



Excellence in Compliance Testing

Certification Exhibit

**FCC ID: VPYLB1CK982
IC: 772C-LB1CK982**

**FCC Rule Part: 15.247, 15.407
IC Radio Standards Specification: RSS-247**

ACS Project Number: 16-0186

**Manufacturer: Murata Manufacturing Co., Ltd.
Model: LBEE5ZZ1CK-982**

Manual

LBEE5ZZ1CK-982 Installation Manual

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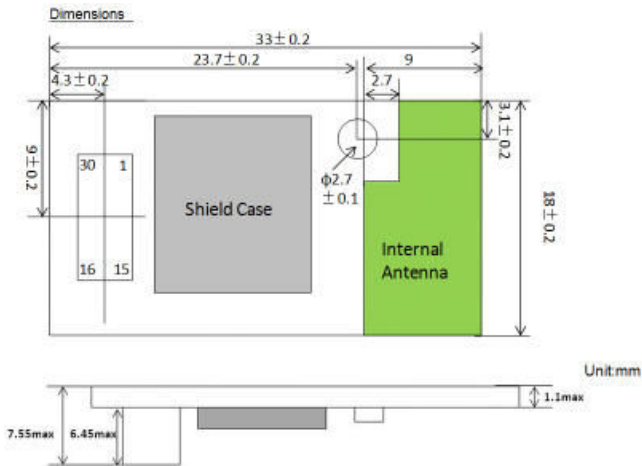
FCC ID of this product is as follows.

FCC ID: V P Y L B 1 C K 9 8 2

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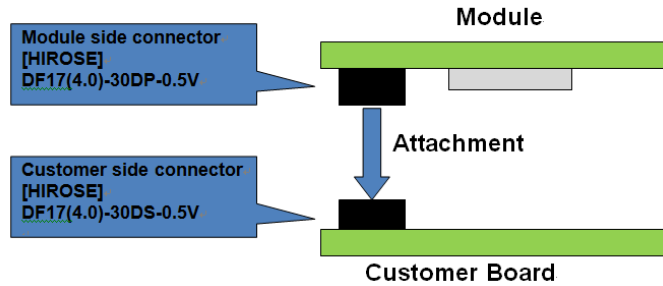
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1.Connection



Indication

< connector >
 P/N: DF17(4.0)-30DP-0.5V (mounted on Murata module)
 P/N: DF17(4.0)-30DS-0.5V (need to place on Customer board)
 Maker: HIROSE Electric



2.PIN Layout



No.	Terminal Name	Type	No.	Terminal Name	Type
1	VBAT	PI	16	GND	-
2	VBAT	PI	17	BT_DEV_WAKE	I/O
3	GND	-	18	BT_HOST_WAKE	I/O
4	VIO	PI	19	GND	-
5	GND	-	20	SDIO_D2	I/O
6	WLAN_REG_ON	I	21	GND	-
7	BT_REG_ON	I	22	SDIO_D3	I/O
8	WLAN_HOST_WAKE	I/O	23	GND	-
9	GND	-	24	SDIO_CMD	I/O
10	BT_UART_RTS_N	O	25	GND	-
11	BT_UART_TXD	O	26	SDIO_CLK	I
12	BT_UART_RXD	I	27	GND	-
13	BT_UART_CTS_N	I	28	SDIO_D0	I/O
14	GND	-	29	GND	-
15	SLEEP_CLK	I	30	SDIO_D1	I/O

3. Supply Voltage



		min.	typ.	max.	unit
Operating Temperature		-20	+25	+80	deg.C
Supply Voltage	VBAT	3.2	3.6	4.4	V
	VIO *	1.71	1.8	1.89	V

*VIO don't influence the RF characteristic.

4. Power Levels



Mode	Setting Power [dBm]
11b	17dBm
11g	14dBm
11n(HT20) 2.4GHz	13dBm
11a	12dBm
11n(HT20) 5GHz	12dBm
11n(HT40) 5GHz	11.5dBm
11ac(HT20)	12dBm
11ac(HT40)	11.5dBm
11ac(HT80)	11dBm

5. Theory of Operation



Frequency of operation			Scan	Ad-hoc mode
2.4GHz	11b/g/n (HT20)	2412-2462MHz	Active	Yes
W52	11a/n/ac ((V)HT20)	5180-5240MHz	Active	Yes
	11n/ac ((V)HT40)	5190-5230MHz	Active	Yes
	11ac (VHT80)	5210MHz	Active	Yes
W53	11a/n/ac ((V)HT20)	5260-5320MHz	Passive	No
	11n/ac ((V)HT40)	5270-5310MHz	Passive	No
	11ac (VHT80)	5290MHz	Passive	No
W56	11a/n/ac ((V)HT20)	5500-5700MHz	Passive	No
	11n/ac ((V)HT40)	5510-5670MHz	Passive	No
	11ac (VHT80)	5530-5610MHz	Passive	No
W58	11a/n/ac ((V)HT20)	5745-5825MHz	Active	Yes
	11n/ac ((V)HT40)	5755-5795MHz	Active	Yes
	11ac (VHT80)	5775MHz	Active	Yes

End users can not modify the software because F/W & driver are installed in device.

5. Theory of Operation

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Compliance with FCC requirement 15.407(c)

Data transmission is always initiated by software, which is then passed down through the MAC, through the digital and analog baseband, and finally to the RF chip. Several special packets are initiated by the MAC. These are the only ways the digital baseband portion will turn on the RF transmitter, which it then turns off at the end of the packet. Therefore, the transmitter will be on only while one of the aforementioned packets is being transmitted. In other words, this device automatically discontinues transmission in case of either absence of information to transmit or operational failure.

Frequency Tolerance: $\pm 20\text{ppm}$

6. Notice

For OEM integration only – device cannot be sold to general public.
Therefore we will ask OEM to include the following statements required by FCC on the product and in the Installation manual Notice.

Please describe the following warning on the final product which contains this module.

Contains Transmitter Module FCC ID: VPYLB1CK982

or

Contains IC ID: 772C-LB1CK982

This device complies with Part 15 of FCC Rules and Industry Canada's licence-exempt RSSs. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Le présent appareil est conforme à la partie 15 des règles de la FCC et aux normes des CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes : (1) l'appareil ne doit pas produire de brouillage, et (2) l'appareil doit accepter tout brouillage subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

※When the product is small, as for these words mentioned above, the posting to a manual is possible.

● Please describe the following warning to the manual.

FCC CAUTION

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This transmitter must not be co-located or operated in conjunction with any other antenna or transmitter.

6. Notice

- When installing it in a mobile equipment. Please describe the following warning to the manual.

This equipment complies with FCC/IC radiation exposure limits set forth for an uncontrolled environment and meets the FCC radio frequency (RF) Exposure Guidelines and RSS-102 of the IC radio frequency (RF) Exposure rules. This equipment should be installed and operated keeping the radiator at least 20cm or more away from person's body.

Cet équipement est conforme aux limites d'exposition aux rayonnements énoncées pour un environnement non contrôlé et respecte les règles des radioélectriques (RF) de la FCC lignes directrices d'exposition et d'exposition aux fréquences radioélectriques (RF) CNR-102 de l'IC. Cet équipement doit être installé et utilisé en gardant une distance de 20 cm ou plus entre le radiateur et le corps humain.

- When installing it in a portable equipment.

It is necessary to take a SAR test with your set mounting this module.
Class II permissive change application is necessary using the SAR report.
Please contact Murata.

Note)

Portable equipment : Equipment for which the spaces between human body and antenna are used within 20cm.

Mobile equipment : Equipment used at position in which the spaces between human body and antenna exceeded 20cm.

Note) Operation in the band 5150-5250MHz is only for indoor use to reduce the potential for harmful interference to co-channel mobile satellite systems