



CERTIFICADO DE CUMPLIMIENTO / CERTIFICATE OF COMPLIANCE

PC24030069

**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

: LEDEL SOLUTIONS CO., LTD
41 DEVONSHIRE STREET GROUND FLOOR OFFICE 1,
LONDON, UNITED KINGDOM W1G 7AJ

Nombre y dirección del fabricante /
Manufacturer's name and address

: YUYAO JIMING ELECTRONIC CO., LTD
No.34, Fengyan, Yongfeng Village
Fengshan Subdistrict, Yuyao City
315499, Ningbo, ZHEJIANG (CHINA)

Marca comercial / *Trade mark*

: DAEWOO

Modelo / *Model*

: V16IoT

Informe de ensayo / *Test report*

: PC24030069

Marca de identificación /
Identification marking

: IDIADA PC24030069

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), 07/03/2024

Realizado por / *Performed by:*



Joan Fonts Sala
INGENIERO DE ENSAYOS
TEST ENGINEER

V. Bº. / *Revised by:*



Ramon Santafè Guiu
JEFE DE DEPARTAMENTO
DEPARTMENT MANAGER



INFORME N° / REPORT No. PC24030069

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

: LEDEL SOLUTIONS CO., LTD
41 DEVONSHIRE STREET GROUND FLOOR OFFICE 1,
LONDON, UNITED KINGDOM W1G 7AJ

Nombre y dirección del fabricante /
Manufacturer's name and address

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No.34, Fengyan, Yongfeng Village
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315499, Ningbo, ZHEJIANG (CHINA)

Marca comercial / *Trade mark*

: DAEWOO

Modelo / *Model*

: V16IoT

Marca de identificación /
Identification marking

: IDIADA PC24030069

Lugar y fecha de emisión del informe /
Place and date of test report issue

: L'Albornar, Santa Oliva (Tarragona)
07/03/2024

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:*

V. B°. / *Revised by:*



Joan Fonts Sala
INGENIERO DE ENSAYOS
TEST ENGINEER



Ramon Santafè Guiu
JEFE DE DEPARTAMENTO
DEPARTMENT MANAGER

* 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⁾	: LEDEL SOLUTIONS CO., LTD 41 DEVONSHIRE STREET GROUND FLOOR OFFICE 1, LONDON, UNITED KINGDOM W1G 7AJ
Nombre y dirección del fabricante / <i>Manufacturer's name and address</i> ⁽¹⁾	: YUYAO JIMING ELECTRONIC CO., LTD No.34, Fengyan, Yongfeng Village Fengshan Subdistrict, Yuyao City 315499, Ningbo, ZHEJIANG (CHINA)
Marca comercial / <i>Trade mark</i> ⁽¹⁾	: DAEWOO
Modelo / <i>Model</i> ⁽¹⁾	: V16IoT
Variantes / <i>Variants</i> ⁽¹⁾	: Otros colores de carcasa / <i>Other colors of housing</i>
Identificación de las muestras / <i>Sample identification</i>	: HTC-2310/01249
Patrones de destello / <i>Flash patterns</i> ⁽¹⁾	: Destello quintuple / <i>Fivefold 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⁾	: 12 x LED
Alimentación del dispositivo / <i>Supplying system</i> ⁽¹⁾⁽²⁾	: Batería recargable / Rechargeable battery – 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 58462303D

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

THE PRESENTED RESULTS REFER ONLY TO THE TESTED SAMPLE.

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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	0.573	CORRECTO / CORRECT
y	0.420	
z	0.007	

RESULTADOS FOTOMÉTRICOS / PHOTOMETRIC RESULTS

Frecuencia / <i>Frequency (f)</i> : $0.8 \text{ Hz} \leq f \leq 2 \text{ Hz}$	f = 1.01 Hz	CORRECTO / CORRECT
Tiempo de encendido / <i>On time</i> : $t_{\text{ON}} \leq 0.4/f$	$t_{\text{ON}} = 356.4 \text{ ms} \leq 0.4/f = 396.0 \text{ ms}$	CORRECTO / CORRECT
Tiempo de apagado / <i>Off time</i> : $t_{\text{OFF}} \geq 100 \text{ ms}$	$t_{\text{OFF}} = 636.0 \text{ ms}$	CORRECTO / CORRECT
Diferencia de tiempo / <i>Time distance measurements</i> : Δt	$\Delta t = 37.2 \text{ ms}$	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 (cd_{ef})</i>		Medidas tras 30 minutos de encendido / <i>Measures after 30 minutes of operation (cd_{ef})</i>	
0° V	$40 \leq J_e \leq 700$	47.8	$40 \leq J_e \leq 700$	46.9
+8° V	$25 \leq J_e \leq 600$	48.4	$25 \leq J_e \leq 600$	47.5
-8° V	$25 \leq J_e \leq 600$	33.6	$25 \leq J_e \leq 600$	33.0

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 (cd_{ef})</i>		Medidas tras 30 minutos de encendido / <i>Measures after 30 minutes of operation (cd_{ef})</i>	
0° V	$40 \leq J_e \leq 700$	55.6	$40 \leq J_e \leq 700$	54.6
+8° V	$25 \leq J_e \leq 600$	40.0	$25 \leq J_e \leq 600$	39.3
-8° V	$25 \leq J_e \leq 600$	36.5	$25 \leq J_e \leq 600$	35.9

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

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

Fecha del ensayo / *Test date*: 17/10/2023 – 25/10/2023



Joan Fonts Sala
INGENIERO DE ENSAYOS
TEST ENGINEER

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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 **4 de Octubre de 2023**, la entidad **LEDEL SOLUTIONS CO., LTD**, (en adelante, el "Cliente"), con C.I.F. 14734987 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 V16IoT y versión FW BAT32G-NB-V1.01-230802-101.
2. Que el alcance del citado Contrato 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 **4 de Octubre** del año 2023

Por
LEDEL SOLUTIONS CO., LTD

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

Fdo:
D. Xiulan Wang
IDIADA Automotive Technology, S.A.

N.I.F. A43581610

Fdo:
D. Carlos Carazo Cepedano
Servicio Técnico Designado de Homologación (TS)



Índice de apéndices

Apéndice I: Certificados de fabricante

Apéndice II: Informe de pruebas de laboratorio

Apéndice III: Declaración de cobertura NB-IoT

Validate this report with the security code «ODIOMSFPP» at: <https://extranet.idiada.com/hom-cve>
Verifique el informe con código de seguridad «ODIOMSFPP» en: <https://extranet.idiada.com/hom-cve>

IDIADA PC24030069



APENDICE I

CERTIFICACIONES DE FABRICANTE

Validate this report with the security code «ODIOMSFPP» at: <https://extranet.idiada.com/hom-cve>
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IDIADA PC24030069



VERIFICATION OF CONFORMITY

Certificate No.: LGT23I082C01

Product Name: LED Beacons

Brand Name: LEDEL

Model Name: V16IoT

Holder: LEDEL SOLUTIONS CO., LTD

Address: 41 DEVONSHIRE STREET GROUND FLOOR OFFICE 1,
LONDON, UNITED KINGDOM W1G 7AJ

Manufacturer: YUYAO JIMING ELECTRONIC CO., LTD

Address: No.34, Fengyan, Yongfeng Village Fengshan Subdistrict,
Yuyao City 315499, Ningbo, ZHEJIANG (CHINA)

The submitted sample of the above product has been tested according with Standard(s) used for showing compliance with the essential requirements in the specified directive(s):
Radio Equipment Directive (RED) 2014/53/EU.

For Standard(s) and Test report(s) No., please refer to next page.

Approved by:

Technical Director

Sept. 27, 2023





VERIFICATION OF CONFORMITY

	Standard(s)	Test report(s) No.:
Article 3.1a)	EN IEC 62368-1:2020+A11:2020	LGT23I082SA01
Article 3.1b)	EN 301 489-1 V2.2.3	LGT23I082EM01
	EN 301 489-19 V2.2.1	
	EN 301 489-52 V1.2.1	
	EN IEC 55015:2019/A11:2020	LGT23I082EM02
	EN 61547:2009	
Article 3.2)	EN 303 413 V1.2.1	LGT23I082RF02
	EN 301 908-1 V15.1.1	LGT23I082RF01
	EN 301 908-13 V13.2.1	

Note: There is no change of the test data except for the general information. All test results and photos please refer to the original project_LGT23G076

The applicant of the certificate is authorized to use this certificate in connection with EC declaration of conformity to the Directive. The certificate is only applicable to the equipment described above.



Scan to verify the report

TEST REPORT

Quantitative Analysis of Substance Restricted by RoHS

APPLICANT : LEDEL SOLUTIONS CO., LTD
CONTACT ADDRESS : 41 DEVONSHIRE STREET GROUND FLOOR OFFICE 1,
LONDON, UNITED KINGDOM W1G 7AJ
DATE SAMPLE RECEIVED : 2023-07-20
DATE TEST COMPLETED : 2023-07-31

Validate this report with the security code «ODIOMSFP» at: <https://extranet.idiada.com/hom-cve>
Verifique el informe con código de seguridad «ODIOMSFP» en: <https://extranet.idiada.com/hom-cve>

PC24030069

IDIADA

**SHIMADZU (GUANGZHOU) ANALYSIS & TECHNOLOGY SERVICES CO., LTD.**

Room501, Building G5, No.31 Kefeng Road, Huangpu District, Guangzhou China 510663

TEL: (020) 32058871 FAX: (020) 32068891



SAMPLE INFORMATION

Sample : LED Beacons
Sample No. : 230720020
Sample description : Style No.: V16IoT
Conserving method : Conserved at room temperature tightly
Note : The above sample(s) and information are provided and confirmed by the client.

TEST INFORMATION

Order No. : 7133
Test instrument : ICPS-7510, UV-2600 SHIMADZU CORPORATION
GC/MS-QP2010E, GC/MS-QP2010 SHIMADZU CORPORATION
Test request : Quantitative analysis of Pb, Cd, Hg, Cr⁶⁺, PBBs & PBDEs, DBP, BBP, DEHP and DIBP in the sample, specified by applicant.
Test method : 1. Quantitative analysis of Pb and Cd
Reference to IEC 62321-5:2013, and quantitative analysis by ICP-OES.
2. Quantitative analysis of Hg
Reference to IEC 62321-4:2013, and quantitative analysis by ICP-OES.
3. Quantitative analysis of Cr⁶⁺
Reference to IEC 62321-7-1:2015/ IEC 62321-7-2:2017, and quantitative analysis by UV-VIS.
4. Quantitative analysis of PBBs and PBDEs
Reference to IEC 62321-6:2015, and quantitative analysis by GC-MS.
5. Quantitative analysis of DBP, BBP, DEHP, DIBP
Reference to IEC 62321-8:2017, and quantitative analysis by GC-MS.
Test period : 2023-07-20~2023-07-28
Conclusion : **The test results of Lead, Cadmium, Mercury, Hexavalent Chromium, Polybrominated biphenyls (PBBs), Polybrominated diphenyl ethers (PBDEs), Phthalates (DBP, BBP, DEHP, DIBP) based on the samples submitted for inspection conform to the limit requirements of EU Directive 2011/65/EU Annex II and Amendment Directive (EU) 2015/863.**
Test results : Detailed results please refer to following pages.
Note : This test report is only used for scientific research, teaching or internal quality control.

Validate this report with the security code «ODIOMSEFP» at: <https://extranet.idiada.com/hom-cve>
Verifique el informe con código de seguridad «ODIOMSEFP» en: <https://extranet.idiada.com/hom-cve>

PC24030069

IDIADA

Prepared by : 陈帆 Checked by : 谢向前 Approved by : 李强

Date : 2023-07-31

The test report refer only to the sample(s) tested. This test report should not be tampered or partially copied. Otherwise, Shimadzu (Guangzhou) Analysis & Technology Services Co., Ltd. will retain the right to pursue legal liability.



TEST RESULTS

Sample : LED Beacons

1. Test Item List

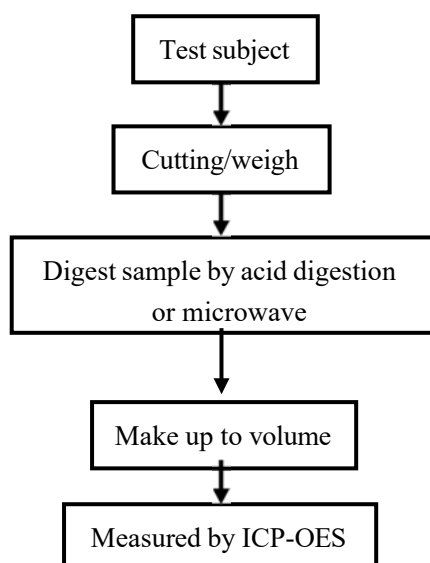
Test No.	Material No.	Description	Test No.	Material No.	Description
1	A1	Silvery Gray Plastic	34	A34	Electronic Component
2	A2	Black Plastic	35	A35	Electronic Component
3	A3	Black Plastic	36	A36	Black Plastic
4	A4	Orange Plastic	37	A37	Electronic Component
5	A5	Black Plastic	38	A38	Electronic Component
6	A6	White Rubber	39	A39	Electronic Component
7	A7	Orange Plastic	40	A40	Electronic Component
8	A8	Blue PCB	41	A41	Electronic Component
9	A9	Silvery Metal	42	A42	Electronic Component
10	A10	Silvery Metal	43	A43	Electronic Component
11	A11	Silvery Metal	44	A44	Electronic Component
12	A12	Silvery Metal Spring	45	A45	Electronic Component
13	A13	Silvery Metal Screw	46	A46	Electronic Component
14	A14	Green PCB	47	A47	Electronic Component
15	A15	Black Plastic	48	A48	Yellow Plastic
16	A16	Silvery Metal Wire	49	A49	Silvery Metal Pin
17	A17	Orange Plastic	50	A50	Electronic Component
18	A18	White Plastic	51	A51	Electronic Component
19	A19	Silvery Metal	52	A52	White Plastic
20	A20	Black Plastic	53	A53	Copper Metal
21	A21	Copper Metal	54	A54	Electronic Component
22	A22	Black Plastic	55	A55	Electronic Component
23	A23	Silvery Metal Wire	56	A56	Electronic Component
24	A24	Silvery Metal Wire	57	A57	Electronic Component
25	A25	White Plastic	58	A58	Electronic Component
26	A26	Electronic Component	59	A59	Electronic Component
27	A27	Electronic Component	60	A60	Electronic Component
28	A28	Silvery Metal	61	A61	Yellow Plastic Film
29	A29	Green PCB	62	A62	Silvery Metal
30	A30	Green PCB	63	A63	Silvery Metal
31	A31	Green PCB	64	A64	Black Plastic
32	A32	White Label	65	A65	Black Plastic
33	A33	Silvery Metal	-	-	-

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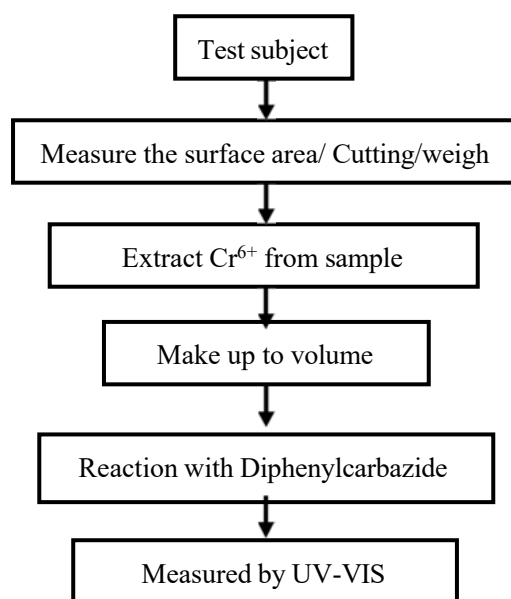


2. Test Flow Chart

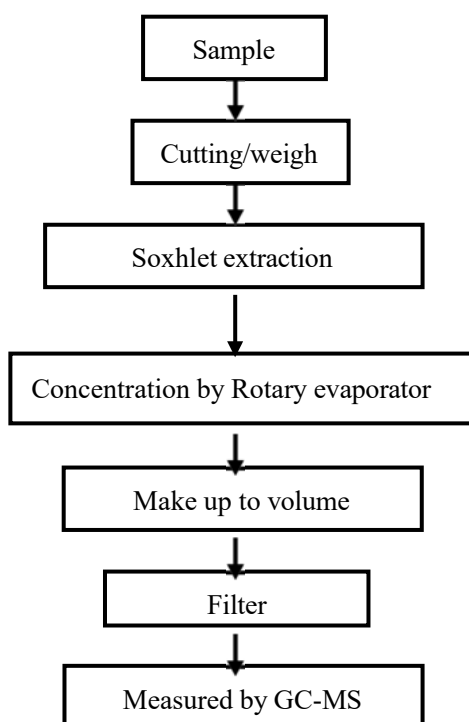
2.1. Flow chart of Pb, Cd and Hg test



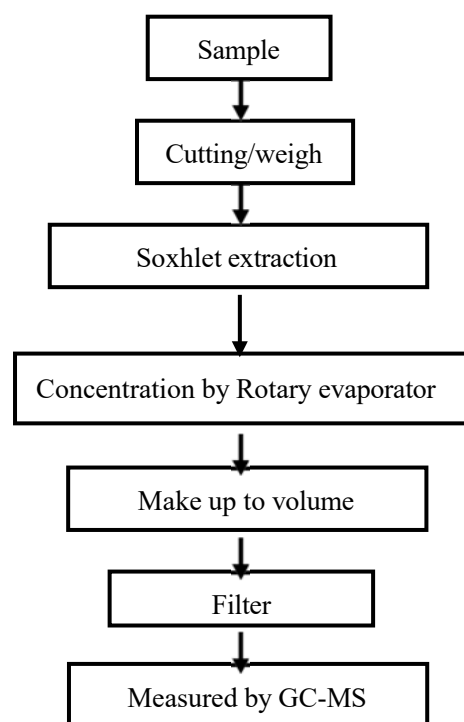
2.2. Flow chart of Cr⁶⁺ test



2.3. Flow chart of PBBs and PBDEs test



2.4. Flow chart of DBP, BBP, DEHP and DIBP test





3. Test Results

3.1.1. The results of Pb, Cd, Hg & Cr⁶⁺ in non-metal part.

Test No.	Material No.	Test Results			
		Pb	Cd	Hg	Cr ⁶⁺
1	A1	N.D.	N.D.	N.D.	N.D.
2	A2	N.D.	N.D.	N.D.	N.D.
3	A3	N.D.	N.D.	N.D.	N.D.
4	A4	N.D.	N.D.	N.D.	N.D.
5	A5	N.D.	N.D.	N.D.	N.D.
6	A6	N.D.	N.D.	N.D.	N.D.
7	A7	N.D.	N.D.	N.D.	N.D.
8	A8	N.D.	N.D.	N.D.	N.D.
14	A14	N.D.	N.D.	N.D.	N.D.
15	A15	N.D.	N.D.	N.D.	N.D.
17	A17	N.D.	N.D.	N.D.	N.D.
18	A18	N.D.	N.D.	N.D.	N.D.
20	A20	N.D.	N.D.	N.D.	N.D.
22	A22	N.D.	N.D.	N.D.	N.D.
25	A25	N.D.	N.D.	N.D.	N.D.
26	A26	N.D.	N.D.	N.D.	N.D.
27	A27	N.D.	N.D.	N.D.	N.D.
29	A29	N.D.	N.D.	N.D.	N.D.
30	A30	N.D.	N.D.	N.D.	N.D.
31	A31	N.D.	N.D.	N.D.	N.D.
32	A32	N.D.	N.D.	N.D.	N.D.
34	A34	N.D.	N.D.	N.D.	N.D.
35	A35	N.D.	N.D.	N.D.	N.D.
36	A36	N.D.	N.D.	N.D.	N.D.
37	A37	N.D.	N.D.	N.D.	N.D.
38	A38	N.D.	N.D.	N.D.	N.D.
39	A39	N.D.	N.D.	N.D.	N.D.
40	A40	N.D.	N.D.	N.D.	N.D.
41	A41	N.D.	N.D.	N.D.	N.D.
42	A42	N.D.	N.D.	N.D.	N.D.
43	A43	N.D.	N.D.	N.D.	N.D.
44	A44	N.D.	N.D.	N.D.	N.D.
45	A45	N.D.	N.D.	N.D.	N.D.
46	A46	262	N.D.	N.D.	N.D.
47	A47	N.D.	N.D.	N.D.	N.D.
48	A48	N.D.	N.D.	N.D.	N.D.
50	A50	327	N.D.	N.D.	N.D.
51	A51	N.D.	N.D.	N.D.	N.D.
52	A52	N.D.	N.D.	N.D.	N.D.

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Test No.	Material No.	Test Results			
		Pb	Cd	Hg	Cr ⁶⁺
54	A54	N.D.	N.D.	N.D.	N.D.
55	A55	N.D.	N.D.	N.D.	N.D.
56	A56	N.D.	N.D.	N.D.	N.D.
57	A57	N.D.	N.D.	N.D.	N.D.
58	A58	N.D.	N.D.	N.D.	N.D.
59	A59	N.D.	N.D.	N.D.	N.D.
60	A60	N.D.	N.D.	N.D.	N.D.
61	A61	N.D.	N.D.	N.D.	N.D.
64	A64	N.D.	N.D.	N.D.	N.D.
65	A65	N.D.	N.D.	N.D.	N.D.

Note: 1. N.D.: Less than MDL(Method Detection Limit).

2. Unit: mg/kg.

3. MDL:

Pb	Cd	Hg	Cr ⁶⁺
2 mg/kg	2 mg/kg	2 mg/kg	8 mg/kg

3.1.2. The results of Pb, Cd, Hg& Cr⁶⁺ in metal part.

Test No.	Material No.	Test Results			
		Pb	Cd	Hg	Cr ⁶⁺
9	A9	N.D.	N.D.	N.D.	N.D.
10	A10	N.D.	N.D.	N.D.	N.D.
11	A11	N.D.	N.D.	N.D.	N.D.
12	A12	N.D.	N.D.	N.D.	N.D.
13	A13	N.D.	N.D.	N.D.	N.D.
16	A16	23	N.D.	N.D.	N.D.
19	A19	N.D.	N.D.	N.D.	N.D.
21	A21	N.D.	N.D.	N.D.	N.D.
23	A23	N.D.	N.D.	N.D.	N.D.
24	A24	N.D.	N.D.	N.D.	N.D.
28	A28	N.D.	N.D.	N.D.	N.D.
33	A33	N.D.	N.D.	N.D.	N.D.
49	A49	24	N.D.	N.D.	N.D.
53	A53	N.D.	N.D.	N.D.	N.D.
62	A62	N.D.	N.D.	N.D.	N.D.
63	A63	N.D.	N.D.	N.D.	N.D.

Note: 1. N.D.: Less than MDL (Method Detection Limit).

2. Unit:

Pb	Cd	Hg	Cr ⁶⁺
mg/kg	mg/kg	mg/kg	μg/cm ²

3. MDL:

Pb	Cd	Hg	Cr ⁶⁺
2 mg/kg	2 mg/kg	2 mg/kg	0.1μg/cm ²

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4. The test results relating to the description(Cr^{6+}):

4.1. According to IEC 62321-7-1: 2015 standard requirements:

- a. The result is considered to be positive for Cr^{6+} if the Cr^{6+} concentration is greater than $0.13 \mu\text{g}/\text{cm}^2$. The sample coating is considered to contain Cr^{6+} ;
- b. The result is considered to be negative for Cr^{6+} if Cr^{6+} is N.D. (concentration less than $0.10 \mu\text{g}/\text{cm}^2$). The coating is considered a non- Cr^{6+} 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

4.2. Information on storage conditions and production date etc. of the tested sample is unavailable and thus these results only represent status of the sample at the time of testing.

5. “*”--According to the statement of the entrusting party, the materials or components corresponding to the test point with the testing number of 47 comply with the exemption scope of Article7(c)-I of Directive 2011/65/EU Annex III.



3.2. The quantitative analysis results of PBBs, PBDEs, DBP, BBP, DEHP&DIBP

Test No.	Material No.	Test Results					
		PBBs	PBDEs	DIBP	DBP	BBP	DEHP
1	A1	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
2	A2	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
3	A3	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
4	A4	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
5	A5	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
6	A6	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
7	A7	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
8	A8	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
9	A9	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
10	A10	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
11	A11	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
12	A12	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
13	A13	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
14	A14	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
15	A15	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
16	A16	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
17	A17	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
18	A18	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
19	A19	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
20	A20	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
21	A21	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
22	A22	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
23	A23	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
24	A24	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
25	A25	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
26	A26	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
27	A27	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
28	A28	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
29	A29	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
30	A30	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
31	A31	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
32	A32	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
33	A33	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
34	A34	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
35	A35	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
36	A36	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
37	A37	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
38	A38	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
39	A39	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
40	A40	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
41	A41	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.

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Test No.	Material No.	Test Results					
		PBBs	PBDEs	DIBP	DBP	BBP	DEHP
42	A42	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
43	A43	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
44	A44	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
45	A45	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
46	A46	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
47	A47	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
48	A48	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
49	A49	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
50	A50	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
51	A51	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
52	A52	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
53	A53	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
54	A54	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
55	A55	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
56	A56	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
57	A57	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
58	A58	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
59	A59	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
60	A60	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
61	A61	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
62	A62	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
63	A63	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
64	A64	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
65	A65	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.

Note: 1. N.A. -- Not Applicable.

2. N.D.: Less than MDL (Method Detection Limit).

3. Unit: mg/kg.

4. MDL:

PBB	PBDE	DBP	BBP	DEHP	DIBP
10 mg/kg	10 mg/kg	50 mg/kg	50 mg/kg	50 mg/kg	50 mg/kg

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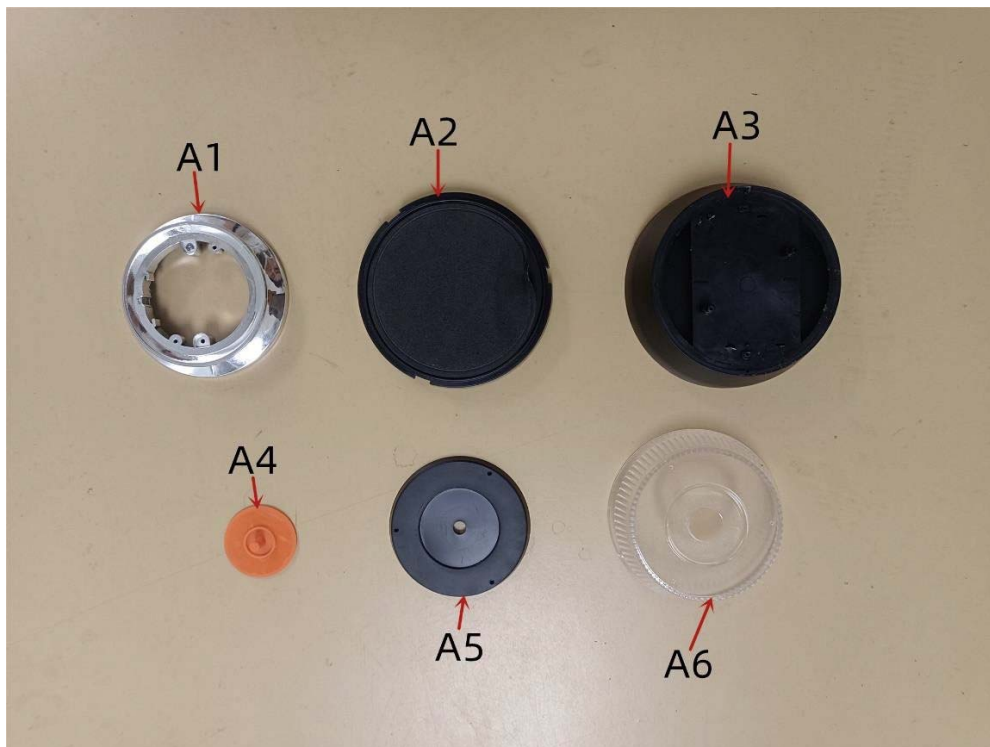
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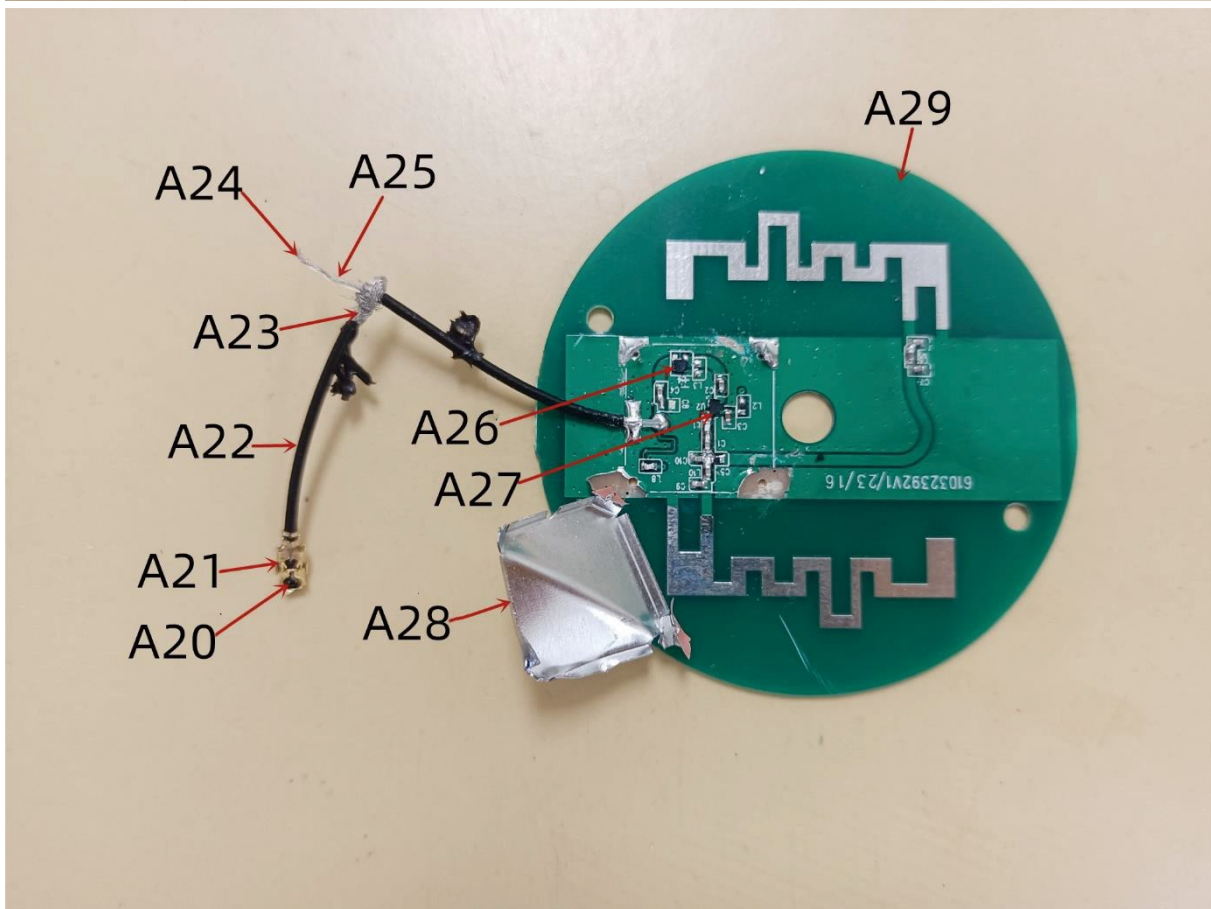
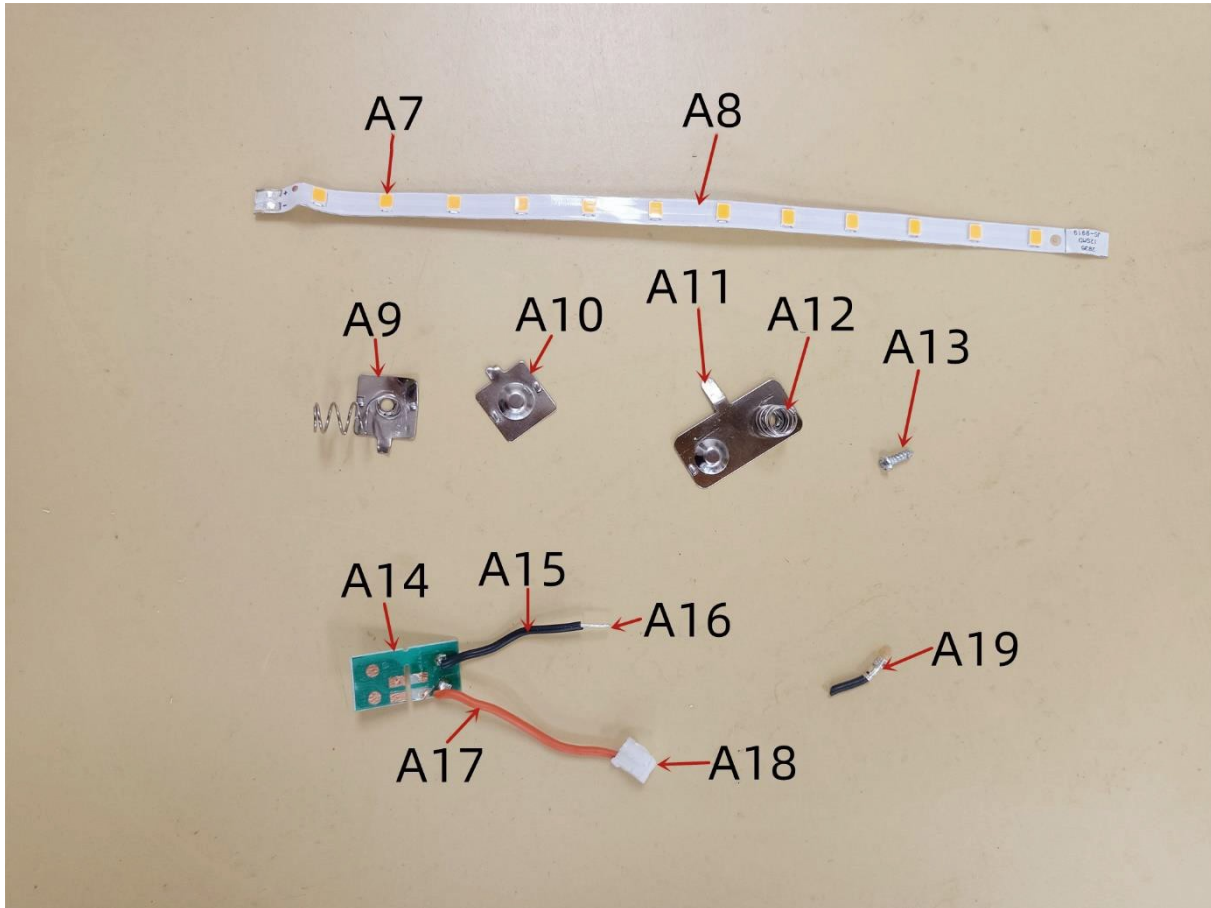
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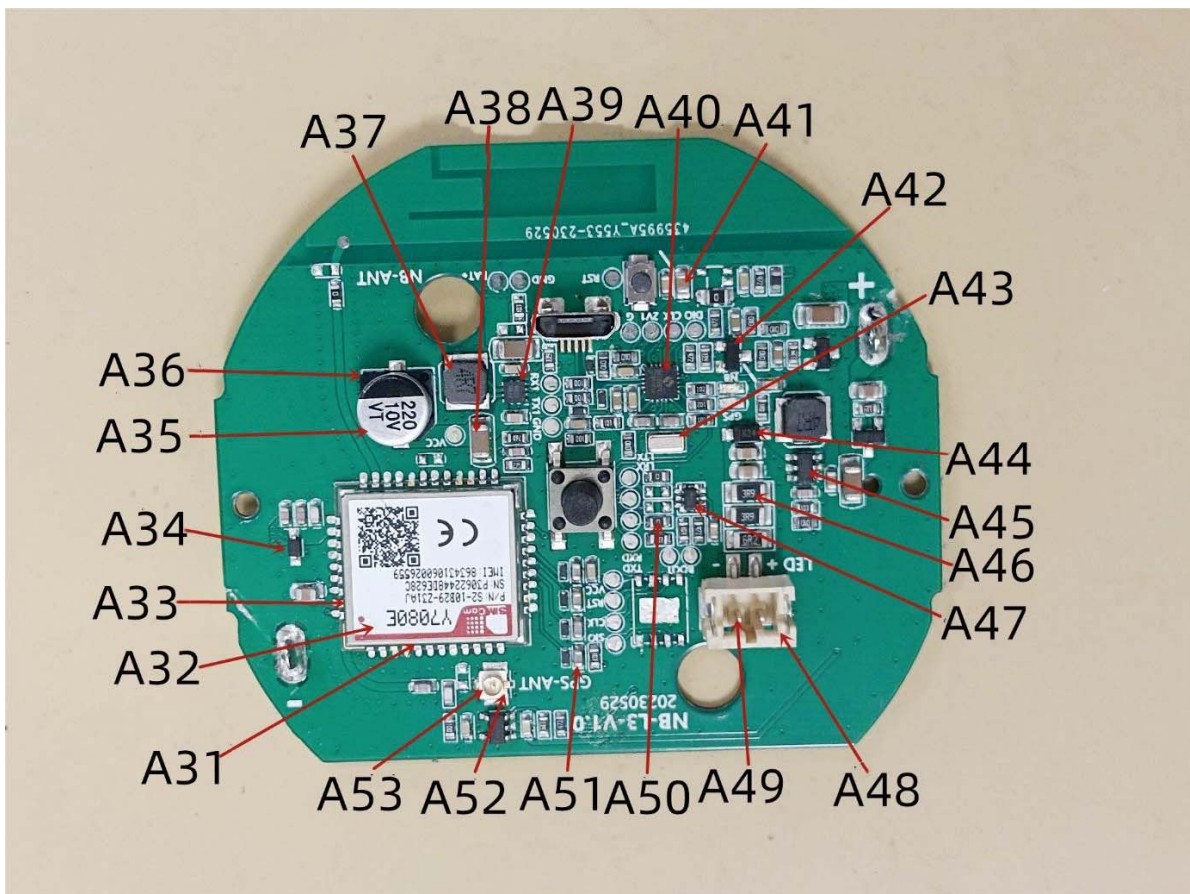
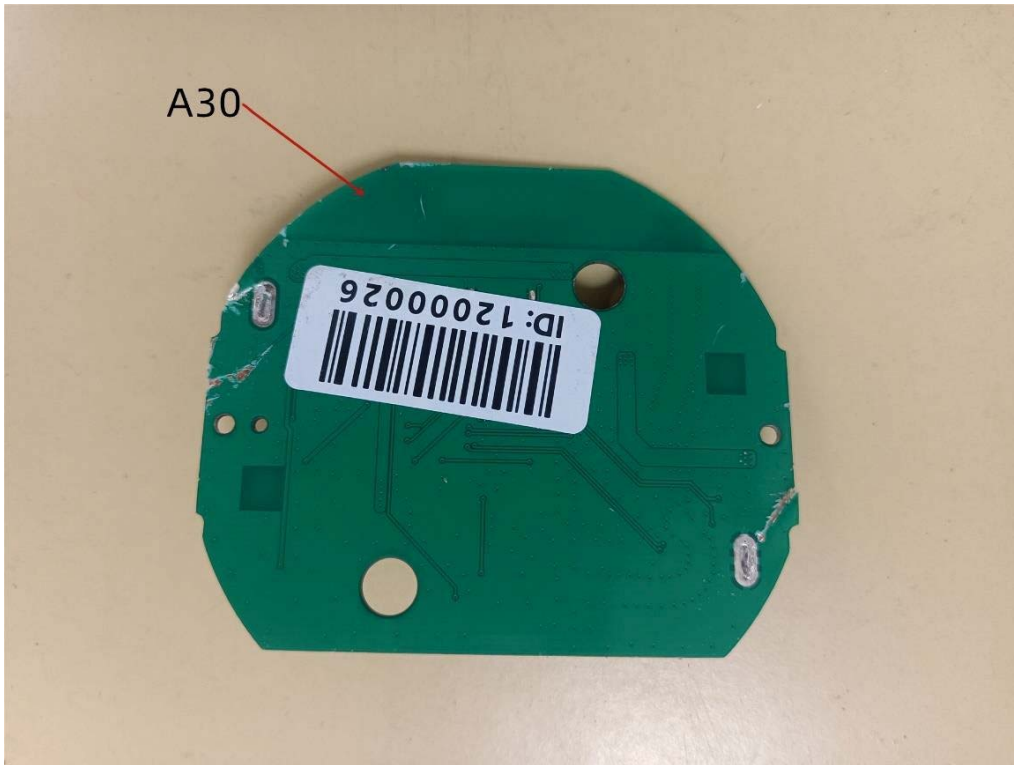


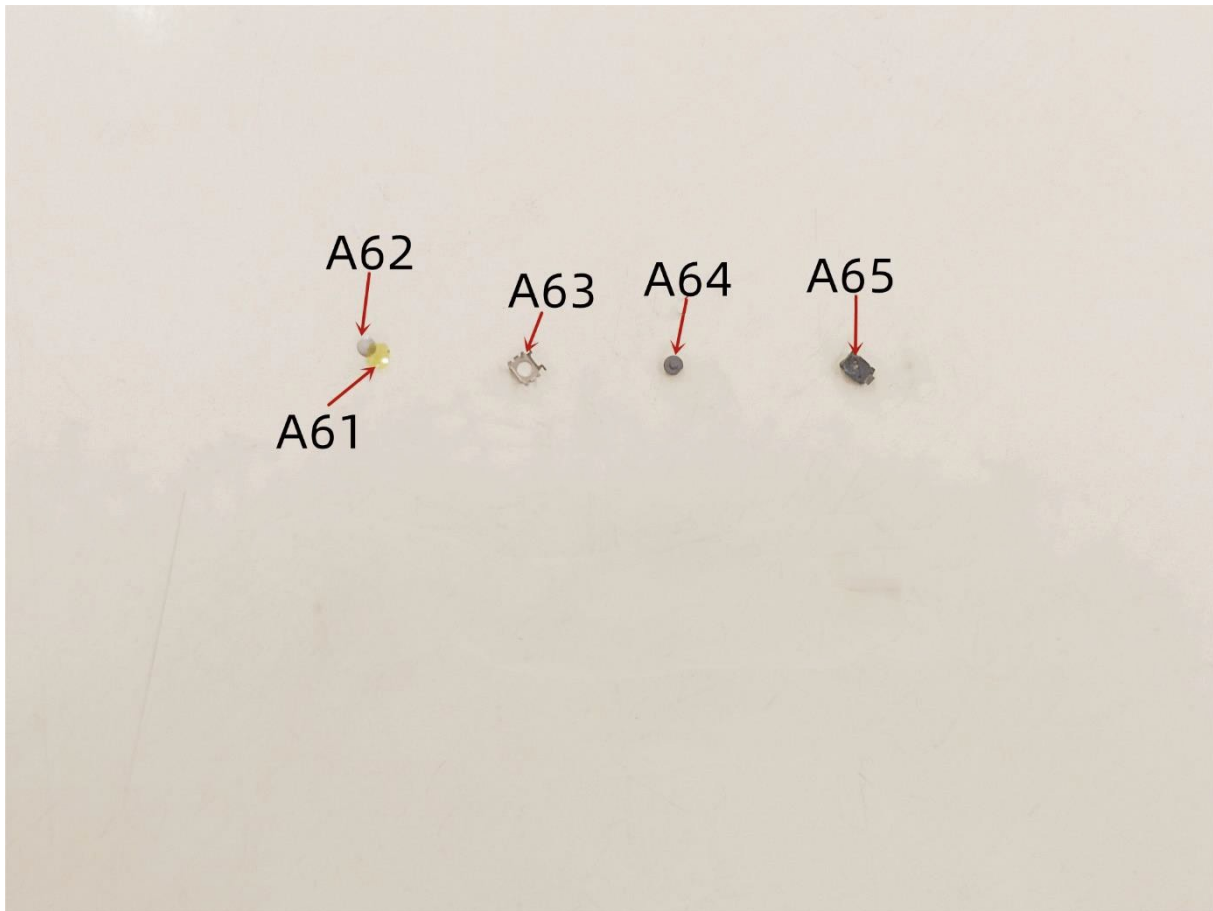
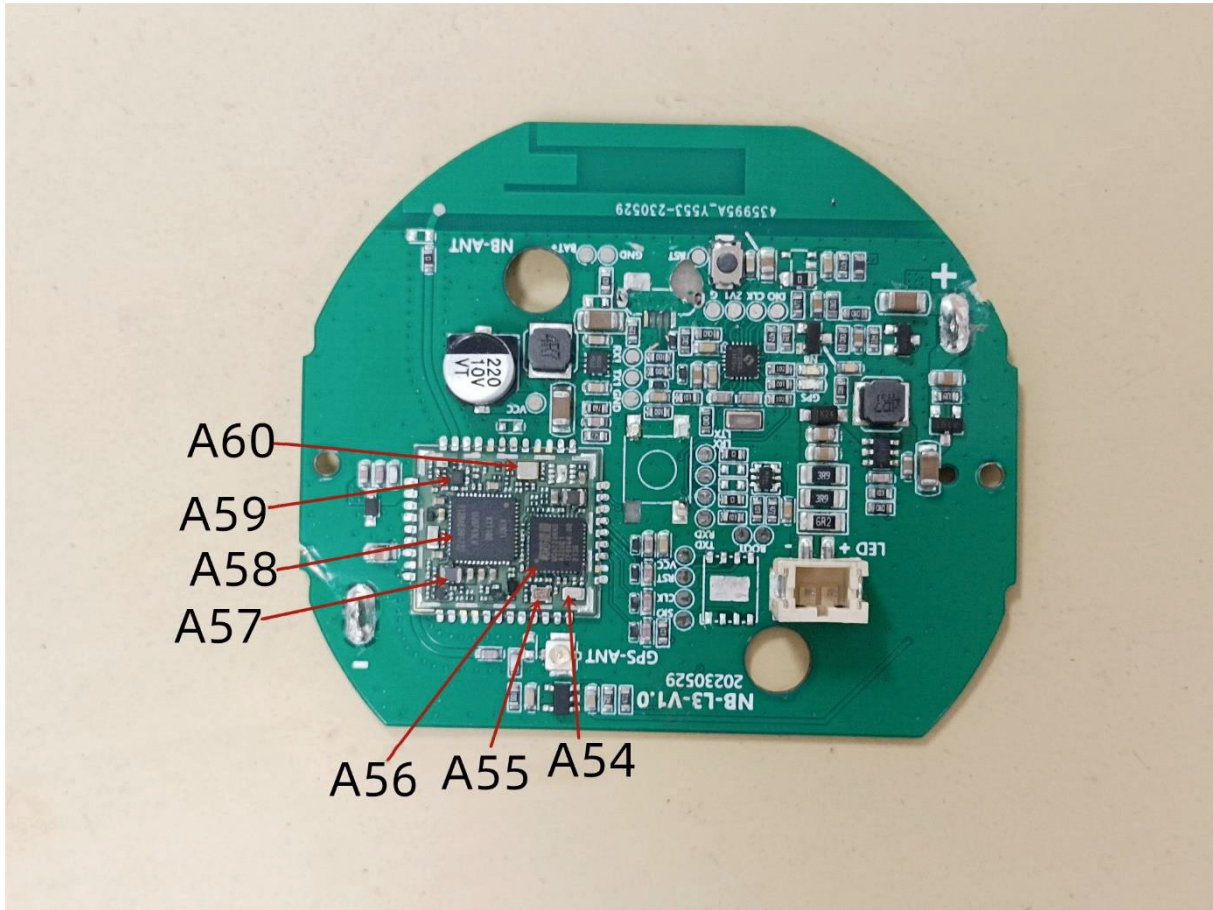
SAMPLE PHOTO



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EMF TEST REPORT

Product Name: LED Beacons

Model Name: V16IoT

Issued For : LEDEL SOLUTIONS CO., LTD

41 DEVONSHIRE STREET GROUND FLOOR OFFICE 1,
LONDON, UNITED KINGDOM W1G 7AJ

Issued By : Shenzhen LGT Test Service Co., Ltd.

Room 205, Building 13, Zone B, Chen Hsong Industrial Park,
No.177 Renmin West Road, Jinsha Community, Kengzi
Street, Pingshan New District, Shenzhen, China

Report Number: LGT23I082HA01

Sample Received Date: Jul. 21, 2023

Date of Test: Jul. 21, 2023 –Jul. 28, 2023

Date of Issue: Sept. 27 2023

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TEST REPORT CERTIFICATION

Applicant LEDEL SOLUTIONS CO., LTD

Address 41 DEVONSHIRE STREET GROUND FLOOR OFFICE 1,
LONDON, UNITED KINGDOM W1G 7AJ

Manufacturer YUYAO JIMING ELECTRONIC CO., LTD

Address No.34, Fengyan, Yongfeng Village Fengshan Subdistrict, Yuyao
City 315499, Ningbo, ZHEJIANG (CHINA)

Product Name LED Beacons

Trademark LEDEL

Model Name V16IoT

Sample Status: Normal

APPLICABLE STANDARDS	
STANDARD	TEST RESULTS
EN IEC 62311: 2020	PASS

Prepared by:

Zane Shan

Zane Shan
Engineer

Approved by:

Vita Li

Vita Li
Technical Director



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Revision History

Rev.	Issue Date	Report Number	Revisions
00	Jul. 28, 2023	LGT23G076HA01	Initial Issue
01	Sept. 27, 2023	LGT23I082HA01	Update Applicant name and address/Manufacture name Address

Note:

1. There is no change of the test data except for the general information. All test results and photos please refer to the original project_LGT23G076

Rev.00:

Applicant Name:	NINGBO YINZHOU LEDEL LIGHTING CO., LTD
Address:	RM 310, Building 3#, 450 North Guangdehu Road, Ningbo, CHINA 315100
Product Type:	LED Beacons
Trademark:	LEDEL
Model Name:	V16IoT
Manufacturer:	NINGBO YINZHOU LEDEL LIGHTING CO., LTD
Address:	RM 310, Building 3#, 450 North Guangdehu Road, Ningbo, CHINA 315100

Rev.01:

Applicant Name:	LEDEL SOLUTIONS CO., LTD
Address:	41 DEVONSHIRE STREET GROUND FLOOR OFFICE 1, LONDON, UNITED KINGDOM W1G 7AJ
Product Type:	LED Beacons
Trademark:	LEDEL
Model Name:	V16IoT
Manufacturer:	YUYAO JIMING ELECTRONIC CO., LTD
Address:	No.34, Fengyan, Yongfeng Village Fengshan Subdistrict, Yuyao City 315499, Ningbo, ZHEJIANG (CHINA)

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1. GENERAL INFORMATION

1.1 GENERAL DESCRIPTION OF THE EUT

Product Name	LED Beacons	
Trademark	LEDEL	
Model Name	V16IoT	
Series Model	N/A	
Model Difference	N/A	
Product Description	The EUT is LED Beacons	
	Operation Frequency:	NB-IoT: Band 3: 1710-1785 MHz Band 8: 880-915 MHz Band 20: 832-862 MHz Band 28: 703-748 MHz
	Antenna gain:	Band 3: 10dBi Band 8: 7dBi Band 20: 7dBi Band 28: 6.5dBi
	More details of EUT technical specification, please refer to the User Manual.	
Battery	DC 1.5V*3	
Hardware Version Number	1.0	
Software Version Number	1.0	
Connecting I/O Port(s)	Please see Note 1.	

1.2 TEST LABORATORY

Company Name:	Shenzhen LGT Test Service Co., Ltd.
Address:	Room 205, Building 13, Zone B, Chen Hsong Industrial Park, No.177 Renmin West Road, Jinsha Community, Kengzi Street, Pingshan New District, Shenzhen, China
Accreditation Certificate	A2LA Certificate No.: 6727.01
	FCC Registration No.: 746540
	CAB ID: CN0136



2. EN IEC 62311 REQUIREMENT

2.1 TEST STANDARDS

Equipment complying with the requirements for the general public is deemed to comply with the requirements for workers without further testing.

The measurements and calculations to demonstrate equipment compliance shall be made according to EN IEC 62311:2020, Clauses 4 and 5, The general considerations as defined in EN IEC 62311:2020, Clauses 4 and 5 shall apply to all equipment.

EN IEC 62311: 2020	Assessment of electronic and electrical equipment related to human exposure restrictions for electromagnetic fields (0 Hz to 300 GHz)
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2.2 HUMAN EXPOSURE TO THE ELECTROMAGNETIC FIELDS

According to EN IEC 62311:2020, the criteria listed in the following table shall be used to evaluate the environmental impact of human exposure to radio-frequency (RF) radiation as specified 1999/519/EC.

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

Frequency range	E-field strength (V/m)	H-field strength (A/m)	B-field (μT)	Equivalent plane wave power density S_{eq} (W/m ²)
0-1 Hz	—	$3,2 \times 10^4$	4×10^4	—
1-8 Hz	10 000	$3,2 \times 10^4/f^2$	$4 \times 10^4/f^2$	—
8-25 Hz	10 000	$4\,000/f$	$5\,000/f$	—
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	0,092	2
400-2 000 MHz	$1,375\ f^{1/2}$	$0,0037\ f^{1/2}$	$0,0046\ f^{1/2}$	$f/200$
2-300 GHz	61	0,16	0,20	10

Notes:

- f as indicated in the frequency range column.
- For frequencies between 100 kHz and 10 GHz, S_{eq} , E^2 , H^2 , and B^2 are to be averaged over any six-minute period.
- For frequencies exceeding 10 GHz, S_{eq} , E^2 , H^2 , and B^2 are to be averaged over any $68/f^{1.05}$ -minute period (f 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.



2.3 HUMAN EXPOSURE ASSESSMENT

EUT Parameter (data from the separate report)

RF Function	Max AVG Power (dBm)	Ant Gain (dBi)	Duty cycle Factor (dB)	Max AVG EIRP (dBm)	Max AVG EIRP (W)	Result (W/m ²)	Limit (W/m ²)
LTE Band 3	23.13	10	0.00	33.13	2.06	4.0921	8.55
LTE Band 7	23.32	7	0.00	30.32	1.08	2.1426	10
LTE Band 20	22.3	7	0.00	29.30	0.85	1.6941	4.16
LTE Band 28	23.47	6.5	0.00	29.97	0.99	1.9767	3.515

Note:

With reference to Annex III table 2 of EC Council Recommendation, it proves that the unit complies with the EN62311 for RF exposure requirement, So SAR testing is not required.

*****END OF THE REPORT*****



CERTIFICATE

The Global Certification Forum Ltd advises that
SIMCom Wireless Solutions Limited

has successfully demonstrated compliance
with the GCF certification requirements of GCF-CC

For
Y7080E
IoT Module

On
19-Aug-2022

GCF CC Version:
3.85.1

Status:
Published

GCF Ref. Number:
11004

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.

Global Certification Forum (GCF) Ltd
www.globalcertificationforum.org Email: gcf@globalcertificationforum.org
Registered Office: Suite 1, 7th Floor, 50 Broadway, London SW1H 0BL, UK.
Company Number 6594830. VAT Number: GB 948 2259 92.

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APENDICE II

INFORME DE PRUEBAS DE LABORATORIO

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YUYAO JIMING ELECTRONIC CO., LTD - V16IoT

Global Telefonica Device on Boarding Report

Addressed to:	GARSACO IMPORT S.L.
Manufacturer:	YUYAO JIMING ELECTRONIC CO., LTD
Device Type:	IoT/M2M Device
Model:	V16IoT
Technology	NB-IoT
SW Version	BAT32G-NB-V1.01-230802-82
Photo:	



YUYAO JIMING ELECTRONIC CO., LTD. - V16IoT end device, in its BAT32G-NB-V1.01-230802-82 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.

YUYAO JIMING ELECTRONIC CO., LTD shall deliver to Telefonica a solution plan to solve open issues.

Considering that **LEDEL SOLUTIONS CO., LTD - V16IoT** (BAT32G-NB-V1.01-230802-101)¹ final device belongs to the same series, as device manufacturer has declared ("family_declaration_EN 2023.10.3.pdf"), therefore it is also covered by this Global Telefonica Device on Boarding Report.

¹ Same SW version as the one certified for GARSACO IMPORT S.L. - V16IoT (BAT32G-NB-V1.01-230802-82). Only the modification of the last 3 digits which belong to manufacturer ID.



 LEDEL SOLUTIONS CO., LTD	Familiarity declaration	Document version: V1
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LEDEL SOLUTIONS CO., LTD declares that the following products belong to the same family of products, there being only aesthetic differences in design that do not affect their operation:

- Model 1
 - i. Certificate addressed to: GARSACO IMPORT S.L, POL. IND. MOLÍ D'EN LLOP. C/ CORTS VALENCIANES, 10 12549 BETXI CASTELL ON SPAIN
 - ii. Manufacturer: YUYAO JIMING ELECTRONIC CO., LTD, No.34, Fengyan, Yongfeng Village Fengshan Subdistrict, Yuyao City 315499, Ningbo, ZHEJIANG (CHINA)
 - iii. Model version: V16IoT
 - iv. SW version: BAT32G-NB-V1.01-230802-82
 - v. HW version: V1.0
- Model 2
 - i. Certificate addressed to: LEDEL SOLUTIONS CO., LTD, 41 DEVONSHIRE STREET GROUND FLOOR OFFICE 1, LONDON, UNITED KINGDOM W1G 7AJ
 - ii. Manufacturer: YUYAO JIMING ELECTRONIC CO., LTD, No.34, Fengyan, Yongfeng Village Fengshan Subdistrict, Yuyao City 315499, Ningbo, ZHEJIANG (CHINA)
 - iii. Model version: V16IoT
 - iv. SW version: BAT32G-NB-V1.01-230802-101
 - v. HW version: V1.0

Common characteristics:

- They share PCB with the same electronic components, including cellular and GNSS antennas, and LEDs.
- The lampshade is identical and made of the same material.
- The case is identical and manufactured with the same material.

Differences:

- SW/FW version no. is different.
SW is the same and those digits that differentiate them only refer to the company.

Supporting documentation:

- [Technical data sheet Model 1] [Technical data sheet Model 2]

For and on behalf of
LEDEL SOLUTIONS CO., LTD

Date and signature

Oct. 3rd, 2023 *Authorized Signature(s)*



APENDICE III

DECLARACIÓN DE COBERTURA NB-IOT

Validate this report with the security code «ODIOMSFPP» at: <https://extranet.idiada.com/hom-cve>
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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**.

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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, DGT 3.0

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 18 de OCTUBRE de 2023, la entidad **LEDEL SOLUTIONS CO., LTD** (en adelante el "Cliente"), con CIF **14734987** 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: LEDEL SOLUTIONS CO., LTD	Versión del Hardware: V1.0
Fabricante: YUYAO JIMING ELECTRONIC CO., LTD	Versión del Software: BAT32G-NB-V1.01-230802-101
Modelo: V16IoT	Tecnología de Conexión LPWA: NB-IoT

Firmado en Madrid

Certificado N°: / Certificate N°: **E1 58462303D**

CERTIFICADO EVALUACIÓN INICIAL INITIAL ASSESSMENT CERTIFICATE

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

YUYAO JIMING ELECTRONIC CO., LTD
No.34, Fengyan, Yongfeng Village
Fengshan Subdistrict, Yuyao City
315499, Ningbo, ZHEJIANG (CHINA)

dispone de un sistema de gestión de calidad y de los procedimientos y planes de conformidad de la producción adecuada 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 **58462303D**, correspondiente a la auditoría realizada en abril 2023.

The certificate is issued as a result of the **58462303D** file, relevant to the audit carried out in April 2023.

Fecha 1ª emisión: / 1st Issue Date: 25.04.2023 / 2023.04.25

Válido hasta: / Valid until: 25.04.2024 / 2024.04.25

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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:

G1S9DJjj19FMO

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 58462303D**

Anexo I / Annex I

ALCANCE	SCOPE	Cumple con / Fulfills with		
		Legislación Nacional National Legislation	Directiva / Reglamento (UE) Directive / Regulation (EU)	Reglamento NU UN Regulation
Componentes y/o unidades técnicas independientes en relación con la compatibilidad electromagnética	Components and/or separate technical units with regard to electromagnetic compatibility			10
Luces especiales de aviso	Special warning lamps			65

Plantas de Fabricación / Manufacturing Plants
No.34, Fengyan, Yongfeng Village, Fengshan Subdistrict, Yuyao City, 315499, Ningbo, ZHEJIANG (CHINA)

Validate this report with the security code «ODIOMSEFP» at: <https://extranet.idiada.com/hom-cve>
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This certificate can be verified on the Automobile Certification Unit's website (<https://ucanet.es/>) through the Secure Verification Code:

G1S9DJjj19FMO

DESIGNADO POR: / APPOINTED BY:



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



DOCUMENTACIÓN TÉCNICA /
TECHNICAL DOCUMENTATION

DESCRIPCIÓN TÉCNICA / *INFORMATION FOLDER*

FECHA / *DATE*: 07/03/2024

1. Información técnica / *Specification data*

Modelo / <i>Model</i>	V16IoT	
Marca commercial / <i>Trade mark</i>	DAEWOO	
Variantes / <i>Variants</i>	Otros colores de carcasa / <i>Other colors of housing</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 aplicable / <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>	Fivefold flash	
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>	12 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 PC24030069
	Ubicación del marcaje / <i>Location of marking</i>	Marcado en el lateral y en la parte inferior de la carcasa / <i>Marked on the side and bottom of the housing</i>

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

YUYAO JIMING ELECTRONIC CO., LTD

No.34, Fengyan, Yongfeng Village Fengshan Subdistrict, Yuyao City 315499, Ningbo, ZHEJIANG (CHINA)

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

LEDEL SOLUTIONS CO., LTD

41 DEVONSHIRE STREET GROUND FLOOR OFFICE 1, LONDON, UNITED KINGDOM W1G 7AJ

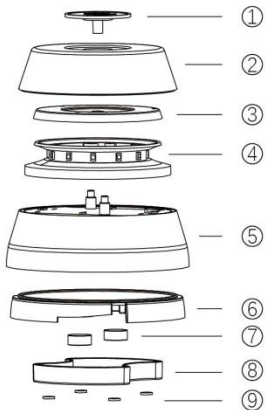
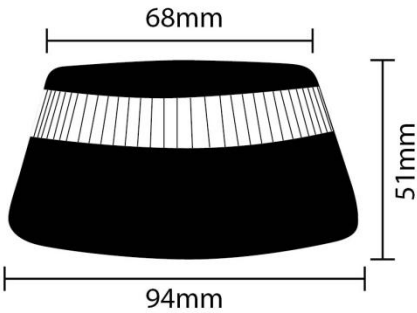
NOTA / *NOTE*: LA MARCA DE IDENTIFICACIÓN SE MUESTRA EN LOS PLANOS ADJUNTOS. / *APPROVAL MARKING IS SHOWN IN THE ATTACHED DRAWINGS.*

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NINGBO YINZHOU LEDEL LIGHTING CO., LTD

UK Branch: LEDEL SOLUTIONS CO., LTD
Office add: RM 310, Building 3#, 450 North Guangdehu Road, Ningbo, CHINA 315100
Factory add: YUYAO JIMING ELECTRONIC CO., LTD
No.34, Fengyan, Yongfeng Village, Fengshan Subdistrict, Yuyao City 315499, Ningbo, ZHEJIANG (CHINA)



No.	Description	Material
1	Switch Button	Silicone
2	Transparent Cover	PC
3	Black Ring	ABS and PC alloy
4	Reflector	ABS
5	Black Bottom	ABS and PC alloy
6	Bottom Cover	ABS and PC alloy
7	Magnet	Zinc
8	Black Kit	ABS and PC alloy
9	Non-slip Mat	Silicone

Date: March 1st, 2023
Version: 1.00



麦 克 赛 尔 (上 海) 贸 易 有 限 公 司
MAXELL (SHANGHAI) TRADING CO., LTD

地址：上海市静安区天目西路 218 号嘉里不夜城第一座 3601 室 邮编：200070

Address: Room 3601, Tower 1, Kerry Everbright City, 218 Tian Mu Road (W) Shanghai, China 200070

Quality Assurance Statement

Our company guarantees that LR6(GD) 1.5V alkaline battery (maxell brand) supplied to Yuyao Jiming Electronic Co.,Ltd through Shanghai Jinxing Trading Co.,Ltd as following:

1. The battery's OCV (V) >1.5V, CCT (V) > 1.40V, SSC (V) >5.0A after they are stored for 18 months at 18-22°C. (Note: the self-discharge rate of the battery is 10% 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)

Maxell (shanghai) Trading Co.,Ltd

July 15th, 2023



PC24030069

PC24030069