TEST REPORT

FCC ID: ZJP-SR215W

Product: Bluetooth Soundbar

Model No.: SR215W

Additional Model No.: ITBSW399B

Trade Mark: SAMESAY, CKY

Report No.: WSCT-NVLAP-R&E190800012A-HUF

Issued Date: Sep. 05, 2019

Issued for:

Shenzhen SKY DRAGON Audio-video Technology Co.,LTD

B16,Laneway 3,Liuxian 2RD,District71,Baoan,shenzhen

Issued By:

World Standardization Certification & Testing Group Co., Ltd.

Building A-B, Baoshi Science & Technology Park, Baoshi Road,

Bao'an District, Shenzhen, Guangdong, China

TEL: +86-755-26996192

FAX: +86-755-86376605

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1. GENERAL INFORMATION

Product:	Bluetooth Soundbar
Model No.:	SR215W
Additional Model:	ITBSW399B
Applicant:	Shenzhen SKY DRAGON Audio-video Technology Co.,LTD
Address:	B16,Laneway 3,Liuxian 2RD,District71,Baoan,shenzhen
Manufacturer:	Huizhou Clinav Industrial Development Co.,LTD
Address:	Shangnan Village Committee,Yuanzhou Town BoLuo County, Huizhou City, Guangdong
Data of receipt	Aug. 21, 2019
Date of Test:	Aug. 21, 2019 to Sep. 09, 2019
Applicable Standards:	FCC Rules and Regulations Part 15 Subpart C Section 15.249 ANSI C63.10: 2013

The above equipment has been tested by World Standardization Certification & Testing Group Co., Ltd. and found compliance with the requirements set forth in the technical standards mentioned above. The results of testing in this report apply only to the product/system, which was tested. Other similar equipment will not necessarily produce the same results due to production tolerance and measurement uncertainties.

Tested By: Pu Shixi **Date:** Sep. 11, 2019

(Pu Shixi)

Check By: Qin Shuiquan **Date:** Sep. 11, 2019

(Qin Shuiquan)

Approved By: Wang Fengbing **Date:** Sep. 11. 2019

(Wang Fengbing)

1.1.GENERAL DESCRIPTION OF EUT

Equipment Type:	Bluetooth Soundbar
Model No.:	SR215W
Additional Model:	ITBSW399B
Trade Mark:	SAMESAY ,CKY
Applicant:	Shenzhen SKY DRAGON Audio-video Technology Co.,LTD
Address:	B16,Laneway 3,Liuxian 2RD,District71,Baoan,shenzhen
Manufacturer:	Huizhou Clinav Industrial Development Co.,LTD
Address:	Shangnan Village Committee,Yuanzhou Town BoLuo County, Huizhou City, Guangdong
Software version:	05_215W_93F_SP0EA4DDE8
Hardware version:	R215W-2X5W-V1.0
Extreme Temp. Tolerance:	0℃to + 40℃
Battery information:	N/A
Adapter Information:	Adapter: JDA1400120WUS Input: AC 100-240V~50/60Hz 0.8A Output: DC 14.0V⎓1.20A
Operating Frequency	905MHz(TX)
Channels	1
Channel Spacing	400KHz
Modulation Type	DQPSK
Antenna Type:	Integral Antenna
Antenna gain:	2.3dBi

Note: N/A *stands for no applicable.*

Models difference

SR215W, ITBSW399B Just the model name is different

1.2. FACILITIES AND ACCREDITATIONS

All measurement facilities used to collect the measurement data are located at **Building A-B, Baoshi Science & Technology Park, Baoshi Road, Bao'an District, Shenzhen, Guangdong, China of the World Standardization Certification & Testing Group Co., Ltd.**

The sites are constructed in conformance with the requirements of ANSI C63.4 and CISPR Publication 22. All receiving equipment conforms to CISPR Publication 16-1, "Radio Interference Measuring Apparatus and Measurement Methods."

Registration Number: 366353

1.2.1. ACCREDITATIONS

Our laboratories are accredited and approved by the following approval agencies according to ISO/IEC 17025.

USA	**NVLAP (The certificate registration number is NVLAP LAB CODE:600142-0)**
Japan	**VCCI (The certificate registration number is C-4790, R-3684, G-837)**
Canada	**INDUSTRY CANADA (The certificated registration number is 7700A-1)**
China	**CNAS (The certificated registration number is L3732)**

Copies of granted accreditation certificates are available for downloading from our web site, **http://www.wsct-cert.com**

2. TEST DESCRIPTION

2.1 MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement **y ± U**，where expended uncertainty **U** is based on a standard uncertainty multiplied by a coverage factor of **k=2**，providing a level of confidence of approximately **95** %。

No.	Item	Uncertainty
1	Conducted Emission Test	±3.2dB
2	RF power, conducted	±0.16dB
3	Spurious emissions, conducted	±0.21dB
4	All emissions, radiated(<1G)	±4.7dB
5	All emissions, radiated(>1G)	±4.7dB
6	Temperature	±0.5°C
7	Humidity	±2%

2.2 DESCRIPTION OF TEST MODES

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 above was evaluated respectively.

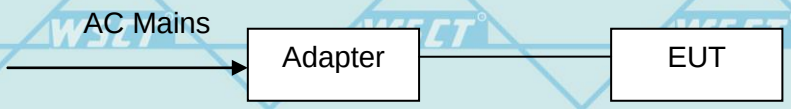
test Mode	Description
Mode 1	The EUT was programmed to be in continuously transmitting mode.

2.3 TABLE OF PARAMETERS OF TEXT 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 .

Test software Version	N/A
Test program	/

2.4 CONFIGURATION OF SYSTEM UNDER TEST



(EUT: Bluetooth Soundbar)

2.5 DESCRIPTION OF SUPPORT UNITS (CONDUCTED MODE)

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

Item	Equipment	Mfr/Brand	Model/Type No.	Series No.	Note
1	Adapter	/	JDA1400120WUS	/	/
2	/	/	N/A	/	/

Note:

(1) The support equipment was authorized by Declaration of Confirmation.
(2) For detachable type I/O cable should be specified the length in cm in『Length』column.
(3) "YES" is means "shielded" "with core"; "NO" is means "unshielded" "without core".
(4) The adapter supply by the applicant.

3. SUMMARY OF TEST RESULTS

Test procedures according to the technical standards:

Requirement	CFR 47 Section	Result
Antenna Requirement	§15.203	PASS
AC Power Line Conducted Emission	§15.207	N/A
Field Strength of Fundamental	§15.249 (a)	PASS
Spurious Emissions	§2.1053 §15.249 (a) (d)/ §15.209	PASS
Band Edge	§2.1053 §15.249 (d)/ §15.205	PASS
20dB Occupied Bandwidth	§2.1049 §15.215 (c)	PASS

Note:

1. Pass: Test item meets the requirement.

2. Fail: Test item does not meet the requirement.

3. N/A: Test case does not apply to the test object.

4. The test result judgment is decided by the limit of test standard.

4. MEASUREMENT INSTRUMENTS

NAME OF EQUIPMENT	MANUFACTURER	MODEL	SERIAL NUMBER	**Calibration Date**	**Calibration Due.**
EMI Test Receiver	R&S	ESCI	100005	10/29/2018	10/28/2019
LISN	AFJ	LS16	16010222119	10/29/2018	10/28/2019
LISN(EUT)	Mestec	AN3016	04/10040	10/29/2018	10/28/2019
Universal Radio Communication Tester	R&S	CMU 200	1100.0008.02	10/29/2018	10/28/2019
Coaxial cable	Megalon	LMR400	N/A	10/29/2018	10/28/2019
GPIB cable	Megalon	GPIB	N/A	10/29/2018	10/28/2019
Spectrum Analyzer	R&S	FSU	100114	10/29/2018	10/28/2019
Pre Amplifier	H.P.	HP8447E	2945A02715	10/29/2018	10/28/2019
Pre-Amplifier	CDSI	PAP-1G18-38	--	10/29/2018	10/28/2019
Bi-log Antenna	SUNOL Sciences	JB3	A021907	10/29/2018	10/28/2019
9*6*6 Anechoic	--	--	--	10/29/2018	10/28/2019
Horn Antenna	COMPLIANCE ENGINEERING	CE18000	--	10/29/2018	10/28/2019
Horn Antenna	SCHWARZBECK	BBHA9120D	9120D-631	10/29/2018	10/28/2019
Cable	TIME MICROWAVE	LMR-400	N-TYPE04	10/29/2018	10/28/2019
System-Controller	CCS	N/A	N/A	N.C.R	N.C.R
Turn Table	CCS	N/A	N/A	N.C.R	N.C.R
Antenna Tower	CCS	N/A	N/A	N.C.R	N.C.R
RF cable	Murata	MXHQ87WA3000	-	10/29/2018	10/28/2019
Loop Antenna	EMCO	6502	00042960	10/29/2018	10/28/2019
Horn Antenna	SCHWARZBECK	BBHA 9170	1123	10/29/2018	10/28/2019
Power meter	Anritsu	ML2487A	6K00003613	10/29/2018	10/28/2019
Power sensor	Anritsu	MX248XD	--	10/29/2018	10/28/2019

5. EMC EMISSION TEST

5.1 CONDUCTED EMISSION MEASUREMENT

5.1.1 POWER LINE CONDUCTED EMISSION Limits (Frequency Range 150KHz-30MHz)

Frequency of emission (MHz)	Conducted limit (dBμV)	
	Quasi-peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50

Note:

(1) The tighter limit applies at the band edges.

(2) The limit of " * " marked band means the limitation decreases linearly with the logarithm of the frequency in the range.

The following table is the setting of the receiver

Receiver Parameters	Setting
Attenuation	10 dB
Start Frequency	0.15 MHz
Stop Frequency	30 MHz
IF Bandwidth	9 kHz

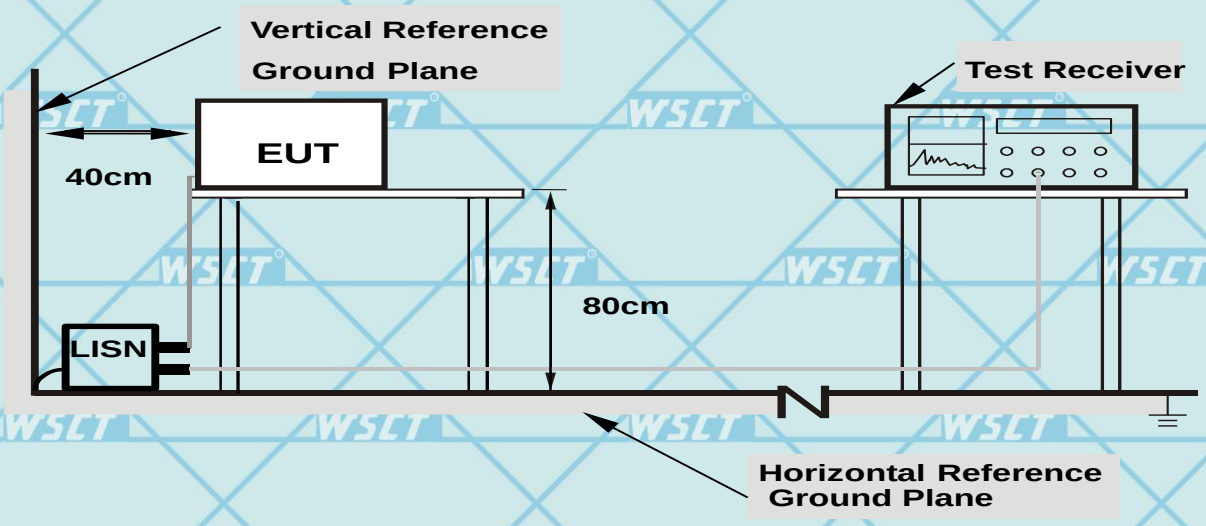
5.1.2 TEST PROCEDURE

a. The EUT was placed 0.4 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.
b. 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.
c. 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.
d. LISN at least 80 cm from nearest part of EUT chassis.
e. For the actual test configuration, please refer to the related Item –EUT Test Photos.

5.1.3 DEVIATION FROM TEST STANDARD

No deviation

5.1.4 TEST SETUP



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

5.1.5 EUT OPERATING CONDITIONS

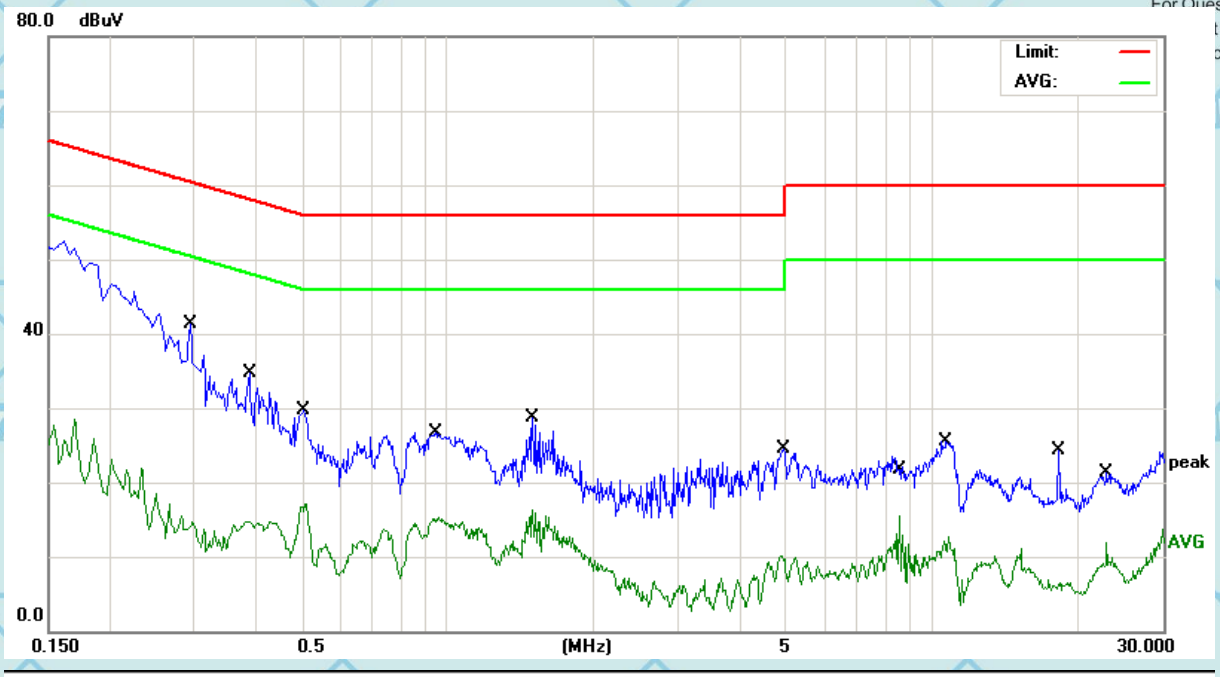
The EUT was configured for testing in a typical fashion (as a customer would normally use it). The EUT has been programmed to continuously transmit during test. This operating condition was tested and used to collect the included data.

5.1.6 TEST RESULTS

Temperature	26 ℃	Relative Humidity	54%
Pressure	1010hPa	Test Mode	Mode 1

L:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector
1	*	0.5020	35.74	0.00	35.74	56.00	-20.26	QP
2		0.5060	23.53	0.00	23.53	46.00	-22.47	AVG
3		0.9820	19.52	0.00	19.52	46.00	-26.48	AVG
4		1.0140	29.97	0.00	29.97	56.00	-26.03	QP
5		1.5180	27.74	0.00	27.74	56.00	-28.26	QP
6		1.5180	14.97	0.00	14.97	46.00	-31.03	AVG
7		4.8540	23.40	0.00	23.40	56.00	-32.60	QP
8		4.8540	10.84	0.00	10.84	46.00	-35.16	AVG
9		8.5659	14.73	0.00	14.73	50.00	-35.27	AVG
10		11.2900	28.18	0.00	28.18	60.00	-31.82	QP
11		11.4220	15.33	0.00	15.33	50.00	-34.67	AVG
12		29.0660	21.93	0.00	21.93	60.00	-38.07	QP



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector
1	*	0.2940	41.25	0.00	41.25	60.41	-19.16	QP
2		0.3899	34.63	0.00	34.63	58.06	-23.43	QP
3		0.5100	17.12	0.00	17.12	46.00	-28.88	AVG
4		0.9620	15.36	0.00	15.36	46.00	-30.64	AVG
5		1.5020	28.75	0.00	28.75	56.00	-27.25	QP
6		1.5020	16.32	0.00	16.32	46.00	-29.68	AVG
7		4.8979	10.15	0.00	10.15	46.00	-35.85	AVG
8		4.9419	24.57	0.00	24.57	56.00	-31.43	QP
9		8.5659	15.57	0.00	15.57	50.00	-34.43	AVG
10		10.6859	25.57	0.00	25.57	60.00	-34.43	QP
11		18.3179	24.28	0.00	24.28	60.00	-35.72	QP
12		22.9420	11.95	0.00	11.95	50.00	-38.05	AVG

5.2 RADIATED EMISSION MEASUREMENT

5.2.1 Radiated Emission Limits (Frequency Range 9kHz-1000MHz)

20dBc in any 100 kHz bandwidth outside the operating frequency band. In case the emission fall within the restricted band specified on 15.205(a), then the 15.209(a) limit in the table below has to be followed.

Frequencies (MHz)	Field Strength (micorvolts/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

LIMITS OF RADIATED EMISSION MEASUREMENT (Above 1000MHz)

FREQUENCY (MHz)	Limit (dBuV/m) (at 3M)	
	PEAK	AVERAGE
Above 1000	74	54

Notes:

(1) The limit for radiated test was performed according to FCC PART 15C.

(2) The tighter limit applies at the band edges.

(3) Emission level (dBuV/m)=20log Emission level (uV/m).

Spectrum Parameter	Setting
Attenuation	Auto
Start Frequency	1000 MHz
Stop Frequency	10th carrier harmonic
RB / VB (emission in restricted band)	1 MHz / 1 MHz for Peak, 1 MHz / 1Hz for Average

Receiver Parameter	Setting
Attenuation	Auto
Start ~ Stop Frequency	9kHz~150kHz / RB 200Hz for QP
Start ~ Stop Frequency	150kHz~30MHz / RB 9kHz for QP
Start ~ Stop Frequency	30MHz~1000MHz / RB 120kHz for QP

According to §15.249 (a): Except as provided in paragraph (b) of this section, the field strength of emissions from intentional radiators operated within these frequency bands shall comply with the following:

Fundamental frequency	Field strength of fundamental		Field strength of harmonics	
	millivolts/meter	dBuV/m	microvolts/meter	dBuV/m
902-928 MHz	50	94	500	54
2400-2483.5 MHz	50	94	500	54
5725-5875 MHz	50	94	500	54
24.0-24.25 GHz	250	108	2500	68

As shown in §15.35(b), for frequencies above 1000 MHz, the field strength limits in paragraphs (a) and (b) of this section are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation. For point-to-point operation under paragraph (b) of this section, the peak field strength shall not exceed 2500 millivolts/meter at 3 meters along the antenna azimuth

5.2.2 TEST PROCEDURE

a. The measuring distance of at 3 m shall be used for measurements at frequency up to 1GHz. For frequencies above 1GHz, any suitable measuring distance may be used.
b. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter open area test site. The table was rotated 360 degrees to determine the position of the highest radiation.
c. The height of the equipment or of the substitution antenna shall be 0.8 m; the height of the test antenna shall vary between 1 m to 4 m. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
d. 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.
e. If the Peak Mode measured value compliance with and lower than Quasi Peak Mode Limit, the EUT shall be deemed to meet QP Limits and then no additional QP Mode measurement performed.
f. For the actual test configuration, please refer to the related Item –EUT Test Photos.

Note:

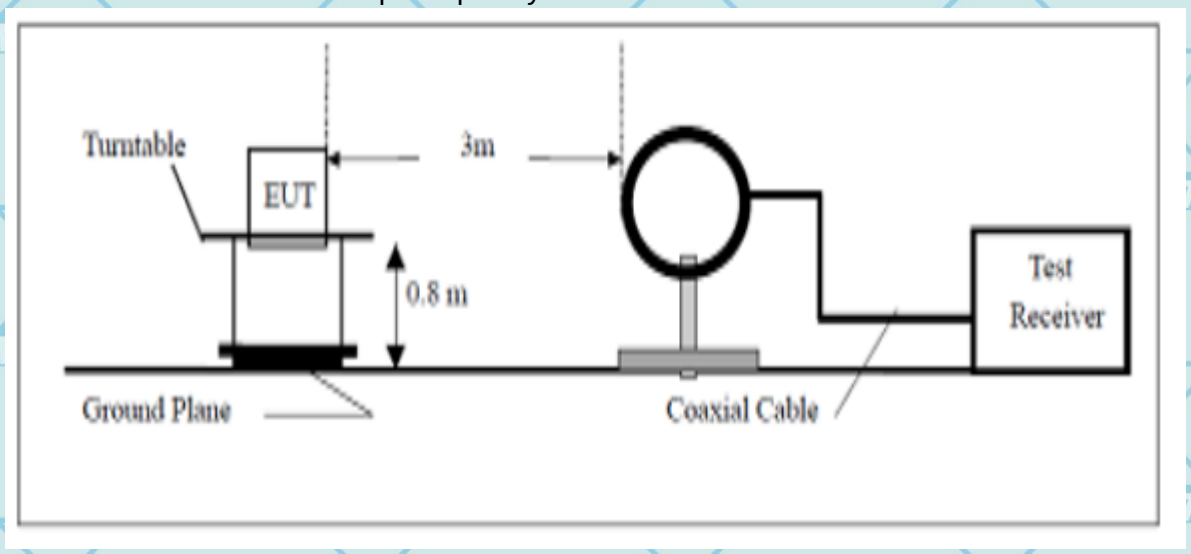
Both horizontal and vertical antenna polarities were tested and performed pretest to three orthogonal axis. The worst case emissions were reported

5.2.3 DEVIATION FROM TEST STANDARD

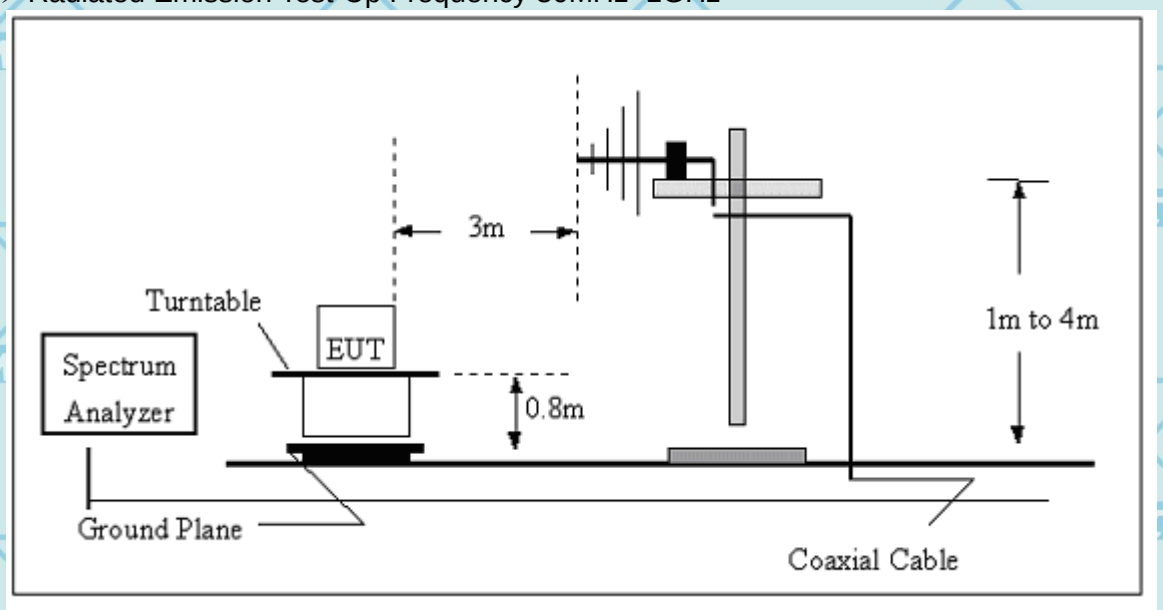
No deviation

5.2.4 TEST SETUP

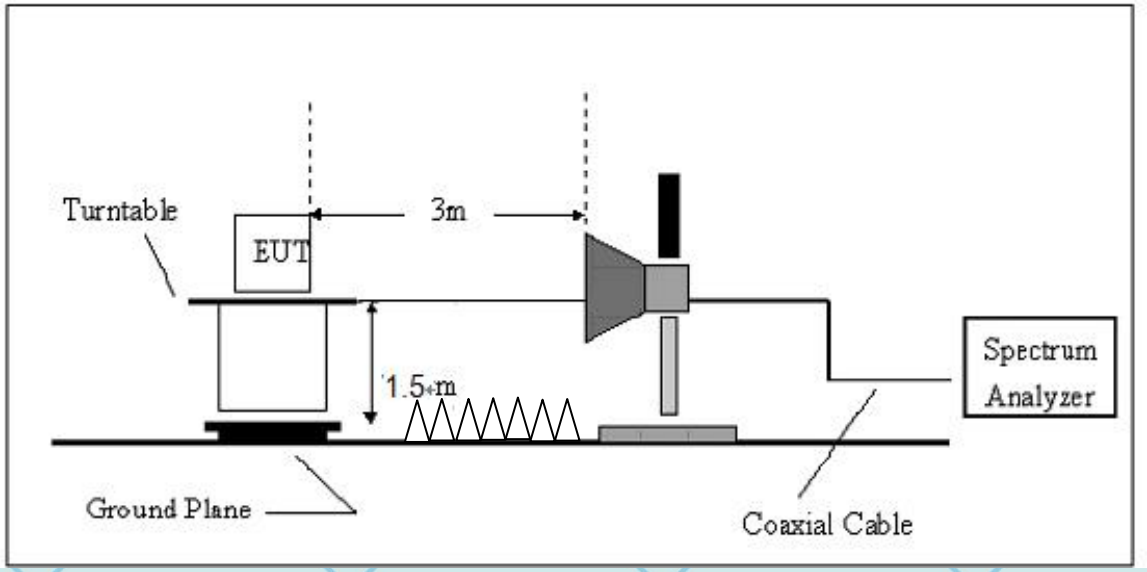
（A）Radiated Emission Test-Up Frequency Below 30MHz



（B）Radiated Emission Test-Up Frequency 30MHz~1GHz



（C）Radiated Emission Test-Up Frequency Above 1GHz



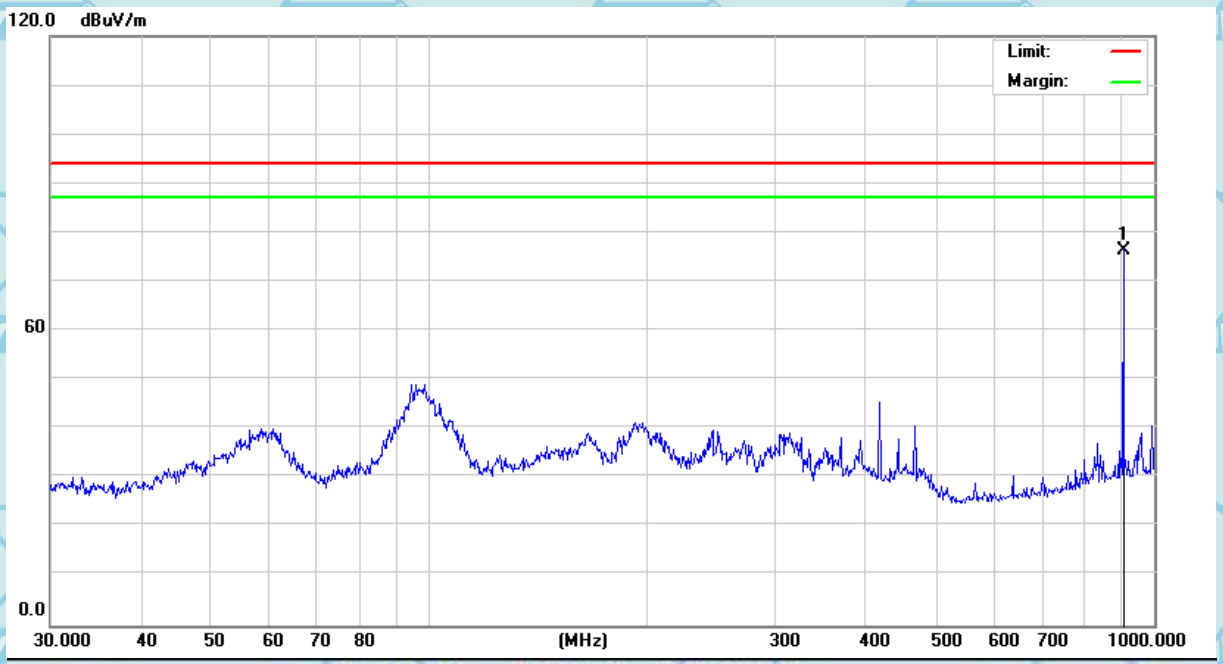
5.2.5 EUT OPERATING CONDITIONS

The EUT tested system was configured as the statements of 2.4 Unless otherwise a special operating condition is specified in the follows during the testing.

5.2.5.1 RESULTS

Field Strength of Fundamental

H:



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector
1	*	905.0223	70.42	5.78	76.20	94.00	-17.80	QP

V:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector
1	*	904.9644	63.49	5.78	69.27	94.00	-24.73	QP

(Below 30 MHz)

Temperature	20 ℃	Relative Humidity	60%
Pressure	1010 hPa	Test Mode	Mode 1

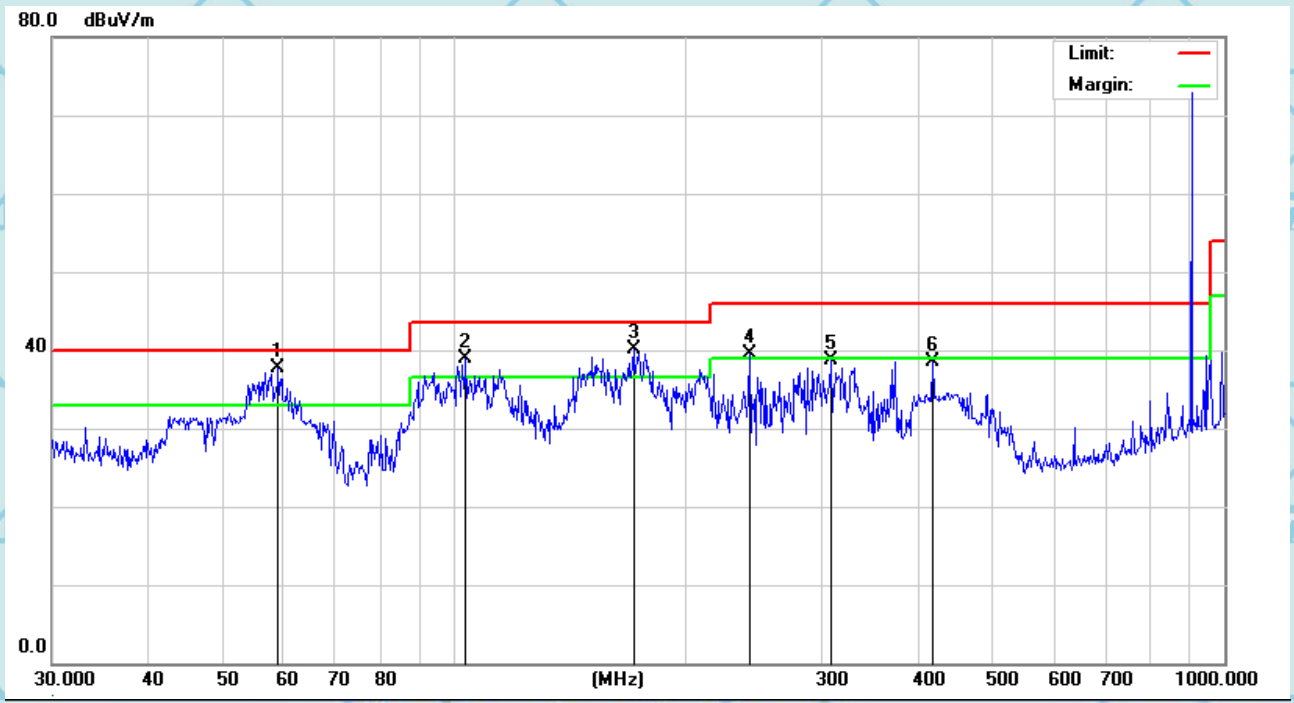
Freq.	Reading	Limit	Margin	State
(MHz)	(dBuV/m)	(dBuV/m)	(dB)	P/F
--	--	--	--	P
--	--	--	--	P

NOTE:
No result in this part for margin above 20dB.
Distance extrapolation factor =40 log (specific distance/test distance)(dB);
Limit line = specific limits(dBuV) + distance extrapolation factor.
All the x/y/z orientation has been investigated, and only worst case is presented in this report.

5.2.5.2 (Between 30M – 1000 MHz)

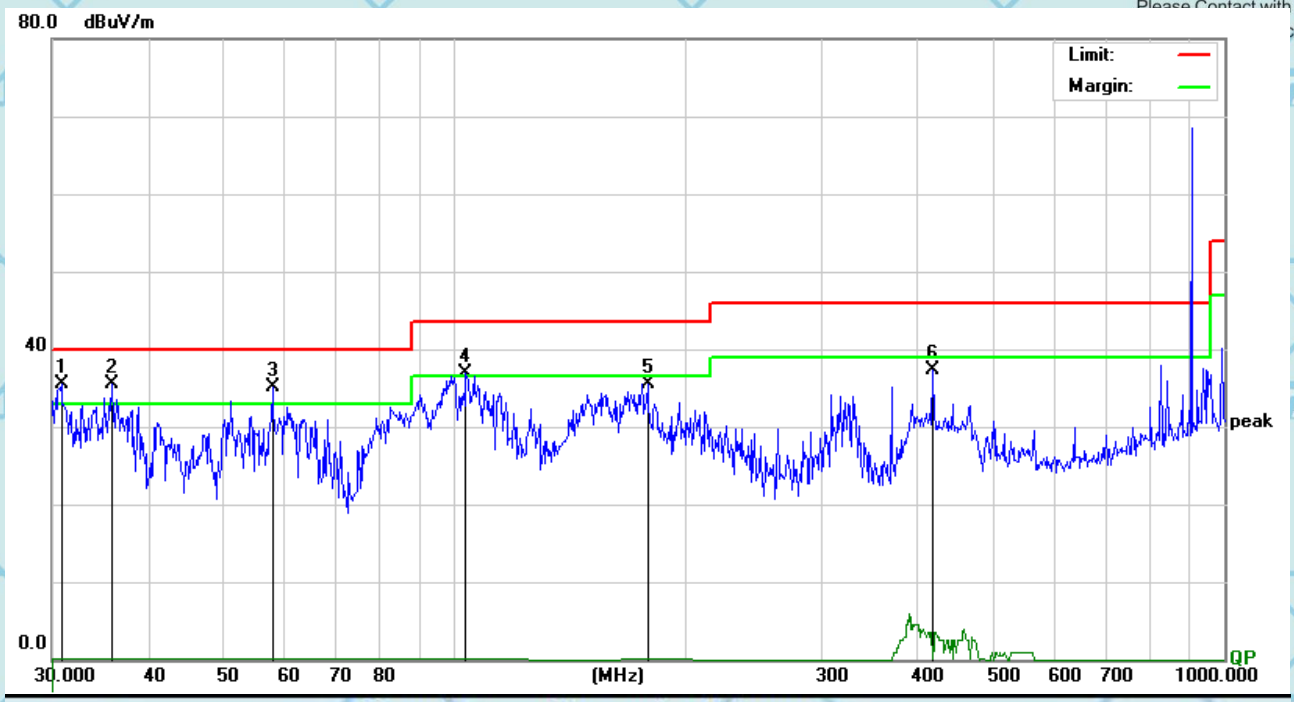
Temperature	20 ℃	Relative Humidity	60%
Pressure	1010 hPa	Test Mode	Mode 1

H:



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector
1	*	59.0251	43.73	-6.09	37.64	40.00	-2.36	QP
2	!	103.4419	42.14	-3.15	38.99	43.50	-4.51	QP
3	!	170.7923	46.65	-6.52	40.13	43.50	-3.37	QP
4	!	241.6759	44.65	-5.11	39.54	46.00	-6.46	QP
5		307.8312	40.88	-2.15	38.73	46.00	-7.27	QP
6		417.6409	39.40	-0.81	38.59	46.00	-7.41	QP

V:



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector
1	*	30.8535	31.08	4.47	35.55	40.00	-4.45	QP
2	!	35.8746	33.04	2.37	35.41	40.00	-4.59	QP
3	!	57.9992	41.09	-5.97	35.12	40.00	-4.88	QP
4	!	103.4419	40.01	-3.15	36.86	43.50	-6.64	QP
5		178.1325	42.49	-6.93	35.56	43.50	-7.94	QP
6		417.6409	38.17	-0.81	37.36	46.00	-8.64	QP

5.2.5.3 (Above 1GHz)

Temperature	20 ℃	Relative Humidity	48%
Pressure	1010 hPa	Test Mode	Mode 1 TX
Frequency	905MHz		

Freq. (MHz)	Ant. Pol.	Emission Level(dBuV)		Limit 3m(dBuV/m)		Over(dB)	
	H/V	PK	AV	PK	AV	PK	AV
1810	V	59.44	41.35	74	54	-14.56	-12.65
2715	V	59.97	39.25	74	54	-14.03	-14.75
1810	H	59.00	40.20	74	54	-15.00	-13.80
2715	H	59.25	40.25	74	54	-14.75	-13.75

Remark:
All emissions not reported were more than 20dB below the specified limit or in the noise floor.
Factor = Antenna Factor + Cable Loss – Pre-amplifier.
All the x/y/z orientation has been investigated, and only worst case is presented in this report.

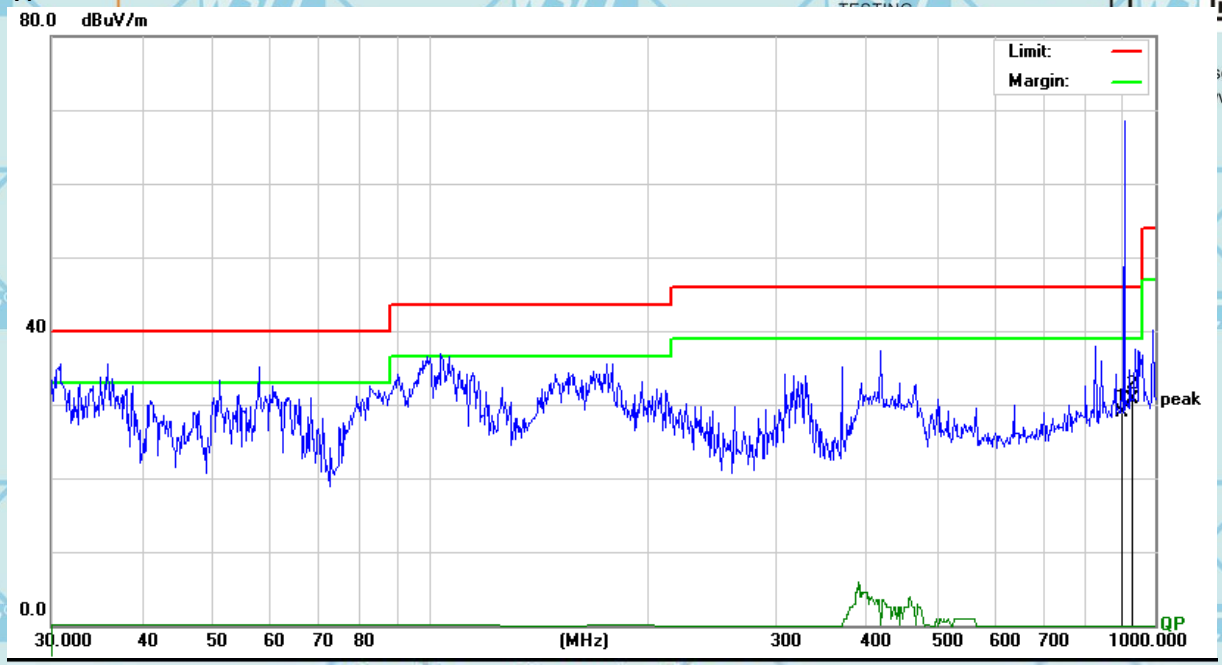
5.2.5.4 Band Edge Requirement

Pressure	1010 hPa	Test Mode	Mode 1 TX
Temperature	20 ℃	Relative Humidity	48%

H:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector
1		902.0000	23.89	5.75	29.64	46.00	-16.36	QP
2	*	928.0000	24.17	6.03	30.20	46.00	-15.80	QP

V:



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector
1		902.0000	23.17	5.75	28.92	46.00	-17.08	QP
2	*	928.0000	24.58	6.03	30.61	46.00	-15.39	QP

6. ANTENNA APPLICATION

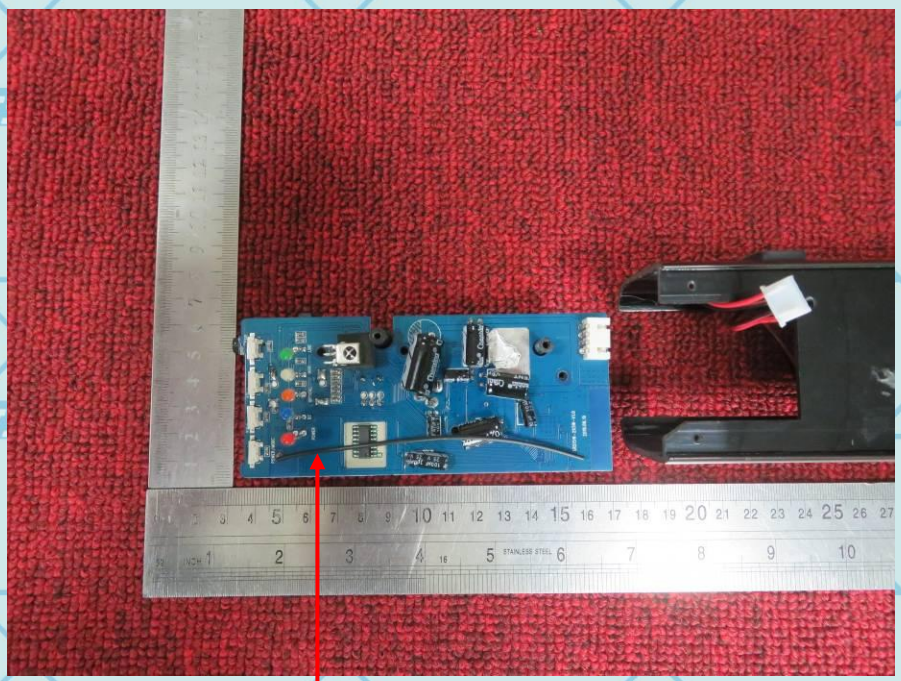
6.1 Antenna requirement

The EUT'S antenna is met the requirement of FCC part 15C section 15.203.

FCC part 15C section 15.203 Antenna gain must be at least 33 dBi. Alternatively, the main lobe beamwidth must not exceed 3.5 degrees. The beamwidth limit shall apply to both the azimuth and elevation planes. At antenna gains over 33 dBi or beamwidths narrower than 3.5 degrees, power must be reduced to ensure that the field strength does not exceed 2500 millivolts/meter.

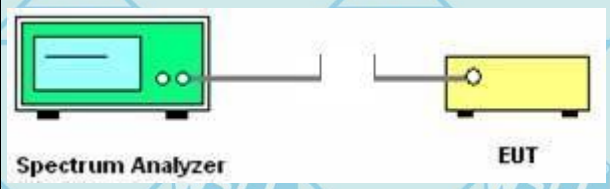
6.2 Result

The EUT's antenna Integral Antenna, The antenna's gain is 2.3dBi and meets the requirement.



7. 20DB BANDWIDTH MEASUREMENT

7.1 TEST SPECIFICATION

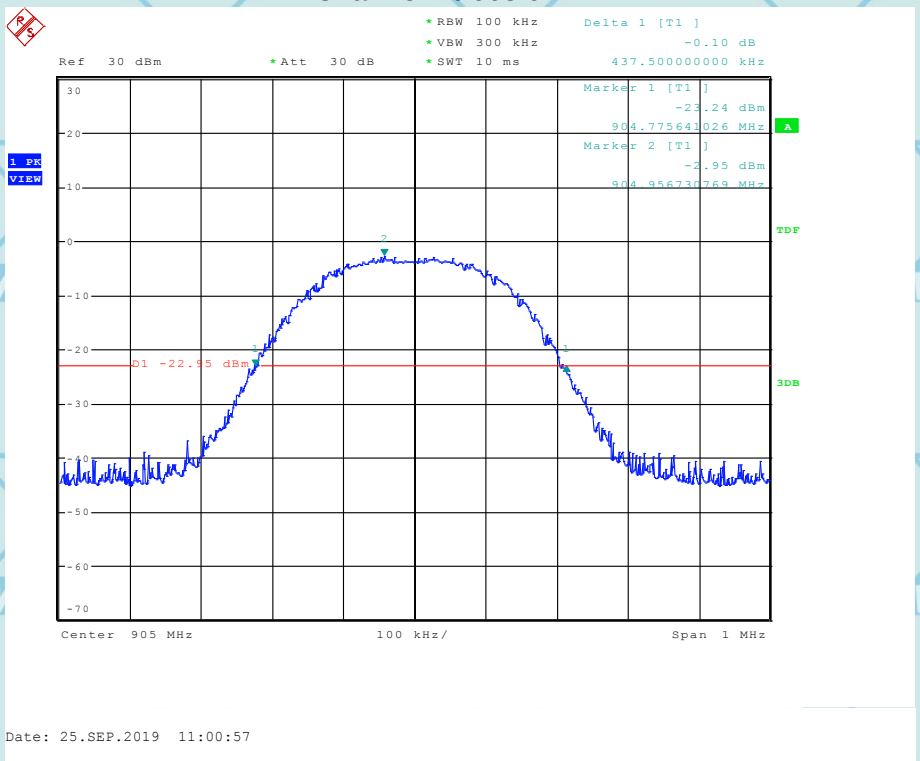
Test Requirement:	FCC Part15 C Section 15.215(c)/ Part 2 J Section 2.1049
Test Method:	ANSI C63.10: 2013
Limit:	N/A
	1. According to the follow Test-setup, keep the relative position between the artificial antenna and the EUT. 2. Set to the maximum power setting and enable the EUT transmit continuously. 3. Use the following spectrum analyzer settings for 20dB Bandwidth measurement. Span = approximately 2 to 3 times the 20 dB bandwidth, centered on a hopping channel; RBW≥1% of the 20 dB bandwidth; VBW≥RBW; Sweep = auto; Detector function = peak; Trace = max hold. 4. Measure and record the results in the test report.
Test setup:	
Test Mode:	Transmitting mode with modulation
Test results:	PASS

7.2TEST RESULT

20dB Occupied Bandwidth

Channel	Channel Frequency (MHz)	20dB Occupy Bandwidth (kHz)	Pass/ Fail
01	905.0	437.5	PASS

Channel 1 / 905.0 MHz



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