



FIRMADO



MINISTERIO  
DE INDUSTRIA, COMERCIO Y  
TURISMO

DIRECCIÓN GENERAL DE INDUSTRIA Y  
DE LA PEQUEÑA Y MEDIANA EMPRESA

SUBDIRECCIÓN GENERAL DE  
CALIDAD Y SEGURIDAD INDUSTRIAL



E9\*10R05/01\*16538\*00

Página / Page 2/3

9. Servicio técnico encargado de la realización de los ensayos / *Technical service responsible for carrying out the tests*: IDIADA
10. Fecha del acta de ensayo / *Date of test report*: 23/01/2019
11. Número del acta de ensayo / *Number of test report*: CN19010450
12. Observaciones (si las hubiera) / *Remarks (if any)*: Véase el apéndice / *See appendix*
13. Lugar / *Place*: Madrid
14. Fecha / *Date*: Ver firma electrónica / *See digital signature*
15. Firma / *Signature*:  
  
EL SUBDIRECTOR GENERAL DE CALIDAD Y SEGURIDAD INDUSTRIAL  
Resolución P.D. del DIRECTOR GENERAL DE INDUSTRIA Y DE LA PYME de 25-10-2012
16. Se adjunta el índice del expediente de homologación en posesión de las autoridades competentes, la cual puede obtenerse a petición del interesado / *The index to the information package lodged with the approval authority, which may be obtained on request is attached*
17. Motivos de extensión / *Reasons for extension*: ---

(1) Tachar lo que no proceda / *Strike out what does not apply*



MINISTERIO  
DE INDUSTRIA, COMERCIO Y  
TURISMO

DIRECCIÓN GENERAL DE INDUSTRIA Y  
DE LA PEQUEÑA Y MEDIANA EMPRESA

SUBDIRECCIÓN GENERAL DE  
CALIDAD Y SEGURIDAD INDUSTRIAL



E9\*10R05/01\*16538\*00

Página / Page 3/3

**Apéndice del certificado de homologación N° E9\*10R05/01\*16538\*00  
relativo a la homologación de subconjuntos eléctricos o electrónicos en lo que se refiere al Reglamento N°10**

***Appendix to Type-approval communication form N° E9\*10R05/01\*16538\*00  
concerning the type-approval of an electrical/electronic sub-assembly under Regulation N° 10***

1. Información adicional / *Additional information (where applicable):*
  - 1.1. Tensión nominal del sistema eléctrico / *Electrical system rated voltage: Ver documentación técnica / See technical documentation*
  - 1.2. Este SEE puede utilizarse en todos los vehículos con las siguientes restricciones / *This ESA can be used on any vehicle type with the following restrictions: Sí / Yes*
    - 1.2.1. Condiciones de instalación, si las hubiera / *Installation conditions, if any: ---*
  - 1.3. Este SEE sólo puede utilizarse en los tipos de vehículo siguientes / *This ESA can only be used on the following vehicle types: ---*
    - 1.3.1. Condiciones de instalación si las hubiera / *Installation conditions, if any: ---*
  - 1.4. El método o métodos específicos de ensayo utilizados y los márgenes de frecuencias abarcados para determinar la inmunidad han sido / *The specific test method(s) used and the frequency ranges covered to determine immunity were: Ver informe de ensayo n° / See test report No. CN19010450*
  - 1.5. Servicio técnico acreditado según ISO 17025 y reconocido por el organismo homologador responsable de realizar los ensayos/ *Technical service accredited to ISO 17025 and recognized by the Approval Authority responsible for carrying out the tests: IDIADA*
2. Observaciones/ *Remarks (if any): ---*

(1) Tachar lo que no proceda / *Strike out what does not apply*

**INFORME N°/ REPORT No. CN19010450****REGLAMENTO CEPE/ONU 10R05 REFERENTE A LA COMPATIBILIDAD ELECTROMAGNÉTICA  
UN/ECE REGULATION 10R05 RELATING ELECTROMAGNETIC COMPATIBILITY**

Solicitante / Applicant :  
 Fabricante / Manufacturer :  
 Marca / Make :  
 Tipo / Type :  
 Variantes / Variants : Ver documentación técnica / See technical documentation  
 Denominación comercial /  
 Commercial description : LED WORK LIGHT  
 Categoría / Category : Componente / Component  
 Lugar y fecha de emisión del informe /  
 Place and date of test report issue : L'Albornar, Santa Oliva (Tarragona), 23/01/2019

CONCLUSIONES: Este componente CUMPLE con las prescripciones sobre compatibilidad electromagnética relativo al REGLAMENTO CEPE/ONU 10R05, como se detalla en el anexo a este informe. /  
 CONCLUSIONS: This component FULFILLS the prescriptions about electromagnetic compatibility, in application to UN/ECE REGULATION 10R05, as detailed in the annex to this report.

Realizado / Performed by:

Guohui(kent) Lian  
AUDITOR  
AUDITOR

Vº.Bº. / Revised by:

Lluís Sans Gomis  
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 REPRODUCCION 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

1. CARACTERÍSTICAS DEL COMPONENTE ENSAYADO /  
TESTED COMPONENT CHARACTERISTICS

Marca / Make	:	
Tipo / Type	:	
Denominación Comercial/ Commercial descriptions	:	LED WORK LIGHT
Función / Function	:	LED WORK LIGHT
Tensión nominal / Rated voltage	:	12V y/and 24V
Variante ensayada / Tested variant	:	
Oscilador electrónico de frecuencia superior a 9kHz / Electronic oscillator with frequency greater than 9 kHz	:	SI / YES
Fecha de recepción de la muestra / Sample received on	:	18/01/2019
Modo de operación / Operation mode	:	MO#01 Normal operation

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

CN19010450

IDIADA

- LOS RESULTADOS PRESENTADOS SE REFIEREN ÚNICAMENTE A LA MUESTRA ENSAYADA.  
THE PRESENTED RESULTS REFER ONLY TO THE TESTED SAMPLE.
- QUEDA TERMINANTEMENTE PROHIBIDA LA REPRODUCCION PARCIAL DE ESTE INFORME SIN PERMISO EXPRESO DE IDIADA.  
THE PARTIAL REPRODUCTION OF THIS REPORT WITHOUT THE PERMISSION OF IDIADA IS COMPLETELY FORBIDDEN.



## 2. ENSAYOS DE RADIACIÓN ELECTROMAGNÉTICA / ELECTROMAGNETIC RADIATION TEST

### 2.1 **Ensayo de radiación electromagnética de banda ancha / Broadband electromagnetic radiation test**

Método de ensayo / <i>Test method</i>	: Indoor / <del>Outdoor</del>
Condiciones del lugar de ensayo / <i>Test place conditions</i>	: Según el anexo 7 / <i>According to Annex 7</i>
Detectores de la antena receptora / <i>Receiving antenna detectors</i>	: <del>Cresta</del> / Quasi-cresta <del>Peak</del> / <i>Quasi peak</i>
Componente en estado normal de funcionamiento / <i>Component at normal operating</i>	: SI / YES
Ancho de banda / <i>Bandwidth</i>	: 120 kHz
Resultados de ensayo / <i>Test Results</i>	: Ver página 4 a 6 / <i>See page 4 to 6</i>

**CORRECTO / CORRECT**

### 2.2 **Ensayos de Banda Estrecha / Narrowband electromagnetic radiation test**

Método de ensayo / <i>Test method</i>	: Indoor / <del>Outdoor</del>
Condiciones del lugar de ensayo / <i>Test place conditions</i>	: Según el anexo 8 / <i>According to the Annex 8</i>
Detectores de la antena receptora / <i>Receiving antenna detectors</i>	: <del>Cresta</del> / Media <del>Peak</del> / <i>Average</i>
Componente en estado normal de funcionamiento / <i>Component at normal operating</i>	: SI / YES
Ancho de banda / <i>Bandwidth</i>	: 120 kHz
Resultados de ensayo / <i>Test Results</i>	: Ver página 4 a 6 / <i>See page 4 to 6</i>

**CORRECTO / CORRECT**

\* LOS RESULTADOS PRESENTADOS SE REFIEREN ÚNICAMENTE A LA MUESTRA ENSAYADA.  
*THE PRESENTED RESULTS REFER ONLY TO THE TESTED SAMPLE.*

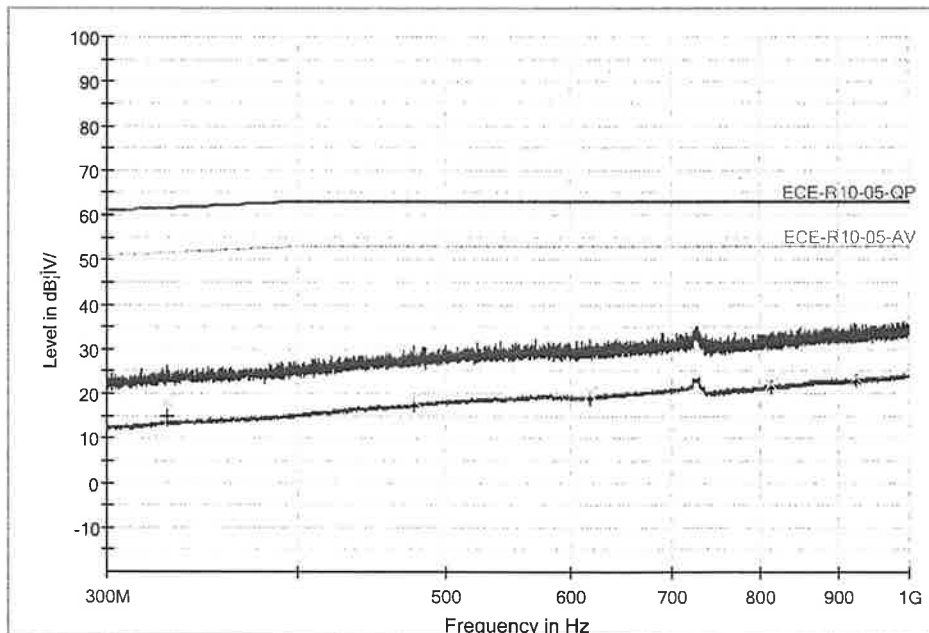
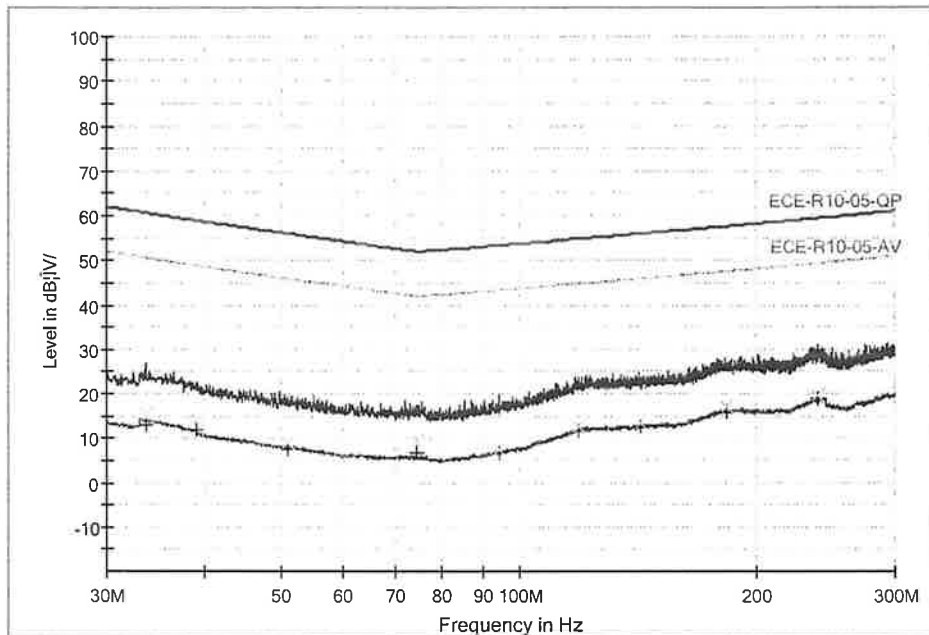
\* QUEDA TERMINANTEMENTE PROHIBIDA LA REPRODUCCION PARCIAL DE ESTE INFORME SIN PERMISO EXPRESO DE IDIADA.  
*THE PARTIAL REPRODUCTION OF THIS REPORT WITHOUT THE PERMISSION OF IDIADA IS COMPLETELY FORBIDDEN.*



## 2.3 Resultado de ensayo / Test Results

24V del SEE como el caso más desfavorable / 24V of the ESA as the worst case  
MO#01 Normal operation

### Banda Ancha y Banda Estrecha / Broadband and Narrowband - Polarización Horizontal / Horizontal Polarisation



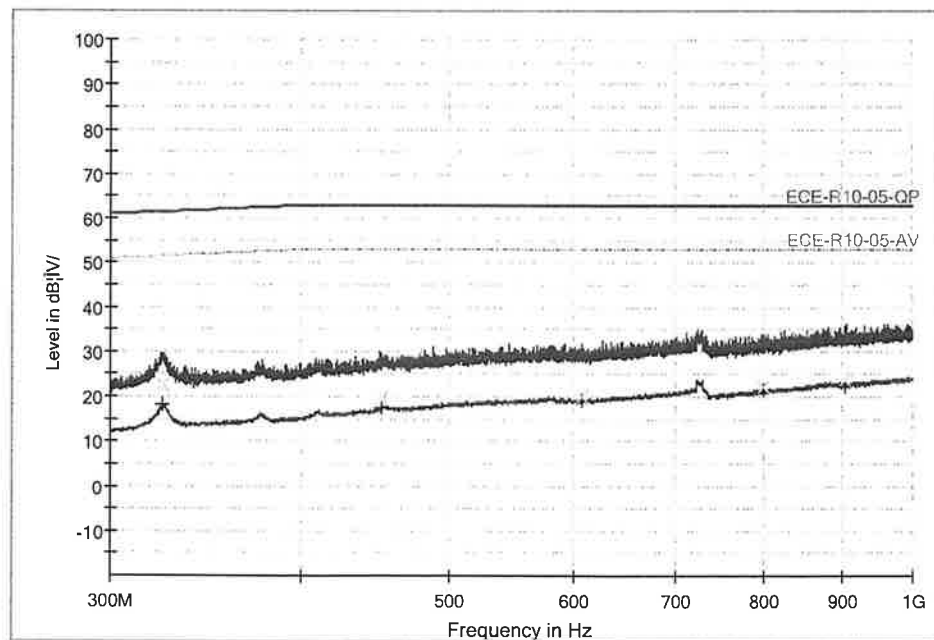
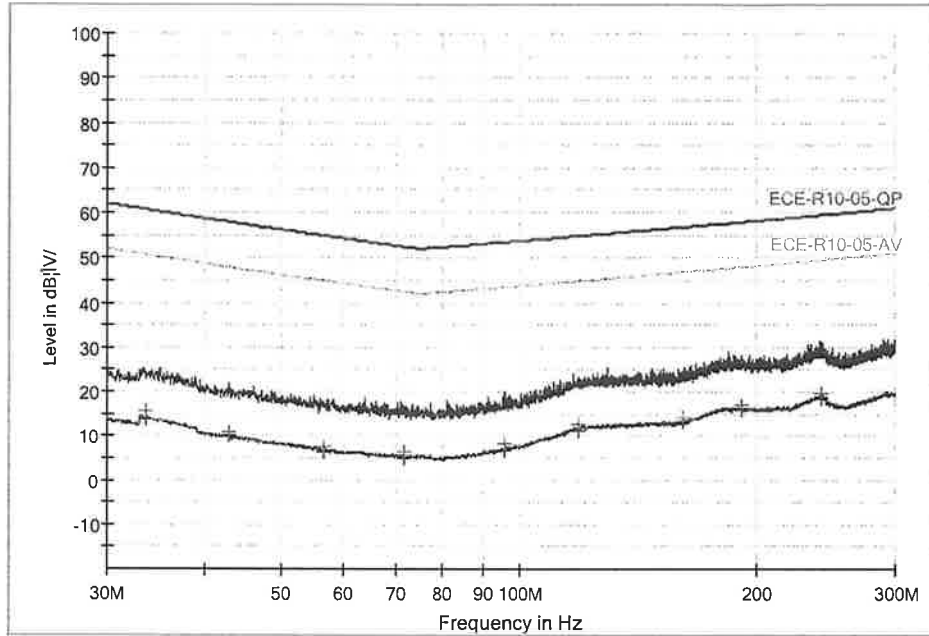
Validate this report with the security code «HJJARLYN» at: <https://extranet.idiada.com/hom-cve>  
 Verifique el informe con código de seguridad «HJJARLYN» en: <https://extranet.idiada.com/hom-cve>

IDIADA CN19010450

• LOS RESULTADOS PRESENTADOS SE REFIEREN UNICAMENTE A LA MUESTRA ENSAYADA.  
 THE PRESENTED RESULTS REFER ONLY TO THE TESTED SAMPLE.  
 • QUEDA TERMINANTEMENTE PROHIBIDA LA REPRODUCCION PARCIAL DE ESTE INFORME SIN PERMISO EXPRESO DE IDIADA.  
 THE PARTIAL REPRODUCTION OF THIS REPORT WITHOUT THE PERMISSION OF IDIADA IS COMPLETELY FORBIDDEN.



**Banda Ancha y Banda Estrecha / Broadband and Narrowband**  
**-Polarización Vertical / Vertical Polarisation**



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

IDIADA CN19010450

- 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.



## BANDA ANCHA / BROADBAND

Detector: Quasi peak detector

Mode: Normal operation

Reference (MHz)	Apply (MHz) Horizontal	Apply (MHz) Vertical	Results (dBmV/m)			Limit (dBmV/m) (QP)
			Horizontal	Vertical	Maximum	
30-34	33.60	33.60	15.80	15.70	15.80	62.00-60.63
34-45	39.06	42.90	14.00	10.80	14.00	60.63-57.57
45-60	51.00	56.52	8.90	7.70	8.90	57.57-54.44
60-80	74.22	71.58	9.40	6.40	9.40	54.44-52.42
80-100	94.50	96.00	7.50	8.20	8.20	52.42-53.89
100-130	118.86	118.56	12.60	12.60	12.60	53.89-55.61
130-170	142.26	161.16	13.60	14.10	14.10	55.61-57.38
170-225	183.48	191.16	17.00	17.10	17.10	57.38-59.22
225-300	239.52	242.46	19.70	19.50	19.70	59.22-61.11
300-400	328.26	324.30	18.10	22.60	22.60	61.11-63.00
400-525	476.28	451.92	18.40	19.50	19.50	63.00
525-700	618.66	607.80	20.10	20.00	20.10	63.00
700-850	812.94	799.86	22.30	22.10	22.30	63.00
850-1000	925.14	903.24	23.70	23.80	23.80	63.00

## BANDA ESTRECHA / NARROWBAND

Detector: Average detector

Mode: Normal operation

Reference (MHz)	Apply (MHz) Horizontal	Apply (MHz) Vertical	Results (dBmV/m)			Limit (dBmV/m) (AV)
			Horizontal	Vertical	Maximum	
30-34	33.60	33.60	13.20	13.70	13.70	52.00-50.63
34-45	39.06	42.90	11.90	9.90	11.90	50.63-47.57
45-60	51.00	56.52	7.60	6.60	7.60	47.57-44.44
60-80	74.22	71.58	6.70	5.10	6.70	44.44-42.42
80-100	94.50	96.00	6.70	6.90	6.90	42.42-43.89
100-130	118.86	118.56	11.60	11.20	11.60	43.89-45.61
130-170	142.26	161.16	12.60	12.90	12.90	45.61-47.38
170-225	183.48	191.16	16.00	16.10	16.10	47.38-49.22
225-300	239.52	242.46	18.80	18.60	18.80	49.22-51.11
300-400	328.26	324.30	14.80	18.20	18.20	51.11-53.00
400-525	476.28	451.92	17.30	17.30	17.30	53.00
525-700	618.66	607.80	19.00	19.10	19.10	53.00
700-850	812.94	799.86	21.50	21.30	21.50	53.00
850-1000	925.14	903.24	23.00	22.30	23.00	53.00

\* LOS RESULTADOS PRESENTADOS SE REFIEREN UNICAMENTE A LA MUESTRA ENSAYADA.  
THE PRESENTED RESULTS REFER ONLY TO THE TESTED SAMPLE.

\* QUEDA TERMINANTEMENTE PROHIBIDA LA REPRODUCCION PARCIAL DE ESTE INFORME SIN PERMISO EXPRESO DE IDIADA.  
THE PARTIAL REPRODUCTION OF THIS REPORT WITHOUT THE PERMISSION OF IDIADA IS COMPLETELY FORBIDDEN.



### 3. INMUNIDAD Y EMISIONES DE PERTURBACIONES CONDUCCIDAS / IMMUNITY AND EMISSION OF CONDUCTED DISTURBANCES TEST

#### 3.1. Emisiones de perturbaciones conducidas / Emissions of conducted disturbances

- Método de ensayo / *Test method* : Según el Anexo 10 del Reglamento ECE 10.05  
*According to Annex 10 of ECE Regulation 10.05*
- Temperatura de ensayo /  
*Test temperature* : 25 °C
- Tensión de alimentación de ensayo /  
*Test voltage* : DC 13.5V y/and DC 27.5 V
- Condiciones de medida /  
*Measuring Condition* : Comprobación de la emisión de transitorios producidos en el interruptor de ENC / DESC hacia las líneas de alimentación /  
*Check transient emission at switch ON/OFF in Power Source lines*
- Gráficas de resultados / *Results charts* : Ver página 8 a 11 / *See page 8 to 11*
- Resultado de ensayo / *Test Result* :

Polaridad de la amplitud del impulso/ <i>Polarity of pulse amplitude</i>	Amplitud máxima de pulso permitido para/ <i>Maximum allowed pulse amplitude for</i>	Tipo de pulso / <i>Type of pulse</i>	Resultado de ensayo / <i>Test result</i>
	Vehículos con sistemas a 12V <i>/ Vehicles with 12 V systems</i>		
Positivo/ <i>Positive</i>	+ 75	Lento / <i>Slow</i>	Cumple / <i>Fulfils</i>
		Rápido / <i>Fast</i>	Cumple / <i>Fulfils</i>
Negativo/ <i>Negative</i>	- 100	Lento / <i>Slow</i>	Cumple / <i>Fulfils</i>
		Rápido / <i>Fast</i>	Cumple / <i>Fulfils</i>

Polaridad de la amplitud del impulso/ <i>Polarity of pulse amplitude</i>	Amplitud máxima de pulso permitido para/ <i>Maximum allowed pulse amplitude for</i>	Tipo de pulso / <i>Type of pulse</i>	Resultado de ensayo / <i>Test result</i>
	Vehículos con sistemas a 24V <i>/ Vehicles with 24 V systems</i>		
Positivo/ <i>Positive</i>	+150	Lento / <i>Slow</i>	Cumple / <i>Fulfils</i>
		Rápido / <i>Fast</i>	Cumple / <i>Fulfils</i>
Negativo/ <i>Negative</i>	-450	Lento / <i>Slow</i>	Cumple / <i>Fulfils</i>
		Rápido / <i>Fast</i>	Cumple / <i>Fulfils</i>

**CORRECTO / CORRECT**

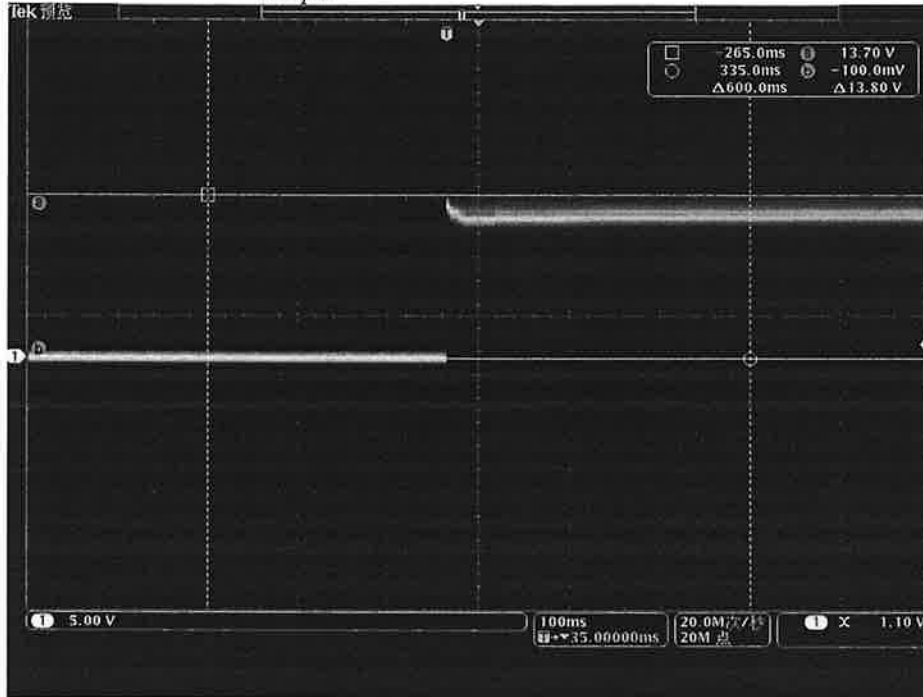
\* LOS RESULTADOS PRESENTADOS SE REFIEREN UNICAMENTE A LA MUESTRA ENSAYADA.  
*THE PRESENTED RESULTS REFER ONLY TO THE TESTED SAMPLE.*

\* QUEDA TERMINANTEMENTE PROHIBIDA LA REPRODUCCION PARCIAL DE ESTE INFORME SIN PERMISO EXPRESO DE IDIADA.  
*THE PARTIAL REPRODUCTION OF THIS REPORT WITHOUT THE PERMISSION OF IDIADA IS COMPLETELY FORBIDDEN.*

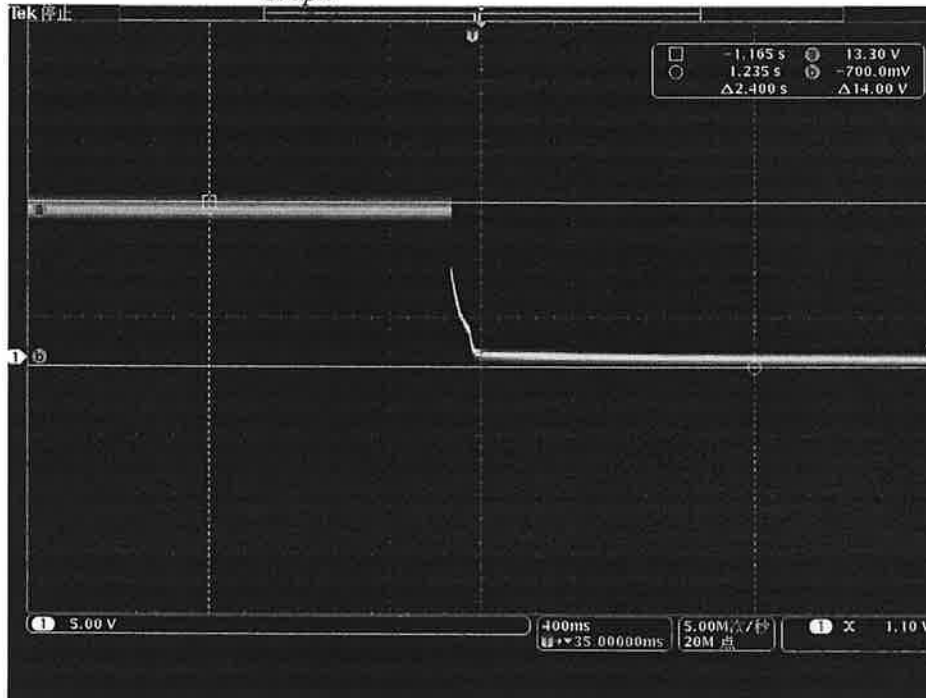


Vehículos con sistemas a 12V/ *Vehicles with 12 V systems*

Slow Pulse: OFF-->ON Data Graph



Slow Pulse: ON-->OFF Data Graph



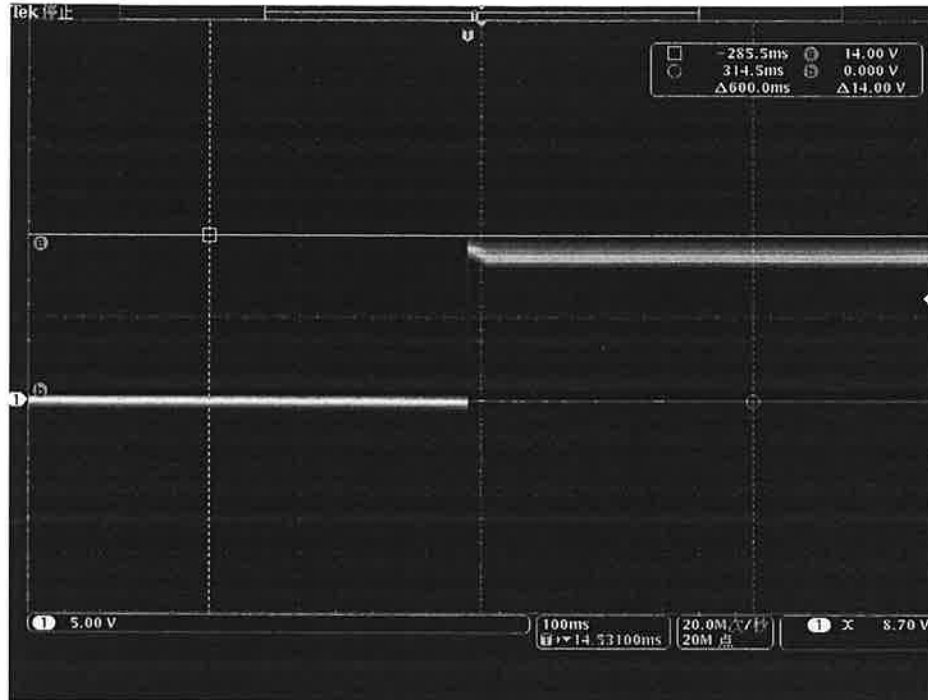
Validate this report with the security code "HJJARLYN" at: <https://extranet.idiada.com/hom-cve>  
 Verifique el informe con código de seguridad "HJJARLYN" en: <https://extranet.idiada.com/hom-cve>

IDIADA CN19010450

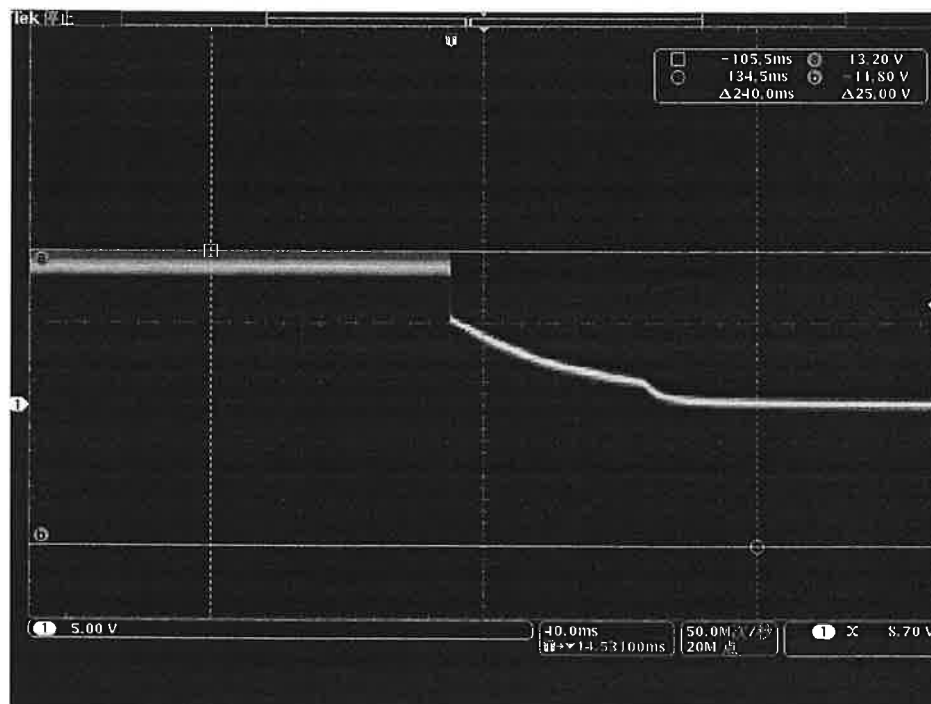
- LOS RESULTADOS PRESENTADOS SE REFIEREN UNICAMENTE A LA MUESTRA ENSAYADA.  
 THE PRESENTED RESULTS REFER ONLY TO THE TESTED SAMPLE.
- QUEDA TERMINANTEMENTE PROHIBIDA LA REPRODUCCION PARCIAL DE ESTE INFORME SIN PERMISO EXPRESO DE IDIADA.  
 THE PARTIAL REPRODUCTION OF THIS REPORT WITHOUT THE PERMISSION OF IDIADA IS COMPLETELY FORBIDDEN.



Fast Pulse: OFF-->ON Data Graph



Fast Pulse: ON-->OFF Data Graph



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

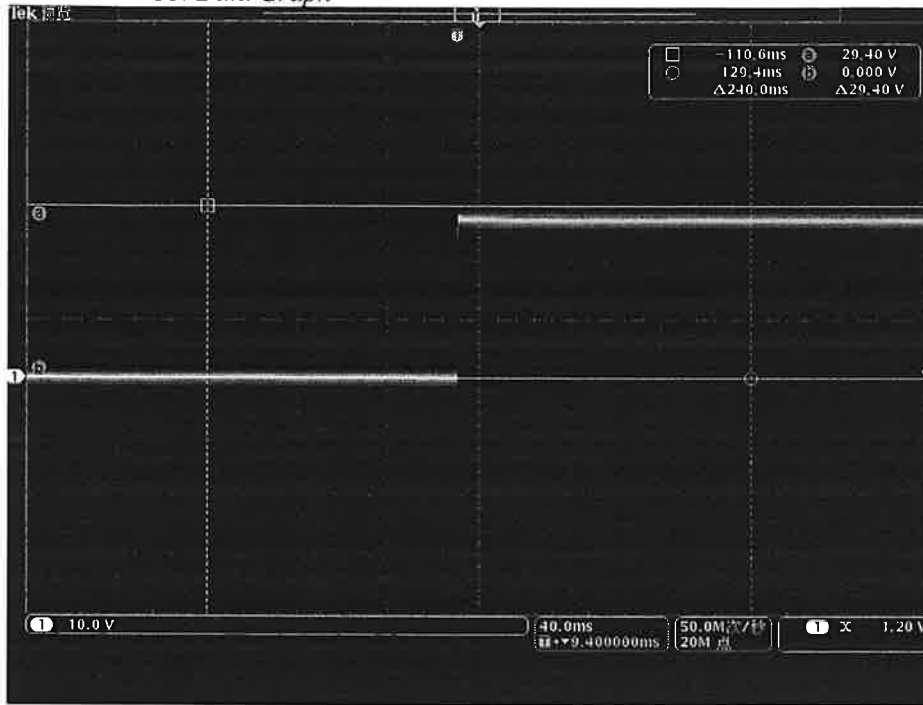
IDIADA CN19010450

\* LOS RESULTADOS PRESENTADOS SE REFIEREN UNICAMENTE A LA MUESTRA ENSAYADA.  
 THE PRESENTED RESULTS REFER ONLY TO THE TESTED SAMPLE.  
 \* QUEDA TERMINANTEMENTE PROHIBIDA LA REPRODUCCION PARCIAL DE ESTE INFORME SIN PERMISO EXPRESO DE IDIADA.  
 THE PARTIAL REPRODUCTION OF THIS REPORT WITHOUT THE PERMISSION OF IDIADA IS COMPLETELY FORBIDDEN.

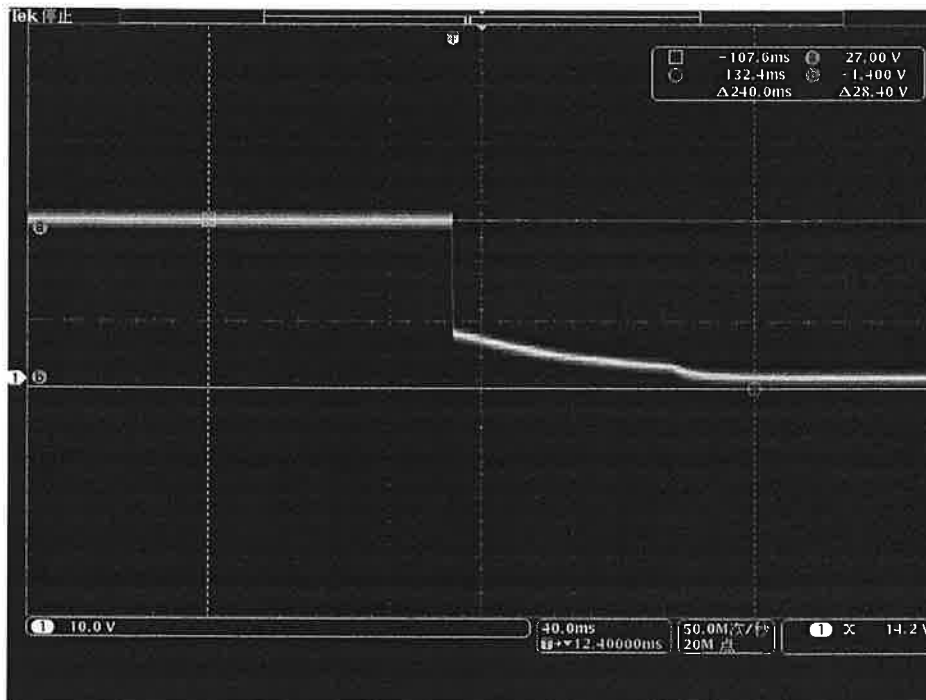


Vehículos con sistemas a 24V/ *Vehicles with 24 V systems*

Slow Pulse: OFF-->ON Data Graph



Slow Pulse: ON-->OFF Data Graph



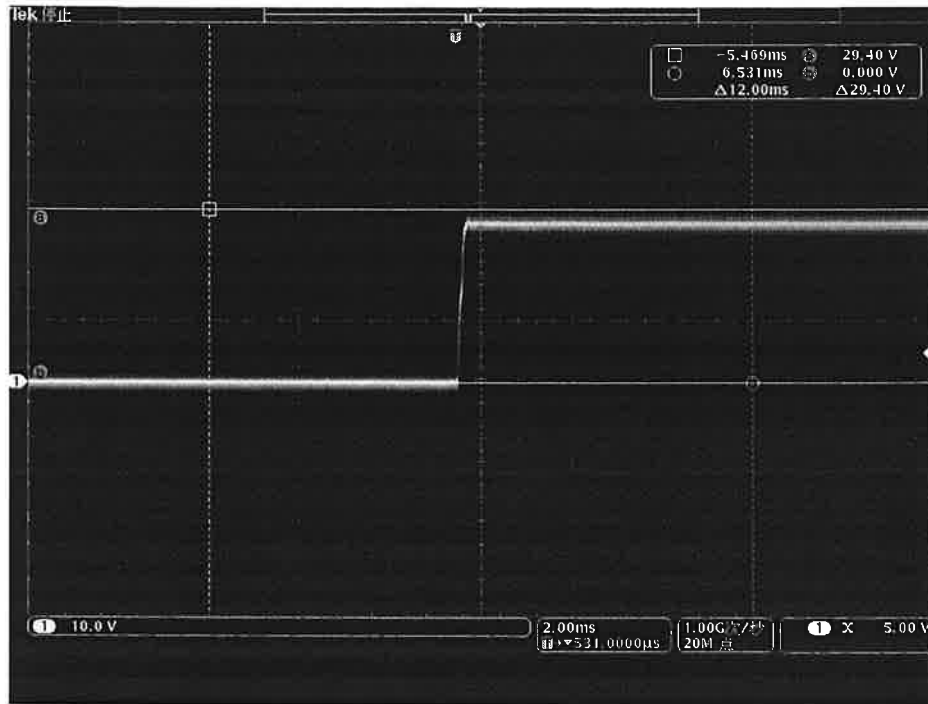
Validate this report with the security code "HJJARLYN" at: <https://extranet.idiada.com/hom-cve>  
 Verifique el informe con código de seguridad "HJJARLYN" en: <https://extranet.idiada.com/hom-cve>

IDIADA CN19010450

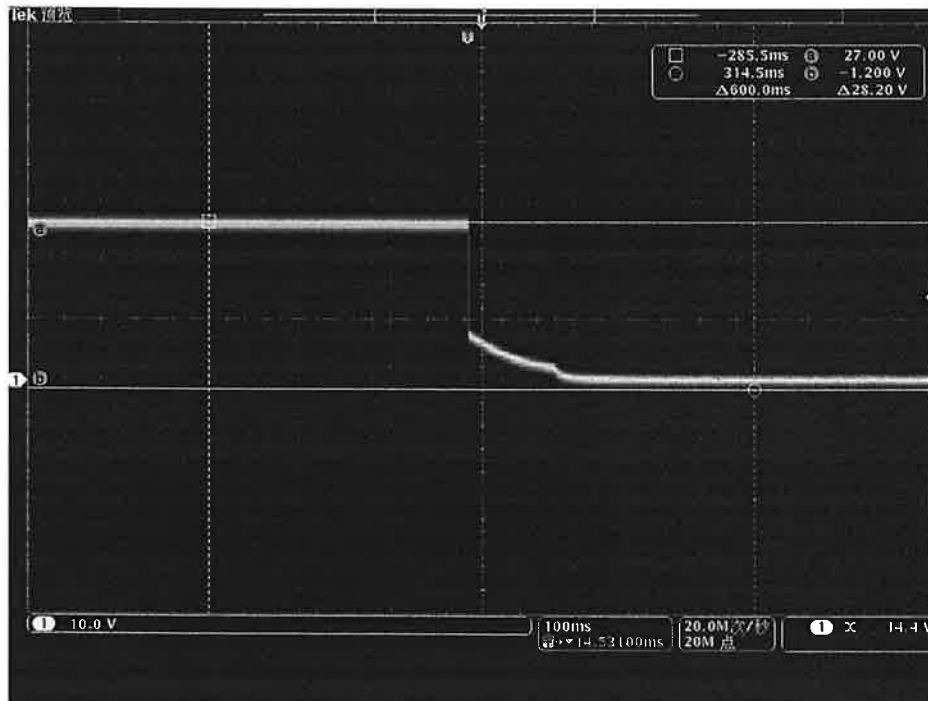
- LOS RESULTADOS PRESENTADOS SE REFIEREN UNICAMENTE A LA MUESTRA ENSAYADA.  
 THE PRESENTED RESULTS REFER ONLY TO THE TESTED SAMPLE.
- QUEDA TERMINANTEMENTE PROHIBIDA LA REPRODUCCION PARCIAL DE ESTE INFORME SIN PERMISO EXPRESO DE IDIADA.  
 THE PARTIAL REPRODUCTION OF THIS REPORT WITHOUT THE PERMISSION OF IDIADA IS COMPLETELY FORBIDDEN.



Fast Pulse: OFF-->ON Data Graph



Fast Pulse: ON-->OFF Data Graph



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

IDIADA CN19010450

- LOS RESULTADOS PRESENTADOS SE REFIEREN UNICAMENTE A LA MUESTRA ENSAYADA.  
THE PRESENTED RESULTS REFER ONLY TO THE TESTED SAMPLE.
- QUEDA TERMINANTEMENTE PROHIBIDA LA REPRODUCCION PARCIAL DE ESTE INFORME SIN PERMISO EXPRESO DE IDIADA.  
THE PARTIAL REPRODUCTION OF THIS REPORT WITHOUT THE PERMISSION OF IDIADA IS COMPLETELY FORBIDDEN.



**3.2. Inmunidad a las perturbaciones transitorias conducidas a lo largo de las líneas de alimentación / Immunity against disturbances conducted along supply lines**

Método de ensayo / Test method : Según el Anexo 10 del Reglamento ECE 10.05  
According to Annex 10 of ECE Regulation 10.05

Estado de funcionamiento para el sistema / Performance criteria

Pulso/ Pulse	Nivel de inmunidad/ Immunity level	Estado de funcionamiento para el sistema/ Performance criteria	
		Relacionados con funciones de inmunidad/ Related to immunity functions	No relacionados con funciones de inmunidad/ Not related to immunity functions
1	III	C	D
2a	III	B	D
2b	III	C	D
3a/3b	III	A	D
4	III	B /or C	D

Resultado de ensayo/ Test Result

(immunity related function)  
MO#01 Normal operation

Vehículos con sistemas a 12V / Vehicles with 12 V systems

Pulso/ Pulse	Nivel III de inmunidad / Immunity Level III	Ciclo de ráfaga/ Tiempo de repetición del pulso Duration	Tiempo de ensayo/ Nº de pulsos Test time/ Nº of pulses	Resultado del ensayo / Test result
1	-75 V	Ri=10Ω, td=2ms, tr=1μs, t1=1s, t2=200ms, t3<100μs	5000 pulsos/ pulses	C
2a	+37 V	Ri=2Ω, td=0.05ms, tr=1μs, t1=5s	5000 pulsos/ pulses	A
2b	+10 V	Ri=0Ω, td=1s, t12=1ms, tr=1ms, t6=1ms	10 pulsos/ pulses	C
3a	-112 V	Ri=50Ω, td=0.1μs, tf=5ns, t1=100μs, t4=10ms, t5=90ms	1 h	A
3b	+75 V	Ri=50Ω, td=0.1μs, tr=5ns, t1=100μs, t4=10ms, t5=90ms	1 h	A
4	-6V	Va=-2.5V, Ri=0Ω, t8<50ms, t9=10s, t10=5ms, t11=5ms to100ms	1 pulso/ pulse	C

**CORRECTO / CORRECT**

\* LOS RESULTADOS PRESENTADOS SE REFIEREN UNICAMENTE A LA MUESTRA ENSAYADA.  
THE PRESENTED RESULTS REFER ONLY TO THE TESTED SAMPLE.  
\* QUEDA TERMINANTEMENTE PROHIBIDA LA REPRODUCCION PARCIAL DE ESTE INFORME SIN PERMISO EXPRESO DE IDIADA.  
THE PARTIAL REPRODUCTION OF THIS REPORT WITHOUT THE PERMISSION OF IDIADA IS COMPLETELY FORBIDDEN.



Vehículos con sistemas a 24V / Vehicles with 24 V systems

Pulso/ Pulse	Nivel III de inmunidad / Immunity Level III	Ciclo de ráfaga/ Tiempo de repetición del pulso Duration	Tiempo de ensayo/ Nº de pulsos Test time/ Nº of pulses	Resultado del ensayo / Test result
1	-450 V	Ri=50Ω, td=1ms, tr=3μs, t1=1s, t2=200ms, t3<100μs	5000 pulsos/ pulses	C
2a	+37 V	Ri=2Ω, td=0.05ms, tr=1μs, t1=5s	5000 pulsos/ pulses	A
2b	+20 V	Ri=0Ω, td=1s, t12=1ms, tr=1ms, t6=1ms	10 pulsos/ pulses	C
3a	-150 V	Ri=50Ω, td=0.1μs, tf=5ns, t1=100μs, t4=10ms, t5=90ms	1 h	A
3b	+150 V	Ri=50Ω, td=0.1μs, tr=5ns, t1=100μs, t4=10ms, t5=90ms	1 h	A
4	-12 V	Va=-12V, Ri=0Ω, t8<50ms, t9=10s, t10=10ms, t11=10ms to 100ms	1 pulso/ pulse	C

**CORRECTO / CORRECT**

4. ENSAYO DE INMUNIDAD ELECTROMAGNÉTICA / ELECTROMAGNETIC IMMUNITY TEST

- Método de ensayo / Test method : Según el Anexo 9 del Reglamento ECE 10.05  
According to Annex 9 of ECE Regulation 10.05
- Frecuencias / Frequencies : 20 – 400MHz, 400 – 2000 MHz
- Nivel de campo / Level of field : 60 mA, 30 V/m
- Modulación / Modulation : AM 1 KHz 80% (20 – 800 MHz),  
PM 217 Hz 12.5 % (800 – 2000 MHz)
- Resultado de ensayo/ Test Result : No se detectan fallos / No failures detected

**CORRECTO / CORRECT**

Lugar de ensayo / Test place:  
Fecha de ensayo / Test date: 21/01/2019-22/01/2019

*Keneliam*

Guohui(kent) Lian  
AUDITOR  
AUDITOR

\* LOS RESULTADOS PRESENTADOS SE REFIEREN UNICAMENTE A LA MUESTRA ENSAYADA.  
THE PRESENTED RESULTS REFER ONLY TO THE TESTED SAMPLE.  
\* QUEDA TERMINANTEMENTE PROHIBIDA LA REPRODUCCION PARCIAL DE ESTE INFORME SIN PERMISO EXPRESO DE IDIADA.  
THE PARTIAL REPRODUCTION OF THIS REPORT WITHOUT THE PERMISSION OF IDIADA IS COMPLETELY FORBIDDEN.

Shenzhen BCTC Testing Co.,Ltd.  
BCTC Building & 1-2F,East of B Building,Pengzhou Industrial,Fuyuan 1st Road,  
Qiaotou Community,Fuyong Street,Bao'an District,Shenzhen,China



# Certificate of Compliance

Certificate Number: BCTC-FYC19010143C

Applicant :

Manufacturer :

Product : LED AUTO LIGHT

Testing M/N :

Additional M/N : M FQ424  
M FT424  
M FQ954  
M FT954

The EUT described above has been consolidated by us and found in compliance with the council RoHS directive—2011/65/EU. It is possible to use CE marking to demonstrate the compliance with this RoHS Directive. This certificate is only valid for the test results in this report number: BCTC-FYC19010143R.



This certificate 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 whole product and relevant. Directives have to be observed.

Tel: 400-788-9558 0755-33207888  
Http://www.bctc-lab.com



Shenzhen BCTC Testing Co.,Ltd.  
BCTC Building & 1-2F,East of B Building,Pengzhou Industrial,Fuyuan 1st Road,  
Qiaotou Community,Fuyong Street,Bao'an District,Shenzhen,China



# Certificate of Compliance

Certificate Number: BCTC-FY190100137C

Applicant :

Manufacturer :

Product : LED AUTO LIGHT

M/N :  
M FQ954  
M FT954  
M FQ424  
M FT424

Test Standard : EN60529:1991+A1:2000+A2:2013

The EUT described above has been tested by us with the listed standards and found in compliance with the council LVD directive 2014/35/EU. It is possible to use IP marking to demonstrate the compliance with this LVD Directive. It is only valid in connection with the test report number: BCTC-FY190100137S.

## IP67



This certificate 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 whole product and relevant. Directives have to be observed.

Tel: 400-788-9558 0755-33207888  
Http://www.bctc-lab.com



Shenzhen BCTC Testing Co.,Ltd.  
BCTC Building & 1-2F,East of B Building,Pengzhou Industrial,Fuyuan 1st Road,  
Qiaotou Community,Fuyong Street,Bao'an District,Shenzhen,China



# Certificate of Compliance

Certificate Number: BCTC-FY190100136C

**Applicant** :

**Manufacturer** :

**Product** : LED AUTO LIGHT

**M/N** :  
M FT954  
M FQ954  
M FT424  
M FQ424

**Test Standard** : EN 55015:2013+A1:2015, EN 61547: 2009

The EUT described above has been tested according to the listed standards and found in compliance with the council EMC directive 2014/30/EU. The observations and test results referenced from this Certificate are relevant only to the sample tested. This Certificate is for the exclusive use of BCTC's Client and is provided pursuant to the agreement between BCTC and its Client. This Certificate is part of the full test report(s) and should be read in conjunction with report No. : BCTC-FY190100136E.



This certificate 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 whole product and relevant. Directives have to be observed.

Tel: 400-788-9558 0755-33207888  
[Http://www.bctc-lab.com](http://www.bctc-lab.com)





**NSAI**  
Certification

**ECE TYPE-APPROVAL CERTIFICATE**



Communication concerning:<sup>2</sup>

Approval granted  
~~Approval extended~~  
~~Approval refused~~  
~~Approval withdrawn~~  
~~Production definitely discontinued~~

of a type of reversing lamp/~~manoeuvring lamp~~ pursuant to Regulation No. 23

Approval No: **E24\*23R00/22\*0410\*00**

Reason(s) for extension:

*N/A*

1. Trade name or mark of the device:
2. Manufacturer's name for the type of device: *7724*  
Version(s): *N/A*
3. Manufacturer's name and address:
4. If applicable, name and address of manufacturer's representative: *N/A*
5. Submitted for approval on: *20.09.2019*
6. Technical service responsible for conducting approval tests: *ISOQA Technical Service Co., Ltd  
60, Yong Long Road,  
41257 Da-Li, Taichung  
Taiwan*
7. Date of test report issued by that service: *20.09.2019*



# NSAI

Certification

Approval No: E24\*23R00/22\*0410\*00

8.	Number of report issued by that service:	<i>ISOQA-19-0504-R23</i>
9.	Concise description:	<i>Reversing Lamp AR</i>
	Number, category and kind of light source(s):	<i>4, -, LEDs</i>
	Voltage and wattage:	<i>12/24V – 20W</i>
	Application of an electronic light source control gear:	
	(a) being part of the lamp: <del>yes</del> / <sup>2</sup>	<i>Yes</i>
	(b) being not part of the lamp: <del>yes</del> / <sup>2</sup>	<i>No</i>
	Input voltage(s) supplied by an electronic light source control gear:	<i>N/A</i>
	Electronic light source control gear manufacturer and identification number (when the light source control gear is part of the lamp but is not included into the lamp body):	<i>N/A</i>
	Light source module: <del>yes</del> / <sup>2</sup>	<i>No</i>
	Light source module specific identification code:	<i>N/A</i>
	Geometrical conditions of installation and relating variations (if any):	<i>Reference axis parallel to the median longitudinal plane of the vehicle and parallel to the bearing plane of the vehicle on the road (see drawings of information document).</i>
	For a type of manoeuvring lamp pursuant to Regulation No. 23 paragraph 6.2.2. Maximum mounting height:	<i>N/A</i>
	The lamp is only for use on a vehicle fitted with a tell-tale indicating failure: <del>yes</del> / <sup>2</sup>	<i>No</i>

<sup>1</sup> Distinguishing number of the country which has granted/refused/withdrawn approval (see approval provisions in the Regulation).

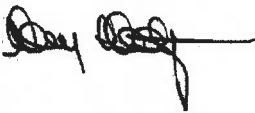
<sup>2</sup> Strike out which does not apply.



# NSAI

Certification

Approval No: E24\*23R00/22\*0410\*00

10. Position of the approval mark: *See drawings of the information folder*
11. Comments:  
In the case of a reversing lamp, this device shall be installed on a vehicle only as part of a pair of devices: *yes/no*<sup>2</sup> *No*
12. Reason(s) for extension (if applicable): *N/A*
13. Approval granted/~~extended~~/~~refused~~/~~withdrawn~~<sup>2</sup> *Granted*
14. Place: *Dublin*
15. Date: *24<sup>th</sup> September, 2019*
16. Signature: 
17. The list of documents deposited with the Administrative Service which has granted approval, is annexed and may be obtained on request.





**NSAI**  
Certification

Approval No: E24\*23R00/22\*0410\*00

## Index to the Information Package

Date of issue:	<i>24<sup>th</sup> September, 2019</i>
Date of latest amendment:	<i>N/A</i>
Reason for extension/revision:	<i>N/A</i>
1. Additional conditions, and advisory notes on legal alternatives.	
2. Test report(s)	
- numbers(s):	<i>ISOQA-19-0504-R23</i>
- date of issue:	<i>20.09.2019</i>
- date of latest amendment:	<i>N/A</i>
3. Information document	
- number(s):	<i>INFORMATION</i>
- date of issue:	<i>06.09.2019</i>
- date of latest amendment:	<i>N/A</i>
Documentation:	<i>13 pages</i>



# NSAI

## Certification

Approval No: E24\*23R00/22\*0410\*00

### Appendix: **Additional conditions, and advisory notes on legal alternatives**

#### A: Additional conditions:

1. The device, Type 7724 shall be marked as prescribed by the regulation.
2. Fitting instructions shall be supplied with each device, giving details of any limitations in the use of the device.
3. The device should be fitted in accordance with the fitting instructions.
4. The attached technical report, with any of its attachments, forms part of this Type Approval certificate.
5. Each individual product from series production shall be to the measurements specified in the attached drawings, and shall be manufactured only from the materials specified in the Approval documents.
6. Changes in the product are permitted only with the explicit permission of NSAI. Breaches of this requirement will lead to a withdrawal of the Type Approval, and in addition may be subject to criminal prosecution.
7. This Type Approval will expire when it is surrendered by the holder, or withdrawn by NSAI, or when the approved type of product no longer conforms to legal requirements. The recall of the Type Approval can be issued by NSAI when the conditions required for the issuing or continuation of the Type Approval are no longer current, or when the Approval holder is in breach of the duties attached to the Type Approval, or when it is established that the approved type no longer meets the requirements of traffic safety.
8. NSAI may at any time check the correct performance of the duties imposed by the grant of this Type Approval, and in order to do so, may make tests, or have tests made.
9. Changes in the company name, address or manufacturing site, as well as in any of the sales or other agents specified in the issuing of the approval must immediately be notified to the NSAI.
10. The duties imposed by the issuing of this certificate are not transferable. The legal protection of third parties is not affected by this certificate.
11. When the manufacture or sale of the vehicle, system, component or separate technical unit has not been started within one year of the date of issue of this certificate, then NSAI is to be informed. This requirement also applies when the manufacture or sale has been halted for more than one year, or when it ought to have been halted for more than one year. The initial commencement of manufacture or sale, or the resumption of manufacture or sale, shall then be notified to NSAI within one month of commencement or resumption.

#### B : Legal Options

Any objection to the requirements set out in this certificate shall be made within one month of the date of issue. The objection shall be made, in writing, to NSAI in Dublin.

**Test Report No. : ISOQA-19-0504-R23**

Approval No. : 23R-00 0410

Type : 7724

Manufacturer :



ISOQA Technical Service Co., Ltd

Web: [www.isoqa.org](http://www.isoqa.org)

E-mail: [isoqa@isoqa.org](mailto:isoqa@isoqa.org)

## TEST REPORT

Concerning the Adoption of Harmonized Technical United Nations Regulations for Wheeled Vehicles, Equipment and Parts which can be Fitted and/or be Used on Wheeled Vehicles and the Conditions for Reciprocal Recognition of Approvals Granted on the Basis of these United Nations Regulations

**Uniform provisions concerning the approval of reversing lamps and manoeuvring lamps for power-driven vehicles and their trailers**

Tested according ECE-R23, supplement 22 to original version of amendments of 10 February 2018

Kind of device: Reversing Lamp, Category AR

Approval status	
X	Application for granting of a type approval
	Application for an extension of type approval No.
	Reason for the extension:

**Test Report No. : ISOQA-19-0504-R23**

Approval No. : 23R-00 0410

Type : 7724

Manufacturer :



ISOQA Technical Service Co., Ltd

Web: [www.isoqa.org](http://www.isoqa.org)

E-mail: [isoqa@isoqa.org](mailto:isoqa@isoqa.org)

**0. General**

- 0.1. Make (trade name of manufacturer) :
- 0.2. Type : 7724
- 0.3. Version / Variant : --
- 0.4. Manufacturer's name and address :
- 0.5. Test laboratory : ISOQA Technical Service Co., Ltd  
60, Yong Long Road,  
41257 Da-Li, Taichung  
Taiwan

**Test Report No. : ISOQA-19-0504-R23**

Approval No. : 23R-00 0410

Type : 7724

Manufacturer :



ISOQA Technical Service Co., Ltd

Web: www.isoqa.org

E-mail: isoqa@isoqa.org

**1. Test object (s)****1.1. Information :**

Material of Lens	PC	
Material of Housing	ADC12	
Material of Reflector	-	
Rated Voltage	12 V / 24 V	
Reversing Lamp	Category	AR
	Light Source	4 x LED, 12 V / 24 V, 20 W
	Light Source Control Gear	Type : part of the lamp and include into the lamp body
	Color of light emitted	White
	Color of lens	Clear
	Visibility	The visibility angles are symmetrical, the horizontal arrow is not required.
	Grouped with	--
	Combined with	--
	Incorporated with	--

1.2. Location of Marking : see Appendix 2

1.3. Remark(s) :

1.3.1 There are no objections against the variants that may be described in the Information folder respectively the information document by the manufacturer because adversely effects are not expected.

**Test Report No. : ISOQA-19-0504-R23**

Approval No. : 23R-00 0410  
Type : 7724  
Manufacturer :

**2. Test Specification**

2.1. Place of test : Laboratory of ISOQA in Taiwan

2.2. Date of test : 2019/9/6

2.3. Date of receipt of test device(s) : 2019/9/6

**2.4. Test results :****2.4.1. Markings (according to paragraph 3 of R23-00)**

a. trade name or mark	Complies	see Appendix 2
b. categories of light source(s) / light source module specific identification code	Not Applicable	Non-Replaceable Light Source
c. space reserved for the approval mark	Complies	see Appendix 2
d. rated voltage or range of voltage	Complies	see Appendix 2
e. marking on replaceable light source module	Not Applicable	

**2.4.2. General Specifications (according to paragraph 5 of R23-00)**

a. conformity of specifications	Complies
b. design and construction for satisfactory operation	Complies
c. light sources module	Not Applicable
d. replaceable light source(s)	Not Applicable
e. non-replaceable filament lamp(s)	Not Applicable

**Test Report No. : ISOQA-19-0504-R23**

Approval No. : 23R-00 0410  
Type : 7724  
Manufacturer :

2.4.3. Intensity of light emitted (according to paragraph 6 of R23)

a. Light distribution	Complies	see 3.1
b. Visibility	Complies	see 3.1
c. failure of more than one light source	Not Applicable	see 2.5.1

2.4.4. colour of light emitted (according to paragraph 8 of ECE R23-00) Complies see 3.2

2.5. Remark (s)

2.5.1 According to manufacturer's technical description, one light source consists of 1 LED, if one LED fail at most this LED fails. The n-1 rule was checked compliance by calculation. Detailed results are presented in 3.1.





**Test Report No. : ISOQA-19-0504-R23**

Approval No. : 23R-00 0410  
 Type : 7724  
 Manufacturer :

3.2. Color of light emitted test record

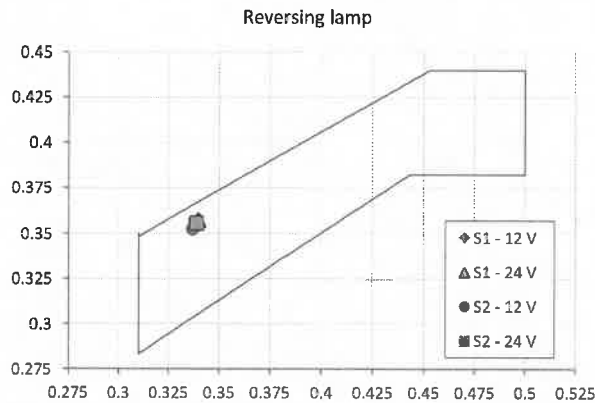
Function : Reversing Lamp Category : AR  
 Test Voltage : 13.5 V / 28 V Light Source : 4 x LED  
 Test Distance : 3.182 m Current : same as photometric test

-12 V system

Color of light emitted	Test Point	Sample 1		Sample 2		Result
		x	y	x	y	
White	H - V	0.3389	0.3545	0.3383	0.3538	Pass
	H - 10L	0.3387	0.3540	0.3381	0.3534	Pass
	H - 10R	0.3382	0.3537	0.3380	0.3535	Pass
	5U - V	0.3381	0.3537	0.3370	0.3522	Pass
	5D - V	0.3386	0.3539	0.3390	0.3548	Pass

-24 V system

Color of light emitted	Test Point	Sample 1		Sample 2		Result
		x	y	x	y	
White	H - V	0.3401	0.3572	0.3391	0.3557	Pass
	H - 10L	0.3399	0.3567	0.3390	0.3554	Pass
	H - 10R	0.3394	0.3562	0.3387	0.3551	Pass
	5U - V	0.3393	0.3567	0.3383	0.3550	Pass
	5D - V	0.3392	0.3553	0.3392	0.3554	Pass



**Test Report No. : ISOQA-19-0504-R23**

Approval No. : 23R-00 0410

Type : 7724

Manufacturer :



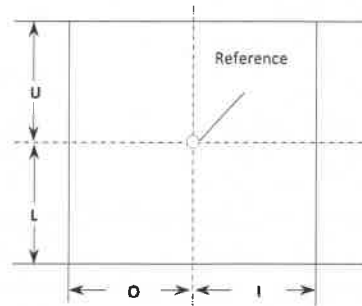
ISOQA Technical Service Co., Ltd

Web: [www.isoqa.org](http://www.isoqa.org)

E-mail: [isoqa@isoqa.org](mailto:isoqa@isoqa.org)

3.3. Determination of the limits of the apparent surface according to paragraph 2.9.2 of ECE-R48

Boundry	Reversing Lamp
Upper (U)	32.00 mm
Lower (L)	32.00 mm
Outside (O)	32.00 mm
Inside (I)	32.00 mm



**Test Report No. : ISOQA-19-0504-R23**

Approval No. : 23R-00 0410  
 Type : 7724  
 Manufacturer :



ISOQA Technical Service Co., Ltd  
 Web: www.isoqa.org  
 E-mail: isoqa@isoqa.org

**4. Communication**

Concerning : APPROVAL GRANTED

of a type of device pursuant to Regulation No. 23

Approval No. 23R-00 0410 Extension No. 00

**4.1. Concise description**

- 4.1.1 Number, category and kind of light source(s) : 4 non replaceable light sources (4 LEDs connected as 4 light sources)
- Voltage and wattage : 12 V / 24 V 20 W
- Application of an electronic light source control gear : YES
- (a) being part of the lamp : YES
- (b) being not part of the lamp : NO
- Input voltage(s) supplied by an electronic light source control gear : 12 V / 24 V
- Electronic light source control gear manufacturer and identification number (when the light source control gear is part of the lamp but is not included into the lamp body) : N/A
- Light source module : NO
- Light source module specific identification code : N/A
- Geometrical conditions of installation and relating variations, if any : Reference axis parallel to the median longitudinal plane of the vehicle and parallel to the bearing plane of the vehicle on the road (see drawing).
- For a type of manoeuvring lamp pursuant to Regulation No. 23 paragraph 6.2.2. Maximum mounting height : N/A
- The lamp is only for use on a vehicle fitted with a tell-tale indicating failure : NO
- 4.2. Position of the approval mark : on the lens
- 4.3. In the case of a reversing lamp this device shall be installed on a vehicle only as part of a pair of devices : NO
- 4.3. Reason(s) for extension (if applicable) : N/A

**Test Report No. : ISOQA-19-0504-R23**

Approval No. : 23R-00 0410  
Type : 7724  
Manufacturer :



ISOQA Technical Service Co., Ltd  
Web: www.isoqa.org  
E-mail: isoqa@isoqa.org

**5. Appendices**

- |               |                      |   |                  |
|---------------|----------------------|---|------------------|
| 1. Appendix 1 | Information document | 1 | page(s) in total |
| 2. Appendix 2 | Drawing              | 1 | page(s) in total |

**6. Statement of conformity**

The information folder respectively information document by the manufacturer and the type described therein are in compliance with the Test Specification mentioned above.

**ISOQA Technical Service Co., Ltd**

Place : Taichung, Taiwan

Date : 2019/9/20

Signature

A handwritten signature in black ink that reads 'Archer Chang'.

Laboratory Manager - Chih-Hua Chang

# INFORMATION

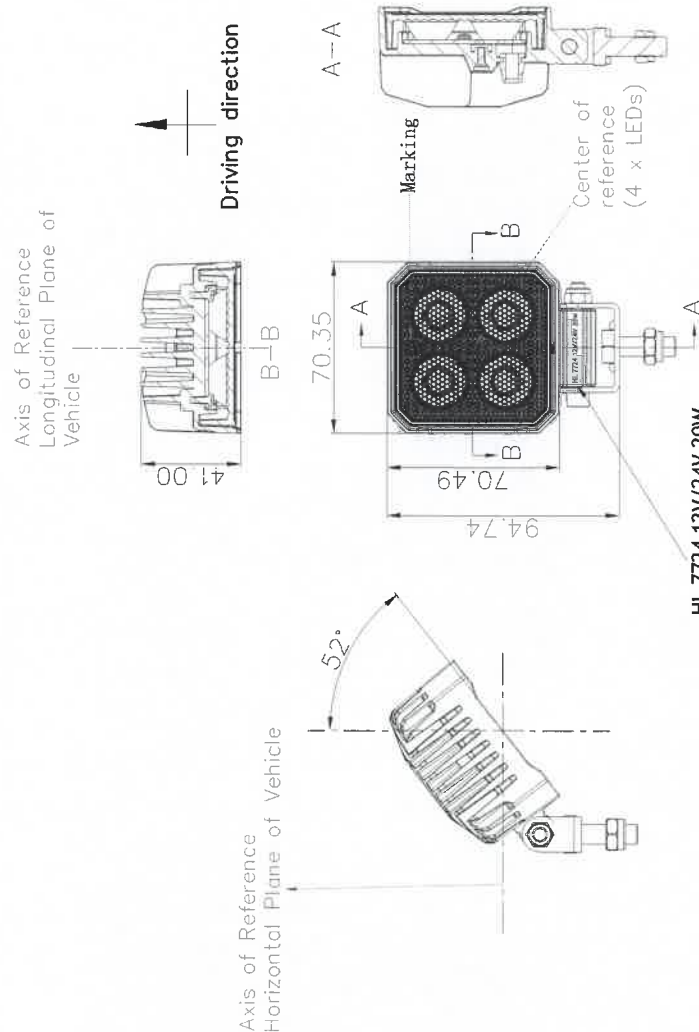
for Initial Application

Date: 2019/9/6

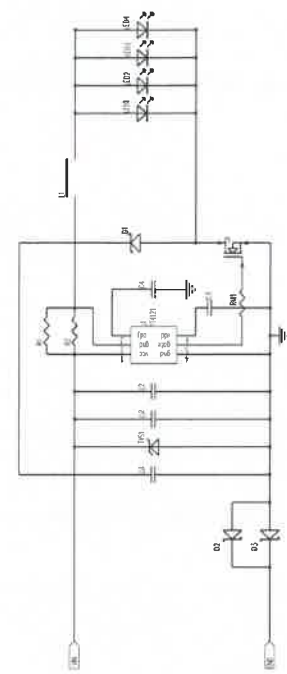
Manufacturer's Name and Address		
Trade name or mark		
Type Name	7724	
Material of Lens(es)	PC	
Rate Voltage	12 V / 24 V	
Rate Wattage	see below	
Reversing Lamp ( R23.00 )	Category	AR
	Light Source	4 x LED, 12 V / 24 V, 20 W
	Light Source Control Gear	part of the lamp and include into the lamp body
	Color of light emitted	White
	Color of lens	Clear

TYPE NAME	7724
FUNCTION	Reversing Lamp
DRAWING NO.	7724

UNIT: mm



Trade mark:  
HANMA, HL, TOTRON





2. ENSAYOS DE RADIACIÓN ELECTROMAGNÉTICA / ELECTROMAGNETIC RADIATION TEST

2.1 **Ensayo de radiación electromagnética de banda ancha / Broadband electromagnetic radiation test**

Método de ensayo / <i>Test method</i>	:	Indoor / <del>Outdoor</del>
Condiciones del lugar de ensayo / <i>Test place conditions</i>	:	Según el anexo 7 / <i>According to Annex 7</i>
Detectores de la antena receptora / <i>Receiving antenna detectors</i>	:	Cresta / Quasi-cresta <i>Peak / Quasi peak</i>
Componente en estado normal de funcionamiento / <i>Component at normal operating</i>	:	SI / YES
Ancho de banda / <i>Bandwidth</i>	:	120 kHz
Resultados de ensayo/ <i>Test Results</i>	:	Ver página 4 a 6 / <i>See page 4 to 6</i>

**CORRECTO / CORRECT**

2.2 **Ensayos de Banda Estrecha / Narrowband electromagnetic radiation test**

Método de ensayo / <i>Test method</i>	:	Indoor / <del>Outdoor</del>
Condiciones del lugar de ensayo / <i>Test place conditions</i>	:	Según el anexo 8 / <i>According to the Annex 8</i>
Detectores de la antena receptora / <i>Receiving antenna detectors</i>	:	Cresta / Media <i>Peak / Average</i>
Componente en estado normal de funcionamiento / <i>Component at normal operating</i>	:	SI / YES
Ancho de banda / <i>Bandwidth</i>	:	120 kHz
Resultados de ensayo / <i>Test Results</i>	:	Ver página 4 a 6 / <i>See page 4 to 6</i>

**CORRECTO / CORRECT**

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

CN19010450



\* 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.



E9\*10R05/01\*16538\*00

Página / Page 1/3

Comunicación relativa a <sup>(1)</sup> / *Communication concerning the* <sup>(1)</sup>:

- la concesión de una homologación / *approval granted*
- la extensión de una homologación / *approval extended*
- la denegación de una homologación / *approval refused*
- la retirada de una homologación / *approval withdrawn*
- el cese definitivo de una homologación / *production definitely discontinued*

de un tipo de subconjunto eléctrico / electrónico <sup>(1)</sup> en aplicación del Reglamento nº 10.05 / *of a type of electrical / electronic sub-assembly* <sup>(1)</sup> with regard to ECE Regulation No. 10.05

Nº de homologación / *Type-approval No.*: E9\*10R05/01\*16538\*00

Nº de extensión / *Extension No.*: ---

1. Marca (razón social) / *Make (trade name of manufacturer)*:
2. Tipo y denominación(es) comercial (es) / *Type and general commercial description(s)*:  
Tipo / *Type*:  
Variantes / *Variants*: Ver documentación técnica / *See technical documentation*  
Denominación comercial / *Commercial description*: LED WORK LIGHT
3. Medio de identificación del tipo, si está marcado en el vehículo, el componente o la unidad técnica independiente <sup>(1)</sup> / *Means of identification of type, if marked on the vehicle/component/separate technical unit* <sup>(1)</sup>: Ver documentación técnica / *See technical documentation*
  - 3.1. Emplazamiento de estas marcas / *Location of that marking*: Ver documentación técnica / *See technical documentation*
4. Categoría de vehículo / *Category of vehicle*: ---
5. Nombre y dirección del fabricante / *Name and address of manufacturer*:
6. Emplazamiento y forma de colocación de la marca de homologación en componentes y unidades técnicas independientes / *In the case of components and separate technical units, location and method of affixing of the approval mark*: Ver documentación técnica / *See technical documentation*
7. Dirección(es) de la(s) planta(s) de montaje / *Address(es) of assembly plant(s)*:
8. Información complementaria (si procede) / *Additional information (where applicable)*: Véase el apéndice / *See appendix*

(1) Tachar lo que no proceda / *Strike out what does not apply*



E9\*10R05/01\*16538\*00

Página / Page 2/3

9. Servicio técnico encargado de la realización de los ensayos / *Technical service responsible for carrying out the tests*: IDIADA
10. Fecha del acta de ensayo / *Date of test report*: 23/01/2019
11. Número del acta de ensayo / *Number of test report*: CN19010450
12. Observaciones (si las hubiera) / *Remarks (if any)*: Véase el apéndice / *See appendix*
13. Lugar / *Place*: Madrid
14. Fecha / *Date*: Ver firma electrónica / *See digital signature*
15. Firma / *Signature*:  
  
EL SUBDIRECTOR GENERAL DE CALIDAD Y SEGURIDAD INDUSTRIAL  
Resolución P.D. del DIRECTOR GENERAL DE INDUSTRIA Y DE LA PYME de 25-10-2012
16. Se adjunta el índice del expediente de homologación en posesión de las autoridades competentes, la cual puede obtenerse a petición del interesado / *The index to the information package lodged with the approval authority, which may be obtained on request is attached*
17. Motivos de extensión / *Reasons for extension*: ----

---

(1) Tachar lo que no proceda / *Strike out what does not apply*



E9\*10R05/01\*16538\*00

Página / Page 3/3

**Apéndice del certificado de homologación N° E9\*10R05/01\*16538\*00  
relativo a la homologación de subconjuntos eléctricos o electrónicos en lo que se refiere al Reglamento N°10**

***Appendix to Type-approval communication form N° E9\*10R05/01\*16538\*00  
concerning the type-approval of an electrical/electronic sub-assembly under Regulation N° 10***

1. Información adicional / *Additional information (where applicable):*
  - 1.1. Tensión nominal del sistema eléctrico / *Electrical system rated voltage: Ver documentación técnica / See technical documentation*
  - 1.2. Este SEE puede utilizarse en todos los vehículos con las siguientes restricciones / *This ESA can be used on any vehicle type with the following restrictions: Sí / Yes*
    - 1.2.1. Condiciones de instalación, si las hubiera / *Installation conditions, if any: ---*
  - 1.3. Este SEE sólo puede utilizarse en los tipos de vehículo siguientes / *This ESA can only be used on the following vehicle types: ---*
    - 1.3.1. Condiciones de instalación si las hubiera / *Installation conditions, if any: ---*
  - 1.4. El método o métodos específicos de ensayo utilizados y los márgenes de frecuencias abarcados para determinar la inmunidad han sido / *The specific test method(s) used and the frequency ranges covered to determine immunity were: Ver informe de ensayo n° / See test report No. CN19010450*
  - 1.5. Servicio técnico acreditado según ISO 17025 y reconocido por el organismo homologador responsable de realizar los ensayos/ *Technical service accredited to ISO 17025 and recognized by the Approval Authority responsible for carrying out the tests: IDIADA*
2. Observaciones/ *Remarks (if any): ---*

(1) Tachar lo que no proceda / *Strike out what does not apply*

**INFORME N° / REPORT No. CN19010450****REGLAMENTO CEPE/ONU 10R05 REFERENTE A LA COMPATIBILIDAD ELECTROMAGNÉTICA  
UN/ECE REGULATION 10R05 RELATING ELECTROMAGNETIC COMPATIBILITY**

Solicitante / <i>Applicant</i>	:	
Fabricante / <i>Manufacturer</i>	:	
Marca / <i>Make</i>	:	
Tipo / <i>Type</i>	:	
Variantes / <i>Variants</i>	:	Ver documentación técnica / <i>See technical documentation</i>
Denominación comercial / <i>Commercial description</i>	:	LED WORK LIGHT
Categoría / <i>Category</i>	:	Componente / <i>Component</i>
Lugar y fecha de emisión del informe / <i>Place and date of test report issue</i>	:	L'Albornar, Santa Oliva (Tarragona), 23/01/2019

CONCLUSIONES: Este componente CUMPLE con las prescripciones sobre compatibilidad electromagnética relativo al REGLAMENTO CEPE/ONU 10R05, como se detalla en el anexo a este informe. /  
*CONCLUSIONS: This component FULFILLS the prescriptions about electromagnetic compatibility, in application to UN/ECE REGULATION 10R05, as detailed in the annex to this report.*

Realizado / *Performed by:*Guohui(kent) Lian  
AUDITOR  
AUDITORVº.Bº. / *Revised by:*Lluís Sans Gomis  
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**

1. CARACTERÍSTICAS DEL COMPONENTE ENSAYADO /  
TESTED COMPONENT CHARACTERISTICS

Marca / <i>Make</i>	:	
Tipo / <i>Type</i>	:	
Denominación Comercial/ <i>Commercial descriptions</i>	:	LED WORK LIGHT
Función / <i>Function</i>	:	LED WORK LIGHT
Tensión nominal / <i>Rated voltage</i>	:	12V y/and 24V
Variante ensayada / <i>Tested variant</i>	:	
Oscilador electrónico de frecuencia superior a 9kHz / <i>Electronic oscillator with frequency greater than 9 kHz</i>	:	SI / YES
Fecha de recepción de la muestra / <i>Sample received on</i>	:	18/01/2019
Modo de operación / <i>Operation mode</i>	:	MO#01 Normal operation

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

CN19010450



\* 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.



## Vehículos con sistemas a 24V / Vehicles with 24 V systems

Pulso/ Pulse	Nivel III de inmunidad / Immunity Level III	Ciclo de ráfaga/ Tiempo de repetición del pulso Duration	Tiempo de ensayo/ Nº de pulsos Test time/ N° of pulses	Resultado del ensayo / Test result
1	-450 V	Ri=50Ω, td=1ms, tr=3μs, t1=1s, t2=200ms, t3<100μs	5000 pulsos/ pulses	C
2a	+37 V	Ri=2Ω, td=0.05ms, tr=1μs, t1=5s	5000 pulsos/ pulses	A
2b	+20 V	Ri=0Ω, td=1s, t12=1ms, tr=1ms, t6=1ms	10 pulsos/ pulses	C
3a	-150 V	Ri=50Ω, td=0.1μs, tf=5ns, t1=100μs, t4=10ms, t5=90ms	1 h	A
3b	+150 V	Ri=50Ω, td=0.1μs, tr=5ns, t1=100μs, t4=10ms, t5=90ms	1 h	A
4	-12 V	Va=-12V, Ri=0Ω, t8<50ms, t9=10s, t10=10ms, t11=10ms to 100ms	1 pulso/ pulse	C

CORRECTO / CORRECT

## 4. ENSAYO DE INMUNIDAD ELECTROMAGNÉTICA / ELECTROMAGNETIC IMMUNITY TEST

Método de ensayo / Test method	: Según el Anexo 9 del Reglamento ECE 10.05 According to Annex 9 of ECE Regulation 10.05
Frecuencias / Frequencies	: 20 – 400MHz, 400 – 2000 MHz
Nivel de campo / Level of field	: 60 mA, 30 V/m
Modulación / Modulation	: AM 1 KHz 80% (20 – 800 MHz), PM 217 Hz 12.5 % (800 – 2000 MHz)
Resultado de ensayo/ Test Result	: No se detectan fallos / No failures detected

CORRECTO / CORRECT

Lugar de ensayo / Test place: Guangzhou, China  
 Fecha de ensayo / Test date: 21/01/2019-22/01/2019



Guohui(kent) Lian  
 AUDITOR  
 AUDITOR

\* 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.

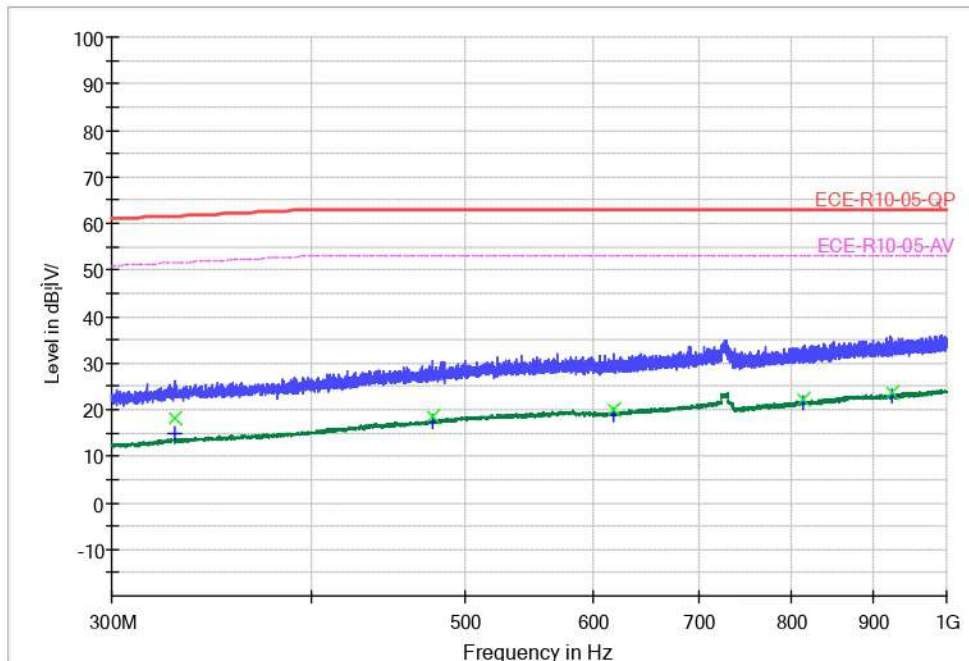
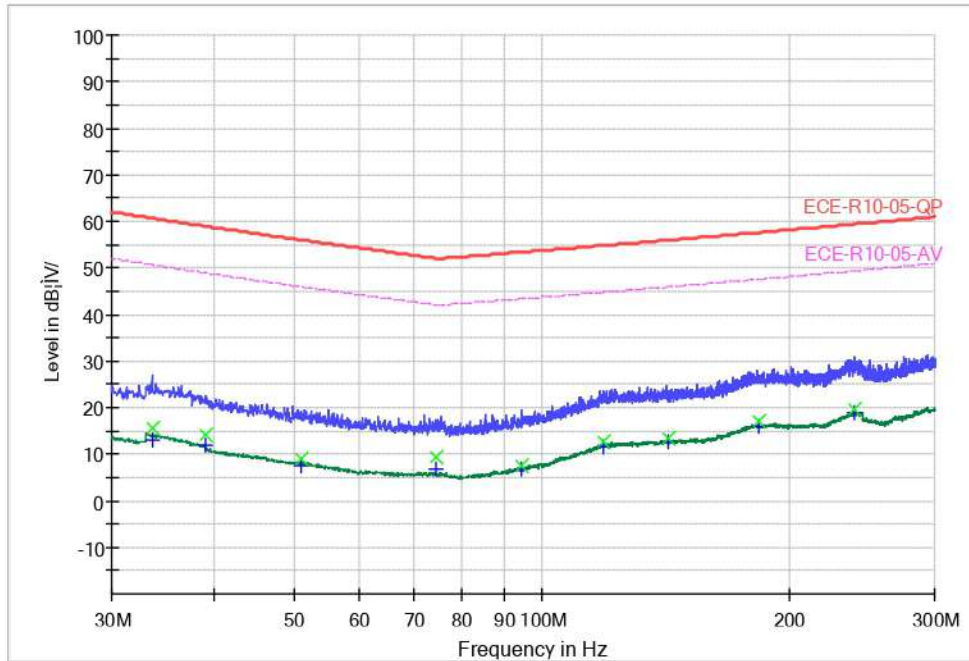


## 2.3 Resultado de ensayo / Test Results

24V del SEE como el caso más desfavorable / 24V of the ESA as the worst case

MO#01 Normal operation

### Banda Ancha y Banda Estrecha / Broadband and Narrowband - Polarización Horizontal / Horizontal Polarisation



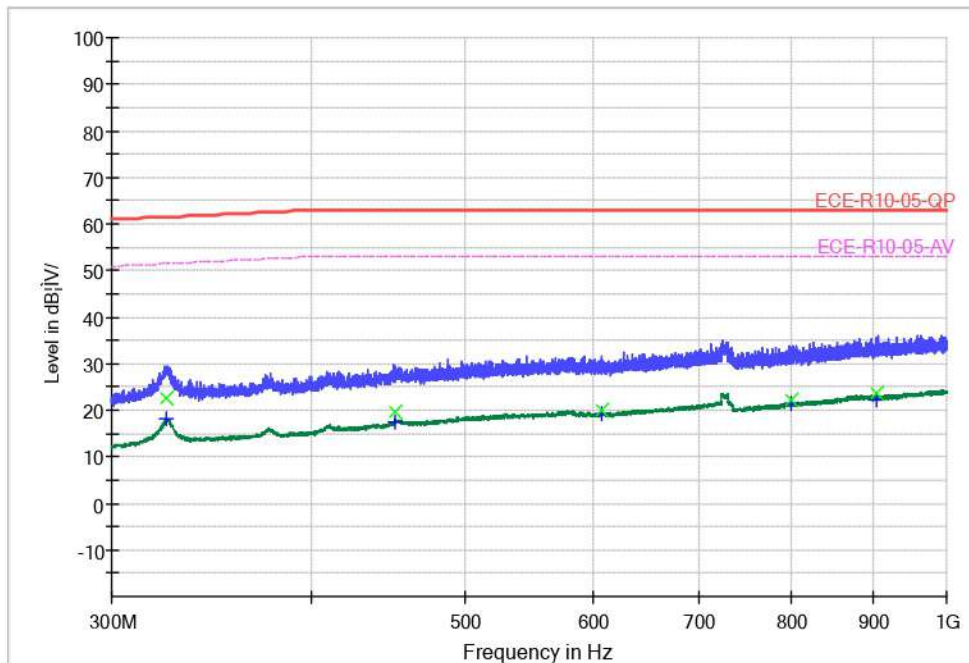
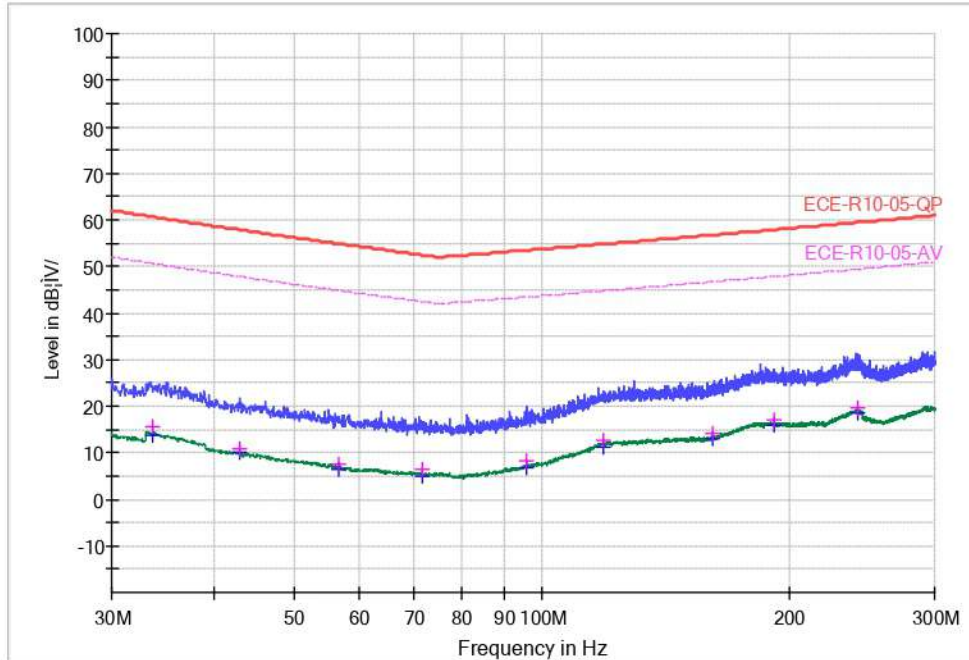
Validate this report with the security code «HJAJRLYN» at: <https://extranet.idiada.com/hom-cve>  
Verifique el informe con código de seguridad «HJAJRLYN» en: <https://extranet.idiada.com/hom-cve>

IDIADA CN19010450

\* 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.



**Banda Ancha y Banda Estrecha / Broadband and Narrowband**  
**-Polarización Vertical / Vertical Polarisation**



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

**IDIADA** CN19010450

\* 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.



**BANDA ANCHA / BROADBAND**

**Detector: Quasi peak detector**

**Mode: Normal operation**

Reference (MHz)	Apply (MHz) Horizontal	Apply (MHz) Vertical	Results (dBmV/m)			Limit (dBmV/m) (QP)
			Horizontal	Vertical	Maximum	
30-34	33.60	33.60	15.80	15.70	15.80	62.00-60.63
34-45	39.06	42.90	14.00	10.80	14.00	60.63-57.57
45-60	51.00	56.52	8.90	7.70	8.90	57.57-54.44
60-80	74.22	71.58	9.40	6.40	9.40	54.44-52.42
80-100	94.50	96.00	7.50	8.20	8.20	52.42-53.89
100-130	118.86	118.56	12.60	12.60	12.60	53.89-55.61
130-170	142.26	161.16	13.60	14.10	14.10	55.61-57.38
170-225	183.48	191.16	17.00	17.10	17.10	57.38-59.22
225-300	239.52	242.46	19.70	19.50	19.70	59.22-61.11
300-400	328.26	324.30	18.10	22.60	22.60	61.11-63.00
400-525	476.28	451.92	18.40	19.50	19.50	63.00
525-700	618.66	607.80	20.10	20.00	20.10	63.00
700-850	812.94	799.86	22.30	22.10	22.30	63.00
850-1000	925.14	903.24	23.70	23.80	23.80	63.00

**BANDA ESTRECHA / NARROWBAND**

**Detector: Average detector**

**Mode: Normal operation**

Reference (MHz)	Apply (MHz) Horizontal	Apply (MHz) Vertical	Results (dBmV/m)			Limit (dBmV/m) (AV)
			Horizontal	Vertical	Maximum	
30-34	33.60	33.60	13.20	13.70	13.70	52.00-50.63
34-45	39.06	42.90	11.90	9.90	11.90	50.63-47.57
45-60	51.00	56.52	7.60	6.60	7.60	47.57-44.44
60-80	74.22	71.58	6.70	5.10	6.70	44.44-42.42
80-100	94.50	96.00	6.70	6.90	6.90	42.42-43.89
100-130	118.86	118.56	11.60	11.20	11.60	43.89-45.61
130-170	142.26	161.16	12.60	12.90	12.90	45.61-47.38
170-225	183.48	191.16	16.00	16.10	16.10	47.38-49.22
225-300	239.52	242.46	18.80	18.60	18.80	49.22-51.11
300-400	328.26	324.30	14.80	18.20	18.20	51.11-53.00
400-525	476.28	451.92	17.30	17.30	17.30	53.00
525-700	618.66	607.80	19.00	19.10	19.10	53.00
700-850	812.94	799.86	21.50	21.30	21.50	53.00
850-1000	925.14	903.24	23.00	22.30	23.00	53.00

\* 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.



3. INMUNIDAD Y EMISIONES DE PERTURBACIONES CONDUCCIDAS / IMMUNITY AND EMISSION OF CONDUCTED DISTURBANCES TEST

3.1. **Emisiones de perturbaciones conducidas / Emissions of conducted disturbances**

- Método de ensayo / *Test method* : Según el Anexo 10 del Reglamento ECE 10.05  
*According to Annex 10 of ECE Regulation 10.05*
- Temperatura de ensayo /  
*Test temperature* : 25 °C
- Tensión de alimentación de ensayo /  
*Test voltage* : DC 13.5V y/and DC 27.5 V
- Condiciones de medida /  
*Measuring Condition* : Comprobación de la emisión de transitorios producidos en el interruptor de ENC / DESC hacia las líneas de alimentación /  
*Check transient emission at switch ON/OFF in Power Source lines*
- Gráficas de resultados / *Results charts* : Ver página 8 a 11 / *See page 8 to 11*
- Resultado de ensayo / *Test Result* :

Polaridad de la amplitud del impulso/ <i>Polarity of pulse amplitude</i>	Amplitud máxima de pulso permitido para/ <i>Maximum allowed pulse amplitude for</i>	Tipo de pulso / <i>Type of pulse</i>	Resultado de ensayo / <i>Test result</i>
	Vehículos con sistemas a 12V <i>/ Vehicles with 12 V systems</i>		
Positivo/ <i>Positive</i>	+ 75	Lento / <i>Slow</i>	Cumple / <i>Fulfils</i>
		Rápido / <i>Fast</i>	Cumple / <i>Fulfils</i>
Negativo/ <i>Negative</i>	- 100	Lento / <i>Slow</i>	Cumple / <i>Fulfils</i>
		Rápido / <i>Fast</i>	Cumple / <i>Fulfils</i>

Polaridad de la amplitud del impulso/ <i>Polarity of pulse amplitude</i>	Amplitud máxima de pulso permitido para/ <i>Maximum allowed pulse amplitude for</i>	Tipo de pulso / <i>Type of pulse</i>	Resultado de ensayo / <i>Test result</i>
	Vehículos con sistemas a 24V <i>/ Vehicles with 24 V systems</i>		
Positivo/ <i>Positive</i>	+150	Lento / <i>Slow</i>	Cumple / <i>Fulfils</i>
		Rápido / <i>Fast</i>	Cumple / <i>Fulfils</i>
Negativo/ <i>Negative</i>	-450	Lento / <i>Slow</i>	Cumple / <i>Fulfils</i>
		Rápido / <i>Fast</i>	Cumple / <i>Fulfils</i>

**CORRECTO / CORRECT**

\* LOS RESULTADOS PRESENTADOS SE REFIEREN ÚNICAMENTE A LA MUESTRA ENSAYADA.  
*THE PRESENTED RESULTS REFER ONLY TO THE TESTED SAMPLE.*

\* QUEDA TERMINANTEMENTE PROHIBIDA LA REPRODUCCION PARCIAL DE ESTE INFORME SIN PERMISO EXPRESO DE IDIADA.  
*THE PARTIAL REPRODUCTION OF THIS REPORT WITHOUT THE PERMISSION OF IDIADA IS COMPLETELY FORBIDDEN.*



## Vehículos con sistemas a 12V/ Vehicles with 12 V systems

Slow Pulse: OFF-->ON Data Graph



Slow Pulse: ON-->OFF Data Graph



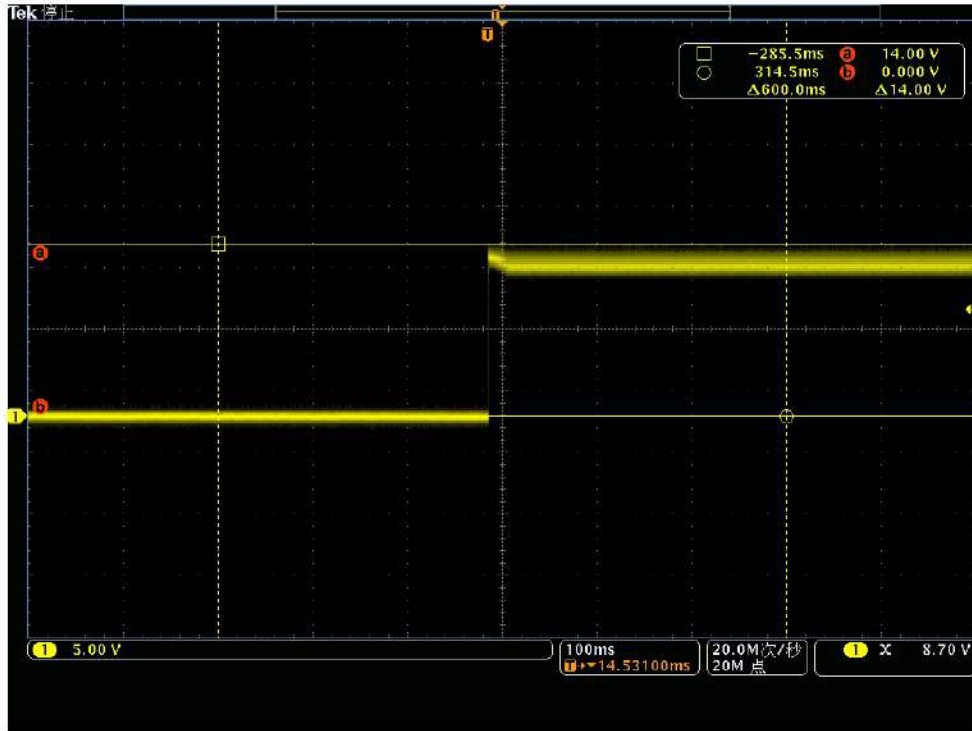
Validate this report with the security code «HJAJRLYN» at: <https://extranet.idiada.com/hom-cve>  
 Verifique el informe con código de seguridad «HJAJRLYN» en: <https://extranet.idiada.com/hom-cve>

IDIADA CN19010450

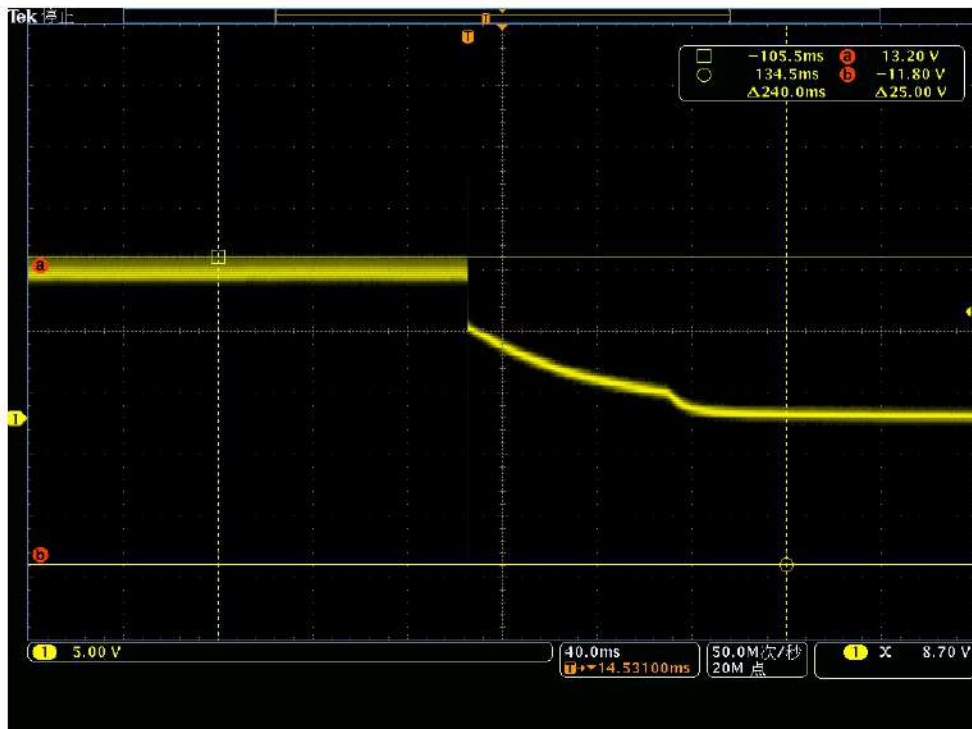
\* LOS RESULTADOS PRESENTADOS SE REFIEREN UNICAMENTE A LA MUESTRA ENSAYADA.  
 THE PRESENTED RESULTS REFER ONLY TO THE TESTED SAMPLE.  
 \* QUEDA TERMINANTEMENTE PROHIBIDA LA REPRODUCCION PARCIAL DE ESTE INFORME SIN PERMISO EXPRESO DE IDIADA.  
 THE PARTIAL REPRODUCTION OF THIS REPORT WITHOUT THE PERMISSION OF IDIADA IS COMPLETELY FORBIDDEN.



Fast Pulse: OFF-->ON Data Graph



Fast Pulse: ON-->OFF Data Graph



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

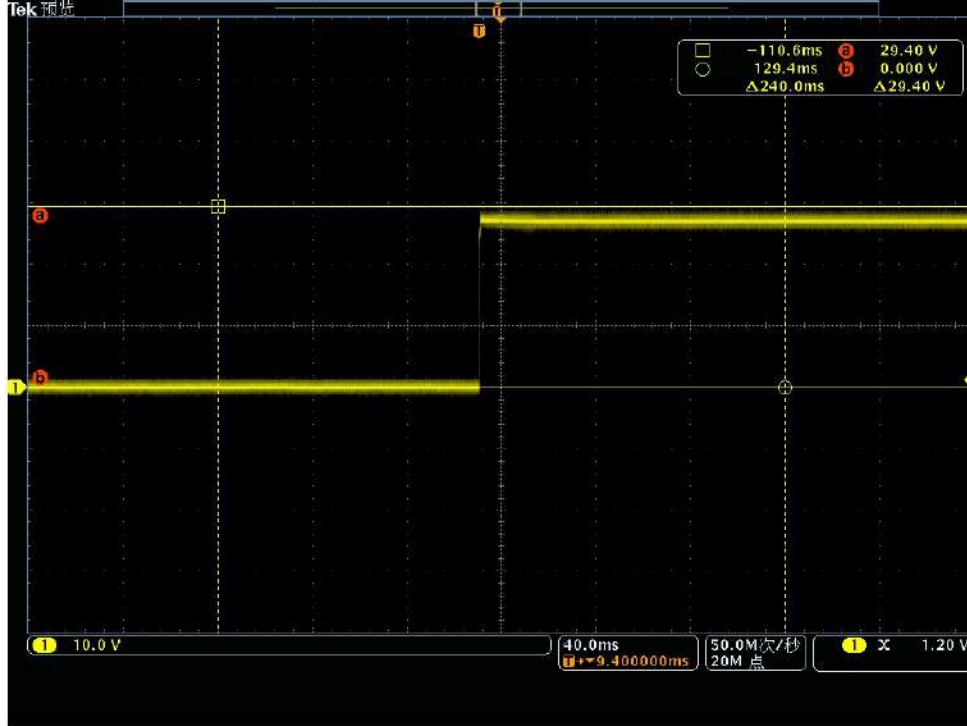
IDIADA CN19010450

\* LOS RESULTADOS PRESENTADOS SE REFIEREN UNICAMENTE A LA MUESTRA ENSAYADA.  
 THE PRESENTED RESULTS REFER ONLY TO THE TESTED SAMPLE.  
 \* QUEDA TERMINANTEMENTE PROHIBIDA LA REPRODUCCION PARCIAL DE ESTE INFORME SIN PERMISO EXPRESO DE IDIADA.  
 THE PARTIAL REPRODUCTION OF THIS REPORT WITHOUT THE PERMISSION OF IDIADA IS COMPLETELY FORBIDDEN.

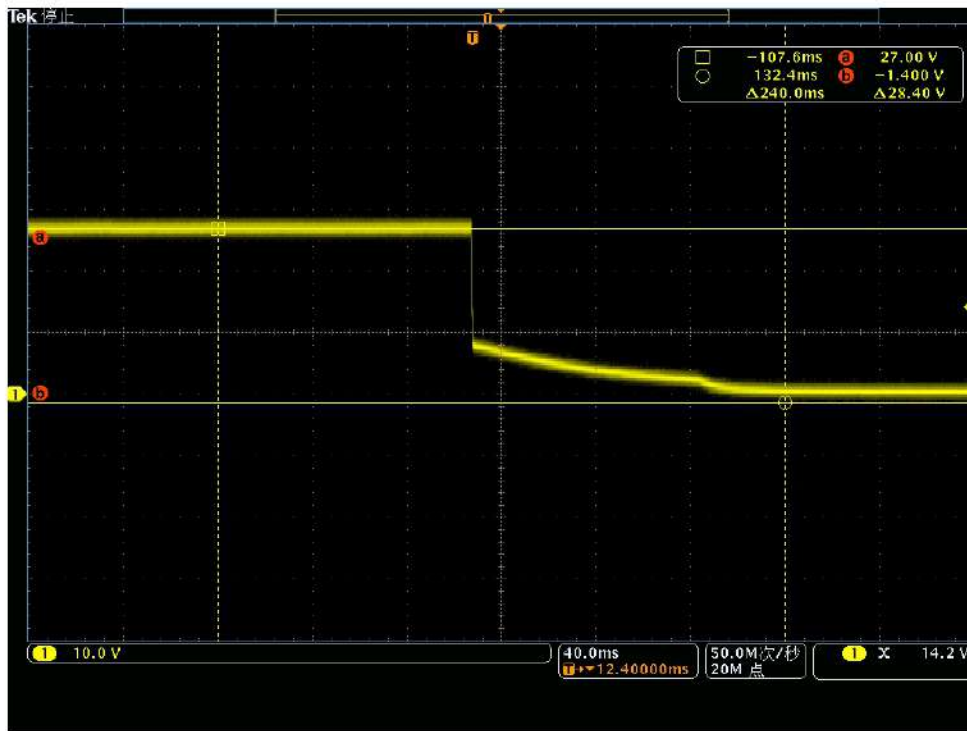


Vehículos con sistemas a 24V/ *Vehicles with 24 V systems*

Slow Pulse: OFF-->ON Data Graph



Slow Pulse: ON-->OFF Data Graph



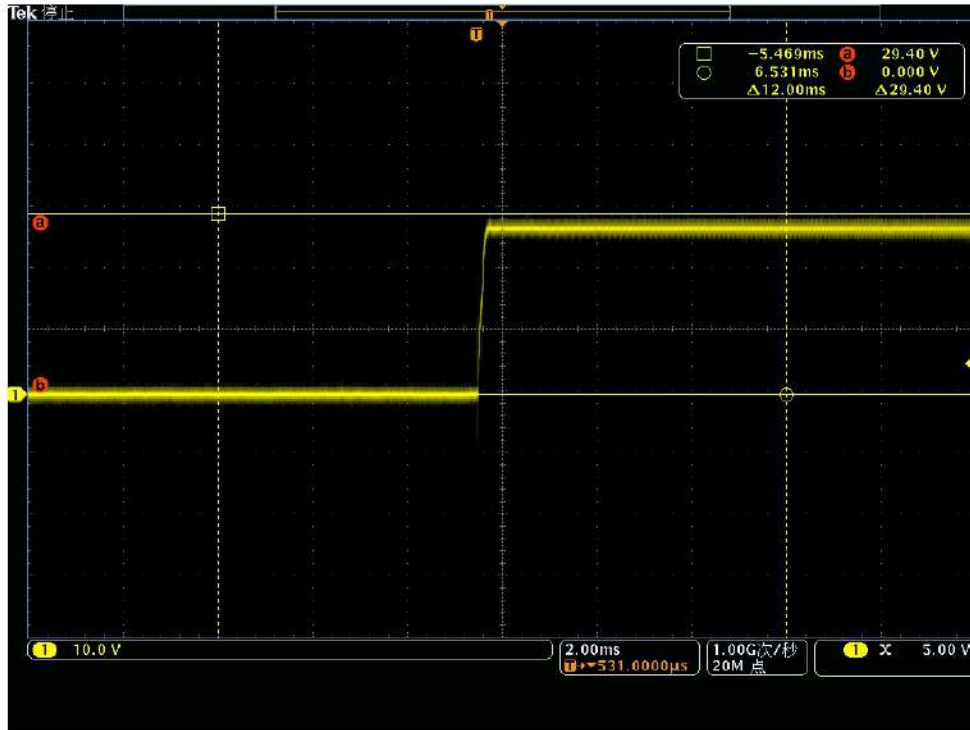
Validate this report with the security code «HJAJRLYN» at: <https://extranet.idiada.com/hom-cve>  
 Verifique el informe con código de seguridad «HJAJRLYN» en: <https://extranet.idiada.com/hom-cve>

IDIADA CN19010450

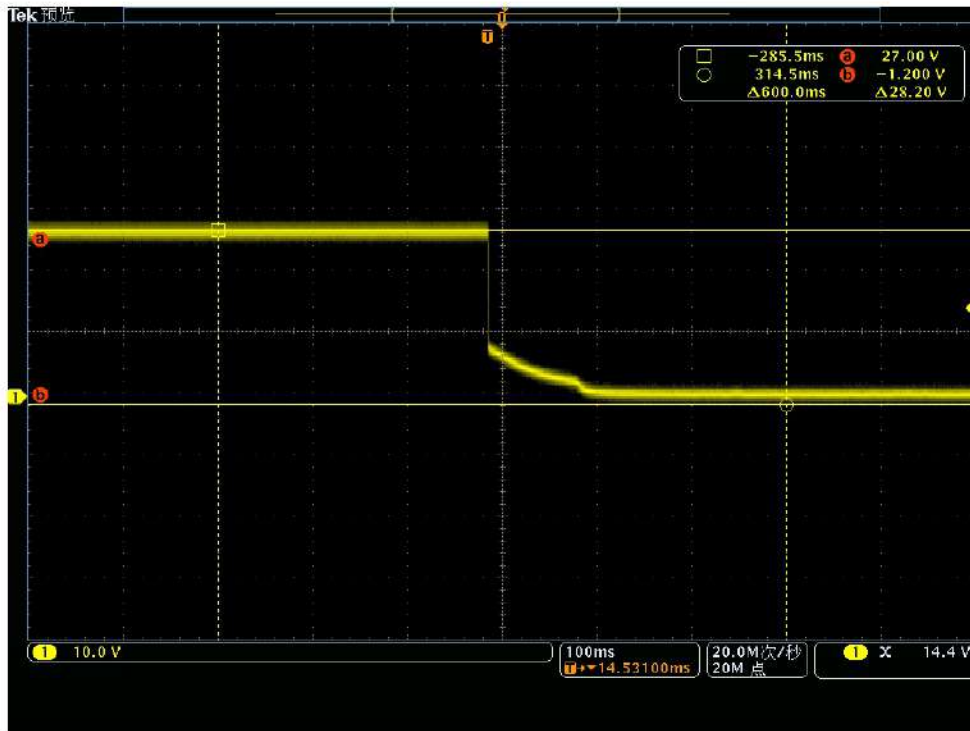
\* LOS RESULTADOS PRESENTADOS SE REFIEREN ÚNICAMENTE A LA MUESTRA ENSAYADA.  
 THE PRESENTED RESULTS REFER ONLY TO THE TESTED SAMPLE.  
 \* QUEDA TERMINANTEMENTE PROHIBIDA LA REPRODUCCION PARCIAL DE ESTE INFORME SIN PERMISO EXPRESO DE IDIADA.  
 THE PARTIAL REPRODUCTION OF THIS REPORT WITHOUT THE PERMISSION OF IDIADA IS COMPLETELY FORBIDDEN.



Fast Pulse: OFF-->ON Data Graph



Fast Pulse: ON-->OFF Data Graph



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

IDIADA CN19010450

\* LOS RESULTADOS PRESENTADOS SE REFIEREN ÚNICAMENTE A LA MUESTRA ENSAYADA.  
 THE PRESENTED RESULTS REFER ONLY TO THE TESTED SAMPLE.  
 \* QUEDA TERMINANTEMENTE PROHIBIDA LA REPRODUCCION PARCIAL DE ESTE INFORME SIN PERMISO EXPRESO DE IDIADA.  
 THE PARTIAL REPRODUCTION OF THIS REPORT WITHOUT THE PERMISSION OF IDIADA IS COMPLETELY FORBIDDEN.



**3.2. Inmunidad a las perturbaciones transitorias conducidas a lo largo de las líneas de alimentación / Immunity against disturbances conducted along supply lines**

Método de ensayo / Test method : Según el Anexo 10 del Reglamento ECE 10.05  
According to Annex 10 of ECE Regulation 10.05

Estado de funcionamiento para el sistema / Performance criteria

Pulso/ Pulse	Nivel de inmunidad/ Immunity level	Estado de funcionamiento para el sistema/ Performance criteria	
		Relacionados con funciones de inmunidad/ Related to immunity functions	No relacionados con funciones de inmunidad/ Not related to immunity functions
1	III	C	D
2a	III	B	D
2b	III	C	D
3a/3b	III	A	D
4	III	B /or C	D

Resultado de ensayo/ Test Result

(immunity related function)  
MO#01 Normal operation

Vehículos con sistemas a 12V / Vehicles with 12 V systems

Pulso/ Pulse	Nivel III de inmunidad / Immunity Level III	Ciclo de ráfaga/ Tiempo de repetición del pulso Duration	Tiempo de ensayo/ Nº de pulsos Test time/ N° of pulses	Resultado del ensayo / Test result
1	-75 V	Ri=10Ω, td=2ms, tr=1μs, t1=1s, t2=200ms, t3<100μs	5000 pulsos/ pulses	C
2a	+37 V	Ri=2Ω, td=0.05ms, tr=1μs, t1=5s	5000 pulsos/ pulses	A
2b	+10 V	Ri=0Ω, td=1s, t12=1ms, tr=1ms, t6=1ms	10 pulsos/ pulses	C
3a	-112 V	Ri=50Ω, td=0.1μs, tf=5ns, t1=100μs, t4=10ms, t5=90ms	1 h	A
3b	+75 V	Ri=50Ω, td=0.1μs, tr=5ns, t1=100μs, t4=10ms, t5=90ms	1 h	A
4	-6V	Va=-2.5V, Ri=0Ω, t8<50ms, t9=10s, t10=5ms, t11=5ms to100ms	1 pulso/ pulse	C

**CORRECTO / CORRECT**

\* LOS RESULTADOS PRESENTADOS SE REFIEREN ÚNICAMENTE A LA MUESTRA ENSAYADA.  
THE PRESENTED RESULTS REFER ONLY TO THE TESTED SAMPLE.

\* QUEDA TERMINANTEMENTE PROHIBIDA LA REPRODUCCION PARCIAL DE ESTE INFORME SIN PERMISO EXPRESO DE IDIADA.  
THE PARTIAL REPRODUCTION OF THIS REPORT WITHOUT THE PERMISSION OF IDIADA IS COMPLETELY FORBIDDEN.

**Lista de componentes del SEE / List of components constituting the ESA**  
Marca y tipo de microprocesador, cristal, etc. / Make and type of microprocessor,  
crystal, etc.

BILL OF MATERIAL						
P/N: HML-76180		Parameter		Version:	2018.07.23	
No.	Code(new)	Item	Description	Number	Unit	Remark
1	2.21.103.0113	Chip Resistor	0.22R 1206 ±1%	12	PCS	R1-R4,R6-R9,R11-R14
2	2.21.103.0079	Chip Resistor	10K 1206 ±1%	1	PCS	RZ1
3	2.21.103.0014	Chip Resistor	3K 1206 ±5%	1	PCS	RT1
4	2.21.103.0126	Chip Resistor	100R 0805 ±5%	3	PCS	RM1-RM3
7	2.21.103.0136	PTC	470R, 0603	2	PCS	RP1,RP2
8	2.21.103.0134	NTCChip Resistor	22K, 0805, 4150	1	PCS	RN
9	2.21.104.0015	Aluminum electrolytic capacitance	100uF/35V ±5% 7.8*6.5mm	2	PCS	CE1,CE2
10	2.21.104.0086	Chip Capacitor	1UF/10V, 0805, ±10%	3	PCS	CV1-CV3
11	2.21.104.0031	Chip Capacitor	0.1uF/50V 0805 ±10%	3	PCS	Ci1,Ci3,Ci5
12	2.21.104.0085	Chip Capacitor	4.7UF/10V, 0805, ±10%	1	PCS	CD
13	2.21.104.0044	Chip Capacitor	10uF/50V 1206 ±10% TDK	3	PCS	Ci2,Ci4,Ci6
14	2.21.104.0013	Chip Capacitor	22uF/16V 1206 ±10%	3	PCS	CO1-CO3
15	2.21.106.0066	Chip Diode	SMAJ36A/SMA CITY SMA	1	PCS	TVS
16	2.21.106.0052	Patch Stabilized Diode	6.2V/0.5W ST	1	PCS	ZD
18	2.21.106.0016	Schottky Diode	SS36 3A 60V SMA	6	PCS	D1-D6
19	2.21.105.0003	Paste Power Inductance	47uH GPSR1050-470M 3A DCR<210mΩ ±20%	3	PCS	L1-L3
20	2.21.106.0065	MOS Tube	AP9870GH-HF TO-252 BV:60 RDS:42mΩ ID:18A	3	PCS	Q1,Q2,Q3
21	2.21.106.0002	N MOS Tube	50N06 HS50N06DA TO-252	1	PCS	Q4
22	2.21.103.0077	Chip Resistor	0R 1206 ±1%	5	PCS	J1,J2,J5,J7,J8
23	2.21.103.0119	Chip Resistor	0R/1808, 5%	3	PCS	J3,J4,J6
24	2.21.103.0003	Chip Resistor	0R 2512 ±1%	1	PCS	J9
25	2.21.102.0057	Drive IC	TP4121A 6V-55V	3	PCS	U1-U3
26	2.21.107.0129	LED	OSRAM 5W, GW PUSRA1.PM (P8)	36	PCS	LED1-LED36
27	2.21.101.0532-G-60-A0	/	76180TPP8 V3.0	1	PCS	/

DOCUMENTACIÓN TÉCNICA /  
*TECHNICAL DOCUMENTATION*

**Ficha de características nº** **relativa a la homologación de**  
**tipo CE de subconjuntos eléctricos o electrónicos respecto a la compatibilidad**  
**electromagnética (Reglamento ECE 10 cuya última modificación la constituye**  
**la serie de enmiendas 05)**

***Information document no.*** ***relating to EC type-approval of an***  
***electric/electronic subassembly with respect to electromagnetic compatibility***  
***(Regulation ECE 10 as last amended by series of amendments 05)***

Tipo / Type:

Número total de páginas / Total number of pages:

**7**

Fecha / Date:

**18/01/2019**

## INDICE / INDEX

2	Índice / <i>Index</i>
3	Generalidades / <i>General</i>
5	Planos del SEE / <i>Drawings of the ESA</i>
6	Diagrama de bloques electrónicos / <i>Electronic block diagram</i>
7	Lista de componentes del SEE / <i>List of components constituting the ESA</i>

**Lista de componentes del SEE / List of components constituting the ESA**  
Marca y tipo de microprocesador, cristal, etc. / Make and type of microprocessor,  
crystal, etc.

BILL OF MATERIAL						
P/N: HML-76180		Parameter		Version:	2018.07.23	
No.	Code(new)	Item	Description	Number	Unit	Remark
1	2.21.103.0113	Chip Resistor	0.22R 1206 ±1%	12	PCS	R1-R4,R6-R9,R11-R14
2	2.21.103.0079	Chip Resistor	10K 1206 ±1%	1	PCS	RZ1
3	2.21.103.0014	Chip Resistor	3K 1206 ±5%	1	PCS	RT1
4	2.21.103.0126	Chip Resistor	100R 0805 ±5%	3	PCS	RM1-RM3
7	2.21.103.0136	PTC	470R, 0603	2	PCS	RP1,RP2
8	2.21.103.0134	NTCChip Resistor	22K, 0805, 4150	1	PCS	RN
9	2.21.104.0015	Aluminum electrolytic capacitance	100uF/35V ±5% 7.8*6.5mm	2	PCS	CE1,CE2
10	2.21.104.0086	Chip Capacitor	1UF/10V, 0805, ±10%	3	PCS	CV1-CV3
11	2.21.104.0031	Chip Capacitor	0.1uF/50V 0805 ±10%	3	PCS	Ci1,Ci3,Ci5
12	2.21.104.0085	Chip Capacitor	4.7UF/10V, 0805, ±10%	1	PCS	CD
13	2.21.104.0044	Chip Capacitor	10uF/50V 1206 ±10% TDK	3	PCS	Ci2,Ci4,Ci6
14	2.21.104.0013	Chip Capacitor	22uF/16V 1206 ±10%	3	PCS	CO1-CO3
15	2.21.106.0066	Chip Diode	SMAJ36A/SMA CITY SMA	1	PCS	TVS
16	2.21.106.0052	Patch Stabilized Diode	6.2V/0.5W ST	1	PCS	ZD
18	2.21.106.0016	Schottky Diode	SS36 3A 60V SMA	6	PCS	D1-D6
19	2.21.105.0003	Paste Power Inductance	47uH GPSR1050-470M 3A DCR<210mΩ ±20%	3	PCS	L1-L3
20	2.21.106.0065	MOS Tube	AP9870GH-HF TO-252 BV:60 RDS:42mΩ ID:18A	3	PCS	Q1,Q2,Q3
21	2.21.106.0002	N MOS Tube	50N06 HS50N06DA TO-252	1	PCS	Q4
22	2.21.103.0077	Chip Resistor	0R 1206 ±1%	5	PCS	J1,J2,J5,J7,J8
23	2.21.103.0119	Chip Resistor	0R/1808, 5%	3	PCS	J3,J4,J6
24	2.21.103.0003	Chip Resistor	0R 2512 ±1%	1	PCS	J9
25	2.21.102.0057	Drive IC	TP4121A 6V-55V	3	PCS	U1-U3
26	2.21.107.0129	LED	OSRAM 5W, GW PUSRA1.PM (P8)	36	PCS	LED1-LED36
27	2.21.101.0532-G-60-A0	/	76180TPP8 V3.0	1	PCS	/

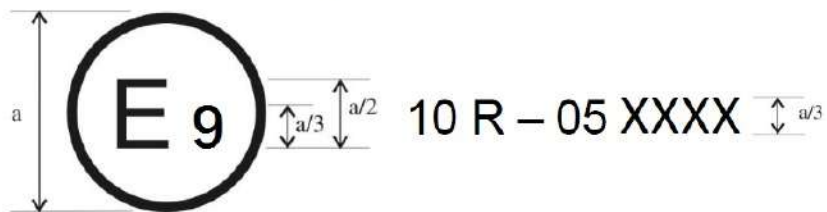


6. Dirección(es) de la(s) planta(s) de montaje / *Address(es) of assembly plant(s):*
  
7. Nombre y dirección del solicitante / *Name and address of Applicant :*
  
8. Este SEE se homologará como componente/UT~~I~~ <sup>(1)</sup> / *This ESA shall be approved as a component/STU<sup>(1)</sup>*
  
9. Restricciones de uso y condiciones de instalación / *Any restrictions of use and conditions for fitting:*  
**N/A**
  
10. Tensión nominal del sistema eléctrico / *Electrical system rated voltage:*  
**DC 12V/24V, Negative ground**  
**The possible range for normal operation is 10-30V.**

(1) Táchese lo que no proceda / Delete where not applicable.

**Planos del SEE / Drawings of the ESA**

Localización de la marca de homologación CE / Location of the EC approval mark



a = 6 mm

**and Trade mark location**

**Diagrama de bloques electrónicos / *Electronic block diagram***

