LIST OF EXHIBITS

MEASUREMENT/TECHNICAL REPORT

IDT Technology Ltd. - MODEL: JRT168
FCC ID: NMTEMR899-01

This report concerns (check one:) Original Grant_____ Class II Change__X__

Equipment Type: Superregenerative 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

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_X__

If no, assumed Part 15, Subpart B for unintentional radiator - the new 47 CFR [10-1-96 Edition] provision.

Report prepared by:

C. K. Lam
Intertek Testing Services
Hong Kong Ltd.
2/F., Garment Centre,
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Kowloon, Hong Kong
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EXHIBIT 1

GENERAL DESCRIPTION

1.0 General Description

1.1 Product Description

The equipment under test (EUT) is a superregenerative receiver portion of wireless thermometer system operating at 433.92 MHz. The EUT is powered by two "AA" size batteries. There are three buttons on the front panel (Channel Selector, Hi/Lo Temperature and Memory Clear), two switches and one button at the back panel (Reset, Alarm ON/OFF and Temperature scale °C/°F). It can operate with three transmitters via three channels.

The brief circuit description and the change description are attached in the following pages.

1.2 Related Submittal(s) Grants

This is an application for Certification of a receiver. The FCC ID for the transmitter associated with this receiver is NMTTHR128-01 which is granted on May 29, 1998.

Integrated Display Technology Ltd.
萬威科技有限公司

Technical descriptions of JTR168

JTR168 is basically a remote-thermo receiver. It is composed of two main parts that are control part and remote-thermo part. The remote-thermo part is a receiver whose centre frequency is 433.92 Mhz.

The remote-thermo part employs superregenerative receiver technique. The LC circuitry, L2, C2, C6 and C4 provides channel selection and the resonant frequency is set to 433.92 MHz. By extracting the emitter output of the transistor, Q2, a regenerated signal is obtained. The circuitry, C8 and R10, acts as a low pass filter which extracts the envelope of the regenerated signal. Demodulated signal is obtained from the output port of operational amplifier, pin 1 of TL062C. The other part of TL062C composes a schmitt-trigger circuitry that converts the demodulated signal into pulses that can be read by micro-controller.

9F Kaiser Estate, 41 Man Yue Street, Hunghom, Kowloon, Hong Kong. Tel 2764 7873 Fax

IDT Technology Limited
萬威科研有限公司

TO	**: Intertek Testing Services**	**Date**	**: July 24, 1998**
ATTN.	**: Ken Lam**	**Fax#**	**:**
FROM	**: K.F. Chan**	**Total**	**1 Of 1**
C.C.	**:**		
SUBJECT	**: JTR168 component changed list**		

Pls note that a JTR168 sample is submitted for which is used to apply FCC part 15 permissive change. The deviations of this model (JTR168) from model EMR899 (FCC ID : NMTEMR899-01) are shown as below;

1) The PCB layout is changed to allow additional features, but the RF receiver module has not been changed and it is same as EMR899.

2) The LCD is changed to allow more information to users.

3) The mask program of controller IC is changed but the protocol has not been changed. Thus, it does not affect the average power level from the transmitter.

Best regards,

FCC ID: NMTEMR899-01

9/F Kaiser Estate, 41 Man Yue Street, Hunghom, Kowloon, Hong Kong. Tel 2764 7873 Fax 2765 6620 Cable IDTRAYMOND Telex 36567-IDTHK

1.3 Test Methodology

Both AC mains line-conducted and radiated emission measurements were performed according to the procedures in ANSI C63.4 (1992). All radiated measurements were performed in an Open Area Test Site. 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.

EXHIBIT 2

SYSTEM TEST CONFIGURATION

2.0 System Test Configuration

2.1 Justification

The equipment under test (EUT) was configured for testing in a typical fashion (as a customer would normally use it). The EUT was mounted to a cardboard box, which enabled the engineer to maximize emissions through its placement 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. This step by step procedure for maximizing emissions led to the data reported in Exhibit 3.0.

The unit was operated standalone and placed in the center of the turntable.

The device was powered from two new "AA" size batteries

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 Support Equipment List and Description

This product was tested in standalone configuration.

2.4 Equipment Modification

Any modifications installed previous to testing by IDT Technology Ltd. will be incorporated in each production model sold/leased in the United States.

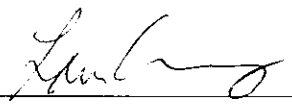
No modifications were installed by Intertek Testing Services.

2.5 Special Accessories

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

Confirmed by:

C. K. Lam
Assistant Manager - EMC
Intertek Testing Services
Hong Kong Ltd.
Agent for IDT Technology Ltd.


Signature

July 17, 1998
Date

EXHIBIT 3

EMISSION RESULTS

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.

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 dBμV/m
RA = Receiver Amplitude (including preamplifier) in dBμV
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 dBμV/m
RR = RA - AG in dBμV
LF = CF + AF in dB

Assume a receiver reading of 52.0 dBμV 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 dBμV/m. This value in dBμV/m was converted to its corresponding level in μV/m.

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

Level in mV/m = Common Antilogarithm [(32 dBμV/m)/20] = 39.8 μV/m

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 8.3 dB

*All readings are peak unless stated otherwise

TEST PERSONNEL:

Signature

Ken C. C. Lam, Compliance Engineer
Typed/Printed Name

July 20, 98
Date

Company: IDT Technology Ltd.
Model: JRT168

Date of Test: June 14, 1998

Table 1

FCC Class B Radiated Emissions

Polarity	Frequency (MHz)	Reading (dBμV)	Antenna Factor (dB)	Pre-Amp Gain (dB)	Net at 3m (dBμV/m)	Limit at 3m (dBμV/m)	Margin (dB)
V	428.19	25.4	25	16	34.4	46	-11.6
V	429.303	26.3	25	16	35.3	46	-10.7
V	430.368	27.2	25	16	36.2	46	-9.8
V	431.433	27.7	25	16	36.7	46	-9.3
V	432.508	27.2	25	16	36.2	46	-9.8
V	434.668	29.4	25	16	38.4	46	-7.6
V	435.744	27.7	26	16	37.7	46	-8.3
V	436.831	26.6	26	16	36.6	46	-9.4
V	437.919	25.1	26	16	35.1	46	-10.9

NOTES: 1. Negative sign in the column shows value below limit.

2. Peak Detector Data.

3. 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.

Test Engineer: Ken C. C. Lam

EXHIBIT 4

EQUIPMENT PHOTOGRAPHS

4.0 Equipment Photographs

Photographs of the tested EUT are attached.

EXHIBIT 8

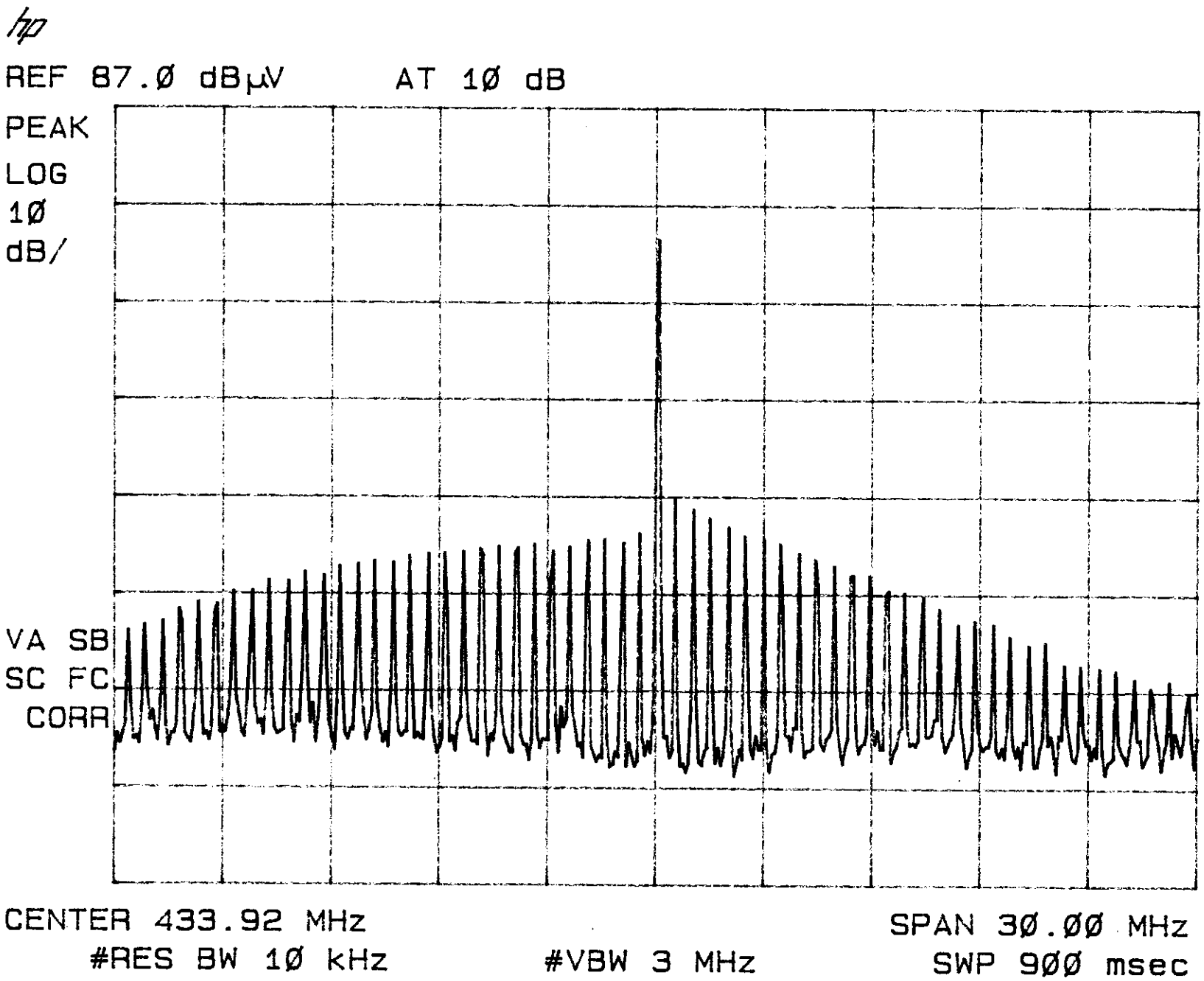
MISCELLANEOUS INFORMATION

8.0 Miscellaneous Information

This miscellaneous information includes details of the stabilizing process (including a plot of the stabilized waveform), the test procedure and calculation of factors such as pulse desensitization and averaging factor.

8.1 Stabilization Waveform

Previous to the testing, the superregenerative receiver was stabilized as outlined in the test procedure. The plot on the following page shows the fundamental emission when a signal generator was used to stabilize the receiver. Please note that the antenna was placed as close as possible to the EUT for clear demonstration of the waveform and that accurate readings are not possible from this plot.


REF 87.Ø dBµV
AT 1Ø dB
PEAK
LOG
1Ø
dB/
VA SB
SC FC
CORR
CENTER 433.92 MHz
#RES BW 1Ø kHz
#VBW 3 MHz
SPAN 3Ø.ØØ MHz
SWP 9ØØ msec

8.2 Discussion of Pulse Desensitization

The determination of pulse desensitivity was made in accordance with Hewlett Packard Application Note 150-2, *Spectrum Analysis ... Pulsed RF*.

This device is a superregenerative receiver. The stabilized signals are continuous, and no desensitization of the measurement equipment occurs.

8.3 Calculation of Average Factor

The emission limits are specified using spectrum analyzers or receivers which incorporate quasi-peak detectors. Typical measurements are made using peak detectors, however, emissions which approach the respective emission limit are measured using a quasi-peak detector.

For measurements above 1 GHz, spectrum analyzers or receivers using average detectors are employed, or the appropriate average factor can be applied.

Measurements using spectrum analyzers with filters other than peak detectors are recorded in the data table section of this report.

This device is a superregenerative receiver.

It is not necessary to apply average factor to the measurement results.

8.4 Emissions Test Procedures

The following is a description of the test procedure used by Intertek Testing Services Hong Kong Ltd. in the measurements of superregenerative 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 - 1992. Superregenerative receivers are stabilized prior to measurement by generating a signal well above the receiver threshold whose frequency is tuned until the emissions stabilize into a line spectrum. The signal is usually generated as CW with a Marconi 2022D signal generator and a short whip antenna and is at a level of several hundred to several thousand mV/m. Plots of the stabilized signal will be shown. If a modulated signal is used, it will be noted.

The equipment under test (EUT) is attached to a cardboard box and placed on a wooden turntable which is four feet in diameter and approximately one meter in height above the groundplane. 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 cardboard box 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 8.3.

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 450 kHz to 30 MHz.

8.4 Emissions Test Procedures (cont)

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 - 1992.

The IF bandwidth used for measurement of radiated signal strength was 100 kHz or greater 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 8.2). 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.