

June 09, 2005

ADY Technologies Limited
Room 1302, Perfect Commercial Building,
20 Austin Avenue, Tsim Sha Tsui,
Kowloon, Hong Kong.

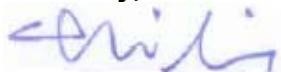
Dear Narain:

Enclosed you will find your file copy of a Part 15 report (FCC ID: H3Y-SP67778R).

For your reference, TCB will normally take another 15-20 days for reviewing the report. Approval will then be granted when no query is sorted.

Please contact me if you have any questions regarding the enclosed material.

Sincerely,



Billy Chow
Senior Supervisor

Enclosure

FCC ID: H3Y-SP67778R

ADY Technologies Limited

Application For Certification (FCC ID: H3Y-SP67778R)

Superheterodyne Receiver

0508075
TC/el
June 09, 2005

FCC ID: H3Y-SP67778R

- The test results reported in this test report shall refer only to the sample actually tested and shall not refer or be deemed to refer to bulk from which such a sample may be said to have been obtained.
- This report shall not be reproduced except in full without prior authorization from Intertek Testing Services Hong Kong Limited
- For Terms And Conditions of the services, it can be provided upon request.
- The evaluation data of the report will be kept for 3 years from the date of issuance.

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LIST OF EXHIBITS

INTRODUCTION

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MEASUREMENT/TECHNICAL REPORT

**ADY Technologies Limited - MODEL: WS 3667
FCC ID: H3Y-SP67778R**

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

Equipment Type: Superheterodyne Receiver (example: computer, printer, modem, etc.)

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

If yes, defer until: _____
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 [12-08-03 Edition] provision.

Report prepared by:

Billy Chow
Intertek Testing Services Hong Kong Ltd.
2/F., Garment Centre,
576, Castle Peak Road,
Kowloon, Hong Kong
Phone: 852-2173-8491
Fax: 852-2371-0914

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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
Test Report	Conducted Emission Test Result	Conduct.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

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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 900 MHz stereo wireless speakers for it corresponding transmitter and using two discrete (left and right channel) radio carriers rather than the conventional FM multiplex system. Transmit carriers are generated by directly modulated frequency synthesizers controlled by a small microprocessor. There are three difference channels available for each speaker, Channel 1, Channel 2 and Channel 3 and the frequencies are L891.9/R915.1, L892.7/R915.9 and L893.5/R916.7 respectively. The speaker may be either using rechargeable battery pack (Model: TEVION TC-5849) powered or AC/DC adaptor (Model: FAU-30-F) powered. The green LED in front on the EUT lighted when the power switch on. In addition, there is a channel select switch to select the optimum channel and a bass control knob to adjust the base level.

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

1.2 Related Submittal(s) Grants

The transmitter for this receiver (with FCC ID: H3YD3T6777) has been authorized by Certification procedure.

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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 - 2001. Radiated measurement was performed in an Open Area Test Site and Conducted Emission measurement was performed in Shield Room. Preliminary scans were performed in the Open Area Test Site only to determine worst case modes. For each scan, the procedure for maximizing emissions in Appendices D and E were followed. 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 open area test site and conducted measurement facility used to collect the radiated data is located at Garment Centre, 576 Castle Peak Road, Kowloon, Hong Kong. This test facility and site measurement data have been placed on file with the FCC.

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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 - 2001.

The EUT can be powered by an rechargeable battery pack (model: TEVION TC-5849) or AC/DC adaptor (model: FAU-30-F).

The unit was operated standalone and placed in the center of the turntable. The wooden support stand enabled the engineer to maximize emissions through its placements in the three orthogonal axes.

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 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.

For simplicity of testing, the unit was operated to receiving continuously.

2.2 EUT Exercising Software

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

2.3 Special Accessories

There are no special accessories necessary for compliance of this product.

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2.4 Equipment Modification

Any modifications installed previous to testing by ADY Technologies Limited will be incorporated in each production model sold/leased in the United States.

No modifications were installed by Intertek Testing Services.

2.5 Measurement Uncertainty

When determining the test conclusion, the measurement uncertainty of test has been considered.

2.6 Support Equipment List and Description

Transmitter with FCC ID: H3YD3T6777

All the items listed under section 2.0 of this report are:

Confirmed by:

*Billy Chow
Senior Supervisor - Home Entertainment Electronics
Intertek Testing Services Hong Kong Ltd. ETL SEMKO
Agent for ADY Technologies Limited*



Signature

June 09, 2005 Date

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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 reading on the Spectrum Analyzer to the factors associated with preamplifiers (if any), antennas, cables, pulse desensitization and average factors (when specified limit is in average and measurements are made with peak detectors). A sample calculation is included below.

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

where FS = Field Strength in $\text{dB}\mu\text{V}/\text{m}$

RA = Receiver Amplitude (including preamplifier) in $\text{dB}\mu\text{V}$

CF = Cable Attenuation Factor in dB

AF = Antenna Factor in dB

AG = Amplifier Gain in dB

PD = Pulse Desensitization in dB

AV = Average Factor in -dB

In the radiated emission table which follows, the reading shown on the data table may reflect the preamplifier gain. An example of the calculations, where the reading does not reflect the preamplifier gain, follows:

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

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3.1 Field Strength Calculation (cont'd)

Example

Assume a receiver reading of 62.0 dB μ V 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. The pulse desensitization factor of the spectrum analyzer was 0 dB, and the resultant average factor was -10 dB. The net field strength for comparison to the appropriate emission limit is 32 dB μ V/m. This value in dB μ V/m was converted to its corresponding level in μ V/m.

$$RA = 62.0 \text{ dB}\mu\text{V}$$

$$AF = 7.4 \text{ dB}$$

$$CF = 1.6 \text{ dB}$$

$$AG = 29.0 \text{ dB}$$

$$PD = 0 \text{ dB}$$

$$AV = -10 \text{ dB}$$

$$FS = 62 + 7.4 + 1.6 - 29 + 0 + (-10) = 32 \text{ dB}\mu\text{V/m}$$

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

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3.2 Radiated Emission Configuration Photograph

Worst Case Radiated Emission
at
916.703 MHz

For electronic filing, the front view and back view of the test configuration photographs are saved with filename: radiated photos.pdf.

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3.3 Radiated Emission Data

The data on the following page lists the significant emission frequencies, the limit and the margin of compliance. Numbers with a minus sign are below the limit.

Judgement: Passed by 0.1 dB margin

TEST PERSONNEL:



Signature

Terry C. H. Chan, Compliance Engineer
Typed/Printed Name

June 09, 2005
Date

INTERTEK TESTING SERVICES

Company: ADY Technologies Limited

Date of Test: May 31, 2005

Model: WS 3667

Worst case operating mode: Receiving (Left Channel)

Table 1

Radiated Emissions

Channel 02

Polarization	Frequency (MHz)	Net at 3m (dB μ V/m)	Limit at 3m (dB μ V/m)	Margin (dB)
V	891.908	44.8	46.0	-1.2
V	1783.816	43.4	54.0	-10.6
V	*2675.724	45.8	54.0	-8.2
V	3567.632	39.9	54.0	-14.1
V	4459.540	39.1	54.0	-14.9

Channel 03

Polarization	Frequency (MHz)	Net at 3m (dB μ V/m)	Limit at 3m (dB μ V/m)	Margin (dB)
V	893.503	45.2	46.0	-0.8
V	1787.006	42.0	54.0	-12.0
V	*2680.509	45.3	54.0	-8.7
V	3574.012	39.6	54.0	-14.4
V	4467.515	39.0	54.0	-15.0

NOTES:

1. Peak Detector Data unless otherwise stated.
2. 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.
3. Negative sign in the margin column shows emission below limit.
4. Horn antenna is used for the emission over 1000MHz.
5. “*” Emission within restricted band fulfill the requirement of section 15.205.

Test Engineer: Terry C. H. Chan

INTERTEK TESTING SERVICES

Company: ADY Technologies Limited

Date of Test: May 31, 2005

Model: WS 3667

Worst case operating mode: Receiving (Right Channel)

Table 2

Radiated Emissions

Channel 02

Polarization	Frequency (MHz)	Net at 3m (dB μ V/m)	Limit at 3m (dB μ V/m)	Margin (dB)
H	915.103	45.7	46.0	-0.3
V	1830.185	36.3	54.0	-17.7
V	*2745.296	37.8	54.0	-16.2
V	*3660.397	39.1	54.0	-14.9
V	*4575.496	39.0	54.0	-15.0

Channel 03

Polarization	Frequency (MHz)	Net at 3m (dB μ V/m)	Limit at 3m (dB μ V/m)	Margin (dB)
H	916.703	45.9	46.0	-0.1
V	1833.403	36.8	54.0	-17.2
V	*2750.099	38.0	54.0	-16.0
V	*3666.797	39.4	54.0	-14.6
V	*4583.490	39.1	54.0	-14.9

NOTES: 1. Peak Detector Data unless otherwise stated.

2. 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.
3. Negative sign in the margin column shows emission below limit.
4. Horn antenna is used for the emission over 1000MHz.
5. '*' Emission within restricted band fulfill the requirement of section 15.205.

Test Engineer: Terry C. H. Chan

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3.4 Conducted Emission Configuration Photograph

Worst Case Conducted Emission
at
8.500 MHz

For electronic filing, the front view, rear view and side view of the test configuration photographs are saved with filename: conducted photos.pdf.

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Company: ADY Technologies Limited
Model: WS 3667

Date of Test: May 31, 2005

Conducted Emissions Section 15.107 Requirements

For Electronic filing, the conducted emission test result is saved with filename:
conduct.pdf

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3.5 Conducted Emission Data

For electronic filing, the graph and data table of conducted emission are saved with filename: conduct.pdf. The data table lists the significant emission frequencies, the limit and the margin of compliance. Numbers with a minus sign are below the limit.

Judgement: Passed by 2.5 dB margin

TEST PERSONNEL:



Signature

Terry C. H. Chan, Compliance Engineer
Typed/Printed Name

June 09, 2005

Date

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EXHIBIT 4
EQUIPMENT PHOTOGRAPHS

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4.0 Equipment Photographs

For electronic filing, photographs of the tested EUT are saved with filename: external photos.pdf for external photo, and internal photos.pdf for internal photo.

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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.

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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

The miscellaneous information includes details of the test procedure.

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8.1 Discussion of Pulse Desensitization

This device is a superheterodyne receiver. No desensitization of the measurement equipment is required as the received signals are continuously.

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8.2 Calculation of Average Factor

This device is a superheterodyne receiver. It is not necessary to apply average factor to the measurement result.

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8.3 Emissions Test Procedures

This device is a superheterodyne receiver. It is not necessary to apply average factor to the measurement result.

The following is a description of the test procedure used by Intertek Testing Services Hong Kong Ltd. in the measurements of Superheterodyne Receivers operating under the Part 15, Subpart B rules.

The test set-up and procedures described below are designed to meet the requirements of ANSI C63.4 - 2001.

The 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 EUT is adjusted through all three orthogonal axis to obtain maximum emission levels. The antenna height and polarization are also 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 peak mode. Average readings, when required, are taken by measuring the duty cycle of the equipment under test and subtracting the corresponding amount in dB from the measured peak readings. A detailed description for the calculation of the average factor can be found in Exhibit 8.2.

The frequency range scanned is from the lowest radio frequency signal generated in the device which is greater than 9 kHz to the tenth harmonic of the highest fundamental frequency or 40 GHz, whichever is lower. For line conducted emissions, the range scanned is 150 kHz to 30 MHz.

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8.3 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 - 2001.

The IF bandwidth used for measurement of radiated signal strength was 100 kHz or greater when frequency is below 1000 MHz. Where pulsed transmissions of short enough pulse duration warrant, a greater bandwidth is selected according to the recommendations of Hewlett Packard Application Note 150-2. A discussion of whether pulse desensitivity is applicable to this unit is included in this report (See Exhibit 8.1). Above 1000 MHz, a resolution bandwidth of 1 MHz is used.

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.