

THRU Lab & Engineering.

RM302,Bokjo,29-15 , Chongpa3-Dong
Yongsan-Gu, Seoul, Korea
81221095059F81221095056 email thrukang@kornet.net



Test Report

Product Name: 433-434 MHz Wireless Device - RX

FCC ID: TA9-05-0035S

Applicant:
T-ink Inc.

244 W 54th ST 9th FL,
NEW YORK, NY 10019,
U.S.A.

Date Receipt: 07/22/2005

Date Tested: 08/04/2005

APPLICANT: T-INK INC.
FCC ID: TA9-05-0035S
REPORT :THRU-508001

COVER SHEET

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TEST EQUIPMENT LIST

| DEVICE | MODEL | MFGR | SERNO | DUE.CAL |
|----------------------|--------------|-----------------|----------------|--------------|
| EMI Test Receiver | ESVS 10 | Rohde & Schwarz | 830489/001 | 2006.04.23. |
| Spectrum Analyzer | 8566B | Hewlett Packard | 2311A02394 | 2006.04.23 |
| Spectrum Display | 85662A | Hewlett Packard | 2542A12429 | 2006.04.23. |
| Quasi-Peak Adapter | 85650A | Hewlett Packard | 2521A00887 | 2006.04.23. |
| RF Preselector | 85685A | Hewlett Packard | 2648A00504 | 2006.04.23 |
| Pre-Amplifier | 8449B | Hewlett Packard | 3008A00375 | 2006.04.23. |
| Pre-Amplifier | 8447F | Hewlett Packard | 3113A05367 | 2006.04.23. |
| Spectrum Monitor | EZM | Rohde & Schwarz | 862304/007 | 2006.04.23. |
| Bico-Antenna | 94455-1 | Eaton | 977 | 2007.04.01. |
| Log-Periodic Antenna | 3146 | EMCO | 2051 | 2007.04.01. |
| Dipole Antenna | TDA25/1/2 | Electro Metrics | 176/200/200 | 2007.04.01. |
| Horn Antenna | SAS-571 | A.H Systems | 414 | 2007.04.01. |
| Spectrum Analyzer | R3261C | Advantest | 71720189 | 2006.04.23 |
| LISN | KNW-242 | Kyoritsu | 8-923-2 | 2007.04.25. |
| LISN | 8012-50-R-24 | Solar | 8379121 | 2007.04.25.. |
| Loop Ant | 6507 | EMCO | 1435 | 2005.10.06. |
| Signal Generator | SMS | Rohde & Schwarz | 872165/100 | 2006.04.23. |
| Modulation Analyzer | 8901B | Hewlett Packard | 3438A05094 | 2006.04.23. |
| Frequency Counter | CMC251 | Tektronic | CMC-251TW52489 | 2006.04.23. |

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TEST PROCEDURE

GENERAL: This report shall NOT be reproduced except in full without the written approval of ThruLab & Engineering.

RADIATION INTERFERENCE: The test procedure used was ANSI STANDARD C63.4-1992 using a HEWLETT PACKARD spectrum analyzer with a preselector. The bandwidth of the spectrum analyzer was 100 kHz with an appropriate sweep speed. The analyzer was calibrated in dB above a microvolt at the output of the antenna. The resolution bandwidth was 100kHz and the video bandwidth was 300kHz. The ambient temperature of the UUT was 30°C with a humidity of 73%

FORMULA OF CONVERSION FACTORS: The Field Strength at 3m was established by adding the meter reading of the spectrum analyzer (which is set to read in units of dBuV) to the antenna correction factor supplied by the antenna manufacturer. The antenna correction factors are stated in terms of dB. The gain of the Preselector was accounted for in the Spectrum Analyzer Meter Reading.

Example:

Freq (MHz) METER READING + ACF = FS
33 20 dBuV + 10.36 dB = 30.36 dBuV/m @ 3m

ANSI STANDARD C63.4-2003 MEASUREMENT PROCEDURES: The unit under test was placed on a table 80 cm high and with dimensions of 1m by 1.5m. The table used for radiated measurements is capable of continuous rotation. When an emission was found, the table was rotated to produce the maximum signal strength. At this point, the antenna was raised and lowered from 1m to 4m. The antenna was placed in both the horizontal and vertical planes.

ANSI STANDARD C63.4-2003 SUPERREGENERATIVE RECEIVER: A signal Generator was set to the unit under test operating frequency. An unmodulated continuous wave (CW) signal was radiated at the super regenerative receiver operating frequency to cohere the characteristic broadband emissions from the receiver.

The situation was similar for the conducted measurement except that the table did not rotate. The EUT was setup as described in ANSIC63.4-1992 with the EUT 40 cm from the vertical ground wall: **Not Applicable, battery operated.**

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NAME OF TEST: RADIATION INTERFERENCE

RULES PART NO.: 15.109

REQUIREMENTS:

| | |
|-----------------|------------------------|
| 30 to 88 MHz: | 40.0 dBuV/M @ 3 METERS |
| 88 to 216 MHz: | 43.5 dBuV/M |
| 216 to 960 MHz: | 46.0 dBuV/M |
| ABOVE 960 MHz: | 54.0 dBuV/M |

TEST RESULTS: A search was made of the spectrum from 30 to 1000MHz and the measurements indicate that the unit DOES meet the FCC requirements.

TEST DATA:

| No | Emission Frequency (MHz) | Meter Reading dBuV/m | Ant. Polarity | Correction Factor dB | Cable Loss dB | Field Strength (dBuv/m) | Margin (dBuv) | Limit (dBuv/m) |
|----|--------------------------|----------------------|---------------|----------------------|---------------|-------------------------|---------------|----------------|
| 1 | 43.79 | 3.3 | V | 12.1 | 0.9 | 16.3 | -23.7 | 40.0 |
| 2 | 50.43 | 3.7 | H | 10.8 | 1.0 | 15.5 | -24.5 | 40.0 |
| 3 | 67.73 | 3.9 | H | 5.9 | 1.2 | 11.0 | -29.0 | 40.0 |
| 4 | 88.52 | 4.6 | V | 10.1 | 1.5 | 16.2 | -27.3 | 43.5 |
| 5 | 132.43 | 3.9 | V | 13.3 | 1.9 | 19.1 | -24.4 | 43.5 |
| 6 | 171.98 | 2.1 | V | 15.8 | 2.3 | 20.2 | -23.3 | 43.5 |
| 7 | 183.02 | 2.5 | H | 14.3 | 2.4 | 19.2 | -24.3 | 43.5 |
| 8 | 270.05 | 5.7 | H | 14.2 | 3.2 | 23.1 | -22.9 | 46.0 |
| 9 | 311.25 | 2.5 | V | 15.8 | 3.5 | 21.8 | -24.2 | 46.0 |
| 10 | 378.12 | 3.7 | H | 15.0 | 4.0 | 22.8 | -23.2 | 46.0 |
| 11 | 430.05 | 20.7 | V | 15.9 | 4.4 | 41.0 | -5.0 | 46.0 |
| 12 | 438.15 | 15.9 | V | 16.1 | 4.5 | 36.5 | -9.5 | 46.0 |
| 13 | 553.23 | 3.2 | V | 18.3 | 5.3 | 26.7 | -19.3 | 46.0 |
| 14 | 604.52 | 3.8 | H | 19.3 | 5.6 | 28.7 | -17.3 | 46.0 |
| 15 | 748.72 | 3.2 | V | 21.0 | 6.5 | 30.6 | -15.4 | 46.0 |
| 16 | 872.45 | 4.2 | V | 23.6 | 7.2 | 34.9 | -11.1 | 46.0 |

SAMPLE CALCULATION: FSdBuV/m = MR (dBuv) + ACFdB.

TEST PROCEDURE: ANSI STANDARD C63.4-2003 using a Hewlett Packard Model 8566B spectrum analyzer, a Hewlett Packard Model 85685A Preselector, a Hewlett Packard Model 85650A Quasi-Peak adapter, and an appropriate antenna - see the test equipment list. The bandwidth of spectrum analyzer was 100 kHz with an appropriate sweep speed. When an emission was found, the table was rotated to produce the maximum signal strength. The antenna was placed in both the horizontal and vertical planes and the worse case emissions were reported.

PERFORMED BY: S.W.Ahn

DATE: 08/04/2005

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