



Hong Kong

FCC – Test report

Report Number : **60/760.9.168.01** Date of Issue: 03 December 2009

Model : **BKM1G-L**

Product Type : **Bike Speed Transmitter (with LED)**

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 including Appendices : **19**

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Hong Kong

1 Table of Contents

1	Table of Contents.....	2
2	Details about the Test Laboratory.....	3
3	Description of the Equipment Under Test.....	4
4	Summary of Test Standards/ Results.....	5
5	General Remarks.....	6
6	Emission Test Results.....	7
6.1	Radiated Emission Test.....	7
6.2	20dB Bandwidth measurement.....	12
6.3	Band edge measurement.....	13
7	Appendix A.....	15
	Photographs of EUT	
8	Appendix B.....	17
	Photographs of Test Set Up	
9	Appendix C.....	19
	Product Information	



Hong Kong

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

Company name: Emitel (Shenzhen) Limited
Building 2,
171 Meihua Road,
Futian District, 518049
Shenzhen, China
FCC Registered Test Site Number 746887



Hong Kong

3 Description of the Equipment Under Test

Description of the Equipment Under Test

Product:	Bike Speed Transmitter (with LED)
Model no.:	BKM1G-L
Serial number:	NIL
Options and accessories:	NIL
Rated Voltage:	3 V DC
Rated Current:	NIL
Rated Power:	NIL
Frequency:	NIL
Description of the EUT:	EUT size: 2 cm x 3 cm x 5 cm



Hong Kong

4 Summary of Test Standards and Results

Emission Tests						
Test Condition	Test Requirement	Test Method	Pages	Test Result		
				Pass	Fail	N/A
Radiated Emission (Fundamental & Spurious Emission)	FCC Part 15 Section 15.249 & 15.209	ANSI C63.4:2003	7-14	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Conducted Emission on AC 150kHz to 30MHz	FCC Part 15 Section 15.207	ANSI C63.4:2003	NIL	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>



Hong Kong

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: 24 July 2009
Testing Start Date: 25 July 2009
Testing End Date: 16 November 2009

- TÜV SÜD HONG KONG LTD. -

Reviewed by:

Edmond FUNG
EMC Test Engineer



Prepared by:

Cheng Kin Yeung
EMC Test Engineer



Hong Kong

6 Emission Test Results

6.1 Radiated Emission Test (Fundamental)

Date of test : 06 August 2009
Test requirement : FCC Part 15 Section 15.249
Test method : ANSI C63.4:2003
Operating mode : On mode
Antenna polarity : Horizontal (> Vertical)
Remarks : NIL

Test Result	
<input checked="" type="checkbox"/>	Passed
<input type="checkbox"/>	Not Passed

Field Strength of Fundamental Emissions in Peak Value

Frequency MHz	Test result dB μ V/m	Limit dB μ V/m	Margin dB
2457.00	74.7	114.0	-39.3

Field Strength of Fundamental Emissions in Average Value

Frequency MHz	Test result dB μ V/m	Limit dB μ V/m	Margin dB
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Peak Vaule less than Average limit

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



Hong Kong

Radiated Emission Test (Spurious Emission)

Date of test : 06 August 2009

Test requirement : FCC Part 15 Section 15.249

Test method : ANSI C63.4:2003

Operating mode : On mode

Antenna polarity : Horizontal (> Vertical)

Remarks : NIL

Test Result	
<input checked="" type="checkbox"/>	Passed
<input type="checkbox"/>	Not Passed

Field Strength of Emissions in Peak Value			
Frequency MHz	Test result dBµV/m	Limit dBµV/m	Margin dB
4914.00	35.4	74.0	-38.6
7371.00	52.3	74.0	-29.8
9828.00	<30	74.0	<-44
12285.00	<30	74.0	<-44
14742.00	<30	74.0	<-44
17199.00	<30	74.0	<-44
19656.00	<30	74.0	<-44
22113.00	<30	74.0	<-44
24570.00	<30	74.0	<-44

Field Strength of Emissions in Average Value			
Frequency MHz	Test result dBµV/m	Limit dBµV/m	Margin dB
Peak Vaule less than Average limit			

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



Hong Kong

Radiated Emission Test 9kHz - 30MHz

Date of test : 06 August 2009
Test requirement : FCC Part 15 Section 15.209
Test method : ANSI C63.4:2003
Operating mode : On mode
Antenna polarity : Side
Remarks : NIL

Test Result
<input checked="" type="checkbox"/> Passed
<input type="checkbox"/> Not Passed

Frequency MHz	QP Test result dB μ V/m	QP Limit dB μ V/m	Margin dB
No significant emissions above the equipment noise floor were detected			

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



Hong Kong

Radiated Emission Test 30MHz - 24570MHz

Date of test : 06 August 2009
Test requirement : FCC Part 15 Section 15.209
Test method : ANSI C63.4:2003
Operating mode : On mode
Antenna polarity : Horizontal
Remarks : NIL

Test Result
<input checked="" type="checkbox"/> Passed
<input type="checkbox"/> Not Passed

Frequency MHz	QP Test result dB μ V/m	QP Limit dB μ V/m	Margin dB
No significant emissions above the equipment noise floor were detected			

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



Hong Kong

Test Equipment List

EQP NO.	DESCRIPTION	MANUFACTURER	MODEL NO.	DUE CAL. DATE
04-02/11-08-001	Spectrum Analyzer	Advantest	U3772	16-04-2010
04-02/03-06-002	Test Receiver	Rohde & Schwarz	ESPI3	16-04-2010
04-02/24-06-001	Biconilog Antenna	EMCO	3142C	08-01-2010
04-02/24-07-001	Bouble-Ridged Waveguide Horn	ETS	3117	04-02-2010
01-02/24-01-008	Pyramid horn antenna	EMCO	3160-09	8 Dec 2010
60-7/62-95-015	Active Loop Antenna	Rohde & Schwarz	HFH2-Z2	01-07-2010

6.2 20dB Bandwidth measurement

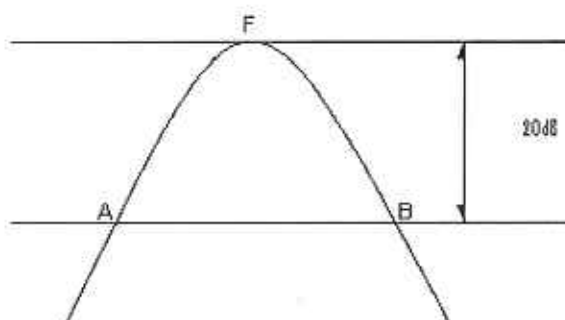
Date of test : 16 November 2009
 Test requirement : FCC Part 15 Section 15.249
 Test method : ANSI C63.4:2003
 Operating mode : On mode
 Remarks : NIL

Test Result	
<input checked="" type="checkbox"/>	Passed
<input type="checkbox"/>	Not Passed

Point A = 2455.575
 Point B = 2458.410
 Point F = 2457.000
 Δ of point A, B = 2.835MHz

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 \geq 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.



6.3 Bandedge measurement

Date of test : 16 November 2009
 Test requirement : FCC Part 15 Section 15.249
 Test method : ANSI C63.4:2003
 Operating mode : On mode
 Remarks : NIL

Test Result	
<input checked="" type="checkbox"/>	Passed
<input type="checkbox"/>	Not Passed

Frequency (MHz)	Test result (dB μ V/m)	limit (dB μ V/m)	Margin (dB)
2400.0	25.5	54	-28.5
2483.5	27.4	54	-26.6

Remark: Use the following spectrum analyzer settings:
 Span = wide enough to capture the peak level of the emission operating on the channel closest to the bandedge, as well as any modulation products which fall outside of the authorized band of operation
 RBW \geq 1% of the span
 VBW \geq RBW
 Sweep = auto
 Detector function = peak
 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.

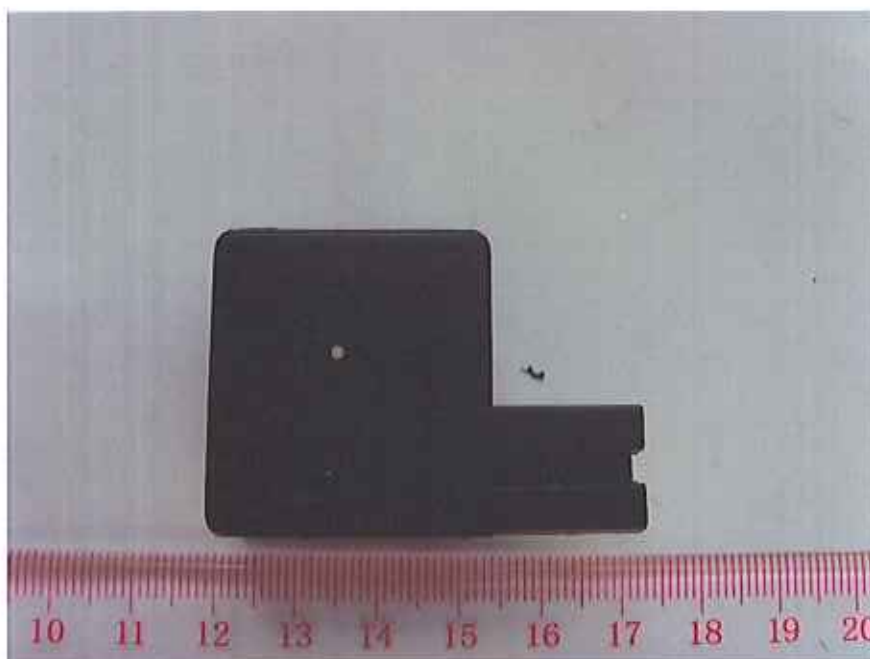


Hong Kong

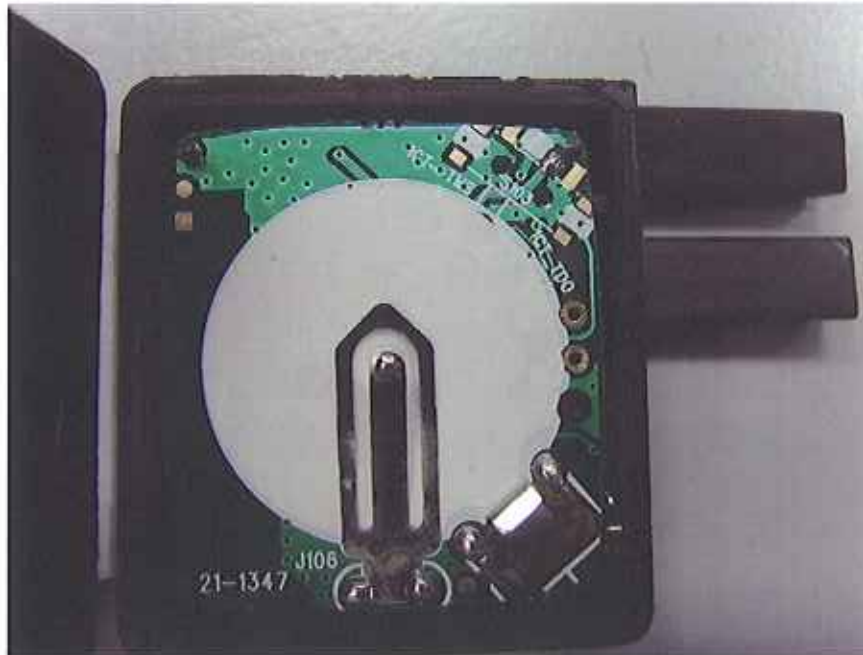
Test Equipment List

EQP NO.	DESCRIPTION	MANUFACTURER	MODEL NO.	DUE CAL. DATE
04-02/11-08-001	Spectrum Analyzer	Advantest	U3772	16-04-2010
04-02/03-06-002	Test Receiver	Rohde & Schwarz	ESPI3	16-04-2010
04-02/24-06-001	Biconilog Antenna	EMCO	3142C	08-01-2010
04-02/24-07-001	Bouble-Ridged Waveguide Horn	ETS	3117	04-02-2010

7 Appendix A

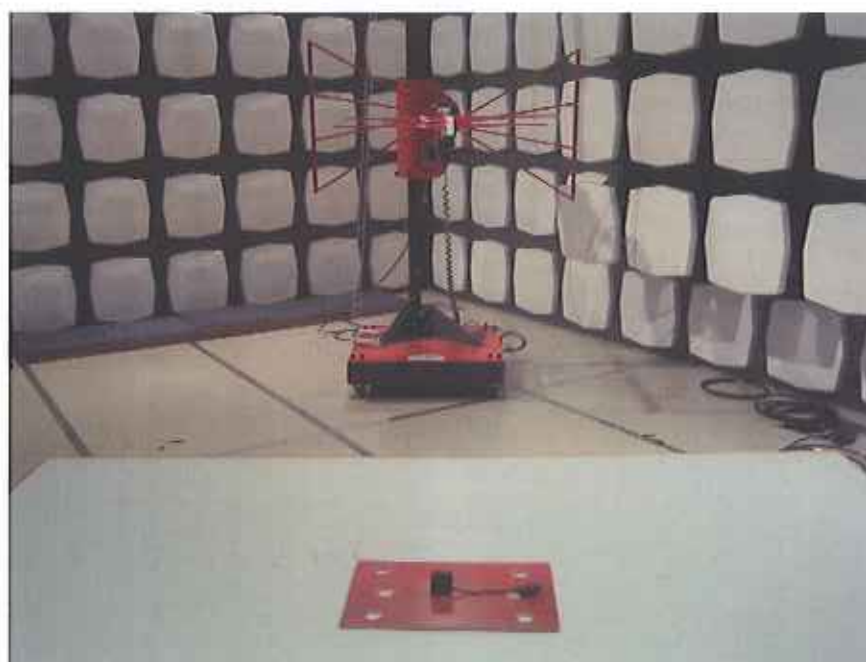


Appendix A



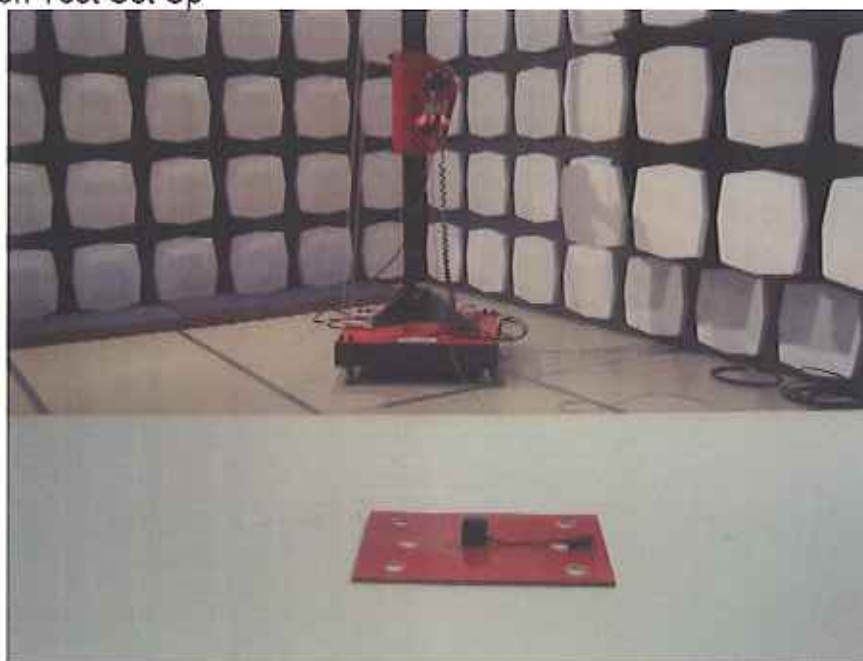
8 Appendix B

Radiated Emission Test Set Up



Appendix B

Radiated Emission Test Set Up



9 Appendix C

