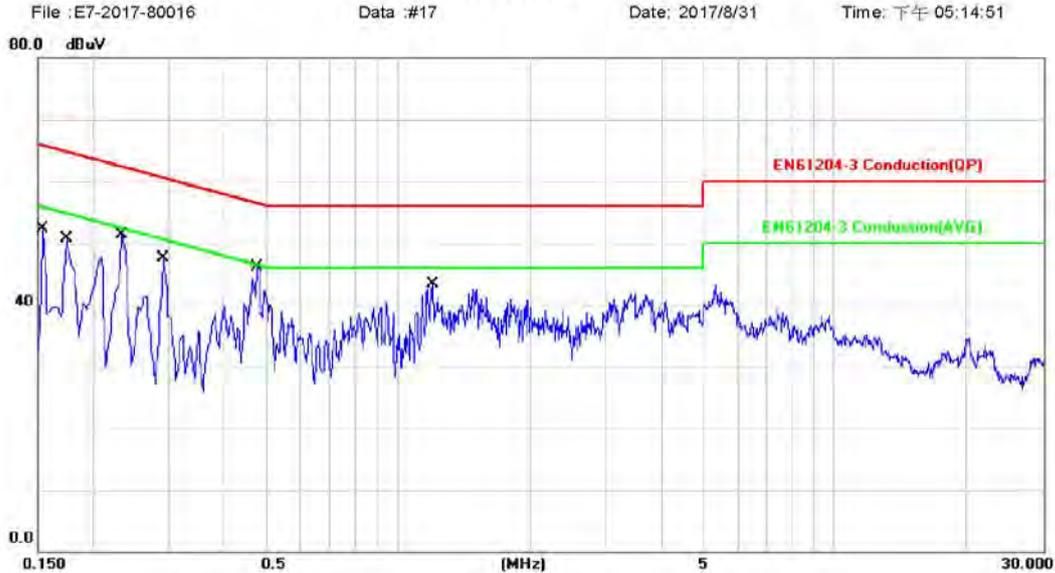
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Model No.: TPP 30-105BA-J
Mode_2_L

Site : Conduction Room Phase: **L1** Temperature: 23 ℃
Limit: EN61204-3 Conduction(QP) Power: AC 230V/50Hz Humidity: 71 %
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		0.1540	40.30	19.65	59.95	65.78	-5.83	QP	
2		0.1540	29.60	19.65	49.25	55.78	-6.53	AVG	
3		0.1750	36.60	19.65	56.25	64.72	-8.47	QP	
4		0.1750	25.90	19.65	45.55	54.72	-9.17	AVG	
5		0.2340	33.60	19.70	53.30	62.31	-9.01	QP	
6		0.2340	23.50	19.70	43.20	52.31	-9.11	AVG	
7		0.2900	27.30	19.79	47.09	60.52	-13.43	QP	
8		0.2900	18.80	19.79	38.59	50.52	-11.93	AVG	
9		0.4780	25.40	20.09	45.49	56.37	-10.88	QP	
10	*	0.4780	23.10	20.09	43.19	46.37	-3.18	AVG	
11		1.1980	21.51	19.99	41.50	56.00	-14.50	QP	
12		1.1980	19.60	19.99	39.59	46.00	-6.41	AVG	

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

File :E7-2017-80016\Data :#17

Page: 1

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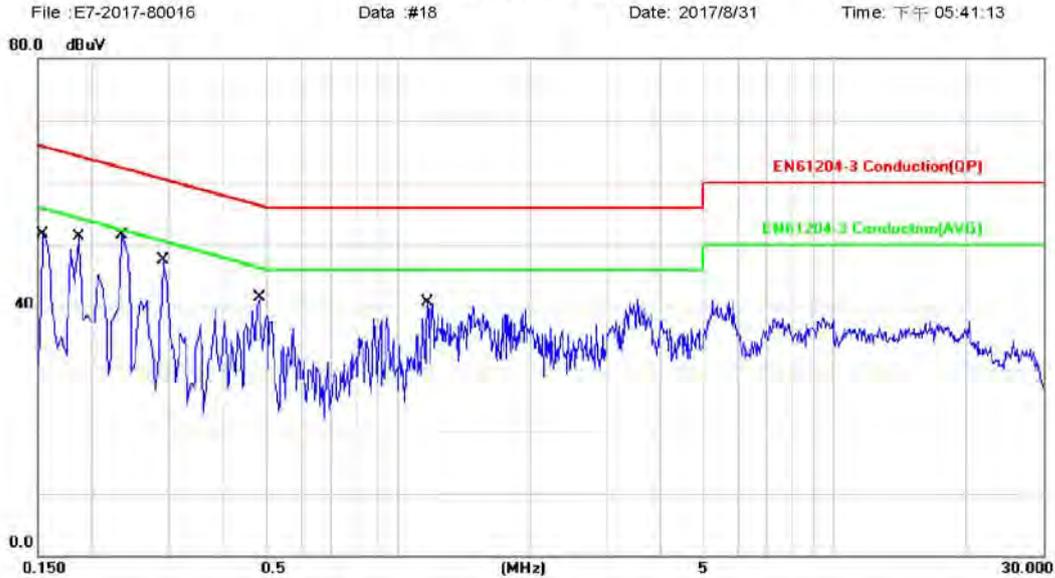
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Mode_2_N

Site : Conduction Room Phase: **N** Temperature: 23 ℃
 Limit: EN61204-3 Conduction(QP) Power: AC 230V/50Hz Humidity: 71 %
 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	*	0.1540	41.80	19.65	61.45	65.78	-4.33	QP	
2		0.1540	29.80	19.65	49.45	55.78	-6.33	AVG	
3		0.1860	37.50	19.64	57.14	64.21	-7.07	QP	
4		0.1860	26.50	19.64	46.14	54.21	-8.07	AVG	
5		0.2340	33.90	19.70	53.60	62.31	-8.71	QP	
6		0.2340	23.90	19.70	43.60	52.31	-8.71	AVG	
7		0.2900	27.40	19.79	47.19	60.52	-13.33	QP	
8		0.2900	18.60	19.79	38.39	50.52	-12.13	AVG	
9		0.4820	23.01	20.10	43.11	56.30	-13.19	QP	
10		0.4820	21.70	20.10	41.80	46.30	-4.50	AVG	
11		1.1660	18.90	19.97	38.87	56.00	-17.13	QP	
12		1.1660	17.00	19.97	36.97	46.00	-9.03	AVG	

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

File :E7-2017-80016\Data :#18

Page: 1

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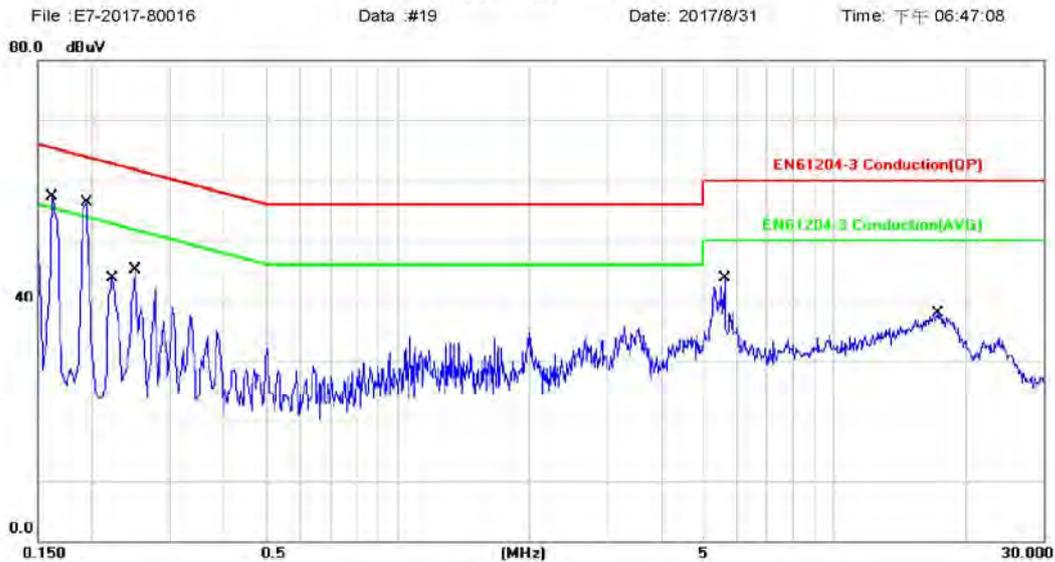
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Model No.: TPP 30-105
Mode_3_L

Site : Conduction Room Phase: L1 Temperature: 23 ℃
Limit: EN61204-3 Conduction(QP) Power: AC 230V/50Hz Humidity: 71 %
Mode: Mode_3
Note:

Conducted Emission



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Detector	Comment
		MHz	dBuV	dB	dBuV	dBuV	dB		
1	*	0.1620	39.61	19.65	59.26	65.36	-6.10	QP	
2		0.1620	27.56	19.65	47.21	55.36	-8.15	AVG	
3		0.1940	35.71	19.64	55.35	63.86	-8.51	QP	
4		0.1940	24.54	19.64	44.18	53.86	-9.68	AVG	
5		0.2220	32.50	19.68	52.18	62.74	-10.56	QP	
6		0.2220	22.60	19.68	42.28	52.74	-10.46	AVG	
7		0.2500	29.60	19.72	49.32	61.76	-12.44	QP	
8		0.2500	21.40	19.72	41.12	51.76	-10.64	AVG	
9		5.5820	21.40	20.09	41.49	60.00	-18.51	QP	
10		5.5820	6.79	20.09	26.88	50.00	-23.12	AVG	
11		17.2740	13.59	20.18	33.77	60.00	-26.23	QP	
12		17.2740	9.26	20.18	29.44	50.00	-20.56	AVG	

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

File :E7-2017-80016>Data :#19

Page: 1

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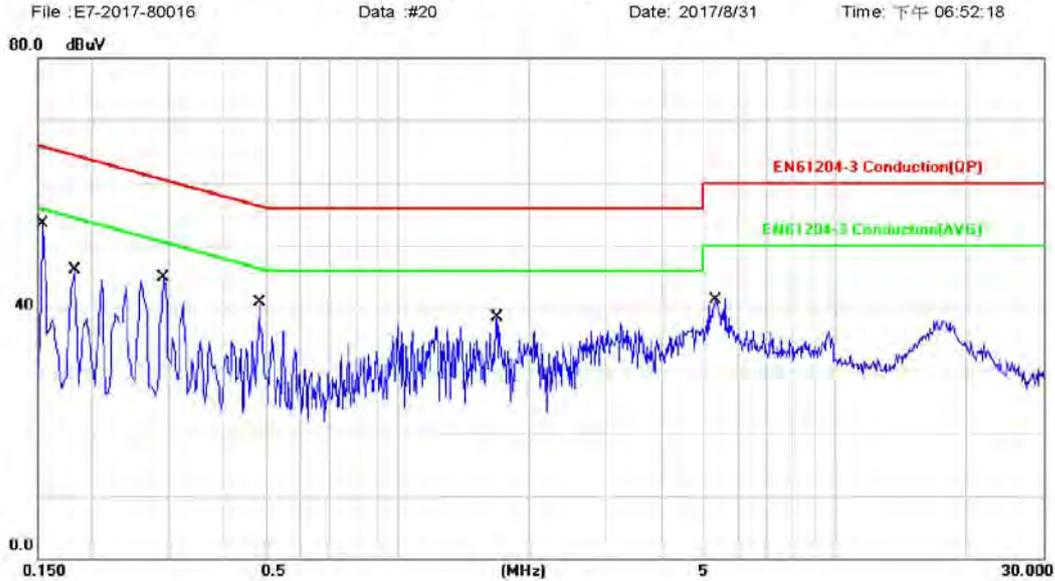
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Mode_3_N

Site : Conduction Room Phase: **N** Temperature: 23 ℃
 Limit: EN61204-3 Conduction(QP) Power: AC 230V/50Hz Humidity: 71 %
 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	37.20	19.65	56.85	65.78	-8.93	QP	
2		0.1540	26.80	19.65	46.45	55.78	-9.33	AVG	
3		0.1820	33.40	19.64	53.04	64.39	-11.35	QP	
4		0.1820	24.30	19.64	43.94	54.39	-10.45	AVG	
5		0.2900	25.81	19.79	45.60	60.52	-14.92	QP	
6		0.2900	21.00	19.79	40.79	50.52	-9.73	AVG	
7		0.4820	21.01	20.10	41.11	56.30	-15.19	QP	
8 *		0.4820	20.00	20.10	40.10	46.30	-6.20	AVG	
9		1.6820	15.42	20.34	35.76	56.00	-20.24	QP	
10		1.6820	5.85	20.34	26.19	46.00	-19.81	AVG	
11		5.3060	17.02	20.09	37.11	60.00	-22.89	QP	
12		5.3060	10.59	20.09	30.68	50.00	-19.32	AVG	

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

File :E7-2017-80016\Data :#20

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2.4.6 Measurement Data(ISN)

N/A

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2.5 Test of Radiated Emission

2.5.1 Test Instruments

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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SGS Radiated_Above_1GHz HWAYA 966A EMC					
EQUIPMENT TYPE	Manufacturer	Model Number	Serial Number	Calibration Date	Calibration Due
Spectrum Analyzer	R&S	FSV 40	101419	2017/3/1	2018/2/28
EMI Test Receiver	R&S	ESR 7	101459	2017/2/17	2018/2/16
Horn Antenna	SCHWARZBECK	BBHA9120D	BBHA9120D673	2016/10/14	2017/10/13
Horn Antenna	Schwarzbeck	BBHA9170	BBHA9170-184	2016/12/12	2017/12/11
Pre Amplifier	EMC Instruments Corp.	EMC012645B	980216	2017/4/25	2018/4/24
Pre Amplifier	EMC Instruments Corp.	EMC184045B	980135	2016/10/27	2017/10/26
Coaxial Cable	JUNFLOW	MWX221-NMSNMS	J0778929	2017/4/23	2018/4/22
Coaxial Cable	Huber+Suhner	SUCCOFLEX 104PEA	30255/4PEA	2017/4/23	2018/4/22
Coaxial Cable	EMC Instruments	EMC104-SM-SM	140927	2017/4/23	2018/4/22
Coaxial Cable	Huber+Suhner	SUCOFLEX 102	MY 2152/2	2017/6/5	2018/6/4
Coaxial Cable	Huber+Suhner	SUCOFLEX 102	MY 2153/2	2017/6/5	2018/6/4
Controller	MF	MF-7802	N.C.R.	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 VSWR	SGS	966 Chamber A	SAC-A	2017/1/12	2018/1/11
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 (k=2) of radiated emission measurement is 5.05 dB. (1-6GHz)
- Expanded uncertainty (k=2) of radiated emission measurement is 5.07 dB. (6-18GHz)
- Expanded uncertainty (k=2) of radiated emission measurement is 5.19 dB. (18-26GHz)
- Expanded uncertainty (k=2) of radiated emission measurement is 5.14 dB. (26-40GHz)

2.5.2 EUT Operating Condition

Environment :

Temperature	Humidity
22 °C	70 %RH

Test setup : Please refer to photo of RE testing set-up

2.5.3 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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2.5.4 Measurement Data

Below 1GHz

EN 55032 : 2015+AC:2016-07

Model No.:TPP 30-105A-J

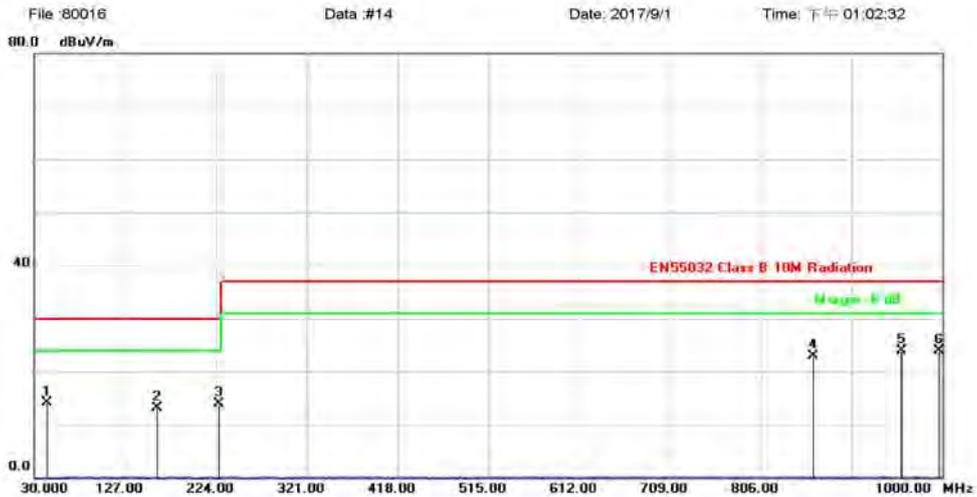
Mode_1_H

Site: SGS 10m Chamber
Limit: EN55032 Class B 10M Radiation
Mode: Full Load
Note: Mode 1

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

Temperature: 22 °C
Humidity: 70 %

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	26.00	-11.88	14.12	30.00	-15.88	QP	
2		160.9500	24.82	-11.77	13.05	30.00	-16.95	QP	
3		226.9100	28.00	-14.02	13.98	30.00	-16.02	QP	
4		862.2600	23.13	-0.28	22.85	37.00	-14.15	QP	
5	*	956.3500	23.23	0.73	23.96	37.00	-13.04	QP	
6		996.1200	23.63	0.25	23.88	37.00	-13.12	QP	

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

File: 80016>Data: #14

Page: 1

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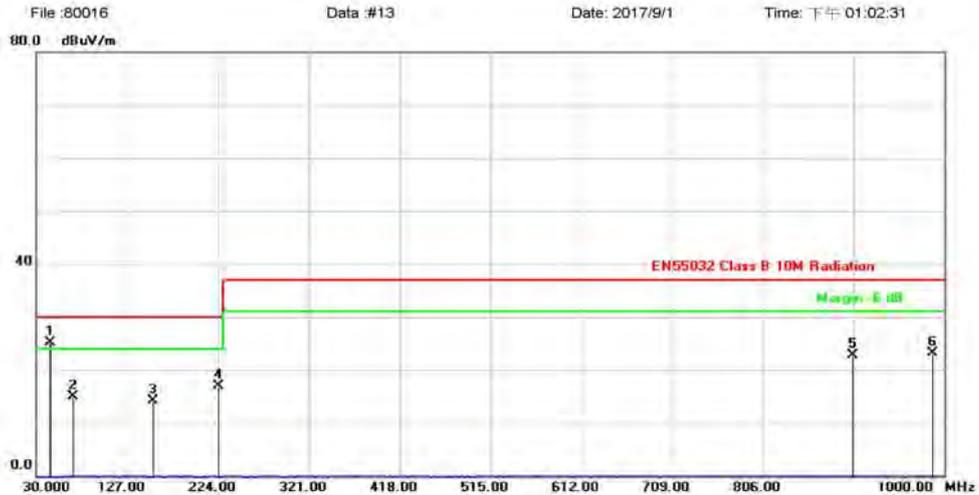
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Mode_1_V

Site: SGS 10m Chamber Polarization: **Vertical** Temperature: 22 °C
 Limit: EN55032 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	36.94	-11.83	25.11	30.00	-4.89	QP	
2		69.4400	28.95	-14.10	14.85	30.00	-15.15	QP	
3		155.1300	26.12	-11.99	14.13	30.00	-15.87	QP	
4		224.0000	31.01	-14.14	16.87	30.00	-13.13	QP	
5		902.0300	22.55	0.13	22.68	37.00	-14.32	QP	
6		987.3900	22.79	0.36	23.15	37.00	-13.85	QP	

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

File :80016\Data :#13

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

Site: SGS 10m Chamber Polarization: **Horizontal** Temperature: 22 °C
 Limit: EN55032 Class B 10M Radiation Power: AC 230V/50Hz Humidity: 70 %
 Mode: Full Load Distance:
 Note: Mode 2

Radiated Emission



No.	Mk.	Freq.	Reading	Correct	Measure-	Limit	Over		
		MHz	Level	Factor	ment			Detector	Comment
			dBuV	dB/m	dBuV/m	dBuV/m	dB		
1		43.5800	26.57	-11.88	14.69	30.00	-15.31	QP	
2		160.9500	24.99	-11.77	13.22	30.00	-16.78	QP	
3		226.9100	27.79	-14.02	13.77	30.00	-16.23	QP	
4		862.2600	24.30	-0.28	24.02	37.00	-12.98	QP	
5	*	956.3500	24.40	0.73	25.13	37.00	-11.87	QP	
6		996.1200	23.73	0.25	23.98	37.00	-13.02	QP	

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

File: 80016>Data: #16

Page: 1

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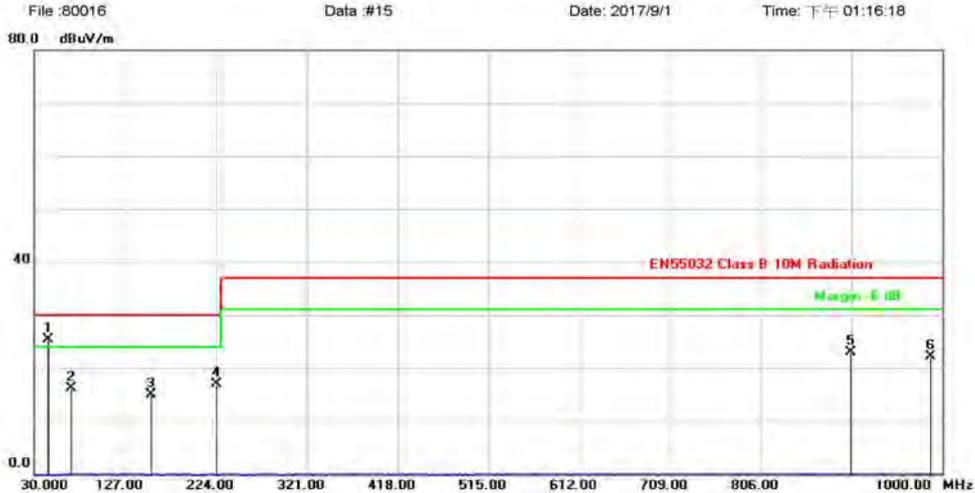
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Mode_2_V

Site: SGS 10m Chamber Polarization: **Vertical** Temperature: 22 °C
 Limit: EN55032 Class B 10M Radiation Power: AC 230V/50Hz Humidity: 70 %
 Mode: Full Load Distance:
 Note: Mode 2

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	37.05	-11.83	25.22	30.00	-4.78	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	31.12	-14.14	16.98	30.00	-13.02	QP	
5		902.0300	22.74	0.13	22.87	37.00	-14.13	QP	
6		987.3900	21.77	0.36	22.13	37.00	-14.87	QP	

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

File :80016\Data :#15

Page: 1

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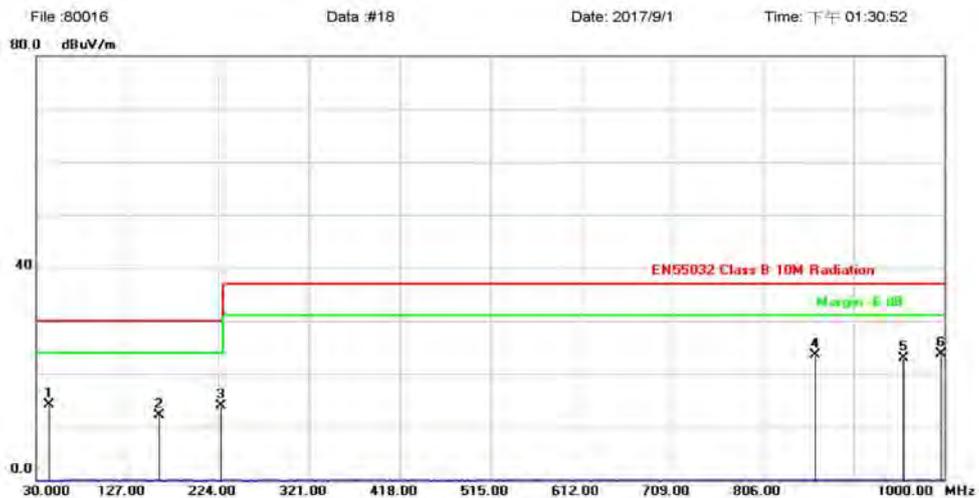
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Model No.: TPP 30-105 Mode_3_H

Site: SGS 10m Chamber Polarization: **Horizontal** Temperature: 22 °C
 Limit: EN55032 Class B 10M Radiation Power: AC 230V/50Hz Humidity: 70 %
 Mode: Full Load Distance:
 Note: Mode 3

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	25.99	-11.88	14.11	30.00	-15.89	QP	
2		160.9500	23.80	-11.77	12.03	30.00	-17.97	QP	
3		226.9100	27.87	-14.02	13.85	30.00	-16.15	QP	
4		862.2600	23.83	-0.28	23.55	37.00	-13.45	QP	
5		956.3500	22.24	0.73	22.97	37.00	-14.03	QP	
6	*	996.1200	23.40	0.25	23.65	37.00	-13.35	QP	

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

File: 80016>Data: #18

Page: 1

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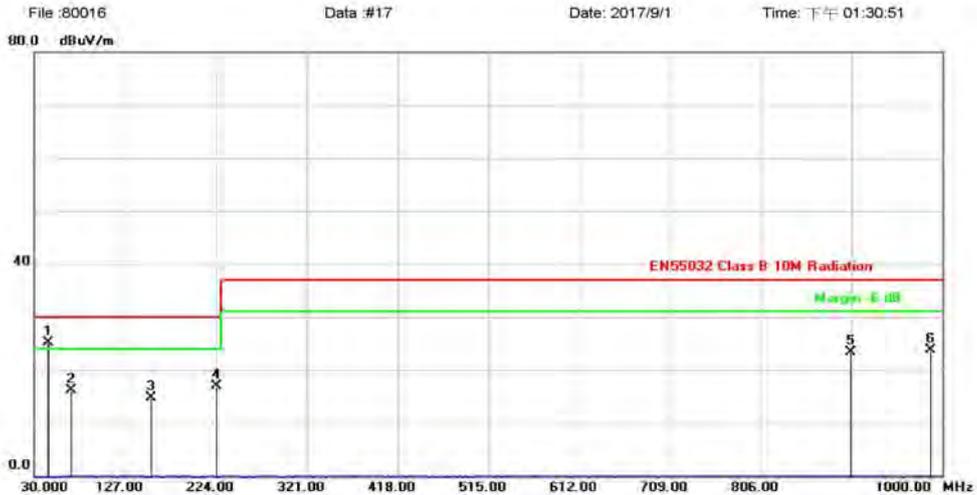
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Mode_3_V

Site: SGS 10m Chamber Polarization: **Vertical** Temperature: 22 °C
 Limit: EN55032 Class B 10M Radiation Power: AC 230V/50Hz Humidity: 70 %
 Mode: Full Load Distance:
 Note: Mode 3

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	36.99	-11.83	25.16	30.00	-4.84	QP	
2		69.4400	30.12	-14.10	16.02	30.00	-13.98	QP	
3		155.1300	26.72	-11.99	14.73	30.00	-15.27	QP	
4		224.0000	30.99	-14.14	16.85	30.00	-13.15	QP	
5		902.0300	23.09	0.13	23.22	37.00	-13.78	QP	
6		987.3900	23.29	0.36	23.65	37.00	-13.35	QP	

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

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EN 61204-3 : 2001
Model No.:TPP 30-105A-J
Mode_1_H

Site: SGS 10m Chamber Polarization: **Horizontal** Temperature: 22 °C
Limit: EN61204-3 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		43.5800	33.40	-19.17	14.23	30.00	-15.77	QP	
2		160.9500	27.16	-15.05	12.11	30.00	-17.89	QP	
3		226.9100	34.31	-20.49	13.82	30.00	-16.18	QP	
4	*	862.2600	31.30	-8.11	23.19	37.00	-13.81	QP	
5		956.3500	29.35	-6.50	22.85	37.00	-14.15	QP	
6		996.1200	30.05	-6.88	23.17	37.00	-13.83	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: EN61204-3 Class B 10M Radiation Power: AC 230V/50Hz Humidity: 70 %
 Mode: Full Load Distance:
 Note: Mode 1

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	43.90	-19.02	24.88	30.00	-5.12	QP	
2		160.9500	33.41	-17.19	16.22	30.00	-13.78	QP	
3		226.9100	31.24	-16.73	14.51	30.00	-15.49	QP	
4		862.2600	20.48	-3.45	17.03	37.00	-19.97	QP	
5		956.3500	27.64	-4.48	23.16	37.00	-13.84	QP	
6		996.1200	29.56	-6.01	23.55	37.00	-13.45	QP	

*:Maximum data x:Over limit | over margin

File :80016\Data #19

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

Site: SGS 10m Chamber	Polarization: Horizontal	Temperature: 22 °C
Limit: EN61204-3 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	33.15	-19.17	13.98	30.00	-16.02	QP	
2		160.9500	27.00	-15.05	11.95	30.00	-18.05	QP	
3		226.9100	34.51	-20.49	14.02	30.00	-15.98	QP	
4		862.2600	30.99	-8.11	22.88	37.00	-14.12	QP	
5		956.3500	29.66	-6.50	23.16	37.00	-13.84	QP	
6 *		996.1200	30.91	-6.88	24.03	37.00	-12.97	QP	

*:Maximum data x:Over limit | over margin

File :80016\Data #22

Page: 1

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Mode_2_V

Site: SGS 10m Chamber Polarization: **Vertical** Temperature: 22 °C
 Limit: EN61204-3 Class B 10M Radiation Power: AC 230V/50Hz Humidity: 70 %
 Mode: Full Load Distance:
 Note: Mode 2

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	43.21	-19.02	24.19	30.00	-5.81	QP	
2		160.9500	33.54	-17.19	16.35	30.00	-13.65	QP	
3		226.9100	31.11	-16.73	14.38	30.00	-15.62	QP	
4		862.2600	20.40	-3.45	16.95	37.00	-20.05	QP	
5		956.3500	27.73	-4.48	23.25	37.00	-13.75	QP	
6		996.1200	29.75	-6.01	23.74	37.00	-13.26	QP	

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

File: 80016\Data: #21

Page: 1

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Model No.: TPP 30-105
Mode_3_H

Site: SGS 10m Chamber	Polarization: Horizontal	Temperature: 22 °C
Limit: EN61204-3 Class B 10M Radiation	Power: AC 230V/50Hz	Humidity: 70 %
Mode: Full Load	Distance:	
Note: Mode 3		

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	33.33	-19.17	14.16	30.00	-15.84	QP	
2		160.9500	27.03	-15.05	11.98	30.00	-18.02	QP	
3		226.9100	34.51	-20.49	14.02	30.00	-15.98	QP	
4		862.2600	31.75	-8.11	23.64	37.00	-13.36	QP	
5		956.3500	30.07	-6.50	23.57	37.00	-13.43	QP	
6 *		996.1200	30.54	-6.88	23.66	37.00	-13.34	QP	

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

File :80016\Data #24

Page: 1

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Mode_3_V

Site: SGS 10m Chamber Polarization: **Vertical** Temperature: 22 °C
 Limit: EN61204-3 Class B 10M Radiation Power: AC 230V/50Hz Humidity: 70 %
 Mode: Full Load Distance:
 Note: Mode 3

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	42.18	-19.02	23.16	30.00	-6.84	QP	
2		160.9500	34.37	-17.19	17.18	30.00	-12.82	QP	
3		226.9100	30.71	-16.73	13.98	30.00	-16.02	QP	
4		862.2600	20.29	-3.45	16.84	37.00	-20.16	QP	
5		956.3500	28.25	-4.48	23.77	37.00	-13.23	QP	
6		996.1200	29.66	-6.01	23.65	37.00	-13.35	QP	

*:Maximum data x:Over limit | over margin

File :80016\Data #23

Page: 1

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3. Harmonics

EN 61000-3-2 : 2014

3.1 Test Results

EN 61000-3-2 : 2014 / IEC 61000-3-2 : 2014	PASS
--	------

3.2 Methods and Procedures

Standard	Edition	Description
EN / IEC 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 HARMONICS testing set-up

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3.5 Measurement Data

EN 55032 : 2015+AC:2016-07& EN 61204-3 : 2001

Model No.:TPP 30-105A-J

Mode_1

Teseq Profline
4542 Luterbach, Switzerland

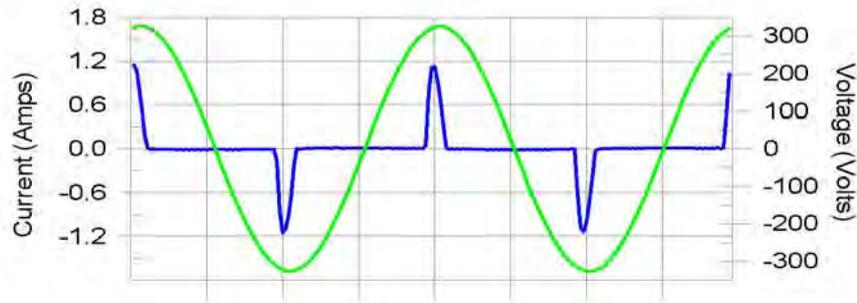
8/31/2017
11:34 PM

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

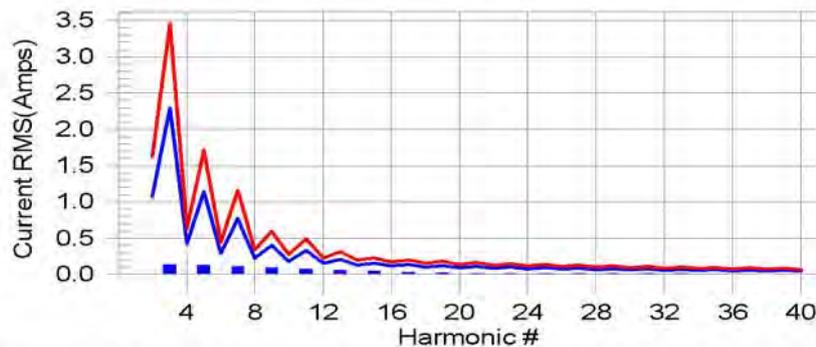
EUT:		Tested by:	
Test category: Class-A per Ed. 4.0 (2014) (European limits)		Test Margin: 100	
Test date: 2017/8/31	Start time: 下午 10:39:02	End time: 下午 10:49:13	
Test duration (min): 10	Data file name: H-000069.cts_data		
Comment:			
Customer:			

Test Result: Pass Source qualification: Normal

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 Proflin
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

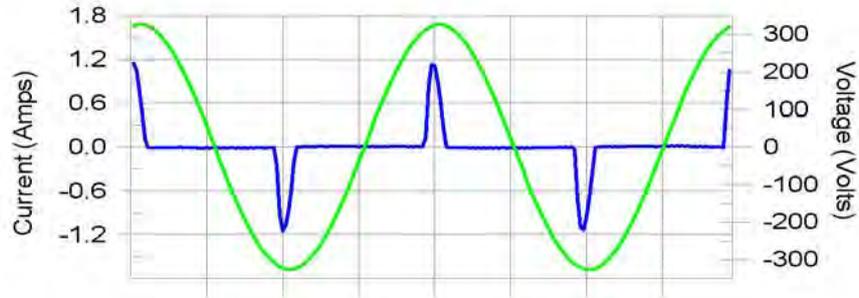
8/31/2017
11:34 PM

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

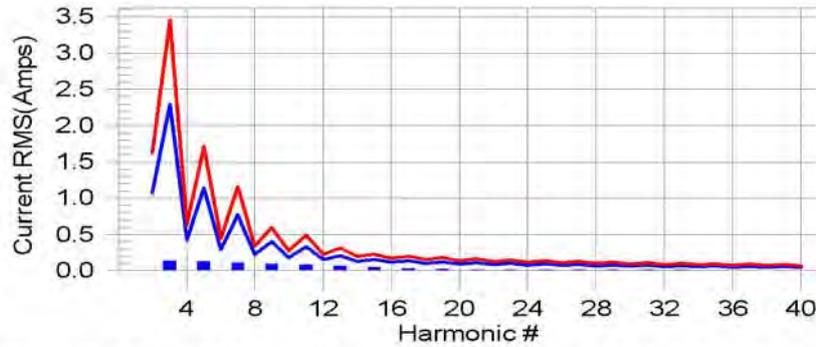
EUT:
Test category: Class-A per Ed. 4.0 (2014) (European limits) **Tested by:**
Test date: 2017/8/31 **Start time:** 下午 10:26:35 **Test Margin:** 100
Test duration (min): 10 **Data file name:** H-000068.cts_data **End time:** 下午 10:36:46
Comment:
Customer:

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

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Teseq Proflin
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 Profile
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

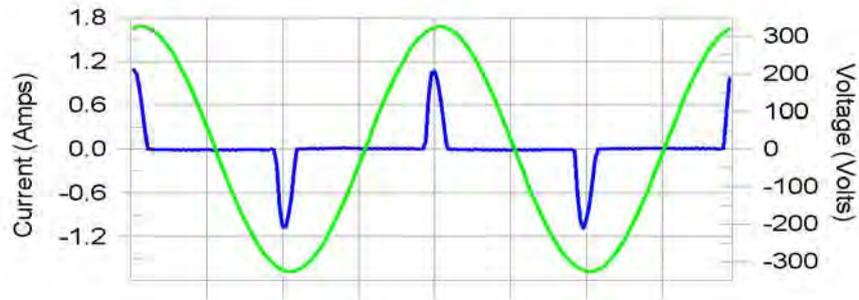
8/31/2017
11:34 PM

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

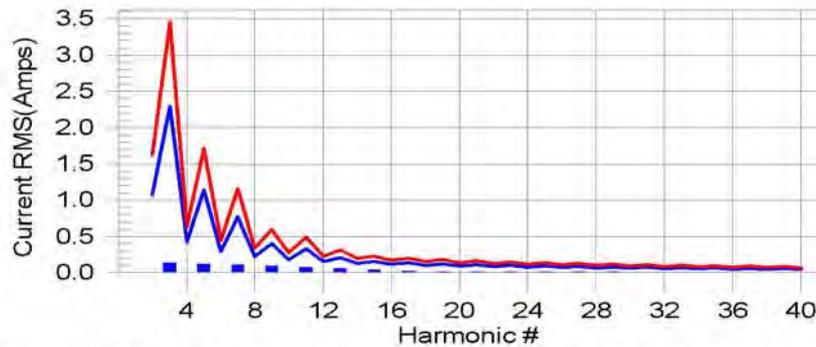
EUT: **Test category: Class-A per Ed. 4.0 (2014) (European limits)** Tested by:
Test date: 2017/8/31 Start time: 下午 09:42:22 Test Margin: 100
Test duration (min): 10 Data file name: H-000065.cts_data End time: 下午 09:52:34
 Comment:
 Customer:

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

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Teseq Proflin
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

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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.

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4. Flicker

EN 61000-3-3:2013

4.1 Test Results

EN 61000-3-3 : 2013 / IEC 61000-3-3 : 2013	PASS
--	-------------

4.2 Methods and Procedures

Standard	Edition	Description
EN / IEC 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 set-up

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4.5 Measurement Data

EN 55032 : 2015+AC:2016-07 & EN 61204-3 : 2000

Model No.:TPP 30-105A-J

Mode_1

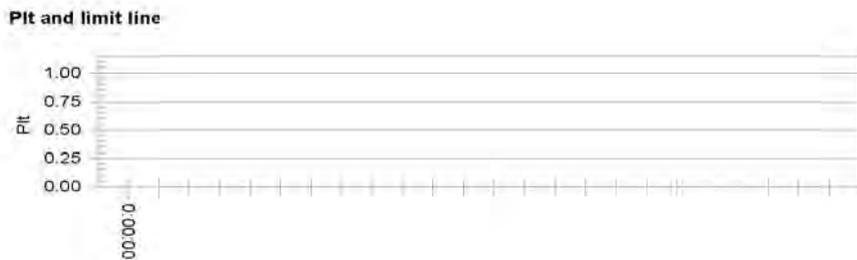
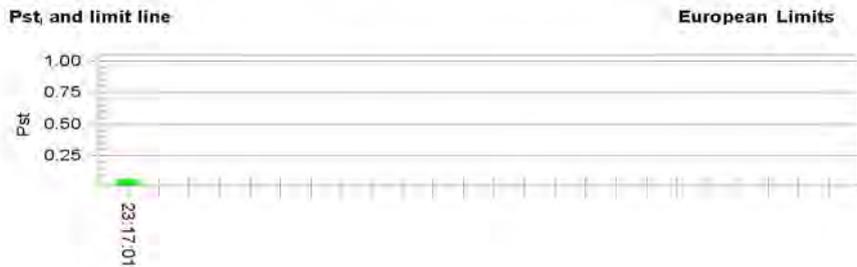
Teseq Proflin
4542 Luterbach, Switzerland

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

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

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

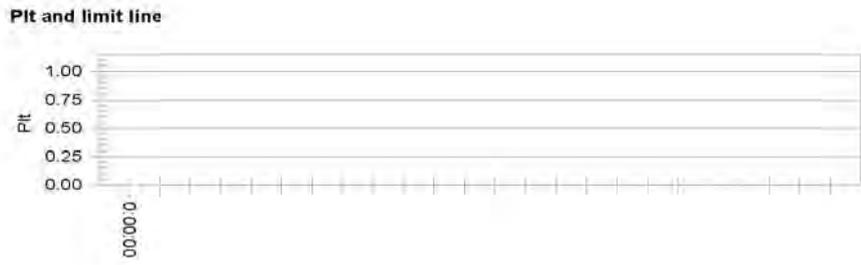
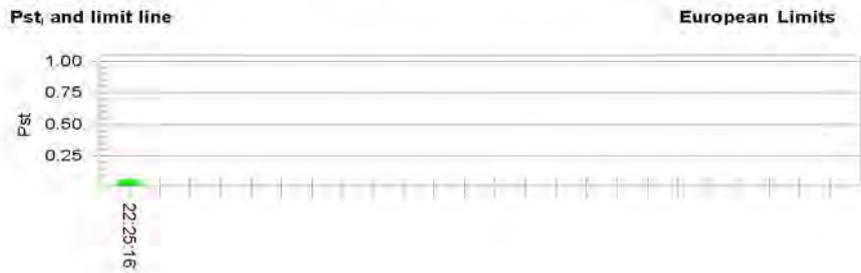
Teseq Profile
4542 Luterbach, Switzerland

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) Tested by:
Test date: 2017/8/31 Start time: 下午 10:14:55 Test Margin: 100
Test duration (min): 10 Data file name: F-000067.cts_data End time: 下午 10:25:22
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	N/A
Highest dt (%):	0.00	Test limit (mS):	500.0	Pass
T-max (mS):	0	Test limit (%):	3.30	Pass
Highest dc (%):	0.00	Test limit (%):	4.00	Pass
Highest dmax (%):	0.00	Test limit:	1.000	Pass
Highest Pst (10 min. period):	0.064	Test limit:	0.650	Pass
Highest Plt (2 hr. period):	0.028			

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Model No.: TPP 30-105
Mode_3

Teseq Profline
4542 Luterbach, Switzerland

8/31/2017
11:34 PM

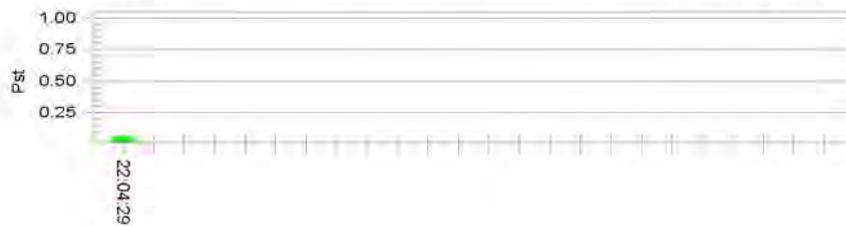
Flicker Test Summary per EN/IEC61000-3-3 Ed. 3.0 (2013) (Run time)

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

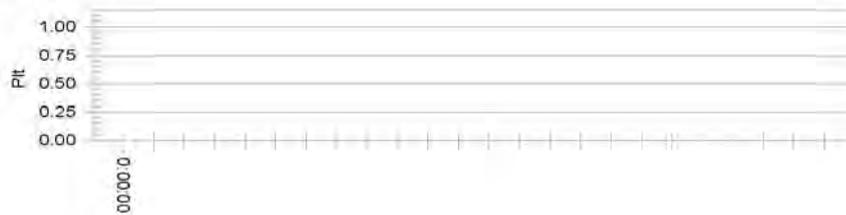
Test Result: Pass **Status: Test Completed**

Pst and limit line

European Limits



Plt and limit line



Parameter values recorded during the test:

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

Teseq AG Win2100 V4.14.0

Page 1 of 1

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5. IMMUNITY

EN 55024:2010+A1:2015

5.1 Test Results

EN 55024 : 2010+A1:2015 & EN 61204-3 : 2001

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	B	PASS
IEC 61000-4-5:2014	B	PASS
IEC 61000-4-6:2013	A	PASS
IEC 61000-4-8:2009	A	PASS
IEC 61000-4-11:2004	C/C/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 EN 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 set-up

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5.3.4 Results of Electrostatic Discharge Test (ESD)

EN 55024 & EN 61204-3

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

Test Mode : Mode 1 ~ 3

Basic Standard : IEC 61000-4-2

Discharge Impedance : 330 ohm / 150 pF

Discharge Voltage : Air Discharge : $\pm 2, 4, 8, 15$ kV
Contact Discharge : $\pm 2, 4, 6, 8$ kV
HCP/VCP : $\pm 2, 4, 6, 8$ kV

Polarity : Positive/Negative

Number of Discharge : 25 times at each test point

Discharge Mode : Single Discharge

Discharge Period : 1 second

Note 1 : For contact discharge, the EUT shall be exposed to at least 200 discharges, 100 each at negative and positive polarity. All tests according to sec. 4.2.1 of EN 55024 : 2010+A1:2015.

A. Observations :

Test points: N/A

Direct Application			Test Results	
Discharge Level (kV)	Polarity (+/-)	Test Point	Contact Discharge	Air Discharge
2, 4, 8, 15(Air)	+/-	N/A	N/A	A*
2, 4, 6, 8(Cont.)	+/-	N/A	A*	N/A

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

*No any discharge events occurred on the test.

N/A : Not Applicable.

B. Observations :

Test points: 1. Front side. 2. Rear side. 3. Left side. 4. Right side.

Indirect Application			Test Results	
Discharge Level (kV)	Polarity (+/-)	Test Point	Horizontal Coupling	Vertical Coupling
2, 4, 6, 8	+/-	1 ~ 4	A	A

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

N/A : Not Applicable.

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5.4 Test of EN 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 set-up

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5.4.4 Results of Radiated Radio Frequency Electromagnetic (RS)

EN 55024

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
Polarity of Antenna: Horizontal and Vertical
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.

EN 61204-3

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

Test Mode : Mode 1 ~ 3
Basic Standard : EN 61000-4-3
Frequency range: 80 MHz - 1000 MHz
895 – 905 MHz
Field strength : 20 V/m
Modulation : 80% AM (1kHz)
50% (200Hz)
Frequency step : 1 % of fundamental
Polarity of Antenna: Horizontal and Vertical
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 EN 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 set-up

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5.5.4 Results of Electrical Fast Transient (EFT)

EN 55024 & EN 61204-3

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
 Signal/Comm. : ± 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
L	+/-	2	A
N	+/-	2	A
L-N	+/-	2	A
L-N-PE	+/-	2	A (For Mode 2)
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 EN 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 set-up

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5.6.4 Results of Surge Test

EN 55024 & EN 61204-3

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 input 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 input line:

Test Point	Phase Angle (degree)	Polarity (+/-)	Test Level (kV)	Observation
DC input	No phase angle (degree)	+/-	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

Signal line:

Test Point	Phase Angle (degree)	Polarity (+/-)	Test Level (kV)	Observation
Signal I/O	No phase angle (degree)	+/-	1	N/A

Remark: N/A : Not Applicable.

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5.7 Test of EN 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.

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5.7.3 EUT Operating Condition

Environment _____:

Temperature	Humidity
21 °C	45 %RH

Test setup _____ : Please refer to photo of CS testing set-up

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5.7.4 Results of Immunity to Conducted Disturbances (CS)

EN 55024 & EN 61204-3

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 Ports

Cable Description	Frequency (MHz)	Observation
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 EN 61000-4-8

5.8.1 Methods and Procedures

Standard	Edition	Description
IEC 61000-4-8	2009	Power Frequency Magnetic Field Immunity Test

5.8.2 Test Instruments

SGS PFMF EN61000-4-8 HWAYA EMC					
EQUIPMENT TYPE	Manufacturer	Model Number	Serial Number	Calibration Date	Calibration Due
Magnetic Field Generator	Narda S.T.S.	PMM 1008	0100X30601	2016/11/21	2017/11/20
Triax Elf Magnetic Field Meter	F.W. BELL	4180	1248004	2017/7/20	2018/7/19

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5.8.3 EUT Operating Condition

Environment :

Temperature	Humidity
21 °C	45 %RH

Test setup : Please refer to photo of PMF testing set-up

5.8.4 Result of Immunity to power Frequency Magnetic

EN 55024

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

Test Mode : Mode 1 ~ 3

Basic Standard : IEC 61000-4-8 : 2009

Power Frequency : 50/60

Magnetic Field : 30 A/m(r.m.s)

Coil Orientation : X, Y, Z Axis

Observation : A

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

N/A : Not Applicable.

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5.9 Test of EN 61000-4-11

5.9.1 Methods and Procedures

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

5.9.2 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.)					

5.9.3 EUT Operating Condition

Environment :

Temperature	Humidity
21 °C	45 %RH

Test setup : Please refer to photo of DIP testing set-up

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5.9.4 Results of Voltage Dips Immunity Test

EN 55024

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

Test Mode : Mode 1 ~ 3
EUT Rated Voltage : 230 Volts.
Reduction Voltage : 30, >95 % Ut
Phase Angle : 0,180 degree
Total events : 3 dropouts
Event interval : 10 seconds

Environmental phenomena	Test specification (% reduction)	Duration (in periods of the rated frequency)	Observation
Voltage Interruptions	>95	250	B
Voltage dips	>95	0.5	A
	30	25	A

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

B : During test, the EUT's function degradation. After test, it recovery by itself.

N/A : Not Applicable.

EN 61204-3

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

Test Mode : Mode 1 ~ 3
EUT Rated Voltage : 230 Volts.
Reduction Voltage : 30, >95 % Ut
Phase Angle : 0,180 degree
Total events : 3 dropouts
Event interval : 10 seconds

Environmental phenomena	Test specification (% reduction)	Duration (in periods of the rated frequency)	Observation
Voltage Interruptions	>95	5000	B
Voltage dips	60	100	A
	30	10	A

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

B : During test, the EUT's function degradation. After test, it recovery by itself.

N/A : Not Applicable.

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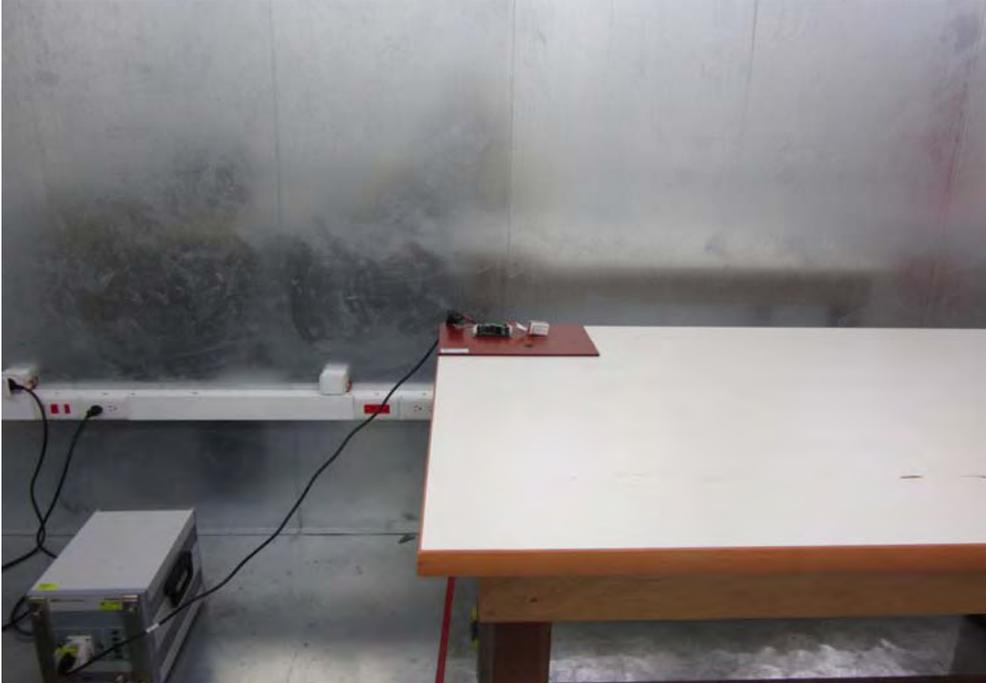
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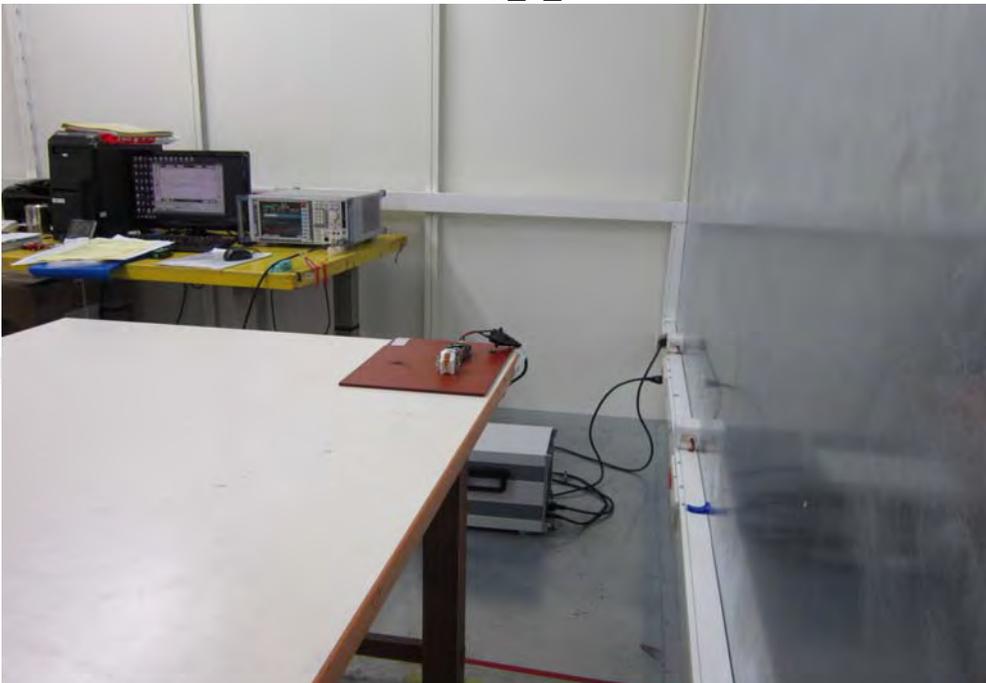
**Photograph of Testing General Set-up
CE Testing Set-up**

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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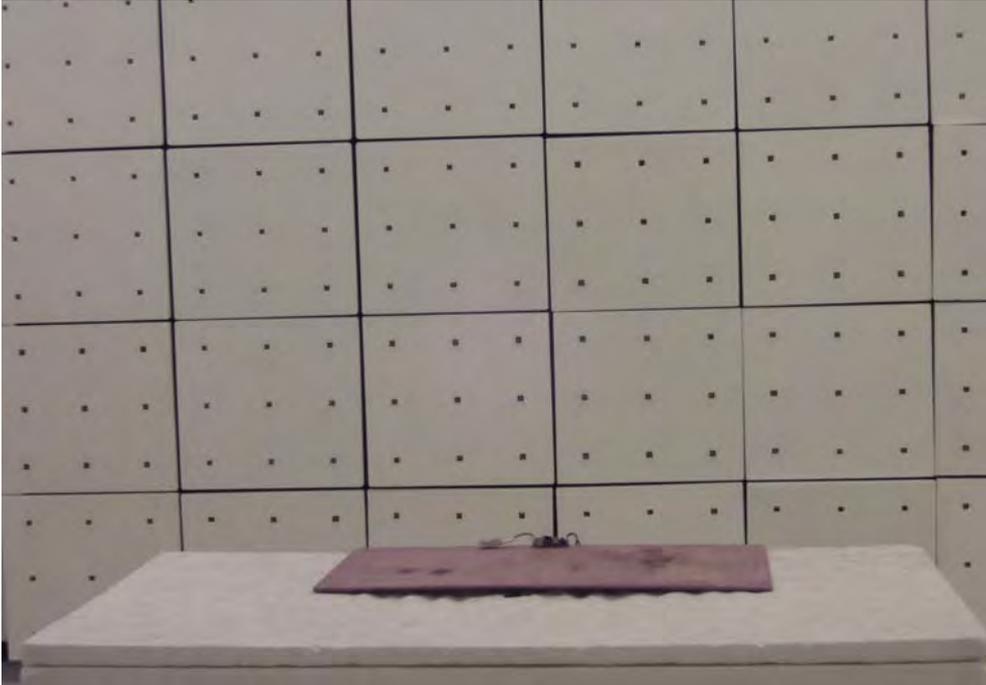
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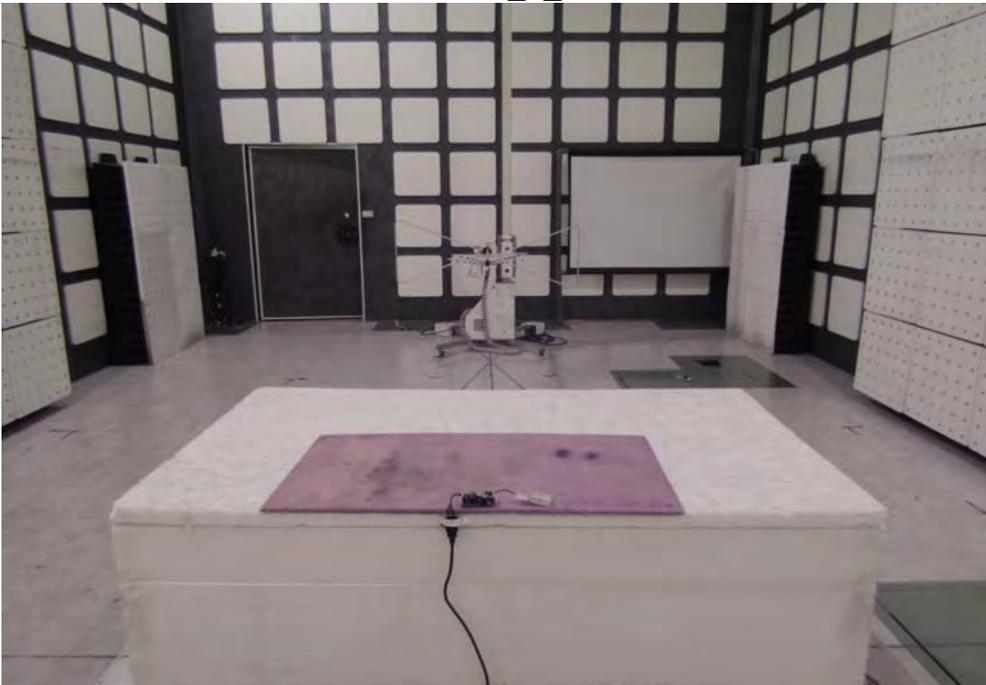
RE Testing Set-up Below 1GHz

Model No.: TPP 30-105A-J

Mode_1_+



Mode_1_-



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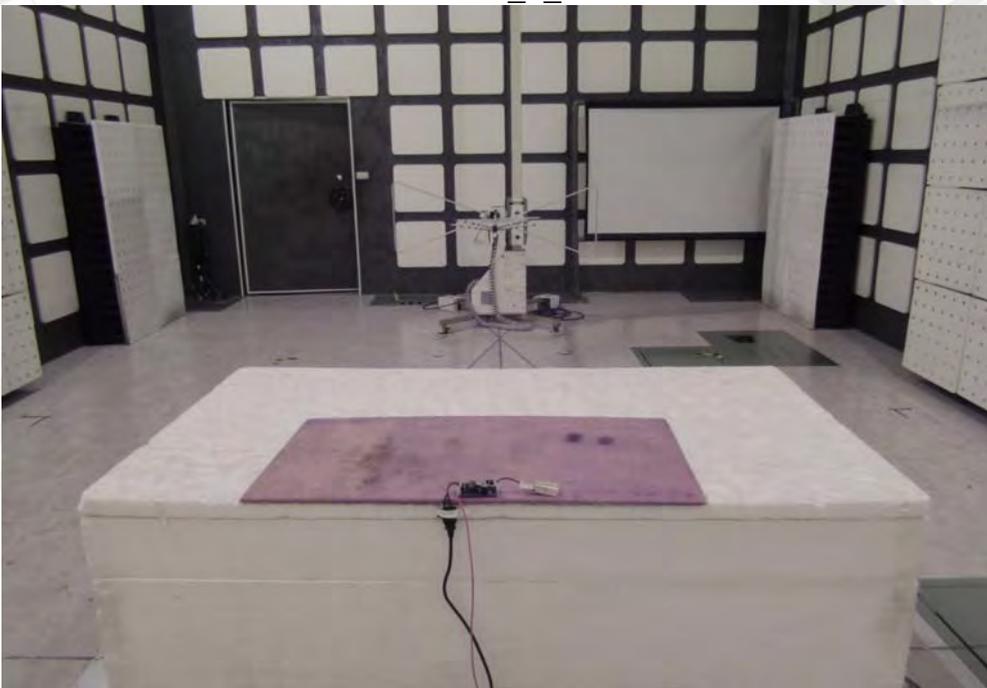
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Model No.: TPP 30-105BA-J

Mode_2_+



Mode_2_-



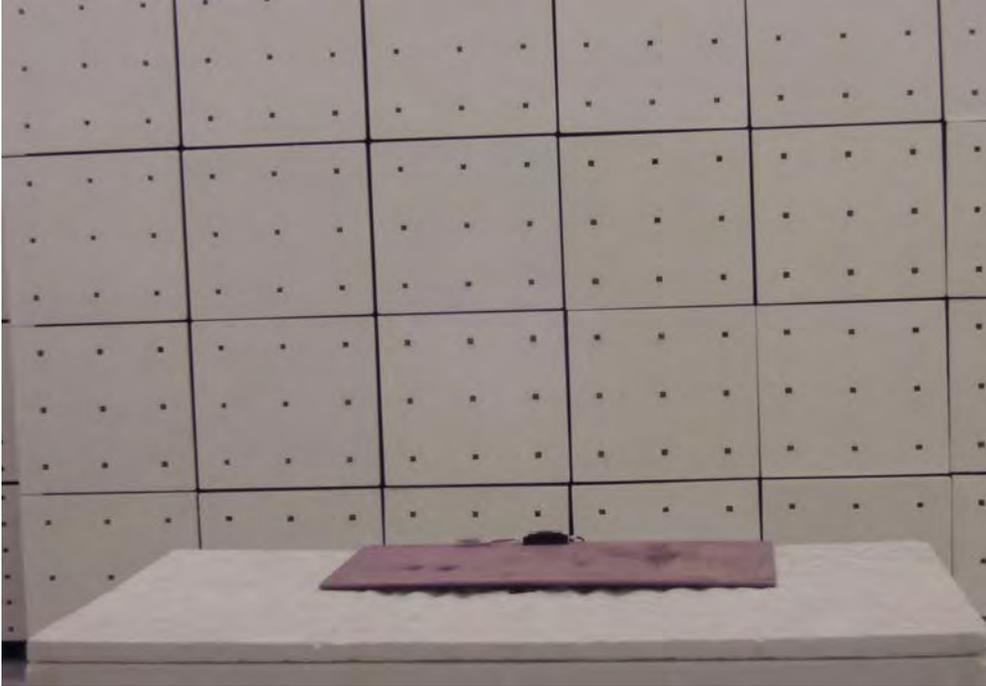
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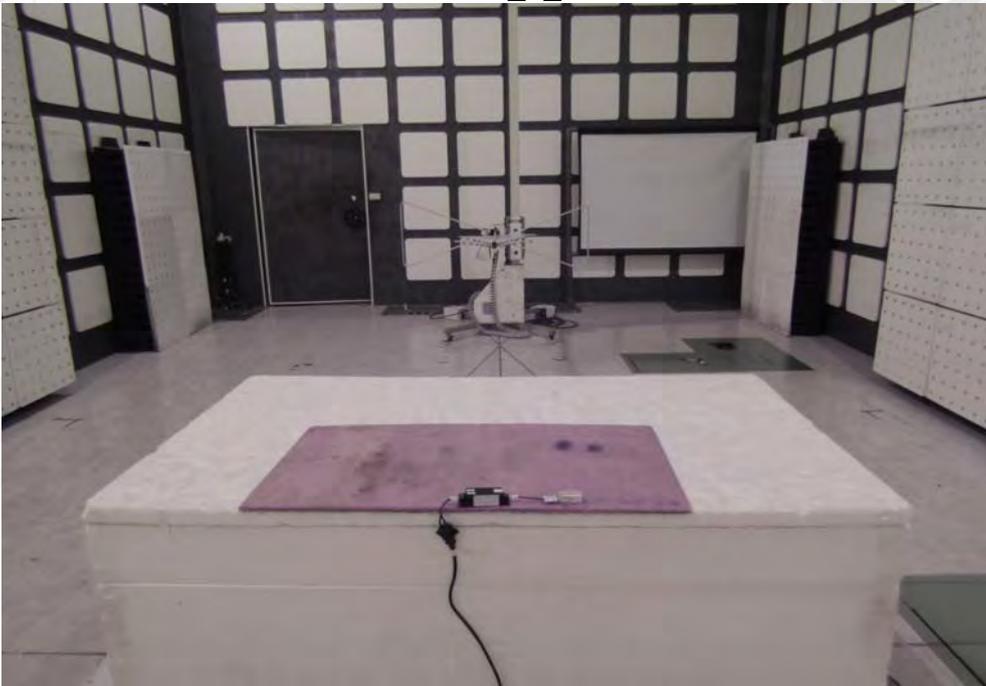
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Model No.: TPP 30-105

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

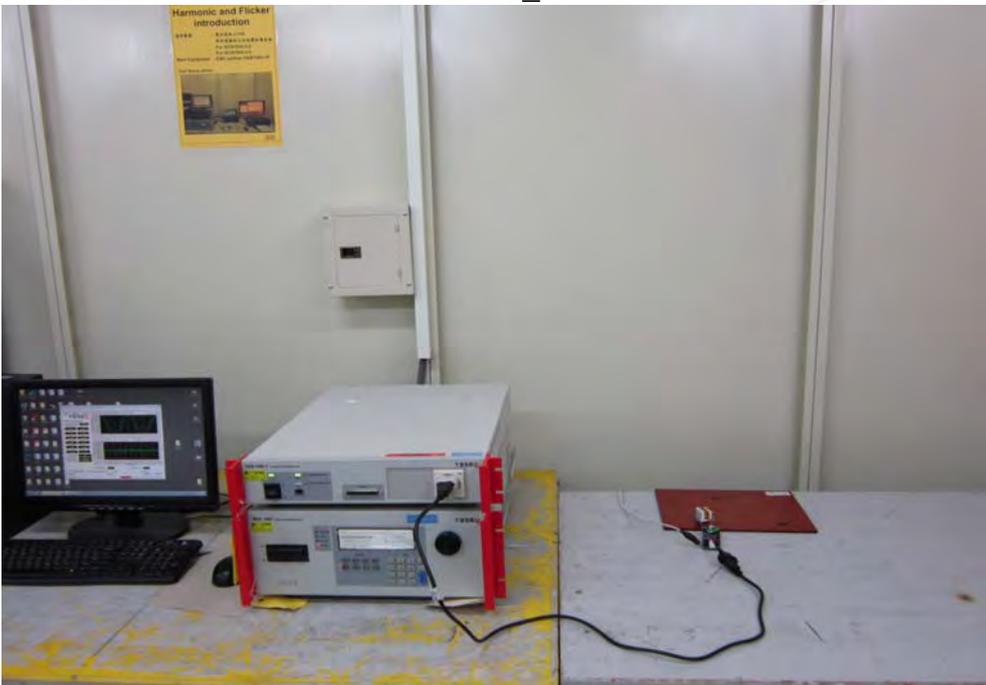
Model No.: TPP 30-105A-J

Mode_1



Model No.: TPP 30-105BA-J

Mode_2



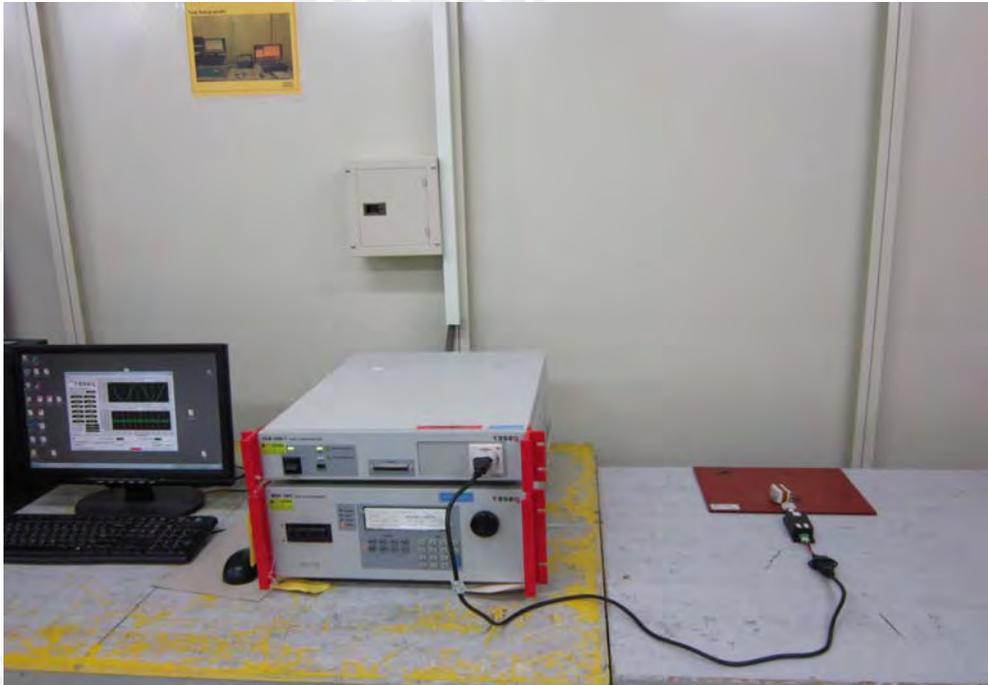
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Model No.: TPP 30-105

Mode_3



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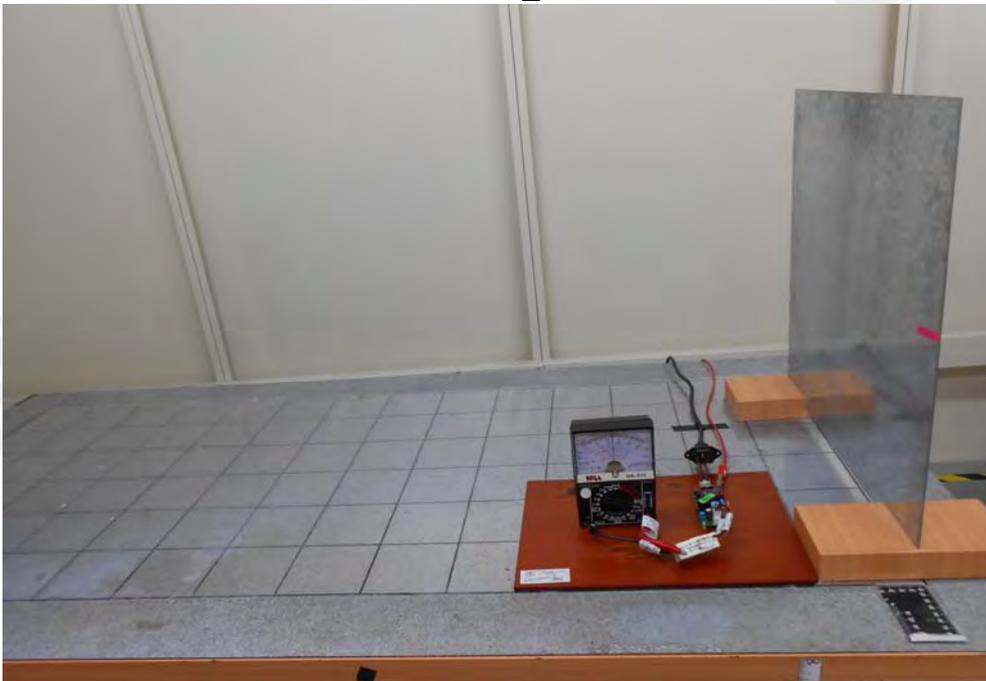
Model No.: TPP 30-105A-J

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



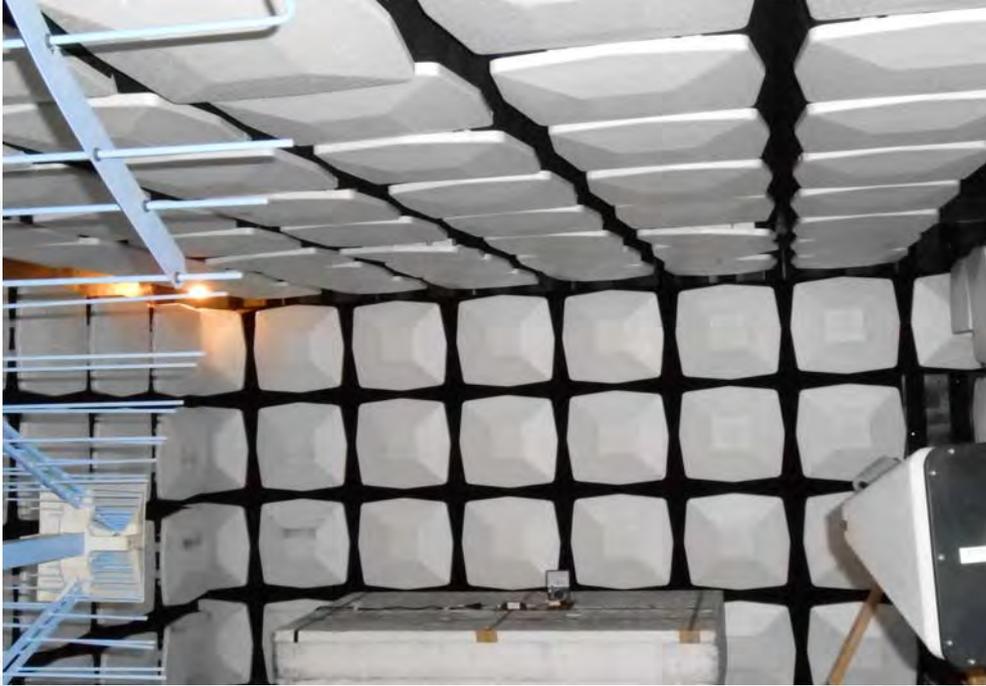
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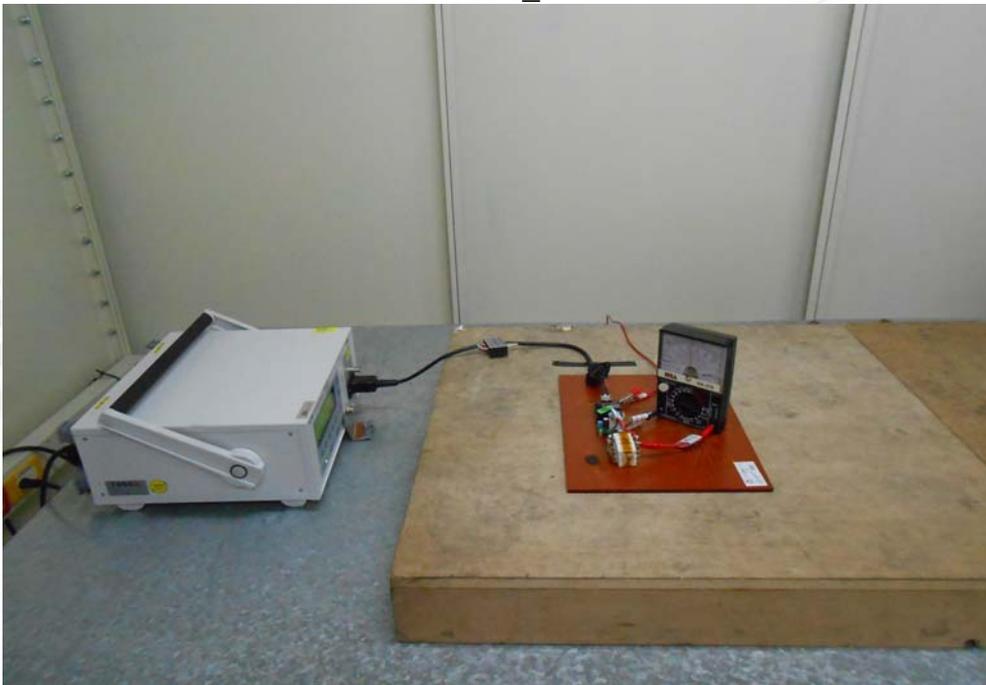
Model No.: TPP 30-105A-J

Mode_1



Model No.: TPP 30-105BA-J

Mode_2



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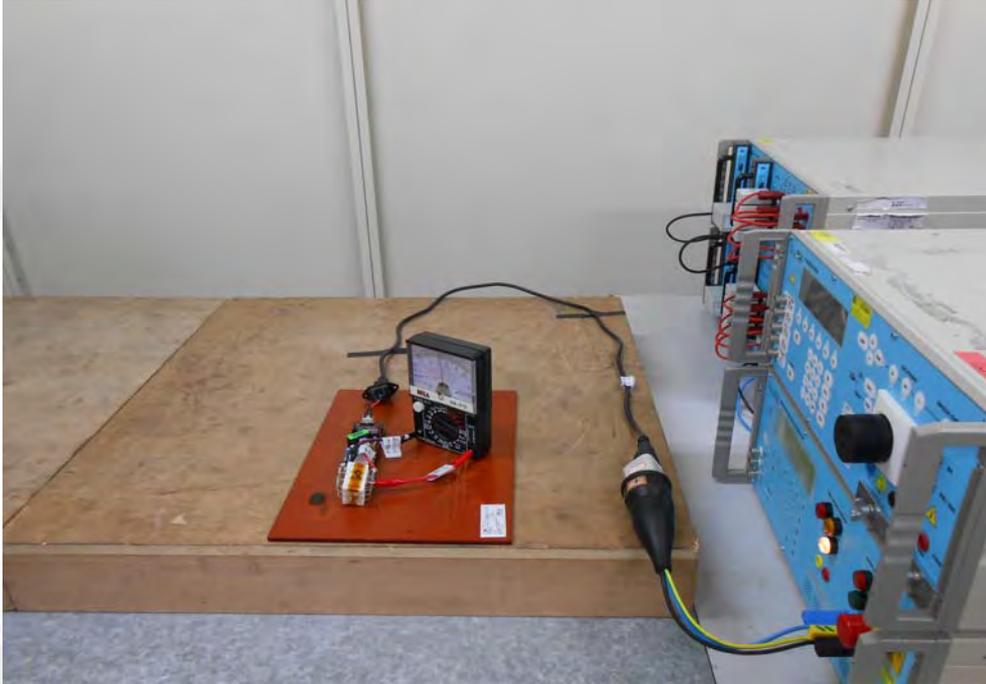
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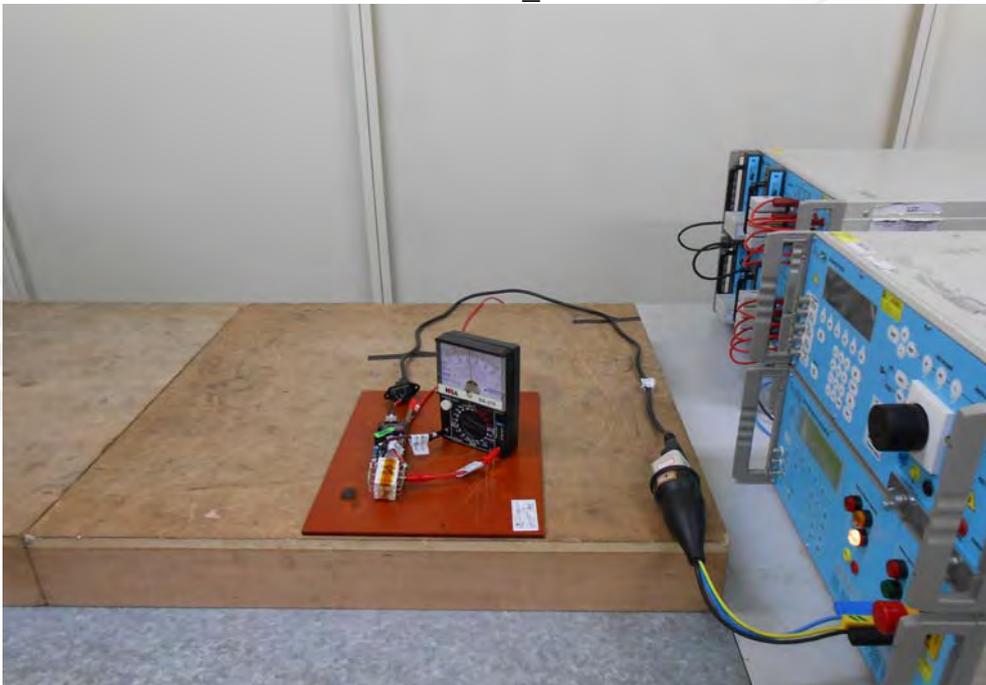
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Mode_1



Model No.: TPP 30-105BA-J

Mode_2



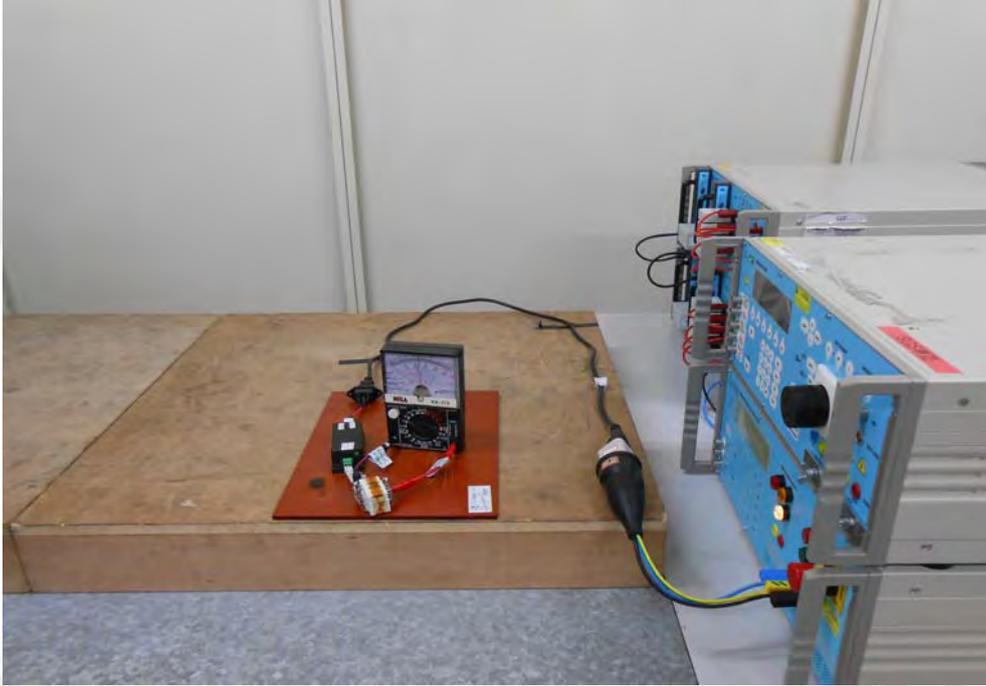
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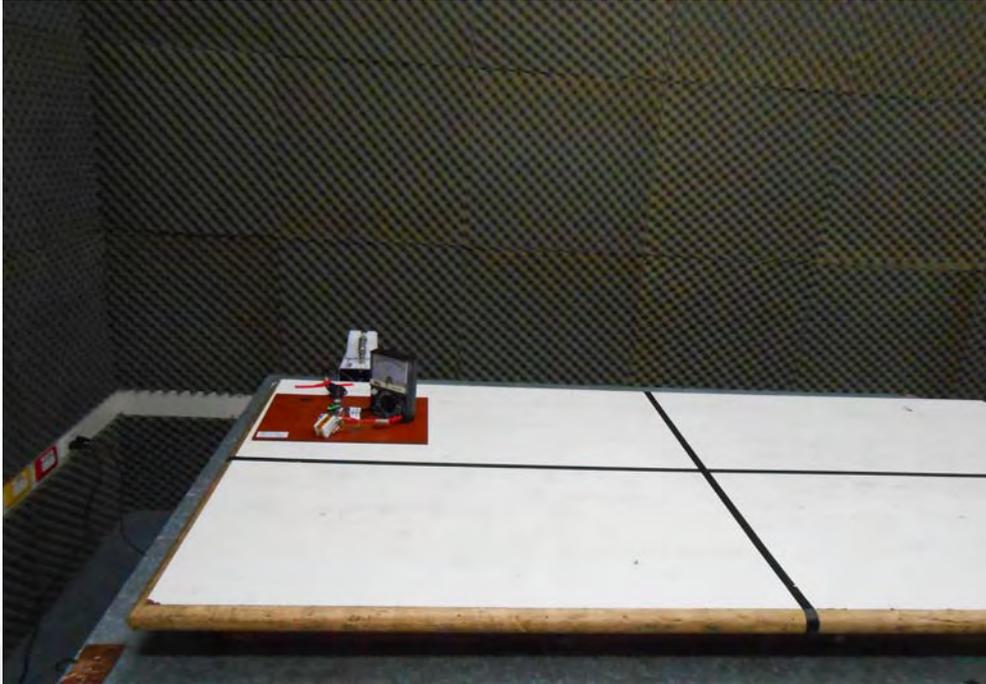
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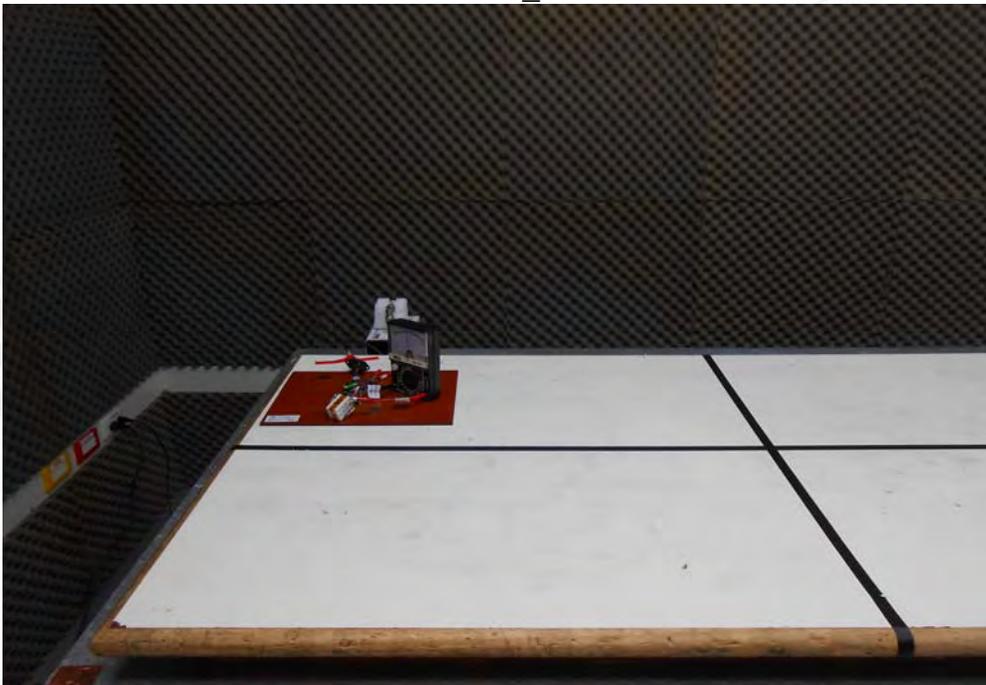
Model No.: TPP 30-105A-J

Mode_1



Model No.: TPP 30-105BA-J

Mode_2



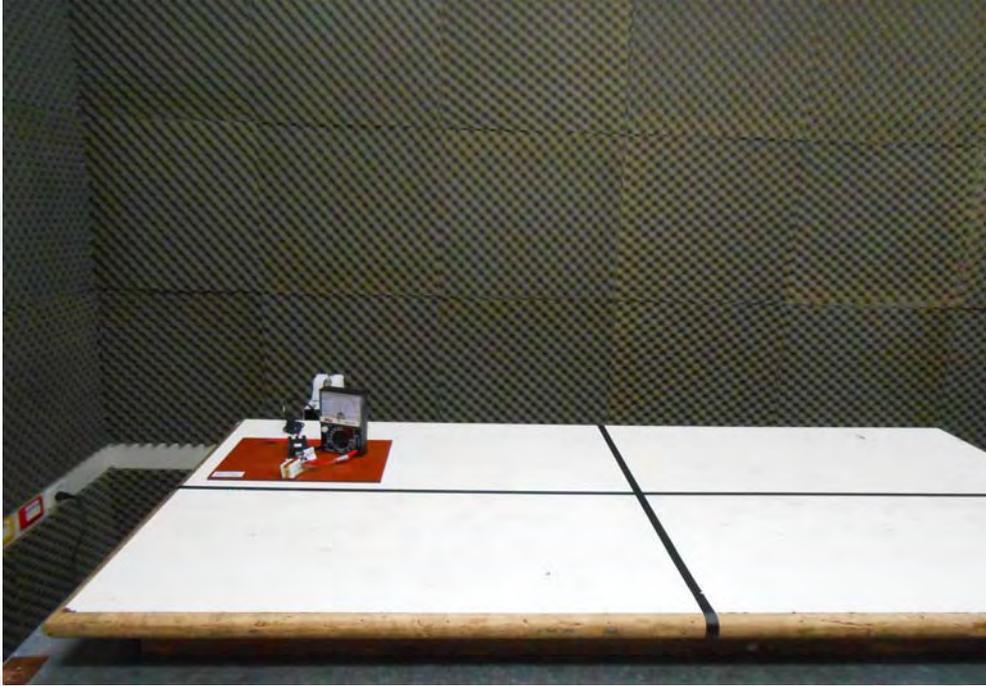
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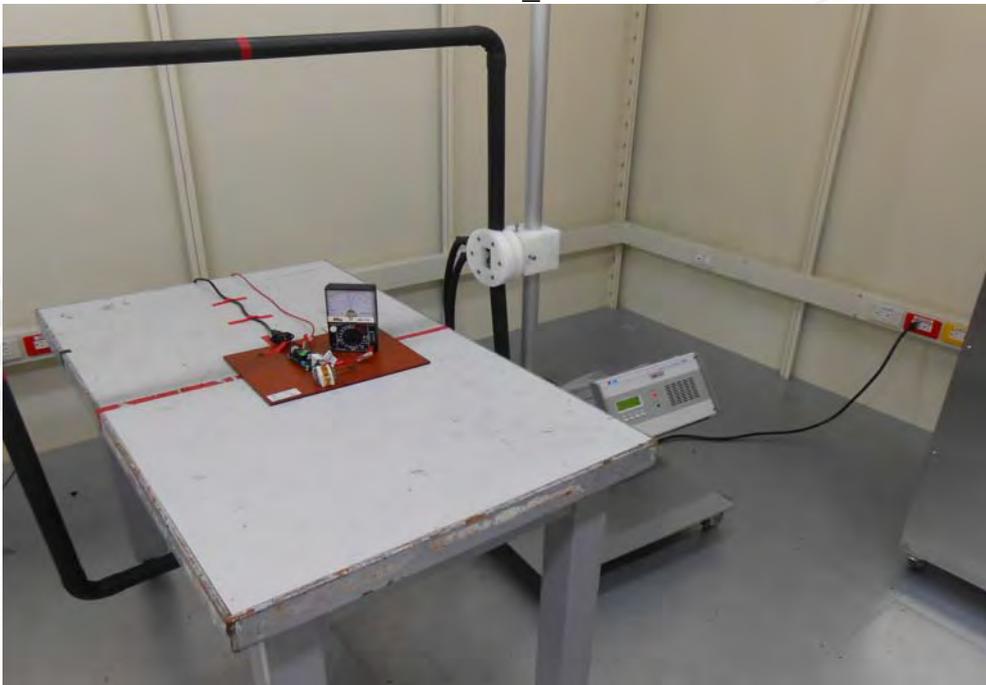
Model No.: TPP 30-105A-J

Mode_1



Model No.: TPP 30-105BA-J

Mode_2



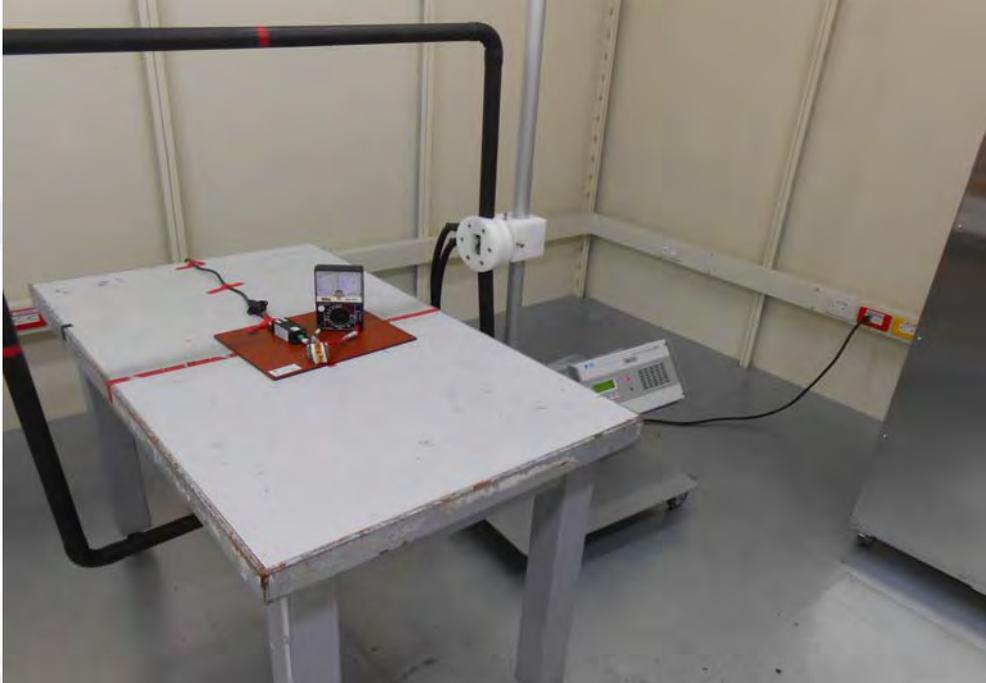
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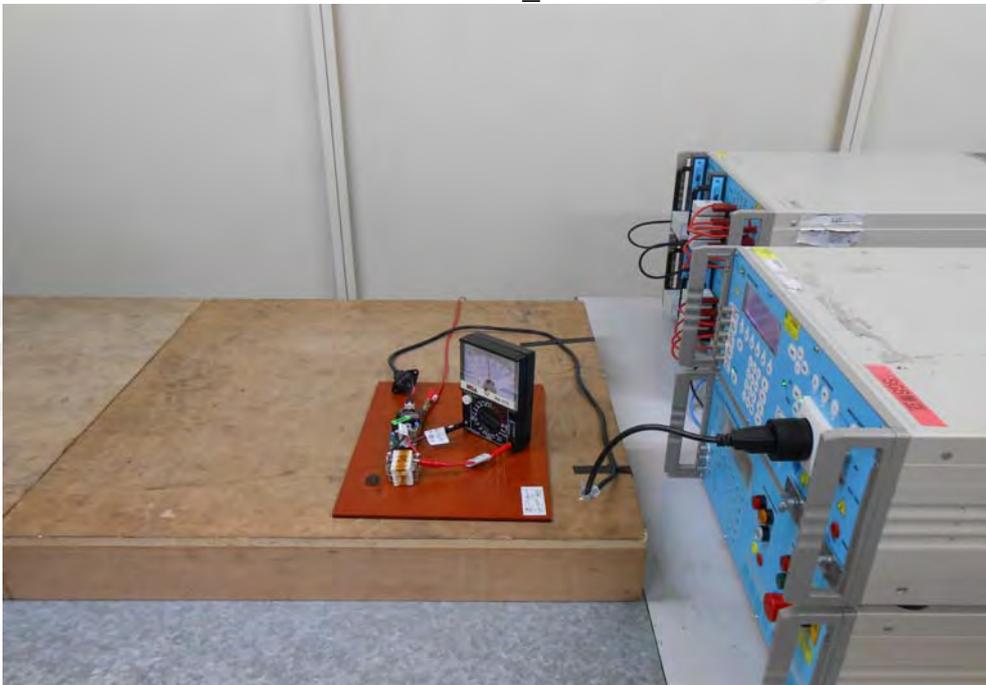
Model No.: TPP 30-105A-J

Mode_1



Model No.: TPP 30-105BA-J

Mode_2



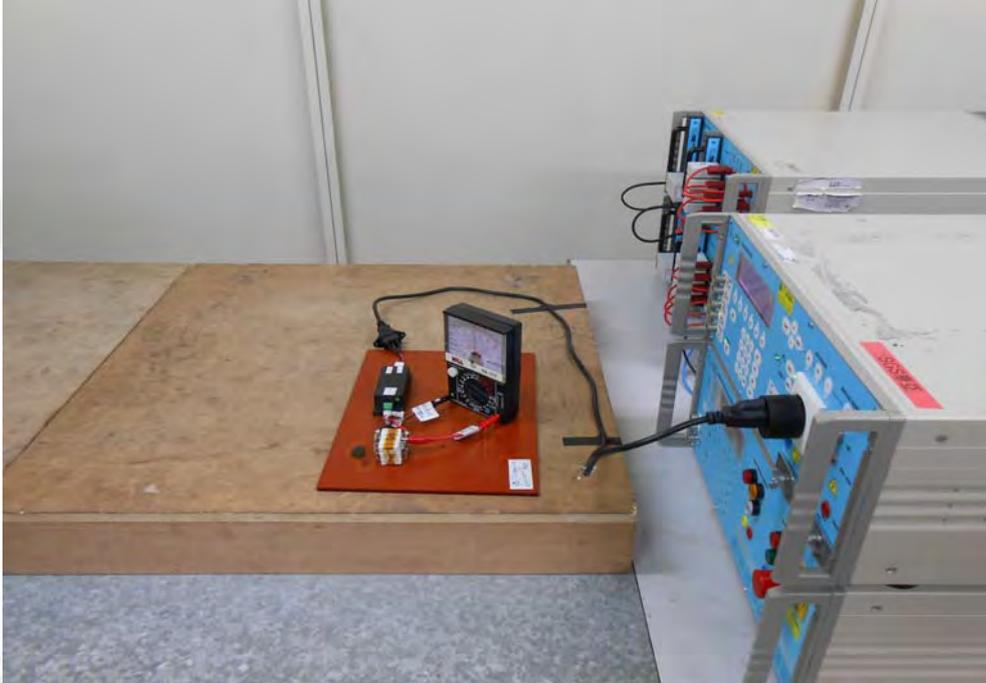
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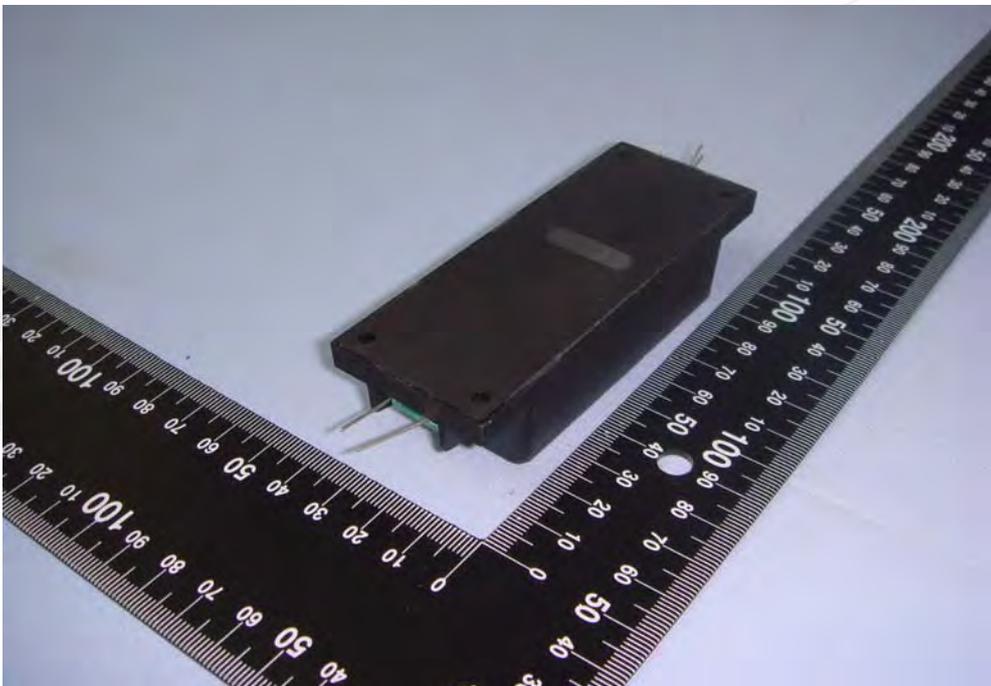
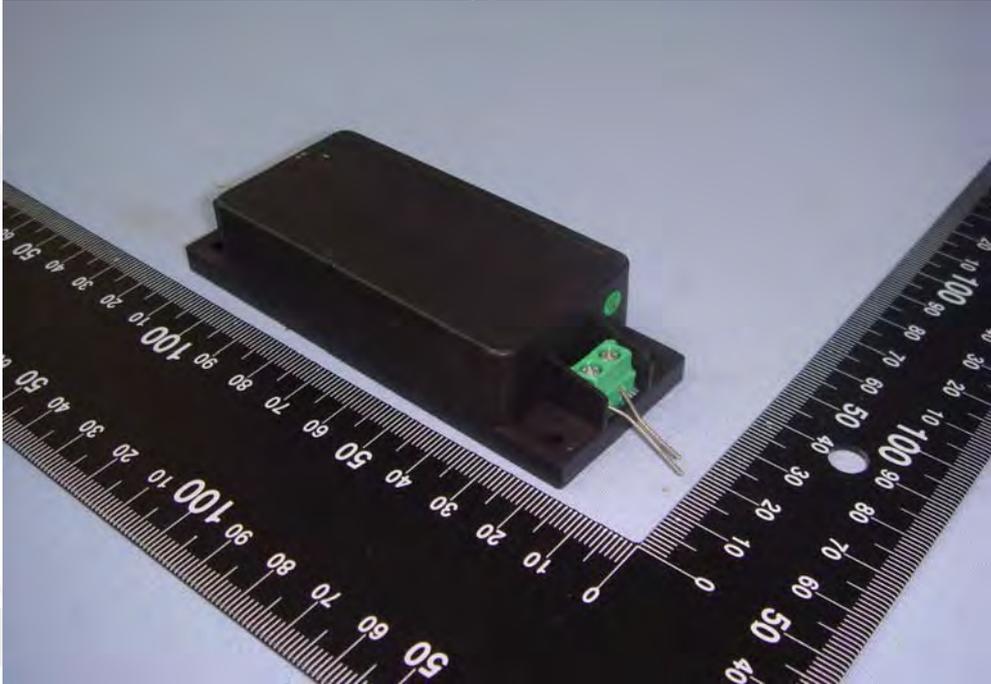
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Photographs of EUT Unit

Exterior

Type 1

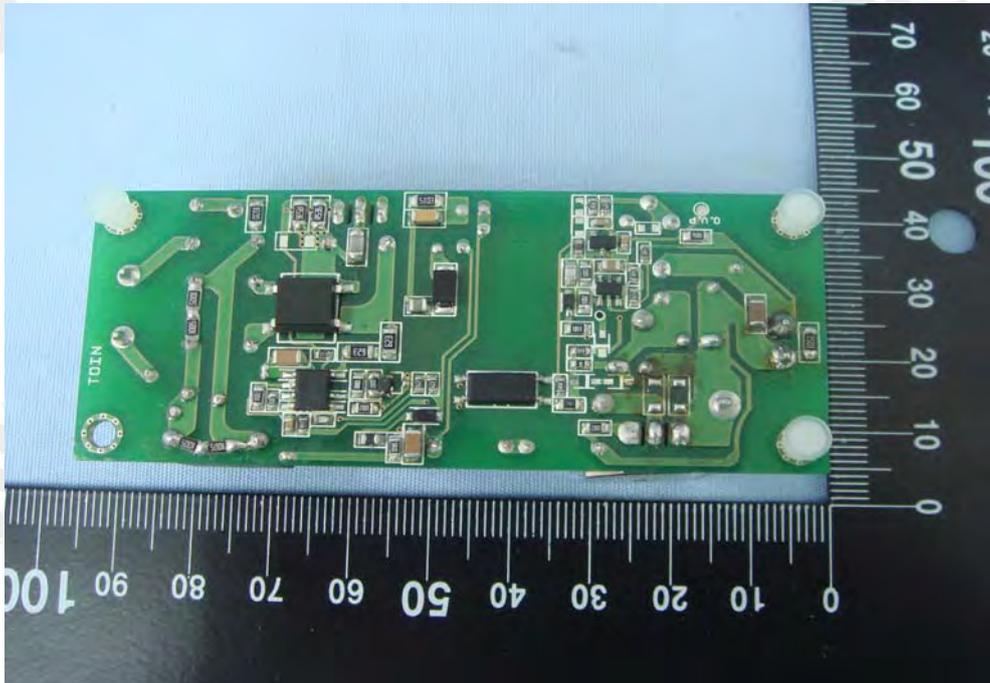
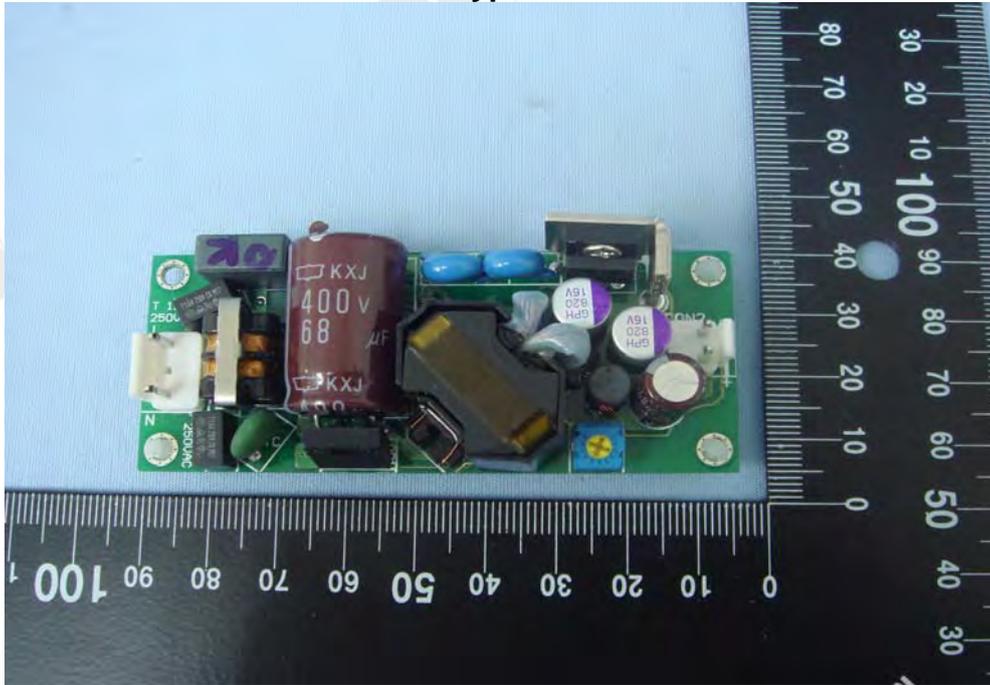


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Type 2



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