

Request for Modular/Limited Modular Approval

Date: January 10, 2020				
Subject: Manufacturer's Declaration for \square - Limited Modular Approval \square - Split Modular Approval \square - Limited Split Modular				
Confidentiality Request for: PD9PBA5001				
8 Basic Requirements – FCC Part 15.212(a)(1)				
For Items Marked "NO(*)", the Limited Module Description Must be Filled Out on the F				
Modular Approval Requirement	Requirement Met			
1. The modular transmitter must have its own RF shielding. This is intended to ensure that the module does not have to rely upon the shielding provided by the device into which it is installed in order for all modular transmitter emissions to comply with FCC limits. It is also intended to prevent coupling between the RF circuitry of the module and any wires or circuits in the device into which the module is installed. Such coupling may result in non-compliant operation. The physical crystal and tuning capacitors may be located external to the shielded radio elements. 15.212(a)(1)(i)	⊠ - YES	□ - NO(*)		
Details: – The module contains a metal shield which covers all RF components and circuitry. The shield is located on the top of the board next to antenna connector. See photo provided with this filing.				
2. The modular transmitter must have buffered modulation/data inputs (if such inputs are provided) to ensure that the module will comply with FCC requirements under conditions of excessive data rates or over-modulation. 15.212(a)(1)(ii)	⊠ - YES	□ - NO(*)		
Details: - Data to the modulation circuit is buffered as described in the operational description provided with the application>				
3. The modular transmitter must have its own power supply regulation on the module. This is intended to ensure that the module will comply with FCC requirements regardless of the design of the power supplying circuitry in the device into which the module is installed. 15.212(a)(1)(iii)	⊠ - YES	□ - NO(*)		
Details: - The module contains its own power supply regulation. Please refer to operational descrip application	tion filed with	this		
4. The modular transmitter must comply with the antenna and transmission system requirements of §§ 15.203, 15.204(b), 15.204(c), 15.212(a), and 2.929(b). The antenna must either be permanently attached or employ a "unique" antenna coupler (at all connections between the module and the antenna, including the cable). The "professional installation" provision of § 15.203 is not applicable to modules but can apply to limited modular approvals under paragraph 15.212(b). 15.212(a)(1)(iv)	⊠ - YES	□ - NO(*)		
Details: – The module connects to its antenna using an UFL connector which is considered a non-stantenna and connector specification are provided with this filing.	andard connec	ctor. The		
5. The modular transmitter must be tested in a stand-alone configuration, i.e., the module must not be inside another device during testing. This is intended to demonstrate that the module is capable of complying with Part 15 emission limits regardless of the device into which it is eventually installed. Unless the transmitter module will be battery powered, it must comply with the AC line conducted requirements found in Section 15.207. AC or DC power lines and data input/output lines connected to the module must not contain ferrites, unless they will be marketed with the module (see Section 15.27(a)). The length of these lines shall be length typical of actual use or, if that length is unknown, at least 10 centimeters to insure that there is no coupling between the case of the module and supporting equipment. Any accessories, peripherals, or support equipment connected to the module during testing shall be unmodified or commercially available (see Section 15.31(i)). 15.212(a)(1)(v)	□ - YES	⊠ - NO(*)		
Details: - The module was tested in OEM host PC and is limited to installation in the host described	in this filing.			



	Modular Approval Requirement	Require	Requirement Met	
6.	The modular transmitter must be labeled with its own FCC ID number, or use an electron display (see KDB Publication 784748). If using a permanently affixed label with its own FCC ID number, if the FCC ID is not visible when the module is installed inside another device, then the outside of the device into which the module is installed must also display a label referring to the enclosed module. This exterior label can use wording such as the following: "Contains Transmitter Module FCC ID: XYZMODEL1" or "Contains FCC ID: XYZMODEL1." Any similar wording that expresses the same meaning may be used. The Grantee may either provide such a label, an example of which must be included in the application for equipment authorization, or, must provide adequate instructions along with the module which explain this requirement. In the latter case, a copy of these instructions must be included in the application for equipment authorization. If the modular transmitter uses an electronic display of the FCC identification number, the information must be readily accessible and visible on the modular transmitter or on the device in which it is installed. If the module is installed inside another device, then the outside of the device into which the module is installed must display a label referring to the enclosed module. This exterior label can use wording such as the following: "Contains FCC certified transmitter module(s)." Any similar wording that expresses the same meaning may be used. The user manual must include instructions on how to access the electronic display. A copy of these instructions must be included in the application for	⊠ - YES	□ - NO(*)	
	equipment authorization. 15.212(a)(1)(vi)			
	Details: – There is a label on the module as shown in the labeling exhibit filed with this application. Instructions are shown in the installation manual filed with this application.	Host specific i	labeling	
7.	The modular transmitter must comply with all specific rule or operating requirements applicable to the transmitter, including all the conditions provided in the integration instructions by the grantee. A copy of these instructions must be included in the application for equipment authorization. For example, there are very strict operational and timing requirements that must be met before a transmitter is authorized for operation under Section 15.231. For instance, data transmission is prohibited, except for operation under Section 15.231(e), in which case there are separate field strength level and timing requirements. Compliance with these requirements must be assured. 15.212(a)(1)(vii)	⊠ - YES	□ - NO(*)	
	Details: - The module complies with FCC Part 15C requirements. Instructions to the OEM installer installation manual filed with this application.	are provided i	n the	
8.	The modular transmitter must comply with any applicable RF exposure requirements. For example, FCC Rules in Sections 2.1091, 2.1093 and specific Sections of Part 15, including 15.319(i), 15.407(f), 15.253(f) and 15.255(g), require that Unlicensed PCS, UNII and millimeter wave devices perform routine environmental evaluation for RF Exposure to demonstrate compliance. In addition, spread spectrum transmitters operating under Section 15.247 are required to address RF Exposure compliance in accordance with Section 15.247(b)(4). Modular transmitters approved under other Sections of Part 15, when necessary, may also need to address certain RF Exposure concerns, typically by providing specific installation and operating instructions for users, installers and other interested parties to ensure compliance. 15.212(a)(1)(viii)	⊠ - YES	□ - NO(*)	
	Details: - The module meets mobile/portable conditions levels as shown in the RF exposure test reportable application.	ert filed with th	his	



Limited Module Description – When Applicable

* If a module does NOT meet one or more of the above 8 requirements, the applicant may request Limited Modular Approval (LMA). This Limited Modular Approval (LMA) is applied with the understanding that the applicant will demonstrate and will retain control over the final installation of the device, such that compliance of the end product is always assured. The operating condition(s) for the LMA; the module is only approved for use when installed in devices produced by grantee. A description regarding how control of the end product, into which the module will be installed, will be maintained by the applicant/manufacturer, such that full compliance of the end product is always ensured should be provided here.

Details: The module was tested in the OEM host PC and is limited to installation in the PC described in this application.

Software Considerations – KDB 594280 / KDB 442812 (One of the following 2 items must be applied)				
Requirement	Requirement Met			
 For non-Software Defined Radio transmitter modules where software is used to ensure compliance of the device, technical description must be provided about how such control is implemented to ensure prevention of third-party modification; see KDB Publication 594280. 	□ - Provided in Separate Cover Letter □ - N/A			
Details: The firmware of the device cannot be modified or adjusted by the end user as described in a separate cover letter filed with this application.				
 For <u>Software Defined Radio (SDR)</u> devices, transmitter module applications must provide a software security description; see KDB Publication 442812. 	☐ - Provided in Separate Cover Letter ☐ - N/A			
Details: <example -n="" a=""></example>				

Split Modular Requirements					
Requirement	Requirement Provided in Manual				
 For split modular transmitters, specific descriptions for secure communications between front-end and control sections, including authentication and restrictions on third-party modifications; also, instructions to third-party integrators on how control is maintained. 	☐ - Provided in Separate Cover Letter	⊠ - N/A			
Details: <example a="" n="" –=""></example>					



OEM Integration Manual Guidance – KDB 996369 D03 Section 2

for third-parties to use and/or integrate the module into a host device.					
Requirement					
Requirement		⊠ - No,			
Is this module intended for sale to third parties?	If No, and LMA applies, the applicant can optionally choose to not make the following detailed info public. However there still needs to be basic integration instructions for a users manual and the				
Items	s required to be in the man	ual – See KDB 996369 D03, Section 2			
		formation to be in the installation manual.			
		all these items indicating clearly when the			
		Not Applicable". Also if a module is limite			
		estructions may not need to be detailed and			
1. List of applicable FCC rules. KI		t this should include a cover letter as cited	above.		
	ated to the transmitter.				
Summarize the specific operation		369 D03 Section 2.3			
		oss, reduction of power for point to point			
	onal installation info	r			
3. Limited Module Procedures. KD	B 996369 D03, Section 2.4				
 Describe alternati 	ve means that the grantee use	es to verify the host meets the necessary			
limiting condition			☐ - All Items shown to		
		ate how control will be maintained such	the left are provided in		
	s ensured, such as Class II for	r new hosts, etc.	the Modular Integration		
4. Trace antenna designs. KDB 99 a. Layout of trace do		nectors, isolation requirements, tests for	Guide (or UM) for Full		
		dures for ensuring compliance. If	Modular Approval (MA)		
		atial must be identified and information	or LMA.		
	perational description.				
5. RF exposure considerations. KD			□ - An LMA applies		
		w host manufacturers to use the module.	and is approved ONLY		
		o the host manufacturer to define	for use by the grantee in		
		ly) and second additional text needed to be	their own products, and not intended for sale to		
	nd user in the host product ma	anuals.	3 rd parties as provided in		
6. Antennas. KDB 996369 D03, Se		d all applicable professional installer	a separate cover letter.		
		shall also identify the antenna types	Therefore the		
		i-directional" is not considered a type)	information shown to the		
7. Label and compliance information		• • • • • • • • • • • • • • • • • • • •	left is found in the		
 a. Advice to host int 		ovide a physical or e-label stating	theory of operation.		
8. Information on test modes and a					
		ation by host integrators including			
clarifications nece	essary for stand-alone and sir	nultaneous configurations.			
	on on how to configure test r				
Additional testing, Part 15 Subpa	art B disclaimer. KDB 99636	9 D03, Section 2.10			

Sincerely,

De Cultures Steven C Hackett Sr. Regulatory Engineer (Signature/Title¹) (Print name)

 $^{^{1}\,}$ - Must be signed by applicant contact given for applicant on the FCC site, or by the authorized agent if an appropriate