

# **FCC RF Exposure Report**

FCC ID : 2ALIY-GCM7243I

Equipment : GCM7243iVZ\_APB

Model No. : GCM7243iVZ\_APB

Brand Name : GCT

Applicant : GCT Semiconductor, Inc

Address : 10F Construction Financial Building 15,

Boramae-ro 5-gil, Dongjak-gu, Seoul, South

Korea,07071

Standard : 47 CFR FCC Part 2.1091

Received Date : Apr. 18, 2019

Tested Date : Apr. 20 ~ Apr. 26, 2019

We, International Certification Corp., would like to declare that the tested sample has been evaluated and in compliance with the requirement of the above standards. The test results contained in this report refer exclusively to the product. It may be duplicated completely for legal use with the approval of the applicant. It shall not be reproduced except in full without the written approval of our laboratory.

Reviewed by: Approved by:

Along Chen / Assistant Manager Gary Chang / Manager

Testing Laboratory

Report No.: FA940809 Page: 1 of 6



# **Table of Contents**

| 1   | MPE EVALUATION OF MOBILE DEVICES                       | 4 |
|-----|--|---|
| 1.1 | LIMITS FOR GENERAL POPULATION/UNCONTROLLED EXPOSURE    | 4 |
| 1.2 | MPE EVALUATION FORMULA                                 | 4 |
| 1.3 | DEVIATION FROM TEST STANDARD AND MEASUREMENT PROCEDURE | 4 |
| 1.4 | MEASUREMENT UNCERTAINTY                                | 4 |
| 1.5 | MPE EVALUATION RESULTS                                 | 5 |
| 2   | TEST LABORATORY INFORMATION                            | 6 |

Report No.: FA940809

Page : 2 of 6



# **Release Record**

| Report No. | Version | Description   | Issued Date  |
|------------|---------|---------------|--------------|
| FA940809   | Rev. 01 | Initial issue | May 08, 2019 |

Report No.: FA940809 Page: 3 of 6



## 1 MPE EVALUATION OF MOBILE DEVICES

Human exposure to RF emissions from mobile devices (47 CFR §2.1091) may be evaluated based on the MPE limits adopted by the FCC for electric and magnetic field strength and/or power density, as appropriate, since exposures are assumed to occur at distances of 20 cm or more from persons.

#### 1.1 LIMITS FOR GENERAL POPULATION/UNCONTROLLED EXPOSURE

| Frequency Range (MHz) | Power Density (mW /cm²) | Averaging Time (minutes) |  |  |
|-----------------------|-------------------------|--------------------------|--|--|
| 300~1500              | F/1500                  | 30                       |  |  |
| 1500~100000           | 1.0                     | 30                       |  |  |

#### 1.2 MPE EVALUATION FORMULA

$$Pd = \frac{Pt}{4 * Pi * R^2}$$

Where

Pd= Power density in mW/cm<sup>2</sup>

Pt= EIRP in mW Pi= 3.1416

R= Measurement distance

#### 1.3 DEVIATION FROM TEST STANDARD AND MEASUREMENT PROCEDURE

None

#### 1.4 MEASUREMENT UNCERTAINTY

ISO/IEC 17025 requires that an estimate of the measurement uncertainties associated with the emissions test results be included in the report. The measurement uncertainties given below are based on a 95% confidence level (based on a coverage factor (k=2)

| Parameters      | Uncertainty |  |  |  |
|-----------------|-------------|--|--|--|
| Conducted power | ±0.808 dB   |  |  |  |

### **Declaration of Conformity:**

The test results with all measurement uncertainty excluded are presented in accordance with the regulation limits or requirements declared by manufacturers.

#### **Comments and Explanations:**

The declared values of gain for EUT presented in the report are provided by the manufacturer, and the manufacturer takes all the responsibilities for the accuracy of the gain.

Report No.: FA940809 Page: 4 of 6



### 1.5 MPE EVALUATION RESULTS

| Frequency<br>Range (MHz)    | Maximum<br>Conducted<br>Power<br>(dBm) | ted Power Gain |       | Distance (cm) Power Density (mW/cm²) |       | Limit<br>(mW/cm²) | Ratio* | Pass /<br>Fail |
|-----------------------------|--|----------------|-------|--------------------------------------|-------|-------------------|--------|----------------|
| 1710 ~ 1755<br>(LTE Band 4) | 24.36                                  | 24.5           | 1.49  | 20                                   | 0.079 | 1                 | 0.079  | Pass           |
| 777 ~ 787<br>(LTE Band 13)  | 22.61                                  | 23             | -0.15 | 20                                   | 0.038 | 0.518             | 0.073  | Pass           |

<sup>\*</sup>Ratio = Power density / Limit.

### 1.6 MAXIMUM ANTENNA GAIN EVALUATION

| Frequency Maximum Conducted |             | Rated<br>Power | Max Gain              | to comply v      | with MPE          | Max Gain to comply with EIRP |                   |
|-----------------------------|-------------|----------------|-----------------------|------------------|-------------------|------------------------------|-------------------|
| Range (MHz)                 | Power (dBm) | (dBm)          | Antenna<br>Gain (dBi) | Distance<br>(cm) | Limit<br>(mW/cm²) | Antenna<br>Gain (dBi)        | Limit<br>(EIRP,W) |
| 1710 ~ 1755<br>(LTE Band 4) | 24.36       | 24.5           | 12.51                 | 20               | 1                 | 5.5                          | 1                 |

Note: In order to comply with both Maximum Permissible Exposure and EIRP limit, the maximum antenna gain shall not be greater than 5.5 dBi.

| Frequ | Frequency Maximum Conducted |             | Rated<br>Power | Max Gain              | to comply v      | Max Gain to comply with ERP |                       |                  |
|-------|-----------------------------|-------------|----------------|-----------------------|------------------|-----------------------------|-----------------------|------------------|
| Range | Range (MHz)                 | Power (dBm) | (dBm)          | Antenna<br>Gain (dBi) | Distance<br>(cm) | Limit<br>(mW/cm²)           | Antenna<br>Gain (dBi) | Limit<br>(ERP,W) |
|       | ~ 787<br>and 13)            | 22.61       | 23             | 11.16                 | 20               | 0.518                       | 13.92                 | 3                |

Note: In order to comply with both Maximum Permissible Exposure and EIRP limit, the maximum antenna gain shall not be greater than 11.16 dBi.

Report No.: FA940809 Page: 5 of 6



## 2 Test laboratory information

Established in 2012, ICC provides foremost EMC & RF Testing and advisory consultation services by our skilled engineers and technicians. Our services employ a wide variety of advanced edge test equipment and one of the widest certification extents in the business.

International Certification Corp (EMC and Wireless Communication Laboratory), it is our definitive objective is to institute long term, trust-based associations with our clients. The expectation we set up with our clients is based on outstanding service, practical expertise and devotion to a certified value structure. Our passion is to grant our clients with best EMC / RF services by oriented knowledgeable and accommodating staff.

Our Test sites are located at Linkou District and Kwei Shan District. Location map can be found on our website <a href="http://www.icertifi.com.tw">http://www.icertifi.com.tw</a>.

#### Linkou

Tel: 886-2-2601-1640 No. 30-2, Ding Fwu Tsuen, Lin Kou District, New Taipei City, Taiwan, R.O.C.

#### Kwei Shan

Tel: 886-3-271-8666 No. 3-1, Lane 6, Wen San 3rd St., Kwei Shan District, Tao Yuan City 333, Taiwan, R.O.C.

# **Kwei Shan Site II** Tel: 886-3-271-8640

No. 14-1, Lane 19, Wen San 3rd St., Kwei Shan District, Tao Yuan City 333, Taiwan, R.O.C..

If you have any suggestion, please feel free to contact us as below information

Tel: 886-3-271-8666 Fax: 886-3-318-0155

Email: ICC\_Service@icertifi.com.tw

\_\_\_END\_\_\_

Report No.: FA940809 Page: 6 of 6