

# RF EXPOSURE EVALUATION REPORT

**Application No.:** GZCR504000535AT  
**Applicant:** Comba Telecom Network Systems Limited  
**Address of Applicant:** Flat/Rm 10, 3/F, Bio-Informatics Ctr, 2 Science Park West Avenue, HK Science Park, Pak Shek Kok, N.T. Hong Kong  
**Manufacturer:** Comba Network Systems Company Limited  
**Address of Manufacturer:** No. 10 Shenzhou Road, Guangzhou Science City, Guangzhou 510663, Guangdong, P.R. China  
**Factory:** Comba Telecom Technology (Guangzhou) Ltd.  
**Address of Factory:** No. 6 Jinbi Road, Economics and Technology Development District, Guangzhou, Guangdong, China  
**Product Name:** Public Safety UHF and VHF Distributed Antenna System  
**Model No.:** RH14V3-A  
**Trade Mark:** Comba  
**Standard(s) :** 47 CFR Part 2.1091  
47 CFR Part 1.1310, Part 1.1307  
**Date of Receipt:** 2025-04-14  
**Date of Evaluation:** 2025-06-13  
**Date of Issue:** 2025-06-23

|                     |              |
|---------------------|--------------|
| <b>Test Result:</b> | <b>Pass*</b> |
|---------------------|--------------|

\* In the configuration tested, the EUT complied with the standards specified above.



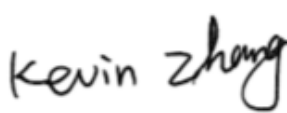
Jerry Chan  
Manager



Unless otherwise agreed in writing, this document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <https://www.sgs.com/en/Terms-and-Conditions>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 30 days only.

Attention: To check the authenticity of testing /inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: [CN.Doccheck@sgs.com](mailto:CN.Doccheck@sgs.com)

| Revision Record |                  |            |          |
|-----------------|------------------|------------|----------|
| Version         | Report No.       | Date       | Remark   |
| 01              | GZCR250400053502 | 2025-06-23 | Original |
|                 |                  |            |          |
|                 |                  |            |          |

|                          |  |                                                                                     |  |
|--------------------------|--|-------------------------------------------------------------------------------------|--|
| Authorized for issue by: |  |                                                                                     |  |
|                          |  |  |  |
|                          |  | Ricky Liu/Project Engineer                                                          |  |
|                          |  |  |  |
|                          |  | Ricky Liu/Reviewer                                                                  |  |



Unless otherwise agreed in writing, this document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <https://www.sgs.com/en/Terms-and-Conditions>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 30 days only.

Attention: To check the authenticity of testing /inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: CN.Doccheck@sgs.com

## 2 Evaluation Summary

| Radio Spectrum Technical Requirement |                                                                |                    |                    |        |
|--------------------------------------|----------------------------------------------------------------|--------------------|--------------------|--------|
| Item                                 | Standard                                                       | Requirement        | Method             | Result |
| RF Exposure                          | 47 CFR Part 2.1091<br>47 CFR Part 1.1310<br>47 CFR Part 1.1307 | 47 CFR Part 1.1310 | 47 CFR Part 1.1310 | PASS   |

**Note:**

E.U.T./ EUT means Equipment Under Test.

Pass means the test result passed the test standard requirement, please find the detailed decision rule in the report relative section.



Unless otherwise agreed in writing, this document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <https://www.sgs.com/en/Terms-and-Conditions>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 30 days only.

Attention: To check the authenticity of testing /inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: [CN.Doccheck@sgs.com](mailto:CN.Doccheck@sgs.com)

### 3 Contents

|                                                  | Page |
|--------------------------------------------------|------|
| 1 Covers Page .....                              | 1    |
| 2 Evaluation Summary .....                       | 3    |
| 3 Contents .....                                 | 4    |
| 4 General Information.....                       | 5    |
| 4.1 Details of E.U.T.....                        | 5    |
| 4.2 Evaluated Location .....                     | 6    |
| 4.3 Test Facility .....                          | 6    |
| 4.4 Deviation from Standards .....               | 6    |
| 4.5 Abnormalities from Standard Conditions ..... | 6    |
| 5 Radio Spectrum Technical Requirement.....      | 7    |
| 5.1 RF Exposure .....                            | 7    |
| 5.1.1 Requirement .....                          | 7    |
| 5.1.2 Method .....                               | 8    |
| 5.1.3 Conclusion .....                           | 8    |
| 5.2 EUT Constructional Details (EUT Photos)..... | 10   |



Unless otherwise agreed in writing, this document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <https://www.sgs.com/en/Terms-and-Conditions>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 30 days only.

Attention: To check the authenticity of testing /inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: [CN.Doccheck@sgs.com](mailto:CN.Doccheck@sgs.com)

## 4 General Information

### 4.1 Details of E.U.T.

|                                                                                                                                                                                        |                                             |                                                      |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------|------------------------------------------------------|
| Power Supply:                                                                                                                                                                          | 100-240V AC, 50/60Hz                        |                                                      |
| Test Voltage:                                                                                                                                                                          | 120V AC                                     |                                                      |
| Cable:                                                                                                                                                                                 | Power supply cable (4m, shielded)           |                                                      |
| Operating Temperature:                                                                                                                                                                 | -40 to +55 °C                               |                                                      |
| Operating Humidity:                                                                                                                                                                    | ≤95%                                        |                                                      |
| Frequency Range:                                                                                                                                                                       | VHF                                         | Uplink: 150.05-173.4MHz<br>Downlink: 150.05-173.4MHz |
|                                                                                                                                                                                        | UHF-1                                       | Uplink: 406.1-420MHz<br>Downlink: 406.1-420MHz       |
|                                                                                                                                                                                        | UHF-2                                       | Uplink: 421-430MHz<br>Downlink: 421-430MHz           |
|                                                                                                                                                                                        | UHF-3                                       | Uplink: 450-512MHz<br>Downlink: 450-512MHz           |
| Class Type:                                                                                                                                                                            | Class A signal booster                      |                                                      |
| Interface:                                                                                                                                                                             | MT/DL OUT                                   | 2 (N-Female)                                         |
|                                                                                                                                                                                        | UL IN                                       | 2 (N-Female)                                         |
|                                                                                                                                                                                        | AUX                                         | 4 (SMA-Female)                                       |
|                                                                                                                                                                                        | OMT                                         | 1 (RJ45)                                             |
|                                                                                                                                                                                        | Optical                                     | 1 (SC-APC)                                           |
| Normal Output Power:<br>(only downlink)                                                                                                                                                | VHF                                         | 30dBm                                                |
|                                                                                                                                                                                        | UHF                                         | 36dBm                                                |
| Maximum System Gain:<br>(only downlink)                                                                                                                                                | VHF                                         | 95dB                                                 |
|                                                                                                                                                                                        | UHF                                         | 95dB                                                 |
| Supported Modulation:                                                                                                                                                                  | FM, P25 Phase 1, P25 Phase 2, TETRA, DMR    |                                                      |
| Antenna Type:                                                                                                                                                                          | External Dedicated Antenna (Server Antenna) |                                                      |
| Permission Antenna Gain:                                                                                                                                                               | 0dBi or less (declared by the manufacturer) |                                                      |
| Software Version:                                                                                                                                                                      | RH14_A0AV01.00                              |                                                      |
| Hardware Version:                                                                                                                                                                      | RH14V3                                      |                                                      |
| Series No.:                                                                                                                                                                            | A1                                          |                                                      |
| Remark: The information in this section is provided by the applicant or manufacturer, SGS is not liable to the accuracy, suitability, reliability or/and integrity of the information. |                                             |                                                      |



## 4.2 Evaluated Location

All evaluation were performed at:

SGS-CSTC Standards Technical Services Co., Ltd., Guangzhou Branch EMC Laboratory,  
No.198, Kezhu Road, Science City, Economic & Technological Development Area, Guangzhou,  
Guangdong, China 510663  
Tel: +86 20 82155555

## 4.3 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

### ● ACMA

SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory can also perform testing for the Australian/New Zealand Regulatory Compliance Mark (RCM).

### ● SGS UK(Certificate No.: 32), SGS-TUV SAARLAND and SGS-FIMKO

Have approved SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory as a supplier of EMC TESTING SERVICES and SAFETY TESTING SERVICES.

### ● FCC Recognized Accredited Test Firm(Registration No.: 486818)

SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory has been accredited and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Designation Number: CN5016, Test Firm Registration Number: 486818.

### ● ISED (Registration No.: 4620B, CAB identifier: CN0052)

SGS-CSTC Standards Technical Services Co., Ltd., has been registered by Innovation Science and Economic Development Canada for Wireless Device Testing laboratories to test to Canadian radio equipment requirements. Registration No. 4620B, CAB identifier: CN0052.

### ● VCCI (Registration No.: R-12460, C-12584, G-20107 and T-11179)

The 10m Semi-anechoic chamber, 966 Anechoic Chamber and Shielded Room of SGS-CSTC Standards Technical Services Co., Ltd. have been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: R-12460, C-12584, G-20107 and T-11179 respectively.

### ● CBTL (Lab Code: TL129)

SGS-CSTC Standards Technical Services Co., Ltd., E&E Laboratory has been assessed and fully comply with the requirements of ISO/IEC 17025:2017, the Basic Rules, IECEE 01 and Rules of procedure IECEE 02, and the relevant IECEE CB-Scheme Operational documents.

## 4.4 Deviation from Standards

None

## 4.5 Abnormalities from Standard Conditions

None



## 5 Radio Spectrum Technical Requirement

### 5.1 RF Exposure

#### 5.1.1 Requirement

In accordance with 47 CFR FCC Part 2.1091, this device has been defined as a mobile device whereby a distance of 0.2m normally can be maintained between the user and the device.

According to 47 CFR FCC Part 1310, the criteria listed in the following table shall be used to evaluate the environment impact of human exposure to radio frequency (RF) radiation as specified in Part1.1307(b).

**TABLE 1 TO §1.1310(E)(1)—LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)**

| Frequency range (MHz)                                           | Electric field strength (V/m) | Magnetic field strength (A/m) | Power density (mW/cm <sup>2</sup> ) | Averaging time (minutes) |
|-----------------------------------------------------------------|-------------------------------|-------------------------------|-------------------------------------|--------------------------|
| <b>(i) Limits for Occupational/Controlled Exposure</b>          |                               |                               |                                     |                          |
| 3-3.0                                                           | 614                           | 1.63                          | *(100)                              | ≤6                       |
| 3.0-30                                                          | 1842/f                        | 4.89/f                        | *(900/f <sup>2</sup> )              | <6                       |
| 30-300                                                          | 61.4                          | 0.163                         | 1.0                                 | <6                       |
| 300-1,500                                                       |                               |                               | f/300                               | <6                       |
| 1,500-100,000                                                   |                               |                               | 5                                   | <6                       |
| <b>(ii) Limits for General Population/Uncontrolled Exposure</b> |                               |                               |                                     |                          |
| 0.3-1.34                                                        | 614                           | 1.63                          | *(100)                              | <30                      |
| 1.34-30                                                         | 824/f                         | 2.19/f                        | *(180/f <sup>2</sup> )              | <30                      |
| 30-300                                                          | 27.5                          | 0.073                         | 0.2                                 | <30                      |
| 300-1,500                                                       |                               |                               | f/1500                              | <30                      |
| 1,500-100,000                                                   |                               |                               | 1.0                                 | <30                      |

f = frequency in MHz. \* = Plane-wave equivalent power density



Unless otherwise agreed in writing, this document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <https://www.sgs.com/en/Terms-and-Conditions>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 30 days only.

Attention: To check the authenticity of testing /inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: [CN.Doccheck@sgs.com](mailto:CN.Doccheck@sgs.com)

## 5.1.2 Method

According to IEEE C95.3:2002 section 5.5.1.1, the power density  $S$  at a point on the axis at a distance  $d$  from a transmitting antenna is given by the Friis free-space transmission formula:

$$S = \frac{PG}{4\pi d^2}$$

$S$  = power density (mW/cm<sup>2</sup>)  
 $P$  = the net power delivered to the antenna (mW)  
 $G$  = gain of the antenna in linear scale  
 $d$  = distance between observation point and center of the radiator (cm)

From the maximum EUT RF output power, as well as the gain of the used antenna, according to the RF power density limit stated in above table, the minimum distance between the antenna and human body will be calculated.

## 5.1.3 Conclusion

### For VHF DL

1. According to the test report GZCR50400053501, the tested maximum conducted power was within the tune up power range (30±2dBm) and the maximum tune up power was utilized as worst case for RF exposure evaluation.
2. According to the declaration from the applicant, the permitted maximum antenna gain is 0dBi.
3. The maximum tune up tolerance power is 32dBm= 1.59W.
4. The limit of Power Density ( $S$ ) (mW/cm<sup>2</sup>)= 0.2 mW/cm<sup>2</sup>= 2.0 W/m<sup>2</sup>

| Maximum Antenna Gain (Numeric) | Max. tune up tolerance power (W) | Limit of Power Density ( $S_{limit1}$ ) (W/m <sup>2</sup> ) | Power Density ( $S_1$ ) (W/m <sup>2</sup> ) |
|--------------------------------|----------------------------------|-------------------------------------------------------------|---------------------------------------------|
| 1                              | 1.59                             | 2.0                                                         | 0.13/d <sup>2</sup>                         |

### For UHF-1 DL

1. According to the test report GZCR50400053501, the tested maximum conducted power was within the tune up power range (36±2dBm) and the maximum tune up power was utilized as worst case for RF exposure evaluation.
2. According to the declaration from the applicant, the permitted maximum antenna gain is 0dBi.
3. The maximum tune up tolerance power is 38dBm= 6.31W.
4. The limit of Power Density ( $S$ ) (mW/cm<sup>2</sup>)=  $f/1500$ = 0.27mW/cm<sup>2</sup>= 2.7W/m<sup>2</sup> ( $f$ =406.1MHz for worst-case).

| Maximum Antenna Gain (Numeric) | Max. tune up tolerance power (W) | Limit of Power Density ( $S_{limit2}$ ) (W/m <sup>2</sup> ) | Power Density ( $S_2$ ) (W/m <sup>2</sup> ) |
|--------------------------------|----------------------------------|-------------------------------------------------------------|---------------------------------------------|
| 1                              | 6.31                             | 2.7                                                         | 0.51/d <sup>2</sup>                         |



Unless otherwise agreed in writing, this document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <https://www.sgs.com/en/Terms-and-Conditions>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 30 days only.

Attention: To check the authenticity of testing /inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: [CN.Doccheck@sgs.com](mailto:CN.Doccheck@sgs.com)

## For UHF-2 DL

1. According to the the test report GZCR50400053501, the tested maximum conducted power was within the tune up power range (36±2dBm) and the maximum tune up power was utilized as worst case for RF exposure evaluation.
2. According to the declaration from the applicant, the permitted maximum antenna gain is 0dBi.
3. The maximum tune up tolerance power is 38dBm= 6.31W.
4. The limit of Power Density (S) (mW/cm<sup>2</sup>)= f/1500= 0.28mW/cm<sup>2</sup>= 2.8W/m<sup>2</sup> (f=421MHz for worst-case).

| Maximum Antenna Gain (Numeric) | Max. tune up tolerance power (W) | Limit of Power Density (S <sub>limit3</sub> ) (W/m <sup>2</sup> ) | Power Density (S <sub>3</sub> ) (W/m <sup>2</sup> ) |
|--------------------------------|----------------------------------|-------------------------------------------------------------------|-----------------------------------------------------|
| 1                              | 6.31                             | 2.8                                                               | 0.51/d <sup>2</sup>                                 |

## For UHF-3 DL

1. According to the the test report GZCR50400053501, the tested maximum conducted power was within the tune up power range (36±2dBm) and the maximum tune up power was utilized as worst case for RF exposure evaluation.
2. According to the declaration from the applicant, the permitted maximum antenna gain is 0dBi.
3. The maximum tune up tolerance power is 38dBm= 6.31W.
4. The limit of Power Density (S) (mW/cm<sup>2</sup>)= f/1500= 0.30mW/cm<sup>2</sup>= 3.0W/m<sup>2</sup> (f=450MHz for worst-case).

| Maximum Antenna Gain (Numeric) | Max. tune up tolerance power (W) | Limit of Power Density (S <sub>limit4</sub> ) (W/m <sup>2</sup> ) | Power Density (S <sub>4</sub> ) (W/m <sup>2</sup> ) |
|--------------------------------|----------------------------------|-------------------------------------------------------------------|-----------------------------------------------------|
| 1                              | 6.31                             | 3.0                                                               | 0.51/d <sup>2</sup>                                 |

For multiple simultaneous transmission sources, the calculated Power Density should comply with:

$$(S_1/S_{limit1}) + (S_2/S_{limit2}) + (S_3/S_{limit3}) + (S_4/S_{limit4}) \leq 1$$

$$(0.065/d^2) + (0.189/d^2) + (0.183/d^2) + (0.170/d^2) \leq 1$$

$$d \geq 0.8$$

**So the permitted use distance away from EUT external antenna (service antenna) is larger than 0.8 m.**



Unless otherwise agreed in writing, this document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <https://www.sgs.com/en/Terms-and-Conditions>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 30 days only.

Attention: To check the authenticity of testing /inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: [CN.Doccheck@sgs.com](mailto:CN.Doccheck@sgs.com)

SGS-CSTC Standards Technical Services Co., Ltd.  
Guangzhou Branch (Guangzhou) EEC Laboratory

No. 198, Kezhu Road, Science City, Economic & Technological Development Area, Guangzhou, Guangdong, China 510663  
中国·广东·广州高新技术产业开发区科学城科珠路198号 邮编: 510663

t (86-20) 82155555 www.sgs.com.cn  
t (86-20) 82155555 sgs.china@sgs.com

### 5.2 EUT Constructional Details (EUT Photos)

Refer to Appendix - External and Internal Photos for GZCR504000535AT.

- End of the Report -



Unless otherwise agreed in writing, this document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <https://www.sgs.com/en/Terms-and-Conditions>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 30 days only.

Attention: To check the authenticity of testing /inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: [CN.Doccheck@sgs.com](mailto:CN.Doccheck@sgs.com)