	DK-13CD Universal Docking	
Item	**Sub-Item**	**Description**
1.1 ID Requirement	Placement of Type	Vertical or Horizontal placement
	Material	Please provide two ides for metal and plastic housing
	Surface Finish	TBD. According the ID plan
	Color	TBD. according the ID plan
	Weight	Weight >400g (the counterweight must consider about the vertical and horizontal placement
	Dimension	Length < 210mm ; Width =85mm ; height <= 35mm
	Logo Printing	The ID design must provide the location plan for printing customer logo
1.2 Mechanical design	Thernal Solution	Fanless design
	K-lock	The unit will support both of Standard K-lock and Nano K-lock on the side panel
	Mounting hole	The units will support two M3/3.5mm screw hole on the bottom side. They are used for locking dock with mounting bracket. The pitch of mounting hole is 45mm
	Power Button	The unit can be optional to support power button or remove power button. The dock is defaul "power on" when user plug-in the external DC power to dock.
	Environment	Operation Temp : 0°C to +40°C Stporage Temp : -20°C to +70°C

	Skin Temperature	When system is operating in full loading at 35°C environment temperature, the skin temperature of housing must follow below standard
		  Metal housing <50°C
		  Plastic housing <55°C

	Rubber Foot	The dock will support 4 rubber foot in horizontal placement.
	Others	The unit will support a metal base for vertical placement. The K-lock of unit will be covered when the base is attached. So there is a K-lock hole in the base to support the K-lock kit.
1.3 I/O port placement		
Supported Platform	OS	Widowns 7, 8, 8.1 and 10 OS X / macOS 10.8 onward Google Chrome OS Google Android Ubuntu Linux
1.4 I/O port	Upstream port	1x USB-C 3.2 Gen2 in front, w/ Max. 100Watt PD 3.0 charging Support PD 5V/9V/15V/20V Profile
	Downstream USB ports	1x USB-C 3.2 Gen2 port in front, support 5V/3A power 1x USB-A 3.2 Gen2 port in front, support 5V/1.5A BC1.2 charging power 4x USB-A 3.2 Gen1 ports in rear, support 5V/0.9A
	Audio Port	1x 3.5mm TRRS SPK/MIC jack in rear with CTIA and OMTP auto detect
	LAN Port	1x RJ45 10/100/1000Mbps ethernet connector in reae w/ LED
	SD Card slot	1x SD4.0 card reader slot in front, non push-push type
	Smart Card Slot	1x Smart card reader slot in front. It will support EMV Version 4.2 level 1 PBOC2.0 Level 1 ISO7816 Class A, B and C (5V/3V/1.8V) Card PC Smart Card industrial standard - PC/SC 2.0 Microsoft Smart Card for Windows Meet US Federal Information Processing Standard (FIPS)
	DC Jack	1x DC Jack for 20V external DC power input
1.5 Video Ports	Displaylink	2x HDMI/DP combo connector, (only one port output in the same time). Support HDMI2.0 and DP1.4++ interface Max. dual 4K@60Hz display output w/ HDCP support
	DP Alt MST	1x HDMI/DP combo connector. Support HDMI2.1 and DP1.4++ interface Max. resolution will depend on the host video capability. (Refer to video matrix) w/ HDCP v2.3 support
1.6 Smart Power		The unit will be able to sense the total power loading of dock and dynamically adjust the PD charging power to host according the maximum power rating of external power adapter

1.7 Ethernet Feature	MAC address pass through	The dock must provide MAC address pass-through feature to show host MAC address to dock	
	Wake-on-LAN	The dock ethernet must be able to provide wake-on-LAN capability	
	PXE boot	PXE boot is required from Ethernet port, boot from LAN to install operating system and load data over Ethernet port	
	LED indicator	Green for power Yellow for activity	
1.8 Managing software	Support platform	It will support Windows 10 for first release. Will consider for another platform according the customer requirement.	
	F/W update	Build-in MCU will manage and interface with managing software to update the F/W for main chip in the dock, Provide one click user interface for firmware update automatically. Don't start updating process due to firmware version is newer or euqal. Warning message and confirmation is required when executing dock reset after F/W update	
	Port configuration	The managing software will provide UI for user or IT administrtor to config the IO port features to limit the port access for security operation. The build-in MCU will manage and interface with managing software to control in the dock	
	Ethernet Feature configuration	Can enable/disable MAC address pass-through, Wake-on-LAN etc.	
	Remote management	The managing software will provide the remote managing interface for IT Admin to manage dock from remote side and can do batch F/W update for deployed dock in place.	
1.9 Embedded MCU	Smart Power management	The MCU will dynamically control the PD charging power according the total power loading for system	
	Port configuration	The MCU will through I2C to configure the I/O according the command from managing software in host system	
	F/W update	The MCU will execute and manage the F/W update in dock for all of main chip according the command from managing software in host system	
	Power management	The MCU will manage the power state of dock and show LED according the power state	

1.10 Indicator	LED Indicator	The unit will have a LED to indicate power status
		Host attach :
		   Blue : Power On
		   Breathing Blue : S3 stanby
		   off : Power off
		Host detach :
		   Blue : Power on	

1.11 AC Adapter	Type	Universal AC adaptor	
	Wattage	135W	
	Input Voltage	100V ~ 240V	
	Output Voltage	20V	
	number of Pin	2	
	D/C jack Dimension	Inside Contact Diameter: 2.5mm Outside Contact Diameter: 5.5mm	
	Special spec requirment	Global safety certification	
	Others	N/A	
1.12 Cable	Type	USB Type C to Type C/A cable	
	Standard	USB3.2 Gen 2 (10Gbps)	
	Length	1 meter	
	Current rating	Maximum 20V/5A	
	Emark	Yes	
	Certification	UL, USB-IF compliance	
	Color	Black	
	Reliability	1. Cable Bending : +/-90°, 454g force loading, 10 cycles/min, 300mm between loading point to test point, 7000 cycles. 2. Cable Twist : Fix one end, twist cable in direction: +180°, 0°, -180°, 1000 cycles 3. Cable pull out force : Load 2.5kg, direction : +45°, 0°C, -45°C, duration : 60sec. per direction, 300mm between test point to loading 4. Cable SR bending : Weight 200g, Angle +/-90°, speed 40 cycles/minute, Length 300mm, 7000	
1.13 Regulation	EMC	Europe : CE US/Canada : FCC/ICES Japan: VCCI Austria / N.Z. : RCM	
	EMI Criteria	under 3db	
	Safety	Safety is not required for OTS model, but can apply for OEM customer. Power adapter must apply with global safety certification. Major for North America, Europe, Japan, Austrilia/N.Z, China, Taiwan, India, Malaysia, Singapore, Korea	
	Celluar Phone Interfere	The product shall test and pass the celluar phone interfere (CPI). 5cm and 10cm should both be tested and the product should not have any abnormal screen, no wireless interfere impact during data transferring or system detecting this hub, etc.	
	Intrinsic safety	N/A	
	Ruggedness	N/A	
1.14 Green Product	ROHS / REACH	RoHS2.0 /REACH	
	Others	1. EU : ErP directive lots 6, Power consumption threshold under off/standby mode will be smaller than 0.3W 2. California PROP 65 (Can be optional cost) 3. Halogen Free (Can be optional cost)	

1.15 Reliability Test	ESD Protection	Contact : +/-4KV, (8KV is desire) Air : +/-8KV.. (15KV is desire) Class A Please RD provide the cost and solution difference in design stage
	Connector insertion/extration	USB-A : 5000 cycles insertion/extration, 200 cycles/hour USB-C : 10000 cycles insertion/extration, 200 cycles/hour HDMI type A : 10000 cycles insertion/extration, 100+/-50 cycles/hour DP : 10000 cycles insertion/extration, 100+/-50 cycles/hour RJ45 : 750 cycles, 10 to 20 cycles/min Other connectors : 5000 cycles insertion/extration
	USB-C connector	USB-C connector should use the component qualified by USB-IF, and TID is mandatory for connector selecting
	MTBF	100000 power on hours (TBC)
	Power button	Operating Cycles : 10000 cycles, Force 200 +/-50gf Testing speed : 20 cycles / min
	Flammability	UL94V0

1.16 Compatibility Test	Full function compatibility test	Full Function test with Window 10 / Mac OS
		  Test Platform :
		    ThinkPad X1 Carbon Gen8
		    HP EliteBook x360 1040 G7
		    MacBook Pro M1 13 inch
		    Microsoft Surface Pro 7+
		    ThinkPad X13 Yoga
		    HP Pro c640 Chromebook
		    Dell Latitude 9410 2-in-1
		    Dell New XPS 13 Developer Edition
		  Test Monitor :
		    8 different brand and resolution monitors
		  Other I/O devices

	Random compatibility test	Choose 10 different laptop brand and models to do random compatibility test. Those laptop can rent from market.

	Protocol compliance test	Logo compliance are not required, but it should test for internal qualification requirement.
		  PD3.0 Power delivery
		  USB-C 3.2 Gen 2
		  HDMI2.1 w/ HDCP v2.3
		  DP1.4

1.17 Product information	PID	
	VID	TBD
1.18 Package & Labels	Content	Dock x1 AC/DC power adapter x1 USB-C to C/A cable Power cord x1 (depend on different country area) QSG x1 (quick start guide) Warranty card x1
	Product Label	There will be no label on unit. All of product information including serial number, product information, regulatory logo and so on will be engraved on the housing of dock by laser
	Packing material	The OTS product will be packed by brown box
	Box label	It will be white color paper and black text to show product information following Getac standard
	Carton label	Follow Getac standard