

FCC CERTIFICATION REPORT

Test Report No. : EM/2012/C0022**Applicant : CyberTAN Technology inc****Address of Applicant : 99 Park Avenue III, Science Park, Hsinchu 308 Taiwan,
R.O.C.****Equipment Under Test (EUT) :****Name : Set Top Box****Brand Name : Cisco****Model No. : ISB7150****Added Model(s) : N/A****FCC ID: N89-ISB7150****Standards : FCC Part 15:2010, Subpart B, Class B
Canada ICES-003 Issue 5 (Aug. 2012)****Date of Receipt : Dec. 07, 2012****Date of Test : Dec. 07 ~ 14, 2012****Date of Issue : Feb. 19, 2013**

Test Result :	PASS
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In the configuration tested, the EUT complied with the standards specified above.

Remarks :

This report details the results of the testing carried out on one sample, the results contained in this test report do not relate to other samples of the same product. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report.

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Test By:**Date**

Feb. 19, 2013

Jimmy Liu / Engineer**Approved By****Date**

Feb. 19, 2013

Jim Chang / Supervisor

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FCC ID: N89-ISB7150

Report No. : EM/2012/C0022

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Version

Version No.	Description	Date
00	Original report	Feb. 19, 2013

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1. General Information

1.1 Applicant & Manufacturer Information

Applicant : CyberTAN Technology inc

Address of Applicant : 99 Park Avenue III, Science Park, Hsinchu 308 Taiwan, R.O.C.

1.2 General Description of EUT

Name : Set Top Box

Brand Name : Cisco

Model No. : ISB7150

Added Model(s) : N/A

FCC ID: N89-ISB7150

Model Difference : N/A

1.3 Details of EUT

Tested Power Supply : AC 100-240V/50-60Hz

Modes/Function : Operation mode

Worst case : Operation mode

Highest Internal Source Frequency : 198MHz

Note : Run "media room" software to excute both pen drive (front/Rear) and e-SATA to operating.

1.4 Operation Procedure

Test Mode: Full System

- 1.Set up EUT with support units and turn on the power of all equipment.
- 2.Video output to HDMI(resolution:1080i60) ,Audio/video, RF ch3/4 Audio/Video and Component video.
3. Video played used "media room" from Ethernet.
- 4.Pre-test the EUT in all modes by each mode, then figure the worst case out.
- 5.Tests under the normal operation pattern(used matrix pattern:"Taj Mahal").

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1.5 Description of Support Units

PRODUCT	MANUFACTURER	MODEL NO.	SERIAL NO.
Server	CISCO	UCSC200 M2	N/A
TV	SONY	KDL-32S5500	1715235
Fiber Digital Speaker	Plank	Fida 2100 M-Series	CA-T522
Pen drive	Transcend	2GB	571621 0711
Monitor	Dell	U2410	OJ257M-72872-OAL-O5LL
e-SATA Hard Drive	Transcend	TS1TSJ35U	403769-0030

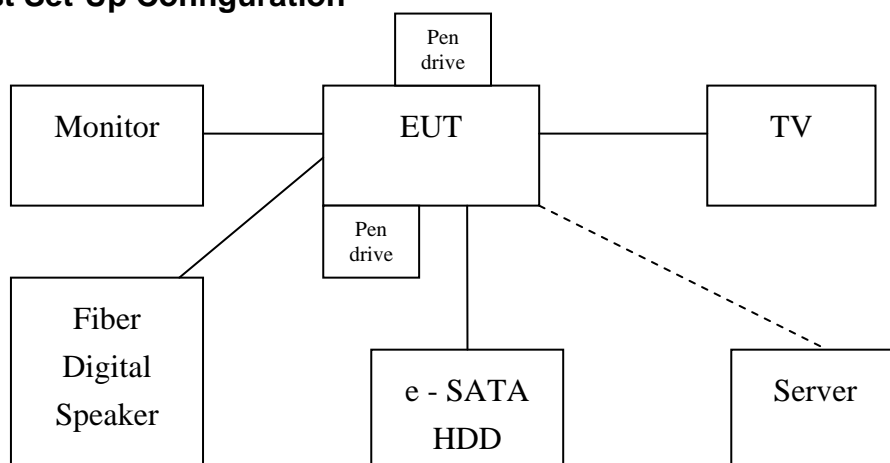
1.6 Modification List

No modification by SGS Taiwan Electronics & Communication Laboratory.

1.7 Cable List

Cable Type	Length	Shield/Non-shield
Power cable	1.8 m	Non-shielding
Video IN cable(To Wall)	1.2 m	Shielding
Video OUT cable(To TV)	1.2 m	Shielding
Network cable	about 10 m	Non-shielding
ESATA cable	1.2 m	Non-shielding
component cable	1.5 m	Non-shielding
S-video cable	1.3 m	Non-shielding
Video out cable(RCA)	1.5 m	Non-shielding
Audio out cable(RCA)	1.5 m	Non-shielding
HDMI cable	1.5 m	Shielding

1.8 Test Set-Up Configuration



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1.9 Measurement Procedure

Conducted Emission Testing was performed according ANSI C63.4:2003 in a shielded room with peripherals placed on a table, 0.8m high over a metal floor. It was located more than required distance away from the shielded room wall.

Radiated Emission Testing was performed according to ANSI C63.4:2003 at the open field test site. The EUT was placed in a 0.8m high table along with the peripherals. The turn table was separated from the antenna distance 10meters. Cables were placed in a position to produce maximum emissions as determined by experimentation, and operation mode was selected for maximum.

The frequencies and amplitudes of maximum emission were measured at varying azimuths, antenna heights and antenna polarities. Reported are maximized emission levels.

1.10 Standards Applicable for Testing

Table of tests to be carried out under FCC Part 15, Subpart B

Test Standards	Status
FCC Part 15, Subpart B	Applicable
Deviation from Standard	No Deviation

1.11 Summary of Results

Highest Emission					
Standard	Test Type	Result	Phase/Polar.	Frequency(MHz)	Margin(dB)
FCC Part 15 Subpart B Class B/CISPR 22 Canada ICES-003 (Feb. 2004)	Conducted Emission	PASS	Line	0.5547	-9.28(QP)
			Neutral	0.5665	-7.77(QP)
	Radiated Emission	PASS	Hor.	792.0060	-1.03(QP)

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2. Radio Disturbance

2.1 Test Results

	Results
Conducted Emission	Pass
Radiated Emission	Pass

2.2 Frequency Range

Conducted Emission : 150 kHz - 30 MHz

Radiated Emission : See below table

Highest frequency generated or used in the device or on which the device operates or tunes (MHz)	Upper frequency of measurement range (MHz)
Below 1.705	30
1.705 - 108	1000
108 - 500	2000
500 - 1000	5000
Above 1000	5th harmonic of the highest frequency or 40 GHz, whichever is lower

2.3 Limits Of Conducted And Radiated Emission

2.3.1 Limit Of Conducted Emission Of FCC Part 15, Subpart B/CISPR 22

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

Note : (1) The lower limit shall apply at the transition frequencies.

(2) The limit decreases linearly with the logarithm of the frequency in the range 0.15 to 0.50 MHz.

(3) All emanation from a class A/B digital device or system, including any network of conductors and apparatus connected there to, shall not exceed the level of field strengths specified above.

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2.3.2 Limit Of Radiated Emissions Of FCC Part 15, Subpart B/CISPR 22

FCC Limit:

- Detector Function : Quasi – Peak

FREQUENCY (MHz)	Class A (at 10m)	Class B (at 3m)
	dBuV/m	dBuV/m
30~88	39	40
88~216	43.5	43.5
216~960	46.44	46
Above 960	49.54	54

- Detector Function : Peak , Average

FREQUENCY (MHz)	Class A (dBuV) (at 3m)		Class B (dBuV) (at 3m)	
	Peak	Average	Peak	Average
Above 1000	79.3	59.3	73.9	53.9

CISPR Limit:

- Detector Function : Quasi – Peak

FREQUENCY (MHz)	Class A (at 10m)	Class B (at 10m)
	dBuV/m	dBuV/m
30-230	40	30
230-1000	47	37

- Detector Function : Peak , Average – Class A

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

- Detector Function : Peak , Average – Class B

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

Note : The lower limit applies at the transition frequency.

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2.4. Test of Conducted Emission

2.4.1 Test Equipments

Description	Manufacturer	Model No.	Serial No.	Last Calibration Date	Next Calibration Date
EMI Test Receiver	ROHDE&SCHWARZ	ESCS 30	828985/004	Sep. 22, 2012	Sep. 21, 2013
Coaxial Cables	N/A	WK CE Cable	N/A	Nov. 26, 2012	Nov. 25, 2013
L.I.S.N	Rolf-Heine	NNB-2/16Z	99012	Mar. 23, 2012	Mar. 22, 2013
L.I.S.N	FCC	FCC-LISN-50/250-25-2-01	04034	Mar. 23, 2012	Mar. 22, 2013
Software	Farad	EZ-EMC-VER2A1.1(USB)	N/A	N/A	N/A

2.4.2 Test Site

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2.4.3 Operating Environment

Temperature : 26 degree C Humidity : 60 %RH
Atmospheric Pressure : 992 mBar

2.4.4 Uncertainty of Conducted Emission

Expanded uncertainty (k=2) of Conducted Emission measurement is 0.98dB.

2.4.5 Measurement level and Factor calculate method

Factor = LISN insertion loss + Cable loss
Measurement Level = Reading Level + Factor

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2.4.6 Measurement Data

L:

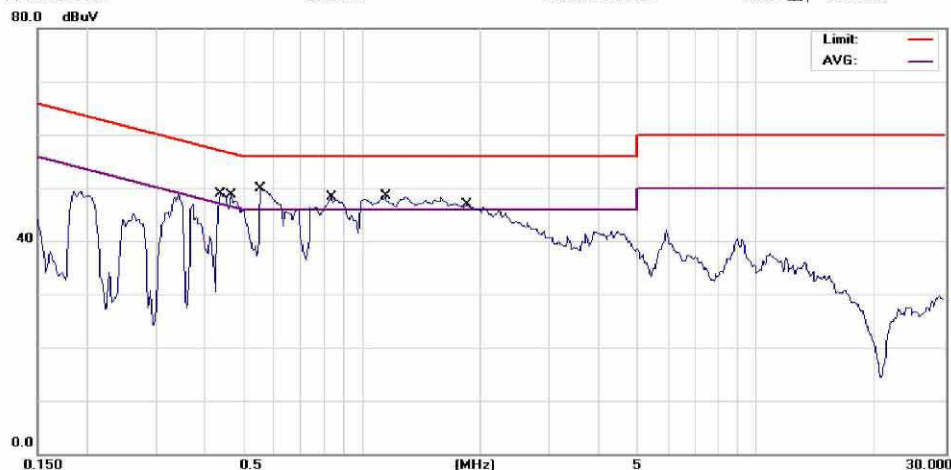
Conducted Emission Measurement

File :20121102

Data :#6

Date: 2012/11/2

Time : 上午 10:49:18



Site: ConductionRoom

Phase: L1

Temperature: 26 °C

Limit: FCC Class B Conduction(QP)

Power: AC 120V/60Hz

Humidity: 60%

EUT: Set Top Box

Distance:

M/N: ISB7150

Mode: Full Test

Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Detector	Comment
		MHz	dBuV	dB	dBuV	dBuV	dB		
1		0.4393	44.10	0.22	44.32	57.07	-12.75	QP	
2		0.4393	31.20	0.22	31.42	47.07	-15.65	AVG	
3		0.4667	44.30	0.22	44.52	56.57	-12.05	QP	
4		0.4667	31.00	0.22	31.22	46.57	-15.35	AVG	
5	*	0.5547	46.50	0.22	46.72	56.00	-9.28	QP	
6		0.5547	31.90	0.22	32.12	46.00	-13.88	AVG	
7		0.8363	43.40	0.22	43.62	56.00	-12.38	QP	
8		0.8363	29.00	0.22	29.22	46.00	-16.78	AVG	
9		1.1491	41.70	0.22	41.92	56.00	-14.08	QP	
10		1.1491	26.50	0.22	26.72	46.00	-19.28	AVG	
11		1.8490	41.00	0.25	41.25	56.00	-14.75	QP	
12		1.8490	28.90	0.25	29.15	46.00	-16.85	AVG	

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

●Reference Only

File :20121102\Data :#6

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Engineer Signature:

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Tel: 02-2299-3279 Fax: 02-2298-2698

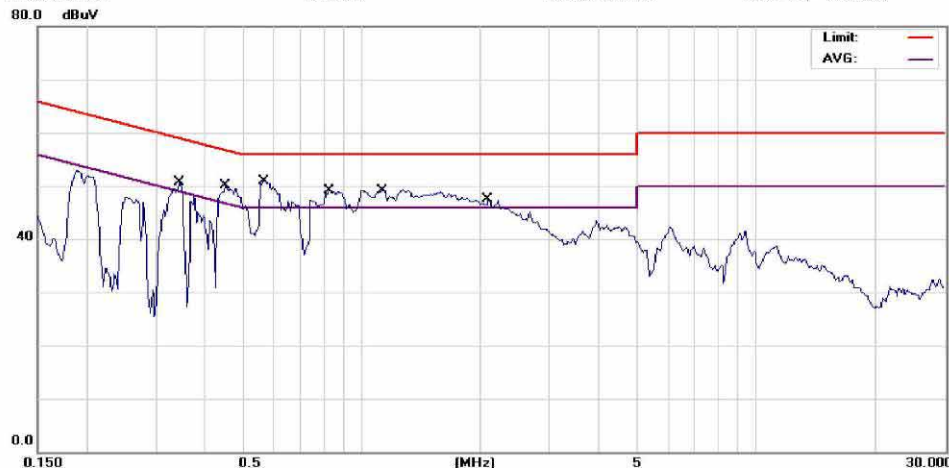
Conducted Emission Measurement

File : 20121102

Data : #5

Date : 2012/11/2

Time : 上午 10:44:23



Site ConductionRoom

Phase: N

Temperature: 26 °C

Limit: FCC Class B Conduction(QP)

Power: AC 120V/60Hz

Humidity: 60%

EUT: Set Top Box

Distance:

M/N: ISB7150

Mode: Full Test

Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Detector	Comment
		MHz	dBuV	dB	dBuV	dBuV	dB		
1		0.3455	46.60	0.32	46.92	59.07	-12.15	QP	
2		0.3455	34.00	0.32	34.32	49.07	-14.75	AVG	
3		0.4511	45.90	0.34	46.24	56.85	-10.61	QP	
4		0.4511	32.40	0.34	32.74	46.85	-14.11	AVG	
5	*	0.5665	47.90	0.33	48.23	56.00	-7.77	QP	
6		0.5665	33.10	0.33	33.43	46.00	-12.57	AVG	
7		0.8284	44.40	0.32	44.72	56.00	-11.28	QP	
8		0.8284	30.80	0.32	31.12	46.00	-14.88	AVG	
9		1.1334	43.20	0.31	43.51	56.00	-12.49	QP	
10		1.1334	27.20	0.31	27.51	46.00	-18.49	AVG	
11		2.0953	41.20	0.33	41.53	56.00	-14.47	QP	
12		2.0953	28.90	0.33	29.23	46.00	-16.77	AVG	

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

●Reference Only

File : 20121102\Data : #5

Page: 1

Engineer Signature:

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2.5 Test of Radiated Emission

2.5.1 Test Instruments

Description	Manufacturer	Model No.	Serial No.	Last Calibration Date	Next Calibration Date
Site NSA	Chamost	966II Chamber	N/A	Dec. 30, 2011	Dec. 29, 2012
Site VSWR	Chamost	966II Chamber	N/A	Dec. 30, 2011	Dec. 29, 2012
EMI Test Receiver	ROHDE&SCHWARZ	ESCI 7	100760	May 25, 2012	May 24, 2013
Spectrum Analyzer	Agilent	E4440A	MY45304525	Mar. 17, 2012	Mar. 16, 2014
RF-Amplifier (0.1-1300MHz)	HP	8447D	1937A02774	Nov. 26, 2012	Nov. 25, 2013
RF-Amplifier (1-26.5GHz)	HP	8449B	3008A00578	Nov. 26, 2012	Nov. 25, 2013
RF-Amplifier (26-40GHz)	EM Electronics Corp.	EM26400	N/A	Dec. 28, 2011	Dec. 27, 2012
Coaxial Cables (For 9kHz~3GHz)	HUBER SUHNER	SUCCOFLEX 104PEA	N/A	Nov. 26, 2012	Nov. 25, 2013
Coaxial Cables (For 9kHz~26.5GHz)	HUBER SUHNER	SUCCOFLEX 104PEA	N/A	Nov. 26, 2012	Nov. 25, 2013
Re Cables (966II) (For 1~40GHz)	HUBER SUHNER	SUCCOFLEX 102	22962/2	Nov. 26, 2012	Nov. 25, 2013
Re Cables (966II) (For 1~40GHz)	HUBER SUHNER	SUCCOFLEX 102	23051/2	Nov. 26, 2012	Nov. 25, 2013
Antenna Master	MF.	N/A	N/A	N/A	N/A
Turn Table	MF.	N/A	N/A	N/A	N/A
Controller	MF.	3000	MF780208153	N/A	N/A
Broadband Antenna	SCHWAZBECK	VULB9168	VULB9168-298	Nov. 01, 2012	Oct. 31, 2013
Horn Antenna (For 1~18G)	ETS-Lindgren	3117	00135200	Oct. 05, 2012	Oct. 04, 2013
Horn Antenna (For 18~40G)	SCHWAZBECK	BBHA 9170	BBHA9170185	Jul. 11, 2011	Jul. 10, 2013
Software	Farad	EZ-EMC-VER2A1.1(U SB)	N/A	N/A	N/A

2.5.2 Test Site

SGS Taiwan LTD. Electronics & Communication Laboratory

No.134,Wu Kung Road, New Taipei Industrial Park,Wuku District, New Taipei City, Taiwan 24803

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2.5.3 Operating Environment

Temperature : 25 degree C Humidity : 60 %RH
Atmospheric Pressure : 996 mBar

2.5.4 Uncertainty of Radiated Emission

Expanded uncertainty (k=2) of radiated emission measurement is 3.70dB.(30-1000MHz)
Expanded uncertainty (k=2) of radiated emission measurement is 5.34dB.(1-18GHz)

2.5.5 Measurement level and Factor calculate method

Factor = Antenna loss + Cable loss- Amplifier Gain
Measurement Level = Reading Level + Factor

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2.5.6 Measurement Data

Horizontal polarization

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Address :台北縣五股工業區五工路 134 號

Tel:02-2299-3279 Fax:02-2298-2698

Radiated Emission Measurement

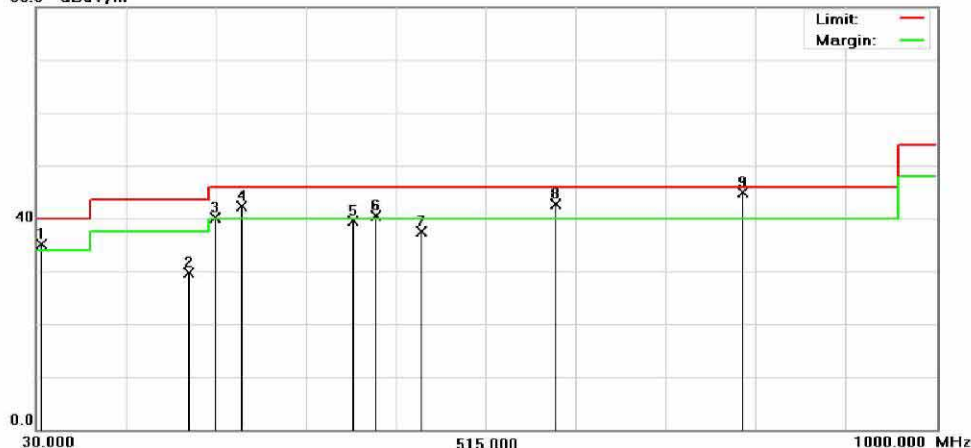
File:STB

Data :#66

Date: 2012/10/26

Time : 下午 01:58:39

80.0 dBuV/m



Site :966-2Chamber

Limit: FCC Class B 3M Radiation

EUT: STB

M/N: ISB7150

Mode: Full Test , sample 3

Note:

Polarization: **Horizontal**

Power: AC 120V/60Hz

Distance: 3m

Temperature: 25 °C

Humidity: 60%

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1	!	35.1700	52.17	-16.98	35.19	40.00	-4.81	QP	
2		194.2800	45.77	-16.12	29.65	43.50	-13.85	QP	
3	!	222.6700	55.21	-15.11	40.10	46.00	-5.90	QP	
4	!	250.8100	56.29	-13.91	42.38	46.00	-3.62	QP	
5		371.1400	50.13	-10.67	39.46	46.00	-6.54	QP	
6	!	396.0100	50.60	-10.10	40.50	46.00	-5.50	QP	
7		445.5200	46.71	-9.17	37.54	46.00	-8.46	QP	
8	!	590.0700	49.22	-6.55	42.67	46.00	-3.33	QP	
9	*	792.0060	47.39	-2.42	44.97	46.00	-1.03	QP	

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

•ReferenceOnly

File :STB\Data :#66

Page: 1

Engineer Signature:

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Vertical polarization

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Radiated Emission Measurement

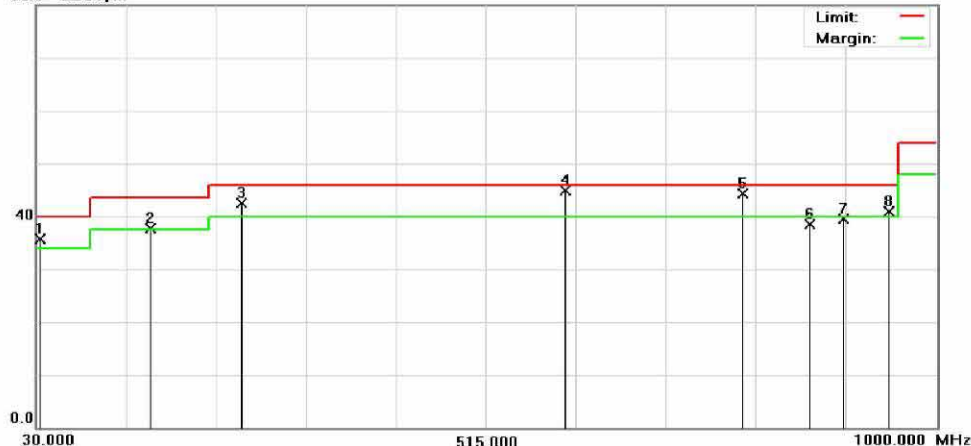
File:STB

Data :#65

Date: 2012/10/26

Time : 下午 01:42:18

80.0 dBuV/m



Site :966-2Chamber

Limit: FCC Class B 3M Radiation

EUT: STB

M/N: ISB7150

Mode: Full Test , sample 3

Note:

Polarization: **Vertical**

Power: AC 120V/60Hz

Distance: 3m

Temperature: 25 °C

Humidity: 60%

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1	!	34.5600	52.74	-17.03	35.71	40.00	-4.29	QP	
2	!	152.4100	51.96	-14.22	37.74	43.50	-5.76	QP	
3	!	250.2300	56.33	-13.92	42.41	46.00	-3.59	QP	
4	*	600.0040	51.27	-6.32	44.95	46.00	-1.05	QP	
5	!	792.0080	46.65	-2.42	44.23	46.00	-1.77	QP	
6		864.1900	39.62	-1.03	38.59	46.00	-7.41	QP	
7		900.2300	38.74	0.79	39.53	46.00	-6.47	QP	
8	!	950.3400	40.36	0.60	40.96	46.00	-5.04	QP	

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

•ReferenceOnly

File :STB\Data :#65

Page: 1

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HRE
Horizontal polarization

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Tel:02-2299-3279 Fax:02-2298-2698

Radiated Emission Measurement

File:STB

Data :#45

Date: 2012/10/29

Time : 下午 02:16:16

95.0 dBuV/m



Site :966-2Chamber

Polarization: **Horizontal**

Temperature: 25 °C

Limit: FCC Class B 3M Radiation(1G-40G)(Pea

Power: AC 120V/60Hz

Humidity: 60%

EUT: STB

Distance:

M/N: ISB7150

Mode: Full Test , sample 2

Note:

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1		1180.000	64.25	-23.46	40.79	74.00	-33.21	peak	
2	*	1500.000	71.04	-23.30	47.74	74.00	-26.26	peak	
3		1580.000	63.71	-22.86	40.85	74.00	-33.15	peak	
4		2250.000	62.73	-19.18	43.55	74.00	-30.45	peak	
5		3000.000	64.16	-17.33	46.83	74.00	-27.17	peak	
6		3880.000	58.70	-15.82	42.88	74.00	-31.12	peak	

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

●ReferenceOnly

File :STB\Data :#45

Page: 1

Engineer Signature:

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Vertical polarization

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Radiated Emission Measurement

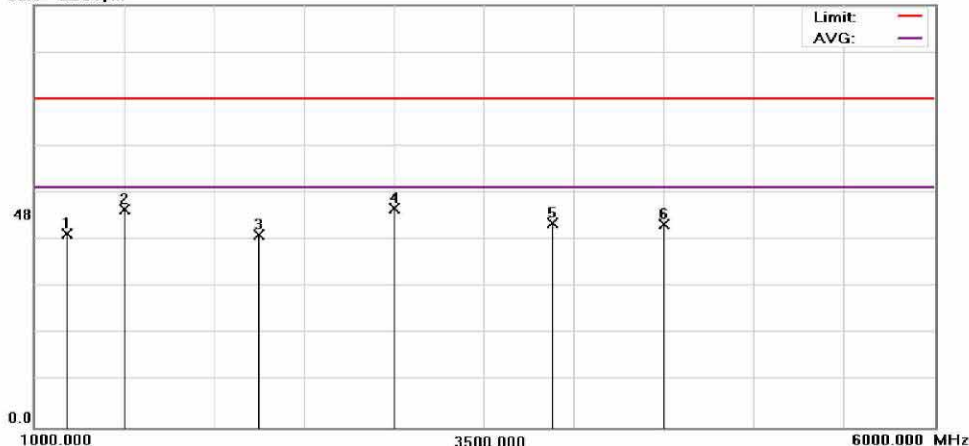
File:STB

Data :#44

Date: 2012/10/29

Time : 下午 02:13:13

95.0 dBuV/m



Site :966-2Chamber

Polarization: **Vertical**

Temperature: 25 °C

Limit: FCC Class B 3M Radiation(1G-40G)(Pea

Power: AC 120V/60Hz

Humidity: 60%

EUT: STB

Distance:

M/N: ISB7150

Mode: Full Test , sample 2

Note:

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1		1180.000	67.11	-23.46	43.65	74.00	-30.35	peak	
2		1500.000	72.37	-23.30	49.07	74.00	-24.93	peak	
3		2250.000	62.49	-19.18	43.31	74.00	-30.69	peak	
4	*	3000.000	66.55	-17.33	49.22	74.00	-24.78	peak	
5		3880.000	61.77	-15.82	45.95	74.00	-28.05	peak	
6		4500.000	60.40	-14.61	45.79	74.00	-28.21	peak	

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

•ReferenceOnly

File :STB\Data :#44

Page: 1

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