

Prüfbericht - Nr.: 14010143 001		Seite 1 von 11	
Test Report No.		Page 1 of 11	
Auftraggeber: Applicant		Sure Win Technologies Ltd. Flat C & A, 17/F. International Industry Centre 2-8 Kwei Tei Street, Fotan, N.T. Hong Kong	
Gegenstand der Prüfung: Test item		Superregenerative Receiver	
Bezeichnung: Identification		DB-2133, DB-2132, DB-3133, DB-3132, DB-3131, DB-2131	Serien-Nr.: Serial No. Engineering sample
Wareneingangs-Nr.: Receipt No.		050602060	Eingangsdatum: Date of receipt 02.06.2005
Prüfört: Testing location		TÜV Rheinland Hong Kong Ltd. Unit 8, 25 th Floor, Skyline Tower, 39 Wang Kwong Road, Kowloon Bay Kowloon, Hong Kong Hong Kong Productivity Council HKPC Building, 78 Tat Chee Avenue, Kowloon, Hong Kong	
Prüfgrundlage: Test specification		FCC Part 15, Subpart B	
Prüfergebnis: Test Result		Das vorstehend beschriebene Gerät wurde geprüft und entspricht oben genannter Prüfgrundlage. The above mentioned product was tested and passed .	
geprüft / tested by:		kontrolliert / reviewed by:	
04.07.2005	Hugo Wan	04.07.2005	Stephan Wald
Datum Date	Name Name	Unterschrift Signature	Unterschrift Signature
Sonstiges: FCC ID S8ABDAFF-R Other Aspects			
Abkürzungen:		Abbreviations:	
OK, Pass, P	= entspricht Prüfgrundlage	OK, Pass, P	= passed
Fail, F	= entspricht nicht Prüfgrundlage	Fail, F	= failed
N/A	= nicht anwendbar	N/A	= not applicable
NT	= nicht getestet	NT	= not tested
Dieser Prüfbericht bezieht sich nur auf das o.g. Prüfmuster und darf ohne Genehmigung der Prüfstelle nicht auszugsweise vervielfältigt werden. Dieser Bericht berechtigt nicht zur Verwendung eines Prüfzeichens. This test report relates to the a. m. test sample. Without permission of the test center this test report is not permitted to be duplicate in extracts. This test report does not entitle to carry any safety mark on this or similar products.			

Test Summary

Spurious Radiated Emissions

Result: Pass

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General Remarks

Complementary Materials

All attachments are integral parts of this test report. This applies especially to the following appendix:

- Appendix 1: Test Results
- Appendix 2: EUT External Photo
- Appendix 3: EUT Internal Photo
- Appendix 4: Schematics.
- Appendix 5 Test Setup Photo

List of Test and Measurement Instruments

Kind of Equipment	Manufacturer	Type	S/N
Test Receiver	Rohde & Schwarz	ESVS30	842807/009
Biconical Antenna	Rohde & Schwarz	HK116	841489/015
Log.-Periodic Antenna	Rohde & Schwarz	HL223	841516/017
Double Ridge Horn Antenna	EMCO	3115	9002-3351
Double Ridge Horn Antenna	EMCO	3115	9002-3347
Signal Generator	Rohde & Schwarz	SMY 01	844146/024

General Product Information

Product Function and Intended Use

The equipment under test (EUT) is a wireless doorbell receiver. The EUT generates music when receiving a signal from the corresponding doorbell transmitter which operated at 315MHz with FCCID S8ABDAFF.

The receiver of models DB-2133, DB-2132, DB-3133, DB-3132, DB-3131, DB-2131 have the same circuit diagram, but only cabinet is different with each other. For details, please refer to the attached photos in Appendix 4.

FCC ID S8ABDAFF-R

Models	Product description
DB-2133, DB-2132, DB-3133, DB-3132, DB-3131, DB-2131	Wireless Doorbell

Each model number mentioned above consists of one transmitter and one receiver. This test report and the FCCID are issued to the receiver only. The transmitter is used with the receiver of models DB-2133, DB-2132, DB-3133, DB-3132, DB-3131 and DB-2131. Hence the difference between the six model numbers is only the receiver difference only.

Circuit Description

- 1) Before transmission, codes are matched on both receiver and transmitter.
- 2) The carrier of TX is received.
- 3) Signal is being amplified at the location of Q6, Q7, Q8.
- 4) Signal is then transferred to U3 decoder
- 5) The frequency that is transmitted from U3 will be amplified by the transistor in Q2 and this makes the speaker sound.

Ratings and System Details

	Receiver
Frequency range	: 315MHz +/- 0.5MHz
Number of channels	: 1
Type of antenna	: Integral antenna
Power supply	: Battery operated 4.5V, type C 1.5X3
Ports	: none
Protection Class	: III
Equipment Class	: B

Independent Operation Modes

The basic operation modes are:

- Select a matched code with transmitter first
- Insert the battery and the EUT will be in standby mode

For further information refer to User Manual

Submitted Documents

The submitted documents are listed as follow:

- Circuit diagram
- Block diagram
- User manual
- FCC ID label artwork

Related Submittal(s) Grants

This is a single application for certification of the receiver.

Test Set-up and Operation Mode

Principle of Configuration Selection

Emission: The equipment under test (EUT) was configured to measure its highest possible radiation level. The test modes were adapted accordingly in reference to the instructions for use.

Test Operation and Test Software

Test operation should refer to test methodology.

- There was no special software to exercise the device.

Special Accessories and Auxiliary Equipment

The product has been tested together with the following additional accessories:

- none

Countermeasures to achieve EMC Compliance

The test sample, which has been tested, contained the noise suppression parts as described in the Circuit Diagram or the Technical Construction File. No additional measures were employed to achieve compliance.

Test Methodology

Radiated Emission

The radiated emission measurements were performed according to the procedures in ANSI C63.4-2003.

The equipment under test (EUT) was placed at the middle of the 80 cm height turntable, and the turntable is 3 meters far from the measuring antenna. During the testing, the EUT was operated standalone and arranged for maximum emissions. The EUT was tested in three orthogonal planes.

The investigation is performed with the EUT rotated 360°, the antenna height scanned between 1m and 4m, and the antenna rotated to repeat the measurements for both the horizontal and vertical antenna polarizations. Repeat the measurement steps until the maximum emissions were obtained.

All radiated tests were performed at an antenna to EUT with 3 meters distance, unless stated otherwise in section 7.1.1 and 7.1.2 of this test report.

Field Strength Calculation

The field strength at 3 m was established by adding the meter reading of the spectrum analyzer to the factors associated with antenna correction factor, cable loss, preamplifiers and filter attenuation.

The equation is expressed as follow:

$$FS = R + AF + CF + FA - PA$$

Where FS = Field Strength in dBuV/m at 3 meters.

R = Reading of Spectrum Analyzer in dBuV.

AF = Antenna Factor in dB.

CF = Cable Attenuation Factor in dB.

FA = Filter Attenuation Factor in dB.

PA = Preamplifier Factor in dB.

FA and PA are only be used for the measuring frequency above 1 GHz.

Test Results

Spurious Radiated Emissions

Section 15.109

RESULT:

Pass

Test Specification : FCC Part 15 Section 15.109
 Test Method : ANSI 63.4-2003
 FCC Part 15.33 and 15.35
 Measurement Location : Semi Anechoic Chamber
 Measurement Distance : 3m
 Detector Function : <1000MHz, Quasi Peak
 >=1000MHz, Peak Detector
 Measurement BW : <1000MHz, 120 kHz
 >=1000MHz, 1MHz
 Supply Voltage : DC 4.5V
 Measuring Frequency Range : 30-2000MHz

Polarization: Vertical

Frequency MHz	Reading dBuV/m	AF dB(1/m)	Cable att. dB	Pre-amp dB	Filter att. dB	Field strength dBuV/m	Limit / Detector dBuV/m	Delta to Limit dB
320.530	20.70	13.70	1.40	-	-	35.80	46.02/QP	-10.22
640.460	16.70	19.60	2.20	-	-	38.50	46.02/QP	-7.52
937.580	16.30	22.40	2.70	-	-	41.40	46.02/QP	-4.62
1214.600	53.37	24.40	1.52	37.10	1.87	44.06	73.98/PK	-29.92
1520.200	47.77	25.40	1.89	36.17	0.60	39.49	73.98/PK	-34.49
1885.600	38.48	27.60	2.20	35.65	0.60	33.23	73.98/PK	-40.75
For measurement above 1000MHz, since the peak detector readings are well below the average detector limit 53.98 dBuV/m, the average detector measurement are skipped.								

For test results refer to Appendix 1, page 1-4

Polarization: Horizontal

Frequency MHz	Reading dBuV/m	AF dB(1/m)	Cable att. dB	Pre-amp dB	Filter att. dB	Field strength dBuV/m	Limit / Detector dBuV/m	Delta to Limit dB
320.300	29.20	13.70	1.40	-	-	44.30	46.02/QP	-1.72
640.400	10.60	19.60	2.20	-	-	32.40	46.02/QP	-13.62
936.620	9.60	22.40	2.70	-	-	34.70	46.02/QP	-11.32
1220.200	47.86	24.40	1.52	37.10	1.87	38.55	73.98/PK	-35.43
1521.800	45.26	25.40	1.89	36.17	0.60	36.98	73.98/PK	-37.00
1875.600	35.96	27.60	2.20	35.65	0.60	30.71	73.98/PK	-43.27
For measurement above 1000MHz, since the peak detector readings are well below the average detector limit 53.98 dBuV/m, the average detector measurement are skipped.								

For results refer to Appendix 1, page 1-4

Limit**Section 15.109**

The field strength of radiated emissions from unintentional radiators at a distance of 3 meters :

Frequency (MHz)	Field strength (microvolts/meter)	Field strength (dB μ V/m)	Measurement distance (meters)
30-88	100	$20 \cdot \log(100) = 40.00$	3
88-216	150	$20 \cdot \log(150) = 43.52$	3
216-960	200	$20 \cdot \log(200) = 46.02$	3
Above 960	500	$20 \cdot \log(500) = 53.98$	3