

RADIO FREQUENCY EXPOSURE

Limit

According to section 4.3.1 of KDB 447498 D01 General RF Exposure Guidance v06, 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 Appendix A.

Appendix A

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

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: Manufacturer declared that the maximum antenna gain is -0.62dBi (Max.).

BT:

Conducted Power Results

Test Mode	Channel	Frequency (MHz)	Measured Peak Output Power (dBm)
GFSK	00	2402	0.99
	39	2441	1.53
	78	2480	1.17
$\pi/4$ -DQPSK	00	2402	1.99
	39	2441	2.43
	78	2480	2.25
8-DPSK	00	2402	2.01
	39	2441	2.43
	78	2480	2.14

Manufacturing tolerance

GFSK (Peak)			
Channel	Channel 0	Channel 39	Channel 78
Target (dBm)	1.0	2.0	1.5
Tolerance \pm (dB)	1	1	1
$\pi/4$ -DQPSK (Peak)			
Channel	Channel 0	Channel 39	Channel 78
Target (dBm)	2.0	2.5	2.5
Tolerance \pm (dB)	1	1	1
8-DPSK (Peak)			
Channel	Channel 0	Channel 39	Channel 78
Target (dBm)	2.5	2.5	2.5
Tolerance \pm (dB)	1	1	1

Results

Test Mode	Channel Frequency (MHz)	Max. Tune Up Power (dBm, Peak)	Max. Eirp including Tune Up (dBm, Peak)	Max. Eirp including Tune Up (mW, Peak)	Exemption Limit (mW)
GFSK	2402	2.0	2.62	1.83	10
	2441	3.0	3.62	2.30	10
	2480	2.5	3.12	2.05	10
$\pi/4$ -DQPSK	2402	3.0	3.62	2.30	10
	2441	3.5	4.12	2.58	10
	2480	3.5	4.12	2.58	10
8-DPSK	2402	3.5	4.12	2.58	10
	2441	3.5	4.12	2.58	10
	2480	3.5	4.12	2.58	10

The antenna gain of the EUT for BT is -0.62dBi (Max). the Maximum Eirp is used for Routine Evaluation Exemption according to section 4.3.1 of KDB 447498 D01. So, the SAR evaluation is not required.

BLE:

Conducted Power Results

Test Mode	Channel	Frequency (MHz)	Measured Peak Output Power (dBm)
GFSK	00	2402	-1.36
	19	2440	-0.48
	39	2480	-0.68

Manufacturing tolerance

GFSK (Peak)			
Channel	Channel 0	Channel 39	Channel 78
Target (dBm)	-1.5	-1.0	-1.0
Tolerance ±(dB)	1	1	1

Results

Test Mode	Channel Frequency (MHz)	Max. Tune Up Power (dBm, Peak)	Max. Eirp including Tune Up (dBm, Peak)	Max. Eirp including Tune Up (mW, Peak)	Exemption Limit (mW)
GFSK	2402	-2.5	-1.88	0.65	10
	2441	-2.0	-1.38	0.73	10
	2480	-2.0	-1.38	0.73	10

The antenna gain of the EUT for BLE is -0.62dBi (Max). the Maximum Eirp is used for Routine Evaluation Exemption according to section 4.3.1 of KDB 447498 D01. So, the SAR evaluation is not required.