

## Key Features

CSR, BC417143 B-IRN-E4

V 2.0

May 2007

- ◆ Fully Qualified Bluetooth V2.0+EDR
- ◆ Enhanced Data Rate (EDR) compliant with V2.0.E.2 of the specification for both 2Mbps and 3Mbps modulation modes
- ◆ Full Speed Bluetooth Operation with full Piconet and Scatternet Support
- ◆ USB, UART, PCM interface
- ◆ Support for 802.11 Co-Existence.

## Product Description

The 401 is a Bluetooth module based on CSR BC04 External chipsets with an antenna integrated. It is BQB qualified. When used with the CSR Bluetooth software stack, it provides a fully compliant Bluetooth system to v2.0 of the Bluetooth specification for data and voice communications.

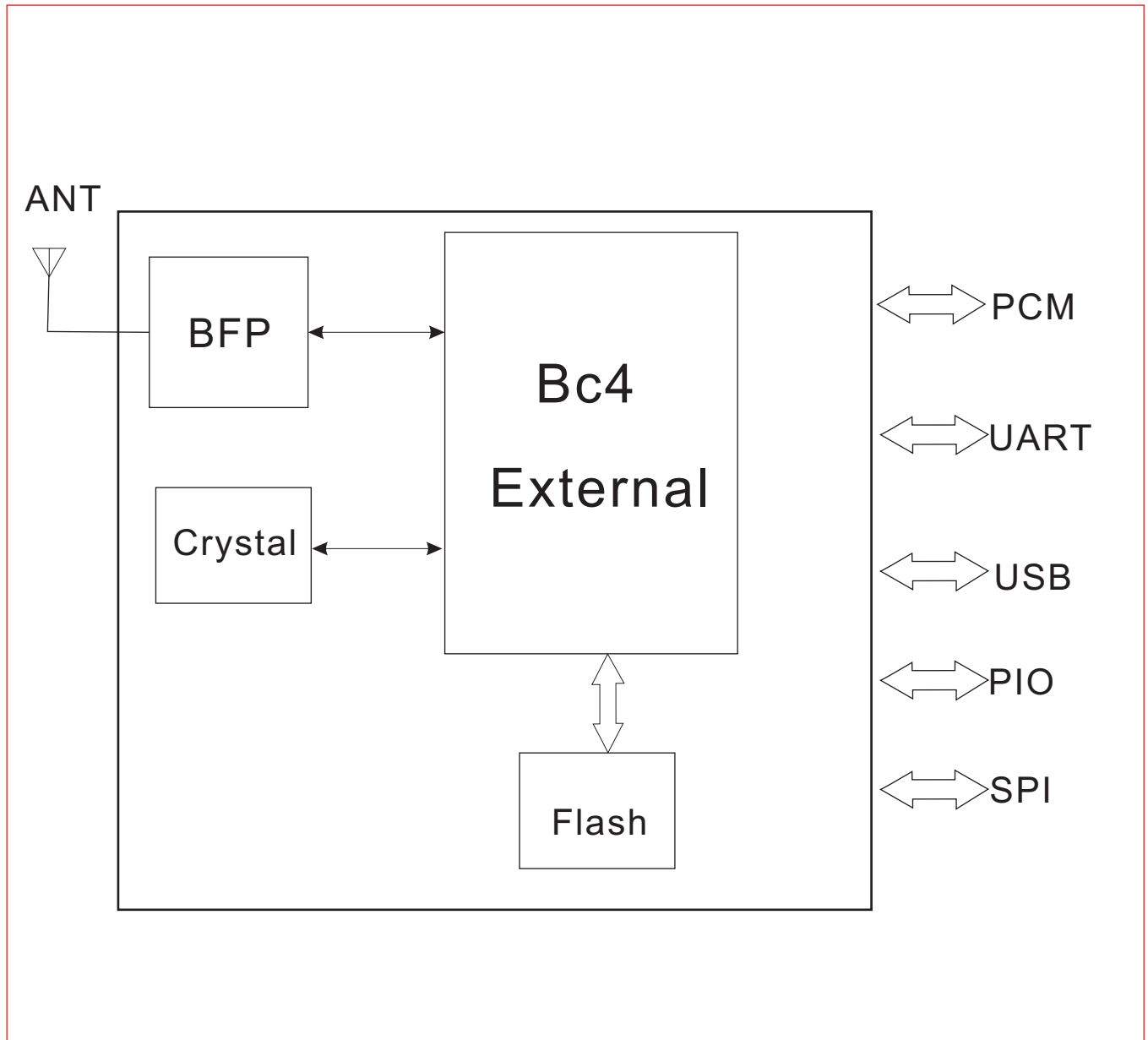
## Applications

- ◆ PCs
- ◆ Personal Digital Assistants(PDAs)
- ◆ Computer Accessories
- ◆ Access Points
- ◆ Digital Cameras

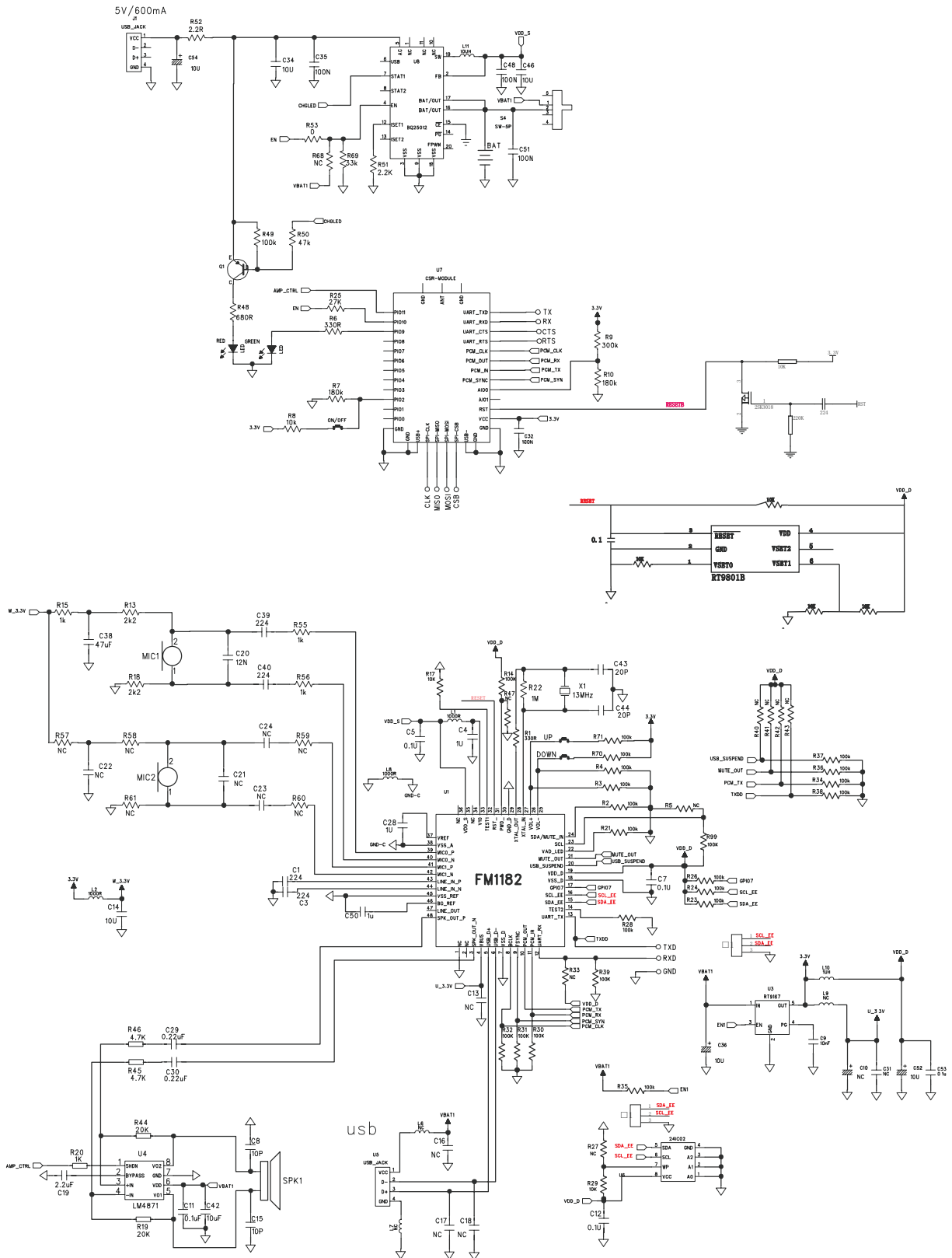
## General Specification

NO	Item	Specification
1	Supply Voltage	3.3V
2	Communication range	10 meters Type
3	Working current	15-30 mA
4	Carrier Frequency	2400MHZ-2483.5MHZ
5	Transmission Power	5dbm MAX
6	Hopping	1600hops/sec,1M channel space
7	Receiving Signal Range	-80 to -83 dbm Type
8	Operating Temperature	-40to +85 degree C
9	Storage Temperature	-40~ +85 degree C
10	Compliant	Bluetooth Specification Ver1.1 & 1.2 & V2.0

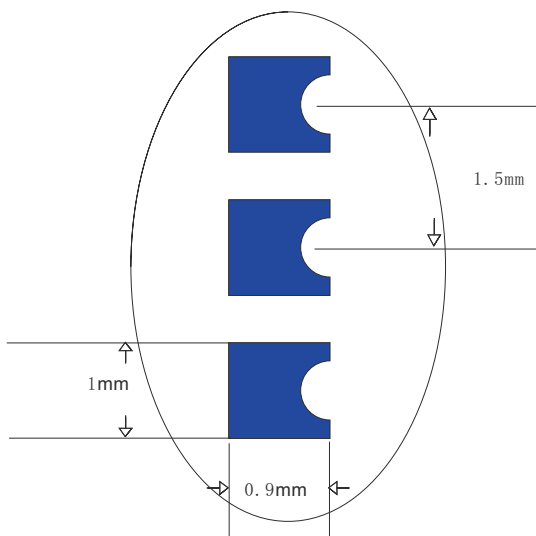
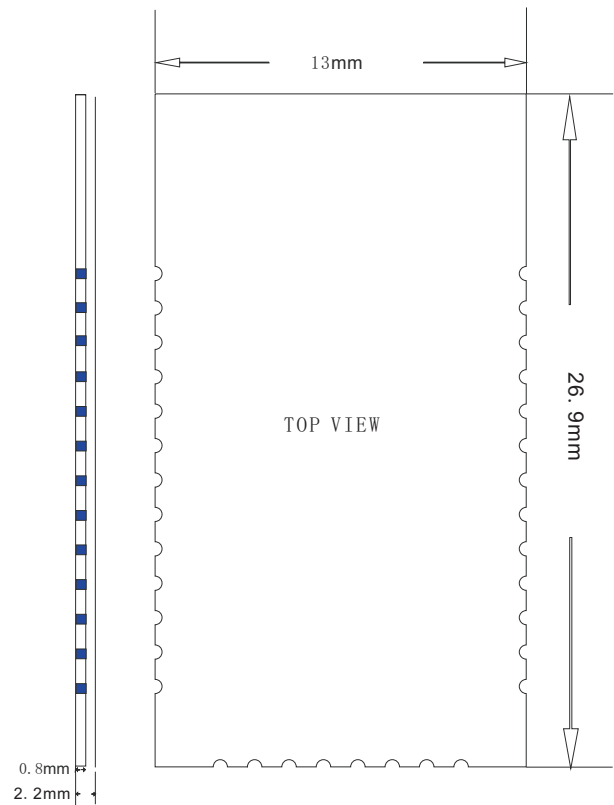
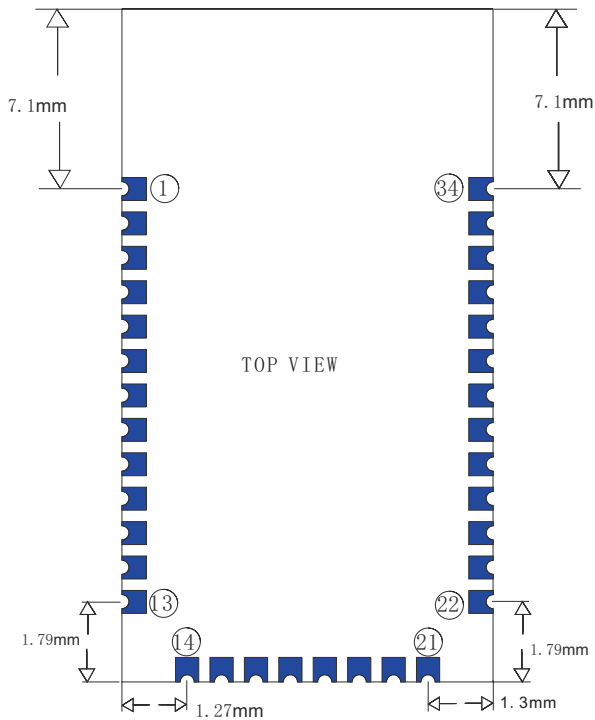
Block Diagram



## Application Schematic



型号: SS-BT401



NO	PIN NAME	NO	PIN NAME
1	UART-TX	18	SPI-MISO
2	UART-RX	19	SPI-CLK
3	UART-CTS	20	USB D+
4	UART-RTS	21	GND
5	PCM-CLK	22	GND
6	PCM-OUT	23	PIO(0)
7	PCM-IN	24	PIO(1)
8	PCM-SYNC	25	PIO(2)
9	AIO(0)	26	PIO(3)
10	AIO(1)	27	PIO(4)
11	RESET	28	PIO(5)
12	3.3V	29	PIO(6)
13	GND	30	PIO(7)
14	NC	31	PIO(8)
15	USB D-	32	PIO(9)
16	SPI-CSB	33	PIO(10)
17	SPI-MOSI	34	PIO(11)

## Pin Configurations

PIN NO.	NAME	TYPE	FUNCTION	RE-MARK
1	UART-TX	CMOS Output	UART Data Output	
2	UART-RX	CMOS Input	UART Data Input	
3	UART-CTS	CMOS Input	UART Clear To Send Active Low	
4	UART-RTS	CMOS Output	UART Request To Send Active Low	
5	PCM-CLK	Bi-directional	Synchronous Data Clock	
6	PCM-OUT	CMOS Output	Synchronous Data Output	
7	PCM-IN	CMOS Input	Synchronous Data Input	
8	PCM-SYNC	Bi-directional	Synchronous Data Sync	
9	AIO(0)	Bi-directional	Programmable Input/Output Line	
10	AIO(1)	Bi-directional	Programmable Input/Output Line	
11	RESETB	CMOS Input	Reset if low. Input debounced so must be low for >5ms to cause a reset	
12	3.3V	POWER	+3.3V Supply	For 3.3V Version
13	GND	GND	Ground	
14	NC	NC	NC	
15	USB D-	Bi-directional	USB Data Minus	
16	SPI-CSB	CMOS Input	Chip Select For Synchronous Serial Interface	
17	SPI-MOSI	CMOS Input	Serial Peripheral Interface Data Input	
18	SPI-MISO	CMOS Output	Serial Peripheral Interface Data Output	
19	SPI-CLK	CMOS Input	Serial Peripheral Interface Clock	
20	USB D+	Bi-directional	USB Data Plus with selectable internal 1.5KΩ	
21	GND	GND	Ground	
22	GND	GND	Ground	
23	PIO(0)	Bi-directional with programmable strength	Control output for external LNA (if fitted)	
24	PIO(1)	Bi-directional with programmable strength	Control output for external PA (if fitted)	
25	PIO(2)	Bi-directional	Programmable Input/Output Line	
26	PIO(3)	Bi-directional	Programmable Input/Output Line	
27	PIO(4)	Bi-directional with programmable strength	Programmable Input/Output Line or optional BT Priority/CH Clk output for co-	
28	PIO(5)	Bi-directional with programmable strength	Programmable Input/Output Line or optional BT Active output for co-existence	
29	PIO(6)	Bi-directional with programmable strength	Programmable Input/Output Line or optional WLAN Active/Ch Data input for co-	
30	PIO(7)	Bi-directional	Programmable Input/Output Line	
31	PIO(8)	Bi-directional	Programmable Input/Output Line	
32	PIO(9)	Bi-directional	Programmable Input/Output Line	
33	PIO(10)	Bi-directional	Programmable Input/Output Line	
34	PIO(11)	Bi-directional	Programmable Input/Output Line	

## Anritsu Blue Test Report

页码, 1/4

Anritsu  
BlueTest2 Test ReportTest Set Serial Number: 6K00004754  
EUT Bluetooth Address: 00025B00A5B7Date: 2006-7-15  
Time: 13:53:45

Overall Result: PASS

TRM/CA/01/C (Output Power)

Packet Length Tested: DH5

Hopping ON	Low	Med	High	Limits
Average Power	3.14 dBm	3.47 dBm	3.39 dBm	
Max Power	3.20 dBm	3.53 dBm	3.47 dBm	< 20.00 dBm
Min Power	3.11 dBm	3.42 dBm	3.35 dBm	> -6.00 dBm
Peak Power	3.31 dBm	3.65 dBm	3.60 dBm	< 23.00 dBm
Total Packets Failed	0	0	0	
Total Packets Tested	10	10	10	
Result	Pass	Pass	Pass	

TRM/CA/02/C (Power Control)

Packet Length Tested: DH1

Hopping OFF	Low	Med	High	Limits
Max Power	3.10 dB	3.40 dB	3.30 dB	
Min Power	-25.60 dB	-24.70 dB	-25.00 dB	
Max Power Step	4.80 dB	4.50 dB	4.60 dB	<= 8.00 dB
Min Power Step	3.80 dB	3.80 dB	3.80 dB	>= 2.00 dB
Total Packets Failed	0	0	0	
Total Packets Tested	14	14	14	
Result	Pass	Pass	Pass	

TRM/CA/08/C (Initial Carrier)

Packet Length Tested: DH1

Hopping ON	Low	Med	High	Limits
Average Offset	3.1 kHz	6.6 kHz	5.8 kHz	
Max Offset	9.8 kHz	12.5 kHz	16.6 kHz	<= 75 kHz
Min Offset	-2.2 kHz	-3.9 kHz	-4.0 kHz	<= 75 kHz
Total Packets Failed	0	0	0	
Total Packets Tested	10	10	10	
Result	Pass	Pass	Pass	

*TRM/CA/09/C (Carrier Drift)*

Hopping On - Low Channel	DH1	DH3	DH5	Limits
Drift Rate / 50 $\mu$ s	3.92 kHz	-5.53 kHz	-7.66 kHz	+/- 20 kHz
Max Drift	15 kHz	24 kHz	25 kHz	DH1: +/- 25kHz
Average Drift	5 kHz	9 kHz	7 kHz	DH3: +/- 40kHz
Total Packets Failed	0	0	0	DH5: +/- 40kHz
Total Packets Tested	10	10	10	
Overall Result	Pass	Pass	Pass	

Hopping On - Med Channel	DH1	DH3	DH5	Limits
Drift Rate / 50 $\mu$ s	4.51 kHz	-6.31 kHz	5.87 kHz	+/- 20 kHz
Max Drift	10 kHz	17 kHz	19 kHz	DH1: +/- 25kHz
Average Drift	0 kHz	6 kHz	4 kHz	DH3: +/- 40kHz
Total Packets Failed	0	0	0	DH5: +/- 40kHz
Total Packets Tested	10	10	10	
Overall Result	Pass	Pass	Pass	

Hopping On - High Channel	DH1	DH3	DH5	Limits
Drift Rate / 50 $\mu$ s	-5.26 kHz	6.23 kHz	-6.76 kHz	+/- 20 kHz
Max Drift	-10 kHz	15 kHz	18 kHz	DH1: +/- 25kHz
Average Drift	-2 kHz	2 kHz	1 kHz	DH3: +/- 40kHz
Total Packets Failed	0	0	0	DH5: +/- 40kHz
Total Packets Tested	10	10	10	
Overall Result	Pass	Pass	Pass	

*TRM/CA/07/C (Modulation Characteristic)*

Packet Length Tested: DH5

Hopping OFF	Low	Med	High	Limits
'F1avg'	163.4 kHz	164.2 kHz	162.7 kHz	140kHz < F1 < 175kHz
'F1max'	167.6 kHz	167.8 kHz	167.5 kHz	
F1 Packets Failed	0	0	0	
'F2avg'	165.4 kHz	165.0 kHz	165.0 kHz	
'F2max'	156.8 kHz	157.6 kHz	155.7 kHz	>= 115 kHz
'F2max' Pass Rate	100.00%	100.00%	100.00%	
F1/F2 Ratio	1.01	1.00	1.01	>= 0.8
Total Packets Tested	20	20	20	
Result	Pass	Pass	Pass	



## RCV/CA/02/C (Single Sensitivity)

Power Level: -71 dBm, Dirty Tx Status: OFF

<b>Hopping ON</b>	<b>Any</b>	<b>Limits</b>
Overall BER	0.00%	<= 0.1%
Overall FER	0.00%	<= 100%
Packets Sent	7408	
Total Packets Tested	7408	
Total Packets Failed	0	
Bit Errors	0	
CRC Errors	0	
Length Errors	0	
Lost Packets	0	
Result	Pass	

<b>Hopping OFF</b>	<b>Low</b>	<b>Med</b>	<b>High</b>	<b>Limits</b>
Overall BER	0.00%	0.00%	0.00%	<= 0.1%
Overall FER	0.04%	0.00%	0.00%	<= 100%
Packets Sent	7408	7408	7408	
Total Packets Tested	7405	7408	7408	
Total Packets Failed	0	0	0	
Bit Errors	3	0	0	
CRC Errors	0	0	0	
Length Errors	0	0	0	
Lost Packets	3	0	0	
Result	Pass	Pass	Pass	

## RCV/CA/01/C (Multi Slot Sensitivity)

Power Level: -71 dBm, Dirty Tx Status: OFF, Packet Length Tested: DH5

<b>Hopping ON</b>	<b>Any</b>	<b>Limits</b>
Overall BER	0.02%	<= 0.1%
Overall FER	1.36%	<= 100%
Packets Sent	590	
Total Packets Tested	590	
Total Packets Failed	367	
Bit Errors	8	
CRC Errors	8	
Length Errors	1	
Lost Packets	0	
Result	Pass	

<b>Hopping OFF</b>	<b>Low</b>	<b>Med</b>	<b>High</b>	<b>Limits</b>
Overall BER	0.01%	0.03%	0.02%	<= 0.1%
Overall FER	0.85%	4.24%	0.85%	<= 100%
Packets Sent	590	590	590	
Total Packets Tested	590	590	590	
Total Packets Failed	213	467	283	
Bit Errors	5	25	5	
CRC Errors	5	25	5	
Length Errors	0	0	0	
Lost Packets	0	0	0	
Result	Pass	Pass	Pass	

***RCV/CA/02/C (Max Input Level)***

Power Level: -19dBm

<b>Hopping OFF</b>	<b>Low</b>	<b>Med</b>	<b>High</b>	<b>Limits</b>
Overall BER	0.00%	0.00%	0.00%	<= 0.1%
Overall FER	0.00%	0.00%	0.00%	<= 100%
Packets Sent	7408	7408	7408	
Total Packets Tested	7408	7408	7408	
Total Packets Failed	0	0	0	
Bit Errors	0	0	0	
CRC Errors	0	0	0	
Length Errors	0	0	0	
Lost Packets	0	0	0	
Result	Pass	Pass	Pass	

---- Report End ----