

INFORME FINAL 0311 (02) – 2018 (REV 02)

**Pruebas de Potencia Máxima UNIDAD #3-1, #3-2, #3-3 y #3-4,
Central Térmica San Lorenzo de Diego de Almagro
ENLASA Generación.**

Cliente



| ESTADO DEL DOCUMENTO | | | | |
|----------------------|------------|---|---------|--------|
| Revisión | Fecha | Observaciones | Elaboró | Revisó |
| 00 | 29.10.2018 | Preliminar para revisión por parte del Coordinador Eléctrico Nacional | JPD | PPC |
| 01 | 10.01.2019 | Corregido según observaciones Coordinador Eléctrico | JPD | PPC |
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1. INTRODUCCIÓN

El presente documento describe el procedimiento seguido para la prueba de potencia máxima de las unidades #3-1, #3-2, #3-3 y #3-4, pertenecientes a la Central Térmica San Lorenzo de Diego de Almagro, ubicada en la localidad de Diego de Almagro, III Región de Atacama, Chile.

La prueba se llevó a cabo para dar cumplimiento a al Anexo "Pruebas de Potencia Máxima en Unidades Generadoras" perteneciente a la norma técnica de seguridad y calidad del servicio (NTSyCS).

2. RESUMEN

2.1. La ejecución de la prueba de potencia máxima, se realizó de forma simultanea de las unidades #3-1, #3-2, #3-3 y #3-4, para lo cual se dispuso de dos medidores externos **Bender PEM 735** y un medidor ION 8650, conectados directamente a los bornes del generador. Los tres medidores, se instalaron en tres de los cuatro generadores, de acuerdo a la siguiente tabla:

| Unidad | Potencia | Medición |
|--------|----------|-----------|
| | [MW] | |
| 3-1 | 2,2 | PEM 735 |
| 3-2 | 2,2 | Calculada |
| 3-3 | 2,2 | ION 8650 |
| 3-4 | 0,9 | PEM 735 |

2.2. Para la medición de la potencia neta, se operó como es habitual con el interruptor 52 104 abierto y el interruptor 2101 cerrado (Ver diagrama unifilar en Anexos), de esta manera los servicios auxiliares quedaron alimentados desde una línea externa de 23kV, la medición se realizó aguas abajo del interruptor 52J2 (Lado 220kV) con el medidor de facturación **Schneider ION 8650** existente, los SSAA se descontarán de la potencia neta medida, esto determinara el valor final de potencia neta de la unidad.

2.3. El único combustible utilizado para la prueba de potencia máxima fue Diésel, previo a la prueba se tomó una muestra del mismo en cada unidad, la cual el coordinado envió a analizar a un laboratorio reconocido, el cual determinó los parámetros de este, en especial el poder calorífico, dicho análisis se adjunta en este informe.

2.4. Las correcciones por temperatura y humedad, se realizaron con tablas típicas según normas ISO.

3. RESPONSABILIDADES DEL PERSONAL INTERVINIENTE

3.1. Representante de ENLASA Generación

El representante de ENLASA Generación dispuso del personal de mantenimiento y operaciones de la central, el cual brindó el apoyo necesario para la ejecución de la prueba, y se responsabilizó de las siguientes tareas:

- Conexión de los equipos de medición en los puntos definidos según el presente protocolo
- Operación de las unidades #3-1, #3-2, #3-3 y #3-4 durante el periodo de estabilización y la prueba
- Facilitó el ingreso y recolección de datos de los dispositivos de medición existentes

3.2. Experto técnico de DMA Energía

El experto técnico fue el responsable de supervisar las pruebas para llevar adelante las pruebas de acuerdo a lo siguiente:

- Operó los equipos de medición arrendados
- Compiló la información obtenida de todas las mediciones
- Elaboró el acta de finalización de la prueba

- Elaboró y entregó el informe final de la prueba al Coordinador Eléctrico Nacional.

4. CARACTERISTICAS DE LAS UNIDADES BAJO PRUEBA

4.1. Datos de placa del motor diésel #3-1

| | |
|-----------------|-----------------------|
| Marca | Electro Motive Diesel |
| Modelo | EMD 20.645 - E4B |
| Número de Serie | 74C3.1527 |

4.2. Datos de placa del generador #3-1

| | | |
|--------------------|---------|---------------|
| Marca | | Baylor |
| Potencia | [kVA] | 2.604 |
| Un | [VAC] | 400 |
| In | [A] | 3.758 |
| RPM | [1/min] | 750 |
| Frecuencia | [Hz] | 50 |
| Factor de Potencia | | 0,80 |
| Número de Serie | | LM-65103-01-B |

4.3. Datos de placa del motor diésel #3-2

| | |
|-----------------|-----------------------|
| Marca | Electro Motive Diesel |
| Modelo | EMD 20.645 - E4B |
| Número de Serie | 75L3.1514 |

4.4. Datos de placa del generador #3-2

| | | |
|--------------------|---------|---------------|
| Marca | | Baylor |
| Potencia | [kVA] | 2.604 |
| Un | [VAC] | 400 |
| In | [A] | 3.758 |
| RPM | [1/min] | 750 |
| Frecuencia | [Hz] | 50 |
| Factor de Potencia | | 0,80 |
| Número de Serie | | LM-65103-02-B |

4.5. Datos de placa del motor diésel #3-3

| | |
|-----------------|-----------------------|
| Marca | Electro Motive Diesel |
| Modelo | EMD 20.645 - E4B |
| Número de Serie | 74K1.1007 |

4.6. Datos de placa del generador #3-3

| | | |
|--------------------|---------|----------------|
| Marca | | Ideal Electric |
| Potencia | [kVA] | 2.604 |
| Un | [VAC] | 400 |
| In | [A] | 3.758 |
| RPM | [1/min] | 750 |
| Frecuencia | [Hz] | 50 |
| Factor de Potencia | | 0,80 |
| Número de Serie | | 293477 |

4.7. Datos de placa del motor diésel #3-4

| | |
|-----------------|-----------------------|
| Marca | Electro Motive Diesel |
| Modelo | EMD 12-645-E1 |
| Número de Serie | 69-C1-1084 |

4.8. Datos de placa del generador #3-4

| | | |
|--------------------|---------|-------|
| Marca | | Kato |
| Potencia | [kVA] | 1.041 |
| Un | [VAC] | 400 |
| In | [A] | 1.504 |
| RPM | [1/min] | 750 |
| Frecuencia | [Hz] | 50 |
| Factor de Potencia | | 0,80 |
| Número de Serie | | 63698 |

5. CONDICIONES DE PRUEBA

Antes del inicio de la prueba se verificó que se cumpla con lo siguiente:

- No hay alarmas relevantes
- Todas las protecciones tienen que estaban operativas
- El modo de control por frecuencia estaba deshabilitado
- La unidad estaba operando bajo el modo control de carga

6. EJECUCIÓN DE LA PRUEBA

6.1. Verificaciones previas

Previo al inicio de las pruebas se verificó lo siguiente:

- Cumplimiento de las condiciones de prueba establecidas en punto 5
- Lectura de todos los dispositivos de medición
- Verificación de sincronización horaria de los dispositivos de medición
- Comprobar que el sistema de adquisición de datos de la planta opere correctamente
- Que todas las personas intervinientes se encuentren listas para el inicio de la prueba

6.2. Incremento de potencia y estabilización

Una vez que el operador puso en marcha las cuatro unidades, este incremenó en forma progresiva a todas hasta llegar a la potencia máxima disponible para las condiciones presentes tomando como límite la temperatura del fluido refrigerante, una vez en esta potencia, se verificó que tanto las variables eléctricas como las variables termodinámicas, se encontraban dentro de los límites seguros de operación.

Una vez alcanzada esta potencia, se dio comienzo al periodo de estabilización, dicho periodo fue menor a dos horas, durante el mismo no fue necesario corregir ningún parámetro. El experto técnico registró el horario de inicio y finalización del periodo de estabilización.

6.3. Inicio de la prueba

Una vez finalizado el periodo de estabilización se dio inicio a la prueba, para lo cual se dejó constancia en el acta de prueba del horario exacto de inicio.

6.4. Periodo de prueba valido

La prueba tuvo una duración mínima de 05:00Hs durante las cuales las unidades cumplieron con los parámetros de estabilidad definidos por normas de acuerdo a la tabla a continuación. A los fines prácticos, para tener un control del proceso de prueba, se evaluaron esas 5 horas en 10 segmentos de datos de 30 minutos de duración cada uno.

| PARAMETRO | VARIACIÓN ADMISIBLE | NORMA DE REFERENCIA |
|------------------------------|----------------------|---|
| Potencia Eléctrica | ±3 [%] | ASME - PTC 17 - Reciprocating Internal Combustion Engines |
| Velocidad Rotacional | ±1 / ±10 [%] / [rpm] | |
| Temperatura del Refrigerante | ±2 [°C] | ISO 1550 : 2016 - Internal combustion engines - Determination and method for the measurement of engine power - General requirements |
| Temperatura del Aceite | ±2 [°C] | |

6.5. Tasa de muestreo de los parámetros

Durante todo el periodo de prueba se registraron todos los parámetros cada un minuto.

6.6. Detalle de la toma de muestras de parámetros

En la tabla a continuación se detalla la forma en que se tomaron los datos de los parámetros durante el periodo de prueba.

| DETALLE DE MEDICIÓN Y ADQUISICIÓN DE DATOS | | | | | |
|--|---------------------|-------------------------------------|------------------|----------|------------------|
| Parámetro | Punto de Medición | Equipo a Utilizar | Unidad de Medida | Registro | Tasa de Muestreo |
| Potencia activa bruta Unidad #3-1 | Bornes MG#1 | PEM 735 | [kW] | Digital | 1 min |
| Potencia activa bruta Unidad #3-2 | Bornes MG#2 | PEM 735 | [kW] | Digital | 1 min |
| Potencia activa bruta Unidad #3-3 | Calculada | | | | |
| Potencia activa neta | Patio AT lado 220kV | ION 8650 | [kW] | Digital | 1 min |
| Velocidad del rotor | Pick Up cigüeñal | Sistema SCADA | [1/min] | Digital | 1 min |
| Temperatura del refrigerante | Salida del block | Sistema SCADA | [°C] | Digital | 1 min |
| Temperatura del aceite | Retorno a depósito | Sistema SCADA | [°C] | Digital | 1 min |
| Presión de aceite | Posterior a filtro | Sistema SCADA | [°C] | Digital | 1 min |
| Temperatura ambiente | Adyacencias TG#2 | Estación meteorología de la central | [°C] | Digital | 1 min |
| Humedad relativa | Adyacencias TG#2 | Estación meteorología de la central | [%] | Digital | 1 min |
| Presión atmosférica | Adyacencias TG#2 | Estación meteorología de la central | [mBar] | Digital | 1 min |

6.7. Finalización de la prueba

Una vez cumplido lo establecido en el punto 6.4, el experto técnico dio por finalizada la prueba, dejando el debido registro en el acta de prueba, la cual fue firmada por todos los presentes.

7. CONDICIONES PARTICULARES

No aplicaron condiciones particulares

8. RESULTADOS DE LA PRUEBA

8.1. Metodología de obtención y validación de datos potencia

Para la obtención de los datos de potencia tanto neta como bruta se realizará la medición en 10 segmentos de 30 mediciones cada uno con una tasa de muestreo de 1 minuto, para que cada segmento se considere válido, la desviación estándar del segmento debe ser inferior al 0,65%, en caso de que algún segmento esté fuera de esta desviación, se evaluará si no existen valores apartados, en caso de que exista algún valor apartado mayor a 2σ , este se omitirá considerándolo como error de medición si después de esta eliminación no se cumple con la desviación, se descartará el segmento completo y se continuará con la prueba hasta lograr los 10 segmentos válidos.

En la figura a continuación, se muestra la matriz de toma de datos en donde:

P_{msn} → corresponde a la potencia medida “m” del segmento “n”

P_{nn} → corresponde a la potencia medida del segmento “n” en el minuto “n”

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|------------|---|----------|---|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|---|
| P_{ms1} | = | PROMEDIO | (| P_{11} | P_{12} | P_{13} | P_{14} | P_{15} | P_{16} | P_{17} | P_{18} | P_{19} | P_{110} | P_{111} | P_{112} | P_{113} | P_{114} | P_{115} | P_{116} | P_{117} | P_{118} | P_{119} | P_{120} | P_{121} | P_{122} | P_{123} | P_{124} | P_{125} | P_{126} | P_{127} | P_{128} | P_{129} | P_{130} |) |
| P_{ms2} | = | PROMEDIO | (| P_{21} | P_{22} | P_{23} | P_{24} | P_{25} | P_{26} | P_{27} | P_{28} | P_{29} | P_{210} | P_{211} | P_{212} | P_{213} | P_{214} | P_{215} | P_{216} | P_{217} | P_{218} | P_{219} | P_{220} | P_{221} | P_{222} | P_{223} | P_{224} | P_{225} | P_{226} | P_{227} | P_{228} | P_{229} | P_{230} |) |
| P_{ms3} | = | PROMEDIO | (| P_{31} | P_{32} | P_{33} | P_{34} | P_{35} | P_{36} | P_{37} | P_{38} | P_{39} | P_{310} | P_{311} | P_{312} | P_{313} | P_{314} | P_{315} | P_{316} | P_{317} | P_{318} | P_{319} | P_{320} | P_{321} | P_{322} | P_{323} | P_{324} | P_{325} | P_{326} | P_{327} | P_{328} | P_{329} | P_{330} |) |
| P_{ms4} | = | PROMEDIO | (| P_{41} | P_{42} | P_{43} | P_{44} | P_{45} | P_{46} | P_{47} | P_{48} | P_{49} | P_{410} | P_{411} | P_{412} | P_{413} | P_{414} | P_{415} | P_{416} | P_{417} | P_{418} | P_{419} | P_{420} | P_{421} | P_{422} | P_{423} | P_{424} | P_{425} | P_{426} | P_{427} | P_{428} | P_{429} | P_{430} |) |
| P_{ms5} | = | PROMEDIO | (| P_{51} | P_{52} | P_{53} | P_{54} | P_{55} | P_{56} | P_{57} | P_{58} | P_{59} | P_{510} | P_{511} | P_{512} | P_{513} | P_{514} | P_{515} | P_{516} | P_{517} | P_{518} | P_{519} | P_{520} | P_{521} | P_{522} | P_{523} | P_{524} | P_{525} | P_{526} | P_{527} | P_{528} | P_{529} | P_{530} |) |
| P_{ms6} | = | PROMEDIO | (| P_{61} | P_{62} | P_{63} | P_{64} | P_{65} | P_{66} | P_{67} | P_{68} | P_{69} | P_{610} | P_{611} | P_{612} | P_{613} | P_{614} | P_{615} | P_{616} | P_{617} | P_{618} | P_{619} | P_{620} | P_{621} | P_{622} | P_{623} | P_{624} | P_{625} | P_{626} | P_{627} | P_{628} | P_{629} | P_{630} |) |
| P_{ms7} | = | PROMEDIO | (| P_{71} | P_{72} | P_{73} | P_{74} | P_{75} | P_{76} | P_{77} | P_{78} | P_{79} | P_{710} | P_{711} | P_{712} | P_{713} | P_{714} | P_{715} | P_{716} | P_{717} | P_{718} | P_{719} | P_{720} | P_{721} | P_{722} | P_{723} | P_{724} | P_{725} | P_{726} | P_{727} | P_{728} | P_{729} | P_{730} |) |
| P_{ms8} | = | PROMEDIO | (| P_{81} | P_{82} | P_{83} | P_{84} | P_{85} | P_{86} | P_{87} | P_{88} | P_{89} | P_{810} | P_{811} | P_{812} | P_{813} | P_{814} | P_{815} | P_{816} | P_{817} | P_{818} | P_{819} | P_{820} | P_{821} | P_{822} | P_{823} | P_{824} | P_{825} | P_{826} | P_{827} | P_{828} | P_{829} | P_{830} |) |
| P_{ms9} | = | PROMEDIO | (| P_{91} | P_{92} | P_{93} | P_{94} | P_{95} | P_{96} | P_{97} | P_{98} | P_{99} | P_{910} | P_{911} | P_{912} | P_{913} | P_{914} | P_{915} | P_{916} | P_{917} | P_{918} | P_{919} | P_{920} | P_{921} | P_{922} | P_{923} | P_{924} | P_{925} | P_{926} | P_{927} | P_{928} | P_{929} | P_{930} |) |
| P_{ms10} | = | PROMEDIO | (| P_{101} | P_{102} | P_{103} | P_{104} | P_{105} | P_{106} | P_{107} | P_{108} | P_{109} | P_{1010} | P_{1011} | P_{1012} | P_{1013} | P_{1014} | P_{1015} | P_{1016} | P_{1017} | P_{1018} | P_{1019} | P_{1020} | P_{1021} | P_{1022} | P_{1023} | P_{1024} | P_{1025} | P_{1026} | P_{1027} | P_{1028} | P_{1029} | P_{1030} |) |

Figura 8.1 – Matriz de datos medidos por segmento

8.2. Determinación de la potencia bruta en bornes del generador [$P_{bMG\#1}$, $P_{bMG\#2}$ y $P_{bMG\#3}$]

Para la determinación de la potencia bruta en los bornes de ambos generadores se utilizará la fórmula a continuación tomando como base lo expuesto en el punto 8.1. La muestra que se tomará es la del generador #1 y el generador #2 para el generador #3, se calculará la potencia bruta como el promedio entre la potencia bruta del #1 y #3.

$$P_{bMG\#n} = \frac{P_{ms1} + P_{ms2} + \dots + P_{ms10}}{10} \text{ [kW]}$$

Donde:

$P_{bMG\#n}$ → Potencia bruta en bornes de la unidad #n

P_{msn} → Potencia bruta medida en bornes de la unidad del segmento "n"

8.3. Determinación de la potencia neta de cada unidad [$P_{nMG\#1}$, $P_{nMG\#2}$, y $P_{nMG\#3}$]

Para la determinación de la potencia neta de cada unidad, primero se determinará la potencia neta total " P_{nt} " medida a la salida del transformador principal en 220kV, esta medición seguirá los mismos lineamientos expresados en el punto 8.1. y se utilizará la siguiente ecuación:

$$P_{nt} = \frac{P_{ms1} + P_{ms2} + \dots + P_{ms10}}{10} \text{ [kW]}$$

Donde:

P_{nt} → Potencia neta total medida en la salida del trazo de 220kV

P_{msn} → Potencia neta medida en la salida del trazo de 220kV del segmento "n"

Una vez obtenida la potencia neta total se determinarán los consumos propios [C_p] de la siguiente forma:

$$C_p = P_{bMG\#1} + P_{bMG\#2} + P_{bMG\#3} - P_{nt} \text{ [kW]}$$

Una vez obtenidos los consumos propios [C_P] se obtendrá la potencia neta de cada una de las unidades con las siguientes formulas:

$$P_{nMG\#1} = P_{bMG\#1} - \frac{C_P}{3} [kW]$$

$$P_{nMG\#2} = P_{bMG\#2} - \frac{C_P}{3} [kW]$$

$$P_{nMG\#3} = P_{bMG\#3} - \frac{C_P}{3} [kW]$$

8.4. Potencias corregidas

El procedimiento solicita que a las potencias brutas y netas medidas, se le apliquen las siguientes correcciones:

- Corrección por temperatura
- Corrección por humedad relativa
- Corrección por factor de potencia

8.4.1. Potencia bruta corregida

Para aplicar las correcciones se utilizarán las tablas del fabricante de los motores, dichos factores, se aplicarán a cada uno de los 10 segmentos de medición validos en función de los valores de temperatura, humedad y factor de potencia promedio del segmento, de acuerdo a la siguiente formula:

$$P_{bCMG\#n} = P_{bMG\#n} \left[\frac{(L_{TS1} \times L_{HS1} \times L_{PFS1}) + \dots + (L_{TS10} \times L_{HS10} \times L_{PFS10})}{10} \right] [kW]$$

Donde:

- $P_{bCMG\#n}$ → Potencia bruta corregida de la unidad "n" [kW]
 L_{TSn} → Factor de corrección por temperatura promedio del segmento "n"
 L_{HSn} → Factor de corrección por humedad promedio del segmento "n"
 L_{PFSn} → Factor de corrección por factor de potencia promedio del segmento "n"

8.4.2. Potencia neta corregida

Para aplicar las correcciones se utilizarán las tablas del fabricante de los motores, dichos factores, se aplicarán a cada uno de los 10 segmentos de medición validos en función de los valores de temperatura, humedad y factor de potencia promedio del segmento, de acuerdo a la siguiente formula:

$$P_{nCMG\#n} = P_{nMG\#n} \left[\frac{(L_{TS1} \times L_{HS1} \times L_{PFS1}) + \dots + (L_{TS10} \times L_{HS10} \times L_{PFS10})}{10} \right] [kW]$$

Donde:

- $P_{bCTG\#n}$ → Potencia bruta corregida de la unidad "n" [kW]
 L_{TSn} → Factor de corrección por temperatura promedio del segmento "n"
 L_{HSn} → Factor de corrección por humedad promedio del segmento "n"
 L_{PFSn} → Factor de corrección por factor de potencia promedio del segmento "n"

9. NORMAS APLICABLES

- Anexo Técnico: “Res. Ex. N°375 20160422 AT Pruebas de Potencia Máxima en Unidades Generadoras”
- ASME - PTC 17 – “Reciprocating Internal Combustion Engines”
- ISO 1550: 2016 – “Internal combustion engines - Determination and method for the measurement of engine power - General requirements”
- ASME PTC 19.1 “Test Uncertainty”

10. ANEXOS

- ANEXO I: Diagrama unifilar de la planta
- ANEXO II: Certificados de calibración de los equipos de medición
- ANEXO III: Tablas de corrección típicas
- ANEXO IV: Certificado de análisis del combustible
- ANEXO V: Acta de pruebas
- ANEXO VI: Consumo de Servicios Auxiliares

POTENCIA MÁXIMA MD #1

oct-18

| SEGMENTO >>> | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|--------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| HORA >>> | 19:40 | 20:10 | 20:40 | 21:10 | 21:40 | 22:10 | 22:40 | 23:10 | 23:40 | 00:10 |

| VARIABLES MEDIDAS | | | Unidad | Límite | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|-----------------------------|------|--|--------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Potencia Bruta | [MW] | | | | 2,253 | 2,252 | 2,250 | 2,255 | 2,252 | 2,253 | 2,251 | 2,244 | 2,262 | 2,260 |
| Factor de Potencia | | | | | 1,00 | 1,00 | 1,00 | 1,00 | 1,00 | 1,00 | 1,00 | 1,00 | 1,00 | 1,00 |
| Frecuencia | [Hz] | | | | 49,93 | 50,00 | 49,97 | 49,97 | 49,97 | 49,97 | 49,97 | 50,03 | 50,00 | 50,03 |
| Temperatura de Refrigerante | [°C] | | | | 59,4 | 58,9 | 58,9 | 59,4 | 60,9 | 61,2 | 60,3 | 59,7 | 60,3 | 60,2 |
| Temperatura de Aceite | [°C] | | | | 85,0 | 84,1 | 84,0 | 85,4 | 86,4 | 85,7 | 85,0 | 85,2 | 87,2 | 88,1 |
| Temperatura | [°C] | | | | 13,10 | 13,59 | 14,30 | 14,42 | 13,84 | 13,64 | 13,35 | 12,61 | 12,32 | 12,35 |
| Humedad Relativa | [%] | | | | 71,0 | 68,0 | 65,0 | 63,0 | 66,0 | 66,0 | 67,0 | 71,0 | 73,0 | 73,0 |

| VERIFICACIÓN DE ESTABILIDAD | | | | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|-----------------------------|------|----|---|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Potencia Bruta | [%] | ±3 | | | 0,032 | 0,025 | 0,022 | 0,025 | 0,027 | 0,023 | 0,028 | 0,018 | 0,018 | 0,016 |
| Frecuencia | [%] | ±1 | | | 0,051 | 0,051 | 0,051 | 0,051 | 0,051 | 0,051 | 0,051 | 0,051 | 0,051 | 0,051 |
| Temperatura de Refrigerante | [°C] | ±2 | - | 1,1 - | 0,0 | - | 0,8 | 1,6 - | 0,2 - | 0,5 - | 0,5 | 0,6 | 0,2 | |
| Temperatura de Aceite | [°C] | ±2 | - | 0,6 - | 0,5 | 0,2 | 0,8 | 0,5 | 0,3 | - | 1,5 | 1,9 - | 0,1 | |
| Cumple | | | | | SI | SI | SI | SI | SI | SI | SI | SI | SI | SI |

| | | | | | | | | | | | | | | |
|--------------------------------------|------|--|--|--|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| POTENCIA BRUTA MEDIDA | [MW] | | | | 2,253 | 2,252 | 2,250 | 2,255 | 2,252 | 2,253 | 2,251 | 2,244 | 2,262 | 2,260 |
| POTENCIA TRAF0 220 KV LADO AT | [MW] | | | | 2,060 | 2,232 | 2,241 | 2,223 | 2,220 | 2,226 | 2,223 | 2,220 | 2,232 | 2,235 |
| SERVICIOS AUXILIARES ** | [MW] | | | | 0,026 | 0,026 | 0,026 | 0,026 | 0,026 | 0,026 | 0,026 | 0,026 | 0,026 | 0,026 |
| POTENCIA NETA CALCULADA | [MW] | | | | 2,034 | 2,206 | 2,215 | 2,197 | 2,194 | 2,200 | 2,197 | 2,194 | 2,206 | 2,209 |

| CORRECCIONES | | | | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|-----------------------------|--|--|--|--|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| Por temperatura de admisión | | | | | 1,00 | 1,00 | 1,00 | 1,00 | 1,00 | 1,00 | 1,00 | 1,00 | 1,00 | 1,00 |
| Por humedad relativa | | | | | 1,00000 | 1,00000 | 1,00000 | 1,00000 | 1,00000 | 1,00000 | 1,00000 | 1,00000 | 1,00000 | 1,00000 |
| Por factor de potencia | | | | | 1,0000 | 1,0000 | 1,0000 | 1,0000 | 1,0000 | 1,0000 | 1,0000 | 1,0000 | 1,0000 | 1,0000 |

| | | | | | | | | | | | | | | |
|----------------------------------|------|--|--|--|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| POTENCIA BRUTA CORREGIDA* | [MW] | | | | 2,253 | 2,252 | 2,250 | 2,255 | 2,252 | 2,253 | 2,251 | 2,244 | 2,262 | 2,260 |
| POTENCIA NETA CORREGIDA* | [MW] | | | | 2,034 | 2,206 | 2,215 | 2,197 | 2,194 | 2,200 | 2,197 | 2,194 | 2,206 | 2,209 |

| POTENCIA MAXIMA BRUTA | | |
|-----------------------|------|--------------|
| MEDIDA | [MW] | 2,253 |
| CORREGIDA | [MW] | 2,253 |

| POTENCIA MAXIMA NETA | | |
|----------------------|------|--------------|
| CALCULADA | [MW] | 2,185 |
| CORREGIDA*** | [MW] | 2,185 |

* Las potencias corregidas coinciden con las potencias sin corregir debido a que las tablas utilizadas comienzan a corregir con valores superiores a los del día de medición e incluso superiores a los de contrato de la planta.

** Las potencias de los SSAA fueron aportados por el Enlase Generación Chile SA, ver ANEXO VI

*** Calculado según la siguiente fórmula -- Potencia Neta Corregida = Potencia Bruta Coregida - SS.AA. - Perdidas en el Transformador

POTENCIA MÁXIMA MD #2

oct-18

| SEGMENTO >>> | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|--------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| HORA >>> | 19:40 | 20:10 | 20:40 | 21:10 | 21:40 | 22:10 | 22:40 | 23:10 | 23:40 | 00:10 |

| | | Unidad | Límite | | | | | | | | | | |
|-----------------------------|------|--------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| VARIABLES MEDIDAS | | | | | | | | | | | | | |
| Potencia Bruta | [MW] | | | 2,221 | 2,242 | 2,224 | 2,232 | 2,215 | 2,232 | 2,211 | 2,222 | 2,236 | 2,219 |
| Factor de Potencia | | | | 1,00 | 1,00 | 1,00 | 1,00 | 1,00 | 1,00 | 1,00 | 1,00 | 1,00 | 1,00 |
| Frecuencia | [Hz] | | | 49,97 | 49,93 | 49,97 | 49,93 | 50,03 | 50,00 | 50,00 | 50,00 | 49,93 | 49,97 |
| Temperatura de Refrigerante | [°C] | | | 65,9 | 67,4 | 68,1 | 69,0 | 69,7 | 69,6 | 68,0 | 67,8 | 65,9 | 65,4 |
| Temperatura de Aceite | [°C] | | | 83,2 | 84,6 | 85,4 | 86,4 | 87,1 | 86,6 | 85,5 | 85,3 | 83,0 | 82,8 |
| Temperatura | [°C] | | | 13,10 | 13,59 | 14,30 | 14,42 | 13,84 | 13,64 | 13,35 | 12,61 | 12,32 | 12,35 |
| Humedad Relativa | [%] | | | 71,0 | 68,0 | 65,0 | 63,0 | 66,0 | 66,0 | 67,0 | 71,0 | 73,0 | 73,0 |

| | | | | | | | | | | | | | |
|------------------------------------|------|----|--|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| VERIFICACIÓN DE ESTABILIDAD | | | | | | | | | | | | | |
| Potencia Bruta | [%] | ±3 | | 0,003 | 0,009 | 0,014 | 0,019 | 0,005 | 0,023 | 0,012 | 0,007 | 0,010 | 0,011 |
| Frecuencia | [%] | ±1 | | 0,005 | 0,005 | 0,005 | 0,005 | 0,005 | 0,005 | 0,005 | 0,005 | 0,005 | 0,005 |
| Temperatura de Refrigerante | [°C] | ±2 | | 0,2 | 0,8 | 0,4 | 0,1 | 0,6 - | 0,3 - | 0,5 | - | 0,7 - | 0,2 |
| Temperatura de Aceite | [°C] | ±2 | | 0,5 | 0,8 | 0,3 | 0,5 | 0,2 - | 0,9 - | 1,0 | 0,5 - | 0,3 | - |
| Cumple | | | | SI | SI | SI | SI | SI | SI | SI | SI | SI | SI |

| | | | | | | | | | | | | | |
|--------------------------------------|------|--|--|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| POTENCIA BRUTA MEDIDA | [MW] | | | 2,221 | 2,242 | 2,224 | 2,232 | 2,215 | 2,232 | 2,211 | 2,222 | 2,236 | 2,219 |
| POTENCIA TRAF0 220 KV LADO AT | [MW] | | | 2,034 | 2,204 | 2,213 | 2,195 | 2,192 | 2,198 | 2,195 | 2,192 | 2,204 | 2,207 |
| SERVICIOS AUXILIARES ** | [MW] | | | 0,026 | 0,026 | 0,026 | 0,026 | 0,026 | 0,026 | 0,026 | 0,026 | 0,026 | 0,026 |
| POTENCIA NETA CALCULADA | [MW] | | | 2,008 | 2,178 | 2,187 | 2,169 | 2,166 | 2,172 | 2,169 | 2,166 | 2,178 | 2,181 |

| | | | | | | | | | | | | | |
|-----------------------------|--|--|--|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| CORRECCIONES | | | | | | | | | | | | | |
| Por temperatura de admisión | | | | 1,00 | 1,00 | 1,00 | 1,00 | 1,00 | 1,00 | 1,00 | 1,00 | 1,00 | 1,00 |
| Por humedad relativa | | | | 1,00000 | 1,00000 | 1,00000 | 1,00000 | 1,00000 | 1,00000 | 1,00000 | 1,00000 | 1,00000 | 1,00000 |
| Por factor de potencia | | | | 1,0000 | 1,0000 | 1,0000 | 1,0000 | 1,0000 | 1,0000 | 1,0000 | 1,0000 | 1,0000 | 1,0000 |

| | | | | | | | | | | | | | |
|----------------------------------|------|--|--|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| POTENCIA BRUTA CORREGIDA* | [MW] | | | 2,221 | 2,242 | 2,224 | 2,232 | 2,215 | 2,232 | 2,211 | 2,222 | 2,236 | 2,219 |
| POTENCIA NETA CORREGIDA* | [MW] | | | 2,008 | 2,178 | 2,187 | 2,169 | 2,166 | 2,172 | 2,169 | 2,166 | 2,178 | 2,181 |

| POTENCIA MAXIMA BRUTA | | |
|------------------------------|------|--------------|
| MEDIDA | [MW] | 2,225 |
| CORREGIDA | [MW] | 2,225 |

| POTENCIA MAXIMA NETA | | |
|-----------------------------|------|--------------|
| CALCULADA | [MW] | 2,158 |
| CORREGIDA*** | [MW] | 2,158 |

* Las potencias corregidas coinciden con las potencias sin corregir debido a que las tablas utilizadas comienzan a corregir con valores superiores a los del día de medición e incluso superiores a los de contrato de la planta.

** Las potencias de los SSAA fueron aportados por el Enlase Generación Chile SA, ver ANEXO VI

*** Calculado según la siguiente fórmula -- Potencia Neta Corregida = Potencia Bruta Coregida - SS.AA. - Perdidas en el Transformador

POTENCIA MÁXIMA MD #3

oct-18

| SEGMENTO >>> | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|--------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| HORA >>> | 19:40 | 20:10 | 20:40 | 21:10 | 21:40 | 22:10 | 22:40 | 23:10 | 23:40 | 00:10 |

| | | Unidad | Límite | | | | | | | | | | |
|-----------------------------|------|--------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| VARIABLES MEDIDAS | | | | | | | | | | | | | |
| Potencia Bruta | [MW] | | | 2,218 | 2,237 | 2,327 | 2,207 | 2,204 | 2,196 | 2,190 | 2,203 | 2,208 | 2,215 |
| Factor de Potencia | | | | 1,00 | 1,00 | 1,00 | 1,00 | 1,00 | 1,00 | 1,00 | 1,00 | 1,00 | 1,00 |
| Frecuencia | [Hz] | | | 49,97 | 49,97 | 49,97 | 50,00 | 50,00 | 49,97 | 50,03 | 50,00 | 50,00 | 40,97 |
| Temperatura de Refrigerante | [°C] | | | 72,8 | 74,6 | 75,0 | 74,7 | 75,4 | 75,3 | 75,0 | 74,0 | 73,4 | 74,2 |
| Temperatura de Aceite | [°C] | | | 97,1 | 98,8 | 100,8 | 100,1 | 101,1 | 101,6 | 101,7 | 101,3 | 101,1 | 101,4 |
| Temperatura | [°C] | | | 13,10 | 13,59 | 14,30 | 14,42 | 13,84 | 13,64 | 13,35 | 12,61 | 12,32 | 12,35 |
| Humedad Relativa | [%] | | | 71,0 | 68,0 | 65,0 | 63,0 | 66,0 | 66,0 | 67,0 | 71,0 | 73,0 | 73,0 |

| | | | | | | | | | | | | | |
|------------------------------------|------|----|--|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| VERIFICACIÓN DE ESTABILIDAD | | | | | | | | | | | | | |
| Potencia Bruta | [%] | ±3 | | 0,042 | 0,042 | 0,042 | 0,042 | 0,042 | 0,042 | 0,042 | 0,042 | 0,042 | 0,042 |
| Frecuencia | [%] | ±1 | | 0,046 | 0,046 | 0,046 | 0,046 | 0,046 | 0,046 | 0,046 | 0,046 | 0,046 | 0,046 |
| Temperatura de Refrigerante | [°C] | ±2 | | 1,0 | 0,8 | - | 0,5 | 0,4 | 0,6 | - | 0,2 | - | 0,5 |
| Temperatura de Aceite | [°C] | ±2 | | 1,5 | 0,2 | 0,5 | 0,1 | 0,1 | 0,1 | - | 0,4 | - | 0,3 |
| Cumple | | | | SI | SI | SI | SI | SI | SI | SI | SI | SI | SI |

| | | | | | | | | | | | | | |
|--------------------------------------|------|--|--|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| POTENCIA BRUTA MEDIDA | [MW] | | | 2,218 | 2,237 | 2,327 | 2,207 | 2,204 | 2,196 | 2,190 | 2,203 | 2,208 | 2,215 |
| POTENCIA TRAF0 220 KV LADO AT | [MW] | | | 2,029 | 2,199 | 2,208 | 2,190 | 2,187 | 2,193 | 2,190 | 2,187 | 2,199 | 2,202 |
| SERVICIOS AUXILIARES ** | [MW] | | | 0,026 | 0,026 | 0,026 | 0,026 | 0,026 | 0,026 | 0,026 | 0,026 | 0,026 | 0,026 |
| POTENCIA NETA CALCULADA | [MW] | | | 2,004 | 2,173 | 2,182 | 2,164 | 2,161 | 2,167 | 2,164 | 2,161 | 2,173 | 2,176 |

| | | | | | | | | | | | | | |
|-----------------------------|--|--|--|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| CORRECCIONES | | | | | | | | | | | | | |
| Por temperatura de admisión | | | | 1,00 | 1,00 | 1,00 | 1,00 | 1,00 | 1,00 | 1,00 | 1,00 | 1,00 | 1,00 |
| Por humedad relativa | | | | 1,00000 | 1,00000 | 1,00000 | 1,00000 | 1,00000 | 1,00000 | 1,00000 | 1,00000 | 1,00000 | 1,00000 |
| Por factor de potencia | | | | 1,0000 | 1,0000 | 1,0000 | 1,0000 | 1,0000 | 1,0000 | 1,0000 | 1,0000 | 1,0000 | 1,0000 |

| | | | | | | | | | | | | | |
|----------------------------------|------|--|--|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| POTENCIA BRUTA CORREGIDA* | [MW] | | | 2,218 | 2,237 | 2,327 | 2,207 | 2,204 | 2,196 | 2,190 | 2,203 | 2,208 | 2,215 |
| POTENCIA NETA CORREGIDA* | [MW] | | | 2,004 | 2,173 | 2,182 | 2,164 | 2,161 | 2,167 | 2,164 | 2,161 | 2,173 | 2,176 |

| POTENCIA MAXIMA BRUTA | | |
|-----------------------|------|--------------|
| MEDIDA | [MW] | 2,221 |
| CORREGIDA | [MW] | 2,221 |

| POTENCIA MAXIMA NETA | | |
|----------------------|------|--------------|
| CALCULADA | [MW] | 2,153 |
| CORREGIDA*** | [MW] | 2,153 |

* Las potencias corregidas coinciden con las potencias sin corregir debido a que las tablas utilizadas comienzan a corregir con valores superiores a los del día de medición e incluso superiores a los de contrato de la planta.

** Las potencias de los SSAA fueron aportados por el Enlase Generación Chile SA, ver ANEXO VI

*** Calculado según la siguiente fórmula -- Potencia Neta Corregida = Potencia Bruta Coregida - SS.AA. - Perdidas en el Transformador

POTENCIA MÁXIMA MD #4

oct-18

| SEGMENTO >>> | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|--------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| HORA >>> | 19:40 | 20:10 | 20:40 | 21:10 | 21:40 | 22:10 | 22:40 | 23:10 | 23:40 | 00:10 |

Unidad Límite

VARIABLES MEDIDAS

| | | | | | | | | | | | | |
|-----------------------------|------|--|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Potencia Bruta | [MW] | | 0,918 | 0,899 | 0,886 | 0,887 | 0,888 | 0,886 | 0,885 | 0,887 | 0,892 | 0,907 |
| Factor de Potencia | | | 1,00 | 1,00 | 1,00 | 1,00 | 1,00 | 1,00 | 1,00 | 1,00 | 1,00 | 1,00 |
| Frecuencia | [Hz] | | 49,98 | 50,00 | 50,00 | 49,98 | 50,01 | 49,99 | 50,01 | 50,01 | 50,00 | 49,99 |
| Temperatura de Refrigerante | [°C] | | 73,9 | 74,8 | 75,9 | 76,3 | 77,1 | 76,8 | 77,5 | 77,2 | 76,6 | 75,8 |
| Temperatura de Aceite | [°C] | | 85,3 | 92,8 | 94,4 | 95,1 | 95,5 | 95,6 | 95,6 | 95,6 | 95,2 | 95,0 |
| Temperatura | [°C] | | 13,10 | 13,59 | 14,30 | 14,42 | 13,84 | 13,64 | 13,35 | 12,61 | 12,32 | 12,35 |
| Humedad Relativa | [%] | | 71,0 | 68,0 | 65,0 | 63,0 | 66,0 | 66,0 | 67,0 | 71,0 | 73,0 | 73,0 |

VERIFICACIÓN DE ESTABILIDAD

| | | | | | | | | | | | | |
|-----------------------------|------|----|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Potencia Bruta | [%] | ±3 | 0,009 | 0,005 | 0,003 | 0,002 | 0,002 | 0,002 | 0,003 | 0,003 | 0,003 | 0,008 |
| Frecuencia | [%] | ±1 | 0,050 | 0,051 | 0,044 | 0,048 | 0,041 | 0,049 | 0,044 | 0,035 | 0,037 | 0,036 |
| Temperatura de Refrigerante | [°C] | ±2 | 1,0 | 0,3 | 0,5 | 0,4 | 0,2 - | 0,2 - | 0,6 | - | 0,9 - | 0,5 |
| Temperatura de Aceite | [°C] | ±2 | 0,1 | 1,0 | - | 0,2 | 0,2 | - | - | - | 0,3 | - |
| Cumple | | | SI | SI | SI | SI | SI | SI | SI | SI | SI | SI |

| | | | | | | | | | | | | |
|--------------------------------------|------|--|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| POTENCIA BRUTA MEDIDA | [MW] | | 0,918 | 0,899 | 0,886 | 0,887 | 0,888 | 0,886 | 0,885 | 0,887 | 0,892 | 0,907 |
| POTENCIA TRAF0 220 KV LADO AT | [MW] | | 0,817 | 0,886 | 0,889 | 0,882 | 0,881 | 0,883 | 0,882 | 0,881 | 0,886 | 0,887 |
| SERVICIOS AUXILIARES ** | [MW] | | 0,011 | 0,011 | 0,011 | 0,011 | 0,011 | 0,011 | 0,011 | 0,011 | 0,011 | 0,011 |
| POTENCIA NETA CALCULADA | [MW] | | 0,807 | 0,875 | 0,879 | 0,871 | 0,870 | 0,873 | 0,871 | 0,870 | 0,875 | 0,876 |

CORRECCIONES

| | | | | | | | | | | | | |
|-----------------------------|--|--|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| Por temperatura de admisión | | | 1,00 | 1,00 | 1,00 | 1,00 | 1,00 | 1,00 | 1,00 | 1,00 | 1,00 | 1,00 |
| Por humedad relativa | | | 1,00000 | 1,00000 | 1,00000 | 1,00000 | 1,00000 | 1,00000 | 1,00000 | 1,00000 | 1,00000 | 1,00000 |
| Por factor de potencia | | | 1,0000 | 1,0000 | 1,0000 | 1,0000 | 1,0000 | 1,0000 | 1,0000 | 1,0000 | 1,0000 | 1,0000 |

| | | | | | | | | | | | | |
|----------------------------------|------|--|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| POTENCIA BRUTA CORREGIDA* | [MW] | | 0,918 | 0,899 | 0,886 | 0,887 | 0,888 | 0,886 | 0,885 | 0,887 | 0,892 | 0,907 |
| POTENCIA NETA CORREGIDA* | [MW] | | 0,807 | 0,875 | 0,879 | 0,871 | 0,870 | 0,873 | 0,871 | 0,870 | 0,875 | 0,876 |

| POTENCIA MAXIMA BRUTA | | |
|-----------------------|------|--------------|
| MEDIDA | [MW] | 0,894 |
| CORREGIDA | [MW] | 0,894 |

| POTENCIA MAXIMA NETA | | |
|----------------------|------|--------------|
| CALCULADA | [MW] | 0,867 |
| CORREGIDA*** | [MW] | 0,867 |

* Las potencias corregidas coinciden con las potencias sin corregir debido a que las tablas utilizadas comienzan a corregir con valores superiores a los del día de medición e incluso superiores a los de contrato de la planta.

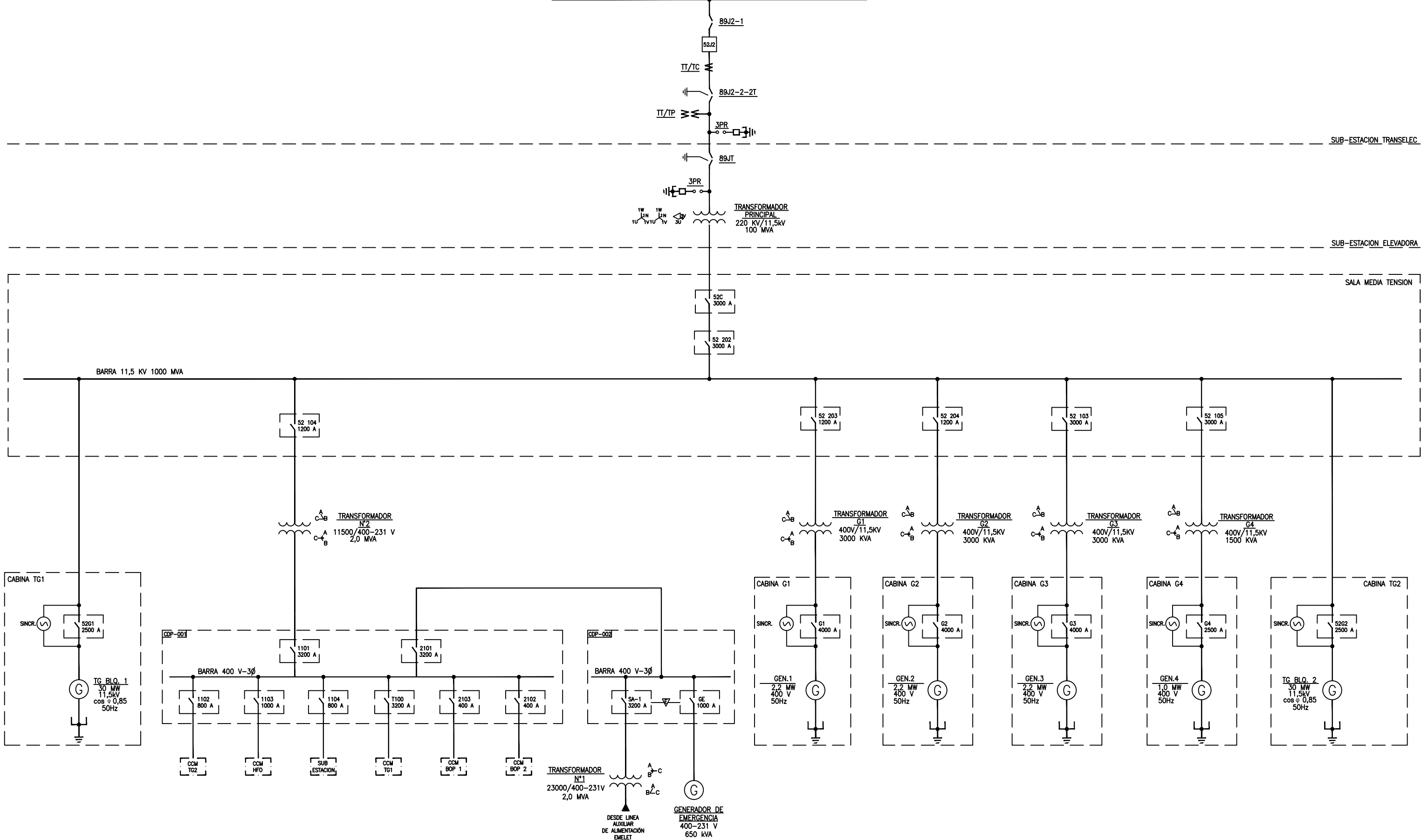
** Las potencias de los SSAA fueron aportados por el Enlase Generación Chile SA, ver ANEXO VI

*** Calculado según la siguiente fórmula -- Potencia Neta Corregida = Potencia Bruta Coregida - SS.AA. - Perdidas en el Transformador

Anexo I

Diagrama unifilar de la planta

BARRA 220 KV 3F 50HZ 2000A 25KA-BARRA B - CGE S/E DIEGO DE ALMAGRO



| REV. | FECHA | DESCRIPCION | DIB. | REV. | APR. |
|------|----------|-----------------------|------|------|------|
| 3 | 23.06.14 | EMITIDO PARA REVISION | E.R. | J.M. | J.A. |
| 2 | 17.06.14 | EMITIDO PARA REVISION | E.R. | J.M. | J.A. |
| 1 | 17.05.09 | EMITIDO PARA REVISION | E.R. | J.J. | J.A. |
| 0 | 24.04.09 | EMITIDO PARA REVISION | E.R. | J.J. | J.A. |
| | | OBSERVACIONES | | | |
| | | REVISIONES | | | |

| | | | | | |
|---|---|--|--|----------------------------|------------------------------------|
| | | INGENIERIA Y SERVICIOS | | DIAGRAMA UNILINEAL GENERAL | |
| PROYECTO: AMPLIACION DE POTENCIA CENTRAL TERMoeLECTRICA DIEGO DE ALMAGRO | DESCRIPCION: PROYECTO: DIBUJO: REVISION: APROBO.: | NOMBRE: E.RUIZ E.RUIZ J.MEDINA H.OPAZO | FECHA: 23-06-2014 23-06-2014 23-06-2014 23-06-2014 | FIRMA: | N° DE PLANO: ENLA-001-E-PLN-001 |
| | | | | N° DE LAMINA: 1 DE 1 | REV: 3 |

Anexo II

Certificados de calibración de los equipos de
medición

INFORME DE ENSAYO CVM - 008-2018104 -17-00

UNDERFIRE S.A. Acreditado por el Instituto Nacional de Normalización según Nch-ISO 17025 bajo acreditación N° LE 691 de fecha 03 de Julio de 2012

ANTECEDENTES DEL MEDIDOR DE ENERGÍA ELECTRICA

Estado : USADO
 Marca : BENDER
 Tipo : PEM735
 Procedencia : Alemania
 N° de serie : 1803800026
 Año fabricación : 2018
 Tensión : 3x230/400 V.
 Corriente : 5 (6) A.
 Frecuencia : 50 Hz.
 Constante : 1000 imp/kwh-kvarh
 Clase Exact.(%) : 0.2(2) Activa/Reactiva
 Constante de Lectura : 1:1V - 1:1A
 Lectura Encontrada : 0 kWh
 Lectura Dejada : 0 kWh

ANTECEDENTES DEL CLIENTE

Cliente : DMA Energia SpA
 Ubicación : Av. Recoleta 479 depto 12
 Numero / Fecha Solicitud : 5389/25-09-2018

FECHA Y LUGAR DE ENSAYO

Fecha : 25/09/2018
 Lugar de Ensayo (Circuito) : Laboratorio Underfire S.A

EQUIPO DE ENSAYO

Marca / Modelo : ZERA MT786
 Clase Exact. (%) : 0.05
 Trazabilidad : LC-ME

MÉTODO Y CONDICIÓN DE ENSAYO

Método de Ensayo : PROTOCOLO CEN
 Especialista : JRP
 Temperatura y humedad : 23° ±5°C 30-70% HR

RESULTADO DE LOS ENSAYOS

ENERGÍA ACTIVA

| N° | Fases | Corriente % lb | Factor de | Error % E. Directa | Error % E. Reversa | Limite Norma % |
|----|-------|----------------|-----------|--------------------|--------------------|----------------|
| 1 | 1,2,3 | 100 | 1.0 | -0.08 | -0.08 | +/- 0.2 |
| 2 | 1,2,3 | 10 | 1.0 | -0.05 | -0.05 | +/- 0.2 |
| 3 | 1,2,3 | 100 | 0.5 | -0.07 | -0.05 | +/- 0.3 |
| 4 | 1,2,3 | 10 | 0.5 | -0.04 | -0.03 | +/- 0.3 |
| 5 | 1 | 100 | 1.0 | -0.02 | -0.02 | +/- 0.3 |
| 6 | 1 | 10 | 1.0 | -0.10 | -0.07 | +/- 0.3 |
| 7 | 1 | 100 | 0.5 | +0.01 | +0.00 | +/- 0.4 |
| 8 | 1 | 10 | 0.5 | -0.05 | -0.09 | +/- 0.4 |
| 9 | 2 | 100 | 1.0 | -0.02 | -0.06 | +/- 0.3 |
| 10 | 2 | 10 | 1.0 | -0.05 | -0.06 | +/- 0.3 |
| 11 | 2 | 100 | 0.5 | -0.04 | -0.06 | +/- 0.4 |
| 12 | 2 | 10 | 0.5 | -0.03 | -0.04 | +/- 0.4 |
| 13 | 3 | 100 | 1.0 | -0.02 | -0.04 | +/- 0.3 |
| 14 | 3 | 10 | 1.0 | -0.03 | -0.03 | +/- 0.3 |
| 15 | 3 | 100 | 0.5 | +0.00 | -0.04 | +/- 0.4 |
| 16 | 3 | 10 | 0.5 | -0.02 | -0.02 | +/- 0.4 |

ENERGÍA REACTIVA

| N | Fases | Corriente % lb | Factor Potencia | Error % E. Directa | Error % E. Reversa | Limite Norma % |
|----|-------|----------------|-----------------|--------------------|--------------------|----------------|
| 1 | 1,2,3 | 100 | 1.0 | -0.03 | -0.09 | +/- 2.0 |
| 2 | 1,2,3 | 10 | 1.0 | -0.23 | -0.04 | +/- 2.0 |
| 3 | 1,2,3 | 100 | 0.5 | +0.00 | -0.03 | +/- 2.0 |
| 4 | 1,2,3 | 10 | 0.5 | -0.06 | -0.02 | +/- 2.0 |
| 5 | 1 | 100 | 1.0 | -0.04 | -0.03 | +/- 3.0 |
| 6 | 1 | 10 | 1.0 | -0.06 | -0.07 | +/- 3.0 |
| 7 | 1 | 100 | 0.5 | -0.07 | -0.03 | +/- 3.0 |
| 8 | 1 | 10 | 0.5 | -0.05 | -0.02 | +/- 3.0 |
| 9 | 2 | 100 | 1.0 | -0.05 | -0.02 | +/- 3.0 |
| 10 | 2 | 10 | 1.0 | -0.07 | -0.05 | +/- 3.0 |
| 11 | 2 | 100 | 0.5 | +0.01 | +0.07 | +/- 3.0 |
| 12 | 2 | 10 | 0.5 | -0.07 | -0.07 | +/- 3.0 |
| 13 | 3 | 100 | 1.0 | -0.01 | -0.04 | +/- 3.0 |
| 14 | 3 | 10 | 1.0 | -0.03 | -0.02 | +/- 3.0 |
| 15 | 3 | 100 | 0.5 | -0.04 | -0.04 | +/- 3.0 |
| 16 | 3 | 10 | 0.5 | -0.06 | -0.03 | +/- 3.0 |

OBSERVACIONES

El medidor ensayado se encuentra dentro de las tolerancias indicadas por la norma IEC 62053-22 para la medición de energía activa e IEC 62053-23 para la medición de energía reactiva. Este informe sin firma ni timbre carece de validez.



José Rocuant P.
 Ing. Jefe Laboratorio

| | | | | | |
|--------|-----------|---------|-----|-------|------------|
| Código | F-EIE-018 | Versión | 1.0 | Fecha | 01.12.2014 |
|--------|-----------|---------|-----|-------|------------|

INFORME DE ENSAYO CVM - 008-2018103 -17-00

UNDERFIRE S.A. Acreditado por el Instituto Nacional de Normalización según Nch-ISO 17025 bajo acreditación N° LE 691 de fecha 03 de Julio de 2012

ANTECEDENTES DEL MEDIDOR DE ENERGÍA ELÉCTRICA

Estado : USADO
 Marca : BENDER
 Tipo : PEM735
 Procedencia : Alemania
 N° de serie : 1502800025
 Año fabricación : 2018
 Tensión : 3x230/400 V.
 Corriente : 5 (6) A.
 Frecuencia : 50 Hz.
 Constante : 1000 imp/kwh-kvarh
 Clase Exact.(%) : 0.2(2) Activa/Reactiva
 Constante de Lectura : 1:1V - 1:1A
 Lectura Encontrada : 0 kWh
 Lectura Dejada : 0 kWh

ANTECEDENTES DEL CLIENTE

Cliente : DMA Energia SpA
 Ubicación : Av. Recoleta 479 depto 12
 Numero / Fecha Solicitud : 5389/25-09-2018

FECHA Y LUGAR DE ENSAYO

Fecha : 25/09/2018
 Lugar de Ensayo (Circuito) : Laboratorio Underfire S.A

EQUIPO DE ENSAYO

Marca / Modelo : ZERA MT786
 Clase Exact. (%) : 0.05
 Trazabilidad : LC-ME

MÉTODO Y CONDICIÓN DE ENSAYO

Método de Ensayo : PROTOCOLO CEN
 Especialista : JRP
 Temperatura y humedad : 23° ±5°C 30-70% HR

RESULTADO DE LOS ENSAYOS

ENERGÍA ACTIVA

| N° | Fases | Corriente % lb | Factor de | Error % E. Directa | Error % E. Reversa | Limite Norma % |
|----|-------|----------------|-----------|--------------------|--------------------|----------------|
| 1 | 1,2,3 | 100 | 1.0 | -0.05 | -0.04 | +/- 0.2 |
| 2 | 1,2,3 | 10 | 1.0 | +0.00 | +0.01 | +/- 0.2 |
| 3 | 1,2,3 | 100 | 0.5 | -0.01 | -0.01 | +/- 0.3 |
| 4 | 1,2,3 | 10 | 0.5 | -0.04 | -0.03 | +/- 0.3 |
| 5 | 1 | 100 | 1.0 | +0.08 | -0.02 | +/- 0.3 |
| 6 | 1 | 10 | 1.0 | +0.02 | +0.02 | +/- 0.3 |
| 7 | 1 | 100 | 0.5 | +0.05 | +0.03 | +/- 0.4 |
| 8 | 1 | 10 | 0.5 | -0.06 | -0.05 | +/- 0.4 |
| 9 | 2 | 100 | 1.0 | -0.02 | +0.05 | +/- 0.3 |
| 10 | 2 | 10 | 1.0 | +0.02 | -0.02 | +/- 0.3 |
| 11 | 2 | 100 | 0.5 | -0.04 | +0.01 | +/- 0.4 |
| 12 | 2 | 10 | 0.5 | +0.02 | -0.08 | +/- 0.4 |
| 13 | 3 | 100 | 1.0 | +0.06 | -0.02 | +/- 0.3 |
| 14 | 3 | 10 | 1.0 | +0.00 | +0.03 | +/- 0.3 |
| 15 | 3 | 100 | 0.5 | -0.09 | -0.04 | +/- 0.4 |
| 16 | 3 | 10 | 0.5 | +0.01 | -0.04 | +/- 0.4 |

ENERGÍA REACTIVA

| N | Fases | Corriente % lb | Factor Potencia | Error % E. Directa | Error % E. Reversa | Limite Norma % |
|----|-------|----------------|-----------------|--------------------|--------------------|----------------|
| 1 | 1,2,3 | 100 | 1.0 | +0.03 | -0.04 | +/- 2.0 |
| 2 | 1,2,3 | 10 | 1.0 | +0.01 | +0.00 | +/- 2.0 |
| 3 | 1,2,3 | 100 | 0.5 | +0.06 | +0.04 | +/- 2.0 |
| 4 | 1,2,3 | 10 | 0.5 | +0.06 | +0.04 | +/- 2.0 |
| 5 | 1 | 100 | 1.0 | +0.01 | +0.10 | +/- 3.0 |
| 6 | 1 | 10 | 1.0 | +0.03 | +0.09 | +/- 3.0 |
| 7 | 1 | 100 | 0.5 | +0.23 | +0.20 | +/- 3.0 |
| 8 | 1 | 10 | 0.5 | +0.19 | +0.11 | +/- 3.0 |
| 9 | 2 | 100 | 1.0 | +0.00 | -0.09 | +/- 3.0 |
| 10 | 2 | 10 | 1.0 | -0.08 | +0.02 | +/- 3.0 |
| 11 | 2 | 100 | 0.5 | +0.00 | -0.06 | +/- 3.0 |
| 12 | 2 | 10 | 0.5 | +0.03 | -0.02 | +/- 3.0 |
| 13 | 3 | 100 | 1.0 | -0.04 | +0.05 | +/- 3.0 |
| 14 | 3 | 10 | 1.0 | +0.00 | +0.00 | +/- 3.0 |
| 15 | 3 | 100 | 0.5 | +0.04 | +0.10 | +/- 3.0 |
| 16 | 3 | 10 | 0.5 | +0.00 | +0.04 | +/- 3.0 |

OBSERVACIONES

El medidor ensayado se encuentra dentro de las tolerancias indicadas por la norma IEC 62053-22 para la medición de energía activa e IEC 62053-23 para la medición de energía reactiva. Este informe sin firma ni timbre carece de validez.



[Firma]
 José Rocuant P.
 Ing. Jefe Laboratorio

| | | | | | |
|--------|-----------|---------|-----|-------|------------|
| Código | F-EIE-018 | Versión | 1.0 | Fecha | 01.12.2014 |
|--------|-----------|---------|-----|-------|------------|

Serial Number:

MW-1711A582-02

Boxing Documentation Cover Sheet

Model: **M8650A4C0H5E1B0A**
Device: SE8650-128MB MEMORY-9 SWB BOP-CL20-LV AUX PWR-50HZ-ETH-4
DOUT AND 3 DIN-RM
Firmware: 004.021.002
Sales Order:

Documentation List:

70052-0226-03 Boxing Documentation Cover Sheet
70052-0225-10 Certificate of Compliance and Calibration
70052-0224-05 Certificate of Compliance and Verification
70052-0237-02 China Rohs Report

Manual(s):

7ML02-0305-01 ION8650 SWB Installation guide Multilingual
7ZH02-0305-01 PowerLogic ION8650 socket meter install guide -ZH

Parts Included:

80801-0011 .PACKING FOAM,CUT,PAIR,8500SWB,73XX SWB#
80800-0014-100 PACKING BOX,SGL WALL,SINGLE PACK,R268, 8500SWB,73XXSWB#

Certificate of Compliance and Calibration

Schneider Electric certifies that the PowerLogic™ product listed below meets the published specifications and has been calibrated and tested using equipment and standards traceable to the National Institute of Standards and Technology (NIST) in the US or the National Research Council of Canada (NRC).

| Model | Part # | Serial # | Calibration Date |
|----------------|-------------------------|-----------------------|--------------------|
| ION8650 | M8650A4C0H5E1B0A | MW-1711A582-02 | 24-Nov-2017 |

| | |
|--------------------------|---|
| AUTOMATED TESTING | <ul style="list-style-type: none"> • Power supply levels tested and adjusted on variable power supply units • Communications verified • Unit ID and serial number programmed • Voltage and current inputs calibrated • Aux I/O calibrated and tested (if applicable) • Required software options programmed • Calibration constants saved to external file (if applicable) |
|--------------------------|---|

| | |
|-------------------------------------|--|
| FINAL TESTING AND INSPECTION | <ul style="list-style-type: none"> • Serial number verified • Firmware version verified • LCD/Keypad functionality checked (if applicable) • Memory checked • Calibration verified • Software options downloaded and verified (if applicable) • Applicable counters and registers cleared • Dielectric Withstand Test Passed |
|-------------------------------------|--|

| | | | |
|---|-------------------------|---------------|-------------------------------------|
| TEST EQUIPMENT USED TO CALIBRATE METER (If Applicable) | Model | Serial # | Test Equipment Calibration Due Date |
| | Radian RD-33-231 | 300670 | 27-Sep-2018 |



Alexander Stoettner
Quality Manager



Gregory Aszmus
Plant Manager

Quality System
Certified to ISO 9001

Certificate of Compliance and Verification

Model ION8650
Part # M8650A4C0H5E1B0A
Serial # MW-1711A582-02

The following data contains the energy test results verifying the accuracy of the above meter at the time this test was performed.

The meter has been factory tested in accordance with **Schneider Electric's** verification procedures on equipment that is traceable to either **N.I.S.T.** (US) or **N.R.C.** (Canadian) standards.

Accuracy Data

| Step | acc | volt_a | volt_b | volt_c | pab | pac | amp_a | amp_b | amp_c | ph_a | ph_b | ph_c |
|------|---------|--------|--------|--------|-----|-----|--------|--------|--------|------|------|------|
| 1 | 100.011 | 120.00 | 120.00 | 120.00 | 120 | 240 | 0.010 | 0.010 | 0.010 | 0 | 120 | 240 |
| 2 | 99.989 | 120.00 | 120.00 | 120.00 | 120 | 240 | 0.020 | 0.020 | 0.020 | 0 | 120 | 240 |
| 3 | 100.001 | 120.00 | 120.00 | 120.00 | 120 | 240 | 0.250 | 0.250 | 0.250 | 0 | 120 | 240 |
| 4 | 99.994 | 120.00 | 120.00 | 120.00 | 120 | 240 | 0.250 | 0.250 | 0.250 | 60 | 180 | 300 |
| 5 | 100.004 | 120.00 | 120.00 | 120.00 | 120 | 240 | 1.000 | 1.000 | 1.000 | 0 | 120 | 240 |
| 6 | 100.011 | 120.00 | 120.00 | 120.00 | 120 | 240 | 1.000 | 1.000 | 1.000 | 60 | 180 | 300 |
| 7 | 100.001 | 120.00 | 120.00 | 120.00 | 120 | 240 | 2.500 | 2.500 | 2.500 | 0 | 120 | 240 |
| 8 | 100.014 | 120.00 | 120.00 | 120.00 | 120 | 240 | 2.500 | 2.500 | 2.500 | 60 | 180 | 300 |
| 9 | 100.003 | 120.00 | 120.00 | 120.00 | 120 | 240 | 5.000 | 5.000 | 5.000 | 0 | 120 | 240 |
| 10 | 100.019 | 120.00 | 120.00 | 120.00 | 120 | 240 | 5.000 | 5.000 | 5.000 | 60 | 180 | 300 |
| 11 | 100.019 | 120.00 | 120.00 | 120.00 | 120 | 240 | 10.000 | 10.000 | 10.000 | 60 | 180 | 300 |
| 12 | 99.999 | 120.00 | 120.00 | 120.00 | 120 | 240 | 10.000 | 10.000 | 10.000 | 0 | 120 | 240 |
| 13 | 100.010 | 120.00 | 120.00 | 120.00 | 120 | 240 | 15.000 | 15.000 | 15.000 | 60 | 180 | 300 |
| 14 | 100.018 | 120.00 | 120.00 | 120.00 | 120 | 240 | 20.000 | 20.000 | 20.000 | 60 | 180 | 300 |

Quality System
 Certified to ISO 9001



China Rohs Certificate

This document is required by The People's Republic Of China (Ministry Of Information Industry - Order #39). Other countries may disregard.

Ce document est exigé par les Personnes de la République de Chine (Ministère de l'Information de l'Industrie arrêté #39). Les autres pays peuvent le négliger.

Este documento es requerido por la República Popular China. Otros países pueden hacer caso omiso de este documento.

Product Family: ION8650
 产品系列 电力量度器仪及配件

Manufacture Date : 2017/11/17
 生产日期



产品中有毒有害物质或元素的名称及含量

| 部件名称 | 产品中有毒有害物质或元素的名称及含量 | | | | | |
|-----------|--------------------|--------|--------|--------------|------------|--------------|
| | 铅 (Pb) | 汞 (Hg) | 镉 (Cd) | 六价铬 (Cr(VI)) | 多溴联苯 (PBB) | 多溴二苯醚 (PBDE) |
| 金属部件 | O | O | O | X | O | O |
| 电子线路板 | X | O | X | O | O | O |
| 电缆 & 接线附件 | X | O | O | O | O | O |

O = 表示该有毒有害物质在该部件所有均质材料中的含量均在 SJ/T11363-2006 标准规定的限量要求以下。

X = 表示该有毒有害物质至少在该部件的某一均质材料中的含量超出SJ/T11363-2006标准规定的限量要求。

Serial Number:

MW-1603A802-02

Boxing Documentation Cover Sheet

Model: **M8650A4C0H5E1B0A**
Device: SE8650-128MB MEMORY-9 SWB BOP-CL20-LV AUX PWR-50HZ-ETH-4
DOUT AND 3 DIN-RM
Firmware: 004.020.001
Sales Order:

Documentation List:

70052-0226-03 Boxing Documentation Cover Sheet
70052-0225-08 Certificate of Compliance and Calibration
70052-0224-05 Certificate of Compliance and Verification
70052-0237-02 China Rohs Report

Manual(s):

7ML02-0305-01 ION8650 SWB Installation guide Multilingual
7ZH02-0305-01 PowerLogic ION8650 socket meter install guide -ZH

Parts Included:

80801-0011 .PACKING FOAM,CUT,PAIR,8500SWB,73XX SWB#
80800-0014-100 PACKING BOX,SGL WALL,SINGLE PACK,R268, 8500SWB,73XXSWB#

Certificate of Compliance and Calibration



Schneider Electric certifies that the PowerLogic product listed below meets the published specifications and has been calibrated and tested using equipment and standards traceable to the National Institute of Standards and Technology (NIST) in the US or the National Research Council of Canada (NRC).

| Model | Part # | Serial # | Calibration Date |
|----------------|-------------------------|-----------------------|--------------------|
| ION8650 | M8650A4C0H5E1B0A | MW-1603A802-02 | 30-Mar-2016 |

| | |
|--------------------------|---|
| AUTOMATED TESTING | <ul style="list-style-type: none"> • Power supply levels tested and adjusted on variable power supply units • Communications verified • Unit ID and serial number programmed • Voltage and current inputs calibrated • Aux I/O calibrated and tested (if applicable) • Required software options programmed • Calibration constants saved to external file (if applicable) |
|--------------------------|---|

| | |
|-------------------------------------|--|
| FINAL TESTING AND INSPECTION | <ul style="list-style-type: none"> • Serial number verified • Firmware version verified • LCD/Keypad functionality checked (if applicable) • Memory checked • Calibration verified • Software options downloaded and verified (if applicable) • Applicable counters and registers cleared • Dielectric Withstand Test Passed |
|-------------------------------------|--|

| | | | |
|---|-------------------------|---------------|-------------------------------------|
| TEST EQUIPMENT USED TO CALIBRATE METER (If Applicable) | Model | Serial # | Test Equipment Calibration Due Date |
| | Radian RD-33-213 | 300348 | 16-Oct-2016 |

| | |
|--|--|
|  Alexander Stoettner Quality Manager |  Jennifer Jacques Plant Manager |
|--|--|

Quality System
 Certified to ISO 9001

Certificate of Compliance and Verification

Model ION8650
Part # M8650A4C0H5E1B0A
Serial # MW-1603A802-02

The following data contains the energy test results verifying the accuracy of the above meter at the time this test was performed.

The meter has been factory tested in accordance with **Schneider Electric's** verification procedures on equipment that is traceable to either **N.I.S.T.** (US) or **N.R.C.** (Canadian) standards.

Accuracy Data

| Step | acc | volt a | volt b | volt c | ph a | ph b | ph c | amp a | amp b | amp c | ph a | ph b | ph c |
|------|---------|--------|--------|--------|------|------|------|--------|--------|--------|------|------|------|
| 1 | 99.994 | 120.00 | 120.00 | 120.00 | 120 | 240 | 240 | 0.010 | 0.010 | 0.010 | 0 | 120 | 240 |
| 2 | 100.011 | 120.00 | 120.00 | 120.00 | 120 | 240 | 240 | 0.020 | 0.020 | 0.020 | 0 | 120 | 240 |
| 3 | 99.998 | 120.00 | 120.00 | 120.00 | 120 | 240 | 240 | 0.250 | 0.250 | 0.250 | 0 | 120 | 240 |
| 4 | 100.022 | 120.00 | 120.00 | 120.00 | 120 | 240 | 240 | 0.250 | 0.250 | 0.250 | 60 | 180 | 300 |
| 5 | 99.996 | 120.00 | 120.00 | 120.00 | 120 | 240 | 240 | 1.000 | 1.000 | 1.000 | 0 | 120 | 240 |
| 6 | 100.037 | 120.00 | 120.00 | 120.00 | 120 | 240 | 240 | 1.000 | 1.000 | 1.000 | 60 | 180 | 300 |
| 7 | 99.998 | 120.00 | 120.00 | 120.00 | 120 | 240 | 240 | 2.500 | 2.500 | 2.500 | 0 | 120 | 240 |
| 8 | 100.035 | 120.00 | 120.00 | 120.00 | 120 | 240 | 240 | 2.500 | 2.500 | 2.500 | 60 | 180 | 300 |
| 9 | 99.998 | 120.00 | 120.00 | 120.00 | 120 | 240 | 240 | 5.000 | 5.000 | 5.000 | 0 | 120 | 240 |
| 10 | 100.031 | 120.00 | 120.00 | 120.00 | 120 | 240 | 240 | 5.000 | 5.000 | 5.000 | 60 | 180 | 300 |
| 11 | 100.034 | 120.00 | 120.00 | 120.00 | 120 | 240 | 240 | 10.000 | 10.000 | 10.000 | 60 | 180 | 300 |
| 12 | 99.993 | 120.00 | 120.00 | 120.00 | 120 | 240 | 240 | 10.000 | 10.000 | 10.000 | 0 | 120 | 240 |
| 13 | 100.031 | 120.00 | 120.00 | 120.00 | 120 | 240 | 240 | 15.000 | 15.000 | 15.000 | 60 | 180 | 300 |
| 14 | 100.024 | 120.00 | 120.00 | 120.00 | 120 | 240 | 240 | 20.000 | 20.000 | 20.000 | 60 | 180 | 300 |

Quality System
 Certified to ISO 9001



China Rohs Certificate

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Este documento es requerido por la República Popular China. Otros países pueden hacer caso omiso de este documento.

Product Family: ION8650
 产品系列 电力量度器仪及配件
 Manufacture Date : 2016/03/24
 生产日期



| 部件名称 | 产品中有毒有害物质或元素的名称及含量 | | | | | |
|-----------|--------------------|--------|--------|--------------|------------|--------------|
| | 铅 (Pb) | 汞 (Hg) | 镉 (Cd) | 六价铬 (Cr(VI)) | 多溴联苯 (PBB) | 多溴二苯醚 (PBDE) |
| 金属部件 | O | O | O | X | O | O |
| 电子线路板 | X | O | X | O | O | O |
| 电缆 & 接线附件 | X | O | O | O | O | O |

O = 表示该有毒有害物质在该部件所有均质材料中的含量均在 SJ/T11363-2006 标准规定的限量要求以下。
 X = 表示该有毒有害物质至少在该部件的某一均质材料中的含量超出SJ/T11363-2006标准规定的限量要求。

Anexo III

Tablas de corrección típicas

TABLA GENERICA DE CORRECCIÓN POR ALTURA / TEMPERATURA

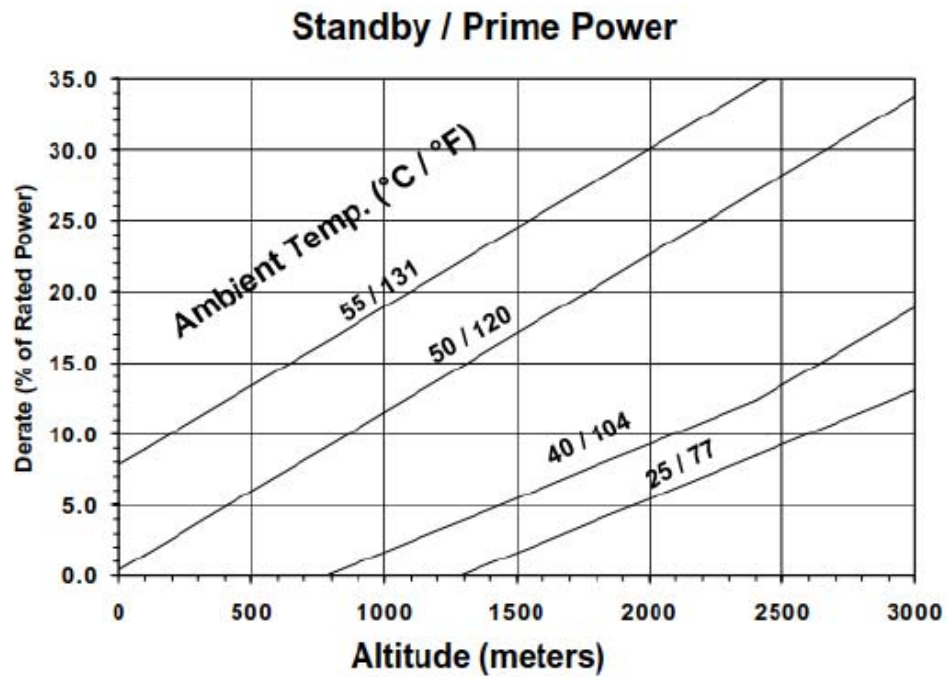


TABLA DE CORRECCIÓN GENERICA DE CORRECCION POR HUMEDAD RELATIVA / TEMPERATURA

| Atmospheric Temperature (F) | Percentage Humidity (%) | | | | | | | | | |
|-----------------------------|-------------------------|-----|-----|-----|-----|-----|-----|------|------|------|
| | 10 | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | 100 |
| 85 | | | | | | 0.5 | 1.0 | 1.5 | 2.0 | 2.4 |
| 90 | | | | | 0.4 | 1.0 | 1.6 | 2.2 | 2.7 | 3.3 |
| 95 | | | | 0.2 | 0.9 | 1.6 | 2.2 | 2.9 | 3.6 | 4.2 |
| 100 | | | | 0.7 | 1.5 | 2.2 | 3.0 | 3.8 | 4.6 | 5.3 |
| 105 | | | 0.3 | 1.2 | 2.1 | 3.0 | 3.9 | 4.8 | 5.7 | 6.6 |
| 110 | | | 0.7 | 1.8 | 2.8 | 3.8 | 4.9 | 5.9 | 6.9 | 8.0 |
| 115 | | | 1.2 | 2.4 | 3.6 | 4.8 | 6.0 | 7.2 | 8.4 | 9.6 |
| 120 | | 0.4 | 1.7 | 3.1 | 4.5 | 5.9 | 7.3 | 8.6 | 10.0 | 11.4 |
| 125 | | 0.8 | 2.3 | 3.9 | 5.5 | 7.1 | 8.7 | 10.2 | 11.8 | 13.4 |

Anexo IV

Certificado de análisis del combustible

INFORME DE ANALISIS

N°: LAQ18 - 1945

Pág 1/1

Fecha de Reporte: 12-oct-18

Ref. Laboratorio: LAQ18 - 1945

Ref. Caleb Brett: N/A

Ref. Cliente: N/A

| | |
|---|---|
| Cliente: | : ENLASA GENERACIÓN CHILE S.A. |
| Dirección | : Los Militares 5001 piso 10 – Las Condes – Santiago. |
| Descripción Producto (según Cliente): | : DIESEL OIL |
| Lugar de Muestreo (Nave, Terminal, Otro): | : Central San Lorenzo, Diego de Almagro. |
| Punto de Muestreo: | : TK -101 |
| Tipo de Muestreo: | : Corrida |
| Identificación de Muestra o Sello: | : DIESEL OIL |
| Muestreado por: | : INTERTEK CALEB BRETT CHILE S.A |
| Norma Aplicable al Muestreo | : API MPMS CAPITULO 8 / ASTM D 4057 |
| Muestra entregada por: | : INTERTEK CALEB BRETT CHILE S.A. |
| Analizada por | : INTERTEK CALEB BRETT CHILE S.A. LABORATORIO COMBUSTIBLE |
| Fecha de Muestreo | : 05-oct-18 |
| Fecha / Hora de Recepción en Lab. | : 10-oct-18 09:00 Hrs |
| Fecha de Análisis | : 10 - 11 oct / 2018 |

| DESCRIPCION DEL ANALISIS | Unidad | Método | Especificación (*) | Resultados |
|--|--------|------------------|-------------------------|------------|
| GRAVEDAD API | °API | ASTM D 4052-16 | informar | 37.9 |
| DENSIDAD A 15°C | kg/L | ASTM D 4052-16 | min 0.8210 - max 0.8499 | 0.8343 |
| COLOR | -- | ASTM D 1500-17 | max 1.5 | <1.0 |
| AZUFRE | mg/kg | ASTM D 5453-16e1 | max 14.99 | 8.3 |
| CARBON RESIDAL, RAMSBOTTOM, 10% | % Wt | ASTM D 524-15 | max 0.21 | 0.07 |
| DESTILACIÓN, 50% RECUPERADO | °C | ASTM D 86-17 | informar | 259.6 |
| DESTILACIÓN, 90% RECUPERADO | °C | ASTM D 86-17 | min 282 - max 349 | 331.4 |
| CORROSION LAMINA DE COBRE 3Hr / 50°C | N° | ASTM D 130-12 | max N° 1 | 1a |
| NUMERO DE CETANO | N° | ASTM D 613-17c | min 50.0 | 51.5 |
| PUNTO DE ESCURRIMIENTO | °C | ASTM D 97-17a | max -1 | <-30 |
| PUNTO DE OBSTRUCCION DE FILTRADO EN FRIO | °C | ASTM D 6371-17a | informar | -10 |
| PUNTO DE INFLAMACION | °C | ASTM D 93A-16a | min 52 | 61 |
| VISCOSIDAD CINEMATICA A 40°C | mm2/s | ASTM D 445-17a | min 1.9 - max 4.1 | 2.484 |
| CENIZAS | % Wt | ASTM D 482-13 | max 0.01 | <0.001 |
| AGUA Y SEDIMENTOS | % vol | ASTM D 2709-16 | max 0.05 | <0.01 |
| LUBRICIDAD | um | ASTM D 6079-16 | max 460 | 424 |
| AROMATICOS TOTALES | % Wt | ASTM D 5186-15 | max 35 | 22.6 |
| AROMATICOS POLINUCLEARES | % Wt | ASTM D 5186-15 | max 8 | 2.4 |
| CALOR DE COMBUSTION - ALTO (**) | BTU/lb | ASTM D 4868-17 | -- | 19690 |
| CALOR DE COMBUSTION - BAJO (**) | BTU/lb | ASTM D 4868-17 | -- | 18465 |

Rev.#08, 19/May/2017

FCL-Q-008/1 A

Observaciones

(*) Especificación Petroleo Diesel DS 60 REGIONES

(**) Ensayo no acreditado

1. Este reporte de análisis no puede reproducirse parcialmente sin la aprobación por escrito de Intertek Caleb Brett (Chile) S.A.
2. El(los) resultado(s) de ensayo(s) emitido(s) en este Reporte es(son) válido(s) únicamente para la muestra descrita

Anexo V

Acta de pruebas

ACTA DE PRUEBAS 0311 (02) – 2018 (REV 02)

**Pruebas de Potencia Máxima UNIDAD #3-1, UNIDAD #3-2
UNIDAD #3-3 y UNIDAD #3-4 - Central Térmica San Lorenzo de
Diego de Almagro – ENLASA Generación.**

Cliente



| ESTADO DEL DOCUMENTO | | | | |
|-----------------------------|--------------|----------------------|----------------|---------------|
| Revisión | Fecha | Observaciones | Elaboró | Revisó |
| 00 | 27.08.2018 | Para uso | JPD | PPC |
| | | | | |
| | | | | |

1. EQUIPOS BAJO PRUEBA

1.1. Datos de placa del motor diésel #3-1

| | |
|-----------------|-----------------------|
| Marca | Electro Motive Diesel |
| Modelo | EMD 20.645 - E4B |
| Número de Serie | 74C3.1527 |

1.2. Datos de placa del generador #3-1

| | | |
|--------------------|---------|---------------|
| Marca | | Baylor |
| Potencia | [kVA] | 2.604 |
| Un | [VAC] | 400 |
| In | [A] | 3.758 |
| RPM | [1/min] | 750 |
| Frecuencia | [Hz] | 50 |
| Factor de Potencia | | 0,80 |
| Número de Serie | | LM-65103-01-B |

1.3. Datos de placa del motor diésel #3-2

| | |
|-----------------|-----------------------|
| Marca | Electro Motive Diesel |
| Modelo | EMD 20.645 - E4B |
| Número de Serie | 75L3.1514 |

1.4. Datos de placa del generador #3-2

| | | |
|--------------------|---------|---------------|
| Marca | | Baylor |
| Potencia | [kVA] | 2.604 |
| Un | [VAC] | 400 |
| In | [A] | 3.758 |
| RPM | [1/min] | 750 |
| Frecuencia | [Hz] | 50 |
| Factor de Potencia | | 0,80 |
| Número de Serie | | LM-65103-02-B |

1.5. Datos de placa del motor diésel #3-3

| | |
|-----------------|-----------------------|
| Marca | Electro Motive Diesel |
| Modelo | EMD 20.645 - E4B |
| Número de Serie | 74K1.1007 |

1.6. Datos de placa del generador #3-3

| | | |
|--------------------|---------|----------------|
| Marca | | Ideal Electric |
| Potencia | [kVA] | 2.604 |
| Un | [VAC] | 400 |
| In | [A] | 3.758 |
| RPM | [1/min] | 750 |
| Frecuencia | [Hz] | 50 |
| Factor de Potencia | | 0,80 |
| Número de Serie | | 293477 |

1.7. Datos de placa del motor diésel #3-4

| | |
|-----------------|-----------------------|
| Marca | Electro Motive Diesel |
| Modelo | EMD 12-645-E1 |
| Número de Serie | 69-C1-1084 |

1.8. Datos de placa del generador #3-4

| | | |
|--------------------|---------|-------|
| Marca | | Kato |
| Potencia | [kVA] | 1.041 |
| Un | [VAC] | 400 |
| In | [A] | 1.504 |
| RPM | [1/min] | 750 |
| Frecuencia | [Hz] | 50 |
| Factor de Potencia | | 0,80 |
| Número de Serie | | 63698 |

2. EQUIPOS DE MEDICIÓN

Los presentes que firman a pie de página dan fe que los equipos de medición utilizados corresponden a los mencionados en las tablas a continuación y se encuentran con sus certificados de calibración vigentes.

| EQUIPO | PARAMETRO A MEDIR | NUMERO DE SERIE | CERTIFICADO |
|----------------------------|----------------------------|-----------------|-------------|
| Medidor Bender PEM 735 | POTENCIA BRUTA UNIDAD #3-4 | 1803800026 | OK |
| Medidor Bender PEM 735 | POTENCIA BRUTA UNIDAD #3-1 | 1502800025 | OK |
| Medidor Schneider ION 8650 | POTENCIA BRUTA UNIDAD #3-2 | MW-1711A582-02 | OK |
| Medidor Schneider ION 8650 | POTENCIA NETA PLANTA | MW-1603A802-02 | OK |


3. HORARIOS DE LA PRUEBA

| | | |
|-----------------------------------|--------|---------------|
| Hora de puesta en marcha | U #3-1 | 19:18 3/10/18 |
| | U #3-2 | 19:18 3/10/18 |
| | U #3-3 | 19:18 3/10/18 |
| | U #3-4 | 19:18 3/10/18 |
| Hora de inicio de prueba | U #3-1 | 19:40 3/10/18 |
| | U #3-2 | 19:40 3/10/18 |
| | U #3-3 | 19:40 3/10/18 |
| | U #3-4 | 19:40 3/10/18 |
| Hora de finalización de la prueba | U #3-1 | 01:10 4/10/18 |
| | U #3-2 | 01:10 4/10/18 |
| | U #3-3 | 01:10 4/10/18 |
| | U #3-4 | 01:10 4/10/18 |

4. OBSERVACIONES

* EL COORDINADOR ELECTRICO AUTORIZA ADELANTE.
LA PRUEBA DE LA UNIDAD #3-4

5. PARTICIPANTES DE LA PRUEBA

| NOMBRE Y APELLIDO | EMPRESA | FIRMA |
|--------------------|-------------|---|
| JUAN PABLO DALMASO | DMA ENERGIA |  |
| Rodrigo Alvarez G. | Entasa | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

6. ANEXOS

- REGISTROS EXTRAIDOS DEL SCADA
- REGISTROS EXTRAIDOS DE LOS MEDIDORES

| Timestamp | P(sum) |
|-----------|--------|
| 19:40:00 | 2,192 |
| 19:41:00 | 2,198 |
| 19:42:00 | 2,205 |
| 19:43:00 | 2,277 |
| 19:44:00 | 2,275 |
| 19:45:00 | 2,297 |
| 19:46:00 | 2,256 |
| 19:47:00 | 2,246 |
| 19:48:00 | 2,264 |
| 19:49:00 | 2,298 |
| 19:50:00 | 2,263 |
| 19:51:00 | 2,225 |
| 19:52:00 | 2,227 |
| 19:53:00 | 2,300 |
| 19:54:00 | 2,242 |
| 19:55:00 | 2,237 |
| 19:56:00 | 2,236 |
| 19:57:00 | 2,231 |
| 19:58:00 | 2,299 |
| 19:59:00 | 2,241 |
| 20:00:00 | 2,247 |
| 20:01:00 | 2,301 |
| 20:02:00 | 2,273 |
| 20:03:00 | 2,217 |
| 20:04:00 | 2,233 |
| 20:05:00 | 2,235 |
| 20:06:00 | 2,235 |
| 20:07:00 | 2,265 |
| 20:08:00 | 2,282 |
| 20:09:00 | 2,298 |
| 20:10:00 | 2,246 |
| 20:11:00 | 2,235 |
| 20:12:00 | 2,284 |
| 20:13:00 | 2,284 |
| 20:14:00 | 2,204 |
| 20:15:00 | 2,283 |
| 20:16:00 | 2,250 |
| 20:17:00 | 2,241 |
| 20:18:00 | 2,257 |
| 20:19:00 | 2,243 |
| 20:20:00 | 2,251 |
| 20:21:00 | 2,241 |
| 20:22:00 | 2,254 |
| 20:23:00 | 2,261 |
| 20:24:00 | 2,243 |
| 20:25:00 | 2,272 |
| 20:26:00 | 2,232 |
| 20:27:00 | 2,245 |
| 20:28:00 | 2,207 |
| 20:29:00 | 2,307 |

MD #1

| | |
|----------|-------|
| 20:30:00 | 2,270 |
| 20:31:00 | 2,237 |
| 20:32:00 | 2,219 |
| 20:33:00 | 2,291 |
| 20:34:00 | 2,296 |
| 20:35:00 | 2,240 |
| 20:36:00 | 2,240 |
| 20:37:00 | 2,244 |
| 20:38:00 | 2,254 |
| 20:39:00 | 2,225 |
| 20:40:00 | 2,241 |
| 20:41:00 | 2,277 |
| 20:42:00 | 2,279 |
| 20:43:00 | 2,274 |
| 20:44:00 | 2,244 |
| 20:45:00 | 2,255 |
| 20:46:00 | 2,283 |
| 20:47:00 | 2,280 |
| 20:48:00 | 2,298 |
| 20:49:00 | 2,230 |
| 20:50:00 | 2,237 |
| 20:51:00 | 2,225 |
| 20:52:00 | 2,250 |
| 20:53:00 | 2,230 |
| 20:54:00 | 2,243 |
| 20:55:00 | 2,201 |
| 20:56:00 | 2,223 |
| 20:57:00 | 2,228 |
| 20:58:00 | 2,235 |
| 20:59:00 | 2,254 |
| 21:00:00 | 2,278 |
| 21:01:00 | 2,250 |
| 21:02:00 | 2,256 |
| 21:03:00 | 2,267 |
| 21:04:00 | 2,260 |
| 21:05:00 | 2,241 |
| 21:06:00 | 2,268 |
| 21:07:00 | 2,243 |
| 21:08:00 | 2,225 |
| 21:09:00 | 2,237 |
| 21:10:00 | 2,254 |
| 21:11:00 | 2,250 |
| 21:12:00 | 2,252 |
| 21:13:00 | 2,309 |
| 21:14:00 | 2,319 |
| 21:15:00 | 2,221 |
| 21:16:00 | 2,278 |
| 21:17:00 | 2,258 |
| 21:18:00 | 2,239 |
| 21:19:00 | 2,260 |
| 21:20:00 | 2,295 |

| | |
|----------|-------|
| 21:21:00 | 2,262 |
| 21:22:00 | 2,255 |
| 21:23:00 | 2,267 |
| 21:24:00 | 2,235 |
| 21:25:00 | 2,244 |
| 21:26:00 | 2,221 |
| 21:27:00 | 2,275 |
| 21:28:00 | 2,264 |
| 21:29:00 | 2,245 |
| 21:30:00 | 2,259 |
| 21:31:00 | 2,212 |
| 21:32:00 | 2,277 |
| 21:33:00 | 2,233 |
| 21:34:00 | 2,266 |
| 21:35:00 | 2,241 |
| 21:36:00 | 2,229 |
| 21:37:00 | 2,231 |
| 21:38:00 | 2,250 |
| 21:39:00 | 2,251 |
| 21:40:00 | 2,262 |
| 21:41:00 | 2,222 |
| 21:42:00 | 2,247 |
| 21:43:00 | 2,245 |
| 21:44:00 | 2,235 |
| 21:45:00 | 2,229 |
| 21:46:00 | 2,240 |
| 21:47:00 | 2,253 |
| 21:48:00 | 2,201 |
| 21:49:00 | 2,238 |
| 21:50:00 | 2,249 |
| 21:51:00 | 2,224 |
| 21:52:00 | 2,300 |
| 21:53:00 | 2,279 |
| 21:54:00 | 2,275 |
| 21:55:00 | 2,293 |
| 21:56:00 | 2,275 |
| 21:57:00 | 2,199 |
| 21:58:00 | 2,210 |
| 21:59:00 | 2,269 |
| 22:00:00 | 2,254 |
| 22:01:00 | 2,272 |
| 22:02:00 | 2,263 |
| 22:03:00 | 2,260 |
| 22:04:00 | 2,272 |
| 22:05:00 | 2,272 |
| 22:06:00 | 2,242 |
| 22:07:00 | 2,290 |
| 22:08:00 | 2,219 |
| 22:09:00 | 2,282 |
| 22:10:00 | 2,273 |
| 22:11:00 | 2,281 |

| | |
|----------|-------|
| 22:12:00 | 2,265 |
| 22:13:00 | 2,250 |
| 22:14:00 | 2,237 |
| 22:15:00 | 2,225 |
| 22:16:00 | 2,282 |
| 22:17:00 | 2,235 |
| 22:18:00 | 2,261 |
| 22:19:00 | 2,245 |
| 22:20:00 | 2,244 |
| 22:21:00 | 2,228 |
| 22:22:00 | 2,259 |
| 22:23:00 | 2,250 |
| 22:24:00 | 2,268 |
| 22:25:00 | 2,270 |
| 22:26:00 | 2,286 |
| 22:27:00 | 2,258 |
| 22:28:00 | 2,283 |
| 22:29:00 | 2,274 |
| 22:30:00 | 2,273 |
| 22:31:00 | 2,244 |
| 22:32:00 | 2,225 |
| 22:33:00 | 2,230 |
| 22:34:00 | 2,230 |
| 22:35:00 | 2,208 |
| 22:36:00 | 2,289 |
| 22:37:00 | 2,220 |
| 22:38:00 | 2,223 |
| 22:39:00 | 2,261 |
| 22:40:00 | 2,270 |
| 22:41:00 | 2,271 |
| 22:42:00 | 2,236 |
| 22:43:00 | 2,229 |
| 22:44:00 | 2,231 |
| 22:45:00 | 2,218 |
| 22:46:00 | 2,214 |
| 22:47:00 | 2,259 |
| 22:48:00 | 2,225 |
| 22:49:00 | 2,220 |
| 22:50:00 | 2,268 |
| 22:51:00 | 2,274 |
| 22:52:00 | 2,261 |
| 22:53:00 | 2,260 |
| 22:54:00 | 2,273 |
| 22:55:00 | 2,271 |
| 22:56:00 | 2,224 |
| 22:57:00 | 2,253 |
| 22:58:00 | 2,238 |
| 22:59:00 | 2,227 |
| 23:00:00 | 2,322 |
| 23:01:00 | 2,198 |
| 23:02:00 | 2,284 |

| | |
|----------|-------|
| 23:03:00 | 2,281 |
| 23:04:00 | 2,254 |
| 23:05:00 | 2,261 |
| 23:06:00 | 2,220 |
| 23:07:00 | 2,234 |
| 23:08:00 | 2,289 |
| 23:09:00 | 2,278 |
| 23:10:00 | 2,249 |
| 23:11:00 | 2,225 |
| 23:12:00 | 2,253 |
| 23:13:00 | 2,240 |
| 23:14:00 | 2,266 |
| 23:15:00 | 2,246 |
| 23:16:00 | 2,251 |
| 23:17:00 | 2,257 |
| 23:18:00 | 2,241 |
| 23:19:00 | 2,248 |
| 23:20:00 | 2,214 |
| 23:21:00 | 2,272 |
| 23:22:00 | 2,252 |
| 23:23:00 | 2,237 |
| 23:24:00 | 2,247 |
| 23:25:00 | 2,270 |
| 23:26:00 | 2,219 |
| 23:27:00 | 2,214 |
| 23:28:00 | 2,242 |
| 23:29:00 | 2,215 |
| 23:30:00 | 2,237 |
| 23:31:00 | 2,228 |
| 23:32:00 | 2,231 |
| 23:33:00 | 2,224 |
| 23:34:00 | 2,234 |
| 23:35:00 | 2,260 |
| 23:36:00 | 2,276 |
| 23:37:00 | 2,260 |
| 23:38:00 | 2,260 |
| 23:39:00 | 2,252 |
| 23:40:00 | 2,273 |
| 23:41:00 | 2,239 |
| 23:42:00 | 2,243 |
| 23:43:00 | 2,290 |
| 23:44:00 | 2,281 |
| 23:45:00 | 2,264 |
| 23:46:00 | 2,282 |
| 23:47:00 | 2,273 |
| 23:48:00 | 2,261 |
| 23:49:00 | 2,249 |
| 23:50:00 | 2,279 |
| 23:51:00 | 2,278 |
| 23:52:00 | 2,261 |
| 23:53:00 | 2,291 |

| | |
|----------|-------|
| 23:54:00 | 2,269 |
| 23:55:00 | 2,237 |
| 23:56:00 | 2,279 |
| 23:57:00 | 2,275 |
| 23:58:00 | 2,272 |
| 23:59:00 | 2,248 |
| 00:00:00 | 2,270 |
| 00:01:00 | 2,233 |
| 00:02:00 | 2,251 |
| 00:03:00 | 2,237 |
| 00:04:00 | 2,250 |
| 00:05:00 | 2,230 |
| 00:06:00 | 2,281 |
| 00:07:00 | 2,266 |
| 00:08:00 | 2,239 |
| 00:09:00 | 2,251 |
| 00:10:00 | 2,255 |
| 00:11:00 | 2,262 |
| 00:12:00 | 2,260 |
| 00:13:00 | 2,266 |
| 00:14:00 | 2,277 |
| 00:15:00 | 2,257 |
| 00:16:00 | 2,250 |
| 00:17:00 | 2,254 |
| 00:18:00 | 2,244 |
| 00:19:00 | 2,251 |
| 00:20:00 | 2,236 |
| 00:21:00 | 2,255 |
| 00:22:00 | 2,249 |
| 00:23:00 | 2,276 |
| 00:24:00 | 2,267 |
| 00:25:00 | 2,266 |
| 00:26:00 | 2,263 |
| 00:27:00 | 2,261 |
| 00:28:00 | 2,286 |
| 00:29:00 | 2,279 |
| 00:30:00 | 2,248 |
| 00:31:00 | 2,257 |
| 00:32:00 | 2,250 |
| 00:33:00 | 2,261 |
| 00:34:00 | 2,264 |
| 00:35:00 | 2,242 |
| 00:36:00 | 2,272 |
| 00:37:00 | 2,297 |
| 00:38:00 | 2,219 |
| 00:39:00 | 2,291 |
| 00:40:00 | 2,243 |

| Timestamp | P(sum) |
|-----------|--------|
| 19:40:00 | 2,210 |
| 19:41:00 | 2,215 |
| 19:42:00 | 2,216 |
| 19:43:00 | 2,218 |
| 19:44:00 | 2,220 |
| 19:45:00 | 2,222 |
| 19:46:00 | 2,223 |
| 19:47:00 | 2,219 |
| 19:48:00 | 2,224 |
| 19:49:00 | 2,224 |
| 19:50:00 | 2,225 |
| 19:51:00 | 2,226 |
| 19:52:00 | 2,220 |
| 19:53:00 | 2,224 |
| 19:54:00 | 2,224 |
| 19:55:00 | 2,223 |
| 19:56:00 | 2,225 |
| 19:57:00 | 2,220 |
| 19:58:00 | 2,223 |
| 19:59:00 | 2,224 |
| 20:00:00 | 2,221 |
| 20:01:00 | 2,223 |
| 20:02:00 | 2,223 |
| 20:03:00 | 2,222 |
| 20:04:00 | 2,224 |
| 20:05:00 | 2,219 |
| 20:06:00 | 2,222 |
| 20:07:00 | 2,223 |
| 20:08:00 | 2,222 |
| 20:09:00 | 2,218 |
| 20:10:00 | 2,223 |
| 20:11:00 | 2,223 |
| 20:12:00 | 2,224 |
| 20:13:00 | 2,230 |
| 20:14:00 | 2,235 |
| 20:15:00 | 2,248 |
| 20:16:00 | 2,251 |
| 20:17:00 | 2,246 |
| 20:18:00 | 2,249 |
| 20:19:00 | 2,250 |
| 20:20:00 | 2,249 |
| 20:21:00 | 2,245 |
| 20:22:00 | 2,250 |
| 20:23:00 | 2,250 |
| 20:24:00 | 2,251 |
| 20:25:00 | 2,252 |
| 20:26:00 | 2,246 |
| 20:27:00 | 2,250 |
| 20:28:00 | 2,250 |
| 20:29:00 | 2,249 |

MD #2

| | |
|----------|-------|
| 20:30:00 | 2,237 |
| 20:31:00 | 2,239 |
| 20:32:00 | 2,239 |
| 20:33:00 | 2,238 |
| 20:34:00 | 2,238 |
| 20:35:00 | 2,234 |
| 20:36:00 | 2,239 |
| 20:37:00 | 2,239 |
| 20:38:00 | 2,240 |
| 20:39:00 | 2,241 |
| 20:40:00 | 2,235 |
| 20:41:00 | 2,240 |
| 20:42:00 | 2,235 |
| 20:43:00 | 2,238 |
| 20:44:00 | 2,239 |
| 20:45:00 | 2,209 |
| 20:46:00 | 2,211 |
| 20:47:00 | 2,211 |
| 20:48:00 | 2,212 |
| 20:49:00 | 2,213 |
| 20:50:00 | 2,207 |
| 20:51:00 | 2,212 |
| 20:52:00 | 2,207 |
| 20:53:00 | 2,210 |
| 20:54:00 | 2,211 |
| 20:55:00 | 2,211 |
| 20:56:00 | 2,211 |
| 20:57:00 | 2,210 |
| 20:58:00 | 2,210 |
| 20:59:00 | 2,206 |
| 21:00:00 | 2,236 |
| 21:01:00 | 2,238 |
| 21:02:00 | 2,238 |
| 21:03:00 | 2,239 |
| 21:04:00 | 2,238 |
| 21:05:00 | 2,238 |
| 21:06:00 | 2,237 |
| 21:07:00 | 2,237 |
| 21:08:00 | 2,233 |
| 21:09:00 | 2,240 |
| 21:10:00 | 2,234 |
| 21:11:00 | 2,239 |
| 21:12:00 | 2,234 |
| 21:13:00 | 2,237 |
| 21:14:00 | 2,238 |
| 21:15:00 | 2,246 |
| 21:16:00 | 2,244 |
| 21:17:00 | 2,247 |
| 21:18:00 | 2,248 |
| 21:19:00 | 2,248 |
| 21:20:00 | 2,248 |

| | |
|----------|-------|
| 21:21:00 | 2,249 |
| 21:22:00 | 2,248 |
| 21:23:00 | 2,248 |
| 21:24:00 | 2,247 |
| 21:25:00 | 2,247 |
| 21:26:00 | 2,243 |
| 21:27:00 | 2,250 |
| 21:28:00 | 2,244 |
| 21:29:00 | 2,249 |
| 21:30:00 | 2,205 |
| 21:31:00 | 2,206 |
| 21:32:00 | 2,206 |
| 21:33:00 | 2,208 |
| 21:34:00 | 2,207 |
| 21:35:00 | 2,207 |
| 21:36:00 | 2,202 |
| 21:37:00 | 2,209 |
| 21:38:00 | 2,203 |
| 21:39:00 | 2,208 |
| 21:40:00 | 2,203 |
| 21:41:00 | 2,206 |
| 21:42:00 | 2,207 |
| 21:43:00 | 2,207 |
| 21:44:00 | 2,207 |
| 21:45:00 | 2,216 |
| 21:46:00 | 2,214 |
| 21:47:00 | 2,219 |
| 21:48:00 | 2,214 |
| 21:49:00 | 2,217 |
| 21:50:00 | 2,218 |
| 21:51:00 | 2,218 |
| 21:52:00 | 2,218 |
| 21:53:00 | 2,218 |
| 21:54:00 | 2,218 |
| 21:55:00 | 2,213 |
| 21:56:00 | 2,220 |
| 21:57:00 | 2,217 |
| 21:58:00 | 2,217 |
| 21:59:00 | 2,219 |
| 22:00:00 | 2,217 |
| 22:01:00 | 2,220 |
| 22:02:00 | 2,219 |
| 22:03:00 | 2,219 |
| 22:04:00 | 2,219 |
| 22:05:00 | 2,214 |
| 22:06:00 | 2,221 |
| 22:07:00 | 2,218 |
| 22:08:00 | 2,218 |
| 22:09:00 | 2,215 |
| 22:10:00 | 2,220 |
| 22:11:00 | 2,215 |

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| 22:12:00 | 2,218 |
| 22:13:00 | 2,219 |
| 22:14:00 | 2,230 |
| 22:15:00 | 2,253 |
| 22:16:00 | 2,255 |
| 22:17:00 | 2,255 |
| 22:18:00 | 2,255 |
| 22:19:00 | 2,250 |
| 22:20:00 | 2,257 |
| 22:21:00 | 2,254 |
| 22:22:00 | 2,256 |
| 22:23:00 | 2,255 |
| 22:24:00 | 2,255 |
| 22:25:00 | 2,254 |
| 22:26:00 | 2,251 |
| 22:27:00 | 2,256 |
| 22:28:00 | 2,251 |
| 22:29:00 | 2,254 |
| 22:30:00 | 2,204 |
| 22:31:00 | 2,206 |
| 22:32:00 | 2,206 |
| 22:33:00 | 2,206 |
| 22:34:00 | 2,201 |
| 22:35:00 | 2,208 |
| 22:36:00 | 2,202 |
| 22:37:00 | 2,207 |
| 22:38:00 | 2,202 |
| 22:39:00 | 2,205 |
| 22:40:00 | 2,205 |
| 22:41:00 | 2,207 |
| 22:42:00 | 2,202 |
| 22:43:00 | 2,206 |
| 22:44:00 | 2,205 |
| 22:45:00 | 2,201 |
| 22:46:00 | 2,203 |
| 22:47:00 | 2,203 |
| 22:48:00 | 2,204 |
| 22:49:00 | 2,204 |
| 22:50:00 | 2,199 |
| 22:51:00 | 2,203 |
| 22:52:00 | 2,202 |
| 22:53:00 | 2,199 |
| 22:54:00 | 2,202 |
| 22:55:00 | 2,202 |
| 22:56:00 | 2,203 |
| 22:57:00 | 2,198 |
| 22:58:00 | 2,205 |
| 22:59:00 | 2,199 |
| 23:00:00 | 2,228 |
| 23:01:00 | 2,229 |
| 23:02:00 | 2,230 |

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|----------|-------|
| 23:03:00 | 2,225 |
| 23:04:00 | 2,232 |
| 23:05:00 | 2,226 |
| 23:06:00 | 2,226 |
| 23:07:00 | 2,230 |
| 23:08:00 | 2,229 |
| 23:09:00 | 2,226 |
| 23:10:00 | 2,229 |
| 23:11:00 | 2,230 |
| 23:12:00 | 2,230 |
| 23:13:00 | 2,231 |
| 23:14:00 | 2,231 |
| 23:15:00 | 2,225 |
| 23:16:00 | 2,223 |
| 23:17:00 | 2,223 |
| 23:18:00 | 2,227 |
| 23:19:00 | 2,228 |
| 23:20:00 | 2,228 |
| 23:21:00 | 2,227 |
| 23:22:00 | 2,226 |
| 23:23:00 | 2,223 |
| 23:24:00 | 2,226 |
| 23:25:00 | 2,227 |
| 23:26:00 | 2,226 |
| 23:27:00 | 2,227 |
| 23:28:00 | 2,222 |
| 23:29:00 | 2,229 |
| 23:30:00 | 2,213 |
| 23:31:00 | 2,211 |
| 23:32:00 | 2,214 |
| 23:33:00 | 2,211 |
| 23:34:00 | 2,214 |
| 23:35:00 | 2,215 |
| 23:36:00 | 2,214 |
| 23:37:00 | 2,215 |
| 23:38:00 | 2,210 |
| 23:39:00 | 2,217 |
| 23:40:00 | 2,211 |
| 23:41:00 | 2,215 |
| 23:42:00 | 2,216 |
| 23:43:00 | 2,216 |
| 23:44:00 | 2,215 |
| 23:45:00 | 2,239 |
| 23:46:00 | 2,241 |
| 23:47:00 | 2,236 |
| 23:48:00 | 2,243 |
| 23:49:00 | 2,237 |
| 23:50:00 | 2,241 |
| 23:51:00 | 2,242 |
| 23:52:00 | 2,242 |
| 23:53:00 | 2,241 |

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|----------|-------|
| 23:54:00 | 2,237 |
| 23:55:00 | 2,240 |
| 23:56:00 | 2,237 |
| 23:57:00 | 2,240 |
| 23:58:00 | 2,241 |
| 23:59:00 | 2,240 |
| 00:00:00 | 2,239 |
| 00:01:00 | 2,237 |
| 00:02:00 | 2,240 |
| 00:03:00 | 2,241 |
| 00:04:00 | 2,240 |
| 00:05:00 | 2,237 |
| 00:06:00 | 2,241 |
| 00:07:00 | 2,242 |
| 00:08:00 | 2,242 |
| 00:09:00 | 2,241 |
| 00:10:00 | 2,237 |
| 00:11:00 | 2,240 |
| 00:12:00 | 2,241 |
| 00:13:00 | 2,236 |
| 00:14:00 | 2,243 |
| 00:15:00 | 2,218 |
| 00:16:00 | 2,216 |
| 00:17:00 | 2,219 |
| 00:18:00 | 2,220 |
| 00:19:00 | 2,219 |
| 00:20:00 | 2,216 |
| 00:21:00 | 2,220 |
| 00:22:00 | 2,221 |
| 00:23:00 | 2,221 |
| 00:24:00 | 2,220 |
| 00:25:00 | 2,216 |
| 00:26:00 | 2,219 |
| 00:27:00 | 2,220 |
| 00:28:00 | 2,215 |
| 00:29:00 | 2,222 |
| 00:30:00 | 2,208 |
| 00:31:00 | 2,210 |
| 00:32:00 | 2,206 |
| 00:33:00 | 2,209 |
| 00:34:00 | 2,210 |
| 00:35:00 | 2,205 |
| 00:36:00 | 2,212 |
| 00:37:00 | 2,206 |
| 00:38:00 | 2,209 |
| 00:39:00 | 2,210 |
| 00:40:00 | 2,206 |

| hh:mm:ss | [MW] |
|----------|-------|
| 19:45:00 | 2,208 |
| 20:00:00 | 2,227 |
| 20:15:00 | 2,228 |
| 20:30:00 | 2,245 |
| 20:45:00 | 2,300 |
| 21:00:00 | 2,354 |
| 21:15:00 | 2,230 |
| 21:30:00 | 2,183 |
| 21:45:00 | 2,210 |
| 22:00:00 | 2,198 |
| 22:15:00 | 2,190 |
| 22:30:00 | 2,201 |
| 22:45:00 | 2,200 |
| 23:00:00 | 2,180 |
| 23:15:00 | 2,202 |
| 23:30:00 | 2,204 |
| 23:45:00 | 2,180 |
| 00:00:00 | 2,236 |
| 00:15:00 | 2,220 |
| 00:30:00 | 2,210 |

MD #3

*Datos extraidos del SCADA

| Timestamp | P(sum) |
|-----------|--------|
| 19:40:00 | 0,933 |
| 19:41:00 | 0,933 |
| 19:42:00 | 0,931 |
| 19:43:00 | 0,931 |
| 19:44:00 | 0,931 |
| 19:45:00 | 0,925 |
| 19:46:00 | 0,931 |
| 19:47:00 | 0,926 |
| 19:48:00 | 0,920 |
| 19:49:00 | 0,923 |
| 19:50:00 | 0,916 |
| 19:51:00 | 0,924 |
| 19:52:00 | 0,918 |
| 19:53:00 | 0,915 |
| 19:54:00 | 0,914 |
| 19:55:00 | 0,921 |
| 19:56:00 | 0,916 |
| 19:57:00 | 0,913 |
| 19:58:00 | 0,915 |
| 19:59:00 | 0,911 |
| 20:00:00 | 0,914 |
| 20:01:00 | 0,911 |
| 20:02:00 | 0,909 |
| 20:03:00 | 0,910 |
| 20:04:00 | 0,909 |
| 20:05:00 | 0,909 |
| 20:06:00 | 0,912 |
| 20:07:00 | 0,907 |
| 20:08:00 | 0,906 |
| 20:09:00 | 0,907 |
| 20:10:00 | 0,905 |
| 20:11:00 | 0,911 |
| 20:12:00 | 0,906 |
| 20:13:00 | 0,905 |
| 20:14:00 | 0,906 |
| 20:15:00 | 0,903 |
| 20:16:00 | 0,899 |
| 20:17:00 | 0,900 |
| 20:18:00 | 0,899 |
| 20:19:00 | 0,903 |
| 20:20:00 | 0,901 |
| 20:21:00 | 0,903 |
| 20:22:00 | 0,905 |
| 20:23:00 | 0,899 |
| 20:24:00 | 0,909 |
| 20:25:00 | 0,902 |
| 20:26:00 | 0,899 |
| 20:27:00 | 0,894 |
| 20:28:00 | 0,896 |
| 20:29:00 | 0,897 |

MD #4

| | |
|----------|-------|
| 20:30:00 | 0,896 |
| 20:31:00 | 0,892 |
| 20:32:00 | 0,895 |
| 20:33:00 | 0,896 |
| 20:34:00 | 0,897 |
| 20:35:00 | 0,894 |
| 20:36:00 | 0,890 |
| 20:37:00 | 0,894 |
| 20:38:00 | 0,892 |
| 20:39:00 | 0,890 |
| 20:40:00 | 0,891 |
| 20:41:00 | 0,888 |
| 20:42:00 | 0,890 |
| 20:43:00 | 0,889 |
| 20:44:00 | 0,888 |
| 20:45:00 | 0,885 |
| 20:46:00 | 0,884 |
| 20:47:00 | 0,886 |
| 20:48:00 | 0,886 |
| 20:49:00 | 0,889 |
| 20:50:00 | 0,885 |
| 20:51:00 | 0,882 |
| 20:52:00 | 0,885 |
| 20:53:00 | 0,889 |
| 20:54:00 | 0,891 |
| 20:55:00 | 0,882 |
| 20:56:00 | 0,887 |
| 20:57:00 | 0,883 |
| 20:58:00 | 0,887 |
| 20:59:00 | 0,885 |
| 21:00:00 | 0,890 |
| 21:01:00 | 0,887 |
| 21:02:00 | 0,887 |
| 21:03:00 | 0,885 |
| 21:04:00 | 0,887 |
| 21:05:00 | 0,883 |
| 21:06:00 | 0,884 |
| 21:07:00 | 0,883 |
| 21:08:00 | 0,886 |
| 21:09:00 | 0,889 |
| 21:10:00 | 0,885 |
| 21:11:00 | 0,888 |
| 21:12:00 | 0,886 |
| 21:13:00 | 0,886 |
| 21:14:00 | 0,888 |
| 21:15:00 | 0,890 |
| 21:16:00 | 0,883 |
| 21:17:00 | 0,883 |
| 21:18:00 | 0,883 |
| 21:19:00 | 0,887 |
| 21:20:00 | 0,887 |

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| 21:21:00 | 0,887 |
| 21:22:00 | 0,887 |
| 21:23:00 | 0,886 |
| 21:24:00 | 0,889 |
| 21:25:00 | 0,888 |
| 21:26:00 | 0,889 |
| 21:27:00 | 0,890 |
| 21:28:00 | 0,888 |
| 21:29:00 | 0,888 |
| 21:30:00 | 0,886 |
| 21:31:00 | 0,886 |
| 21:32:00 | 0,888 |
| 21:33:00 | 0,883 |
| 21:34:00 | 0,887 |
| 21:35:00 | 0,890 |
| 21:36:00 | 0,886 |
| 21:37:00 | 0,889 |
| 21:38:00 | 0,891 |
| 21:39:00 | 0,887 |
| 21:40:00 | 0,887 |
| 21:41:00 | 0,887 |
| 21:42:00 | 0,890 |
| 21:43:00 | 0,886 |
| 21:44:00 | 0,888 |
| 21:45:00 | 0,887 |
| 21:46:00 | 0,886 |
| 21:47:00 | 0,886 |
| 21:48:00 | 0,888 |
| 21:49:00 | 0,891 |
| 21:50:00 | 0,889 |
| 21:51:00 | 0,887 |
| 21:52:00 | 0,888 |
| 21:53:00 | 0,889 |
| 21:54:00 | 0,892 |
| 21:55:00 | 0,889 |
| 21:56:00 | 0,891 |
| 21:57:00 | 0,889 |
| 21:58:00 | 0,888 |
| 21:59:00 | 0,889 |
| 22:00:00 | 0,890 |
| 22:01:00 | 0,891 |
| 22:02:00 | 0,888 |
| 22:03:00 | 0,887 |
| 22:04:00 | 0,887 |
| 22:05:00 | 0,890 |
| 22:06:00 | 0,888 |
| 22:07:00 | 0,888 |
| 22:08:00 | 0,886 |
| 22:09:00 | 0,886 |
| 22:10:00 | 0,887 |
| 22:11:00 | 0,887 |

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| 22:12:00 | 0,887 |
| 22:13:00 | 0,889 |
| 22:14:00 | 0,885 |
| 22:15:00 | 0,886 |
| 22:16:00 | 0,886 |
| 22:17:00 | 0,889 |
| 22:18:00 | 0,886 |
| 22:19:00 | 0,887 |
| 22:20:00 | 0,884 |
| 22:21:00 | 0,881 |
| 22:22:00 | 0,886 |
| 22:23:00 | 0,885 |
| 22:24:00 | 0,887 |
| 22:25:00 | 0,884 |
| 22:26:00 | 0,884 |
| 22:27:00 | 0,888 |
| 22:28:00 | 0,885 |
| 22:29:00 | 0,889 |
| 22:30:00 | 0,887 |
| 22:31:00 | 0,883 |
| 22:32:00 | 0,886 |
| 22:33:00 | 0,888 |
| 22:34:00 | 0,886 |
| 22:35:00 | 0,889 |
| 22:36:00 | 0,882 |
| 22:37:00 | 0,887 |
| 22:38:00 | 0,887 |
| 22:39:00 | 0,891 |
| 22:40:00 | 0,889 |
| 22:41:00 | 0,883 |
| 22:42:00 | 0,886 |
| 22:43:00 | 0,880 |
| 22:44:00 | 0,885 |
| 22:45:00 | 0,886 |
| 22:46:00 | 0,886 |
| 22:47:00 | 0,883 |
| 22:48:00 | 0,886 |
| 22:49:00 | 0,886 |
| 22:50:00 | 0,885 |
| 22:51:00 | 0,882 |
| 22:52:00 | 0,884 |
| 22:53:00 | 0,884 |
| 22:54:00 | 0,887 |
| 22:55:00 | 0,885 |
| 22:56:00 | 0,878 |
| 22:57:00 | 0,884 |
| 22:58:00 | 0,887 |
| 22:59:00 | 0,887 |
| 23:00:00 | 0,885 |
| 23:01:00 | 0,884 |
| 23:02:00 | 0,889 |

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|----------|-------|
| 23:03:00 | 0,885 |
| 23:04:00 | 0,882 |
| 23:05:00 | 0,880 |
| 23:06:00 | 0,884 |
| 23:07:00 | 0,884 |
| 23:08:00 | 0,884 |
| 23:09:00 | 0,887 |
| 23:10:00 | 0,885 |
| 23:11:00 | 0,885 |
| 23:12:00 | 0,887 |
| 23:13:00 | 0,885 |
| 23:14:00 | 0,887 |
| 23:15:00 | 0,884 |
| 23:16:00 | 0,883 |
| 23:17:00 | 0,886 |
| 23:18:00 | 0,885 |
| 23:19:00 | 0,887 |
| 23:20:00 | 0,886 |
| 23:21:00 | 0,888 |
| 23:22:00 | 0,887 |
| 23:23:00 | 0,888 |
| 23:24:00 | 0,887 |
| 23:25:00 | 0,884 |
| 23:26:00 | 0,884 |
| 23:27:00 | 0,890 |
| 23:28:00 | 0,887 |
| 23:29:00 | 0,887 |
| 23:30:00 | 0,885 |
| 23:31:00 | 0,887 |
| 23:32:00 | 0,890 |
| 23:33:00 | 0,888 |
| 23:34:00 | 0,890 |
| 23:35:00 | 0,890 |
| 23:36:00 | 0,888 |
| 23:37:00 | 0,890 |
| 23:38:00 | 0,897 |
| 23:39:00 | 0,887 |
| 23:40:00 | 0,892 |
| 23:41:00 | 0,897 |
| 23:42:00 | 0,898 |
| 23:43:00 | 0,897 |
| 23:44:00 | 0,893 |
| 23:45:00 | 0,892 |
| 23:46:00 | 0,890 |
| 23:47:00 | 0,892 |
| 23:48:00 | 0,888 |
| 23:49:00 | 0,890 |
| 23:50:00 | 0,889 |
| 23:51:00 | 0,891 |
| 23:52:00 | 0,889 |
| 23:53:00 | 0,892 |

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| 23:54:00 | 0,892 |
| 23:55:00 | 0,889 |
| 23:56:00 | 0,892 |
| 23:57:00 | 0,891 |
| 23:58:00 | 0,892 |
| 23:59:00 | 0,889 |
| 00:00:00 | 0,888 |
| 00:01:00 | 0,891 |
| 00:02:00 | 0,889 |
| 00:03:00 | 0,893 |
| 00:04:00 | 0,890 |
| 00:05:00 | 0,889 |
| 00:06:00 | 0,896 |
| 00:07:00 | 0,897 |
| 00:08:00 | 0,894 |
| 00:09:00 | 0,891 |
| 00:10:00 | 0,894 |
| 00:11:00 | 0,894 |
| 00:12:00 | 0,895 |
| 00:13:00 | 0,896 |
| 00:14:00 | 0,901 |
| 00:15:00 | 0,903 |
| 00:16:00 | 0,910 |
| 00:17:00 | 0,913 |
| 00:18:00 | 0,919 |
| 00:19:00 | 0,920 |
| 00:20:00 | 0,919 |
| 00:21:00 | 0,916 |
| 00:22:00 | 0,916 |
| 00:23:00 | 0,915 |
| 00:24:00 | 0,912 |
| 00:25:00 | 0,915 |
| 00:26:00 | 0,906 |
| 00:27:00 | 0,906 |
| 00:28:00 | 0,910 |
| 00:29:00 | 0,902 |
| 00:30:00 | 0,913 |
| 00:31:00 | 0,905 |
| 00:32:00 | 0,906 |
| 00:33:00 | 0,907 |
| 00:34:00 | 0,906 |
| 00:35:00 | 0,902 |
| 00:36:00 | 0,906 |
| 00:37:00 | 0,903 |
| 00:38:00 | 0,907 |
| 00:39:00 | 0,898 |
| 00:40:00 | 0,900 |

Anexo VI

Consumos servicios auxiliares

Equipos involucrados en consumo (KW) partida de unidad N°3

| Nombre: | KW | Hora | 19:45 | 19:50 | 19:55 | 20:00 | 20:05 | 20:10 | 20:15 |
|---|---------------|------|-------|-------|-------|-------|-------|-------|-------|
| Motor 1 Bba TK 3000 | 2,00 | | - | 2,00 | - | - | 2,00 | - | - |
| Motor 2 Bba TK 3000 | 2,00 | | - | - | - | - | - | - | - |
| Motor 1 Bba alimentación de petróleo a TK 3000. | 4,00 | | 4,00 | - | - | - | 4,00 | - | - |
| Motor 2 Bba alimentación de petróleo a TK 3000. | 4,00 | | - | - | - | - | - | - | - |
| Motor 1aerovenilador MG1. | 18,65 | | 18,65 | 18,65 | 18,65 | 18,65 | 18,65 | 18,65 | 18,65 |
| Motor 2aerovenilador MG1. | 18,65 | | - | 18,65 | - | 18,65 | - | 18,65 | - |
| Motor Bba lubricacion MG1 | 0,75 | | - | - | - | - | - | - | - |
| Motor turbo MG1 | 0,75 | | - | - | - | - | - | - | - |
| Motor 1aerovenilador MG2. | 18,65 | | 18,65 | 18,65 | 18,65 | 18,65 | 18,65 | 18,65 | 18,65 |
| Motor 2aerovenilador MG2. | 18,65 | | - | 18,65 | - | 18,65 | - | 18,65 | - |
| Motor Bba lubricacion MG2 | 0,75 | | - | - | - | - | - | - | - |
| Motor turbo MG2 | 0,75 | | - | - | - | - | - | - | - |
| Motor 1aerovenilador MG3. | 15,00 | | 15,00 | 15,00 | - | 15,00 | 15,00 | - | 15,00 |
| Motor 2aerovenilador MG3. | 15,00 | | 15,00 | 15,00 | - | 15,00 | 15,00 | - | 15,00 |
| Motor Bba lubricacion MG3 | 0,75 | | - | - | - | - | - | - | - |
| Motor turbo MG3 | 0,75 | | - | - | - | - | - | - | - |
| Motor 1aerovenilador MG4. | 15,00 | | 15,00 | 15,00 | - | 15,00 | 15,00 | - | 15,00 |
| Motor Bba lubricacion MG4 | 0,75 | | - | - | - | - | - | - | - |
| Total KW Instalados | 136,82 | | | | | | | | |

Total KW consumidos durante la prueba

87,84

| | | | | | | |
|-------|--------|-------|--------|-------|-------|-------|
| 86,30 | 121,60 | 37,30 | 119,60 | 88,30 | 74,60 | 82,30 |
|-------|--------|-------|--------|-------|-------|-------|

| UNIDAD | KW | PONDERACION | SSAA EN KW |
|--------------|-------------|-------------|--------------|
| MG#1 | 2,20 | 0,29 | 25,77 |
| MG#2 | 2,20 | 0,29 | 25,77 |
| MG#3 | 2,20 | 0,29 | 25,77 |
| MG#4 | 0,90 | 0,12 | 10,54 |
| TOTAL | 7,50 | 1,00 | 87,84 |

| | | | | | | | | | | | | | | | | | |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 20:20 | 20:25 | 20:30 | 20:35 | 20:40 | 20:45 | 20:50 | 20:55 | 21:00 | 21:05 | 21:10 | 21:15 | 21:20 | 21:25 | 21:30 | 21:35 | 21:40 | 21:45 |
| 2,00 | - | - | 2,00 | - | - | 2,00 | - | - | 2,00 | - | - | 2,00 | - | - | 2,00 | - | - |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| - | - | 4,00 | - | - | - | 4,00 | - | - | - | 4,00 | - | - | - | 4,00 | - | - | 4,00 |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 18,65 | 18,65 | 18,65 | 18,65 | 18,65 | 18,65 | 18,65 | 18,65 | 18,65 | 18,65 | 18,65 | 18,65 | 18,65 | 18,65 | 18,65 | 18,65 | 18,65 | 18,65 |
| 18,65 | | 18,65 | | 18,65 | | 18,65 | | 18,65 | | 18,65 | | 18,65 | | 18,65 | | 18,65 | |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 18,65 | 18,65 | 18,65 | 18,65 | 18,65 | 18,65 | 18,65 | 18,65 | 18,65 | 18,65 | 18,65 | 18,65 | 18,65 | 18,65 | 18,65 | 18,65 | 18,65 | 18,65 |
| 18,65 | | 18,65 | | 18,65 | | 18,65 | | 18,65 | | 18,65 | | 18,65 | | 18,65 | | 18,65 | |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 15,00 | - | 15,00 | 15,00 | - | 15,00 | 15,00 | - | 15,00 | 15,00 | - | 15,00 | 15,00 | - | 15,00 | 15,00 | - | 15,00 |
| 15,00 | - | 15,00 | 15,00 | - | 15,00 | 15,00 | - | 15,00 | 15,00 | - | 15,00 | 15,00 | - | 15,00 | 15,00 | - | 15,00 |
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| 15,00 | - | 15,00 | 15,00 | - | 15,00 | 15,00 | - | 15,00 | 15,00 | - | 15,00 | 15,00 | - | 15,00 | 15,00 | - | 15,00 |
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|--------|-------|--------|-------|-------|-------|--------|-------|--------|-------|-------|-------|--------|-------|--------|-------|-------|-------|
| 121,60 | 37,30 | 123,60 | 84,30 | 74,60 | 82,30 | 125,60 | 37,30 | 119,60 | 84,30 | 78,60 | 82,30 | 121,60 | 37,30 | 123,60 | 84,30 | 74,60 | 86,30 |
|--------|-------|--------|-------|-------|-------|--------|-------|--------|-------|-------|-------|--------|-------|--------|-------|-------|-------|

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|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 21:50 | 21:55 | 22:00 | 22:05 | 22:10 | 22:15 | 22:20 | 22:25 | 22:30 | 22:35 | 22:40 | 22:45 | 22:50 | 22:55 | 23:00 | 23:05 | 23:10 | 23:15 |
| 2,00 | - | - | 2,00 | - | - | 2,00 | - | - | 2,00 | - | - | 2,00 | - | - | 2,00 | - | - |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| - | - | - | 4,00 | - | - | - | 4,00 | - | - | - | 4,00 | - | - | - | 4,00 | - | - |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 18,65 | 18,65 | 18,65 | 18,65 | 18,65 | 18,65 | 18,65 | 18,65 | 18,65 | 18,65 | 18,65 | 18,65 | 18,65 | 18,65 | 18,65 | 18,65 | 18,65 | 18,65 |
| 18,65 | | 18,65 | | 18,65 | | 18,65 | | 18,65 | | 18,65 | | 18,65 | | 18,65 | | 18,65 | |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 18,65 | 18,65 | 18,65 | 18,65 | 18,65 | 18,65 | 18,65 | 18,65 | 18,65 | 18,65 | 18,65 | 18,65 | 18,65 | 18,65 | 18,65 | 18,65 | 18,65 | 18,65 |
| 18,65 | | 18,65 | | 18,65 | | 18,65 | | 18,65 | | 18,65 | | 18,65 | | 18,65 | | 18,65 | |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 15,00 | - | 15,00 | 15,00 | - | 15,00 | 15,00 | - | 15,00 | 15,00 | - | 15,00 | 15,00 | - | 15,00 | 15,00 | - | 15,00 |
| 15,00 | - | 15,00 | 15,00 | - | 15,00 | 15,00 | - | 15,00 | 15,00 | - | 15,00 | 15,00 | - | 15,00 | 15,00 | - | 15,00 |
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| - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 15,00 | - | 15,00 | 15,00 | - | 15,00 | 15,00 | - | 15,00 | 15,00 | - | 15,00 | 15,00 | - | 15,00 | 15,00 | - | 15,00 |
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| 121,60 | 37,30 | 119,60 | 88,30 | 74,60 | 82,30 | 121,60 | 41,30 | 119,60 | 84,30 | 74,60 | 86,30 | 121,60 | 37,30 | 119,60 | 88,30 | 74,60 | 82,30 |
|--------|-------|--------|-------|-------|-------|--------|-------|--------|-------|-------|-------|--------|-------|--------|-------|-------|-------|

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|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 23:20 | 23:25 | 23:30 | 23:35 | 23:40 | 23:45 | 23:50 | 23:55 | 00:00 | 00:05 | 00:10 | 00:15 | 00:20 | 00:25 | 00:30 | 00:35 | 00:40 | 00:45 |
| 2,00 | - | - | 2,00 | - | - | 2,00 | - | - | 2,00 | - | - | 2,00 | - | - | 2,00 | - | - |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| - | 4,00 | - | - | - | 4,00 | - | - | - | 4,00 | - | - | - | 4,00 | - | - | - | 4,00 |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 18,65 | 18,65 | 18,65 | 18,65 | 18,65 | 18,65 | 18,65 | 18,65 | 18,65 | 18,65 | 18,65 | 18,65 | 18,65 | 18,65 | 18,65 | 18,65 | 18,65 | 18,65 |
| 18,65 | | 18,65 | | 18,65 | | 18,65 | | 18,65 | | 18,65 | | 18,65 | | 18,65 | | 18,65 | |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 18,65 | 18,65 | 18,65 | 18,65 | 18,65 | 18,65 | 18,65 | 18,65 | 18,65 | 18,65 | 18,65 | 18,65 | 18,65 | 18,65 | 18,65 | 18,65 | 18,65 | 18,65 |
| 18,65 | | 18,65 | | 18,65 | | 18,65 | | 18,65 | | 18,65 | | 18,65 | | 18,65 | | 18,65 | |
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| 15,00 | - | 15,00 | 15,00 | - | 15,00 | 15,00 | - | 15,00 | 15,00 | - | 15,00 | 15,00 | - | 15,00 | 15,00 | - | 15,00 |
| 15,00 | - | 15,00 | 15,00 | - | 15,00 | 15,00 | - | 15,00 | 15,00 | - | 15,00 | 15,00 | - | 15,00 | 15,00 | - | 15,00 |
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| 15,00 | - | 15,00 | 15,00 | - | 15,00 | 15,00 | - | 15,00 | 15,00 | - | 15,00 | 15,00 | - | 15,00 | 15,00 | - | 15,00 |
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|--------|-------|--------|-------|-------|-------|--------|-------|--------|-------|-------|-------|--------|-------|--------|-------|-------|-------|
| 121,60 | 41,30 | 119,60 | 84,30 | 74,60 | 86,30 | 121,60 | 37,30 | 119,60 | 88,30 | 74,60 | 82,30 | 121,60 | 41,30 | 119,60 | 84,30 | 74,60 | 86,30 |
|--------|-------|--------|-------|-------|-------|--------|-------|--------|-------|-------|-------|--------|-------|--------|-------|-------|-------|

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| 18,65 | 18,65 | 18,65 |
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| 18,65 | 18,65 | 18,65 |
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| 121,60 | 37,30 | 119,60 |
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