

# Shenzhen Toby Technology Co., Ltd.

Report No.: TB-FCC142016
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# FCC Radio Test Report FCC ID: 2ADAHCST-02

# **Original Grant**

Report No. : TB-FCC142016

**Applicant**: ShenZhen Conson Technology CO.,Ltd.

**Equipment Under Test (EUT)** 

**EUT Name** : Stanley Cup Bluetooth Speaker

Model No. : CST-02 Series Model : N/A

No.

Brand Name : NHL

**Receipt Date** : 2014-09-17

**Test Date** : 2014-09-17 to 2014-09-25

**Issue Date** : 2014-09-25

**Standards**: FCC Part 15, Subpart C(15.247)

Test Method : ANSI C63.4:2003

Conclusions : PASS

In the configuration tested, the EUT complied with the standards specified above,

The EUT technically complies with the FCC requirements

Test/Witness Engineer :

Approved& Authorized :

This report details the results of the testing carried out on one sample. The results contained in this test report do not relate to other samples of the same product. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in the report.

TB-RF-074-1.0



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# 1. General Information about EUT

#### 1.1 Client Information

**Applicant**: ShenZhen Conson Technology CO.,Ltd.

Address : Room 1309, JunFeng Building GongLe Community, XiXiang Avenue,

BaoAn, ShenZhen, GD, China.

**Manufacturer**: ShenZhen Conson Technology CO.,Ltd.

Address : Room 1309, JunFeng Building GongLe Community, XiXiang Avenue,

BaoAn, ShenZhen, GD, China.

## 1.2 General Description of EUT (Equipment Under Test)

EUT Name	:	Stanley Cup Bluetooth Spe	eaker			
Models No.	:	CST-02				
Model	:	N/A				
Difference						
		Operation Frequency:				
		Bluetooth:2402~2480MHz				
Product		Number of Channel:	Bluetooth:79 Channels see note (2)			
Description	:	Max Peak Output Power:	8-DPSK:-2.039 dBm (Conducted Power)			
		Antenna Gain:	0 dBi PCB Antenna			
		Modulation Type:	GFSK 1Mbps(1 Mbps)			
			π /4-DQPSK(2 Mbps)			
			8-DPSK(3 Mbps)			
Power Supply	:	DC Voltage supplied from	Host System by USB cable			
		DC power by Li-ion Battery	/			
Power Rating	:	DC 5.0V by USB cable.				
		DC 3.7V Li-ion Battery.				
Connecting I/O	:	Please refer to the User's Manual				
Port(S)						
Note:						

#### Note:

- (1) For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.
- (2) This Test Report is FCC Part 15.247 for Bluetooth, and test procedure in accordance with Public Notice: DA 00-705.
- (3) Channel List:

Channel	Frequency	Channel	Frequency	Channel	Frequency
	(MHz)		(MHz)		(MHz)



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

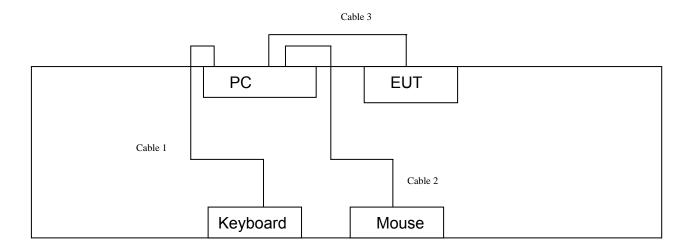
<sup>(4)</sup> The Antenna information about the equipment is provided by the applicant.



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# 1.3 Block Diagram Showing the Configuration of System Tested

#### TX Mode



# 1.4 Description of Support Units

Equipment Information						
Name	Model	FCC ID/DOC	Manufacturer	Used "√"		
LCD Monitor	E170Sc	DOC	DELL	√		
PC	OPTIPLEX380	DOC	DELL	√		
Keyboard	L100	DOC	DELL	√		
Mouse	M-UARDEL7	DOC DELL		√		
Cable Information						
Number	Number Shielded Type Ferrite Core Length Note					
Cable 1	YES	NO	1.5M			
Cable 2	YES	NO	1.5M			
Cable 3	NO	YES	0.25M			

# 1.5 Description of Test Mode

To investigate the maximum EMI emission characteristics generates from EUT, the test system was pre-scanning tested base on the consideration of following EUT operation mode or test configuration mode which possible have effect on EMI emission level. Each of these EUT operation mode(s) or test configuration mode(s) mentioned follow was evaluated respectively.



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For Conducted Test			
Final Test Mode Description			
Mode 1	USB Charging with TX GFSK Mode		

For Radiated Test			
Final Test Mode	Description		
Mode 1	USB Charging with TX GFSK Mode		
Mode 2	TX Mode(GFSK) Channel 00/39/78		
Mode 3	TX Mode( π /4-DQPSK) Channel 00/39/78		
Mode 4	TX Mode(8-DPSK) Channel 00/39/78		
Mode 5	Hopping Mode(GFSK)		
Mode 6	Hopping Mode( π /4-DQPSK)		
Mode 7	Hopping Mode(8-DPSK)		

#### Note:

(1) For all test, we have verified the construction and function in typical operation. And all the test modes were carried out with the EUT in transmitting operation in maximum power with all kinds of data rate. We have pretested all the test mode above.

According to ANSI C63.4 standards, the measurements are performed at the highest, middle, lowest available channels, and the worst case data rate as follows:

TX Mode: GFSK (1 Mbps)
TX Mode: 8-DPSK (3 Mbps)

(2) The EUT is considered a portable unit; it was pre-tested on the positioned of each 3 axis, X-plane, Y-plane and Z-plane. The worst case was found positioned on X-plane as the normal use. Therefore only the test data of this X-plane was used for radiated emission measurement test.

## 1.6 Description of Test Software Setting

During testing channel& Power controlling software provided by the customer was used to control the operating channel as well as the output power level. The RF output power selection is for the setting of RF output power expected by the customer and is going to be fixed on the firmware of the final end product power parameters of Bluetooth mode.

Test Software Version	RDA Bluetooth Host Debug Tool		
Frequency	2402 MHz	2441MHz	2480 MHz
GFSK	DEF	DEF	DEF
π /4-DQPSK	DEF	DEF	DEF
8-DPSK	DEF	DEF	DEF



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## 1.7 Test Facility

The testing was performed by the Shenzhen Toby Technology Co., Ltd., in their facilities located at:

1A/F., Bldg.6, Yusheng Industrial Zone, The National Road No.107 Xixiang Section 467, Xixiang, Bao'an, Shenzhen, Guangdong, China.

At the time of testing, the following bodies accredited the Laboratory:

#### **CNAS (L5813)**

The Laboratory has been accredited by CNAS to ISO/IEC 17025: 2005 General Requirements for the Competence of Testing and Calibration Laboratories for the competence in the field of testing. And the Registration No.: CNAS L5813.

#### FCC List No.: (811562)

The Laboratory is listed in the United States of American Federal Communications Commission (FCC), and the registration number is 811562.

#### IC Registration No.: (11950A-1)

The Laboratory has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing. The site registration: Site# 11950A-1.



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# 2. Test Summary

FCC Part 15 Subpart C(15.247)				
Standard Section	Test Item	Judgment	Remark	
15.203	Antenna Requirement	PASS	N/A	
15.207	Conducted Emission	PASS	N/A	
15.205	Restricted Bands	PASS	N/A	
15.247(a)(1)	Hopping Channel Separation	PASS	N/A	
15.247(a)(1)	Dwell Time	PASS	N/A	
15.247(b)(1)	Peak Output Power	PASS	N/A	
15.247(b)(1)	Number of Hopping Frequency	PASS	N/A	
15.247(c)	Radiated Spurious Emission	PASS	N/A	
Antenna Conducted Spurious Emission		PASS	N/A	
15.247(a) 20dB Bandwidth		PASS	N/A	
Note: N/A is an abbreviation for Not Applicable.				



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# 3. Conducted Emission Test

#### 3.1 Test Standard and Limit

3.1.1Test Standard FCC Part 15.207

#### 3.1.2 Test Limit

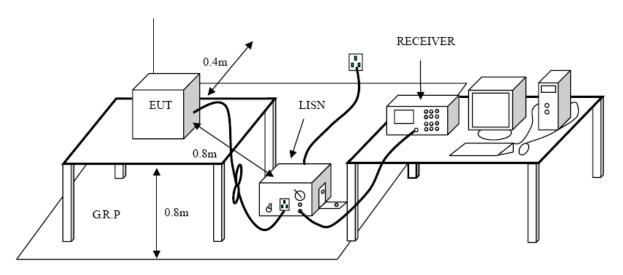
#### **Conducted Emission Test Limit**

Eroguanov	Maximum RF Line Voltage (dBμV)		
Frequency	Quasi-peak Level	Average Level	
150kHz~500kHz	66 ~ 56 *	56 ~ 46 *	
500kHz~5MHz	56	46	
5MHz~30MHz	60	50	

#### Notes:

- (1) \*Decreasing linearly with logarithm of the frequency.
- (2) The lower limit shall apply at the transition frequencies.
- (3) The limit decrease in line with the logarithm of the frequency in the range of 0.15 to 0.50MHz.

# 3.2 Test Setup



#### 3.3 Test Procedure

The EUT was placed 0.8 meters from the horizontal ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipments powered from additional LISN(s). The LISN provide 50 Ohm/50uH of coupling impedance for the measuring instrument.

Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.



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I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.

LISN at least 80 cm from nearest part of EUT chassis

The bandwidth of EMI test receiver is set at 9kHz, and the test frequency band is from 0.15MHz to 30MHz.

# 3.4 Test Equipment Used

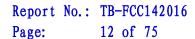
Description	Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due Date
EMI Test	ROHDE&		400004	Aug. 08, 2014	Aug. 07, 2015
Receiver	SCHWARZ	ESCI	100321	Aug. 06, 2014	Aug. 07, 2015
50ΩCoaxial	Anritsu	MP59B	X10321	Aug. 08, 2014	Aug. 07, 2015
Switch	Amisu	MESSE	X10321	Aug. 06, 2014	Aug. 07, 2015
L.I.S.N	Rohde & Schwarz	ENV216	101131	Aug. 08, 2014	Aug. 07, 2015
L.I.S.N	SCHWARZBECK	NNBL 8226-2	8226-2/164	Aug. 08, 2014	Aug. 07, 2015

# 3.5 EUT Operating Mode

Please refer to the description of test mode.

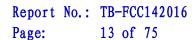
#### 3.6 Test Data

Please see the next page.





EUT: Stanley Cup Bluetooth Speaker **Model Name:** CST-02 25 ℃ Temperature: **Relative Humidity:** 55% **Test Voltage:** AC 120V/60 Hz Terminal: Line **Test Mode:** USB Charging with TX GFSK Mode 2402 MHz Remark: Only worse case is reported 90.0 dBuV QP: AVG: -10 (MHz) 0.150 0.5 30.000 Reading Correct Measure-Over Limit No. Mk. Freq. Level Factor ment dBuV dΒ dBuV dBuV dΒ MHz Detector 0.1740 34.12 9.97 44.09 64.76 -20.67 QΡ 1 0.1740 33.38 43.35 54.76 -11.41 2 9.97 AVG 3 0.5540 35.81 10.05 45.86 56.00 -10.14 QΡ 4 0.5540 28.11 10.05 38.16 46.00 -7.84 AVG 5 0.9780 28.81 10.06 38.87 56.00 -17.13 QΡ 0.9780 21.14 10.06 31.20 46.00 -14.80 AVG 6 QΡ 7 1.5700 28.34 10.06 38.40 56.00 -17.60 1.5700 23.31 10.06 33.37 46.00 -12.63 AVG 8 9 2.2100 28.23 10.05 38.28 56.00 -17.72 QΡ 2.2100 22.55 10.05 32.60 46.00 -13.40 AVG 10 5.2980 25.42 35.39 60.00 -24.61 QΡ 11 9.97 12 5.2980 21.50 9.97 31.47 50.00 -18.53 AVG **Emission Level= Read Level+ Correct Factor** 





EUT: Stanley Cup Bluetooth Speaker **Model Name:** CST-02 25 ℃ **Relative Humidity:** Temperature: 55% **Test Voltage:** AC 120V/60 Hz Terminal: Neutral **Test Mode:** USB Charging with TX GFSK Mode 2402 MHz Remark: Only worse case is reported 90.0 dBuV QP: AVG: -10 0.5 0.150 (MHz) 30.000 Reading Correct Measure-Over Limit No. Mk. Freq. Level Factor ment dBuV dΒ dBuV dBuV dΒ MHz Detector 0.2140 33.84 10.02 43.86 63.04 -19.18 QΡ 1 0.2140 32.21 10.02 42.23 2 53.04 -10.81 AVG 3 0.5540 35.79 10.05 45.84 56.00 -10.16 QΡ 4 0.5540 28.06 10.05 38.11 46.00 -7.89 AVG 5 0.9780 28.86 10.06 38.92 56.00 -17.08 QΡ 0.9780 21.21 10.06 31.27 46.00 -14.73 AVG 6 7 QΡ 1.5700 28.47 10.06 38.53 56.00 -17.47 1.5700 23.36 10.06 33.42 46.00 -12.58 AVG 8 9 2.2100 28.26 10.05 38.31 56.00 -17.69 QΡ 2.2100 22.51 10.05 32.56 46.00 -13.44 AVG 10 5.2979 60.00 -25.17 QΡ 11 24.86 9.97 34.83 12 5.2979 21.31 9.97 31.28 50.00 -18.72 AVG **Emission Level= Read Level+ Correct Factor** 



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# 4. Radiated Emission Test

# 4.1 Test Standard and Limit

4.1.1 Test Standard FCC Part 15.209

4.1.2 Test Limit

#### Radiated Emission Limit (9 kHz~1000MHz)

h	adiated Ellission Ellint (5 kilz	1000111112)
Frequency (MHz	Field Strength (microvolt/meter)	Measurement Distance (meters)
0.009~0.490	2400/F(KHz)	300
0.490~1.705	24000/F(KHz)	30
1.705~30.0	30	30
30~88	100	3
88~216	150	3
216~960	200	3
Above 960	500	3

# Radiated Emission Limit (Above 1000MHz)

Frequency	Class B (dBuV/m)(at 3m)				
(MHz)	Peak	Average			
Above 1000	74	54			

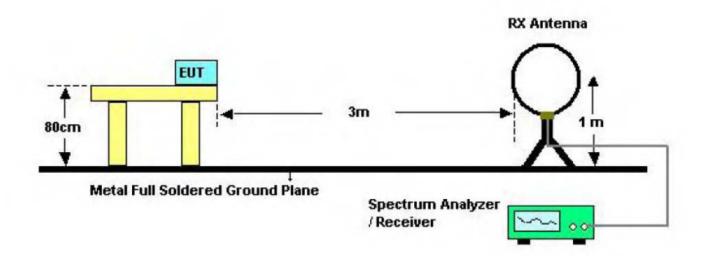
#### Note:

- (1) The tighter limit applies at the band edges.
- (2) Emission Level (dBuV/m)=20log Emission Level (uV/m)

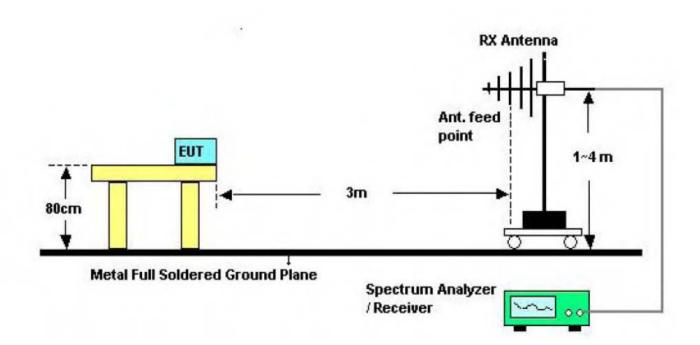


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# 4.2 Test Setup

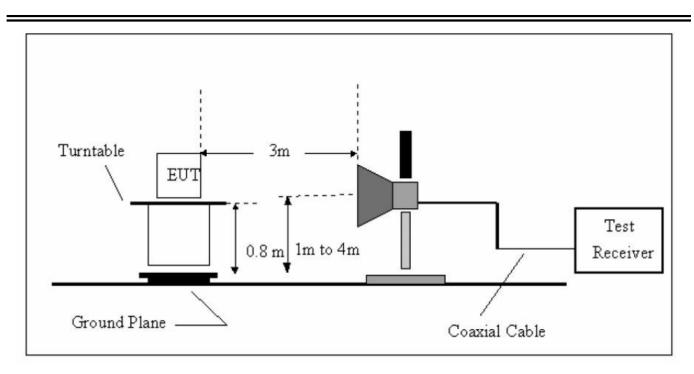


Bellow 30MHz Test Setup



Bellow 1000MHz Test Setup





Above 1GHz Test Setup

#### 4.3 Test Procedure

- (1) The measuring distance of 3m shall be used for measurements at frequency up to 1GHz and above 1 GHz. The EUT was placed on a rotating 0.8m high above the ground, the table was rotated 360 degrees to determine the position of the highest radiation.
- (2) The Test antenna shall vary between 1m and 4m, Both Horizontal and Vertical antenna are set to make measurement.
- (3) The initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured.
- (4) If the Peak Mode measured value compliance with and lower than Quasi Peak Mode Limit Bellow 1 GHz, the EUT shall be deemed to meet QP Limits and then no additional QP Mode measurement performed. But the Peak Value and average value both need to comply with applicable limit above 1 GHz.
- (5) Testing frequency range below 1GHz the measuring instrument use VBW=120 kHz with Quasi-peak detection.
- (6) Testing frequency range above 1GHz the measuring instrument use RBW=1 MHz and VBW=3 MHz with Peak Detector for Peak Values, and use RBW=1 MHz and VBW=10 Hz with Peak Detector for Average Values.
- (7) For the actual test configuration, please see the test setup photo.

# 4.4 EUT Operating Condition

The Equipment Under Test was set to Continual Transmitting in maximum power in TX mode.



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# 4.5 Test Equipment

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Due Date
Spectrum Analyzer	Agilent	E4407B	MY45106456	Mar. 20, 2014	Mar. 19, 2015
Spectrum Analyzer	Rohde & Schwarz	FSP30	DE25181	Aug. 08, 2014	Aug.07, 2015
EMI Test Receiver	Rohde & Schwarz	ESCI	101165	Aug. 08, 2014	Aug.07, 2015
Bilog Antenna	ETS-LINDGREN	3142E	00117537	Mar. 07, 2014	Mar.06, 2015
Horn Antenna	ETS-LINDGREN	3117	00143207	Mar. 07, 2014	Mar.06, 2015
Pre-amplifier	HP	11909A	185903	Mar. 07, 2014	Mar.06, 2015
Pre-amplifier	HP	8447B	3008A00849	Mar. 07, 2014	Mar.06, 2015
Cable	HUBER+SUHNER	100	SUCOFLEX	Mar. 07, 2014	Mar.06, 2015
Signal Generator	Rohde & Schwarz	SML03	IKW682-054	Feb. 11, 2014	Feb.10, 2015
Positioning Controller	ETS-LINDGREN	2090	N/A	N/A	N/A

#### 4.6 Test Data

Remark: During testing above 1GHz the measuring instrument use RBW=1 MHz and VBW=3 MHz with Peak Detector for Peak Values, and use RBW=1 MHz and VBW=10 Hz with Peak Detector for Average Values.

Test data please refer the following pages.



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EUT:			Sta	nley	y Cı	up Bl	ueto	oth Spea	ker	Mod	del N	Name	<b>)</b> :		(	CST-	-02	
Temp	erature:		25	$^{\circ}\!\mathbb{C}$						Rela	ative	e Hu	mid	ity:	į	55%	)	
Test \	Voltage:		DC	5V														
Ant. F	Pol.		Hoi	izo	ntal													
Test N	Mode:		TX	GF	SK	Mod	e 24	02MHz										
Rema	ark:		Onl	y w	ors	e cas	se is	reported										
80.0	dBuV/m																	7
												(RF	)FCC 1	15C 3			1 6	
															Mar	gin -6	dВ	1
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-20																		
30.00	0 40	50	60	70	80			(MHz)			300	400	) 5	00	600	700	1000	_  ).000
				-	Rea	ading	1	Correct	Me	easur	e-							
No	. Mk.	Fre	eq.			evel	9	Factor		ment	_	Lim	nit	(	Ονε	er		
		MH	Ηz		dl	BuV		dB/m	0	lBuV/m	1	dBu	V/m		dB	,	Dete	ctor
1	Ę	53.69	932		50	).12		-24.44		25.68		40	.00	-	14.	32	ре	ak
2	8	31.2	117		48	3.70		-23.21		25.49		40	.00	-	14.	51	ре	ak
3	1	69.5	990		57	7.89		-21.15	,	36.74		43	.50		-6.	76	ре	ak
4	* 1	89.7	385		58	3.08		-20.90	,	37.18		43	.50		-6.3	32	ре	ak
5	2	99.3	158		47	7.05		-17.10	:	29.95	,	46	.00	-	16.	05	ре	ak
6	3	79.9	141		45	5.05		-14.14	,	30.91		46	.00	-	15.	09	ре	ak
*:Maxi	imum data	x:O	ver lim	iit	!:ove	er marg	jin											
<b> </b>																		
Emiss	sion Lev	/eI=	Read	a Le	eve	ı+ Co	orre	ct Factor	•									



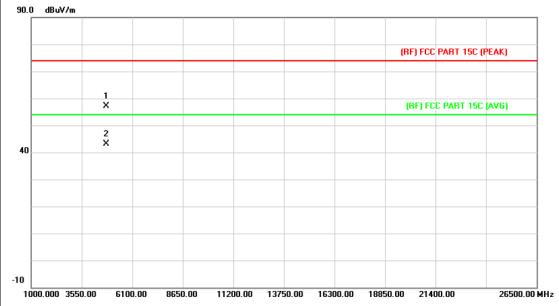
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UT:			Sta	nley	Cu	ıp Blu	ietoot	h Spea	aker	Mo	odel	Nam	<b>e</b> :			CST	Γ-02
emper	rature	): 	25	$^{\circ}$						Re	elativ	e Hu	mid	ity		55%	6
est Vo	ltage	:	DC	5V													
nt. Po	ıl.		Ver	tical													
est Mo	ode:		TX	GFS	SK I	Mode	2402	2MHz									
emark	<b>(</b> :		Onl	ly wo	orse	e case	e is re	portec	i								
30.0 dBu	JV/m																
												(RF)F	CC 150	C 3M	Radia Margi		r
					_							4					_
		1 %			_			3 ×					5 X		6		
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	40	50	60	70 80	0			(MHz)		3	300	400	500	) (	SOO 7	700	1000.
0			60			ding	Co	(MHz)	Mea	asure	e-						1000.
30.000		50	60 eq.		Rea	iding vel					e-	400 Limi			ver		1000.
30.000	40	50	eq.		Rea Le	_	F	rrect	m	asure	e- 		t	0			1000.
30.000	40 Mk.	50 Fr	eq.		Rea Le	vel	F d	orrect	dE	asure nent	e- 	Limi	t //m	0	ver	. [	
30.000 No.	40 Mk.	50 Fr	eq. Hz 932	F	Rea Le dB	vel uv	d -2	orrect actor	dE 3	asure nent BuV/m	e- 	Limi dBuV	t //m )0	0	ver <sub>dB</sub>	[	Detect
0 30.000 No.	40 Mk.	50 Fr MI	eq. - <sub>1z</sub> 932 9625	F	Rea Le dB 58	vel suv .03	-2-	orrect actor B/m 4.44	33- 23-	asurent BuV/m 3.59	e- 	Limi dBuV 40.0	t //m 00	-( -1	ver	1	Detect <b>pea</b>
No.	40 Mk.	Fr Mi 53.6	eq. - <sub>1z</sub> 932 9625	F	Rea Le dB 58 46	vel .03 .82	-2 -2 -2	brrect actor B/m 4.44 1.26	3: 2: 3:	asurent BuV/m 3.59 5.56	e- 	Limi <sup>d</sup> BuV 40.0	t /m 00 50	-( -1	ver dB 6.41 7.9	1 4 4	Detect pea pea
No.	* :	Fr Mi 53.6 148.9	eq. 	F	Rea Le 58 46 52	vel .03 .82 .78	-2- -2- -2- -1-	prrect actor B/m 4.44 1.26 0.72	33 23 33 44	asurent BuV/m 3.59 5.56 2.06	e- 	Limi dBuV 40.0 43.5	t /m 00 50	-( -1 -1	ver dB 6.41 7.9	1 4 4 2	Detect pea pea pea
No.	* :	50 Fr MI 53.6 148.9 177.9 377.2	eq. 932 9625 5092 2591 2458	F	Read Le dB 58 46 52 54 41	vel .03 .82 .78 .99	-2 -2 -2 -1	Dirrect actor B/m 4.44 1.26 0.72 4.31	33 25 33 44 36	asurent BuV/m 3.59 5.56 2.06	e-	Limi dBuV 40.0 43.5 43.5	t 7/m 50 50 50	-( -1 -1 -1	ver dB 6.41 7.9 1.4 5.32	1 4 4 2 6	pea pea pea pea
No.  1 2 3 4 5	* :	53.6 148.9 177.5 377.2	eq. 932 9625 5092 2591 2458	F	Read Le dB 58 46 52 54 41	.03 .82 .78 .99	-2 -2 -2 -1	brrect actor B/m 4.44 1.26 0.72 4.31 0.14	33 25 33 44 36	asurent 3.59 5.56 2.06 0.68	e-	Limi <sup>1</sup> dBuV 40.0 43.5 43.5 46.0	t 7/m 50 50 50	-( -1 -1 -1	ver dB 6.41 7.9 1.4 5.32	1 4 4 2 6	pea pea pea pea pea



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EUT:	Stanley Cup Bluetooth Speaker Model Name : CST-0						
Temperature:	<b>25</b> ℃	Relative Humidity:	55%				
Test Voltage:	DC 3.7V						
Ant. Pol.	Horizontal						
Test Mode:	TX GFSK Mode 2402MHz						
Remark:	No report for the emission which more than 10 dB below the prescribed limit.						

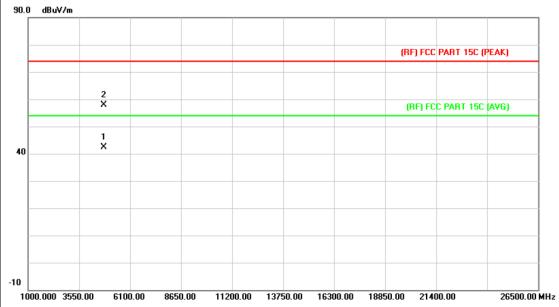


No	o. Mk	. Freq.	Reading Level		Measure- ment	Limit	Over	
		MHz	dBu∨	dB/m	dBuV/m	dBuV/m	dB	Detector
1		4803.365	43.66	13.44	57.10	74.00	-16.90	peak
2	*	4803.654	29.57	13.44	43.01	54.00	-10.99	AVG



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EUT:	Stanley Cup Bluetooth Speaker	Model Name :	CST-02				
Temperature:	<b>25</b> ℃	Relative Humidity:	55%				
Test Voltage:	DC 3.7V						
Ant. Pol.	Vertical						
Test Mode:	TX GFSK Mode 2402MHz						
Remark:	No report for the emission which more than 10 dB below the prescribed limit.						

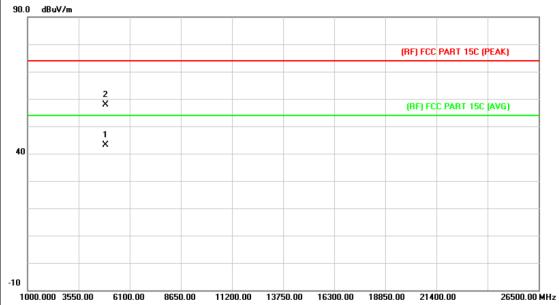


No	o. Mł	c. Freq.	_	Correct Factor	Measure- ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1	*	4803.369	28.92	13.44	42.36	54.00	-11.64	AVG
2		4804.125	44.55	13.44	57.99	74.00	-16.01	peak



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EUT:	Stanley Cup Bluetooth Speaker	Model Name :	CST-02					
Temperature:	25 ℃	Relative Humidity:	55%					
Test Voltage:	DC 3.7V							
Ant. Pol.	Horizontal							
Test Mode:	TX GFSK Mode 2441MHz							
Remark:	No report for the emission which more than 10 dB below the							
	prescribed limit.							

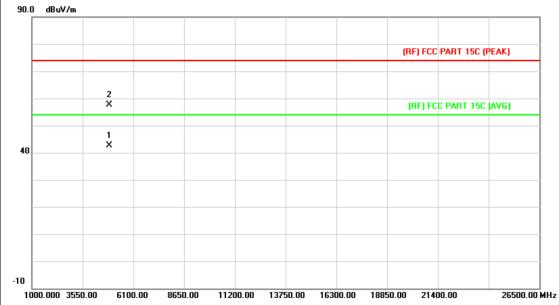


	No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
			MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		*	4880.252	29.16	13.89	43.05	54.00	-10.95	AVG
2			4881.369	44.09	13.90	57.99	74.00	-16.01	peak



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EUT:	Stanley Cup Bluetooth Speaker	Model Name :	CST-02				
Temperature:	<b>25</b> ℃	Relative Humidity: 55%					
Test Voltage:	DC 3.7V						
Ant. Pol.	Vertical						
Test Mode:	TX GFSK Mode 2441MHz						
Remark:	No report for the emission which more than 10 dB below the						
	prescribed limit.						

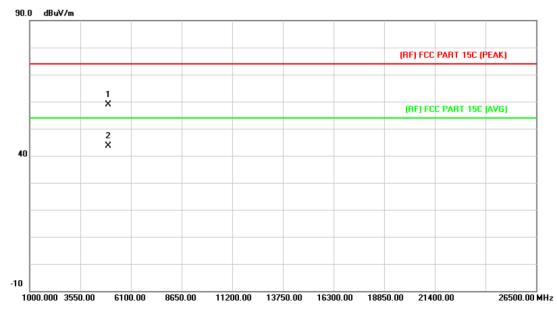


N	lo.	Mk.	Freq.	Reading Level		Measure- ment	Limit	Over	
			MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1	Ą	k	4881.691	28.79	13.90	42.69	54.00	-11.31	AVG
2			4882.055	43.71	13.90	57.61	74.00	-16.39	peak



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EUT:	Stanley Cup Bluetooth Speaker	Model Name :	CST-02		
Temperature:	25 ℃	Relative Humidity:	55%		
Test Voltage:	DC 3.7V				
Ant. Pol.	Horizontal				
Test Mode:	TX GFSK Mode 2480MHz				
Remark:	No report for the emission which more than 10 dB below the prescribed limit.				

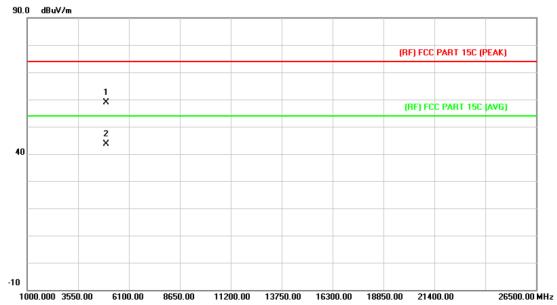


No	. Mk	. Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		4959.680	44.62	14.36	58.98	74.00	-15.02	peak
2	*	4959.780	29.31	14.36	43.67	54.00	-10.33	AVG



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EUT: Stanley Cup Bluetooth Speaker		Model Name :	CST-02			
Temperature:	25 ℃	Relative Humidity:	55%			
Test Voltage: DC 3.7V						
Ant. Pol.	Vertical					
Test Mode:	TX GFSK Mode 2480MHz					
Remark: No report for the emission which more than 10 dB below the prescribed limit.						

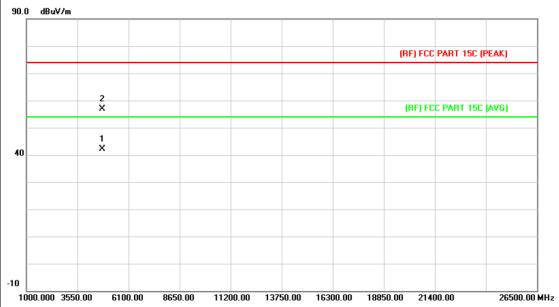


N	lo.	Mk.	Freq.	Reading Level		Measure- ment	Limit	Over	
			MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1			4959.823	44.45	14.36	58.81	74.00	-15.19	peak
2		*	4960.364	29.27	14.36	43.63	54.00	-10.37	AVG



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EUT:	Stanley Cup Bluetooth Speaker	Model Name :	CST-02				
Temperature:	Temperature: 25 °C		55%				
Test Voltage: DC 3.7V							
Ant. Pol.	Horizontal						
Test Mode:	TX 8-DPSK Mode 2402MHz						
Remark: No report for the emission which more than 10 dB below the							
	prescribed limit.						
90.0 dp.3//m							

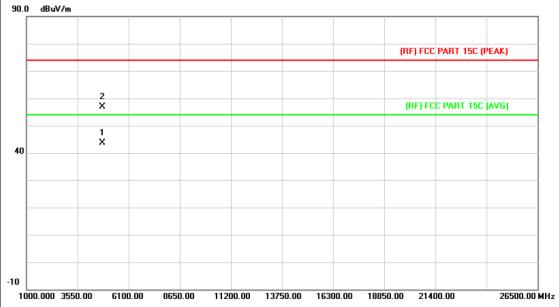


N	No.	Mk.	Freq.	Reading Level		Measure- ment	Limit	Over	
			MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		*	4803.649	28.57	13.44	42.01	54.00	-11.99	AVG
2			4804.001	43.54	13.44	56.98	74.00	-17.02	peak



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EUT:	UT: Stanley Cup Bluetooth Speaker		CST-02				
Temperature:	Temperature: 25 ℃		55%				
Test Voltage: DC 3.7V							
Ant. Pol.	Vertical						
Test Mode:	TX 8-DPSK Mode 2402MHz						
Remark: No report for the emission which more than 10 dB below the							
00 0 ID 111	prescribed limit.						

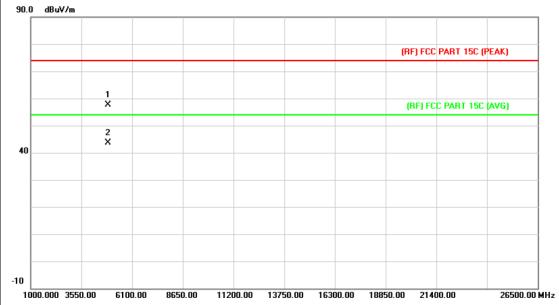


N	lo.	Mk.	Freq.	Reading Level		Measure- ment	Limit	Over	
			MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1	,	k	4803.614	30.17	13.44	43.61	54.00	-10.39	AVG
2			4803.945	43.53	13.44	56.97	74.00	-17.03	peak



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EUT:	Stanley Cup Bluetooth Speaker	Model Name :	CST-02			
Temperature: 25 ℃		Relative Humidity:	55%			
Test Voltage:	Voltage: DC 3.7V					
Ant. Pol.	Horizontal					
Test Mode:	TX 8-DPSK Mode 2441MHz					
Remark:	No report for the emission which more than 10 dB below the prescribed limit.					
	Г					

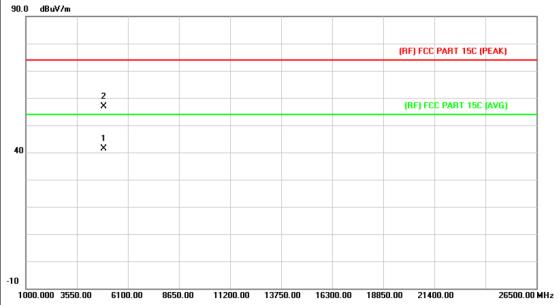


No	o. Mk	. Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		4882.314	43.74	13.90	57.64	74.00	-16.36	peak
2	*	4882.364	29.74	13.90	43.64	54.00	-10.36	AVG



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EUT:	Stanley Cup Bluetooth Speaker	Model Name :	CST-02		
Temperature:	<b>25</b> ℃	Relative Humidity:	55%		
Test Voltage: DC 3.7V					
Ant. Pol.	Vertical				
Test Mode:	TX 8-DPSK Mode 2441MHz				
Remark: No report for the emission which more than 10 dB below the prescribed limit.					
	· ·				

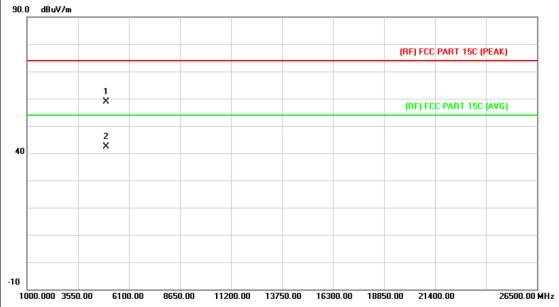


١	No.	Mk.	Freq.	Reading Level		Measure- ment	Limit	Over	
			MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		*	4881.945	27.47	13.90	41.37	54.00	-12.63	AVG
2			4882.014	43.04	13.90	56.94	74.00	-17.06	peak



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EUT:	Stanley Cup Bluetooth Speaker	Model Name :	CST-02			
Temperature:	25 ℃	55%				
Test Voltage:	DC 3.7V					
Ant. Pol.	Horizontal					
Test Mode:	TX 8-DPSK Mode 2480MHz					
Remark:	No report for the emission which more than 10 dB below the					
	prescribed limit.					

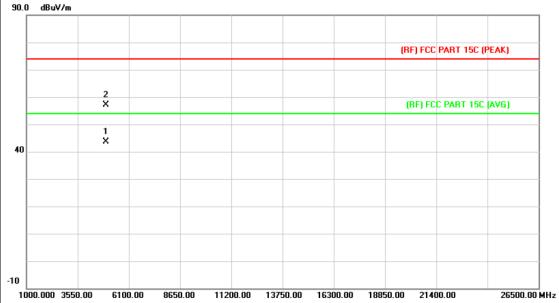


N	o. N	Лk.	Freq.	Reading Level		Measure- ment	Limit	Over	
			MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		4	4959.641	44.48	14.36	58.84	74.00	-15.16	peak
2	*	4	4959.951	28.03	14.36	42.39	54.00	-11.61	AVG



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EUT:	Stanley Cup Bluetooth Speaker	Model Name :	CST-02			
Temperature:	25 ℃ Relative Humidity:		55%			
Test Voltage:	DC 3.7V					
Ant. Pol.	Vertical					
Test Mode:	TX 8-DPSK Mode 2480MHz					
Remark:	No report for the emission which more than 10 dB below the					
	prescribed limit.					



No	o. M	k. Freq.	Reading Level		Measure- ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1	*	4959.361	29.29	14.36	43.65	54.00	-10.35	AVG
2		4960.311	42.67	14.36	57.03	74.00	-16.97	peak



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# 5. Restricted Bands Requirement

#### 5.1 Test Standard and Limit

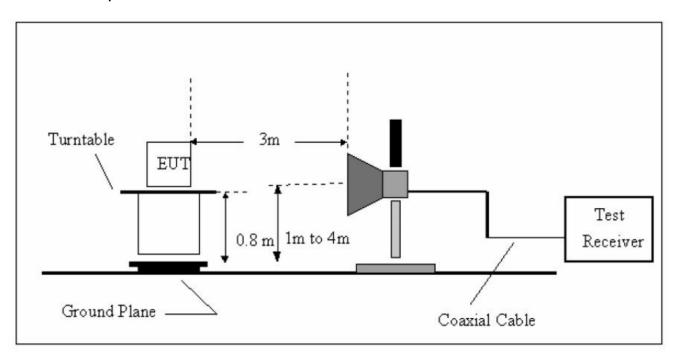
5.1.1 Test Standard FCC Part 15.209 FCC Part 15.205

5.1.2 Test Limit

Class B (dBuV/m)(at 3m)			
Peak	Average		
74	54		
74	54		
	Peak 74		

Note: All restriction bands have been tested, only the worst case is reported.

#### 5.2 Test Setup



#### 5.3 Test Procedure

- (1) The measuring distance of 3m shall be used for measurements at frequency up to 1GHz and above 1 GHz. The EUT was placed on a rotating 0.8m high above ground, the table was rotated 360 degrees to determine the position of the highest radiation.
- (2) The Test antenna shall vary between 1m and 4m, Both Horizontal and Vertical antenna are set to make measurement.
- (3) The initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked



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and then Quasi Peak detector mode re-measured.

(4) If the Peak Mode measured value compliance with and lower than Quasi Peak Mode Limit Bellow 1 GHz, the EUT shall be deemed to meet QP Limits and then no additional QP Mode measurement performed. But the Peak Value and average value both need to comply with applicable limit above 1 GHz.

- (5) Testing frequency range below 1GHz the measuring instrument use VBW=120 kHz with Quasi-peak detection.
- (6) Testing frequency range above 1GHz the measuring instrument use RBW=1 MHz and VBW=3 MHz with Peak Detector for Peak Values, and use RBW=1 MHz and VBW=10 Hz with Peak Detector for Average Values.
- (7) For the actual test configuration, please see the test setup photo.

## 5.4 EUT Operating Condition

The Equipment Under Test was set to Continual Transmitting in maximum power.

#### 5.5 Test Equipment

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Due Date
Spectrum Analyzer	Agilent	E4407B	MY45106456	Mar. 20, 2014	Mar. 19, 2015
Spectrum Analyzer	Rohde & Schwarz	FSP30	DE25181	Aug. 08, 2014	Aug. 07, 2015
EMI Test Receiver	Rohde & Schwarz	ESCI	101165	Aug. 08, 2014	Aug.07, 2015
Bilog Antenna	ETS-LINDGREN	3142E	00117537	Mar. 07, 2014	Mar.06, 2015
Horn Antenna	ETS-LINDGREN	3117	00143207	Mar. 07, 2014	Mar.06, 2015
Pre-amplifier	HP	11909A	185903	Mar. 07, 2014	Mar.06, 2015
Pre-amplifier	HP	8447B	3008A00849	Mar. 07, 2014	Mar.06, 2015
Cable	HUBER+SUHNE R	100	SUCOFLEX	Mar. 07, 2014	Mar.06, 2015
Signal Generator	Rohde & Schwarz	SML03	IKW682-054	Feb. 11, 2014	Feb.10, 2015
Positioning Controller	ETS-LINDGREN	2090	N/A	N/A	N/A

#### 5.6 Test Data

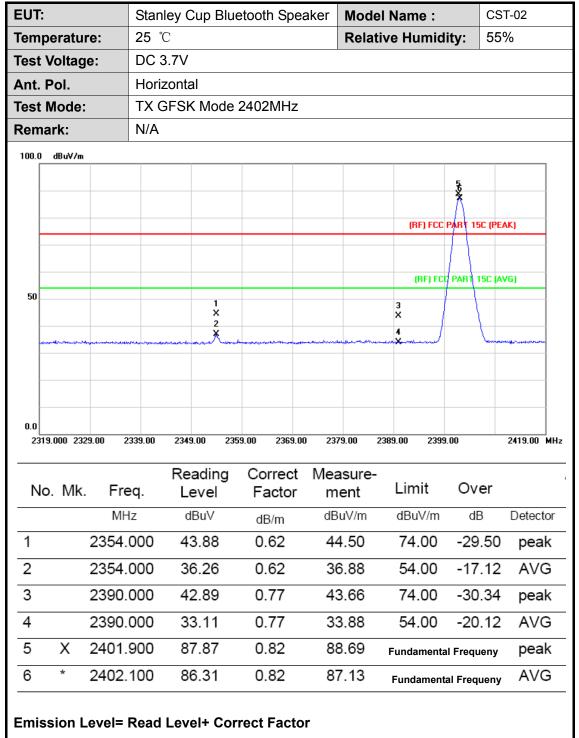
Remark: During testing above 1GHz the measuring instrument use RBW=1 MHz and VBW=3 MHz with Peak Detector for Peak Values, and use RBW=1 MHz and VBW=1 KHz with Peak Detector for Average Values.

All restriction bands have been tested, only the worst case is reported.



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#### (1) Radiation Test



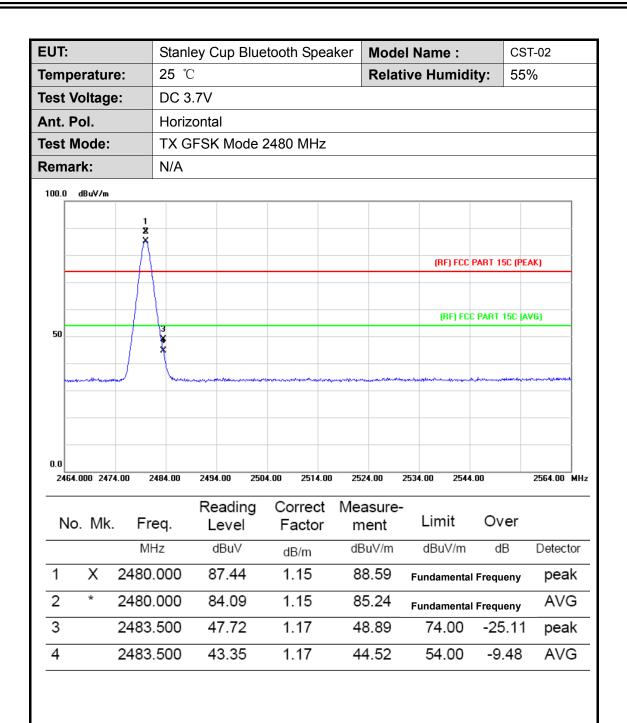


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UT	:		Stanl	ey Cup Blu	etooth Spea	ker <b>Model</b>	Name :	CST-02
em	peratur	e:	<b>25</b> °C			Relati	ve Humidity:	55%
Test Voltage:			DC 3	.7V				
\nt.	Pol.		Verti	cal				
est	Mode:		TX G	FSK Mode	2402MHz			
lem	nark:		N/A					
100.0	dBuV/m							
0.0	19.000 2325	3.00 2:	339.00	2 X 1	59.00 2369.00	2379.00 23	(RF) FCC PART 1  (RF) FCC PART 1  3  X  4  389.00 2399.00	
N	lo. Mk.	Fre	eq.	Reading Level	Correct Factor	Measure- ment	Limit O	ver
		MH	łz	dBuV	dB/m	dBuV/m	dBuV/m c	dB Detector
1		2353.	800	37.31	0.62	37.93	54.00 -10	6.07 AVG
2		2354.	300	45.97	0.62	46.59	74.00 -2	7.41 peak
3		2390.	000	43.86	0.77	44.63	74.00 -29	9.37 peak
4		2390.	000	32.45	0.77	33.22	54.00 -20	0.78 AVG
5	Х	2401.	900	88.54	0.82	89.36	Fundamental Fre	equeny peak
6	*	2402.	100	85.88	0.82	86.70	Fundamental Fre	auenv AVG

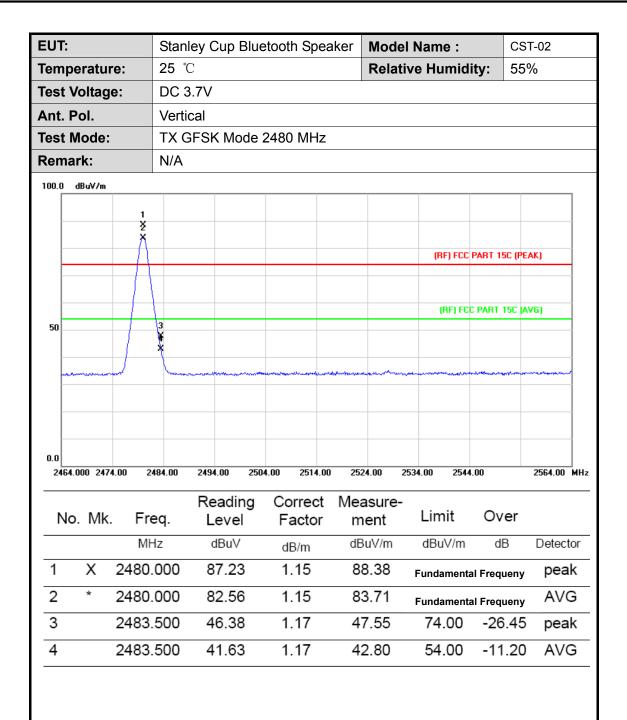


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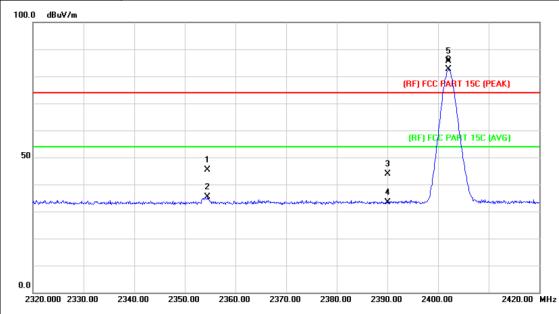


**Emission Level= Read Level+ Correct Factor** 



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EUT:	Stanley Cup Bluetooth Speaker	Model Name :	CST-02				
Temperature:	25 ℃	Relative Humidity:	55%				
Test Voltage:	DC 3.7V						
Ant. Pol.	Horizontal						
Test Mode:	TX 8-DPSK Mode 2402MHz						
Remark:	N/A						
100 0 dB <sub>1</sub> \(\delta \ell_m\)							



No.	Mk	. Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		2354.400	44.66	0.62	45.28	74.00	-28.72	peak
2		2354.500	34.86	0.62	35.48	54.00	-18.52	AVG
3		2390.000	43.08	0.77	43.85	74.00	-30.15	peak
4		2390.000	32.65	0.77	33.42	54.00	-20.58	AVG
5	Χ	2402.000	84.86	0.82	85.68	Fundamental Frequeny		peak
6	*	2402.100	81.81	0.82	82.63	Fundamenta	l Frequeny	AVG

**Emission Level= Read Level+ Correct Factor** 

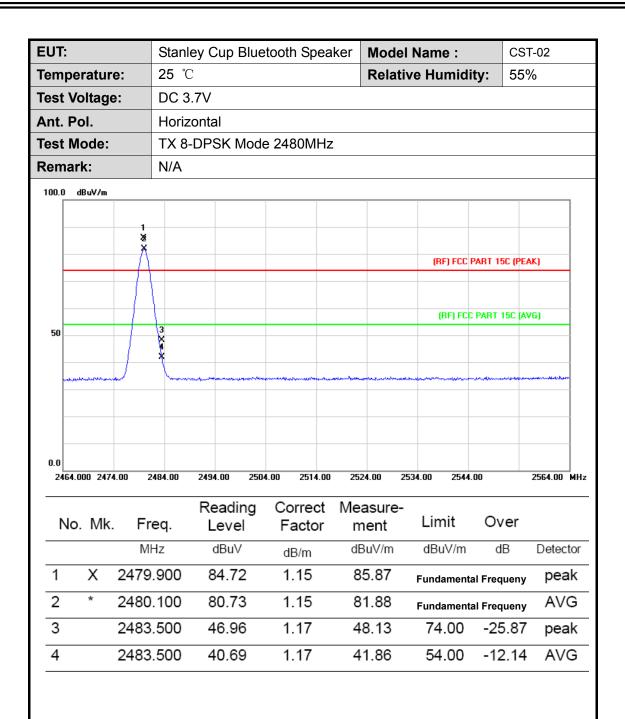


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EUT:			Stan	ley Cup	Blue	tooth Sp	peal	ker	Mod	el Nan	ne :		CS	T-02	
[em	peratu	re:	25 °	С					Rela	tive H	umid	ity	: 55	%	
est	Voltag	e:	DC 3	3.7V											
۸nt.	Pol.		Verti	cal											
est	Mode:		TX 8	-DPSK	Mode	e 2402N	1Hz								
Rem	ark:		N/A												
100.0	dBuV/m														1
												6			
												×			
										(I	RF) FCC	FAR	T 15C (PE/	AK)	
												$\vdash$			
-											(RF) FQ	C PA	RT 15C (A)	/G)	
50				1						3					
				× 2	۲					×					
	and the state of t	-	Y-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1			and the state of t	an <sub>an</sub> ander	udertga.jus#4,X.	and the same of th	X			Juma	aga and against the common page of	
-															
0.0 232	20.000 233	0.00	2340.00	2350.00	2360	0.00 237	0.00	2380	0.00	2390.00	2400	.00		2420.00	∐ MH2
NI	o. Mk.	Er	eq.	Readi	-	Corre			sure		nit		Over		
11	O. IVIK.			Leve		Facto	)[		ent		uV/m			Datas	+
			Hz	dBu\		dB/m			uV/m				dB	Detec	
1		2354		43.6		0.62			1.23		1.00		29.77		
2		2354	.000	34.6	0	0.62		35	5.22	54	1.00	-	18.78	AV	G
3		2390	.000	43.2	4	0.77		44	1.01	74	1.00	•	29.99	pea	ak
4		2390	.000	32.5	8	0.77		33	3.35	54	1.00	-	20.65	AV	G
5	*	2402	.100	83.0	7	0.82		83	3.89	Fund	ament	al Fı	equeny	AV	G
6	Х	2402	.200	86.3	7	0.82		87	7.19	Fund	ament	al F	requeny	pea	ak



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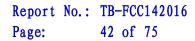
**Emission Level= Read Level+ Correct Factor** 



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EUT				Stan	ley C	up Blu	etoot	:h Spe	aker	Mod	el Nam	ie :	CS	T-02	
Tem	peratu	re:		25 °	C					Rela	tive Hu	ımid	lity: 55	%	
Test	t Voltaç	je:		DC 3	3.7V										
Ant.	Pol.			Verti	cal										
Test	t Mode	:		TX 8	-DPS	K Mod	de 24	80MH	łz						
Ren	nark:			N/A											
100.0	) dBuV/m														_
			2 X X								(R	F) FCC	PART 15C (PE	AK)	
50				3 ¥							(	RF) FC	C PART 15C (A	VG)	
	enterdanteidenteinte	and a		- Amgusta		alaftarakkan er Mangalio		Number of the second	horantzigi di Sanazari	an ann an	an gan gan gan gan gan gan gan gan gan g	togeth gibe gibergan	gangan dikangangkan Promotok di	likar-maj-krisilari (************************************	
0.0 24	64.000 24	74.00	248	84.00	2494.0	DO 25	04.00	2514.0	00 25	24.00	2534.00	2544	1.00	2564.00	MHz
N	lo. Mk	ί.	Fre	q.		ading vel		orrect actor		asure nent	- Lin	nit	Over		
			MHz	Z	dE	Bu∨	dl	B/m	dE	BuV/m	dΒι	ıV/m	dB	Detec	tor
1	*	24	79.9	900	82	2.61	1	.15	8	3.76	Funda	menta	al Frequeny	AV	G
2	Х	24	80.0	000	86	5.19	1	.15	8	7.34	Funda	ament	al Frequeny	pea	ık
3		24	83.5	500	48	3.31	1	.17	4	9.48	74	.00	-24.52	pea	ık
		24			42									AV	

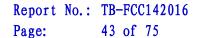
**Emission Level= Read Level+ Correct Factor** 





# (2) Conducted Test

JT:		Stanle	y Cup	Bluetoc	oth Spe	aker	Model	Nam	e:	CST-0
mperatur	e:	25 ℃					Relativ	e Hu	midity:	55%
st Voltage	<b>)</b> :	DC 3.7	7V							
st Mode:		TX GF	SK Mo	de 240	2MHz	/ 2480	MHz			
mark:		N/A								
* A	gilent									
										37975 GHz
Ref 10 Peak	dBm		A	tten 20 di	3					57.5 dBm
Log 10									Ŷ	
dB/									$-\!$	
	Disp	lay Lin	e							
	-24.6	66 dBn	η						+/+	
DI					<b>^</b>		<b>\$</b>	2	سا قىسە	
-24.7 dBm										
Cente	r 2.368 G	Hz							Spa	n 100 MHz
#Res	BW 100 I			#	#VBW 300 kHz			Sweep 10.36 ms (4		
Mark 1			ype req		Axis 00 GHz		Amplit -4.661 dl			
1 2	(	1) F 1) F	req	2.402 2.390	00 GHz 00 GHz			Bm Bm		
1	( (	1) F 1) F 1) F	req	2.402 2.390 2.400	00 GHz		-4.661 dl -58.97 dl	Bm Bm Bm		
1 2 3 4	( ( ( ( ( ( ( ( ( ( ( ( ( ( ( ( ( ( ( (	1) F 1) F 1) F	req req req	2.402 2.390 2.400	00 GHz 00 GHz 00 GHz		-4.661 dl -58.97 dl -58.4 dl	Bm Bm Bm		
1 2 3 4 4	( ( ( (	1) F 1) F 1) F	req req req req	2.402 2.390 2.400 2.379	00 GHz 00 GHz 00 GHz 75 GHz		-4.661 dl -58.97 dl -58.4 dl	Bm Bm Bm		48000 GHz
1 2 3 4	( ( ( (	1) F 1) F 1) F 1) F	req req req req	2.402 2.390 2.400	00 GHz 00 GHz 00 GHz 75 GHz		-4.661 dl -58.97 dl -58.4 dl	Bm Bm Bm		48000 GHz 3.58 dBm
# A Ref 10 Peak Log	( ( ( (	1) F 1) F 1) F 1) F	req req req req	2.402 2.390 2.400 2.379	00 GHz 00 GHz 00 GHz 75 GHz		-4.661 dl -58.97 dl -58.4 dl	Bm Bm Bm		
1 2 3 3 4 4 Ref 10 Peak	gilent	1) F 1) F 1) F 1) F	req feq freq freq A	2.402 2.390 2.400 2.379	00 GHz 00 GHz 00 GHz 75 GHz		-4.661 dl -58.97 dl -58.4 dl	Bm Bm Bm		
Ref 10 Peak Log	gilent  OdBm	1) F 1) F 1) F	req freq freq freq A	2.402 2.390 2.400 2.379	00 GHz 00 GHz 00 GHz 75 GHz		-4.661 dl -58.97 dl -58.4 dl	Bm Bm Bm		
Ref 10 Peak Log	gilent  OdBm	1) F 1) F 1) F 1) F	req freq freq freq A	2.402 2.390 2.400 2.379	00 GHz 00 GHz 00 GHz 75 GHz		-4.661 dl -58.97 dl -58.4 dl	Bm Bm Bm		
Ref 10 Peak Log 10 dB/	gilent  OdBm	1) F 1) F 1) F	req freq freq freq A	2.402 2.390 2.400 2.379	00 GHz 00 GHz 00 GHz 75 GHz		-4.661 dl -58.97 dl -58.4 dl	Bm Bm Bm		
# A Ref 10 Peak Log 10 dB/	gilent  OdBm	lay Lin	req freq freq freq freq	2.402 2.390 2.400 2.379	00 GHz 00 GHz 00 GHz 75 GHz		-4.661 dl -58.97 dl -58.4 dl	Bm Bm Bm		
Ref 10 Peak Log 10 dB/	gilent  OdBm	lay Lin	req freq freq freq freq	2.402 2.390 2.400 2.379	00 GHz 00 GHz 00 GHz 75 GHz		-4.661 dl -58.97 dl -58.4 dl	Bm Bm Bm		
Ref 10 Peak Log 10 dB/	gilent  dBm  Disp -23.5	lay Lin	req freq freq freq freq	2.402 2.390 2.400 2.379	00 GHz 00 GHz 00 GHz 75 GHz		-4.661 dl -58.97 dl -58.4 dl	Bm Bm Bm		3.58 dBm
Ref 10 Peak Log 10 dB/	gilent  Disp -23.5	lay Lin	req freq freq freq freq	2.402 2.390 2.400 2.379	00 GHz 00 GHz 00 GHz 75 GHz	D kHz	-4.661 dl -58.97 dl -58.4 dl -57.5 dl	Bm Bm Bm 3m 3m 3m		3.58 dBm
Ref 10 Peak Log 10 dB/	gilent  Disp -23.5  r 2.516 GBW 100 I	lay Lin 58 dBn	req freq freq freq freq freq freq freq f	2.402 2.390 2.400 2.379	00 GHz 00 GHz 00 GHz 75 GHz 33 4VBW 300 Axis	) kHz	-4.661 dl -58.97 dl -58.4 dl -57.5 dl	Sweep ude	Spa	3.58 dBm
Ref 10 Peak Log 10 dB/	gilent  Disp -23.5  r 2.516 G BW 100 I er Tr	lay Lin 58 dBn 58 dBn 1) F	req freq freq freq freq freq freq freq f	2.402 2.390 2.400 2.379 Atten 20 dl	00 GHz 00 GHz 00 GHz 75 GHz	D kHz	-4.661 dl -58.97 dl -58.4 dl -57.5 dl	Sweep ude 3m Bm Bm Bm	Spa	3.58 dBm





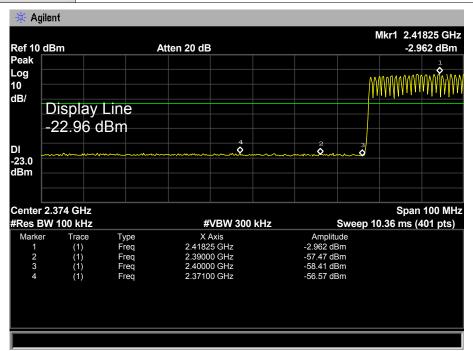
EUT: Stanley Cup Bluetooth Speaker Model Name: CST-02

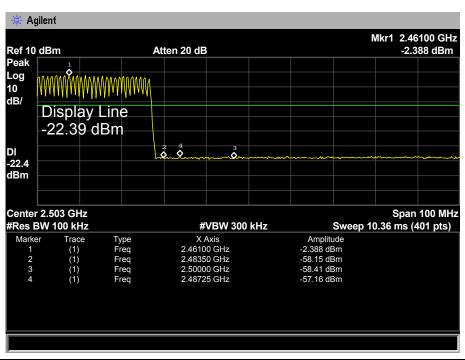
Temperature: 25 ℃ Relative Humidity: 55%

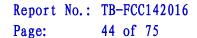
Test Voltage: DC 3.7V

Test Mode: GFSK Hopping Mode

Remark: N/A









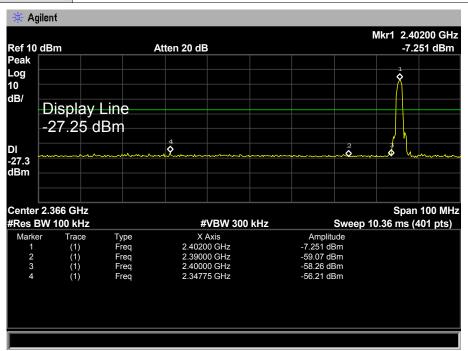
EUT: Stanley Cup Bluetooth Speaker Model Name: CST-02

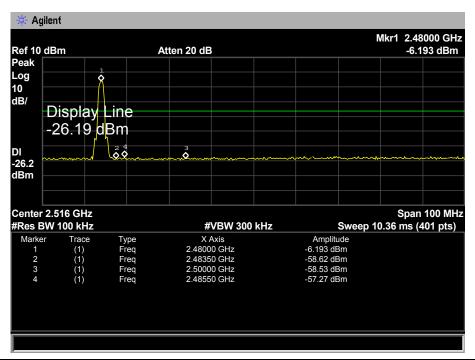
Temperature: 25 ℃ Relative Humidity: 55%

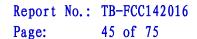
Test Voltage: DC 3.7V

Test Mode: TX 8-DPSK Mode 2402MHz / 2480 MHz

Remark: N/A









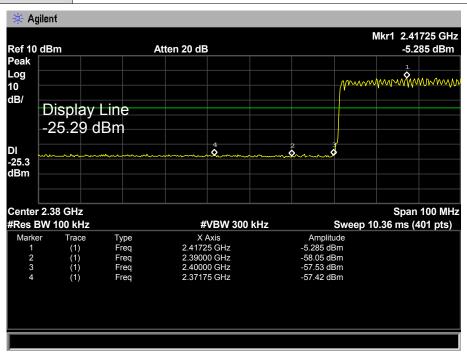
EUT: Stanley Cup Bluetooth Speaker Model Name: CST-02

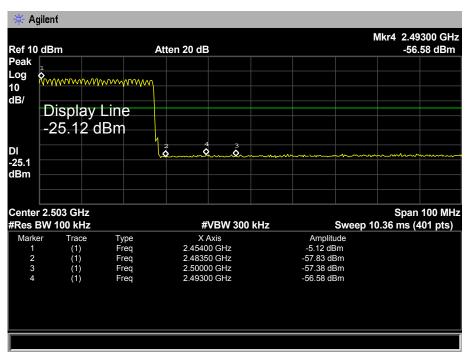
Temperature: 25 ℃ Relative Humidity: 55%

Test Voltage: DC 3.7V

Test Mode: 8-DPSK Hopping Mode

Remark: N/A







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# 6. Number of Hopping Channel

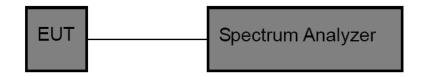
# 6.1 Test Standard and Limit

6.1.1 Test Standard FCC Part 15.247 (a)(1)

6.1.2 Test Limit

Section	Test Item	Limit
15.247	Number of Hopping Channel	>15

## 6.2 Test Setup



### 6.3 Test Procedure

- (1) The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram above.
- (2) Spectrum Setting: RBW=100 KHz, VBW=100 KHz, Sweep time= Auto.

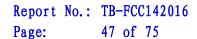
# 6.4 EUT Operating Condition

The EUT was set to the Hopping Mode by the Customer.

## 6.5 Test Equipment

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Due Date
Spectrum Analyzer	Agilent	E4407B	MY45106456	Mar. 20, 2014	Mar. 19, 2015

### 6.6 Test Data





EUT: Stanley Cup Bluetooth Speaker Model Name: CST-02

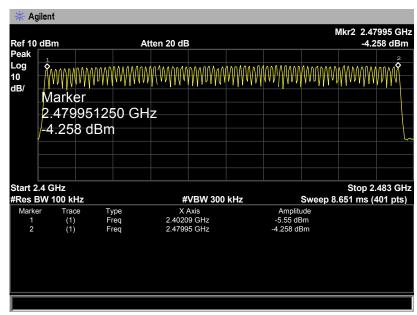
Temperature: 25 ℃ Relative Humidity: 55%

Test Voltage: DC 3.7V

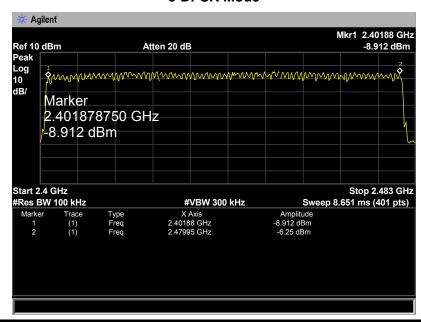
Test Mode: Hopping Mode (GFSK/ 8-DPSK)

	•			
Frequency Range	Quantity of Hopping Channel	Limit		
2402MHz~2480MHz	79	>15		
2402IVITIZ~240UIVITIZ	79			

#### **GFSK Mode**



#### 8-DPSK Mode





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# 7. Average Time of OcCupancy

### 7.1 Test Standard and Limit

5.1.1 Test Standard FCC Part 15.247 (a)(1)

5.1.2 Test Limit

Section	Test Item	Limit	
15.247(a)(1)/ RSS-210	Average Time of	0.4.000	
Annex 8(A8.1d)	OcCupancy	0.4 sec	

### 7.2 Test Setup



### 7.3 Test Procedure

- (1) The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram above.
- (2) Spectrum Setting: RBW=1MHz, VBW=1MHz.
- (3) Use video trigger with the trigger level set to enable triggering only on full pulses.
- (4) Sweep Time is more than once pulse time.
- (5) Set the center frequency on any frequency would be measure and set the frequency span to zero.
- (6) Measure the maximum time duration of one single pulse.
- (7) Set the EUT for packet transmitting.
- (8) Measure the maximum time duration of one single pulse.

## 7.4 EUT Operating Condition

The EUT was set to the Hopping Mode by the Customer.

# 7.5 Test Equipment

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Due Date
Spectrum Analyzer	Agilent	E4407B	MY45106456	Mar. 20, 2014	Mar. 19, 2015

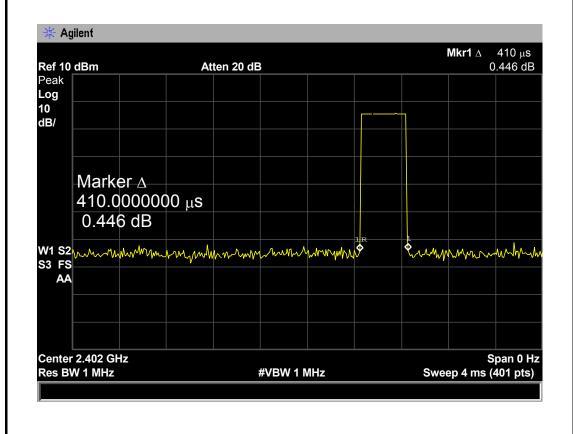


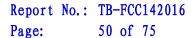
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## 7.6 Test Data

EUT:		Stanley C	up Bluetooth Speaker	Model Na	ame :	CST-02
Temperature:	1	25 ℃		Relative	Humidity:	55%
Test Voltage:	Test Voltage: DC 3.7V					
Test Mode:		Hopping Mode (GFSK DH1)				
Channel	Pu	lse Time	Total of Dwell (ms)	Period Time	Limit	Result
(MHz)		(ms)		(s)	(ms)	rtoourt
(MHz) 2402		(ms) 0.410	131.20	(s)	(ms)	Rooun
			, ,	(s) 31.60	(ms) 400	PASS

## **GFSK Hopping Mode DH1**







S3 FS AA

Center 2.48 GHz

Res BW 1 MHz

**GFSK Hopping Mode DH1** 2441 MHz Agilent Mkr1  $\Delta$  $410 \mu s$ 0.796 dB Ref 10 dBm Atten 20 dB Peak Log 10 dB/ Marker ∆ 410.00<mark>00000 μs</mark> 0.796 dB W1 S2 Querophumeny was a summer of the company of the com S3 FS AA Center 2.441 GHz Span 0 Hz Res BW 1 MHz #VBW 1 MHz Sweep 4 ms (401 pts) **GFSK Hopping Mode DH1** 2480 MHz \* Agilent Mkr1  $\Delta$ 410 μs 0.941 dB Ref 10 dBm Atten 20 dB Peak Log 10 dB/ Marker ∆ 410.0000000 μs 0.941 dB grahm human manufall mande apart work when have

#VBW 1 MHz

Span 0 Hz

Sweep 4 ms (401 pts)

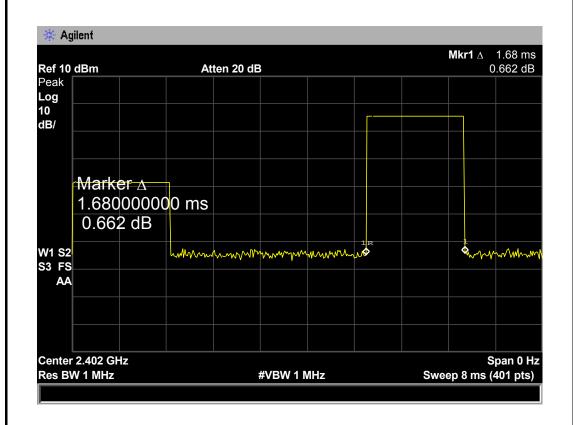


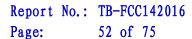
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EUT:	Stanley Cup Bluetooth Speaker	Model Name :	CST-02
Temperature:	<b>25</b> ℃	Relative Humidity:	55%
Test Voltage:	DC 3.7V		
Test Mode:	Hopping Mode (GFSK DH3)		

Channel (MHz)	Pulse Time (ms)	Total of Dwell (ms)	Period Time (s)	Limit (ms)	Result
2402	1.680	268.80			
2441	1.700	272.00	31.60	400	PASS
2480	1.700	272.00			

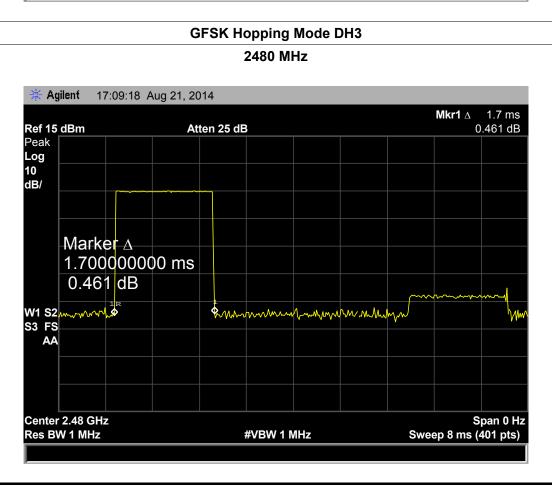
### **GFSK Hopping Mode DH3**







**GFSK Hopping Mode DH3** 2441 MHz Agilent 17:08:40 Aug 21, 2014 Mkr1  $\Delta$ 1.7 ms 0.445 dB Ref 15 dBm Atten 25 dB Peak Log 10 dB/ Marker ∆ 1.700000000 ms 0.445 dB W1 S2 MMhymmy why S3 FS AA Center 2.441 GHz Span 0 Hz Res BW 1 MHz #VBW 1 MHz Sweep 8 ms (401 pts) **GFSK Hopping Mode DH3** 2480 MHz Agilent 17:09:18 Aug 21, 2014 Mkr1  $\Delta$ 1.7 ms Ref 15 dBm Atten 25 dB 0.461 dB Peak Log



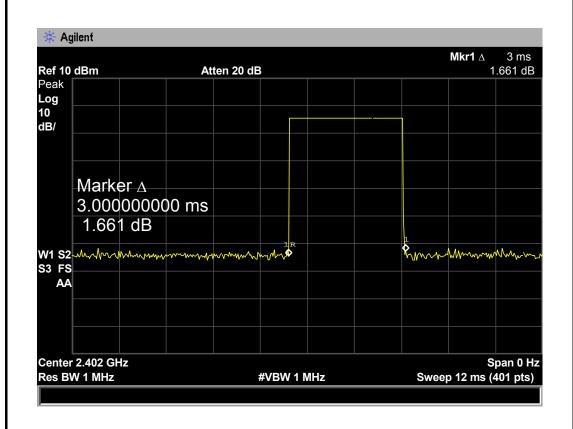


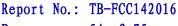
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Startley Cup Bluetooth Speaker	Model Name :	CST-02			
25 ℃	Relative Humidity:	55%			
DC 3.7V	DC 3.7V				
Hopping Mode (GFSK DH5)					
	DC 3.7V	25 °C Relative Humidity: DC 3.7V			

Channel (MHz)	Pulse Time (ms)	Total of Dwell (ms)	Period Time (s)	Limit (ms)	Result
2402	3.000	320.00			
2441	3.000	320.00	31.60	400	PASS
2480	3.000	320.00			

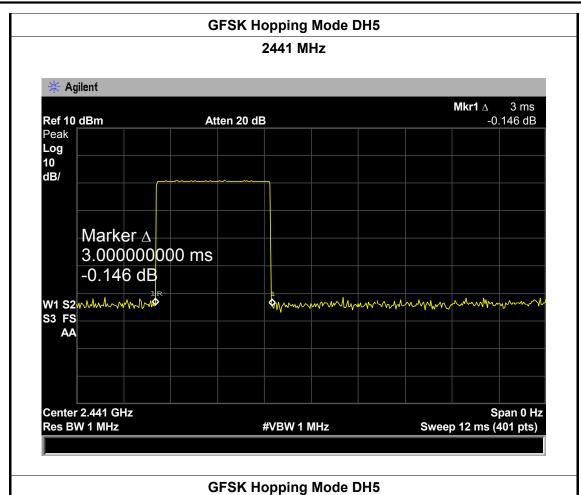
## **GFSK Hopping Mode DH5**

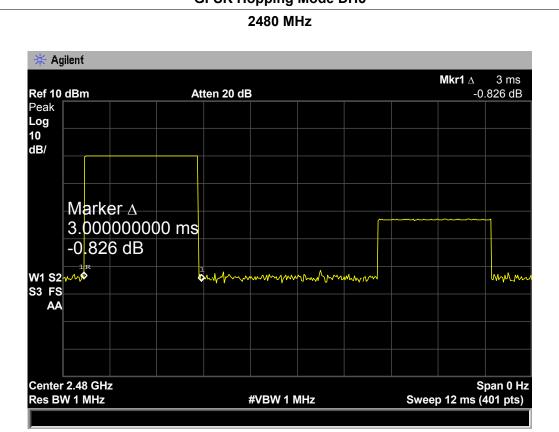






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2480

0.41

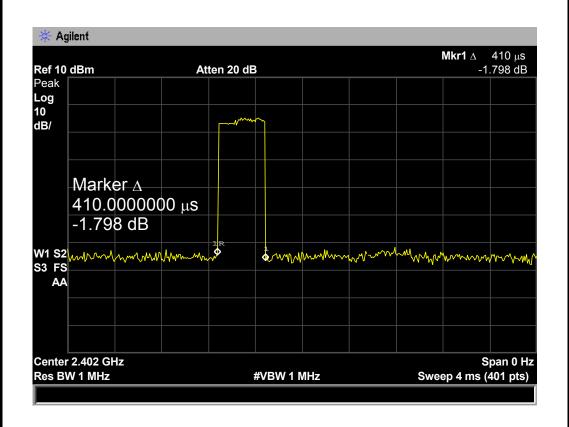
Report No.: TB-FCC142016

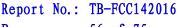
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EUT:	Stanley C		Stanley Cup Bluetooth Speaker Model Name :		CST-02	
Temperature	:	25 ℃		Relative Humidity:		55%
Test Voltage:	est Voltage: DC 3.7V			•		
Test Mode: Hopping Mode (8-DPSK DH1)						
Channel (MHz)	Pu	lse Time (ms)	Total of Dwell (ms)	Period Time (s)	Limit	Result
2402		0.41	131.20	24.0		
2441		0.41	131.20	31.6	400	PASS
			404.00	U		

### 8-DPSK Hopping Mode DH1

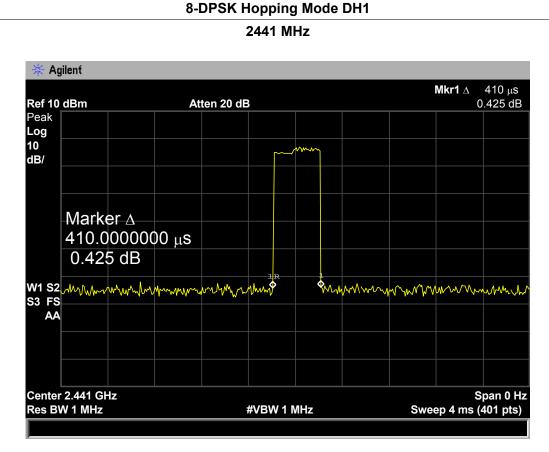
131.20







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# 8-DPSK Hopping Mode DH1 2480 MHz Agilent **Mkr1** $\Delta$ 410 $\mu$ s Ref 10 dBm Atten 20 dB -0.747 dB Peak Log 10 dB/ Marker A 410.0000000 μs -0.747 dB W1 S2 MMMM MMMM S3 FS AΑ Center 2.48 GHz Span 0 Hz Res BW 1 MHz #VBW 1 MHz Sweep 4 ms (401 pts)

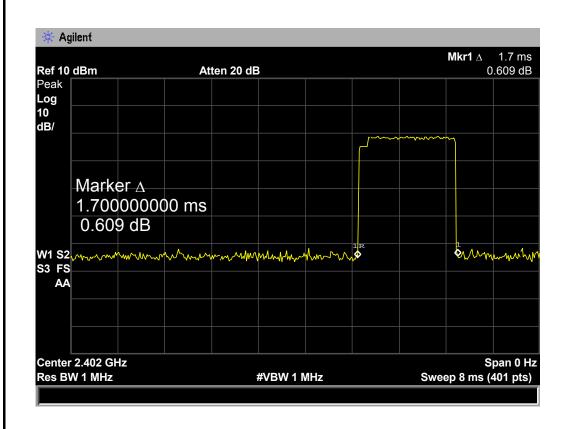


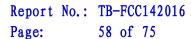
Page: 57 of 75

EUT:	Stanley Cup Bluetooth Speaker	Model Name :	CST-02
Temperature:	25 ℃	Relative Humidity:	55%
Test Voltage:	DC 3.7V		
Test Mode:	Hopping Mode (8-DPSK DH3)		

rest wode.			vious (o-bi oit bilo)			
Channel (MHz)	Pulse Time (ms)		Total of Dwell (ms)		Limit (ms)	Result
2402		1.700	272.00			
2441		1.700	272.00	31.60	400	PASS
2480		1.700	272.00			

### 8-DPSK Hopping Mode DH3





Span 0 Hz

Sweep 8 ms (401 pts)



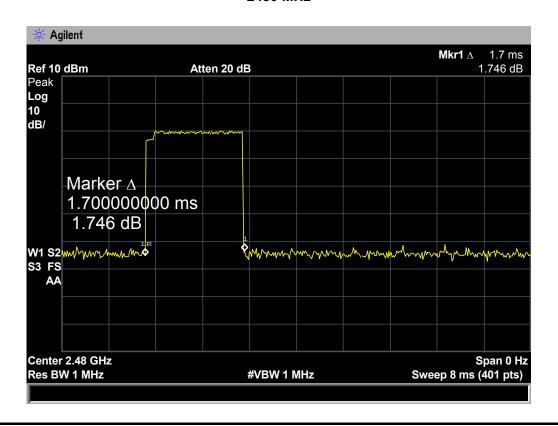
Center 2.441 GHz

Res BW 1 MHz

8-DPSK Hopping Mode DH3 2441 MHz Agilent Mkr1  $\Delta$ 1.7 ms 0.278 dB Ref 10 dBm Atten 20 dB Peak Log 10 dB/ Marker ∆ 1.700000000 ms 0.278 dB Mm W1 S2 S3 FS AA

### 8-DPSK Hopping Mode DH3

#VBW 1 MHz



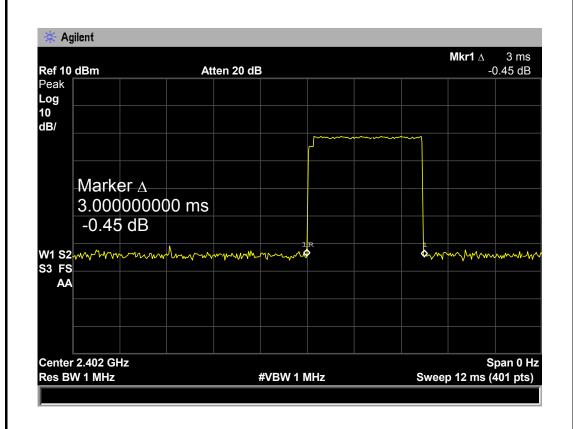


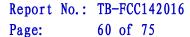
Page: 59 of 75

EUT:		Stanley C	up Bluetooth Speake	Model Na	me :	CST-02
Temperature		25 ℃		Relative H	lumidity:	55%
Test Voltage:		DC 3.7V				
Test Mode:		Hopping I	Mode (8-DPSK DH5)			
Channel	Du	leo Timo		Period	Limit	

Channel (MHz)	Pulse Time (ms)	Total of Dwell (ms)	Period Time (s)	Limit (ms)	Result
2402	3.000	320.00			
2441	3.000	320.00	31.60	400	PASS
2480	3.000	320.00			

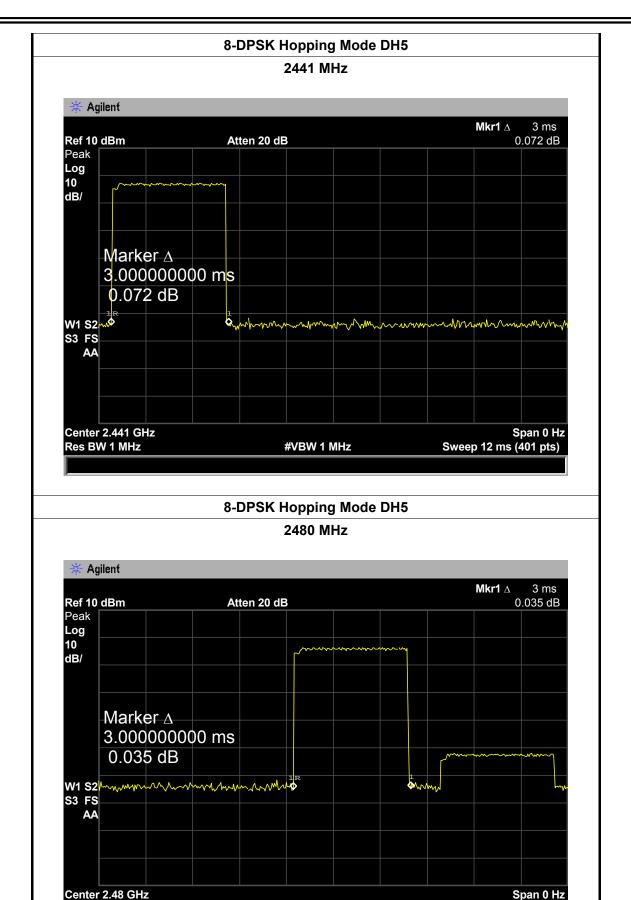
# 8-DPSK Hopping Mode DH5







Res BW 1 MHz



#VBW 1 MHz

Sweep 12 ms (401 pts)



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# 8. Channel Separation and Bandwidth Test

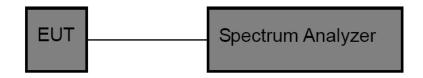
### 8.1 Test Standard and Limit

8.1.1 Test Standard FCC Part 15.247

8.1.2 Test Limit

Test Item	Limit	Frequency Range(MHz)	
Bandwidth	<=1 MHz (20dB bandwidth)	2400~2483.5	
Channel Separation	>25KHz or >two-thirds of the 20 dB bandwidth	2400~2483.5	
Channel Separation	Which is greater	2400~2463.5	

## 8.2 Test Setup



### 8.3 Test Procedure

- (1) The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram above.
- (2) Spectrum Setting:

Channel Separation: RBW=30 kHz, VBW=100 kHz.

Bandwidth: RBW=30 kHz, VBW=100 kHz.

- (3) The bandwidth is measured at an amplitude level reduced 20dB from the reference level. The reference level is the level of the highest amplitude signal observed from the transmitter at the fundamental frequency. Once the reference level is established, the equipment is conditioned with typical modulating signal to produce the worst –case (i.e the widest) bandwidth.
- (4) Measure the channel separation the spectrum analyzer was set to Resolution Bandwidth:30 kHz, and Video Bandwidth:100 kHz. Sweep Time set auto.

## 8.4 EUT Operating Condition

The EUT was set to the Hopping Mode for Channel Separation Test and continuously transmitting for the Bandwidth Test.

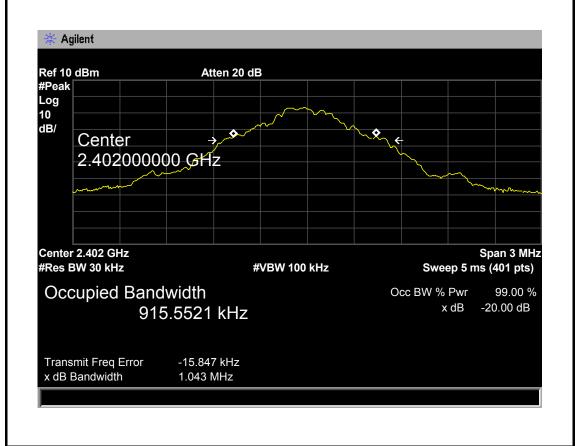


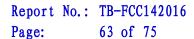
# 8.5 Test Equipment

Description	Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due Date
Spectrum Analyzer	Agilent	E4407B	MY45106456	Mar. 20, 2014	Mar. 19, 2015

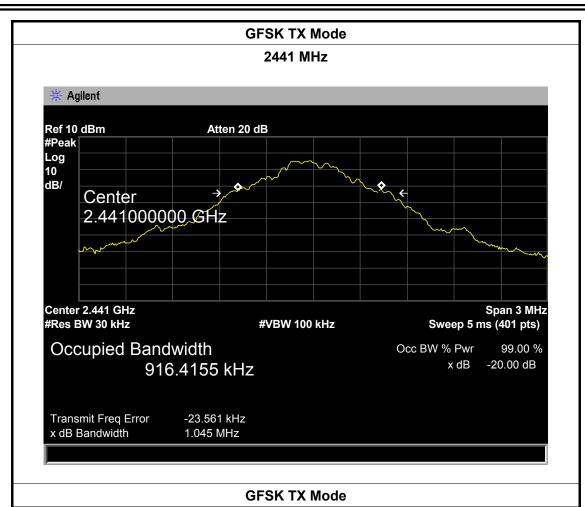
## 8.6 Test Data

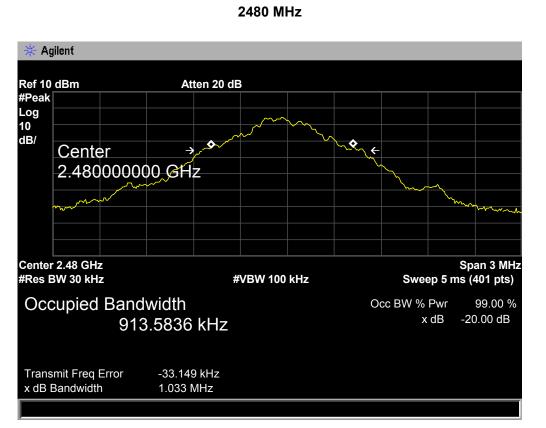
EUT:	Sta	anley Cup Bluetooth Spea	ıker	Model Name :		CST-02
Temperature:	25	5 ℃		Relative Humic	dity:	55%
Test Voltage:	DC	C 3.7V				
Test Mode:	ΤX	( Mode (GFSK)				
Channel frequence	99% OBW (kHz)	20	dB Bandwidth 20d		B Bandwidth	
(MHz)				(kHz)	•	*2/3 (kHz)
2402		915.5521		1043.000		695.33
2441		926.4155		1045.000		696.67
2480 913.5836		1033.000 688.67		688.67		
GFSK TX Mode						
2402 MHz						













EUT: Stanley Cup Bluetooth Speaker Model Name: CST-02

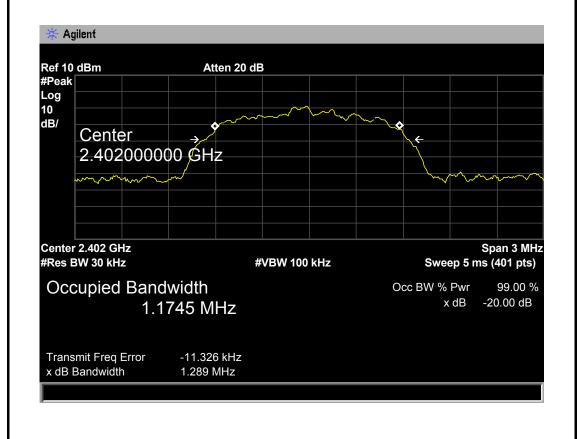
Temperature: 25 ℃ Relative Humidity: 55%

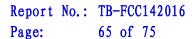
Test Voltage: DC 3.7V

**Test Mode:** TX Mode (8-DPSK)

	, ,		
Channel frequency	99% OBW (kHz)	20dB Bandwidth	20dB Bandwidth
(MHz)		(kHz)	*2/3 (kHz)
2402	1174.50	1289.00	859.33
2441	1175.30	1307.00	871.33
2480	1174.80	1298.00	865.33

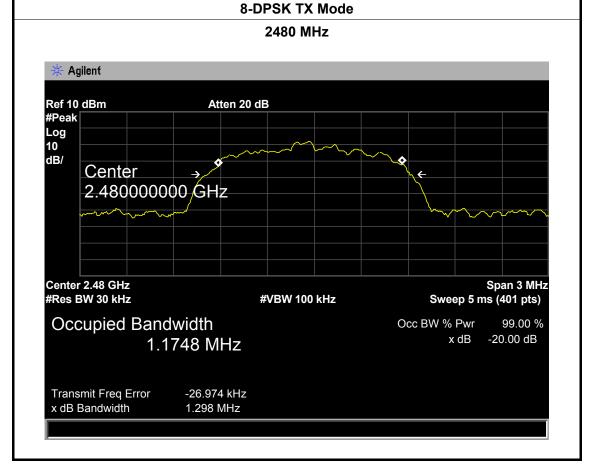
## 8-DPSK TX Mode 2402 MHz







8-DPSK TX Mode 2441 MHz 🔆 Agilent Ref 10 dBm Atten 20 dB #Peak Log 10 dB/ Center 2.441000000 GHz Center 2.441 GHz Span 3 MHz #Res BW 30 kHz **#VBW 100 kHz** Sweep 5 ms (401 pts) Occupied Bandwidth 99.00 % Occ BW % Pwr -20.00 dB 1.1753 MHz x dB Transmit Freq Error -18.923 kHz x dB Bandwidth 1.307 MHz





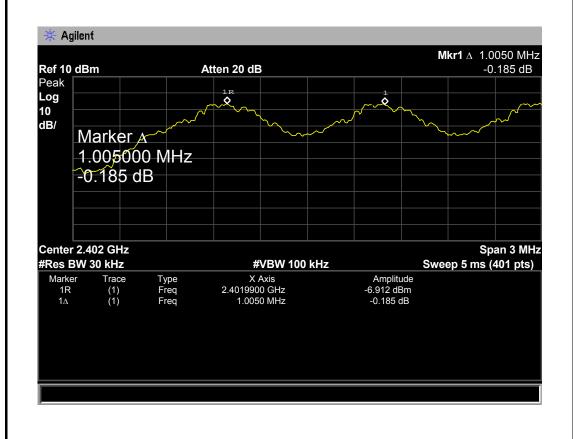
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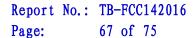
EUT:	Stanley Cup Bluetooth Speaker	Model Name :	CST-02
Temperature:	25 ℃	Relative Humidity:	55%
Test Voltage:	DC 3.7V		

**Test Mode:** Hopping Mode (GFSK)

Channel frequency (MHz)	Separation Read Value (kHz)	Separation Limit (kHz)
2402	1005.00	695.33
2441	1005.00	696.67
2480	1005.00	688.67

### **GFSK Hopping Mode**





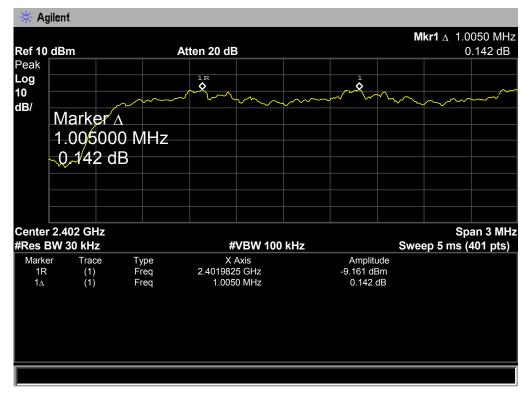


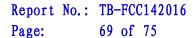




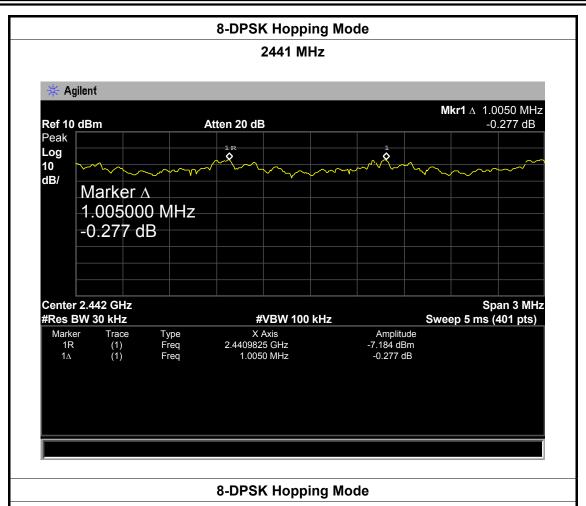
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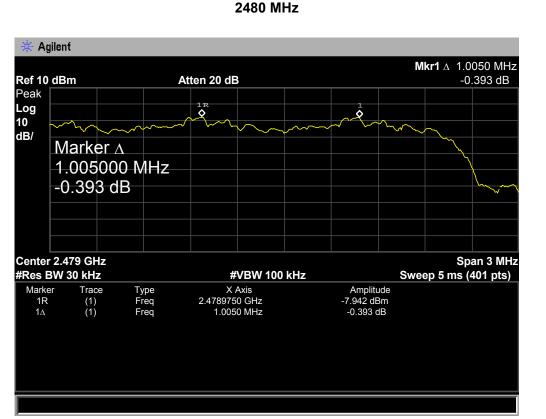
EUT:	Stanley Cup Bluetooth Speaker		Model Name :		CST-02
Temperature:	25 ℃		Relative Humidity:		55%
Test Voltage:	DC 3.7V				
Test Mode:	Hopping N	Mode (8-DPSK)			
Channel frequency (MHz)		Separation Read Value		Separation Limit (kHz)	
		(kHz)			
2402		1005.00		895.33	
2441	1005.00			871.33	
2480 1005.00		865.33		5.33	
8-DPSK Hopping Mode					
2402 MHz					













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# 9. Peak Output Power Test

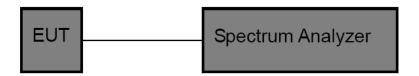
### 9.1 Test Standard and Limit

9.1.1 Test Standard FCC Part 15.247 (b) (1)

9.1.2 Test Limit

Test Item	Limit	Frequency Range(MHz)
Peak Output Power	Hopping Channels>75 Power<1W(30dBm)	2400~2483.5
	Other <125 mW(21dBm)	

# 9.2 Test Setup



### 9.3 Test Procedure

- (1) The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram above.
- (2) Spectrum Setting:

Peak Detector: RBW=1 MHz, VBW=3 MHz for bandwidth less than 1MHz. RBW=3 MHz, VBW=3 MHz for bandwidth more than 1MHz.

## 9.4 EUT Operating Condition

The EUT was set to continuously transmitting in the max power during the test.

# 9.5 Test Equipment

Description	Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due Date
Spectrum Analyzer	Agilent	E4407B	MY45106456	Mar. 20, 2014	Mar. 19, 2015

## 9.6 Test Data

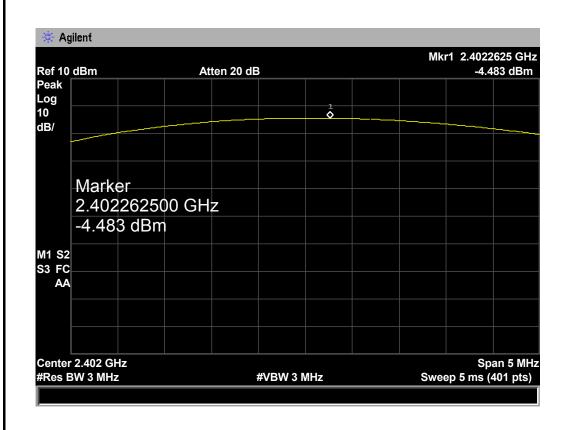


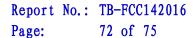
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EUT:	Stanley Cup Bluetooth Speaker	Model Name :	CST-02
Temperature:	25 ℃	Relative Humidity:	55%
Test Voltage:	DC 3.7V		
Test Mode:	TX Mode (GESK)		

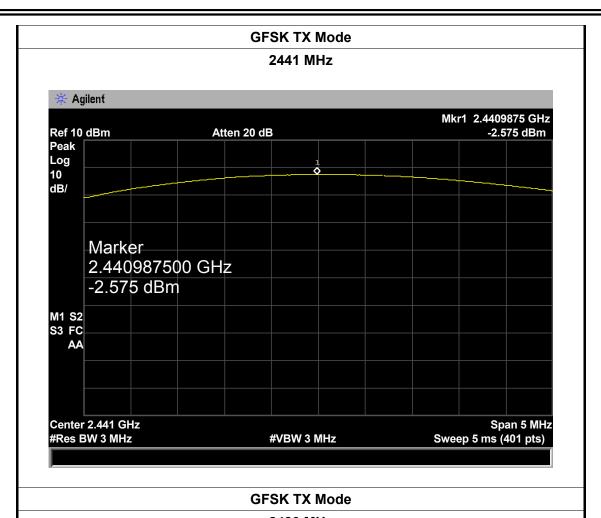
rest mode.	I A MOUE	le (GFSK)		
Channel frequency (MHz)		Test Result (dBm)	Limit (dBm)	
2402		-4.483		
2441		-2.575	21	
2480		-3 381		

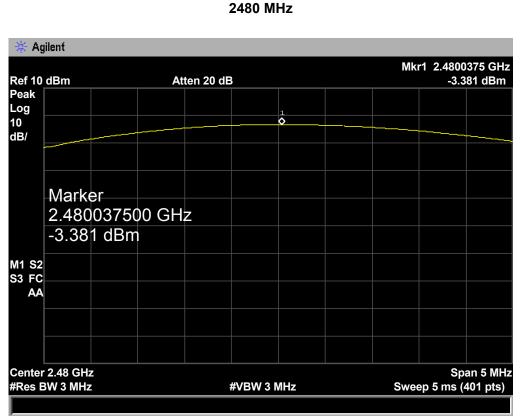
### **GFSK TX Mode**











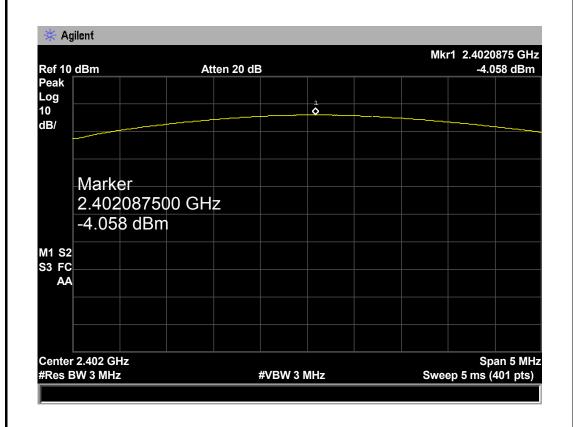


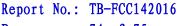
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EUT:	Stanley Cup Bluetooth Speaker	Model Name :	CST-02
Temperature:	<b>25</b> ℃	Relative Humidity:	55%
Test Voltage:	DC 3.7V		
Test Mode:	TX Mode (8-DPSK)		

1000 1110 1101	.,	(0 2. 0)		
Channel frequency (MHz)		Test Result (dBm)	Limit (dBm)	
2402		-4.058		
2441		-2.039	21	
2480		-2.990		

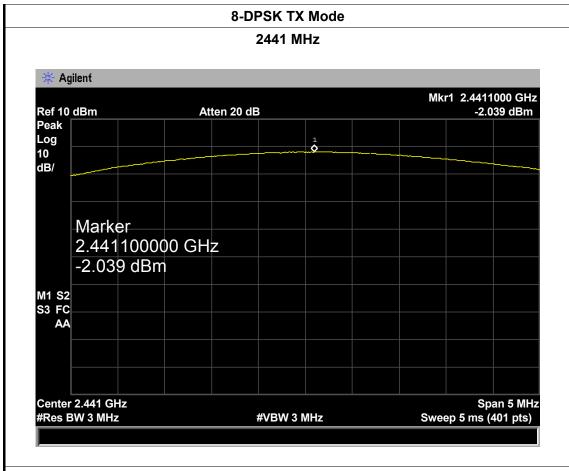
### 8-DPSK TX Mode



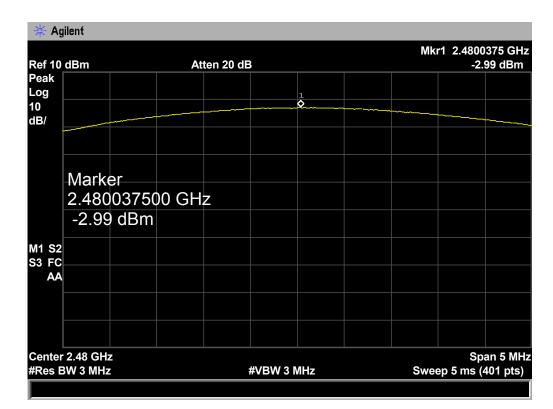




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#### 8-DPSK TX Mode





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# 10. Antenna Requirement

## 10.1 Standard Requirement

10.1.1 Standard FCC Part 15.203

### 10.1.2 Requirement

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. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

### 10.2 Antenna Connected Construction

The directional gains of the antenna used for transmitting is 0 dBi, and the antenna connector is de-signed with permanent attachment and no consideration of replacement. Please see the EUT photo for details.

### 10.2 Result

The EUT antenna is a PCB Antenna. It complies with the standard requirement.