Test Report for FCC

FCC ID:TKWXPE

Report Number		ESTF151006-001		
Applicant	Company name	Suprema Inc.		
	Address	16F Parkview Office Tower, Jeongja-dong, Bundang-gu, Seongnam, Gyeonggi, 463-863 Korea		
	Telephone	82-31-710-2492		
Product	Product name	XPASS		
	Model No.	XPE-E, XPE	Manufacturer	Suprema Inc.
	Serial No.	NONE	Country of origin	KOREA
Test date	2010-4-14 ~ 2010-4-28		Date of issue	9-Jun-10
Testing location	ESTECH. Co., Ltd. 97-1 Hoiuk-Ri Majang-Myon, Icheon-city, KyungKi-Do, Korea			
Standard	FCC PART 15 2008 , ANSI C 63.4 2003			
Test item	■ Conducted Emission	□ Class A ■ Class B	Test result	OK
	■ Radiated Emission	□ Class A ■ Class B	Test result	OK
Measurement facility registration number		94696		
Tested by	Senior Engineer J.H.Kim	(Signature)		
Reviewed by	Engineering Manager J.M.Yang	(Signature)		
Abbreviation	OK, Pass = Passed, Fail = Failed, N/A = not applicable			

* Note

- XPE-E : This model has a POE function.
- XPE : This model hasn't a POE function.
- This test report is not permitted to copy partly without our permission
- This test result is dependent on only equipment to be used
- This test result based on a single evaluation of one sample of the above mentioned

Contents

1. Laboratory Information

1.1 General

This EUT (Equipment Under Test) has been shown to be capable of compliance with the applicable technical standards and is tested in accordance with the measurement procedures as indicated in this report.
ESTECH Lab attests to accuracy of test data. All measurement reported herein were performed by ESTECH Co., Ltd.
ESTECH Lab assume full responsibility for the completeness of these measurements and vouch for the qualifications of all persons taking them.

1.2 Test Lab.

Corporation Name : ESTECH Co. Ltd

Head Office : Rm 1015, World Venture Center II, 426-5, Gasan-dong, Geumcheon-gu, Seoul, Kor
(Safety & Telecom. Test Lab)

EMC Test Lab : 58-1 Osan-Ri, GaNam-Myon, YeoJoo-Gun, KyungKi-Do, Korea
97-1 Hoiuk-Ri Majang-Myon, Icheon-city, KyungKi-Do, Korea

1.3 Official Qualification(s)

KCC : Granted Accreditation from Ministry of Information & Communication for EMC, Safety and Telecommunication
KOLAS : Accredited Lab By Korea Laboratory Accreditation Schema base on CENELEC requirements
FCC : Filed Laboratory at Federal Communications Commission
VCCI : Granted Accreditation from Voluntary Control Council for Interference from ITE

2. Description of EUT

2.1 Summary of Equipment Under Test

Product Name : XPASS
Model Number : XPE-E, XPE
Serial Number : NONE
Manufacturer : Suprema Inc.
Country of origin : KOREA
Rating : AC input 100-240V,1.0A, 50-60Hz,DC output 12V----2.5A
Receipt Date : 13-Apr-10
X-tal lists : 32.768 kHz, 25 MHz, 16 MHz

2.2 General descriptions of EUT

Specification

CPU	32 bit Micro-processor
Memory	8MB FLASH + 16MB SDRAM
RF Card	125 KHz EM Prox (XPE)
User Capacity	40000 user
Log Capacity	50000 log
Network interfaces	TCP/IP, RS485
IP Rate	IP 65 class
Sound	Multi-tone buzzer
LED	Multi-color LED
RTC	Lithium-ion rechargeable batteries
I/O	Relay x 1 Tamper x 1 Switch input x 2 Wiegand x 1
Power	12Vdc, POE
Operating Temperature	-20 ~ 50° C
Size	45 x 130 x 27mm (W x H x D)
Certificates	CE, FCC, KCC, IP65

3. Test Standards

Test Standard : FCC PART 15 (2008)

This Standard sets out the regulations under which an intentional, unintentional, or incidental radiator may be operated without an individual license. It also contains the technical specifications, administrative requirements and other conditions relating to the marketing of Part 15 devices.

Test Method : ANSI C 63.4 (2003)

This standard sets forth uniform methods of measurement of radio-frequency (RF) signals and noise emitted from both unintentional and intentional emitters of RF energy in the frequency range 9 kHz to 40 GHz. Methods for the measurement of radiated and AC power-line conducted radio noise are covered and may be applied to any such equipment unless otherwise specified by individual equipment requirements. These methods cover measurement of certain decides that deliberately radiate energy, such as intentional emitters, but does not cover licensed transmitters. This standard is not intended for certification/approval of avionic equipment or for industrial, scientific, and medical (ISM) equipment These method apply to the measurement of individual units or systems comprised of multiple units

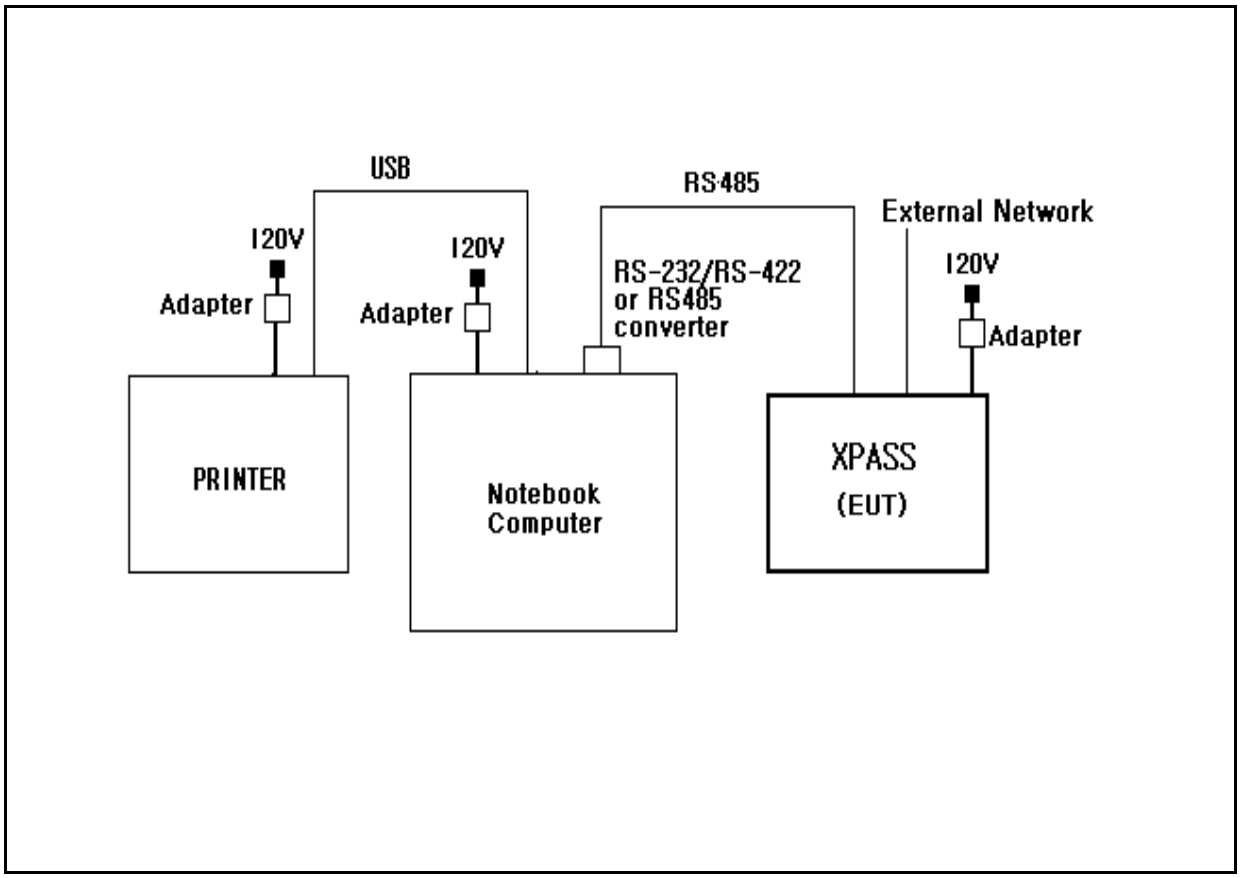
4. Measurement Condition

Test mode: ADAPTER 1 mode(POE MODULE Mounting)
ADAPTER 2 mode(POE MODULE Remove)

4.1 EUT Operation.

1. Check to normal mode operation
2. The operational conditions of the EUT was determined by the manufacturer according to the typical use of the EUT with respect to the expected highest level of emission.
3. Connect fingerprint System to note PC and connect Lan port to Ethernet Switch
4. Xpass system and check action availability from Note PC.
5. Receiving packet data between external network.

4.2 Configuration and Peripherals



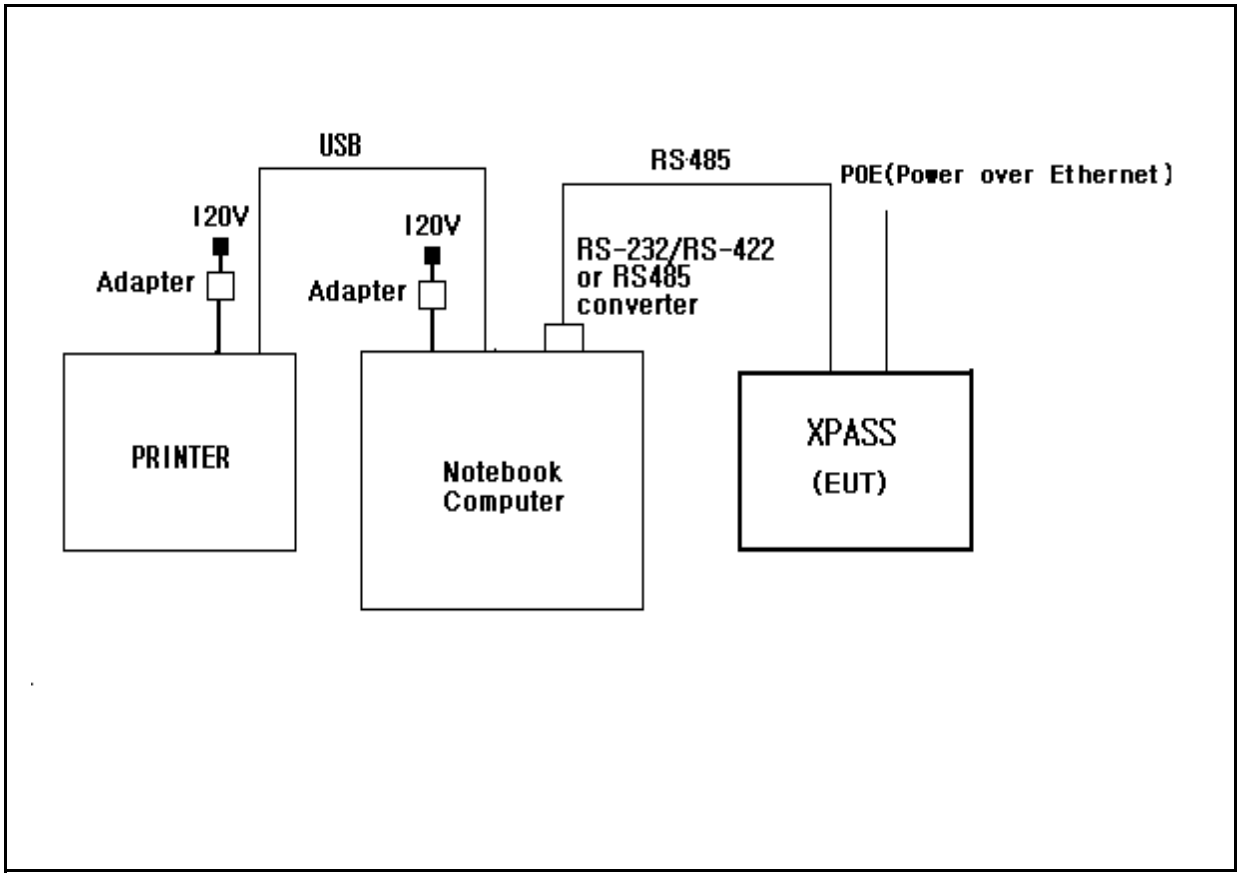
4. Measurement Condition

Test mode: POE(Power over Ethernet)

4.1 EUT Operation.

1. Check to normal mode operation
2. The operational conditions of the EUT was determined by the manufacturer according to the typical use of the EUT with respect to the expected highest level of emission.
3. Connect Xpass System to note PC and connect Lan port to POE Ethernet Switch
4. Xpass system and check action availability from Note PC.
5. Receiving packet data between external network.

4.2 Configuration and Peripherals



4.3 EUT and Support equipment

ADAPTER 1 mode(POE MODULE Mounting) &
ADAPTER 2 mode(POE MODULE Remove)

Equipment Name	Model Name	S/N	Manufacturer	Remark (FCC ID)
XPASS	XPE-E, XPE	NONE	Suprema Inc.	EUT
Adapter	JPW128KA1200N04	NONE	Bridge Power Corp.	
Notebook Computer	PPT	NONE	Dell Inc.	
Adapter	PA-1650-05PK	71615-52P-0475.	Dongguang Lite Power 2nd Plant	
RS485 converter	TCC-80	TZHD010242	Moxa Technologies Co.,Ltd.	
Printer	K10299	NONE	CANON VIETNAM CO.,LTD.	

4.4 Cable Connecting

Start Equipment		End Equipment		Cable Standard		Remark
Name	I/O port	Name	I/O port	Length	Shielded	
XPASS	LAN	External Network	LAN	20	No	
XPASS	LINE(RS-485)	RS485 converter	LINE(RS-485)	3	Yes	
XPASS	POWER	Adapter	-	2	No	
Notebook Computer	Serial	RS485 converter	Serial	-	Yes	
Notebook Computer	USB	PRINTER	USB	2	Yes	
Notebook Computer	POWER	Adapter	-	2	No	

4.3 EUT and Support equipment

POE(Power over Ethernet)

Equipment Name	Model Name	S/N	Manufacturer	Remark (FCC ID)
XPASS	XPE-E, XPE	NONE	Suprema Inc.	EUT
Notebook Computer	PPT	NONE	Dell Inc.	
Adapter	PA-1650-05PK	71615-52P-0475.	Dongguang Lite Power 2nd Plant	
PRINTER	MJC-5750	NA34BFFP313402V	SAMSUNG ELECTRONICG (SHANDONG)DIGITAL PRINTNG CO.,LTD	
Adapter	PA8040WB	0703016518	Betec Electronics (DongGuan) Co.,Ltd	
RS485 converter	TCC-80	TZHD010242	Moxa Technologies Co.,Ltd.	

4.4 Cable Connecting

Start Equipment		End Equipment		Cable Standard		Remark
Name	I/O port	Name	I/O port	Length	Shielded	
XPASS	POE(Power over Ethernet)	Prosafe Switch With POE	POE(Power over Ethernet)	20	No	
XPASS	LINE(RS-485)	RS485 converter	LINE(RS-485)	3	Yes	
Notebook Computer	Serial	RS485 converter	Serial	-	Yes	
Notebook Computer	USB	PRINTER	USB	2	Yes	
Notebook Computer	POWER	Adapter	-	2	No	

5. Measurement of radiated disturbance

Above 30 MHz Electric Field strength was measured in accordance with FCC Part 15 (2008) & ANSI C 63.4 (2003). The test setup was made according to FCC Part 15 (2008) & ANSI C 63.4 (2003) on an open test site, which allows a 3m distance measurement. The EUT was placed in the center of wooden turntable. The height of this table was 0.8m. The measurement was conducted with both horizontal and vertical antenna polarization. The turntable has fully rotated. For further description of the configuration refer to the picture of the test setup.

5.1 Measurement equipments

Equipment Name	Type	Manufacturer	Serial No.	Next Calibration date
Receive	ESVS10	Rohde & Schwarz	838562/002	2011. 2. 1
Spectrum Analyzer	R3273	ADVANTEST	110600592	2011. 2. 1
Logbicon Antenna	VULB9168	Schwarzbeck	237	2010. 9. 17
Amplifier	8447F	HP	2805A02972	2011. 2. 1
Turn Table	2087	EMCO	2129	-
Antenna Mast	2070-01	EMCO	9702-203	-
ANT Mast Controller	2090	EMCO	1535	-
Turn Table Controller	2090	EMCO	1535	-

5.2 Environmental Condition

Test Place : Open site(3m)
Temperature (°C) : 22 ℃
Humidity (%) : 48 % R.H.

5.3 Test data Test mode: ADAPTER 1 mode(POE MODULE Mounting)

Test Date : 14-Apr-10 Measurement Distance : 3 m

Frequency (MHz)	Reading (dBμV)	Position (V/H)	Height (m)	Correction Factor		Result Value		
				Ant Factor (dB)	Cable (dB)	Limit (dBμV/m)	Result (dBμV/m)	Margin (dB)
30.62	18.00	V	1.0	11.24	0.9	40.0	30.12	-9.88
61.67	19.00	V	1.0	11.33	1.2	40.0	31.53	-8.47
116.52	14.00	V	1.0	10.85	1.7	43.5	26.56	-16.94
144.04	8.10	H	3.4	12.76	2.0	43.5	22.86	-20.64
166.66	14.90	H	1.8	12.18	2.2	43.5	29.24	-14.26
233.33	19.70	H	1.4	10.82	2.6	46.0	33.15	-12.85
258.77	22.70	H	1.2	11.67	2.8	46.0	37.21	-8.79
299.98	23.80	H	1.2	12.95	3.2	46.0	39.93	-6.07
335.16	11.60	H	1.2	13.69	3.6	46.0	28.84	-17.16
387.86	15.20	V	1.0	14.86	3.9	46.0	33.98	-12.02
500.00	12.70	V	1.0	17.10	4.8	46.0	34.55	-11.45
625.00	12.00	V	1.0	19.76	5.7	46.0	37.42	-8.59

Remark	H : Horizontal, V : Vertical *There is no detected Radiated Emission above 1GHz *CL = Cable Loss-Amplifier Gain(In case of above1000Mhz) *CL = Cable Loss(In case of below1000Mhz) *The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120KHz for Quasi-peak detection at frequency below 1GHz. *The resolution bandwidth and video bandwidth of spectrum analyzer is 1MHz and 10Hz for average detection at frequency above 1GHz.

5.3 Test data Test mode: ADAPTER 2 mode(POE MODULE Remove)

Test Date : 28-Apr-10 Measurement Distance : 3 m

Frequency (MHz)	Reading (dBμV)	Position (V/H)	Height (m)	Correction Factor		Result Value		
				Ant Factor (dB)	Cable (dB)	Limit (dBμV/m)	Result (dBμV/m)	Margin (dB)
40.39	17.90	V	1.0	11.72	1.0	40.0	30.58	-9.42
81.83	16.00	V	1.0	8.11	1.4	40.0	25.49	-14.51
114.28	12.40	V	1.0	10.64	1.7	43.5	24.71	-18.79
166.66	17.30	V	1.0	12.18	2.2	43.5	31.64	-11.86
194.00	13.00	H	2.5	10.10	2.3	43.5	25.42	-18.08
214.84	15.70	V	1.0	10.18	2.5	43.5	28.36	-15.14
233.32	20.10	V	1.0	10.82	2.6	46.0	33.55	-12.45
300.00	22.40	V	1.0	12.95	3.2	46.0	38.53	-7.47
317.48	16.30	H	1.5	13.32	3.4	46.0	32.99	-13.01
352.01	16.40	V	1.0	14.05	3.7	46.0	34.11	-11.89
366.65	18.80	V	1.0	14.38	3.7	46.0	36.93	-9.07
433.32	14.70	V	1.0	16.07	4.3	46.0	35.11	-10.89
499.98	12.30	V	1.0	17.10	4.7	46.0	34.15	-11.85

Remark	H : Horizontal, V : Vertical *There is no detected Radiated Emission above 1GHz *CL = Cable Loss-Amplifier Gain(In case of above1000Mhz) *CL = Cable Loss(In case of below1000Mhz) *The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120KHz for Quasi-peak detection at frequency below 1GHz. *The resolution bandwidth and video bandwidth of spectrum analyzer is 1MHz and 10Hz for average detection at frequency above 1GHz.

5.3 Test data Test mode: POE(Power over Ethernet)

Test Date : 14-Apr-10 Measurement Distance : 3 m

Frequency (MHz)	Reading (dBμV)	Position (V/H)	Height (m)	Correction Factor		Result Value		
				Ant Factor (dB)	Cable (dB)	Limit (dBμV/m)	Result (dBμV/m)	Margin (dB)
33.33	16.70	V	1.0	11.13	0.9	40.0	28.73	-11.27
114.90	10.20	V	1.0	10.70	1.7	43.5	22.58	-20.92
133.01	16.80	H	2.9	12.21	1.9	43.5	30.87	-12.63
166.66	20.00	V	1.0	12.18	2.2	43.5	34.34	-9.16
175.98	16.00	H	2.5	11.42	2.2	43.5	29.61	-13.89
210.89	17.90	H	2.3	10.05	2.4	43.5	30.38	-13.12
233.32	21.00	H	1.6	10.82	2.6	46.0	34.45	-11.55
250.00	20.40	H	1.4	11.40	2.8	46.0	34.59	-11.41
299.97	22.40	H	2.0	12.95	3.2	46.0	38.53	-7.47
366.64	15.20	H	1.0	14.38	3.7	46.0	33.33	-12.67
433.32	17.80	H	1.0	16.07	4.3	46.0	38.21	-7.79
499.98	15.40	H	1.0	17.10	4.7	46.0	37.25	-8.75
566.65	10.80	H	1.0	18.62	5.3	46.0	34.70	-11.30

Remark	H : Horizontal, V : Vertical *There is no detected Radiated Emission above 1GHz *CL = Cable Loss-Amplifier Gain(In case of above1000Mhz) *CL = Cable Loss(In case of below1000Mhz) *The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120KHz for Quasi-peak detection at frequency below 1GHz. *The resolution bandwidth and video bandwidth of spectrum analyzer is 1MHz and 10Hz for average detection at frequency above 1GHz.

6. Measurement of conducted disturbance

The continuous disturbance voltage of AC Mains in the frequency from 0.15 to 30 MHz was measured in accordance to FCC Part 15 (2008) & ANSI C 63.4 (2003) The test setup was made according to FCC Part 15 (2008) & ANSI C 63.4 (2003) in a shielded Room. The EUT was placed on a non-conductive table at least 80 above the ground plan. A grounded vertical reference plane was positioned in a distance of 40cm from the EUT. The distance from the EUT to other metal surfaces was at least 0.8m. The EUT was only earthen by its power cord through the line impedance stabilizing network. The power cord has been bundled to a length of 1.0m.. The test receiver with Quasi Peak detector complies with CISPR 16.

6.1 Measurement equipments

Equipment Name	Type	Manufacturer	Serial No.	Next Calibration date
LISN	ESH3-Z5	Schwarzbeck	838979/010	2011. 2. 1
LISN	NNLA8120A	Schwarzbeck	8120161	2011. 2. 1
TEST Receiver	ESPI7	Rohde & Schwarz	100185	2011. 2. 1
Pulse Limiter	ESH3Z2	Rohde & Schwarz	NONE	2011. 2. 1

6.2 Environmental Condition

Test Place : Shielded Room

Temperature (°C) : 24 ℃

Humidity (%) : 42 % R.H.

6.3 Test data Test mode: ADAPTER 1 mode(POE MODULE Mounting)

Test Date : 14-Apr-10

Frequency (MHz)	Correction Factor		Line (H/N)	Quasi-peak Value			Average Value		
	Lisn (dB)	Cable (dB)		Limit (dBμV)	Reading (dBμV)	Result (dBμV)	Limit (dBμV)	Reading (dBμV)	Result (dB)
0.20	0.10	0.4	N	63.69	38.02	38.51	53.69	28.52	29.01
0.25	0.11	0.4	N	61.69	24.05	24.55	51.69	19.20	19.70
0.26	0.11	0.4	H	61.30	33.34	33.84	51.30	22.64	23.14
0.30	0.11	0.4	N	60.33	36.73	37.24	50.33	22.85	23.36
0.33	0.11	0.4	H	59.38	32.46	32.98	49.38	21.88	22.40
0.40	0.11	0.4	H	57.94	33.05	33.58	47.94	23.47	24.00
0.60	0.12	0.5	H	56.00	36.43	37.00	46.00	26.70	27.27
0.67	0.12	0.5	N	56.00	32.37	32.95	46.00	23.26	23.84
3.49	0.24	0.7	H	56.00	33.43	34.33	46.00	23.96	24.86
3.63	0.25	0.7	H	56.00	33.67	34.59	46.00	23.14	24.06
4.42	0.28	0.7	N	56.00	35.70	36.72	46.00	25.29	26.31
4.94	0.31	0.8	H	56.00	35.74	36.82	46.00	26.11	27.19
6.72	0.36	0.8	H	60.00	39.88	41.08	50.00	23.70	24.90
8.97	0.38	0.9	H	60.00	40.17	41.48	50.00	32.92	34.23
9.95	0.39	1.0	H	60.00	41.59	42.94	50.00	29.69	31.04
10.74	0.42	1.0	H	60.00	41.74	43.15	50.00	31.67	33.08
13.51	0.51	1.1	H	60.00	40.48	42.10	50.00	30.17	31.79
14.83	0.55	1.2	H	60.00	39.54	40.17	50.00	31.15	32.87
Remark	H : Hot Line, N : Neutral Line								

6.3 Test data Test mode: ADAPTER 2 mode(POE MODULE Remove)

Test Date : 28-Apr-10

Frequency (MHz)	Correction Factor		Line (H/N)	Quasi-peak Value			Average Value		
	Lisn (dB)	Cable (dB)		Limit (dBμV)	Reading (dBμV)	Result (dBμV)	Limit (dBμV)	Reading (dBμV)	Result (dB)
0.20	0.10	0.4	N	63.69	38.25	38.74	53.69	28.65	29.14
0.26	0.11	0.4	N	61.40	33.16	33.66	51.40	24.68	25.18
0.30	0.11	0.4	N	60.33	37.08	37.59	50.33	29.75	30.26
0.33	0.11	0.4	N	59.38	31.38	31.90	49.38	23.47	23.99
0.40	0.11	0.4	N	57.94	31.90	32.43	47.94	23.74	24.27
0.46	0.12	0.4	H	56.66	29.28	29.83	46.66	20.88	21.43
2.05	0.18	0.5	H	56.00	30.80	31.53	46.00	21.55	22.28
2.70	0.21	0.6	H	56.00	31.09	31.90	46.00	20.91	21.72
2.84	0.22	0.6	H	56.00	31.81	32.63	46.00	21.29	22.11
3.56	0.25	0.7	H	56.00	33.32	34.23	46.00	23.39	24.30
3.53	0.25	0.7	H	56.00	32.98	33.89	46.00	23.15	24.06
4.35	0.28	0.7	H	56.00	35.48	36.49	46.00	24.39	25.40
5.93	0.34	0.8	H	60.00	38.57	39.72	50.00	28.40	29.55
6.79	0.36	0.8	H	60.00	39.11	40.32	50.00	29.25	30.46
7.32	0.37	0.9	H	60.00	40.61	41.84	50.00	31.32	32.55
8.11	0.38	0.9	H	60.00	40.96	42.23	50.00	32.13	33.40
10.15	0.40	1.0	H	60.00	40.29	41.65	50.00	30.60	31.96
10.68	0.41	1.0	H	60.00	35.25	36.65	50.00	29.29	30.69
Remark	H : Hot Line, N : Neutral Line								

7. Photographs of test setup

Test mode: ADAPTER 1 mode(POE MODULE Mounting)
ADAPTER 2 mode(POE MODULE Remove)

7.1 Setup for Radiated Test

[Front]

[Rear]

7. Photographs of test setup

Test mode: POE(Power over Ethernet)

7.1 Setup for Radiated Test

[Front]

[Rear]

7.2 Setup for Conducted Test : 0.15 MHz ~ 30 MHz

[Front]

[Rear]

8. Photographs of EUT

[Front]

[Rear]

8.1 Photographs of EUT

[Front]

[Label]

Appendix 1. Phorographs of EUT in side PCB

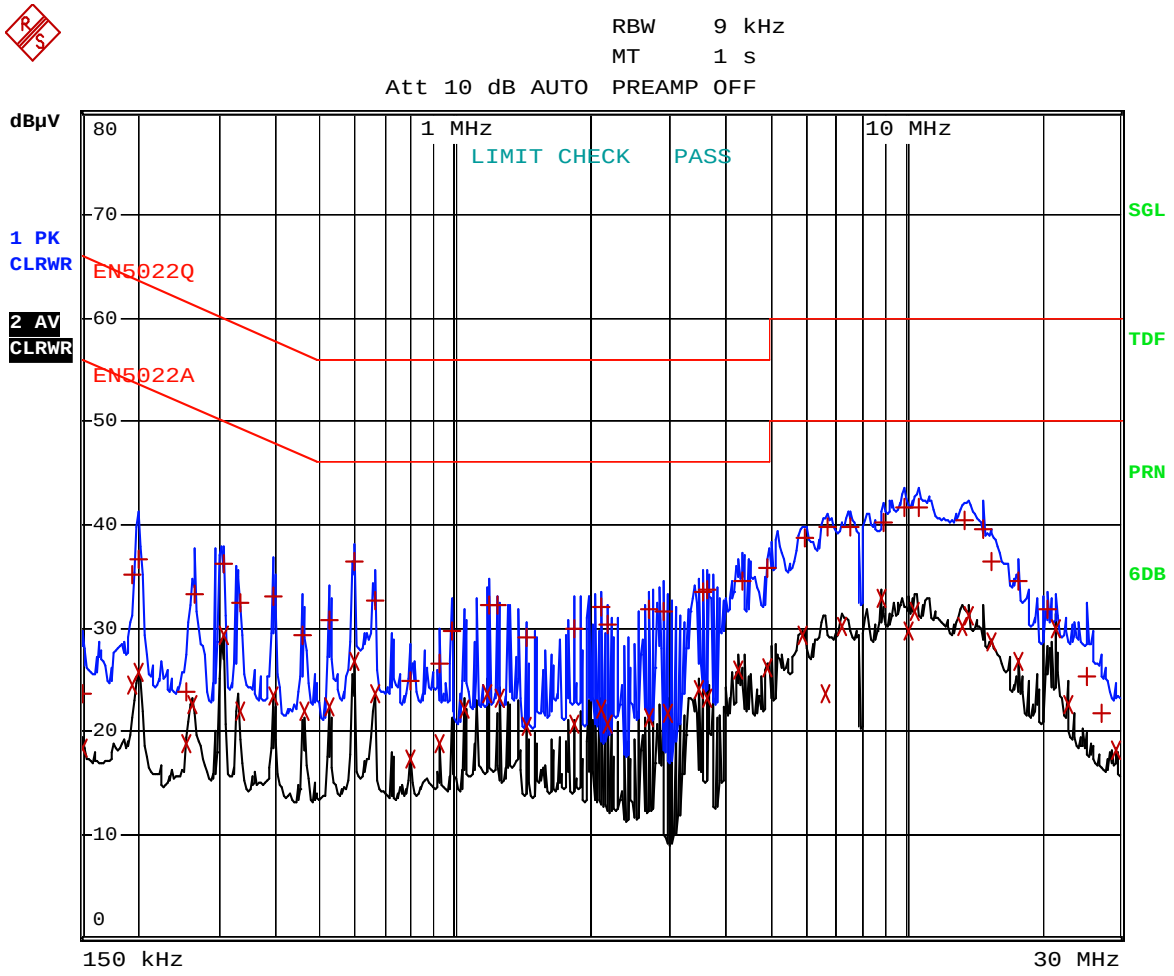
(POE MODULE Mounting)

(POE MODULE Remove)

Appendix 2. Spectral diagram

ADAPTER 1 mode(POE MODULE Mounting)

*HOT



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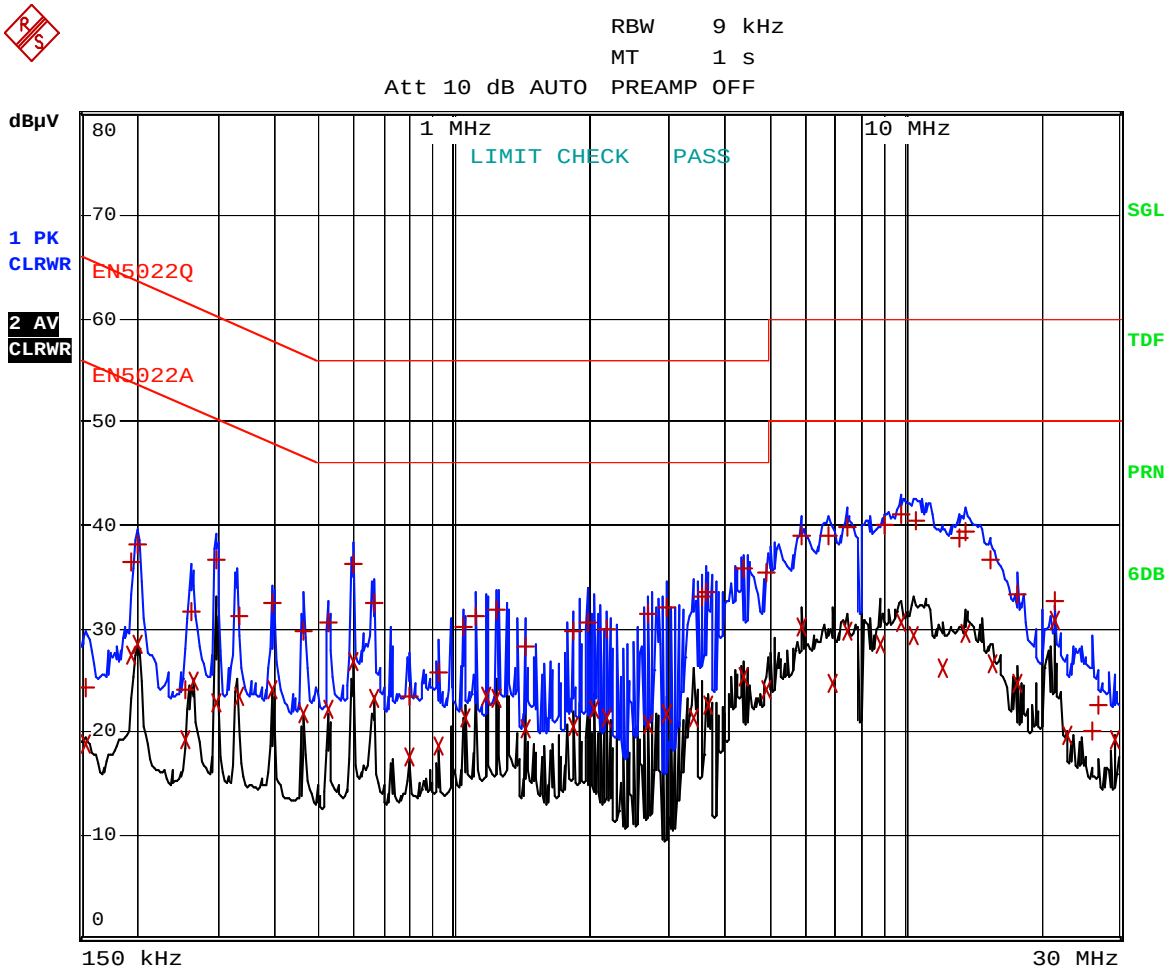
*NEUTRAL



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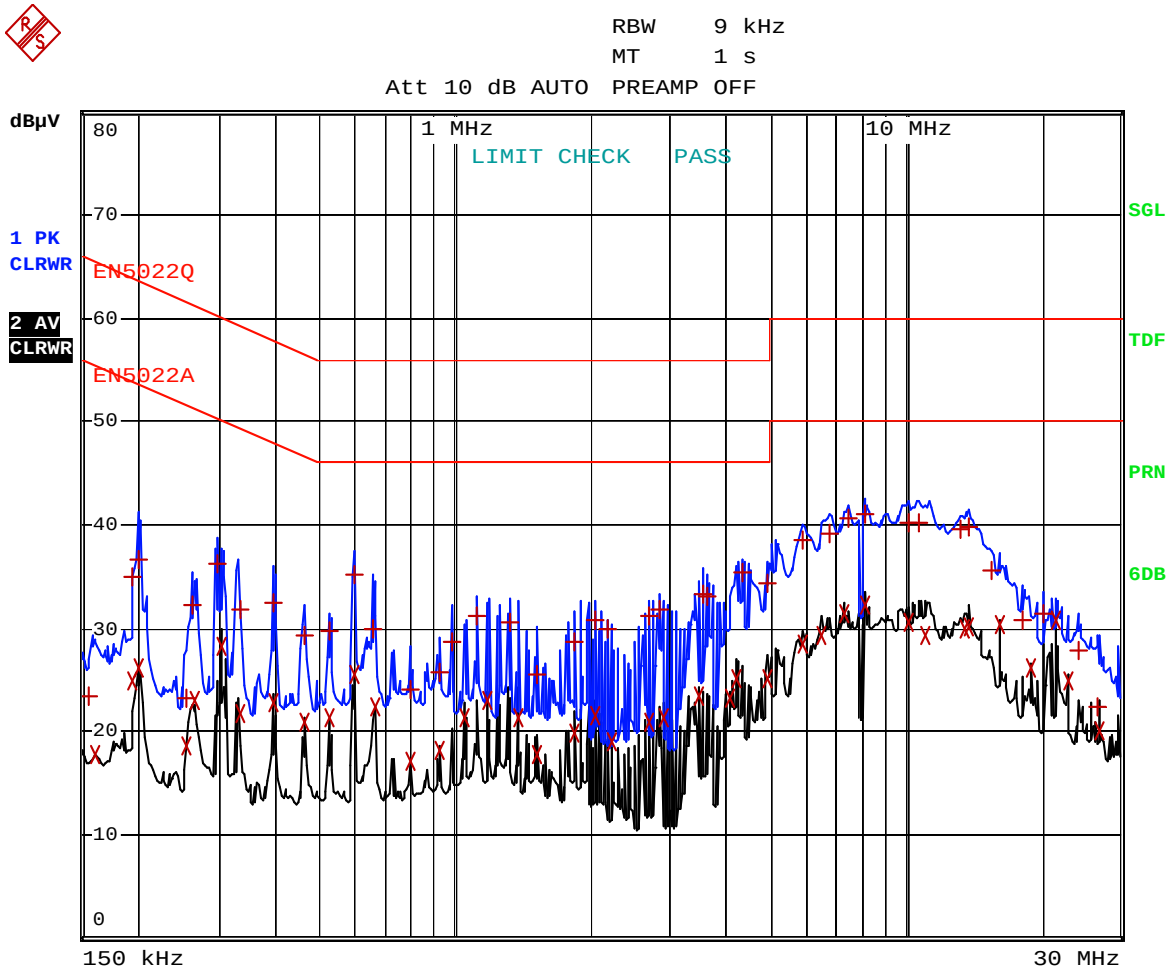
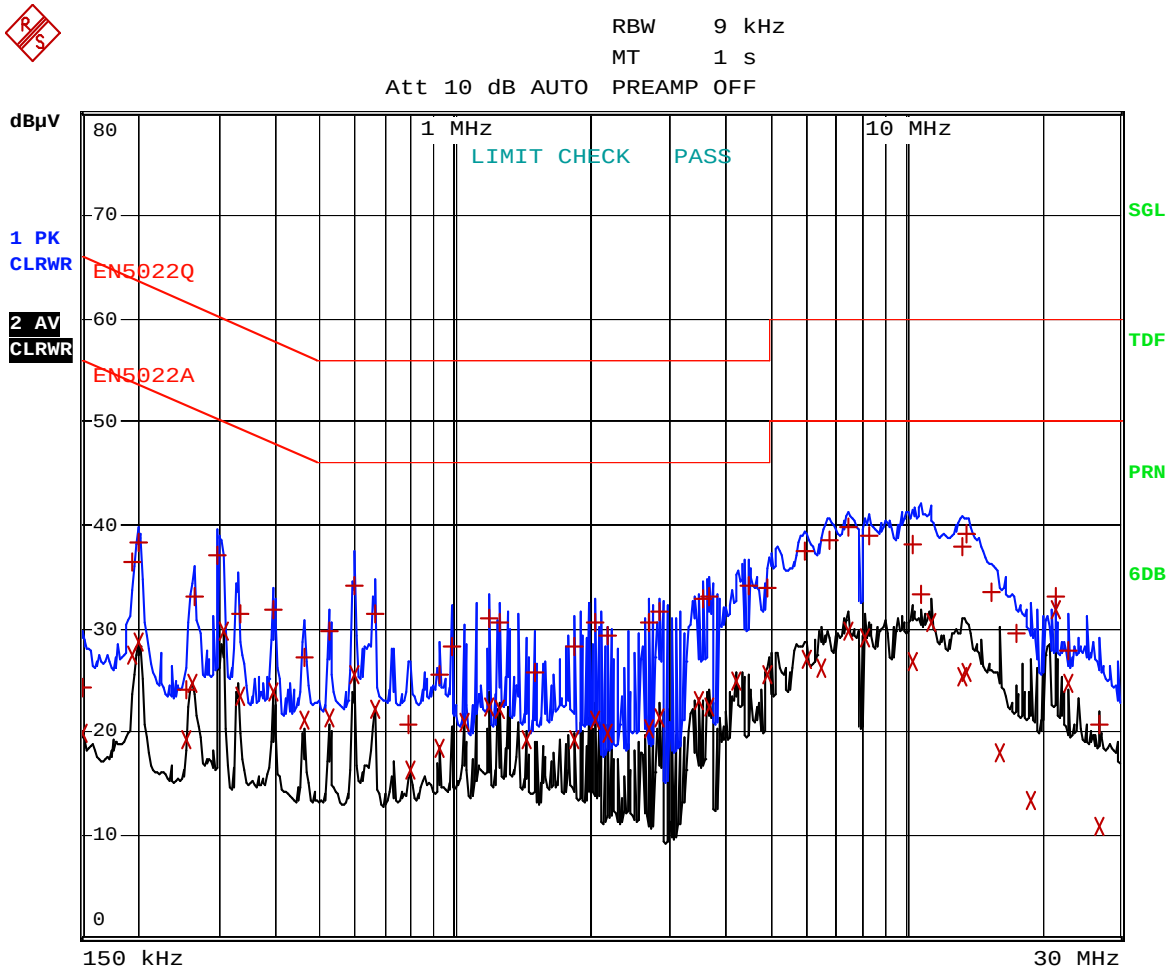
ADAPTER 2 mode(POE MODULE Remove)

*HOT



Comment: XPE-E(Only adapter)_HOT
Date: 28.APR.2010 09:49:05

*NEUTRAL



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