

EMC TEST REPORT
for
ALFA NETWORK Inc.
CARRIER POE+GIGABIT PSE

Model No.: PSE-1000G

Prepared for : ALFA NETWORK Inc.
Address : 4F-1 No. 106 Rueiguang Rd. Neihu District, Taipei City 114,
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Report Number : ATE20130514 003
Date of Original Test : April 22, 2013
Date of Report : December 02, 2013

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TEST REPORT DECLARATION

Applicant : ALFA NETWORK Inc.
Manufacturer : ALFA NETWORK Inc.
Product : CARRIER POE+GIGABIT PSE
Model No. : PSE-1000G

Measurement Procedure Used:

EN 55022: 2010

EN 61000-3-2: 2006 + A1: 2009 + A2: 2009

EN 61000-3-3: 2008

EN 55024: 2010 (IEC 61000-4-2: 2008, IEC 61000-4-3: 2010

IEC 61000-4-4: 2012, IEC 61000-4-5: 2005

IEC 61000-4-6: 2008, IEC 61000-4-8: 2009

IEC 61000-4-11: 2004)

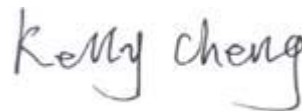
The device described above is tested by Accurate Technology Co., Ltd. to determine the maximum emission levels emanating from the device and the severe levels of the device can endure and its performance criterion. The measurement results are contained in this test report and Accurate Technology Co., Ltd. is assumed full of responsibility for the accuracy and completeness of these measurements.

This report applies to above tested sample only and shall not be reproduced in part without written approval of Accurate Technology Co., Ltd.

Date of Test :

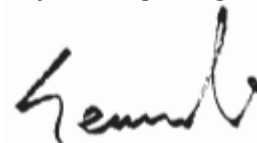
April 22, 2013

Prepared by :



(Kelly Cheng, Engineer)

Approved & Authorized Signer :



(Sean Liu, Manager)

1. TEST RESULTS SUMMARY

| Test Items | Test Standard | Test Results |
|---|--|--------------|
| Power Line Conducted Emission | EN 55022: 2010 | Pass |
| Radiated Emission | EN 55022: 2010 | Pass |
| Harmonic Current Emission Measurement | EN 61000-3-2: 2006 + A1: 2009 + A2: 2009 | Pass |
| Voltage Fluctuation and Flicker Measurement | EN 61000-3-3: 2008 | Pass |
| Electrostatic Discharge Immunity | EN 55024: 2010 (IEC61000-4-2: 2008) | Pass |
| Radiated Electromagnetic Fields Immunity | EN 55024: 2010 (IEC 61000-4-3: 2010) | Pass |
| Electrical Fast Transient/Burst Immunity Test | EN 55024: 2010 (IEC 61000-4-4: 2012) | Pass |
| Surge Immunity Test | EN 55024: 2010 (IEC 61000-4-5: 2005) | Pass |
| Injected Currents Susceptibility Test | EN 55024:1998+ A1: 2001 + A2: 2003 (IEC 61000-4-6: 2008) | Pass |
| Magnetic Field Immunity | EN 55024: 2009 (IEC 61000-4-8: 2009) | Pass |
| Voltage Dips and Interruptions Test | EN 55024: 2010 (IEC 61000-4-11: 2004) | Pass |

2. GENERAL INFORMATION

2.1. Description of Device (EUT)

Product : CARRIER POE+GIGABIT PSE

Model No. : PSE-1000G

Rating : Input: AC 100-240V, 50/60Hz
Output: DC 53V, 0.6A

Applicant : ALFA NETWORK Inc.
Address : 4F-1 No. 106 Rueiguang Rd. Neihu District, Taipei City 114,
Taiwan

Manufacturer : ALFA NETWORK Inc.
Address : 4F-1 No. 106 Rueiguang Rd. Neihu District, Taipei City 114,
Taiwan

Date of sample received : March 30, 2013
Date of Test : April 22, 2013

2.2. Accessory and Auxiliary Equipment

n.a.

2.3. Description of Test Facility

- EMC Lab : Accredited by TUV Rheinland Shenzhen, May 10, 2004
- Listed by FCC
The Registration Number is 253065
- Listed by FCC
The Registration Number is 752051
- Listed by Industry Canada
The Registration Number is 5077A-1
- Listed by Industry Canada
The Registration Number is 5077A-2
- Accredited by China National Accreditation Committee for Laboratories
The Certificate Registration Number is L3193
- Name of Firm : Accurate Technology Co., Ltd.
Site Location : F1, Bldg. A&D, Changyuan New Material Port, Keyuan Rd., Science & Industry Park, Nanshan District, Shenzhen 518057, P.R. China
- Subcontracted Items : RF Field Strength Susceptibility Test
- Subcontractor : Shenzhen Academy of Metrology and Quality Inspection
Site Location : Bldg. of Shenzhen Academy of Metrology and Quality Inspection, Longzhu Road, Nanshan, Shenzhen, China.

2.4. Measurement Uncertainty

- Radiated emission expanded uncertainty (9kHz-30MHz) : U=3.08dB, k=2
- Radiated emission expanded uncertainty (30MHz-1000MHz) : U=4.42dB, k=2
- Radiated emission expanded uncertainty (Above 1GHz) : U=4.06dB, k=2
- Conduction Emission Expanded Uncertainty : U=2.23dB, k=2
- Power disturbance Expanded Uncertainty : U=2.92dB, k=2

3. MEASURING DEVICE AND TEST EQUIPMENT

3.1. For Conducted Emission Test

| Item | Equipment | Manufacturer | Model No. | Serial No. | Last Cal. | Cal. Interval |
|------|--|-----------------|-----------|------------|---------------|---------------|
| 1. | Test Receiver | Rohde & Schwarz | ESCS30 | 100307 | Jan. 12, 2013 | 1 Year |
| 2. | Test Receiver | Rohde & Schwarz | ESPI3 | 100396/003 | Jan. 12, 2013 | 1 Year |
| 3. | Test Receiver | Rohde & Schwarz | ESPI3 | 101526/003 | Jan. 12, 2013 | 1 Year |
| 4. | L.I.S.N. | Schwarzbeck | NLSK8126 | 8126431 | Jan. 12, 2013 | 1 Year |
| 5. | L.I.S.N. | Rohde & Schwarz | ESH3-Z5 | 100305 | Jan. 12, 2013 | 1 Year |
| 6. | L.I.S.N. | Rohde & Schwarz | ESH3-Z5 | 100310 | Jan. 12, 2013 | 1 Year |
| 7. | L.I.S.N. | Rohde & Schwarz | ESH3-Z6 | 100132 | Jan. 12, 2013 | 1 Year |
| 8. | Pulse Limiter | Rohde & Schwarz | ESH3-Z2 | 100305 | Jan. 12, 2013 | 1 Year |
| 9. | Pulse Limiter | Rohde & Schwarz | ESH3-Z2 | 100312 | Jan. 12, 2013 | 1 Year |
| 10. | Pulse Limiter | Rohde & Schwarz | ESH3-Z2 | 100815 | Jan. 12, 2013 | 1 Year |
| 11. | 50Ω Coaxial Switch | Anritsu Corp | MP59B | 6200283936 | Jan. 12, 2013 | 1 Year |
| 12. | 50Ω Coaxial Switch | Anritsu Corp | MP59B | 6200283933 | Jan. 12, 2013 | 1 Year |
| 13. | 50Ω Coaxial Switch | Anritsu Corp | MP59B | 6200506474 | Jan. 12, 2013 | 1 Year |
| 14. | VOLTAGE PROBE | Schwarzbeck | TK9416 | N/A | Jan. 12, 2013 | 1 Year |
| 15. | RF CURRENT PROBE | Rohde & Schwarz | EZ-17 | 100048 | Jan. 12, 2013 | 1 Year |
| 16. | 8-Wire Impedance Stabilisation Network | Schwarzbeck | CAT5 8158 | 8158-0035 | Jan. 12, 2013 | 1 Year |
| 17. | RF Coaxial Cable | SUHNER | N-2m | No.2 | Jan. 12, 2013 | 1 Year |
| 18. | RF Coaxial Cable | SUHNER | N-2m | No.3 | Jan. 12, 2013 | 1 Year |
| 19. | RF Coaxial Cable | SUHNER | N-2m | No.14 | Jan. 12, 2013 | 1 Year |

3.2.For Radiated Emission Measurement

| Item | Equipment | Manufacturer | Model No. | Serial No. | Last Cal. | Cal. Interval |
|------|------------------------------|----------------------|--------------------------|------------|---------------|---------------|
| 1. | Spectrum Analyzer | Agilent | E7405A | MY45115511 | Jan. 12, 2013 | 1 Year |
| 2. | Spectrum Analyzer | Rohde&Schwarz | FSV40 | 101495 | Dec. 10, 2012 | 1 Year |
| 3. | Test Receiver | Rohde&Schwarz | ESCS30 | 100307 | Jan. 12, 2013 | 1 Year |
| 4. | Test Receiver | Rohde& Schwarz | ESPI3 | 100396/003 | Jan. 12, 2013 | 1 Year |
| 5. | Test Receiver | Rohde& Schwarz | ESPI3 | 101526/003 | Jan. 12, 2013 | 1 Year |
| 6. | Bilog Antenna | Schwarzbeck | VULB9163 | 9163-194 | Feb. 06, 2013 | 1 Year |
| 7. | Bilog Antenna | Schwarzbeck | VULB9163 | 9163-323 | Feb. 06, 2013 | 1 Year |
| 8. | Log.-Per.Antenna | Schwarzbeck | VUSLP 9111B | 9111B-074 | Dec.13, 2012 | 1 Year |
| 9. | Biconical Broad Band Antenna | Schwarzbeck | VHBB 9124+BBA 9106 | 9124-617 | Oct. 30, 2012 | 1 Year |
| 10. | Loop Antenna | Schwarzbeck | FMZB1516 | 1516131 | Feb. 06, 2013 | 1 Year |
| 11. | Horn Antenna | Schwarzbeck | BBHA9120D | 9120D-655 | Feb. 06, 2013 | 1 Year |
| 12. | Horn Antenna | Schwarzbeck | BBHA9120D | 9120D-1067 | Oct. 30, 2012 | 1 Year |
| 13. | RF Switching Unit+PreAMP | Compliance Direction | RSU-M2 | 38322 | Dec. 14, 2012 | 1 Year |
| 14. | Pre-Amplifier | Agilent | 8447D | 294A10619 | Jan. 12, 2013 | 1 Year |
| 15. | Pre-Amplifier | Rohde&Schwarz | CBLU11835 40-01 | 3791 | Jan. 12, 2013 | 1 Year |
| 16. | 50 Coaxial Switch | Anritsu Corp | MP59B | 6200237248 | Jan. 12, 2013 | 1 Year |
| 17. | 50 Coaxial Switch | Anritsu Corp | MP59B | 6200506474 | Jan. 12, 2013 | 1 Year |
| 18. | RF Coaxial Cable | Schwarzbeck | N-5m | No.1 | Jan. 12, 2013 | 1 Year |
| 19. | RF Coaxial Cable | Schwarzbeck | N-1m | No.6 | Jan. 12, 2013 | 1 Year |
| 20. | RF Coaxial Cable | Schwarzbeck | N-1m | No.7 | Jan. 12, 2013 | 1 Year |
| 21. | RF Coaxial Cable | SUHNER | N-3m | No.8 | Jan. 12, 2013 | 1 Year |
| 22. | RF Coaxial Cable | RESENBERGER | N-3.5m | No.9 | Jan. 12, 2013 | 1 Year |
| 23. | RF Coaxial Cable | SUHNER | N-6m | No.10 | Jan. 12, 2013 | 1 Year |
| 24. | RF Coaxial Cable | RESENBERGER | N-12m | No.11 | Jan. 12, 2013 | 1 Year |
| 25. | RF Coaxial Cable | RESENBERGER | N-0.5m | No.12 | Jan. 12, 2013 | 1 Year |
| 26. | RF Coaxial Cable | SUHNER | N-2m | No.13 | Jan. 12, 2013 | 1 Year |
| 27. | RF Coaxial Cable | SUHNER | N-0.5m | No.15 | Jan. 12, 2013 | 1 Year |
| 28. | RF Coaxial Cable | SUHNER | N-2m | No.16 | Jan. 12, 2013 | 1 Year |
| 29. | RF Coaxial Cable | RESENBERGER | N-6m | No.17 | Jan. 12, 2013 | 1 Year |

3.3.For Harmonic & Flicker Test

| Item | Equipment | Manufacturer | Model No. | Serial No. | Last Cal. | Cal. Interval |
|------|-----------------|------------------------|------------|------------|---------------|---------------|
| 1. | AC Power Source | California Instruments | 5001iX-400 | 55689 | Jan. 12, 2013 | 1 Year |
| 2. | Test analyzer | California Instruments | PACS-1 | 72254 | Jan. 12, 2013 | 1 Year |

3.4.For Electrostatic Discharge Immunity Test

| Item | Equipment | Manufacturer | Model No. | Serial No. | Last Cal. | Cal. Interval |
|------|------------|--------------|-----------|------------|---------------|---------------|
| 1. | ESD Tester | HAEFELY | PESD1610 | H4001552 | Jan. 15, 2013 | 1 Year |

3.5.For RF Strength Susceptibility Test

| Item | Equipment | Manufacturer | Model No. | Serial No. | Last Cal. | Cal. Interval |
|------|-----------------------|---------------|------------------|------------|---------------|---------------|
| 1. | Broad Band Antenna | SCHAFFNER | CBL6111C | SB2622 | Jan. 20, 2013 | 1 Year |
| 2. | Signal Generator | Rohde&Schwarz | SMT03 | SB3433 | Jan. 12, 2013 | 1 Year |
| 3. | Audio analyzer | Rohde&Schwarz | UPL | SB3439 | Dec. 19, 2012 | 1 Year |
| 4. | RF Synthesis detector | Rohde&Schwarz | CMU200 | SB3441 | Mar. 30, 2013 | 1 Year |
| 5. | Power Amplifier | AR | AT4002A | SB3937 | Mar. 10, 2013 | 1 Year |
| 6. | Horn Antenna | Chase | CBL6111C | 2576 | Jan. 20, 2013 | 1 Year |
| 7. | Supplybridge | SPARNEX | SFB 1050 | SB5304 | Mar. 16, 2013 | 1 Year |
| 8. | Power Amplifier | AR | 250W1000A | SB7933 | Jan. 20, 2013 | 1 Year |
| 9. | Power Amplifier | MILMEGA | AS0860-75/4 5 | SB7934 | Jan. 20, 2013 | 1 Year |

3.6.For Electrical Fast Transient /Burst Immunity Test

| Item | Equipment | Manufacturer | Model No. | Serial No. | Last Cal. | Cal. Interval |
|------|---------------------------------|--------------|-------------------|-----------------|---------------|---------------|
| 1. | ULTRA COMPACT SIMULATOR | EM TEST | UCS 500 N5 | V0928104 968 | Jan. 12, 2013 | 1Year |
| 2. | CAPACITIVE CLAMP | EM TEST | HFK | 0509-34 | Feb. 06, 2013 | 1Year |
| 3. | Transformer | EM TEST | V4780S2 | 0109-44 | Jan. 12, 2013 | 1Year |
| 4. | EMCPRO SYSTEM (IMMUNITY TESTER) | THERMO | EMC PRO Plus-BASE | 1108237 | Jan. 12, 2013 | 1Year |

3.7.For Surge Immunity Test

| Item | Equipment | Manufacturer | Model No. | Serial No. | Last Cal. | Cal. Interval |
|------|-------------------------------------|--------------|-------------------|-----------------|---------------|---------------|
| 1. | ULTRA COMPACT SIMULATOR | EM TEST | UCS 500 N5 | V0928104 968 | Jan. 12, 2013 | 1Year |
| 2. | Transformer | EM TEST | V4780S2 | 0109-44 | Jan. 12, 2013 | 1Year |
| 3. | EMCPRO SYSTEM (IMMUNITY TESTER) | THERMO | EMC PRO Plus-BASE | 1108237 | Jan. 12, 2013 | 1Year |
| 4. | COUPLER DECOUPLER FOR TELECOM LINES | THERMO | CM-TEL-CD | 0403273 | Jan. 12, 2013 | 1Year |

3.8.For Injected Current Susceptibility Test

| Item | Equipment | Manufacturer | Model No. | Serial No. | Last Cal. | Cal. Interval |
|------|--------------------------------|--------------|-------------|------------|---------------|---------------|
| 1. | Conducted Immunity Test System | FRANKONIA | CIT-10 | 126B1121 | Jan. 12, 2013 | 1Year |
| 2. | CDN | FRANKONIA | CDN-M2/3 | A3027020 | Jan. 12, 2013 | 1Year |
| 3. | EM Injection Clamp | FCC | F-203I-23mm | 091824 | Jan. 12, 2013 | 1Year |
| 5. | 6dB Attenuator | Weinschel | WA59-6-33 | A329 | Jan. 12, 2013 | 1Year |

3.9.For Magnetic Field Immunity Test

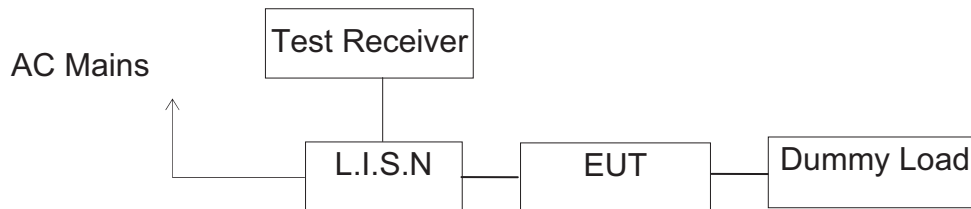
| Item | Equipment | Manufacturer | Model No. | Serial No. | Last Cal. | Cal. Interval |
|------|-----------------------|--------------|-----------|------------|---------------|---------------|
| 1. | Magnetic Field Tester | HAEFELY | MAG100 | 150577 | Jan. 12, 2013 | 1 Year |

3.10.For Voltage Dips and Interruptions Test

| Item | Equipment | Manufacturer | Model No. | Serial No. | Last Cal. | Cal. Interval |
|------|-------------------------|--------------|------------|--------------|---------------|---------------|
| 1. | ULTRA COMPACT SIMULATOR | EM TEST | UCS 500 N5 | V0928104 968 | Jan. 12, 2013 | 1Year |
| 2. | Transformer | EM TEST | V4780S2 | 0109-44 | Jan. 12, 2013 | 1Year |

4. POWER LINE CONDUCTED EMISSION MEASUREMENT

4.1. Block Diagram of Test Setup



(EUT: CARRIER POE+GIGABIT PSE)

4.2. Measuring Standard

EN 55022: 2010

4.3. Power Line Conducted Emission Limits (Class B)

| Frequency (MHz) | Limit dB(μ V) | |
|-----------------|--------------------|---------------|
| | Quasi-peak Level | Average Level |
| 0.15 - 0.50 | 66.0 - 56.0 * | 56.0 - 46.0 * |
| 0.50 - 5.00 | 56.0 | 46.0 |
| 5.00 - 30.00 | 60.0 | 50.0 |

Note1: The lower limit shall apply at the transition frequencies.
 Note2: The limit decreases linearly with the logarithm of the frequency in the range 0.15MHz to 0.50MHz.

4.4. EUT Configuration on Measurement

The following equipments are installed on Conducted Emission Measurement to meet EN 55022 requirements and operating in a manner which tends to maximize its emission characteristics in a normal application.

4.4.1. CARRIER POE+GIGABIT PSE (EUT)

Model Number : PSE-1000G

Manufacturer : ALFA NETWORK Inc.

4.5. Operating Condition of EUT

- 4.5.1. Setup the EUT as shown on Section 4.1.
- 4.5.2. Turn on the power of all equipments.
- 4.5.3. Let the EUT work in test modes (Full Load) and measure it.

4.6. Test Procedure

The EUT is put on the plane 0.8m high above the ground by insulating support and connected to the AC mains through Line Impedance Stability Network (L.I.S.N). This provided a 50 Ω coupling impedance for the tested equipments. Both sides of AC line are investigated to find out the maximum conducted emission according to the EN 55022 regulations during conducted emission measurement.

The bandwidth of the field strength meter (R&S Test Receiver ESCS30) is set at 9 kHz in 150 kHz-30MHz and 200Hz in 9 kHz 150 kHz.

The frequency range from 150 kHz to 30MHz is investigated for AC mains.

4.7.Measuring Results

PASS.

| Test mode: Full Load (PSE-1000G) | | | | | | | | |
|--|-------|--------|-------|--------|----------|------|-----|--|
| Live | | | | | | | | |
| MEASUREMENT RESULT: "GP-V02_fin" | | | | | | | | |
| 2013-4-22 14:04 | | | | | | | | |
| Frequency | Level | Transd | Limit | Margin | Detector | Line | PE | |
| MHz | dBuV | dB | dBuV | dB | | | | |
| 0.168084 | 52.30 | 10.5 | 65 | 12.8 | QP | L1 | GND | |
| 0.195828 | 50.70 | 10.8 | 64 | 13.1 | QP | L1 | GND | |
| 0.251856 | 45.60 | 11.3 | 62 | 16.1 | QP | L1 | GND | |
| MEASUREMENT RESULT: "GP-V02_fin2" | | | | | | | | |
| 2013-4-22 14:04 | | | | | | | | |
| Frequency | Level | Transd | Limit | Margin | Detector | Line | PE | |
| MHz | dBuV | dB | dBuV | dB | | | | |
| 0.251103 | 34.30 | 11.3 | 52 | 17.4 | AV | L1 | GND | |
| 1.364203 | 27.80 | 12.4 | 46 | 18.2 | AV | L1 | GND | |
| 3.754864 | 28.00 | 12.3 | 46 | 18.0 | AV | L1 | GND | |
| Neutral | | | | | | | | |
| MEASUREMENT RESULT: "GP-V01_fin" | | | | | | | | |
| 2013-4-22 14:01 | | | | | | | | |
| Frequency | Level | Transd | Limit | Margin | Detector | Line | PE | |
| MHz | dBuV | dB | dBuV | dB | | | | |
| 1.995710 | 36.50 | 12.3 | 56 | 19.5 | QP | N | GND | |
| 2.453928 | 40.90 | 12.3 | 56 | 15.1 | QP | N | GND | |
| 2.928308 | 41.40 | 12.3 | 56 | 14.6 | QP | N | GND | |
| MEASUREMENT RESULT: "GP-V01_fin2" | | | | | | | | |
| 2013-4-22 14:01 | | | | | | | | |
| Frequency | Level | Transd | Limit | Margin | Detector | Line | PE | |
| MHz | dBuV | dB | dBuV | dB | | | | |
| 0.237211 | 39.20 | 11.2 | 52 | 13.0 | AV | N | GND | |
| 2.972497 | 30.80 | 12.3 | 46 | 15.2 | AV | N | GND | |
| 3.777427 | 31.10 | 12.3 | 46 | 14.9 | AV | N | GND | |

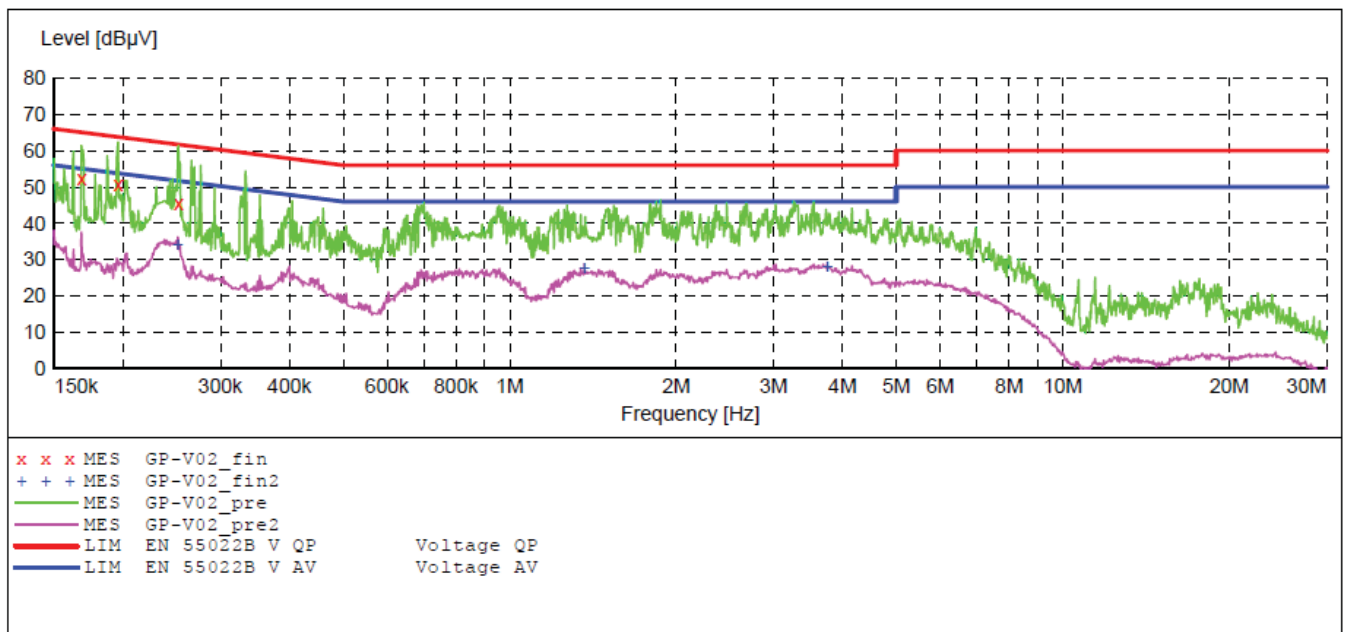
ACCURATE TECHNOLOGY CO., LTD

CONDUCTED EMISSION STANDARD EN55022 B

EUT: CARRIER POE+GIGABIT PSE M/N:PSE-1000G
 Manufacturer: ALFA
 Operating Condition: Full Load
 Test Site: 1#Shielding Room
 Operator: Alen
 Test Specification: L 230V/50Hz
 Comment: Report No:ATE20130514
 Start of Test: 2013-4-22 / 14:02:43

SCAN TABLE: "V 150K-30MHz fin"

| | | | | | | |
|--------------------|-----------|-------|---------------------|-------|--------|----------------|
| Short Description: | | | SUB STD VTERM2 1.70 | | | |
| Start | Stop | Step | Detector | Meas. | IF | Transducer |
| Frequency | Frequency | Width | | Time | Bandw. | |
| 150.0 kHz | 30.0 MHz | 0.4 % | QuasiPeak | 1.0 s | 9 kHz | LISN (ESH3-Z5) |
| | | | Average | | | |



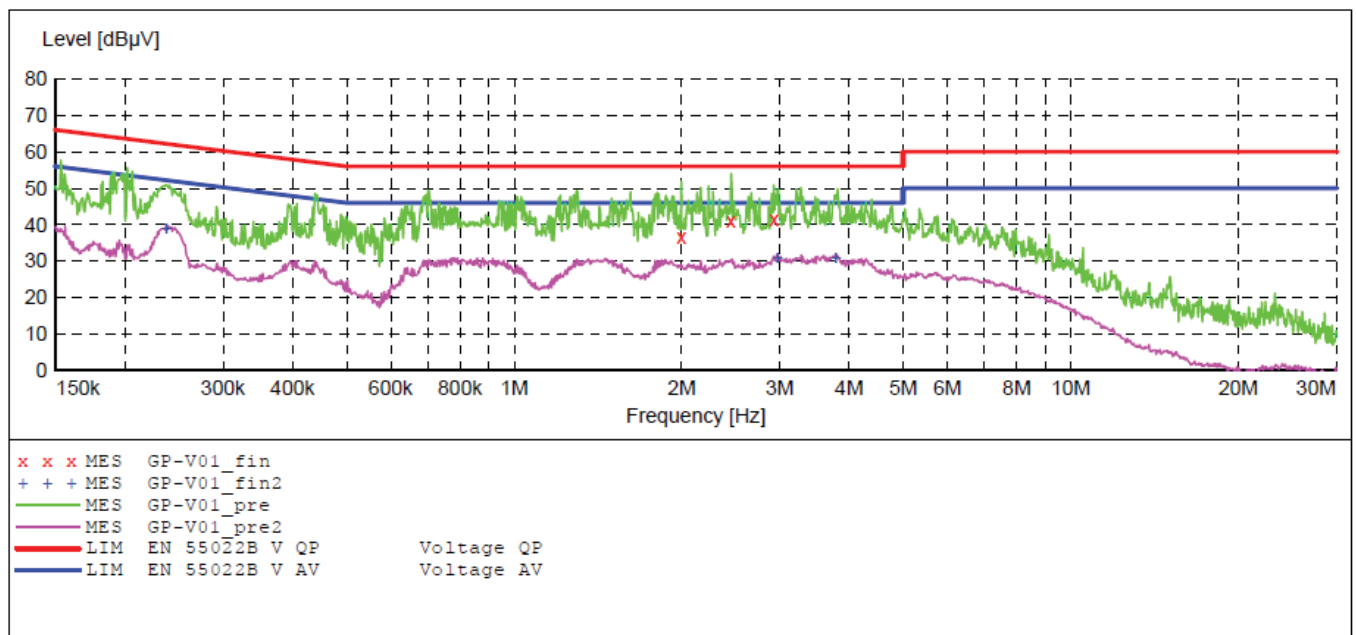
ACCURATE TECHNOLOGY CO., LTD

CONDUCTED EMISSION STANDARD EN55022 B

EUT: CARRIER POE+GIGABIT PSE M/N:PSE-1000G
 Manufacturer: ALFA
 Operating Condition: Full Load
 Test Site: 1#Shielding Room
 Operator: Alen
 Test Specification: N 230V/50Hz
 Comment: Report No:ATE20130514
 Start of Test: 2013-4-22 / 13:59:44

SCAN TABLE: "V 150K-30MHz fin"

| Short Description: | | | SUB STD VTERM2 1.70 | | | |
|--------------------|----------|-------|---------------------|------------|-----------|---------------|
| Start | Stop | Step | Detector | Meas. Time | IF Bandw. | Transducer |
| 150.0 kHz | 30.0 MHz | 0.4 % | QuasiPeak | 1.0 s | 9 kHz | LISN(ESH3-Z5) |
| Average | | | | | | |



5. RADIATED EMISSION MEASUREMENT

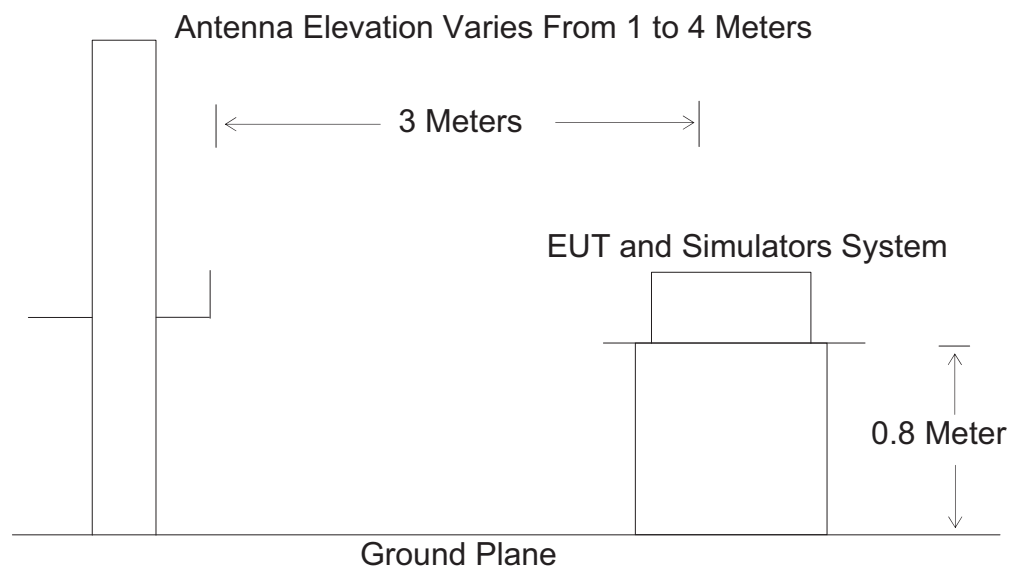
5.1. Block Diagram of Test

5.1.1. Block diagram of connection between the EUT and simulators



(EUT: CARRIER POE+GIGABIT PSE)

5.1.2. Block diagram of test setup (In chamber)



(EUT: CARRIER POE+GIGABIT PSE)

5.2. Measuring Standard

EN 55022: 2010

5.3. Radiated Emission Limits (Class B)

5.3.1. Limit below 1GHz

| Frequency (MHz) | Quasi-peak limits dB(μ V/m) |
|-----------------|----------------------------------|
| 30 – 230 | 40 |
| 230 - 1000 | 47 |

Note: (1) The smaller limit shall apply at the combination point between two frequency bands.

(2) Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the EUT.

5.3.2. Limit above 1GHz

| Frequency (GHz) | Average Limit dB(μ V/m) | Peak Limit dB(μ V/m) |
|-----------------|------------------------------|---------------------------|
| 1 – 3 | 50 | 70 |
| 3 - 6 | 54 | 74 |

Note: The lower limit applies at the transition frequency.

5.4. Conditional Testing Procedure

If the highest frequency of the internal sources of the EUT is less than 108MHz, the measurement shall only be made up to 1GHz.

If the highest frequency of the internal sources of the EUT is between 108MHz and 500MHz, the measurement shall only be made up to 2GHz.

If the highest frequency of the internal sources of the EUT is between 500MHz and 1GHz, the measurement shall only be made up to 5GHz.

If the highest frequency of the internal sources of the EUT is above 1GHz, the measurement shall only be made up to 5 times the highest frequency or 6GHz, whichever is less.

5.5. EUT Configuration on Test

The configuration of the EUT is same as Section 4.4.

5.6. Operating Condition of EUT

- 5.6.1. Setup the EUT and simulator as shown as Section 5.1.
- 5.6.2. Turn on the power of all equipment.
- 5.6.3. Let the EUT work in test modes (Full Load) and measure it.

5.7. Test Procedure

The EUT is placed on a turntable, which is 0.8 meter high above the ground. The turntable can rotate 360 degrees to determine the position of the maximum emission level. The EUT is set 3 meters away from the receiving antenna, which is mounted on an antenna tower. The antenna can be moved up and down from 1 to 4 meters to find out the maximum emission level. Bilog antenna (calibrated by Dipole Antenna) is used as a receiving antenna. Both horizontal and vertical polarizations of the antenna are set on test.

The bandwidth of the Receiver (ESCS30) is set at 120 kHz in 30-1000MHz, and 1MHz in above 1000MHz.

5.8.Measuring Results

PASS.

The highest frequency of the internal sources of the EUT is above 1GHz; the measurement shall only be made up to 6GHz.

| Test mode: Full Load (PSE-1000G) | | | | | | | | |
|----------------------------------|-----|-------------|------------------|-------------|-----------------|----------------|-------------|----------|
| Polarization | | | | | | | | |
| Horizontal | No. | Freq. (MHz) | Reading (dBuV/m) | Factor (dB) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector |
| | 1 | 74.3955 | 40.32 | -19.59 | 20.73 | 40.00 | -19.27 | QP |
| | 2 | 196.5098 | 40.89 | -18.42 | 22.47 | 40.00 | -17.53 | QP |
| | 3 | 327.8873 | 37.69 | -15.07 | 22.62 | 47.00 | -24.38 | QP |
| Vertical | No. | Freq. (MHz) | Reading (dBuV/m) | Factor (dB) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector |
| | 1 | 33.2111 | 38.68 | -15.42 | 23.26 | 40.00 | -16.74 | QP |
| | 2 | 72.8465 | 43.41 | -20.36 | 23.05 | 40.00 | -16.95 | QP |
| | 3 | 167.8242 | 40.04 | -19.19 | 20.85 | 40.00 | -19.15 | QP |

Note: Emissions attenuated more than 20 dB below the permissible value are not reported.

The spectral diagrams are attached as below.

**ACCURATE TECHNOLOGY CO., LTD.**F1,Bldg,A,Changyuan New Material Port Keyuan Rd,
Science & Industry Park,Nanshan Shenzhen,P.R.China

Site: 1# Chamber

Tel:+86-0755-26503290

Fax:+86-0755-26503396

Job No.: alen #421

Standard: EN55022 ClassB Radiated

Test item: Radiation Test

Temp.(C)/Hum.(%) 26 C / 55 %

EUT: CARRIER POE+GIGABIT PSE

Mode: Full Load

Model: PSE-1000G

Manufacturer: ALFA

Polarization: Horizontal

Power Source: AC 230V/50Hz

Date: 2013/04/22

Time: 15:06:45

Engineer Signature:

Distance: 3m

Note: Report No:ATE20130514



**ACCURATE TECHNOLOGY CO., LTD.**F1,Bldg,A,Changyuan New Material Port Keyuan Rd,
Science & Industry Park,Nanshan Shenzhen,P.R.China

Site: 1# Chamber

Tel:+86-0755-26503290

Fax:+86-0755-26503396

Job No.: alen #422

Standard: EN55022 ClassB Radiated

Test item: Radiation Test

Temp.(C)/Hum.(%) 26 C / 55 %

EUT: CARRIER POE+GIGABIT PSE

Mode: Full Load

Model: PSE-1000G

Manufacturer: ALFA

Polarization: Vertical

Power Source: AC 230V/50Hz

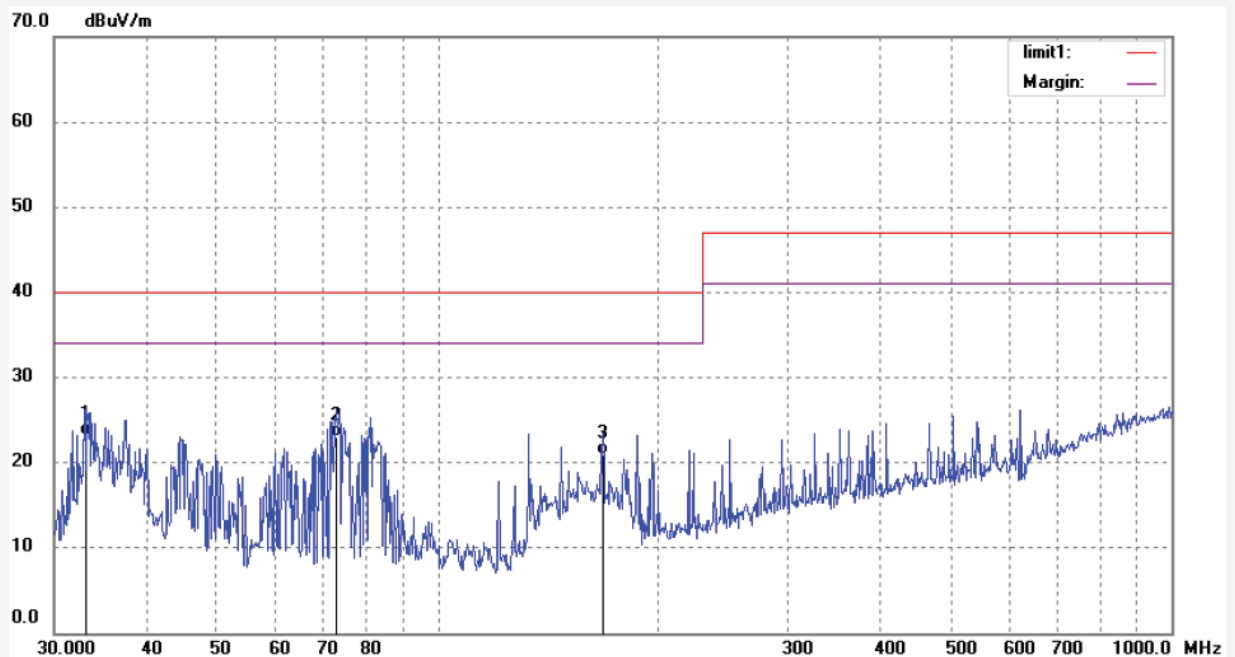
Date: 2013/04/22

Time: 15:08:06

Engineer Signature:

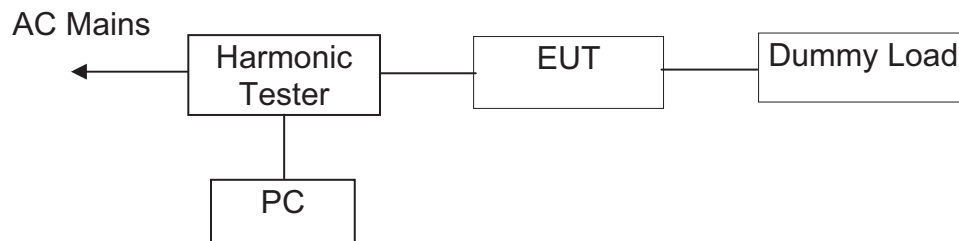
Distance: 3m

Note: Report No:ATE20130514



6. HARMONIC CURRENT EMISSION MEASUREMENT

6.1. Block Diagram of Test Setup



(EUT: CARRIER POE+GIGABIT PSE)

6.2. Measuring Standard

EN 61000-3-2: 2006 + A1: 2009 + A2: 2009, CLASS A

6.3. Operation Condition of EUT

- 6.3.1. Setup the EUT and simulator as shown as Section 6.1.
- 6.3.2. Turn on the power of all equipment.
- 6.3.3. Let the EUT work in test mode (Full Load) and measure it.

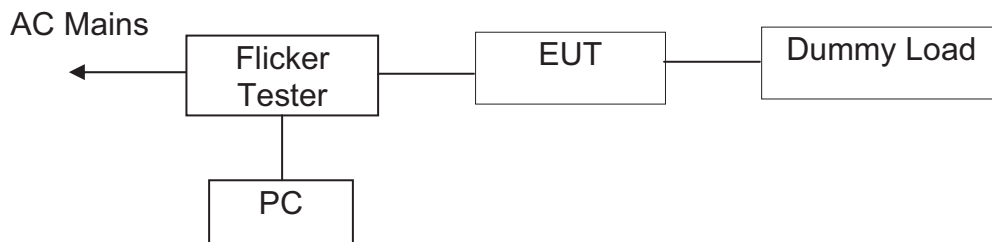
6.4. Measuring Results

PASS.

See the following pages.

7. VOLTAGE FLUCTUATION AND FLICKER MEASUREMENT

7.1. Block Diagram of Test Setup



(EUT: CARRIER POE+GIGABIT PSE)

7.2. Measuring Standard

EN 61000-3-3: 2008

7.3. Operation Condition of EUT

- 7.3.1. Setup the EUT and simulator as shown as Section 7.1.
- 7.3.2. Turn on the power of all equipment.
- 7.3.3. Let the EUT work in test mode (On/Off) and measure it.

7.4. Measuring Results

PASS.

Please see the attached page.

Flicker Test Summary per EN/IEC61000-3-3 (Run time)

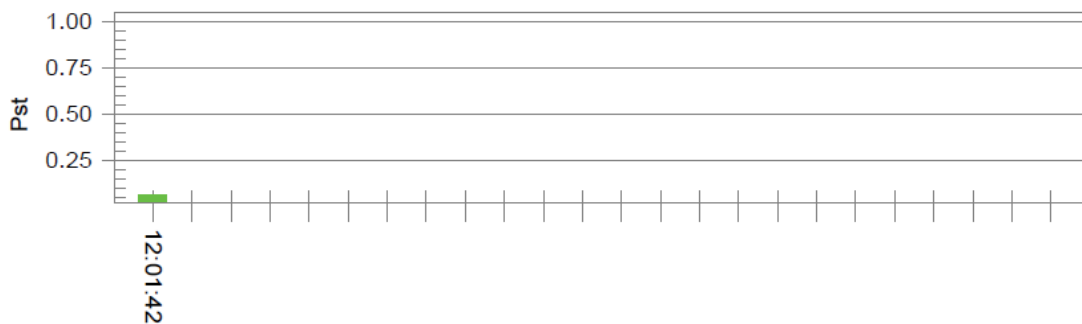
EUT: CARRIER POE+GIGABIT PSE M/N: PSE-1000G Tested by: ALEN
 Test category: All parameters (European limits) Test Margin: 100
 Test date: 2013-4-22 Start time: 11:51:22 End time: 12:01:43
 Test duration (min): 10 Data file name: F-000370.cts_data
 Comment: On/Off Report No: ATE20130514
 Customer: ALFA

Test Result: Pass

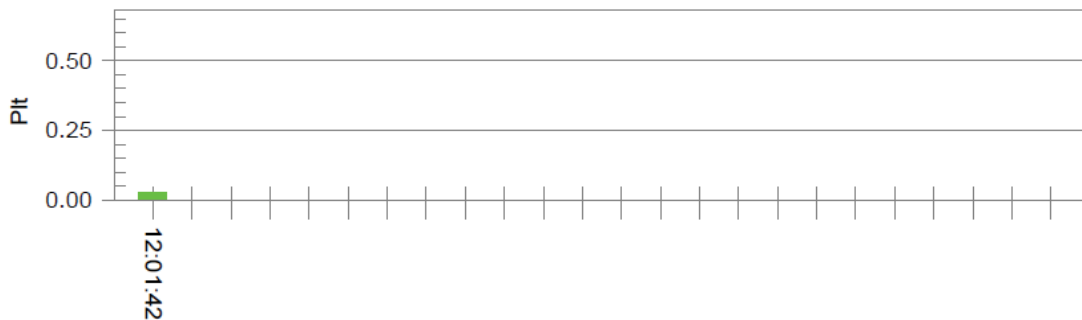
Status: Test Completed

Pst_t and limit line

European Limits



Plt and limit line



Parameter values recorded during the test:

| | | | |
|---------------------------------|--------|------------------|------------|
| Vrms at the end of test (Volt): | 229.90 | | |
| Highest dt (%): | -0.14 | Test limit (%): | 3.30 Pass |
| Time(mS) > dt: | 0.0 | Test limit (mS): | 500.0 Pass |
| Highest dc (%): | 0.00 | Test limit (%): | 3.30 Pass |
| Highest dmax (%): | -0.10 | Test limit (%): | 4.00 Pass |
| Highest Pst (10 min. period): | 0.064 | Test limit: | 1.000 Pass |
| Highest Plt (2 hr. period): | 0.028 | Test limit: | 0.650 Pass |

8. ELECTROSTATIC DISCHARGE IMMUNITY TEST

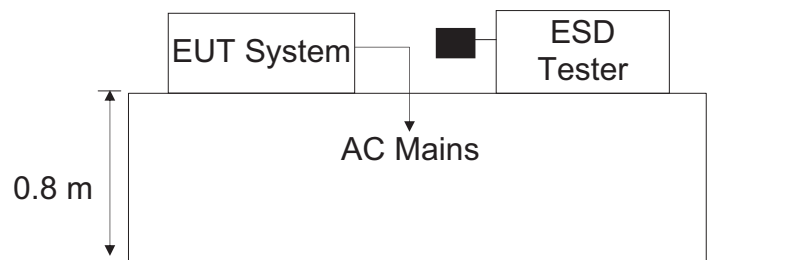
8.1. Block Diagram of Test Setup

8.1.1. Block diagram of connection between the EUT and simulators



(EUT: CARRIER POE+GIGABIT PSE)

8.1.2. Block diagram of ESD test setup



(EUT: CARRIER POE+GIGABIT PSE)

8.2. Test Standard

EN 55024: 2010

(IEC 61000-4-2: 2008 Severity Level: 3 / Air Discharge: ±8kV, Level: 2 / Contact Discharge: ±4kV)

Testing shall also be satisfied at the lower levels.

8.3. Severity Levels and Performance Criterion

8.3.1. Severity levels

| Level | Test Voltage Contact Discharge (kV) | Test Voltage Air Discharge (kV) |
|-------|-------------------------------------|---------------------------------|
| 1. | ±2 | ±2 |
| 2. | ±4 | ±4 |
| 3. | ±6 | ±8 |
| 4. | ±8 | ±15 |
| X | Special | Special |

8.3.2. Performance Criterion: **B**

8.4.EUT Configuration

The configuration of the EUT is same as Section 4.4.

8.5.Operating Condition of EUT

Same as conducted emission measurement, which is listed in Section 4.5 except for the test set up replaced by Section 8.1.

8.6.Test Procedure

8.6.1.Contact discharges to the conductive surfaces and to coupling planes:

The EUT shall be exposed to at least 200 discharges, 100 each at negative and positive polarity, at a minimum of four test points (a minimum of 50 discharges at each point). One of the test points shall be subjected to at least 50 indirect discharges (contact) to the centre of the front edge of the horizontal coupling plane. The remaining three test points shall each receive at least 50 direct contact discharges. If no direct contact test points are available, then at least 200 indirect discharges shall be applied in the indirect mode [see IEC 61000-4-2 for use of the Vertical Conducting Plane (VCP)]. Tests shall be performed at a maximum repetition rate of one discharge per second.

8.6.2.Air discharge at slots and apertures, and insulating surfaces:

On those parts of the EUT where it is not possible to perform contact discharge testing, the equipment should be investigated to identify user accessible points where breakdown may occur; examples are openings at edges of keys, or in the cover of keyboards and telephone handsets. Such points are tested using the air discharge method. See also IEC 61000-4-2 regarding painted surfaces. This investigation should be restricted to those areas normally handled by the user. A minimum of 10 single air discharges shall be applied to the selected test point for each such area.

The application of electrostatic discharges to the contacts of open connectors is not required by this publication.

8.7.Test Results

PASS

Please refer to the following page.

Electrostatic Discharge Test Results

Accurate Technology Co., Ltd.

| | | | |
|-------------------------|---|---|----------------|
| Applicant: | ALFA NETWORK Inc. | Test Date: | April 22, 2013 |
| EUT: | See page 1 | Temperature: | 25°C |
| M/N: | PSE-1000G | Humidity: | 50% |
| Air discharge: | ±2.0kV, ±4.0kV, ±8.0kV | Criterion: | B |
| Contact discharge: | ±2.0kV, ±4.0kV | Power Supply: | AC 230V/50Hz |
| Test Mode: | Full Load | Test Engineer: | Alen |
| Location | | Kind A-Air Discharge C-Contact Discharge | Result |
| Nonconductive Enclosure | | A | PASS |
| Conductive Enclosure | | C | PASS |
| HCP | | C | PASS |
| VCP of front | | C | PASS |
| VCP of rear | | C | PASS |
| VCP of left | | C | PASS |
| VCP of right | | C | PASS |
| | | | |
| | | | |
| | | | |
| | | | |
| Remark : | Test Equipment : ESD Simulator (HAEFELY, PESD1610) | | |

9. RF FIELD STRENGTH SUSCEPTIBILITY TEST

9.1. Block Diagram of Test

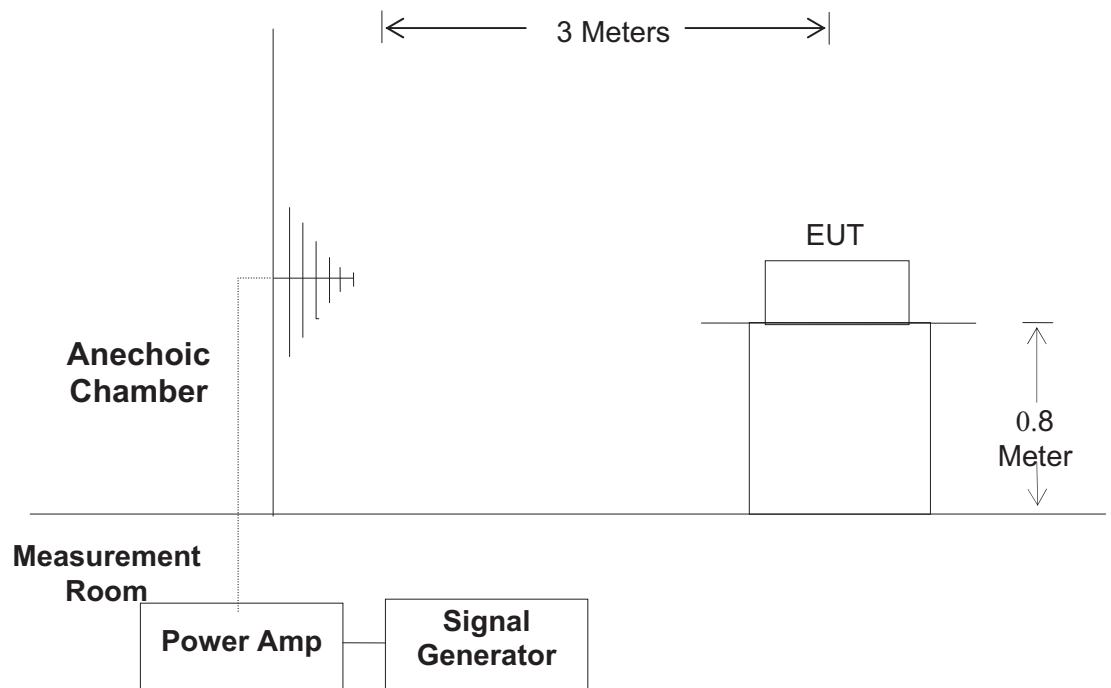
9.1.1. Block diagram of connection between the EUT and simulators

AC Mains



(EUT: CARRIER POE+GIGABIT PSE)

9.1.2. Block diagram of R/S test setup



(EUT: CARRIER POE+GIGABIT PSE)

9.2. Test Standard

EN 55024: 2010

(IEC 61000-4-3: 2010, Severity Level: 2, 3V/m)

9.3. Severity Levels and Performance Criterion

9.3.1. Severity Levels

| Level | Field Strength V/m |
|-------|--------------------|
| 1. | 1 |
| 2. | 3 |
| 3. | 10 |
| X | Special |

9.3.2. Performance Criterion: **A**

9.4. EUT Configuration on Test

The configuration of the EUT is same as Section 4.4.

9.5. Operating Condition of EUT

Same as conducted emission measurement, which is listed in Section 4.5 except the test setup replaced as Section 9.1.

9.6. Test Procedure

The EUT are placed on a table, which is 0.8 meter high above the ground. The EUT is set 3 meters away from the transmitting antenna, which is mounted on an antenna tower. Both horizontal and vertical polarizations of the antenna are set on test. Each of the four sides of the EUT must be faced this transmitting antenna and measured individually.

In order to judge the EUT performance, a CCD camera is used to monitor its screen.

All the scanning conditions are as following:

| Condition of Test | Remark |
|---------------------------|-------------------------|
| 1. Fielded Strength | 3V/m (Severity Level 2) |
| 2. Radiated Signal | Unmodulated |
| 3. Scanning Frequency | 80-1000MHz |
| 4. Sweep time of radiated | 0.0015 Decade/s |
| 5. Dwell Time | 1 Sec. |

9.7. Test Results

PASS.

Please refer to the following page.

RF Field Strength Susceptibility Test Results

Accurate Technology Co., Ltd.

| | |
|--|--|
| Applicant: ALFA NETWORK Inc. | Test Date: April 22, 2013 |
| EUT: See page 1 | Temperature: 25°C |
| M/N: PSE-1000G | Humidity: 50% |
| Field Strength: 3 V/m | Criterion: A |
| Power Supply: AC 230V/50Hz | Frequency Range: 80 MHz to 1000MHz |
| Test Mode: Full Load | Test Engineer: SMQ |
| Modulation: <input type="checkbox"/> None <input type="checkbox"/> Pulse <input checked="" type="checkbox"/> AM 1kHz 80% | |
| | Frequency Range 1:80 - 1000MHz |
| | Frequency Range 2: |
| Steps | # / % |
| | Horizontal Vertical Horizontal Vertical |
| Front | PASS PASS |
| Right | PASS PASS |
| Rear | PASS PASS |
| Left | PASS PASS |
| Test Equipment : 1. Signal Generator : SMT03 (Rohde & Schwarz) 2. Power Amplifier : 150W1000 (AR) 3. Bilog Antenna : CBL6111C (Chase) | |
| Note: | |

10.ELECTRICAL FAST TRANSIENT/BURST IMMUNITY TEST

10.1.Block Diagram of Test Setup

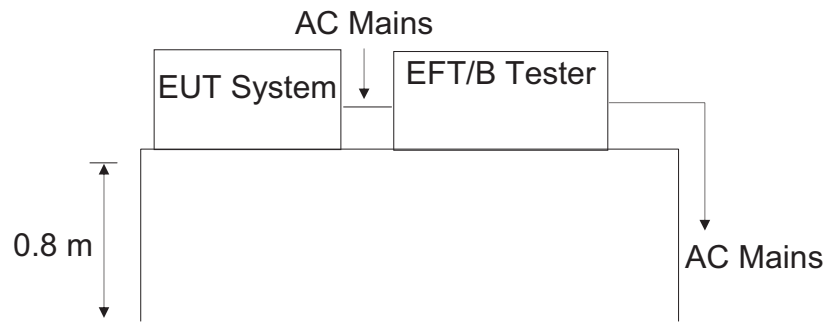
10.1.1.Block diagram of connection between the EUT and simulators

AC Mains



(EUT: CARRIER POE+GIGABIT PSE)

10.1.2.Block Diagram of the AC Mains



(EUT: CARRIER POE+GIGABIT PSE)

10.2.Test Standard

EN 55024: 2010

(IEC 61000-4-4: 2012, Severity Level, Level 2: 1kV & 0.5kV)

10.3.Severity Levels and Performance Criterion

10.3.1.Severity levels

| Level | Open Circuit Output Test Voltage $\pm 10\%$ | |
|-------|---|---|
| | On Power Supply Lines | On I/O (Input/Output) Signal data and control lines |
| 1. | 0.5 kV | 0.25 kV |
| 2. | 1 kV | 0.5 kV |
| 3. | 2 kV | 1 kV |
| 4. | 4 kV | 2 kV |
| X | Special | Special |

10.3.2.Performance Criterion: **B**

10.4.EUT Configuration

The configuration of the EUT is same as Section 4.4.

10.5.Operating Condition of EUT

Same as conducted emission measurement, which is listed in Section 4.5 except the test setup replaced as Section 10.1.

10.6.Test Procedure

The EUT is put on the table, which is 0.8 meter high above the ground. This reference ground plane shall project beyond the EUT by at least 0.1m on all sides and the minimum distance between EUT and all other conductive structure, except the ground plane beneath the EUT, shall be more than 0.5m.

10.6.1.For input and output AC power ports:

The EUT is connected to the power mains by using a coupling device, which couples the EFT interference signal to AC power lines. Both polarities of the test voltage should be applied during compliance test and the duration of the test is 2 minutes.

10.6.2.For signal lines and control lines ports:

It's unnecessary to test.

10.6.3.For DC output line ports:

It's necessary to test.

10.7.Test Result

PASS.

Please refer to the following page.

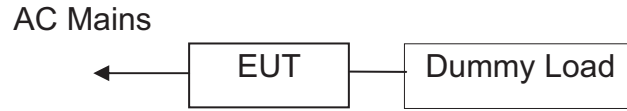
Electrical Fast Transient/Burst Test Results

Accurate Technology Co., Ltd.

| | | | |
|---|---------------------|---|-----------|
| Standard | IEC 61000-4-4: 2012 | Result: <input checked="" type="checkbox"/> Pass / <input type="checkbox"/> Fail | |
| Applicant: <u>ALFA NETWORK Inc.</u> | | | |
| EUT: <u>CARRIER POE+GIGABIT PSE</u> | | | |
| M/N : <u>PSE-1000G</u> | | Input Voltage: <u>AC 230V/ 50Hz</u> | |
| Criterion : <u>B</u> | | Test Engineer: <u>Alen</u> | |
| Ambient Condition : <u>25 °C</u> | | <u>50% RH</u> | |
| Operation Mode: Full Load | | | |
| Line : <input checked="" type="checkbox"/> AC Mains | | Line : <input checked="" type="checkbox"/> DC Output Line <input type="checkbox"/> Signal Line | |
| Coupling : <input checked="" type="checkbox"/> Direct | | Coupling : <input checked="" type="checkbox"/> Capacitive | |
| Test Time : 120s | | | |
| Line | Test Voltage | Result(+) | Result(-) |
| L · N | 1.0kV | PASS | PASS |
| L · N · PE | | | |
| DC output line | 0.5kV | PASS | PASS |
| Signal Line | | | |
| | | | |
| | | | |
| Note : | | | |
| Test Equipment | | Burst Tester Model : ULTRA COMPACT SIMULATOR: UCS 500 N5 (EM TEST) CAPACITIVE CLAMP: HFK (EM TEST) Transformer: V4780S2 (EM TEST) | |

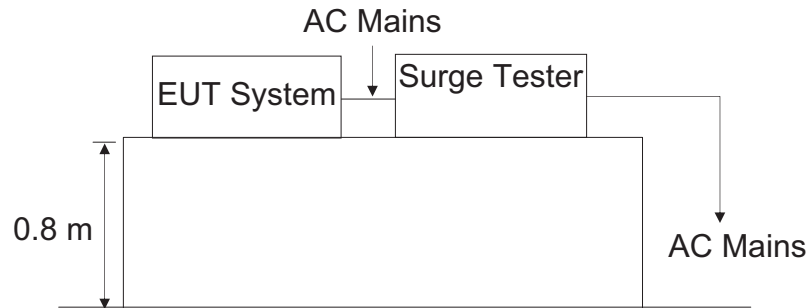
11.SURGE IMMUNITY TEST

11.1.Block Diagram of Test Setup



(EUT: See page 1)

11.1.1.Surge Test Setup



(EUT: CARRIER POE+GIGABIT PSE)

11.2.Test Standard

EN 55024: 2010

(IEC 61000-4-5: 2005, Severity Level: Level 2, 1.0kV & 2.0kV)

Testing shall also be satisfied at the lower levels.

11.3.Severity Levels and Performance Criterion

11.3.1.Severity levels

| Severity Level | Open-Circuit Test Voltage kV |
|----------------|---------------------------------|
| 1 | 0.5 |
| 2 | 1.0 |
| 3 | 2.0 |
| 4 | 4.0 |
| * | Special |

11.3.2.Performance Criterion: **B**

11.4.EUT Configuration

The configuration of the EUT is same as Section 4.4.

11.5.Operating Condition of EUT

Same as conducted emission measurement, which is listed in Section 4.5 except the test setup replaced as Section 11.1.

11.6.Test Procedure

- 1) Set up the EUT and test generator as shown on Section 11.1.2.
- 2) For line to line coupling mode, provide a 1.0 kV 1.2/50us voltage surge (at open-circuit condition) and 8/20us current surge to EUT selected points.
- 3) At least 5 positive and 5 negative (polarity) tests with a maximum 1/min repetition rate are conducted during test.
- 4) Different phase angles are done individually.
- 5) Record the EUT operating situation during compliance test and decide the EUT immunity criterion for above each test.

11.7.Test Result

PASS.

Please refer to the following page.

Surge Immunity Test Results

Accurate Technology Co., Ltd.

| Applicant: <u>ALFA NETWORK Inc.</u> EUT: <u>CARRIER POE+GIGABIT PSE</u> M/N: <u>PSE-1000G</u> Power Supply: <u>AC 230V/50Hz</u> Test Mode: <u>Full Load</u> | | | | | Test Date: <u>April 22, 2013</u> Temperature: <u>25°C</u> Humidity: <u>50%</u> Criterion: <u>B</u> Test Engineer: <u>Alen</u> |
|---|----------|-------------|-----------------|---|---|
| Location | Polarity | Phase Angle | Number of Pulse | Pulse Voltage (kV) | Result |
| L-N | + | 0° | 5 | 0.5&1.0 | PASS |
| | + | 90° | 5 | 0.5&1.0 | PASS |
| | + | 180° | 5 | 0.5&1.0 | PASS |
| | + | 270° | 5 | 0.5&1.0 | PASS |
| | - | 0° | 5 | 0.5&1.0 | PASS |
| | - | 90° | 5 | 0.5&1.0 | PASS |
| | - | 180° | 5 | 0.5&1.0 | PASS |
| | - | 270° | 5 | 0.5&1.0 | PASS |
| L-PE | + | 0° | 5 | 0.5&1.0&2.0 | PASS |
| | + | 90° | 5 | 0.5&1.0&2.0 | PASS |
| | + | 180° | 5 | 0.5&1.0&2.0 | PASS |
| | + | 270° | 5 | 0.5&1.0&2.0 | PASS |
| | - | 0° | 5 | 0.5&1.0&2.0 | PASS |
| | - | 90° | 5 | 0.5&1.0&2.0 | PASS |
| | - | 180° | 5 | 0.5&1.0&2.0 | PASS |
| | - | 270° | 5 | 0.5&1.0&2.0 | PASS |
| N-PE | + | 0° | 5 | 0.5&1.0&2.0 | PASS |
| | + | 90° | 5 | 0.5&1.0&2.0 | PASS |
| | + | 180° | 5 | 0.5&1.0&2.0 | PASS |
| | + | 270° | 5 | 0.5&1.0&2.0 | PASS |
| | - | 0° | 5 | 0.5&1.0&2.0 | PASS |
| | - | 90° | 5 | 0.5&1.0&2.0 | PASS |
| | - | 180° | 5 | 0.5&1.0&2.0 | PASS |
| | - | 270° | 5 | 0.5&1.0&2.0 | PASS |
| Remark: | | | | Test Equipment : ULTRA COMPACT SIMULATOR: UCS 500 N5 (EM TEST) Transformer: V4780S2 (EM TEST) | |

12.INJECTED CURRENTS SUSCEPTIBILITY TEST

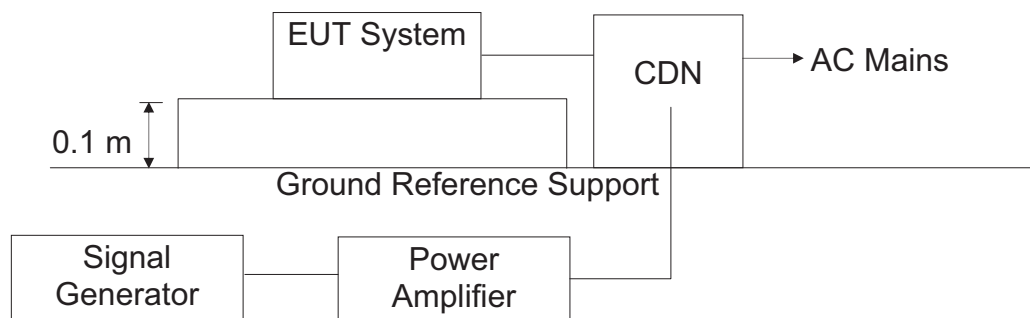
12.1.Block Diagram of Test Setup

12.1.1.Block diagram of connection between the EUT and simulators



(EUT: CARRIER POE+GIGABIT PSE)

12.1.2.Block Diagram of Test Setup



(EUT: CARRIER POE+GIGABIT PSE)

12.2.Test Standard

EN 55024: 2010

(IEC 61000-4-6: 2008, Severity Level 2: 3V(rms), 0.15MHz- 80MHz)

12.3.Severity Levels and Performance Criterion

12.3.1.Severity levels

| Level | Field Strength V(rms) |
|-------|-----------------------|
| 1. | 1 |
| 2. | 3 |
| 3. | 10 |
| X | Special |

12.3.2.Performance Criterion: **A**

12.4.EUT Configuration

The configuration of the EUT is same as Section 4.4.

12.5.Operating Condition of EUT

Same as conducted emission measurement, which is listed in Section 4.5 except the test setup replaced as Section 12.1.

12.6.Test Procedure

12.6.1.For AC Mains

- 1) Set up the EUT, CDN and test generators as shown on Section 12.1.
- 2) Let the EUT work in test mode and measure it.
- 3) The EUT are placed on an insulating support 0.1m high above a ground reference plane. CDN (coupling and decoupling device) is placed on the ground plane about 0.3m from EUT. Cables between CDN and EUT are as short as possible, and their height above the ground reference plane shall be between 30 and 50 mm (where possible).
- 4) The disturbance signal described below is injected to EUT through CDN.
- 5) The EUT operates within its operational mode(s) under intended climatic conditions after power on.
- 6) The frequency range is swept from 150 kHz to 80MHz using 3V signal level, and with the disturbance signal 80% amplitude modulated with a 1 kHz sine wave.
- 7) The rate of sweep shall not exceed 1.5×10^{-3} decades/s. Where the frequency is swept incrementally, the step size shall not exceed 1% of the Tomt and thereafter 1% of the preceding frequency value.
- 8) Recording the EUT operating situation during compliance testing and decide the EUT immunity criterion.

12.6.2.For signal lines and control lines ports:

It's unnecessary to test.

12.6.3.For DC output line ports:

It's necessary to test.

12.7.Test Results

PASS.

Please refer to the following page.

Injected Currents Susceptibility Test Results

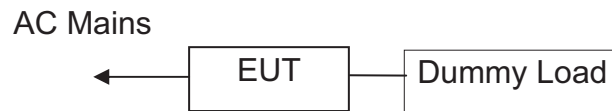
Accurate Technology Co., Ltd.

| Applicant: ALFA NETWORK Inc. EUT: <u>CARRIER POE+GIGABIT PSE</u> M/N: <u>PSE-1000G</u> Power Supply: <u>AC 230V/50Hz</u> | | | Test Date: <u>April 22, 2013</u> Temperature: <u>25°C</u> Humidity: <u>50%</u> Test Engineer: <u>Alen</u> | |
|--|-------------------|------------------------|--|--------|
| Test Mode: <u>Full Load</u> | | | | |
| Frequency Range | Injected Position | Strength (Unmodulated) | Criterion | Result |
| 0.15 - 80 | AC Mains | 3V | A | PASS |
| 0.15 - 80 | DC Output | 3V | A | PASS |
| Remark : 1. Modulation Signal:1kHz 80% AM Measurement Equipment : Conducted Immunity Test System: CIT-10 (FRANKONIA) CDN : CDN-M2/3 (FRANKONIA) EM Injection Clamp: F-203I-23mm (FCC) Calibration Fixture: F-203I-23mm-CF (FCC) | | | Note: | |

13. MAGNETIC FIELD SUSCEPTIBILITY TEST

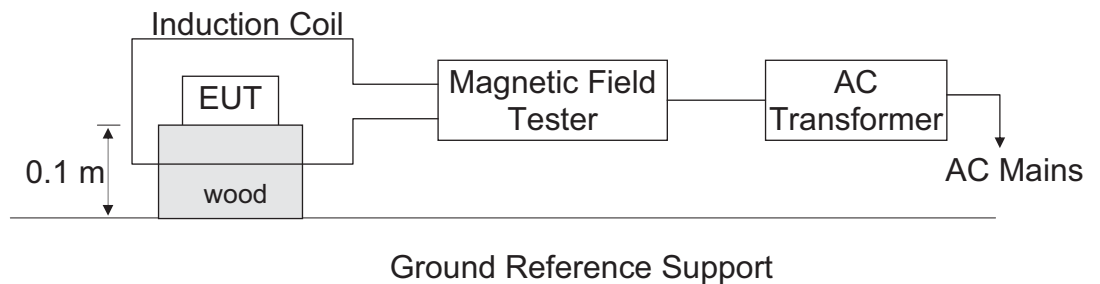
13.1. Block Diagram of Test

13.1.1. Block diagram of connection between the EUT and simulators



(EUT: CARRIER POE+GIGABIT PSE)

13.1.2. Magnetic field test setup



(EUT: CARRIER POE+GIGABIT PSE)

13.2. Test Standard

EN 55024: 2010

(IEC 61000-4-8: 2009, Severity Level: Level 1, 1A/m)

13.3. Severity Levels and Performance Criterion

13.3.1. Severity Levels

| Level | Field Strength A/m |
|-------|--------------------|
| 1 | 1 |
| 2 | 3 |
| 3 | 10 |
| 4 | 30 |
| 5 | 100 |
| X | Special |

13.3.2. Performance Criterion: **A**

13.4.EUT Configuration on Test

The configuration of the EUT is same as Section 4.4.

13.5.Operating Condition of EUT

Same as conducted emission measurement, which is listed in Section 4.5 except the test setup replaced as Section 13.1.

13.6.Test Procedure

The EUT is placed in the middle of a induction coil (1*1m), under which is a 1*1*0.1m (high) table, this small table is also placed on a larger table, 0.8 m above the ground. Both horizontal and vertical polarizations of the induction coil are set on test, so that each side of the EUT is affected by the magnetic field. Also it can reach the same aim by change the position of the EUT.

13.7.Test Results

PASS.

Please refer to the following page.

Magnetic Field Immunity Test Result

Accurate Technology Co., Ltd.

| | | | | |
|-------------------------------------|---------------------|--|---------------|--------|
| Standard | IEC 61000-4-8: 2009 | Result: <input checked="" type="checkbox"/> Pass / <input type="checkbox"/> Fail | | |
| Applicant: <u>ALFA NETWORK Inc.</u> | | | | |
| EUT: <u>CARRIER POE+GIGABIT PSE</u> | | | | |
| M/N : <u>PSE-1000G</u> | | Input Voltage: <u>AC 230V/ 50Hz</u> | | |
| Criterion : <u>A</u> | | Test Engineer: <u>Alen</u> | | |
| Ambient Condition : | | <u>25 °C</u> | <u>50% RH</u> | |
| Test Mode : Full Load | | | | |
| Test Level (A/m) | Testing Duration | Coil Orientation | Criterion | Result |
| 1 | 5 mins | Horizontal | A | PASS |
| 1 | 5 mins | Vertical | A | PASS |
| Operation Mode : | | | | |
| Test Level (A/m) | Testing Duration | Coil Orientation | Criterion | Result |
| | | | | |
| | | | | |
| Remark : | | Test Equipment: Magnetic Field Tester MAG100 AC Transformer TDGC2J-5 | | |
| Note: | | | | |

14.VOLTAGE DIPS AND INTERRUPTIONS TEST

14.1.Block Diagram of Test Setup

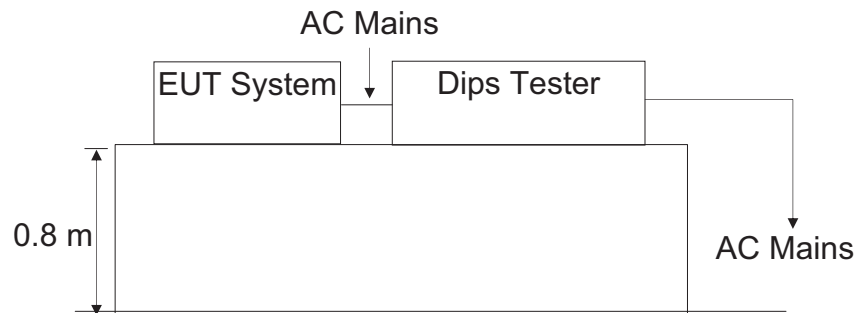
14.1.1.Block diagram of connection between the EUT and simulators

AC Mains



(EUT: CARRIER POE+GIGABIT PSE)

14.1.2.Dips Test Setup



(EUT: See page 1)

14.2.Test Standard

EN 55024: 2010 (IEC 61000-4-11: 2004)

14.3.Severity Levels and Performance Criterion

14.3.1.Severity levels

| Test Level %U _T | Voltage dip and short interruptions %U _T | Duration (in period) |
|-------------------------------|---|-------------------------|
| 0 | 100 | 0.5 1 |
| 40 | 60 | 5 10 |
| 70 | 30 | 25 50 * |

14.3.2.Performance Criterion: **B&C**

14.4.EUT Configuration

The configuration of the EUT is same as Section 4.4.

14.5.Operating Condition of EUT

Same as conducted emission measurement, which is listed in Section 4.5 except the test setup replaced as Section 14.1.

14.6.Test Procedure

- 1) Set up the EUT and test generator as shown on Section 14.1.2.
- 2) The interruption is introduced at selected phase angles with specified duration.
- 3) Record any degradation of performance.

14.7.Test Result

PASS.

Please refer to the following page.

Voltage Dips And Interruptions Test Results

Accurate Technology Co., Ltd.

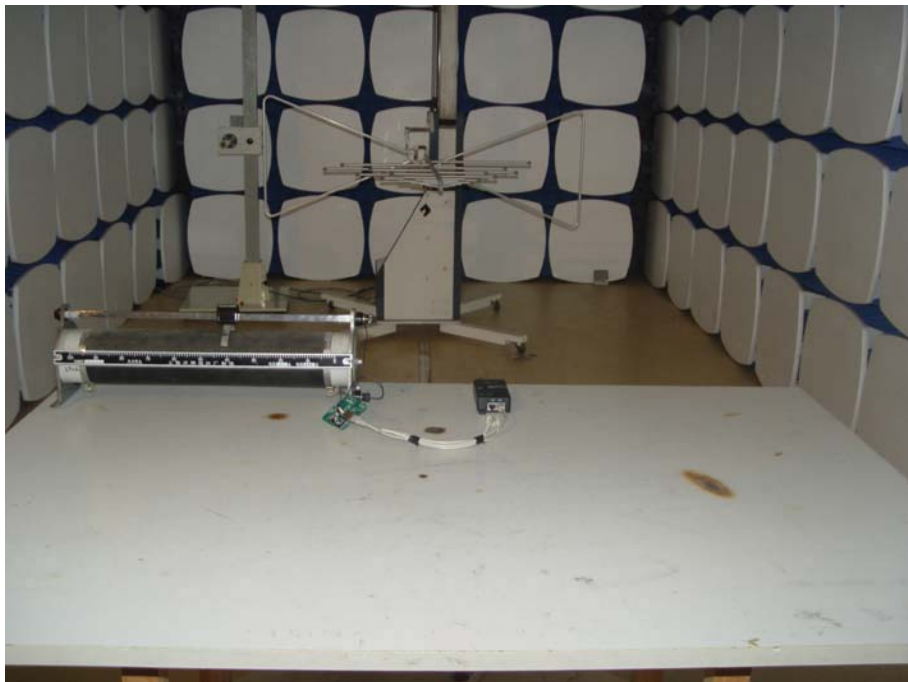
| Applicant: ALFA NETWORK Inc. EUT: CARRIER POE+GIGABIT PSE M/N: PSE-1000G Power Supply: AC 230V/50Hz | | | Test Date: April 22, 2013 Temperature: 25°C Humidity: 50% Test Engineer: Alen | |
|--|--|-----------------------|---|----------------------------|
| Test Mode: Full Load | | | | |
| Test Level % U _T | Voltage Dips & Short Interruptions % U _T | Duration (in periods) | Criterion <input type="checkbox"/> A <input checked="" type="checkbox"/> B <input checked="" type="checkbox"/> C <input type="checkbox"/> D | Result P=Pass F=Fail |
| 0 | 100 | 0.5P | B | PASS |
| 70 | 30 | 25P | C | PASS |
| 0 | 100 | 250P | C | PASS |
| Test Mode : | | | | |
| Test Level % U _T | Voltage Dips & Short Interruptions % U _T | Duration (in periods) | Criterion <input type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D | Result P=Pass F=Fail |
| | | | | |
| | | | | |
| | | | | |
| Remark: U _T is the rated voltage for the equipment. | | | Test Equipment : ULTRA COMPACT SIMULATOR: UCS 500 N5 (EM TEST) Transformer: V4780S2 (EM TEST) | |

15. PHOTOGRAPHS

15.1. Photo of Conducted Emission Measurement



15.2. Photo of Radiated Emission Measurement



15.3. Photo of Harmonic / Flicker Measurement



15.4. Photo of Electrostatic Discharge Test



15.5. Photo of RF Field Strength Susceptibility Test



15.6. Photo of Electrical Fast Transient /Burst Test



15.7. Photo of Surge and Voltage Dips and Interruption Immunity Test



15.8. Photo of Injected Current Susceptibility Test



15.9. Photo of Magnetic Field Susceptibility Test



15.10. Photo of EUT

PSE-1000G



