Certification
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Applus

Bellaterra : **March 18, 2011** File number: **11/31700275**

Petitioner's reference: **Tecnitoys Juguetes S.A.**

Av./ Gran vía de les corts
Catalanes 129-131 7°
08014 Barcelona

On its behalf:
Oriol Roig

ilac-MRA ENAC ENSAYOS Nº 9/LE 900

TEST REPORT

TEST REQUESTED
Electromagnetic compatibility, directive 2004/108/CE
Standard conformity to:
UNE-EN 55014-1:2008+*A1:2009 Electromagnetic compatibility - Requirements for household appliances, electric tools and similar apparatus. Part 1: Emission
UNE-EN 55014-2:1998+A1:2002+A2:2009 Electromagnetic compatibility - Requirements for household appliances, electric tools and similar apparatus. Part 2: Immunity.
UNE-EN 61000-3-2:2006+*A1:2010+*A2:2010 Electromagnetic compatibility (EMC) – Part 3-2. Limits.--Limits for harmonic current emissions (equipment input current ≤ 16 A per phase)
***UNE-EN 61000-3-3:2009** Electromagnetic compatibility (EMC) - Part 3-3: Limits - Limitation of voltage changes, voltage fluctuations and flicker in public low-voltage supply systems, for equipment with rated current ≤16 A per phase and not subject to conditional connection
*Not covered by ENAC Accreditation

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1.0 EQUIPMENT RECEIVED AND TESTED

Scalextric/SCX compact set, brand Tecnitoys, model 3197/31790, s/n: ---;Id:001

Test product reception:	2011-01-24
Test initial date:	2011-02-11
Test final date:	2011-03-17

1.1 Test configuration

Power supply: AC 230V 50Hz
Set-up: Tabletop equipment
Test exercise: Circuit disposition following standard specifications, 2 cars running in free race mode

2.0 TESTING PROCEDURE

EMISSIONS TESTS APPLICABLE STANDARDS
Standard: UNE-EN 55014-1:2008+A1:2009 based on standards:
Basic Standard: UNE-EN 55014-1:2008+A1:2009 ① ☐ Radio-frequency radiated emissions (30 -1000 MHz) Note: Not tested. According to the standard, the customer can choose between doing the test of radiated emissions or radiated power emissions with the special limit. The customer decides instead radiated emissions testing of radiated power emissions.
② ☒ Continuous conducted emissions (0,15-30 MHz)
Basic Standard: UNE-EN 55014-1:2008+A1:2009 ③ ☒ Radiated power emissions
Note: Radiated power emissions with the special limit pass.
Basic Standard: UNE-EN 55014-1:2008+A1:2009 ④ ☒ Discontinuous conducted emissions (150kHz-30 MHz)
Standard: UNE-EN 61000-3-3:2009 ⑤ ☒ Voltage fluctuations emissions
Standard: UNE-EN 61000-3-2:2006+A1 :2010+A2 :2010 ⑥ ☒ Harmonic current emissions

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IMMUNITY TEST APPLICABLE STANDARDS	
Standard: UNE-EN 55014-2:1998+A1:2002+A2:2009 based on standards:	
Basic Standard: UNE-EN 61000-4-2:1997+A1:1999+A2:2001	
① ☒ **Electrostatic discharges**	level AC: 8kV level DC: 4kV
Basic Standard: UNE-EN 61000-4-4:2005	
② ☒ **Fast transients in burst immunity**	
☐ Severity level in signal and control ports ,and by ground terminal	Severity: kV
☒ Severity level in I/O ports of DC and AC power supply.	Severity: 1 kV
Basic Standard: UNE-EN 61000-4-5:2007	
③ ☒ **Surge transients immunity**	
☐ Signal and control ports	Common mode Severity: kV Differential mode Severity: kV
☐ DC supply ports	Common mode Severity: kV Differential mode Severity: kV
☒ AC supply ports	Common mode Severity: 2 kV Differential mode Severity: 1 kV
Basic Standard: UNE-EN 61000-4-6:2008	
④ ☒ **Current injections** 150kHz-230MHz	
☐ Signal and control ports	Severity: rms
☒ AC/DC supply, and access by ground terminal	Severity: 3 V rms
Basic Standard: UNE-EN 61000-4-11:2005	
⑤ ☒ **Voltage variations**	
☒ Short interruptions	
☒ Voltage dips	

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2.1 Acceptance criterian for the immunity test

According to standard UNE-EN 55014-2:1998+A1:2002+A2:2009 section 6.

A-The apparatus shall continue to operate as intended during the test. No degradation of performance or loss of function is allowed below a performance level (or permissible loss of performance) specified by the manufacturer, when the apparatus is used as intended. If the minimum performance level or the permissible performance loss is not specified by the manufacturer, then either of these may be derived from the product description and documentation, and from what the user may reasonably expect from the apparatus if used.
B-The apparatus shall continue to operate as intended after the test. No degradation of performance or loss of function is allowed below a performance level (or permissible loss of performance) specified by the manufacturer, when the apparatus is used as intended. During the test, degradation of performance is allowed, however. No change of actual operating state or stored data is allowed. If the minimum performance level or the permissible performance loss is not specified by the manufacturer, then either of these may be derived from the product description and documentation, and from what the user may reasonably expect from the apparatus if used as intended.
C-Temporary loss of function is allowed, provided the function is self-recoverable or can be restored by the operation of the controls, or by any operation specified in the instructions for use.

2.2 Test procedures

Continuous conducted emissions: C5400276.
Discontinuous conducted emissions: C5400278.
Radiated power: C5400279.
Harmonic current and flickers: C5400281.
Electrostatic discharges: C5400282.
Fast transients/burst: C5400283.
Surge transients: C5400286.
Current injection: C5400284.
Voltage dips, short interruptions and voltage variations immunity: C5400288.

2.3 Measuring equipment used

Conducted emissions

- Lisn 4x32A/2x16A 50µH 50 ohm Rohde & Schwarz model ESH2-Z5 s/n: 860014/021.
- EMI receiver (9kHz-2750MHz) Rohde & Schwarz model ESCS-30 s/n: 827413/025.
- Transient Limiter Transitorios (Cond. Emi.) Hewlett Packard model 11947A s/n: 2820A00427.
- Faraday Chamber FAC1 Euroshield (NC) model RFSD-100 s/n: 1427/97.
- RF Way Nº2 COND.EMI.FAC1 Suhner model RG-223 s/n: 002FAC1.
- Conducted Emissions Software EMC s/n: 051399021LGAI.
- Outside section FAC1 conducted Suhner model RG-223.

Radiated power

- Absorbing Clamp (30MHz-1GHz) Rohde & Schwarz model MDS-21 s/n: 301404/027.
- Faraday Chamber FAC1 Euroshield (NC) model RFSD-100 s/n: 1427/97.
- Computer System FAC1 Hewlett Packard model D4776N D2836 s/n: FR74350477.
- RF Way Nº5 RAD.POT.FAC1 Suhner model RG-223 s/n: 005FAC1.

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- Traction System RAD.POT.FAC1 EMC model CP01-01 s/n: AL11961.
- System Interface Controller Clamp Position SI-200 EMC model SI-200 s/n: SI129728.
- EMI receiver (9kHz-2750MHz) Rohde & Schwarz model ESCS-30 s/n: 827413/025.
- Absorbing Clamp (30MHz-1GHz) FCC model F-201-32mm s/n: 352.
- Outside section FAC1 conducted Suhner model RG-223.

Discontinuous conducted emissions

- Lisn 4x32A/2x16A 50µH 50 ohm Rohde & Schwarz model ESH2-Z5 s/n: 860014/021.
- Faraday Chamber FAC1 Euroshield (NC) model RFSD-100 s/n: 1427/97.
- RF Way Nº2 COND.EMI.FAC1 Suhner model RG-223 s/n: 002FAC1.
- Outside section FAC1 conducted Suhner model RG-223

Harmonics, Flickers, Voltage Dips and interruptions

- Harmonics & Flickers & Voltage Dips & Interrup. Test System Spitzenberger model ARS 16/3 s/n: A303407/00902.

Electrostatic discharges

- Vertical Plan coupling LGAI model PVA.
- ESD simulator (NSG 435) Schaffner model NSG-435 s/n: 5324.

Fast Transient

- Fast Transient Generator (NSG 2025-8) Schaffner (NC) model NSG 2025-8 s/n: 8.
- Monophasic Plug to FT Schaffner model: Monophasic 16A 230V s/n: 69529/02A.
- Software Win 2025 Schaffner s/n: 590-0151.
- Software NSG 2025 Firmware Schaffner s/n: 592-0012.

Surge transients

- Impulse Surge Platform Haefely model PSurge 8000+PIM 100 s/n: 151589 / 151413
- Coupling CDN Surge (PCD 130) Haefely model PDC 130 Coupling Module s/n: 151576.
- Decoupling Network Haefely model DEC 1A s/n: 153024.

Current injection

- Signal Generator (9kHz-2GHz) (VARIS) Hewlett Packard model HP8648B s/n: 3642U01234.
- RF Power meter Boonton model 4300 s/n: 94105EF.
- RF Power Sensor (100kHz-18GHz) Boonton model 51013(4E) s/n: 30073.
- RF Power Sensor (100kHz-18GHz) Boonton model 51013(4E) s/n: 30074.
- Amplifier Interface EMC model AI1000 s/n: AI019804.
- Signal Generator wave form arbitrary Hewlett Packard model HP33120A s/n: US36011966.
- RF Way Conducted Immunity return Suhner model N-N Mascle.
- RF Way Conducted Immunity Suhner model N-N Mascle.
- Attenuattor 75W (6dB) brand BIRD model 75-A-MFN-06 n/s: 3331
- Coupling / Decoupling Network M2 Schaffner model CDN M216 s/n: 22655.

2.4 Measuring uncertainties

Conducted Emissions: ± 2,1 dB.
Discontinuous Conducted emissions: ± 0,9 dB.
Harmonics & Flickers: ± 0,8 dB.
Electrostatic Discharges: ± 1,65 dB.
Fast Transients: ± 1,3 dB.
Surge Transients: ± 1,3 dB.
Current injection: ± 1,7 dB.
Voltage dips: ± 0,8 dB.

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In all cases, with a confidence level of 95%, k=2

2.5 Environmental conditions
See result sheets.

3.0 RESULTS

PRODUCT	Test reference										
	Emissions						Immunity				
Device Scalextric/SCX compact set, brand Tecnitoys, model 3197/31790, s/n: --- ;Id:001	①	②	③	④	⑤	⑥	①	②	③	④	⑤
	NT	P	P	P	P	P	P	P	P	P	P

P - PASS
F - FAIL
NT – Not tested

Detail of results in annex

3.1 Conformity to emissions standards
②.- Continuous conducted emissions
The measured results are within the limits, including the uncertainty interval.
③.- Radiated power emissions
The measured results are within the limits, including the uncertainty interval.
④.- Discontinuous conducted emissions
The measured results are within the limits, including the uncertainty interval.
⑤.- Fluctuations voltage emissions
The measured results are above the upper limit, even considering the half of the uncertainty interval.
⑥.- Harmonic current emissions
The measured results are above the upper limit, even considering the half of the uncertainty interval.

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3.2 Conformity to immunity standards

①.- Electrostatic discharges

Normal performance during interference, A criteria, According to specification.

②.- Fast transients/burst immunity

Normal performance during interference, A criteria, According to specification.

③.- Surge transients immunity

Normal performance during interference, A criteria, According to specification.

④.- Current injection

Normal performance during interference, A criteria, According to specification.

⑤.- Supply voltage variations

Normal performance during interference, A criteria, According to specification.

Firmado digitalmente por Javier Ortiz Yus
Nombre de reconocimiento (DN): CN = Javier Ortiz Yus, SN = Ortiz Yus, G = Javier, C = ES, O = LGAI Technological Center, OU = EMC, T = Technical Manager
Fecha: 2011.03.18 17:18:27 +01'00'

Javier Ortiz Yus
Responsible EMC - Industrial
IT & Telecom BU
LGAI Technological Center S.A.

Manuel López Martín
Project Responsible
IT & Telecom BU
LGAI Technological Center S.A.

The results refer only and exclusively to the sample, product or material delivered for testing in "Received Material" section above. The equipment has been tested under conditions stipulated by standard(s) quoted in this document.

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4.0 IDENTIFICATION PICTURES

Track view

Cars view

PSU view

Trottle view

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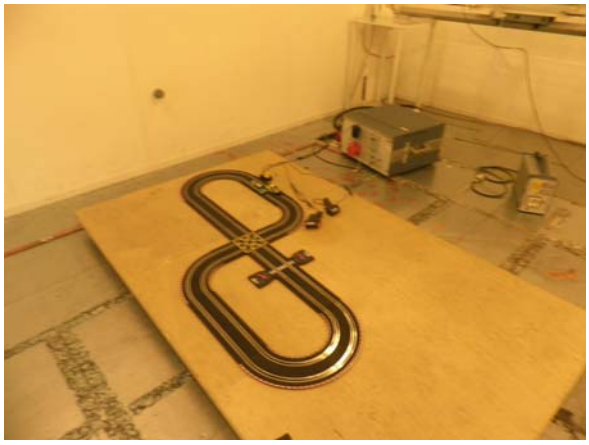
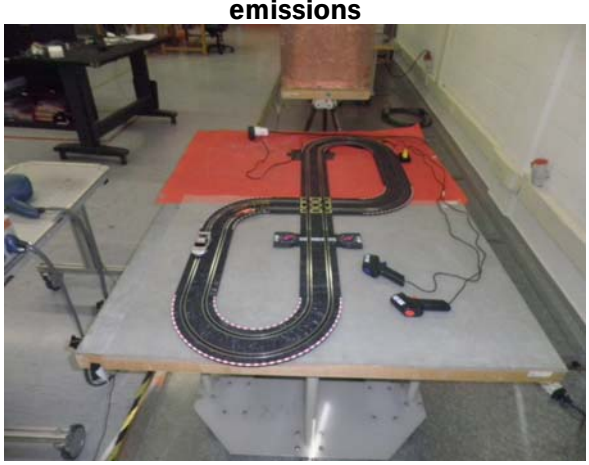
4.1 Test configuration



Continuous and discontinuous conducted emissions

Radiated power emissions



Electrostatic discharges

Current injection

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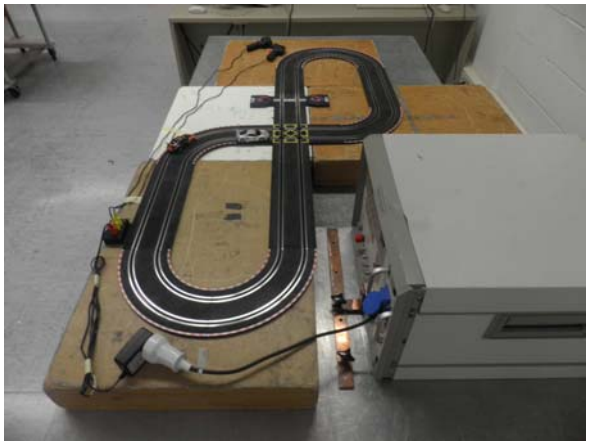
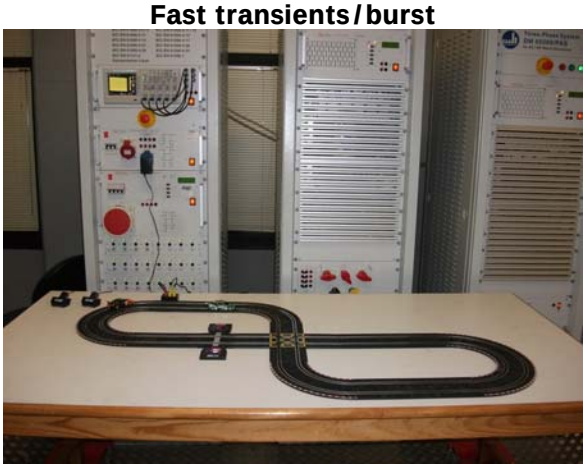


Fast transients/burst

Surge transients



Voltage dips, short interruptions, voltage variations immunity, harmonics and flickers

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5.0 ANNEX: DETAIL OF RESULTS

<table>
<tr><th colspan="4">CONDUCTED EMISSIONS</th></tr>
<tr><td colspan="2">Petitioner: Tecnitoys Juguetes S.A.</td><td colspan="2">Device under test: Scalextric/SCX compact set</td></tr>
<tr><td colspan="2">File Nº: 11/31700275</td><td colspan="2">Brand: Tecnitoys</td></tr>
<tr><td colspan="2">Procedure: C5400276</td><td colspan="2">Model: 3197/31790</td></tr>
<tr><td colspan="2" rowspan="2">Standard:
UNE-EN 55014-1:2008+A1:2009
Class: B</td><td colspan="2">Serial number: ---;Id:001</td></tr>
<tr><td colspan="2">Reception date: 2011-01-24</td></tr>
<tr><td colspan="2">Performance criteria according to:
UNE-EN 55014-1:2008+A1:2009</td><td rowspan="2">Test type:

Conformity</td><td rowspan="2">Temperature: 22.6 ºC
Humidity: 38.5 %
Atm. Pressure: 1008 hPa</td></tr>
<tr><td colspan="2">Technician: Pedro Moreno – Xavi Hernan</td></tr>
<tr><td colspan="2">Supervised: Manolo López</td><td colspan="2" rowspan="3">DUT exercise:
Circuit disposition following standard specifications, 2 cars running in free race mode
Supply: AC 230V 50Hz</td></tr>
<tr><td colspan="2">Test date: 2011-02-23</td></tr>
<tr><td colspan="2" rowspan="2">Equipment:
RS ESCS30 EMI receiver
RS ESH2-Z5 LISN</td></tr>
<tr><td colspan="2">Test area:
Faraday chamber, FAC-1</td></tr>
<tr><td colspan="2"></td><td colspan="2">Test disposition : On floor</td></tr>
<tr><td colspan="2">Auxiliary equipment:</td><td colspan="2">Communication cables entry/exit:</td></tr>
<tr><th colspan="4">CONTINUOUS CONDUCTED EMISSIONS</th></tr>
<tr><th colspan="4">Supply</th></tr>
<tr><td colspan="4">Mains supply</td></tr>
<tr><td colspan="4">V. in power supply (dBµV) PASS Vqp< lim QP + Vavg< lim AVG</td></tr>
<tr><td colspan="4">Source and type of the most important emissions</td></tr>
<tr><td colspan="2">Source: Device under test</td><td colspan="2">Type: Narrow Band/SPU</td></tr>
<tr><td colspan="4">RESULT: PASS</td></tr>
<tr><td colspan="4">Comments:</td></tr>
<tr><td colspan="4"></td></tr>
</table>

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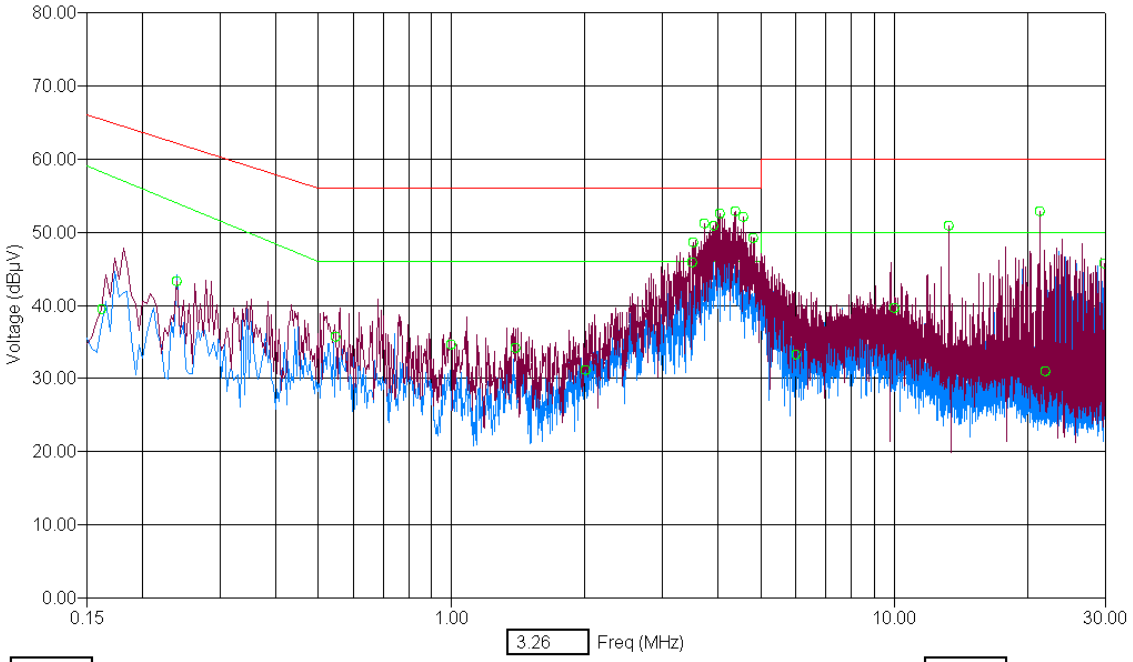
CONDUCTED EMISSIONS	
Petitioner: Tecnitoys Juguetes S.A.	**Device under test:** Scalextric/SCX compact set
File Nº: 11/31700275	**Brand:** Tecnitoys
Procedure: C5400276	**Model:** 3197/31790
Standard: UNE-EN 55014-1:2008+A1:2009 **Class:** B	**Serial number:** ---;Id:001
	Reception date: 2011-01-24



46.00 (AVG) Limit
56.00 (QP) Limit
36.55 EMI (LineN)
40.39 EMI (Line1)

Freq (MHz)	[AVG] Limit (dBµV)	[AVG] EMI (dBµV)	[AVG] Margin AVL (dB)	[QP] Limit (dBµV)	[QP] EMI (dBµV)	[QP] Margin QPL (dB)	[PK] EMI (dBµV)
0.1617	58.19	33.46	-24.73	65.38	45.63	-19.74	52.20
0.2398	53.93	25.59	-28.34	62.10	38.18	-23.92	46.69
0.5484	46.00	21.89	-24.11	56.00	33.38	-22.62	48.14
0.9977	46.00	18.31	-27.69	56.00	31.04	-24.96	42.08
1.3961	46.00	19.86	-26.14	56.00	32.54	-23.46	44.96
2.0094	46.00	20.30	-25.70	56.00	30.87	-25.13	41.24
3.4977	46.00	30.34	-15.66	56.00	43.07	-12.93	49.63
3.5250	46.00	29.63	-16.37	56.00	42.43	-13.57	48.69
3.7204	46.00	32.62	-13.38	56.00	45.39	-10.61	49.97
3.8922	46.00	31.67	-14.33	56.00	45.82	-10.18	50.27
4.0446	46.00	32.93	-13.07	56.00	45.65	-10.35	51.18
4.3688	46.00	30.72	-15.28	56.00	43.86	-12.14	51.55
4.5563	46.00	31.06	-14.94	56.00	45.00	-11.00	50.84
4.8141	46.00	28.14	-17.86	56.00	42.49	-13.51	48.54
6.0016	50.00	21.36	-28.64	60.00	33.97	-26.03	42.07
10.0017	50.00	21.20	-28.80	60.00	33.17	-26.83	45.85
13.2791	50.00	18.28	-31.72	60.00	31.88	-28.12	51.20
21.3495	50.00	19.54	-30.46	60.00	33.68	-26.32	53.88
21.9979	50.00	18.98	-31.02	60.00	34.22	-25.78	52.35
29.7676	50.00	18.53	-31.47	60.00	30.40	-29.60	51.57

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RADIATED POWER				
Petitioner: Tecnitoys Juguetes S.A.	**Device under test:** Scalextric/SCX compact set			
File N°: 11/31700275	**Brand:** Tecnitoys			
Procedure: C5400279	**Model:** 3197/31790			
Standard: UNE-EN 55014-1:2008+A1:2009	**Serial number:** ---;Id:001			
	Reception date: 2011-01-24			
Performance criteria according to: UNE-EN 55014-1:2008+A1:2009	**Test type:**	**Temperature:**	23	ºC
		Humidity:	53.6	%
Technician: Luis Piñol / Xavier Hernan	Conformity	**Atm. Pressure:**	986	hPa
Supervised: Manolo López	**DUT exercise:** Circuit disposition following standard specifications, 2 cars running in free race mode **Supply:** AC 230V 50Hz			
Test date: 2011-03-15				
Equipment: RS ESCS30 EMI receiver RS MSD-21 Absorbing clamp	**Test area:** Faraday chamber, FAC-1			
	Test disposition : Tabletop equipment			
Auxiliary equipment:	**Communication cables entry/exit:**			

RADIATED POWER		
Limits for:		
Supply AC 230V 50Hz		
P. in Power supply (dBµW)		PASS Wqp< lim QP + Wavg< lim AVG
Additional cables		
P. in cables (dBµW)	DC 16V	PASS Wqp< lim QP + Wavg< lim AVG
P. in cables (dBµW)	TROTTLE	PASS Wqp< lim QP + Wavg< lim AVG
Limits incremented according standard annex 2 for:		
Supply AC 230V 50Hz		
P. in Power supply (dBµW)		PASS Wqp< lim QP + Wavg< lim AVG
Additional cables		
P. in cables (dBµW)	DC 16V	PASS Wqp< lim QP + Wavg< lim AVG
P. in cables (dBµW)	TROTTLE	PASS Wqp< lim QP + Wavg< lim AVG
Source and type of the most important emissions		
Source: Device under test		**Type:** Narrow Band/SPU
RESULT: PASS		
Comments:		

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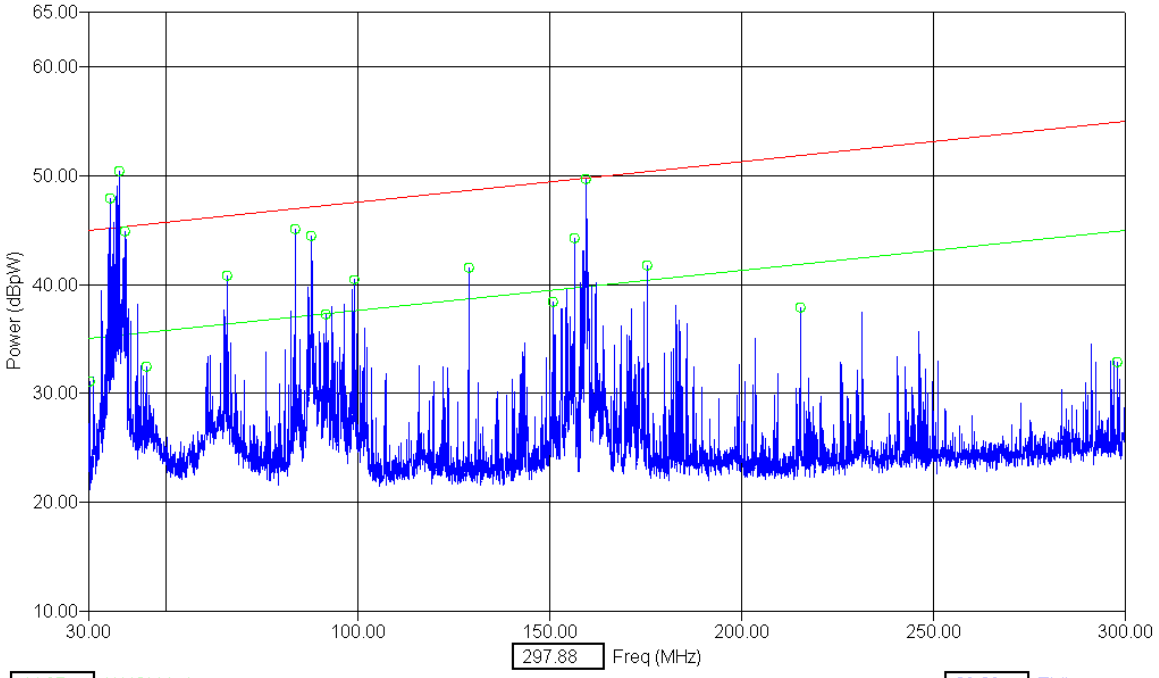
RADIATED POWER II	
Petitioner: Tecnitoys Juguetes S.A.	**Device under test:** Scalextric/SCX compact set
File N°: 11/31700275	**Brand:** Tecnitoys
Procedure: C5400279	**Model:** 3197/31790
Standard: UNE-EN 55014-1:2008+A1:2009	**Serial number:** ---;Id:001
	Reception date: 2011-01-24

RADIATED POWER

Supply AC 230V 50Hz



44.97 (AVG) Limit

54.97 (QP) Limit

26.20 EMI

Freq (MHz)	(AVG) EMI (dBpW)	(AVG) Limit (dBpW)	(AVG) Margin AVL (dB)	(QP) EMI (dBpW)	(QP) Limit (dBpW)	(QP) Margin QPL (dB)	(PK) EMI (dBpW)
30.2500	11.41	35.04	-23.62	17.44	45.04	-27.59	36.08
35.7500	14.88	35.76	-20.88	30.02	45.76	-15.74	49.32
37.8750	18.52	36.01	-17.49	35.01	46.01	-11.00	55.74
39.3750	18.71	36.18	-17.47	32.61	46.18	-13.57	52.93
44.9375	14.87	36.75	-21.89	20.78	46.75	-25.98	36.14
66.0625	15.95	38.43	-22.47	26.14	48.43	-22.28	47.08
83.6875	13.82	39.46	-25.63	21.82	49.46	-27.63	37.49
88.0625	15.98	39.68	-23.69	28.74	49.68	-20.93	44.40
91.7500	14.53	39.85	-25.33	25.95	49.85	-23.91	44.84
99.1250	13.72	40.19	-26.47	23.47	50.19	-26.72	41.38
129.0000	12.26	41.33	-29.08	18.66	51.33	-32.68	34.20
151.0000	13.04	42.02	-28.98	21.27	52.02	-30.75	43.58
156.5625	13.13	42.18	-29.06	26.71	52.18	-25.46	48.23
159.6250	14.15	42.26	-28.11	29.05	52.26	-23.21	48.31
175.6250	12.95	42.67	-29.73	19.16	52.67	-33.52	36.52
215.4375	13.11	43.56	-30.45	18.59	53.56	-34.97	32.15
298.0000	14.70	44.97	-30.28	20.49	54.97	-34.49	34.55

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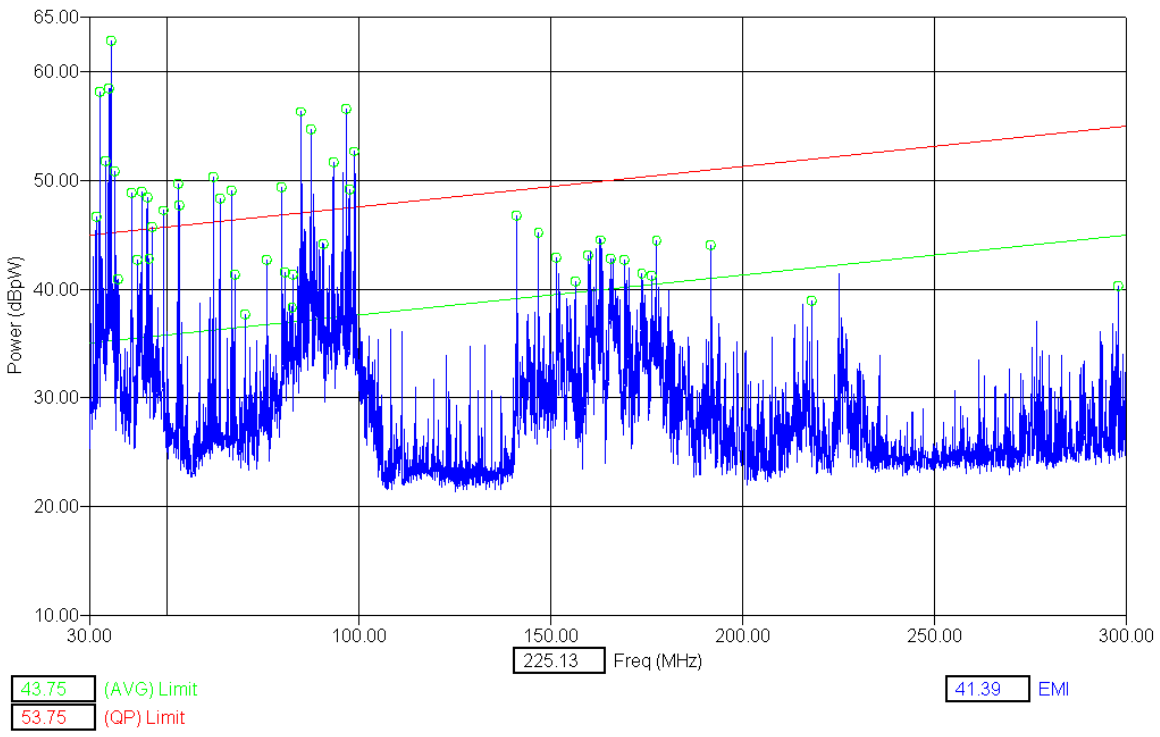
RADIATED POWER III	
Petitioner: Tecnitoys Juguetes S.A.	**Device under test:** Scalextric/SCX compact set
File Nº: 11/31700275	**Brand:** Tecnitoys
Procedure: C5400279	**Model:** 3197/31790
Standard: UNE-EN 55014-1:2008+A1:2009	**Serial number:** ---;Id:001
	Reception date: 2011-01-24

RADIATED POWER

DC 16V



JOY

RADIATED POWER IV	
Petitioner: Tecnitoys Juguetes S.A.	**Device under test:** Scalextric/SCX compact set
File Nº: 11/31700275	**Brand:** Tecnitoys
Procedure: C5400279	**Model:** 3197/31790
Standard: UNE-EN 55014-1:2008+A1:2009	**Serial number:** ---;Id:001
	Reception date: 2011-01-24

RADIATED POWER

DC 16V

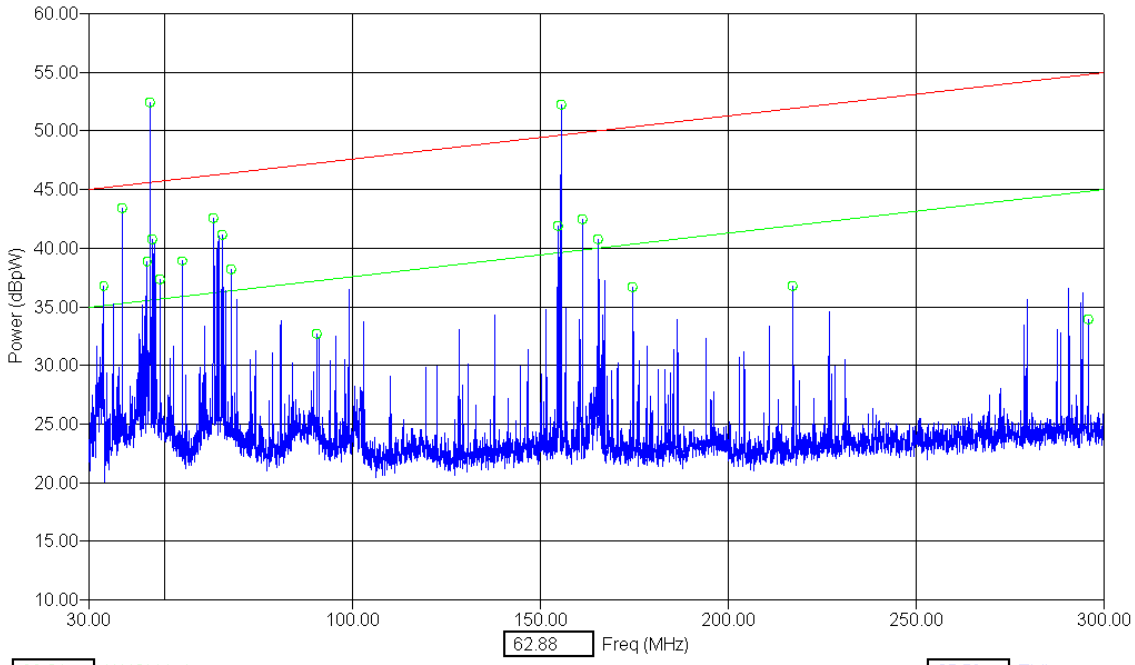
Freq (MHz)	(AVG) EMI (dBpW)	(AVG) Limit (dBpW)	(AVG) Margin AVL (dB)	(QP) EMI (dBpW)	(QP) Limit (dBpW)	(QP) Margin QPL (dB)	(PK) EMI (dBpW)
31.8750	11.66	35.26	-23.60	34.64	45.26	-10.62	55.63
32.5625	12.34	35.36	-23.01	38.08	45.36	-7.27	62.43
34.1250	12.96	35.56	-22.60	38.81	45.56	-6.75	62.34
35.1250	14.38	35.68	-21.30	40.64	45.68	-5.04	63.94
35.6875	13.95	35.75	-21.81	36.06	45.75	-9.70	64.81
36.5625	16.26	35.86	-19.60	38.82	45.86	-7.04	59.63
37.2500	14.96	35.94	-20.98	35.61	45.94	-10.33	56.08
41.0000	14.67	36.36	-21.68	27.79	46.36	-18.56	48.31
42.5625	15.13	36.52	-21.39	33.46	46.52	-13.06	50.92
43.5000	17.62	36.61	-18.99	43.22	46.61	-3.39	64.20
45.0000	16.03	36.76	-20.73	35.93	46.76	-10.83	56.66
45.5000	17.71	36.81	-19.10	41.30	46.81	-5.51	62.92
46.1250	14.72	36.87	-22.15	20.57	46.87	-26.30	27.75
49.2500	14.16	37.15	-22.99	25.99	47.15	-21.16	47.08
52.9375	13.55	37.47	-23.92	19.47	47.47	-28.00	38.93
53.4375	13.97	37.51	-23.53	25.08	47.51	-22.42	47.21
62.3125	15.39	38.17	-22.78	27.94	48.17	-20.23	47.66
63.9375	15.59	38.29	-22.70	21.79	48.29	-26.50	41.45
66.9375	15.06	38.49	-23.42	25.23	48.49	-23.25	43.31
67.9375	14.89	38.55	-23.66	28.17	48.55	-20.38	45.14
70.5000	14.13	38.71	-24.59	27.04	48.71	-21.68	46.86
76.2500	12.93	39.05	-26.12	23.12	49.05	-25.93	43.41
80.0625	12.80	39.26	-26.47	25.53	49.26	-23.74	48.34
80.7500	13.10	39.30	-26.20	27.62	49.30	-21.68	48.05
82.5000	13.77	39.39	-25.62	29.32	49.39	-20.07	50.66
82.8125	13.88	39.41	-25.53	28.30	49.41	-21.11	46.55
85.1250	15.40	39.53	-24.13	34.34	49.53	-15.19	53.77
87.5625	16.97	39.65	-22.69	36.82	49.65	-12.84	54.34
90.8125	16.09	39.81	-23.72	33.89	49.81	-15.92	49.95
93.4375	15.72	39.93	-24.21	33.35	49.93	-16.58	51.09
96.9375	15.96	40.09	-24.13	36.03	50.09	-14.06	53.80
97.6250	16.02	40.12	-24.10	36.38	50.12	-13.74	54.86
98.8750	15.92	40.18	-24.26	36.64	50.18	-13.54	55.90
141.3125	12.95	41.73	-28.78	21.09	51.73	-30.64	40.11
146.9375	13.60	41.90	-28.30	26.47	51.90	-25.43	48.31
151.5625	13.33	42.03	-28.71	21.26	52.03	-30.78	37.55
156.5000	13.44	42.17	-28.73	22.77	52.17	-29.40	44.22
159.8750	14.28	42.27	-27.99	30.88	52.27	-21.39	46.94
162.9375	13.46	42.35	-28.89	24.50	52.35	-27.85	44.26
165.8750	14.19	42.43	-28.24	32.01	52.43	-20.42	44.90
169.2500	18.09	42.51	-24.43	28.21	52.51	-24.31	47.78
173.6875	13.54	42.63	-29.09	30.33	52.63	-22.30	46.09
176.5000	13.61	42.70	-29.08	29.08	52.70	-23.61	52.78
177.6250	13.50	42.72	-29.23	29.62	52.72	-23.11	44.96
191.8750	13.30	43.06	-29.75	26.20	53.06	-26.85	42.82
218.0625	13.44	43.61	-30.18	30.46	53.61	-23.16	51.09
298.0000	14.66	44.97	-30.32	20.76	54.97	-34.22	39.46

JOY

RADIATED POWER V	
Petitioner: Tecnitoys Juguetes S.A.	**Device under test:** Scalextric/SCX compact set
File Nº: 11/31700275	**Brand:** Tecnitoys
Procedure: C5400279	**Model:** 3197/31790
Standard: UNE-EN 55014-1:2008+A1:2009	**Serial number:** ---;Id:001
	Reception date: 2011-01-24

RADIATED POWER

Trottle



38.21 (AVG) Limit

48.21 (QP) Limit

25.53 EMI

Freq (MHz)	(AVG) Limit (dBpW)	(AVG) EMI (dBpW)	(AVG) Margin AVL (dB)	(QP) Limit (dBpW)	(QP) EMI (dBpW)	(QP) Margin QPL (dB)	(PK) EMI (dBpW)
33.7500	35.51	11.10	-24.41	45.51	28.64	-16.87	49.97
38.9375	36.13	14.11	-22.03	46.13	25.17	-20.97	51.43
45.4375	36.80	14.68	-22.12	46.80	31.11	-15.69	50.90
46.3125	36.89	15.09	-21.80	46.89	28.86	-18.03	50.89
46.8125	36.93	14.01	-22.92	46.93	19.78	-27.15	29.00
48.8750	37.12	13.76	-23.36	47.12	20.05	-27.07	36.57
54.8125	37.62	12.18	-25.43	47.62	18.24	-29.37	30.77
63.1875	38.24	14.83	-23.40	48.24	21.69	-26.54	39.91
65.3750	38.38	14.87	-23.51	48.38	22.12	-26.26	48.11
67.9375	38.55	13.92	-24.63	48.55	19.84	-28.71	41.64
90.5625	39.80	14.06	-25.74	49.80	21.33	-28.47	41.05
154.7500	42.13	12.82	-29.30	52.13	22.85	-29.27	40.28
155.5625	42.15	12.88	-29.27	52.15	22.63	-29.52	39.80
161.3750	42.31	12.97	-29.34	52.31	21.04	-31.27	39.51
165.5625	42.42	13.26	-29.16	52.42	27.26	-25.16	47.09
174.7500	42.65	12.87	-29.78	52.65	24.84	-27.81	45.11
217.3125	43.60	12.93	-30.67	53.60	19.45	-34.15	39.11
295.9375	44.94	14.13	-30.81	54.94	19.72	-35.22	33.62

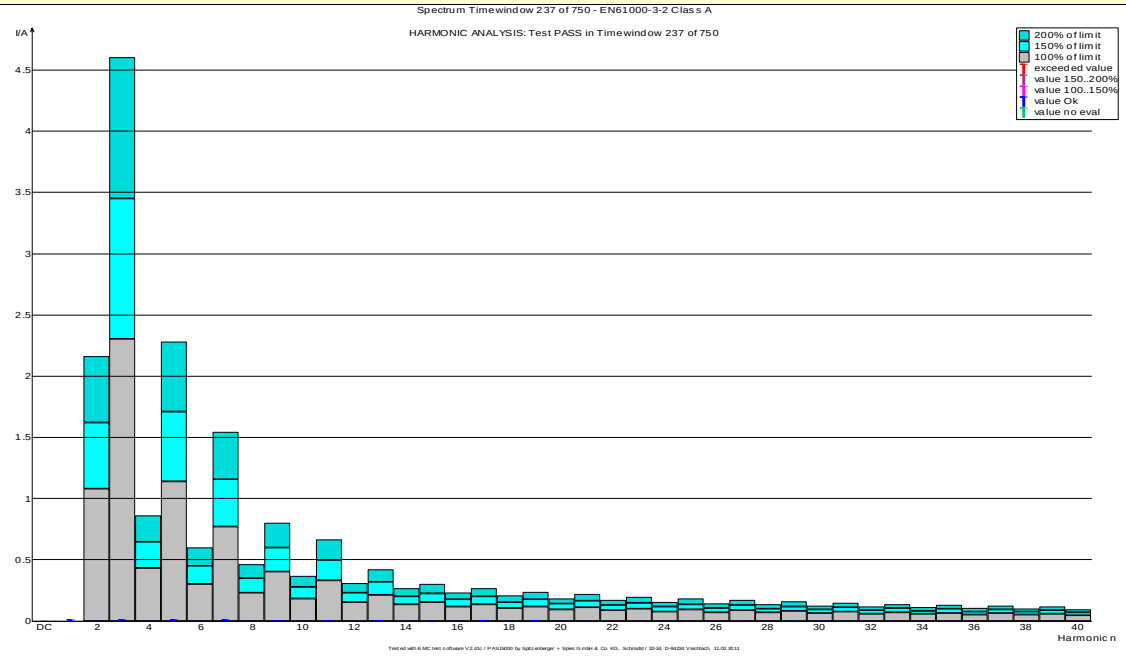
JoY

DISCONTINUOUS CONDUCTED EMISSIONS				
Petitioner: Tecnitoys Juguetes S.A.	**Device under test:** Scalextric/SCX compact set			
File Nº: 11/31700275	**Brand:** Tecnitoys			
Procedure: C5400278	**Model:** 3197/31790			
Standard: UNE-EN 55014-1:2008+A1:2009	**Serial number:** ---;Id:001			
	Reception date: 2011-01-24			
Performance criteria according to: UNE-EN 55014-1:2008+A1:2009	**Test type:** Conformity	**Temperature:** 21.3 ºC		
Technician: Luis Piñol		**Humidity:** 43.2 %		
		Atm. Pressure: 1001 hPa		
Supervised: Manolo López	**DUT exercise:** Circuit disposition following standard specifications, 2 cars running in free race mode **Supply:** AC 230V 50Hz			
Test date: 2011-03-14				
Equipment: ESCI3 EMI receiver RS LISN ESH2-Z5				
	Test area: Faraday chamber, FAC-1			
	Test disposition : On floor			
Auxiliary equipment:	**Communication cables entry/exit:**			

DISCONTINUOUS CONDUCTED EMISSIONS				
N determination 120 min.				
Clicks read in: 120 min.				
Frequency sensor	**limit (dBµV)**	**clicks**	**limits increased in**	**clicks remeasured**
0,15 MHz	66	0	+44 dB	0
0,5 MHz	56	0	+44 dB	0
1,4 MHz	56	0	+44 dB	0
30 MHz	60	0	+44 dB	0
RESULT: PASS				
Comments:				

HARMONIC CURRENT EMISSION TEST				
Petitioner: Tecnitoys Juguetes S.A.	**Device under test:** Scalextric/SCX compact set			
File Nº: 11/31700275	**Brand:** Tecnitoys			
Procedure: C5400281	**Model:** 3197/31790			
Standard: UNE-EN 61000-3-2:2006+A1:2010+A2:2010	**Serial number:** ---;Id:001			
	Reception date: 2011-01-24			
Performance criteria according to: UNE-EN 61000-3-2:2006+A1:2010+A2:2010	**Test type:** Conformity	**Temperature:** 22.6 ºC		
Criteria: PASS		**Humidity:** 38.5 %		
Technician: Pedro Moreno		**Atm. Pressure:** 1008 hPa		
Supervised: Manolo López	**DUT exercise:** Circuit disposition following standard specifications, 2 cars running in free race mode			
Test date: 2011-02-11				
Equipment: Spitzenberger+Spies EMV E 10000/PAS	**Supply:** AC 230V 50Hz			
Auxiliary equipment:	**Test disposition:** On floor			
	Communication cables entry/exit:			

RESULT: PASS



Comments:

HARMONIC CURRENT EMISSION TEST II	
Petitioner: Tecnitoys Juguetes S.A.	**Device under test:** Scalextric/SCX compact set
File Nº: 11/31700275	**Brand:** Tecnitoys
Procedure: C5400281	**Model:** 3197/31790
Standard: UNE-EN 61000-3-2:2006+A1:2010+A2:2010	**Serial number:** ---;Id:001
	Reception date: 2011-01-24

Maximum RMS current and corresponding values in timewindow 237:

Voltage:	230.83 Vrms		THD=0.00 %	THV=0.009 V	POHV=0.004 V	PWHD=0.01 %
Current:	0.037 Arms		THD=235.70 %	THC=0.033 A	POHC=0.007 A	PWHD=367.78 %
Power:	-3.9 W	P1=-3.9 W	8.5 VA			
Powerfactor:	-0.459	CosPhi1: -1.000				

Testconditions: EN 61000-3-2:2006, f=50 Hz, Phase=N, Range=0.16 A, No Ztest selected
Time window cycles=10/12 (200ms), Grouping of harmonics=on

HARMONIC ANALYSIS: Test PASS
Tobs = worst 2.5 min: tw 1..750; POHC: avg=0.01 A, limits=0.25 A

Ha	Entire measurement (2.5 min = 750 time windows)							Worst 2.5 min		Worst 2.5 min avg		PASS	FAIL
	Maximum	Window	EN61000-3-2 Class A	Margin in MaxWin	100 to 150%	150 to 200%	Ex-ceeded	100 to 150%	Ex-ceeded	Value	Ex-ceeded		
DC	0.0008 A	158	-.- - - -	- - - .-	0	0	0	0	0	-0.0004 A	0	X	
1	0.0169 A	237	-.- - - -	- - - .-	0	0	0	0	0	0.0160 A	0	X	
2	0.0004 A	277	1.0800 A	-100.0 %	0	0	0	0	0	0.0003 A	0	X	
3	0.0136 A	237	2.3000 A	-99.4 %	0	0	0	0	0	0.0126 A	0	X	
4	0.0004 A	277	0.4300 A	-99.9 %	0	0	0	0	0	0.0003 A	0	X	
5	0.0131 A	237	1.1400 A	-98.8 %	0	0	0	0	0	0.0122 A	0	X	
6	0.0004 A	277	0.3000 A	-99.9 %	0	0	0	0	0	0.0003 A	0	X	
7	0.0125 A	237	0.7700 A	-98.4 %	0	0	0	0	0	0.0116 A	0	X	
8	0.0004 A	277	0.2300 A	-99.8 %	0	0	0	0	0	0.0002 A	0	X	
9	0.0117 A	237	0.4000 A	-97.1 %	0	0	0	0	0	0.0109 A	0	X	
10	0.0003 A	277	0.1840 A	-99.8 %	0	0	0	0	0	0.0002 A	0	X	
11	0.0107 A	237	0.3300 A	-96.8 %	0	0	0	0	0	0.0100 A	0	X	
12	0.0003 A	277	0.1533 A	-99.8 %	0	0	0	0	0	0.0002 A	0	X	
13	0.0096 A	237	0.2100 A	-95.4 %	0	0	0	0	0	0.0091 A	0	X	
14	0.0003 A	277	0.1314 A	-99.8 %	0	0	0	0	0	0.0002 A	0	X	
15	0.0085 A	237	0.1500 A	-94.4 %	0	0	0	0	0	0.0080 A	0	X	
16	0.0002 A	277	0.1150 A	-99.8 %	0	0	0	0	0	0.0002 A	0	X	
17	0.0073 A	237	0.1324 A	-94.5 %	0	0	0	0	0	0.0069 A	0	X	
18	0.0002 A	277	0.1022 A	-99.8 %	0	0	0	0	0	0.0001 A	0	X	
19	0.0061 A	237	0.1184 A	-94.9 %	0	0	0	0	0	0.0058 A	0	X	
20	0.0002 A	277	0.0920 A	-99.8 %	0	0	0	0	0	0.0001 A	0	X	
21	0.0049 A	237	0.1071 A	-95.5 %	0	0	0	0	0	0.0048 A	0	X	
22	0.0001 A	277	0.0836 A	-99.8 %	0	0	0	0	0	0.0001 A	0	X	
23	0.0038 A	1	0.0978 A	-96.2 %	0	0	0	0	0	0.0037 A	0	X	
24	0.0001 A	277	0.0767 A	-99.8 %	0	0	0	0	0	0.0001 A	0	X	
25	0.0028 A	500	0.0900 A	-96.9 %	0	0	0	0	0	0.0027 A	0	X	
26	0.0001 A	277	0.0708 A	-99.9 %	0	0	0	0	0	0.0001 A	0	X	
27	0.0019 A	501	0.0833 A	-97.7 %	0	0	0	0	0	0.0019 A	0	X	
28	0.0001 A	277	0.0657 A	-99.9 %	0	0	0	0	0	0.0001 A	0	X	
29	0.0012 A	501	0.0776 A	-98.5 %	0	0	0	0	0	0.0011 A	0	X	
30	0.0001 A	277	0.0613 A	-99.9 %	0	0	0	0	0	0.0001 A	0	X	
31	0.0005 A	501	0.0726 A	-99.3 %	0	0	0	0	0	0.0005 A	0	X	
32	0.0001 A	277	0.0575 A	-99.9 %	0	0	0	0	0	0.0001 A	0	X	
33	0.0004 A	240	0.0682 A	-99.4 %	0	0	0	0	0	0.0002 A	0	X	
34	0.0001 A	277	0.0541 A	-99.9 %	0	0	0	0	0	0.0001 A	0	X	
35	0.0007 A	237	0.0643 A	-98.9 %	0	0	0	0	0	0.0005 A	0	X	
36	0.0001 A	277	0.0511 A	-99.8 %	0	0	0	0	0	0.0001 A	0	X	
37	0.0010 A	237	0.0608 A	-98.4 %	0	0	0	0	0	0.0008 A	0	X	
38	0.0001 A	277	0.0484 A	-99.8 %	0	0	0	0	0	0.0001 A	0	X	
39	0.0011 A	237	0.0577 A	-98.1 %	0	0	0	0	0	0.0010 A	0	X	
40	0.0001 A	277	0.0460 A	-99.8 %	0	0	0	0	0	0.0001 A	0	X	

JOY

FLICKER VOLTAGE EMISSION TEST				
Petitioner: Tecnitoys Juguetes S.A.	**Device under test:** Scalextric/SCX compact set			
File Nº: 11/31700275	**Brand:** Tecnitoys			
Procedure: C5400281	**Model:** 3197/31790			
Standard: UNE-EN 61000-3-3:2009	**Serial number:** ---;Id:001			
	Reception date: 2011-01-24			
Performance criteria according to: UNE-EN 61000-3-3:2009	**Tipo de ensayo:**	**Temperature:**	22.6	ºC
		Humidity:	38.5	%
Criteria: PASS	Conformidad	**Atm. Pressure:**	1008	hPa
Technician: Pedro Moreno	**DUT exercise:** Circuit disposition following standard specifications, 2 cars running in free race mode **Supply:** AC 230V 50Hz			
Supervised: Manolo López				
Test date: 2011-02-11				
Equipment: Spitzenberger+Spies EMV E 10000/PAS				
Auxiliary equipment:	**Test disposition:** On floor			
	Communication cables entry/exit:			
RESULT: PASS				

Testconditions: EN 61000-3-3:1995+A1+A2 / 230 V / 50 Hz / Phase L2 / Obs 1 x 10 min / Zte

FLICKER: Test PASS!

Time	Pmax	Pst	Sliding Plt	d(t)>3.30% [s]	dmax [%]	dc [%]	PASS	FAIL
17:55:05	0.003	0.0360	- . - - - -	0.000	0.073	- . - - -	X	
Limits:		1.000	0.650	0.500	4.000	3.300		
Plt: 0.036000							X	
Evaluated: PST, PLT, Sliding PLT, dc, dmax, d(t)								

FLICKER: Source test PASS!

Time	Pmax	Pst	Sliding Plt	d(t)>3.30% [s]	dmax [%]	dc [%]	PASS	FAIL
17:55:05	0.000	0.0150	- . - - - -	0.000	0.032	- . - - -	X	
Plt: 0.015000								
Evaluated: PST <= 0.4 dmax < 20% dmax1								

Tested with EMC test software V2.41c / PAS15000 by Spitzenberger + Spies GmbH & Co. KG, Schmidstr 32-34, D-94234 Viechtach, 11.02.2011

JOY

ELECTROSTATIC DISCHARGE IMMUNITY TEST				
Petitioner: Tecnitoys Juguetes S.A.	**Device under test:** Scalextric/SCX compact set			
File Nº: 11/31700275	**Brand:** Tecnitoys			
Procedure: C5400282	**Model:** 3197/31790			
Standard: UNE-EN 61000-4-2:1997+A1:1999+A2:2001	**Serial number:** ---;Id:001			
	Reception date: 2011-01-24			
Performance criteria according to: UNE-EN 55014-2:1998+A1:2002+A2:2009	**Test type:**	**Temperature:**	22.2	ºC
Criteria: B	Conformity	**Humidity:**	50.3	%
		Atm. Preas:	995	hPa
Technician: Pedro Fernández	**DUT exercise:** Circuit disposition following standard specifications, 2 cars running in free race mode			
Supervised: Manolo López				
Test date: 2011-03-17				
Equipment: Schaffner NSG 435	**Supply:** AC 230V 50Hz			
Auxiliary equipment:	**Disposición test:** Tabletop equipment			
	Communication cables input/output:			
DC – Contact Discharge, Sharp tip.	**IH** – Horizontal coupling, Sharp tip.			
AC - Air Discharge, Round tip.	**IV** - Vertical coupling, Sharp tip.			

Test N.	Level	Discharge		Pol + / -	Application Point	Results	Comments
		Nº	Type				
1	4kV	25	IV	+	FRONT 0º	A	Circuit
				-		A	
2	4kV	25	IV	+	LEFT 90º	A	Circuit
				-		A	
3	4kV	25	IV	+	REAR 180º	A	Circuit
				-		A	
4	4kV	25	IV	+	RIGHT 270º	A	Circuit
				-		A	
5	4kV	25	IH	+	FRONT 0º	A	Circuit
				-		A	
6	4kV	25	IH	+	LEFT 270º	A	Circuit
				-		A	
7	4kV	25	IH	+	REAR 180º	A	Circuit
				-		A	
8	4kV	25	IH	+	RIGHT 270º	A	Circuit
				-		A	
9	4kV	25	IV	+	FRONT 0º	A	PSU
				-		A	
10	4kV	25	IV	+	LEFT 90º	A	PSU
				-		A	
11	4kV	25	IV	+	REAR 180º	A	PSU
				-		A	
12	4kV	25	IV	+	RIGHT 270º	A	PSU
				-		A	

Comments:

ELECTROSTATIC DISCHARGE IMMUNITY TEST II	
Petitioner: Tecnitoys Juguetes S.A.	**Device under test:** Scalextric/SCX compact set
File Nº: 11/31700275	**Brand:** Tecnitoys
Procedure: C5400282	**Model:** 3197/31790
Standard: UNE-EN 61000-4-2:1997+A1:1999+A2:2001	**Serial number:** ---;Id:001
	Reception date: 2011-01-24
DC – Contact Discharge, Sharp tip.	**IH** – Horizontal coupling, Sharp tip.
AC - Air Discharge, Round tip.	**IV** - Vertical coupling, Sharp tip.

Test N.	Level	Discharge		Pol + / -	Application Point	Results	Comments
		Nº	Type				
13	4kV	25	IH	+	FRONT 0º	A	PSU
				-		A	
14	4kV	25	IH	+	LEFT 90º	A	PSU
				-		A	
15	4kV	25	IH	+	REAR 180º	A	PSU
				-		A	
16	4kV	25	IH	+	RIGHT 270º	A	PSU
				-		A	
17	4kV	25	IV	+	FRONT 0º	A	Throttle
				-		A	
18	4kV	25	IV	+	LEFT 90º	A	Throttle
				-		A	
19	4kV	25	IV	+	REAR 180º	A	Throttle
				-		A	
20	4kV	25	IV	+	RIGHT 270º	A	Throttle
				-		A	
21	4kV	25	IH	+	FRONT 0º	A	Throttle
				-		A	
22	4kV	25	IH	+	LEFT 90º	A	Throttle
				-		A	
23	4kV	25	IH	+	REAR 180º	A	Throttle
				-		A	
24	4kV	25	IH	+	RIGHT 270º	A	Throttle
				-		A	
25	4kV	25	DC	+	Track Left	A	
				-		A	
26	4kV	25	DC	+	Track right	A	
				-		A	
27	8kV	25	AC	+	Track Left	A	
				-		A	
28	8kV	25	AC	+	Track right	A	
				-		A	
29	8kV	25	AC	+	Car	A	
				-		A	
30	8kV	25	AC	+	Trottle	A	
				-		A	
31	8kV	25	AC	+	PSU	A	
				-		A	
32	8kV	25	AC	+	Connection track	A	
				-		A	

JOY

FAST TRANSIENTS / BURST IMMUNITY TEST					
Petitioner: Tecnitoys Juguetes S.A.			**Device under test:** Scalextric/SCX compact set		
File Nº: 11/31700275			**Brand:** Tecnitoys		
Procedure: C5400283			**Model:** 3197/31790		
Standard: UNE-EN 61000-4-4:2005			**Serial number:** ---;Id:001		
			Reception date: 2011-01-24		
Performance criteria according to: UNE-EN 55014-2:1998+A1:2002+A2:2009			**Tipo de ensayo:**	**Temperature:** 22.4 ºC	
Criteria: B			Conformidad	**Humidity:** 50.9 %	
				Atm. Pressure: 985 hPa	
Technician: Pedro Fernández			**DUT exercise:** Circuit disposition following standard specifications, 2 cars running in free race mode		
Supervised: Manolo López					
Test date: 2011-03-16			**Supply:** AC 230V 50Hz		
Equipment: Schaffner Generator NSG 2025-8			**Test disposition :** Tabletop equipment		
Auxiliary equipment:			**Communication cables entry/exit:**		
Test	**Application**	**Severity (kV)**	**Lenght**	**Results**	**Comments**
Direct AC power	(L1+N) +	1	2 min	A	
	(L1 +N) -	1	2 min	A	
Comments:					

JOY

SURGE TRANSIENT IMMUNITY TEST (1,2/50)								
Petitioner: Tecnitoys Juguetes S.A.					**Device under test:** Scalextric/SCX compact set			
File Nº: 11/31700275					**Brand:** Tecnitoys			
Procedure: C5400286					**Model:** 3197/31790			
Standard: UNE-EN 61000-4-5:2007					**Serial number:** ---;Id:001			
					Reception date: 2011-01-24			
Performance criteria according to: UNE-EN 55014-2:1998+A1:2002+A2:2009					**Tipo de ensayo:** Conformidad	**Temperature:** 22.2 ºC **Humidity:** 50.3 % **Atm.Pressure:** 995 hPa		
Criteria: B								
Technician: Pedro Fernández					**DUT exercise:** Circuit disposition following standard specifications, 2 cars running in free race mode **Supply:** AC 230V 50Hz			
Supervised: Manolo López								
Test date: 2011-03-17								
Equipment: HAEFELEY PSURGE8000 HAEFELEY PIM100 HAEFELEY PCD130					**Test disposition :** Tabletop equipment			
Auxiliary equipment:					**Communication cables entry/exit:**			

Application	**Zo**	**Line**	**Fhase**	**Severity kV**	**Number of Pulses min 5**	**Results**		**Application**
						Polarity+	**Polarity-**	
SUPPLY POWER								
Simetric	2	L1/N	90º	1	5	A	A	
			0/180º	1	5	A	A	
			270º	1	5	A	A	
Asimetric	12	L1/E	90º	2	5	A	A	
			0/180º	2	5	A	A	NOTE
			270º	2	5	A	A	
Asimetric	12	N/E	90º	2	5	A	A	
			0/180º	2	5	A	A	
			270º	2	5	A	A	

Comments:

NOTE: The PSU crash at +2kV 270º. It was replaced for identical one and no repeatable crash (1/3).

JOY

IMMUNITY TO CONDUCTED DISTURBANCES, INDUCTED BY RADIO-FREQUENCY FIELD				
Petitioner: Tecnitoys Juguetes S.A.		**Device under test:** Scalextric/SCX compact set		
File Nº: 11/31700275		**Brand:** Tecnitoys		
Procedure: C5400284		**Model:** 3197/31790		
Standard: UNE-EN 61000-4-6:2008		**Serial number:** ---;Id:001		
		Reception date: 2011-01-24		
Performance criteria according to: UNE-EN 55014-2:1998+A1:2002+A2:2009		**Test type:** Conformity	**Temperature:** 22.4 ºC **Humidity:** 50.9 % **Atm. Pressure:** 985 hPa	
Criteria: A				
Technician: Pedro Fernández		**DUT exercise:** Circuit disposition following standard specifications, 2 cars running in free race mode **Supply:** AC 230V 50Hz		
Supervised: Manolo López				
Test date: 2011-03-16				
Auxiliary equipment:		**Test disposition :** Tabletop equipment		
		Communication cables entry/exit:		
DUT Size:				
Severity level: 3 V rms		**Part of a system?:** No		
Frequency Margin: 150kHz-230MHz		**Dwell time:** 3s		
Modulation: 80% AM 1kHz		**Step:** 1%		

CDN	Severity (V)	Application point	Results	Comments
M3	3	Supply	A	

Comments:

JOY

VOLTAGE DIPS, SHORT INTERRUPTIONS & VOLTAGE VARIATIONS IMMUNITY TEST					
Petitioner: Tecnitoys Juguetes S.A.	**Device under test:** Scalextric/SCX compact set				
File Nº: 11/31700275	**Brand:** Tecnitoys				
Procedure: C5400288	**Model:** 3197/31790				
Standard: UNE-EN 61000-4-11:2005	**Serial number:** ---;Id:001				
	Reception date: 2011-01-24				
Performance criteria according to: UNE-EN 55014-2:1998+A1:2002+A2:2009	**Test type:**	**Temperature:**	27.6	ºC	
Criteria: C	Conformity	**Humidity:**	38.5	%	
Technician: Pedro Moreno		**Atm. Pressure:**	1008	hPa	
Supervised: Manolo López	**DUT exercise:** Circuit disposition following standard specifications, 2 cars running in free race mode				
Test date: 2011-02-11	**Supply:** AC 230V 50Hz				
Auxiliary equipment:	**Test disposition :** Tabletop equipment				
	Communication cables entry/exit:				

VOLTAGE DIPS AND SHORT INTERRUPTIONS

Nominal Voltage	U Var. %	Length in milliseconds	Results	Criteria	Comments
230V / 50 Hz	100	10	A	C	
230V / 50 Hz	60	200	A	C	
230V / 50 Hz	30	500	A	C	

Comments:

JOY