



HEARING AID COMPATIBILITY RF EMISSIONS TEST REPORT

FCC ID : A4RGPQQ7
Equipment : Phone
Model Name : GPQQ7
Applicant : Google LLC
: 1600 Amphitheatre Parkway,
Mountain View, CA, 94043 USA
Standard : FCC 47 CFR §20.19
ANSI C63.19-2019

We, SPORTON INTERNATIONAL INC., would like to declare that the tested sample provide by manufacturer and the test data has been evaluated in accordance with the test procedures given in ANSI C63.19-2019 / 47 CFR Part 20.19 and has been pass the FCC requirement.

The test results in this report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL INC. Laboratory, the test report shall not be reproduced except in full.

Approved by: Cona Huang / Deputy Manager



Sporton International Inc. Wensan Laboratory

No.58, Aly. 75, Ln. 564, Wenhua 3rd, Rd., Guishan Dist., Taoyuan City 333010, Taiwan



Table of Contents

1. General Information	4
2. Air Interfaces	5
3. Applied Standards	7
4. WD Emission Requirements	7
5. Modulation Interference Factor.....	8
6. Evaluation of WD RF interference potential	10
7. References.....	14

Appendix A. UID specifications for HAC RFE

Appendix B. Declaration – MIF for HAC RF Interference Evaluation

Appendix C. MIF Measurement



History of this test report

Report No.	Version	Description	Issued Date
HA5N0809-01A	Rev. 01	Initial issue of report	Apr. 27, 2026



1. General Information

Product Feature & Specification	
Applicant Name	Google LLC
Equipment Name	Phone
Model Name	GPQQ7
FCC ID	A4RGPQQ7
Frequency Band	GSM850: 824.2 MHz ~ 848.8 MHz GSM1900: 1850.2 MHz ~ 1909.8 MHz WCDMA Band II: 1850 MHz ~ 1910 MHz WCDMA Band IV: 1710 MHz ~ 1755 MHz WCDMA Band V: 824 MHz ~ 849 MHz LTE Band 2: 1850 MHz ~ 1910 MHz LTE Band 4: 1710 MHz ~ 1755 MHz LTE Band 5: 824 MHz ~ 849 MHz LTE Band 7: 2500 MHz ~ 2570 MHz LTE Band 12: 699 MHz ~ 716 MHz LTE Band 13: 777 MHz ~ 787 MHz LTE Band 14: 788 MHz ~ 798 MHz LTE Band 17: 704 MHz ~ 716 MHz LTE Band 25: 1850 MHz ~ 1915 MHz LTE Band 26: 814 MHz ~ 849 MHz LTE Band 30: 2305 MHz ~ 2315 MHz LTE Band 38: 2570 MHz ~ 2620 MHz LTE Band 41: 2496 MHz ~ 2690 MHz LTE Band 48: 3550 MHz ~ 3700 MHz LTE Band 66: 1710 MHz ~ 1780 MHz LTE Band 71: 663 MHz ~ 698 MHz 5G NR n2 : 1850 MHz ~ 1910 MHz 5G NR n5 : 824 MHz ~ 849 MHz 5G NR n7 : 2500 MHz ~ 2570 MHz 5G NR n12 : 699 MHz ~ 716 MHz 5G NR n13 : 777 MHz ~ 787 MHz 5G NR n14 : 788 MHz ~ 798 MHz 5G NR n25 : 1850 MHz ~ 1915 MHz 5G NR n26 : 814 MHz ~ 849 MHz 5G NR n30 : 2305 MHz ~ 2315 MHz 5G NR n38 : 2570 MHz ~ 2620 MHz 5G NR n41 : 2496 MHz ~ 2690 MHz 5G NR n48 : 3550 MHz ~ 3700 MHz 5G NR n66 : 1710 MHz ~ 1780 MHz 5G NR n70 : 1695 MHz ~ 1710 MHz 5G NR n71 : 663 MHz ~ 698 MHz 5G NR n77: 3700 MHz ~ 3980 MHz, 3450MHz ~ 3550MHz 5G NR n78: 3700 MHz ~ 3800 MHz, 3450MHz ~ 3550MHz 5G NR n258 : 24.25 GHz~24.45 GHz, 24.75GHz ~25.25GHz 5G NR n260 : 37 GHz~40 GHz 5G NR n261 : 27.5 GHz~28.35 GHz NTN NB IoT B23: 2000 MHz ~2020 MHz NTN NB IoT B255: 1626.5 MHz ~ 1660.5 MHz WLAN 2.4 GHz Band: 2400 MHz ~ 2483.5 MHz WLAN 5.2 GHz Band: 5150 MHz ~ 5250 MHz WLAN 5.3 GHz Band: 5250 MHz ~ 5350 MHz WLAN 5.6 GHz Band: 5470 MHz ~ 5725 MHz WLAN 5.8 GHz Band: 5725 MHz ~ 5850 MHz WLAN 5.9 GHz Band: 5850 MHz ~ 5895 MHz WLAN 6E: 5925 MHz ~ 6425 MHz, 6425 MHz~6525 MHz, 6525 MHz~6875 MHz, 6875 MHz~7125 MHz Bluetooth: 2400 MHz ~ 2483.5 MHz NFC: 13.56 MHz WPC: 110 kHz ~ 148.5 kHz(Rx)
Mode	GSM/GPRS/EGPRS UMTS: RMC/AMR 12.2Kbps, HSDPA, HSUPA LTE: QPSK, 16QAM, 64QAM, 256QAM NTN: BPSK, QPSK 5G NR: DFT-s-OFDM/CP-OFDM, Pi/2 BPSK/QPSK/16QAM/64QAM/256QAM WLAN: 802.11a/b/g/n/ac/ax HT20/HT40/VHT20/VHT40/VHT80/HE20/HE40/HE80 Bluetooth BR/EDR/LE/CS NFC: ASK WPC: ASK

Reviewed by: Jason WangReport Producer: Daisy Peng

2. Air Interfaces

Air Interface	Band MHz	Type	C63.19 Tested	Simultaneous Transmitter	Name of Voice Service	Power State for HAC Compliance	
GSM	GSM850	VO	No ⁽¹⁾	WLAN, BT	CMRS Voice	Pmax	
	GSM1900						
	EDGE850	VD			Google Meet		
	EDGE1900						
UMTS	Band 2	VO	No ⁽¹⁾	WLAN, BT	CMRS Voice	Pmax	
	Band 4						
	Band 5						
	HSPA	VD			Google Meet		
LTE	Band 2	VD	No ⁽¹⁾	5G NR, WLAN, BT	VoLTE / Google Meet	Pmax	
	Band 4						
	Band 5						
	Band 7						
	Band 12						
	Band 13						
	Band 14						
	Band 17						
	Band 25						
	Band 26						
	Band 30						
	Band 38						
	Band 41						
	Band 48						
	Band 66						
	Band 71						
5G NR	n2	VD	No ^(1,2)	LTE, WLAN, BT	VoNR / Google Meet	Pmax	
	n5						
	n7						
	n12						
	n13						
	n14						
	n25						
	n26						
	n30						
	n38						
	n41						
	n48						
	n66						
	n70						
	n71						
	n77						
	n78						
	n258	VD					
	n260					Google Meet	NA
	n261						



Wi-Fi	2450	VD	No ^(1,2,3)	GSM, WCDMA, LTE, 5G NR, 5G/6GHz WLAN	VoWiFi / Google Meet	Head
	5200			GSM, WCDMA, LTE, 5G NR, 2.4G WLAN, BT		
	5300					
	5500					
	5800 / 5900	VD		GSM, WCDMA, LTE, 5G NR, 2.4G WLAN, BT	VoWiFi / Google Meet	Head
	U-NII 5					
	U-NII 6					
	U-NII 7					
U-NII 8						
NTN	B23	DT	No	NA	NA	NA
	B255					
BT	2450	DT	No	GSM, WCDMA, LTE, 5G NR, 5G/6GHz WLAN	NA	NA
NFC	13.56	DT	No	WWAN, WLAN, BT	NA	NA

Type Transport:

VO= Voice only

DT= Digital Transport only (no voice)

VD= CMRS and IP Voice Service over Digital Transport

Remark:

1. The air interface max power plus MIF is complies with ANSI C63.19-2019 Table 4.1 RF_{AIP}L
2. TheFR2 and WiFi 6E are currently outside the scope of ANSI C63.19 and FCC HAC regulations therefore they were not evaluated.
3. The UNII-5 was evaluated for operations which are entirely below 6 GHz, above 6 GHz were not evaluated due outside of the current scope of ANSI C63.19 and FCC HAC regulations.
4. Because features of Google Meet allow the option of voice-only communications, Meet has been tested for HAC/T-Coil compatibility to ensure the best user experience.
5. The product supports the TAS feature for WWAN operation; therefore, HAC testing for these technologies was conducted at the Pmax power level.
6. WiFi Head refers to the handset's maximum RF power possible for all user conditions during held-to-ear scenarios.



3. Applied Standards

- FCC CFR47 Part 20.19
- ANSI C63.19-2019
- FCC KDB 285076 D01 HAC Guidance v06r04
- FCC KDB 285076 D03 HAC FAQ v01r07

4. WD Emission Requirements

The WD's conducted power must be at or below either the stated RFAIPL (Table 4.1) or the stated peak power level (Table 4.2), or the average near-field emissions over the measurement area must be at or below the stated RFAIL (Table 4.3), or the stated peak field strength (Table 4.4). The WD may demonstrate compliance by meeting any of these four requirements, but it must do so in each of its operating bands at its established worst-case normal speech-mode operating condition.

Table 4.1 - Wireless device RF audio interference power level	
Frequency range (MHz)	RF _{AIPL} (dBm)
< 960	29
960 - 2000	26
> 2000	25

Table 4.2 - Wireless device RF peak power level	
Frequency range (MHz)	RF _{Peak Power} (dBm)
< 960	35
960 - 2000	32
> 2000	31

Table 4.3 - Wireless device RF audio interference level	
Frequency range (MHz)	RF _{AIL} [dB(V/m)]
< 960	39
960 - 2000	36
> 2000	35

Table 4.4 - Wireless device RF peak near-field level	
Frequency range (MHz)	RF _{Peak} [dB(V/m)]
< 960	45
960 - 2000	42
> 2000	41



5. Modulation Interference Factor

For any specific fixed and repeatable modulated signal, a Modulation Interference Factor (MIF, expressed in decibels) may be developed that relates its interference potential to its steady state rms signal level or average power level. This factor is a function only of the audio frequency amplitude modulation characteristics of the signal and is the same for field strength or conducted power measurements. It is important to emphasize that the MIF is valid only for a specific repeatable audio frequency amplitude modulation characteristic. Any change in modulation characteristic requires determination and application of a new MIF.

MIF may be determined using a radiated RF field, a conducted RF signal, or, in a preliminary stage, a mathematical analysis of a modeled RF signal.

- a. Verify the slope accuracy and dynamic range capability over the desired operating frequency band of a fast probe or sensor, square-law detector, as specified in ANSI C63.19: 2019 D.3, and weighting system as specified in ANSI C63.19: 2019 D.4 and ANSI C63.19: 2019 D.5. For the probe and instrumentation included in the measurement of MIF, additional calibration and application of calibration factors are not required.
- b. Using RF illumination, or conducted coupling, apply the specific modulated signal in question to the measurement system at a level within its confirmed operating dynamic range
- c. Measure the steady-state rms level at the output of the fast probe or sensor
- d. Measure the steady-state average level at the weighting output
- e. Without changing the square-law detector or weighting system, and using RF illumination, or conducted coupling, substitute for the specific modulated signal a 1 kHz, 80% amplitude modulated carrier at the same frequency and adjust its strength until the level at the weighting output equals the Step d) measurement
- f. Without changing the carrier level from Step e), remove the 1 kHz modulation and again measure the steady-state rms level indicated at the output of the fast probe or sensor.
- g. The MIF for the specific modulation characteristic is given by the ratio of the Step f) measurement to the Step c) measurement, expressed in decibels ($20 \cdot \log(\text{step6}/\text{step3})$)

In practice, Step e) and Step f) need not be repeated for each MIF determination if the relationship between the two measurements has been pre-established for the measurement system over the operating frequency and dynamic ranges. In such cases, only the modulation characteristic being tested needs to be available during WD testing. Since indirect measurement procedure was used for RF audio interference power level evaluation, the MIF values applied in this test report were provided by the HAC equipment provider of SPEAG, and the worst values for all air interface are listed below to determine the Wireless device RF audio interference power level.

UID	Communication System Name	MIF(dB)
10021	GSM-FDD(TDMA,GMSK)	3.63
10023	GPRS-FDD (TDMA, GMSK, TN 0)	3.8
10024	GPRS-FDD (TDMA, GMSK, TN 0-1)	1.15
10027	GPRS-FDD (TDMA, GMSK, TN 0-1-2)	-0.67
10028	GPRS-FDD (TDMA, GMSK, TN 0-1-2-3)	-2.05
10025	EDGE-FDD (TDMA, 8PSK, TN 0)	3.75
10026	EDGE-FDD (TDMA, 8PSK, TN 0-1)	1.23
10029	EDGE-FDD (TDMA, 8PSK, TN 0-1-2)	-0.52
10058	EDGE-FDD (TDMA, 8PSK, TN 0-1-2-3)	-1.82
10460	UMTS-FDD(WCDMA, AMR)	-25.43
10225	UMTS-FDD (HSPA+)	-20.39
10170	LTE-FDD(SC-FDMA,1RB,20MHz,16-QAM)	-9.76
10173	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 16-QAM)	-1.44
10769	5G NR 100% duty (CP-OFDM, 1 RB, 15 MHz, QPSK, 15 kHz)	-12.08
10973	5G NR 40% duty ((DFT-s-OFDM, 1 RB, 100 MHz, QPSK, 30 kHz)	-1.64
10061	IEEE 802.11b WiFi 2.4 GHz (DSSS, 11 Mbps)	-2.02
10077	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 54 Mbps)	0.12
10427	IEEE 802.11n (HT Greenfield, 150 Mbps, 64-QAM)	-13.44
10069	IEEE 802.11a/h WiFi 5 GHz (OFDM, 54 Mbps)	-3.15
10616	IEEE 802.11ac WiFi (40MHz, MCS0, 90pc duty cycle)	-5.57
10671	IEEE 802.11ax (20MHz, MCS0, 90pc duty cycle)	-5.58
*NA	5G NR PC3(DFT-s-OFDM, 1 RB, 100MHz,BPSK, 30kHz), Duty cycle 90%	-9.26
*NA	5G NR PC3(DFT-s-OFDM, 1 RB, 100MHz,BPSK, 30kHz) , Duty cycle 80%	-5.07
*NA	5G NR PC3(DFT-s-OFDM, 1 RB, 100MHz,BPSK, 30kHz) , Duty cycle 70%	-3.78
*NA	5G NR PC3(DFT-s-OFDM, 1 RB, 100MHz,BPSK, 30kHz) , Duty cycle 60%	-2.24
*NA	5G NR PC1.5(DFT-s-OFDM, 1 RB, 100MHz,BPSK, 30kHz), Duty Cycle 25%	-0.78
*NA	5G NR PC1.5(DFT-s-OFDM, 50% RB, 100MHz,BPSK, 30kHz) , Duty Cycle 25%	-0.82
*NA	5G NR PC1.5(DFT-s-OFDM, 1 RB, 100MHz,QPSK, 30kHz) , Duty Cycle 25%	-0.96
*NA	5G NR PC1.5(CP-OFDM, 1 RB, 100MHz,QPSK, 30kHz) , Duty Cycle 25%	-1.56
*NA	5G NR PC1.5(CP-OFDM, 50% RB, 100MHz,QPSK, 30kHz) , Duty Cycle 25%	-1.72
*NA	5G NR PC1.5(DFT-s-OFDM, 1 RB, 10MHz,BPSK, 30kHz) , Duty Cycle 25%	-0.83
*NA	5G NR PC1.5(DFT-s-OFDM, 50% RB, 10MHz,BPSK, 30kHz) , Duty Cycle 25%	-0.85
*NA	5G NR PC1.5(DFT-s-OFDM, 1 RB, 10MHz,QPSK, 30kHz) , Duty Cycle 25%	-0.99
*NA	5G NR PC1.5(CP-OFDM, 1 RB, 10MHz,QPSK, 30kHz) , Duty Cycle 25%	-1.61
*NA	5G NR PC1.5(CP-OFDM, 50% RB, 10MHz,QPSK, 30kHz) , Duty Cycle 25%	-1.76

Remark:

Refer to appendix E for RFE UID specifications summary provided by SPEAG

*Refer to appendix G for MIF measurements conducted by test lab for 5G NR TDD.



6. Evaluation of WD RF interference potential

General Note:

1. The following table is according to ANSI C63.19:2019 section 4.4 indirect measurement procedure to evaluation max average conducted power from each air interface plus MIF to evaluate whether it complies with ANSI C63.19-2019 Table 4.1 RF_{AIPL}, compliance with table 4.1 means compliance with WD emission requirements.
2. Since the device support TAS feature for GSM, UMTS, LTE, FR1 thus HAC RF was evaluated at Pmax Average Power level to complies with ANSI C63.19-2019 Table 4.1 RF_{AIPL}.

<WWAN operation>

Ant 0							
Air Interface	Max Burst Antenna Input Power (dBm)	Duty cycle	Max Average Antenna Input Power (dBm)	Worst Case MIF (dB)	RF _{AIPL} (dBm)	RF _{AIPL} Limit(dBm)	RF _{AIPL}
GSM850	33.50	12.5%	24.50	3.63	28.13	29	Pass
GPRS850 - 1TX	33.50	12.5%	24.50	3.8	28.30	29	Pass
GPRS850 - 2TX	32.30	25.0%	26.30	1.15	27.45	29	Pass
GPRS850 - 3TX	31.30	37.5%	27.30	-0.67	26.63	29	Pass
GPRS850 - 4TX	30.30	50.0%	27.30	-2.05	25.25	29	Pass
EDGE850 - 1TX	27.30	12.5%	18.30	3.75	22.05	29	Pass
EDGE850 - 2TX	26.30	25.0%	20.30	1.23	21.53	29	Pass
EDGE850 - 3TX	25.30	37.5%	21.30	-0.52	20.78	29	Pass
EDGE850 - 4TX	24.30	50.0%	21.30	-1.82	19.48	29	Pass
GSM1900	29.60	12.5%	20.60	3.63	24.23	26	Pass
GPRS1900 - 1TX	29.60	12.5%	20.60	3.8	24.40	26	Pass
GPRS1900 - 2TX	28.20	25.0%	22.20	1.15	23.35	26	Pass
GPRS1900 - 3TX	27.70	37.5%	23.70	-0.67	23.03	26	Pass
GPRS1900 - 4TX	26.70	50.0%	23.70	-2.05	21.65	26	Pass
EDGE1900 - 1TX	25.60	12.5%	16.60	3.75	20.35	26	Pass
EDGE1900 - 2TX	24.70	25.0%	18.70	1.23	19.93	26	Pass
EDGE1900 - 3TX	23.70	37.5%	19.70	-0.52	19.18	26	Pass
EDGE1900 - 4TX	22.70	50.0%	19.70	-1.82	17.88	26	Pass
WCDMA	25.20	100.0%	25.20	-25.43	-0.23	26	Pass
WCDMA - HSPA	25.20	100.0%	25.20	-20.39	4.81	26	Pass
LTE - FDD	25.10	100.0%	25.10	-9.76	15.34	25	Pass
LTE – TDD_PC3/PC2	26.90	43.3%	22.90	-1.44	21.46	25	Pass
5G FR1 - FDD	25.10	100.0%	25.10	-12.08	13.02	25	Pass
5G FR1 - TDD_PC3	24.90	100.0%	24.90	-12.08	12.82	25	Pass
5G FR1 - TDD_PC3	24.90	90.0%	24.40	-9.26	15.14	25	Pass
5G FR1 - TDD_PC3	24.90	80.0%	23.90	-5.07	18.83	25	Pass
5G FR1 - TDD_PC3	24.90	70.0%	23.40	-3.78	19.62	25	Pass
5G FR1 - TDD_PC3	24.90	60.0%	22.70	-2.24	20.46	25	Pass
5G NR - TDD_PC2	26.90	50.0%	23.90	-1.64	22.26	25	Pass
5G FR1 - TDD_PC1.5	26.90	25.0%	20.90	-0.78	20.12	25	Pass

Ant 1							
Air Interface	Max Burst Antenna Input Power (dBm)	Duty cycle	Max Average Antenna Input Power (dBm)	Worst Case MIF (dB)	RF _{AIPL} (dBm)	RF _{AIPL} Limit(dBm)	RF _{AIPL}
GSM850	33.10	12.5%	24.10	3.63	27.73	29	Pass
GPRS850 - 1TX	33.10	12.5%	24.10	3.8	27.90	29	Pass
GPRS850 - 2TX	32.30	25.0%	26.30	1.15	27.45	29	Pass
GPRS850 - 3TX	31.30	37.5%	27.30	-0.67	26.63	29	Pass
GPRS850 - 4TX	30.30	50.0%	27.30	-2.05	25.25	29	Pass
EDGE850 - 1TX	27.10	12.5%	18.10	3.75	21.85	29	Pass
EDGE850 - 2TX	26.30	25.0%	20.30	1.23	21.53	29	Pass
EDGE850 - 3TX	25.30	37.5%	21.30	-0.52	20.78	29	Pass
EDGE850 - 4TX	24.30	50.0%	21.30	-1.82	19.48	29	Pass
WCDMA	25.20	100.0%	25.20	-25.43	-0.23	26	Pass
WCDMA - HSPA	25.20	100.0%	25.20	-20.39	4.81	26	Pass
LTE - FDD	25.10	100.0%	25.10	-9.76	15.34	25	Pass
LTE – TDD_PC3/PC2	26.90	43.3%	22.90	-1.44	21.46	25	Pass
5G FR1 - FDD	25.10	100.0%	25.10	-12.08	13.02	25	Pass
5G FR1 - TDD_PC3	25.00	100.0%	25.00	-12.08	12.92	25	Pass
5G FR1 - TDD_PC3	25.00	90.0%	24.50	-9.26	15.24	25	Pass
5G FR1 - TDD_PC3	25.00	80.0%	24.00	-5.07	18.93	25	Pass
5G FR1 - TDD_PC3	25.00	70.0%	23.50	-3.78	19.72	25	Pass
5G FR1 - TDD_PC3	25.00	60.0%	22.80	-2.24	20.56	25	Pass
5G NR - TDD_PC2	27.00	50.0%	24.00	-1.64	22.36	25	Pass
5G FR1 - TDD_PC1.5	27.00	25.0%	21.00	-0.78	20.22	25	Pass

Ant 2							
Air Interface	Max Burst Antenna Input Power (dBm)	Duty cycle	Max Average Antenna Input Power (dBm)	Worst Case MIF (dB)	RF _{AIPL} (dBm)	RF _{AIPL} Limit(dBm)	RF _{AIPL}
GSM1900	30.50	12.5%	21.50	3.63	25.13	26	Pass
GPRS1900 - 1TX	30.50	12.5%	21.50	3.8	25.30	26	Pass
GPRS1900 - 2TX	28.90	25.0%	22.90	1.15	24.05	26	Pass
GPRS1900 - 3TX	28.40	37.5%	24.40	-0.67	23.73	26	Pass
GPRS1900 - 4TX	27.40	50.0%	24.40	-2.05	22.35	26	Pass
EDGE1900 - 1TX	26.40	12.5%	17.40	3.75	21.15	26	Pass
EDGE1900 - 2TX	25.40	25.0%	19.40	1.23	20.63	26	Pass
EDGE1900 - 3TX	24.40	37.5%	20.40	-0.52	19.88	26	Pass
EDGE1900 - 4TX	23.40	50.0%	20.40	-1.82	18.58	26	Pass
WCDMA	25.00	100.0%	25.00	-25.43	-0.43	26	Pass
WCDMA - HSPA	25.00	100.0%	25.00	-20.39	4.61	26	Pass
LTE - FDD	25.00	100.0%	25.00	-9.76	15.24	25	Pass
LTE – TDD_PC3/PC2	26.90	43.3%	22.90	-1.44	21.46	25	Pass
5G FR1 - FDD	25.00	100.0%	25.00	-12.08	12.92	25	Pass
5G FR1 - TDD_PC3	25.00	100.0%	25.00	-12.08	12.92	25	Pass
5G FR1 - TDD_PC3	25.00	90.0%	24.50	-9.26	15.24	25	Pass
5G FR1 - TDD_PC3	25.00	80.0%	24.00	-5.07	18.93	25	Pass
5G FR1 - TDD_PC3	25.00	70.0%	23.50	-3.78	19.72	25	Pass
5G FR1 - TDD_PC3	25.00	60.0%	22.80	-2.24	20.56	25	Pass
5G NR - TDD_PC2	26.90	50.0%	23.90	-1.64	22.26	25	Pass
5G FR1 - TDD_PC1.5	26.90	25.0%	20.90	-0.78	20.12	25	Pass

Ant 5							
Air Interface	Max Burst Antenna Input Power (dBm)	Duty cycle	Max Average Antenna Input Power (dBm)	Worst Case MIF (dB)	RF _{AIPL} (dBm)	RF _{AIPL} Limit(dBm)	RF _{AIPL}
LTE - FDD	25.00	100.0%	25.00	-9.76	15.24	25	Pass
LTE - TDD_PC3/PC2	26.90	43.3%	22.90	-1.44	21.46	25	Pass
5G FR1 - FDD	25.00	100.0%	25.00	-12.08	12.92	25	Pass
5G FR1 - TDD_PC3	25.00	100.0%	25.00	-12.08	12.92	25	Pass
5G FR1 - TDD_PC3	25.00	90.0%	24.50	-9.26	15.24	25	Pass
5G FR1 - TDD_PC3	25.00	80.0%	24.00	-5.07	18.93	25	Pass
5G FR1 - TDD_PC3	25.00	70.0%	23.50	-3.78	19.72	25	Pass
5G FR1 - TDD_PC3	25.00	60.0%	22.80	-2.24	20.56	25	Pass
5G NR - TDD_PC2	26.90	50.0%	23.90	-1.64	22.26	25	Pass
5G FR1 - TDD_PC1.5	26.90	25.0%	20.90	-0.78	20.12	25	Pass

Ant 6							
Air Interface	Max Burst Antenna Input Power (dBm)	Duty cycle	Max Average Antenna Input Power (dBm)	Worst Case MIF (dB)	RF _{AIPL} (dBm)	RF _{AIPL} Limit(dBm)	RF _{AIPL}
LTE - TDD_PC3/PC2	25.10	43.3%	21.10	-1.44	19.66	25	Pass
5G FR1 - TDD_PC3	25.10	100.0%	25.10	-12.08	13.02	25	Pass
5G FR1 - TDD_PC3	25.10	90.0%	24.60	-9.26	15.34	25	Pass
5G FR1 - TDD_PC3	25.10	80.0%	24.10	-5.07	19.03	25	Pass
5G FR1 - TDD_PC3	25.10	70.0%	23.60	-3.78	19.82	25	Pass
5G FR1 - TDD_PC3	25.10	60.0%	22.90	-2.24	20.66	25	Pass
5G NR - TDD_PC2	27.10	50.0%	24.10	-1.64	22.46	25	Pass
5G FR1 - TDD_PC1.5	27.10	25.0%	21.10	-0.78	20.32	25	Pass

Ant 7							
Air Interface	Max Burst Antenna Input Power (dBm)	Duty cycle	Max Average Antenna Input Power (dBm)	Worst Case MIF (dB)	RF _{AIPL} (dBm)	RF _{AIPL} Limit(dBm)	RF _{AIPL}
LTE - TDD_PC3/PC2	24.50	43.3%	20.50	-1.44	19.06	25	Pass
5G FR1 - TDD_PC3	24.60	100.0%	24.60	-12.08	12.52	25	Pass
5G FR1 - TDD_PC3	24.60	90.0%	24.10	-9.26	14.84	25	Pass
5G FR1 - TDD_PC3	24.60	80.0%	23.60	-5.07	18.53	25	Pass
5G FR1 - TDD_PC3	24.60	70.0%	23.10	-3.78	19.32	25	Pass
5G FR1 - TDD_PC3	24.60	60.0%	22.40	-2.24	20.16	25	Pass
5G NR - TDD_PC2	26.60	50.0%	23.60	-1.64	21.96	25	Pass
5G FR1 - TDD_PC1.5	26.60	25.0%	20.60	-0.78	19.82	25	Pass

Air Interface	Max Burst Antenna Input Power (dBm)	Duty cycle	Max Average Antenna Input Power (dBm)	Worst Case MIF (dB)	RF _{AIPL} (dBm)	RF _{AIPL} Limit(dBm)	RF _{AIPL}
5G FR1 - TDD_PC3 UL MIMO (1+6)	28.06	100.0%	28.06	-12.08	15.98	25	Pass
5G FR1 - TDD_PC3 UL MIMO (1+6)	28.06	90.0%	27.60	-9.26	18.34	25	Pass
5G FR1 - TDD_PC3 UL MIMO (1+6)	28.06	80.0%	27.02	-5.07	21.95	25	Pass
5G FR1 - TDD_PC3 UL MIMO (1+6)	28.06	70.0%	26.56	-3.78	22.78	25	Pass
5G FR1 - TDD_PC3 UL MIMO (1+6)	28.06	60.0%	25.86	-2.24	23.62	25	Pass
5G FR1 - TDD_PC1.5 UL MIMO (1+6)	30.06	25.0%	20.60	-0.78	23.28	25	Pass

Note: The above UL MIMO power is a conservative, linear sum of the worst-case max allowed powers among MIMO antennas.



<WLAN operation>

<SISO>

Ant 3					
Air Interface	Max Burst Antenna Input Power (dBm)	Worst Case MIF (dB)	RF _{AIPL} (dBm)	RF _{AIPL} Limit(dBm)	RF _{AIPL}
802.11b	16.00	-2.02	13.98	25	Pass

Ant 4					
Air Interface	Max Burst Antenna Input Power (dBm)	Worst Case MIF (dB)	RF _{AIPL} (dBm)	RF _{AIPL} Limit(dBm)	RF _{AIPL}
802.11b	16.00	-2.02	13.98	25	Pass
802.11a	16.00	-3.15	12.85	25	Pass
802.11n-HT20	16.00	-13.44	2.56	25	Pass
802.11n-HT40	16.00	-13.44	2.56	25	Pass
802.11ac-VHT20	16.00	-5.57	10.43	25	Pass
802.11ac-VHT40	16.00	-5.57	10.43	25	Pass
802.11ac-VHT80	15.50	-5.57	9.93	25	Pass
802.11ax-HE20	16.00	-5.58	10.42	25	Pass
802.11ax-HE40	16.00	-5.58	10.42	25	Pass
802.11ax-HE80	16.00	-5.58	10.42	25	Pass

<MIMO>

Ant 3+4					
Air Interface	Max Burst Antenna Input Power (dBm)	Worst Case MIF (dB)	RF _{AIPL} (dBm)	RF _{AIPL} Limit(dBm)	RF _{AIPL}
802.11g	19.00	0.12	19.12	25	Pass
802.11n-HT20	19.00	-13.44	5.56	25	Pass
802.11ac-VHT20	19.00	-5.57	13.43	25	Pass
802.11ax-HE20	19.00	-5.58	13.42	25	Pass
802.11be-EHT20	19.00	-28.73	-9.73	25	Pass
802.11a	18.50	-3.15	15.35	25	Pass
802.11n-HT20	18.50	-13.44	5.06	25	Pass
802.11n-HT40	18.50	-13.44	5.06	25	Pass
802.11ac-VHT20	18.50	-5.57	12.93	25	Pass
802.11ac-VHT40	18.50	-5.57	12.93	25	Pass
802.11ac-VHT80	18.50	-5.57	12.93	25	Pass
802.11ax-HE20	18.50	-5.58	12.92	25	Pass
802.11ax-HE40	18.50	-5.58	12.92	25	Pass
802.11ax-HE80	18.50	-5.58	12.92	25	Pass

Conclusion

The device max average conducted power plus MIF are meet table 4.1 of ANSI 63.19:2019 section 4.7 requirement.



7. References

- [1] ANSI C63.19:2019, "American National Standard for Methods of Measurement of Compatibility between Wireless Communications Devices and Hearing Aids", Aug. 2019.
- [2] FCC KDB 285076 D01v06r04, "Equipment Authorization Guidance for Hearing Aid Compatibility", Sep. 2023.
- [3] FCC KDB 285076 D03v01r07, "Hearing aid compatibility frequently asked questions", Dec. 2024
- [4] SPEAG DASY System Handbook