SGS-CSTC Standards Technical Services Co., Ltd.

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FCC Test Report

Application No.:	SZEMO090502429IT
Applicant:	TELEWAY INDUSTRIAL LTD
Manufacturer:	TELEWAY INDUSTRIAL LTD
Factory:	TELEWAY INDUSTRIAL LTD
Address of Applicant:	5/F., Block 40, Ma Jia Long Industrial Area, Nanshan District, Shenzhen, 518052 Guangdong Province, China
FCC ID:	TM4DWP001
Equipment Under Test (EUT):	
EUT Name:	MHub Dock Station
Item No.:	DWP001
Standards:	FCC Part15 subpart B:2008
Date of Receipt:	18 May 2009
Date of Test:	20 to 26 May 2009
Date of Issue:	27 May 2009
Test Result :	**Pass***

* In the configuration tested, the EUT complied with the standards specified above.

Authorized Signature:

Robinson Lo
Laboratory Manager

The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards. Any mention of SGS International Electrical Approvals or testing done by SGS International Electrical Approvals in connection with, distribution or use of the product described in this report must be approved by SGS International Electrical Approvals in writing.
The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government. All test results in this report can be traceable to National or International Standards.

2 Test Summary

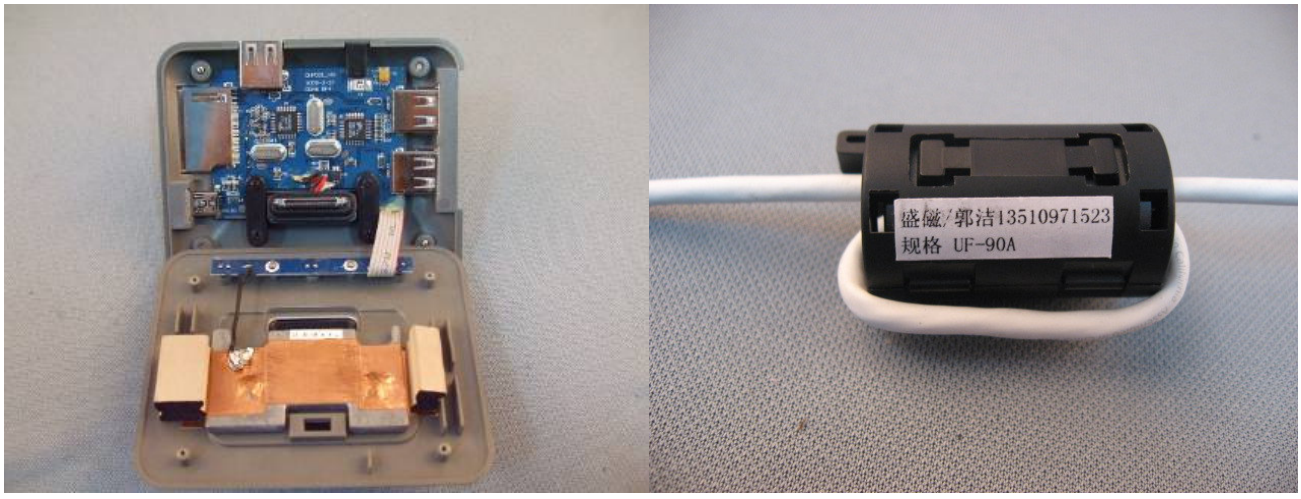
Test	Test Requirement	Test Method	Class / Severity	Result
Radiated Emission (30MHz to 2GHz)	FCC PART 15, SUBPART B: 2008	ANSI C63.4:2003	Class B	PASS
Conducted Emission (150KHz to 30MHz)	FCC PART 15, SUBPART B: 2008	ANSI C63.4:2003	Class B	PASS

Remark:

1. The EUT Passed the RE test with modification with component as below:

Component	Model
Copper foil	28*20*0.1mm
Electric sponge	20*13*12mm
Electric sponge	20*7.5*12mm
EMI ferrite	UF-90A

For the details please refer to photos as below:



3 Contents

4 General Information

4.1 General Description of E.U.T.

EUT Name: MHub Dock Station
Item No.: DWP001

4.2 Details of E.U.T.

Power Supply: Input: 100-240V ~ 50/60Hz 0.3A max
Output: DC 5.0V 2A
Test voltage: 120V
Power Cord: N/A

4.3 Description of Support Units

The EUT has been tested with associated equipment below.

Description	Manufacturer	Model No.
PC (RE)	DELL	OPTIPLEX 755
LCD-displaying	DELL	E1909WF
KEYBOARD	DELL	SK-8115
MOUSE	DELL	MOC5110
PC (CE)	DELL	OPTIDLEX 330
LCD-displaying	DELL	SP2208WFPT

4.4 Standards Applicable for Testing

The customer requested FCC tests for a USB.
The standard used was FCC PART 15, SUBPART B, CLASS B.

4.5 Test Location

All tests were performed at:
SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory,
No. 1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, China. 518057.
Tel: +86 755 2601 2053 Fax: +86 755 2671 0594
No tests were sub-contracted.

4.6 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

- **NVLAP – Lab Code: 200611-0**
  SGS-CSTC Standards Technical Services Co., Ltd., Guangzhou EMC Laboratory is recognized under the National Voluntary Laboratory Accreditation Program (NVLAP/NIST). NVLAP Code: 200611-0.
- **ACA**
  SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory can also perform testing for the Australian C-Tick mark as a result of our NVLAP accreditation.
- **VCCI**
  The 3m Semi-anechoic chamber and Shielded Room (7.5m x 4.0m x 3.0m) of SGS-CSTC Standards Technical Services Co., Ltd. have been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: R-2197 and C-2383 respectively.
  Date of Registration: September 29, 2008. Valid until September 28, 2011
- **SGS UK(Certificate No.: 32), SGS-TUV SAARLAND and SGS-FIMKO**
  Have approved SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory as a supplier of EMC TESTING SERVICES and SAFETY TESTING SERVICES
- **CNAS (No. CNAS L2929)**
  CNAS has accredited SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch EMC Lab to ISO/IEC 17025:2005 General Requirements for the Competence of Testing and Calibration Laboratories (CNAS-CL01 Accreditation Criteria for the Competence of Testing and Calibration Laboratories) for the competence in the field of testing.
- **FCC – Registration No.: 556682**
  SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration 556682, Aug. 04, 2005
- **Industry Canada (IC)**
  The 3m Semi-anechoic chamber of SGS-CSTC Standards Technical Services Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 4620C-1.

4.7 Deviation from Standards

None.

4.8 Abnormalities from Standard Conditions

None.

5 Equipments Used during Test

Conducted Emission						
Item	**Test Equipment**	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal.Date (dd-mm-yy)**	**Cal.Due date (dd-mm-yy)**
1	Shielding Room	ZhongYu Electron	GB-88	SEL0042	N/A	N/A
2	LISN	ETS-LINDGREN	3816/2	SEL0021	18-06-2009	17-06-2010
3	ISN	Rohde & Schwarz	ENY 22 1109	EMC0114	18-06-2009	17-06-2010
4	ISN	Rohde & Schwarz	ENY 41 1110	EMC0115	18-06-2009	17-06-2010
5	EMI Test Receiver	Rohde & Schwarz	ESCI	SEL0022	18-06-2009	17-06-2010
6	Coaxial Cable	SGS	N/A	SEL0024	18-06-2009	17-06-2010
7	LISN	Rohde & Schwarz	ENV216	SEL0022	19-11-2008	18-11-2009

RE in Chamber						
Item	**Test Equipment**	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal.Date (dd-mm-yy)**	**Cal.Due date (dd-mm-yy)**
1	3m Semi-Anechoic Chamber	ETS-LINDGREN	N/A	SEL0017	16-06-2008	15-06-2010
2	EMI Test Receiver	Rohde & Schwarz	ESIB26	SEL0023	12-12-2008	11-12-2009
3	EMI Test software	AUDIX	E3	SEL0050	N/A	N/A
4	Coaxial cable	SGS	N/A	SEL0028	18-06-2009	17-06-2010
5	BiConiLog Antenna (26-3000MHz)	ETS-LINDGREN	3142C	SEL0014	12-08-2008	11-08-2009
6	Pre-amplifier (0.1-1300MHz)	Agilent Technologies	8447D	SEL0053	18-06-2009	17-06-2010
7	Double-ridged horn (1-18GHz)	ETS-LINDGREN	3117	SEL0005	12-08-2008	11-08-2009
8	Horn Antenna (18-26GHz)	ETS-LINDGREN	3160	SEL0076	12-08-2008	11-08-2009
9	Pre-amplifier (1-18GHz)	Rohde & Schwarz	AFS42-00101 800-25-S-42	SEL0081	18-06-2009	17-06-2010
10	Pre-amplifier (18-26GHz)	Rohde & Schwarz	AFS33-18002650-30-8P-44	SEL0080	18-06-2009	17-06-2010
11	Band filter	Amindeon	82346	SEL0094	18-06-2009	17-06-2010
12	Active Loop Antenna	Beijing Daze	ZN30900A	SEL0097	15-06-2009	14-06-2010

6 Test Results

6.1 Conducted Emissions Mains Terminals, 150kHz to 30MHz

Test Requirement:	FCC Part15 B
Test Method:	ANSI C63.4:2003
Frequency Range:	150KHz to 30MHz
Class / Severity:	Class B
Detector:	Peak for pre-scan (9kHz Resolution Bandwidth)
	Quasi-Peak if maximised peak within 6dB of Quasi-Peak limit

6.1.1 E.U.T. Operation

Operating Environment:

Temperature: 25.0 °C Humidity: 55 % RH Atmospheric Pressure: 1015 Mbar

EUT Operation: Build the connection between ipod, USB Stick, SD card to all of the EUT port, and keep connection with PC through the Mini USB port, keep data exchanging at the same time.

6.1.2 Measurement Data

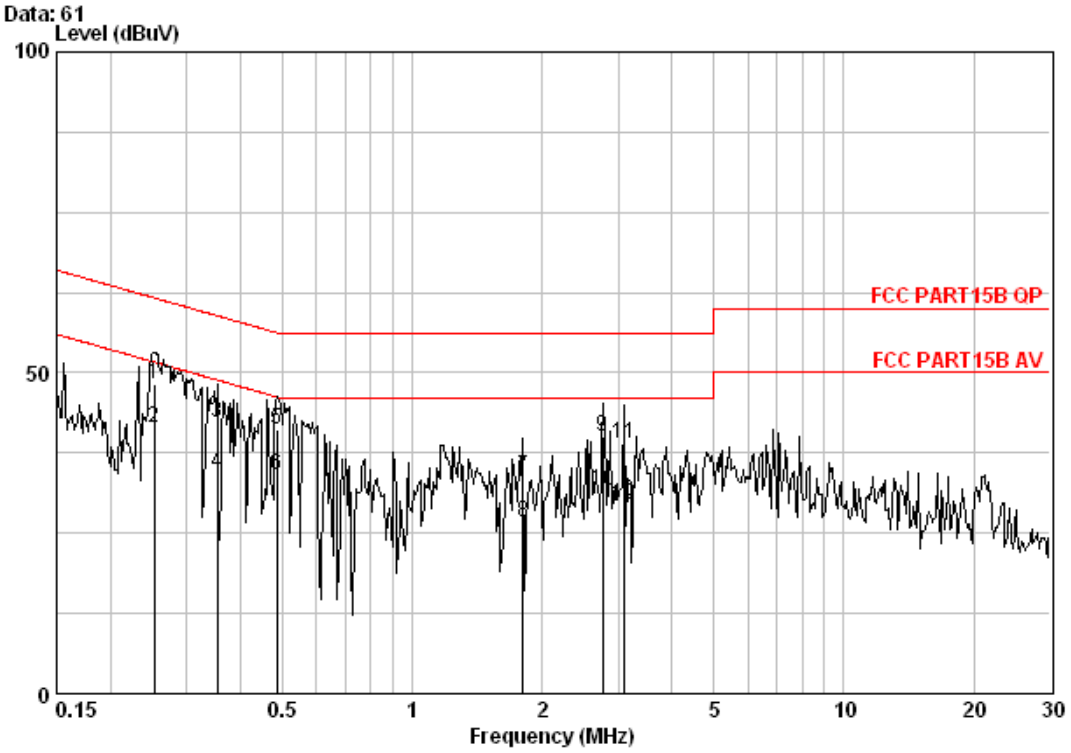
An initial pre-scan was performed on the live and neutral lines with peak detector.

Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission were detected.

The following Quasi-Peak and Average measurements were performed on the EUT

PC mode

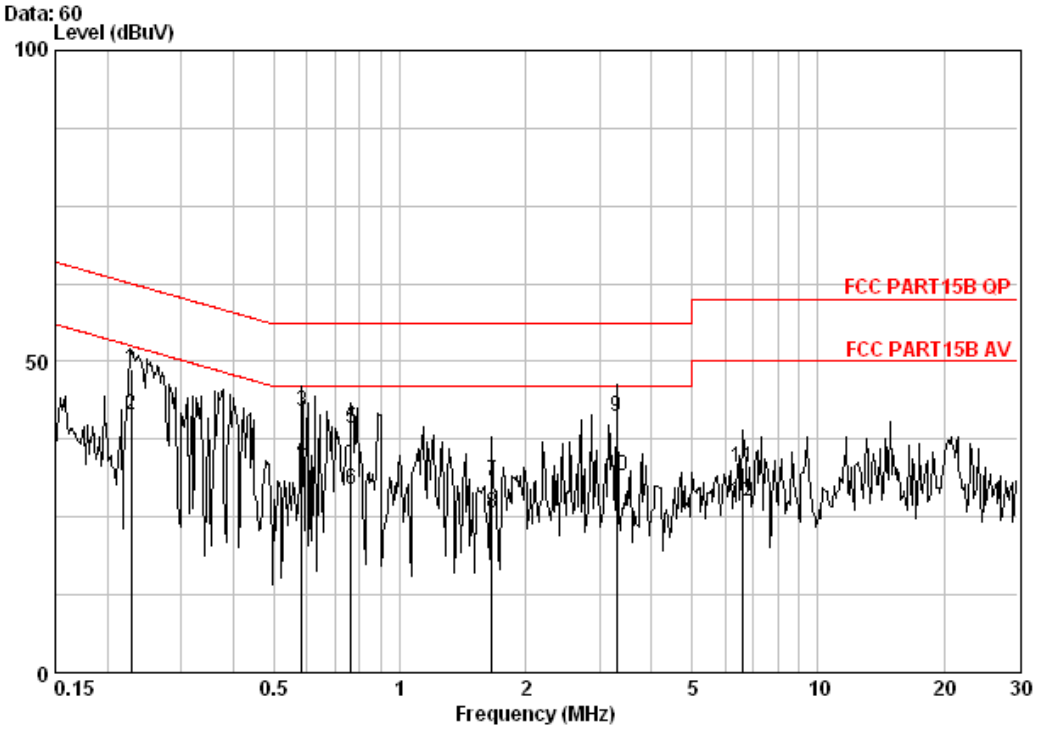
Live Line:



Site : Shielding Room
Condition : FCC PART15B QP CE LINE
EUT : MacAir USB HUB With Docking Charger
Job No. : 2429IT
Test mode : Communication with PC

		Freq	Cable Loss	LISN Factor	Read Level	Level	Limit Line	Over Limit	Remark
		MHz	dB	dB	dBuV	dBuV	dBuV	dB	
1		0.25211	0.05	-0.04	48.22	48.22	61.69	-13.47	QP
2	@	0.25211	0.05	-0.04	41.35	41.35	51.69	-10.34	Average
3		0.35388	0.05	-0.04	42.17	42.18	58.87	-16.69	QP
4		0.35388	0.05	-0.04	34.25	34.26	48.87	-14.61	Average
5		0.48632	0.06	-0.04	41.23	41.25	56.23	-14.98	QP
6		0.48632	0.06	-0.04	34.12	34.14	46.23	-12.09	Average
7		1.810	0.11	-0.06	33.84	33.89	56.00	-22.11	QP
8		1.810	0.11	-0.06	26.52	26.57	46.00	-19.43	Average
9		2.765	0.14	-0.07	40.04	40.11	56.00	-15.89	QP
10		2.765	0.14	-0.07	31.47	31.53	46.00	-14.47	Average
11		3.090	0.14	-0.08	38.81	38.88	56.00	-17.12	QP
12		3.090	0.14	-0.08	29.35	29.42	46.00	-16.58	Average

Neutral Line:



Site : Shielding Room
Condition : FCC PART15B QP CE NEUTRAL
EUT : MacAir USB HUB With Docking Charger
Job No. : 24291T
Test mode : Communication with PC

	Freq	Cable Loss	LISN Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB	dBuV	dBuV	dBuV	dB	
1	0.22797	0.04	-0.04	48.77	48.77	62.52	-13.75	QP
2	0.22797	0.04	-0.04	41.52	41.52	52.52	-11.00	Average
3	0.58231	0.06	-0.04	41.90	41.92	56.00	-14.08	QP
4	0.58231	0.06	-0.04	34.20	34.22	46.00	-11.78	Average
5	0.76297	0.06	-0.04	39.35	39.37	56.00	-16.63	QP
6	0.76297	0.06	-0.04	29.47	29.49	46.00	-16.51	Average
7	1.662	0.11	-0.06	30.72	30.78	56.00	-25.22	QP
8	1.662	0.11	-0.06	25.65	25.70	46.00	-20.30	Average
9	3.293	0.15	-0.08	41.19	41.26	56.00	-14.74	QP
10	3.293	0.15	-0.08	31.65	31.71	46.00	-14.29	Average
11	6.627	0.19	-0.17	32.98	33.00	60.00	-27.00	QP
12	6.627	0.19	-0.17	27.41	27.43	50.00	-22.57	Average

6.2 Radiated Emissions, 30MHz to 2GHz

Test Requirement:	FCC Part15 B
Test Method:	ANSI C63.4:2003
Frequency Range:	30MHz to 2GHz
Measurement Distance:	3m
Class:	Class B
Limit:	40.0 dBμV/m between 30MHz & 88MHz
	43.5 dBμV/m between 88MHz & 216MHz
	46.0 dBμV/m between 216MHz & 960MHz
	54.0 dBμV/m above 960MHz
Detector:	Quasi-Peak RBW=120KHz VBW=300KHz 30MHz-1000MHz
	Peak RBW=1000MHz; VBW=1000MHz
	Average: RBW=1000MHz VBW=1000MHz

6.2.1 E.U.T. Operation

Operating Environment:

Temperature: 22.0 °C Humidity: 54 % RH Atmospheric Pressure: 1015 mbar

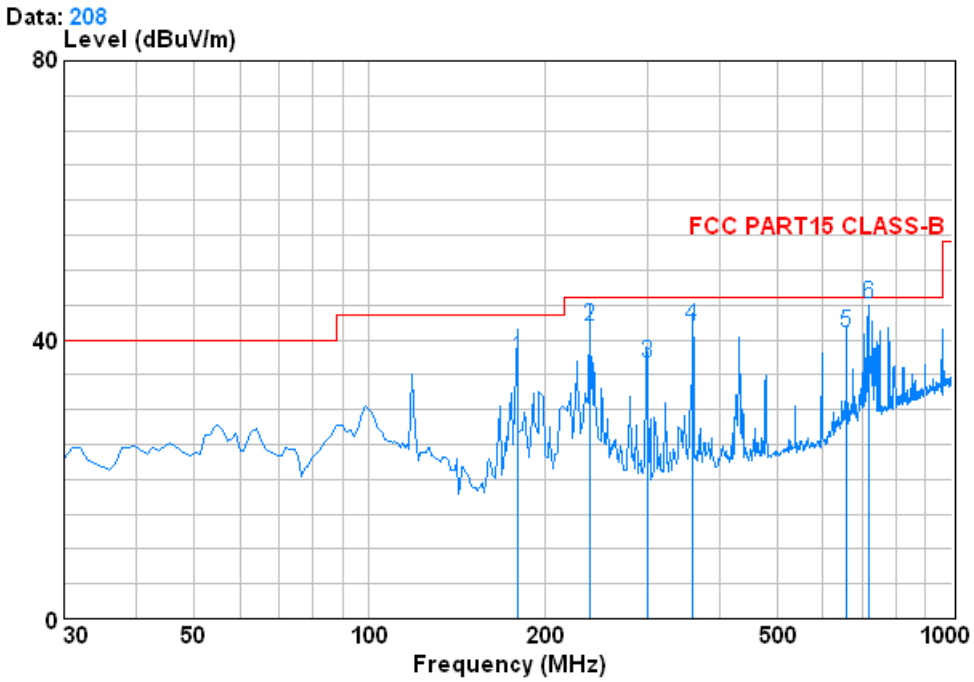
EUT Operation: Build the connection between ipod, USB Stick, SD card to all of the EUT port, and keep connection with PC through the Mini USB port, keep data exchanging at the same time.

6.2.2 Measurement Data

An initial pre-scan was performed in the chamber using the spectrum analyser in peak detection mode. Quasi-peak measurements were conducted based on the peak sweep graph. The EUT was measured by Bilog antenna with 2 orthogonal polarities.

The following quasi-peak measurements were performed on the EUT

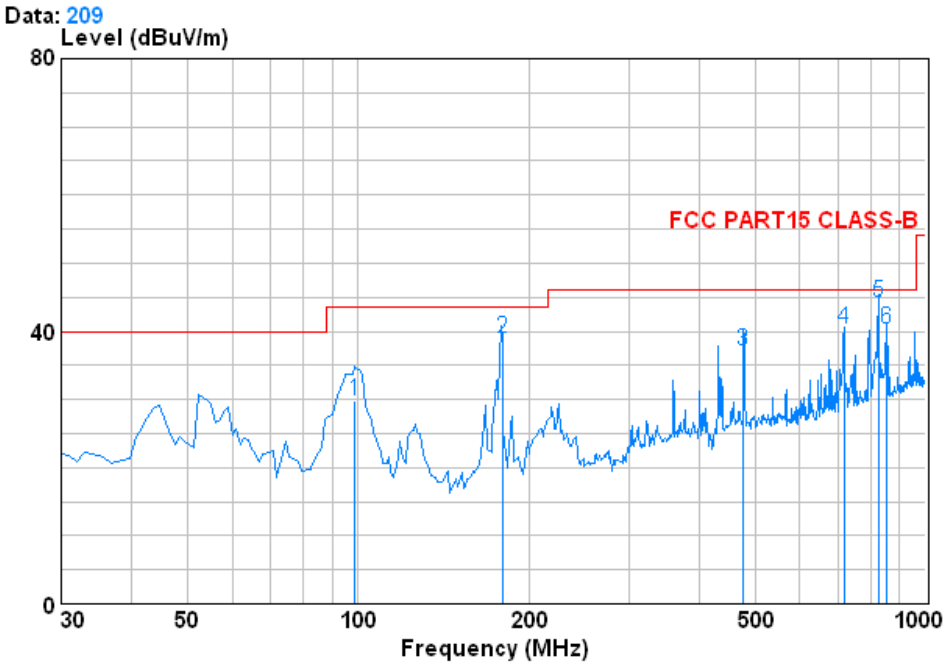
Horizontal



Condition : FCC PART15 CLASS-B 3m 0042673 HORIZONTAL
EUT : MacAir USB HUB With Docking Charger
Job No. : 2429IT
Test mode : Communicate with PC

	Freq	Cable Loss	Antenna Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1	179.380	1.37	9.87	27.26	53.47	37.45	43.50	-6.05
2	238.550	1.62	11.93	26.96	55.27	41.85	46.00	-4.15
3	300.020	1.90	13.90	26.72	47.50	36.58	46.00	-9.42
4	358.830	2.09	15.62	27.15	51.33	41.89	46.00	-4.11
5	660.070	2.83	20.92	27.41	44.80	41.14	46.00	-4.86
6 @	719.958	2.96	21.60	27.21	47.90	45.25	46.00	-0.75

Vertical



Condition : FCC PART15 CLASS-B 3m 0042673 VERTICAL
EUT : MacAir USB HUB With Docking Charger
Job No. : 2429IT
Test mode : Communicate with PC

	Freq	Cable Loss	Antenna Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1	98.870	1.19	9.06	27.89	47.38	29.74	43.50	-13.76
2	180.010	1.37	9.90	27.26	54.90	38.91	43.50	-4.59
3	478.140	2.52	17.80	27.65	44.53	37.21	46.00	-8.79
4	720.060	2.96	21.60	27.21	43.00	40.35	46.00	-5.65
5 @	827.340	3.32	22.40	26.79	45.43	44.36	46.00	-1.64
6	851.590	3.41	22.40	26.67	41.22	40.36	46.00	-5.64

Remark:

When testing above 1GHz, the disturbance is very low. So the test result only displays to below 1GHz.