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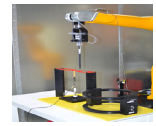


HEARING AID COMPATIBILITY

Applicant Name:
Samsung Electronics Co., Ltd.
129, Samsung-ro, Maetan dong,
Yeongtong-gu, Suwon-si
Gyeonggi-do 16677, Korea

Date of Testing:
12/1/2023 – 12/22/2023
Test Site/Location:
Element Washington DC LLC,
Columbia, MD, USA
Test Report Serial No.:
1M2311010111-19.A3L
Date of Issue:
1/2/2024

FCC ID:	**A3LSMA356U**
APPLICANT:	**SAMSUNG ELECTRONICS CO., LTD.**

Scope of Test:	RF Emissions Testing
Application Type:	Certification
FCC Rule Part(s):	CFR §20.19(b)
HAC Standard:	ANSI C63.19-2019 285076 D01 HAC Guidance v06r02 285076 D02 T-Coil testing for CMRS IP v04
DUT Type:	Portable Handset
Model:	SM-A356U
Additional Model(s):	SM-A356U1, SM-S356V
Test Device Serial No.:	*Pre-Production Sample* [S/N: 3708M]

C63.19-2019 HAC Verdict:	**PASS**

This wireless portable device has been shown to be hearing-aid compatible as specified in ANSI/IEEE Std. C63.19-2019 and has been tested in accordance with the specified measurement procedures. Hearing-Aid Compatibility is based on the assumption that all production units will be designed electrically identical to the device tested in this report. Test results reported herein relate only to the item(s) tested. North America bands only.

I attest to the accuracy of data. All measurements reported herein were performed by me or were made under my supervision and are correct to the best of my knowledge and belief. I assume full responsibility for the completeness of these measurements and vouch for the qualifications of all persons taking them.

RJ Ortanez
Executive Vice President

ilac-MRA
ACCREDITED
CERT #2041.01

TABLE OF CONTENTS

1. INTRODUCTION

On July 10, 2003, the Federal Communications Commission (FCC) adopted new rules requiring wireless manufacturers and service providers to provide digital wireless phones that are compatible with hearing aids. The FCC has modified the exemption for wireless phones under the Hearing Aid Compatibility Act of 1998 (HAC Act) in WT Docket 01-309 RM-8658[1] to extend the benefits of wireless telecommunications to individuals with hearing disabilities. These benefits encompass business, social and emergency communications, which increase the value of the wireless network for everyone. An estimated more than 10% of the population in the United States show signs of hearing impairment and of that fraction, almost 80% use hearing aids. Approximately 500 million people worldwide and 30 million people in the United States suffer from hearing loss.

Compatibility Tests Involved:

The standard calls for wireless communications devices to be measured for:

- RF Electric-field emissions
- T-coil mode, magnetic-signal strength in the audio band
- T-coil mode, magnetic-signal frequency response through the audio band
- T-coil mode, magnetic-signal and noise articulation index
- T-coil mode, acoustic-signal conversational gain in the audio band
- T-coil mode, acoustic-signal frequency response through the audio band
- T-coil mode, acoustic-signal distortion through audio band
- Volume Control, receive volume control performance
- Volume Control, receive distortion and noise performance
- Volume Control, receive acoustic frequency response performance

The hearing aid may be measured for:

- RF immunity in microphone mode
- RF immunity in T-coil mode

In the following tests and results, this report includes the evaluation for a wireless communications device.

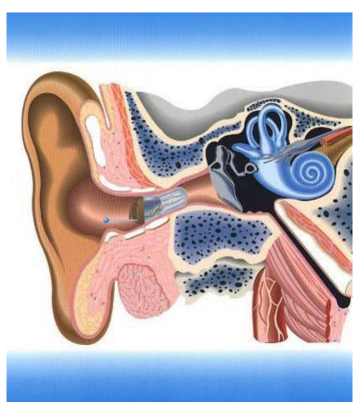


Figure 1-1 Hearing Aid *in-vitu*

[1] FCC Rule & Order, WT Docket 01-309 RM-8658

2. DUT DESCRIPTION

FCC ID:	A3LSMA356U
Manufacturer:	Samsung Electronics Co., Ltd. 129, Samsung-ro, Maetan dong, Yeongtong-gu, Suwon-si Gyeonggi-do 16677, Korea
Model:	SM-A356U
Additional Model(s):	SM-A356U1, SM-S356V
Serial Number:	3708M
Antenna Configurations:	Internal Antenna
DUT Type:	Portable Handset

I. LTE Band Selection

This device supports LTE capabilities with overlapping transmission frequency ranges. When the supported frequency range of an LTE band falls completely within an LTE band with a larger transmission frequency range, both LTE bands have the same target power (or the band with the larger transmission frequency range has a higher target power), and both LTE bands share the same transmission path and signal characteristics, hearing-aid compatibility compliance was only assessed for the band with the larger transmission frequency range. However, overlapped LTE bands which are anchor bands for dual connectivity (EN-DC) scenarios between LTE and NR were evaluated as independent LTE bands.

II. NR Band Selection

This device supports NR capabilities with overlapping transmission frequency ranges. When the supported frequency range of an NR band falls completely within an NR band with a larger transmission frequency range, both NR bands have the same target power (or the band with the larger transmission frequency range has a higher target power), and both NR bands share the same transmission path and signal characteristics, hearing-aid compatibility compliance was only assessed for the band with the larger transmission frequency range.

Table 2-1
HAC Air Interfaces

Air-Interface	Band (MHz)	Type Transport	HAC Tested	Simultaneous But Not Tested	Name of Voice Service
GSM	850	VO	No[1]	Yes: WIFI or BT	CMRS Voice
	1900				
	GPRS/EDGE	VD	No[1]	Yes: WIFI or BT	Google Meet
UMTS	850	VD	No[1]	Yes: WIFI or BT	CMRS Voice
	1700				
	1900				
	HSPA	VD	No[1]	Yes: WIFI or BT	Google Meet
LTE (FDD)	680 (B71)	VD	No[1]	Yes: NR, WIFI or BT	VoLTE, Google Meet
	700 (B12)				
	780 (B13)				
	790 (B14)				
	850 (B5)				
	850 (B26)				
	1700 (B4)				
	1700 (B66)				
	1900 (B2)				
	1900 (B25)				
	2300 (B30)				
	2500 (B7)				
LTE (TDD)	2600 (B38)	VD	No[1]	Yes: NR, WIFI or BT	VoLTE, Google Meet
	2600 (B41)				
	3600 (B48)				
NR (FDD)	680 (n71)	VD	No[1]	Yes: LTE, WIFI or BT	VoNR, Google Meet
	850 (n5)				
	1700 (n70)				
	1700 (n66)				
	1900 (n2)				
	1900 (n25)				
	2300 (n30)				
NR (TDD)	2600 (n41)	VD	No[1]	Yes: LTE, WIFI or BT	VoNR, Google Meet
	3500 (n77, DoD)				
	3500 (n78, DoD)				
	3600 (n48)				
	3750 (n78)				
	3800 (n77)				
WIFI	2450	VD	No[1]	Yes: GSM, UMTS, LTE, or NR	VoWIFI, Google Meet
	5200 (U-NII 1)				
	5300 (U-NII 2A)				
	5500 (U-NII 2C)				
	5800 (U-NII 3)				
BT	2450	DT	No	Yes: GSM, UMTS, LTE, or NR	N/A

Type Transport
VO = Voice Only
DT = Digital Data - Not intended for Voice Services
VD = CMRS and/or IP Voice over Data Transport

Notes:
1. Evaluated for WD RF peak power level requirements.

3. ANSI/IEEE C63.19-2019 PERFORMANCE REQUIRMENTS

I. WD EMISSIONS Requirements

The ANSI Standard provides guidance on measuring the potential for wireless device (WD) RF emissions to cause audio frequency interference in a hearing aid. When the performance requirements of the Standard below are met, the WD demonstrates compliance to emission requirements for operation in close proximity with a hearing aid. The WD may demonstrate compliance by meeting any of the four requirements listed below for each of its operating bands.

Frequency Range (MHz)	RF_{AIPL} (dBm)
<960	29
960-2000	26
>2000	25

Table 3-1
WD RF audio interference power level requirements

Frequency Range (MHz)	$RF_{Peak\ Power}$ (dBm)
<960	35
960-2000	32
>2000	31

Table 3-2
WD RF peak power level requirements

Frequency Range (MHz)	RF_{AIL} (dB(V/m))
<960	39
960-2000	36
>2000	35

Table 3-3
WD RF audio interference level requirements

Frequency Range (MHz)	RF_{Peak} (dB(V/m))
<960	29
960-2000	26
>2000	25

Table 3-4
WD RF peak near-field level requirements

4. RF SYSTEM SPECIFICATIONS

Description of test system for measurement of near-field RF audio interference level

EF3DV3 E-Field Probe Description

Construction:	One dipole parallel, two dipoles normal to probe axis Built-in shielding against static charges
Calibration:	In air from 30 MHz to 6.0 GHz (absolute accuracy ±5.1%, k=2)
Frequency:	30 MHz to > 6 GHz; Linearity: ± 0.2 dB (30 MHz to 6 GHz)
Directivity	± 0.2 dB in air (rotation around probe axis) ± 0.4 dB in air (rotation normal to probe axis)
Dynamic Range	2 V/m to > 1000 V/m (M3 or better device readings fall well below diode compression point)
Linearity:	± 0.2 dB
Dimensions	Overall length: 337 mm (Tip: 20 mm) Tip diameter: 4.0 mm (Body: 12 mm) Distance from probe tip to dipole centers: 1.5 mm

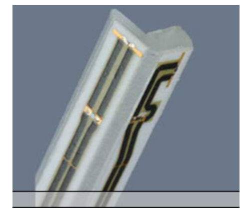
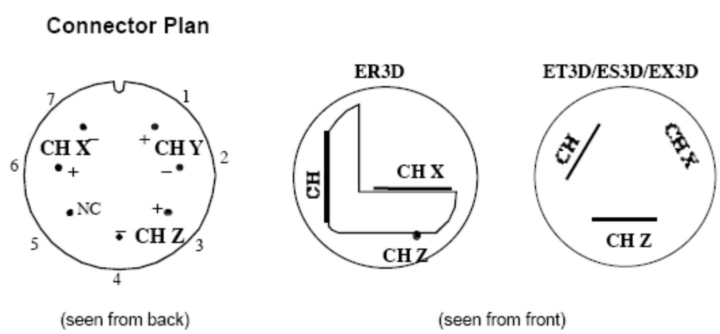


Figure 4-1
E-field Free-space Probe

Probe Tip Description

HAC field measurements take place in the close near field with high gradients. Increasing the measuring distance from the source will generally decrease the measured field values (in case of the validation dipole approx. 10% per mm).

The electric field probes have an irregular internal geometry because it is physically not possible to have the 3 orthogonal sensors situated with the same center. The effect of the different sensor centers is accounted for in the HAC uncertainty budget ("sensor displacement").



The antistatic shielding inside the probe is connected to the probe connector case.

Instrumentation Chain

Equation 1

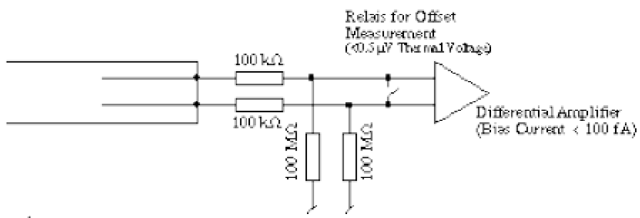
Conversion of Connector Voltage u_i to E-Field E_i

$$E_i = \sqrt{\frac{u_i + (u_i^2 \cdot CF)/(DCP)}{Norm_i \cdot ConvF}}$$

whereby

E_i:	electric field in V/m
u_i:	voltage of channel i at the connector in µV
$Norm_i$:	sensitivity of channel i in µV/(V/m)^2
ConvF:	enhancement factor in liquid (ConvF=1 for Air)
DCP:	diode compression point in µV
CF:	signal crest factor (peak power/average power)

Conditions of Calibration



Please note:

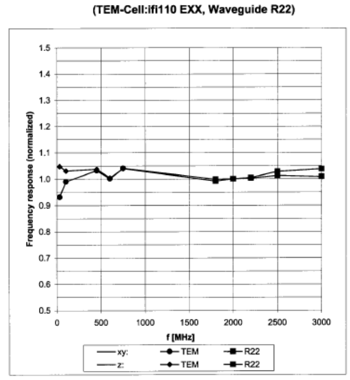
- a lower input impedance of the amplifier will result in different sensitivity factors *$Norm_i$* and *DCP*
- larger bias currents will cause higher offset

Probe Response to Frequency

The E-field sensors have inherently a very flat frequency response. They are calibrated with a number of frequencies resulting in a common calibration factor, with the frequency behavior documented in the calibration certificate (See also below).

Frequency Response of E-Field

(TEM-Cell:ifi110 EXX, Waveguide R22)



Uncertainty of Frequency Response of E-field: ± 6.3% (k=2)

Figure 4-2 E-Field Probe Frequency Response

SPEAG Robotic System

E-field measurements are performed using the DASY5 automated dosimetric assessment system. The DASY5 is made by Schmid & Partner Engineering AG (SPEAG) in Zurich, Switzerland and consists of high precision robotics system (Staubli), robot controller, Intel CORE i7 computer, near-field probe, probe alignment sensor, and the HAC phantom. The robot is a six-axis industrial robot performing precise movements to position the probe to the location (points) of maximum electromagnetic field (EMF).

Figure 4-3
SPEAG Robotic System

System Hardware

A cell controller system contains the power supply, robot controller, teach pendant (Joystick), and a remote control used to drive the robot motors. The PC consists of the computer with operating system and RF Measurement Software DASY5 v52.8 (with HAC Extension), A/D interface card, monitor, mouse, and keyboard. The Staubli Robot is connected to the cell controller to allow software manipulation of the robot. A data acquisition electronic (DAE) circuit that performs the signal amplification, signal multiplexing, AD-conversion, offset measurements, mechanical surface detection, collision detection, etc. is connected to the Electro-optical coupler (EOC). The EOC performs the conversion from the optical into digital electric signal of the DAE and transfers data to the PC plug-in card.

System Electronics

The DAE consists of a highly sensitive electrometer-grade preamplifier with auto-zeroing, a channel and gain-switching multiplexer, a fast 16 bit AD-converter and a command decoder and control logic unit. Transmission to the PC-card is accomplished through an optical downlink for data and status information and an optical uplink for commands and clock lines. The mechanical probe mounting device includes two different sensor systems for frontal and sidewise probe contacts. They are also used for mechanical surface detection and probe collision detection. The robot uses its own controller with a built in VME-bus computer.

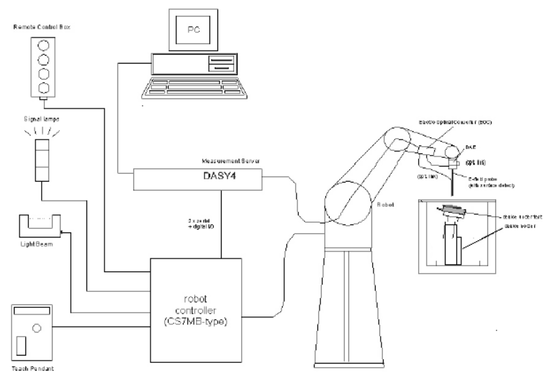


Figure 4-4
SPEAG Robotic System Diagram

DASY5 Instrumentation Chain

The first step of the evaluation is a linearization of the filtered input signal to account for the compression characteristics of the detector diode. The compensation depends on the input signal, the diode type and the DC-transmission factor from the diode to the evaluation electronics. If the exciting field is pulsed, the crest factor of the signal must be known to correctly compensate for peak power. The formula for each channel can be given as:

$$V_i = U_i + U_i^2 \cdot \frac{cf}{dcp_i}$$

with	V_i	= compensated signal of channel i	(i = x, y, z)
	U_i	= input signal of channel i	(i = x, y, z)
	cf	= crest factor of exciting field	(DASY parameter)
	dcp_i	= diode compression point	(DASY parameter)

From the compensated input signals the primary field data for each channel can be evaluated:

$$\text{E} - \text{fieldprobes}: \qquad E_i = \sqrt{\frac{V_i}{Norm_i \cdot ConvF}}$$

with	V_i	= compensated signal of channel i	(i = x, y, z)
	$Norm_i$	= sensor sensitivity of channel i μV/(V/m)^2 for E-field Probes	(i = x, y, z)
	$ConvF$	= sensitivity enhancement in solution	
	E_i	= electric field strength of channel i in V/m	

The RSS value of the field components gives the total field strength (Hermitian magnitude):

$$E_{tot} = \sqrt{E_x^2 + E_y^2 + E_z^2}$$

The primary field data are used to calculate the derived field units.

The measurement/integration time per point, as specified by the system manufacturer is >500ms.

The signal response time is evaluated as the time required by the system to reach 90% of the expected final value after an on/off switch of the power source with an integration time of 500ms and a probe response time of <5 ms. In the current implementation, DASY5 waits longer than 100ms after having reached the grid point before starting a measurement, i.e., the response time uncertainty is negligible.

If the device under test does not emit a CW signal, the integration time applied to measure the electric field at a specific point may introduce additional uncertainties due to the discretization.
The tolerances for the different systems had the worst-case of 2.6%.

Environmental Conditions

Environmental conditions such as temperature and relative humidity are monitored to ensure there are no impacts on system specifications. Proper voltage and power line frequency conditions are maintained with three phase power sources. Environmental noise and reflections are monitored through system checks.

5. TEST PROCEDURE

I. PEAK POWER LEVEL EVALUATION

To demonstrate hearing aid compliance with the ANSI standard C63.19-2019, an evaluation was performed using the peak power level requirements detailed in Table 3-2. Conducted power measurements were performed to verify maximum target power levels for all relevant operating bands/modes. An evaluation of each applicable air interface was performed to ensure compliance for each band.

6. CONDUCTED POWER CONFIGURATIONS AND TARGETS

I. Procedures Used to Establish RF Signal for HAC Testing

The handset was configured to transmit the required air interface in a shielded chamber. Measurements were taken with a fully charged battery.

II. HAC Target Powers

All applicable modes supported by the device have their held-to-ear conducted power targets listed below and were used for the individual mode evaluations in Section 7. All conducted power targets have a tolerance of +1.0dB and -1.5dB unless otherwise noted. For WIFI modes, the overall maximum power amongst all bands per IEEE standards is listed.

III. RF Conducted Power Measurement Setup and Conditions

Output Power Verification
Maximum output power is verified for all applicable test channels for all air interfaces which require HAC compliance. See Table 6-1 for air interface specific settings of transmit power parameters.

Table 6-1
Power Control Parameters and Settings by Air Interface

Air Interface:	Parameter Name:	Parameter Set To:
GSM	PCL	GSM850: “5”; GSM1900: “0”
UMTS	TPC	“All 1’s”
LTE	TPC	“Max Power”
NR	PLS	Mfr Specified
WIFI	PLS	Mfr Specified

The general setup for conducted powers included in Tables 6-10 to 6-40 is shown in Figure 6-1 below. The power measurement equipment could be a base station simulator, signal analyzer, or power meter depending on the applicable air interface.

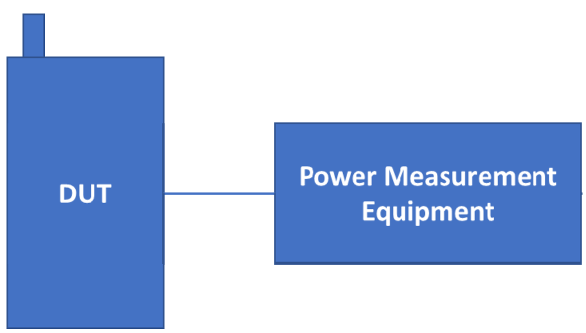


Figure 6-1
Power Measurement Setup

IV. GSM Target Powers

Table 6-2
GSM Conducted Power Targets

Band	Modulated Average Output Power (in dBm)	
	Voice	Data
GSM/EDGE 850	32.5	26.0
GSM/EDGE 1900	29.0	26.0

V. UMTS Target Powers

Table 6-3
UMTS Conducted Power Targets

Band	Modulated Average Output Power (in dBm)	
	3GPP WCDMA Rel 99	3GPP HSUPA Rel 6
UMTS V	24.0	23.0
UMTS IV	23.0	22.0
UMTS II	23.0	22.0

VI. LTE FDD Target Powers

Table 6-4
LTE FDD Conducted Power Targets

Band	Modulated Average Output Power (in dBm)
LTE Band 71	24.5
LTE Band 12	24.5
LTE Band 13	24.5
LTE Band 14	24.5
LTE Band 5	24.5
LTE Band 26	24.5
LTE Band 4	23.5
LTE Band 66	23.5
LTE Band 2	23.0
LTE Band 25	23.0
LTE Band 30	22.0
LTE Band 7	23.3

VII. LTE TDD Target Powers

Table 6-5
LTE TDD Conducted Power Targets

Band	Modulated Average Output Power (in dBm)
LTE Band 38	24.0
LTE Band 41 PC2	26.0
LTE Band 48	21.5

Table 6-6
LTE TDD Uplink Carrier Aggregation Conducted Power Targets

Band	Modulated Average Output Power (in dBm)
LTE Band 41 PC2	26.0
LTE Band 48	21.5

VIII. NR FDD Target Powers

Table 6-7
NR FDD Conducted Power Targets

Band	Modulated Average Output Power (in dBm)
NR Band n71	24.5
NR Band n5	24.5
NR Band n70	23.0
NR Band n66	23.5
NR Band n2	23.0
NR Band n25	23.0
NR Band n30	22.0

IX. NR TDD Target Powers

Table 6-8
NR TDD Conducted Power Targets

Band	Modulated Average Output Power (in dBm)
NR Band n41 PC2	26.0
NR Band n48	21.5
NR Band n77	26.0
NR Band n77 (DoD)	26.0
NR Band n78	26.0
NR Band n78 (DoD)	26.0

X. WIFI Target Powers

Table 6-9
IEEE 802.11a/b/g/n/ac/ax Average RF Power Targets

Band	Modulated Average Output Power (in dBm)
WLAN - 2.4GHz	20.0
WLAN - 5GHz	19.0

XI. Conducted Power Measurements

Table 6-10
GSM Conducted Powers

Band	Channel	GSM [dBm] CS (1 Slot)	EDGE [dBm] 1 Tx Slot
GSM 850	128	32.20	26.42
	190	32.49	26.38
	251	32.54	26.32
GSM 1900	512	29.03	26.11
	661	29.14	26.32
	810	29.32	26.27

Table 6-11
UMTS Conducted Powers

Mode	3GPP 34.121 Subtest	Cellular Band [dBm]			AWS Band [dBm]			PCS Band [dBm]		
		4132	4183	4233	1312	1412	1513	9262	9400	9538
WCDMA	12.2 kbps RMC	**24.48**	24.39	24.20	**23.14**	23.13	22.98	**23.42**	23.17	23.02
	12.2 kbps AMR	24.51	24.41	24.18	23.32	23.17	22.96	23.36	23.19	23.04
HSUPA	Subtest 1	22.92	22.98	22.74	21.85	21.73	21.05	21.78	21.52	21.44

Table 6-12
LTE Band 71 Conducted Powers

Bandwidth	Modulation	Channel	Frequency [MHz]	RB Size/Offset	Conducted Power [dBm]
20 MHz	QPSK	133222	673.0	1 / 0	24.04
		133297	680.5	1 / 99	24.10
		133372	688.0	1 / 0	24.26
	16-QAM	133222	673.0	1 / 0	23.02
		133297	680.5	1 / 99	23.04
		133372	688.0	1 / 0	23.16
15 MHz	QPSK	133197	670.5	1 / 0	23.99
		133297	680.5	1 / 37	24.09
		133397	690.5	1 / 0	24.29
	16-QAM	133397	690.5	1 / 0	23.21
10 MHz	QPSK	133172	668.0	1 / 0	23.96
		133297	680.5	1 / 0	24.15
		133422	693.0	1 / 0	24.40
	16-QAM	133422	693.0	1 / 0	23.41
5 MHz	QPSK	133147	665.5	1 / 0	24.07
		133297	680.5	1 / 0	24.37
		133447	695.5	1 / 0	24.21
	16-QAM	133447	695.5	1 / 0	23.12

Table 6-13
LTE Band 12 Conducted Powers

Bandwidth	Modulation	Channel	Frequency [MHz]	RB Size/Offset	Conducted Power [dBm]
10 MHz	QPSK	23060	704.0	1 / 0	24.01
		23095	707.5	1 / 0	24.06
		23130	711.0	1 / 0	24.16
	16-QAM	23130	711.0	1 / 0	23.11
5 MHz	QPSK	23035	701.5	1 / 12	24.20
		23095	707.5	1 / 12	24.12
		23155	713.5	1 / 0	24.30
	16-QAM	23155	713.5	1 / 0	23.14
3 MHz	QPSK	23025	700.5	1 / 7	24.18
		23095	707.5	1 / 0	24.00
		23165	714.5	1 / 0	24.35
	16-QAM	23165	714.5	1 / 0	23.16
1.4 MHz	QPSK	23017	699.7	1 / 0	24.05
		23095	707.5	1 / 5	24.01
		23173	715.3	1 / 5	24.22
	16-QAM	23173	715.3	1 / 5	23.01

Table 6-14
LTE Band 13 Conducted Powers

Bandwidth	Modulation	Channel	Frequency [MHz]	RB Size/Offset	Conducted Power [dBm]
10 MHz	QPSK	23230	782.0	1 / 49	24.90
	16-QAM	23230	782.0	1 / 49	23.96
5 MHz	QPSK	23205	779.5	1 / 12	24.92
		23230	782.0	1 / 12	24.97
		23255	784.5	1 / 12	25.01
	16-QAM	23205	779.5	1 / 12	24.03

Table 6-15
LTE Band 14 Conducted Powers

Bandwidth	Modulation	Channel	Frequency [MHz]	RB Size/Offset	Conducted Power [dBm]
10 MHz	QPSK	23330	793.0	1 / 0	24.80
	16-QAM	23330	793.0	1 / 49	24.36
5 MHz	QPSK	23305	790.5	1 / 12	24.86
		23330	793.0	1 / 12	24.78
		23355	795.5	1 / 0	24.84
	16-QAM	23305	790.5	1 / 0	24.36
		23330	793.0	1 / 12	24.18
		23355	795.5	1 / 0	24.27

Table 6-16
LTE Band 26/5 Conducted Powers

Bandwidth	Modulation	Channel	Frequency [MHz]	RB Size/Offset	Conducted Power [dBm]
15 MHz	QPSK	26765	821.5	1 / 0	25.09
	16-QAM	26765	821.5	1 / 0	24.55
10 MHz	QPSK	26740	819.0	1 / 0	25.06
	16-QAM	26740	819.0	1 / 25	24.58
5 MHz	QPSK	26715	816.5	1 / 0	25.05
		26765	821.5	1 / 0	25.12
	16-QAM	26715	816.5	1 / 24	24.58
		26765	821.5	1 / 12	24.55
3 MHz	QPSK	26705	815.5	1 / 0	25.11
		26775	822.5	1 / 0	25.15
	16-QAM	26705	815.5	1 / 0	24.44
		26775	822.5	1 / 7	24.53
1.4 MHz	QPSK	26697	814.7	1 / 0	25.04
		26783	823.3	1 / 0	25.08
	16-QAM	26697	814.7	1 / 3	24.58
		26783	823.3	1 / 0	24.52

Table 6-17
LTE Band 66/4 Conducted Powers

Bandwidth	Modulation	Channel	Frequency [MHz]	RB Size/Offset	Conducted Power [dBm]
20 MHz	QPSK	132072	1720.0	1 / 0	23.10
		132322	1745.0	1 / 0	23.53
		132572	1770.0	1 / 99	22.91
	16-QAM	132322	1745.0	1 / 99	22.82
15 MHz	QPSK	132047	1717.5	1 / 37	23.49
		132322	1745.0	1 / 0	23.20
		132597	1772.5	1 / 74	23.01
	16-QAM	132322	1745.0	1 / 37	22.51
10 MHz	QPSK	132022	1715.0	1 / 0	23.44
		132322	1745.0	1 / 0	23.11
		132622	1775.0	1 / 0	23.09
	16-QAM	132322	1745.0	1 / 0	22.52
5 MHz	QPSK	131997	1712.5	1 / 12	23.54
		132322	1745.0	1 / 12	23.41
		132647	1777.5	1 / 12	23.28
	16-QAM	132322	1745.0	1 / 0	22.78
3 MHz	QPSK	131987	1711.5	1 / 7	23.62
		132322	1745.0	1 / 7	23.42
		132657	1778.5	1 / 7	23.19
	16-QAM	132322	1745.0	1 / 0	22.44
1.4 MHz	QPSK	131979	1710.7	1 / 3	23.46
		132322	1745.0	1 / 3	23.39
		132665	1779.3	1 / 3	23.23
	16-QAM	132322	1745.0	1 / 0	22.69

Table 6-18
LTE Band 25/2 Conducted Powers

Bandwidth	Modulation	Channel	Frequency [MHz]	RB Size/Offset	Conducted Power [dBm]
20 MHz	QPSK	26140	1860.0	1 / 0	22.88
		26365	1882.5	1 / 0	23.09
		26590	1905.0	1 / 99	23.02
	16-QAM	26140	1860.0	1 / 99	22.19
15 MHz	QPSK	26115	1857.5	1 / 74	22.97
		26365	1882.5	1 / 0	23.07
		26615	1907.5	1 / 74	23.00
	16-QAM	26115	1857.5	1 / 0	22.17
10 MHz	QPSK	26090	1855.0	1 / 0	22.99
		26365	1882.5	1 / 49	23.01
		26640	1910.0	1 / 0	22.96
	16-QAM	26090	1855.0	1 / 0	22.24
5 MHz	QPSK	26065	1852.5	1 / 0	22.98
		26365	1882.5	1 / 12	23.16
		26665	1912.5	1 / 12	23.02
	16-QAM	26365	1882.5	1 / 24	22.49
3 MHz	QPSK	26055	1851.5	1 / 0	22.89
		26365	1882.5	1 / 0	23.24
		26675	1913.5	1 / 0	23.08
	16-QAM	26055	1851.5	1 / 14	22.12
1.4 MHz	QPSK	26047	1850.7	1 / 5	22.77
		26365	1882.5	1 / 3	22.98
		26683	1914.3	1 / 0	22.87
	16-QAM	26047	1850.7	1 / 0	22.20

Table 6-19
LTE Band 30 Conducted Powers

Bandwidth	Modulation	Channel	Frequency [MHz]	RB Size/Offset	Conducted Power [dBm]
10 MHz	QPSK	27710	2310.0	1 / 0	22.60
	16-QAM	27710	2310.0	1 / 25	21.75
5 MHz	QPSK	27685	2307.5	1 / 12	22.91
		27710	2310.0	1 / 12	22.49
		27735	2312.5	1 / 12	22.63
	16-QAM	27735	2312.5	1 / 0	21.95

Table 6-20
LTE Band 7 Conducted Powers

Bandwidth	Modulation	Channel	Frequency [MHz]	RB Size/Offset	Conducted Power [dBm]
20 MHz	QPSK	20850	2510.0	1 / 0	23.82
		21100	2535.0	1 / 0	23.86
		21350	2560.0	1 / 99	24.01
	16-QAM	21100	2535.0	1 / 99	23.40
15 MHz	QPSK	20825	2507.5	1 / 74	23.94
		21100	2535.0	1 / 37	24.08
		21375	2562.5	1 / 0	24.17
	16-QAM	21100	2535.0	1 / 37	23.24
10 MHz	QPSK	20800	2505.0	1 / 25	24.00
		21100	2535.0	1 / 49	23.73
		21400	2565.0	1 / 49	23.95
	16-QAM	21100	2535.0	1 / 49	23.20
5 MHz	QPSK	20775	2502.5	1 / 12	23.90
		21100	2535.0	1 / 0	23.93
		21425	2567.5	1 / 24	24.13
	16-QAM	20775	2502.5	1 / 0	23.43

Table 6-21
LTE Band 41 Power Class 2 Conducted Powers

Bandwidth	Modulation	Channel	Frequency [MHz]	RB Size/Offset	Conducted Power [dBm]
20 MHz	QPSK	39750	2506.0	1 / 0	25.18
		40620	2593.0	1 / 0	26.48
		41490	2680.0	1 / 0	26.15
	16-QAM	39750	2506.0	1 / 0	24.28
15 MHz	QPSK	39725	2503.5	1 / 37	25.41
		40620	2593.0	1 / 0	26.41
		41515	2682.5	1 / 37	26.25
	16-QAM	39725	2503.5	1 / 74	25.24
10 MHz	QPSK	39700	2501.0	1 / 0	25.20
		40620	2593.0	1 / 0	26.49
		41540	2685.0	1 / 0	26.12
	16-QAM	39700	2501.0	1 / 0	24.33
5 MHz	QPSK	39675	2498.5	1 / 12	25.49
		40620	2593.0	1 / 12	26.80
		41565	2687.5	1 / 12	26.35
	16-QAM	39675	2498.5	1 / 12	24.68

Table 6-22
LTE Band 48 Power Class 3 Conducted Powers

Bandwidth	Modulation	Channel	Frequency [MHz]	RB Size/Offset	Conducted Power [dBm]
20 MHz	QPSK	55340	3560.0	1 / 49	22.34
		55990	3625.0	1 / 49	20.83
		56640	3690.0	1 / 49	21.41
	16-QAM	55340	3560.0	1 / 49	21.59
		55990	3625.0	1 / 49	19.83
		56640	3690.0	1 / 49	20.75
15 MHz	QPSK	55315	3557.5	1 / 19	22.37
		55990	3625.0	1 / 19	20.92
		56665	3692.5	1 / 19	21.56
	16-QAM	55315	3557.5	1 / 19	21.53
		55990	3625.0	1 / 36	19.85
		56665	3692.5	1 / 36	20.75
10 MHz	QPSK	55290	3555.0	1 / 22	22.19
		55990	3625.0	1 / 22	20.86
		56690	3695.0	1 / 22	21.34
	16-QAM	55290	3555.0	1 / 1	21.45
		55990	3625.0	1 / 22	19.95
		56690	3695.0	1 / 22	20.68
5 MHz	QPSK	55265	3552.5	1 / 5	22.36
		55990	3625.0	1 / 5	20.96
		56715	3697.5	1 / 5	21.56
	16-QAM	55265	3552.5	1 / 1	21.33
		55990	3625.0	1 / 9	20.05
		56715	3697.5	1 / 1	21.34

Table 6-23
NR Band 71 Conducted Powers

NR Band n71 20 MHz Bandwidth					
			Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
Modulation	RB Size	RB Offset	136100 (680.5 MHz)		
			Conducted Power [dBm]		
DFT-s-OFDM QPSK	1	1	24.38	0	0.0
	1	53	**24.56**		0.0
	1	104	24.55		0.0
	50	0	23.45	0-1	1.0
	50	28	**24.48**	0	0.0
	50	56	23.54	0-1	1.0
	100	0	23.42		1.0
DFT-s-OFDM 16QAM	1	1	23.25	0-1	1.0
CP-OFDM QPSK	1	1	22.81	0-1.5	1.5

Table 6-24
NR Band 5 Conducted Powers

NR Band n5 5 MHz Bandwidth							
			Channel			MPR Allowed per 3GPP [dB]	MPR [dB]
Modulation	RB Size	RB Offset	165300 (826.5 MHz)	167300 (836.5 MHz)	169300 (846.5 MHz)		
			Conducted Power [dBm]				
DFT-s-OFDM QPSK	1	1	24.35	24.43	24.33	0	0.0
	1	13	24.34	24.39	24.26		0.0
	1	23	24.42	24.47	24.36		0.0
	12	0	23.43	23.47	23.39	0-1	1.0
	12	7	24.45	24.45	24.36	0	0.0
	12	13	23.47	23.44	23.37	0-1	1.0
	25	0	23.44	23.47	23.37		1.0
DFT-s-OFDM 16QAM	1	1	23.41	23.55	23.37	0-1	1.0
CP-OFDM QPSK	1	1	22.95	22.99	22.91	0-1.5	1.5

Table 6-25
NR Band 70 Conducted Powers

NR Band n70 15 MHz Bandwidth					
			Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
Modulation	RB Size	RB Offset	340500 (1702.5 MHz)		
			Conducted Power [dBm]		
DFT-s-OFDM QPSK	1	1	**22.98**	0	0.0
	1	40	22.85		0.0
	1	77	22.87		0.0
	36	0	22.01	0-1	1.0
	36	22	**22.97**	0	0.0
	36	43	21.99	0-1	1.0
	75	0	21.97		1.0
DFT-s-OFDM 16QAM	1	1	21.97	0-1	1.0
CP-OFDM QPSK	1	1	21.42	0-1.5	1.5

Table 6-26
NR Band 66 Conducted Powers

Bandwidth	Modulation	Channel	Frequency [MHz]	RB Size/Offset	Conducted Power [dBm]
40 MHz	π/2 BPSK	346000	1730.0	1 / 108	23.73
		349000	1745.0	1 / 108	23.78
		352000	1760.0	1 / 108	23.56
	QPSK	346000	1730.0	1 / 108	23.80
		349000	1745.0	1 / 108	23.65
		352000	1760.0	1 / 108	23.56
	16-QAM	352000	1760.0	1 / 108	22.35

Table 6-27
NR Band 25/2 Conducted Powers

Bandwidth	Modulation	Channel	Frequency [MHz]	RB Size/Offset	Conducted Power [dBm]
40 MHz	π/2 BPSK	374000	1870.0	1 / 108	23.52
		376500	1882.5	1 / 214	23.54
		379000	1895.0	1 / 108	23.72
	QPSK	374000	1870.0	1 / 108	23.47
		376500	1882.5	1 / 214	23.56
		379000	1895.0	1 / 108	23.63
	16-QAM	376500	1882.5	1 / 214	22.52

Table 6-28
NR Band 30 Conducted Powers

Bandwidth	Modulation	Channel	Frequency [MHz]	RB Size/Offset	Conducted Power [dBm]
10 MHz	QPSK	27710	2310.0	1 / 0	22.60
	16-QAM	27710	2310.0	1 / 25	21.75

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Table 6-29
NR Band 41/38 Power Class 2 Conducted Powers

Bandwidth	Modulation	Channel	Frequency [MHz]	RB Size/Offset	Conducted Power [dBm]
100 MHz	π/2 BPSK	509202	2546.01	1 / 271	25.89
		518598	2592.99	1 / 136	26.16
		528000	2640.00	1 / 136	26.02
	QPSK	509202	2546.01	1 / 271	25.87
		518598	2592.99	1 / 136	26.18
		528000	2640.00	1 / 136	25.91
	16-QAM	509202	2546.01	1 / 271	24.90
		518598	2592.99	1 / 136	25.29
		528000	2640.00	1 / 136	25.07

Table 6-30
NR Band 48 Conducted Powers

Bandwidth	Modulation	Channel	Frequency [MHz]	RB Size/Offset	Conducted Power [dBm]
40 MHz	π/2 BPSK	638000	3570.0	1 / 53	21.53
		641666	3625.0	1 / 53	21.62
		645332	3680.0	1 / 53	21.43
	QPSK	638000	3570.0	1 / 53	21.50
		641666	3625.0	1 / 53	21.58
		645332	3680.0	1 / 53	21.49
	16-QAM	638000	3570.0	1 / 53	19.69
		641666	3625.0	1 / 53	19.58
		645332	3680.0	1 / 53	19.55

Table 6-31
NR Band 77 Power Class 2 Conducted Powers

Bandwidth	Modulation	Channel	Frequency [MHz]	RB Size/Offset	Conducted Power [dBm]
100 MHz	π/2 BPSK	633334	3500.01	1 / 1	25.97
	QPSK	633334	3500.01	1 / 1	25.95
	16-QAM	633334	3500.01	1 / 1	24.85

Table 6-32
2.4GHz 802.11b WLAN Conducted Powers

Freq. [MHz]	Channel	Conducted Power [dBm]
2412	1	17.95
2437	6	17.87
2462	11	17.94

Table 6-33
2.4GHz 802.11g WLAN Conducted Powers

Freq. [MHz]	Channel	Conducted Power [dBm]
2412	1	17.21
2437	6	17.44
2462	11	17.34

Table 6-34
2.4GHz 802.11n WLAN Conducted Powers

Freq. [MHz]	Channel	Conducted Power [dBm]
2412	1	17.14
2437	6	17.64
2462	11	17.25

Table 6-35
2.4GHz 802.11ax WLAN Conducted Powers

Freq. [MHz]	Channel	Conducted Power [dBm]
2412	1	17.62
2437	6	17.93
2462	11	17.79

Table 6-36
5GHz 20MHz BW 802.11a WLAN Conducted Powers

Band	Freq. [MHz]	Channel	Avg. Conducted Power [dBm]
UNII-1	5180	36	16.84
	5200	40	16.92
	5220	44	16.61
	5240	48	16.92
UNII-2A	5260	52	16.91
	5280	56	16.95
	5300	60	16.92
	5320	64	16.78
UNII-2C	5500	100	16.98
	5600	120	16.94
	5620	124	16.71
	5720	144	16.94
UNII-3	5745	149	16.74
	5785	157	16.91
	5825	165	16.97

Table 6-37
5GHz 20MHz BW 802.11n WLAN Conducted Powers

Band	Freq. [MHz]	Channel	Avg. Conducted Power [dBm]
UNII-1	5180	36	16.89
	5200	40	16.82
	5220	44	16.64
	5240	48	16.95
UNII-2A	5260	52	16.82
	5280	56	16.94
	5300	60	16.93
	5320	64	16.74
UNII-2C	5500	100	16.97
	5600	120	16.77
	5620	124	16.64
	5720	144	16.74
UNII-3	5745	149	16.56
	5785	157	16.72
	5825	165	16.96

Table 6-38
5GHz 20MHz BW 802.11ac WLAN Conducted Powers

Band	Freq. [MHz]	Channel	Avg. Conducted Power [dBm]
UNII-1	5180	36	16.81
	5200	40	16.89
	5220	44	16.54
	5240	48	16.95
UNII-2A	5260	52	16.88
	5280	56	16.93
	5300	60	16.73
	5320	64	16.76
UNII-2C	5500	100	16.98
	5600	120	16.78
	5620	124	16.68
	5720	144	16.73
UNII-3	5745	149	16.64
	5785	157	16.82
	5825	165	16.97

Table 6-39
5GHz 20MHz BW 802.11ax WLAN Conducted Powers

Band	Freq. [MHz]	Channel	Avg. Conducted Power [dBm]
UNII-1	5180	36	16.51
	5200	40	16.85
	5220	44	16.65
	5240	48	16.96
UNII-2A	5260	52	16.81
	5280	56	16.94
	5300	60	16.72
	5320	64	16.68
UNII-2C	5500	100	16.92
	5620	124	16.56
	5640	128	16.72
	5720	144	16.76
UNII-3	5745	149	16.68
	5785	157	16.79
	5825	165	16.95

Table 6-40
5GHz 40MHz BW 802.11n WLAN Conducted Powers

Band	Freq. [MHz]	Channel	Avg. Conducted Power [dBm]
UNII-1	5190	38	15.58
	5230	46	15.66
UNII-2A	5270	54	15.79
	5310	62	15.51
UNII-2C	5510	102	15.98
	5590	118	15.56
	5630	126	15.52
	5710	142	15.51
UNII-3	5755	151	15.66
	5795	159	15.85

Table 6-41
5GHz 40MHz BW 802.11ac WLAN Conducted Powers

Band	Freq. [MHz]	Channel	Avg. Conducted Power [dBm]
UNII-1	5190	38	15.54
	5230	46	15.71
UNII-2A	5270	54	15.76
	5310	62	15.53
UNII-2C	5510	102	15.97
	5590	118	15.61
	5630	126	15.53
	5710	142	15.54
UNII-3	5755	151	15.71
	5795	159	15.89

Table 6-42
5GHz 40MHz BW 802.11ax WLAN Conducted Powers

Band	Freq. [MHz]	Channel	Avg. Conducted Power [dBm]
UNII-1	5190	38	15.55
	5230	46	15.68
UNII-2A	5270	54	15.75
	5310	62	15.55
UNII-2C	5510	102	15.94
	5590	118	15.59
	5630	126	15.55
	5710	142	15.56
UNII-3	5755	151	15.72
	5795	159	15.88

Table 6-43
5GHz 80MHz BW 802.11ac WLAN Conducted Powers

Band	Freq. [MHz]	Channel	Avg. Conducted Power [dBm]
UNII-1	5210	42	13.68
UNII-2A	5290	58	13.82
UNII-2C	5530	106	13.85
	5610	122	13.41
	5690	138	13.33
UNII-3	5775	155	13.51

Table 6-44
5GHz 80MHz BW 802.11ax WLAN Conducted Powers

Band	Freq. [MHz]	Channel	Avg. Conducted Power [dBm]
UNII-1	5210	42	13.71
UNII-2A	5290	58	13.86
UNII-2C	5530	106	13.91
	5610	122	13.38
	5690	138	13.35
UNII-3	5775	155	13.54

7. JUSTIFICATION OF HELD TO EAR MODES TESTED

I. Analysis of RF Air Interface Technologies

An analysis was performed, following the guidance of §4.7 of the ANSI standard, of the RF air interface technologies being evaluated. For this analysis, the stated peak power levels were verified to be within the requirements detailed in Table 3-2.

II. Individual Mode Evaluations

Table 7-1
Peak power levels of individual air interfaces evaluated for emission compliance

Air Interface	Peak Power [dBm]	Peak Power Level Margin [dB]	Emission Compliance
GSM - GSM850	33.50	1.50	PASS
GSM - GSM1900	30.00	2.00	PASS
GSM - EDGE850	27.00	8.00	PASS
GSM - EDGE1900	27.00	5.00	PASS
UMTS - RMC	25.00	10.00	PASS
UMTS - AMR	25.00	10.00	PASS
UMTS - HSPA	24.00	11.00	PASS
LTE FDD	25.50	9.50	PASS
LTE TDD - Band 41 (PC2)	27.00	4.00	PASS
LTE TDD - Band 48	22.50	8.50	PASS
LTE TDD - Uplink Carrier Aggregation	27.00	4.00	PASS
NR FDD	25.50	9.50	PASS
NR TDD - n41	27.00	4.00	PASS
NR TDD - n48	22.50	8.50	PASS
NR TDD - n77	27.00	4.00	PASS
WIFI - 2.4GHz	21.00	10.00	PASS
WIFI - 5GHz	20.00	11.00	PASS

III. WD RF Peak power level conclusions

Per ANSI C63.19-2019, all applicable air interfaces demonstrate compliance to the peak power requirements shown in Table 3-2 of this report.

8. EQUIPMENT LIST

Table 8-1
Equipment List

Manufacturer	Model	Description	Cal Date	Cal Interval	Cal Due	Serial Number
Agilent	E4438C	ESG Vector Signal Generator	1/18/2023	Annual	1/18/2024	MY47270002
Agilent	N5182A	MXG Vector Signal Generator	4/1/2023	Annual	4/1/2024	MY47420837
Keysight Technologies	N9020A	MXA Signal Analyzer	3/15/2023	Annual	3/15/2024	US46470561
Amplifier Research	15S1G6	Amplifier	N/A	CBT*	N/A	433978
Anritsu	MA2411B	Pulse Power Sensor	1/10/2023	Annual	1/10/2024	1315051
Anritsu	MA24106A	USB Power Sensor	2/14/2023	Annual	2/14/2024	1827529
Anritsu	ML2496A	Power Meter	4/4/2023	Annual	4/4/2024	1840005
Control Company	4040	Digital Thermometer	3/27/2023	Biennial	3/27/2025	230208036
Mini-Circuits	NLP-1200+	Low Pass Filter DC to 1000 MHz	N/A	CBT*	N/A	N/A
Mini-Circuits	NLP-2950+	Low Pass Filter DC to 2700 MHz	N/A	CBT*	N/A	N/A
Mini-Circuits	BW-N20W5	Power Attenuator	N/A	CBT*	N/A	1226
Pasternack	PE2237-20	Bidirectional Coupler	N/A	CBT*	N/A	N/A
Rohde & Schwarz	CMW500	Wideband Radio Communication Tester	8/9/2023	Annual	8/9/2024	162125
Rohde & Schwarz	CMW500	Wideband Radio Communication Tester				167283
Rohde & Schwarz	CMW500	Radio Communication Tester	8/10/2023	Annual	8/10/2024	140144
Rohde & Schwarz	CMX500	Radio Communication Tester	N/A		N/A	100298
Seekonk	NC-100	Torque Wrench (8" lb)	N/A		N/A	21053

Calibration traceable to the National Institute of Standards and Technology (NIST).

***Note: CBT (Calibrated Before Testing).** Prior to testing, the measurement paths containing a cable, attenuator, coupler or filter were connected to a calibrated source (i.e. a signal generator) to determine the losses of the measurement path. The power meter offset was then adjusted to compensate for the measurement system losses. This level offset is stored within the power meter before measurements are made. This calibration verification procedure applies to the system verification and output power measurements. The calibrated reading is then taken directly from the power meter after compensation of the losses for all final power measurements.

9. MEASUREMENT UNCERTAINTY

Table 9-1
Uncertainty Estimation Table

Wireless Communications Device Near-Field Measurement Uncertainty Estimation							
Uncertainty Component	Data (dB)	Data Type	Prob. Dist.	Divisor	Ci (E)	Unc. (dB)	Notes/Comments
Measurement System							
RF System Reflections	0.50	Tolerance	N	1.00	1	0.50	* Refl. < -20 dB
Field Probe Calibration	0.21	Tolerance	N	1.00	1	0.21	
Field Probe Isotropy	0.01	Tolerance	N	1.00	1	0.01	
Field Probe Frequency Response	0.135	Tolerance	N	1.00	1	0.14	
Field Probe Linearity	0.013	Tolerance	N	1.00	1	0.01	
Modulation Interference Factor	0.20	Tolerance	R	1.73	1	0.12	Applicable for M-rating testing
Boundary Effects	0.105	Accuracy	R	1.73	1	0.06	*
Probe Positioning Accuracy	0.20	Accuracy	R	1.73	1	0.12	*
Probe Positioner	0.050	Accuracy	R	1.73	1	0.03	*
Extrapolation/Interpolation	0.045	Tolerance	R	1.73	1	0.03	*
Resolution to 2mm error	0.21	Tolerance	N	1.00	1	0.21	
System Detection Limit	0.05	Tolerance	R	1.73	1	0.03	*
Readout Electronics	0.015	Tolerance	N	1.00	1	0.02	*
Integration Time	0.11	Tolerance	R	1.73	1	0.06	*
Response Time	0.033	Tolerance	R	1.73	1	0.02	*
Phantom Thickness	0.10	Tolerance	R	1.73	1	0.06	*
System Repeatability (Field x 2=power)	0.17	Tolerance	N	1.00	1	0.17	*
Test Sample Related							
Device Positioning Vertical	0.2	Tolerance	R	1.73	1	0.12	*
Device Positioning Lateral	0.045	Tolerance	R	1.73	1	0.03	*
Device Holder and Phantom	0.1	Tolerance	R	1.73	1	0.06	*
Power Drift	0.21	Tolerance	R	1.73	1	0.12	
Combined Standard Uncertainty (k=1)						0.66	16.3%
Expanded Uncertainty [95% confidence]						1.31	32.6%
Expanded Uncertainty [95% confidence] on Field						0.66	16.3%

Notes:
1. Test equipments are calibrated according to techniques outlined in NIS81, NIS3003 and NIST Tech Note 1297. All equipments have traceability according to NIST. Measurement Uncertainties are defined in further detail in NIS 81 and NIST Tech Note 1297 and UKAS M3003.
2. * Uncertainty specifications from Schmidt & Partner Engineering AG (not site specific)

Measurement uncertainty reflects the quality and accuracy of a measured result as compared to the true value. Such statements are generally required when stating results of measurements so that it is clear to the intended audience that the results may differ when reproduced by different facilities. Measurement results vary due to the measurement uncertainty of the instrumentation, measurement technique, and test engineer. Most uncertainties are calculated using the tolerances of the instrumentation used in the measurement, the measurement setup variability, and the technique used in performing the test. While not generally included, the variability of the equipment under test also figures into the overall measurement uncertainty. Another component of the overall uncertainty is based on the variability of repeated measurements (so-called Type A uncertainty). This may mean that the Hearing Aid immunity tests may have to be repeated by taking down the test setup and resetting it up so that there are a statistically significant number of repeat measurements to identify the measurement uncertainty. By combining the repeat measurement results with that of the instrumentation chain using the technique contained in NIS 81 and NIS 3003, the overall measurement uncertainty was estimated.

10. CONCLUSION

The measurements indicate that the referenced wireless communications device complies with the HAC limits specified in accordance with the ANSI C63.19-2019 Standard and FCC WT Docket No. 01-309 RM-8658. Precise laboratory measures were taken to assure repeatability of the tests. The tested device complies with the requirements in respect to all parameters specific to the test. The test results and statements relate only to the item(s) tested.

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