

Product Name	: Bluetooth handsfree spe	aker
Model No.	: VV960	
FCC ID.	: RAIVV960	

Applicant : Fonexion USA, Inc.

Address : 3820 SW 30th Avenue Fort Lauderdale, FL, 33312

Date of Receipt	: 2007/06/08
Issued Date	: 2007/06/11
Report No.	: 076S022-RF-US-P06V01

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Model and Trade Name.

The Test Results relate only to the samples tested.

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	Applicant	:	Fonexion USA, Inc.
	Address	:	3820 SW 30th Avenue Fort Lauderdale, FL, 33312
	Manufacturer	:	Shanghai Flaircomm Inc
	Model No.	:	VV960
	FCC ID.	:	RAIVV960
	Rated Voltage	:	AC 120V/60Hz
	Working Voltage	:	DC 3.7V
	Trade Name	:	IDEUS
	Applicable Standard	:	FCC CFR Title 47 Part 15 Subpart C: 2005
			ANSI C63.4: 2003
			CISPR 22: 2005
The T	Test Result est Results relate only to the	: samj	Complied ples tested.
The te This r	est report shall not be reprodu report must not be used to cla	iced im p	except in full without the written approval of QuieTek Corporation. roduct endorsement by NVLAP any agency of the U.S. Government

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TABLE OF CONTENTS

iption	Page
GENERAL INFORMATION	5
EUT Description	5
Operational Description	6
Tested System Details	7
Configuration of Tested System	8
EUT Exercise Software	9
Test Facility	
CONDUCTED EMISSION	
Test Equipment	
Test Setup	
Limits	
Test Procedure	
Uncertainty	
Test Result of Conducted Emission	
PEAK POWER OUTPUT	
Test Equipment	
Test Setup	
Limit	
Uncertainty	
Test Result of Peak Power Output	14
RADIATED EMISSION	
Test Equipment	16
Test Setup	16
Limits	17
Test Procedure	
Uncertainty	
Test Result of Radiated Emission	19
BAND EDGE	
Test Equipment	
Test Setup	
Limit	40
Test Procedure	40
Uncertainty	40
Test Result of Band Edge	41
CHANNEL NUMBER	45
Test Equipment	
	GENERAL INFORMATION EUT Description. Operational Description. Tested System Details. Configuration of Tested System EUT Exercise Software Test Facility CONDUCTED EMISSION Test Equipment Test Equipment Test Setup Limits. Test Procedure Uncertainty Test Result of Conducted Emission PEAK POWER OUTPUT Test Equipment Test Setup Limit Uncertainty Test Result of Conducted Emission PEAK POWER OUTPUT Test Equipment Test Setup Limit Uncertainty Test Result of Peak Power Output RADIATED EMISSION Test Equipment Test Setup Limits Test Result of Radiated Emission BAND EDGE Test Setup Limit Test Result of Radiated Emission BAND EDGE Test Result of Band Edge CHANNEL NUMBER Test Equi

6.2.	Test Setup	45
6.3.	Limit	45
6.4.	Uncertainty	45
6.5.	Test Result of Channel Number	46
7.	CHANNEL SEPARATION	49
7.1.	Test Equipment	49
7.2.	Test Setup	49
7.3.	Limit	49
7.4.	Uncertainty	49
7.5.	Test Result of Channel Separation	50
8.	DWELL TIME	52
8.1.	Test Equipment	
8.2.	Test Setup	
8.3.	Limit	
8.4.	Uncertainty	
8.5.	Test Result of Dwell Time	53
9.	OCCUPIED BANDWIDTH	58
9.1.	Test Equipment	
9.2.	Test Setup	
9.3.	Limits	
9.4.	Uncertainty	
9.5.	Test Result of Occupied Bandwidth	
10. Attach	EMI REDUCTION METHOD DURING COMPLIANCE TESTING nment 1: EUT Test Photographs nment 2: EUT Detailed Photographs	61

1. GENERAL INFORMATION

1.1. EUT Description

Product Name	Bluetooth handsfree speaker		
Trade Name	IDEUS		
Model No.	VV960		
Working Voltage	DC 3.7V		
Frequency Range	2400 - 2483.5MHz		
Channel Number	79		
Antenna Gain	-3.5dBi		
Type of Modulation	Frequency Hopping Spread Spectrum		
Channel Control	Auto		
Antenna type	Chip		

Frequency of Each Channel:

Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
Channel 00:	2402 MHz	Channel 01:	2403 MHz	Channel 02:	2404 MHz	Channel 03:	2405 MHz
Channel 04:	2406 MHz	Channel 05:	2407 MHz	Channel 06:	2408 MHz	Channel 07:	2409 MHz
Channel 08:	2410 MHz	Channel 09:	2411 MHz	Channel 10:	2412 MHz	Channel 11:	2413 MHz
Channel 12:	2414 MHz	Channel 13:	2415 MHz	Channel 14:	2416 MHz	Channel 15:	2417 MHz
Channel 16:	2418 MHz	Channel 17:	2419 MHz	Channel 18:	2420 MHz	Channel 19:	2421 MHz
Channel 20:	2422 MHz	Channel 21:	2423 MHz	Channel 22:	2424 MHz	Channel 23:	2425 MHz
Channel 24:	2426 MHz	Channel 25:	2427 MHz	Channel 26:	2428 MHz	Channel 27:	2429 MHz
Channel 28:	2430 MHz	Channel 29:	2431 MHz	Channel 30:	2432 MHz	Channel 31:	2433 MHz
Channel 32:	2434 MHz	Channel 33:	2435 MHz	Channel 34:	2436 MHz	Channel 35:	2437 MHz
Channel 36:	2438 MHz	Channel 37:	2439 MHz	Channel 38:	2440 MHz	Channel 39:	2441 MHz
Channel 40:	2442 MHz	Channel 41:	2443 MHz	Channel 42:	2444 MHz	Channel 43:	2445 MHz
Channel 44:	2446 MHz	Channel 45:	2447 MHz	Channel 46:	2448 MHz	Channel 47:	2449 MHz
Channel 48:	2450 MHz	Channel 49:	2451 MHz	Channel 50:	2452 MHz	Channel 51:	2453 MHz
Channel 52:	2454 MHz	Channel 53:	2455 MHz	Channel 54:	2456 MHz	Channel 55:	2457 MHz
Channel 56:	2458 MHz	Channel 57:	2459 MHz	Channel 58:	2460 MHz	Channel 59:	2461 MHz
Channel 60:	2462 MHz	Channel 61:	2463 MHz	Channel 62:	2464 MHz	Channel 63:	2465 MHz
Channel 64:	2466 MHz	Channel 65:	2467 MHz	Channel 66:	2468 MHz	Channel 67:	2469 MHz
Channel 68:	2470 MHz	Channel 69:	2471 MHz	Channel 70:	2472 MHz	Channel 71:	2473 MHz
Channel 72:	2474 MHz	Channel 73:	2475 MHz	Channel 74:	2476 MHz	Channel 75:	2477 MHz
Channel 76:	2478 MHz	Channel 77:	2479 MHz	Channel 78:	2480 MHz		

The system receivers have input bandwidths that match the hopping channel bandwidths of their corresponding transmitters and shift frequencies in synchronization with the transmitted signals

Frequency hopping spread spectrum systems are not required to employ all available hopping channels during each transmission. The transmitter is presented with a continuous data stream. In addition, a system employing short transmission bursts must comply with the definition of a frequency hopping system and must distribute its 79 channels and over the minimum number of hopping channels (75 channels).

The incorporation of intelligence within a frequency hopping spread spectrum system that permits the system to recognize other users within the spectrum band so that it individually and independently chooses and adapts its hopsets to avoid hopping on occupied channels is permitted. The coordination of frequency hopping systems in any other manner for the express purpose of avoiding the simultaneous occupancy of individual hopping frequencies by multiple transmitters is not permitted.

Note:

- 1. This device is a Bluetooth Headset including a 2.4GHz transceiver.
- These tests were conducted on a sample of the equipment for the purpose of demonstrating compliance with Part 15 Subpart C Paragraph 15.247 for spread spectrum devices.
- 3. Regards to the frequency band operation; the lowest > middle and highest frequency of channel were selected to perform the test, then shown on this report.
- 4. This device is a composite device in accordance with Part 15 Subpart B regulations. The function for the receiver was measured and made a test report that the report number is 06AS001-RF-US-P01V02, certified under Declaration of Conformity.
- 5. QuieTek verified among construction and function in typical operation, then shown in this test report.

1.2. Operational Description

The EUT is a Bluetooth Headset with 79 channels.

This device provides wireless technology that revolutionizes personal connectivity. It is the solution for the seamless integration of Bluetooth technology into personal computer enabling short-range wireless connections between desktop/laptop computers, Bluetooth-enabled peripherals, and portable handheld devices.

Test Mode:	Mode 1: Transmit
------------	------------------

1.3. Tested System Details

The types for all equipment, plus descriptions of all cables used in the tested system (including inserted cards) are:

Pro	duct	Manufacturer	Model No.	Serial No.	Power Cord
1	N/A	N/A	N/A	N/A	N/A



1.4. Configuration of Tested System

Connection D	Diagram					
			EUT			
Signal Cable	Туре	Signal ca	ble Descrip	otion		

1.5. EUT Exercise Software

- (1) Setup the EUT as shown in Section 1.4.
- (2) Connect the EUT to PC via a control board and a RS232 cable.
- (3) Execute the Blue Test program on the PC.
- (4) Setup the test channel and the test mode press ok to start the Continue transmission.

1.6. Test Facility

Ambient conditions in the laboratory:

Items	Required (IEC 68-1)	Actual
Temperature (°C)	15-35	20-35
Humidity (%RH)	25-75	30-65
Barometric pressure (mbar)	860-1060	950-1000

Site Description:	April 28, 2006 Accreditation on NVLAP NVLAP Lab Code: 200743-0	
	Accredited by CNLA Accredited Number: 1596	
Site Name:	Quietek Corporation	
Site Address:	No.99 Hongye Rd., Suzhou Industrial Park Loufeng Hi-Tech Development Zone., SuZhou, China TEL: +86-512-6251-5088 / FAX : 86-512-6251-5098 E-Mail : service@quietek.com	



2. Conducted Emission

2.1. Test Equipment

1

Instrument	Manufacturer	Type No.	Serial No	Cal. Date
EMI Test Receiver	R&S	ESCI	100175	2006/11/25
Two-Line V-Network	R&S	ENV216	100013	2006/11/25
Two-Line V-Network	R&S	ENV216	100014	2006/11/25
V-Network	R&S	ESH3-Z6	100248	2006/11/25
V-Network	R&S	ESH3-Z6	100249	2006/11/25
ISN	Schaffner	ISN T400	21648	2006/11/25
Current Probe	R&S	EZ-17	100252	2007/04/18
50ohm Coaxial Switch	ANRITSU	MP59B	6200447305	2006/11/25
50ohm Impedance	SHX	50ohml	QT-IM001	2007/03/20
Matching network	SHX	TZ25	06062901	N/A
Matching network	SHX	TZ25	06062902	N/A
Matching network	SHX	TZ25	06062903	N/A
Combining network	SHX	N-50KKK	N/A	N/A
Temperature/Humidity Meter	zhicheng	ZC1-2	QT-TH004	2007/03/30

Note: All equipment upon which need to calibrated are with calibration period of 1 year.

2.2. Test Setup



FCC Part 15 Subpart C Paragraph 15.207 (dBuV) Limit				
Frequency	Lir	nits		
MHz	QP	AV		
0.15 - 0.50	66-56	56-46		
0.50-5.0	56	46		
5.0 - 30	60	50		

2.3. Limits

Remarks: In the above table, the tighter limit applies at the band edges.

2.4. Test Procedure

The EUT and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.). This provides a 50 ohm /50uH coupling impedance for the measuring equipment. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm /50uH coupling impedance with 50ohm termination. (Please refers to the block diagram of the test setup and photographs.)

Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.4: 2003 on conducted measurement.

Conducted emissions were invested over the frequency range from 0.15MHz to 30MHz using a receiver bandwidth of 9kHz.

2.5. Uncertainty

The measurement uncertainty is defined as $\pm 2.02 \text{ dB}$

2.6. Test Result of Conducted Emission

EUT is an DC(12V) power operating device, so the test item is not necessary performed.

3. Peak Power Output

3.1. Test Equipment

Radiated Emission / AC-3

Instrument	Manufacturer	Type No.	Serial No	Cal. Date
Spectrum Analyzer	Agilent	E4446A	MY45300103	2007/03/23

Note: All equipment upon which need to calibrated are with calibration period of 1 year.

3.2. Test Setup



3.3. Limit

The maximum peak power shall be less 1Watt.

3.4. Uncertainty

The measurement uncertainty is defined as \pm 1.27 dB

3.5. Test Result of Peak Power Output

Product	:	Bluetooth handsfree speaker
Test Item	:	Peak Power Output
Test Site	:	AC-3
Test Mode	:	Mode 1: Transmitter

Channel No.	Frequency	Measurement	Required Limit	Result
	(MHz)	(dBm)	(dBm)	
Channel 00	2402.00	-6.70	1 Watt= 30 dBm	Pass
Channel 39	2441.00	-6.79	1 Watt= 30 dBm	Pass
Channel 78	2480.00	-6.74	1 Watt= 30 dBm	Pass

Channel 00 (2402MHz)





Agilent 09:34:02 Oct 8, 2006 Sweep ¥. Sweep Time Ch Freq 2.441 GHz Trig Free 500.0 ms Auto Man Channel Power Sweep Time 500.0 ms Sweep Single <u>Cont</u> Ref 10 dBm Atten 20 dB Auto Sweep #Avg Time Log <u>Norm</u> Accy 10 dB/ Gate 0n <u>0ff</u> Gate Setup Center 2.441 0 GHz Span 100 MHz #Res BW 1 MHz #Sweep 500 ms (601 pts) #VBW 1 MHz Points **Power Spectral Density Channel Power** 601 -6.79 dBm /20.0000 MHz -79.81 dBm/Hz File Operation Status, A:\SCREN467.GIF file saved

Channel 39 (2441MHz)

Channel 78 (2480MHz)



4. Radiated Emission

4.1. Test Equipment

Radiated Emission / AC-2

Instrument	Manufacturer	Type No.	Serial No	Cal. Date
Spectrum Analyzer	Agilent	E4446A	MY45300103	2007/03/11
EMI Test Receiver	R&S	ESCI	100175	2006/11/25
Preamplifier	Quietek	AP-025C	QT-AP003	2006/11/25
Preamplifier	Quietek	AP-180C	CHM-0602013	2007/03/20
Bilog Type Antenna	Schaffner	CBL6112B	2932	2006/10/26
Broad-Band Horn Antenna	Schwarzbeck	BBHA9120D	499	2006/11/25
Temperature/Humidity Meter	zhicheng	ZC1-2	QT-TH002	2007/03/30

Note: All equipment upon which need to calibrated are with calibration period of 1 year.

4.2. Test Setup

Under 1GHz Test Setup:



Above 1GHz Test Setup:



4.3. Limits

> General Radiated Emission Limits

Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 20dB below the level of the fundamental or to the general radiated emission limits in paragraph 15.209, whichever is the lesser attenuation.

FCC Part 15 Subpart C Paragraph 15.209 Limits					
Frequency MHz	uV/m @3m	dBuV/m@3m			
30-88	100	40			
88-216	150	43.5			
216-960	200	46			
Above 960	500	54			

Remarks: 1. RF Voltage $(dBuV) = 20 \log RF$ Voltage (uV)

- 2. In the Above Table, the tighter limit applies at the band edges.
- 3. Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system.

4.4. Test Procedure

The EUT and its simulators are placed on a turn table which is 0.8 meter above ground. The turn table can rotate 360 degrees to determine the position of the maximum emission level. The EUT was positioned such that the distance from antenna to the EUT was 3 meters.

The antenna can move up and down between 1 meter and 4 meters to find out the maximum emission level.

Both horizontal and vertical polarization of the antenna are set on measurement. In order to find the maximum emission, all of the interface cables must be manipulated according to ANSI C63.4: 2003 on radiated measurement.

The additional latch filter below 1GHz was used to measure the level of harmonics radiated emission during field dtrength of harmonics measurement.

The bandwidth below 1GHz setting on the field strength meter (R&S Test Receiver ESCS 30)is 120 kHz, above 1GHz are 1 MHz.

The frequency range from 30MHz to 10th harminics is checked.

4.5. Uncertainty

The measurement uncertainty above 1G is defined as \pm 3.9 dB under 1G is defined as \pm 3.8 dB

4.6. Test Result of Radiated Emission

Engineer : Johnwang	
Site : AC-2	Time : 2006/10/11 - 10:10
Limit : FCC_SpartC_15.209_03M_QP	Margin : 0
EUT : Bluetooth handsfree speaker	Probe : CBL6141A_4278(30-2000MHz) - HORIZONTAL
Power : DC 3.7V	Note : Mode1: Transmit (2402MHz)



		Frequency	Correct Factor	Reading Level	Measure Level	Margin	Limit	Detector Type
		(MHz)	(dB)	(dBuV)	(dBuV/m)	(dB)	(dBuV/m)	
1		67.183	-16.919	51.353	34.434	-5.566	40.000	QUASIPEAK
2		117.300	-12.751	48.910	36.159	-7.361	43.520	QUASIPEAK
3	*	144.783	-11.616	50.912	39.296	-4.224	43.520	QUASIPEAK
4		299.983	-10.132	45.436	35.304	-10.716	46.020	QUASIPEAK
5		531.167	-5.328	38.174	32.847	-13.173	46.020	QUASIPEAK
6		639.483	-2.513	35.573	33.060	-12.960	46.020	QUASIPEAK

Note:

- 2. " * ", means this data is the worst emission level.
- 3. Measurement Level = Reading Level + Correct Factor

Engineer : Johnwang	
Site : AC-2	Time : 2006/10/11 - 10:12
Limit : FCC_SpartC_15.209_03M_QP	Margin : 0
EUT : Bluetooth handsfree speaker	Probe : CBL6141A_4278(30-2000MHz) - VERTICAL
Power : DC 3.7V	Note : Mode1: Transmit (2402MHz)



		Frequency	Correct Factor	Reading Level	Measure Level	Margin	Limit	Detector Type
		(MHz)	(dB)	(dBuV)	(dBuV/m)	(dB)	(dBuV/m)	
1		47.783	-10.102	43.102	33.000	-7.000	40.000	QUASIPEAK
2	*	60.717	-15.655	52.993	37.337	-2.663	40.000	QUASIPEAK
3		96.283	-14.519	49.924	35.405	-8.115	43.520	QUASIPEAK
4		164.183	-12.616	44.376	31.760	-11.760	43.520	QUASIPEAK
5		299.983	-10.132	41.654	31.522	-14.498	46.020	QUASIPEAK
6		442.250	-6.819	35.786	28.967	-17.053	46.020	QUASIPEAK

Note:

- 2. " * ", means this data is the worst emission level.
- 3. Measurement Level = Reading Level + Correct Factor

Engineer : Johnwang	
Site : AC-2	Time : 2006/10/11 - 10:13
Limit : FCC_SpartC_15.209_03M_QP	Margin : 0
EUT : Bluetooth handsfree speaker	Probe : CBL6141A_4278(30-2000MHz) - HORIZONTAL
Power : DC 3.7V	Note : Mode1: Transmit (2441MHz)



		Frequency	Correct Factor	Reading Level	Measure Level	Margin	Limit	Detector Type
		(MHz)	(dB)	(dBuV)	(dBuV/m)	(dB)	(dBuV/m)	
1		67.183	-16.919	51.129	34.210	-5.790	40.000	QUASIPEAK
2		91.433	-15.001	51.474	36.473	-7.047	43.520	QUASIPEAK
3		117.300	-12.751	48.958	36.207	-7.313	43.520	QUASIPEAK
4	*	159.333	-12.239	50.035	37.796	-5.724	43.520	QUASIPEAK
5		299.983	-10.132	45.949	35.817	-10.203	46.020	QUASIPEAK
6		531.167	-5.328	38.124	32.797	-13.223	46.020	QUASIPEAK

Note:

- 2. " * ", means this data is the worst emission level.
- 3. Measurement Level = Reading Level + Correct Factor

Engineer : Johnwang	
Site : AC-2	Time : 2006/10/11 - 10:16
Limit : FCC_SpartC_15.209_03M_QP	Margin : 0
EUT : Bluetooth handsfree speaker	Probe : CBL6141A_4278(30-2000MHz) - VERTICAL
Power : DC 3.7V	Note : Mode1: Transmit (2441MHz)



		Frequency	Correct Factor	Reading Level	Measure Level	Margin	Limit	Detector Type
		(MHz)	(dB)	(dBuV)	(dBuV/m)	(dB)	(dBuV/m)	
1	*	60.717	-15.655	53.647	37.991	-2.009	40.000	QUASIPEAK
2		91.433	-15.001	50.267	35.266	-8.254	43.520	QUASIPEAK
3		151.250	-11.899	47.417	35.518	-8.002	43.520	QUASIPEAK
4		167.417	-12.893	46.985	34.092	-9.428	43.520	QUASIPEAK
5		299.983	-10.132	42.277	32.145	-13.875	46.020	QUASIPEAK
6		330.700	-8.892	40.159	31.267	-14.753	46.020	QUASIPEAK

Note:

- 2. " * ", means this data is the worst emission level.
- 3. Measurement Level = Reading Level + Correct Factor

Engineer : Johnwang	
Site : AC-2	Time : 2006/10/11 - 10:20
Limit : FCC_SpartC_15.209_03M_QP	Margin : 0
EUT : Bluetooth handsfree speaker	Probe : CBL6141A_4278(30-2000MHz) - HORIZONTAL
Power : DC 3.7V	Note : Mode1: Transmit (2480MHz)



		Frequency	Correct Factor	Reading Level	Measure Level	Margin	Limit	Detector Type
		(MHz)	(dB)	(dBuV)	(dBuV/m)	(dB)	(dBuV/m)	
1		47.783	-10.102	41.520	31.418	-8.582	40.000	QUASIPEAK
2		65.567	-16.689	51.209	34.519	-5.481	40.000	QUASIPEAK
3	*	91.433	-15.001	53.123	38.122	-5.398	43.520	QUASIPEAK
4		160.950	-12.345	50.019	37.674	-5.846	43.520	QUASIPEAK
5		299.983	-10.132	45.387	35.255	-10.765	46.020	QUASIPEAK
6		532.783	-5.321	38.590	33.269	-12.751	46.020	QUASIPEAK

Note:

- 2. " * ", means this data is the worst emission level.
- 3. Measurement Level = Reading Level + Correct Factor

Engineer : Johnwang	
Site : AC-2	Time : 2006/10/11 - 10:23
Limit : FCC_SpartC_15.209_03M_QP	Margin : 0
EUT : Bluetooth handsfree speaker	Probe : CBL6141A_4278(30-2000MHz) - VERTICAL
Power : DC 3.7V	Note : Mode1: Transmit (2480MHz)



		Frequency	Correct Factor	Reading Level	Measure Level	Margin	Limit	Detector Type
		(MHz)	(dB)	(dBuV)	(dBuV/m)	(dB)	(dBuV/m)	
1		47.783	-10.102	43.075	32.973	-7.027	40.000	QUASIPEAK
2	*	67.183	-16.919	53.355	36.436	-3.564	40.000	QUASIPEAK
3		96.283	-14.519	49.472	34.953	-8.567	43.520	QUASIPEAK
4		159.333	-12.239	43.461	31.222	-12.298	43.520	QUASIPEAK
5		299.983	-10.132	41.798	31.666	-14.354	46.020	QUASIPEAK
6		432.550	-6.920	35.845	28.925	-17.095	46.020	QUASIPEAK

Note:

- 2. " * ", means this data is the worst emission level.
- 3. Measurement Level = Reading Level + Correct Factor

Engineer : Johnwang	
Site : AC-2	Time : 2006/10/10 - 15:54
Limit : FCC_SpartC_15.209_03M_PK	Margin : 0
EUT : Bluetooth handsfree speaker	Probe : 9120D_(1G-18G) - HORIZONTAL
Power : DC 3.7V	Note : Mode1: Transmit (2402MHz)



		Frequency	Correct Factor	Reading Level	Measure Level	Margin	Limit	Detector Type
		(MHz)	(dB)	(dBuV)	(dBuV/m)	(dB)	(dBuV/m)	
1	*	4796.667	4.834	57.604	62.437	-11.533	73.970	PEAK
2		8423.333	14.297	35.059	49.356	-24.614	73.970	PEAK
3		13665.000	23.470	34.539	58.009	-15.961	73.970	PEAK

Note:

- 2. " * ", means this data is the worst emission level.
- 3. Measurement Level = Reading Level + Correct Factor

Engineer : Johnwang	
Site : AC-2	Time : 2006/10/10 - 15:54
Limit : FCC_SpartC_15.209_03M_AV	Margin : 0
EUT : Bluetooth handsfree speaker	Probe : 9120D_(1G-18G) - HORIZONTAL
Power : DC 3.7V	Note : Mode1: Transmit (2402MHz)



		Frequency	Correct Factor	Reading Level	Measure Level	Margin	Limit	Detector Type
		(MHz)	(dB)	(dBuV)	(dBuV/m)	(dB)	(dBuV/m)	
1	*	4796.667	4.834	41.260	46.093	-7.877	53.970	AVERAGE
2		8423.333	14.297	20.180	34.477	-19.493	53.970	AVERAGE
3		13665.000	23.470	19.478	42.948	-11.022	53.970	AVERAGE

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average

measurements as necessary.

2. " * ", means this data is the worst emission level.

Engineer : Johnwang	
Site : AC-2	Time : 2006/10/10 - 16:00
Limit : FCC_SpartC_15.209_03M_PK	Margin : 0
EUT : Bluetooth handsfree speaker	Probe : 9120D_(1G-18G) - VERTICAL
Power : DC 3.7V	Note : Mode1: Transmit (2402MHz)



		Frequency	Correct Factor	Reading Level	Measure Level	Margin	Limit	Detector Type
		(MHz)	(dB)	(dBuV)	(dBuV/m)	(dB)	(dBuV/m)	
1		2388.333	-1.664	47.756	46.093	-27.877	73.970	PEAK
2	*	4796.667	4.834	51.071	55.904	-18.066	73.970	PEAK
3		7063.333	14.896	34.155	49.052	-24.918	73.970	PEAK

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average

measurements as necessary.

2. " * ", means this data is the worst emission level.

Engineer : Johnwang	
Site : AC-2	Time : 2006/10/10 - 16:00
Limit : FCC_SpartC_15.209_03M_AV	Margin : 0
EUT : Bluetooth handsfree speaker	Probe : 9120D_(1G-18G) - VERTICAL
Power : DC 3.7V	Note : Mode1: Transmit (2402MHz)



		Frequency	Correct Factor	Reading Level	Measure Level	Margin	Limit	Detector Type
		(MHz)	(dB)	(dBuV)	(dBuV/m)	(dB)	(dBuV/m)	
1		2388.333	-1.664	32.554	30.891	-23.079	53.970	AVERAGE
2	*	4796.667	4.834	44.286	49.119	-4.851	53.970	AVERAGE
3		7063.333	14.896	19.884	34.781	-19.189	53.970	AVERAGE

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average

measurements as necessary.

2. " * ", means this data is the worst emission level.

Engineer : Johnwang	
Site : AC-2	Time : 2006/10/10 - 16:11
Limit : FCC_SpartC_15.209_03M_PK	Margin : 0
EUT : Bluetooth handsfree speaker	Probe : 9120D_(1G-18G) - HORIZONTAL
Power : DC 3.7V	Note : Mode1: Transmit (2441MHz)



		Frequency	Correct Factor	Reading Level	Measure Level	Margin	Limit	Detector Type
		(MHz)	(dB)	(dBuV)	(dBuV/m)	(dB)	(dBuV/m)	
1	*	4881.667	5.034	60.253	65.286	-8.684	73.970	PEAK
2		7460.000	15.090	34.760	49.850	-24.120	73.970	PEAK
3		11143.333	20.044	34.597	54.640	-19.330	73.970	PEAK

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average

measurements as necessary.

2. " * ", means this data is the worst emission level.

Engineer : Johnwang	
Site : AC-2	Time : 2006/10/10 - 16:11
Limit : FCC_SpartC_15.209_03M_AV	Margin : 0
EUT : Bluetooth handsfree speaker	Probe : 9120D_(1G-18G) - HORIZONTAL
Power : DC 3.7V	Note : Mode1: Transmit (2441MHz)



		Frequency	Correct Factor	Reading Level	Measure Level	Margin	Limit	Detector Type
		(MHz)	(dB)	(dBuV)	(dBuV/m)	(dB)	(dBuV/m)	
1	*	4881.667	5.034	42.576	47.609	-6.361	53.970	AVERAGE
2		7450.000	15.107	21.166	36.274	-17.696	53.970	AVERAGE
3		11143.333	20.044	21.008	41.051	-12.919	53.970	AVERAGE

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average

measurements as necessary.

2. " * ", means this data is the worst emission level.

Engineer : Johnwang	
Site : AC-2	Time : 2006/10/10 - 16:17
Limit : FCC_SpartC_15.209_03M_PK	Margin : 0
EUT : Bluetooth handsfree speaker	Probe : 9120D_(1G-18G) - VERTICAL
Power : DC 3.7V	Note : Mode1: Transmit (2441MHz)



		Frequency	Correct Factor	Reading Level	Measure Level	Margin	Limit	Detector Type
		(MHz)	(dB)	(dBuV)	(dBuV/m)	(dB)	(dBuV/m)	
1	*	4881.667	5.034	56.672	61.705	-12.265	73.970	PEAK
2		7460.000	15.090	39.010	54.100	-19.870	73.970	PEAK
3		11058.333	20.170	34.838	55.008	-18.962	73.970	PEAK

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average

measurements as necessary.

2. " * ", means this data is the worst emission level.

Engineer : Johnwang	
Site : AC-2	Time : 2006/10/10 - 16:17
Limit : FCC_SpartC_15.209_03M_AV	Margin : 0
EUT : Bluetooth handsfree speaker	Probe : 9120D_(1G-18G) - VERTICAL
Power : DC 3.7V	Note : Mode1: Transmit (2441MHz)



		Frequency	Correct Factor	Reading Level	Measure Level	Margin	Limit	Detector Type
		(MHz)	(dB)	(dBuV)	(dBuV/m)	(dB)	(dBuV/m)	
1	*	4881.667	5.034	38.552	43.585	-10.385	53.970	AVERAGE
2		7460.000	15.090	24.785	39.875	-14.095	53.970	AVERAGE
3		11053.333	20.179	21.154	41.333	-12.637	53.970	AVERAGE

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average

measurements as necessary.

2. " * ", means this data is the worst emission level.

Engineer : Johnwang	
Site : AC-2	Time : 2006/10/10 - 16:23
Limit : FCC_SpartC_15.209_03M_PK	Margin : 0
EUT : Bluetooth handsfree speaker	Probe : 9120D_(1G-18G) - HORIZONTAL
Power : DC 3.7V	Note : Mode1: Transmit (2480MHz)



		Frequency	Correct Factor	Reading Level	Measure Level	Margin	Limit	Detector Type
		(MHz)	(dB)	(dBuV)	(dBuV/m)	(dB)	(dBuV/m)	
1	*	4966.667	5.234	61.252	66.485	-7.485	73.970	PEAK
2		7460.000	15.090	35.300	50.390	-23.580	73.970	PEAK
3		12871.667	20.834	35.400	56.233	-17.737	73.970	PEAK

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average

measurements as necessary.

2. " * ", means this data is the worst emission level.

Engineer : Johnwang	
Site : AC-2	Time : 2006/10/10 - 16:23
Limit : FCC_SpartC_15.209_03M_AV	Margin : 0
EUT : Bluetooth handsfree speaker	Probe : 9120D_(1G-18G) - HORIZONTAL
Power : DC 3.7V	Note : Mode1: Transmit (2480MHz)



		Frequency	Correct Factor	Reading Level	Measure Level	Margin	Limit	Detector Type
		(MHz)	(dB)	(dBuV)	(dBuV/m)	(dB)	(dBuV/m)	
1	*	4966.667	5.234	42.578	47.811	-6.159	53.970	AVERAGE
2		7460.000	15.090	22.547	37.637	-16.333	53.970	AVERAGE
3		12871.667	20.834	20.655	41.488	-12.482	53.970	AVERAGE

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average

measurements as necessary.

2. " * ", means this data is the worst emission level.

Engineer : Johnwang	
Site : AC-2	Time : 2006/10/10 - 16:26
Limit : FCC_SpartC_15.209_03M_PK	Margin : 0
EUT : Bluetooth handsfree speaker	Probe : 9120D_(1G-18G) - VERTICAL
Power : DC 3.7V	Note : Mode1: Transmit (2480MHz)



		Frequency	Correct Factor	Reading Level	Measure Level	Margin	Limit	Detector Type
		(MHz)	(dB)	(dBuV)	(dBuV/m)	(dB)	(dBuV/m)	
1	*	4966.667	5.234	61.583	66.816	-7.154	73.970	PEAK
2		7460.000	15.090	37.005	52.095	-21.875	73.970	PEAK
3		11058.333	20.170	34.189	54.359	-19.611	73.970	PEAK

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average

measurements as necessary.

2. " * ", means this data is the worst emission level.

Engineer : Johnwang	
Site : AC-2	Time : 2006/10/10 - 16:26
Limit : FCC_SpartC_15.209_03M_AV	Margin : 0
EUT : Bluetooth handsfree speaker	Probe : 9120D_(1G-18G) - VERTICAL
Power : DC 3.7V	Note : Mode1: Transmit (2480MHz)



		Frequency	Correct Factor	Reading Level	Measure Level	Margin	Limit	Detector Type
		(MHz)	(dB)	(dBuV)	(dBuV/m)	(dB)	(dBuV/m)	
1	*	4966.667	5.234	44.321	49.554	-4.416	53.970	AVERAGE
2		7460.000	15.090	22.587	37.677	-16.293	53.970	AVERAGE
3		11058.333	20.170	21.168	41.338	-12.632	53.970	AVERAGE

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average

measurements as necessary.

2. " * ", means this data is the worst emission level.



Conducted Spurious - Figure Channel 00 (2402MHz)



Conducted Spurious - Figure Channel 39 (2441MHz)



Conducted Spurious - Figure Channel 78 (2480MHz)

5. Band Edge

5.1. Test Equipment

Radiated Emission / AC-2

Instrument	Manufacturer	Type No.	Serial No	Cal. Date
Spectrum Analyzer	Agilent	E4446A	MY45300103	2007/03/11
EMI Test Receiver	R&S	ESCI	100175	2006/11/25
Preamplifier	Quietek	AP-025C	QT-AP003	2006/11/25
Preamplifier	Quietek	AP-180C	CHM-0602013	2007/03/20
Bilog Type Antenna	Schaffner	CBL6112B	2932	2006/10/26
Broad-Band Horn Antenna	Schwarzbeck	BBHA9120D	499	2006/11/25
Temperature/Humidity Meter	zhicheng	ZC1-2	QT-TH002	2007/03/30

Note: All equipment upon which need to calibrated are with calibration period of 1 year.

5.2. Test Setup

Under 1GHz Test Setup:



Above 1GHz Test Setup:



5.3. Limit

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum 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. Attenuation below the general limits specified in Section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a) (see Section 15.205(c)).

5.4. Test Procedure

The EUT and its simulators are placed on a turn table which is 0.8 meter above ground. The turn table can rotate 360 degrees to determine the position of the maximum emission level. The EUT was positioned such that the distance from antenna to the EUT was 3 meters.

The antenna can move up and down between 1 meter and 4 meters to find out the maximum emission level.

Both horizontal and vertical polarization of the antenna are set on measurement. In order to find the maximum emission, all of the interface cables must be manipulated according to ANSI C63.4:2003 on radiated measurement.

The bandwidth below 1GHz setting on the field strength meter (R&S Test Receiver ESCS 30)is 120 kHz, above 1GHz are 1 MHz.

5.5. Uncertainty

The measurement uncertainty above 1G is defined as \pm 3.9 dB under 1G is defined as \pm 3.8 dB

5.6. Test Result of Band Edge

Product	:	Bluetooth handsfree speaker
Test Item	:	Band Edge
Test Site	:	AC-2
Test Mode	:	Mode 1: Transmitter (2402MHz)

RF Radiated Measurement:

Channel No.	Frequency (MHz)	Required Limit (dBc)	Result	
00	<2400	>20	Pass	

RF Radiated Measurement (Horizontal):

Channel No.	Frequency (MHz)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Result
00 (Peak)	2386.833	40.733	37.000	74.00	54.00	Pass
00 (Average)				74.00	54.00	Pass

Figure Channel 00:

(Horizontal)



Note:

RBW=1MHz, VBW=1MHz, Sweep Time=500ms.

RF Radiated Measurement:				
Test Mode	:	Mode 1: Transmitter (2402MHz)		
Test Site	:	AC-2		
Test Item	:	Band Edge		
Product	:	Bluetooth handsfree speaker		

Channel No.	Channel No. Frequency (MHz)		Result
00	<2400	>20	Pass

RF Radiated Measurement (Vertical):

Channel No.	Frequency (MHz)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Result
00 (Peak)	2386.083	39.700	35.969	74.00	54.00	Pass
00(Average)				74.00	54.00	Pass

Figure Channel 00:

(Vertical)



Note:

RBW=1MHz, VBW=1MHz, Sweep Time=500ms.

Product	:	Bluetooth handsfree speaker	
Test Item	:	Band Edge	
Test Site	:	AC-2	
Test Mode	:	Mode 1: Transmitter (2480MHz)	
RF Radiated Measurement:			

Channel No.	Channel No. Frequency (MHz)		Result
78	>2483.5	>20	Pass

RF Radiated Measurement (Horizontal):

Channel No.	Frequency (MHz)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Result
78(Peak)	2483.500	38.370	34.545	74.00	54.00	Pass
78(Average)				74.00	54.00	Pass

Figure Channel 78:

(Horizontal)



Note:

RBW=1MHz, VBW=1MHz, Sweep Time=500ms.

Product	:	Bluetooth handsfree speaker
Test Item	:	Band Edge
Test Site	:	AC-2
Test Mode	:	Mode 1: Transmitter (2480MHz)
		, , , , , , , , , , , , , , , , , , , ,

RF Radiated Measurement:

Channel No.	Channel No. Frequency (MHz)		Result
78	>2483.5	>20	Pass

RF Radiated Measurement (Vertical):

Channel No.	Frequency (MHz)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Result
78(Peak)	2483.500	36.985	33.160	74.00	54.00	Pass
78(Average)				74.00	54.00	Pass



Note:

RBW=1MHz, VBW=1MHz, Sweep Time=500ms.

6. Channel Number

6.1. Test Equipment

Radiated	Emission /	AC-3
Radiated	Linisolon /	$n \cup J$

Instrument	Manufacturer	Type No.	Serial No	Cal. Date
Spectrum Analyzer	Agilent	E4446A	MY45300103	2007/03/11

Note: All equipment upon which need to calibrated are with calibration period of 1 year.

6.2. Test Setup



6.3. Limit

Frequency hopping systems operating in the 2400-2483.5 MHz bands shall use at least 15 hopping frequencies.

6.4. Uncertainty

The measurement uncertainty is defined as \pm 200kHz

6.5. Test Result of Channel Number

Product	:	Bluetooth handsfree speaker
Test Item	:	Channel Number
Test Site	:	AC-3
Test Mode	:	Mode 1: Transmitter

Frequency Range	Measurement	Required Limit	Result	
(MHz)	(Hopping Channel)	(Hopping Channel)		
2402 ~ 2480	2402 ~ 2480 79		Pass	



Frequency (2402-2421MHz)





Frequency (2442-2461MHz)







7. Channel Separation

7.1. Test Equipment

Instrument	Manufacturer	Type No.	Serial No	Cal. Date
Spectrum Analyzer	Agilent	E4446A	MY45300103	2007/03/11

Note: All equipment upon which need to calibrated are with calibration period of 1 year.

7.2. Test Setup



7.3. Limit

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. 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 20 dB bandwidth of the hopping channel, whichever is greater, provided the systems operate with an output power no greater than 125 mW.

7.4. Uncertainty

The measurement uncertainty is defined as \pm 150Hz

7.5. Test Result of Channel Separation

Product	:	Bluetooth handsfree speaker
Test Item	:	Channel Separation
Test Site	:	AC-3
Test Mode	:	Mode 1: Transmitter

Frequency (MHz)	Measurement Level (MHz)	Required Limit	Result
2402	1.00	>25 kHz or 2/3 * 20 dB BW	Pass
2441	1.00	>25 kHz or 2/3 * 20 dB BW	Pass
2480	1.00	>25 kHz or 2/3 * 20 dB BW	Pass



Channel 00 (2402MHz)





Channel 78 (2480 MHz)



8. Dwell Time

8.1. Test Equipment

Radiated	Emission	/ AC-3
rualatoa		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,

Instrument	Manufacturer	Type No.	Serial No	Cal. Date
Spectrum Analyzer	Agilent	E4446A	MY45300103	2007/03/11

Note: All equipment upon which need to calibrated are with calibration period of 1 year.

8.2. Test Setup



8.3. Limit

The dwell time shall be the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a period of 0.4 seconds multiplied by the number of hopping channels employed.

8.4. Uncertainty

The measurement uncertainty is defined as \pm 25msec

8.5. Test Result of Dwell Time

Product	:	Bluetooth handsfree speaker
Test Item	:	Dwell Time
Test Site	:	AC-3
Test Mode	:	Mode 1: Transmitter

Channel	Measurement Level	Required Limit	Decult
(MHz)	(ms)	(sec.)	Result
CH 00 (2402)	125.525	< 0.4	Pass
CH 39 (2441)	125.525	< 0.4	Pass
CH 78 (2480)	120.173	< 0.4	Pass









Channel 39 (2441MHz)





Channel 78 (2480MHz)

Occupancy Time of Frequency Hopping System

Test Time Period: 0.4*79=31.6sec , Hopping Times Within 1sec: 40/50msec=800 hops/sec.

A) 2402MHz The Maximum Occupancy Time Within 31.6sec: $(391.7 \ \mu \ s*800)/79*31.6=125.525$ msec °

B) 2441MHz The Maximum Occupancy Time Within 31.6sec: (391.7 μ s*800)/79*31.6= 125.525msec \circ

C) 2480MHz The Maximum Occupancy Time Within 31.6sec: $(375.0 \,\mu \, s*800)/79*31.6= 120.173$ msec \circ

Test Result: The Average Occupancy Time of Each Highest $\,^{\circ}$ Middle and Lowest Channel Is Less Than 0.4sec $\,^{\circ}$ And Corresponds to The Standard $\,^{\circ}$

PS: (1) From Bluetooth Specification, It Hops 1640 Times in 1sec • The Average Occupancy Time of Each 79 Channels is 1640/79 Times, Therefore, We Calculate The Maximum Occupancy Time (worse cars)As Below:

A) 2402Mhz The Occupancy Time of Each Pulse is 0.4msec , The Maximum Occupancy Time within 31.6sec is 0.4msec*1640/79*31.6=289.056msec

B) 2441MHz The Occupancy Time of Each Pulse is 0.4msec , The Maximum Occupancy Time within 31.6sec is 0.4msec*1640/79*31.6=289.056msec

C) 2480MHz The Occupancy Time of Each Pulse is 0.4msec , The Maximum Occupancy Time within 31.6sec is 0.4msec*1640/79*31.6=289.056msec

Test Result: The Maximum Occupancy Time of Each Highest \cdot Middle and Lowest Channel Is Less Than 0.4sec \cdot And Corresponds to The Standard \circ

9. Occupied Bandwidth

9.1. Test Equipment

Instrument	Manufacturer	Type No.	Serial No	Cal. Date
Spectrum Analyzer	Agilent	E4446A	MY45300103	2007/03/11

Note: All equipment upon which need to calibrated are with calibration period of 1 year.

9.2. Test Setup



9.3. Limits

N/A

9.4. Uncertainty

The measurement uncertainty is defined as \pm 1.27 dB

9.5. Test Result of Occupied Bandwidth

Product	:	Bluetooth handsfree speaker	
Test Item	:	Occupied Bandwidth Data	
Test Site	:	AC-3	
Test Mode	:	Mode 1: Transmitter (2402MHz)	

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
00	2402	1120	N/A	Pass
39	2441	1130	N/A	Pass
78	2480	1120	N/A	Pass

Figure Channel 00 (2402MHz)





Figure Channel 39 (2441MHz)



Figure Channel 78 (2480MHz)

10. EMI Reduction Method During Compliance Testing

No modification was made during testing.

Attachment 1: EUT Test Photographs

Test Mode : Mode 1: Transmitter

Description : Front View of Radiated Test for Under 1GHz



Test Mode: Mode 1: TransmitterDescription: Back View of Radiated Test for Under 1GHz





Test Mode : Mode 1: Transmitter

Description : Front View of Radiated Test for Above 1GHz



Test Mode : Mode 1: Transmitter Description : Back View of Radiated Test for Above 1GHz



Attachment 2: EUT Detailed Photographs





(2) EUT Photo





(3) EUT Photo







(5) EUT Photo

























(11) EUT Photo











(14) EUT Photo



(15) EUT Photo

