# REPORT OF THE SEISMIC QUALIFICATION TETS OF A

## *"TWO (2) ELECTRICAL PANELS"*

## FROM GMS PANO, ACCORDING TO:

## UNIFORM BUILDING CODE 1997, "UBC1997" AND EUROPEAN STANDARD EN 60068-3-3: 1993

ENAC ENSAYOS

**Nº 54/LE131**

***NOTE:*** *According to Section 5.10.2 of Standard ISO-IEC 17025:2005, it is stated that:*

- *The results of the present report apply only and exclusively to the samples subjected to test.*
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| Date | Carried out by | Revised and authorized by |
|---|---|---|
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# *SEISMIC*
# *Qualification Certificate*

**Nº 54/LE131**

***Delivered on:*** **Tuesday, 27 November 2018**

***References:***

- **VIRLAB** test procedure number **170810E3**, issue 1, dated 05/06/2018: "*TEST PROCEDURE FOR SEISMIC QUALIFICATION OF "ELECTRICAL EQUIPMENT" ACCORDING TO TURKEY SEISMIC CODE (2007), ENVELOPE OF CLASSES Z1 TO Z4; UBC1997 ZONE 4 AND EUROPEAN STANDARD EN60068-3-3*".
- MINISTRY OF PUBLIC WORKS AND SETTLEMENT. GOVERNMENT OF REPUBLIC OF TURKEY, document "SPECIFICATION FOR BUILDINGS TO BE BUILT IN SEISMIC ZONES (2007), CHAPTERS 1,2", Issued on 6.3.2007, Official Gazette No. 26454, Amended on 3.5.2007, Official Gazette No. 26411.
- Uniform Building Code 1997, "**UBC1997**".
- European standard **EN 60068-3-3: 1993**: *Environmental testing – Part 3: Guidance. Seismic tests methods for equipments.*
- European standard **EN 60068-2-57:2000**: "*Environmental testing - Part 2-57: Test Ff: Vibration - Time-history method*".
- European standard **EN 60068-2-6: 2008***: Environmental testing – Part 2: Tests – Fc: Vibration (sinusoidal).*
- European standard **EN 60068-2-47: 2005**: "*Environmental testing - Part 2-47: Tests. Mounting of specimens for vibration, impact and similar dynamic tests*".

***Laboratory Name:*** **VIRLAB, S.A.** (accredited by ENAC, Spanish National Accreditation Entity).
ENAC certificate number 54/LE131.

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***Client:*** **GMS Pano Elektrik Sanayi ve Ticaret A.Ş. (TURKEY)**



***NOTE:*** *According to Section 7.8.2.1 of Standard ISO-IEC 17025:2017, it is stated that the results of the present certificate apply only and exclusively to the samples subjected to test.*

***Equipment tested**: **Two (2) Electric Panels**, manufactured by* **GMS Pano**:

| | Panel | |
|---|---|---|
| | ***DT 4000 Floor-standing*** | ***DT 250 Wall-mounted*** |
| Serial number | 18.083.GMS.0895 | 18.083.GMS.0896 |
| Drawing number | 18.083.GMS.0895 | 18.083.GMS.0896 |
| Dimension (HxWxD) | 2050x(800+700)x600 | 700x600x200 |
| Weight (kg) | 573 | 30 |
| Components: | 3P * [5 * (100x5mm)] tin plated copper busbars<br><br>Cubicle +NA001<br>1 pc 3P 4000 ACB<br>1 pc 3P 250A MCCB<br><br>Cubicle +NA002<br>1 pc 3P 1000A ACB<br>1 pc 3P 630A MCCB | 17 pcs 1P B-curve 6A 6kA MCB's<br><br>14 pcs Klemsan 2,5mm² push-in type, 2 deck terminal blocks<br><br>1 pc Klemsan 2,5mm² push-in type, blue terminal block |

Pictures included here below show the **Panels** tested on the test platform, in *front-to-back*, "X", and *side-to-side*, "Y", directions, in both cases, simultaneously with the vertical, "Z", direction.

"XZ" Direction

"YZ" Direction

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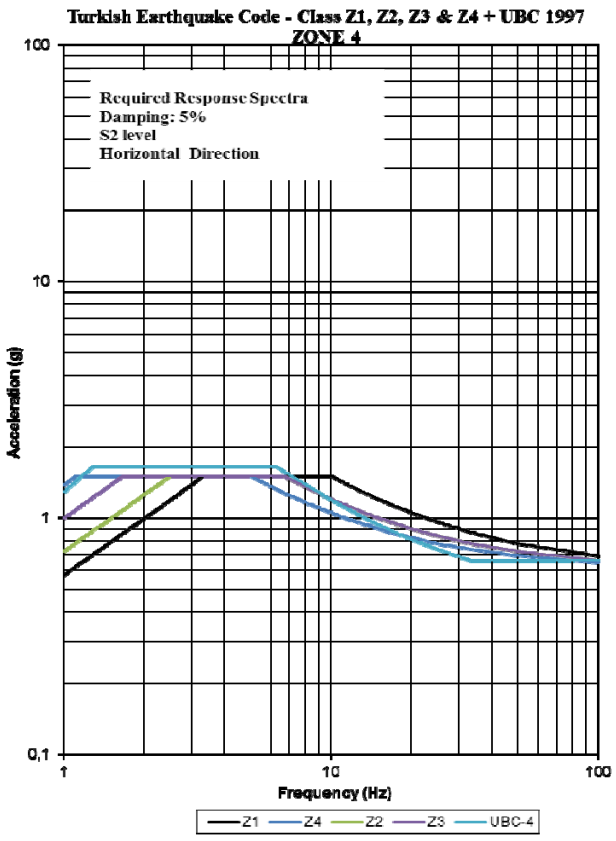
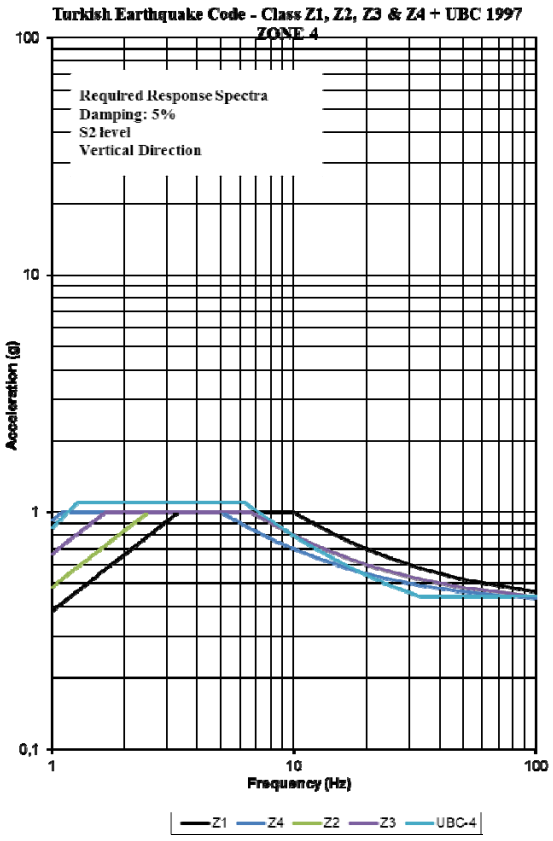
**VIRLAB, S.A.**, certifies that the ***Equipments*** described here above have been tested in its laboratory of ASTEASU (Spain) between the November 19th and 20th 2018, as described in VIRLAB document number **170810E3,** revision 1, dated 05/06/2018, elaborated according to **TURKEY SEISMIC CODE (2007),** envelope of **classes Z1 to Z4** and **UBC1997** Code, **Zone 4**, also following European Standard **EN60068-3-3:1993**.

The **Panels** have been submitted to the tests described here below:

- Resonance search tests, between 1 and 55 Hz, with an acceleration level of 0.1 g, independently performed in each one of the three main directions of it, *front-to-back (X)*, *side-to-side* (Y) and *vertical (Z).*
- Seismic, biaxial, tests, consisting of five (5) **S1** (50% **S2**) level tests and one (1) **S2** level test, 30 seconds duration, applied in both "XZ" (*front-to-back and vertical*) and "YZ" (*side-to-side and vertical*) directions. The applicable Required Response Spectra, **RRS (***5% damping*), for **S2** level, considers:
  - ✓ *Zero Period Acceleration*: 0.66 g in horizontal direction, 0.44 g *(0.66x2/3)* in vertical direction
  - ✓ *Maximum spectral acceleration*: 1,65 g in horizontal direction, 1.10 g *(0.66x2/3)* in vertical direction, for 5% damping.



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The **Panels DT4000 & DT250** have successfully passed the Seismic Tests, to which they have been subjected, maintaining its structural integrity and properly running before, during and after the seismic tests, without having detected any electrical discontinuity.

Test report number **182849 of VIRLAB, S.A.**, will include all the information obtained, with tables, photographs, used measuring devices calibration certificates, and other relevant information.

VIRLAB representative

**Julen ALBERDI**
Engineer of Laboratory



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