

ITON BB2710-29 规格书 V1.3

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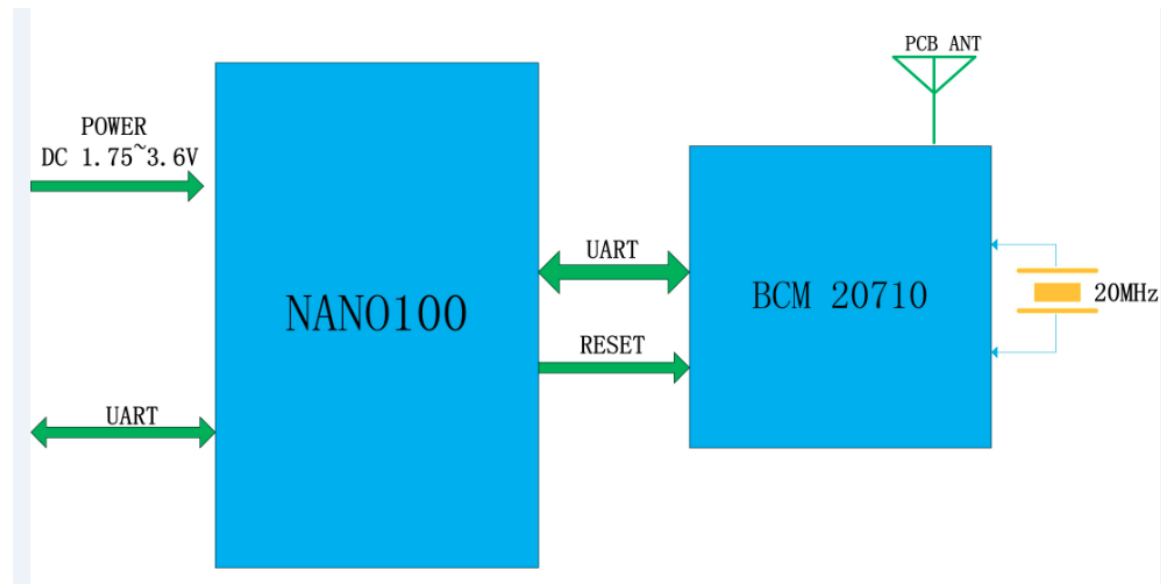
1.概述

该模组可以同时实现 **spp** 和 **gatt** 的蓝牙连接（可连接同一个手机，也可连接不同的手机）。通过 **uart** 接口将客户 **MCU** 和手机之间建立起蓝牙双向数据传输通道。客户 **MCU** 根据命令列表的内容，发相应的命令使蓝牙模组进入不同的状态和在 **SPP** 或者 **GATT** 层面上收发数据，**MCU** 也可以通过命令读到蓝牙模组的状态。

模组主要应用领域：

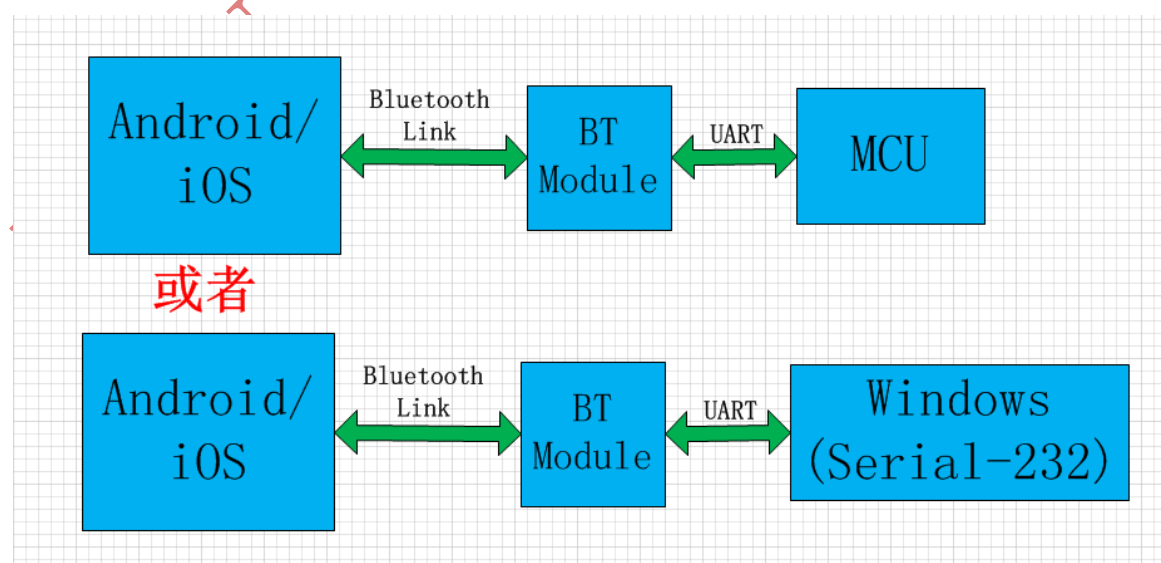
- 1) 蓝牙与RS232(RS483)串口数据转换
- 2) 蓝牙无线数据传输
- 3) 医疗及工业设备分布式远程控制
- 4) 蓝牙打印机、条码扫描设备
- 5) POS 系统，无线键盘、鼠标
- 6) 工业遥控、遥测
- 7) 室内定位、报警
- 8) 无线抄表、无线数据采集
- 9) 楼宇自动化、安防、机房设备无线监控、门禁系统
- 10) 智能家居、工业控制
- 11) 汽车检测设备
- 12) 无线LED 显示屏系统、触摸屏设备
- 13) 蓝牙操纵杆、蓝牙游戏手柄、蓝牙遥控器、遥控玩具

2.系统框图

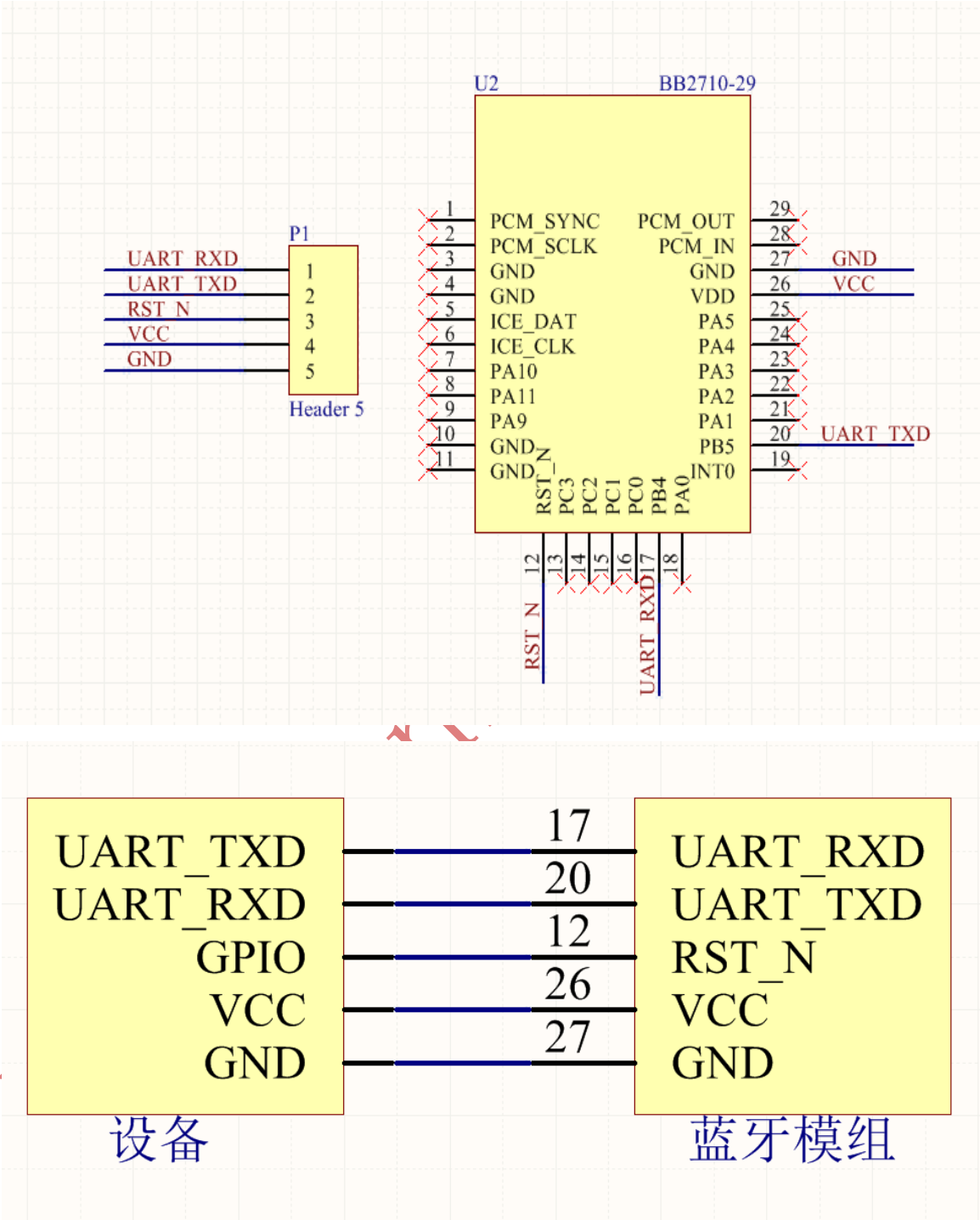


3.应用框图

3.1 应用环境框图



3.2 应用原理图



如上图所示，只需要设备控制模组上的 5 个 GPIO 脚，其中 17 和 20 脚是 UART 串口通信脚，即可控制模组收发数据。

UART 串口是默认使用 115200-1-8-N。

注：P25(PA.5)需接 100K 电阻外部上拉。

4.模块硬件参数

4.1 物理参数

Operating Frequency Band	2.4GHz-2.48GHz unlicensed ISM band
Bluetooth Specification	V2.1+EDR, BT3.0, BT4.0 (BLE)
Output Power Class	Programmable Class 1, Class 2
RX Sensitivity	-88dBm
Operating Voltage	3.3V
Main Digital Interface	UART
Other Interface	SPI, I2C, I2S
PIO Control	PWM, ADC, GPIO
Dimension	25mm(L) x 13mm(W) x 1.8mm(H)

4.2 电气参数

Rating	Min	Max
Storage Temperature	-40℃	+85℃
Operating Temperature	-25℃	+70℃
Supply Voltage: VDD	-0.3V	3.6V
Other Terminal Voltages	VSS-0.3V	VDD+0.3V

4.3 电流参数

Class SPP:

Operation Mode	AVG Current		Unit
	VDD=3.3V	VDD=1.8V	
Broadcast	8.55	8.28	mA
Connected + NoData	13.88	13.62	mA
Connected + Data(10bytes, 20ms)	14.74	14.60	mA
Connected + Data(10bytes, 100ms)	14.22	13.98	mA
Connected + Data(10bytes, 1000ms)	13.87	13.63	mA
Connected + Data(255bytes, 20ms)	14.51	14.28	mA
Connected + Data(255bytes, 100ms)	14.55	14.29	mA
Connected + Data(255bytes, 1000ms)	14.02	13.77	mA

示例: Connected + Data(10bytes,20ms)表示 在连接状态下每 20ms 发送 10 个数据。

Low Energy:

Operation Mode	AVG Current		Unit
	VDD=3.3V	VDD=1.8V	
Broadcast	8.55	8.28	mA
Connected + NoData	8.80	8.58	mA
Connected + Data(10bytes,20ms)	9.36	9.21	mA
Connected + Data(10bytes,100ms)	8.89	8.74	mA
Connected + Data(10bytes,1000ms)	8.77	8.59	mA
Connected + Data(255bytes,20ms)	9.71	9.56	mA
Connected + Data(255bytes,100ms)	9.71	9.56	mA
Connected + Data(255bytes,1000ms)	9.11	8.92	mA

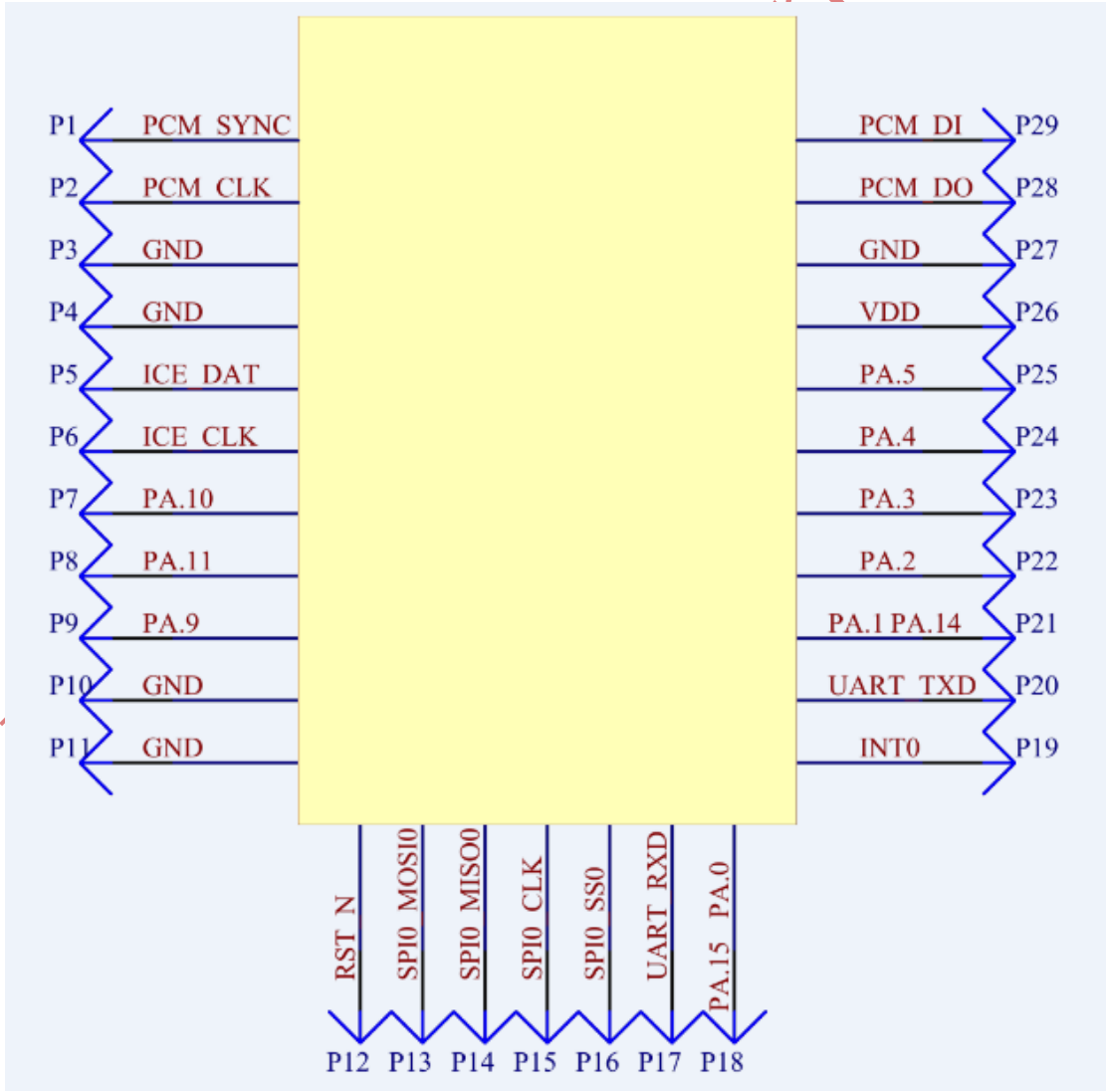
示例: Connected + Data(10bytes,20ms)表示 在连接状态下每 20ms 发送 10 个数据。

5.模块接口定义

5.1 模块硬件接口参数

电源	正常供电：+3.3V；工作电流：I<100mA
主机接口	UART 串口（CMOS、TTL 电平）
接口信号	RX、TX、CTS、RTS

5.2 模块管脚定义



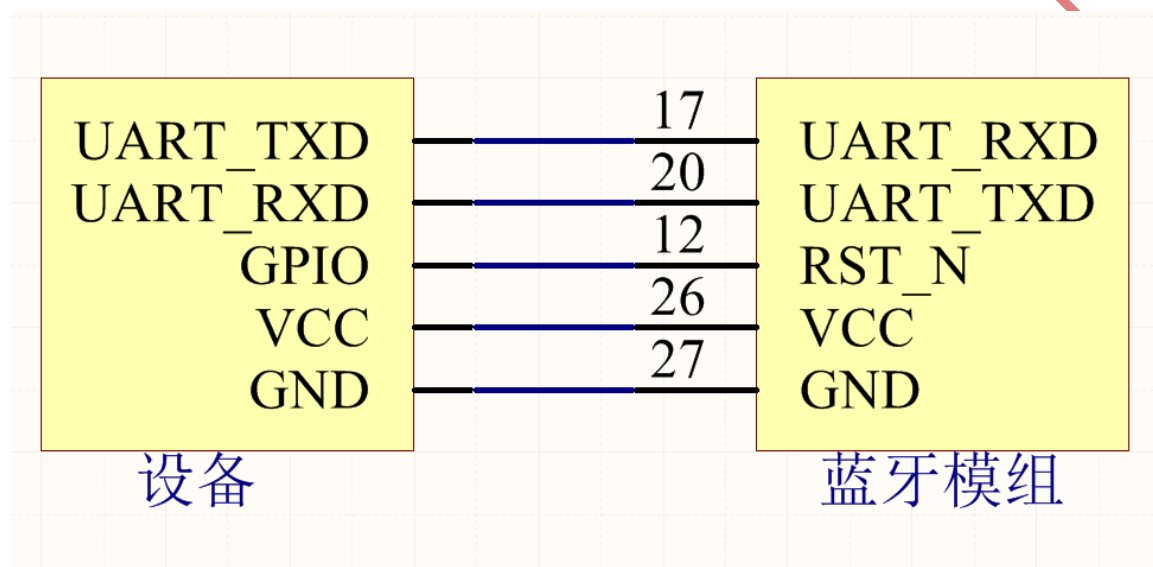
BB2710-29 模块管脚图

模块管脚定义表：

管脚号	管脚名称	类型	描述
1	PCM_SYNC	I/O	预留 PCM 接口
2	PCM_CLK	I/O	预留 PCM 接口
3	GND	Ground	接地
4	GND	Ground	接地
5	ICE_DAT	I/O	调试器的串行数据脚
6	ICE_CLK	I	调试器的串行时钟脚
7	GPIO7	I/O	1) GPIO
			2) I2C_SDA
			3) SPI1_MISO
8	GPIO8	I/O	1) GPIO
			2) I2C_SCL
			3) SPI1_MOSI
9	GPIO9	I/O	1) GPIO
			2) SPI1_CLK
10	GND	Ground	接地
11	GND	Ground	接地
12	RST_N	I	外部输入复位信号，低电平有效，内部自带上拉
13	GPIO13	I/O	1) GPIO
			2) SPI2_MOSI
14	GPIO14	I/O	1) GPIO
			2) SPI2_MISO
15	GPIO15	I/O	1) GPIO
			2) SPI2_CLK
16	GPIO16	I/O	1) GPIO
			2) SPI2_SS0
17	UART_RX	I	UART1_RXD(默认使用)
18	GPIO18	I/O	1) GPIO
			2) AD0
			3) PWMCH3
19	GPIO19	I/O	1) GPIO
			2) INT0
20	UART_TX	I	UART1_TXD(默认使用)
21	GPIO21	I/O	1) GPIO
			2) AD1
			3) PWMCH2
22	GPIO22	I/O	1) GPIO
			2) AD2
23	GPIO23	I/O	1) GPIO
			2) AD3
24	GPIO24	I/O	1) GPIO

			2) AD4
25	GPIO25	I/O	1) GPIO
			2) AD5
26	VDD	Power	电源
27	GND	Ground	接地
28	PCM_D0	0	预留 PCM 接口
29	PCM_DI	I	预留 PCM 接口

设备与蓝牙模组的连接方式如下：



注：P25(PA.5)需接 100K 电阻外部上拉。

6.模块通讯协议

6.1 模组通讯设置

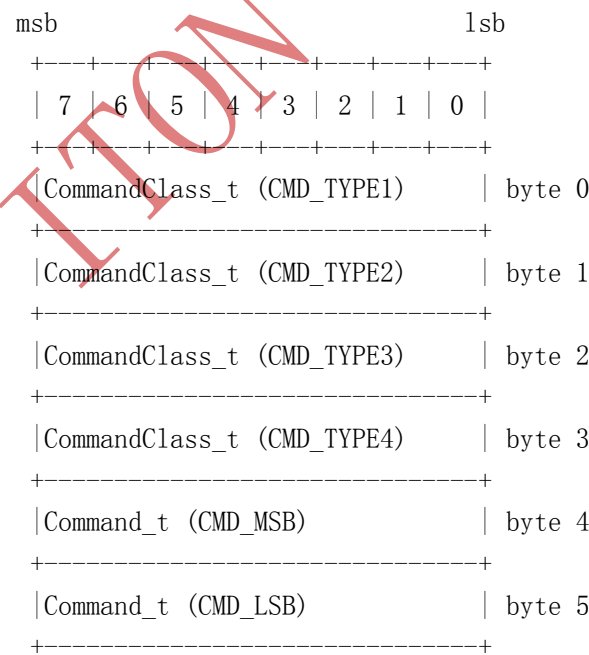
设备名称	ITON DM
接口	RS232
波特率	4800~1200000（缺省为 115200）
停止位	1
数据位	8
校验位	无

6.2 通讯功能

- 1、当前支持 spp、gatt 协议。
- 2、客户设备端和手机端都可以通过发送各种命令配置蓝牙模块、通过蓝牙模块收发数据。
- 3、uart 一帧数据个数最大为 255 字节（包括 `CommandClass_t`、`command_t`）。
- 4、spp 和 gatt 模式下不记录主机信息，也不回连主机，设备通过配置蓝牙模组使模组进入可发现和广播状态。
- 5、客户设备端和手机端不发送特征码的情况下，数据作为透传数据发送和接收。

6.3 模块通讯协议

命令：



Packet Length (LEN_MSB)	byte 6
Packet Length (LEN_LSB)	byte 7
.	
Payload Data	byte 8 to N - 1
.	
.	
Payload Checksum	byte N

应答:

msb	lsb
7	6
5	4
3	2
1	0
CommandClass_t (ACK_TYPE1)	byte 0
CommandClass_t (ACK_TYPE2)	byte 1
CommandClass_t (ACK_TYPE3)	byte 2
CommandClass_t (ACK_TYPE4)	byte 3
Command_t (CMD_MSB)	byte 4
Command_t (CMD_LSB)	byte 5
Response_t (RSP_FOR_CMD)	byte 6
Packet Length (LEN_MSB)	byte 7
Packet Length (LEN_LSB)	byte 8
.	
Payload Data	byte 9 to N - 1
.	
.	



Payload Length 不包括 CommandClass_t , command_t 和 checksum。以上数据格式针对 HID 模式。

Checksum = (0xff - (Data 之和)) + 0x01,其中 Checksum 和用于存放 data 之和的变量都用 uint_8 来表示。

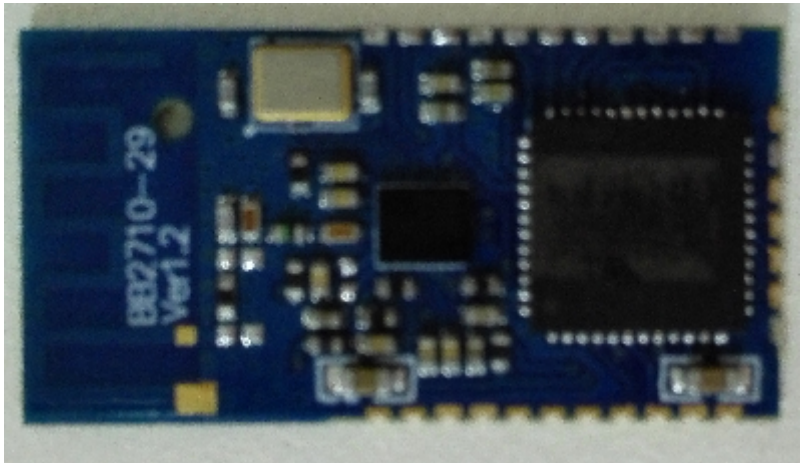
Checksum 只计算 Data 段，checksum 不对，模组返回 fail，设备收到之后可重发。

超时设置：设备向模组发送命令，建议使用超时时间 300ms，300ms 之内如模组不回复，可重发或者复位模组。

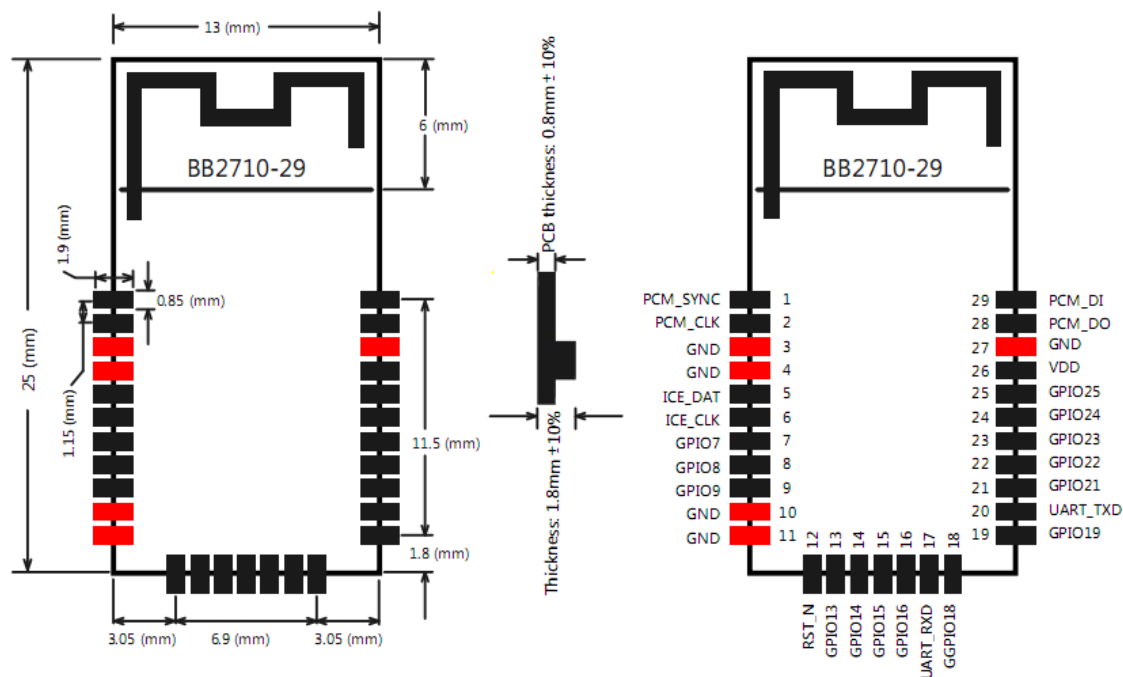
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7.模块尺寸图

7.1 实物图



7.2 机械尺寸图



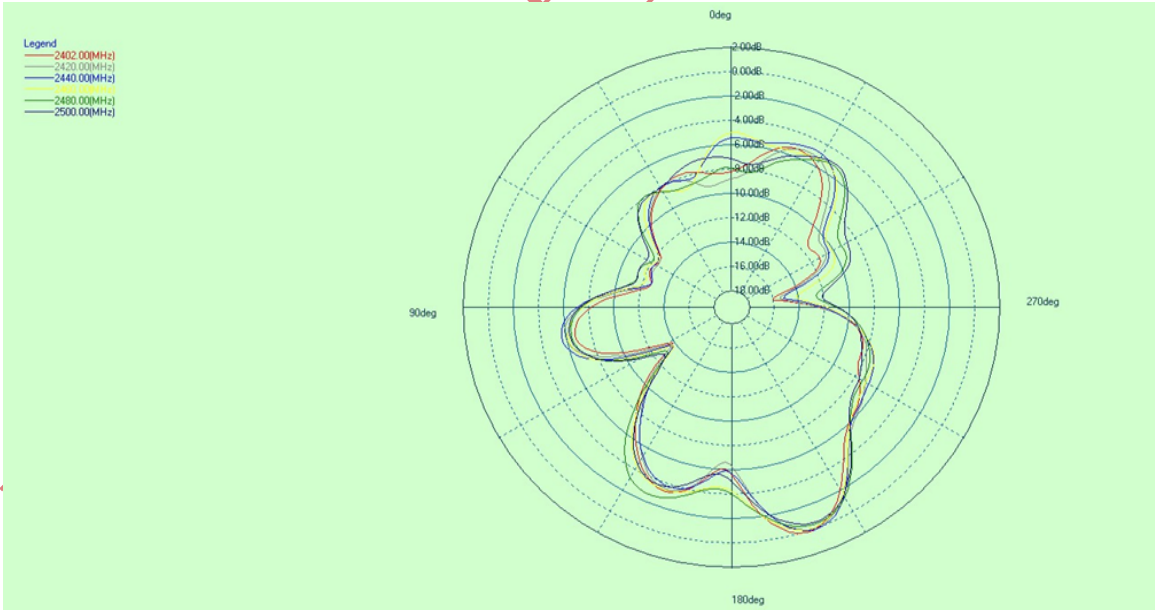
8.模块射频图

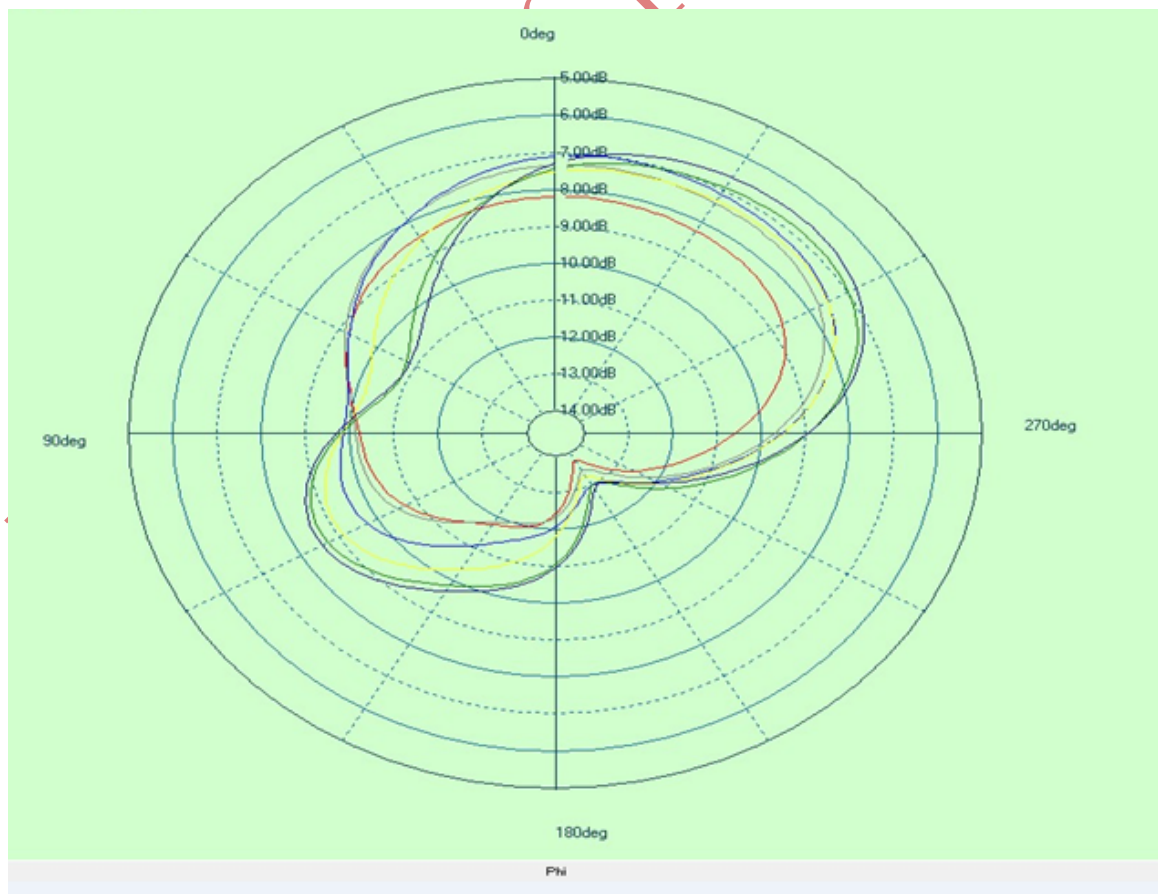
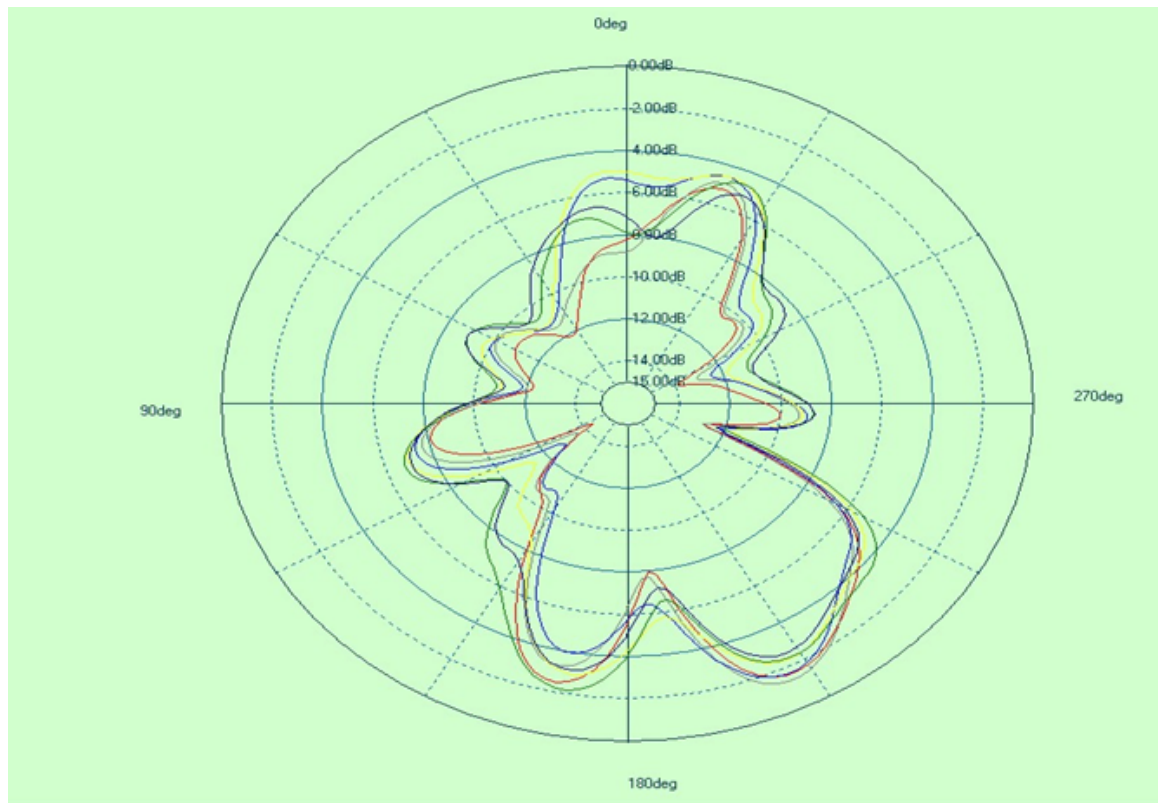
8.1 模块 FCC/CE 初扫结果

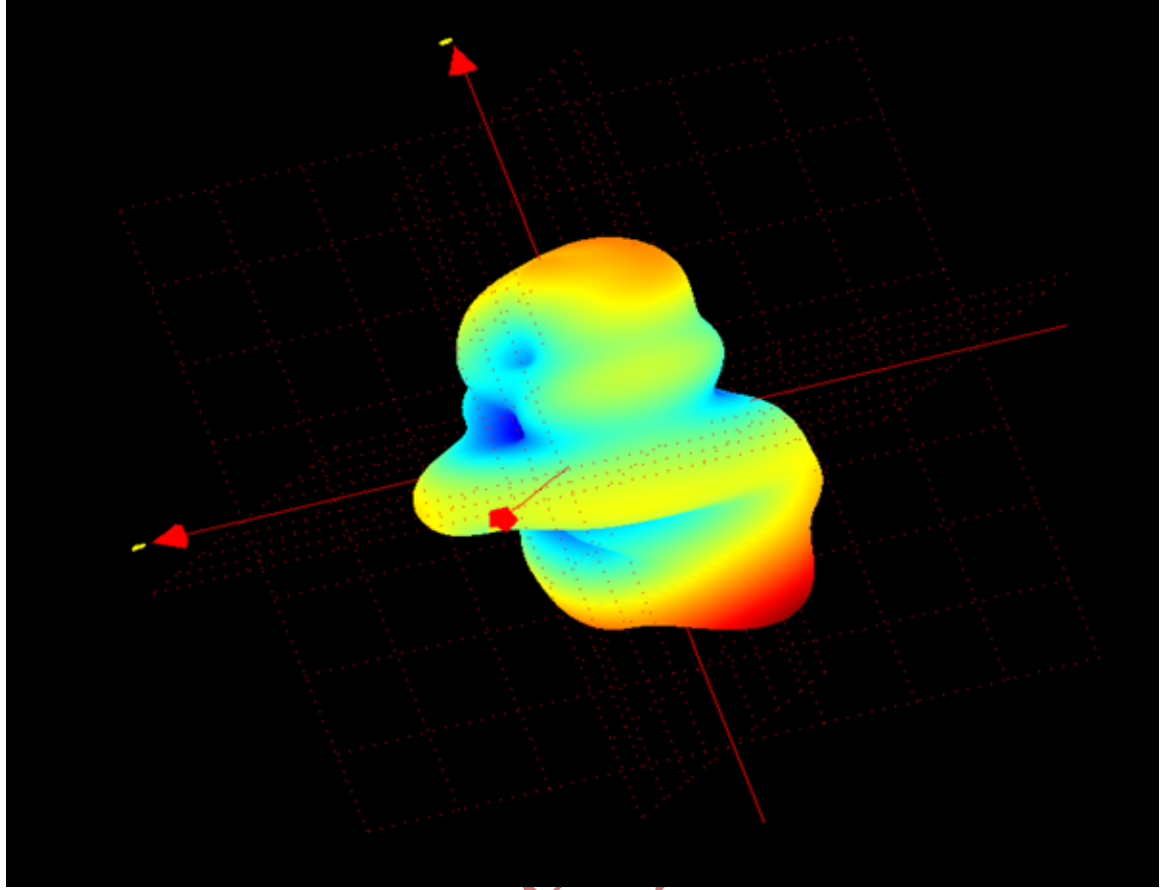
[详见附录 A。](#)

8.2 模块 3D 场形图

1				1	
Frequency	Efficiency	Efficiency . dB	Frequency	E Total. dB	
2.4E+09	15%	-8.14684	2.4E+09	0.056556	
2.42E+09	16%	-7.96163	2.42E+09	0.091498	
2.44E+09	17%	-7.76572	2.44E+09	0.369833	
2.46E+09	18%	-7.56893	2.46E+09	-0.03798	
2.48E+09	19%	-7.27506	2.48E+09	-0.28668	
2.5E+09	18%	-7.48877	2.5E+09	-0.51796	







ITON Cont

9.工艺参数

保留

10.包装信息

包装信息：吸塑+真空袋

11.历史记录

2015-01-30: 1.0 初始版本

2015-02-05: 1.1 更新实物图片

2015-02-06: 1.2 添加电流参数

2015-03-09: 1.3 P25 外接上拉电阻

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12.附录 A



深圳康来士标准测试技术有限公司
Compliance Certification Services (ShenZhen) Inc.

地址：广东省深圳市观澜镇环观南路18号信可达物流园10-1栋

TEL: 0755-28055000

FAX: 0755-29564902

Fully Chamber

Job No.: 201412011

Probe: Vertical

Standard: FCC Part15 Class B (Above 1G)_PK

Tested Distance:

Test Item: Radiation Test

Power Source:

Temp.(C)/Hum.(%RH): 24 (C) / 52 %RH

Date: 2014-12-11 Time: 14:53:36

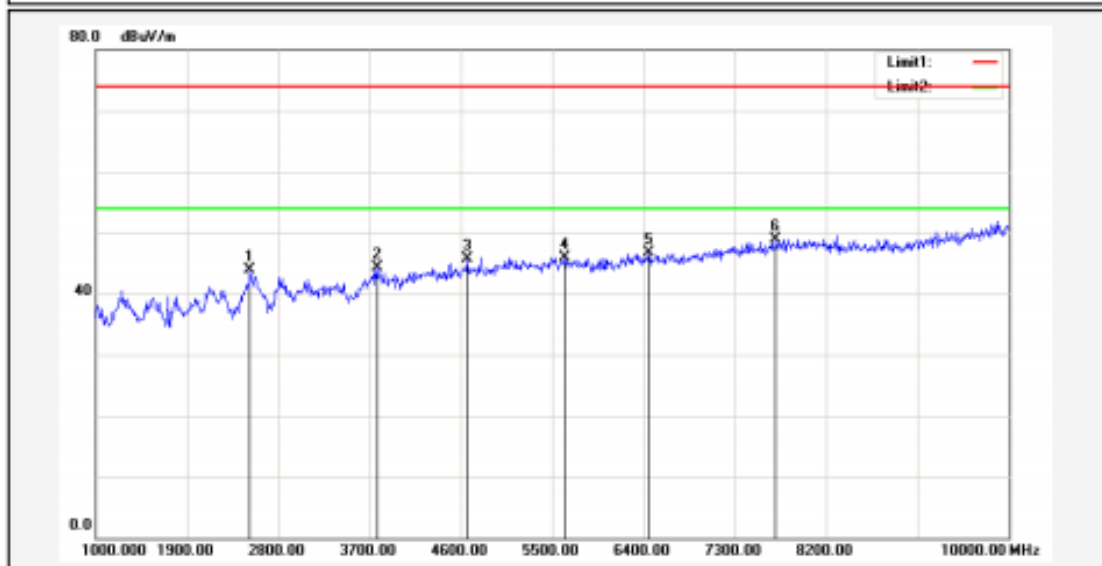
Company:

EUT:

Model: BB2710-29

Test By:

Test Mode: 1# 4.0 TX2402



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (deg.)	Height (cm)	Remark
1	2521.000	46.07	-2.22	43.85	74.00	-30.15			peak
2	3772.000	43.68	0.63	44.31	74.00	-29.69			peak
3	4663.000	41.80	3.88	45.68	74.00	-28.32			peak
4	5626.000	39.97	5.92	45.89	74.00	-28.11			peak
5	6454.000	39.88	6.82	46.70	74.00	-27.30			peak
6*	7705.000	39.88	9.07	48.95	74.00	-25.05			peak



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TEL: 0755-28055000

FAX: 0755-29564902

Fully Chamber

Job No.: 201412011

Standard: FCC Part15 Class B (Above 1G)_PK

Test Item: Radiation Test

Temp.(C)/Hum.(%RH): 24 (C) / 52 %RH

Company:

Model: BB2710-29

Probe: Horizontal

Tested Distance:

Power Source:

Date: 2014-12-11 Time: 14:55:09

EUT:

Test By:

Test Mode: 1# 4.0 TX2402



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (deg.)	Height (cm)	Remark
1	2845.000	44.32	-1.64	42.68	74.00	-31.32			peak
2	3763.000	43.23	0.59	43.82	74.00	-30.18			peak
3	4330.000	42.18	2.75	44.93	74.00	-29.07			peak
4	5194.000	40.64	5.33	45.97	74.00	-28.03			peak
5	6454.000	39.64	6.82	46.46	74.00	-27.54			peak
6*	7912.000	40.29	9.48	49.77	74.00	-24.23			peak



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TEL: 0755-28055000

FAX: 0755-29564902

Fully Chamber

Job No.: 201412011

Standard: FCC Part15 Class B (Above 1G)_PK

Test Item: Radiation Test

Temp.(C)/Hum.(%RH): 24 (C) / 52 %RH

Company:

Model: BB2710-29

Probe: Vertical

Tested Distance:

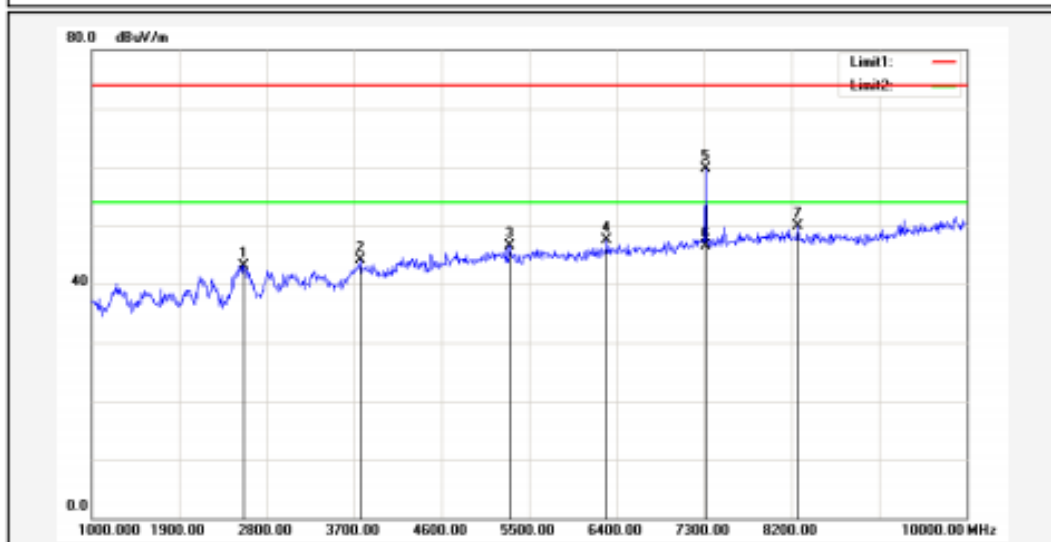
Power Source:

Date: 2014-12-11 Time: 15:04:31

EUT:

Test By:

Test Mode: 1# 4.0 TX2440



No.	Frequency (MHz)	Reading (dBuV)	Correction factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (deg.)	Height (cm)	Remark
1	2586.000	45.25	-2.14	43.11	74.00	-30.89			peak
2	3763.000	43.42	0.59	44.01	74.00	-29.99			peak
3	5302.000	40.93	5.52	46.45	74.00	-27.55			peak
4	6301.000	40.96	6.57	47.53	74.00	-26.47			peak
5	7318.000	51.30	8.32	59.62	74.00	-14.38			peak
6*	7318.000	38.16	8.32	46.48	54.00	-7.52			AVG
7	8263.000	40.41	9.51	49.92	74.00	-24.08			peak



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TEL: 0755-28055000

FAX: 0755-29564902

Fully Chamber

Job No.: 201412011

Probe: Horizontal

Standard: FCC Part15 Class B (Above 1G)_PK

Tested Distance:

Test Item: Radiation Test

Power Source:

Temp.(C)/Hum.(%RH): 24 (C) / 52 %RH

Date: 2014-12-11 Time: 15:07:01

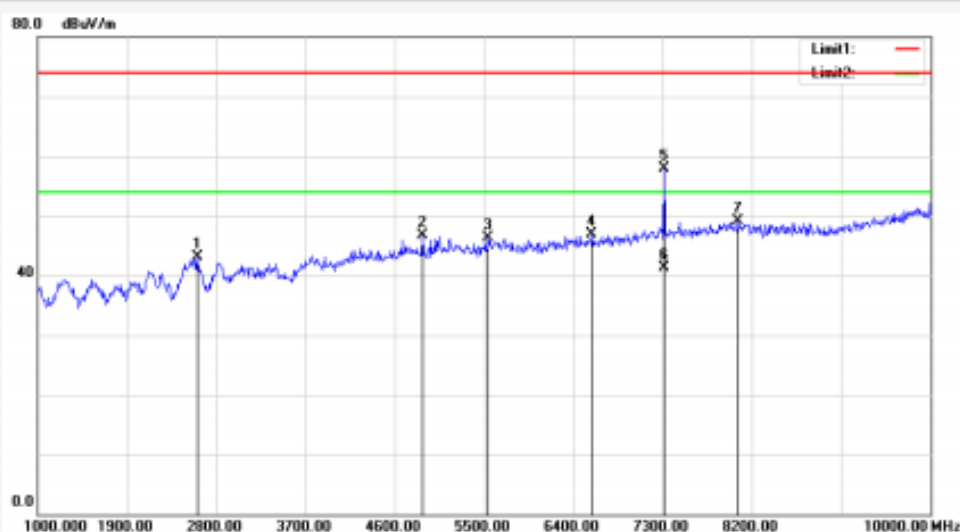
Company:

EUT:

Model: BB2710-29

Test By:

Test Mode: 1# 4.0 TX2440



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (deg.)	Height (cm)	Remark
1	2611.000	45.20	-2.06	43.14	74.00	-30.86			peak
2	4879.000	42.20	4.59	46.79	74.00	-27.21			peak
3	5545.000	40.51	5.89	46.40	74.00	-27.60			peak
4	6589.000	39.85	7.03	46.88	74.00	-27.12			peak
5	7318.000	49.61	8.32	57.93	74.00	-16.07			peak
6*	7318.000	32.98	8.32	41.30	54.00	-12.70			AVG
7	8065.000	39.52	9.61	49.13	74.00	-24.87			peak



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TEL: 0755-28055000

FAX: 0755-29564902

Fully Chamber

Job No.: 201412011

Probe: Horizontal

Standard: FCC Part15 Class B (Above 1G)_PK

Tested Distance:

Test Item: Radiation Test

Power Source:

Temp.(C)/Hum.(%RH): 24 (C) / 52 %RH

Date: 2014-12-11 Time: 15:11:39

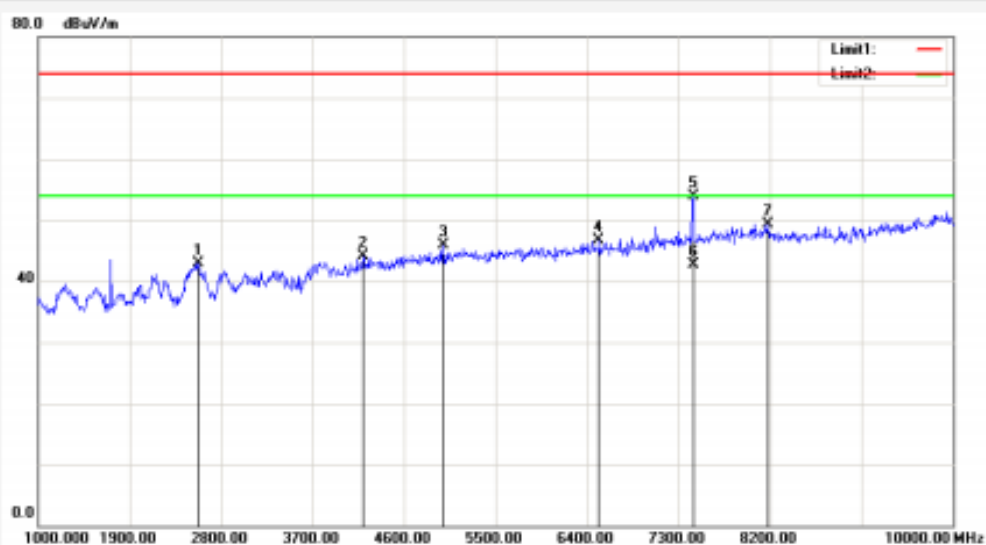
Company:

EUT:

Model: BB2710-29

Test By:

Test Mode: 1# 4.0 TX2480



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (deg.)	Height (cm)	Remark
1	2575.000	45.05	-2.12	42.93	74.00	-31.07			peak
2	4195.000	41.90	2.28	44.18	74.00	-29.82			peak
3	4987.000	40.92	4.94	45.86	74.00	-28.14			peak
4	6517.000	39.70	6.92	46.62	74.00	-27.38			peak
5	7444.000	45.25	8.57	53.82	74.00	-20.18			peak
6*	7444.000	34.21	8.57	42.78	54.00	-11.22			AVG
7	8182.000	39.70	9.55	49.25	74.00	-24.75			peak



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TEL: 0755-28055000

FAX: 0755-29564902

Fully Chamber

Job No.: 201412011

Probe: Vertical

Standard: FCC Part15 Class B (Above 1G)_PK

Tested Distance:

Test Item: Radiation Test

Power Source:

Temp.(C)/Hum.(%RH): 24 (C) / 52 %RH

Date: 2014-12-11 Time: 15:14:33

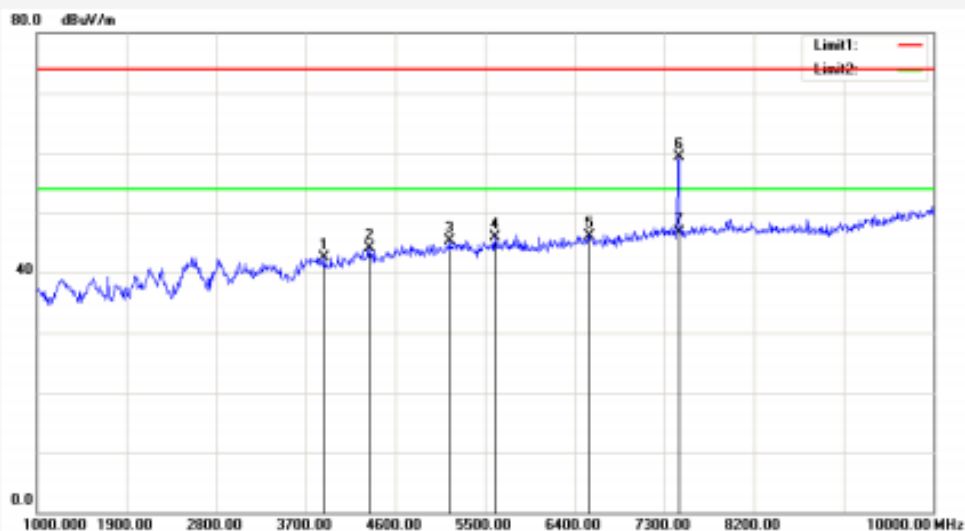
Company:

EUT:

Model: BB2710-29

Test By:

Test Mode: 1# 4.0 TX2480



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (deg.)	Height (cm)	Remark
1	3889.000	41.48	1.12	42.60	74.00	-31.40			peak
2	4339.000	41.31	2.78	44.09	74.00	-29.91			peak
3	5140.000	39.98	5.23	45.21	74.00	-28.79			peak
4	5599.000	40.09	5.91	46.00	74.00	-28.00			peak
5	6544.000	39.24	6.96	46.20	74.00	-27.80			peak
6	7444.000	50.80	8.57	59.37	74.00	-14.63			peak
7*	7444.000	38.19	8.57	46.76	54.00	-7.24			AVG



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Compliance Certification Services (ShenZhen) Inc.

地址: 广东省深圳市观澜镇环观南路18号德可达物流园10-1栋

TEL: 0755-28055000

FAX: 0755-29564902

Fully Chamber

Job No.: 201412011

Probe: Vertical

Standard: FCC Part15 Class B (Above 1G)_PK

Tested Distance:

Test Item: Radiation Test

Power Source:

Temp.(C)/Hum.(%RH): 24 (C) / 52 %RH

Date: 2014-12-11 Time: 15:23:43

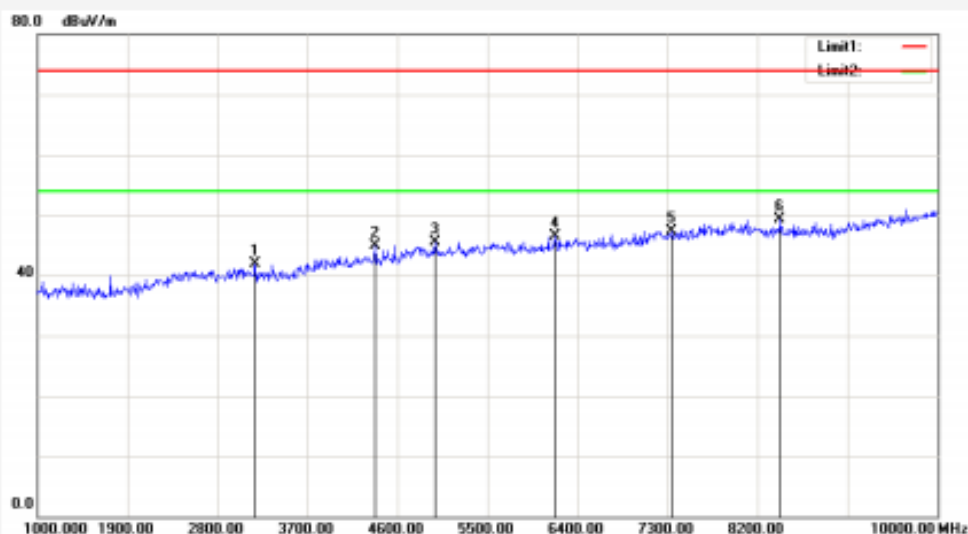
Company:

EUT:

Model: BB2710-29

Test By:

Test Mode: 1# 4.0 RX



No.	Frequency (MHz)	Reading (dBuV)	Correction factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (deg.)	Height (cm)	Remark
1	3178.000	42.94	-1.06	41.88	74.00	-32.12			peak
2	4375.000	41.93	2.91	44.84	74.00	-29.16			peak
3	4978.000	40.57	4.91	45.48	74.00	-28.52			peak
4	6175.000	40.09	6.36	46.45	74.00	-27.55			peak
5	7345.000	38.94	8.37	47.31	74.00	-26.69			peak
6*	8425.000	39.89	9.42	49.31	74.00	-24.69			peak



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Compliance Certification Services (ShenZhen) Inc.

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TEL: 0755-28055000

FAX: 0755-29564902

Fully Chamber

Job No.: 201412011

Standard: FCC Part15 Class B (Above 1G)_PK

Test Item: Radiation Test

Temp.(C)/Hum.(%RH): 24 (C) / 52 %RH

Company:

Model: BB2710-29

Probe: Horizontal

Tested Distance:

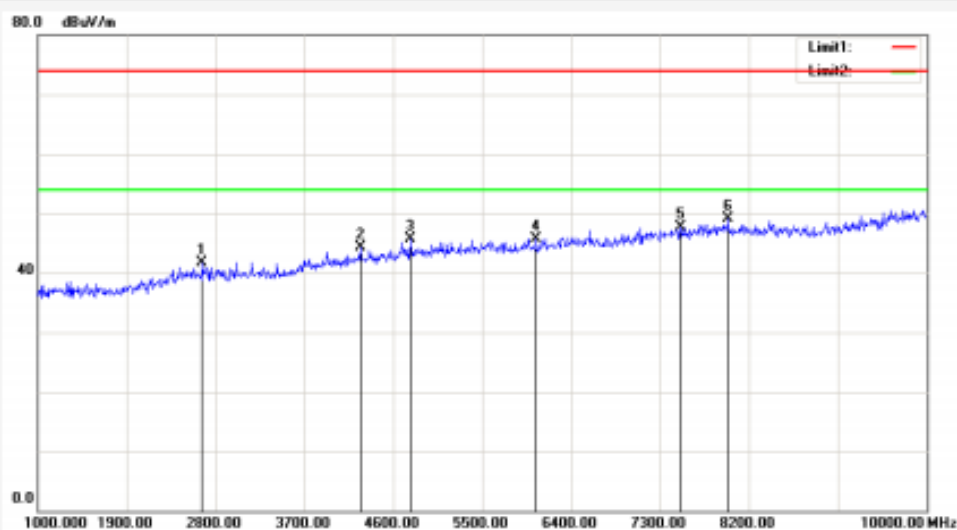
Power Source:

Date: 2014-12-11 Time: 15:25:07

EUT:

Test By:

Test Mode: 1# 4.0 RX



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (deg.)	Height (cm)	Remark
1	2665.000	43.69	-1.96	41.73	74.00	-32.27			peak
2	4267.000	41.74	2.53	44.27	74.00	-29.73			peak
3	4771.000	41.51	4.23	45.74	74.00	-28.26			peak
4	6049.000	39.45	6.16	45.61	74.00	-28.39			peak
5	7507.000	38.96	8.69	47.65	74.00	-26.35			peak
6*	7984.000	39.55	9.62	49.17	74.00	-24.83			peak



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Compliance Certification Services (ShenZhen) Inc.

地址：广东省深圳市观澜镇环观南路18号铭可达物流园10-1栋

TEL: 0755-28055000

FAX: 0755-29564902

Fully Chamber

Job No.: 201412011

Probe: Horizontal

Standard: FCC Part15 Class B (Above 1G)_PK

Tested Distance:

Test Item: Radiation Test

Power Source:

Temp.(C)/Hum.(%RH): 24 (C) / 52 %RH

Date: 2014-12-11 Time: 15:29:45

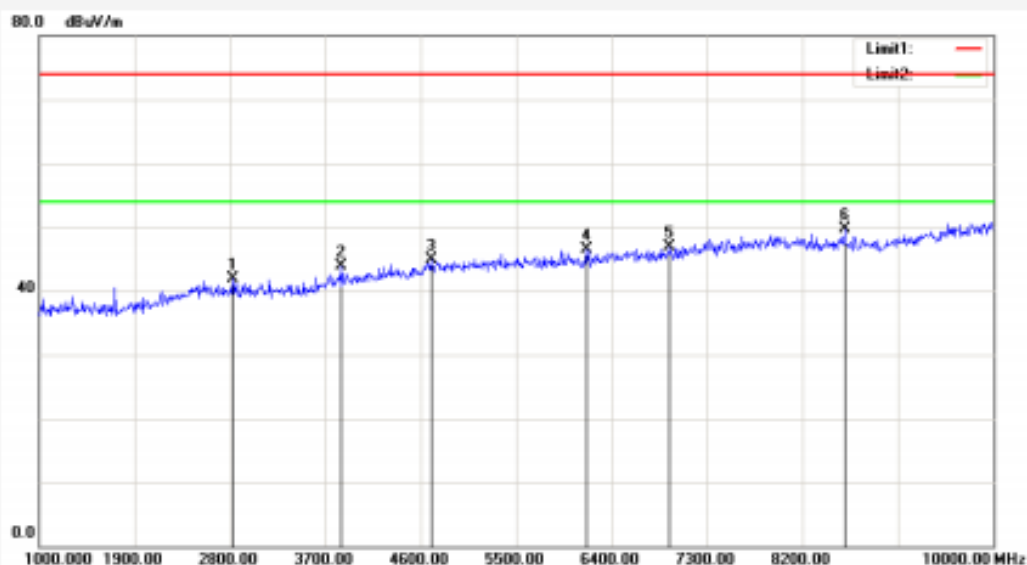
Company:

EUT:

Model: BB2710-29

Test By:

Test Mode: 1# 4.0 RX-3.0



No.	Frequency (MHz)	Reading (dBuV)	Correction factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (deg.)	Height (cm)	Remark
1	2827.000	43.58	-1.67	41.91	74.00	-32.09			peak
2	3853.000	42.86	0.97	43.83	74.00	-30.17			peak
3	4699.000	40.87	4.00	44.87	74.00	-29.13			peak
4	6166.000	40.07	6.35	46.42	74.00	-27.58			peak
5	6949.000	39.25	7.62	46.87	74.00	-27.13			peak
6*	8596.000	40.45	9.32	49.77	74.00	-24.23			peak



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Compliance Certification Services (ShenZhen) Inc.

地址：广东省深圳市观澜镇环观南路18号信可达物流园10-1栋

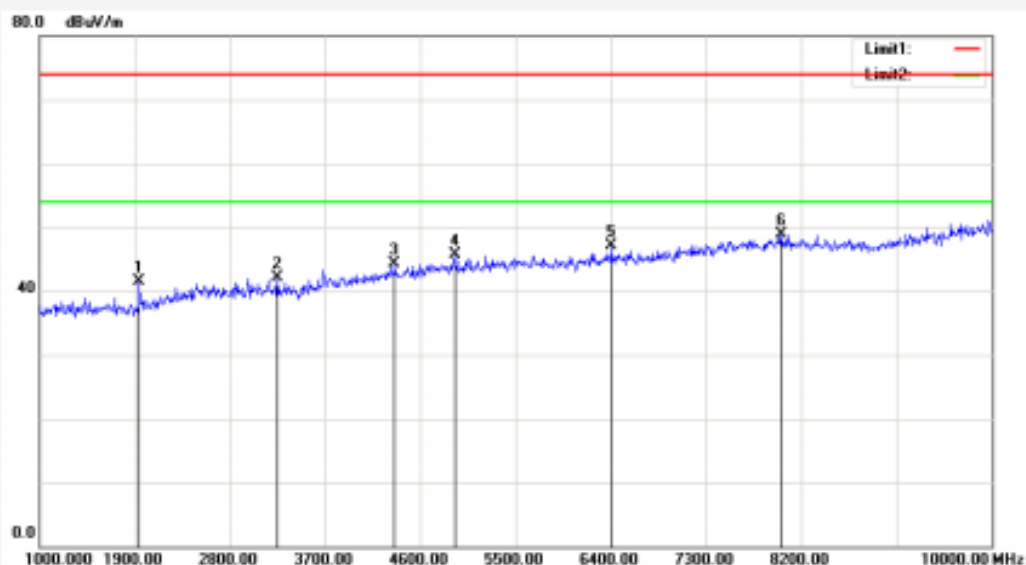
TEL: 0755-28055000

FAX: 0755-29564902

Fully Chamber

Job No.: 201412011	Probe: Vertical
Standard: FCC Part15 Class B (Above 1G)_PK	Tested Distance:
Test Item: Radiation Test	Power Source:
Temp.(C)/Hum.(%RH): 24 (C) / 52 %RH	Date: 2014-12-11 Time: 15:31:12
Company:	EUT:
Model: BB2710-29	Test By:

Test Mode: 1# 4.0 RX-3.0



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (deg.)	Height (cm)	Remark
1	1945.000	46.76	-5.35	41.41	74.00	-32.59			peak
2	3250.000	43.08	-0.94	42.14	74.00	-31.86			peak
3	4357.000	41.42	2.85	44.27	74.00	-29.73			peak
4	4924.000	41.07	4.73	45.80	74.00	-28.20			peak
5	6409.000	40.31	6.74	47.05	74.00	-26.95			peak
6*	8011.000	39.22	9.64	48.86	74.00	-25.14			peak



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Compliance Certification Services (ShenZhen) Inc.

地址：广东省深圳市观澜镇环观南路18号铭可达物流园10-1栋

TEL: 0755-28055000

FAX: 0755-29564902

Fully Chamber

Job No.: 201412011

Probe: Vertical

Standard: FCC Part15 Class B (Above 1G)_PK

Tested Distance:

Test Item: Radiation Test

Power Source:

Temp.(C)/Hum.(%RH): 24 (C) / 52 %RH

Date: 2014-12-11 Time: 15:35:29

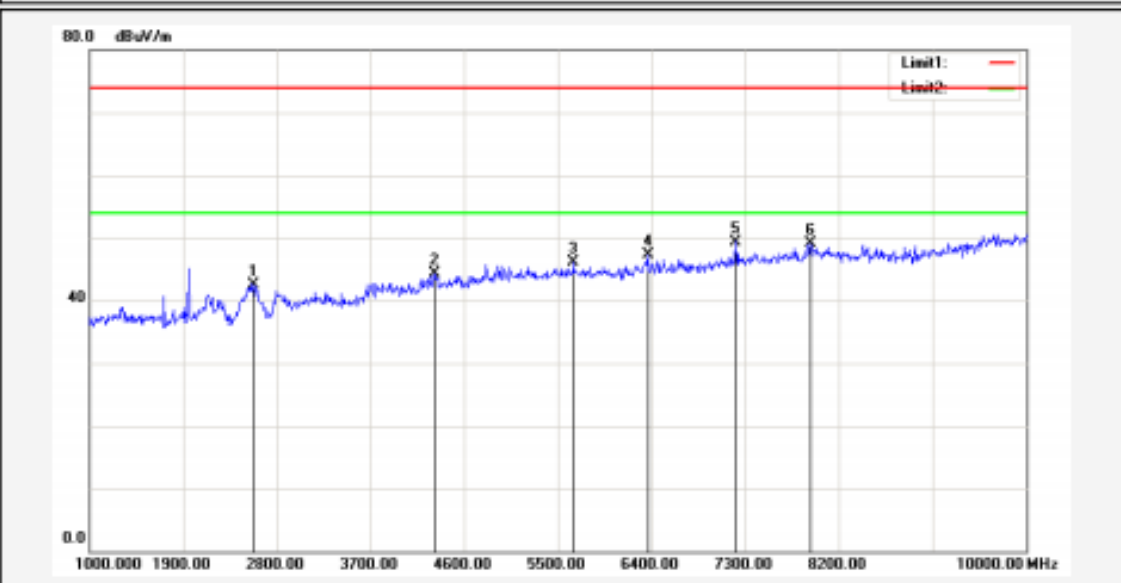
Company:

EUT:

Model: BB2710-29

Test By:

Test Mode: 1# 4.0 TX 2402-3.0



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (deg.)	Height (cm)	Remark
1	2575.000	44.63	-2.12	42.51	74.00	-31.49			peak
2	4321.000	41.55	2.72	44.27	74.00	-29.73			peak
3	5653.000	40.09	5.93	46.02	74.00	-27.98			peak
4	6364.000	40.62	6.67	47.29	74.00	-26.71			peak
5*	7210.000	41.29	8.11	49.40	74.00	-24.60			peak
6	7930.000	39.57	9.51	49.08	74.00	-24.92			peak





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Compliance Certification Services (ShenZhen) Inc.

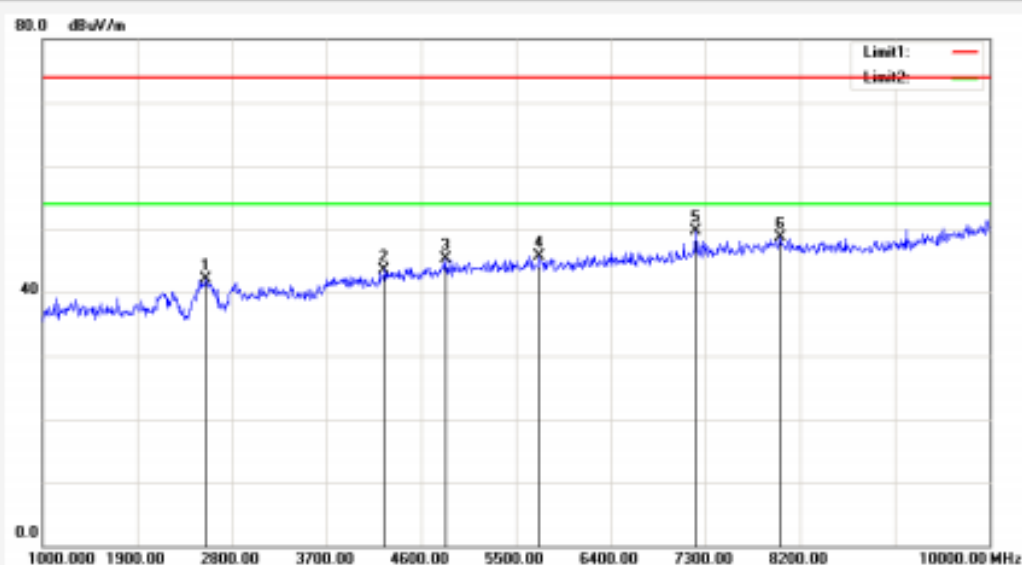
地址：广东省深圳市观澜镇环观南路18号信可达物流园10-1栋

TEL: 0755-28055000

FAX: 0755-29564902

Fully Chamber

Job No.: 201412011	Probe: Horizontal
Standard: FCC Part15 Class B (Above 1G)_PK	Tested Distance:
Test Item: Radiation Test	Power Source:
Temp.(C)/Hum.(%RH): 24 (C) / 52 %RH	Date: 2014-12-11 Time: 15:36:48
Company:	EUT:
Model: BB2710-29	Test By:
Test Mode: 1# 4.0 TX 2402-3.0	



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (deg.)	Height (cm)	Remark
1	2548.000	44.24	-2.17	42.07	74.00	-31.93			peak
2	4249.000	41.13	2.47	43.60	74.00	-30.40			peak
3	4834.000	40.92	4.44	45.36	74.00	-28.64			peak
4	5725.000	39.75	5.96	45.71	74.00	-28.29			peak
5*	7210.000	41.60	8.11	49.71	74.00	-24.29			peak
6	8011.000	39.01	9.64	48.65	74.00	-25.35			peak



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TEL: 0755-28055000

FAX: 0755-29564902

Fully Chamber

Job No.: 201412011

Standard: FCC Part15 Class B (Above 1G)_PK

Test Item: Radiation Test

Temp.(C)/Hum.(%RH): 24 (C) / 52 %RH

Company:

Model: BB2710-29

Probe: Horizontal

Tested Distance:

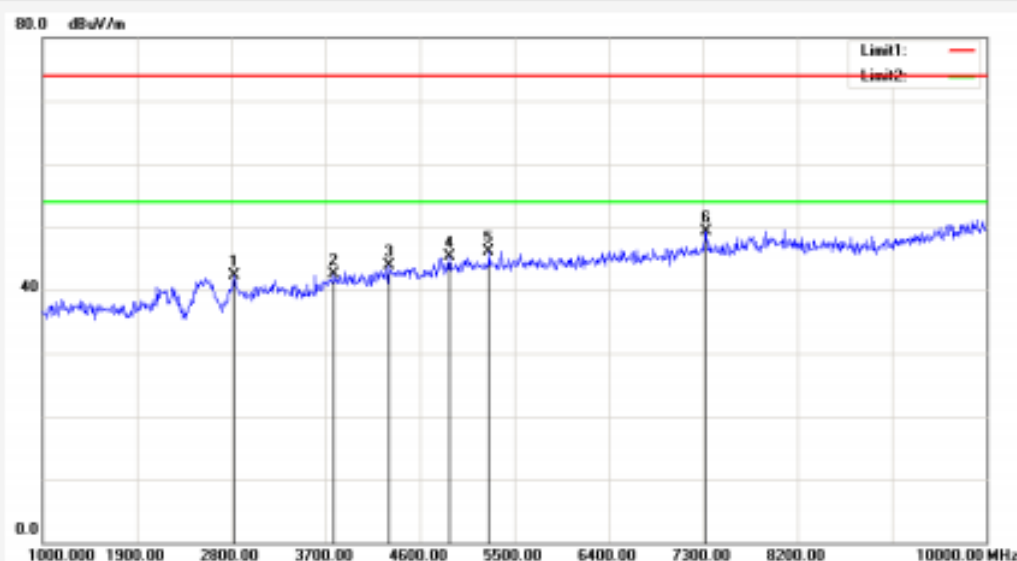
Power Source:

Date: 2014-12-11 Time: 15:40:29

EUT:

Test By:

Test Mode: 1# 4.0 TX 2441-3.0



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (deg.)	Height (cm)	Remark
1	2827.000	43.95	-1.67	42.28	74.00	-31.72			peak
2	3781.000	41.88	0.67	42.55	74.00	-31.45			peak
3	4303.000	41.20	2.66	43.86	74.00	-30.14			peak
4	4879.000	40.75	4.59	45.34	74.00	-28.66			peak
5	5257.000	40.71	5.44	46.15	74.00	-27.85			peak
6*	7327.000	40.89	8.34	49.23	74.00	-24.77			peak



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Compliance Certification Services (ShenZhen) Inc.

地址: 广东省深圳市观澜镇环观南路18号德可达物流园10-1栋

TEL: 0755-28055000

FAX: 0755-29564902

Fully Chamber

Job No.: 201412011

Standard: FCC Part15 Class B (Above 1G)_PK

Test Item: Radiation Test

Temp.(C)/Hum.(%RH): 24 (C) / 52 %RH

Company:

Model: BB2710-29

Probe: Vertical

Tested Distance:

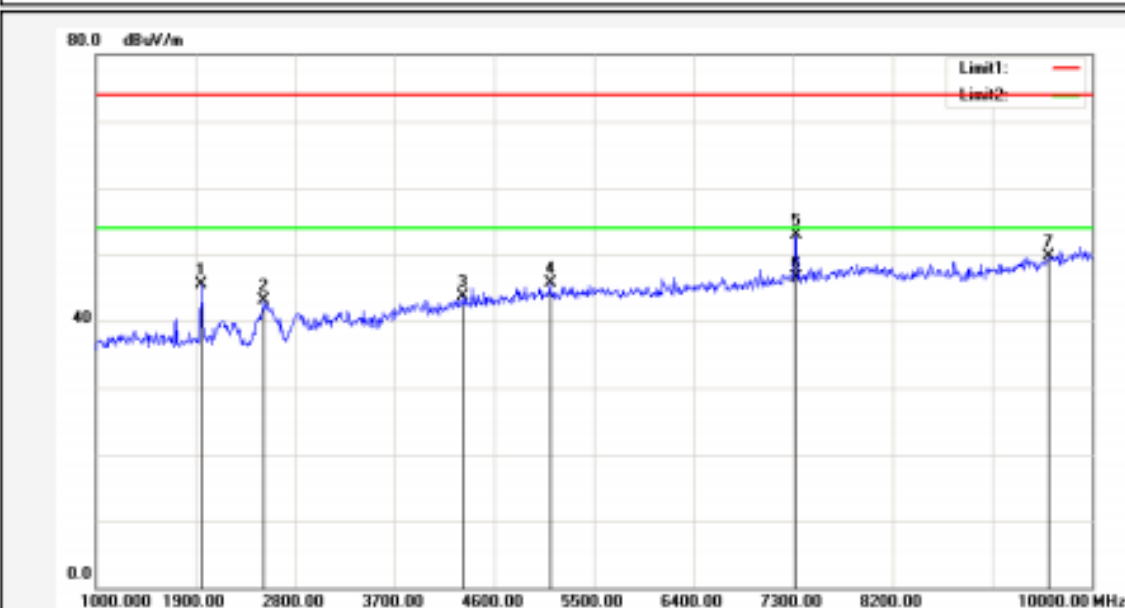
Power Source:

Date: 2014-12-11 Time: 15:42:02

EUT:

Test By:

Test Mode: 1# 4.0 TX 2441-3.0



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (deg.)	Height (cm)	Remark
1	1954.000	50.86	-5.29	45.57	74.00	-28.43			peak
2	2521.000	45.26	-2.22	43.04	74.00	-30.96			peak
3	4312.000	41.01	2.69	43.70	74.00	-30.30			peak
4	5104.000	40.49	5.17	45.66	74.00	-28.34			peak
5	7327.000	44.66	8.34	53.00	74.00	-21.00			peak
6*	7327.000	38.11	8.34	46.45	54.00	-7.55			AVG
7	9613.000	38.74	10.87	49.61	74.00	-24.39			peak



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Compliance Certification Services (ShenZhen) Inc.

地址：广东省深圳市观澜镇环观南路18号德可达物流园10-1栋

TEL: 0755-28055000

FAX: 0755-29564902

Fully Chamber

Job No.: 201412011

Probe: Vertical

Standard: FCC Part15 Class B (Above 1G)_PK

Tested Distance:

Test Item: Radiation Test

Power Source:

Temp.(C)/Hum.(%RH): 24 (C) / 52 %RH

Date: 2014-12-11 Time: 15:46:36

Company:

EUT:

Model: BB2710-29

Test By:

Test Mode: 1# 4.0 TX 2480-3.0



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (deg.)	Height (cm)	Remark
1	3763.000	42.14	0.59	42.73	74.00	-31.27			peak
2	4960.000	43.05	4.85	47.90	74.00	-26.10			peak
3	5347.000	40.46	5.60	46.06	74.00	-27.94			peak
4	6553.000	39.37	6.98	46.35	74.00	-27.65			peak
5*	7444.000	42.53	8.57	51.10	74.00	-22.90			peak
6	8092.000	39.52	9.60	49.12	74.00	-24.88			peak



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TEL: 0755-28055000

FAX: 0755-29564902

Fully Chamber

Job No.: 201412011

Probe: Horizontal

Standard: FCC Part15 Class B (Above 1G)_PK

Tested Distance:

Test Item: Radiation Test

Power Source:

Temp.(C)/Hum.(%RH): 24 (C) / 52 %RH

Date: 2014-12-11 Time: 15:47:55

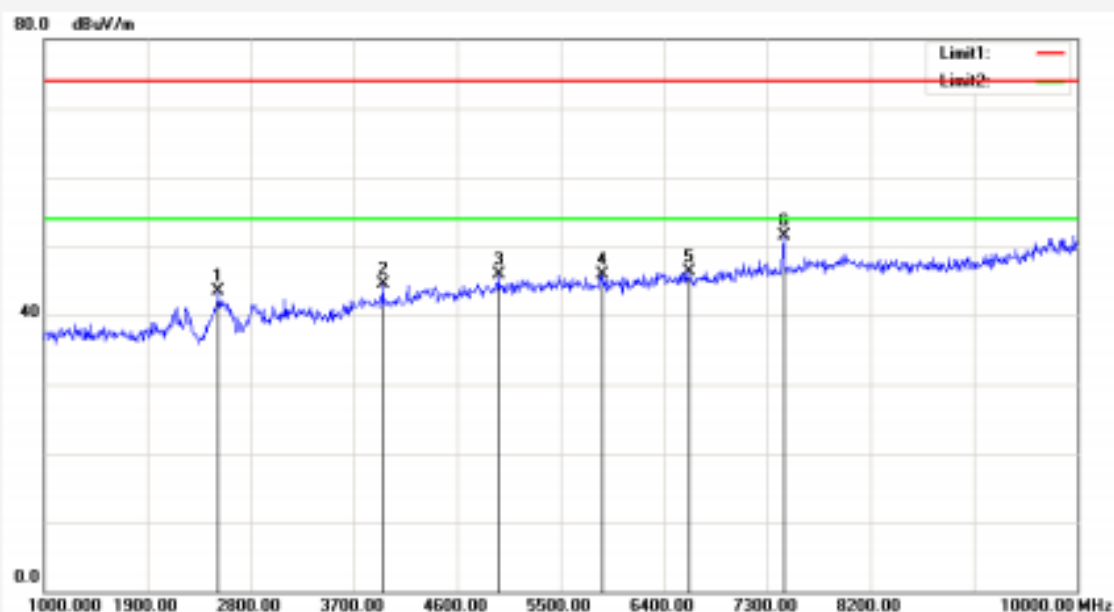
Company:

EUT:

Model: BB2710-29

Test By:

Test Mode: 1# 4.0 TX 2480-3.0



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (deg.)	Height (cm)	Remark
1	2521.000	45.80	-2.22	43.58	74.00	-30.42			peak
2	3952.000	43.17	1.39	44.56	74.00	-29.44			peak
3	4960.000	41.08	4.85	45.93	74.00	-28.07			peak
4	5869.000	39.88	6.02	45.90	74.00	-28.10			peak
5	6625.000	39.31	7.09	46.40	74.00	-27.60			peak
6*	7444.000	42.97	8.57	51.54	74.00	-22.46			peak



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Compliance Certification Services (ShenZhen) Inc.

地址：广东省深圳市观澜镇环观南路18号锦可达物流园10-1栋

TEL: 0755-28055000

FAX: 0755-29564902

Fully Chamber

Job No.: 201412011

Probe: Horizontal

Standard: FCC Part15 Class B (Above 1G)_PK

Tested Distance:

Test Item: Radiation Test

Power Source:

Temp.(C)/Hum.(%RH): 24 (C) / 52 %RH

Date: 2014-12-11 Time: 15:53:49

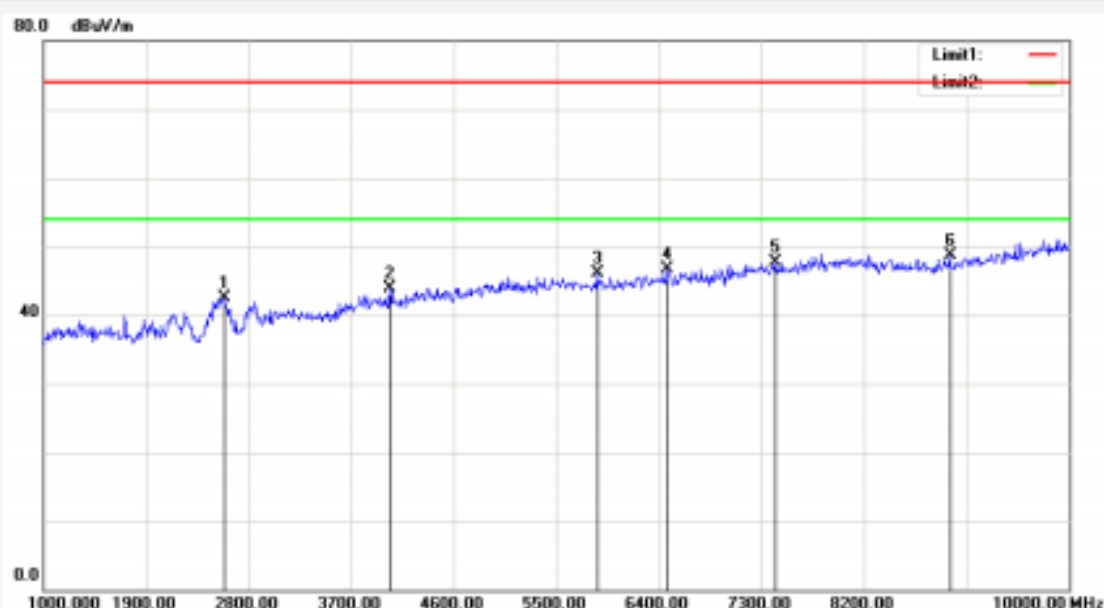
Company:

EUT:

Model: BB2710-29

Test By:

Test Mode: 2# 4.0 TX 2480-3.0



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (deg.)	Height (cm)	Remark
1	2584.000	44.52	-2.11	42.41	74.00	-31.59			peak
2	4042.000	42.09	1.74	43.83	74.00	-30.17			peak
3	5860.000	40.03	6.02	46.05	74.00	-27.95			peak
4	6481.000	39.90	6.86	46.76	74.00	-27.24			peak
5	7426.000	39.23	8.53	47.76	74.00	-26.24			peak
6*	8956.000	39.58	9.12	48.70	74.00	-25.30			peak



深圳康来士标准测试技术有限公司

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地址：广东省深圳市观澜镇观澜南路18号铭可达物流园10-1栋

TEL: 0755-28055000

FAX: 0755-29564902

Fully Chamber

Job No.: 201412011

Probe: Vertical

Standard: FCC Part15 Class B (Above 1G)_PK

Tested Distance:

Test Item: Radiation Test

Power Source:

Temp.(C)/Hum.(%RH): 24 (C) / 52 %RH

Date: 2014-12-11 Time: 15:55:10

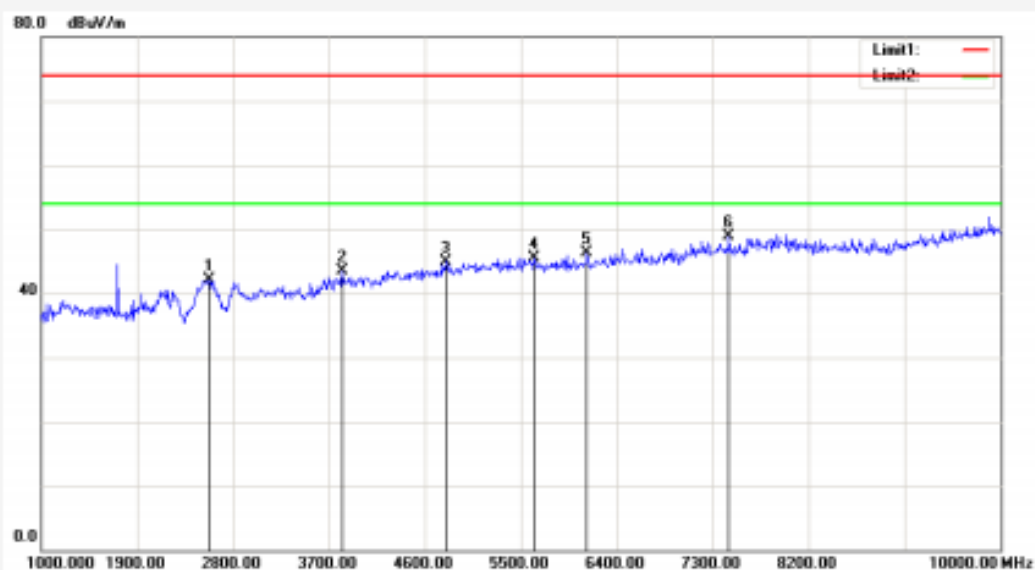
Company:

EUT:

Model: BB2710-29

Test By:

Test Mode: 2# 4.0 TX 2480-3.0



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (deg.)	Height (cm)	Remark
1	2575.000	44.23	-2.12	42.11	74.00	-31.89			peak
2	3826.000	42.73	0.86	43.59	74.00	-30.41			peak
3	4798.000	40.68	4.32	45.00	74.00	-29.00			peak
4	5626.000	39.57	5.92	45.49	74.00	-28.51			peak
5	6121.000	39.93	6.28	46.21	74.00	-27.79			peak
6*	7453.000	40.36	8.58	48.94	74.00	-25.06			peak



深圳康来士标准测试技术有限公司

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地址：广东省深圳市观澜镇环观南路18号德可达物流园10-1栋

TEL: 0755-28055000

FAX: 0755-29564902

Fully Chamber

Job No.: 201412011

Probe: Horizontal

Standard: FCC Part15 Class B (Above 1G)_PK

Tested Distance:

Test Item: Radiation Test

Power Source:

Temp.(C)/Hum.(%RH): 24 (C) / 52 %RH

Date: 2014-12-11 Time: 15:58:43

Company:

EUT:

Model: BB2710-29

Test By:

Test Mode: 2# 4.0 TX 2440-3.0



No.	Frequency (MHz)	Reading (dBuV)	Correction factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (deg.)	Height (cm)	Remark
1	2260.000	44.51	-3.58	40.93	74.00	-33.07			peak
2	4330.000	41.21	2.75	43.96	74.00	-30.04			peak
3	4879.000	41.06	4.59	45.65	74.00	-28.35			peak
4	6184.000	39.62	6.38	46.00	74.00	-28.00			peak
5*	7318.000	41.66	8.32	49.98	74.00	-24.02			peak
6	7777.000	40.19	9.22	49.41	74.00	-24.59			peak



深圳康来士标准测试技术有限公司

Compliance Certification Services (ShenZhen) Inc.

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TEL: 0755-28055000

FAX: 0755-29564902

Fully Chamber

Job No.: 201412011

Standard: FCC Part15 Class B (Above 1G)_PK

Test Item: Radiation Test

Temp.(C)/Hum.(%RH): 24 (C) / 52 %RH

Company:

Model: BB2710-29

Probe: Vertical

Tested Distance:

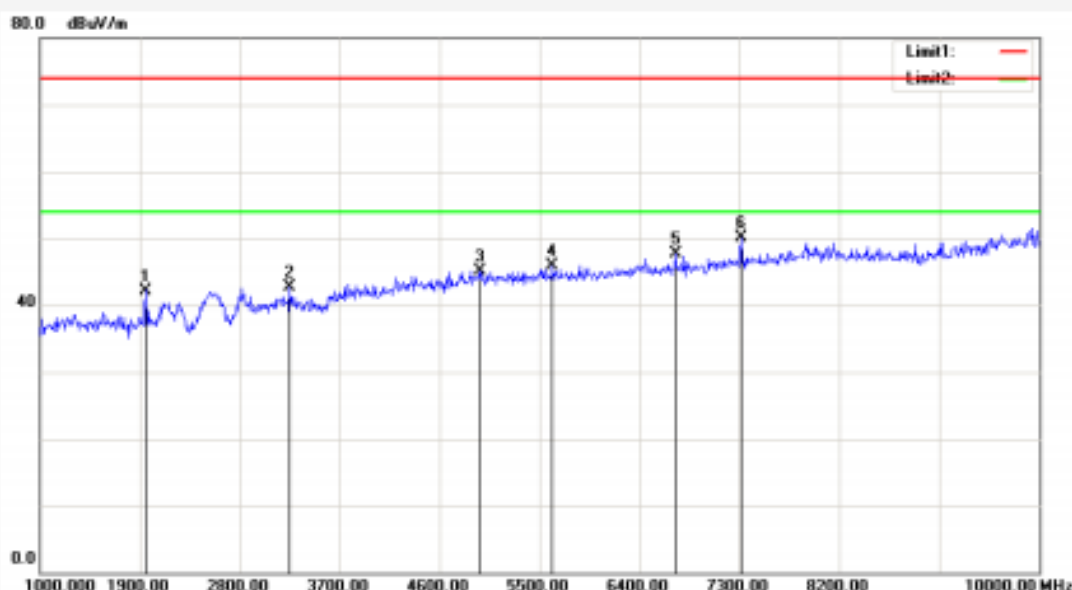
Power Source:

Date: 2014-12-11 Time: 15:59:56

EUT:

Test By:

Test Mode: 2# 4.0 TX 2440-3.0



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (deg.)	Height (cm)	Remark
1	1954.000	47.49	-5.29	42.20	74.00	-31.80			peak
2	3250.000	43.59	-0.94	42.65	74.00	-31.35			peak
3	4960.000	40.31	4.85	45.16	74.00	-28.84			peak
4	5617.000	39.98	5.92	45.90	74.00	-28.10			peak
5	6724.000	40.55	7.25	47.80	74.00	-26.20			peak
6*	7318.000	41.79	8.32	50.11	74.00	-23.89			peak



深圳康来士标准测试技术有限公司

Compliance Certification Services (ShenZhen) Inc.

地址：广东省深圳市观澜镇环观南路18号能可达物流园10-1栋

TEL: 0755-28055000

FAX: 0755-29564902

Fully Chamber

Job No.: 201412011

Standard: FCC Part15 Class B (Above 1G)_PK

Test Item: Radiation Test

Temp.(C)/Hum.(%RH): 24 (C) / 52 %RH

Company:

Model: BB2710-29

Probe: Vertical

Tested Distance:

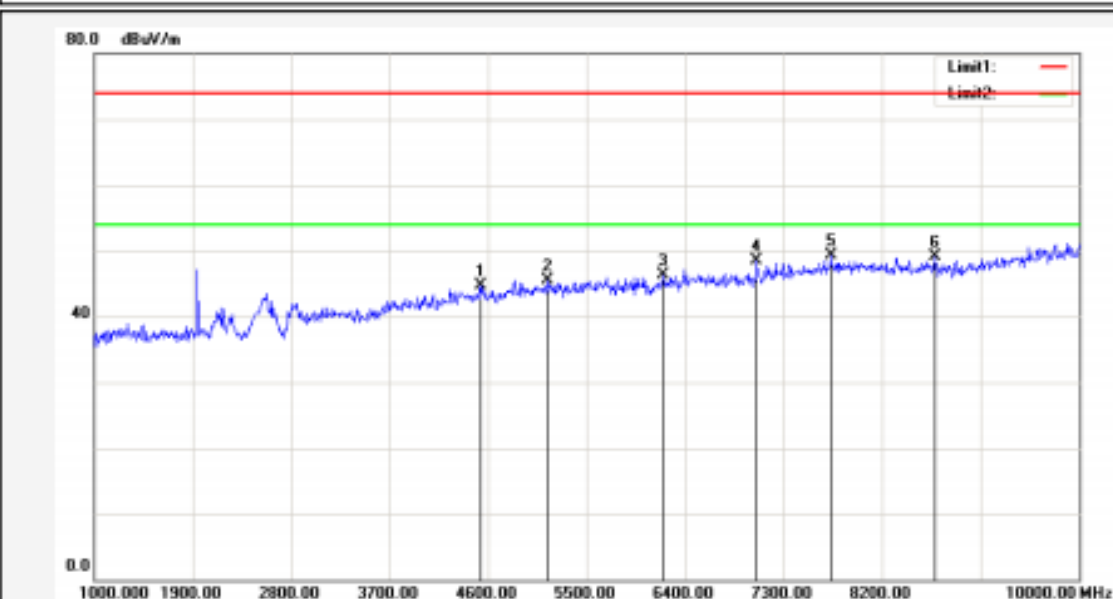
Power Source:

Date: 2014-12-11 Time: 16:02:49

EUT:

Test By:

Test Mode: 2# 4.0 TX 2402-3.0



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (deg.)	Height (cm)	Remark
1	4528.000	41.32	3.44	44.76	74.00	-29.24			peak
2	5149.000	40.32	5.25	45.57	74.00	-28.43			peak
3	6202.000	39.87	6.41	46.28	74.00	-27.72			peak
4	7057.000	40.71	7.81	48.52	74.00	-25.48			peak
5*	7732.000	40.10	9.13	49.23	74.00	-24.77			peak
6	8686.000	39.80	9.27	49.07	74.00	-24.93			peak



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Compliance Certification Services (ShenZhen) Inc.

地址：广东省深圳市观澜镇环观南路18号德可达物流园10-1栋

TEL: 0755-28055000

FAX: 0755-29564902

Fully Chamber

Job No.: 201412011

Standard: FCC Part15 Class B (Above 1G)_PK

Test Item: Radiation Test

Temp.(C)/Hum.(%RH): 24 (C) / 52 %RH

Company:

Model: BB2710-29

Probe: Horizontal

Tested Distance:

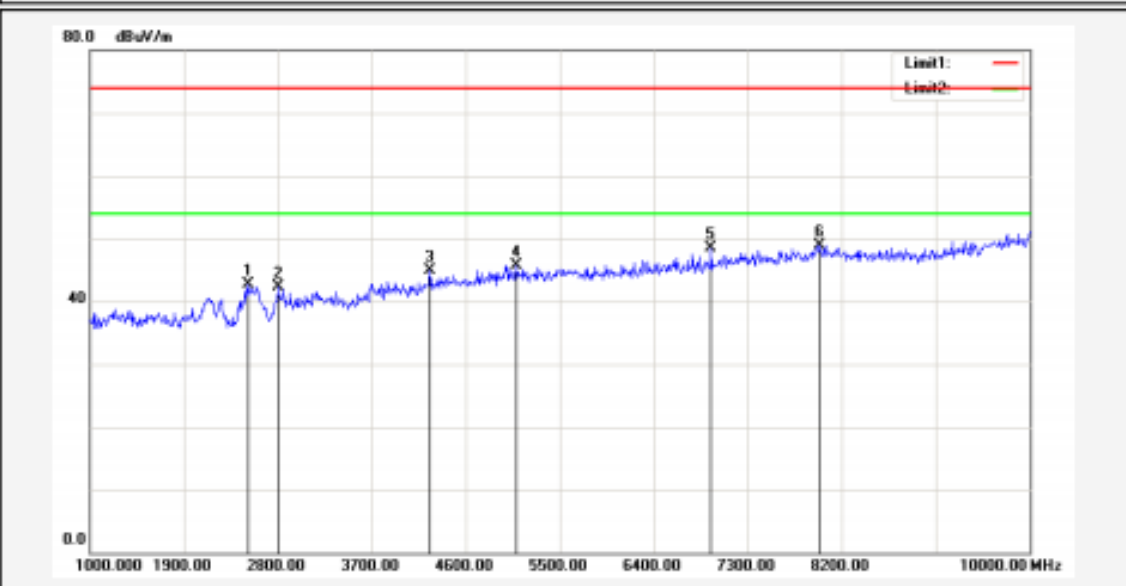
Power Source:

Date: 2014-12-11 Time: 16:03:55

EUT:

Test By:

Test Mode: 2# 4.0 TX 2402-3.0



No.	Frequency (MHz)	Reading (dBuV)	Correction factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (deg.)	Height (cm)	Remark
1	2512.000	44.90	-2.24	42.66	74.00	-31.34			peak
2	2800.000	43.96	-1.72	42.24	74.00	-31.76			peak
3	4258.000	42.41	2.50	44.91	74.00	-29.09			peak
4	5086.000	40.55	5.13	45.68	74.00	-28.32			peak
5	6949.000	40.90	7.62	48.52	74.00	-25.48			peak
6*	7984.000	39.37	9.62	48.99	74.00	-25.01			peak





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Compliance Certification Services (ShenZhen) Inc.

地址：广东省深圳市观澜镇环观南路18号锦可达物流园10-1栋

TEL: 0755-28055000

FAX: 0755-29564902

Fully Chamber

Job No.: 201412011

Probe: Horizontal

Standard: FCC Part15 Class B (Above 1G)_PK

Tested Distance:

Test Item: Radiation Test

Power Source:

Temp.(C)/Hum.(%RH): 24 (C) / 52 %RH

Date: 2014-12-11 Time: 16:09:01

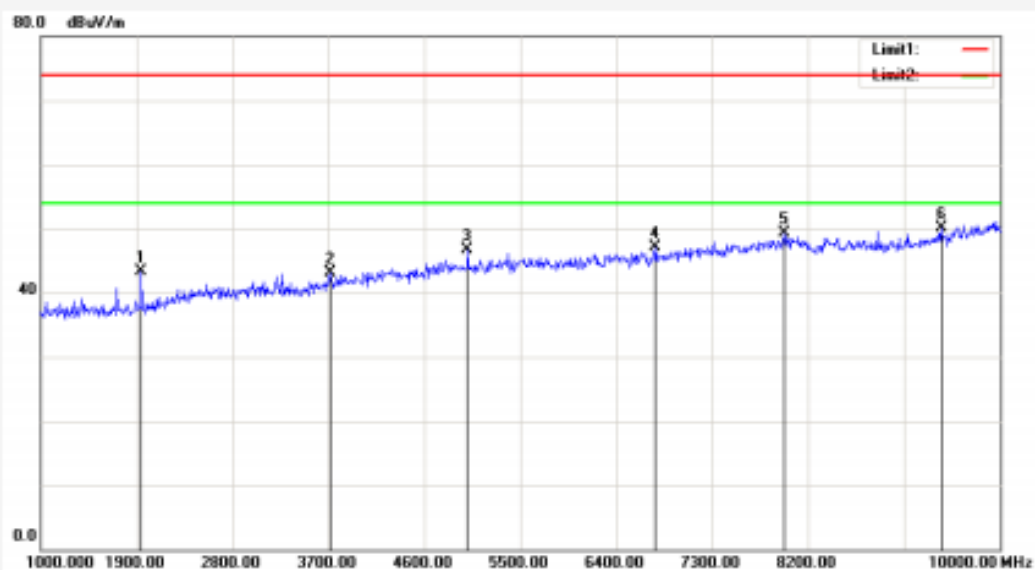
Company:

EUT:

Model: BB2710-29

Test By:

Test Mode: 2# 4.0 RX-3.0



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (deg.)	Height (cm)	Remark
1	1945.000	48.58	-5.35	43.23	74.00	-30.77			peak
2	3718.000	42.61	0.40	43.01	74.00	-30.99			peak
3	5005.000	41.63	4.99	46.62	74.00	-27.38			peak
4	6769.000	39.78	7.33	47.11	74.00	-26.89			peak
5	7975.000	39.76	9.60	49.36	74.00	-24.64			peak
6*	9451.000	39.65	10.40	50.05	74.00	-23.95			peak



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Compliance Certification Services (ShenZhen) Inc.

地址：广东省深圳市观澜镇环观南路18号铭可达物流园10-1栋

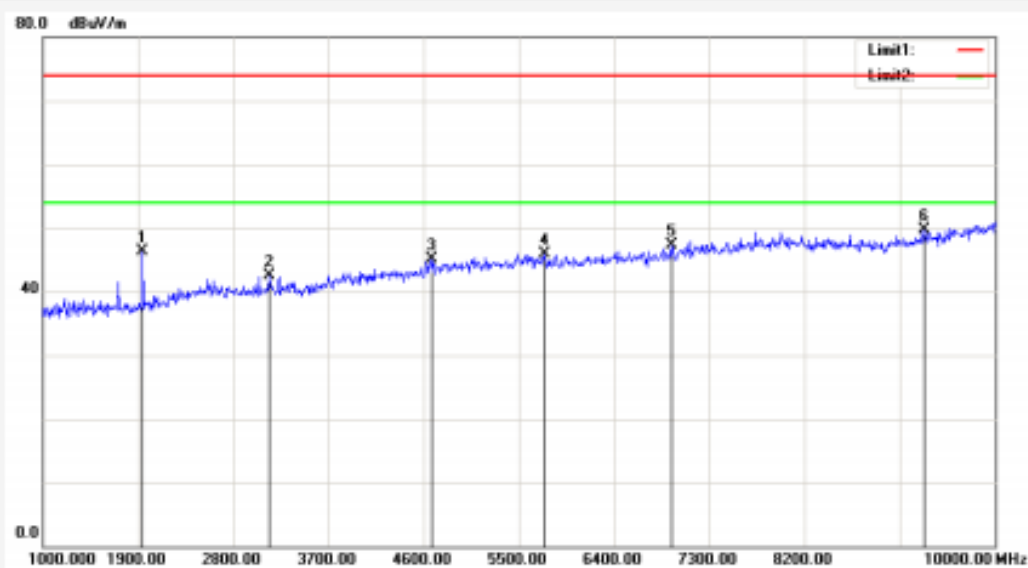
TEL: 0755-28055000

FAX: 0755-29564902

Fully Chamber

Job No.: 201412011	Probe: Vertical
Standard: FCC Part15 Class B (Above 1G)_PK	Tested Distance:
Test Item: Radiation Test	Power Source:
Temp.(C)/Hum.(%RH): 24 (C) / 52 %RH	Date: 2014-12-11 Time: 16:10:35
Company:	EUT:
Model: BB2710-29	Test By:

Test Mode: 2# 4.0 RX-3.0



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (deg.)	Height (cm)	Remark
1	1945.000	51.61	-5.35	46.26	74.00	-27.74			peak
2	3142.000	43.60	-1.12	42.48	74.00	-31.52			peak
3	4672.000	41.20	3.91	45.11	74.00	-28.89			peak
4	5743.000	39.86	5.97	45.83	74.00	-28.17			peak
5	6940.000	39.70	7.60	47.30	74.00	-26.70			peak
6*	9334.000	39.61	10.06	49.67	74.00	-24.33			peak





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Compliance Certification Services (ShenZhen) Inc.

地址：广东省深圳市观澜镇环观南路18号信可达物流园10-1栋

TEL: 0755-28055000

FAX: 0755-29564902

Fully Chamber

Job No.: 201412011

Probe: Vertical

Standard: FCC Part15 Class B (30-1000MHz)

Tested Distance:

Test Item: Radiation Test

Power Source:

Temp.(C)/Hum.(%RH): 24 (C) / 52 %RH

Date: 2014-12-11 Time: 16:19:13

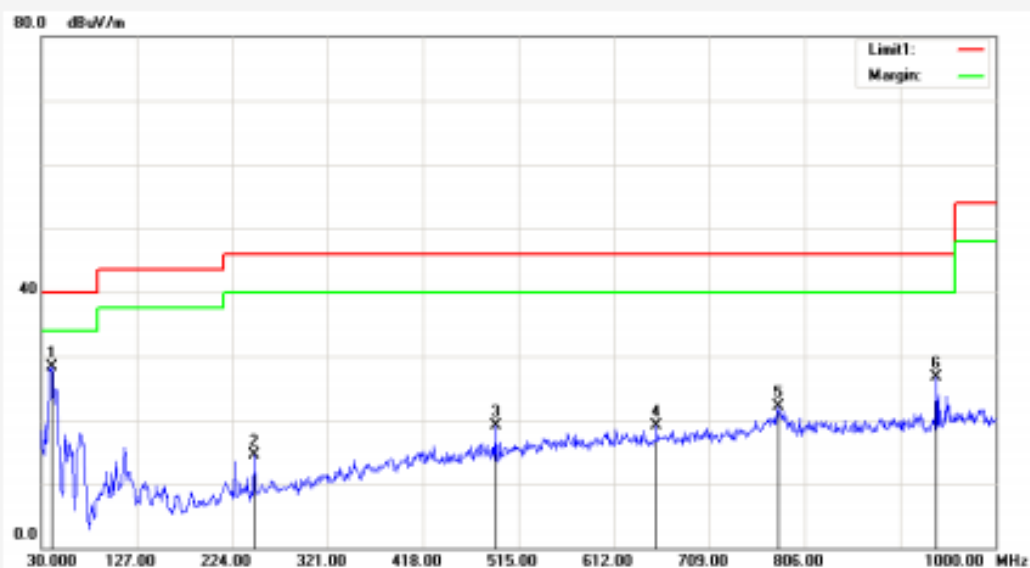
Company:

EUT:

Model: BB2710-29

Test By:

Test Mode: 2#



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (deg.)	Height (cm)	Remark
1*	40.6700	44.97	-16.69	28.28	40.00	-11.72			peak
2	246.3100	35.79	-21.23	14.56	46.00	-31.44			peak
3	491.7200	33.52	-14.36	19.16	46.00	-26.84			peak
4	655.6500	31.46	-12.44	19.02	46.00	-26.98			peak
5	778.8400	33.24	-11.21	22.03	46.00	-23.97			peak
6	939.8600	36.54	-9.91	26.63	46.00	-19.37			peak



深圳康来士标准测试技术有限公司

Compliance Certification Services (ShenZhen) Inc.

地址：广东省深圳市观澜镇环观南路18号能可达物流园10-1栋

TEL: 0755-28055000

FAX: 0755-29564902

Fully Chamber

Job No.: 201412011

Probe: Horizontal

Standard: FCC Part15 Class B (30-1000MHz)

Tested Distance:

Test Item: Radiation Test

Power Source:

Temp.(C)/Hum.(%RH): 24 (C) / 52 %RH

Date: 2014-12-11 Time: 16:21:53

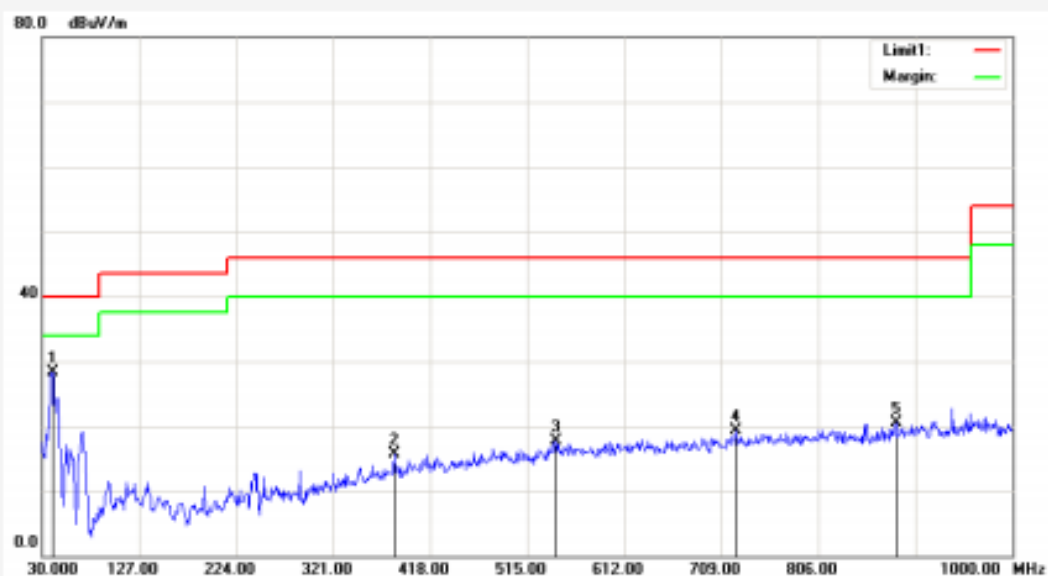
Company:

EUT:

Model: BB2710-29

Test By:

Test Mode: 2#



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (deg.)	Height (cm)	Remark
1*	40.6700	45.05	-16.69	28.36	40.00	-11.64			peak
2	382.1100	32.08	-16.45	15.63	46.00	-30.37			peak
3	544.1000	31.00	-13.21	17.79	46.00	-28.21			peak
4	723.5500	31.00	-11.77	19.23	46.00	-26.77			peak
5	883.6000	30.41	-9.94	20.47	46.00	-25.53			peak