



Module test report

Rev. 0.2

2008/8/19

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Revision History

Revision	Date	Comment
0.1	2008/03/28	Initial version
0.2	2008/08/19	Add Award+ application example
0.3	2008/09/05	Add trunk throughput test

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1 Introduction

1.1 Scope

The purpose of the test report is helping test engineers setup the testing environment, evaluate the Falcon capability, and provide the reference behavior of real product. The scope including the performance in different condition, network character, real application behavior, and stability.

2 Reference design

2.1 *Aerolite*

2.1.1 Hardware

2.2 *Aero*

2.2.1 Hardware

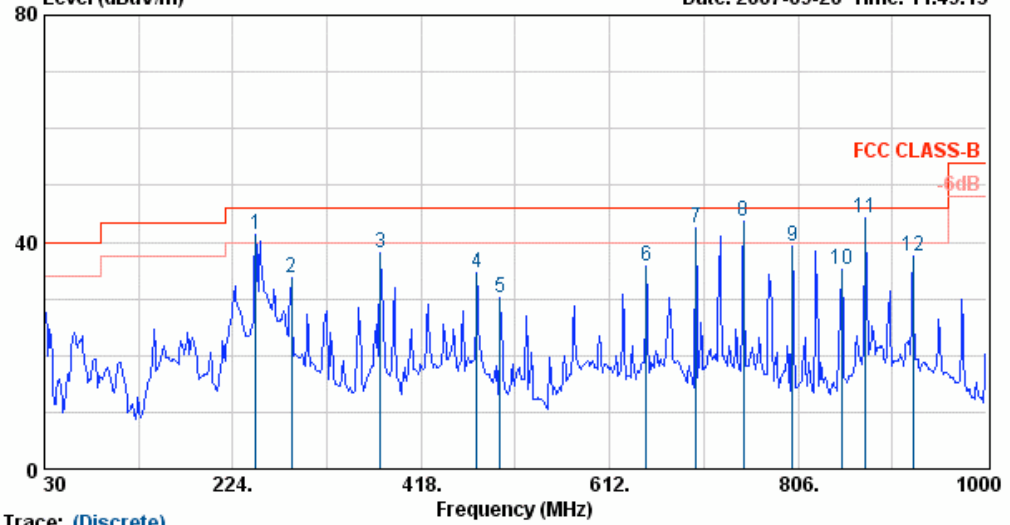
2.2.1.1 Power consumption

2.2.1.2 FCC-B

Federal Communications Commission - lass B

Tested in ACADEMIA SINICA (中研院)

Data: 104 File: C:\Program Files\3廠商\2007 廠商\義傳\AERO1.0.EMI (105) Date: 2007-09-20 Time: 11:49:15

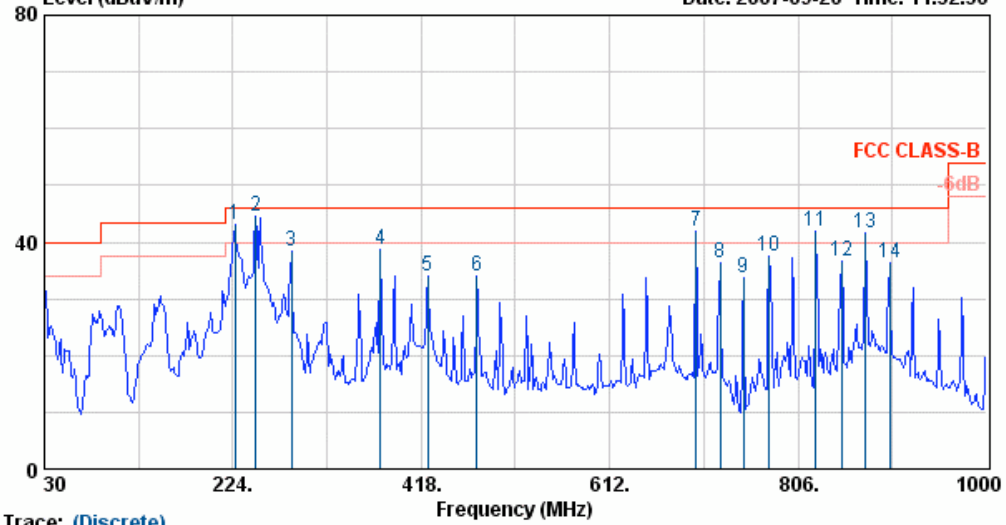


Trace: (Discrete)

Site : 743 chamber
 Condition: FCC CLASS-B 3m CBL6112B-2563 HORIZONTAL
 eut : AEROP 2.3
 power : 110V/60Hz
 memo : Add choke
 : short cap
 tester : ruey

	Freq	Level	Over	Limit	Read	Preamp	Antenna	Cable		
	MHz	dBuV/m	Limit	Line	Level	Factor	Factor	Loss	Pol/Phase	Distance
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB/m	dB		m
1 !	247.28	41.36	-4.64	46.00	53.74	26.50	12.51	1.61	HORIZONTAL	3
2	284.14	33.83	-12.17	46.00	45.24	26.53	13.37	1.74	HORIZONTAL	3
3	376.29	38.05	-7.95	46.00	47.15	27.32	16.08	2.13	HORIZONTAL	3
4	475.23	34.61	-11.39	46.00	42.64	28.16	17.61	2.52	HORIZONTAL	3
5	499.48	30.12	-15.88	46.00	38.19	28.44	17.72	2.65	HORIZONTAL	3
6	649.83	35.79	-10.21	46.00	42.41	28.63	18.94	3.07	HORIZONTAL	3
7 !	701.24	42.51	-3.49	46.00	48.25	28.56	19.43	3.39	HORIZONTAL	3
8 !	749.74	43.81	-2.19	46.00	48.59	28.49	20.20	3.51	HORIZONTAL	3
9	800.18	39.38	-6.62	46.00	44.30	28.52	20.13	3.47	HORIZONTAL	3
10	851.59	35.19	-10.81	46.00	39.51	28.48	20.56	3.59	HORIZONTAL	3
11 **	875.84	44.14	-1.86	46.00	48.02	28.34	20.70	3.77	HORIZONTAL	3
12	924.34	37.61	-8.39	46.00	41.05	28.23	20.88	3.91	HORIZONTAL	3

Data: 105 File: C:\Program Files\3\廠商\2007 廠商\義傳\AERO1.0.EMI (105)
Level (dBuV/m) Date: 2007-09-20 Time: 11:52:30

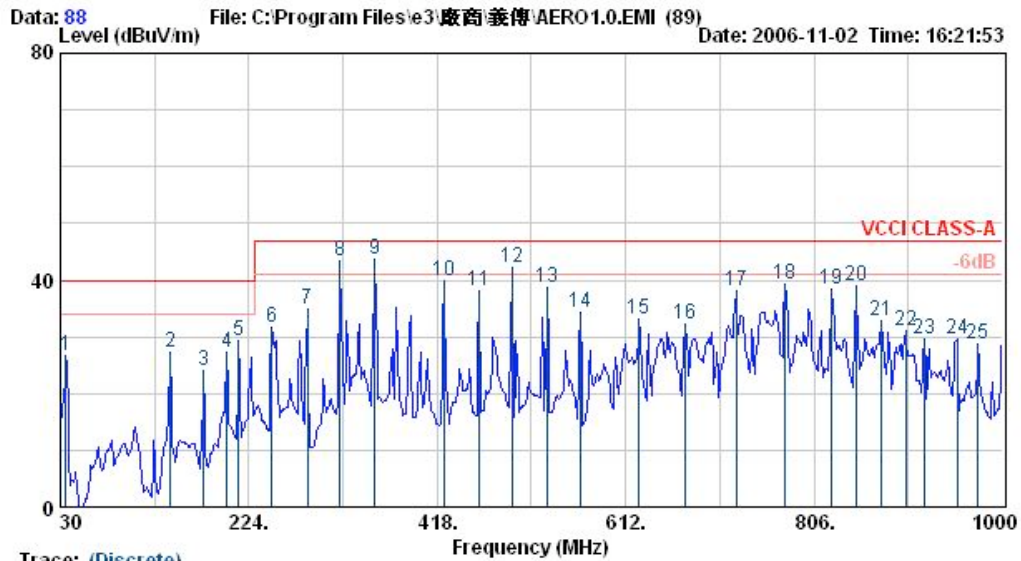


Site : 743 chamber
Condition: FCC CLASS-B 3m CBL6112B-2563 VERTICAL
Antenna : AEROP 2.3
Power : 110V/60Hz
Memo : Add choke
Tester : ruey

	Freq	Level	Over	Limit	Read	Preamp	Antenna	Cable		
	MHz	dBuV/m	Limit	Line	Level	Factor	Factor	Loss	Pol/Phase	Distance
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB/m	dB		m
1 !	225.94	43.19	-2.81	46.00	57.70	26.66	10.68	1.47	VERTICAL	3
2 **	247.28	44.41	-1.59	46.00	56.79	26.50	12.51	1.61	VERTICAL	3
3	284.14	38.38	-7.62	46.00	49.80	26.53	13.37	1.74	VERTICAL	3
4	376.29	38.62	-7.38	46.00	47.72	27.32	16.08	2.13	VERTICAL	3
5	424.79	34.08	-11.92	46.00	42.50	27.80	17.06	2.32	VERTICAL	3
6	475.23	33.85	-12.15	46.00	41.88	28.16	17.61	2.52	VERTICAL	3
7 !	701.24	42.05	-3.95	46.00	47.79	28.56	19.43	3.39	VERTICAL	3
8	725.49	36.35	-9.65	46.00	41.52	28.56	20.00	3.39	VERTICAL	3
9	749.74	33.62	-12.38	46.00	38.40	28.49	20.20	3.51	VERTICAL	3
10	775.93	37.50	-8.50	46.00	42.28	28.49	20.25	3.46	VERTICAL	3
11 !	824.43	41.77	-4.23	46.00	46.26	28.44	20.32	3.63	VERTICAL	3
12	851.59	36.67	-9.33	46.00	40.99	28.48	20.56	3.59	VERTICAL	3
13 !	875.84	41.57	-4.43	46.00	45.45	28.34	20.70	3.77	VERTICAL	3
14	900.09	36.44	-9.56	46.00	39.86	28.20	20.74	4.04	VERTICAL	3

2.2.1.3 VCCI-A

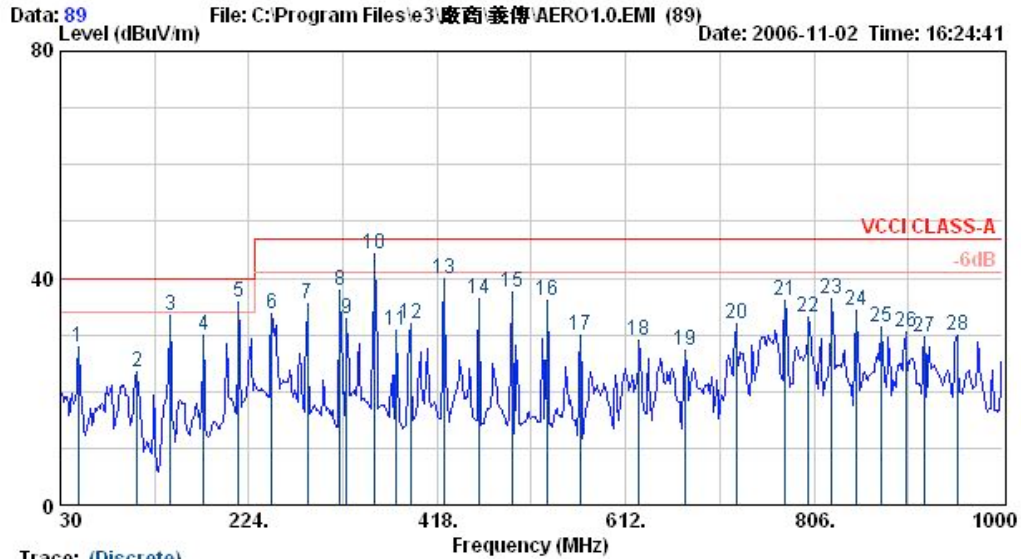
Voluntary Control Council for Interference by Information Technology Equipment



Trace: (Discrete)

Site :site
Condition:VCCI CLASS-A 10m CBL6112B-2563 HORIZONTAL
cut :AERO 1.0
power :
memo :RT ST WITH CASE,WITH CASE GND
:POWER NO CORE
:PHONE NO CORE
:TFR SHIELDED ETHER CONNECTED
:SMALL XTAL
:CAP BETWEEN TH HOLE AND GND

	Freq	Level	Over	Limit	Read	Preamp	Antenna	Cable		
	MHz	dBuV/m	Limit	Line	Level	Factor	Factor	Loss	Pol/Phase	Distance
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB/m	dB		m
1	35.82	26.52	-13.48	40.00	36.65	27.52	16.86	0.53	HORIZONTAL	10
2	143.49	27.32	-12.68	40.00	41.49	27.28	11.91	1.19	HORIZONTAL	10
3	177.44	23.97	-16.03	40.00	39.24	26.91	10.28	1.36	HORIZONTAL	10
4	201.69	27.16	-12.84	40.00	42.49	26.95	10.20	1.42	HORIZONTAL	10
5	213.33	29.21	-10.79	40.00	44.32	26.88	10.27	1.50	HORIZONTAL	10
6	247.28	31.78	-15.22	47.00	44.16	26.50	12.51	1.61	HORIZONTAL	10
7	284.14	34.97	-12.03	47.00	46.38	26.53	13.37	1.74	HORIZONTAL	10
8 !	318.09	43.28	-3.72	47.00	54.14	26.77	13.97	1.94	HORIZONTAL	10
9 **	353.98	43.75	-3.25	47.00	52.95	26.91	15.62	2.09	HORIZONTAL	10
10	424.79	39.99	-7.01	47.00	48.41	27.80	17.06	2.32	HORIZONTAL	10
11	460.68	38.08	-8.92	47.00	46.44	28.14	17.32	2.45	HORIZONTAL	10
12 !	494.63	42.34	-4.66	47.00	50.52	28.40	17.70	2.52	HORIZONTAL	10
13	531.49	38.71	-8.29	47.00	46.50	28.45	18.03	2.63	HORIZONTAL	10
14	565.44	34.30	-12.70	47.00	41.38	28.55	18.61	2.87	HORIZONTAL	10
15	625.58	33.12	-13.88	47.00	39.67	28.63	19.05	3.03	HORIZONTAL	10
16	674.08	32.13	-14.87	47.00	38.51	28.65	19.12	3.15	HORIZONTAL	10
17	725.49	38.02	-8.98	47.00	43.19	28.56	20.00	3.39	HORIZONTAL	10
18	775.93	39.13	-7.87	47.00	43.92	28.49	20.25	3.46	HORIZONTAL	10
19	824.43	38.34	-8.66	47.00	42.82	28.44	20.32	3.63	HORIZONTAL	10
20	848.68	39.02	-7.98	47.00	43.41	28.50	20.55	3.56	HORIZONTAL	10
21	875.84	32.89	-14.11	47.00	36.77	28.34	20.70	3.77	HORIZONTAL	10
22	900.09	31.04	-15.96	47.00	34.46	28.20	20.74	4.04	HORIZONTAL	10
23	919.49	29.62	-17.38	47.00	33.08	28.23	20.86	3.92	HORIZONTAL	10
24	953.44	29.54	-17.46	47.00	32.22	28.07	21.22	4.17	HORIZONTAL	10
25	974.78	28.69	-18.32	47.00	31.10	28.00	21.29	4.29	HORIZONTAL	10



	Freq	Level	Over	Limit	Read	Preamp	Antenna	Cable		
	MHz	dBuV/m	Limit	Line	Level	Factor	Factor	Loss	Pol/Phase	Distance
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB/m	dB		m
1	48.43	27.98	-12.02	40.00	44.96	27.37	9.79	0.61	VERTICAL	10
2	109.54	23.50	-16.50	40.00	36.97	27.21	12.73	1.01	VERTICAL	10
3	143.49	33.48	-6.52	40.00	47.65	27.28	11.91	1.19	VERTICAL	10
4	177.44	30.00	-10.00	40.00	45.27	26.91	10.28	1.36	VERTICAL	10
5 !	213.33	35.84	-4.16	40.00	50.95	26.88	10.27	1.50	VERTICAL	10
6	247.28	33.59	-13.41	47.00	45.98	26.50	12.51	1.61	VERTICAL	10
7	284.14	35.48	-11.52	47.00	46.90	26.53	13.37	1.74	VERTICAL	10
8	318.09	37.71	-9.29	47.00	48.57	26.77	13.97	1.94	VERTICAL	10
9	324.88	32.76	-14.24	47.00	43.53	26.89	14.19	1.93	VERTICAL	10
10 **	353.98	44.39	-2.61	47.00	53.59	26.91	15.62	2.09	VERTICAL	10
11	376.29	30.82	-16.18	47.00	39.92	27.32	16.08	2.13	VERTICAL	10
12	390.84	32.00	-15.00	47.00	41.19	27.60	16.38	2.03	VERTICAL	10
13	424.79	39.91	-7.09	47.00	48.33	27.80	17.06	2.32	VERTICAL	10
14	460.68	36.25	-10.75	47.00	44.61	28.14	17.32	2.45	VERTICAL	10
15	494.63	37.54	-9.46	47.00	45.73	28.40	17.70	2.52	VERTICAL	10
16	531.49	36.16	-10.84	47.00	43.94	28.45	18.03	2.63	VERTICAL	10
17	565.44	30.03	-16.97	47.00	37.11	28.55	18.61	2.87	VERTICAL	10
18	625.58	28.87	-18.13	47.00	35.42	28.63	19.05	3.03	VERTICAL	10
19	674.08	27.18	-19.82	47.00	33.56	28.65	19.12	3.15	VERTICAL	10
20	725.49	31.97	-15.03	47.00	37.14	28.56	20.00	3.39	VERTICAL	10
21	775.93	36.00	-11.00	47.00	40.79	28.49	20.25	3.46	VERTICAL	10
22	800.18	33.21	-13.79	47.00	38.13	28.52	20.13	3.47	VERTICAL	10
23	824.43	36.37	-10.63	47.00	40.86	28.44	20.32	3.63	VERTICAL	10
24	848.68	34.41	-12.59	47.00	38.80	28.50	20.55	3.56	VERTICAL	10
25	875.84	31.36	-15.64	47.00	35.23	28.34	20.70	3.77	VERTICAL	10
26	900.09	30.62	-16.38	47.00	34.04	28.20	20.74	4.04	VERTICAL	10
27	919.49	29.72	-17.28	47.00	33.18	28.23	20.86	3.92	VERTICAL	10
28	953.44	29.76	-17.24	47.00	32.44	28.07	21.22	4.17	VERTICAL	10

2.2.1.4 Surge protection

2.1.2.a of K.21

Surge protection was tested by LSS-15AX.

Aero can pass differential 4KV surge.

2.2.1.5 Component issue

I. Crystal

1. GainForce Technology Co.,Ltd Crystal AT-49

(1) XAT035328FF1H-OA

(2) XSA035328FF1H-OC

Jacky Lee

+886-937-015-872

2. Pletronics, Inc.

MP49 Crystal

Jacky Lee

+886-937-015-872

3. Taitien Electronics Co.,Ltd.

XI035328-CHHCP11

Xtal 35.328MHz 15pF $\pm 30/30$ PPM -20~+70°C, 49US DIP

(02)2381-1183

II. Transformer

4. Midcom, Inc.

(1) 52084R

5. Linkcom Manufacturing Co.,Ltd

Model NO.	LAL1217	Model Name	VDSL Line Transformer
Part NO.	LAL1217-50	SIZE	EP- 7 SMD Total 8PIN

2.3 AwardLite

2.3.1 Hardware

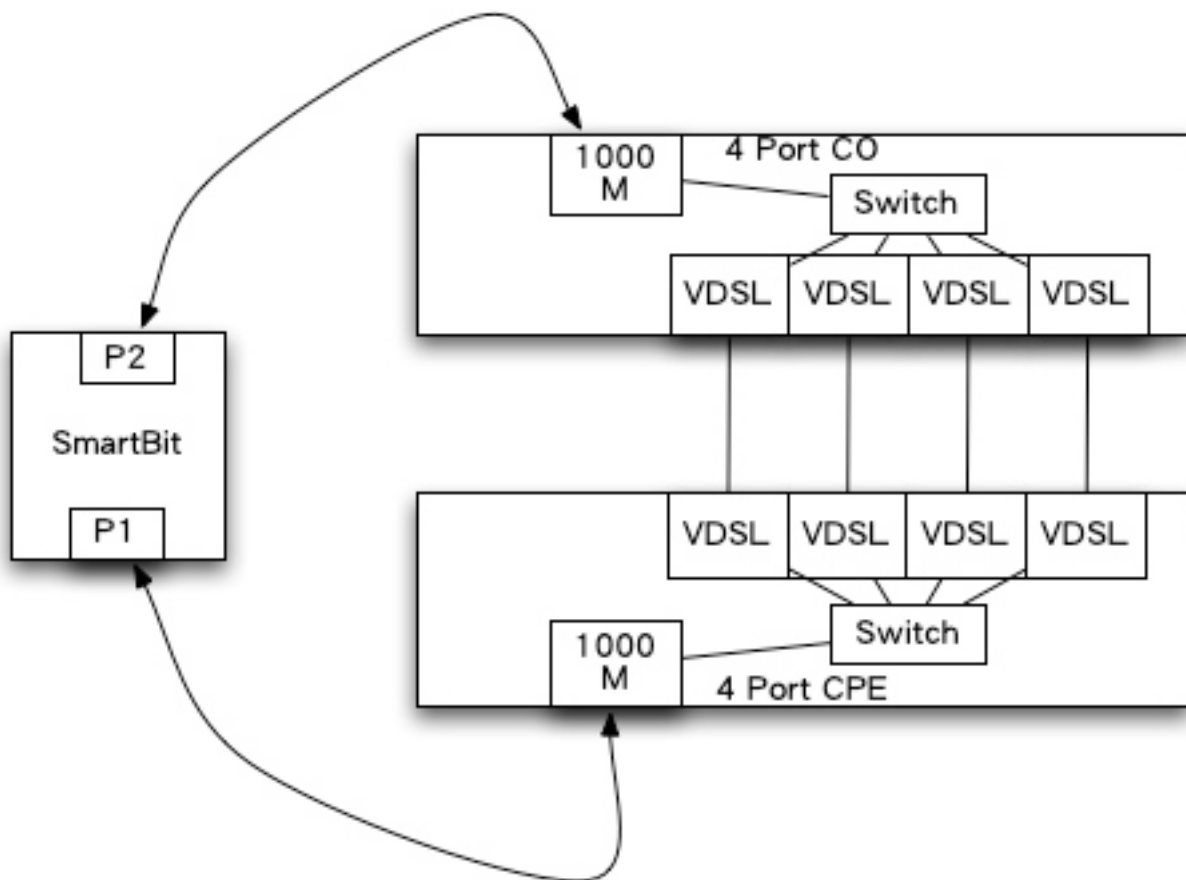
2.3.1.1 Power consumption

2.3.1.2 4 port Trunk throughput test

VDSL linerate DS 91M, US 50M, PHY data rate: DS 81.9M, US: 45M

Total PHY data rate: DS 327.6M, US: 180M

Test Setup:



Downstream result:

327M throughput without packet loss

WorkShop

File Edit View Insert Format Tools Help

Clear Counters

	A	B	C	D	E	F	G
		Events	Rates	Events	Rates		
		Port 1B-01 LAN-3324A	Port 1B-01 LAN-3324A	Port 1B-02 LAN-3324A	Port 1B-02 LAN-3324A		
1							
2							
3							
4							
5	Tx Frames	1,323,252	26,979	37,401	0		
6	Rx Frames	40,465	69	1,312,638	26,971		
7	Tx Bytes	2,008,696,536	40,954,594	56,774,718	0	327636752	81909188
8	Rx Bytes	56,970,814	4,400	1,992,584,484	40,942,390	0	0
9	Tx Triggers	0	0	0	0		
10	Rx Triggers	3,064	69	0	0		
11	CRC Errors	0	0	0	0		
12	Collisions	0	0	0	0		
13	OverSize	0	0	0	0		
14	Frag/UnderSize	0	0	0	0		
15	Tx From Stack	0	0	0	0		
16	Rx To Stack	40,384	69	1,298,625	26,593		
17	VLAN Pri = 0	0	0	0	0		
18	VLAN Pri = 1	0	0	0	0		
19	VLAN Pri = 2	0	0	0	0		
20	VLAN Pri = 3	0	0	0	0		
21	VLAN Pri = 4	0	0	0	0		
22	VLAN Pri = 5	0	0	0	0		
23	VLAN Pri = 6	0	0	0	0		
24	VLAN Pri = 7	0	0	0	0		
25	ARP Replies Sent	0	0	0	0		
26	ARP Requests Sent	0	0	0	0		
27	ARP Replies Received	0	0	0	0		
28	ARP Requests Received	0	0	0	0		
29	Gratuitous ARP Received	0	N/A	0	N/A		
30	PING Replies Sent	0	0	0	0		
31	PING Requests Sent	0	0	0	0		
32	PING Replies Received	0	0	0	0		
33	PING Requests Received	0	0	0	0		
34	Signature Frames Sent	0	0	0	0		

Sheet1

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Upstream result:

179M without packet loss

WorkShop

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Port 1B-01 LAN-3324A Port 1B-01 LAN-3324A Port 1B-02 LAN-3324A Port 1B-02 LAN-3324A

	A	B	C	D	E	F	G
1		Events	Rates	Events	Rates		
2		Port 1B-01 LAN-3324A	Port 1B-01 LAN-3324A	Port 1B-02 LAN-3324A	Port 1B-02 LAN-3324A		
3							
4							
5	Tx Frames	2,487,156	0	597,361	14,767		
6	Rx Frames	598,470	14,816	2,482,655	44		
7	Tx Bytes	3,775,502,808	0	906,793,998	22,417,319	0	0
8	Rx Bytes	898,645,512	22,490,304	3,766,329,350	2,804	179338552	44834638
9	Tx Triggers	0	0	0	0		
10	Rx Triggers	6,762	0	1,610	44		
11	CRC Errors	0	0	0	0		
12	Collisions	0	0	0	0		
13	OverSize	0	0	0	0		
14	Frag/UnderSize	0	0	0	0		
15	Tx From Stack	0	0	0	0		
16	Rx To Stack	596,771	14,779	2,456,003	44		
17	VLAN Pri = 0	0	0	0	0		
18	VLAN Pri = 1	0	0	0	0		
19	VLAN Pri = 2	0	0	0	0		
20	VLAN Pri = 3	0	0	0	0		
21	VLAN Pri = 4	0	0	0	0		
22	VLAN Pri = 5	0	0	0	0		
23	VLAN Pri = 6	0	0	0	0		
24	VLAN Pri = 7	0	0	0	0		
25	ARP Replies Sent	0	0	0	0		
26	ARP Requests Sent	0	0	0	0		
27	ARP Replies Received	0	0	0	0		
28	ARP Requests Received	0	0	0	0		
29	Gratuitous ARP Received	0	N/A	0	N/A		
30	PING Replies Sent	0	0	0	0		
31	PING Requests Sent	0	0	0	0		
32	PING Replies Received	0	0	0	0		
33	PING Requests Received	0	0	0	0		
34	Signature Frames Sent	0	0	0	0		

Clear Counters

開始

Both directions with SmartBit flow control enable

Downstream: 227M, Upstream: 134M without packet loss, the reason we can't get 327M/180M is because switch send the pause frame to SMB. If switch can improve the switching rate, we may reach max throughput.

WorkShop

File Edit View Insert Format Tools Help

Clear Counters

	A	B	C	D	E	F	G
1		Events	Rates	Events	Rates		
2		Port 1B-01 LAN-3324A	Port 1B-01 LAN-3324A	Port 1B-02 LAN-3324A	Port 1B-02 LAN-3324A		
3							
4							
5	Tx Frames	4,128,084	18,744	1,878,125	11,099		
6	Rx Frames	1,876,470	9,286	4,109,837	16,930		
7	Tx Bytes	6,266,431,512	28,454,087	2,850,993,750	16,848,346	227854400	56963600
8	Rx Bytes	2,830,611,800	13,686,384	6,229,031,478	25,291,306	134786768	33696692
9	Tx Triggers	0	0	0	0		
10	Rx Triggers	12,290	282	6,672	281		
11	CRC Errors	0	0	0	0		
12	Collisions	0	0	0	0		
13	OverSize	0	0	0	0		
14	Frag/UnderSize	0	0	0	0		
15	Tx From Stack	0	0	0	0		
16	Rx To Stack	1,870,115	9,298	4,065,484	16,733		
17	VLAN Pri = 0	0	0	0	0		
18	VLAN Pri = 1	0	0	0	0		
19	VLAN Pri = 2	0	0	0	0		
20	VLAN Pri = 3	0	0	0	0		
21	VLAN Pri = 4	0	0	0	0		
22	VLAN Pri = 5	0	0	0	0		
23	VLAN Pri = 6	0	0	0	0		
24	VLAN Pri = 7	0	0	0	0		
25	ARP Replies Sent	0	0	0	0		
26	ARP Requests Sent	0	0	0	0		
27	ARP Replies Received	0	0	0	0		
28	ARP Requests Received	0	0	0	0		
29	Gratuitous ARP Received	0	N/A	0	N/A		
30	PING Replies Sent	0	0	0	0		
31	PING Requests Sent	0	0	0	0		
32	PING Replies Received	0	0	0	0		
33	PING Requests Received	0	0	0	0		
34	Signature Frames Sent	0	0	0	0		

Sheet1

開始

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2.3.1.3 FCC-B

2.3.2 Software

2.3.2.1 General features test

Item	Tested?	Comments
1. Flash winbond loader by hardware	YES	PASS
2. Upgrade system code by winbond tool	YES	PASS
3. Console upgrade full/conf	YES	PASS
4. Change password	YES	PASS
5. Setup popular user setting and confirm	YES	PASS

6. Verify MIB customization, MIB debug, SW customization, SW Debug behavior	YE S	PASS
7. Data path	YE S	PASS
8. Ethernet command test	YE S	PASS

2.3.2.2 Stability

Item	Tested?	Comments
1. Switch interface – verify SMI 1000 times	YE S	
2. Modem code upgrade – auto upgrade full 100 times	YE S	
3. Configuration change – 1000 times	YE S	
4. Random power failure – random power off 100 times	YE S	

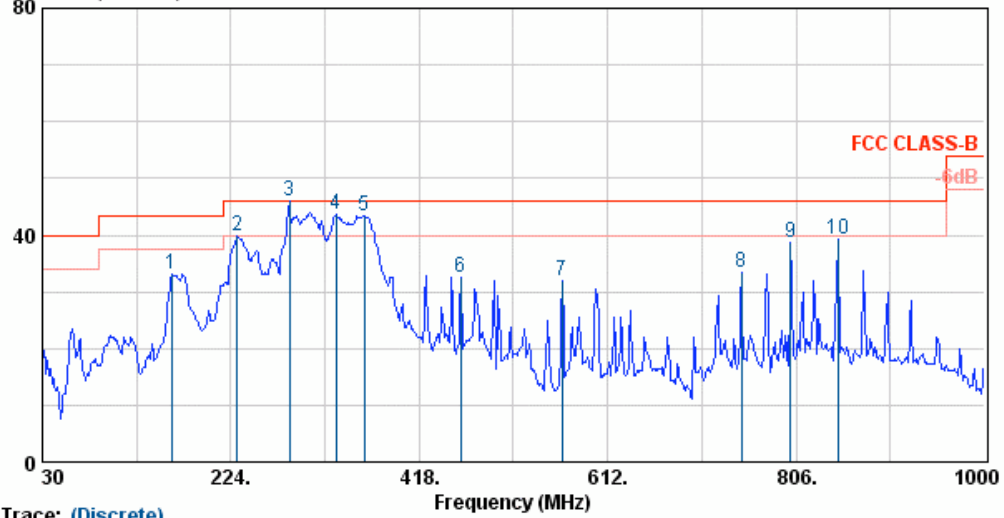
2.4 Award

2.4.1 Hardware

2.4.1.1 Power consumption

2.4.1.2 FCC-B

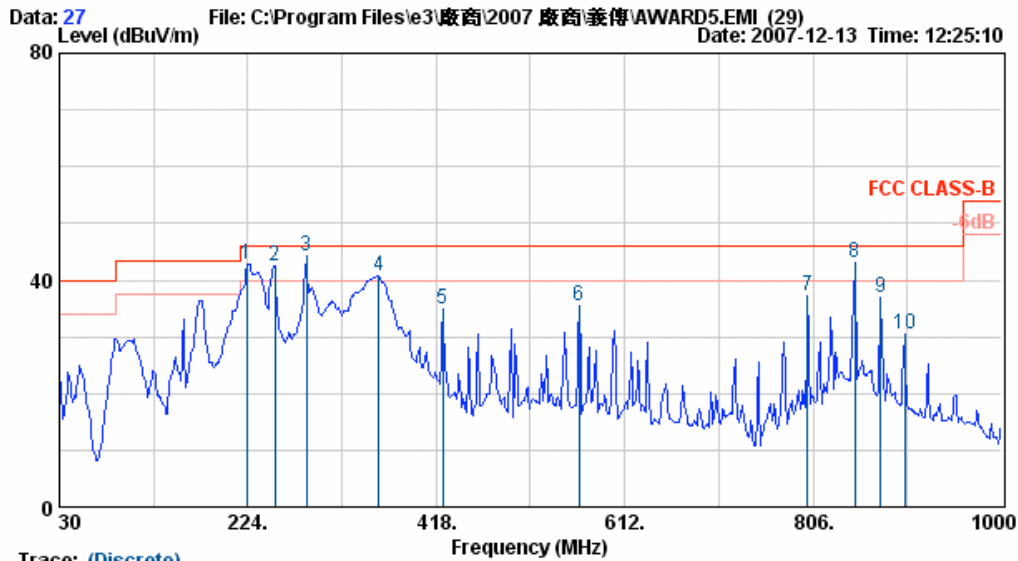
Data: 26 File: C:\Program Files\3\廠商\2007 廠商\義傳\AWARD5.EMI (29) Date: 2007-12-13 Time: 12:21:28
Level (dBuV/m)



Trace: (Discrete)

Site : 743 chamber
Condition: FCC CLASS-B 3m CBL6112B-2563 HORIZONTAL
Antenna : AWARD5
Power : 110Vac60z
memo : 拿掉bead
+core 電源束線
tester : ruey

	Freq	Level	Over	Limit	Read	Preamp	Antenna	Cable		
	MHz	dBuV/m	Limit	Line	Level	Factor	Factor	Loss	Pol/Phase	Distance
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB/m	dB		m
1	162.89	33.17	-10.33	43.50	48.06	27.07	10.92	1.26	HORIZONTAL	3
2	230.79	39.78	-6.22	46.00	53.95	26.61	11.00	1.44	HORIZONTAL	3
3 **	284.14	46.10	0.10	46.00	57.51	26.53	13.37	1.74	HORIZONTAL	3
4 !	332.64	43.56	-2.44	46.00	53.95	26.94	14.64	1.91	HORIZONTAL	3
5 !	361.74	43.42	-2.58	46.00	52.54	27.02	15.77	2.13	HORIZONTAL	3
6	460.68	32.59	-13.41	46.00	40.95	28.14	17.32	2.45	HORIZONTAL	3
7	565.44	31.87	-14.13	46.00	38.95	28.55	18.61	2.87	HORIZONTAL	3
8	749.74	33.55	-12.45	46.00	38.33	28.49	20.20	3.51	HORIZONTAL	3
9	800.18	38.81	-7.19	46.00	43.73	28.52	20.13	3.47	HORIZONTAL	3
10	848.68	39.16	-6.84	46.00	43.55	28.50	20.55	3.56	HORIZONTAL	3



Trace: (Discrete)

Site : 743 chamber

Condition: FCC CLASS-B 3m CBL6112B-2563 VERTICAL

cut : AWARD5

power : 110Vac60z

memo : 拿掉bead

+core 電源束線

tester : ruey

	Freq	Level	Over	Limit	Read	Preamp	Antenna	Cable		
	MHz	dBuV/m	Limit	Line	Level	Factor	Factor	Loss	Pol/Phase	Distance
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB/m	dB		m
1 !	223.03	42.78	-3.22	46.00	57.40	26.69	10.57	1.51	VERTICAL	3
2 !	252.13	42.63	-3.37	46.00	54.52	26.53	12.99	1.65	VERTICAL	3
3 **	284.14	44.34	-1.66	46.00	55.76	26.53	13.37	1.74	VERTICAL	3
4 !	358.83	40.87	-5.13	46.00	49.94	26.97	15.73	2.16	VERTICAL	3
5	424.79	35.01	-10.99	46.00	43.43	27.80	17.06	2.32	VERTICAL	3
6	565.44	35.48	-10.52	46.00	42.56	28.55	18.61	2.87	VERTICAL	3
7	800.18	37.14	-8.86	46.00	42.06	28.52	20.13	3.47	VERTICAL	3
8 !	848.68	43.14	-2.86	46.00	47.53	28.50	20.55	3.56	VERTICAL	3
9	875.84	36.87	-9.13	46.00	40.75	28.34	20.70	3.77	VERTICAL	3
10	900.09	30.52	-15.48	46.00	33.94	28.20	20.74	4.04	VERTICAL	3

2.4.2 Software

2.4.2.1 General features test

Item	Comments
1. Setup network, VDSL MIB for basic user requirement	PASS
2. System information	PASS
3. Switch functionality setting	PASS
4. L2 & L3 QOS	PASS
5. Bandwidth control	PASS
6. VLAN isolation	PASS
7. DHCP server/client/Static IP	PASS
8. NTP client	PASS
9. MIB	PASS
10. Remote system management	PASS
11. Firmware/System upgrade	PASS
12. Bridge/Routing mode	PASS
13. Wire speed bridge/routing mode	PASS

2.4.2.2 Loader upgrade test

Testing tftp server in bootloader repeatedly.

During 16 hours testing, upgrade 190 times, no error occur

2.5 Hope

2.5.1 Hardware

2.5.1.1 Power consumption

2.5.2 Software

2.5.2.1 General features test

Item	Comments
------	----------

14. Setup network, VDSL MIB for basic user requirement	PASS
15. System information	PASS
16. Switch functionality setting	PASS
17. L2 & L3 QOS	PASS
18. Bandwidth control	PASS
19. VLAN isolation	PASS
20. DHCP server/client/Static IP	PASS
21. NTP client	PASS
22. MIB	PASS
23. Remote system management	PASS
24. Firmware/System upgrade	PASS

2.5.2.2 MIB

2.5.2.2.1 VDSL MIB (RFC3728), MCM MIB (RFC4070)

2.5.2.2.2 IP/TCP/UDP MIB

2.5.2.2.3 IF MIB

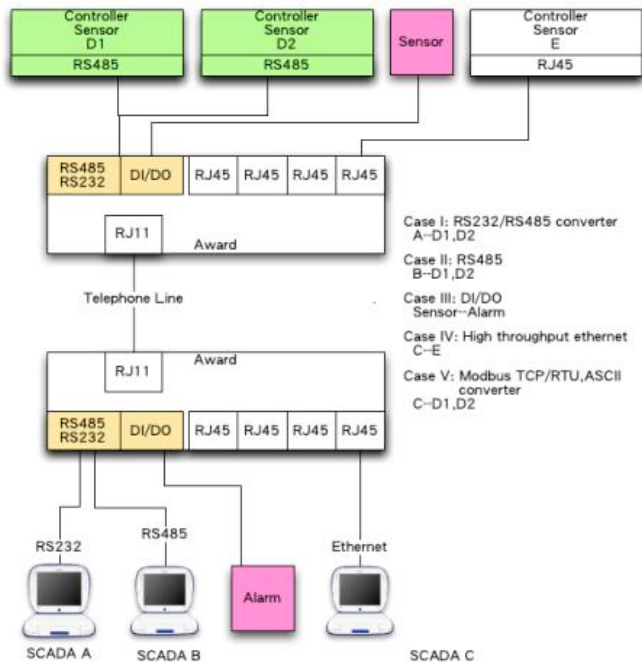
2.5.2.3 SNMP Manager

2.5.2.4 Stability

2.6 Others

2.6.1 Power option

2.6.2 Award+ application example



Case I:

Two Award+ play as RS232/RS485 line extender (extend RS232 transmit range from 15M to 2KM, extend RS485 from 1.2KM to 2KM) and also RS232/RS485 converter , Award+ can be treated as transparent. Applications in PC can work as well without any modification. Because RS485 devices can use parallel connection up to 32 units maximum, therefore “SCADA_[1] A” PC can control 32 units at the same time. This case shows “SCADA A” PC use RS232 connector to control remote RS485 Controller Sensor D1 and D2.

Case II:

This case is the same as Case I, the only difference is “SCADA A” PC use RS485 connector to control remote RS485 Controller Sensor D1 and D2.

Case III:

Award+ also equipped with 8 DI/DO ports, each port can be configured as either input or output. Two Award+ can play GPIO line extender to extend GPIO transmit range from about 5M to 2KM. This case shows maybe Smoke Sensor in one side and Smoke Alarm in the other side. They can work as well as the are linked within short range.

Case IV:

Two Award+ just play as Ethernet bridge and extend Ethernet cable transmit range from 100M to 2KM. Since Controller Sensor E support Ethernet packet control, “SCADA C” PC can control Controller Sensor E directly as Controller Sensor E direct linked with “SCADA C” with one Ethernet cable.

Case V:

Similar to Case I & II & IV, Award+ also support **Modbus**^[2] protocol, since Modbus is a protocol over RS485, we can support all three Modbus application (Modbus TCP, Modbus RTU, Modbus ASCII) without any modification of the original Modbus software for PC. This case shows “SCADA C” communicates with the Controller Sensor D1 and D2 by Modbus TCP protocol, because our remote Award+ can be treated as a Modbus TCP device with two Modbus RTU (Controller Sensor D1 and D2) connected. We use the following scenario to prove our Award+ is capable to do so.

1. We run a open source SCADA software “Mango” on “SCADA C”
2. We connect a Advantech ADAM-4068 8-ch Relay Output Module with Modbus device on the remote Award+ RS485 port.
3. We can control each of the 8 channels relay of ADAM-4068 separately from “SCADA C” PC. Please refer to the end of this section for the Mango UI snapshot.

Mango:

<http://mango.serotoninsoftware.com/>

Advantech ADAM-4068:

http://www.advantech.com/products/8-ch-Relay-Output-Module-with-Modbus/mod_1-2MLDIO.aspx

[1] **SCADA** is the abbreviation for *Supervisory Control And Data Acquisition*. It generally refers to an industrial control system: a computer system monitoring and controlling a process. The process can be industrial, infrastructure or facility based.

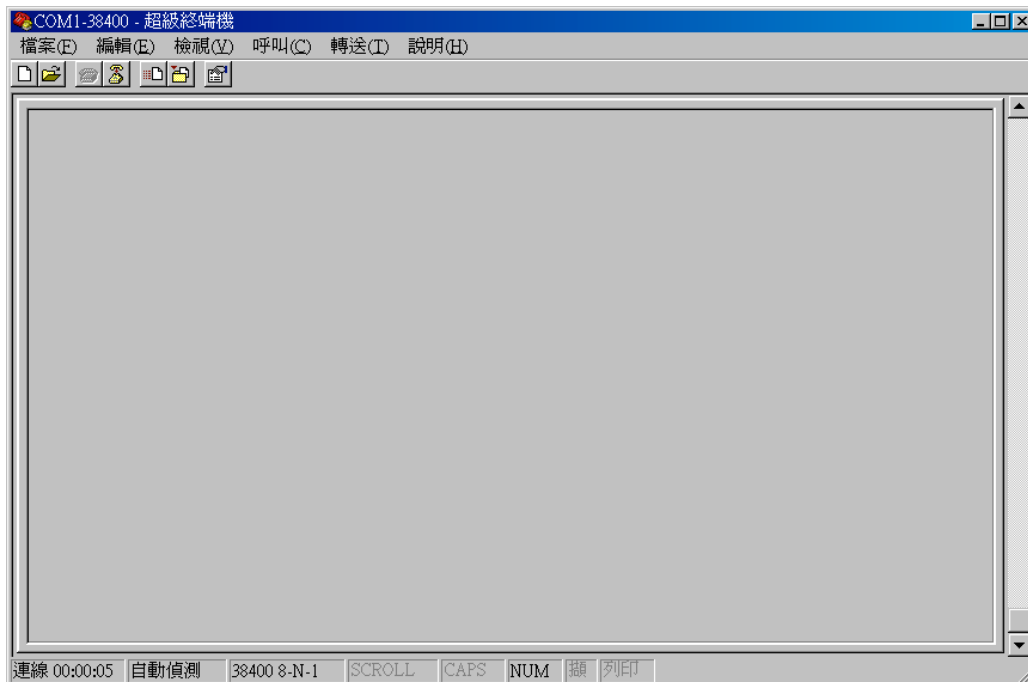
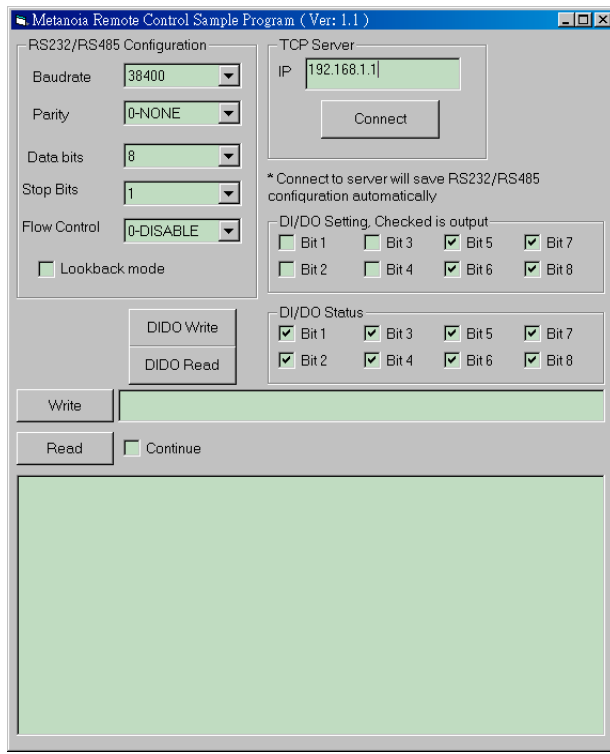
[2] **Modbus** is a serial communications protocol published by Modicon in 1979 for use with its programmable logic controllers (PLCs). It has become a de facto standard communications protocol in industry, and is now the most commonly available means of connecting industrial electronic devices. Modbus allows for communication between many devices connected to the same network, for example a system that measures temperature and humidity and communicates the results to a computer. Modbus is often used to connect a supervisory computer with a remote terminal unit (RTU) in supervisory control and data acquisition (SCADA) systems.

Versions of the Modbus protocol exist for serial port and for Ethernet and other networks that support the Internet protocol suite. Most Modbus devices communicate over a serial RS485 physical layer.

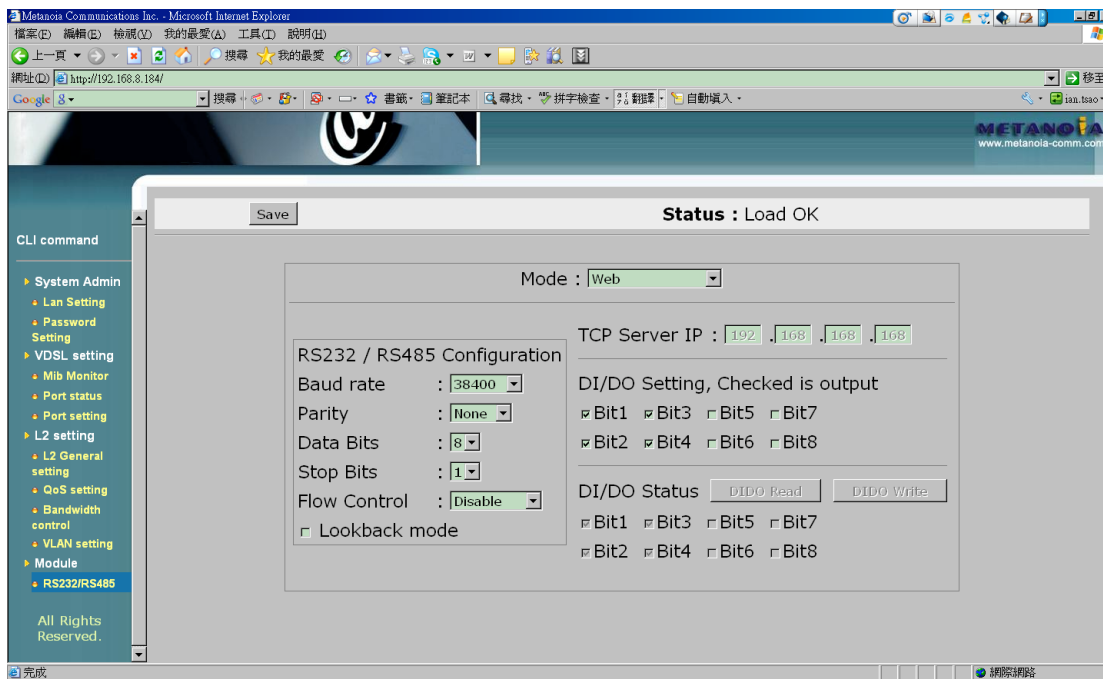
For serial connections, two variants exist, with different representations of numerical data and slightly different protocol details. Modbus RTU is a compact, binary representation of the data. Modbus ASCII is human readable, and more verbose. Both of these variants use serial communication.

For connections over TCP/IP (e.g. Ethernet), the more recent variant Modbus/TCP exists.

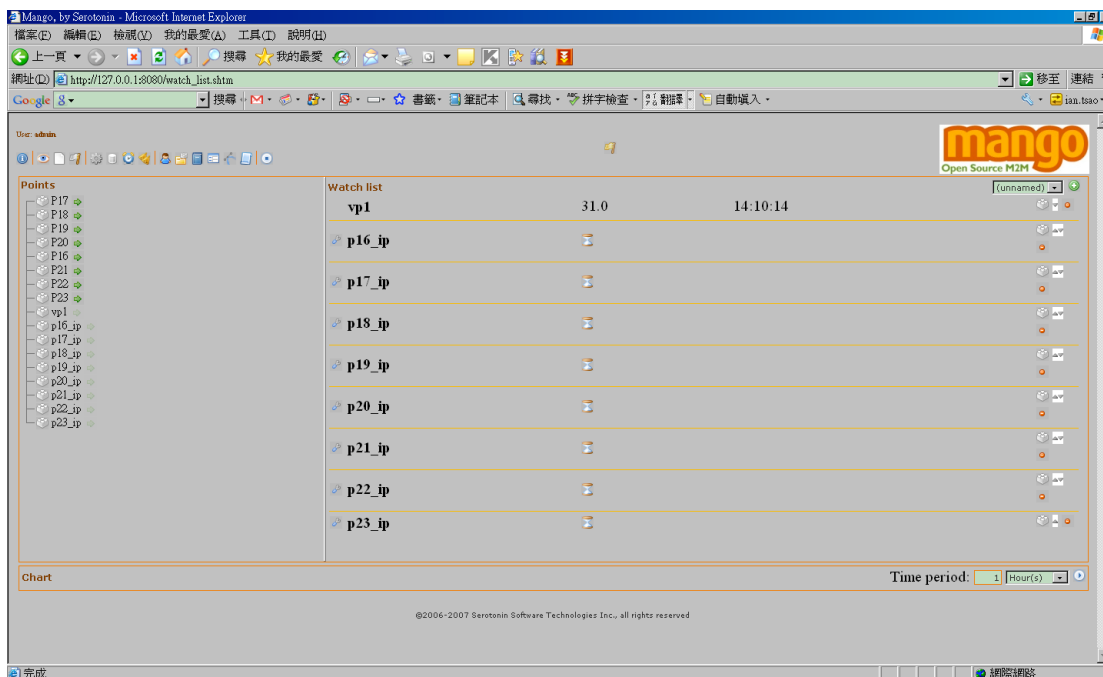
- We provide Windows SDK DLL for developing and integrating the SCADA or serial software by user.



- User can configure and manipulate 8 DI/DO ports separately by WEB.



- User can use open source Modbus software to control remote RS485 device through Award+.



3 Summary

Falcon chipset is very mutual solution on point-to-point solution, local area network deployment.