



MPE Calculation

FCC ID: 2AJ2A-RCM24G in Intel® Drone link environment

IC ID: 1000B-RCM24G in Intel® Drone link environment

1 Device Setup (Intel® Drone link environment)

In the considered host application, two transmitters (proprietary Radio Control Module RCM24G) are collocated in coexistence with a Bluetooth module. The two RCM24 modules transmit parallel with full power (no CCA). A pseudo random hopping sequence along with dissimilar seeding ensures that both modules never occupy the same channel at a time. The IDL host can be used on tripod or attached to the back of a laptop.



Figure 1 - Exemplary Set-up, Laptop use

2 Applicability

References FCC

- 47 CFR

Portable: (§2.1093) — A portable device is defined as a transmitting device designed to be used so that the radiating structure(s) of the device is / are within 20 centimeters of the body of the user.

Mobile: (§2.1091) (b) — A mobile device is defined as a transmitting device designed to be used in other than fixed locations and to generally be used in such a way that a separation distance of at least 20 centimeters is normally maintained between the transmitter's radiating structure(s) and the body of the user or nearby persons. Per §2.1091(d)(4) In some cases (for example, modular or desktop transmitters), the potential conditions of use of a device may not allow easy classification of that device as either Mobile or Portable. In these cases, applicants are responsible for determining minimum distances for compliance for the intended use and installation of the device based on evaluation of either specific absorption rate (SAR), field strength, or power density, whichever is most appropriate.

- KDB447498D01(8) and KDB616217D01

The considered host application is mobile for professional use and a separation of 20cm is required by manual. Consequently for intended use this MPE is sufficient.

In respect to "potential conditions of use" as per 47 CFR 2.1091 also SAR measurement has been performed. The "minimum distance of compliance" has been determined through probing measurements to be 2cm with 1cm steps. A final SAR measurement has then been performed at 2cm: SAR 0,44 W/kg(1g) (see test report 171010-01.TR1).

References ISED

- RSS-102, Issue 5



3 MPE Calculation Method

Equation according OET Bulletin 65, Edition 97-01

$$S = \frac{PG}{4\pi R^2}$$

Where

S: Power Density

G: Power gain of the antenna in the direction of interest relative to an isotropic radiator

R: Distance to the center of radiation of the antenna

Bluetooth Module

FCC-ID: SQGBT900

IC-ID: 3147A-BT900

| Item: | Value: | Notes: |
|----------------------------------|--------|------------------------------|
| Worst case conducted power [mW] | 7 | Including tune-up tolerances |
| Worst case conducted power [dBm] | 8.4510 | 2.402-2.48 GHz |
| Worst case antenna gain [dBi] | -1.6 | 2.440 GHz, internal antenna |

Table 1- Bluetooth Module

References: BT900-SA integration manual, see FCC submissions related to SQBT900

4 Radio Control Module RCM24G

FCC-ID: 2AJ2A-RCM24G

IC-ID: 1000B-RCM24G

| Item: | Value: | Note: |
|----------------------------------|--------|------------------------------|
| Worst case conducted power [mW] | / | |
| Worst case conducted power [dBm] | 20.93 | Including tune-up tolerances |
| Worst case antenna gain [dBi] | 2 | |

Table 2 - RCM24 Module

References: CETECOM_TR16-1-0190801T05a.pdf



5 Evaluation

Refer to KDB447498 for simultaneous transmission MPE.

The evaluation distance is 20cm according to manual.

| Radio Device | Max. Conducted Power [dBm] | Duty Cycle | Max. Antenna gain [dBi] | Power Density [mW/cm ²] @20cm | MPE Limit [mW/cm ²] |
|--------------|----------------------------|------------|-------------------------|-------------------------------------------|---------------------------------|
| SQGBT900 | 8.5410 | 1 | -1.6 | 0.001 | 1 |
| 2AJ2A-RCM24G | 20.93 | 1 | 2 | 0.039 | 1 |
| 2AJ2A-RCM24G | 20.93 | 1 | 2 | 0.039 | 1 |

Table 3 - Reported Power Density

The total power density under worst case condition at 20cm radius is reported 0.079 mW/cm².

Therefore at a prediction distance of 20cm the device setup complies with MPE requirements.

Completed by:

Dr. Andreas Gäde-Tsangas
Corporate Product Regulations & Standards
(Product Regulatory Engineer)

2200 Mission College Blvd
Santa Clara, CA 95054
USA
Direct: +49 89 8955 6079 49