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Melville, NY 11747

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Job Number:	07CA21737
File Number:	NC9638
Date:	07 June 2007
Revised Date:	24 April 2008
Model:	TL900
FCC ID:	V86TL900CHECK
IC ID:	7379A-DCHECKER

# Electromagnetic Compatibility Test Report

For

**TELECON GALICIA**

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Underwriters Laboratories Inc.  
1285 Walt Whitman Rd.  
Melville, NY 11747

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to public safety and committed to  
quality service for over 100 years**

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Job Number: 07CA21737 File Number: NC9638 Page 2 of 40  
Model Number: TL900  
Client Name: TELECON GALICIA  
FCC ID: V86TL900CHECK  
IC ID: 7379A-DCHECKER

## Test Report Details

Tests Performed By: **Underwriters Laboratories Inc.  
1285 Walt Whitman Rd.  
Melville, NY 11747**

Tests Performed For: **TELECON GALICIA  
C/ ENRIQUE DEQUIDT, 11 BAJOS  
LA CORUÑA, 15005**

Applicant Contact: **Mr. Antonio Vazquez**  
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Test Report Date: **07 June 2007**  
Revised Test Report Date: **24 April 2008**

Product Type: **RFID Tag Reader**

Product standards **FCC Part 15, Subpart C, 15.31, 15.35, 15.207 and 15.209,  
RSS-GEN, RSS-210.**

Model Number: **TL900**

Sample Serial Number: **Prototype**

EUT Category: **RFID Low Power Transmitter**

Testing Start Date: **05 June 2007**

Date Testing Complete: **09 April 2008**

**Overall Results: Compliant**

Underwriters Laboratories Inc. reports apply only to the specific samples tested under stated test conditions. All samples tested were in good operating condition throughout the entire test program. It is the manufacturer's responsibility to assure that additional production units of this model are manufactured with identical electrical and mechanical components. Underwriters Laboratories Inc. shall have no liability for any deductions, inferences or generalizations drawn by the client or others from Underwriters Laboratories Inc. issued reports. This report shall not be used to claim, constitute or imply product certification, approval, or endorsement by NVLAP, A2LA, or any agency of the US government.

This report may contain test results that are not covered by the NVLAP or A2LA accreditation. The scope of accreditation is limited to the specific tests that are listed on the NVLAP and/or A2LA websites referenced at the end of this report.

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Report Revision History

Revision Date	Description	Revised By	Revision Reviewed By
09 April 2008	Added Industry Canada information and antenna description, correct typo's and clarify limits, include OBW, Input voltage variation data	Joseph Danisi	--

## 1.0 G E N E R A L - Product Description

### 1.1 Equipment Description

The double checker is used for tag detection in a certain distance range. It is used at the end of the cloth manufacturing line, at POS to confirm label deactivation or detect presence of hard tags. The tag consists of a magnetostrictive resonator, which resounds at a particular frequency when excited.

The principle of the double checker functioning is a transmitter, which generates short bursts of an electromagnetic field in order to provide enough energy to a resonator of all in range tags. The receiver amplifies the very low energy returned from the tag generating an alarm as long as it is in range.

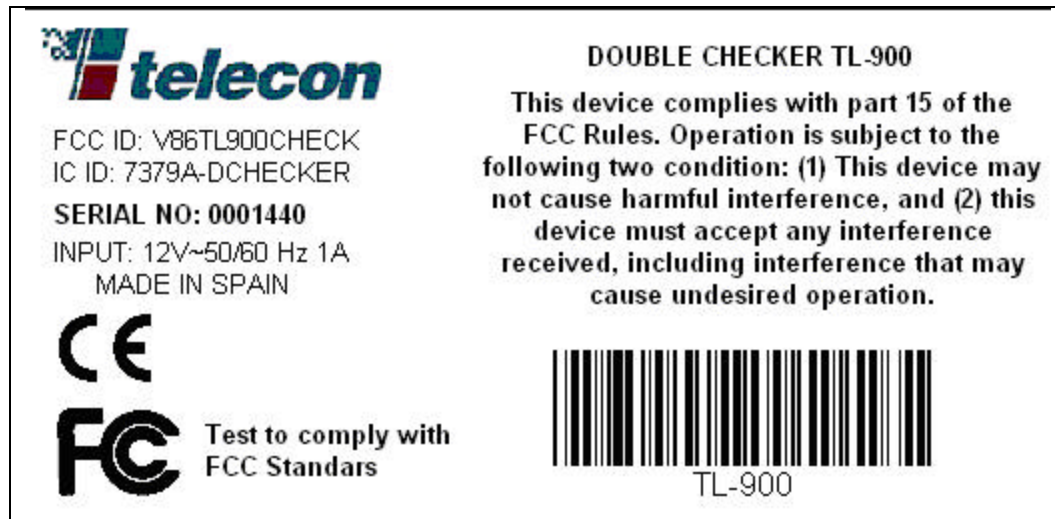
Per FCC Part 2.1093 (C) this device is not required to undergo testing for radio-frequency radiation exposure

The device under test was tested in normal orientation that represents the worst-case orientation.

Antenna description: The antenna of TL-900 is an induction loop built in PCB.

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## 1.2 Equipment Marking Plate



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### 1.3 Device Configuration During Test

#### 1.3.1 Equipment Used During Test:

Use	Product Type	Manufacturer	Model	Comments
EUT	Double Checker	TELECON GALICIA	TL900	None
Note: <b>EUT</b> - Equipment Under Test, <b>AE</b> - Auxiliary/Associated Equipment, or <b>SIM</b> - Simulator (Not Subjected to Test)				

#### 1.3.2 Input/Output Ports:

Port #	Name	Type*	Cable Max. >3m (Y/N)	Cable Shielded (Y/N)	Comments
0	Enclosure	N/E	—	—	None
1	Mains	AC	NO	NO	None
Note: AC = AC Power Port      DC = DC Power Port      N/E = Non-Electrical I/O = Signal Input or Output Port (Not Involved in Process Control) TP = Telecommunication Ports					

### 1.3.3 EUT Internal Operating Frequencies:

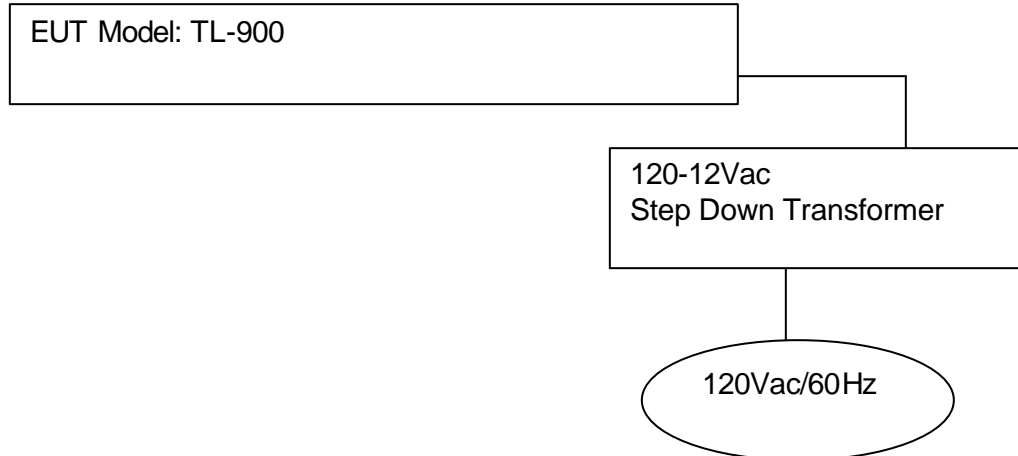
Frequency (MHz)	Description	Frequency (MHz)	Description
0.058	Fundamental	-	-

### 1.3.4 Power Interface:

Mode # /Rated	Voltage (V)	Current (A)	Power (W)	Frequency (DC/AC-Hz)	Phases (#)	Comments
1	12Vac	-	-	60Hz	Single Phase	None

### Block Diagram:

The diagram below illustrates the configuration of the equipment above.



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## 1.5 EUT Operation Modes

Mode #	Description
1	Blink /still alarm LED settings
2	Receive

## 1.6 EUT Configurations

Mode #	Description
1	Configuration per the manufacturer Telecon Galicia instruction manual.

## 2.0 Summary

The tests listed in the Summary of Testing section of this report have been performed and the results recorded by Underwriters Laboratories Inc. in accordance with the procedures stated in each test requirement and specification. The applicant determined the list of tests performed were applicable to the Equipment Under Test. As a result, the subject product has been verified to comply or not comply as noted in the Summary of Testing with each test specification. The test results relate only to the items tested.

### 2.1 Deviations from standard test methods

None
------

### 2.2 Device Modifications Necessary for Compliance

None
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## 2.3 Reference Standards

Standard Number	Standard Name	Standard Date
CFR 47	FCC Part 15, Subpart C, 15.31, 15.35, 15.107, 15.109, 15.209 & 15.231	2007
CFR 47	FCC Part 15, Subpart B, Class B	2007
ICES-003, Issue 4	Spectrum Management and Telecommunications Policy Interference-Causing Equipment Standard: Digital Apparatus	2003
RSS- 210, Issue 7	Low-power License-exempt Radio communications Devices (All Frequency Bands): Category I Equipment sets out certification requirements for low-power license- exempt radio communication devices that are Category I equipment.	2007
RSS-GEN, Issue 2	General Requirements and Information for the Certification of Radio communication Equipment.	2007

## 2.4 Results Summary

This product is considered Class B

Requirement – Test	Result (Complaint )
Conducted Emissions	Complaint
Radiated Emissions - General	Complaint
Radiated Emissions – Spurious Emissions	Complaint
Occupied Bandwidth	Complaint
Cease Operation	Complaint



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Client Name:	TELECON GALICIA				
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### 3.0 Calibration of Equipment Used for Measurement

All test equipment and test accessories are calibrated on a regular basis. The maximum time between calibrations is one year or the manufacturers' recommendation whichever is less.

All test equipment calibrations are traceable to the National Institute of Standards and Technology (NIST); therefore, all test data recorded in this report is traceable to NIST.

### 4.0 EMISSIONS TEST RESULTS

The emissions tests were performed according to following regulations:

FCC Part 15, Subpart C, 15.207, 15.209.	Code of Federal Regulations, Part 15, Subpart C, Radio Frequency Devices: 2007
Radio Standards Specification 210, Issue 7	Low-power License-exempt Radio communications Devices (All Frequency Bands): Category I Equipment sets out certification requirements for low-power license- exempt radio communication devices that are Category I equipment. 2007
RSS-GEN, Issue 2	General Requirements and Information for the Certification of Radio communication Equipment.

Unless specified otherwise in the individual Methods, the tests shall be conducted under the following ambient conditions. Confirmation of these conditions shall be verified at the time the test is conducted.

Ambient Temperature, °C	22.5 ± 2.5	Relative Humidity, %	45 ± 15	Barometric Pressure, mBar	950 ± 150
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#### 4.1 Test Conditions and Results – MAINS TERMINAL – CONDUCTED EMISSIONS

Test Description	Measurements were made on a ground plane. All power was connected to the system through Artificial Mains Network (AMN). Conducted voltage measurements on mains lines were made at the output of the AMN.	
Basic Standard	FCC Part 15, Subpart C, 15.207 & RSS-210	
UL LPG	80-EM-S0026	
	Frequency range on each side of line	Measurement Point
Fully configured sample scanned over the following frequency range	150kHz to 30MHz	Mains
<b>Limits - Class B</b>		
Frequency (MHz)	Limit (dB $\mu$ V)	
	Quasi-Peak	Average
0.15-0.5	66 to 56	56 to 46
0.5-5	56	46
5-30	60	50
Supplementary information: None		

**Table 1 Conducted Emissions EUT Configuration Settings**

Power Interface Mode #	EUT Configurations Mode #	EUT Operation Mode #
1	1	1
Supplementary information: None		

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FCC ID:	V86TL900CHECK				
IC ID:	7379A-DCHECKER				

**Table 2 Conducted Emissions Test Equipment**

Test Equipment Used			
Description	Manufacturer	Model	Identifier
Conducted Emissions – Shield Room			
Spectrum Analyzer	Agilent	E7405A	19695
LISN	EMCO	3825/2R	ME5-629
Switch Driver	HP	11713A	44403
RF Switch Box	UL	2	44400
Measurement Software	UL	Version 9.3	44743
Temp/Humidity/Pressure Meter	Cole Parmer	99760-00	43736

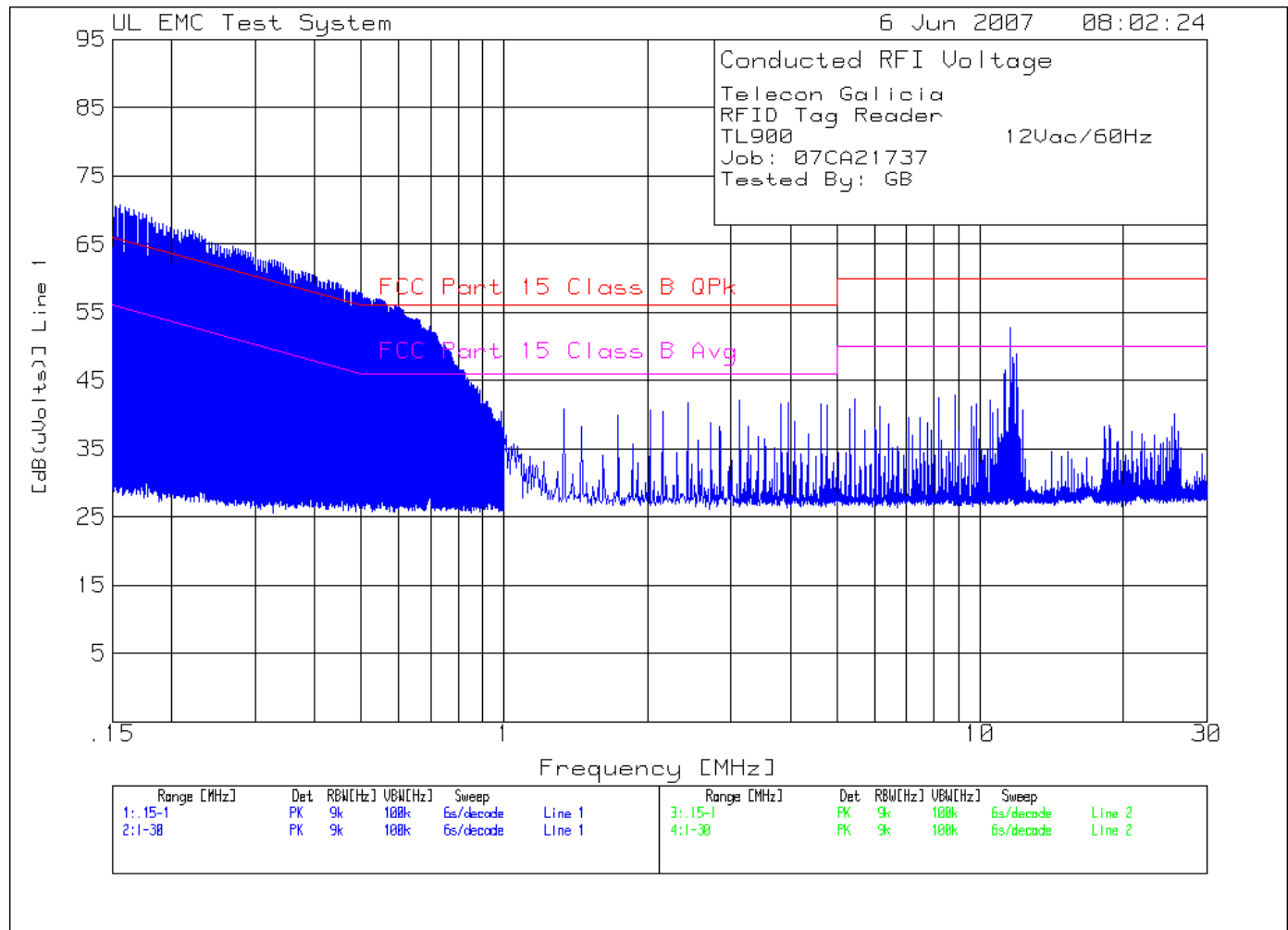
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Model Number: TL900  
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**Figure 1 Test Setup for Conducted Emissions**



Figure 2 Conducted Emissions Graph



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**Table 3 Conducted Emissions Data Points**

Telecon Galicia  
 RFID Tag Reader  
 TL900      12Vac/60Hz  
 Job: 07CA21737  
 Tested By: GB

No.	Test Frequency [MHz]	Meter Reading [dB(uV)]	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level [dB(uVolts)]	Limit:1	2	3	4
=====									
Line 1	.15	- 1MHz							
1	.15594	58.76 pk	12	0	70.76	65.7	55.7	-	-
				Margin [dB]		5.06	15.06	-	-
2	.17396	57.73 pk	11.7	0	69.43	64.8	54.8	-	-
				Margin [dB]		4.63	14.63	-	-
3	.20301	55.73 pk	11.4	0	67.13	63.5	53.5	-	-
				Margin [dB]		3.63	13.63	-	-
4	.25029	53.9 pk	11	0	64.9	61.7	51.7	-	-
				Margin [dB]		3.2	13.2	-	-
5	.29015	52.94 pk	10.9	0	63.84	60.5	50.5	-	-
				Margin [dB]		3.34	13.34	-	-
6	.33912	51.56 pk	10.7	0	62.26	59.2	49.2	-	-
				Margin [dB]		3.06	13.06	-	-
7	.39722	49.88 pk	10.6	0	60.48	57.9	47.9	-	-
				Margin [dB]		2.58	12.58	-	-
8	.47418	47.43 pk	10.5	0	57.93	56.4	46.4	-	-
				Margin [dB]		1.53	11.53	-	-
9	.55136	46.27 pk	10.5	0	56.77	56	46	-	-
				Margin [dB]		.77	10.77	-	-
10	.65186	43.69 pk	10.4	0	54.09	56	46	-	-
				Margin [dB]		-1.91	8.09	-	-
11	.75427	39.37 pk	10.4	0	49.77	56	46	-	-
				Margin [dB]		-6.23	3.77	-	-
23	.82317	35.87 pk	10.4	0	46.27	56	46	-	-
				Margin [dB]		-9.73	.27	-	-
24	.88678	33.26 pk	10.4	0	43.66	56	46	-	-
				Margin [dB]		-12.34	-2.34	-	-
25	.95929	28.93 pk	10.4	0	39.33	56	46	-	-
				Margin [dB]		-16.67	-6.67	-	-

LIMIT 1: FCC Part 15 Class B QPk  
 LIMIT 2: FCC Part 15 Class B Avg

pk - Peak detector  
 qp - Quasi-Peak detector  
 av - Average detector  
 avlg - denotes average log detection

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 Client Name: TELECON GALICIA  
 FCC ID: V86TL900CHECK  
 IC ID: 7379A-DCHECKER

Telecon Galicia  
 RFID Tag Reader  
 TL900                      12Vac/60Hz  
 Job: 07CA21737  
 Tested By: GB

Test	Meter	Gain/Loss	Transducer	Level	Limit:1	2	3	4
Frequency	Reading	Factor	Factor	[dB(uVolts)]				
[MHz]	[dB(uV)]	[dB]	[dB]					
=====								
Line 1 .15 - 1MHz								
.15549	50.13 qp	12	0	62.13	65.7	55.7	-	-
			Margin [dB]:		-3.57	6.43	-	-
.17263	49.18 qp	11.7	0	60.88	64.8	54.8	-	-
			Margin [dB]:		-3.92	6.08	-	-
.20126	47.76 qp	11.4	0	59.16	63.6	53.6	-	-
			Margin [dB]:		-4.44	5.56	-	-
.2486	45.72 qp	11	0	56.72	61.8	51.8	-	-
			Margin [dB]:		-5.08	4.92	-	-
.28904	44.06 qp	10.9	0	54.96	60.6	50.6	-	-
			Margin [dB]:		-5.64	4.36	-	-
.33816	42.46 qp	10.7	0	53.16	59.2	49.2	-	-
			Margin [dB]:		-6.04	3.96	-	-
.39572	40.92 qp	10.6	0	51.52	57.9	47.9	-	-
			Margin [dB]:		-6.38	3.62	-	-
.47282	39.03 qp	10.5	0	49.53	56.5	46.5	-	-
			Margin [dB]:		-6.97	3.03	-	-
.55076	37.35 qp	10.5	0	47.85	56	46	-	-
			Margin [dB]:		-8.15	1.85	-	-
.65058	34.67 qp	10.4	0	45.07	56	46	-	-
			Margin [dB]:		-10.93	-.93	-	-
.75355	34.61 qp	10.4	0	45.01	56	46	-	-
			Margin [dB]:		-10.99	-.99	-	-

LIMIT 1: FCC Part 15 Class B QPk  
 LIMIT 2: FCC Part 15 Class B Avg

pk - Peak detector  
 qp - Quasi-Peak detector  
 av - Average detector  
 avlg - denotes average log detection



Job Number: 07CA21737      File Number: NC9638      Page 17 of 40  
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 FCC ID: V86TL900CHECK  
 IC ID: 7379A-DCHECKER

Telecon Galicia  
 RFID Tag Reader  
 TL900      12Vac/60Hz  
 Job: 07CA21737  
 Tested By: GB

Test	Meter	Gain/Loss	Transducer	Level	Limit:1	2	3	4
Frequency	Reading	Factor	Factor	[dB(uVolts)]				
[MHz]	[dB(uV)]	[dB]	[dB]					
=====								
Line 1 .15 - 1MHz								
.15594	3.31 ave	12	0	15.31	65.7	55.7	-	-
			Margin [dB]:		-50.39	-40.39	-	-
.17396	4.14 ave	11.7	0	15.84	64.8	54.8	-	-
			Margin [dB]:		-48.96	-38.96	-	-
.20301	2.67 ave	11.4	0	14.07	63.5	53.5	-	-
			Margin [dB]:		-49.43	-39.43	-	-
.25029	2.01 ave	11	0	13.01	61.7	51.7	-	-
			Margin [dB]:		-48.69	-38.69	-	-
.29015	7.98 ave	10.9	0	18.88	60.5	50.5	-	-
			Margin [dB]:		-41.62	-31.62	-	-
.33912	1.56 ave	10.7	0	12.26	59.2	49.2	-	-
			Margin [dB]:		-46.94	-36.94	-	-
.39722	11.54 ave	10.6	0	22.14	57.9	47.9	-	-
			Margin [dB]:		-35.76	-25.76	-	-
.47418	1.01 ave	10.5	0	11.51	56.4	46.4	-	-
			Margin [dB]:		-44.89	-34.89	-	-
.55136	.58 ave	10.5	0	11.08	56	46	-	-
			Margin [dB]:		-44.92	-34.92	-	-
.65186	12.25 ave	10.4	0	22.65	56	46	-	-
			Margin [dB]:		-33.35	-23.35	-	-
.75427	10.75 ave	10.4	0	21.15	56	46	-	-
			Margin [dB]:		-34.85	-24.85	-	-
.82317	-.66 ave	10.4	0	9.74	56	46	-	-
			Margin [dB]:		-46.26	-36.26	-	-
.88678	-.78 ave	10.4	0	9.62	56	46	-	-
			Margin [dB]:		-46.38	-36.38	-	-
.95929	-1.63 ave	10.4	0	8.77	56	46	-	-

LIMIT 1: FCC Part 15 Class B QPk  
 LIMIT 2: FCC Part 15 Class B Avg

pk - Peak detector  
 qp - Quasi-Peak detector  
 av - Average detector  
 avlg - denotes average log detection  
 ave - denotes average detection

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 IC ID: 7379A-DCHECKER

Telecon Galicia  
 RFID Tag Reader  
 TL900      12Vac/60Hz

Job: 07CA21737

Tested By: GB

Test	Meter	Gain/Loss	Transducer	Level	Limit:1	2	3	4
Frequency	Reading	Factor	Factor	[dB(uVolts)]				
[MHz]	[dB(uV)]	[dB]	[dB]					
=====								
Line 1 .15 - 1MHz								
1.33275	4.55 ave	10.4	0	14.95	56	46	-	-
			Margin [dB]:		-41.05	-31.05	-	-
1.73784	3.5 ave	10.4	0	13.9	56	46	-	-
			Margin [dB]:		-42.1	-32.1	-	-
2.02719	5.55 ave	10.4	0	15.95	56	46	-	-
			Margin [dB]:		-40.05	-30.05	-	-
2.15016	5.14 ave	10.4	0	15.54	56	46	-	-
			Margin [dB]:		-40.46	-30.46	-	-
2.43228	4.5 ave	10.4	0	14.9	56	46	-	-
			Margin [dB]:		-41.1	-31.1	-	-
3.12672	5.02 ave	10.4	0	15.42	56	46	-	-
			Margin [dB]:		-40.58	-30.58	-	-
3.82115	-4.3 ave	10.4	0	6.1	56	46	-	-
			Margin [dB]:		-49.9	-39.9	-	-
3.94413	4.66 ave	10.4	0	15.06	56	46	-	-
			Margin [dB]:		-40.94	-30.94	-	-
4.63856	5.4 ave	10.4	0	15.8	56	46	-	-
			Margin [dB]:		-40.2	-30.2	-	-
4.76154	5.45 ave	10.5	0	15.95	56	46	-	-
			Margin [dB]:		-40.05	-30.05	-	-

LIMIT 1: FCC Part 15 Class B QPk

LIMIT 2: FCC Part 15 Class B Avg

pk - Peak detector

qp - Quasi-Peak detector

av - Average detector

avlg - denotes average log detection

ave - denotes average detection

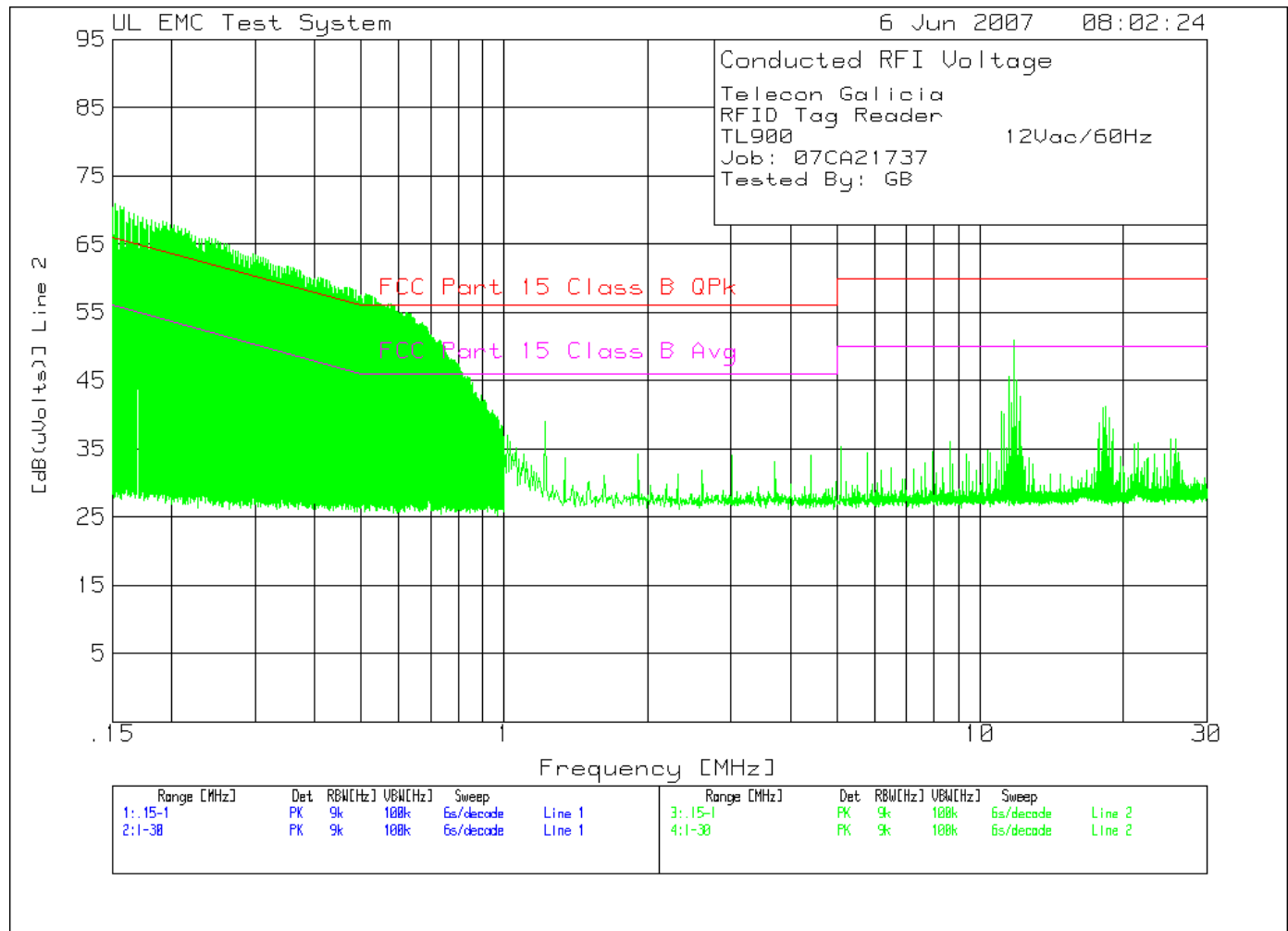
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Telecon Galicia  
 RFID Tag Reader  
 TL900                      12Vac/60Hz  
 Job: 07CA21737  
 Tested By: GB

Test	Meter	Gain/Loss	Transducer	Level	Limit:1	2	3	4
Frequency	Reading	Factor	Factor	[dB(uVolts)]				
[MHz]	[dB(uV)]	[dB]	[dB]					
=====								
Line 1 .15 - 1MHz								
11.19232	8.17 ave	10.7	0	18.87	60	50	-	-
			Margin [dB]:		-41.13	-31.13	-	-
11.31529	8.95 ave	10.7	0	19.65	60	50	-	-
			Margin [dB]:		-40.35	-30.35	-	-
11.59741	11 ave	10.7	0	21.7	60	50	-	-
			Margin [dB]:		-38.3	-28.3	-	-
11.64081	13.97 ave	10.7	0	24.67	60	50	-	-
			Margin [dB]:		-35.33	-25.33	-	-
11.72038	13.3 ave	10.7	0	24	60	50	-	-
			Margin [dB]:		-36	-26	-	-
11.76378	16.31 ave	10.7	0	27.01	60	50	-	-
			Margin [dB]:		-32.99	-22.99	-	-
11.88676	13.74 ave	10.7	0	24.44	60	50	-	-
			Margin [dB]:		-35.56	-25.56	-	-
12.00973	9.29 ave	10.7	0	19.99	60	50	-	-
			Margin [dB]:		-40.01	-30.01	-	-

LIMIT 1: FCC Part 15 Class B QPk  
 LIMIT 2: FCC Part 15 Class B Avg  
  
 pk - Peak detector  
 qp - Quasi-Peak detector  
 av - Average detector  
 avlg - denotes average log detection  
 ave - denotes average detection

Figure 3 Conducted Emissions Graph



Job Number: 07CA21737      File Number: NC9638      Page 21 of 40  
 Model Number: TL900  
 Client Name: TELECON GALICIA  
 FCC ID: V86TL900CHECK  
 IC ID: 7379A-DCHECKER

**Table 4 Conducted Emissions Data Points**

Telecon Galicia  
 RFID Tag Reader  
 TL900      12Vac/60Hz  
 Job: 07CA21737  
 Tested By: GB

No.	Test Frequency [MHz]	Meter Reading [dB(uV)]	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level [dB(uVolts)]	Limit:1	2	3	4
=====									
Line 2	.15	- 1MHz							
12	.15933	58.4 pk	11.9	0	70.3	65.5	55.5	-	-
				Margin [dB]		4.8	14.8	-	-
13	.18117	56.86 pk	11.6	0	68.46	64.4	54.4	-	-
				Margin [dB]		4.06	14.06	-	-
14	.21361	55.87 pk	11.3	0	67.17	63.1	53.1	-	-
				Margin [dB]		4.07	14.07	-	-
15	.25389	54.32 pk	11	0	65.32	61.6	51.6	-	-
				Margin [dB]		3.72	13.72	-	-
16	.29736	52.71 pk	10.8	0	63.51	60.3	50.3	-	-
				Margin [dB]		3.21	13.21	-	-
17	.35969	50.91 pk	10.7	0	61.61	58.7	48.7	-	-
				Margin [dB]		2.91	12.91	-	-
18	.41779	49.37 pk	10.6	0	59.97	57.5	47.5	-	-
				Margin [dB]		2.47	12.47	-	-
19	.50026	46.94 pk	10.5	0	57.44	56	46	-	-
				Margin [dB]		1.44	11.44	-	-
20	.57744	45.67 pk	10.5	0	56.17	56	46	-	-
				Margin [dB]		.17	10.17	-	-
21	.68409	42.47 pk	10.4	0	52.87	56	46	-	-
				Margin [dB]		-3.13	6.87	-	-
22	.70592	40.96 pk	10.4	0	51.36	56	46	-	-
				Margin [dB]		-4.64	5.36	-	-
26	.83441	35.13 pk	10.4	0	45.53	56	46	-	-
				Margin [dB]		-10.47	-4.47	-	-
27	.89356	31.68 pk	10.4	0	42.08	56	46	-	-
				Margin [dB]		-13.92	-3.92	-	-
28	.94742	29.85 pk	10.4	0	40.25	56	46	-	-
				Margin [dB]		-15.75	-5.75	-	-

LIMIT 1: FCC Part 15 Class B QPk  
 LIMIT 2: FCC Part 15 Class B Avg

pk - Peak detector  
 qp - Quasi-Peak detector  
 av - Average detector  
**avlg - denotes average log detection**

Job Number: 07CA21737      File Number: NC9638      Page 22 of 40  
 Model Number: TL900  
 Client Name: TELECON GALICIA  
 FCC ID: V86TL900CHECK  
 IC ID: 7379A-DCHECKER

Telecon Galicia  
 RFID Tag Reader  
 TL900      12Vac/60Hz  
 Job: 07CA21737  
 Tested By: GB

Test No.	Frequency [MHz]	Meter Reading [dB(uV)]	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level [dB(uVolts)]	Limit:1	2	3	4
=====									
Line 2	.15 - 1MHz								
.15762	50.01 qp	11.9	0	61.91	65.6	55.6	-	-	
			Margin [dB]:		-3.69	6.31	-	-	
.17967	48.9 qp	11.6	0	60.5	64.5	54.5	-	-	
			Margin [dB]:		-4	6	-	-	
.21239	47.26 qp	11.3	0	58.56	63.1	53.1	-	-	
			Margin [dB]:		-4.54	5.46	-	-	
.25217	45.45 qp	11	0	56.45	61.7	51.7	-	-	
			Margin [dB]:		-5.25	4.75	-	-	
.29576	43.98 qp	10.8	0	54.78	60.4	50.4	-	-	
			Margin [dB]:		-5.62	4.38	-	-	
.35989	41.84 qp	10.7	0	52.54	58.7	48.7	-	-	
			Margin [dB]:		-6.16	3.84	-	-	
.41756	3.05 qp	10.6	0	13.65	57.5	47.5	-	-	
			Margin [dB]:		-43.85	-33.85	-	-	
.49884	42.69 qp	10.5	0	53.19	56	46	-	-	
			Margin [dB]:		-2.81	7.19	-	-	
.57657	33.29 qp	10.5	0	43.79	56	46	-	-	
			Margin [dB]:		-12.21	-2.21	-	-	
.68277	25.21 qp	10.4	0	35.61	56	46	-	-	
			Margin [dB]:		-20.39	-10.39	-	-	
.70605	2.51 qp	10.4	0	12.91	56	46	-	-	
			Margin [dB]:		-43.09	-33.09	-	-	

LIMIT 1: FCC Part 15 Class B QPk  
 LIMIT 2: FCC Part 15 Class B Avg

pk - Peak detector  
 qp - Quasi-Peak detector  
 av - Average detector  
 avlg - denotes average log detection  
 ave - denotes average detection

Job Number: 07CA21737      File Number: NC9638      Page 23 of 40  
 Model Number: TL900  
 Client Name: TELECON GALICIA  
 FCC ID: V86TL900CHECK  
 IC ID: 7379A-DCHECKER

Telecon Galicia  
 RFID Tag Reader  
 TL900      12Vac/60Hz  
 Job: 07CA21737  
 Tested By: GB

Test No.	Frequency [MHz]	Meter Reading [dB(uV)]	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level [dB(uVolts)]	Limit:1	2	3	4
=====									
Line 2	.15 - 1MHz								
.15933	3.47 ave	11.9	0	15.37	65.5	55.5	-	-	
			Margin [dB]:		-50.13	-40.13	-	-	
.18117	12.44 ave	11.6	0	24.04	64.4	54.4	-	-	
			Margin [dB]:		-40.36	-30.36	-	-	
.21361	2.43 ave	11.3	0	13.73	63.1	53.1	-	-	
			Margin [dB]:		-49.37	-39.37	-	-	
.25389	2.11 ave	11	0	13.11	61.6	51.6	-	-	
			Margin [dB]:		-48.49	-38.49	-	-	
.29736	15.98 ave	10.8	0	26.78	60.3	50.3	-	-	
			Margin [dB]:		-33.52	-23.52	-	-	
.35969	1.97 ave	10.7	0	12.67	58.7	48.7	-	-	
			Margin [dB]:		-46.03	-36.03	-	-	
.41779	15.82 ave	10.6	0	26.42	57.5	47.5	-	-	
			Margin [dB]:		-31.08	-21.08	-	-	
.50026	1.34 ave	10.5	0	11.84	56	46	-	-	
			Margin [dB]:		-44.16	-34.16	-	-	
.57744	3.21 ave	10.5	0	13.71	56	46	-	-	
			Margin [dB]:		-42.29	-32.29	-	-	
.68409	-.75 ave	10.4	0	9.65	56	46	-	-	
			Margin [dB]:		-46.35	-36.35	-	-	
.70592	-.76 ave	10.4	0	9.64	56	46	-	-	
			Margin [dB]:		-46.36	-36.36	-	-	
.83441	-1.13 ave	10.4	0	9.27	56	46	-	-	
			Margin [dB]:		-46.73	-36.73	-	-	
.89356	-1.33 ave	10.4	0	9.07	56	46	-	-	
			Margin [dB]:		-46.93	-36.93	-	-	
.94742	-2.23 ave	10.4	0	8.17	56	46	-	-	
			Margin [dB]:		-47.83	-37.83	-	-	

LIMIT 1: FCC Part 15 Class B QPk  
 LIMIT 2: FCC Part 15 Class B Avg

pk - Peak detector  
 qp - Quasi-Peak detector  
 av - Average detector  
 avlg - denotes average log detection  
 ave - denotes average detection

Job Number: 07CA21737      File Number: NC9638      Page 24 of 40  
 Model Number: TL900  
 Client Name: TELECON GALICIA  
 FCC ID: V86TL900CHECK  
 IC ID: 7379A-DCHECKER

Telecon Galicia  
 RFID Tag Reader  
 TL900                      12Vac/60Hz  
 Job: 07CA21737  
 Tested By: GB

Test No.	Frequency [MHz]	Meter Reading [dB(uV)]	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level [dB(uVolts)]	Limit:1	2	3	4
11.48167	5.52	ave	10.8	0	16.32	60	50	-	-
				Margin [dB]:		-43.68	-33.68	-	-
11.77102	13.3	ave	10.8	0	24.1	60	50	-	-
				Margin [dB]:		-35.9	-25.9	-	-
11.89399	11.7	ave	10.8	0	22.5	60	50	-	-
				Margin [dB]:		-37.5	-27.5	-	-

LIMIT 1: FCC Part 15 Class B QPk  
 LIMIT 2: FCC Part 15 Class B Avg

pk - Peak detector  
 qp - Quasi-Peak detector  
 av - Average detector  
 avlg - denotes average log detection  
 ave - denotes average detection



#### 4.2 Test Conditions and Results – RADIATED EMISSIONS

Test Description	Measurements were made in a 3 & 10-meter semi-anechoic chamber that complies to CISPR 16/ANSI C63.4. Preliminary (peak) measurements were performed at an antenna to EUT separation distance of 3-meter. The EUT was rotated 360° about its azimuth with the receive antenna located at various heights in both horizontal and vertical polarities. Final measurements (quasi-peak or average as noted) were then performed by rotating the EUT 360° and adjusting the receive antenna height from 1 to 4-meters. All frequencies were investigated in both horizontal and vertical antenna polarity, where applicable.	
Basic Standard	FCC Part 15, Subpart C, 15.209, & RSS-210	
UL LPG	80-EM-S0029	
	Frequency range	Measurement Point
Fully configured sample scanned over the following frequency range	0.009MHz – 1GHz	(3 meter measurement distance)
-	30-1000MHz (unintentional)	(10 meter measurement distance)
<b>Limits - Class B</b>		
Frequency (MHz)	Limit (dBµV/m)	
	Quasi-Peak	Average
0.009-0.490	NA	128.5-94
0.490-1.705	NA	74-63.5
1.705-30	NA	63.5-70
30-88	40	NA
88-216	43.5	NA
216-960	46	NA
960-1000	54	NA
Supplementary information: The EUT (equipment under test) was tested in 3 orthogonal axes and the orientation depicted in the Radiated Emission test set-up was deemed worst case.		

**Table 5 Radiated Emissions EUT Configuration Settings**

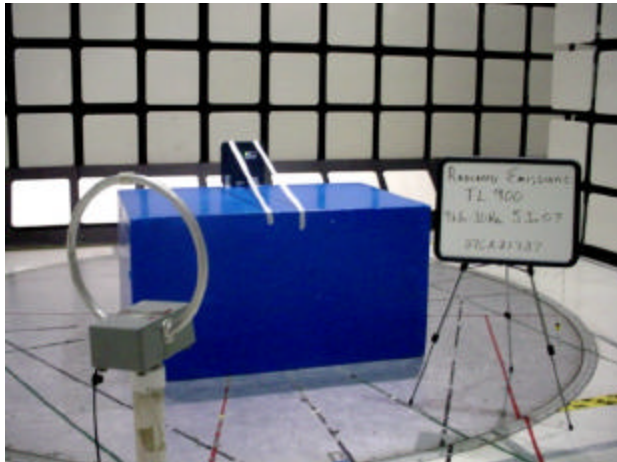
Power Interface Mode #	EUT Configurations Mode #	EUT Operation Mode #
1	1	1 & 2
Supplementary information: None		

Job Number: 07CA21737      File Number: NC9638      Page 26 of 40  
 Model Number: TL900  
 Client Name: TELECON GALICIA  
 FCC ID: V86TL900CHECK  
 IC ID: 7379A-DCHECKER

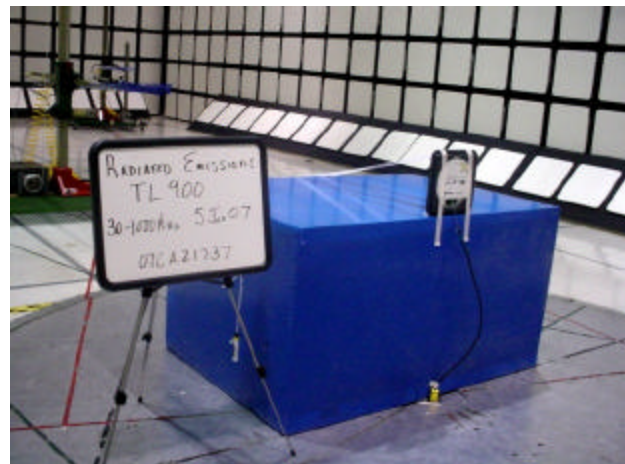
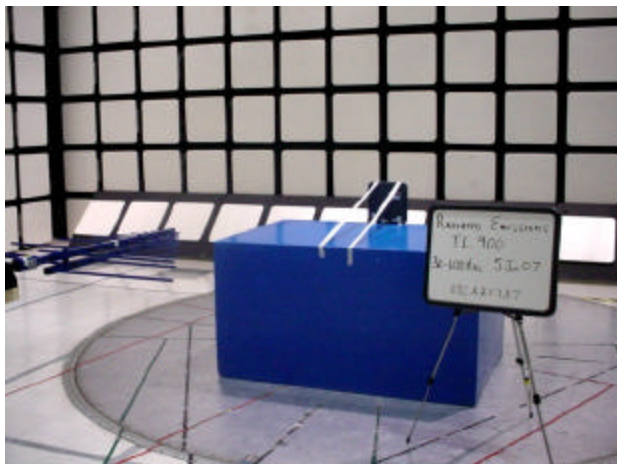
**Table 6 Radiated Emissions Test Equipment**

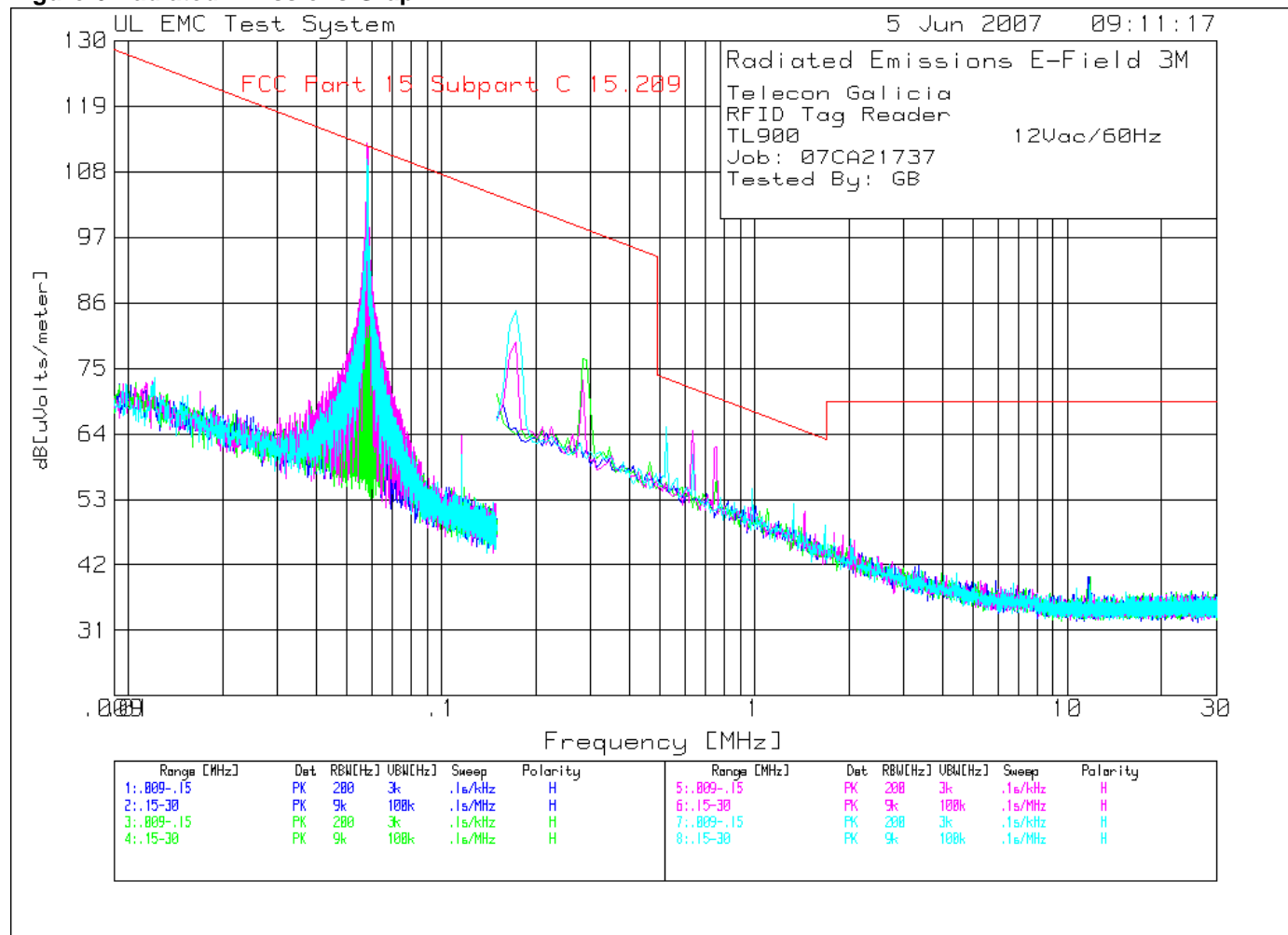
Test Equipment Used			
Description	Manufacturer	Model	Identifier
60Hz-30MHz			
EMI Receiver	Rohde & Schwarz	ESIB26	ME5B-081
Active Loop Antenna	EMCO	6507	ME5A-288
Switch Driver	HP	11713A	ME7A-627
System Controller	Sunol Sciences	SC99V	44396
Camera Controller	Panasonic	WV-CU254	44395
RF Switch Box	UL	1	44398
Measurement Software	UL	Version 9.3	44740
Temp/Humidity/Pressure Meter	Cole Parmer	99760-00	4268
30-1000MHz			
EMI Receiver	Rohde & Schwarz	ESIB26	ME5B-081
Bicon Antenna	Schaffner	VBA6106A	54
Log-P Antenna	Schaffner	UPA6109	44067
Preamp (10kHz - 1.3GHz)	HP	8447D	ME7A-758
Switch Driver	HP	11713A	ME7A-627
System Controller	Sunol Sciences	SC99V	44396
Camera Controller	Panasonic	WV-CU254	44395
RF Switch Box	UL	1	44398
Measurement Software	UL	Version 9.3	44740
Temp/Humidity/Pressure Meter	Cole Parmer	99760-00	4268

**Figure 4 Test setup for Radiated Emissions (9k-30MHz – Front and Rear Views)**



**Figure 5 Test setup for Radiated Emissions (30MHz-1000MHz – Front and Rear Views)**





Job Number: 07CA21737 File Number: NC9638 Page 29 of 40  
 Model Number: TL900  
 Client Name: TELECON GALICIA  
 FCC ID: V86TL900CHECK  
 IC ID: 7379A-DCHECKER

Table 7 Radiated Emissions Data Points

Telecon Galicia  
 RFID Tag Reader  
 TL900 12Vac/60Hz  
 Job: 07CA21737  
 Tested By: GB

Test No.	Frequency [MHz]	Meter Reading [dB(uV)]	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level dB[uVolts/meter]	Limit:1	2	3	4
=====									
45°	.15 - 30MHz	-----							
3	.28436	41.15 pk	20.1	15.4	76.65	98.5	-	-	-
	Azimuth:150	Height:120	Horz	Margin [dB]		-21.85	-	-	-
-----									
90°	.009 - .15MHz	-----							
1	.05803	74.95 pk	20.1	17.7	112.75	112.3	-	-	-
	Azimuth:6	Height:140	Horz	Margin [dB]		.45	-	-	-
-----									
90°	.15 - 30MHz	-----							
5	.63518	29.16 pk	20.1	15.2	64.46	71.5	-	-	-
	Azimuth:299	Height:140	Horz	Margin [dB]		-7.04	-	-	-
6	.75461	26.53 pk	20.1	15.2	61.83	70	-	-	-
	Azimuth:270	Height:140	Horz	Margin [dB]		-8.17	-	-	-
-----									
135°	.15 - 30MHz	-----							
2	.17239	48.83 pk	20.1	15.7	84.63	102.9	-	-	-
	Azimuth:90	Height:160	Horz	Margin [dB]		-18.27	-	-	-
4	.52322	29.7 pk	20.1	15.4	65.2	73.2	-	-	-
	Azimuth:210	Height:160	Horz	Margin [dB]		-8	-	-	-

LIMIT 1: FCC Part 15 Subpart C 15.209

pk - Peak detector  
 qp - Quasi-Peak detector  
 av - Average detector  
 avlg - denotes average log detection  
 ave - denotes average detection  
 tm - Trace Math Result

Job Number: 07CA21737      File Number: NC9638      Page 30 of 40  
 Model Number: TL900  
 Client Name: TELECON GALICIA  
 FCC ID: V86TL900CHECK  
 IC ID: 7379A-DCHECKER

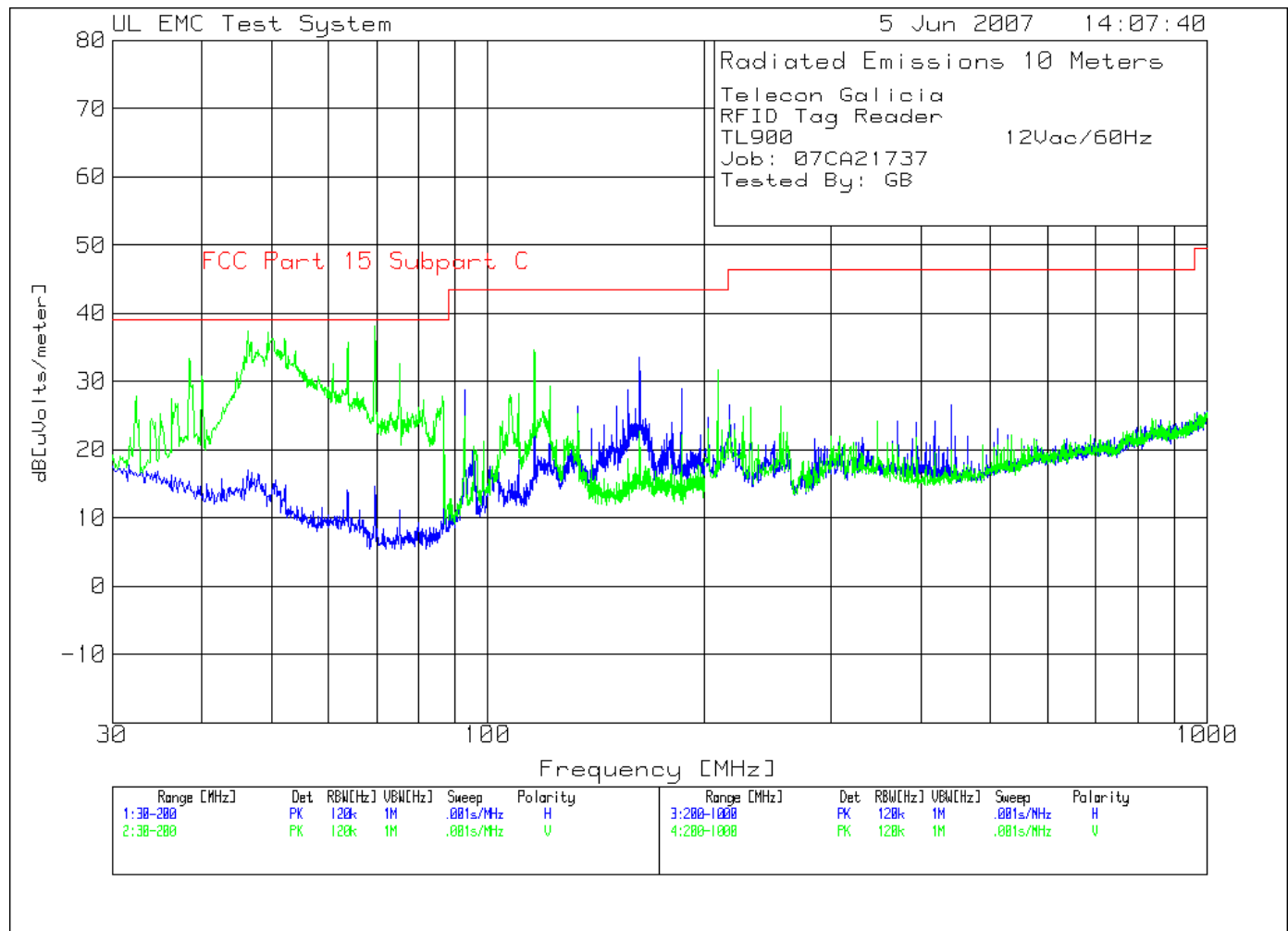
Telecon Galicia  
 RFID Tag Reader  
 TL900      12Vac/60Hz  
 Job: 07CA21737  
 Tested By: GB

Test	Meter	Gain/Loss	Transducer	Level	Limit:1	2	3	4
Frequency	Reading	Factor	Factor	dB[uVolts/meter]				
[MHz]	[dB(uV)]	[dB]	[dB]					
=====								
0° .009 - .15MHz								
.058	53.27 ave	20.1	17.7	91.07	112.3	-	-	-
Azimuth: 168	Height:113	Horz	Margin	[dB]:	-21.23	-	-	-
.058	53.25 ave	20.1	17.7	91.05	112.3	-	-	-
Azimuth: 168	Height:113	Horz	Margin	[dB]:	-21.25	-	-	-
.058	75.68 pk	20.1	17.7	113.48	112.3	-	-	-
Azimuth: 168	Height:113	Horz	Margin	[dB]:	1.18	-	-	-

LIMIT 1: FCC Part 15 Subpart C 15.209

pk - Peak detector  
 qp - Quasi-Peak detector  
 av - Average detector  
 avlg - Average log detector  
 ave - Average detector

Figure 7 Radiated Emissions Graph



Job Number: 07CA21737      File Number: NC9638      Page 32 of 40  
 Model Number: TL900  
 Client Name: TELECON GALICIA  
 FCC ID: V86TL900CHECK  
 IC ID: 7379A-DCHECKER

**Table 8 Radiated Emissions Data Points**

Telecon Galicia									
RFID Tag Reader									
TL900		12Vac/60Hz							
Job: 07CA21737									
Tested By: GB									
	Test	Meter	Gain/Loss	Transducer	Level	Limit:1	2	3	4
5	6								
No.	Frequency	Reading	Factor	Factor	dB[uVolts/meter]				
	[MHz]	[dB(uV)]	[dB]	[dB]					
=====									
Vertical 30 - 200MHz -----									
1	38.3923	45.34 pk	-26.8	14.9	33.44	39	-	-	-
	Azimuth:44	Height:101	Vert	Margin [dB]		-5.56	-	-	-
2	46.3309	52.45 pk	-26.9	11.9	37.45	39	-	-	-
	Azimuth:242	Height:101	Vert	Margin [dB]		-1.55	-	-	-
3	49.3929	53.58 pk	-26.9	10.6	37.28	39	-	-	-
	Azimuth:281	Height:101	Vert	Margin [dB]		-1.72	-	-	-
4	52.1147	53.65 pk	-26.9	9.6	36.35	39	-	-	-
	Azimuth:5	Height:101	Vert	Margin [dB]		-2.65	-	-	-
5	63.7959	56.97 pk	-27	5.8	35.77	39	-	-	-
	Azimuth:242	Height:101	Vert	Margin [dB]		-3.23	-	-	-
6	69.5797	59.7 pk	-27	5.5	38.2	39	-	-	-
	Azimuth:359	Height:101	Vert	Margin [dB]		-.8	-	-	-
7	75.3636	53.37 pk	-27	6.3	32.67	39	-	-	-
	Azimuth:123	Height:101	Vert	Margin [dB]		-6.33	-	-	-

LIMIT 1: FCC Part 15 Subpart C

pk - Peak detector  
 qp - Quasi-Peak detector  
 av - Average detector  
 avlg - denotes average log detection  
 ave - denotes average detection  
 tm - Trace Math Result



Job Number: 07CA21737      File Number: NC9638      Page 33 of 40  
 Model Number: TL900  
 Client Name: TELECON GALICIA  
 FCC ID: V86TL900CHECK  
 IC ID: 7379A-DCHECKER

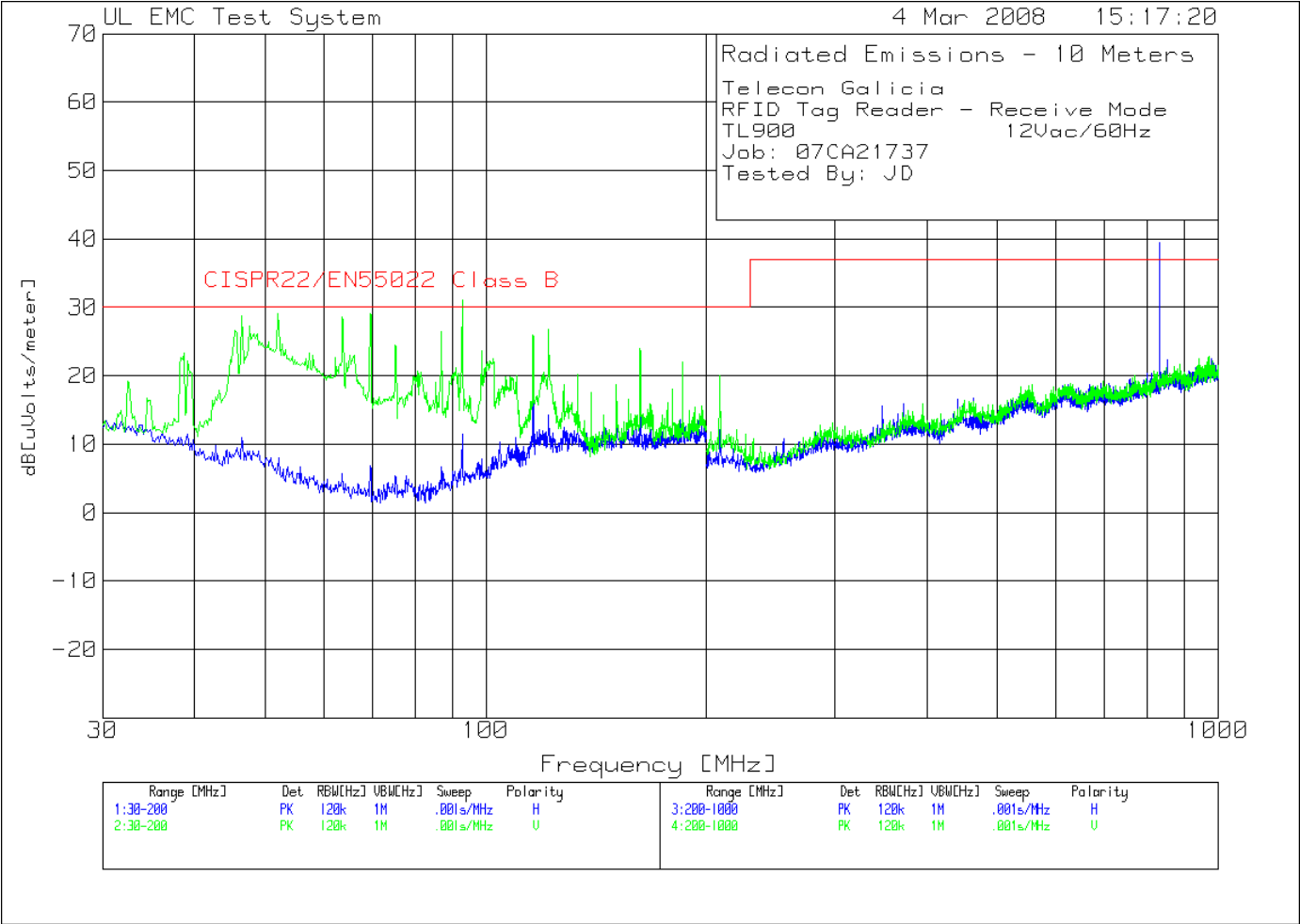
Telecon Galicia  
 RFID Tag Reader  
 TL900      12Vac/60Hz  
 Job: 07CA21737  
 Tested By: GB

Test	Meter	Gain/Loss	Transducer	Level	Limit:1	2	3	4
Frequency	Reading	Factor	Factor	dB[uVolts/meter]				
[MHz]	[dB(uV)]	[dB]	[dB]					
=====								
Vertical 30 - 200MHz								
69.5859	59.77 qp	-27	5.5	38.27	39	-	-	-
Azimuth: 175	Height:102	Vert	Margin	[dB]:	-.73	-	-	-
69.5859	59.79 qp	-27	5.5	38.29	39	-	-	-
Azimuth: 277	Height:113	Vert	Margin	[dB]:	-.71	-	-	-
69.5859	59.85 qp	-27	5.5	38.35	39	-	-	-
Azimuth: 277	Height:113	Vert	Margin	[dB]:	-.65	-	-	-
46.3801	51.79 qp	-26.9	11.8	36.69	39	-	-	-
Azimuth: 101	Height:112	Vert	Margin	[dB]:	-2.31	-	-	-
49.41	33.32 qp	-26.9	10.6	17.02	39	-	-	-
Azimuth: 101	Height:102	Vert	Margin	[dB]:	-21.98	-	-	-
52.1	48.93 qp	-26.9	9.6	31.63	39	-	-	-
Azimuth: 259	Height:123	Vert	Margin	[dB]:	-7.37	-	-	-
63.7821	52.12 qp	-27	5.8	30.92	39	-	-	-
Azimuth: 356	Height:161	Vert	Margin	[dB]:	-8.08	-	-	-
38.36	32.83 qp	-26.8	14.9	20.93	39	-	-	-
Azimuth: 22	Height:187	Vert	Margin	[dB]:	-18.07	-	-	-
75.36	43.43 qp	-27	6.3	22.73	39	-	-	-
Azimuth: 237	Height:149	Vert	Margin	[dB]:	-16.27	-	-	-

LIMIT 1: FCC Part 15 Subpart C

pk - Peak detector  
 qp - Quasi-Peak detector  
 av - Average detector  
 avlg - Average log detector  
 ave - Average detector

Figure 8 Radiated Emissions Graph



Note: FCC Limits are not indicated on graph above the CISPR limits were utilized for receive mode, which are worst-case limits.

Job Number: 07CA21737      File Number: NC9638      Page 35 of 40  
 Model Number: TL900  
 Client Name: TELECON GALICIA  
 FCC ID: V86TL900CHECK  
 IC ID: 7379A-DCHECKER

# **Table 9 Radiated Emissions Data Points**

Telecon Galicia  
 RFID Tag Reader - Receive Mode  
 TL900      12Vac/60Hz  
 Job: 07CA21737  
 Tested By: JD

No.	Test Frequency [MHz]	Meter Reading [dB(uV)]	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level Limit:1 dB[uVolts/meter]	2	3	4	5	6
=====										
Vertical 30 - 200MHz -----										
1	46.3363	52.58 pk	-35.4	11.6	28.78	30	30	-	-	-
	Azimuth:197	Height:100 Vert		Margin [dB]	-1.22	-1.52	-	-	-	-
2	45.4855	50.27 pk	-35.4	11.8	26.67	30	30	-	-	-
	Azimuth:157	Height:100 Vert		Margin [dB]	-3.33	-3.33	-	-	-	-
3	51.952	54.87 pk	-35.4	9.6	29.07	30	30	-	-	-
	Azimuth:157	Height:100 Vert		Margin [dB]	-.93	-.93	-	-	-	-
4	63.6937	57.87 pk	-35.4	6.2	28.67	30	30	-	-	-
	Azimuth:237	Height:100 Vert		Margin [dB]	-1.33	-1.33	-	-	-	-
5	69.4795	58.74 pk	-35.4	5.7	29.04	30	30	-	-	-
	Azimuth:359	Height:100 Vert		Margin [dB]	-.96	-.96	-	-	-	-
6	75.2653	53.41 pk	-35.4	6.4	24.41	30	30	-	-	-
	Azimuth:197	Height:100 Vert		Margin [dB]	-5.59	-5.59	-	-	-	-
7	87.007	52.48 pk	-35.5	9.4	26.38	30	30	-	-	-
	Azimuth:37	Height:100 Vert		Margin [dB]	-3.62	-3.62	-	-	-	-
8	92.7928	56.34 pk	-35.5	10.2	31.04	30	33.5	-	-	-
	Azimuth:157	Height:100 Vert		Margin [dB]	1.04	-2.46	-	-	-	-
9	98.5786	48.53 pk	-35.5	10.6	23.63	30	33.5	-	-	-
	Azimuth:77	Height:100 Vert		Margin [dB]	-6.37	-9.85	-	-	-	-
10	115.9359	49.06 pk	-35.6	12.5	25.96	30	33.5	-	-	-
	Azimuth:237	Height:100 Vert		Margin [dB]	-4.04	-7.54	-	-	-	-
11	121.8919	49.44 pk	-35.7	13.1	26.84	30	33.5	-	-	-
	Azimuth:157	Height:100 Vert		Margin [dB]	-3.16	-6.66	-	-	-	-
12	162.3924	44.31 pk	-35.6	15.3	24.01	30	33.5	-	-	-
	Azimuth:237	Height:100 Vert		Margin [dB]	-5.99	-9.49	-	-	-	-
Horizontal 200 - 1000MHz -----										
13	831.1156	49.53 pk	-32.3	22.3	39.53	37	36	-	-	-
	Azimuth:316	Height:399 Horz		Margin [dB]	2.53	3.53	-	-	-	-

LIMIT 1: CISPR22/EN55022 Class B  
 LIMIT 2: FCC Part 15, Section 15.209, Class B

pk - Peak detector  
 qp - Quasi-Peak detector  
 av - Average detector  
 avlg - denotes average log detection

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Telecon Galicia  
 RFID Tag Reader - Receive Mode  
 TL900 12Vac/60Hz  
 Job: 07CA21737 Tested By: JD

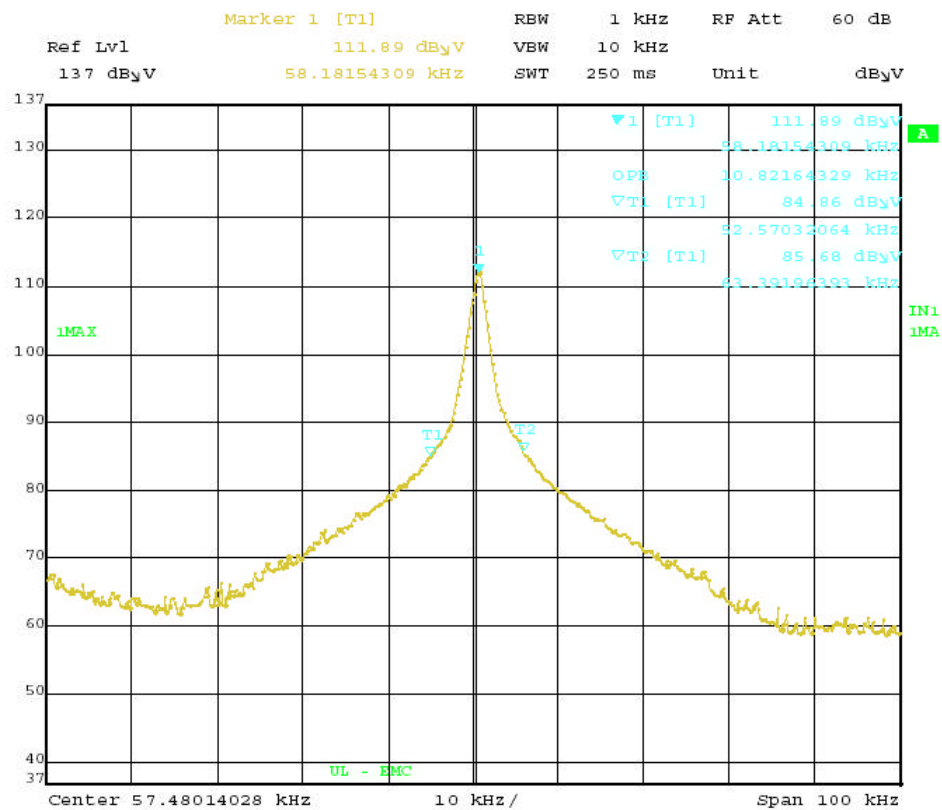
Test	Meter	Gain/Loss	Transducer	Level	Limit:1	2	3	4	5	6
Frequency	Reading	Factor	Factor	dB[uVolts/meter]						
[MHz]	[dB(uV)]	[dB]	[dB]							
=====										
Vertical 30 - 200MHz										
92.7899	54.59 qp	-35.5	10.2	29.29	30	33.5	-	-	-	-
Azimuth: 22	Height:103	Vert	Margin	[dB]:	-0.71	-4.21	-	-	-	-
92.7941	54.42 qp	-35.5	10.2	29.12	30	33.5	-	-	-	-
Azimuth: 228	Height:130	Vert	Margin	[dB]:	-0.88	-4.38	-	-	-	-
46.3954	51.78 qp	-35.4	11.6	27.98	30	30	-	-	-	-
Azimuth: 18	Height:100	Vert	Margin	[dB]:	-2.02	-2.02	-	-	-	-
45.6449	45.57 qp	-35.4	11.8	21.97	30	30	-	-	-	-
Azimuth: 69	Height:102	Vert	Margin	[dB]:	-8.03	-8.03	-	-	-	-
52.1397	51.91 qp	-35.5	9.6	26.01	30	30	-	-	-	-
Azimuth: 6	Height:102	Vert	Margin	[dB]:	-3.99	-3.99	-	-	-	-
63.7909	57.7 qp	-35.4	6.2	28.5	30	30	-	-	-	-
Azimuth: 28	Height:219	Vert	Margin	[dB]:	-1.5	-1.5	-	-	-	-
69.6722	55.29 qp	-35.4	5.7	25.59	30	30	-	-	-	-
Azimuth: 20	Height:184	Vert	Margin	[dB]:	-4.41	-4.41	-	-	-	-
75.3277	53.49 qp	-35.4	6.4	24.49	30	30	-	-	-	-
Azimuth: 19	Height:174	Vert	Margin	[dB]:	-5.51	-5.51	-	-	-	-
86.9878	52.57 qp	-35.5	9.4	26.47	30	30	-	-	-	-
Azimuth: 20	Height:153	Vert	Margin	[dB]:	-3.53	-3.53	-	-	-	-
98.6244	46.94 qp	-35.5	10.6	22.04	30	33.5	-	-	-	-
Azimuth: 229	Height:121	Vert	Margin	[dB]:	-7.96	-7.96	-	-	-	-
116.0047	48.77 qp	-35.6	12.5	25.67	30	33.5	-	-	-	-
Azimuth: 47	Height:111	Vert	Margin	[dB]:	-4.33	-7.83	-	-	-	-
121.7952	45.53 qp	-35.7	13.1	22.93	30	33.5	-	-	-	-
Azimuth: 172	Height:100	Vert	Margin	[dB]:	-7.07	-10.57	-	-	-	-
162.4068	43.39 qp	-35.6	15.3	23.09	30	33.5	-	-	-	-
Azimuth: 220	Height:100	Vert	Margin	[dB]:	-6.91	-10.41	-	-	-	-
Horizontal 200 - 1000MHz										
831.1	25.5 qp	-32.3	22.3	15.5	37	36	-	-	-	-
Azimuth: 15	Height:170	Horz	Margin	[dB]:	-21.5	-20.5	-	-	-	-

LIMIT 1: CISPR22/EN55022 Class B  
 LIMIT 2: FCC Part 15, Section 15.209, Class B  
 pk - Peak detector  
 qp - Quasi-Peak detector  
 av - Average detector  
 avlg - Average log detector  
 ave - Average detector

Table 10 Input voltage 85% -115%

Input voltage @ fundamental (rms).	Frequency (KHz)
10.2	58.046
11	58.016
12	58.043
12.5	58.036
13.8	58.041

Figure 9: Occupied Bandwidth



Occupied Bandwidth

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Client Name: TELECON GALICIA  
FCC ID: V86TL900CHECK  
IC ID: 7379A-DCHECKER

## 5.0 Fundamental Frequency and Spurious Emissions Measurement Limit Calculations

### **Radiated Emissions Limit conversion from $\mu\text{V/m}$ to $\text{dB}\mu\text{V/m}$ (accordance with paragraph 15.209)**

Radiated Emissions Limit ( $\text{dB}\mu\text{V/m}$ ) =  $20 \cdot \log (\mu\text{V/m})$

Radiated Emissions Limit ( $\text{dB}\mu\text{V/m}$ ) =  $20 \cdot \log (40)$

Radiated Emissions Limit ( $\text{dB}\mu\text{V/m}$ ) = 40

### **Radiated Emissions test data obtained during measurements.**

Field Strength ( $\text{dB}\mu\text{V/m}$ ) = Measured field strength ( $\text{dB}\mu\text{V/m}$ ) + Antenna Factor (dB) + Cable Factor (dB)

Field Strength ( $\text{dB}\mu\text{V/m}$ ) =  $19.7\text{dB}\mu\text{V/m} + 12.5\text{dB} + 0.3\text{dB}$

Field Strength ( $\text{dB}\mu\text{V/m}$ ) = 32.5

## Appendix A

### Accreditations and Authorizations



NVLAP Lab code: 100255-0

NVLAP: Recognized under the National Voluntary Laboratory Accreditation Program (NVLAP) for satisfactory compliance with criteria established in Title 15, Part 285 Code of Federal Regulations. These criteria encompass the requirements of ISO/IEC EN17025 and the relevant requirements of ISO 9002 (ANSI/ASQC Q92-1987) as suppliers of calibration or test results. For a full scope listing see <http://ts.nist.gov/ts/htdocs/210/214/scopes/1002550.htm>



FCC: Details of the measurement facilities used for these tests have been filed with the Federal Communications Commission's Laboratory in Columbia, Maryland (Ref. No. 91040).



Industry Canada Industrie Canada

Industry of Canada: Accredited by Industry Canada for performance of radiated measurements. Our test site complies with RSP 100, Issue 7, Section 3.3. File #: IC 2181



VCCI: Accepted as an Associate Member to the VCCI. The measurement facilities detailed in this test report have been registered in accordance with Regulations for Voluntary Control Measures, Article 8. Registration Nos.: (Radiated Emissions) R-797, (Conducted Emissions) C-832, C-833, C-834 and (Conducted Emissions - Telecommunications Ports) T-160.

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ICASA: ICASA (Independent Communications Authority of South Africa) has appointed UL as a Designated Test Laboratory to test Telecommunications equipment for type approval in compliance with CISPR 22 to assist in fulfilling its mandate under section 54(1) of the Telecommunications Act, 1996 (Act 103 of 1996).



NIST/CAB: Validated by the European Commission as a U.S. Conformity Assessment Body (CAB) of the U.S.-EU Mutual Recognition Agreement (MRA) for the Electromagnetic Compatibility - Council Directive 89/336/EEC, Article 10 (2). Also validated for the Telecommunication Equipment-Council Directive 99/5/EC, Annex III and IV, Identification Number: 0983.

NIST/CAB: Provisioned to act as a U.S. Conformity Assessment Body (CAB) under Appendix B, Phase I Procedures, of the Asia Pacific Economic Cooperation (APEC) MRA between the American Institute in Taiwan (AIT) and the United States. Our laboratory is considered qualified to test equipment subject to the applicable EMC regulations of the Chinese Taipei Bureau of Standards, Metrology and Inspection (BSMI) which require testing to CNS 13438 (CISPR 22).

NIST/CAB: Recognized by the Infocomm Development Authority of Singapore (IDA) under the Asia Pacific Economic Cooperation Mutual Recognition Agreement (APEC MRA). Our laboratory is provisionally designated to act as a Conformity Assessment Body (CAB) under Appendix B, Phase I Procedures, of the APEC MRA. Our scope of designation includes IDA TS EMC (CISPR 22), IEC 61000-4-2, -4-3, -4-4, -4-5, and -4-6