

RF Exposure

Product: UWB Tag

Applicant: Geoplan Co., Ltd.

Model: ID300

Address: 622, Geumjeong SKV1, 142, LS-ro, Dongan-gu, Anyang-si, Gyeonggi-do, South Korea

FCC ID: 2ASPN-ID300

KDB 447498 D01 General RF Exposure Guidance v06, section 4.3.1(a)

Standalone SAR test exclusion threshold is applied;

a) 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:

$[(\text{max. power of channel, including tune-up tolerance, mW}) / (\text{min. test separation distance, mm})] \cdot [\sqrt{f(\text{GHz})}] \leq 3.0$ for 1-g SAR, and ≤ 7.5 for 10-g extremity SAR,

- ♦ where $f(\text{GHz})$ is the RF channel transmit frequency in GHz
- ♦ Power and distance are rounded to the nearest mW and mm before calculation
- ♦ The result is rounded to one decimal place for comparison
- ♦ The values 3.0 and 7.5 are referred to as numeric thresholds in step b) below

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	

Note: 10-g Extremity SAR Test Exclusion Power Thresholds are 2.5 times higher than the 1-g SAR Test Exclusion Thresholds indicated above. These thresholds do not apply, by extrapolation or other means, to occupational exposure limits.

▣ BLE

Frequency (GHz)	Max. output power		Evaluation Distance (mm)	SAR test exclusion Threshold	Limit
	(dBm)	(mW)			
2.402-2.480	-5.98	0.252	5	0.000 22	3.0

- Freq: 2 402 MHz
Max. power : -5.98 dBm (0.252 mW)
Min. Test separation distance : 5 mm
SAR exclusion threshold: $[0.252/5] \times [\sqrt{2.402}] = 0.078$

▣ UWB

Frequency (GHz)	Max. EIRP			Evaluation Distance (mm)	SAR test exclusion Threshold	Limit
	(dBuV/m)	(dBm)	(mW)			
6.489 6	81.69	-23.05	0.005	5	0.003	3.0
7.987 2	77.10	-27.64	0.002	5	0.001	3.0

- Freq: 6 489.6 MHz
Max. power : -23.05 dBm (0.005 mW)
Min. Test separation distance : 5 mm
SAR exclusion threshold: $[0.005/5] \times [\sqrt{6.489\ 6}] = 0.003$
- Freq: 7 987.2 MHz
Max. power : -27.64 dBm (0.002 mW)
Min. Test separation distance : 5 mm
SAR exclusion threshold: $[0.002/5] \times [\sqrt{7.987\ 2}] = 0.001$

Results: Compliant

UWB and BLE radios do not operate simultaneously.