

Prüfbericht - Nr.: 14012274 002		Seite 1 von 10	
<i>Test Report No.</i>		<i>Page 1 of 10</i>	
Auftraggeber: <i>Client:</i>	Schneider Electric India Private Limited Global Technology Centre #88(P),ii Floor, "Sahasra Shree" EPIP Indl. Area Whitefield Road, -Bangalore-560066 India		
Gegenstand der Prüfung: <i>Test item</i>	Wireless Temperature Maintenance Service - Transmitter		
Bezeichnung: <i>Identification</i>	WTMS0105	Serien-Nr.: <i>Serial No.</i>	Engineering sample
Wareneingangs-Nr.: <i>Receipt No.</i>	060303002-060303011	Eingangsdatum: <i>Date of receipt</i>	03.03.2006
Prüfort: <i>Testing location:</i>	TÜV Rheinland Hong Kong Ltd. Unit 8, 25 th Floor, Skyline Tower, 39 Wang Kwong Road, Kowloon Bay Kowloon, Hong Kong Hong Kong Productivity Council HKPC Building, 78 Tat Chee Avenue, Kowloon, Hong Kong		
Prüfgrundlage: <i>Test specification</i>	FCC Part 15, Subpart C		
Prüfergebnis: <i>Test Result:</i>	Der vorstehend beschriebene Prüfgegenstand wurde geprüft und entspricht oben genannter Prüfgrundlage. <i>The a. m. test item passed the test specification.</i>		
Prüflaboratorium: <i>Testing Laboratory:</i>	TÜV Rheinland Hong Kong Ltd. Unit 8, 25 th Floor, Skyline Tower, 39 Wang Kwong Road, Kowloon Bay, Kowloon, Hong Kong.		
geprüft / tested by:		kontrolliert / checked by:	
16.08.2006	Derek Leung Project Manager	16.08.2006	Thomas Berns Manager
Datum <i>Date</i>	Name <i>Name</i>	Unterschrift <i>Signature</i>	Datum <i>Date</i>
Sonstiges: <i>Other Aspects</i>		FCC ID: UBGGTCl0106S	
Abkürzungen:	OK, Pass, P = entspricht Prüfgrundlage Fail, F = entspricht nicht Prüfgrundlage N/A = nicht anwendbar N/T = nicht getestet	Abbreviations:	OK, Pass, P = passed Fail, F = failed N/A = not applicable N/T = not tested
Dieser Prüfbericht bezieht sich nur auf das o.g. Prüfmuster und darf ohne Genehmigung der Prüfstelle nicht auszugsweise vervielfältigt werden. Dieser Bericht berechtigt nicht zur Verwendung eines Prüfzeichens. This test report relates to the above mentioned test sample. Without permission of the test center this test report is not permitted to be duplicate in extracts. This test report does not entitle to carry any safety mark on this or similar products.			

Test Summary

Radiated Emission of Carrier Frequency

Result: Pass

Spurious Radiated Emissions

Result: Pass

Bandwidth Measurement

Result: Pass

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Appendix 1: Test Setup

Appendix 2: EUT External Photo

Appendix 3: EUT Internal Photo

Appendix 4: FCCID Label and Label Location

Appendix 5: Block Diagram and Operating Description

Appendix 6: Specifications of EUT and Antenna

Appendix 7: User manual

Appendix 8: Schematic Diagrams and Bill of Material

List of Test and Measurement Instruments

Kind of Equipment	Manufacturer	Type	S/N
Test Receiver	Rohde & Schwarz	ESVS30	842807/009
Biconical Antenna	Rohde & Schwarz	HK116	841489/015
Log Periodic Antenna	Rohde & Schwarz	HL223	841516/017
Double Ridge Horn Antenna	EMCO	3115	9002-3347
Active Loop Antenna	EMCO	6502	9107-2651
Spectrum Analyzer	Rohde & Schwarz	FSP30	1093.4495K30

General Product Information

Product Function and Intended Use

The EUT is the transmitter of the Wireless Temperature Maintenance Service (WTMS) system. WTMS includes a number of degreeSense Sensors (Transmitter), a Receiver Module and Application software running in a PC connected to the Receiver. Application software receives the data transferred to the PC through Ethernet port by the WTMS Receiver Module, analyses and records the data in MS Access Database that can be viewed by the Graphical User Interface (GUI) of the WTMS Application Software.

The EUT selects a random transmission interval which varies from 1 to 2 minutes and the transmission duration is 20ms.

Ratings and System Details

Transmitter

FCCID	:	UBGGTCI0106S
Nominal Frequency	:	909.96MHz
Number of channel	:	1
Transmit modulation	:	FSK
Type of antenna	:	Integral antenna
Power supply	:	Battery operated 3.6 Volt (Lithium battery cell –2/3AA size)
Port	:	(i) Ethernet (ii) RS485 female 9-pin port (iii) DC power input port (iv) Antenna port

Independent Operation Modes

The basic operation mode :

- transmits data signal to the associated receiver.

For further information refer to User Manual

Submitted Documents

- Block diagram
- User manual
- Parts list
- Schematic circuit diagram

Test Set-up and Operation Mode

Principle of Configuration Selection

Emission: The test was performed under normal operating mode to obtain the maximum emission.

Test Operation and Test Software

Test operation should refer to test methodology.

- There was no special software to exercise the device.

Special Accessories and Auxiliary Equipment

The product has been tested together with the following additional accessories:

- none

Countermeasures to achieve EMC Compliance

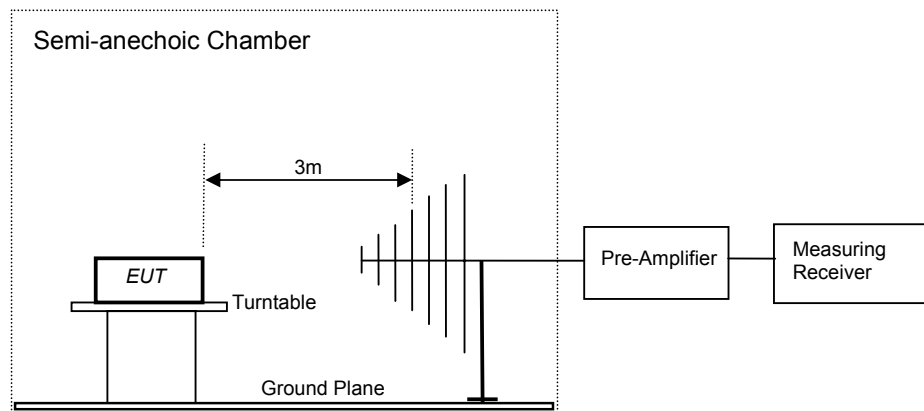
- none

Test Methodology

Radiated Emission

The radiated emission measurements were performed according to the procedures in ANSI C63.4-2003. The equipment under test (EUT) was placed at the middle of the 80 cm height turntable, and the turntable is 3 meters far from the measuring antenna. The EUT was tested in three orthogonal planes and the turntable was rotated 360° for obtaining the maximum emission. The antenna height scanned between 1m and 4m, and the antenna rotated to repeat the measurements for both the horizontal and vertical antenna polarizations. Repeat the measurement steps until the maximum emissions were obtained.

Test Setup:



Test Results

Radiated Emission of Carrier Frequency

Section 15.249

RESULT:
Pass

Test Specification : FCC Part 15 Section 15.249
 Test Method : ANSI C63.4-2003
 Measurement Location : Semi Anechoic Chamber
 Measurement Bandwidth : 100kHz
 Detector : Peak
 Supply Voltage : Battery operated
 Fundamental Frequency : 909.936MHz
 Measuring Distance : 3m

Fundamental Signal (MHz)	Antenna Polarization	Limit (dB μ V/m)	Field Strength (dB μ V/m)	Margin (dB)
909.936	Horizontal	93.98	87.2	-6.78
909.936	Vertical	93.98	80.4	-13.58

Limit for Radiated Emission under Section 15.249:

Frequency (MHz)	Field strength of Fundamental (mV/m) at 3m	Field strength of Harmonics (dB μ V/m) at 3m
902-928	50	93.98

Remark:

Peak detection was used instead of QP detection for the measurements. Peak values should be higher or equal to QP values.

Spurious Radiated Emissions**Section 15.249****RESULT:****Pass**

Test Specification : FCC Part 15 Section 15.249
 Test Method : ANSI C63.4-2003
 Measurement Location : Semi Anechoic Chamber
 Detector Function : Peak
 Supply Voltage : Battery operated
 Measuring Frequency Range : 3MHz – 10GHz (Internal Lowest oscillator frequency of EUT: 4MHz)
 Measuring Distance : 3m
 Limit: For frequency above 1000MHz, the field strength are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20dB under any condition of modulation.

Fundamenta l Carrier Signal (MHz)	Spurious Emission (MHz)	Antenna Polarization	Field Strength (dBμV/m)	Limit (dBμV/m)	Margin (dB)
909.936	1819.74	Vertical	44.3	54	-9.7
	2730.06	Vertical	45.4	54	-8.7
	3639.46	Vertical	51.1	54	-2.9
	4549.44	Vertical	38.6	54	-15.4
	1819.72	Horizontal	47.5	54	-6.5
	2729.60	Horizontal	52.9	54	-1.1
	3640.08	Horizontal	45.7	54	-8.3
	4550.18	Horizontal	37.4	54	-16.6

All other emissions, except for harmonics, were found at least 50dB below the level of the fundamental signal.

Limit for Radiated Emission under Section 15.249:

Fundamental Frequency (MHz)	Field strength of Harmonics at 3m (μV/m)	Field strength of Harmonics at 3m (dBμV/m)
902-928	500	54

Remark:

Peak detection was used instead of average detection for the measurements. Peak detection values should be higher or equal to average values.