

ALLIANZ TEKNİK DEPREM & YANGIN TEST VE EĞİTİM MERKEZİ

Türk-Alman Üniversitesi, Şahinkaya Cad. No:90, 34820 Beykoz / İSTANBUL

Tel: 0216 556 6351 E-posta: allianztekNIK@allianz.com.trWeb: www.allianztekNIK.com.tr

AB-1601-T

EQ-AZTEK-21-015

10-21

TEST RAPORU
TEST REPORT

Müşterinin Adı/Adresi Customer Name/Address	: DEMA Röle A.Ş. Zümrütevler Mah. Atatürk Cad. İnanç Sk. No: 4 34852 Maltepe/İstanbul
Teklif Numarası Order No.	: AZTEK-21-015
Numunenin Adı Ve Tanımı Name And Identity Of Test Item	: CPM 312 SE Multifunction Digital Fixed Type Overcurrent Relay CPM 310 DE Multifunction Socket Type Digital Overcurrent Relay Total Weight Is 4,1 kg
Numunenin Kabul Tarihi The Date Of Receipt Of Test Item	: 05/08/2021
Uygulanan Standart / Metot Applied Standard / Method	: EN 60255-21-1, EN 60255-21-2 and EN 60255-21-3
Açıklamalar Remarks	: Allianz Teknik confirms that the above referenced items have been tested in accordance with the requirements of EN 60255-21-1, EN 60255-21-2 and EN 60255-21-3.
Deneyin Yapıldığı Tarih Date Of Test	: 06-08/08/2021
Raporun Sayfa Sayısı Number Of Pages Of The Report	: 36

Deney laboratuvarı olarak faaliyet gösteren Allianz Teknik, TÜRKAK'tan AB-1601-T akreditasyon dosyası numarası ile TS EN ISO/IEC 17025:2017 standardına göre akredite edilmiştir.

Allianz Teknik accredited by TÜRKAK under registration number AB-1601-T for EN ISO/IEC 17025:2017 as test laboratory.

Türk Akreditasyon Kurumu (TÜRKAK) deney raporlarının tanınırlığı konusunda Avrupa Akreditasyon Birliği (EA) ile Çok Taraflı Anlaşma ve Uluslararası Laboratuvar Akreditasyon Birliği (ILAC) ile karşılıklı tanıma anlaşması imzalamıştır.

Turkish Accreditation Agency (TURKAK) is a signatory to the European co-operation for Accreditation (EA) Multilateral Agreement (MLA) and to the International Laboratory Accreditation Cooperation (ILAC) Mutual Recognition Arrangement (MRA) for the recognition of test reports.

Deney ve /veya ölçüm sonuçları, genişletilmiş ölçüm belirsizlikleri (olması halinde) ve deney metotları bu raporun tamamlayıcı kısmı olan takip eden sayfalarda verilmiştir.

The test and/or measurement results, the uncertainties (if applicable) with confidence probability and test methods are given on the following pages which are part of this report.

Bu rapor özel deney talebine istinaden düzenlenmiş olup, Standartlara Uygunluk Belgesi niteliğinde değildir. Partiyi temsil etmez, ayrıca ilan, reklam ve ihalelerde uygunluk belgesi niteliğinde kullanılmaz.

This test report was prepared upon customer's request, can not be used as certificate of conformity to standards, does not represent a batch and can not be used as conformity documents for advertisements and procurements.

Beykoz Gayrimenkul Yatırım İnşaat Turizm Sanayi ve Tic. A.Ş. bundan böyle rapor içeriğinde "Allianz Teknik" olarak anılacaktır.

Beykoz Gayrimenkul Yatırım İnşaat Turizm Sanayi ve Tic. A.S. hereinafter to be briefly referred to as "Allianz Teknik" in the content of the report.

"Allianz Teknik" Allianz SE'nin tescilli bir markasıdır. Bu Rapor Allianz Teknik'in yazılı izni olmadan kopyalanamaz veya çoğaltılamaz. Belirtilen yönde görülen herhangi bir işlem gerekli yazılı izin olmaksızın geçersiz olacaktır. İmzasız ve kaşesiz raporlar geçersizdir. Bu rapor yalnızca rapor içeriğinde belirtilen test numuneleri için geçerlidir.

"Allianz Teknik" is a registered trademark of Allianz SE. This Report cannot be copied or reproduced without Allianz Teknik's written permission. Any such purported operation shall be void without such written consent. Reports without signature and stamp are not valid. This report is valid exclusively only for mentioned test samples.

Mühür/Kaşe
Seal**Yayımlandığı Tarih**
Report Release Date**Deney Sorumlusu**
Person in charge of test**Onaylayan**
Approval**BEYKOZ GAYRİMENKUL YATIRIM İNŞAAT**
TURİZM SANAYİ VE TİCARET A.Ş.
Kültürbakanlığı Mahallesi Kayışdağı Caddesi
No:1 Kat:20 Ataşehir / İSTANBUL

13.10.2021

Volkan Ayık

Erkan Özdağ

1. GENERAL INFORMATION

1.1 Customer

DEMA Röle A.Ş.
Zümrütevler Mah. Atatürk Cad. İnanç Sk. No: 4 34852 Maltepe/İstanbul

1.2 Unit Under Test (UUT)

The test was performed on the following UUT's listed below:

UUT 1:

- Description: CPM 310 DE Multifunctional Socket Type Digital Overcurrent Relay
- Dimensions: 145 mm x 180 mm x 220 mm
- Weight is 2,8 kg

UUT 2:

- Description: CPM 312 SE Multifunctional Fixed Type Digital Overcurrent Relay
- Dimensions: 155 mm x 150 mm x 150 mm
- Weight is 1,3 kg



Figure 1. UUT 1 located on the left and UUT 2 located on the right.

"Allianz Teknik" Allianz SE'nin tescilli bir markasıdır. Bu Rapor Allianz Teknik'in yazılı izni olmadan kopyalanamaz veya çoğaltılamaz. Belirtilen yönde görünen herhangi bir işlem gerekli yazılı izin olmaksızın geçersiz olacaktır. İmzasız ve kaşesiz raporlar geçersizdir. Bu rapor yalnızca rapor içeriğinde belirtilen test numuneleri için geçerlidir.

"Allianz Teknik" is a registered trademark of Allianz SE. This Report cannot be copied or reproduced without Allianz Teknik's written permission. Any such purported operation shall be void without such written consent. Reports without signature and stamp are not valid. This report is valid exclusively only for mentioned test samples.

1.3 Manufacturer

DEMA Röle A.Ş.
Zümrütevler Mah. Atatürk Cad. İnanç Sk. No: 4 34852 Maltepe/İstanbul

1.4 Reference Documents

- EN 60255-21-1: Vibration, shock, bump and seismic tests on measuring relays and protection equipment - Section One: Vibration tests (Sinusoidal)
- EN 60255-21-2: Vibration, Shock, Bump and Seismic Tests on Measuring Relays and Protection Equipment - Section Two: Shock and Bump
- EN 60255-21-3: Vibration, Shock, Bump and Seismic Tests on Measuring Relays and Protection Equipment - Section Three: Seismic Tests

1.5 Test Objective

The purpose of the tests is to demonstrate whether UUT 1 and UUT 2 comply with the requirements specified in EN 60255-21-1, EN 60255-21-2, and EN 60255-21-3 standards.

1.6 Overall Results

UUT 1 and UUT 2 meet the acceptance criteria of EN 60255-21-1, EN 60255-21-2, and EN 60255-21-3 standards.

1.7 Testing Laboratory

Allianz Teknik Earthquake & Fire Testing and Training Center
Türk-Alman Üniversitesi Şahinkaya Cd. No: 90, 34820 Beykoz/ İSTANBUL - TURKEY

1.8 Test Date

August 6-7-8th 2021

1.9 Test Responsibilities & Visitors List

Mehmet Emin Karas	- Allianz Teknik Test Technician
Volkan Ayık, Msc	- Allianz Teknik Earthquake Lab. Supervisor
Erkan Özdağ, Msc	- Allianz Teknik Manager
Necati Özbey	- DEMA Röle A.Ş. R&D Manager
Mahir Can Erten	- DEMA Röle A.Ş. R&D Engineer

"Allianz Teknik" Allianz SE'nin tescilli bir markasıdır. Bu Rapor Allianz Teknik'in yazılı izni olmadan kopyalanamaz veya çoğaltılamaz. Belirtilen yönde görünen herhangi bir işlem gerekli yazılı izin olmaksızın geçersiz olacaktır. İmzasız ve kaşesiz raporlar geçersizdir. Bu rapor yalnızca rapor içeriğinde belirtilen test numuneleri için geçerlidir.

"Allianz Teknik" is a registered trademark of Allianz SE. This Report cannot be copied or reproduced without Allianz Teknik's written permission. Any such purported operation shall be void without such written consent. Reports without signature and stamp are not valid. This report is valid exclusively only for mentioned test samples.

2. TEST PROCEDURES

2.1 General Remarks

The tests and controls performed for UUT 1 and UUT 2 are mentioned below. Functional controls were performed for the standards that require to control procedure while the test is in progress.

- Pre Test Functionality Control
- EN 60255-21-1 standard tests
 - Vibration Response Test
 - Vibration Endurance Test
- EN 60255-21-2 standard tests
 - Mechanical Impact Test
 - Mechanical Impact Response Test
 - Mechanical Impact Endurance Test
 - Bump Test
- EN 60255-21-3 standard tests
 - Dual Axis Multi-Frequency Random Seismic Test
- Post Test Functionality Control

2.2 Mounting Techniques

For all tests, UUT 1 and UUT 2 are mounted on the MAST, in accordance with section 4.1.7 of EN 60255-21-1 standard, section 4.1.6 of EN 60255-21-2 standard and 4.2.7 section of EN 60255-21-3 standard (see Section 3 for detailed information about MAST test equipment).

2.3 Control and Measuring Position

The signals from total of 9 single-axis accelerometers integrated into MAST were used to motion control. The definitions and serial numbers of accelerometers are mentioned in Table 1 between lines 3-11. Additional triaxial accelerometers are attached to the UUTs for measurement purposes (accelerometers on line 12 and 13). MAST and eDAQXR are test equipment and data acquisition systems that enable tests to be performed.

Table 1. Test Equipment & Sensors

No	Brand	Description	Serial Number	Calibration Due Date
1	MTS	353.20 MAST	EQ1-001	NA
2	HBM	eDAQXR	EQ4-001-E1&E2	22.06.2022
3	Dytran	Accelerometer	12509	01.02.2022
4	Dytran	Accelerometer	12511A	01.02.2022
5	Dytran	Accelerometer	12512	01.02.2022
6	Dytran	Accelerometer	12513	01.02.2022
7	Dytran	Accelerometer	12525A	01.02.2022
8	Dytran	Accelerometer	12526A	01.02.2022
9	Dytran	Accelerometer	12527A	01.02.2022
10	Dytran	Accelerometer	12528	01.02.2022
11	Dytran	Accelerometer	12529	01.02.2022
12	Dytran	Accelerometer	686	01.02.2022
13	Dytran	Accelerometer	688	26.01.2022

"Allianz Teknik" Allianz SE'nin tescilli bir markasıdır. Bu Rapor Allianz Teknik'in yazılı izni olmadan kopyalanamaz veya çoğaltılamaz. Belirtilen yönde görünen herhangi bir işlem gerekli yazılı izin olmaksızın geçersiz olacaktır. İmzasız ve kaşesiz raporlar geçersizdir. Bu rapor yalnızca rapor içeriğinde belirtilen test numuneleri için geçerlidir.

"Allianz Teknik" is a registered trademark of Allianz SE. This Report cannot be copied or reproduced without Allianz Teknik's written permission. Any such purported operation shall be void without such written consent. Reports without signature and stamp are not valid. This report is valid exclusively only for mentioned test samples.

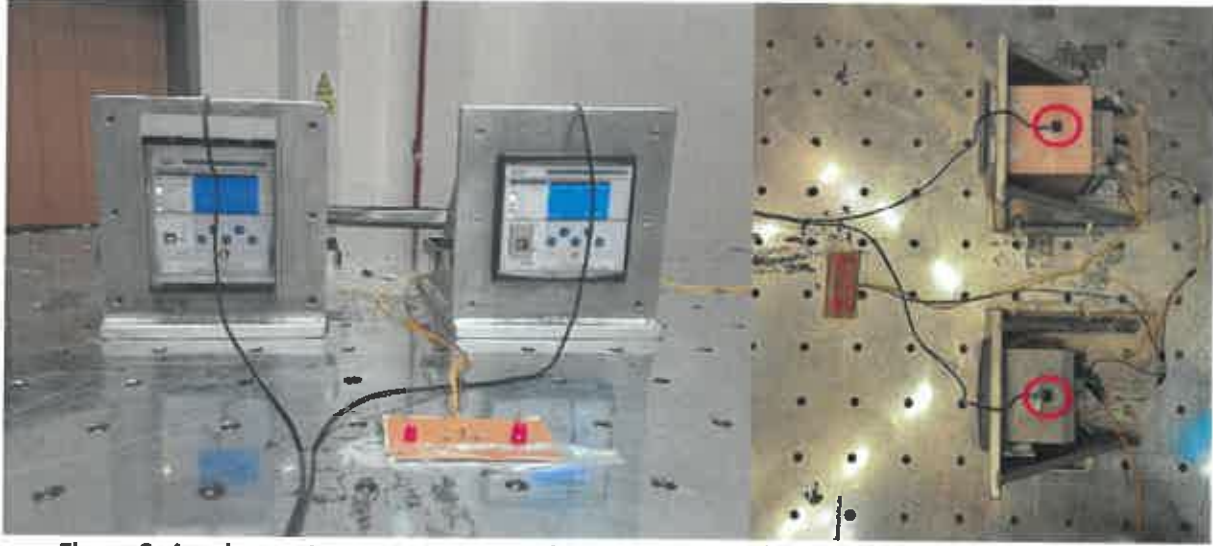


Figure 2. Accelerometer measurement points on UUTs can be seen in red circles on the right.

2.4 Test Details

➤ EN 60255-21-1 standard tests

○ Vibration Response Test

Vibration response test, concurrently and together testing for UUT 1 and UUT 2,

- On the X, Y, Z axis, sequentially,
- Test was applied as an 8-minute on each axis.
- The UUTs were energized during the test.

See Section 4 for test data specifications and Section 2.5 for test acceptance criteria.

○ Vibration Endurance Test

Vibration endurance test, concurrently and together testing for UUT 1 and UUT 2,

- On the X, Y, Z axis, sequentially,
- It was applied 20 times for 8 minutes on each axis. (160 minutes per axis)
- The UUTs were not energized during the test.

See Section 4 for test data specifications and Section 2.5 for test acceptance criteria.

➤ EN 60255-21-2 standard tests

○ Mechanical Impact Test

▪ Mechanical Impact Response Test

Mechanical Impact test, concurrently and together testing for UUT 1 and UUT 2,

- On the X, Y, Z axis, sequentially,
- It was applied as 3 impacts on each axis.
- The UUTs were energized during the test.

See Section 4 for test data specifications and Section 2.5 for test acceptance criteria.

"Allianz Teknik" Allianz SE'nin tescilli bir markasıdır. Bu Rapor Allianz Teknik'in yazılı izni olmadan kopyalanamaz veya çoğaltılamaz. Belirtilen yönde görünen herhangi bir işlem gerekli yazılı izin olmaksızın geçersiz olacaktır. İmzasız ve kaşesiz raporlar geçersizdir. Bu rapor yalnızca rapor içeriğinde belirtilen test numuneleri için geçerlidir.

"Allianz Teknik" is a registered trademark of Allianz SE. This Report cannot be copied or reproduced without Allianz Teknik's written permission. Any such purported operation shall be void without such written consent. Reports without signature and stamp are not valid. This report is valid exclusively only for mentioned test samples.

▪ Mechanical Impact Endurance Test

Mechanical Impact test, concurrently and together testing for UUT 1 and UUT 2,

- On the X, Y, Z axis, sequentially,
- It was applied as 3 impacts on each axis.
- The UUTs were not energized during the test.

See Section 4 for test data specifications and Section 2.5 for test acceptance criteria.

○ Bump Test

Bump test, concurrently and together testing for UUT 1 and UUT 2,

- On the X, Y, Z axis, sequentially,
- It was applied as 1000 impact on each axis.
- The UUTs were not energized during the test.

See Section 4 for test data specifications and Section 2.5 for test acceptance criteria.

➤ EN 60255-21-3 standard tests**○ Dual Axis Multi-Frequency Random Seismic Test**

Seismic test, concurrently and together testing for UUT 1 and UUT 2,

- On the XZ and YZ axis, sequentially,
- It was applied as 25-second earthquake tests on each axis.
- The UUTs were energized during the test.

See Section 4 for test data specifications and Section 2.5 for test acceptance criteria.

2.5. Acceptance Criteria**2.5.1. EN 60255-21-1 standard tests****2.5.1.1. Vibration Response Test**

- a. The measuring relay should not work inadequate during the tests. If the normal state of output circuit does not change for longer than 2 ms (milliseconds), the measuring relay is considered as adequate.
- b. During the test, any permanent change of state on the protective equipment of measuring relay should not occur and cause different signs.
- c. The measuring relay should continue to meet the relevant performance standard after the test and should not exceed half of the specified error. It should not change its operating values and suffer mechanical damage.

2.5.1.2. Vibration Endurance Test

- a. During the test, any permanent change of state on the measuring relay should not occur and cause different signs.

"Allianz Teknik" Allianz SE'nin tescilli bir markasıdır. Bu Rapor Allianz Teknik'in yazılı izni olmadan kopyalanamaz veya çoğaltılamaz. Belirtilen yönde görünen herhangi bir işlem gerekli yazılı izin olmaksızın geçersiz olacaktır. İmzasız ve kaşesiz raporlar geçersizdir. Bu rapor yalnızca rapor içeriğinde belirtilen test numuneleri için geçerlidir.

"Allianz Teknik" is a registered trademark of Allianz SE. This Report cannot be copied or reproduced without Allianz Teknik's written permission. Any such purported operation shall be void without such written consent. Reports without signature and stamp are not valid. This report is valid exclusively only for mentioned test samples.

- b. The measuring relay should continue to meet the relevant performance standard and not suffer mechanical damage after the test.

2.5.2. EN 60255-21-2 standard tests

2.5.2.1. Mechanical Impact Test

2.5.2.1.1. Mechanical Impact Response Test

- a. The measuring relay should not work inadequate during the tests. If the normal state of output circuit does not change for longer than 2 ms, the measuring relay is considered as adequate.
- b. During the test, any permanent change of state on the protective equipment of measuring relay should not occur and cause different signs.
- c. The measuring relay should continue to meet the relevant performance standard after the test and should not exceed half of the specified error. It should not change its operating values and suffer mechanical damage.

2.5.2.1.2. Mechanical Impact Endurance Test

- a. During the test, any change on the measuring relay may show oneself with different signs.
- b. The measuring relay should continue to meet the relevant performance standard and not suffer mechanical damage after the test.

2.5.2.2. Bump Test

- a. During the test, any change on the measuring relay may show oneself with different signs.
- b. The measuring relay should continue to meet the relevant performance standard and not suffer mechanical damage after the test.

2.5.3. EN 60255-21-3 standard tests

2.5.3.1. Dual Axis Multi-Frequency Random Seismic Test

- a. The measuring relay should not work inadequate during the tests. If the normal state of output circuit does not change for longer than 2 ms, the measuring relay is considered as adequate.
- b. During the test, any permanent change on the measuring relay may show oneself with different signs.
- c. The measuring relay should continue to meet the relevant performance standard after the test and should not exceed one time more than the specified error. It should not change its operating values and suffer mechanical damage.

"Allianz Teknik" Allianz SE'nin tescilli bir markasıdır. Bu Rapor Allianz Teknik'in yazılı izni olmadan kopyalanamaz veya çoğaltılamaz. Belirtilen yönde görünen herhangi bir işlem gerekli yazılı izin olmaksızın geçersiz olacaktır. İmzasız ve kaşesiz raporlar geçersizdir. Bu rapor yalnızca rapor içeriğinde belirtilen test numuneleri için geçerlidir.

"Allianz Teknik" is a registered trademark of Allianz SE. This Report cannot be copied or reproduced without Allianz Teknik's written permission. Any such purported operation shall be void without such written consent. Reports without signature and stamp are not valid. This report is valid exclusively only for mentioned test samples.

3.1. Multi Axial Simulation Table (MAST)

- The test has been performed on MAST system, which is 6 DOF capability.
- The shaker table powered by six servo hydraulic actuator, all of them mounted the table with 120°.
- Each actuator has a maximum 70,6 kN peak force and maximum displacement of 145mm on Z axis, 115 mm on Y axis and 130 mm on X axis.
- The hydraulic pump has 5 engines with a total power 225 KW. It is capable of pumping a flow up to 600 l/min at a working pressure of 210 bars.
- The position of the table surface is controlled in real-time and instantaneously with 9 accelerometers integrated to MAST.

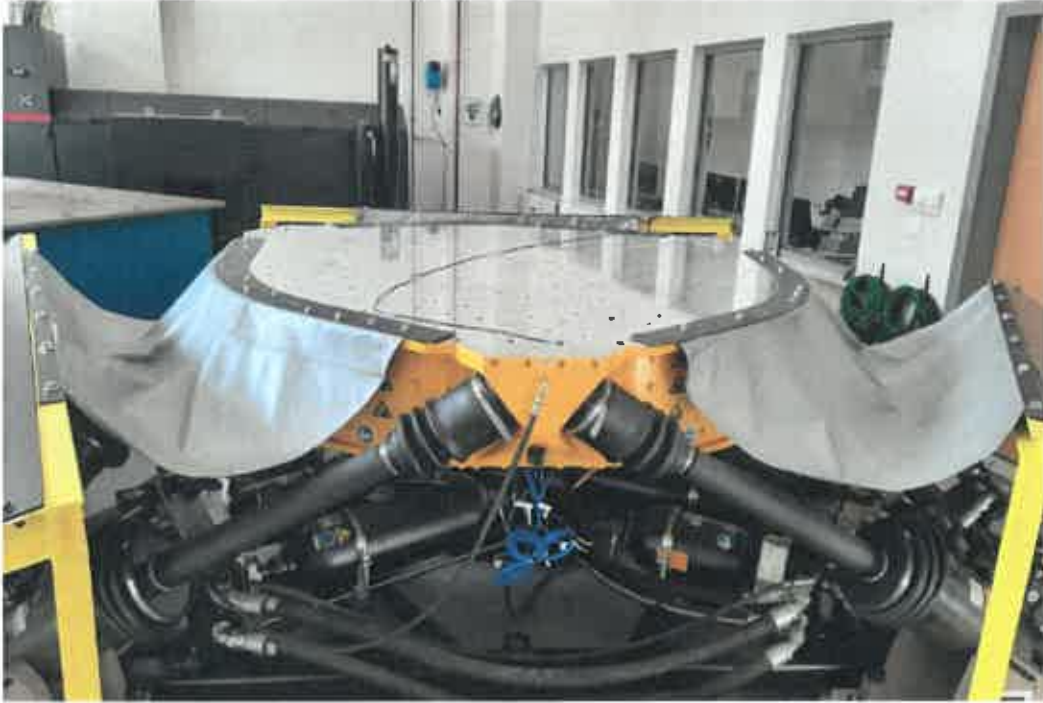


Figure 3. Multi Axial Simulation Table (MAST)

3.2. Sensors

Accelerometers that used during the tests apart from the MAST's accelerometers are mentioned below:

Dytran 686

- Tri axial
- Acceleration Measurement Range ± 40 g
- Frequency Response 0-1500 Hz

"Allianz Teknik" Allianz SE'nin tescilli bir markasıdır. Bu Rapor Allianz Teknik'in yazılı izni olmadan kopyalanamaz veya çoğaltılamaz. Belirtilen yönde görünen herhangi bir işlem gerekli yazılı izn olmaksızın geçersiz olacaktır. İmzasız ve kaşesiz raporlar geçersizdir. Bu rapor yalnızca rapor içeriğinde belirtilen test numuneleri için geçerlidir.

"Allianz Teknik" is a registered trademark of Allianz SE. This Report cannot be copied or reproduced without Allianz Teknik's written permission. Any such purported operation shall be void without such written consent. Reports without signature and stamp are not valid. This report is valid exclusively only for mentioned test samples.

Dytran 688

- Tri axial
- Acceleration Measurement Range ± 40 g
- Frequency Response 0-1500 Hz

3.3.Data Acquisition Equipment

During the tests, the shaker was controlled by a computer-based system, which is MTS RPC Pro, Flex Test controller and EDAQXR Datalogger.

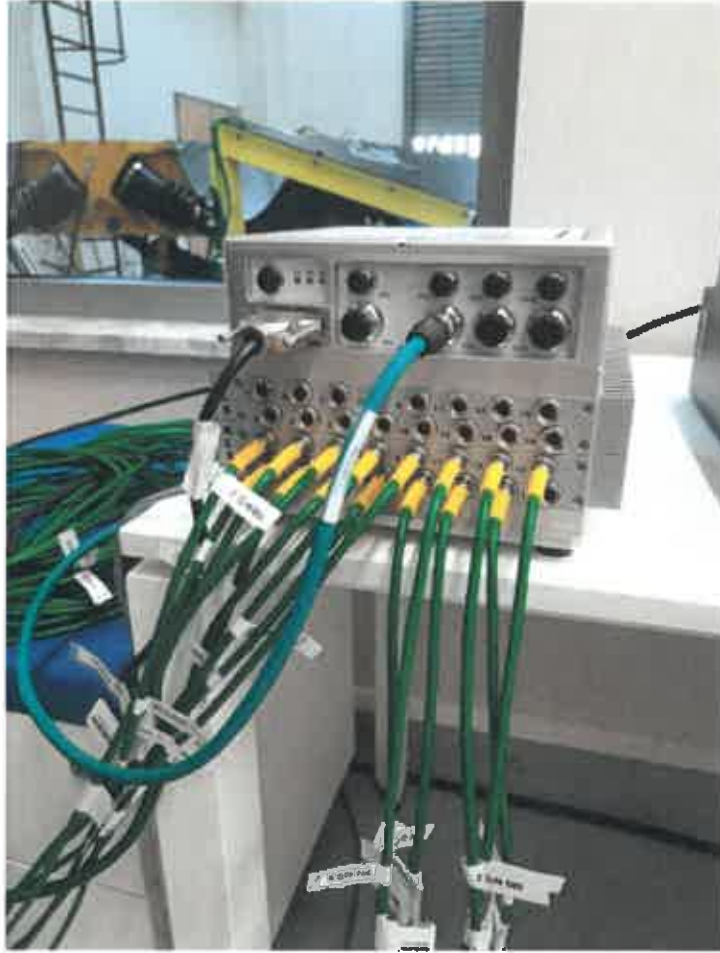


Figure 4. EDAQXR Datalogger

"Allianz Teknik" Allianz SE'nin tescilli bir markasıdır. Bu Rapor Allianz Teknik'in yazılı izni olmadan kopyalanamaz veya çoğaltılamaz. Belirtilen yönde görünen herhangi bir işlem gerekli yazılı izni olmaksızın geçersiz olacaktır. İmzasız ve kaşesiz raporlar geçersizdir. Bu rapor yalnızca rapor içeriğinde belirtilen test numuneleri için geçerlidir.

"Allianz Teknik" is a registered trademark of Allianz SE. This Report cannot be copied or reproduced without Allianz Teknik's written permission. Any such purported operation shall be void without such written consent. Reports without signature and stamp are not valid. This report is valid exclusively only for mentioned test samples.

4. TEST DATA SPECIFICATIONS

4.1. EN 60255-21-1 Standard

As specified in EN 60255-21-1 standard,

- In vibration response and endurance tests, the test signal should be in the form of a sine wave.
- Vibration amplitude tolerances should remain within 15%,
- Sweep rate should be 1 octave/minute,
- Tests should be applied in the range of 10-150 Hz,
- Tests should be performed with a constant acceleration amplitude.

The sine test signals produced for the test has these features.

Based on the customer's choice of Class1 in the customer selection matrix, vibration response tests were performed with 0,5 g over the crossover frequency. Vibration endurance tests were performed with 1 g.

4.2. EN 60255-21-2 Standard

As specified in EN 60255-21-2 standard,

- The rated impulse shape for mechanical impact and bump tests should be half of the sine wave,
- The pulse duration should remain within the tolerance time of ± 2 ms,
- A is the amplitude of the rated impulse shape, the impact shape should be between 1,2 A and 0,8 A (also applies to bump test).

The impact and bump test signals produced for the test has these features.

Based on the customer's choice of Class1 in the customer selection matrix, mechanical impact tests were performed with 5 g and 11 ms signal profile and 15 g and 11 ms and bump tests with 10 g and 16 ms signal profile.

4.3. EN 60255-21-3 Standard

As specified in EN 60255-21-3 standard,

- The time history to be used in the test should be produced by the separation of 1/6 octave bands,
- Standard response spectrum (TRS, RRS) should be between 0 and +50%,
- Frequency range should be in the range of 1-35 Hz,
- Test duration should be 20 seconds with a tolerance of ± 5 seconds.

The requested (RRS) and realized (TRS) earthquake test signals produced for the test comply with these specifications.

"Allianz Teknik" Allianz SE'nin tescilli bir markasıdır. Bu Rapor Allianz Teknik'in yazılı izni olmadan kopyalanamaz veya çoğaltılamaz. Belirtilen yönde görünen herhangi bir işlem gerekli yazılı izin olmaksızın geçersiz olacaktır. İmzasız ve kaşesiz raporlar geçersizdir. Bu rapor yalnızca rapor içeriğinde belirtilen test numuneleri için geçerlidir.

"Allianz Teknik" is a registered trademark of Allianz SE. This Report cannot be copied or reproduced without Allianz Teknik's written permission. Any such purported operation shall be void without such written consent. Reports without signature and stamp are not valid. This report is valid exclusively only for mentioned test samples.

It is stated in the standard that the test can be applied as sinusoidal or biaxial multi-frequency random manner. The test was randomly applied on the XY and YZ axis referring to the customer preference in customer selection matrix

In the customer choice matrix, the test was applied as Class 1 referring to the customer preference. ZPA = 1 g in the horizontal direction and ZPA = 0,5 g in the vertical axis in Class 1.

5. TEST PLOTS

5.1. EN 60255-21-1 Standard

5.1.1. Vibration Response

In the plots below, the data requested in the standard can be seen.

- Signal with 0,035 mm amplitude between 10-60 Hz (60 Hz, crossover frequency)
- 0,5 g amplitude signal between 60-150 Hz

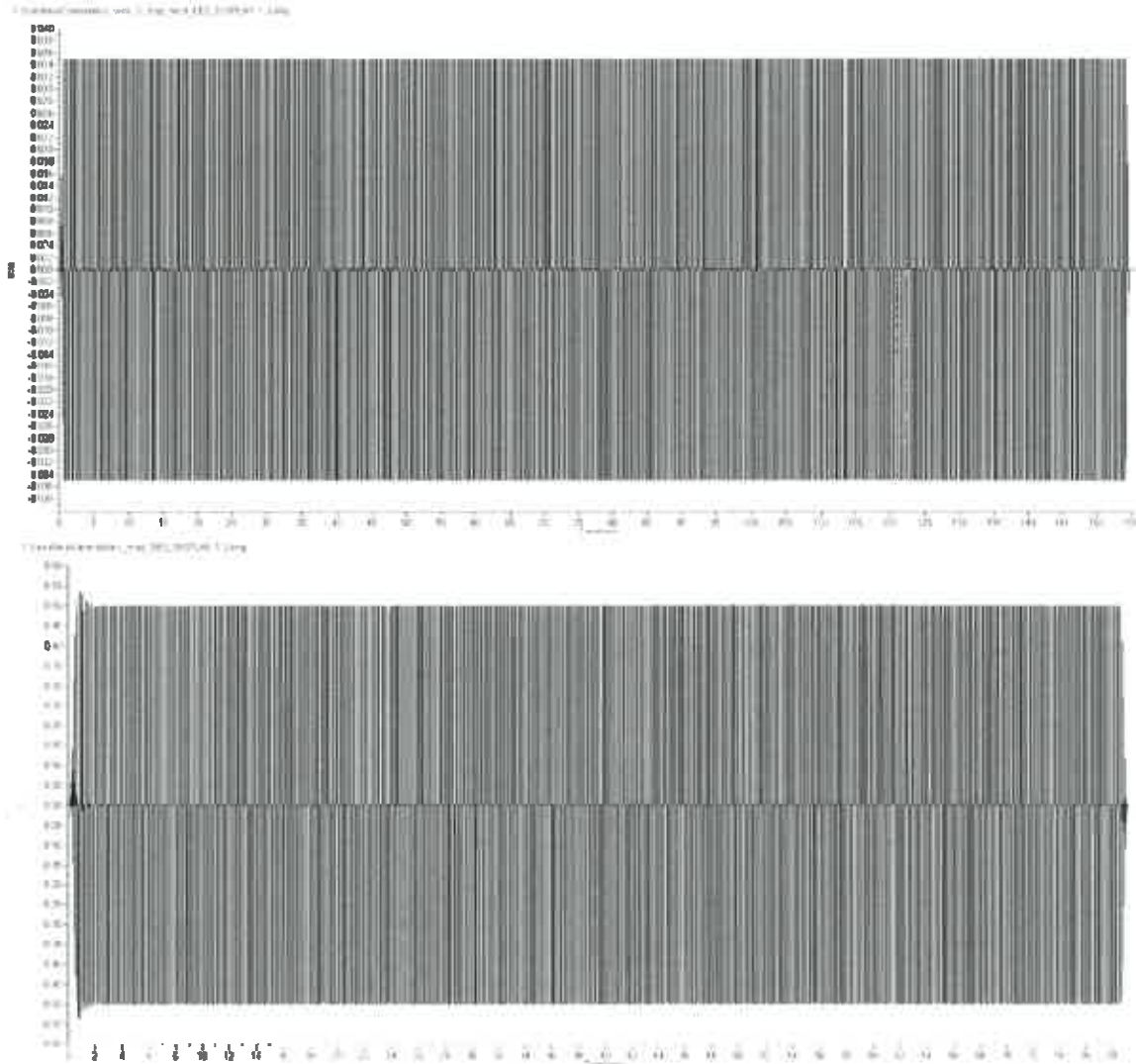


Figure 5. Data Requested in the Standard

"Allianz Teknik" Allianz SE'nin tescilli bir markasıdır. Bu Rapor Allianz Teknik'in yazılı izni olmadan kopyalanamaz veya çoğaltılamaz. Belirtilen yönde görünen herhangi bir işlem gerekli yazılı izin olmaksızın geçersiz olacaktır. İmzasız ve kaşesiz raporlar geçersizdir. Bu rapor yalnızca rapor içeriğinde belirtilen test numuneleri için geçerlidir.

"Allianz Teknik" is a registered trademark of Allianz SE. This Report cannot be copied or reproduced without Allianz Teknik's written permission. Any such purported operation shall be void without such written consent. Reports without signature and stamp are not valid. This report is valid exclusively only for mentioned test samples.

The plots of the tests performed in 3 axis, sequentially, are as seen in Figure 6-7-8.

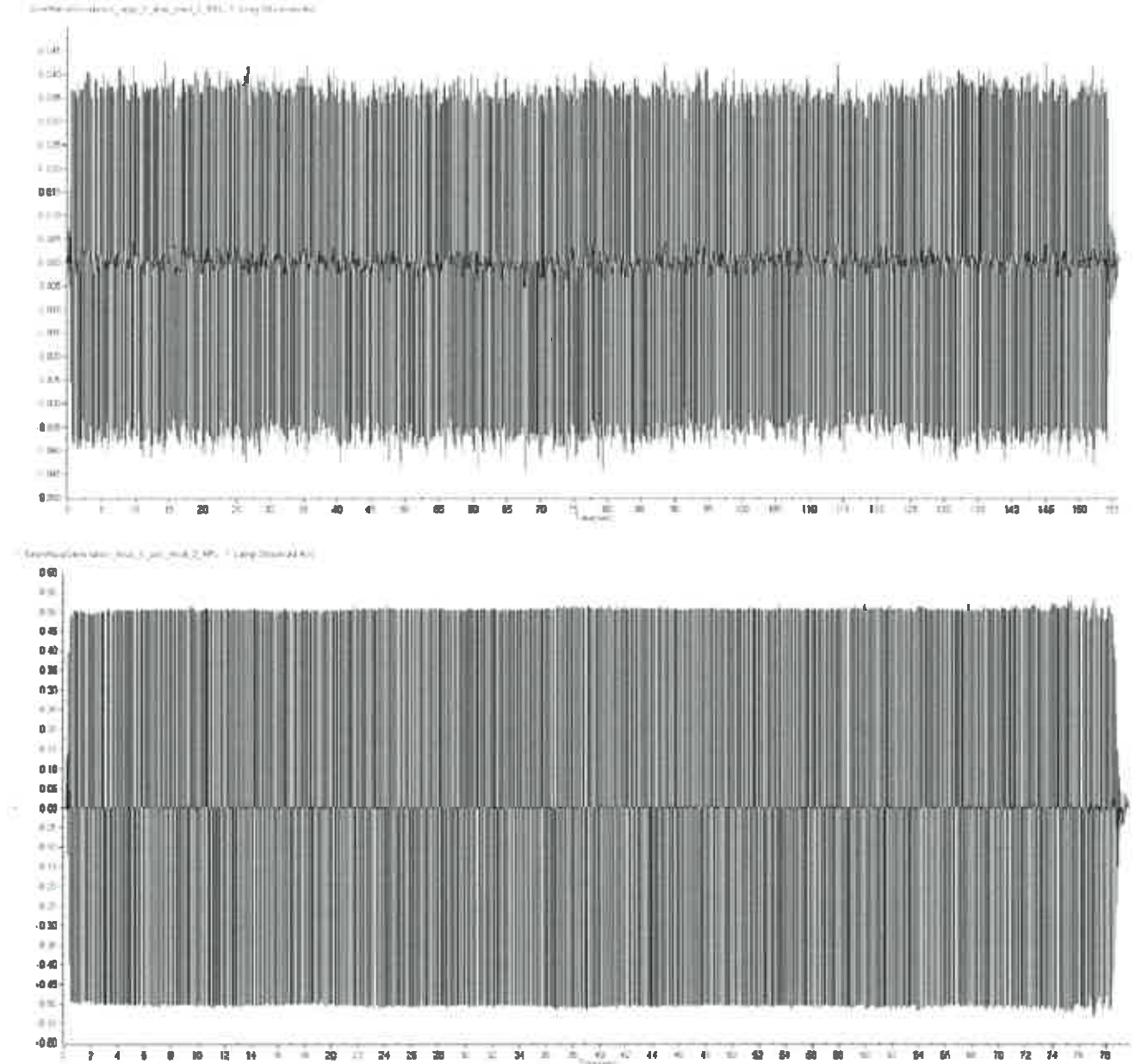


Figure 6. Data on X-axis

The top plot in Figure 6 displays the data below the crossover frequency (60 Hz). It is a sine wave type sweep with an amplitude of $\pm 0,035$ mm with increasing frequency between 10-60 Hz.

The bottom plot in Figure 6 is a sine wave type sweep with $\pm 0,5$ g amplitude between 60-150 Hz.

"Allianz Teknik" Allianz SE'nin tescilli bir markasıdır. Bu Rapor Allianz Teknik'in yazılı izni olmadan kopyalanamaz veya çoğaltılamaz. Belirtilen yönde görünen herhangi bir işlem gerekli yazılı izin olmaksızın geçersiz olacaktır. İmzasız ve kaşesiz raporlar geçersizdir. Bu rapor yalnızca rapor içeriğinde belirtilen test numuneleri için geçerlidir.

"Allianz Teknik" is a registered trademark of Allianz SE. This Report cannot be copied or reproduced without Allianz Teknik's written permission. Any such purported operation shall be void without such written consent. Reports without signature and stamp are not valid. This report is valid exclusively only for mentioned test samples.

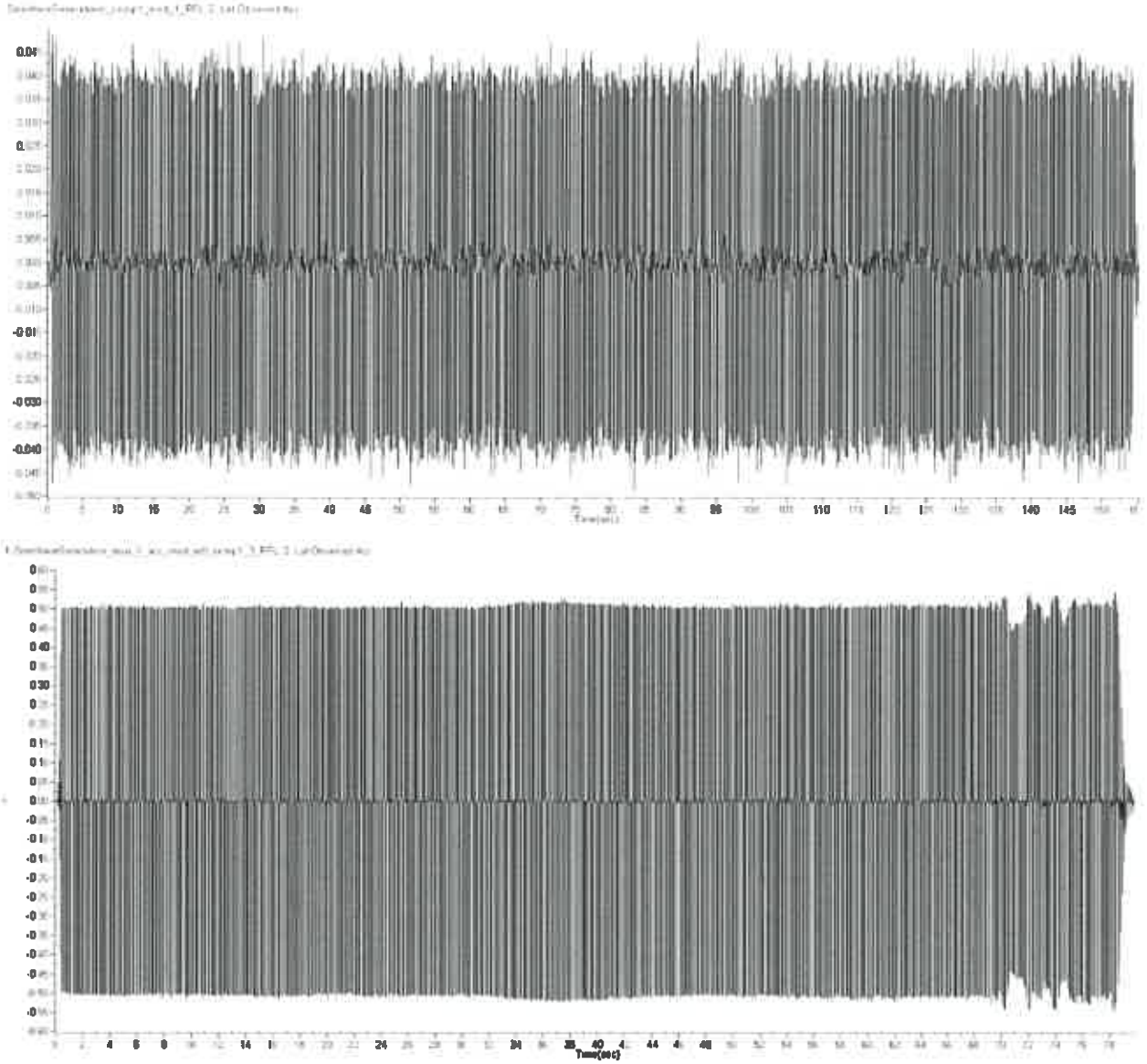


Figure 7. Data on Y-axis

"Allianz Teknik" Allianz SE'nin tescilli bir markasıdır. Bu Rapor Allianz Teknik'in yazılı izni olmadan kopyalanamaz veya çoğaltılamaz. Belirtilen yönde görünen herhangi bir işlem gerekli yazılı izin olmaksızın geçersiz olacaktır. İmzasız ve kaşesiz raporlar geçersizdir. Bu rapor yalnızca rapor içeriğinde belirtilen test numuneleri için geçerlidir.

"Allianz Teknik" is a registered trademark of Allianz SE. This Report cannot be copied or reproduced without Allianz Teknik's written permission. Any such purported operation shall be void without such written consent. Reports without signature and stamp are not valid. This report is valid exclusively only for mentioned test samples.

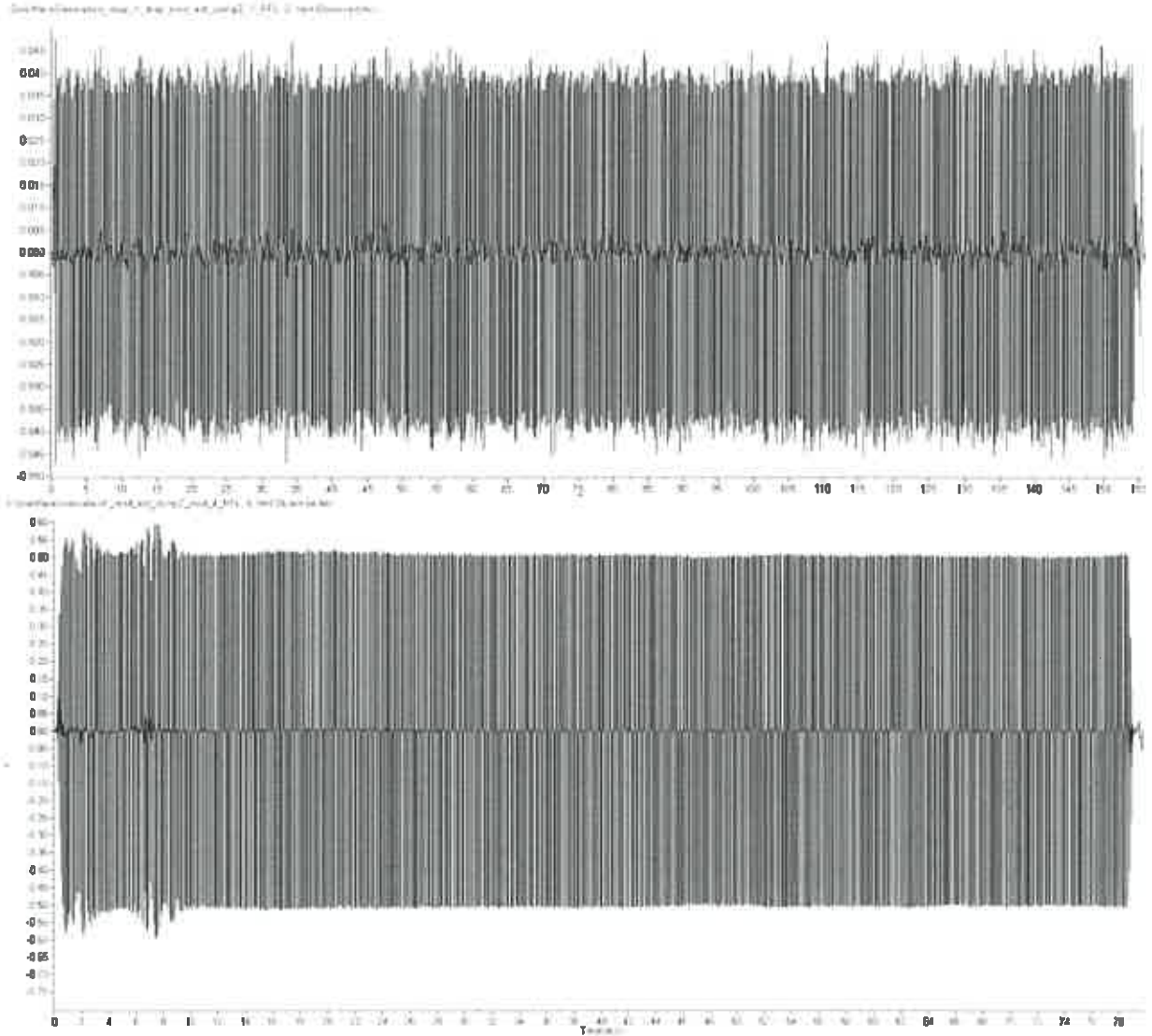


Figure 8. Data on Z-axis

Allianz Teknik® Allianz SE'nin tescilli bir markasıdır. Bu Rapor Allianz Teknik'in yazılı izni olmadan kopyalanamaz veya çoğaltılamaz. Belirtilen yönde görünen herhangi bir işlem gerekli yazılı izin olmaksızın geçersiz olacaktır. İmzasız ve kaşesiz raporlar geçersizdir. Bu rapor yalnızca rapor içeriğinde belirtilen test numuneleri için geçerlidir.

"Allianz Teknik" is a registered trademark of Allianz SE. This Report cannot be copied or reproduced without Allianz Teknik's written permission. Any such purported operation shall be void without such written consent. Reports without signature and stamp are not valid. This report is valid exclusively only for mentioned test samples.

Plots of realized test data and required test data in frequency domain are below (amplitude-frequency plots).

Horizontal axis is frequency (Hz) in all plots. Vertical axis is displacement (mm) in Figure 9, 11,13 and acceleration (g) in Figure 10,12,14.

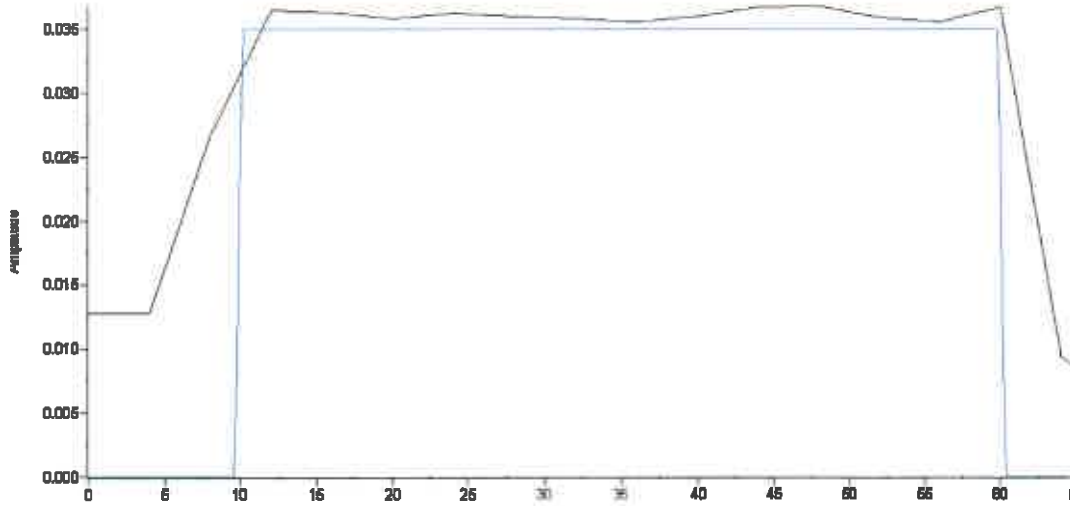


Figure 9. 0,035 mm displacement plot in X axis in frequency domain

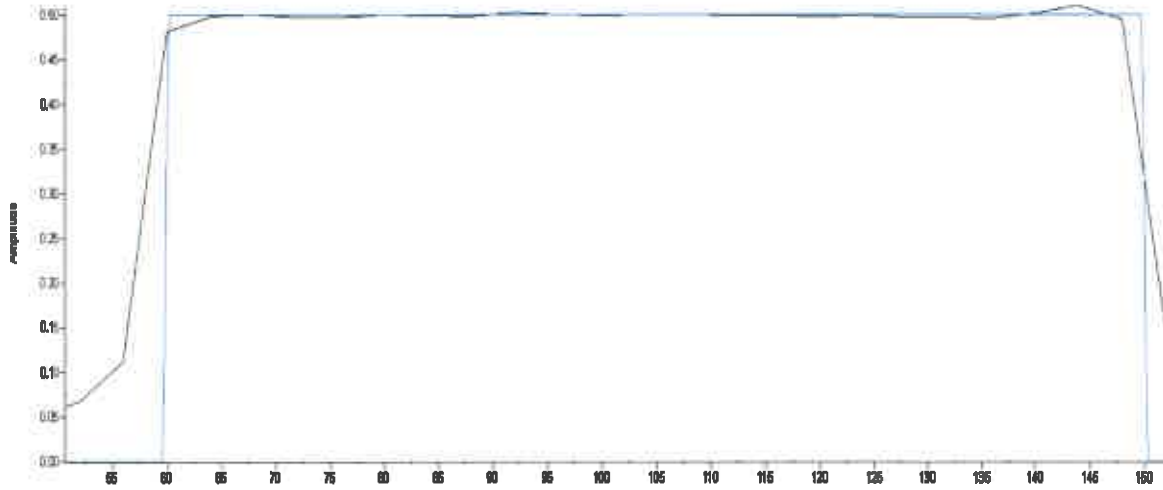


Figure 10. 0,5 g acceleration plot in X axis in frequency domain

***Allianz Teknik* Allianz SE'nin tescilli bir markasıdır. Bu Rapor Allianz Teknik'in yazılı izni olmadan kopyalanamaz veya çoğaltılamaz. Belirtilen yönde görünen herhangi bir işlem gerekli yazılı izin olmaksızın geçersiz olacaktır. İmzasız ve kaşesiz raporlar geçersizdir. Bu rapor yalnızca rapor içeriğinde belirtilen test numuneleri için geçerlidir.**

"Allianz Teknik" is a registered trademark of Allianz SE. This Report cannot be copied or reproduced without Allianz Teknik's written permission. Any such purported operation shall be void without such written consent. Reports without signature and stamp are not valid. This report is valid exclusively only for mentioned test samples.

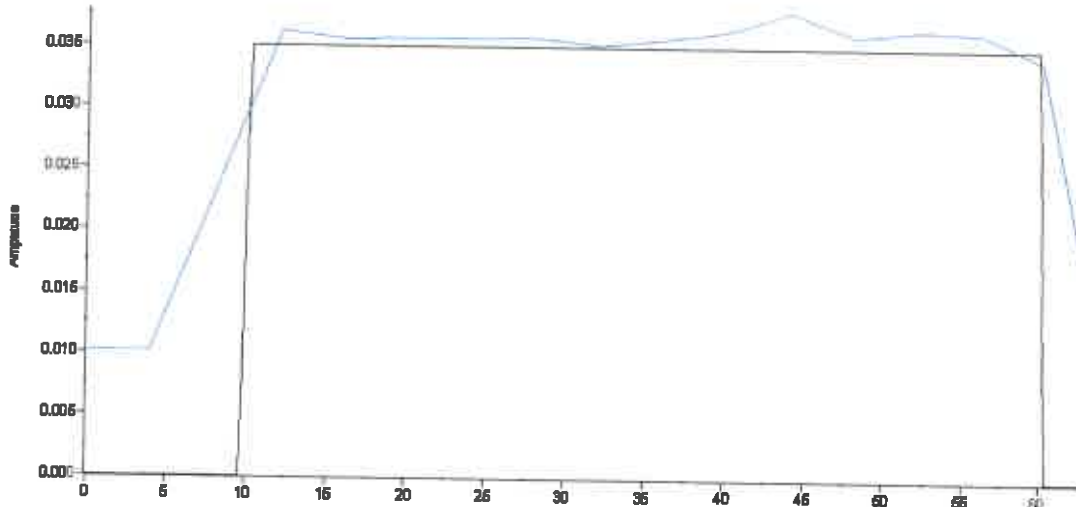


Figure 11. 0,035 mm displacement plot in Y axis in frequency domain

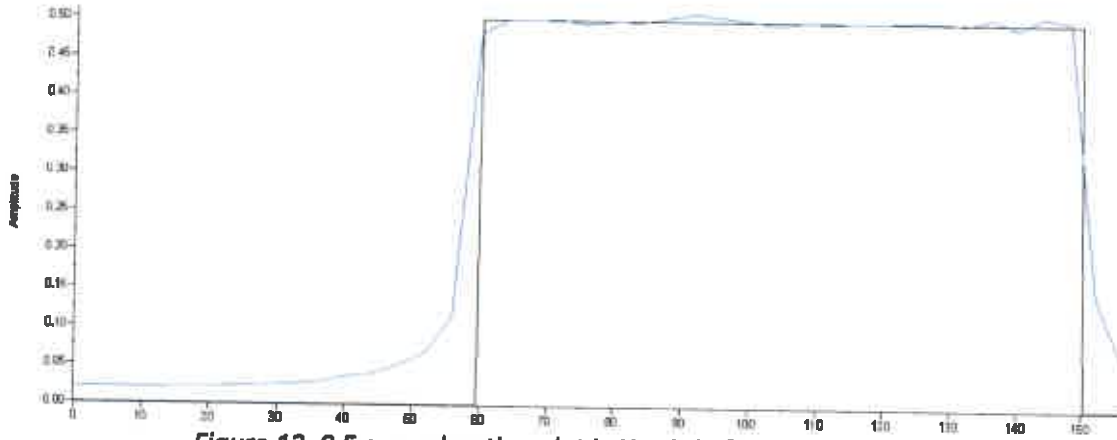


Figure 12. 0,5 g acceleration plot in Y axis in frequency domain

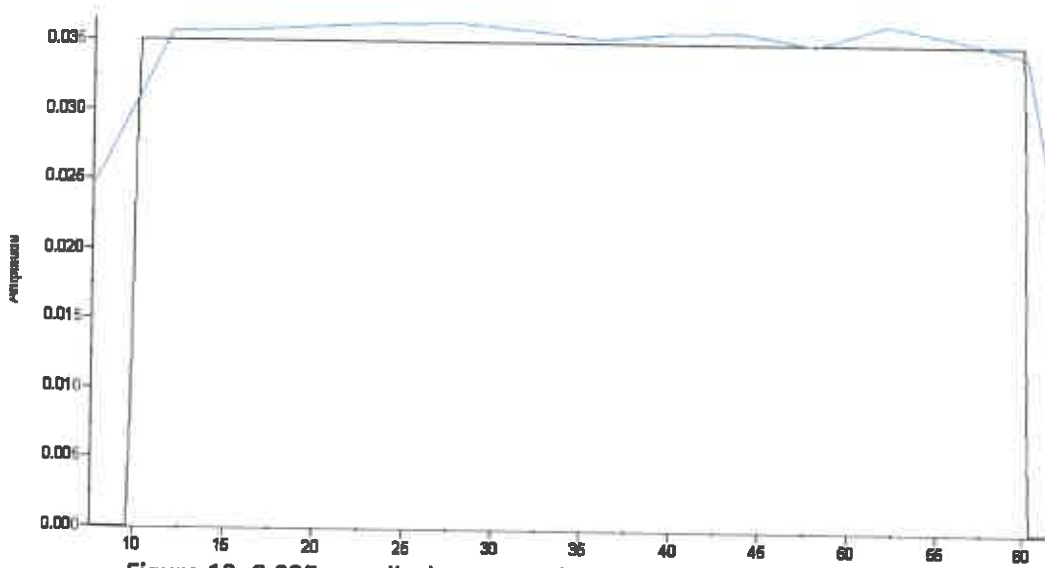


Figure 13. 0,035 mm displacement plot in Z axis in frequency domain

"Allianz Teknik" Allianz SE'nin tescilli bir markasıdır. Bu Rapor Allianz Teknik'in yazılı izni olmadan kopyalanamaz veya çoğaltılamaz. Belirtilen yönde görünen herhangi bir işlem gerekli yazılı izin olmaksızın geçersiz olacaktır. İmzasız ve kaşesiz raporlar geçersizdir. Bu rapor yalnızca rapor içeriğinde belirtilen test numuneleri için geçerlidir.

"Allianz Teknik" is a registered trademark of Allianz SE. This Report cannot be copied or reproduced without Allianz Teknik's written permission. Any such purported operation shall be void without such written consent. Reports without signature and stamp are not valid. This report is valid exclusively only for mentioned test samples.

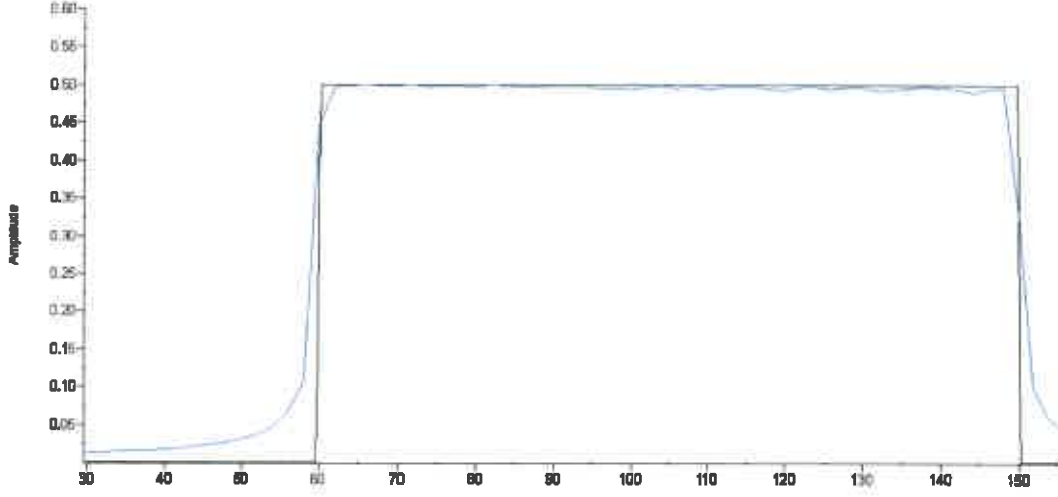


Figure 14. 0,5 g acceleration plot in Z axis in frequency domain

5.1.2. Vibration Response

In Figure 15, the data requested in the standard can be seen.

- 1 g amplitude data between 10-150 Hz,
- Data was applied 20 times on each axis (160 minutes per axis).

1-sine_wave1_generatedTH_med_DES_DISPLAY, 1, Long

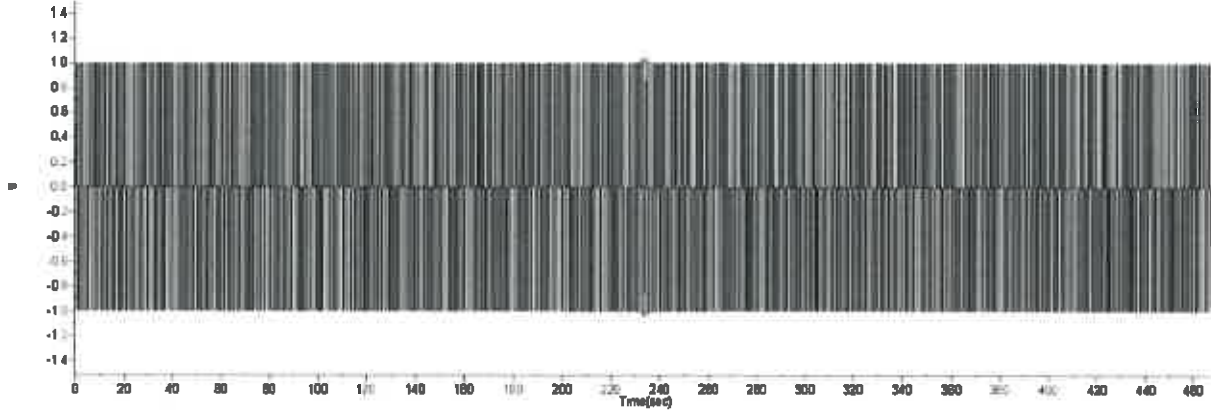


Figure 15. Data Requested in the Standard

The plots of the tests performed in 3 axis, sequentially, are as seen in Figure 16-17-18.

"Allianz Teknik" Allianz SE'nin tescilli bir markasıdır. Bu Rapor Allianz Teknik'in yazılı izni olmadan kopyalanamaz veya çoğaltılamaz. Belirtilen yönde görünen herhangi bir işlem gerekli yazılı izin olmaksızın geçersiz olacaktır. İmzasız ve kaşesiz raporlar geçersizdir. Bu rapor yalnızca rapor içeriğinde belirtilen test numuneleri için geçerlidir.

"Allianz Teknik" is a registered trademark of Allianz SE. This Report cannot be copied or reproduced without Allianz Teknik's written permission. Any such purported operation shall be void without such written consent. Reports without signature and stamp are not valid. This report is valid exclusively only for mentioned test samples.

1-sine_wave1_consolidatedTH_md_3_RFL, 1, 3Hz Observed Acc

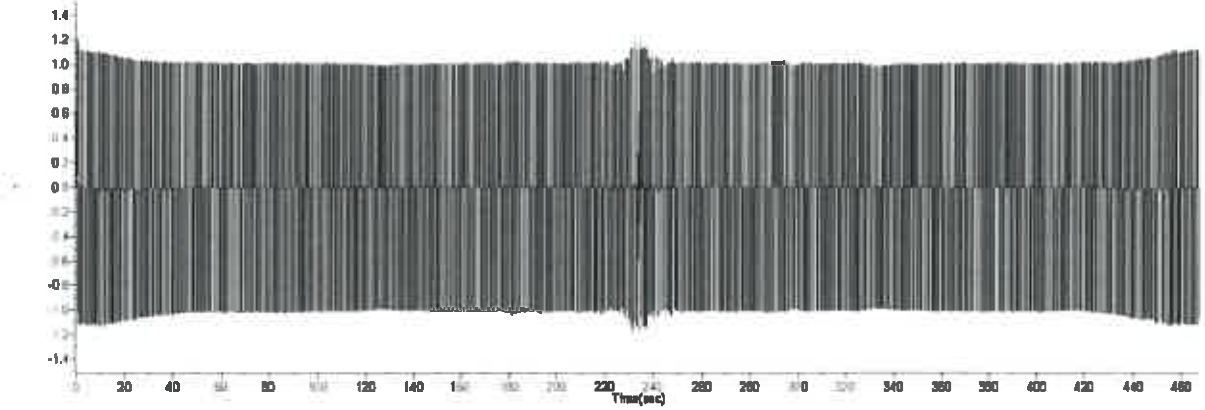


Figure 16. Data on X-axis

1-sine_wave1_consolidatedTH_md_3_compY_3_RFL, 2, Lal Observed Acc

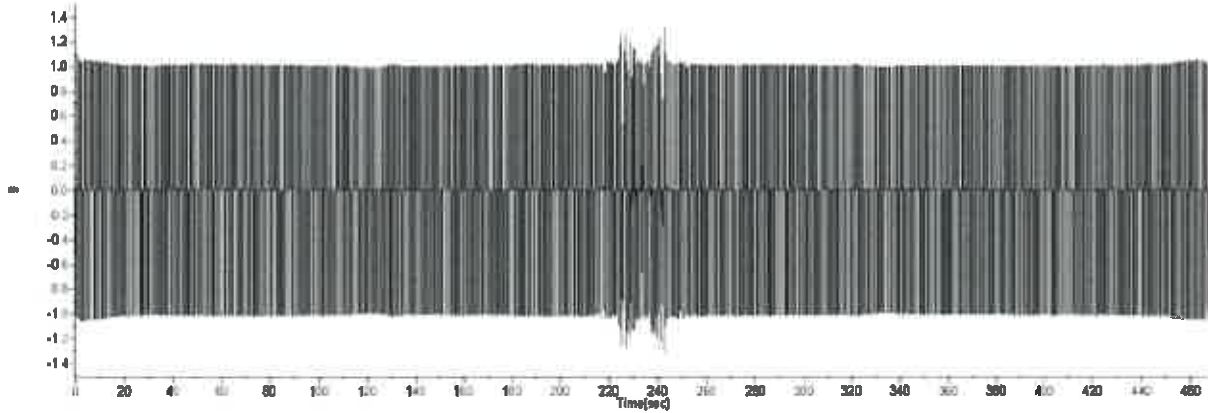


Figure 17. Data on Y-axis

1-sine_wave1_consolidatedTH_md_3_compZ_3_RFL, 3, Lal Observed Acc

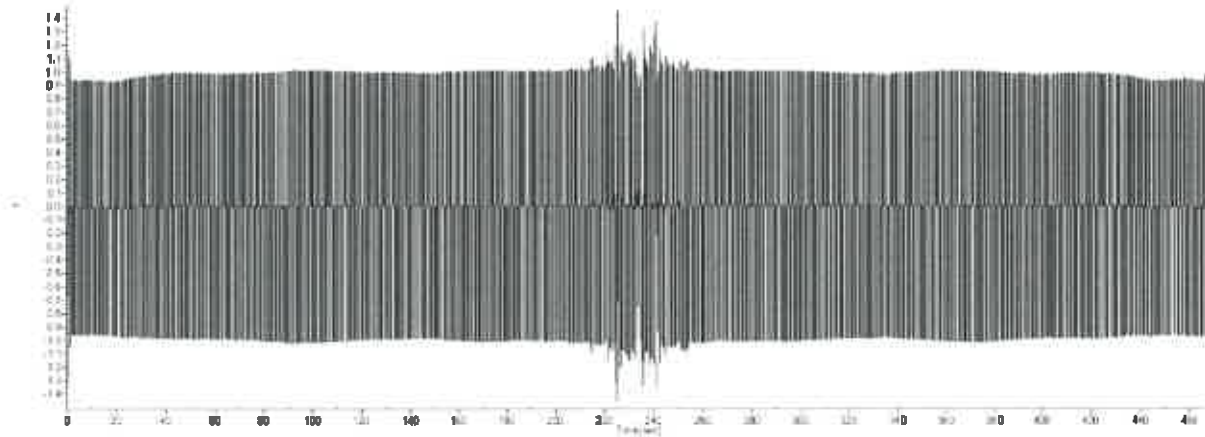


Figure 18. Data on Z-axis

"Allianz Teknik" Allianz SE'nin tescilli bir markasıdır. Bu Rapor Allianz Teknik'in yazılı izni olmadan kopyalanamaz veya çoğaltılamaz. Belirtilen yönde görülen herhangi bir işlem gerekli yazılı izin olmaksızın geçersiz olacaktır. İmzasız ve kaşesiz raporlar geçersizdir. Bu rapor yalnızca rapor içeriğinde belirtilen test numuneleri için geçerlidir.

"Allianz Teknik" is a registered trademark of Allianz SE. This Report cannot be copied or reproduced without Allianz Teknik's written permission. Any such purported operation shall be void without such written consent. Reports without signature and stamp are not valid. This report is valid exclusively only for mentioned test samples.

Plots of realized test data and required test data in frequency domain are below (amplitude-frequency plots).

Horizontal axis is frequency (Hz) in all plots. Vertical axis is acceleration (g) in logarithmic scale.

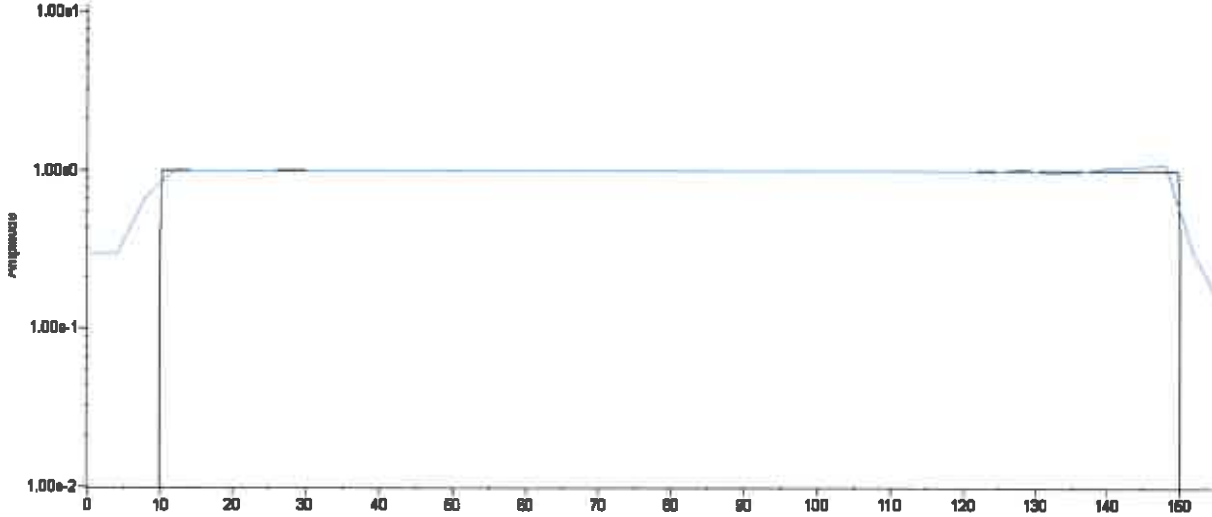


Figure 19. 1 g Acceleration-frequency plot in X axis ($1.00 \times E^0 = 1$)

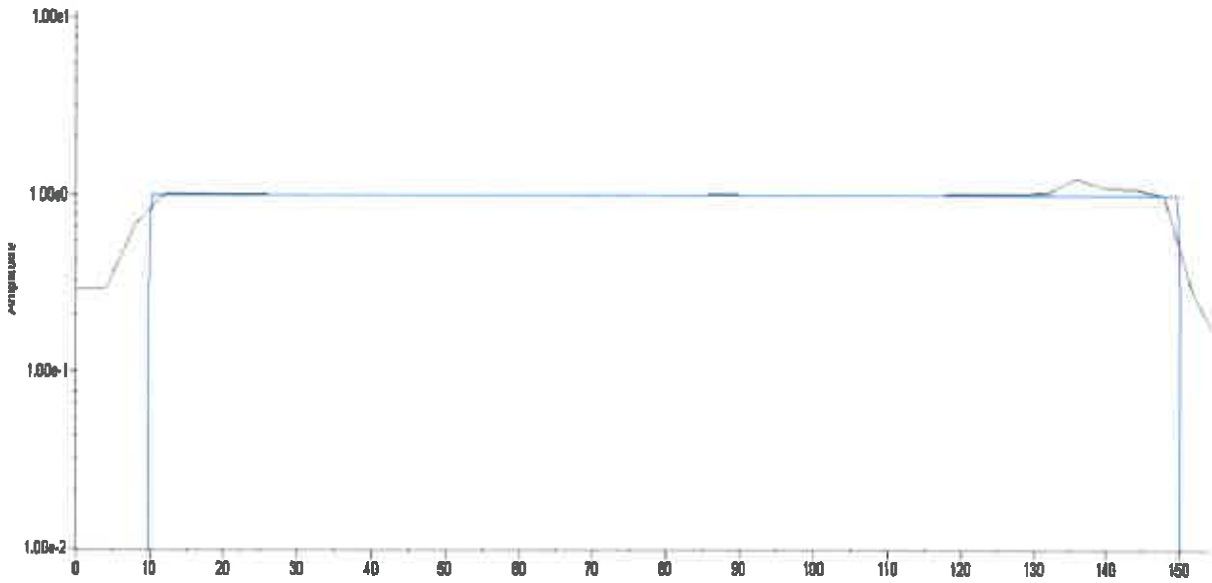


Figure 20. 1 g Acceleration-frequency plot in Y axis ($1.00 \times E^0 = 1$)

"Allianz Teknik" Allianz SE'nin tescilli bir markasıdır. Bu Rapor Allianz Teknik'in yazılı izni olmadan kopyalanamaz veya çoğaltılamaz. Belirtilen yönde görünen herhangi bir işlem gerekli yazılı izin olmaksızın geçersiz olacaktır. İmzasız ve kaşesiz raporlar geçersizdir. Bu rapor yalnızca rapor içeriğinde belirtilen test numuneleri için geçerlidir.

"Allianz Teknik" is a registered trademark of Allianz SE. This Report cannot be copied or reproduced without Allianz Teknik's written permission. Any such purported operation shall be void without such written consent. Reports without signature and stamp are not valid. This report is valid exclusively only for mentioned test samples.

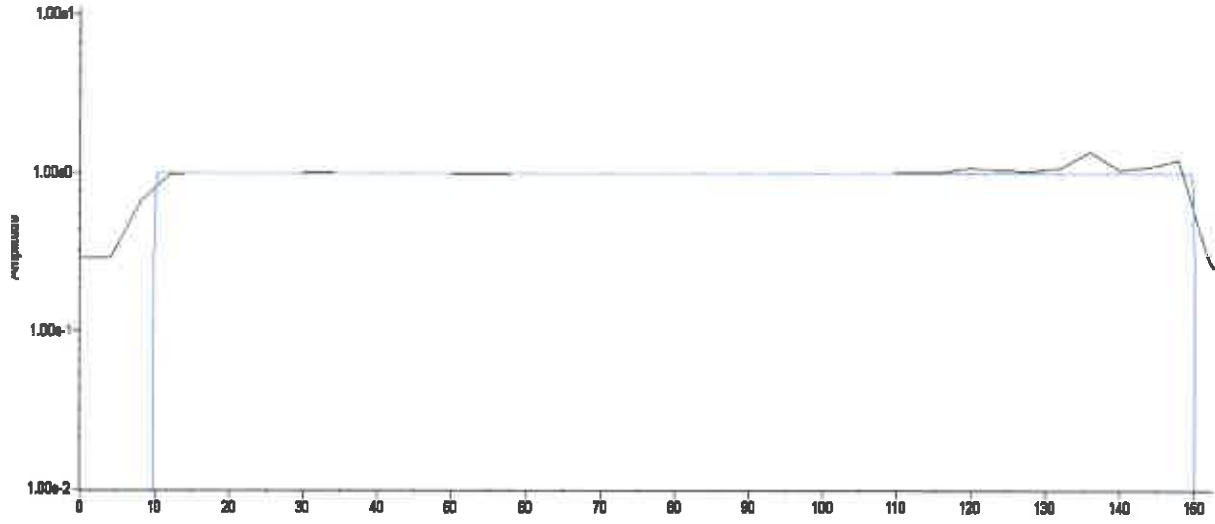


Figure 21. 1 g Acceleration-frequency plot in Z axis ($1.00 \times E^0 = 1$)

5.2. EN 60255-21-2 Standard

5.2.1. Mechanical Impact Test

5.2.1.1. Mechanical Impact Response Test

5 g – 11 ms test waves were applied 3 times on each axis and sequentially in X, Y, Z axis.

In Figure 22-23-24, the wave shown in black is the desired one and the wave shown in dark blue is the realized one.

It is sufficient to realize the waves between 80% and 120% in amplitude. There is a tolerance of ± 2 ms for the application time of the wave.

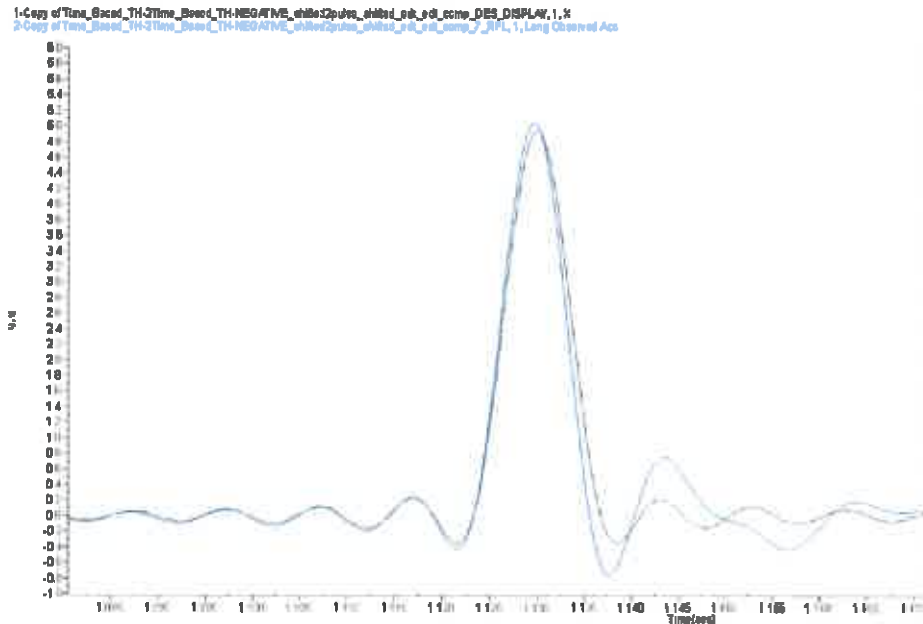
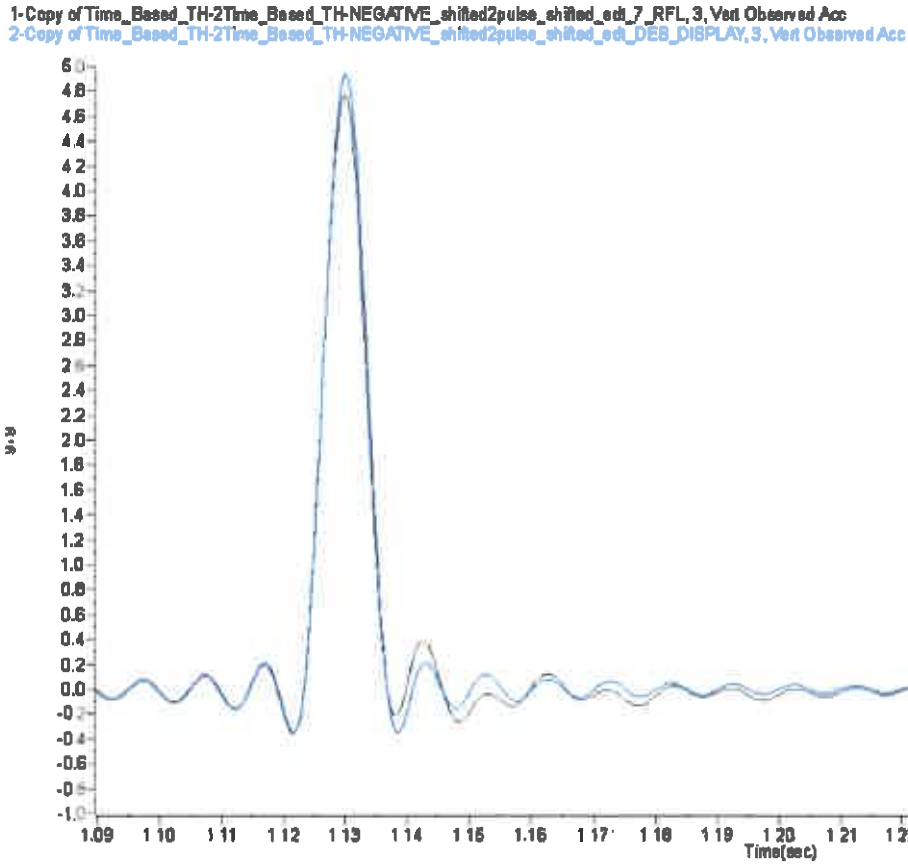
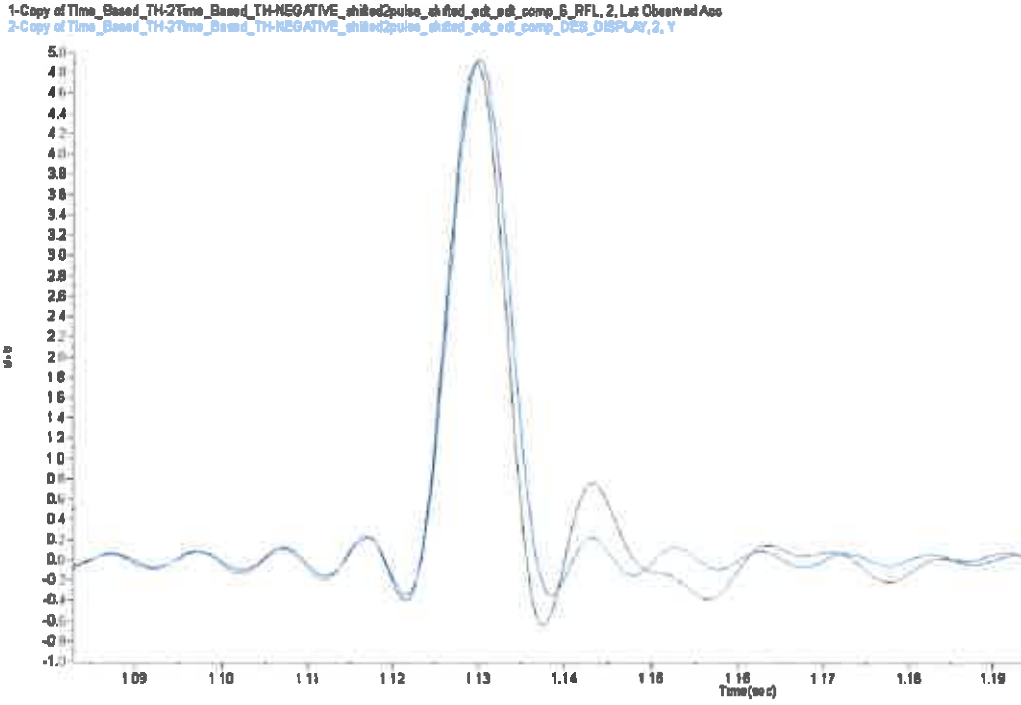


Figure 22. Mechanical impact wave in X-axis

"Allianz Teknik" Allianz SE'nin tescilli bir markasıdır. Bu Rapor Allianz Teknik'in yazılı izni olmadan kopyalanamaz veya çoğaltılamaz. Belirtilen yönde görünen herhangi bir işlem gerekli yazılı izin olmaksızın geçersiz olacaktır. İmzasız ve kaşesiz raporlar geçersizdir. Bu rapor yalnızca rapor içeriğinde belirtilen test numuneleri için geçerlidir.

"Allianz Teknik" is a registered trademark of Allianz SE. This Report cannot be copied or reproduced without Allianz Teknik's written permission. Any such purported operation shall be void without such written consent. Reports without signature and stamp are not valid. This report is valid exclusively only for mentioned test samples.



"Allianz Teknik" Allianz SE'nin tescilli bir markasıdır. Bu Rapor Allianz Teknik'in yazılı izni olmadan kopyalanamaz veya çoğaltılamaz. Belirtilen yönde görünen herhangi bir işlem gerekli yazılı izin olmaksızın geçersiz olacaktır. İmzasız ve kaşesiz raporlar geçersizdir. Bu rapor yalnızca rapor içeriğinde belirtilen test numuneleri için geçerlidir.

"Allianz Teknik" is a registered trademark of Allianz SE. This Report cannot be copied or reproduced without Allianz Teknik's written permission. Any such purported operation shall be void without such written consent. Reports without signature and stamp are not valid. This report is valid exclusively only for mentioned test samples.

5.2.1.2. Mechanical Impact Endurance Test

15 g – 11 ms test waves were supposed to be applied 3 times on each axis and sequentially in X, Y, Z axis. In Figure 25, the wave shown in black is the realized one.

It is sufficient to realize the waves between 80% and 120% in amplitude. There is a tolerance of ± 2 ms for the application time of the wave. A wave with 12,1 g peak value which is tolerance band was performed.

In order to perform test in three axis sequentially, UUT was turned around oneself and tests were performed. Thus, same impact signal was used for each axis (Please see Figure 16).

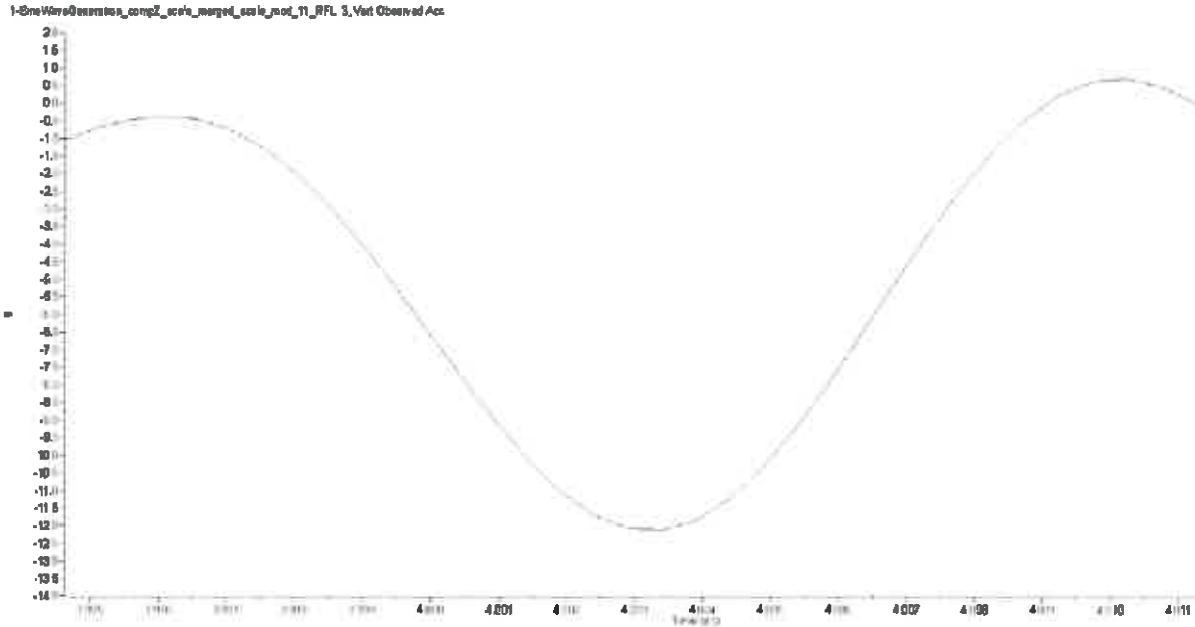


Figure 25. Mechanical Impact wave

5.2.2. Bump Test

10 g – 16 ms test waves were applied 1000 times on each axis and sequentially in X, Y, Z axis. In Figure 26-27-28, the wave shown in black is the desired one and the wave shown in dark blue is the realized one.

It is sufficient to realize the waves between 80% and 120% in amplitude. There is a tolerance of ± 2 ms for the application time of the wave.

“Allianz Teknik” Allianz SE’nin tescilli bir markasıdır. Bu Rapor Allianz Teknik’in yazılı izni olmadan kopyalanamaz veya çoğaltılamaz. Belirtilen yönde görünen herhangi bir işlem gerekli yazılı izin olmaksızın geçersiz olacaktır. İmzasız ve kaşesiz raporlar geçersizdir. Bu rapor yalnızca rapor içeriğinde belirtilen test numuneleri için geçerlidir.

“Allianz Teknik” is a registered trademark of Allianz SE. This Report cannot be copied or reproduced without Allianz Teknik’s written permission. Any such purported operation shall be void without such written consent. Reports without signature and stamp are not valid. This report is valid exclusively only for mentioned test samples.

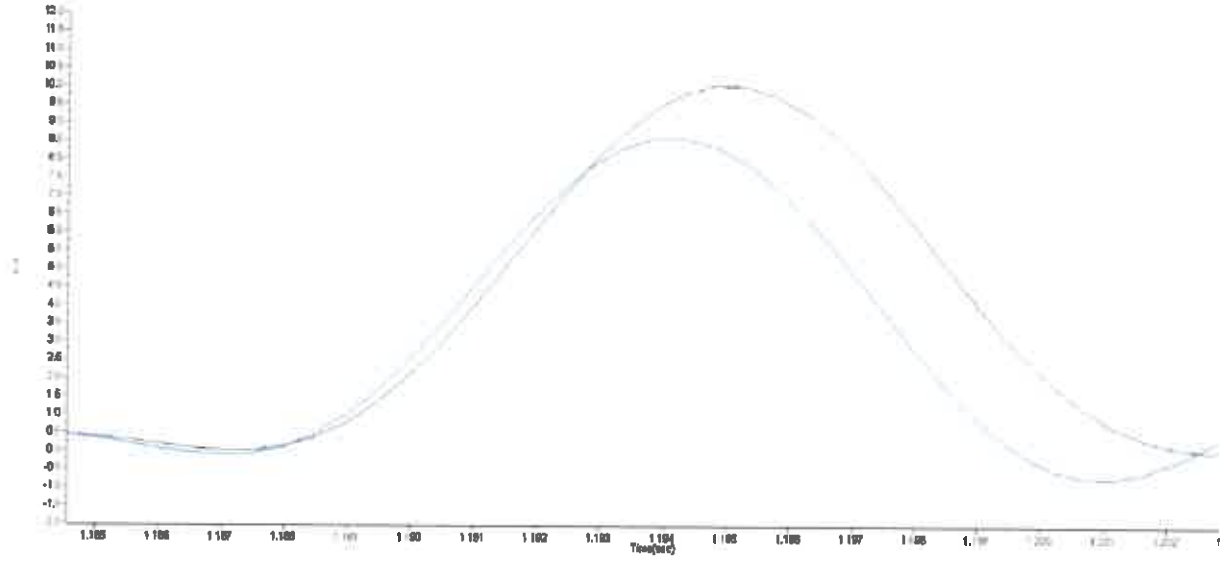


Figure 26. Bump wave in X-axis

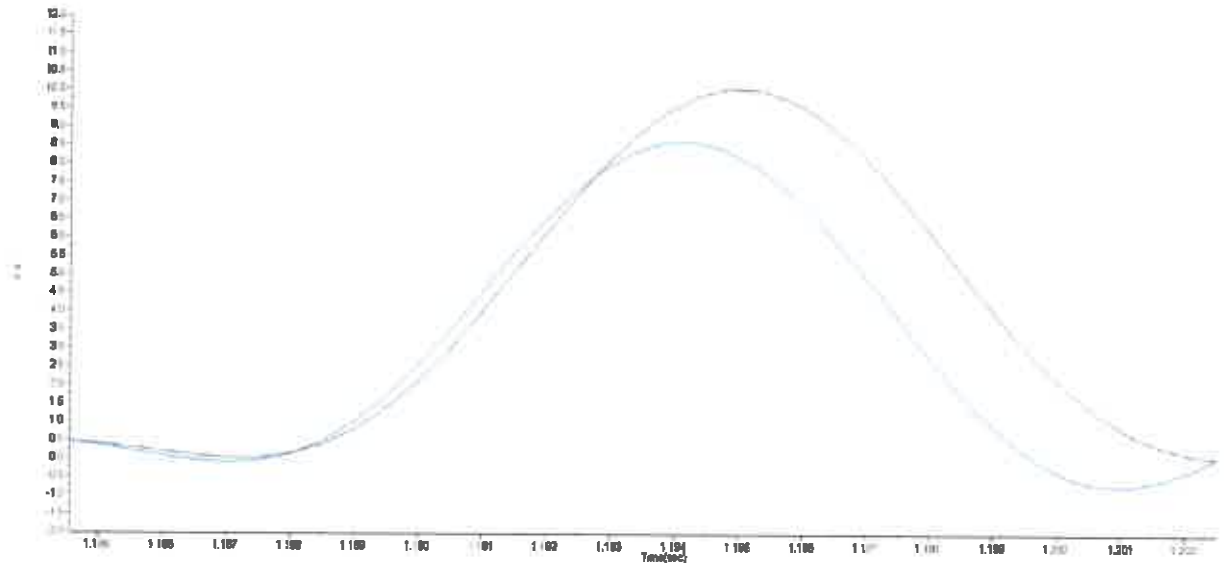


Figure 27. Bump wave in Y-axis

"Allianz Teknik" Allianz SE'nin tescilli bir markasıdır. Bu Rapor Allianz Teknik'in yazılı izni olmadan kopyalanamaz veya çoğaltılamaz. Belirtilen yönde görünen herhangi bir işlem gerekli yazılı izin olmaksızın geçersiz olacaktır. İmzasız ve kaşesiz raporlar geçersizdir. Bu rapor yalnızca rapor içeriğinde belirtilen test numuneleri için geçerlidir.

"Allianz Teknik" is a registered trademark of Allianz SE. This Report cannot be copied or reproduced without Allianz Teknik's written permission. Any such purported operation shall be void without such written consent. Reports without signature and stamp are not valid. This report is valid exclusively only for mentioned test samples.

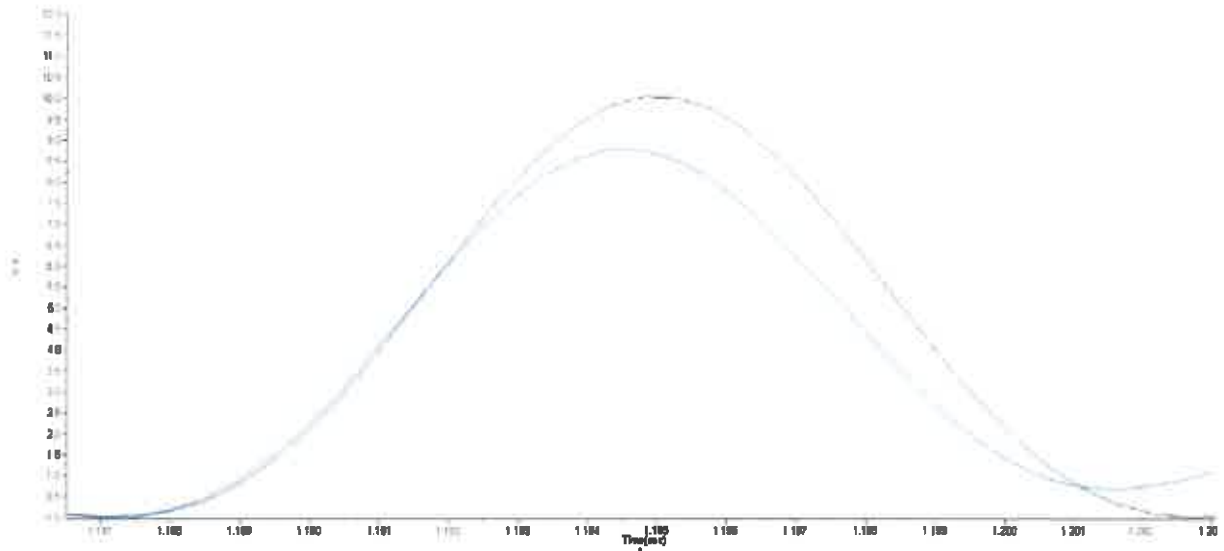


Figure 28. Bump wave in Z-axis

5.3. EN 60255-21-3 Standard

Earthquake tests were applied with ZPA= 1 g on the horizontal axis (X and Y) and ZPA= 0,5 g on the vertical axis (Z). Comparison of realized test spectrum (TRS) and required spectrum (RRS) can be seen in Figure 29-32.

LowPass_Filter_FIL_SRS_random_th_resampled_COMPYZ_comp_adt_scale_2_RFL_SRS - (2,2) - (Lat Observed Acc,column 2) - (g,yolts)
LowPass_Filter_FIL - (2,2) - (row 2,column 2) - (volts,yolts)

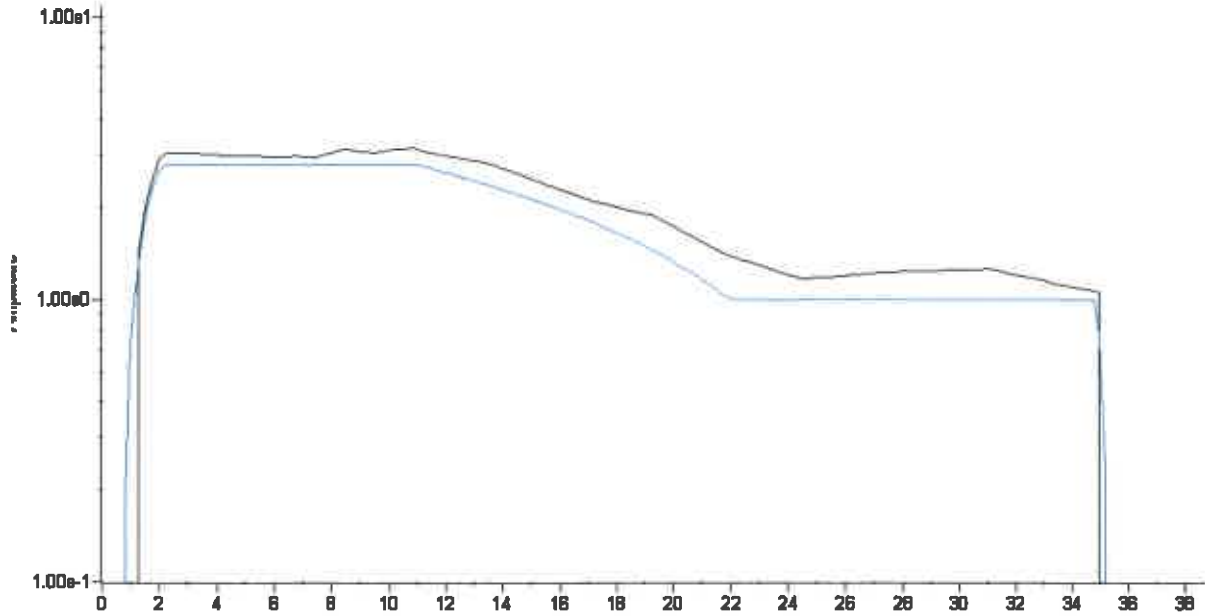


Figure 29. YZ test in Y-axis comparison

"Allianz Teknik" Allianz SE'nin tescilli bir markasıdır. Bu Rapor Allianz Teknik'in yazılı izni olmadan kopyalanamaz veya çoğaltılamaz. Bellirtilen yönde görülen herhangi bir işlem gerekli yazılı izin olmaksızın geçersiz olacaktır. İmzasız ve kaşesiz raporlar geçersizdir. Bu rapor yalnızca rapor içeriğinde belirtilen test numuneleri için geçerlidir.

"Allianz Teknik" is a registered trademark of Allianz SE. This Report cannot be copied or reproduced without Allianz Teknik's written permission. Any such purported operation shall be void without such written consent. Reports without signature and stamp are not valid. This report is valid exclusively only for mentioned test samples.

LowPass_Filter_FID5 - (1,1) - (row 1, column 1) - (volts, volts)
LowPass_Filter_FL_SRS_random_0h_resampled_COMPYZ_comp_edt_scale_2_RFL_SRS - (3,3) - (Vert Observed Acc, column 3) - (g, volts)

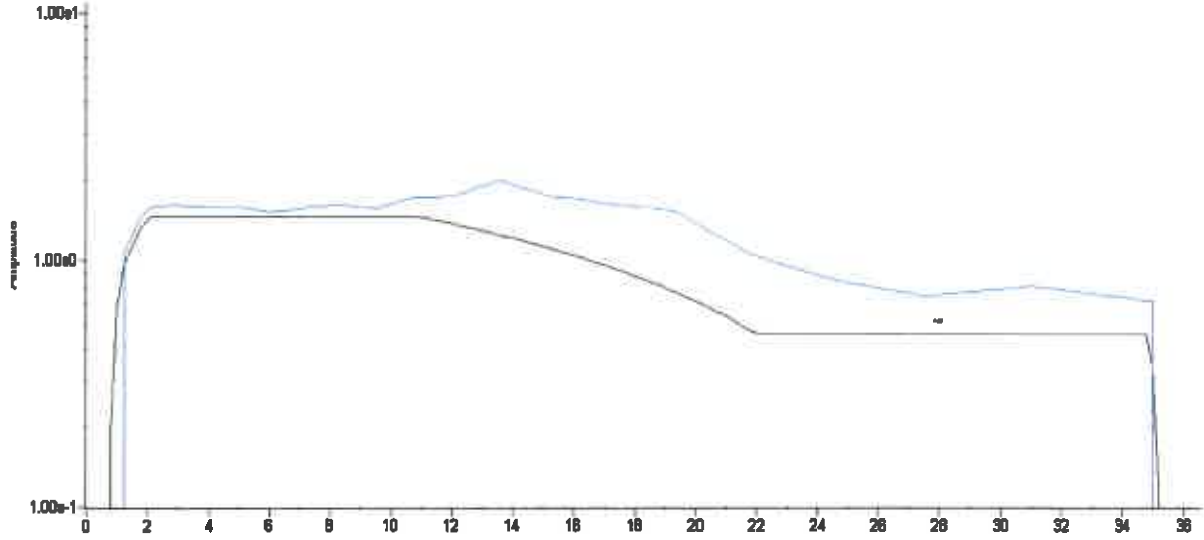


Figure 30. YZ test in Z-axis comparison

LowPass_Filter_FL_SRS_random_0h_COMPYZ_resampled_comp_edt_scale_6_RFL_SRS - (1,1) - (Long Observed Acc, Col 1) - (g)
LowPass_Filter_FL - (1,1) - (row 1, column 1) - (volts, volts)

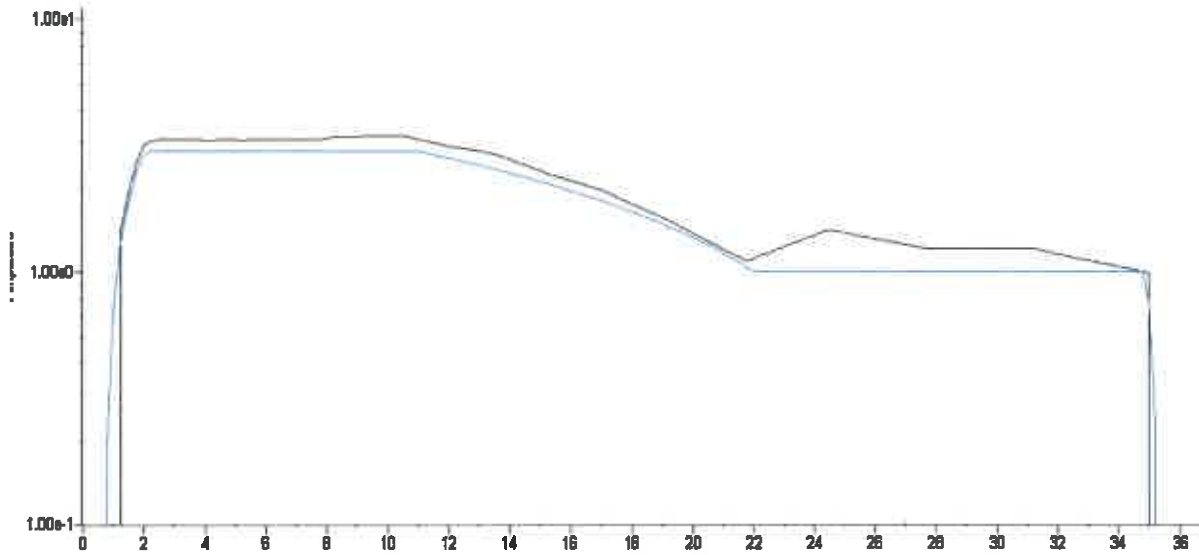
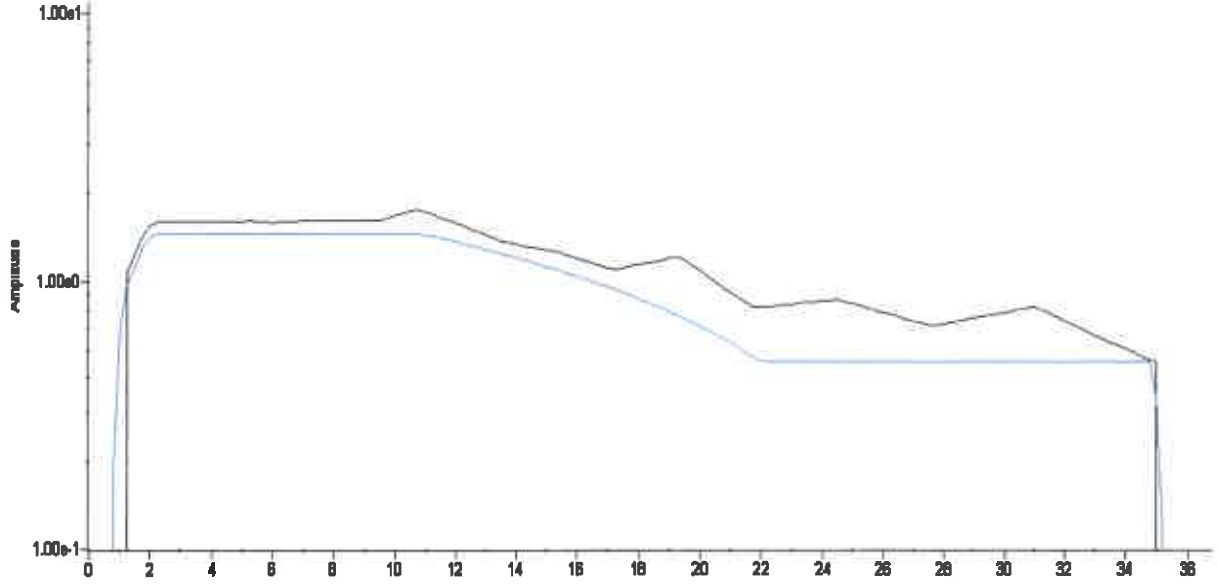


Figure 31. XZ test in X-axis comparison

"Allianz Teknik" Allianz SE'nin tescilli bir markasıdır. Bu Rapor Allianz Teknik'in yazılı izni olmadan kopyalanamaz veya çoğaltılamaz. Belirtilen yönde görünen herhangi bir işlem gerekli yazılı izin olmaksızın geçersiz olacaktır. İmzasız ve kaşesiz raporlar geçersizdir. Bu rapor yalnızca rapor içeriğinde belirtilen test numuneleri için geçerlidir.

"Allianz Teknik" is a registered trademark of Allianz SE. This Report cannot be copied or reproduced without Allianz Teknik's written permission. Any such purported operation shall be void without such written consent. Reports without signature and stamp are not valid. This report is valid exclusively only for mentioned test samples.

LowPass_Filter_FL_SRS_random_th_COMPXZ_resampled_comp_edt_scale_5_RFL_SRS - (3,3) - (Vert Observed Acc.column 3) - (g.yolu)
LowPass_Filter_FLB.5 - (2,2) - (row 2,column 2) - (yolu,yolu)



6. PICTURES

7.1. Pre Test



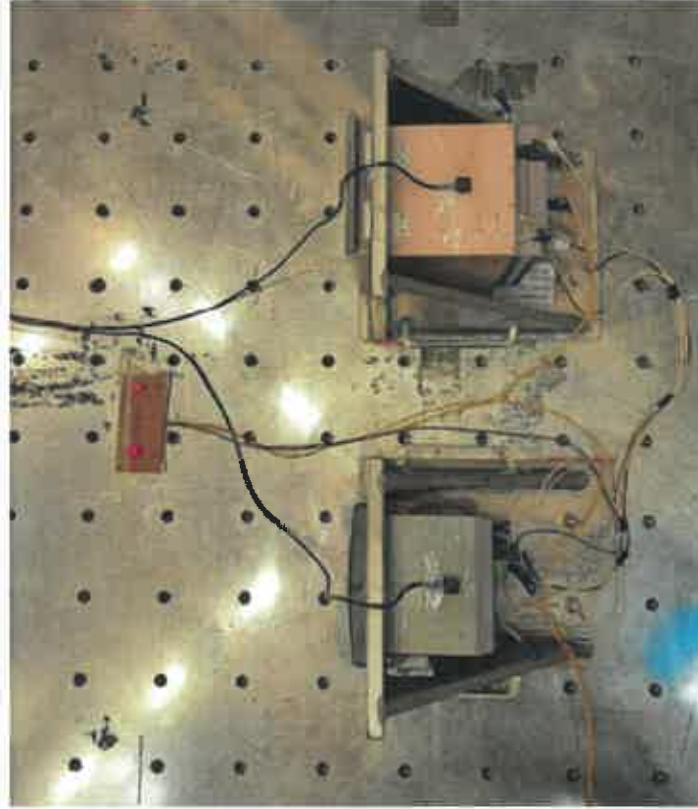
Picture 1. General View (Front)

"Allianz Teknik" Allianz SE'nin tescilli bir markasıdır. Bu Rapor Allianz Teknik'in yazılı izni olmadan kopyalanamaz veya çoğaltılamaz. Belirtilen yönde görünen herhangi bir işlem gerekli yazılı izin olmaksızın geçersiz olacaktır. İmzasız ve kaşesiz raporlar geçersizdir. Bu rapor yalnızca rapor içeriğinde belirtilen test numuneleri için geçerlidir.

"Allianz Teknik" is a registered trademark of Allianz SE. This Report cannot be copied or reproduced without Allianz Teknik's written permission. Any such purported operation shall be void without such written consent. Reports without signature and stamp are not valid. This report is valid exclusively only for mentioned test samples.



Picture 2. General View (Isometric)



Picture 3. General View (Top)

"Allianz Teknik" Allianz SE'nin tescilli bir markasıdır. Bu Rapor Allianz Teknik'in yazılı izni olmadan kopyalanamaz veya çoğaltılamaz. Belirtilen yönde görünen herhangi bir işlem gerekli yazılı izin olmaksızın geçersiz olacaktır. İmzasız ve kaşesiz raporlar geçersizdir. Bu rapor yalnızca rapor içeriğinde belirtilen test numuneleri için geçerlidir.

"Allianz Teknik" is a registered trademark of Allianz SE. This Report cannot be copied or reproduced without Allianz Teknik's written permission. Any such purported operation shall be void without such written consent. Reports without signature and stamp are not valid. This report is valid exclusively only for mentioned test samples.



Picture 4. General View of Mechanical Impact Endurance Test

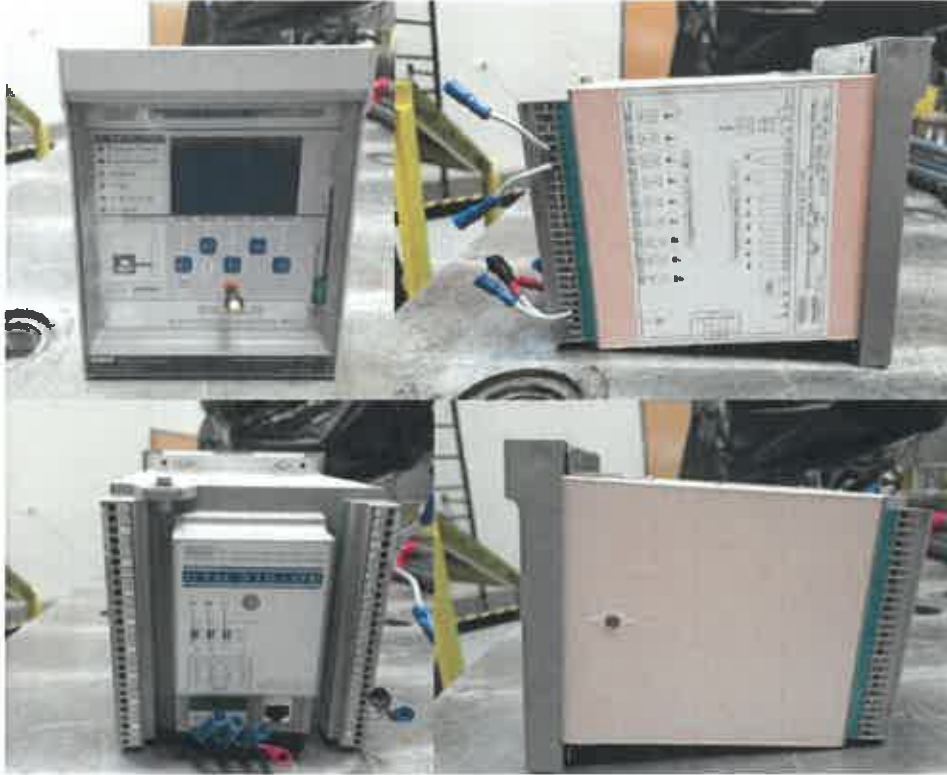
7.2. Post Test



Picture 5. General View After Test (Front)

"Allianz Teknik" Allianz SE'nin tescilli bir markasıdır. Bu Rapor Allianz Teknik'in yazılı izni olmadan kopyalanamaz veya çoğaltılamaz. Belirtilen yönde görünen herhangi bir işlem gerekli yazılı izin olmaksızın geçersiz olacaktır. İmzasız ve kaşesiz raporlar geçersizdir. Bu rapor yalnızca rapor içeriğinde belirtilen test numuneleri için geçerlidir.

"Allianz Teknik" is a registered trademark of Allianz SE. This Report cannot be copied or reproduced without Allianz Teknik's written permission. Any such purported operation shall be void without such written consent. Reports without signature and stamp are not valid. This report is valid exclusively only for mentioned test samples.



Picture 6. General View of CPM 310 DE After Test



Picture 7. General View of CPM 312 SE After Test

***Allianz Teknik* Allianz SE'nin tescilli bir markasıdır. Bu Rapor Allianz Teknik'in yazılı izni olmadan kopyalanamaz veya çoğaltılamaz. Belirtilen yönde görünen herhangi bir işlem gerekli yazılı izin olmaksızın geçersiz olacaktır. İmzasız ve kaşesiz raporlar geçersizdir. Bu rapor yalnızca rapor içeriğinde belirtilen test numuneleri için geçerlidir.**

***Allianz Teknik* is a registered trademark of Allianz SE. This Report cannot be copied or reproduced without Allianz Teknik's written permission. Any such purported operation shall be void without such written consent. Reports without signature and stamp are not valid. This report is valid exclusively only for mentioned test samples.**

7. TECHNICAL DRAWING

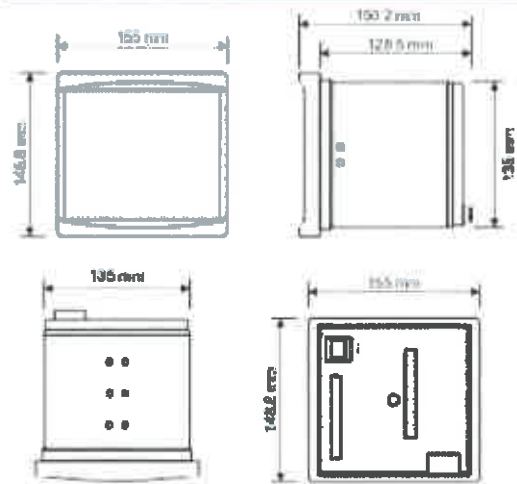
CPM 312-SE MULTIFUNCTION DIGITAL FIXED TYPE OVERCURRENT RELAY



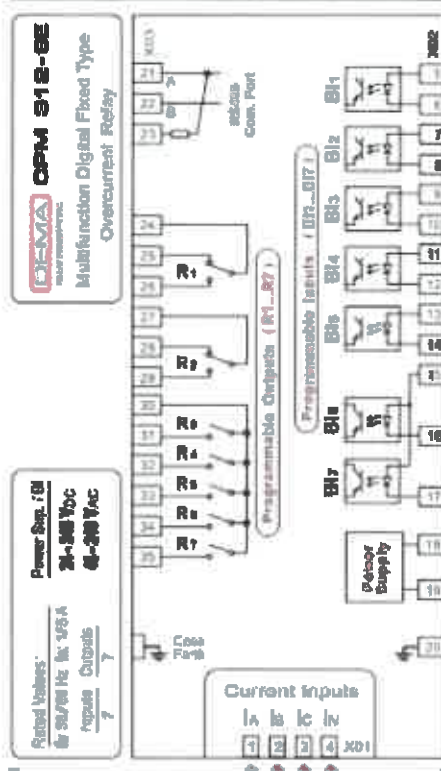
TECHNICAL SPECIFICATIONS

Nominal Auxiliary Voltage	(24-240) V _~ / (48-240) V _~
Auxiliary Voltage Variation	(19-280) V _~ / (36-264) V _~
Burden of Auxiliary	Max. 8 W / 15 VA
Secondary Current Inputs	(1/5)A, 3 Phase / 1 Earth
Secondary Burden	I_n : 1 A if 0.01 VA, I_n : 5 A if 0.2 VA
Phase / Earth Measurement Tech.	Fundamental harmonics
Thermal Measurement Technique	RMS Current
Programmable Inputs Quantity	7 inputs, opte isolation
Programmable Outputs Quantity	7 outputs
Language Options	English / Turkish
Communications Baudrate	Max 38,400 baud
Drop-out Time	40 ms
Storage & Operation Ambient Temp.	-25°C / +70 °C
Weight	1.3 kg net

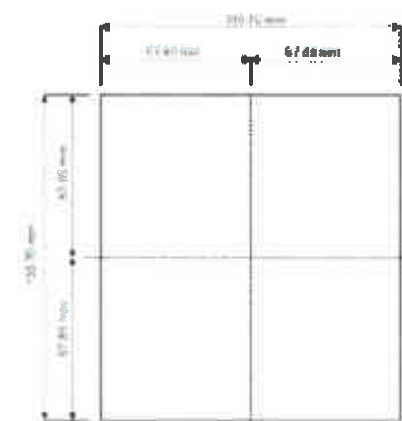
CPM 312-SE DIMENSIONS



CPM 312- SE CIRCUIT DIAGRAM



DRC 144 - S06
PANEL CUTTING DIMENSIONS



DEMA RELAY INDUSTRY INC.

+90(216) 337 77 34-35 / Fax +90(216) 440 17 95
info@demarelay.com.tr / www.demarelay.com.tr

"Allianz Teknik" Allianz SE'nin tescilli bir markasıdır. Bu Rapor Allianz Teknik'in yazılı izni olmadan kopyalanamaz veya çoğaltılamaz. Belirtilen yönde görünen herhangi bir işlem gerekli yazılı izin olmaksızın geçersiz olacaktır. İmzasız ve kağıtsız raporlar geçersizdir. Bu rapor yalnızca rapor içeriğinde belirtilen test numuneleri için geçerlidir.

"Allianz Teknik" is a registered trademark of Allianz SE. This Report cannot be copied or reproduced without Allianz Teknik's written permission. Any such purported operation shall be void without such written consent. Reports without signature and stamp are not valid. This report is valid exclusively only for mentioned test samples.

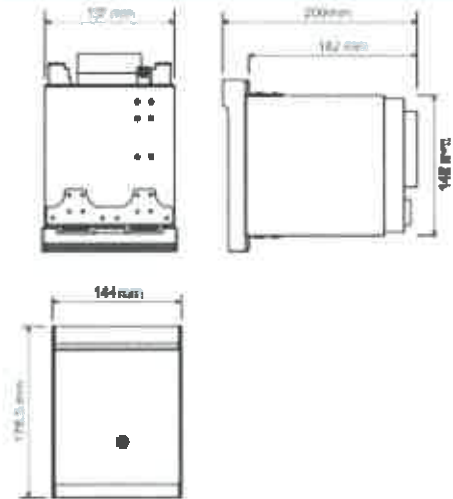
CPM 310-DE MULTIFUNCTION SOCKET TYPE DIGITAL OVERCURRENT RELAY



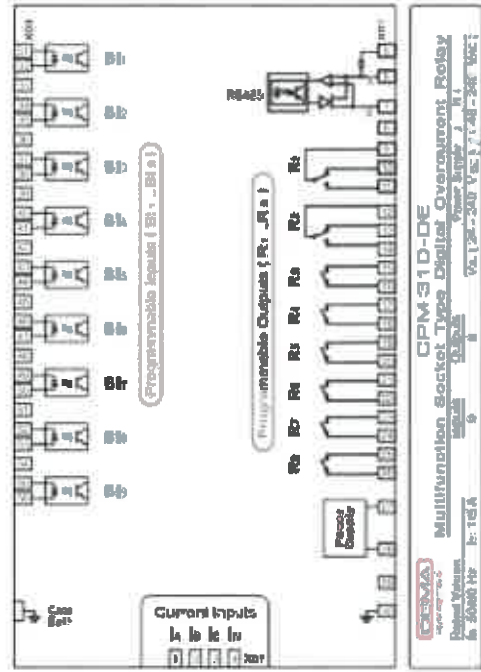
TECHNICAL SPECIFICATIONS

Nominal Auxiliary Voltage	(24-240) V _{AC} / (48-240) V _{DC}
Auxiliary Voltage Variation	(19-280) V _{AC} / (35-264) V _{DC}
Burden of Auxiliary	Max. 10 W / 16.5 VA
Secondary Current Inputs	(1/5)A, 3 Phase / 1 Earth
Secondary Burden	I ₁ : 1A if 0.02VA I ₂ : 5A if 0.6 VA
Phase / Earth Measurement Tech.	Fundamental harmonics
Thermal Measurement Technique	RMS Current
Programmable Inputs Quantity	9 inputs, opto isolation
Programmable Outputs Quantity	8 outputs
Language Options	English / Turkish
Communications Baudrate	Max 11.520 baud
Drop out Time	40 ms
Storage & Operation Ambient Temp	25°C / +70°C
Weight	2.9 kg net

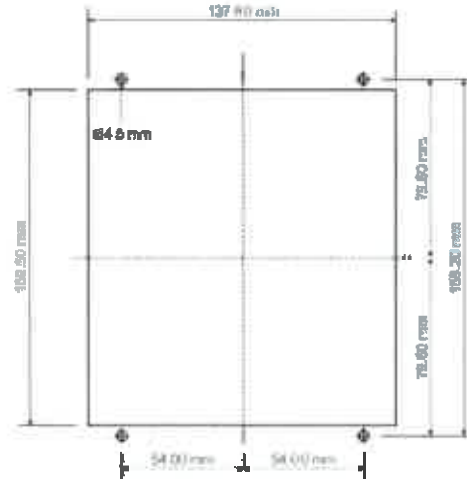
CPM 310-DE DIMENSIONS



CPM 310-DE CIRCUIT DIAGRAM



DRC 144 - S4 PANEL CUTTING DIMENSIONS



DEMA RELAY INDUSTRY INC.

+90(216) 352 77 34-35 / Faks +90(216) 442 17 95
info@demarda.com.tr / www.demarda.com.tr

"Allianz Teknik" Allianz SE'nin tescilli bir markasıdır. Bu Rapor Allianz Teknik'in yazılı izni olmadan kopyalanamaz veya çoğaltılamaz. Belirtilen yönde görülen herhangi bir işlem gerekli yazılı izin olmaksızın geçersiz olacaktır. İmzasız ve kaşesiz raporlar geçersizdir. Bu rapor yalnızca rapor içeriğinde belirtilen test numuneleri için geçerlidir.

"Allianz Teknik" is a registered trademark of Allianz SE. This Report cannot be copied or reproduced without Allianz Teknik's written permission. Any such purported operation shall be void without such written consent. Reports without signature and stamp are not valid. This report is valid exclusively only for mentioned test samples.

8. RESULTS

Functional controls were performed according to acceptance criteria, after the test applications. Functional controls were also performed during the energized tests. The (E) expression is added next to the tests which were performed as energized below.

- Pre Test Functionality Control
- EN 60255-21-1 standard tests
 - Vibration Response Test (E)
 - Vibration Endurance Test
- EN 60255-21-2 standard tests
 - Mechanical Impact Test
 - Mechanical Impact Response Test (E)
 - Mechanical Impact Endurance Test
 - Bump Test
- EN 60255-21-3 standard tests
 - Dual Axis Multi-Frequency Random Seismic Test (E)
- Post Test Functionality Control

Energized tests were applied first during the implementation of the tests, after that, non-energized tests were gathered together and applied last.

The following tables show the controls corresponding to each acceptance criteria and the table also lists the status of UUT 1 and UUT 2 referring to these criteria.

UUT 1 (CPM 310 DE Multifunctional Socket Type Digital Overcurrent Relay):

EN/IEC 60255-21-1 standard acceptance criteria			
Vibration Response Test Acceptance Criteria	Test Method	Documentation	Result
a. The measuring relay should not work inadequate during the tests. If the normal state of output circuit does not change for longer than 2 ms, the measuring relay is considered as adequate.	During the test, a circuit containing a LED was connected to the relay and it was monitored to remain 'ON' constantly.	See test videos shared with report	OK
b. During the test, any permanent change of state on the protective equipment of measuring relay should not occur and cause different signs.	During the test, the alarm LEDs etc. on the relay, are observed.	See test videos shared with report	OK
c. The measuring relay should continue to meet the relevant performance standard after the test and should not exceed half of the specified error. It should not change its operating values and suffer mechanical damage.	Controls were performed on the FR1117 Relay Tests Control Form.	See control forms at the end of the report	OK
Vibration Endurance Test Acceptance Criteria	Test Method	Documentation	Result
a. During the test, any permanent change of state on the measuring relay should not occur and cause different signs.	Periodically visual controls were performed during the test.	See test photos & videos shared with report	OK
b. The measuring relay should continue to meet the relevant performance standard and not suffer mechanical damage after the test.	After the test, visual controls and menu controls on the relay were performed.	See test photos & videos shared with report	OK

"Allianz Teknik" Allianz SE'nin tescilli bir markasıdır. Bu Rapor Allianz Teknik'in yazılı izni olmadan kopyalanamaz veya çoğaltılamaz. Belirtilen yönde görünen herhangi bir işlem gerekli yazılı izin olmaksızın geçersiz olacaktır. İmzasız ve kaşesiz raporlar geçersizdir. Bu rapor yalnızca rapor içeriğinde belirtilen test numuneleri için geçerlidir.

"Allianz Teknik" is a registered trademark of Allianz SE. This Report cannot be copied or reproduced without Allianz Teknik's written permission. Any such purported operation shall be void without such written consent. Reports without signature and stamp are not valid. This report is valid exclusively only for mentioned test samples.

EN/IEC 60255-21-2 standard acceptance criteria			
Mechanical Impact Response Test Acceptance Criteria	Test Method	Documentation	Result
a. The measuring relay should not work inadequate during the tests. If the normal state of output does not change for longer than 2 ms, the measuring relay is considered as adequate.	During the test, a circuit containing a LED was connected to the relay and it was monitored to remain 'ON' constantly.	See test videos shared with report.	OK
b. During the test, any permanent change of state on the protective equipment of measuring relay should not occur and cause different signs.	During the test, the alarm LEDs etc. on the relay, were observed.	See test videos shared with report.	OK
c. The measuring relay should continue to meet the relevant performance standard after the test and should not exceed half of the specified error. It should not change its operating values and suffer mechanical damage.	Controls were performed on the FR1117 Relay Tests Control Form.	See control forms at the end of the report.	OK
Mechanical Impact Endurance and Bump Test Acceptance Criteria	Test Method	Documentation	Result
a. During the test, any change on the measuring relay may show oneself with different signs.			OK
b. The measuring relay should continue to meet the relevant performance standard and not suffer mechanical damage after the test.	After the test, visual controls and menu controls on the relay were performed.	See test photos & videos shared with the report.	OK

EN/IEC 60255-21-3 standard acceptance criteria			
Dual Axis Multi-Frequency Random Seismic Test	Test Method	Documentation	Result
a. The measuring relay should not work inadequate during the tests. If the normal state of output circuit does not change for longer than 2 ms, the measuring relay is considered adequate.	During the test, a circuit containing a LED was connected to the relay and it was monitored to remain 'ON' constantly.	See test videos shared with the report	OK
b. During the test, any permanent change on the measuring relay may show oneself with different signs.	During the test, the alarm LEDs etc. on the relay, are observed	See test videos shared with the report	OK
c. The measuring relay should continue to meet the relevant performance standard after the test and should not exceed one time more than the specified error. It should not change its operating values and suffer mechanical damage.	Controls were performed on the FR1117 Relay Tests Control Form	See control forms at the end of report	OK

UUT 2 (CPM 312 SE Multifunctional Fixed Type Digital Overcurrent Relay):

EN/IEC 60255-21-1 standard acceptance criteria			
Vibration Response Test Acceptance Criteria	Test Method	Documentation	Result
a. The measuring relay should not work inadequate during the tests. If the normal state of output circuit does not change for longer than 2 ms, the measuring relay is considered as adequate.	During the test, a circuit containing a LED was connected to the relay and it was monitored to remain 'ON' constantly.	See test videos shared with report	OK
b. During the test, any permanent change of state on the protective equipment of measuring relay should not occur and cause different signs.	During the test, the alarm LEDs etc. on the relay, are observed.	See test videos shared with report	OK
c. The measuring relay should continue to meet the relevant performance standard after the test and should not exceed half of the specified error. It should not change its operating values and suffer mechanical damage.	Controls were performed on the FR1117 Relay Tests Control Form.	See control forms at the end of the report	OK
Vibration Endurance Test Acceptance Criteria	Test Method	Documentation	Result
a. During the test, any permanent change of state on the measuring relay should not occur and cause different signs.	Periodically visual controls were performed during the test.	See test photos & videos shared with report	OK
b. The measuring relay should continue to meet the relevant performance standard and not suffer mechanical damage after the test.	After the test, visual controls and menu controls on the relay were performed.	See test photos & videos shared with report	OK

"Allianz Teknik" Allianz SE'nin tescilli bir markasıdır. Bu Rapor Allianz Teknik'in yazılı izni olmadan kopyalanamaz veya çoğaltılamaz. Belirtilen yönde görünen herhangi bir işlem gerekli yazılı izin olmaksızın geçersiz olacaktır. İmzasız ve kaşesiz raporlar geçersizdir. Bu rapor yalnızca rapor içeriğinde belirtilen test numuneleri için geçerlidir.

"Allianz Teknik" is a registered trademark of Allianz SE. This Report cannot be copied or reproduced without Allianz Teknik's written permission. Any such purported operation shall be void without such written consent. Reports without signature and stamp are not valid. This report is valid exclusively only for mentioned test samples.

EN/IEC 60255-21-2 standard acceptance criteria			
Mechanical Impact Response Test Acceptance Criteria	Test Method	Documentation	Result
a. The measuring relay should not work inadequate during the tests. If the normal state of output does not change for longer than 2 ms, the measuring relay is considered as adequate.	During the test, a circuit containing a LED was connected to the relay and it was monitored to remain 'ON' constantly.	See test videos shared with report.	OK
b. During the test, any permanent change of state on the protective equipment of measuring relay should not occur and cause different signs.	During the test, the alarm LEDs etc. on the relay, were observed.	See test videos shared with report.	OK
c. The measuring relay should continue to meet the relevant performance standard after the test and should not exceed half of the specified error. It should not change its operating values and suffer mechanical damage.	Controls were performed on the FR1117 Relay Tests Control Form.	See control forms at the end of the report.	OK
Mechanical Impact Endurance and Bump Test Acceptance Criteria	Test Method	Documentation	Result
a. During the test, any change on the measuring relay may show oneself with different signs.	-	-	OK
b. The measuring relay should continue to meet the relevant performance standard and not suffer mechanical damage after the test.	After the test, visual controls and menu controls on the relay were performed.	See test photos & videos shared with the report.	OK

EN/IEC 60255-21-3 standard acceptance criteria			
Dual Axis Multi-Frequency Random Seismic Test	Test Method	Documentation	Result
a. The measuring relay should not work inadequate during the tests. If the normal state of output circuit does not change for longer than 2 ms, the measuring relay is considered adequate.	During the test, a circuit containing a LED was connected to the relay and it was monitored to remain 'ON' constantly.	See test videos shared with the report	OK
b. During the test, any permanent change on the measuring relay may show oneself with different signs.	During the test, the alarm LEDs etc. on the relay, are observed	See test videos shared with the report	OK
c. The measuring relay should continue to meet the relevant performance standard after the test and should not exceed one time more than the specified error. It should not change its operating values and suffer mechanical damage.	Controls were performed on the FR1117 Relay Tests Control Form	See control forms at the end of report	OK

Following test control forms were filled out between tests for each UUT in page 35 & 36.

"Allianz Teknik" Allianz SE'nin tescilli bir markasıdır. Bu Rapor Allianz Teknik'in yazılı izni olmadan kopyalanamaz veya çoğaltılamaz. Belirtilen yönde görünen herhangi bir işlem gerekli yazılı izin olmaksızın geçersiz olacaktır. İmzasız ve kaşesiz raporlar geçersizdir. Bu rapor yalnızca rapor içeriğinde belirtilen test numuneleri için geçerlidir.

"Allianz Teknik" is a registered trademark of Allianz SE. This Report cannot be copied or reproduced without Allianz Teknik's written permission. Any such purported operation shall be void without such written consent. Reports without signature and stamp are not valid. This report is valid exclusively only for mentioned test samples.

Relay Test Control Form

Tested Relay Type: CPM 310-DE		Relay Serial Number: C1210008				
<p>Relay Settings: 1-) \geq Threshold / \geq = 1 In / D.type : IEC EI / TMS=1 Applied Test Current : 3 A (Given from Ir phase.) 2-) \geq Threshold / \geq = 4 In / D.type: DMT / \geq = 1.0 s Applied Test Current : 5 A. (Given from Ir phase.) Maximum Error may occur for the two thresholds above: \pm5 or 40 ms whichever is greater will be accepted.</p>						
Test Date	Tested Threshold	Expected Time	Measured Time	Accuracy % (Relative Error)	Conclusion	Descriptions
04.08.2021	\geq	10 s	10.0771 s	%0.771	OK	Pre-test measurement
04.08.2021	\geq	1 s	1.0086 s	%0.66	OK	Pre-test measurement
06.08.2021	\geq	10 s	10.0787 s	%0.787	OK	After vibration response test
06.08.2021	\geq	1 s	1.0077 s	%0.77	OK	After vibration response test
06.08.2021	\geq	10 s	10.0789 s	%0.789	OK	After mechanical impact test
06.08.2021	\geq	1 s	1.0087 s	%0.87	OK	After mechanical impact test
06.08.2021	\geq	10 s	10.0810 s	%0.810	OK	After seismic test
06.08.2021	\geq	1 s	1.0089 s	%0.69	OK	After seismic test
06.08.2021	\geq	10 s	10.0808 s	%0.808	OK	After bump (all tests) test
06.08.2021	\geq	1 s	1.0089 s	%0.69	OK	After bump (all tests) test
Used Test Device: OMICRON CMC256-6						

"Allianz Teknik" Allianz SE'nin tescilli bir markasıdır. Bu Rapor Allianz Teknik'in yazılı izni olmadan kopyalanamaz veya çoğaltılamaz. Belirtilen yönde görünen herhangi bir işlem gerekli yazılı izin olmaksızın geçersiz olacaktır. İmzasız ve kaşesiz raporlar geçersizdir. Bu rapor yalnızca rapor içeriğinde belirtilen test numuneleri için geçerlidir.

"Allianz Teknik" is a registered trademark of Allianz SE. This Report cannot be copied or reproduced without Allianz Teknik's written permission. Any such purported operation shall be void without such written consent. Reports without signature and stamp are not valid. This report is valid exclusively only for mentioned test samples.

Relay Test Control Form

Tested Relay Type: CPM 312-SE		Relay Serial Number: C22100003				
<p>Relay Settings: 1-) Δ Threshold / Δ = 1 in / D.type : IEC EI / TMS=1 Applied Test Current : 3 A (Given from Ir phase.) 2-) Δ Threshold / Δ = 4 in / D.type: DMT / Δ >>=1.0 s Applied Test Current : 5 A. (Given from Ir phase.)</p> <p align="center">Maximum Error may occur for the two thresholds above: \pm5% or 40 ms whichever is greater will be accepted.</p>						
Test Date	Tested Threshold	Expected Time	Measured Time	Accuracy % (Relative Error)	Conclusion	Descriptions
04.08.2021	Δ	10 s	10.0304 s	%0.304	OK	Pre-test measurement
04.08.2021	Δ	1 s	1.0079 s	%0.79	OK	Pre-test measurement
06.08.2021	Δ	10 s	10.0291 s	%0.291	OK	After vibration response test
06.08.2021	Δ	1 s	1.0065 s	%0.65	OK	After vibration response test
06.08.2021	Δ	10 s	10.0289 s	%0.289	OK	After mechanical impact test
06.08.2021	Δ	1 s	1.0069 s	%0.69	OK	After mechanical impact test
06.08.2021	Δ	10 s	10.0305 s	%0.305	OK	After seismic test
06.08.2021	Δ	1 s	1.0066 s	%0.66	OK	After seismic test
06.08.2021	Δ	10 s	10.0291 s	%0.291	OK	After bump (all tests) test
06.08.2021	Δ	1 s	1.0067 s	%0.67	OK	After bump (all tests) test

Used Test Device: OMICRON CMC256-6

"Allianz Teknik" Allianz SE'nin tescilli bir markasıdır. Bu Rapor Allianz Teknik'in yazılı izni olmadan kopyalanamaz veya çoğaltılamaz. Belirtilen yönde görünen herhangi bir işlem gerekli yazılı izin olmaksızın geçersiz olacaktır. İmzasız ve kaşesiz raporlar geçersizdir. Bu rapor yalnızca rapor içeriğinde belirtilen test numuneleri için geçerlidir.

"Allianz Teknik" is a registered trademark of Allianz SE. This Report cannot be copied or reproduced without Allianz Teknik's written permission. Any such purported operation shall be void without such written consent. Reports without signature and stamp are not valid. This report is valid exclusively only for mentioned test samples.