Electromagnetic Compliance Report

EN 55022:2010, EN 55024:2010

EN 61000-3-2:2006+A2:2009, EN 61000-3-3:2008

REPORT NO.: 20141257ER

MODEL: 270

EQUIPMENT TYPE: 2 USB Sliding Adaptor

TEST DATE: February 11, 2014

APPLICANT:
ADDRES:

MANUFACTURER:
ADDRESS:

ISSUED BY: Telab Compliance Laboratory Co., Ltd.

LAB LOCATION: No.1233, South Longgong Road, National Economic and Technology Development Zone, Chengdu, Sichuan, China

Checked Signatory _____ **Date:** February 25, 2014

Sean Chen-Test Engineer

Authorized Signatory _____ **Date:** February 25, 2014

Steven Shi-Project Manager

1. General Information

1.1 Purpose

The purpose of the test was to verify the compliant of the electromagnetic compatibility (E.M.C) requirements according to European and international Standards. Both Emission and immunity aspects are covered.

1.2 Description of Equipment under Test (EUT)

Applicant:	
Address:	
Manufacturer:	
Address	
Country of Origin:	United Kingdom
Product type:	2 USB Sliding Adaptor
Model:	270
Multi-listed Models:	271, 272
Internal Highest Frequency:	<108MHz
Nominal Voltage:	Input AC: 100V -240V, 50/60Hz ， USB Output: 5VDC 2100mA

1.3 GENERAL DESCRIPTION OF APPLIED STANDARDS

The EUT is a kind of measurement control and laboratory use equipment and, according to the specifications of the manufacturers, must comply with the requirements of the following standards:

Main Standards	Sub Standards
EN 55022:2010 EN 55024:2010 EN 61000-3-2:2006+A2:2009 EN 61000-3-3:2008	EN61000-4-2
	EN61000-4-3
	EN61000-4-4
	EN61000-4-5
	EN61000-4-6
	EN61000-4-11

1.4 Test Laboratory Climate

Ambient Temperature: 24.5℃
Relative Humidity: 39%
Barometric Pressure: 103.3KPa (QNH)

2 SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

EMISSION			
Standard	Test Type	Result	Remarks
EN 55022:2010	Conducted Test at Main Port	PASS	Minimum passing margin is 3.0dB at 0.550MHz in AV detector
	Conducted Test at Telecommunication Port	Not Applicable	/
	Radiated Test(30MHz-1G)	PASS	Minimum passing margins 8.0dB at 71.9040MHz
EN 61000-3-2:2006 +A2:2009	Harmonic Current	PASS	/
EN 61000-3-3:2008	Voltage Fluctuations and Flicker	PASS	/

IMMUNITY (EN 55024:2010)			
Standard	Test Type	Result	Remarks
EN61000-4-2	Electrostatic Discharge Immunity Test	PASS	Meets the requirements of Performance Criterion A
EN61000-4-3	Radiated Electromagnetic Field Immunity Test	PASS	Meets the requirements of Performance Criterion A
EN61000-4-4	Electrical Fast Transient / Burst Immunity Test.	PASS	Meets the requirements of Performance Criterion A
EN61000-4-5	Surge Immunity Test	PASS	Meets the requirements of Performance Criterion A
EN61000-4-6	Immunity To Conducted Disturbances, Induced By Radio-Frequency Fields	PASS	Meets the requirements of Performance Criterion A
EN61000-4-8	Magnetic Field Immunity Test	Not Applicable	Meets the requirements of Performance Criterion A
EN61000-4-11	Voltage Dips, Short Interruptions And Voltage Variations Immunity Tests	PASS	Meets the requirements of Voltage Dips: 1. >95% reduction - Performance Criterion A 2. 30% reduction – Performance Criterion A Voltage Interruptions: 1. >95% reduction – Performance Criterion B

3. SYSTEM CONFIGURATION DURING EMC TESTING.

The equipment under test (EUT) was configured for all testing as described below, details of test specific setup is given on the relevant pages.

Emission Testing
The EUT connect to power supply according requirement of manufacturer .The EUT was set up simulating a typical user installation on the test site, and then tested in accordance with the specification and normal operation/

Immunity Testing
The EUT was functioning correctly prior to each test and was configured as for emission testing. The correct operation of the EUT was monitored throughout the test by monitoring a computer /or a digital voltmeter and / or an ammeter connected to the output when required. This was done continuously by using a closed circuit television camera and monitor where necessary. Loss of output or activation of any latch circuits was indicated by the meters, as well as giving an additional indication of the EUT's performance. The EUT is tested to conform to performance criteria. In addition to this it is desirable that the output voltage is continuous throughout the testing, where this was not the case is noted in the results

4. Emission Measurement

4.1 Conducted Emission at Main Port

4.1.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT

FREQUENCY (MHz)	Class A (dBuV)		Class B (dBuV)	
	Quasi-peak	Average	Quasi-peak	Average
0.15 - 0.5	79	66	66 - 56	56 - 46
0.50 - 5.0	73	60	56	46
5.0 - 30.0	73	60	60	50

NOTE: (1) The lower limit shall apply at the transition frequencies.

(2) The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50 MHz.

(3) All emanations from a class A/B digital device or system, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strengths specified above.

4.1.2 EUT Configuration

The equipment under test was set up in the shielded room with the EUT 40cm away from the wall of the room. The EUT was placed on a non-conductive test table which is 80cm in height. Excess power cord was folded back and forth to form a 30cm by 40cm bundle. The distance between EUT and LISN is 80cm.
Any changes made to the configuration, or modifications made to the EUT, during testing are noted in the following test record.

4.1.3 Test Procedure

The system was set up as described above, with the EMI diagnostic software running. The main power line conducted EMI tests were run on the hot and neutral conductors of the power cord and the results were recorded. The effect of varying the position of the interface cables has been investigated to find the configuration that produces maximum emission.

At the frequencies where the peak values of the emissions were higher than 6dß below the applicable limits, the emissions were also measured with the quasi-peak detectors. At the frequencies where the quasi-peak values of the emissions were higher than 6dß below the applicable average limits, the emissions were also measured with the average detectors.

4.1.4 EMI Receiver/Spectrum Analyzer Configuration

Frequency Range:Detector Function: Resolution Bandwidth (RBW):	150KHz--30MHz Quasi-Peak / Average Mode 9KHz

4.1.5 Test Setup

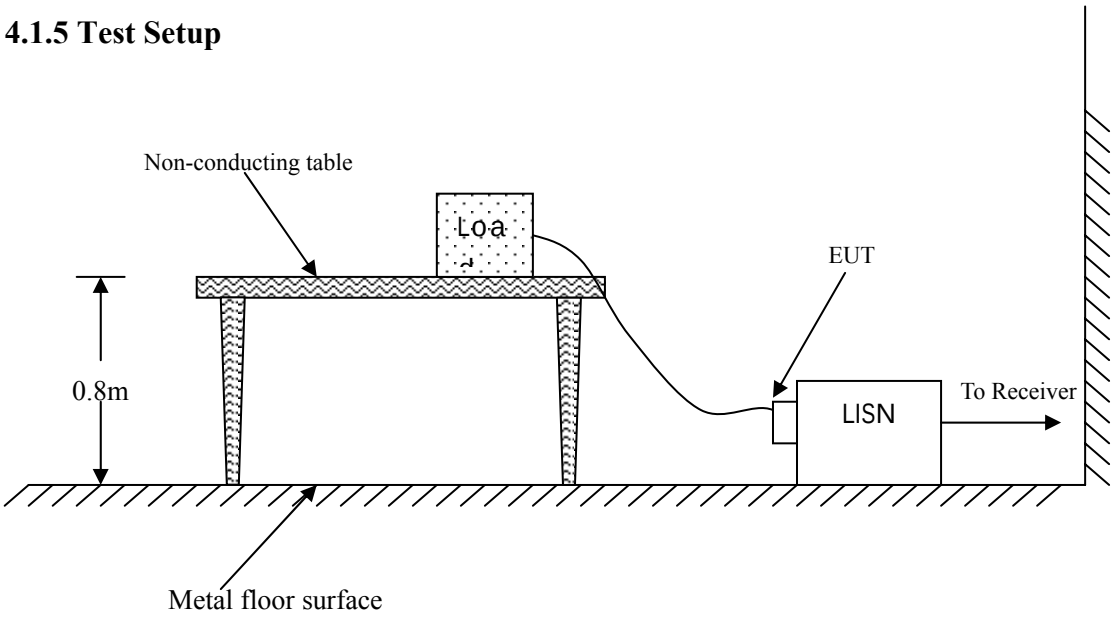


Figure 1: Side view of conducted test setup. The LISN output connects to the receiver.

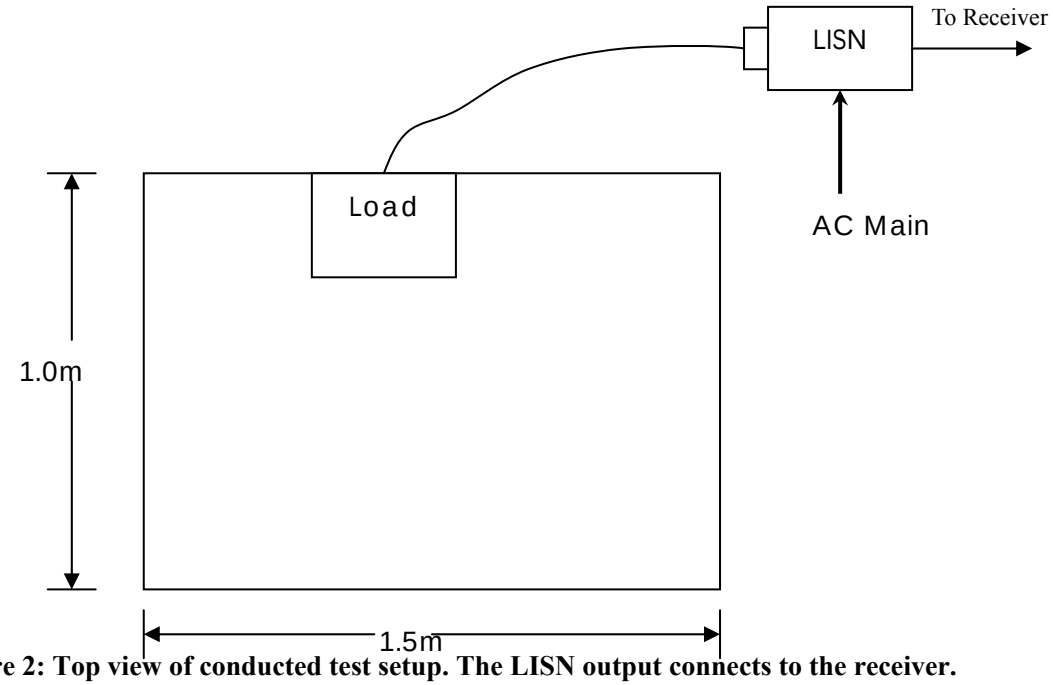
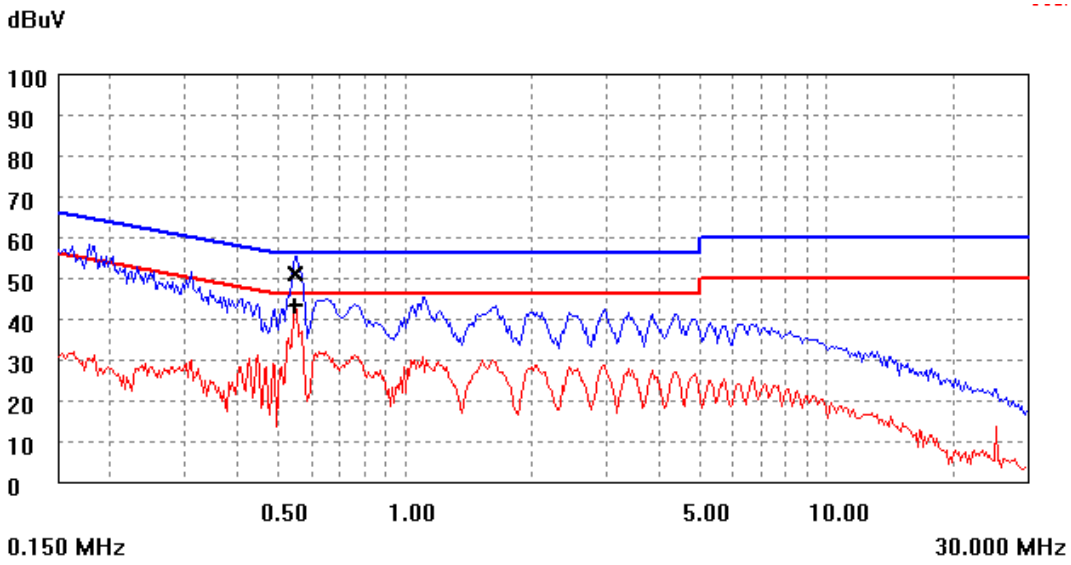


Figure 2: Top view of conducted test setup. The LISN output connects to the receiver.

4.1.6 Test Curve & Data

Figure 3: Spectral diagram and measurement results, Mains terminal disturbance voltage, 150kHz – 30MHz, line L &N with 230V 50Hz power supply



Test data table

TERMINAL DISTURBANCE VOLTAGE TEST DATA				EN 55022	
Frequency	Amplitude	Detector	Phase	Limit	Margin
MHz	dBμV	QP/Ave/Peak	Line/Neutral	dBμV	dB
0.550	43.0	Ave	Line	46.0	-3.0
0.550	51.1	QP	Line	56.0	-4.9
/	/	/	/	/	/
/	/	/	/	/	/

4.2 RADIATED EMISSION MEASUREMENT

4.2.1 LIMITS OF RADIATED EMISSION MEASUREMENT

FREQUENCY (MHz)	Class A (QP dBuV/m)		Class B (QP dBuV/m)	
	at 3m	at 10m	at 3m	at 10m
30 – 230	50	40	40	30
230 - 1000	57	47	47	37

FREQUENCY (GHz)	Class A (at 3m)		Class B (at 3m)	
	dBuV/m		dBuV/m	
	Ave	Peak	Ave	Peak
1 - 3	56	76	50	70
3 - 6	60	80	54	74

NOTE: (1) The lower limit shall apply at the transition frequencies.

(2) Emission level (dBuV/m) = 20 log Emission level (uV/m).

(3) All emanations from a class A/B digital device or system, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strengths specified above.

4.2.2 EUT Configuration

The radiated emissions test setups are in accordance with EN 55022:2010.

The equipment under test was set up on the 3 meter Anechoic chamber test non-conductive table 80cm above ground, same as conducted Excess data cable was folded back and forth to form a 30cm by 40cm bundle.

Any changes made to the configuration, or modifications made to the EUT, during testing are noted in the following test record.

If the EUT is a Personal Computer or a peripheral of personal computer, and the personal computer has an auxiliary AC outlet which can be used for providing power to an external monitor, then all measurements will be made with the monitor power from first the computer-mounted AC outlet and then a floor-mounted AC outlet.

4.2.3 Test Procedure

The system was set up as described above, with the EMI diagnostic software running. The maximum readings were found by vary the height of antenna and then rotating the turntable. Both polarization of antenna, horizontal and vertical, are measured. The effect of varying the position of the interface cables has been investigated to find the configuration that produces maximum emission.

The highest emissions were also analyzed in details by operating the spectrum analyzer in fixed tuned quasi-peak mode to determine the precise amplitude of the emissions. While doing so, the antenna height was varied between one and four meters, and the turntable was slowly rotated, to maximize the emission.

The arrangement figure of Radiation Emission Test was as shown in Figure 3.

4.2.4 Spectrum Analyzer Configuration (for the frequencies tested)

Frequency Range: Detector Function:	30MHz--1000MHz Quasi-Peak Mode
Resolution Bandwidth (RBW):	120KHz
Frequency Range:Detector Function:	Above 1000MHz Peak and Average Mode
Resolution Bandwidth (RBW):	1MHz

4.2.5 Test Setup

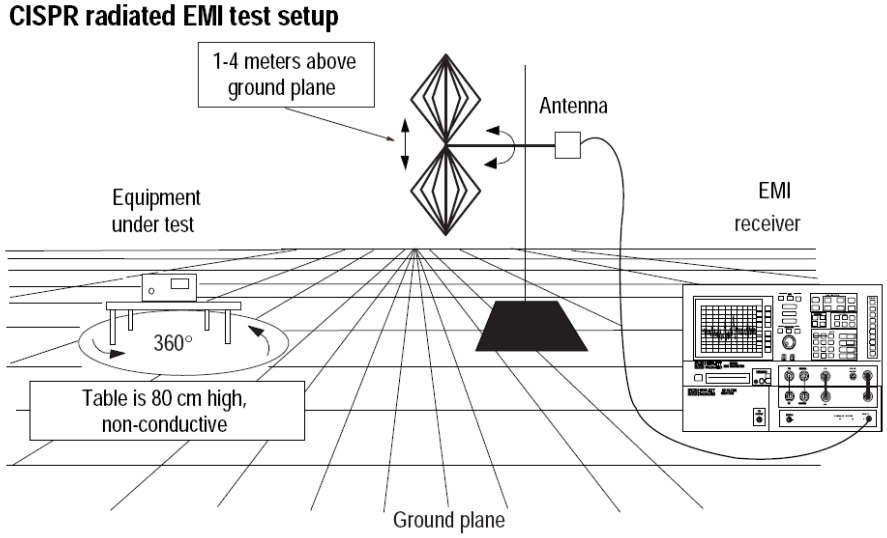
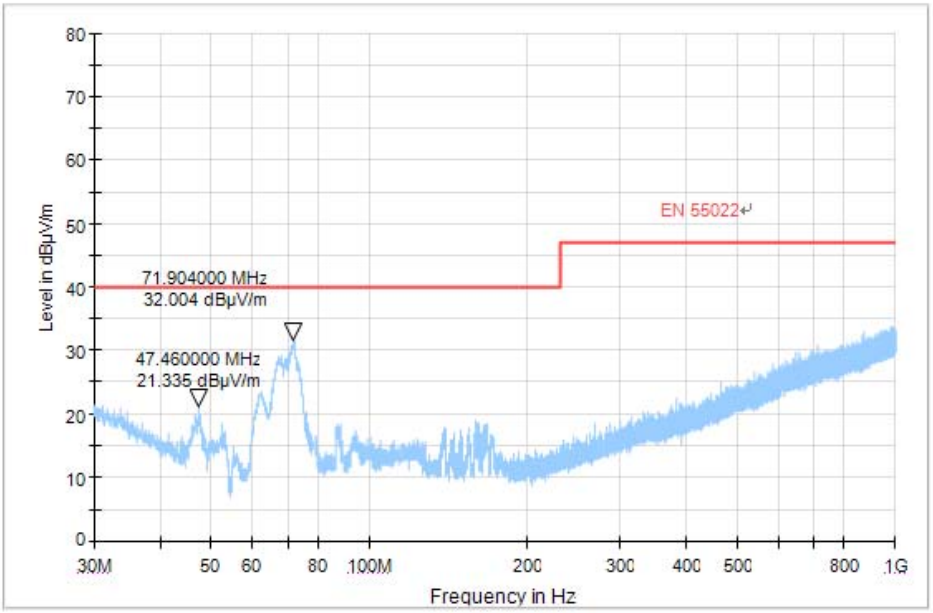


Figure 3 Radiated Emission test setup

4.2.6 Test Curve & Data

Figure 8: Measurement results of disturbance radiation horizontal & Vertical -polarizationsfor EUT(Frequencies, 30-1000MHz)



Final Measurement Results:

Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
71.9040	32.0	1000.0	120.000	100.0	V	142.0	8.0	-8.0	40.0
47.04600	21.3	1000.0	120.000	110.0	V	93.0	10.6	-18.7	40.0

4.3 HARMONIC CURRENT TEST

4.3.1 Application of Harmonic Current Emission

Compliance to these standards ensures that tested equipment will not generate harmonic currents at levels that cause unacceptable degradation of the main environment. This directly contributes to meeting compatibility levels established in other EMC standards, which defines compatibility levels for low-frequency conducted disturbances in low-voltage supply systems.

4.3.2 Measurement Data (USB with Rated Load)

Fundamental Voltage: 230.4V rms
Amperes : 0.089 rms
Frequency: 50.00 Hz
Power Consumption: 10.45W
Power Factor: 0.5.7

Note: Not harmonic current limits specified for equipment with a rated power of 75 W or less, other than lighting equipment accrding to standard clause 7 of EN 61000-3-2:2006+A2:2009.

4.4 VOLTAGE FLUCTUATIONS AND FLICKER TEST (EN 61000-3-3:2008)

4.4.1 Application of Voltage Fluctuations and Flicker Test

Compliance to these standards ensures that tested equipment will not generate flickers and voltage change at levels that cause unacceptable degradation of the main environment. This directly contributes to meeting compatibility levels established in other EMC standards, which defines compatibility levels for low-frequency conducted disturbances in low-voltage supply systems.

4.4.2 Measurement Data(USB with Rated Load)

Fundamental Voltage: 230.4V rms
Amperes : 0.089 rms
Frequency: 50.00 Hz
Power Consumption: 10.45W
Power Factor: 0.5.7

Note:
Not voltage fluctuations and flicker limits specified for the equipment accrding to Annex A of EN 61000-3-3:2008

5 TEST RESULTS IMMUNITY

5.1 GENERAL PERFORMANCE CRITERIA DESCRIPTION

During the immunity tests, the EUT was operated under conditions specified by clause 1.4 of this report.

Performance criterion A: The apparatus shall continue to operate as intended during the test. No change of actual operating state (for example change of channel) is allowed as a result of the application of the test. Multifunction equipment shall for each function meet the relevant requirements. Evaluation is carried out for audio and video functions.

Performance criterion B: The equipment shall continue to operate as intended after the test. No loss of function is allowed after the test when the apparatus is used as intended, but failures which are recovered automatically but which cause temporary delay in processing, are permissible. No change of actual operating states for example change of channel or stored data and settings is allowed as result of the application of the test. During the test, degradation of performance is allowed.

Performance criterion C: Loss of function is allowed, provided the function is self recoverable, or can be restored by the operation of the controls by the user in accordance with the manufacturer's instructions. Functions, and/or information stored in non-volatile memory, or protected by a battery backup, shall not be lost.

5.2 Electrostatic Discharge

The ESD test aims to simulate the effects of discharges from the fingers of personnel, either directly or via keys or other metal objects held in the hand, the personnel having been charged to a high voltage by tribo-electric charging, usually due to rubbing contacts between their shoes or clothing and dissimilar materials used for flooring, storage, etc.

5.2.1 Test Description

Standard Used	EN 61000-4-2
Test Severity	Per the product standard specification being referenced
Test Level	Contact Discharge ±4KV Air Discharge ±8KV Indirect Discharge ±4KV
Pass Criteria	Criterion A (Definition in the Generic Standard)
Test result	Pass

5.2.2 Test Setup

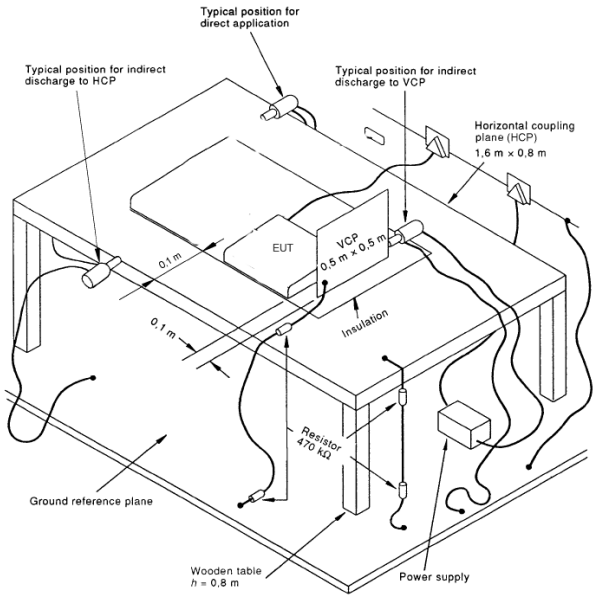


Figure 4: Electrostatic Discharge Immunity test Setup

The EUT is placed over a ground plane to which the ESD generator is returned. This must project at least 0.5m beyond the EUT or coupling plane. The ground return lead is calibrated with the generator and this should be exactly the same lead as is used for the testing. Different leads will have different inductances, and this could modify the discharge waveform, particularly its trailing edge. The lead should always be kept away from the EUT and other structures (by 0.2m minimum, according to the standard), and the test engineer's body.
The separation distance for the EUT above the ground plane, as with the EFT burst test, is 10cm for floor standing and 80cm for table-top apparatus. (The distance of 10cm here is helpfully the same as the thickness of a fork lift truck pallet.) There should also be at least 1m clear areas around the EUT.

5.2.3 Test procedure

The actual application of a compliance test should proceed as follows:

a. Select a suitable set of points for the test application, and make sure that you document these with reference to a drawing of the product. You may have a good empirical idea of the likely weak points – for instance the edges of aperture, seams or joints, or control or ventilation openings – or you have already done some exploratory testing at a fast pulse rate to actively identify such points.

b. At each point and for each test voltage you will apply at least ten pulse discharges, allowing at least a second in between, checking for the EUT's response. Unless you know the most sensitive polarity, apply ten discharges in each polarity. This could be ten positive followed by ten negative, or alternate positive and negative, or any combination in between. Provided that the EUT discharges after each pulse it shouldn't matter how you do it, although this may depend on the design of the EUT.

c. For each point and each of these sets of discharges, start off at the lowest test level (2kV) and ramp up through the levels to the specification value, typically 4kV for contact and 4kV + 8kV for air. This is to check for non-linearities in the stress response and is a requirement of the standard.

5.2.4 Electrostatic discharge immunity test results

Position of discharge	Kind of discharge	Test Level	Result	Performance Criterion
Screws, shield of the coaxial input, all accessible metallic part around the enclosure	Contact discharge (CD)	±4KV	Pass	B
Screen, button, slots, seams, non-metallic part of the enclosure	Air Discharge (CD)	±8KV	Pass	B
HCP	Indirect Contact discharge	±4KV	Pass	B
VCP	Indirect Contact discharge	±4KV	Pass	B

5.3 Radiated, Radio-Frequency Electromagnetic Field Immunity Test

The objective of this test was to find out the immunity against electromagnetic fields which can be generated by walkie-talkies, handys(GSM), radio and television transmitters and other devices that generated continuous wave radiated electromagnetic energy. This test is also known as "F-Field Test".

5.3.1 Test Description

Standard Used	EN 61000-4-3
Test Severity	3 or 10 V/m (can be higher or lower as required) 80% AM depth at 1 kHz
Frequency Range	80–1000 MHz
Alternate Frequency Range	27/150/450/950 MHz (by arrangement with a European Competent Body)
Pass Criteria	Criterion A (Definition in the Generic Standard)
Test result	Pass

5.3.2 Test Setup

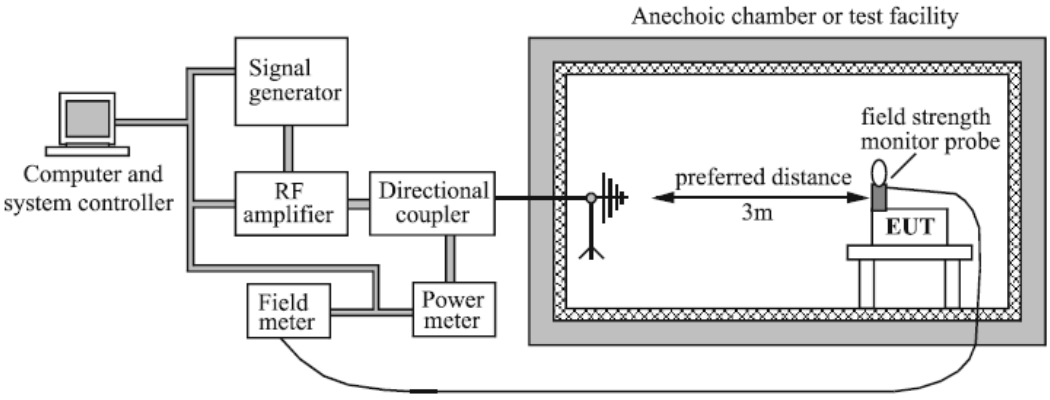


Figure 5:Typical radiated immunity test setup

The EUT was located 10 cm high on an insulated support (pallet). The length of the cables was in accordance with the standard specifications. The converter supply lines were connected to an artificial mains network. The length of the connected cables was 4 meters.

The EUT and the antenna were placed suchlike to receive maximum radiation. The antenna was placed 1.6 meters above the floor with both horizontal and vertical polarization. The distance to the antenna was 3 meters. The EUT was tested with closed and open doors.

5.3.3 Test procedure

a. The testing was performed in a fully anechoic chamber. The transmit antenna was located at a distance of 3 meters from the EUT.
b. The frequency range is swept from 80 MHz to 1000 MHz, with the signal 80% amplitude modulated with a 1kHz sine wave. The rate of sweep did not exceed 1.5 x 10-3 decade/s. where the frequency range is swept incrementally; the step size was 1% of fundamental.
c. The dwell time at each frequency shall be not less than the time necessary for the EUT to be able to respond.
d. The field strength level was 3 V/m.
e. The test was performed with the EUT exposed to both vertically and horizontally polarized fields on each of the four sides.

5.3.4 Test result

Frequency (MHz)	Result	Polarity	Azimuth	Field Strength (V/m)	Result	Performance Criterion
80 -1000 MHz	PASS	V&H	0	3	Pass	A
1.4GHz -2GHz	PASS	V&H	0	/	N/A	
2.0GHz -2.7GHz	PASS	V&H	0	/	N/A	

5.4 Electrical fast transients

The object of this test was to find out the immunity against electrical fast transients which are originating from interruption of inductive loads etc. For mains supply ports the transients are applied via coupling/decoupling networks, for other ports the capacitive coupling clamp is the preferred coupling method. This test is also known as “burst test”.

5.4.1 Test description

Standard Used	EN 61000-4-4
Test Requirement	5 ns rise time/50 ns fall time; 5 kHz repetition frequency
Light industrial	AC mains: 1 kV DC power: 500 V Process and control: 500 V
Pass Criteria	Criterion B (Definition in the Generic Standard)
Test result	PASS

5.4.2 Test Setup

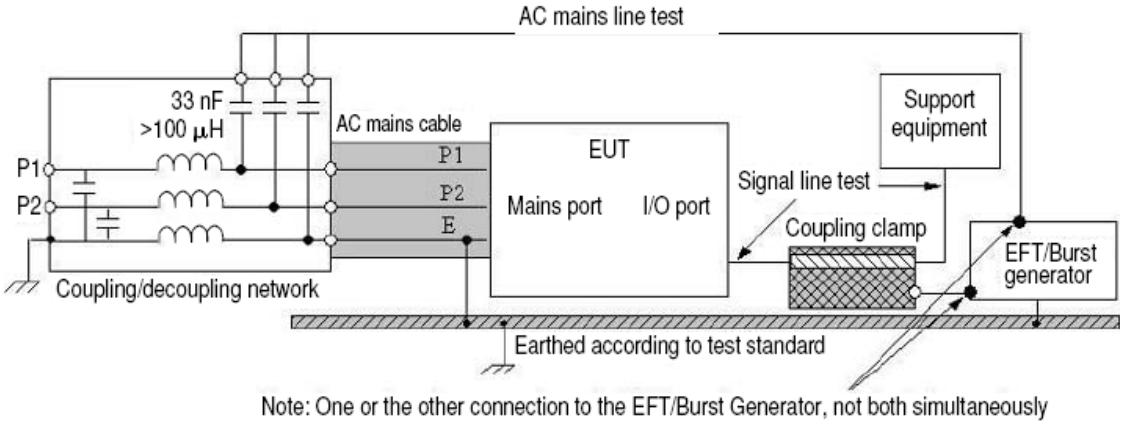


Figure 6: Test configuration setup for EFT/B

The EUT's shall be placed on a ground reference plane and shall be insulated from it by an insulating support 0.1m ±0.01 m thick. In the case of table-top equipment, the EUT should be located 0.8m ±0.08 m above the ground plane. The minimum size of the ground plane is 1 m x 1m, the actual size depends on the dimensions of the EUT. The reference ground plane shall project beyond the EUT by at least 0.1 m on all sides.

5.4.3 Test Procedure

a. The test voltage is applied using an appropriate coupling device. When the coupling clamp is used, the minimum distance between the coupling plates and all other "conductive structures" should be 0.5 m, except for the reference plane beneath the clamp. The length of the cable between the coupling device and EUT should be 1 m or less.

b. If the line current is greater than the specified rating of the coupling network, the test should be repeated as a field test. For this application, the output of the EFT/B generator is connected to each of the power supply phases and the reference plane. This reference plane should be approximately 1 m × 1 m, mounted as near to the EUT as possible and connected to protected earth. The generator is positioned on this plane. The length of the cable between the generator and EUT should not exceed 1 m.

c. For field-testing on signal lines, an appropriate clamp should be used. If use of the clamp is not possible for physical reasons, aluminum foil may be wrapped around the cable assembly with a capacitance value equal to that of the standard coupling clamp. In other application, direct coupling of the generator to signal lines can occur with 100 pF capacitors.

5.4.4 Test Result

Test Point	Polarity	Test Level(kV)	Result	Performance Criterion
L1	+/-	1	N/A	N/A
L2	+/-	1	N/A	N/A
Ground	+/-	1	N/A	N/A
L1+L2	+/-	1	Pass	B
Signal cable	+/-	0.5	Pass	B

5.5 Surge Immunity test

The object of this test was to find out the immunity against surges which are originating from lighting from lighting strokes. This disturbances are galvanically coupled to power supply lines, signal lines and screened cables. This test is also known as “surge test”.

5.5.1 Test description

Standard Used	EN 61000-4-5
Test Requirement	1.2 us rise time/50us fall time, combination wave
Light industrial	AC mains: 2 kV common mode, 1 kV differential mode DC power: 500 V common mode, 500 V differential mode Process and control: 1 kV common mode, 500 V differential mode
Pass Criteria	Criterion B (Definition in the Generic Standard)
Test result	Pass

5.5.2 Test Setup

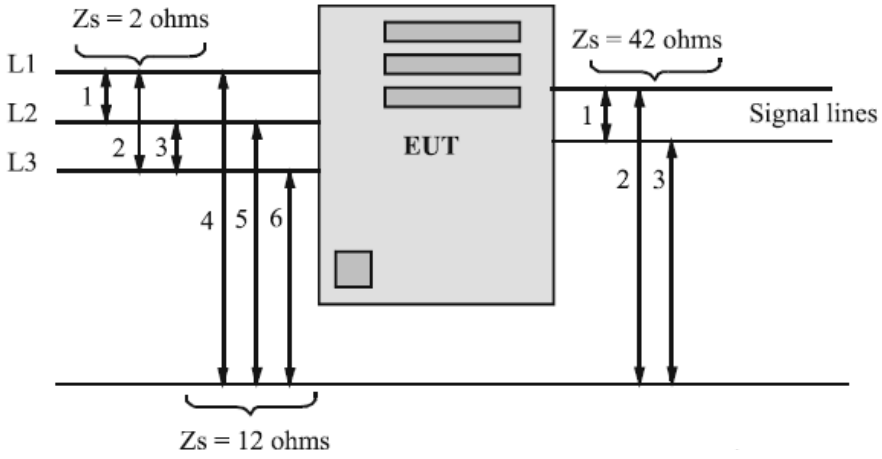


Figure 7:Typical Surge immunity test setup

5.5.3 Test Procedure

a. The surge waveforms must appear at the output of a compliant generator when calibrated with short-circuit and open-circuit loads. The waveform through the mains coupling/decoupling network must also be calibrated and be unaffected by the network.

b. For coupling networks used on signal lines, this requirement is waived. Three different source impedances are recommended, depending on the application of the test voltage and expected operating conditions of the EUT. The effective output impedance of the generator is defined as the ratio of peak open-circuit output voltage to peak short-circuit output current, which is 2 Ω.

c. The signal line coupling networks includes a 40Ωseries resistor, which reduces the energy in the applied surge substantially. For AC mains coupling, the generator is connected through an 18-_F capacitor across each phase with a 10Ω.resistor and 9uF capacitor for phase-to-earth application.

5.5.4 Test Result

Test Point	Polarity	Test Level (kV)	Coupling phase	Result	Performance Criterion
L1- L2	+/-	1.0	0^0	Pass	**B**
			90^0	Pass	
			180^0	Pass	
			270^0	Pass	
L1- G	+/-	**2.0**	0^0	N/A	**N/A**
			90^0	N/A	
			180^0	N/A	
			270^0	N/A	
L1- G	+/-	**2.0**	0^0	N/A	**N/A**
			90^0	N/A	
			180^0	N/A	
			270^0	N/A	
Signal cable	+/-	1.0	0^0	N/A	**N/A**
			90^0	N/A	
			180^0	N/A	
			270^0	N/A	

5.6 Conducted Disturbances Immunity test

The object of this test was to find out the immunity against high-frequent, conducted interferences which can be generated by walkie-talkies, remote controls, or other transmitters that generate electromagnetic fields and therefore inject into the lines. These signal interferences exist as common mode current on the lines and shielded cables. This test is also known as “current injection test”.

5.6.1 Test description

Standard Used	EN 61000-4-6
Test Severity	3 or 10 V RMS (can be higher or lower as required) 80% AM depth at 1 kHz
Frequency Range	0.150–80 MHz (can be extended to 230 MHz if required)
Pass Criteria	Criterion A (Definition in the Generic Standard)
Test result	Pass

5.6.2 Test Setup

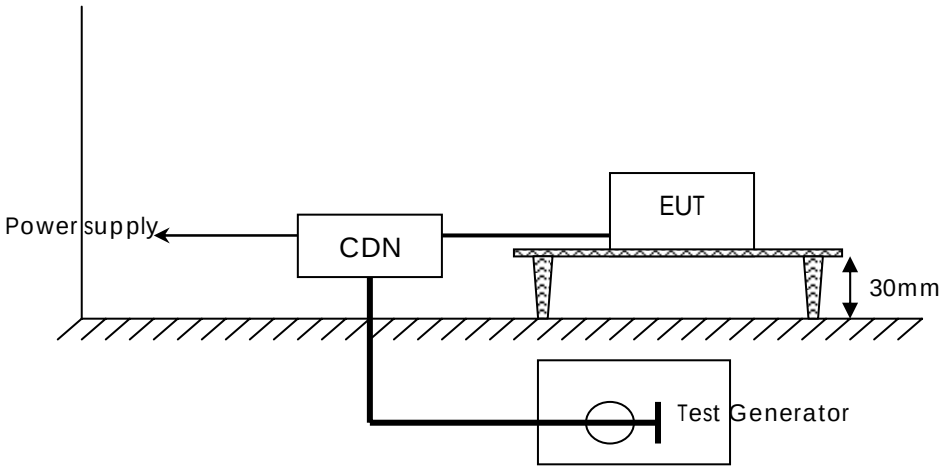


Figure 8: setup for Conducted Disturbances

5.6.3 Test Procedure

a. Set the RF generator to 150 kHz, or a level sufficient to produce 3/10 V RMS (as determined via the calibration procedure).

b. Turn on the AM signal to produce 80% modulation depth with a 1-kHz sinusoidal signal. Note: The signal generator output must be adjusted so that current measured by the probe and spectrum analyzer does not exceed the predetermined voltage level (20 mA for 3 V RMS, 150 _ configuration, which is 86 dBuA). Do not adjust the level set dial of the RF amplifier. For example, Reading on spectrum analyzer (dBuV) = 86 dB_A + CF of probe (dB)

c. Activate the RF signal generator to sweep the frequency range at a rate no faster than 0.0015 decades/seconds. While the generator is sweeping, adjust the RF signal generator output as required to maintain the desired signal injection levels per the calibration chart created prior to formal testing. Do not adjust the RF amplifier's control knob.

d. Note and record changes in EUT operation, fault conditions, or any other system behavior that is monitored per the performance criteria. Record the interference voltage level and frequency at which changes in operations, if any, occurred.

e. When the sweep is completed, return to those frequencies at which susceptibility problems were detected. Determine and record the threshold levels for each disturbance.

5.6.4 Test Result

Level	Voltage Level (e.m.f.) U_0	Pass	Fail
1	1	/	/
2	3	A	/
3	10	/	/
X	Special	/	/

5.7 Voltage Dips/Interruptions Immunity Test

5.7.1 Test description

Standard Used	EN 61000-4-11
Test Level	±10% rated voltage 30% for 10 ms; 60% for 100 ms; >95% for 5000 ms
Pass Criteria	Criteria B/B/C/C (definitions in the Generic Standard)
Test result	Pass

5.7.2 Test Setup

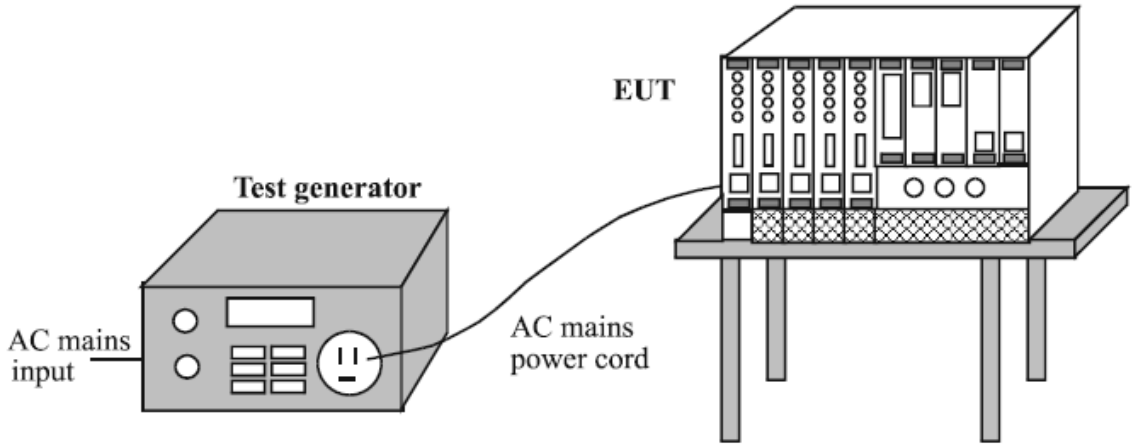


Figure 9:Typical Voltage Dips/Interruptions Immunity Test setup

A ground reference place shall be placed with the EUT and auxiliary test equipment nonmagnetic metal sheet (copper or aluminum) 0.25 mm thick. Other metals may be used with a minimal thickness of 0.65 mm. Overall size of the ground plane shall be 1 m × 1 m for table-top equipment. The final size will depend on the dimension of the EUT. In addition, the plane shall be connected to the safety earth system of the laboratory.

5.7.3 Test Procedure

Voltage Dips and Short Variations

a. Switch the main disconnect of the EUT to the off position.
b. Connect the EUT to the test unit generator.
c. Switch the main disconnect of the EUT to the on position and start up the system.
d. Program the power source to run the desired test for voltage dips and short interruptions.
e. Record and document all unusual effects or anomalies noted during this test.

Voltage Variation

a. Switch the main disconnect of the EUT to the off position.
b. Connect the EUT to the test unit generator.
c. Switch the main disconnect of the EUT to the on position and start up the system.
d. Program the system to run a representative process step or recipe.
e. While the system is running in its processing mode, reduce the output voltage of the variac to 90% of the rated voltage as quickly as possible.
f. Maintain the output voltage at 90% rated voltage for 30 seconds.
g. Repeat steps 6 and 7 two more times (total of three times).
h. Increase the output voltage from 90% rated voltage to 110% of the rated voltage as quickly as possible.
i. Maintain the output voltage at 110% rated voltage for 30 seconds.
j. Record and document all unusual effects or anomalies noted during this test.

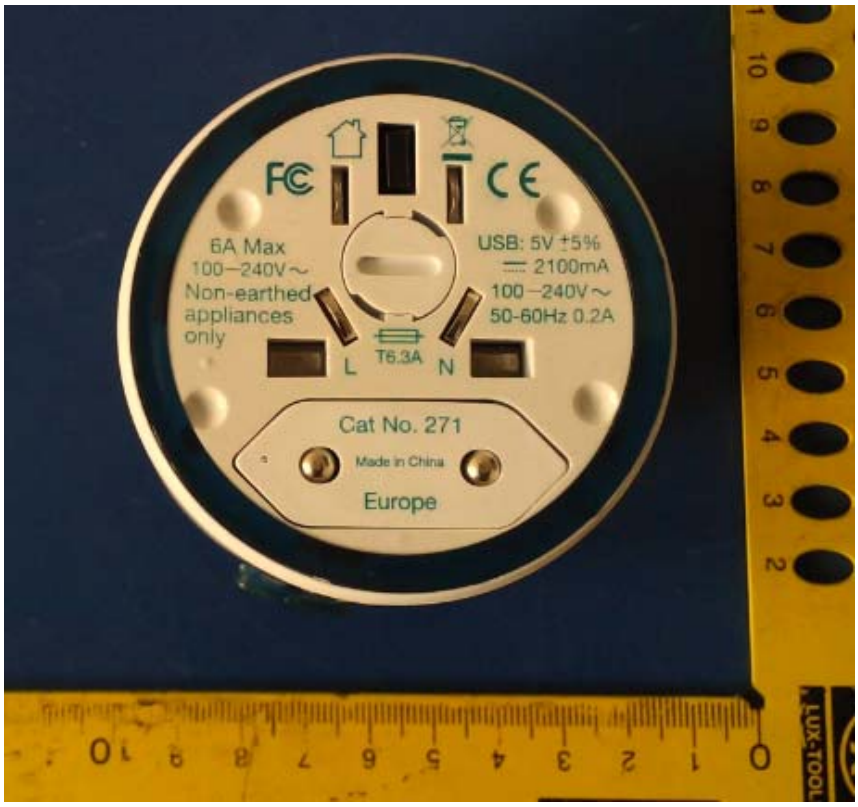
5.7.4 Test Result

VOLTAGE % REDUCTION	Cycle	RESULTS	OBSERVATION	PERFORMANCE CRITERION
> 95	0.5	Pass	Note (1)	B
30	25	Pass	Note (1)	C
> 95	250	Pass	Note (1)	C

Note: (1) Changes to occur at 0 degree crossover point of the voltage waveform.

6. EUT PHOTOGRAPH

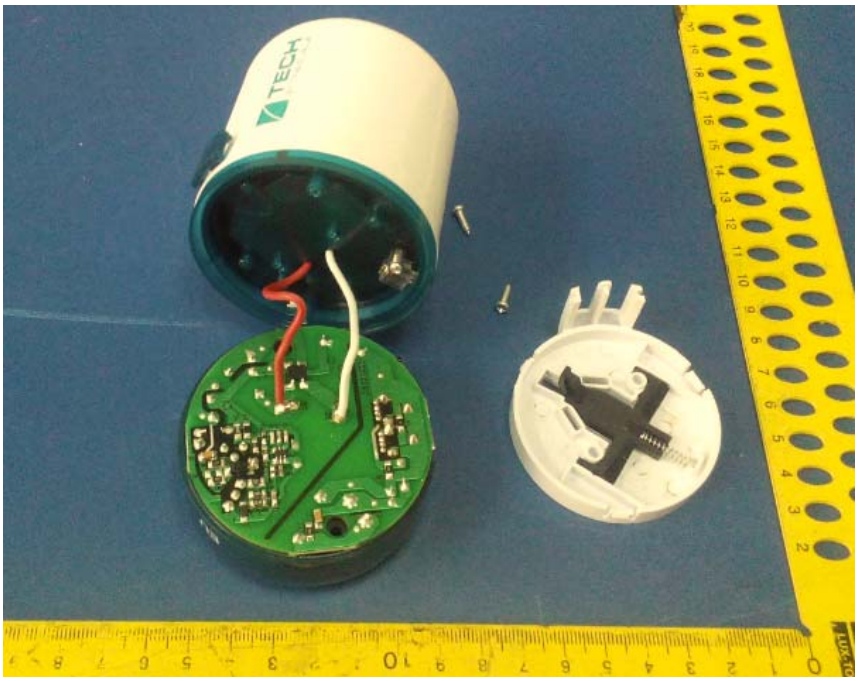
EUT 271 Front View



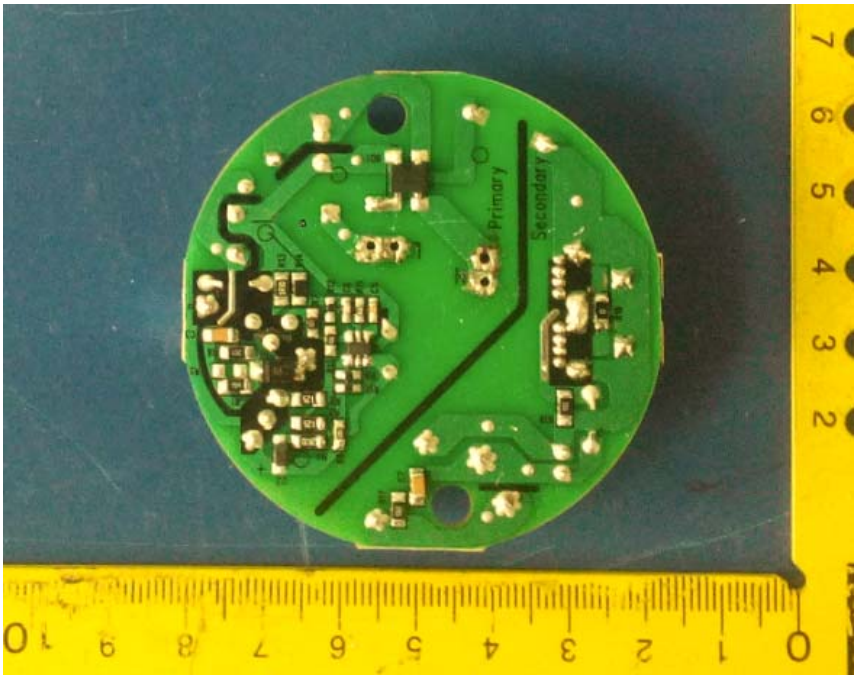
EUT 271 Rear View

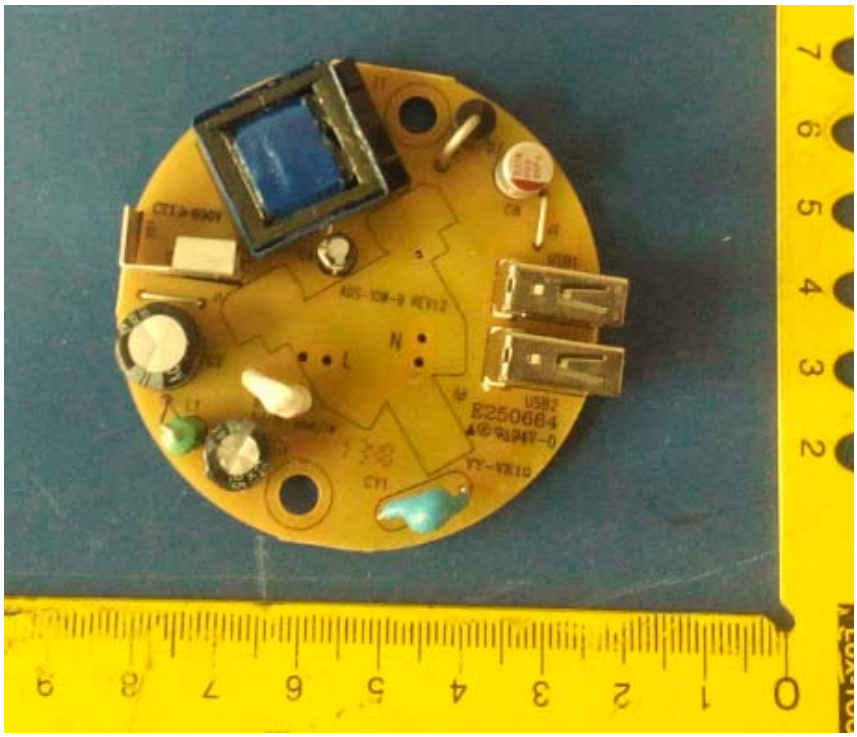
EUT 271 Side View

EUT 271 Inside View



EUT USB Board View





EUT 270 View


2.5A Max
100–240V~
Non-earthed
appliances
only
L
T2.5A
N
USB: 5V ±5%
2100mA
100–240V~
50-60Hz 0.2A
Cat No. 270
Made in China
Europe

7. INFORMATION ON THE TESTING EQUIPMENT

Manufacturer	Description	Model	Serial Number	Cal. Due Date
SCHAFFNER	ESD Generator	NSG435	08-31-01-0004	08/Oct/14
SCHAFFNER	FBT Generator	NSG2025	15-62-01-0002	08/Oct/14
SCHAFFNER	Surge Generator	NSG2025	15-62-01-0003	08/Oct/14
USA/AR	Sensor	PF4000	08-03-01-0001	10/Oct/14
USA/AR	Transmit-antenna	N/S	18-03-01-0001	10/Oct/14
BONN	Power Amplifier	BLWA0810-160/50 D	10-32-02-0001	10/Oct/14
R/S	Power Meter	NRVD	10-31-01-0001	10/Oct/14
EM TEST	RF Generator	CWS550	15-31-14-0001	08/Oct/14
R/S	Signal Generator	SMY01	15-21-16-0002	08/May/14
R/S	Audio Generator	808G	15-01-12-1	08/May/14
R/S	Milli-voltage Meter	URV5	02-21-13-0001	10/May/14
SCHAFFNER	Audio Analyzer	UPA	15-91-04-0001	10/Oct/14
R/S	EMS test system	TS9980	/	/
R/S	EMI Receiver	ESU 26	1302.6005.26	09/May/14
R/S	EMI Receiver	ESCS30	08-31-01-0001	09/May/14
R/S	AMN	ESH2-Z5	17-72-01-0001	08/May/1
R/S	AMN	ESH3-Z5	17-72-02-0001	08/May/14
SCHAFFNER	Antenna	GBL6112B	/	08/May/14
R/S	Absorbing Clamp	NDS21	08-12-03-0001	08/May/14
R/S	Runner	KMS560	/	/
R/S	Runner Controller	HD050	/	/

Appendix I-Diagram

Appendix II-Manual

Appendix III- Declaration of Conformity

EUROPEAN DECLARATION OF CONFORMITY (DOC)

Council Directive 2004/108/EC on Electromagnetic Compatibility

We,

Certify that the product described is in conformity with

the Directive 2004/108/EC

Product Name: 2 USB Sliding Adaptor
Model : 270, 271, 272

The product has been assessed by the application of the following standards:

EN 55022:2010, EN 55024:2010
EN 61000-3-2:2006+A2:2009, EN 61000-3-3:2008

Issue place and date	Company Stamp And Signature Of Authorized Personnel