Test Report

Product Name ： Ethernet 100/1000 Converter

Model No. ： CL-MCSFP-16M, CL-MCSFP-16

Applicant ： Carelink Technology Co., Ltd.

Address ： 16F, No.30 Sec.5, Cheng-Kong Rd., Nei-Hu Dist, Taipei, Taiwan R.O.C.

Date of Receipt ： 2011/10/11

Report No. ： 11A190R-ITCEP07V05

Issued Date ： 2012/01/05

Report Version ： V1.0

CE

Declaration of Conformity

The following products is herewith confirmed to comply with the requirements set out in the Council Directive on the Approximation of the laws of the Member States relating to Electromagnetic Compatibility Directive (2004/108/EC). The listed standard as below were applied:
The following Equipment:

Product	:	Ethernet 100/1000 Converter
Trade Name	:	Carelink
Model Number	:	CL-MCSFP-16M, CL-MCSFP-16

This product is herewith confirmed to comply with the requirements set out in the Council Directive on the Approximation of the laws of the Member States relating to Electromagnetic Compatibility Directive (2004/108/EC).For the evaluation regarding EMC, the following standards were applied:

Emission:

EN 55022: 2006+A1: 2007Class A	:	Emission standard
EN 61000-3-2: 2006+A2: 2009 Class A	:	Limits for harmonic current emission
EN 61000-3-3: 2008	:	Limitation of voltage fluctuation and flicker in low-voltage supply system

Immunity:

EN 55024: 1998+A1: 2001+A2: 2003	:	Immunity standard

The following importer/manufacturer is responsible for this declaration:

Company Name :

Company Address :

Telephone : Facsimile:

Person is responsible for marking this declaration:

Name (Full Name) Position/ Title

Date Legal Signature

EMC/Safety Test Laboratory
Accredited by DNV, TUV, Nemko and NVLAP

QTK No.: 11A190R-ITCEP07V05

CE

Statement of Conformity

The certifies that the following designated product

Product	:	Ethernet 100/1000 Converter
Trade Name	:	Carelink
Model Number	:	CL-MCSFP-16M, CL-MCSFP-16
Company Name	:	Carelink Technology Co., Ltd.

This product is herewith confirmed to comply with the requirements set out in the Council Directive on the Approximation of the laws of the Member States relating to Electromagnetic Compatibility Directive (2004/108/EC). For the evaluation regarding EMC, the following standards were applied:

Emission:

EN 55022: 2006+A1: 2007 Class A	:	Emission standard
EN 61000-3-2: 2006+A2: 2009 Class A	:	Limits for harmonic current emission
EN 61000-3-3: 2008	:	Limitation of voltage fluctuation and flicker in low-voltage supply system

Immunity:

EN 55024: 1998+A1: 2001+A2: 2003	:	Immunity standard

TÜV DNV NVLAP NEMKO

TEST LABORATORY

Arthur Liu / Deputy Manager

The verification is based on a single evaluation of one sample of above-mentioned products. It does not imply an assessment of the whole production and does not permit the use of the test lab. Logo.

QuieTek Corporation / No.75-1, Wang-Yeh Valley, Yung-Hsing, Chiung-Lin, Hsin-Chu County, Taiwan, R.O.C.
Tel: 886-3-5928858, Fax: 886-3-5928859, E-mail: service@quietek.com

CE Test Report Certification

Issued Date : 2012/01/05
Report No. : 11A190R-ITCEP07V05

QuieTek

Product Name	:	Ethernet 100/1000 Converter
Applicant	:	Carelink Technology Co., Ltd.
Address	:	16F, No.30 Sec.5, Cheng-Kong Rd., Nei-Hu Dist, Taipei, Taiwan R.O.C.
Manufacturer	:	CeLAN Technology Inc.
Model No.	:	CL-MCSFP-16M, CL-MCSFP-16
EUT Voltage	:	AC 100-240V, 50-60Hz
Trade Name	:	Carelink
Applicable Standard	:	EN 55022: 2006+A1: 2007 Class A EN 61000-3-2: 2006+A2: 2009 EN 61000-3-3: 2008 EN 55024: 1998+A1: 2001+A2: 2003
Test Result	:	Complied
Performed Location	:	Hsinchu EMC Laboratory No. 75-2, 3rd Lin, Wangye Keng, Yonghxing Tsuen, Qionglin Shiang, Hsinchu County 307, Taiwan TEL:+886-3-592-8858 / FAX:+886-3-592-8859

Documented By : Carol Tsai
(Carol Tsai / Engineering Adm. Specialist)

Reviewed By : Winson Wen
(Winson Wen / Engineer)

Approved By : Arthur Liu
(Arthur Liu / Deputy Manager)

Laboratory Information

We , **QuieTek Corporation**, are an independent EMC and safety consultancy that was established the whole facility in our laboratories. The test facility has been accredited/accepted (audited or listed) by the following related bodies in compliance with ISO 17025, EN 45001 and specified testing scopes:

Taiwan R.O.C.	**:**	**BSMI, NCC, TAF**
Germany	**:**	**TUV Rheinland**
Norway	**:**	**Nemko, DNV**
USA	**:**	**FCC, NVLAP**
Japan	**:**	**VCCI**

The related certificate for our laboratories about the test site and management system can be downloaded from QuieTek Corporation's Web Site : http://www.quietek.com/tw/ctg/cts/accreditations.htm
The address and introduction of QuieTek Corporation's laboratories can be founded in our Web site : http://www.quietek.com/
If you have any comments, Please don't hesitate to contact us. Our contact information is as below:

HsinChu Testing Laboratory :
No. 75-2, 3rd Lin, Wangye Keng, Yonghxing Tsuen, Qionglin Shiang, Hsinchu County 307, Taiwan
TEL:+886-3-592-8858 / FAX:+886-3-592-8859 E-Mail : service@quietek.com

NVLAP Lab Code : 200347-0

Testing Laboratory
1313

LinKou Testing Laboratory :
No. 5, Ruei-Shu Valley, Ruei-Ping Tsuen, Lin-Kou Shiang, Taipei, Taiwan, R.O.C.
TEL : 886-2-8601-3788 / FAX : 886-2-8601-3789 E-Mail : service@quietek.com

NVLAP Lab Code: 200533-0

Testing Laboratory
0914

TABLE OF CONTENTS

1. General Information

1.1. EUT Description

Product Name	Ethernet 100/1000 Converter
Trade Name	Carelink
Model No.	CL-MCSFP-16M, CL-MCSFP-16

Component	
Console Cable	Shielded, 1.8m
Power Cord	Non-Shielded, 1.8m, 2 PCs

Note:

1. This EUT is a Ethernet 100/1000 Converter.
2. The different of the each model is shown as below:

	CL-MCSFP-16M	CL-MCSFP-16
CPU	ARM7	8051(include Flash and DRAM)
Flash	2M Bytes	--
DRAM	16M Bytes	--
Console (DB9, RS232)	1	NONE
Management Port	1	NONE

1.2. Mode of Operation

QuieTek has verified the construction and function in typical operation. All the test modes were carried out with the EUT in normal operation, which was shown in this test report and defined as:

Pre-Test Mode	
Mode 1: Data Transmit for CL-MCSFP-16M Mode 2: Data Transmit for CL-MCSFP-16	
Final Test Mode	
Emission	Mode 1: Data Transmit for CL-MCSFP-16M Mode 2: Data Transmit for CL-MCSFP-16
Immunity	Mode 1: Data Transmit for CL-MCSFP-16M Mode 2: Data Transmit for CL-MCSFP-16

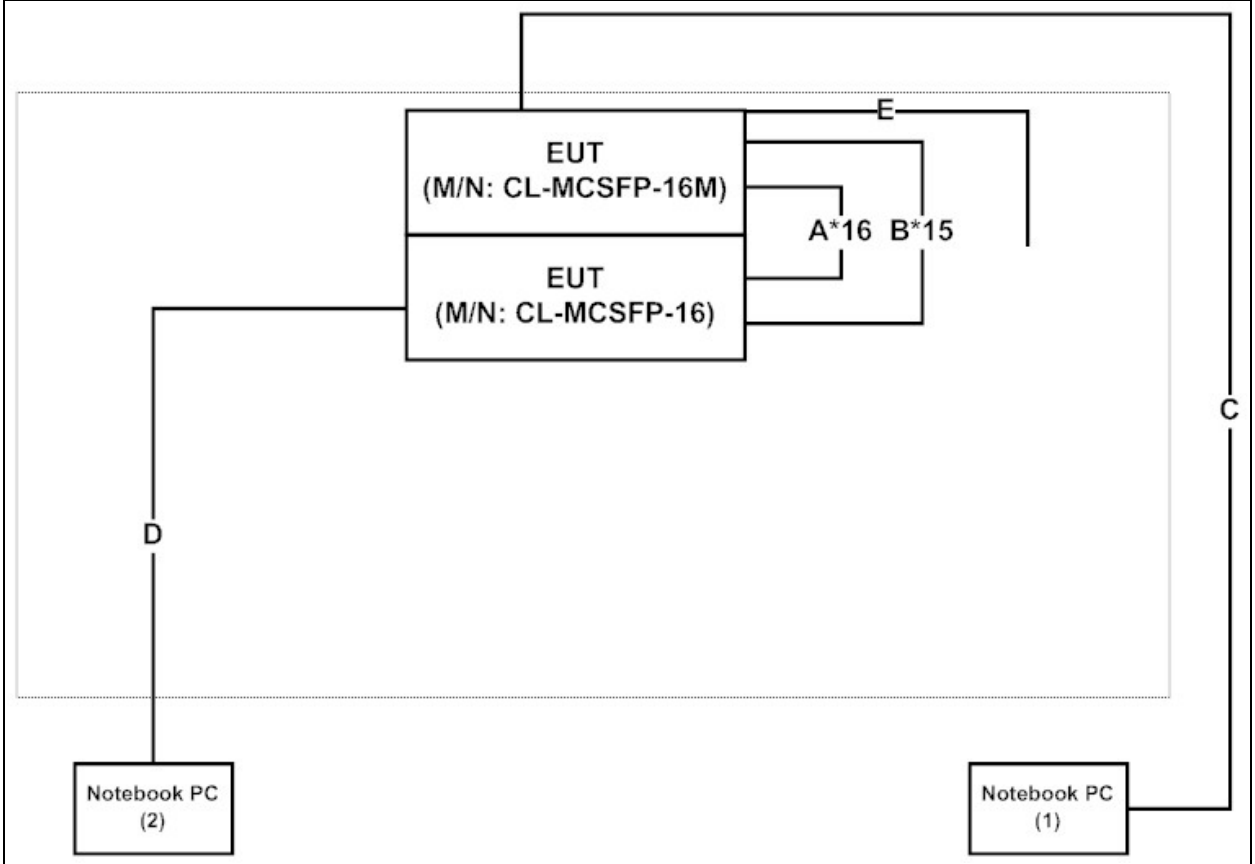
1.3. Tested System Details

The types for all equipments, plus descriptions of all cables used in the tested system (including inserted cards) are:

Product		Manufacturer	Model No.	Serial No.	Power Cord
1	Notebook PC	HP	110-3010TU	CNC03522LN	Non-Shielded, 1m
2	Notebook PC	HP	110-3010TU	CNC0343H1W	Non-Shielded, 1m

1.4. Configuration of Tested System

Connection Diagram



Signal Cable Type		Signal cable Description
A	Optical Fiber Cable	10m, 16 PCS
B	LAN Cable	Non-Shielded, 3m, 15PCS
C	LAN Cable	Non-Shielded, 10m
D	LAN Cable	Non-Shielded, 10m
E	Console Cable	Shielded, 1.8m

1.5. EUT Exercise Software

1	Test system is in accord with EUT user manual (refer to 1.4 configuration of tested system).
2	Enable signal and confirm EUT active.
3	Verify the model operation.
4	Repeat the above procedure (2) to (3).

2. Technical Test

2.1. Summary of Test Result

☒ No deviations from the test standards

☐ Deviations from the test standards as below description:

Emission			
Performed Item	Normative References	Test Performed	Deviation
Conducted Emission	EN 55022: 2006+A1: 2007 AS/NZS CISPR 22: 2009	Yes	No
Conducted Emissions (Telecommunication Ports)/	EN 55022: 2006+A1: 2007 AS/NZS CISPR 22: 2009	Yes	No
Radiated Emission	EN 55022: 2006+A1: 2007 AS/NZS CISPR 22: 2009	Yes	No
Power Harmonics	EN 61000-3-2: 2006+A2: 2009	Yes	No
Voltage Fluctuation and Flicker	EN 61000-3-3: 2008	Yes	No

Immunity			
Performed Item	Normative References	Test Performed	Deviation
Electrostatic Discharge	IEC 61000-4-2 Ed. 2.0: 2008	Yes	No
Radiated susceptibility	IEC 61000-4-3 Ed. 3.2: 2010	Yes	No
Electrical fast transient/burst	IEC 61000-4-4 Ed. 2.1: 2011	Yes	No
Surge	IEC 61000-4-5 Ed. 2.0: 2005	Yes	No
Conducted susceptibility	IEC 61000-4-6 Ed. 3.0: 2008	Yes	No
Power frequency magnetic field	IEC 61000-4-8 Ed. 2.0: 2009	Yes	No
Voltage dips and interruption	IEC 61000-4-11 Ed. 2.0: 2004	Yes	No

2.2. List of Test Equipment

Conducted Emission/ SR2

Instrument	Manufacturer	Model No.	Serial No	Next Cal. Date
Artificial Mains Network	R&S	ENV4200	848411/010	2012/02/29
Coaxial Cable	Harbour	RG-400	SR2	2012/08/14
LISN	R&S	ENV216	100092	2012/08/30
Test Receiver	R&S	ESCS 30	825442/014	2012/08/16
Quietek EMI system	Quietek	Version 2.2	SR2	N/A

Conducted Emissions (Telecommunication Ports)/ SR2

Instrument	Manufacturer	Model No.	Serial No	Next Cal. Date
ISN	Teseq	ISN T800	30302	2012/03/03
Artificial Mains Network	R&S	ENV4200	848411/010	2012/02/29
Coaxial Cable	Harbour	RG-400	SR2	2012/08/14
LISN	R&S	ENV216	100092	2012/08/30
Test Receiver	R&S	ESCS 30	825442/014	2012/08/16
Quietek EMI system	Quietek	Version 2.2	SR2	N/A

Radiated Emission/ Site2 (Under 1GHz)

Instrument	Manufacturer	Model No.	Serial No	Next Cal. Date
Bilog Antenna	Schaffner	CBL6112B	2891	2012/08/14
Spectrum Analyzer	Advantest	R3162	121200166	2012/03/10
Test Receiver	R&S	ESCS 30	836858/023	2012/04/17
Coaxial Switch	Anritsu	MP59B	6200410246	2012/08/14
Coaxial Cable	BELDEN 9913	BELDEN 9913	OATS2	2012/08/14
Quietek EMI system	Quietek	Version 2.2	Site2	N/A

Radiated Emission/ CB1 (Above 1GHz)

Instrument	Manufacturer	Model No.	Serial No	Next Cal. Date
Coaxial Cable	Huber+Suhner AG	Sucoflex 102	25623/2	2012/03/21
Double Ridged Guide Horn Antenna	Schwarzback	BBHA 9120D	743	2012/02/24
Pre-Amplifier	MITEQ	JS41-00104000-58-5P	1438359	2012/05/12
PSA Series Spectrum analyzer	Agilent	E4440A	MY46187335	2013/01/08
Quietek EMI system	Quietek	Version 2.2	CB1	N/A

Power Harmonics/ SR1

Instrument	Manufacturer	Model No.	Serial No	Next Cal. Date
EMC Emission Tester	EMC PARTNER	Harmonics-1000-1P	109	2012/04/14

Voltage Fluctuation and Flicker/ SR1

Instrument	Manufacturer	Model No.	Serial No	Next Cal. Date
EMC Emission Tester	EMC PARTNER	Harmonics-1000-1P	109	2012/04/14

Electrostatic Discharge/ SR1

Instrument	Manufacturer	Model No.	Serial No	Next Cal. Date
Electrostatic Simulator Discharge	NoiseKen	ESS-2002	ESS04Z3759	2012/07/12
Horizontal Coupling Plane (HCP)	QuieTek	HCP AL50	N/A	N/A
Vertical Coupling Plane (VCP)	QuieTek	VCP AL50	N/A	N/A

Radiated susceptibility/ CB3

Instrument	Manufacturer	Model No.	Serial No	Next Cal. Date
Field strength Meter	WG	EMR-20C	BA-0097	2012/04/27
Power Sensor	Boonton	51011-EMC	31507	2012/11/24
Power Sensor	Boonton	51011-EMC	34359	2012/11/24
RF Power Meter	Boonton	4232A	42201	2012/11/24
Signal Generator	R&S	SML03	103300	2012/05/03
Bilog Antenna	FRANKONIA	BTA-M	06001M	N/A
Horn Antenna	Schwarzbeck	BBHA 9120E	286	N/A
Directional Coupler	WERLATONE	C6021	28565	N/A
Directional Coupler	WERLATONE	C6187	28590	N/A
Power Amplifier	FRANKONIA	FLH200B	1022	N/A
Power Amplifier	FRANKONIA	FLG-50C	1009	N/A

Electrical fast transient/ Burst/ SR1

Instrument	Manufacturer	Model No.	Serial No	Next Cal. Date
Clamper	HAEFELY	093 506.1	083 593-23	N/A
EMC Immunity Tester	EMC-PARTNER	Transient-2000	984	2013/01/03

Surge/ SR1

Instrument	Manufacturer	Model No.	Serial No	Next Cal. Date
Coupling Network	EM TEST	CNV 504	0503-05	2012/12/08
Ultra Compact Generator	EM TEST	UCS 500-M4	1198-34	2012/08/19

Conducted susceptibility/ SR4

Instrument	Manufacturer	Model No.	Serial No	Next Cal. Date
Attenuator	Schaffner	INA2070-1	2112	N/A
CDN	Schaffner	CDN M016	16337	2012/04/12
CDN	Schaffner	CDN T400	16905	2012/04/12
CDN	COM-POWER	CDN T8	711899	2012/04/11
Immunity Injection Clamp	Schaffner	KEMZ801	15928	2012/04/07
RF-Synthesizer/Amplifier	Schaffner	NSG 2070-1	1112	2012/04/10

Power frequency magnetic field/ SR1

Instrument	Manufacturer	Model No.	Serial No	Next Cal. Date
Magnetic Field Testing	Haefely	MAG100	080 938-05	2012/12/08
Triaxial ELF Magnetic Field Meter	F.B.BELL	4090	9852	2012/10/03

Voltage dips and interruption/ SR1

Instrument	Manufacturer	Model No.	Serial No	Next Cal. Date
Ultra Compact Generator	EM TEST	UCS 500-M4	1198-34	2012/08/19

2.3. Measurement Uncertainty

Conducted Emission

The measurement uncertainty is evaluated as ± 2.26 dB.

Conducted Emissions (Telecommunication Ports)

The measurement uncertainty is evaluated as ± 1.88 dB.

Radiated Emission (Under 1GHz)

The measurement uncertainty is evaluated as ± 3.43 dB.

Radiated Emission (Above 1GHz)

The measurement uncertainty is evaluated as ± 3.65 dB.

Harmonic Current Emission

The measurement uncertainty is evaluated as 0.1%.

Voltage Fluctuation and Flicker

The measurement uncertainty is evaluated as ±4%.

Electrostatic Discharge

As what is concluded in the document from Note2 of clause 5.4.6.2 of ISO/IEC 17025: 1999[2], the requirements for measurement uncertainty in ESD testing are deemed to have been satisfied, and the testing is reported in accordance with the relevant ESD standards. The immunity test signal from the ESD system meet the required specifications in IEC 61000-4-2 through the calibration report with the calibrated uncertainty for the waveform of voltage and timing as being 1.63 %*10^{-10} and 2.76%.

Radiated susceptibility

As what is concluded in the document from Note2 of clause 5.4.6.2 of ISO/IEC 17025: 1999[2], the requirements for measurement uncertainty in RS testing are deemed to have been satisfied, and the testing is reported in accordance with the relevant RS standards. The immunity test signal from the RS system meet the required specifications in IEC 61000-4-3 through the calibration for the uniform field strength and monitoring for the test level with the uncertainty evaluation report for the electrical filed strength as being 2.72 dB.

Electrical fast transient/burst

As what is concluded in the document from Note2 of clause 5.4.6.2 of ISO/IEC 17025: 1999[2], the requirements for measurement uncertainty in EFT/Burst testing are deemed to have been satisfied, and the testing is reported in accordance with the relevant EFT/Burst standards. The immunity test signal from the EFT/Burst system meet the required specifications in IEC 61000-4-4 through the calibration report with the calibrated uncertainty for the waveform of voltage, frequency and timing as being 1.63 %, 2.8 x 10^{-10} and 2.76%

Surge

As what is concluded in the document from Note2 of clause 5.4.6.2 of ISO/IEC 17025: 1999[2], the requirements for measurement uncertainty in Surge testing are deemed to have been satisfied, and the testing is reported in accordance with the relevant Surge standards. The immunity test signal from the Surge system meet the required specifications in IEC 61000-4-5 through the calibration report with the calibrated uncertainty for the waveform of voltage and timing as being 1.63 %*10^{-10} and 2.76%..

Conducted susceptibility

As what is concluded in the document from Note2 of clause 5.4.6.2 of ISO/IEC 17025: 1999[2], the requirements for measurement uncertainty in CS testing are deemed to have been satisfied, and the testing is reported in accordance with the relevant CS standards. The immunity test signal from the CS system meet the required specifications in IEC 61000-4-6 through the calibration for unmodulated signal and monitoring for the test level with the uncertainty evaluation report for the injected modulated signal level through CDN and EM Clamp/Direct Injection as being 3.72 dB and 2.78 dB.

Power frequency magnetic field

As what is concluded in the document from Note2 of clause 5.4.6.2 of ISO/IEC 17025: 1999[2], the requirements for measurement uncertainty in PFM testing are deemed to have been satisfied, and the testing is reported in accordance with the relevant PFM standards. The immunity test signal from the PFM system meet the required specifications in IEC 61000-4-8 through the calibration report with the calibrated uncertainty for the Gauss Meter to verify the output level of magnetic field strength as being 2 %.

Voltage dips and interruption

As what is concluded in the document from Note2 of clause 5.4.6.2 of ISO/IEC 17025: 1999[2], the requirements for measurement uncertainty in DIP testing are deemed to have been satisfied, and the testing is reported in accordance with the relevant DIP standards. The immunity test signal from the DIP system meet the required specifications in IEC 61000-4-11 through the calibration report with the calibrated uncertainty for the waveform of voltage and timing as being 1.63 %*10^{-10} and 2.76%.

2.4. Test Environment

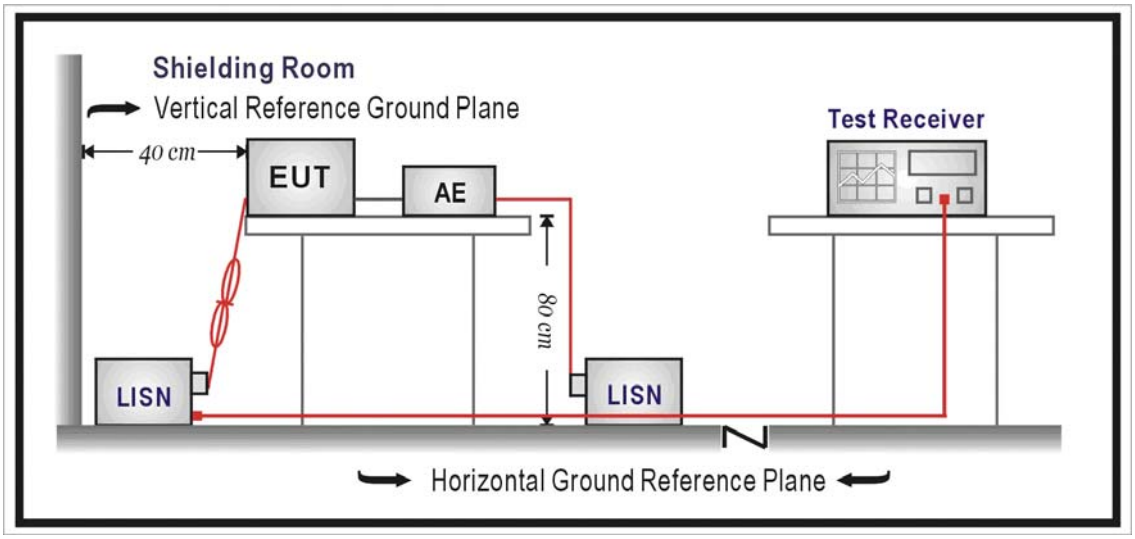
Performed Item	Items	Required	Actual
Conducted Emission	Temperature (°C)	15-35	25
	Humidity (%RH)	25-75	50
	Barometric pressure (mbar)	860-1060	950-1000
Conducted Emissions (Telecommunication Ports)	Temperature (°C)	15-35	25
	Humidity (%RH)	25-75	50
	Barometric pressure (mbar)	860-1060	950-1000
Radiated Emission	Temperature (°C)	15-35	25
	Humidity (%RH)	25-75	65
	Barometric pressure (mbar)	860-1060	950-1000
Power Harmonics	Temperature (°C)	15-35	25
	Humidity (%RH)	25-75	65
	Barometric pressure (mbar)	860-1060	950-1000
Voltage Fluctuation and Flicker	Temperature (°C)	15-35	25
	Humidity (%RH)	25-75	65
	Barometric pressure (mbar)	860-1060	950-1000
Electrostatic Discharge	Temperature (°C)	15-35	23
	Humidity (%RH)	30-60	45
	Barometric pressure (mbar)	860-1060	950-1000
Radiated susceptibility	Temperature (°C)	15-35	24
	Humidity (%RH)	25-75	54
	Barometric pressure (mbar)	860-1060	950-1000
Electrical fast transient/burst	Temperature (°C)	15-35	23
	Humidity (%RH)	25-75	55
	Barometric pressure (mbar)	860-1060	950-1000
Surge	Temperature (°C)	15-35	23
	Humidity (%RH)	10-75	50
	Barometric pressure (mbar)	860-1060	950-1000
Conducted susceptibility	Temperature (°C)	15-35	24
	Humidity (%RH)	25-75	54
	Barometric pressure (mbar)	860-1060	950-1000
Power frequency magnetic field	Temperature (°C)	15-35	24
	Humidity (%RH)	25-75	54
	Barometric pressure (mbar)	860-1060	950-1000
Voltage dips and interruption	Temperature (°C)	15-35	23
	Humidity (%RH)	25-75	55
	Barometric pressure (mbar)	860-1060	950-1000

3. Conducted Emission (Main Terminals)

3.1. Test Specification

According to EMC Standard : EN 55022

3.2. Test Setup



3.3. Limit

Limits		
Frequency (MHz)	QP (dBuV)	AV (dBuV)
0.15 - 0.50	79	66
0.50-5.0	73	60
5.0 - 30	73	60

Remarks: In the above table, the tighter limit applies at the band edges.

3.4. Test Procedure

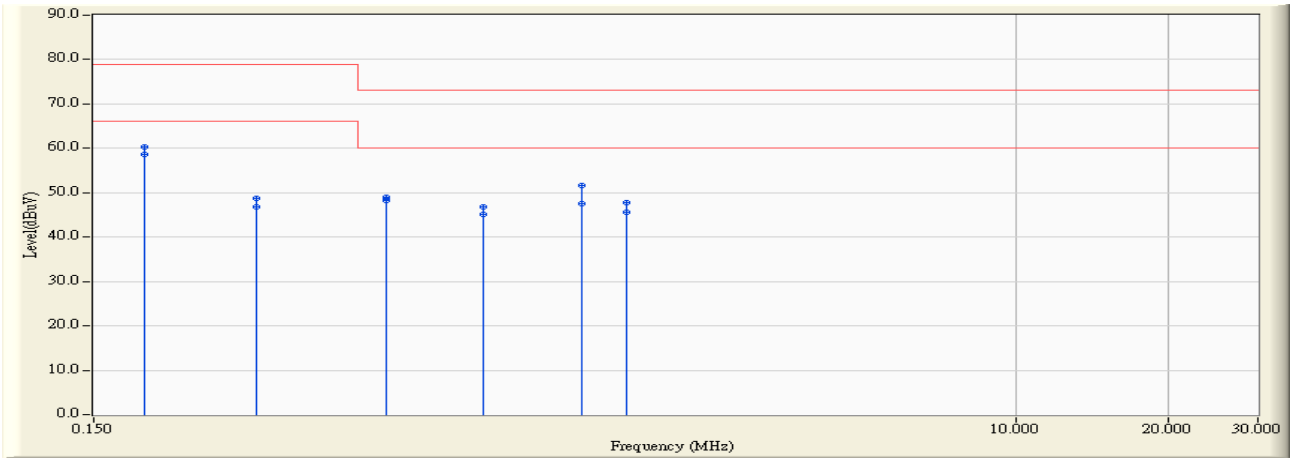
The EUT and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.). This provides a 50 ohm /50uH coupling impedance for the measuring equipment. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm/50uH coupling impedance with 50ohm termination.
(Please refers to the block diagram of the test setup and photographs.)
Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed on conducted measurement.
Conducted emissions were invested over the frequency range from 0.15MHz to 30MHz using a receiver bandwidth of 9kHz.

3.5. Deviation from Test Standard

No deviation.

3.6. Test Result

Site : SR2	**Time : 2011/10/14 - 10:56**
Limit : CISPR_A_00M_QP	**Margin : 13**
Probe : SR2_LISN(16A)-1_0831 - Line1	**Power : AC 230V/50Hz**
EUT : Ethernet 100/1000 Converter	**Note : Mode 1: Data Transmit for CL-MCSFP-16M**

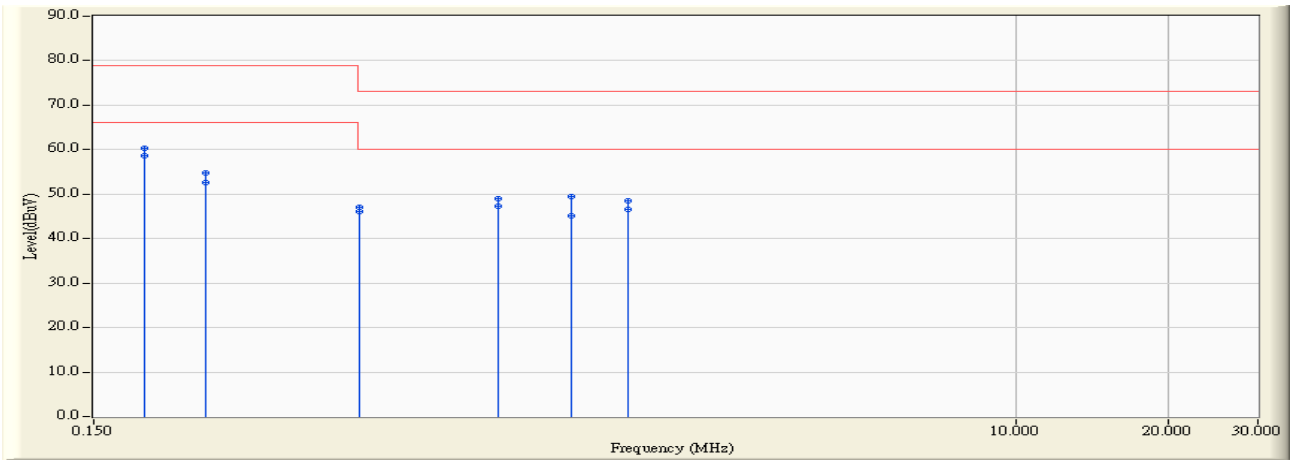


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1		0.189	9.600	50.760	60.360	-18.640	79.000	QUASIPEAK
2	*	0.189	9.600	49.110	58.710	-7.290	66.000	AVERAGE
3		0.315	9.600	39.070	48.670	-30.330	79.000	QUASIPEAK
4		0.315	9.600	37.110	46.710	-19.290	66.000	AVERAGE
5		0.568	9.603	39.490	49.093	-23.907	73.000	QUASIPEAK
6		0.568	9.603	38.590	48.193	-11.807	60.000	AVERAGE
7		0.883	9.644	37.130	46.774	-26.226	73.000	QUASIPEAK
8		0.883	9.644	35.440	45.084	-14.916	60.000	AVERAGE
9		1.384	9.751	41.990	51.741	-21.259	73.000	QUASIPEAK
10		1.384	9.751	37.860	47.611	-12.389	60.000	AVERAGE
11		1.701	9.781	37.950	47.731	-25.269	73.000	QUASIPEAK
12		1.701	9.781	35.780	45.561	-14.439	60.000	AVERAGE

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. " * ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.

Site : SR2	**Time : 2011/10/14 - 10:59**
Limit : CISPR_A_00M_QP	**Margin : 13**
Probe : SR2_LISN(16A)-1_0831 - Line2	**Power : AC 230V/50Hz**
EUT : Ethernet 100/1000 Converter	**Note : Mode 1: Data Transmit for CL-MCSFP-16M**

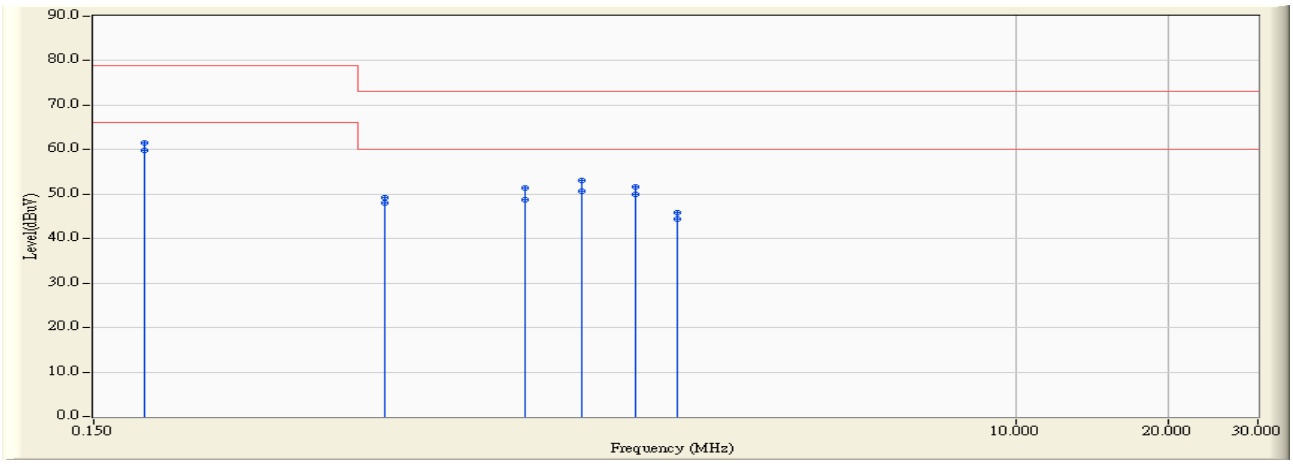


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1		0.189	9.610	50.720	60.330	-18.670	79.000	QUASIPEAK
2	*	0.189	9.610	48.950	58.560	-7.440	66.000	AVERAGE
3		0.250	9.610	45.050	54.660	-24.340	79.000	QUASIPEAK
4		0.250	9.610	42.880	52.490	-13.510	66.000	AVERAGE
5		0.504	9.610	37.470	47.080	-25.920	73.000	QUASIPEAK
6		0.504	9.610	36.430	46.040	-13.960	60.000	AVERAGE
7		0.947	9.659	39.350	49.009	-23.991	73.000	QUASIPEAK
8		0.947	9.659	37.540	47.199	-12.801	60.000	AVERAGE
9		1.322	9.740	39.680	49.421	-23.579	73.000	QUASIPEAK
10		1.322	9.740	35.300	45.041	-14.959	60.000	AVERAGE
11		1.704	9.788	38.710	48.498	-24.502	73.000	QUASIPEAK
12		1.704	9.788	36.800	46.588	-13.412	60.000	AVERAGE

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. " * ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.

Site : SR2	**Time : 2011/10/14 - 11:03**
Limit : CISPR_A_00M_QP	**Margin : 13**
Probe : SR2_LISN(16A)-1_0831 - Line1	**Power : AC 230V/50Hz**
EUT : Ethernet 100/1000 Converter	**Note : Mode 2: Data Transmit for CL-MCSFP-16**

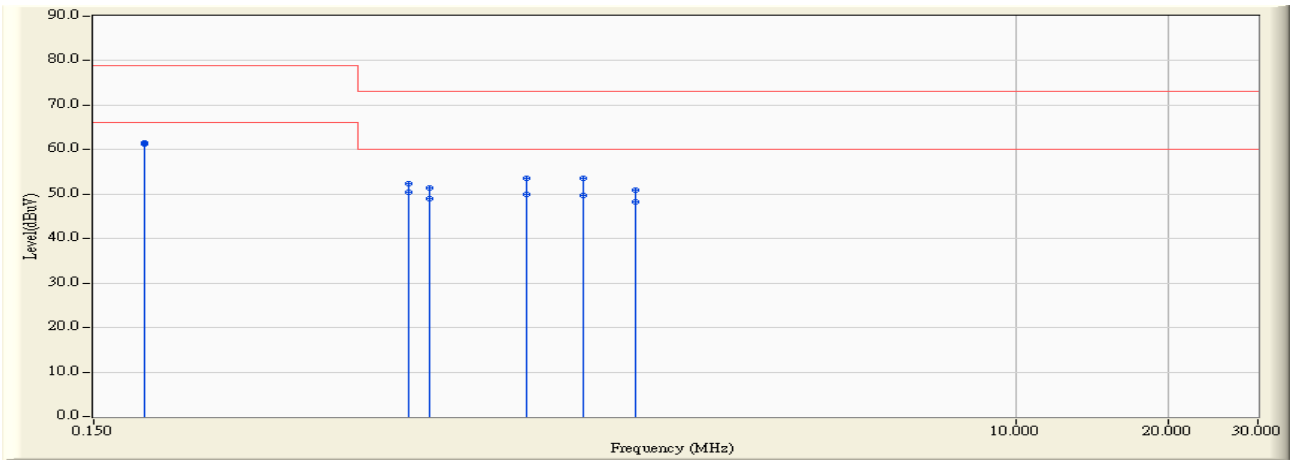


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1		0.189	9.600	51.810	61.410	-17.590	79.000	QUASIPEAK
2	*	0.189	9.600	50.200	59.800	-6.200	66.000	AVERAGE
3		0.564	9.603	39.520	49.123	-23.877	73.000	QUASIPEAK
4		0.564	9.603	38.480	48.083	-11.917	60.000	AVERAGE
5		1.068	9.684	41.750	51.434	-21.566	73.000	QUASIPEAK
6		1.068	9.684	39.030	48.714	-11.286	60.000	AVERAGE
7		1.384	9.751	43.450	53.201	-19.799	73.000	QUASIPEAK
8		1.384	9.751	40.990	50.741	-9.259	60.000	AVERAGE
9		1.763	9.783	41.830	51.613	-21.387	73.000	QUASIPEAK
10		1.763	9.783	40.210	49.993	-10.007	60.000	AVERAGE
11		2.138	9.794	36.160	45.954	-27.046	73.000	QUASIPEAK
12		2.138	9.794	34.600	44.394	-15.606	60.000	AVERAGE

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. " * ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.

Site : SR2	**Time : 2011/10/14 - 11:05**
Limit : CISPR_A_00M_QP	**Margin : 13**
Probe : SR2_LISN(16A)-1_0831 - Line2	**Power : AC 230V/50Hz**
EUT : Ethernet 100/1000 Converter	**Note : Mode 2: Data Transmit for CL-MCSFP-16**



		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1		0.189	9.610	52.000	61.610	-17.390	79.000	QUASIPEAK
2	*	0.189	9.610	51.560	61.170	-4.830	66.000	AVERAGE
3		0.630	9.612	42.840	52.452	-20.548	73.000	QUASIPEAK
4		0.630	9.612	40.820	50.432	-9.568	60.000	AVERAGE
5		0.693	9.619	41.660	51.279	-21.721	73.000	QUASIPEAK
6		0.693	9.619	39.320	48.939	-11.061	60.000	AVERAGE
7		1.072	9.685	43.760	53.446	-19.554	73.000	QUASIPEAK
8		1.072	9.685	40.310	49.996	-10.004	60.000	AVERAGE
9		1.388	9.755	43.710	53.465	-19.535	73.000	QUASIPEAK
10		1.388	9.755	39.960	49.715	-10.285	60.000	AVERAGE
11		1.763	9.790	41.150	50.941	-22.059	73.000	QUASIPEAK
12		1.763	9.790	38.380	48.171	-11.829	60.000	AVERAGE

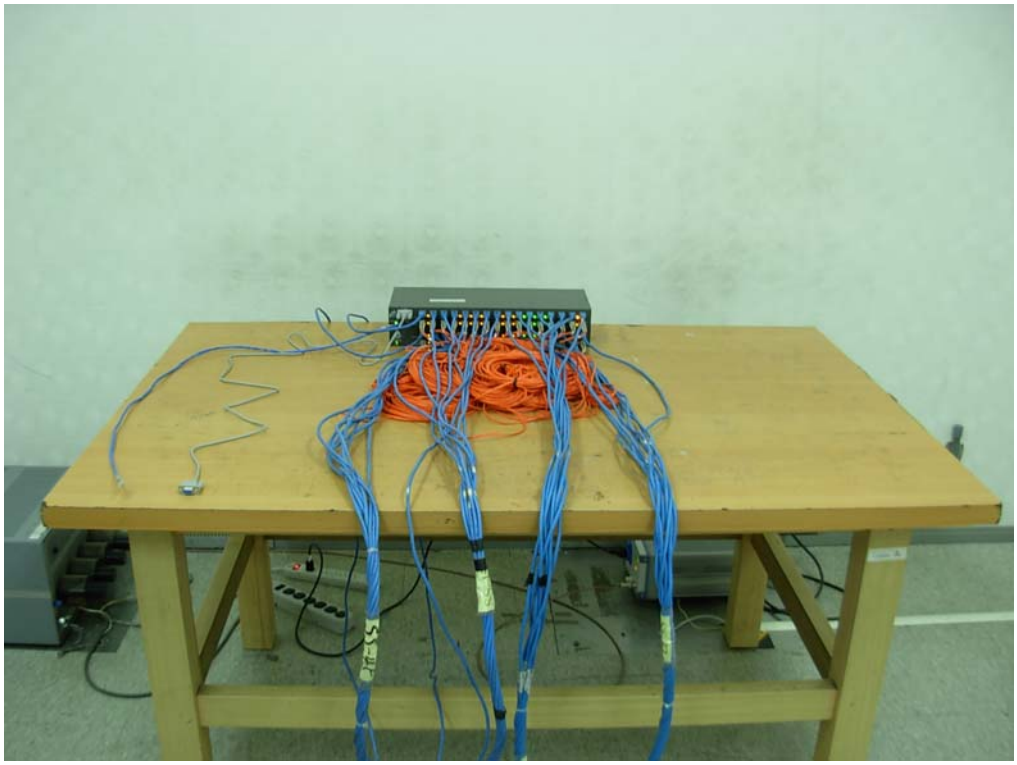
Note:

1. All Reading Levels are Quasi-Peak and average value.
2. " * ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.

3.7. Test Photograph

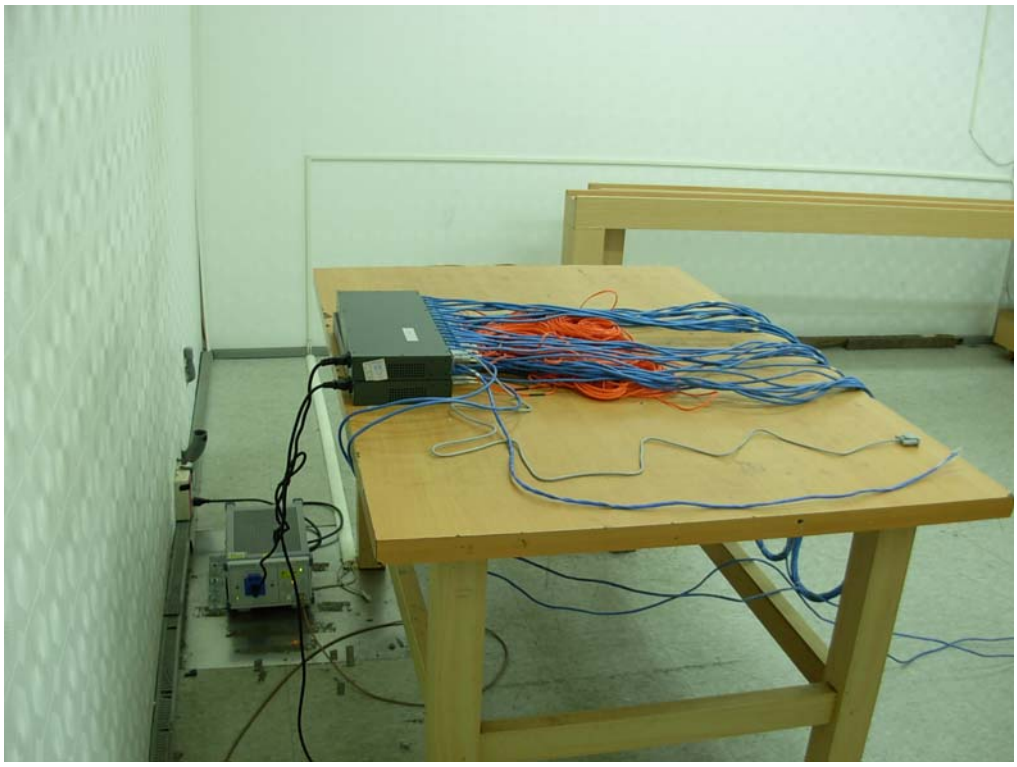
Test Mode : Mode 1: Data Transmit for CL-MCSFP-16M

Description : Front View of Conducted Emission Test Setup



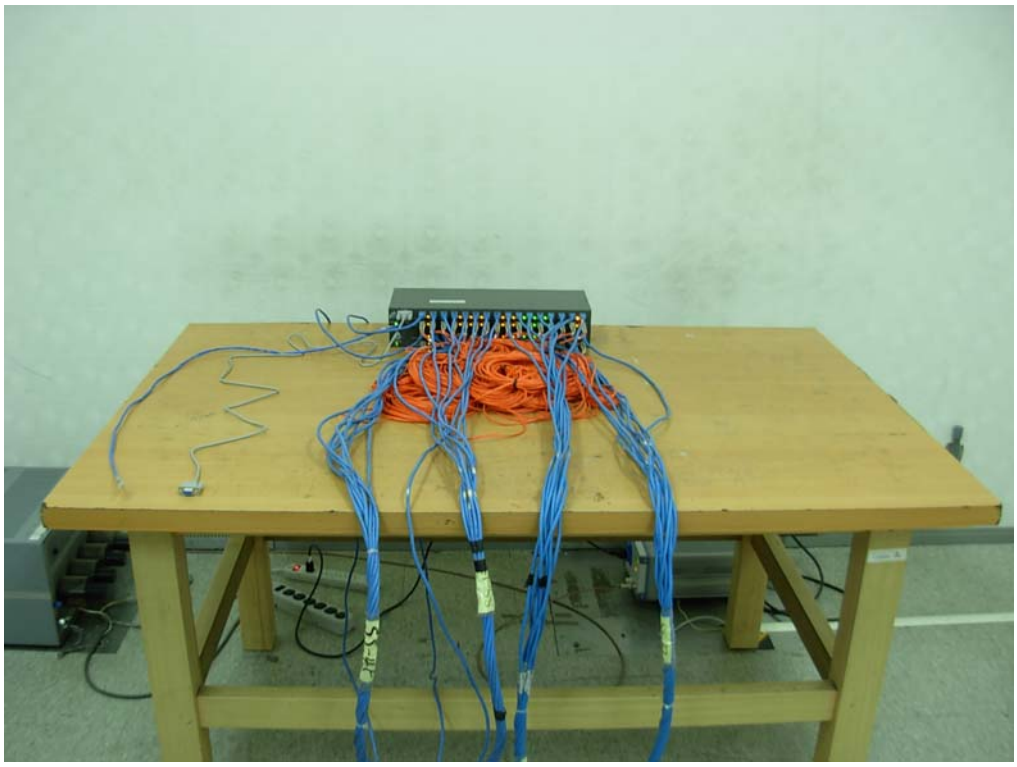
Test Mode : Mode 1: Data Transmit for CL-MCSFP-16M

Description : Back View of Conducted Emission Test Setup



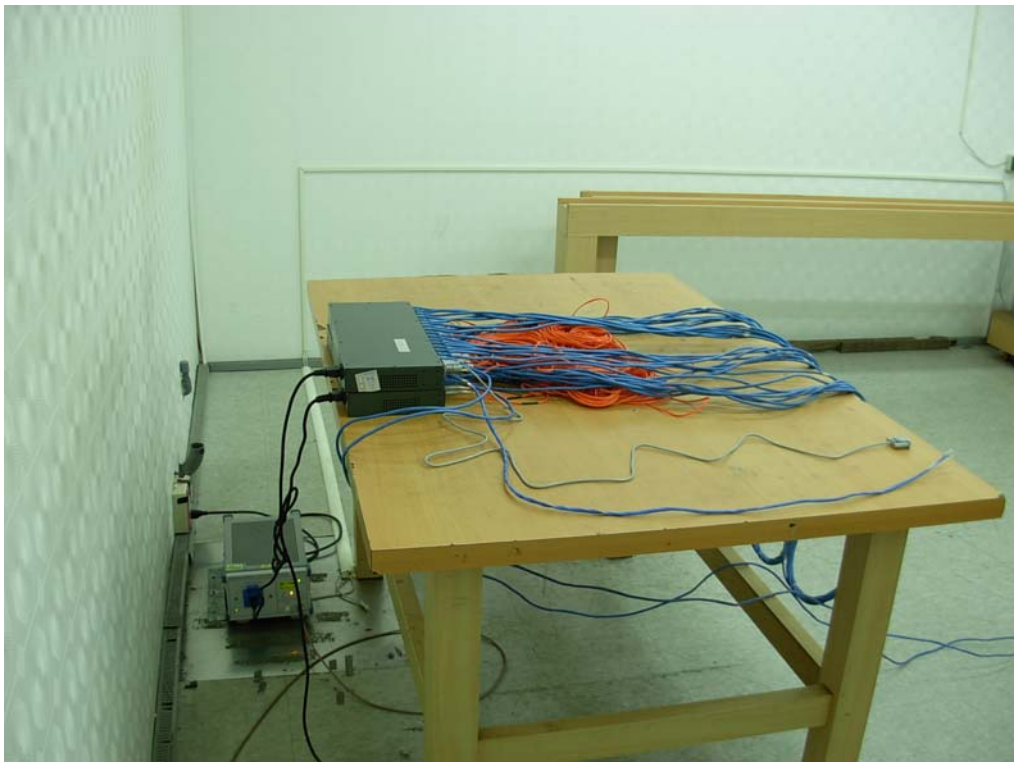
Test Mode : Mode 2: Data Transmit for CL-MCSFP-16

Description : Front View of Conducted Emission Test Setup



Test Mode : Mode 2: Data Transmit for CL-MCSFP-16

Description : Back View of Conducted Emission Test Setup

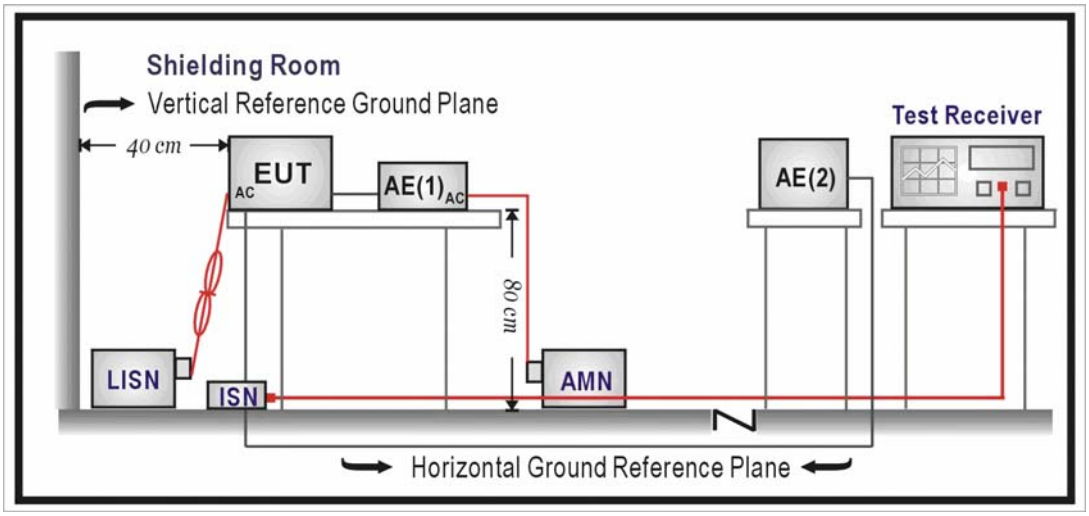


4. Conducted Emissions (Telecommunication Ports)

4.1. Test Specification

According to EMC Standard : EN 55022

4.2. Test Setup



4.3. Limit

Limits		
Frequency (MHz)	QP (dBuV)	AV (dBuV)
0.15 - 0.50	97 – 87	84 – 74
0.50 - 30	87	74

Remarks:

The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz~0.50 MHz.

4.4. Test Procedure

Telecommunication Port:

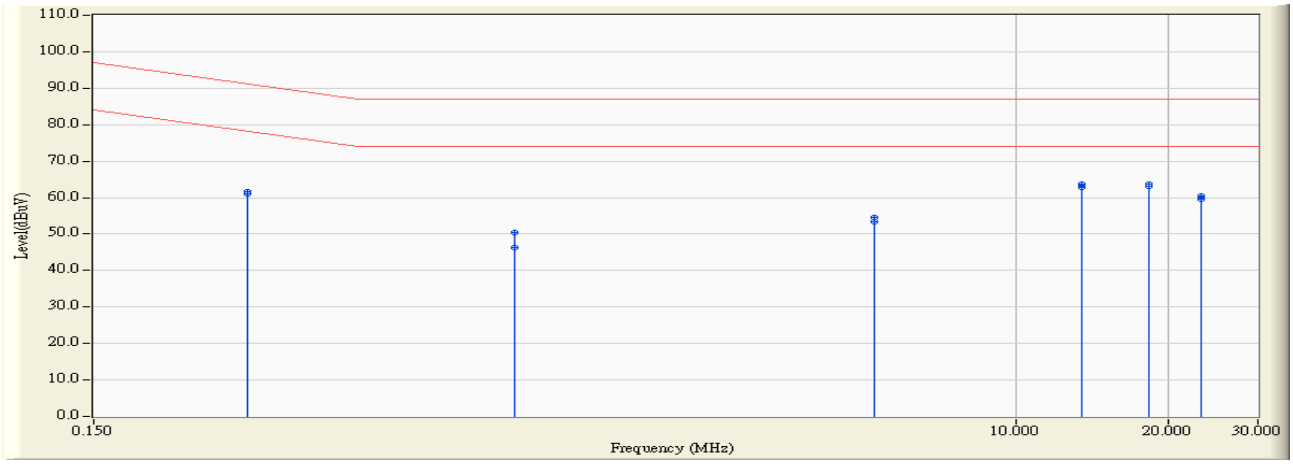
The mains voltage shall be supplied to the EUT via the LISN when the measurement of telecommunication port is performed. The common mode disturbances at the telecommunication port shall be connected to the ISN, which is 150 ohm impedance.
Both alternative cables are tested related to the LCL requested. The measurement range is from 150kHz to 30MHz. The bandwidth of measurement is set to 9kHz.
The 55dB LCL ISN is used for cat. 3 cable, 65dB LCL ISN is used for cat. 5 and 75dB LCL ISN is used for cat. 6 Cable.

4.5. Deviation from Test Standard

No deviation.

4.6. Test Result

Site : SR2	**Time : 2011/10/17 - 13:16**
Limit : ISN_Voltage_A_00M_QP	**Margin : 13**
Probe : SR2_LISN(16A)-1_0831 - Line1	**Power : AC 230V/50Hz**
EUT : Ethernet 100/1000 Converter	**Note : Mode 1: Data Transmit for CL-MCSFP-16M 100Mbps (LAN Cable)**

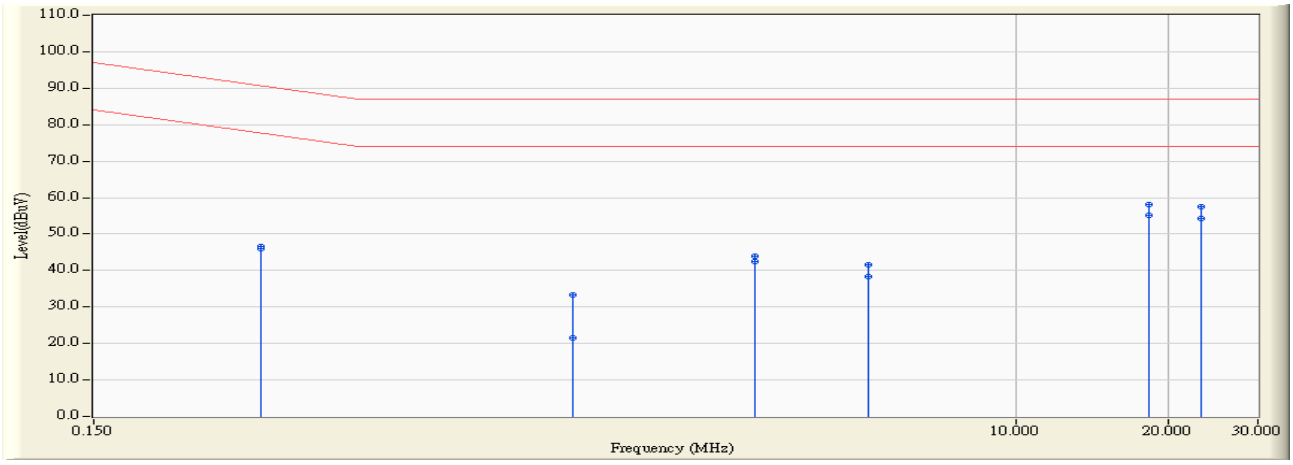


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1		0.302	9.600	52.030	61.630	-29.548	91.178	QUASIPEAK
2		0.302	9.600	51.440	61.040	-17.138	78.178	AVERAGE
3		1.021	9.674	40.730	50.404	-36.596	87.000	QUASIPEAK
4		1.021	9.674	36.500	46.174	-27.826	74.000	AVERAGE
5		5.236	9.885	44.810	54.695	-32.305	87.000	QUASIPEAK
6		5.236	9.885	43.370	53.255	-20.745	74.000	AVERAGE
7		13.420	10.140	53.650	63.790	-23.210	87.000	QUASIPEAK
8		13.420	10.140	52.550	62.690	-11.310	74.000	AVERAGE
9		18.244	10.245	53.400	63.645	-23.355	87.000	QUASIPEAK
10	*	18.244	10.245	52.840	63.085	-10.915	74.000	AVERAGE
11		23.127	10.310	50.180	60.490	-26.510	87.000	QUASIPEAK
12		23.127	10.310	49.190	59.500	-14.500	74.000	AVERAGE

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. " * ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.

Site : SR2	**Time : 2011/10/17 - 13:12**
Limit : ISN_Voltage_A_00M_QP	**Margin : 13**
Probe : SR2_LISN(16A)-1_0831 - Line1	**Power : AC 230V/50Hz**
EUT : Ethernet 100/1000 Converter	**Note : Mode 1: Data Transmit for CL-MCSFP-16M 1Gbps (LAN Cable)**

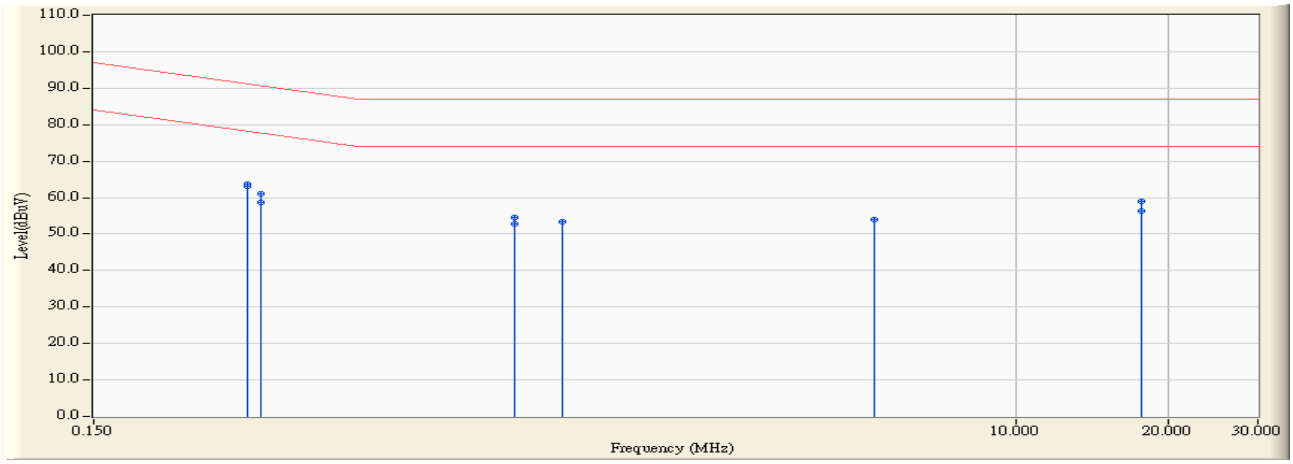


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1		0.322	9.600	37.070	46.670	-43.988	90.658	QUASIPEAK
2		0.322	9.600	36.510	46.110	-31.548	77.658	AVERAGE
3		1.326	9.738	23.620	33.358	-53.642	87.000	QUASIPEAK
4		1.326	9.738	11.790	21.528	-52.472	74.000	AVERAGE
5		3.037	9.821	34.240	44.061	-42.939	87.000	QUASIPEAK
6		3.037	9.821	32.750	42.571	-31.429	74.000	AVERAGE
7		5.112	9.881	31.750	41.631	-45.369	87.000	QUASIPEAK
8		5.112	9.881	28.560	38.441	-35.559	74.000	AVERAGE
9		18.244	10.245	47.760	58.005	-28.995	87.000	QUASIPEAK
10	*	18.244	10.245	45.040	55.285	-18.715	74.000	AVERAGE
11		23.127	10.310	47.340	57.650	-29.350	87.000	QUASIPEAK
12		23.127	10.310	43.970	54.280	-19.720	74.000	AVERAGE

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. " * ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.

Site : SR2	**Time : 2011/10/17 - 11:34**
Limit : ISN_Voltage_A_00M_QP	**Margin : 13**
Probe : SR2_LISN(16A)-1_0831 - Line1	**Power : AC 230V/50Hz**
EUT : Ethernet 100/1000 Converter	**Note : Mode 2: Data Transmit for CL-MCSFP-16 100Mbps (LAN Cable)**

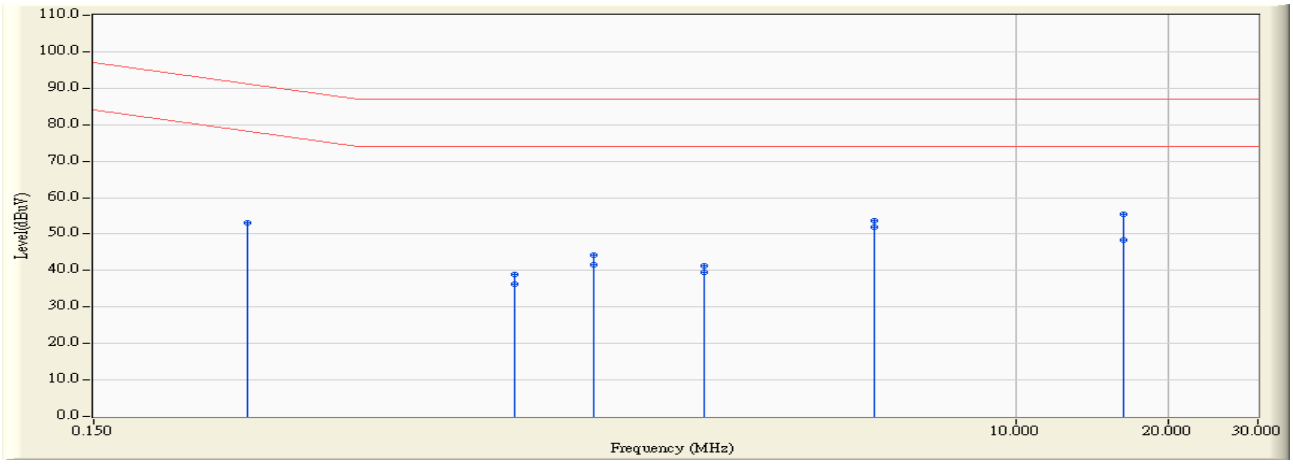


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1		0.302	9.600	54.030	63.630	-27.548	91.178	QUASIPEAK
2	*	0.302	9.600	53.520	63.120	-15.058	78.178	AVERAGE
3		0.321	9.600	51.390	60.990	-29.682	90.672	QUASIPEAK
4		0.321	9.600	49.120	58.720	-18.952	77.672	AVERAGE
5		1.021	9.674	45.020	54.694	-32.306	87.000	QUASIPEAK
6		1.021	9.674	43.200	52.874	-21.126	74.000	AVERAGE
7		1.267	9.726	43.740	53.466	-33.534	87.000	QUASIPEAK
8		1.267	9.726	43.510	53.236	-20.764	74.000	AVERAGE
9		5.236	9.885	44.060	53.945	-33.055	87.000	QUASIPEAK
10		5.236	9.885	44.050	53.935	-20.065	74.000	AVERAGE
11		17.693	10.234	48.620	58.854	-28.146	87.000	QUASIPEAK
12		17.693	10.234	46.190	56.424	-17.576	74.000	AVERAGE

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. " * ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.

Site : SR2	**Time : 2011/10/17 - 13:05**
Limit : ISN_Voltage_A_00M_QP	**Margin : 13**
Probe : SR2_LISN(16A)-1_0831 - Line1	**Power : AC 230V/50Hz**
EUT : Ethernet 100/1000 Converter	**Note : Mode 2: Data Transmit for CL-MCSFP-16 1Gbps (LAN Cable)**



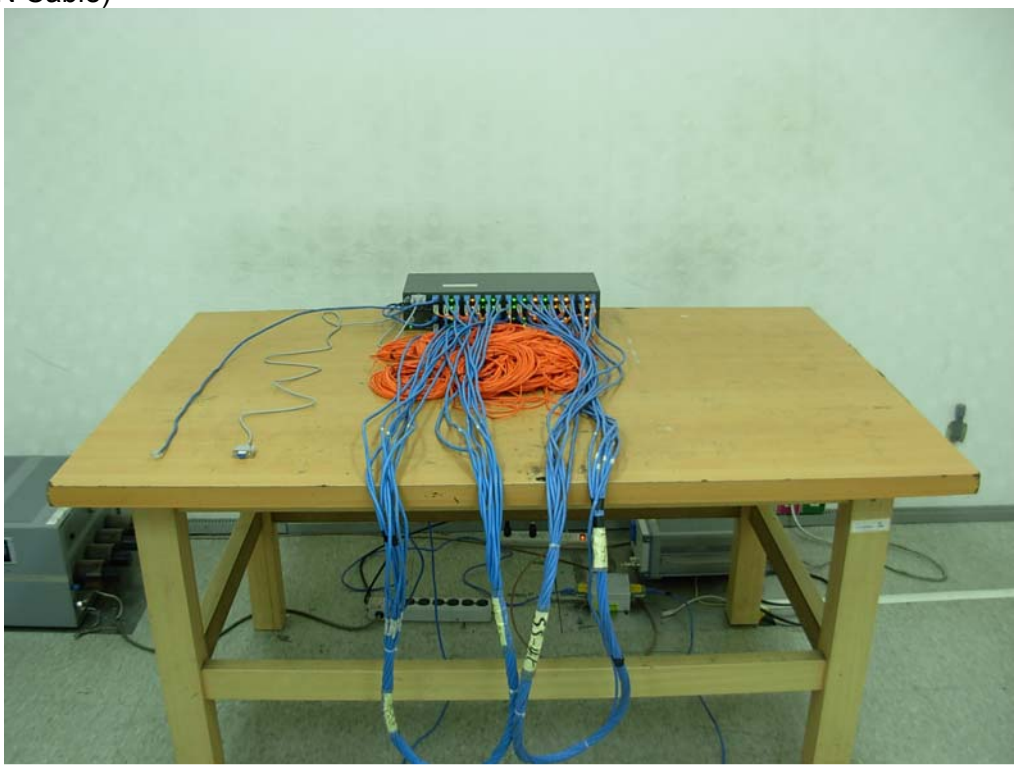
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1		0.302	9.600	43.510	53.110	-38.068	91.178	QUASIPEAK
2		0.302	9.600	43.350	52.950	-25.228	78.178	AVERAGE
3		1.021	9.674	29.310	38.984	-48.016	87.000	QUASIPEAK
4		1.021	9.674	26.550	36.224	-37.776	74.000	AVERAGE
5		1.462	9.762	34.440	44.202	-42.798	87.000	QUASIPEAK
6		1.462	9.762	31.920	41.682	-32.318	74.000	AVERAGE
7		2.420	9.802	31.620	41.423	-45.577	87.000	QUASIPEAK
8		2.420	9.802	29.820	39.623	-34.377	74.000	AVERAGE
9		5.236	9.885	43.760	53.645	-33.355	87.000	QUASIPEAK
10	*	5.236	9.885	42.150	52.035	-21.965	74.000	AVERAGE
11		16.228	10.204	45.370	55.574	-31.426	87.000	QUASIPEAK
12		16.228	10.204	38.260	48.464	-25.536	74.000	AVERAGE

Note:

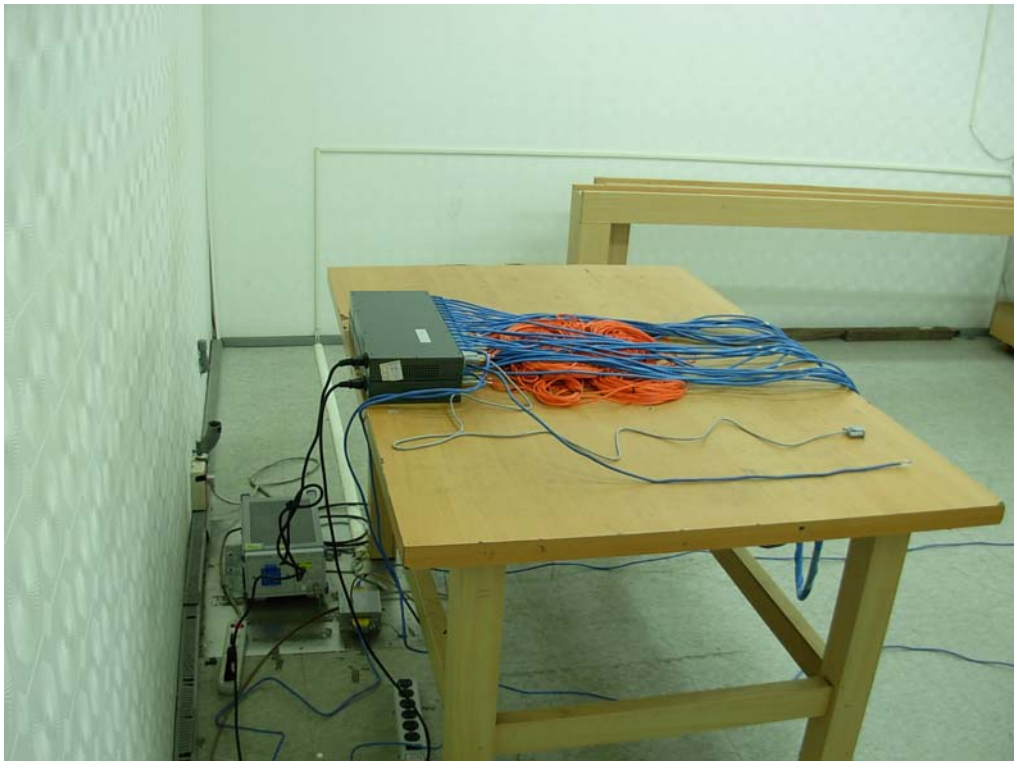
1. All Reading Levels are Quasi-Peak and average value.
2. " * ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.

4.7. Test Photograph

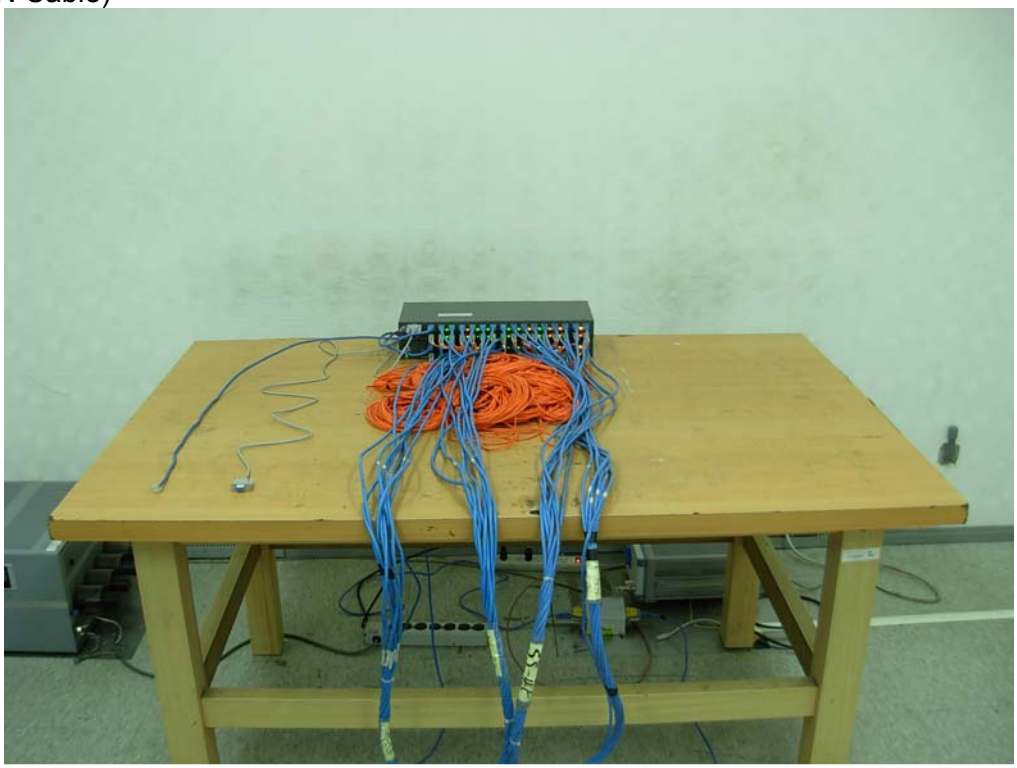
Test Mode : Mode 1: Data Transmit for CL-MCSFP-16M
Description : Front View of Impedance Stabilization Network Emission Test Setup (LAN Cable)



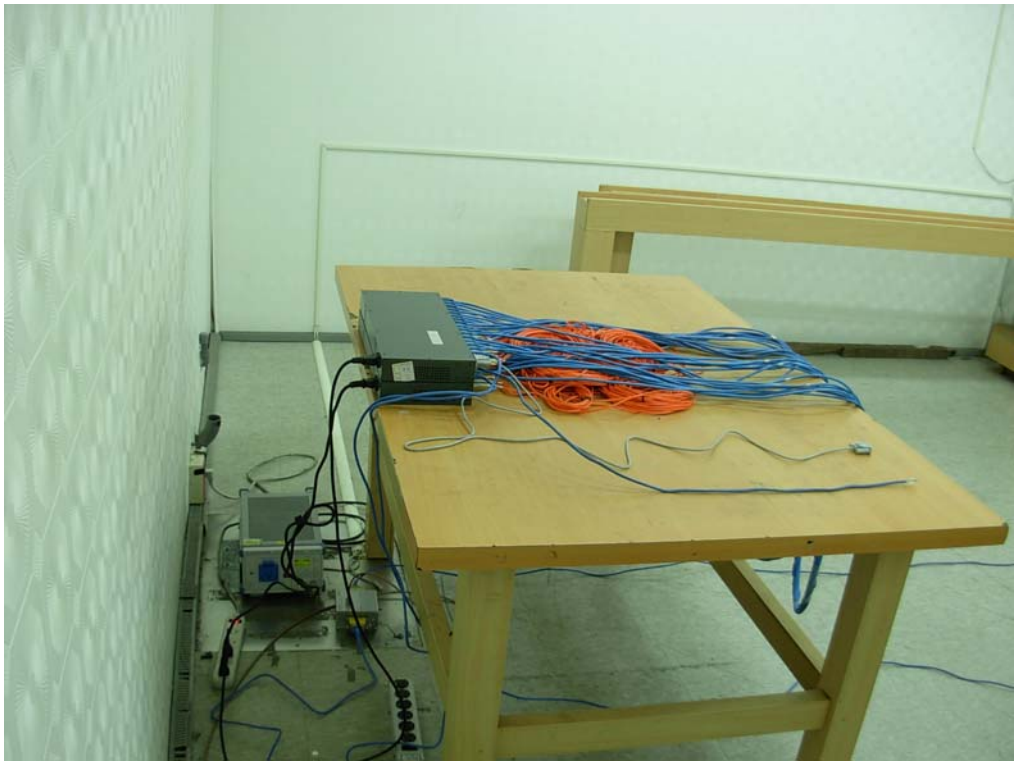
Test Mode : Mode 1: Data Transmit for CL-MCSFP-16M
Description : Back View of Impedance Stabilization Network Emission Test Setup (LAN Cable)



Test Mode : Mode 2: Data Transmit for CL-MCSFP-16
Description : Front View of Impedance Stabilization Network Emission Test Setup (LAN Cable)



Test Mode : Mode 2: Data Transmit for CL-MCSFP-16
Description : Back View of Impedance Stabilization Network Emission Test Setup (LAN Cable)



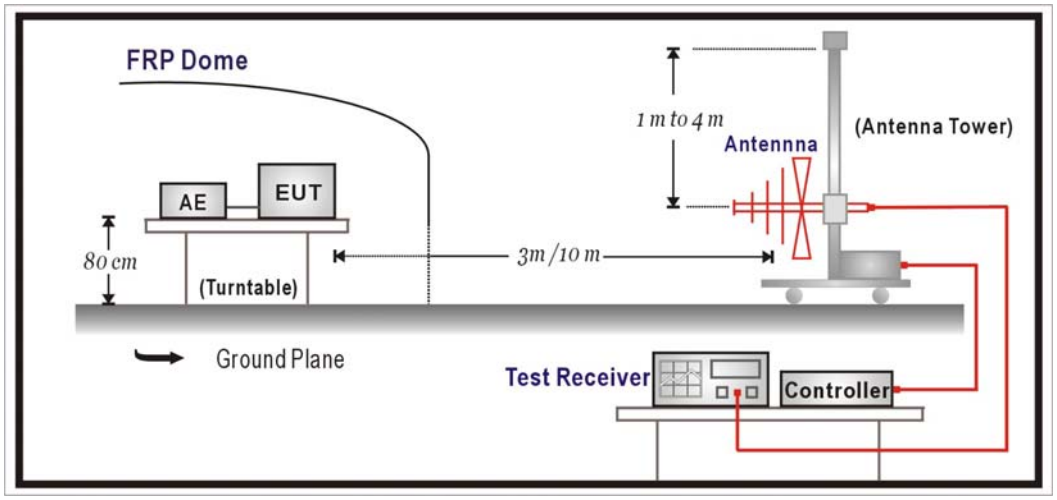
5. Radiated Emission

5.1. Test Specification

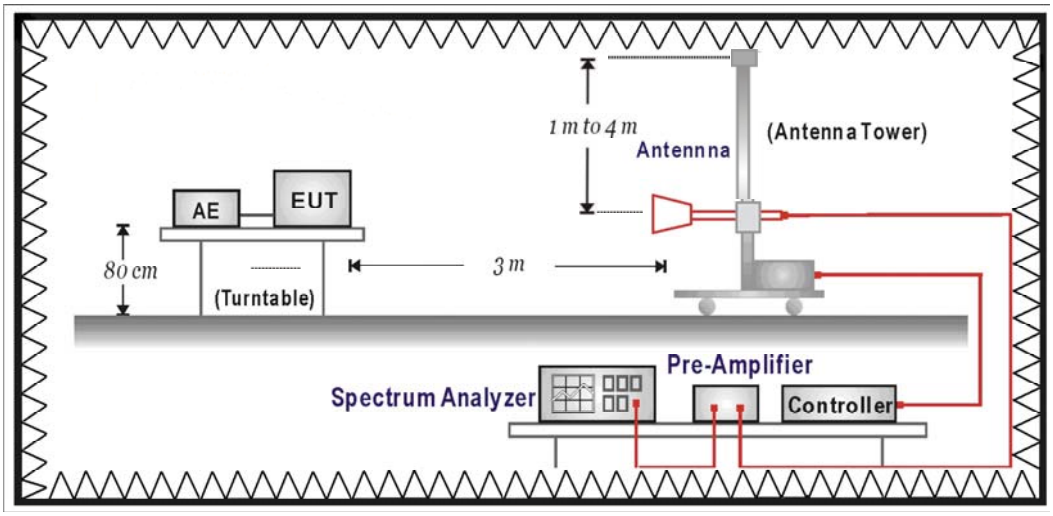
According to EMC Standard : EN 55022

5.2. Test Setup

Under 1GHz Test Setup



Above 1GHz Test Setup:



5.3. Limit

Limits		
Frequency (MHz)	Distance (m)	dBuV/m
30 – 230	10	40
230 – 1000	10	47

Limits			
Frequency (MHz)	Distance (m)	Peak (dBuV/m)	Average (dBuV/m)
1000 – 3000	3	76	56
3000 – 6000	3	80	60

Remark:

1. The tighter limit shall apply at the edge 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 device or system.
3. RF Voltage (dBuV/m) = 20 log RF Voltage (uV/m)

Highest frequency generated or used in the device or on which the device operates or tunes (MHz)	Upper frequency of measurement range (MHz)
Below 108	1000
108 – 500	2000
500 – 1000	5000
Above 1000	5^{th} harmonic of the highest frequency or 6 GHz, whichever is lower

5.4. Test Procedure

The EUT and its simulators are placed on a turn table which is 0.8 meter above ground. The turn table can rotate 360 degrees to determine the position of the maximum emission level. The EUT was positioned such that the distance from antenna to the EUT was 10 meters. The antenna can move up and down between 1 meter and 4 meters to find out the maximum emission level.
All cable leaving the table-top EUT for a connection outsidethe test site (for example, mains cable, telephone lines, connections to auxiliary equipment located outside the test area) shall be fitted with ferrite clamps placed on the floor at the point where the cable reached the floor.

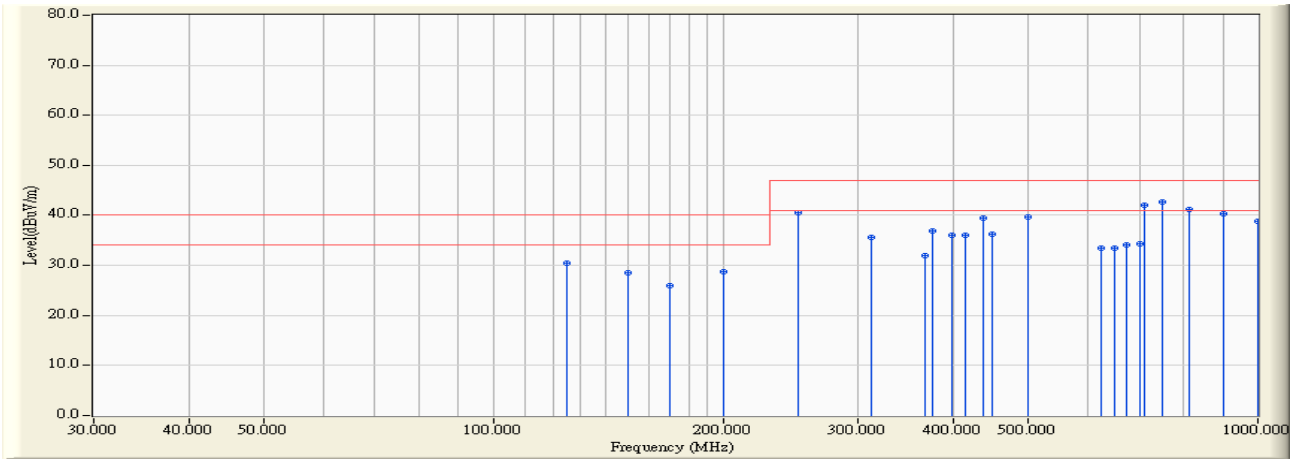
Both horizontal and vertical polarization of the antenna are set on measurement. In order to find the maximum emission, all of the interface cables must be manipulated on radiated measurement.
Radiated emissions were invested over the frequency range from 30MHz to1GHz using a receiver bandwidth of 120kHz. Radiated was performed at an antenna to EUT distance of 10 meters.
Radiated emissions were invested over the frequency range from 1GHz to 6GHz using a receiver bandwidth of 1MHz. Radiated was performed at an antenna to EUT distance of 3 meters.

5.5. Deviation from Test Standard

No deviation.

5.6. Test Result

Site : Site2	**Time : 2011/10/18 - 17:29**
Limit : CISPR_A_10M_QP	**Margin : 6**
Probe : SITE2_10M-1_0901 - HORIZONTAL	**Power : AC 230V/50Hz**
EUT : Ethernet 100/1000 Converter	**Note : Mode 1: Data Transmit for CL-MCSFP-16M**

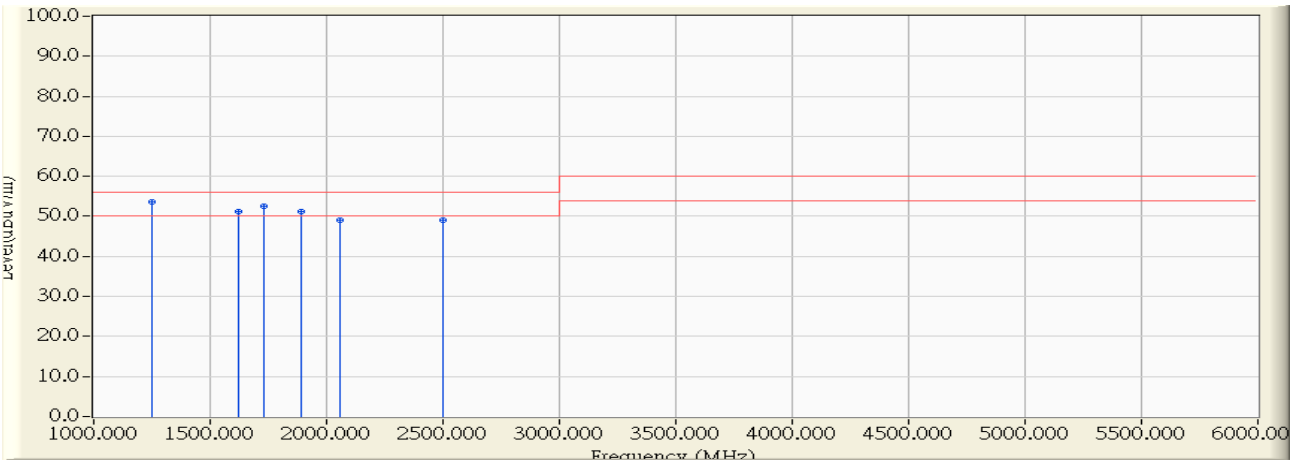


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		125.000	13.880	16.480	30.360	-9.640	40.000	QUASIPEAK
2		125.000	13.880	16.500	30.380	-9.620	40.000	QUASIPEAK
3		150.000	13.075	15.500	28.575	-11.425	40.000	QUASIPEAK
4		170.000	11.950	14.000	25.950	-14.050	40.000	QUASIPEAK
5		200.000	13.046	15.800	28.845	-11.155	40.000	QUASIPEAK
6		250.000	17.410	23.200	40.610	-6.390	47.000	QUASIPEAK
7		312.500	18.050	17.600	35.650	-11.350	47.000	QUASIPEAK
8		367.175	20.368	11.500	31.868	-15.132	47.000	QUASIPEAK
9		375.000	21.204	15.700	36.904	-10.096	47.000	QUASIPEAK
10		398.425	22.293	13.700	35.993	-11.007	47.000	QUASIPEAK
11		414.050	21.501	14.500	36.002	-10.998	47.000	QUASIPEAK
12		437.500	22.859	16.680	39.539	-7.461	47.000	QUASIPEAK
13		450.000	23.690	12.500	36.190	-10.810	47.000	QUASIPEAK
14		500.000	23.280	16.400	39.681	-7.319	47.000	QUASIPEAK
15		625.000	24.812	8.700	33.512	-13.488	47.000	QUASIPEAK
16		650.000	26.644	6.800	33.444	-13.556	47.000	QUASIPEAK
17		671.875	26.862	7.200	34.062	-12.938	47.000	QUASIPEAK
18		700.000	28.086	6.300	34.386	-12.614	47.000	QUASIPEAK
19		710.925	28.440	13.500	41.939	-5.061	47.000	QUASIPEAK
20	*	750.000	27.047	15.700	42.747	-4.253	47.000	QUASIPEAK
21		812.500	29.013	12.100	41.113	-5.887	47.000	QUASIPEAK
22		900.000	32.907	7.500	40.407	-6.593	47.000	QUASIPEAK
23		1000.000	33.620	5.200	38.820	-8.180	47.000	QUASIPEAK

Note:

1. All Reading Levels are Quasi-Peak value.
2. " * ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.

Site : CB1	**Time : 2011/12/30 - 13:49**
Limit : CISPR_22_A_(Above_1G)_3M_AV	**Margin : 6**
Probe : CB1_CISPR_22_B(above1G)-1_0901 - HORIZONTAL	**Power : AC 230V/50Hz**
EUT : Ethernet 100/1000 Converter	**Note : Mode 1: Data Transmit for CL-MCSFP-16M**

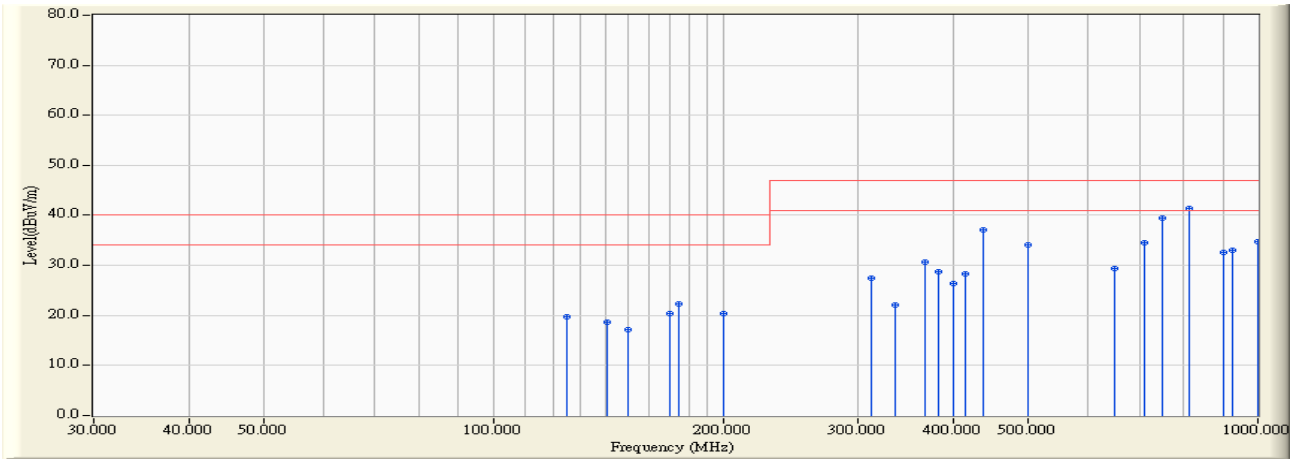


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	1250.000	-7.524	61.074	53.550	-2.450	56.000	PEAK
2		1620.000	-5.935	57.243	51.308	-4.692	56.000	PEAK
3		1730.000	-5.581	58.099	52.518	-3.482	56.000	PEAK
4		1890.000	-5.066	56.149	51.083	-4.917	56.000	PEAK
5		2060.000	-4.502	53.472	48.970	-7.030	56.000	PEAK
6		2500.000	-2.924	51.940	49.016	-6.984	56.000	PEAK

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. " * ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor
4. The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.

Site : Site2	**Time : 2011/10/18 - 17:00**
Limit : CISPR_A_10M_QP	**Margin : 6**
Probe : SITE2_10M-1_0901 - VERTICAL	**Power : AC 230V/50Hz**
EUT : Ethernet 100/1000 Converter	**Note : Mode 1: Data Transmit for CL-MCSFP-16M**

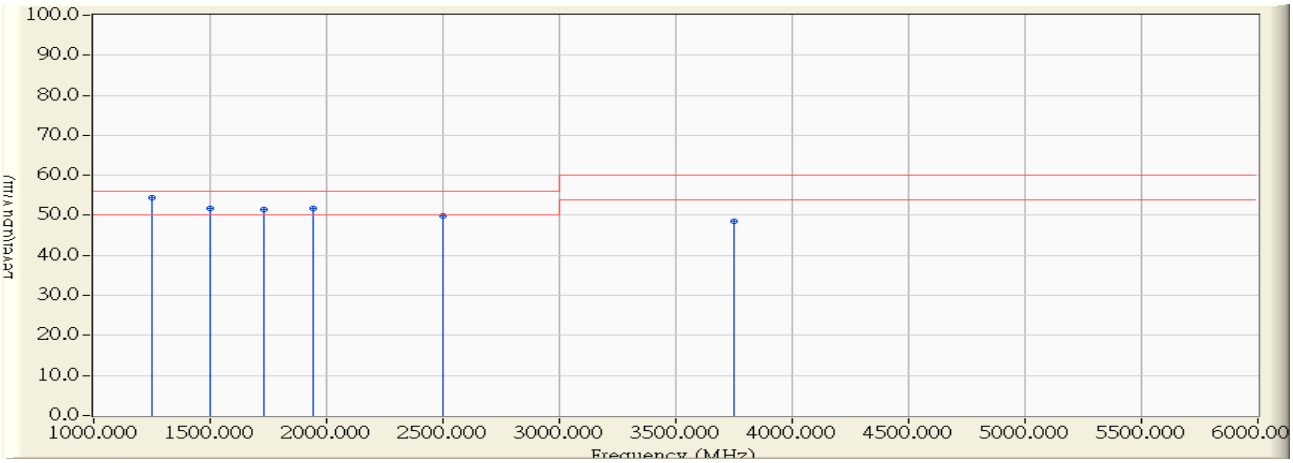


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		125.000	14.768	4.880	19.648	-20.352	40.000	QUASIPEAK
2		141.000	14.658	3.990	18.648	-21.352	40.000	QUASIPEAK
3		150.000	13.569	3.630	17.199	-22.801	40.000	QUASIPEAK
4		170.000	11.810	8.500	20.310	-19.690	40.000	QUASIPEAK
5		175.000	11.544	10.810	22.354	-17.646	40.000	QUASIPEAK
6		200.000	12.513	7.780	20.293	-19.707	40.000	QUASIPEAK
7		312.000	18.939	8.600	27.539	-19.461	47.000	QUASIPEAK
8		335.925	19.736	2.300	22.036	-24.964	47.000	QUASIPEAK
9		367.000	18.447	12.300	30.747	-16.253	47.000	QUASIPEAK
10		382.800	19.053	9.700	28.752	-18.248	47.000	QUASIPEAK
11		400.000	19.166	7.200	26.365	-20.635	47.000	QUASIPEAK
12		414.050	19.604	8.700	28.304	-18.696	47.000	QUASIPEAK
13		437.500	21.216	15.800	37.016	-9.984	47.000	QUASIPEAK
14		500.000	23.796	10.400	34.197	-12.803	47.000	QUASIPEAK
15		650.000	26.039	3.400	29.439	-17.561	47.000	QUASIPEAK
16		710.925	27.879	6.700	34.579	-12.421	47.000	QUASIPEAK
17		750.000	28.959	10.600	39.559	-7.441	47.000	QUASIPEAK
18	*	812.500	29.299	12.200	41.499	-5.501	47.000	QUASIPEAK
19		900.000	30.496	2.200	32.696	-14.304	47.000	QUASIPEAK
20		925.000	31.430	1.700	33.130	-13.870	47.000	QUASIPEAK
21		1000.000	31.740	2.950	34.690	-12.310	47.000	QUASIPEAK

Note:

1. All Reading Levels are Quasi-Peak value.
2. " * ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.

Site : CB1	**Time : 2011/12/30 - 13:50**
Limit : CISPR_22_A_(Above_1G)_3M_AV	**Margin : 6**
Probe : CB1_CISPR_22_B(above1G)-1_0901 - VERTICAL	**Power : AC 230V/50Hz**
EUT : Ethernet 100/1000 Converter	**Note : Mode 1: Data Transmit for CL-MCSFP-16M**

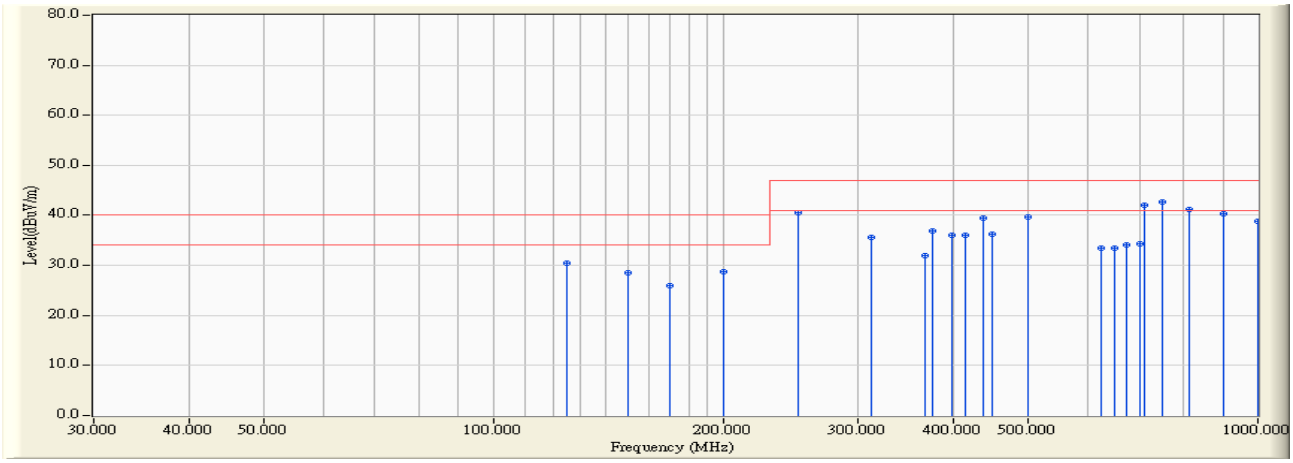


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	1250.000	-7.524	62.043	54.519	-1.481	56.000	PEAK
2		1500.000	-6.329	58.028	51.699	-4.301	56.000	PEAK
3		1730.000	-5.581	57.156	51.575	-4.425	56.000	PEAK
4		1940.000	-4.905	56.599	51.694	-4.306	56.000	PEAK
5		2500.000	-2.924	52.766	49.842	-6.158	56.000	PEAK
6		3750.000	-0.295	48.907	48.612	-11.388	60.000	PEAK

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. " * ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor
4. The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.

Site : Site2	**Time : 2011/10/18 - 17:29**
Limit : CISPR_A_10M_QP	**Margin : 6**
Probe : SITE2_10M-1_0901 - HORIZONTAL	**Power : AC 230V/50Hz**
EUT : Ethernet 100/1000 Converter	**Note : Mode 2: Data Transmit for CL-MCSFP-16**

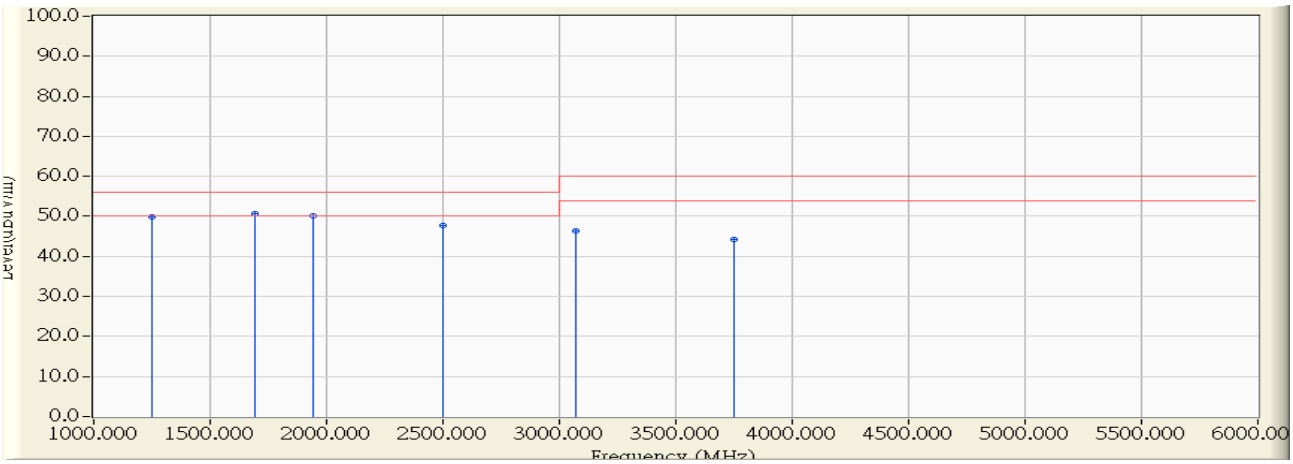


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		125.000	13.880	16.480	30.360	-9.640	40.000	QUASIPEAK
2		125.000	13.880	16.500	30.380	-9.620	40.000	QUASIPEAK
3		150.000	13.075	15.500	28.575	-11.425	40.000	QUASIPEAK
4		170.000	11.950	14.000	25.950	-14.050	40.000	QUASIPEAK
5		200.000	13.046	15.800	28.845	-11.155	40.000	QUASIPEAK
6		250.000	17.410	23.200	40.610	-6.390	47.000	QUASIPEAK
7		312.500	18.050	17.600	35.650	-11.350	47.000	QUASIPEAK
8		367.175	20.368	11.500	31.868	-15.132	47.000	QUASIPEAK
9		375.000	21.204	15.700	36.904	-10.096	47.000	QUASIPEAK
10		398.425	22.293	13.700	35.993	-11.007	47.000	QUASIPEAK
11		414.050	21.501	14.500	36.002	-10.998	47.000	QUASIPEAK
12		437.500	22.859	16.680	39.539	-7.461	47.000	QUASIPEAK
13		450.000	23.690	12.500	36.190	-10.810	47.000	QUASIPEAK
14		500.000	23.280	16.400	39.681	-7.319	47.000	QUASIPEAK
15		625.000	24.812	8.700	33.512	-13.488	47.000	QUASIPEAK
16		650.000	26.644	6.800	33.444	-13.556	47.000	QUASIPEAK
17		671.875	26.862	7.200	34.062	-12.938	47.000	QUASIPEAK
18		700.000	28.086	6.300	34.386	-12.614	47.000	QUASIPEAK
19		710.925	28.440	13.500	41.939	-5.061	47.000	QUASIPEAK
20	*	750.000	27.047	15.700	42.747	-4.253	47.000	QUASIPEAK
21		812.500	29.013	12.100	41.113	-5.887	47.000	QUASIPEAK
22		900.000	32.907	7.500	40.407	-6.593	47.000	QUASIPEAK
23		1000.000	33.620	5.200	38.820	-8.180	47.000	QUASIPEAK

Note:

1. All Reading Levels are Quasi-Peak value.
2. " * ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.

Site : CB1	**Time : 2011/12/27 - 14:09**
Limit : CISPR_22_A_(Above_1G)_3M_AV	**Margin : 6**
Probe : CB1_CISPR_22_B(above1G)-1_0901 - HORIZONTAL	**Power : AC 230V/50Hz**
EUT : Ethernet 100/1000 Converter	**Note : Mode 2: Data Transmit for CL-MCSFP-16**

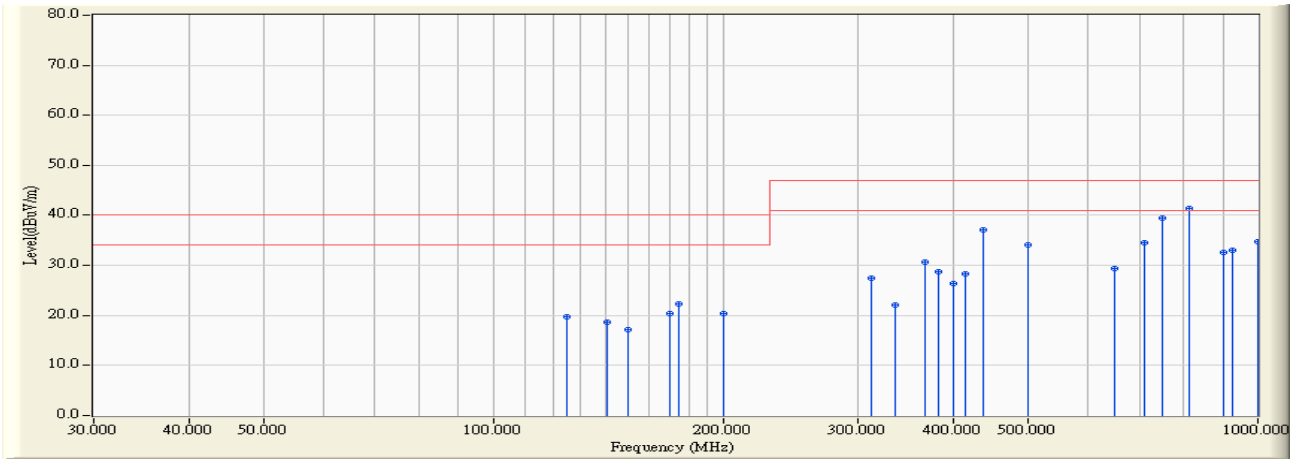


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		1250.000	-7.524	57.522	49.998	-6.002	56.000	PEAK
2	*	1690.000	-5.710	56.330	50.620	-5.380	56.000	PEAK
3		1940.000	-4.905	55.072	50.167	-5.833	56.000	PEAK
4		2500.000	-2.924	50.607	47.683	-8.317	56.000	PEAK
5		3070.000	-1.210	47.487	46.277	-13.723	60.000	PEAK
6		3750.000	-0.295	44.657	44.362	-15.638	60.000	PEAK

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. " * ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor
4. The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.

Site : Site2	**Time : 2011/10/18 - 17:00**
Limit : CISPR_A_10M_QP	**Margin : 6**
Probe : SITE2_10M-1_0901 - VERTICAL	**Power : AC 230V/50Hz**
EUT : Ethernet 100/1000 Converter	**Note : Mode 2: Data Transmit for CL-MCSFP-16**

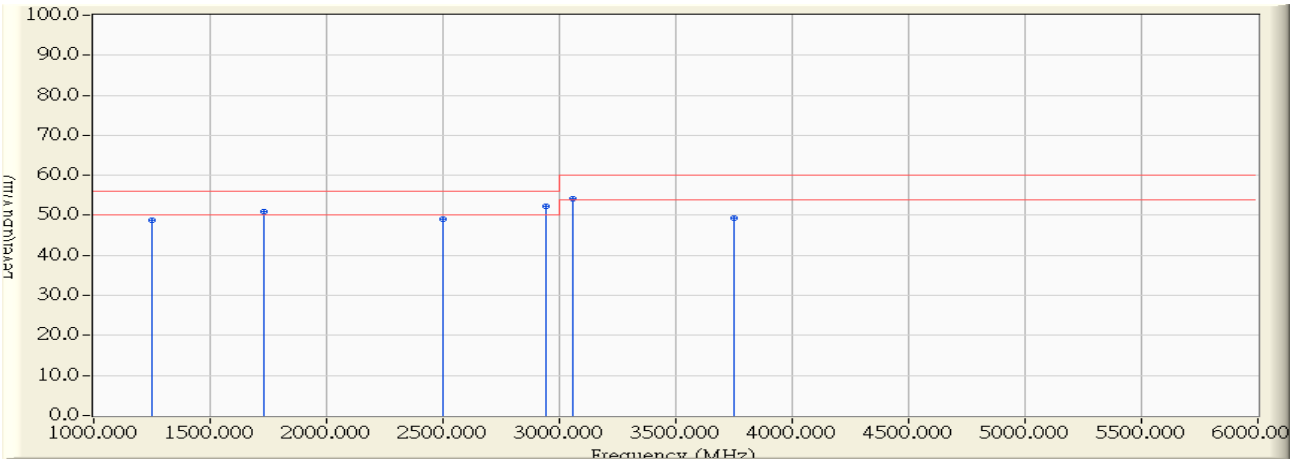


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		125.000	14.768	4.880	19.648	-20.352	40.000	QUASIPEAK
2		141.000	14.658	3.990	18.648	-21.352	40.000	QUASIPEAK
3		150.000	13.569	3.630	17.199	-22.801	40.000	QUASIPEAK
4		170.000	11.810	8.500	20.310	-19.690	40.000	QUASIPEAK
5		175.000	11.544	10.810	22.354	-17.646	40.000	QUASIPEAK
6		200.000	12.513	7.780	20.293	-19.707	40.000	QUASIPEAK
7		312.000	18.939	8.600	27.539	-19.461	47.000	QUASIPEAK
8		335.925	19.736	2.300	22.036	-24.964	47.000	QUASIPEAK
9		367.000	18.447	12.300	30.747	-16.253	47.000	QUASIPEAK
10		382.800	19.053	9.700	28.752	-18.248	47.000	QUASIPEAK
11		400.000	19.166	7.200	26.365	-20.635	47.000	QUASIPEAK
12		414.050	19.604	8.700	28.304	-18.696	47.000	QUASIPEAK
13		437.500	21.216	15.800	37.016	-9.984	47.000	QUASIPEAK
14		500.000	23.796	10.400	34.197	-12.803	47.000	QUASIPEAK
15		650.000	26.039	3.400	29.439	-17.561	47.000	QUASIPEAK
16		710.925	27.879	6.700	34.579	-12.421	47.000	QUASIPEAK
17		750.000	28.959	10.600	39.559	-7.441	47.000	QUASIPEAK
18	*	812.500	29.299	12.200	41.499	-5.501	47.000	QUASIPEAK
19		900.000	30.496	2.200	32.696	-14.304	47.000	QUASIPEAK
20		925.000	31.430	1.700	33.130	-13.870	47.000	QUASIPEAK
21		1000.000	31.740	2.950	34.690	-12.310	47.000	QUASIPEAK

Note:

1. All Reading Levels are Quasi-Peak value.
2. " * ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.

Site : CB1	**Time : 2011/12/27 - 14:12**
Limit : CISPR_22_A_(Above_1G)_3M_AV	**Margin : 6**
Probe : CB1_CISPR_22_B(above1G)-1_0901 - VERTICAL	**Power : AC 230V/50Hz**
EUT : Ethernet 100/1000 Converter	**Note : Mode 2: Data Transmit for CL-MCSFP-16**



		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		1250.000	-7.524	56.329	48.805	-7.195	56.000	PEAK
2		1730.000	-5.581	56.515	50.934	-5.066	56.000	PEAK
3		2500.000	-2.924	52.052	49.128	-6.872	56.000	PEAK
4	*	2940.000	-1.440	53.617	52.177	-3.823	56.000	PEAK
5		3060.000	-1.215	55.246	54.031	-5.969	60.000	PEAK
6		3750.000	-0.295	49.750	49.455	-10.545	60.000	PEAK

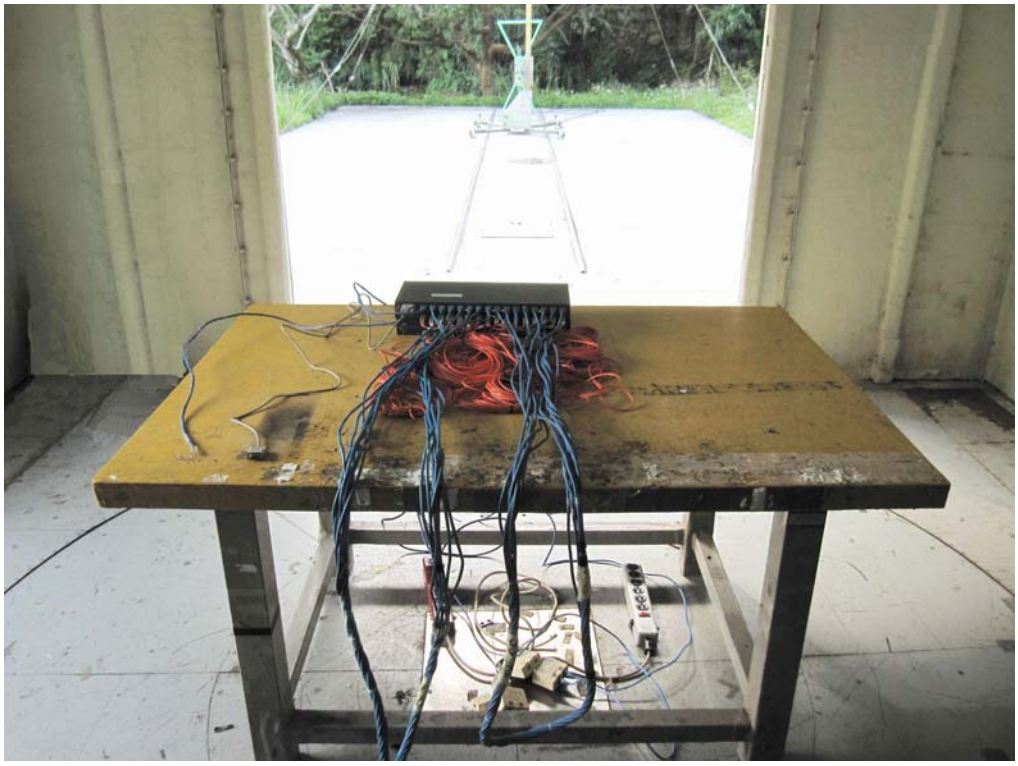
Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. " * ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor
4. The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.

5.7. Test Photograph

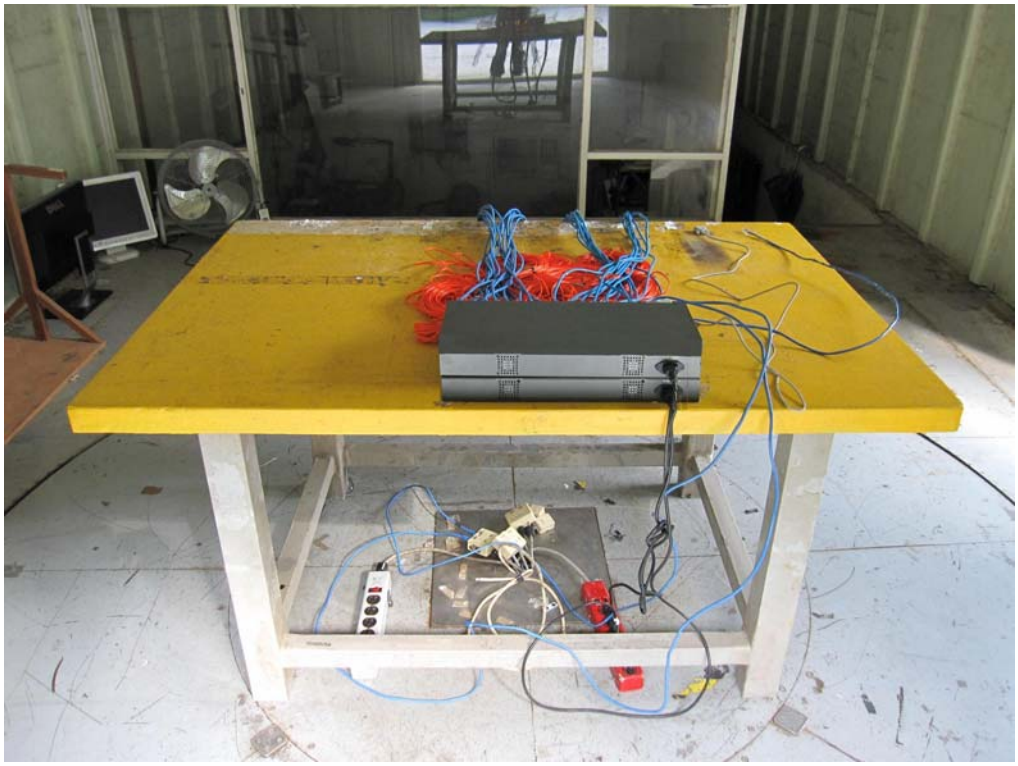
Test Mode : Mode 1: Data Transmit for CL-MCSFP-16M

Description : Front View of Radiated Emission Test Setup



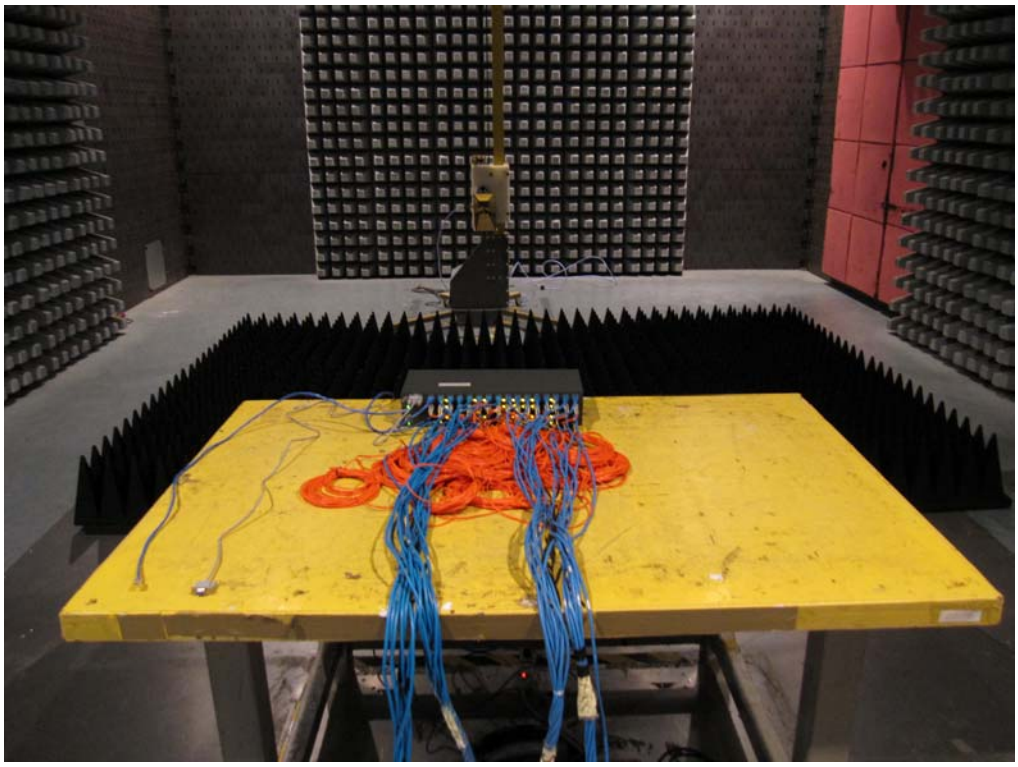
Test Mode : Mode 1: Data Transmit for CL-MCSFP-16M

Description : Back View of Radiated Emission Test Setup



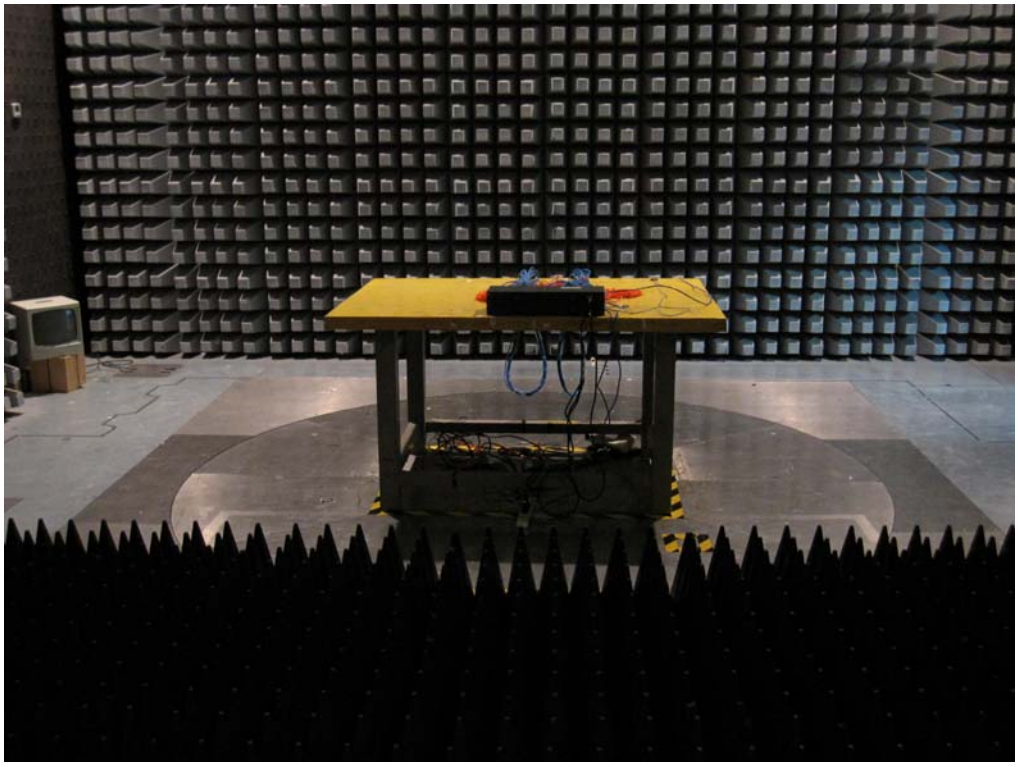
Test Mode : Mode 1: Data Transmit for CL-MCSFP-16M

Description : Front View of Radiated Emission Test Setup (Horn)



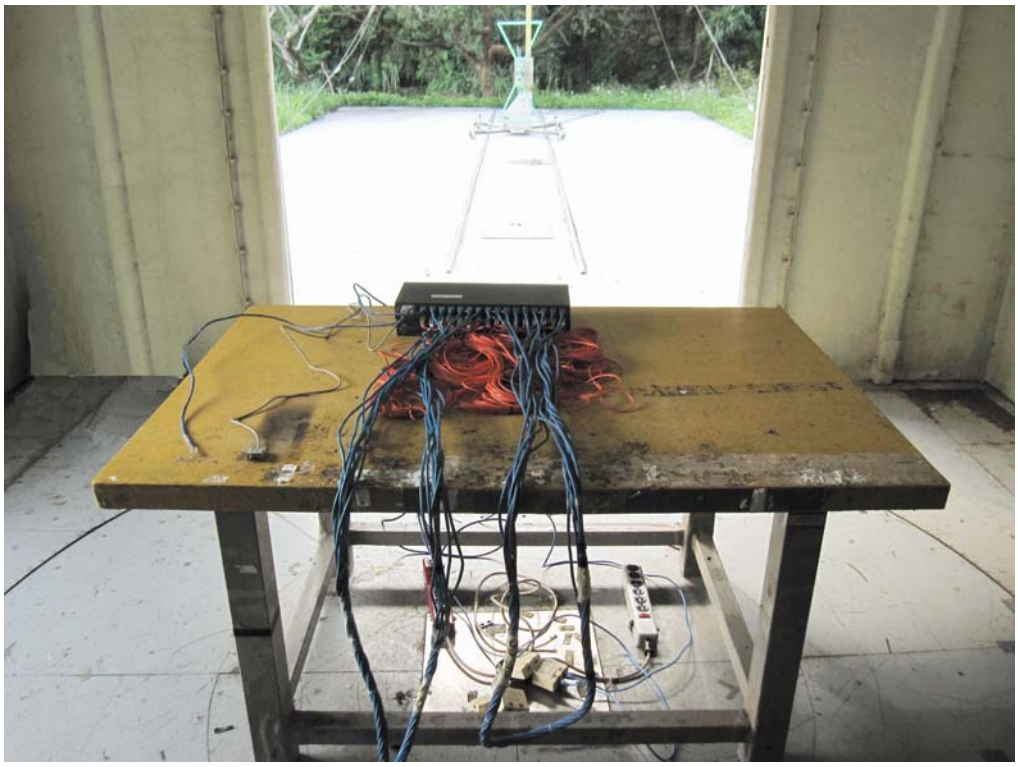
Test Mode : Mode 1: Data Transmit for CL-MCSFP-16M

Description : Back View of Radiated Emission Test Setup (Horn)



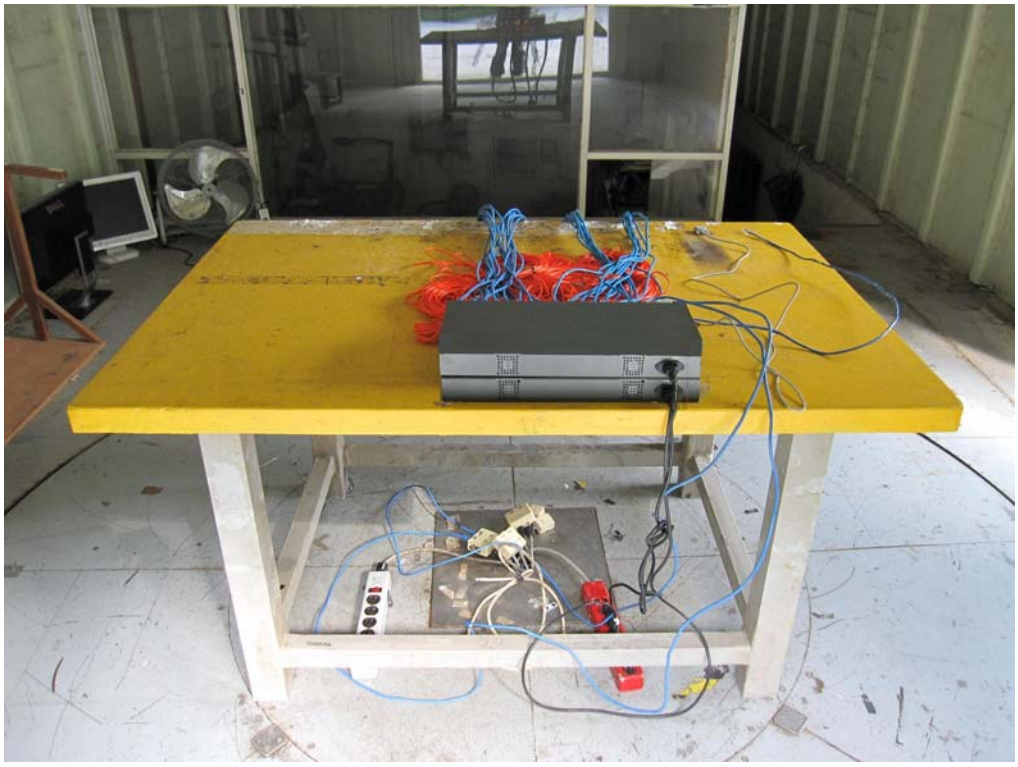
Test Mode : Mode 2: Data Transmit for CL-MCSFP-16

Description : Front View of Radiated Emission Test Setup



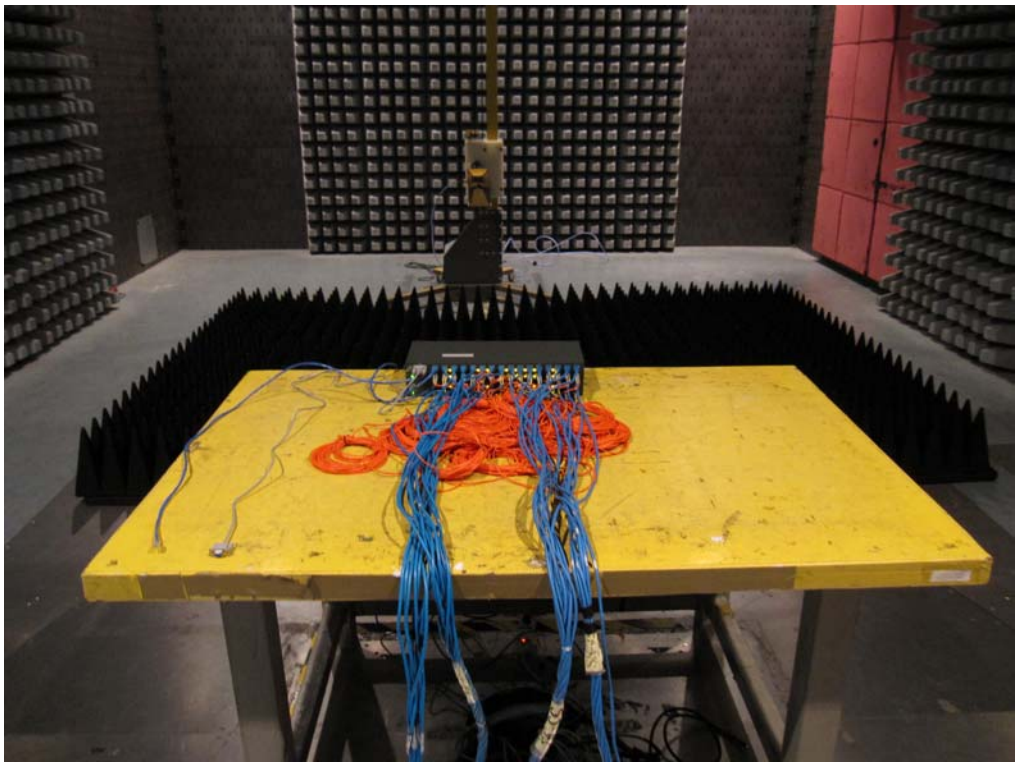
Test Mode : Mode 2: Data Transmit for CL-MCSFP-16

Description : Back View of Radiated Emission Test Setup



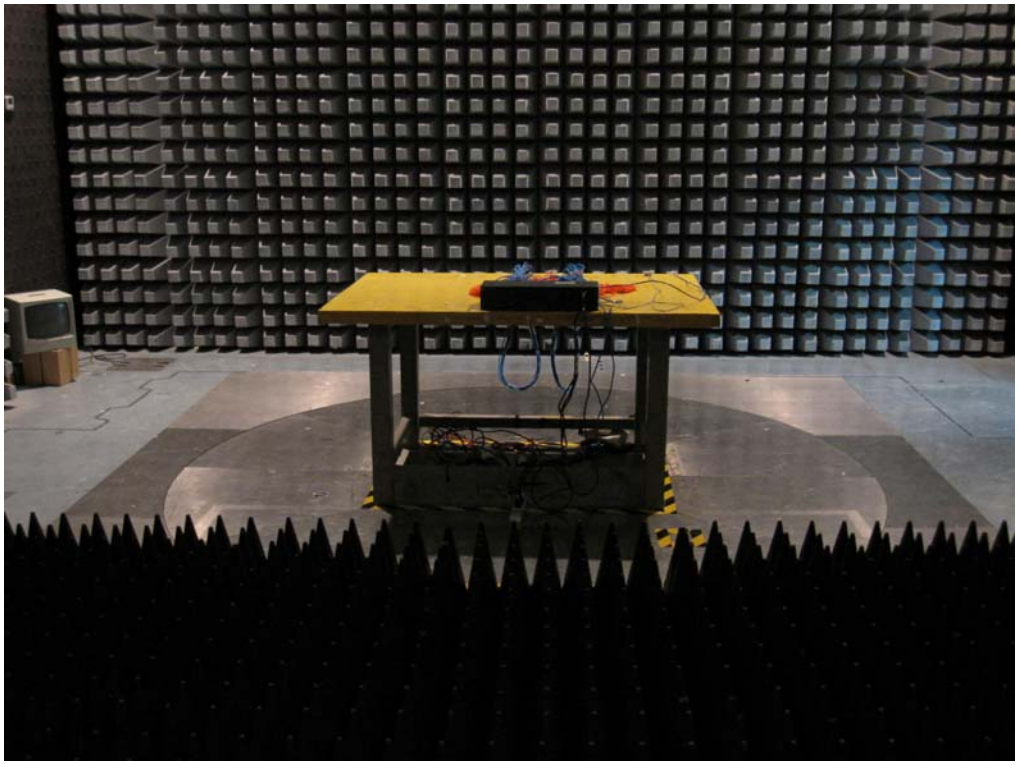
Test Mode　: Mode 2: Data Transmit for CL-MCSFP-16

Description　: Front View of Radiated Emission Test Setup (Horn)



Test Mode　: Mode 2: Data Transmit for CL-MCSFP-16

Description　: Back View of Radiated Emission Test Setup (Horn)

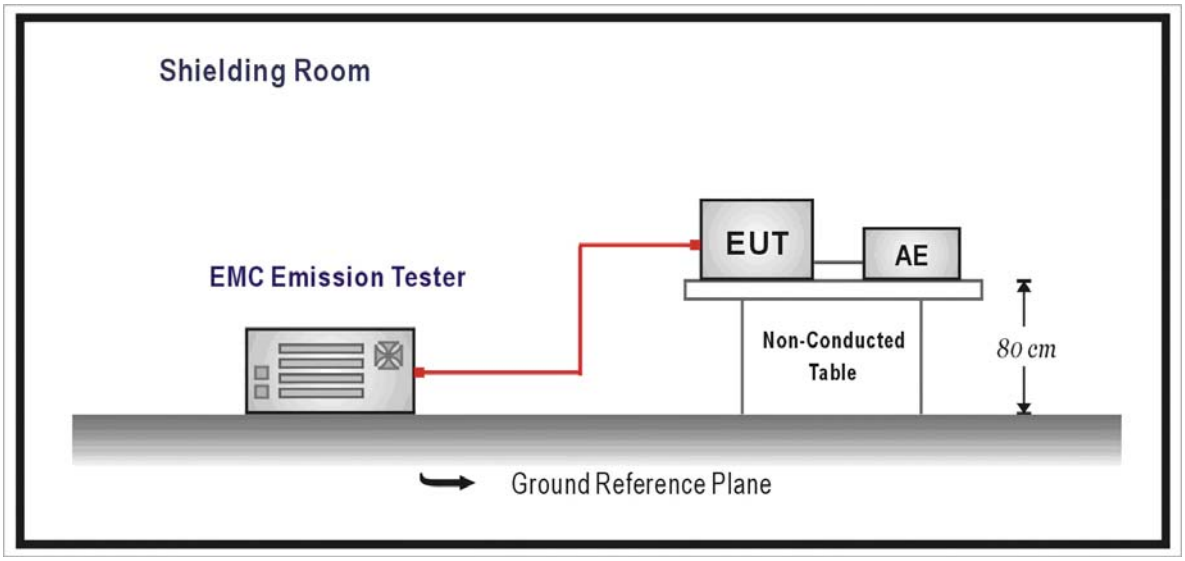


6. Harmonic Current Emission

6.1. Test Specification

According to EMC Standard : EN 61000-3-2

6.2. Test Setup



6.3. Limit

(a) Limits of Class A Harmonics Currents

Harmonics Order n	Maximum Permissible harmonic current A	Harmonics Order n	Maximum Permissible harmonic current A
Odd harmonics		Even harmonics	
3	2.30	2	1.08
5	1.14	4	0.43
7	0.77	6	0.30
9	0.40	8 ≤ n ≤ 40	0.23 * 8/n
11	0.33		
13	0.21		
15 ≤ n ≤ 39	0.15 * 15/n		

(b) Limits of Class B Harmonics Currents

For Class B equipment, the harmonic of the input current shall not exceed the maximum permissible values given in table that is the limit of Class A multiplied by a factor of 1.5.

(c) Limits of Class C Harmonics Currents

Harmonics Order n	Maximum Permissible harmonic current Expressed as a percentage of the input current at the fundamental frequency %
2	2
3	30 · λ*
5	10
7	7
9	5
11 ≤ n ≤ 39 (odd harmonics only)	3
∗λ is the circuit power factor	

(d) Limits of Class D Harmonics Currents

Harmonics Order n	Maximum Permissible harmonic current per watt mA/W	Maximum Permissible harmonic current A
3	3.4	2.30
5	1.9	1.14
7	1.0	0.77
9	0.5	0.40
11	0.35	0.33
11 ≤ n ≤ 39 (odd harmonics only)	3.85/n	See limit of Class A

6.4. Test Procedure

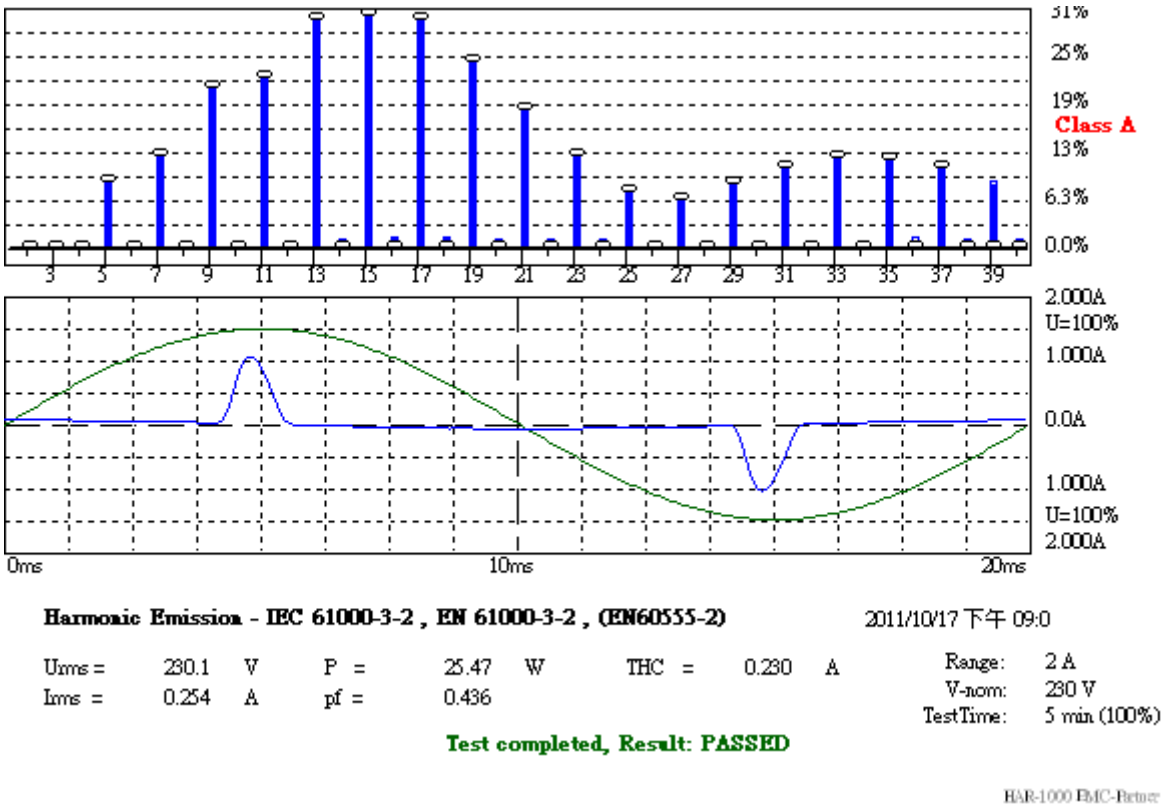
The EUT is supplied in series with power analyzer from a power source having the same normal voltage and frequency as the rated supply voltage and the equipment under test. And the rated voltage at the supply voltage of EUT of 0.94 times and 1.06 times shall be performed.

6.5. Deviation from Test Standard

No deviation.

6.6. Test Result

Product	Ethernet 100/1000 Converter		
Test Item	Power Harmonics		
Test Mode	Mode 1: Data Transmit for CL-MCSFP-16M		
Date of Test	2011/10/17	Test Site	SR1



Full Bar : Actual Values

Empty Bar : Maximum Values

Blue : Current , Green : Voltage , Red : Failed

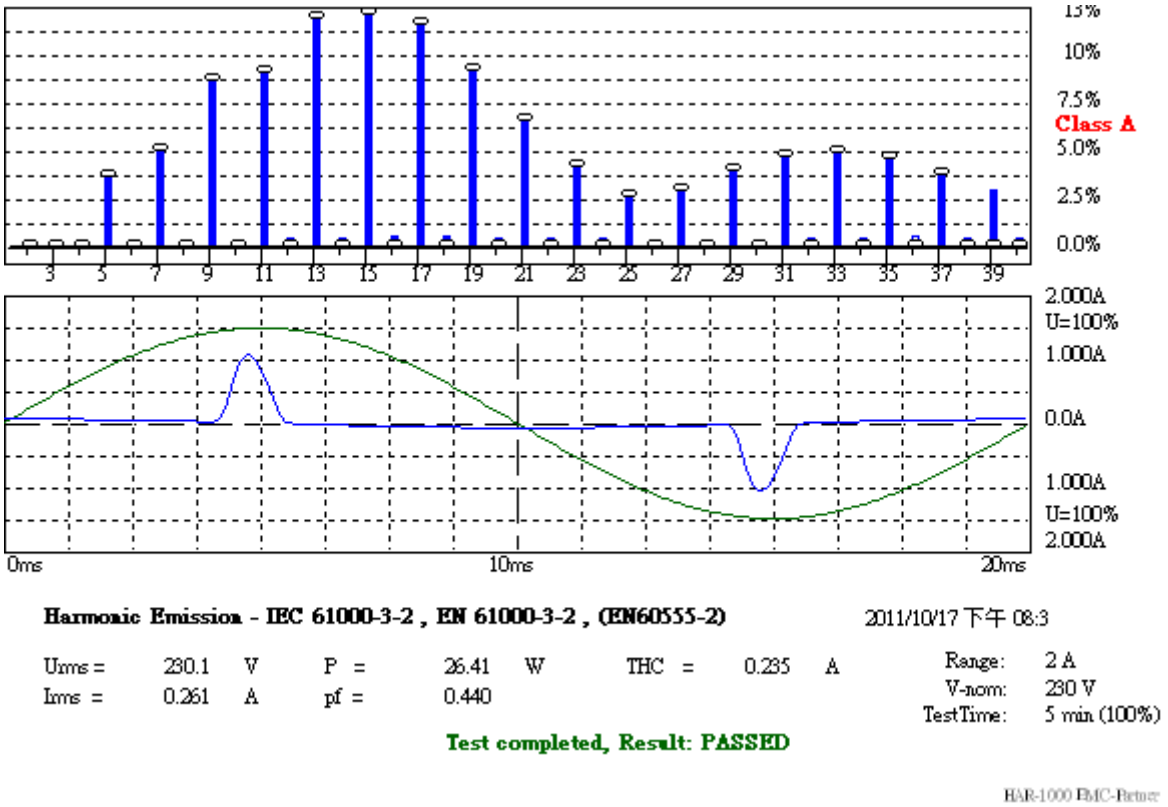
Urms =	230.1V	Freq =	50.000	Range:	2 A
Irms =	0.254A	Ipk =	1.062A	cf =	4.181
P =	25.47W	S =	58.43VA	pf =	0.436
THDi =	88.2 %	THDu =	0.10 %	Class A	

Test - Time : 5min (100 %)

Test completed, Result: PASSED

Order	Freq. [Hz]	Iavg [A]	Iavg%L [%]	Imax [A]	Imax%L [%]	Limit [A]	Status
1	50	0.1227		0.1229			
2	100	0.0000	0.0000	0.0004	0.0339	1.0800	
3	150	0.1058	4.5983	0.1060	4.6068	2.3000	
4	200	0.0000	0.0000	0.0006	0.1419	0.4300	
5	250	0.1010	8.8600	0.1012	8.8769	1.1400	
6	300	0.0000	0.0000	0.0007	0.2441	0.3000	
7	350	0.0938	12.181	0.0940	12.207	0.7700	
8	400	0.0000	0.0000	0.0010	0.4246	0.2300	
9	450	0.0847	21.176	0.0848	21.210	0.4000	
10	500	0.0000	0.0000	0.0011	0.5971	0.1840	
11	550	0.0741	22.465	0.0742	22.491	0.3300	
12	600	0.0000	0.0000	0.0011	0.7165	0.1533	
13	650	0.0627	29.865	0.0629	29.936	0.2100	
14	700	0.0000	0.0000	0.0011	0.8359	0.1314	
15	750	0.0510	33.999	0.0511	34.098	0.1500	
16	800	0.0000	0.0000	0.0011	0.9553	0.1150	
17	850	0.0395	29.875	0.0397	29.975	0.1324	
18	900	0.0000	0.0000	0.0010	0.9553	0.1022	
19	950	0.0289	24.396	0.0291	24.533	0.1184	
20	1000	0.0000	0.0000	0.0009	0.9288	0.0920	
21	1050	0.0195	18.182	0.0197	18.343	0.1071	
22	1100	0.0000	0.0000	0.0007	0.8757	0.0836	
23	1150	0.0118	12.060	0.0120	12.229	0.0978	
24	1200	0.0000	0.0000	0.0006	0.7961	0.0767	
25	1250	0.0066	7.3095	0.0067	7.4599	0.0900	
26	1300	0.0000	0.0000	0.0005	0.6900	0.0708	
27	1350	0.0053	6.3852	0.0055	6.5918	0.0833	
28	1400	0.0000	0.0000	0.0004	0.5573	0.0657	
29	1450	0.0067	8.5990	0.0068	8.8108	0.0776	
30	1500	0.0000	0.0000	0.0004	0.5971	0.0613	
31	1550	0.0079	10.827	0.0079	10.932	0.0726	
32	1600	0.0000	0.0000	0.0004	0.6369	0.0575	
33	1650	0.0081	11.912	0.0083	12.174	0.0682	
34	1700	0.0000	0.0000	0.0004	0.6767	0.0541	
35	1750	0.0075	11.739	0.0077	11.963	0.0643	
36	1800	0.0000	0.0000	0.0005	0.9553	0.0511	
37	1850	0.0063	10.367	0.0065	10.639	0.0608	
38	1900	0.0000	0.0000	0.0004	0.7563	0.0484	
39	1950	0.0000	0.0000	0.0049	8.4635	0.0577	
40	2000	0.0000	0.0000	0.0004	0.7961	0.0460	

Product	Ethernet 100/1000 Converter		
Test Item	Power Harmonics		
Test Mode	Mode 2: Data Transmit for CL-MCSFP-16		
Date of Test	2011/10/17	Test Site	SR1



Full Bar : Actual Values

Empty Bar : Maximum Values

Blue : Current , Green : Voltage , Red : Failed

Urms =	230.1V	Freq =	49.987	Range:	2 A
Irms =	0.261A	Ipk =	1.075A	cf =	4.124
P =	26.41W	S =	60.00VA	pf =	0.440
THDi =	87.9 %	THDu =	0.10 %	Class A	

Test - Time : 5min (100 %)

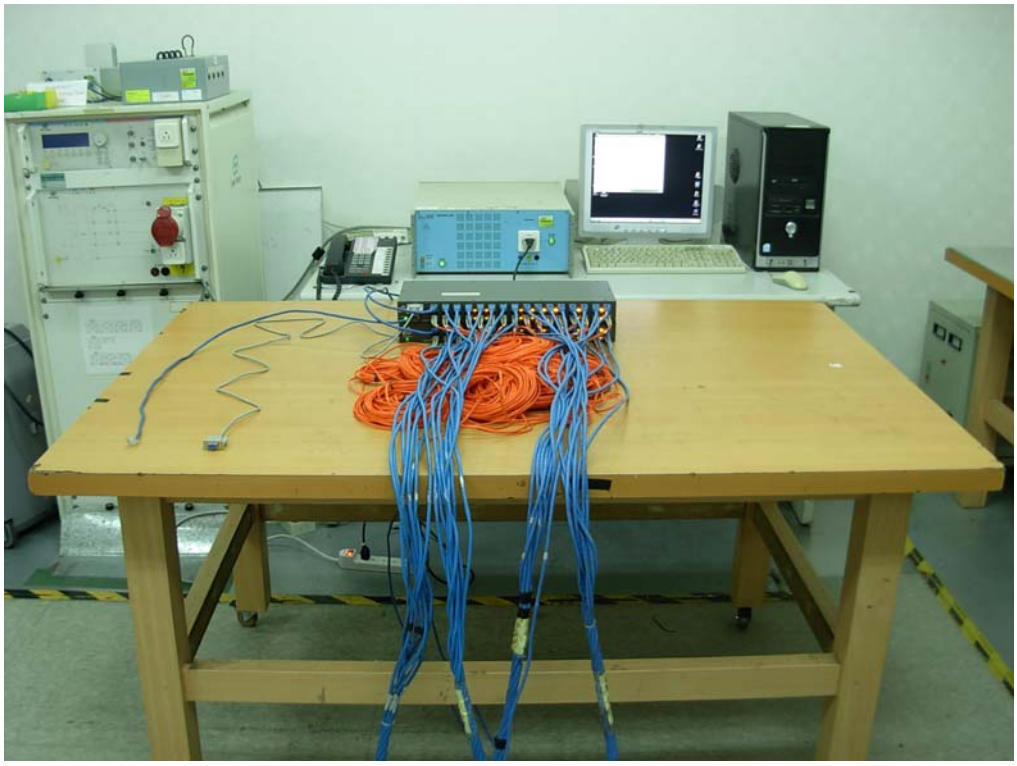
Test completed, Result: PASSED

Order	Freq. [Hz]	Iavg [A]	Iavg%L [%]	Imax [A]	Imax%L [%]	Limit [A]	Status
1	50	0.1275		0.1277			
2	100	0.0000	0.0000	0.0004	0.0339	1.0800	
3	150	0.1098	4.7737	0.1100	4.7820	2.3000	
4	200	0.0000	0.0000	0.0006	0.1419	0.4300	
5	250	0.1046	9.1711	0.1046	9.1767	1.1400	
6	300	0.0000	0.0000	0.0009	0.2848	0.3000	
7	350	0.0967	12.555	0.0968	12.572	0.7700	
8	400	0.0000	0.0000	0.0010	0.4246	0.2300	
9	450	0.0868	21.688	0.0869	21.729	0.4000	
10	500	0.0000	0.0000	0.0011	0.5971	0.1840	
11	550	0.0753	22.820	0.0754	22.860	0.3300	
12	600	0.0000	0.0000	0.0012	0.7961	0.1533	
13	650	0.0630	30.008	0.0632	30.111	0.2100	
14	700	0.0000	0.0000	0.0012	0.9288	0.1314	
15	750	0.0505	33.672	0.0508	33.854	0.1500	
16	800	0.0000	0.0000	0.0011	0.9553	0.1150	
17	850	0.0384	29.017	0.0387	29.237	0.1324	
18	900	0.0000	0.0000	0.0010	0.9553	0.1022	
19	950	0.0273	23.056	0.0276	23.296	0.1184	
20	1000	0.0000	0.0000	0.0009	0.9288	0.0920	
21	1050	0.0177	16.540	0.0181	16.862	0.1071	
22	1100	0.0000	0.0000	0.0007	0.8757	0.0836	
23	1150	0.0103	10.481	0.0105	10.731	0.0978	
24	1200	0.0000	0.0000	0.0006	0.7961	0.0767	
25	1250	0.0061	6.7552	0.0062	6.9173	0.0900	
26	1300	0.0000	0.0000	0.0005	0.6900	0.0708	
27	1350	0.0062	7.4655	0.0063	7.6172	0.0833	
28	1400	0.0000	0.0000	0.0004	0.5573	0.0657	
29	1450	0.0078	10.033	0.0079	10.227	0.0776	
30	1500	0.0000	0.0000	0.0004	0.5971	0.0613	
31	1550	0.0086	11.907	0.0088	12.109	0.0726	
32	1600	0.0000	0.0000	0.0005	0.8492	0.0575	
33	1650	0.0085	12.417	0.0085	12.533	0.0682	
34	1700	0.0000	0.0000	0.0005	0.9023	0.0541	
35	1750	0.0075	11.595	0.0076	11.773	0.0643	
36	1800	0.0000	0.0000	0.0005	0.9553	0.0511	
37	1850	0.0059	9.6315	0.0060	9.8362	0.0608	
38	1900	0.0000	0.0000	0.0004	0.7563	0.0484	
39	1950	0.0000	0.0000	0.0042	7.1940	0.0577	
40	2000	0.0000	0.0000	0.0004	0.7961	0.0460	

6.7. Test Photograph

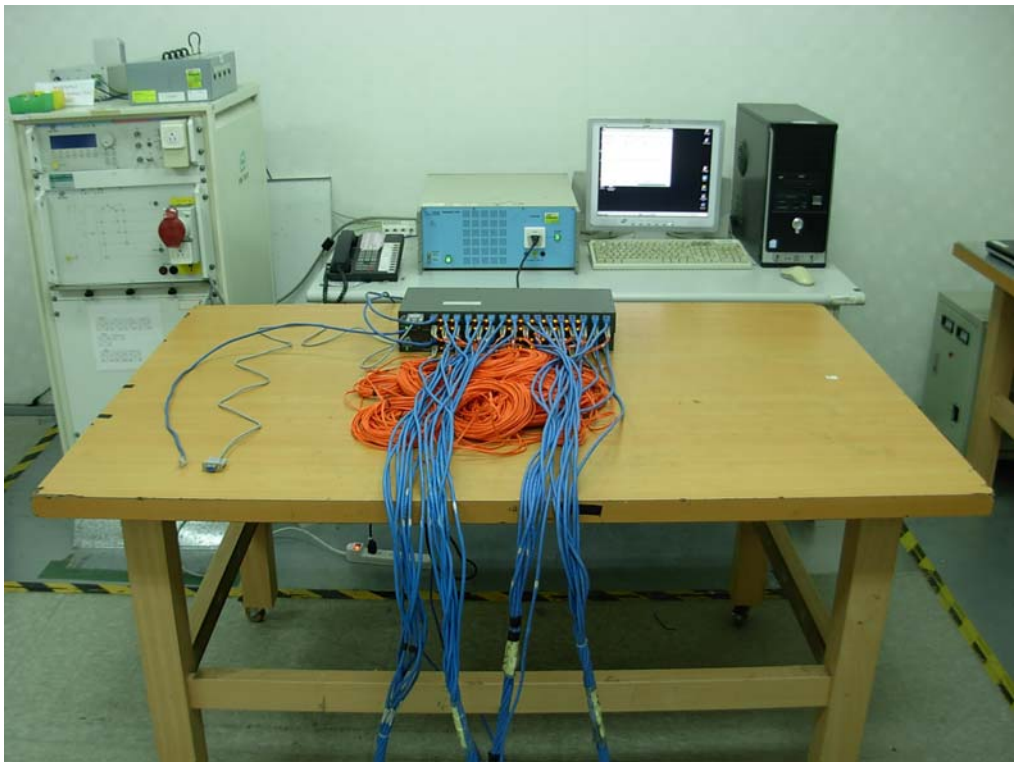
Test Mode : Mode 1: Data Transmit for CL-MCSFP-16M

Description : Power Harmonics Test Setup



Test Mode : Mode 2: Data Transmit for CL-MCSFP-16

Description : Power Harmonics Test Setup

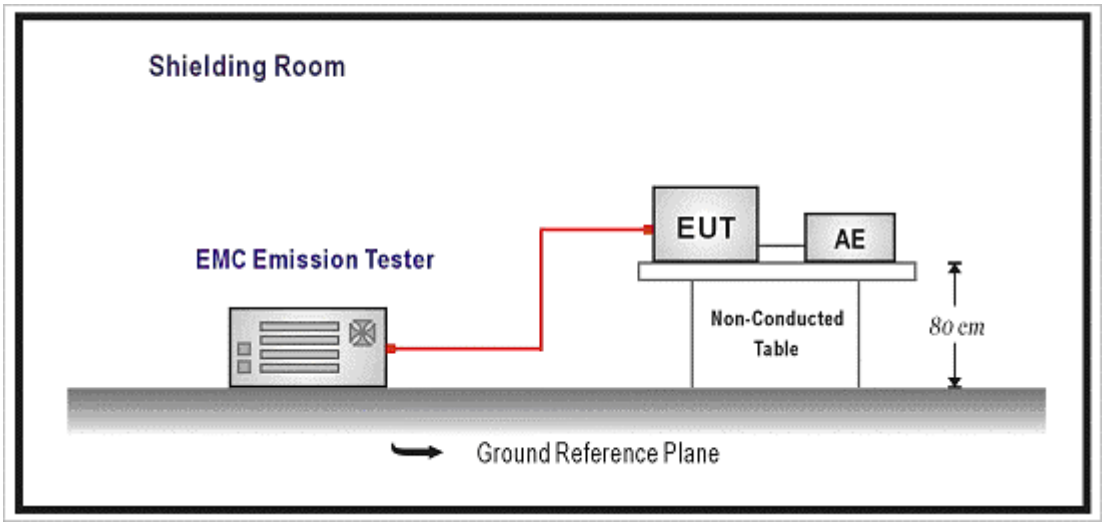


7. Voltage Fluctuation and Flicker

7.1. Test Specification

According to EMC Standard : EN 61000-3-3

7.2. Test Setup



7.3. Limit

The following limits apply:

- the value of P_{st} shall not be greater than 1.0;
- the value of P_{lt} shall not be greater than 0.65;
- the value of d(t) during a voltage change shall not exceed 3.3 % for more than 500 ms;
- the relative steady-state voltage change, d_c, shall not exceed 3.3 %;
- the maximum relative voltage change, d_{max}, shall not exceed;

a) 4 % without additional conditions;

b) 6 % for equipment which is:

- switched manually, or
- switched automatically more frequently than twice per day, and also has either a delayed restart (the delay being not less than a few tens of seconds), or manual restart, after a power supply interruption.

NOTE The cycling frequency will be further limited by the P_{st} and P_{1t} limit.

For example: a d_{max} of 6%producing a rectangular voltage change characteristic twice per hour will give a P_{1t} of about 0.65.

c) 7 % for equipment which is:
- attended whilst in use (for example: hair dryers, vacuum cleaners, kitchen equipment such as mixers, garden equipment such as lawn mowers, portable tools such as electric drills), or
- switched on automatically, or is intended to be switched on manually, no more than twice per day, and also has either a delayed restart (the delay being not less than a few tens of seconds) or manual restart, after a power supply interruption.

P_{st} and P_{1t} requirements shall not be applied to voltage changes caused by manual switching.

7.4. Test Procedure

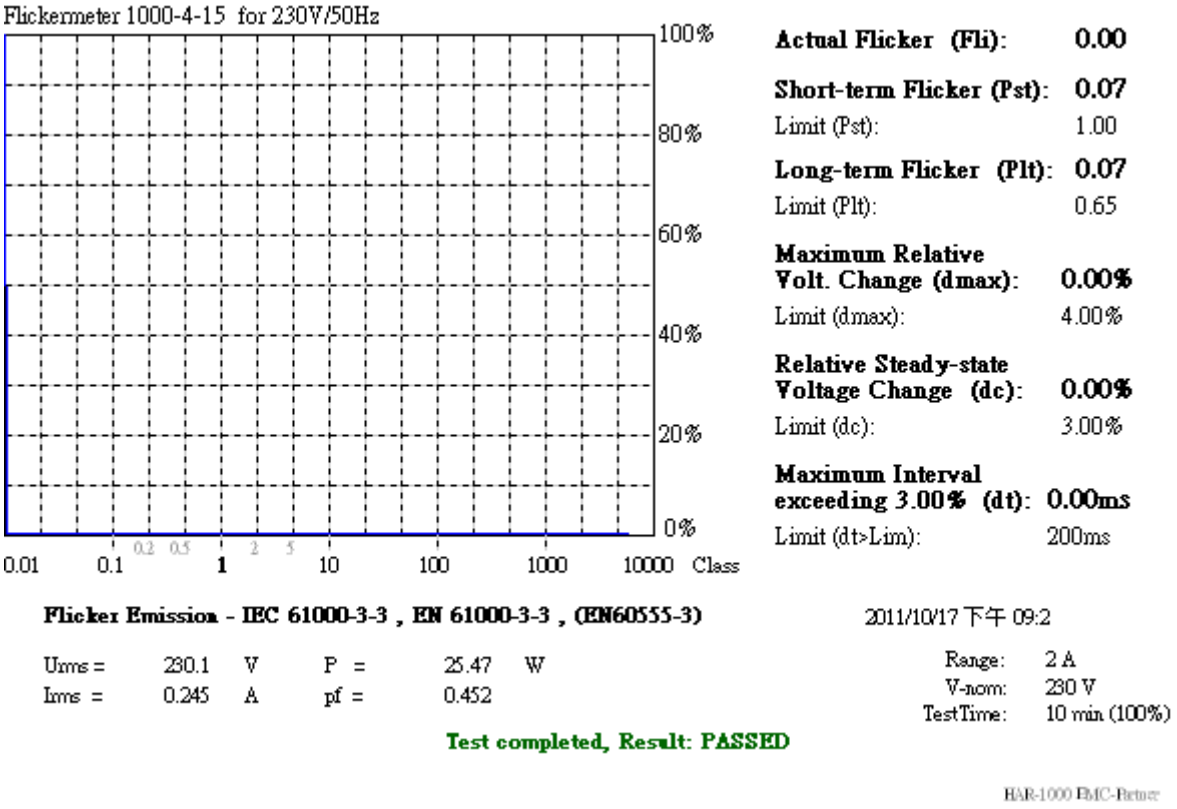
The EUT is supplied in series with power analyzer from a power source having the same normal voltage and frequency as the rated supply voltage and the equipment under test. And the rated voltage at the supply voltage of EUT of 0.94 times and 1.06 times shall be performed.

7.5. Deviation from Test Standard

No deviation.

7.6. Test Result

Product	Ethernet 100/1000 Converter		
Test Item	Voltage Fluctuation and Flicker		
Test Mode	Mode 1: Data Transmit for CL-MCSFP-16M		
Date of Test	2011/10/17	Test Site	SR1



Full Bar : Actual Values
Empty Bar : Maximum Values
Circles : Average Values
Blue : Current , Green : Voltage , Red : Failed

Urms =	230.1V	Freq =	50.000	Range:	2 A		
Irms =	0.245A	Ipk =	0.989A	cf =	4.036		
P =	25.47W	S =	56.40VA	pf =	0.452		

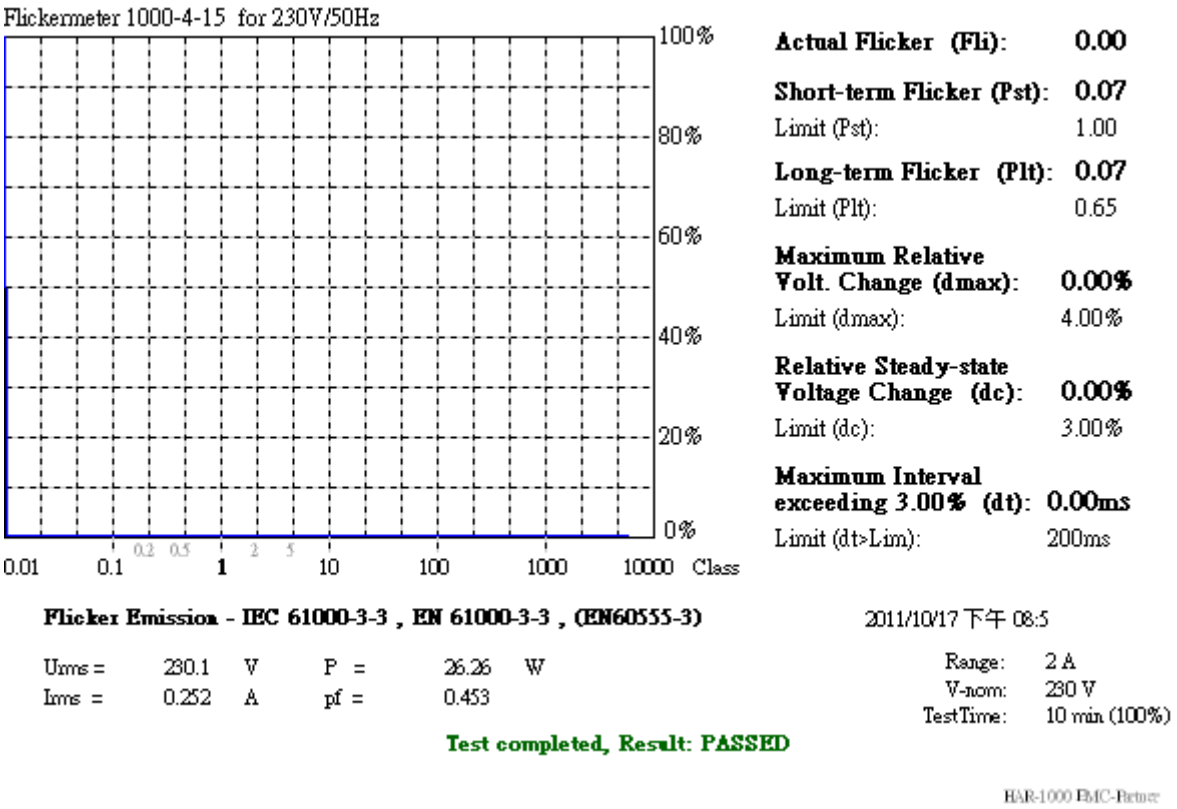
Test - Time : 1 x 10min = 10min (100 %)

LIN (Line Impedance Network) : L: 0.24ohm +j0.15ohm N: 0.16ohm +j0.10ohm

Limits :	Plt :	0.65	Pst :	1.00
	dmax :	4.00 %	dc :	3.00 %
	dtLim:	3.00 %	dt>Lim:	200ms

Test completed, Result: PASSED

Product	Ethernet 100/1000 Converter		
Test Item	Voltage Fluctuation and Flicker		
Test Mode	Mode 2: Data Transmit for CL-MCSFP-16		
Date of Test	2011/10/17	Test Site	SR1



Full Bar : Actual Values
Empty Bar : Maximum Values
Circles : Average Values
Blue : Current , Green : Voltage , Red : Failed

Urms = 230.1V Freq = 50.000 Range: 2 A
Irms = 0.252A Ipk = 1.013A cf = 4.019
P = 26.26W S = 57.98VA pf = 0.453

Test - Time : 1 x 10min = 10min (100 %)

LIN (Line Impedance Network) : L: 0.24ohm +j0.15ohm N: 0.16ohm +j0.10ohm

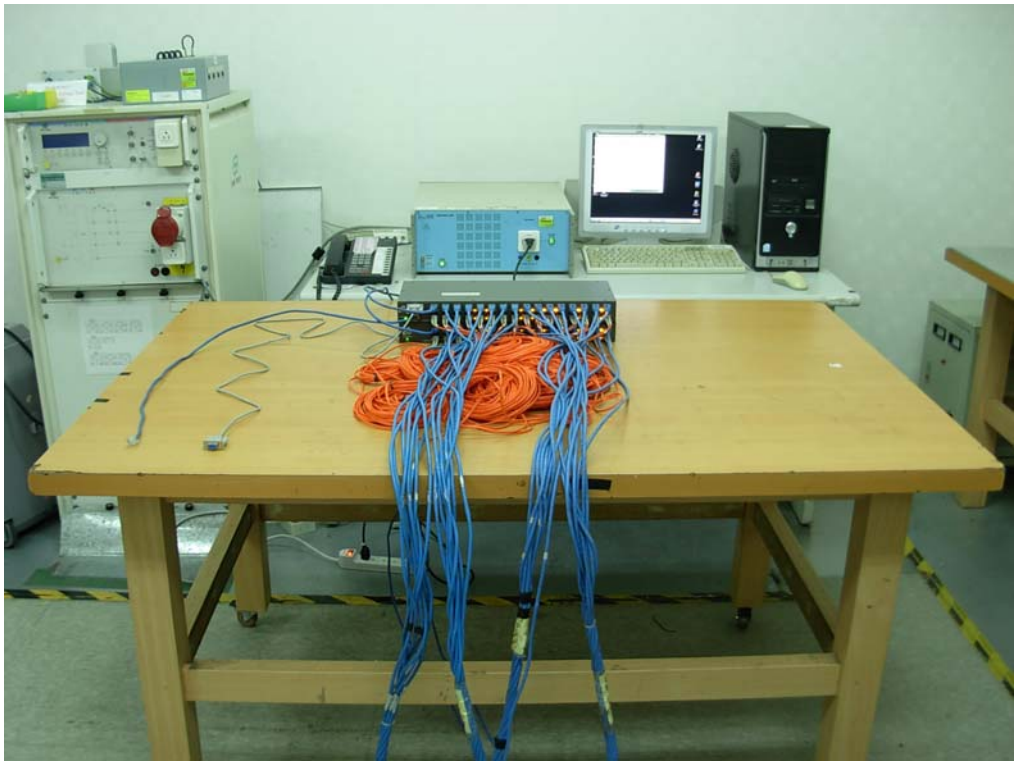
Limits : Plt : 0.65 Pst : 1.00
dmax : 4.00 % dc : 3.00 %
dtLim: 3.00 % dt>Lim: 200ms

Test completed, Result: PASSED

7.7. Test Photograph

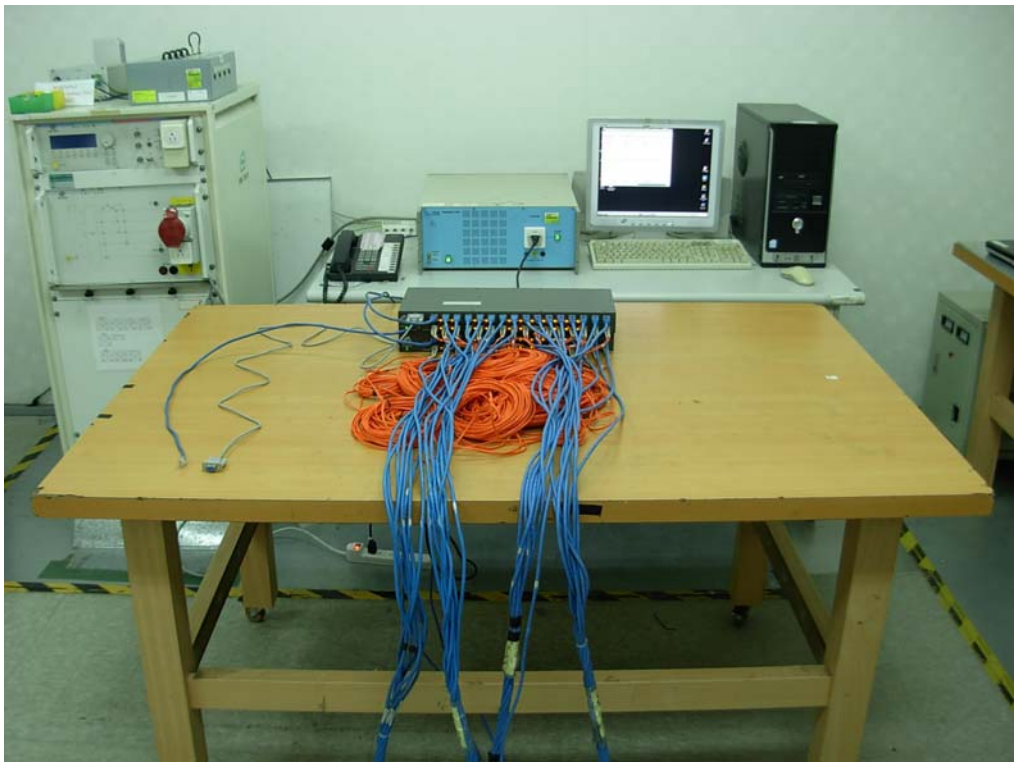
Test Mode : Mode 1: Data Transmit for CL-MCSFP-16M

Description : Voltage Fluctuation and Flicker Test Setup



Test Mode : Mode 2: Data Transmit for CL-MCSFP-16

Description : Voltage Fluctuation and Flicker Test Setup

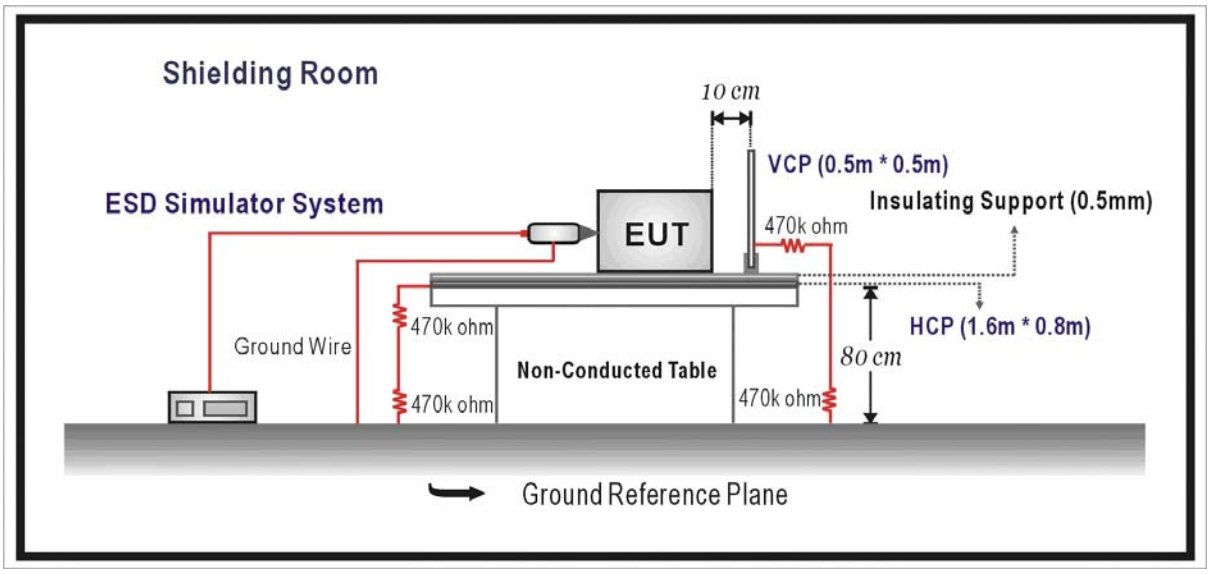


8. Electrostatic Discharge

8.1. Test Specification

According to Standard : IEC 61000-4-2

8.2. Test Setup



8.3. Limit

Item	Environmental Phenomena	Units	Test Specification	Performance Criteria
Enclosure Port				
	Electrostatic Discharge	kV(Charge Voltage)	±8 Air Discharge ±4 Contact Discharge	B

8.4. Test Procedure

Direct application of discharges to the EUT:

Contact discharge was applied only to conductive surfaces of the EUT.

Air discharges were applied only to non-conductive surfaces of the EUT.

During the test, it was performed with single discharges. For the single discharge time between successive single discharges will be keep longer 1 second. It was at least ten single discharges with positive and negative at the same selected point.

The selected point, which was performed with electrostatic discharge, was marked on the red label of the EUT.

Indirect application of discharges to the EUT:

Vertical Coupling Plane (VCP):

The coupling plane, of dimensions 0.5m x 0.5m, is placed parallel to, and positioned at a distance 0.1m from, the EUT, with the Discharge Electrode touching the coupling plane.

The four faces of the EUT will be performed with electrostatic discharge. It was at least ten single discharges with positive and negative at the same selected point.

Horizontal Coupling Plane (HCP):

The coupling plane is placed under to the EUT. The generator shall be positioned vertically at a distance of 0.1m from the EUT, with the Discharge Electrode touching the coupling plane.

The four faces of the EUT will be performed with electrostatic discharge. It was at least ten single discharges with positive and negative at the same selected point.

8.5. Deviation from Test Standard

No deviation.

8.6. Test Result

Product	Ethernet 100/1000 Converter		
Test Item	Electrostatic Discharge		
Test Mode	Mode 1: Data Transmit for CL-MCSFP-16M		
Date of Test	2012/01/03	Test Site	SR1

Item	Amount of Discharge	Voltage kV	Required Criteria	Complied To Criteria (A,B,C)	Results
Air Discharge	10	+8	B	A	Pass
	10	-8	B	A	Pass
Contact Discharge	25	+4	B	A	Pass
	25	-4	B	A	Pass
Indirect Discharge	25	+4	B	A	Pass
(HCP)	25	-4	B	A	Pass
Indirect Discharge	25	+4	B	A	Pass
(VCP Front)	25	-4	B	A	Pass
Indirect Discharge	25	+4	B	A	Pass
(VCP Left)	25	-4	B	A	Pass
Indirect Discharge	25	+4	B	A	Pass
(VCP Back)	25	-4	B	A	Pass
Indirect Discharge	25	+4	B	A	Pass
(VCP Right)	25	-4	B	A	Pass

NR: No Requirement

☒ Meet criteria A: Operate as intended during and after the test

☐ Meet criteria B: Operate as intended after the test

☐ Meet criteria C: Loss/Error of function

☐ Additional Information

☐ EUT stopped operation and could / could not be reset by operator at ____ kV.

☒ No false alarms or other malfunctions were observed during or after the test.

Remark:

The Contact discharges were applied-at least total 200 discharges at a minimum of four test points.

Product	Ethernet 100/1000 Converter		
Test Item	Electrostatic Discharge		
Test Mode	Mode 2: Data Transmit for CL-MCSFP-16		
Date of Test	2012/01/03	Test Site	SR1

Item	Amount of Discharge	Voltage kV	Required Criteria	Complied To Criteria (A,B,C)	Results
Air Discharge	10	+8	B	A	Pass
	10	-8	B	A	Pass
Contact Discharge	25	+4	B	A	Pass
	25	-4	B	A	Pass
Indirect Discharge	25	+4	B	A	Pass
(HCP)	25	-4	B	A	Pass
Indirect Discharge	25	+4	B	A	Pass
(VCP Front)	25	-4	B	A	Pass
Indirect Discharge	25	+4	B	A	Pass
(VCP Left)	25	-4	B	A	Pass
Indirect Discharge	25	+4	B	A	Pass
(VCP Back)	25	-4	B	A	Pass
Indirect Discharge	25	+4	B	A	Pass
(VCP Right)	25	-4	B	A	Pass

NR: No Requirement

☒ Meet criteria A: Operate as intended during and after the test

☐ Meet criteria B: Operate as intended after the test

☐ Meet criteria C: Loss/Error of function

☐ Additional Information

☐ EUT stopped operation and could / could not be reset by operator at ____ kV.

☒ No false alarms or other malfunctions were observed during or after the test.

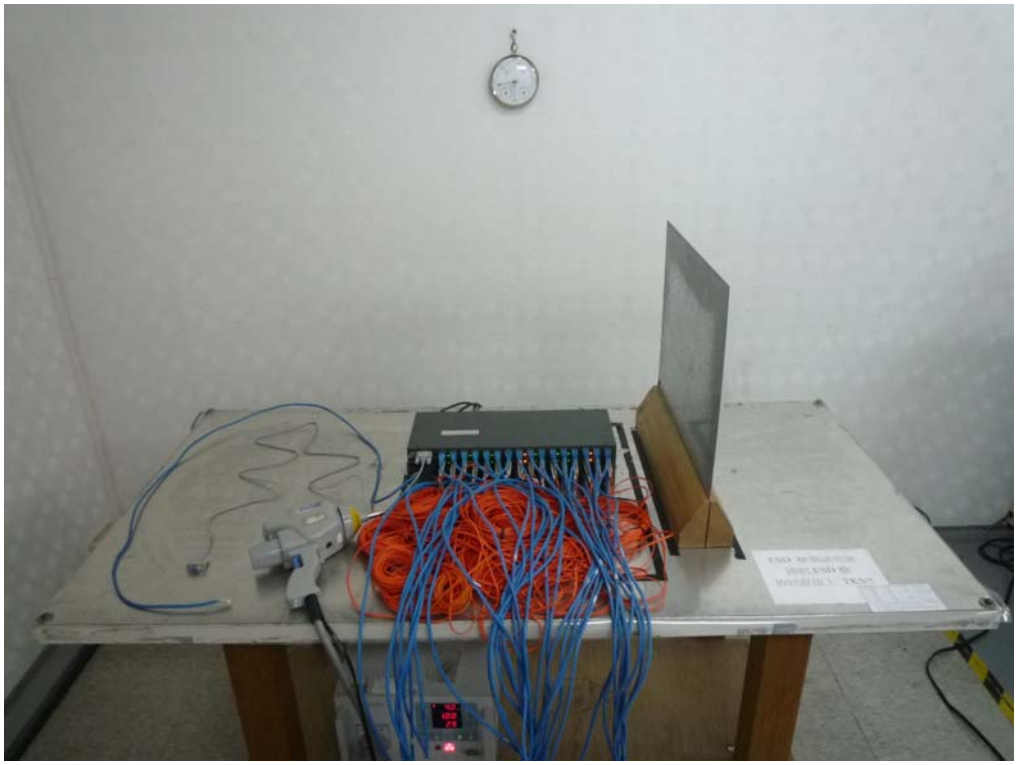
Remark:

The Contact discharges were applied-at least total 200 discharges at a minimum of four test points.

8.7. Test Photograph

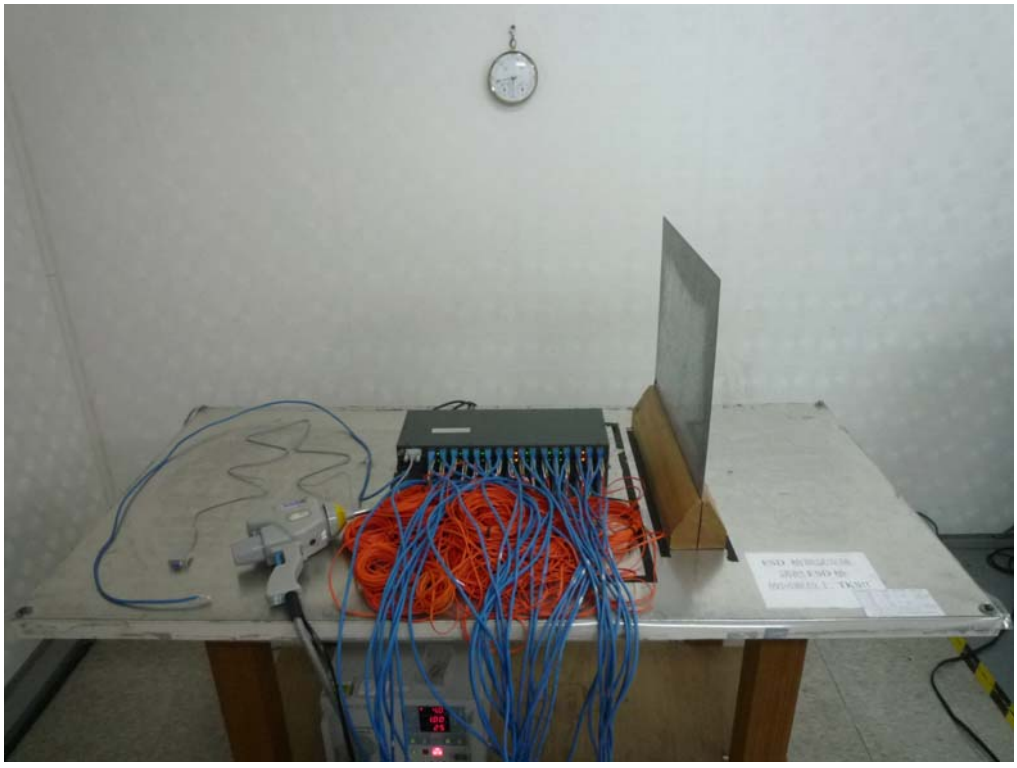
Test Mode : Mode 1: Data Transmit for CL-MCSFP-16M

Description : Electrostatic Discharge (ESD) Test Setup



Test Mode : Mode 2: Data Transmit for CL-MCSFP-16

Description : Electrostatic Discharge (ESD) Test Setup

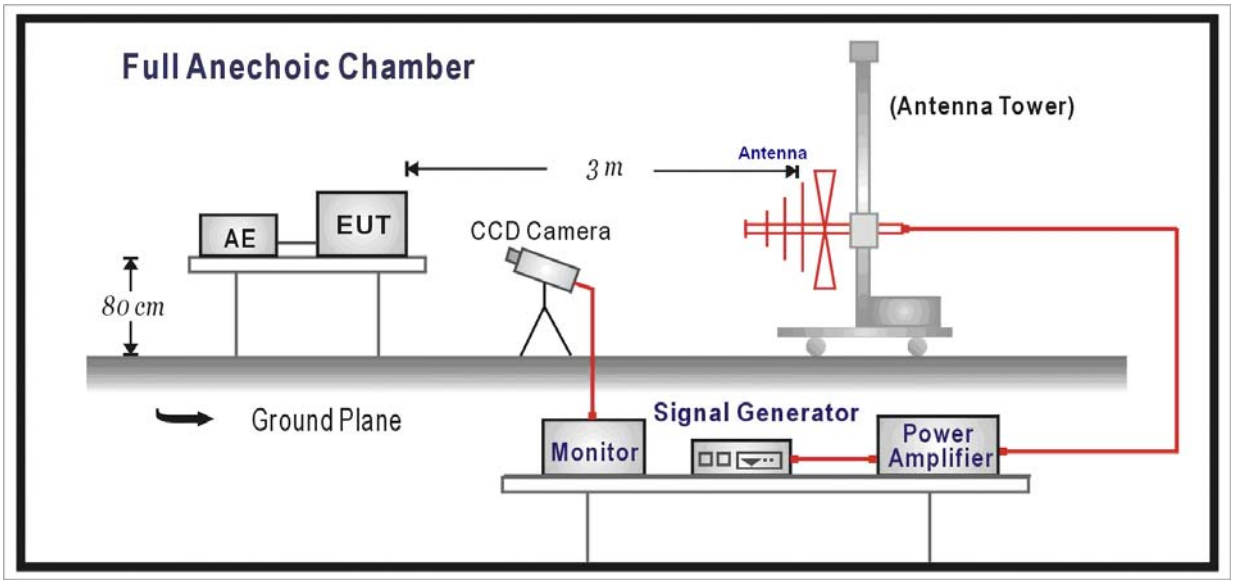


9. Radiated Susceptibility

9.1. Test Specification

According to Standard : IEC 61000-4-3

9.2. Test Setup



9.3. Limit

Item	Environmental Phenomena	Units	Test Specification	Performance Criteria
Enclosure Port				
	Radio-Frequency	MHz	80-1000	
	Electromagnetic Field	V/m(Un-modulated, rms)	3	A
	Amplitude Modulated	% AM (1kHz)	80	

9.4. Test Procedure

The EUT and load, which are placed on a table that is 0.8 meter above ground, are placed with one coincident with the calibration plane such that the distance from antenna to the EUT was 3 meters.
Both horizontal and vertical polarization of the antenna and four sides of the EUT are set on measurement.
In order to judge the EUT performance, a CCD camera is used to monitor EUT screen.

All the scanning conditions are as follows:

	Condition of Test	Remarks
1.	Field Strength	3 V/m Level 2
2.	Radiated Signal	AM 80% Modulated with 1kHz
3.	Scanning Frequency	80MHz - 1000MHz
4	Dwell Time	3 Seconds
5.	Frequency step size Δf :	1%
6.	The rate of Swept of Frequency	1.5 x 10^{-3} decades/s

9.5. Deviation from Test Standard

No deviation.

9.6. Test Result

Product	Ethernet 100/1000 Converter		
Test Item	Radiated susceptibility		
Test Mode	Mode 1: Data Transmit for CL-MCSFP-16M		
Date of Test	2011/10/20	Test Site	CB3

Frequency (MHz)	Position (Angle)	Polarity (H or V)	Field Strength (V/m)	Required Criteria	Complied To Criteria (A,B,C)	Results
80-1000	0	H	3	A	A	Pass
80-1000	90	H	3	A	A	Pass
80-1000	180	H	3	A	A	Pass
80-1000	270	H	3	A	A	Pass
80-1000	0	V	3	A	A	Pass
80-1000	90	V	3	A	A	Pass
80-1000	180	V	3	A	A	Pass
80-1000	270	V	3	A	A	Pass

☒ Meet criteria A : Operate as intended during and after the test
☐ Meet criteria B : Operate as intended after the test
☐ Meet criteria C : Loss/Error of function
☐ Additional Information
☐ EUT stopped operation and could / could not be reset by operator at _____ V/m at frequency _____MHz.
☒ No false alarms or other malfunctions were observed during or after the test. The acceptance criteria were met, and the EUT passed the test.

Product	Ethernet 100/1000 Converter		
Test Item	Radiated susceptibility		
Test Mode	Mode 2: Data Transmit for CL-MCSFP-16		
Date of Test	2011/10/20	Test Site	CB3

Frequency (MHz)	Position (Angle)	Polarity (H or V)	Field Strength (V/m)	Required Criteria	Complied To Criteria (A,B,C)	Results
80-1000	0	H	3	A	A	Pass
80-1000	90	H	3	A	A	Pass
80-1000	180	H	3	A	A	Pass
80-1000	270	H	3	A	A	Pass
80-1000	0	V	3	A	A	Pass
80-1000	90	V	3	A	A	Pass
80-1000	180	V	3	A	A	Pass
80-1000	270	V	3	A	A	Pass

☒ Meet criteria A : Operate as intended during and after the test
☐ Meet criteria B : Operate as intended after the test
☐ Meet criteria C : Loss/Error of function
☐ Additional Information
  ☐ EUT stopped operation and could / could not be reset by operator at _____ V/m at frequency _____MHz.
  ☒ No false alarms or other malfunctions were observed during or after the test. The acceptance criteria were met, and the EUT passed the test.

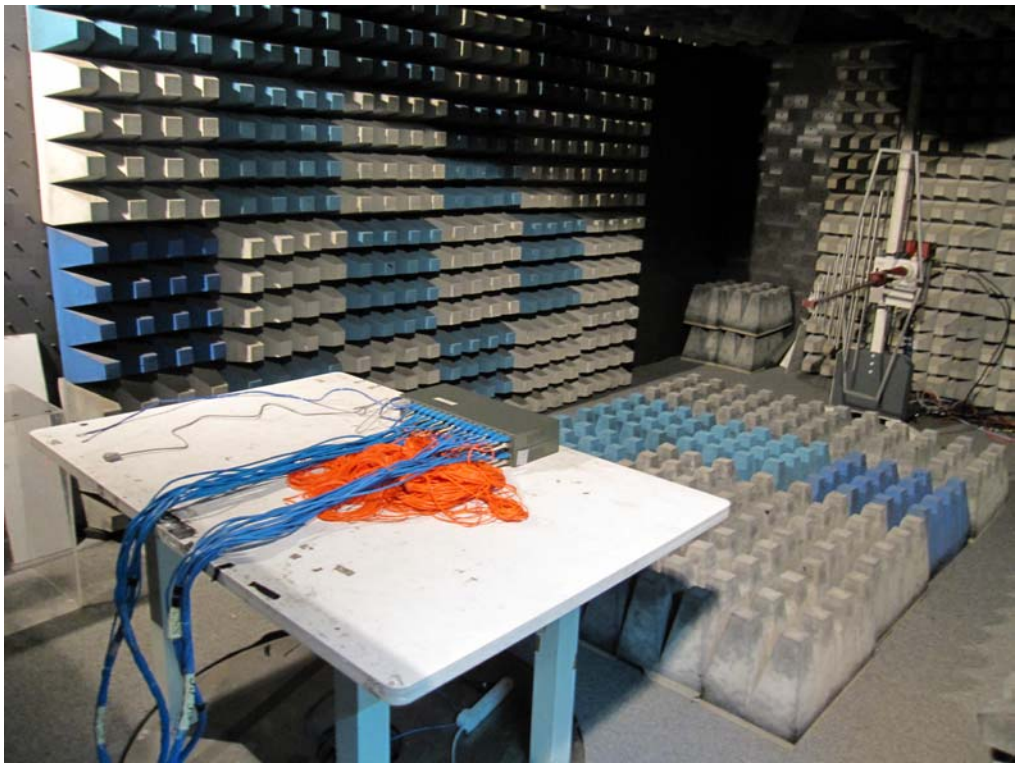
9.7. Test Photograph

Test Mode : Mode 1: Data Transmit for CL-MCSFP-16M

Description : Radiated Susceptibility (RS) Test Setup

Test Mode : Mode 2: Data Transmit for CL-MCSFP-16

Description : Radiated Susceptibility (RS) Test Setup

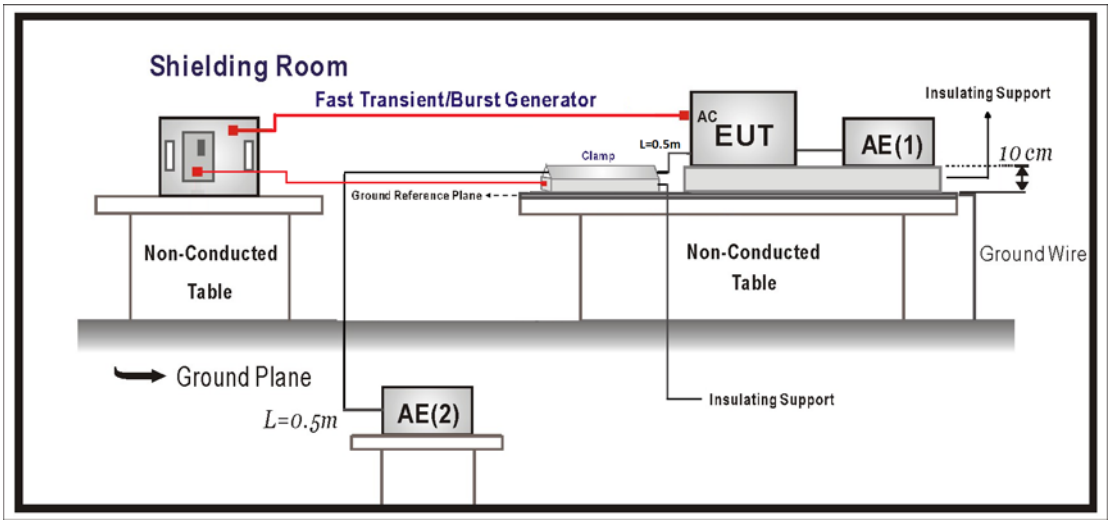


10. Electrical Fast Transient/Burst

10.1. Test Specification

According to Standard : IEC 61000-4-4

10.2. Test Setup



10.3. Limit

Item	Environmental Phenomena	Units	Test Specification	Performance Criteria
I/O and communication ports				
	Fast Transients Common Mode	kV (Peak) Tr/Th ns Rep. Frequency kHz	±0.5 5/50 5	B
Input DC Power Ports				
	Fast Transients Common Mode	kV (Peak) Tr/Th ns Rep. Frequency kHz	±0.5 5/50 5	B
Input AC Power Ports				
	Fast Transients Common Mode	kV (Peak) Tr/Th ns Rep. Frequency kHz	±1 5/50 5	B

10.4. Test Procedure

The EUT is placed on a table that is 0.8 meter height. A ground reference plane is placed on the table, and uses a 0.1m insulation between the EUT and ground reference plane.
The minimum area of the ground reference plane is 1m*1m, and 0.65mm thick min, and projected beyond the EUT by at least 0.1m on all sides.

Test on I/O and communication ports:
The EFT interference signal is through a coupling clamp device couples to the signal and control lines of the EUT with burst noise for 1minute.

Test on power supply ports:
The EUT is connected to the power mains through a coupling device that directly couples the EFT/B interference signal.
Each of the Line and Neutral conductors is impressed with burst noise for 1 minute.

The length of the signal and power lines between the coupling device and the EUT is 0.5m.

10.5. Deviation from Test Standard

No deviation.

10.6. Test Result

Product	Ethernet 100/1000 Converter		
Test Item	Electrical fast transient/burst		
Test Mode	Mode 1: Data Transmit for CL-MCSFP-16M		
Date of Test	2011/10/17	Test Site	SR1

Inject Line	Polarity	Voltage kV	Inject Time (Second)	Inject Method	Required Criteria	Complied to Criteria	Result
L+N+PE	±	1	60	Direct	B	A	Pass
LAN Cable	±	0.5	60	Clamp	B	A	Pass

☒ Meet criteria A : Operate as intended during and after the test

☐ Meet criteria B : Operate as intended after the test

☐ Meet criteria C : Loss/Error of function

☐ Additional Information

☐ EUT stopped operation and could / could not be reset by operator at _____ kV of Line _____.

☒ No false alarms or other malfunctions were observed during or after the test.

Product	Ethernet 100/1000 Converter		
Test Item	Electrical fast transient/burst		
Test Mode	Mode 2: Data Transmit for CL-MCSFP-16		
Date of Test	2011/10/17	Test Site	SR1

Inject Line	Polarity	Voltage kV	Inject Time (Second)	Inject Method	Required Criteria	Complied to Criteria	Result
L+N+PE	±	1	60	Direct	B	A	Pass
LAN Cable	±	0.5	60	Clamp	B	A	Pass

☒ Meet criteria A : Operate as intended during and after the test
☐ Meet criteria B : Operate as intended after the test
☐ Meet criteria C : Loss/Error of function
☐ Additional Information
☐ EUT stopped operation and could / could not be reset by operator at _____ kV of Line _____.
☒ No false alarms or other malfunctions were observed during or after the test.

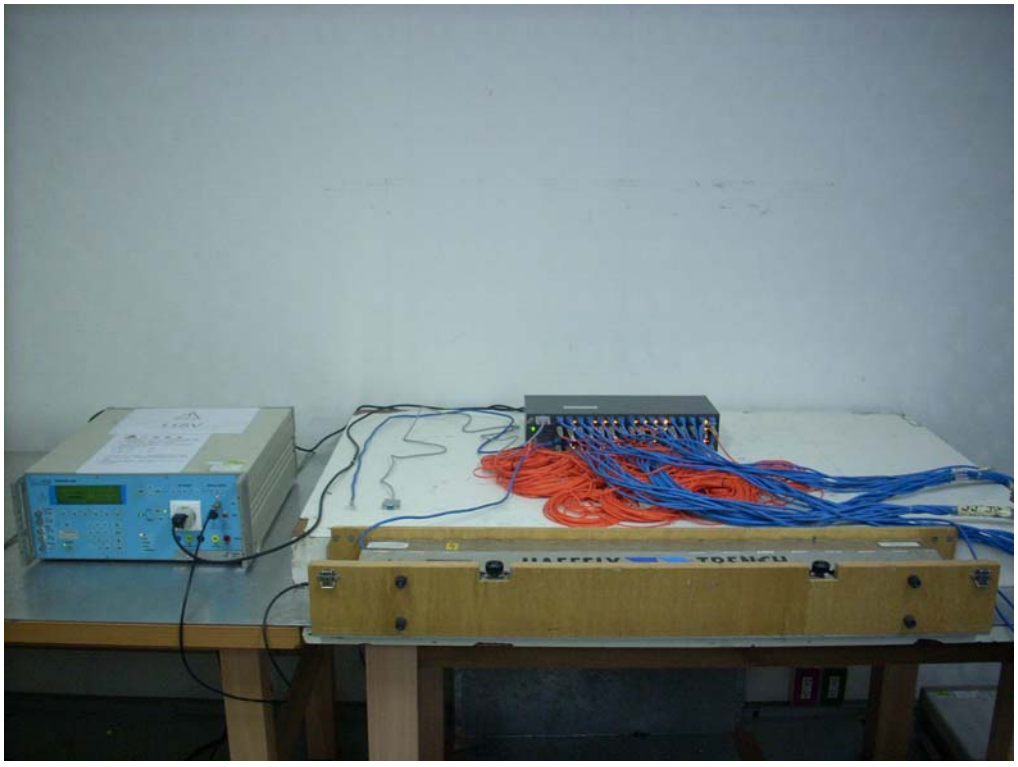
10.7. Test Photograph

Test Mode : Mode 1: Data Transmit for CL-MCSFP-16M

Description : Electrical Fast Transient/Burst (EFT/B) Test Setup

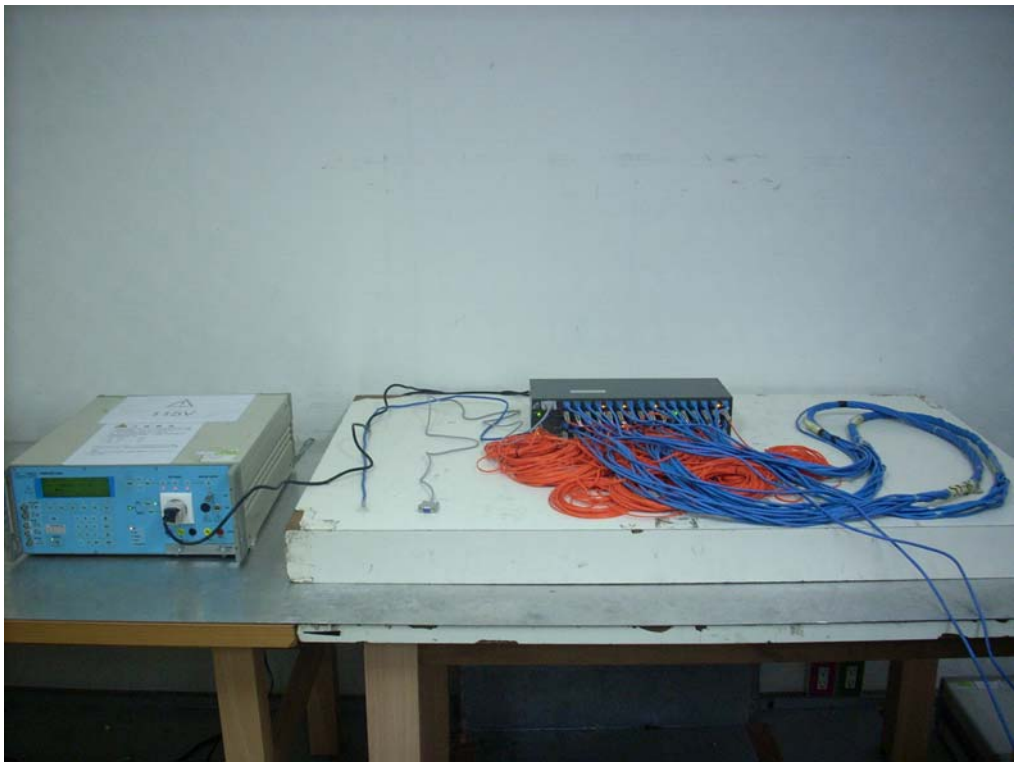
Test Mode : Mode 1: Data Transmit for CL-MCSFP-16M

Description : Electrical Fast Transient/Burst (EFT/B) Test Setup-Clamp (LAN Cable)



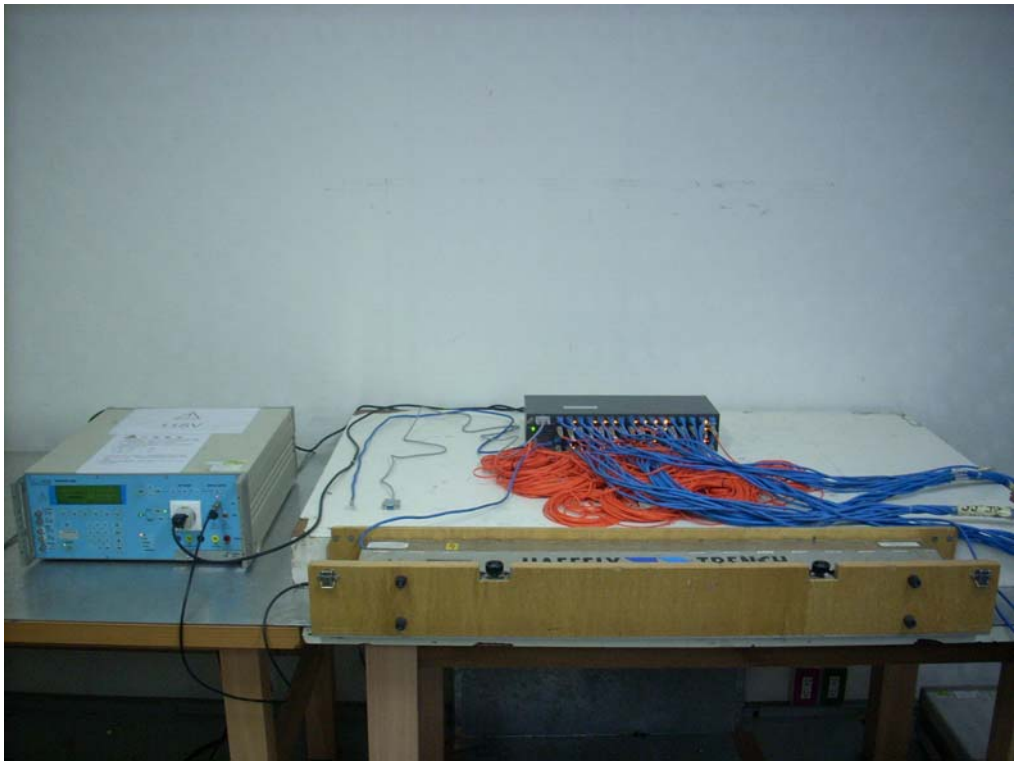
Test Mode : Mode 2: Data Transmit for CL-MCSFP-16

Description : Electrical Fast Transient/Burst (EFT/B) Test Setup



Test Mode : Mode 2: Data Transmit for CL-MCSFP-16

Description : Electrical Fast Transient/Burst (EFT/B) Test Setup-Clamp (LAN Cable)

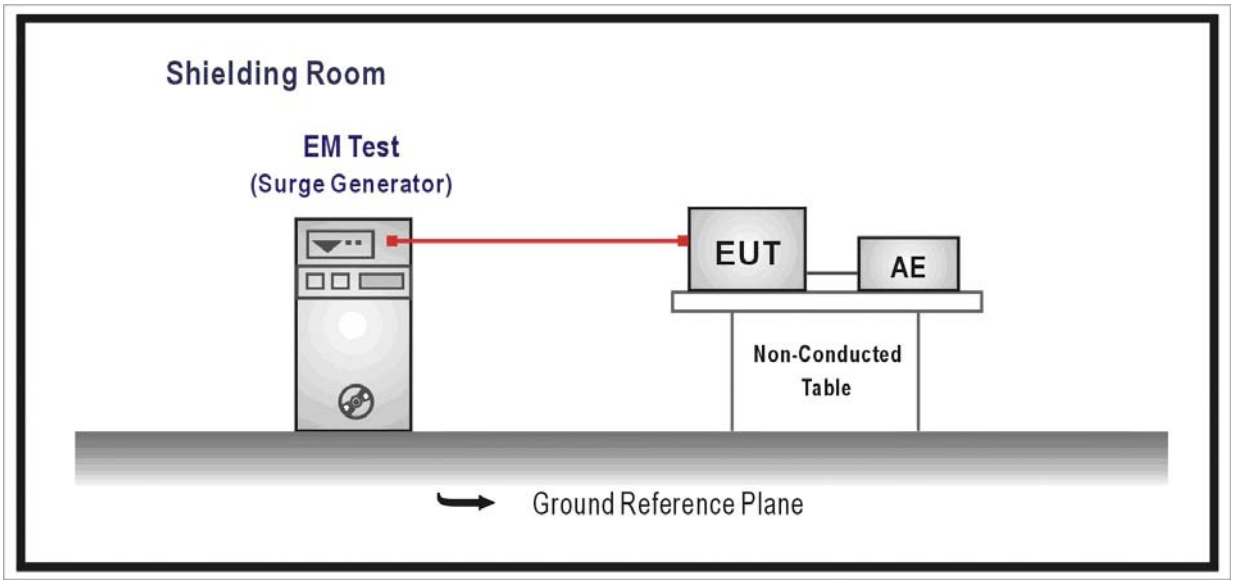


11. Surge

11.1. Test Specification

According to Standard : IEC 61000-4-5

11.2. Test Setup



11.3. Limit

Item	Environmental Phenomena	Units	Test Specification	Performance Criteria
Signal Ports and Telecommunication Ports(See 1) and 2))				
	Surges Line to Ground	Tr/Th us kV	1.2/50 (8/20) ± 1	B
Input DC Power Ports				
	Surges Line to Ground	Tr/Th us kV	1.2/50 (8/20) ± 0.5	B
AC Input and AC Output Power Ports				
	Surges Line to Line Line to Ground	Tr/Th us kV kV	1.2/50 (8/20) ± 1 ± 2	B

Notes:

1) Applicable only to ports which according to the manufacturer's may directly to outdoor cables.
2) Where normal functioning cannot be achieved because of the impact of the CDN on the EUT, no immunity test shall be required.

11.4. Test Procedure

The EUT and its load are placed on a table that is 0.8 meter above a metal ground plane measured 1m*1m min. and 0.65mm thick min. And projected beyond the EUT by at least 0.1m on all sides. The length of power cord between the coupling device and the EUT shall be 2m or less.

For Input and Output AC Power or DC Input and DC Output Power Ports:

The EUT is connected to the power mains through a coupling device that directly couples the Surge interference signal.

The surge noise shall be applied synchronized to the voltage phase at 0^0, 90^0, 180^0, 270^0 and the peak value of the a.c. voltage wave. (Positive and negative)

Each of Line-Earth and Line-Line is impressed with a sequence of five surge voltages with interval of 1 min.

11.5. Deviation from Test Standard

No deviation.

11.6. Test Result

Product	Ethernet 100/1000 Converter		
Test Item	Surge		
Test Mode	Mode 1: Data Transmit for CL-MCSFP-16M		
Date of Test	2012/01/03	Test Site	SR1

Inject Line	Polarity	Angle	Voltage kV	Time Interval (Second)	Inject Method	Required Criteria	Complied to Criteria	Result
L-N	±	0	1	60	Direct	B	A	Pass
L-N	±	90	1	60	Direct	B	A	Pass
L-N	±	180	1	60	Direct	B	A	Pass
L-N	±	270	1	60	Direct	B	A	Pass
N-PE	±	0	2	60	Direct	B	A	Pass
N-PE	±	90	2	60	Direct	B	A	Pass
N-PE	±	180	2	60	Direct	B	A	Pass
N-PE	±	270	2	60	Direct	B	A	Pass
L-PE	±	0	2	60	Direct	B	A	Pass
L-PE	±	90	2	60	Direct	B	A	Pass
L-PE	±	180	2	60	Direct	B	A	Pass
L-PE	±	270	2	60	Direct	B	A	Pass
LAN Cable	±	--	1	60	CDN	B	A	Pass

☒ Meet criteria A : Operate as intended during and after the test

☐ Meet criteria B : Operate as intended after the test

☐ Meet criteria C : Loss/Error of function

☐ Additional Information

☐ EUT stopped operation and could / could not be reset by operator at _____ kV of Line _____.

☒ No false alarms or other malfunctions were observed during or after the test.

Product	Ethernet 100/1000 Converter		
Test Item	Surge		
Test Mode	Mode 2: Data Transmit for CL-MCSFP-16		
Date of Test	2012/01/03	Test Site	SR1

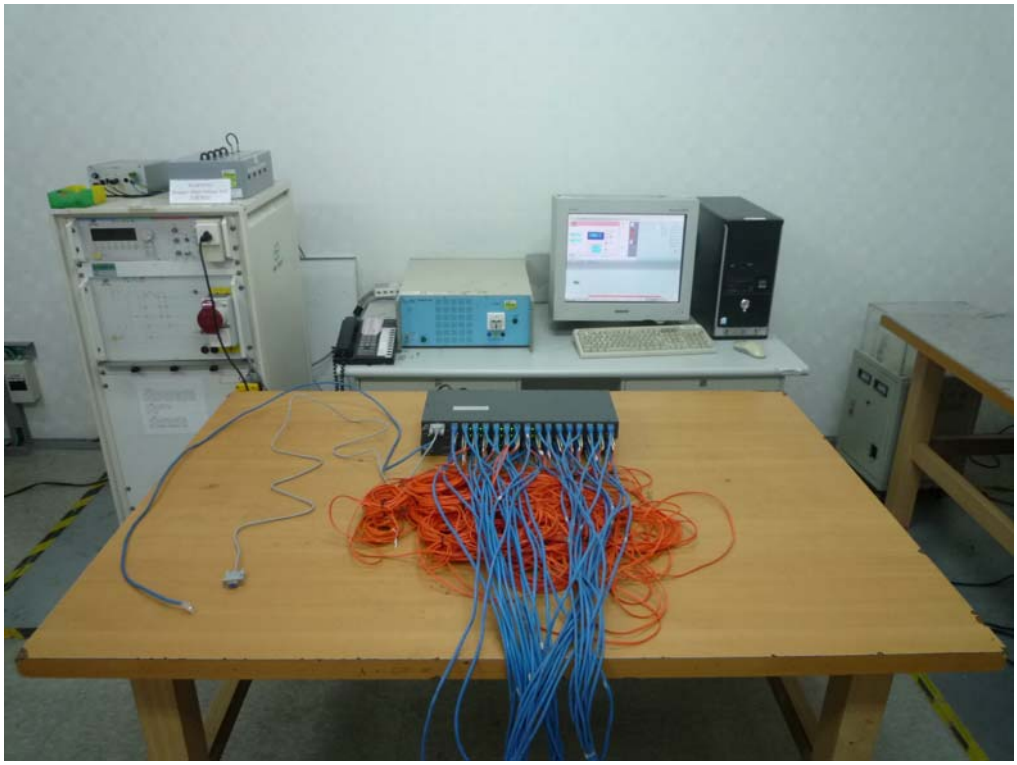
Inject Line	Polarity	Angle	Voltage kV	Time Interval (Second)	Inject Method	Required Criteria	Complied to Criteria	Result
L-N	±	0	1	60	Direct	B	A	Pass
L-N	±	90	1	60	Direct	B	A	Pass
L-N	±	180	1	60	Direct	B	A	Pass
L-N	±	270	1	60	Direct	B	A	Pass
N-PE	±	0	2	60	Direct	B	A	Pass
N-PE	±	90	2	60	Direct	B	A	Pass
N-PE	±	180	2	60	Direct	B	A	Pass
N-PE	±	270	2	60	Direct	B	A	Pass
L-PE	±	0	2	60	Direct	B	A	Pass
L-PE	±	90	2	60	Direct	B	A	Pass
L-PE	±	180	2	60	Direct	B	A	Pass
L-PE	±	270	2	60	Direct	B	A	Pass
LAN Cable	±	--	1	60	CDN	B	A	Pass

☒ Meet criteria A : Operate as intended during and after the test
☐ Meet criteria B : Operate as intended after the test
☐ Meet criteria C : Loss/Error of function
☐ Additional Information
☐ EUT stopped operation and could / could not be reset by operator at _____ kV of Line _____.
☒ No false alarms or other malfunctions were observed during or after the test.

11.7. Test Photograph

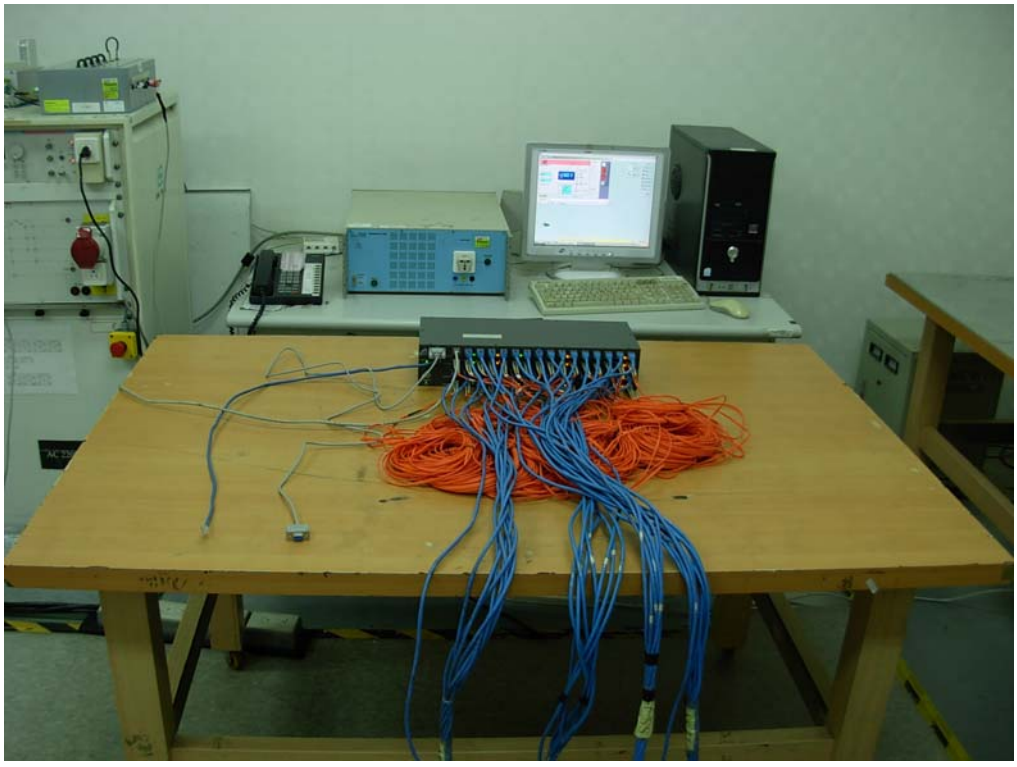
Test Mode : Mode 1: Data Transmit for CL-MCSFP-16M

Description : Surge Test Setup



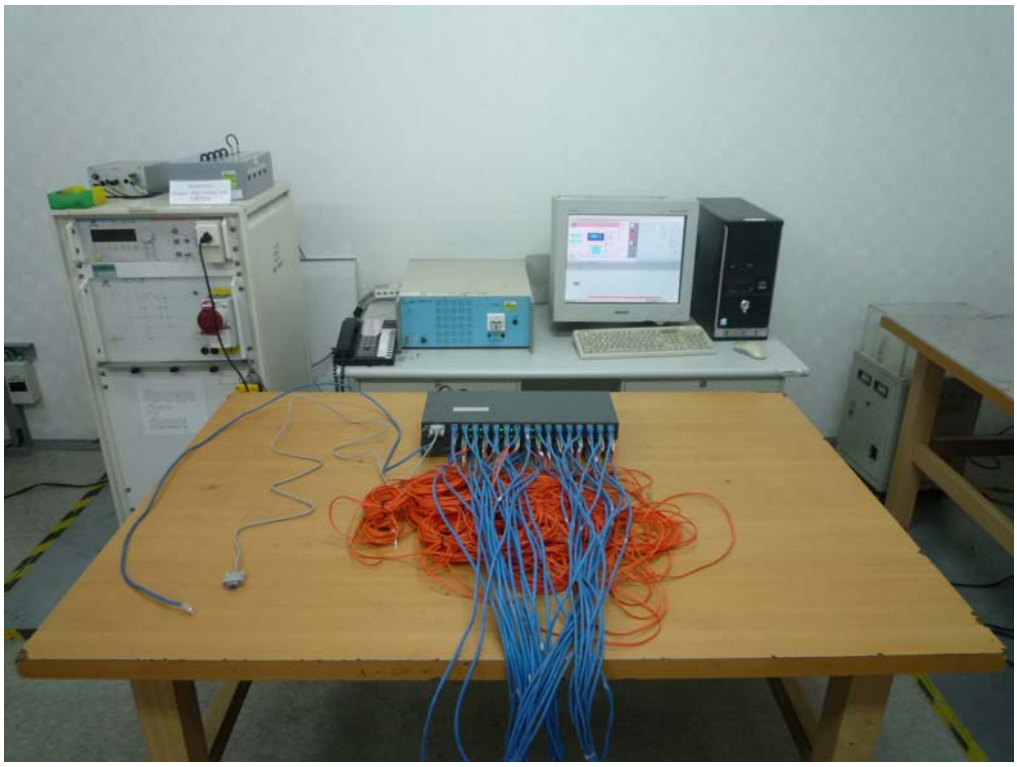
Test Mode : Mode 1: Data Transmit for CL-MCSFP-16M

Description : Surge Test Setup-CDN (LAN Cable)



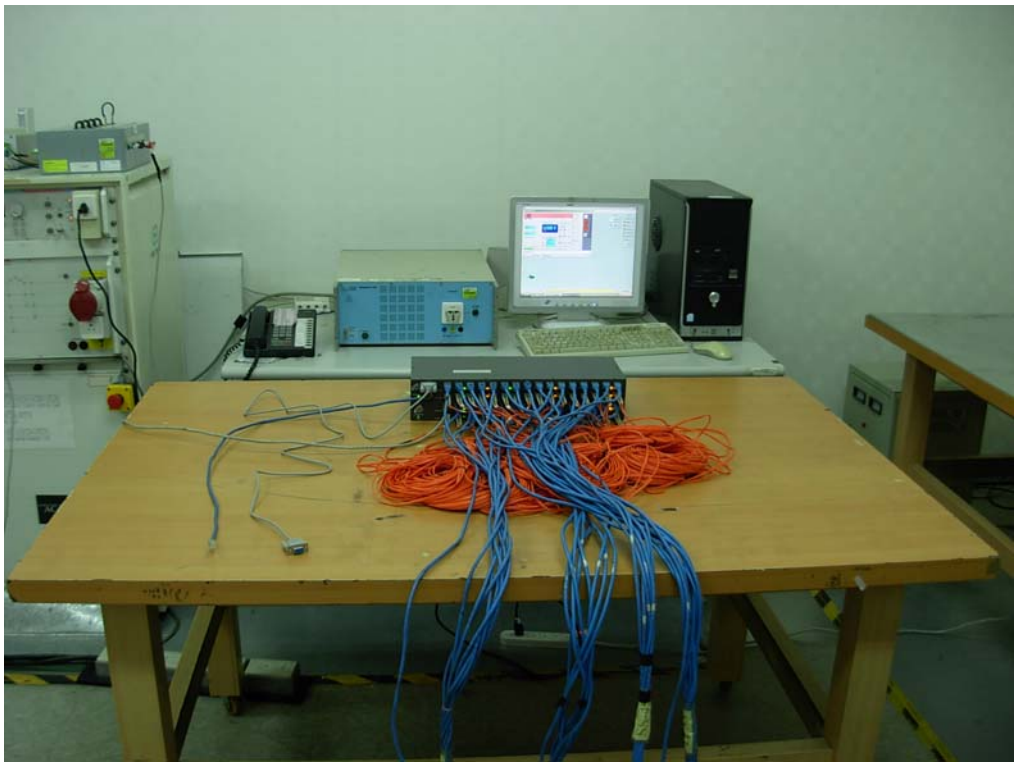
Test Mode　: Mode 2: Data Transmit for CL-MCSFP-16

Description　: Surge Test Setup



Test Mode　: Mode 2: Data Transmit for CL-MCSFP-16

Description　: Surge Test Setup-CDN (LAN Cable)



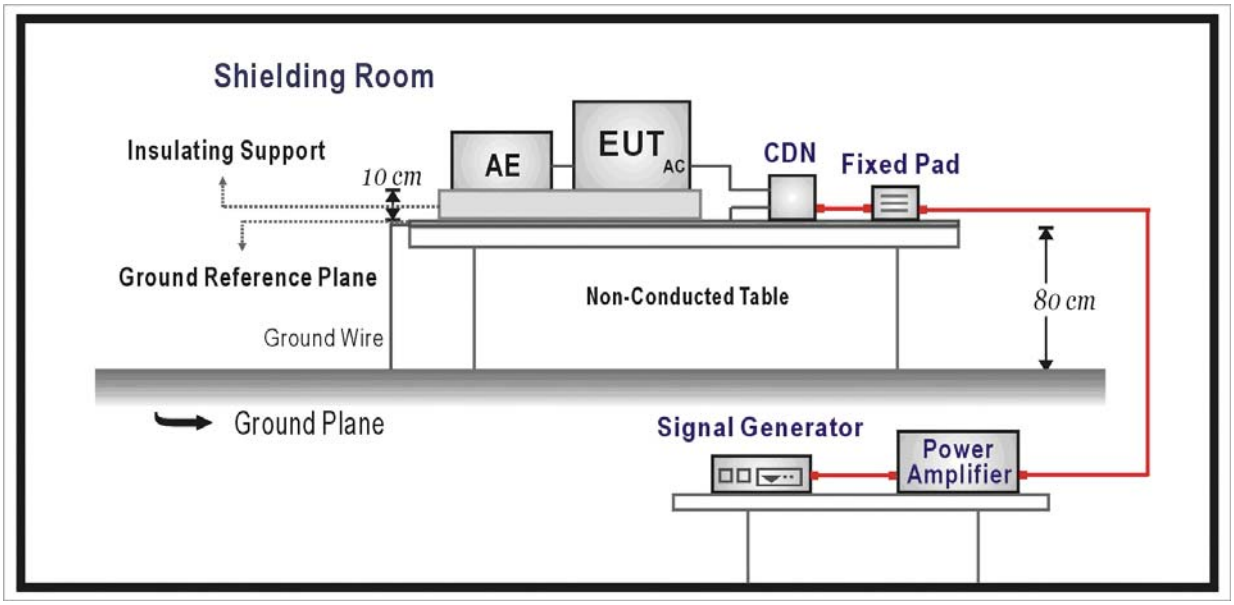
12. Conducted Susceptibility

12.1. Test Specification

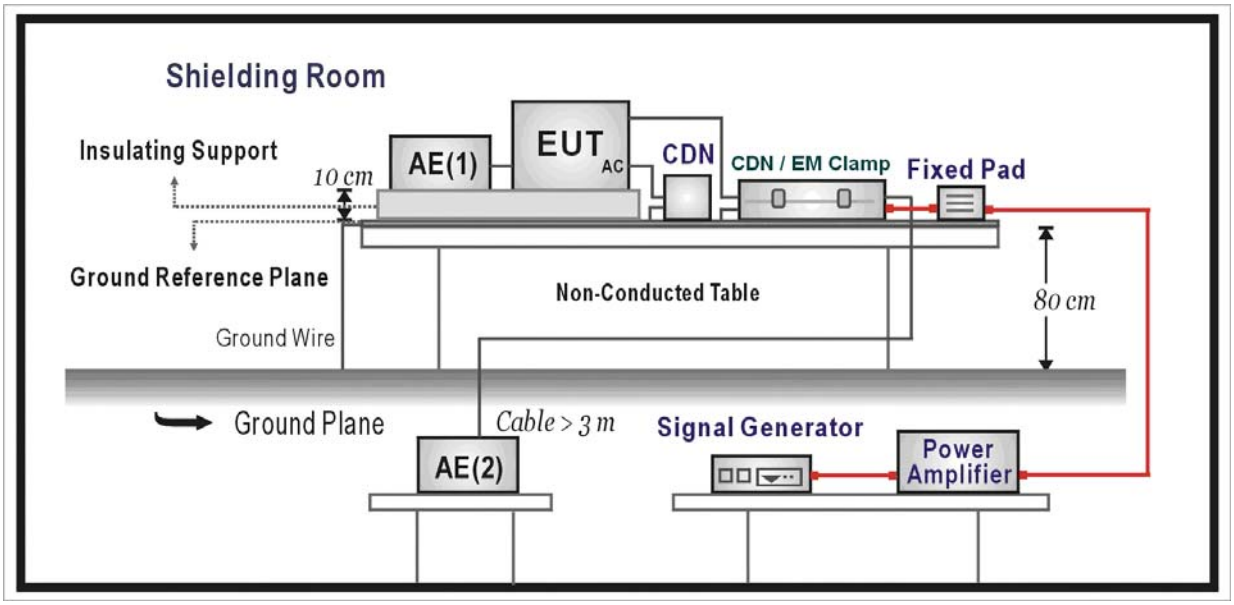
According to Standard : IEC 61000-4-6

12.2. Test Setup

CDN Test Mode



EM Clamp Test Mode



12.3. Limit

Item	Environmental Phenomena	Units	Test Specification	Performance Criteria
Signal Ports and Telecommunication Ports				
	Radio-Frequency Continuous Conducted	MHz V (rms, Un-modulated) % AM (1kHz)	0.15-80 3 80	A
Input DC Power Ports				
	Radio-Frequency Continuous Conducted	MHz V (rms, Un-modulated) % AM (1kHz)	0.15-80 3 80	A
Input AC Power Ports				
	Radio-Frequency Continuous Conducted	MHz V (rms, Un-modulated) % AM (1kHz)	0.15-80 3 80	A

12.4. Test Procedure

The EUT are placed on a table that is 0.8 meter height, and a Ground reference plane on the table, EUT are placed upon table and use a 10cm insulation between the EUT and Ground reference plane.
For Signal Ports and Telecommunication Ports
The disturbance signal is through a coupling and decoupling networks (CDN) or EM-clamp device couples to the signal and Telecommunication lines of the EUT.
For Input DC and AC Power Ports
The EUT is connected to the power mains through a coupling and decoupling networks for power supply lines. And directly couples the disturbances signal into EUT.
Used CDN-M2 for two wires or CDN-M3 for three wires.

All the scanning conditions are as follows:

	Condition of Test	Remarks
1.	Field Strength	130dBuV(3V) Level 2
2.	Radiated Signal	AM 80% Modulated with 1kHz
3.	Scanning Frequency	0.15MHz – 80MHz
4	Dwell Time	3 Seconds
5.	Frequency step size Δf :	1%
6.	The rate of Swept of Frequency	1.5 x 10^{-3} decades/s

12.5. Deviation from Test Standard

No deviation.

12.6. Test Result

Product	Ethernet 100/1000 Converter		
Test Item	Conducted susceptibility		
Test Mode	Mode 1: Data Transmit for CL-MCSFP-16M		
Date of Test	2011/10/20	Test Site	SR4

Frequency Range (MHz)	Voltage Applied dBuV(V)	Inject Method	Tested Port of EUT	Required Criteria	Performance Criteria Complied To	Result
0.15~80	130 (3)	CDN	AC IN	A	A	Pass
0.15~80	130 (3)	CDN	LAN Cable	A	A	Pass

☒ Meet criteria A : Operate as intended during and after the test

☐ Meet criteria B : Operate as intended after the test

☐ Meet criteria C : Loss/Error of function

☐ Additional Information

☐ EUT stopped operation and could / could not be reset by operator at _____ dBuV(V) at frequency _____MHz.

☒ No false alarms or other malfunctions were observed during or after the test. The acceptance criteria were met, and the EUT passed the test.

Product	Ethernet 100/1000 Converter		
Test Item	Conducted susceptibility		
Test Mode	Mode 2: Data Transmit for CL-MCSFP-16		
Date of Test	2011/10/20	Test Site	SR4

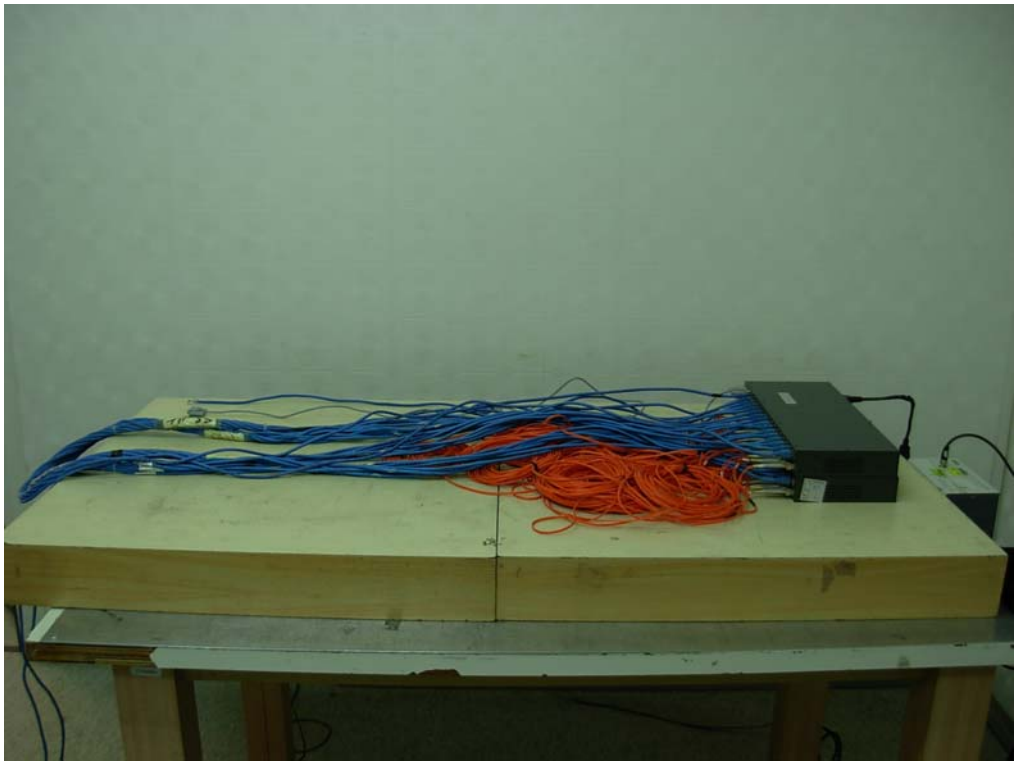
Frequency Range (MHz)	Voltage Applied dBuV(V)	Inject Method	Tested Port of EUT	Required Criteria	Performance Criteria Complied To	Result
0.15~80	130 (3)	CDN	AC IN	A	A	Pass
0.15~80	130 (3)	CDN	LAN Cable	A	A	Pass

☒ Meet criteria A : Operate as intended during and after the test
☐ Meet criteria B : Operate as intended after the test
☐ Meet criteria C : Loss/Error of function
☐ Additional Information
- ☐ EUT stopped operation and could / could not be reset by operator at _____ dBuV(V) at frequency _____MHz.
- ☒ No false alarms or other malfunctions were observed during or after the test. The acceptance criteria were met, and the EUT passed the test.

12.7. Test Photograph

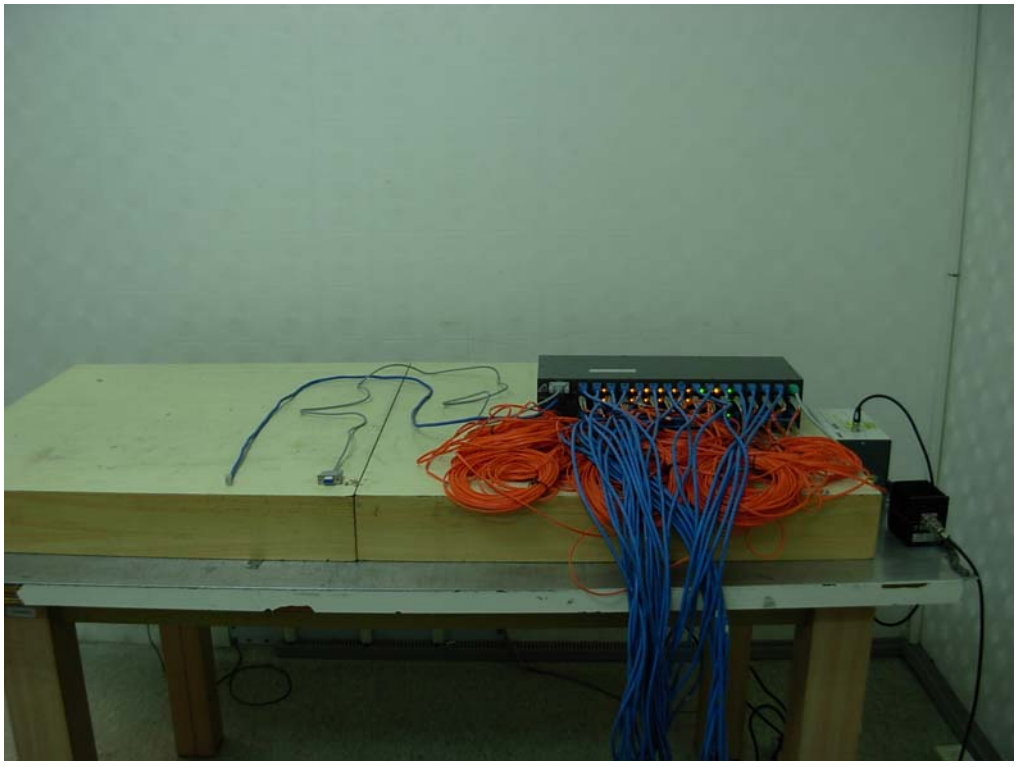
Test Mode : Mode 1: Data Transmit for CL-MCSFP-16M

Description : Conducted Susceptibility (CS) Test Setup



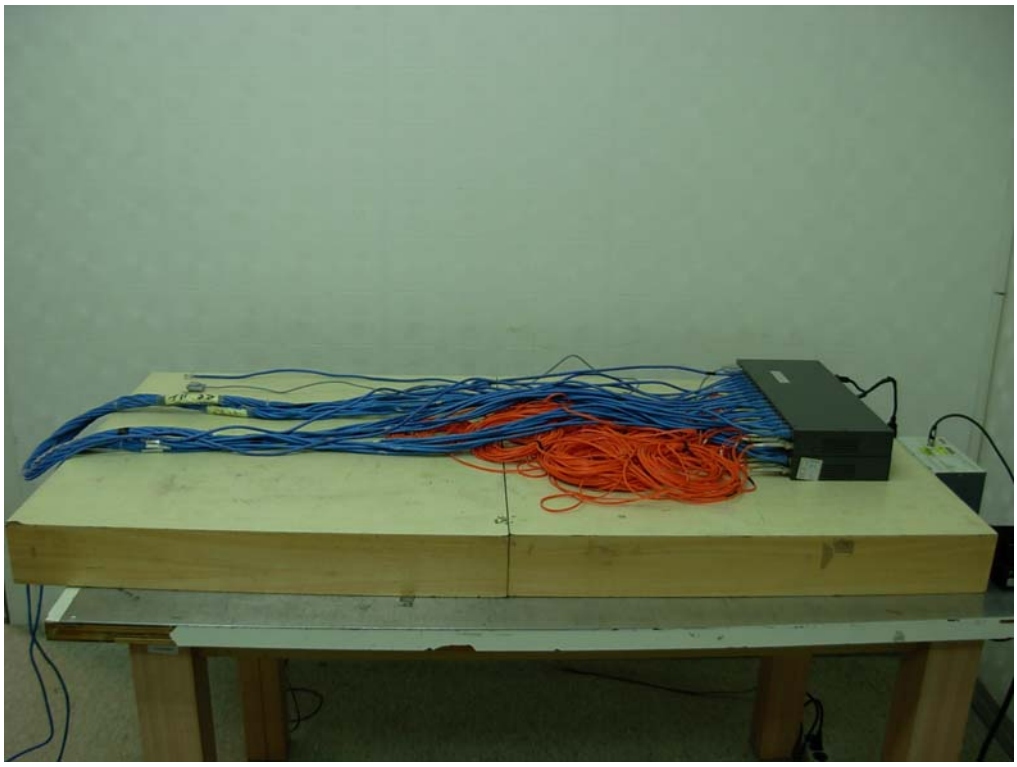
Test Mode : Mode 1: Data Transmit for CL-MCSFP-16M

Description : Conducted Susceptibility (CS) Test Setup- CDN (LAN Cable)



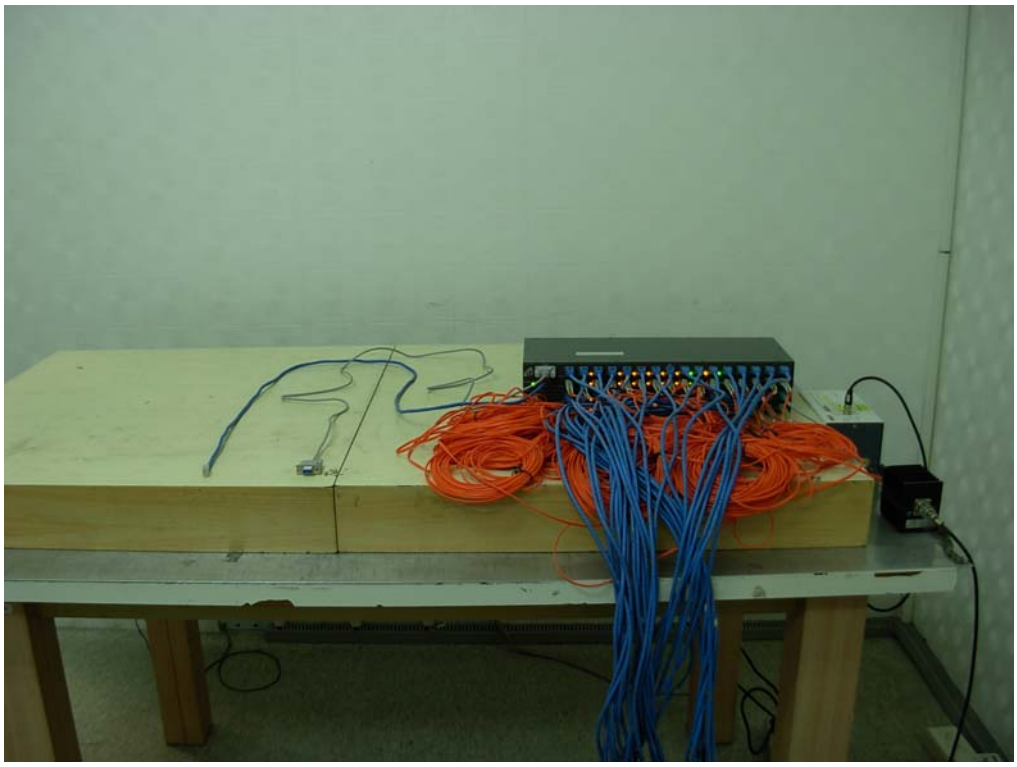
Test Mode : Mode 2: Data Transmit for CL-MCSFP-16

Description : Conducted Susceptibility (CS) Test Setup



Test Mode : Mode 2: Data Transmit for CL-MCSFP-16

Description : Conducted Susceptibility (CS) Test Setup- CDN (LAN Cable)

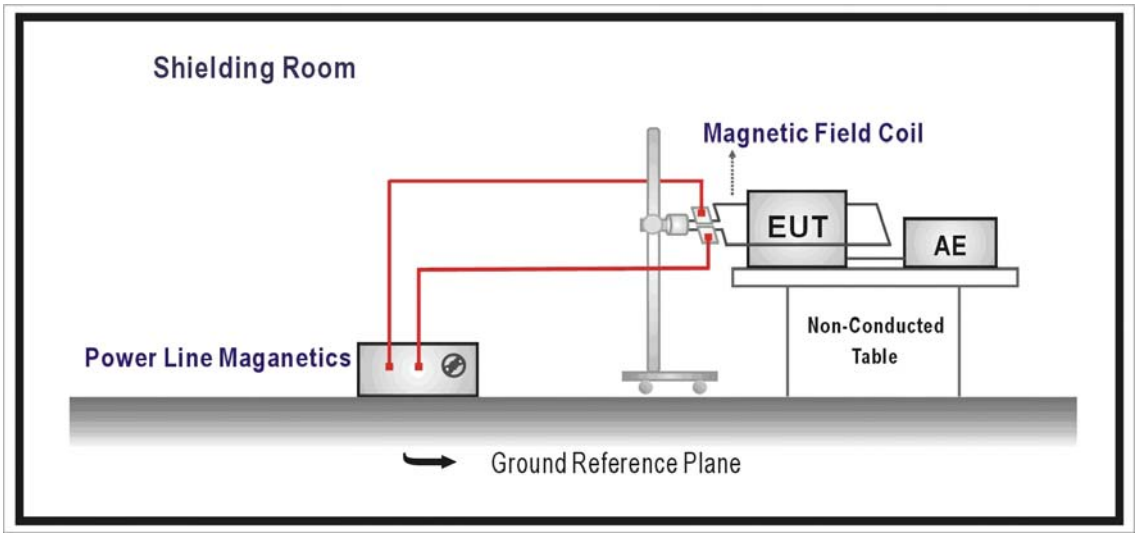


13. Power Frequency Magnetic Field

13.1. Test Specification

According to Standard : IEC 61000-4-8

13.2. Test Setup



13.3. Limit

Item	Environmental Phenomena	Units	Test Specification	Performance Criteria
Enclosure Port				
	Power-Frequency Magnetic Field	Hz A/m (r.m.s.)	50 1	A

13.4. Test Procedure

The EUT and its load are placed on a table which is 0.8 meter above a metal ground plane measured at least 1m*1m min. The test magnetic field shall be placed at central of the induction coil.

The test magnetic Field shall be applied 1 minute by the immersion method to the EUT. And the induction coil shall be rotated by 90° in order to expose the EUT to the test field with different orientation (X, Y, Z Orientations).

13.5. Deviation from Test Standard

No deviation.

13.6. Test Result

Product	Ethernet 100/1000 Converter		
Test Item	Power frequency magnetic field		
Test Mode	Mode 1: Data Transmit for CL-MCSFP-16M		
Date of Test	2011/10/20	Test Site	SR1

Polarization	Frequency (Hz)	Magnetic Strength (A/m)	Required Performance Criteria	Performance Criteria Complied To	Test Result
X Orientation	50	1	A	A	Pass
Y Orientation	50	1	A	A	Pass
Z Orientation	50	1	A	A	Pass

☒ Meet criteria A : Operate as intended during and after the test
☐ Meet criteria B : Operate as intended after the test
☐ Meet criteria C : Loss/Error of function
☐ Additional Information
  ☐ EUT stopped operation and could / could not be reset by operator at _____ A/m.
  ☒ No false alarms or other malfunctions were observed during or after the test. The acceptance criteria were met, and the EUT passed the test.

Product	Ethernet 100/1000 Converter		
Test Item	Power frequency magnetic field		
Test Mode	Mode 2: Data Transmit for CL-MCSFP-16		
Date of Test	2011/10/20	Test Site	SR1

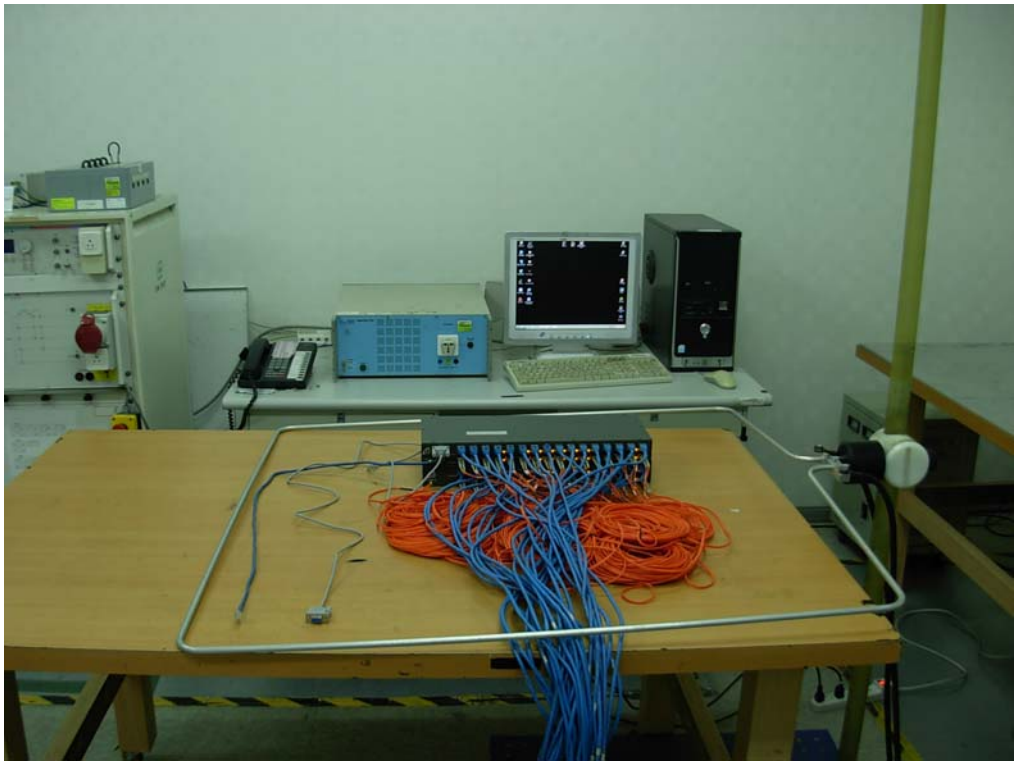
Polarization	Frequency (Hz)	Magnetic Strength (A/m)	Required Performance Criteria	Performance Criteria Complied To	Test Result
X Orientation	50	1	A	A	Pass
Y Orientation	50	1	A	A	Pass
Z Orientation	50	1	A	A	Pass

☒ Meet criteria A : Operate as intended during and after the test
☐ Meet criteria B : Operate as intended after the test
☐ Meet criteria C : Loss/Error of function
☐ Additional Information
- ☐ EUT stopped operation and could / could not be reset by operator at _____ A/m.
- ☒ No false alarms or other malfunctions were observed during or after the test. The acceptance criteria were met, and the EUT passed the test.

13.7. Test Photograph

Test Mode : Mode 1: Data Transmit for CL-MCSFP-16M

Description : Power Frequency Magnetic Field Test Setup



Test Mode : Mode 2: Data Transmit for CL-MCSFP-16

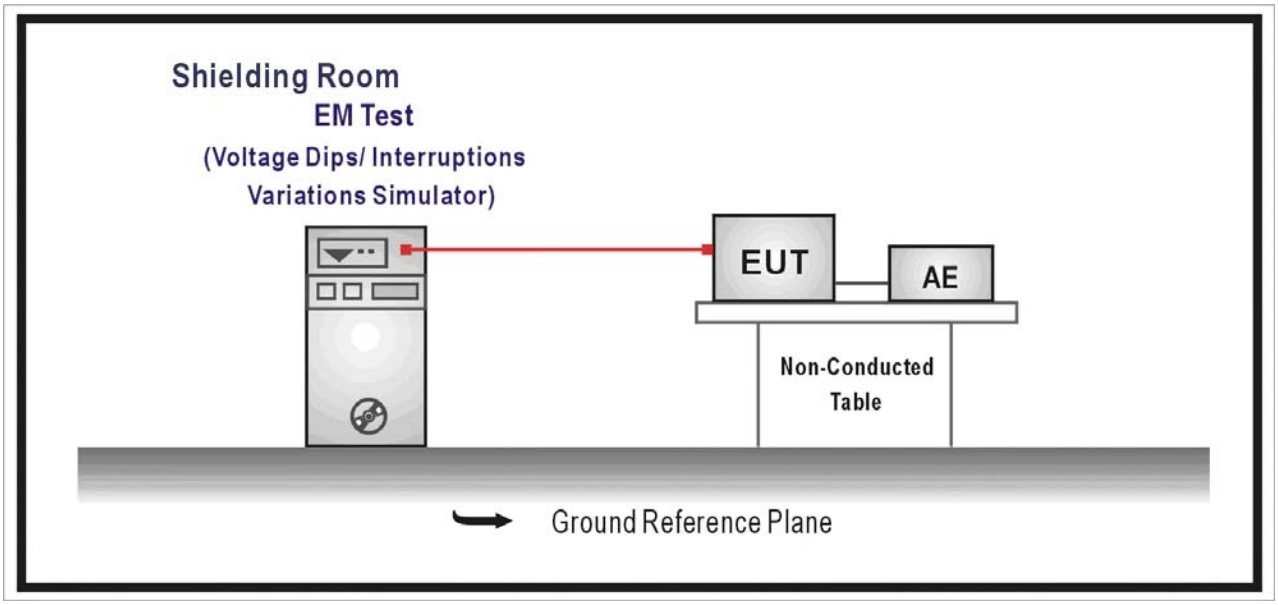
Description : Power Frequency Magnetic Field Test Setup

14. Voltage Dips and Interruption

14.1. Test Specification

According to Standard : IEC 61000-4-11

14.2. Test Setup



14.3. Limit

Item	Environmental Phenomena	Units	Test Specification	Performance Criteria
Input AC Power Ports				
	Voltage Dips	% Reduction Period	30 25	C
		% Reduction Period	>95 0.5	B
	Voltage Interruptions	% Reduction Period	> 95 250	C

14.4. Test Procedure

The EUT and its load are placed on a table which is 0.8 meter above a metal ground plane measured 1m*1m min. And 0.65mm thick min. And projected beyond the EUT by at least 0.1m on all sides. The power cord shall be used the shortest power cord as specified by the manufacturer.

For Voltage Dips/ Interruptions test:

The selection of test voltage is based on the rated power range. If the operation range is large than 20% of lower power range, both end of specified voltage shall be tested. Otherwise, the typical voltage specification is selected as test voltage.

The EUT is connected to the power mains through a coupling device that directly couples to the Voltage Dips and Interruption Generator.

The EUT shall be tested for 30% voltage dip of supplied voltage and duration 25 Periods, for 95% voltage dip of supplied voltage and duration 0.5 Periods with a sequence of three voltage dips with intervals of 10 seconds, and for 95% voltage interruption of supplied voltage and duration 250 Periods with a sequence of three voltage interruptions with intervals of 10 seconds.

Voltage phase shifting are shall occur at 0^0, 45^0, 90^0 ,135^0 ,180^0 ,225^0, 270^0 ,315^0 of the voltage.

14.5. Deviation from Test Standard

No deviation.

14.6. Test Result

Product	Ethernet 100/1000 Converter		
Test Item	Voltage dips and interruption		
Test Mode	Mode 1: Data Transmit for CL-MCSFP-16M		
Date of Test	2011/10/17	Test Site	SR1

AC 100V/50Hz

Voltage Dips and Interruption Reduction(%)	Angle	Test Duration (Periods)	Required Performance Criteria	Performance Criteria Complied To	Test Result
30	0	25	C	A	Pass
30	45	25	C	A	Pass
30	90	25	C	A	Pass
30	135	25	C	A	Pass
30	180	25	C	A	Pass
30	225	25	C	A	Pass
30	270	25	C	A	Pass
30	315	25	C	A	Pass
>95	0	0.5	B	A	Pass
>95	45	0.5	B	A	Pass
>95	90	0.5	B	A	Pass
>95	135	0.5	B	A	Pass
>95	180	0.5	B	A	Pass
>95	225	0.5	B	A	Pass
>95	270	0.5	B	A	Pass
>95	315	0.5	B	A	Pass
>95	0	250	C	B	Pass
>95	45	250	C	B	Pass
>95	90	250	C	B	Pass
>95	135	250	C	B	Pass
>95	180	250	C	B	Pass
>95	225	250	C	B	Pass
>95	270	250	C	B	Pass
>95	315	250	C	B	Pass

☒ Meet criteria A : Operate as intended during and after the test

☒ Meet criteria B : Operate as intended after the test

☐ Meet criteria C : Loss/Error of function

☐ Additional Information

- ☐ The nominal voltage of EUT is 230V.
- ☐ EUT stopped operation and could / could not be reset by operator at _____.
- ☒ No false alarms or other malfunctions were observed during or after the test. The acceptance criteria were met, and the EUT passed the test.

Product	Ethernet 100/1000 Converter		
Test Item	Voltage dips and interruption		
Test Mode	Mode 1: Data Transmit for CL-MCSFP-16M		
Date of Test	2011/10/17	Test Site	SR1

AC 240V/50Hz

Voltage Dips and Interruption Reduction(%)	Angle	Test Duration (Periods)	Required Performance Criteria	Performance Criteria Complied To	Test Result
30	0	25	C	A	Pass
30	45	25	C	A	Pass
30	90	25	C	A	Pass
30	135	25	C	A	Pass
30	180	25	C	A	Pass
30	225	25	C	A	Pass
30	270	25	C	A	Pass
30	315	25	C	A	Pass
>95	0	0.5	B	A	Pass
>95	45	0.5	B	A	Pass
>95	90	0.5	B	A	Pass
>95	135	0.5	B	A	Pass
>95	180	0.5	B	A	Pass
>95	225	0.5	B	A	Pass
>95	270	0.5	B	A	Pass
>95	315	0.5	B	A	Pass
>95	0	250	C	B	Pass
>95	45	250	C	B	Pass
>95	90	250	C	B	Pass
>95	135	250	C	B	Pass
>95	180	250	C	B	Pass
>95	225	250	C	B	Pass
>95	270	250	C	B	Pass
>95	315	250	C	B	Pass

☒ Meet criteria A : Operate as intended during and after the test

☒ Meet criteria B : Operate as intended after the test

☐ Meet criteria C : Loss/Error of function

☐ Additional Information

- ☐ The nominal voltage of EUT is 230V.
- ☐ EUT stopped operation and could / could not be reset by operator at _____.
- ☒ No false alarms or other malfunctions were observed during or after the test. The acceptance criteria were met, and the EUT passed the test.

Product	Ethernet 100/1000 Converter		
Test Item	Voltage dips and interruption		
Test Mode	Mode 2: Data Transmit for CL-MCSFP-16		
Date of Test	2011/10/17	Test Site	SR1

AC 100V/50Hz

Voltage Dips and Interruption Reduction(%)	Angle	Test Duration (Periods)	Required Performance Criteria	Performance Criteria Complied To	Test Result
30	0	25	C	A	Pass
30	45	25	C	A	Pass
30	90	25	C	A	Pass
30	135	25	C	A	Pass
30	180	25	C	A	Pass
30	225	25	C	A	Pass
30	270	25	C	A	Pass
30	315	25	C	A	Pass
>95	0	0.5	B	A	Pass
>95	45	0.5	B	A	Pass
>95	90	0.5	B	A	Pass
>95	135	0.5	B	A	Pass
>95	180	0.5	B	A	Pass
>95	225	0.5	B	A	Pass
>95	270	0.5	B	A	Pass
>95	315	0.5	B	A	Pass
>95	0	250	C	B	Pass
>95	45	250	C	B	Pass
>95	90	250	C	B	Pass
>95	135	250	C	B	Pass
>95	180	250	C	B	Pass
>95	225	250	C	B	Pass
>95	270	250	C	B	Pass
>95	315	250	C	B	Pass

☒ Meet criteria A : Operate as intended during and after the test

☒ Meet criteria B : Operate as intended after the test

☐ Meet criteria C : Loss/Error of function

☐ Additional Information

- ☐ The nominal voltage of EUT is 230V.
- ☐ EUT stopped operation and could / could not be reset by operator at _____.
- ☒ No false alarms or other malfunctions were observed during or after the test. The acceptance criteria were met, and the EUT passed the test.

Product	Ethernet 100/1000 Converter		
Test Item	Voltage dips and interruption		
Test Mode	Mode 2: Data Transmit for CL-MCSFP-16		
Date of Test	2011/10/17	Test Site	SR1

AC 240V/50Hz

Voltage Dips and Interruption Reduction(%)	Angle	Test Duration (Periods)	Required Performance Criteria	Performance Criteria Complied To	Test Result
30	0	25	C	A	Pass
30	45	25	C	A	Pass
30	90	25	C	A	Pass
30	135	25	C	A	Pass
30	180	25	C	A	Pass
30	225	25	C	A	Pass
30	270	25	C	A	Pass
30	315	25	C	A	Pass
>95	0	0.5	B	A	Pass
>95	45	0.5	B	A	Pass
>95	90	0.5	B	A	Pass
>95	135	0.5	B	A	Pass
>95	180	0.5	B	A	Pass
>95	225	0.5	B	A	Pass
>95	270	0.5	B	A	Pass
>95	315	0.5	B	A	Pass
>95	0	250	C	B	Pass
>95	45	250	C	B	Pass
>95	90	250	C	B	Pass
>95	135	250	C	B	Pass
>95	180	250	C	B	Pass
>95	225	250	C	B	Pass
>95	270	250	C	B	Pass
>95	315	250	C	B	Pass

☒ Meet criteria A : Operate as intended during and after the test

☒ Meet criteria B : Operate as intended after the test

☐ Meet criteria C : Loss/Error of function

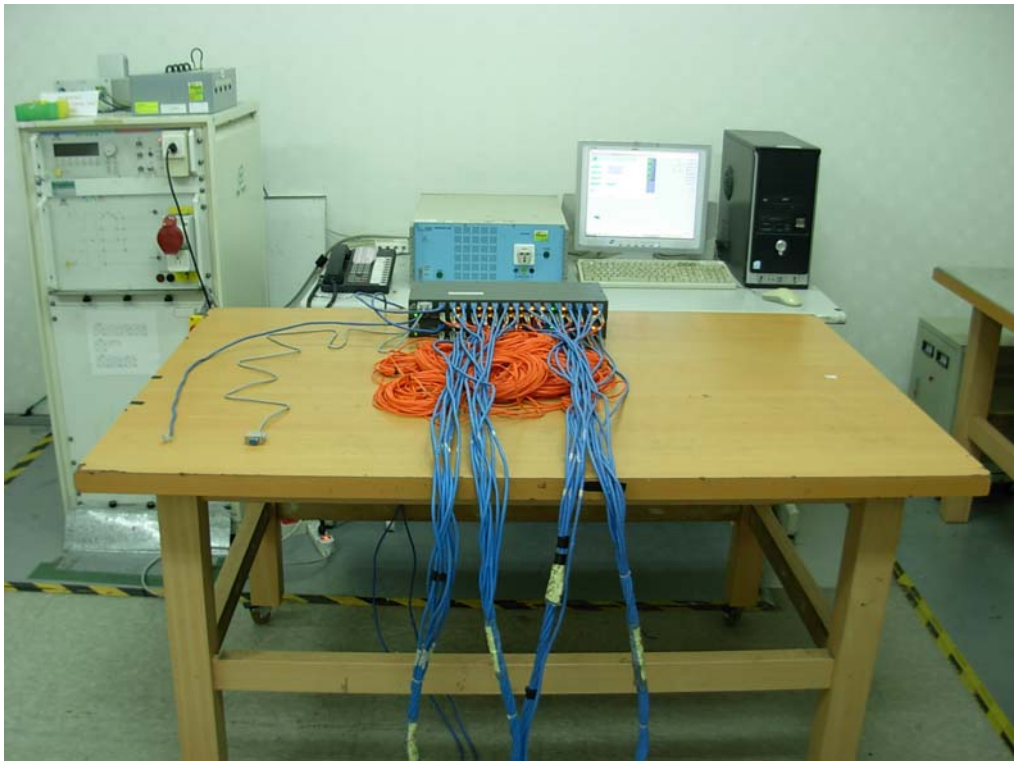
☐ Additional Information

- ☐ The nominal voltage of EUT is 230V.
- ☐ EUT stopped operation and could / could not be reset by operator at _____.
- ☒ No false alarms or other malfunctions were observed during or after the test. The acceptance criteria were met, and the EUT passed the test.

14.7. Test Photograph

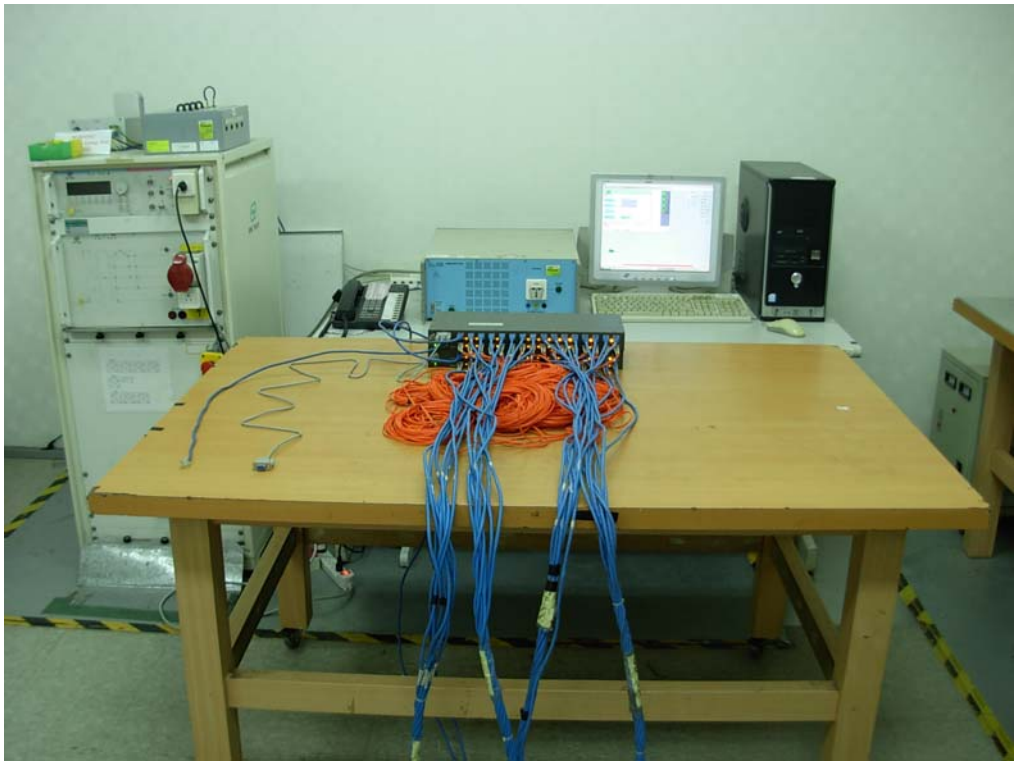
Test Mode : Mode 1: Data Transmit for CL-MCSFP-16M

Description : Voltage Dips and Interruption Test Setup



Test Mode : Mode 2: Data Transmit for CL-MCSFP-16

Description : Voltage Dips and Interruption Test Setup



15. Attachment

➢ EUT Photograph

(1) EUT Photo (M/N: CL-MCSFP-16M)

(2) EUT Photo

(3) EUT Photo (M/N: CL-MCSFP-16)

(4) EUT Photo