

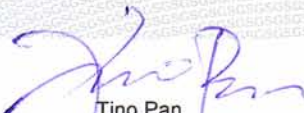


VERIFICATION OF EMC COMPLIANCE

No.: SHEMO080900221TX01C
Applicant: Group Sunnyspain Energy S.L
C/L' horta 6-46940 Manises(Valencia) Espana
Manufacturer: Group Sunnyspain Energy S.L
C/L' horta 6-46940 Manises(Valencia) Espana
Product Description: Wind Energy Converter
Model No: SEG-1250(E6)
Technical Data: Not supplied by client
Sufficient samples of the product have been tested and found to be in conformity with
Test Standard: EN55011:2007/A2:2007
EN 61000-4-2: 1995+A1:1998+A2:2001
EN 61000-4-4: 2004
EN 61000-4-3: 2006
EN 61000-4-6: 2007
as shown in the
Test Report Number(s): SHEMO080900221TX01

This verification of EMC Compliance has been granted to the applicant based on the results of the tests, performed by laboratory of SGS-CSTC Standards Technical Services Co., Ltd. on the sample of the above-mentioned product in accordance with the provisions of the relevant specific standards and Directive 2004/108/EC. The affixing of the CE marking presumes in addition that the conditions in annexes III and V of the Directive are fulfilled.




Tino Pan
E&E Section Manager
SGS-CSTC

October 14, 2008

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Member of SGS Group (Société Générale de Surveillance)

Note :You may contact us to validate this document by email address: ee.shanghai@sgs.com

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SGSPAPER
07869096



EMC TEST REPORT

Application No.: SHEMO080900221TX01

Applicant: Group Sunnyspain Eergy S.L

Equipment Under Test (EUT):

NOTE: The following sample(s) submitted was/were identified on behalf of the client as

EUT Name: Wind Energy Convertor

Model No.: SEG-1250(E6)

Serial No.: Not supplied by client

Standards:
EN 55011:2007/A2:2007
EN 61000-4-2:1995+A1:1998+A2:2001
EN 61000-4-3:2006
EN 61000-4-4:2004
EN 61000-4-6:2007

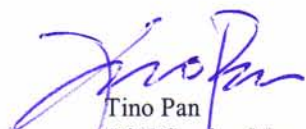
Date of Receipt: September 3, 2008

Date of Test: October 11, 2008

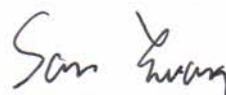
Date of Issue: October 14, 2008

Test Result :	PASS
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The CE mark as shown below can be used, under the responsibility of the manufacturer, after completion of an EC Declaration of Conformity and compliance with all relevant EC Directives.


Tino Pan
E&E Section Manager
SGS-CSTC Co., Ltd.




San Yuan
E&E Project Engineer
SGS-CSTC Co., Ltd.

This report refers to the General Conditions for Inspection and Testing Services, printed overleaf.

This report details the results of the testing carried out on one sample. The results contained in this test report do not relate to other samples of the same product and does not permit the use of the SGS PRODUCT CERTIFICATION MARK. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report.

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The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government.

All test results in this report can be traceable to National or International Standards.

Member of the SGS Group (Société Générale de Surveillance)

2 Test Summary

Test	Test Requirement	Test Method	Class / Severity	Result
Conducted Emission (150K to 30MHz)	EN 55011: 2007/A2:2007	EN 55011: 2007/A2:2007	Class A/Group1	N/A
Radiated Emission (30MHz to 1000MHz)	EN 55011: 2007/A2:2007	EN 55011: 2007/A2:2007	Class A/Group1	PASS
ESD	EN 61000-4-2 :1995 +A1:1998+A2:2001	EN 61000-4-2 :1995 +A1:1998+A2:2001	Contact ±4 kV Air ±8 kV	PASS
Radiated Immunity, 80MHz to 1 GHz	EN 61000-4-3: 2006	EN 61000-4-3: 2006	10V/m 80%, 1kHz, AM	PASS
Electrical Fast Transients (EFT)	EN 61000-4-4 :2004	EN 61000-4-4 :2004	AC ± 1.0kV	N/A
Injected Currents, 150kHz to 80MHz	EN 61000-4-6: 2007	EN 61000-4-6: 2007	10Vrms (emf), 80%, 1kHz Amp. Mod.	N/A

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4 General Information

4.1 Client Information

Applicant: Group Sunnyspain Eergy S.L
Address of Applicant: C/L' horta 6-46940 Manises (Valencia) Espana

4.2 General Description of E.U.T.

EUT Name: Wind Energy Convertor
Model No.: SEG-1250(E6)
Brand Name: Not supplied by client
Serial No.: Not supplied by client

4.3 Description of Support Units

Name / Function	Model No.	Remark
N/A	N/A	N/A

4.4 Standards Applicable for Testing

The customer requested EMC tests for Wind Energy Convertor
The standards used were EN 55011: 2007/A2:2007
EN 61000-4-2 :1995 +A1:1998+A2:2001
EN 61000-4-3 :2006
EN 61000-4-4 :2004
EN 61000-4-6 :2007

Table 1 : Emission Tests

Standard	Status
EN 55011: 2007/A2:2007 Conducted Emissions	×
EN 55011: 2007/A2:2007 Radiated Emission	√

× Indicates that the test is not applicable
√ Indicates that the test is applicable

Table 2: Immunity Tests

Standard		Status
EN 61000-4-2 :1995 +A1:1998+A2:2001	Electrostatic discharge immunity test	√
EN 61000-4-3: 2006	Radiated, radio-frequency electromagnetic field electromagnetic field immunity test	√
EN 61000-4-4 :2004	Electrical fast transients/burst immunity test	×
EN 61000-4-6 :2007	Immunity to conducted disturbances, induced by radio frequency fields	×

× Indicates that the test is not applicable

√ Indicates that the test is applicable

Note The EUT does not contain any component which is susceptible from the magnetic field.

4.5 Deviation from Standards

None.

4.6 Abnormalities from Standard Conditions

None.

4.7 Monitoring of EUT for All Immunity Test

Visual:

4.8 Test Location

The tests were on site tests.

5 Equipments Used during Test

Radiated Emission Test

Item	Test Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Cal.Due date
1	ANTENNA	SCHWARZBEK	VUBA9117	9117-150	2008.02.16	2009.02.15
2	EMI TEST RECEIVER	R&S	ESCS 30	100086	2008.06.29	2009.06.28

Electrostatic Discharge Test

Item	Test Equipment	Manufacturer	Model No.	Series No.	Cal. Date	Cal. Due date
1	Electrostatic Discharge Simulator	KIKUSUI	KES4021	LL004261	2008-06-20	2009-06-19

6 Emission Test Results

6.1 Radiated Emissions

Test Requirement:	EN 55011: 2007/A2:2007
Test Method:	EN 55011: 2007/A2:2007
Test Date:	October 11, 2008
Frequency Range:	30 to 1000MHz
Measurement Distance:	3m
Measurement Height:	1.5m
Class:	Class A/Group1
Detector:	Peak for pre-scan (120kHz resolution bandwidth for frequency range 30-1000MHz) Quasi-Peak if maximised peak within 10dB of limit

6.1.1 E.U.T. Operation

Operating Environment:

EUT Operation: Firstly, we set the EUT power off and took a background test. According to background test, we marked the point which were over the limit. Then the EUT set to achieve maximum emission and we took the formal test.

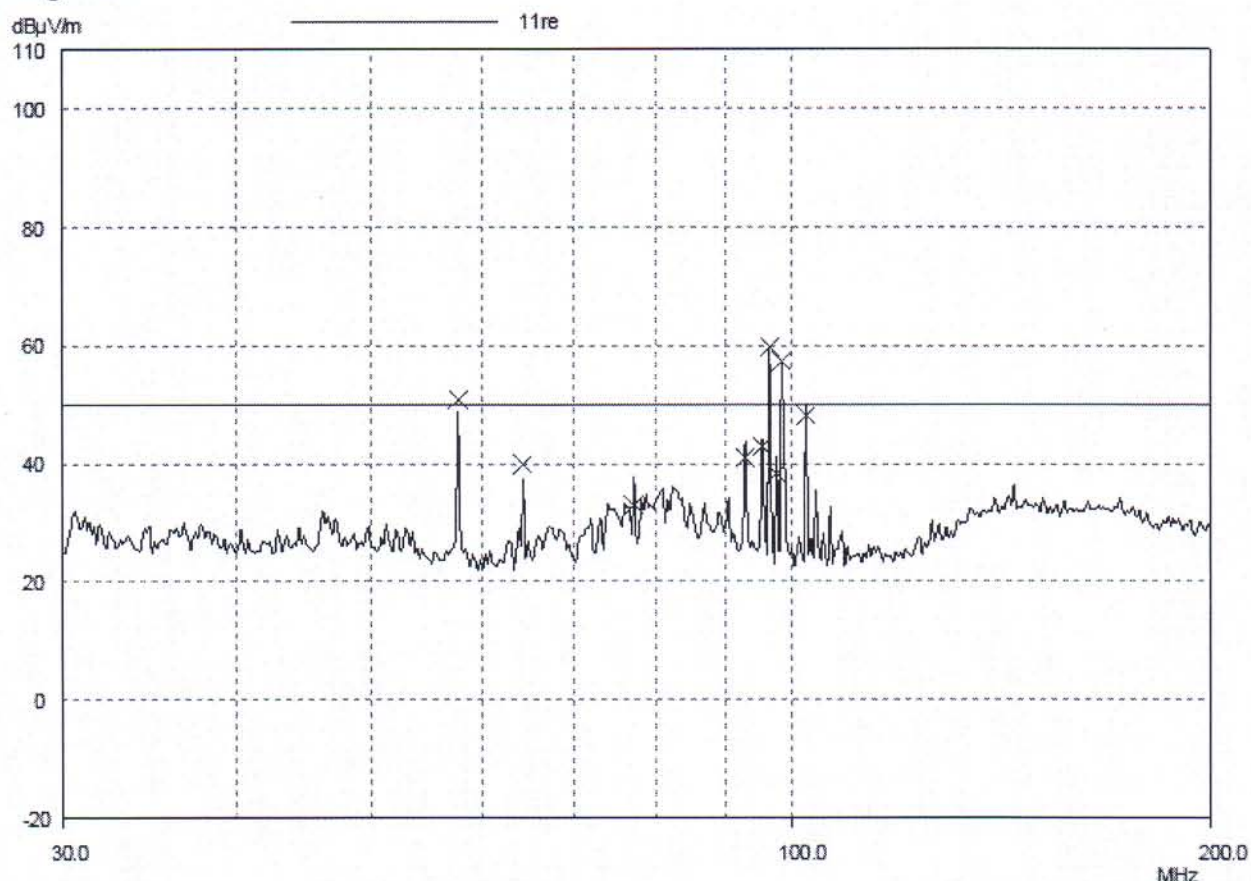
6.1.2 Measurement Data

An initial pre-scan was performed in peak detection mode. Quasi-Peak was performed at the frequencies with maximized peak emission were detected.

Horizontal

Low frequency (30M~200M)

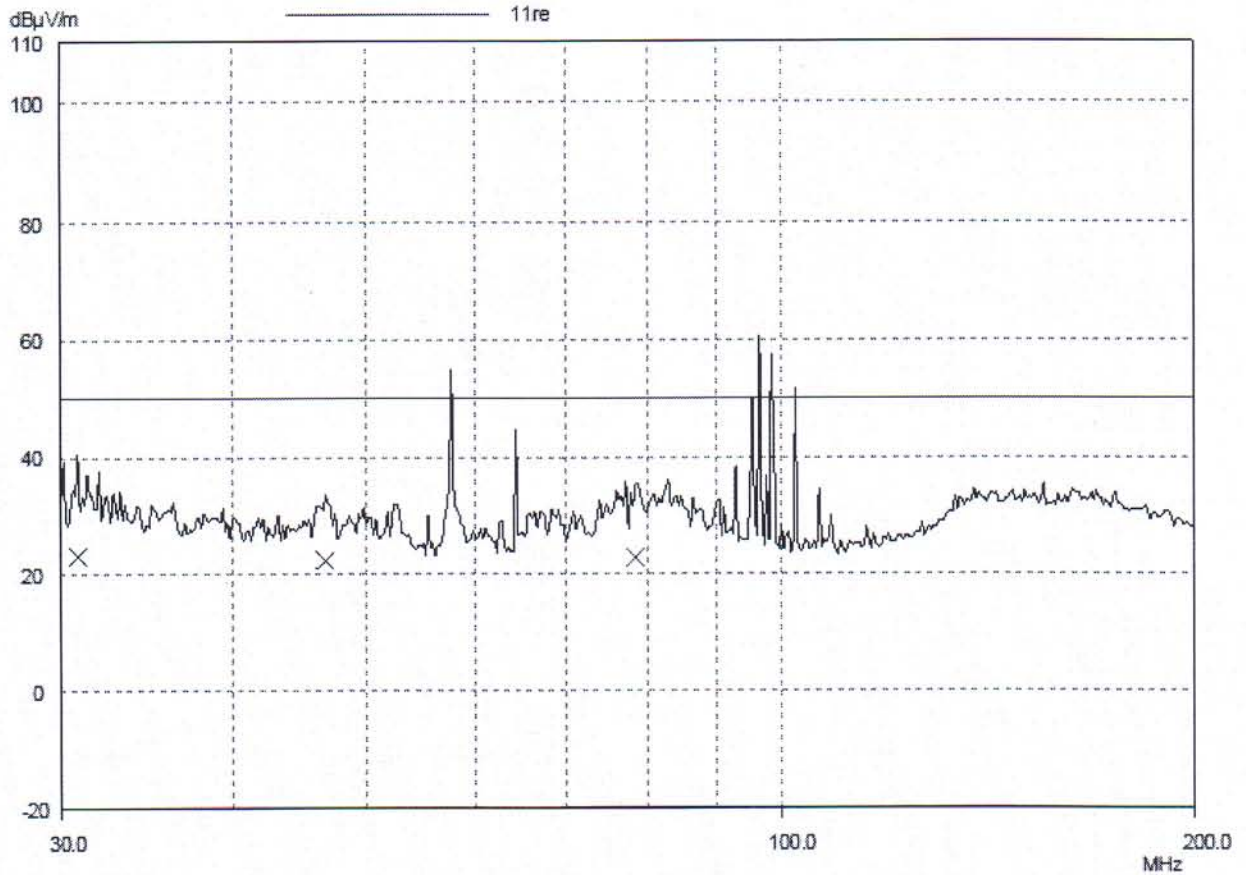
Background



Marked frequency points:

Frequency MHz	QP Level dBμV/m	QP Limit dBμV/m	QP Delta dB
57.73646	50.96*	50.00	-0.96
64.30731	39.93	50.00	10.07
77.27004	32.89	50.00	17.11
92.84573	40.94	50.00	9.06
95.47682	42.89	50.00	7.11
96.62713	59.83*	50.00	-9.83
97.7913	38.30	50.00	11.70
98.5752	57.43*	50.00	-7.43
102.58994	48.21	50.00	1.79

EUT on



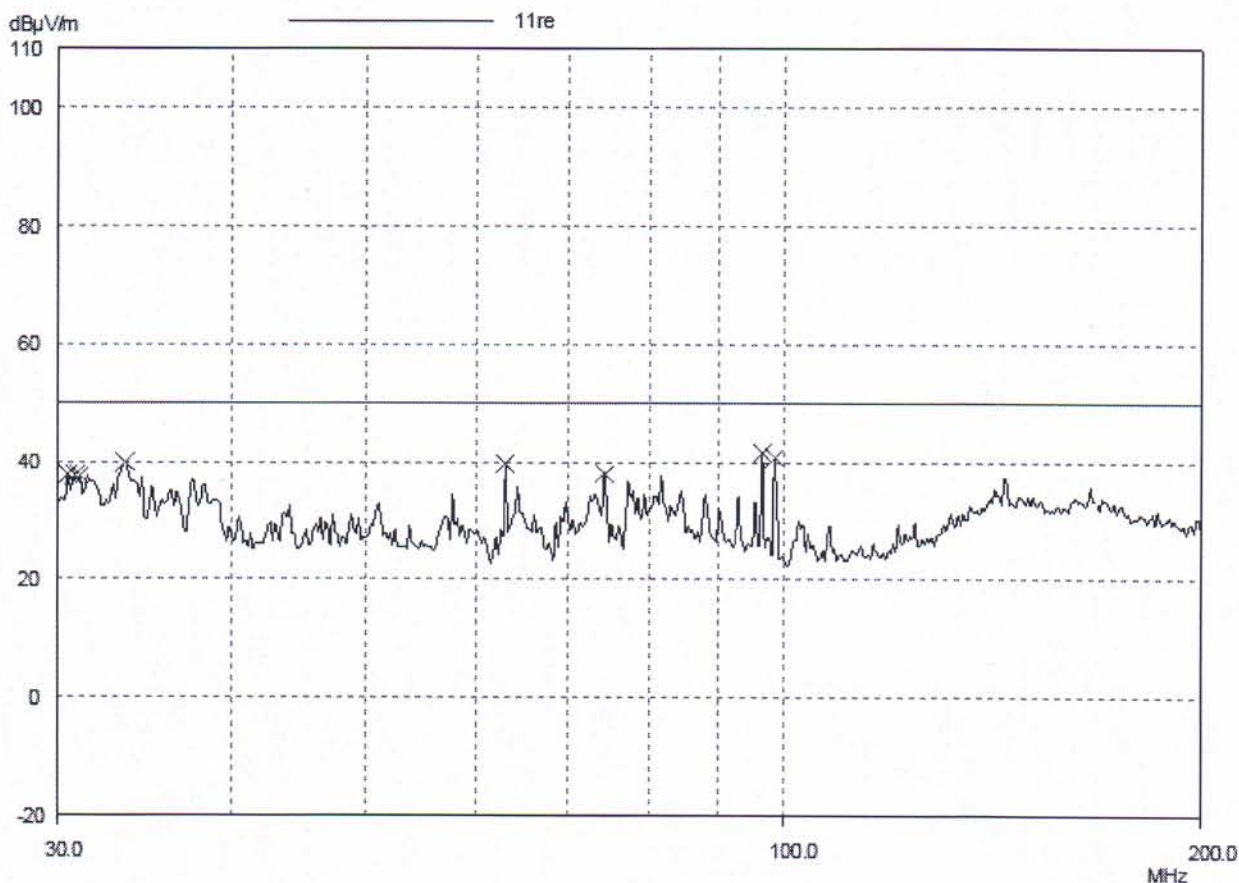
Final Measurement Results:

Frequency MHz	QP Level dBμV/m	QP Limit dBμV/m	QP Delta dB
30.85014	23.17	50.00	26.83
46.72651	22.49	50.00	27.51
78.5138	22.95	50.00	27.05

Vertical

Low frequency (30M~200M)

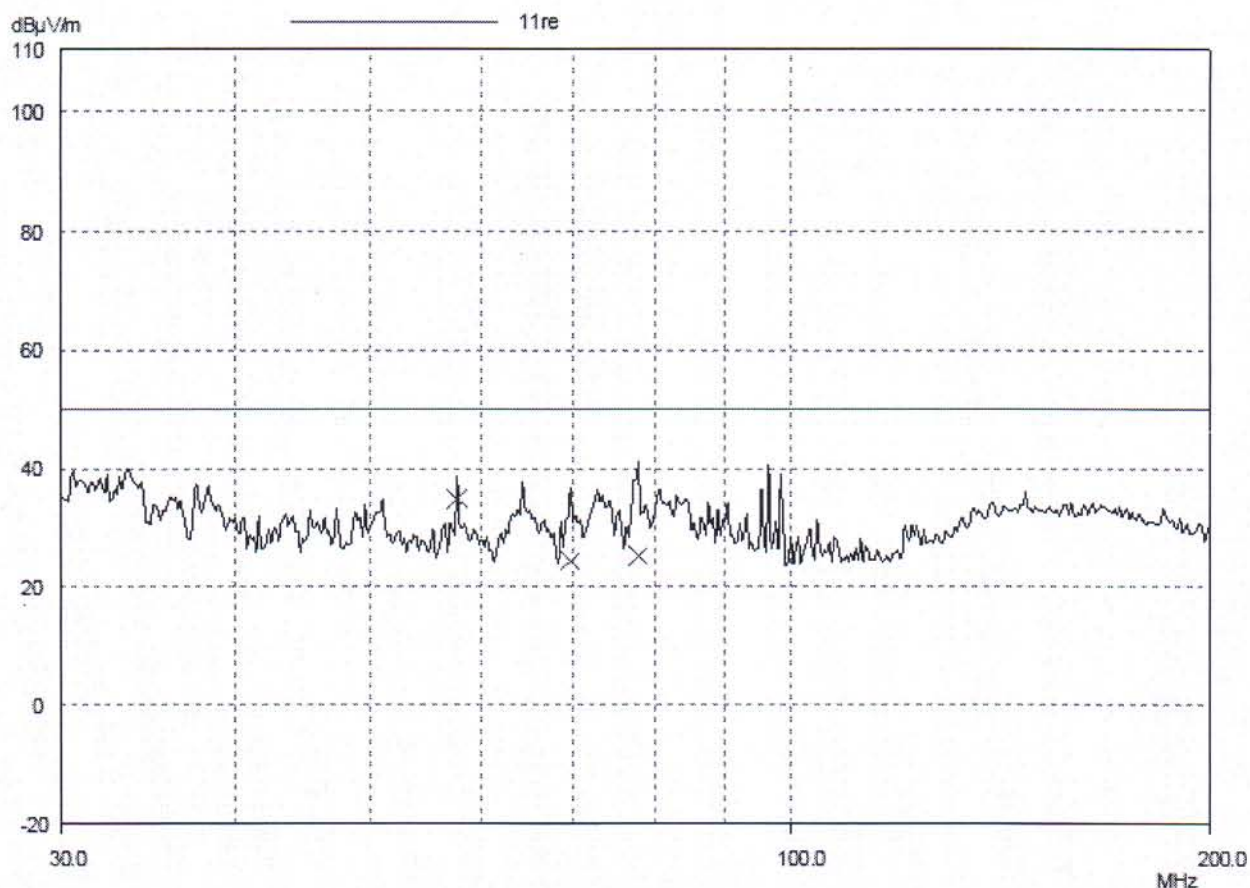
Background



Marked frequency points:

Frequency MHz	PK Level dBμV/m	PK Limit dBμV/m	PK Delta dB
30.48288	37.87	50.00	12.13
30.85014	37.76	50.00	12.24
31.09744	37.74	50.00	12.26
33.54789	39.95	50.00	10.05
63.03646	39.73	50.00	10.27
74.24617	38.05	50.00	11.95
96.62713	41.64	50.00	8.36
98.5752	40.78	50.00	9.22

EUT on



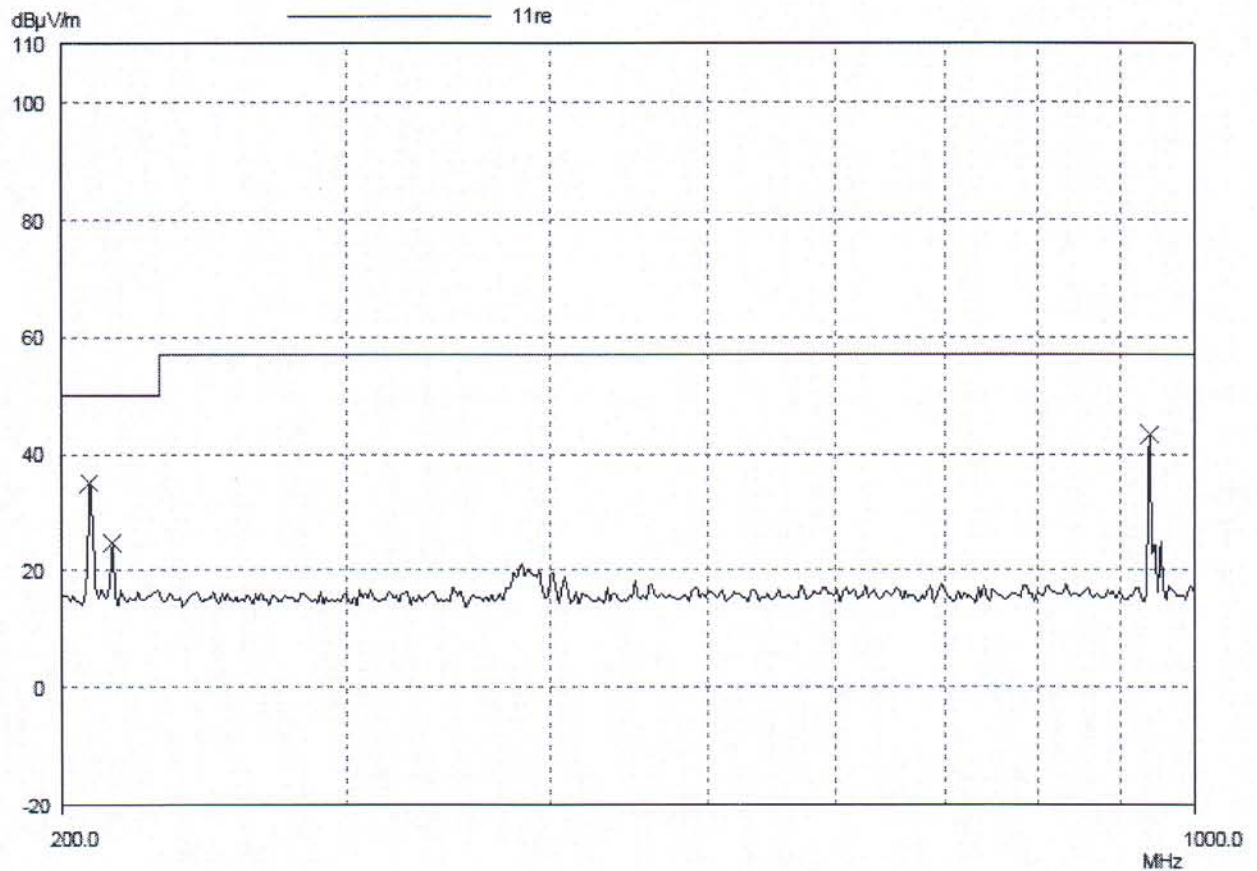
Final Measurement Results:

Frequency MHz	QP Level dBμV/m	QP Limit dBμV/m	QP Delta dB
57.73646	34.86	50.00	15.14
69.65217	24.37	50.00	25.63
77.88944	25.25	50.00	24.75

Horizontal

High frequency (200M~1G)

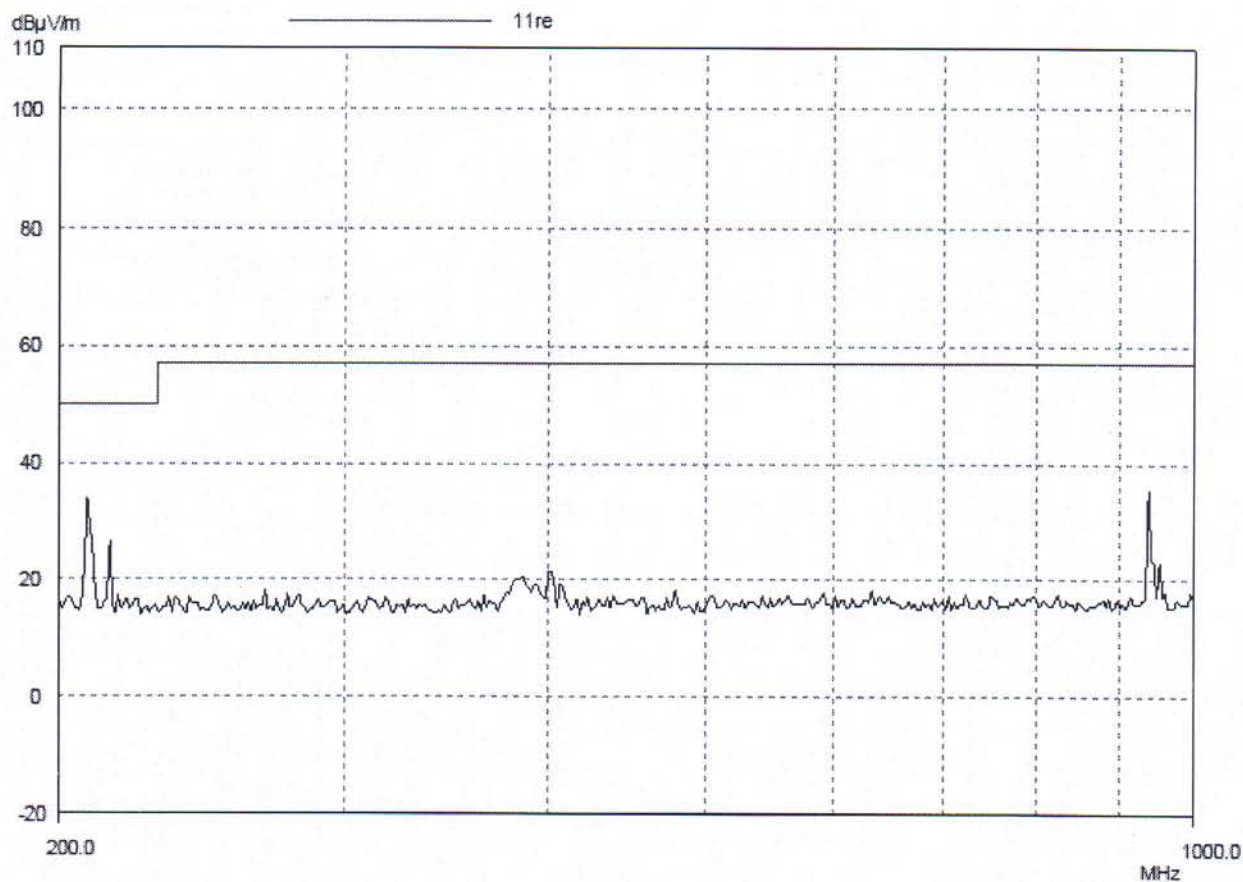
Background



Marked frequency points:

Frequency MHz	PK Level dBμV/m	PK Limit dBμV/m	PK Delta dB
208.14554	35.06	50.00	14.94
214.9002	24.78	50.00	25.22
937.51203	43.44	57.00	13.56

EUT on



Final Measurement Results:

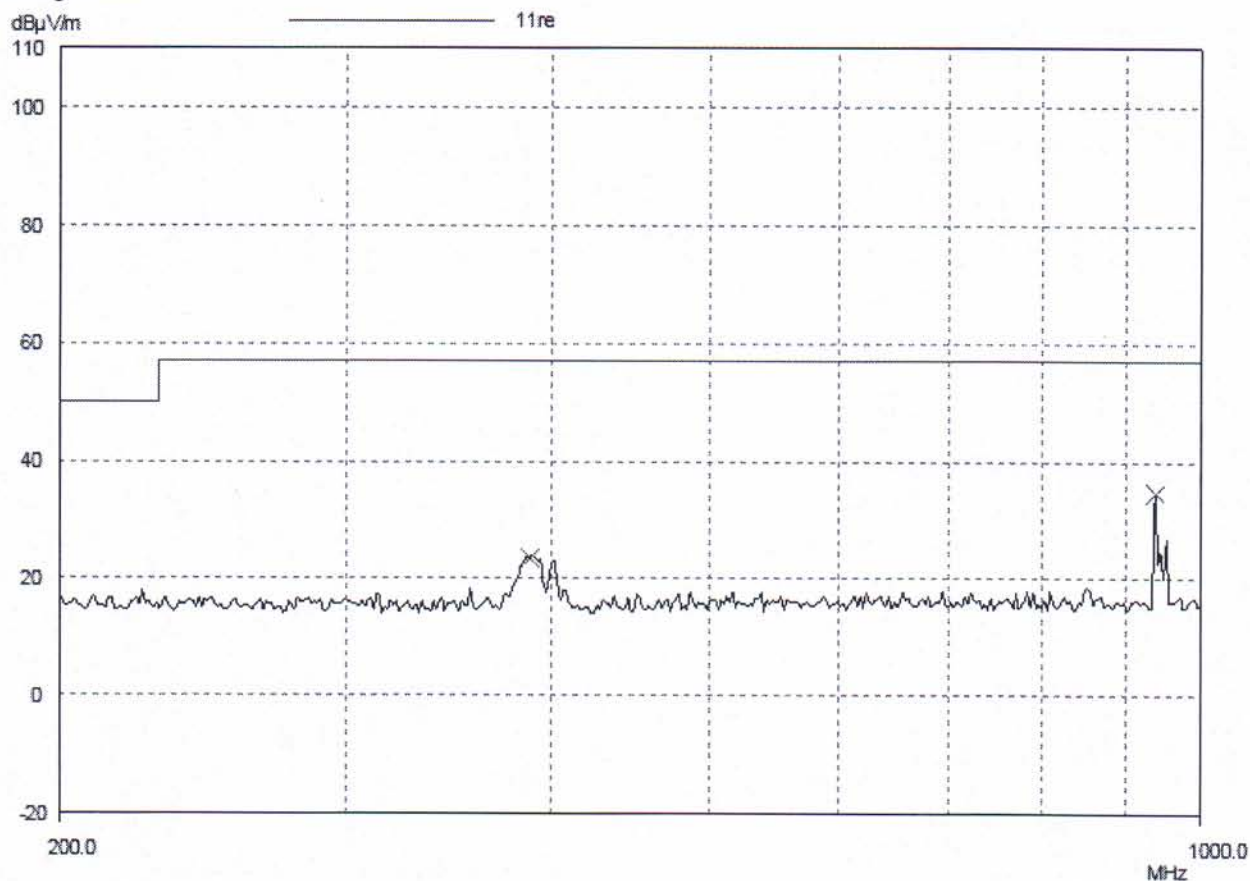
Frequency (MHz)	Receiver QP Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)
200.00	*	50.00	*
300.00	*	57.00	*
400.00	*	57.00	*
600.00	*	57.00	*
1000.00	*	57.00	*

“*” means the emission level is 6dB lower than the relevant limit.

Vertical

High frequency (200M~1G)

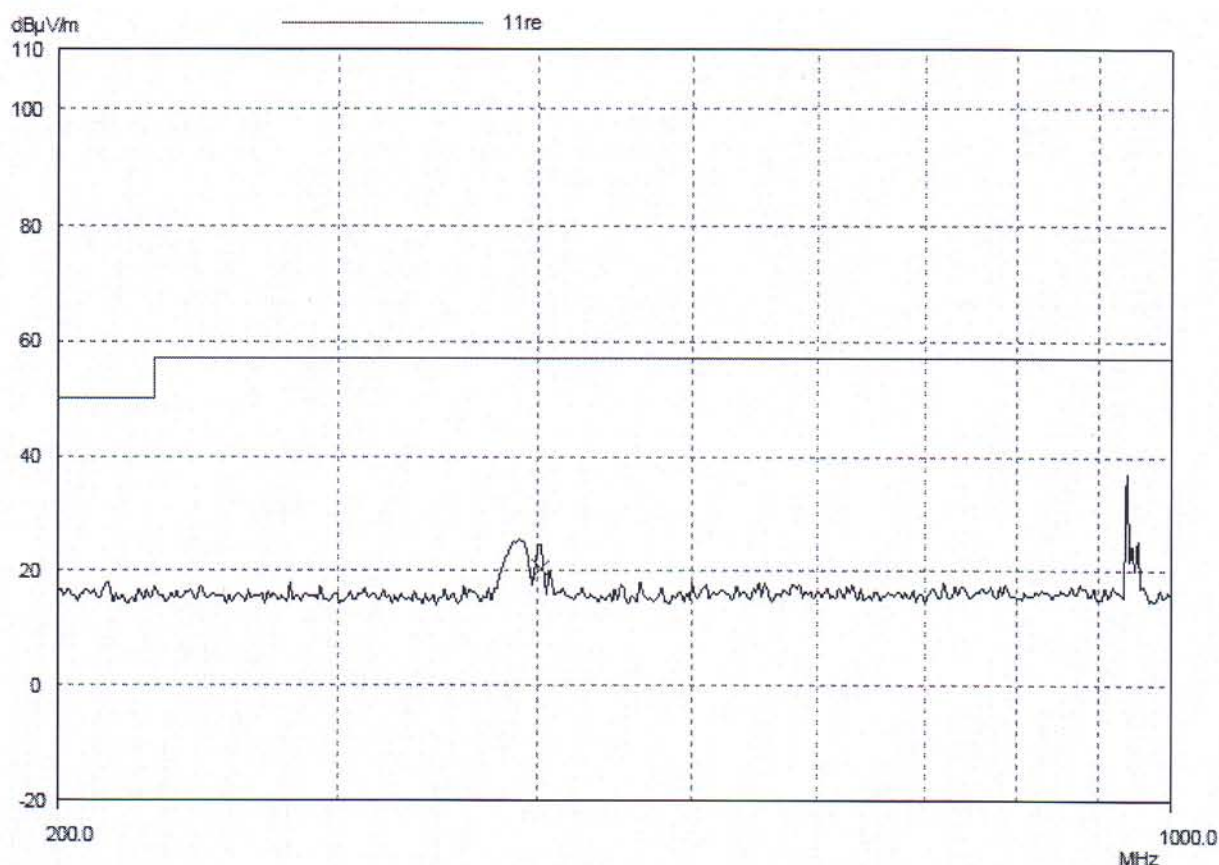
Background



Marked frequency points:

Frequency MHz	PK Level dBμV/m	PK Limit dBμV/m	PK Delta dB
387.99517	23.50	57.00	33.50
937.51203	34.84	57.00	22.16

EUT ON



Final Measurement Results:

Frequency MHz	QP Level dBμV/m	QP Limit dBμV/m	QP Delta dB
402.18858	20.50	57.00	36.50

7 Immunity Test Results

7.1 Performance Criteria Description in Clause 4 of EN 61000-6-2:2005

- Criterion A: The apparatus shall continue to operate as intended during and after the test. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer, when the apparatus is used as intended. The performance level may be replaced by a permissible loss of performance. If the minimum performance level or the permissible performance loss is not specified by the manufacturer, either of these may be derived from the product description and documentation, and from what the user may reasonably expect from the apparatus if used as intended.
- Criterion B: The apparatus shall continue to operate as intended after the test. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer, when the apparatus is used as intended. The performance level may be replaced by a permissible loss of performance. During the test, degradation of performance is however allowed. No change of actual operating state or stored data is allowed. If the minimum performance level or the permissible performance loss is not specified by the manufacturer, either of these may be derived from the product description and documentation, and from what the user may reasonably expect from the apparatus if used as intended.
- Criterion C: Temporary loss of function is allowed, provided the function is self-recoverable or can be restored by the operation of the controls.

7.2 ESD

- Test Requirement: EN 61000-4-2 :1995 +A1:1998+A2:2001
- Test Method: EN 61000-4-2 :1995 +A1:1998+A2:2001
- Test Date: October 11, 2008
- Discharge Impedance: 330 Ω / 150 pF
- Discharge Voltage: Air Discharge: ± 8 kV
Contact Discharge: ± 4 kV
HCP: ± 4 kV
VCP: ± 4 kV
- Polarity: Positive & Negative
- Number of Discharge: Minimum 10 times at each test point for Contact and VCP Discharge;
Minimum 10 times at each test point for Air Discharge
- Discharge Mode: Single Discharge
- Discharge Period: 1 second minimum

7.2.1 E.U.T. Operation

Operating Environment:

EUT Operation: Test EUT is in the representative work according to standard.

7.2.2 Direct Application Test Results

Observations: Test Point:

1. All insulated enclosure & seams around EUT.
2. All touchable metal material of EUT

Direct Application			Test Results	
Discharge Level (kV)	Polarity (+/-)	Test Points	Contact Discharge	Air Discharge
8	+/-	1	N/A	A
4	+/-	2	A	N/A

Indirect Application Test Results

Observations: Test Point: 1. All sides.

Indirect Application			Test Results	
Discharge Level (kV)	Polarity (+/-)	Test Point	Horizontal Coupling	Vertical Coupling
4	+/-	1	A	A

Results:

A: No degradation in the performance of the EUT was observed.

N/A: Not applicable (not required in the standard or floor mounted the EUT)

7.3 Radiated Immunity (80MHz to 1GHz)

Test Requirement:	EN 61000-4-3: 2006
Test Method:	EN 61000-4-3: 2006
Test Date:	October 11, 2008
Frequency Range:	80MHz to 1GHz
Test level:	10V/m on enclosure
Modulation:	80%, 1kHz Amplitude Modulation
Criteria:	Performance criteria A

7.3.1 E.U.T. Operation

Operating Environment:

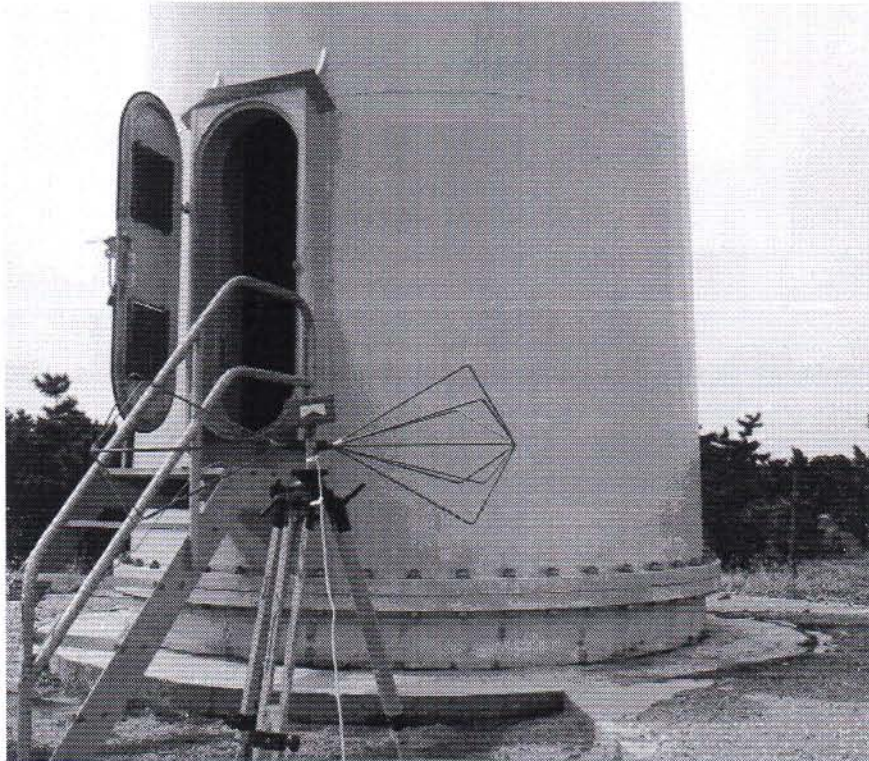
EUT Operation: Test EUT is in the representative work according to standard.

7.3.2 Test Results

Pass

8 Photographs

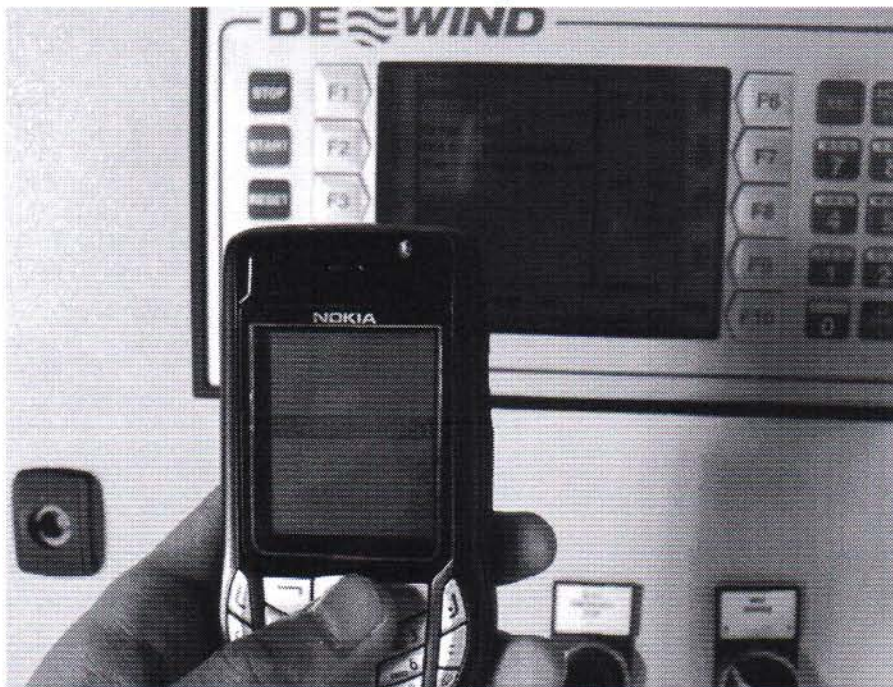
8.1 Radiated Emission Test Setup



8.2 ESD Test Setup

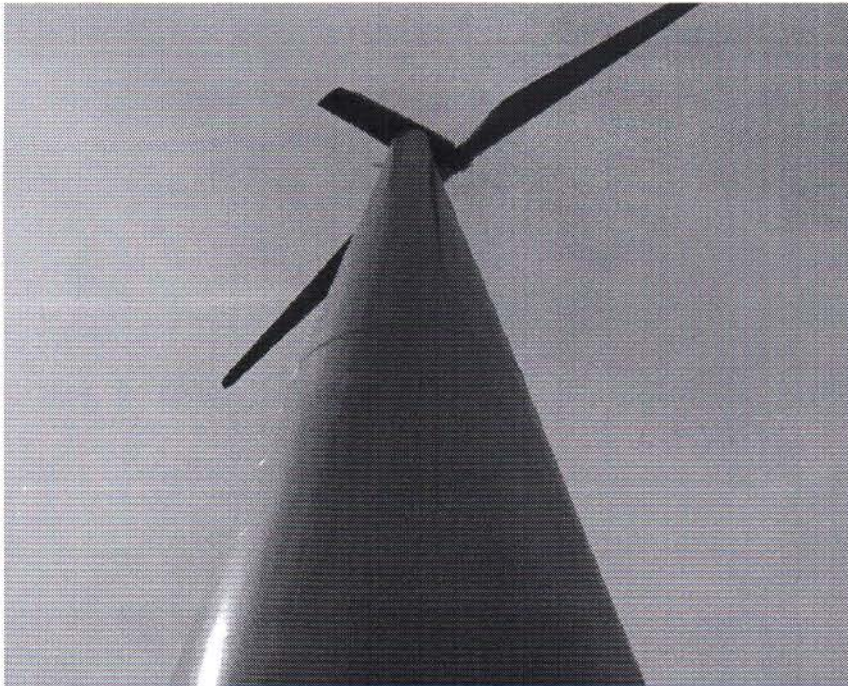


8.3 Radiated Immunity Test Setup



8.4 EUT Constructional Details





The end of Report