



TEST REPORT

Report Number: 3186196MPK-002

Project Number: 3186196

July 31, 2009

Testing performed on the
Cordless Teth-Air
Model Number: CT10RX
to

FCC Part 15, Subpart B
Industry Canada ICES-003

Class: B

For

RFLOGY BILGI TEKNOLJILERI TIC.LTD.STI.

Test Performed by:

Intertek Testing Services NA, Inc
1365 Adams Court
Menlo Park, CA 94025
USA

Test Authorized by:

RFLOGY BILGI TEKNOLJILERI TIC.LTD.STI.
ORTAYOL SOK.ORNEK APT.NO:10/4
USTBOSTANCI-KADIKOY
ISTANBUL, TURKEY

Prepared by:

Bruce Gordon, Project Engineer

Date: July 31, 2009

Reviewed by:

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Date: July 31, 2009

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VERIFICATION OF COMPLIANCE
Report No. 3186196MPK-002


Verification is hereby issued to the named APPLICANT and is VALID ONLY for the equipment identified hereon for use under the rules and regulations listed below.

Equipment Under Test:	Cordless Teth-Air
Trade Name:	RFLOGY BILGI TEKNOLJILERI TIC.LTD.STI.
Model No.:	CT10RX
Serial No.:	EMC-protol
Applicant:	RFLOGY BILGI TEKNOLJILERI TIC.LTD.STI.
Contact:	ALTUG YANAS
Address:	ORTAYOL SOK.ORNEK APT.NO:10/4 USTBOSTANCI-KADIKOY ISTANBUL
Country	TURKEY
Tel. number:	+902163736874
Fax number:	+902163736874
Applicable Regulation:	FCC Part 15, Subpart B Industry Canada ICES-003
Equipment Class:	Class B
Date of Test:	July 28, 2009

We attest to the accuracy of this report:



Bruce Gordon
Project Engineer



Krishna Vemuri
EMC Senior Staff Engineer



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EXECUTIVE SUMMARY

Test Description	Class	Pass/Fail Comments
Radiated Emissions		
• FCC Part 15	B	Complies
• ICES 003	B	
Conducted Emissions (AC Mains)		
• FCC Part 15	B	Not Applicable: The Equipment Under Test (EUT) is battery powered.
• ICES 003	B	



1.0 Job Description

1.1 Client Information

The Cordless Teth-Air has been tested at the request of:

Company: RFLOGY BILGI TEKNOLOJILERI TIC.LTD.STI.
ORTAYOL SOK.ORNEK APT.NO:10/4 USTBOSTANCI-KADIKOY
ISTANBUL
TURKEY

Name of contact: Mr. ALTUG YANAS
Telephone: +902163736874
Fax: +902163736874
Email: altug.yanas@rflogy.com

1.2 Test Plan Reference:

Tests were performed to the following standards:

- FCC Part 15, Subpart B
- Industry Canada ICES-003

1.3 Equipment Under Test (EUT)

Equipment Under Test		
Description	Model Number	Serial Number
Cordless Teth-Air	CT10RX	EMC-protol

EUT receive date: July 22, 2009
EUT receive condition: The EUT was received in good condition with no apparent damage.
Test start date: July 28, 2009
Test completion date: July 28, 2009

The test results in this report pertain only to the item tested.

RFLOGY supplied the following description of the EUT:

The *Cordless Teth-Air* is a technologically advanced radio transmitting and receiving safety device. It is designed for snowmobiles and similar vehicles where the rider/driver may get separated from the controls. This system is designed to shut off the engine in a runaway condition, whether the throttle is stuck open or when the vehicle may be kept moving, aided by the engine running uncontrolled in gear.

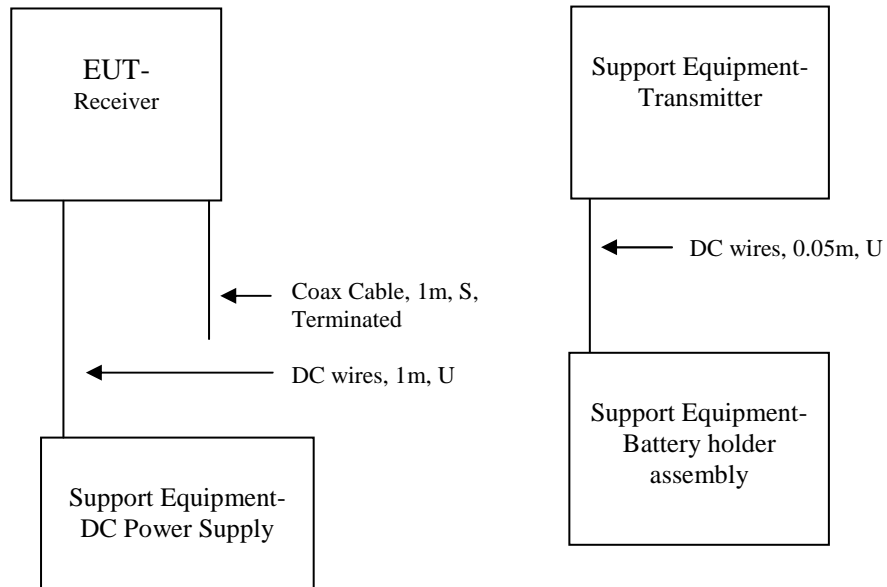
The *Cordless Teth-Air* is comprised of two components:

1. Transmitter. (Worn on the wrist of the vehicle operator)
2. Receiver. (Mounted and wired permanently on the vehicle)

1.4 System Support Equipment

Description	Manufacturer	Model	Serial Number
Transmitter	RFLOGY	CT-10-TX	EMC-protol
DC Power Supply	GW	GPR-6030	8690209

1.5 System Block Diagram



S = Shielded	F = With Ferrite
U = Unshielded	m = Length in Meters



1.6 Justification

The EUT was configured for testing in a typical configuration, as specified by RFLOGY. The EUT was tested in a tabletop configuration.

1.7 Mode(s) of operation

The EUT was operating in receive mode.

1.8 Modifications required for compliance

No modifications were made during compliance testing in order to bring the product into compliance (Please note that this does not include changes made specifically by RFLOGY prior to compliance testing).



2.0 Test Environment for Emissions Testing

2.1 Test Facility

The test facility is located at 1365 Adams Court, Menlo Park, California. The test site is a 10-meter semi-anechoic chamber. The site meets the characteristics of CISPR 16-1 and ANSI C63.4. For measurements, a remotely controlled flush-mount metal-top turntable is used to rotate the EUT a full 360 degrees. A remote controlled non-conductive antenna mast is used to scan the antenna height from one to four meters.

The A2LA certificate number for this site is 1755-01.

The Industry Canada (IC) Site Number is 2042L-1.

FCC Site Registration is 90708.

2.2 Test Equipment

Table 2-1 contains a list of the test equipment used during the testing.

Table 2-1 List of Test Equipment

Equipment	Manufacturer	Model/Type	Serial #	Cal Int	Cal Due
RF Filter Section	Hewlett Packard	85460A	3448A00267	12	7/01/10
EMI Receiver	Hewlett Packard	8546A	3710A00373	12	7/01/10
BI-Log Antenna	EMCO	3143	9509	12	11/7/09
Pre-Amplifier	Sonoma	310N	185634	12	11/10/09



2.3 Example Field Strength Calculation

The field strength is calculated by adding the Antenna Factor and Cable Factor. Then by subtracting the Amplifier Gain (if any) from the measured reading

The basic equation with a sample calculation is as follows:

$$FS = RA + AF + CF - PA$$

Where

- FS = Field Strength in dB ($\mu\text{V}/\text{m}$)
- RA = Receiver Amplitude (including preamplifier) in dB (μV)
- CF = Cable Attenuation Factor in dB
- AF = Antenna Factor in dB (1/m)
- PA = Preamplifier Factor in dB

Assume a receiver reading of 52.0 dB (μV) is obtained. The antenna factor of 7.4 dB and cable factor of 1.6 dB is added. The amplifier gain of 29 dB is subtracted, giving field strength of 32 dB ($\mu\text{V}/\text{m}$).

$$\begin{aligned} RA &= 52.0 \text{ dB } (\mu\text{V}) \\ AF &= 7.4 \text{ dB } (1/\text{m}) \\ CF &= 1.6 \text{ dB} \\ PA &= 29.0 \text{ dB} \\ FS &= RA + AF + CF - PA \\ FS &= 52.0 + 7.4 + 1.6 - 29.0 \\ FS &= 32 \text{ dB } (\mu\text{V}/\text{m}) \end{aligned}$$



2.4 Measurement Uncertainty

Compliance of the product is based on the measured value. However, the measurement uncertainty is included for informational purposes.

Radiated Emission:

The uncertainty in the measured field strength is estimated as follows, for a minimum confidence probability of 95 %

Freq. Range	Detection Mode	Uncertainty
30 MHz to 200 MHz	Quasi-peak	± 4.4 dB
200 MHz to 1000 MHz	Quasi-peak	+ 5.0 / - 3.6 dB

Conducted Emission:

The uncertainty in the measured voltage is estimated as follows, for a minimum confidence probability of 95 %

Freq. Range	Detection Mode	Uncertainty
9 kHz to 150 kHz	Average	± 2.1 dB
	Quasi-peak	± 2.5 dB
150 kHz to 30 MHz	Average	± 2.4 dB
	Quasi-peak	± 2.6 dB



3.0 Emissions Test Results

3.1 Electromagnetic Radiated Disturbance

3.1.1 Test Limits

Limits for Electromagnetic Radiated Disturbance, FCC Section 15.109(b) and ICES 003

Frequency (MHz)	Class B at 3m dB(μV/m)
30-88	40.0
88-216	43.5
216-960	46.0
Above 960	54.0

Note: Three sets of units are commonly used for EMI measurement, decibels below one milliwatt (-dBm), decibels above a microvolt (dBμV), and microvolts (μV). To convert between them, use the following formulas: $20 \text{ LOG}_{10}(\mu\text{V}) = \text{dB}\mu\text{V}$, $\text{dBm} = \text{dB}\mu\text{V} - 107$



3.1.2 Test Procedure

Measurements are conducted with a quasi-peak detector instrument in the frequency range of 30 MHz to 1000 MHz and with the average detector instrument in the frequency range above 1000 MHz. The measuring receiver meets the requirements of Section One of CISPR 16 and the measuring antenna correlates to a balanced dipole.

Measurements of the radiated field are made with the antenna located at a distance of 10 meters from the EUT. If the field-strength measurements at 10m cannot be made because of high ambient noise level or for other reasons, measurements of Class B equipment may be made at a closer distance, for example 3m. An inverse proportionality factor of 20 dB per decade should be used to normalize the measured data to the specified distance for determining compliance.

The antenna is adjusted between 1m and 4m in height above the ground plane for maximum meter reading at each test frequency.

The antenna-to-EUT azimuth is varied during the measurement to find the maximum field-strength readings.

The antenna-to-EUT polarization (horizontal and vertical) is varied during the measurements to find the maximum field-strength readings.

The EUT, where intended for tabletop use, is placed on a table whose top is 0.8m above the ground plane. The table is constructed of non-conductive materials. Its dimensions are 1m by 1.5m, but may be extended for a larger EUT.

Floor standing EUTs are placed on a horizontal metal ground plane and isolated from the ground plane by 3 to 12 mm of insulating material.

Equipment setup for radiated disturbance tests followed the guidelines of ANSI C63.4.

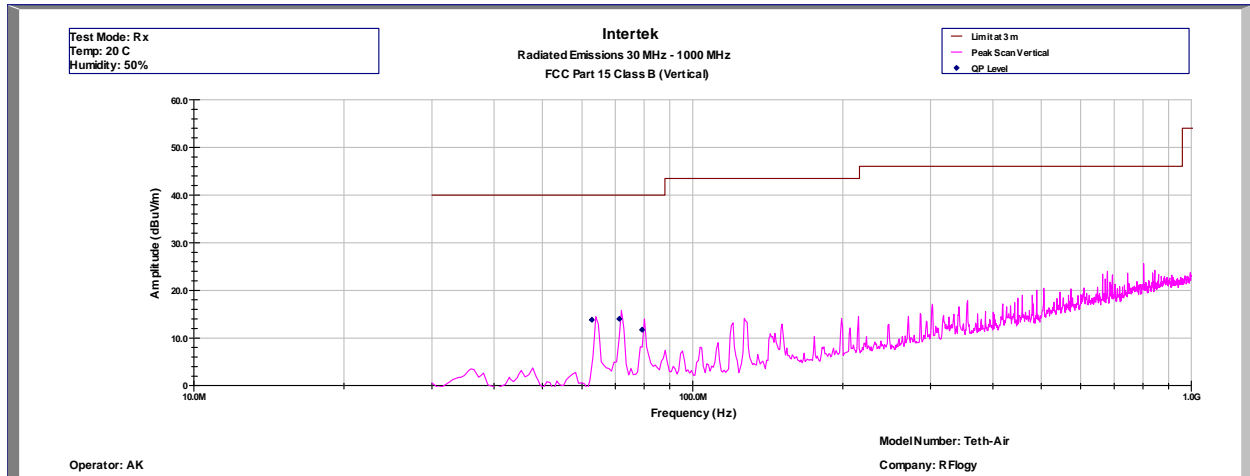
Tested By:	Arkadi Kaplan
Test Date:	July 28, 2009



3.1.3 Test Results

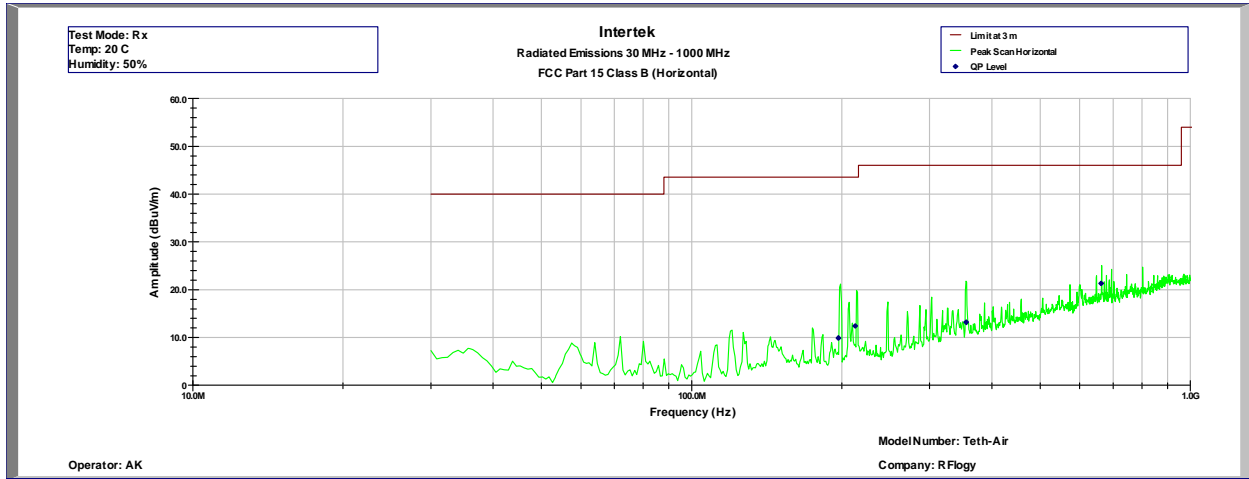
The EUT met the radiated disturbance requirements of FCC and ICES 003 for a Class B device.

FCC and ICES 003, Radiated Disturbance



Frequency Hz	Quasi Pk FS dB(uV/m)	Limit@3m dB(uV/m)	Margin dB	RA dB(uV)	Cable dB	AG dB	AF dB(1/m)
6.279E+07	13.8	40	-26.2	41.4	0.8	32	3.6
7.130E+07	14.0	40	-26.0	39.8	0.8	32	5.3
7.921E+07	11.7	40	-28.3	35.9	0.9	32	6.9

Test Mode: Rx
Temp: 20 C
Humidity: 50%



Frequency Hz	Quasi Pk FS dB(uV/m)	Limit@3m dB(uV/m)	Margin dB	RA dB(uV)	CF dB	AG dB	AF dB(1/m)
1.970E+08	9.9	43.5	-33.6	30.6	1.5	31.9	9.7
2.129E+08	12.4	43.5	-31.1	32.5	1.5	31.9	10.2
3.555E+08	13.2	46.0	-32.8	27.8	2.0	31.9	15.3
6.624E+08	21.3	46.0	-24.7	30.4	2.7	32.3	20.5

Test Mode: Rx
Temp: 20 C
Humidity: 50%

Results: Complies by 24.7dB

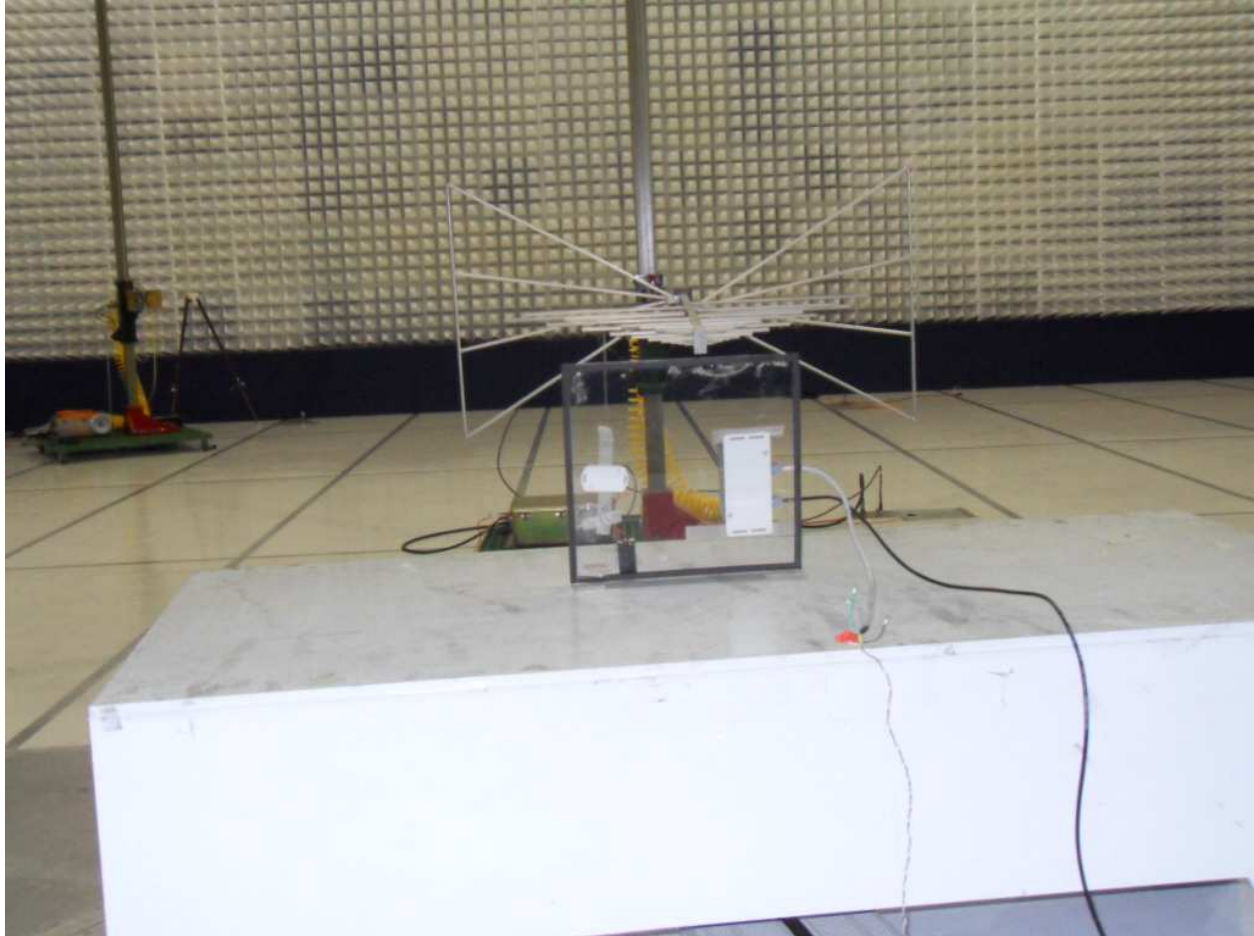
3.1.4 Test Configuration Photographs

The following photographs show the testing configurations used.



Electromagnetic Radiated Disturbance Setup Photograph

3.1.4 Test Configuration Photograph (Continued)



Electromagnetic Radiated Disturbance Setup Photograph



3.2 AC Mains Line-Conducted Disturbance

3.2.1 Test Results

Testing the criteria of this section was **not applicable**. The EUT is battery powered equipment.



4.0 Labeling and Instruction Manual Requirements

4.1 Compliance Information - USA

If a product must be tested and authorized under a Declaration of Conformity, a compliance information statement shall be supplied with the product at the time of marketing or importation, containing the following information:

- (a) Identification of the product, e.g., names and model number.
- (b) A statement that the product complies with Part 15 of the regulations:

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

- (c) The identification, by name, address and telephone number, of the responsible party. The responsible party for a Declaration of Conformity must be located within the United States.

The compliance information statement shall be included in the user's manual or as a separate sheet.

The users manual or instruction manual shall also caution the user that:

Changes or modifications not expressly approved the party responsible for compliance could void the user's authority to operate this equipment.



4.2 Manufacturer's Certification

Declaration of Conformity

Standard to which conformity is declared: _____

Manufacturer/Importer's Information

Name: _____

Address: _____

Telephone Number: _____

Equipment Information

Type of Equipment: _____

Trade Name: _____

Model Number: _____

Test Report Reference: _____

I, the undersigned, hereby declare that the equipment specified above conforms to Part 15 of the FCC Rules.

(Signature)

(Name & Title)

(Date)



5.0 Document History

Revision/ Job Number	Writer Initials	Date	Change
1.0 / 3186196	BG	July 31, 2009	Original document