

FCC&IC Cerification - TEST REPORTReport Number : **60.960.13.047.01** Date of Issue: November 28, 2013Model : **OP243**Product type : **Smart Watch**Applicant : **Dayton Industrial Co., Ltd.**Address : **2-12 Kwai Fat Road, 11-A Kwai Chung, New Territories, Hong Kong**Production Facility : **Kendy Enterprise Ltd.**Address : **2-12 Kwai Fat Road, 11-A Kwai Chung, New Territories, Hong Kong**Test Result : ☒ **Positive** ☐ **Negative** Total Pages: 19

Prepared by:



CHAN Kwong Ngai



Reviewed by:



Edmond FUNG

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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	Smart Watch
Model Number	OP243
Applicant	Dayton Industrial Co., Ltd. 2-12 Kwai Fat Road, 11-A Kwai Chung, New Territories, Hong Kong
Manufacturer	Kendy Enterprise Ltd. 2-12 Kwai Fat Road, 11-A Kwai Chung, New Territories, Hong Kong

I/O Port Description:

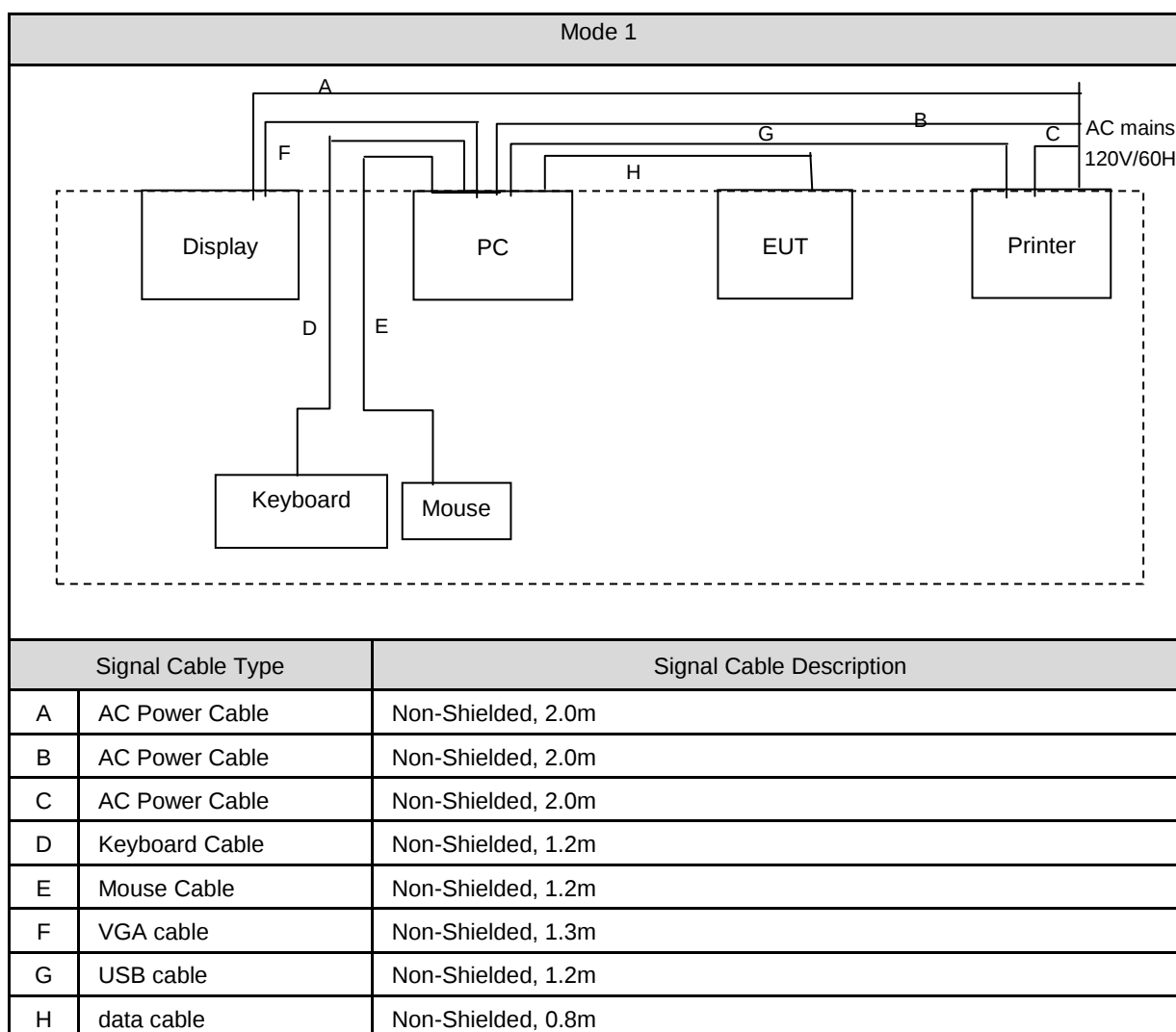
I/O Port Types	Q'TY	Test Description
1). Charge and data port	1	Connected to PC USB port

3 Test Methodology

3.1 Decision of Test Mode

Pre-Test Mode	
EMC	Mode 1: Data transmitting

3.2 Configuration of Test System Details



Devices Description			
Product		Manufacturer	Model Number
(1)	PC	DELL	Inspiron 560MT
(2)	Display	DELL	3008WFT
(3)	Printer	Epson	6200L
(4)	Keyboard	HP	KU 0316
(5)	Mouse	DELL	MOA8B0
(6)	FDD	WD	5013B

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

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

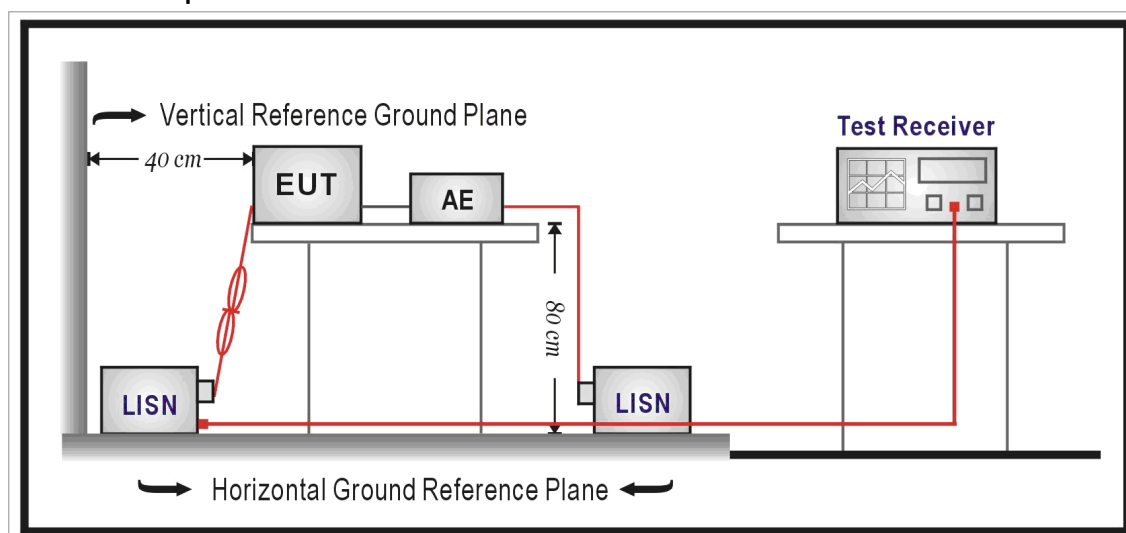
Equipment	Manufacturer	Model Number	Serial Number	Cal. Date	Remark
Test Receiver	R&S	ESCI	100367	06/18/2013	(1)
LISN	R&S	ENV216	101040	03/07/2013	(1)
LISN	R&S	ENV216	101041	03/07/2013	(1)
Test Site	ATL	TE02	TE02	N.C.R.	-----

Remark: (1) Calibration period 1 year. (2) Calibration period 2 years.

Note: N.C.R. = No Calibration Request.

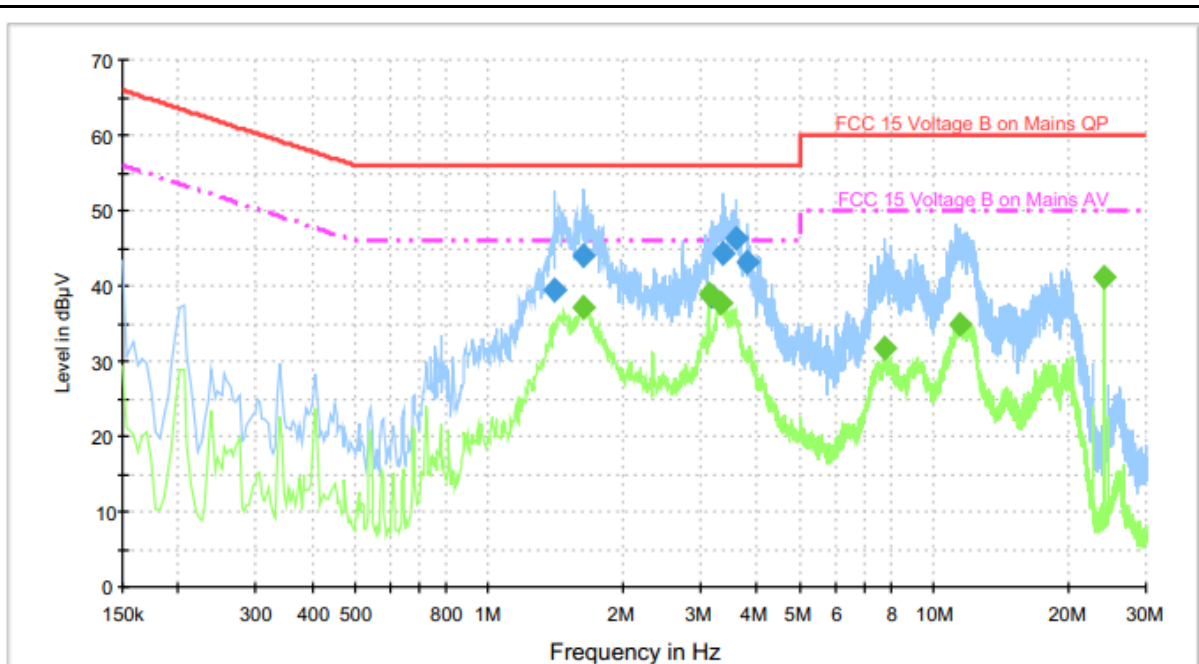
4.1.3 Test Setup

A.C. mains setup



4.1.4 Test Result

Standard:	FCC 15.107	Line:	L
Test item:	Conducted Emission	Power:	AC120V 60Hz
Model Number:	OP243	Date:	2013/11/08
Mode:	1		
Description:			



Final Result 1

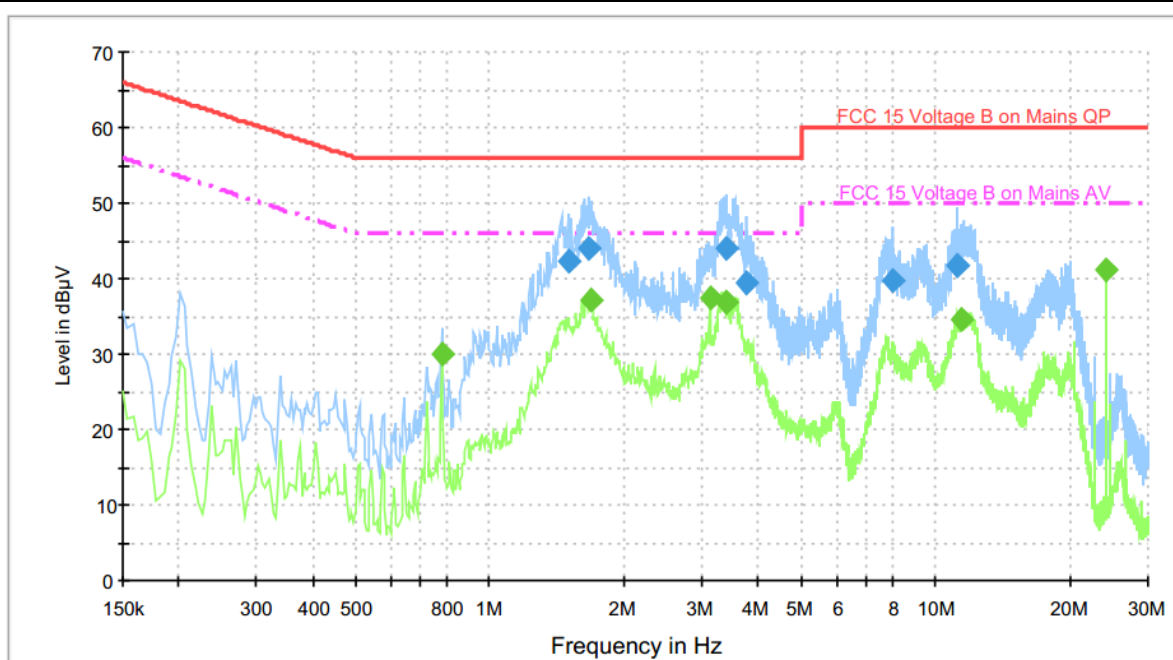
Frequency (MHz)	QuasiPeak (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
1.406000	39.4	FLO	L1	10.1	16.6	56.0
1.638000	44.0	FLO	L1	10.1	12.0	56.0
3.154000	38.7	FLO	L1	10.2	17.3	56.0
3.362000	44.3	FLO	L1	10.2	11.7	56.0
3.582000	46.4	FLO	L1	10.2	9.6	56.0
3.790000	43.1	FLO	L1	10.2	12.9	56.0

Final Result 2

Frequency (MHz)	CAverage (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
1.638000	37.2	FLO	L1	10.1	8.8	46.0
3.118000	38.8	FLO	L1	10.2	7.2	46.0
3.314000	37.7	FLO	L1	10.2	8.3	46.0
7.794000	31.6	FLO	L1	10.3	18.4	50.0
11.482000	34.7	FLO	L1	10.3	15.3	50.0
24.002000	41.2	FLO	L1	10.6	8.8	50.0

Standard:	FCC 15.107	Line:	N
Test item:	Conducted Emission	Power:	AC120V 60Hz
Model Number:	OP243	Date:	2013/11/08
Mode:	1		

Description:



Final Result 1

Frequency (MHz)	QuasiPeak (dBμV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
1.498000	42.4	FLO	N	10.1	13.6	56.0
1.670000	44.1	FLO	N	10.1	11.9	56.0
3.398000	44.0	FLO	N	10.2	12.0	56.0
3.778000	39.5	FLO	N	10.2	16.5	56.0
7.998000	39.8	FLO	N	10.3	20.2	60.0
11.186000	41.8	FLO	N	10.4	18.2	60.0

Final Result 2

Frequency (MHz)	CAverage (dBμV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.782000	30.1	FLO	N	10.1	15.9	46.0
1.686000	37.3	FLO	N	10.1	8.7	46.0
3.118000	37.3	FLO	N	10.2	8.7	46.0
3.390000	37.0	FLO	N	10.2	9.0	46.0
11.482000	34.7	FLO	N	10.4	15.3	50.0
24.002000	41.2	FLO	N	10.6	8.8	50.0

4.1.5 Test Photograph

Test Mode: Mode 1

Description: Front View of Conducted Test



Test Mode: Mode 1

Description: Back View of Conducted Test



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

4.2.2 Test Instruments

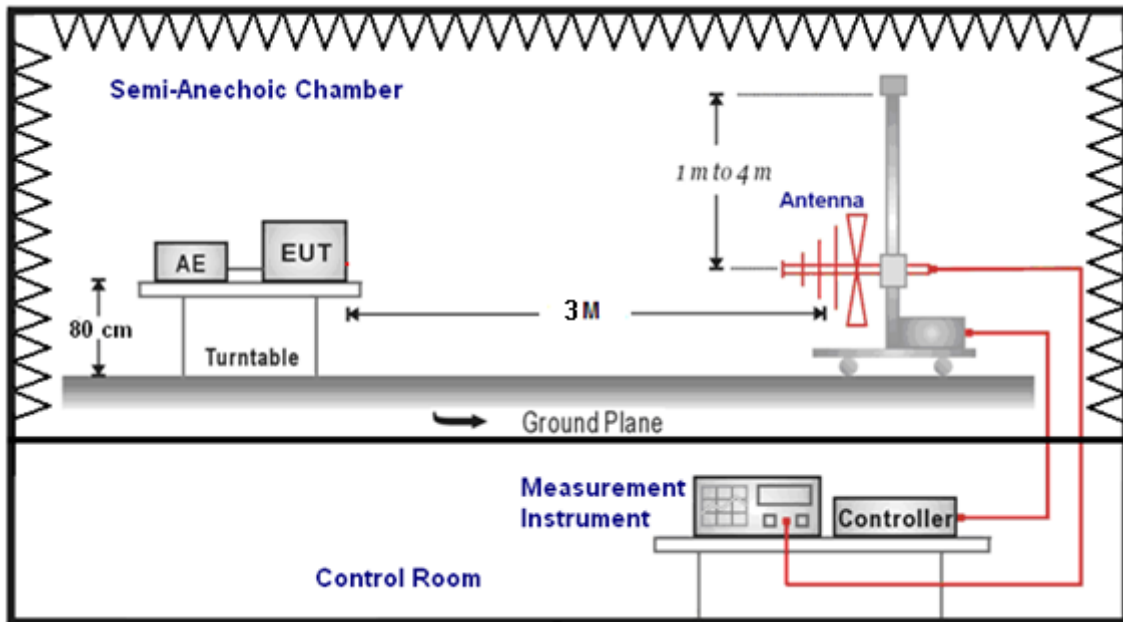
3 Meter Chamber					
Equipment	Manufacturer	Model Number	Serial Number	Cal. Date	Remark
Pre Amplifier	Agilent	8447D	2944A11120	01/10/2013	(1)
Pre Amplifier	Agilent	8447D	2944A11119	01/10/2013	(1)
Test Receiver	R&S	ESCI	100722	10/18/2013	(1)
Test Receiver	R&S	ESCI	101000	10/18/2013	(1)
Broadband Antenna	SCHWARZBECK MESS-ELEKTRONIK	VULB 9160	9160-3268	06/06/2013	(1)
Broadband Antenna	SCHWARZBECK MESS-ELEKTRONIK	VULB 9160	9160-3273	12/13/2012	(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.

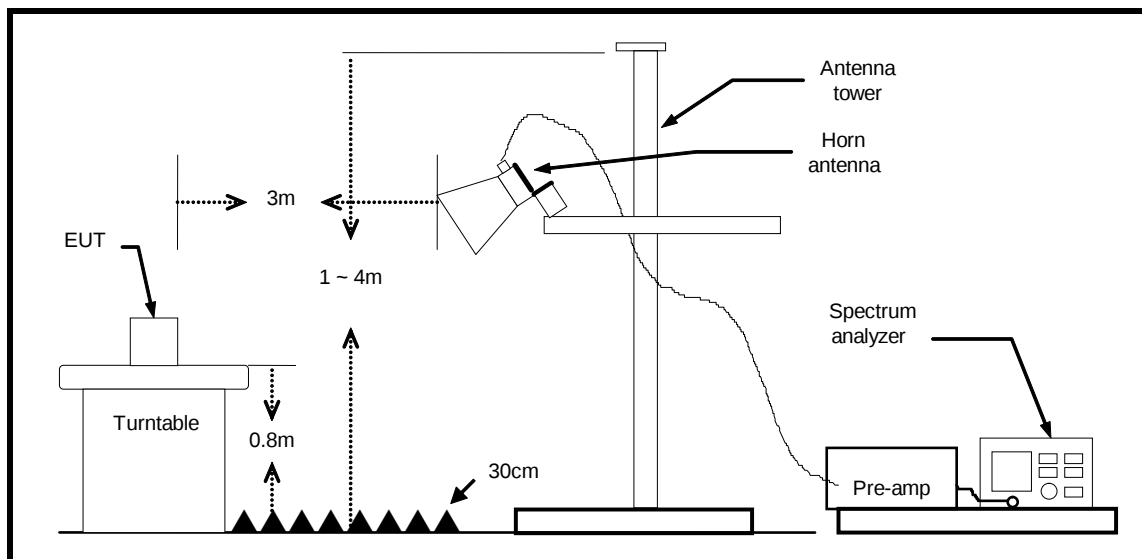
Note: N.C.R. = No Calibration Request.

4.2.3 Setup

Below 1GHz

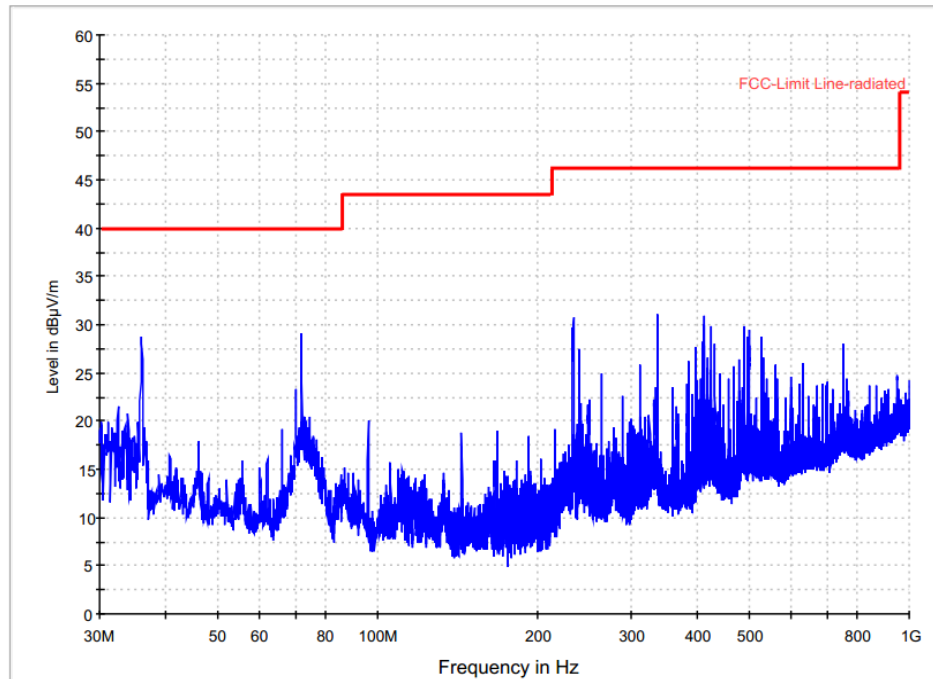


Above 1GHz



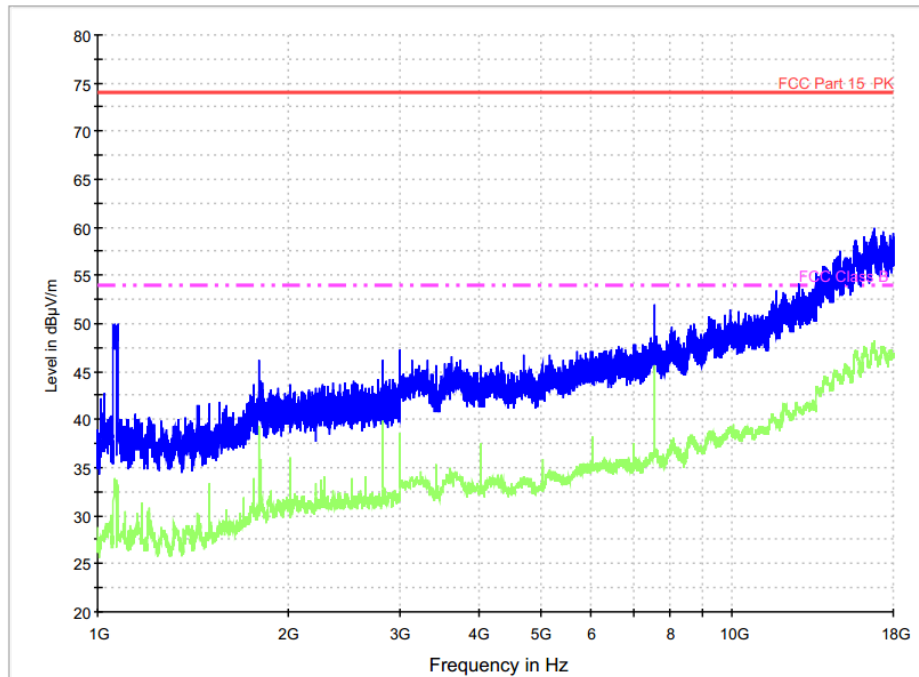
4.2.4 Test Result

Standard:	FCC 15.109	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	OP243	Temp.(°C)/Hum.(%RH):	22(°C)/54%RH
Mode:	1	Date:	2013/11/08
Ant.Polar.:	Horizontal(30MHz-1GHz)		



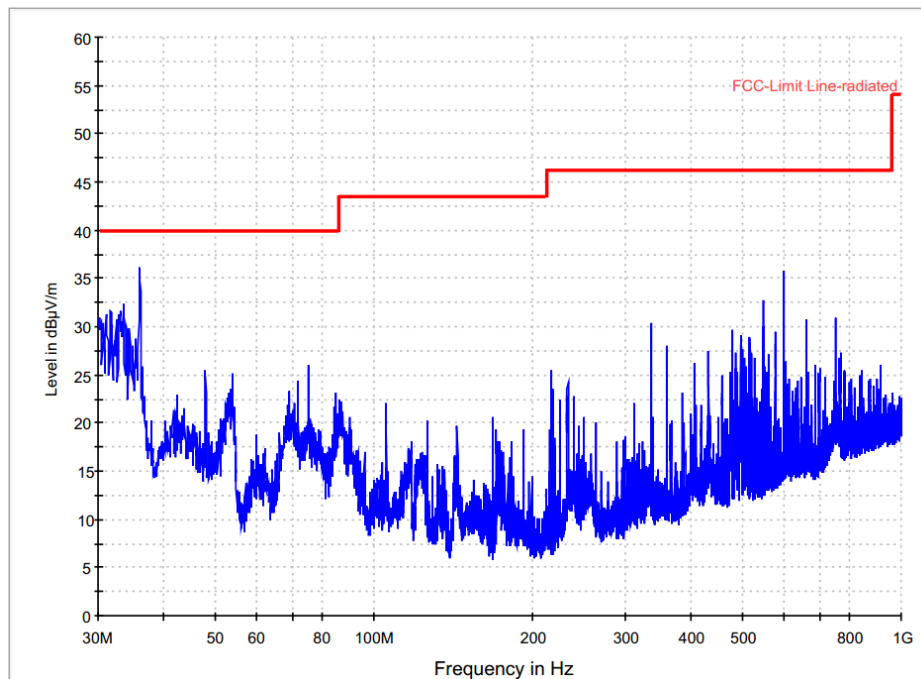
Ferquency (MHz)	QuasiPeak (dBµV/m)	Polarity (H/V)	Corr. (dB)	Limit (dBµV/m)	Margin (dB)
36.02	28.6	H	-34.8	40.0	11.4
72.00	29.1	H	-38.5	40.0	10.9
233.18	30.7	H	-34.9	46.0	15.3
336.02	31.0	H	-31.9	46.0	15.0
411.44	30.8	H	-30.2	46.0	15.2
750.08	28.0	H	-24.2	46.0	18.0

Standard:	FCC 15.109	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	OP243	Temp.(°C)/Hum.(%RH):	22(°C)/54%RH
Mode:	1	Date:	2013/11/08
Ant.Polar.:	Horizontal(1GHz-18GHz)		



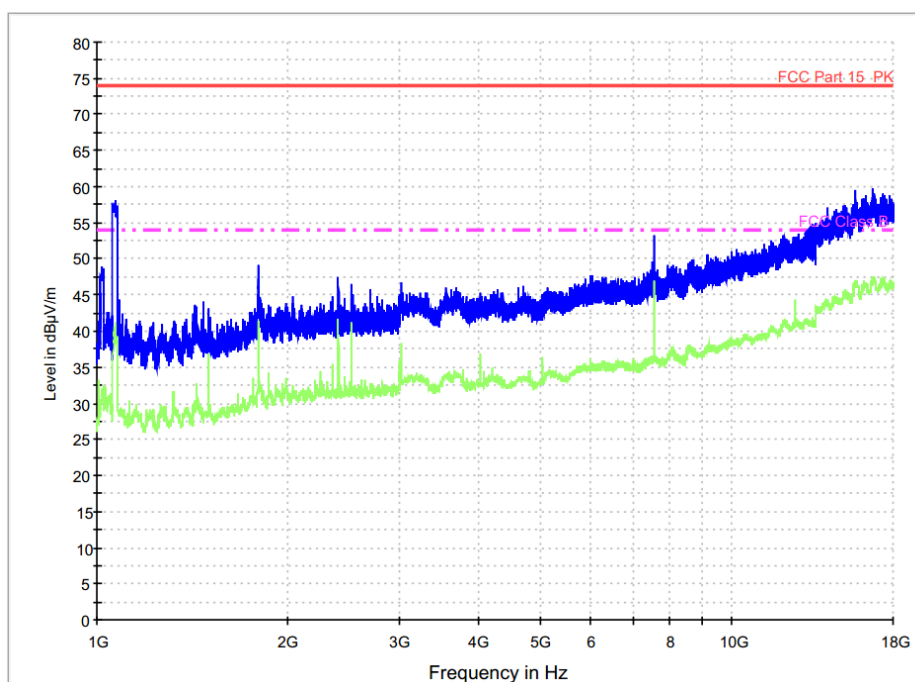
Ferquency (MHz)	Corr.Amp. (dBμV/m)	Detector (PK/Ave.)	Polarity (H/V)	Corr. (dB)	Limit (dBμV/m)	Margin (dB)
1065	50.0	PK	H	-5.7	74.0	24.0
1065	34.2	Ave.	H	-5.7	54.0	19.8
1864	46.8	PK	H	-0.2	74.0	27.2
1864	38.4	Ave.	H	-0.2	54.0	15.6

Standard:	FCC 15.109	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	OP243	Temp.(°C)/Hum.(%RH):	22(°C)/54%RH
Mode:	1	Date:	2013/11/08
Ant.Polar.:	Vertical(30MHz-1GHz)		



Frequency (MHz)	QuasiPeak (dBµV/m)	Polarity (H/V)	Corr. (dB)	Limit (dBµV/m)	Margin (dB)
36.00	36.1	V	-34.6	40.0	3.9
75.45	26.0	V	-40.0	40.0	14.0
336.02	30.3	V	-32.4	46.0	15.7
548.54	32.7	V	-28.9	46.0	13.3
600.02	35.7	V	-27.2	46.0	10.3
750.25	30.9	V	-25.0	46.0	15.1

Standard:	FCC 15.109	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	OP243	Temp.(°C)/Hum.(%RH):	22(°C)/54%RH
Mode:	1	Date:	2013/11/08
Ant.Polar.:	Vertical(1GHz-6GHz)		



Ferquency (MHz)	Corr.Amp. (dBμV/m)	Detector (PK/Ave.)	Polarity (H/V)	Corr. (dB)	Limit (dBμV/m)	Margin (dB)
1065	58.0	PK	V	-5.7	74.0	16.0
1065	42.6	Ave.	V	-5.7	54.0	11.4
1864	49.6	PK	V	-0.2	74.0	24.4
1864	41.3	Ave.	V	-0.2	54.0	12.7

4.2.5 Test Photograph

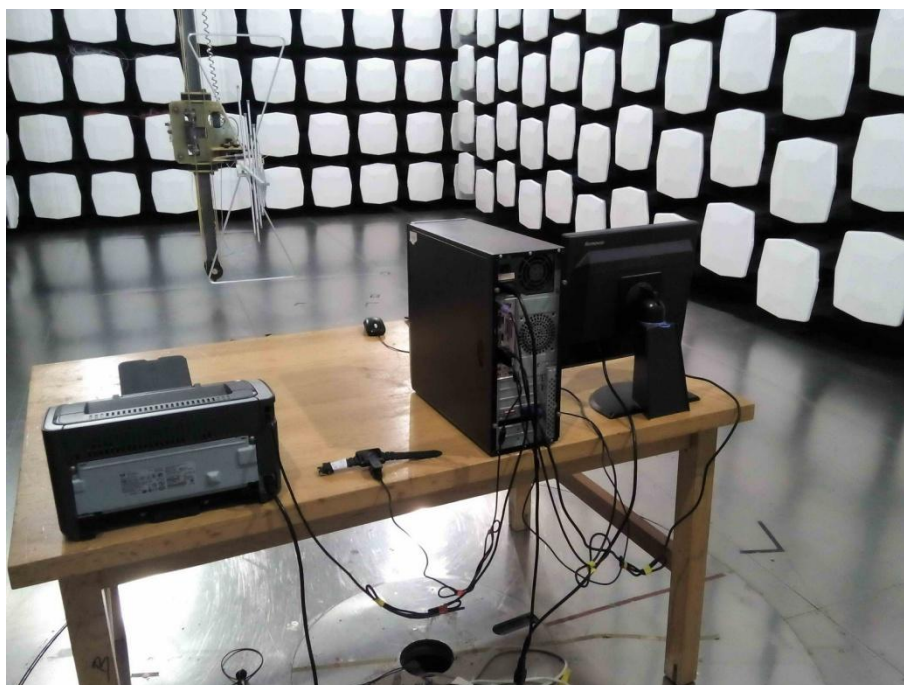
Test Mode: Mode 1

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



Test Mode: Mode 1

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



Test Mode: Mode 1

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



Test Mode: Mode 1

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

