Technical Description

The Equipment Under Test (EUT) is Bluetooth Music Receiver. It has function of audio playback from Bluetooth device after pairing. The audio output has both analog (3.5mm phone-jack aux out) and SPDIF digital (TOSLINK optical). The Bluetooth module in the EUT is operating in the frequency range from 2402MHz to 2480MHz (79 channels with 1MHz channel spacing). The EUT supports NFC function to connect the Bluetooth communication when it is touched with NFC enabled device. The EUT is powered by 5VDC from supplied AC/DC adaptor. This AC/DC adaptor can accept universal input (100-240VAC).

The EUT is using non-adaptive frequency hopping as declared by the applicant.

The NFC tag in EUT is a passive data device, which is powered by RF field of external reader.

Antenna Type: Internal, integral
Antenna Gain: 0dBi
Nominal rated field strength: 93.6dBμV/m at 3m
Maximum allowed field strength of production tolerance: +/- 3dB

Operation Description

Model No.: 1500476（DA-8500BK)

1500476 is a Bluetooth Music Receiver.

It contains Bluetooth module MATSUFU model: SF-C-13

F1 and T1 are 2.4GHz band-pass filter and bal-to-unbal network

U1 is a Bluetooth radio CSR BC5-MM-EXT（BC57E687C）

U2 is a flash storage (16Mbit) which can save pairing information.

U3 is a stereo amplifier SGM8421. It drives stereo aux output.

U4 is a highly accurate, low noise, CMOS LDO Voltage Regulators

U5 is a NFC sensor to approve NFC informations.

Power adapter : Input AC100V~240V,300mA, Output DC5V,1000mA

Channel Frequency Table of Bluetooth Module

CH. NO.	FRE.	Hex Value		CH. NO.	FRE.	Hex Value		CH. NO	FRE.	Hex Value		CH. NO	FRE.	Hex Value
CH0	2402MHz	0		CH26	2428MHz	1A		CH52	2454MHz	34		CH78	2480MHz	4E
CH1	2403MHz	1		CH27	2429MHz	1B		CH53	2455MHz	35				
CH2	2404MHz	2		CH28	2430MHz	1C		CH54	2456MHz	36				
CH3	2405MHz	3		CH29	2431MHz	1D		CH55	2457MHz	37				
CH4	2406MHz	4		CH30	2432MHz	1E		CH56	2458MHz	38				
CH5	2407MHz	5		CH31	2433MHz	1F		CH57	2459MHz	39				
CH6	2408MHz	6		CH32	2434MHz	20		CH58	2460MHz	3A				
CH7	2409MHz	7		CH33	2435MHz	21		CH59	2461MHz	3B				
CH8	2410MHz	8		CH34	2436MHz	22		CH60	2462MHz	3C				
CH9	2411MHz	9		CH35	2437MHz	23		CH61	2463MHz	3D				
CH10	2412MHz	A		CH36	2438MHz	24		CH62	2464MHz	3E				
CH11	2413MHz	B		CH37	2439MHz	25		CH63	2465MHz	3F				
CH12	2414MHz	C		CH38	2440MHz	26		CH64	2466MHz	40				
CH13	2415MHz	D		CH39	2441MHz	27		CH65	2467MHz	41				
CH14	2416MHz	E		CH40	2442MHz	28		CH66	2468MHz	42				
CH15	2417MHz	F		CH41	2443MHz	29		CH67	2469MHz	43				
CH16	2418MHz	10		CH42	2444MHz	2A		CH68	2470MHz	44				
CH17	2419MHz	11		CH43	2445MHz	2B		CH69	2471MHz	45				
CH18	2420MHz	12		CH44	2446MHz	2C		CH70	2472MHz	46				
CH19	2421MHz	13		CH45	2447MHz	2D		CH71	2473MHz	47				
CH20	2422MHz	14		CH46	2448MHz	2E		CH72	2474MHz	48				
CH21	2423MHz	15		CH47	2449MHz	2F		CH73	2475MHz	49				
CH22	2424MHz	16		CH48	2450MHz	30		CH74	2476MHz	4A				
CH23	2425MHz	17		CH49	2451MHz	31		CH75	2477MHz	4B				
CH24	2426MHz	18		CH50	2452MHz	32		CH76	2478MHz	4C				
CH25	2427MHz	19		CH51	2453MHz	33		CH77	2479MHz	4D				

MATSUFU
Matsufu Electronics Distribution Company

Product Description	CSR BC05 Bluetooth Module
Product Number	SF-C-13
Customer Name	
Version	SF-C-1301

Revision History

Version	Date	Description	Author
SF-C-1301	2013/5/5	Initial	Keleven

Content:

1. General Description

    The class 2 Bluetooth Module SF-C-!3 with printed antenna is a compact and qualified modules that provide a complete turnkey Bluetooth solution for wireless communications. It is based on CSR BC57E687C chipset, it's fully qualified with Bluetooth v3.0 system. The modules can be integrated into various applications to enable any electronics devices equipped with Bluetooth wireless technology, including multi-media products, Hands free car kit and emerging and application specific devices. It is a low cost, high speed and fast implementation Bluetooth device.

2. Features
- The module is a Max.4dBm(Class2) module.
- Fully Qualified Bluetooth v3.0 system.
- Integrated Switched-Mode Regulator.
- Integrated Battery Charger.
- Embedded Kalimba DSP Co-Processor.
- Integrated 16-bit Stereo Audio CODEC 95dB SNR for DAC.
- Enhanced Audibility and Noise Cancellation.
- Integrated with 16M bits flash memory.
- Support Host Interface: USB or UART.
- Support Digital Audio Bus : PCM, I2S or SPDIF.
- HSP/HFP/A2DP/AVRCP profiles support.
- Integrated chip antenna (or W.FL connector)
- RoHS compliant.
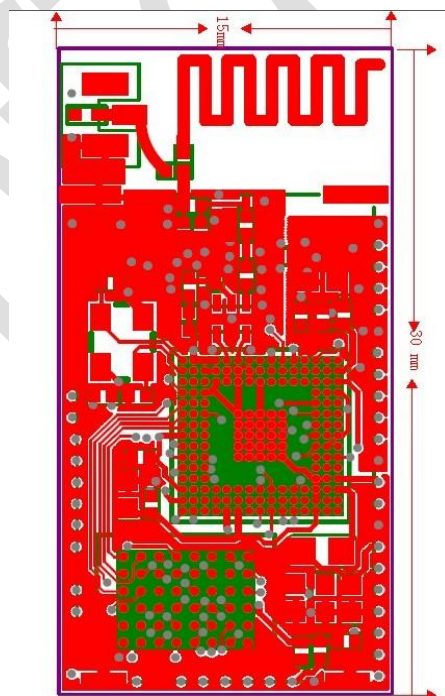- Small outline. 30 x 15 x 0.8 mm.

3. Applications
- High quality stereo wireless headsets.
- Hands-free car kits.
- Wireless speakers.
- VOIP handsets.
- Analogue and USB multimedia dongles.
- Bluetooth-enabled automotive wireless gateways.

4. Schematic
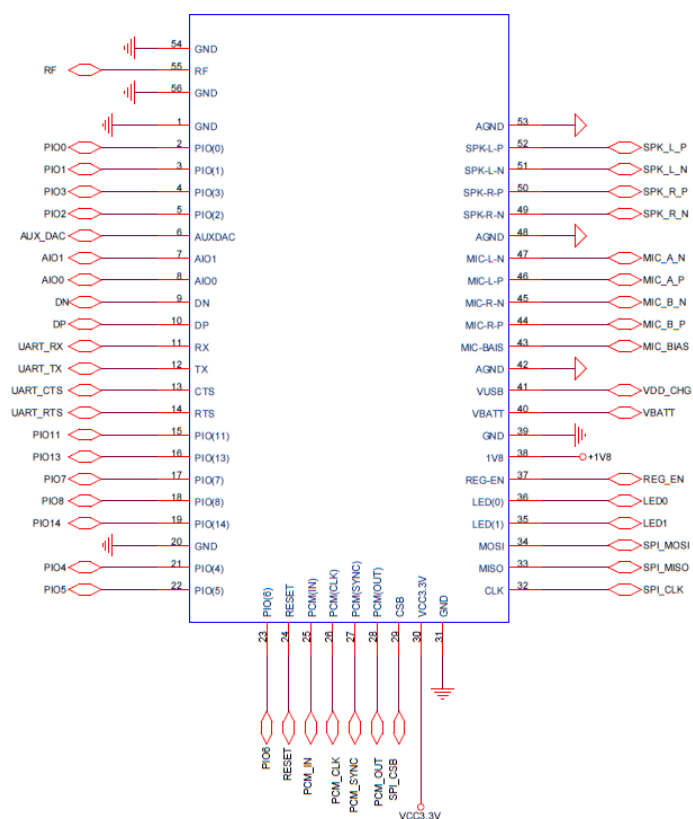
4. Layout

5. Module Pin Definition

Num.	Name	IO	Description

3

1	GND		Ground
2	PIO(0)	PIO0	Programmable input/output line
3	PIO(1)	PIO1	Programmable input/output line
4	PIO(3)	PIO3	Programmable input/output line
5	PIO(2)	PIO2	Programmable input/output line
6	AUXDAC	AUX_DAC	8-bit voltage-output DAC
7	AIO(1)	AIO1	Analogue programmable input/output line
8	AIO(0)	AIO0	Analogue programmable input/output line
9	DN	DN	USB data minus
10	DP	DP	USB data plus
11	RX	UART_RX	UART data input
12	TX	UART_TX	UART data output
13	CTS	UART_CTS	UART clear to send active low
14	RTS	UART_RTS	UART request to send active low
15	PIO(11)	PIO11	Programmable input/output line
16	PIO(13)	PIO13	Programmable input/output line
17	PIO(7)	PIO7	Programmable input/output line
18	PIO(8)	PIO8	Programmable input/output line
19	PIO(14)	PIO14	Programmable input/output line
20	GND		Ground
21	PIO(4)	PIO4	Programmable input/output line
22	PIO(5)	PIO5	Programmable input/output line
23	PIO(6)	PIO6	Programmable input/output line
24	RESET	RESET	Reset if low.
25	PCM(IN)	PCM_IN	Synchronous data input
26	PCM(CLK)	PCM_CLK	Synchronous data clock
27	PCM(SYNC)	PCM_SYNC	Synchronous data sync
28	PCM(OUT)	PCM_OUT	Synchronous data output
29	CSB	SPI_CSB	Chip select for SPI, active low
30	VCC3.3V	VCC3.3V	Input power
31	GND		Ground
32	CLK	SPI_CLK	SPI clock
33	MISO	SPI_MISO	SPI data output
34	MOSI	SPI_MOSI	SPI data input
35	LED(1)	LED1	LED driver

36	LED(0)	LED0	LED driver
37	REG-EN	REG_EN	Take high to enable linear regulator
38	1V8	+1V8	1.8V output
39	GND		Ground
40	VBATT	VBATT	Lithium ion/polymer battery positive terminal
41	VUSB	VDD_CHG	Lithium ion/polymer battery charger input
42	AGND		Analog Ground
43	MIC-BIAS	MIC_BIAS	Microphone bias
44	MIC-R-P	MIC_B_P	Microphone input positive, right
45	MIC-R-N	MIC_B_N	Microphone input negative, right
46	MIC-L-P	MIC_A_P	Microphone input positive, left
47	MIC-L-N	MIC_A_N	Microphone input negative, left
48	AGND		Analog Ground
49	SPK-R-N	SPK_R_N	Speaker output negative, right
50	SPK-R-P	SPK_R_P	Speaker output positive, right
51	SPK-L-N	SPK_L_N	Speaker output negative, left
52	SPK-L-P	SPK_L_P	Speaker output positive, left
53	AGND		Analog Ground
54	GND		Ground
55	RF	RF	Transmitter output/switched receiver input
56	GND		Ground