ATCB
RE: Johnson Controls Interiors L.L.C.
FCC ID: CB2UCONN

The following is in response to the comments provided for the CB2UCONN filing.

1) Please provide a photograph that shows the complete back of the Bluetooth TX board.
An Addendum to the Internal Photos test exhibit has been uploaded.

2) Please provide an updated label that includes the correct FCC ID for this application.
An updated label has been uploaded.

3) The device appears to contain 2 or 3 different boards. Please provide a description of what each board is.
The DUT includes two PCB boards. The primary board contains the Bluetooth transmitter and additional digital circuitry which connects the DUT to the automotive buss. The smaller secondary board contains the digital electronics which control the Bluetooth coding and decoding operations.

4) Please provide radiated spurious emissions test photographs.
A test photograph of the radiated emissions setup is already available in the Test Setup Photos exhibit.

5) Please provide a separate RF exposure exhibit. Please be sure to include information regarding how the device is expected to be mounted within a car and the distance the antenna is from users once installed. Also, please provide MPE calculations as these are still desired even with the low power output.
As per conversations with Bill Graff at ATCB about this device, we were told that for a device of EIRP less than 10 mW we would not be required to submit RF exposure calculations as the DUT "operates at substantially low output power levels, with a low gain antenna" as is stated in the Public Notice on Filing and Measurement Guidelines for FHSS Systems you forwarded to use with this request. If this is incorrect please let us know for future reference. We have uploaded a RF Exposure exhibit if it is still deemed necessary.

6) The users manual provided contains statements regarding confidentiality. Please note that the users manual is not typically allowed to be considered confidential, since the end user is expected to receive a copy anyway. Please comment.
Disregard the Confidentiality statement in the User's Manual.

7) Section 6.4 shows data and a limit for a 1 second. Please note that the limit specified is over a 30 second period of time. Please adjust the data given in this section. Additionally, depending on the amount of data the unit is sending, it likely will not transmit full packets and will provide data less than expected. Refer to Theory of operation that we sent to you earlier.
This has been corrected. See the revised test report we have included.

8) Section 6.5 & 6.6 of the test report states that average measurements were made using a 1 Hz VBW. The FCC only accepts an average measurement of 10 Hz or greater. Additionally, average measurements with the hopping enabled are NOT allowed. To obtain an average measurement, the following must be employed:

1) Measure the signal with hopping DISABLED using RBW = 1 MHz, VBW = 10 Hz.
2) Determine worse case duty cycle in any 100 msec of time. Please note that Bluetooth offers several different length packets depending on amount of data to send. Subtract the correction factor of 20 log (maximum transmit time in 100 msec/100) from 1) above.

A 1Hz VBW was a typo in section 6.5 of the test report. All average data was taken with 100 Hz VBW as stated in section 6.6. This has been corrected in the revised test report.

9) The EUT should NOT be hopping for power measurements. Please provide new peak data (with hopping disabled and also for a typical low, middle, and high channels) for section 6.6 of the test report and also adjust the 731 form if necessary. Additionally, we have provided a document regarding testing of FHSS devices that you may find useful. Please note outline areas of document regarding hoping or being hop stopped.
The power levels for the device in non-hopping mode have been included in the revised test report. Note there was no change in output power levels from the DUT.

10) The EUT should NOT be hopping for RF Antenna Conducted measurements. Please provide new peak data (with hopping disabled and also for a typical low, middle, and high channels) for section 6.6 of the test report.
This has been corrected. See the revised test report we have included.

11) Bandedge compliance should be measured for both a hopping and non-hopping mode of operation. Please provide new data for the bandege that checks both modes of operation.
This has been corrected. See the revised test report we have included.