FCC Test Report

Product Name	Hearing Aid
Model No.	HL203
FCC ID.	2ABTAHNL203

Applicant	Health & Life Co., Ltd.
Address	9F, No. 186, Jian Yi Road, Zhonghe District,
	New Taipei City, Taiwan

Date of Receipt	Mar. 27, 2020
Issued Date	Apr. 20, 2020
Report No.	2030771R-E3032110108
Report Version	V1.0



The test results relate only to the samples tested.

The test results shown in the test report are traceable to the national/international standard through the calibration report of the equipment and evaluated measurement uncertainty herein.

This report must not be used to claim product endorsement by TAF or any agency of the government.

The test report shall not be reproduced without the written approval of DEKRA Testing and Certification Co., Ltd. Measurement uncertainties evaluated for each testing system and associated connections are given here to provide the system information for reference. Compliance determinations do not take into account measurement uncertainties for each testing system, but are based on the results of the compliance measurement.

Test Report

Issued Date: Apr. 20, 2020 Report No.: 2030771R-E3032110108



Product Name	Hearing Aid		
Applicant	Health & Life Co., Ltd.		
Address	9F, No. 186, Jian Yi Road, Zhonghe District, New Taipei City, Taiwan		
Manufacturer	Health & Life Co., Ltd.		
factory (ies)	1. Health & Life (Suzhou) Co., Ltd.		
	2. Living Science Co., Ltd.		
Model No.	HL203		
FCC ID.	2ABTAHNL203		
EUT Rated Voltage	4.2V/250mA		
EUT Test Voltage	AC 120V / 60Hz (by Adapter), DC 4.2V (by Battery)		
Trade Name	Health & Life		
Applicable Standard	FCC CFR Title 47 Part 15 Subpart C		
	ANSI C63.4: 2014, ANSI C63.10: 2013		
Test Result	Complied		
Documented By	: Antra Chan (Senior Engineering Adm. Specialist / Anita Chou)		
Tested By	The		
	(Engineer / Trista Huang)		
Approved By	Hand		
	(Director / Vincent Lin)		



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1. GENERAL INFORMATION

1.1. EUT Description

Product Name	Hearing Aid	
Trade Name	Health & Life	
Model No.	HL203	
FCC ID.	2ABTAHNL203	
Frequency Range	2402-2480MHz	
Channel Number	79	
Type of Modulation	FHSS: GFSK(1Mbps) /π/4DQPSK(2Mbps) / 8DPSK(3Mbps)	
Antenna Type	Chip Antenna	
Channel Control	Auto	
Antenna Gain	Refer to the table "Antenna List"	
Type C USB Cable	Health & Life Co. Ltd., HL203-USB-CABLE, Shielded, 0.2m	
Earphone	Health & Life Co. Ltd., HL203-EARPHONE	
USB Adapter	MFR: DVE, M/N: DSA-5PFK-05 FUS 050100a	
	Input: AC 100-240V~ 50/60Hz, 0.2A	
	Output: DC 5V, 1A	

Antenna List

No.	Manufacturer	Part No.	Antenna Type	Peak Gain
1	Advanced Ceramic X	AT1608-A2R4NAA_	Chip Antenna	0.5dBi for 2.4GHz

Note: The antenna of EUT conforms to FCC 15.203.



Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
Channel 00:	2402 MHz	Channel 20:	2422 MHz	Channel 40:	2442 MHz	Channel 60:	2462 MHz
Channel 01:	2403 MHz	Channel 21:	2423 MHz	Channel 41:	2443 MHz	Channel 61:	2463 MHz
Channel 02:	2404 MHz	Channel 22:	2424 MHz	Channel 42:	2444 MHz	Channel 62:	2464 MHz
Channel 03:	2405 MHz	Channel 23:	2425 MHz	Channel 43:	2445 MHz	Channel 63:	2465 MHz
Channel 04:	2406 MHz	Channel 24:	2426 MHz	Channel 44:	2446 MHz	Channel 64:	2466 MHz
Channel 05:	2407 MHz	Channel 25:	2427 MHz	Channel 45:	2447 MHz	Channel 65:	2467 MHz
Channel 06:	2408 MHz	Channel 26:	2428 MHz	Channel 46:	2448 MHz	Channel 66:	2468 MHz
Channel 07:	2409 MHz	Channel 27:	2429 MHz	Channel 47:	2449 MHz	Channel 67:	2469 MHz
Channel 08:	2410 MHz	Channel 28:	2430 MHz	Channel 48:	2450 MHz	Channel 68:	2470 MHz
Channel 09:	2411 MHz	Channel 29:	2431 MHz	Channel 49:	2451 MHz	Channel 69:	2471 MHz
Channel 10:	2412 MHz	Channel 30:	2432 MHz	Channel 50:	2452 MHz	Channel 70:	2472 MHz
Channel 11:	2413 MHz	Channel 31:	2433 MHz	Channel 51:	2453 MHz	Channel 71:	2473 MHz
Channel 12:	2414 MHz	Channel 32:	2434 MHz	Channel 52:	2454 MHz	Channel 72:	2474 MHz
Channel 13:	2415 MHz	Channel 33:	2435 MHz	Channel 53:	2455 MHz	Channel 73:	2475 MHz
Channel 14:	2416 MHz	Channel 34:	2436 MHz	Channel 54:	2456 MHz	Channel 74:	2476 MHz
Channel 15:	2417 MHz	Channel 35:	2437 MHz	Channel 55:	2457 MHz	Channel 75:	2477 MHz
Channel 16:	2418 MHz	Channel 36:	2438 MHz	Channel 56:	2458 MHz	Channel 76:	2478 MHz
Channel 17:	2419 MHz	Channel 37:	2439 MHz	Channel 57:	2459 MHz	Channel 77:	2479 MHz
Channel 18:	2420 MHz	Channel 38:	2440 MHz	Channel 58:	2460 MHz	Channel 78:	2480 MHz
Channel 19:	2421 MHz	Channel 39:	2441 MHz	Channel 59:	2461 MHz		

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- 1. The EUT is a Hearing Aid with a built-in Bluetooth V4.0, V3.0, V2.1+EDR transceiver, this report for Bluetooth V3.0, V2.1+EDR.
- 2. These tests were conducted on a sample for the purpose of demonstrating compliance of Bluetooth transmitter with Part 15 Subpart C Paragraph 15.247 for spread spectrum devices.
- 3. Regarding to the operation frequency, the lowest, middle and highest frequency are selected to perform the test
- 4. The radiation measurements are performed in X, Y, Z axis positioning. Only the worst case is shown in the report
- 5. Bluetooth operation was evaluated at both 1Mb/s and 3Mb/s data rates. 2Mb/s data rate was found, through pre-testing, to produce emissions similar to those for 3Mb/s.

Test Mode	Mode 1: Transmit - 1Mbps (GFSK)
	Mode 2: Transmit - 3Mbps (8DPSK)

1.3. Tested System Details

The types for all equipment, plus descriptions of all cables used in the tested system (including inserted cards) are:

Produ	ıct	Manufacturer	Model No.	Serial No.	Power Cord
1	Notebook PC	DELL	Latitude E5440	74BTK32	Non-Shielded, 0.8m
2	Fixture	warehouse	FT232	N/A	N/A

Signa	l Cable Type	Signal cable Description
А	Type C USB Cable	Non-Shielded, 0.2m
В	USB cable	Shielded, 1.2m

1.4. Configuration of Tested System



1.5. EUT Exercise Software

- 1. Setup the EUT as shown in Section 1.4.
- 2. Execute software "Airoha.AB152x Ver.2.1.4.20365" on the EUT.
- 3. Configure the test mode, the test channel, and the data rate.
- 4. Press "OK" to start the continuous Transmit.
- 5. Verify that the EUT works properly.

1.6. Test Facility

Ambient conditions in the laboratory:

Performed Item	Items	Required	Actual
	Temperature (°C)	10~40 °C	23.4°C
Conducted Emission	Humidity (%RH)	10~90 %	51%
	Temperature (°C)	10~40 °C	20.8°C
Radiated Emission	Humidity (%RH)	10~90 %	60%
	Temperature (°C)	10~40 °C	23°C
Conductive	Humidity (%RH)	10~90 %	64.9%

USA	:	FCC Registration Number: TW3023
-----	---	---------------------------------

Canada : IC Registration Number: 4075

Site Description:	Accredited by TAF Accredited Number: 3023
Test Laboratory:	DEKRA Testing and Certification Co., Ltd
Address:	No.5-22, Ruishukeng, Linkou Dist., New Taipei City 24451,
	Taiwan, R.O.C.
Phone number:	886-2-8601-3788
Fax number:	886-2-8601-3789
Email address:	info.tw@dekra.com
Website:	http://www.dekra.com.tw

1.7. List of Test Equipment

For Conducted measurements /CB3/SR8

	Equipment	Manufacturer	Model No.	Serial No.	Cali. Date	Due. Date
	Temperature Chamber	WIT GROUP	TH-1S-B	EQ-201-00146	2020/02/25	2021/02/24
Х	Spectrum Analyzer	Agilent	N9010A	MY53470892	2019/09/25	2020/09/24
Х	Peak Power Analyzer	Keysight	8990B	MY51000410	2019/07/30	2020/07/29
Х	Wideband Power Sensor	Keysight	N1923A	MY56080003	2019/07/30	2020/07/29
Х	Wideband Power Sensor	Keysight	N1923A	MY56080004	2019/07/30	2020/07/29
Х	EMI Test Receiver	R&S	ESCS 30	100369	2019/11/19	2020/11/18
Х	LISN	R&S	ENV216	101105	2020/04/09	2021/04/08
Х	LISN	R&S	ESH3-Z5	836679/014	2020/04/09	2021/04/08
Х	Coaxial Cable	DEKRA	RG 400	LC018-RG	2019/06/20	2020/06/19

Note:

- 1. All equipments are calibrated every one year.
- 2. The test instruments marked with "X" are used to measure the final test results.
- 3. Test Software version : DEKRA Conduction Test SystemV9.0.5.

For Radiated measurements /Site3/CB8

	Equipment	Manufacturer	Model No.	Serial No.	Cali. Date	Due. Date
Х	Test Receiver	R&S	ESR7	101602	2019/12/16	2020/12/15
Х	Signal Analyzer	R&S	FSV40	101869	2019/07/04	2020/07/03
Х	Loop Antenna	Teseq	HLA6121	37133	2019/10/15	2021/10/14
Х	Bilog Antenna	Schaffner Chase	CBL6112B	2916	2020/01/20	2021/01/19
Х	Coaxial Cable	DEKRA	L1907-001C	280280.F141.1000D	2019/07/10	2020/07/09
Х	Amplifier	EMCI	EMC001330	980254	2019/08/22	2020/08/21
Х	Horn Antenna	ETS-LINDGREN	3117	00228113	2019/05/02	2020/05/01
Х	Coaxial Cable	DEKRA	L1907-002C	280280.F141.1000D	2019/07/10	2020/07/09
Х	Amplifier	EMCI	EMC05820SE	980362	2019/06/26	2020/06/25
Х	Amplifier	EMCI	EMC051845SE	980632	2019/08/08	2020/08/07
	Horn Antenna	Com-Power	AH-1840	101101	2019/10/31	2020/10/30
	Amplifier + Cable	EMCI	EMC184045SE	980369	2020/04/15	2021/04/14
	Bilog Antenna	Schaffner Chase	CBL6112B	2925	2020/02/20	2021/02/19
	Coaxial Cable	DEKRA	L1907-003C	00100A1B3A120M	2019/07/10	2020/07/09
	Amplifier	EMCI	EMC001330	980255	2019/06/28	2020/06/27
Х	Filter	MICRO-TRONICS	BRM50702	G270	2019/08/08	2020/08/07
	Filter	MICRO-TRONICS	BRM50716	G196	2019/08/08	2020/08/07

- 1. Loop Antenna is calibrated every two years, the other equipments are calibrated every one year.
- 2. The test instruments marked with "X" are used to measure the final test results.
- 3. Test Software version : DEKRA Test SystemV1.1.

1.8. Uncertainty

Uncertainties have been calculated according to the DEKRA internal document, and is described in each test chapter of this report.

The reported expanded uncertainties are based on a standard uncertainty multiplied by a coverage factor of k=2, providing a level of confidence of approximately 95%. Measurement uncertainties evaluated for each testing system and associated connections are given here to provide the system information for reference. Compliance determinations do not take into account measurement uncertainties for each testing system, but are based on the results of the compliance measurement.



2. Conducted Emission

2.1. Test Setup



2.2. Limits

FCC Part 15 Subpart C Paragraph 15.207 (dBµV) Limit					
Frequency	Lin	nits			
MHz	QP	AV			
0.15 - 0.50	66-56	56-46			
0.50-5.0	56	46			
5.0 - 30	60	50			

Remarks: In the above table, the tighter limit applies at the band edges.

2.3. Test Procedure

The EUT and Peripherals are connected to the main power through a line impedance stabilization network (L.I.S.N.). This provides a 50 ohm /50uH coupling impedance for the measuring equipment. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm /50uH coupling impedance with 50ohm termination. (Please refer to the block diagram of the test setup and photographs.)

Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all the interface cables must be changed according to ANSI C63.4: 2014 on conducted measurement.

Conducted emissions were invested over the frequency range from 0.15MHz to 30MHz using a receiver bandwidth of 9kHz.

The EUT setup and the test procedure are according to ANSI C63.4, 2014 to comply with the requirements of FCC 47CFR Subpart C.

2.4. Uncertainty

± 2.26 dB



2.5. Test Result of Conducted Emission

Product	:	Hearing Aid
Test Item	:	Conducted Emission Test
Test date	:	2020/04/16
Test Mode	:	Mode 2: Transmit - 3Mbps (8DPSK) (2441MHz)

Line 1



No	Frequency	Emission	Limit	Margin	Reading Level	Correct Factor	Detector
	(MHz)	Level	(dBuV)	(dB)	(dBuV)	(dB)	Туре
		(dBuV)					
1	0.401	38.31	57.83	-19.51	28.53	9.79	QP
*2	0.401	32.12	47.83	-15.71	22.33	9.79	AV
3	0.699	27.75	56.00	-28.25	17.95	9.80	QP
4	0.699	20.86	46.00	-25.14	11.06	9.80	AV
5	1.234	25.85	56.00	-30.15	16.02	9.83	QP
6	1.234	20.87	46.00	-25.13	11.04	9.83	AV
7	2.92	31.80	56.00	-24.20	21.90	9.90	QP
8	2.92	23.16	46.00	-22.84	13.26	9.90	AV
9	4.699	33.56	56.00	-22.44	23.59	9.96	QP
10	4.699	23.45	46.00	-22.55	13.48	9.96	AV
11	24	42.82	60.00	-17.18	32.56	10.26	QP
12	24	31.31	50.00	-18.69	21.05	10.26	AV

- 1. All Reading Levels are Quasi-Peak and average value.
- 2. " * ", means this data is the worst emission level.
- 3. Measurement Level = Reading Level + Correct Factor



Product	:	Hearing Aid
Test Item	:	Conducted Emission Test
Test date	:	2020/04/16
Test Mode	:	Mode 2: Transmit - 3Mbps (8DPSK) (2441MHz)

Line 2



No	Frequency	Emission	Limit	Margin	Reading Level	Correct Factor	Detector
	(MHz)	Level	(dBuV)	(dB)	(dBuV)	(dB)	Туре
		(dBuV)					
1	0.239	28.68	62.14	-33.45	18.91	9.77	QP
2	0.239	23.10	52.14	-29.04	13.33	9.77	AV
3	0.404	36.09	57.76	-21.68	26.31	9.78	QP
*4	0.404	31.17	47.76	-16.59	21.40	9.78	AV
5	0.765	25.09	56.00	-30.91	15.30	9.80	QP
6	0.765	20.87	46.00	-25.13	11.08	9.80	AV
7	1.577	26.02	56.00	-29.98	16.18	9.84	QP
8	1.577	21.90	46.00	-24.10	12.06	9.84	AV
9	4.489	31.47	56.00	-24.53	21.53	9.95	QP
10	4.489	23.49	46.00	-22.51	13.54	9.95	AV
11	24.039	39.44	60.00	-20.56	29.00	10.44	QP
12	24.039	24.33	50.00	-25.67	13.90	10.44	AV

Note:

1. All Reading Levels are Quasi-Peak and average value.

2. " * ", means this data is the worst emission level.

3. Measurement Level = Reading Level + Correct Factor

3. Peak Power Output

3.1. Test Setup



3.2. Limit

The maximum peak power shall be less 1Watt.

3.3. Test Procedure

Tested according to FHSS test procedure of KDB 558074 section 9 (b for compliance to FCC 47CFR 15.247 requirements.

3.4. Uncertainty

 $\pm 1.19 \ dB$



3.5. Test Result of Peak Power Output

Product	:	Hearing Aid
Test Item	:	Peak Power Output
Test date	:	2020/04/07
Test Mode	:	Mode 1: Transmit - 1Mbps (GFSK)

Channel No.	Frequency	Measurement Level	Required Limit	Result
	(MHz)	(dBm)		
Channel 00	2402	2.77	1 Watt= 30 dBm	Pass
Channel 39	2441	3.95	1 Watt= 30 dBm	Pass
Channel 78	2480	3.91	1 Watt= 30 dBm	Pass



Product	:	Hearing Aid
Test Item	:	Peak Power Output
Test date	:	2020/04/07
Test Mode	:	Mode 2: Transmit - 3Mbps (8DPSK)

Channel No.	Frequency	Measurement Level	Required Limit	Result
	(MHz)	(dBm)		
Channel 00	2402	3.54	1 Watt= 30 dBm	Pass
Channel 39	2441	3.80	1 Watt= 30 dBm	Pass
Channel 78	2480	3.64	1 Watt= 30 dBm	Pass



To Controller

To Receiver

4. Radiated Emission

4.1. Test Setup

Under 30MHz

Test

Receiver



Fully soldered Metal Ground

Above 1GHz



4.2. Limits

General Radiated Emission Limits

Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 20dB below the level of the fundamental or to the general radiated emission limits in paragraph 15.209, whichever is the lesser attenuation.

FCC Part 15 Subpart C Paragraph 15.209 Limits						
Frequency MHz	Field strength	Measurement distance				
141112	(microvolts/meter)	(meter)				
0.009-0.490	2400/F(kHz)	300				
0.490-1.705	24000/F(kHz)	30				
1.705-30	30	30				
30-88	100	3				
88-216	150	3				
216-960	200	3				
Above 960	500	3				

Remarks: 1. RF Voltage $(dB\mu V) = 20 \log RF$ Voltage (uV)

- 2. In the Above Table, the tighter limit applies at the band edges.
- 3. Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system.

4.3. Test Procedure

The EUT was setup according to ANSI C63.10, 2013 and tested compliance to FCC 47CFR 15.247 requirements.

Measuring the frequency range below 1GHz, the EUT is placed on a turn table which is 0.8 meter above ground, when measuring the frequency range above 1GHz, the EUT is placed on a turn table which is 1.5 meter above ground.

The turn table is rotated 360 degrees to determine the position of the maximum emission level.

The EUT was positioned such that the distance from antenna to the EUT was 3 meters.

The antenna is scanned between 1 meter and 4 meters to find out the maximum emission level. This is repeated for both horizontal and vertical polarization of the antenna. In order to find the maximum emission, all of the interface cables were manipulated according to ANSI C63.10: 2013 on radiated measurement.

The resolution bandwidth below 30MHz setting on the field strength meter is 9kHz and 30MHz~1GHz is 120kHz and above 1GHz is 1MHz.

Radiated emission measurements below 30MHz are made using Loop Antenna and 30MHz~1GHz are made using broadband Bilog antenna and above 1GHz are made using Horn Antennas.

The measurement is divided into the Preliminary Measurement and the Final Measurement.

The suspected frequencies are searched for in Preliminary Measurement with the measurement antenna kept pointed at the source of the emission both in azimuth and elevation, with the polarization of the antenna oriented for maximum response. The antenna is pointed at an angle towards the source of the emission, and the EUT is rotated in both height and polarization to maximize the measured emission. The emission is kept within the illumination area of the 3 dB bandwidth of the antenna. The measurement frequency range form 9kHz - 10th Harmonic of fundamental was investigated.

4.4. Uncertainty

± 4.08 dB above 1GHz ± 4.22 dB below 1GHz



4.5. Test Result of Radiated Emission

Product	:	Hearing Aid
Test Item	:	Harmonic Radiated Emission
Test date	:	2020/04/09
Test Mode	:	Mode 1: Transmit - 1Mbps (GFSK)(2402MHz)

Horizontal



No	Frequency	Emission	Limit	Margin	Reading Level	Correct Factor	Detector
	(MHz)	Level	(dBuV/m)	(dB)	(dBuV)	(dB/m)	Туре
		(dBuV/m)					
* 1	4804	67.74	74.00	-6.26	63.14	4.60	РК
2	7206	55.26	74.00	-18.74	43.60	11.66	РК
3	9608	59.54	74.00	-14.46	47.64	11.90	РК

Note:

- 1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- 3. Emission Level = Reading Level + Correct Factor.
- 4. Correct Factor = Antenna factor + Cable loss Amplifier gain.
- 5. The average measurement was not performed when the peak measured data under the limit of average detection.
- 6. The emission levels of other frequencies are very lower than the limit and not show in test report.

Frequency	Peak	Duty Cycle	Measurement	Margin	Limit
	Measurement	Factor	Level		
MHz	dBµV/m	dB	dBuV/m	dB	dBuV/m
Average Detector:					
4804	67.74	-30.716	37.024	-16.976	54.000
7206	55.26	-30.716	24.544	-29.456	54.000
9608	59.54	-30.716	28.824	-25.176	54.000

- 1. AVG Measurement=Peak Measurement + Duty Cycle Correct Factor
- 2. The Duty Cycle is refer to section 11.



- Product : Hearing Aid Test Item : Harmonic Radiated Emission
- Test date : 2020/04/09
- Test Mode : Mode 1: Transmit 1Mbps (GFSK)(2402MHz)



No	Frequency	Emission	Limit	Margin	Reading Level	Correct Factor	Detector
	(MHz)	Level	(dBuV/m)	(dB)	(dBuV)	(dB/m)	Туре
		(dBuV/m)					
* 1	4804	65.02	74.00	-8.98	60.42	4.60	РК
2	7206	58.12	74.00	-15.88	46.46	11.66	РК
3	9608	63.38	74.00	-10.62	51.48	11.90	PK

Note:

- 1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- 3. Emission Level = Reading Level + Correct Factor.
- 4. Correct Factor = Antenna factor + Cable loss Amplifier gain.
- 5. The average measurement was not performed when the peak measured data under the limit of average detection.
- 6. The emission levels of other frequencies are very lower than the limit and not show in test report.

Frequency	Peak	Duty Cycle	Measurement	Margin	Limit
	Measurement	Factor	Level	-	
MHz	dBµV/m	dB	dBuV/m	dB	dBuV/m
Average Detector:					
4804	65.02	-30.716	34.304	-19.696	54.000
7206	58.12	-30.716	27.404	-26.596	54.000
9608	63.38	-30.716	32.664	-21.336	54.000

- 1. AVG Measurement=Peak Measurement + Duty Cycle Correct Factor
- 2. The Duty Cycle is refer to section 11.



Product	:	Hearing Aid
Test Item	:	Harmonic Radiated Emission
Test date	:	2020/04/09
Test Mode	:	Mode 1: Transmit - 1Mbps (GFSK)(2441MHz)



No	Frequency	Emission	Limit	Margin	Reading Level	Correct Factor	Detector
	(MHz)	Level	(dBuV/m)	(dB)	(dBuV)	(dB/m)	Туре
		(dBuV/m)					
* 1	4882	68.71	74.00	-5.29	63.40	5.31	РК
2	7323	59.50	74.00	-14.50	47.73	11.77	РК
3	9764	58.07	74.00	-15.93	46.12	11.95	РК

Note:

- 1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- 3. Emission Level = Reading Level + Correct Factor.
- 4. Correct Factor = Antenna factor + Cable loss Amplifier gain.
- 5. The average measurement was not performed when the peak measured data under the limit of average detection.
- 6. The emission levels of other frequencies are very lower than the limit and not show in test report.

Frequency	Peak	Duty Cycle	Measurement	Margin	Limit
	Measurement	Factor	Level	-	
MHz	dBµV/m	dB	dBuV/m	dB	dBuV/m
Average Detector:					
4882	68.71	-30.716	37.994	-16.006	54.000
7323	59.50	-30.716	28.784	-25.216	54.000
9764	58.07	-30.716	27.354	-26.646	54.000

- 1. AVG Measurement=Peak Measurement + Duty Cycle Correct Factor
- 2. The Duty Cycle is refer to section 11.



- Product : Hearing Aid
- Test Item : Harmonic Radiated Emission
- Test date : 2020/04/09
- Test Mode : Mode 1: Transmit 1Mbps (GFSK)(2441MHz)



No	Frequency	Emission	Limit	Margin	Reading Level	Correct Factor	Detector
	(MHz)	Level	(dBuV/m)	(dB)	(dBuV)	(dB/m)	Туре
		(dBuV/m)					
* 1	4882	68.61	74.00	-5.39	63.30	5.31	РК
2	7323	62.25	74.00	-11.75	50.48	11.77	РК
3	9764	61.67	74.00	-12.33	49.72	11.95	РК

Note:

- 1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- 3. Emission Level = Reading Level + Correct Factor.
- 4. Correct Factor = Antenna factor + Cable loss Amplifier gain.
- 5. The average measurement was not performed when the peak measured data under the limit of average detection.
- 6. The emission levels of other frequencies are very lower than the limit and not show in test report.

Frequency	Peak	Duty Cycle	Measurement	Margin	Limit
	Measurement	Factor	Level	-	
MHz	dBµV/m	dB	dBuV/m	dB	dBuV/m
Average Detector:					
4882	68.61	-30.716	37.894	-16.106	54.000
7323	62.25	-30.716	31.534	-22.466	54.000
9764	61.67	-30.716	30.954	-23.046	54.000

- 1. AVG Measurement=Peak Measurement + Duty Cycle Correct Factor
- 2. The Duty Cycle is refer to section 11.



- Product : Hearing Aid
- Test Item : Harmonic Radiated Emission
- Test date : 2020/04/09
- Test Mode : Mode 1: Transmit 1Mbps (GFSK)(2480MHz)



No	Frequency	Emission	Limit	Margin	Reading Level	Correct Factor	Detector
	(MHz)	Level	(dBuV/m)	(dB)	(dBuV)	(dB/m)	Туре
		(dBuV/m)					
* 1	4960	66.55	74.00	-7.45	60.52	6.03	РК
2	7440	62.17	74.00	-11.83	51.20	10.97	РК
3	9920	62.24	74.00	-11.76	49.48	12.76	PK

Note:

- 1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- 3. Emission Level = Reading Level + Correct Factor.
- 4. Correct Factor = Antenna factor + Cable loss Amplifier gain.
- 5. The average measurement was not performed when the peak measured data under the limit of average detection.
- 6. The emission levels of other frequencies are very lower than the limit and not show in test report.

Frequency	Peak	Duty Cycle	Measurement	Margin	Limit
	Measurement	Factor	Level	-	
MHz	dBµV/m	dB	dBuV/m	dB	dBuV/m
Average Detector:					
4960	66.55	-30.716	35.834	-18.166	54.000
7440	62.17	-30.716	31.454	-22.546	54.000
9920	62.24	-30.716	31.524	-22.476	54.000

- 1. AVG Measurement=Peak Measurement + Duty Cycle Correct Factor
- 2. The Duty Cycle is refer to section 11.



- Product : Hearing Aid
- Test Item : Harmonic Radiated Emission
- Test date : 2020/04/09
- Test Mode : Mode 1: Transmit 1Mbps (GFSK)(2480MHz)



No	Frequency	Emission	Limit	Margin	Reading Level	Correct Factor	Detector
	(MHz)	Level	(dBuV/m)	(dB)	(dBuV)	(dB/m)	Туре
		(dBuV/m)					
* 1	4960	67.96	74.00	-6.04	61.93	6.03	РК
2	7440	63.25	74.00	-10.75	52.28	10.97	РК
3	9920	65.14	74.00	-8.86	52.38	12.76	РК

Note:

- 1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- 3. Emission Level = Reading Level + Correct Factor.
- 4. Correct Factor = Antenna factor + Cable loss Amplifier gain.
- 5. The average measurement was not performed when the peak measured data under the limit of average detection.
- 6. The emission levels of other frequencies are very lower than the limit and not show in test report.

Frequency	Peak	Duty Cycle	Measurement	Margin	Limit
	Measurement	Factor	Level	-	
MHz	dBµV/m	dB	dBuV/m	dB	dBuV/m
Average Detector:					
4960	67.96	-30.716	37.244	-16.756	54.000
7440	63.25	-30.716	32.534	-21.466	54.000
9920	65.14	-30.716	34.424	-19.576	54.000

- 1. AVG Measurement=Peak Measurement + Duty Cycle Correct Factor
- 2. The Duty Cycle is refer to section 11.



Product :	Hearing Aid
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- Test Item : Harmonic Radiated Emission
- Test date : 2020/04/09
- Test Mode : Mode 2: Transmit 3Mbps (8DPSK)(2402MHz)



No	Frequency	Emission	Limit	Margin	Reading Level	Correct Factor	Detector
	(MHz)	Level	(dBuV/m)	(dB)	(dBuV)	(dB/m)	Туре
		(dBuV/m)					
* 1	4804	63.79	74.00	-10.21	59.19	4.60	РК
2	7206	52.75	74.00	-21.25	41.09	11.66	РК
3	9608	55.84	74.00	-18.16	43.94	11.90	РК

Note:

- 1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- 3. Emission Level = Reading Level + Correct Factor.
- 4. Correct Factor = Antenna factor + Cable loss Amplifier gain.
- 5. The average measurement was not performed when the peak measured data under the limit of average detection.
- 6. The emission levels of other frequencies are very lower than the limit and not show in test report.

Frequency	Peak	Duty Cycle	Measurement	Margin	Limit
	Measurement	Factor	Level	-	
MHz	dBµV/m	dB	dBuV/m	dB	dBuV/m
Average Detector:					
4804	63.79	-30.645	33.145	-20.855	54.000
7206	52.75	-30.645	22.105	-31.895	54.000
9608	55.84	-30.645	25.195	-28.805	54.000

- 1. AVG Measurement=Peak Measurement + Duty Cycle Correct Factor
- 2. The Duty Cycle is refer to section 11.



Product :	Hearing Aid
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- Test Item : Harmonic Radiated Emission
- Test date : 2020/04/09
- Test Mode : Mode 2: Transmit 3Mbps (8DPSK)(2402MHz)



No	Frequency	Emission	Limit	Margin	Reading Level	Correct Factor	Detector
	(MHz)	Level	(dBuV/m)	(dB)	(dBuV)	(dB/m)	Туре
		(dBuV/m)					
* 1	4804	60.97	74.00	-13.03	56.37	4.60	РК
2	7206	42.93	74.00	-31.07	31.27	11.66	РК
3	9608	48.42	74.00	-25.58	36.52	11.90	РК

Note:

- 1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- 3. Emission Level = Reading Level + Correct Factor.
- 4. Correct Factor = Antenna factor + Cable loss Amplifier gain.
- 5. The average measurement was not performed when the peak measured data under the limit of average detection.
- 6. The emission levels of other frequencies are very lower than the limit and not show in test report.

Frequency	Peak	Duty Cycle	Measurement	Margin	Limit
	Measurement	Factor	Level	-	
MHz	dBµV/m	dB	dBuV/m	dB	dBuV/m
Average Detector:					
4804	60.97	-30.645	30.325	-23.675	54.000
7206	42.93	-30.645	12.285	-41.715	54.000
9608	48.42	-30.645	17.775	-36.225	54.000

- 1. AVG Measurement=Peak Measurement + Duty Cycle Correct Factor
- 2. The Duty Cycle is refer to section 11.



Product	:	Hearing Aid
Test Item	:	Harmonic Radiated Emission
Test date	:	2020/04/09
Test Mode	:	Mode 2: Transmit - 3Mbps (8DPSK) (2441MHz)



No	Frequency	Emission	Limit	Margin	Reading Level	Correct Factor	Detector
	(MHz)	Level	(dBuV/m)	(dB)	(dBuV)	(dB/m)	Туре
		(dBuV/m)					
* 1	4882	60.60	74.00	-13.40	55.29	5.31	РК
2	7323	43.85	74.00	-30.15	32.08	11.77	РК
3	9764	45.51	74.00	-28.49	33.56	11.95	РК

Note:

- 1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- 3. Emission Level = Reading Level + Correct Factor.
- 4. Correct Factor = Antenna factor + Cable loss Amplifier gain.
- 5. The average measurement was not performed when the peak measured data under the limit of average detection.
- 6. The emission levels of other frequencies are very lower than the limit and not show in test report.

Frequency	Peak	Duty Cycle	Measurement	Margin	Limit
	Measurement	Factor	Level	-	
MHz	dBµV/m	dB	dBuV/m	dB	dBuV/m
Average Detector:					
4882	60.6	-30.645	29.955	-24.045	54.000
7323	43.85	-30.645	13.205	-40.795	54.000
9764	45.51	-30.645	14.865	-39.135	54.000

- 1. AVG Measurement=Peak Measurement + Duty Cycle Correct Factor
- 2. The Duty Cycle is refer to section 11.



Product	:	Hearing Aid
Test Item	:	Harmonic Radiated Emission
Test date	:	2020/04/09
Test Mode	:	Mode 2: Transmit - 3Mbps (8DPSK) (2441MHz)



No	Frequency	Emission	Limit	Margin	Reading Level	Correct Factor	Detector
	(MHz)	Level	(dBuV/m)	(dB)	(dBuV)	(dB/m)	Туре
		(dBuV/m)					
* 1	4882	62.38	74.00	-11.62	57.07	5.31	РК
2	7323	45.76	74.00	-28.24	33.99	11.77	РК
3	9764	50.29	74.00	-23.71	38.34	11.95	PK

Note:

- 1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- 3. Emission Level = Reading Level + Correct Factor.
- 4. Correct Factor = Antenna factor + Cable loss Amplifier gain.
- 5. The average measurement was not performed when the peak measured data under the limit of average detection.
- 6. The emission levels of other frequencies are very lower than the limit and not show in test report.

Frequency	Peak	Duty Cycle	Measurement	Margin	Limit
	Measurement	Factor	Level	-	
MHz	dBµV/m	dB	dBuV/m	dB	dBuV/m
Average Detector:					
4882	62.38	-30.645	31.735	-22.265	54.000
7323	45.76	-30.645	15.115	-38.885	54.000
9764	50.29	-30.645	19.645	-34.355	54.000

- 1. AVG Measurement=Peak Measurement + Duty Cycle Correct Factor
- 2. The Duty Cycle is refer to section 11.



- Product : Hearing Aid
- Test Item : Harmonic Radiated Emission
- Test date : 2020/04/09
- Test Mode : Mode 2: Transmit 3Mbps (8DPSK) (2480MHz)



No	Frequency	Emission	Limit	Margin	Reading Level	Correct Factor	Detector
	(MHz)	Level	(dBuV/m)	(dB)	(dBuV)	(dB/m)	Туре
		(dBuV/m)					
* 1	4960	58.57	74.00	-15.43	52.54	6.03	РК
2	7440	49.77	74.00	-24.23	38.80	10.97	РК
3	9920	44.31	74.00	-29.69	31.55	12.76	РК

Note:

- 1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- 3. Emission Level = Reading Level + Correct Factor.
- 4. Correct Factor = Antenna factor + Cable loss Amplifier gain.
- 5. The average measurement was not performed when the peak measured data under the limit of average detection.
- 6. The emission levels of other frequencies are very lower than the limit and not show in test report.

Frequency	Peak	Duty Cycle	Measurement	Margin	Limit
	Measurement	Factor	Level	-	
MHz	dBµV/m	dB	dBuV/m	dB	dBuV/m
Average Detector:					
4960	58.57	-30.645	27.925	-26.075	54.000
7440	49.77	-30.645	19.125	-34.875	54.000
9920	44.31	-30.645	13.665	-40.335	54.000

- 1. AVG Measurement=Peak Measurement + Duty Cycle Correct Factor
- 2. The Duty Cycle is refer to section 11.



- Product : Hearing Aid
- Test Item : Harmonic Radiated Emission
- Test date : 2020/04/09
- Test Mode : Mode 2: Transmit 3Mbps (8DPSK) (2480MHz)



No	Frequency	Emission	Limit	Margin	Reading Level	Correct Factor	Detector
	(MHz)	Level	(dBuV/m)	(dB)	(dBuV)	(dB/m)	Туре
		(dBuV/m)					
* 1	4960	59.58	74.00	-14.42	53.55	6.03	РК
2	7440	50.62	74.00	-23.38	39.65	10.97	РК
3	9920	50.03	74.00	-23.97	37.27	12.76	PK

Note:

- 1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- 3. Emission Level = Reading Level + Correct Factor.
- 4. Correct Factor = Antenna factor + Cable loss Amplifier gain.
- 5. The average measurement was not performed when the peak measured data under the limit of average detection.
- 6. The emission levels of other frequencies are very lower than the limit and not show in test report.

Frequency	Peak	Duty Cycle	Measurement	Margin	Limit
	Measurement	Factor	Level	-	
MHz	dBµV/m	dB	dBuV/m	dB	dBuV/m
Average Detector:					
4960	59.58	-30.645	28.935	-25.065	54.000
7440	50.62	-30.645	19.975	-34.025	54.000
9920	50.03	-30.645	19.385	-34.615	54.000

- 1. AVG Measurement=Peak Measurement + Duty Cycle Correct Factor
- 2. The Duty Cycle is refer to section 11.



Product :	Hearing Aid
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- Test Item : General Radiated Emission
- Test date : 2020/04/09
- Test Mode : Mode 1: Transmit 1Mbps (GFSK) (2441MHz)



No	Frequency	Emission	Limit	Margin	Reading Level	Correct Factor	Detector
	(MHz)	Level	(dBuV/m)	(dB)	(dBuV)	(dB/m)	Туре
		(dBuV/m)					
1	336.464	31.53	46.00	-14.47	37.76	-6.23	QP
2	443.304	34.18	46.00	-11.82	36.14	-1.96	QP
3	578.261	39.41	46.00	-6.59	40.43	-1.02	QP
* 4	602.159	41.31	46.00	-4.69	41.68	-0.37	QP
5	651.362	36.53	46.00	-9.47	38.35	-1.82	QP
6	742.739	34.03	46.00	-11.97	34.73	-0.70	QP

- 1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Emission Level = Reading Level + Correct Factor.
- 3. Correct Factor = Antenna factor + Cable loss Amplifier gain.
- 4. The emission levels of other frequencies are very lower than the limit and not show in test report.
- 5. No emission found between lowest internal used/generated frequency to 30MHz.



Product	:	Hearing Aid
Test Item	:	General Radiated Emission
Test date	:	2020/04/09
Test Mode	:	Mode 1: Transmit - 1Mbps (GFSK) (2441MHz)



No	Frequency	Emission	Limit	Margin	Reading Level	Correct Factor	Detector
	(MHz)	Level	(dBuV/m)	(dB)	(dBuV)	(dB/m)	Туре
		(dBuV/m)					
1	53.899	25.90	40.00	-14.10	37.20	-11.30	QP
2	353.333	28.84	46.00	-17.16	33.40	-4.56	QP
3	492.507	34.60	46.00	-11.40	38.46	-3.86	QP
* 4	602.159	37.64	46.00	-8.36	38.01	-0.37	QP
5	742.739	33.65	46.00	-12.35	34.35	-0.70	QP
6	832.71	33.15	46.00	-12.85	34.75	-1.60	QP

- 1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Emission Level = Reading Level + Correct Factor.
- 3. Correct Factor = Antenna factor + Cable loss Amplifier gain.
- 4. The emission levels of other frequencies are very lower than the limit and not show in test report.
- 5. No emission found between lowest internal used/generated frequency to 30MHz.



Product	:	Hearing Aid
Test Item	:	General Radiated Emission
Test date	:	2020/04/09
Test Mode	:	Mode 2: Transmit - 3Mbps (8DPSK) (2441



MHz)

No	Frequency	Emission	Limit	Margin	Reading Level	Correct Factor	Detector
	(MHz)	Level	(dBuV/m)	(dB)	(dBuV)	(dB/m)	Туре
		(dBuV/m)					
1	336.464	31.56	46.00	-14.44	37.79	-6.23	QP
2	444.71	32.01	46.00	-13.99	34.03	-2.02	QP
3	578.261	38.03	46.00	-7.97	39.05	-1.02	QP
* 4	602.159	40.45	46.00	-5.55	40.82	-0.37	QP
5	626.058	37.97	46.00	-8.03	39.36	-1.39	QP
6	742.739	34.29	46.00	-11.71	34.99	-0.70	QP

- 1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Emission Level = Reading Level + Correct Factor.
- 3. Correct Factor = Antenna factor + Cable loss Amplifier gain.
- 4. The emission levels of other frequencies are very lower than the limit and not show in test report.
- 5. No emission found between lowest internal used/generated frequency to 30MHz.



Product:Hearing AidTest Item:General Radiated EmissionTest date:2020/04/09Test Mode:Mode 2: Transmit - 3Mbps (8DPSK) (2441MHz)

Vertical



No	Frequency	Emission	Limit	Margin	Reading Level	Correct Factor	Detector
	(MHz)	Level	(dBuV/m)	(dB)	(dBuV)	(dB/m)	Туре
		(dBuV/m)					
1	135.435	22.48	43.50	-21.02	31.26	-8.78	QP
2	373.014	28.37	46.00	-17.63	33.08	-4.71	QP
3	492.507	36.27	46.00	-9.73	40.13	-3.86	QP
* 4	602.159	36.62	46.00	-9.38	36.99	-0.37	QP
5	742.739	35.12	46.00	-10.88	35.82	-0.70	QP
6	832.71	34.11	46.00	-11.89	35.71	-1.60	QP

- 1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Emission Level = Reading Level + Correct Factor.
- 3. Correct Factor = Antenna factor + Cable loss Amplifier gain.
- 4. The emission levels of other frequencies are very lower than the limit and not show in test report.
- 5. No emission found between lowest internal used/generated frequency to 30MHz.
5. **RF Antenna Conducted Test**

5.1. Test Setup



5.2. Limits

According to FCC Section 15.247(d). In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, the attenuation required under this paragraph shall be 30 dB instead of 20 dB.

5.3. Test Procedure

Tested according to FHSS test procedure of KDB558074 section 9 b) for compliance to FCC 47CFR 15.247 requirements.

5.4. Uncertainty

± 1.20dB

5.5. Test Result of RF Antenna Conducted Test

Product	:	Hearing Aid
Test Item	:	RF Antenna Conducted Test
Test date	:	2020/04/16
Test Mode	:	Mode 1: Transmit - 1Mbps (GFSK)

Figure Channel 00:







Figure Channel 78:



Note: The above test pattern is synthesized by multiple of the frequency range.



- Product : Hearing Aid
- Test Item : RF Antenna Conducted Test
- Test date : 2020/04/16

:

- Test Mode
- Mode 2: Transmit 3Mbps (8DPSK)

Figure Channel 00:





Figure Channel 78:



Note: The above test pattern is synthesized by multiple of the frequency range.



6. Band Edge

6.1. Test Setup

RF Radiated Measurement:

Above 1GHz



RF Conducted Measurement



6.2. Limit

According to FCC Section 15.247(d). In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in Section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a) (see Section 15.205(c)).

6.3. Test Procedure

The EUT is placed on a turn table which is 1.5 meter above ground. The turn table is rotated 360 degrees to determine the position of the maximum emission level. The EUT was positioned such that the distance from antenna to the EUT was 3 meters.

The antenna can move up and down between 1 meter and 4 meters to find out the maximum emission level.

Both horizontal and vertical polarization of the antenna are set on measurement. In order to find the maximum emission, all of the interface cables must be manipulated according to ANSI C63.10: 2013 on radiated measurement.

The bandwidth setting below 1GHz and above 1GHz on the field strength meter is 120 kHz and 1MHz, respectively.

6.4. Uncertainty

± 4.08 dB above 1GHz ± 4.22 dB below 1GHz



6.5. Test Result of Band Edge

Product	:	Hearing Aid
Test Item	:	Band Edge
Test date	:	2020/04/07
Test Mode	:	Mode 1: Transmit - 1Mbps (GFSK) (2402MHz)

Horizontal



No	Frequency	Emission	Limit	Margin	Reading Level	Correct Factor	Detector
	(MHz)	Level	(dBuV/m)	(dB)	(dBuV)	(dB/m)	Туре
		(dBuV/m)					
1	2390	44.71	74.00	-29.29	46.26	-1.55	РК
2	2400	68.70			70.31	-1.61	РК
! 3	2402.174	95.40			97.02	-1.62	РК

Note:

- 1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- 3. Emission Level = Reading Level + Correct Factor.
- 4. The average measurement was not performed when the peak measured data under the limit of average detection.

Channel No.	Frequency (MHz)	Peak Measurement (dBµV/m)	Duty Cycle Factor (dB)	Measurement (dBµV/m)	Margin (dB)	Limit (dBuV/m)
00 (Average)	2390	44.71	-30.716	13.994	-40.006	54.000
00 (Average)	2400	68.70	-30.716	37.984		
00 (Average)	2402.174	95.40	-30.716	64.684		

- 1. Average Measurement=Peak Measurement + Duty Cycle Factor
- 2. The Duty Cycle is refer to section 11.

Product	:	Hearing Aid
Test Item	:	Band Edge
Test date	:	2020/04/07
Test Mode	:	Mode 1: Transmit - 1Mbps (GFSK) (2402MHz)

Vertical



No	Frequency	Emission	Limit	Margin	Reading Level	Correct Factor	Detector
	(MHz)	Level	(dBuV/m)	(dB)	(dBuV)	(dB/m)	Туре
		(dBuV/m)					
1	2390	43.95	74.00	-30.05	45.50	-1.55	РК
2	2400	61.26			62.87	-1.61	РК
! 3	2402.174	87.69			89.31	-1.62	РК

Note:

- 1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- 3. Emission Level = Reading Level + Correct Factor.
- 4. The average measurement was not performed when the peak measured data under the limit of average detection.

Channel No.	Frequency (MHz)	Peak Measurement (dBµV/m)	Duty Cycle Factor (dB)	Measurement (dBµV/m)	Margin (dB)	Limit (dBuV/m)
00 (Average)	2390	43.95	-30.716	13.234	-40.766	54.000
00 (Average)	2400	61.26	-30.716	30.544		
00 (Average)	2402.174	87.69	-30.716	56.974		

- 1. Average Measurement=Peak Measurement + Duty Cycle Factor
- 2. The Duty Cycle is refer to section 11.



:	Hearing Aid
:	Band Edge
:	2020/04/07
:	Mode 1: Transmit - 1Mbps (GFSK) (2480MHz)
	: : :

Horizontal



No	Frequency	Emission	Limit	Margin	Reading Level	Correct Factor	Detector
	(MHz)	Level	(dBuV/m)	(dB)	(dBuV)	(dB/m)	Туре
		(dBuV/m)					
! 1	2480.167	98.47			100.57	-2.10	РК
2	2483.5	67.92	74.00	-6.08	70.04	-2.12	РК

Note:

- 1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- 3. Emission Level = Reading Level + Correct Factor.
- 4. The average measurement was not performed when the peak measured data under the limit of average detection.

Channel No.	Frequency (MHz)	Peak Measurement (dBµV/m)	Duty Cycle Factor (dB)	Measurement (dBµV/m)	Margin (dB)	Limit (dBuV/m)
78 (Average)	2480.167	98.47	-30.716	67.754		
78 (Average)	2483.5	67.92	-30.716	37.204	-16.796	54.000

- 1. Average Measurement=Peak Measurement + Duty Cycle Factor
- 2. The Duty Cycle is refer to section 11.



- Product:Hearing AidTest Item:Band Edge
- Test date : 2020/04/07

Test Mode : Mode 1: Transmit - 1Mbps (GFSK) (2480MHz)

Vertical



No	Frequency	Emission	Limit	Margin	Reading Level	Correct Factor	Detector
	(MHz)	Level	(dBuV/m)	(dB)	(dBuV)	(dB/m)	Туре
		(dBuV/m)					
! 1	2480.167	88.54			90.64	-2.10	РК
2	2483.5	57.96	74.00	-16.04	60.08	-2.12	PK

Note:

- 1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- 3. Emission Level = Reading Level + Correct Factor.
- 4. The average measurement was not performed when the peak measured data under the limit of average detection.

Channel No.	Frequency (MHz)	Peak Measurement (dBµV/m)	Duty Cycle Factor (dB)	Measurement (dBµV/m)	Margin (dB)	Limit (dBuV/m)
78 (Average)	2480.167	88.54	-30.716	57.824		
78 (Average)	2483.5	57.96	-30.716	27.244	-26.756	54.000

- 1. Average Measurement=Peak Measurement + Duty Cycle Factor
- 2. The Duty Cycle is refer to section 11.



Product : Hearing Aid

:

- Test Item : Band Edge
- Test date : 2020/04/07
- Test Mode

Mode 2: Transmit - 3Mbps (8DPSK) (2402MHz)

Horizontal



No	Frequency	Emission	Limit	Margin	Reading Level	Correct Factor	Detector
	(MHz)	Level	(dBuV/m)	(dB)	(dBuV)	(dB/m)	Туре
		(dBuV/m)					
1	2390	45.24	74.00	-28.76	46.79	-1.55	РК
2	2400	72.57			74.18	-1.61	РК
! 3	2402.029	95.42			97.04	-1.62	РК

Note:

- 1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- 3. Emission Level = Reading Level + Correct Factor.
- 4. The average measurement was not performed when the peak measured data under the limit of average detection.

Channel No.	Frequency (MHz)	Peak Measurement (dBµV/m)	Duty Cycle Factor (dB)	Measurement (dBµV/m)	Margin (dB)	Limit (dBuV/m)
00 (Average)	2390	45.24	-30.645	14.595	-39.405	54.000
00 (Average)	2400	72.57	-30.645	41.925		
00 (Average)	2402.029	95.42	-30.645	64.775		

- 1. Average Measurement=Peak Measurement + Duty Cycle Factor
- 2. The Duty Cycle is refer to section 11.



Product:Hearing AidTest Item:Band EdgeTest date:2020/04/07Test Mode:Mode 2: Transmit - 3Mbps (8DPSK) (2402MHz)

Vertical



No	Frequency	Emission	Limit	Margin	Reading Level	Correct Factor	Detector
	(MHz)	Level	Level (dBuV/m) (dB) (dBuV)		(dB/m)	Туре	
		(dBuV/m)					
1	2390	44.29	74.00	-29.71	45.84	-1.55	РК
2	2400	64.50			66.11	-1.61	РК
! 3	2402.029	86.90			88.52	-1.62	PK

Note:

- 1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- 3. Emission Level = Reading Level + Correct Factor.
- 4. The average measurement was not performed when the peak measured data under the limit of average detection.

Channel No.	Frequency (MHz)	Peak Measurement (dBµV/m)	Duty Cycle Factor (dB)	Measurement (dBµV/m)	Margin (dB)	Limit (dBuV/m)
00 (Average)	2390	44.29	-30.645	13.645	-40.355	54.000
00 (Average)	2400	64.50	-30.645	33.855		
00 (Average)	2402.029	86.90	-30.645	56.255		

Note:

1. Average Measurement=Peak Measurement + Duty Cycle Factor

2. The Duty Cycle is refer to section 11.

DEKRA

Product : Hearing Aid

:

- Test Item : Band Edge
- Test date : 2020/04/07

Test Mode

Mode 2: Transmit - 3Mbps (8DPSK) (2480MHz)

Horizontal



No	Frequency	Emission	Limit	Margin	Reading Level	Correct Factor	Detector
	(MHz)	Level	(dBuV/m)	(dB)	(dBuV)	(dB/m)	Туре
		(dBuV/m)					
! 1	2479.877	98.04			100.14	-2.10	РК
2	2483.5	71.38	74.00	-2.62	73.50	-2.12	РК

Note:

- 1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- 3. Emission Level = Reading Level + Correct Factor.
- 4. The average measurement was not performed when the peak measured data under the limit of average detection.

Channel No.	Frequency (MHz)	Peak Measurement (dBµV/m)	Duty Cycle Factor (dB)	Measurement (dBµV/m)	Margin (dB)	Limit (dBuV/m)
78 (Average)	2479.877	98.04	-30.645	67.395		
78 (Average)	2483.5	71.38	-30.645	40.735	-13.265	54.000

- 1. Average Measurement=Peak Measurement + Duty Cycle Factor
- 2. The Duty Cycle is refer to section 11.



Product : Hearing Aid Test Item : Band Edge

:

Test date : 2020/04/07

Test Mode

Mode 2: Transmit - 3Mbps (8DPSK) (2480MHz)

Vertical



No	Frequency	Emission	Limit	Margin	Reading Level	Correct Factor	Detector
	(MHz)	Level	(dBuV/m)	(dB)	(dBuV)	(dB/m)	Туре
		(dBuV/m)					
! 1	2480.022	87.82			89.92	-2.10	РК
2	2483.5	61.07	74.00	-12.93	63.19	-2.12	РК

Note:

- 1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- 3. Emission Level = Reading Level + Correct Factor.
- 4. The average measurement was not performed when the peak measured data under the limit of average detection.

Channel No.	Frequency (MHz)	Peak Measurement (dBµV/m)	Duty Cycle Factor (dB)	Measurement (dBµV/m)	Margin (dB)	Limit (dBuV/m)
78 (Average)	2480.022	87.82	-30.645	57.175		
78 (Average)	2483.5	61.07	-30.645	30.425	-23.575	54.000

- 1. Average Measurement=Peak Measurement + Duty Cycle Factor
- 2. The Duty Cycle is refer to section 11.



Product	:	Hearing Aid
Test Item	:	Band Edge
Test Mode	:	Mode 1: Transmit - 1Mbps (GFSK)(Hopping off)
Test date	:	2020/04/07

Measurement Level	Result
Δ (dB)	
> 20	PASS

Figure Channel 00:

enter F	req 2.39	7000000 GH	Z O: Fael G	Trig Frees	Run dB	Avg Typ	e: Log-Pwr	400-300-401 404 1 1	CR 133436	Frequency
0 dB(div	Ref Offs Ref 10.	rt0.5 dB 50 dBm					Mkr3 2.3	399 993 -30.	90 GHz 26 dBm	Auto Tune
1500								X	38. 0 5	Center Free 2.397000000 GH
29.5 39.5						A	1.	-	hope	Start Fre 2.390000000 GH
99.5 10-5		mon	march	homen	wy.	C.V.				Stop Fre 2.404000000 GH
tart 2.39 Res BW	0000 GH 100 kHz	z	#VBV	V 300 kHz		Sweep ((\$wp) 2.0	itop 2.40 867 ms (4	4000 GHz 10001 pts)	CF Ste 1.400000 MH
1 N		2,401 838 40	GHz	3.05 dB	100 AU	C.I.C.I. 12	DIGINARY IN	FLORET	SHWIDE C	Auto Ma
2 N N 4 5 6	ł	2,400,000,00 2,399,993,90	GHz GHz	-30.30 dBr -30.26 dBr	1					Freq Offse 0 H
7 8 9 10										
U.									10.0	

Figure Channel 78:

inter Freq 2.489	000000 GHz	Trig Free Sun	Avg Type: Log-Pwr	NACE 123456	Frequency				
Ref Offset	Ref Offset 0.5 dB Mkr3 2,483 509 35 GHz Bef 0 Set 0.5 dB								
					Center Fre 2.489000000 GH				
	ulu a			_	Start Fre 2.478000000 GH				
15 13	and a	rterrichtung	mi Anno anno anno anno anno anno anno anno		Stop Fre 2.50000000 GH				
art 2.47800 GHz tes BW 100 kHz	#VB	W 300 kHz	Sweep (#Swp) 2.66	top 2.50000 GHz 7 ms (40001 pts)	CF Ste 2.200000 MH				
NAMES OF TAXABLE PARTY.	2.480 157 10 GHz	6.52 dBm	CHARLEN PERMISSION	ASCIDIWALK	Auto Na				
N T T	2,483 500 00 GHz 2,483 509 35 GHz	37.77 dBm 37.86 dBm			Freq Offse 0 H				
				118					



:	Hearing Aid
:	Band Edge
:	Mode 2: Transmit - 3Mbps (8DPSK) (Hopping off)
:	2020/04/07
	: : :

Measurement Level	Result
Δ (dB)	
> 20	PASS

Figure Channel 00:

	ni sectores		- 25	-	15.005	- 25	veri 54	dyret - b	n And	pactrue	Here !
Apr 07, 2020	05-55-14 PM 95AC	Log-Pwr	Avg Type	Run	Trig Free	Z	00000 GH	2,3970	eq 2	r Fre	ente
15 GHz	99 992 -26.9	lkr3 2.3	N	40	ØAtten: 20	aistow	iii 5 dB. dBm	Offset(Ref	dia.	a dev
10.50 Am	MA										500 500
mar 1		Jutan	A						+		96 - 96 -
				- A	فميعردحساء	is, mark	- Hin - His	al and	844	-	95 95 95
000 GHz 001 pts)	top 2.404 67 ms (40	St Swp) 2.6	Sweep (#		300 kHz	#VBW	13	GHz kHz	1000 100 k	2.390 BW 1	tart Res
TWILE S	FAR: DO	101353103		n n n	3.50 dB 27.03 dB -25.95 dB	GHz GHz GHz	2.402 156 5 2.400 000 0 2.399 992 1		r r r		
		_		-		-			Ħ		8
	000 GHz	000514 W4(p 07 2007 9444 1 2 3 4 1 4 rent 2 3 3 4 1 4 99 992 15 GHz -26.95 dBm 99 992 15 GHz 60 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Contraction (Contraction)	Aug Type: Leg Par Aug Type: Leg Par Mkr3 2.399 992 15 GHz -28.95 dBm -28.95 dBm -28.9	Avg Type: Leg-Par Bun dil Mkr3 2.399 992 15 GHz -28.95 dBm -28.95 dBm Stop 2.404000 GHz Sweep (#Swp) 2.667 ms (40001 pts)	Billion Print Aug Type: Leg Per Mag Type: Leg Per Type Pres Bun Aug Type: Leg Per Type Pres Bun Per P 80 NBM Mkr3 2.399 992 15 GHz -26.95 dBm 300 kHz Stop 2.404000 GHz Sweep (#Swp) 2.00 kHz Stop 2.404000 GHz Sweep (#Swp) 3.50 dBm 3.50 dBm	1 Aug Type: Leg Part Cools: 44 Medpet7: 2000 1 Trig: Free Run Atten: 20 dB Aug Type: Leg Part Trig: Statution Mkr3 2.399 992 15 GHz -26.95 dBm -26.95 dBm 3 000 fdi 000 fdi 3 000 fdi 000 fdi 42 000 fdi 000 fdi 5 000 fdi 000 fdi 25 50 dBm 000 fdi 000 fdi 3 500 fbm 000 fdi 3 350 fbm 000 fdi 3 000 fdi 000 fdi 3 350 fbm 000 fdi 3 350 fbm 000 fdi 3 350 fbm 000 fdi	Martin Martin<	Arritic Sector Store Frid Sto	Address Sector 14 rq 2.397000000 GHz BWD Fait (Fedazlaw) Trig Free Run Mittee: 20 dB Arg Type: Leg Pair Provide 12 3 + 1 C Trig Free Run Mittee: 20 dB Mkr3 2.399 992 15 GHz -26.95 dBm Ref 10.50 dBm -26.95 dBm -26.95 dBm 000 GHz 00 kHz WBW 300 kHz Stop 2.404000 GHz Sweep (#Swp) 2.667 ms (40001 pts) 1 2.402 105 55 GHz 2.400 000 GHz 1 3 2 2.402 105 55 GHz 2.400 000 GHz 2.400 000 00 Hz 3	Sectors Address 1.54 Sectors 1.54 Sectors 1.54 arr Frag 2.397000000 GHz PIESTant Trig Free Stan Avance: 20 dB Avg Type: Leg Per Avg Type: Leg Per Type: Leg

Figure Channel 78:

inter Freq 2.4	89000000 G	Hz WC Fast C	Trig Free R	Av	Type: Log-Pwr	BOA TY	CI 113416 TH MAMMAN	Frequency
Ref Of	ii iset0.5 dB	Gainlow	#Atten: 20 d	1	Mkr3 2.	483 523	10 GHz	Auto Tur
dBidiv Ref 1	0.50 dBm				1556.000000	-43.	12 dBm	
0 1								Center Fr
11		_						2.489000000 G
5					_		21.32.004	
and the	AN.						1 2	2000 - 2000 - 2000 - 2000 - 2000 - 2000 - 2000 - 2000 - 2000 - 2000 - 2000 - 2000 - 2000 - 2000 - 2000 - 2000 -
	1 13	1						Start Fr
	115 C.							2.478000000 G
		Sec. 11	- 1				1 2	
			Law warman	man	-	14.11		Stop Fr
5							- cont	2.500000000 G
	0	1			1.5	1.	1 2	11111111111
art 2.47800 GH	iz					Stop 2.5	0000 GHz	CF St
es BW 100 kH	z	#VB	W 300 kHz	Swe	ep (#Swp) 2.	667 ms (4	0001 pts)	2.200000 M
10000 1000 1000			102.0	4002100	COMPANY OF	R. State	onware -	Auto M
NI	2,480 157 1	10 GHz	5.00 dBm					
NT	2,403 623	10 GHz	-43.12 dBm					Freq Offs
	100121313205				-			0
		-			-			
						-		
					-		+	
								-



Product	:	Hearing Aid
Test Item	:	Band Edge
Test Mode	:	Mode 1: Transmit - 1Mbps (GFSK)(Hopping on)
Test date	:	2020/04/07

Measurement Level	Result
Δ (dB)	
> 20	PASS

Figure Channel 00 Hopping:

plant Spectrum Analys	et chest bet			a construction and a second	
enter Freq 2.3	397000000 GHz	Trin Trin Day	Avg Type: Log-Pwr	105/29-05 PM Apr 07, 2020 WACE 1 2 3 4 5 6	Frequency
MALOD 11927-1410	PMO: Fail C IFGails1.ow	#Atten: 20 dB	60500 85	DET	
Ref Of 0 dBidiv Ref 1	fset0.5 dB 10.50 dBm		Mkr3 2.3	99 983 05 GHz -36.21 dBm	Auto Turk
500 1 50 1 50				M	Center Fre 2.397000000 GH
95			A Real Provention		Start Fre 2.390000000 GH
15	Marine Marine Marine	-man hange	1 shirt year		Stop Fre 2.404000000 GH
tart 2.390000 G Res BW 100 kH	iHz tz wver	W 300 kHz	Sweep (#Swp) 2.6	top 2.404000 GHz 67 ms (40001 pts)	CF Ste 1.400000 MH
	1 400 000 SE CLU	200.48-	CONTRACTOR DESIGNATION	INCIDE VILLE	Auto Ma
2 N 1 F 4 6	2,400,000,00 GHz 2,400,000,00 GHz 2,399,913,05 GHz	42.22 dBm 36.21 dBm			Freq Offse 0 H
6 7 8 9					
				11.0	
mi).			ETATUS.		

Figure Channel 78 Hopping:

enter Freq 2.4890000	PNO: Faet	Trig Free Sun	Avg Type: Log-Pwr	105x4531 PM Apr 07,2000 95x63 5 3 3 4 5 6 1VM MWWWWWWW pert # N/V N N/N	Frequency
Ref Offset 0.5 dB dBidiv Ref 10.50 dBm	In Gassillow	protection and the	Mkr3 2.	483 535 75 GHz -40.51 dBm	Auto Tune
				012104	Center Fre 2.485000000 GH
	12 Vinas				Start Fre 2.47800000 GH
9.5	the street	nnun	And marken March	ليها المسار ال	Stop Fre 2.50000000 GH
tart 2.47800 GHz Res BW 100 kHz	#VBW	300 kHz	Sweep (#Swp) 2	Stop 2.50000 GHz .667 ms (40001 pts)	CF Ste 2.200000 MH
			STATION - PERMIT	a and a second sec	<u>Auto</u> Ma
1 N 1 F 2470 2 N 1 F 2483 8 N 1 F 2463 4 5	1 145 75 GHz 1 600 00 GHz 1 535 75 GHz	6.18 dBm 43.50 dBm 40.51 dBm			Freq Offse 0 H
6 7 8 9					
1					



Product	:	Hearing Aid
Test Item	:	Band Edge
Test Mode	:	Mode 2: Transmit - 3Mbps (8DPSK) (Hopping on)
Test date	:	2020/04/07

Measurement Level	Result
Δ (dB)	
> 20	PASS

Figure Channel 00 Hopping:

editorit Spectrum Analys	et - Sweet Se	1100 Section			
Center Freq 2.3	97000000 GHz	Trig Free Run	Avg Type: Log-Pwr	105:57:54 PM Apr 07, 2020 PAACE 1 2 3 4 5 6 TVM MANAGEMENT	Frequency
Ref Of 10 dB/div Ref 1	IFGatcLow fset 0.5 dB 0.50 dBm	#Atten: 20 dB	Mkr3 2.3	99 518 25 GHz -27.66 dBm	Auto Tune
1500 0.50				All and the second	Center Free 2.397000000 GH
29.5 29.5 29.5			Allow		Start Fre 2.39000000 GH
99.5 19.5 19.5					Stop Fre 2.404000000 GH
Start 2.390000 G Res BW 100 kH	Hz Iz #VB	W 300 kHz	Sweep (#Swp) 2.6	top 2.404000 GHz 67 ms (40001 pts)	CF Ste 1.400000 MH
	2.403 992 65 GHz 2.400 000 00 GHz 2.398 610 25 GHz	4.05 dBm 27.99 dBm 27.66 dBm	UNION PERSONNALS		Auto Ma
5 00 7 00 00 00 00 00 00 00 00 00 00 00 0					
			izona		

Figure Channel 78 Hopping:

State Prese 1	100000000	114	THE PARTY I	Aug Time	ALIGN AUTO	06-13/00 RM Apr 07, 2020	Frequency
PB0 Fad IFGaintow		Frig: Free Run #Atten: 20 dB	wall the	Nog Type: Legiswit sou TY D			
Ref C dBidiy Ref	ffset0.5 dB 10.50 dBm			1	Mkr3 2.48	3 512 10 GHz -40.38 dBm	Auto Tun
							Center Fre 2.489000000 Gr
6	MAR AS						Start Fra
s	hard	-		_			2.478000000 Gi
5			manupunt	and an and a second	- Alterative	and the mark the set	Stop Fr 2.50000000 G
es BW 100 k	Hz Hz	#VBI	N 300 kHz	Sweep (I	Swp) 2.66	top 2.50000 GHz 7 ms (40001 pts)	CF Sto 2.200000 M
STATE AND ADDRESS OF	2 478 908	an GHal	5 10 dBm	ROMATION PERS		INCIDENTIAL C	Auto M
N T	2.483 600 2.483 612	00 GHz 10 GHz	40.58 dBm 40.30 dBm				Freq Offs 07
					_		
		_				*	

7. Channel Number

7.1. Test Setup



7.2. Limit

Frequency hopping systems operating in the 2400-2483.5 MHz bands shall use at least 75 hopping frequencies.

7.3. Test Procedure

Tested according to FHSS test procedure of KDB558074 section 9 (b for compliance to FCC 47CFR 15.247 requirements.

7.4. Uncertainty

N/A

7.5. Test Result of Channel Number

Product	:	Hearing Aid
Test Item	:	Channel Number
Test Mode	:	Mode 1: Transmit - 1Mbps (GFSK)
Test date	:	2020/04/07

Frequency Range	Measurement	Required Limit	Result	
(MHz)	(Hopping Channel)	(Hopping Channel)		
2402 ~ 2480	79	>75	Pass	

2402-2421MHz

2422-2441MHz

gebruch Digens and Annalyzan (Consequences) and a		Agricult Type: Take Antipart - Sweet 18.
enter Freq 2.411000000 GHz	Prequency	Center Freq 2.431500000 GHz Frequency Trig Free Ran
Mitrz 2.421 000 GHz	Auto Tune	HOLDELING BRIDE 20 48 BOT OF BRIDE
ID dBiel Ref 10.50 dBm 4.91 dBm		to asiav Ref 10.59 dBm 3.59 dBm
	Center Freq 2.411000885 GHz	
901	Start Preq 2.40050000 GHz	311 Start Fra 301 2.42150000 D
01 01 01 71	Stop Freq 2.421500000 GHz	00 50 50 50 50 50 50 50 50 50 50 50 50 5
Start 2.40050 GHz Stop 2.42150 GHz REes SW 100 kHz Everp (4Gwp) 2.433 ms (1001 ptx	CF Blep 2,100000 MHz Auto Wan	Stop 2.41130 GHz Stop 2.41130 GHz CF Ste Res SW 100 kHz PVBW 100 kHz Sweep (45wp) 2.467 ms (1001 ptx)
	Freq Offset 0 Hz	1 0 1 7 2410 0 2 2 3 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
en e	11 ()	and and a second s

2442-2461MHz

2462-2480MHz

Agricul Type: Tool Analyzet - New 218 1		Appres Type,
Center Freq 2.451500000 GHz Fig True Ran Are Type Long True Type Long True Type Long True Type Long True Type Long T	Prequency	Center Freq 2.471500000 GHz Freq 1 Trig free Ran Freq Type Lag Fue Trig 1 Trig free Ran
HGabilae Alter 20 eff Ref Offset03-68 Mkr2 2.461 00 GHz 10 d5elw Ref 10.59 dBm 4.10 dBm	Auto Tune	HOLDBLOW MINES 20 48 MKr2 2.480 00 GHz Auto Tun Ref Official 08 4.28 0Bm 10 dbew Ref 10.99 dBm
	Center Freq 2.451500005 GHz	
014 014 057	Start Freq 2.441500000 GHz	211 StartFre 2.46150000 GH
00 00 00 00 00 00 00 00 00 00 00 00 00	Stop Freq 2.40150000 GHz	00 Stop Pre 2 48150000 GH
Start 2.44150 GHz Stop 2.48150 GHz #Res 5W 100 kHz #VBW 100 kHz Sweep (#Swp) 2.467 ms (1901 ptx)	CF Blep 2 000000 Milz	Start 2.48130 GHz Stop 2.48130 GHz CF Bits #Res SW 100 kHz Sweep (#Swp) 2.467 ms (1001 ptx)
	Freq Offset 0 Hz	M I <thi< th=""> <thi< th=""> <thi< th=""> <thi< th=""></thi<></thi<></thi<></thi<>
and pure		and public and a second se



Product	:	Hearing Aid
Test Item	:	Channel Number
Test Mode	:	Mode 2: Transmit - 3Mbps (8DPSK)
Test date	:	2020/04/07

Frequency Range	Measurement	Required Limit	Pogult	
(MHz)	(Hopping Channel)	(Hopping Channel)	Kesuit	
2402 ~ 2480	79	>75	Pass	

2402-2421MHz

2422-2441MHz

Agrinet Spec Such Acabust - New (138		Agreent Spectra Annalysis Connect State
Center Freq 2.411000000 GHz Tris free line for the Line f	Frequency	Center Freq 2.431500000 GHz Top Transfer Mrs Type Log Far Transfer
History Lat. History and History and History	Auto Ture	HORNEY AND
Ref Chield 5 dB Mkr2 2.421 000 GHz ID d5 min Ref 10.50 dBm 3.42 dBm		Ref Office 2.441 00 GHz to device Ref 10.50 dBm 4.77 dBm
	Center Freq 2.411000000 GHz	Certer Prep all all conter Prep all conter Prep all conter Prep all conter Prep all conter Prep all conter Prep all conter Prep all conter Prep all conter Prep all conter Prep conter Prep co
4/15	Start Freq 2 40050000 GHz	318
00	Stop Preg 2 421500000 GHz	00 Blop Freq 01 2 44/80000 GHz
Start 2.40050 GHz Stop 2.42150 GHz Res SW 100 kHz #VBW 100 kHz Sweep (#Gwp) 2.533 ms (1001 ptx	CF Step 2,100000 MHz	Start 2.42130 GHz Stop 2.44130 GHz CF Step Res 5W 100 kHz Sweep (4Gwp) 2.467 ms (1001 ptx) 2.00000 witz
The control of the second seco	Auto Mun	1 N 1 / 242200 GHz 438 dBm
N 1 / 2.421000 GHz 3.42148m	Freq Offset 0 Hz	P N 1 F 244100 Eki 477 din PregOtival
ani Ju Algement Companiet		S

2442-2461MHz

2462-2480MHz

Agrinet Specific Antibust - Swept SB		Auftrert Specificate Analyzer - Swegt			
Center Freq 2.451500000 GHz Tris Pres Ban	EIG.880 Prequency	Center Freq 2.471500	000 GHz Trig free Run	Arg Type: Leg Part TAXES 2 3+56	Frequency
Highestow Release 20.481 Mikr2 2.481 0 Mikr2 2.481 0 Mikr2 2.481 0 4.7	0 GHZ Auto Tu 5 dBm	Ref OffsetQ.5 d	B International States of the	Mkr2 2.490 00 GHz 4.06 dBm	Auto Tune
	Center #1 2.451500000 C	req 1.50 01 00 000000	مدينة المراجعين الأربعة الم	Marin San Marine Marine	Center Freq 2.471500000 GHz
2014 2014 2017 2017 2017	Start P) 2.441500000 0	29.6 29.6 20.0 20.0 20.0 20.0		4	Start Freq 2.401500000 GHz
00 01 01	Step P) 2.481500000 0	200 844 844 844			Stop Preg 2.421500000 GHz
Start 2.44130 GHz Stop 2.461 Res SW 100 kHz Sweep (#Swp) 2.467 ms (10	50 GHz CF 81 101 ptx) 2 000000 N	ep Start 2.46150 GHz biz #Res BW 100 kHz	#VBW 100 kHz	Stop 2.48150 GHz Sweep (#Gwp) 2.467 ms (1001 ptx)	CF Blep 2 000000 Milz Auta Van
	FreqOff	1 M F 1 N F 1 N F 1 F 1 F 1 F 1 F 1 F 1 F 1 F 1	1468866 16646		Freq Offset 0 Hz
		17 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2			
heri purvat		and .		attanua.	1 1

8. Channel Separation

8.1. Test Setup



8.2. Limit

Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hopping channel, whichever is greater.

8.3. Test Procedure

Tested according to FHSS test procedure of KDB558074 section 9 (b for compliance to FCC 47CFR 15.247 requirements.

8.4. Uncertainty

± 283Hz



8.5. Test Result of Channel Separation

Product	:	Hearing Aid
Test Item	:	Channel Separation
Test Mode	:	Mode 1: Transmit - 1Mbps (GFSK)
Test date	:	2020/04/07

	F	Measurement	Limit	Limit of (2/3)*20dB	
Channel No.	(MHz)	Level	(kHz)	Bandwidth (kHz)	Result
		(KHZ)			
00	2402	1000	>25 kHz	618.0	Pass
39	2441	1000	>25 kHz	620.0	Pass
78	2480	1000	>25 kHz	622.0	Pass

NOTE: The 20dB Bandwidth is refer to section 10.

Cente	r Fre	g 2.40	2000000) GH2	z		BASE (INT)	Avg	AL Type: L	ISNAUTO	04:55:34 P	MApr 07, 2020	Frequency
	11110711			PN0 IFGa):Wide (ain:Low	Trig: Fre #Atten: 1	e Run 20 dB	52	02.65	20	1	DET P N N N N N	1000000000
10 dB/d	liv	Ref Offse Ref 10.	nt 0.5 dB 50 dBm							Mkr	2 2.403 3.	00 GHz 19 dBm	Auto Tune
0.500						1	W1	2		_		*	Center Free 2.402000000 GHz
-19.5 -29.5 -39.5			J	V.	Me	N			La .	Trange A	III"ime	- 0	Start Free 2.397000000 GHz
-59.5	~	An										alle -	Stop Freq 2.407000000 GHz
Center #Res E	r 2.40 BW 1	2000 G 00 kHz	Hz		#VB	W 100 kH	z		#S1	weep 5	Span 1 00.0 ms	10.00 MHz (1001 pts)	CF Step 1.000000 MH
1 N		sa. f	× 2.	402.00	GHz	3.11 (iBm	PUNCTION	FUNCT	ION WIDTH	FUNCT	ON VALUE	Auto Mar
2 N 3 4 5 6	1	7	2.	403 00	GHz	3.19 (iBm						Freq Offset 0 Hz
7 8 9 10												=	
¢			1							1000		8	

Channel 00 (2402MHz)

enter F	req 2.441	000000 GHz PNO: Wide FGain:Lov	Trig: Free Ru #Atten: 20 dB	Avg	Type: Log-Pwr	DS:33:48 PM Apr 07, TMACE 1 2 3 TYPE MWW DET P N N	Frequency
0 dB/div	Ref Offset Ref 10.5	0.5 dB 0 dBm			Mkr	2 2.442 00 G 3.26 dl	Hz Auto Tun 3m
500							Center Fre 2.441000000 GH
95	A	MAA			Jan Jan	man	Start Fre 2.436000000 GH
9.6							Stop Fre 2.446000000 GP
enter 2 Res BW	.441000 GH 100 kHz	lz #V	BW 100 kHz		#Sweep 5	Span 10.00 / 00.0 ms (1001	1Hz CF Ste (1.000000 MH
1 N	ne se	2.441 00 GHz	3.29 dBm	RINCTION	FUNCTION WIDTH	FUNCTION VALUE	Auto Ma
2 N 3 4 5 6	1 1	2.442 00 GHz	3.26 dBm				FreqOffse 0⊦
7 8 9 0							
					STAD		8

Channel 39 (2441MHz)

Channel 78 (2480MHz)

Agilent Spectr	um Analyzur	Swept 5A									
Center F	req 2.48	0000000 GH	1z	Trig: Free R	A	AUGNAUTO Avg Type: Log-Pwr		05:39:36 PM Apt 07, 2020 TRACE 1 2:3 4 5:6 Type Mutation		Frequency	
	Ref Offse	iF(Sain:Low	#Atten: 20 di	8	Mkr1 2.479 00 GHz				Auto Tun	
10 dB/div	Ref 10.5	50 dBm		v . — • •				6.	28 dBm		
0.500 -9.50			1						*	Center Freq 2.480000000 GHz	
-19.5	0	A-A	1		Va	5-	1			200 0040	
-39.5	AN				3	1	L	N	wy	Start Freq 2.475000000 GHz	
-59.5	_								1 and 1	Stop Freq	
-79.5 Center 2.	480000 G	Hz			-6			Span 1	0.00 MHz	CF Step	
#Res BW	100 KHZ		#VBV	V 100 KHZ		#5	weep 50	00.0 ms (1001 pts)	1.000000 MHz Auto Man	
1 N 1	10 SEL	2.479 0	0 GHz	6.28 dBm	RUNCTION	FUNC	KIN WIDTH	FUNCTI	IN VALUE		
3 4 5		2,460 0	D GHZ	6,33 GDm					=	Freq Offset 0 Hz	
7 8 9											
10 11 c						-			*		
MSG							STATUS				



Product	:	Hearing Aid
Test Item	:	Channel Separation
Test Mode	:	Mode 2: Transmit - 3Mbps (8DPSK)
Test date	:	2020/04/07

	E	Measurement	Limit	Limit of (2/3)*20dB	Result	
Channel No.	(MHz)	Level (kHz)	(kHz)	Bandwidth (kHz)		
00	2402	1000	>25 kHz	775.3	Pass	
39	2441	1000	>25 kHz	781.3	Pass	
78	2480	1000	>25 kHz	854.0	Pass	

NOTE: The 20dB Bandwidth is refer to section 10.

Aginat Spect	trum Analyzer - S	Swept SA						
Center F	req 2.402	000000 GHz	Trig: Free Run	Avg Ty	Pe: Log-Pwr	DS:54:46 PM Apr TMACE 1 TYPE MA	2 3 4 5 6	Frequency
10 dB/div	Ref Offset Ref 10.50	FGain:Low 0.5 dB 0 dBm	* #Atten: 20 dB		Mkr	GHz dBm	Auto Tune	
0.500			- mall	marka -			*	Center Freq 2.402000000 GHz
-13.5 -29.5 -39.5 -49.5		- Andrewson			with	YI-man	N	Start Freq 2.397000000 GHz
-59 5 A	andha							Stop Free 2.407000000 GH
Center 2 #Res BW	.402000 GH / 100 kHz	iz #VB	W 100 kHz		#Sweep 5	Span 10.00 00.0 ms (100	0 MHz 1 pts)	CF Step 1.000000 MH
HOF MODE	ne set	2.402.00 GHz	3,38 dBm	PUNCTION P	UNCTION WIDTH	FUNCTION VA		Auto Mar
2 N 3 4 5 6 7 8	1 1	2.403 00 GHz	3.42 dBm					Freq Offse 0 Ha
9 10 11 ¢								

Channel 00 (2402MHz)

Agilant Spect	rum Analyzur - S	iwept 5A						
Center F	req 2.441	000000 GHz	Trig: Free Run	Avg	Type: Log-Pwr	06.03.271 דיוע די	MApr 07, 2020 KEE 1, 2, 3, 4, 5, 6 PE MWWWWW	Frequency
10 dB(div	Ref Offset	FGain:Low	#Atten: 20 dB		00 GHz 57 dBm	Auto Tun		
0.500			- Martin	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~			*	Center Fred 2.441000000 GH
-19.5 -29.5 -39.5 -49.5	w	man	x.		hours	m	m	Start Free 2.43600000 GH
-59.5								Stop Free 2.445000000 GH
Center 2 #Res BW	.441000 GH 100 kHz	lz #VB	W 100 kHz		#Sweep 5	Span 00.0 ms	10.00 MHz (1001 pts)	CF Step 1.000000 MH Auto Mar
1 N 2 N 3 4 5		2.441 00 GHz 2.442 00 GHz	4.56 dBm 4.57 dBm	BINTON	FUNCTION WIDTH	FUNCT	(W VALUE *	Freq Offse
6 7 8 9 10 11								
¢ 496					STATU			

Channel 39 (2441MHz)

Channel 78 (2480MHz)

Agilant Spectrum Analyzur - Swept 5A	100 400 (B)(T)		Inc. do. a a fail a series of second				
Center Freq 2.480000000 GHz	Trig: Free Run	Avg Type: Log-Pw	THACE 1 2 3 4 5 6 TYPE MWWWWW	Frequency			
Ref Offset 0.5 dB	#Atten: 20 dB	#Atten: 20 dB 000 GHz 4.98 dBm					
.950	1 2	(*	Center Free 2.480000000 GHz			
-195 -295 -395 -495		harry	man	Start Free 2.475000000 GH:			
-59.5 				Stop Fred 2.485000000 GH2			
Center 2.480000 GHz #Res BW 100 kHz #VBW	100 kHz	#Sweep	Span 10.00 MHz 500.0 ms (1001 pts)	CF Step 1.000000 MH:			
	4 98 dBm	FUNCTION FUNCTION WIDT	H FUNCTION VALUE	Auto Mar			
2 N 1 f 2,480.00 GHz 3 4 5	4.96 dBm			Freq Offse 0 Ha			
7 7 9 9 10							
¢.		874	us l				

9. Dwell Time

9.1. Test Setup



9.2. Limit

The average time of occupancy on any channel shall not be greater than 0.4 seconds within a period of 0.4 seconds multiplied by the number of hopping channels employed.

9.3. Test Procedure

Tested according to FHSS test procedure of KDB558074 section 9 (b for compliance to FCC 47CFR 15.247 requirements.

9.4. Uncertainty

± 25msec



9.5. Test Result of Dwell Time

Product	:	Hearing Aid
Test Item	:	Dwell Time
Test Mode	:	Mode 1: Transmit - 1Mbps (GFSK) (Channel 00,39,78 –DH5)
Test date	:	2020/04/17

Frequency (MHz)	Time slot length (ms)	Hopping of Number	Sweep time (ms)	Dwell Time (ms)	Limit (ms)	Result
2402	2.912	105	31600	305.760	400	Pass
2441	2.912	108	31600	314.496	400	Pass
2480	2.912	107	31600	311.584	400	Pass

Dwell time = Time slot length*Hopping of number

Sweep time= 79 CHannel * 0.4

DEKRA

CH 00 Time Interval between hops

CH 00 Transmission Time

Control Control <t< th=""><th></th><th></th></t<>		
CP State Center 2.40200000 GHz VBW 1.0 MHz Sweep 8.0 State Sta		
CP Stop (Fig.) Other (Fig.)		
CP Step Center 2.40200000 CHz 1.00 ktr VBW 1.0 MHz Sweep 8.00 Auto Mar Mar VBW 1.0 MHz Sweep 8.00 Auto Mar Mar VBW 1.0 MHz Sweep 8.00		Freq Offs
CP Step Center 2.40200000 GHz 1.00 Hz Res BW 1.0 MHz VBW 1.0 MHz Sweep 8.00	ANUDICEU:	Auto M
	Span 0 Hz 100 ms (1001 pts)	CF Ste 1.000000 M
	and a list of the second	2.40200000 0
Biop Freq Account of the second sec	need and an address of	Stop Fr
2.4200000 GHz 401		2.402000000 G
20 30 30 30 30 30 30 30 30 30 30 30 30 30		StartEr
100 2.45200000 GHz 310 412	7901.01	2.40200000 G
50 Debay Ref 0.00 delim	0.24 0.0	
Notice and the second	Mkr1 2.912 ms	Auto Tu
Pair Claur & Tig Franklar House to dia give to dia giv	DET N N N N N N	
Arrante Streep Time 31,60 s Ang Aper Lage Arrante Streep Time 31,60 s Ang Aper Lage Arrante Streep Arrantee Streep Arrantee Arrantee Streep Arrantee Arrantee Arrantee Arra	10:06:46.64 Apr 16, 2020 THACE 1 2 3 4 5 6	Frequency



CH 78 Time Interval between hops

CH 78 Transmission Time



Note:

The dwell times of the packet type of DH1, DH3, and DH5 are tested. Only the worst case is shown on the report.



Product	:	Hearing Aid
Test Item	:	Dwell Time
Test Mode	:	Mode 2: Transmit - 3Mbps (8DPSK) (Channel 00,39,78 –DH5)
Test date	:	2020/04/17

Frequency (MHz)	Time slot length (ms)	Hopping of Number	Sweep time (ms)	Dwell Time (ms)	Limit (ms)	Result
2402	2.888	110	31600	317.680	400	Pass
2441	2.888	106	31600	306.128	400	Pass
2480	2.912	109	31600	317.408	400	Pass

Dwell time = Time slot length*Hopping of number

Sweep time= 79 CHannel * 0.4

DEKRA

CH 00 Time Interval between hops

CH 00 Transmission Time

Theory is a second second in the second					Apple of Spectrum As	services memory and					
enter Freq 2.402000000 0	GH2 PRC Close - Trig: Pres Burt	Ave Yese Log-Per	100-23-27-88 Apr (7, 202) 104-12 (1, 3, 3, 4, 8, 4 110-23-44	Prequency	Center Freq	2.40200000	00 GHz	rig Delay-1.000 es rig: Video	Ang Type: Leg Par	90.47 (2) all Apr (6, 200) 90.418 (1, 1, 2, 4, 5, 5) 7 (8, 2004)	Рладиятку
ia na managina na a	#GaicLos Aflas: 11-48	Auto Tune		ΔMkr2 2.888 m					Mkr2 2.888 ms	Auto Tun	
o ablav Ref 0.00 dBm					to distan Re	f 10.00 dBn	*	1000		-0.21 dB	
NO				Center Freq 2.40200000 GHz	0.00	in the second	A. TRACALA DIA	NA NA		78115	Center Pr 2.402000000 G
				Start Freq 2.40200000 GHz	401	1					Start Fr 2.40200000 G
0 0				Stop Freq 2.40200000 GHz	ADI DESERT			100	havaland la	1	Stop Fr 2.452000000 0
				CF Step 1.000 kHs Auto Man	Center 2.4020 Res BW 1.0 M	NOCODO GH2 H2	evew 3.	MIH2	Sweep E	Span 0 Hz DOD me (1001 pts)	CF 81 1.000000 W
				Freq Offset 0 Hz	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	145	984.0 sa 2.000 ma (2)	0.00 d8ml -\$21 d8			FreqOffe
enter 2.40200000 GHz	NATION PARTY	制制作用	Span 0 Hz		17-31 P (2)						
es BW 1.0 kHz	#VBW 3.0 kHz	Sweep	31.60 s (1001 pis)	· · · · · · · · · · · · · · · · · · ·	*						
L'Alexado in Eirodo, passi Pleni	petter within a rate former or here	name Instance			and it				11.010		



CH 78 Time Interval between hops

CH 78 Transmission Time



Note:

The dwell times of the packet type of DH1, DH3, and DH5 are tested. Only the worst case is shown on the report.

10. Occupied Bandwidth

10.1. Test Setup



10.2. Limits

N/A

10.3. Test Procedure

Tested according to FHSS test procedure of KDB558074 section 9 (b for compliance to FCC 47CFR 15.247 requirements.

10.4. Uncertainty

 $\pm 283 Hz$

10.5. Test Result of Occupied Bandwidth

Product	:	Hearing Aid
Test Item	:	Occupied Bandwidth Data
Test Mode	:	Mode 1: Transmit - 1Mbps (GFSK)
Test date	:	2020/04/07

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
00	2402	927		NA
39	2441	930		NA
78	2480	933		NA

Agilent Spectrum Anal	yzur - Swept SA				
Center Freq 2	402000000 GHz	Trig: Free Run	Aug Type: Log-Par	05:30:41 PM Apr 07, 2020 TRACE 1 2:3:4:5:6 TYPE MWWWWW	Frequency
Ref i	Auto Tune				
-9.50			~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	-16.61 atim	Center Freq 2.402000000 GHz
-29.5	mad			and work	Start Freq 2.400600000 GHz
-59.5					Stop Freq 2.403500000 GHz
Center 2.40200 #Res BW 30 kH	00 GHz Hz #V	BW 100 kHz	Sweep (#Swp)	Span 3.000 MHz 3.200 ms (1001 pts)	CF Step 300.000 kHz
MORE MODEL THE SEC	8		FUNCTION FUNCTION WIDTH	FUNCTION VALUE	Auto Man
1 N 1 f 2 N 1 f 3 N 1 f 4 5 6	2.401 988 GHz 2.401 541 GHz 2.402 468 GHz	3.39 dBm -16.81 dBm -16.64 dBm			Freq Offset 0 Hz
7 9 10 11					
Mac			STAT	is	

Figure Channel 00:

Agilent Spect	rum Analyzur - S	Swept SA						
Center F	req 2.441	000000 GHz	Trig: Free Run	Avg	Type: Log-Pwr	DS:36:53 PM Apr 0 THACE 1 2 TYPE MM	3 4 5 6	Frequency
10 dB/div	Ref Offset Ref 10.50	FGain:Low	* #Atten: 20 dB		Mkr2	2.440 541 -16.60 c	GHZ	Auto Tune
-9.50		1 ²	Jan Ya	n	3		6.55 dBm	Center Fred 2.441000000 GH:
39.5	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~				Jun		Come -	Start Free 2.439500000 GH
-59.5 -69.5 -79.5								Stop Free 2.442500000 GH
Center 2 Res BW	.441000 GH 30 kHz	lz #VB	W 100 kHz	Swee	ep (#Swp) 3	Span 3.000 .200 ms (1001	MHz 1 pts)	CF Stej 300.000 kH
1 N 2 N 3 N 4 5 6 7 8		2,440 998 GHz 2,440 541 GHz 2,441 471 GHz	3.45 dBm -16.60 dBm -16.78 dBm	FUNCTION	FUNCTION WITTH	FUNCTION WAL		to Ma FreqOffse 0 H
9 10 11 ¢							8	

Figure Channel 39:

Figure Channel 78:

Agilant Spec	trum Analyzur	Swept SA							
Center	Freq 2.48	0000000 GH	Z	Trig: Free Ru	Avg	Type: Log-Pwr	05:58:51 P TMA	MApr 07, 2020	Frequency
10 dB(dis	Ref Offse	IFG	ain:Low	#Atten: 20 dB		Mkr2	2.479 8	538 GHz 07 dBm	Auto Tune
0.500			↓ ²	por the	2 55	3		.14.91.0Bm	Center Freq 2.480000000 GHz
-29.5 -39.5 -49.5		n A				1	~		Start Freq 2.478500000 GHz
-59.5 -68.5 -79.5									Stop Freq 2.481500000 GHz
Center 2 #Res BV	2.480000 G V 30 kHz	Hz	#VBV	V 100 kHz	Swe	ep (#Swp) 3	Span 3 3.200 ms i	3.000 MHz (1001 pts)	CF Step 300.000 kHz
1 N 2 N 3 N 4 5 6 7 7 8 9 9 10 11		2,479 991 2,479 538 2,480 471	GHz GHz GHz	5.09 dBm -15.07 dBm -15.05 dBm	RINCTON	FUNCTORN WICH	PUNCT		Freq Offset 0 Hz
¢. MBG						STATU	5		



Product	:	Hearing Aid
Test Item	:	Occupied Bandwidth Data
Test Mode	:	Mode 2: Transmit - 3Mbps (8DPSK) (2402MHz)
Test date	:	2020/04/07

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
00	2402	1163		NA
39	2441	1172		NA
78	2480	1281		NA

Figure Channel 00:

Agilant Spec	trum Analyzur -	Swept 54					
Center I	Freq 2.402	000000 GHz	Trig Free Bur	Avg T	ype: Log-Pwr	05:59:23 PM Apr 07, 2020 TMACE 1 2 3 4 5 6 Type Muture	Frequency
		IFGain:Low	#Atten: 20 dB			DETPNNNNN	Auto Tune
10 dB/div	Ref Offset Ref 10.5	0.5 dB 0 dBm			MKr2	2.401 355 GHz -15.92 dBm	
0.500			hank	2	-		Center Freq
-9.50		A COL			-Qa	-15.80 dBm	2.402000000 GHz
-29.5					L	and	Start Freq
-49.5					-		2.400600000 GH2
-69.5				_	-		Stop Freq
Center 2	2.402000 Gi	Hz				Span 3.000 MHz	CF Step
#Res BV	V 30 kHz	#VI	3W 100 kHz	Swee	p (#Swp) 3	.200 ms (1001 pts)	300.000 kHz
	THE SEL	2,401 968 GHz	4.20 dBm	RUNCTION	FUNCTION WIDTH	FUNCTION VALUE	Man Man
3 N 4 5 6	11	2,402 618 GHz	-15.88 dBm				Freq Offset 0 Hz
7 8 9							
11 c							
MSG					STATUS		

Agilant Spec	trum Analyzur -	Swept SA	and the second sec		- ar whet at this	Inc. for the fail and		
Center I	Freq 2.441	000000 GHz	Trig: Free Ru	Avg	Type: Log-Pwr	TRACE 1	23456	Frequency
		IFGain:Low	, 🍟 #Atten: 20 dB		Misso	DET P	NNNNN	Auto Tune
10 dB/div	Ref Offset Ref 10.5	0.5 dB 0 dBm			WKr2	-15.73	dBm	
0.500			- mile	2	-		[Center Free
-9.50		2 AC		~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	23		-15.22 dBm	2.441000000 GH
29.5	~							Start Free
-39.5						a boncard	~~	2.439500000 GH
-59.5					-		—li	Ston Free
-88.6								2.442500000 GH
Center 2 #Res BV	2.441000 GH	Hz #V	BW 100 kHz	Swe	ep (#Swp) 3	Span 3.00 .200 ms (10	00 MHz	CF Step 300,000 kH
MORE MODE	THE SEC	×		AUNITION	FUNCTION WIDTH	FUNCTION V	ALUE	Auto Mar
1 N 2 N 3 N	11	2,440 991 GHz 2,440 352 GHz 2,441 524 GHz	4.78 dBm -15.73 dBm -15.37 dBm					Freq Offse
5 6								0 H:
8								
10 11							_	
C					STATU			

Figure Channel 39:

Figure Channel 78:

Agilant Speci	trum Analyzur -	Swept SA					
Center F	Freq 2.480	000000 GHz	Trig Free Ru	Avg 1	ype: Log-Pwr	06:20:23 PM Apr 07, 2020 TMACE 1 2 3 4 5 6 TYPE MWWWWW	Frequency
10 dB/div	Ref Offset Ref 10.5	0.5 dB 0 dBm	Low #Atten: 20 dB		Mkr2	2.479 352 GHz -15.23 dBm	Auto Tune
Log 0.500 -9.50		∳ ² ~	mil	2-2-	3	-15.20 dBm	Center Freq 2.480000000 GHz
39.5 39.5 49.5		w.			La	non	Start Freq 2.478500000 GHz
-59.5 -69.5 -79.5							Stop Freq 2.481500000 GHz
Center 2 #Res BW	.480000 GH V 30 kHz	lz ;	#VBW 100 kHz	Swee	p (#Swp) 3	Span 3.000 MHz .200 ms (1001 pts)	CF Step 300.000 kHz
	THE SEL	2,479 991 GH 2,479 352 GH	z 4.80 dBm	PUNCTION	FUNCTION WIDTH	FUNCTION VALUE	Auto Man
3 N 4 5 6 7 8	1 7	2,480 633 GH	z -15.43 dBm				Freq Offset 0 Hz
10 11 ¢					STATU	*	

11. Duty Cycle

11.1. Test Setup



11.2. Uncertainty

± 25msec


11.3. Test Result of Duty Cycle

Product	:	Hearing Aid
Test Item	:	Duty Cycle
Test Mode	:	Mode 1: Transmit - 1Mbps (GFSK)
Test date	:	2020/04/16

enter Fre	q 2.40200	0000 GHz PSO: 1 art	Trig Delay-1. Trig Video Atten: 10 dB	000 ms Avg	Type: Log-Pur	THACE I 2 3 4 5 6 TYPE WARNING N Dat N N N N N	Frequency
ΔMkr1 2.912 ms 0.24 dB							
10	Xa		•1A:	2			Center Fre
10	++		+++	_	_	792.00	
10							Start Fre 2.402000000 GR
				undaus sum		en e	Stop Fr 2.40200000 G
enter 2.40 es BW 1.0	2000000 G 0 MHz	Hz VE	W 1.0 MHz	10.1 1.201	Sweep 8	Span 0 Hz .000 ms (1001 pts)	CF Sto
A2	1 (0)	2.912 ma	(A) 0.24 dB	FEMERICA	SIGNAL CONTRACTOR	COMPACTOR -	Auto M
2 F 3 4	1	976.0 µa	-10.66 dBm				Freq Offs 0
7 B D							

Center Freq 2.40200000 GHz	Mkr1 50.00 ms -67.91 dBm
Center Freq 2.402000000 GHz	
2.402000000 GHb Start Freq	*
StartFree	TROSIL
2.402000000 GHz	
Stop Free 2.402000000 GH	
CF Step 1 000000 MHc duta Mar	asphilling and
Freq Offse 0 H	
1	Span 0 Hz 00.0 ms (1001 pts)
للمربع المربع	BW 1.0 MHz Sweep 1

Time on of 100ms= 2.912 ms

Duty Cycle=2.912ms / 100ms= 0.02912

Duty Cycle correction factor= 20 LOG 0.02912= -30.716 dB

Duty Cycle correction factor

-30.716

dB



Product	:	Hearing Aid		
Test Item	:	Duty Cycle		

Test Mode : Mode 2: Transmit - 3Mbps (8DPSK)

Test date	:	2020/04/16

inter Fr	eq 2.402	000000 G	Hz Pilo: Fast	Trig Dela Trig Vide Atten: 10	y-1.000 ms	Avg	Type: Log-Par	10.27.37A His TV 0	Aur 36, 2020 3 1 2 3 4 5 6 7 MPUN N N	Frequency
ΔMkr1 2.936 ms -0.63 dB							Auto Turk			
	1/2		w		142				100174	Center Free 2.402000000 GH
										Start Free 2.402000000 GH
10 10 10	alahn				etelikoa	4P40	Sheepine and gra	(Maganata)	\$**~*	Stop Free 2.40200000 GH
enter 2.4 es BW 1.	02000000 0 MHz	GHz	#VE	W 1.0 MHz			Sweep 8	S ,000 ms (pan 0 Hz 1001 pts)	CF Step 1.000000 MH
	t t t	2	936 ms //	4) -0.63 -13.06 dE	dB am	051		PANED		Bullio Mar Freq Offse 0 H

Center	er Freq 2.402000000 GHz Trig Delay-1000 ms Avg Type: Log-Par Bick 12.3 + 5 5				Frequency					
Figure Attent to dB Mkr1 50.00 ms						Auto Tune				
o dBidh	Ref 0.00 c	18m						-68.	36 dBm	-
11.0									180-531	Center Fred 2.402000000 GHz
210										Start Freq
500		-								2.40200000 GH
0.0										Stop Free 2.402000000 GH
0.0		-	6.7	8	15	Ê E E	5		100 8	CF Ster 1 000000 MH
100	entert descent	nt depine	within	- HARRING	enthresh	- Angela	Kiekward	ilestrate.	-dualities	Guilia Mar
0.0										Freq Offse 0 Ho
K1 0		-								
Center I	2.402000000 1.0 MHz	GHz	IVBW	1.0 MHz		1	Sweep 1	00.0 ms	apan 0 Hz (1001 pts)	
100							STATU	1		A

Time on of 100ms= 2.936 ms Duty Cycle=2.936ms / 100ms= 0.02936 Duty Cycle correction factor= 20 LOG 0.02936= -30.645 dB

Duty Cycle correction factor	-30.645	dB
	001010	



12. EMI Reduction Method During Compliance Testing

No modification was made during testing.