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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: Smart Dumbbell

Model no.: DBV1N-M

FCC ID: 2ARDB-DBV1N-M

Battery type: 3.7V, Li-ion battery

Operating Frequency Range: 2402~2480MHz

Modulation: GFSK

Antenna Type: Ceramic Antenna

Antenna Gain: 5.05dBi

Description of the EUT: EUT is a Smart Dumbbell, 2.4GHz Bluetooth 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		
10-1-2020 Edition	Subpart C - Intentional Radiators		

All the test methods were according to KDB558074 D01 v05r02 and ANSI C63.10 (2013).

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5 Summary of Test Results

Technical Requirements									
FCC Part 15 Subpart C	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 & §15.205	Spurious radiated emissions for transmitter	27-29	Pass	Site 1					
§15.203	Antenna requirement	See note 1	Pass						

Note 1: The EUT uses a ceramic antenna, which gain is 5.05dBi. 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: 2ARDB-DBV1N-M complies with Section 15.247,15.209, 15.205 and 15.203 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: July 10, 2021

Testing Start Date: July 11, 2021

Testing End Date: July 26, 2021

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

Reviewed by:

Prepared by:

Tested by:

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Matt Zhang

Hardy Huang

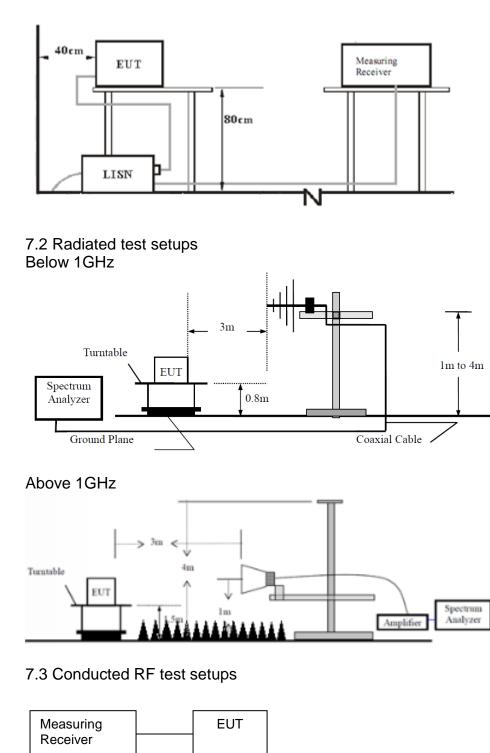
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7 Test Setups

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)
Adaptor	Apple	A153	N/A

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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

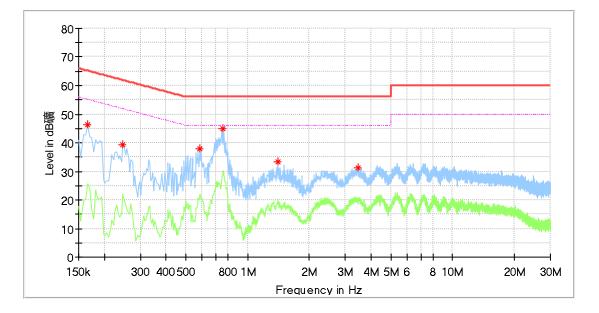
* Decreasing linear

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Conducted Emission

Product Type	:	Smart Dumbbell
M/N	:	DBV1N-M
Operating Condition	:	USB Charging
Conduct Line	:	L



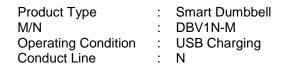
Final_Result

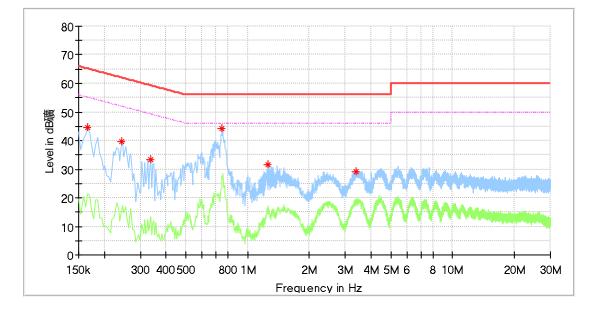
Frequency	MaxPeak	Average	Limit	Margin	Line	Corr.
(MHz)	(dBµV)	(dBµV)	(dBµV)	(dB)		(dB)
0.166000	46.20		65.16	18.95	L1	10.32
0.246000	39.17		61.89	22.72	L1	10.32
0.586000	37.86		56.00	18.14	L1	10.32
0.758000	44.74		56.00	11.26	L1	10.33
1.410000	33.18		56.00	22.82	L1	10.35
3.478000	31.13		56.00	24.87	L1	10.45

Remark: "*" Correct factor=cable loss + LISN factor

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Final_Result

Frequency (MHz)	MaxPeak (dBµV)	Average (dBµV)	Limit (dBµV)	Margin (dB)	Line	Corr. (dB)
0.166000	44.42		65.16	20.74	Ν	10.33
0.242000	39.53		62.03	22.49	Ν	10.33
0.338000	33.41		59.25	25.84	Ν	10.33
0.750000	44.11		56.00	11.89	Ν	10.34
1.262000	31.53		56.00	24.47	Ν	10.36
3.374000	29.19		56.00	26.81	Ν	10.46

Remark: "*" Correct factor=cable loss + LISN factor

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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 MHz	Conducted Peak Output Power dBm	Result
Low channel 2402MHz	-1.77	Pass
Middle channel 2440MHz	-2.25	Pass
High channel 2480MHz	-2.29	Pass



Date: 16.JUL.2021 10:04:45

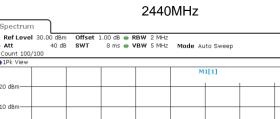
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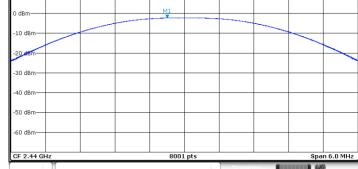
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-2.25 dB 15290 GF

2.439





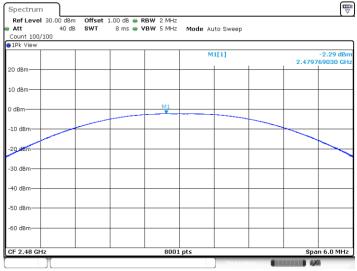
Date: 16.JUL.2021 10:06:32

Spectrum

Count 100/100 ⊖1Pk Vi

20 dBm 10 dBm





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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 [MHz]	DTS BW [MHz]	FL[MHz]	FH[MHz]	Verdict
	2402	0.696	2401.656	2402.352	PASS
BLE	2440	0.696	2439.656	2440.352	PASS
	2480	0.692	2479.656	2480.348	PASS



Count		40 00	dB SWT 18.9 µs (● VBW 300 k	H2 Mode	AUTO FFT			
20 dBm						M1[1] M2[1]		2.40165	.95 dB 600 GF .94 dB
10 dBm								2.40201	
0 dBm-	_			M1 🔿 🗤	N2				
-10 dBm	- - -	1 -7.93	7 dBm	M1 ~~~		3			
-20 dBm	+								
-30 dBm	+					\rightarrow	\sim		
-40 dBm	1								
-50 dBm									
-60 dBm	+								
CF 2.4	D2 GH	z		100	11 pts			Span 4	.0 MH
Marker Type	Pof	Trol	X-value	Y-value	- Euro	ction	Eup	tion Result	
M1	Rel	1	2.401656 GHz	-7.95 c		ction	Fund	cion Result	
M2	M1	1	2.402016 GHz 696.0 kHz	-1.94 0					

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	evel :	30.00 dB							
Att Count	100/1	40 d	iB SWT 18.9 µs 👄	VBW 300 kHz	Mode A	uto FFT			
1Pk Vi		00							
					MI	[1]			-8.49 dBn
20 dBm								2.439	65600 GH
20 UBIII					M2	2[1]			-2.43 dBn
10 dBm								2.440	01600 GH
0 dBm-				N2					
				M1	$\sqrt{\mathbf{k}}$				
-10 dBm		1 -8.435	dBm:		<u>À</u>	<u> </u>			
-20 dBm									
-20 UBI									
-30 dBm						\rightarrow			
							\sim		
-40 dBm									<u> </u>
~~~	_	$\sim$							-
-50 dBr	-								
-60 dBm									
-00 ubii	-								
CF 2.4				1001				0	
	+ GHZ			1001 pt	s			spa	n 4.0 MHz
1arker	Ref	Trol	X-value	Y-value	Funct	ion I	Fund	tion Result	
Type M1	Rel	1	2.439656 GHz	-8,49 dBm	Funct		Fund	cion Resul	
M2		1	2.440016 GHz	-2.43 dBm					
D3	M1	1	696.0 kHz	-0.49 dB					

Date: 16.JUL.2021 10:06:15

#### 2480MHz

Ref Le	vel	30.00 di	Bm Offset	1.00 dB 👄	RBW 100 kH	łz			
Att		40			VBW 300 kH		Auto FFT		
Count	100/1	00							
∋1Pk Vi	вw								
						M	1[1]		-8.51 d
20 dBm-									2.47965600 (
20 ubiii-						M	2[1]		-2.46 d
10 dBm-									2.48001200
10 00111									
0 dBm—					1	12			
					M1 ~~~~	$\sim$			
-10 dBm	<b>—</b>	1 -8.46	2 dBm			× 7			
				1 1	-		$\sim$		
-20 dBm	+							<u> </u>	
-30 dBm	+								
				$\gamma$					
-40 dBm	-								$\sim$
-50 dBm	$\sim$	~							
-50 aem									
-60 dBm									
-00 0011									
CF 2.48	3 GHz				100	1 pts			Span 4.0 M
Marker									
Туре	Ref		X-valu		Y-value	Func	tion	Fund	tion Result
M1 M2		1		656 GHz	-8.51 di				
M2 D3	M1	1		012 GHz 92.0 kHz	-2.46 di -0.11				
03	1411	1	05	72.0 KHZ	-0.11	ub			

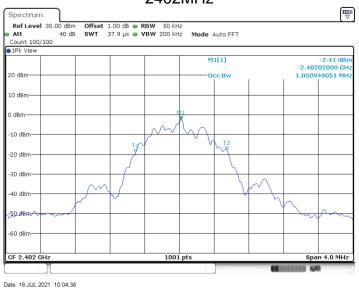
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TestMode	Channel [MHz]	OCB [MHz]	FL[MHz]	FH[MHz]	Verdict
	2402	1.051	2401.497	2402.547	PASS
BLE	2440	1.051	2439.497	2440.547	PASS
	2480	1.051	2479.497	2480.547	PASS



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=3kHz, 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

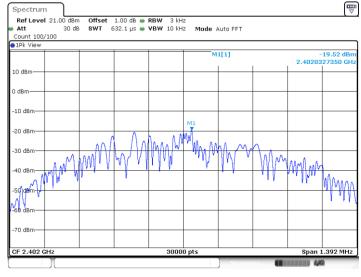
#### Limit [dBm/3KHz]

≤8

Test result

	Power spectral	
Frequency	density	Result
MHz	dBm/3KHz	
Top channel 2402MHz	-19.52	Pass
Middle channel 2440MHz	-20.2	Pass
Bottom channel 2480MHz	-20.14	Pass



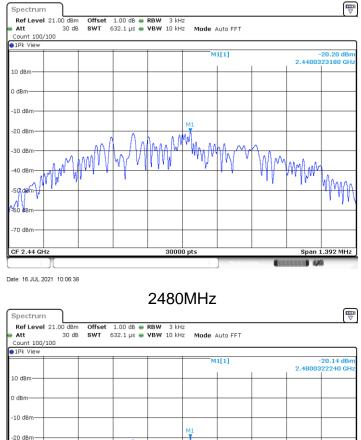


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					м	1[1]		-	20.14 dB
						1	I	2.48003	22240 GH
.0 dBm									
dBm									
10 dBm									
20 dBm			0		M1				
		001	ΙΛΛ	Mara AM	W. AA	A M			
30 dBm	a.M	MIN	WV	TW.	utalla	W.v	MM	MMA	n
40 dBm	MM. M	1,,	Г¥.,			.,	111	and there	MMM
50 08m <del>1/</del> - 60 dBm									1 1
70 dBm									

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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

Spectrum	¹								
Ref Level Att Count 10/1	11.00 dBm 20 dB			RBW 100 kH VBW 300 kH		Auto Sweep			
●1Pk Max									
					M	1[1]			63.86 dBm 1.0300 MHz
0 dBm									
-10 dBm									
-20 dBm	01 -21.950	dBm							
-30 dBm									
-40 dBm									
-50 dBm									
-601dBm									
-70 dBm	দিন সাকৃত্বতা বিদ্যা পৰা	and the state of the	and the second states in the		ज्येक्ष का का रही हुआ	and the second	-		an teamstait Marada
-80 dBm-	anfananggaara	of importance of	a presidenti a consecutiva	d udjiding didawa	o hard on the particular particul	and the solution	hilden den bilden for ander	na official differen	Autoria de la contra
Start 30.0	MHz			3000	1 pts			Sto	p 1.0 GHz
	1					Measur	11. III		1

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1Pk Max								_
				M1[	1]		-52.56 ( 20.083350	
LO dBm								
) dBm								
10 d6m								
20 d6m01	-21.950_dBm							_
30 d6m								
40 d6m								
50 d6m						м1		
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Spectrum Ref Level	11.00 dBm	Offset	1 00 dB 👄	RBW 100 kH	17				
Att	20 dB			VBW 300 kł		Auto Sweep			
Count 10/1 1Pk Max	0								
THK Max					м	1[1]			64.47 dBr .0300 MH
0 dBm									
-10 dBm									
-20 dBm	D1 -22.500	dBm							
-30 dBm									
-40 dBm									
-50 dBm									
-6 <mark>01d</mark> Bm									
				ter fel segarat for finder at the					
-80 dBm	and a state of the		2 Holes Andread Strategy of the	an ag Baugatan sa ag la ga	ing all an a second		and a philod (no	A hilling and refer to the set	ann ann Ann
Start 30.0	MHz			3000	1 pts			Sto	p 1.0 GHz
	J					Measuri			

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Count 9/10 1Pk Max						
			M1[1]			2.01 dBr 0100 GH
10 dBm						
) dBm				_		
10 dBm						
	2.500 dBm					
30 dBm						
40 dBm						
-50 dBm	1.41.4	M1	 م رو جم روانه المنظم المار وار	da a satural cast has	had skallen er er	
59 manual 1	ligtigan ^p arti (1993) Maria di Santa		د <u>يني بالعاقية متعاقبة بدر</u>		and the second se	
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Spectrum	ι								
Ref Level Att Count 10/1	1 11.00 dBm 20 dB			RBW 100 kH VBW 300 kH		Auto Sweep			
1Pk Max									
					M	1[1]			65.05 dBn 9970 MH
0 dBm									
-10 dBm									
-20 dBm	D1 -22.460	dBm							
-30 dBm									
-40 dBm									
-50 dBm									
-60,dBm									
	e (i my internet)			र प्रजानिता । साम्यिका प्र					ياليلا ميريان
-80 dBm			and the second secon	(Fastern for Streetwalt	nig hynnis (phynnin y	dente orte a clitera a	Land Objections		
Start 30.0	MHz		1	3000	1 pts			Sto	p 1.0 GHz
	][]					) Measuri			

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1Pk Max						 
				M1[1]		2.50 dB 9350 GF
LO dBm						
) dBm						
10 dBm						
20 dBm01 -:	22.460 dBm					 
30 dBm						
40 dBm						
50 dBm					M1	
	and the second second	19, 100, 10, 10 all celler the	ultunder	lights fillen and states (states)	ng bay di daran buah pingk an ang ang ang ang ang ang ang ang ang a	والعر أتعاليك
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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  $\ge$  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

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

## **Test result**

Spect	1000			2402	MHz		Ē
		0.00 dE	am Offset 1.00 dB	• RBW 100 kHz	:		( 1
Att	/	30	dB <b>SWT</b> 246.5 μs	VBW 300 kHz	Mode Auto	FFT	
Count		10					
					M1[1]		-1.92 dB
10 dBm·							2.402040 GH
20 0.0111					M2[1]		-51.77 dB
0 dBm—						1	2.40000
-10 dBm							
-20 dBm		-21.92	20 dBm				
-30 dBm							
-50 001	·						
-40 dBm				-			
-50 dBm							MZ
-30 ubii	' T						
-60 dBm	men	LAngel N	Mr. Marshardhard	1 the manufacture	A share a second a state of	all marsher de 100	wanter war M
-70 dBm				·			
-70 aBm							
Start 2	.3 GH:	z		691 p	ts		Stop 2.405 GH
Marker							
Туре	Ref	Trc	X-value	Y-value	Function	Fur	nction Result
M1		1	2.40204 GHz	-1.92 dBm			
M2		1	2.4 GHz	-51.77 dBm			
M3 M4		1	2.39 GHz 2.399674 GHz	-63.14 dBm -53.70 dBm			
1717	_	1	2.339074 012	55.70 UBIII		1	

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	20.00 dBm					
Att	30 dE	3 SWT 1.1 ms 🧉	<b>VBW</b> 300 kHz	Mode Auto Sv	veep	
Count 300 1Pk View	1/300					
DIPK VIEW						
				M1[1]		-2.57 dB 2.480010 GF
10 dBm				M2[1]		-54.54 dB
	M1			MZ[1]		2.483500 GF
) dBm——	N.				1	2.405500 G
-10 dBm—	10					
-10 abm—	1.11					
-20 dBm—						
20 00111	D1 -22.570	dBm				
-30 dBm	11.		_			
	111					
-40 dBm	H \					
	1. 1.					
-50 dBm-		м				
-68-d8h	The the	M A A A A A A A A A A A A A A A A A A A				A
08-00m-						
-70 dBm						
Start 2.47	/ GHz		691 pt	is		Stop 2.55 GH:
1arker						
Type R	ef   Trc	X-value	Y-value	Function	Fund	ction Result
M1	1	2.48001 GHz	-2.57 dBm			
M2	1	2.4835 GHz	-54.54 dBm			
MЗ	1	2.5 GHz	-59.34 dBm			
M4	1	2.483565 GHz	-55.41 dBm			

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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 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 to 120KHz, VBW≥RBW for peak measurement, Sweep = auto, Detector function = peak, Trace = max hold.

For Peak unwanted emissions 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 ,Sweep = auto, Detector function = peak, Trace = max hold.

Procedures for average unwanted emissions measurements above 1000 MHz

a) RBW = 1 MHz.

b) VBW  $\ [3 \times RBW]$ .

c) Detector = RMS (power averaging), if [span / (# of points in sweep)] \ RBW / 2. Satisfying this condition can require increasing the number of points in the sweep or reducing the span. If the condition is not satisfied, then the detector mode shall be set to peak.

d) Averaging type = power (i.e., rms) (As an alternative, the detector and averaging type may be set for linear voltage averaging. Some instruments require linear display mode to use linear voltage averaging. Log or dB averaging shall not be used.)
e) Sweep time = auto.

f) Perform a trace average of at least 100 traces if the transmission is continuous. If the transmission is not continuous, then the number of traces shall be increased by a factor of 1 / D,where D is the duty cycle. For example, with 50% duty cycle, at least 200 traces shall be averaged. (If a specific emission is demonstrated to be continuous—i.e., 100% duty cycle—then rather than turning ON and OFF with the transmit cycle, at least 100 traces shall be averaged.)

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g) If tests are performed with the EUT transmitting at a duty cycle less than 98%, then a correction factor shall be added to the measurement results prior to comparing with the emission limit, to compute the emission level that would have been measured had the test been performed at 100% duty cycle. The correction factor is computed as follows: 1) If power averaging (rms) mode was used in the preceding step e), then the correction factor is [10 log (1 / D)], where D is the duty cycle. For example, if the transmit duty cycle was 50%, then 3 dB shall be added to the measured emission levels. 2) If linear voltage averaging mode was used in the preceding step e), then the correction factor is [20 log (1 / D)], where D is the duty cycle. For example, if the transmit duty cycle was 50%, then 6 dB shall be added to the measured emission levels. 3) If a specific emission is demonstrated to be continuous (100% duty cycle) rather than turning ON and OFF with the transmit cycle, then no duty cycle correction is required for that emission.

## 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



#### 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:

	Frequency	Emission Level	Polarization	Limit	Detector	Result
	MHz	dBuV/m		dBµV/m		
	101.90	16.10	Horizontal	46.00	QP	Pass
	167.31	16.76	Vertical	46.00	QP	Pass
2402MHz (At	ove 1GHz)					
,	Frequency	Emission Level	Polarization	Limit	Detector	Result
	MHz	dBuV/m		dBµV/m		
	4391.50*	44.35	Horizontal	74.00	PK	Pass
	5227.50	47.15	Horizontal	74.00	PK	Pass
	4549.50*	43.49	Vertical	74.00	PK	Pass
	5930.50	42.47	Vertical	74.00	PK	Pass
2440MHz (At	ove 1GHz)					
,	Frequency	Emission Level	Polarization	Limit	Detector	r Resul
	MHz	dBuV/m		dBµV/m		
	3280.00	43.63	Horizontal	74	PK	Pass
	5288.00	42.20	Horizontal	74	PK	Pass
	3224.50	46.33	Vertical	74	PK	Pass
	5854.50	50.69	Vertical	74	PK	Pass
2480MHz (At	ove 1GHz)					
	Frequency	Emission Level	Polarization	Limit	Detector	Result
	MHz	dBuV/m		dBµV/m		
	4123.50*	47.78	Horizontal	74.00	PK	Pass
	5801.00	50.37	Horizontal	74.00	PK	Pass
	4148.00*	47.43	Vertical	74.00	PK	Pass
	5909.50	50.84	Vertical	74.00	PK	Pass

- (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	2022-6-4
	LISN	Rohde & Schwarz	ENV4200	100249	2022-6-5
	LISN	Rohde & Schwarz	ENV216	100326	2022-6-5
	ISN	Rohde & Schwarz	ENY81	100177	2022-6-5
CE	ISN	Rohde & Schwarz	ENY81- CAT6	101664	2022-6-5
	High Voltage Proble	Rohde & Schwarz	TK9420(VT9 420)	9420-584	2022-6-5
	RF Current probe	Rohde & Schwarz	EZ-17	100816	2022-6-5
С	Signal Generator	Rohde & Schwarz	SMB100A	108272	2022-6-3
Ū	Signal Analyzer	Rohde & Schwarz	FSV40	101030	2022-6-3
	Vector Signal Generator	Rohde & Schwarz	SMU 200A	105324	2022-6-3
	RF Switch Module	Rohde & Schwarz	OSP120/OS P-B157	101226/10085 1	2022-6-3
	EMI Test Receiver	Rohde & Schwarz	ESR 7	102176	2022-6-4
	Trilog Super Broadband Test Antenna	Schwarzbeck	VULB 9163	707	2022-7-23
RE	Horn Antenna	Rohde & Schwarz	HF907	102294	2022-6-23
	Pre-amplifier	Rohde & Schwarz	SCU 18	102230	2022-6-6
	3m Semi-anechoic chamber	TDK	9X6X6		2022-10-28

# **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: 5.12dB;			
1000MHz	Vertical: 5.10dB;			
Uncertainty for Radiated Emission in 3m chamber 1000MHz-	Horizontal: 5.01dB;			
25000MHz	Vertical: 5.00dB;			
Uncertainty for Conducted Emission 150KHz-30MHz	U=3.21dB			
Uncertainty for conducted power test	1.16dB			
Frequency test involved:	0.6×10 ⁻⁷			

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