					SUD
		FCC- TEST	r Repo	RT	
Report Number	:	66.790.18.0084.01		Date of Issue:	December 14, 2018
Model		: JR XLED BOY/G	IRL		
Product Type		: LIGHT SHOE			
Applicant		: Geox SpA			
Manufacturer		: Geox SpA			
Address		: Via Feltrina Cent	ro 16, 310	044 Montebellur	na TV, Italy
Test Result	:	■ Positive	□ Negati	ve	
Total pages including Appendices	:	31			

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# SUD

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# SUD

# 2 Details about the Test Laboratory

# **Details about the Test Laboratory**

Test Site 1

Company name:	TÜV SÜD Certification and Testing (China) Co., Ltd. Shenzhen Branch Building 12&13, Zhiheng Wisdomland Business Park, Nantou Checkpoint Road 2, Nanshan District, Shenzhen City, 518052, P. R. China
FCC Registration Number:	514049
IC Registration Number:	10320A
Telephone: Fax:	86 755 8828 6998 86 755 828 5299

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# **3** Description of the Equipment under Test

Product: LIGHT SHOE

Model no.: JR XLED BOY/GIRL

FCC ID: 2AQ7NXLED

Input: DC5V, 0.5A max

Battery type: 3.7V, 450mAh Li-ion battery

Operating Frequency Range: 2402~2480MHz

Modulation: GFSK

Antenna Type: PCB Antenna

Antenna Gain: 0.6 dBi

Description of the EUT: EUT is a Light shoe, Bluetooth 4.0 BLE technology was used for communicating.

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# 4 Summary of Test Standards

Test Standards			
FCC Part 15 Subpart C	PART 15 - RADIO FREQUENCY DEVICES		
10-1-2017 Edition	Subpart C - Intentional Radiators		

All the test methods were according to KDB558074 D01 v05 and ANSI C63.10 (2013).

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# 5 Summary of Test Results

	Technical Requirements				
FCC Part 15 Subpart C					
Test Condition		Pages	Test Result	Test Site	
§15.207	Conducted emission AC power port	10-12	Pass	Site 1	
§15.247(b)(1)	Conducted peak output power	13-14	Pass	Site 1	
§15.247(e)	Power spectral density	19-20	Pass	Site 1	
§15.247(a)(2)	6dB bandwidth and 99% occupied bandwidth	15-18	Pass	Site 1	
§15.247(d)	Spurious RF conducted emissions	21-24	Pass	Site 1	
§15.247(d)	Band edge	25-26	Pass	Site 1	
§15.247(d) & §15.209 &	Spurious radiated emissions for transmitter and receiver	27-29	Pass	Site 1	
§15.203	Antenna requirement	See note 1	Pass		

Note 1: The EUT uses an PCB Antenna, which gain is 0.6dBi. According to §15.203, it is considered sufficiently to comply with the provisions of this section.

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# 6 General Remarks

### Remarks

This submittal(s) (test report) is intended for FCC ID: 2AQ7NXLED complies with Section 15.207, 15.247 of the FCC Part 15, Subpart C. This report is for the BLE part.

#### SUMMARY:

All tests according to the regulations cited on page 5 were

Performed

□ - Not Performed

The Equipment under Test

■ - Fulfills the general approval requirements.

□ - **Does not** fulfill the general approval requirements.

Sample Received Date: September 17, 2018

Testing Start Date: September 19, 2018

Testing End Date:

December 5, 2018

- TÜV SÜD Certification and Testing (China) Co., Ltd. Guangzhou Branch -

Reviewed by:

Prepared by:

Tested by:

ete-J

Matt zhang

Peter Jia

Matt Zhang

Joe Gu

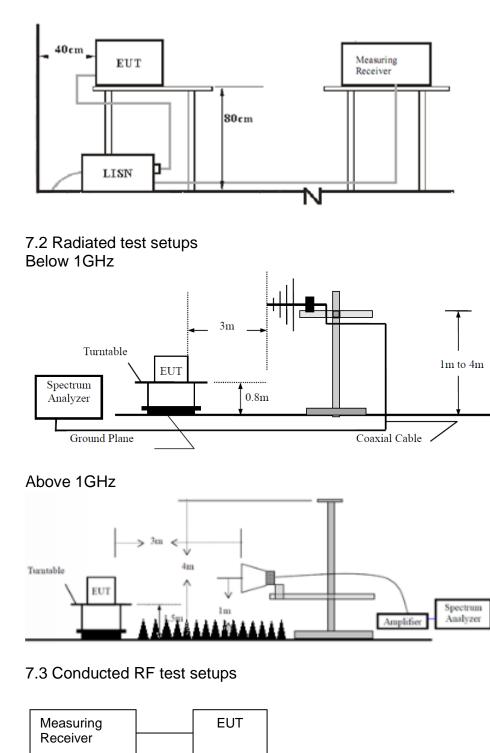
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# 7 Test Setups

# 7.1 AC Power Line Conducted Emission test setups



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# 8 Systems test configuration

Auxiliary Equipment Used during Test:

DESCRIPTION	MANUFACTURER	MODEL NO.(SHIELD)	S/N(LENGTH)
Mobile Phone	SAMSUNG	SAMSUNG Note2	
Laptop	Lenovo	X240	L34015282

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# 9 Technical Requirement

# 9.1 Conducted Emission

#### **Test Method**

- 1. The EUT was placed on a table, which is 0.8m above ground plane
- 2. The power line of the EUT is connected to the AC mains through a Artificial Mains Network (A.M.N.).
- 3. Maximum procedure was performed to ensure EUT compliance
- 4. A EMI test receiver is used to test the emissions from both sides of AC line

# Limit

Frequency	QP Limit	AV Limit
MHz	dBµV	dBµV
0.150-0.500	66-56*	56-46*
0.500-5	56	46
5-30	60	50

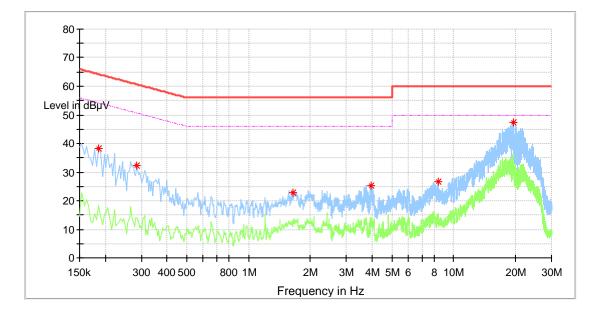
#### \* Decreasing linear

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# **Conducted Emission**

Product Type	:	LIGHT SHOE
M/N	:	JR XLED BOY/GIRL
Operating Condition	:	USB Charging
Conduct Line	:	L

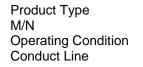


# Final\_Result

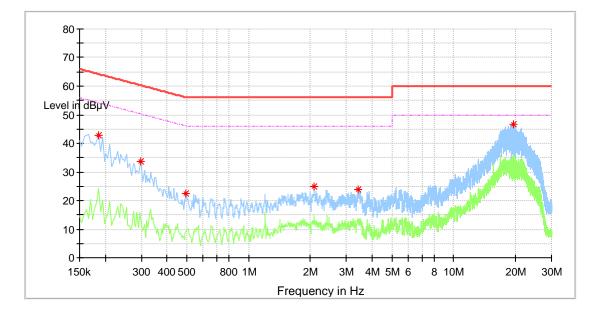
Frequency	MaxPeak	Average	Limit	Margin	Line	Corr.
(MHz)	(dBµV)	(dBµV)	(dBµV)	(dB)		(dB)
0.186000	38.34		64.21	25.87	L1	10.2
0.286000	32.13		60.64	28.51	L1	10.2
1.650000	22.71		56.00	33.29	L1	10.3
3.962000	25.43		56.00	30.57	L1	10.4
8.374000	26.80		60.00	33.20	L1	10.6
19.558000	47.34		60.00	12.66	L1	11.0

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LIGHT SHOE
JR XLED BOY/GIRL
USB Charging
N



# Final\_Result

Frequency (MHz)	MaxPeak (dBµV)	Average (dBµV)	Limit (dBµV)	Margin (dB)	Line	Corr. (dB)
0.186000	42.68		64.21	21.54	N	10.2
0.298000	33.57		60.30	26.73	Ν	10.2
0.494000	22.57		56.10	33.53	Ν	10.3
2.090000	25.05		56.00	30.95	Ν	10.3
3.414000	23.82		56.00	32.18	Ν	10.4
19.490000	46.68		60.00	13.32	Ν	11.2

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# 9.2 Conducted peak output power

#### **Test Method**

- Use the following spectrum analyzer settings: RBW > the 6 dB bandwidth of the emission being measured, VBW≥3RBW, Span≥3RBW Sweep = auto, Detector function = peak, Trace = max hold.
- 2. Add a correction factor to the display.
- 3. Allow the trace to stabilize. Use the marker-to-peak function to set the marker to the peak of the emission. The indicated level is the peak output power.

#### Limits

Frequency Range	Limit	Limit
MHz	W	dBm
2400-2483.5	≤1	≤30

#### Test result as below table

Frequency	Conducted Peak Output Power	Result
MHz	dBm -0.62	Pass
Low channel 2402MHz Middle channel 2440MHz	-0.19	Pass
High channel 2480MHz	0.09	Pass
riigh channel 24000012	0.09	1 835



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-0.19 dBi 26050 GF
-

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#### 2480MHz

Ref Level 30. Att Count 100/100	40 dB <b>SV</b>	fset 1.00 dB ∈ VT 1 ms ∈	VBW 5 MHz		Auto Sweep		
1Pk View							
				ſ	M1[1]	2.480	0.09 dBn 19100 GH
20 dBm						 	
10 dBm							
0 dBm				M1			
10 -10						 	
-10 dBm							
-20 dBm							
-30 dBm							
-40 dBm							
-50 dBm							
-60 dBm							
-00 0011							
CF 2.48 GHz		I	691	pts	1	Spa	n 6.0 MHz

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# 9.3 6dB bandwidth and 99% Occupied Bandwidth

#### **Test Method**

- 1. Use the following spectrum analyzer settings:
- RBW=100K, VBW≥3RBW, Sweep = auto, Detector function = peak, Trace = max hold 2. Use the automatic bandwidth measurement capability of an instrument, may be
- employed using the X dB bandwidth mode with X set to 6 dB, care shall be taken so that the bandwidth measurement is not influenced by any intermediate power nulls in the fundamental emission that might be  $\geq$  6 dB.
- 3. Allow the trace to stabilize, record the X dB Bandwidth value.

#### Limit

#### Limit [kHz]

≥500

Test result

TestMode	Channel	DTS BW [MHz]	FL[MHz]	FH[MHz]	Verdict
	2402	0.692	2401.684	2402.376	PASS
BLE	2440	0.688	2439.684	2440.372	PASS
	2480	0.680	2479.688	2480.368	PASS

#### 2402MHz

	iew								
20 dBm						M1[1]		2.40	-6.81 dBn 168400 GH:
						M2[1]		2.40	-0.79 dBn 202000 GH
10 dBm									
0 dBm—				M1		<u></u> 3			
-10 dBn	n D	1 -6.79	90 dBm		_	4			
-20 dBn	n								
-30 dBn	n			/			$\rightarrow$	<u>_</u>	
-40 dBn	n —	~						$\rightarrow$	
-50 dBn			~						
-60 dBn	n —								
CF 2.4	02 GH	Iz		1	LOO1 pts			Sp	an 4.0 MHz
Marker									
Type M1	Ref	Trc 1	2,401684 G	Y-val	ue I 1 dBm	Function	Fu	nction Resu	lt
M1 M2		1	2.401684 G		9 dBm				
D3	M1	1	692.0 k		.02 dB				

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Att	ever	30.00 d 40			RBW 100 kHz VBW 300 kHz	Mode /	Auto FFT			
Count		00								
∎1Pk Vi	ew									
						M	1[1]			-6.44 dBn
20 dBm						<u> </u>	0[1]		2.43	968400 GH -0.38 dBr
						IVI	2[1]		2 44	-0.38 dBn 002000 GH
10 dBm									2.77	002000 GH
					N12	2				
0 dBm—					MI					
-10 dBn	D	1 -6.38	0 dBm			Å				
-10 000				0	1 1					
-20 dBn	1-									
-30 dBn	1 <u> </u>		$\rightarrow$	$\sim$				$\sim$		
-40 dBn	1	~	~							
-50 dBn	~~~~	$\sim$	~							
-30 ubn										
-60 dBn										
CF 2.4	4 GHz				1001 p	nts			Sn	an 4.0 MHz
darker					1001				30	
Type	Ref	Trc	X-value	. 1	Y-value	Func	tion	Funr	tion Resu	lt
M1		1	2.4396		-6.44 dBm					
M2		1		02 GHz	-0.38 dBm					
D3	M1	1	688	3.0 kHz	-0.34 dB					

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#### 2480MHz

	_								
Spectrum									
Ref Level	30.00	dBm Offset 1	.00 dB 👄 I	RBW 100 kHz					
Att	40	IdB SWT 1	8.9 µs 👄 '	<b>VBW</b> 300 kHz	Mode /	Auto FFT			
Count 100/:	100								
∋1Pk View									
					M	1[1]			-6.14 dBr
20 dBm		_				0141		2.479	68800 GH
					M	2[1]		9 400	-0.07 dBr 03600 GH
10 dBm								2.400	03000 GH
0.10				1	2				
0 dBm				MI	$\sim$				
-10 dBm	01 -6.07	74 dBm			λ	~			
10 0.0.0									
-20 dBm									
							$\checkmark$		
-30 dBm									
-40 dBm	$\frown$							$\sim$	
									$\sim$
-50 dBm									
-60 dBm									
CF 2.48 GH	z			1001	ots			Spa	n 4.0 MHz
/larker									
	Trc	X-value		Y-value	Func	tion	Fund	tion Result	
M1	1	2.47968		-6.14 dBm					
M2 D3 M1	1	2.48003	.0 kHz	-0.07 dBm -0.30 dB					
03 101		080		-0.30 UB	· ·				
	Л				Mea			4,44	15:17:25

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TestMode	Channel	OCB [MHz]	FL[MHz]	FH[MHz]	Verdict
	2402	1.051	2401.516	2402.567	PASS
BLE	2440	1.051	2439.512	2440.563	PASS
	2480	1.047	2479.516	2480.563	PASS



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#### 2440MHz



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### 9.4 Power spectral density

#### **Test Method**

This procedure shall be used if maximum peak conducted output power was used to demonstrate compliance:

- Set analyzer center frequency to DTS channel center frequency. RBW=10kHz,VBW≥3RBW,Span=1.5 times DTS bandwidth, Detector=Peak, Sweep=auto, Trace= max hold.
- 2. Allow trace to fully stabilize, use the peak marker function to determine the maximum amplitude level within the RBW.
- 3. Repeat above procedures until other frequencies measured were completed.

# Limit

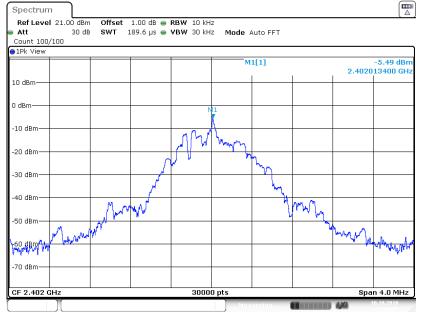
Limit [dBm]

≤8

Test result

Frequency	Power spectral density	Result
MHz	dBm	
Top channel 2402MHz	-5.49	Pass
Middle channel 2440MHz	-4.47	Pass
Bottom channel 2480MHz	-4.50	Pass



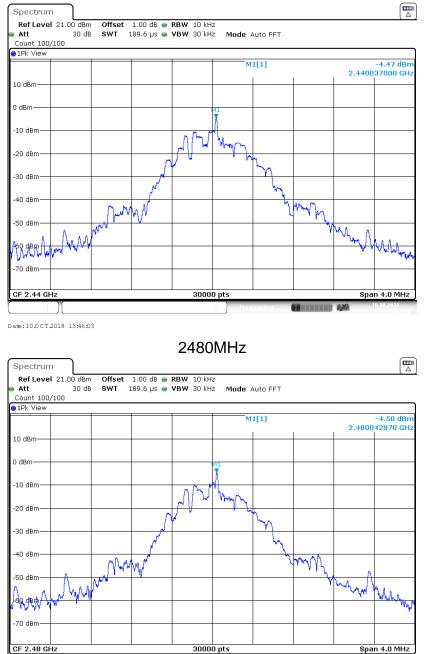


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# 9.5 Spurious RF conducted emissions

#### **Test Method**

- 1. Establish a reference level by using the following procedure:
  - a. Set RBW=100 kHz. VBW≥3RBW. Detector =peak, Sweep time = auto couple, Trace mode = max hold.
  - b. Allow trace to fully stabilize, use the peak marker function to determine the maximum PSD level.
- 2. Use the maximum PSD level to establish the reference level.
  - a. Set the center frequency and span to encompass frequency range to be measured.
  - b. Use the peak marker function to determine the maximum amplitude level. Ensure that the amplitude of all unwanted emissions outside of the authorized frequency band (excluding restricted frequency bands) are attenuated by at least the minimum requirements, report the three highest emissions relative to the limit.
- 3. Repeat above procedures until other frequencies measured were completed.

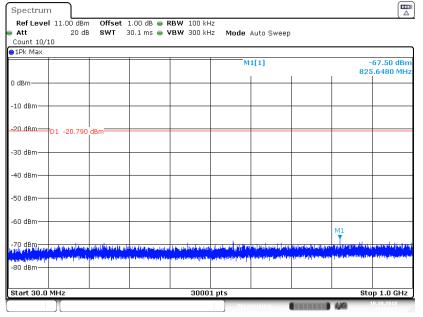
#### Limit

Frequency Range MHz	Limit (dBc)
30-25000	-20

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# Spurious RF conducted emissions

2402MHz



Date:10.0CT.2018 15:44:25

Spectrum Ref Level 20.00 dBm Offset 1	00 dB 👄 RBW 100 kH	7		
Att 30 dB SWT 2	55 ms 👄 VBW 300 kH			
Count 9/10				
1Pk Max		M1[1]		-41.77 dBn
				4.803750 GH
LO dBm				
) dBm				
Jubii				
10 dBm				
20.dBmD1 -20.790 dBm				
30 dBm				
40 dBm M1				
50 dBm				
يستخاله منطقا المالية والمريد فراريه أربيان والمستحد	and a home to state the state	ang dise di Shalimia di Anna kalikasi di J	والمرباة الالوار أستار والمعر أحمارها أخرا	and the one and the distance
	and a subsection of the subsec	and and the second s	A DOLOGINA DAVID	which the dealing action
70 dBm				
Start 1.0 GHz	3000	 1 nts	s	Stop 26.5 GHz

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			-		M	1[1]			-67.89 dBr
						1	1	19	2.0330 MH
dBm									
LO dBm									
:0 dBm	D1 -20.410	dBm							
10 dBm									
0 dBm									
i0 dBm									
i0 dBm—									
'0 dBm	M1	ad the states	ويتوارين ويوارين			Lange at 1	ulture au	the state of the s	
and a proceeding of	NUCLEAR AND A REAL OF A	llanes, en rennes	al analysis and states a	AMMULTING TO A	J David and an and a state	harren an der eine der einen der	and the second second states of the second sec	alayan dalama karana sa s	and the damage shall

Date:10.0CT.2018 15:46:17

Count 9/10 1Pk Max							
				M1[1]			44.11 dBn 79400 GH
10 dBm						4.0	79400 GH
dBm							
10 dBm							
20 dBm 1							
20-08111-01 -:	20.410 dBm						
30 dBm							
40 dBm	11						
	Ť						
50 dBm							
	والبرادم المسلك المرادين	Received Access of the second		ng sélaith, a bhliacht fha ng sa sa sé Mar an Staite an Staite ann an Staite ann an Staite an Staite ann an Staite an Staite ann an Staite ann an Stait			and the second second
60 demonstration	and the state of the second second	والإمدرة والمطب فيكتونهم	Physical Research and a straight of the second s	and the second second	AL MARKED AND AND AND AND AND AND AND AND AND AN	And the resident share	ومرسله والموطعات
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Att Count 10/	20 dE 10	SWT	30.1 ms 👄 '	YDYY SUU Kr	12 Moue	Auto Sweep			
1Pk Max	1			1					
					M	1[1]		8:	-68.43 dBr 11.1960 MH
dBm									
10 dBm									
LU GBM									
20 d8m-	D1 -20.040	dBm							
30 dBm									
10 dBm									
50 dBm									
i0 dBm—									
								N11	
70 dBm			, openangendfest						
30 dBm—	and the second of	and the second secon	n garan na sa	والمرزر وبالا مرمز وماريه وأر	الالبين ويتحمد ويتبتكم	and the second secon	and the second secon	a na an	1.1 (1.1 (1.1 (1.1 (1.1 (1.1 (1.1 (1.1
tart 30.0	MHz		-1	3000	1 pts	I	1	S	top 1.0 GHz

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Spectrum Ref Level 20.00	dam Officat	1.00 dB 👄 R	100 ku	7				
		255 ms 👄 V			Auto Sweep			
Count 9/10								
1Pk Max		1			1[1]			-50.62 dBn
					1[1]			239700 GH
LO dBm								
dBm								
10 dBm								
2 <del>0 dBm - </del> D1 -20.	.040 dBm							
30 dBm								
40 dBm								
50 dBm								
1	يبعرابك فلعقب وال	ينفر للحافة بالأفراحة رماري	الارائد فرابيان والمرحز فلا	and the second second	What, applied	pidly of any	olicitati, the pige	ad produced
50 dB medical states	States Manual Party and the	والمراجع والمراجع	and Applications	No. of Concession, Name	- Marchanes	and the first of the state	Marin Manua	حرجيها فيتأبيهما
out for the second s								
/o ubiii								
tart 1.0 GHz			3000	1 ntc			Stor	26.5 GHz
			3000	r prs			ຣເບ	7 20.3 GHZ

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# 9.6 Band edge

#### **Test Method**

1 Use the following spectrum analyzer settings:

Span = wide enough to capture the peak level of the in-band emission and all spurious RBW = 100 kHz, VBW  $\geq$  RBW, Sweep = auto, Detector function = peak, Trace = max hold.

- 2 Allow the trace to stabilize, use the peak and delta measurement to record the result.
- 3 The level displayed must comply with the limit specified in this Section.

#### Limit

In any 100 kHz bandwidth outside the frequency bands in which the spread spectrum intentional radiator in operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in 15.209(a) (see Section 15.205(c)).

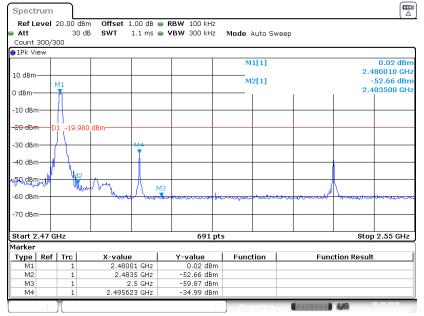
#### Test result

			2402N	MHz				
Spectrum								
Ref Level	20.00	dBm Offset 1.00 dB	3 👄 RBW 100 kHz	2				(-
🕨 Att		DdB <b>SWT</b> 246.5 µ։	5 👄 <b>VBW</b> 300 kHz	Z Mode /	uto FFT			
Count 300/: 1Pk View	300							
DIAK AIGM				M1	[1]			-0.81 dBr
				1011	[1]		2.4	-0.81 UBI
10 dBm				M2	[1]			45.63 dBr
0 dBm							2.4	-00000 🖓
o abiii								1
-10 dBm								<u> </u>
								1 11
-20 dBm-	01 -20.	810 dBm						
-30 dBm								11
00 00								n4 []
-40 dBm								<b>7</b> M
50 ID								1
-50 dBm			mandenderated				M3 M3/ml	ll. T
-60 dBm		man man han	Policies de stat. On	Mark and		May Market	Marche La	
	MUM	production for all	ma) contraction of a	- Marthan	Crow hab			
-70 dBm								
Start 2.3 G	Ηz		691 p	ts			Stop :	2.405 GHz
Marker								
Type Ref		X-value	Y-value	Functi	on	Fun	ction Result	
M1	1	2.40204 GHz	-0.81 dBm					
M2 M3	1	2.4 GHz 2.39 GHz	-45.63 dBm -55.80 dBm					
M3 M4	1	2.39 GHz 2.395109 GHz	-40.90 dBm					
	7			· · ·				0 10 2010

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# 9.7 Spurious radiated emissions for transmitter

#### **Test Method**

1: The EUT was place on a turn table which is 1.5m above ground plane for above 1GHz and 0.8m above ground for below 1GHz at 3-meter chamber room for test. The table was rotated 360 degrees to determine the position of the highest radiation.

2: The EUT was set 3 meters away from the interference – receiving antenna, which was mounted on the top of a variable – height antenna tower.

3: The height of antenna is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

4: For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.

5: Use the following spectrum analyzer settings According to C63.10:

#### For Above 1GHz

Span = wide enough to capture the peak level of the in-band emission and all spurious RBW = 1MHz, VBW≥RBW for peak measurement and VBW = 10Hz for average measurement, Sweep = auto, Detector function = peak, Trace = max hold.

#### For Below 1GHz

Use the following spectrum analyzer settings:

Span = wide enough to capture the peak level of the in-band emission and all spurious RBW = 100 KHz, VBW≥RBW for peak measurement, Sweep = auto, Detector function = peak, Trace = max hold.

#### Note:

1: The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120 KHz for Quasi-peak detection (QP) at frequency below 1GHz.

2: The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is 3MHz for peak detection (PK) at frequency above 1GHz.

3: The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is 3MHz for RMS Average ((duty cycle < 98%) for Average detection (AV) at frequency above 1GHz, then the measurement results was added to a correction factor (20log(1/duty cycle)).

4: The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is 10Hz (duty cycle > 98%) for Average detection (AV) at frequency above 1GHz.

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### Limit

The radio emission outside the operating frequency band 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. Radiated emissions which fall in the restricted bands, as defined in section15.205, must comply with the radiated emission limits specified in section 15.209.

Frequency MHz	Field Strength uV/m	Field Strength dBµV/m	Detector
30-88	100	40	QP
88-216	150	43.5	QP
216-960	200	46	QP
960-1000	500	54	QP
Above 1000	500	54	AV
Above 1000	5000	74	PK

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#### Spurious radiated emissions for transmitter

According to C63.10, if the peak (or quasi-peak) measured value complies with the average limit, it is unnecessary to perform an average measurement, so AV emission value did not show in below table if the peak value complies with average limit.

#### Transmitting spurious emission test result as below:

2402MHz (301	MHz – 1GHz) Frequency MHz	Emission Level dBuV/m	Polarization	Limit dBµV/m	Detector	Result
	100.00	33.51	Horizontal	43.50	QP	Pass
	39.75	34.09	Vertical	40.00	QP	Pass
2402MHz (Ab	ove 1GHz)					
·	Frequency	Emission Level	Polarization	Limit	Detector	Result
	MHz	dBuV/m		dBµV/m		
	4804.22	46.37	Horizontal	74.00	PK	Pass
	2336.12	39.67	Horizontal	74.00	PK	Pass
	4803.28	42.54	Vertical	74.00	PK	Pass
	2336.18	39.81	Vertical	74.00	PK	Pass
2440MHz (Ab	ove 1GHz)					
(	0vc (0)(2)					
Υ.	Frequency	Emission Level	Polarization	Limit	Detector	Result
X	,		Polarization	Limit dBµV/m		Result
X	Frequency	Level	<b>Polarization</b> Horizontal			<b>Result</b> Pass
X	Frequency MHz	Level dBuV/m		dBµV/m	1	
X	Frequency MHz 4879.68	Level dBuV/m 44.41	Horizontal	<b>dΒμV/m</b> 74	PK	Pass
X	Frequency MHz 4879.68 2336.62	Level dBuV/m 44.41 39.24	Horizontal Horizontal	<b>dBμV/m</b> 74 74	PK PK	Pass Pass
2480MHz (Ab	Frequency MHz 4879.68 2336.62 4879.68 2157.81	Level dBuV/m 44.41 39.24 39.68	Horizontal Horizontal Vertical	<b>dBμV/m</b> 74 74 74	PK PK PK	Pass Pass Pass
X	Frequency MHz 4879.68 2336.62 4879.68 2157.81	Level dBuV/m 44.41 39.24 39.68	Horizontal Horizontal Vertical	<b>dBμV/m</b> 74 74 74	PK PK PK	Pass Pass Pass
X	Frequency MHz 4879.68 2336.62 4879.68 2157.81 ove 1GHz)	Level dBuV/m 44.41 39.24 39.68 34.98 Emission	Horizontal Horizontal Vertical Vertical	<b>dΒµV/m</b> 74 74 74 74 74	PK PK PK PK	Pass Pass Pass Pass
X	Frequency MHz 4879.68 2336.62 4879.68 2157.81 ove 1GHz) Frequency	Level dBuV/m 44.41 39.24 39.68 34.98 Emission Level	Horizontal Horizontal Vertical Vertical	dBµV/m 74 74 74 74 Limit	PK PK PK PK	Pass Pass Pass Pass
, , , , , , , , , , , , , , , , , , ,	Frequency MHz 4879.68 2336.62 4879.68 2157.81 Ove 1GHz) Frequency MHz	Level dBuV/m 44.41 39.24 39.68 34.98 Emission Level dBuV/m	Horizontal Horizontal Vertical Vertical	dBµV/m 74 74 74 74 Limit dBµV/m	PK PK PK PK	Pass Pass Pass Pass <b>Result</b>

Remark:

- (1) "\*" means the emission(s) appear within the restrict bands shall follow the requirement of section 15.205.
- (2) Data of measurement within this frequency range shown "--" in the table above means the reading of emissions are the noise floor or attenuated more than 10dB below the permissible limits or the field strength is too small to be measured.
- (3) Above 1GHz: Corrector factor = Antenna Factor + Cable Loss- Amplifier Gain Below 1GHz: Corrector factor = Antenna Factor + Cable Loss

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# **10 Test Equipment List**

	DESCRIPTION	MANUFACTURER	MODEL NO.	SERIAL NO.	CAL. DUE DATE
	EMI Test Receiver	Rohde & Schwarz	ESR 3	101782	2019-7-6
	LISN	Rohde & Schwarz	ENV4200	100249	2019-7-6
	LISN	Rohde & Schwarz	ENV216	100326	2019-7-6
	ISN	Rohde & Schwarz	ENY81	100177	2019-7-6
CE	ISN	Rohde & Schwarz	ENY81- CAT6	101664	2019-7-6
	High Voltage Proble	Rohde & Schwarz	TK9420(VT9 420)	9420-584	2019-6-30
	RF Current probe	Rohde & Schwarz	EZ-17	100816	2019-6-30
С	Signal Generator	Rohde & Schwarz	SMB100A	108272	2019-7-6
· ·	Signal Analyzer	Rohde & Schwarz	FSV40	101030	2019-7-6
	Vector Signal Generator	Rohde & Schwarz	SMU 200A	105324	2019-7-6
	RF Switch Module	Rohde & Schwarz	OSP120/OS P-B157	101226/10085 1	2019-7-6
	EMI Test Receiver	Rohde & Schwarz	ESR 26	101269	2019-7-6
DE	Trilog Super Broadband Test Antenna	Schwarzbeck	VULB 9163	707	2019-6-28
RE	Horn Antenna	Rohde & Schwarz	HF907	102294	2019-6-28
	Pre-amplifier	Rohde & Schwarz	SCU 18	102230	2019-7-6
	3m Semi-anechoic chamber	TDK	9X6X6		2020-7-7

# List of Test Instruments

C - Conducted RF tests

- Conducted peak output power
- 6dB bandwidth
- Power spectral density\*
- Spurious RF conducted emissions
- Band edge
- Conducted emission AC power port

RE - Radiated RF tests

• Spurious radiated emissions for transmitter

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# **11 System Measurement Uncertainty**

For a 95% confidence level, the measurement expanded uncertainties for defined systems, in accordance with the recommendations of ISO 17025 were:

System Measurement Uncertainty				
Test Items	Extended Uncertainty			
Uncertainty for Radiated Emission in 3m chamber 30MHz-	Horizontal: 4.91dB;			
1000MHz	Vertical: 4.89dB;			
Uncertainty for Radiated Emission in 3m chamber 1000MHz-	Horizontal: 4.80dB;			
18000MHz	Vertical: 4.79dB;			
Uncertainty for Conducted Emission 150KHz-30MHz	U=3.21dB			
RF Power Conducted:	1.16dB			
Frequency test involved:	0.6×10 <sup>-7</sup> or 1%			
Power Spectral Density Conducted measurement	1.17dB			
Spurious emissions Conducted measurement	1.43dB			

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