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SAR Exclusion Test Report

1. Product information

Report number	RF232960.01
Applicant	AeroScout
Address	2 Ilan Ramon St., Science Park, Ness -Ziona, Israel
Manufacturer	Same as applicant
Product	Battery-operated tag with 2.4 GHz BLE transceiver and 125 KHz LF receiver
FCC ID	Q3HTAGB1200
IC	5115A-TAGB1200
Brand	AeroScout
Model No.	TAG-2200B
Standards	FCC 47 CFR § 1.1309 KDB 447498 D01 General RF Exposure Guidance v06 RSS-102 Issue 5 / IEEE C95.3-2002
Power supply	Battery, 3.0 VDC
Sample Received Date	September 1, 2021
Date of Testing	September 1, 2021, to October 2, 2021

Certification: the above equipment has been tested by I.T.L. Product Testing. Ltd. and found to be compliant with the requirements of the above standards.

Prepared by: Ram Ezrah / Technical Writer

Approved by: Moshe Zohar / Senior Engineer

ACCREDITED Certificate: 1152.01

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2. Laboratory information

Test laboratory: I.T.L. Product Testing Ltd.

Test site location: 1 Bat Sheva Street, Lod 7114003, Israel.

Tel: +972.8.9186100

ISED site reg. #: 4025A

3. The EUT

Assigned Frequency Range	2400.0-2483.5 MHz
Operating Frequency Range	2402.0-2480.0 MHz
Transmit power (conducted)	3.6 dBm
Modulation BW	2 MHz
Bit rate	1,2,3 (Mbit/s)
SAR test exclusion Considerations	The worst-case test separation distance is 4 mm

Note: The above EUT information is declared by manufacturer. For more detailed features description, refer to the manufacturer's User Manual.

4. Evaluation Method and Limit

KDB447498 D01 V06 (October 23, 2015), RSS 102, Issue 5 (March 19, 2015)

- Operation frequency: 2.44 GHz
- Max. power (conducted): 3.6 dBm
- Minimum test separation distance: 4.0 mm
- Antenna gain: 1.0 dBi
- Max. power (EIRP): 3.6+1.0 = 4.6 dBm = 2.9 mW

5. Antenna

Antenna type	Printed
Antenna gain	1.0 dBi (max.)

6. FCC Limit

For 100 MHz to 6 GHz and test separation distances ≤ 50 mm, the 1-g and 10-g SAR test exclusion thresholds are determined by the following:

[(max. power of channel, including tune-up tolerance, mW)/ (min. test separation distance, mm)] · [√f (GHz)] ≤ 3.0 for 1-g SAR and ≤ 7.5 for 10-g extremity SAR.

Appendix A

SAR Test Exclusion Thresholds for 100 MHz – 6 GHz and ≤ 50 mm

Approximate SAR Test Exclusion Power Thresholds at Selected Frequencies and Test Separation Distances are illustrated in the following Table. The equation and threshold in 4.3.1 must be applied to determine SAR test exclusion.

MHz	5	10	15	20	25	mm
150	39	77	116	155	194	*SAR Test Exclusion Threshold* (mW)
300	27	55	82	110	137	
450	22	45	67	89	112	
835	16	33	49	66	82	
900	16	32	47	63	79	
1500	12	24	37	49	61	
1900	11	22	33	44	54	
2450	10	19	29	38	48	
3600	8	16	24	32	40	
5200	7	13	20	26	33	
5400	6	13	19	26	32	
5800	6	12	19	25	31	

MHz	30	35	40	45	50	mm
150	232	271	310	349	387	*SAR Test Exclusion Threshold* (mW)
300	164	192	219	246	274	
450	134	157	179	201	224	
835	98	115	131	148	164	
900	95	111	126	142	158	
1500	73	86	98	110	122	
1900	65	76	87	98	109	
2450	57	67	77	86	96	
3600	47	55	63	71	79	
5200	39	46	53	59	66	
5400	39	45	52	58	65	
5800	37	44	50	56	62	

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7. ISED Limit

SAR evaluation is required if the separation distance between the user and/or bystander and the antenna and/or radiating element of the device is less than or equal to 20 cm, except when the device operates at or below the applicable output power level (adjusted for tune-up tolerance) for the specified separation distance defined in Table 1.

Table 1: SAR evaluation – Exemption limits for routine evaluation based on frequency and separation distance[4,5]

Frequency (MHz)	Exemption Limits (mW)				
	At separation distance of ≤5 mm	At separation distance of 10 mm	At separation distance of 15 mm	At separation distance of 20 mm	At separation distance of 25 mm
≤300	71 mW	101 mW	132 mW	162 mW	193 mW
450	52 mW	70 mW	88 mW	106 mW	123 mW
835	17 mW	30 mW	42 mW	55 mW	67 mW
1900	7 mW	10 mW	18 mW	34 mW	60 mW
2450	4 mW	7 mW	15 mW	30 mW	52 mW
3500	2 mW	6 mW	16 mW	32 mW	55 mW
5800	1 mW	6 mW	15 mW	27 mW	41 mW

Frequency (MHz)	Exemption Limits (mW)				
	At separation distance of 30 mm	At separation distance of 35 mm	At separation distance of 40 mm	At separation distance of 45 mm	At separation distance of ≥50 mm
≤300	223 mW	254 mW	284 mW	315 mW	345 mW
450	141 mW	159 mW	177 mW	195 mW	213 mW
835	80 mW	92 mW	105 mW	117 mW	130 mW
1900	99 mW	153 mW	225 mW	316 mW	431 mW
2450	83 mW	123 mW	173 mW	235 mW	309 mW
3500	86 mW	124 mW	170 mW	225 mW	290 mW
5800	56 mW	71 mW	85 mW	97 mW	106 mW

8. Evaluation Results

Frequency (MHz)	FCC calculation	FCC limit	Verdict
2440.0	[(max. power of channel, including tune-up tolerance, mW)/(min. test separation distance, mm)] *·[√f(GHz)] =[(2.9)/(4)]*[√2.44]=1.13	≤ 3.0 for 1-g SAR and ≤ 7.5 for 10-g extremity SAR.	Pass
Frequency (MHz)	**ISED calculation**	**ISED limit**	**Verdict**
2440.0	EIPR(dBm)=P*G(mW)=2.9mW	4.0mW	Pass

9. Conclusion

The measurement results comply with the SAR Exclusion Threshold per KDB 447498 v06 and RSS 102, Issue 5 (March 19, 2015) requirements

END OF REPORT

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