

Integration Instructions for ES205

2.1 General

This is Limited modular approval as this module is limited to installation by the grantee into our host systems. This user manual describes the integration procedure per Sec. 2.2 to 2.12 of KDB 996369 D03.

2.2 List of applicable FCC rules

This device complies with below part 15 of the FCC Rules.

Part 15 Subpart C, FCC Part15 Subpart E

2.3 Summarize the specific operational use conditions

Operation of transmitters in the 5.925-7.125 GHz band is prohibited for control of or communications with unmanned aircraft systems.

The straddle channels for 5725MHz shall be disabled by the software of the host device.

5.15-5.35GHz band is restricted to indoor operations only.

The trace design from the module to the U.FL connector must be designed with the shape and impedance specified by Canon. Please see Clause 2.5 for detail.

This is Limited modular approval as this module is limited to installation by the grantee into our host systems. This module is certified as limited modular approval as it does not have its own power supply regulator, Therefore regulated 3.3V/1.8V must be supplied by a host device using voltage regulator, e.g. MAX77540AAWV+ or equivalent.

Mobile – 20 cm from a person's body

Use in portable RF exposure conditions is limited to the specific product and antenna configuration.

To be used in any other way than granted, such as mobile to portable or with other transmitters simultaneously, requires additional evaluation, testing, or testing and Class 2 permissive change.

- Client device (per definition in 47 CFR § 15.202) is limited to indoor locations, does not connect directly to the internet nor to other clients.
- No vehicular use, except large aircrafts above 10000 ft.

2.4 Limited Modular procedures

This module is certified as limited modular approval as it does not have its own power supply regulator, therefore regulated 3.3V/1.8V must be supplied by a host device using voltage regulator, e.g. MAX77540AAWV+ or equivalent.

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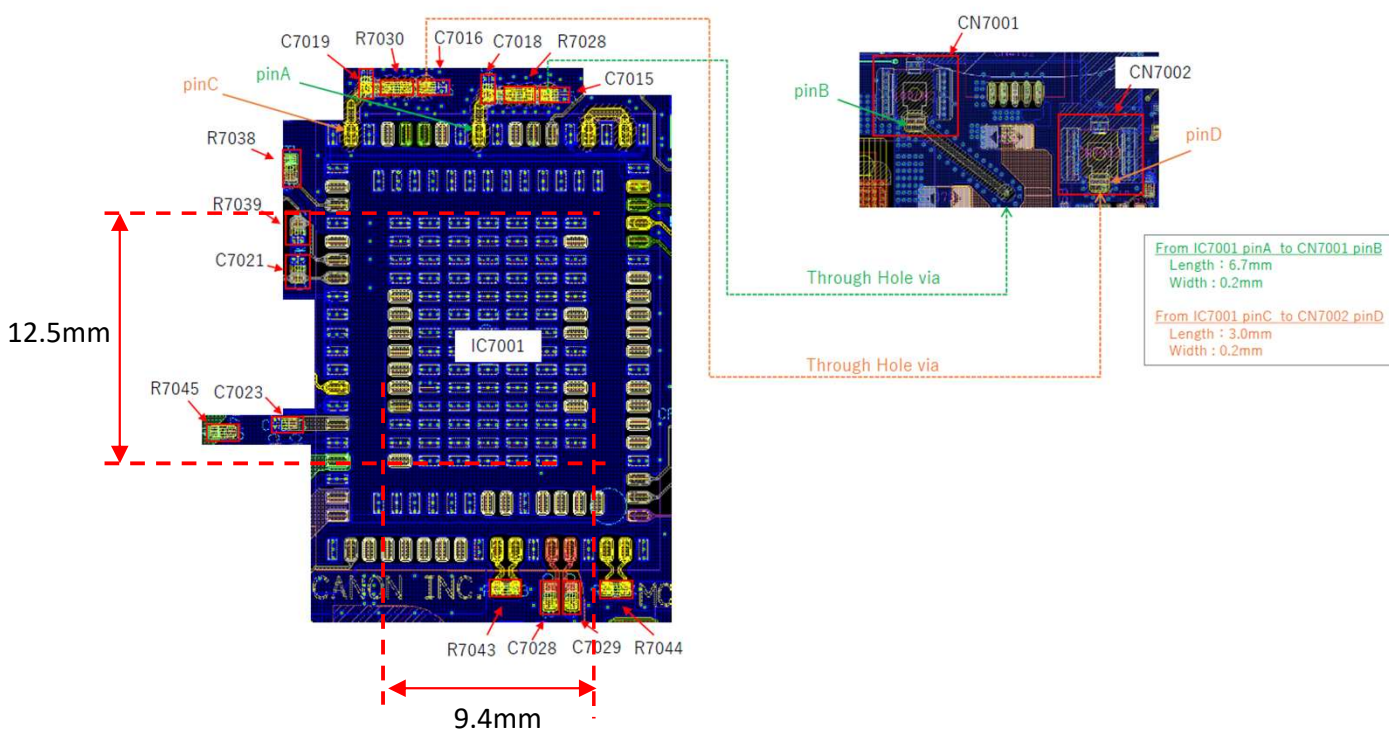
2.5 Trace antenna designs

<RF PCB>

The PCB thickness is 0.9 mm.

Parts list

1	RF Module	IC7001	2.4GHz/5.0GHz/6.0GHz
2	NL/Resistor/Capacitor/Inductor	C7015	NL/0-47ohm/0.1pF-47pF/0.1nH-47nH
3	NL/Resistor/Capacitor/Inductor	C7018	NL/0-47ohm/0.1pF-47pF/0.1nH-47nH
4	NL/Resistor/Capacitor/Inductor	R7028	NL/0-47ohm/0.1pF-47pF/0.1nH-47nH
5	Connector	CN7001	RF Connector
6	NL/Resistor/Capacitor/Inductor	C7016	NL/0-47ohm/0.1pF-47pF/0.1nH-47nH
7	NL/Resistor/Capacitor/Inductor	C7019	NL/0-47ohm/0.1pF-47pF/0.1nH-47nH
8	NL/Resistor/Capacitor/Inductor	R7030	NL/0-47ohm/0.1pF-47pF/0.1nH-47nH
9	Connector	CN7002	RF Connector



IC7001 pin							
1	PCIE_PERST_L	21	GND5	41	GPIO_1_WL_DEV_WAKE	61	SDIO_DATA_2
2	PCIE_CLKREQ_L	22	BT_OUT	42	GND13	62	SDIO_DATA_0
3	PCIE_PME_L	23	GND6	43	GPIO_0_WL_HOST_WAKE	63	SDIO_DATA_1
4	GND1	24	BT_IN	44	GPIO_7	64	SDIO_CMD
5	BT_PCM_SYNC	25	GND7	45	BT_REG_ON	65	SDIO_CLK
6	BT_PCM_IN	26	BT_DEV_WAKE	46	GND14	66	SDIO_DATA_3
7	BT_PCM_CLK	27	BT_HOST_WAKE	47	GND15	67	GND23
8	BT_PCM_OUT	28	BT_CLK_REQ	48	GND16	68	PCIE_RDP
9	GND2	29	GND8	49	GND17	69	PCIE_RDN
10	I2S_DI	30	ANT0	50	GND18	70	GND24
11	I2S_MCK	31	GND9	51	LPO_IN	71	PCIE_TDP
12	I2S_SCK	32	LHL_GPIO1	52	GND19	72	PCIE_TDN
13	I2S_LRCK	33	GPIO_10_WL_UART	53	VDDOUT_RF3P3	73	GND25
14	I2S_DO	34	GPIO_11_WL_UART	54	GND20	74	PCIE_REFCLKP
15	GND3	35	GPIO_9_WL_UART	55	VDDIO	75	PCIE_REFCLKN
16	BT_UART_RXD	36	GND10	56	GND21	76	GND26
17	BT_UART_RTS_N	37	ANT1	57	VBAT_1	77	GND27
18	BT_UART_TXD	38	GND11	58	VBAT_2	78	GND28
19	BT_UART_CTS_N	39	GND12	59	GND22	79	GND29
20	GND4	40	GPIO_8_WL_UART	60	WL_REG_ON	80	GND30
						81	GND31
						82	GND32
						83	GND33
						84	GND34
						85	GND35
						86	GND36
						87	GND37
						88	GND38
						89	GND39
						90	GND40
						91	GND41
						92	GND42
						93	GND43
						94	GND44
						95	GND45
						96	MIC_P
						97	MIC_N
						98	GND46
						99	BT_T2S_DO
						100	BT_T2S_WS
						101	BT_I2S_CLK
						102	BT_I2S_DI
						103	GND47
						104	GND48
						105	DMIC_DATA
						106	DMIC_CLK
						107	GND49
						108	GND50
						109	BT_GPIO_2
						110	BT_GPIO_9
						111	GND51
						112	GND52
						113	GND53
						114	BT_GPIO_11
						115	GND54
						116	GND55
						117	GND56
						118	GND57
						119	GND58
						120	GND59
						121	GND60
						122	GND61
						123	GND62
						124	GND63
						125	LHL_GPIO2
						126	LHL_GPIO3
						127	LHL_GPIO0
						128	RF_SW_CTRL16
						129	RF_SW_CTRL14
						130	RF_SW_CTRL15
						131	GPIO_12
						132	GND64
						133	GND65
						134	NC
						135-199	GND66-130

Fine tuning of return loss etc. can be performed using a matching network.

However, it is required to check "Class1 change" and "Class2 change" which the authorities define then.

2.6 RF exposure considerations

1) Mobile – 20 cm from a person's body

Use in portable RF exposure conditions is limited to the specific product and antenna configuration.

To be used in any other way than granted, such as mobile to portable or with other transmitters simultaneously, requires additional evaluation, testing, or testing and Class 2 permissive change.

2) The following statements must be described on the user manual of the host device of this module;

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

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

Use in portable RF exposure conditions is limited to the specific product and antenna configuration.

To be used in any other way than granted, such as mobile to portable or with other transmitters simultaneously, requires additional evaluation, testing, or testing and Class 2 permissive change.

2.7 Antennas

The device is designed to use the antenna below. Do not modify the antenna or any other part of the module. Any modifications will invalidate the modular certifications and require new approvals for the host system.

Model No.19AA-10-tmp

Antenna Type : monopole

Antenna Gain : 2400-2484MHz:2.67dBi@2484MHz

5150-5350MHz:5.14dBi@5150MHz

5470-5725MHz:3.53dBi@5470MHz

5725-5850MHz:3.05dBi@5725MHz

5900-6525MHz:1.61dBi@5950MHz

6525-7150MHz:0.60dBi@7150MHz

Connection: RF Connector(CN7001, CN7002). Please see clause 2.5 for reference.

2.8 Label and compliance information

Following information must be indicated on the device of this module.

Contains FCC ID:AZD248

2.9 Information on test modes and additional testing requirements

Test modes should take into consideration different operational conditions for a stand-alone modular transmitter in a host, as well as for multiple simultaneously transmitting modules or other transmitters in a host product. For the evaluation to Host device, please contact CANON INC. We will provide the instruments for test.

2.10 Additional testing, Part 15 Subpart B disclaimer

The modular transmitter is only FCC authorized for the specific rule parts (i.e., FCC transmitter rules) listed on the grant (FCC Part 15.247,FCC Part 15.407), and the host product manufacturer is responsible for compliance to any other FCC rules that apply to the host not covered by the modular transmitter grant of certification.

The final host product still requires Part 15 Subpart B compliance testing with the modular transmitter installed.

2.11 Note EMI Considerations

We recommend to use "best practice" RF design engineering testing and evaluation in case non-linear interactions generate additional non-compliant limits due to module placement to host components or properties. The host manufacturer is responsible for ensuring compliance with the applicable FCC rules for the transmitters operating individually and simultaneously. This includes compliance for the summation of all emissions from all outputs occupying the same or overlapping frequency ranges, as defined by the applicable rules.

2.12 How to make changes

Only the grantee is permitted to make permissive changes. Please contact CANON INC