



Uni-Tat International (HK) Ltd.

**Application
For
Certification
FCC ID: PN8-REC-CLICK-LLC**

Remote Controlled Extension Cord

Model: 00001

Superheterodyne Receiver

Report No.: SZ12080438-2

Prepared and Checked by:

Approved by:

Sign on file

Leo Lai
Engineer

Billy Li
Supervisor
Date: 23 October, 2012

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TRF no.: FCC 15C_RX_b

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LIST OF EXHIBITS

INTRODUCTION

<i>EXHIBIT 1:</i>	General Description
<i>EXHIBIT 2:</i>	System Test Configuration
<i>EXHIBIT 3:</i>	Emission Results
<i>EXHIBIT 4:</i>	Equipment Photographs
<i>EXHIBIT 5:</i>	Product Labelling
<i>EXHIBIT 6:</i>	Technical Specifications
<i>EXHIBIT 7:</i>	Instruction Manual
<i>EXHIBIT 8:</i>	Miscellaneous Information
<i>EXHIBIT 9:</i>	Test Equipment List

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MEASUREMENT/TECHNICAL REPORT

Uni-Tat International (HK) Ltd. - MODEL: 00001
FCC ID: PN8-REC-CLICK-LLC

20 September, 2012

This report concerns (check one:) Original Grant ☒ Class II Change ☐

Equipment Type: CYY – Communications Receiver used w/Pt 15 Transmitter

Deferred grant requested per 47 CFR 0.457(d)(1)(ii)? Yes ☐ No ☒

If yes, defer until: _____
date

Company Name agrees to notify the Commission by: _____
date

of the intended date of announcement of the product so that the grant can be issued on that date.

Transition Rules Request per 15.37? Yes ☐ No ☒

If no, assumed Part 15, Subpart B for unintentional radiator - the new 47 CFR [10-1-11 Edition] provision.

Report prepared by:

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Table of Contents

1.0	<u>General Description</u>	2
1.1	Product Description	2
1.2	Related Submittal(s) Grants	2
1.3	Test Methodology	3
1.4	Test Facility	3
2.0	<u>System Test Configuration</u>	5
2.1	Justification	5
2.2	EUT Exercising Software	5
2.3	Special Accessories	5
2.4	Equipment Modification	5
2.5	Measurement Uncertainty	5
2.6	Support Equipment List and Description	6
3.0	<u>Emission Results</u>	8
3.1	Field Strength Calculation	9
3.2	Radiated Emission Data and Configuration Photograph	10
3.3	Conducted Emission Data and Configuration Photograph	12
4.0	<u>Equipment Photographs</u>	16
5.0	<u>Product Labelling</u>	18
6.0	<u>Technical Specifications</u>	20
7.0	<u>Instruction Manual</u>	22
8.0	<u>Miscellaneous Information</u>	24
8.1	Emissions Test Procedures	26
9.0	<u>Test Equipment List</u>	28

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List of attached file

Exhibit type	File Description	filename
Test Report	Test Report	report.pdf
Operation Description	Technical Description	descri.pdf
Test Setup Photo	Radiated Emission	radiated photos.pdf
Test Setup Photo	Conducted Emission	conducted photos.pdf
External Photo	External Photo	external photos.pdf
Internal Photo	Internal Photo	internal photos.pdf
Block Diagram	Block Diagram	block.pdf
Schematics	Circuit Diagram	circuit.pdf
ID Label/Location	Label Artwork and Location	label.pdf
User Manual	User Manual	manual.pdf
Cover Letter	Letter of Agency	agency.pdf

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EXHIBIT 1

GENERAL DESCRIPTION

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1.0 **General Description**

1.1 Product Description

The equipment under test (EUT) is a receiver for a Remote Controlled Extension Cord operating at 433.92 MHz. The EUT is plug into a 110~120V AC outlet (indoor only). The receiver can handle three 110~120V AC outlets (total 1000 Watts max), all of them can be controlled by the ON and OFF buttons on the Transmitter unit.

Antenna Type: Integral antenna

For electronic filing, the brief circuit description is saved with filename: descri.pdf.

1.2 Related Submittal(s) Grants

This is a single application for certification of a receiver. The transmitter with FCC ID: PN8-TX-CLICK-LLC, associated with this receiver, has been filed at the same time.

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1.3 Test Methodology

Both AC mains line-conducted and radiated emission measurements were performed according to the procedures in ANSI C63.4: 2009. Radiated emission measurement was performed in Semi-anechoic chamber and conducted emission measurement was performed in shield room. For radiated emission measurement, preliminary scans were performed in the semi-anechoic chamber only to determine the worst case modes. All radiated tests were performed at an antenna to EUT distance of 3 meters, unless stated otherwise in the "**Justification Section**" of this Application.

1.4 Test Facility

The Semi-Anechoic chamber and shield room used to collect the radiated data and conducted are **Intertek Testing Services Shenzhen Ltd.** Kejiyuan Branch and located at 6F, Block D, Huahan Building, Langshan Road, Nanshan District, Shenzhen, P. R. China. This test facility and site measurement data have been fully placed on file with the FCC (Registration Number: 242492).

EXHIBIT 2
SYSTEM TEST CONFIGURATION

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2.0 **System Test Configuration**

2.1 Justification

The system was configured for testing in a typical fashion (as a customer would normally use it), and in the confines as outlined in ANSI C63.4: 2009.

The device was powered by AC 120V/60Hz during the testing.

For maximizing emissions, the EUT was rotated through 360°, the antenna height was varied from 1 meter to 4 meters above the ground plane, and the antenna polarization was changed. The step by step procedure for maximizing emissions led to the data reported in Exhibit 3.0.

The rear of unit shall be flushed with the rear of the table.

The equipment under test (EUT) was configured for testing in a typical fashion (as a customer would normally use it). The EUT was placed on turntable, which enabled the engineer to maximize emissions through its placement in the three orthogonal axes.

The frequency range from 30MHz to 1GHz was searched for spurious emissions from the device. Only those emissions reported were detected. All other emissions were at least 20 dB below the applicable limits.

2.2 EUT Exercising Software

There was no special software to exercise the device. Once the unit is powered up, it received continuously.

2.3 Special Accessories

N/A.

2.4 Equipment Modification

Any modifications installed previous to testing by Uni-Tat International (HK) Ltd. will be incorporated in each production model sold/leased in the United States.

No modifications were installed by Intertek Testing Services Shenzhen Ltd Kejiyuan Branch.

2.5 Measurement Uncertainty

When determining of the test conclusion, the Measurement Uncertainty of test has been considered.

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2.6 Support Equipment List and Description

Description	Manufacturer	Specification
Transmitter	Uni-Tat	FCC ID: PN8-TX-CLICK-LLC
Dummy load	N/A	14ohm

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EXHIBIT 3

EMISSION RESULTS

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3.0 **Emission Results**

Data is included of the worst case configuration (the configuration which resulted in the highest emission levels). A sample calculation, configuration photographs and data tables of the emissions are included.

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3.1 Field Strength Calculation

The field strength is calculated by adding the Antenna Factor and Cable Factor, and subtracting the Amplifier Gain (if any) from the measured reading. The basic equation with a sample calculation is as follows:

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

where FS = Field Strength in dB μ V/m
 RA = Receiver Amplitude (including preamplifier) in dB μ V
 CF = Cable Attenuation Factor in dB
 AF = Antenna Factor in dB
 AG = Amplifier Gain in dB

In the following table(s), the reading shown on the data table reflects the preamplifier gain. An example for the calculations in the following table is as follows:

$$FS = RR + LF$$

where FS = Field Strength in dB μ V/m
 RR = $RA - AG$ in dB μ V
 LF = $CF + AF$ in dB

Assume a receiver reading of 52.0 dB μ V is obtained. The antenna factor of 7.4 dB and cable factor of 1.6 dB are added. The amplifier gain of 29 dB is subtracted, giving a field strength of 32 dB μ V/m. This value in dB μ V/m was converted to its corresponding level in μ V/m.

$RA = 52.0$ dB μ V/m	
$AF = 7.4$ dB	$RR = 23.0$ dB μ V
$CF = 1.6$ dB	$LF = 9.0$ dB
$AG = 29.0$ dB	
$FS = RR + LF$	
$FS = 23 + 9 = 32$ dB μ V/m	

Level in μ V/m = Common Antilogarithm $[(32 \text{ dB}\mu\text{V/m})/20] = 39.8 \mu\text{V/m}$

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3.2 Radiated Emission Data and Configuration Photograph

Worst Case Radiated Emission

43.580 MHz

Judgement: Passed by 10.9 dB

For electronic filing, the worst case radiated emission configuration photograph is saved with filename: Radiated Photos.pdf

TEST PERSONNEL:

Sign on file

Leo Lai Engineer
Typed/Printed Name

20 September, 2012
Date

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Applicant: Uni-Tat International (HK) Ltd.

Date of Test: 20 September, 2012

Model: 00001

Test Mode: Receive

Result Table
FCC Class B Radiated Emissions

Polarization	Frequency (MHz)	Reading (dB μ V)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dB μ V/m)	Limit at 3m (dB μ V/m)	Margin (dB)
Vertical	39.215	33.7	20.0	12.6	26.3	40.0	-13.7
Vertical	43.580	37.9	20.0	11.2	29.1	40.0	-10.9
Vertical	47.460	35.2	20.0	9.3	24.5	40.0	-15.5
Vertical	51.340	39.0	20.0	7.4	26.4	40.0	-13.6
Vertical	94.990	36.6	20.0	8.1	24.7	43.5	-18.8
Vertical	106.630	31.8	20.0	8.3	20.1	43.5	-23.4

- NOTES:
1. All measurements were made at 3 meters. Harmonic emissions not detected at the 3-meter distances were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other harmonic emissions than those reported were detected at a test distance of 0.3-meter.
 2. Negative sign in the column shows value below limit.
 3. All emissions below 1000MHz are below the QP limit.
 4. Quasi-Peak detector is used for frequency up to 1GHz.

Test Engineer: Leo Lai

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3.3 Conducted Emission Data and Configuration Photograph

Worst Case Line-Conducted Configuration
at
19.798 MHz

Judgement: Passed by 16.7 dB margin

For electronic filing, the worst case conducted emission configuration photograph is saved with filename: conducted photos.pdf.

TEST PERSONNEL:

Sign on file

Leo Lai Engineer
Typed/Printed Name

20 September, 2012
Date

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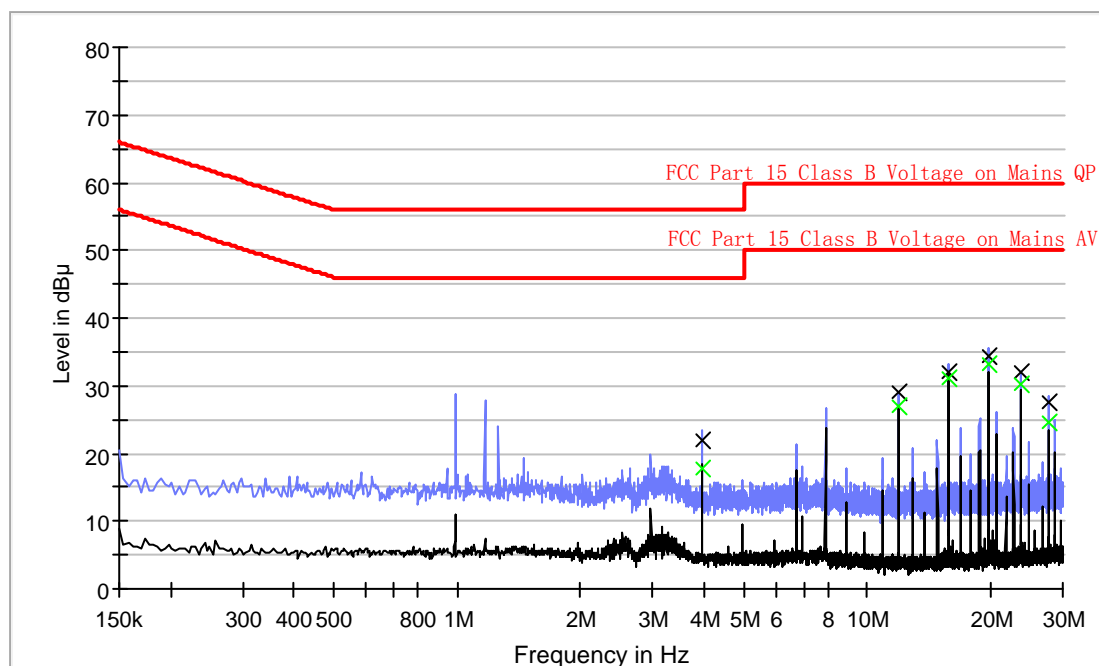
Applicant: Uni-Tat International (HK) Ltd.

Date of Test: 20 September, 2012

Model: 00001

Test Mode: Receive

Conducted Emission Test - FCC



Result Table QP

Frequency (MHz)	QuasiPeak (dB μV)	Line	Corr. (dB)	Margin (dB)	Limit (dB μV)
3.962000	21.9	L1	9.8	34.1	56.0
11.878000	28.9	L1	9.9	31.1	60.0
15.838000	32.1	L1	10.0	27.9	60.0
19.798000	34.3	L1	10.0	25.7	60.0
23.758000	32.0	L1	9.9	28.0	60.0
27.714000	27.5	L1	10.0	32.5	60.0

Result Table AV

Frequency (MHz)	Average (dB μV)	Line	Corr. (dB)	Margin (dB)	Limit (dB μV)
3.962000	17.8	L1	9.8	28.2	46.0
11.878000	27.1	L1	9.9	22.9	50.0
15.838000	31.3	L1	10.0	18.7	50.0
19.798000	33.3	L1	10.0	16.7	50.0
23.758000	30.3	L1	9.9	19.7	50.0
27.714000	24.6	L1	10.0	25.4	50.0

Test Engineer: Leo Lai

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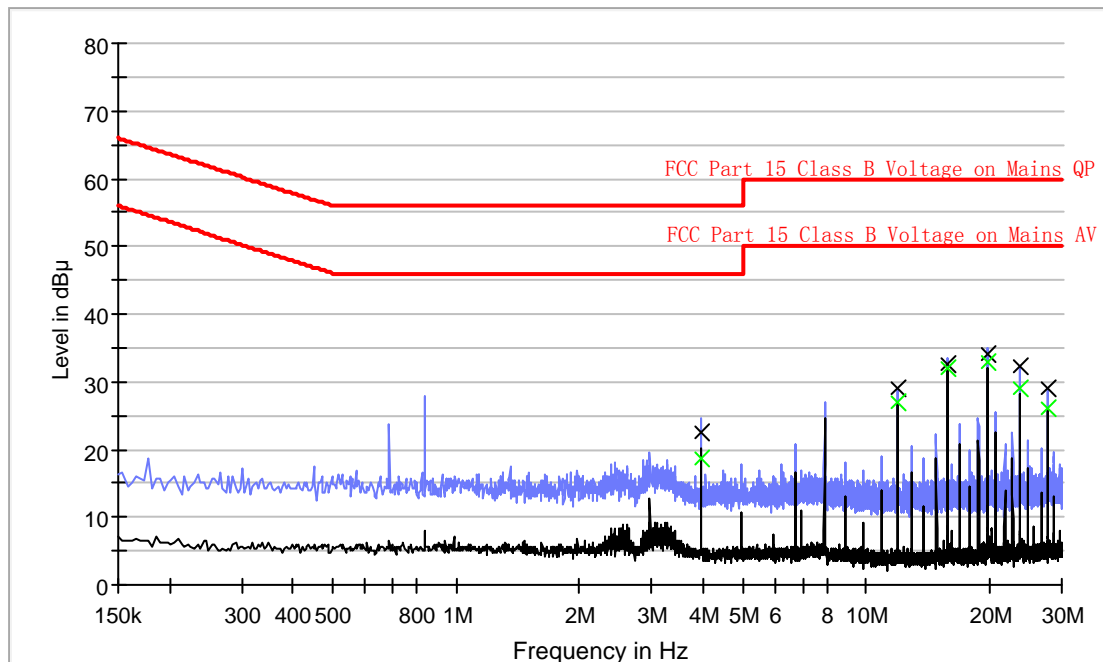
Applicant: Uni-Tat International (HK) Ltd.

Date of Test: 20 September, 2012

Model: 00001

Test Mode: Receive

Conducted Emission Test - FCC



Result Table QP

Frequency (MHz)	QuasiPeak (dB μV)	Line	Corr. (dB)	Margin (dB)	Limit (dB μV)
3.958000	22.6	N	9.8	33.4	56.0
11.878000	29.0	N	9.9	31.0	60.0
15.838000	32.7	N	10.1	27.3	60.0
19.794000	34.1	N	10.1	25.9	60.0
23.754000	32.2	N	10.0	27.8	60.0
27.710000	28.9	N	9.9	31.1	60.0

Result Table AV

Frequency (MHz)	Average (dB μV)	Line	Corr. (dB)	Margin (dB)	Limit (dB μV)
3.958000	18.6	N	9.8	27.4	46.0
11.878000	26.9	N	9.9	23.1	50.0
15.838000	31.9	N	10.1	18.1	50.0
19.794000	32.9	N	10.1	17.1	50.0
23.754000	29.1	N	10.0	20.9	50.0
27.710000	26.2	N	9.9	23.8	50.0

Test Engineer: Leo Lai

EXHIBIT 4
EQUIPMENT PHOTOGRAPHS

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4.0 **Equipment Photographs**

For electronic filing, the photographs are saved with filename: external photos.doc and internal photos.doc.

EXHIBIT 5
PRODUCT LABELLING

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5.0 **Product Labelling**

For electronics filing, the FCC ID label artwork and the label location are saved with filename: label.pdf.

EXHIBIT 6
TECHNICAL SPECIFICATIONS

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6.0 **Technical Specifications**

For electronic filing, the block diagram and schematic of the tested EUT are saved with filename: block.pdf and circuit.pdf respectively.

EXHIBIT 7
INSTRUCTION MANUAL

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7.0 **Instruction Manual**

For electronic filing, a preliminary copy of the Instruction Manual is saved with filename: manual.pdf.

This manual will be provided to the end-user with each unit sold/leased in the United States.

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EXHIBIT 8

MISCELLANEOUS INFORMATION

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8.0 **Miscellaneous Information**

This miscellaneous information includes emission measuring procedure.

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8.1 Emissions Test Procedures

The following is a description of the test procedure used by Intertek Testing Services in the measurements of computer peripheral operating under Part 15, Subpart B rules.

The test set-up and procedures described below are designed to meet the requirements of ANSI C63.4: 2009.

The computer peripheral equipment under test (EUT) is placed on a wooden turntable which is four feet in diameter and approximately one meter in height above the ground plane. During the radiated emissions test, the turntable is rotated and any cables leaving the EUT are manipulated to find the configuration resulting in maximum emissions. The antenna height and polarization are varied during the testing to search for maximum signal levels. The height of the antenna is varied from one to four meters.

Detector function for radiated emissions is in QP mode from the frequency band 30MHz to 1GHz with RBW setting is 120kHz. Detector function for conducted emissions are in QP & AV mode and IFBW setting is 9kHz from the frequency band 150kHz to 30MHz.

For radiated emission, the frequency range scanned is 30MHz to 1GHz. For line-conducted emissions, the range scanned is 150kHz to 30MHz.

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8.1 Emissions Test Procedures (cont'd)

The EUT is warmed up for 15 minutes prior to the test.

AC power to the unit is varied from 85% to 115% nominal and variation in the fundamental emission field strength is recorded. If battery powered, a new, fully charged battery is used.

Conducted measurements were made as described in ANSI C63.4: 2009.

The IF bandwidth used for measurement of radiated signal strength was 100 kHz or greater when frequency is below 1000 MHz.

Measurements are normally conducted at a measurement distance of three meters. All measurements are extrapolated to three meters using inverse scaling, unless otherwise reported. Measurements taken at a closer distance are so marked.

EXHIBIT 9
TEST EQUIPMENT LIST

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9.0 Test Equipment List

Equipment No.	Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Due Date
SZ061-03	BiConiLog Antenna	ETS	3142C	00066460	30-Jun-12	30-Jun-13
SZ185-01	EMI Receiver	R&S	ESCI	100547	11-Mar-12	11-Mar-13
SZ188-01	Anechoic Chamber	ETS	RFD-F/A-100	4102	03-Mar-12	03-Mar-13
SZ062-02	RF Cable	RADIAL	RG 213U	--	17-Mar-12	17- Mar-13
SZ062-12	RF Cable	RADIAL	0.04-26.5GHz	--	25-Feb-12	25- Feb-13
SZ185-02	EMI Test Receiver	R&S	ESCI	100692	5-Nov-11	5-Nov-12
SZ187-01	Two-Line V-Network	R&S	ENV216	100072	5-Nov-11	5-Nov-12
SZ187-02	Two-Line V-Network	R&S	ENV216	100073	5-Nov-11	5-Nov-12
SZ188-03	Shielding Room	ETS	RFD-100	4100	10-Sep-12	10-Sep-13