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|--|---|---|---------------------------------|
| 型式試験レポート(モデル: STP25000TL-JP-30) | |  | |
| テスト名: | JET | | |
| 文書名/Document name: | TestReport_STP25000TL-JP-30.docx | | |
| レポート承認者: / Author: | Christian Gehrke | 作成日: / Date: | 2015年04月05日 |
| テスト責任者: / Responsible: | Christian Gehrke | | |
| テスト分類: | - | テストインデックス: | - |
| テスト通則文書: | Master Testpunkteuebersicht_STP250.xlsm | | |
| | | | |
| プロジェクト名 / Project name:: | Qualification of STP25000TL-JP-30 | | |
| 担当者 /Contact person: | Christian Gehrke | | |
| | | | |
| モデル Device: | STP25000TL-JP-30 | ファームウェア バージョン Firmware version: 01.00.R and higher | Pck: 01.00 R以上 HP: 01.00.R以上 |
| | | | |
| 備考/Remarks: | JET試験方法通則および個別試験方法に沿って試験を実施 | | |

文書番号 / Rev.:D_00093082.2

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SMA Solartechnology AG – Medium Power Solutions

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Revision History

| Document-number | Version | Comments | Author | Review |
|-----------------|---------|--------------------------------------|----------|--------|
| D_00093082 | 1.0 | First Edition | C.Gehrke | T.Osa |
| D_00093082 | 2.0 | Added AID test with rotating machine | C.Gehrke | T.Osa |
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テスト環境 / Test environment

テスト機は、プログラム可能なAC電源およびDC電源と下記のような接続環境でテストしています。

The used AC- and DC-source is programmable for each test.

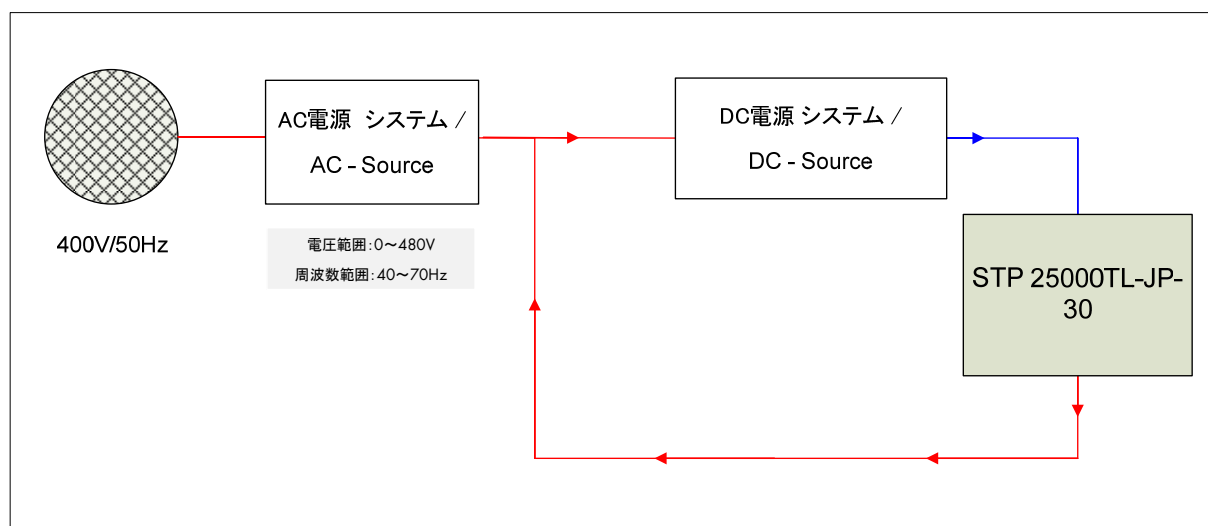


図 1: テスト環境(模擬系統システム) / Figure 2: Test setup – simulated grid

計測装置 / Used equipment:

| Name: | SAP Nr. | 校正有効期限 / Next calibration |
|-------------------|----------|---------------------------|
| Dewetron System | 21013679 | 08.04.2015 |
| Ultrastab CT 200i | 21013655 | 08.04.2015 |
| Ultrastab CT 200i | 21013648 | 08.04.2015 |
| Ultrastab CT 200i | 21013657 | 08.04.2015 |
| Ultrastab CT 200i | 21013646 | 08.04.2015 |
| Ultrastab CT 200i | 21013649 | 08.04.2015 |
| Ultrastab CT 200i | 21013647 | 08.04.2015 |
| Ultrastab CT 200i | 21013645 | 08.04.2015 |
| Ultrastab CT 200i | 21013659 | 08.04.2015 |
| Ultrastab CT 200i | 21013685 | 08.04.2015 |
| Ultrastab CT 200i | 21013650 | 08.04.2015 |
| Elgar 5550A | - | 20.02.2016 |
| emTest 60 | 21050676 | 11.11.2015 |

| 検証結果/Verification of acceptance criteria | | |
|---|---|----|
| 3.2.1 交流過電圧及び不足電圧試験/AC over-voltage and under-voltage tests | | |
| 3.2.1 a | 異常電圧が検出された場合、接触器開放およびゲートブロック動作。 Abnormal voltage shall be detected and switching device shall open and gate block function shall operate. | ok |
| 3.2.1 b | 検出レベルは設定値の± 2%以内。 The protective level shall be within value ± 2%. | ok |
| 3.2.1 c | 検出時限は設定値の± 0.1秒以内。 Detection timing shall be within ± 0.1 sec of setting value. | ok |
| 3.2.1 d | 系統電圧が復帰しても、一定時間は再並列しない。手動復帰が必須のため、手動復帰の試験結果P37参照 Even if grid-line voltage resumed back to normal, the power conditioner shall not be re-engaged for a period specified in the specification sheet or for set time (for example, 150 seconds) automatically or manually. | ok |
| 3.2.2 周波数上昇及び低下試験/Frequency-rise and -drop tests | | |
| 3.2.2 a | 異常周波数が検出された場合、接触器開放およびゲートブロック動作。 When abnormal frequency is detected, the switching device shall open and gate block function shall operate. | ok |
| 3.2.2 b | 検出レベルは設定値の± 0.1 Hz以内。 Protective level shall be within ± 0.1 Hz. | ok |
| 3.2.2 c | 検出時限は設定値の± 0.1秒以内。 Operating time shall be within ± 0.1 sec of setting value. | ok |
| 3.2.2 d | 系統周波数が復帰しても、一定時間は再並列しない。手動復帰が必須のため、手動復帰の試験結果P37参照 Even if frequency is recovered, grid-connected equipment shall not re-engage for fixed time (for example 150 sec). Furthermore, even when "operate" switch is pushed on during such protective holding period, the power conditioner shall not re-engage. | ok |
| 3.2.7 単独運転検出試験/Anti-Islanding operation test | | |
| 受動方式 / Passive detection system | | |
| 1. | 単独運転状態が検出された際、接触器開放およびゲートブロックが0.5秒以内動作。受動式単独運転検出機能には、不感帯があるが、できるだけその領域が狭いこと。 When islanding operation is detected, both the cut-off switch as well as gate block function shall be activated within 0.5 second. In case of the passive detection method, there might be "insensitive zones" (sections where non-islanding operation can be detected), but such zones should be made as narrow as possible. | ok |
| 2. | 単独運転を検出した後で系統電圧が復帰した場合でも、一定時間は再並列しないこと。手動復帰が必須のため、手動復帰の試験結果P37参照 Even if grid-line voltage is recovered, grid-connected equipment shall not be re-engaged for a certain period (about 5 seconds) after islanding operation is detected. | ok |
| 能動方式 / Active detection system | | |
| 3. | 単独運転状態が検出された際、接触器開放およびゲートブロックが0.5～1秒以内動作。 When islanding operation is detected, both the cut-off switch as well as gate block function shall be activated in 0.5 to 1 second. | ok |
| 4. | 単独運転を検出した後で系統電圧が復帰した場合でも、一定時間は再並列しないこと。手動復帰が必須のため、手動復帰の試験結果P37参照 Even if system voltage is recovered, grid-connected equipment shall not be re-engaged for the time indicated in the specifications or for a certain time. | ok |
| 能動および受動式 / Passive and active detection systems combined | | |

| | | |
|---|---|--|
| 5. | <p>単独運転を検出し、1 秒以内に開閉器開放及びゲートブロック機能が動作すること。ただし、能動的方式で検出し停止した場合は、0.5 秒以上1 秒以内であること。</p> <p>When islanding operation is detected, both the cut-off switch as well as gate block function shall be activated within 1 second. If the active detection method is activated first, both the cut-off switch as well as gate block function shall be activated in 0.5 to 1 second.</p> | ok |
| 6. | <p>単独運転を検出した後で系統電圧が復帰した場合でも、一定時間は再並列しないこと。手動復帰が必須のため、手動復帰の試験結果P37参照</p> <p>Even if system voltage is recovered, grid-connected equipment shall not be re-engaged for the time indicated in the specifications or for a certain time.</p> | ok |
| 7. | <p>受動式単独運転検出の試験における不感帯は、能動方式によって補完されなければならない。</p> <p>During the tests under the passive detection only, be sure that the region islanding operation occurred be covered by active detection system in its insensitive zone.</p> | ok |
| | | |
| 3.2.9.1 復電後の一定時間投入阻止試験/Fixed time blocking after grid blackout recovered | | |
| 3.2.9.1 | <p>系統異常により解列した後で系統電圧が復帰した場合でも、一定時間は再並列しないこと。外部からの“運転開始”信号などが入力された場合であっても同様。</p> <p>Even if the grid is recovered the inverter should not restart before the fixed blocking time is over</p> | ok |
| | | |
| 3.2.9.2 復電後の一定時間投入阻止試験/ Fixed time blocking after grid blackout recovered | | |
| 3.2.9.2 | <p>(1)直流入力を遮断させた場合 / Interruption on DC-input 直流入力が再投入された後、再度再並列阻止時間を計測すること、または、再並列阻止時間の計測を継続すること。</p> <p>(2)停電を発生させた場合 / AC-voltage failure 制御電源に直流出力電力を使用しているのが対象外</p> <p>(3)直流入力を遮断させて、その後に停電を発生させた場合/AC-voltage failure after DC interruption 制御電源に直流出力電力を使用しているものにあつては直流入力が再投入された後、制御電源に商用電源を使用しているものにあつては系統電圧が復電した後、再度再並列時間を計測すること。</p> <p>(4) 停電を発生させて、その後に直流入力を遮断させた場合 / DC interruption after AC-voltage failure 制御電源に直流出力電力を使用しているものにあつては直流入力が再投入された後、制御電源に商用電源を使用しているものにあつては系統電圧が復電した後、再度再並列阻止時間を計測すること。</p> | ok |
| | | |
| 4.3 運転力率試験/Operation power factor test | | |
| 4.3 | <p>出力力率が、0.95 以上であること。</p> <p>Output power factor shall be not less than 0.95.</p> | ok |
| | | |
| 4.4 出力高調波電流試験/Higher harmonics test in output current | | |
| 4.4 | <p>出力高調波電流は総合5%以下、各次3%以下。</p> <p>Output current distortion factor shall be no more than 5% for overall current distortion factor, and no more than 3% for each harmonic component.</p> | ok |
| | | |
| 4.5 漏洩電流試験/ Leakage current test | | |
| 4.5 | <p>JET判定基準は漏洩電流が5mA以下、又はフィルタ回路の端子電圧が5V以下ですが、出力が10kW以下のパワーコンディショナのみに適用されるため、参考データとなります。</p> <p>JET criteria is, "Leakage current shall be no more than 5mA, or output terminal voltage of the filter shall be no more than 5V" but it is for equal or less than 10kW inverters. Hence the test data is just reference.</p> | <p>参考データ (判定基準なし) Reference data (no criteria)</p> |
| 4.6 電圧上昇抑制機能試験/Suppression function test against voltage-rise | | |
| 4.6 a | <p>パワーコンディショナーの出力端電圧が整定値の±0.5%以内に維持されること</p> <p>Grid-line voltage at the PCS output shall be maintained within defined voltages ±0.5%.</p> | ok |
| | | |
| 4.8 ソフトスタート機能試験/Soft-starting Function Test | | |
| 4.8 a | <p>ソフトスタート機能により、起動時に急激な過電流無し。</p> <p>Rush over-current at start-up shall be prevented by a specified soft start function.</p> | ok |

| | | |
|--|--|----|
| 4.8 b | AC出力電流の変動が、定格電流150%以上を越えず、100%を越える時間が0.5秒以内。 AC output of over-current power conditioner (R.M.S. value) shall be no more than 150% of rated current and no more than 0.5 sec. | ok |
| 5.1 入力電力急変試験(および負荷急変試験)/Sudden change of DC-input power | | |
| 5.1 | 急変に追従すること。 AC出力電流の変動が定格電流150%以下、100%を超える時間が0.5秒以内であること。 The inverters must smoothly follow up the sudden changes in DC input power. Variation in AC output current shall be not more than 150% of the rated current and that duration exceeding 100% shall no more than 0.5 sec. | ok |
| 6.3 瞬時電圧低下試験 (FRT試験)/Instantaneous Voltage-drop Test (FRT) | | |
| 1 | 瞬時電圧低下(残電圧20%時)/ Instantaneous voltage drop (residual voltage: 20% of the rated voltage) イ. 残電圧20%の瞬時電圧低下に対し、並列運転を継続すること。 ・電圧低下が発生した瞬間から2サイクル以内のゲートブロック(2サイクル以内に復帰するゲートブロック)は許容する ・ただし、ゲートブロックからの復帰後は、電圧低下中において再度ゲートブロックを行わないものとする。 ロ. 電圧復帰後0.1秒以内に、瞬時電圧低下発生前における有効電力出力の80%以上の出力を行うこと。 ハ. 系統電圧が復帰した時の過電流が定格電流の150%以下、かつ100%を超える時間が0.5秒以内であり、並列運転を継続すること。ただし、系統電圧が復帰した瞬間2サイクル以内のゲートブロック(2サイクル以内に復帰するゲートブロック)は許容する。 Inverters must remain in connected operation even when an instantaneous voltage drop to 20% occurs. Gate blocking for 2 cycles or less (gate blocking that recovers within 2 cycles) from the moment of generation of an instantaneous voltage drop, except for the test with phases input angle of 0°. However, gate block must not occur again if the voltage drop is still present after recovery from gate blocking. Within 0.1s after voltage recovery, output must reach 80% or more of the active power output prior to the instantaneous voltage drop. Overcurrent on the grid voltage recovery must not exceed 150% of the rated current; overcurrent duration time of above 100% must be 0.5s or less; and the gate block function must not operate. | ok |
| 2 | 瞬時停電(残電圧0%時)/ Instantaneous power failure (residual voltage: 0% of the rated voltage) イ. 残電圧0%の瞬時電圧低下に対し並列運転を継続するかまたは、ゲートブロックをすること。 ロ. 電圧復帰後1.0秒以内に、瞬時電圧低下発生前における有効電力出力の80%以上の出力を行うこと。 ハ. 系統電圧の復帰時に、過電流が定格電流の150%以下、かつ100%を超える時間が0.5秒以内であり、ゲートブロック機能が動作しないこと。 Inverters must remain in connected operation, or gate blocking must occur even when an instantaneous power failure occurs. Within 1.0s after voltage recovery, output must reach 80% or more of the active power output prior to the instantaneous power failure. Overcurrent on the grid voltage recovery must not exceed 150% of the rated current; overcurrent duration time of above 100% must be 0.5s or less; and the gate block function must not operate. | ok |
| 3 | 位相変化を伴う電圧低下/ Voltage Drop accompanied with Phase Changes ・瞬時電圧低下に対し、並列運転を継続すること。 ・電圧低下の発生した瞬間2サイクル以内のゲートブロック(2サイクル以内に復帰するゲートブロック)は許容する。 ・ただし、ゲートブロックからの復帰後は、電圧低下中において再度ゲートブロックを行わないものとする。 ロ. 電圧復帰後0.1秒以内に、瞬時電圧低下発生前における有効電力出力の80%以上の出力を行うこと。 ハ. 系統電圧が復帰した時の過電流が定格電流の150%以下、かつ100%を超える時間が0.5秒以内であり、並列運転を継続すること。ただし、系統電圧が復帰した瞬間2サイクル以内のゲートブロック(2サイクル以内に復帰するゲートブロック)は許容する Inverters must remain in connected operation even when an instantaneous voltage drop occurs. Gate blocking for 2 cycles or less (gate blocking that recovers within 2 cycles) from the moment of generation of an instantaneous voltage drop is allowed. However, gate block must not occur again even if the voltage drop is still present after recovery from gate blocking. Within 0.1s after voltage recovery, output must reach 80% or more of the active power output prior to the instantaneous voltage drop. Overcurrent on the grid voltage recovery must not exceed 150% of rated current; overcurrent duration time of above 100% must be 0.5s or less; and the gate block function must not operate. However, gate blocking for 2 cycles or less (gate blocking that recovers within 2 cycles) on the moment of the grid voltage recovery is allowed. | ok |
| 6.4 周波数変動試験 (FRT 試験/Frequency Fluctuation Test (FRT Test)) | | |
| 1 | 周波数変動中にパワーコンディショナが並列運転を継続すること。 The inverters remain in connected operation during frequency fluctuation. | ok |

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|---------------------------------|---|----------------------|-------------|
| 3.2.1 | 交流過電圧及び不足電圧試験/AC over-voltage and under-voltage tests | | |
| テスト者 / Validator: | Dennis Strücker | テスト実施日 / Test date: | 2015年03月19日 |
| 公称出力電圧 / Nominal AC-voltage: | 420V | DC入力電圧 / DC-voltage: | 750V |
| 定格有効出力電力 / Rated active output: | 25 kW | | |
| 備考 / Remarks: | - | | |

交流過電圧及び不足電圧試験(50Hz) /AC over- and undervoltage test@50Hz

解列レベル / Detection level

解列レベルは設定値の± 2%以内。

The protective level shall be within value $\pm 2\%$.

| 設定値 Detection level | 解列レベル結果 Detection level result | 結果 Result |
|------------------------|-----------------------------------|--------------|
| 105%: 440V (OVR) | 439.31 V | Ok |
| 115%: 480V (OVR) | 479.4 V | Ok |
| 120%: 500V (OVR) | 499.3 V | Ok |
| 90%: 380V (UVR) | 379.16 V | Ok |
| 85%: 360V (UVR) | 359.07 V | Ok |
| 80%: 340V (UVR) | 339.17 V | Ok |

解列時限 / Detection time

解列時限は設定値の± 0.1秒以内。

Detection timing shall be within ± 0.1 sec of setting value.

| 設定値 Detection time | 解列時限結果 Detection time result | 結果 Result |
|-----------------------|---------------------------------|--------------|
| 500ms (OVR) | 506 ms | OK |
| 1000ms (OVR) | 997 ms | OK |
| 2000ms (OVR) | 1996 ms | OK |
| 500ms (UVR) | 506 ms | OK |
| 1000ms (UVR) | 996 ms | OK |
| 2000ms (UVR) | 2006 ms | OK |

試験結果例：交流過電圧@50Hz（解列レベル設定： 440V）

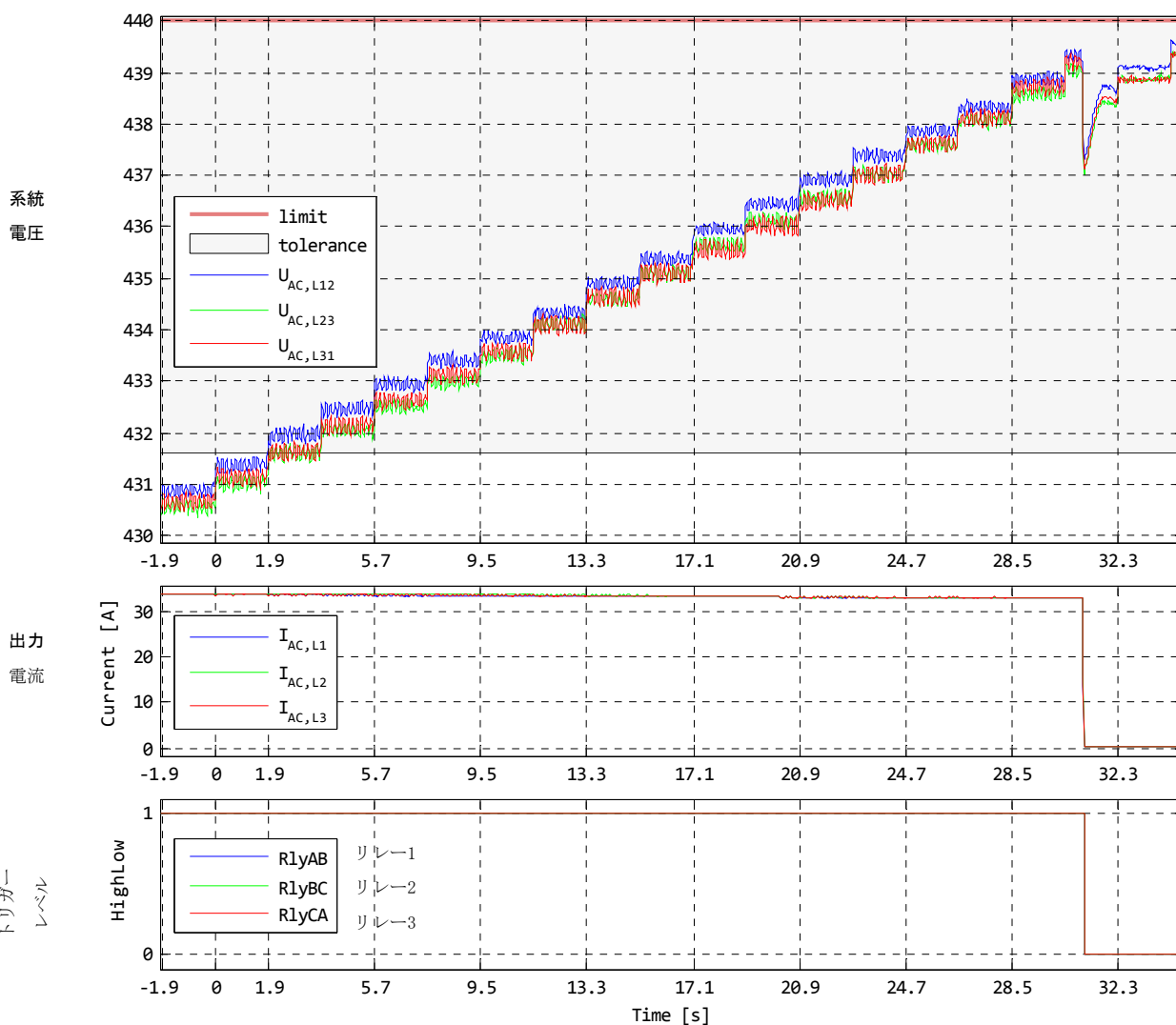
Example of test item: OVR @50Hz (detection level 440V)

| | | | |
|---------------|------------------|--------------------|-----------------------------------|
| Device | STP 2500TL-JP-30 | Date | 09.Mar.2015 |
| Serial | 1900704531 | Validator | Höhre |
| Sample Number | 08492 | TESYS-ID | TESYS11 / 3P.2.1b |
| SW-Version | 01.00.10.R | VfDisCon-TripLimit | 200.19.a-Jet50-VfDisCon-420V-50Hz |
| Grid Type | ThreePhase | Result | GridV440MaxOffL1L2L3-11: ok |

3.2.1 o/u voltage and 3.2.2 Frequency rise/drop tests JETGR0002-1-4.0 (2013) 50 Hz

Ramp grid voltage at the phase(s) L1 L2 L3 from 248.26V in 0.29V steps until inverter disconnect from grid!

→ Trip limit (L1-L2, L2-L3, L3-L1) : 440.00V, → Tolerance: ±8.40V



| Cycle | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|-----------------------------------|----------|---|---|---|---|---|---|---|---|----|
| Trip Voltage _{L1-L2} [V] | 439.31 | | | | | | | | | |
| Trip Voltage _{L2-L3} [V] | 439.04 | | | | | | | | | |
| Trip Voltage _{L3-L1} [V] | 439.18 | | | | | | | | | |
| 1. Evnt-No. | 9102.00 | | | | | | | | | |
| 2. Evnt-No. | 65535.00 | | | | | | | | | |

試験結果例：交流過電圧@50Hz（解列時限設定：500ms）

この電圧表示は相電圧になりますので線間電圧は $\sqrt{3}$ をかけた値になります

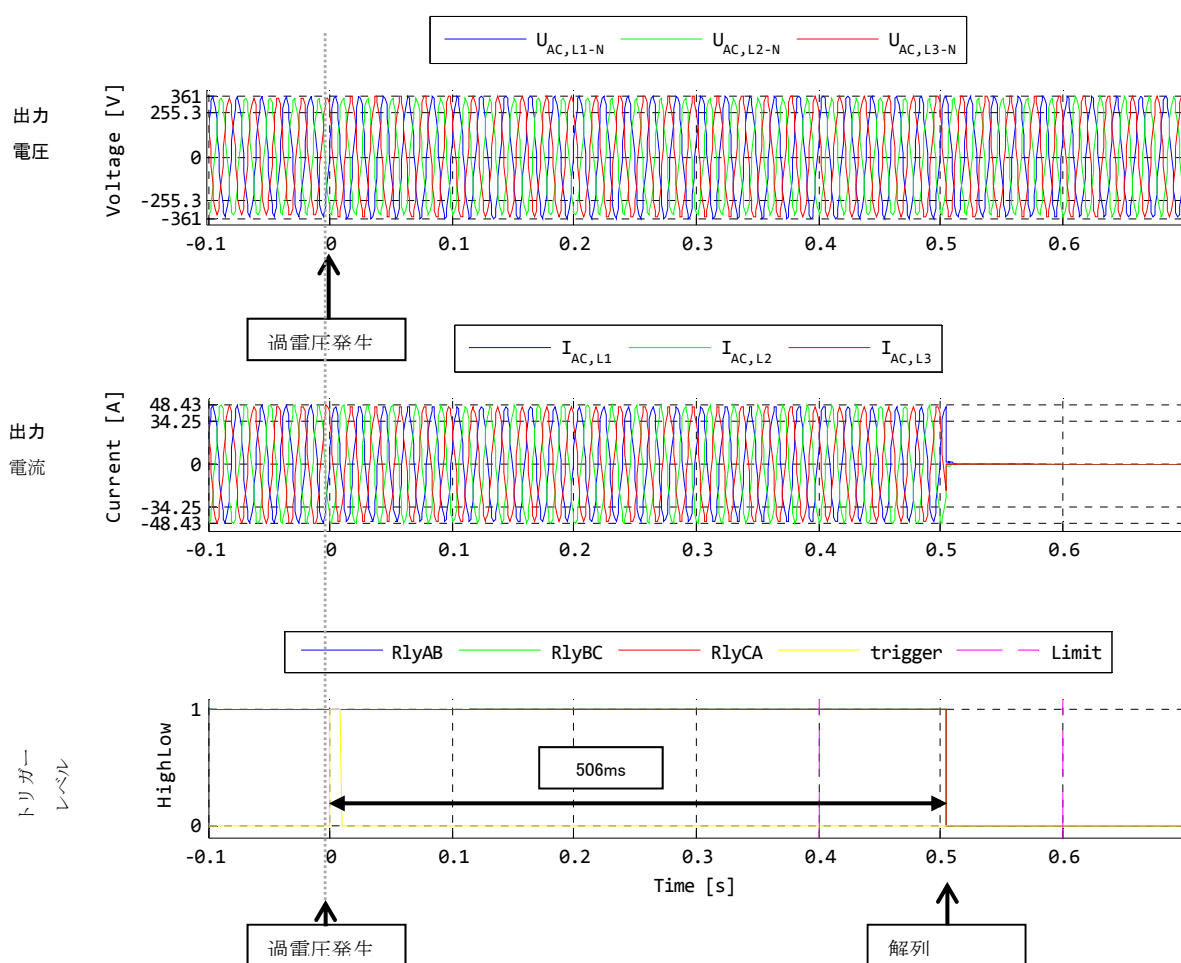
Example of test item: OVR @50Hz (detection time setting is 500ms)

| | | | |
|---------------|------------------|-------------------|-----------------------------------|
| Device | STP 2500TL-JP-30 | Date | 09.Mar.2015 |
| Serial | 1900704531 | Validator | Höhre |
| Sample Number | 08492 | TESYS-ID | TESYS11 / 3P.2.1b |
| SW-Version | 01.00.10.R | VfDisCon-TripTime | 200.19.a-Jet50-VfDisCon-420V-50Hz |
| Grid Type | ThreePhase | Result | GridV440TTL1L3-11: ok |

3.2.1 o/u voltage and 3.2.2 Frequency rise/drop tests JETGR0002-1-4.0 (2013) 50 Hz

Ramp grid voltage at the phase(s) L1 L3 in 6.00s from 251.15V to 252.88V and then jump to 255.19V!

→ Dwell time: 400ms, → Trip time: 600ms



| Cycle | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|-------------|------|---|---|---|---|---|---|---|---|----|
| RlyAB | 506 | | | | | | | | | |
| RlyBC | 506 | | | | | | | | | |
| RlyCA | 506 | | | | | | | | | |
| 1. Evnt-No. | 103 | | | | | | | | | |
| 2. Evnt-No. | 9102 | | | | | | | | | |

>Inverter disconnected before data logging started:-Inf >Inverter didn't disconnect during data logging: Inf

試験結果例：交流不足電圧@50Hz（解列レベル設定：360V）

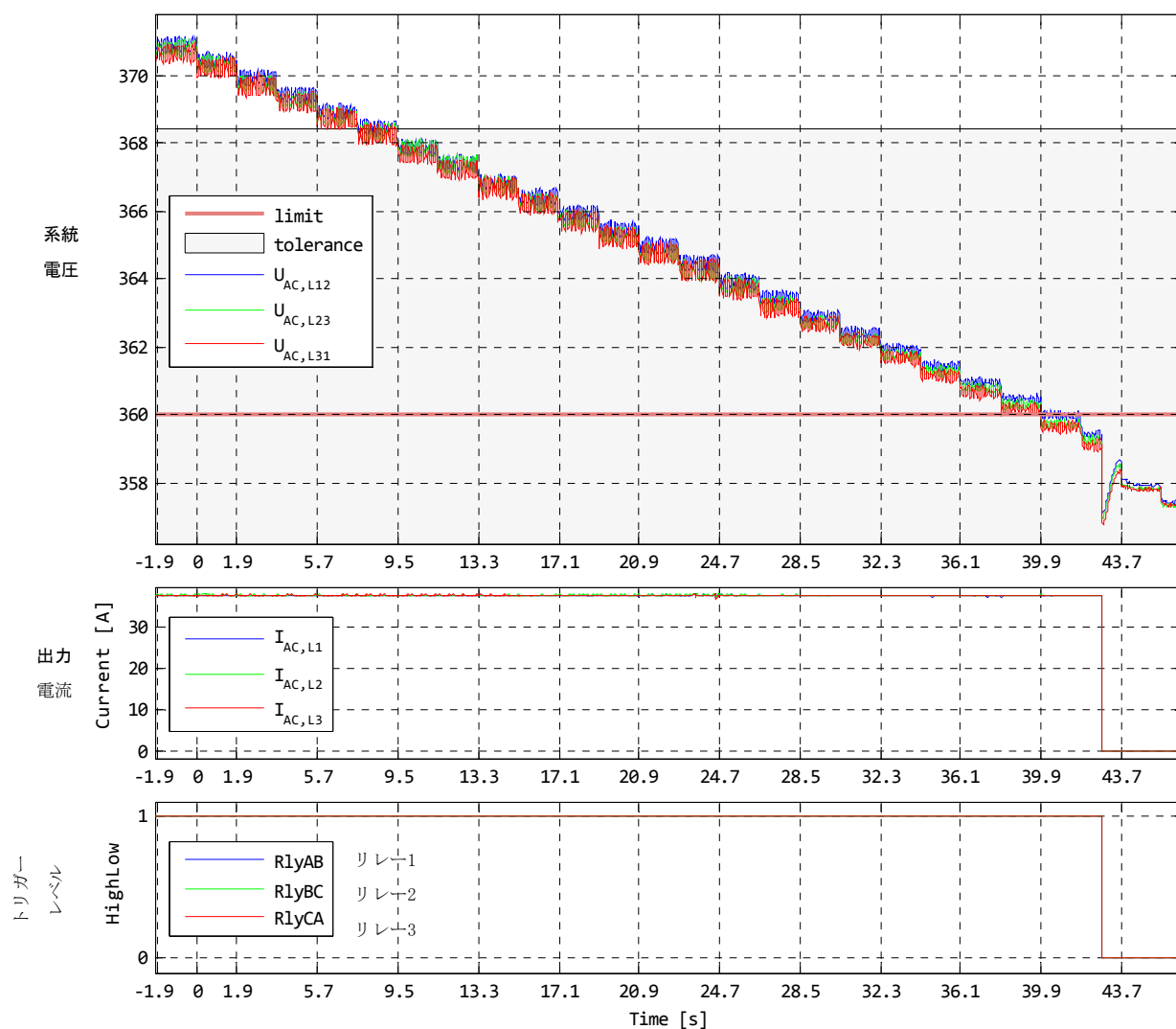
Example of test item: UVR @50Hz (detection level 360V)

| | | | |
|---------------|------------------|--------------------|-----------------------------------|
| Device | STP 2500TL-JP-30 | Date | 09.Mar.2015 |
| Serial | 1900704531 | Validator | Höhre |
| Sample Number | 08492 | TESYS-ID | TESYS11 / 3P.2.1b |
| SW-Version | 01.00.10.R | VfDisCon-TripLimit | 200.19.a-Jet50-VfDisCon-420V-50Hz |
| Grid Type | ThreePhase | Result | GridV360MinOffL1L2L3-22: ok |

3.2.1 o/u voltage and 3.2.2 Frequency rise/drop tests JETGR0002-1-4.0 (2013) 50 Hz

Ramp grid voltage at the phase(s) L1 L2 L3 from 213.62V in -0.29V steps until inverter disconnect from grid!

→ Trip limit (L1-L2, L2-L3, L3-L1) : 360.00V, → Tolerance: ±8.40V



| Cycle | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|-----------------------------------|---------|---|---|---|---|---|---|---|---|----|
| Trip Voltage _{L1-L2} [V] | 359.40 | | | | | | | | | |
| Trip Voltage _{L2-L3} [V] | 359.22 | | | | | | | | | |
| Trip Voltage _{L3-L1} [V] | 359.07 | | | | | | | | | |
| 1. Evnt-No. | 203.00 | | | | | | | | | |
| 2. Evnt-No. | 9102.00 | | | | | | | | | |

試験結果例：交流不足電圧@50Hz（解列時限設定：500ms）

この電圧表示は相電圧になりますので線間電圧は $\sqrt{3}$ をかけた値になります

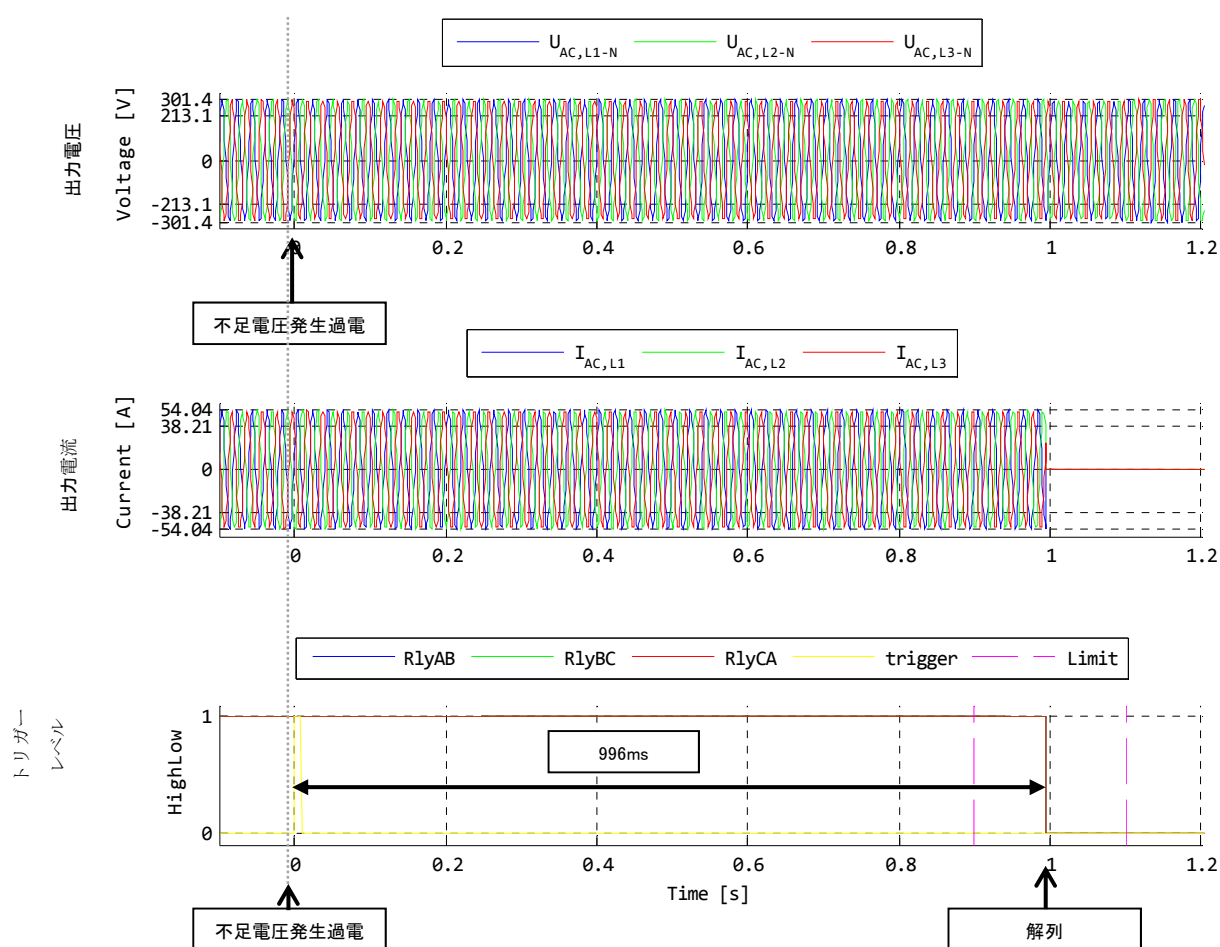
Example of test item: UVR 360V@50Hz (detection time setting is 500ms)

| | | | |
|---------------|-------------------|-------------------|-----------------------------------|
| Device | STP 25000TL-JP-30 | Date | 09.Mar.2015 |
| Serial | 1900704531 | Validator | Höhre |
| Sample Number | 08492 | TESYS-ID | TESYS11 / 3P.2.1b |
| SW-Version | 01.00.10.R | VfDisCon-TripTime | 200.19.a-Jet50-VfDisCon-420V-50Hz |
| Grid Type | ThreePhase | Result | GridV360TTL1L2L3-22: ok |

3.2.1 o/u voltage and 3.2.2 Frequency rise/drop tests JETGR0002-1-4.0 (2013) 50 Hz

Ramp grid voltage at the phase(s) L1 L2 L3 in 6.00s from 213.62V to 209.00V and then jump to 206.69V!

→ Dwell time: 900ms, → Trip time: 1100ms



| Cycle | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|-------------|------|---|---|---|---|---|---|---|---|----|
| RlyAB | 996 | | | | | | | | | |
| RlyBC | 996 | | | | | | | | | |
| RlyCA | 996 | | | | | | | | | |
| 1. Evnt-No. | 203 | | | | | | | | | |
| 2. Evnt-No. | 9102 | | | | | | | | | |

>Inverter disconnected before data logging started:-Inf >Inverter didn't disconnect during data logging: Inf

交流過電圧及び不足電圧試験(60Hz) / AC over- and undervoltage test@60Hz解列レベル / Detection level

解列レベルは設定値の± 2%以内。

The protective level shall be within value $\pm 2\%$.

| 解列レベル Detection level | 解列レベル結果 Detection level result | 結果 Result |
|--------------------------|-----------------------------------|--------------|
| 105%: 460V (OVR) | 459.33 V | ok |
| 115%: 500V (OVR) | 499.25 V | ok |
| 120%: 520V (OVR) | 519.12 V | ok |
| 90%: 400V (UVR) | 399.14 V | ok |
| 85%: 380V (UVR) | 379.11 V | ok |
| 80%: 360V (UVR) | 359.06 V | ok |

解列時限 / Detection time

解列時限は設定値の± 0.1秒以内。

Detection timing shall be within ± 0.1 sec of setting value.

| 解列時限 Detection time | 解列時限結果 Detection time result | 結果 Result |
|------------------------|---------------------------------|--------------|
| 2000ms (OVR) | 2005 ms | ok |
| 1000ms (OVR) | 1005 ms | ok |
| 500ms (OVR) | 504 ms | ok |
| 2000ms (UVR) | 2012 ms | ok |
| 1000ms (UVR) | 1012 ms | ok |
| 500ms (UVR) | 512 ms | ok |

試験結果例：交流過電圧@60Hz（解列レベル設定：460V）

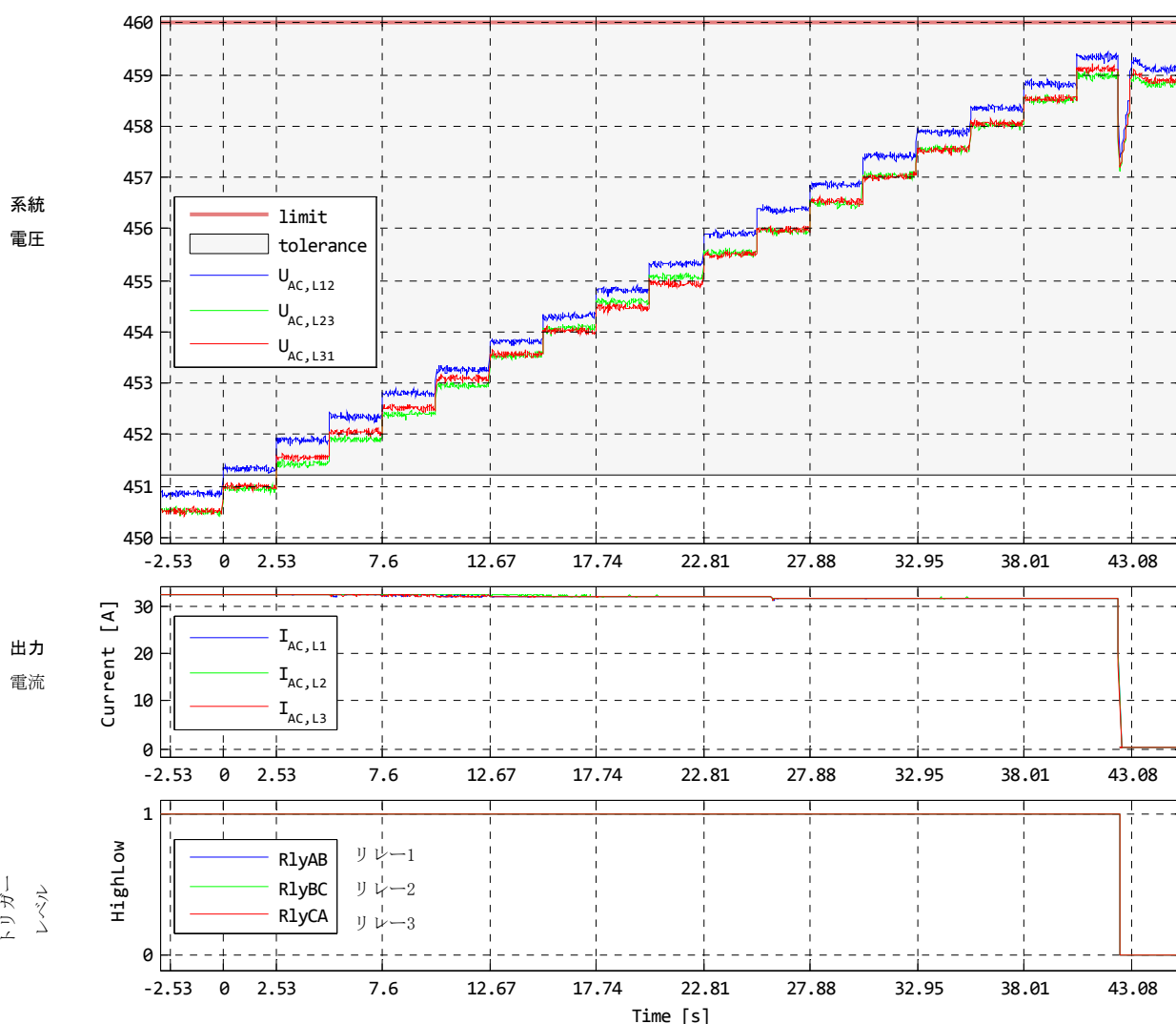
Example of test item: OVR @60Hz (detection level 460V)

| | | | |
|---------------|------------------|--------------------|-----------------------------------|
| Device | STP 2500TL-JP-30 | Date | 09.Mar.2015 |
| Serial | 1900704531 | Validator | Höhre |
| Sample Number | 08492 | TESYS-ID | TESYS11 / 3P.2.1b |
| SW-Version | 01.00.10.R | VfDisCon-TripLimit | 200.19.b-Jet60-VfDisCon-440V-60Hz |
| Grid Type | ThreePhase | Result | GridV460MaxOffL1L2L3-14: ok |

3.2.1 o/u voltage and 3.2.2 Frequency rise/drop tests JETGR0002-1-4.0 (2013) 60 Hz

Ramp grid voltage at the phase(s) L1 L2 L3 from 259.81V in 0.29V steps until inverter disconnect from grid!

→ Trip limit (L1-L2, L2-L3, L3-L1) : 460.00V, → Tolerance: ±8.80V



| Cycle | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|-----------------------------------|---------|---|---|---|---|---|---|---|---|----|
| Trip Voltage _{L1-L2} [V] | 459.33 | | | | | | | | | |
| Trip Voltage _{L2-L3} [V] | 458.97 | | | | | | | | | |
| Trip Voltage _{L3-L1} [V] | 459.10 | | | | | | | | | |
| 1. Evnt-No. | 103.00 | | | | | | | | | |
| 2. Evnt-No. | 9102.00 | | | | | | | | | |

試験結果例：交流過電圧@60Hz（解列時限設定：1000ms）

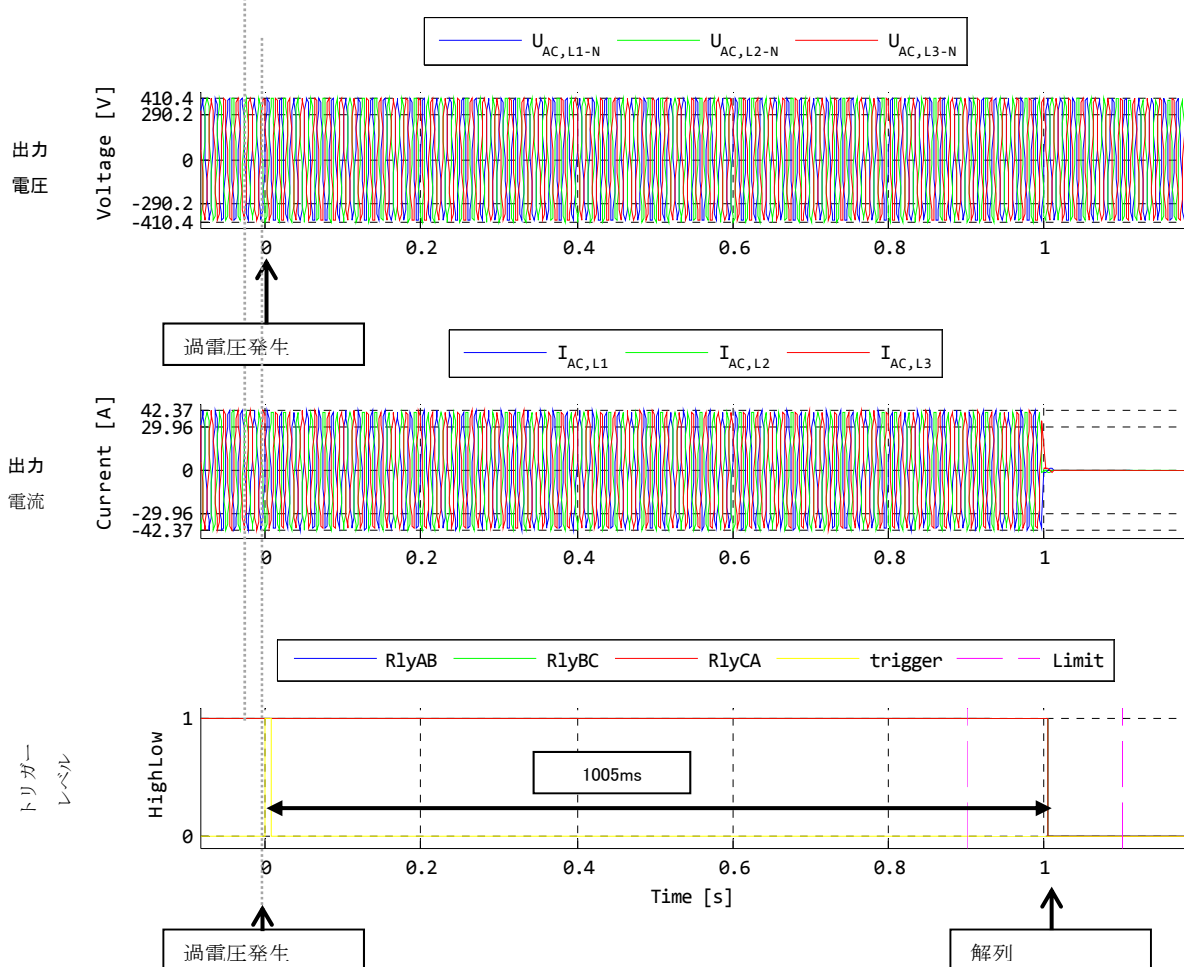
この電圧表示は相電圧になりますので線間電圧は $\sqrt{3}$ をかけた値になります

Example of test item: OVR @60Hz (detection time setting is 1000ms)

| | | | |
|---------------|------------------|-------------------|-----------------------------------|
| Device | STP 2500TL-JP-30 | Date | 09.Mar.2015 |
| Serial | 1900704531 | Validator | Höhre |
| Sample Number | 08492 | TESYS-ID | TESYS11 / 3P.2.1b |
| SW-Version | 01.00.10.R | VfDisCon-TripTime | 200.19.b-Jet60-VfDisCon-440V-60Hz |
| Grid Type | ThreePhase | Result | GridV500TTL1L2L3-22: ok |

3.2.1 o/u voltage and 3.2.2 Frequency rise/drop tests JETGR002-1-4.0 (2013) 60 Hz

Ramp grid voltage at the phase(s) L1 L2 L3 in 6.00s from 285.79V to 287.52V and then jump to 289.83V!
→ Dwell time: 900ms, → Trip time: 1100ms



| Cycle | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|-------------|------|---|---|---|---|---|---|---|---|----|
| RlyAB | 1005 | | | | | | | | | |
| RlyBC | 1005 | | | | | | | | | |
| RlyCA | 1005 | | | | | | | | | |
| 1. Evnt-No. | 103 | | | | | | | | | |
| 2. Evnt-No. | 9102 | | | | | | | | | |

>Inverter disconnected before data logging started:-Inf >Inverter didn't disconnect during data logging: Inf

試験結果例：交流不足電圧@60Hz（解列レベル設定：400V）

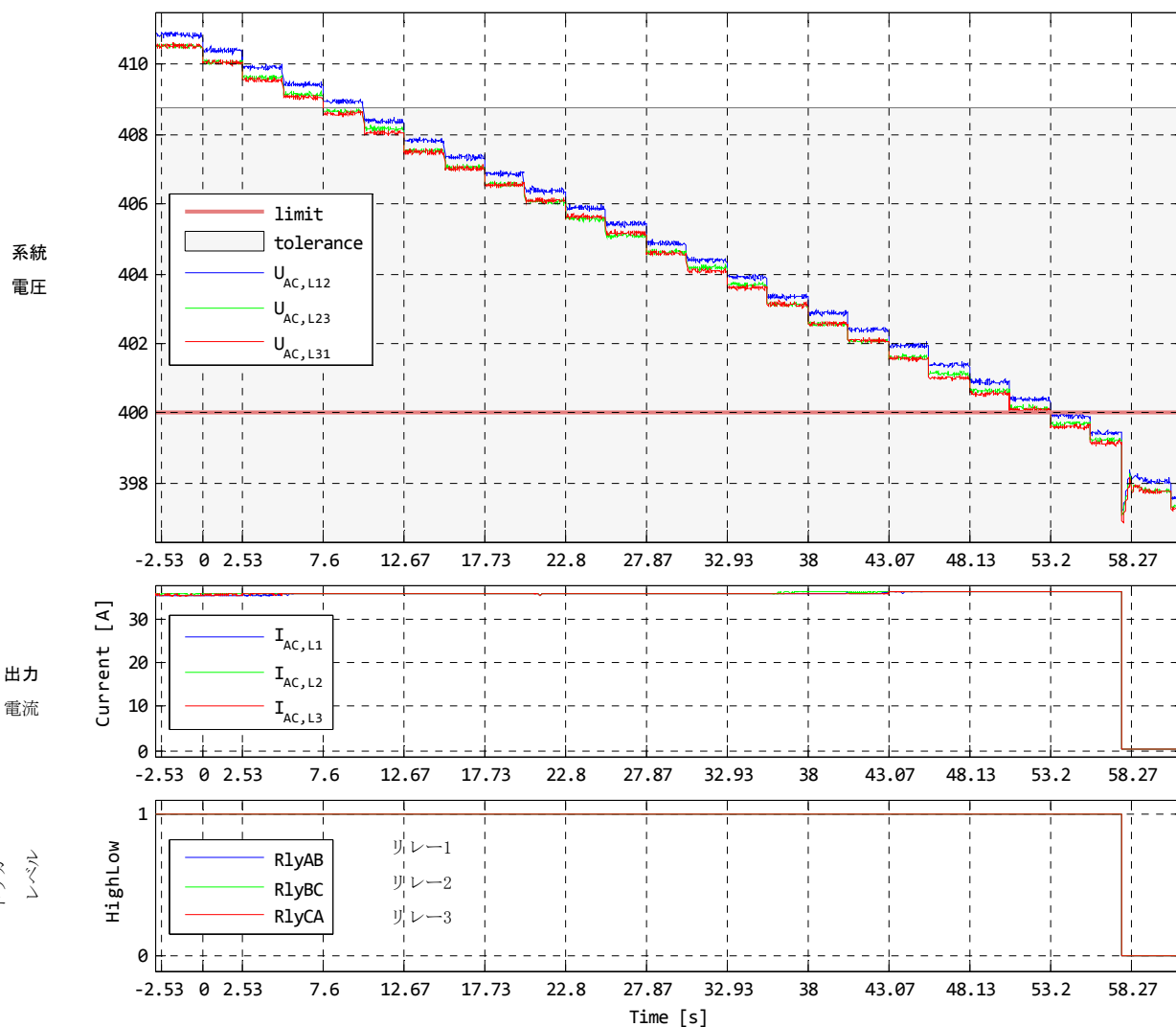
Example of test item: UVR @60Hz (detection level 400V)

| | | | |
|---------------|------------------|--------------------|-----------------------------------|
| Device | STP 2500TL-JP-30 | Date | 09.Mar.2015 |
| Serial | 1900704531 | Validator | Höhre |
| Sample Number | 08492 | TESYS-ID | TESYS11 / 3P.2.1b |
| SW-Version | 01.00.10.R | VfDisCon-TripLimit | 200.19.b-Jet60-VfDisCon-440V-60Hz |
| Grid Type | ThreePhase | Result | GridV400MinOffL1L2L3-14: ok |

3.2.1 o/u voltage and 3.2.2 Frequency rise/drop tests JETGR0002-1-4.0 (2013) 60 Hz

Ramp grid voltage at the phase(s) L1 L2 L3 from 236.71V in -0.29V steps until inverter disconnect from grid!

→ Trip limit (L1-L2, L2-L3, L3-L1) : 400.00V, → Tolerance: ±8.80V



| Cycle | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|-----------------------------------|---------|---|---|---|---|---|---|---|---|----|
| Trip Voltage _{L1-L2} [V] | 399.42 | | | | | | | | | |
| Trip Voltage _{L2-L3} [V] | 399.22 | | | | | | | | | |
| Trip Voltage _{L3-L1} [V] | 399.14 | | | | | | | | | |
| 1. Evnt-No. | 203.00 | | | | | | | | | |
| 2. Evnt-No. | 9102.00 | | | | | | | | | |

試験結果例：交流不足電圧@60Hz（解列時限設定：2000ms）

この電圧表示は相電圧になりますので線間電圧は $\sqrt{3}$ をかけた値になります

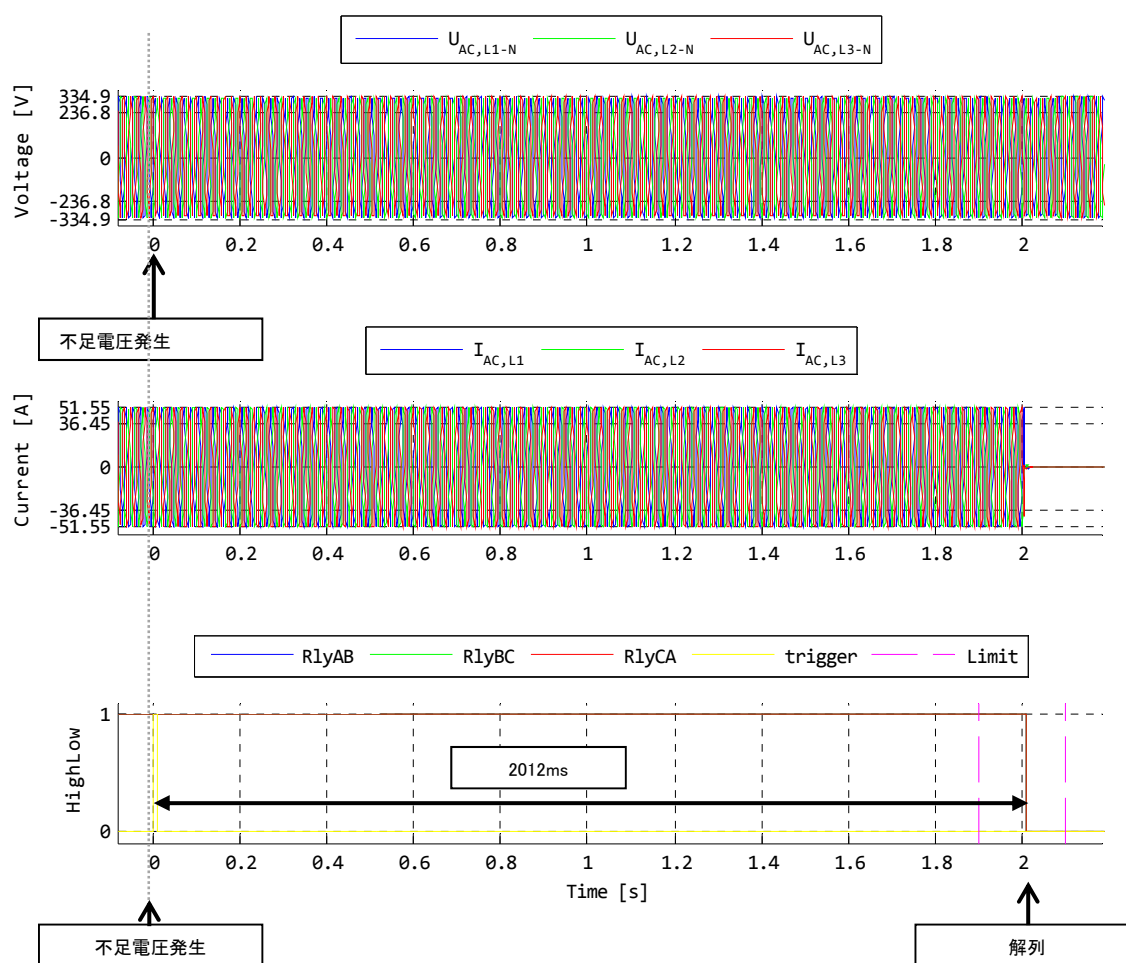
Example of test item: UVR @60Hz (detection time setting is 2000ms)

| | | | |
|---------------|------------------|-------------------|-----------------------------------|
| Device | STP 2500TL-JP-30 | Date | 10.Mar.2015 |
| Serial | 1900704531 | Validator | Höhre |
| Sample Number | 08492 | TESYS-ID | TESYS11 / 3P.2.1b |
| SW-Version | 01.00.10.R | VfDisCon-TripTime | 200.19.b-Jet60-VfDisCon-440V-60Hz |
| Grid Type | ThreePhase | Result | GridV400TTL1L2L3-14: ok |

3.2.1 o/u voltage and 3.2.2 Frequency rise/drop tests JETGR0002-1-4.0 (2013) 60 Hz

Ramp grid voltage at the phase(s) L1 L2 L3 in 6.00s from 236.71V to 232.09V and then jump to 229.79V!

→ Dwell time: 1900ms, → Trip time: 2100ms



| Cycle | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|-------------|------|---|---|---|---|---|---|---|---|----|
| RlyAB | 2012 | | | | | | | | | |
| RlyBC | 2012 | | | | | | | | | |
| RlyCA | 2012 | | | | | | | | | |
| 1. Evnt-No. | 203 | | | | | | | | | |
| 2. Evnt-No. | 9102 | | | | | | | | | |

>Inverter disconnected before data logging started:-Inf >Inverter didn't disconnect during data logging: Inf

| | | | |
|---------------------------------|--|----------------------|------------|
| 3.2.2 | 周波数上昇及び低下試験/Frequency-rise and -drop tests | | |
| テスト者 / Validator: | Höhre | テスト実施日 / Test date: | 2015年3月19日 |
| 公称出力電圧 / Nominal AC-voltage: | 420 | DC入力電圧 / DC-voltage: | 750V |
| 定格有効出力電力 / Rated active output: | 25 kW | | |
| 備考 / Remarks: | - | | |

周波数上昇及び低下試験(50Hz) / Frequency-rise and -drop tests @50Hz

解列レベル / Detection Level

検出レベルは設定値の± 0.1 Hz以内。

Protective level shall be within ± 0.1 Hz.

| 解列レベル Detection level | 解列レベル結果 Detection level result | 結果 Result |
|--------------------------|-----------------------------------|--------------|
| 101%: 50.5Hz (OFR) | 50.52 Hz | OK |
| 102%: 51.0Hz (OFR) | 51.02 Hz | OK |
| 103%: 51.5Hz (OFR) | 51.52 Hz | OK |
| 99%: 49.5Hz (UFR) | 49.50 Hz | OK |
| 98%: 49.0Hz (UFR) | 49.00 Hz | OK |
| 97%: 48.5Hz (UFR) | 48.50 Hz | OK |

解列時限 / Detection time

検出時限は設定値の± 0.1秒以内。

Detection timing shall be within ± 0.1 sec of setting value.

| 解列時限 Detection time | 解列時限結果 Detection time result | 結果 Result |
|------------------------|---------------------------------|--------------|
| 500ms (OFR) | 501 ms | OK |
| 1000ms (OFR) | 1005 ms | OK |
| 2000ms (OFR) | 2005 ms | OK |
| 500ms (UFR) | 492 ms | OK |
| 1000ms (UFR) | 997 ms | OK |
| 2000ms (UFR) | 1988 ms | OK |

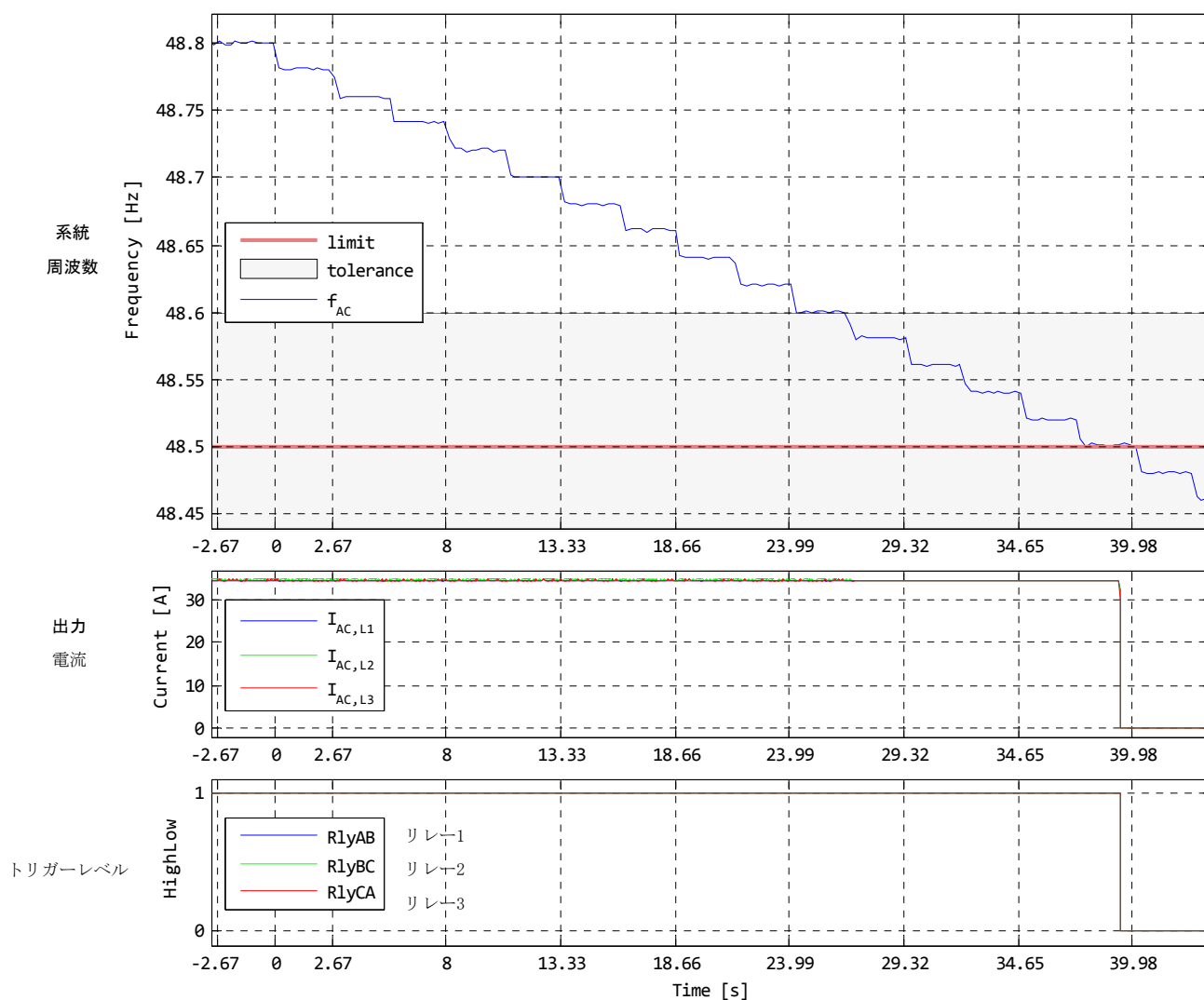
試験結果例：周波数低下@50Hz（解列レベル設定：48.5Hz）

Example of test item: UFR @50Hz (detection level 48.5Hz)

| | | | |
|---------------|------------------|--------------------|-----------------------------------|
| Device | STP 2500TL-JP-30 | Date | 09.Mar.2015 |
| Serial | 1900704531 | Validator | Höhre |
| Sample Number | 08492 | TESYS-ID | TESYS11 / 3P.2.1b |
| SW-Version | 01.00.10.R | VfDisCon-TripLimit | 200.19.a-Jet50-VfDisCon-420V-50Hz |
| Grid Type | ThreePhase | Result | GridF48-5MinOff-34: ok |

3.2.1 o/u voltage and 3.2.2 Frequency rise/drop tests JETGR0002-1-4.0 (2013) 50 Hz

Ramp grid frequency from 48.80Hz in -0.02Hz steps until inverter disconnect from grid!

→ Trip limit: 48.50Hz, → Tolerance: ± 0.10 Hz

| | | | | | | | | | | |
|----------------|---------|---|---|---|---|---|---|---|---|----|
| Cycle | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| Trip Freq [Hz] | 48.50 | | | | | | | | | |
| 1. Evnt-No. | 501.00 | | | | | | | | | |
| 2. Evnt-No. | 9102.00 | | | | | | | | | |

試験結果例：周波数低下@50Hz（解列時限設定：500ms）

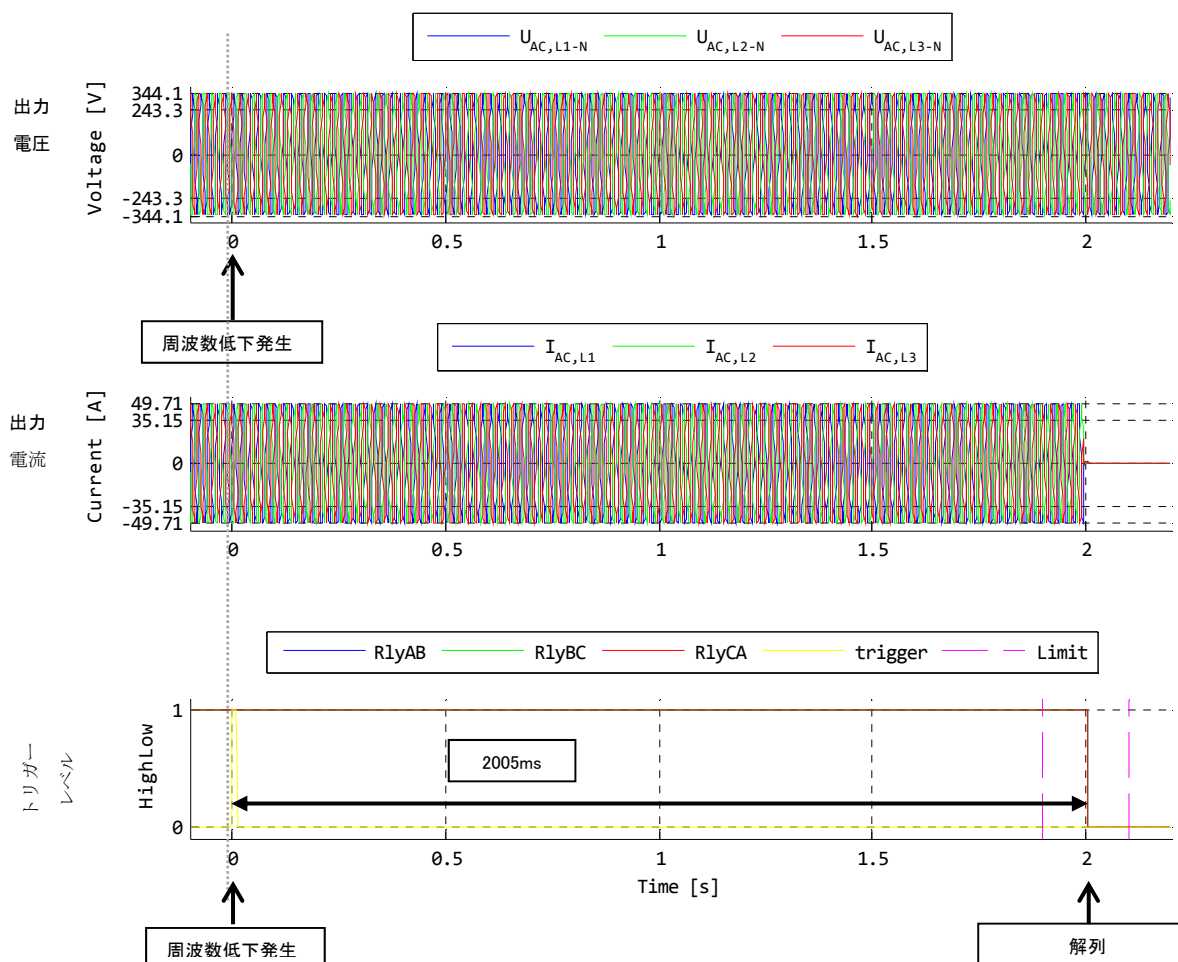
Example of test item: UFR @50Hz(detection time setting is 500ms)

| | | | |
|---------------|------------------|-------------------|-----------------------------------|
| Device | STP 2500TL-JP-30 | Date | 09.Mar.2015 |
| Serial | 1900704531 | Validator | Höhre |
| Sample Number | 08492 | TESYS-ID | TESYS11 / 3P.2.1b |
| SW-Version | 01.00.10.R | VfDisCon-TripTime | 200.19.a-Jet50-VfDisCon-420V-50Hz |
| Grid Type | ThreePhase | Result | GridF51-5TT-34: ok |

3.2.1 o/u voltage and 3.2.2 Frequency rise/drop tests JETGR0002-1-4.0 (2013) 50 Hz

Ramp grid frequency in 6.00s from 50.00Hz to 51.45Hz and then jump to 51.55Hz!

→ Dwell time: 1900ms, → Trip time: 2100ms



| Cycle | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|-------------|------|---|---|---|---|---|---|---|---|----|
| RlyAB | 2005 | | | | | | | | | |
| RlyBC | 2005 | | | | | | | | | |
| RlyCA | 2005 | | | | | | | | | |
| 1. Evnt-No. | 501 | | | | | | | | | |
| 2. Evnt-No. | 9102 | | | | | | | | | |

>Inverter disconnected before data logging started:-Inf >Inverter didn't disconnect during data logging: Inf

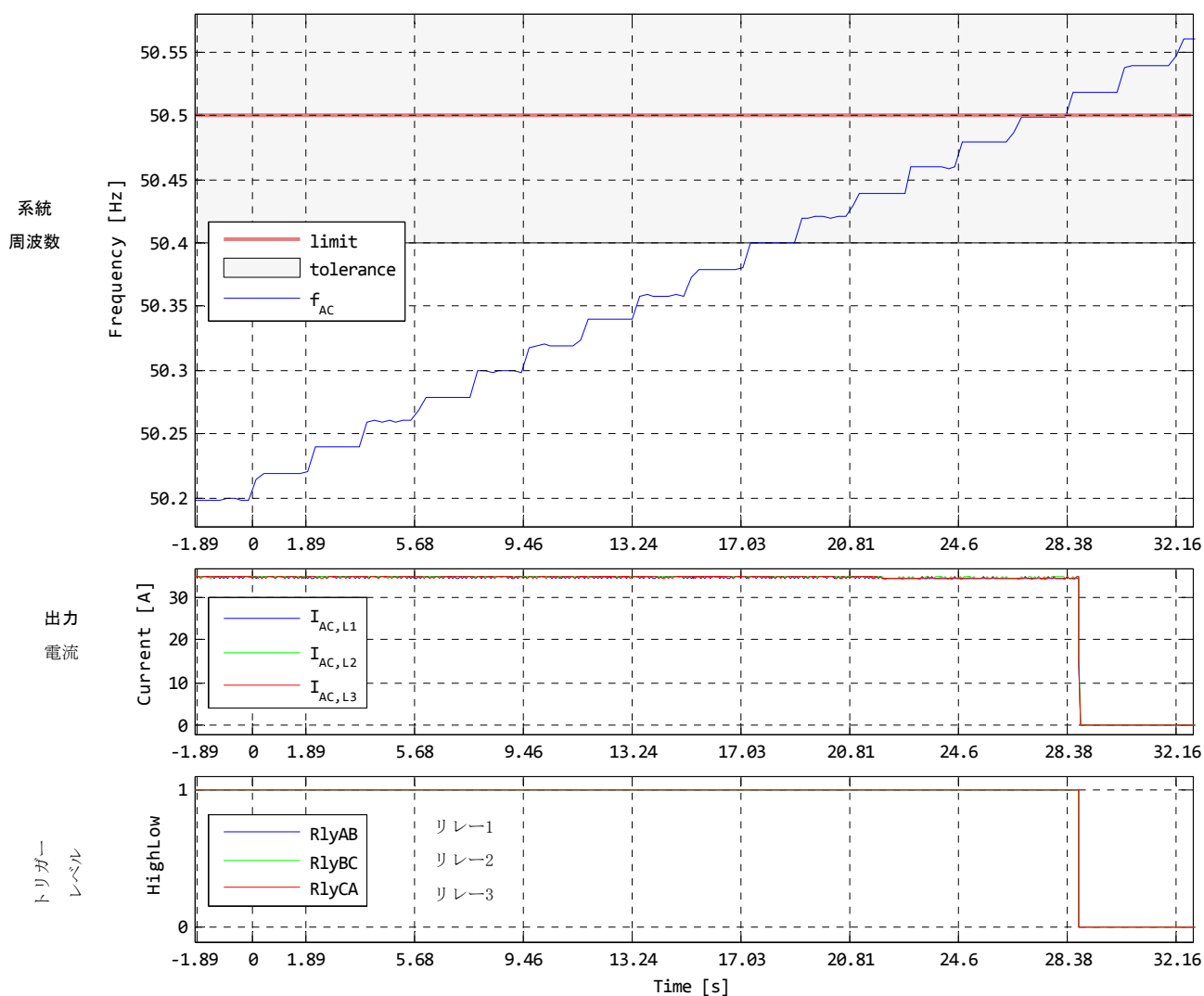
試験結果例：周波数上昇@50Hz（解列レベル設定：50.5Hz）

Example of test item: OFR @50Hz (detection level 50.5Hz)

| | | | |
|---------------|------------------|--------------------|-----------------------------------|
| Device | STP 2500TL-JP-30 | Date | 09.Mar.2015 |
| Serial | 1900704531 | Validator | Höhre |
| Sample Number | 08492 | TESYS-ID | TESYS11 / 3P.2.1b |
| SW-Version | 01.00.10.R | VfDisCon-TripLimit | 200.19.a-Jet50-VfDisCon-420V-50Hz |
| Grid Type | ThreePhase | Result | GridF50-5MaxOff-11: ok |

3.2.1 o/u voltage and 3.2.2 Frequency rise/drop tests JETGR0002-1-4.0 (2013) 50 Hz

Ramp grid frequency from 50.20Hz in 0.02Hz steps until inverter disconnect from grid!

→ Trip limit: 50.50Hz, → Tolerance: ± 0.10 Hz

| | | | | | | | | | | |
|----------------|---------|---|---|---|---|---|---|---|---|----|
| Cycle | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| Trip Freq [Hz] | 50.52 | | | | | | | | | |
| 1. Evnt-No. | 501.00 | | | | | | | | | |
| 2. Evnt-No. | 9102.00 | | | | | | | | | |

試験結果例：周波数上昇@ 50Hz（解列時限設定：500ms）

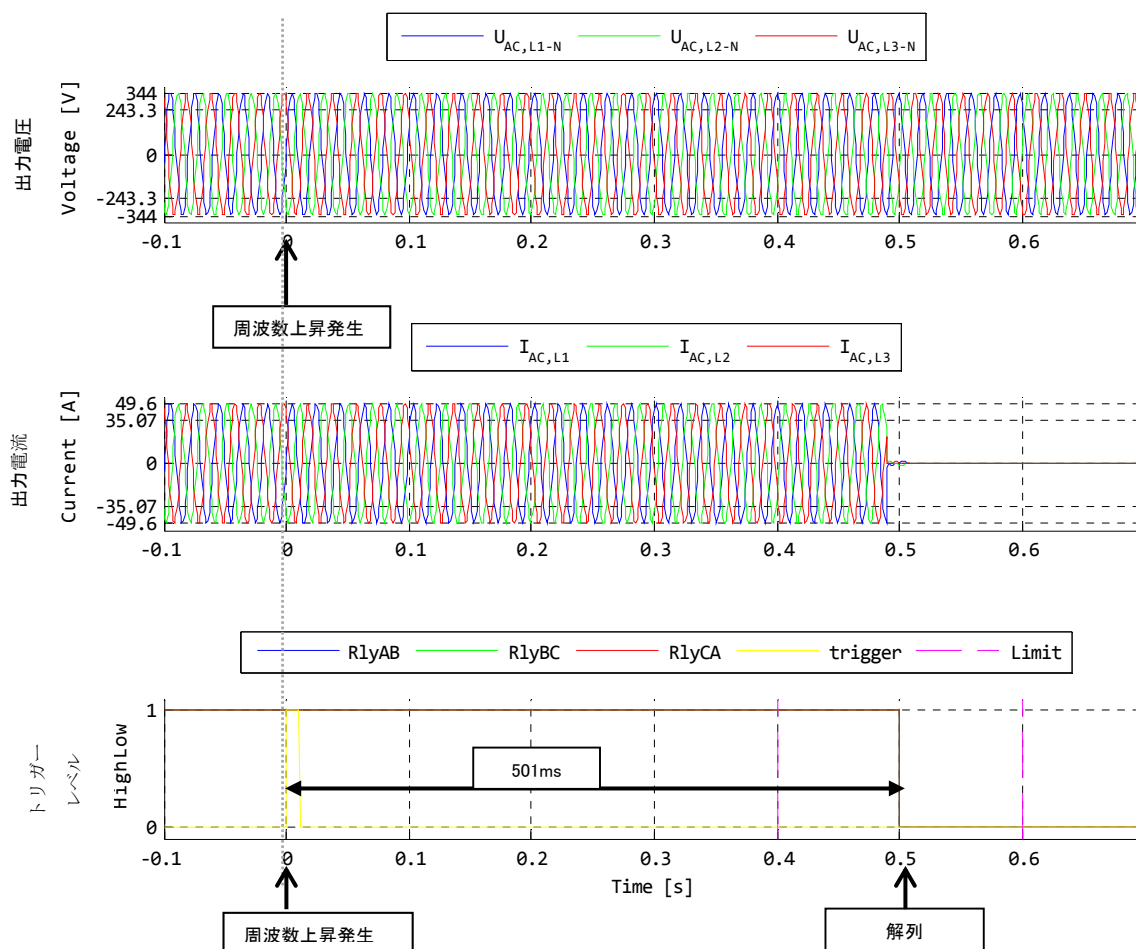
Example of test item: OFR @50Hz(detection time setting is 500ms)

| | | | |
|---------------|------------------|-------------------|-----------------------------------|
| Device | STP 2500TL-JP-30 | Date | 09.Mar.2015 |
| Serial | 1900704531 | Validator | Höhre |
| Sample Number | 08492 | TESYS-ID | TESYS11 / 3P.2.1b |
| SW-Version | 01.00.10.R | VfDisCon-TripTime | 200.19.a-Jet50-VfDisCon-420V-50Hz |
| Grid Type | ThreePhase | Result | GridF50-5TT-11: ok |

3.2.1 o/u voltage and 3.2.2 Frequency rise/drop tests JETGR0002-1-4.0 (2013) 50 Hz

Ramp grid frequency in 6.00s from 50.00Hz to 50.45Hz and then jump to 50.55Hz!

→ Dwell time: 400ms, → Trip time: 600ms



| Cycle | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|-------------|------|---|---|---|---|---|---|---|---|----|
| RlyAB | 501 | | | | | | | | | |
| RlyBC | 501 | | | | | | | | | |
| RlyCA | 501 | | | | | | | | | |
| 1. Evnt-No. | 501 | | | | | | | | | |
| 2. Evnt-No. | 9102 | | | | | | | | | |

>Inverter disconnected before data logging started:-Inf >Inverter didn't disconnect during data logging: Inf

周波数上昇及び低下試験(60Hz) / Frequency-rise and -drop tests @60Hz解列レベル / Detection Level

解列レベルは設定値の± 0.1 Hz以内。

Protective level shall be within ± 0.1 Hz.

| 解列レベル Detection level | 解列レベル結果 Detection level result | 結果 Result |
|--------------------------|-----------------------------------|--------------|
| 101%: 60.5Hz (OFR) | 60.52 Hz | OK |
| 102%: 61.2Hz (OFR) | 61.22 Hz | OK |
| 103%: 61.7Hz (OFR) | 61.72 Hz | OK |
| 99%: 59.5Hz (UFR) | 59.50 Hz | OK |
| 98%: 58.5Hz (UFR) | 58.50 Hz | OK |
| 97%: 58.3Hz (UFR) | 58.30 Hz | OK |

解列時限 / Detection time

解列時限は設定値の± 0.1秒以内。

Detection timing shall be within ± 0.1 sec of setting value.

| 解列時限 Detection time | 解列時限結果 Detection time result | 結果 Result |
|------------------------|---------------------------------|--------------|
| 2000ms (OFR) | 2010 ms | OK |
| 1000ms (OFR) | 1008 ms | OK |
| 500ms (OFR) | 506 ms | OK |
| 2000ms (UFR) | 1999 ms | OK |
| 1000ms (UFR) | 1005 ms | OK |
| 500ms (UFR) | 503 ms | OK |

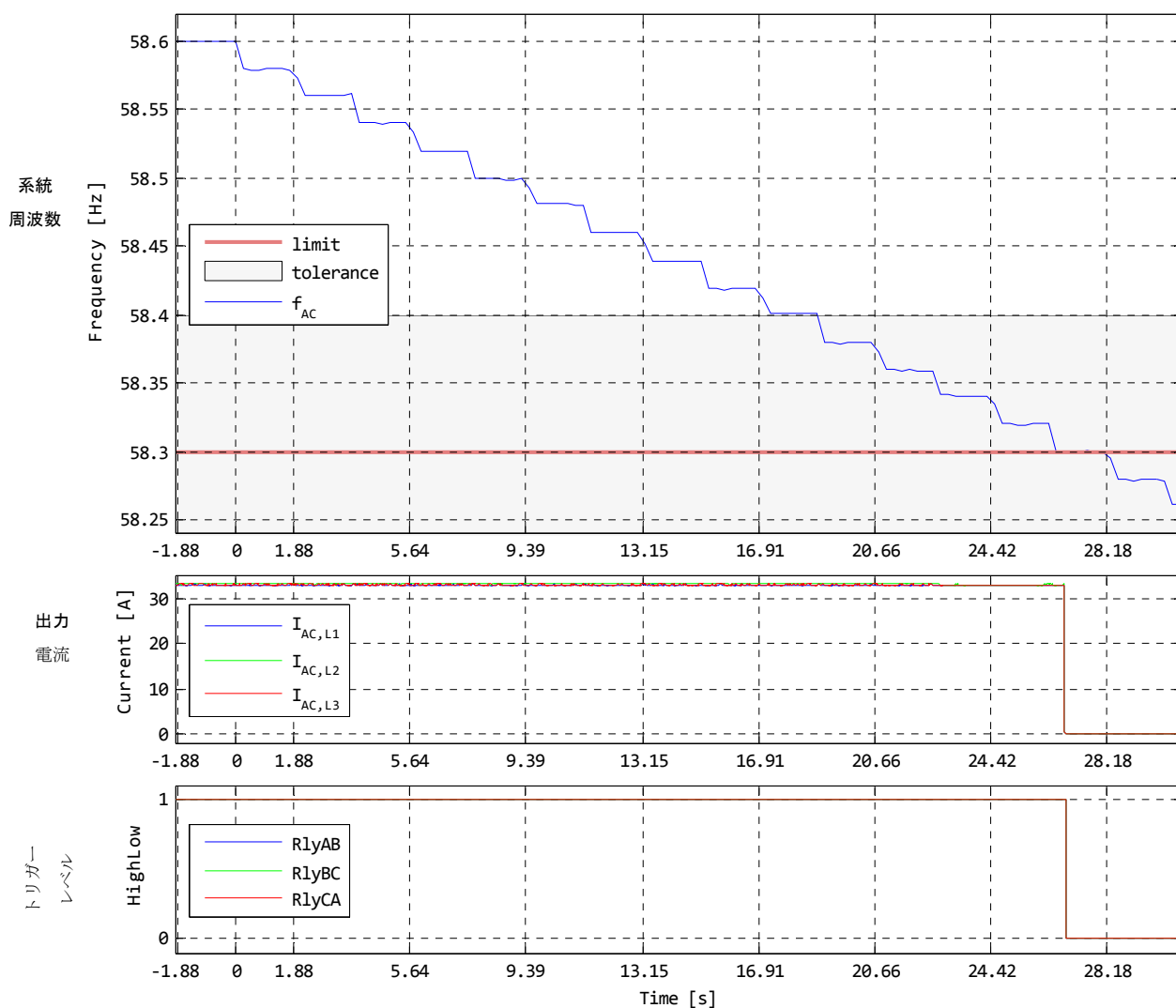
試験結果例：周波数低下@60Hz（解列レベル設定：58.3Hz）

Example of test item: UFR @60Hz (detection level 58.3Hz)

| | | | |
|---------------|------------------|--------------------|-----------------------------------|
| Device | STP 2500TL-JP-30 | Date | 09.Mar.2015 |
| Serial | 1900704531 | Validator | Höhre |
| Sample Number | 08492 | TESYS-ID | TESYS11 / 3P.2.1b |
| SW-Version | 01.00.10.R | VfDisCon-TripLimit | 200.19.b-Jet60-VfDisCon-440V-60Hz |
| Grid Type | ThreePhase | Result | GridF58-3MinOff-31: ok |

3.2.1 o/u voltage and 3.2.2 Frequency rise/drop tests JETGR0002-1-4.0 (2013) 60 Hz

Ramp grid frequency from 58.60Hz in -0.02Hz steps until inverter disconnect from grid!

→ Trip limit: 58.30Hz, → Tolerance: ± 0.10 Hz

| | | | | | | | | | | |
|----------------|---------|---|---|---|---|---|---|---|---|----|
| Cycle | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| Trip Freq [Hz] | 58.30 | | | | | | | | | |
| 1. Evnt-No. | 501.00 | | | | | | | | | |
| 2. Evnt-No. | 9102.00 | | | | | | | | | |

試験結果例：周波数低下@60Hz（解列時限設定：500ms）

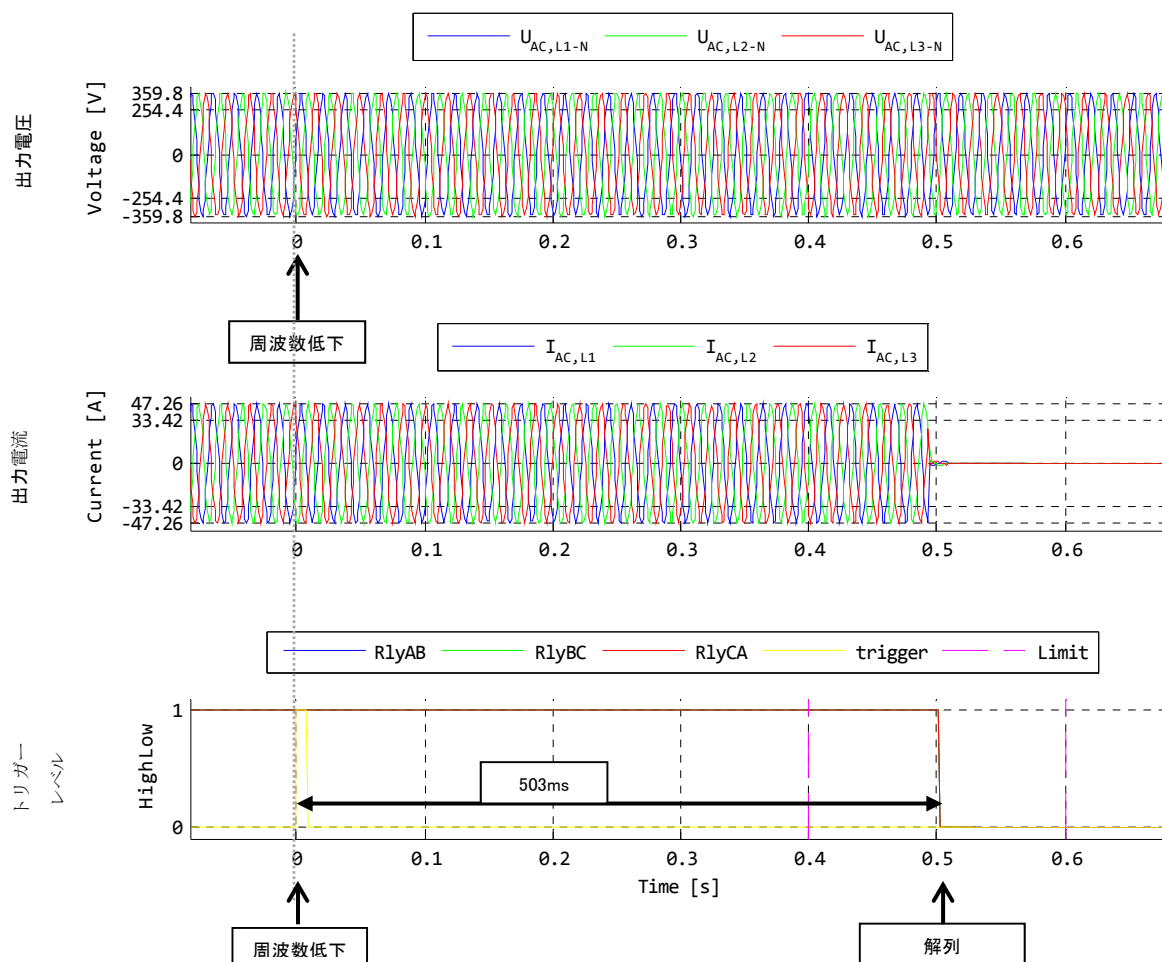
Example of test item: UFR @60Hz(detection time setting is 500ms)

| | | | |
|---------------|------------------|-------------------|-----------------------------------|
| Device | STP 2500TL-JP-30 | Date | 10.Mar.2015 |
| Serial | 1900704531 | Validator | Höhre |
| Sample Number | 08492 | TESYS-ID | TESYS11 / 3P.2.1b |
| SW-Version | 01.00.10.R | VfDisCon-TripTime | 200.19.b-Jet60-VfDisCon-440V-60Hz |
| Grid Type | ThreePhase | Result | GridF58-3TT-31: ok |

3.2.1 o/u voltage and 3.2.2 Frequency rise/drop tests JETGR0002-1-4.0 (2013) 60 Hz

Ramp grid frequency in 6.00s from 60.00Hz to 58.35Hz and then jump to 58.25Hz!

→ Dwell time: 400ms, → Trip time: 600ms



| Cycle | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|-------------|------|---|---|---|---|---|---|---|---|----|
| RlyAB | 503 | | | | | | | | | |
| RlyBC | 503 | | | | | | | | | |
| RlyCA | 503 | | | | | | | | | |
| 1. Evnt-No. | 501 | | | | | | | | | |
| 2. Evnt-No. | 9102 | | | | | | | | | |

>Inverter disconnected before data logging started:-Inf >Inverter didn't disconnect during data logging: Inf

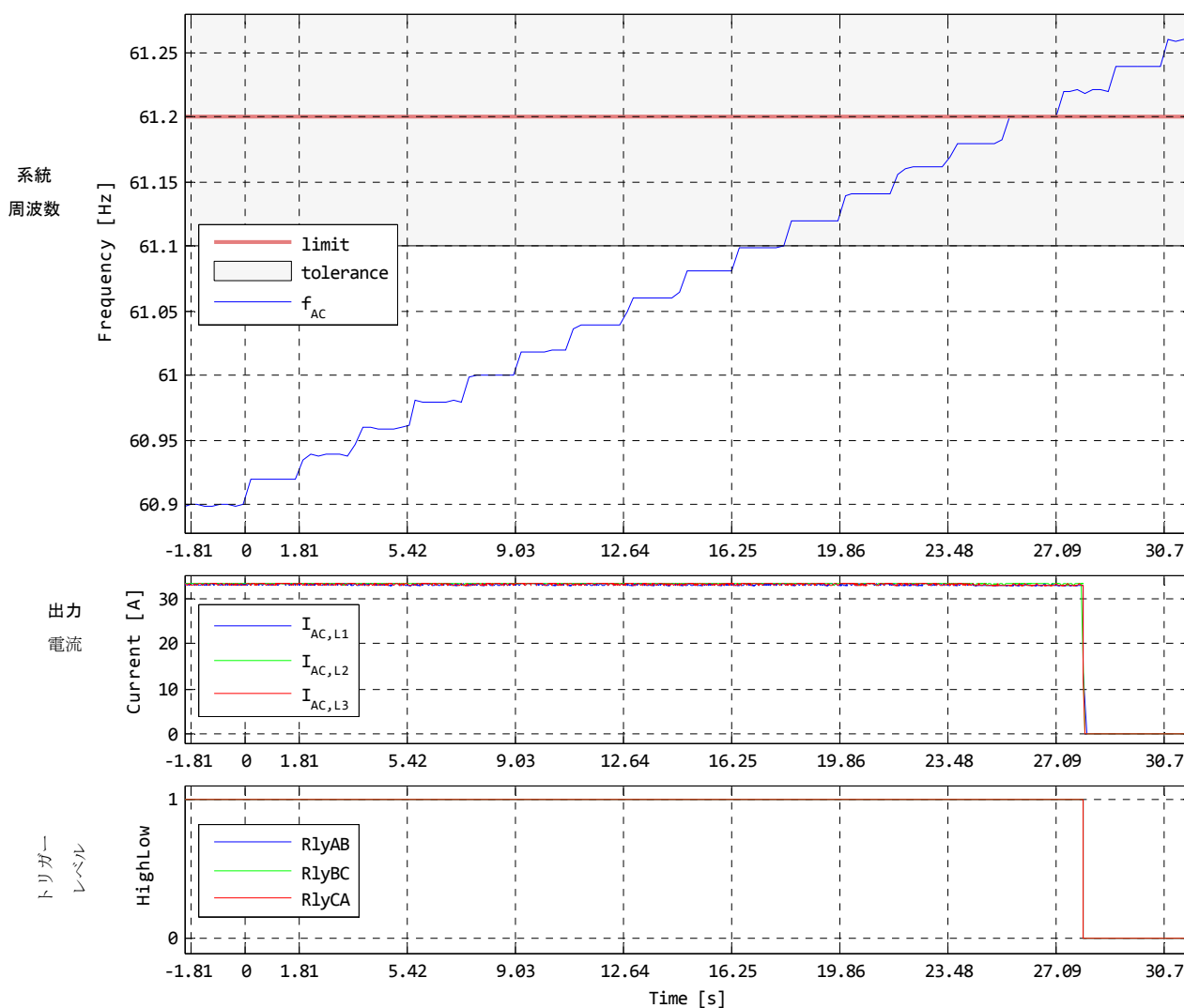
試験結果例：周波数上昇@60Hz（解列レベル設定：61.2Hz）

Example of test item: OFR @60Hz (detection level 61.2Hz)

| | | | |
|---------------|------------------|--------------------|-----------------------------------|
| Device | STP 2500TL-JP-30 | Date | 09.Mar.2015 |
| Serial | 1900704531 | Validator | Höhre |
| Sample Number | 08492 | TESYS-ID | TESYS11 / 3P.2.1b |
| SW-Version | 01.00.10.R | VfDisCon-TripLimit | 200.19.b-Jet60-VfDisCon-440V-60Hz |
| Grid Type | ThreePhase | Result | GridF61-2MaxOff-22: ok |

3.2.1 o/u voltage and 3.2.2 Frequency rise/drop tests JETGR0002-1-4.0 (2013) 60 Hz

Ramp grid frequency from 60.90Hz in 0.02Hz steps until inverter disconnect from grid!

→ Trip limit: 61.20Hz, → Tolerance: ± 0.10 Hz

| | | | | | | | | | | |
|----------------|---------|---|---|---|---|---|---|---|---|----|
| Cycle | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| Trip Freq [Hz] | 61.22 | | | | | | | | | |
| 1. Evnt-No. | 501.00 | | | | | | | | | |
| 2. Evnt-No. | 9102.00 | | | | | | | | | |

解列
レベル

試験結果例：周波数上昇@60Hz（解列時限設定：1000ms）

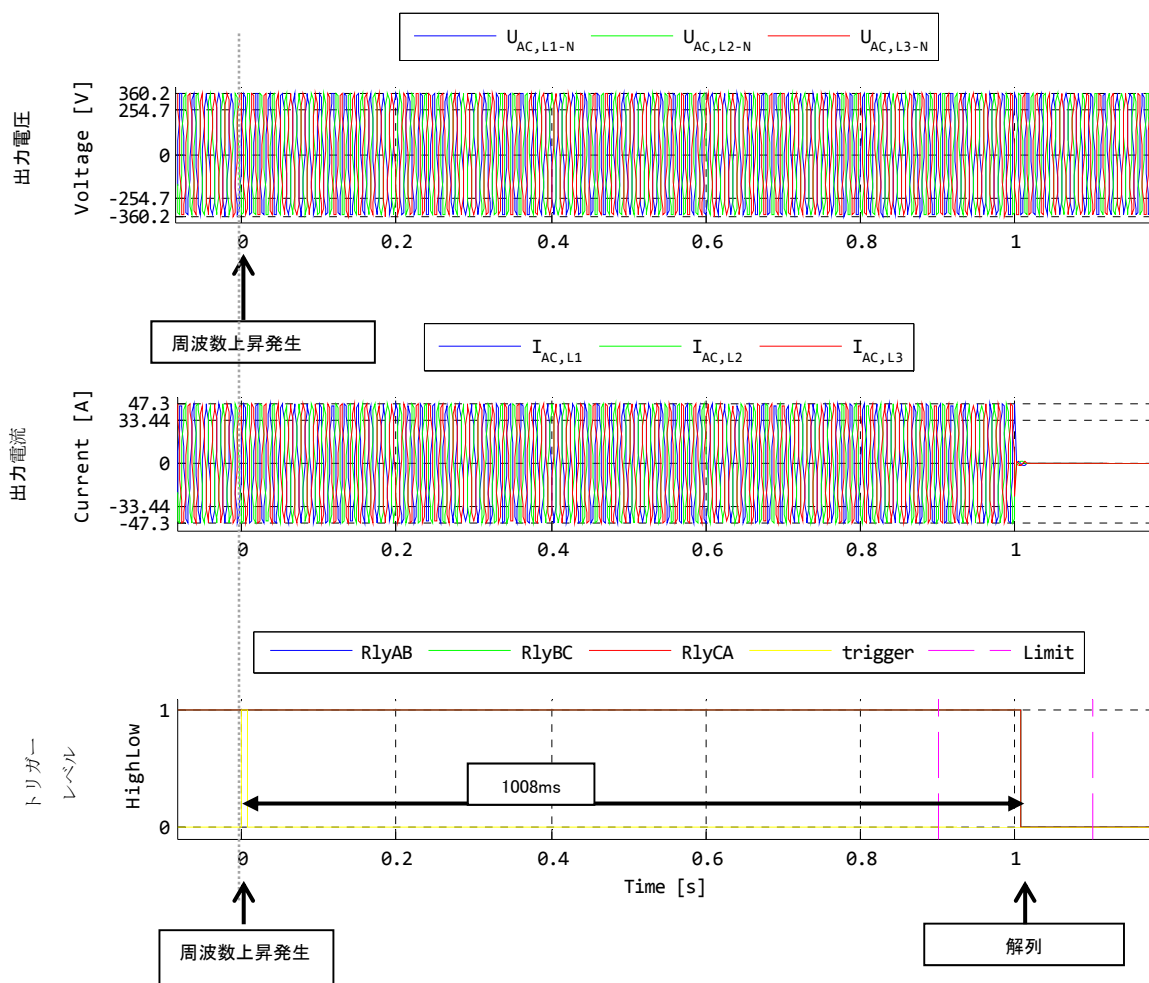
Example of test item: OFR @60Hz(detection time setting is 1000ms)

| | | | |
|---------------|------------------|-------------------|-----------------------------------|
| Device | STP 2500TL-JP-30 | Date | 10.Mar.2015 |
| Serial | 1900704531 | Validator | Höhre |
| Sample Number | 08492 | TESYS-ID | TESYS11 / 3P.2.1b |
| SW-Version | 01.00.10.R | VfDisCon-TripTime | 200.19.b-Jet60-VfDisCon-440V-60Hz |
| Grid Type | ThreePhase | Result | GridF61-2TT-22: ok |

3.2.1 o/u voltage and 3.2.2 Frequency rise/drop tests JETGR0002-1-4.0 (2013) 60 Hz

Ramp grid frequency in 6.00s from 60.00Hz to 61.15Hz and then jump to 61.25Hz!

→ Dwell time: 900ms, → Trip time: 1100ms



| Cycle | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|-------------|------|---|---|---|---|---|---|---|---|----|
| RlyAB | 1008 | | | | | | | | | |
| RlyBC | 1008 | | | | | | | | | |
| RlyCA | 1008 | | | | | | | | | |
| 1. Evnt-No. | 501 | | | | | | | | | |
| 2. Evnt-No. | 9102 | | | | | | | | | |

>Inverter disconnected before data logging started:-Inf >Inverter didn't disconnect during data logging: Inf

| | | | |
|---------------------------------|---|----------------------|------------|
| 3.2.7 | 単独運転検出テスト(50Hz)/Anti-Islanding operation test @ 50 Hz | | |
| テスト者 / Validator: | Kleinheinz | テスト実施日 / Test date: | 2015年3月19日 |
| 公称出力電圧 / Nominal AC-voltage: | 420V | DC入力電圧 / DC-voltage: | 650V |
| 定格有効出力電力 / Rated active output: | 25 kW | | |
| 備考 / Remarks: | 整定値/Default 受動方式/Passive: 400ms 能動方式/Active: 600ms | | |

受動方式のみ/Passive detection only

| 有効電力 Effective power | | | | | |
|-------------------------|-------------------|-------------------|-------------------|--------|--------|
| 無効電力 Reactive power | +10% | +5% | 0% | -5% | -10% |
| +10% | 427 ms | 426 ms | 426 ms | 422 ms | 430 ms |
| +5% | 不感帯 Blind spot | 432 ms | 427 ms | 435 ms | 426 ms |
| 0% | 不感帯 Blind spot | 不感帯 Blind spot | 不感帯 Blind spot | 449 ms | 428 ms |
| -5% | 435 ms | 438 ms | 433 ms | 425 ms | 427 ms |
| -10% | 433 ms | 434 ms | 435 ms | 435 ms | 433 ms |

不感帯4点あり / Passive islanding test only: four blind spots were recognized (no clearing time)

能動方式のみ / Active detection only

| 有効電力 Effective power | | | | | |
|-------------------------|--------|--------|--------|--------|--------|
| 無効電力 Reactive power | +10% | +5% | 0% | -5% | -10% |
| +10% | 618 ms | 626 ms | 624 ms | 617 ms | 618 ms |
| +5% | 627 ms | 625 ms | 619 ms | 614 ms | 620 ms |
| 0% | 624 ms | 648 ms | 630 ms | 626 ms | 637 ms |
| -5% | 614 ms | 617 ms | 615 ms | 617 ms | 619 ms |
| -10% | 612 ms | 614 ms | 614 ms | 610 ms | 611 ms |

能動および受動方式 / Active and passiv detection combined

| 有効電力 Effective power | | | | | |
|-------------------------|--------|--------|--------|--------|--------|
| 無効電力 Reactive power | +10% | +5% | 0% | -5% | -10% |
| +10% | 430 ms | 432 ms | 431 ms | 425 ms | 430 ms |
| +5% | 436 ms | 429 ms | 428 ms | 428 ms | 420 ms |
| 0% | 429 ms | 421 ms | 426 ms | 437 ms | 431 ms |
| -5% | 430 ms | 427 ms | 423 ms | 418 ms | 428 ms |
| -10% | 422 ms | 423 ms | 426 ms | 428 ms | 426 ms |

受動方式にて検出/ Detected by passive method.

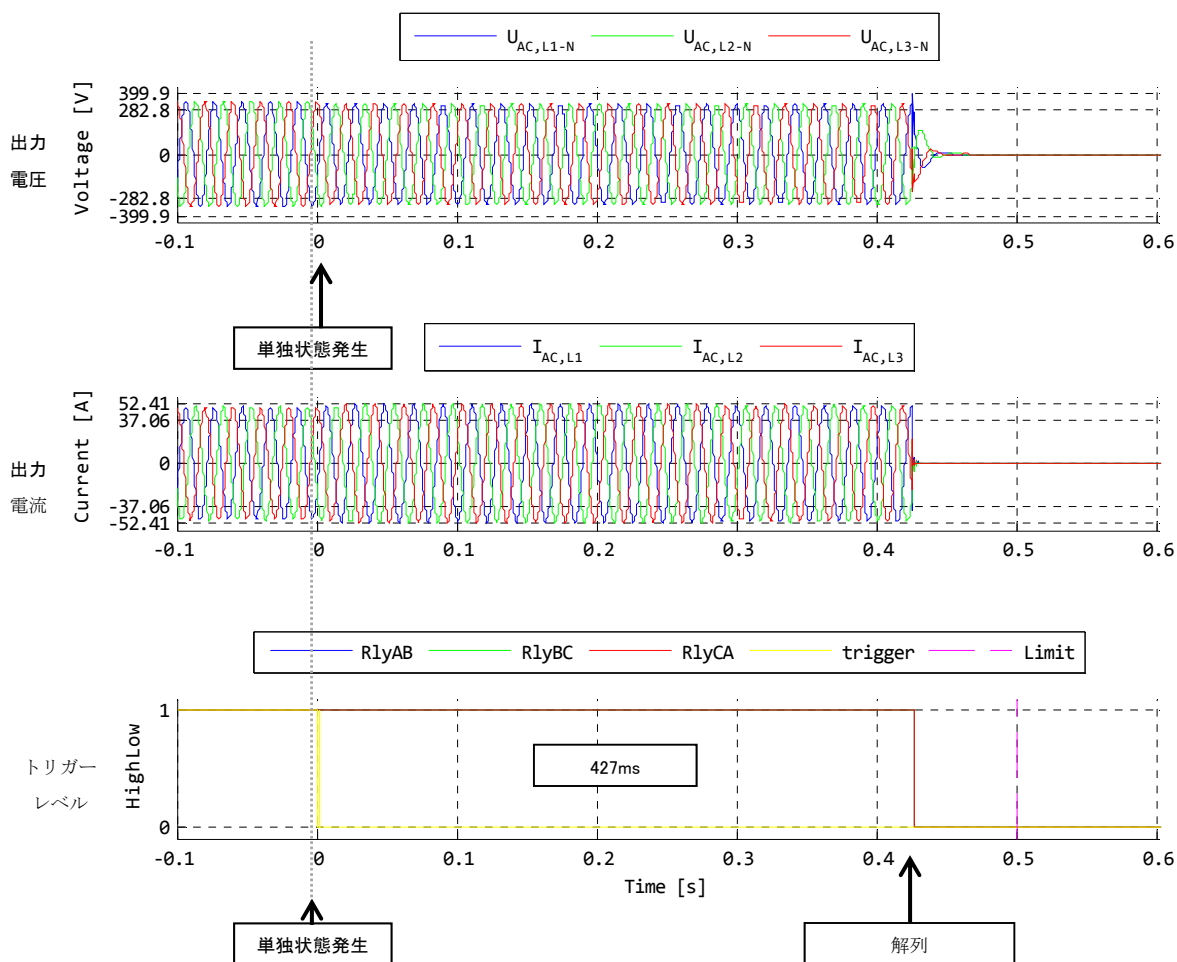
試験結果例：受動方式のみ（不平衡負荷比率：有効電力+10% 無効電力+10%）

Example of test item: Passive Islanding detection: effective power +10%, reactive power +10%

| | | | |
|---------------|------------------|-----------|-------------------------------|
| Device | STP 2500TL-JP-30 | Date | 17.Mar.2015 |
| Serial | 1900701684 | Validator | Kleinheinz |
| Sample Number | 08756 | TESYS-ID | TESYS10 / 3P.2.1b |
| SW-Version | 01.00.12.R | AID-Test | AID-JET50PID_242V-50Hz |
| Grid Type | ThreePhase | Result | P100-DC-110P-110RP-L1L2L3: ok |

3.2.7 Anti-Islanding Test (Passiv islanding JETGR0003-1-3.1 (2012) 50Hz)

Phase: L1L2L3 U_{MPP} : 650V $\cos(\phi)$: 1.0
 derating: DC P_{Inv} : 2500W (100%) dwelltime: 0s
 Cycles: 3 P_{DC} : 12775W triptime: 0.5s



| Cycle | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|-------|-----|-----|-----|---|---|---|---|---|---|----|
| RlyAB | 419 | 420 | 426 | | | | | | | |
| RlyBC | 419 | 420 | 427 | | | | | | | |
| RlyCA | 419 | 420 | 427 | | | | | | | |

>Inverter disconnected before data logging started: -Inf >Inverter didn't disconnect during data logging: Inf

試験結果例：能動方式のみ（不平衡負荷比率：有効電力+10% 無効電力+10%）

Example of test item: Active Islanding detection: effective power +10%, reactive power +10%

| | | | |
|---------------|------------------|-----------|-------------------------------|
| Device | STP 2500TL-JP-30 | Date | 18.Mar.2015 |
| Serial | 1900701684 | Validator | Kleinheinz |
| Sample Number | 08756 | TESYS-ID | TESYS10 / 3P.2.1b |
| SW-Version | 01.00.12.R | AID-Test | AID-JET50AID_242V-50Hz |
| Grid Type | ThreePhase | Result | P100-DC-110P-110RP-L1L2L3: ok |

3.2.7 Anti-Islanding Test (Activ islanding JETGR0003-1-3.1 (2012) 50Hz)

Phase: L1L2L3

U_{MPP} : 650V

$\cos(\phi)$: 1.0

derating: DC

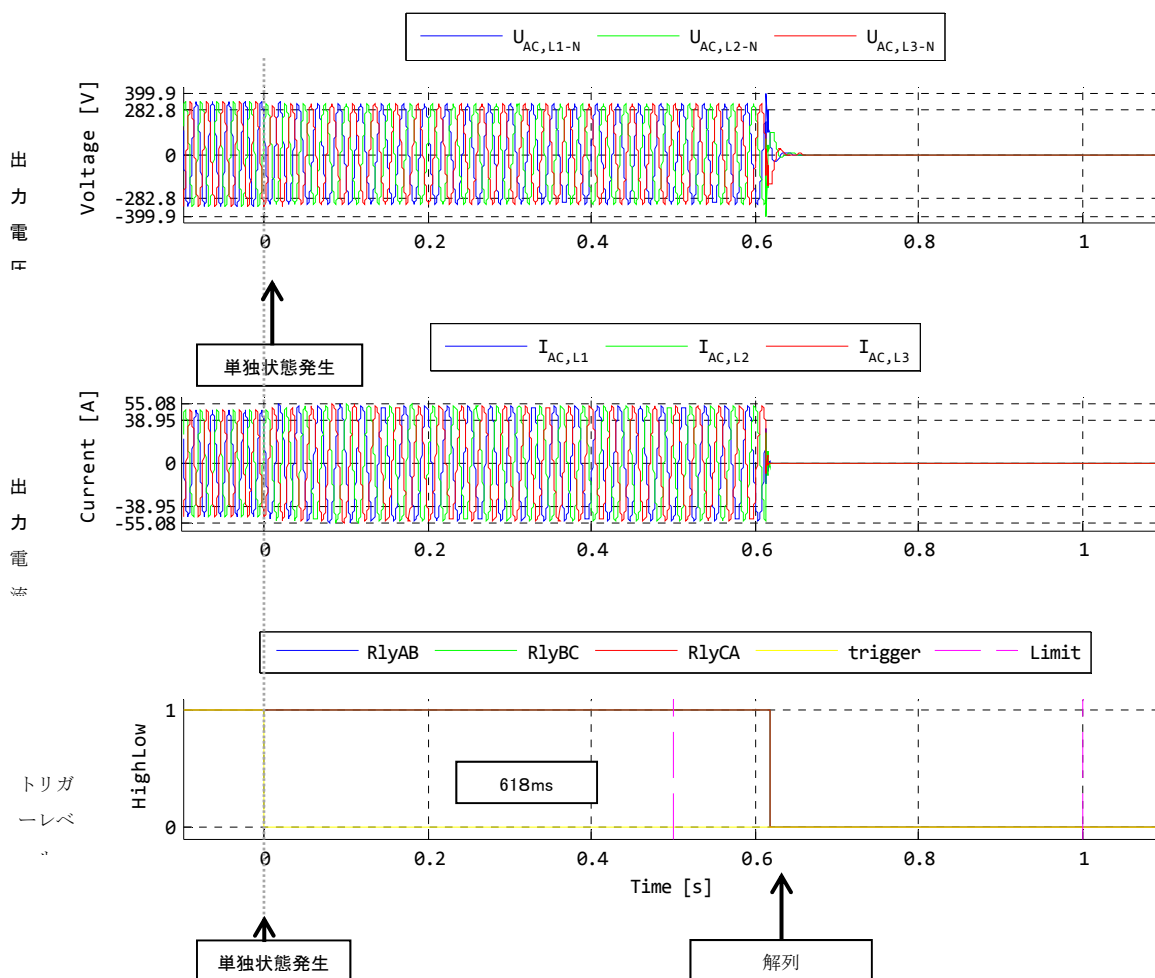
P_{Inv} : 2500W (100%)

dweltime: 0.5s

Cycles: 3

P_{DC} : 12775W

triptime: 1s



| Cycle | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|-------|-----|-----|-----|---|---|---|---|---|---|----|
| RlyAB | 615 | 618 | 617 | | | | | | | |
| RlyBC | 615 | 618 | 617 | | | | | | | |
| RlyCA | 615 | 618 | 617 | | | | | | | |

>Inverter disconnected before data logging started:-Inf >Inverter didn't disconnect during data logging: Inf

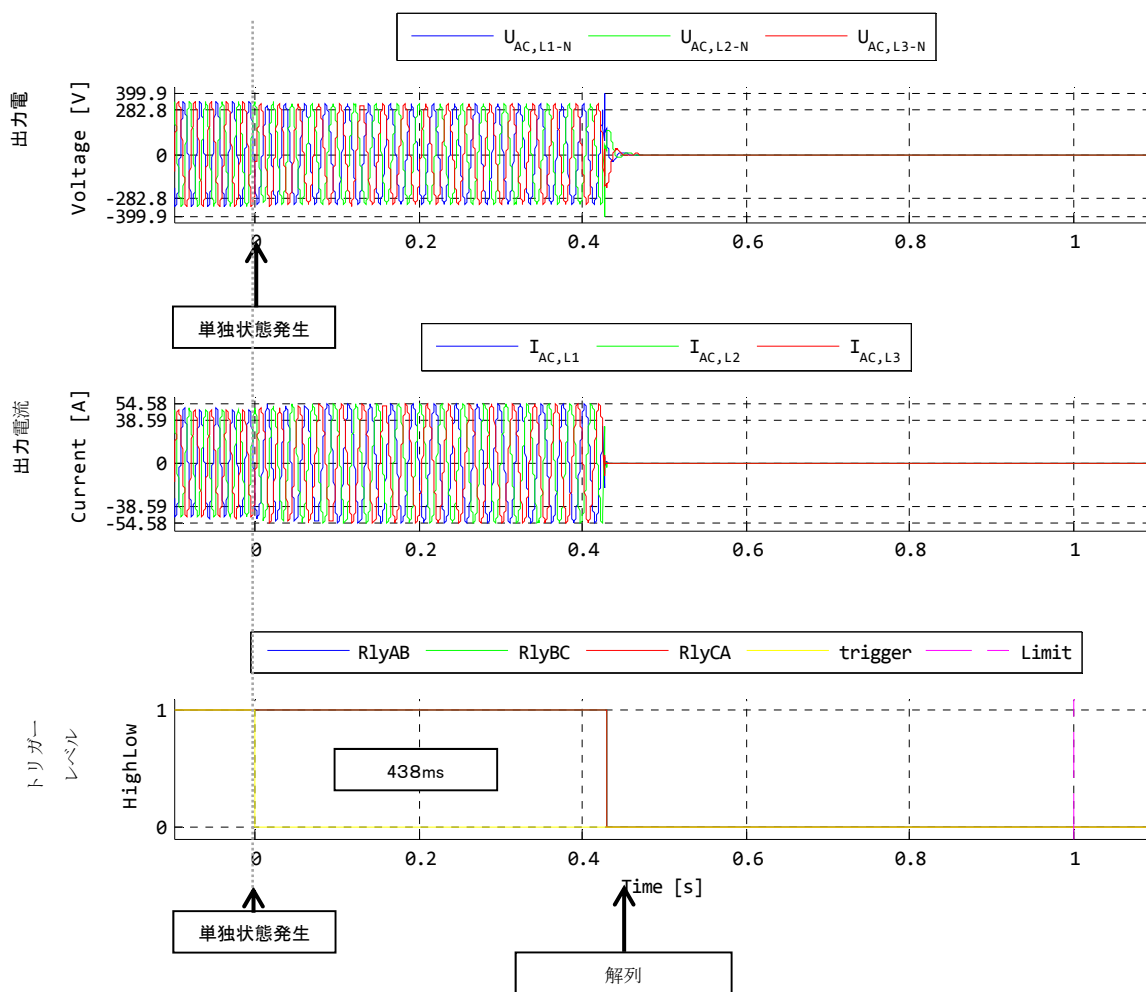
試験結果例：能動および受動方式（不平衡負荷比率：有効電力+10% 無効電力+10%）

Example of test item: Active and passive detection combined: effective power +10%, reactive power +10%

| | | | |
|---------------|------------------|-----------|-------------------------------|
| Device | STP 2500TL-JP-30 | Date | 18.Mar.2015 |
| Serial | 1900701684 | Validator | Kleinheinz |
| Sample Number | 08756 | TESYS-ID | TESYS10 / 3P.2.1b |
| SW-Version | 01.00.12.R | AID-Test | AID-JET50PAID_242V-50Hz |
| Grid Type | ThreePhase | Result | P100-DC-110P-110RP-L1L2L3: ok |

3.2.7 Anti-Islanding Test (Passiv and activ islanding JETGR0003-1-3.1 (2012) 50Hz)

Phase: L1L2L3 U_{MPP} : 650V $\cos(\phi)$: 1.0
 derating: DC P_{Inv} : 2500W (100%) dwelltime: 0s
 Cycles: 3 P_{DC} : 12775W triptime: 1s



| Cycle | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|-------|-----|-----|-----|---|---|---|---|---|---|----|
| RlyAB | 426 | 420 | 430 | | | | | | | |
| RlyBC | 426 | 420 | 430 | | | | | | | |
| RlyCA | 426 | 420 | 430 | | | | | | | |

>Inverter disconnected before data logging started:-Inf >Inverter didn't disconnect during data logging: Inf

| | | | |
|---------------------------------|---|----------------------|------------|
| 3.2.7 | 単独運転検出テスト(60Hz)/Anti-Islanding operation test @ 60 Hz | | |
| テスト者 / Validator: | Tobias Krieg | テスト実施日 / Test date: | 2015年3月18日 |
| 公称出力電圧 / Nominal AC-voltage: | 440V | DC入力電圧 / DC-voltage: | 650V |
| 定格有効出力電力 / Rated active output: | 25 kW | | |
| 備考 / Remarks: | 整定値/Default 受動方式/Passive: 400ms 能動方式/Active: 600ms | | |

受動方式のみ/Passive detection only

| 無効電力 Reactive power 有効電力 Effective power | +10% | +5% | 0% | -5% | -10% |
|---|-------------------|-------------------|-------------------|--------|--------|
| +10% | 432 ms | 434 ms | 436 ms | 436 ms | 432 ms |
| +5% | 430 ms | 427 ms | 432 ms | 432 ms | 435 ms |
| 0% | 不感帯 Blind spot | 不感帯 Blind spot | 不感帯 Blind spot | 437 ms | 439 ms |
| -5% | 436 ms | 434 ms | 435 ms | 430 ms | 437 ms |
| -10% | 430 ms | 432 ms | 433 ms | 436 ms | 433 ms |

不感帯3点あり / Passive islanding test only: three blind spots were recognized (no clearing time)

能動方式のみ / Active detection only

| 無効電力 Reactive power 有効電力 Effective power | +10% | +5% | 0% | -5% | -10% |
|---|--------|--------|--------|--------|--------|
| +10% | 613 ms | 620 ms | 607 ms | 623 ms | 607 ms |
| +5% | 619 ms | 613 ms | 619 ms | 626 ms | 613 ms |
| 0% | 620 ms | 623 ms | 621 ms | 622 ms | 625 ms |
| -5% | 612 ms | 613 ms | 613 ms | 622 ms | 613 ms |
| -10% | 611 ms | 612 ms | 613 ms | 613 ms | 612 ms |

能動および受動方式 / Active and passiv detection combined

| 無効電力 Reactive power 有効電力 Effective power | +10% | +5% | 0% | -5% | -10% |
|---|--------|--------|--------|--------|--------|
| +10% | 430 ms | 431 ms | 428 ms | 430 ms | 430 ms |
| +5% | 427 ms | 432 ms | 435 ms | 428 ms | 425 ms |
| 0% | 436 ms | 437 ms | 434 ms | 447 ms | 429 ms |
| -5% | 432 ms | 435 ms | 432 ms | 429 ms | 427 ms |
| -10% | 429 ms | 433 ms | 431 ms | 429 ms | 434 ms |

受動方式にて検出/ Detected by passive method.

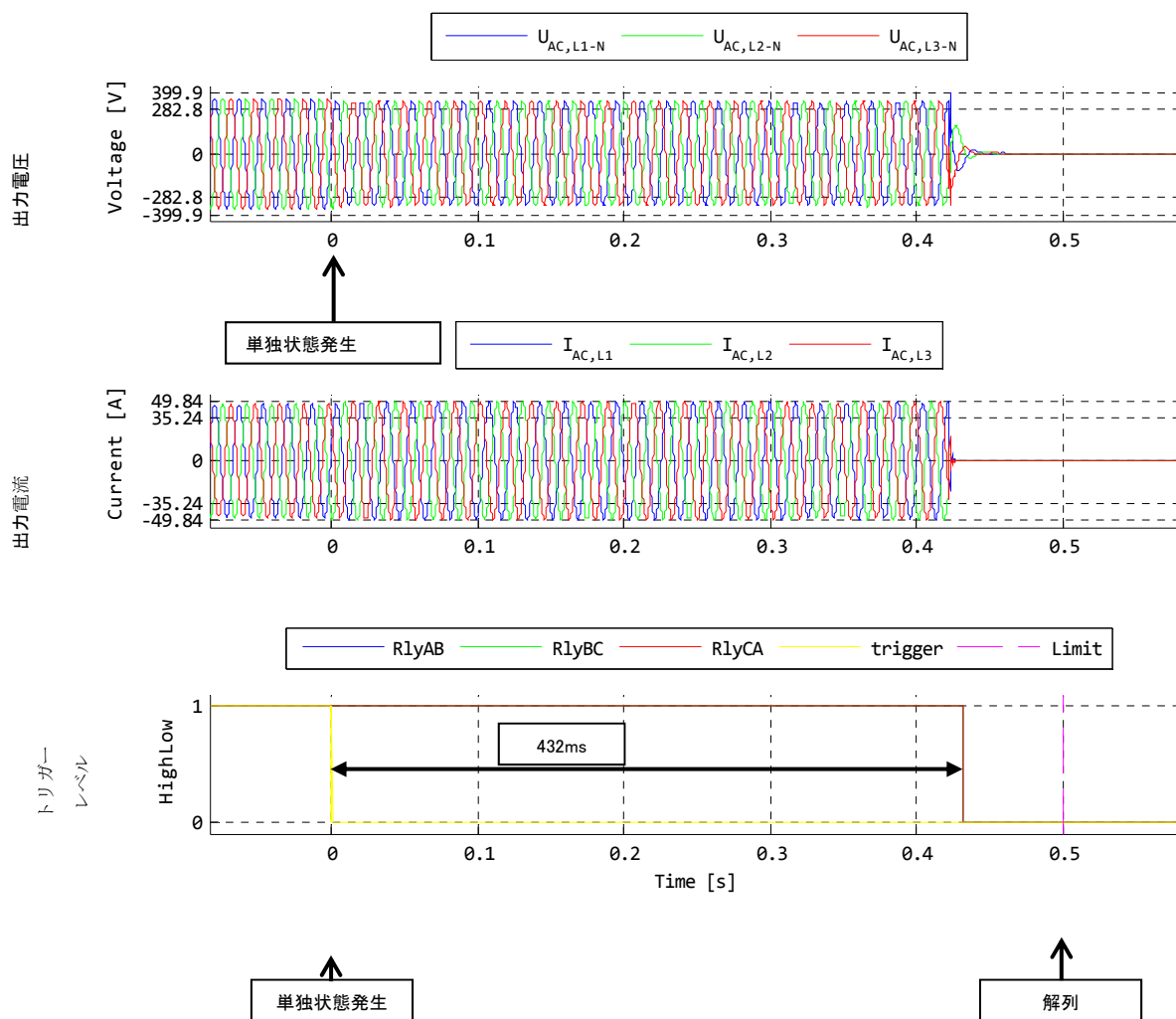
試験結果例：受動方式のみ（不平衡負荷比率：有効電力+10% 無効電力+10%）

Example of test item: Passive Islanding detection: effective power +10%, reactive power +10%

| | | | |
|---------------|------------------|-----------|-------------------------------|
| Device | STP 2500TL-JP-30 | Date | 17.Mar.2015 |
| Serial | 1900701684 | Validator | Kleinheinz |
| Sample Number | 08756 | TESYS-ID | TESYS10 / 3P.2.1b |
| SW-Version | 01.00.12.R | AID-Test | AID-JET60PID_254V-60Hz |
| Grid Type | ThreePhase | Result | P100-DC-110P-110RP-L1L2L3: ok |

3.2.7 Anti-Islanding Test (Passiv islanding JETGR0003-1-3.1 (2012) 60Hz)

Phase: L1L2L3 U_{MPP} : 650V $\cos(\phi)$: 1.0
 derating: DC P_{Inv} : 2500W (100%) dwelltime: 0s
 Cycles: 3 P_{DC} : 12775W triptime: 0.5s



| Cycle | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|-------|-----|-----|-----|---|---|---|---|---|---|----|
| RlyAB | 432 | 429 | 428 | | | | | | | |
| RlyBC | 432 | 429 | 428 | | | | | | | |
| RlyCA | 432 | 429 | 428 | | | | | | | |

>Inverter disconnected before data logging started:-Inf >Inverter didn't disconnect during data logging: Inf

試験結果例：能動方式のみ（不平衡負荷比率：有効電力-10% 無効電力-10%）

Example of test item: Active islanding detection: effective power -10%, reactive power -10%

| | | | |
|---------------|------------------|-----------|-------------------------------|
| Device | STP 2500TL-JP-30 | Date | 18.Mar.2015 |
| Serial | 1900701684 | Validator | Kleinheinz |
| Sample Number | 08756 | TESYS-ID | TESYS10 / 3P.2.1b |
| SW-Version | 01.00.12.R | AID-Test | AID-JET60AID_254V-60Hz |
| Grid Type | ThreePhase | Result | P100-DC-090P-090RP-L1L2L3: ok |

3.2.7 Anti-Islanding Test (Activ islanding JETGR0003-1-3.1 (2012) 60Hz)

Phase: L1L2L3

U_{MPP} : 650V

$\cos(\phi)$ 1.0

derating: DC

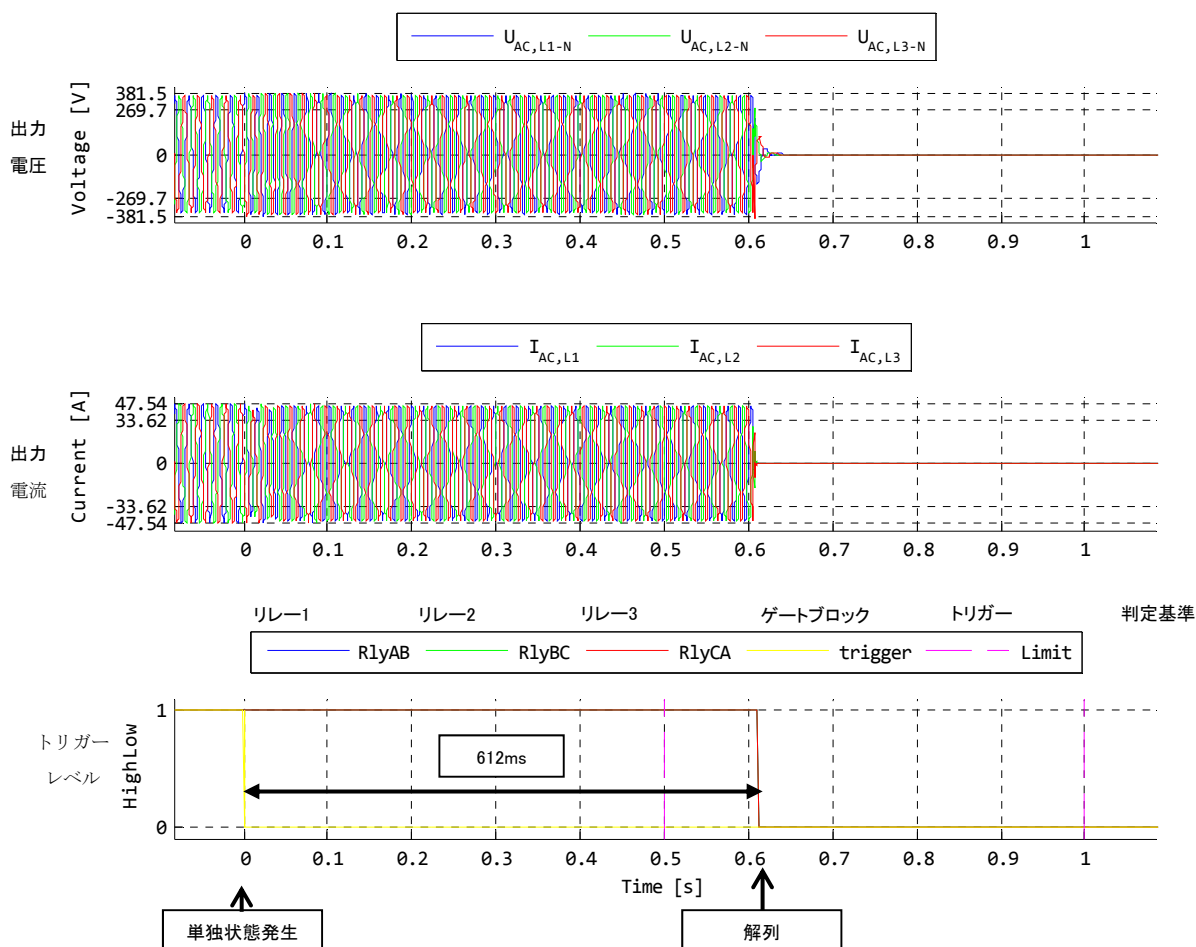
P_{Inv} : 2500W (100%)

dweltime: 0.5s

Cycles: 3

P_{DC} : 12775W

triptime: 1s



| Cycle | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|-------|-----|-----|-----|---|---|---|---|---|---|----|
| RlyAB | 604 | 612 | 603 | | | | | | | |
| RlyBC | 604 | 612 | 603 | | | | | | | |
| RlyCA | 604 | 612 | 603 | | | | | | | |

>Inverter disconnected before data logging started:-Inf >Inverter didn't disconnect during data logging: Inf

試験結果例：能動および受動方式（不平衡負荷比率：有効電力+10% 無効電力+10%）

Example of test item: Active and passive detection combined: effective power +10%, reactive power +10%

| | | | |
|---------------|------------------|-----------|-------------------------------|
| Device | STP 2500TL-JP-30 | Date | 18.Mar.2015 |
| Serial | 1900701684 | Validator | Kleinheinz |
| Sample Number | 08756 | TESYS-ID | TESYS10 / 3P.2.1b |
| SW-Version | 01.00.12.R | AID-Test | AID-JET60PAID_254V-60Hz |
| Grid Type | ThreePhase | Result | P100-DC-110P-110RP-L1L2L3: ok |

3.2.7 Anti-Islanding Test (Passiv and activ islanding JETGR0003-1-3.1 (2012) 60Hz)

Phase: L1L2L3

U_{MPP} : 650V

$\cos(\phi)$ 1.0

derating: DC

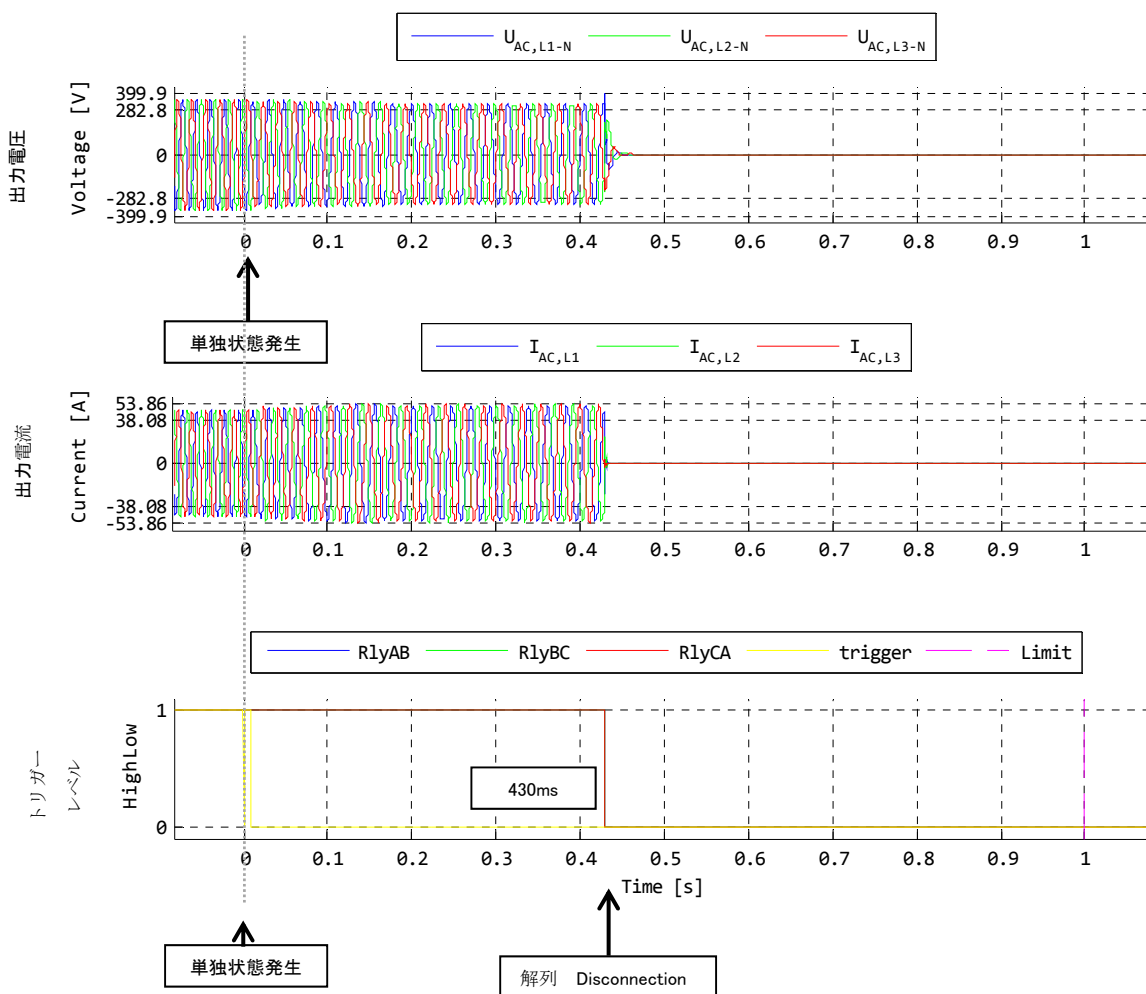
P_{Inv} : 2500W (100%)

dweltime: 0s

Cycles: 3

P_{DC} : 12775W

triptime: 1s



| Cycle | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|-------|-----|-----|-----|---|---|---|---|---|---|----|
| RlyAB | 426 | 430 | 425 | | | | | | | |
| RlyBC | 426 | 430 | 425 | | | | | | | |
| RlyCA | 426 | 430 | 425 | | | | | | | |

>Inverter disconnected before data logging started:-Inf >Inverter didn't disconnect during data logging: Inf

| | | | |
|---------------------------------|---|----------------------|------------|
| 3.2.7 | 単独運転検出テスト(50Hz)/Anti-Islanding operation test with rotating machine @ 50 Hz | | |
| テスト者 / Validator: | Dennis Struecker | テスト実施日 / Test date: | 2015年9月24日 |
| 公称出力電圧 / Nominal AC-voltage: | 440V | DC入力電圧 / DC-voltage: | 650V |
| 定格有効出力電力 / Rated active output: | 25 kW | | |
| 備考 / Remarks: | 整定値/Default 受動方式/Passive: 400ms 能動方式/Active: 600ms | | |

受動方式のみ/Passive detection only with rotating machine

| 無効電力 Reactive power 有効電力 Effective power | +10% | +5% | 0% | -5% | -10% |
|---|--------|-------------------|-------------------|-------------------|-------------------|
| +10% | 421 ms | 433 ms | 435 ms | 432 ms | 434 ms |
| +5% | 424 ms | 432 ms | 429 ms | 436 ms | 427 ms |
| 0% | 624 ms | 不感帯 Blind spot | 不感帯 Blind spot | 不感帯 Blind spot | 不感帯 Blind spot |
| -5% | 431 ms | 432 ms | 435 ms | 436 ms | 432 ms |
| -10% | 430 ms | 430 ms | 431 ms | 432 ms | 430 ms |

不感帯3点あり / Passive islanding test only: three blind spots were recognized (no clearing time)

能動方式のみ / Active detection only with rotating machine

| 無効電力 Reactive power 有効電力 Effective power | +10% | +5% | 0% | -5% | -10% |
|---|--------|--------|--------|--------|--------|
| +10% | 615 ms | 602 ms | 616 ms | 613 ms | 611 ms |
| +5% | 625 ms | 623 ms | 618 ms | 617 ms | 618 ms |
| 0% | 618 ms | 618 ms | 622 ms | 630 ms | 632 ms |
| -5% | 610 ms | 613 ms | 613 ms | 613 ms | 617 ms |
| -10% | 606 ms | 611 ms | 606 ms | 610 ms | 610 ms |

能動および受動方式 / Active and passive detection combined with rotating machine

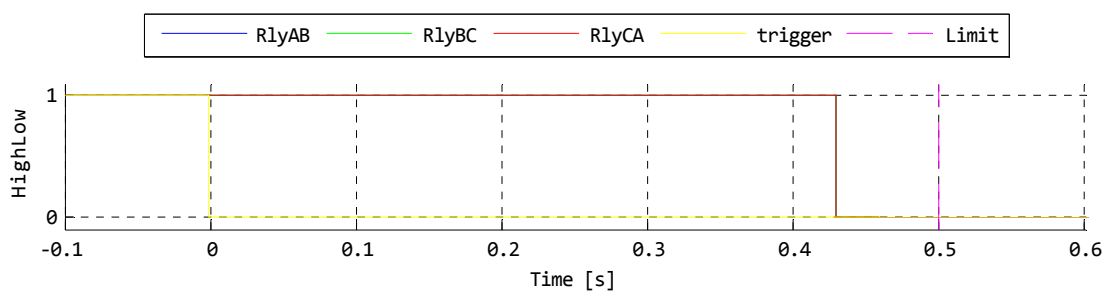
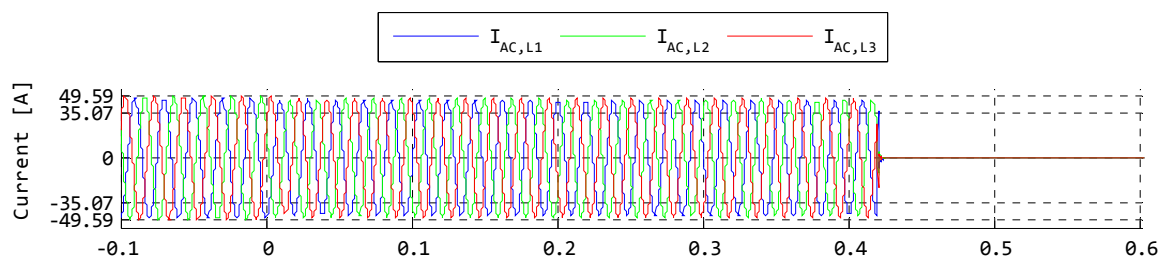
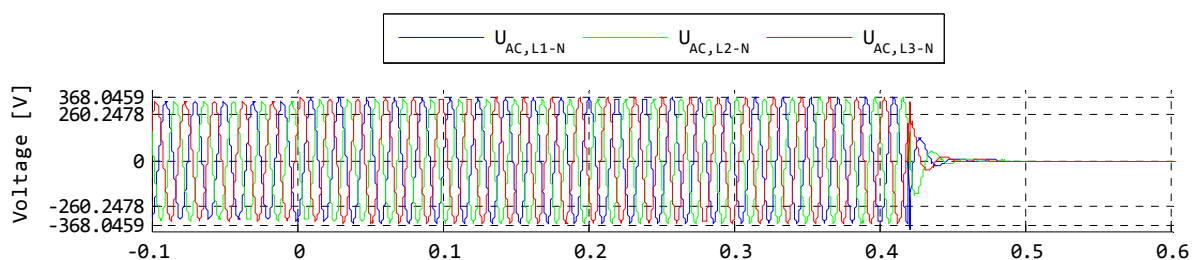
| 無効電力 Reactive power 有効電力 Effective power | +10% | +5% | 0% | -5% | -10% |
|---|--------|--------|--------|--------|--------|
| +10% | 421 ms | 414 ms | 419 ms | 430 ms | 420 ms |
| +5% | 418 ms | 428 ms | 423 ms | 426 ms | 423 ms |
| 0% | 432 ms | 426 ms | 434 ms | 433 ms | 441 ms |
| -5% | 424 ms | 425 ms | 423 ms | 421 ms | 417 ms |
| -10% | 419 ms | 422 ms | 423 ms | 425 ms | 416 ms |

受動方式にて検出/ Detected by passive method.

| | | | |
|---------------|------------------|--------------------|--------------------------------|
| Device | STP 2500TL-JP-30 | Date / Temp./ Hum. | 24.Sep.2015 / 23.41°C / 41.18% |
| Serial | 1900704531 | Validator | Höhre |
| Sample Number | 08492 | TESYS-ID | TESYS10 / 3P.2.1b |
| SW-Version | 01.00.20.R | AID-Test | AID-JET50MPID_242V-50Hz |
| Grid Type | ThreePhase | Result | P100-DC-090P-090RP-L1L2L3: ok |

3.2.7 Anti-Islanding Test (Machine passiv islanding JETGR0003-1-3.1 (2012) 50Hz)

Phase: L1L2L3 U_{MPP} : 650V $\cos(\phi)$: 10
 derating: DC P_{Inv} : 25000W (100%) dwelltime: 0s
 Cycles: 3 P_{DC} : 25000W triptime: 0.5s



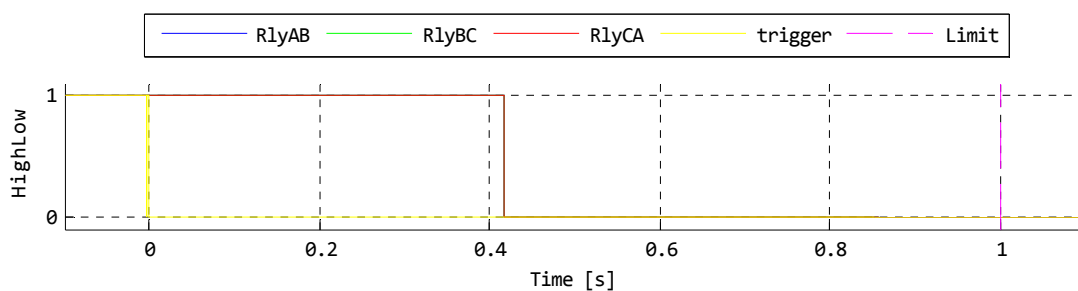
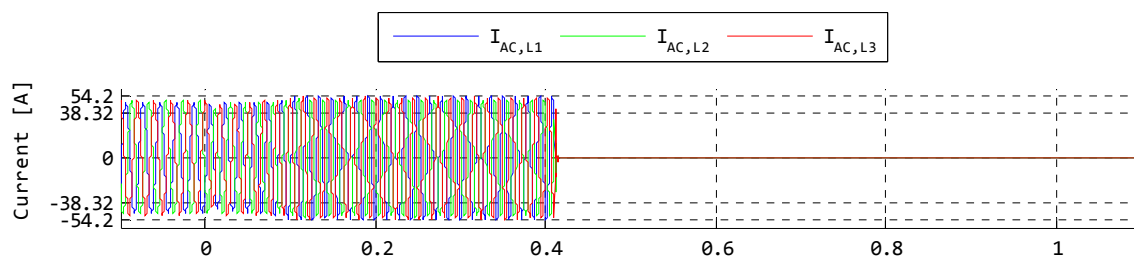
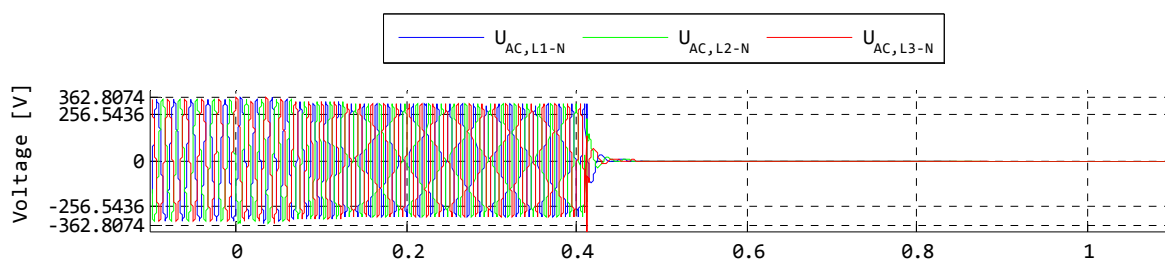
| Cycle | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|-------|-----|-----|-----|---|---|---|---|---|---|----|
| RlyAB | 425 | 426 | 429 | | | | | | | |
| RlyBC | 425 | 426 | 430 | | | | | | | |
| RlyCA | 425 | 426 | 430 | | | | | | | |

>Inverter disconnected before data logging started:-Inf >Inverter didn't disconnect during data logging: Inf

| | | | |
|---------------|------------------|--------------------|--------------------------------|
| Device | STP 2500TL-JP-30 | Date / Temp./ Hum. | 23.Sep.2015 / 23.51°C / 41.23% |
| Serial | 1900704531 | Validator | Höhre |
| Sample Number | 08492 | TESYS-ID | TESYS10 / 3P.2.1b |
| SW-Version | 01.00.20.R | AID-Test | AID-JET50MPAID_242V-50Hz |
| Grid Type | ThreePhase | Result | P100-DC-090P-090RP-L1L2L3: ok |

3.2.7 Anti-Islanding Test (Machine passiv and activ islanding JETGR0003-1-3.1 (2012) 50Hz)

Phase: L1L2L3 U_{MPP} : 650V $\cos(\phi)$: 10
 derating: DC P_{Inv} : 25000W (100%) dwelltime: 0s
 Cycles: 3 P_{DC} : 25000W triptime: 1s



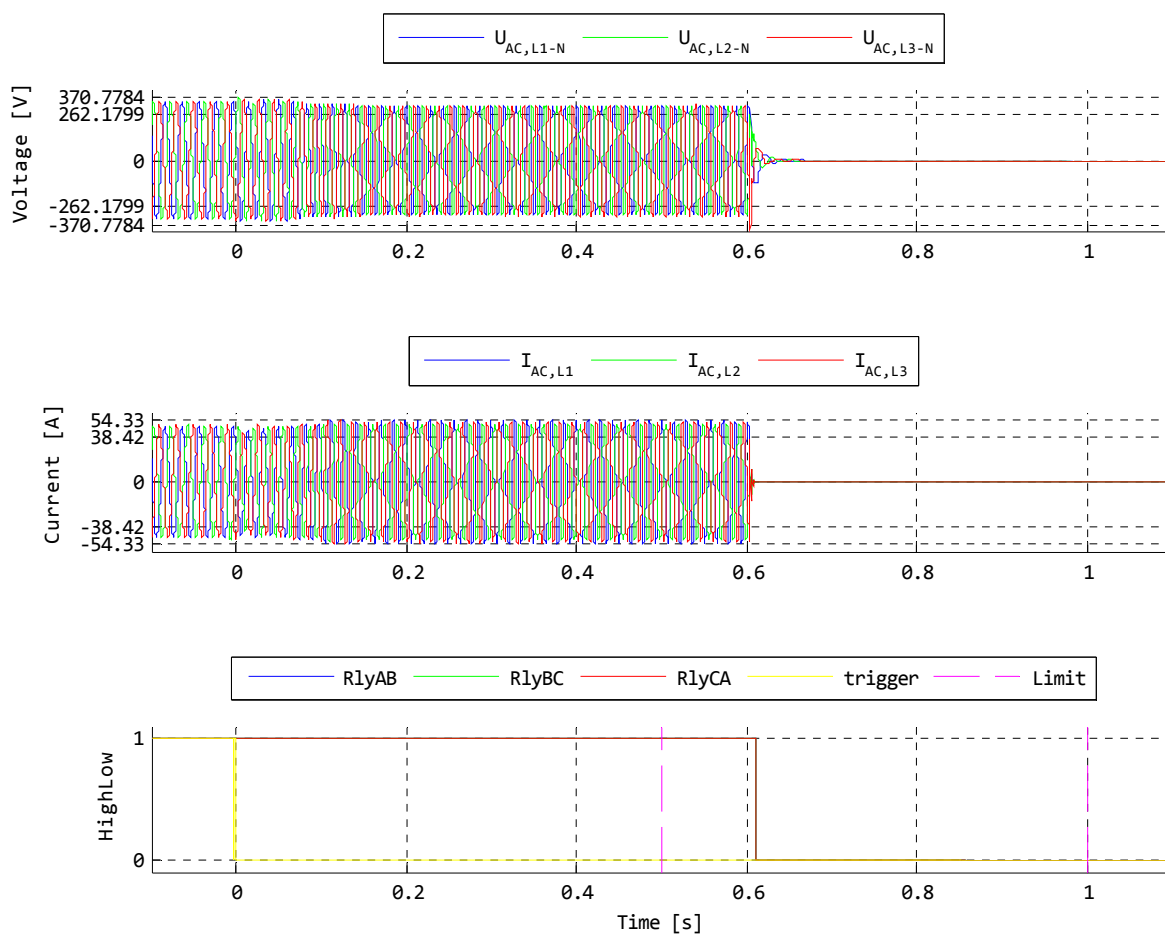
| Cycle | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|-------|-----|-----|-----|---|---|---|---|---|---|----|
| RlyAB | 416 | 416 | 409 | | | | | | | |
| RlyBC | 416 | 416 | 410 | | | | | | | |
| RlyCA | 416 | 416 | 410 | | | | | | | |

>Inverter disconnected before data logging started:-Inf >Inverter didn't disconnect during data logging: Inf

| | | | |
|---------------|------------------|--------------------|--------------------------------|
| Device | STP 2500TL-JP-30 | Date / Temp./ Hum. | 23.Sep.2015 / 23.46°C / 38.31% |
| Serial | 1900704531 | Validator | Höhre |
| Sample Number | 08492 | TESYS-ID | TESYS10 / 3P.2.1b |
| SW-Version | 01.00.20.R | AID-Test | AID-JET50MAID_242V-50Hz |
| Grid Type | ThreePhase | Result | P100-DC-090P-090RP-L1L2L3: ok |

3.2.7 Anti-Islanding Test (Machine activ islanding JETGR003-1-3.1 (2012) 50Hz)

Phase: L1L2L3 U_{MPP} : 650V $\cos(\phi)$: 10
 derating: DC P_{Inv} : 25000W (100%) dwelltime: 0.5s
 Cycles: 3 P_{DC} : 25000W triptime: 1s



| Cycle | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|-------|-----|-----|-----|---|---|---|---|---|---|----|
| RlyAB | 604 | 603 | 610 | | | | | | | |
| RlyBC | 604 | 603 | 610 | | | | | | | |
| RlyCA | 604 | 603 | 610 | | | | | | | |

>Inverter disconnected before data logging started:-Inf >Inverter didn't disconnect during data logging: Inf

| | | | |
|---------------------------------|---|----------------------|-------------|
| 3.2.7 | 単独運転検出テスト(60Hz)/Anti-Islanding operation test with rotating machine @ 60 Hz | | |
| テスト者 / Validator: | Dennis Struecker | テスト実施日 / Test date: | 2015年09月24日 |
| 公称出力電圧 / Nominal AC-voltage: | 440V | DC入力電圧 / DC-voltage: | 650V |
| 定格有効出力電力 / Rated active output: | 25 kW | | |
| 備考 / Remarks: | 整定値/Default 受動方式/Passive: 400ms 能動方式/Active: 600ms | | |

受動方式のみ/Passive detection only with rotating machine

| 無効電力 Reactive power | | | | | |
|-------------------------|--------|-------------------|-------------------|--------|--------|
| 有効電力 Effective power | +10% | +5% | 0% | -5% | -10% |
| +10% | 431 ms | 432 ms | 430 ms | 432 ms | 429 ms |
| +5% | 431 ms | 425 ms | 430 ms | 429 ms | 430 ms |
| 0% | 447 ms | 不感帯 Blind spot | 不感帯 Blind spot | 437 ms | 449 ms |
| -5% | 432 ms | 434 ms | 433 ms | 434 ms | 433 ms |
| -10% | 430 ms | 430 ms | 430 ms | 432 ms | 430 ms |

不感帯3点あり / Passive islanding test only: three blind spots were recognized (no clearing time)

能動方式のみ / Active detection only with rotating machine

| 無効電力 Reactive power | | | | | |
|-------------------------|--------|--------|--------|--------|--------|
| 有効電力 Effective power | +10% | +5% | 0% | -5% | -10% |
| +10% | 601 ms | 614 ms | 606 ms | 624 ms | 605 ms |
| +5% | 614 ms | 607 ms | 607 ms | 616 ms | 618 ms |
| 0% | 619 ms | 623 ms | 628 ms | 626 ms | 649 ms |
| -5% | 613 ms | 610 ms | 613 ms | 613 ms | 611 ms |
| -10% | 609 ms | 611 ms | 606 ms | 603 ms | 604 ms |

能動および受動方式 / Active and passive detection combined with rotating machine

| 無効電力 Reactive power | | | | | |
|-------------------------|--------|--------|--------|--------|--------|
| 有効電力 Effective power | +10% | +5% | 0% | -5% | -10% |
| +10% | 422 ms | 431 ms | 429 ms | 422 ms | 437 ms |
| +5% | 429 ms | 422 ms | 425 ms | 430 ms | 421 ms |
| 0% | 424 ms | 434 ms | 437 ms | 430 ms | 427 ms |
| -5% | 426 ms | 431 ms | 422 ms | 430 ms | 426 ms |
| -10% | 427 ms | 432 ms | 432 ms | 432 ms | 428 ms |

受動方式にて検出/ Detected by passive method.

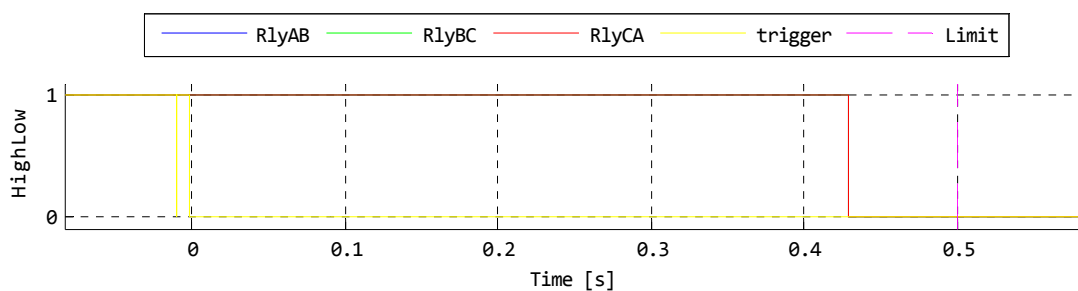
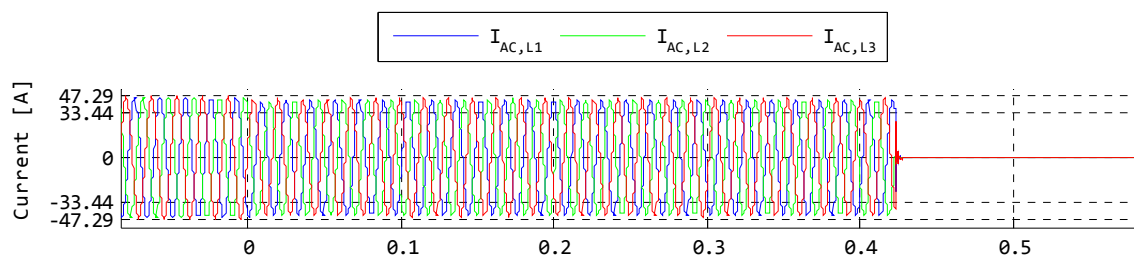
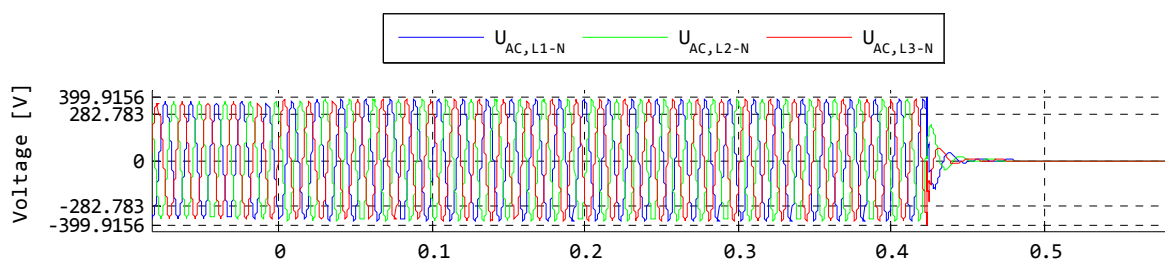
| | | | |
|---------------|------------------|--------------------|--------------------------------|
| Device | STP 2500TL-JP-30 | Date / Temp./ Hum. | 24.Sep.2015 / 23.02°C / 39.24% |
| Serial | 1900704531 | Validator | Höhre |
| Sample Number | 08492 | TESYS-ID | TESYS10 / 3P.2.1b |
| SW-Version | 01.00.20.R | AID-Test | AID-JET60MPID_254V-60Hz |
| Grid Type | ThreePhase | Result | P100-DC-090P-090RP-L1L2L3: ok |

3.2.7 Anti-Islanding Test (Machine passiv islanding JETGR0003-1-3.1 (2012) 60Hz)

Phase: L1L2L3
 derating: DC
 Cycles: 3

U_{MPP} : 650V
 P_{Inv} : 25000W (100%)
 P_{DC} : 25000W

$\cos(\phi)$ 10
 dwelltime: 0s
 triptime: 0.5s



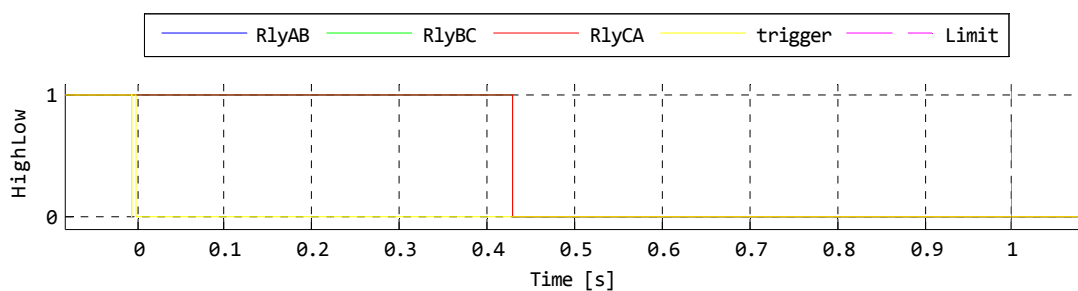
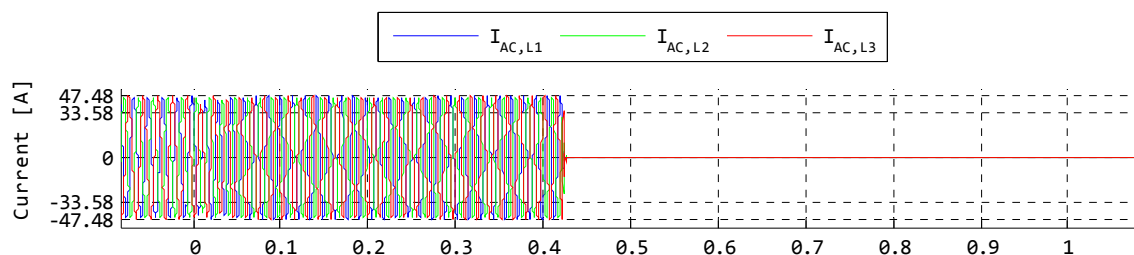
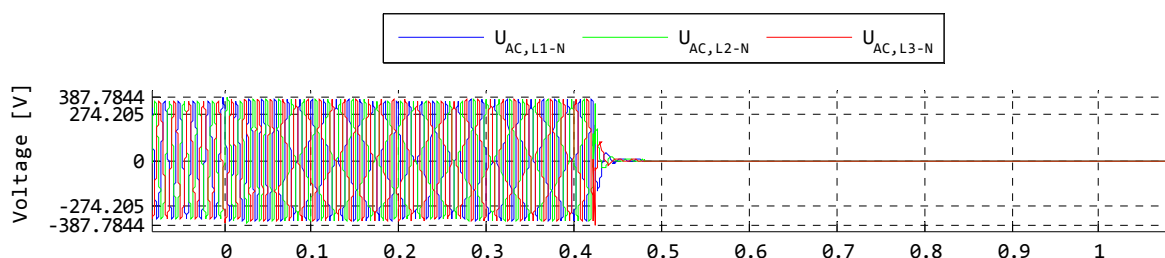
| Cycle | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|-------|-----|-----|-----|---|---|---|---|---|---|----|
| RlyAB | 430 | 428 | 426 | | | | | | | |
| RlyBC | 430 | 428 | 426 | | | | | | | |
| RlyCA | 430 | 428 | 426 | | | | | | | |

>Inverter disconnected before data logging started:-Inf >Inverter didn't disconnect during data logging: Inf

| | | | |
|---------------|------------------|--------------------|--------------------------------|
| Device | STP 2500TL-JP-30 | Date / Temp./ Hum. | 24.Sep.2015 / 23.32°C / 40.64% |
| Serial | 1900704531 | Validator | Höhre |
| Sample Number | 08492 | TESYS-ID | TESYS10 / 3P.2.1b |
| SW-Version | 01.00.20.R | AID-Test | AID-JET60MPAID_254V-60Hz |
| Grid Type | ThreePhase | Result | P100-DC-090P-090RP-L1L2L3: ok |

3.2.7 Anti-Islanding Test (Machine passiv and activ islanding JETGR0003-1-3.1 (2012) 60Hz)

Phase: L1L2L3 U_{MPP} : 650V $\cos(\phi)$: 1.0
 derating: DC P_{Inv} : 25000W (100%) dwelltime: 0s
 Cycles: 3 P_{DC} : 25000W triptime: 1s



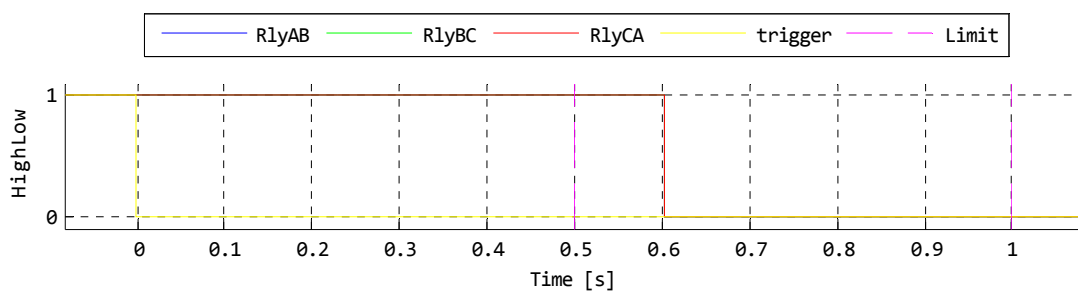
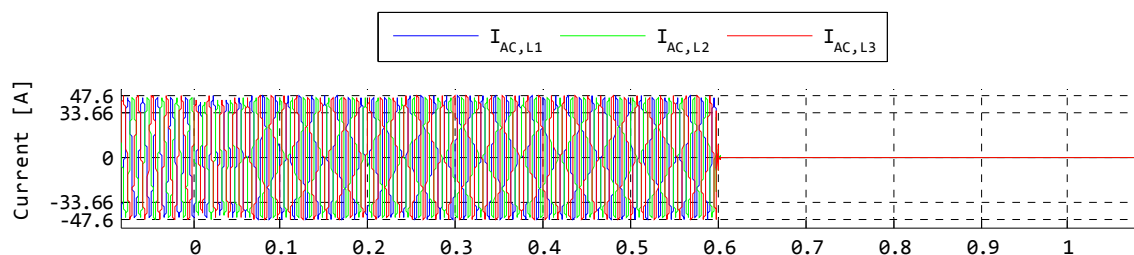
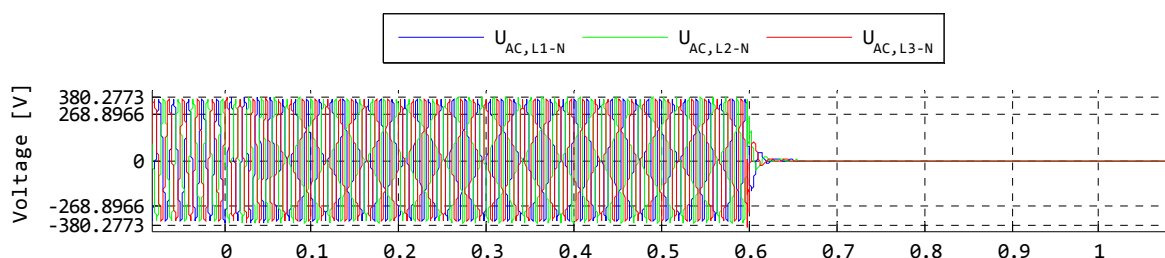
| Cycle | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|-------|-----|-----|-----|---|---|---|---|---|---|----|
| RlyAB | 419 | 423 | 428 | | | | | | | |
| RlyBC | 419 | 423 | 428 | | | | | | | |
| RlyCA | 419 | 423 | 428 | | | | | | | |

>Inverter disconnected before data logging started:-Inf >Inverter didn't disconnect during data logging: Inf

| | | | |
|---------------|------------------|--------------------|--------------------------------|
| Device | STP 2500TL-JP-30 | Date / Temp./ Hum. | 24.Sep.2015 / 23.11°C / 42.42% |
| Serial | 1900704531 | Validator | Höhre |
| Sample Number | 08492 | TESYS-ID | TESYS10 / 3P.2.1b |
| SW-Version | 01.00.20.R | AID-Test | AID-JET60MAID_254V-60Hz |
| Grid Type | ThreePhase | Result | P100-DC-090P-090RP-L1L2L3: ok |

3.2.7 Anti-Islanding Test (Machine activ islanding JETGR003-1-3.1 (2012) 60Hz)

Phase: L1L2L3 U_{MPP} : 650V $\cos(\phi)$: 10
 derating: DC P_{Inv} : 25000W (100%) dwelltime: 0.5s
 Cycles: 3 P_{DC} : 25000W triptime: 1s



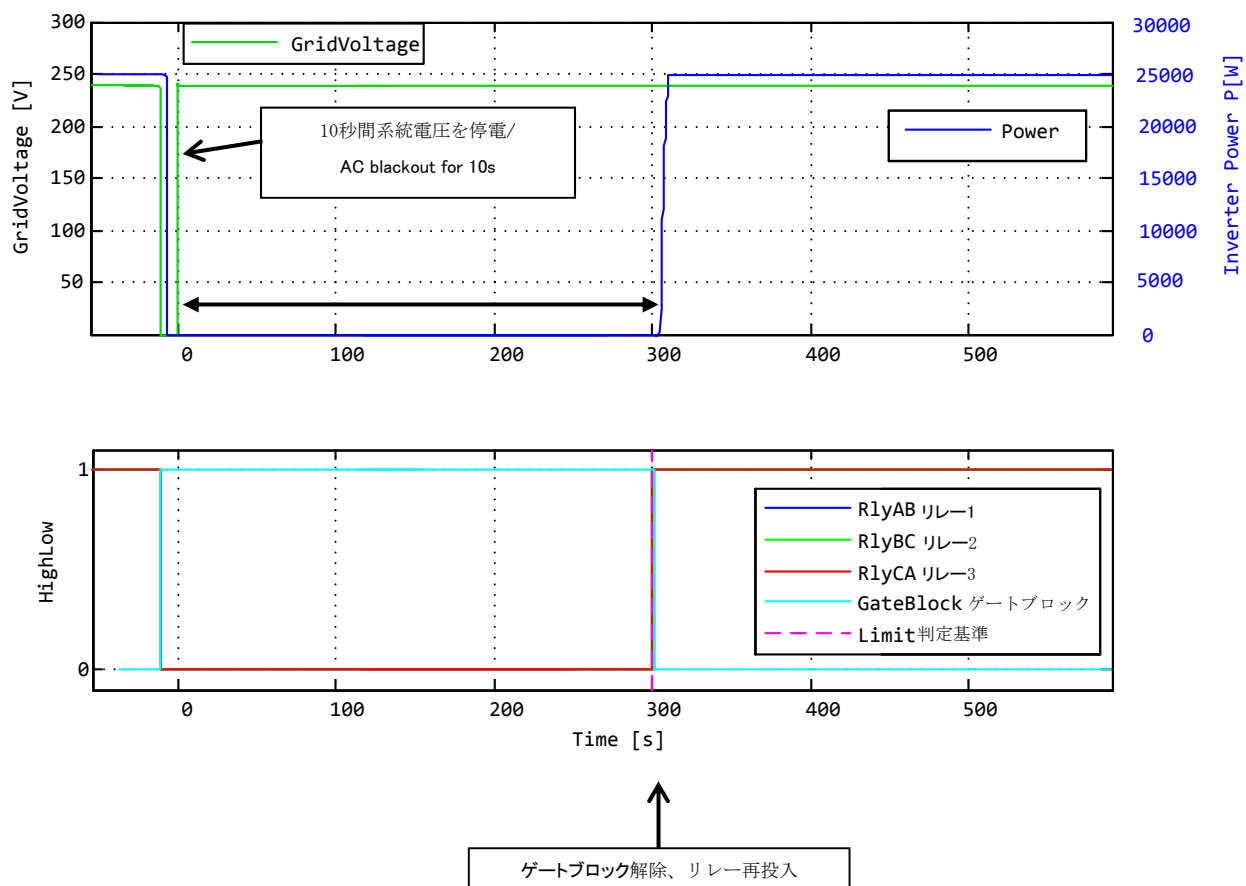
| Cycle | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|-------|-----|-----|-----|---|---|---|---|---|---|----|
| RlyAB | 600 | 599 | 604 | | | | | | | |
| RlyBC | 600 | 599 | 604 | | | | | | | |
| RlyCA | 600 | 599 | 604 | | | | | | | |

>Inverter disconnected before data logging started:-Inf >Inverter didn't disconnect during data logging: Inf

| | | | |
|---------------------------------|--|----------------------|-------------|
| 3.2.9.1 | 復電後の一定時間投入阻止試験/Fixed time blocking after grid blackout recovered | | |
| テスト者 / Validator: | Höhre | テスト実施日 / Test date: | 2015年03月19日 |
| 公称出力電圧 / Nominal AC-voltage: | 420V | DC入力電圧 / DC-voltage: | 750V |
| 定格有効出力電力 / Rated active output: | 25 kW | | |
| 備考 / Remarks: | 50Hzと60Hzで結果は同じ the result is the same at 50Hz or 60Hz | | |

・系統電圧の停電を発生させ、制御電源を完全に切り、動作を停止させる。

Power failure occurs on the grid voltage; disconnect the control power supply completely to stop the operation. After grid is reengaged measure the fixed blocking time.



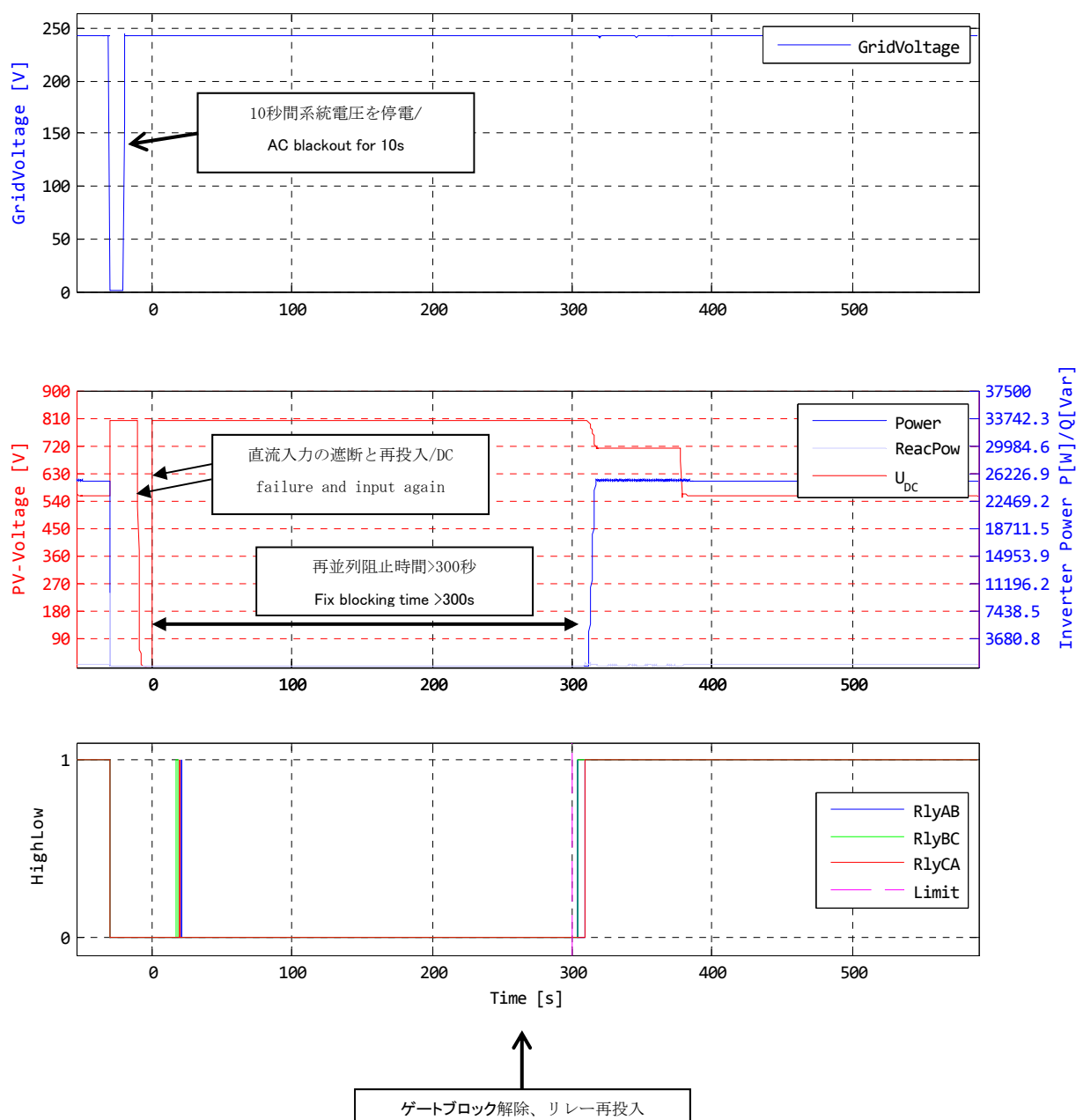
| | | | |
|---------------------------------|--|----------------------|-------------|
| 3.2.9.2 | 復電後の一定時間投入阻止試験/Fixed time blocking after grid blackout recovered | | |
| テスト者 / Validator: | Höhre | テスト実施日 / Test date: | 2015年03月18日 |
| 公称出力電圧 / Nominal AC-voltage: | 420V | DC入力電圧 / DC-voltage: | 750V |
| 定格有効出力電力 / Rated active output: | 25 kW | | |
| 備考 / Remarks: | 50Hzと60Hzで結果は同じ the result is the same at 50Hz or 60Hz | | |

自動復帰モード 直流入力を遮断させた場合 / Interruption on DC input

・パワーコンディショナの再並列阻止時間中に、直流入力を遮断し、制御電源が完全に切れて、動作が停止するように維持する。
Disconnect the DC-input during the “reconnection blocking time” of inverters; maintain the status of complete disconnection of the control power supply so that inverter do not operate.

・直流入力を再投入する。
Enable DC-input again.

・直流入力力が再投入された後、再度再並列阻止時間を計測すること、または、再並列阻止時間の計測を継続すること。
Measure the “reconnection blocking time” after DC power is reengaged or continues measurement of the “reconnection blocking time”.



手動復帰モード / Manual restart function enabled

自動復帰モード 直流入力を遮断させて、その後に停電が発生させた場合/AC-Voltage failure after DC interruption

・パワーコンディショナの再並列阻止時間中に、直流入力を遮断する。

Disconnect the DC-input during the “reconnection blocking time” of inverters.

・系統電圧の停電が発生させ、制御電源を完全に切り、動作を停止させる。

Power failure occurs on the grid voltage; disconnect the control power supply completely to stop the operation.

・系統電圧を復電させる。

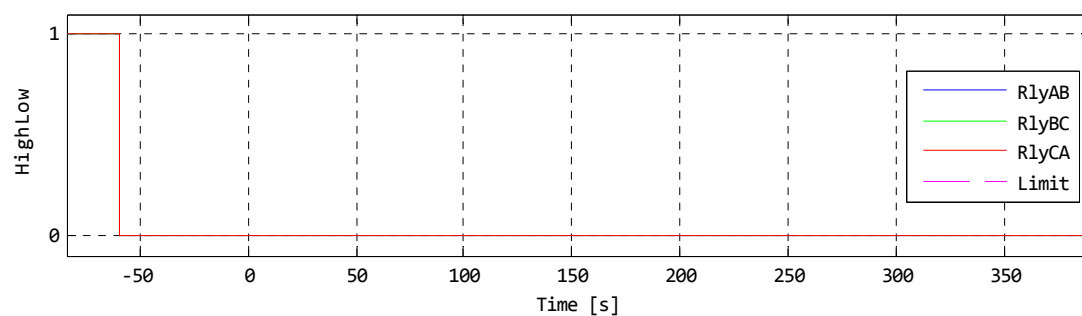
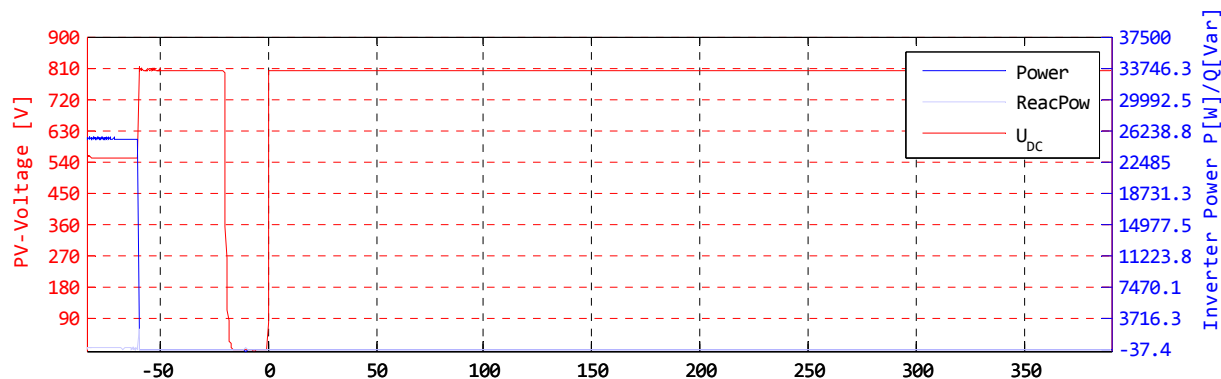
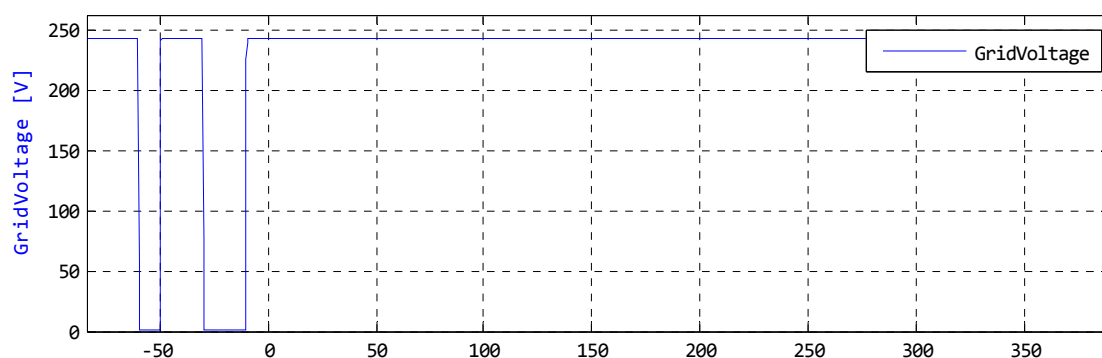
The grid voltage recovers.

・直流入力を再投入する。

Enable DC-input again.

・再並列可能な条件が整っても、自動で再並列しないこと

Measure the “reconnection blocking time” after DC power is reengaged or continues measurement of the “reconnection blocking time”. Criteria is that the inverter must not restart automatically.



自動復帰モード 直流入力を遮断させて、その後に停電が発生させた場合/AC-Voltage failure after DC interruption

- ・パワーコンディショナの再並列阻止時間中に、直流入力を遮断する。

Disconnect the DC-input during the “reconnection blocking time” of inverters.

- ・系統電圧の停電が発生させ、制御電源を完全に切り、動作を停止させる。

Power failure occurs on the grid voltage; disconnect the control power supply completely to stop the operation.

- ・系統電圧を復電させる。

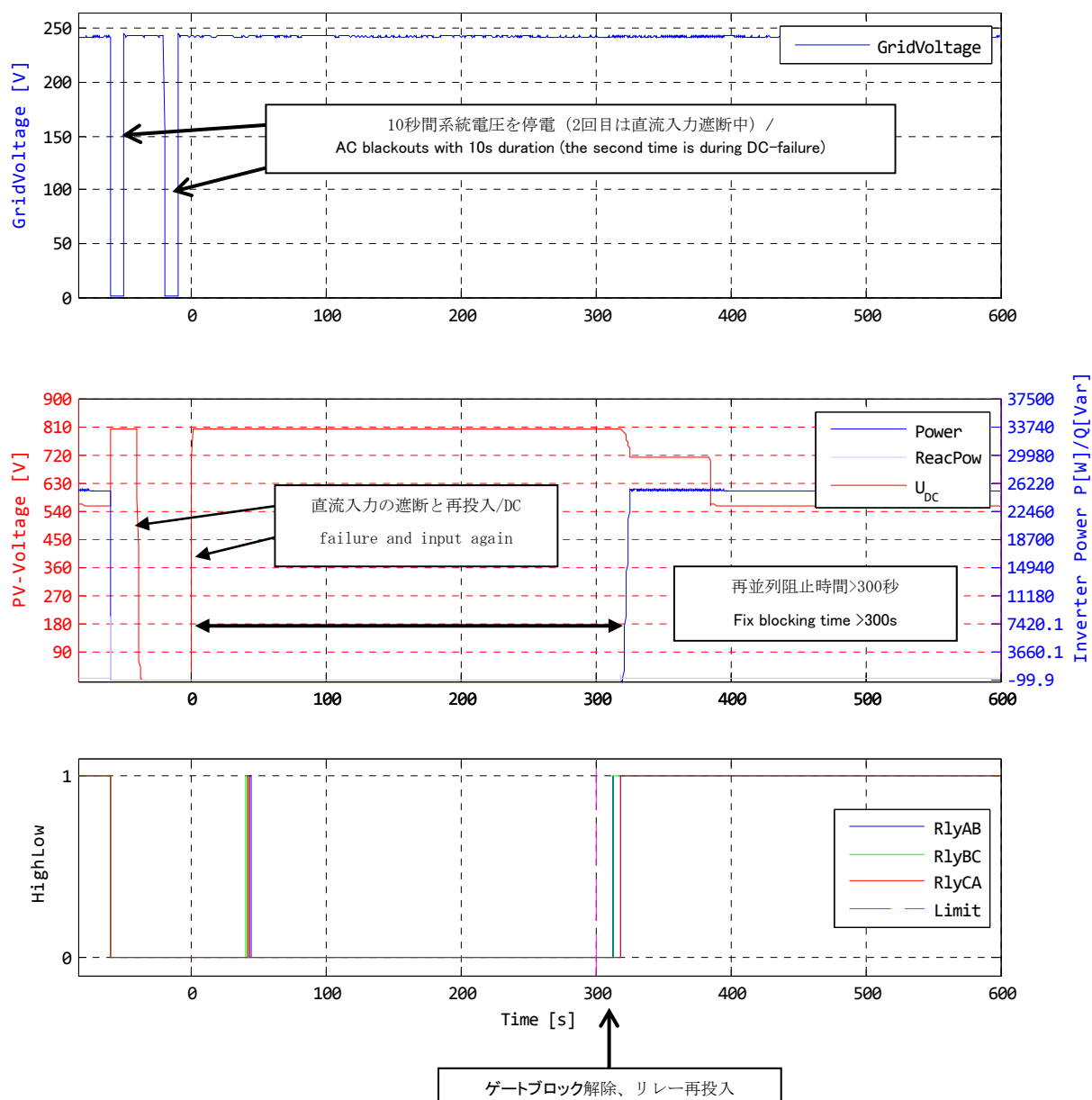
The grid voltage recovers.

- ・直流入力を再投入する。

Enable DC-input again.

- ・制御電源に直流出力電力を使用しているものにあつては直流入力が再投入された後、制御電源に商用電源を使用しているものにあつては系統電圧が復電した後、再度再並列時間を計測すること。

Measure the “reconnection blocking time” after reengage of DC and AC.



自動復帰モード 停電を発生させて、その後に直流入力を遮断させた場合 / DC interruption after AC-voltage failure

- ・パワーコンディショナの再並列阻止時間中に、停電を発生させる。

Power failure occurs during the “reconnection blocking time” of inverters.

- ・直流入力を遮断し、制御電源を完全に切り、動作を停止させる。

Disconnect the control power supply completely to stop the operation.

- ・系統電圧を復電させる。

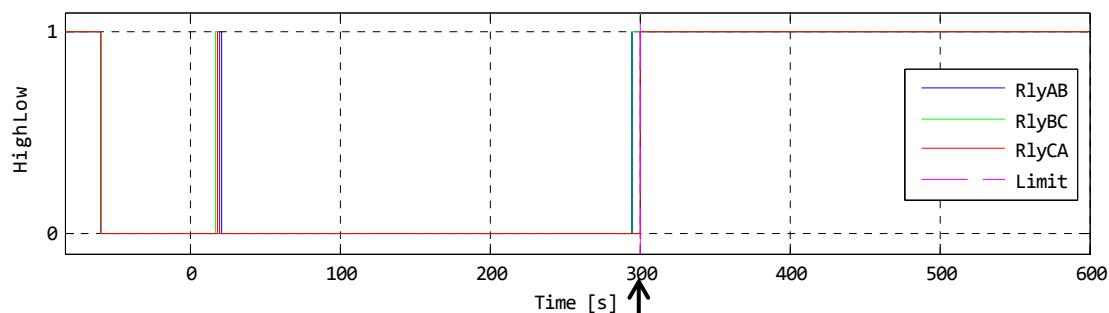
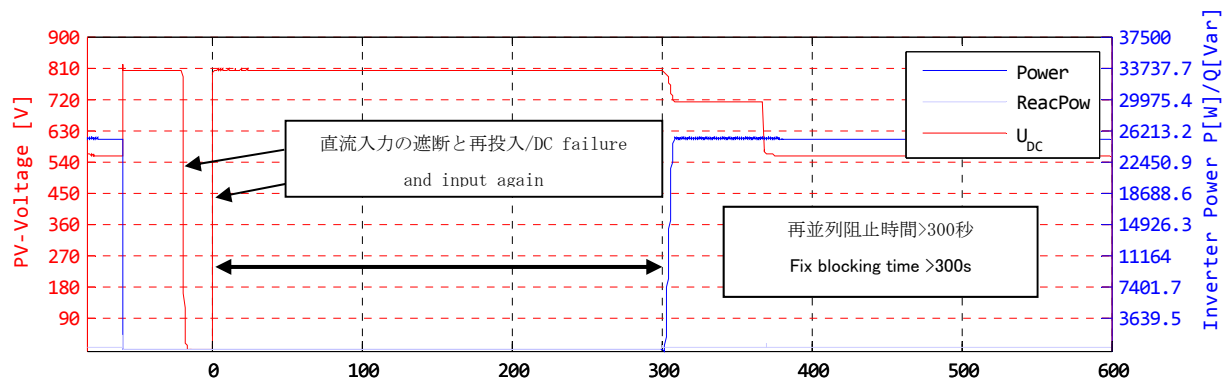
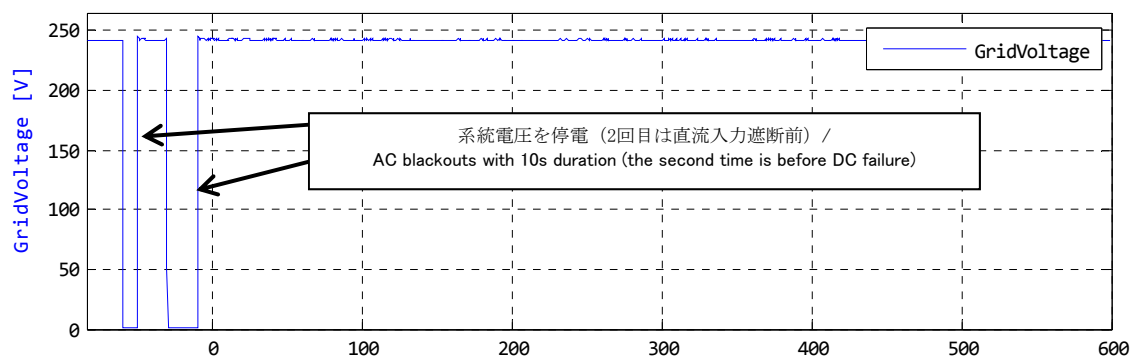
The grid voltage recovers.

- ・直流入力を再投入する。

Enable DC-input again.

・制御電源に直流出力電力を使用しているものにあつては直流入力が再投入された後、制御電源に商用電源を使用しているものにあつては系統電圧が復電した後、再度再並列阻止時間を計測すること。

Measure the “reconnection blocking time” after reeange of DC and AC.



| | | | |
|---------------------------------|------------------------------------|----------------------|------------|
| 4.3 | 運転力率試験/Operation power factor test | | |
| テスト者 / Validator: | Kleinsorge | テスト実施日 / Test date: | 2015年3月19日 |
| 公称出力電圧 / Nominal AC-voltage: | 420V / 440V | DC入力電圧 / DC-voltage: | 750V |
| 定格有効出力電力 / Rated active output: | 25 kW | | |
| 備考 / Remarks: | - | | |

テスト方法 / Test method:

出力電力を定格100%に設定し、力率を計測

Operate the power conditioner at nominal power and measure the power factor.

出力電力= 25 kW(50Hz) / Operating power = 25kW@50Hz

| 入力電圧 (V) | 出力電圧 (V) | 出力電流 (A) | 周波数 (Hz) | 力率 Power factor |
|-------------|-------------|-------------|-------------|--------------------|
| 750V | 420V | 34.37A | 50.00 | 1.00 |

出力電力= 25 kW(60Hz) / Operating power = 25kW@60Hz

| 入力電圧 (V) | 出力電圧 (V) | 出力電流 (A) | 周波数 (Hz) | 力率 Power factor |
|-------------|-------------|-------------|-------------|--------------------|
| 750V | 440V | 32.80A | 60.00 | 1.00 |

| | | | |
|---------------------------------|---|----------------------|------------|
| 4.4 | 出力高調波電流試験 / Higher harmonics test in output current | | |
| テスト者 / Validator: | Höhre | テスト実施日 / Test date: | 2015年3月06日 |
| 公称出力電圧 / Nominal AC-voltage: | 420V | DC入力電圧 / DC-voltage: | 750V |
| 定格有効出力電力 / Rated active output: | 25 kW | | |
| 備考 / Remarks: | - | | |

テスト方法 / Test method:

出力電力を定格100%に設定し、2～40次まで計測。総合歪率(DF)は以下の数式で表される。 / Operate the power conditioner at rated power (100%) and measure the DF_i by using following formular:

$$DF_i = \frac{\sqrt{I_{ACn}^2}}{I_{AC0}} * 100\% (A)$$

I_{ACn}: パワーコンディショナのn次高調波出力電流(A) / nth harmonic of output current (A)

I_{AC0}: パワーコンディショナの定格AC出力電流(A) / Rated output current of power conditioner (A)

n: 2～40次数 / number of harmonic

まとめデータ(50Hz) / Summary of data @50Hz

| 40 次までの総合歪率 Total distortion up to 40 th n | L1 | L2 | L3 | 基準(%) Criteria (%) | 判定 Result |
|--|-------|-------|-------|-----------------------|--------------|
| 定格 100% | 1.12% | 1.06% | 1.11% | 5%以下 / 5% | OK |
| | | | | | |

| 定格 100% | L1 | L2 | L3 | 基準(%) Criteria (%) | 判定 Result |
|----------------------------|-------|-------|-------|-----------------------|--------------|
| 最大値計測次数 Max value order | 5 | 5 | 5 | - | - |
| 計測値 Measurement value | 0.77% | 0.70% | 0.78% | 3%以下 / 3% | OK |

まとめデータ(60Hz) / Summary of data @60Hz

| 40 次までの総合歪率 Total distortion up to 40 th n | L1 | L2 | L3 | 基準(%) Criteria (%) | 判定 Result |
|--|-------|-------|-------|-----------------------|--------------|
| 定格 100% | 1.01% | 0.91% | 0.98% | 5%以下 / 5% | OK |

| 定格 100% | L1 | L2 | L3 | 基準(%) Criteria (%) | 判定 Result |
|----------------------------|-------|-------|-------|-----------------------|--------------|
| 最大値計測次数 Max value order | 5 | 5 | 5 | - | - |
| 計測値 Measurement value | 0.72% | 0.63% | 0.73% | 3%以下 / 3% | OK |

試験結果例（定格 100%時 @50Hz） / Example for higher harmonic test 100% of rated power@50Hz

| 次数 n th harmonic | 各相電流値 | | | 各相高調波(%) | | | 基準(%) Limit[%] | 判定 Result |
|--------------------------------|--------|--------|--------|----------|--------|--------|-------------------|--------------|
| | L1 [A] | L2 [A] | L3 [A] | L1 [%] | L2 [%] | L3 [%] | | |
| 2 | 0.061 | 0.052 | 0.039 | 0.18 | 0.15 | 0.12 | 3.00% | ok |
| 3 | 0.095 | 0.051 | 0.05 | 0.28 | 0.15 | 0.15 | 3.00% | ok |
| 4 | 0.026 | 0.028 | 0.029 | 0.08 | 0.08 | 0.09 | 3.00% | ok |
| 5 | 0.259 | 0.237 | 0.262 | 0.77 | 0.70 | 0.78 | 3.00% | ok |
| 6 | 0.018 | 0.019 | 0.019 | 0.05 | 0.06 | 0.06 | 3.00% | ok |
| 7 | 0.159 | 0.165 | 0.171 | 0.47 | 0.49 | 0.51 | 3.00% | ok |
| 8 | 0.018 | 0.018 | 0.019 | 0.05 | 0.05 | 0.06 | 3.00% | ok |
| 9 | 0.02 | 0.019 | 0.02 | 0.06 | 0.06 | 0.06 | 3.00% | ok |
| 10 | 0.016 | 0.016 | 0.016 | 0.05 | 0.05 | 0.05 | 3.00% | ok |
| 11 | 0.078 | 0.083 | 0.076 | 0.23 | 0.25 | 0.23 | 3.00% | ok |
| 12 | 0.014 | 0.015 | 0.014 | 0.04 | 0.04 | 0.04 | 3.00% | ok |
| 13 | 0.127 | 0.134 | 0.13 | 0.38 | 0.40 | 0.39 | 3.00% | ok |
| 14 | 0.014 | 0.014 | 0.014 | 0.04 | 0.04 | 0.04 | 3.00% | ok |
| 15 | 0.014 | 0.014 | 0.015 | 0.04 | 0.04 | 0.04 | 3.00% | ok |
| 16 | 0.012 | 0.013 | 0.013 | 0.04 | 0.04 | 0.04 | 3.00% | ok |
| 17 | 0.041 | 0.039 | 0.04 | 0.12 | 0.12 | 0.12 | 3.00% | ok |
| 18 | 0.01 | 0.011 | 0.011 | 0.03 | 0.03 | 0.03 | 3.00% | ok |
| 19 | 0.063 | 0.064 | 0.061 | 0.19 | 0.19 | 0.18 | 3.00% | ok |
| 20 | 0.01 | 0.01 | 0.01 | 0.03 | 0.03 | 0.03 | 3.00% | ok |
| 21 | 0.01 | 0.01 | 0.011 | 0.03 | 0.03 | 0.03 | 3.00% | ok |
| 22 | 0.008 | 0.008 | 0.008 | 0.02 | 0.02 | 0.02 | 3.00% | ok |
| 23 | 0.047 | 0.043 | 0.045 | 0.14 | 0.13 | 0.13 | 3.00% | ok |
| 24 | 0.007 | 0.008 | 0.008 | 0.02 | 0.02 | 0.02 | 3.00% | ok |
| 25 | 0.024 | 0.024 | 0.021 | 0.07 | 0.07 | 0.06 | 3.00% | ok |
| 26 | 0.007 | 0.007 | 0.007 | 0.02 | 0.02 | 0.02 | 3.00% | ok |
| 27 | 0.007 | 0.007 | 0.008 | 0.02 | 0.02 | 0.02 | 3.00% | ok |
| 28 | 0.006 | 0.007 | 0.007 | 0.02 | 0.02 | 0.02 | 3.00% | ok |
| 29 | 0.035 | 0.033 | 0.034 | 0.10 | 0.10 | 0.10 | 3.00% | ok |
| 30 | 0.006 | 0.006 | 0.006 | 0.02 | 0.02 | 0.02 | 3.00% | ok |
| 31 | 0.011 | 0.011 | 0.009 | 0.03 | 0.03 | 0.03 | 3.00% | ok |
| 32 | 0.005 | 0.006 | 0.006 | 0.01 | 0.02 | 0.02 | 3.00% | ok |
| 33 | 0.006 | 0.006 | 0.006 | 0.02 | 0.02 | 0.02 | 3.00% | ok |
| 34 | 0.006 | 0.006 | 0.006 | 0.02 | 0.02 | 0.02 | 3.00% | ok |
| 35 | 0.022 | 0.02 | 0.022 | 0.07 | 0.06 | 0.07 | 3.00% | ok |
| 36 | 0.005 | 0.005 | 0.005 | 0.01 | 0.01 | 0.01 | 3.00% | ok |
| 37 | 0.015 | 0.016 | 0.015 | 0.04 | 0.05 | 0.04 | 3.00% | ok |
| 38 | 0.006 | 0.006 | 0.006 | 0.02 | 0.02 | 0.02 | 3.00% | ok |
| 39 | 0.008 | 0.007 | 0.008 | 0.02 | 0.02 | 0.02 | 3.00% | ok |
| 40 | 0.006 | 0.006 | 0.006 | 0.02 | 0.02 | 0.02 | 3.00% | ok |

| | | | | | |
|-----------------|-------|-------|-------|-------|----|
| 総合歪率 DFi [%] | 1.12% | 1.06% | 1.11% | 5.00% | ok |
|-----------------|-------|-------|-------|-------|----|

試験結果例（定格 100%時 @60Hz） / Example for higher harmonic test 100% of rated power@60Hz

| 次数 n th harmonic | 各相電流値 | | | 各相高調波(%) | | | 基準(%) Limit[%] | 判定 Result |
|--------------------------------|--------|--------|--------|----------|--------|--------|-------------------|--------------|
| | L1 [A] | L2 [A] | L3 [A] | L1 [%] | L2 [%] | L3 [%] | | |
| 2 | 0.028 | 0.035 | 0.036 | 0.09 | 0.11 | 0.11 | 3.00% | ok |
| 3 | 0.125 | 0.051 | 0.069 | 0.39 | 0.16 | 0.21 | 3.00% | ok |
| 4 | 0.025 | 0.026 | 0.025 | 0.08 | 0.08 | 0.08 | 3.00% | ok |
| 5 | 0.231 | 0.203 | 0.234 | 0.72 | 0.63 | 0.73 | 3.00% | ok |
| 6 | 0.021 | 0.022 | 0.022 | 0.07 | 0.07 | 0.07 | 3.00% | ok |
| 7 | 0.113 | 0.125 | 0.122 | 0.35 | 0.39 | 0.38 | 3.00% | ok |
| 8 | 0.016 | 0.016 | 0.017 | 0.05 | 0.05 | 0.05 | 3.00% | ok |
| 9 | 0.019 | 0.016 | 0.015 | 0.06 | 0.05 | 0.05 | 3.00% | ok |
| 10 | 0.015 | 0.014 | 0.014 | 0.05 | 0.04 | 0.04 | 3.00% | ok |
| 11 | 0.084 | 0.083 | 0.081 | 0.26 | 0.26 | 0.25 | 3.00% | ok |
| 12 | 0.012 | 0.012 | 0.012 | 0.04 | 0.04 | 0.04 | 3.00% | ok |
| 13 | 0.063 | 0.066 | 0.065 | 0.20 | 0.20 | 0.20 | 3.00% | ok |
| 14 | 0.012 | 0.012 | 0.012 | 0.04 | 0.04 | 0.04 | 3.00% | ok |
| 15 | 0.012 | 0.01 | 0.012 | 0.04 | 0.03 | 0.04 | 3.00% | ok |
| 16 | 0.01 | 0.01 | 0.01 | 0.03 | 0.03 | 0.03 | 3.00% | ok |
| 17 | 0.028 | 0.028 | 0.028 | 0.09 | 0.09 | 0.09 | 3.00% | ok |
| 18 | 0.008 | 0.008 | 0.008 | 0.02 | 0.02 | 0.02 | 3.00% | ok |
| 19 | 0.049 | 0.052 | 0.052 | 0.15 | 0.16 | 0.16 | 3.00% | ok |
| 20 | 0.007 | 0.008 | 0.008 | 0.02 | 0.02 | 0.02 | 3.00% | ok |
| 21 | 0.007 | 0.007 | 0.009 | 0.02 | 0.02 | 0.03 | 3.00% | ok |
| 22 | 0.007 | 0.007 | 0.007 | 0.02 | 0.02 | 0.02 | 3.00% | ok |
| 23 | 0.015 | 0.016 | 0.016 | 0.05 | 0.05 | 0.05 | 3.00% | ok |
| 24 | 0.006 | 0.006 | 0.006 | 0.02 | 0.02 | 0.02 | 3.00% | ok |
| 25 | 0.039 | 0.043 | 0.041 | 0.12 | 0.13 | 0.13 | 3.00% | ok |
| 26 | 0.006 | 0.006 | 0.006 | 0.02 | 0.02 | 0.02 | 3.00% | ok |
| 27 | 0.006 | 0.005 | 0.008 | 0.02 | 0.02 | 0.02 | 3.00% | ok |
| 28 | 0.006 | 0.007 | 0.007 | 0.02 | 0.02 | 0.02 | 3.00% | ok |
| 29 | 0.013 | 0.014 | 0.019 | 0.04 | 0.04 | 0.06 | 3.00% | ok |
| 30 | 0.005 | 0.006 | 0.005 | 0.02 | 0.02 | 0.02 | 3.00% | ok |
| 31 | 0.049 | 0.054 | 0.052 | 0.15 | 0.17 | 0.16 | 3.00% | ok |
| 32 | 0.006 | 0.006 | 0.006 | 0.02 | 0.02 | 0.02 | 3.00% | ok |
| 33 | 0.014 | 0.014 | 0.021 | 0.04 | 0.04 | 0.07 | 3.00% | ok |
| 34 | 0.007 | 0.008 | 0.008 | 0.02 | 0.02 | 0.02 | 3.00% | ok |
| 35 | 0.034 | 0.039 | 0.04 | 0.11 | 0.12 | 0.12 | 3.00% | ok |
| 36 | 0.006 | 0.006 | 0.006 | 0.02 | 0.02 | 0.02 | 3.00% | ok |
| 37 | 0.023 | 0.021 | 0.011 | 0.07 | 0.07 | 0.03 | 3.00% | ok |
| 38 | 0.007 | 0.008 | 0.008 | 0.02 | 0.02 | 0.02 | 3.00% | ok |
| 39 | 0.005 | 0.004 | 0.004 | 0.02 | 0.01 | 0.01 | 3.00% | ok |
| 40 | 0.004 | 0.004 | 0.005 | 0.01 | 0.01 | 0.02 | 3.00% | ok |

| | | | | | |
|-----------------|-------|-------|-------|-------|----|
| 総合歪率 DFi [%] | 1.01% | 0.91% | 0.98% | 5.00% | ok |
|-----------------|-------|-------|-------|-------|----|

| | | | |
|---------------------------------|--|----------------------|-------------|
| 4.5 | 漏洩電流試験/ Leakage current test | | |
| テスト者 / Validator: | Guenter Kleinsorge | テスト実施日 / Test date: | 2015年01月27日 |
| 公称出力電圧 / Nominal AC-voltage: | 420/440V | DC入力電圧 / DC-voltage: | 970V |
| 定格有効出力電力 / Rated active output: | 25 kW | | |
| 備考 / Remarks: | 通常人体に触れることのない充電部は参考値として掲載。 JET通則は低圧連系用200V出力のパワコンが対象のため、400V出力の判定基準はないが、400Vを200Vに換算すると、JET判定基準である「フィルタ回路の端子電圧が5V以下であること」を満たしている。 | | |

420VAC/50Hz-スター結線 中性点接地/ 420VAC/50Hz – star center ground connection

| | 漏洩電流 (420V) | 端子間電圧(420V) | 端子間電圧(200V換算) |
|------------|-------------|-------------|---------------|
| 1 – L1 | 19.9mA | 19.9V | 9.48V |
| 2 – L2 | 20.0A | 20.0V | 9.52V |
| 3 – L3 | 20.1mA | 20.1V | 9.57V |
| 4 – Ground | 8.06mA | 8.06V | 3.83V |

440VAC/60Hz-スター結線 中性点接地/ 440VAC/60Hz – star center ground connection

| | 漏洩電流 (420V) | 端子間電圧(420V) | 端子間電圧(200V換算) |
|------------|-------------|-------------|---------------|
| 1 – L1 | 29.3 mA | 29.3V | 13.31V |
| 2 – L2 | 30.0 mA | 30.0V | 13.64V |
| 3 – L3 | 29.0 mA | 29.0V | 13.18V |
| 4 – Ground | 8.06mA | 8.06V | 3.66V |

| | | | |
|---------------------------------|---|----------------------|------------|
| 4.6 | 電圧上昇抑制機能試験/Suppression function test against voltage-rise | | |
| テスト者 / Validator: | Andreas Kleinheinz | テスト実施日 / Test date: | 2015年3月26日 |
| 公称出力電圧 / Nominal AC-voltage: | 420V / 440V | DC入力電圧 / DC-voltage: | 750V |
| 定格有効出力電力 / Rated active output: | 25 kW | | |
| 備考 / Remarks: | | | |

試験 1. 無効電力制御 検出レベル 462V/50Hz / Reactive method, detection level = 462V/50Hz

Phase L1

| 交流電源電圧 Grid Voltage | PCS 出力電圧 PCS output voltage | 出力 Effective Power | 力率 Power faktor | 判定 Result |
|---------------------|-----------------------------|--------------------|-----------------|-----------|
| 447.30 | 459.13 | 25175.73 | 1.00 | OK |
| 449.40 | 461.10 | 25165.14 | 1.00 | OK |
| 453.60 | 462.84 | 23073.02 | 0.91 | OK |
| 455.70 | 463.70 | 21456.41 | 0.85 | OK |
| 457.80 | 465.95 | 21476.79 | 0.85 | OK |

Phase L2

| 交流電源電圧 Grid Voltage | PCS 出力電圧 PCS output voltage | 出力 Effective Power | 力率 Power faktor | 判定 Result |
|---------------------|-----------------------------|--------------------|-----------------|-----------|
| 447.30 | 458.80 | 25210.05 | 1.00 | OK |
| 449.40 | 460.96 | 25185.89 | 1.00 | OK |
| 453.60 | 463.20 | 23800.91 | 0.94 | OK |
| 455.70 | 463.49 | 21454.95 | 0.85 | OK |
| 457.80 | 465.64 | 21470.93 | 0.85 | OK |

Phase L3

| 交流電源電圧 Grid Voltage | PCS 出力電圧 PCS output voltage | 出力 Effective Power | 力率 Power faktor | 判定 Result |
|---------------------|-----------------------------|--------------------|-----------------|-----------|
| 447.30 | 458.51 | 25181.49 | 1.00 | OK |
| 449.40 | 460.76 | 25174.20 | 1.00 | OK |
| 453.60 | 463.35 | 24129.70 | 0.96 | OK |
| 455.70 | 463.14 | 21478.45 | 0.85 | OK |
| 457.80 | 465.22 | 21476.41 | 0.85 | OK |

試験 2. 有効電力制御 検出レベル 468V / Active method, detection level = 468V
Phase L1

| 交流電源電圧 Grid Voltage | PCS 出力電圧 PCS output voltage | 出力 Effective Power | 力率 Power faktor | 判定 Result |
|---------------------|-----------------------------|--------------------|-----------------|-----------|
| 447.30 | 459.05 | 25209.05 | 1.00 | OK |
| 449.40 | 461.22 | 25199.29 | 1.00 | OK |
| 453.60 | 465.30 | 25166.64 | 1.00 | OK |
| 455.70 | 467.08 | 24154.21 | 1.00 | OK |
| 457.80 | 467.27 | 19571.20 | 1.00 | OK |
| 459.90 | 467.01 | 14828.90 | 1.00 | OK |
| 461.99 | 466.96 | 10216.88 | 1.00 | OK |
| 464.09 | 466.91 | 5644.61 | 1.00 | OK |
| 466.19 | 467.01 | 1075.91 | 1.00 | OK |
| 468.29 | 468.47 | 134.14 | 0.95 | OK |

Phase L2

| 交流電源電圧 Grid Voltage | PCS 出力電圧 PCS output voltage | 出力 Effective Power | 力率 Power faktor | 判定 Result |
|---------------------|-----------------------------|--------------------|-----------------|-----------|
| 447.30 | 458.94 | 25186.60 | 1.00 | OK |
| 449.40 | 461.12 | 25194.63 | 1.00 | OK |
| 453.60 | 465.01 | 25164.77 | 1.00 | OK |
| 455.70 | 467.27 | 25178.46 | 1.00 | OK |
| 457.80 | 467.30 | 20890.14 | 1.00 | OK |
| 459.90 | 467.36 | 16271.96 | 1.00 | OK |
| 461.99 | 467.39 | 11618.92 | 1.00 | OK |
| 464.09 | 467.38 | 7207.51 | 1.00 | OK |
| 466.19 | 467.14 | 2432.85 | 1.00 | OK |
| 468.29 | 468.42 | 134.46 | 0.96 | OK |

Phase L3

| 交流電源電圧 Grid Voltage | PCS 出力電圧 PCS output voltage | 出力 Effective Power | 力率 Power faktor | 判定 Result |
|------------------------|--------------------------------|-----------------------|--------------------|--------------|
| 447.30 | 458.62 | 25192.55 | 1.00 | OK |
| 449.40 | 460.78 | 25199.36 | 1.00 | OK |
| 453.60 | 464.77 | 25196.42 | 1.00 | OK |
| 455.70 | 467.18 | 25159.49 | 1.00 | OK |
| 457.80 | 467.60 | 21571.41 | 1.00 | OK |
| 459.90 | 467.59 | 16957.70 | 1.00 | OK |
| 461.99 | 467.44 | 12228.46 | 1.00 | OK |
| 464.09 | 467.48 | 7806.64 | 1.00 | OK |
| 466.19 | 467.46 | 3081.19 | 1.00 | OK |
| 468.29 | 468.15 | 137.14 | 0.95 | OK |

試験 1. 無効電力制御 検出レベル 484V/60Hz / Reactive method, detection level = 484V/60Hz

Phase L1

| 交流電源電圧 Grid Voltage | PCS 出力電圧 PCS output voltage | 出力 Effective Power | 力率 Power faktor | 判定 Result |
|---------------------|-----------------------------|--------------------|-----------------|-----------|
| 468.60 | 480.08 | 25211.88 | 1.00 | OK |
| 470.80 | 482.22 | 25225.40 | 1.00 | OK |
| 475.20 | 484.84 | 24168.16 | 0.96 | OK |
| 477.40 | 484.70 | 21521.52 | 0.85 | OK |
| 479.60 | 486.96 | 21525.06 | 0.85 | OK |

Phase L2

| 交流電源電圧 Grid Voltage | PCS 出力電圧 PCS output voltage | 出力 Effective Power | 力率 Power faktor | 判定 Result |
|---------------------|-----------------------------|--------------------|-----------------|-----------|
| 468.60 | 479.66 | 25237.18 | 1.00 | OK |
| 470.80 | 481.93 | 25229.30 | 1.00 | OK |
| 475.20 | 484.94 | 24597.83 | 0.97 | OK |
| 477.40 | 484.81 | 22055.39 | 0.87 | OK |
| 479.60 | 486.64 | 21544.04 | 0.85 | OK |

Phase L3

| 交流電源電圧 Grid Voltage | PCS 出力電圧 PCS output voltage | 出力 Effective Power | 力率 Power faktor | 判定 Result |
|---------------------|-----------------------------|--------------------|-----------------|-----------|
| 468.60 | 479.35 | 25225.79 | 1.00 | OK |
| 470.80 | 481.73 | 25217.68 | 1.00 | OK |
| 475.20 | 485.03 | 24789.12 | 0.98 | OK |
| 477.40 | 485.05 | 22555.12 | 0.89 | OK |
| 479.60 | 486.36 | 21515.75 | 0.85 | OK |

試験 2. 有効電力制御 検出レベル 490V / Active method, detection level = 490V

Phase L1

| 交流電源電圧 Grid Voltage | PCS 出力電圧 PCS output voltage | 出力 Effective Power | 力率 Power faktor | 判定 Result |
|---------------------|-----------------------------|--------------------|-----------------|-----------|
| 468.60 | 480.07 | 25255.30 | 1.00 | OK |
| 470.80 | 482.27 | 25239.16 | 1.00 | OK |
| 475.20 | 486.60 | 25232.96 | 1.00 | OK |
| 477.40 | 488.69 | 25202.48 | 1.00 | OK |
| 479.60 | 489.11 | 20717.82 | 1.00 | OK |
| 481.80 | 489.00 | 15634.07 | 1.00 | OK |
| 483.99 | 489.05 | 10618.65 | 1.00 | OK |
| 486.19 | 488.95 | 5531.52 | 1.00 | OK |
| 488.39 | 488.97 | 649.06 | 1.00 | OK |
| 490.59 | 490.74 | 130.41 | 0.89 | OK |

Phase L2

| 交流電源電圧 Grid Voltage | PCS 出力電圧 PCS output voltage | 出力 Effective Power | 力率 Power faktor | 判定 Result |
|---------------------|-----------------------------|--------------------|-----------------|-----------|
| 468.60 | 479.74 | 25214.33 | 1.00 | OK |
| 470.80 | 481.92 | 25230.95 | 1.00 | OK |
| 475.20 | 486.31 | 25235.68 | 1.00 | OK |
| 477.40 | 488.46 | 25223.20 | 1.00 | OK |
| 479.60 | 489.44 | 22072.76 | 1.00 | OK |
| 481.80 | 489.30 | 16933.20 | 1.00 | OK |
| 483.99 | 489.34 | 11986.13 | 1.00 | OK |
| 486.19 | 489.34 | 7114.06 | 1.00 | OK |
| 488.39 | 489.23 | 2051.48 | 1.00 | OK |
| 490.59 | 490.66 | 131.28 | 0.90 | OK |

Phase L3

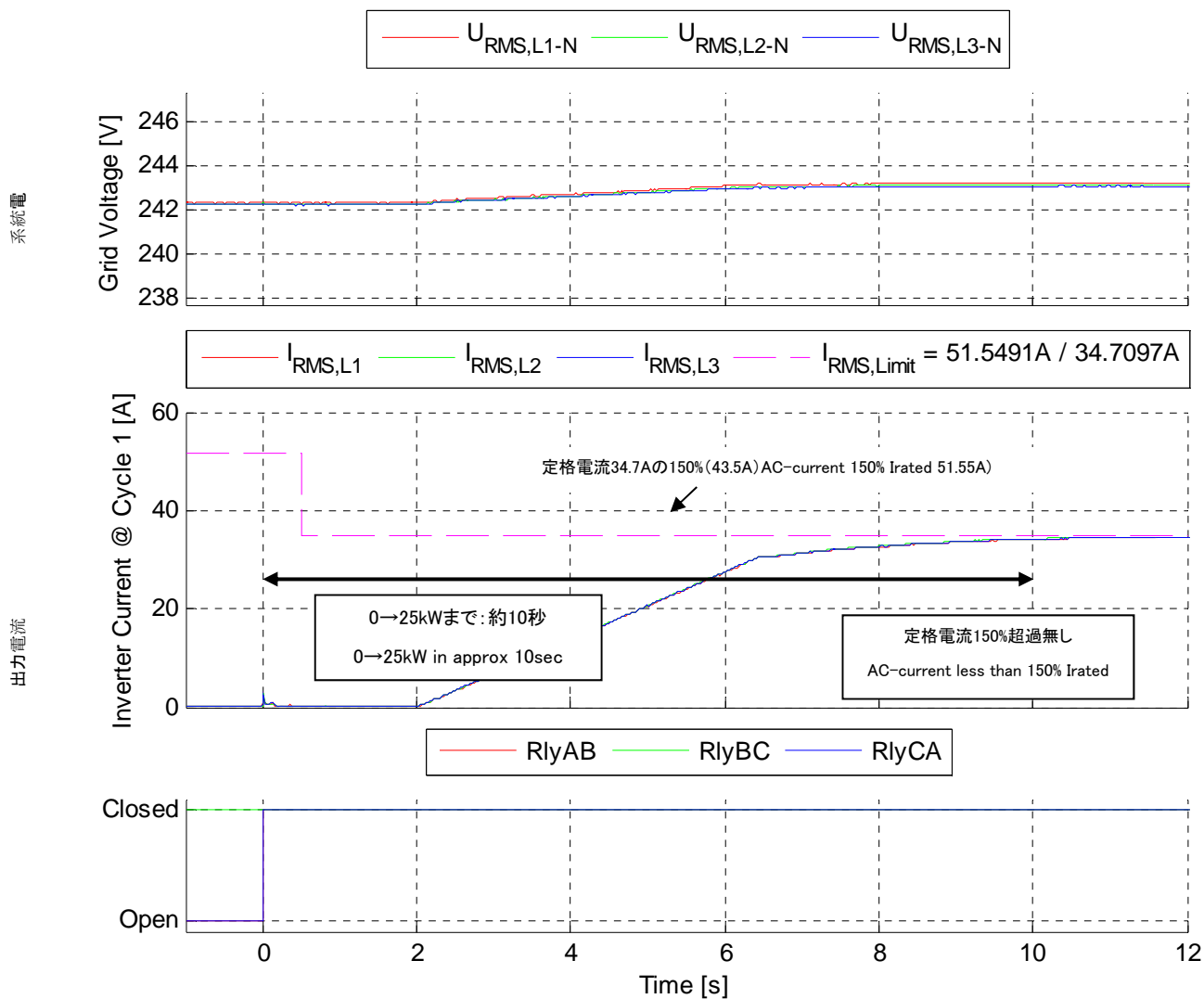
| 交流電源電圧 Grid Voltage | PCS 出力電圧 PCS output voltage | 出力 Effective Power | 力率 Power faktor | 判定 Result |
|---------------------|-----------------------------|--------------------|-----------------|-----------|
| 468.60 | 479.44 | 25219.44 | 1.00 | OK |
| 470.80 | 481.68 | 25235.20 | 1.00 | OK |
| 475.20 | 486.06 | 25226.20 | 1.00 | OK |
| 477.40 | 488.40 | 25234.26 | 1.00 | OK |
| 479.60 | 489.54 | 22903.36 | 1.00 | OK |
| 481.80 | 489.46 | 17899.37 | 1.00 | OK |
| 483.99 | 489.52 | 12832.16 | 1.00 | OK |
| 486.19 | 489.48 | 7865.70 | 1.00 | OK |
| 488.39 | 489.43 | 2742.85 | 1.00 | OK |
| 490.59 | 490.31 | 130.31 | 0.88 | OK |

| | | | |
|---------------------------------|--|----------------------|-----------|
| 4.8 | ソフトスタート機能試験/Soft-starting function test | | |
| テスト者 / Validator: | Höhre | テスト実施日 / Test date: | 2015年3月9日 |
| 公称出力電圧 / Nominal AC-voltage: | 420V | DC入力電圧 / DC-Voltage: | 650 |
| 定格有効出力電力 / Rated active output: | 25 kW | | |
| 備考 / Remarks: | 50Hzと60Hzで結果は同じ the result is the same at 50Hz or 60Hz | | |

| | | | |
|---------------|------------------|--------------------|--------------------------------|
| Device | STP 2500TL-JP-30 | Date / Temp./ Hum. | 08.Mar.2015 / 22.43°C / 37.95% |
| Serial | 1900704531 | Validator | Höhre |
| Sample Number | 08492 | TESYS-ID | TESYS11 / 3P.2.1b |
| SW-Version | 01.00.10.R | Standard | JET2013_SwitchOp |
| Grid Type | ThreePhase | Testpoint | SoftStartFunction50Hz: ok |

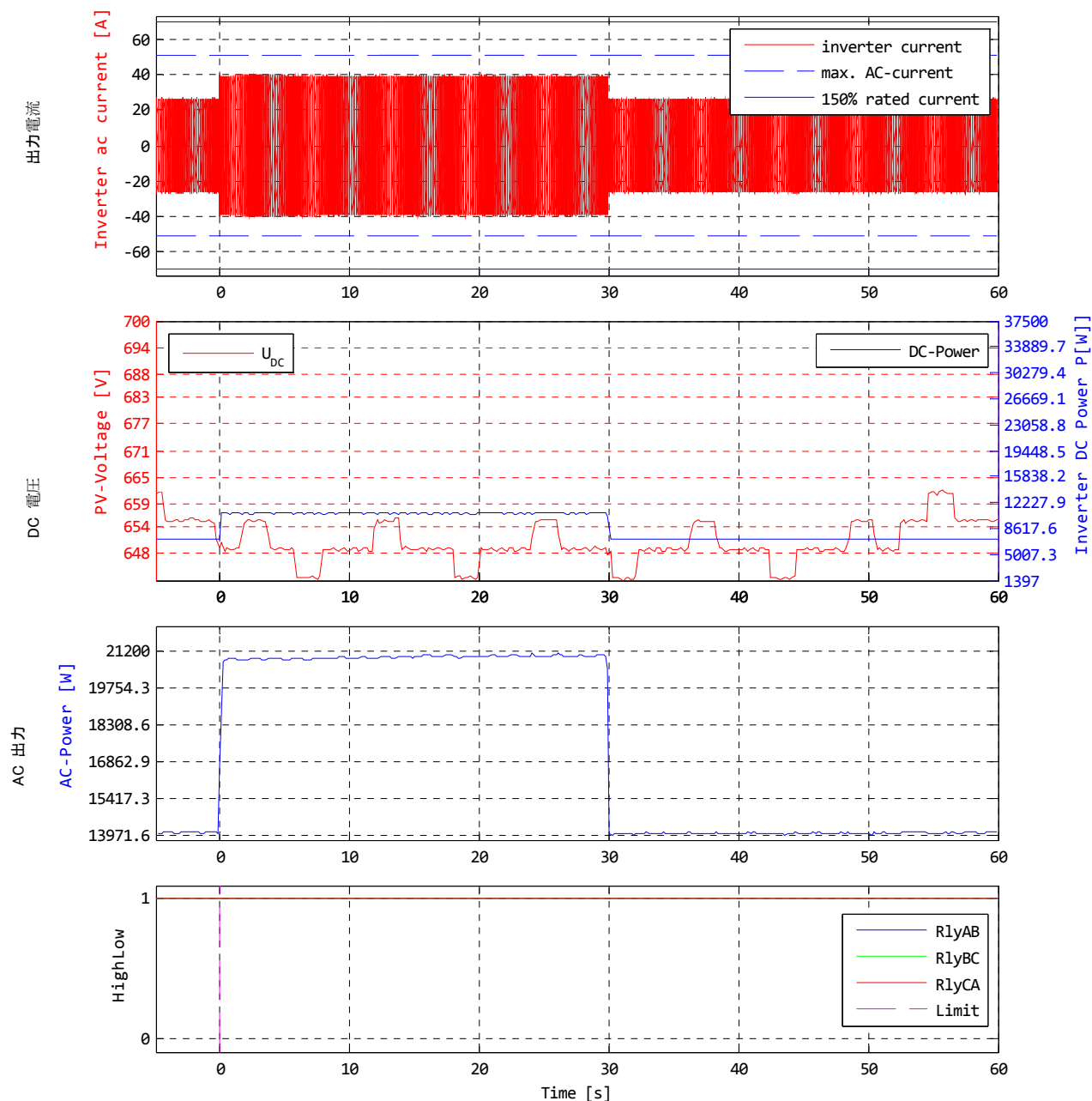
4.8 Soft-starting Function Test (50Hz)

MPP-Power : 100% = 25000W Grid Voltage: 242.5V Samplerate: 10kHz
MPP-Voltage: 650.0V Grid Frequency: 50.0Hz Cycle: 1/1



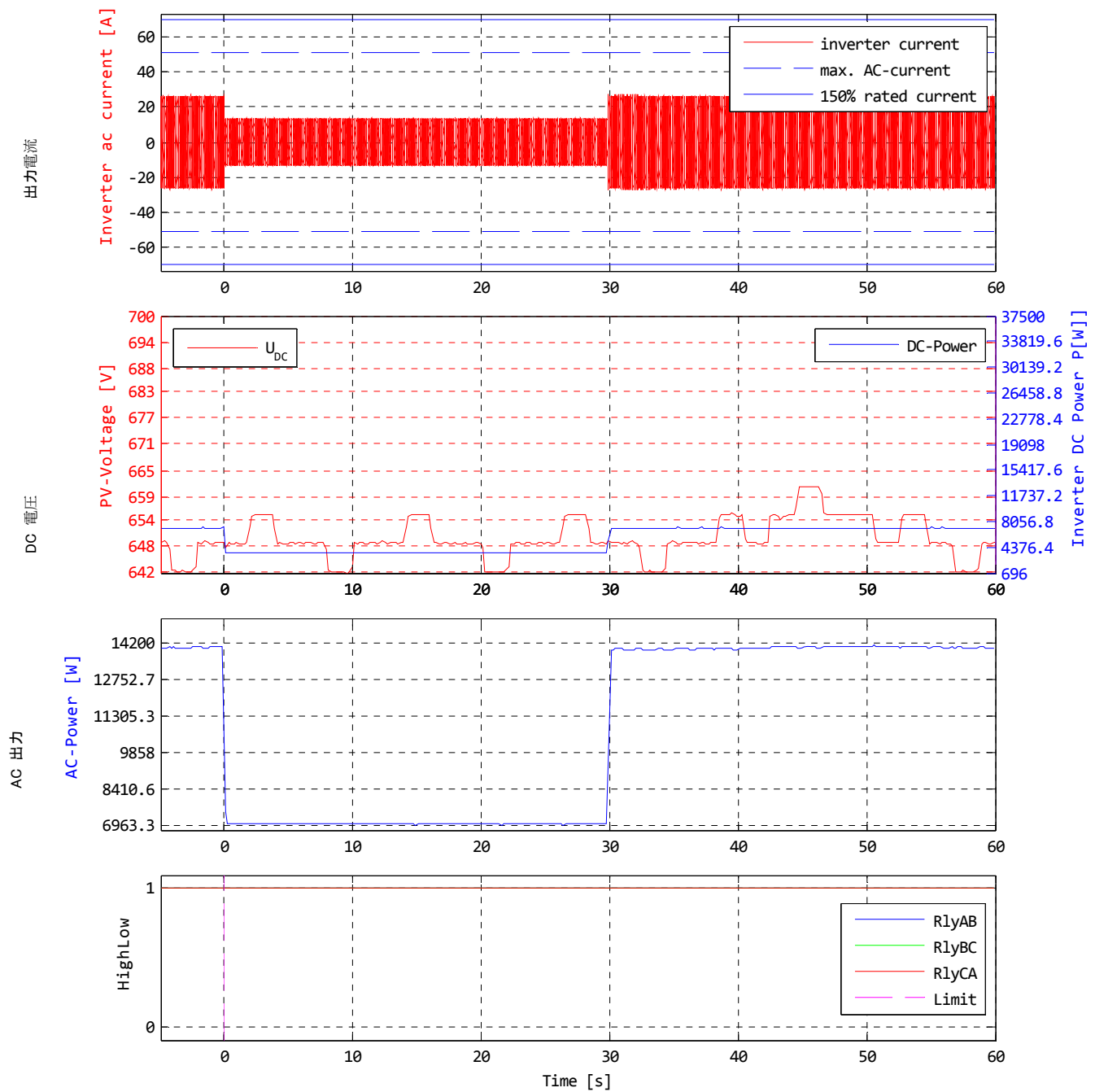
| | | | |
|---------------------------------|--|----------------------|------------|
| 5.1 | 入力電力急変試験(および負荷急変試験)/Sudden change of DC-input power | | |
| テスト者 / Validator: | Höhre | テスト実施日 / Test date: | 2014年2月11日 |
| 公称出力電圧 / Nominal AC-voltage: | 440V | DC入力電圧 / DC-voltage: | 650V |
| 定格有効出力電力 / Rated active output: | 25 kW | | |
| 備考 / Remarks: | 50Hzと60Hzで結果は同じ the result is the same at 50Hz or 60Hz | | |

AC 出力を 50%→75%→50%に急変/ AC output power change from 50% to 75% and 75% to 50%



「定格電流150%以下、100%を超える時間が0.5秒以内」に適合

AC 出力を 50%→25%→50%に急変 / AC output power change from 50% to 25% and 25% to 50%



「定格電流150%以下、100%を超える時間が0.5秒以内」に適合

| | | | |
|---------------------------------|--|----------------------|-------------|
| 6.3 | 瞬時電圧低下試験(FRT) /Fault Ride Through Test (FRT) according JEAC9701-2012 | | |
| テスト者 / Validator: | Höhre | テスト実施日 / Test date: | 2015年03月18日 |
| 公称出力電圧 / Nominal AC-voltage: | 420V/440V | DC入力電圧 / DC-voltage: | 700V MPP |
| 定格有効出力電力 / Rated active output: | 25 kW | | |
| 備考 / Remarks: | Test done according JEAC9701-2012z | | |

瞬時電圧低下試験(FRT-50Hz/420V)

Instantaneous voltage drop test – Voltage FRT according JEAC9701-2012 (50Hz/420V)

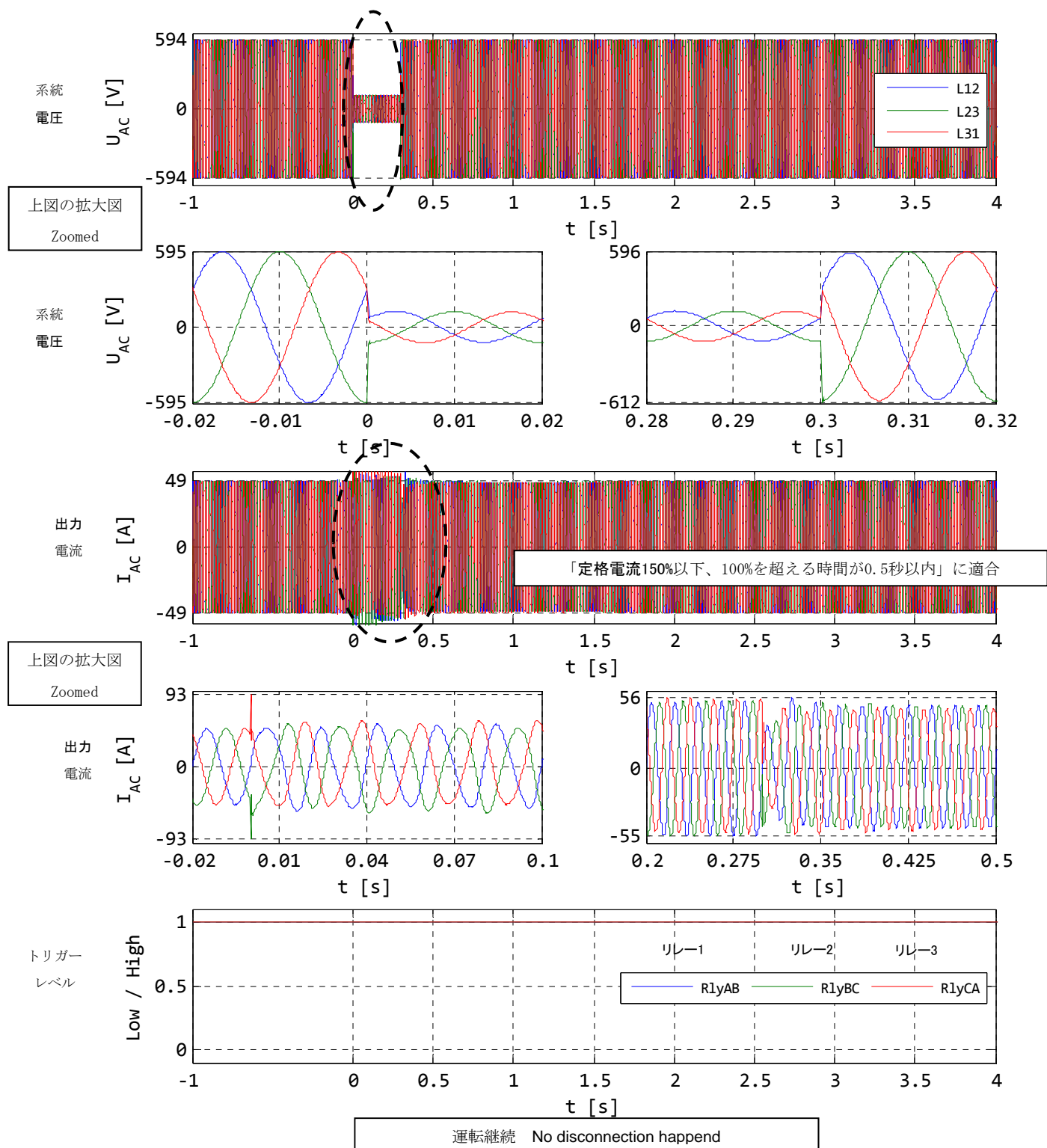
| 位相投入角 Closing phase angle | 瞬時電圧低下 Value of voltage drop | 運転再開時間判定基準 Criteria restart time | 80%出力復帰時間 80% recovery time | 判定 Result |
|------------------------------|--|-------------------------------------|---|--------------|
| 0° | 三相短絡 (残電圧20%) Three phase short-circuit (20%) | 0.1s以内 | 40.7 ms 運転継続 No gateblock or disconnection happened | OK |
| 45° | 三相短絡 (残電圧20%) Three phase short-circuit (20%) | 0.1s以内 | 24.3 ms 運転継続 | OK |
| 90° | 三相短絡 (残電圧20%) Three phase short-circuit (20%) | 0.1s以内 | 27.1 ms 運転継続 | OK |
| 0° | 三相短絡 (残電圧0%) Three phase short-circuit (0%) | 1s以内 | 94.6 ms | OK |
| 45° | 三相短絡 (残電圧0%) Three phase short-circuit (0%) | 1s以内 | 96.6 ms | OK |
| 90° | 三相短絡 (残電圧0%) Three phase short-circuit (0%) | 1s以内 | 86.6 ms | OK |
| 0° | 二相短絡 (Y結線側) Two Phase short-circuit Wye connection side | 0.1s以内 | 34.5 ms 運転継続 | OK |
| 45° | 二相短絡 (Y結線側) Two Phase short-circuit Wye connection side | 0.1s以内 | 22.0 ms 運転継続 | OK |
| 90° | 二相短絡 (Y結線側) Two Phase short-circuit Wye connection side | 0.1s以内 | 31.3 ms 運転継続 | OK |
| 0° | 二相短絡 (Δ結線側) Two Phase short-circuit Δ connection side | 0.1s以内 | 21.0 ms 運転継続 | OK |
| 45° | 二相短絡 (Δ結線側) Two Phase short-circuit Δ connection side | 0.1s以内 | 25.9 ms 運転継続 | OK |
| 90° | 二相短絡 (Δ結線側) Two Phase short-circuit Δ connection side | 0.1s以内 | 17.2 ms 運転継続 | OK |

試験結果例：0.3 秒の瞬時電圧低下（三相短絡 残電圧 20%）@50Hz/420VAC

Example of test item: FRT – Three phase short-circuit (20% remaining voltage)

| | | | |
|---------------|------------------|--------------------|--|
| Device | STP 2500TL-JP-30 | Date / Temp./ Hum. | 18.Mar.2015 / 23.35°C / 40.19% |
| Serial | 1900701684 | Validator | Kleinheinz |
| Sample Number | 08756 | TESYS-ID | TESYS10 / 3P.2.1b |
| SW-Version | 01.00.12.R | Scenario / Fault | JET502017VolDrop / 6-3-1-2-P100-K0/BDEW/0° |
| Grid Type | ThreePhase | Type of diagram | RawData / Page 1 of 3 |

RawData: UacD, UacDZoom, Iac, IacZoom, GridRelais

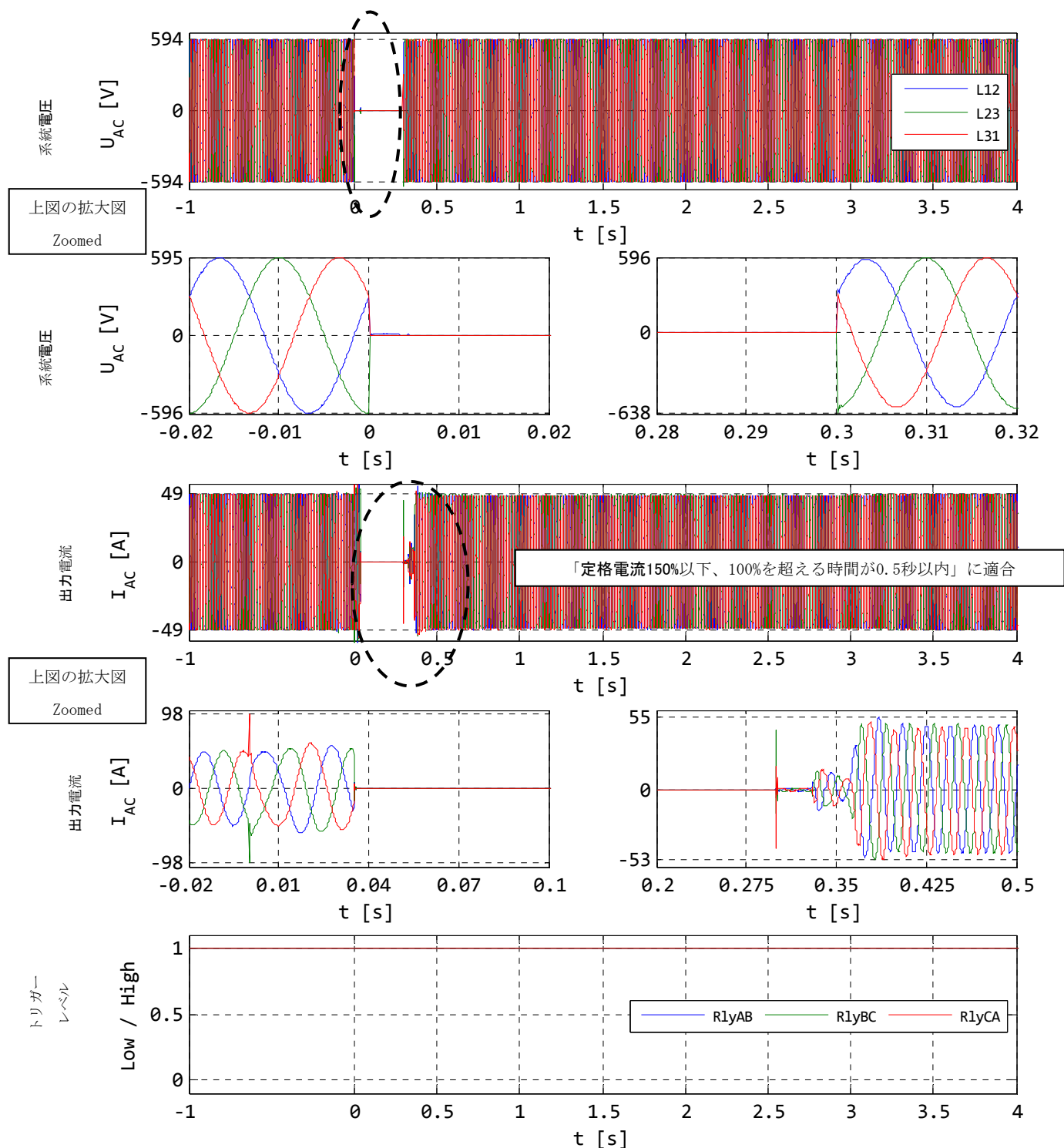


試験結果例：0.3 秒の瞬時電圧低下（三相短絡 残電圧 0%）@50Hz/420VAC

Example of test item: FRT – Three phase short-circuit (0% remaining voltage)

| | | | |
|---------------|------------------|--------------------|--|
| Device | STP 2500TL-JP-30 | Date / Temp./ Hum. | 18.Mar.2015 / 23.33°C / 38.57% |
| Serial | 1900701684 | Validator | Kleinheinz |
| Sample Number | 08756 | TESYS-ID | TESYS10 / 3P.2.1b |
| SW-Version | 01.00.12.R | Scenario / Fault | JET502017VolDrop / 6-3-1-4-P100-K0/BDEW/0° |
| Grid Type | ThreePhase | Type of diagram | RawData / Page 1 of 3 |

RawData: UacD, UacDZoom, Iac, IacZoom, GridRelais

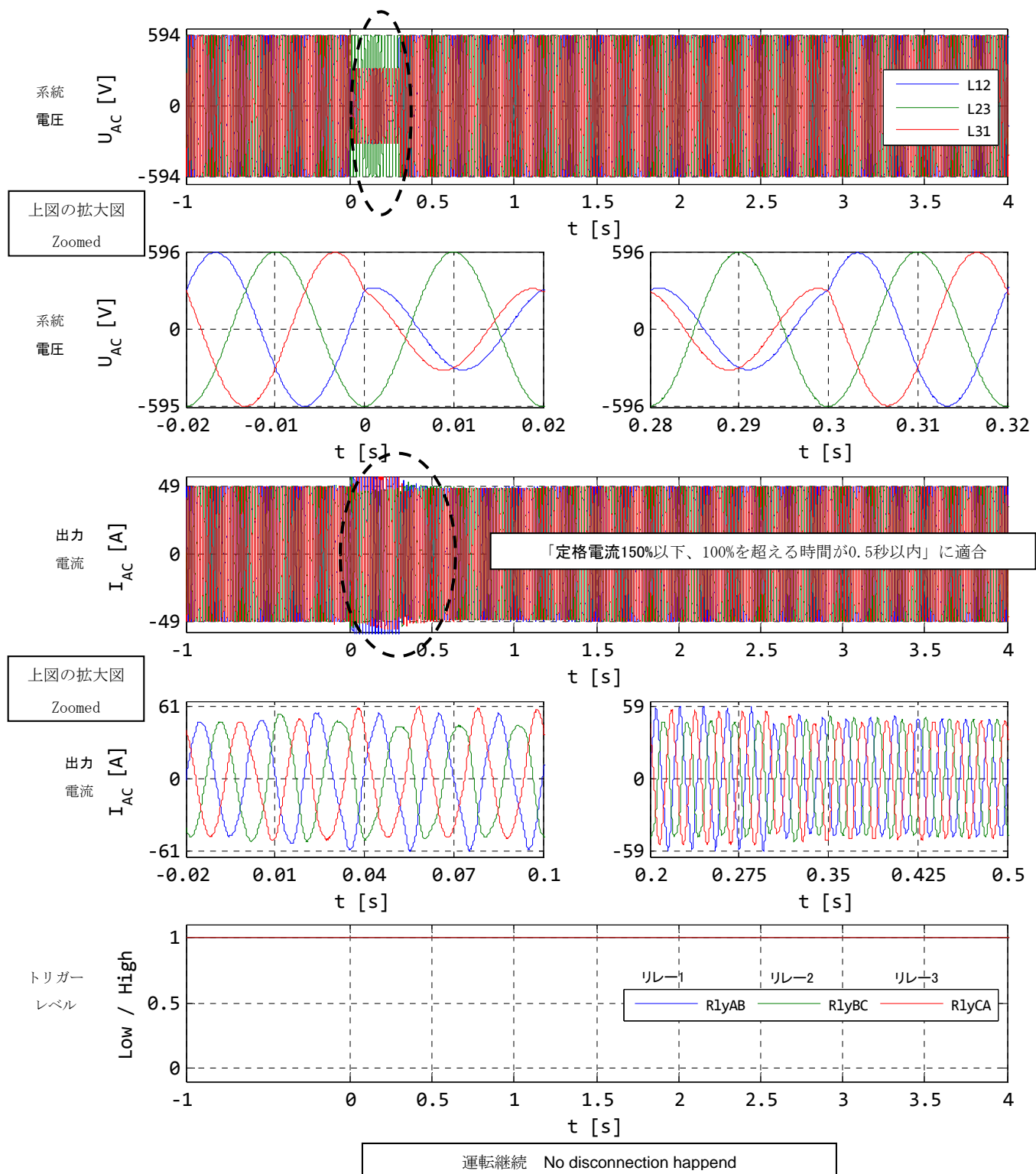


試験結果例：0.3 秒の瞬時電圧低下（二相短絡 Y 結線側）@50Hz/420VAC

Example of test item: FRT – Two Phase short-circuit Y connection side

| | | | |
|---------------|------------------|--------------------|---|
| Device | STP 2500TL-JP-30 | Date / Temp./ Hum. | 18.Mar.2015 / 23.39°C / 40.59% |
| Serial | 1900701684 | Validator | Kleinheinz |
| Sample Number | 08756 | TESYS-ID | TESYS10 / 3P.2.1b |
| SW-Version | 01.00.12.R | Scenario / Fault | JET502017VolDrop / 6-3-2-2a-P100-K0/BDEW/0° |
| Grid Type | ThreePhase | Type of diagram | RawData / Page 1 of 3 |

RawData: UacD, UacDZoom, Iac, IacZoom, GridRelais

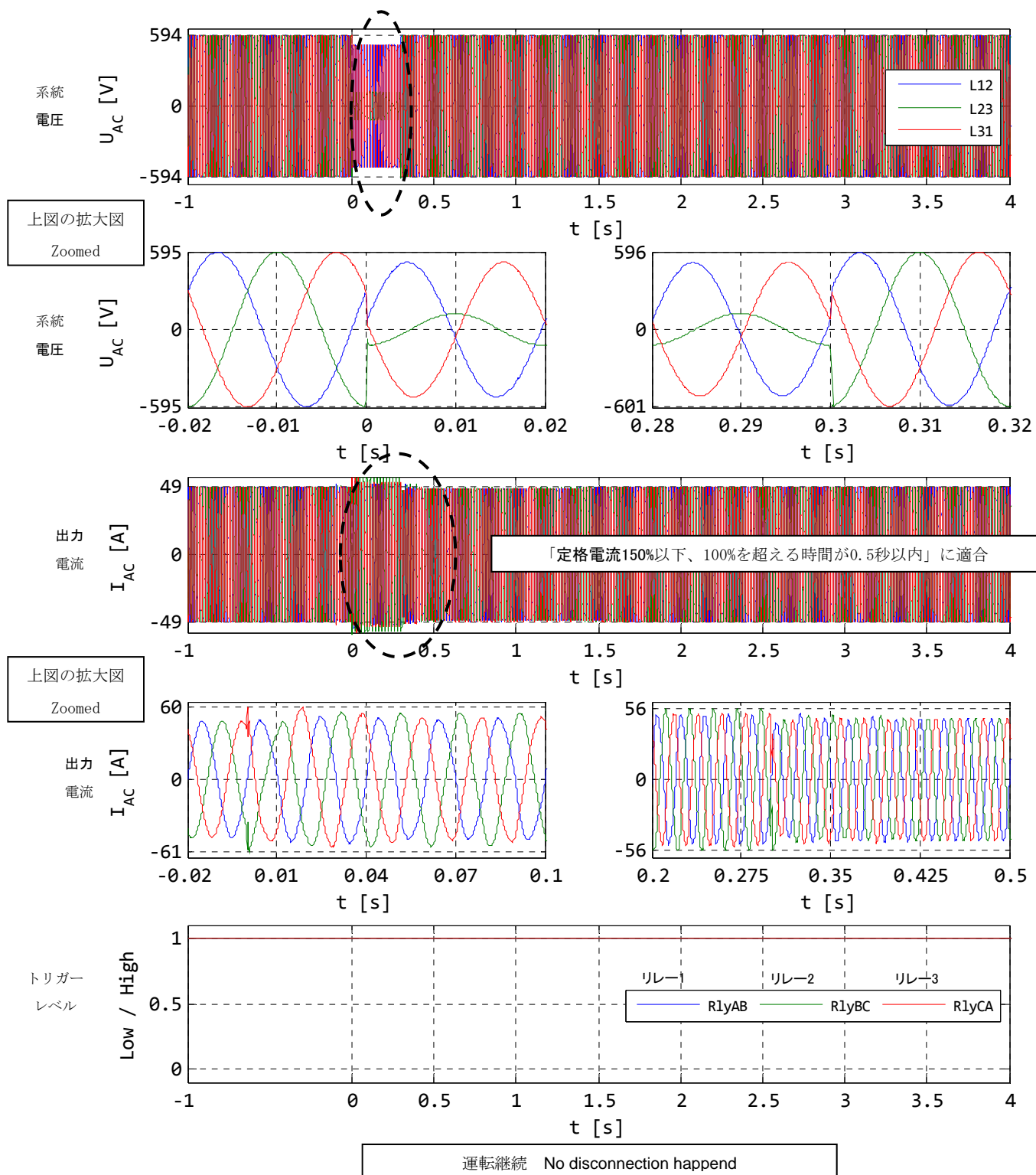


試験結果例：0.3 秒の瞬時電圧低下（二相短絡 Δ 結線側）@50Hz/420VAC

Example of test item: FRT – Two Phase short-circuit Δ connection side

| | | | |
|---------------|------------------|--------------------|---|
| Device | STP 2500TL-JP-30 | Date / Temp./ Hum. | 18.Mar.2015 / 23.52°C / 38.74% |
| Serial | 1900701684 | Validator | Kleinheinz |
| Sample Number | 08756 | TESYS-ID | TESYS10 / 3P.2.1b |
| SW-Version | 01.00.12.R | Scenario / Fault | JET502017VolDrop / 6-3-2-2b-P100-K0/BDEW/0° |
| Grid Type | ThreePhase | Type of diagram | RawData / Page 1 of 3 |

RawData: UacD, UacDZoom, Iac, IacZoom, GridRelais



瞬時電圧低下試験(FRT-50Hz/378V) – Instantaneous voltage drop test – Voltage FRT according JEAC9701-2012 (50Hz/378V)

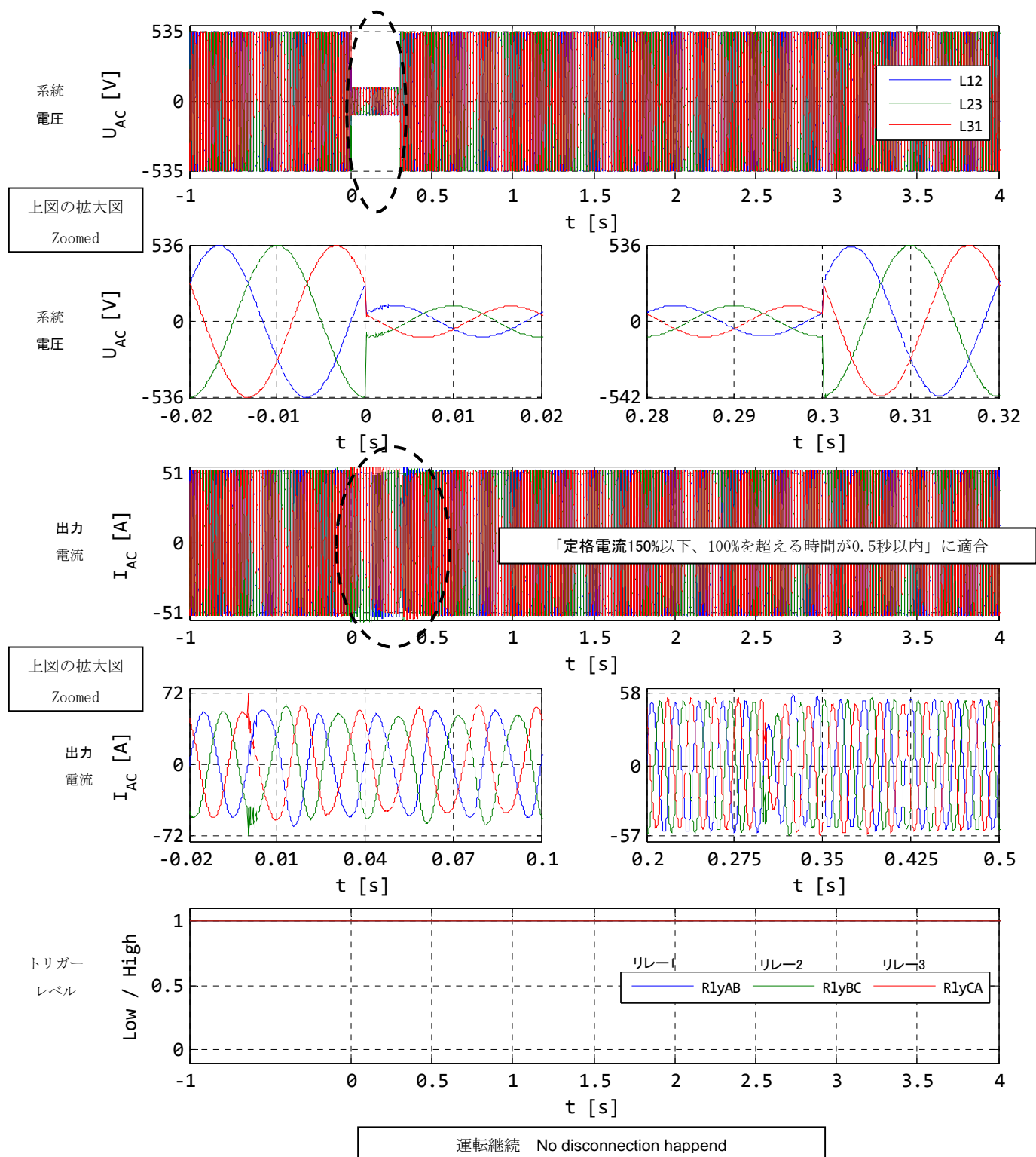
| 位相投入角 Closing phase angle | 瞬時電圧低下 Value of voltage drop | 運転再開時間判定基準 Criteria restart time | 80%出力復帰時間 80% recovery time | 判定 Result |
|------------------------------|--|-------------------------------------|--------------------------------|--------------|
| 0° | 三相短絡 (残電圧20%) Three phase short-circuit (20%) | 0.1s以内 | 28.6 ms 運転継続 | OK |
| 45° | 三相短絡 (残電圧20%) Three phase short-circuit (20%) | 0.1s以内 | 27.8 ms 運転継続 | OK |
| 90° | 三相短絡 (残電圧20%) Three phase short-circuit (20%) | 0.1s以内 | 36.9 ms 運転継続 | OK |
| 0° | 三相短絡 (残電圧0%) Three phase short-circuit (0%) | 1s以内 | 83.0 ms | OK |
| 45° | 三相短絡 (残電圧0%) Three phase short-circuit (0%) | 1s以内 | 103.9 ms | OK |
| 90° | 三相短絡 (残電圧0%) Three phase short-circuit (0%) | 1s以内 | 87.5 ms | OK |
| 0° | 二相短絡 (Y結線側) Two Phase short-circuit Wye connection side | 0.1s以内 | 34.0 ms 運転継続 | OK |
| 45° | 二相短絡 (Y結線側) Two Phase short-circuit Wye connection side | 0.1s以内 | 30.4 ms 運転継続 | OK |
| 90° | 二相短絡 (Y結線側) Two Phase short-circuit Wye connection side | 0.1s以内 | 29.3 ms 運転継続 | OK |
| 0° | 二相短絡 (Δ結線側) Two Phase short-circuit Δ connection side | 0.1s以内 | 25.0 ms 運転継続 | OK |
| 45° | 二相短絡 (Δ結線側) Two Phase short-circuit Δ connection side | 0.1s以内 | 38.2 ms 運転継続 | OK |
| 90° | 二相短絡 (Δ結線側) Two Phase short-circuit Δ connection side | 0.1s以内 | 31.1 ms 運転継続 | OK |

試験結果例：0.3 秒の瞬時電圧低下（三相短絡 残電圧 20%）@50Hz/378V

Example of test item: FRT – Three phase short-circuit (20% remaining voltage)

| | | | |
|---------------|------------------|--------------------|--|
| Device | STP 2500TL-JP-30 | Date / Temp./ Hum. | 18.Mar.2015 / 23.31°C / 38.72% |
| Serial | 1900701684 | Validator | Kleinheinz |
| Sample Number | 08756 | TESYS-ID | TESYS10 / 3P.2.1b |
| SW-Version | 01.00.12.R | Scenario / Fault | JET502017VolDrop90 / 6-3-1-2-P100-K0/BDEW/0° |
| Grid Type | ThreePhase | Type of diagram | RawData / Page 1 of 3 |

RawData: UacD, UacDZoom, Iac, IacZoom, GridRelais

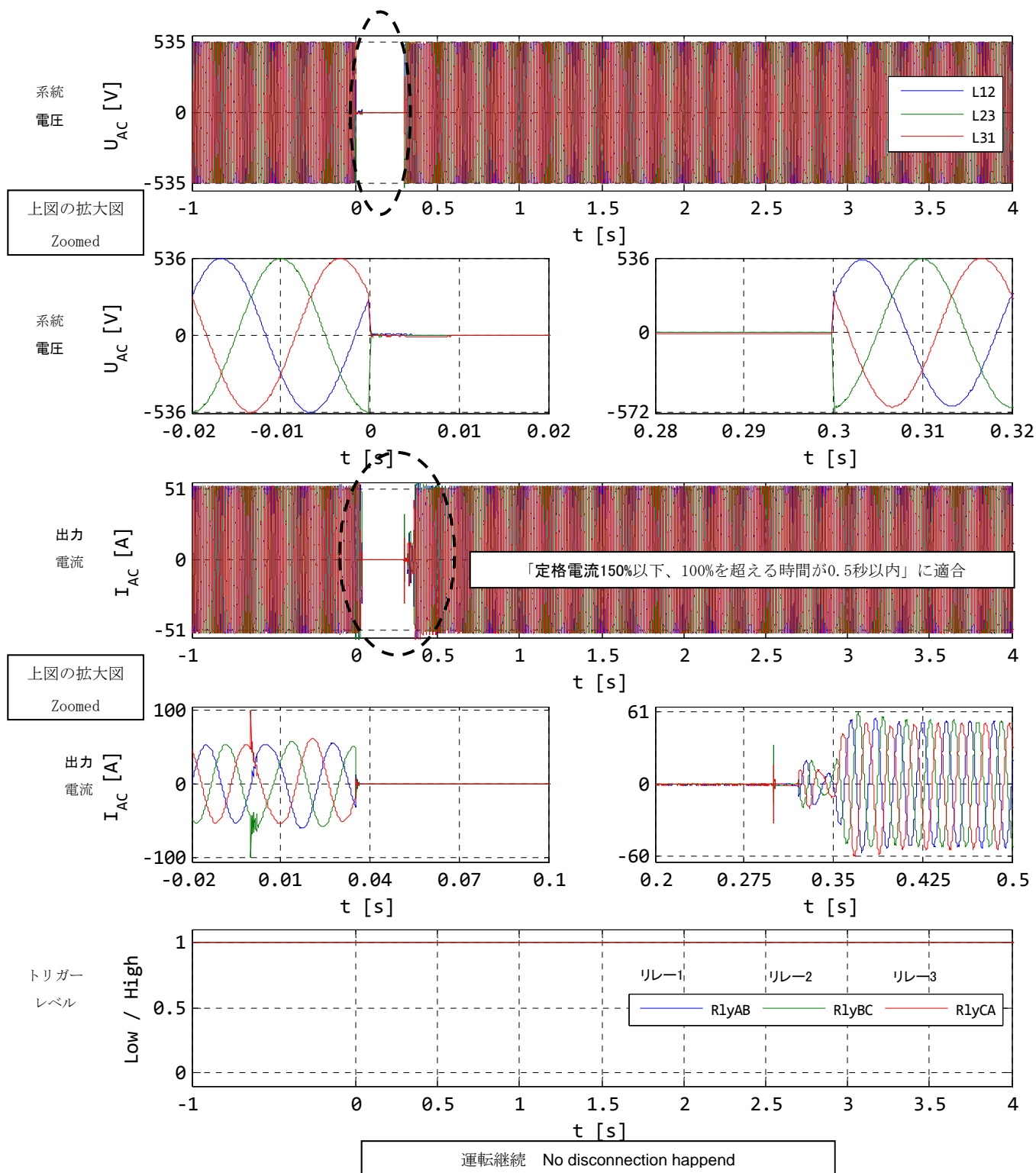


試験結果例：0.3 秒の瞬時電圧低下（三相短絡 残電圧 0%）@50Hz/378V

Example of test item: FRT – Three phase short-circuit (0% remaining voltage)

| | | | |
|---------------|-------------------|--------------------|--|
| Device | STP 25000TL-JP-30 | Date / Temp./ Hum. | 18.Mar.2015 / 23.31°C / 38.74% |
| Serial | 1900701684 | Validator | Kleinheinz |
| Sample Number | 08756 | TESYS-ID | TESYS10 / 3P.2.1b |
| SW-Version | 01.00.12.R | Scenario / Fault | JET502017VolDrop90 / 6-3-1-4-P100-K0/BDEW/0° |
| Grid Type | ThreePhase | Type of diagram | RawData / Page 1 of 3 |

RawData: UacD, UacDZoom, Iac, IacZoom, GridRelais

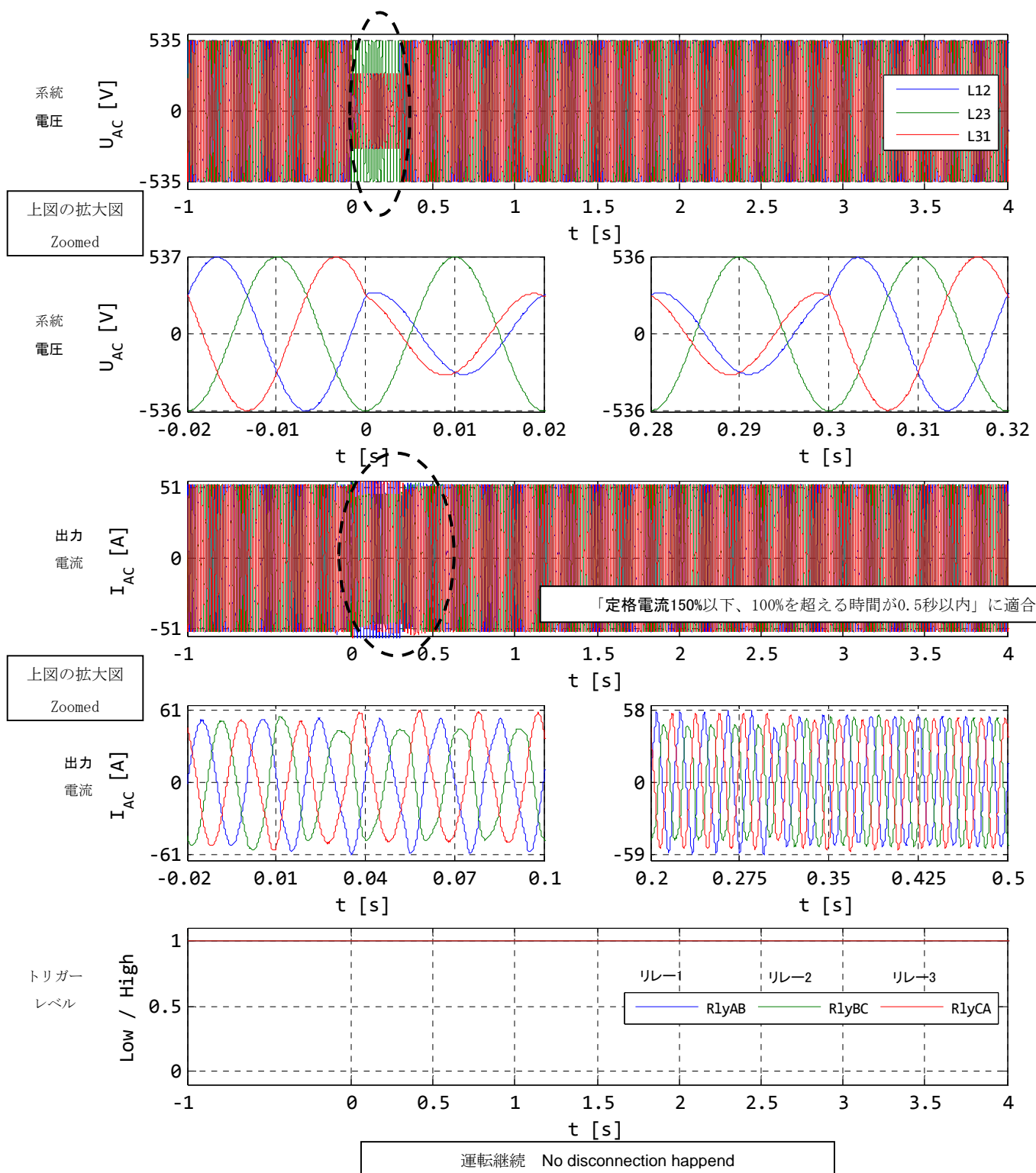


試験結果例：0.3 秒の瞬時電圧低下（二相短絡 Y 結線側）@50Hz/378V

Example of test item: FRT – Two Phase short-circuit Y connection side

| | | | |
|---------------|------------------|--------------------|---|
| Device | STP 2500TL-JP-30 | Date / Temp./ Hum. | 18.Mar.2015 / 23.36°C / 40.85% |
| Serial | 1900701684 | Validator | Kleinheinz |
| Sample Number | 08756 | TESYS-ID | TESYS10 / 3P.2.1b |
| SW-Version | 01.00.12.R | Scenario / Fault | JET502017VolDrop90 / 6-3-2-2a-P100-K0/BDEW/0° |
| Grid Type | ThreePhase | Type of diagram | RawData / Page 1 of 3 |

RawData: UacD, UacDZoom, Iac, IacZoom, GridRelais

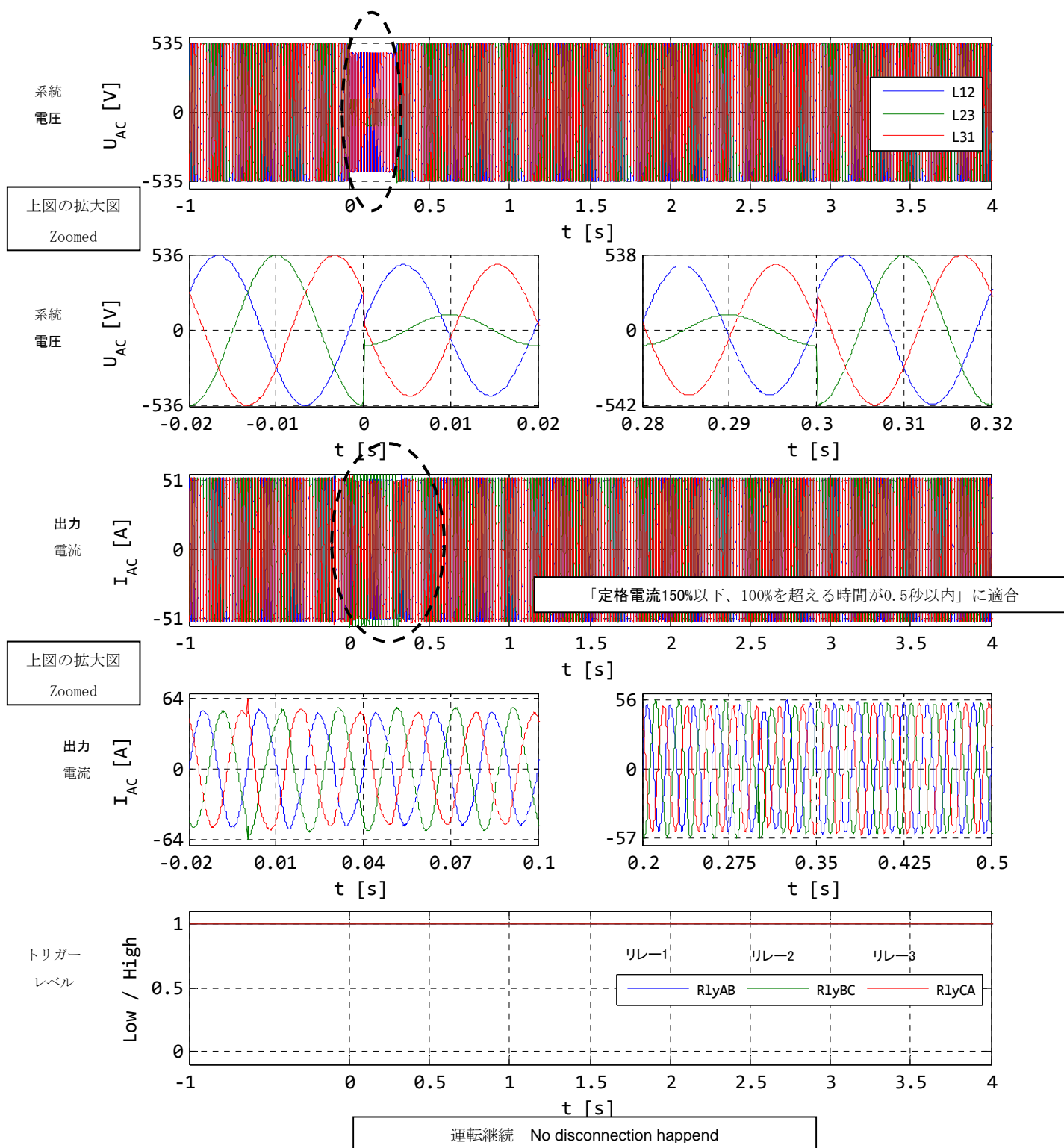


試験結果例：0.3 秒の瞬時電圧低下（二相短絡 Δ 結線側）@50Hz/378V

Example of test item: FRT – Two Phase short-circuit Δ connection side

| | | | |
|---------------|------------------|--------------------|---|
| Device | STP 2500TL-JP-30 | Date / Temp./ Hum. | 18.Mar.2015 / 23.43°C / 39.81% |
| Serial | 1900701684 | Validator | Kleinheinz |
| Sample Number | 08756 | TESYS-ID | TESYS10 / 3P.2.1b |
| SW-Version | 01.00.12.R | Scenario / Fault | JET502017VolDrop90 / 6-3-2-2b-P100-K0/BDEW/0° |
| Grid Type | ThreePhase | Type of diagram | RawData / Page 1 of 3 |

RawData: UacD, UacDZoom, Iac, IacZoom, GridRelais



瞬時電圧低下試験(FRT-50Hz/462V)

Instantaneous voltage drop test – Voltage FRT according JEAC9701-2012 (50Hz/462V)

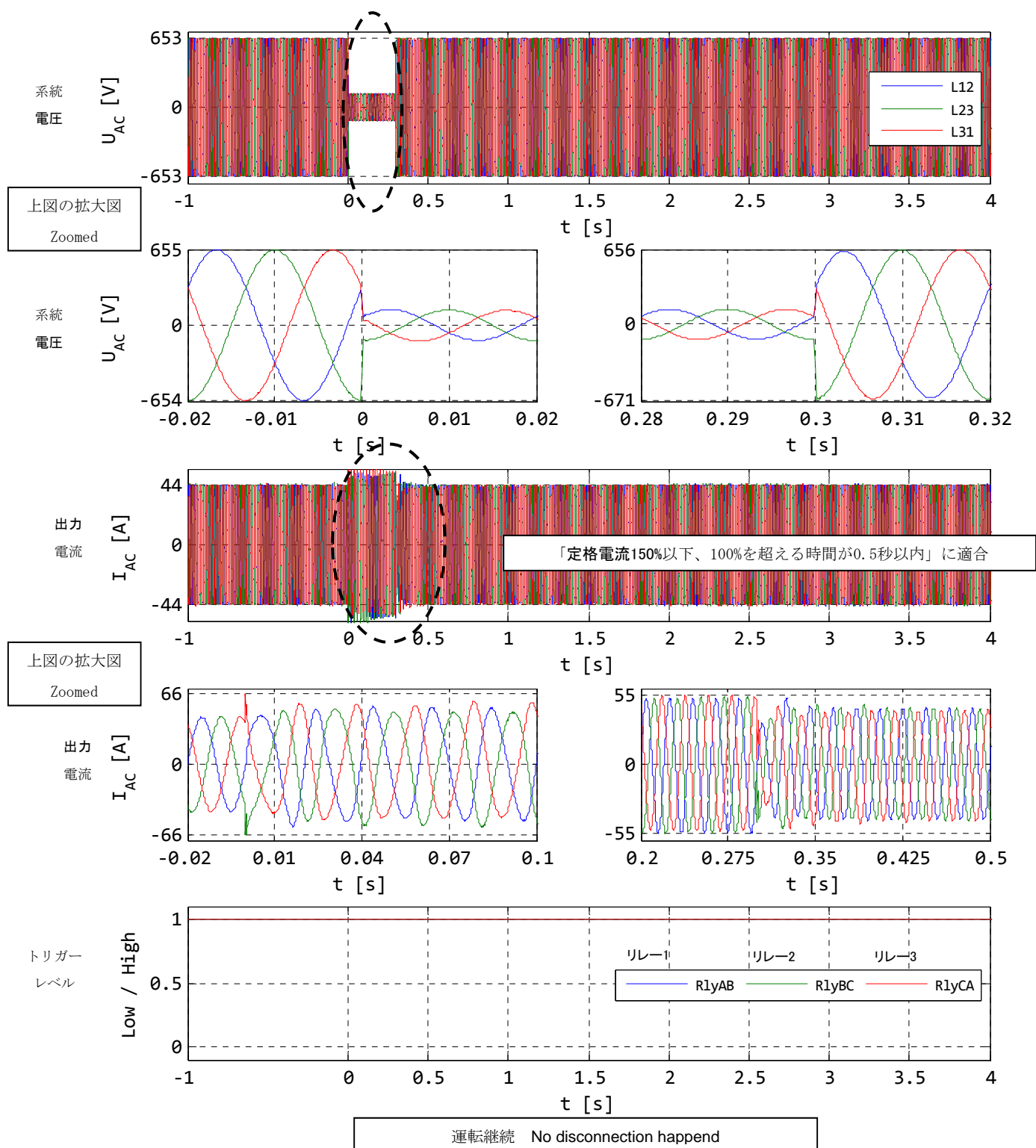
| 位相投入角 Closing phase angle | 瞬時電圧低下 Value of voltage drop | 運転再開時間判定基準 Criteria restart time | 80%出力復帰時間 80% recovery time | 判定 Result |
|------------------------------|--|-------------------------------------|--------------------------------|--------------|
| 0° | 三相短絡（残電圧20%） Three phase short-circuit (20%) | 0.1s以内 | 32.3 ms 運転継続 | OK |
| 45° | 三相短絡（残電圧20%） Three phase short-circuit (20%) | 0.1s以内 | 26.8 ms 運転継続 | OK |
| 90° | 三相短絡（残電圧20%） Three phase short-circuit (20%) | 0.1s以内 | 33.4 ms 運転継続 | OK |
| 0° | 三相短絡（残電圧0%） Three phase short-circuit (0%) | 1s以内 | 66.7 ms | OK |
| 45° | 三相短絡（残電圧0%） Three phase short-circuit (0%) | 1s以内 | 80.2 ms | OK |
| 90° | 三相短絡（残電圧0%） Three phase short-circuit (0%) | 1s以内 | 75.8 ms | OK |
| 0° | 二相短絡（Y結線側） Two Phase short-circuit Wye connection side | 0.1s以内 | 20.5 ms 運転継続 | OK |
| 45° | 二相短絡（Y結線側） Two Phase short-circuit Wye connection side | 0.1s以内 | 20.8 ms 運転継続 | OK |
| 90° | 二相短絡（Y結線側） Two Phase short-circuit Wye connection side | 0.1s以内 | 29.4 ms 運転継続 | OK |
| 0° | 二相短絡（Δ結線側） Two Phase short-circuit Δ connection side | 0.1s以内 | 22.8 ms 運転継続 | OK |
| 45° | 二相短絡（Δ結線側） Two Phase short-circuit Δ connection side | 0.1s以内 | 19.3 ms 運転継続 | OK |
| 90° | 二相短絡（Δ結線側） Two Phase short-circuit Δ connection side | 0.1s以内 | 33.5 ms 運転継続 | OK |

試験結果例：0.3 秒の瞬時電圧低下（三相短絡 残電圧 20%）@50Hz/462V

Example of test item: FRT – Three phase short-circuit (20% remaining voltage)

| | | | |
|---------------|------------------|--------------------|---|
| Device | STP 2500TL-JP-30 | Date / Temp./ Hum. | 18.Mar.2015 / 23.57°C / 37.91% |
| Serial | 1900701684 | Validator | Kleinheinz |
| Sample Number | 08756 | TESYS-ID | TESYS10 / 3P.2.1b |
| SW-Version | 01.00.12.R | Scenario / Fault | JET502017VolDrop110 / 6-3-1-2-P100-K0/BDEW/0° |
| Grid Type | ThreePhase | Type of diagram | RawData / Page 1 of 3 |

RawData: UacD, UacDZoom, Iac, IacZoom, GridRelais

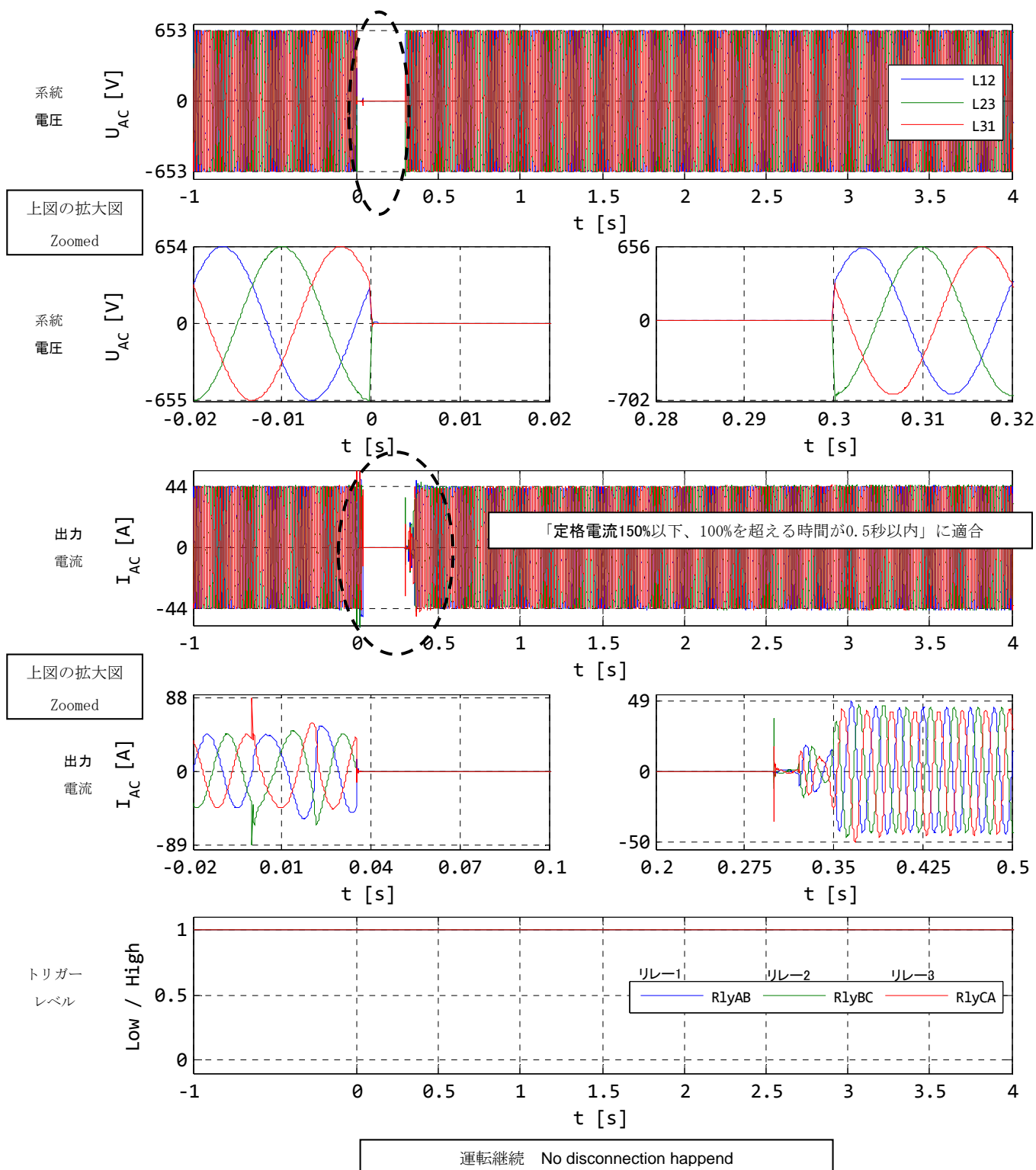


試験結果例：0.3 秒の瞬時電圧低下（三相短絡 残電圧 0%）@50Hz /462V

Example of test item: FRT – Three phase short-circuit (0% remaining voltage)

| | | | |
|---------------|------------------|--------------------|---|
| Device | STP 2500TL-JP-30 | Date / Temp./ Hum. | 18.Mar.2015 / 23.54°C / 38.28% |
| Serial | 1900701684 | Validator | Kleinheinz |
| Sample Number | 08756 | TESYS-ID | TESYS10 / 3P.2.1b |
| SW-Version | 01.00.12.R | Scenario / Fault | JET502017VolDrop110 / 6-3-1-4-P100-K0/BDEW/0° |
| Grid Type | ThreePhase | Type of diagram | RawData / Page 1 of 3 |

RawData: UacD, UacDZoom, Iac, IacZoom, GridRelais

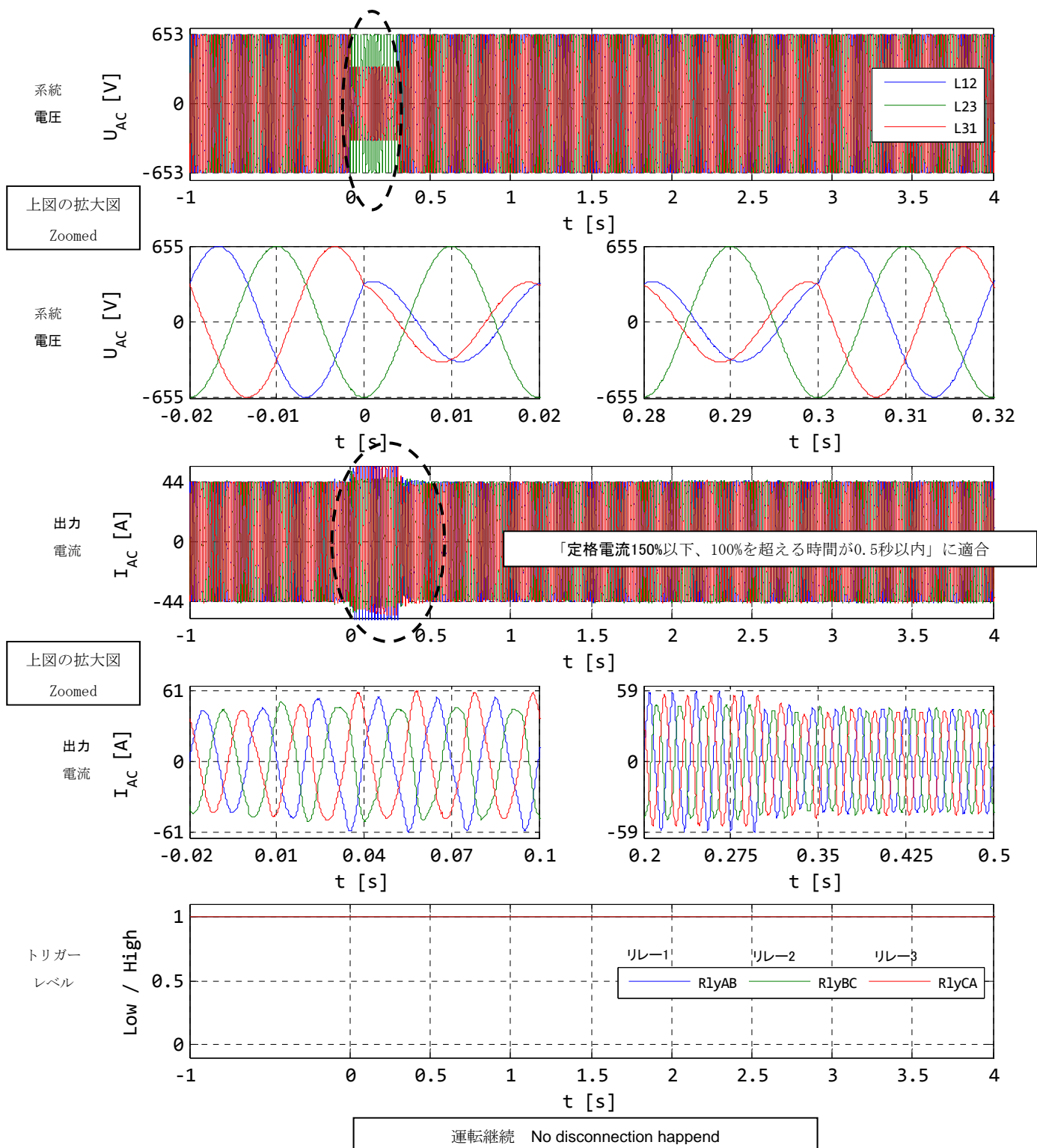


試験結果例：0.3 秒の瞬時電圧低下（二相短絡 Y 結線側）@50Hz/462V

Example of test item: FRT – Two Phase short-circuit Y connection side

| | | | |
|---------------|------------------|--------------------|--|
| Device | STP 2500TL-JP-30 | Date / Temp./ Hum. | 18.Mar.2015 / 23.57°C / 37.8% |
| Serial | 1900701684 | Validator | Kleinheinz |
| Sample Number | 08756 | TESYS-ID | TESYS10 / 3P.2.1b |
| SW-Version | 01.00.12.R | Scenario / Fault | JET502017VolDrop110 / 6-3-2-2a-P100-K0/BDEW/0° |
| Grid Type | ThreePhase | Type of diagram | RawData / Page 1 of 3 |

RawData: UacD, UacDZoom, Iac, IacZoom, GridRelais

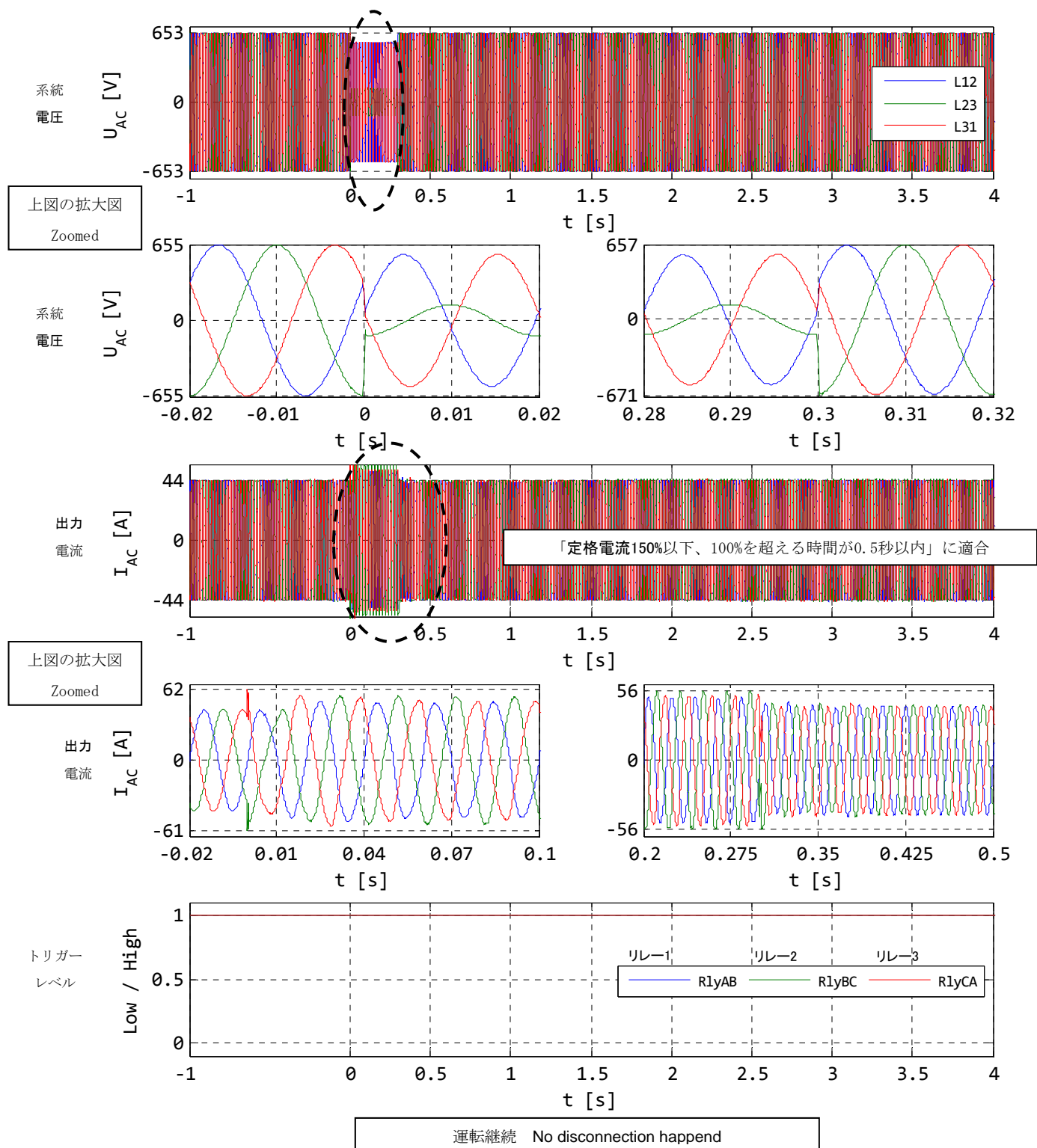


試験結果例：0.3 秒の瞬時電圧低下（二相短絡 Δ 結線側）@50Hz/462V

Example of test item: FRT – Two Phase short-circuit Δ connection side

| | | | |
|---------------|------------------|--------------------|--|
| Device | STP 2500TL-JP-30 | Date / Temp./ Hum. | 18.Mar.2015 / 23.58°C / 37.66% |
| Serial | 1900701684 | Validator | Kleinheinz |
| Sample Number | 08756 | TESYS-ID | TESYS10 / 3P.2.1b |
| SW-Version | 01.00.12.R | Scenario / Fault | JET502017VolDrop110 / 6-3-2-2b-P100-K0/BDEW/0° |
| Grid Type | ThreePhase | Type of diagram | RawData / Page 1 of 3 |

RawData: UacD, UacDZoom, Iac, IacZoom, GridRelais



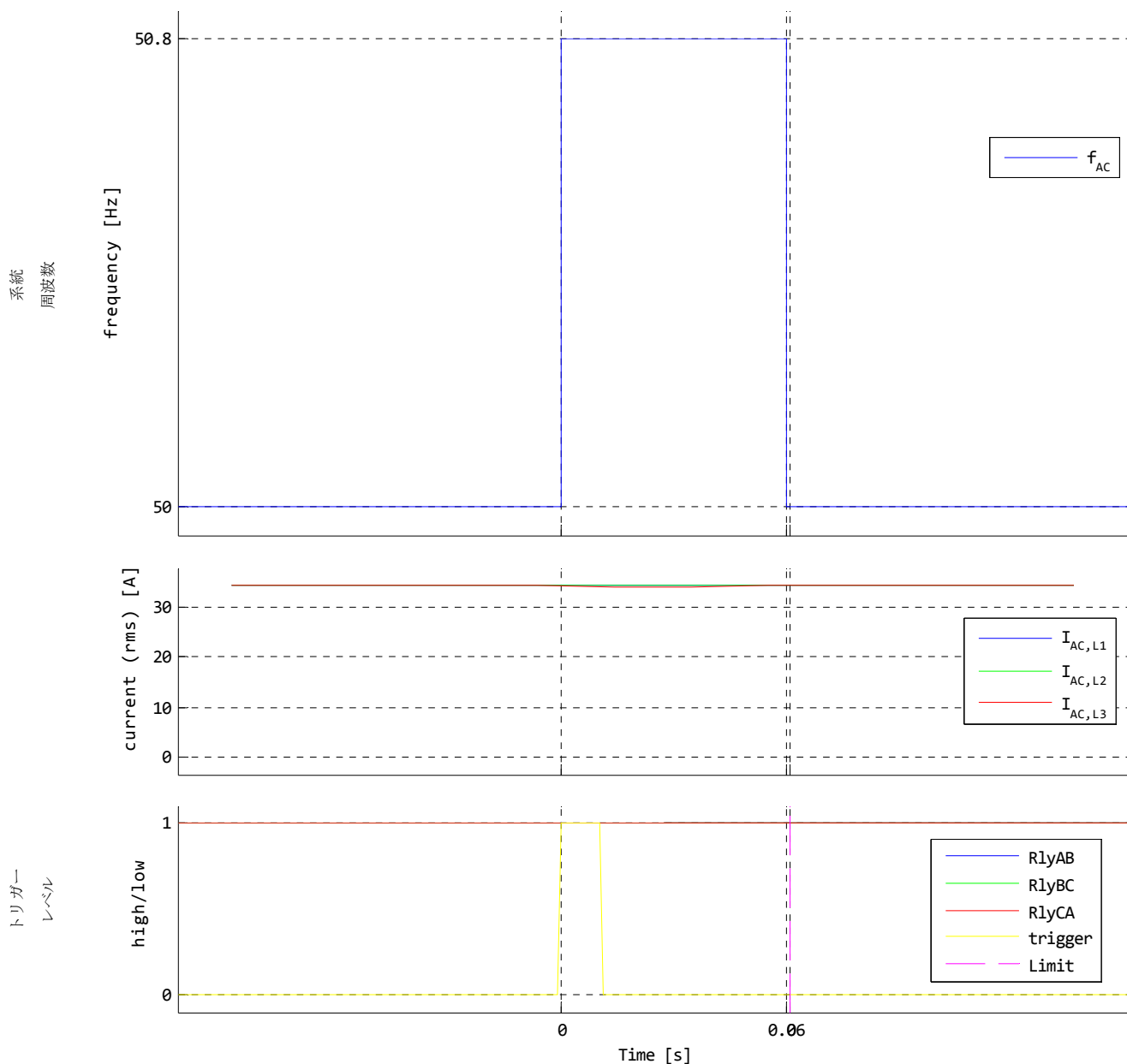
6.4 周波数変動試験(FRT-50Hz) – FRT acc. JEAC2012 – Frequency fluctuation Test (50Hz)

| 周波数変動 Frequency fluctuation | 判定基準 Criteria: | 結果 Result of DUT | 判定 Result |
|--|---------------------------------------|--|--------------|
| ランプ状+2Hz/sで51.5Hzまで Ramp +2Hz/s till 51.5Hz | 運転継続 No gateblock or disconnection | 運転継続 No gateblock or disconnection happened | OK |
| ランプ状-2Hz/sで47.5Hzまで Ramp -2Hz/s till 47.5Hz | 運転継続 No gateblock or disconnection | 運転継続 No gateblock or disconnection happened | OK |
| ステップ状に+0.8Hz Jump +0.8Hz for 3 cycles | 運転継続 No gateblock or disconnection | 運転継続 No gateblock or disconnection happened | OK |

試験結果例: 周波数変動試験 ステップ状に+0.8Hz @50Hz

Example of test item: Jump +0.8Hz for 3 cycles

| | | | |
|---------------|------------------|-------------------|-----------------------------------|
| Device | STP 2500TL-JP-30 | Date | 18.Mar.2015 |
| Serial | 1900701684 | Validator | Kleinheinz |
| Sample Number | 08756 | TESYS-ID | TESYS10 / 3P.2.1b |
| SW-Version | 01.00.12.R | VfDisCon-RideThru | 200.19.a-Jet50-VfDisCon-420V-50Hz |
| Grid Type | ThreePhase | Result | Stage1-GridF508RideThru: ok |

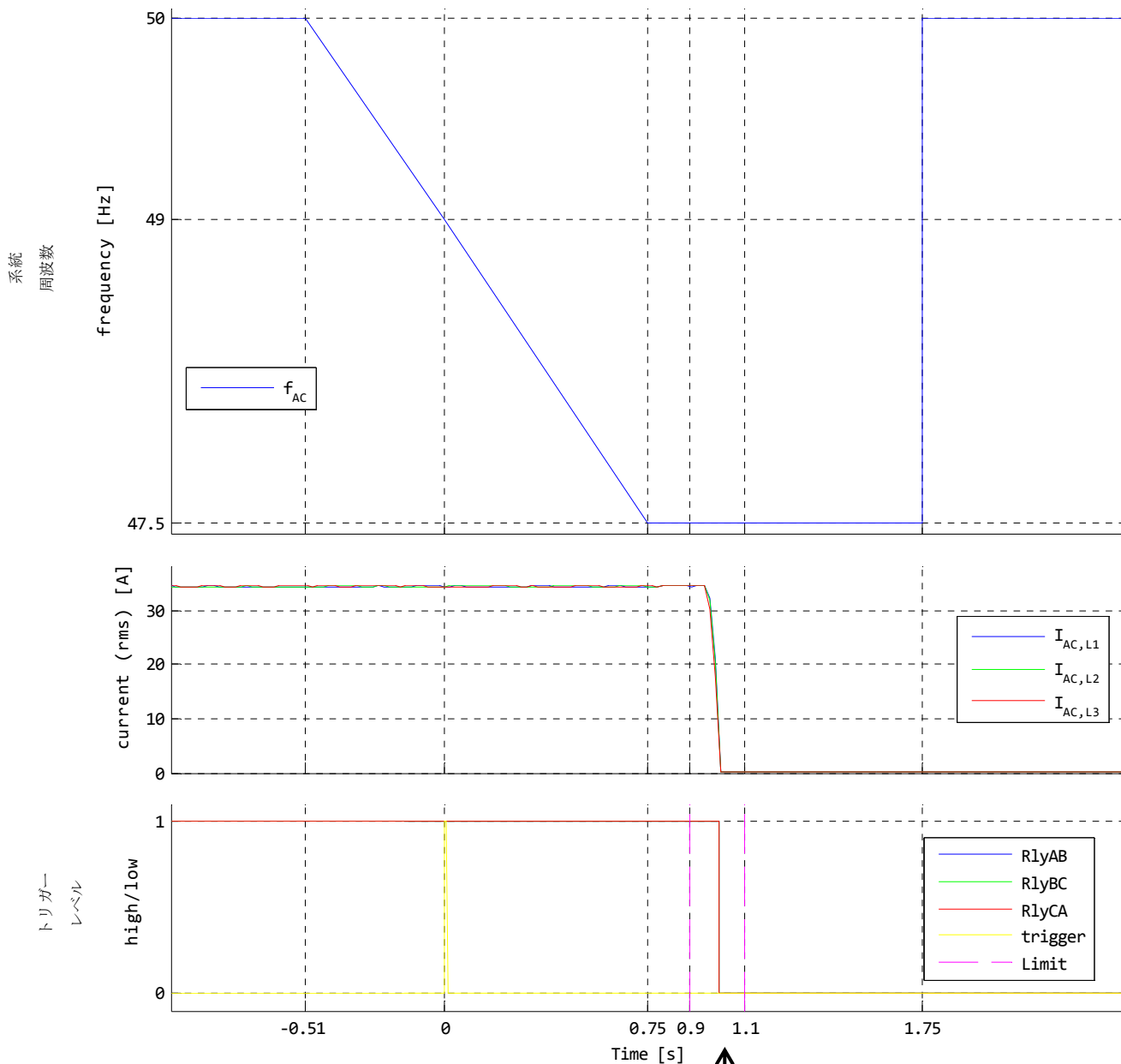


運転継続 No gateblock or disconnection happened

試験結果例: 周波数変動試験 ランプ状に-2Hz/sで47.5Hzまで @50Hz

Example of test item: Ramp -2Hz/s till 47.5Hz

| | | | |
|---------------|------------------|-------------------|-----------------------------------|
| Device | STP 2500TL-JP-30 | Date | 18.Mar.2015 |
| Serial | 1900701684 | Validator | Kleinheinz |
| Sample Number | 08756 | TESYS-ID | TESYS10 / 3P.2.1b |
| SW-Version | 01.00.12.R | VfDisCon-TripTime | 200.19.a-Jet50-VfDisCon-420V-50Hz |
| Grid Type | ThreePhase | Result | GridFFluc49TT-1-1s: ok |



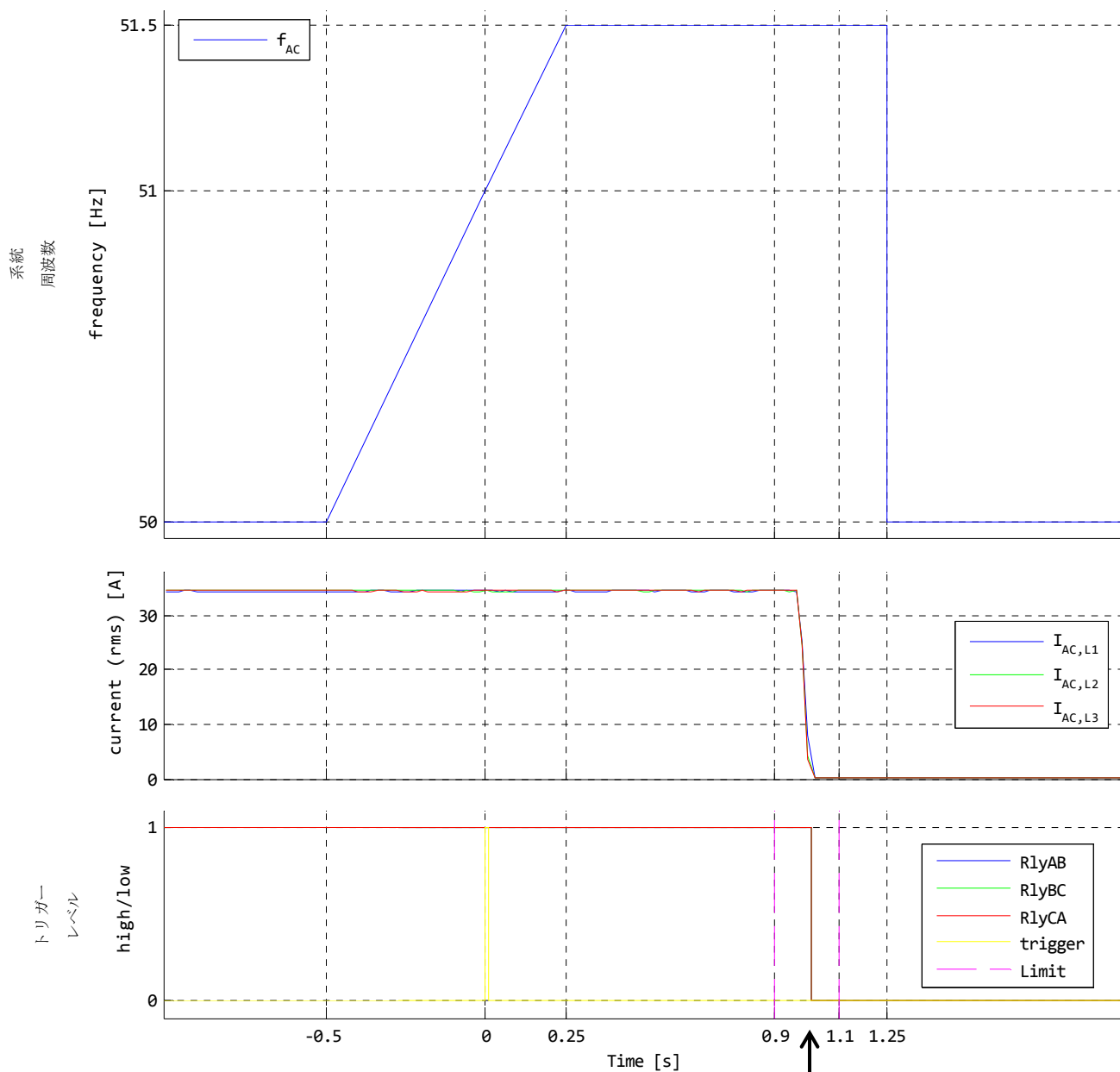
UFRにて解列

運転継続 No gateblock or disconnection happened

試験結果例: 周波数変動試験 ランプ状に+2Hz/sで51.5Hzまで @50Hz

Example of test item: Ramp +2Hz/s till 51.5Hz

| | | | |
|---------------|------------------|-------------------|-----------------------------------|
| Device | STP 2500TL-JP-30 | Date | 18.Mar.2015 |
| Serial | 1900701684 | Validator | Kleinheinz |
| Sample Number | 08756 | TESYS-ID | TESYS10 / 3P.2.1b |
| SW-Version | 01.00.12.R | VfDisCon-TripTime | 200.19.a-Jet50-VfDisCon-420V-50Hz |
| Grid Type | ThreePhase | Result | GridFFluc51TT-1-1s: ok |



運転継続 No gateblock or disconnection happened

OFRにて解列

瞬時電圧低下試験(FRT-60Hz/440V)/Instantaneous voltage drop test – FRT according JEAC9701-2012 (60Hz/440V)

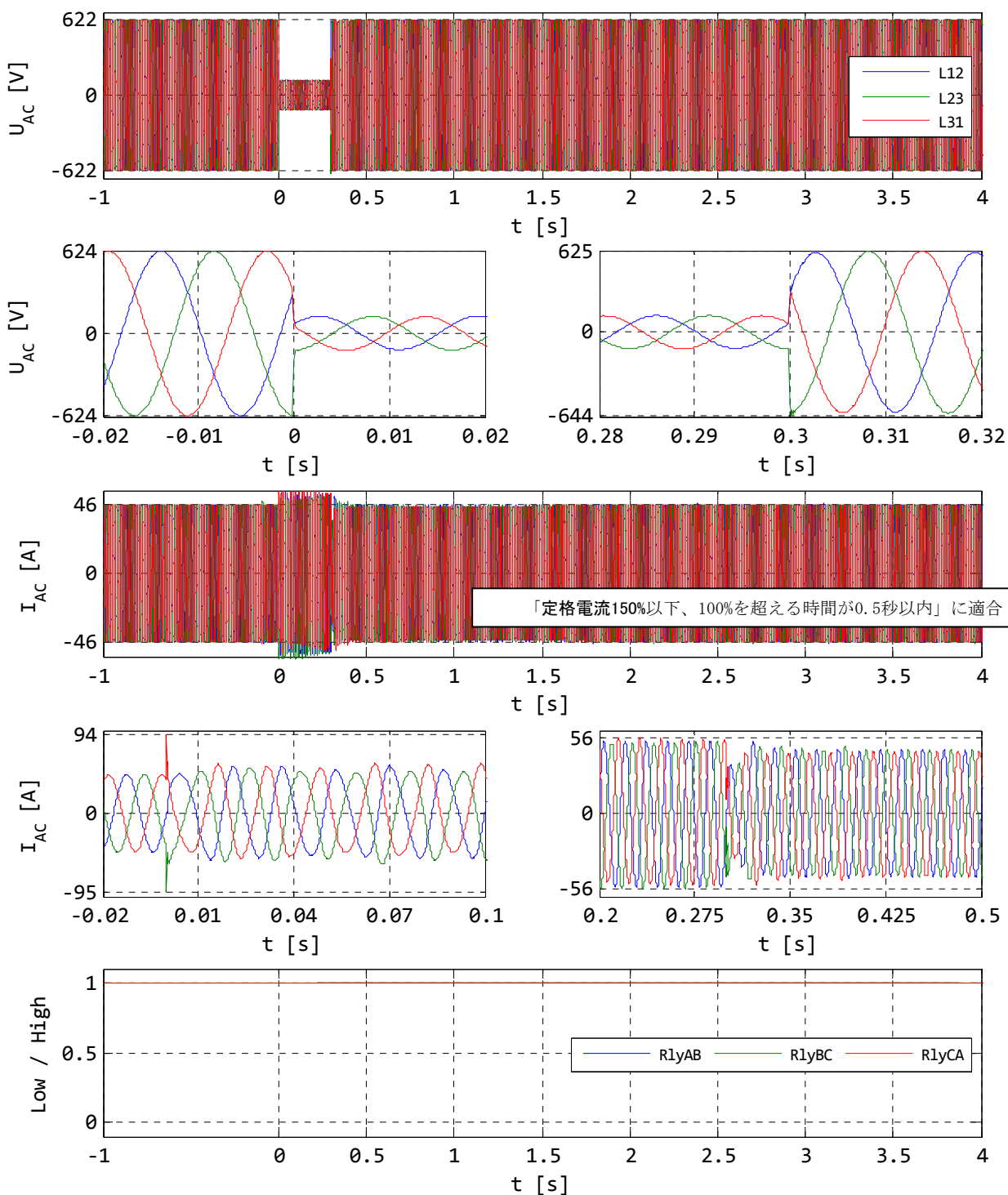
| 位相投入角 Closing phase angle | 瞬時電圧低下 Value of voltage drop | 運転再開時間判定基準 Criteria restart time | 80%出力復帰時間 80% recovery time | 判定 Result |
|------------------------------|---|-------------------------------------|--------------------------------|--------------|
| 0° | 三相短絡（残電圧20%） Three phase short-circuit (20%) | 0.1s以内 | 35.0 ms 運転継続 | OK |
| 45° | 三相短絡（残電圧20%） Three phase short-circuit (20%) | 0.1s以内 | 27.3 ms 運転継続 | OK |
| 90° | 三相短絡（残電圧20%） Three phase short-circuit (20%) | 0.1s以内 | 24.6 ms 運転継続 | OK |
| 0° | 三相短絡（残電圧0%） Three phase short-circuit (0%) | 1s以内 | 71.2 ms | OK |
| 45° | 三相短絡（残電圧0%） Three phase short-circuit (0%) | 1s以内 | 84.1 ms | OK |
| 90° | 三相短絡（残電圧0%） Three phase short-circuit (0%) | 1s以内 | 86.6 ms | OK |
| 0° | 二相短絡（Y結線側） Two Phase short-circuit Wye connection side | 0.1s以内 | 24.9 ms 運転継続 | OK |
| 45° | 二相短絡（Y結線側） Two Phase short-circuit Wye connection side | 0.1s以内 | 14.8 ms 運転継続 | OK |
| 90° | 二相短絡（Y結線側） Two Phase short-circuit Wye connection side | 0.1s以内 | 23.4 ms 運転継続 | OK |
| 0° | 二相短絡（Δ結線側） Two Phase short-circuit Δ connection side | 0.1s以内 | 21.1 ms 運転継続 | OK |
| 45° | 二相短絡（Δ結線側） Two Phase short-circuit Δ connection side | 0.1s以内 | 16.0 ms 運転継続 | OK |
| 90° | 二相短絡（Δ結線側） Two Phase short-circuit Δ connection side | 0.1s以内 | 17.2 ms 運転継続 | OK |

試験結果例：0.3 秒の瞬時電圧低下（三相短絡 残電圧 20%）@60Hz/440V

Example of test item: FRT – Three phase short-circuit (20% remaining voltage)

| | | | |
|---------------|-------------------|--------------------|--|
| Device | STP 25000TL-JP-30 | Date / Temp./ Hum. | 18.Mar.2015 / 23.72°C / 37% |
| Serial | 1900701684 | Validator | Kleinheinz |
| Sample Number | 08756 | TESYS-ID | TESYS10 / 3P.2.1b |
| SW-Version | 01.00.12.R | Scenario / Fault | JET602017VolDrop / 6-3-1-2-P100-K0/BDEW/0° |
| Grid Type | ThreePhase | Type of diagram | RawData / Page 1 of 3 |

RawData: UacD, UacDZoom, Iac, IacZoom, GridRelais

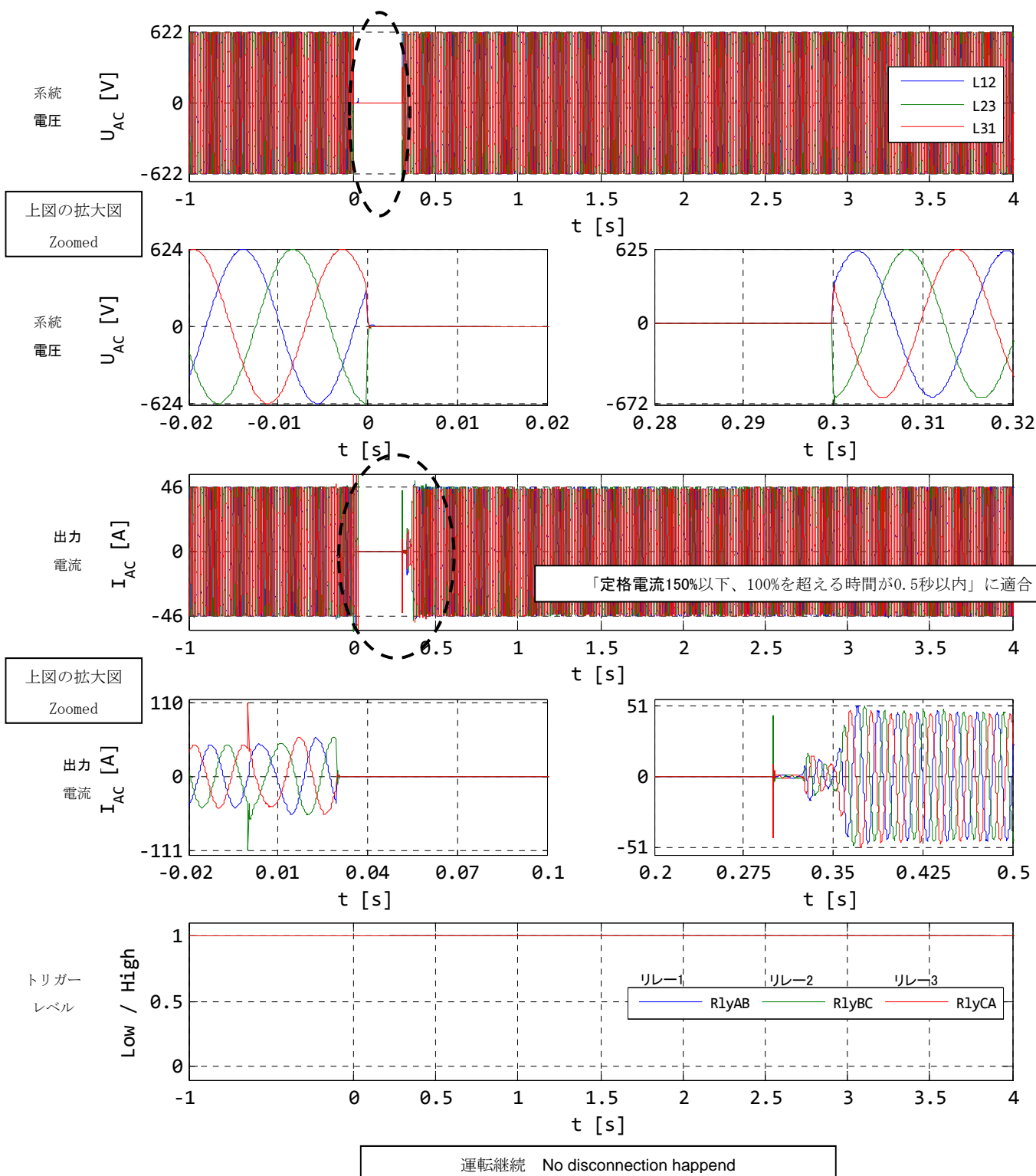


試験結果例：0.3 秒の瞬時電圧低下（三相短絡 残電圧 0%）@60Hz/440V

Example of test item: FRT – Three phase short-circuit (0% remaining voltage)

| | | | |
|---------------|------------------|--------------------|--|
| Device | STP 2500TL-JP-30 | Date / Temp./ Hum. | 18.Mar.2015 / 23.66°C / 37.27% |
| Serial | 1900701684 | Validator | Kleinheinz |
| Sample Number | 08756 | TESYS-ID | TESYS10 / 3P.2.1b |
| SW-Version | 01.00.12.R | Scenario / Fault | JET602017VolDrop / 6-3-1-4-P100-K0/BDEW/0° |
| Grid Type | ThreePhase | Type of diagram | RawData / Page 1 of 3 |

RawData: UacD, UacDZoom, Iac, IacZoom, GridRelais

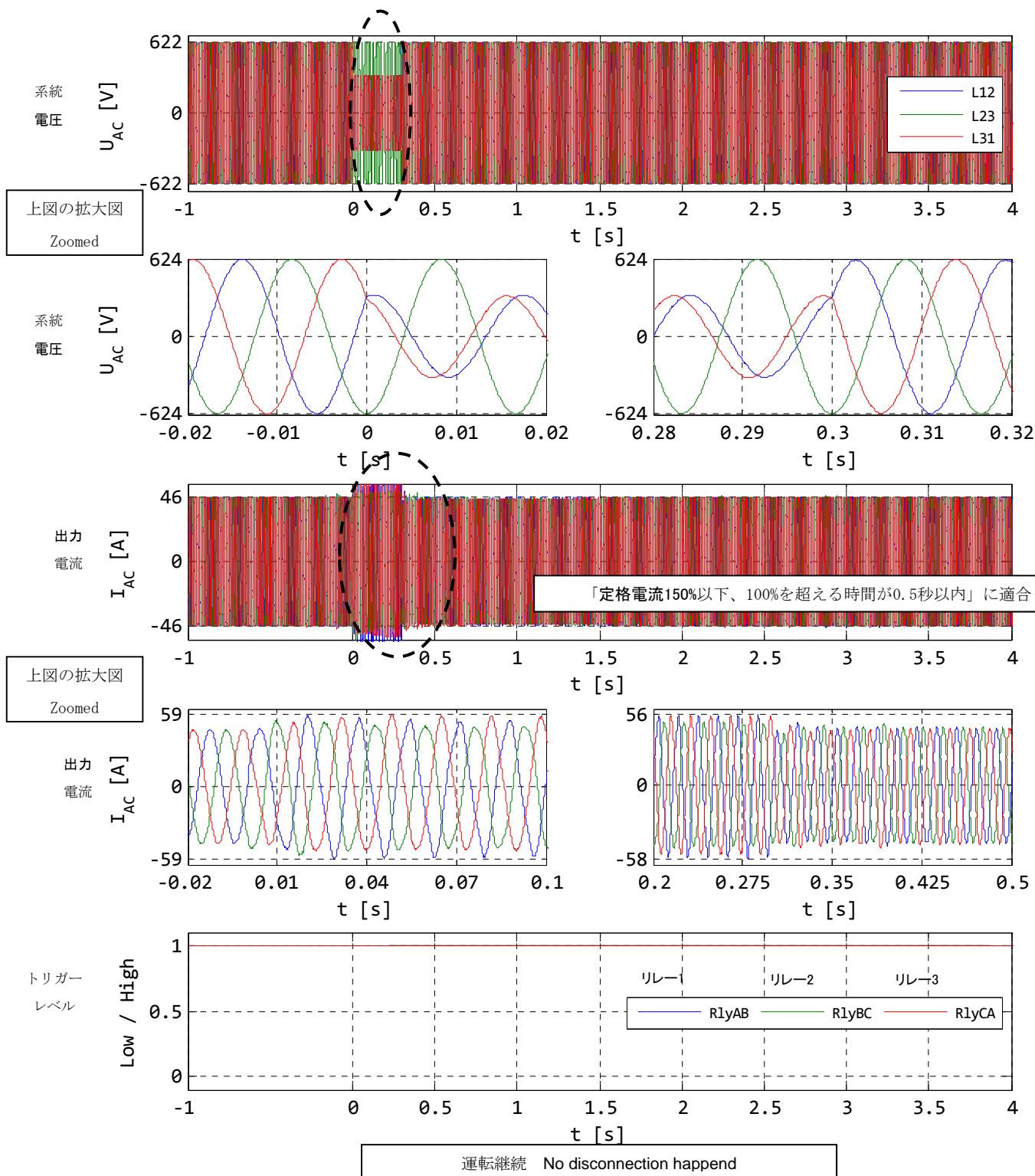


試験結果例：0.3 秒の瞬時電圧低下（二相短絡 Y 結線側）@60Hz/440V

Example of test item: FRT – Two Phase short-circuit Y connection side

| | | | |
|---------------|------------------|--------------------|---|
| Device | STP 2500TL-JP-30 | Date / Temp./ Hum. | 18.Mar.2015 / 23.7°C / 37.27% |
| Serial | 1900701684 | Validator | Kleinheinz |
| Sample Number | 08756 | TESYS-ID | TESYS10 / 3P.2.1b |
| SW-Version | 01.00.12.R | Scenario / Fault | JET602017VolDrop / 6-3-2-2a-P100-K0/BDEW/0° |
| Grid Type | ThreePhase | Type of diagram | RawData / Page 1 of 3 |

RawData: UacD, UacDZoom, Iac, IacZoom, GridRelais

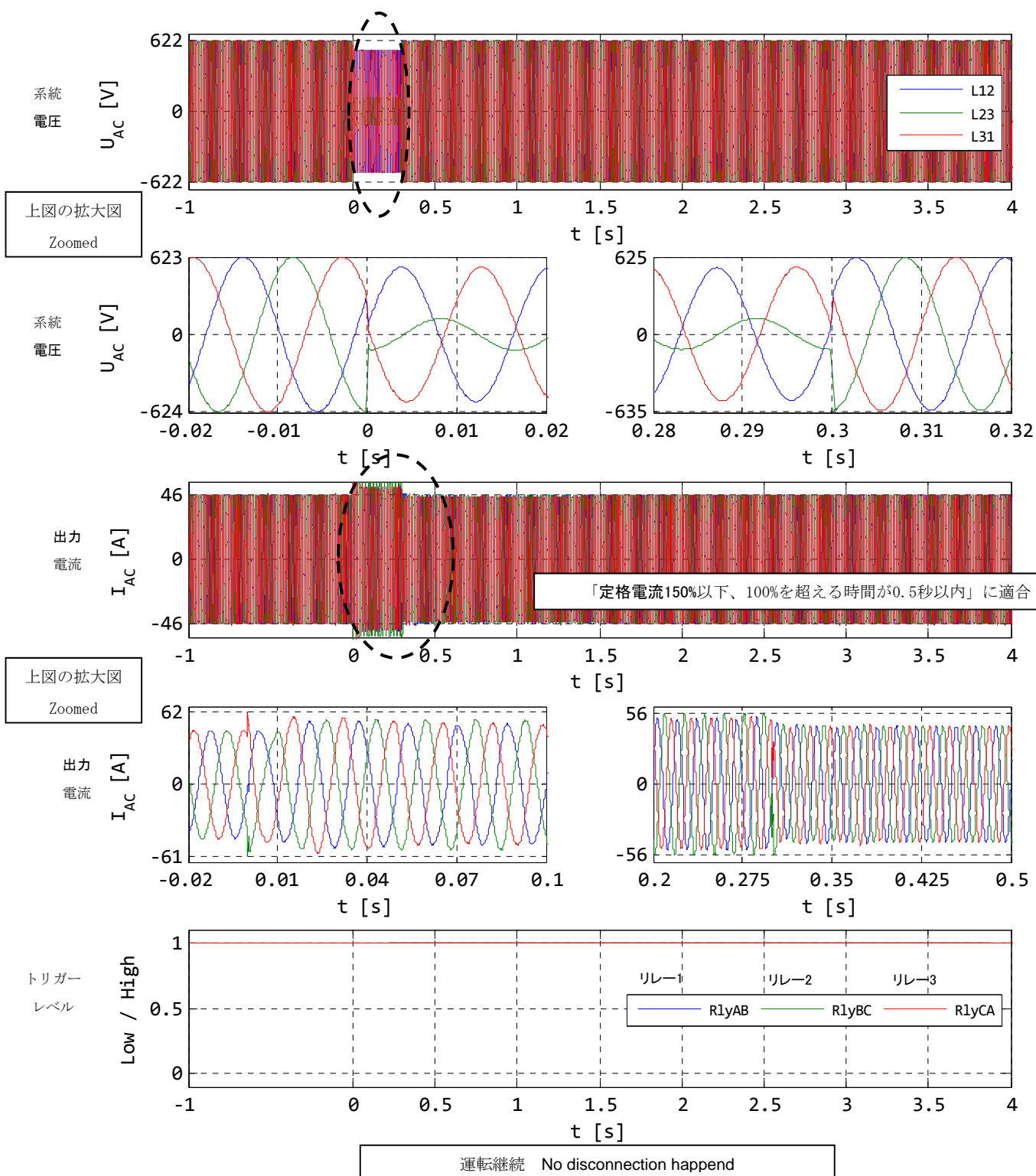


試験結果例：0.3 秒の瞬時電圧低下（二相短絡 Δ 結線側）@60Hz/440V

Example of test item: FRT – Two Phase short-circuit Δ connection side

| | | | |
|---------------|------------------|--------------------|---|
| Device | STP 2500TL-JP-30 | Date / Temp./ Hum. | 18.Mar.2015 / 23.66°C / 37.6% |
| Serial | 1900701684 | Validator | Kleinheinz |
| Sample Number | 08756 | TESYS-ID | TESYS10 / 3P.2.1b |
| SW-Version | 01.00.12.R | Scenario / Fault | JET602017VolDrop / 6-3-2-2b-P100-K0/BDEW/0° |
| Grid Type | ThreePhase | Type of diagram | RawData / Page 1 of 3 |

RawData: UacD, UacDZoom, Iac, IacZoom, GridRelais



瞬時電圧低下試験(FRT-60Hz/396V)/Instantaneous voltage drop test – FRT according JEAC9701-2012 (60Hz/396V)

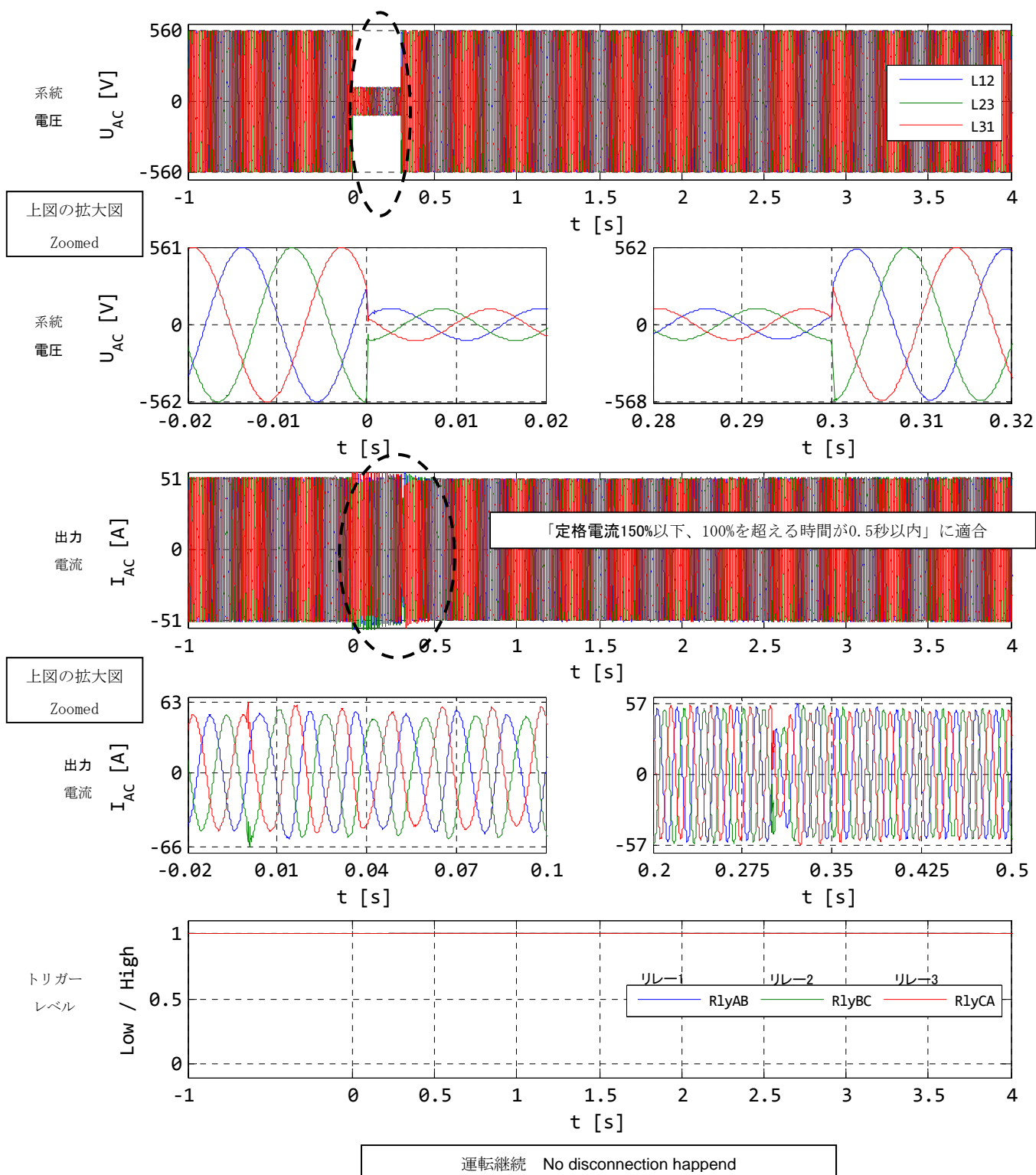
| 位相投入角 Closing phase angle | 瞬時電圧低下 Value of voltage drop | 運転再開時間判定基準 Criteria restart time | 80%出力復帰時間 80% recovery time | 判定 Result |
|------------------------------|--|-------------------------------------|--------------------------------|--------------|
| 0° | 三相短絡 (残電圧20%) Three phase short-circuit (20%) | 0.1s以内 | 21.4 ms 運転継続 | OK |
| 45° | 三相短絡 (残電圧20%) Three phase short-circuit (20%) | 0.1s以内 | 37.6ms 運転継続 | OK |
| 90° | 三相短絡 (残電圧20%) Three phase short-circuit (20%) | 0.1s以内 | 30.4 ms 運転継続 | OK |
| 0° | 三相短絡 (残電圧0%) Three phase short-circuit (0%) | 1s以内 | 72.4 ms | OK |
| 45° | 三相短絡 (残電圧0%) Three phase short-circuit (0%) | 1s以内 | 72.8 ms | OK |
| 90° | 三相短絡 (残電圧0%) Three phase short-circuit (0%) | 1s以内 | 93.0 ms | OK |
| 0° | 二相短絡 (Y結線側) Two Phase short-circuit Wye connection side | 0.1s以内 | 18.1 ms 運転継続 | OK |
| 45° | 二相短絡 (Y結線側) Two Phase short-circuit Wye connection side | 0.1s以内 | 24.2 ms 運転継続 | OK |
| 90° | 二相短絡 (Y結線側) Two Phase short-circuit Wye connection side | 0.1s以内 | 26.8 ms 運転継続 | OK |
| 0° | 二相短絡 (Δ結線側) Two Phase short-circuit Δ connection side | 0.1s以内 | 26.9 ms 運転継続 | OK |
| 45° | 二相短絡 (Δ結線側) Two Phase short-circuit Δ connection side | 0.1s以内 | 22.7 ms 運転継続 | OK |
| 90° | 二相短絡 (Δ結線側) Two Phase short-circuit Δ connection side | 0.1s以内 | 24.6 ms 運転継続 | OK |

試験結果例：0.3 秒の瞬時電圧低下（三相短絡 残電圧 20%）@60Hz/396V

Example of test item: FRT – Three phase short-circuit (20% remaining voltage)

| | | | |
|---------------|------------------|--------------------|--|
| Device | STP 2500TL-JP-30 | Date / Temp./ Hum. | 18.Mar.2015 / 23.58°C / 37.66% |
| Serial | 1900701684 | Validator | Kleinheinz |
| Sample Number | 08756 | TESYS-ID | TESYS10 / 3P.2.1b |
| SW-Version | 01.00.12.R | Scenario / Fault | JET602017VolDrop90 / 6-3-1-2-P100-K0/BDEW/0° |
| Grid Type | ThreePhase | Type of diagram | RawData / Page 1 of 3 |

RawData: UacD, UacDZoom, Iac, IacZoom, GridRelais

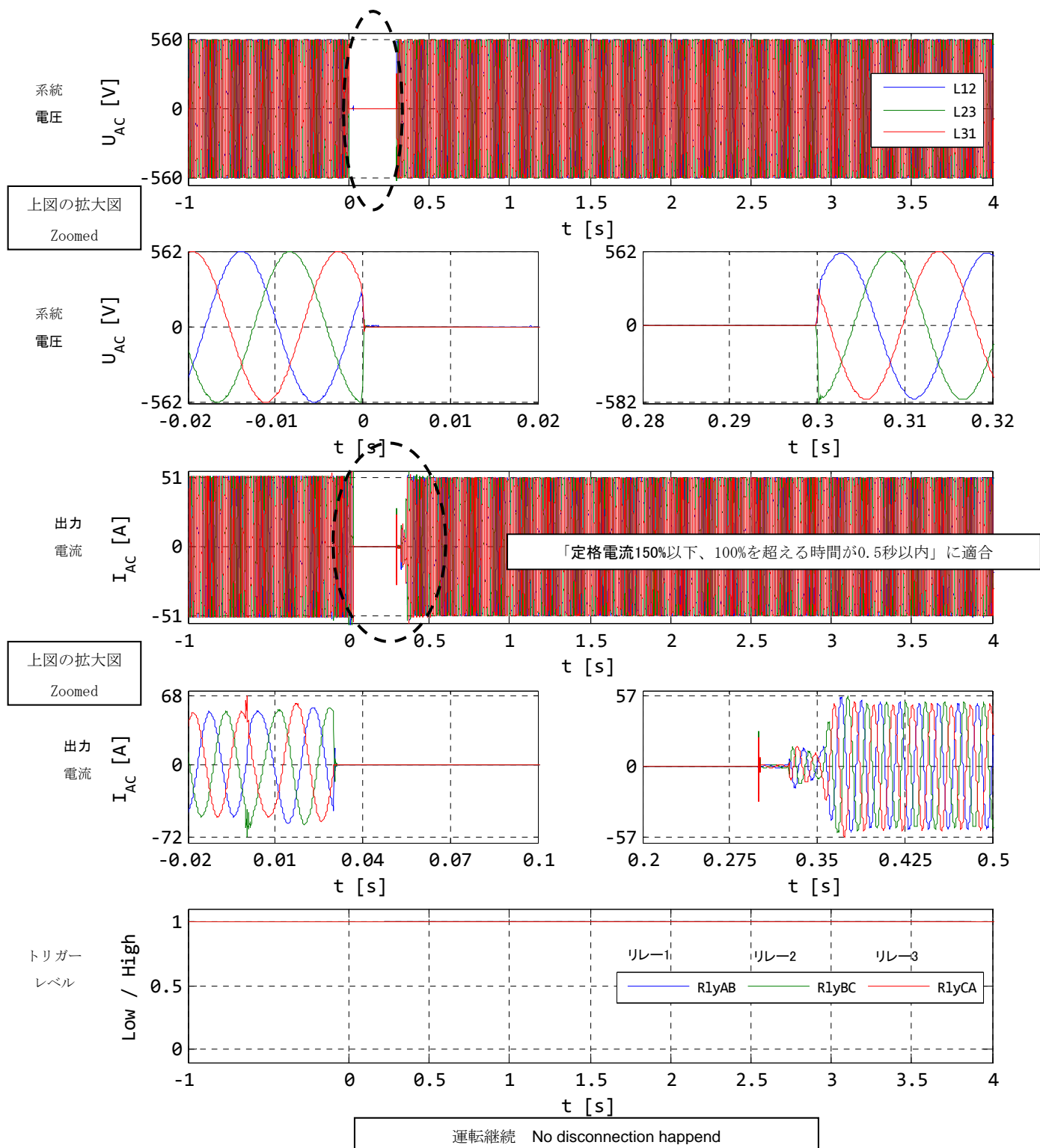


試験結果例：0.3 秒の瞬時電圧低下（三相短絡 残電圧 0%）@60Hz/396V

Example of test item: FRT – Three phase short-circuit (0% remaining voltage)

| | | | |
|---------------|-------------------|--------------------|--|
| Device | STP 25000TL-JP-30 | Date / Temp./ Hum. | 18.Mar.2015 / 23.57°C / 37.75% |
| Serial | 1900701684 | Validator | Kleinheinz |
| Sample Number | 08756 | TESYS-ID | TESYS10 / 3P.2.1b |
| SW-Version | 01.00.12.R | Scenario / Fault | JET602017VolDrop90 / 6-3-1-4-P100-K0/BDEW/0° |
| Grid Type | ThreePhase | Type of diagram | RawData / Page 1 of 3 |

RawData: UacD, UacDZoom, Iac, IacZoom, GridRelais

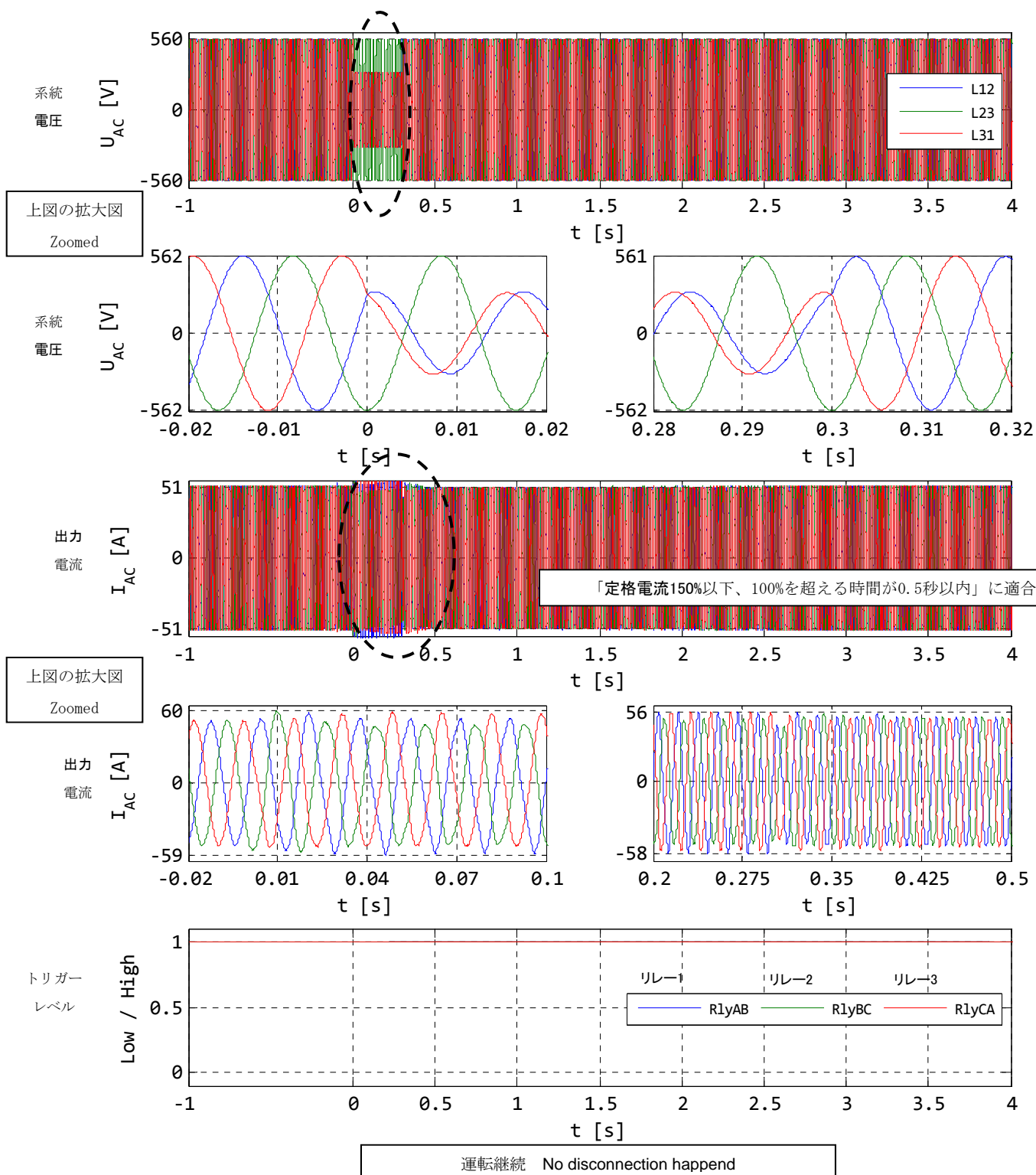


試験結果例：0.3 秒の瞬時電圧低下（二相短絡 Y 結線側）@60Hz/396V

Example of test item: FRT – Two Phase short-circuit Y connection side

| | | | |
|---------------|------------------|--------------------|---|
| Device | STP 2500TL-JP-30 | Date / Temp./ Hum. | 18.Mar.2015 / 23.62°C / 37.79% |
| Serial | 1900701684 | Validator | Kleinheinz |
| Sample Number | 08756 | TESYS-ID | TESYS10 / 3P.2.1b |
| SW-Version | 01.00.12.R | Scenario / Fault | JET602017VolDrop90 / 6-3-2-2a-P100-K0/BDEW/0° |
| Grid Type | ThreePhase | Type of diagram | RawData / Page 1 of 3 |

RawData: UacD, UacDZoom, Iac, IacZoom, GridRelais

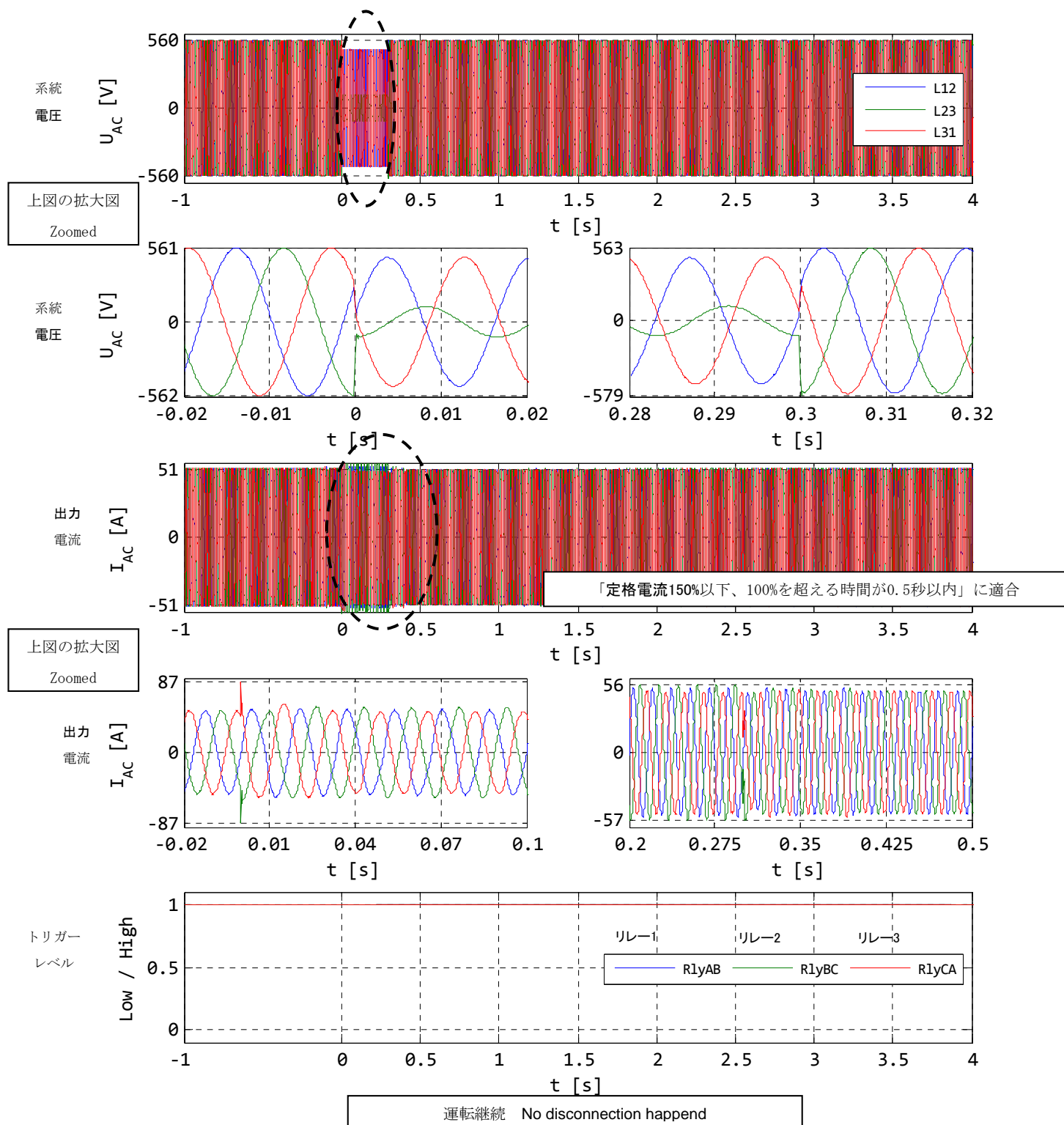


試験結果例：0.3 秒の瞬時電圧低下（二相短絡 Δ 結線側）@60Hz/396V

Example of test item: FRT – Two Phase short-circuit Δ connection side

| | | | |
|---------------|------------------|--------------------|---|
| Device | STP 2500TL-JP-30 | Date / Temp./ Hum. | 18.Mar.2015 / 23.67°C / 37.99% |
| Serial | 1900701684 | Validator | Kleinheinz |
| Sample Number | 08756 | TESYS-ID | TESYS10 / 3P.2.1b |
| SW-Version | 01.00.12.R | Scenario / Fault | JET602017VolDrop90 / 6-3-2-2b-P100-K0/BDEW/0° |
| Grid Type | ThreePhase | Type of diagram | RawData / Page 1 of 3 |

RawData: UacD, UacDZoom, Iac, IacZoom, GridRelais



瞬時電圧低下試験(FRT-60Hz/484V)/Instantaneous voltage drop test – FRT according JEAC9701-2012 (60Hz/484V)

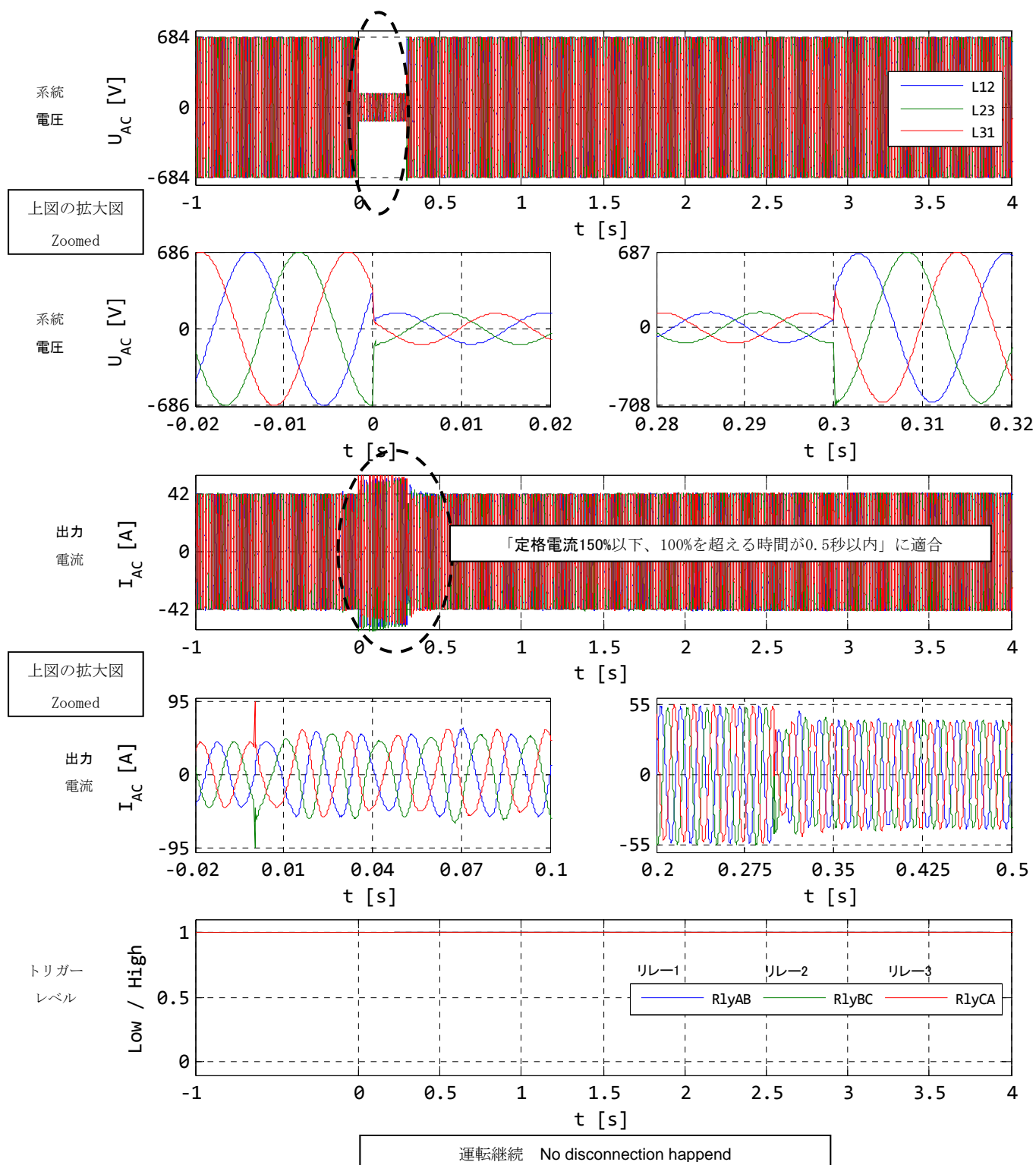
| 位相投入角 Closing phase angle | 瞬時電圧低下 Value of voltage drop | 運転再開時間判定基準 Criteria restart time | 80%出力復帰時間 80% recovery time | 判定 Result |
|------------------------------|---|-------------------------------------|--------------------------------|--------------|
| 0° | 三相短絡（残電圧20%） Three phase short-circuit (20%) | 0.1s以内 | 22.5ms 運転継続 | OK |
| 45° | 三相短絡（残電圧20%） Three phase short-circuit (20%) | 0.1s以内 | 25.2 ms 運転継続 | OK |
| 90° | 三相短絡（残電圧20%） Three phase short-circuit (20%) | 0.1s以内 | 29.2 ms 運転継続 | OK |
| 0° | 三相短絡（残電圧0%） Three phase short-circuit (0%) | 1s以内 | 79.4 ms | OK |
| 45° | 三相短絡（残電圧0%） Three phase short-circuit (0%) | 1s以内 | 78.6 ms | OK |
| 90° | 三相短絡（残電圧0%） Three phase short-circuit (0%) | 1s以内 | 74.9 ms | OK |
| 0° | 二相短絡（Y結線側） Two Phase short-circuit Wye connection side | 0.1s以内 | 15.8 ms 運転継続 | OK |
| 45° | 二相短絡（Y結線側） Two Phase short-circuit Wye connection side | 0.1s以内 | 23.3 ms 運転継続 | OK |
| 90° | 二相短絡（Y結線側） Two Phase short-circuit Wye connection side | 0.1s以内 | 13.7 ms 運転継続 | OK |
| 0° | 二相短絡（Δ結線側） Two Phase short-circuit Δ connection side | 0.1s以内 | 23.2 ms 運転継続 | OK |
| 45° | 二相短絡（Δ結線側） Two Phase short-circuit Δ connection side | 0.1s以内 | 24.7 ms 運転継続 | OK |
| 90° | 二相短絡（Δ結線側） Two Phase short-circuit Δ connection side | 0.1s以内 | 12.7 ms 運転継続 | OK |

試験結果例：0.3 秒の瞬時電圧低下（三相短絡 残電圧 20%）@60Hz/484V

Example of test item: FRT – Three phase short-circuit (20% remaining voltage)

| | | | |
|---------------|-------------------|--------------------|---|
| Device | STP 25000TL-JP-30 | Date / Temp./ Hum. | 18.Mar.2015 / 23.63°C / 37.38% |
| Serial | 1900701684 | Validator | Kleinheinz |
| Sample Number | 08756 | TESYS-ID | TESYS10 / 3P.2.1b |
| SW-Version | 01.00.12.R | Scenario / Fault | JET602017VolDrop110 / 6-3-1-2-P100-K0/BDEW/0° |
| Grid Type | ThreePhase | Type of diagram | RawData / Page 1 of 3 |

RawData: UacD, UacDZoom, Iac, IacZoom, GridRelais

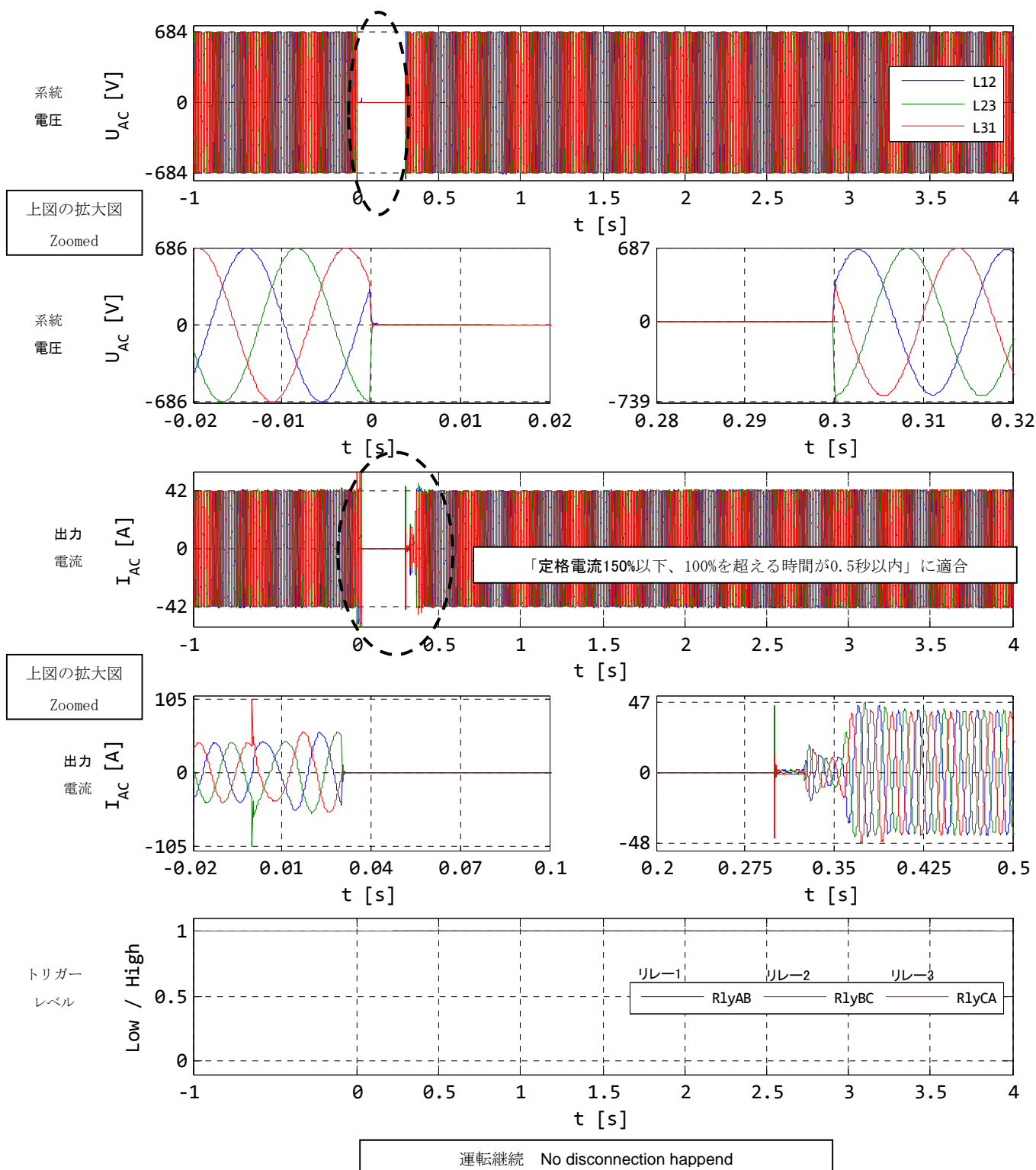


試験結果例：0.3 秒の瞬時電圧低下（三相短絡 残電圧 0%）@60Hz/484V

Example of test item: FRT – Three phase short-circuit (0% remaining voltage)

| | | | |
|---------------|-------------------|--------------------|---|
| Device | STP 25000TL-JP-30 | Date / Temp./ Hum. | 18.Mar.2015 / 23.53°C / 37.34% |
| Serial | 1900701684 | Validator | Kleinheinz |
| Sample Number | 08756 | TESYS-ID | TESYS10 / 3P.2.1b |
| SW-Version | 01.00.12.R | Scenario / Fault | JET602017VolDrop110 / 6-3-1-4-P100-K0/BDEW/0° |
| Grid Type | ThreePhase | Type of diagram | RawData / Page 1 of 3 |

RawData: UacD, UacDZoom, Iac, IacZoom, GridRelais

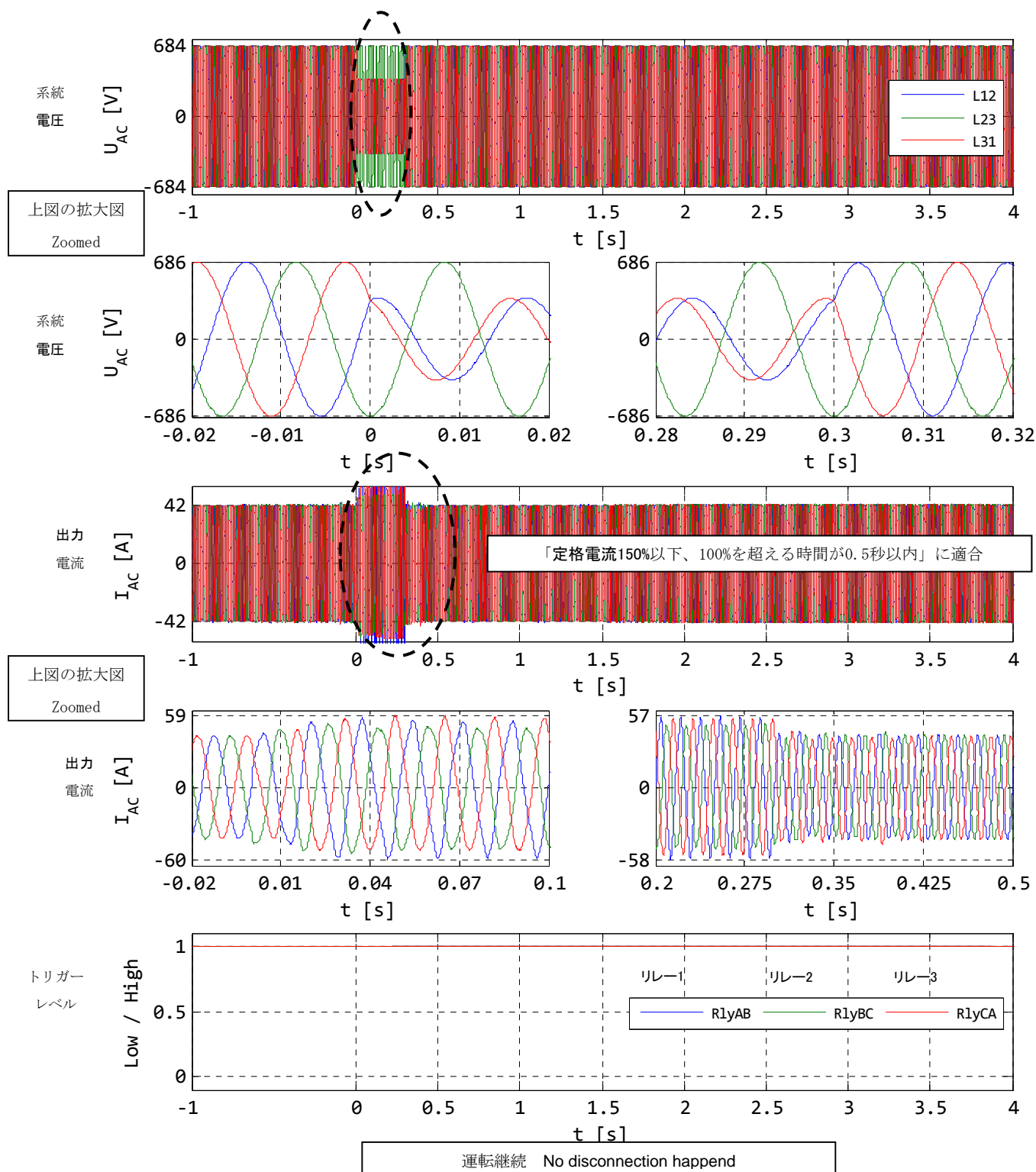


試験結果例：0.3 秒の瞬時電圧低下（二相短絡 Y 結線側）@60Hz/484V

Example of test item: FRT – Two Phase short-circuit Y connection side

| | | | |
|---------------|------------------|--------------------|--|
| Device | STP 2500TL-JP-30 | Date / Temp./ Hum. | 18.Mar.2015 / 23.47°C / 37.47% |
| Serial | 1900701684 | Validator | Kleinheinz |
| Sample Number | 08756 | TESYS-ID | TESYS10 / 3P.2.1b |
| SW-Version | 01.00.12.R | Scenario / Fault | JET602017VolDrop110 / 6-3-2-2a-P100-K0/BDEW/0° |
| Grid Type | ThreePhase | Type of diagram | RawData / Page 1 of 3 |

RawData: UacD, UacDZoom, Iac, IacZoom, GridRelais

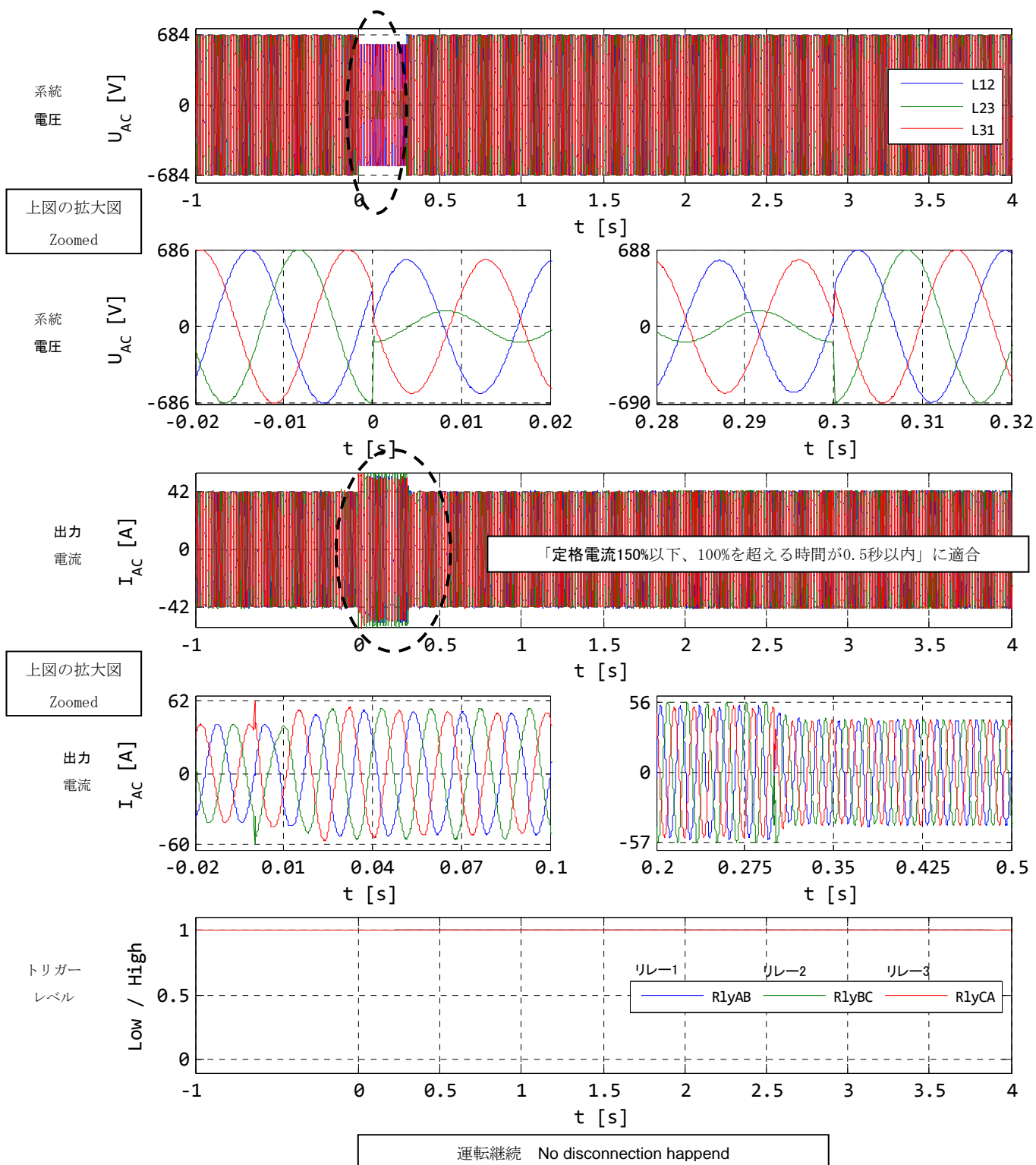


試験結果例：0.3 秒の瞬時電圧低下（二相短絡 Δ 結線側）@60Hz/484V

Example of test item: FRT – Two Phase short-circuit Δ connection side

| | | | |
|---------------|-------------------|--------------------|--|
| Device | STP 25000TL-JP-30 | Date / Temp./ Hum. | 18.Mar.2015 / 23.51°C / 37.7% |
| Serial | 1900701684 | Validator | Kleinheinz |
| Sample Number | 08756 | TESYS-ID | TESYS10 / 3P.2.1b |
| SW-Version | 01.00.12.R | Scenario / Fault | JET602017VolDrop110 / 6-3-2-2b-P100-K0/BDEW/0° |
| Grid Type | ThreePhase | Type of diagram | RawData / Page 1 of 3 |

RawData: UacD, UacDZoom, Iac, IacZoom, GridRelais



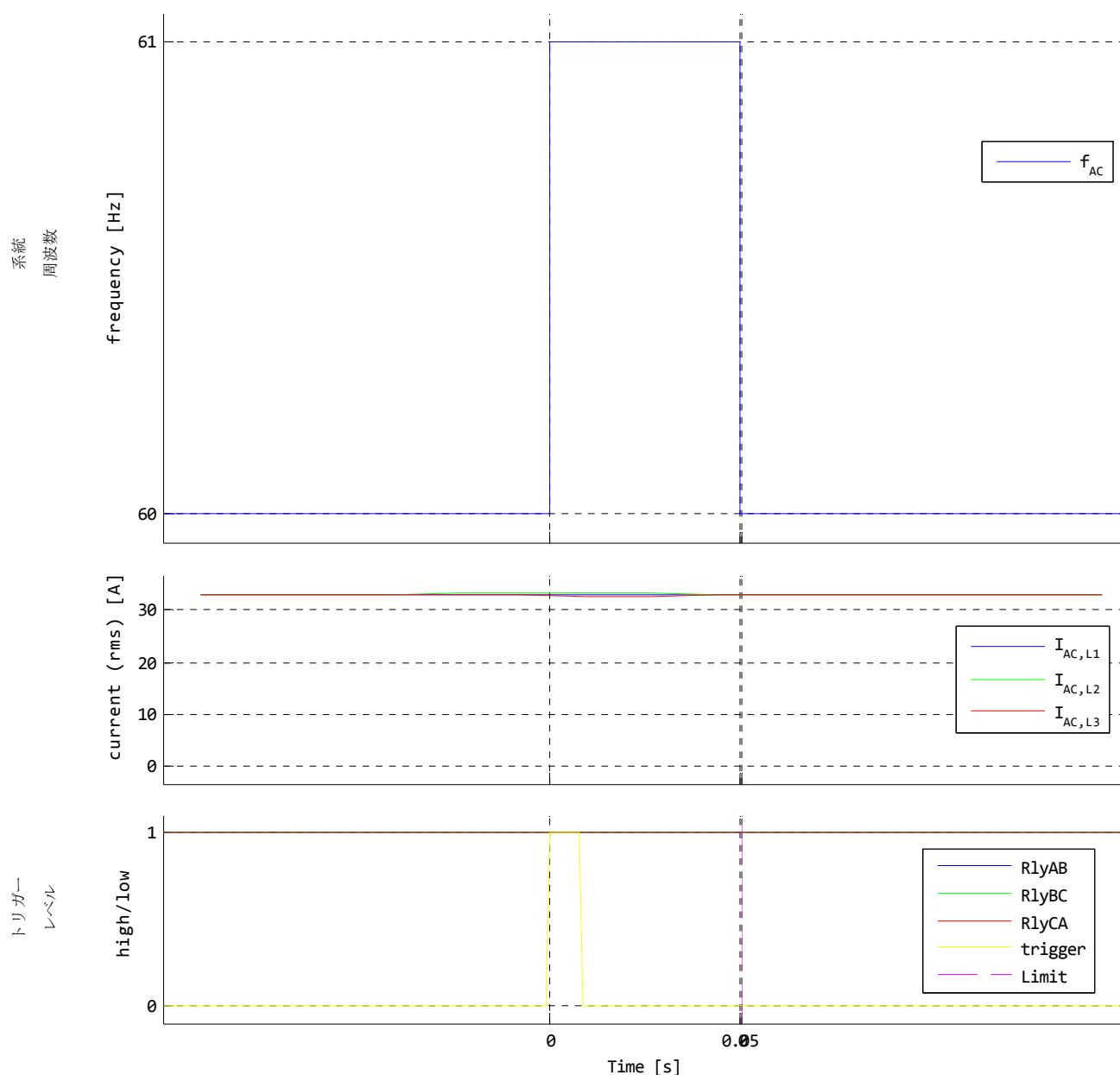
6.4 周波数変動試験(FRT-60Hz) – FRT acc. JEAC2012 – Frequency fluctuation Test (60Hz)

| 周波数変動 Frequency fluctuation | 判定基準 Criteria: | 結果 Result of DUT | 判定 Result |
|--|---------------------------------------|--|--------------|
| ランプ状+2Hz/sで61.8Hzまで Ramp +2Hz/s till 61.8Hz | 運転継続 No gateblock or disconnection | 運転継続 No gateblock or disconnection happened | OK |
| ランプ状-2Hz/sで57.0Hzまで Ramp -2Hz/s till 57.0Hz | 運転継続 No gateblock or disconnection | 運転継続 No gateblock or disconnection happened | OK |
| ステップ状に+1.0Hz Jump +1.0Hz for 3 cycles | 運転継続 No gateblock or disconnection | 運転継続 No gateblock or disconnection happened | OK |

試験結果例: 周波数変動試験 ステップ状に+1Hz @60Hz

Example of test item: Jump +1Hz for 3 cycles

| | | | |
|---------------|------------------|-------------------|-----------------------------------|
| Device | STP 2500TL-JP-30 | Date | 19.Mar.2015 |
| Serial | 1900701684 | Validator | Kleinheinz |
| Sample Number | 08756 | TESYS-ID | TESYS10 / 3P.2.1b |
| SW-Version | 01.00.12.R | VfDisCon-RideThru | 200.19.b-Jet60-VfDisCon-440V-60Hz |
| Grid Type | ThreePhase | Result | Stage1-GridF61RideThru: ok |

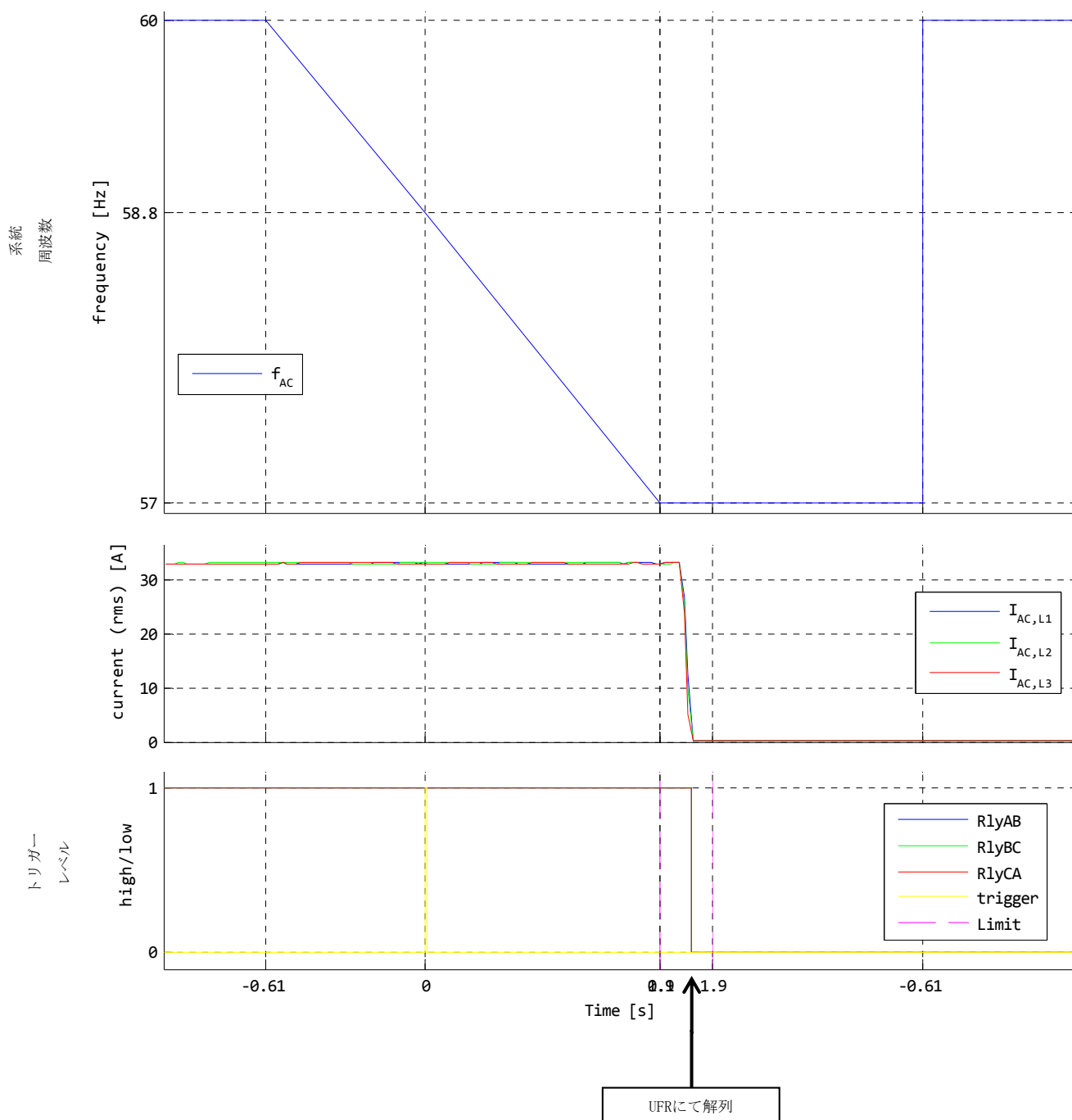


運転継続 No gateblock or disconnection happened

試験結果例: 周波数変動試験 ランプ状に-2Hz/sで57Hzまで @60Hz

Example of test item: Ramp -2Hz/s till 57Hz

| | | | |
|---------------|-------------------|-------------------|-----------------------------------|
| Device | STP 25000TL-JP-30 | Date | 19.Mar.2015 |
| Serial | 1900701684 | Validator | Kleinheinz |
| Sample Number | 08756 | TESYS-ID | TESYS10 / 3P.2.1b |
| SW-Version | 01.00.12.R | VfDisCon-TripTime | 200.19.b-Jet60-VfDisCon-440V-60Hz |
| Grid Type | ThreePhase | Result | GridFFluc58-8TT-1-1s: ok |

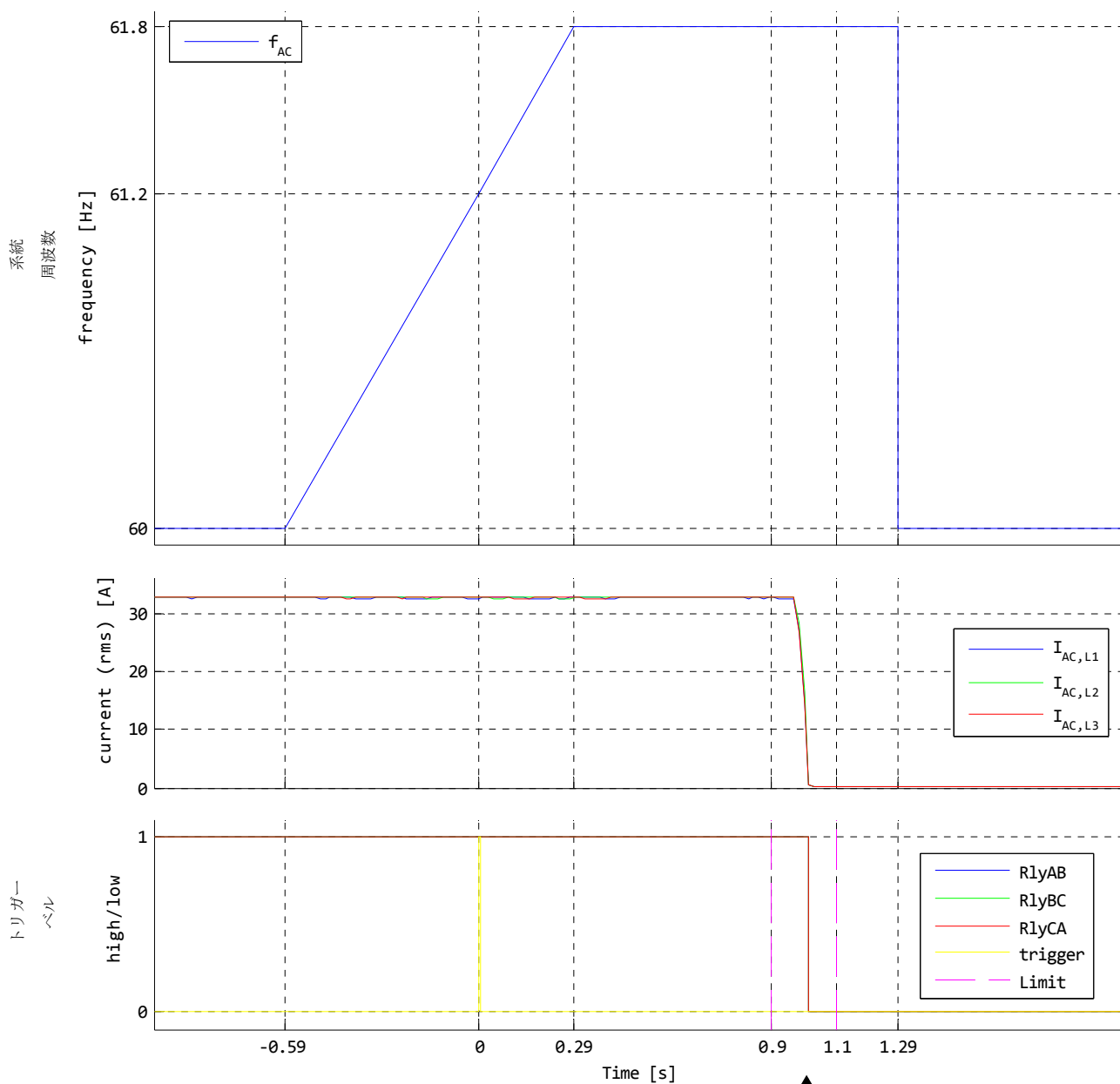


運転継続 No gateblock or disconnection happened

試験結果例: 周波数変動試験 ランプ状に+2Hz/sで61.8Hzまで @60Hz

Example of test item: Ramp +2Hz/s till 61.8Hz

| | | | |
|---------------|------------------|-------------------|-----------------------------------|
| Device | STP 2500TL-JP-30 | Date | 19.Mar.2015 |
| Serial | 1900701684 | Validator | Kleinheinz |
| Sample Number | 08756 | TESYS-ID | TESYS10 / 3P.2.1b |
| SW-Version | 01.00.12.R | VfDisCon-TripTime | 200.19.b-Jet60-VfDisCon-440V-60Hz |
| Grid Type | ThreePhase | Result | GridFFluc61-2TT-1-1s: ok |



運転継続 No gateblock or disconnection hapened

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