

Date: July 3, 2019

Federal Communications Commission  
Office of Engineering and Technology Laboratory Division  
7435 Oakland Mills Rd.  
Columbia MD 21046

Attn: Office of Engineering and Technology

HAC Attestation - FCC ID: BCG-E3309A      Model Name: AA2111, A222, A2223

To whom it may concern:

Apple Inc. hereby declares that the MIF values detailed below are based on worst case operating modes for all air interfaces for which the HAC rating is provided based on the current methodology for determining MIF values.

Reference Test report Number(s): UL Verification Services Test Report 12696946-S4.

**SPEAG test files**

| UID       | Communication System Name                      | MIF (dB) |
|-----------|------------------------------------------------|----------|
| 10021-DAC | GSM-FDD (TDMA, GMSK)                           | 3.63     |
| 10011-CAB | UMTS-FDD (WCDMA)                               | -27.23   |
| 10295-AAB | CDMA2000 (1xRTT, RC1, SO3, 1/8th Rate 25 fr.)  | 3.26     |
| 10170-CAE | LTE-FDD (SC-FDMA, 1 RB, 20 MHz, 16QAM)         | -9.76    |
| 10182-CAE | LTE-FDD (SC-FDMA, 1 RB, 15 MHz, 16QAM)         | -9.76    |
| 10176-CAF | LTE-FDD (SC-FDMA, 1 RB, 10 MHz, 16QAM)         | -9.76    |
| 10173-CAF | LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 16QAM)         | -1.44    |
| 10061-CAB | IEEE 802.11b WiFi 2.4 GHz (DSSS, 11 Mbps)      | -2.02    |
| 10077-CAB | IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 54 Mbps) | 0.12     |
| 10069-CAC | IEEE 802.11a/n WiFi 5 GHz (OFDM, 54 Mbps)      | -3.15    |
| 10671-AAA | IEEE 802.11ax (20MHz, MCS0, 90pc duty cycle)   | -5.58    |

Sincerely,



Abhishek Rala  
Global Certification Manager  
On behalf of Apple Inc