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	
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	*SAR Test Exclusion Threshold* (mW)
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	
300	164	192	219	246	274	
450	134	157	179	201	224	
835	98	115	131	148	164	
900	95	111	126	142	158	*SAR Test Exclusion Threshold* (mW)
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 0dBi (Max.).

BT:

Conducted Power Results

Test Mode	Channel	Frequency (MHz)	Measured Peak Output Power (dBm)
GFSK	00	2402	8.29
	39	2441	8.46
	78	2480	8.15
π/4-DQPSK	00	2402	9.03
	39	2441	9.16
	78	2480	8.89
8-DPSK	00	2402	9.30
	39	2441	**9.44**
	78	2480	9.17

Manufacturing tolerance

GFSK (Peak)			
Channel	Channel 0	Channel 39	Channel 78
Target (dBm)	8.0	8.0	8.0
Tolerance ±(dB)	1	1	1
π/4-DQPSK (Peak)			
Channel	Channel 0	Channel 39	Channel 78
Target (dBm)	9.0	9.0	8.5
-Tolerance ±(dB)	1	1	1
8-DPSK (Peak)			
Channel	Channel 0	Channel 39	Channel 78
Target (dBm)	9.0	9.0	9.0
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	9.0	9.0	7.94	10
	2441	9.0	9.0	7.94	10
	2480	9.0	9.0	7.94	10
π/4-DQPSK	2402	10.0	10.0	10.0	10
	2441	10.0	10.0	10.0	10
	2480	9.5	9.5	8.91	10
8-DPSK	2402	10.0	10.0	10.0	10
	2441	10.0	10.0	10.0	10
	2480	10.0	10.0	10.0	10

The antenna gain of the EUT for BT is 0dBi (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)
BLE 1M	00	2402	8.24
BLE 1M	19	2440	8.59
BLE 1M	39	2480	**8.35**
BLE 2M	00	2402	8.51
BLE 2M	19	2440	8.76
BLE 2M	39	2480	8.49

Manufacturing tolerance

GFSK (Peak) 1M			
Channel	Channel 0	Channel 39	Channel 78
Target (dBm)	8.0	8.5	8.0
Tolerance ±(dB)	1	1	1
GFSK (Peak) 2M			
Channel	Channel 0	Channel 39	Channel 78
Target (dBm)	8.5	8.5	8.0
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	9.0	9.0	7.94	10
	2441	9.5	9.5	8.91	10
	2480	9.0	9.0	7.94	10
	2402	9.5	9.5	8.91	10
	2441	9.5	9.5	8.91	10
	2480	9.0	9.0	7.94	10

The antenna gain of the EUT for BLE is 0 dBi (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.