



Product Name : New SideKick

Model No. : SK2-SS

FCC ID. : PPJNSK418SC

Applicant : Silent Call Communications Corporation

Address: 5095 Williams Lake Road, Waterford, Michigan

48329 U.S.A.

Date of Receipt : 2008/11/06

Issued Date : 2008/12/31

Report No. : 08B102R-RFUSP01V02

Version : V1.0

The test results relate only to the samples tested.

The test report shall not be reproduced except in full without the written approval of QuieTek Corporation.



# **Test Report Certification**

Issued Date: 2008/12/31

Report No.: 08B102R-RFUSP01V02

# QuieTek

**Product Name** : New SideKick

: Silent Call Communications Corporation Applicant

Address : 5095 Williams Lake Road, Waterford, Michigan 48329

U.S.A.

Manufacturer : Silent Call Communications Corporation

Model No. : SK2-SS

FCC ID. : DoC

: DC 17.2V Rated Voltage

**EUT Voltage** : AC 120 V / 60 Hz

Trade Name SilentC

: FCC CFR Title 47 Part 15 Subpart B: 2007 Class B, Applicable Standard

CISPR 22: 2006

Test Result : Complied

The test results relate only to the samples tested.

The test report shall not be reproduced except in full without the written approval of QuieTek Corporation.

| Documented By | : | Sandy Chuang                                 |  |
|---------------|---|--|--|
|               | - | ( Sandy Chuang Engineering Adm. Specialist ) |  |
| Reviewed By   | : | Sheena Muang                                 |  |
|               |   | ( Sheena Huang Engineer )                    |  |
| Approved By   | : | Roy Wang                                     |  |

Page: 2 of 51

( Roy Wang / Manager)



# TABLE OF CONTENTS

| Description  |  | Page |
|--------------|--|------|
| 1.           | General Information                              | 4    |
| 1.1.         | EUT Description                                  | 4    |
| 1.2.         | Test Mode  | 5    |
| 1.3.         | Tested System Details                            | 6    |
| 1.4.         | Configuration of tested System                   | 6    |
| 1.5.         | EUT Exercise Software                            | 7    |
| 1.6.         | Test Facility                                    | 8    |
| 2.           | Conducted Emission                               | 9    |
| 2.1.         | Test Equipment                                   | g    |
| 2.2.         | Test Setup                                       | g    |
| 2.3.         | Limits   | 10   |
| 2.4.         | Test Procedure                                   | 10   |
| 2.5.         | Test Specification                               | 10   |
| 2.6.         | Uncertainty                                      | 10   |
| 2.7.         | Test Result                                      | 11   |
| 2.8.         | Test Photo                                       | 13   |
| 3.           | Radiated Emission                                | 14   |
| 3.1.         | Test Equipment                                   | 14   |
| 3.2.         | Test Setup                                       | 14   |
| 3.3.         | Limits   | 15   |
| 3.4.         | Test Procedure                                   | 16   |
| 3.5.         | Test Specification                               | 17   |
| 3.6.         | Uncertainty                                      | 17   |
| 3.7.         | Test Result                                      | 18   |
| 3.8.         | Test Photo                                       | 22   |
| 4.           | Radiated Emission for Superregenerative Receiver | 24   |
| 4.1.         | Test Equipment                                   | 24   |
| 4.2.         | Test Setup                                       | 24   |
| 4.3.         | Limits   | 25   |
| 4.4.         | Test Procedure                                   | 26   |
| 4.5.         | Uncertainty                                      | 26   |
| 4.6.         | Test Result                                      | 27   |
| 4.7.         | Test Photograph                                  | 31   |
| 5.           | Antenna Power Conduction for Receiver            | 33   |
| 5.1.         | Test Equipment                                   | 33   |
| 5.2.         | Test Setup                                       | 33   |
| 5.3.         | Test procedures                                  | 33   |
| 5.4.         | Limits   | 33   |
| 5.5.         | Uncertainty                                      | 33   |
| 5.6.         | Test Result                                      |      |
| Attachement. |  | 35   |
|              | EUT Photograph                                   |      |



#### 1. General Information

## 1.1. EUT Description

| Product Name    | New SideKick                          |
|-----------------|---------------------------------------|
| Trade Name      | SilentCall Communications Sidekick II |
| Model No.       | SK2-SS                                |
| Frequency Range | 318MHz                                |
| Channel Control | Auto                                  |

| Component     |                                 |  |
|---------------|---------------------------------|--|
| Vibrator      | VIB-PJ, Non-Shielded            |  |
| Power Adapter | Silent Call, MA-2617014FU       |  |
|               | I/P: AC 100-240V~50/60Hz 0.3MAX |  |
|               | O/P: DC 17.2V 0.8A 13.7W        |  |
|               | Cable Out: Non-Shielded, 1.8m   |  |

| Working Frequency of Each Channel |        |  |  |
|-----------------------------------|--------|--|--|
| Channel Frequency                 |        |  |  |
| 001                               | 318MHz |  |  |

- 1. This device is a New SideKick included a 318MHz receiving function, and 418MHz transmitting function.
- These tests were conducted on a sample of the equipment for the purpose of demonstrating compliance with Part 15 Subpart B for 318MHz Receiver
- 3. Regards to the frequent band operation; three channels were selected to perform the test, then shown on this report.
- 4. This device is a composite device in accordance with Part 15 regulations. The function for the 418MHz transmitting was measured and made a test report that the report number is 08B102R-RFUSP04V01, certified under FCC ID: PPJSCXMIT08



## 1.2. Test Mode

QuieTek has verified the construction and function in typical operation. All the test modes were carried out with the EUT in normal operation, which was shown in this test report and defined as:

| Pre-Test Mode       |                 |  |
|---------------------|-----------------|--|
| EMI Mode 1: Receive |                 |  |
| Final Test Mode     |                 |  |
| RX                  | Mode 1: Receive |  |

| Emission               |     |  |
|------------------------|-----|--|
| Conducted Emission Yes |     |  |
| Radiated Emission      | Yes |  |

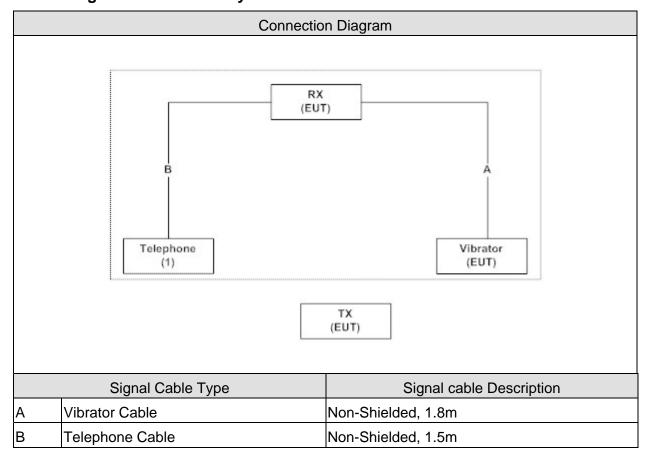


## 1.3. Tested System Details

The types for all equipments, plus descriptions of all cables used in the tested system (including inserted cards) are:

| Pro | oduct     | Manufacturer | Model No. | Serial No.     | FCC ID | Power Cord |
|-----|-----------|--------------|-----------|----------------|--------|------------|
| 1   | Telephone | TENTEL       | K-302     | 41230008000365 | DoC    |            |

## 1.4. Configuration of tested System





## 1.6. Test Facility

Ambient conditions in the laboratory:

| Items                      | Test Item            | Required (IEC 68-1) | Actual   |
|----------------------------|----------------------|---------------------|----------|
| Temperature (°C)           | 500 DADT 45 D 45 405 | 15 - 35             | 25       |
| Humidity (%RH)             |                      | 25 - 75             | 50       |
| Barometric pressure (mbar) | Conducted Emission   | 860 - 1060          | 950-1000 |
| Temperature (°C)           |                      | 15 - 35             | 25       |
| Humidity (%RH)             | FCC PART 15 B 15.109 | 25 - 75             | 65       |
| Barometric pressure (mbar) | Radiated Emission    | 860 - 1060          | 950-1000 |

## Site Description:

August 30, 2007 File on

Federal Communications Commission

**Laboratory Division** 

7435 Oakland Mills Road Columbia, MD 21046

Registration Number: 365520

Accredited by TAF

Accreditation Number: 1313

Effective through: December 27, 2010

Accredited by NVLAP

NVLAP Lab Code: 200347-0

Effective through: September 30, 2009

Site Name: Quietek Corporation

Site Address: No.75-1, Wang-Yeh Valley, Yung-Hsing,

Chiung-Lin, Hsin-Chu County,

Taiwan, R.O.C.

TEL: 886-3-592-8858 / FAX: 886-3-592-8859

E-Mail: service@quietek.com











## 2. Conducted Emission

## 2.1. Test Equipment

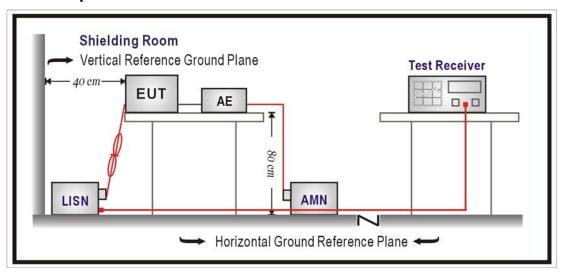
The following test equipment are used during the test:

Conducted Emission / SR3

| Instrument        | Manufacturer | Type No. | Serial No  | Cal. Date  |
|-------------------|--------------|----------|------------|------------|
| 4-Wire ISN        | R&S          | ENY 41   | 837032/001 | 2008/04/15 |
| Double 2-Wire ISN | R & S        | ENY 22   | 835354/008 | 2008/04/15 |
| LISN              | R&S          | ESH3-Z5  | 836679/022 | 2008/06/17 |
| LISN              | R&S          | ESH3-Z5  | 836679/013 | 2007/12/30 |
| Pulse Limiter     | R&S          | ESH3-Z2  | 100411     | 2007/11/16 |
| Test Receiver     | R&S          | ESCS 30  | 100149     | 2007/11/15 |

Note: All equipment upon which need to calibrated are with calibration period of 1 year.

## 2.2. Test Setup





#### 2.3. Limits

| FCC Part 15 Subpart B Paragraph 15.107 Limits (dBuV) |      |      |         |       |  |
|--|------|------|---------|-------|--|
| Frequency  | Clas | ss A | Class B |       |  |
| MHz  | QP   | AV   | QP      | AV    |  |
| 0.15 - 0.50  | 79   | 66   | 66-56   | 56-46 |  |
| 0.50-5.0   | 73   | 60   | 56      | 46    |  |
| 5.0 - 30   | 73   | 60   | 60      | 50    |  |

Remarks: In the above table, the tighter limit applies at the band edges.

#### 2.4. Test Procedure

The EUT and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.). This provides a 50 ohm /50uH coupling impedance for the measuring equipment. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm/50uH coupling impedance with 50ohm termination. (Please refers to the block diagram of the test setup and photographs.)

Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.4: 2003 on conducted measurement.

Conducted emissions were invested over the frequency range from 0.15MHz to 30MHz using a receiver bandwidth of 9kHz.

## 2.5. Test Specification

According to FCC Part 15 Subpart B: 2007

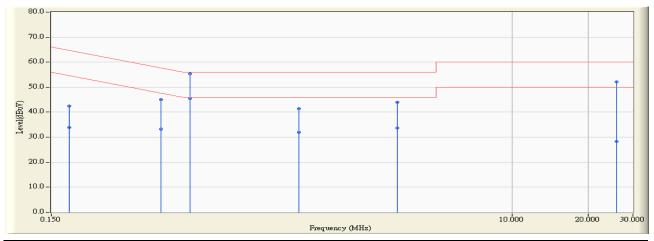
## 2.6. Uncertainty

The measurement uncertainty is defined as ± 2.26 dB.



## 2.7. Test Result

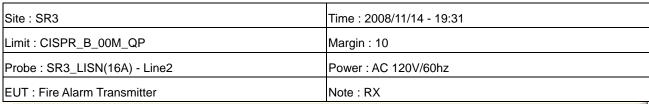
| Site : SR3                    | Time : 2008/11/12 - 11:00 |
|-------------------------------|---------------------------|
| Limit : CISPR_B_00M_QP        | Margin : 10               |
| Probe : SR3_LISN(16A) - Line1 | Power : AC 120V/60hz      |
| EUT : Fire Alarm Transmitter  | Note : RX                 |

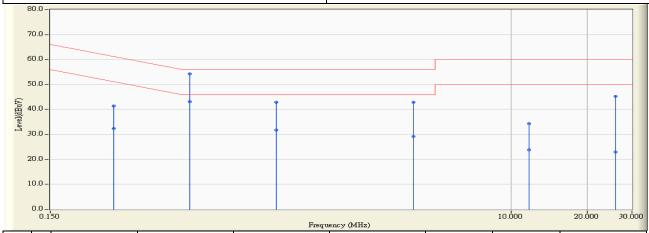


|    |   | Frequency | Correct Factor | Reading Level | Measure Level | Margin  | Limit  | Detector Type |
|----|---|-----------|----------------|---------------|---------------|---------|--------|---------------|
|    |   | (MHz)     | (dB)           | (dBuV)        | (dBuV)        | (dB)    | (dBuV) |               |
| 1  |   | 0.177     | 9.640          | 32.820        | 42.460        | -22.149 | 64.609 | QUASIPEAK     |
| 2  |   | 0.177     | 9.640          | 24.240        | 33.880        | -20.729 | 54.609 | AVERAGE       |
| 3  |   | 0.408     | 9.843          | 35.280        | 45.123        | -12.570 | 57.693 | QUASIPEAK     |
| 4  |   | 0.408     | 9.843          | 23.460        | 33.303        | -14.390 | 47.693 | AVERAGE       |
| 5  | * | 0.529     | 9.889          | 45.531        | 55.420        | -0.580  | 56.000 | QUASIPEAK     |
| 6  |   | 0.529     | 9.889          | 35.489        | 45.378        | -10.622 | 46.000 | AVERAGE       |
| 7  |   | 1.427     | 9.881          | 31.620        | 41.501        | -14.499 | 56.000 | QUASIPEAK     |
| 8  |   | 1.427     | 9.881          | 22.020        | 31.901        | -14.099 | 46.000 | AVERAGE       |
| 9  |   | 3.513     | 9.915          | 34.080        | 43.995        | -12.005 | 56.000 | QUASIPEAK     |
| 10 |   | 3.513     | 9.915          | 23.660        | 33.575        | -12.425 | 46.000 | AVERAGE       |
| 11 |   | 25.767    | 10.350         | 41.860        | 52.210        | -7.790  | 60.000 | QUASIPEAK     |
| 12 |   | 25.767    | 10.350         | 17.940        | 28.290        | -21.710 | 50.000 | AVERAGE       |

- 1. All Reading Levels are Quasi-Peak and average value.
- 2. "  $^{\ast}$  ", means this data is the worst emission level.
- 3. Measurement Level = Reading Level + Correct Factor







|    |   | Frequency | Correct Factor | Reading Level | Measure Level | Margin  | Limit  | Detector Type |
|----|---|-----------|----------------|---------------|---------------|---------|--------|---------------|
|    |   | (MHz)     | (dB)           | (dBuV)        | (dBuV)        | (dB)    | (dBuV) |               |
| 1  |   | 0.267     | 9.666          | 31.800        | 41.466        | -19.738 | 61.205 | QUASIPEAK     |
| 2  |   | 0.267     | 9.666          | 22.740        | 32.406        | -18.798 | 51.205 | AVERAGE       |
| 3  | * | 0.533     | 9.802          | 44.460        | 54.263        | -1.737  | 56.000 | QUASIPEAK     |
| 4  |   | 0.533     | 9.802          | 33.280        | 43.083        | -2.917  | 46.000 | AVERAGE       |
| 5  |   | 1.173     | 9.815          | 33.060        | 42.875        | -13.125 | 56.000 | QUASIPEAK     |
| 6  |   | 1.173     | 9.815          | 21.840        | 31.655        | -14.345 | 46.000 | AVERAGE       |
| 7  |   | 4.091     | 9.847          | 33.100        | 42.947        | -13.053 | 56.000 | QUASIPEAK     |
| 8  |   | 4.091     | 9.847          | 19.260        | 29.107        | -16.893 | 46.000 | AVERAGE       |
| 9  |   | 11.713    | 10.157         | 24.140        | 34.297        | -25.703 | 60.000 | QUASIPEAK     |
| 10 |   | 11.713    | 10.157         | 13.720        | 23.877        | -26.123 | 50.000 | AVERAGE       |
| 11 |   | 25.787    | 10.578         | 34.640        | 45.218        | -14.782 | 60.000 | QUASIPEAK     |
| 12 |   | 25.787    | 10.578         | 12.380        | 22.958        | -27.042 | 50.000 | AVERAGE       |

- 1. All Reading Levels are Quasi-Peak and average value.
- 2. " \* ", means this data is the worst emission level.
- 3. Measurement Level = Reading Level + Correct Factor



#### 3. Radiated Emission

## 3.1. Test Equipment

The following test equipment are used during the test:

#### Radiated Emission / Site1

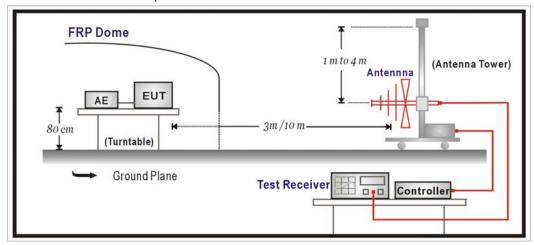
| Instrument        | Manufacturer    | Type No. | Serial No  | Cal. Date  |
|-------------------|-----------------|----------|------------|------------|
| Bilog Antenna     | Schaffner Chase | CBL6112B | 2895       | 2007/09/03 |
| Horn Antenna      | Electro Metrics | EM-6961  | 103325     | 2008/03/15 |
| Pre-Amplifier     | HP              | 8449B    | 3008A01123 | 2008/11/15 |
| Pre-Amplifier     | Quietek         | AP-025C  | N/A        | N/A        |
| Spectrum Analyzer | R&S             | FSP40    | 100005     | 2007/08/25 |
| Spectrum Analyzer | Advantest       | R3162    | 120300649  | 2007/11/24 |
| Test Receiver     | R&S             | ESCS 30  | 825442/017 | 2008/02/13 |

Note: 1. All equipments that need to calibrate are with calibration period of 1 year.

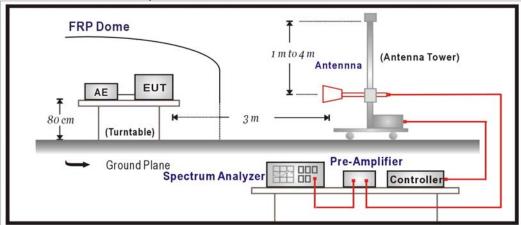
2. "N/A" Ca1.Date is used to Pre-test, not final test.

## 3.2. Test Setup

Under 1GHz Test Setup:



Above 1GHz Test Setup:





#### 3.3. Limits

| CISPR 22 Limits (dBuV/m) |                 |        |                 |        |  |  |
|--------------------------|-----------------|--------|-----------------|--------|--|--|
| Frequency                | Clas            | ss A   | Class B         |        |  |  |
| MHz                      | Distance<br>(m) | dBuV/m | Distance<br>(m) | dBuV/m |  |  |
| 30 – 230                 | 10              | 40     | 10              | 30     |  |  |
| 230 – 1000               | 10              | 47     | 10              | 37     |  |  |

Remark: 1. The tighter limit shall apply at the edge between two frequency bands.

- 2. Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system.
- 3. RF Voltage (dBuV/m) = 20 log RF Voltage (uV/m)

| FCC Part 15 Subpart B Paragraph 15.109 Limits |                 |        |                 |        |  |
|---|-----------------|--------|-----------------|--------|--|
|   | Clas            | ss A   | Class B         |        |  |
| Frequency<br>MHz                              | Distance<br>(m) | dBuV/m | Distance<br>(m) | dBuV/m |  |
| 30-88   | 10              | 39     | 3               | 40     |  |
| 88-216  | 10              | 43.5   | 3               | 43.5   |  |
| 216-960                                       | 10              | 46.4   | 3               | 46     |  |
| Above 960                                     | 10              | 49.5   | 3               | 54     |  |

Remarks: 1. RF Voltage (dBuV) = 20 log RF Voltage (uV)

- 2. In the Above Table, the tighter limit applies at the band edges.
- 3. Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system.

Carrier current systems used as unintentional radiators or other unintentional radiators that are designed to conduct their radio frequency emissions via connecting wires or cables and that operate in the frequency range of 9 kHz to 30 MHz, including devices that deliver the radio frequency energy to transducers, such as ultrasonic devices not covered under part 18 of this chapter, shall comply with the radiated emission limits for intentional radiators provided in §15.209 for the frequency range of 9 kHz to 30 MHz. As an alternative, carrier current systems used as unintentional radiators and operating in the frequency range of 525 kHz to 1705 kHz may comply with the radiated emission limits provided in §15.221(a).



#### 3.4. Test Procedure

#### Under 30MHz Test:

The EUT and its simulators are placed on a turn table which is 1.0 meter above ground. The turn table can rotate 360 degrees to determine the position of the maximum electric field strength. The EUT was positioned such that the distance from antenna to the EUT was 3 meters.

The antenna which is 1.0 meter above ground. All X-axis, Y-axis and Z-axis polarization of the antenna are set on measurement.

The bandwidth below 30MHz setting on the field strength meter (R&S Test Receiver ESCS 30) is 200Hz and above 30MHz is 9 kHz.

The emission limit shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9-90kHz, 110-490kHz and above 1000MHz. Radiated emission limit in these three bands are based on measurements employing an average detector.

#### Above 30MHz Test:

The EUT and its simulators are placed on a turn table which is 0.8 meter above ground. The turn table can rotate 360 degrees to determine the position of the maximum emission level. The antenna can move up and down between 1 meter and 4 meters to find out the maximum emission level.

For class A, the EUT was positioned such that the distance from antenna to the EUT was 10 meters for under 1GHz and above 1GHz.

For class B, the EUT was positioned such that the distance from antenna to the EUT was 3 or 10 meters for under 1GHz and 3 meters for above 1GHz.

The bandwidth below 1GHz setting on the field strength meter (R&S Test Receiver ESCS 30) is 120 kHz and above 1GHz is 1MHz.

Both horizontal and vertical polarization of the antenna are set on measurement. In order to find the maximum emission.



All of the interface cables must be manipulated according to ANSI C63.4:2003 on radiated measurement.

For an unintentional radiator, including a digital device, the spectrum shall be investigated from the lowest radio frequency signal generated or used in the device, without going below the lowest frequency for which a radiated emission limit is specified, up to the frequency shown in the following table:

| Highest frequency generated or used in the device or on which the device operates or tunes (MHz) | Upper frequency of measurement range (MHz)                                      |  |  |
|--|---|--|--|
| Below 1.705  | 30  |  |  |
| 1.705 – 108  | 1000  |  |  |
| 108 – 500  | 2000  |  |  |
| 500 – 1000   | 5000  |  |  |
| Above 1000   | 5 <sup>th</sup> harmonic of the highest frequency or 40 GHz, whichever is lower |  |  |

On any frequency or frequencies below or equal to 1000 MHz, the limits shown are based on measuring equipment employing a CISPR quasi-peak detector function and on any frequency or frequencies above 1000 MHz the radiated limits shown are based upon the use of measurement instrumentation employing an average detector function. When average radiated emission measurement are included emission measurement below 1000 MHz, there also is a limit on the radio frequency emissions, as measured using instrumentation with a peak detector function, corresponding to 20 dB above the maximum permitted average limit.

## 3.5. Test Specification

According to FCC Part 15 Subpart B: 2007

## 3.6. Uncertainty

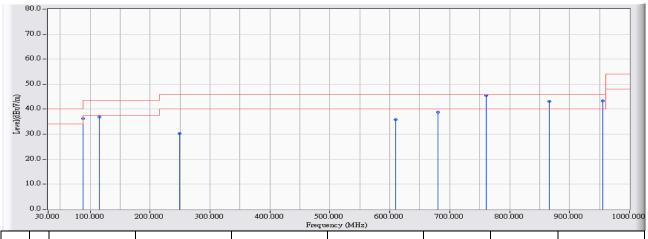
The measurement uncertainty 30MHz~1GHz as ±3.19dB 1GHz~26.5GHz as ±3.9dB



## 3.7. Test Result

## 30MHz-1GHz Spurious:

| Site : Site 1                             | Time : 2008/11/17 - 10:34 |
|---|---------------------------|
| Limit : FCC_CLASS_B_03M_QP                | Margin : 6                |
| Probe: CB3_FCC_30-1G(2008-9) - HORIZONTAL | Power : AC 120V/50Hz      |
| EUT : Fire Alarm Transmitter              | Note : Rx                 |

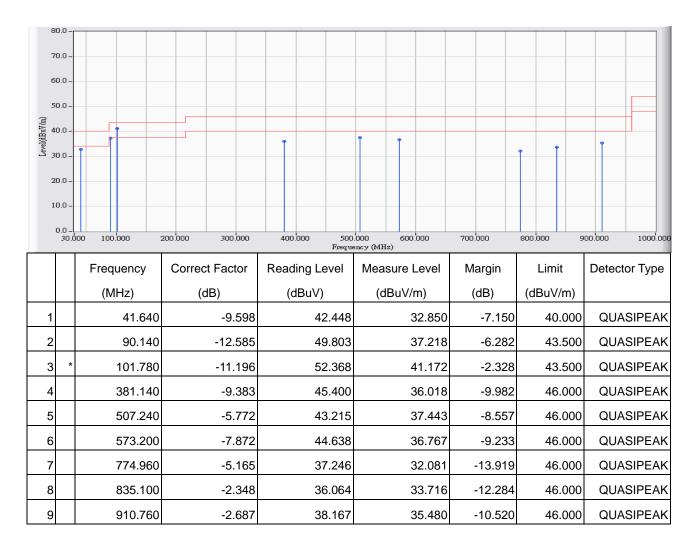


|   |   | Frequency | Correct Factor | Reading Level | Measure Level | Margin  | Limit    | Detector Type |
|---|---|-----------|----------------|---------------|---------------|---------|----------|---------------|
|   |   | (MHz)     | (dB)           | (dBuV)        | (dBuV/m)      | (dB)    | (dBuV/m) |               |
| 1 |   | 88.200    | -14.791        | 50.967        | 36.176        | -7.324  | 43.500   | QUASIPEAK     |
| 2 |   | 115.360   | -13.736        | 50.700        | 36.965        | -6.535  | 43.500   | QUASIPEAK     |
| 3 |   | 249.220   | -12.816        | 43.055        | 30.239        | -15.761 | 46.000   | QUASIPEAK     |
| 4 |   | 610.060   | -1.968         | 37.769        | 35.801        | -10.199 | 46.000   | QUASIPEAK     |
| 5 |   | 679.900   | -1.847         | 40.700        | 38.853        | -7.147  | 46.000   | QUASIPEAK     |
| 6 | * | 761.380   | -4.423         | 49.793        | 45.371        | -0.629  | 46.000   | QUASIPEAK     |
| 7 |   | 866.140   | 0.535          | 42.577        | 43.112        | -2.888  | 46.000   | QUASIPEAK     |
| 8 |   | 955.380   | 2.993          | 40.390        | 43.383        | -2.617  | 46.000   | QUASIPEAK     |

- 1. All Reading Levels are Peak value.
- 2. " \* ", means this data is the worst emission level.
- 3. Measurement Level = Reading Level + Correct Factor.



| Site : Site 1                           | Time : 2008/11/17 - 10:34 |
|---|---------------------------|
| Limit : FCC_CLASS_B_03M_QP              | Margin : 6                |
| Probe: CB3_FCC_30-1G(2008-9) - VERTICAL | Power : AC 120V/50Hz      |
| EUT : Fire Alarm Transmitter            | Note : Rx                 |

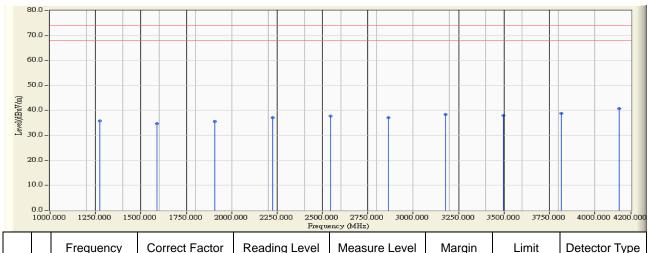


- 1. All Reading Levels are Peak value.
- 2. "\*", means this data is the worst emission level.
- 3. Measurement Level = Reading Level + Correct Factor.



#### 1 GHz Spurious:

| Site : Site 1                               | Time : 2008/11/11 - 17:58 |
|---|---------------------------|
| Limit : FCC_B_(Above_1G)_3M_PK              | Margin : 6                |
| Probe : CB4_FCC_1-18G(2008-05) - HORIZONTAL | Power : AC 120V/50Hz      |
| EUT : Fire Alarm Transmitter                | Note : RX                 |

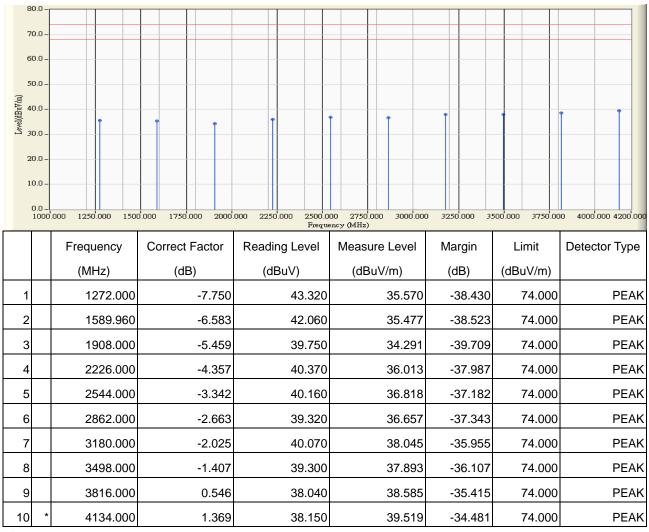


|    |   | Frequency | Correct Factor | Reading Level | Measure Level | Margin  | Limit    | Detector Type |
|----|---|-----------|----------------|---------------|---------------|---------|----------|---------------|
|    |   | (MHz)     | (dB)           | (dBuV)        | (dBuV/m)      | (dB)    | (dBuV/m) |               |
| 1  |   | 1272.000  | -7.750         | 43.530        | 35.780        | -38.220 | 74.000   | PEAK          |
| 2  |   | 1590.010  | -6.583         | 41.400        | 34.817        | -39.183 | 74.000   | PEAK          |
| 3  |   | 1908.000  | -5.459         | 41.090        | 35.631        | -38.369 | 74.000   | PEAK          |
| 4  |   | 2226.020  | -4.357         | 41.460        | 37.103        | -36.897 | 74.000   | PEAK          |
| 5  |   | 2544.000  | -3.342         | 41.060        | 37.718        | -36.282 | 74.000   | PEAK          |
| 6  |   | 2862.000  | -2.663         | 39.840        | 37.177        | -36.823 | 74.000   | PEAK          |
| 7  |   | 3180.020  | -2.025         | 40.380        | 38.355        | -35.645 | 74.000   | PEAK          |
| 8  |   | 3498.000  | -1.407         | 39.400        | 37.993        | -36.007 | 74.000   | PEAK          |
| 9  |   | 3816.000  | 0.546          | 38.310        | 38.855        | -35.145 | 74.000   | PEAK          |
| 10 | * | 4134.020  | 1.369          | 39.330        | 40.699        | -33.301 | 74.000   | PEAK          |

- 1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
- 4. "\*", means this data is the worst emission level.
- 5. Measurement Level = Reading Level + Correct Factor.
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.
- 7. The Emission above 13GHz were not included is because their levels are too low.



| Site : Site 1                             | Time : 2008/11/12 - 15:20 |
|---|---------------------------|
| Limit : FCC_B_(Above_1G)_3M_PK            | Margin : 6                |
| Probe : CB4_FCC_1-18G(2008-05) - VERTICAL | Power : AC 120V/50Hz      |
| EUT : Fire Alarm Transmitter              | Note : RX                 |



- 1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
- 4. "\*", means this data is the worst emission level.
- 5. Measurement Level = Reading Level + Correct Factor.
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.
- 7. The Emission above 13GHz were not included is because their levels are too low.



## 4. Radiated Emission for Superregenerative Receiver

## 4.1. Test Equipment

The following test equipments are used during the test:

#### Radiated Emission / Site1

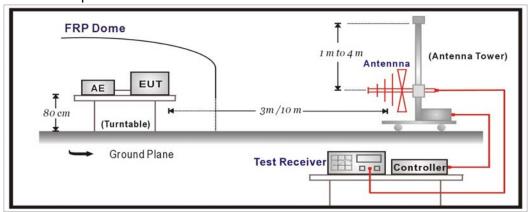
| Instrument        | Manufacturer    | Type No. | Serial No  | Cal. Date  |
|-------------------|-----------------|----------|------------|------------|
| Bilog Antenna     | Schaffner Chase | CBL6112B | 2895       | 2008/09/03 |
| Horn Antenna      | Electro Metrics | EM-6961  | 103325     | 2008/03/15 |
| Pre-Amplifier     | HP              | 8449B    | 3008A01123 | 2008/11/15 |
| Pre-Amplifier     | Quietek         | AP-025C  | N/A        | N/A        |
| Spectrum Analyzer | R&S             | FSP40    | 100005     | 2008/08/25 |
| Spectrum Analyzer | Advantest       | R3162    | 120300649  | 2008/11/24 |
| Test Receiver     | R&S             | ESCS 30  | 825442/017 | 2008/02/13 |

Note: 1. All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.

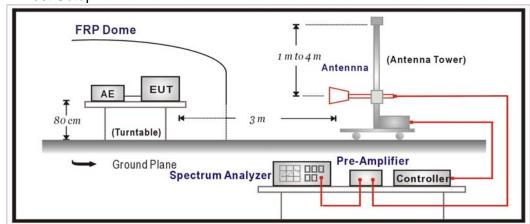
2. Last Cal showing "N/A" means it is used to Pre-test, not for final test.

## 4.2. Test Setup

Under 1GHz Test Setup:



Above 1GHz Test Setup:



Page: 24 of 51



## 4.3. Limits

Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 20dB below the level of the fundamental or to the general radiated emission limits in paragraph 15.209, whichever is the lesser attenuation.

| FCC Part 15 Subpart C Paragraph 15.209 Limits |        |        |  |  |
|---|--------|--------|--|--|
| Frequency<br>MHz                              | dBuV/m | dBuV/m |  |  |
| 30-88   | 100    | 40     |  |  |
| 88-216  | 150    | 43.5   |  |  |
| 216-960                                       | 200    | 46     |  |  |
| Above 960                                     | 500    | 54     |  |  |

Remarks: E field strength (dBuV/m) = 20 log E field strength (uV/m)



## 4.4. Test Procedure

The EUT was setup according to ANSI C63.4, 12.1.1.1 2003.

A signal generator, not the matching transmitter, shall be used to radiate an unmodulated CW signal to a superregenerative receiver at its operating frequency in order to "cohere" or to resolve the individual components of the characteristic broadband emissions from such a receiver. The level of the signal may need to be increased for this to occur.

If a superregenerative receiver is tested for radiated emissions with a resistive termination instead of an antenna connected to the antenna input terminals, apply the unmodulated signal at a level of approximately

-60 dBm to the antenna terminals, using an impedance-matching network if necessary, to "cohere" the emissions. It may be necessary to adjust the signal level to accomplish this.

The EUT is placed on a turn table which is 0.8 meter above ground. The turn table is rotated 360 degrees to determine the position of the maximum emission level. The EUT was positioned such that the distance from antenna to the EUT was 3 meters.

The antenna is scanned from 1 meter to 4 meters to find out the maximum emission level. This is repeated for both horizontal and vertical polarization of the antenna. In order to find the maximum emission, all of the interface cables were manipulated according to ANSI C63.4:2003 on radiated measurement.

The resolution bandwidth setting on the field strength meter is 100 kHz.

#### 4.5. Uncertainty

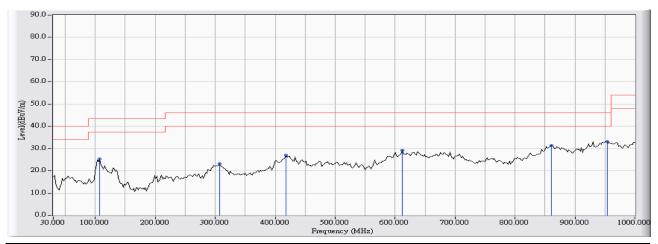
The measurement uncertainty 30MHz~1GHz as ±3.19dB 1GHz~26.5Ghz as ±3.9dB



#### 4.6. Test Result

## 30M-1G

| Site : Site 1                              | Time : 2008/12/29 - 18:53 |
|--|---------------------------|
| Limit: FCC_RX_ANSI_C63.4-12.1.1.1_03M_QP   | Margin : 6                |
| Probe : CB3_FCC_30-1G(2008-9) - HORIZONTAL | Power : AC 120V/60Hz      |
| EUT : New SideKick                         | Note : RX                 |

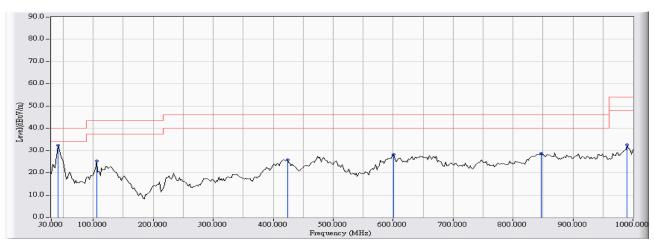


|   |   | Frequency | Correct Factor | Reading Level | Measure Level | Margin  | Limit    | Detector Type |
|---|---|-----------|----------------|---------------|---------------|---------|----------|---------------|
|   |   | (MHz)     | (dB)           | (dBuV)        | (dBuV/m)      | (dB)    | (dBuV/m) |               |
| 1 |   | 107.600   | -14.949        | 40.224        | 25.274        | -18.226 | 43.500   | QUASIPEAK     |
| 2 |   | 307.420   | -7.958         | 31.237        | 23.279        | -22.721 | 46.000   | QUASIPEAK     |
| 3 |   | 418.000   | -3.868         | 30.815        | 26.947        | -19.053 | 46.000   | QUASIPEAK     |
| 4 |   | 612.000   | -2.025         | 31.284        | 29.259        | -16.741 | 46.000   | QUASIPEAK     |
| 5 |   | 860.320   | 1.047          | 30.399        | 31.446        | -14.554 | 46.000   | QUASIPEAK     |
| 6 | * | 953.440   | 3.027          | 30.147        | 33.174        | -12.826 | 46.000   | QUASIPEAK     |

- 1. All Reading Levels are Quasi-Peak value.
- 2. "  $^{\star}$  ", means this data is the worst emission level.
- 3. Measurement Level = Reading Level + Correct Factor



| Site : Site 1                            | Time : 2008/12/29 - 18:57 |
|--|---------------------------|
| Limit: FCC_RX_ANSI_C63.4-12.1.1.1_03M_QP | Margin : 6                |
| Probe: CB3_FCC_30-1G(2008-9) - VERTICAL  | Power : AC 120V/60Hz      |
| EUT : New SideKick                       | Note : RX                 |



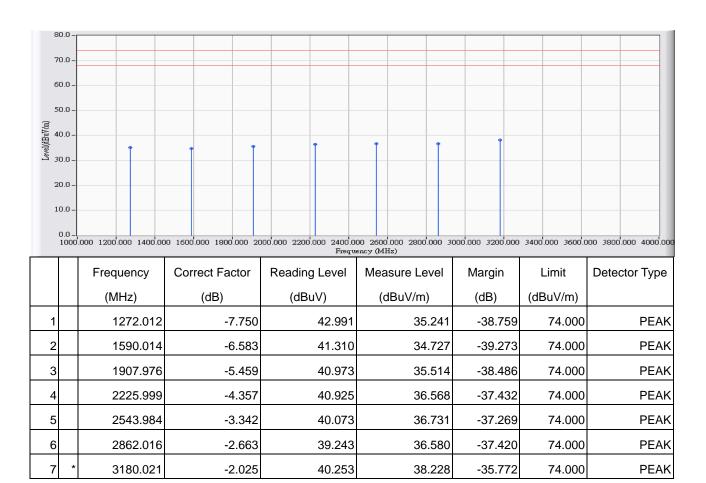
|   |   | Frequency  | Correct Factor | Reading Level  | Measure Level | Margin  | Limit    | Detector Type |
|---|---|------------|----------------|----------------|---------------|---------|----------|---------------|
|   |   | rrequericy | Contect ractor | Treading Level | Wedsure Level | Margin  | Liiiit   | Detector Type |
|   |   | (MHz)      | (dB)           | (dBuV)         | (dBuV/m)      | (dB)    | (dBuV/m) |               |
|   | * | 41.640     | -9.598         | 41.835         | 32.237        | -7.763  | 40.000   | QUASIPEAK     |
| 2 | 2 | 105.660    | -11.950        | 37.167         | 25.217        | -18.283 | 43.500   | QUASIPEAK     |
| 3 | 3 | 423.820    | -4.680         | 30.609         | 25.929        | -20.071 | 46.000   | QUASIPEAK     |
| 4 | 1 | 600.360    | -2.164         | 30.450         | 28.286        | -17.714 | 46.000   | QUASIPEAK     |
|   | 5 | 846.740    | -1.556         | 30.155         | 28.599        | -17.401 | 46.000   | QUASIPEAK     |
| 6 | 6 | 990.300    | 1.135          | 31.334         | 32.469        | -21.531 | 54.000   | QUASIPEAK     |

- 1. All Reading Levels are Quasi-Peak value.
- 2. " \* ", means this data is the worst emission level.
- 3. Measurement Level = Reading Level + Correct Factor



#### 1G-4G

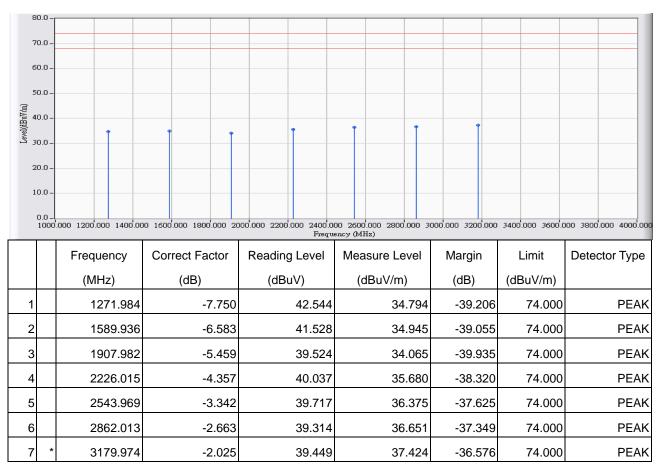
| Site : Site 1                               | Time : 2008/12/29 - 18:46 |
|---|---------------------------|
| Limit: FCC_RX_ANSI_C63.4-12.1.1.10_3M_PK    | Margin : 6                |
| Probe : CB4_FCC_1-18G(2008-05) - HORIZONTAL | Power : AC 120V/60Hz      |
| EUT : New SideKick                          | Note : RX                 |



- 1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
- 2. "\*", means this data is the worst emission level.
- 3. Measurement Level = Reading Level + Correct Factor
- 4. The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.



| Site : Site 1                             | Time : 2008/12/29 - 18:46 |
|---|---------------------------|
| Limit: FCC_RX_ANSI_C63.4-12.1.1.1_03M_PK  | Margin : 6                |
| Probe : CB4_FCC_1-18G(2008-05) - VERTICAL | Power : AC 120V/60Hz      |
| EUT : New SideKick                        | Note : RX                 |



- 1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
- 2. " \* ", means this data is the worst emission level.
- 3. Measurement Level = Reading Level + Correct Factor
- 4. The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.



#### 5. Antenna Power Conduction for Receiver

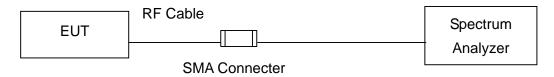
## 5.1. Test Equipment

The following test equipments are used during the test:

| Item | Equipment         | Manufacturer | Model No. / Serial No. | Last Cal.  |
|------|-------------------|--------------|------------------------|------------|
| 1    | Spectrum Analyzer | R&S          | FSP40/100005           | Aug., 2008 |
| 2    | No.1 OATS         |              |                        | Sep., 2008 |

Note: 1. All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.

## 5.2. Test Setup



## 1.1. Test procedures

The power at the antenna terminal at any frequency within the range of measurements specified in Section 15.33

#### 1.2. Limits

Shall not exceed 2.0 nanowatts.

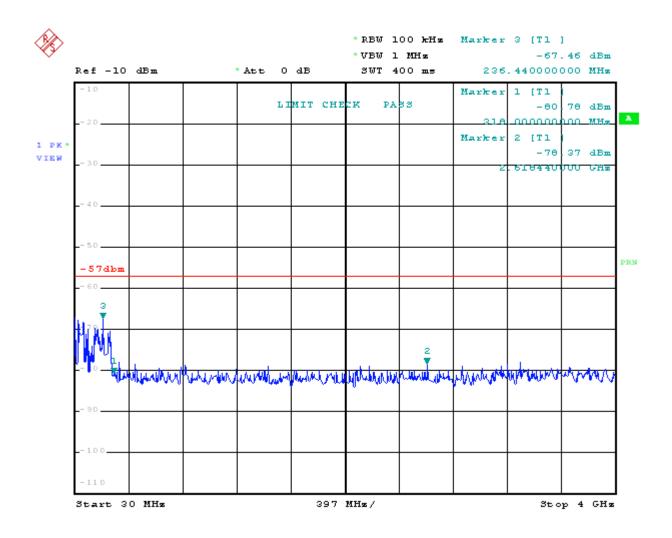
## 5.3. Uncertainty

The measurement uncertainty is defined as  $\pm$  1.27 dB.



## 5.6. Test Result

| Product      | New SideKick                          |           |           |
|--------------|---------------------------------------|-----------|-----------|
| Test Item    | Antenna Power Conduction for Receiver |           |           |
| Test Mode    | Mode 1: Receive                       |           |           |
| Date of Test | 2007/12/30                            | Test Site | No.1 OATS |



Date: 30.DEC.2000 10:07:57