



TEST REPORT
SKTC 101 – Authorized Body
Laboratory V. - EMC
EVPÚ a.s., Trenčianska 19, Nová Dubnica

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Pages : 6
Annexes : 3
Report No. : 0291 / 03

Product: **Telephone – NET PHONE 210**

Brand name:

Type / Model: **VOIPAC – NP-210**

Derived items:

Manufacturer: **VOIPAC s.r.o, Slovak Republic**

Applicant: **VOIPAC s.r.o,**
Address: **Janka Kráľa 3
TRENČÍN
Slovak Republic**

Project No.: 1072 / 03

Tested according to: EN 55022 : 1998 + A1 : 2000 + A2 : 2003
EN 55024 : 1998 + A1 : 2001 + A2 : 2003

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Head of Laboratory V. - EMC

Date of receiving of sample: June 17th 2003
Date of finishing of tests: November 21st 2003
Issue date: November 27th 2003

EVPO, a. s.
Autorizovaná osoba SKTC 101
NOVÁ DUBNICA
(2)

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1. Summary

Tests were performed according to following standards:

1.1. Emissions

1 EN 55022 : 1998 + A1 : 2000 + A2 : 2003
 Limits and methods measurement of radio disturbance characteristic of information technology equipment. Pass

1.2 Immunity

1 EN 55024 : 1998 + A1 : 2001 + A2 : 2003
 Information technology equipment. Immunity characteristic. Limits and methods of measurement. Pass

2. Measurement uncertainty

Expanded measurement uncertainty according to parameters as follows:

Disturbance voltage	±3 dB(μV)
Disturbance power	±1 dB(μW)
Electromagnetic field intensity	±0 dB(μV/m)
Current – basic harmonic	±1.4 · 10 ⁻³ I _{in}
Current – 2 nd - 40 th harmonic	±(1.2 · 10 ⁻³ I _{in} + 5.0 · 10 ⁻⁵ I _{in})
Voltage	±0.6%

I_{in} – mean effective value of measured equipment input current

I_{in} – calculated limit of nth harmonic of measured equipment input current

2. Description of equipment under test

Phone is assigned for communication and voice information through Net.

Mains: power supply 12 DC

3. Environmental conditions

Tests were performed in Laboratory V. – EMC under following environmental conditions:

- temperature: +23 °C
- relative humidity: 21 %

4. Measurement uncertainty

Expanded measurement uncertainty according to parameters as follows:

Disturbance voltage	±3 dB(μV)
Disturbance power	±3 dB(pW)
Electromagnetic field intensity	±6 dB(μV/m)
Current – basic harmonic	±1,4 · 10 ⁻² I _{inp}
Current – 2 nd - 40 th harmonic	±(1,2 · 10 ⁻² I _{inp} + 5,0 · 10 ⁻² I _{nLIM})
Voltage	±0,6 %

I_{inp} – mean effective value of measured equipment input current

I_{nLIM} – calculated limit of nth -harmonic of measured equipment input current

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5. Test procedures

5.1 Emissions

5.1.1. Radio interference field strength radiated

The equipment under test was placed on a wooden table with high 0.8 m into a semi-anechoic chamber. Disturbance field was measured in the frequency range from 30 MHz to 1000 MHz. The test results are given in Annex No. 1.

5.2. Immunity

EN 61000-4-2 : 2003

Electrostatic discharge was performed by simulator SCHAFFNER NSG 432. EUT was placed on the ground reference plane on the wooden table 0,8m high, standing on the ground reference plane.

Undirect contact discharge	Air discharge
± 4 kV	± 8 kV

The test results are given in Annex No. 2.

EN 61000 – 4 – 3

5.2.1 Immunity to radio- frequency electromagnetic field was performed in frequency range from 80 MHz to 1000 MHz with level 3V/m. The test results are given in Annex No. 3.

prEN 61000 – 4 – 4 : 2001 : 2003

5.2.2 Immunity test of fast transient occurrences / bursts (power supply)

Injection to AC supply was performed directly to mains. It was injected series of impulses with positive and negative polarity. The voltage level 2kV with repeating frequency 5kHz. The equipment has to be in accordance with performance criterion B. The test results are given in Annex No. 2.

EN 61000 – 4 – 5 : 1995

5.2.3 Electromagnetic compatibility - Part 4: Testing and measurement techniques – Section 5: Surge immunity test. The test results are given in Annex No. 3.

EN 61000 – 4 – 6 : 1996 + A1 : 2001 + prIA : 2003

5.2.4 Immunity to conducted disturbances induced by radio-frequency fields (power supply)

It was performed with disturbing signal to power supply injecting through coupler CDN-M1 with 3V amplitude with AM 80% (1kHz, in frequency range 150kHz – 80 MHz).

The equipment has to be in accordance with performance criterion A. The test results are given in Annex No. 4.

6. Used test equipments

Receivers

	Manufacturer	Type	Serial number
<input type="checkbox"/>	Rohde and Schwarz	ESH 3	893495/007
<input checked="" type="checkbox"/>	Rohde and Schwarz	ESVP	892009/029
<input type="checkbox"/>	RFT	SMV8.5	02173
<input type="checkbox"/>	RFT	SMV8.5	08240
<input type="checkbox"/>	RFT	SMV11	07776

Analyzers:

	Manufacturer	Type	Serial number
<input type="checkbox"/>	ANRITSU	MS610B	MT89765
<input type="checkbox"/>	NORMA	D6100	H687884NN

LISNs:

	Manufacturer	Type	Serial number
<input type="checkbox"/>	Rohde and Schwarz	ESH2-Z5	860014/007
<input type="checkbox"/>	Rohde and Schwarz	ESH3-Z4	839736/017

Antennas:

	Manufacturer	Type	Serial number
<input type="checkbox"/>	Rohde and Schwarz	HFH2-Z2	860004/009
<input checked="" type="checkbox"/>	Rohde and Schwarz	HUF-Z2	860942/009
<input checked="" type="checkbox"/>	Rohde and Schwarz	HUF-Z3	860943/014

Generators and simulators:

	Manufacturer	Type	Serial number
<input checked="" type="checkbox"/>	Schaffner	NSG603	1749001
<input checked="" type="checkbox"/>	Schaffner	NSG625	1929019
<input checked="" type="checkbox"/>	Schaffner	NSG432	00593
<input checked="" type="checkbox"/>	Haefely and Trench	Psurge 4010	583 334-27

Amplifiers:

	Manufacturer	Type	Serial number
<input checked="" type="checkbox"/>	AR	250A 250AM3	
<input checked="" type="checkbox"/>	AR	150W 1000M3	

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Type : VOIPAC – NP-210

Mode of operation : under normal operating conditions

Facility : semianechoic chamber

Standard : EN 55022

Frequency MHz	Polarization Horizontal dB μ V	Polarization Vertical dB μ V	Antenna factor dB / m	Measured value dB μ V / m	Limits dB μ V / m
44,1	11,3	14,2	9,47	23,67	40,0
46,1	12,6	15,0	9,47	24,47	40,0
47,9	13,3	10,5	9,22	22,52	40,0
49,8	16,2	18,0	9,22	27,22	40,0
51,6	11,7	13,7	9,22	22,92	40,0
55,3	14,3	18,6	9,07	27,67	40,0
61,4	13,1	8,6	9,16	22,26	40,0
66,3	16,7	19,5	8,88	28,38	40,0
73,7	17,3	25,4	7,94	33,34	40,0
98,3	18,1	17,3	12,77	30,87	40,0
99,5	6,6	5,8	12,77	19,37	40,0
122,9	9,7	14,0	13,61	27,61	40,0
129,0	7,2	6,8	13,01	20,21	40,0
138,21	8,3	9,6	12,37	21,97	40,0
147,5	21,6	24,2	12,48	36,68	40,0
199,1	5,6	7,9	13,51	21,41	40,0
202,7	10,3	11,9	11,72	23,62	40,0
210,1	14,1	13,7	11,44	25,54	40,0
212,0	12,1	11,4	11,44	23,54	40,0
221,2	27,6	24,8	11,34	38,94	40,0
243,3	14,3	12,7	11,43	25,73	47,0
258,0	12,1	13,5	12,70	26,20	47,0

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Immunity to fast transients / bursts

The tests were performed according to EN 61000 – 4 – 4. Equipment under test was placed on a wooden table 0.8 m high. The generator was placed on a reference ground plane under EUT.

Mains	Mode	Test level [kV]	Polarity	Test duration	Result
+	generation	2	+ / -	2 min	no changes
-	generation	2	+ / -	2 min	no changes

Immunity to surges

Test was performed according to EN 61000 – 4 – 5. The amplitude 1000 V between + & – were applied.

No changes were observed.

Immunity to conducted disturbances, induced by radio-frequency fields

Test was performed according to EN 61000 – 4 – 6. Frequency range from 0,15 MHz to 80 MHz with level 3V and 1 kHz amplitude modulated signal with 80 % depth of modulation. The disturbance was injected into power line and data lines.

No changes were observed.

Immunity to voltage dips, short interruptions and voltage variations

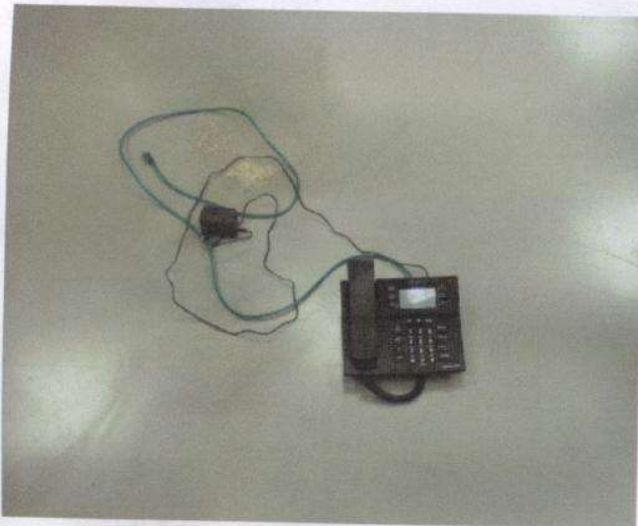
Test was performed according to IEC 61000 – 4 – 11. Behavior of equipment under test during 30% reduction of voltage for 10 periods of power supply frequency and 100% reduction of voltage during half period of power frequency was observed.

No changes were observed.

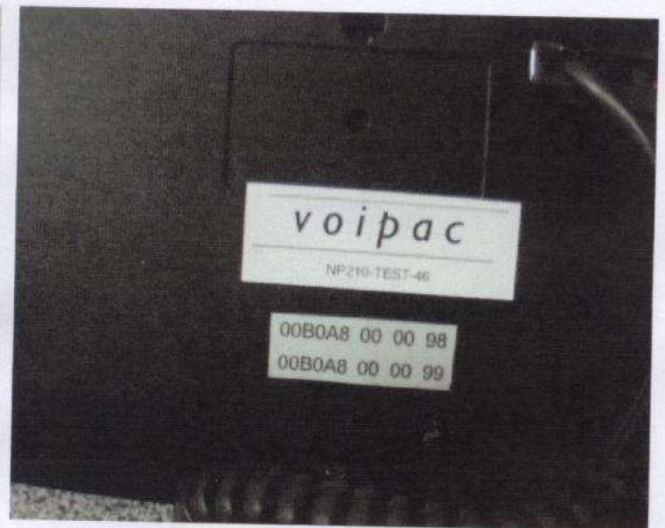
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The pictures of EUT



EUT



Sign of EUT