INTERTEK TESTING SERVICES

Analysis Report

General information:

The equipment under test (EUT) is an i10L Bluetooth splitter Transmitter. When under the intended use, it only can be connected to an Iphone or Ipad due to the specific port, And the EUT was powered by Lightning port, referring the EUT Photos and the manual for more details.

Specification:

Modulation Type: GFSK, Π/4DQPSK, 8DPSK
Bluetooth Version: BT4.1 with BLE function
Antenna Type: Integral antenna
Antenna Gain: 0dBi
The applicant declared that: the maximum output power and tolerance allowed for production is -6.5 dBm(0.224mW),

Stand-alone SAR evaluation:

The maximun peak radiated emission for the EUT is 88.0dBμV/m at 3m in the frequency 2441MHz
The EIRP = [(FS*D) ^2 / 30] mW = -7.2dBm
which is within the production variation.

The minimum peak radiated emission for the EUT is 87.0dBμV/m at 3m in the frequency 2480MHz
The EIRP = [(FS*D) ^2 / 30] mW = -8.2dBm
which is within the production variation.

According to the KDB 447498 section 4.1(b):

When an antenna port is not available on the device to support conducted power measurement, such as for FRS (Part 95) devices and certain Part 15 transmitters with built-in integral antennas, the maximum output power and tolerance allowed for production units should be used to determine RF exposure test exclusion and compliance.

Standalone SAR test exclusion considerations

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:

[(*max. power of channel, including tune-up tolerance, mW*) / (*min. test separation distance, mm*)] · [$\sqrt{f_{(GHz)}}$] ≤ 3.0 for 1-g SAR, and ≤ 7.5 for 10-g extremity SAR,[30] where

- $f_{(GHz)}$ is the RF channel transmit frequency in GHz

- Power and distance are rounded to the nearest mW and mm before calculation[31]
- 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

The calculation: (0.224mw/5mm)*(2.48^0.5)=0.1，much lower than 3.0, thus stand-alone SAR is exempted.

Simultaneous SAR Considerations:

The estimated SAR evaluation:

1) [(*max. power of channel, including tune-up tolerance, mW*) / (*min. test separation distance, mm*)]·[$\sqrt{f_{(GHz)}}/x$] W/kg, for *test separation distances* ≤ 50 mm;
   where x = 7.5 for 1-g SAR and x = 18.75 for 10-g SAR.

The estimated 1-g SAR value: (0.224mw/5mm)*(2.48^0.5)/7.5=0.009W/kg.
According to the clauses of simultaneous SAR exemption:
The Sum SAR value is lower than the limit (1.6W/kg), the simultaneous SAR can be exempted absolutely.
Basing on this, that means if the highest reported-SAR of the host (i.e. the Iphone or Ipad which was connected to EUT) is lower than 1.591W/kg, simultaneous SAR is not required.

We have double checked all kinds of Iphone and Ipad which were listed on FCC website currently, none of them has a reported SAR higher than 1.591W/kg. Also, in order to make sure simultaneous SAR exemption is efficient in the further, the warning statement “only the Iphone or Ipad whose reported 1-g SAR lower than1.591W/kg is permitted to match this device” will be indicated on the user manual.