Non-Conformities FCC ID: OH29101 (CKC CS Ref # E09-000027-FCC-01)

The items listed below represent requests for information following review of this application for certification under United States (FCC) regulations. Further question may arise pending review of responses to these items.

OK	ID	#	Non-Conformity or Comment	Submitted Response	Respondent / Date of Response
√	C	1	The confidential letter is addressed to the TCB instead of the FCC, please provide a revised confidential letter addressed to the FCC	Updated Confidentiality Letters Provided. This has been corrected-C Kendall 8/28/09	Bob Vitti 8/27/09
√	A	2	15.247 RF output Power is not listed on the Form 731, item 12 Output power is still listed as "0" in item 12 of the Form 731. This still needs to be corrected. C Kendall 8/28/09	The output power was not in the report so I could not provide this. This has been corrected and now appears in the report and the application form. Corrected. Agreed, this has been corrected-C Kendall 9/7/09	Jessina Hunter 4/3/09 Jessina Hunter 9/1/09
√	C	3	The letter of confidentiality is not signed; please provide a signed letter of confidentiality.	Updated Confidentiality Letters Provided. This has been corrected-C Kendall 8/28/09	Bob Vitti 8/27/09
√	C	4	The provided operational description does not meet 2.1033(b)(4) requirement, in addition to how the device operates , please provide a revised operational description detailing the circuit functions of the device, RF port in particular, including signal information and modulation. This statement should contain a description of the ground system and antenna, if any, used with the device The antenna specification detail has been provided, but does little to	New Antenna Operation detail Provided. Information was sent to me by the Customer. I Updated the Operational Description on file, adding the information that the customer sent me. Sent the updated Operational Description to the customer for Approval. Operational Description Approved. Jessie Provided a revised operational description based upon a summary of all of the datasheets they provided. It will be used as the Operational Description.	Bob Vitti 3/24/09 Jessina Hunter 9/14/09 Bob Vitti 9/15/09 C Kendall 16 16 Sep 09.

			provide how the device operates, such as detailing the circuit functions of the device, nor the signal information and modulation explanations. This still needs to be addressed. C Kendall 8/28/09 The New Antenna Operation detail does not describe how the transmitters operate, such as what produces the signal, how the signal is processed, filtered, modulated, and finally delivered to the antenna. We have a great deal of info regarding how the system communicates with the meshes but little to none information regarding the how the transmitters function internally. C Kendall 9/8/09		
√	C	5	Schematic diagram of the ZigBee portion of the device is not included, please provide the schematic diagram of the RF circuit.	I *assume* they are asking for information on the 916.5MHz transceiver, and not the Zigbee Module. For the 916.5 MHz radio: 1) F (LO) = F (TX) - F (IF) = 916.5 - 0.38956 = 916.11 MHz 2) We use the Linx technologies (antenna factor) P/N ANT-916-JJB-RA antenna. The JJB antenna gain is not specified by the manufacturer, since the actual gain will vary slightly with the application due to the size and shape of the ground plane of the PCB it's mounted to. However, as a 1/4 wave partially helicallly wound monopole, the expected gain is around 1.3 dBi. We have not asked CKC to measure the actual antenna gain, since it is not normally required as part of a submission. http://www.linxtechnologies.com/Products/Antennas/Embeddable/JJB-Series-Monopole-Antennas/ For the Zigbee Module:	Bob Vitti 3/24/09

				1) The CC2430 IC on the Zigbee Module uses a 2MHz IF frequency. Thus I would expect F (LO) = F (TX channel) - 2MHz. The actual TX channel is determined via software, from 2405MHz to 2475MHz; so LO should be 2403MHz - 2473MHz. 2) Antenna gain 2.1 dBi - Jim	
			Please provide the ZigBee schematics for your device. Still not addressed- C Kendall 8/28/09	Still not addressed- C Kendall 9/8/09 Please send the ZigBee schematics. Confidential schematics received from the module's manufacturer.	C Kendall, 9/16/09
√	TL	6	Measured RF output power in accordance with 15.247 is not presented in the test report. Please provide a revised test report with listed RF output power. Page 20 of FC09-003A has now identified the second harmonics of all of the low, mid, & high channels as passing the radiated output level requirements. I believe that the output power should list the primary frequencies and not that of the harmonics thereof. This still needs to be corrected.	Refer to item #11 See item 11- Corrected – C Kendall, 8/31/09	Mike Wilkinson 3/24/09
√	TL	7	Page 17 of the test report FC09-003, the Test condition indicated the device was set in receive mode while tested to 15.209 under intentional radiator. Please verify whether this is a typo. Wrong-Sequence 6, page 25 of FC09-003A now corrects the old page 17 of	Remove data & photos from report pages 16 & 17. 15.209 is included in data on page 23 This has been corrected- C Kendall 8/28/09	Mike Wilkinson 3/24/09

			FC09-003.		
√	TL	8	Page 20, 23, 29 of the test report FC 09-003. The low channel is listed as 2005MHz in the test condition. Please verify whether this is a type.	Typo s/b 2405 This has been corrected with new page 25 - C Kendall 8/28/09	Mike Wilkinson 3/24/09
√	TL	9	A RF shield is covering a portion of the PCB, please provide a revised internal photograph with the RF shield removed No new photos were submitted and photos without the covers were not included –still unanswered-C Kendall 8/28/09	Customer supplied photos. Please refer items 9 & 10 to Bob Vitti as they provided the submittal photos. Corrected – C Kendall, 8/31/09	Mike Wilkinson 3/23/09
√	TL	10	The provided exterior photos do not clearly show the exterior appearance. Please provide revised external photos showing all six sides of the device No new photos were submitted and photos only show the front and back of the EUT (need photos of the other sides of the EUT –still unanswered-C Kendall 8/28/09 This still requires four additional photos top, bottom, and two sides. C Kendall 9/8/09	Customer supplied photos. Please refer items 9 & 10 to Bob Vitti as they provided the submittal photos. Photos Provided. Updated the Photos on file and sent them to the technical reviewer. Photos now have been received – C Kendall, 9/16/09	Mike Wilkinson 3/23/09 Bob Vitti 9/15/09 Jessina Hunter 9/16/09
√	TL	11	Page 20 of the test report FC09-003. Per 14.247(b)(3) the power limit is 1 Watt conducted. The presented test data does not clearly indicate the measured conducted power meets the requirement.	Replace data sheet on page 20 with the attached. Reference to page number in error, this info now on page 17 of the report. Corrected – C Kendall, 8/31/09	Mike Wilkinson 3/24/09

			Please provide a revised test report with the inclusion of all calculations involved, showing the measured RF output power meets the requirement. For equipment without the provision of direct connection of the measuring instrument to the antenna port, please clarify whether the alternative test procedure in accordance with KDB558074 was used or Antenna substitution method was employed if the gain of the transmitting antenna is unknown. Page 20 of FC09-003A has now identified the second harmonics of all of the low, mid, & high channels as passing the radiated output level requirements. I believe that the output power should list the primary frequencies and not that of the harmonics thereof. This still needs to be corrected.		
√	C	12	The user manual is missing a RF exposure statement. Please provide a revised user manual with a statement addressing the minimum separation requirement as claimed in the submitted MPE calculation "MySentry MPE Memo"	Here are the changes to the User Manual regarding RF exposure statement. This statement is now under U/L Safety section, but still in the User's Manual. C Kendall 9/8/09	Bob Vitti 8/21/09
√	C	13	Please provide an updated user manual incorporating the statement required by 15.21.	Here are the changes to the User Manual regarding RF exposure statement. File titled Warranty Page submitted that includes a new bullet point regarding changes or modifications (15.21) –C Kendall, 8/28/09	Bob Vitti 8/21/09
√	TL	14	Page 10, 13 of the test report FC09-001, the device was set to transmit	Change data test conditions to "set to receive mode"	Mike Wilkinson 3/24/09

			mode while tested to 15.107, please verify whether this is a type.	Pages 10 & 13 now state the device was set to receive; this is now corrected - C Kendall, 8/28/09	
√	TL	15	Page 24, 26 of the test report FC09-001, the frequency range of measurement is declared as 30MHz-5GHz. Please clarify whether the upper frequency range satisfies the requirement for the receiver LO frequency of the 2.4GHz Zigbee.	Range s/b 30MHz to 15 GHz. Customer has declared the LO for 916 MHz transceiver to be 916.11 MHz and the Zigbee Transceiver to be 2403MHz - 2473MHz 032509: TL: Randy: Line 15: the receiver testing was performed up to 15GHz which is greater than 5 x 2483.5 MHz. Amrinder Kicked on this item in the Committee Review Stage saying: Measurement is declared up to 5GHz, the comment states up to 15GHz. Amrinder's comment on item 15 applies to the 15.109 test report; this item is okay. Remove the 15.109 test report from the FCC application fling exhibits as it is not required for this filing.	This needs to be addressed by you per Mike Wilkinson. EW: 15GHz is sufficient to cover Rx freq of 2483MHz (5x) Jessina Hunter 9/17/09 Randal Clark 9/17/09
√	TL	1416	Page 27 of test report FC09-003. The RBW employed for the bandedge plot is less than the RBW prescribed for measurement above 1 GHz. Please verify whether delta marker method IAW DA00705 was employed and justify the compensation of reduced amplitude when reduced RBW was employed. New page 27 of FC09-003A does not correct this, since the graph still shows the 9kHz RBW ; this still needs to be addressed - C Kendall, 8/28/09	Add note "Marker Delta Method used and includes the offset. "to both plots Replace low edge plot with attached This will suffice - C Kendall, 8/28/09	Mike Wilkinson 3/24/09
√	TL	17	15.247(a) Minimum 6dB bandwidth is	Refer to OBW plots on pages 42 & 43	This needs to be

			missing from the test report FC09-003. Please provide Minimum 6 dB bandwidth measurement, acquired in accordance with test procedure prescribe in KDB 558074	032509: TL, Randy: Line 17: the OBW plots demonstrate compliance with this requirement via the 99% power measurement which integrates the power in linear terms across the transmit signal. This meets the minimum requirements for 500kHz.	addressed by you per Mike Wilkinson EW: Please use RBW required by KDB448074.
√	TL	18	Page 29 of test report FC09-003, the presented data is confusing, please explain and correlate the measured dBuV listed under Rdng to the Spec limit of 8dBm.	Replace data sheet on page 29 with the attached. Above statement is incorrect, however, page 25 does clear up the confusion and stands corrected – C Kendall 8/28/09	Mike Wilkinson 3/24/09
√	TL	19	Please explain the discrepancy of the listed dBµV readings (-13, -14, -18.3) to the dBm readings (-1.58dBm, -2.51dBm, -6.68dBm) of the Peak Power density plots presented in Page 30 and 31.	Remove the plots on pages 30 & 31. Replace data sheet on page 29 with the attached. Above statement is incorrect, however, page 25 does clear up the confusion and stands corrected – C Kendall 8/28/09	Mike Wilkinson 3/24/09
√	TL	20	Page 30 and 31 of the test report. At a span of 5 MHz and sweep time of 4.134 Sec, the measurement does not comply with sweep = (SPAN/3 kHz) as prescribed by KDB 558074 under PSD Option 1. Please provide revised PSD measurement with appropriate sweep time, alternatively if Option 2 was employed, please clarify and prove compliance with the required number of trace average	Remove the plots on pages 30 & 31. Page 25 does clear up the confusion and stands corrected – C Kendall 8/28/09	Mike Wilkinson 3/24/09
√	TL	21	Page 33 of test report FC09-003. Both measurements were labeled Vertical. Please verify whether one of the recorded readings should be Horizontal polarity	Change reading #2 polarity to horizontal Page 27 shows the correct polarity now; corrected – C Kendall 8/28/09	Mike Wilkinson 3/24/09

The items indicated above must be submitted before processing can continue on the referenced application. Failure to provide the requested information within 60 days may result in application dismissal pursuant to Section 2.917(c) and forfeiture of the filing fee pursuant to Section 1.1106.

How to read the table:

OK column indicates closure by CKC CS.

ID column is for use with Agents to assist in identifying the probable source for closure.

- A – Application issue
- TL – Test lab issue
- C – Client issue
- R – Retesting may be necessary

column indicates unique or separate non-conformity items (note some items may be related).

Non-Conformity or Comment column indicates the evaluators specific question or comment.

Submitted response column indicates the response or a summary of the response provided.

Respondent / Date of Response column indicates the responding party or agent and the date of the response was either received or logged.