

FCC PART 15.247
EMI MEASUREMENT AND TEST REPORT

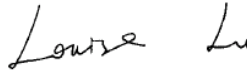
For

Shenzhen Kingjon Digital Technology Co.,Ltd.

Rm1028, 10/F, Block A, Jiahe Huaqiang Building, Shennan Mid Road, Futian District, Shenzhen, China

FCC ID: S7O0013EF1

September 12, 2005

This Report Concerns: ☒ Original Report	Equipment Type: Bluetooth USB Dongle
Test Engineer: Louise Lu 	
Report No.: RSZ05081003	
Test Date: August 16-September 8, 2005	
Reviewed By: Chris Zeng 	
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Note: The test report is specially limited to the above company and this particular sample only. It may not be duplicated without prior written consent of Bay Area Compliance Lab Corp. (ShenZhen). This report **must not** be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST or any agency of the US Government.

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GENERAL INFORMATION

Product Description for Equipment Under Test (EUT)

The *Shenzhen Kingjon Digital Technology Co.,Ltd.*'s product, model number: KJ-D108 or the "EUT" as referred to in this report is a Bluetooth USB Dongle. The EUT is measured approximately 4.0 cm L x 1.5 cm W x 0.5 cm H, rated input voltage: DC 5V.

** The test data gathered are from production sample, serial number: 20050826P, provided by the manufacturer.*

Objective

The following test report is prepared on behalf of *Shenzhen Kingjon Digital Technology Co.,Ltd.* in accordance with Part 2, Subpart J, and Part 15, Subparts A, B and C of the Federal Communication Commissions rules.

The objective is to determine compliance with FCC Part 15, Subpart C, and section 15.203, 15.205, 15.207, 15.209, and 15.247 rules.

Related Submittal(s)/Grant(s)

No related submittal(s).

Test Methodology

All measurements contained in this report were conducted with ANSI C63.4-2003, American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the range of 9 kHz to 40 GHz.

All radiated and conducted emissions measurement was performed at Bay Area Compliance Lab Corp. (ShenZhen). The radiated testing was performed at an antenna-to-EUT distance of 3 meters.

Test Facility

The Test site used by Bay Area Compliance Lab Corp. (ShenZhen) to collect test data is located in the 6/F, the 3rd Phase of WanLi Industrial Building, ShiHua Road, FuTian Free Trade Zone, ShenZhen, Guangdong 518038, P.R.China.

Test site at Bay Area Compliance Lab Corp. (ShenZhen) has been fully described in reports submitted to the Federal Communication Commission (FCC). The details of these reports have been found to be in compliance with the requirements of Section 2.948 of the FCC Rules on November 04, 2004. The facility also complies with the radiated and AC line conducted test site criteria set forth in ANSI C63.4-2003.

The Federal Communications Commission has the reports on file and is listed under FCC Registration No.: 382179. The test site has been approved by the FCC for public use and is listed in the FCC Public Access Link (PAL) database.

Additionally, Bay Area Compliance Lab Corp. (ShenZhen) is a National Institute of Standards and Technology (NIST) accredited laboratory, under the National Voluntary Laboratory Accredited Program (Lab Code 200707-0). The current scope of accreditations can be found at <http://ts.nist.gov/ts/htdocs/210/214/scopes/2007070.htm>

Host System Configuration List and Details

Manufacturer	Description	Model	Serial Number	FCC ID
DELL	Motherboard	OWC297	CN-OWC297-70821-564-00NI	DoC
DELL	Power	NPS-250KB D	CN-0H2678-17972-56E-80BM	DoC
Intel	CPU	Celeron D-2533	N/A	DoC
ProMOS	Memory	V826632K24SATG-C0	0525-K1933700	DoC
Seagate	Hard Disk	ST340014A	5JXK3GXE	DoC
DELL	3.5' Floppy	N/A	CN-0N8893-69802-54Q-02P0	DoC
Lite-ON	CD-Rom	LTN-489S	N/A	DoC
Intel	Ethernet	PRO 10/100 VE	N/A	DoC

Local Support Equipment List and Details

Manufacturer	Description	Model	Serial Number	FCC ID
DELL	PC	DELL 170L	CN-0TC670-70821-560-F4Q6	DoC
DELL	LCD Monitor	1505FP	Y4287-7168-571-GBSH	DoC
DELL	Keyboard	SK-8110	CN07N244-71616-56A-1B1E	DoC
DELL	Mouse	M071KC	520027907	DoC
HP	Laser Jet5L	C3941A	JPTVOB2337	DoC
SAST	Modem	AEM-2100	0293	DoC

External I/O Cable

Cable Description	Length (M)	From/Port	To
Shielded Detachable Keyboard Cable	1.50	Keyboard Port / Host	Keyboard
Shielded Detachable Mouse Cable	1.50	PS/2 Port / Host	Mouse
Shielded Detachable Printer Cable	1.20	Parallel Port / Host	Printer
Shielded Detachable Serial Cable	1.20	Serial Port / Host	Modem
Shielded Detachable VGA Cable	1.50	VGA Port / Host	Monitor
Shielded detachable USB Cable	1.28	EUT	PC

SYSTEM TEST CONFIGURATION

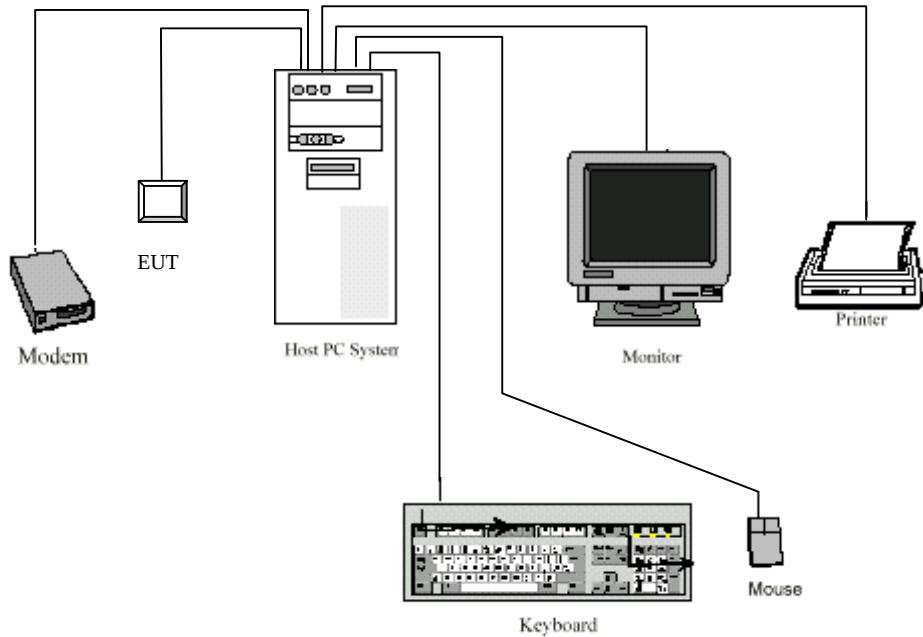
Description of Test Configuration

The system was configured for testing in a typical fashion (as normally used by a typical user).

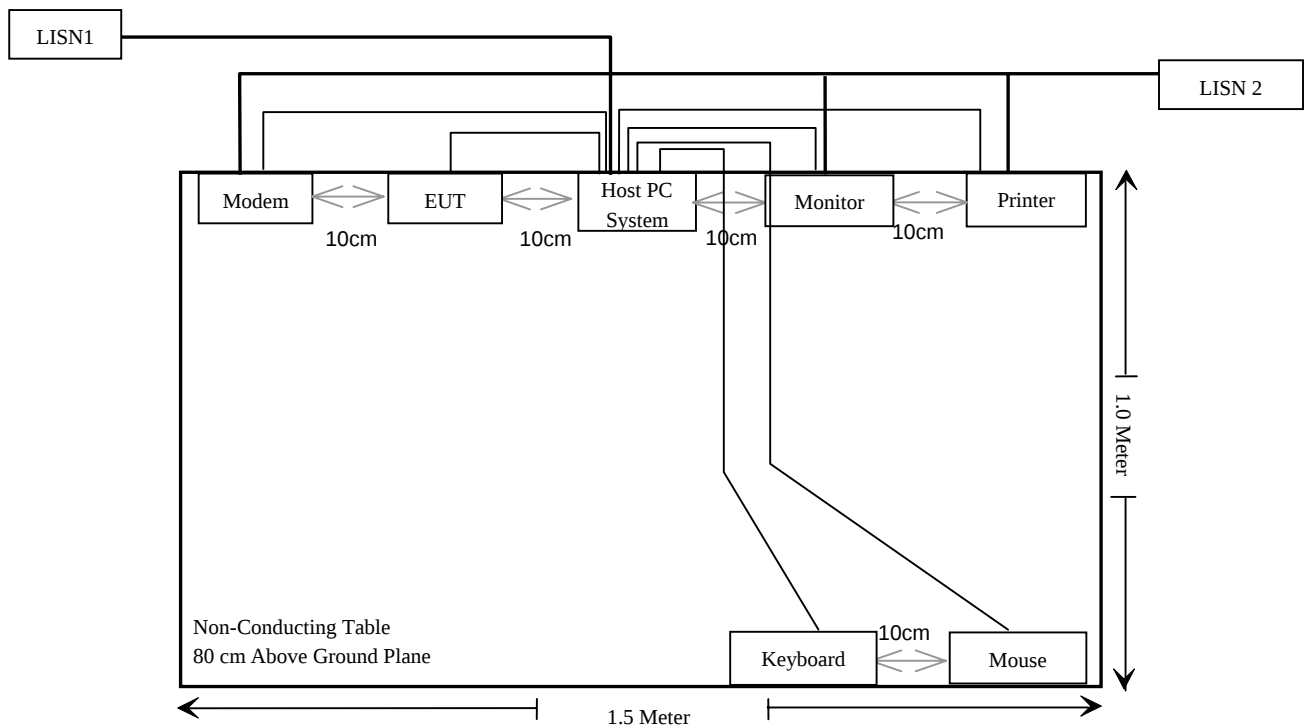
Equipment Modifications

Bay Area Compliance Lab Corp. (ShenZhen) has not done any modification on the EUT.

Configuration of Test Setup



Block Diagram of Test Setup



SUMMARY OF TEST RESULTS

FCC RULES	DESCRIPTION OF TEST	RESULT
§15.203	Antenna Requirement	Compliant
§15.207 (a)	Conducted Emission	Compliant
§15.205&§15.209	Radiated Emission	Compliant *
§15.247(a)(1)	Channel Separation Test	Compliant
§15.247(a)(1)(iii)	Time of occupancy (Dwell Time)	Compliant
§15.247(a)(1)(iii)	Quantity of hopping channel Test	Compliant
§15.247(b)(1)	Peak Output Power Measurement	Compliant
§15.247(d)	Band edges testing	Compliant

* Within measurement uncertainty

§15.203 - ANTENNA APPLICATION

Applicable Standard

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section.

This product has a permanent antenna, fulfill the requirement of this section.

Test Result: Pass

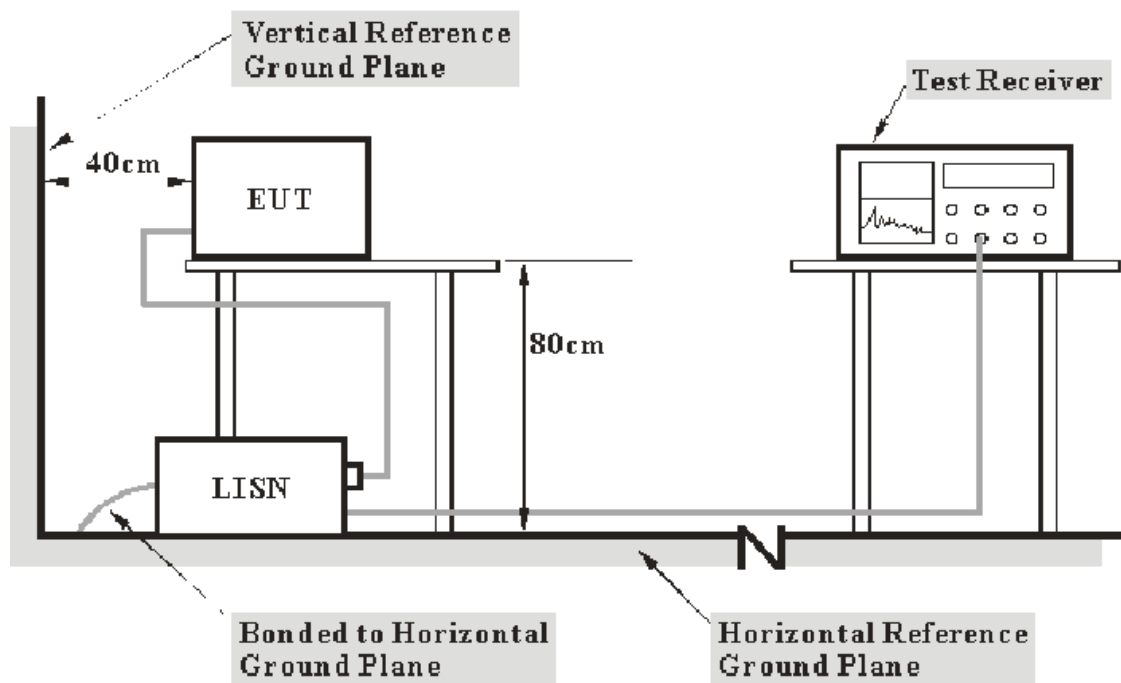
§15.207 (a)- CONDUCTED EMISSION

Measurement Uncertainty

All measurements involve certain levels of uncertainties, especially in field of EMC. The factors contributing to uncertainties are spectrum analyzer, cable loss, and LISN.

Based on NIS 81, The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of any conducted emissions measurement at Bay Area Compliance Lab Corp. (ShenZhen) is ± 3.2 dB.

EUT Setup



- Note:**
1. Support units were connected to second LISN.
 2. Both of LISNs (AMN) 80 cm from EUT and at the least 80 cm from other units and other metal planes support units.

The setup of EUT is according with per ANSI C63.4-2003 measurement procedure. The specification used was with the FCC Part 15.207(a) Limit.

The external I/O cables were draped along the test table and formed a bundle 30 to 40 cm long in the middle.

The spacing between the peripherals was 10 cm.

The host PC was connected to a 120 VAC/60 Hz power source.

EMI Test Receiver Setup

The EMI test receiver was set to investigate the spectrum from 150 kHz to 30 MHz.

During the conducted emission test, the EMI test receiver was set with the following configurations:

<u>Frequency Range</u>	<u>IFBW</u>
150 kHz – 30 MHz	9 kHz

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Com-Power	L.I.S.N.	LI-200	12005	N/A	N/A
Com-Power	L.I.S.N.	LI-200	12008	N/A	N/A
Rohde & Schwarz	EMI Test Receiver	ESCS30	830245/006	2005-1-26	2006-1-26
Rohde & Schwarz	L.I.S.N.	ESH2-Z5	892107/021	2005-2-28	2006-2-28

* Com-Power's LISN were used as the supporting equipment.

* **Statement of Traceability:** Bay Area Compliance Lab Corp. (ShenZhen) attests that all calibrations have been performed in accordance to NVLAP requirements, traceable to the NIST.

Test Procedure

During the conducted emission test, the host PC System power cord was connected to the outlet of the first LISN and all other support equipment power cords were connected to the outlet of the second LISN.

Maximizing procedure was performed on the six (6) highest were emissions of the EUT.

All data was recorded in the Quasi-peak and average detection mode.

Test Results Summary

According to the recorded data in following table, the EUT complied with the FCC Part 15.207, with the worst margin reading of:

Low Channel: **-8.7 dB** at **2.075 MHz** in the **Line** conductor mode.
 Middle Channel: **-7.7 dB** at **0.1985 MHz** in the **Neutral** conductor mode.
 High Channel: **-8.0 dB** at **0.1985 MHz** in the **Line** conductor mode.

Test Data**Environmental Conditions**

Temperature:	27 °C
Relative Humidity:	50 %
ATM Pressure:	1009 mbar

The testing was performed by Louise Lu on 2005-8-17

Test mode: Transmitting

Low Channel

LINE CONDUCTED EMISSIONS				FCC Part 15.207	
Frequency MHz	Amplitude dBμV	Detector QP/AV	Phase Line/Neutral	Limit dBμV	Margin dB
2.075	37.3	AV	Neutral	46.00	-8.70
0.180	40.4	AV	Line	54.49	-14.09
2.075	41.4	QP	Neutral	56.00	-14.60
0.495	31.1	AV	Line	46.08	-14.98
0.990	30.4	AV	Line	46.00	-15.60
2.075	40.1	QP	Line	56.00	-15.90
0.495	29.8	AV	Neutral	46.08	-16.28
11.000	43.0	QP	Neutral	60.00	-17.00
0.990	28.4	AV	Neutral	46.00	-17.60
0.990	37.4	QP	Line	56.00	-18.60
11.480	41.3	QP	Line	60.00	-18.70
0.180	35.3	AV	Neutral	54.49	-19.19
0.990	35.9	QP	Neutral	56.00	-20.10
0.495	34.9	QP	Line	56.08	-21.18
0.270	29.8	AV	Line	51.12	-21.32
0.180	43.0	QP	Line	64.49	-21.49
11.000	28.5	AV	Neutral	50.00	-21.50
0.495	34.1	QP	Neutral	56.08	-21.98
0.180	38.9	QP	Neutral	64.49	-25.59
0.270	35.5	QP	Line	61.12	-25.62
0.270	24.5	AV	Neutral	51.12	-26.62
0.270	31.3	QP	Neutral	61.12	-29.82

Middle Channel

LINE CONDUCTED EMISSIONS				FCC Part 15.207	
Frequency MHz	Amplitude dBμV	Detector QP/AV	Phase Line/Neutral	Limit dBμV	Margin dB
1.985	38.3	AV	Neutral	46.00	-7.70
0.990	37.6	AV	Neutral	46.00	-8.40
1.985	40.9	QP	Neutral	56.00	-15.10
1.985	40.8	QP	Line	56.00	-15.20
0.495	29.9	AV	Line	46.08	-16.18
0.495	29.8	AV	Neutral	46.08	-16.28
11.460	43.5	QP	Neutral	60.00	-16.50
11.460	43.4	QP	Line	60.00	-16.60
0.990	28.1	AV	Line	46.00	-17.90
0.180	35.3	AV	Line	54.49	-19.19
0.180	35.1	AV	Neutral	54.49	-19.39
0.990	35.9	QP	Line	56.00	-20.10
0.990	35.2	QP	Neutral	56.00	-20.80
0.495	34.0	QP	Neutral	56.08	-22.08
0.495	33.9	QP	Line	56.08	-22.18
11.460	27.8	AV	Neutral	50.00	-22.20
0.180	38.7	QP	Line	64.49	-25.79
0.180	38.6	QP	Neutral	64.49	-25.89
0.245	25.0	AV	Neutral	51.92	-26.92
0.245	24.9	AV	Line	51.92	-27.02
0.245	32.5	QP	Neutral	61.92	-29.42
0.245	32.0	QP	Line	61.92	-29.92

High Channel

Frequency MHz	LINE CONDUCTED EMISSIONS			FCC Part 15.207	
	Amplitude dB μ V	Detector QP/AV	Phase Line/Neutral	Limit dB μ V	Margin dB
1.985	38.0	AV	Line	46.00	-8.00
0.990	37.7	AV	Line	46.00	-8.30
2.075	36.3	AV	Neutral	46.00	-9.70
0.180	40.4	AV	Neutral	54.49	-14.09
1.985	40.8	QP	Line	56.00	-15.20
3.430	30.1	AV	Neutral	46.00	-15.90
2.075	39.9	QP	Neutral	56.00	-16.10
0.495	29.8	AV	Line	46.08	-16.28
0.990	29.6	AV	Neutral	46.00	-16.40
11.475	43.0	QP	Line	60.00	-17.00
11.455	42.9	QP	Neutral	60.00	-17.10
3.430	37.6	QP	Neutral	56.00	-18.40
0.990	37.0	QP	Neutral	56.00	-19.00
0.180	35.2	AV	Line	54.49	-19.29
16.505	40.2	QP	Line	60.00	-19.80
0.990	35.2	QP	Line	56.00	-20.80
0.180	42.9	QP	Neutral	64.49	-21.59
0.270	29.4	AV	Neutral	51.12	-21.72
0.495	33.8	QP	Line	56.08	-22.28
11.455	27.4	AV	Neutral	50.00	-22.60
0.180	38.8	QP	Line	64.49	-25.69
0.270	34.4	QP	Neutral	61.12	-26.72

Plot(s) of Test Data

Plot(s) of Test Data is presented hereinafter as reference.

Conducted Disturbance Test FCC Part15

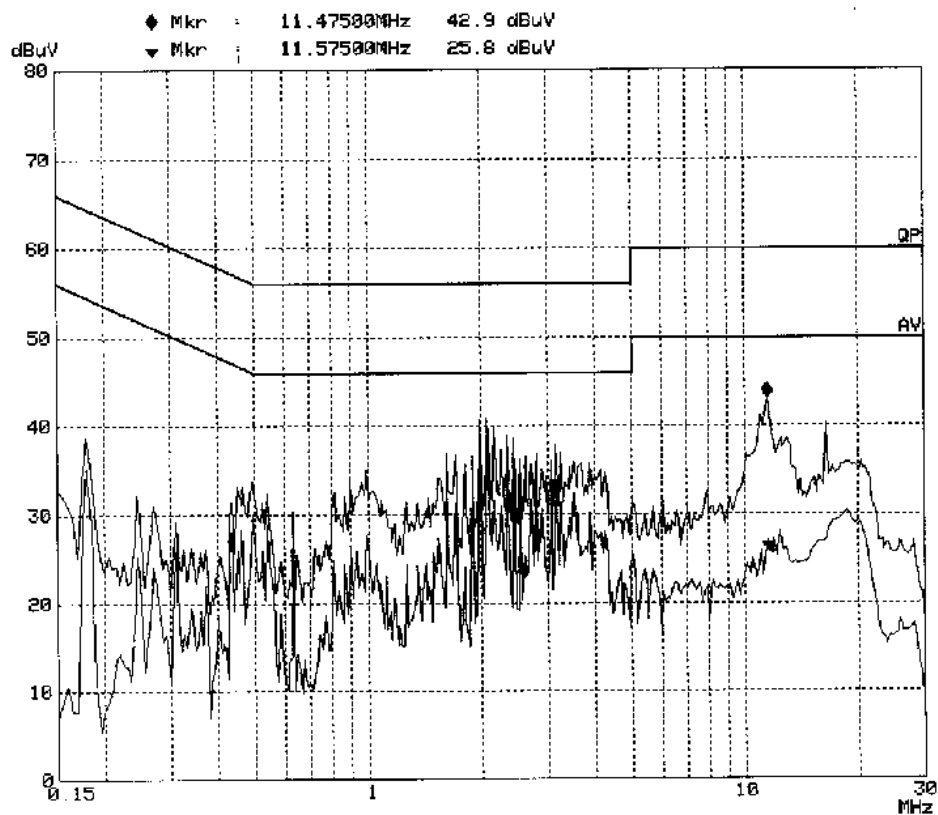
EUT: Bluetooth USB Dongle M/N:KJ-D108
Manuf: Kingjon
Op Cond: High channel
Operator: Louise
Test Spec: AC 120V/60Hz L
Comment: Temp:27
Humi:50%
Date: 17. Aug 05 15:43

Scan Settings (1 Range)

----- Frequencies -----			----- Receiver Settings -----			
Start	Stop	Step	IF BW	Detector	M-Time	Atten Preamp
150k	30M	5k	9k	PK+AV	20ms	AUTO LN OFF

Transducer No.	Start	Stop	Name
1	9k	30M	ESH3

Final Measurement: x QP / + AV
Meas Time: 1 s
Subranges: 25
Acc Margin: 6dB



Conducted Disturbance Test FCC Part 15

EUT: Bluetooth USB Dongle M/N:KJ-D108
Manuf: Kingjon
Op Cond: High channel
Operator: Louise
Test Spec: AC 120V/60Hz N
Comment: Temp:27
Humi:50%
Date: 17. Aug 05 15:58

Scan Settings (1 Range)

Frequencies			Receiver Settings				
Start	Stop	Step	IF BW	Detector	M-Time	Atten	Preamp
150k	30M	5k	9k	PK+AV	20ms	AUTO	LN OFF

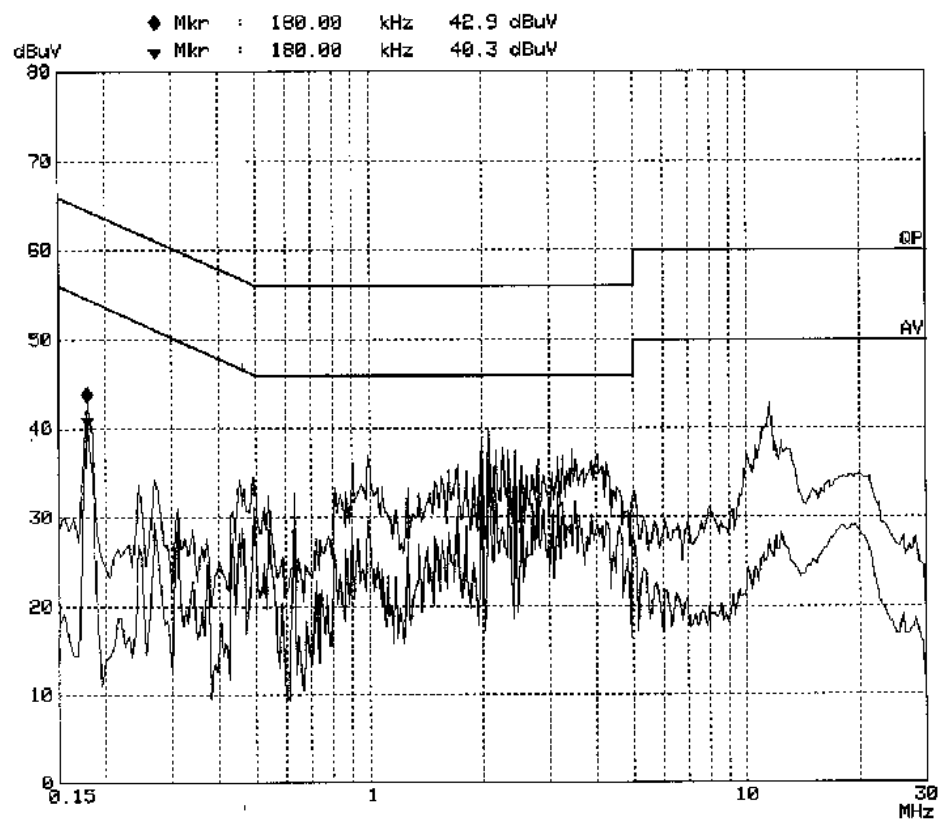
Transducer No.	Start	Stop	Name
1	9k	30M	ESH3

Final Measurement: x QP / + AV

Meas Time: 1 s

Subranges: 25

Acc Margin: 6dB



Conducted Disturbance Test FCC Part15

EUT: Bluetooth USB Dongle M/N:KJ-D109
Manuf: Kingjon
Op Cond: Middle channel
Operator: Louise
Test Spec: AC 120V/60Hz L
Comment: Temp:27
Humi:50%
Date: 17. Aug 05 15:27

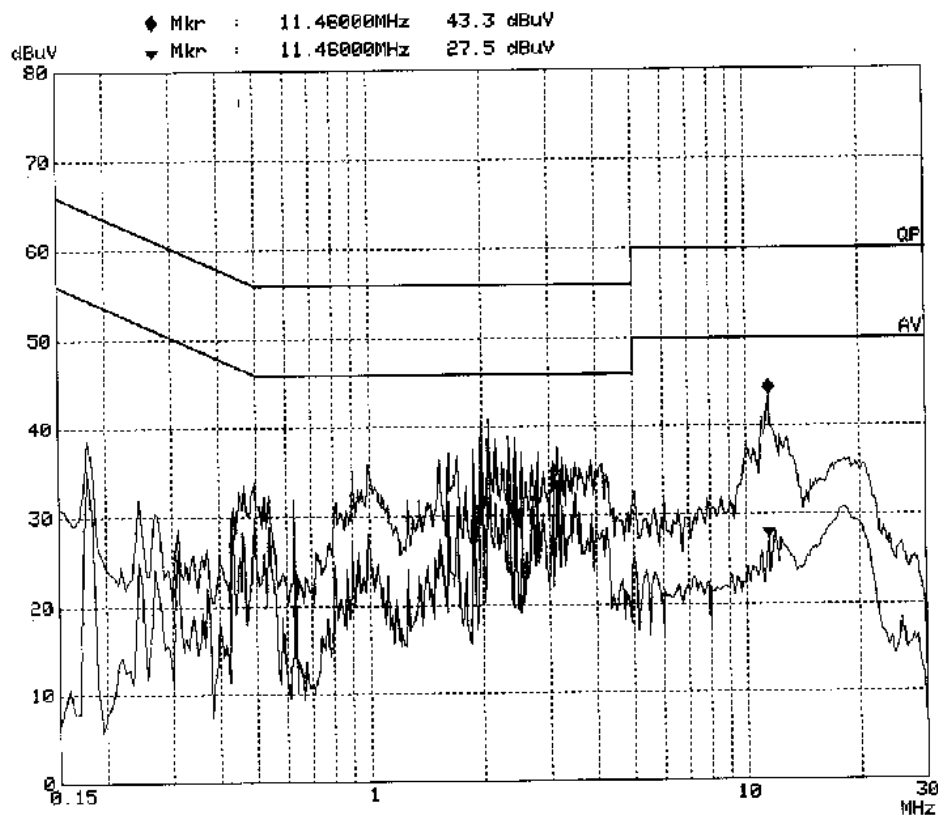
Scan Settings (1 Range)

Frequencies			Receiver Settings				
Start	Stop	Step	IF BW	Detector	M-Time	Atten	Preamp
150k	30M	5k	9k	PK+AV	20ms	AUTO	LN OFF

Transducer No.	Start	Stop	Name
1	9k	30M	ESH3

Final Measurement: x QP / + AV

Meas Time: 1 s
Subranges: 25
Acc Margin: 6dB



Conducted Disturbance Test FCC Part15

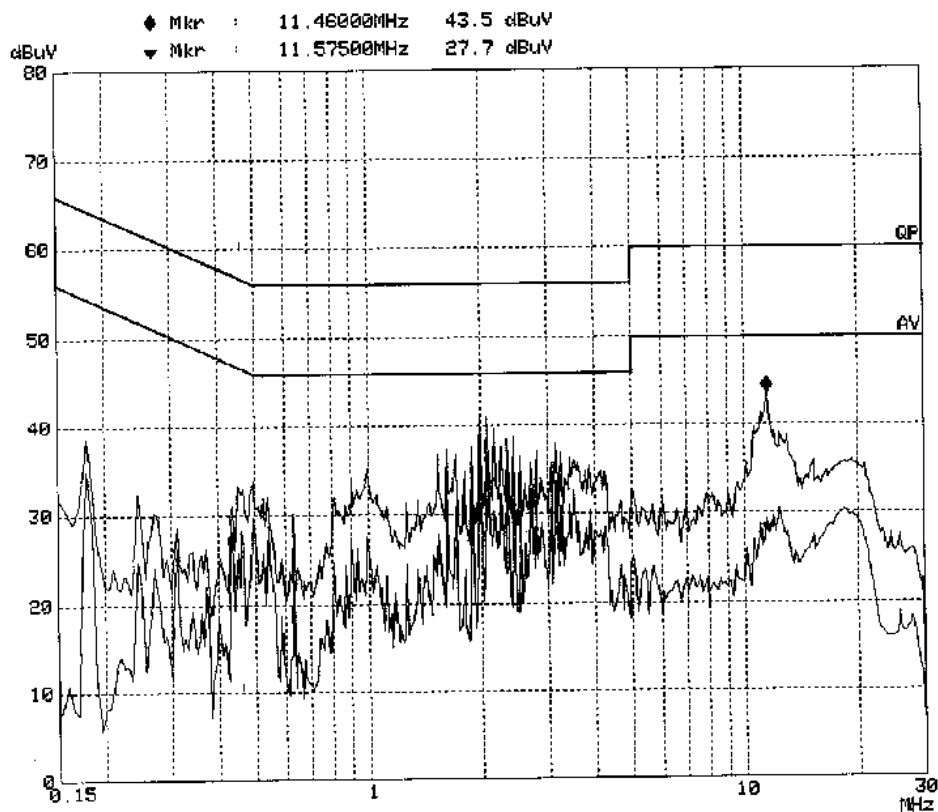
EUT: Bluetooth USB Dongle M/N:KJ-D108
Manuf: Kingjon
Op Cond: Middle channel
Operator: Louise
Test Spec: AC 120V/60Hz N
Comment: Temp:27
Humi:50%
Date: 17. Aug 05 15:12

Scan Settings (1 Range)

Frequencies			Receiver Settings			
Start	Stop	Step	IF BW	Detector	M-Time	Atten Preamp
150k	30M	5k	9k	PK+AV	20ms AUTO	LN OFF

Transducer No.	Start	Stop	Name
1	9k	30M	ESH3

Final Measurement: x QP / + AV
Meas Time: 1 s
Subranges: 25
Acc Margin: 6dB



Conducted Disturbance Test FCC Part15

EUT: Bluetooth USB Dongle M/N:KJ-D108
Manuf: Kingjon
Op Cond: Low channel
Operator: Louise
Test Spec: AC 120V/60Hz L
Comment: Temp:27
Humi:50%
Date: 17. Aug 05 14:28

Scan Settings (1 Range)

Frequencies			Receiver Settings			
Start	Stop	Step	IF BW	Detector	M-Time	Atten Preamp
150k	30M	5k	9k	PK+AV	20ms AUTO	LN OFF

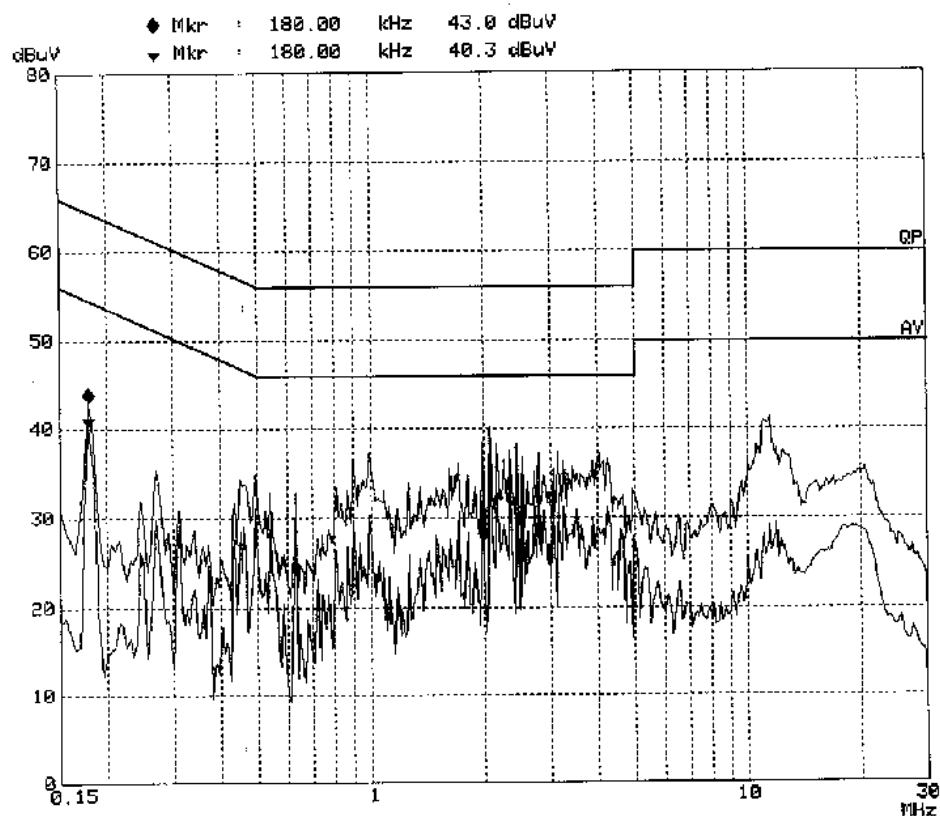
Transducer No.	Start	Stop	Name
1	9k	30M	ESH3

Final Measurement: x QP / + AV

Meas Time: 1 s

Subranges: 25

Acc Margin: 6dB



Conducted Disturbance Test FCC Part15

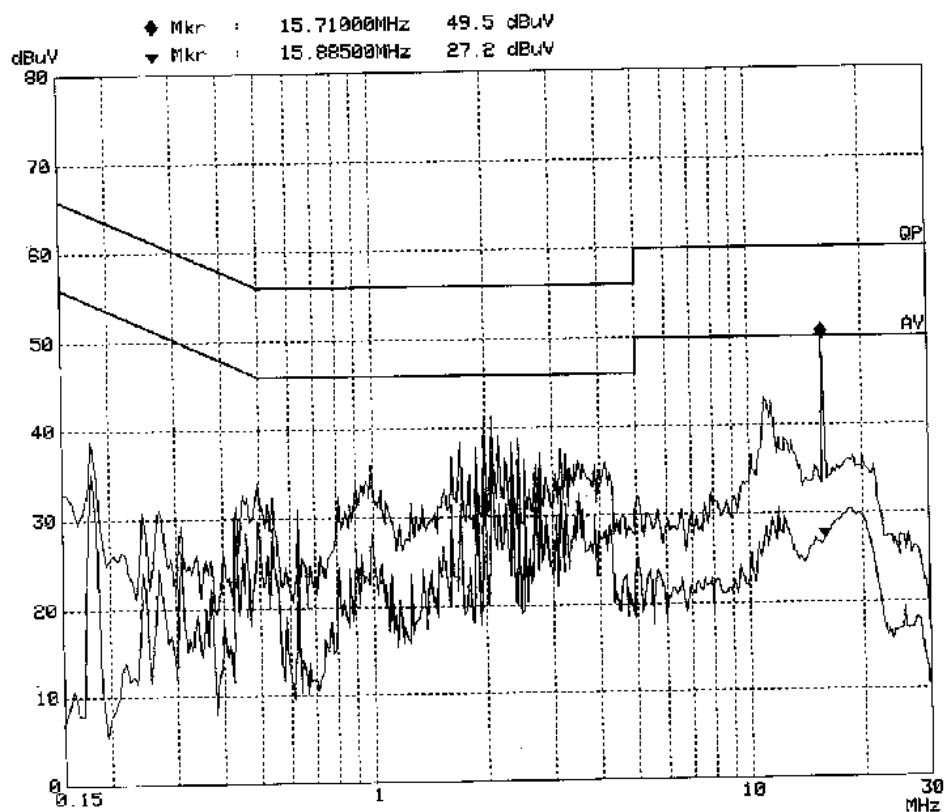
EUT: Bluetooth USB Dongle M/N:KJ-D108
Manuf: Kingjon
Op Cond: Low channel
Operator: Louise
Test Spec: AC 120V/60Hz N
Comment: Temp:27
Humi:50%
Date: 17. Aug 05 14:51

Scan Settings (1 Range)

Frequencies			Receiver Settings				
Start	Stop	Step	IF BW	Detector	M-Time	Atten	Preamp
150k	30M	5k	9k	PK+AV	20ms	AUTO	LN OFF

Transducer No.	Start	Stop	Name
1	9k	30M	ESH3

Final Measurement: x QP / + AV
Meas Time: 1 s
Subranges: 25
Acc Margin: 6dB



§15.205, §15.209, §15.247 - RADIATED EMISSION

Applicable Standard

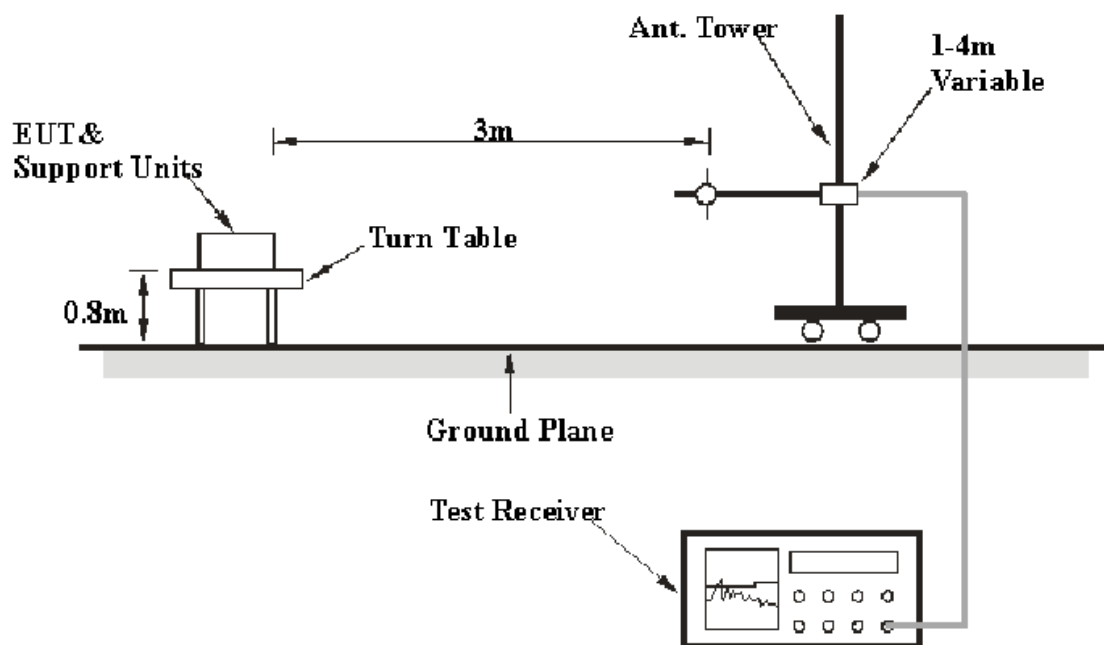
According to FCC §15.247 (d)

Measurement Uncertainty

All measurements involve certain levels of uncertainties, especially in field of EMC. The factors contributing to uncertainties are spectrum analyzer, cable loss, antenna factor calibration, antenna directivity, antenna factor variation with height, antenna phase center variation, antenna factor frequency interpolation, measurement distance variation, site imperfections, mismatch (average), and system repeatability.

Based on NIS 81, The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of a radiation emissions measurement at Bay Area Compliance Lab Corp. (ShenZhen) is ± 4.4 dB.

EUT Setup



The radiated emission tests were performed in the 3-meter Chamber, using the setup accordance with the ANSI C63.4-2003. The specification used was the FCC 15.209 and FCC 15.247 limits.

The external I/O cables were draped along the test table and formed a bundle 30 to 40 cm long in the middle.

The spacing between the peripherals was 10 cm.

The host PC was connected to a 120 VAC/60 Hz power source.

EMI Test Receiver & Spectrum Analyzer Setup

The system was investigated from 30 MHz to 25 GHz.

During the radiated emission test, the EMI test receiver & Spectrum Analyzer Setup were set with the following configurations:

<i>Frequency Range</i>	<i>RBW</i>	<i>Video B/W</i>
30MHz – 1000 MHz	100 kHz	100 kHz
1000 MHz – 25 GHz	1 MHz	1 MHz

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
A.H. System	Horn Antenna	SAS-200/571	135	2005-4-28	2006-4-28
HP	Amplifier	HP8447D	2944A09795	2004-9-1	2005-8-31
HP	Preamplifier	8449B	3008A00277	2004-9-1	2005-8-31
Rohde & Schwarz	Spectrum Analyzer	FSEM30	849720/019	2004-11-10	2005-11-10
Rohde&Schwarz	EMI Test Receiver	ESCI	100028	2004-9-15	2005-9-15
Sunol Sciences	Broadband Antenna	JB1	A040904-1	2005-4-28	2006-4-28

* **Statement of Traceability:** Bay Area Compliance Lab Corp. (ShenZhen) attests that all calibrations have been performed in accordance to NVLAP requirements, traceable to the NIST.

Test Procedure

For the radiated emissions test, the host PC and all support equipment power cords were connected to the AC floor outlet.

Maximizing procedure was performed on the highest emissions to ensure that the EUT complied with all installation combinations.

All data was recorded in the PK&AV detection mode.

Corrected Amplitude & Margin Calculation

The Corrected Amplitude is calculated by adding the Antenna Factor and Cable Factor, and subtracting the Amplifier Gain from the Meter reading. The basic equation is as follows:

$$\text{Corr. Ampl.} = \text{Meter Reading} + \text{Antenna Loss} + \text{Cable Loss} - \text{Amplifier Gain}$$

The “**Margin**” column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of -7dB means the emission is 7dB below the limit. The equation for margin calculation is as follows:

$$\text{Margin} = \text{Corr. Ampl.} - \text{Standard Limit}$$

Test Results Summary

According to the recorded data in following table, the EUT complied with the FCC Title 47, Part 15, Subpart C, section 15.205, 15.207, and 15.247, with the worst margin reading of:

-8.61 dB at **6583.27 MHz** in the **Vertical** polarization, Low Channel

-20.59 dB at **4881.968 MHz** in the **Vertical** polarization, Middle Channel

-8.68 dB at **9919.888 MHz** in the **Horizontal** polarization, High Channel

-2.5 dB at **366.820 MHz** in the **Vertical polarization**, Unintentional Emission

Test Data

Environmental Conditions

Temperature:	27 °C
Relative Humidity:	50 %
ATM Pressure:	1009 mbar

The testing was performed by Louise Lu on 2005-8-17

Test mode: Transmitting

INDICATED			TABLE	ANTENNA		CORRECTION FACTOR			CORRECTED AMPLITUDE	FCC 15 .209 & FCC 15.247	
Frequency MHz	Meter Reading dBμV	Comments	Angle Degree	Height Meter	Polar H/ V	Antenna Loss dB	Cable Loss dB	Amp. Gain dB	Corr. Ampl. dBμV/m	Limit dBμV/m	Margin dB
Low Channel, 1GHz-25GHz											
2401.98	88.80	PK	180	1.2	H	28.1	3.7	35.0	85.60		
2401.98	88.20	AV	90	1.0	H	28.1	3.7	35.0	85.00		
2401.98	92.40	PK	60	1.2	V	28.1	3.7	35.0	89.20		
2401.98	92.30	AV	270	1.0	V	28.1	3.7	35.0	89.10		
6583.27	38.39	AV	60	1.2	V	35.6	5.8	34.4	45.39	54	-8.61
5885.795	37.28	AV	90	1.2	V	34.1	5.6	34.4	42.58	54	-11.42
6583.23	51.87	PK	60	1.2	V	35.6	5.8	34.4	58.87	74	-15.13
5885.75	51.93	PK	90	1.2	V	34.1	5.6	34.4	57.23	74	-16.77
7012.085	44.01	PK	60	1.0	H	36.8	6.0	33.7	53.11	74	-20.89
7424.856	44.39	PK	270	1.0	V	35.8	6.1	33.7	52.59	74	-21.41
4803.96	46.84	PK	45	1.2	V	33.8	5.2	33.4	52.44	74	-21.56
7699.03	44.22	PK	45	1.2	H	35.8	6.1	33.7	52.42	74	-21.58
4803.96	46.27	PK	60	1.0	H	33.8	5.2	33.4	51.87	74	-22.13
5516.4	43.27	PK	60	1.2	H	33.9	5.4	33.4	49.17	74	-24.83
1925.82	48.66	PK	45	1.0	H	28.4	3.4	35.0	45.46	74	-28.54
1329.46	48.58	PK	45	1.2	V	25.0	2.6	36.0	40.18	74	-33.82
1327.05	48.30	PK	45	1.2	H	25.0	2.6	36.0	39.9	74	-34.10

INDICATED			TABLE	ANTENNA		CORRECTION FACTOR			CORRECTED AMPLITUDE	FCC 15.209 & FCC 15.247	
Frequency MHz	Meter Reading dBμV	Comments	Angle Degree	Height Meter	Polar H/ V	Antenna Loss dB	Cable Loss dB	Amp. Gain dB	Corr. Ampl. dBμV/m	Limit dBμV/m	Margin dB
Middle Channel, 1GHz-25GHz											
2440.984	84.60	PK	180	1.2	H	28.1	3.7	35.0	81.40		
2440.984	83.30	AV	90	1.0	H	28.1	3.7	35.0	80.10		
2440.984	85.60	PK	60	1.2	V	28.1	3.7	35.0	82.40		
2440.984	84.30	AV	270	1.0	V	28.1	3.7	35.0	81.10		
4881.968	47.81	PK	45	1.2	V	33.8	5.2	33.4	53.41	74	-20.59
4881.968	47.08	PK	60	1.0	H	33.8	5.2	33.4	52.68	74	-21.32
7769.57	43.21	PK	60	1.0	H	37.1	6.1	34.3	52.11	74	-21.89
8863.718	41.59	PK	45	1.2	V	37.8	6.8	34.3	51.89	74	-22.11
9340.61	36.82	PK	45	1.2	H	38.0	7.0	34.1	51.83	74	-22.17
7545.025	43.49	PK	270	1.0	V	35.8	6.1	33.7	51.69	74	-22.31
6282.583	43.79	PK	60	1.2	V	34.1	5.8	34.4	49.29	74	-24.71
6245.52	42.99	PK	60	1.2	H	34.1	5.6	34.4	48.29	74	-25.71
1333.823	53.47	PK	45	1.2	H	25.0	2.6	36.0	45.07	74	-28.93
1661.30	49.91	PK	45	1.0	H	25.0	2.6	35.0	42.51	74	-31.49
1327.409	49.33	PK	90	1.2	V	25.0	2.6	36.0	40.93	74	-33.07
High Channel, 1GHz-25GHz											
2479.972	90.10	PK	180	1.2	H	28.1	3.7	35.0	86.90		
2479.972	89.30	AV	90	1.0	H	28.1	3.7	35.0	86.10		
2479.972	89.90	PK	60	1.2	V	28.1	3.7	35.0	86.70		
2479.972	89.30	AV	270	1.0	V	28.1	3.7	35.0	86.10		
9919.888	34.52	AV	60	1.2	H	37.6	7.3	34.1	45.32	54	-8.68
9919.888	44.07	PK	60	1.2	H	37.6	7.3	34.1	54.87	74	-19.13
7439.916	44.21	PK	90	1.2	V	35.8	6.1	33.7	52.41	74	-21.59
4959.944	46.23	PK	45	1.2	V	33.8	5.2	33.4	51.83	74	-22.17
11200.323	39.04	PK	60	1.0	H	38.8	7.5	34.1	51.24	74	-22.76
4959.944	45.13	PK	60	1.0	H	33.8	5.2	33.4	50.73	74	-23.27
1860.914	45.88	PK	45	1.2	H	28.4	3.4	35.0	42.68	74	-31.32
1329.546	48.48	PK	45	1.0	H	25.0	2.6	36.0	40.08	74	-33.92
1654.007	46.4	PK	45	1.2	H	25.0	2.6	35.0	39.00	74	-35.00
1860.925	40.2	PK	45	1.2	V	28.4	3.4	35.0	37.00	74	-37.00
1223.113	44.9	PK	60	1.2	V	23.3	4.2	36.0	36.40	74	-37.60
1100.007	42.13	PK	270	1.0	V	23.3	4.2	36.0	33.63	74	-40.37

30MHz – 1GHz

Frequency MHz	Indicated			Table	Antenna		Correction Factor			FCC 15 .209	
	Meter Reading dB μ V	Comments	Direction Degree	Height Meter	Polar H/V	Antenna Loss dB	Cable Loss dB	Amp. Gain dB	Corr. Ampl. dB μ V/m	Limit dB μ V/m	Margin dB
366.820	54.0	PK	45	1.2	V	15.4	1.8	27.7	43.5	46.0	-2.5
31.500	38.9	PK	45	1.2	V	24.1	0.6	28.8	34.8	40.0	-5.2
299.315	52.5	PK	60	1.2	H	13.8	1.6	27.6	40.3	46.0	-5.7
366.820	46.2	PK	60	1.0	H	15.4	1.8	27.7	35.7	46.0	-10.3
528.240	42.7	PK	90	1.2	V	18.3	2.5	28.6	34.9	46.0	-11.1
299.315	45.8	PK	270	1.0	V	13.8	1.6	27.6	33.6	46.0	-12.4
166.068	44.7	PK	90	1.0	H	12.5	1.2	28.3	30.1	43.5	-13.4
234.168	47.2	PK	60	1.0	H	11.7	1.3	27.7	32.5	46.0	-13.5
528.240	38.0	PK	45	1.2	H	18.3	2.5	28.6	30.2	46.0	-15.8
144.330	39.6	PK	180	1.2	H	13.8	1.1	28.5	26.0	43.5	-17.5
137.420	39.2	PK	45	1.0	V	14.2	1.1	28.5	26.0	43.5	-17.5
234.168	40.9	PK	60	1.2	V	11.7	1.3	27.7	26.2	46.0	-19.8

Plot(s) of Test Data

Plot(s) of Test Data is presented hereinafter as reference.



Date: 17.AUG.2005 09:38:46



17.Aug 05 09:50

Ref 80 dBμV

*Att 10 dB

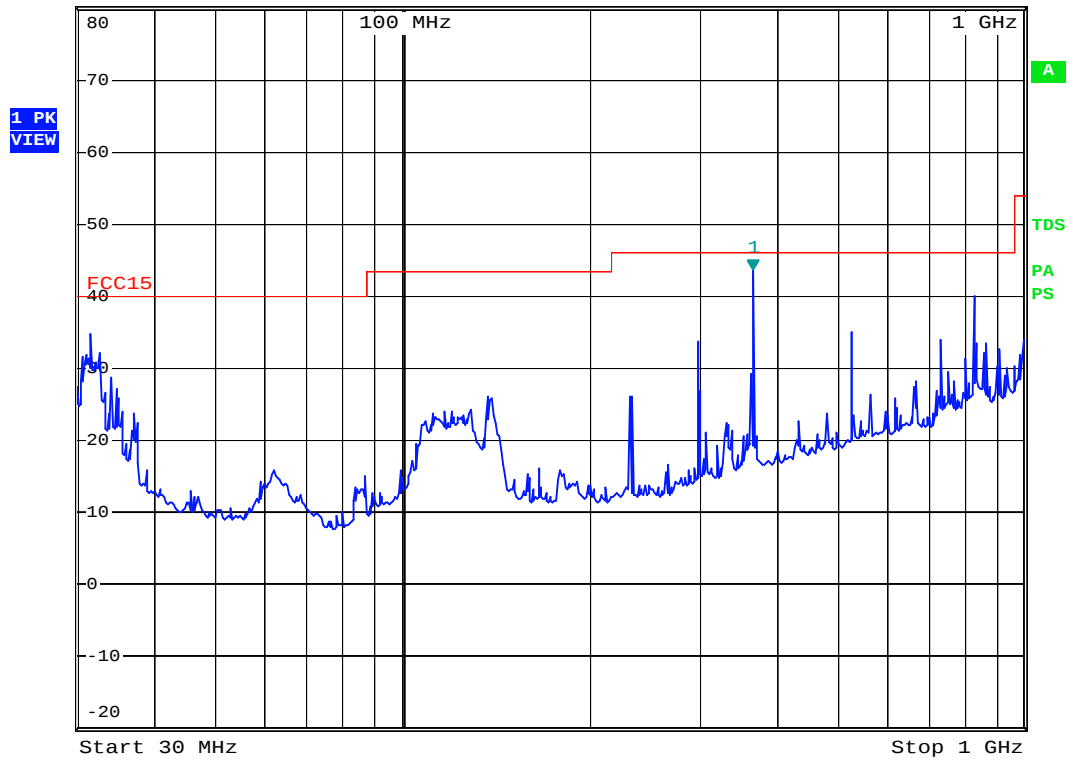
*RBW 100 kHz Marker 1 [T1]

*VBW 100 kHz

43.53 dBμV

*SWT 300 ms

366.823101779 MHz



Kingjon Bluetooth USB Dongle M/N:KJ-D108 Low channel (Vertical)

Date: 17.AUG.2005 09:50:43

§15.247(a)(1)-CHANNEL SEPARATION TEST

Applicable Standard

Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20dB Bandwidth of the hopping channel, whichever is greater. Alternatively, frequency hopping systems operating in the 2400-2483.5 MHz band may have hopping channel carrier frequencies that are separated by 25 kHz or two-thirds of the 20dB bandwidth of the hopping channel, whichever is greater provided the systems operate with an output power no greater than 125 mW.

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	EMI Test Receiver	ESCI	100028	2004-9-15	2005-9-15

* **Statement of Traceability:** Bay Area Compliance Lab Corp. (ShenZhen) attests that all calibrations have been performed in accordance to NVLAP requirements, traceable to the NIST.

Test Procedure

1. Set the EUT in transmitting mode, spectrum Bandwidth was set at 100 kHz, maxhold the channel.
2. Set the adjacent channel of the EUT maxhold another truce
3. Measure the channel separation.

Limit

FCC Part 15, Subpart C Section 15.247(a)(1). Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB Bandwidth of the hopping channel, whichever is greater.

FREQUENCY RANGE (MHz)	Limit (kHz)
902-928	>25kHz
2400-2483.5	>25kHz
5725-5850	>25kHz

Test Data

Environmental Conditions

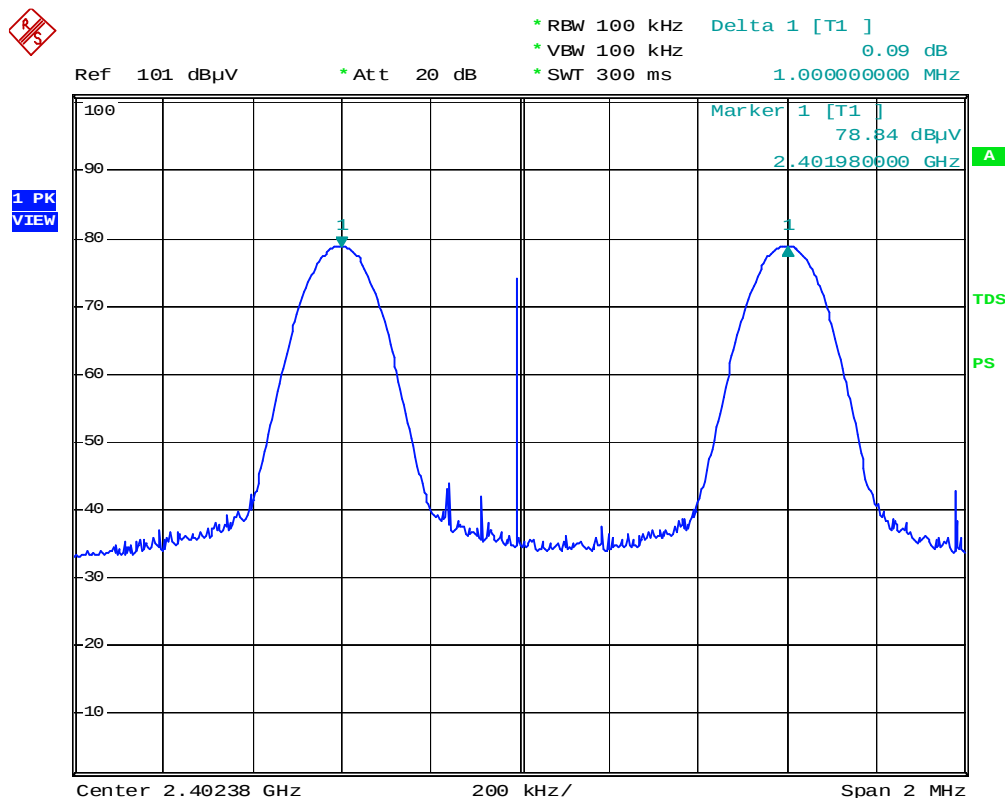
Temperature:	27 °C
Relative Humidity:	50 %
ATM Pressure:	1009 mbar

The testing was performed by Louise Lu on 2005-9-8

Test Result: Pass

Test mode: Transmitting

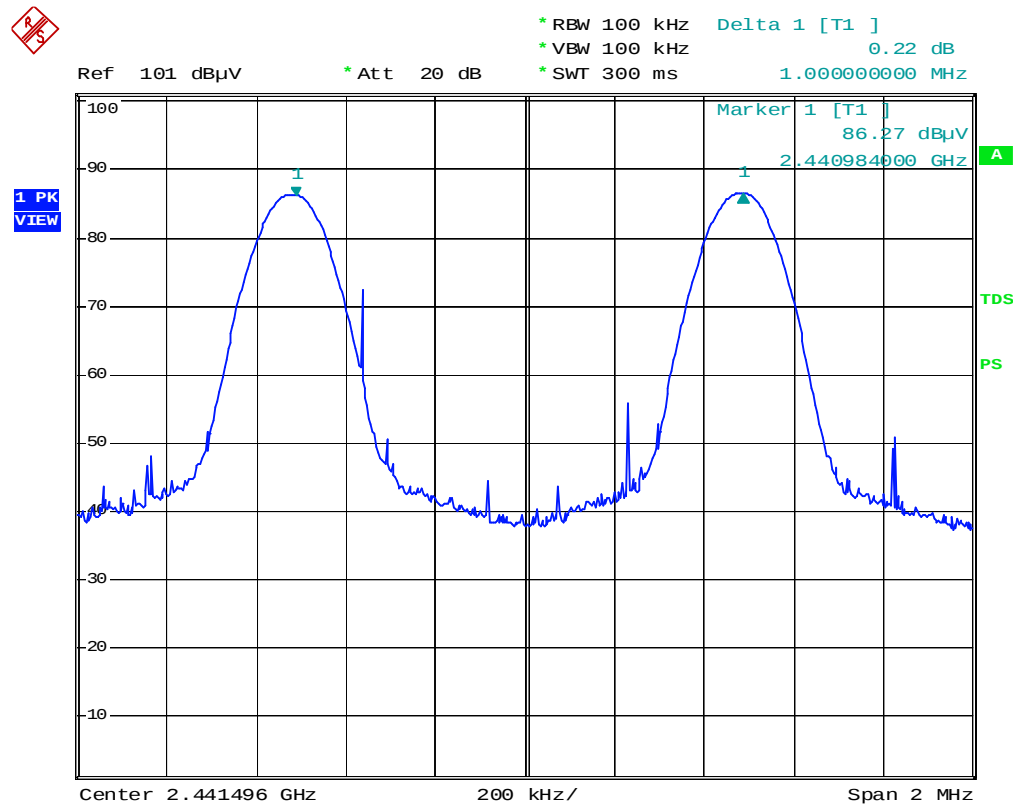
CHANNEL	CHANNEL FREQUENCY (MHz)	SEPARATION READ VALUE (kHz)	SEPARATION LIMIT (kHz)
Low Channel	2401.980	1000	>25
Adjacency Channel	2402.980		
Middle Channel	2440.984	1000	>25
Adjacency Channel	2441.984		
High Channel	2479.972	1000	>25
Adjacency Channel	2478.972		



Kingjon Bluetooth USB Dongle M/N: KJ-D108 channel separation

n test (low channel)

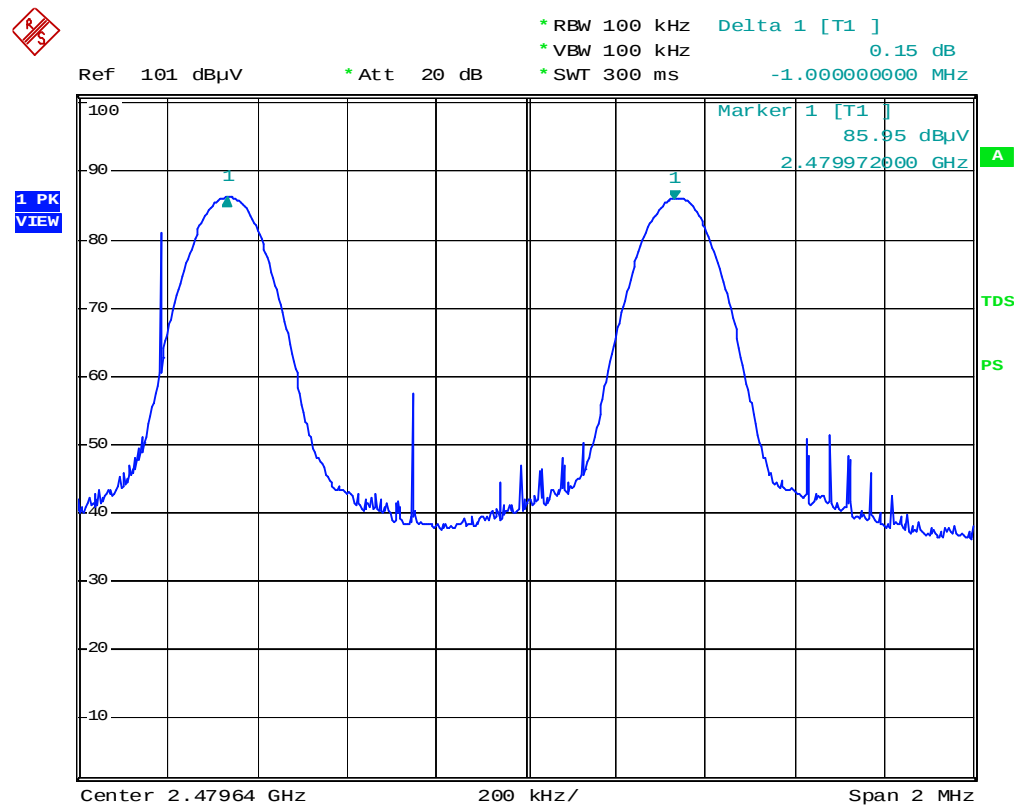
Date: 8.SEP.2005 15:13:33



Kingjon Bluetooth USB Dongle M/N: KJ-D108 channel separation

n test (middle channel)

Date: 8.SEP.2005 15:16:31



Kingjon Bluetooth USB Dongle M/N: KJ-D108 channel separation test (high channel)
Date: 8.SEP.2005 15:22:09

§15.247(a)(1) 20dB BANDWIDTH TESTING

Applicable Standard

Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20dB Bandwidth of the hopping channel, whichever is greater.

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	EMI Test Receiver	ESCI	100028	2004-9-15	2005-9-15

* **Statement of Traceability:** Bay Area Compliance Lab Corp. (ShenZhen) attests that all calibrations have been performed in accordance to NVLAP requirements, traceable to the NIST.

Test Procedure

1. Check the calibration of the measuring instrument using a known signal from an external generator.
2. Position the EUT without connection to the tunable table. Turn on the EUT. Then set it to any one convenient frequency within its operating range. Set a reference level on the measuring instrument equal to the highest peak value.
3. Measure the frequency difference of two frequencies that were attenuated 20 dB from the reference level. Record the frequency difference as the emission bandwidth.
4. Repeat above procedures until all frequencies measured were complete.

Test Data

Environmental Conditions

Temperature:	25 ° C
Relative Humidity:	50%
ATM Pressure:	1032mbar

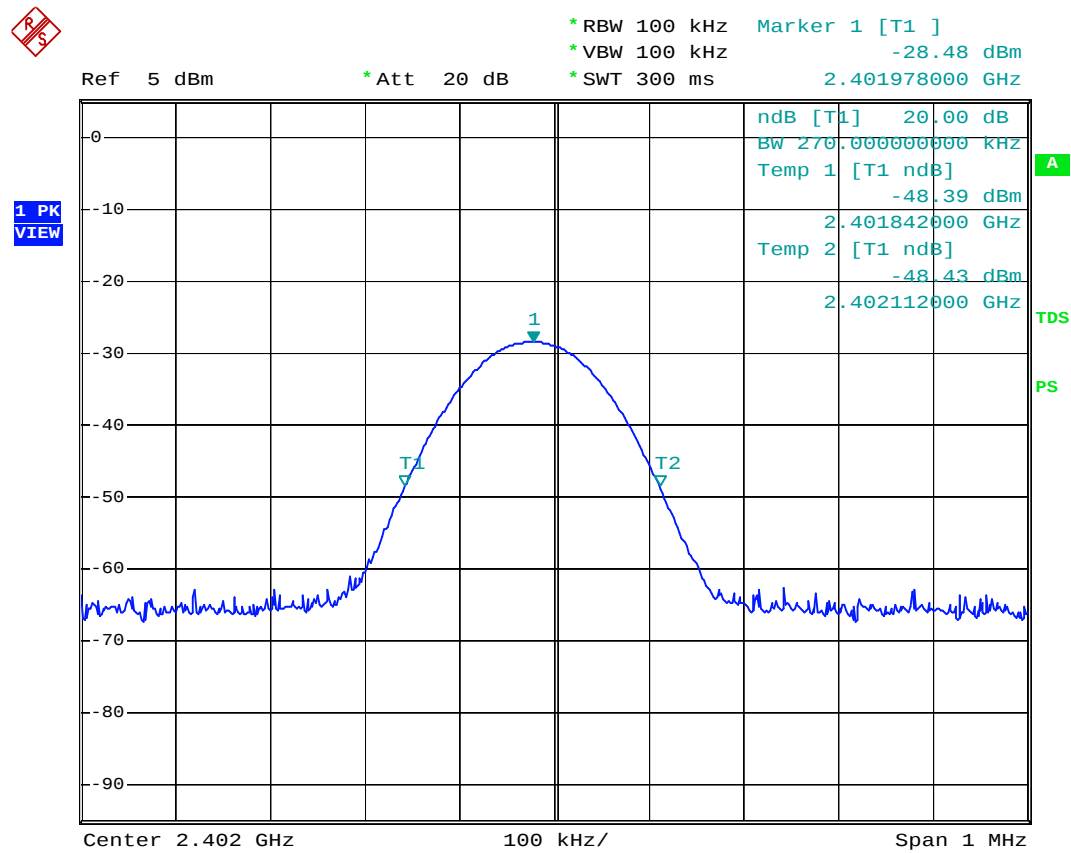
The testing was performed by Louise Lu on 2005-9-8

Test Result: Pass

Test mode: Transmitting

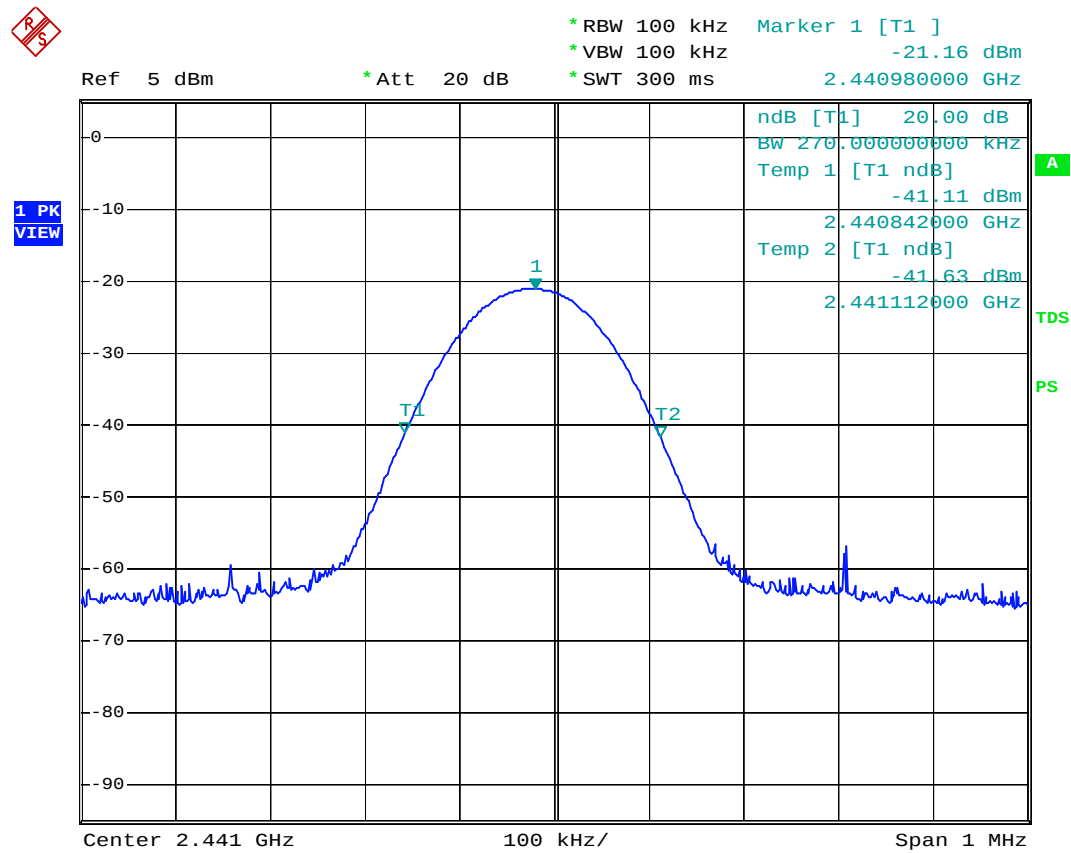
The result has been complied with the §15.247(a)(1), see the following plot:

Channel	Channel frequency (MHz)	20dB Bandwidth (KHz)	Limit (KHz)
Low channel	2401.978	270.00	<1000
Middle channel	2440.980	270.00	<1000
High channel	2479.976	272.00	<1000



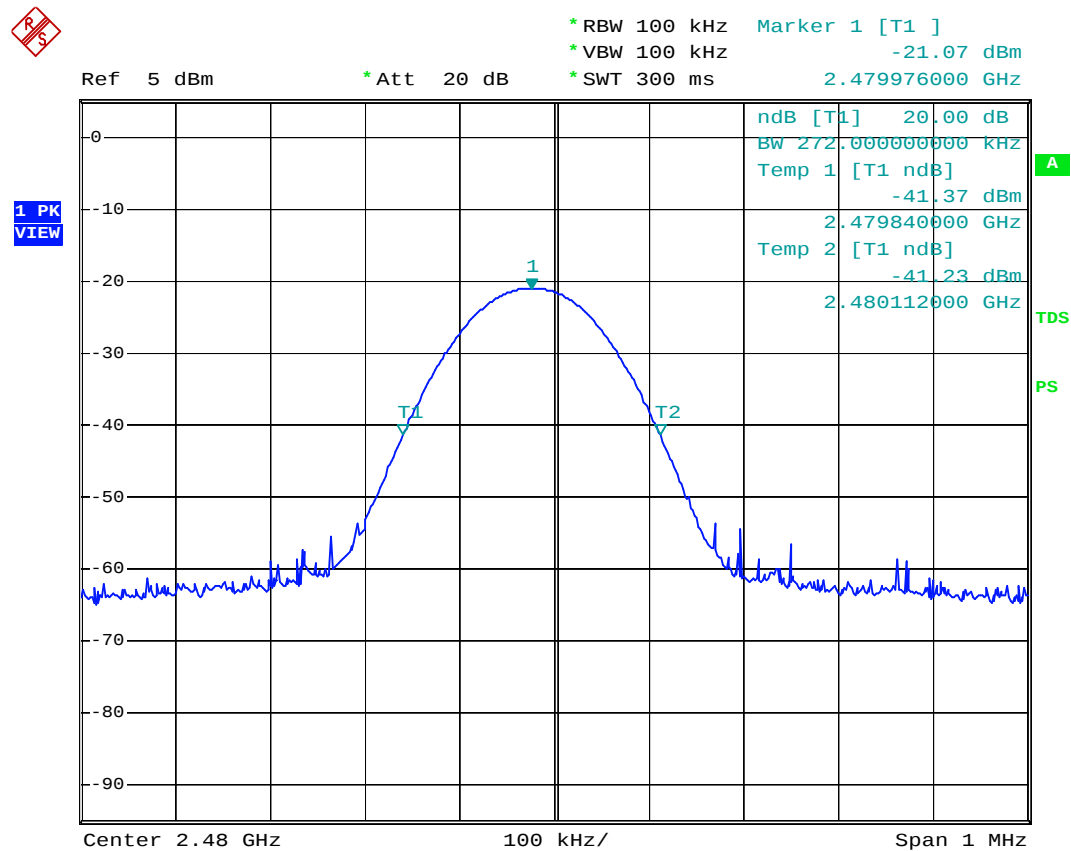
Kingjon Bluetooth USB Dongle M/N: KJ-D108 (low channel)

Date: 8.SEP.2005 15:27:17



Kingjon Bluetooth USB Dongle M/N: KJ-D108 (middle channel)

Date: 8.SEP.2005 15:25:58



Kingjon Bluetooth USB Dongle M/N: KJ-D108 (high channel)

Date: 8.SEP.2005 15:24:22

§15.247(a)(1)(iii)-QUANTITY OF HOPPING CHANNEL TEST

Applicable Standard

Frequency hopping systems in the 2400–2483.5 MHz band shall use at least 15 channels. The average time of occupancy on any channel shall not be greater than 0.4 seconds within a period of 0.4 seconds multiplied by the number of hopping channels employed. Frequency hopping systems may avoid or suppress transmissions on a particular hopping frequency provided that a minimum of 15 channels are used.

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	EMI Test Receiver	ESCI	100035	2004-9-15	2005-9-15

* **Statement of Traceability:** Bay Area Compliance Lab Corp. (ShenZhen) attests that all calibrations have been performed in accordance to NVLAP requirements, traceable to the NIST.

Test Procedure

1. Check the calibration of the measuring instrument (SA) using either an internal calibrator or a known signal from an external generator.
2. Set the EUT in transmitting mode from first channel to last.
3. By using the Max-Hold function record the Quantity of the channel.

Limit

FCC Part 15, Subpart C Section 15.247

FREQUENCY RANGE (MHz)	Limit (Quantity of Hopping Channel)			
	20 dB bandwidth <250 kHz	20 dB bandwidth >250 kHz	20 dB bandwidth <1 MHz	20 dB bandwidth >1 MHz
902-928	50	25	N/A	N/A
2400-2483.5	N/A	N/A	15	15
5725-5850	N/A	N/A	75	N/A

Test Data

Environmental Conditions

Temperature:	27 °C
Relative Humidity:	50 %
ATM Pressure:	1009 mbar

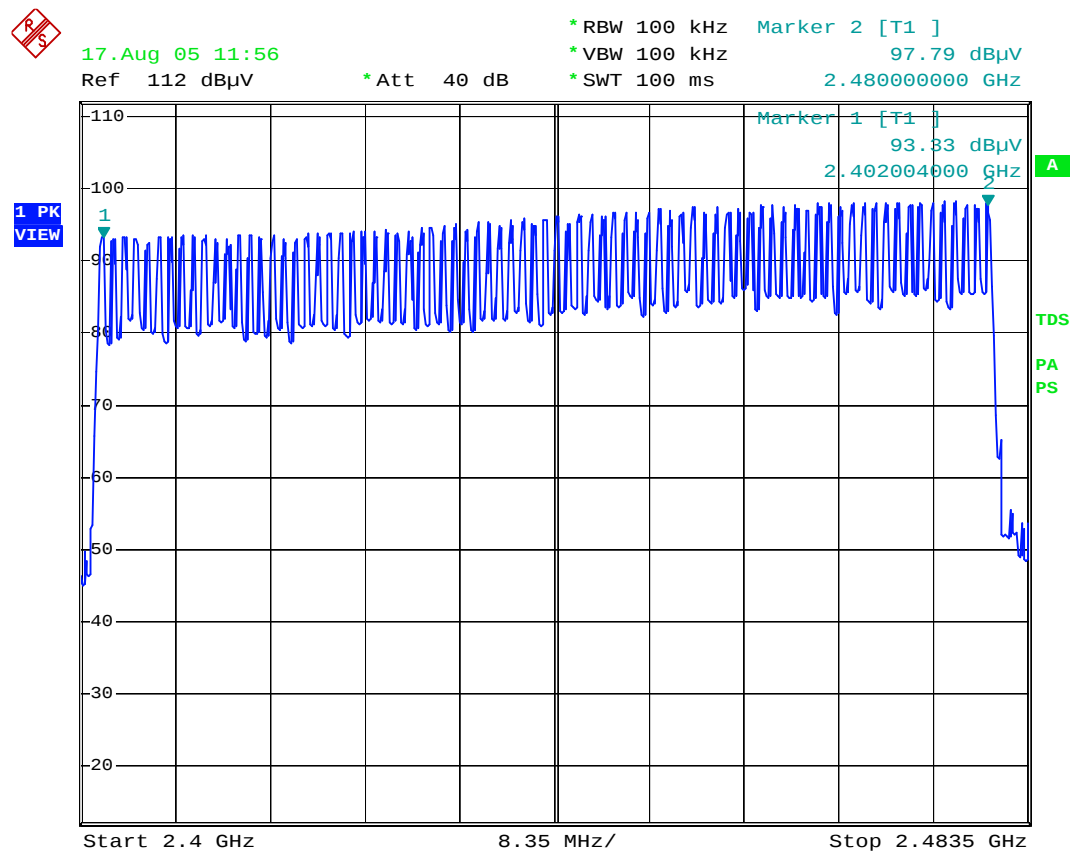
The testing was performed by Louise Lu on 2005-8-17

Test Result: Pass

Test mode: Transmitting

The frequency hopping systems operating in 2.4~2.4835 GHz band employ 78 nonoverlapping channels.

Hopping Channel Frequency Range (MHz)	Quantity OF hopping Channel Read Value (Channel)	Quantity Of Hopping channel limit (Channel)
2400.0 ~ 2483.5	79	15



Kingjon Bluetooth USB Dongle M/N:KJ-D108 Quantity of hopping channel test

Date: 17.AUG.2005 11:56:38

§15.247(a)(1)(iii) -TIME OF OCCUPANCY (DWELL TIME)

Applicable Standard

Frequency hopping systems in the 2400-2483.5 MHz shall use at least 15 channels. The average time of occupancy on any channel shall not be greater than 0.4 seconds within a period of 0.4 seconds multiplied by the number of hopping channels employed. Frequency hopping systems may avoid or suppress transmissions on a particular hopping frequency provided that a minimum of 15 channels are used.

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	EMI Test Receiver	ESCI	100035	2004-9-15	2005-9-15

* **Statement of Traceability:** Bay Area Compliance Lab Corp. (ShenZhen) attests that all calibrations have been performed in accordance to NVLAP requirements, traceable to the NIST.

Test Procedure

The EUT was worked in channel hopping; Spectrum SPAN was set as 0. Sweep was set as 0.4 X channel no.(s), The quantity of False was get from single sweep. In addition, the time of single Pluses was tested.

Limit

FCC Part 15, Subpart C Section 15.247.

FREQUENCY RANGE (MHz)	LIMIT (ms)		
	20dB bandwidth <250kHz (50 Channel)	20dB bandwidth >250kHz (50 Channel)	20dB bandwidth <1 MHz (79 Channel)
902-928	400(20s)	400(10s)	N/A
2400-2483.5	N/A	N/A	400(31.6s)
5725-5850	N/A	N/A	400(30s)

Test Data

Environmental Conditions

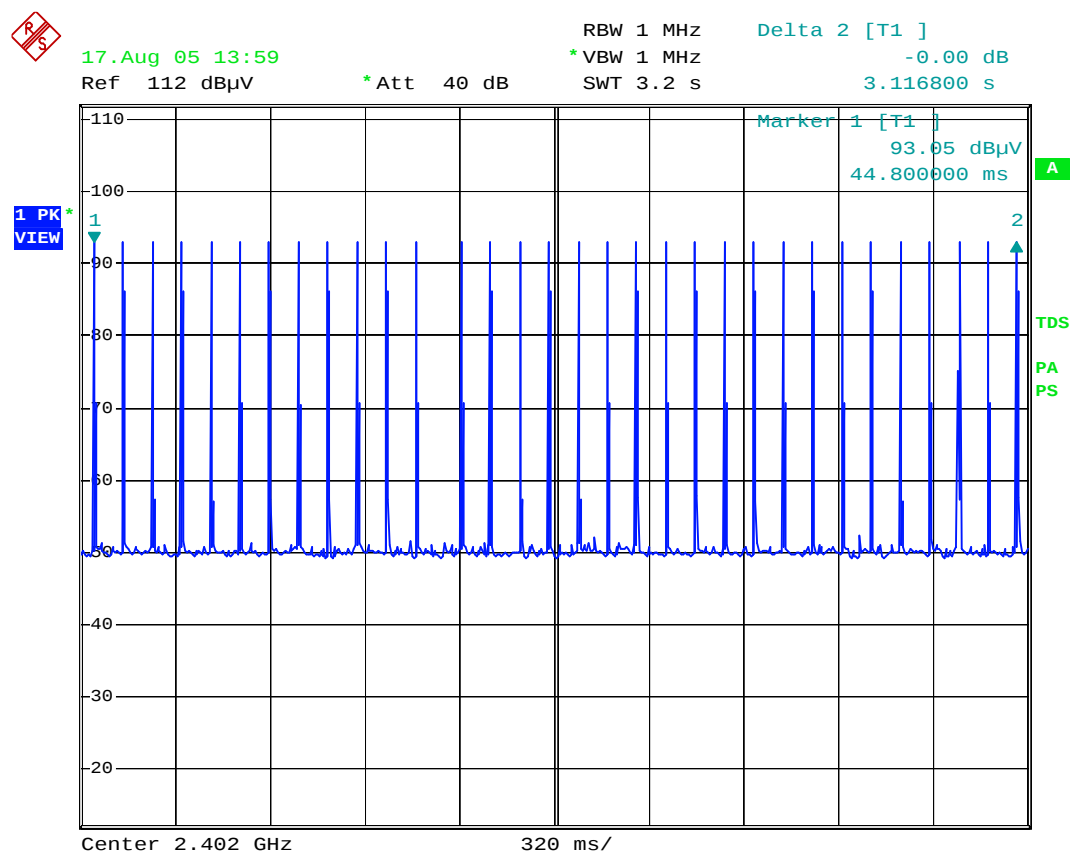
Temperature:	27 °C
Relative Humidity:	50 %
ATM Pressure:	1009 mbar

The testing was performed by Louise Lu on 2005-8-17

Test Result: Pass

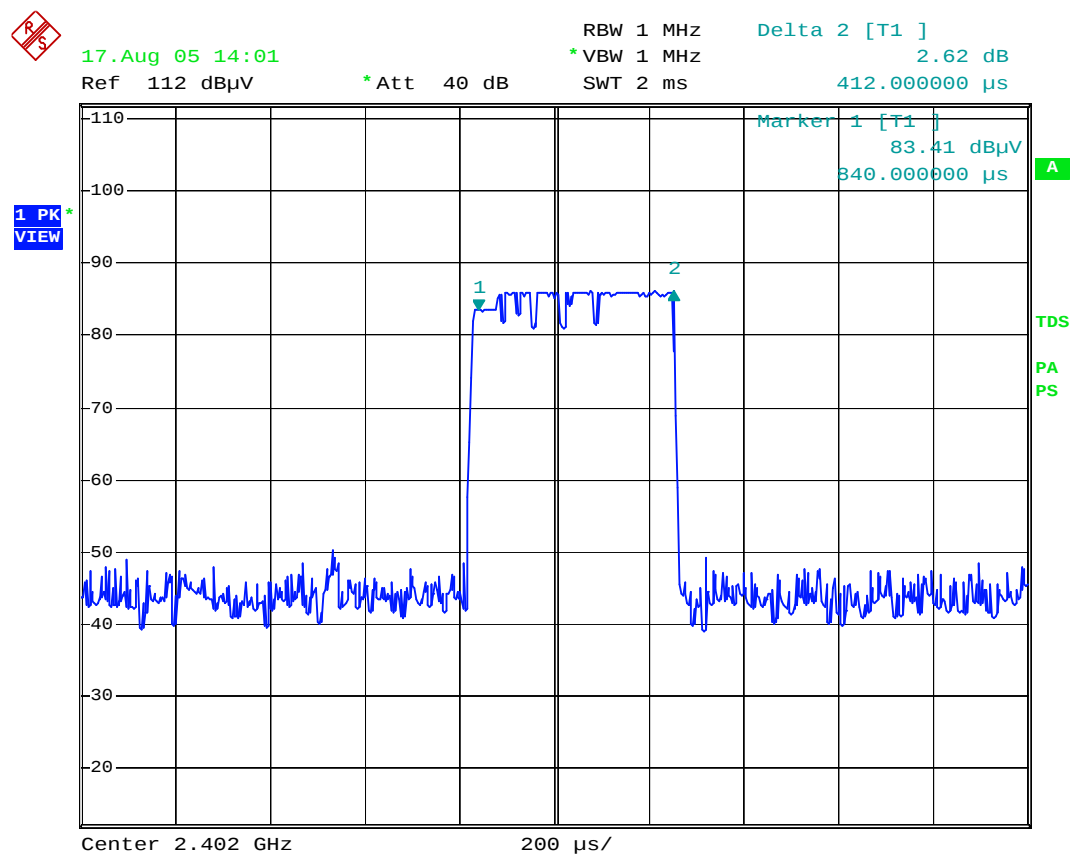
Test mode: Transmitting

Channel	Frequency MHz	Pulse Wide m Sec	Quantity Pulse per 3.2 Sec	Quantity Pulse per 32 Sec	Dwell Time m Sec	Limit m Sec
Low channel	2401.980	0.412	32	320	131.84	400
Middle channel	2440.984	0.420	32	320	134.40	400
High channel	2479.972	0.424	33	330	139.92	400



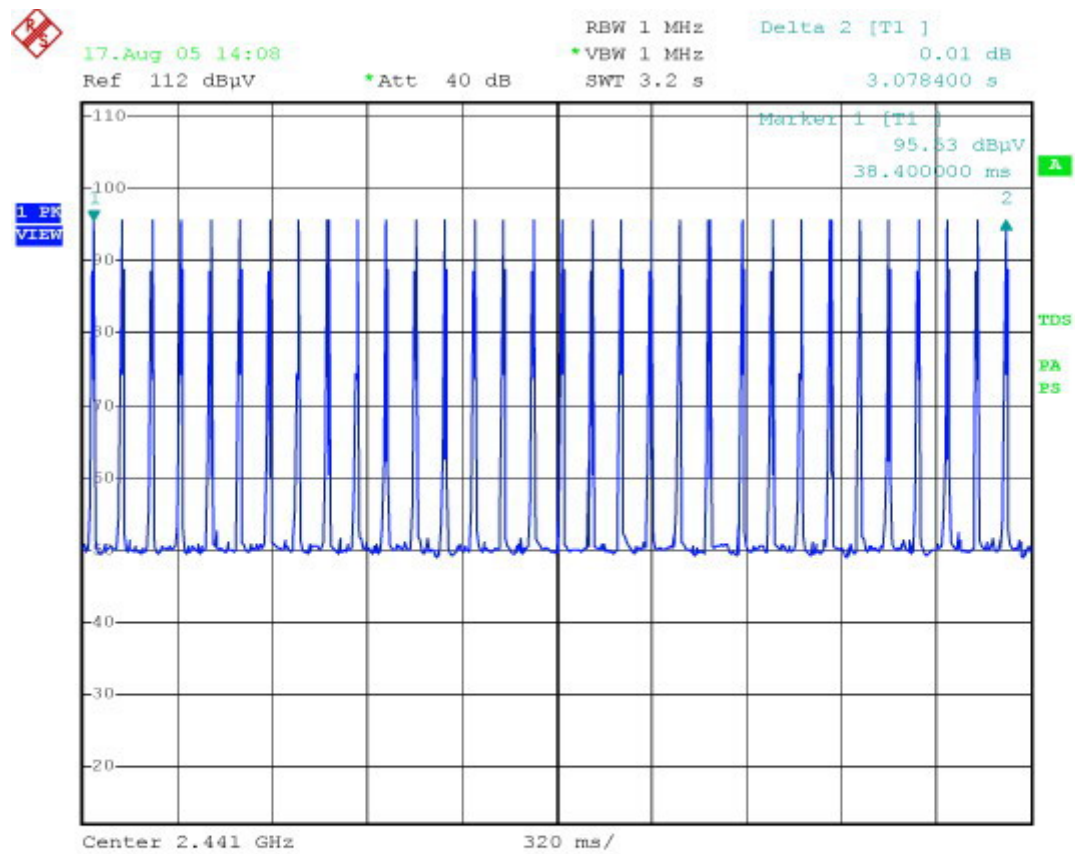
Kingjon Bluetooth USB Dongle M/N:KJ-D108 Low channel

Date: 17.AUG.2005 13:59:26



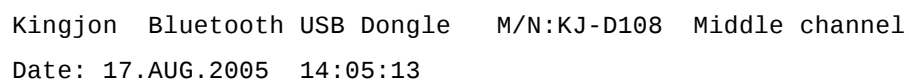
Kingjon Bluetooth USB Dongle M/N:KJ-D108 Low channel

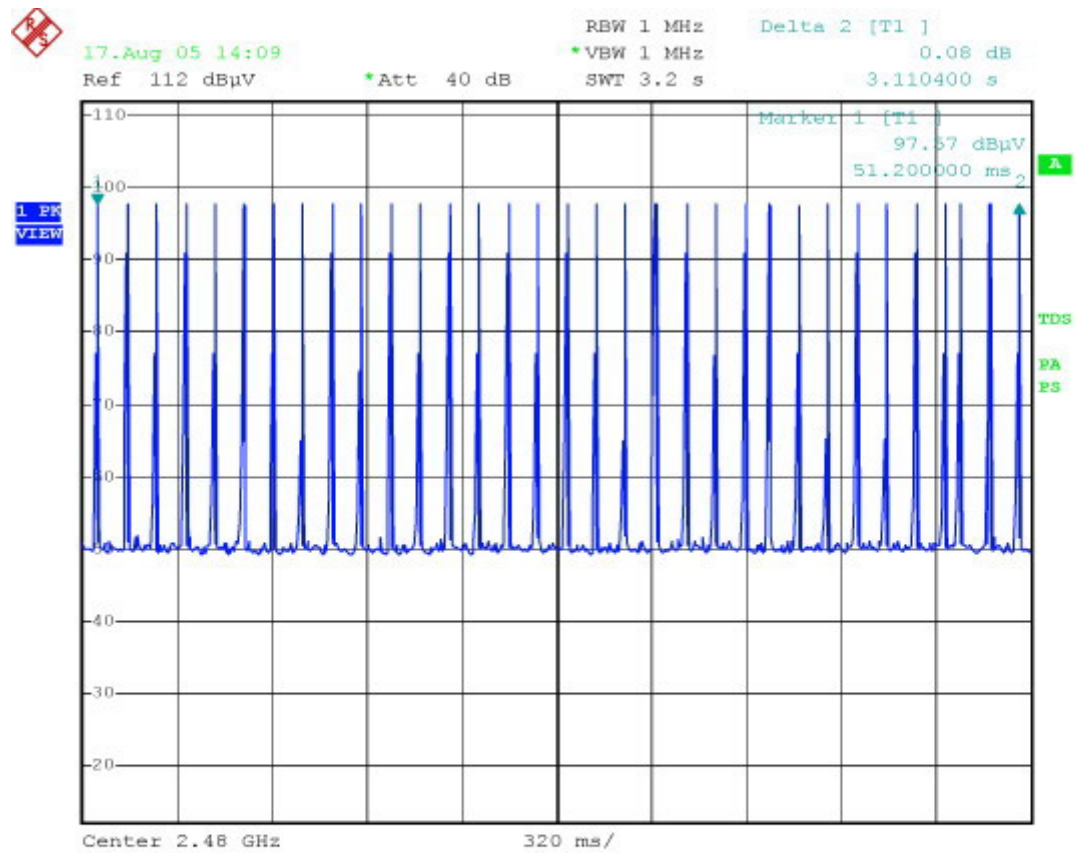
Date: 17.AUG.2005 14:01:25



Kingjon Bluetooth USB Dongle M/N:KJ-D108 Middle channel

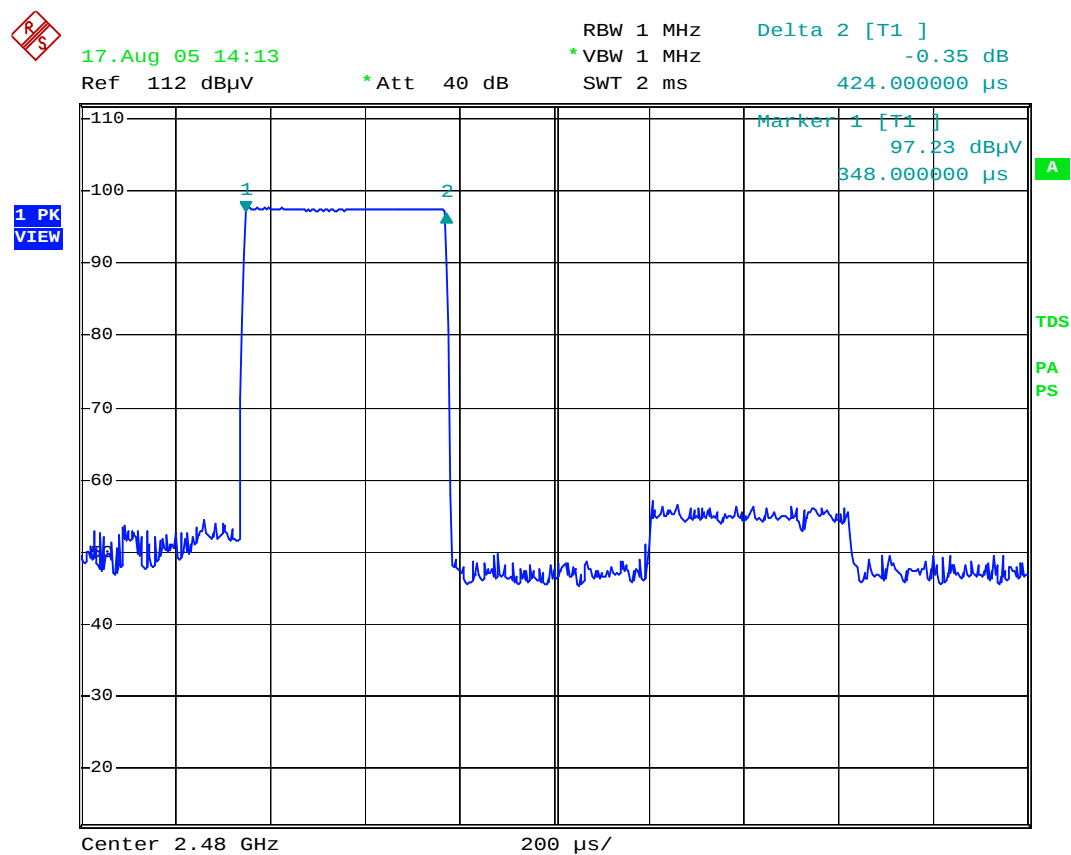
Date: 17.AUG.2005 14:08:14





Kingjon Bluetooth USB Dongle M/N:KJ-D108 High channel

Date: 17.AUG.2005 14:09:33



Kingjon Bluetooth USB Dongle M/N:KJ-D108 High channel

Date: 17.AUG.2005 14:13:02

§15.247(b)(1) - PEAK OUTPUT POWER MEASUREMENT

Applicable Standard

(b) The maximum peak conducted output power of the intentional radiator shall not exceed the following:

(1) For frequency hopping systems operating in the 2400–2483.5 MHz band employing at least 75 non-overlapping hopping channels, and all frequency hopping systems in the 5725–5850 MHz band: 1 watt. For all other frequency hopping systems in the 2400–2483.5 MHz band: 0.125 watts.

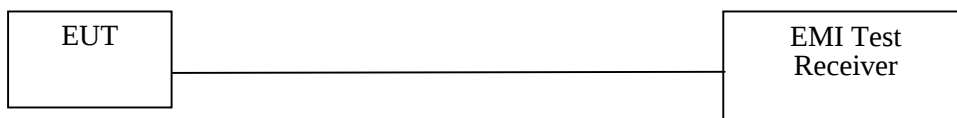
Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde&Schwarz	EMI Test Receiver	ESCI	100028	2004-9-15	2005-9-15

* **Statement of Traceability:** Bay Area Compliance Lab Corp. (ShenZhen) attests that all calibrations have been performed in accordance to NVLAP requirements, traceable to the NIST.

Test Procedure

1. Place the EUT on a bench and set it in transmitting mode.
2. Remove the antenna from the EUT and then connect a low loss RF cable from the UFL port of EUT to a Peak Power Meter.



Test Data

Environmental Conditions

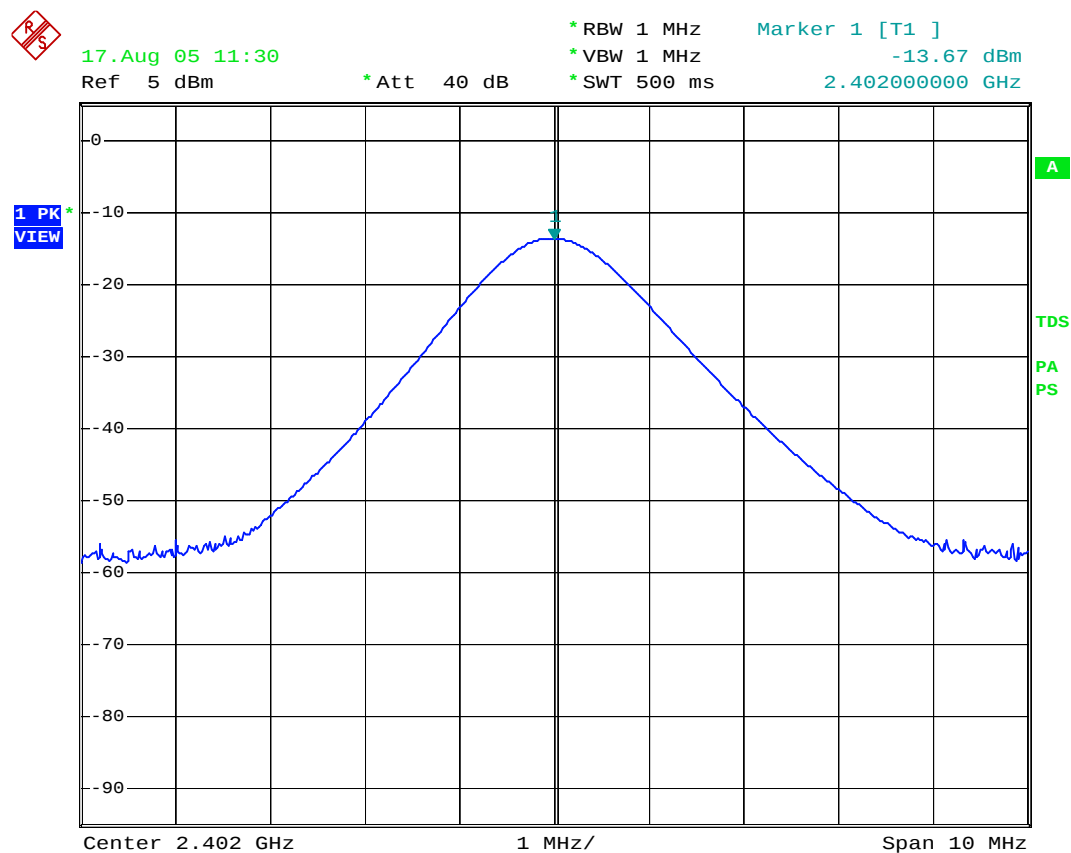
Temperature:	27 °C
Relative Humidity:	50 %
ATM Pressure:	1009 mbar

The testing was performed by Louise Lu on 2005-8-17

Test Result: Pass

Test mode: Transmitting

CHANNLE	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (dBm)	PEAK POWER OUTPUT (mW)	PEAK POWER LIMIT (W)
Low Channel	2402.00	-13.67	0.043	0.125
Middle Channel	2441.00	-11.09	0.078	0.125
High Channel	2480.00	-8.78	0.132	0.125



Kingjon Bluetooth USB Dongle M/N:KJ-D108 Low channel

Date: 17.AUG.2005 11:30:46



17.Aug 05 11:32

Ref 5 dBm

*Att 40 dB

*RBW 1 MHz

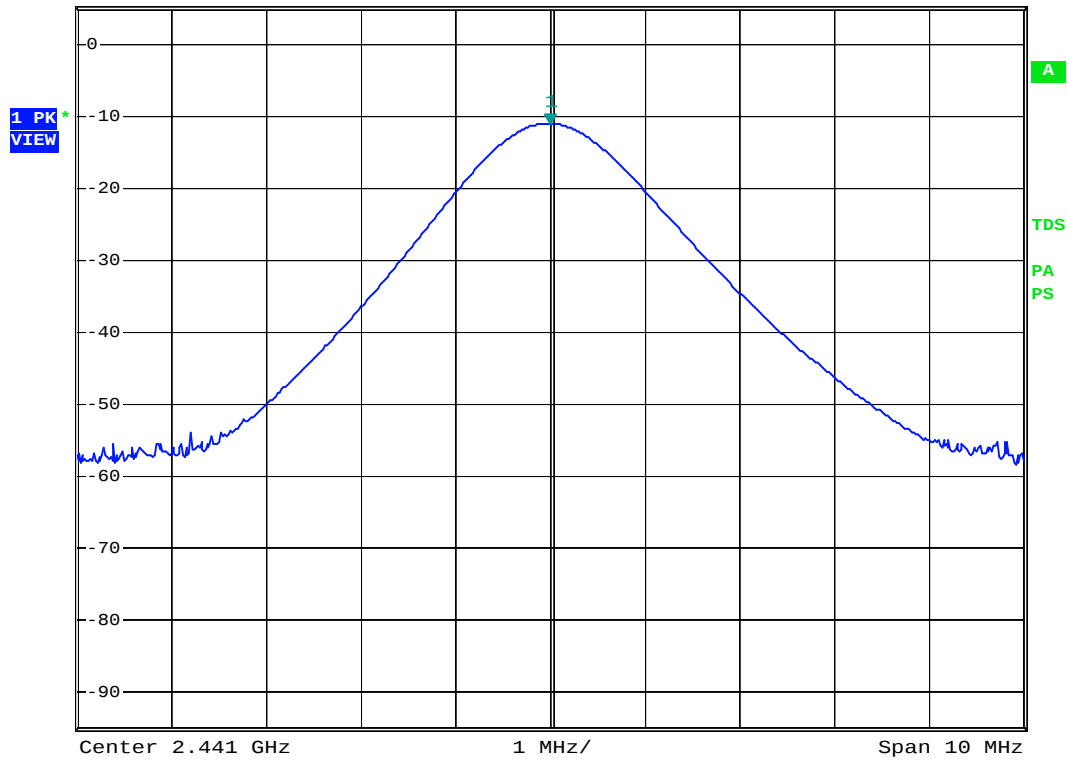
*VBW 1 MHz

*SWT 500 ms

Marker 1 [T1]

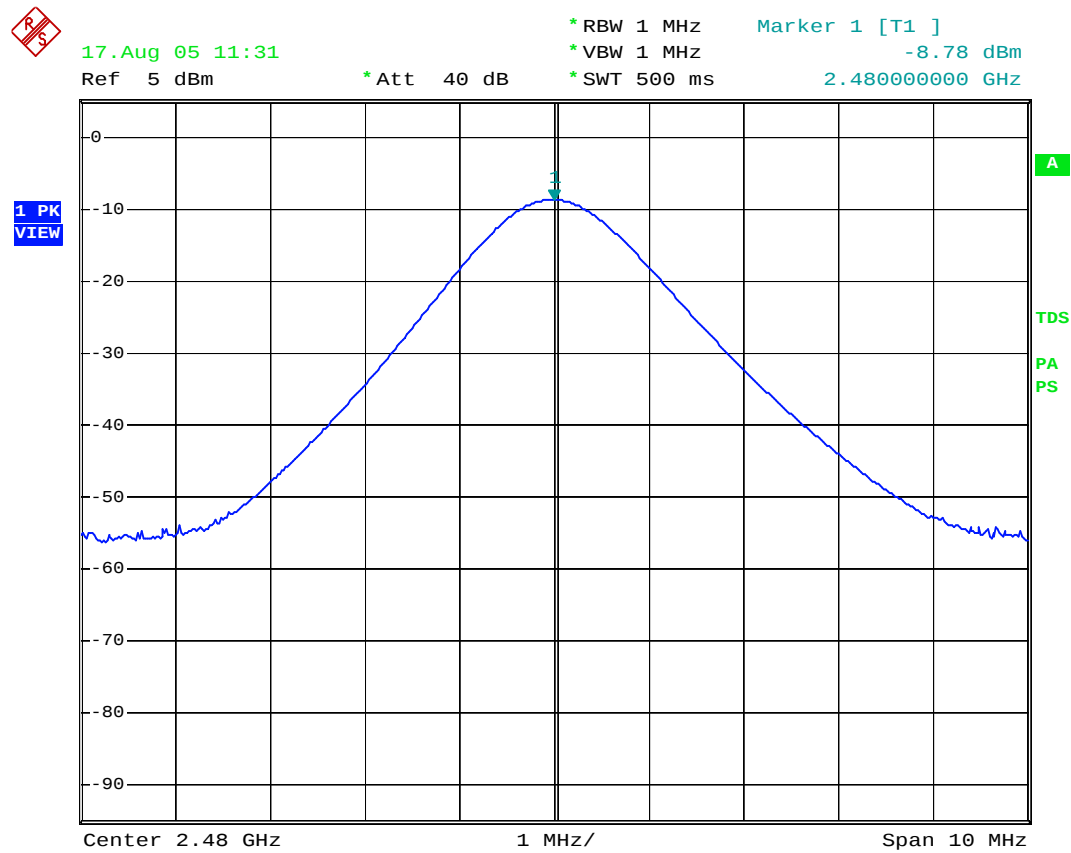
-11.09 dBm

2.441000000 GHz



Kingjon Bluetooth USB Dongle M/N:KJ-D108 Middle channel

Date: 17.AUG.2005 11:32:49



Kingjon Bluetooth USB Dongle M/N:KJ-D108 high channel

Date: 17.AUG.2005 11:31:58

§15.247(d)- BAND EDGES TESTING

Applicable Standard

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	EMI Test Receiver	ESCI	100035	2004-9-15	2005-9-15

* **Statement of Traceability:** Bay Area Compliance Lab Corp. (ShenZhen) attests that all calibrations have been performed in accordance to NVLAP requirements, traceable to the NIST.

Test Procedure

1. Check the calibration of the measuring instrument using a known signal from an external generator.
2. Position the EUT without connection to measurement instrument. Turn on the EUT and connect its antenna terminal to measurement instrument via a low loss cable. Start 2.4 G Hz, stop 2.4835 GHz, and make sure the instrument is operated in its linear range.
3. Set both RBW and VBW of spectrum analyzer to 100 kHz with a convenient frequency span including 100kHz bandwidth from band edge.
4. Measure the frequency edge point amplitude appearing on spectral display and set it as a reference level. Plot the graph with marking the edge frequency.

Test Data

Environmental Conditions

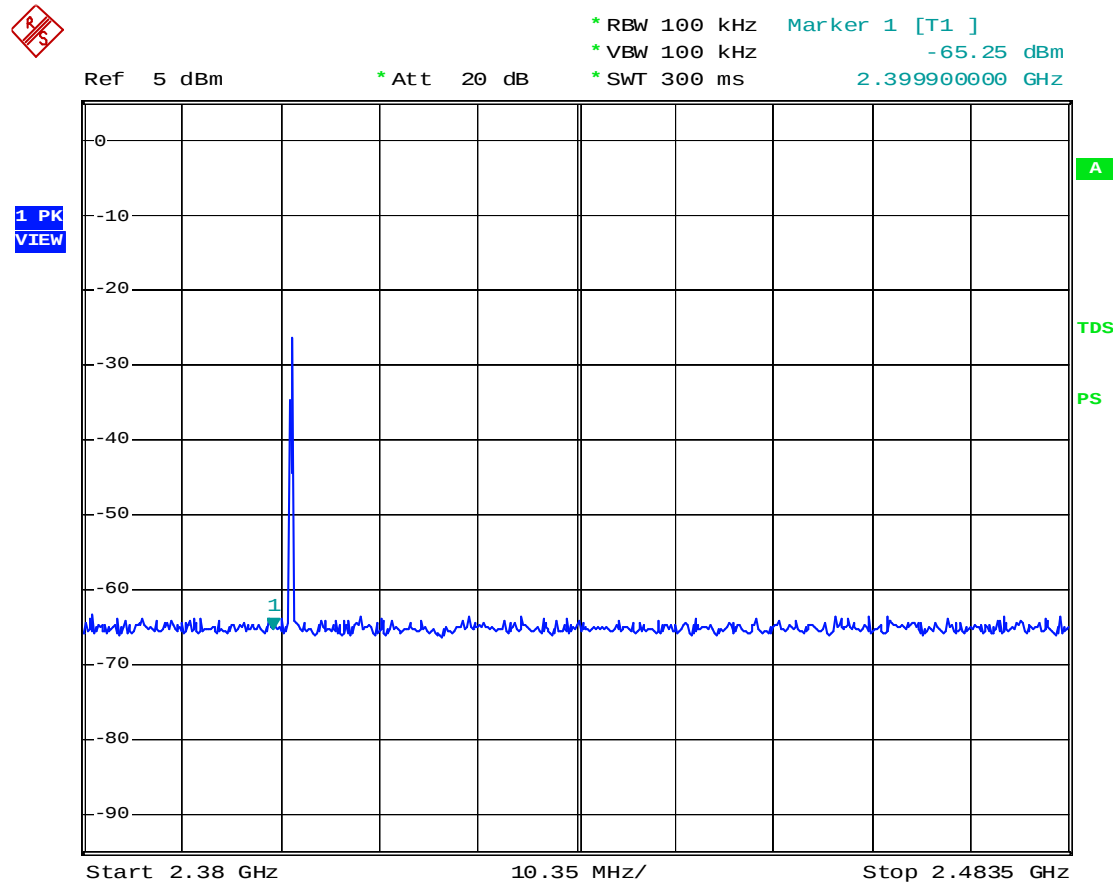
Temperature:	27 °C
Relative Humidity:	50 %
ATM Pressure:	1009 mbar

The testing was performed by Louise Lu on 2005-9-8

Test Result: Pass

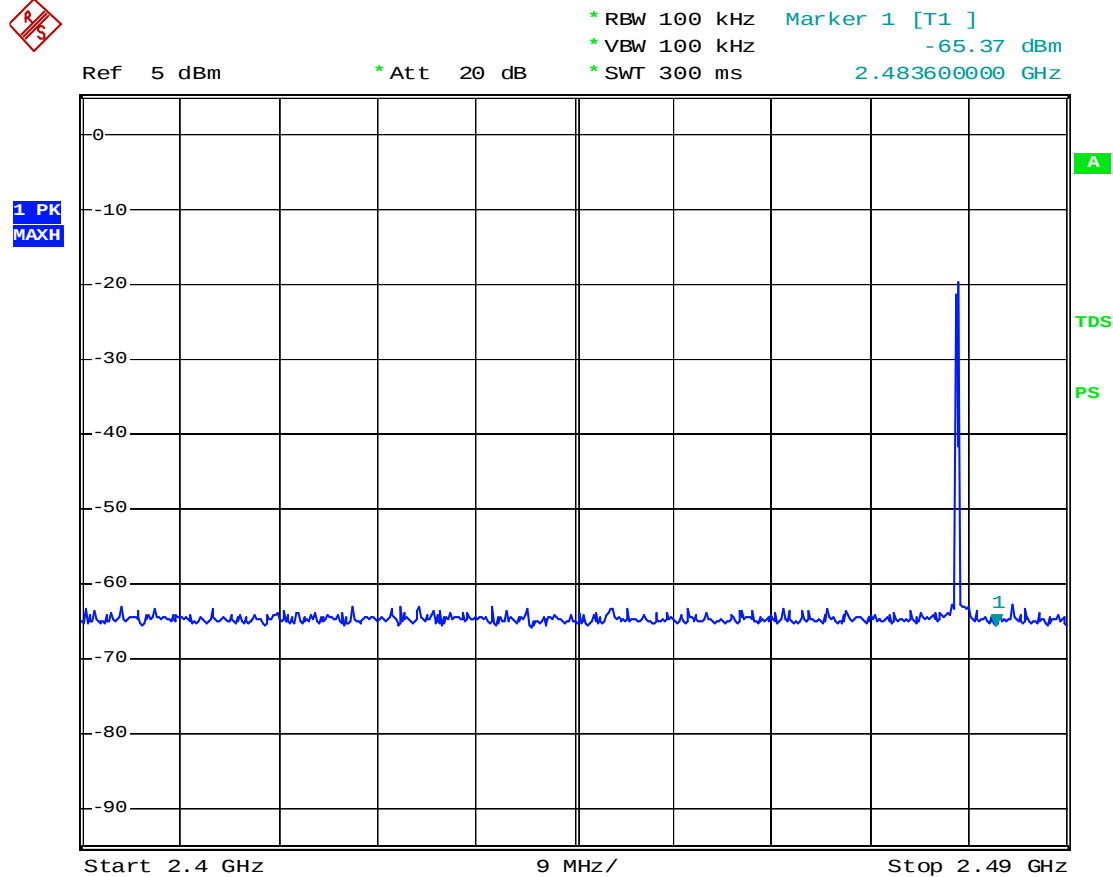
Test mode: Transmitting

Frequency MHz	Emission dB μ V/m	Limit dB μ V/m
2483.6	41.63	54
2399.9	41.75	54



Kingjon Bluetooth USB Dongle M/N: KJ-D108

Date: 8.SEP.2005 16:16:31



Kingjon Bluetooth USB Dongle M/N: KJ-D108

Date: 8.SEP.2005 16:19:40