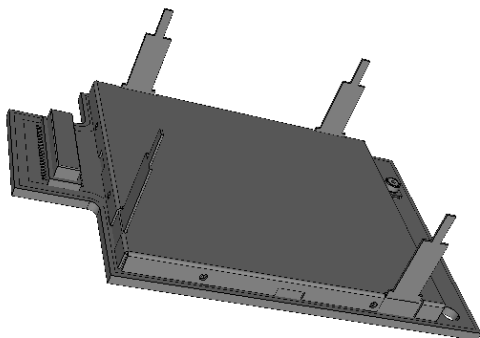


Parrot®

CK5050+T PRODUCT PRESENTATION

Parrot CK5050+T

All in one multimedia module.
Bluetooth 3.0



Features:

- Bluetooth 3.0 qualified module
- Piconet and scatternet support
- Standard single 3V4 supply
- UART, I²C
- 2*USB 2.0 full speed OTG
- iPod chip management
- Digital audio input and output
- Analog audio input
- Support up to 10 paired phones
- Multiple Profiles (as example A2DP, HFP)

- Small size module (34,5 x 41,35 mm)
- Automotive qualified
- Class 2

Applications:

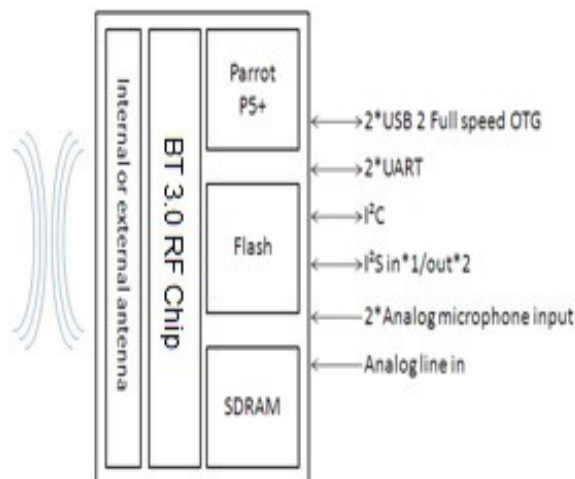
- Telephony
- Audio streaming
- USB and iPod management
- Internet access (through DUN)
- Speaker Independent Voice Recognition and TTS

The CK5050+T integrates the latest version of the Parrot Bluetooth stack (Blues). Blues brings to the customer a very high level of compatibility with most of the phones available on the market and provides phonebook and list synchronization.

The CK5050+T can also integrate a version of the Parrot USB management library (Disco). Disco manages the USB devices, build database with metadata, browses the compressed audio files by artist/genre/title and plays them. Disco also supports the iPod chip through the I²C interface. Moreover, CK5050+T offers the possibility to use a Speaker Independent Voice Recognition (SIVR) and a Text To Speech algorithm (TTS).

Parrot CK5050+T is a low cost solution for connectivity. It integrates a large variety of

interfaces for an easy integration in most of the applications.



Description :

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1 Product overview

The CK5050+T is a feature-rich connectivity platform dedicated for the integration of multimedia applications in car radio, car telematic systems or any systems requiring a complete embedded multimedia system solution. CK5050+T integrates USB and iPod management. Voice recognition is available on CK5050+T.

1.1 Configurations

Multiple choices are available for customer choice depending on integration and requirements.

Antenna :

- Internal
- External

Connector

- Male
- Female

Sdram

- 64Mb
- 256Mb

Flash

- 1Gb
- 2Gb
- 4Gb

Shield type

- 3mm high
- 6mm high
- 10mm high
- Delphi type
- Pioneer type

1.2 CK5050+T Features

- **Bluetooth connectivity**
 - Bluetooth Power Class 2 Radio
 - Embedded Bluetooth v1.1, v1.2, v2.0+EDR, v2.1+EDR and v3.0 compliant
 - Embedded profiles
 - Compatible with most Bluetooth phones
 - Pairing and connection with all Bluetooth Devices: Phones, Smartphones, PDA
 - Multiple user support: Up to 10 paired phones
 - Multiple connection (up to 3 device connected at the same time)
 - Multiple profile (for example A2DP and HFP at the same time with same or different devices)

- **USB connectivity**
 - Parrot CK5050+T embeds USB 2.0 OTG Full speed transceivers
 - Compliant with USB devices supporting Mass Storage Class
 - Compliant with USB hub
 - Able to build a musical database from a Mass Storage Device conform to VFAT specifications (including FAT 12/16/32)
 - Using a dedicated library called DISCO, the feature supported by Parrot is to be able to retrieve the list of files and the metadata contained in the different files.

- **Phone**
 - Pick-up, Hang-up, Redial
 - Automatic answer (from host via pickup command)
 - Send DTMF during calls
 - Private Mode
 - 3-way calling

- **Phone Book**
 - Automatic Phone book synchronization over Bluetooth (up to 5000 contacts)
 - Call history (dialed number, received calls, missed calls)
 - All Synchronization Methods
 - Full Unicode for compatibility with numerous characters sets (European, Russian, Chinese, Japanese...)

- **Digital Signal Processing and Acoustics**

- Noise Reduction (NR)
 - Maximal NR is 25dB.
 - Typical NR is 15dB.
 - No musical noise
 - No fluctuation of the residual noise level
 - Automatic adaptation of the NR to the SNR to keep the best voice quality in idle and remove more noise in noisy conditions.
 - Tuning does not depend on car.
- AMS (Automatic Microphone Selection)
 - Two microphones are used: 1 for the driver and 1 for the co-driver. The best microphone is automatically selected during the call.
- Echo Cancellation: The level of echo attenuation, called ERLE is 45dB (measured according to the VDA process).
 - Comfort Noise feature so that the background noise is not reduced during echo part.
 - Possibility to accept up to 100ms of delay in the speaker path for digital amplifiers.
 - Tuning does not depend on car.
 - Full duplex
- Automatic Level Control (ALC)
 - Different phones can have different Speaker volumes (up to 20dB of difference!). It adapts the signal level received from the phone to a certain level, quickly and precisely.
- Equalizer
 - 9 bands equalizer for microphones and speaker paths.
- Tuning
 - Tuning of the audio algorithms depends on the microphone position and sensitivity but not on the car.
- Speaker dependant voice recognition (trained names and keyword)
- Speaker independent voice recognition (Nuance licensing)

- **Audio Streaming**

- Embedded SBC decoder
- Embedded AAC decoder (optional)
- Embedded MP3 decoder from Thomson Licensing (optional)
- Stereo audio output

- **Miscellaneous**

- Provide Phone Battery Level and Network Level, Carrier Name (depends on phones)

- **Software Update**

- Full standard Software available (free upgrade from Parrot homepage)
- Software update available through Bluetooth, USB, UART or DUN
- Very large compatibility with Phones, Smartphones, PDAs, Music players

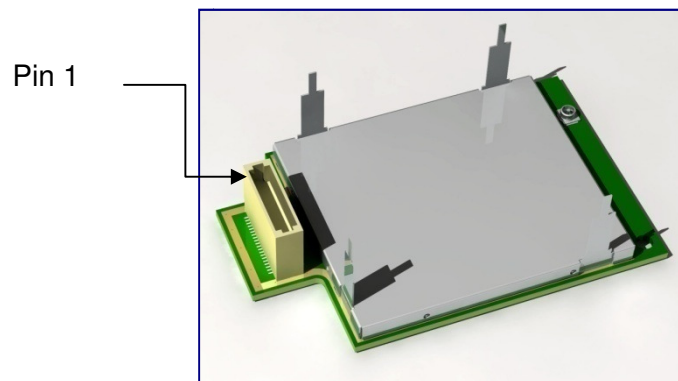
- **External Bluetooth Antenna diagnostic**

2 Electrical specifications

2.1 Pinout

2.1.1 40 pins diagram

RIN	1	2	LIN
MIC1N	3	4	MIC2N
MIC1P	5	6	MIC2P
MIC_PWR	7	8	VSS
BOOTS	9	10	NRESET
USB0_VBUS	11	12	USB1_VBUS
USB0_ID	13	14	USB1_ID
USB0_DRV VBUS	15	16	USB1_DRV VBUS
USB0_D-	17	18	USB1_D-
USB0_D+	19	20	USB1_D+
VSS	21	22	VSS
VCC	23	24	VCC
VSS	25	26	VSS
U1_IN	27	28	U1_OUT
U0_IN	29	30	U0_OUT
I2C_CLK	31	32	I2C_DATA
VSS	33	34	VSS
I2S_CLK	35	36	I2S_IN
I2S_MCLK	37	38	I2S_OUT1
I2S_SYNC	39	40	I2S_OUT2



2.1.2 Pinout table

PIN	FUNCTION	INPUT / OUTPUT	COMMENT
1	RIN	I	Line in : right input
2	LIN	I	Line in : left input
3	MIC1N	I	Microphones : Analog audio inputs
4	MIC2N	I	
5	MIC1P	I	
6	MIC2P	I	
7	MIC_PWR	O	Microphone power supply
8	VSS	I	Ground
9	BOOTS	I	To update the soft
10	NRESET	I	RESET trigger Input
11	USB0_VBUS	I	USB0 Vbus 5V
12	USB1_VBUS	I	USB1 Vbus 5V
13	USB0_ID	I	USB0 ID pin of mini AB receptacle (OTG)
14	USB1_ID	I	USB1 ID pin of mini AB receptacle (OTG)
15	USB0_DRV_VBUS	O	Drive VBUS (OTG) USB0
16	USB1_DRV_VBUS / IPOD_READY	O/I	Drive VBUS (OTG) USB1 / Connected to IPOD_Authentication_Coprocessor
17	USB0_D-	O/I	USB0 interface D- signal
18	USB1_D-	O/I	USB1 interface D- signal
19	USB0_D+	O/I	USB0 interface D+ signal
20	USB1_D+	O/I	USB1 interface D+ signal
21	VSS	I	Ground
22	VSS	I	Ground
23	VCC	I	POWER
24	VCC	I	POWER
25	VSS	I	Ground
26	VSS	I	Ground
27	U1_IN	I	16C550 Compatible type (for Debug interface)
28	U1_OUT	O	
29	U0_IN	I	16C550 Compatible type (for Host AT commands and Flash Update interface)
30	U0_OUT	O	
31	I2C_CLK	O	I2C clock
32	I2C_DA	O/I	I2C data
33	VSS	I	Ground
34	VSS	I	Ground
35	I2S_CLK	O/I	I2S serial clock
36	I2S_IN	I	I2S serial data in 1
37	I2S_MCLK	O/I	I2S Master clock
38	I2S_OUT1	O	I2S serial data out
39	I2S_SYNC	O/I	I2S synchronization
40	I2S_OUT2	O	I2S serial data out (secondary)

2.2 Absolute maximum ratings

Operating temperature range -40 °C to +85 °C
 Storage temperature range -40 °C to +125 °C
 Voltage on Vcc with respect to Vss -0.3V to 3.8V

The CK5050+T module must be powered by a Limited Power Source (in the meaning of 2.5 of EN60950-1 safety standard).

2.3 Maximum power consumptions

Stop mode <20µA
 Standby mode <200mA
 Hands free and Audio streaming mode <300mA
 Peak current at startup (950 µs) <380mA

2.4 Electrical specifications

Conditions unless otherwise-noted : Tamb.=25 °C					
Parameter	Conditions	Min.	Typ.	Max.	Unit
Normal power supply	/	3.2	3.4	3.6	Vdc

2.5 Bluetooth 3.0 main characteristics

Features	Description
Frequency Band	2.4000 – 2.4835 GHz (2.4 GHz ISM Band)
Number of channels	79 channels (f=2402+k MHz, k=0,...,78)
Modulation	FHSS (Frequency Hopping Spread Spectrum) system Modulations GFSK, π/4 DQPSK and 8DPSK
Supported rates	1, 2, 3 Mbps
Output Power	4dBm max
Antenna type	<ul style="list-style-type: none"> • PCB integrated antenna for CK5050+T / internal antenna version • External antenna (antenna connector) for CK5050+T, external antenna version
Antenna gain	Max 2,18 dBi
Permanent antenna connector (FC6000T, version 'external antenna')	U.FL type coaxial subminiature connector

3 Mechanical Design

The following chart describes the availability of the various versions of the FC6000T: For all versions, the legs of the shielding have to be soldered onto the host PCB in order to assure mechanical assembly and EMC performance

Module version	Mounting	Bluetooth antenna	
		Internal	external
CK5050+T	horizontal	Yes	Yes

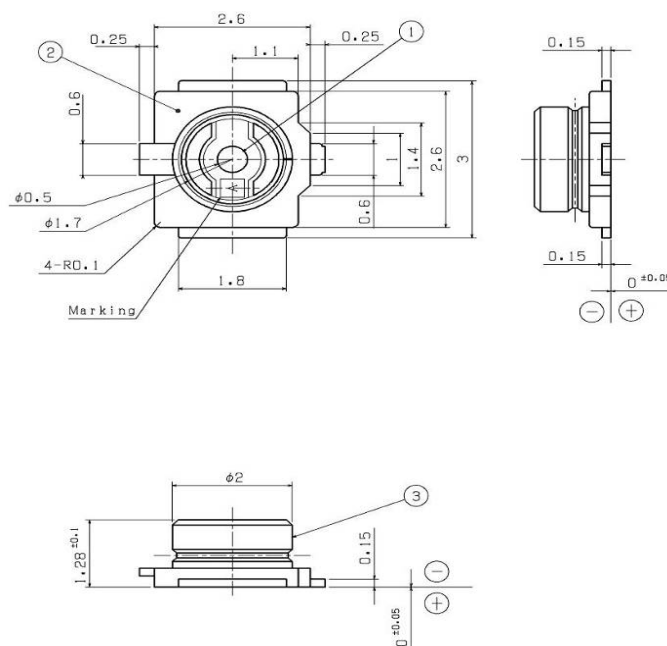
Module to Host Main Connector:

40 PINs connector
0.5mm pitch, double row

3.1 CK5050+T Antenna connectors

3.1.1 CK5050+T, External Antenna variant : RF connector

BT antenna is connected to the module through an ultra small coaxial connector: JST reference AYU1-1P-02676-120.



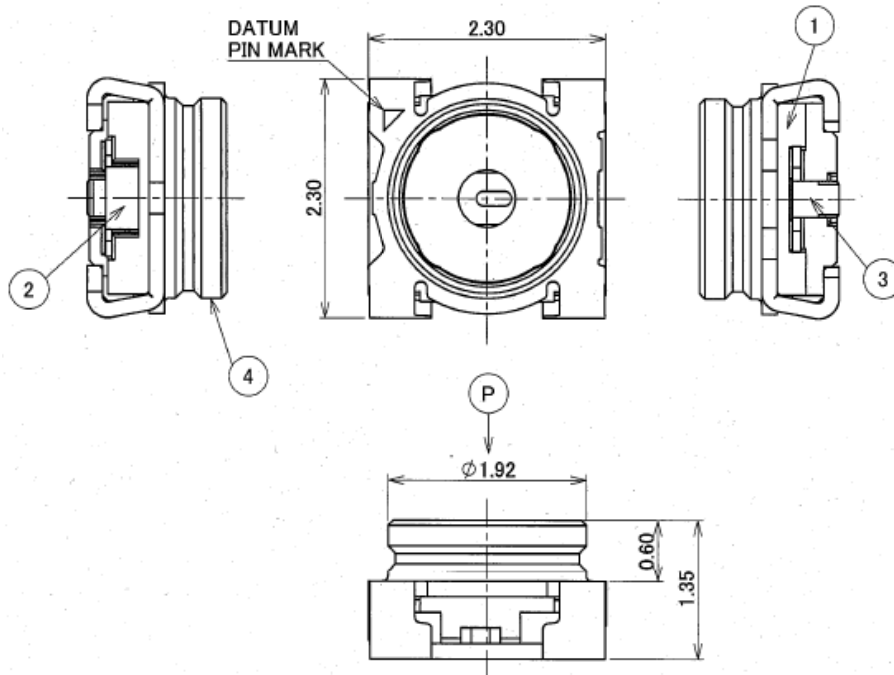
Model No.	Material and Finish
AYU1-1P-02676-120	Contact: Copper alloy, nickel-undercoated, selective gold-plated Housing: Heat resisting resin, UL94V-0 Shell: Copper alloy, copper-undercoated, silver-plated

RoHS compliance

3.1.2 CK5050+T, Internal Antenna variant: RF connector

Only on internal antenna products: I-PEX reference: 20549-001E

This switch is only used in production for testing purpose.



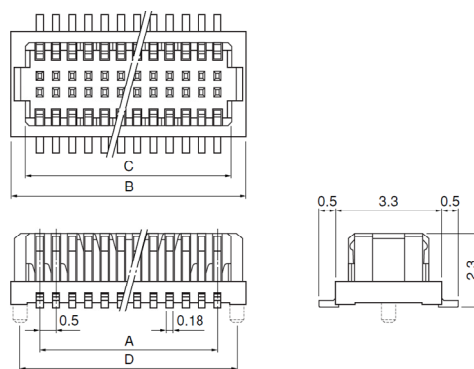
3.2 CK5050+T Main Connectors

3.2.1 CK5050+T with Male Connector

CK5050+T module :

JST: 40R-JMCS-G-B-TF

Circuits	Model No.	Dimensions (mm)			
	With bosses	A	B	C	D
40	40R-JMCS-G-B-TF(S)	9.5	11.3	10.4	10.7

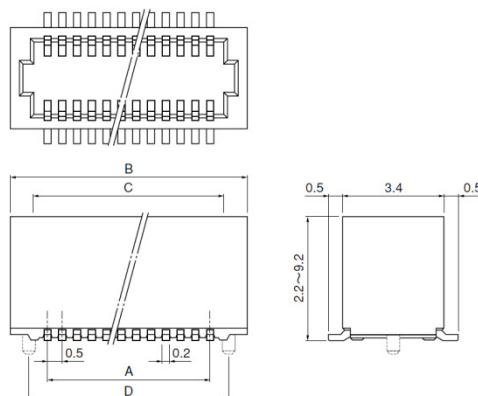


HOST:

JST: 3mm shield: 40P3.0-JMCS-G-B-TF

JST: 6mm shield: 40P6.0-JMCS-G-B-TF

JST: 10mm shield: 40P10.0-JMCS-G-B-TF



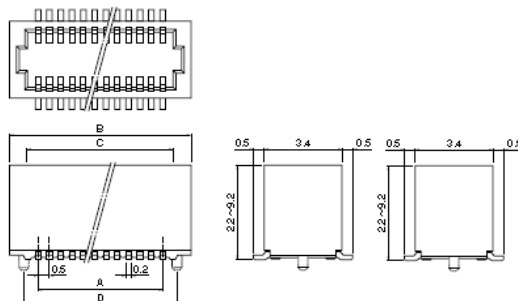
Circuits	Model No.			Dimensions (mm)			
	Stacking height (mm)			A	B	C	D
	3.0	6.0	10.0				
40	40P3.0-JMCS-G-B-TF	40P6.0-JMCS-G-B-TF	40P10.0-JMCS-G-B-TF	9.5	11.9	10.4	10.7

3.2.3 CK5050+T with Female Connector

CK5050+T:

JST: 40P9.0-JMCS-G-B-TF

Circuits	9.0(.354")	Dimensions mm(in.)			
		A	B	C	D
40	40P9.0-JMCS-G-B-TF	9.5(.374)	11.9(.469)	10.4(.409)	10.7(.421)

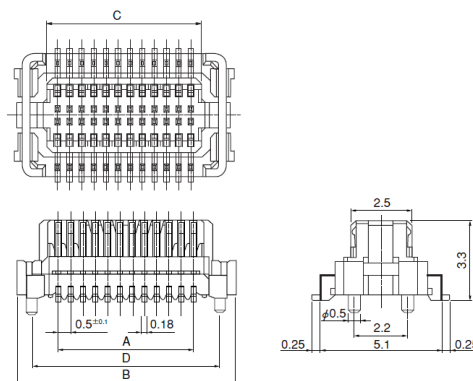


HOST:

JST: 40RF-JMCS-G-1-TF

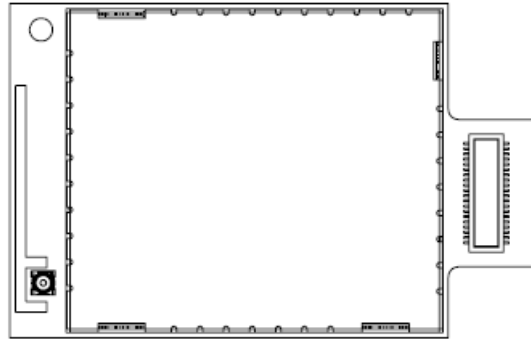
Absorption misalignment type

Circuits	Model No.		Dimensions (mm)				Q'ty / reel
	Without bosses	With bosses	A	B	C	D	
40	40RF-JMCS-G-1-TF	40RF-JMCS-G-1B-TF	9.5	13.0	10.4	11.75	1,000

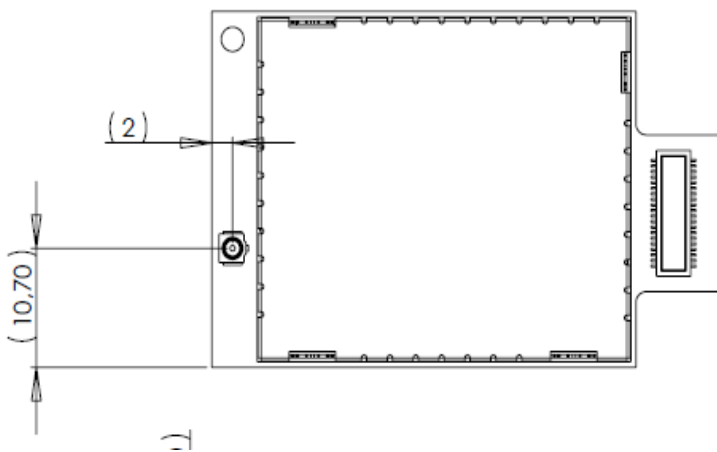


3.3 CK5050+T mechanical design

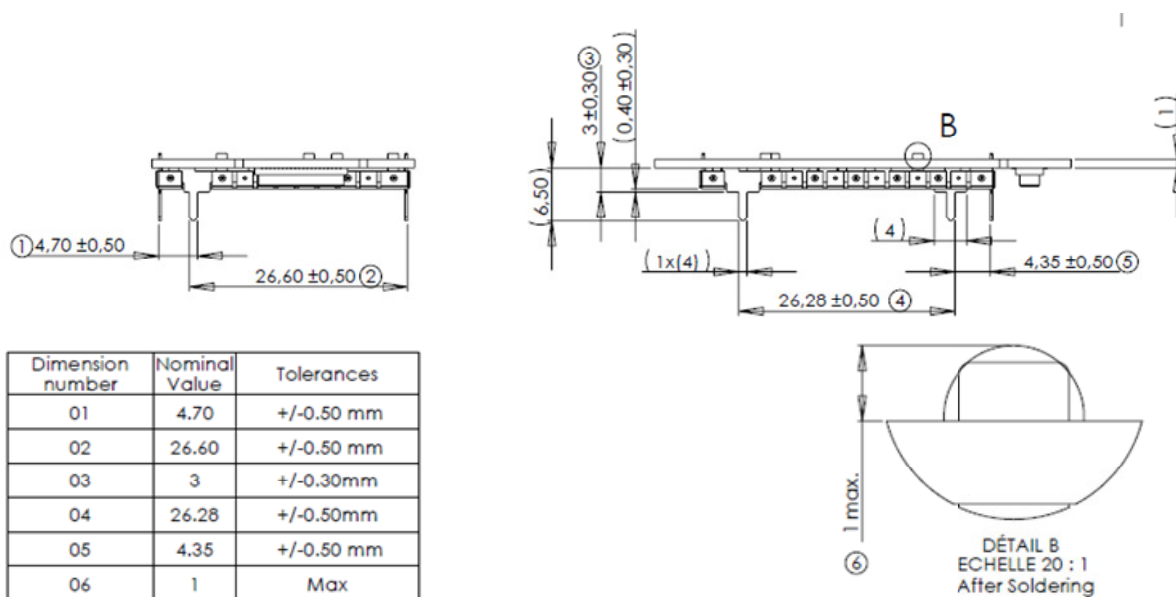
CK5050+T / Internal antenna variant / Top view:



CK5050+T / External antenna variant / Top view:



CK5050+T / Side view :



4 Marking

Label: example for CK5050+T (external antenna version):



For Internal antenna variant, only Parrot references (PI... and S/N PF...), and Software release are changing.

5 Cautions for product use

5.1 ESD Compliance

Operator must use ESD protection gloves for Module manipulation. In case of electrical discharge, module must be scrapped.

5.2 Safety

Mechanical shield is made of metal and have several draft angle which can cause human injuries. Operator must be trained on how to manipulate it.

5.3 Assembly

Key mechanical dimensions are tested before shipment.

In case of manual handling or operation, to avoid any issue with mechanical distance between legs and ensure a good insertion in the host side, packaging has been designed to ensure that operator will pick up the part by the most adequate area of the module. Operator should be trained and alerted about this specific behavior.

5.4 Drop

In case the part drop to the floor, Parrot doesn't warrant the part. Part has to be scrapped. Same process applies in our manufacturing site.

6 Approval / Certifications

6.1 Normative certificates

CK5050+T module certifications / identifications numbers:

CE : CE0700

FCC ID: RKXCK5050PT

IC : 5119A-CK5050PT

BT SIG Qualified Design Listing (QDID) : B021247

6.2 FCC and IC requirements for module application

FCC ID : RKXCK5050PT
IC : 5119A-CK5050PT

In accordance with FCC Part 15, the FC6000TS is listed as a Modular Transmitter device.

USA – USER INFORMATIONS:

This intends to inform how to specify the FCC ID of our module “CK5050+T” on the product.

Based on the Public Notice from FCC, the host device should have a label which indicates that it contains our module. The label should use wording such as: “**Contains FCC ID: RKXCK5050PT**”. Any similar wording that expresses the same meaning may be used.

The label of the host device should also include the below FCC Statement. When it is not possible, this information should be included in the User Manual of the host device.

“This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions.

(1) This device may not cause harmful interference

(2) This device must accept any interference received, including interference that may cause undesired operation.

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

The OEM integrator is still responsible for the FCC compliance requirement of the end product, which integrates this module.

Appropriate measurements (e.g. 15 B compliance) and - if applicable - additional equipment authorizations (e.g. Verification , DoC) of the host device have to be addressed by the integrator/manufacturer.

CANADA – USER INFORMATIONS:

This intends to inform how to specify the IC ID of our module “CK5050+T” on the product.

According to Canadian standards “RSS 210” and “RSS Gen”, the host device should have a label which indicates that it contains our module. The label should use wording such as: “**Contains IC: 5119A-CK5050PT**”. Any similar wording that expresses the same meaning may be used.

The label of the host device should also include the below IC Statement.
When it is not possible, this information should be included in the User Manual of the host device.

“This device complies with Industry Canada licence-exempt RSS standard(s). Operation is subject to the following two conditions:

- (1) This device may not cause interference, and*
- (2) This device must accept any interference, including interference that may cause undesired operation of the device.”*

« Le présent appareil est conforme aux 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'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement. »*

6.3 CE DECLARATION



DECLARATION OF "CE" CONFORMITY

"PARROT CK5050+T"

We, PARROT SA, 174 quai de Jemmapes - 75010 PARIS, FRANCE, declare under our sole responsibility that our product **Parrot FC6000T** complies with the essentials requirements and other relevant provisions of the "Directive 1999/5/CE of the European Parliament and of the Council of 9 March 1999 on radio equipment and telecommunications terminal equipment and the mutual recognition of their conformity", and complies with the "Directive 2011/65/EU of the European Parliament and of the Council of 8 June 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment".

This product complies with the following standards listed below:

1999/5/CE R&TTE Directive essential requirements:	Standards:
3.1-a) Electrical Safety User health / EMF	EN 60950-1:2006 / A11:2009 / A1:2010 / A12:2011 EN 62479:2010
3.1-b) EMC	EN 301 489-1 v1.9.2 EN 301 489-17 v2.1.1
3.2 Radio	EN 300 328 v1.7.1
2011/65/EU RoHS Directive:	Standard:
	EN 62321:2009

Paris, 2013, July 25th

Arezki Guerrab

Qualification Manager



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