

THYNK, INC.

SAR EXEMPTION REPORT

SCOPE OF WORK

SAR EXEMPTION CALCULATIONS - THYNK AV HEADSET

REPORT NUMBER

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SAR EXEMPTION TEST REPORT

Report Number: 106114493ATL-007

Project Number: G106114493

Report Issue Date: 26 February 2025

Model(s) Tested: TYK1001

FCC ID: 2BNQO-TYK1001

IC: 33578-TYK1001

Standards: FCC Title 47 CFR Part 1.1307, 2.1093
RSS-102, Issue 6

Test Location:

Intertek
1950 Evergreen Blvd., Suite 100
Duluth, GA 30096 USA
FCC Designation: US1046
CAB Designator: US0128

Client:

Thynk, Inc.
9731 Chestnut Ridge Dr.
Windermere, FL 34786 USA

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1 Introduction and Conclusion

SAR exemption calculations were performed on the product constructed as described in Section 4. Information provided by the client including maximum output power, antenna gain(s), and minimum separation distance(s) was used to determine if the product under evaluation was exempt from SAR. Any change in these stated values may invalidate these results. No additions, deviations, or exclusions have been made from the standard(s) unless specifically noted.

Based on the results of our investigation, we have concluded the product under evaluation is exempt from SAR requirements for each of the standard(s) indicated. The results obtained in this test report pertain only to the item(s) evaluated. Intertek does not make any claims of compliance for samples or variants which were not evaluated.

2 Evaluation Summary

Section	Test full name	Result
5	FCC SAR Exemption Criteria (FCC Title 47 CFR Part 1.1307, 2.1093)	Exempt from SAR
6	ISED SAR Exemption Criteria (RSS-102 Issue 6)	Exempt from SAR

3 Client Information

This evaluation was performed at the request of:

Client: Thynk, Inc.
9731 Chestnut Ridge Dr.
Windermere, FL 34786 USA

Contact: Linda Ystueta

Email: linda@thynk.com

4 Description of Equipment Under Test and Variant Models

Manufacturer: Thynk, Inc.
9731 Chestnut Ridge Dr.
Windermere, FL 34786 USA

Equipment Under Test			
Description	Manufacturer	Model Number	Serial Number
Thynk AV Headset	Thynk, Inc.	TYK1001	20241023-002

Receive Date:	03 February 2025
Received Condition:	Good
Type:	Production

Description of Equipment Under Test (provided by client)

The Thynk AV headset integrates an electroencephalographic (EEG) headset, which measures and adapts to a child's attention levels, directly influencing a game's outcome.

Equipment Under Test Power Configuration			
Rated Voltage	Rated Current	Rated Frequency	Number of Phases
5Vdc	100mA	NA	NA

Radio/Receiver Characteristics	
Frequency Band(s)	2402-2480MHz
Modulation Type(s)	GFSK
Data Rate(s)	1Mbps
Maximum Output Power (EIRP):	-1.59dBm ¹
Test Channels	2402MHz, 2440MHz, 2480MHz
Power Setting	Btool Setting 0
Occupied Bandwidth (99%)	1.172MHz
MIMO Information (# of Transmit and Receive antenna ports)	SISO
Equipment Type	Full Device
Antenna Separation Distance	1.16cm (5mm used for calculations as worst-case)
Antenna Type and Gain	Circuit Board PIFA: Min: +3.3dBi / Max: +5.3dBi (Retrieved from Texas Instruments Reference Design Application Note AN043 - Intertek takes no responsibility for the accuracy of this information.)

1) Refer to Intertek report number 106114493ATL-004 for EIRP measurement results.

5 FCC SAR Exemption Criteria

FCC Title 47 CFR Part 1.1307(3)(i)

For single RF sources (i.e., any single fixed RF source, mobile device, or portable device, as defined in paragraph (b)(2) of this section): A single RF source is exempt if:

- (A) The available maximum time-averaged power is no more than 1 mW, regardless of separation distance. This exemption may not be used in conjunction with other exemption criteria other than those in paragraph (b)(3)(ii)(A) of this section. Medical implant devices may only use this exemption and that in paragraph (b)(3)(ii)(A);
- (B) Or the available maximum time-averaged power or effective radiated power (ERP), whichever is greater, is less than or equal to the threshold P_{th} (mW) described in the following formula. This method shall only be used at separation distances (cm) from 0.5 centimeters to 40 centimeters and at frequencies from 0.3 GHz to 6 GHz (inclusive). P_{th} is given by:

$$P_{th} \text{ (mW)} = \begin{cases} ERP_{20 \text{ cm}} (d/20 \text{ cm})^x & d \leq 20 \text{ cm} \\ ERP_{20 \text{ cm}} & 20 \text{ cm} < d \leq 40 \text{ cm} \end{cases}$$

Where

$$x = -\log_{10} \left(\frac{60}{ERP_{20 \text{ cm}} \sqrt{f}} \right) \text{ and } f \text{ is in GHz;}$$

and

$$ERP_{20 \text{ cm}} \text{ (mW)} = \begin{cases} 2040f & 0.3 \text{ GHz} \leq f < 1.5 \text{ GHz} \\ 3060 & 1.5 \text{ GHz} \leq f \leq 6 \text{ GHz} \end{cases}$$

d = the separation distance (cm);

RF Source	Frequency (GHz)	Separation Distance (cm)	Max Power ¹ (dBm)	Max Power (mW)	Exempt from SAR?
Bluetooth BLE Channel 37	2.402	0.5	-1.77	0.67	Yes ²
Bluetooth BLE Channel 17	2.440	0.5	-1.76	0.67	Yes ²
Bluetooth BLE Channel 39	2.480	0.5	-1.59	0.69	Yes ²

1) Max measured radiated power from Intertek report 106114493ATL-004

2) Exempt per 1.1307(3)(i)(A)

6 ISED SAR Exemption Criteria

RSS-102 Issue 6 § 6.3: SAR exemption limits

Devices operating at or below the applicable output power levels (adjusted for tune-up tolerance) specified in table 11, based on the separation distance, are exempt from SAR evaluation. The separation distance, defined as the distance between the user and/or bystander and the antenna and/or radiating element of the device or the outer surface of the device, shall be less than or equal to 20 cm for these exemption limits to apply.

Table 11: Power limits for exemption from routine SAR evaluation based on the separation distance

Frequency (MHz)	≤ 5 mm (mW)	10 mm (mW)	15 mm (mW)	20 mm (mW)	25 mm (mW)	30 mm (mW)	35 mm (mW)	40 mm (mW)	45 mm (mW)	> 50 mm (mW)
≤ 300	45	116	139	163	189	216	246	280	319	362
450	32	71	87	104	124	147	175	208	248	296
835	21	32	41	54	72	96	129	172	228	298
1900	6	10	18	33	57	92	138	194	257	323
2450	3	7	16	32	56	89	128	170	209	245
3500	2	6	15	29	50	72	94	114	134	158
5800	1	5	13	23	32	41	54	74	102	128

The exemption limits in Table 11 are based on measurements and simulations of half-wave dipole antennas at separation distances of 5 mm to 50 mm from a flat phantom, which provides a SAR value of approximately 0.4 W/kg for 1 g of tissue.

For limb-worn devices where the 10 gram of tissue applies, the exemption limits for routine evaluation in Table 11 are multiplied by a factor of 2.5.

For controlled-use devices where the 8 W/kg for 1 gram of tissue applies, the exemption limits for routine evaluation in table 11 Table 11 are multiplied by a factor of 5.

When the operating frequency of the device is between two frequencies located in Table 11, linear interpolation shall be applied for the applicable separation distance. If the separation distance of the device is between two distances located in table 11, linear interpolation may be applied for the applicable frequency. Alternatively, the limit corresponding to the smaller distance may be employed. For example, in case of a 7 mm separation distance, either use the exception value for a 5 mm separation distance or interpolate between the limits corresponding to 5 mm and 10 mm separation distances

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Device	Frequency (MHz)	Max Power ¹ (dBm)	Max Power ¹ (mW)	Separation Distance (mm)	Exemption Limit (mW)	Exempt from SAR?
Bluetooth BLE Channel 37	2402	-1.77	0.67	5	3.26	Yes
Bluetooth BLE Channel 17	2440	-1.76	0.67	5	3.05	Yes
Bluetooth BLE Channel 39	24800	-1.59	0.69	5	2.97	Yes

1) Max measured radiated power from Intertek report 106114493ATL-004

7 Revision History

Revision Level	Date	Report Number	Prepared By	Reviewed By	Notes
0	26 February 2025	106114493ATL-007	JOP	BZ	Original Issue