

## RAPPORTO DI PROVA / TEST REPORT

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Scopo delle prove / Test object :	Prove di tipo in accordo alla Norma armonizzata / Type test according to Harmonized standards <b>EN 55022:2010, EN 55024:2010</b>	
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Marchio commerciale / Trade mark :	MOBILTECH	
Fabbricante / Manufacturer :	MOBILTECH	
Prodotto / Product :	<b>DIGITAL SATELLITE ANTENNA WITH TOUCH SCREEN CONTROL PANEL</b>	
Modello / Model :	<b>MOBILSAT</b>	
Data ricevimento campioni / Date of test sample receipt:	11/02/2016	
Campioni verificati / No. of tested samples	1	
Data verifiche / Testing date :	11/02/016 – 01/0/2016 - 07/04/2016	
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Esito delle valutazioni / Assessment results :	<b>CONFORME / COMPLIANT</b>	
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Approvato / Approved by :	Giacomo ARMELLINI Responsabile Laboratorio EMC and R&TTE / Head of EMC & R&TTE Laboratory	

I risultati delle prove riportati nel presente rapporto di prova si riferiscono solo ai campioni esaminati. / The test results reported in this test report shall refer only to the samples tested

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## 0 RELEASE CONTROL RECORD

TEST REPORT NUMBER	REASON OF CHANGE	DATE OF ISSUE
EMCTR_160016-0	Original release	21/04/2016

## 1 TECHNICAL INFORMATION OF EQUIPMENT UNDER TEST (EUT)

### 1.1 EUT Identification

<b>Description</b>	Digital Satellite Antenna with Touch Screen Control Panel
<b>Trademark</b>	MOBILTECH
<b>Model</b>	MOBILSAT
<b>S/N</b>	Prototype
<b>Manufacturer</b>	MOBILTECH DI BARIN LUCA & C. S.A.S
<b>Country of manufacturer:</b>	Italy
<b>Composed by:</b>	System composed by: <ul style="list-style-type: none"> <li>• External unit (Antenna + motors)</li> <li>• Internal unit</li> <li>• Control unit</li> </ul>

### 1.2 EUT Technical Information

<b>ITE class</b>	Class A
<b>Single or Multiple Unit :</b>	Multiple Unit
<b>EUT Dimensions :</b>	See photographic documentation
<b>EUT standing:</b>	On the Top of Camper

### 1.3 EUT Technical Data

<b>Power source :</b>	DC Battery
<b>Power supply nominal voltage:</b>	12Vdc
<b>Nominal power or absorbing current :</b>	4Amax / 400mA typical

## 1.4 EUT ports identification

This section contains descriptions of all ports, the length and the type of the cable provided by manufacturer needed for the tests. Moreover it is specified if the ports are ever or optionally connected.

Port	Description	Connector	Max cable length
1	<b>Enclosure</b>	<i>Plastic</i>	<i>Screw+pressure</i>
2	<b>AC mains input/output ports</b>	Port not present	-----
3	<b>DC mains input/output ports</b>	12Vdc	>3mt
4	<b>Signals / Control Ports</b>	From Internal unit to external unit	>3mt
		From internal unit to control unit	> 3mt
5	<b>Telecommunication port</b>	Port not present	-----

Note: During the tests all cables must be what provided the manufacturer or the same that used in the real employment of the EUT.

## 1.5 Modifications incorporated in E.U.T.

The following items are the modifications introduced in the equipment under test :

- Applied Shield on DC Cable, Antenna Cables, Enclosure.
- Reduced Motor Velocity Rotation
- PWM Frequency Set to 20Khz
- On DC Power Port add two Capacitor in Parallel 220uF and 20 uF
- On 3,3v add Ceramic Capacitor 10uF

## 1.6 Auxiliary equipment

- None

## 1.7 Primary functions of the EUT

The following table describes the primary functions and the representative parameter of the equipment under test according the manufacturer specifications:

Primary function	Representative parameter
Satellite pointer and ID satellite decoding The MobiSat is designed to receive digital TV and radio programs via satellite.	Antenna position

## 1.8 Performance of equipment under test

With reference to the above specified primary functions, the following table defines the acceptable level of the performance or permissible loss of function and the observation mode for each representative parameter of the equipment under test according to the technical instructions by the manufacturer.

Representative parameter	Acceptable level of performance	Observation mode		
		Acquisition	Test equipment	Test n.
Antenna position	No performance degradation	Visual	Operator	All Immunity test

## PERFORMANCE CRITERIA acc. to EN 55024

### Performance criteria A

The equipment shall continue to operate as intended without operator intervention. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer when the equipment is used as intended. The performance level may be replaced by a permissible loss of performance. If the minimum performance loss is not specified by the manufacturer, then either of these may be derived from the product description and documentation, and by what the user may reasonably expect from the equipment if used as intended.

### Performance criteria B

After the test, the equipment shall continue to operate as intended without operator intervention. No degradation of performance or loss of function is allowed, after the application of the phenomena below a performance level specified by the manufacturer, when the equipment is used as intended. The performance level may be replaced by a permissible loss of performance.

During the test, degradation of performance is allowed. However, no change of operating state or stored data is allowed to persist after the test.

If the minimum performance level (or the permissible performance loss) is not specified by the manufacturer, then either of these may be derived from the product description and documentation, and by what the user may reasonably expect from the equipment if used as intended.

### Performance criteria 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

## 2 OPERATING TEST MODES AND TEST CONDITIONS

The equipment has been tested according to the operative conditions described in the user/installation manual provided by the manufacturer and by following reference standards :

Reference standards :	
<b>EN 55022:2010</b>	Information technology equipment – Radio disturbance characteristics - Limits and methods of measurements
<b>EN 55024:2010</b>	Information technology equipment – Immunity characteristics - Limits and methods of measurements

In the following table there are the operating conditions adopted during tests identified by an indicator (#..) at which has been referred the item “Operating condition of the equipment under test” of all technical sheets of the tests (see Section 4)

Operating condition	Description
#1	Motor Rotation
#2	Stand By

### 3 SUMMARY OF TEST RESULTS

#### 3.1 Emission tests

Port		Phenomena	Reference Standard	Operating condition	Result
1	Enclosure	Radiated emission	EN 55022	#1	Within the limit
2	AC Port	Harmonic currents	EN 61000-3-2	Not applicable <sup>2</sup>	
		Voltage fluctuations and flicker	EN 61000-3-3		
		RF Disturbance voltage: • continuous	EN 55022		
		RF Disturbance voltage: • discontinuous (Click)	EN 55022		
3	DC Port	RF Disturbance voltage: • continuous	EN 55022	#1	Within the limit
5	Telecom. Port	RF Disturbance voltage: • continuous	EN 55022	Not applicable <sup>2</sup>	

<sup>1</sup> Ref. Tab. of Section 2

<sup>2</sup> Port not present



### 3.2 Immunity tests

Port		Phenomena	Basic Standard	Operating condition	Result
1	Enclosure	EM radiated field, AM 80%	EN 61000-4-3	#1	COMPLIANT
		Magnetic Field 50/60 Hz	EN 61000-4-8	Not applicable <sup>3</sup>	
		Electrostatic Discharge (ESD)	EN 61000-4-2	#1	COMPLIANT
2	AC Input power line	Fast transients	EN 61000-4-4	Not applicable <sup>2</sup>	
		RF common mode	EN 61000-4-6		
		Surge	EN 61000-4-5		
		Voltage dips/interruptions	EN 61000-4-11		
3	DC Input power line	Fast transients	EN 61000-4-4	#1	COMPLIANT
		RF common mode	EN 61000-4-6	#1	COMPLIANT
		Surge	EN 61000-4-5	#1	COMPLIANT
4	Signal / control line	Fast transients	EN 61000-4-4	#1	COMPLIANT
		RF common mode	EN 61000-4-6	#1	COMPLIANT
		Surge	EN 61000-4-5	#1	COMPLIANT
5	Telecom. port	Fast transients	EN 61000-4-4	Not applicable <sup>2</sup>	
		RF common mode	EN 61000-4-6		
		Surge	EN 61000-4-5		

<sup>1</sup> Ref. Tab. of Section 2

<sup>2</sup> Port not present

<sup>3</sup> Applicable to apparatus containing devices susceptible to magnetic fields, such as Hall elements, magnetic field sensor, etc

## 4 TEST RESULTS

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**TEST  
1.**

**EMISSION OF MAINS TERMINAL DISTURBANCE VOLTAGE  
(CONTINUOUS DISTURBANCE)**

REFERENCE DOCUMENT EN 55022  
"Limits and methods of measurement of radio interference characteristics of information technology equipment"

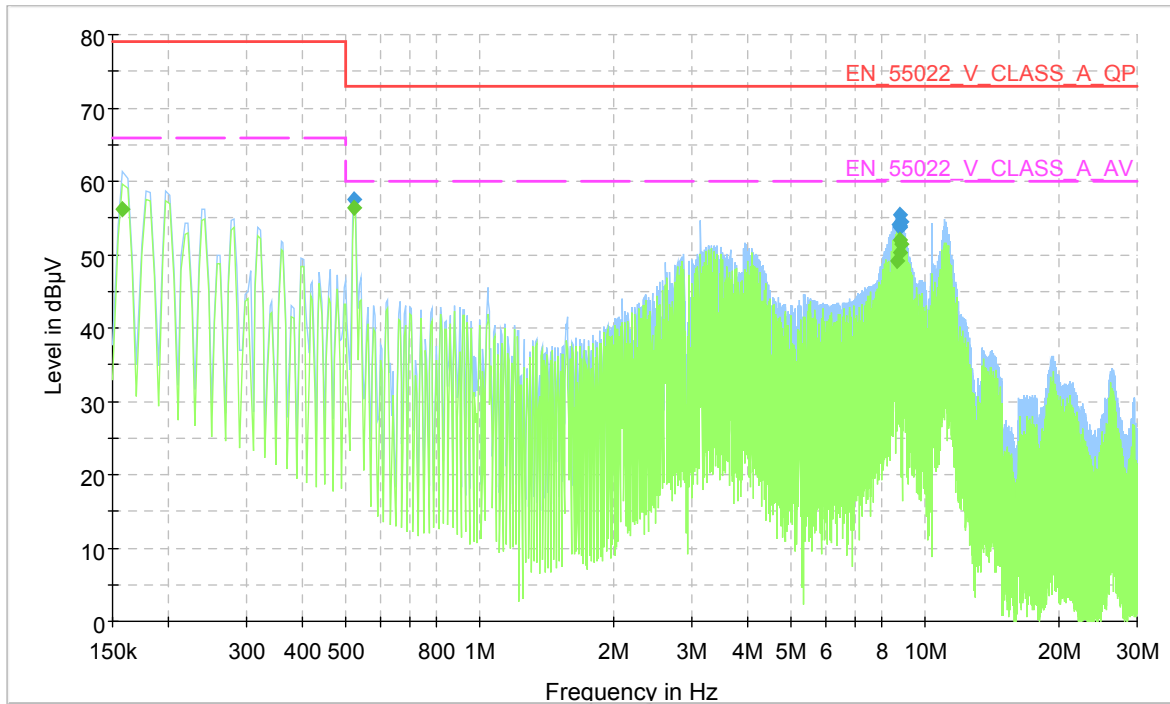
**TEST SETUP:** Acc. to par. 5.2 of reference document  
**TEST LOCATION:** Semianechoic chamber  
**TEST EQUIPMENT USED FOR TEST:** EMI receiver Rohde & Schwarz Mod. ESM1 (15Hz-26.5GHz)  
 Artificial Network Rohde & Schwarz Mod. ESH3-Z5  
 Impedance Stabilization Network (ISN) PR&S  
**TESTED PORT:** AC and DC Input Port, Telecommunication Port  
**FREQUENCY RANGE:** 0.15 - 30 MHz  
**EMISSION LIMITS:** Acc. to Tab. 2 of reference document  
**MEASUREMENT UNCERTAINTY:** Level of confidence = 95%  
 Degree of freedom = 10  
 Coverage factor  $k_p = 2,28$   
 Combined uncertainty = 2,36 dB

TEST CONDITIONS:	MEASURED
<b>Ambient temperature :</b> 15 - 35 °C	24 ± 3 °C
<b>Ambient humidity :</b> 25 - 75 %rH	40 ± 5 %rH
<b>Pressure :</b> 85 - 106 kPa (860 mbar - 1060 mbar)	950 ± 50 mbar
<b>Voltage :</b>	12Vdc

**OPERATING CONDITION (Rif. Section. 2) : #1**

**RESULT: WITHIN THE LIMITS**

EMI\_COND



**Final Result QuasiPeak**

Frequency (MHz)	QuasiPeak (dBµV)	PE	Line	Margin (dB)	Limit (dBµV)	Comment
0.522000	57.4	GND	L1	15.60	73.00	
8.762000	54.1	GND	N	18.90	73.00	
8.782000	54.0	GND	N	19.00	73.00	
8.802000	53.8	GND	N	19.20	73.00	
8.822000	55.5	GND	N	17.50	73.00	
8.862000	54.4	GND	N	18.60	73.00	

**Final Result Average**

Frequency (MHz)	Average (dBµV)	PE	Line	Margin (dB)	Limit (dBµV)	Comment
0.158000	56.2	GND	L1	9.80	66.00	
0.522000	56.4	GND	L1	3.60	60.00	
8.662000	49.2	GND	N	10.80	60.00	
8.802000	51.9	GND	N	8.10	60.00	
8.822000	50.2	GND	N	9.80	60.00	
8.862000	51.4	GND	N	8.60	60.00	

**TEST  
2.**

**ELECTROMAGNETIC RADIATED FIELD DISTURBANCE**

REFERENCE DOCUMENT EN 55022  
"Limits and methods of measurement of radio interference characteristics of information technology equipment"

**TEST SETUP:** Acc. To Par. 9.1 of the ref. Std.  
**TEST LOCATION:** Semi-anechoic chamber (CISPR 16-1 :1993)  
Siemens+Matsushita type B84117-D6019-T232  
Measure distance 3 meters  
**TEST EQUIPMENT USED FOR TEST:** EMI receiver Rohde & Schwarz Mod. ESMI  
Chase Antenna Mod. CBL 6111 A  
**TESTED PORT:** Enclosure  
**FREQUENCY RANGE:** 30 - 1000 MHz  
**EMISSION LIMITS:** Tab. 4 of Reference Standard  
**UNCERTAINTY OF MEASURE:** Level of confidence = 95%  
Degree of freedom = 10  
Coverage factor  $k_p = 2,28$   
Combined uncertainty = 4,49 dB

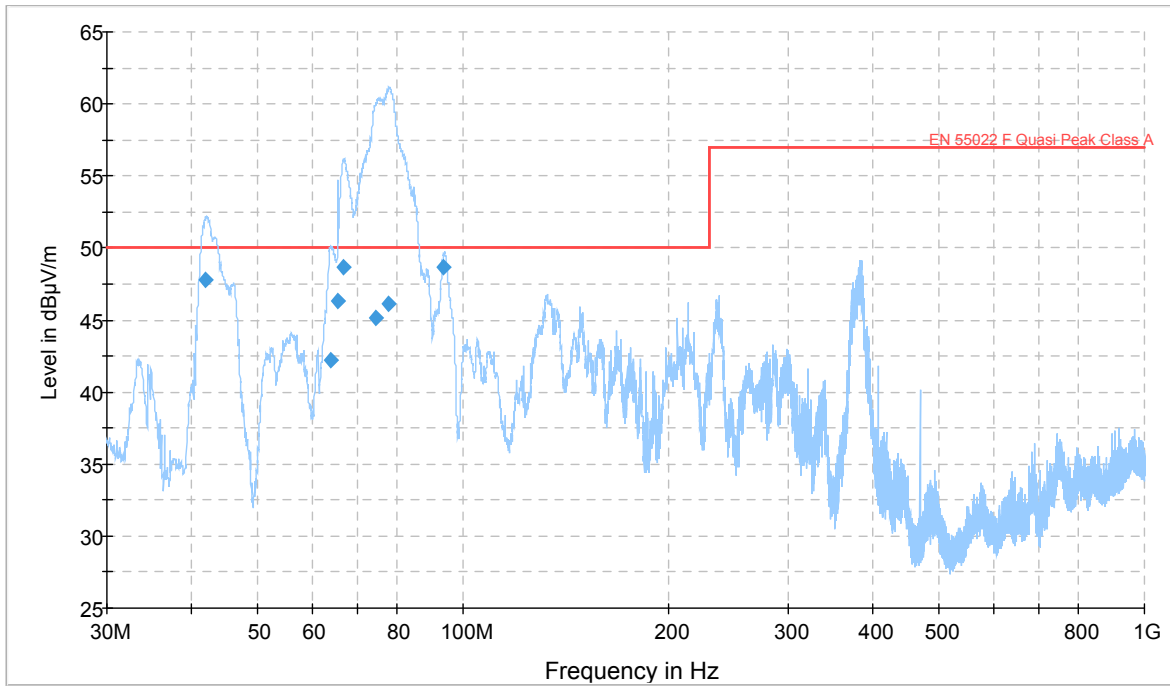
TEST CONDITIONS:	MEASURED
Ambient temperature : 15 - 35 °C	24 ± 3 °C
Ambient humidity : 25 - 75 %rH	40 ± 5 %rH
Pressure : 85 - 106 kPa (860 mbar - 1060 mbar)	950 ± 50 mbar
Voltage :	12Vdc

**OPERATING CONDITION (Rif. Section. 2) : #1**

**RESULT: WITHIN THE LIMIT**

**30MHz – 1GHz**

EN\_55022\_EMI\_RAD\_CLASS\_A



**Final Result QuasiPeak**

Frequency (MHz)	QuasiPeak (dBµV/m)	Height (cm)	Polarization	Azimuth (deg)	Margin (dB)	Limit (dBµV/m)
41.880000	47.8	174.0	V	22.0	9.20	50.00
64.000000	42.2	194.0	V	159.0	7.80	50.00
65.480000	46.3	257.0	H	181.0	3.70	50.00
66.800000	48.7	288.0	V	270.0	1.30	50.00
74.320000	45.2	258.0	V	201.0	4.80	50.00
77.840000	46.1	333.0	V	201.0	3.90	50.00
93.720000	48.7	257.0	H	23.0	1.30	50.00

**TEST  
3.**

**IMMUNITY TO RADIATED RF ELECTROMAGNETIC FIELD**

REFERENCE DOCUMENT EN 61000-4-3  
Electromagnetic Compatibility (EMC) - Part 4 Testing and measuring techniques  
Section 3 : Radiated radio-frequency electromagnetic field - Immunity test

**TEST SETUP:** Acc. to par. 7 of Basic standard

**TEST LOCATION:** Semi-anechoic chamber (CISPR 16-1 :1993)  
Siemens+Matsushita type B84117-D6019-T232  
Measure distance 3 meters

**TEST EQUIPMENT USED FOR TEST:**

RF generator	Signal	R&S mod. SME 03	5kHz - 3GHz
RF Amplifiers		AR 250L 250W	150kHz - 220MHz
		AR100W 100W	220MHz - 1000MHz
		AR-DC2500	
Directional Coupler		AR-DC6180	10 kHz – 220 MHz
		FSA mod. S13014/1	80 – 1000 MHz
Transmitting antenna		EMS-K1.04h	80MHz - 1GHz
Software			

**TESTED PORT:** Enclosure

**FREQUENCY RANGE:** 80 MHz - 1000MHz

**SCAN DATA:** 1s - 1% log.

**IMMUNITY LEVEL:** 3 V/m, 80% AM (1kHz)

**PERFORMANCE CRITERION** A

**MEASUREMENT UNCERTAINTY:** Level of confidence = 95% Degree of freedom = 10  
Coverage factor  $k_p= 2,28$  Combined uncertainty = 10,5 %

TEST CONDITIONS:	MEASURED
Ambient temperature : 15 - 35 °C	24 ± 3 °C
Ambient humidity : 25 - 75 %rH	40 ± 5 %rH
Pressure : 85 - 106 kPa (860 mbar - 1060 mbar)	950 ± 50 mbar
Voltage :	12Vdc

**OPERATING CONDITION (Rif. Section. 2) : #1;#2**

**RESULT: COMPLIANT**

## TEST RESULTS

AM, 80% 1kHz 3V/m

POLAR. PORT	VERTICAL			HORIZONTAL			NOTES
	COMPLIANT	NOT COMPLIANT		COMPLIANT	NOT COMPLIANT		
	A	B	C	A	B	C	
ENCLOSURE front side	✓			✓			No performance degradation
ENCLOSURE left side	✓			✓			No performance degradation
ENCLOSURE right side	✓			✓			No performance degradation
ENCLOSURE rear side	✓			✓			No performance degradation



**TEST  
4.**

**IMMUNITY TO ELECTROSTATIC DISCHARGE (ESD)**

REFERENC  
E  
DOCUMENT  
T

EN 61000-4-2  
Electromagnetic Compatibility (EMC) - Part 4 Testing and measuring techniques  
Section 2 - Electrostatic discharge immunity test.

**TEST SETUP:**

Acc. to par. 7 of Basic standard

**TEST LOCATION:**

Transitory phenomena area

**TEST EQUIPMENT USED FOR TEST:**

ESD generator Schaffner Mod. NSG 435-01  
Discharge impedance 330 ohm / 150 pF

**TESTED PORT:**

Enclosure

**IMMUNITY LEVEL:**

± 4kV (direct and indirect contact) ; ± 8kV (direct air)

**NUMBER OF DISCHARGES AND TIME BETWEEN SUCCESSIVE PULSES:**

50 positive and 50 negative for each point of discharge  
(1 discharge / second)

**PERFORMANCE CRITERION**

B

**MEASUREMENT UNCERTAINTY:**

Level of confidence = 95%  
Degree of freedom = 10  
Coverage factor  $k_p = 2,28$   
Combined uncertainty of peak voltage level = 3,09 %  
Combined uncertainty of peak current level = 8,52 %  
Combined uncertainty of rise time = 5,45 %  
Combined uncertainty of curve decay points at 30 and 60 ns = 10,22 %

TEST CONDITIONS:	MEASURED
Ambient temperature : 15 - 35 °C	24 ± 3 °C
Ambient humidity : 25 - 75 %rH	40 ± 5 %rH
Pressure : 85 - 106 kPa (860 mbar - 1060 mbar)	950 ± 50 mbar
Voltage :	12Vdc

**OPERATING CONDITION (Rif. Section. 2) : #1,#2**

**RESULT: COMPLIANT**

## TEST RESULTS

### DIRECT CONTACT DISCHARGE (FOR CONDUCTIVE SURFACES)

- Level : 4 kV
- For each voltage and polarity, apply 50 discharges.
- Enter the number of times the system responded according to a level A, B or C.

TEST RESULTS		Pol.	PERFORMANCE CRITERIA			NOTES
Discharge point			COMPLIANT		NOT COMPLIANT	
		A	B	C		
1	Antenna enclosure (external unit)	+	10			No performance degradation
		-	10			

### DIRECT AIR DISCHARGE (FOR NOT CONDUCTIVE SURFACES)

- Level : 8 kV
- For each voltage and polarity, apply 10 discharges.
- Enter the number of times the system responded according to a level A, B or C.

TEST RESULTS		Pol.	PERFORMANCE CRITERIA			NOTES
Discharge point			COMPLIANT		NOT COMPLIANT	
		A	B	C		
2	Enclosure internal unit	+	H			No performance degradation
		-	H			
3	Enclosure control unit	+	H			No performance degradation
		-	H			

NOTES : H = HIGH IMPEDENCE SURFACE, ESD CANNOT BE REPRODUCED.

### INDIRECT DISCHARGE TO VCP (VERTICAL COUPLING PLANE)

- Level : 4kV
- For each voltage and polarity, apply 50 discharges.
- Enter the number of times the system responded according to a level A, B or C.

TEST RESULTS		Pol	PERFORMANCE CRITERIA			NOTES
			COMPLIANT		NOT COMPLIANT	
Discharge point			A	B	C	
4	Enclosure front side	+	10			No performance degradation
		-	10			
5	Enclosure left side	+	10			No performance degradation
		-	10			
6	Enclosure right side	+	10			No performance degradation
		-	10			
7	Enclosure back side	+	10			No performance degradation
		-	10			

### INDIRECT DISCHARGE TO HCP (HORIZONTAL COUPLING PLANE)

- Level : 4kV
- For each voltage and polarity, apply 50 discharges.
- Enter the number of times the system responded according to a level A, B or C.

TEST RESULTS		Pol	PERFORMANCE CRITERIA			NOTES
			COMPLIANT		NOT COMPLIANT	
Discharge point			A	B	C	
8	Horizontal coupling plane (external unit)	+	10			No performance degradation
		-	10			

**TEST  
5.**

**IMMUNITY TO FAST TRANSIENTS / BURSTS**

REFERENC  
E  
DOCUMENT  
T

EN 61000-4-4  
Electromagnetic Compatibility (EMC) - Part 4 Testing and measuring techniques  
Section 4 - Electrical fast transient burst immunity test.

**TEST SETUP:**

Acc. to par. 7 of Basic standard

**TEST LOCATION:**

Transitory phenomena area

**TEST EQUIPMENT USED FOR TEST:**

Burst Generator Hilo Test Mod. EFTG 4510  
3-phase CDN Hilo Test Mod. CDN 414  
Capacitive clamp Hilo Test Mod. EFTC-105

**TESTED PORT:**

AC Power Input Ports, DC Power Input Ports,  
signals/controls lines and Telecommunication Port

**IMMUNITY LEVEL:**

AC ports :  $\pm 1$  kV  
DC ports :  $\pm 0,5$  kV  
Signals/controls lines:  $\pm 0.5$  kV  
Telecommunication Port:  $\pm 0.5$  kV

**PERFORMANCE CRITERION**

B

**MEASUREMENT UNCERTAINTY:**

Level of confidence = 95%  
Degree of freedom = 10  
Coverage factor  $k_p = 2,28$   
Combined uncertainty of peak voltage level = 10,16 %  
Combined uncertainty of rise time = 20,08 %  
Combined uncertainty of frequency 5 kHz = 1,82 %  
Combined uncertainty of duration = 20,08 %

TEST CONDITIONS:	MEASURED
Ambient temperature : 15 - 35 °C	24 $\pm$ 3 °C
Ambient humidity : 25 - 75 %rH	40 $\pm$ 5 %rH
Pressure : 85 - 106 kPa (860 mbar - 1060 mbar)	950 $\pm$ 50 mbar
Voltage :	12Vdc

**OPERATING CONDITION (Rif. Section. 2) : #1,#2**

**RESULT: COMPLIANT**

**PORT n. 3 : DC Power Ports**

TEST	COUPLING MODE	IMMUNITY LEVEL	POL.	DISTURB. DURATION	REPETITION FREQ.	TEST DURATION
TEST 1	(+) - Ref. ground	0,5KV	Ē	15 ms	5 kHz	60 s
TEST 2	(-) - Ref. ground	0,5KV	Ē	15 ms	5 kHz	60 s
TEST RESULT		PERFORMANCE CRITERIA			NOTES	
POL.		COMPLIANT		NOT COMPLIANT		
		A	B	C		
TEST 1	+	✓			No performance degradation	
	-	✓				
TEST 2	+	✓			No performance degradation	
	-	✓				

**PORT n. 4 : (SIGNAL/CONTROL IN/OUT PORTS)**

TEST	COUPLING MODE	IMMUNITY LEVEL	POL.	DISTURB. DURATION	REPETITION FREQ.	TEST DURATION
TEST 3	Capacitive Clamp	0,5KV	Ē	15 ms	5 kHz	60 s
TEST RESULT		PERFORMANCE CRITERIA			NOTES	
POL.		COMPLIANT		NOT COMPLIANT		
		A	B	C		
TEST 3	+	✓			No performance degradation	
	-	✓				

**TEST  
5.**

**IMMUNITY TO SURGE**

**REFERENCE DOCUMENT** EN 61000-4-5  
Electromagnetic Compatibility (EMC) - Part 4 Testing and measuring techniques  
Section 5 - Surge immunity test.

**TEST SETUP:** Acc. to par. 7 of ref. Std.

**TEST LOCATION:** Transitory phenomena area

**TEST EQUIPMENT USED FOR TEST:** Surge Generator Hilo Test Mod. CWG 4-412  
3-Phase CDN trifase Hilo Test Mod. CDN 414  
Surge Generator HAEFELY Mod. PST  
Coupling Network HAEFELY mod. IP6.2  
Decoupling Network HAEFELY mod.DEC1A

**TESTED PORT:** AC Input Power Port, DC power Input Ports, signal control lines and Telecommunication Ports

**IMMUNITY LEVEL:** AC:  $\pm 1\text{kV}$  (differential mode) ;  $\pm 2\text{kV}$  (common mode)  
DC:  $\pm 0,5\text{kV}$  (common mode)

**NUMBER OF SURGES:** Signals and Telecommunication :  $\pm 1\text{kV}$  (common mode)

**TIME INTERVAL BETWEEN SUCCESSIVE PULSES:** 5 positive and 5 negative at the selected points

**PERFORMANCE CRITERION:** 1 min.

**MEASUREMENT UNCERTAINTY:** B  
Level of confidence = 95%  
Degree of freedom = 10  
Coverage factor  $k_p=2,28$   
Combined uncertainty of peak voltage level = 9,36 %  
Combined uncertainty of rise time = 22,62 %  
Combined uncertainty of short-circuit current = 8,92 %  
Combined uncertainty of duration = 22,32 %

TEST CONDITIONS:	MEASURED
<b>Ambient temperature :</b> 15 - 35 °C	<b>24 <math>\pm</math> 3 °C</b>
<b>Ambient humidity :</b> 25 - 75 %rH	<b>40 <math>\pm</math> 5 %rH</b>
<b>Pressure :</b> 85 - 106 kPa (860 mbar - 1060 mbar)	<b>950 <math>\pm</math> 50 mbar</b>
<b>Voltage :</b>	<b>12Vdc</b>

**OPERATING CONDITION (Rif. Section. 2) : #1,#2**

**RESULT: COMPLIANT**

**PORT n. 3 : DC POWER PORTS**

TEST	COUPLING MODE	TEST VOLTAGE	IMPEDENCE COUPLING	TEST FREQUENCY	Polarity
TEST 4	(+) – (Reference plane) (COMMON MODE)	Ë 0.5 kV	10 h+9 ~F	1pul./min.	+/-
TEST 5	(-) – (Reference plane) (COMMON MODE)	Ë 0.5 kV	10 h+9 ~F	1pul./min.	+/-

RESULT	P o l. i.	Performance Criteria			NOTES
		COMPLIANT		NOT COMPLIANT	
		A	B	C	
TEST 4	+ -	✓ ✓			No performance degradation
TEST 5	+ -	✓ ✓			No performance degradation

**PORT n. 4 : SIGNAL / CONTROL LINES**

TEST	COUPLING MODE	TEST VOLTAGE	IMPEDENCE COUPLING	TEST FREQUENCY	Polarity
TEST 6	(Every single Line) – (Reference plane)	Ë 1 kV	40 h	1pul./min.	+/-

RESULT	P o l. i.	Performance Criteria			NOTES
		COMPLIANT		NOT COMPLIANT	
		A	B	C	
TEST 6	+ -	✓ ✓			No performance degradation

**TEST  
6.**

**IMMUNITY TO CONDUCTED RF-DISTURBANCES  
(COMMON MODE)**

**REFERENCE DOCUMENT** EN 61000-4-6  
Electromagnetic Compatibility (EMC) - Part 4 Testing and measuring techniques  
Section 6 - Conducted disturbances induced by radio frequency fields immunity test -  
.Electromagnetic compatibility.

**TEST SETUP:** Acc. to par.7 of Basic std.  
**TEST LOCATION:** Semi-anechoic chamber  
**TEST EQUIPMENT USED FOR TEST:**

RF signal Gen	SME 03	5kHz - 3GHz	
RF Amplif.	AR 250L	0.01MHz	-
Directional Coupler	250W	220MHz	
CDN	AR-DC2500	10 kHz	- 220
CDN	M2/M3 ( 16 A )	MHz	
EM Clamp	T2	150kHz	-
RF Attenuator	Mod. F-2031	230MHz	
	6dB	150kHz	-
		230MHz	
		150kHz	-
		230MHz	
		50 ohm	250
		Watt	

**PORT TO TEST:** AC Power Input Ports, DC Power Input Ports, signals/controls lines and Telecommunication ports  
**FREQUENCY RANGE:** 150 kHz - 80 MHz  
**SCAN DATA:** 1s - 1% log.  
**IMMUNITY LEVEL:** 3V (rms unmodulated), 80% AM, 1 kHz  
**PERFORMANCE CRITERION:** A  
**MEASUREMENT UNCERTAINTY:** Level of confidence = 95%  
Degree of freedom = 10  
Coverage factor  $k_p = 2,28$   
Combined uncertainty = 2,24 %

TEST CONDITIONS:	MEASURED
Ambient temperature : 15 - 35 °C	24 ± 3 °C
Ambient humidity : 25 - 75 %rH	40 ± 5 %rH
Pressure : 85 - 106 kPa (860 mbar - 1060 mbar)	950 ± 50 mbar
Voltage :	12Vdc

**OPERATING CONDITION (Rif. Section. 2) : #1,#2**

**RESULT: COMPLIANT**



## TEST RESULTS

### AM 80% 1kHz 3V

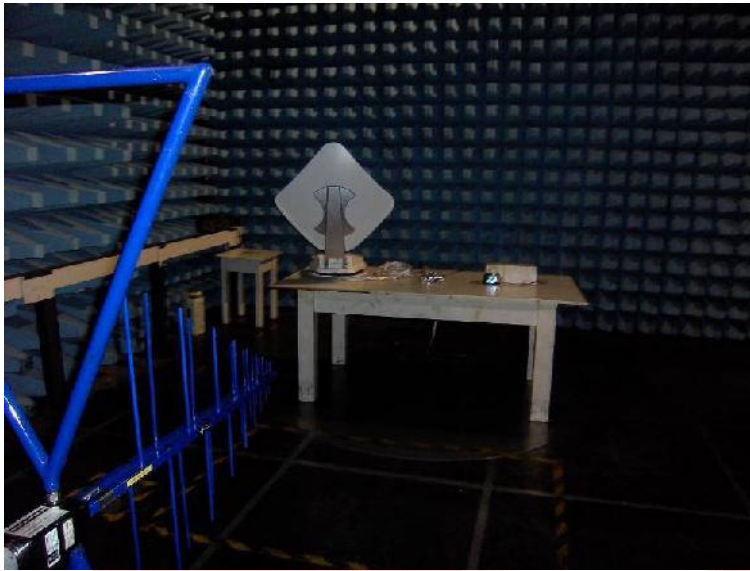
PORT n.	PERFORMANCE CRITERION			NOTES
	COMPLIANT	NOT COMPLIANT		
	A	B	C	
2 (AC Power Ports)	----			No applicable: port not present
3 (DC Power Ports)	✓			No performance degradation
4 (Control / Signal ports)	✓			No performance degradation
5 (Telecommunication Port)	----			No applicable: port not present

## 5 PHOTOGRAPHIC DOCUMENTATION

PHOTO 1 – EUT IDENTIFICATON



**PHOTO N° 2 – RADIATED EMISSION SETUP**



**PHOTO N° 3 – RADIATED IMMUNITY SETUP**

