



CERTIFICADO DE CUMPLIMIENTO / CERTIFICATE OF COMPLIANCE

PC23060613

**DISPOSITIVO DE PRESEÑALIZACIÓN DE PELIGRO V-16 GEOLOCALIZADO /
V-16 GEOLOCATED HAZARD WARNING DEVICE**

Real Decreto 1030/2022, de 20 de diciembre, por el que se modifica el Real Decreto 159/2021, de 16 de marzo, por el que se regulan los servicios de auxilio en las vías públicas. / Real Decreto 1030/2022 of 20 December amending Real Decreto 159/2021 of 16 March regulating roadside assistance services.

Nombre y dirección del solicitante /
Applicant's name and address : ENERGÍA ELÉCTRICA EFICIENTE, S.L.
Av. Arroyo del Santo, 4
28042, MADRID (ESPAÑA / SPAIN)

Nombre y dirección del fabricante /
Manufacturer's name and address : ENERGÍA ELÉCTRICA EFICIENTE, S.L.
Av. Arroyo del Santo, 4
28042, MADRID (ESPAÑA / SPAIN)

Marca comercial / *Trade mark* : 3e / baliza3e

Modelo / *Model* : MOD100

Informe de ensayo / *Test report* : PC23060613

Marca de identificación /
Identification marking : IDIADA PC23060613

CONCLUSIONES / CONCLUSIONS: El dispositivo descrito ha sido ensayado y **CUMPLE** con las prescripciones indicadas en el Real Decreto 1030/2022, de 20 de diciembre, por el que se modifica el Real Decreto 159/2021, de 16 de marzo, por el que se regulan los servicios de auxilio en las vías públicas. / *The device described above has been tested and **FULFILLS** with the requirements of Real Decreto 1030/2022 of 20 December, amending Real Decreto 159/2021 of 16 March, which regulates roadside assistance services.*

L'Albornar, Santa Oliva (Tarragona), 12/06/2023

Realizado por / *Performed by:*



Joan Fonts Sala
INGENIERO DE ENSAYOS

V. B°. / *Revised by:*



Ramon Santafè Guiu
JEFE DE DEPARTAMENTO



INFORME N° / REPORT No. PC23060613

RELATIVO A LA CERTIFICACIÓN DE DISPOSITIVO DE PRESEÑALIZACIÓN DE PELIGRO V-16
GEOLOCALIZADO SEGÚN EL REAL DECRETO 1030/2022, DE 20 DE DICIEMBRE, POR EL QUE SE
MODIFICA EL REAL DECRETO 159/2021, DE 16 DE MARZO, POR EL QUE SE REGULAN LOS
SERVICIOS DE AUXILIO EN LAS VÍAS PÚBLICAS / *CONCERNING THE CERTIFICATION OF V-16
GEOLOCATED HAZARD WARNING DEVICE ACCORDING TO THE REAL DECRETO 1030/2022 OF 20
DECEMBER AMENDING REAL DECRETO 159/2021 OF 16 MARCH REGULATING ROADSIDE
ASSISTANCE SERVICES.*

Nombre y dirección del solicitante /
Applicant's name and address : ENERGÍA ELÉCTRICA EFICIENTE, S.L.
Av. Arroyo del Santo, 4
28042, MADRID (ESPAÑA / SPAIN)

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Marca comercial / *Trade mark* : 3e / baliza3e

Modelo / *Model* : MOD100

Marca de identificación /
Identification marking : IDIADA PC23060613

Lugar y fecha de emisión del informe /
Place and date of test report issue : L'Albornar, Santa Oliva (Tarragona)
12/06/2023

CONCLUSIONES / *CONCLUSIONS*: El dispositivo descrito ha sido ensayado y **CUMPLE** con las prescripciones indicadas en el Real Decreto 1030/2022, de 20 de diciembre, por el que se modifica el Real Decreto 159/2021, de 16 de marzo, por el que se regulan los servicios de auxilio en las vías públicas, según se detalla en el anexo que se adjunta a este informe. / *The device described above has been tested and **FULFILLS** with the requirements of Real Decreto 1030/2022 of 20 December, amending Real Decreto 159/2021 of 16 March, which regulates roadside assistance services, as detailed in the annex to this report.*

Realizado por / *Performed by*:



Joan Fonts Sala
INGENIERO DE ENSAYOS

V. B°. / *Revised by*:



Ramon Santafè Guiu
JEFE DE DEPARTAMENTO

* LOS RESULTADOS PRESENTADOS SE REFIEREN ÚNICAMENTE A LA MUESTRA ENSAYADA.

THE PRESENTED RESULTS REFER ONLY TO THE TESTED SAMPLE

* QUEDA TERMINANTEMENTE PROHIBIDA LA REPRODUCCIÓN PARCIAL DE ESTE INFORME SIN PERMISO EXPRESO DE IDIADA.

THE PARTIAL REPRODUCTION OF THIS REPORT WITHOUT THE PERMISSION OF IDIADA IS COMPLETELY FORBIDDEN



ANEXO AL INFORME / ANNEX TO THE REPORT

Nombre y dirección del solicitante / <i>Applicant's name and address</i> ⁽¹⁾	: ENERGÍA ELÉCTRICA EFICIENTE, S.L. Av. Arroyo del Santo, 4 28042, MADRID (ESPAÑA / SPAIN)
Nombre y dirección del fabricante / <i>Manufacturer's name and address</i> ⁽¹⁾	: ENERGÍA ELÉCTRICA EFICIENTE, S.L. Av. Arroyo del Santo, 4 28042, MADRID (ESPAÑA / SPAIN)
Marca comercial / <i>Trade mark</i> ⁽¹⁾	: 3e / baliza3e
Modelo / <i>Model</i> ⁽¹⁾	: MOD100
Variantes / <i>Variants</i> ⁽¹⁾	: ---
Identificación de las muestras / <i>Sample identification</i>	: HTC-2304/02903
Patrones de destello / <i>Flash patterns</i> ⁽¹⁾	: Destello triple / <i>Triple flash</i>
Color / <i>Colour</i>	: Amarillo auto V-16 / <i>Amber V-16</i>
Número y categoría de la(s) fuente(s) luminosa(s) / <i>Light source(s) number and category</i> ⁽¹⁾	: 10 x LED
Alimentación del dispositivo / <i>Supplying system</i> ⁽¹⁾⁽²⁾	: Batería recargable / <i>Rechargeable battery</i> – Pila / <i>Cell</i>

⁽¹⁾ Información proporcionada por el cliente. El laboratorio no se hace responsable de dicha información /
Information provided by the client. The laboratory is not responsible for such information

⁽²⁾ Táchese lo que no proceda / *Strike out what does not apply*

Se adjuntan los siguientes documentos / *The following documents are attached:*

- Anexo I. Servicio de comunicaciones móviles corporativas de banda estrecha para internet de las cosas para balizas V-16. Cumplimiento de requisitos en materia de comunicaciones (CERTIFICADO TELCO) / *Annex I. Narrowband corporate mobile communications service for internet of things for V-16 beacons. Compliance with communications requirements (TELCO CERTIFICATE)*
- Anexo II. Pruebas de conexión de los dispositivos V-16 a la plataforma de coche conectado de la Dirección General de Tráfico, DGT3.0 / *Annex II. Connection tests of V-16 devices to the DGT3.0 connected car platform of the Dirección General de Tráfico.*
- Certificado UCA / *UCA Certificate*: E1 57422201D

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* EL LABORATORIO HA CALCULADO LA INCERTIDUMBRE DE MEDIDA ASOCIADA A LOS RESULTADOS.

MEASUREMENT UNCERTAINTY OF THE RESULTS HAS BEEN CALCULATED BY THE LABORATORY.


ESPECIFICACIONES GENERALES / GENERAL SPECIFICATIONS

COLOR: dispositivo luminoso de color amarillo auto. / <i>COLOUR: luminous device of amber colour.</i>	CORRECTO / CORRECT
IRRADIACIÓN: el sistema óptico estará diseñado de forma que la luz cubra un campo de visibilidad horizontal de 360 grados y en vertical un mínimo ± 8 grados hacia arriba y hacia abajo. / <i>IRRADIATION: the optical system shall be designed so that the light covers a horizontal visibility field of 360 degrees and vertically, a minimum of ± 8 degrees up and down.</i>	CORRECTO / CORRECT
INTENSIDAD LUMINOSA: la intensidad debe ser en el grado 0 entre 40 y 700 candelas efectivas, y en los grados ± 8 entre 25 y 600 candelas efectivas. En ambos casos, dicha intensidad se mantendrá durante al menos 30 minutos. El tiempo de encendido, "ON time" según se define en el Reglamento CEPE/ONU 65, será como máximo 0.4/frecuencia de destello. El tiempo de apagado, "OFF time" según se define en el Reglamento CEPE/ONU 65, será como mínimo de 0.1 segundos. El tiempo entre destellos inmediatamente consecutivos (Δt) para señales luminosas consistentes en grupos de varios destellos será el definido en el Reglamento ECE 65, Anexo 5. / <i>LUMINOUS INTENSITY: the intensity shall be at 0 degrees between 40 and 700 effective candles, and at grade ± 8 between 25 and 600 effective candles. In both cases, this intensity shall be maintained for at least 30 minutes.</i> <i>The ON time, as defined in UN/ECE Regulation 65, shall be a maximum of 0.4/flash rate.</i> <i>The OFF time as defined in UN/ECE Regulation 65 shall be a minimum of 0.1 seconds.</i> <i>The time between immediately consecutive flashes (Δt) for light signals consisting of groups of several flashes shall be as defined in ECE Regulation 65, Annex 5.</i>	CORRECTO / CORRECT
GRADO DE PROTECCIÓN IP: al menos será IP54. / <i>IP PROTECTION GRADE: at least it shall be IP54.</i>	CORRECTO / CORRECT
ESTABILIDAD: el equipo estará diseñado para quedar estable sobre una superficie plana, no desplazándose frente a una corriente de aire que ejerza una presión dinámica de 180 Pa, en la dirección más desfavorable para su estabilidad. / <i>STABILITY: The equipment shall be designed to remain stable on a flat surface, not moving in front of a current of air that exerts a dynamic pressure of 180 Pa, in the most unfavorable direction for its stability.</i>	CORRECTO / CORRECT
FRECUENCIA DE DESTELLO: entre 0,8 y 2 Hz. / <i>FLASH FREQUENCY: between 0.8 and 2 Hz.</i>	CORRECTO / CORRECT
RESISTENCIA CLIMÁTICA: se garantizará el funcionamiento de la luz a temperaturas de -10 °C y 50 °C. / <i>CLIMATIC RESISTANCE: the operation of the light shall be guaranteed at temperatures of -10 °C and 50 °C.</i>	CORRECTO / CORRECT
ALIMENTACIÓN: será autónoma a través de una pila o batería que deberá garantizar su uso al cabo de 18 meses. Se considerará que los dispositivos que utilicen una batería recargable y siempre que la carga del mismo se pueda realizar en el propio vehículo cumplen con este requisito. / <i>SUPPLYING SYSTEM: it shall be autonomous through a battery that must guarantee its use after 18 months. Devices using a rechargeable battery and provided that the battery can be charged in the vehicle itself shall be deemed to comply with this requirement.</i>	CORRECTO / CORRECT

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RESULTADOS COLORIMÉTRICOS: AMARILLO AUTO / COLORIMETRIC RESULTS: AMBER ZONE

- Límite hacia el verde / *Limit towards the green*: $y \leq x - 0.120$
- Límite hacia el rojo / *Limit towards the red*: $y \geq 0.390$
- Límite hacia el blanco / *Limit towards the white*: $y \geq 0.790 - 0.670x$

Coordenadas cromáticas (eje de referencia) / <i>Chromatic co-ordinates (reference axis)</i>		
x	0.581	CORRECTO / CORRECT
y	0.414	
z	0.005	

RESULTADOS FOTOMÉTRICOS / PHOTOMETRIC RESULTS

- Frecuencia inicial / *Initial frequency*

Frecuencia / <i>Frequency</i> (f): $0.8 \text{ Hz} \leq f \leq 2 \text{ Hz}$	f = 0.81 Hz	CORRECTO / CORRECT
Tiempo de encendido / <i>On time</i> : $t_{ON} \leq 0.4/f$	$t_{ON} = 456.4 \text{ ms} \leq 0.4/f = 493.8 \text{ ms}$	CORRECTO / CORRECT
Tiempo de apagado / <i>Off time</i> : $t_{OFF} \geq 100 \text{ ms}$	$t_{OFF} = 777.6 \text{ ms}$	CORRECTO / CORRECT
Diferencia de tiempo / <i>Time distance measurements</i> : Δt	$\Delta t = 3 \text{ ms}$	CORRECTO / CORRECT

Valores mínimos de intensidad luminosa efectiva / *Minimum values of effective luminous intensity* (J_e):

	Medidas tras 1 minuto de encendido / <i>Measures after 1 minute of operation</i> (cd_{ef})		Medidas tras 30 minutos de encendido / <i>Measures after 30 minutes of operation</i> (cd_{ef})	
0° V	$40 \leq J_e \leq 700$	107.8	$40 \leq J_e \leq 700$	79.2
+8° V	$25 \leq J_e \leq 600$	102.9	$25 \leq J_e \leq 600$	75.6
-8° V	$25 \leq J_e \leq 600$	80.1	$25 \leq J_e \leq 600$	58.9

Valor máximo de intensidad luminosa efectiva / *Maximum value of effective luminous intensity* (J_e):

	Medidas tras 1 minuto de encendido / <i>Measures after 1 minute of operation</i> (cd_{ef})		Medidas tras 30 minutos de encendido / <i>Measures after 30 minutes of operation</i> (cd_{ef})	
0° V	$40 \leq J_e \leq 700$	114.4	$40 \leq J_e \leq 700$	84.1
+8° V	$25 \leq J_e \leq 600$	109.2	$25 \leq J_e \leq 600$	80.3
-8° V	$25 \leq J_e \leq 600$	84.9	$25 \leq J_e \leq 600$	62.4

Irradiación / <i>Irradiation</i>	CORRECTO / CORRECT
Intensidad luminosa / <i>Luminous intensity</i>	CORRECTO / CORRECT

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Frecuencia V-16 conectada / Connected V-16 frequency

Frecuencia / Frequency (f): $0.8 \text{ Hz} \leq f \leq 2 \text{ Hz}$	f = 1.62 Hz	CORRECTO / CORRECT
Tiempo de encendido / On time: $t_{\text{ON}} \leq 0.4/f$	$t_{\text{ON}} = 243.6 \text{ ms} \leq 0.4/f = 246.9 \text{ ms}$	CORRECTO / CORRECT
Tiempo de apagado / Off time: $t_{\text{OFF}} \geq 100 \text{ ms}$	$t_{\text{OFF}} = 374.4 \text{ ms}$	CORRECTO / CORRECT
Diferencia de tiempo / Time distance measurements: Δt	$\Delta t = 18 \text{ ms}$	CORRECTO / CORRECT

Valores mínimos de intensidad luminosa efectiva / Minimum values of effective luminous intensity (J_e):

	Medidas tras 1 minuto de encendido / Measures after 1 minute of operation (cd_{ef})		Medidas tras 30 minutos de encendido / Measures after 30 minutes of operation (cd_{ef})	
0° V	$40 \leq J_e \leq 700$	95.2	$40 \leq J_e \leq 700$	69.9
+8° V	$25 \leq J_e \leq 600$	90.8	$25 \leq J_e \leq 600$	66.7
-8° V	$25 \leq J_e \leq 600$	70.7	$25 \leq J_e \leq 600$	52.0

Valor máximo de intensidad luminosa efectiva / Maximum value of effective luminous intensity (J_e):

	Medidas tras 1 minuto de encendido / Measures after 1 minute of operation (cd_{ef})		Medidas tras 30 minutos de encendido / Measures after 30 minutes of operation (cd_{ef})	
0° V	$40 \leq J_e \leq 700$	101.0	$40 \leq J_e \leq 700$	74.3
+8° V	$25 \leq J_e \leq 600$	96.4	$25 \leq J_e \leq 600$	70.9
-8° V	$25 \leq J_e \leq 600$	74.9	$25 \leq J_e \leq 600$	55.1

Irradiación / Irradiation	CORRECTO / CORRECT
Intensidad luminosa / Luminous intensity	CORRECTO / CORRECT

Lugar del ensayo / Test place: L'Albornar, E-43710 Santa Oliva (Tarragona)

Fecha del ensayo / Test date: 22/03/2023 – 14/04/2023



Joan Fonts Sala
INGENIERO DE ENSAYOS

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ANEXO I

Servicio de comunicaciones móviles corporativas de banda estrecha para internet de las cosas para balizas V-16. Cumplimiento de requisitos en materia de comunicaciones (CERTIFICADO TELCO)

El operador Telefónica IoT & Big Data Tech, S.A.U. de conformidad con lo dispuesto en el Anexo II de la Resolución de 30 de noviembre de 2021, de la Dirección General de Tráfico, por la que se define el protocolo y el formato para el envío de datos desde la señal V-16 al Punto de Acceso Nacional, en el ámbito de la Directiva 2010/40/UE del Parlamento Europeo y del Consejo, de 7 de julio de 2010, por la que se establece el marco para la implantación de los sistemas de transporte inteligente en el sector del transporte por carretera,

MANIFIESTA

1. Que en fecha **3 de Mayo de 2023**, la entidad **Energía Eléctrica Eficiente SL**, (en adelante, el "Cliente"), con C.I.F. B98297286 y el operador Telefónica IoT & Big Data Tech, S.A.U., finalizaron la ejecución de las pruebas aplicadas para la prestación del Servicio de Comunicaciones Móviles Corporativas de Banda Estrecha para Internet de las Cosas para balizas conectadas v16 para su modelo 3Energy-V16 y versión FW 3Energy.1.2.
2. Que el alcance del Contrato entre las partes recoge y da cumplimiento a los requisitos que en materia de conectividad han de cumplirse de acuerdo con lo dispuesto en la citada Resolución de 30 de noviembre de 2021, y en concreto:
 - 2.1. Tecnología de comunicaciones. El servicio de conectividad será prestado bajo el uso de tecnología celular en banda licenciada dentro de los estándares 4G/5G LPWA de 3GPP, garantizando de este modo la permanencia en funcionamiento de dicha tecnología durante el transcurso del Contrato, evitando de este modo la obsolescencia temprana.
 - 2.2. Gestión, seguridad y privacidad en las comunicaciones. El servicio será prestado por el operador Telefónica IoT & Big Data Tech, S.A.U.:
 - Bajo un entorno privado y seguro de comunicaciones (APN privado).
 - Sin oportunidad de extracción de la tarjeta SIM del dispositivo.
 - Mediante la provisión automática y desatendida, y ello con objeto de evitar procedimientos de activación intermedios que puedan interferir en el momento de un accidente o avería.
 - Incluyendo una herramienta de gestión de alarmas para el control del fraude por malos usos con posibilidad de bloqueo automático de las comunicaciones.
 - El Cliente y el operador Telefónica IoT & Big Data Tech, S.A.U. ha acordado establecer un plazo de duración en la prestación del servicio de conectividad no inferior a 12 años.
3. Validación de dispositivo. Con el fin de garantizar los requisitos en materia de validación de los dispositivos se adjuntan como apéndice al presente Anexo los certificados aportados por el fabricante, así como el resultado de las pruebas de laboratorio efectuadas por el operador Telefónica IoT & Big Data Tech, S.A.U. y el porcentaje de cobertura actual y previsto en la tecnología LPWA seleccionada en el territorio nacional.

En Madrid, a **3 de Mayo** del año 2023

Por **Energía Eléctrica Eficiente SL**

Por el Operador
Telefónica IoT & Big Data Tech, S.A.U.

Fdo: D. Manuel Velasco Bengoechea

Fdo: D. Carlos Carazo Cepedano



Índice de apéndices

Apéndice I: Certificados de fabricante

Apéndice II: Informe de pruebas de laboratorio

Apéndice III: Declaración de cobertura NB-IoT

Verifique el informe con código de seguridad «XXUGNLWl» en: <https://extranet.idiada.com/hom-cve>

IDIADA PC23060613



APENDICE I

CERTIFICACIONES DE FABRICANTE

Verifique el informe con código de seguridad «XXUGNL.WI» en: <https://extranet.idiada.com/hom-cve>



ATTESTATION OF CONFORMITY

Attestation No. 23AE030111W001

The submitted sample of below equipment has been tested in according to Radio Equipment Directive 2014/53/EU with the following standards. The test report(s) show that the product complies with standard(s) recognized as giving presumption of compliance with the principal protection requirement of the EC Council Directive of 2014/53/EU.

Report No. : E01A23030111E00101, E01A23030111R00102,
E01A23030111R00103, E01A23030111H00104,
E01A23030111H00105, S01A23030111S00201

Applicant : Energía Eléctrica Eficiente, S.L

Address : Avda. Arroyo del Santo, 4 -28042 - Madrid (SPAIN)

Manufacturer : Energía Eléctrica Eficiente, S.L

Address : Avda. Arroyo del Santo, 4 -28042 - Madrid (SPAIN)

Brand : 3e

Description of Product : Beacon V-16

Model No. : MOD100

Test Standards : ETSI EN 301 489-1 V2.2.3 (2019-11)
ETSI EN 301 489-19 V2.2.1 (2022-09)
ETSI EN 301 489-52 V1.2.1 (2021-11)
ETSI EN 303 413 V1.2.1 (2021-04)
ETSI EN 301 908-1 V13.2.1 (2019-11)
ETSI EN 301 908-13 V13.2.1 (2022-02)
EN 62479:2010
EN 50663:2017
EN IEC 62311:2020
EN 50665:2017
EN IEC 62368-1:2020+A11:2020

After preparation of the necessary technical documentation as well as the EU declaration of conformity, the CE marking as below can be affixed on the product if all relevant effective EU-directives or regulations related to CE marking have been complied with. The EU declaration of conformity is issued under the sole responsibility of the applicant or manufacturer.



Test Laboratory



Tiger Xu
EMC Supervisor
Date of Issue: April 19, 2023

This attestation of conformity is based on a single evaluation of the submitted sample(s) of the above mentioned product. It does not imply an assessment of the production of the products.

Dongguan Anci Electronic Technology Co., Ltd.

Add.: 1-2 Floor, Building A, No.11, Headquarters 2 Road, Songshan Lake

Hi-tech Industrial Development Zone, Dongguan City, Guangdong Pr., China.

Web: www.gtggroup.com E-mail: info@gtggroup.com Tel:86-4007558988



中国
国际
检测
TESTING
CNAS L7462



Verification Report

Report No.: SFT23031742839E(R1)

Date: Mar.27, 2023

Page 1 of 15

Applicant: Energía Eléctrica Eficiente, S.L

Address: Avda. Arroyo del Santo, 4 -28042 - Madrid (SPAIN)

The following merchandise was (were) submitted and identified by client as:

Sample Name: Baliza 3e
Model No.: MOD100
Brand: 3e
Manufacturer: Energía Eléctrica Eficiente, S.L
Address: Avda. Arroyo del Santo, 4 -28042 - Madrid (SPAIN)
Importer: Energía Eléctrica Eficiente, S.L
Address: Avda. Arroyo del Santo, 4 -28042 - Madrid (SPAIN)
Test Period: From Mar.17, 2023to Mar.22, 2023

SUMMARY OF TEST RESULTS

TEST REQUESTED	CONCLUSION
Heavy Metals , Flame Retardants and Phthalates Content - European Council Directive 2011/65/EU on the Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment (RoHS) with its Amendments Commission Delegated Directive (EU) 2015/863	PASS

Remark: This report is to Supersede SFT test report No. SFT23031742839E dated in Mar., 2023.

Test Result(s): Please refer to next page(s).

Signed for and on Behalf of SFT



Tom Yin / Technical Manager
Guangdong Safety Testing Co., Ltd.

The result(s) shown in this report refer(s) only to the sample(s) tested; Without written approval of SFT, this report can't be reproduced except in full.

Guangdong Safety Testing Co., Ltd.

No.1, the 1st North Industry Road, Songshan Lake Sci.&Tech. Park, Dongguan,
Guangdong, China
Tel:86-769-23105888 Fax: 86-769-22899858 <http://www.sft-cert.com/>

Verifique el informe con código de seguridad «XXUGNL.WI» en: <https://extranet.idiada.com/hom-cve>

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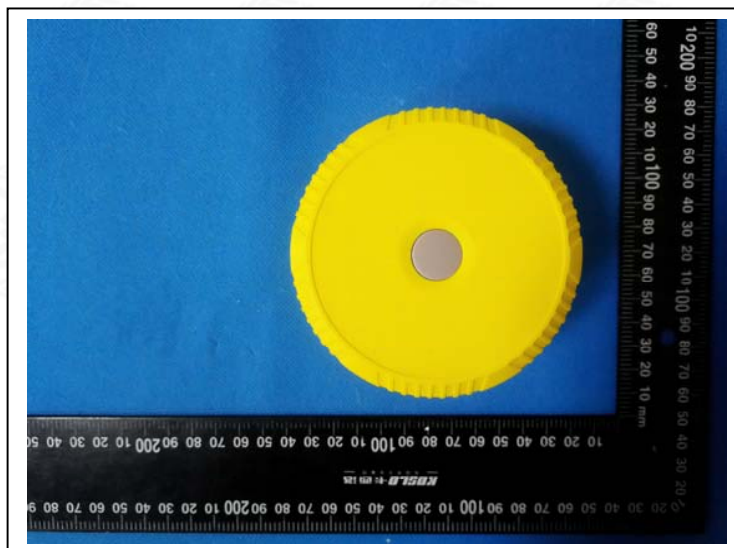
Verification Report

Report No.: SFT23031742839E(R1)

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Sample Photo



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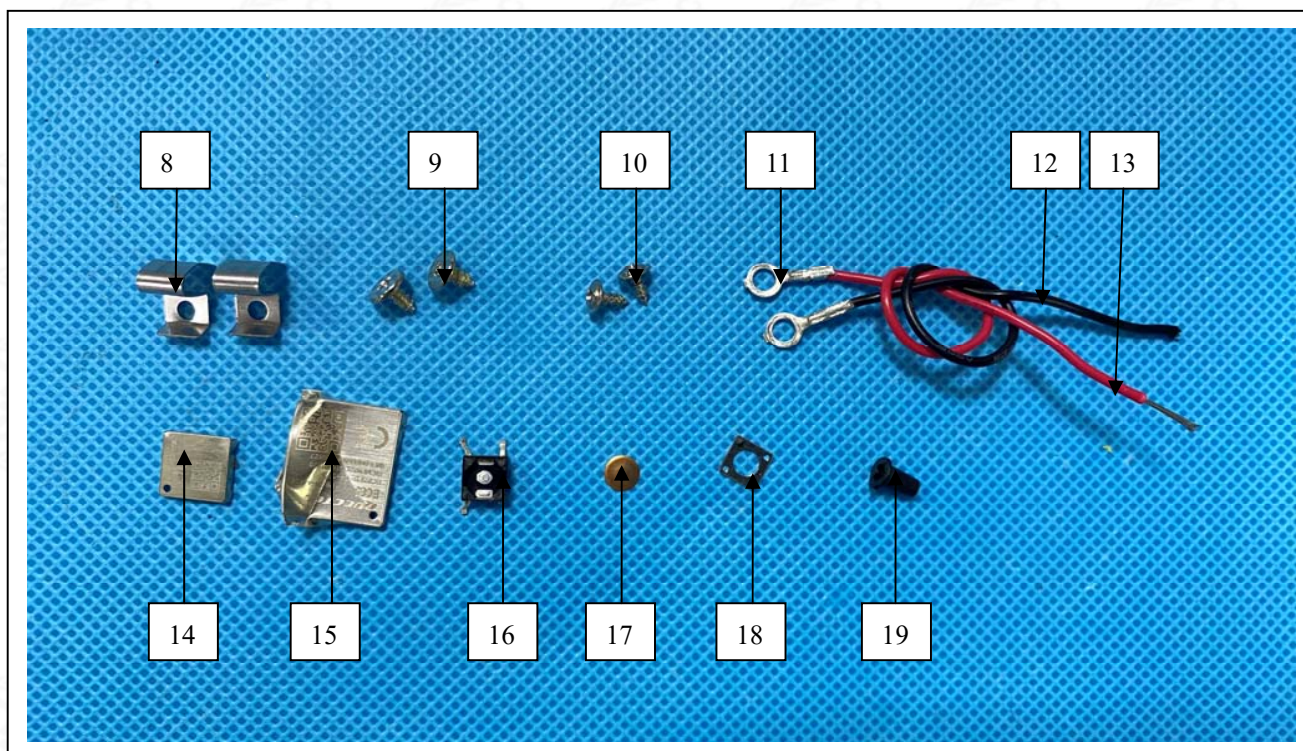
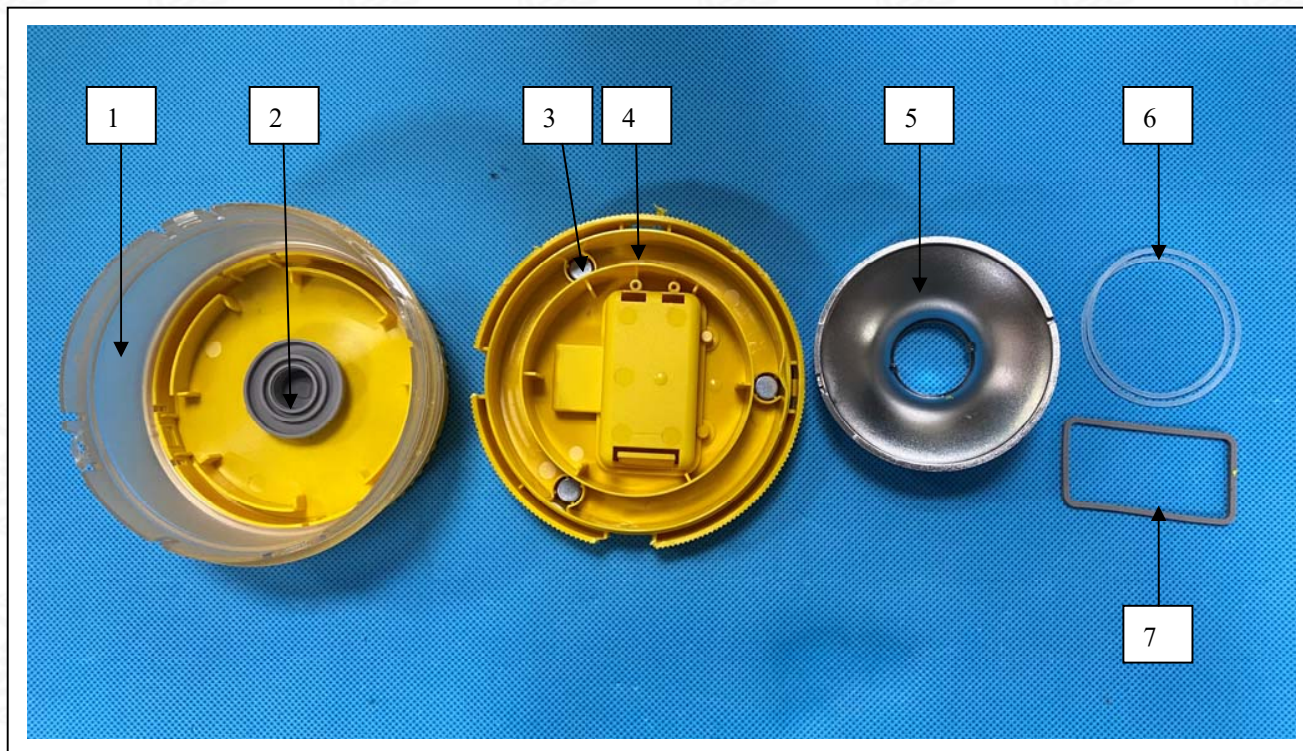


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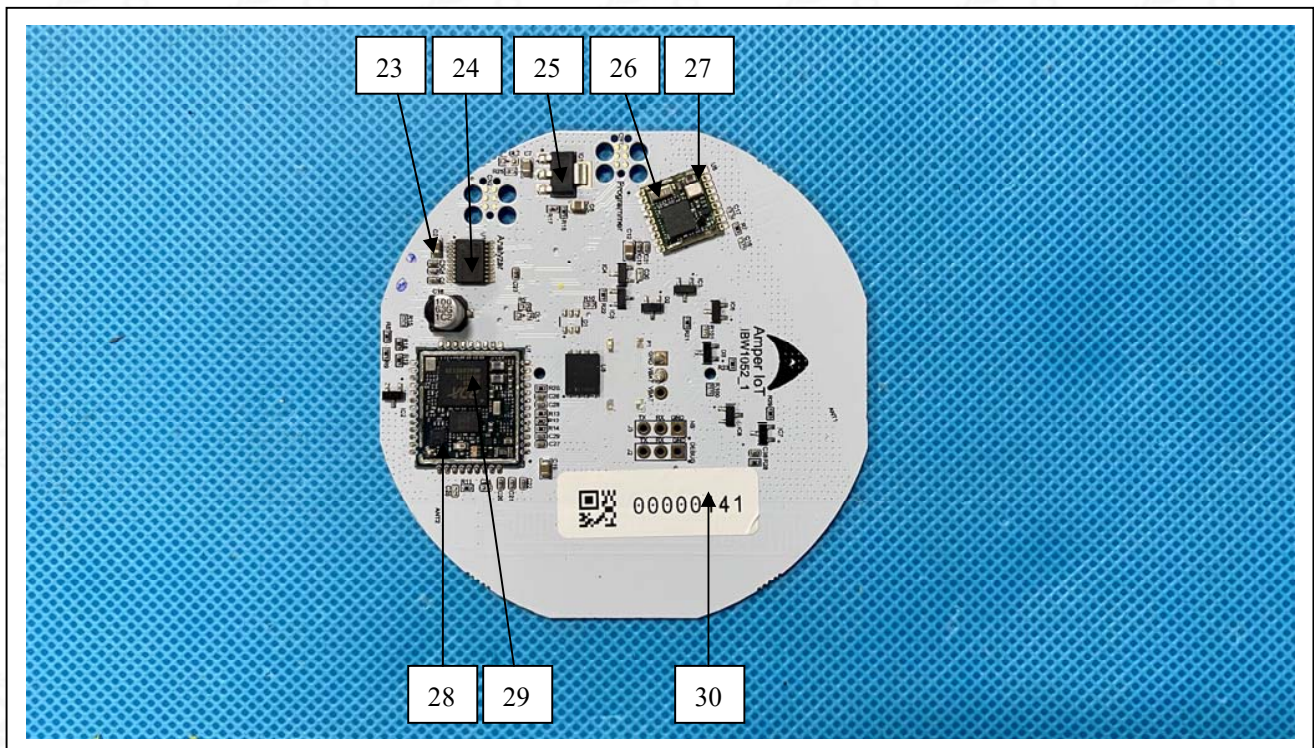
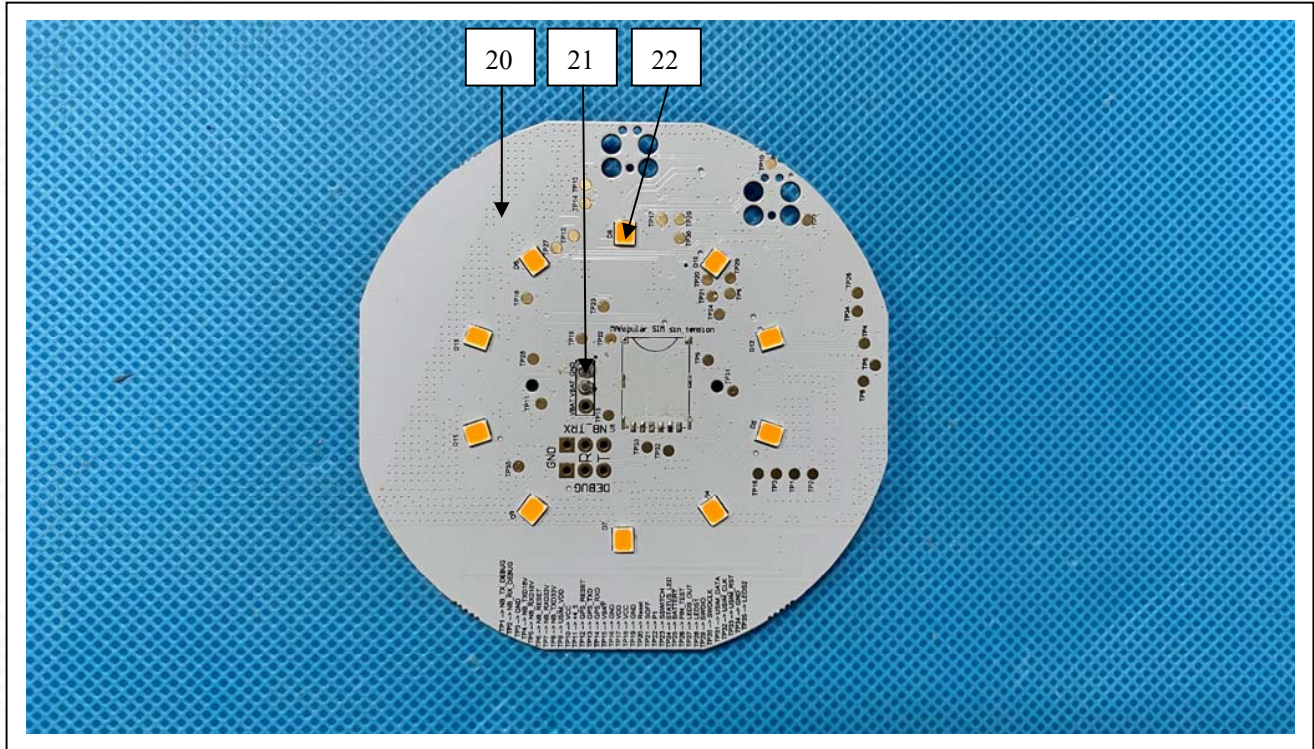


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Sample No.	Sample Description	Remark
1	Transparent plastic	-
2	Grey soft plastic	-
3	Silver magnet	-
4	Yellow plastic	-
5	Transparent plastic with silver coating	-
6	White soft plastic	-
7	Grey soft plastic	-
8	Silver metal	-
9	Silver metal screw	-
10	Silver metal screw	-
11	Silver metal	-
12	Black soft plastic wire jacket	-
13	Red soft plastic wire jacket	-
14	Silver metal	-
15	Silver metal	-
16	Black plastic	-
17	Silver metal	-
18	Silver metal	-
19	Black plastic	-
20	PCB	-
21	Silver solder tin	-
22	LED	-
23	Capacitor	-
24	IC	-
25	Audion	-
26	Crystal oscillator	-
27	PCB	-
28	PCB	-
29	IC	-
30	White sticker with black printing	-

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Test Result(s):

Heavy Metals , Flame Retardants Content - European Council Directive 2011/65/EU on the Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment (RoHS) with its Amendments Commission Delegated Directive (EU) 2015/863

Sample No.	Test Item	XRF screening Result	Result of Wet Chemical Testing (mg/kg)	Conclusion
1	Pb	BL	-	PASS
	Cd	BL	-	PASS
	Hg	BL	-	PASS
	Cr (VI)	BL	-	PASS
	PBBs	BL	-	PASS
	PBDEs	BL	-	PASS
2	Pb	BL	-	PASS
	Cd	BL	-	PASS
	Hg	BL	-	PASS
	Cr (VI)	BL	-	PASS
	PBBs	BL	-	PASS
	PBDEs	BL	-	PASS
3	Pb	BL	-	PASS
	Cd	BL	-	PASS
	Hg	BL	-	PASS
	Cr (VI)	BL	-	PASS
	PBBs	NA	-	-
	PBDEs	NA	-	-
4	Pb	BL	-	PASS
	Cd	BL	-	PASS
	Hg	BL	-	PASS
	Cr (VI)	BL	-	PASS
	PBBs	IN	ND	PASS
	PBDEs	IN	ND	PASS
5	Pb	BL	-	PASS
	Cd	BL	-	PASS
	Hg	BL	-	PASS
	Cr (VI)	BL	-	PASS
	PBBs	BL	-	PASS
	PBDEs	BL	-	PASS
6	Pb	BL	-	PASS
	Cd	BL	-	PASS
	Hg	BL	-	PASS
	Cr (VI)	BL	-	PASS
	PBBs	BL	-	PASS
	PBDEs	BL	-	PASS
7	Pb	BL	-	PASS
	Cd	BL	-	PASS
	Hg	BL	-	PASS
	Cr (VI)	BL	-	PASS

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Sample No.	Test Item	XRF screening Result	Result of Wet Chemical Testing (mg/kg)	Conclusion
	PBBs	BL	-	PASS
	PBDEs	BL	-	PASS
8	Pb	BL	-	PASS
	Cd	BL	-	PASS
	Hg	BL	-	PASS
	Cr (VI)	IN	ND	PASS
	PBBs	NA	-	-
	PBDEs	NA	-	-
9	Pb	BL	-	PASS
	Cd	BL	-	PASS
	Hg	BL	-	PASS
	Cr (VI)	BL	-	PASS
	PBBs	NA	-	-
	PBDEs	NA	-	-
10	Pb	BL	-	PASS
	Cd	BL	-	PASS
	Hg	BL	-	PASS
	Cr (VI)	IN	ND	PASS
	PBBs	NA	-	-
	PBDEs	NA	-	-
11	Pb	BL	-	PASS
	Cd	BL	-	PASS
	Hg	BL	-	PASS
	Cr (VI)	BL	-	PASS
	PBBs	NA	-	-
	PBDEs	NA	-	-
12	Pb	BL	-	PASS
	Cd	BL	-	PASS
	Hg	BL	-	PASS
	Cr (VI)	BL	-	PASS
	PBBs	BL	-	PASS
	PBDEs	BL	-	PASS
13	Pb	BL	-	PASS
	Cd	BL	-	PASS
	Hg	BL	-	PASS
	Cr (VI)	BL	-	PASS
	PBBs	BL	-	PASS
	PBDEs	BL	-	PASS
14	Pb	BL	-	PASS
	Cd	BL	-	PASS
	Hg	BL	-	PASS
	Cr (VI)	BL	-	PASS
	PBBs	NA	-	-
	PBDEs	NA	-	-
15	Pb	BL	-	PASS

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Sample No.	Test Item	XRF screening Result	Result of Wet Chemical Testing (mg/kg)	Conclusion
	Cd	BL	-	PASS
	Hg	BL	-	PASS
	Cr (VI)	BL	-	PASS
	PBBs	NA	-	-
	PBDEs	NA	-	-
16	Pb	BL	-	PASS
	Cd	BL	-	PASS
	Hg	BL	-	PASS
	Cr (VI)	BL	-	PASS
	PBBs	BL	-	PASS
	PBDEs	BL	-	PASS
17	Pb	BL	-	PASS
	Cd	BL	-	PASS
	Hg	BL	-	PASS
	Cr (VI)	BL	-	PASS
	PBBs	NA	-	-
	PBDEs	NA	-	-
18	Pb	BL	-	PASS
	Cd	BL	-	PASS
	Hg	BL	-	PASS
	Cr (VI)	IN	ND	PASS
	PBBs	NA	-	-
	PBDEs	NA	-	-
19	Pb	BL	-	PASS
	Cd	BL	-	PASS
	Hg	BL	-	PASS
	Cr (VI)	BL	-	PASS
	PBBs	BL	-	PASS
	PBDEs	BL	-	PASS
20	Pb	BL	-	PASS
	Cd	BL	-	PASS
	Hg	BL	-	PASS
	Cr (VI)	BL	-	PASS
	PBBs	IN	ND	PASS
	PBDEs	IN	ND	PASS
21	Pb	BL	-	PASS
	Cd	BL	-	PASS
	Hg	BL	-	PASS
	Cr (VI)	BL	-	PASS
	PBBs	NA	-	-
	PBDEs	NA	-	-
22	Pb	BL	-	PASS
	Cd	BL	-	PASS
	Hg	BL	-	PASS
	Cr (VI)	BL	-	PASS

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Sample No.	Test Item	XRF screening Result	Result of Wet Chemical Testing (mg/kg)	Conclusion
	PBBs	BL	-	PASS
	PBDEs	BL	-	PASS
23	Pb	BL	-	PASS
	Cd	BL	-	PASS
	Hg	BL	-	PASS
	Cr (VI)	BL	-	PASS
	PBBs	BL	-	PASS
	PBDEs	BL	-	PASS
	Pb	BL	-	PASS
24	Cd	BL	-	PASS
	Hg	BL	-	PASS
	Cr (VI)	BL	-	PASS
	PBBs	BL	-	PASS
	PBDEs	BL	-	PASS
	Pb	BL	-	PASS
25	Cd	BL	-	PASS
	Hg	BL	-	PASS
	Cr (VI)	BL	-	PASS
	PBBs	BL	-	PASS
	PBDEs	BL	-	PASS
	Pb	BL	-	PASS
26	Cd	BL	-	PASS
	Hg	BL	-	PASS
	Cr (VI)	BL	-	PASS
	PBBs	BL	-	PASS
	PBDEs	BL	-	PASS
	Pb	BL	-	PASS
27	Cd	BL	-	PASS
	Hg	BL	-	PASS
	Cr (VI)	BL	-	PASS
	PBBs	BL	-	PASS
	PBDEs	BL	-	PASS
	Pb	BL	-	PASS
28	Cd	BL	-	PASS
	Hg	BL	-	PASS
	Cr (VI)	BL	-	PASS
	PBBs	IN	ND	PASS
	PBDEs	IN	ND	PASS
	Pb	BL	-	PASS
29	Cd	BL	-	PASS
	Hg	BL	-	PASS
	Cr (VI)	BL	-	PASS
	PBBs	BL	-	PASS
	PBDEs	BL	-	PASS
	Pb	BL	-	PASS
30	Pb	BL	-	PASS

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Sample No.	Test Item	XRF screening Result	Result of Wet Chemical Testing (mg/kg)	Conclusion
	Cd	BL	-	PASS
	Hg	BL	-	PASS
	Cr (VI)	BL	-	PASS
	PBBs	BL	-	PASS
	PBDEs	BL	-	PASS

Phthalates Content - European Council Directive 2011/65/EU on the Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment (RoHS) with its Amendments Commission Delegated Directive (EU) 2015/863

Sample No.	Result (mg/kg)				Conclusion
	DBP	BBP	DEHP	DIBP	
1+4+5	ND	ND	ND	ND	PASS
2+6+7	ND	ND	ND	ND	PASS
12+13	ND	ND	ND	ND	PASS
16+19	ND	ND	ND	ND	PASS

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Remark:

- It is the result on total Br while test item is PBBs/PBDEs. It is the result on total Cr while test item is Cr (VI).
- Results are obtained by EDXRF for primary screening, and further chemical testing by ICP(for Cd, Pb, Hg), UV-VIS (for Cr (VI)) and GC/MS (for PBBs, PBDEs)is recommended to be performed, if the concentration exceeds the below warning value according to IEC 62321-3:2013 (unit: mg/kg) .

Element	Polymer	Metal	Composite Materials
Pb	$BL \leq (700-3\sigma) < X < (1300+3\sigma) \leq OL$	$BL \leq (700-3\sigma) < X < (1300+3\sigma) \leq OL$	$BL \leq (500-3\sigma) < X < (1500+3\sigma) \leq OL$
Cd	$BL \leq (70-3\sigma) < X < (130+3\sigma) \leq OL$	$BL \leq (70-3\sigma) < X < (130+3\sigma) \leq OL$	$LOD < X < (150+3\sigma) \leq OL$
Hg	$BL \leq (700-3\sigma) < X < (1300+3\sigma) \leq OL$	$BL \leq (700-3\sigma) < X < (1300+3\sigma) \leq OL$	$BL \leq (500-3\sigma) < X < (1500+3\sigma) \leq OL$
Cr	$BL \leq (700-3\sigma) < X$	$BL \leq (700-3\sigma) < X$	$BL \leq (500-3\sigma) < X$
Br	$BL \leq (300-3\sigma) < X$	--	$BL \leq (250-3\sigma) < X$

- ND = Not Detected (<MDL)
- mg/kg = milligram(s) per kilogram = ppm = part(s) per million
- MDL = Method Detection Limit
- BL = Below Limit
- OL = Over Limit
- IN = Inconclusive
- NA= Not Applicable
- The XRF screening test for RoHS elements - The reading may be different to the actual content in the sample be of non-uniformity composition.
- For Metal sample:
 - a. The sample is positive for CrVI if the CrVI concentration is greater than $0.13\mu\text{g}/\text{cm}^2$. The sample coating is considered to contain CrVI .
 - b. The sample is negative for CrVI if CrVI is ND(concentration less than $0.10\mu\text{g}/\text{cm}^2$). The coating is considered a non-CrVI based coating.
 - c. The result between $0.10\mu\text{g}/\text{cm}^2$ and $0.13\mu\text{g}/\text{cm}^2$ is considered to be inconclusive unavoidable coating variations may influence the determination
- Information on storage conditions and production date of the tested sample is unavailable and thus Cr(VI) results represent status of the sample at the time of testing.

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Test Items and their Test Methods, Equipments, Method Detection Limit and Limit [for European Council Directive 2011/65/EU&(EU) 2015/863] :

Test Items	Test Method	Equipment(s)	Method Detection Limit	Limit
Screening Test	IEC 62321-3-1:2013	XRF	-	-
Pb	IEC 62321-5:2013	ICP-OES/AAS	10mg/kg	1000mg/kg
Cd	IEC 62321-5:2013	ICP-OES/AAS	10mg/kg	100mg/kg
Hg	IEC 62321-4:2013+AMD1:2017	ICP-OES	10mg/kg	1000mg/kg
Cr	IEC 62321-5:2013	ICP-OES	10mg/kg	-
Cr (VI)	IEC 62321-7-2:2017	UV-VIS	10mg/kg	1000mg/kg
	IEC 62321-7-1:2015	UV-VIS	0.10µg/cm ²	1000mg/kg
PBBs	IEC 62321-6:2015	GC-MS	50mg/kg	1000mg/kg
PBDEs	IEC 62321-6:2015	GC-MS	50mg/kg	1000mg/kg
DBP	IEC 62321-8:2017	GC-MS	100mg/kg	1000mg/kg
BBP	IEC 62321-8:2017	GC-MS	100mg/kg	1000mg/kg
DEHP	IEC 62321-8:2017	GC-MS	100mg/kg	1000mg/kg
DIBP	IEC 62321-8:2017	GC-MS	100mg/kg	1000mg/kg

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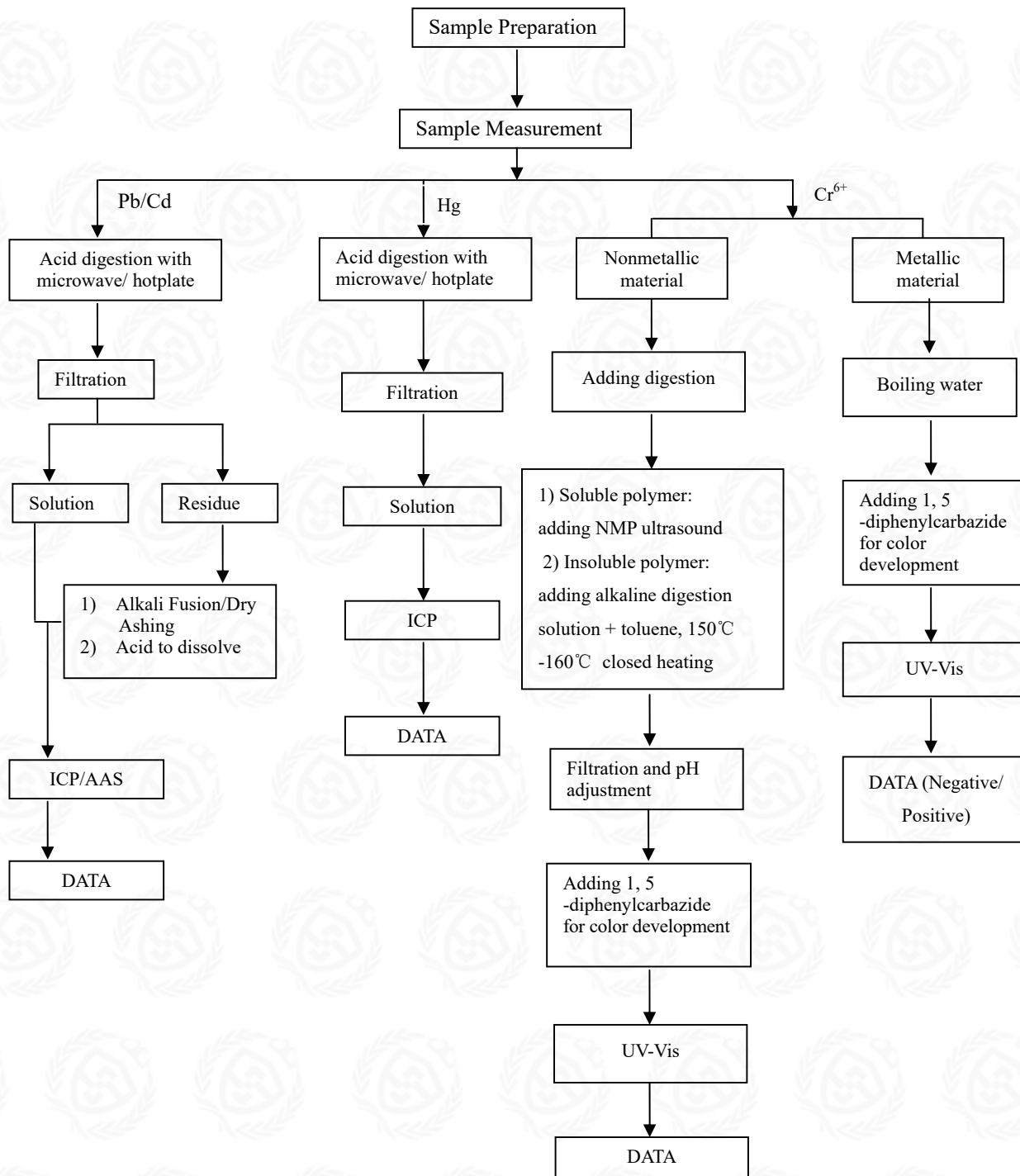
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Pb/Cd/Hg/Cr⁶⁺ Testing Flow Chart



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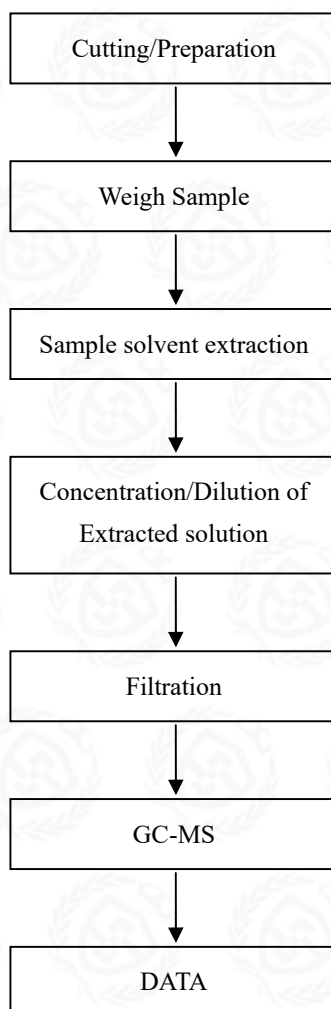
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PBBs/PBDEs Testing Flow Chart



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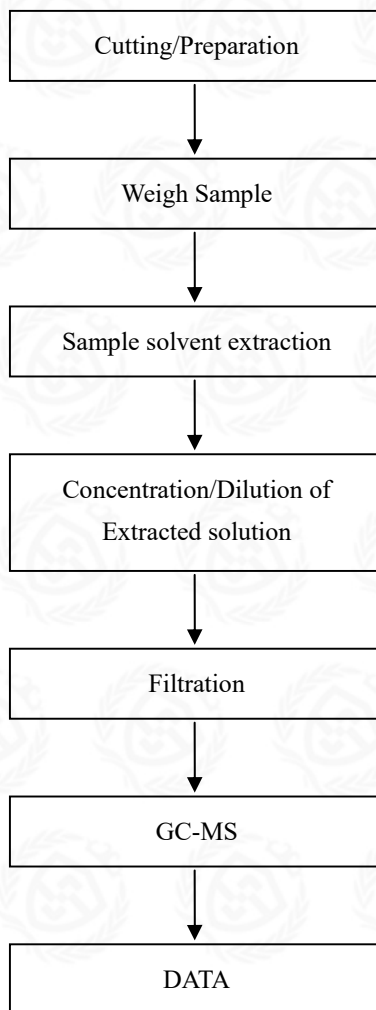


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Phthalates Testing Flow Chart



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EN IEC 62311:2020 EN 50665:2017

TEST REPORT

FOR

Beacon V-16

Model No.: MOD100

Trademark: 3e

Report No.: E01A23030111H00104

Issue Date: March 22, 2023

Prepared for

Energía Eléctrica Eficiente, S.L

Avda. Arroyo del Santo, 4 -28042 - Madrid (SPAIN)

Prepared by

Dong Guan Anci Electronic Technology Co., Ltd.

**1-2 Floor, Building A, No.11, Headquarters 2 Road, Songshan, Lake
Hi-tech Industrial Development Zone, Dongguan City, Guangdong Pr.,
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TRF No.: 01-E014-1A
Web: www.gtgroup.com

TRF Originator: GTG
E-mail: info@gtgroup.com

TRF Date: 2022-06-29
Tel.: 86-400 755 8988



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TEST REPORT DESCRIPTION

Applicant : Energía Eléctrica Eficiente, S.L
Avda. Arroyo del Santo, 4 -28042 - Madrid (SPAIN)
Manufacturer : Energía Eléctrica Eficiente, S.L
Avda. Arroyo del Santo, 4 -28042 - Madrid (SPAIN)
EUT : Beacon V-16
Model No. : MOD100
Rating : Battery 9V

Test Procedure Used:

EN IEC 62311:2020
EN 50665: 2017

The device described above is tested by Dong Guan Anci Electronic Technology Co., Ltd. to determine the maximum emission levels emanating from the device and the severe levels of the device can endure and its performance criterion. This report shows the EUT to be technically compliant with the EN IEC 62311:2020 and EN 50665: 2017 requirements. The test results are contained in this report and Dong Guan Anci Electronic Technology Co., Ltd. is assumed full responsibility for the accuracy and completeness of these tests.

This report applies to above tested sample only and shall not be reproduced in part without written approval of Dong Guan Anci Electronic Technology Co., Ltd.

Date of Test : March 03, 2023 to March 21, 2023

Duke

Prepared by :

EMC Engineer/Duke Liu

Tiger



Reviewer & Authorized Signer :

EMC Supervisor / Tiger Xu

Verifique el informe con código de seguridad «XXUGNLWl» en: <https://extranet.idiada.com/hom-cve>

PC23060613

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Modified Information

Version	Summary	Revision Date	Report No.
Ver.1.0	Original Version	/	E01A23030111H00104

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1. GENERAL INFORMATION

1.1 Description of Device (EUT)

EUT : Beacon V-16

Model Number : MOD100

Applicant : Energía Eléctrica Eficiente, S.L

Address : Avda. Arroyo del Santo, 4 -28042 - Madrid (SPAIN)

Manufacturer : Energía Eléctrica Eficiente, S.L

Address : Avda. Arroyo del Santo, 4 -28042 - Madrid (SPAIN)

Date of received : March 03, 2023

Date of Test : March 03, 2023 to March 21, 2023

Product software version : V1.0

Product hardware version : V1.0

Verifique el informe con código de seguridad «XXUGNLWl» en: <https://extranet.idiada.com/hom-cve>

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1.2 Test Facility

Site Description

Name of Firm : Dong Guan Anci Electronic Technology Co., Ltd..
Site Location : 1-2 Floor, Building A, No.11, Headquarters 2 Road,
Songshan, Lake Hi-tech Industrial Development Zone,
Dongguan City, Guangdong Pr., China.

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2. GENERAL PRODUCT INFORMATION

2.1 Basic Restriction

The essential requirements of Directive 2014/53/EU in the article 3.1(a) and the limits must be taken from Council Recommendation 99/519/EC for General Population or from the ICNIRP Guidelines for Occupational Exposure. EN 62479:2010 Generic standard to demonstrate the compliance of low power electronic and electrical apparatus with the basic restrictions related to human exposure to electromagnetic fields. The average power of EUT is less than 20mW then comply with basic restriction (1999/519/EC) without test.

2.2 Ratings and System Details

For Camera:

NBIOT	
Operation Band:	EUTRA Band 20
Modulation Type:	QPSK
Transmitter Maximum Output Power	25.57dBm

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3. TEST RESULT

3.1. EMF Exposure Measurement

3.1.1 Limit

Basic Restrictions

Council Recommendation 99/519/EC Annex II

Basic restrictions for electric, magnetic and electromagnetic fields (0 Hz to 300 GHz)

Frequency range	Magnetic flux density (mT)	Current density (mA/m ²) (rms)	Whole body average SAR (W/kg)	Localized SAR (head and trunk) (W/kg)	Localized SAR (limbs) (W/kg)	Power density, S (W/m ²)
0Hz	40	-	-	-	-	-
>0-1Hz	-	8	-	-	-	-
1-4Hz	-	8/f	-	-	-	-
4Hz-1000Hz	-	2	-	-	-	-
1000Hz-100kHz	-	f/500	-	-	-	-
100kHz-10MHz	-	f/500	0.08	2	4	-
10MHz-10GHz	-	-	0.08	2	4	-
10GHz-300GHz	-	-	-	-	-	10

Note:

1. f is the frequency in Hz.
2. The basic restriction on the current density is intended to protect against acute exposure effects on central nervous system tissues in the head and trunk of the body and includes a safety factor. The basic restrictions for ELF fields are based on established adverse effects on the central nervous system. Such acute effects are essentially instantaneous and there is no scientific justification to modify the basic restrictions for exposure of short duration. However, since the basic restriction refers to adverse effects on the central nervous system, this basic restriction may permit higher current densities in body tissues other than the central nervous system under the same exposure conditions.
3. Because of electrical inhomogeneity of the body, current densities should be averaged over a cross section of 1 cm² perpendicular to the current direction.
4. For frequencies up to 100kHz, AV current density values can be obtained by multiplying the rms value by $\sqrt{2}$ (≈ 1.414). For pulses of duration t_p the equivalent frequency to apply in the basic restrictions should be calculated as $1/(2t_p)$.
5. For frequencies up to 100kHz and for pulsed magnetic fields, the maximum current density associated with the pulses can be calculated from the rise/fall times and the maximum rate of change of magnetic flux density. The induced current density can then be compared with the appropriate basic restriction.
6. All SAR values are to be averaged over any six-minute period.
7. Localised SAR averaging Mass is any 10g of contiguous tissue; the maximum SAR so obtained should be the value used for the estimation of exposure. These 10g of tissue are intended to be a mass of contiguous tissue with nearly homogeneous electrical properties. In specifying a contiguous mass of tissue, it is recognized that this concept can be used in computational dissymmetry but may present difficulties for direct physical measurements. A simple geometry such as cubic tissue mass can be used provided that the calculated dissymmetric quantities have conservative values relative to the exposure guidelines.



8. For pulses of duration t_p the equivalent frequency to apply in the basic restrictions should be calculated as $f_{eq} = 1/(2t_p)$. Additionally, for pulsed exposures, in the frequency range 0.3 to 10GHz and for localized exposure of the head, in order to limit and avoid auditory effects caused by thermoplastic expansion, an additional basic restriction is recommended. This is that the SA should not exceed 2mJ kg⁻¹ averaged over 10g of tissue.

Reference Levels

Council Recommendation 99/519/EC Annex III

Reference levels for electric, magnetic and electromagnetic fields (0 Hz to 300GHz)

Frequency range	E-field strength (V/m)	H-field strength (A/m)	B-field (μT)	Equivalent plane wave power density Seq (W/m ²)
0-1 Hz	-	3.2×10^4	4×10^4	-
1-8 Hz	10000	$3.2 \times 10^4 / f^2$	$4 \times 10^4 / f^2$	-
8-25 Hz	10000	$4000 / f$	$5000 / f$	-
0.025-0.8 kHz	$250 / f$	$4 / f$	$5 / f$	-
0.8-3 kHz	$250 / f$	5	6.25	-
3-150 kHz	87	5	6.25	-
0.15-1 MHz	87	$0.73 / f$	$0.92 / f$	-
1-10 MHz	$87 / f^{1/2}$	$0.73 / f$	$0.92 / f$	-
10-400 MHz	28	0.073	0.095	2
400-2000 MHz	$1.375 f^{1/2}$	$0.0037 f^{1/2}$	$0.0046 f^{1/2}$	$f / 200$
2-300 GHz	61	0.16	0.2	10

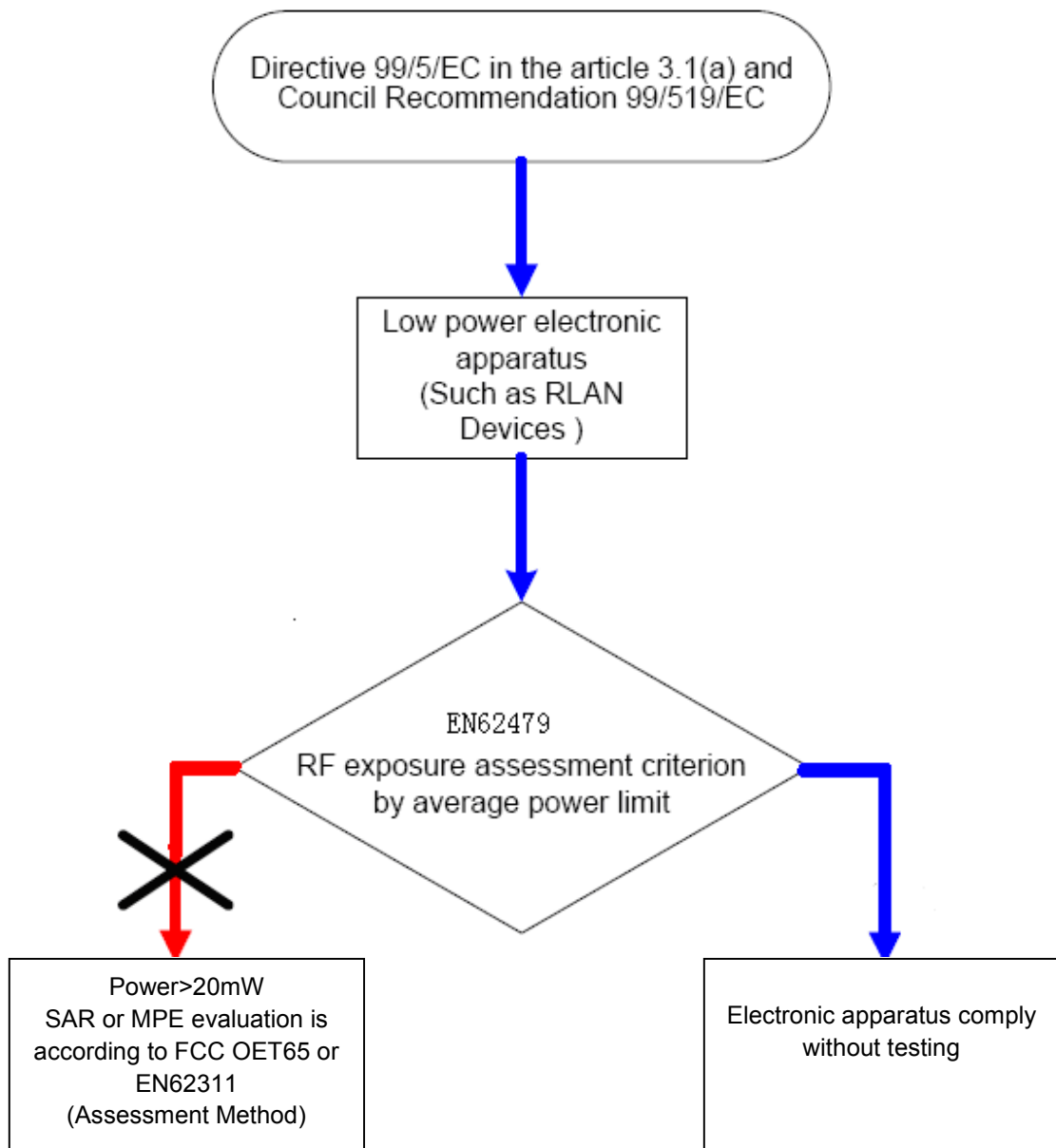
Notes:

- As indicated in the frequency range column.
- For frequencies between 100kHz and 10 GHz, Seq, E2, H2 and B2 are to be averaged over any six-minute period.
- For frequencies exceeding 10 GHz, Seq, E2, H2, and B2 are averaged over any 68/1.05-minute period (in GHz).
- No E-field value is provided for frequencies <1 Hz, which are effectively static electric fields. For most people the annoying perception of surface electric charges will not occur at field strengths less than 25 kV/m. Spark discharges causing stress or annoyance should be avoided.



3.1.2. Evaluation Routine

Low Power Electronic Apparatus for RF exposure evaluation routine





3.1.3. EMF Exposure Levels Calculated

3.2 Detailed results

3.2.1 Summary of Results

Frequency Range	ERP	Limit (W/ m²)	Result (W/ m²)	Verdict
832 MHz to 862 MHz	19.43dBm	10	0.7177	Pass

3.2.2 MPE Evaluation

$$S = (P \cdot G) / 4\pi R^2$$

P = Output power to antenna (Watts)

G =Antenna Gain (numeric)

R = distance to the center of radiation of antenna (in meter) = 0.20 m

Note:

1) P (Watts)=(10 ^ (dBm /10))/1000

2) G (Antenna gain in numeric) = 10^ (Antenna gain in dBi /10)

3) $\pi=3.142$

3.2.3 Measurement Uncertainty

Extended Uncertainty (k=2) 95% 0.5dB



4.PHOTO OF EUT

Please refer to the report : E01A23030111E00101.

---END OF REPORT---

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CERTIFICATE

The Global Certification Forum Ltd advises that
Quectel Wireless Solutions Co., Ltd.

has successfully demonstrated compliance
with the GCF certification requirements of GCF-CC and/or GCF-CC2

For
**Quectel BC65
Module**

On
12-Aug-2021

GCF CC Version:
3.82.0

Status:
Published

GCF Ref. Number:
10031

This certificate has been issued by the Global Certification Forum in accordance with the requirements of the GCF PRDs. For the actual status of a device certification, please refer to the GCF web site.

The device manufacturer confirms that they are solely responsible for certifying the product and holds the GCF entirely harmless from any responsibility or liability associated with the product and/or the certification process. All GCF marks and/or certificates are provided "as is" with no representation and GCF expressly disclaims all warranties whatsoever whether express, implied statutory or otherwise. In no event shall GCF be liable for any direct, indirect, consequential or any damages whatsoever in any way connected with the use or performance of any GCF certified product whether based on contract, tort, negligence, strict liability or otherwise.

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APENDICE II

INFORME DE PRUEBAS DE LABORATORIO

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IDIADA PC23060613



3Energy-V16

Global Telefonica Device on Boarding Report

Addressed to: 3Energy

Manufacturer: 3Energy

Device Type: IoT/M2M Device

Model: V16

Technology NB-IoT

SW Version 3Energy.1.2

Photo:



3Energy-V16 end device, in its 3Energy.1.2 version, is compatible with Telefónica IoT/M2M solution according to specific functionalities tested in the mobile networks specified.

Some issues have been detected and they may affect device functionality having a particular workaround.

3Energy shall deliver to Telefonica a solution plan to solve open issues.



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IDIADA PC23060613



Madrid, 3rd May 2023

To whom it may concern,

Please, be informed the **3Energy-V16** has finished IoT/M2M Device Validation process according to the data detailed in this testing report.

1. Validation result¹

As a result of Device Validation process, Telefonica has verified that the tested device under testing, **3Energy-V16** has several non-blocking issues.

Summarizing, this document records all the issues found, and Telefonica strongly recommends solving, as soon as possible:

- “P2-High” issues 1 because they may affect the device.
- “P4-Low” issues 11 are related to those features to take into account. Telefonica's recommendation is to solve them to achieve important product improvements.

It is important to point out that:

- **Device behaviour** regarding retry scheme has the highlights reported in [section 5](#).
- **Subscription SWAP²** is **NOT supported** by this version of the device under testing.

¹ Please, refer to Annex III for more detailed information about bug priority.

² eUICC remote provisioning” is the feature standardized by the GSMA “SGP.02 - Remote Provisioning Architecture for Embedded UICC Technical Specification. Version 3.2”



2. Validated version

The tested version is:

Device under Testing	
Model version	V16
SW/FW version	3Energy.1.2
HW version	3Energy.1.1
Module Model	BC65
Module SW version	BC65PBR02A02 ³
Chipset Model	RDA8908A

3. Scope of testing

The testing of **3Energy-V16** has been executed using Telefonica Spain mobile communications network and infrastructure as a reference network and Global Kite Platform as the Telefonica managed connectivity platform.

DEKRA Testing and Certification, S.A.U., as the Telefonica Global Testing House, has performed the testing according to Telefónica IoT/M2M Device Validation testing plan for Device on Boarding service.

The testing dates have been:

- Start of Testing: 12th April 2023.
- End of testing: 3rd May 2023.

The testing scope has been based on the following testing blocks:

General testing	
M	Management & Setup (Full Testing)
M	Certificates & Documents
M	Conformance 4G
O	Satellite Positioning (GPS)
O	USSD
O	DTMF
O	VoLTE
IoT/M2M Platform	
M	Kite Platform

³ Latest SW version certified by Telefónica IoT & Big Data TECH (https://okapi.telefonica.com/iot_modules/)



4. Testing environment

The testing environment has been:

Communication features	
Live NB-IoT frequency bands tested:	B20 (800MHz)
Live mobile network:	Spain
IoT/M2M platform features	
IoT/M2M platform:	Telefonica Kite Platform
SIM card type:	Telefonica Spain UICC (Global SIM); electrical profile: M16 / E14 Telefonica Spain eUICC; electrical profile: E02 (ProfileType "ES-A16-VS-00215")
APN:	balizadgt.movistar.com m2mtrial.telefonica.com mconnect.ot.com
Lab resources	
Network simulators:	Anite R&S CWM500
SIM tracer:	Comprion

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5. Testing results.

Testing has finished with 12 bugs: 1 bugs with priority P2 (High) and 11 bugs with priority P4 (Low/Notification).

Please, refer to Annex I for more detailed information about open bugs.

Please, refer to Annex II for more detailed information about testing results.

a. Highlights of the testing.

- This validation is derived from Amper V16 (3Energy.1.2) PCB (Printed Circuit Board) certification.
- DuT is not following Telefonica guidelines recommendation about reboot scheme (randomised and exponential delayed on time reboot scheme). However, due to the specific use case, it has been agreed that the DuT follows a retry policy that consists of waiting 1 minute and gradually increasing the time between retries by 1 minute, until reaching 5 minutes where it remains constant, that is accepted by Telefonica.
- Lack of support for FW upgrade method. Vendor does not have any method available in order to test this feature.
- Vendor did not provide an user manual for the DuT.
- The device does not avoid synchronized behaviour, and does not employ a randomised pattern for signalling.

b. Device Performance Information

	Device Under testing
Model version	V16
HW Version	3Energy.1.1
SW/FW version	3Energy.1.2
3GPP Release	3GPP Release
PDP context activation time and PDN connectivity opening (TC-MIPLF-PRFTC-001a) ⁴	Not included in testing level
Reselection signal strength (TC-RATIN-OPCHG-001a)	Not included in testing level
Avg. current drain	638 mA
Test Cases not supported by DuT	5
Blocked Test Cases	2 ⁵

⁴ Tested in initial validation.

⁵ TC blocked due to scenario not available.



6. Disclaimers

- This report takes effect only to the version tested by Telefonica.
- The device under testing has been tested in a standalone configuration, so any other app/platform are not validated by Telefonica.
- This report does not have any effect on any functionality not tested.
- In any case, the device under testing shall fulfil Telefonica requirements according to TDDC (Telefonica Device Design Council).
- Telefonica will not be responsible of any damage or loss provoked by the device under testing.

Best Regards,

José Rubén García Muñoz

Alberto Ramos Pérez

On behalf of:
Technology & Integration | AI of Things
Telefónica IoT & Big Data TECH

On behalf of:
Technology & Integration | AI of Things
Telefónica IoT & Big Data TECH

Verifique el informe con código de seguridad «XXUGNLWl» en: <https://extranet.idiada.com/hom-cve>



ANNEX I: Open Bugs

From Khepera collaborative tool:

Bug ID	Priority	Summary	High level analysis and impact
137923	P2 - High	Lack of mandatory documentation (ES): User Manual	Does the device follow 3GPP standard? N/A Does the device follow Telefonica requirements? No Impact: Lack of user manual.
137946	P4 - Notification	Wrong behavior when SIM life cycle change to Deactivated in IoT Platform	Does the device follow 3GPP standard? Yes Does the device follow Telefonica requirements? No (accepted by use case) Impact: DuT has followed more retries that the ones recommended by Telefonica. However this behaviour has been accepted
137997	P4 - Notification	Wrong behavior after performing VPN service deactivation - Kite Platform	Does the device follow 3GPP standard? Yes Does the device follow Telefonica requirements? No (accepted by use case) Impact: DuT has followed more retries that the ones recommended by Telefonica. However this behaviour has been accepted
138000	P4 - Notification	Wrong behavior after change commercial plan with no operators allowed	Does the device follow 3GPP standard? Yes Does the device follow Telefonica requirements? No (accepted by use case) Impact: DuT has followed more retries that the ones recommended by Telefonica. However this behaviour has been accepted
138043	P4 - Notification	Wrong behavior when performing registration attempt with SIM suspended	Does the device follow 3GPP standard? Yes Does the device follow Telefonica requirements? No (accepted by use case) Impact: DuT has followed more retries that the ones recommended by Telefonica. However this behaviour has been accepted
138045	P4 - Notification	Wrong behavior when performing registration attempt with SIM retired	Does the device follow 3GPP standard? Yes Does the device follow Telefonica requirements? No (accepted by use case) Impact: DuT has followed more retries that the ones recommended by Telefonica. However this behaviour has been accepted
138232	P4 - Notification	[Regional] Synchronized behaviour in one device	Does the device follow 3GPP standard? N/A Does the device follow Telefonica requirements? No Impact: The device does not avoid synchronized behaviour, and does not employ a randomised pattern for signalling.



Bug ID	Priority	Summary	High level analysis and impact
138234	P4 - Notification	[Regional] Synchronized behaviour between devices	Does the device follow 3GPP standard? N/A Does the device follow Telefonica requirements? No Impact: The device does not avoid synchronized behaviour, and does not employ a randomised pattern for signalling.
138235	P4 - Notification	Lack of support of FW upgrade method	Does the device follow 3GPP standard? N/A Does the device follow Telefonica requirements? No Impact: Lack of OTA FW upgrade method.
138237	P4 - Notification	[Regional] Application Server Down and Server IP unreachable	Does the device follow 3GPP standard? Yes Does the device follow Telefonica requirements? No (accepted by use case) Impact: DuT has followed more retries that the ones recommended by Telefonica. However this behaviour has been accepted
138239	P4 - Notification	[Regional] Wrong behaviour after ATTACH REJECT with cause #3 in VPLMN in 4G	Does the device follow 3GPP standard? Yes Does the device follow Telefonica requirements? No (accepted by use case) Impact: DuT has followed more retries that the ones recommended by Telefonica. However this behaviour has been accepted
138253	P4 - Notification	[Regional] PDN CONNECTIVITY REJECT with cause #32 in 4G in HPLMN or VPLMN	Does the device follow 3GPP standard? No Does the device follow Telefonica requirements? No (accepted by use case) Impact: DuT has followed more retries that the ones recommended by Telefonica. However this behaviour has been accepted



ANNEX II: Testing Details.

a. Tested versions (Device under Testing)

- Model: V16
- SW version: 3Energy.1.2

b. History of testing

	1st Validation
End of Testing date	3 rd May 2023
SW versions	3Energy.1.2



ANNEX III: Telefonica bug Priority definition

Telefónica bug Priority		Severity	Highlight	Description	Examples
P1	Highest	Critical	Most important: showstopper, blocking.	DuT can NOT be approved with this bug.	Bug is blocking device running or product tests or security and there is no workaround. DuT is not presenting mandatory certificates/documents. DuT behaviour is affecting network or other service users.
P2	High	Medium	Very important, but not showstopper.	DuT's vendor must deliver a "solution plan": when it will be fixed. Telefonica will decide what to do then.	Bug is blocking device running or product tests or security and there is uneasy workaround.
P3	Medium	Low	Should be solved.	DuT's vendor should provide a solution but a wontfix is acceptable. Solution is less priority than P2 bug.	Bug is blocking device running or product tests or security but there is easy workaround. Bug is affecting secondary feature.
P4	Low	Notification	Something to highlight.	Something to consider for the future. The only difference between P3 and P4 is that the P3's is preferred to be solved before the P4's.	Improvement or inconvenience to consider. DuT behaviour is not following Telefonica device behaviour recommendations.

Telefónica bug Severity

Severity field is in practice not considered for Telefonica to avoid the possibility of giving contradictory messages between the Priority and Severity fields

Please feel free to ignore it.

The default value is Critical, Medium, Low or Notification for bugs of priorities P1, P2, P3 and P4, respectively, but the testers could change it.



APENDICE III

DECLARACIÓN DE COBERTURA NB-IOT

Verifique el informe con código de seguridad «XXUGNLWl» en: <https://extranet.idiada.com/hom-cve>



Declaración de cobertura NB-IoT en territorio nacional

Telefónica IoT & Big Data Tech, S.A.U. en el marco del proyecto de la plataforma DGT 3.0, y como compañía operadora que ofrece servicios de conectividad NB-IoT al dispositivo baliza V-16, regulado en el Real Decreto 159/2021, provee de **cobertura NB-IoT en el 98,5% del territorio nacional español**.

Verifique el informe con código de seguridad «XXUGNLWl» en: <https://extranet.idiada.com/hom-cve>





www.telefonica.com

Verifique el informe con código de seguridad «XXUGNL.WI» en: <https://extranet.idiada.com/hom-cve>

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Firma electrónica avanzada



Anexo I Certificado TELCO DGT- 3Energy - TloTBD_20230503

Factum Identity Solutions, S.L. CERTIFICA las siguientes evidencias electrónicas generadas durante el proceso de firma electrónica por parte de Sonia Serrano Gómez (sonia.serranogomez.ext@telefonica.com), con todas las garantías legalmente reconocidas.

Información del envío

Peticionario: Sonia Serrano Gómez

Destinatarios: Carlos Carazo Cepedano , Manuel Velasco Bengoechea

Documentos: Anexo I Certificado TELCO DGT- 3Energy - TloTBD_20230503.pdf

Adjuntos:

Identificador único request: TIRjWU9HQ1B6TkFwVE44WEpwWTVsUT09

Evidencias del proceso

En la siguiente tabla se muestran los diferentes estados registrados durante el proceso de certificación y firma del documento.

Acciones	Fecha y hora	Usuario/Destinatario	Comentario
Solicitud creada	8/5/2023 16:43:49 (UTC) +0	Sonia Serrano Gómez : sonia.serranogomez.ext@telefonica.com [213.37.212.82]	
Solicitud enviada	8/5/2023 16:43:49 (UTC) +0	Carlos Carazo Cepedano : carlos.carazocepedano@telefonica.com [213.37.212.82]	
Documento 'Anexo I Certificado TELCO DGT- 3Energy - TloTBD_20230503.pdf' visualizado	8/5/2023 17:50:24 (UTC) +0	Carlos Carazo Cepedano : carlos.carazocepedano@telefonica.com [81.34.92.39]	
Documento 'Anexo I Certificado TELCO DGT- 3Energy - TloTBD_20230503.pdf' firmado : Firma biométrica	8/5/2023 17:50:54 (UTC) +0	Carlos Carazo Cepedano : carlos.carazocepedano@telefonica.com [81.34.92.39]	
Solicitud enviada	8/5/2023 17:50:55 (UTC) +0	Manuel Velasco Bengoechea : mvelasco@3energy.es [81.34.92.39]	
Documento 'Anexo I Certificado TELCO DGT- 3Energy - TloTBD_20230503.pdf' visualizado	8/5/2023 18:01:20 (UTC) +0	Manuel Velasco Bengoechea : mvelasco@3energy.es [83.48.80.48]	
Documento 'Anexo I Certificado TELCO DGT- 3Energy -	8/5/2023 18:05:37 (UTC) +0	Manuel Velasco Bengoechea : mvelasco@3energy.es	

TloTBD_20230503.pdf firmado : Firma biométrica	8/5/2023 18:05:37 (UTC) +0	[95.124.182.149]	
Solicitud completada SaaS	8/5/2023 18:05:37 (UTC) +0	Sonia Serrano Gómez : sonia.serranogomez.ext@telefonica [95.124.182.149]	
Notificación Solicitud Completada	8/5/2023 18:05:38 (UTC) +0	Carlos Carazo Cepedano : carlos.carazocepedano@telefonica [95.124.182.149]	
Notificación Solicitud Completada	8/5/2023 18:05:39 (UTC) +0	Manuel Velasco Bengoechea : mvelasco@3energy.es [95.124.182.149]	
Notificación Solicitud Completada	8/5/2023 18:05:39 (UTC) +0	Sonia Serrano Gómez : sonia.serranogomez.ext@telefonica [95.124.182.149]	



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ANEXO II

Pruebas de conexión de los dispositivos V-16 a la plataforma de coche conectado de la Dirección General de Tráfico, DGT3.0

El responsable de la Subdirección General de Gestión de la Movilidad y Telemática, de la dirección General de Tráfico, de conformidad con lo dispuesto en el Anexo I de la Resolución de 30 de noviembre de 2021, de la Dirección General de Tráfico, por la que se define el protocolo y el formato para el envío de datos desde la señal V-16 al Punto de Acceso Nacional, en el ámbito de la Directiva 2010/40/UE del Parlamento Europeo y del Consejo, de 7 de julio de 2010, por la que se establece el marco para la implantación de los sistemas de transporte inteligente en el sector del transporte por carretera.

MANIFIESTA

- Que en fecha 06 de febrero de 2023, la entidad Energía Eléctrica Eficiente SL (en adelante el "Cliente"), con CIF B98297286 y los responsables de la plataforma de vehículo conectado de la Dirección General de Tráfico (en adelante "DGT3.0") han llevado a cabo las pruebas descritas en dicha Resolución.
- Que el Cliente ha satisfecho correctamente los siguientes requisitos recogidos en la citada Resolución de 30 de noviembre de 2021, siendo estos los siguientes:
 - Acceder a la plataforma de gestión del Punto de Acceso Nacional (NAP) mediante certificado digital proporcionado por la Dirección General de Tráfico.
 - Implementar los protocolos e interfaces descritos en esta resolución para el envío de los mensajes generados por la señal V-16.
 - Enviar un mensaje de activación y otro de desactivación del dispositivo por cada evento.
 - Enviar la señal de activación 100 segundos después del encendido físico del dispositivo.
 - Mantener una frecuencia de envío de mensajes cada 100 segundos.
 - Proporcionar una precisión inferior a 5 metros en el posicionamiento del dispositivo.
- Que el Cliente ha realizado correctamente las pruebas de conexión mediante los protocolos A y B descritos en el Anexo I de dicha Resolución de 30 de noviembre de 2021, utilizando los interfaces y modelos de datos establecidos en la misma
- Que las pruebas y requisitos anteriormente descritos han sido satisfechos por:

Solicitante: Energía Eléctrica Eficiente SL	Versión del Hardware: v1.1
Fabricante: Energía Eléctrica Eficiente SL	Versión del software: 3Energy.1.2
Modelo: Baliza 3e MOD.100	Tecnología de conexión LPWA: NB-IoT

Firmado en Madrid, a 06 de febrero de 2023

Certificado N°: / Certificate N°: **E1 57422201D**

CERTIFICADO EVALUACIÓN INICIAL INITIAL ASSESSMENT CERTIFICATE

El presente certificado acredita que: / The following certificate ensures that:

ENERGÍA ELÉCTRICA EFICIENTE, S.L.
Av. Arroyo del Santo, 4
28042, MADRID (ESPAÑA / SPAIN)

dispone de un sistema de gestión de calidad y de los procedimientos y planes de conformidad de la producción adecuados;
para garantizar el cumplimiento con los requisitos del:
has a quality management system and the conformity of production procedures and plans in compliance with the requirements of:

- Anexo 1 del acuerdo E/ECE/TRANS/505/Rev.3
Schedule 1 of the Agreement E/ECE/TRANS/505/Rev.3

Alcance: / Scope: Ver Anexo I / See Annex I

El certificado se emite como consecuencia del expediente **57422201D**, correspondiente a la auditoría realizada en octubre de 2022.
The certificate is issued as a result of the 57422201D file, relevant to the audit carried out in October 2022.

Fecha 1ª emisión: / 1st Issue Date: 13.01.2023 / 2023.01.13
Válido hasta: / Valid until: 13.01.2024 / 2024.01.13

Verifique el informe con código de seguridad «XUGNLW» en: <https://extranet.idiada.com/hom-cve>



D. José M^a Martínez-Val Peñalosa
Director F²I²

El presente certificado puede ser verificado en la página web de la Unidad de Certificación del Automóvil (<https://ucanet.es/>), mediante el Código Seguro de Verificación:
This certificate can be verified on the Automobile Certification Unit's website (<https://ucanet.es/>) through the Secure Verification Code:

NJ75nWT0mWCsa

DESIGNADO POR: / APPOINTED BY:



FUNDACIÓN PARA EL FOMENTO DE LA INNOVACIÓN INDUSTRIAL
C/ José Gutiérrez Abascal, 2, 28006: Madrid - CIF: ESG/80-455231



Certificado N°: / Certificate N°: **E1 57422201D**

Anexo I / Annex I

ALCANCE	SCOPE	Cumple con / Fulfills with		
		Legislación Nacional National Legislation	Directiva / Reglamento (UE) Directive / Regulation (EU)	Reglamento NU UN Regulation
Luces especiales de aviso	Special warning lamps			65

Plantas de Fabricación / Manufacturing Plants
Finca Fusters, Cami de la Ferrereta, s/n, 43870, Amposta, TARRAGONA (ESPAÑA / SPAIN)

Verifique el informe con código de seguridad «XXUGNLW» en: <https://extranet.idiada.com/hom-cve>



El presente certificado puede ser verificado en la página web de la Unidad de Certificación del Automóvil (<https://ucanet.es/>), mediante el Código Seguro de Verificación:
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DOCUMENTACIÓN TÉCNICA

DESCRIPCIÓN TÉCNICA / INFORMATION FOLDER

FECHA / DATE: 13/06/2023

1. Información técnica / Specification data

Modelo / <i>Model</i>		MOD100
Marca comercial / <i>Trade mark</i>		3e / baliza3e
Variantes / <i>Variants</i>		-
Función / <i>Function</i>		V-16 Dispositivo de preseñalización de peligro Dispositivo luminoso (opcional) / <i>V-16 Luminous devices for pre-signalization of danger (optional)</i>
Reglamento applicable / <i>Applicable Regulation</i>		Anexo XI “Señales en los Vehículos”, V-16 “Dispositivos de preseñalización de peligro”, Apartado 4 “Dispositivo luminoso” del Real Decreto 2822/1998 del Reglamento General de Vehículos / Annex XI “Señales en los Vehículos”, V-16 “Dispositivos de preseñalización de peligro”, Paragraph 4 “Dispositivo luminoso” of the Real Decreto 2822/1998 of Reglamento General de Vehículos
Patrón de destello / <i>Flash Pattern</i>		Destello triple / <i>Triple flash</i>
Color / <i>Colour</i>		Amarillo auto V-16 / <i>Amber V-16</i>
Número y categoría de fuentes luminosas / <i>Number and category of light sources</i>		10 x LED
Alimentación del dispositivo / <i>Supplying system</i>		Batería recargable / <i>Rechargeable battery</i> – Pila / <i>Cell</i> * * Táchese lo que no proceda / <i>Strike out what does not apply</i>
Marca de identificación / <i>Identification marking</i>	Código / <i>Code</i>	IDIADA PC23060613
	Ubicación del marcaje / <i>Location of marking</i>	Marcado en la base / <i>Marked on the base</i>

2. Nombre y dirección del fabricante / Name and address of manufacturer

Energía Eléctrica Eficiente SL
Avda. Arroyo del Santo, 4
28042 Madrid

3. Nombre y dirección del solicitante (si aplica) / Name and address of applicant (if applicable)

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NOTA / NOTE: LA MARCA DE IDENTIFICACIÓN SE MUESTRA EN LOS PLANOS
ADJUNTOS. / APPROVAL MARKING IS SHOWN IN THE ATTACHED DRAWINGS.

IDIADA PC23060613



Quality Assurance Statement

Our company guarantees that 6LR61 9V alkaline battery supplied to Energía Eléctrica Eficiente SL from PKCELL as following.

1. The battery's OCV (V) $\geq 9.0V$, CCT (V) $\geq 7.85V$, SCC (A) ≥ 2.55 after they are stored for 18 months at 20-26 °C. (note: The self-discharge rate of the battery is 15% per year if the battery is new and unpacked).
2. The shelf life of the battery is 5 years (note: Our company will compensate for the battery at a ratio of 1:1 When the defective ratio exceeds 1‰ if the battery leaks or rusts before unpacking).

SHENZHEN PKCELL BATTERY CO., LTD.

Feb. 8th, 2023

