Non-Conformities FCC ID: WO8RJ0479 (CKC CS Ref # E09-000035-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
x	C	1	The FCC Cover letter “FCC_Covering_Letter.pdf" is addressed to CKCCS. Please provide revised cover letter address to the FCC	Revised covering letter addressed to the FCC and signed by Mr. Horst Günther. See attached file "FCC Covering Letter_Rev 2009-05-11.pdf"	TL, 2009-05-11
x	C	2	The cover letter was signed by Uwe Richter, however the authorized person listed on the grantee code is Horst Guenther. In accordance with FCC Policy (KDB 852134), please provide all cover letters signed by the authorized individual named in the applicant's grantee code information or by an authorized designee. In the latter case, please also provide letters of authorization signed by the authorized individual designating the alternate(s). In all cases, a paper trail must be demonstrated leading back to the person named under the grantee code	Revised covering letter addressed to the FCC and signed by Mr. Horst Günther. See attached file "FCC Covering Letter_Rev 2009-05-11.pdf"	TL, 2009-05-11
x	C	3	The functional description did not provide enough information as to how was the transmit frequency 13.56MHz generated. Please provide a revised functional description clarifying whether the 13.56MHz was generated from discrete components or from a manufactured chip set	Modified block diagram and functional description, provided by Crossmatch Technologies. See attached file "Functional Description and Block Diagram Rev 2009-05-11.pdf"	TL, 2009-05-11
x	C	4	The transmit frequency is not listed on the block diagram, please provide a revised block diagram with the transmit frequency and the IF frequency if any, labeled in the appropriate block.	Modified block diagram and functional description provided by Crossmatch Technologies. See attached file "Functional	TL, 2009-05-11

				Description and Block Diagram Rev 2009-05-11.pdf" According to the explanations of the client, the subcarrier of 847.5 kHz needed for the evaluation of the tag response is being derived from 13.56 MHz internally in the RFID IC. There is no separate local oscillator, the reader does not contain a superheterodyne receiver!	
x	C	5	The provided block diagram indicates the presence of a 36MHz clock in the FPGA Altera EP2C5 block. Whereas page 1 of the Schematic diagram, RJ0479_302_25_SP_AEZ01.pdf at the bottom right corner shows a 33 MHz crystal. Please verify whether this is a mistake and provide a revised block diagram or schematic accordingly. Likewise please correct page 4 of the test report where 36 MHz is listed on the operational frequency and 33 MHz is listed as disturbance source of the Base Cam PCB.	The client has stated: "The 36MHz in the FPGA is made in the internal FPGA PLL out of a 48MHz clock feeding from the Cypress FX2 USB Controller. The 33MHz oscillator is for an optional TPM Chip feature, which is not populated or intended to be produced or even to be certified. Around the TPM Section there is a box with the mark “Option TPM” and in the BOM this is declared as do not populate. It is a feature which was planed but was not needed by customers so it was not released. "	TL, 2009-05-11

				In the revised test report FG43-7-106192 "33 MHz" has been deleted.	
x	C	6	Page 4 of the test report indicates a 27.12 MHz on the RFID Adapter ACG, however this crystal could not be identified in the schematic diagram RJ0479_385REV_F_SP.pdf. Please provide a revised schematic diagram or clarify the source of 27.12MHz clock. 5/13/09: , If this module is a plug in PCB populated with discrete components. please provide the schematic diagram of the Add-on Module with the 27.12MHz which plug into X4 and X5 Alternatively, if the plug in module is an IC chip, then please provide a statement for clarification purposes.	Modified block diagram and functional description provided by Crossmatch Technologies. See attached file "Functional Description and Block Diagram Rev 2009-05-11.pdf" TL: A revision of the schematic diagram is obsolete because the 27.12 MHz are being generated on the Add-on module which plugs into X4 and X5. TL 2009-05-20: The client has stated: "The add-on-modul, we call "ACG RFID Module" is an off the shelf product developed by the firm "ACG". The firm has been a part of "ITG ASSA ABLOY (OMNIKEY)" and is now a part off "HID Global". The module can be ordered as "RDHO-0401N0-04" (Dual ISO OEM Modul MFW2.2) at HID Global in Walluff Germany. The main part of this small module is an RFID-IC named	TL, 2009-05-11

				"MF RC531" manufactured by Philips Semiconductor." For further details refer to the attached data sheet with file name "acg-rdho-0401n0.pdf".	
x	C	7	The internal diagram Figure 3, shows a RF shield was covering a portion of the PCB. Please provide a revised PCB photograph with the RF shield removed and with sufficient photographic clarity to identify major components under the RF shield.	Additional photos of the Base Cam and Power Supply PCBs. See attached files RJ0479_302.jpg RJ0479_312.jpg and Internal photos Rev 2009-05-11 - PCBs.pdf	TL, 2009-05-11
x	C	8	The internal photograph shows copper tape was employed. Please clarify whether the copper tape was installed during compliance testing or installed at the factory prior to testing as a designed component. If the copper tape was installed as a fix during the compliance testing, please explain how will the it be implemented as permanent fix in final production units.	The copper tape was installed at the factory prior to testing as a designed component, see attached file RJ0479_100_ 14_d_Optikmodul_ kpl_.pdf	TL, 2009-05-11
x	TL	9	Calibration due date are mission from page 6,11,13,16,20,23 and 25 of the test report. Please provide a revised test report with valid calibration due date of the test equipments used. In addition, to understand the equipment type used for measurement, please translate the description of test equipment used to the English language.	Revised Test Report, FG43-7-106192	TL, 2009-05-11
x	TL	10	On page 5 of the test report, the extreme voltage value is listed as 16	The user's manual states	Wolfgang Klaus

			V and 28 V. On Page 17 of the test report, the upper range of supply voltage tested is listed as 24 volt. In accordance with 15.31(e), the voltage variation shall be performed with the supply voltage varied between 85% and 115% of the nominal rated supply voltage. Please verify whether the stated 24 V and 28 Volts are typos. and also please verify whether the 19 Volt is the nominal rated supply voltage matching that of stated in the user manual.	that the supply voltage is 21 V +/- 3 V (which is approx. 21 V +/- 15%). Please advise whether the lower and upper extreme voltages shall be 18 V and 24 V, or 15.7 V (=18 V - 15%) and 27,6 V (=24 V+ 15%). Revised Test Report FG43-7-106192 with data from frequency measurements at 17,85 V, 21 V and 24,15 V. The rated voltage is 21 V.	4/28/09 TL, 2009-05-11
x	TL	11	Page 5 of the test report, under section 1.4 the result stated measurement beyond 1 GHz is not applicable , however in 15.33(a) (4) states: If the intentional radiator contains a digital device, regardless of whether this digital device controls the functions of the intentional radiator or the digital device is used for additional control or function purposes other than to enable the operation of the intentional radiator, the frequency range shall be investigated up to the range specified in paragraphs (a)(1) through (a)(3) of this section or the range applicable to the digital device, as shown in paragraph (b)(1) of this section, whichever is the higher frequency range of investigation. Since the device incorporate a 480 MHz operating frequency, please provide a test report with 15.209 data tested to frequency range as specified in 15.31(a)(4)	Revised Test Report FG43-7-106192	TL, 2009-05-11
x	TL	12	Page 6 and 7 of the test report indicated a correction of 20dB/decade was used, however, 15.31(f)(2) states At frequencies below 30 MHz, measurements may be performed at a distance closer than that specified in the regulation……..when performing measurements at a closer distance than specified, the results shall be extrapolated to the specified distance by either making measurements	Our measurements at 1, 3 and 10 m showed that the decrease between 3 m and 10 m is slightly less than 40 dB/decade, while is slightly higher than	Wolfgang Klaus 4/28/09

			at a minimum of two distances on at least one radial to determine the proper extrapolation factor or by using the square of an inverse linear distance extrapolation factor (40 dB/decade). Please corrected all measured readings and plots using the extrapolation factor as indicated in 15.31(f)(2). Note: The table listed on page 7 of the test report shows 95dBuV/m at 1 meter and 55 dBuV/m at 10 meter. extrapolation would yield a factor that matches the 15.31(f)(2) extrapolation factor	40 dB/decade between 1m and 3 m. To be on the safe side, we made a conservative approach with 20 dB/decade for the extrapolation from 10 m to 30 m, knowing that the decrease of the field strength will approach 20 dB/decade in the far field. However, the revised test reports will show final results that have been calculated from the field strength readings at 10 m by applying a correction of -19,1 dB (corresponding to an extrapolation factor of 40 dB/decade). Revised Test Report FG43-7-106192 The measurement values taken at 10 m distance were extrapolated to 30 m by using an extrapolation factor of 40 dB/decade.	TL, 2009-05-11
x	TL	13	Page 28, 30 and 32. Although it is of identical absolute limit, the presented data plot did not indicate the conducted emission meets the FCC 15.207 requirement for intentional radiator. Please provide a revised report with the plots relabeled to show compliance to 15.107	Revised Test Report FG43-7-106192	TL, 2009-05-11
x	TL	14	Under 2.3, Page 5 of the test report claims the frequency range of measurement for 15.109 is from 1 - 5 GHz, However the title on page	Yes, of ocurse the measurement	TL, 2009-05-11

			2 and the page title of page 24 indicates the upper frequency is 2 GHz. Please confirm whether the upper frequency was measured up to 5 GHz.	was made up to 5 GHz. The revised test report FG43-7-106192 will show this.	
x	TL	15	Page 28, 30 and 32. Although it is of identical absolute limit, the presented data plot did not indicate the conducted emission meets the FCC 15.207 requirement for intentional radiator. Please provide a revised report with the plots relabeled to show compliance to 15.207.	Revised Test Report FG43-7-106192	TL, 2009-05-11
x	C	16	The return frequency of the RFID system is not declared; please declare the return frequency of the RF tag. 5/13/09: The provided document " Data transmission PICC to PCD" did not specifically indicate the return frequency of the RF tag. Please provide a statement indicating the return frequency of the RF tag.	The client has stated: " To get an answer to your question C16, please read the pdf document "Data transmission PICC to PCD" The file is attached. TL 2009-05-20: The client has stated: "The return frequency of the tag is identical with the transmitter frequency of the reader (13.56 MHz). The data transmission from the tag back to the reader uses the principle of load modulation (on-off keying OOK). The tag is designed as a resonance circuitry at 13.56 MHz and consumes energy generated by the reader. This energy consumption has a feedback effect as to a voltage drop in the reader circuitry with a modulation frequency of 847.5	TL, 2009-05-11

				kHz. For further details refer to the file 'Data transmission PICC to PCD.pdf". In this document "PCD" means Proximity Coupling Device (at least the reader device) and "PICC" means Proximity Card (at least the tag in a passport)."	
x	TL	17	Emission mask provided on page 9 of the test report does not match the emission limit. Please provide a revised plots with emission limit matching the absolute value as required in 15.255 (a),(b),(c),(d) with applicable distance correction in accordance with 15.31(f)(2) applied to the measured emission level.	Revised Test Report FG43-7-106192	TL, 2009-05-11
x	TL	18	Page 12 of the test report "Testreport-FG43-7-106192 (FCC)" the listed test date is 2007-07-10. Please clarify whether this is a mistake.	The listed date contains a typing error, sorry. The correct date is 2008-07-10.	TL, 2009-05-20

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.