

CENTRE OF TESTING SERVICE INTERNATIONAL

OPERATE ACCORDING TO ISO/IEC 17025

FCC ID TEST REPORT

TEST REPORT NUMBER: CGZ3110824-00692-E



CENTRE OF TESTING SERVICE CO., LTD.

Building F, Dachuang industrial park, No.379, Zhongshan Dadao, Guangzhou, China.







	TEST REPORT For FCC ID	
	47 CFR PART 15 OCT, 2010	
Report Reference No	CGZ3110824-00692-E	
Date of issue	30 Aug 2011	
Testing Laboratory Name	CENTRE OF TESTING SERVICE CO.,	, LTD.
Address	Building F, Dachuang industrial park, N Guangzhou, China.	lo.379, Zhongshan Dadao,
Testing location/ procedure	Full application of Harmonised standard	ds ■
	Partial application of Harmonised stand	lards □
	Other standard testing method \square	
Applicant's name	TRAC OUTDOOR PRODUCTS COMPANY	,
Address	6039 Dana Way,Antioch,TN, 37013	
Test specification		
Standard	47 CFR PART 15 OCT, 2010, ANSI C6	53.4-2009
Test Report Form No	CTSEMC-1.0	
TRF Originator	CENTRE OF TESTING SERVICE CO., LTD.	
Master TRF	Dated 2009-01	
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Test item description	Wireless Remote	
Trade Mark	TRAC	
Manufacturer	TRAC OUTDOOR PRODUCTS COMPANY	
Model/Type reference	T10116	
Ratings	DC 12V for (TX)	
Operating Frequency	315MHz	
Result	Positive	
Compiled by:	Supervised by:	Approved by:

Violet Lee / File administrators

Tom Xiao / Technique principal

Vincent. Yao / Manager

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FCCID-TEST REPORT

Test Report No. : CGZ3110824-00692-E 30 Aug 2011 Date of issue

Type / Model	T10116
EUT	Wireless Remote
Applicant	TRAC OUTDOOR PRODUCTS COMPANY
Address	6039 Dana Way,Antioch,TN, 37013
Telephone	+1-615-641-2543
Fax	+1-615-641-2544
Contact	Thomas Rogers
Manufacturer	TRAC OUTDOOR PRODUCTS COMPANY
Address	6039 Dana Way,Antioch,TN, 37013
Telephone	+1-615-641-2543
Fax	+1-615-641-2544
Contact	Thomas Rogers
Factory	TRAC OUTDOOR PRODUCTS COMPANY
Address	6039 Dana Way, Antioch, TN, 37013
Telephone	+1-615-641-2543
Fax	+1-615-641-2544
Contact	Thomas Rogers

Test Result according to the standards on page 3: Positive

The test report merely corresponds to the test sample.

It is not permitted to copy extracts of these test result without the written permission of the test laboratory.

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1. TEST STANDARDS

The tests were performed according to following standards:

- ■47 CFR PART 15 OCT, 2010
- ANSI C63.4-2009

2. SUMMARY

2.1 GENERAL REMARKS

Date of receipt of test sample	24 Aug 2011
Testing commenced on	25 Aug~30 Aug 2011
_	
Testing concluded on	30 Aug 2011

2.2 FINAL ASSESSMENT

The FCC requirements pertaining to the technical standards and tested operation modes are

illed.
İ

□ - **not** fulfilled.

The equipment under test

- fulfils the FCC requirements cited on page 3.
- **does not** fulfil the FCC requirements cited on page 3.

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3. EQUIPMENT UNDER TEST

3	1	Power	sunnly	system	utilised
J.		LOME	Supply	5y 5 te 111	นแแรยน

Power supply voltage : ■ DC 12.0V for (TX)

3.2 Short description of the Equipment under Test (EUT)

Number of tested samples: 1

Serial number: Prototype

3.3 EUT operation mode

The equipment under test was operated during the measurement under the following conditions: For Radiation emission:

- -TX +X position
- □ –TX +Y position
- ☐ -TX +Z position

For Other Test item

Manully control

Operation mode 1: TX +X position

Note: X position of EUT is the worst case, so only these test results be recorded in the test report.

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3.4 EUT configuration

3.4.1. Description of configuration (EUT)

Description	:	Wireless Remote
Model Number	:	T10116
Operation frequency	:	315MHz
Radio Technology	:	FSK
Modulation Technology	:	FSK modulation
Antenna	:	PCB Antenna

3.4.2. Tested Supporting System Details

N/A

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4. TEST ENVIRONMENT

4.1 Address of the test laboratory

Building F, Dachuang industrial park, No.379, Zhongshan Dadao, Guangzhou, China

Tel: +86-20-85543113 (32 lines) Fax: +86-20-38780406

4.2 Test facility

The test facility is recognized, certified, or accredited by the following organizations:

CNAS-Lab Code: L3394

CENTRE OF TESTING SERVICE CO., LTD has been assessed and proved to be in compliance with CNAS-CL01: 2006 Accreditation Criteria for Testing and Calibration Laboratories (identical to ISO/IEC 17025: 2005 General Requirements) for the Competence of Testing and Calibration Laboratories.

IC-Registration No.: 8374A

The 3m Alternate Test Site of CENTRE OF TESTING SERVICE CO., LTD has been registered by Certification and Engineering Bureau of Industry Canada for the performance of radiated measurements with Registration No. 8374A on June 6, 2011.

FCC-Registration No.: 971995

CENTRE OF TESTING SERVICE CO., LTD, EMC Laboratory has been registered and fully described in a report filed with the FCC (Federal Communications Commission). The acceptance letter from the FCC is maintained in our files. Registration No.791995, July 21, 2009.

4.3 Environmental conditions

During the measurement the environmental conditions were within the listed ranges:

Temperature:	15~35 ° C
Humidity:	25~75 %
Atmospheric pressure:	86~106 kPa

4.4 Definitions of symbols used in this test report

- - The black square indicates that the listed condition, standard or equipment is applicable for this report.
- □ The empty square indicates that the listed condition, standard or equipment is **not** applicable for this report.

4.5 Statement of the measurement uncertainty

The data and results referenced in this document are true and accurate. The reader is cautioned that there may be errors within the calib ration limits of the equipm ent and facilities. The mea surement uncertainty was calculated for all measurement s listed in this test report acc. to CISPR 16 - 4 "Spe cification for radio disturbance and immunity measuring apparatus and methods – Part 4: Uncertainty in EMC Measurements" and is documented in the CTS quality system acc. to DIN EN ISO/IEC 17025. Furthermore, component and process variability of devices similar to that tested may re sult in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.

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4.6 Measurement Uncertainty

Test Item	Frequency Range	Uncertainty	Note
Conduction disturbance	150kHz~30MHz	±1.22dB	(1)
Power disturbance	30MHz~300MHz	±1.38dB	(1)
Radiation emission (3m)	30MHz~300MHz	±3.14dB	(1)
	300MHz~1000MHz	±3.18dB	(1)

^{(1).} This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

5. Summary of standards and results

5.1. Description of Standards and Results

The EUT have been tested according to the applicable standards as referenced below.

EMISSION			
Description of Test Item	Standard	Results	
Conducted Emission Test	ANSI C63.4-2009 FCC Part 15 C: 15.207	N/A	
Radiated Emission Test	ANSI C63.4-2009 FCC Part 15 C: 15.231	PASSED	
20 dB Bandwidth Test	ANSI C63.4-2009 FCC Part 15 C: 15.231	PASSED	
Stop Transmitting Time Test	ANSI C63.4-2009 FCC Part 15 C: 15.231	PASSED	
N/A is an abbreviation for Not Applicable.			

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6. Power Line Conducted Emission Test

6.1.1 Description of the test location

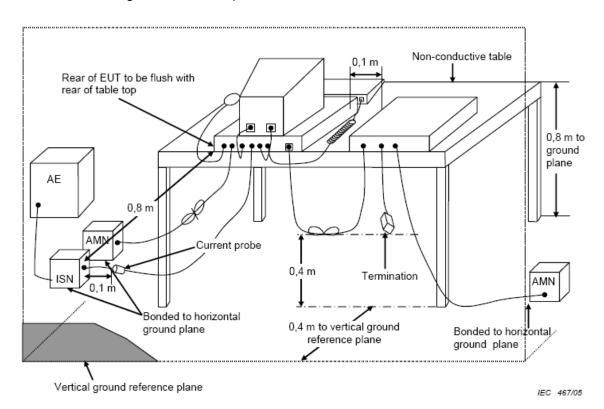
Test location : Shielding Room

6.1.2 Description of the test set-up

6.1.2.1 Operating Condition

The EUT is engraving during the test, and the results of the maximum emanation are recorded

6.1.2.2 Block Diagram of Test Setup



6.1.3 Limits of disturbance (Class B)

		Maximum RF Line Voltage	
Frequ	uency	Quasi-Peak Level	Average Level
		dB(μV)	dB(μV)
150kHz	~ 500kHz	66 ~ 56*	56 ~ 46*
500kHz	~ 5MHz	56	46
5MHz	~ 30MHz	60	50

Note: (1) The tighter limit shall apply at the edge between two frequency bands.

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6.1.4 Test result

The EUT power by battery. Not Applicable.

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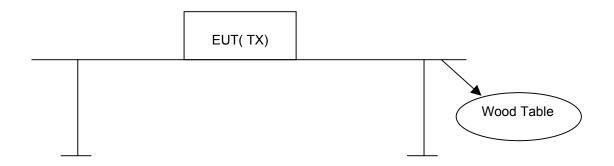
7. Radiated disturbance (electric field)

7.1.Test Equipment

Radiated disturbance (electric field)							
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.		
1	EMI Test Receiver	ROHDE & SCHWARZ	ESCI	100868	2010/12		
2	Biconical Antenna	ROHDE & SCHWARZ	HK116	100221	2010/12		
3	Log per Antenna	ROHDE & SCHWARZ	HL223	100226	2010/12		
4	Log per Antenna	ROHDE & SCHWARZ	HL050	100186	2010/12		
5	Signal analyzer	ROHDE & SCHWARZ	FSIQ26	100311	2010/12		
6	Loop Antenna	A.R.A	PLA-1030/B	1030	2010/12		

7.2.Block Diagram of Test Setup

7.2.1 Block Diagram of connection between EUT and simulators



(EUT:Wireless Remote)

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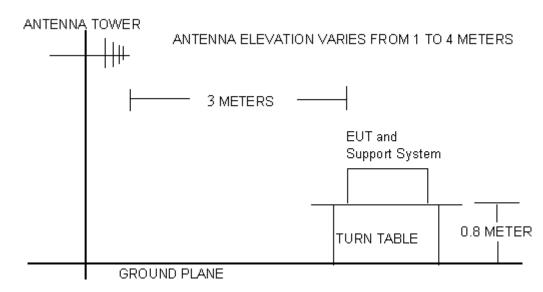
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7.2.2 Anechoic Chamber Setup Diagram



7.3. Radiated Emission Limit Standard: FCC 15.231

FREQUENCY			DISTANCE	FIELD STRENGTHS LIMIT		
	MHz		Meters	μV/m	dB(μV)/m	
30	~	88	3	100	40.0	
88	~	216	3	150	43.5	
216	~	960	3	200	46.0	
960	~	1000	3	500	54.0	
Above 1000			3	Other:74.0 dB(μV)/m (Peak) 54.0 dB(μV)/m (Average)		

Remark: (1) Emission level $dB\mu V = 20 \log Emission level \mu V/m$

- (2) The smaller limit shall apply at the cross point between two frequency bands.
- (3) Distance is the distance in meters between the measuring instrument, antenna and the closest point of any part of the device or system.

7.4.Test Procedure

The EUT and its simulators are placed on a turn table, which is 0.8 meter high above ground. The turn table can rotate 360 degrees to determine the position of the maximum emission level. The EUT is set 3 meters away from the receiving antenna, which is mounted on a antenna tower. The antenna can be moved up and down between 1 meter and 4 meters to find out the maximum emission level. Broadband antenna (calibrated bilog antenna) is used as receiving antenna. Both horizontal and vertical polarization of the antenna is set on Test. In order to find the maximum emission levels, all of the interface cables must be manipulated according to ANSI C63.4-2009on radiated emission Test.

The frequency range from 30MHz to 1000MHz and above 1GHz. is investigated. Please see the following pages.

All measurements for radiated emissions within the restricted bands were performed using a Quasi-Peak detector with 120kHz RBW below 1GHz and a Peak and Average detector with 1MHz RBW above 1GHz,

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All measurements for radiated emissions within the restricted bands were performed using a Quasi-Peak detector with 300kHz VBW below 1GHz and a Peak detector with 1MHz VBW above 1GHz, A average detector be caluclated from peak value using duty cycle factor Both 30MHz to 1000MHz and above 1GHz

Pretest x, y, z position of EUT, final, select the worst case x position test and record the test results in the report.

The test modes (TX Mode) is tested in Anechoic Chamber and all the scanning waveforms are reported on section 7.5

7.5. Radiated Emission Test Results

PASSED.

The frequency range from 9KHz to 30MHz,30MHz to 230MHz, 230MHz to 1000MHz and above 1GHz. is investigated. Please see the following pages.

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Channel:	315MHz (TX)	Result:	■ - passed
Frequency range:	9KHz~30MHz		☐ - not passed

EUT	Wireless Remote
Operating Condition	DC 12.0V
Test Condition	Ambient Temperature: 25°C Humidity: 56%
Test Date:	25 Aug~30 Aug 2011
Operator	Peter
MODEL NO	T10116

No.	Frequency	Factor	Reading	Level
	(MHz)	(dB)	(dBµV/m)	(dBµV/m)
1	0.0107	18.01	18.23	36.24
2	0.0298	18.11	10.72	28.83
3	0.2540	18.52	-12.87	5.65
4	0.5060	18.54	10.37	28.91
5	0.7580	18.57	9.14	27.71
6	1.5140	18.64	10.64	29.28

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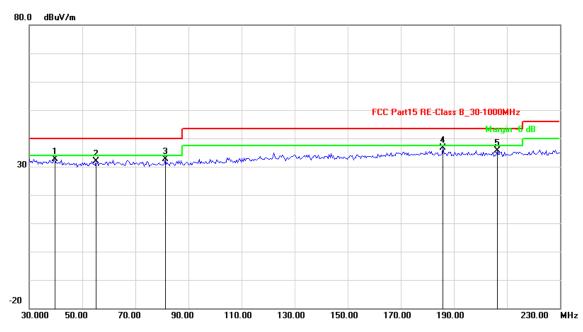
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Channel:	315MHz (TX)	Result:	■ - passed
Test point:	Horizontal		☐ - not passed
Frequency range:	30-230MHz		

EUT	Wireless Remote	
Operating Condition	DC 12.0V	
Test Condition	Ambient Temperature: 25°C Humidity: 56%	
Test Date:	25 Aug~30 Aug 2011	
Operator	Peter	
MODEL NO	T10116	



No.	Frequency (MHz)	Factor (dB/m)	Reading (dBµV/m)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Det.
1	39.6192	5.73	26.79	32.52	40.00	-7.48	QP
2	55.2505	5.30	26.51	31.81	40.00	-8.19	QP
3	81.3026	4.84	27.71	32.55	40.00	-7.45	QP
4	185.9118	7.42	29.20	36.62	43.50	-6.88	QP
5	206.3527	7.32	28.29	35.61	43.50	-7.89	QP

Note:Level=Reading+Facytor. Margin= Level- Limit.

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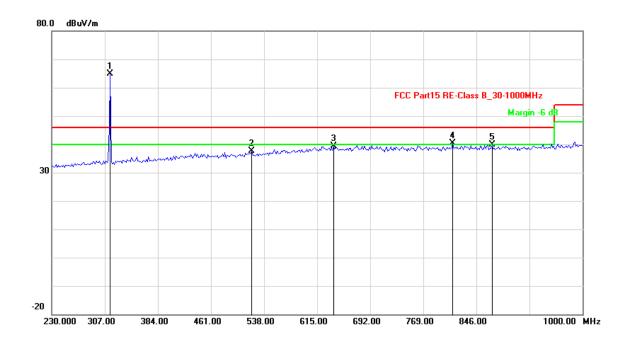
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Fundamental and Harmonics Average Result							
Frequency (MHz)	Factor (dB/m)	Reading (dBµV)	Duty Cycle Correction Factor(dB)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Det.
314.9697	6.53	58.28		64.81	95.62	-30.81	Peak
314.9697	6.53	58.28	-10.71	54.10	75.62	-21.52	AV

No.	Frequency	Factor	Reading	Level	Limit	Margin	Det.
	(MHz)	(dB/m)	(dBµV/m)	(dBµV/m)	(dBµV/m)	(dB)	
1	520.1002	8.64	28.94	37.58	46.00	-8.42	QP
2	638.9178	9.75	29.54	39.29	46.00	-6.71	QP
3	811.7435	10.07	30.19	40.26	46.00	-5.74	QP
4	868.8377	10.44	29.39	39.83	46.00	-6.17	QP

Note:Level=Reading+Facytor. Margin= Level- Limit. Average Level=Peak level + Duty Factor

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Channel:	315MHz (TX)	Result:	■ - passed
Test point:	Horizontal		☐ - not passed
Frequency range:	1GHz-6GHz		

No.	Frequency (MHz)	Factor (dB/m)	Reading (dBµV/m)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Det.
1	2613.226	18.70	31.47	50.17	74.00	-23.83	peak
2	2803.607	19.52	29.59	49.11	74.00	-24.89	peak
3	3034.068	20.39	29.85	50.24	74.00	-23.76	peak
4	3885.772	21.10	20.69	41.79	54.00	-12.21	AVG
5	4807.615	22.93	18.87	41.80	54.00	-12.20	AVG
6	5248.497	23.72	19.72	43.44	54.00	-10.56	AVG

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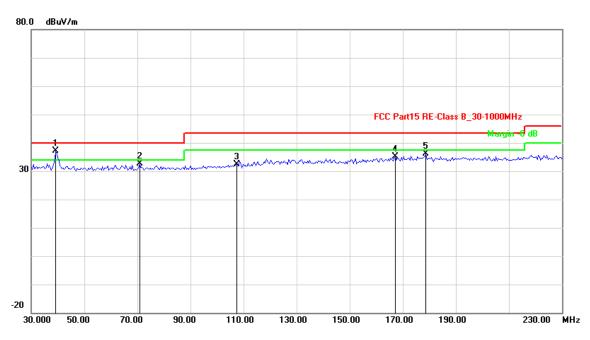






Channel:	315 MHz (TX)	Result:	■ - passed
Test point:	Vertical		☐ - not passed
Frequency range:	30-230MHz		

EUT	Wireless Remote
Operating Condition	DC 12.0V
Test Condition	Ambient Temperature: 25°C Humidity: 56%
Test Date:	25 Aug~30 Aug 2011
Operator	Peter
MODEL NO	T10116



No.	Frequency (MHz)	Factor (dB/m)	Reading (dBµV/m)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Det.
1	39.2184	5.75	30.40	36.15	40.00	-3.85	QP
2	70.8818	5.11	27.50	32.61	40.00	-7.39	QP
3	107.3547	5.59	26.81	32.40	43.50	-11.10	QP
4	167.0741	7.18	27.98	35.16	43.50	-8.34	QP
5	178.6974	7.44	28.64	36.08	43.50	-7.42	QP

Note:Level=Reading+Facytor. Margin= Level- Limit.

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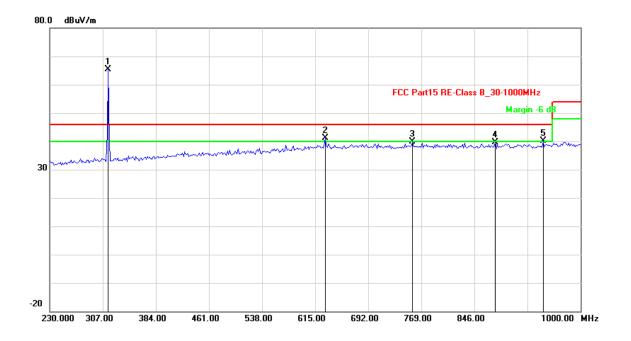
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Fundamental and Harmonics Average Result							
Frequency Factor (dB/m) (dBμV) Duty Cycle Level Limit Margin (dBμV/m) (dBμV/m) (dBμV/m) (dBμV/m) (dBμV/m)						Det.	
314.9697	6.53	58.75		65.28	95.62	-30.34	Peak
314.9697	6.53	58.75	-10.71	54.57	75.62	-21.05	AV

No.	Frequency	Factor	Reading	Level	Limit	Margin	Det.
	(MHz)	(dB/m)	(dBµV/m)	(dBµV/m)	(dBµV/m)	(dB)	
1	629.6593	9.75	31.34	41.09	46.00	-4.91	QP
2	756.1924	10.25	29.63	39.88	46.00	-6.12	QP
3	876.5531	10.50	29.20	39.70	46.00	-6.30	QP
4	945.9920	10.50	29.69	40.19	46.00	-5.81	QP

Note:Level=Reading+Facytor. Margin= Level- Limit. Average Level=Peak level + Duty Factor

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Channel:	315 MHz (TX)	Result:	■ - passed
Test point:	Vertical		☐ - not passed
Frequency range:	1GHz-6GHz		

No.	Frequency (MHz)	Factor (dB/m)	Reading (dBµV/m)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Det.
1	2613.226	18.70	22.63	41.33	54.00	-12.67	AVG
2	2843.687	19.69	22.03	41.72	54.00	-12.28	AVG
3	3114.228	20.45	20.51	40.96	54.00	-13.04	AVG
4	3434.870	20.72	20.08	40.80	54.00	-13.20	AVG
5	3705.411	20.95	20.40	41.35	54.00	-12.65	AVG
6	5408.818	23.96	20.30	44.26	54.00	-9.74	AVG

Note:Level=Reading+Facytor. Margin= Level- Limit.

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8.20 dB Bandwidth test

8.1. Test Equipment

20 dB Bandwidth test							
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.		
1	EMI Test Receiver	ROHDE & SCHWARZ	ESCI	10868	2010/12		
2	Log per Antenna	ROHDE & SCHWARZ	HL223	100226	2010/12		
3	Signal analyzer	ROHDE & SCHWARZ	FSIQ26	100311	2010/12		

8.2. Test Information

EUT:	Wireless Remote
M/N:	T10116
Power supply:	DC 12.0V (TX)
Test Condition:	Ambient Temperature: 25°C Humidity: 56%
Test standard:	FCC PART 15C: 15.231
Test mode:	Transmitting
Test Frequency:	315MHz
Test Date:	25 Aug to 30 Aug 2011
Test By:	Peter

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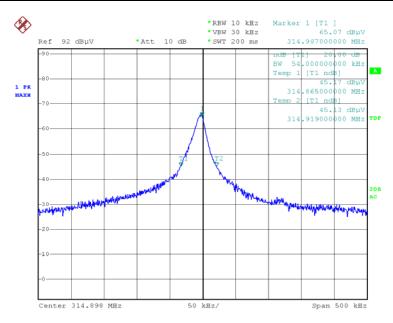


8.3. Test Results

PASSED.

The testing data was attached in the next pages.

Frequency (MHz) 20 dB Bandwidth (kHz)		Limit(kHz): No wider than 0.25% of the center frequency	Conclusion
315	54	315*0.25%=0.7875MHz	PASSED



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9. Stop Transmitting Time Test

9.1. Test Equipment

Band Edge Compliance test						
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	
1	EMI Test Receiver	ROHDE & SCHWARZ	ESCI	10868	2010/12	
2	Log per Antenna	ROHDE & SCHWARZ	HL223	100226	2010/12	
3	Signal analyzer	ROHDE & SCHWARZ	FSIQ26	100311	2010/12	

9.2. Test Information

EUT:	Wireless Remote	
M/N:	T10116	
Power supply:	DC 12.0V (TX)	
Test Condition:	Ambient Temperature: 25°C Humidity: 56%	
Test standard:	FCC PART 15C: 15.231	
Test mode:	Transmitting	
Test Frequency:	315MHz	
Test Date:	25 Aug to 30 Aug 2011	
Test By:	Peter	

9.3. Test Results

PASSED.

The testing data was attached in the next pages.

Set the spectrum to zero span, activated the EUT by manually, And then, we could see the transmitting wave in the spectrum, when the time marker went to "1R", released the EUT, After 640ms, we could see the EUT stop transmitting.

Frequency (MHz)	Stop Transmitting Time	Limit: not more than 5 seconds of being released	Conclusion
315	640ms	5s	PASSED

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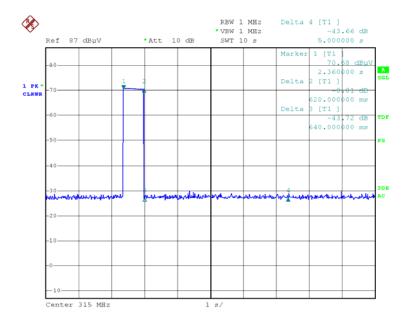
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10. Pulse Desensitization Correction Factor

10.1. Test Equipment

Band E	Band Edge Compliance test				
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.
1	EMI Test Receiver	ROHDE & SCHWARZ	ESCI	10868	2010/12
2	Log per Antenna	ROHDE & SCHWARZ	HL223	100226	2010/12
3	Signal analyzer	ROHDE & SCHWARZ	FSIQ26	100311	2010/12
4	Spectrum	Agilent	E4446A	44300459	2010/12

Test Information

EUT:	Wireless Remote
M/N:	T10116
Power supply:	DC 12.0V (TX)
Test Condition:	Ambient Temperature: 25°C Humidity: 56%
Test standard:	FCC PART 15C: 15.231
Test mode:	Transmitting
Test Frequency:	315MHz
Test Date:	25 Aug to 30 Aug 2011
Test By:	Peter

10.3. Test Results

PASSED.

The testing data was attached in the next pages.

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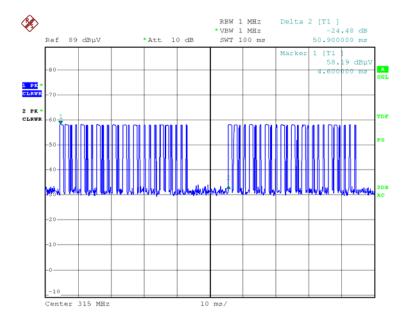
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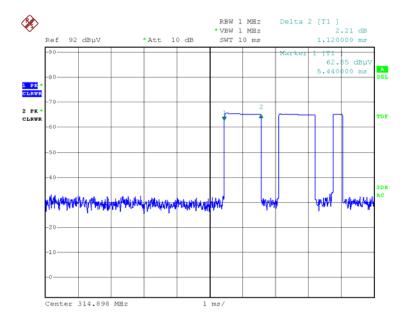
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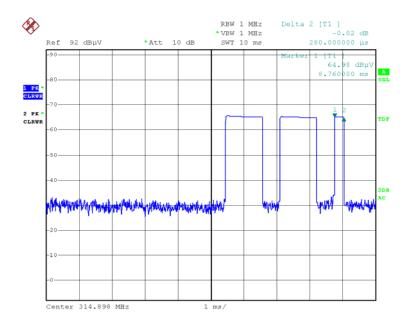
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Date: 29.AUG.2011 11:27:13

Duty Cycle Correction Factor(dB)=20 * Log₁₀(Duty Cycle(%))

Pulse Train	Number of Pulse	T(ms)	Total Time(ms)
Long Pulse	9	1.12	10.08ms
Short Pulse	16	0.28	4.48ms

Duty Cycle Correction Factor(dB)=20 * Log10([1.12ms * 18 + 0.28ms * 32]/100ms)

Duty Cycle Correction Factor(dB)=20 * Log10(29.12 ms/100ms)

Duty Cycle Correction Factor(dB)=20 * Log10(0.2912) = -10.71 dB

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11. Manufacturer/ Approval holder Declaration

The following identical model(s):

N/A

Belong to the tested device:

Product description: Wireless Remote

Model name: T10116

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