

FCC – Test report							
Report Number	: 60	)/760.11.223.	.02	Date of Issue	: -	1 March 2012	
Model	: Jo	oule 2.0					
Product Type	: GI	PS Bike Com	puter				
Applicant	: Da	ayton Industr	ial Co. Ltd.				
Address	: 2-	12 Kwai Fat	Road, 11-A	Kwai Chung,	N.T	. Hong Kong	
Production Facility	: Ke	endy Enterpri	se Ltd.				
Address	: 2-	12 Kwai Fat I	Road, 11-A	Kwai Chung,	N.T	. Hong Kong	
Test Result	: •	Positive	□ Negati	ve			
Total pages including Appendices	: 61						

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#### 2 Details about the Test Laboratory

#### Details about the Test Laboratory

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**

Company name: Neutron Engineering Inc. 3,Jinshagang 1st Road, ShiXia, Dalang Town, DongGuan, China

FCC Registered Test Site Number 319330



## **3 Description of the Equipment Under Test**

#### **Description of the Equipment Under Test**

Product:	GPS Bike Computer					
Model no.:	Joule 2.0					
Serial number:	NIL					
Options and accessories:	NIL					
Rated Voltage:	5 VDC (USB)					
Rated Current:	NIL					
Rated Power:	NIL					
Frequency:	NIL					
Description of the EUT:	EUT Main unit size: 7cm x 4.5 cm x 2 cm Operate by USB 5 V and rechargable battery (1 x 3.7 VDC 750mAh 2.7 wh Rechargable battery)					
FCC ID:	O4GJOULE2					
Conduct peak power:	0.426mW					



## **4 Summary of Test Standards and Results**

Emission Tests									
Test Condition	Test Requirement	Test Method	Pages	Test Result		sult			
				Pass	Fail	N/A			
Radiated Emission (Fundamental & Spurious Emission)	FCC Part 15 Section 15.249 & 15.209	ANSI C63.4:2003	7-50						
Conducted Emission on AC 150kHz to 30MHz	FCC Part 15 Section 15.207	ANSI C63.4:2003	51-53						



#### **5** General Remarks

Remarks NIL

#### SUMMARY:

All tests according to the regulations cited on page 5 were

- Performed
- Not Performed
- The Equipment Under Test
- Fulfills the general approval requirements.
- Does not fulfill the general approval requirements.
- Sample Received Date: 26 September 2011
- Testing Start Date: 26 September 2011
- Testing End Date:
- 01 February 2012
- TÜV SÜD HONG KONG LTD. -

Reviewed by:	0	Prepared by:	
	N		12
	Edmond FUNG EMC Test Engineer		Cheng Kin Yeung EMC Test Engineer



Test Result

 $\square$ 

Passed

Not Passed

#### **6 Emission Test Results**

#### 6.1 Radiated Emission Test (Fundamental)

- Date of test : 20 January 2012
- Test requirement : FCC Part 15 Section 15.249
- Test method : ANSI C63.4:2003
- Operating mode : On mode (2403MHz)
- Antenna polarity 1



Remark: The EUT was placed on the top of the turntable in test site area.

The resolution bandwidth setting on the test receiver was 9 KHz, Detector function peak (9kHz~30MHz).

The resolution bandwidth setting on the test receiver was 120 KHz, Detector function peak (30 MHz  $\sim$  1000MHz).

The resolution bandwidth setting on the test receiver was 1MHz, Detector function peak (1 GHz~5GHz).

The test shall be made in the operation mode. The turntable was rotated by 360 degrees to determine the position of the highest radiation.

For emissions measurement, the receiving antenna was placed 3 meters far away from the turntable. The antenna was fixed on the same height with the EUT to find each suspected emissions of both horizontal and vertical polarization.

Adjust the emission and slightly rotate the turntable to locate the position with maximum reading.

Adjust the emission and slightly height of the antenna to locate the position with maximum reading.

If the peak scan value lower limit more than 20dB, then this signal data does not show in graph

9kHz -30MHz and 18500 MHz to 26500MHz only have the background noise, the test date and graph does not show on the test report

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#### **Radiated Emission Test (Fundamental)** Date of test 20 January 2012 Test Result 1 Passed $\square$ : FCC Part 15 Section 15.249 Not Passed Test requirement Test method : ANSI C63.4:2003 Operating mode : On mode (2403MHz) Antenna polarity : Vertical Remarks ÷ NIL × \*RBW 1 MHz Marker 1 [T3 ] 77.46 dBµV/m \*VBW 3 MHz Ref 100 dBuV/m \*Att 10 dB \* SWT 100 s 2.402800000 GHz 100 А 3 PK VIEW BDB Center 2.45 GHz 10 MHz/ Span 100 MHz Limit Reading Ant./CF Act. Freq. Ant.Pol. Average Peak factor Peak AV Peak AV (dBuV/m) (MHz) H/V CF(dB) (dB) (dBuV/m) (dBuV/m) (dBuV/m) (dBuV/m)

Remark: The EUT was placed on the top of the turntable in test site area.

45.92

V

2402.80

The resolution bandwidth setting on the test receiver was 9 KHz, Detector function peak (9kHz~30MHz).

The resolution bandwidth setting on the test receiver was 120 KHz, Detector function peak (30 MHz ~ 1000MHz).

-31.54

The resolution bandwidth setting on the test receiver was 1MHz, Detector function peak (1 GHz $\sim$ 5GHz).

- The test shall be made in the operation mode. The turntable was rotated by 360 degrees to determine the position of the highest radiation.
- For emissions measurement, the receiving antenna was placed 3 meters far away from the turntable.

The antenna was fixed on the same height with the EUT to find each suspected emissions of both horizontal and vertical polarization.

51.05

77.46

26.41

114.00

Adjust the emission and slightly rotate the turntable to locate the position with maximum reading.

Adjust the emission and slightly height of the antenna to locate the position with maximum reading.

If the peak scan value lower limit more than 20dB, then this signal data does not show in graph

9kHz -30MHz and 18500 MHz to 26500MHz only have the background noise, the test date and graph does not show on the test report

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94.00



#### **Radiated Emission Test (Fundamental)** Date of test 20 January 2012 Test Result 1 Passed $\square$ : FCC Part 15 Section 15.249 Not Passed Test requirement Test method ANSI C63.4:2003 : Operating mode transmit without connect another unit(2442 MHz) : Antenna polarity : Horizontal Remarks NIL ÷ × \*RBW 1 MHz Marker 1 [T1 ] 85.82 dBuV/m \*VBW 3 MHz 90 dBµV/m \* Att 0 dB \* SWT 100 s 2.441800000 GHz Ref 1 PK VTE D B DE 100 MH-Chan Reading Limit Freq. Ant.Pol. Ant./CF Average Act. AV Peak factor Peak AV Peak (MHz) H/V (dBuV/m) CF(dB) (dB) (dBuV/m) (dBuV/m) (dBuV/m) (dBuV/m) н 54.28 2441.80 -31.5451.05 85.82 34.77 114.00 94.00

Remark:

The EUT was placed on the top of the turntable in test site area.

The resolution bandwidth setting on the test receiver was 9 KHz, Detector function peak (9kHz  $\sim$  30MHz).

The resolution bandwidth setting on the test receiver was 120 KHz, Detector function peak (30 MHz  $\sim$  1000MHz).

The resolution bandwidth setting on the test receiver was 1MHz, Detector function peak (1 GHz  $\sim$  5GHz).

The test shall be made in the operation mode. The turntable was rotated by 360 degrees to determine the position of the highest radiation.

For emissions measurement, the receiving antenna was placed 3 meters far away from the turntable.

The antenna was fixed on the same height with the EUT to find each suspected emissions of both horizontal and vertical polarization.

Adjust the emission and slightly rotate the turntable to locate the position with maximum reading.

Adjust the emission and slightly height of the antenna to locate the position with maximum reading.

If the peak scan value lower limit more than 20dB, then this signal data does not show in graph

9kHz -30MHz and 18500 MHz to 26500MHz only have the background noise, the test date and graph does not show on the test report

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#### **Radiated Emission Test (Fundamental)** Date of test 20 January 2012 Test Result 1 Passed $\square$ : FCC Part 15 Section 15.249 Not Passed Test requirement Test method : ANSI C63.4:2003 Operating mode transmit without connect another unit(2442 MHz) 2 Antenna polarity : Vertical Remarks ÷ NIL X) \*RBW 1 MHz Marker 1 [T3 ] 76.64 dBuV/m \*VBW 3 MHz 90 dBµV/m \*Att 0 dB \* SWT 100 s 2.442000000 GHz Ref A DF 3 PK VIEW DB Center 2.45 GHz Span 100 MHz 10 MH 7/ Limit Reading Ant./CF Act. Freq. Ant.Pol. Average Peak factor Peak AV Peak AV (dBuV/m) (MHz) H/V CF(dB) (dB) (dBuV/m) (dBuV/m) (dBuV/m) (dBuV/m) 2442.00 V 45.10 -31.54 51.05 76.64 25.59 114.00 94.00

Remark: The EUT was placed on the top of the turntable in test site area.

The resolution bandwidth setting on the test receiver was 9 KHz, Detector function peak (9kHz~30MHz).

The resolution bandwidth setting on the test receiver was 120 KHz, Detector function peak (30 MHz ~1000MHz).

The resolution bandwidth setting on the test receiver was 1MHz, Detector function peak (1 GHz~5GHz).

- The test shall be made in the operation mode. The turntable was rotated by 360 degrees to determine the position of the highest radiation.
- For emissions measurement, the receiving antenna was placed 3 meters far away from the turntable.

The antenna was fixed on the same height with the EUT to find each suspected emissions of both horizontal and vertical polarization.

Adjust the emission and slightly rotate the turntable to locate the position with maximum reading.

Adjust the emission and slightly height of the antenna to locate the position with maximum reading.

If the peak scan value lower limit more than 20dB, then this signal data does not show in graph

9kHz -30MHz and 18500 MHz to 26500MHz only have the background noise, the test date and graph does not show on the test report

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#### **Radiated Emission Test (Fundamental)** Date of test 20 January 2012 Test Result 1 Passed $\square$ : FCC Part 15 Section 15.249 Not Passed Test requirement Test method : ANSI C63.4:2003 Operating mode transmit without connect another unit(2480 MHz) 2 Antenna polarity : Horizontal Remarks ÷ NIL Marker 1 [T1 ] 86.47 dBµV/m × \*RBW 1 MHz \*VBW 3 MHz Ref 107 dBuV/m \*Att 10 dB \* SWT 100 s 2.479800000 GHz A 1 PK MAXH Center 2.45 GHz 10 MHz/ Span 100 MHz Limit Reading Ant./CF Act. Freq. Ant.Pol. Average Peak factor Peak AV Peak AV (dBuV/m) (MHz) H/V CF(dB) (dB) (dBuV/m) (dBuV/m) (dBuV/m) (dBuV/m)

Remark: The EUT was placed on the top of the turntable in test site area.

54.93

н

2479.80

The resolution bandwidth setting on the test receiver was 9 KHz, Detector function peak (9kHz~30MHz).

The resolution bandwidth setting on the test receiver was 120 KHz, Detector function peak (30 MHz ~ 1000MHz).

-31.54

The resolution bandwidth setting on the test receiver was 1MHz, Detector function peak (1 GHz~5GHz).

- The test shall be made in the operation mode. The turntable was rotated by 360 degrees to determine the position of the highest radiation.
- For emissions measurement, the receiving antenna was placed 3 meters far away from the turntable.

The antenna was fixed on the same height with the EUT to find each suspected emissions of both horizontal and vertical polarization.

51.05

86.47

35.42

114.00

Adjust the emission and slightly rotate the turntable to locate the position with maximum reading.

Adjust the emission and slightly height of the antenna to locate the position with maximum reading.

If the peak scan value lower limit more than 20dB, then this signal data does not show in graph

9kHz -30MHz and 18500 MHz to 26500MHz only have the background noise, the test date and graph does not show on the test report

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94.00



#### **Radiated Emission Test (Fundamental)** Date of test 20 January 2012 Test Result 1 Passed $\square$ : FCC Part 15 Section 15.249 Not Passed Test requirement Test method : ANSI C63.4:2003 Operating mode transmit without connect another unit(2480 MHz) 2 Antenna polarity : Vertical Remarks ÷ NIL Marker 1 [T3 ] × \*RBW 1 MHz 78.92 dBuV/m \*VBW 3 MHz Ref 107 dBuV/m \*Att 10 dB \* SWT 100 s 2.480000000 GHz А DB З РК МАХН Center 2.45 GHz Span 100 MHz 10 MHz/ Limit Reading Ant./CF Act. Freq. Ant.Pol. Average Peak factor Peak AV Peak AV (dBuV/m) (MHz) H/V CF(dB) (dB) (dBuV/m) (dBuV/m) (dBuV/m) (dBuV/m) 2480.00 V 47.38 -31.54 51.05 78.92 27.87 114.00 94.00

Remark: The EUT was placed on the top of the turntable in test site area.

The resolution bandwidth setting on the test receiver was 9 KHz, Detector function peak (9kHz~30MHz).

The resolution bandwidth setting on the test receiver was 120 KHz, Detector function peak (30 MHz~1000MHz).

The resolution bandwidth setting on the test receiver was 1MHz, Detector function peak (1 GHz~5GHz).

- The test shall be made in the operation mode. The turntable was rotated by 360 degrees to determine the position of the highest radiation.
- For emissions measurement, the receiving antenna was placed 3 meters far away from the turntable.

The antenna was fixed on the same height with the EUT to find each suspected emissions of both horizontal and vertical polarization.

Adjust the emission and slightly rotate the turntable to locate the position with maximum reading.

Adjust the emission and slightly height of the antenna to locate the position with maximum reading.

If the peak scan value lower limit more than 20dB, then this signal data does not show in graph

9kHz -30MHz and 18500 MHz to 26500MHz only have the background noise, the test date and graph does not show on the test report

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Radiated Emission	n Tes	st 9kHz - 1000l	MHz					
Date of test : 20 January 2012 Test Result								
Test requirement	: F	FCC Part 15 Se	ction 15.	249		Not Passed		
Test method	Test method : ANSI C63.4:2003							
Operating mode	: t	ransmit without	connect	another uni	t(2403 MHz	)		
Antenna polarity	: F	Horizontal						
Remarks	: N	Ref 60 dBµV/m	*Att 0 dB	* RBW 120 kHz M4 * VBW 300 kHz * SWT 500 ms M2 2 2 3 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	arker 1 [T1 ] 32.10 dBµV/m 47.84000000 MHz arker 2 [T1 34.80 dBµ/m 500 420000 00 HHZ 35.96 dBµV/m 723 520000000 HHZ 124 52000000 HHZ 124 520000000 HHZ 124 5200000000 HHZ 124 520000000000 HHZ 124 5200000000 HHZ 124 5200000000000000000000000000000000000			
Freq. Ant.	t.Pol.	Reading	Ant./CF	Act.	Stop 1 GH:	Limit		
	, [				^		Note	
(IVIHZ) H 163.00 I	ην Η	20.07	12.15	32.22	2	43.50	X/F	
216.00	H	24.00	11.91	35.91		43.50	X/F	
270.56	н	21.70	15.58	37.28	3	46.00	X/F	
335.55	Н	20.48	17.25	37.73	3	46.00	X/F	
432.55 I	Н	17.24	20.54	37.78	3	46.00	X/F	
481.05 I	Н	15.35	21.54	36.89	)	46.00	X/F	
Remark: The EUT was p The resolution The resolution The resolution The test shall b For emissions	placed or bandwid bandwid bandwid be made measure	n the top of the turntable in th setting on the test receiv th setting on the test receiv th setting on the test receiv in the operation mode. The ment, the receiving antenn	test site area. ver was 9 KHz, ver was 120 KH ver was 1MHz, e turntable was ha was placed :	Detector function p lz, Detector function Detector function pur rotated by 360 deg meters far away fr	eak (9kHz~30MHz) n peak (30 MHz~10 eak (1 GHz~5GHz) rees to determine th om the turntable	l. 00MHz). e position of the highest rad	iation.	

The antenna was fixed on the same height with the EUT to find each suspected emissions of both horizontal and vertical polarization. Adjust the emission and slightly rotate the turntable to locate the position with maximum reading. Adjust the emission and slightly height of the antenna to locate the position with maximum reading. If the peak scan value lower limit more than 20dB, then this signal data does not show in graph 9kHz -30MHz and 18500 MHz to 26500MHz only have the background noise, the test date and graph does not show on the test report

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adiated Emiss	sion To	est 1000MHz - 2	2400MHz							
ate of test	:	20 January 2012	2		Test Result					
est requiremer	nt :	FCC Part 15 Se	CC Part 15 Section 15.249							
est method	:	ANSI C63.4:200	ANSI C63.4:2003							
perating mode	:	transmit without	connect a	another unit(240	3 MHz)					
ntenna Polarity	/ :	Horizontal								
emarks	:	Ref 50 dBµV/m	*Att 0 dB	* RBW 1 MHz Marker 1 [ * VBW 3 MHz 25 * SWT 500 ms 1.350 Marker 2 [ 23 1 665 Marker 3 [ 24 70 1 65 1 7 1 7 1 7 1 7 1 7 1 7 1 7 1 7	T1 ] .01 dBµV/m 000000 GHz T1 .55 dBµV/m connot cHz T1 .58 dBµV/m 400 D00 CHZ TDF 3DB 3DB					
<b>_</b>		-50 Center 1.7 GHz	140	MHz/ Sp	pan 1.4 GHz					
⊢req.	Ant.Pol.	. Reading		Act.		Note				
2496.00	H	<u>(ubμv/III)</u> 53.70	35.30	<u>(ubµV/II)</u> 89.00	(uBµV/III) 74.00	Peak				
13325.00	н	26.78	45.80	72.58	74.00	Peak				
12225.00		0.78	45.90	40 50	E4.00	110				

The resolution bandwidth setting on the test receiver was 120 KHz, Detector function peak (30 MHz~1000MHz).

The resolution bandwidth setting on the test receiver was 1MHz, Detector function peak (1 GHz~5GHz).

The test shall be made in the operation mode. The turntable was rotated by 360 degrees to determine the position of the highest radiation.

The test shall be made in the operation mode. The turntable was rotated by 360 degrees to determine the position of the highest radiations for emissions measurement, the receiving antenna was placed 3 meters far away from the turntable. The antenna was fixed on the same height with the EUT to find each suspected emissions of both horizontal and vertical polarization. Adjust the emission and slightly rotate the turntable to locate the position with maximum reading. Adjust the emission and slightly height of the antenna to locate the position with maximum reading. If the peak scan value lower limit more than 20dB, then this signal data does not show in graph 9kHz -30MHz and 18500 MHz to 26500MHz only have the background noise, the test date and graph does not show on the test report

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Test Result

Passed

Not Passed

#### Radiated Emission Test 2.5GHz - 18GHz

- Date of test : 20 January 2012
- Test requirement : FCC Part 15 Section 15.249
- Test method : ANSI C63.4:2003
- Operating mode : transmit without connect another unit(2403 MHz)
- Antenna Polarity : Horizontal
- Remarks

: NIL



Freq.	Ant.Pol.	Reading	Ant./CF	Act.	Limit	Note
(MHz)	H/V	(dBµV/m)	CF(dB)	(dBµV/m)	(dBµV/m)	Note
2496.00	Н	53.70	35.30	89.00	74.00	Peak
13325.00	Н	26.78	45.80	72.58	74.00	Peak
13325.00	Н	0.78	45.80	46.58	54.00	AVG
17864.00	Н	26.51	46.50	73.01	74.00	Peak
17864.00	Н	0.70	46.50	47.20	54.00	AVG

Remark:

The resolution bandwidth setting on the test receiver was 9 KHz, Detector function peak (9kHz~30MHz).

The resolution bandwidth setting on the test receiver was 120 KHz, Detector function peak (30 MHz $\sim$ 1000MHz).

The resolution bandwidth setting on the test receiver was 1MHz, Detector function peak (1 GHz~5GHz).

The test shall be made in the operation mode. The turntable was rotated by 360 degrees to determine the position of the highest radiation.

For emissions measurement, the receiving antenna was placed 3 meters far away from the turntable.

The antenna was fixed on the same height with the EUT to find each suspected emissions of both horizontal and vertical polarization. Adjust the emission and slightly rotate the turntable to locate the position with maximum reading.

Adjust the emission and slightly rotate the turntable to locate the position with maximum reading. Adjust the emission and slightly height of the antenna to locate the position with maximum reading.

If the peak scan value lower limit more than 20dB, then this signal data does not show in graph

9kHz -30MHz and 18500 MHz to 26500MHz only have the background noise, the test date and graph does not show on the test report

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The EUT was placed on the top of the turntable in test site area.



#### Radiated Emission Test 18GHz – 26.5GHz Date of test 20 January 2012 Test Result : ☐ Passed : FCC Part 15 Section 15.249 Not Passed Test requirement Test method : ANSI C63.4:2003 Operating mode transmit without connect another unit(2403 MHz) : Antenna Polarity : Horizontal Remarks NIL : ×, \*RBW 1 MHz Marker 1 [T1 ] 43.83 dBμV/m 20.227000000 GHz \*VBW 3 MHz Ref 70 dBµV/m \*Att 0 dB \* SWT 500 ms Marke BuV/1 A Marke 1 PK VIEW 44.9 dBuV/I T Span 8.5 GHz Center 22.25 GHz 850 MHz/ Freq. Ant.Pol. Ant./CF Limit Reading Act. Note (MHz) H/V CF(dB) $(dB\mu V/m)$ $(dB\mu V/m)$ $(dB\mu V/m)$ 53.70 89.00 74.00 2496.00 н 35.30 Peak 74.00 13325.00 Н 26.78 72.58 Peak 45.80 13325.00 Н 0.78 46.58 54.00 AVG 45.80 17864.00 74.00 н 26.51 46.50 73.01 Peak 17864.00 н 47.20 54.00 AVG 0.70 46.50 The EUT was placed on the top of the turntable in test site area. Remark: The resolution bandwidth setting on the test receiver was 9 KHz, Detector function peak (9kHz~30MHz). The resolution bandwidth setting on the test receiver was 120 KHz, Detector function peak (30 MHz~1000MHz). The resolution bandwidth setting on the test receiver was 1MHz, Detector function peak (1 GHz~5GHz). The test shall be made in the operation mode. The turntable was rotated by 360 degrees to determine the position of the highest radiation.

For emissions measurement, the receiving antenna was placed 3 meters far away from the turntable.

The antenna was fixed on the same height with the EUT to find each suspected emissions of both horizontal and vertical polarization.

Adjust the emission and slightly rotate the turntable to locate the position with maximum reading.

Adjust the emission and slightly height of the antenna to locate the position with maximum reading.

If the peak scan value lower limit more than 20dB, then this signal data does not show in graph

9kHz -30MHz and 18500 MHz to 26500MHz only have the background noise, the test date and graph does not show on the test report

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Radiated Emissi	ion Te	est 9kHz - 1000	MHz						
Date of test	:	20 January 2012	0 January 2012 Test Result						
Test requirement	:	FCC Part 15 Se	CC Part 15 Section 15.249						
Test method	:	ANSI C63.4:200	3						
Operating mode	:	transmit without	connect	another unit(24	403 MHz)				
Antenna Polarity	:	Vertical							
Remarks	:	NIL 🗞		*RBW 120 kHz Marker *VBW 300 kHz	1 [T3 ] 31.70 dBµV/m				
				- Swi Soo ms uita Marker Marker 705 705	2 [T3 35.11 dBµ7/m 35.36 dBµ7/m 35.36 dBµ7/m TDI 12000000 MIR 35.36 dBµ7/m TDI 601 601				
Freq A	nt Pol	Start 30 MHz	97	MHz/	Stop 1 GHz	Limit			
		QP	, (11., 01	QP		QP	Note		
(MHz)	H/V	(dBuV)	CF(dB)	(dBuV)		(dBuV)			
54.25	V	17.00	8.35	25.35		40.00	X/F		
107.60	V	14.30	12.32	26.62		43.50	X/F		
163.86	V	17.18	12.08	29.26		43.50	X/F		
289.96	V	12.93	16.02	28.95		46.00			
481.05	V	13.18	21 54	36.03		46.00	X/F X/F		
Remark: The EUT wa The resoluti The resoluti The resoluti The test sha For emissio	as placed ion bandw ion bandw ion bandw all be mad ons measu	on the top of the turntable in idth setting on the test recei- idth setting on the test recei- idth setting on the test recei- e in the operation mode. The rement, the receiving antenri	test site area. ver was 9 KHz, ver was 120 KH ver was 1MHz, e turntable was na was placed 3	Detector function peak (% Iz, Detector function peak Detector function peak (1 rotated by 360 degrees t 3 meters far away from th	I 9kHz~30MHz). k (30 MHz~1000N 1 GHz~5GHz). to determine the po- te turntable.	/IHz).	ation.		

The antenna was fixed on the same height with the EUT to find each suspected emissions of both horizontal and vertical polarization. Adjust the emission and slightly rotate the turntable to locate the position with maximum reading.

Adjust the emission and slightly height of the antenna to locate the position with maximum reading. If the peak scan value lower limit more than 20dB, then this signal data does not show in graph 9kHz -30MHz and 18500 MHz to 26500MHz only have the background noise, the test date and graph does not show on the test report

Report Number: 60/760.11.223.02 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



Radiated Emis	sion Te	est 1000MHz - 2	2400MHz							
Date of test	:	20 January 2012	0 January 2012 Test Result							
Test requireme	nt :	FCC Part 15 Se	ction 15.2	249		I Passed ☐ Not Passed	ed			
Test method	:	ANSI C63.4:200	3							
Operating mod	e :	transmit without	connect	another unit	(2403 MH	lz)				
Antenna Polarity : Vertical										
Remarks	:	S PK -10 -20 -30 -10 -20 -30 -10 -20 -30 -10 -20 -30 -30 -10 -20 -30 -30 -30 -30 -30 -30 -30 -3	*Att 0 dB	* REW 1 MHz Ma. * VEW 3 MHz * SWT 500 ms Ma Ma Ma Ma Ma Ma Ma Ma	rker 1 [T3 ] 24.53 dBµ 1.327600000 rker 2 [T3 ] 25.92 dBµ 2 68800000 rker 3 [T3 ] 25.15 dBµ 2 26840000 	V/m GEz V/m U/m GEz SDB				
<b>Free</b>	Ant Dal	Center 1.7 GHz		) MEz/	Span 1.4	GEz				
Freq. (MHz)	H/V	(dBµV/m)	CF(dB)	аст. (dBµ <mark>V/ı</mark>	m)	(dBµV/m)	Note			
2496.00	V	33.38	35.30	68.68		74.00	Peak			
13291.00	V	27.12	45.80	72.92		74.00	Peak			
13291.00	V	0.78	45.80	46.58		54.00	AVG			
17983.00	V	26.73	46.58	73.31		74.00	Peak			
17983.00	V	0.62	46.58	47.20		54.00	AVG			
The EU The res The res The res The tes For emi The ant Adjust the Adjust the	was piaced olution bandw olution bandw olution bandw t shall be mao ssions measu enna was fixe he emission a he emission a	vidth setting on the text receividth setting on the test receividth setting on the test receividth setting on the test receide in the operation mode. Thurement, the receiving antenned on the same height with the and slightly rotate the turntaband slightly height of the antentation.	ver was 9 KHz, ver was 9 KHz, ver was 120 KH ver was 1MHz, e turntable was ha was placed 3 he EUT to find e le to locate the enna to locate th	Detector function per lz, Detector function Detector function per rotated by 360 degr 8 meters far away fro ach suspected emis position with maximum position with maximum	eak (9kHz~30M peak (30 MHz~ ak (1 GHz~5GH ees to determing m the turntable. sions of both hoi um reading. mum reading.	Hz). -1000MHz). Hz). e the position of the highest rizontal and vertical polariza	radiation. ation.			

9kHz -30MHz and 18500 MHz to 26500MHz only have the background noise, the test date and graph does not show on the test report

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#### Radiated Emission Test 2.5GHz – 18GHz Date of test 20 January 2012 Test Result : ☐ Passed FCC Part 15 Section 15.249 Not Passed Test requirement : Test method : ANSI C63.4:2003 Operating mode transmit without connect another unit(2403 MHz) : Antenna Polarity : Vertical Remarks NIL : Marker 1 [T3 ] 40.17 dBµV/m \*RBW 1 MHz •VBW 3 MHz Ref 80 dBuV/m \*Att 0 dB \* SWT 500 ms 4.825000000 GHz Marke 46.1 BuV/ A 7400 Mark 48.5 and all h١ З РК МАХН how DB Center 10.25 GHz 1.55 GHz/ Span 15.5 GHz Ant.Pol. Reading Ant./CF Act. Limit Freq. Note (MHz) H/V $(dB\mu V/m)$ CF(dB) $(dB\mu V/m)$ $(dB\mu V/m)$ 33.38 74.00 68.68 Peak 2496.00 v 35.30 27.12 72.92 74.00 13291.00 V 45.80 Peak 13291.00 V 0.78 45.80 46.58 54.00 AVG v 17983.00 26.73 46.58 73.31 74.00 Peak v 17983.00 0.62 46.58 47.20 54.00 AVG

Remark: The EUT was placed on the top of the turntable in test site area.

The resolution bandwidth setting on the test receiver was 9 KHz, Detector function peak (9kHz  $\sim$  30MHz).

The resolution bandwidth setting on the test receiver was 120 KHz, Detector function peak (30 MHz  $\sim$  1000MHz).

The resolution bandwidth setting on the test receiver was 1MHz, Detector function peak (1 GHz~5GHz).

The test shall be made in the operation mode. The turntable was rotated by 360 degrees to determine the position of the highest radiation.

For emissions measurement, the receiving antenna was placed 3 meters far away from the turntable.

The antenna was fixed on the same height with the EUT to find each suspected emissions of both horizontal and vertical polarization. Adjust the emission and slightly rotate the turntable to locate the position with maximum reading.

Adjust the emission and slightly height of the antenna to locate the position with maximum reading.

If the peak scan value lower limit more than 20dB, then this signal data does not show in graph

9kHz -30MHz and 18500 MHz to 26500MHz only have the background noise, the test date and graph does not show on the test report

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Radiated Emis	ssion Te	est 18GHz – 26.5GHz
Date of test	:	20 January 2012 Test Result
Test requireme	ent :	FCC Part 15 Section 15.249
Test method	:	ANSI C63.4:2003
Operating mod	le :	transmit without connect another unit(2403 MHz)
Antenna Polari	ty :	Vertical
Remarks	:	*EW 1 MIZ       Marker 1 [T3]         *VEW 3 MIZ       42.15 dBµVm         *Att 0 dB       *SWT 500 m         *Att 0 dB       *SWT 500 m         *Marker 2 [T3]         44.13 dBµVm         44.89 dBµVm         44.89 dBµVm
Freq.	Ant.Pol.	Reading     Ant./CF     Act.     Limit
(MHz)	H/V	$(dB\mu V/m)$ CF(dB) $(dB\mu V/m)$ $(dB\mu V/m)$ Note
2496.00	V	33.38 35.30 68.68 74.00 Peak
13291.00		21.12   45.80   12.92   14.00   Peak

The EUT was placed on the top of the turntable in test site area. Remark:

V

13291.00

The resolution bandwidth setting on the test receiver was 9 KHz, Detector function peak (9kHz~30MHz).

The resolution bandwidth setting on the test receiver was 120 KHz, Detector function peak (30 MHz ~ 1000MHz).

45.80

The resolution bandwidth setting on the test receiver was 1MHz, Detector function peak (1 GHz~5GHz).

The test shall be made in the operation mode. The turntable was rotated by 360 degrees to determine the position of the highest radiation.

46.58

54.00

For emissions measurement, the receiving antenna was placed 3 meters far away from the turntable. The antenna was fixed on the same height with the EUT to find each suspected emissions of both horizontal and vertical polarization. Adjust the emission and slightly rotate the turntable to locate the position with maximum reading.

0.78

Adjust the emission and slightly height of the antenna to locate the position with maximum reading. If the peak scan value lower limit more than 20dB, then this signal data does not show in graph 9kHz -30MHz and 18500 MHz to 26500MHz only have the background noise, the test date and graph does not show on the test report

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AVG



Radiated Emission	n Tes	st 9kHz - 1000l	MHz					
Date of test	: 20 January 2012 Test Result ⊠ Passed							
Test requirement	: F	FCC Part 15 Se	ction 15.	249			Not Passed	
Test method	: /	ANSI C63.4:200	3					
Operating mode	: t	ransmit without	connect	another ur	nit(2442 N	lHz)		
Antenna polarity	: H	Horizontal						
Remarks	1 :	Ref 60 dBµV/m	*Att 0 dB	* RBW 120 kHz * VBW 300 kHz * SWT 500 ms	Marker 1 [T1 ] 32.10 d 487.8400000 Marker 2 [T1] 34.80 d 59.42000000 Marker 3 [T1] 35.96 d 37.24.5200000 44.44.44.44 55.96 d 37.24.5200000 44.44.44.44 55.96 d 55.96 d 55.90 d 55.96 d 5	ВµV/m 0 МНZ ВµV/m 0 мНд ВµV/m 0 мнд тDF 6DB		
Freq. Ant.	.Pol.	start 30 MHz Reading	Ant./CF	MHz/	stop t.	1 GHz	Limit	
		QP		QF	<b>D</b>		QP	Note
(MHz) H	/V	(dBuV)	CF(dB)	(dBu	IV) 2	(	dBuV)	
	H	20.07	12.15	32.2	.2		43.50	
270.56 H	н	24.00	15.58	37.2	28		46.00	
335.55	н	20.48	17 25	37.7	.o ′3		46.00	X/F
432.55	н	17.24	20.54	37.7	78 1		46.00	X/F
481.05 H	н	15.35	21.54	36.8	39		46.00	X/F
Remark: The EUT was p The resolution The resolution The resolution The test shall b For emissions	placed o bandwic bandwic bandwic be made	n the top of the turntable in th setting on the test received th setting on the test received th setting on the test received in the operation mode. The grant the receiving antenn	test site area. ver was 9 KHz, ver was 120 KH ver was 1MHz, e turntable was ba was placed :	Detector function Iz, Detector function Detector function rotated by 360 de meters far away	peak (9kHz~30 on peak (30 MH: peak (1 GHz~5 egrees to determ from the turptab	MHz). z~1000MHz GHz). ine the posit	). ion of the highest ra	diation.

The antenna was fixed on the same height with the EUT to find each suspected emissions of both horizontal and vertical polarization. Adjust the emission and slightly rotate the turntable to locate the position with maximum reading. Adjust the emission and slightly height of the antenna to locate the position with maximum reading. If the peak scan value lower limit more than 20dB, then this signal data does not show in graph 9kHz -30MHz and 18500 MHz to 26500MHz only have the background noise, the test date and graph does not show on the test report

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Radiated Emis	sion To	est 1000MHz - 24	00MHz			
Date of test	:	20 January 2012			Test Result	
Fest requiremer	nt :	FCC Part 15 Sect	ion 15.2	49	Not Passed	ed
Test method	:	ANSI C63.4:2003				
Operating mode	e :	transmit without c	onnect a	another unit(2442	2 MHz)	
Antenna Polarit	y :	Horizontal				
Remarks	:	Ref         50         1           1 PK         -30         1           -30         -10         -10           -10         -10         -10           -20         -30         -10           -10         -10         -10           -10         -10         -10           -10         -10         -10           -10         -10         -10           -10         -10         -10           -10         -10         -10           -10         -10         -10           -10         -10         -10           -10         -10         -10           -10         -10         -10           -10         -10         -10           -10         -10         -10           -10         -10         -10           -10         -10         -10           -10         -10         -10           -10         -10         -10           -10         -10         -10           -10         -10         -10           -10         -10         -10	Att 0 dB	*RBW 1 MHz Marker 1 [ *VBW 3 MHz 25 *SWT 500 ms 1.350 Marker 2 [ 23 Marker 3 [ 24 24 1663 Marker 3 [ 24 1663 Marker 3 [ 24 1663 Marker 3 [ 24 1663 Marker 4 [ 24 1663 Marker 5 [ 25 1663 Marker 5 [ 26 1663 Marker 5 [	F1       ]         .01       dBμV/m         .95       dBμV/m         .95       dBμV/m         .98       dBμV/m         .98       dBμV/m         .99       dBμV/m         .99       dBμV/m         .99       dBμV/m         .99	
Freq	Ant Pol	Center 1.7 GHz	140	MHz/ Sp	an 1.4 GHz	
(MHz)	H/V	$(dB_{\mu}V/m)$	CF(dB)	$(dB_{\mu}V/m)$	(dBuV/m)	Note
2496.00	Н	53.70	35.30	89.00	74.00	Peak
13325.00	Н	26.78	45.80	72.58	74.00	Peak
13325.00	н	0.78	45.80	46.58	54.00	AVG

The resolution bandwidth setting on the test receiver was 120 KHz, Detector function peak (30 MHz~1000MHz).

The resolution bandwidth setting on the test receiver was 1MHz, Detector function peak (1 GHz~5GHz).

The test shall be made in the operation mode. The turntable was rotated by 360 degrees to determine the position of the highest radiation.

The test shall be made in the operation mode. The turntable was rotated by 360 degrees to determine the position of the highest radiations for emissions measurement, the receiving antenna was placed 3 meters far away from the turntable. The antenna was fixed on the same height with the EUT to find each suspected emissions of both horizontal and vertical polarization. Adjust the emission and slightly rotate the turntable to locate the position with maximum reading. Adjust the emission and slightly height of the antenna to locate the position with maximum reading. If the peak scan value lower limit more than 20dB, then this signal data does not show in graph 9kHz -30MHz and 18500 MHz to 26500MHz only have the background noise, the test date and graph does not show on the test report

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Test Result

Passed

Not Passed

#### Radiated Emission Test 2.5GHz - 18GHz

- Date of test : 20 January 2012
- Test requirement : FCC Part 15 Section 15.249
- Test method : ANSI C63.4:2003
- Operating mode : transmit without connect another unit(2442 MHz)
- Antenna Polarity : Horizontal
- Remarks

: NIL



Freq.	Ant.Pol.	Reading	Ant./CF	Act.	Limit	Note
(MHz)	H/V	(dBµV/m)	CF(dB)	(dBµV/m)	(dBµV/m)	Note
2496.00	Н	53.70	35.30	89.00	74.00	Peak
13325.00	Н	26.78	45.80	72.58	74.00	Peak
13325.00	Н	0.78	45.80	46.58	54.00	AVG
17864.00	Н	26.51	46.50	73.01	74.00	Peak
17864.00	Н	0.70	46.50	47.20	54.00	AVG

Remark:

The resolution bandwidth setting on the test receiver was 9 KHz, Detector function peak (9kHz~30MHz).

The resolution bandwidth setting on the test receiver was 120 KHz, Detector function peak (30 MHz $\sim$ 1000MHz).

The resolution bandwidth setting on the test receiver was 1MHz, Detector function peak (1 GHz~5GHz).

The test shall be made in the operation mode. The turntable was rotated by 360 degrees to determine the position of the highest radiation.

For emissions measurement, the receiving antenna was placed 3 meters far away from the turntable.

The antenna was fixed on the same height with the EUT to find each suspected emissions of both horizontal and vertical polarization. Adjust the emission and slightly rotate the turntable to locate the position with maximum reading.

Adjust the emission and slightly rotate the turntable to locate the position with maximum reading. Adjust the emission and slightly height of the antenna to locate the position with maximum reading.

If the peak scan value lower limit more than 20dB, then this signal data does not show in graph

9kHz -30MHz and 18500 MHz to 26500MHz only have the background noise, the test date and graph does not show on the test report

Report Number: 60/760.11.223.02 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 Page 23 of 61

The EUT was placed on the top of the turntable in test site area.



#### Radiated Emission Test 18GHz – 26.5GHz Date of test 20 January 2012 Test Result : ☐ Passed FCC Part 15 Section 15.249 Not Passed Test requirement : Test method ANSI C63.4:2003 : Operating mode transmit without connect another unit(2442 MHz) : Antenna Polarity : Horizontal Remarks NIL : ×, \*RBW 1 MHz Marker 1 [T1 ] 43.83 dBμV/m 20.227000000 GHz \*VBW 3 MHz Ref 70 dBµV/m \*Att 0 dB \* SWT 500 ms Marke BuV/1 A Marke 1 PK VIEW 44.9 dBuV/I T Span 8.5 GHz Center 22.25 GHz 850 MHz/ Freq. Ant.Pol. Ant./CF Limit Reading Act. Note (MHz) H/V CF(dB) $(dB\mu V/m)$ $(dB\mu V/m)$ $(dB\mu V/m)$ 53.70 89.00 74.00 2496.00 н 35.30 Peak 74.00 13325.00 Н 26.78 72.58 Peak 45.80 13325.00 Н 0.78 46.58 54.00 AVG 45.80 17864.00 74.00 н 26.51 46.50 73.01 Peak 17864.00 н 47.20 54.00 AVG 0.70 46.50 The EUT was placed on the top of the turntable in test site area. Remark: The resolution bandwidth setting on the test receiver was 9 KHz, Detector function peak (9kHz~30MHz). The resolution bandwidth setting on the test receiver was 120 KHz, Detector function peak (30 MHz~1000MHz). The resolution bandwidth setting on the test receiver was 1MHz, Detector function peak (1 GHz~5GHz). The test shall be made in the operation mode. The turntable was rotated by 360 degrees to determine the position of the highest radiation.

For emissions measurement, the receiving antenna was placed 3 meters far away from the turntable.

The antenna was fixed on the same height with the EUT to find each suspected emissions of both horizontal and vertical polarization.

Adjust the emission and slightly rotate the turntable to locate the position with maximum reading.

Adjust the emission and slightly height of the antenna to locate the position with maximum reading.

If the peak scan value lower limit more than 20dB, then this signal data does not show in graph

9kHz -30MHz and 18500 MHz to 26500MHz only have the background noise, the test date and graph does not show on the test report

Report Number: 60/760.11.223.02 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 Page 24 of 61



Radiated Emission	on Te	est 9kHz - 1000l	MHz						
Date of test	:	20 January 2012	January 2012 Test Result						
Test requirement	:	FCC Part 15 Sec	ction 15.2	249		∐ Passed _ Not Passed			
Test method	:	ANSI C63.4:200	3						
Operating mode	:	transmit without	connect	another unit(24	142 MHz)				
Antenna Polarity	:	Vertical							
Remarks	:	NIL 🗞		*RBW 120 kHz Marker *VBW 300 kHz	1 [T3 ] 31.70 dBµV/m				
		60 50 50 50 50 50 50 50 50 50 5		Marker 610 Marker 705 100 100 100 100 100 100 100 1	2 [T3] 35.11 (Bµ)/m 36000000 (Brz 3 (T3) 35.36 (Bµ)/m 12000000 mrz TD) 601 601	<b>1</b>			
Freq. Ar	nt.Pol.	Reading	Ant./CF	Act.	Stop I GHZ	Limit			
				QP			Note		
(MHZ) 54 25	H/V V	(uBuV) 17,00	CF(dB)	(aBuv) 25.35		(ubuv) <b>40.00</b>	X/F		
107.60	v	14.30	12.32	26.62		43.50	X/F		
163.86	V	17.18	12.08	29.26		43.50	X/F		
289.96	V	12.93	16.02	28.95		46.00	X/F		
335.55	V	13.18	17.25	30.43		46.00	X/F		
481.05	V	14.49	21.54	36.03		46.00	X/F		
Remark: The EUT wa The resolutio The resolutio The resolutio The resolutio The test sha For emission	as placed on bandw on bandw on bandw all be mad	on the top of the turntable in idth setting on the test receiv idth setting on the test receiv idth setting on the test receiv e in the operation mode. The rement the receiving antenr	test site area. ver was 9 KHz, ver was 120 KH ver was 1MHz, e turntable was	Detector function peak (§ Iz, Detector function peak ( Detector function peak (1 rotated by 360 degrees t meters far away from th	9kHz~30MHz). k (30 MHz~1000N l GHz~5GHz). to determine the po-	/IHz). osition of the highest radi	ation.		

The antenna was fixed on the same height with the EUT to find each suspected emissions of both horizontal and vertical polarization. Adjust the emission and slightly rotate the turntable to locate the position with maximum reading. Adjust the emission and slightly height of the antenna to locate the position with maximum reading. If the peak scan value lower limit more than 20dB, then this signal data does not show in graph 9kHz -30MHz and 18500 MHz to 26500MHz only have the background noise, the test date and graph does not show on the test report

Report Number: 60/760.11.223.02 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



Radiated Emis	ssion Te	est 1000MHz - 2	2400MHz			
Date of test	:	20 January 2012	2		Test Result	
Test requireme	ent :	FCC Part 15 Se	ction 15.2	249	Not Passed	ed
Test method	:	ANSI C63.4:200	3			
Operating mod	e :	transmit without	connect	another unit(24	42 MHz)	
Antenna Polari	ty :	Vertical				
Remarks	:	Ref 50 dBµV/m S0 -30 -30 -30 -30 -30 -30 -30 -3	*Att 0 dB	* RBW 1 MHz Marker : * VUEW 3 MHz * SWT 500 ms 1 Marker : Marker : 2 2 Marker : 1 Marker : 1	1 [T3 ] 24.53 dBµV/m 327600000 GHz 2 [T3 ] 25.92 dBµV/m 25.95 dBµV/m 25.15 dBµV/m 25.15 dBµV/m TDF 3DB	
Freq.	Ant.Pol.	Reading	Ant./CF	Act.	Span 1.4 GHz	
(MHz)	H/V	(dBµV/m)	CF(dB)	(dBµV/m)	(dBµV/m)	Note
2496.00	V	33.38	35.30	68.68	74.00	Peak
13291.00	V	27.12	45.80	72.92	74.00	Peak
13291.00	V	0.78	45.80	46.58	54.00	AVG
1/983.00		26./3	46.58	/3.31	/4.00	
Remark: The EL The res The res The res The tes For em The an Adjust Adjust	T was placed solution bandw solution bandw solution bandw st shall be masu tenna was fixe the emission a the emission a	on the top of the turntable in vidth setting on the test recei- vidth setting on the test recei- vidth setting on the test recei- tidth setting on the test recei- de in the operation mode. The urement, the receiving antenne- ed on the same height with the and slightly rotate the turntab- and slightly height of the anter-	h test site area. ver was 9 KHz, ver was 120 KH ver was 120 KH ver was 1MHz, e turntable was ha was placed 3 he EUT to find e le to locate the nna to locate th	Detector function peak (9 Iz, Detector function peak Detector function peak (1 rotated by 360 degrees to meters far away from the each suspected emissions position with maximum re-	kHz~30MHz). (30 MHz~1000MHz). GHz~5GHz). b determine the position of the highest b turntable. of both horizontal and vertical polariza ading. reading.	radiation.

If the peak scan value lower limit more than 20dB, then this signal data does not show in graph 9kHz -30MHz and 18500 MHz to 26500MHz only have the background noise, the test date and graph does not show on the test report

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#### Radiated Emission Test 2.5GHz – 18GHz Date of test 20 January 2012 Test Result : ☐ Passed FCC Part 15 Section 15.249 Not Passed Test requirement : Test method : ANSI C63.4:2003 Operating mode transmit without connect another unit(2442 MHz) : Antenna Polarity : Vertical Remarks NIL : Marker 1 [T3 ] 40.17 dBµV/m \*RBW 1 MHz •VBW 3 MHz Ref 80 dBuV/m \*Att 0 dB \* SWT 500 ms 4.825000000 GHz Marke 46.1 BuV/ A 7400 Mark 48.5 and all h١ З РК МАХН how DB Center 10.25 GHz 1.55 GHz/ Span 15.5 GHz Ant.Pol. Reading Ant./CF Act. Limit Freq. Note (MHz) H/V $(dB\mu V/m)$ CF(dB) $(dB\mu V/m)$ $(dB\mu V/m)$ 33.38 74.00 68.68 2496.00 v Peak 35.30 27.12 72.92 74.00 13291.00 V 45.80 Peak 13291.00 V 0.78 45.80 46.58 54.00 AVG v 17983.00 26.73 46.58 73.31 74.00 Peak v 17983.00 0.62 46.58 47.20 54.00 AVG

Remark: The EUT was placed on the top of the turntable in test site area.

The resolution bandwidth setting on the test receiver was 9 KHz, Detector function peak (9kHz $\sim$ 30MHz).

The resolution bandwidth setting on the test receiver was 120 KHz, Detector function peak (30 MHz  $\sim$  1000MHz).

The resolution bandwidth setting on the test receiver was 1MHz, Detector function peak (1 GHz  $\sim$  5GHz).

The test shall be made in the operation mode. The turntable was rotated by 360 degrees to determine the position of the highest radiation. For emissions measurement, the receiving antenna was placed 3 meters far away from the turntable.

The antenna was fixed on the same height with the EUT to find each suspected emissions of both horizontal and vertical polarization.

Adjust the emission and slightly rotate the turntable to locate the position with maximum reading.

Adjust the emission and slightly height of the antenna to locate the position with maximum reading.

If the peak scan value lower limit more than 20dB, then this signal data does not show in graph

9kHz -30MHz and 18500 MHz to 26500MHz only have the background noise, the test date and graph does not show on the test report

Report Number: 60/760.11.223.02 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 Page 27 of 61



Radiated Emis	ssion Te	est 18GHz – 26.	.5GHz				
Date of test	:	20 January 2012	2			Test Result	
Test requireme	ent :	FCC Part 15 Se	ction 15.2	249		Not Passe	ed
Test method	:	ANSI C63.4:200	)3				
Operating mod	le :	transmit without	connect	another unit(	(2442 MHz)		
Antenna Polari	ity :	Vertical					
Remarks	:	Ref 70 dBµV/m	* Att 0 dB	* RBW 1 MHz Ma * VBW 3 MHz * SWT 500 ms Ma Ma Ma Ma Ma Ma Ma Ma Ma Ma Ma Ma Ma	rker 1 [T3 ] 42.15 dBµV/r 19.37700000 GH2 rker 2 [T3 44.13 dBµV/r 20.26100100 GH2 rker 3 [T3 44.89 dBµV/r 21.12000100 GH7 000000 GH2 000000 GH2 0000000 GH2 000000 GH2 000000 GH2 000000 GH2 000000 GH2 000000 GH2 000000 GH2 000000 GH2 000000 GH2 0000000 GH2 00000000 GH2 0000000 GH2 0000000 GH2 00000000 GH2 0000000 GH2 000000000 GH2 000000000000000000000000000000000000	TDF 3DB	
Freq.	Ant.Pol.	. Reading	Ant./CF	Act.		Limit	Nata
(MHz)	H/V	(dBµV/m)	CF(dB)	(dBµV/r	n)	(dBµV/m)	Note
2496.00	V	33.38	35.30	68.68		74.00	Peak
13291.00	I V	27.12	45.80	72.92		74.00	Peak

#### The EUT was placed on the top of the turntable in test site area. Remark:

V

13291.00

The resolution bandwidth setting on the test receiver was 9 KHz, Detector function peak (9kHz~30MHz).

The resolution bandwidth setting on the test receiver was 120 KHz, Detector function peak (30 MHz ~ 1000MHz).

45.80

The resolution bandwidth setting on the test receiver was 1MHz, Detector function peak (1 GHz~5GHz).

The test shall be made in the operation mode. The turntable was rotated by 360 degrees to determine the position of the highest radiation.

46.58

54.00

For emissions measurement, the receiving antenna was placed 3 meters far away from the turntable. The antenna was fixed on the same height with the EUT to find each suspected emissions of both horizontal and vertical polarization. Adjust the emission and slightly rotate the turntable to locate the position with maximum reading.

0.78

Adjust the emission and slightly height of the antenna to locate the position with maximum reading. If the peak scan value lower limit more than 20dB, then this signal data does not show in graph 9kHz -30MHz and 18500 MHz to 26500MHz only have the background noise, the test date and graph does not show on the test report

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AVG



#### Radiated Emission Test 9kHz - 1000MHz Date of test 20 January 2012 Test Result 2 Passed $\boxtimes$ : FCC Part 15 Section 15.249 Not Passed Test requirement Test method : ANSI C63.4:2003 Operating mode transmit without connect another unit(2480 MHz) 1 Antenna polarity : Horizontal Remarks NIL 2 × \*RBW 120 kHz Marker 1 [T1 ] \*VBW 300 kHz 32.10 dBµV/m 60 dBuV/m \*Att 0 dB Ref \* SWT 500 ms 487.840000000 MHz 2 [T1 Marke 34.8 1B1 3 [Т] 1 PK VIEW 35.9 BuV/ where the 1 min M unk D.F Start 30 MH: MHz, Stop 1 GHz Ant.Pol. Reading Ant./CF Act. Limit Freq. QP QP Note QP (MHz) H/V (dBuV) CF(dB) (dBuV) (dBuV) 20.07 32.22 43.50 163.00 12.15 X/F н 216.00 24.00 11.91 35.91 43.50 X/F н 270.56 Н 21.70 15.58 37.28 46.00 X/F 335.55 н 20.48 17.25 37.73 46.00 X/F 17.24 37.78 432.55 н 20.54 46.00 X/F 481.05 н 15.35 36.89 46.00 X/F 21.54 The EUT was placed on the top of the turntable in test site area. Remark: The resolution bandwidth setting on the test receiver was 9 KHz, Detector function peak (9kHz $\sim$ 30MHz). The resolution bandwidth setting on the test receiver was 120 KHz, Detector function peak (30 MHz~1000MHz). The resolution bandwidth setting on the test receiver was 1MHz, Detector function peak (1 GHz~5GHz). The test shall be made in the operation mode. The turntable was rotated by 360 degrees to determine the position of the highest radiation. For emissions measurement, the receiving antenna was placed 3 meters far away from the turntable.

The antenna was fixed on the same height with the EUT to find each suspected emissions of both horizontal and vertical polarization.

Adjust the emission and slightly rotate the turntable to locate the position with maximum reading.

Adjust the emission and slightly height of the antenna to locate the position with maximum reading.

If the peak scan value lower limit more than 20dB, then this signal data does not show in graph

9kHz -30MHz and 18500 MHz to 26500MHz only have the background noise, the test date and graph does not show on the test report

Report Number: 60/760.11.223.02 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

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Radiated Emis	sion T	est 1000MHz - 2400MHz
Date of test	:	20 January 2012 Test Result
Test requireme	nt:	FCC Part 15 Section 15.249
Test method	:	ANSI C63.4:2003
Operating mode	e :	transmit without connect another unit(2480 MHz)
Antenna Polarit	у:	Horizontal
Remarks	:	Y       ************************************
Frog	Ant Pol	Center 1.7 GHz 140 MHz/ Span 1.4 GHz
(MHz)	H/V	$(dB_{\mu}V/m)$ $CF(dB)$ $(dB_{\mu}V/m)$ $(dB_{\mu}V/m)$ $Note$
2496.00	Н	53.70 35.30 89.00 74.00 Peak
13325.00	Н	26.78 45.80 72.58 74.00 Peak
13325.00	Н	0.78 45.80 46.58 54.00 AVG

The resolution bandwidth setting on the test receiver was 120 KHz, Detector function peak (30 MHz ~ 1000MHz).

The resolution bandwidth setting on the test receiver was 1MHz, Detector function peak (1 GHz~5GHz).

The test shall be made in the operation mode. The turntable was rotated by 360 degrees to determine the position of the highest radiation.

The test shall be made in the operation mode. The turntable was rotated by 360 degrees to determine the position of the highest radiations for emissions measurement, the receiving antenna was placed 3 meters far away from the turntable. The antenna was fixed on the same height with the EUT to find each suspected emissions of both horizontal and vertical polarization. Adjust the emission and slightly rotate the turntable to locate the position with maximum reading. Adjust the emission and slightly height of the antenna to locate the position with maximum reading. If the peak scan value lower limit more than 20dB, then this signal data does not show in graph 9kHz -30MHz and 18500 MHz to 26500MHz only have the background noise, the test date and graph does not show on the test report

Report Number: 60/760.11.223.02 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

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Test Result

Passed

Not Passed

#### Radiated Emission Test 2.5GHz - 18GHz

- Date of test : 20 January 2012
- Test requirement : FCC Part 15 Section 15.249
- Test method : ANSI C63.4:2003
- Operating mode : transmit without connect another unit(2480 MHz)
- Antenna Polarity : Horizontal
- Remarks

: NIL



Freq.	Ant.Pol.	Reading	Ant./CF	Act.	Limit	Noto
(MHz)	H/V	(dBµV/m)	CF(dB)	(dBµV/m)	(dBµV/m)	Note
2496.00	Н	53.70	35.30	89.00	74.00	Peak
13325.00	Н	26.78	45.80	72.58	74.00	Peak
13325.00	Н	0.78	45.80	46.58	54.00	AVG
17864.00	Н	26.51	46.50	73.01	74.00	Peak
17864.00	Н	0.70	46.50	47.20	54.00	AVG

Remark:

The resolution bandwidth setting on the test receiver was 9 KHz, Detector function peak (9kHz~30MHz).

The resolution bandwidth setting on the test receiver was 120 KHz, Detector function peak (30 MHz $\sim$ 1000MHz).

The resolution bandwidth setting on the test receiver was 1MHz, Detector function peak (1 GHz $\sim$ 5GHz).

The test shall be made in the operation mode. The turntable was rotated by 360 degrees to determine the position of the highest radiation.

For emissions measurement, the receiving antenna was placed 3 meters far away from the turntable.

The antenna was fixed on the same height with the EUT to find each suspected emissions of both horizontal and vertical polarization. Adjust the emission and slightly rotate the turntable to locate the position with maximum reading.

Adjust the emission and slightly rotate the turntable to locate the position with maximum reading. Adjust the emission and slightly height of the antenna to locate the position with maximum reading.

If the peak scan value lower limit more than 20dB, then this signal data does not show in graph

9kHz -30MHz and 18500 MHz to 26500MHz only have the background noise, the test date and graph does not show on the test report

Report Number: 60/760.11.223.02 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 Page 31 of 61

The EUT was placed on the top of the turntable in test site area.



#### Radiated Emission Test 18GHz – 26.5GHz Date of test 20 January 2012 Test Result : ☐ Passed FCC Part 15 Section 15.249 Not Passed Test requirement : Test method : ANSI C63.4:2003 Operating mode transmit without connect another unit(2480 MHz) : Antenna Polarity : Horizontal Remarks NIL : ×, \*RBW 1 MHz Marker 1 [T1 ] 43.83 dBμV/m 20.227000000 GHz \*VBW 3 MHz Ref 70 dBµV/m \*Att 0 dB \* SWT 500 ms Marke BuV/1 A Marke 1 PK VIEW 44.9 dBuV/I T Span 8.5 GHz Center 22.25 GHz 850 MHz/ Freq. Ant.Pol. Ant./CF Limit Reading Act. Note (MHz) H/V CF(dB) $(dB\mu V/m)$ $(dB\mu V/m)$ $(dB\mu V/m)$ 53.70 89.00 74.00 2496.00 н 35.30 Peak 74.00 13325.00 Н 26.78 72.58 Peak 45.80 13325.00 Н 0.78 46.58 54.00 AVG 45.80 17864.00 74.00 н 26.51 46.50 73.01 Peak 17864.00 н 47.20 54.00 AVG 0.70 46.50 The EUT was placed on the top of the turntable in test site area. Remark: The resolution bandwidth setting on the test receiver was 9 KHz, Detector function peak (9kHz~30MHz). The resolution bandwidth setting on the test receiver was 120 KHz, Detector function peak (30 MHz~1000MHz). The resolution bandwidth setting on the test receiver was 1MHz, Detector function peak (1 GHz~5GHz). The test shall be made in the operation mode. The turntable was rotated by 360 degrees to determine the position of the highest radiation.

For emissions measurement, the receiving antenna was placed 3 meters far away from the turntable.

The antenna was fixed on the same height with the EUT to find each suspected emissions of both horizontal and vertical polarization.

Adjust the emission and slightly rotate the turntable to locate the position with maximum reading.

Adjust the emission and slightly height of the antenna to locate the position with maximum reading.

If the peak scan value lower limit more than 20dB, then this signal data does not show in graph

9kHz -30MHz and 18500 MHz to 26500MHz only have the background noise, the test date and graph does not show on the test report

Report Number: 60/760.11.223.02 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 Page 32 of 61



Radiated Emissi	ion Te	st 9kHz - 1000	MHz						
Date of test	: :	20 January 2012	January 2012 Test Result						
Test requirement	:	FCC Part 15 Sec	ction 15.2	249		Passed     Not Passed			
Test method	: /	ANSI C63.4:200	3						
Operating mode	: 1	ransmit without	connect	another unit(24	180 MHz)				
Antenna Polarity	: `	Vertical							
Remarks		Ref 60 dBµV/m	* Att 0 dB	*RBW 120 XHZ Marker *VBW 300 XHZ *SWT 500 ms 414. Marker 0 Marker 705 705 705 705 705 705 705 705	1 [T3 ] 31.70 dBµV/m 12000000 MHz 2 [T3 35.11 dBµY/m 35.36 dBµV/m 12000000 mmz www.www.www constants a ma a ma	9			
		-40 Start 30 MHz	97	MHz/	Stop 1 GHz				
Freq. A	nt.Pol.	Reading	Ant./CF	Act.		Limit	Noto		
(MH7)	Н/\/	يرب (dBuV)	CE(dB)	يرب (dBuV)		رdBuV)	NULE		
54.25	V	17.00	8.35	25.35		40.00	X/F		
107.60	V	14.30	12.32	26.62		43.50	X/F		
163.86	٧	17.18	12.08	29.26		43.50	X/F		
289.96	V	12.93	16.02	28.95		46.00	X/F		
335.55	V	13.18	17.25	30.43		46.00	X/F		
481.05	V	14.49	21.54	36.03		46.00	X/F		
Remark: The EUT way The resoluti The resoluti The resoluti The resoluti The test sha For emissio	as placed ion bandwi ion bandwi ion bandwi all be mad ons measu	on the top of the turntable in dth setting on the test recei- dth setting on the test recei- dth setting on the test recei- e in the operation mode. The rement, the receiving antern	test site area. ver was 9 KHz, ver was 120 KH ver was 1MHz, e turntable was na was placed 3	Detector function peak (§ Iz, Detector function peak (1 Detector function peak (1 rotated by 360 degrees t 8 meters far away from the	$9$ kHz $\sim$ 30MHz). $(30 MHz \sim 10001)$ $GHz \sim 5GHz).$ 0 determine the p $e turntable.$	MHz). position of the highest rad	iation.		

The antenna was fixed on the same height with the EUT to find each suspected emissions of both horizontal and vertical polarization. Adjust the emission and slightly rotate the turntable to locate the position with maximum reading.

Adjust the emission and slightly height of the antenna to locate the position with maximum reading. If the peak scan value lower limit more than 20dB, then this signal data does not show in graph 9kHz -30MHz and 18500 MHz to 26500MHz only have the background noise, the test date and graph does not show on the test report

Report Number: 60/760.11.223.02 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

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Radiated Emis	ssion Te	est 1000MHz - 2	400MHz			
Date of test	:	20 January 2012			Test Result	
Test requireme	ent :	FCC Part 15 Sec	tion 15.2	249	□ □ Passed □ Not Passe	ed
Test method	:	ANSI C63.4:2003	3			
Operating mod	e :	transmit without	connect	another unit(248	0 MHz)	
Antenna Polari	ty :	Vertical				
Remarks	:	Ref 50 dBµV/m	*Att 0 dB	* RBW 1 MHz Marker 1 * VBW 3 MHz 2 * SWT 500 ms 1.32' Marker 2 2 1.662 Marker 3 2 2 2 2 2 2 2 2 2 2 2 2 2	T3     1       4.53     dBµV/m       7600000     GHz       5.92     dBµV/m       900000     GHz       T3     1       100     GHz       100	
Freq.	Ant.Pol.	Reading	Ant./CF	Act.	ipan 1.4 GHz	
(MHz)	H/V	(dBµV/m)	CF(dB)	(dBµV/m)	(dBµV/m)	Note
2496.00	V	33.38	35.30	68.68	74.00	Peak
13291.00	V	27.12	45.80	72.92	74.00	Peak
13291.00	V	0.78	45.80	46.58	54.00	AVG
17983.00	V V	20.73	40.58	/ J.J] /7 20	<u> </u>	AVG
Remark: The EU The res The res The res The tes For em The ani Adjust t	T was placed solution bandw solution bandw solution bandw t shall be mad issions measu tenna was fixe he emission a he emission a	on the top of the turntable in vidth setting on the test receiv vidth setting on the test receiv vidth setting on the test receiv de in the operation mode. The urement, the receiving antenn d on the same height with the and slightly rotate the turntable and slightly height of the anter	test site area. rer was 9 KHz, rer was 120 KH rer was 1MHz, turntable was a was placed 3 e EUT to find e e to locate the nna to locate th	Detector function peak (9kH Iz, Detector function peak (3 Detector function peak (1 G rotated by 360 degrees to d meters far away from the tr ach suspected emissions of position with maximum read to position with maximum read	Hz~30MHz). 10 MHz~1000MHz). 10 Hz~5GHz). 10 Hz~5GHz). 10 Hetermine the position of the highest 10 minute for the highest 10	radiation.

9kHz -30MHz and 18500 MHz to 26500MHz only have the background noise, the test date and graph does not show on the test report

Report Number: 60/760.11.223.02 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

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#### Radiated Emission Test 2.5GHz – 18GHz Date of test 20 January 2012 Test Result : ☐ Passed FCC Part 15 Section 15.249 Not Passed Test requirement : Test method : ANSI C63.4:2003 Operating mode transmit without connect another unit(2480 MHz) : Antenna Polarity : Vertical Remarks NIL : Marker 1 [T3 ] 40.17 dBµV/m \*RBW 1 MHz •VBW 3 MHz Ref 80 dBuV/m \*Att 0 dB \* SWT 500 ms 4.825000000 GHz Marke 46.1 BuV/ A 7400 Mark 48.5 and all h١ З РК МАХН how DB Center 10.25 GHz 1.55 GHz/ Span 15.5 GHz Ant.Pol. Reading Ant./CF Act. Limit Freq. Note (MHz) H/V $(dB\mu V/m)$ CF(dB) $(dB\mu V/m)$ $(dB\mu V/m)$ 33.38 74.00 68.68 2496.00 v Peak 35.30 27.12 72.92 74.00 13291.00 V 45.80 Peak 13291.00 V 0.78 45.80 46.58 54.00 AVG v 17983.00 26.73 46.58 73.31 74.00 Peak v 17983.00 0.62 46.58 47.20 54.00 AVG

Remark: The EUT was placed on the top of the turntable in test site area.

The resolution bandwidth setting on the test receiver was 9 KHz, Detector function peak (9kHz $\sim$ 30MHz).

The resolution bandwidth setting on the test receiver was 120 KHz, Detector function peak (30 MHz  $\sim$  1000MHz).

The resolution bandwidth setting on the test receiver was 1MHz, Detector function peak (1 GHz  $\sim$  5GHz).

The test shall be made in the operation mode. The turntable was rotated by 360 degrees to determine the position of the highest radiation.

For emissions measurement, the receiving antenna was placed 3 meters far away from the turntable. The antenna was fixed on the same height with the EUT to find each suspected emissions of both horizontal and vertical polarization.

Adjust the emission and slightly rotate the turntable to locate the position with maximum reading.

Adjust the emission and slightly height of the antenna to locate the position with maximum reading.

If the peak scan value lower limit more than 20dB, then this signal data does not show in graph

9kHz -30MHz and 18500 MHz to 26500MHz only have the background noise, the test date and graph does not show on the test report

Report Number: 60/760.11.223.02 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 Page 35 of 61



Radiated Emis	ssion Te	est 18GHz – 26.5	5GHz				
Date of test	:	20 January 2012				Test	Result
Test requireme	nt :	FCC Part 15 Sec	tion 15.2	249			ot Passed
Test method	:	ANSI C63.4:2003	3				
Operating mod	e :	transmit without c	connect	another u	init(2480 l	MHz)	
Antenna Polari	ty :	Vertical					
Remarks	:	Ref 70 dBµV/m	*Att 0 dB	* RBW 1 MHz * VBW 3 MHz * SWT 500 ms	Marker 1 [73 42.15 19.377000 Marker 2 [73 20.261000 Marker 3 [73 21.120000 Marker 3 [73 21.120000 Marker 44.8 21.12000 Marker 44.8 21.12000 Marker 2 [73 20.26100 Marker 3 [73 20.261000 Marker 3 [73 20.261000 Marker 3 [73 20.261000 Marker 3 [73 20.261000 Marker 3 [73 20.261000000 Marker 3 [73 20.2610000000000000 Marker 3 [73 20.2	] 5 dBµV/m 000 GHz 3 dBµV/m 0 0 GHz 3 dBµV/m 100 GHZ 100 GHZ 10	
Freq.	Ant.Pol.	Reading	Ant./CF	Α	vct.	Lir	nit
(MHz)	H/V	(dBµV/m)	CF(dB)	(dBµ	ıV/m)	(dBµ	V/m)
2496.00	V	33.38	35.30	68	.68	74.	00 Peak
13291.00	V	27.12	45.80	72	.92	74.	00 Peak

#### Remark:

13291.00

V

0.78 The EUT was placed on the top of the turntable in test site area.

The resolution bandwidth setting on the test receiver was 9 KHz, Detector function peak (9kHz~30MHz). The resolution bandwidth setting on the test receiver was 120 KHz, Detector function peak (30 MHz ~ 1000MHz).

45.80

The resolution bandwidth setting on the test receiver was 1MHz, Detector function peak (1 GHz~5GHz).

The test shall be made in the operation mode. The turntable was rotated by 360 degrees to determine the position of the highest radiation.

46.58

54.00

For emissions measurement, the receiving antenna was placed 3 meters far away from the turntable. The antenna was fixed on the same height with the EUT to find each suspected emissions of both horizontal and vertical polarization. Adjust the emission and slightly rotate the turntable to locate the position with maximum reading.

Adjust the emission and slightly height of the antenna to locate the position with maximum reading. If the peak scan value lower limit more than 20dB, then this signal data does not show in graph 9kHz -30MHz and 18500 MHz to 26500MHz only have the background noise, the test date and graph does not show on the test report

Report Number: 60/760.11.223.02 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

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AVG



Radiated Emi	ission	Tes	t 9kHz – 1000l	MHz						
Date of test	:	20	0 January 2012 Test Result							
Test requirem	ent :	F	CC Part 15 Section 15.109							
Test method	:	A	NSI C63.4:200	3						
Operating mo	de :	Ρ	C							
Antenna Polarit	ty :	Н	orizontal							
Remarks	:	N Ý	Ref 70 dBµV/m	*Att 0 dB	*RBW 120 : *VBW 300 : *SWT 500 1	kHz Marke: kHz ms 49	r 1 [T1 ] 35.21 7.5400000	dBµV/m 00 MHz		
			70 -60 -50 -50 -50 -50 -50 -50 -50 -5		1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	Marke: Marke: 3 4464 AMARKE: 3 4464 AMARKE: 3 3 4464 AMARKE: 3 4 4 4 4 4 4 4 4 4 4 4 4 4	c 2 [T1] 37.03 220000 c 3 [T1] 38.56 		3	
Freq.	Ant.P	ol.	Reading	Ant./CF	, MI2/	Act.	5.00	1 0112	Limit	
(MHz)	H/V	,	QP (dBuV)	CF(dB)	(0	QP dBuV)			QP (dBuV)	Note
108.00	Н		22.90	12.32	3	5.22			43.50	X/F
163.86	н		21.87	12.08	3	3.95			43.50	X/F
216.24	Н		21.92	11.91	3	3.83			46.00	X/F
289.96	н		20.18	16.02	3	6.20			46.00	X/F
335.55	н		22.71	17.25	3	9.96			46.00	X/F
432.55	н		17.09 20.55 37.64 46.00 X/F							
Remark: The E The re The re The re The re	Prmark: The EUT was placed on the top of the turntable in test site area. The resolution bandwidth setting on the test receiver was 9 KHz, Detector function peak (9kHz~30MHz). The resolution bandwidth setting on the test receiver was 120 KHz, Detector function peak (30 MHz~1000MHz). The resolution bandwidth setting on the test receiver was 1MHz, Detector function peak (1 GHz~5GHz). The test shall be made in the operation mode. The turntable was rotated by 360 degrees to determine the position of the highest radiation.									

For emissions measurement, the receiving antenna was placed 3 meters far away from the turntable. The antenna was fixed on the same height with the EUT to find each suspected emissions of both horizontal and vertical polarization.

Adjust the emission and slightly rotate the turntable to locate the position with maximum reading.

Adjust the emission and slightly height of the antenna to locate the position with maximum reading. If the peak scan value lower limit more than 20dB, then this signal data does not show in graph

9kHz -30MHz and 18500 MHz to 26500MHz only have the background noise, the test date and graph does not show on the test report

Report Number: 60/760.11.223.02 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



Radiated Emis	sion T	est 1000MHz – 6000MHz					
Date of test	:	20 January 2012 Test Result					
Test requireme	nt :	FCC Part 15 Section 15.109	sed				
Test method	:	ANSI C63.4:2003					
Operating mod	e :	PC					
Antenna Polarit	ty :	Horizontal					
Remarks	:	NIL * REW 1 MHz Marker 1 [T1 ] * VEW 3 MHz 25.01 dBµV/m Ref 50 dBµV/m * Att 0 dB * SWT 500 ms 1.35000000 GHz					
		50 Marker 2 [T1] 23.95 dBµV/m					
		-40 1.66360000 GEZ					
		ЗДВ					
		-30					
		-40					
		-50					
<b></b>		Center 1.7 GHz 140 MHz/ Span 1.4 GHz					
Freq.	Ant. Pol	I. Reading Ant./CF Act. Limit	Note				
(IMHZ)	H/V	$(dB\mu V/m)$ CF(dB) $(dB\mu V/m)$ $(dB\mu V/m)$	Deals				
13325.00	<u>н</u>	30.00         42.32         72.92         74.00           4.26         42.32         46.58         54.00	Peak				
17184 00	н	42.52         40.50         54.00           24 59         46 42         71 01         74 00	Peak				
17184.00	н	1.10 46.42 47.52 54.00	AVG				
17830.00	H	26.78 45.65 72.43 74.00	Peak				
17830.00	Н	2.88 45.62 48.50 54.00	AVG				
Remark: The EU	T was placed	d on the top of the turntable in test site area.	· · · · · · · · · · · · · · · · · · ·				
The res	olution band	width setting on the test receiver was 9 KHz, Detector function peak ( $9$ KHz ~ $30$ MHz ~ $1000$ MHz).					
The res	olution band	width setting on the test receiver was 1MHz, Detector function peak (1 GHz $\sim$ 5GHz). ade in the operation mode. The turntable was rotated by 360 degrees to determine the position of the bigh	est radiation.				
For emi	ssions meas	surement, the receiving antenna was placed 3 meters far away from the turntable.	rization				
Adjust ti	he emission	and slightly rotate the turntable to locate the position with maximum reading.					
If the pe	ak scan valu	ue lower limit more than 20dB, then this signal data does not show in graph					

9kHz -30MHz and 18500 MHz to 26500MHz only have the background noise, the test date and graph does not show on the test report

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Radiated Emi	ssion T	est 1000MHz –	6000MHz					
Date of test	:	20 January 201	20 January 2012 Test Result					
Test requireme	ent :	FCC Part 15 Se	FCC Part 15 Section 15.109					
Test method	:	ANSI C63.4:20	03					
Operating mod	le :	PC						
Antenna Polari	ity :	Horizontal						
Remarks	:	Ref 80 dBµV/m	*Att 0 dB	* REW 1 MHZ * VEW 3 MHZ * SWT 500 ms	Marker 1 [T] 39.7? 4.85500 Marker 2 [T] 46.77 7.274007 Marker 3 [T] 48.99 Marker 3 [T] 48.99 Marker 3 [T] 48.99 Marker 3 [T] 48.99 Marker 3 [T] 48.99 Marker 1 [T] 46.77 4.89 Marker 2 [T] 46.77 4.89 Marker 3 [T] 46.99 Marker 3 [T] 48.99 Marker 3 [T] 48.90 Marker 3 [T] 49.90 Marker 3 [T] 40.90 Marker 3 [T] 40.90 Marker 3 [T] 40.90 Marker 3 [T] 40.90 Marker 3 [T] 40.90 Marker 3 [T] 40.90 Marker 3 [T] 40.90 Marke	] 5 dBµV/m 0 d		
		-0	1.55	GHz/	Span	15.5 GHz		
Freq.	Ant.Pol	. Reading	Ant./CF	A	ct.	Limit	Note	
(MHz)	H/V	(dBµV/m)	CF(dB)	(dBµ	V/m)	(dBµV/m)		
13325.00	Н	30.60	42.32	72	.92	74.00	Peak	
13325.00	н	4.26	42.32	46	.58	54.00	AVG	
17184.00		24.59	46.42	/1	.01 52	74.00		
17 184.00	н	26.78	40.42	4/ 72	.52	74.00	Peak	
17830.00	н	2.88	45.62	48	. <u>40</u> .50	54.00	AVG	
Remark: The EL The re: The re: The re: The re: The te: For em The an Adjust Adjust If the p 9kHz -:	UT was placed solution bandly solution bandly solution bandly st shall be ma issions meas tenna was fix the emission the emission eak scan valu 30MHz and 18	d on the top of the turntable width setting on the test rec- width setting on the test rec- width setting on the test rec- de in the operation mode. T urement, the receiving ante ed on the same height with and slightly rotate the turnta and slightly height of the an le lower limit more than 200 8500 MHz to 26500MHz on	in test site area. eiver was 9 KHz, eiver was 120 KH eiver was 1MHz, 'he turntable was nna was placed 3 the EUT to find e able to locate the ble to locate the B, then this signa y have the backg y have the backg	Detector function z, Detector function Detector function rotated by 360 meters far awar ach suspected position with mater e position with l data does not round noise, th	on peak (9kHz ~ ction peak (30 M on peak (1 GHz - degrees to deta degrees to deta with the turnt emissions of bot aximum reading maximum reading show in graph e test date and g	30MHz). HIZ ~ 1000MHz). ~ 5GHz). rmine the position of the highes able. th horizontal and vertical polariz ng. graph does not show on the tes	st radiation. zation. t report	

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Radiated Emis	sion Te	st 30MHz – 100	0MHz					
Date of test	: 2	20 January 2012	0 January 2012 Test Result					
		⊠ Passed						
Test requiremer	nt: I	FCC Part 15 Se	ction 15.	109		Not Pass	ed	
Test method	: /	ANSI C63.4:200	3					
Operating mode	e : 1	PC						
Antenna Polarity	y : \	Vertical						
Remarks	: !	Ref 70 dBµV/m 70 -60 -50 -50 -50 -50 -50 -50 -50 -5	* Att 0 dB	* RBW 120 kHz * VEW 300 kHz * SWT 500 ms	Marker 1 [T3 ] 33.66 c 495.6000000 Marker 2 [T3 ] 36.41 c 660 5000000 Marker 3 [T3 ] 38.35 c 926.2800000 Marker 3 [T3 ] 10.00000000000000000000000000000000000	iBµV/m         0 MHz         iBµV/m         iBµV/m         iBµV/m         3         TDF         6DB		
Freq.	Ant.Pol.	Start 30 MHz Reading	Ant./CF	<sup>7 MHz/</sup>	stop	1 GHZ		
		QP		Q	P	QP	Note	
(MHz)	H/V	(dBuV)	CF(dB)	(dBi	uV)	(dBuV)		
54.25	V	24.04	8.35	32.3	39	40.00	X/F	
107.60	V	20.78	12.32	33.	10	43.50	X/F	
163.86	V	20.49	12.08	32.	57	43.50	X/F	
335.55	<u>V</u>	16.32	17.25	33.	57	46.00	X/F	
398.60	V	13.90	19.30	33.	20	46.00	X/F	
481.05	V	11.40	21.54	32.9	94	46.00	X/F	
The reso The reso The reso The test For emis The ante	was praced ( lution bandwi lution bandwi lution bandwi shall be made sions measur nna was fixeo	At me top of the turnible if dth setting on the test recei- dth setting on the test recei- dth setting on the test recei- e in the operation mode. The ement, the receiving antenn d on the same height with the de clightly rotate the turnible	ver was 9 KHz, ver was 120 KHz, ver was 120 KHz, e turntable was na was placed 3 ne EUT to find e la to locoto the	Detector function Iz, Detector function Detector function rotated by 360 d a meters far away each suspected en position with max	peak (9kHz $\sim$ 30 ion peak (30 MHz peak (1 GHz $\sim$ 50 egrees to determi from the turntable missions of both h	MHz). ~1000MHz). GHz). ne the position of the highes e. iorizontal and vertical polariz	t radiation.	

Adjust the emission and slightly rotate the turntable to locate the position with maximum reading. Adjust the emission and slightly height of the antenna to locate the position with maximum reading. If the peak scan value lower limit more than 20dB, then this signal data does not show in graph 9kHz -30MHz and 18500 MHz to 26500MHz only have the background noise, the test date and graph does not show on the test report

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Radia	ated Emis	ssion T	est 1	000MH	z – (	6000	MHz	:						
Date	of test	:	20 Ja	0 January 2012 Test Result										
Test	requireme	nt :	FCC	Part 15	5 See	ction	15.1	09					Not Pa	ssed
Test	method	:	ANS	I C63.4	:200	3								
Oper	ating mod	e :	PC	C										
Anter	nna Polari	ty :	Verti	cal										
Rema	arks	:	NIL <sup>8</sup> / <sub>50</sub> Ref	f 50 dBµV/m		*Att 0	dB	* RBW 1 * VBW 3 * SWT 5	MHz MHz 00 ms	Marker 1 Marker	1 [T3 ] 24.53 .3276000 2 [T3 ] 25.92	dBµV/m 00 GHz dBµV/m	X	
			-40· -30·	mmunu		om mana	when	2 Vanne	unu.	Marker 2	3 [T3] 25.15 .268400	dBµV/m 300 GHZ	TDF	
			-20 3 PK MAXH -10											
			-0-	0									3DB	
				0										
			4	0										
Г	Freq	Ant Pol	Cer	Reading		Ant		MHz/	Δ	∽t	Span	1.4 GHz	Limit	
	(MH7)			/dBu\//m	N	CF(	1B)			$\frac{1}{m}$			(dBu)/m	Note
F	120/ 00	V	(	16 61	<i>I</i> )	201	56		<u>(ubp</u>	<u>17</u>			<u>(uBμ V/III)</u> 74 00	Peak
F	13495 00	v		30.48		42.8	30		73.	28			74.00	Peak
F	13495.00	V		1.78		42.8	30		44.	58			54.00	AVG
F	17065.00	V		24.33		47.0	68		72.	01			74.00	Peak
F	17065.00	V		1.29		47.0	68		48.	97			54.00	AVG
Remark:	The EU The res The res The tes For emi The ant Adjust ti Adjust ti If the pe 9kHz -3	T was placed olution band olution band olution band t shall be ma ssions meas ssions meas enna was fix he emission he emission eak scan valu 0MHz and 18	d on the to width setti width setti ade in the surement, and slight and slight je lower li 8500 MHz	pp of the turn ing on the test ing on the test operation mo the receiving same height tly rotate the tly height of t imit more that z to 26500MI	table in st receist receist receist ode. Tho antenrit with th turntabl he ante n 20dB Hz only	test site ver was ver was e turntat na was p le EUT to le to loca nna to lo , then the have the	e area. 9 KHz, 120 KH 1MHz, ble was laced 3 o find e ate the bcate the bcate the is signa e backg	Detector Iz, Detector rotated b meters ach susp position le positic al data do pround no	functio tor func function y 360 c far awa ected e with ma n with n es not sise, the	n peak ( tion pea n peak ( legrees y from th mission kimum r naximum show in test dat	9kHz~3 k (30 MH 1 GHz~ to deterr he turntal s of both eading. n reading graph e and gr	0MHz). Iz ~ 100 5GHz). nine the ble. horizor g. aph doo	00MHz). e position of the hig ntal and vertical pol es not show on the	hest radiation. arization. test report

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Radiated Emis	ssion Te	est 1000MHz –	6000MHz						
Date of test	:	20 January 2012	20 January 2012 Test Result						
<b>T</b> (			⊠ Passed						
l est requireme	ent :	FCC Part 15 Se	Ction 15.1	09			ed		
Test method	:	ANSI C63.4:200	3						
Operating mod	e :	PC	°C						
Antenna Polari	ty :	Vertical							
Remarks	:	Ref 80 dBµV/m	* Att 0 dB	* RBW 1 MHz * VBW 3 MHz * SWT 500 ms	Marker 1 [T3 ] 40.17 c 4.8250000 Marker 2 [T3 46.15 c 7.3740000 Marker 3 [T3 48.54 c 48.54 c 48.55 c 4	BuV/m 10 GHz BuV/m 10 GHz TDF 3DE			
Freq.	Ant.Pol.	Center 10.25 GHz	Ant./CF	GHZ/	Span 15 t.	.5 GHz			
(MHz)	H/V	(dBµV/m)	CF(dB)	(dBµ∖	//m)	(dBµV/m)	Note		
1204.00	V	16.61	29.56	46.1	7	74.00	Peak		
13495.00	V	30.48	42.80	73.2	28	74.00	Peak		
13495.00	V	1.78	42.80	44.5	58	54.00	AVG		
17065.00	V	24.33	47.68	72.0	)1	74.00	Peak		
17065.00	V	1.29	47.68	48.9	7	54.00	AVG		
Remark: The EU The res The res The res The tes For em The and Adjust t	IT was placed solution bandw solution bandw solution bandw st shall be mad issions measu tenna was fixe the emission a the emission a	on the top of the turntable in vidth setting on the test receividth setting on the test receiving anten the operation mode. Thurement, the receiving anten and slightly rotate the turntable and slightly height of the anter operation the operation the operation.	n test site area. iver was 9 KHz, iver was 120 KH iver was 11 MHz, I ive turntable was na was placed 3 ne EUT to find ei ile to locate the p anna to locate the p	Detector function lz, Detector function Detector function rotated by 360 de meters far away ach suspected en position with maxi e position with maxi	peak (9kHz~30 on peak (30 MH; peak (1 GHz~5 gerees to determ from the turntab nissions of both I mum reading. aximum reading.	0MHz). z ~1000MHz). GHz). ine the position of the highest le. horizontal and vertical polariza	radiation. ttion.		

9kHz -30MHz and 18500 MHz to 26500MHz only have the background noise, the test date and graph does not show on the test report

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## **Test Equipment List**

### **Radiated Emission Test**

Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
Antenna	Schwarbeck	VULB9160	9160-3232	Jun .04.2012
Antenna	Schwarbeck	VULB9160	9160-3233	Jun .04.2012
Amplifier	Agilent	8447D	2944A11203	Nov.26.2012
Amplifier	Agilent	8447D	2944A11204	Nov.26.2012
Spectrum Analyzer	Agilent	E4443A	MY48250370	Nov.26.2012
RF Pre-selector	Agilent	N9039A	MY46520201	Nov.26.2012
Test Cable	N/A	Cable_5m_8m_15m	N/A	Jan.28.2012
Test Cable	N/A	Cable_5m_11m_15m	N/A	Jan.28.2012
Spectrum Analyzer	Agilent	E4447A	MY48250208	Nov.26.2012
RF Pre-selector	Agilent	N9039A	MY46520214	Nov.26.2012
Multi-Device Controller	ETS-Lindgren	2090	N/A	N/A
Horn Antenna	EMCO	3115	9605-4803	May.26.2012
Amplifier	Agilent	8449B	3008A02584	Nov.26.2012
Spectrum Analyzer	Agilent	E4447A	MY48250208	Nov.26.2012
Test Cable	Huber+Suhner	SUCOFLEX_15m_4m	N/A	Apr.06.2012
Multi-Device Controller	ETS-Lindgren	2090	N/A	N/A
Temp. & Humid. Chamber	GIANT FORCE	ITH-225-20-S	IAB0309-001	Dec.06.2012
Broad-Band Horn Antenna	Schwarzbeck	BBHA 9170	9170319	Aug.16.2012

#### **Uncertainty:**

Contribution	Probability Distribution	Uncertainty (dB)
Total uncertainty at a minimum confidence level of 95%	Normal (k=2)	± 2.66 (correct to 1 decimal place)



#### 6.2 20dB Bandwidth measurement Test Result Date of test 20 January 2012 2 Passed $\square$ Not Passed : FCC Part 15 Section 15.249 Test requirement Test method ANSI C63.4:2003 ÷ Operating mode : On mode NIL Remarks : \*RBW 100 kHz \*VBW 100 kHz \*SWT 100 ms \*RBW 100 kHz \*VBW 100 kHz \*SWT 100 ms Ŕ Ż 80 0.++ 10 đ 80 1 RM MAXH N Walten. Walarymy Nort VILLAN CARAN Center 2.403 GH: enter 2.442 GHz MH 2 \*RBW 100 kHz Marker 1 [T1 \*VBW 100 kHz 79 \*SWT 100 ms 2.47999 X 90 Att 10 dI 1 RI 4Nu A A MAN Remark: Use the following spectrum analyzer settings: Span = approximately 2 to 3 times the 20 dB bandwidth, centered on a hopping channel RBW $\geq$ 1% of the 20 dB bandwidth VBW ≥ RBW Sweep = auto Detector function = peak Trace = max hold The EUT should be transmitting at its maximum data rate. Allow the trace to stabilize. Use the marker-to-peak function to set the marker to the peak of the emission. Use the marker-delta function to measure 20 dB down one side of the emission. Reset the marker delta function, and move the marker to the other side of the emission, until it is (as close as possible to) even with the reference marker level. The marker-delta reading at this point is the 20 dB bandwidth of the emission. If this value varies with different modes of operation (e.g., data rate, modulation format, etc.), repeat this test for each variation. The limit is specified in one of the subparagraphs of this Section. Report Number: 60/760.11.223.02 Page 44 of 61 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 Rev. no.: 2.0



Test Result

 $\square$ 

Passed

Not Passed

#### 6.3 Duty cycle measurement

- Date of test : 20 January 2012
- Test requirement : FCC Part 15 Section 15.231
- Test method : ANSI C63.4:2003

:

- Operating mode : On mode
- Remarks

Detector function = peak



EUT data packet 1 has the period of 0.28ms



**Test Result** Passed

Not Passed

 $\square$ 

#### Duty cycle measurement

Date of test	:	20 January 2012
--------------	---	-----------------

- Test requirement : FCC Part 15 Section 15.231
- Test method ANSI C63.4:2003 :
- Operating mode On mode 1

Remarks

: Detector function = peak



EUT data packet off has the period of 15.8ms

Therefore, the total signal "on" time of on successful period is = 250 ms(exceed 100 ms).

Average factor: 20 log 1/(0.28/100) = 51.05 dB Average = Peak – Average Factor

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Test Result

 $\square$ 

Passed

Not Passed

## Date of test : 20 January 2012

6.4 Bandedge measurement

- Test requirement : FCC Part 15 Section 15.249
- Test method : ANSI C63.4:2003
- Operating mode : On mode



Trace = max hold

Allow the trace to stabilize. Set the marker on the emission at the bandedge, or on the

highest modulation product outside of the band, if this level is greater than that at the

bandedge. Enable the marker-delta function, then use the marker-to-peak function to move the marker to the peak of the in-band emission. The marker-delta value now displayed must comply with the limit specified in this Section. Submit this plot. Now, using the same instrument settings, enable the hopping function of the EUT. Allow the trace to stabilize. Follow the same procedure listed above to determine if any spurious emissions caused by the hopping function also comply with the specified limit. Submit this plot.



## **Test Equipment List**

Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
Antenna	Schwarbeck	VULB9160	9160-3232	Jun .04.2012
Antenna	Schwarbeck	VULB9160	9160-3233	Jun .04.2012
Amplifier	Agilent	8447D	2944A11203	Nov.26.2012
Amplifier	Agilent	8447D	2944A11204	Nov.26.2012
Spectrum Analyzer	Agilent	E4443A	MY48250370	Nov.26.2012
RF Pre-selector	Agilent	N9039A	MY46520201	Nov.26.2012
Test Cable	N/A	Cable_5m_8m_15m	N/A	Jan.28.2012
Test Cable	N/A	Cable_5m_11m_15m	N/A	Jan.28.2012
Spectrum Analyzer	Agilent	E4447A	MY48250208	Nov.26.2012
RF Pre-selector	Agilent	N9039A	MY46520214	Nov.26.2012
Multi-Device Controller	ETS-Lindgren	2090	N/A	N/A
Horn Antenna	EMCO	3115	9605-4803	May.26.2012
Amplifier	Agilent	8449B	3008A02584	Nov.26.2012
Spectrum Analyzer	Agilent	E4447A	MY48250208	Nov.26.2012
Test Cable	Huber+Suhner	SUCOFLEX_15m_4m	N/A	Apr.06.2012
Multi-Device Controller	ETS-Lindgren	2090	N/A	N/A
Temp. & Humid. Chamber	GIANT FORCE	ITH-225-20-S	IAB0309-001	Dec.06.2012
Broad-Band Horn Antenna	Schwarzbeck	BBHA 9170	9170319	Aug.16.2012

#### **Uncertainty:**

Contribution	Probability Distribution	Uncertainty (dB)
Total uncertainty at a minimum confidence level of 95%	Normal (k=2)	± 2.66 (correct to 1 decimal place)



#### 6.5 Conducted peak output power test

Date of test : 20 January 2012

Operating mode	:	Transmitting mode
----------------	---	-------------------

Remarks : NIL

Test Result
🛛 Passed
Not Passed

Frequency(MHz)	Maximum peak output power at antenna terminal		
	(dBm)	(mW)	W
2403	-3.71	0.426	0.0004
2442	-3.77	0.419	0.0004
2480	-3.79	0.417	0.0004
Max. peak output power at antenna terminal		0.426	0.0004

Remark: Place the EUT on a bench and set it in transmitting mode.

Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to an Spectrum analyzer. Add a correction factor = Cable Loss + Attenuator=21dB to the display.

Set RBW=4MHz, VBW=8MHz, Span =20MHz, centre frequency = operating frequency, sweep time auto, peak detector. Record the peak level.

Repeat above procedures until low, middle, high frequencies were complete. This result for RF Exposure exemptions.

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## **Test Equipment List**

Kind of Equipment	Manufacturer	Type No	Serial No	Calibrated until
	Oshusehest			
Antenna	Schwarbeck	VULB9160	9160-3232	Jun .04.2012
Antenna	Schwarbeck	VULB9160	9160-3233	Jun .04.2012
Amplifier	Agilent	8447D	2944A11203	Nov.26.2012
Amplifier	Agilent	8447D	2944A11204	Nov.26.2012
Spectrum Analyzer	Agilent	E4443A	MY48250370	Nov.26.2012
RF Pre-selector	Agilent	N9039A	MY46520201	Nov.26.2012
Test Cable	N/A	Cable_5m_8m_15m	N/A	Jan.28.2012
Test Cable	N/A	Cable_5m_11m_15m	N/A	Jan.28.2012
Spectrum Analyzer	Agilent	E4447A	MY48250208	Nov.26.2012
RF Pre-selector	Agilent	N9039A	MY46520214	Nov.26.2012
Multi-Device Controller	ETS-Lindgren	2090	N/A	N/A
Horn Antenna	EMCO	3115	9605-4803	May.26.2012
Amplifier	Agilent	8449B	3008A02584	Nov.26.2012
Spectrum Analyzer	Agilent	E4447A	MY48250208	Nov.26.2012
Test Cable	Huber+Suhner	SUCOFLEX_15m_4m	N/A	Apr.06.2012
Multi-Device Controller	ETS-Lindgren	2090	N/A	N/A
Temp. & Humid. Chamber	GIANT FORCE	ITH-225-20-S	IAB0309-001	Dec.06.2012
Broad-Band Horn Antenna	Schwarzbeck	BBHA 9170	9170319	Aug.16.2012

#### **Uncertainty:**

Contribution	Probability Distribution	Uncertainty (dB)
Total uncertainty at a minimum confidence level of 95%	Normal (k=2)	± 2.66 (correct to 1 decimal place)



**Test Result** 

Passed

Not Passed

#### 6.6 Conducted Emission Test 150kHz – 30MHz

- Date of test : 20 January 2012
- Test requirement : FCC Part 15
- Test method : ANSI C63.4:2003
- Operating mode : Normal Link
- Tested on : AC Mains, Live

Remarks

: NIL  $B_{0,0}$   $B_{0,0}$   $B_{0,0}$   $B_{0,0}$  FCC Class B Conduction(QP) FCC Class B Conduction(AV) FCC Class B Cond

Frequency (MHz)	QP Reading (dBuV)	QP Limit	Margin
0.200	48.28	63.45	-15.17
0.270	37.06	61.25	-24.19
0.680	33.62	56.00	-22.38
1.290	33.86	56.00	-22.14
3.240	34.00	56.00	-22.00
5.480	32.93	60.00	-27.07

P.S.: If the QP Mode Measured value compliance with the QP Limits and lower than AVG Limits, the EUT shall be deemed to meet both QP & AVG Limits and then only QP Mode was measured IF bandwidth 9kHz, RBW, 9kHz, VBW, 9kHz

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Test Result ⊠ Passed

Not Passed

#### Conducted Emission Test 150kHz - 30MHz

Date of test	:	20 January 2012
--------------	---	-----------------

- Test requirement : FCC Part 15
- Test method : ANSI C63.4:2003
- Operating mode : Normal Link
- Tested on : AC Mains, Neutral

Remarks



Frequency (MHz)	QP Reading (dBuV)	QP Limit	Margin
0.200	43.37	63.45	-20.08
0.340	31.49	59.27	-27.78
0.470	34.22	56.45	-22.23
1.280	36.26	56.00	-19.74
1.830	32.30	56.00	-23.70
3.780	30.67	56.00	-25.33

P.S.: If the QP Mode Measured value compliance with the QP Limits and lower than AVG Limits, the EUT shall be deemed to meet both QP & AVG Limits and then only QP Mode was measured IF bandwidth 9kHz, RBW, 9kHz, VBW, 9kHz

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## **Test Equipment List**

## **Conducted Emission Test**

Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
LISN	EMCO	3816/2SH	00052766	May.26.2012
Transient Limiter	Agilent	11947A	3107A03668	May.26.2012
Test Cable	N/A	C-06_C03	N/A	Mar.31.2012
EMI TEST RECEIVER	R&S	ESCS30	8333641017	May.27.2012
50Ω Terminator	SHX	TF2-3G-A	08122902	May.26.2012
LISN	R&S	ENV216	100526	May.26.2012

## **Uncertainty:**

Contribution	Probability Distribution	Uncertainty (dB)
Total uncertainty at a minimum confidence level of 95%	Normal (k=2)	± 2.59 (correct to 1 decimal place)





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## 8 Appendix B

Radiated Emission Test Set Up



9kHz-30MHz



30MHz-1GHz

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## Appendix B

Radiated Emission Test Set Up



1GHz above



#### Appendix B

Conduct Emission Test Set Up



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# 9 Appendix C AC O 203WWJN000093 CID; 04GJOULE2 [] E 2 ( MADE IN CHINA Lillon Polymer 3.7V 5.0V 500mA N30045