



# SPOT CHECK EVALUATION

FCC ID : A4RGKV4X  
Equipment : Phone  
Applicant : Google LLC  
1600 Amphitheatre Parkway,  
Mountain View, California, 94043 USA  
Standard : 47 CFR Part 2, 22(H), 24(E), 27, 90(R), 90(S), 96  
FCC Part 15 Subpart C §15.225

We, Sporton International Inc. Wensan Laboratory, would like to declare that the tested sample has been evaluated in accordance with the test procedures and has been in compliance with the applicable technical standards.

The test results in this report apply exclusively to the tested model / sample. Without written approval of Sporton International Inc. Wensan Laboratory, the test report shall not be reproduced except in full.

Approved by: Louis Wu

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### History of this test report

| Version | Description                              | Issue Date    |
|---------|--|---------------|
| 01      | Initial issue of report                  | Dec. 12, 2023 |
| 02      | Revised according to data reference KDB. | Dec. 21, 2023 |
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## **1. Introduction Section**

FCC ID: A4RG8HHN (parent model) and FCC ID: A4RGKV4X (variant model) use the same identical internal printed circuit board layouts, while the variant model mmWave radio and antenna module are depopulated, details are available in the operational description. Based on their similarity, the FCC Part 15C (equipment class: DXX), and FCC Part 22, 24, 27, 90, 96 (equipment class: PCE, CBE) reuse the original model's result and do spot-check. The spot check data in this report is used to justify the data reuse.

The applicant should take full responsibility that the test data as referenced in this report represent compliance for this FCC ID: A4RGKV4X.



## 2. Model Difference Information

A4RG8HHN and A4RGKV4X use the identical internal printed circuit board layout, and the difference in the components population:

- A4RGKV4X: 5GNR FR2 mmWave related components are depopulated.

The supported GSM/WCDMA/LTE bands are all identical between A4RG8HHN and A4RGKV4X.

The supported NR FR1 band comparison table is listed as following

| NR Band | A4RG8HHN                               | A4RGKV4X                                    |
|---------|--|---|
| Same    | n2, n5, n7, n48, n66, n77 PC2, n78 PC2 | n2, n5, n7, n48, n66, n71, n77 PC2, n78 PC2 |
| Diff.   | -                                      | n12, n25, n26, n30, n38, n41 PC2, n70       |

The detail of similarity and difference is illustrated in the operational description, and based on the information spot check on conducted power and emission was performed for ensure compliance.



### 3. Spot Check Verification Data Section

Conducted power test and radiated spurious emission test configurations were selected from the worst cases identified in the parent model and tested to demonstrate the test data from original model remains representative for the variant model.

Based on the RF parameter is still identical so the EBW from original model remains representative for the variant model.

Summary for power and RSE spot check for each FCC rule part is listed as below:

| Test Item                    | Mode                                      | A4RG8HHN Parent Worst Result | A4RGKV4X Variant Check Result | Difference (dB) |
|------------------------------|---|------------------------------|-------------------------------|-----------------|
| <b>Conducted Power (dBm)</b> | WWAN GPRS 850 Class 8 CH251               | 32.28                        | 32.15                         | 0.13            |
|                              | WWAN GPRS 1900 Class 8 CH661              | 29.59                        | 29.29                         | 0.30            |
|                              | WWAN WCDMA Band V RMC 12.2K CH4132        | 24.21                        | 24.07                         | 0.14            |
|                              | WWAN WCDMA Band II RMC 12.2K CH9538       | 25.13                        | 24.84                         | 0.29            |
|                              | WWAN WCDMA Band IV RMC 12.2K CH1513       | 24.38                        | 24.28                         | 0.10            |
|                              | WWAN LTE Band 2 20MHz 1RB0 QPSK Mid       | 24.76                        | 24.47                         | 0.29            |
|                              | WWAN LTE Band 5 10MHz 1RB0 QPSK Mid       | 24.21                        | 24.18                         | 0.03            |
|                              | WWAN LTE Band 7 20MHz 1RB0 QPSK Mid       | 24.93                        | 24.72                         | 0.21            |
|                              | WWAN LTE Band 12 10MHz 1RB0 QPSK Mid      | 24.20                        | 24.17                         | 0.03            |
|                              | WWAN LTE Band 14 10MHz 1RB0 QPSK Mid      | 24.14                        | 24.00                         | 0.14            |
|                              | WWAN LTE Band 41 HPUE 20MHz 1RB0 QPSK Low | 26.50                        | 26.21                         | 0.29            |
|                              | WWAN LTE Band 48 20MHz 1RB0 QPSK High     | 24.29                        | 24.00                         | 0.29            |
|                              | WWAN NR n2 5MHz 1RB23 BPSK High           | 24.75                        | 24.65                         | 0.10            |
|                              | WWAN NR n5 10MHz 1RB50 BPSK Mid           | 24.83                        | 24.64                         | 0.19            |
|                              | WWAN NR n7 50MHz 1RB1 QPSK Mid            | 24.88                        | 24.75                         | 0.13            |
|                              | WWAN NR n48 20MHz 1RB1 QPSK Mid           | 24.52                        | 24.25                         | 0.27            |
|                              | WWAN NR n66 30MHz 80RB40 BPSK High        | 24.96                        | 24.76                         | 0.20            |
|                              | WWAN NR n71 5MHz 1RB23 BPSK Low           | 24.96                        | 24.74                         | 0.22            |
|                              | WWAN NR n77 HPUE 50MHz 1RB1 BPSK High     | 26.77                        | 26.56                         | 0.21            |



| Test Item                             | Mode                                       | ANT    | A4RG8HHN Parent Worst Result | A4RGKV4X Variant Check Result | Difference (dB) |
|---------------------------------------|--|--------|------------------------------|-------------------------------|-----------------|
| Field Strength (dBuV/m)               | NFC 13.56MHz                               | -      | 19.87                        | 18.59                         | 1.28            |
|                                       |  |        |                              |                               |                 |
| Radiated Spurious Emission (dBuV/m)   | NFC 13.56MHz                               | -      | 30.15                        | 28.10                         | 2.05            |
|                                       |  |        |                              |                               |                 |
| Radiated Spurious Emission (dBm)      | WWAN GSM 850 CH128                         | 0      | -34.63                       | -34.75                        | 0.12            |
|                                       | WWAN GSM 850 CH251                         | 1      | -40.05                       | -41.57                        | 1.52            |
|                                       | WWAN GSM 1900 CH512                        | 2      | -54.93                       | -55.22                        | 0.29            |
|                                       | WWAN WCDMA Band V CH4233                   | 0      | -45.07                       | -46.91                        | 1.84            |
|                                       | WWAN WCDMA Band II CH9262                  | 2      | -54.01                       | -54.65                        | 0.64            |
|                                       | WWAN WCDMA Band IV CH1413                  | 2      | -54.10                       | -53.24                        | -0.86           |
|                                       | WWAN LTE Band 2 10MHz 1RB0 QPSK Low        | 2      | -46.47                       | -47.14                        | 0.67            |
|                                       | WWAN LTE Band 5 10MHz 1RB0 QPSK Low        | 0      | -34.27                       | -35.26                        | 0.99            |
|                                       | WWAN LTE Band 7 10MHz 1RB0 QPSK Mid        | 0      | -43.85                       | -46.36                        | 2.51            |
|                                       | WWAN LTE Band 66 10MHz 1RB0 QPSK Low       | 2      | -50.20                       | -50.33                        | 0.13            |
|                                       | WWAN LTE Band 12 10MHz 1RB0 QPSK Low       | 1      | -50.56                       | -52.77                        | 2.21            |
|                                       | WWAN LTE Band 14 10MHz 1RB0 QPSK Mid       | 0      | -37.19                       | -37.96                        | 0.77            |
|                                       | WWAN LTE Band 41 HPUE 10MHz 1RB0 QPSK High | 0      | -35.72                       | -37.06                        | 1.34            |
|                                       | WWAN LTE Band 48 20MHz 1RB0 QPSK High      | 6      | -53.59                       | -54.61                        | 1.02            |
|                                       | WWAN NR n2 20MHz 1RB1 BPSK Low             | 2      | -44.19                       | -45.63                        | 1.44            |
|                                       | WWAN NR n5 20MHz 1RB1 BPSK High            | 1      | -53.65                       | -56.19                        | 2.54            |
|                                       | WWAN NR n7 20MHz 1RB1 BPSK High            | 2      | -39.96                       | -42.26                        | 2.30            |
|                                       | WWAN NR n48 20MHz 1RB1 BPSK High           | 2      | -43.16                       | -43.62                        | 0.46            |
|                                       | WWAN NR n66 20MHz 1RB1 BPSK Low            | 2      | -42.77                       | -43.79                        | 1.02            |
|                                       | WWAN NR n71 20MHz 1RB1 BPSK High           | 0      | -21.91                       | -22.81                        | 0.90            |
| WWAN NR n77 (27O) 20MHz 1RB1 BPSK Low | 1  | -33.37 | -36.36                       | 2.99                          |                 |
|                                       | 5  | -33.55 | -34.76                       | 1.21                          |                 |

**Conclusion:**

Radiated spurious emission test against the variant model based on the worst-case condition from the original model was performed in this filing to demonstrate the test data from original model remains representative for the variant model.

The spot check emission level is not degraded more than 3dB, and the margin to the limit is greater than 1.5dB, data referencing is justified according to the guidance in the KDB inquiry



### 4. Reference detail Section

| Rule Part          | Equipment Class | Wireless Technology | Rule Part & Frequency Band  | Reference FCC ID (Parent) | Type Grant/ Permissive Change | Reference Exhibit  | Full report referenced | FCC ID Filling (Variant) |
|--------------------|-----------------|---------------------|---|---------------------------|-------------------------------|--|------------------------|--------------------------|
| 15C                | DXX             | NFC                 | §15.255<br>13.56MHz   | A4RG8HHN                  | Original Grant                | G8HHN_FCC Part 15C NFC   | Y                      | A4RGKV4X                 |
| 22, 24, 27, 90, 96 | PCE             | GSM                 | Part 22/24<br>850/1900  | A4RG8HHN                  | Original Grant                | G8HHN_FCC Part 22.24.27 GSM, WCDMA   | Y                      | A4RGKV4X                 |
|                    |                 | WCDMA               | Part 22/24/27<br>Band II, IV, V   | A4RG8HHN                  | Original Grant                | G8HHN_FCC Part 22.24.27 GSM, WCDMA   | Y                      | A4RGKV4X                 |
|                    |                 | LTE                 | Part 22/24/27<br><br>Part 90/96<br>2/4/5/7/12/13<br>/14/17/25/26<br>/30/38/41<br>/48/66/71<br>ULCA 5B/<br>41C/66B/66C | A4RG8HHN                  | Original Grant                | G8HHN_FCC Part 22.24.27.90 LTE<br>G8HHN_FCC Part96 LTE<br>G8HHN_FCC Part96.47 LTE  | Y                      | A4RGKV4X                 |
|                    |                 | NR                  | Part 22/24/27<br><br>Part 96<br>n2/n5/n7/<br>n48/n66/n71/<br>n77  | A4RG8HHN                  | Original Grant                | G8HHN_FCC Part 22.24.27 5G NR<br>G8HHN_FCC Part 270 5G NR<br>G8HHN_FCC Part 27Q 5G NR<br>G8HHN_FCC Part96 5G NR<br>G8HHN_FCC Part96.47 5G NR | Y*                     | A4RGKV4X                 |

\* Only references the bands listed in Rule Part & Frequency Band column





**Cross Reference Table for RF (No data referencing)**

| BT/WLAN 2.4GHz/5GHz/6GHz<br>NR n12, n25, n26, n30, n38, n41 PC2, n70 |                                    |                  |   |
|--|------------------------------------|------------------|---|
| Rule Part  | Test Item                          | Data Referencing | Comments  |
| Part 15.247  | BT/WLAN 2.4GHz<br>All test cases   | N                | Pointer to Full test exhibit<br><br>GKV4X_FCC Part 15C BT<br>GKV4X_FCC Part 15C BLE<br>GKV4X_FCC Part 15C BLE channel sounding FHSS<br>GKV4X_FCC Part 15C BLE channel sounding DTS<br>GKV4X_FCC Part 15C WLAN2.4G   |
| Part 15.407  | WLAN U-NII bands<br>All test cases | N                | Pointer to Full test exhibit<br><br>GKV4X_FCC Part 15E WLAN UNII-1-3<br>GKV4X_FCC Part 15E General DFS<br>GKV4X_FCC Part 15E P2P DFS<br>GKV4X_FCC Part 15E UNII-4<br>GKV4X_FCC Part 15E_WLAN B5-8<br>Indoor Client<br>GKV4X_FCC Part 15E_WLAN B5-8<br>Standard Client<br>GKV4X_FCC Part 15E Co-location |
| Part 24/27   | NR bands<br>All test cases         | N                | Pointer to Full test exhibit<br><br>GKV4X_FCC Part22.24.27.90 5G NR   |



## 5. List of Measuring Equipment

| Instrument           | Brand Name        | Model No.                         | Serial No.                 | Characteristics                     | Calibration Date | Test Date                       | Due Date      | Remark                |
|----------------------|-------------------|-----------------------------------|----------------------------|-------------------------------------|------------------|---------------------------------|---------------|-----------------------|
| Hygrometer           | TECEPEL           | DTM-303A                          | TP201996                   | N/A                                 | Nov. 07, 2023    | Dec. 06, 2023                   | Nov. 06, 2024 | Conducted (TH05-HY)   |
| Power Sensor         | DARE              | RPR3006W                          | 16I00054SNO<br>12 (NO:113) | 10MHz~6GHz                          | Dec. 13, 2022    | Dec. 06, 2023                   | Dec. 12, 2023 | Conducted (TH05-HY)   |
| Signal Analyzer      | Rohde & Schwarz   | FSV40                             | 101905                     | 10Hz - 40GHz(amp)                   | Jul. 14, 2023    | Dec. 06, 2023                   | Jul. 13, 2024 | Conducted (TH05-HY)   |
| Loop Antenna         | Rohde & Schwarz   | HFH2-Z2                           | 100315                     | 9 kHz~30 MHz                        | Feb. 28, 2023    | Dec. 06, 2023~<br>Dec. 09, 2023 | Feb. 27, 2024 | Radiation (03CH12-HY) |
| Bilog Antenna        | TESEQ             | CBL 6111D &<br>00800N1D01N<br>-06 | 37059 & 01                 | 30MHz~1GHz                          | Nov. 03, 2023    | Dec. 06, 2023~<br>Dec. 09, 2023 | Nov. 02, 2024 | Radiation (03CH12-HY) |
| Horn Antenna         | SCHWARZBE<br>CK   | BBHA 9120 D                       | 9120D-1241                 | 1GHz~18GHz                          | Jul. 31, 2023    | Dec. 06, 2023~<br>Dec. 09, 2023 | Jul. 30, 2024 | Radiation (03CH12-HY) |
| SHF-EHF Horn Antenna | SCHWARZBE<br>CK   | BBHA9170                          | 1224                       | 18GHz-40GHz                         | Jul. 10, 2023    | Dec. 06, 2023~<br>Dec. 09, 2023 | Jul. 09, 2024 | Radiation (03CH12-HY) |
| Preamplifier         | COM-POWER         | PAM-103                           | 161075                     | 10MHz~1GHz                          | Mar. 21, 2023    | Dec. 06, 2023~<br>Dec. 09, 2023 | Mar. 20, 2024 | Radiation (03CH12-HY) |
| Preamplifier         | Agilent           | 8449B                             | 3008A02375                 | 1GHz~26.5GHz                        | May 23, 2023     | Dec. 06, 2023~<br>Dec. 09, 2023 | May 22, 2024  | Radiation (03CH12-HY) |
| Preamplifier         | EMEC              | EM18G40G                          | 060801                     | 18GHz~40GHz                         | Jun. 27, 2023    | Dec. 06, 2023~<br>Dec. 09, 2023 | Jun. 26, 2024 | Radiation (03CH12-HY) |
| Spectrum Analyzer    | Agilent           | N9010A                            | MY53470118                 | 10Hz~44GHz                          | Jan. 10, 2023    | Dec. 06, 2023~<br>Dec. 09, 2023 | Jan. 09, 2024 | Radiation (03CH12-HY) |
| RF Cable             | HUBER +<br>SUHNER | SUCOFLEX<br>102                   | 803951/2                   | 9kHz~30MHz                          | Mar. 07, 2023    | Dec. 06, 2023~<br>Dec. 09, 2023 | Mar. 06, 2024 | Radiation (03CH12-HY) |
| RF Cable             | HUBER +<br>SUHNER | SUCOFLEX<br>126E                  | 0058/126E                  | 30MHz~18GHz                         | Dec. 20, 2022    | Dec. 06, 2023~<br>Dec. 09, 2023 | Dec. 19, 2023 | Radiation (03CH12-HY) |
| RF Cable             | HUBER +<br>SUHNER | SUCOFLEX<br>102                   | 505134/2                   | 30MHz~40GHz                         | Dec. 20, 2022    | Dec. 06, 2023~<br>Dec. 09, 2023 | Dec. 19, 2023 | Radiation (03CH12-HY) |
| RF Cable             | HUBER +<br>SUHNER | SUCOFLEX<br>102                   | 803953/2                   | 30MHz~40GHz                         | Dec. 20, 2022    | Dec. 06, 2023~<br>Dec. 09, 2023 | Dec. 19, 2023 | Radiation (03CH12-HY) |
| Hygrometer           | TECEPEL           | DTM-303B                          | TP161250                   | N/A                                 | Jul. 26, 2023    | Dec. 06, 2023~<br>Dec. 09, 2023 | Jul. 25, 2024 | Radiation (03CH12-HY) |
| Controller           | EMEC              | EM1000                            | N/A                        | Control Turn<br>table & Ant<br>Mast | N/A              | Dec. 06, 2023~<br>Dec. 09, 2023 | N/A           | Radiation (03CH12-HY) |
| Antenna Mast         | EMEC              | AM-BS-4500-B                      | N/A                        | 1m~4m                               | N/A              | Dec. 06, 2023~<br>Dec. 09, 2023 | N/A           | Radiation (03CH12-HY) |
| Turn Table           | EMEC              | TT2000                            | N/A                        | 0~360 Degree                        | N/A              | Dec. 06, 2023~<br>Dec. 09, 2023 | N/A           | Radiation (03CH12-HY) |
| Software             | Audix             | E3 6.2009-8-<br>24                | RK-000989                  | N/A                                 | N/A              | Dec. 06, 2023~<br>Dec. 09, 2023 | N/A           | Radiation (03CH12-HY) |

—THE END—