Hong Kong

FCC TEST REPORT

Report Number	:	60.790.13.036.01A	Date of Issue:	January 3, 2014
Model	:	**MSP101**		
Product type	:	**SHOE POD**		
Applicant	:	Dayton Industrial Co., Ltd.		
Address	:	2-12 KWAI FAT ROAD,11-A KWAI CHUNG, NEW ERRITORIES,HONGKONG		
Production Facility	:	Kendy Electronics (Dongguan) Co.Ltd,		
Address	:	Xingsi Huangtang Village, Hengli Town, Dongguan City, Guangdong Province, P.R.China		
Test Result	:	■ **Positive** ☐ **Negative**	Total Pages:	19

Prepared by: CHAN Kwong Ngai

Reviewed by: Edmond FUNG

TÜV SÜD HONG KONG LTD. TÜV SÜD

TÜV SÜD Hong Kong Ltd. is a subcontractor to TÜV Product Service, GmbH according to the principles outlined in ISO 17025.

TÜV SÜD Hong Kong Ltd. reports apply only to the specific samples tested under stated test conditions. Construction of the actual test samples has been documented. It is the manufacturer's responsibility to assure that additional production units of this model are manufactured with identical electrical and mechanical components. The manufacturer/importer is responsible to the Competent Authorities in Europe for any modifications made to the production units which result in non-compliance to the relevant regulations. TÜV SÜD Hong Kong Ltd. shall have no liability for any deductions, inferences or generalizations drawn by the client or others from TÜV SÜD Hong Kong Ltd. issued reports.

TÜV SÜD HONG KONG LTD.
3/F, West Wing, Lakeside 2, 10 Science Park West Avenue, Science Park, Shatin, HK.

Tel: +852-2776 1323
Fax: +852-2776 1206

TABLE OF CONTENTS

1 General Information

1.1 Summary of Test Result

FCC Rules	IC Rules	Description of Test	Result	Remark
FCC § 15.107	ICES-003 § 6.1	AC Line Conducted Emissions	PASS	Meet Class B limit
FCC § 15.109	ICES-003 § 6.2	Radiated Emission	PASS	Meet Class B limit

The test results of this report relate only to the tested sample(s) identified in this report. Manufacturer or whom it may concern should recognize the pass or fail of the test result.

1.2 Measurement Uncertainty

Conducted Emission

The measurement uncertainty is evaluated as ± 2.26 dB.

Radiated Emission

The measurement uncertainty is evaluated as ± 3.19 dB.

1.3 Measurement Uncertainty

Details about the Test Laboratory

Test site 1

Company name: TÜV SÜD HONG KONG LTD.
3/F, West Wing, Lakeside 2,
10 Science Park West Avenue,
Science Park, Shatin
HK.

Telephone: 852 2776 1323

Fax: 852 2776 1372

Test site 2

Company name: TMC-Telecommunication Metrology Center of M.I.I.T
No 52 Hua Yuanbei Road, Haidian District, Beijing, P.R.China

2 EUT Description

Product	SHOE POD
Model Number	MSP101
Applicant	Dayton Industrial Co., Ltd 11A,2-12 Kwai Fat Road, Kwai Chung, New Territories, Hong Kong
Manufacturer	Kendy Electronics (Dongguan) Co.Ltd, Xingsi Huangtang Village, Hengli Town, Dongguan City, Guangdong Province, P.R.China
Power Supply	1x 3.0V CR2032 battery

I/O Port Description：

I/O Port Types	Q'TY	Test Description
1). USB	1	Connected to computer

TÜV SÜD HONG KONG LTD.
3/F, West Wing, Lakeside 2, 10 Science Park West Avenue, Science Park, Shatin, HK.
Tel: +852-2776 1323
Fax: +852-2776 1206

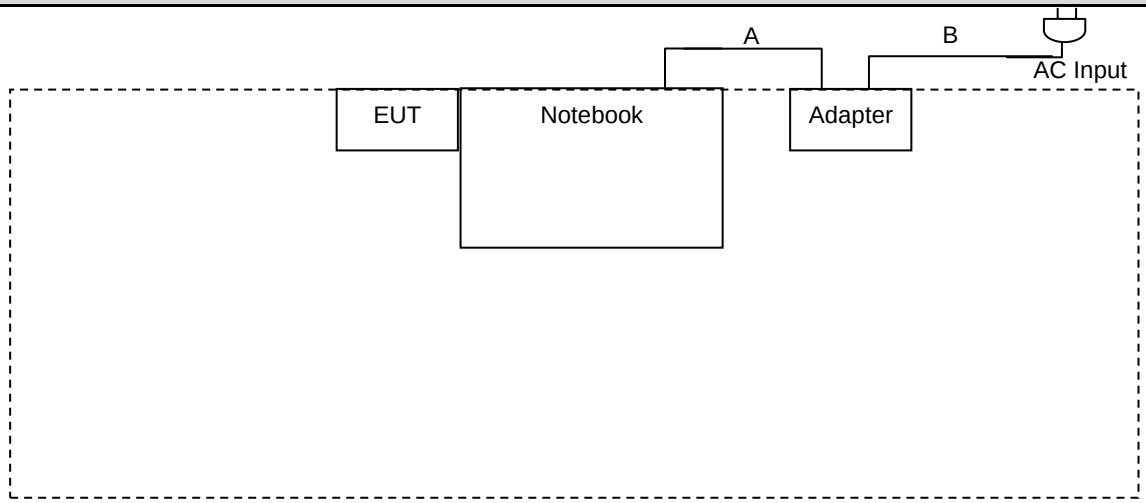
3 Test Methodology

3.1 Decision of Test Mode

Pre-Test Mode	
EMC	Mode 1: Normal working

3.2 Configuration of Test System Details

Mode 1



Signal Cable Type		Signal Cable Description
A	DC Power Cable	Non-Shielded, 1.2 m with one core
B	AC Power Cable	Non-Shielded, 1.0m
--	--	--

3.3 Test Site Environment

Items	Test Item	Actual
Temperature (°C)	Conducted Emission	25
Humidity (%RH)		66
Barometric pressure (mbar)		1004
Temperature (°C)	Radiated Emission	25
Humidity (%RH)		62
Barometric pressure (mbar)		1004

TÜV SÜD HONG KONG LTD.
3/F, West Wing, Lakeside 2, 10 Science Park West Avenue, Science Park, Shatin, HK.
Tel: +852-2776 1323
Fax: +852-2776 1206

4 Emission Test

4.1 Conducted Emission Measurement

4.1.1 Limit

A.C. Mains Conducted Interference Limit

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 in line with the logarithm of the frequency in the range 0.15 to 0.50 MHz.

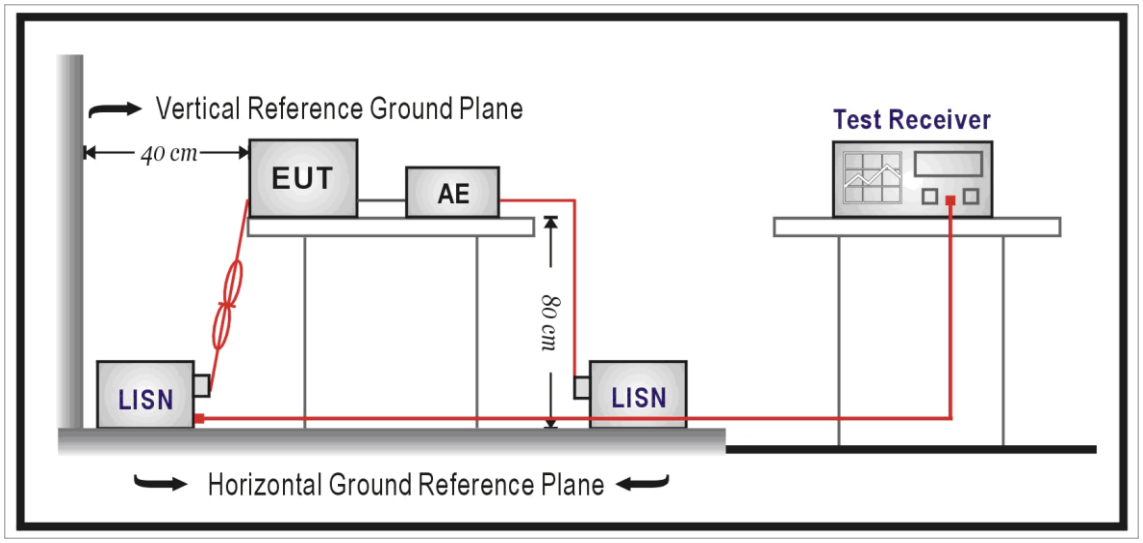
4.1.2 Test Instruments

Equipment	Manufacturer	Model Number	Serial Number	Cal. Date	Remark
Test Receiver	R&S	ESCI	100367	06/18/2013	(1)
LISN	R&S	ENV216	101040	03/07/2013	(1)
LISN	R&S	ENV216	101041	03/07/2013	(1)
Test Site	ATL	TE02	TE02	N.C.R.	-----

Remark: (1) Calibration period 1 year. (2) Calibration period 2 years.
Note: N.C.R. = No Calibration Request.

4.1.3 Test Setup

A.C. mains setup



4.1.4 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.
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.

For A.C. mains conducted interference, measured both sides of A.C. lines and carried out using quasi-peak and average detector receivers of maximum conducted interference.

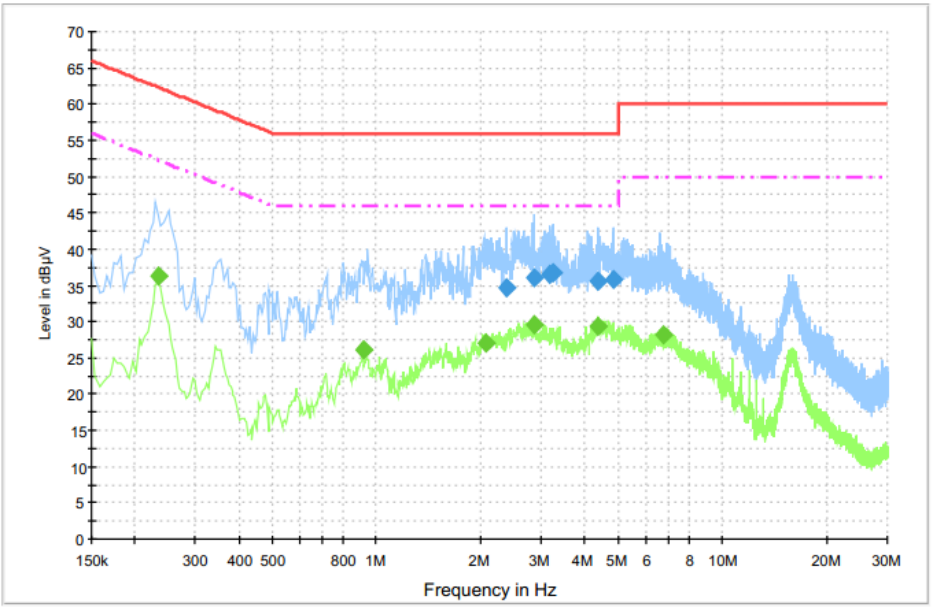
Conducted emissions were invested over the frequency range from 0.15 MHz to 30 MHz using a receiver bandwidth of 9 kHz. The equipment under test (EUT) shall be meet the limits in section 4.1.2, as applicable, including the average limit and the quasi-peak limit when using respectively (A.C. mains and telecommunication port), an average detector and quasi-peak detector measured in accordance with the methods described of related standard. Either the voltage limits or the current limits shall be met. If the average limit is met when using a quasi-peak detector receiver, the EUT shall be deemed to meet both limits and measurement with the average detector receiver is unnecessary.

If the reading of the measuring receiver shows fluctuations close to the limit, the reading shall be observed for at least 15 s at each measurement frequency; the higher reading shall be recorded with the exception of any brief isolated high reading which shall be ignored.

TÜV SÜD HONG KONG LTD.
3/F, West Wing, Lakeside 2, 10 Science Park West Avenue, Science Park, Shatin, HK.
Tel: +852-2776 1323
Fax: +852-2776 1206

4.1.5 Test Result

Standard:	FCC 15.107	Line:	L
Test item:	Conducted Emission	Power:	AC120V 60Hz
Model Number:	MSP101	Date:	2014/01/10
Mode:	1	Test By:	
Description:			



Final Result 1

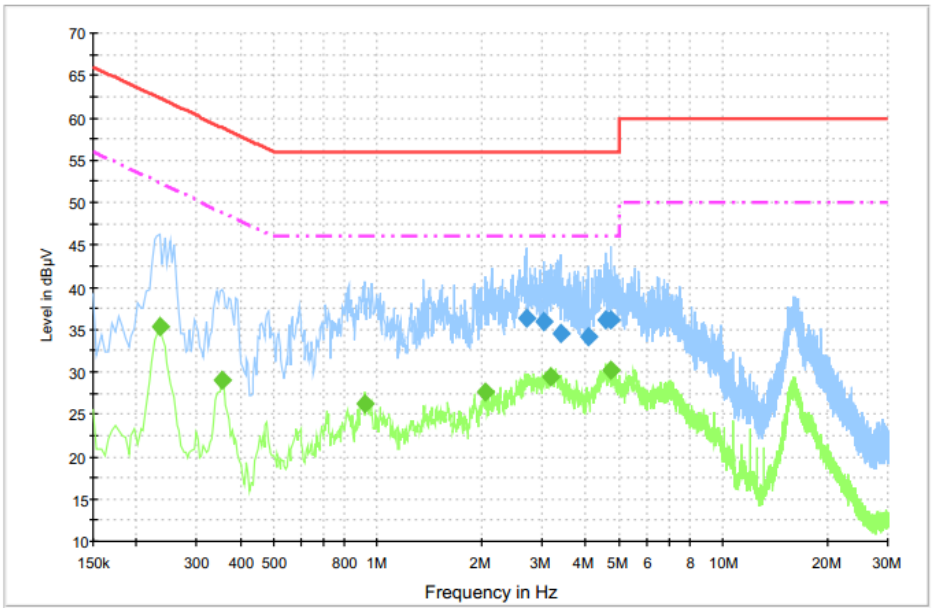
Frequency (MHz)	QuasiPeak (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
2.378000	34.8	FLO	L	10.2	21.2	56.0
2.846000	36.0	FLO	L	10.1	20.0	56.0
3.186000	36.4	FLO	L	10.2	19.6	56.0
3.238000	36.7	FLO	L	10.2	19.3	56.0
4.378000	35.6	FLO	L	10.2	20.4	56.0
4.866000	35.7	FLO	L	10.2	20.3	56.0

Final Result 2

Frequency (MHz)	CAverage (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.234000	36.3	FLO	L	10.0	16.0	52.3
0.914000	26.1	FLO	L	10.1	19.9	46.0
2.070000	27.1	FLO	L	10.1	18.9	46.0
2.846000	29.5	FLO	L	10.1	16.5	46.0
4.394000	29.3	FLO	L	10.2	16.7	46.0
6.754000	28.2	FLO	L	10.3	21.8	50.0

TÜV SÜD HONG KONG LTD.
3/F, West Wing, Lakeside 2, 10 Science Park West Avenue, Science Park, Shatin, HK.
Tel: +852-2776 1323
Fax: +852-2776 1206

Standard:	FCC 15.107	Line:	N
Test item:	Conducted Emission	Power:	AC120V 60Hz
Model Number:	MSP101	Date:	2014/01/10
Mode:	1	Test By:	
Description:			



Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
2.686000	36.3	FLO	N	10.2	19.7	56.0
3.026000	35.9	FLO	N	10.2	20.1	56.0
3.378000	34.5	FLO	N	10.2	21.5	56.0
4.082000	34.1	FLO	N	10.2	21.9	56.0
4.574000	36.1	FLO	N	10.2	19.9	56.0
4.722000	36.2	FLO	N	10.2	19.8	56.0

Final Result 2

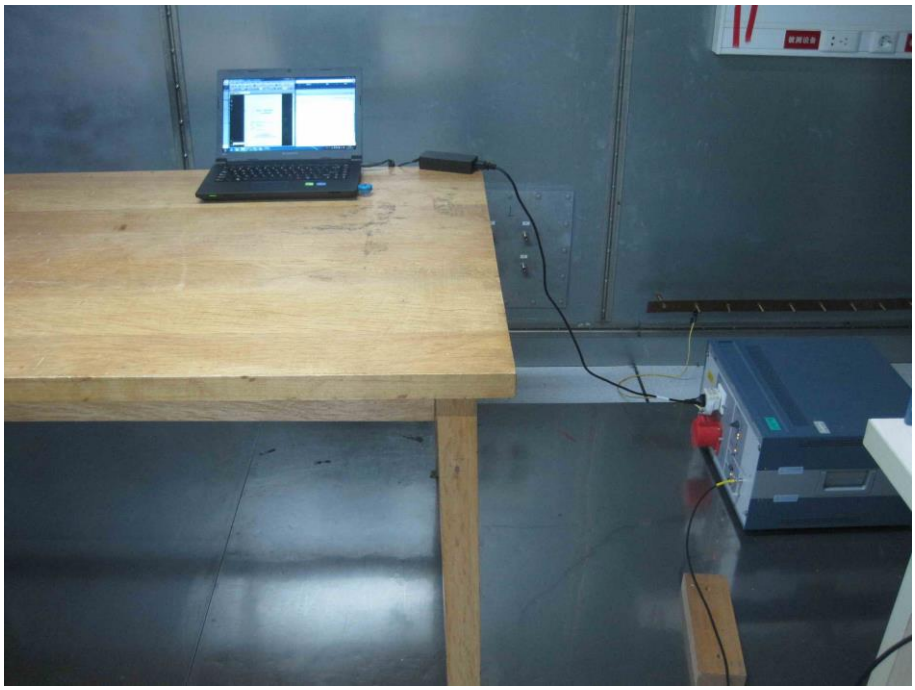
Frequency (MHz)	CAverage (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.234000	35.3	FLO	N	10.0	17.0	52.3
0.354000	29.0	FLO	N	10.1	19.8	48.9
0.914000	26.2	FLO	N	10.1	19.8	46.0
2.038000	27.5	FLO	N	10.1	18.5	46.0
3.166000	29.4	FLO	N	10.2	16.6	46.0
4.722000	30.1	FLO	N	10.2	15.9	46.0

TÜV SÜD HONG KONG LTD.
3/F, West Wing, Lakeside 2, 10 Science Park West Avenue, Science Park, Shatin, HK.
Tel: +852-2776 1323
Fax: +852-2776 1206

4.1.6 Test Photograph

Test Mode: Mode 1

Description: Front View of Conducted Test



Test Mode: Mode 1

Description: Back View of Conducted Test

TÜV SÜD HONG KONG LTD.
3/F, West Wing, Lakeside 2, 10 Science Park West Avenue, Science Park, Shatin, HK.

Tel: +852-2776 1323
Fax: +852-2776 1206

4.2 Radiated Interference Measurement

4.2.1 Limit

Under 1GHz test shall not exceed following value

FCC 47 CFR PART 15 SUBPART B				
Frequency range (MHz)	Class A		Class B	
	Distance (m)	dBuV/m	Distance (m)	dBuV/m
30 to 88	10	39	3	40
88 to 216	10	43.5	3	43.5
216 to 960	10	46.4	3	46
Above 960	10	49.5	3	54

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)
4. Peak detector limit is corresponding to 20 dB above the maximum permitted average limit.

According to FCC Part 15.33 (b), for an unintentional radiator, including a digital device, the spectrum shall be investigated from the lowest radio frequency signal generated or used in the device, without going below the lowest frequency for which a radiated emission limit is specified, up to the frequency shown in the following table:

Highest frequency generated or used in the device or in which the device operated or tunes (MHz)	Upper frequency of measurement range (MHz)
Below 1.75	30
1.75-108	1000
108-500	2000
500-1000	5000
Above 1000	5th harmonic of the highest frequency or 40GHz, whichever is lower

TÜV SÜD HONG KONG LTD.
3/F, West Wing, Lakeside 2, 10 Science Park West Avenue, Science Park, Shatin, HK.
Tel: +852-2776 1323
Fax: +852-2776 1206

4.2.2 Test Instruments

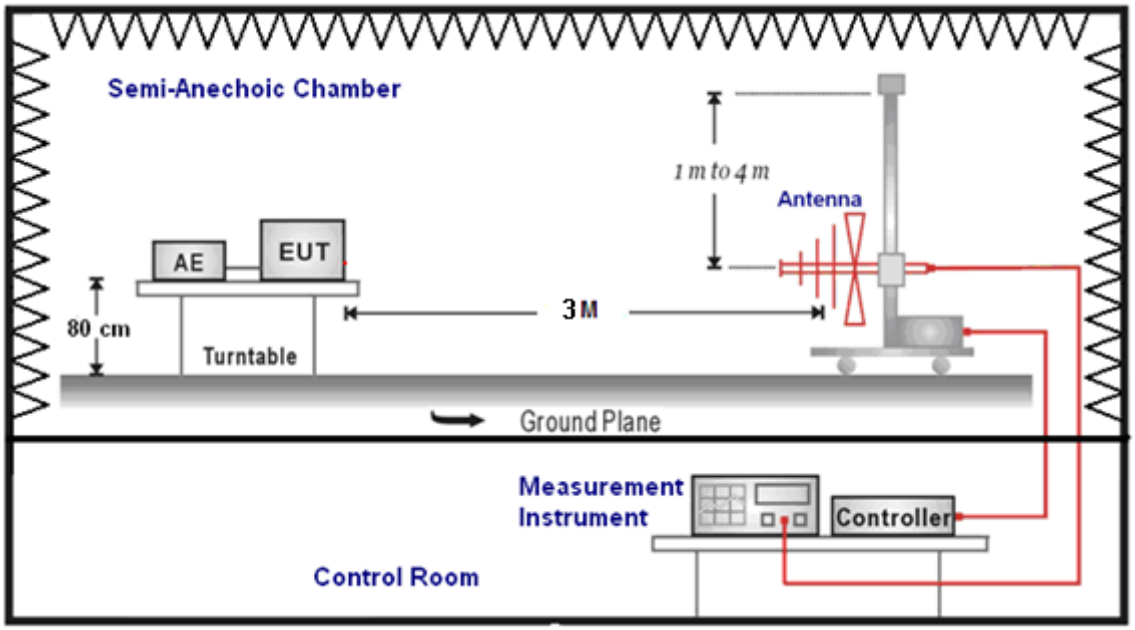
3 Meter Chamber					
Equipment	Manufacturer	Model Number	Serial Number	Cal. Date	Remark
Pre Amplifier	Agilent	8447D	2944A11120	01/10/2013	(1)
Pre Amplifier	Agilent	8447D	2944A11119	01/10/2013	(1)
Test Receiver	R&S	ESCI	100722	10/18/2013	(1)
Test Receiver	R&S	ESCI	101000	10/18/2013	(1)
Broadband Antenna	SCHWARZBECK MESS-ELEKTRONIK	VULB 9160	9160-3268	06/06/2013	(1)
Broadband Antenna	SCHWARZBECK MESS-ELEKTRONIK	VULB 9160	9160-3273	12/13/2013	(1)
Horn Antenna (1~18GHz)	ETS-Lindgren	3117	00128055	08/09/2013	(1)
Horn Antenna (18~40GHz)	SCHWARZBECK MESS-ELEKTRONIK	BBHA9170	9170-320	06/21/2013	(1)

Remark: (1) Calibration period 1 year. (2) Calibration period 2 years.
Note: N.C.R. = No Calibration Request.

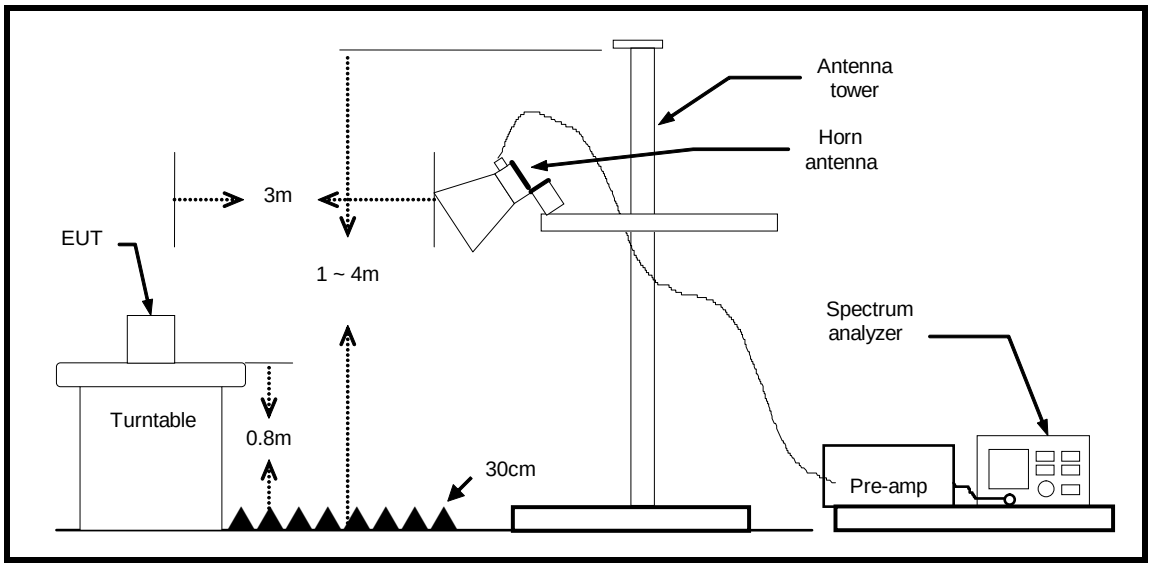
TÜV SÜD HONG KONG LTD.
3/F, West Wing, Lakeside 2, 10 Science Park West Avenue, Science Park, Shatin, HK.
Tel: +852-2776 1323
Fax: +852-2776 1206

4.2.3 Setup

Below 1GHz



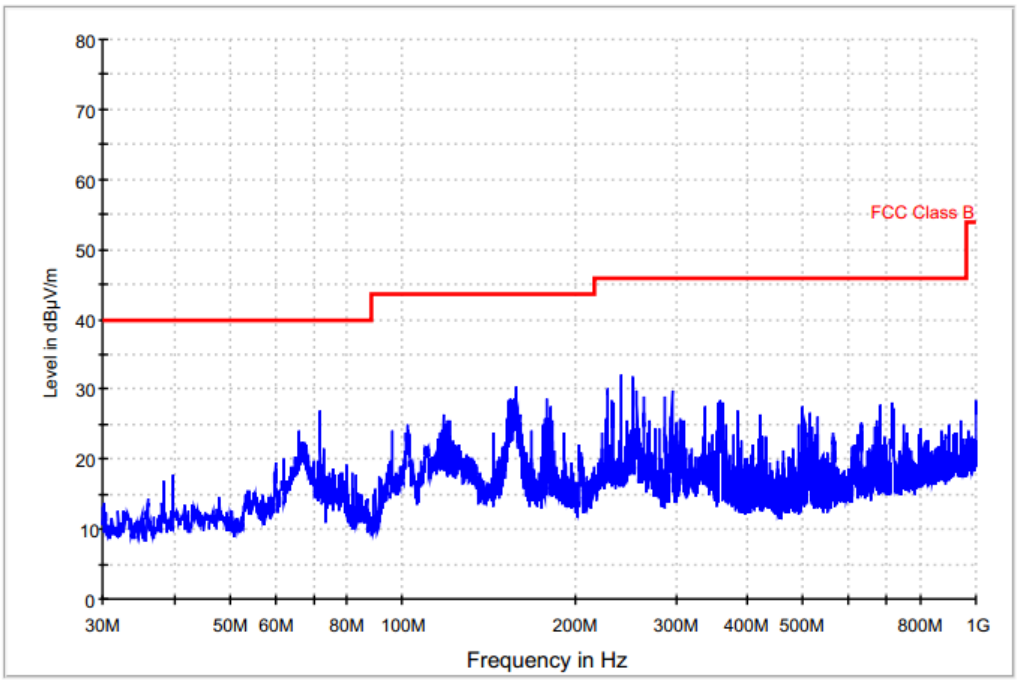
Above 1GHz



TÜV SÜD HONG KONG LTD.
3/F, West Wing, Lakeside 2, 10 Science Park West Avenue, Science Park,
Shatin, HK.
Tel: +852-2776 1323
Fax: +852-2776 1206

4.2.4 Test Result

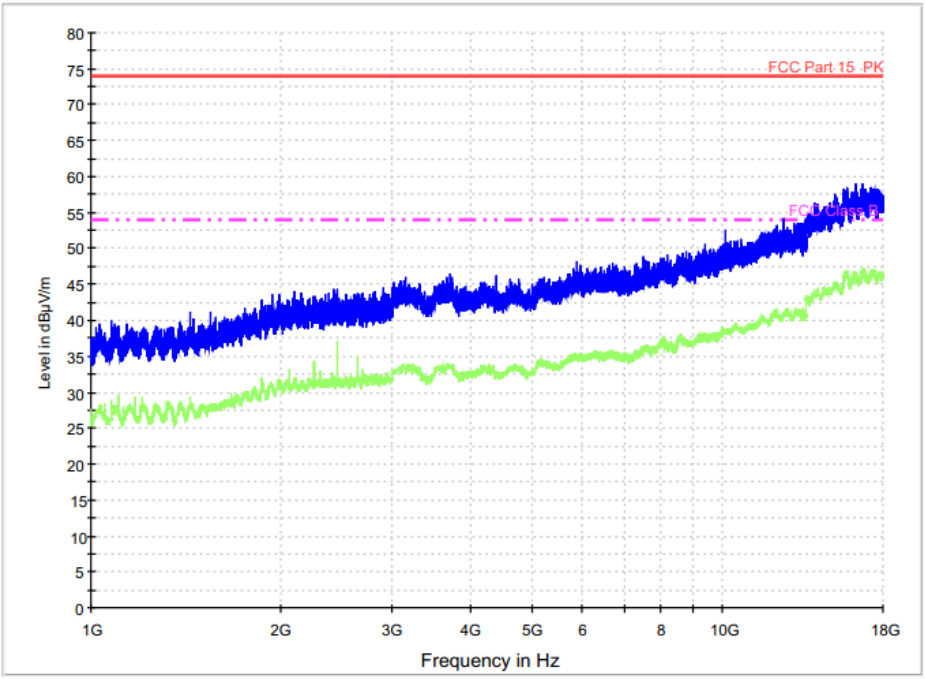
Standard:	FCC 15.109	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	MSP101	Temp.(℃)/Hum.(%RH):	22(℃)/54%RH
Mode:	1	Date:	2013/12/19
Ant.Polar.:	Horizontal(30MHz-1GHz)		



Ferquency (MHz)	QuasiPeak (dBµV/m)	Polarity (H/V)	Corr. (dB)	Limit (dBµV/m)	Margin (dB)
66.42	22.1	H	-36.3	40.0	17.9
72.00	26.4	H	-38.5	40.0	13.6
157.56	30.2	H	-39.6	43.5	13.3
239.96	30.8	H	-34.6	46.0	15.2
252.02	31.1	H	-34.4	46.0	14.9
499.76	26.1	H	-28.7	46.0	19.9

TÜV SÜD HONG KONG LTD.
3/F, West Wing, Lakeside 2, 10 Science Park West Avenue, Science Park, Shatin, HK.
Tel: +852-2776 1323
Fax: +852-2776 1206

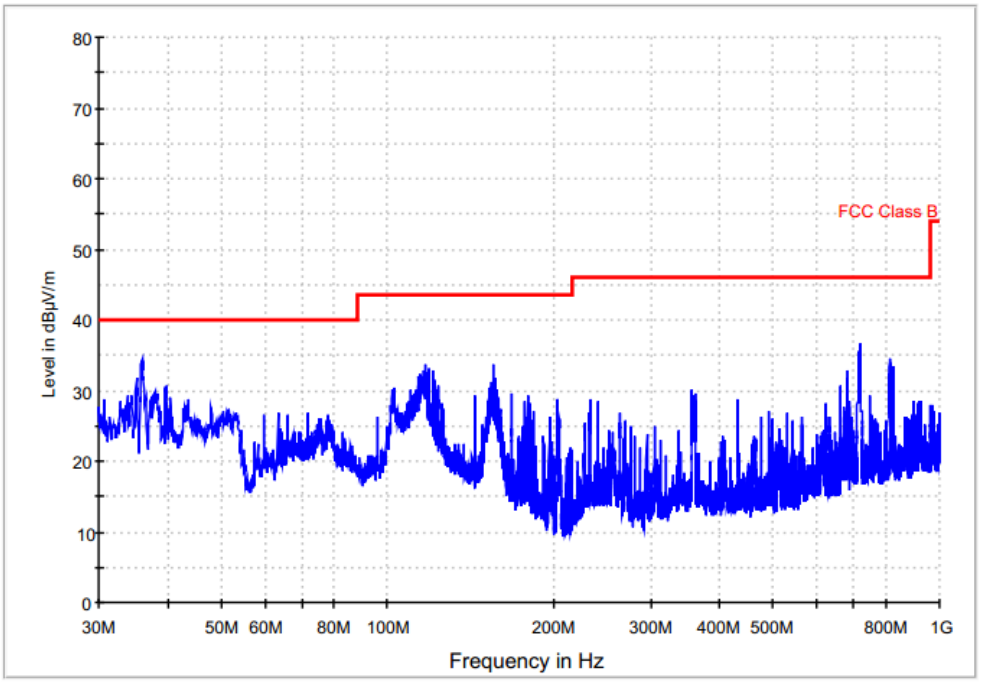
Standard:	FCC 15.109	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	MSP101	Temp.(℃)/Hum.(%RH):	22(℃)/54%RH
Mode:	1	Date:	2013/12/19
Ant.Polar.:	Horizontal(1GHz-18GHz)		



Ferquency (MHz)	Corr.Amp. (dBµV/m)	Detector (PK/Ave.)	Polarity (H/V)	Corr. (dB)	Limit (dBµV/m)	Margin (dB)
1455	42.38	PK	H	-3.6	74.0	31.62
1455	29.66	Ave.	H	-3.6	54.0	24.34
3704	46.52	PK	H	4.0	74.0	27.48
3704	33.81	Ave.	H	4.0	54.0	20.19
4391	46.37	PK	H	5.3	74.0	27.63
4391	31.57	Ave.	H	5.3	54.0	22.43

TÜV SÜD HONG KONG LTD.
3/F, West Wing, Lakeside 2, 10 Science Park West Avenue, Science Park, Shatin, HK.
Tel: +852-2776 1323
Fax: +852-2776 1206

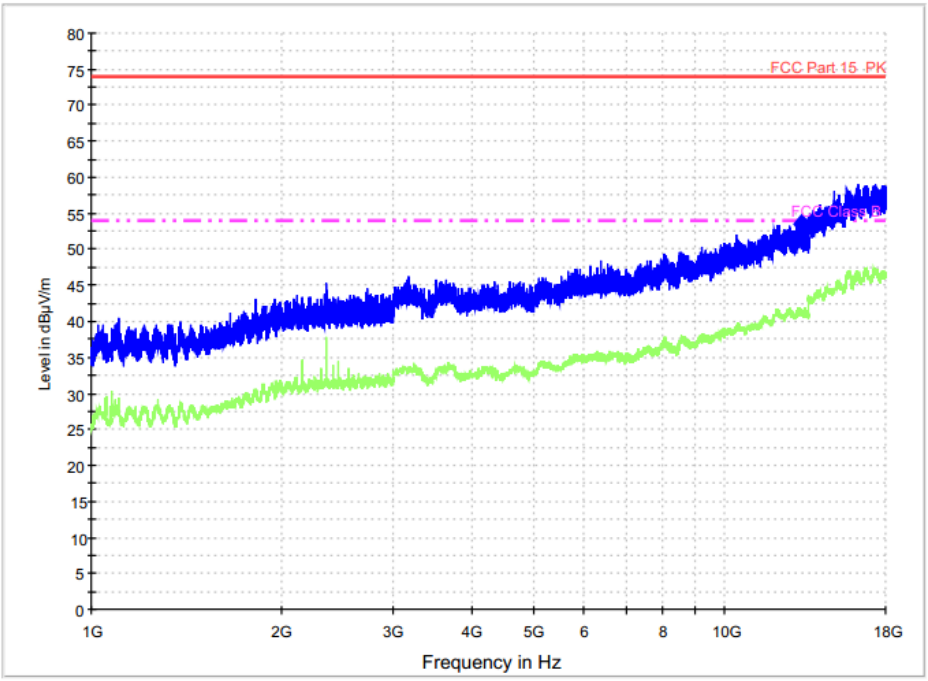
Standard:	FCC 15.109	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	MSP101	Temp.(℃)/Hum.(%RH):	22(℃)/54%RH
Mode:	1	Date:	2013/12/19
Ant.Polar.:	Vertical(30MHz-1GHz)		



Ferquency (MHz)	QuasiPeak (dBµV/m)	Polarity (H/V)	Corr. (dB)	Limit (dBµV/m)	Margin (dB)
35.94	34.5	V	-35.6	40.0	5.5
39.78	30.8	V	-35.1	40.0	9.2
119.22	33.3	V	-36.8	43.5	10.2
155.82	33.6	V	-39.4	43.5	9.9
360.38	28.9	V	-31.7	46.0	17.1
721.28	36.8	V	-25.7	46.0	9.2

TÜV SÜD HONG KONG LTD.
3/F, West Wing, Lakeside 2, 10 Science Park West Avenue, Science Park, Shatin, HK.
Tel: +852-2776 1323
Fax: +852-2776 1206

Standard:	FCC 15.109	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	MSP101	Temp.(℃)/Hum.(%RH):	22(℃)/54%RH
Mode:	1	Date:	2013/12/19
Ant.Polar.:	Vertical(1GHz-6GHz)		



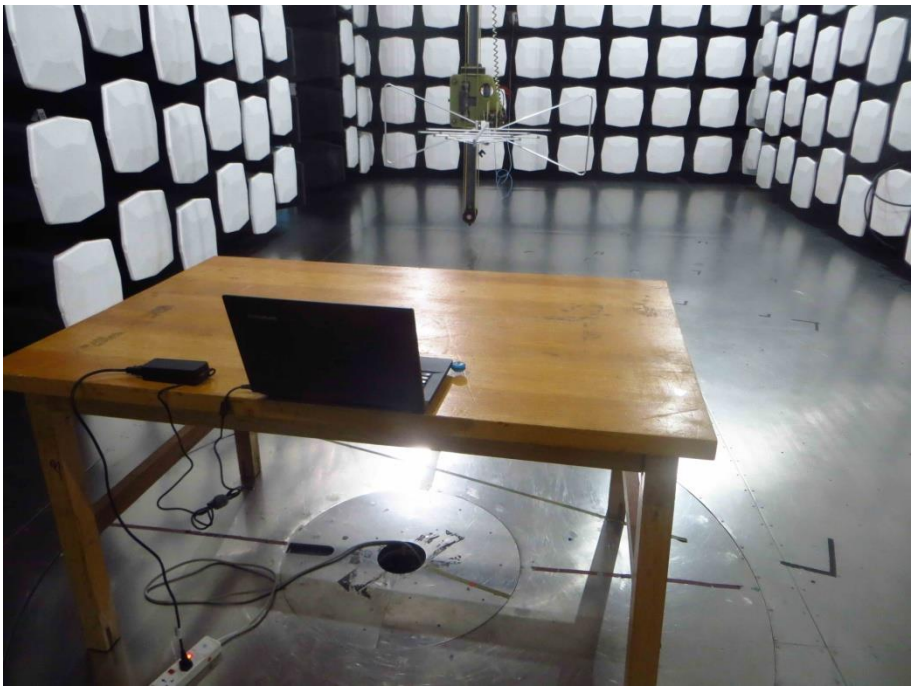
Ferquency (MHz)	Corr.Amp. (dBµV/m)	Detector (PK/Ave.)	Polarity (H/V)	Corr. (dB)	Limit (dBµV/m)	Margin (dB)
1824	46.34	PK	V	-0.5	74.0	27.66
1824	31.82	Ave.	V	-0.5	54.0	22.18
3168	46.33	PK	V	3.2	74.0	27.67
3168	32.40	Ave.	V	3.2	54.0	21.60
5521	46.18	PK	V	6.6	74.0	27.82
5521	32.85	Ave.	V	6.6	54.0	21.15

TÜV SÜD HONG KONG LTD.
3/F, West Wing, Lakeside 2, 10 Science Park West Avenue, Science Park, Shatin, HK.
Tel: +852-2776 1323
Fax: +852-2776 1206

Test Photograph

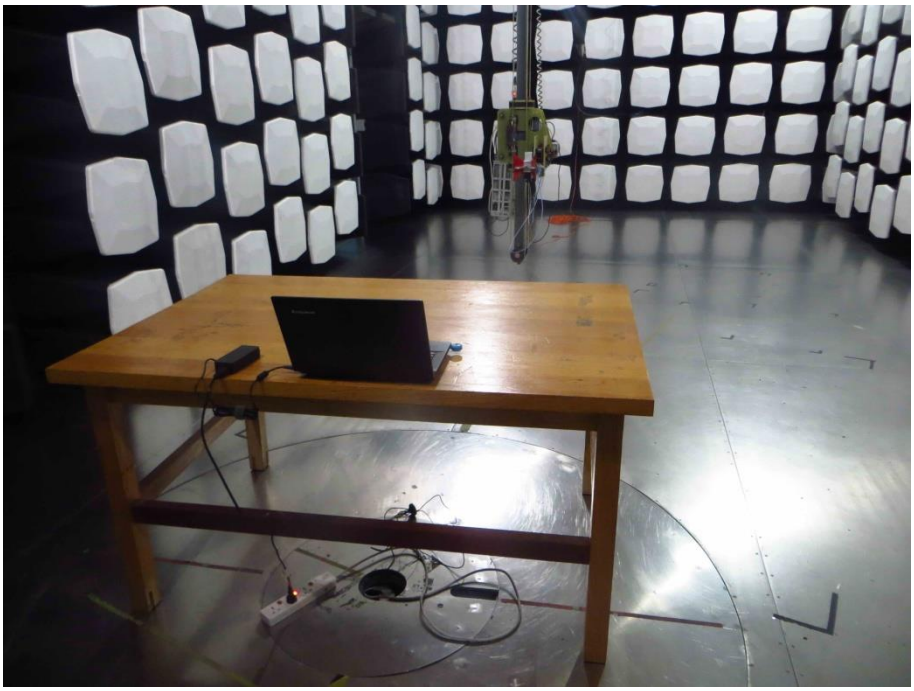
Test Mode: Mode 1

Description: View of Radiated Emission Test (30MH-1GHz)



Test Mode: Mode 1

Description: View of Radiated Emission Test (1GHz-18GHz)



TÜV SÜD HONG KONG LTD.
3/F, West Wing, Lakeside 2, 10 Science Park West Avenue, Science Park, Shatin, HK.

Tel: +852-2776 1323
Fax: +852-2776 1206