Analysis Report

The Equipment Under Test (EUT), is a portable 2.4GHz Transceiver (Car Unit) for a RC car. The sample supplied operated on 33 channels. The channels are shown in the tables below:

2420	2421	2423	2424
2425	2426	2427	2428
2430	2434	2436	2437
2438	2439	2440	2441
2442	2443	2444	2445
2446	2451	2452	2453
2454	2455	2456	2457
2458	2459	2460	2461
2465			

The EUT is powered by 1 x 6.4V lithium-ion battery. After switching on the EUT, the car will move based on the switches pressed in the controller.

Antenna Type: Internal integral antenna
Antenna Gain: 0dBi
Nominal rated field strength: 91.5dBµV/m at 3m (Peak)
Maximum allowed field strength of production tolerance: +/- 3dB

According to the KDB 447498 D04 Interim General RF Exposure Guidance v01

Based on the Maximum allowed peak field strength of production tolerance was 94.5dBµV/m at 3m.

Thus, it below calculated field strength according to minimum SAR exclusion threshold level as follows:

For mobile devices that are not exempt per Table B.1 [Table 1 of § 1.1307(b)(1)(i)(C)] at distances from 20 cm to 40 cm and in 0.3 GHz to 6 GHz, evaluation of compliance with the exposure limits in § 1.1310 is necessary if the ERP of the device is greater than ERP_{20cm} in Formula (B.1) [repeated from § 2.1091(c)(1) and § 1.1307(b)(1)(i)(B)].

$$P_{\text{th}}\ (\text{mW}) = ERP_{20\,\text{cm}}\ (\text{mW}) = \begin{cases} 2040f & 0.3\ \text{GHz} \le f < 1.5\ \text{GHz} \\ 3060 & 1.5\ \text{GHz} \le f \le 6\ \text{GHz} \end{cases} \qquad \text{(B. 1)}$$

If the ERP is not easily obtained, then the available maximum time-averaged power may be used (i.e., without consideration of ERP only if the physical dimensions of the radiating structure(s) do not exceed the electrical length of λ/4 or if the antenna gain is less than that of a half-wave dipole.

$$P_{\text{th}}\ (\text{mW}) = \begin{cases} ERP_{20\ \text{cm}}(d/20\ \text{cm})^x & d \le 20\ \text{cm} \\ ERP_{20\ \text{cm}} & 20\ \text{cm} < d \le 40\ \text{cm} \end{cases} \quad \text{(B. 2)}$$

where

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

and f is in GHz, d is the separation distance (cm), and $ERP_{20\text{cm}}$ is per Formula (B.1). The example values shown in Table B.2 are for illustration only.

Table B.2—Example Power Thresholds (mW)

Frequency (MHz)	Distance (mm)									
	5	10	15	20	25	30	35	40	45	50
300	39	65	88	110	129	148	166	184	201	217
450	22	44	67	89	112	135	158	180	203	226
835	9	25	44	66	90	116	145	175	207	240
1900	3	12	26	44	66	92	122	157	195	236
2450	3	10	22	38	59	83	111	143	179	219
3600	2	8	18	32	49	71	96	125	158	195
5800	1	6	14	25	40	58	80	106	136	169

The worst case of SAR Exclusion Threshold Level at 2.48GHz with distance 5mm:
= 2.717mW

According to the KDB 412172 D01:
EIRP = [(FS*D) ^2*1000 / 30]

Calculated Field Strength for 2.717mW is 99.6dBuV/m @3m

Since maximum peak field strength plus production tolerance < = 99.6dBuV/m @3m and antenna gain is > = 0.0dBi, it is concluded that maximum Conducted Power and Field Strength are well below the SAR Exclusion threshold level, so the EUT is considered to comply with SAR requirement without testing.