

# FCC - TEST REPORT

Report Number :	709502301742-00D	Date of Issue: June 26, 2023				
Model	: Fotric P9, Fotric P8, Fotric	c P7, Fotric P6, Fotric P5, Fotric P4				
Product Type	: Infrared Thermal Camera					
Applicant	: FOTRIC INC.					
Address	: No. 14, Lane 2500, Xiupu	Road, Pudong, 201201 Shanghai,				
	PEOPLE'S REPUBLIC OI	F CHINA				
Manufacturer	: FOTRIC INC.					
Address	: No. 14, Lane 2500, Xiupu Road, Pudong, 201201 Shanghai,					
	PEOPLE'S REPUBLIC OF CHINA					
Test Result :	■ Positive	tive				
Total pages including Appendices :	43					

TÜV SÜD Certification and Testing (China) Co., Ltd. Shanghai Branch is a subcontractor to TÜV SÜD Product Service GmbH according to the principles outlined in ISO 17025.

TÜV SÜD Certification and Testing (China) Co., Ltd. Shanghai Branch reports apply only to the specific samples tested under stated test conditions. Construction of the actual test samples has been documented. It is the manufacturer's responsibility to assure that additional production units of this model are manufactured with identical electrical and mechanical components. The manufacturer/importer is responsible to the Competent Authorities in Europe for any modifications made to the production units which result in non-compliance to the relevant regulations. TÜV SÜD Certification and Testing (China) Co., Ltd. Shanghai Branch shall have no liability for any deductions, inferences or generalizations drawn by the client or others from TÜV SÜD Certification and Testing (China) Co., Ltd. Shanghai Branch issued reports.

This report is the confidential property of the client. As a mutual protection to our clients, the public and ourselves, extracts from the test report shall not be reproduced except in full without our written approval.



# 1 Table of Contents

1	Table of Contents	2
2	Details about the Test Laboratory	3
3	Description of the Equipment under Test	4
4	Summary of Test Standards	6
5	Summary of Test Results	7
6	General Remarks	8
7	Test Setups	9
8	Systems test configuration	12
9	Technical Requirement	13
9.	1 Conducted Emission	13
9.	2 Conducted peak output power	18
9.	3 6dB bandwidth	20
9.	4 Power spectral density	22
9.	5 Spurious RF conducted emissions	24
9.	6 Band edge	31
9.	7 Spurious radiated emissions for transmitter	34
10	Test Equipment List	41
11	System Measurement Uncertainty	42
12	Photographs of Test Set-ups	43
13	Photographs of EUT	43



# 2 Details about the Test Laboratory

Test S	ite 1
--------	-------

Company name:	TÜV SÜD Certification and Testing (China) Co., Ltd. Shanghai Branch No.16 Lane, 1951 Du Hui Road, Shanghai 201108, P.R. China
Test Firm FCC Registration Number:	820234
Designation number:	CN1183
IC Company Number:	25988
CAB identifier:	CN0101
Telephone: Fax:	+86 21 6141 0123 +86 21 6140 8600



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

Product:	Infrared Thermal Camera	
Model no.:	Fotric P9, Fotric P8, Fotric P7, Fotric P6, Fotric P5, F	otric P4
FCC ID:	2AZTCJAGUAR	
Options and accessories:	Test harness	
Rating:	DC 3.6V Li-ion Battery	
RF Transmission Frequency: No. of Operated Channel:	2402~2480MHz for Bluetooth For 2.4G & 5G Wi-Fi For 802.11b/g/n-HT20: 2412~2462 MHz For 802.11n-HT40: 2422~2452 MHz 5180~5240 MHz (U-NII-1) 5260~5320 MHz (U-NII-2A) 5500~5720 MHz (U-NII-2C) 5745~5825 MHz (U-NII-3) 79 channels for Bluetooth 4.2+EDR 40 channels for Bluetooth 4.2 BLE 2.4GHz WIFI: 11 for 802.11b/802.11g/802.11(H20); 7 for 802.11n(HT40) 5180~5240 MHz (U-NII-1): Channel 36 - 48 5260~5320 MHz (U-NII-2A): Channel 52 - 64 5500~5720 MHz (U-NII-2C): Channel 100 -144 5745~5825 MHz (U-NII-3): Channel 149 - 165	
Modulation:	Bluetooth 4.2+EDR FHSS: GFSK, π/4 DQPSK, 8DPS Bluetooth 4.2+BLE DHSS: GFSK For Wi-Fi: Direct Sequence Spread Spectrum (DSSS Orthogonal Frequency Division Multiplexing (OFDM) 802.11a/b/g/n/ac	) for 802.11b
Hardware Version:	0.6.2.4	
Software Version:	V3.0.0	
Data speed:	<ol> <li>Bluetooth 4.2+EDR FHSS: 1Mbps, 2Mbps, 3Mbps</li> <li>Bluetooth 4.2+BLE DHSS: 1Mbps</li> <li>Wi-Fi: 11b 1 ~ 11Mbps, 11g/a 6 ~ 54Mbps, 11n HT20 6.5 ~ 72.2Mb 11n HT 40 13.5 ~ 150Mbps, 11ac VHT40 13.5 ~ 200Mbps, 11ac VHT80 29.3 ~ 433.3Mbps</li> </ol>	
EMC_SHA_F_R_02.05E	TÜV SÜD Certification and Testing (China) Co., Ltd. Shanghai Branch 3-13, No.151, Heng Tong Road, Shanghai, 200070, P.R. China Phone: +86 21 61410123, Fax:+86 21 61408600	Page 4 of 43 Rev. 20.00



Antenna Type:	PIFA Antenna	China
Antenna Gain:	1.79dBi for 2.4GHz; 7.19dBi for 5GHz	
Description of the EUT:	The Equipment Under Test (EUT) is an Infrared Thermal with Bluetooth and Wi-Fi Module. The EUT support Bluet 4.2+EDR and support BLE function and Wi-Fi operated a and 2.4GHz. Only 2.4G BLE included in this report.	ooth
Test sample no.:	SHA-716542-2	

The sample's mentioned in this report is/are submitted/ supplied/ manufactured by client. The laboratory therefore assumes no responsibility for accuracy of information on the brand name, model number, origin of manufacture, consignment or any information supplied.



### 4 Summary of Test Standards

Test Standards			
FCC Part 15 Subpart C PART 15 - RADIO FREQUENCY DEVICES			
	Subpart C - Intentional Radiators		

All the test methods were according to KDB 558074 D01 15.247 Meas Guidance v05r02 and ANSI C63.10 (2013).



## 5 Summary of Test Results

	Technical Requireme	ents				
FCC Part 15 Subp	oart C		1	1		
Test Condition		Pages	Test		st Res	
		1 ugoo	Site	Pass	Fail	<u>N/A</u>
§15.207	Conducted emission AC power port	13-17	Site 1			
§15.247 (b) (1)	Conducted peak output power	18-19	Site 1			
§15.247(a)(1)	20dB bandwidth					$\boxtimes$
§15.247(a)(1)	Carrier frequency separation					$\square$
§15.247(a)(1)(iii)	Number of hopping frequencies					$\square$
§15.247(a)(1)(iii)	Dwell Time					$\square$
§15.247(a)(2)	6dB bandwidth	20-21	Site 1			
§15.247(e)	Power spectral density	22-23	Site 1			
§15.247(d)	Spurious RF conducted emissions	24-30	Site 1			
§15.247(d)	Band edge 31-33 S		Site 1			
§15.247(d) & §15.209	Spurious radiated emissions for transmitter	34-40	Site 1			
§15.203	Antenna requirement	See note 1				

Remark 1: N/A – Not Applicable.

Note 1: The EUT uses a PIFA antenna, which gain is 1.79dBi for 2.4GHz. In accordance to §15.203, It is considered sufficiently to comply with the provisions of this section.



#### Remarks

This submittal(s) (test report) is intended for FCC ID: 2AZTCJAGUAR complies with Section 15.207,15.209,15.247 of the FCC Part 15, Subpart C Rules

This report in only for 2.4GHz BLE.

According to the client's declaration, all the models have the same electrical circuit board and mechanical structure, except schematic and hardware circuit, except pixel, lens or physical size differences., and we chose the Fotric P7 to perform all the tests.

#### 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:March 24, 2023Testing Start Date:March 27, 2023Testing End Date:May 24, 2023

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

Reviewed by:

Prepared by:

Tested by:

ang Tiquan

Yiquan WANG Test Engineer

EMC\_SHA\_F\_R\_02.05E

Hui TONG

**Review Engineer** 

TÜV SÜD Certification and Testing (China) Co., Ltd. Shanghai Branch 3-13, No.151, Heng Tong Road, Shanghai, 200070, P.R. China Phone: +86 21 61410123, Fax:+86 21 61408600 Page 8 of 43 Rev. 20.00



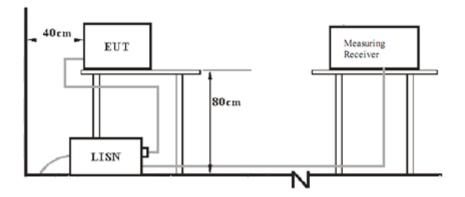
SUD SUD

Jiaxi XU Project Engineer



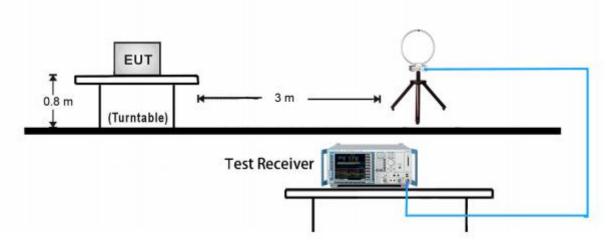
# 7 Test Setups

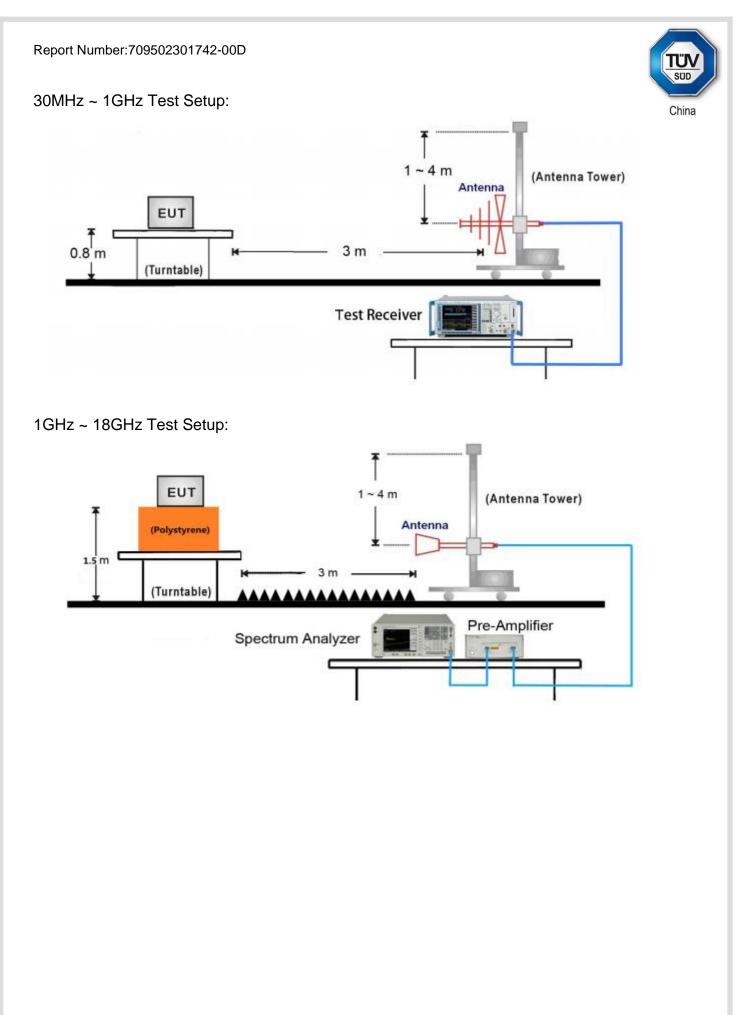
### 7.1 AC Power Line Conducted Emission test setups



7.2 Radiated test setups

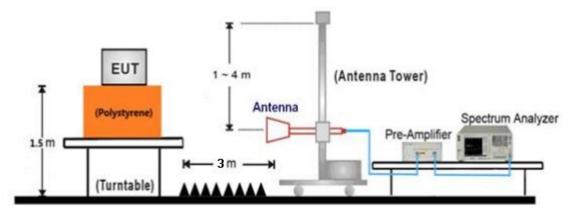
9kHz ~ 30MHz Test Setup:



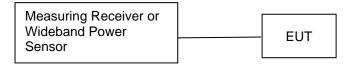




18GHz ~ 25GHz Test Setup:



### 7.3 Conducted RF test setups





### 8 Systems test configuration

Auxiliary Equipment Used during Test:

DESCRIPTION	MANUFACTURER	MODEL NO.(SHIELD)	S/N(LENGTH)
Notebook	Lenove	E470	PF-OU5TS7 17/09

Test software: QRCT.exe

The system was configured to channel 0, 19, and 39 for the test.

Non-hopping mode: The system was configured to operate at a signal channel transmitting. The test software allows the configuration and operation at the worst-case duty and the highest transmit power.



### 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

Freque	ncy	QP Limit	AV Limit
MHz		dBµV	dBµV
0.150-0.	500	66-56*	56-46*
0.500	-5	56	46
5-30	1	60	50
Decreasing li	nearly with	logarithm of the	frequency



**Conducted Emission** 

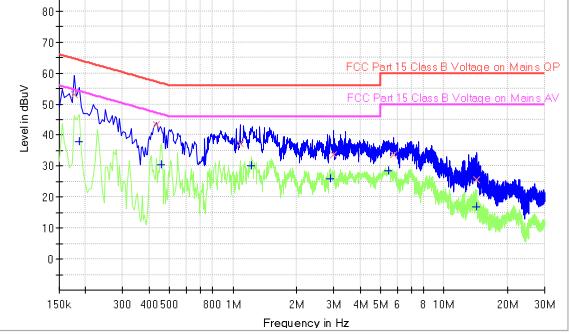
# **150k-30MHz Conducted Emission Test**

### **EUT Information**

Op CondPower on, TX_2440MHz, AC 230/50Hz, T21.3, H56.3%, P100.6kPaOperator:Wang YiquanStandardFCC part 15.207(a)Comment:Phase LSample No.:SHA-716542-2	EUT Name: Model Client:	Infrared Thermal Camera Fotric P7 FOTRIC INC.
Standard FCC part 15.207(a) Comment: Phase L	Op Cond	Power on, TX_2440MHz, AC 230/50Hz, T21.3, H56.3%, P100.6kPa
	Standard Comment:	FCC part 15.207(a) Phase L

## Scan Setup: Voltage with 2-Line-LISN pre [EMI conducted]

Hardware Setup: Receiver: Level Unit:	: Voltage with 2-Line-LISN [ESR 3] dBuV					
<b>Subrange</b> 9 kHz - 150 kHz 150 kHz - 30 MHz	<b>Step Size</b> 100 Hz 4.5 kHz	<b>Detectors</b> PK+ PK+; AVG	<b>IF BW</b> 200 Hz 9 kHz	<b>Meas. Time</b> 0.02 s 0.01 s	<b>Preamp</b> 0 dB 0 dB	
100 T						
90-						
80						
70						



EMC\_SHA\_F\_R\_02.05E

TÜV SÜD Certification and Testing (China) Co., Ltd. Shanghai Branch 3-13, No.151, Heng Tong Road, Shanghai, 200070, P.R. China Phone: +86 21 61410123, Fax:+86 21 61408600 Page 14 of 43 Rev. 20.00



#### Final\_Result

Frequency	QuasiPeak	CAverage	Limit	Margin	Meas.	Bandwidth	Line	Corr.
(MHz)	(dBuV)	(dBuV)	(dBuV)	(dB)	Time	(kHz)		(dB)
					(ms)			
0.177000	53.02		64.63	11.61	1000.0	9.000	L1	19.6
0.186000		37.98	54.21	16.23	1000.0	9.000	L1	19.6
0.433500	43.37		57.19	13.82	1000.0	9.000	L1	19.6
0.456000		30.54	46.77	16.23	1000.0	9.000	L1	19.6
1.081500	37.33		56.00	18.67	1000.0	9.000	L1	19.6
1.216500		29.98	46.00	16.02	1000.0	9.000	L1	19.6
2.886000		25.80	46.00	20.20	1000.0	9.000	L1	19.6
2.994000	33.53		56.00	22.47	1000.0	9.000	L1	19.6
5.442000		28.38	50.00	21.62	1000.0	9.000	L1	19.6
5.748000	33.57		60.00	26.43	1000.0	9.000	L1	19.6
14.208000	25.75		60.00	34.25	1000.0	9.000	L1	19.8
14.235000		16.95	50.00	33.05	1000.0	9.000	L1	19.8

Note 1: Measure Level (dBuV/m) = Reading Level (dBuV) + Factor (dB) Factor (dB) = Cable Loss (dB) + LISN Factor (dB) + 10dB Attenuator



# **150k-30MHz Conducted Emission Test**

### **EUT Information**

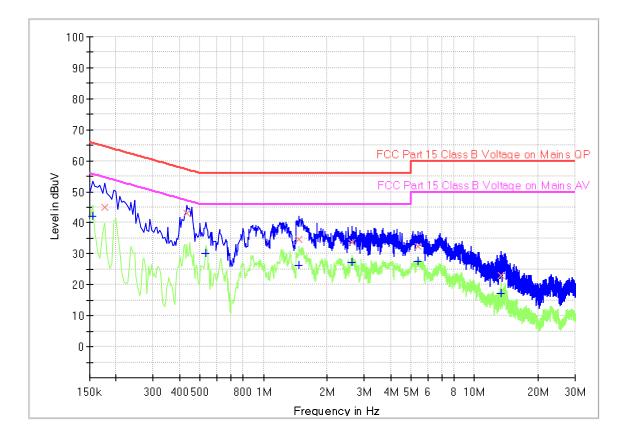
EUT Name:
Model
Client:
Op Cond
<b>O</b> m e met e m

Operator: Standard Comment: Sample No.: Infrared Thermal Camera Fotric P7 FOTRIC INC. Power on, TX\_2440MHz, AC 230/50Hz, T21.3, H56.3%, P100.6kPa Wang Yiquan FCC part 15.207(a) Phase N SHA-716542-2

## Scan Setup: Voltage with 2-Line-LISN pre [EMI conducted]

Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
Hardware Setup: Receiver: Level Unit:	Voltaç [ESR dBuV	-	ISN		

Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
9 kHz - 150 kHz	100 Hz	PK+	200 Hz	0.02 s	0 dB
150 kHz - 30 MHz	4.5 kHz	PK+; AVG	9 kHz	0.01 s	0 dB



EMC\_SHA\_F\_R\_02.05E

TÜV SÜD Certification and Testing (China) Co., Ltd. Shanghai Branch 3-13, No.151, Heng Tong Road, Shanghai, 200070, P.R. China Phone: +86 21 61410123, Fax:+86 21 61408600 Page 16 of 43 Rev. 20.00



### Final\_Result

Frequency	QuasiPeak	CAverage	Limit	Margin	Meas.	Bandwidth	Line	Corr.
(MHz)	(dBuV)	(dBuV)	(dBuV)	(dB)	Time (ms)	(kHz)		(dB)
0.154500		42.19	55.75	13.56	1000.0	9.000	Ν	19.6
0.177000	45.16		64.63	19.47	1000.0	9.000	Ν	19.6
0.433500	42.99		57.19	14.20	1000.0	9.000	Ν	19.6
0.532500		30.09	46.00	15.91	1000.0	9.000	Ν	19.6
1.468500	34.52		56.00	21.48	1000.0	9.000	Ν	19.6
1.468500		26.08	46.00	19.92	1000.0	9.000	Ν	19.6
2.616000		27.32	46.00	18.68	1000.0	9.000	Ν	19.6
2.634000	33.53		56.00	22.47	1000.0	9.000	Ν	19.6
5.401500	32.41		60.00	27.59	1000.0	9.000	Ν	19.7
5.401500		27.55	50.00	22.45	1000.0	9.000	Ν	19.7
13.371000		17.08	50.00	32.92	1000.0	9.000	Ν	19.9
13.371000	22.87		60.00	37.13	1000.0	9.000	Ν	19.9

Note 1: Measure Level (dBuV/m) = Reading Level (dBuV) + Factor (dB) Factor (dB) = Cable Loss (dB) + LISN Factor (dB) + 10dB Attenuator



### 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. Use a spectrum analyzer to measure the conducted peak output power.

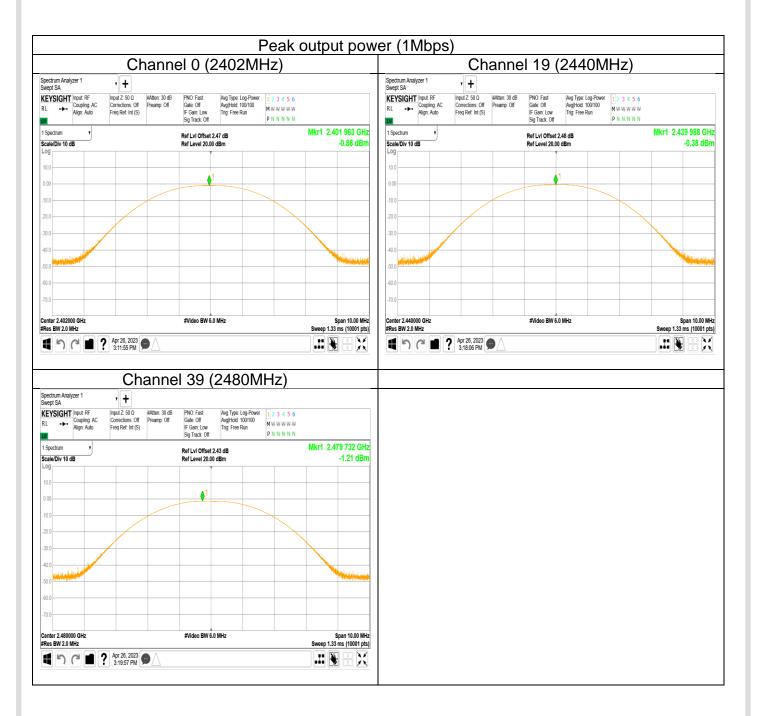
### Limits

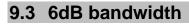
Frequency Range MHz	Limit W	Limit dBm
		ubiii
2400-2483.5	≤1	≤30

Test result as below table

Data transmission	Frequency	Conducted	d Peak Outp §15.247 (b	out Power (dBm) b) (1)
Rate	(MHz)	Result	limit	Verdict
	2402MHz	-0.88	≤30	Pass
1Mbps	2440MHz	-0.38	≤30	Pass
	2480MHz	-1.21	≤30	Pass







#### **Test Method**

- 1. Use the following spectrum analyzer settings: RBW=100K, VBW≥3RBW, Sweep = auto, Detector function = peak, Trace = max hold
- 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 ≥ 6 dB.
- 3. Allow the trace to stabilize, record the X dB Bandwidth value.

### Limit

Limit [kHz]

≥500

### **Test result**

Data	Frequency	6dB bandw	/idth (MHz)	Result
transmission rate	MHz	result	limit	verdict
	2402	0.719	≥0.5	Pass
1Mbps	2440	0.669	≥0.5	Pass
	2480	0.661	≥0.5	Pass





#### 6dB Bandwidth



EMC\_SHA\_F\_R\_02.05E

TÜV SÜD Certification and Testing (China) Co., Ltd. Shanghai Branch 3-13, No.151, Heng Tong Road, Shanghai, 200070, P.R. China Phone: +86 21 61410123, Fax:+86 21 61408600 Page 21 of 43 Rev. 20.00



### 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.

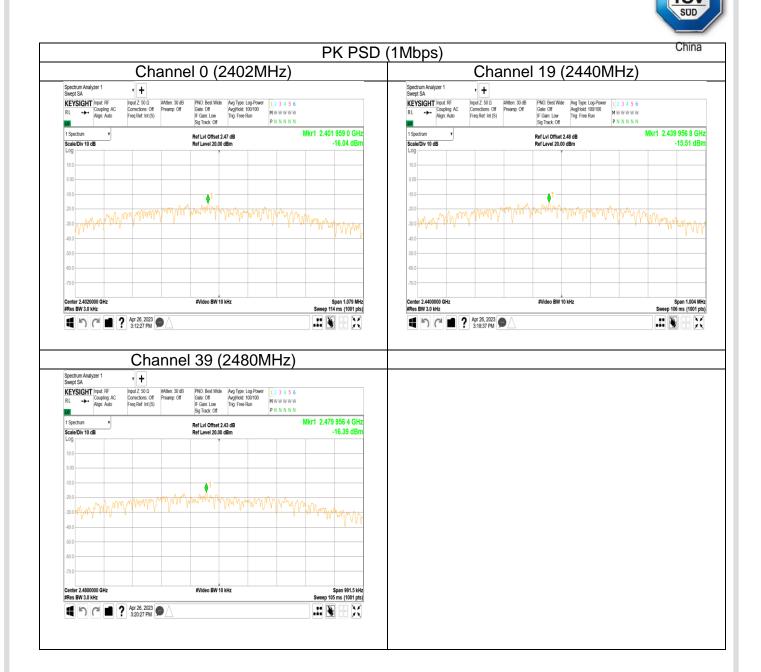
#### Limit

#### Limit [dBm/3kHz]

≪8

#### **Test result**

Data transmission rate	Frequency	Power spectral density	Result
	MHz	dBm/3kHz	
1Mbps	Top channel 2402MHz	-16.04	Pass
TMbps	Middle channel 2440MHz	-15.51	Pass
	Bottom channel 2480MHz	-16.39	Pass





### 9.5 Spurious RF conducted emissions

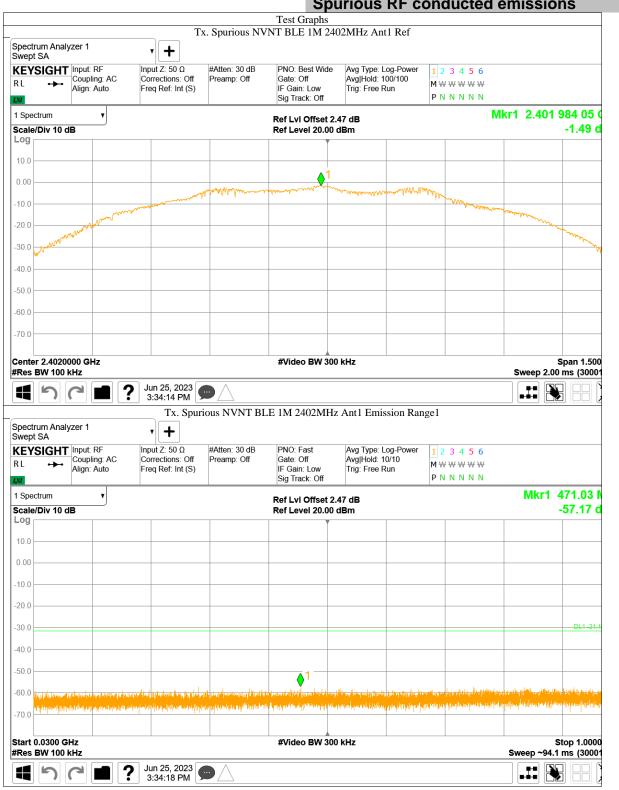
#### **Test Method**

- 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.

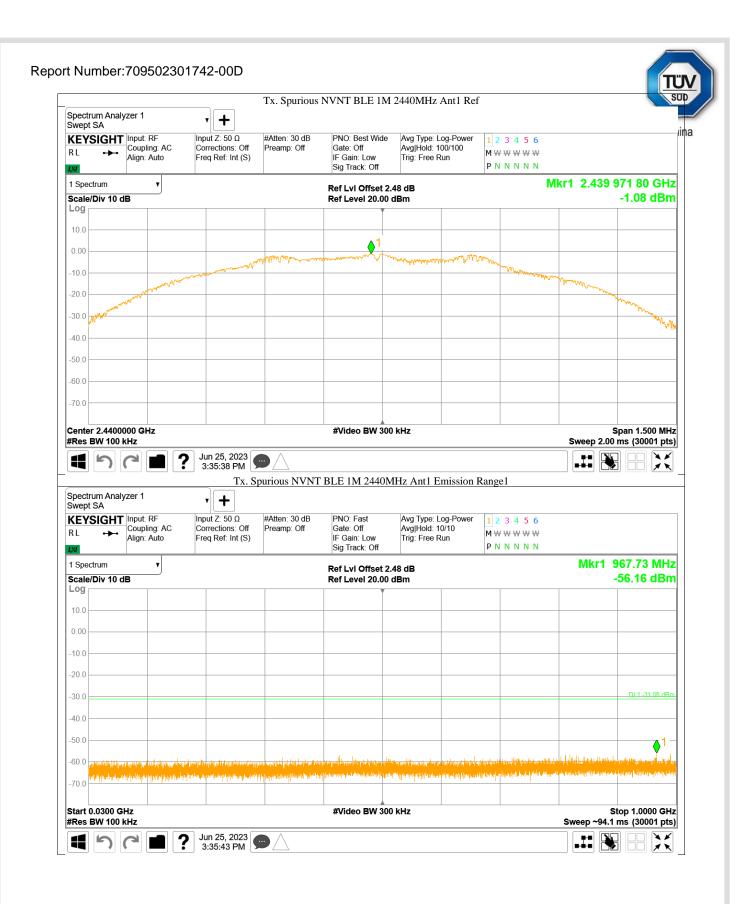
#### Limit

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

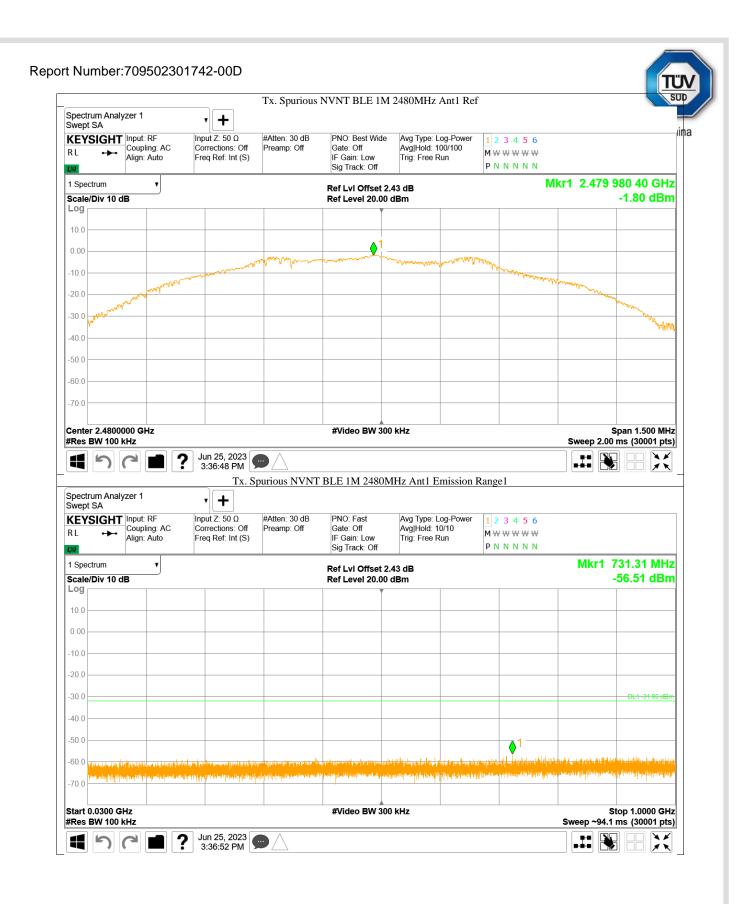




pectrum Ana	luzer 1		Tx. Sp	ourious	NVNT	BLE 1M 2402	MHz Antl I	Emission I	Range2				S
wept SA		• +											
EYSIGH⊺ └ ·≁·	Input: RF Coupling: AC Align: Auto	Input Z: 50 Corrections Freq Ref: I	s: Off	#Atten: 3 Preamp:		PNO: Fast Gate: Off IF Gain: Low Sig Track: Off	Avg Type: Avg Hold: Trig: Free	10/10	1 2 3 M₩₩ P N N	∀₩₩			
Spectrum	•					Ref Lvl Offset	2.47 dB				Mkr1	2.402	27 GHz
cale/Div 10	dB					Ref Level 20.0	0 dBm					-2.*	10 dBm
0.0					<u> </u>								
0.0					<b>Y</b>								
0.0												DL	1 -31.49 dBm
0.0			{} <mark>2</mark>										
0.0		Lange to a descention of	and the balance	et areast of	a data a data data data data data data	a and a fall the second se	والمراجع والمراجع المراجع والمراجع	u minana ang mang kitu.	and a start a start of	k		and a second provide the second	and the factor of the first
0.0	a manana manana mina ting katika tangkadar.	alan patata patata patata	ang tan ting an ang bi	h ha an an an Ann An Annaich an An	de jaar staar		angan garigi da si garan sa sa sa sa		ing sector de la constant	na silana kipanaka	ter fictorischeter direktionen	and a statistic statistic statistics and	and provide
art 1.000 GI						#Video BW 3	00 kHz				_		5.000 GHz
Res BW 100											Sweep ~	-384 ms (	30001 pts)
Marker Table													
Mode 1 N	Trace Scale		X 2.402	27 GHz		Y -2.100 dBm	Function	Fund	tion Widt	۱	Functio	on Value	
2 N 3	1 f			93 GHz		-44.80 dBm							
4													
5													
6													
ectrum Ana	<b>()</b>		РМ 🔰		NVNT	BLE 1M 2402	MHz Ant1 H	Emission H	Range3				
ectrum Ana vept SA EYSIGHT	lyzer 1	3:34:26	PM $Tx. Sp$ $\Omega$ s: Off		30 dB	PNO: Fast Gate: Off IF Gain: Low Sig Track: Off	MHz Ant1 F Avg Type: Avg[Hold: Trig: Free	Log-Power 10/10	$\frac{1}{M} \approx \frac{2}{W} \approx \frac{3}{W}$	∀₩₩			
EYSIGHT L +> Spectrum Cale/Div 10	lyzer 1 Coupling: AC Align: Auto	3:34:26	PM $Tx. Sp$ $\Omega$ s: Off	#Atten: 3	30 dB	PNO: Fast Gate: Off IF Gain: Low	Avg Type: Avg Hold: Trig: Free 2.47 dB	Log-Power 10/10	1 2 3 M ₩ ₩ 1	∀₩₩			I 3 GHz
ectrum Ana wept SA EYSIGHT L →→→ Spectrum cale/Div 10	lyzer 1 Coupling: AC Align: Auto	3:34:26	PM $Tx. Sp$ $\Omega$ s: Off	#Atten: 3	30 dB	PNO: Fast Gate: Off IF Gain: Low Sig Track: Off Ref LvI Offset	Avg Type: Avg Hold: Trig: Free 2.47 dB	Log-Power 10/10	1 2 3 M ₩ ₩ 1	∀₩₩			□ 🗶 🔪
ectrum Ana vept SA EYSIGHT L →→→ Spectrum cale/Div 10	lyzer 1 Coupling: AC Align: Auto	3:34:26	PM $Tx. Sp$ $\Omega$ s: Off	#Atten: 3	30 dB	PNO: Fast Gate: Off IF Gain: Low Sig Track: Off Ref LvI Offset	Avg Type: Avg Hold: Trig: Free 2.47 dB	Log-Power 10/10	1 2 3 M ₩ ₩ 1	∀₩₩			□ 🗶 🔪
EYSIGHT EYSIGHT Spectrum Spectrum cale/Div 10	lyzer 1 Coupling: AC Align: Auto	3:34:26	PM $Tx. Sp$ $\Omega$ s: Off	#Atten: 3	30 dB	PNO: Fast Gate: Off IF Gain: Low Sig Track: Off Ref LvI Offset	Avg Type: Avg Hold: Trig: Free 2.47 dB	Log-Power 10/10	1 2 3 M ₩ ₩ 1	∀₩₩			□ 🗶 🔪
ectrum Ana vept SA EYSIGHT L +++ Spectrum cale/Div 10	lyzer 1 Coupling: AC Align: Auto	3:34:26	PM $Tx. Sp$ $\Omega$ s: Off	#Atten: 3	30 dB	PNO: Fast Gate: Off IF Gain: Low Sig Track: Off Ref LvI Offset	Avg Type: Avg Hold: Trig: Free 2.47 dB	Log-Power 10/10	1 2 3 M ₩ ₩ 1	∀₩₩			□ 🗶 🔪
ectrum Ana vept SA EYSIGHT L →→ Spectrum cale/Div 10 0 0 0 0 0	lyzer 1 Coupling: AC Align: Auto	3:34:26	PM $Tx. Sp$ $\Omega$ s: Off	#Atten: 3	30 dB	PNO: Fast Gate: Off IF Gain: Low Sig Track: Off Ref LvI Offset	Avg Type: Avg Hold: Trig: Free 2.47 dB	Log-Power 10/10	1 2 3 M ₩ ₩ 1	∀₩₩			□ 🗶 🔪
EVSIGHT L Provide the sector of the sector	lyzer 1 Coupling: AC Align: Auto	3:34:26	PM $Tx. Sp$ $\Omega$ s: Off	#Atten: 3	30 dB	PNO: Fast Gate: Off IF Gain: Low Sig Track: Off Ref LvI Offset	Avg Type: Avg Hold: Trig: Free 2.47 dB	Log-Power 10/10	1 2 3 M ₩ ₩ 1	∀₩₩		-45.1	I 3 GHz 74 dBm
EYSIGHT L →→ Spectrum Cale/Div 10 00 0.0 0.0 0.0 0.0 0.0 0.0	lyzer 1 Coupling: AC Align: Auto	3:34:26	PM $Tx. Sp$ $\Omega$ s: Off	#Atten: 3	30 dB	PNO: Fast Gate: Off IF Gain: Low Sig Track: Off Ref LvI Offset	Avg Type: Avg Hold: Trig: Free 2.47 dB	Log-Power 10/10	1 2 3 M ₩ ₩ 1	∀₩₩		-45.1	□ 🗶 🔪
EYSIGHT L →→ Spectrum Cale/Div 10 00 0.0 0.0 0.0 0.0 0.0 0.0	lyzer 1 Coupling: AC Align: Auto	3:34:26	PM $Tx. Sp$ $\Omega$ s: Off	#Atten: 3	30 dB	PNO: Fast Gate: Off IF Gain: Low Sig Track: Off Ref LvI Offset	Avg Type: Avg Hold: Trig: Free 2.47 dB	Log-Power 10/10	1 2 3 M ₩ ₩ 1	∀₩₩		-45.1	I 3 GHz 74 dBm
EVSIGHT     L     C    C	lyzer 1 Coupling: AC Align: Auto	3:34:26	PM $Tx. Sp$ $\Omega$ s: Off	#Atten: 3	30 dB	PNO: Fast Gate: Off IF Gain: Low Sig Track: Off Ref LvI Offset	Avg Type: Avg Hold: Trig: Free 2.47 dB	Log-Power 10/10	1 2 3 M ₩ ₩ 1	∀₩₩		-45.1	I 3 GHz 74 dBm
Cale/Div 10	lyzer 1 Coupling: AC Align: Auto	3:34:26	PM $Tx. Sp$ $\Omega$ s: Off	#Atten: 3	30 dB	PNO: Fast Gate: Off IF Gain: Low Sig Track: Off Ref LvI Offset	Avg Type: Avg Hold: Trig: Free 2.47 dB	Log-Power 10/10	1 2 3 M ₩ ₩ 1	∀₩₩		-45.1	I 3 GHz 74 dBm
	lyzer 1 Coupling: AC Align: Auto	3:34:26	PM $Tx. Sp$ $\Omega$ s: Off	#Atten: 3	30 dB	PNO: Fast Gate: Off IF Gain: Low Sig Track: Off Ref LvI Offset	Avg Type: Avg Hold: Trig: Free 2.47 dB	Log-Power 10/10	1 2 3 M ₩ ₩ 1	∀₩₩		-45.1	I 3 GHz 74 dBm
	lyzer 1 Coupling: AC Align: Auto	3:34:26	PM $Tx. Sp$ $\Omega$ s: Off	#Atten: 3	30 dB	PNO: Fast Gate: Off IF Gain: Low Sig Track: Off Ref LvI Offset	Avg Type: Avg Hold: Trig: Free 2.47 dB	Log-Power 10/10	1 2 3 M ₩ ₩ 1	∀₩₩		-45.1	I 3 GHz 74 dBm
6 pectrum Ana wept SA EYSIGHT L →→ Spectrum cale/Div 10 0 0 0 0 0 0 0 0 0 0 0 0 0	Ivzer 1  Ivz	3:34:26	PM $Tx. Sp$ $\Omega$ s: Off	#Atten: 3	30 dB	PNO: Fast Gate: Off IF Gain: Low Sig Track: Off Ref LvI Offset	Avg Type: Avg Hold: Trig: Free   0 dBm	Log-Power 10/10	1 2 3 M ₩ ₩ 1	∀₩₩	Mkr1	-45.	I 3 GHz 74 dBm



ectrum An	alvzer 1			_	Spurious NVN	T BLE 1M 244	MHz Ant1 I	Emission I	Range2		st
ept SA E <b>YSIGH</b>	•	RF	Input Z: 5	50 Ω	#Atten: 30 dB Preamp: Off	PNO: Fast Gate: Off	Avg Type: Avg Hold:	Log-Power	1 2 3 4 5 6		i
· +	Align: A		Freq Ref		Freamp. On	IF Gain: Low Sig Track: Off	Trig: Free		M ₩ ₩ ₩ ₩ ₩ P N N N N N		
pectrum ale/Div 10	dB	V				Ref LvI Offsei Ref Level 20.0				Mkr1	2.440 00 GHz -1.69 dBm
<b>g</b>					<b>_</b>						
0					•						
0											DL1 -31.08 dBm
.0							∧2				
.0		la se de la compactió de contra. La contra compactió de contra d		and all contrations to a contration		Later and the sould be stated a second s					
.0 rt 1.000 C	247					#Video BW 3	00 kHz				Stop 5.000 GHz
es BW 10						#VIGEO BVV				Sweep ~3	84 ms (30001 pts)
larker Tabl	Э	•									
Mode 1 N	Trace	Scale		X 2 44	0 00 GHz	Y -1.686 dBm	Function	Fund	ction Width	Function	Value
2 N 3	1	f			1 87 GHz	-54.32 dBm					
4											
5 6											
0											
	2		Jun 25						1		
	6		Jun 25, 3:35:5	1 PM [		T BLE 1M 244	)MHz Ant1 l	Emission I	Range3		
	alyzer 1			1 PM [ 		T BLE 1M 244	)MHz Ant1 I	Emission I	Range3		
ectrum An	T Input: F		3:35:5	1 PM	Spurious NVN #Atten: 30 dB	PNO: Fast	Avg Type:	Log-Power	Range3		
ectrum An ept SA	-	RF ng: AC	3:35:5	1 PM [ <u>Tx. S</u> - 50 Ω ns: Off	Spurious NVN	PNO: Fast Gate: Off IF Gain: Low		Log-Power 10/10			
ectrum An ept SA EYSIGH	T Input: F Couplir Align: A	RF ng: AC	3:35:5	1 PM [ <u>Tx. S</u> - 50 Ω ns: Off	Spurious NVN #Atten: 30 dB	PNO: Fast Gate: Off	Avg Type: Avg Hold: Trig: Free 2.48 dB	Log-Power 10/10	1 2 3 4 5 6 M₩₩₩₩₩₩		26.365 3 GHz -45.33 dBm
ectrum An ept SA EYSIGH → pectrum ale/Div 10	T Input: F Couplir Align: A	RF ng: AC	3:35:5	1 PM [ <u>Tx. S</u> - 50 Ω ns: Off	Spurious NVN #Atten: 30 dB	PNO: Fast Gate: Off IF Gain: Low Sig Track: Off <b>Ref LvI Offse</b> t	Avg Type: Avg Hold: Trig: Free 2.48 dB	Log-Power 10/10	1 2 3 4 5 6 M₩₩₩₩₩₩		26.365 3 GHz
ectrum An ept SA EYSIGH → pectrum ale/Div 10	T Input: F Couplir Align: A	RF ng: AC	3:35:5	1 PM [ <u>Tx. S</u> - 50 Ω ns: Off	Spurious NVN #Atten: 30 dB	PNO: Fast Gate: Off IF Gain: Low Sig Track: Off <b>Ref LvI Offse</b> t	Avg Type: Avg Hold: Trig: Free 2.48 dB	Log-Power 10/10	1 2 3 4 5 6 M₩₩₩₩₩₩		26.365 3 GHz
ectrum An ept SA EYSIGH ectrum ale/Div 10	T Input: F Couplir Align: A	RF ng: AC	3:35:5	1 PM [ <u>Tx. S</u> - 50 Ω ns: Off	Spurious NVN #Atten: 30 dB	PNO: Fast Gate: Off IF Gain: Low Sig Track: Off <b>Ref LvI Offse</b> t	Avg Type: Avg Hold: Trig: Free 2.48 dB	Log-Power 10/10	1 2 3 4 5 6 M₩₩₩₩₩₩		26.365 3 GHz
ectrum An ept SA EYSIGH 	T Input: F Couplir Align: A	RF ng: AC	3:35:5	1 PM [ <u>Tx. S</u> - 50 Ω ns: Off	Spurious NVN #Atten: 30 dB	PNO: Fast Gate: Off IF Gain: Low Sig Track: Off <b>Ref LvI Offse</b> t	Avg Type: Avg Hold: Trig: Free 2.48 dB	Log-Power 10/10	1 2 3 4 5 6 M₩₩₩₩₩₩		26.365 3 GHz
Crum An ept SA EYSIGH → pectrum ale/Div 10 9 0 0 0	T Input: F Couplir Align: A	RF ng: AC	3:35:5	1 PM [ <u>Tx. S</u> - 50 Ω ns: Off	Spurious NVN #Atten: 30 dB	PNO: Fast Gate: Off IF Gain: Low Sig Track: Off <b>Ref LvI Offse</b> t	Avg Type: Avg Hold: Trig: Free 2.48 dB	Log-Power 10/10	1 2 3 4 5 6 M₩₩₩₩₩₩		26.365 3 GHz
ectrum An ept SA EYSIGH 	T Input: F Couplir Align: A	RF ng: AC	3:35:5	1 PM [ <u>Tx. S</u> - 50 Ω ns: Off	Spurious NVN #Atten: 30 dB	PNO: Fast Gate: Off IF Gain: Low Sig Track: Off <b>Ref LvI Offse</b> t	Avg Type: Avg Hold: Trig: Free 2.48 dB	Log-Power 10/10	1 2 3 4 5 6 M₩₩₩₩₩₩		26.365 3 GHz
Ectrum An ept SA EYSIGH → pectrum ale/Div 10 9 0 0 0 0 0 0 0 0	T Input: F Couplir Align: A	RF ng: AC	3:35:5	1 PM [ <u>Tx. S</u> - 50 Ω ns: Off	Spurious NVN #Atten: 30 dB	PNO: Fast Gate: Off IF Gain: Low Sig Track: Off <b>Ref LvI Offse</b> t	Avg Type: Avg Hold: Trig: Free 2.48 dB	Log-Power 10/10	1 2 3 4 5 6 M₩₩₩₩₩₩		26.365 3 GHz -45.33 dBm
Crum Annept SA     CrySIGH     CrySI	T Input: F Couplir Align: A	RF ng: AC	3:35:5	1 PM [ <u>Tx. S</u> - 50 Ω ns: Off	Spurious NVN #Atten: 30 dB	PNO: Fast Gate: Off IF Gain: Low Sig Track: Off Ref LvI Offset Ref Level 20.	Avg Type: Avg Hold: Trig: Free 2.48 dB	Log-Power 10/10	1 2 3 4 5 6 M₩₩₩₩₩₩		26.365 3 GHz -45.33 dBm
Image: Solution of the sector of the s	T Input: F Couplir Align: A	RF ng: AC	3:35:5	1 PM [ <u>Tx. S</u> - 50 Ω ns: Off	Spurious NVN #Atten: 30 dB	PNO: Fast Gate: Off IF Gain: Low Sig Track: Off <b>Ref LvI Offse</b> t	Avg Type: Avg Hold: Trig: Free 2.48 dB	Log-Power 10/10	1 2 3 4 5 6 M₩₩₩₩₩₩		26.365 3 GHz -45.33 dBm
Comparison	T Input: F Couplir Align: A	RF ng: AC	3:35:5	1 PM [ <u>Tx. S</u> - 50 Ω ns: Off	Spurious NVN #Atten: 30 dB	PNO: Fast Gate: Off IF Gain: Low Sig Track: Off Ref LvI Offset Ref Level 20.	Avg Type: Avg Hold: Trig: Free 2.48 dB	Log-Power 10/10	1 2 3 4 5 6 M₩₩₩₩₩₩		26.365 3 GHz -45.33 dBm
Comparison of the sector	T Input: F Couplin Align: A dB	RF ng: AC	3:35:5	1 PM [ <u>Tx. S</u> - 50 Ω ns: Off	Spurious NVN #Atten: 30 dB	PNO: Fast Gate: Off IF Gain: Low Sig Track: Off Ref LvI Offset Ref Level 20.0	Avg Type: Avg Hold: Trig: Free 2.48 dB 0 dBm	Log-Power 10/10	1 2 3 4 5 6 M₩₩₩₩₩₩		26.365 3 GHz -45.33 dBm 
ectrum An rept SA	T Input: F Couplin Align: A dB	RF ng: AC	3:35:5	1 PM [ <u>Tx. S</u> - 50 Ω ns: Off	Spurious NVN #Atten: 30 dB	PNO: Fast Gate: Off IF Gain: Low Sig Track: Off Ref LvI Offset Ref Level 20.	Avg Type: Avg Hold: Trig: Free 2.48 dB 0 dBm	Log-Power 10/10	1 2 3 4 5 6 M₩₩₩₩₩₩		26.365 3 GHz -45.33 dBm



ectrum Ana	alvzer 1			spurious N	VNT	BLE 1M 2480	MHz Antl H	Emission H	Range2		S
ept SA	-		+								
YSIGH •	T Input: RF Coupling: AC Align: Auto		: 50 Ω tions: Off ef: Int (S)	#Atten: 30 Preamp: 0		PNO: Fast Gate: Off IF Gain: Low Sig Track: Off	Avg Type: Avg Hold: Trig: Free	10/10	1 2 3 4 5 6 M₩₩₩₩₩ P N N N N N		
pectrum										Mkr1	2.480 27 GHz
ale/Div 10	dB					Ref LvI Offset Ref Level 20.0					-2.47 dBm
<b>g</b> .0					<u> </u>						
0					<b>?</b> '						
.0											
0											DI 1 -31 80 dBm
.0						2					
.0		energia de la contra de la contra de Consta francés que ta consta de	tera Lancouritation	company is the free distant							
rt 1.000 G	Hz					#Video BW 3	00 kHz				Stop 5.000 GHz
es BW 100										Sweep ~	384 ms (30001 pts)
larker Table	• •										
Mode	Trace Scale		Х			Y	Function	Fund	tion Width	Functio	n Value
1 N 2 N	1 f 1 f			0 27 GHz 4 00 GHz		-2.471 dBm -55.01 dBm					
3 4											
5											
6		<b>?</b> Jun 2 3:36:		Depurious N	IVNT	BLE 1M 2480	MHz Ant1 H	Emission I	Range3		
6 ectrum Ana ept SA YSIGH		S:36:	59 PM		) dB	PNO: Fast Gate: Off IF Gain: Low	MHz Ant1 F Avg Type: Avg Hold: Trig: Free	Log-Power 10/10	1 2 3 4 5 6 M ₩ ₩ ₩ ₩ ₩		
ectrum Ana ept SA	alyzer 1 T Input: RF Coupling: AC	S:36:	59 PM Tx. S 50 Ω tions: Off	Spurious N #Atten: 30	) dB	PNO: Fast Gate: Off IF Gain: Low Sig Track: Off	Avg Type: Avg Hold: Trig: Free	Log-Power 10/10	1 2 3 4 5 6		
6 ectrum Anaept SA EYSIGH →→ pectrum ale/Div 10	alyzer 1 T Input: RF Coupling: AC Align: Auto	S:36:	59 PM Tx. S 50 Ω tions: Off	Spurious N #Atten: 30	) dB	PNO: Fast Gate: Off IF Gain: Low	Avg Type: Avg Hold: Trig: Free 2.43 dB	Log-Power 10/10	1 2 3 4 5 6 M ₩ ₩ ₩ ₩ ₩		25.159 8 GHz -45.26 dBm
6 ectrum Ana ept SA YSIGH pectrum ale/Div 10	alyzer 1 T Input: RF Coupling: AC Align: Auto	S:36:	59 PM Tx. S 50 Ω tions: Off	Spurious N #Atten: 30	) dB	PNO: Fast Gate: Off IF Gain: Low Sig Track: Off <b>Ref LvI Offset</b>	Avg Type: Avg Hold: Trig: Free 2.43 dB	Log-Power 10/10	1 2 3 4 5 6 M ₩ ₩ ₩ ₩ ₩		25.159 8 GHz
6 ectrum Ana ept SA EYSIGH pectrum ale/Div 10 g	alyzer 1 T Input: RF Coupling: AC Align: Auto	S:36:	59 PM Tx. S 50 Ω tions: Off	Spurious N #Atten: 30	) dB	PNO: Fast Gate: Off IF Gain: Low Sig Track: Off <b>Ref LvI Offset</b>	Avg Type: Avg Hold: Trig: Free 2.43 dB	Log-Power 10/10	1 2 3 4 5 6 M ₩ ₩ ₩ ₩ ₩		25.159 8 GHz
ectrum Ana ept SA EYSIGH pectrum ale/Div 10	alyzer 1 T Input: RF Coupling: AC Align: Auto	S:36:	59 PM Tx. S 50 Ω tions: Off	Spurious N #Atten: 30	) dB	PNO: Fast Gate: Off IF Gain: Low Sig Track: Off <b>Ref LvI Offset</b>	Avg Type: Avg Hold: Trig: Free 2.43 dB	Log-Power 10/10	1 2 3 4 5 6 M ₩ ₩ ₩ ₩ ₩		25.159 8 GHz
6 ectrum Ana ept SA EYSIGH ectrum ale/Div 10 9 0 0 0	alyzer 1 T Input: RF Coupling: AC Align: Auto	S:36:	59 PM Tx. S 50 Ω tions: Off	Spurious N #Atten: 30	) dB	PNO: Fast Gate: Off IF Gain: Low Sig Track: Off <b>Ref LvI Offset</b>	Avg Type: Avg Hold: Trig: Free 2.43 dB	Log-Power 10/10	1 2 3 4 5 6 M ₩ ₩ ₩ ₩ ₩		25.159 8 GHz
ectrum Ana ept SA EYSIGH pectrum ale/Div 10 9 0	alyzer 1 T Input: RF Coupling: AC Align: Auto	S:36:	59 PM Tx. S 50 Ω tions: Off	Spurious N #Atten: 30	) dB	PNO: Fast Gate: Off IF Gain: Low Sig Track: Off <b>Ref LvI Offset</b>	Avg Type: Avg Hold: Trig: Free 2.43 dB	Log-Power 10/10	1 2 3 4 5 6 M ₩ ₩ ₩ ₩ ₩		25.159 8 GHz
6 cectrum Anaept SA SYSIGH	alyzer 1 T Input: RF Coupling: AC Align: Auto	S:36:	59 PM Tx. S 50 Ω tions: Off	Spurious N #Atten: 30	) dB	PNO: Fast Gate: Off IF Gain: Low Sig Track: Off <b>Ref LvI Offset</b>	Avg Type: Avg Hold: Trig: Free 2.43 dB	Log-Power 10/10	1 2 3 4 5 6 M ₩ ₩ ₩ ₩ ₩		25.159 8 GHz -45.26 dBm
6 cectrum Anaept SA SYSIGH	alyzer 1 T Input: RF Coupling: AC Align: Auto	S:36:	59 PM Tx. S 50 Ω tions: Off	Spurious N #Atten: 30	) dB	PNO: Fast Gate: Off IF Gain: Low Sig Track: Off <b>Ref LvI Offset</b>	Avg Type: Avg Hold: Trig: Free 2.43 dB	Log-Power 10/10	1 2 3 4 5 6 M ₩ ₩ ₩ ₩ ₩		25.159 8 GHz
6 sctrum Ana spt SA SYSIGH →→ pectrum ale/Div 10 9 0 0 0 0 0 0 0 0 0 0 0 0 0	alyzer 1 T Input: RF Coupling: AC Align: Auto	S:36:	59 PM Tx. S 50 Ω tions: Off	Spurious N #Atten: 30	) dB	PNO: Fast Gate: Off IF Gain: Low Sig Track: Off <b>Ref LvI Offset</b>	Avg Type: Avg Hold: Trig: Free 2.43 dB	Log-Power 10/10	1 2 3 4 5 6 M ₩ ₩ ₩ ₩ ₩		25.159 8 GHz -45.26 dBm
6 cectrum Anaept SA CYSIGH	alyzer 1 T Input: RF Coupling: AC Align: Auto	S:36:	59 PM Tx. S 50 Ω tions: Off	Spurious N #Atten: 30	) dB	PNO: Fast Gate: Off IF Gain: Low Sig Track: Off <b>Ref LvI Offset</b>	Avg Type: Avg Hold: Trig: Free 2.43 dB	Log-Power 10/10	1 2 3 4 5 6 M W W W W P N N N N N 		25.159 8 GHz -45.26 dBm
6 = cetrum Ana ept SA EYSIGH → → = peectrum ale/Div 10 9 0 0 0 0 0 0 0 0 0 0 0 0 0	alyzer 1 T Input: RF Coupling: AC Align: Auto	S:36:	59 PM Tx. S 50 Ω tions: Off	Spurious N #Atten: 30	) dB	PNO: Fast Gate: Off IF Gain: Low Sig Track: Off <b>Ref LvI Offset</b>	Avg Type: Avg Hold: Trig: Free 2.43 dB	Log-Power 10/10 Run	1 2 3 4 5 6 M W W W W P N N N N N 		25.159 8 GHz -45.26 dBm
6 cectrum Anaept SA EYSIGH ispectrum ale/Div 10 g 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	alyzer 1 T Input: RF Coupling: AC Align: Auto	S:36:	59 PM Tx. S 50 Ω tions: Off	Spurious N #Atten: 30	) dB	PNO: Fast Gate: Off IF Gain: Low Sig Track: Off <b>Ref LvI Offset</b>	Avg Type: Avg Hold: Trig: Free 2.43 dB	Log-Power 10/10 Run	1 2 3 4 5 6 M W W W W P N N N N N 		25.159 8 GHz -45.26 dBm
6 ectrum Ana ept SA	alyzer 1 T Input: RF Coupling: AC Align: Auto	S:36:	59 PM Tx. S 50 Ω tions: Off	Spurious N #Atten: 30	) dB	PNO: Fast Gate: Off IF Gain: Low Sig Track: Off <b>Ref LvI Offset</b>	Avg Type: Avg Hold: Trig: Free 2.43 dB	Log-Power 10/10 Run	1 2 3 4 5 6 M W W W W P N N N N N 		25.159 8 GHz -45.26 dBm
6  cectrum Anaept SA  EYSIGH  Spectrum  ale/Div 10  9  0  0  0  0  0  0  0  0  0  0  0  0	Input: RF Coupling: AC Align: Auto	S:36:	59 PM Tx. S 50 Ω tions: Off	Spurious N #Atten: 30	) dB	PNO: Fast Gate: Off IF Gain: Low Sig Track: Off <b>Ref LvI Offset</b>	Avg Type: Avg Hold: Trig: Free   2.43 dB 0 dBm	Log-Power 10/10 Run	1 2 3 4 5 6 M W W W W P N N N N N 	Mkr1	25.159 8 GHz -45.26 dBm



#### **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≥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

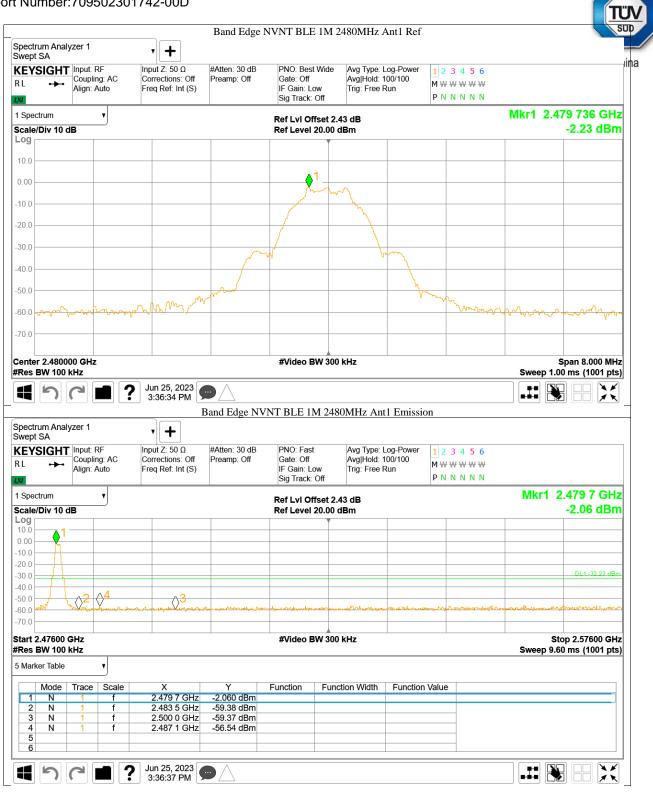
According to §15.247(d) and RSS-247 5.5, in any 100 kHz bandwidth outside the frequency bands in which the spread spectrum intentional radiator in operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band 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) and RSS-Gen 8.10, must also comply with the radiated emission limits specified in 15.209(a) (see Section 15.205(c)) and RSS-Gen.



### Test result

				Test Grap				
			Band Edge	NVNT BLE 1M	2402MHz Ant1	Ref		
ectrum Ar vept SA	nalyzer 1	• +						
EYSIGH	Input: RF	Input Z: 50 Ω	#Atten: 30 dB	PNO: Best Wide		wer 1 2 3 4 5 6		
L +>	Coupling: AC Align: Auto	Corrections: Off Freg Ref: Int (S)	Preamp: Off	Gate: Off IF Gain: Low	Avg Hold: 100/10 Trig: Free Run	0 ₩ ₩ ₩ ₩ ₩		
1	, ang in t take			Sig Track: Off		PNNNN		
Spectrum	v				2 47 JB		Mkr1 2.401	992 GH
cale/Div 1	0 dB			Ref LvI Offset Ref Level 20.0				1.38 dBi
og				T 7				
0.0								
0.0					1			
.00				+ ~ ×				
0.0				/~	my h			
0.0					m			
0.0								
0.0				1	$\mathbf{x}$			
0.0			~	~~~ <sup>~</sup>	hr m			
0.0						\		
0.0		. 8 M	V Martin			A Bowy with		
0.0	mont	www.				- when	Anton	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
0.0								
				#3/6-1 D14/0	00 1-11-			
	2000 011-						508	an 8.000 M
enter 2.40 Res BW 10	2000 GHz )0 kHz			#Video BW 3			Sweep 1.00 n	ns (1001 p
Res BW 10	00 kHz	Jun 25, 2023		Ipled: Accy unspec			Sweep 1.00 n	
	00 kHz	3:33:54 PM		ipled: Accy unspec	s'd < 10MHz	niccion		ns (1001 pi
Res BW 10	00 kHz	3:33:54 PM		ipled: Accy unspec		nission	Sweep 1.00 n	
Res BW 10	00 kHz	3:33:54 PM		ipled: Accy unspec	s'd < 10MHz	nission	Sweep 1.00 n	
ees BW 10	00 kHz	3:33:54 PM	#Atten: 30 dB	IPIEd: Accy unspect INT BLE 1M 24	c'd < 10MHz 402MHz Ant1 En Avg Type: Log-Pc	wer 1 2 3 4 5 6	Sweep 1.00 n	
Res BW 10	00 kHz	3:33:54 PM	Band Edge NV	IPIED PNO: Fast Gate: Off	2'd < 10MHz 402MHz Ant1 En Avg Type: Log-Pc Avg[Hold: 100/10	wer 1 2 3 4 5 6	Sweep 1.00 n	
es BW 10 ■ 5 ectrum Ar rept SA EYSIGH	00 kHz	3:33:54 PM	#Atten: 30 dB	IPIEd: Accy unspect INT BLE 1M 24	c'd < 10MHz 402MHz Ant1 En Avg Type: Log-Pc	wer 1 2 3 4 5 6	Sweep 1.00 n	
ectrum Arr /ept SA EYSIGH	00 kHz	3:33:54 PM	#Atten: 30 dB	PNO: Fast Gate: Off IF Gain: Low Sig Track: Off	2'd < 10MHz 402MHz Ant1 En Avg Type: Log-Pc Avg Hold: 100/10 Trig: Free Run	$\begin{array}{c} 1 & 2 & 3 & 4 & 5 & 6 \\ \hline M & W & W & W & W \end{array}$	Sweep 1.00 n	
es BW 10 ectrum Ar rept SA EYSIGH Spectrum	00 kHz alyzer 1 T Input: RF Coupling: AC Align: Auto	3:33:54 PM	#Atten: 30 dB	PNO: Fast Gate: Off IF Gain: Low Sig Track: Off Ref Lvl Offset	2'd < 10MHz 402MHz Ant1 En Avg Type: Log-Pc Avg[Hold: 100/10 Trig: Free Run 2.47 dB	$\begin{array}{c} 1 & 2 & 3 & 4 & 5 & 6 \\ \hline M & W & W & W & W \end{array}$	Sweep 1.00 n	02 0 GI
es BW 10 E 5 ectrum Ar rept SA EYSIGH Spectrum ale/Div 1 Dg	00 kHz alyzer 1 T Input: RF Coupling: AC Align: Auto	3:33:54 PM	#Atten: 30 dB	PNO: Fast Gate: Off IF Gain: Low Sig Track: Off	2'd < 10MHz 402MHz Ant1 En Avg Type: Log-Pc Avg[Hold: 100/10 Trig: Free Run 2.47 dB	$\begin{array}{c} 1 & 2 & 3 & 4 & 5 & 6 \\ \hline M & W & W & W & W \end{array}$	Sweep 1.00 n	02 0 GI
es BW 10 ectrum Ar rept SA EYSIGH Spectrum ale/Div 1 9 0.0	00 kHz alyzer 1 T Input: RF Coupling: AC Align: Auto	3:33:54 PM	#Atten: 30 dB	PNO: Fast Gate: Off IF Gain: Low Sig Track: Off Ref Lvl Offset	2'd < 10MHz 402MHz Ant1 En Avg Type: Log-Pc Avg[Hold: 100/10 Trig: Free Run 2.47 dB	$\begin{array}{c} 1 & 2 & 3 & 4 & 5 & 6 \\ \hline M & W & W & W & W \end{array}$	Sweep 1.00 n	02 0 GI
es BW 10 ectrum Ar rept SA EYSIGH Spectrum ale/Div 1 9 0 00	00 kHz alyzer 1 T Input: RF Coupling: AC Align: Auto	3:33:54 PM	#Atten: 30 dB	PNO: Fast Gate: Off IF Gain: Low Sig Track: Off Ref Lvl Offset	2'd < 10MHz 402MHz Ant1 En Avg Type: Log-Pc Avg[Hold: 100/10 Trig: Free Run 2.47 dB	$\begin{array}{c} 1 & 2 & 3 & 4 & 5 & 6 \\ \hline M & W & W & W & W \end{array}$	Sweep 1.00 n	02 0 GI
es BW 10 ectrum Ar rept SA EYSIGH Spectrum ale/Div 1 9 0.0 0.0 0.0 0.0	00 kHz alyzer 1 T Input: RF Coupling: AC Align: Auto	3:33:54 PM	#Atten: 30 dB	PNO: Fast Gate: Off IF Gain: Low Sig Track: Off Ref Lvl Offset	2'd < 10MHz 402MHz Ant1 En Avg Type: Log-Pc Avg[Hold: 100/10 Trig: Free Run 2.47 dB	$\begin{array}{c} 1 & 2 & 3 & 4 & 5 & 6 \\ \hline M & W & W & W & W \end{array}$	Sweep 1.00 n	02 0 GI 1.28 dB
es BW 10 ectrum Ar rept SA EYSIGH - → Spectrum ale/Div 1 2 0 0 0 0 0 0 0 0 0 0 0 0 0	00 kHz alyzer 1 T Input: RF Coupling: AC Align: Auto	3:33:54 PM	#Atten: 30 dB	PNO: Fast Gate: Off IF Gain: Low Sig Track: Off Ref Lvl Offset	2'd < 10MHz 402MHz Ant1 En Avg Type: Log-Pc Avg[Hold: 100/10 Trig: Free Run 2.47 dB	$\begin{array}{c} 1 & 2 & 3 & 4 & 5 & 6 \\ \hline M & W & W & W & W \end{array}$	Sweep 1.00 n	02 0 GI 1.28 dB
es BW 10 ectrum Ar rept SA EYSIGH Spectrum ale/Div 10 0,0 0,0 0,0 0,0 0,0 0,0 0,0 0	00 kHz alyzer 1 1 Input: RF Coupling: AC Align: Auto ↓ 0 dB	3:33:54 PM	#Atten: 30 dB	PNO: Fast Gate: Off IF Gain: Low Sig Track: Off Ref Lvl Offset	2'd < 10MHz 402MHz Ant1 En Avg Type: Log-Pc Avg[Hold: 100/10 Trig: Free Run 2.47 dB	$\begin{array}{c} 1 & 2 & 3 & 4 & 5 & 6 \\ \hline M & W & W & W & W \end{array}$	Sweep 1.00 n	02 0 GI 1.28 dB
es BW 10 ectrum Ar ept SA EYSIGH Spectrum ale/Div 10 9 0 0 0 0 0 0 0 0 0 0 0 0 0	00 kHz alyzer 1 T Input: RF Coupling: AC Align: Auto	3:33:54 PM	#Atten: 30 dB	PNO: Fast Gate: Off IF Gain: Low Sig Track: Off Ref Lvl Offset	2'd < 10MHz 402MHz Ant1 En Avg Type: Log-Pc Avg[Hold: 100/10 Trig: Free Run 2.47 dB	$\begin{array}{c} 1 & 2 & 3 & 4 & 5 & 6 \\ \hline M & W & W & W & W \end{array}$	Sweep 1.00 n	02 0 GI 1.28 dB
es BW 10 ectrum Ar ept SA EYSIGH Spectrum ale/Div 10 9 00 00 00 00 00 00 00 00 00	00 kHz alyzer 1 1 Input: RF Coupling: AC Align: Auto ↓ 0 dB	3:33:54 PM	#Atten: 30 dB	PNO: Fast Gate: Off IF Gain: Low Sig Track: Off Ref Lvl Offset	2'd < 10MHz 402MHz Ant1 En Avg Type: Log-Pc Avg[Hold: 100/10 Trig: Free Run 2.47 dB	$\begin{array}{c} 1 & 2 & 3 & 4 & 5 & 6 \\ \hline M & W & W & W & W \end{array}$	Sweep 1.00 n	02 0 Gi 1.28 dE
es BW 10 ectrum Ar rept SA EYSIGH Spectrum ale/Div 10 0,0 0,0 0,0 0,0 0,0 0,0 0,0 0	00 kHz	3:33:54 PM	#Atten: 30 dB	IPIEd: Accy unspect /NT BLE 1M 24 PNO: Fast Gate: Off IF Gain: Low Sig Track: Off Ref Lvl Offset Ref Level 20.0	2/d < 10MHz 4/02MHz Ant I Em Avg Type: Log-Pc Avg Hold: 100/100 Trig: Free Run 2.47 dB 0 dBm	$\begin{array}{c} 1 & 2 & 3 & 4 & 5 & 6 \\ \hline M & W & W & W & W \end{array}$	Sweep 1.0 n	02 0 Gi 1.28 dB
es BW 10 ectrum Ar rept SA EYSIGH - →→ Spectrum Spectrum - →→ Spectrum - →→ - →→→→ - →→→ - →→→ - →→→ - →→→→→→ - →→→→→→→→ - →→→→→→→→→→	00 kHz alyzer 1 1 Input: RF Coupling: AC Align: Auto 0 dB 4 4 4 4 4 4 10 GHz	3:33:54 PM	#Atten: 30 dB	PNO: Fast Gate: Off IF Gain: Low Sig Track: Off Ref Lvl Offset	2/d < 10MHz 4/02MHz Ant I Em Avg Type: Log-Pc Avg Hold: 100/100 Trig: Free Run 2.47 dB 0 dBm	$\begin{array}{c} 1 & 2 & 3 & 4 & 5 & 6 \\ \hline M & W & W & W & W \end{array}$	Sweep 1.0 n	02 0 GF 1.28 dB
tes BW 10 ectrum Ar vept SA EYSIGH L → Spectrum aale/Div 10 00 00 00 00 00 00 00 00 00	00 kHz	3:33:54 PM	#Atten: 30 dB	IPIEd: Accy unspect /NT BLE 1M 24 PNO: Fast Gate: Off IF Gain: Low Sig Track: Off Ref Lvl Offset Ref Level 20.0	2/d < 10MHz 4/02MHz Ant I Em Avg Type: Log-Pc Avg Hold: 100/100 Trig: Free Run 2.47 dB 0 dBm	$\begin{array}{c} 1 & 2 & 3 & 4 & 5 & 6 \\ \hline M & W & W & W & W \end{array}$	Sweep 1.00 n	02 0 GF 1.28 dB
tes BW 10 ■ 5 ■ 5 ■ 5 ■ 5 ■ 5 ■ 5 ■ 5 ■ 5	00 kHz	3:33:54 PM	#Atten: 30 dB	IPIEd: Accy unspect /NT BLE 1M 24 PNO: Fast Gate: Off IF Gain: Low Sig Track: Off Ref Lvl Offset Ref Level 20.0	2/d < 10MHz 4/02MHz Ant I Em Avg Type: Log-Pc Avg Hold: 100/100 Trig: Free Run 2.47 dB 0 dBm	$\begin{array}{c} 1 & 2 & 3 & 4 & 5 & 6 \\ \hline M & W & W & W & W \end{array}$	Sweep 1.00 n	02 0 GF 1.28 dB
tes BW 10 ■ 5 ■ 5 ■ 5 ■ 5 ■ 5 ■ 5 ■ 5 ■ 5	00 kHz 1 alyzer 1 1 Input: RF Coupling: AC Align: Auto 0 dB 4 4 4 4 4 10 GHz 00 KHz 10 KHz	3:33:54 PM	#Atten: 30 dB Preamp: Off	PNO: Fast Gate: Off IF Gain: Low Sig Track: Off Ref LvI Offset Ref Level 20.0 #Video BW 3	2/d < 10MHz 4/02MHz Ant I Em Avg Type: Log-Pc Avg Hold: 100/100 Trig: Free Run 2.47 dB 0 dBm	$\begin{array}{c} 1 & 2 & 3 & 4 & 5 & 6 \\ \hline M & W & W & W & W \end{array}$	Sweep 1.00 n	02 0 GH 1.28 dB 01 02 0 GH 1.28 dB 01 01 01 01 01 01 01 01 01 01 01 01 01
Res BW 10           Image: Spectrum Arryept SA           EYSIGH           Image: Spectrum Arryept SA           EYSIGH           Image: Spectrum Arryept SA           Spectrum Arryept SA           Image:	00 kHz nalyzer 1 T Input: RF Coupling: AC Align: Auto 0 dB 0 dB	3:33:54 PM	Band Edge NV #Atten: 30 dB Preamp: Off	IPIEd: Accy unspect INT BLE 1M 24 PNO: Fast Gate: Off IF Gain: Low Sig Track: Off Ref Lvl Offset Ref Level 20.0 #Video BW 30 #Video BW 30 Y -1.280 dBm	2d < 10MHz 402MHz Ant I En Avg Type: Log-Pc Avg Hold: 100/10 Trig: Free Run 2.47 dB 0 dBm 2.47 dB 0 dBm 0 dBm 0 dBm 0 dBm 0 dBm	1     2     3     4     5     6       M     W     W     W     W     W       P     N     N     N     N	Sweep 1.00 n	02 0 GH 1.28 dB 01 2.40600 G ns (1001 p
Res BW 10           Image: Spectrum Arvept SA           EYSIGH           L           Image: Spectrum           Spectrum           Spectrum           Cale/Div 1           Og           0.0 </td <td>00 kHz 1 c linput: RF Coupling: AC Align: Auto 0 dB 4 4 4 4 4 4 10 GHz 10 GHz 10 KHz 10 KHz</td> <td>3:33:54 PM</td> <td>#Atten: 30 dB Preamp: Off</td> <td>PNO: Fast Gate: Off IF Gain: Low Sig Track: Off Ref LvI Offset Ref Level 20.0 #Video BW 3</td> <td>2d &lt; 10MHz 402MHz Ant I En Avg Type: Log-Pc Avg Hold: 100/10 Trig: Free Run 2.47 dB 0 dBm 2.47 dB 0 dBm 0 dBm 0 dBm 0 dBm 0 dBm</td> <td>1     2     3     4     5     6       M     W     W     W     W     W       P     N     N     N     N</td> <td>Sweep 1.00 n</td> <td>02 0 GH 1.28 dB 01 01 01 01 01 01 01 01 01 01 01 01 01</td>	00 kHz 1 c linput: RF Coupling: AC Align: Auto 0 dB 4 4 4 4 4 4 10 GHz 10 GHz 10 KHz 10 KHz	3:33:54 PM	#Atten: 30 dB Preamp: Off	PNO: Fast Gate: Off IF Gain: Low Sig Track: Off Ref LvI Offset Ref Level 20.0 #Video BW 3	2d < 10MHz 402MHz Ant I En Avg Type: Log-Pc Avg Hold: 100/10 Trig: Free Run 2.47 dB 0 dBm 2.47 dB 0 dBm 0 dBm 0 dBm 0 dBm 0 dBm	1     2     3     4     5     6       M     W     W     W     W     W       P     N     N     N     N	Sweep 1.00 n	02 0 GH 1.28 dB 01 01 01 01 01 01 01 01 01 01 01 01 01
tes BW 10 mectrum Ar vept SA EYSIGH L →→ Spectrum cale/Div 1 9 0.0 0.0 0.0 0.0 0.0 0.0 0.0	00 kHz alyzer 1 T Input: RF Coupling: AC Align: Auto 0 dB 4 4 0 dB 4 0 dB 0 dB 1 1 1 1 1 1 1 1 1 1 1 1 1	3:33:54 PM	#Atten: 30 dB Preamp: Off	PNO: Fast Gate: Off IF Gain: Low Sig Track: Off Ref Level 20.00 # #Video BW 3 7 -1.280 dBm -56.53 dBm	2d < 10MHz 402MHz Ant I En Avg Type: Log-Pc Avg Hold: 100/10 Trig: Free Run 2.47 dB 0 dBm 2.47 dB 0 dBm 0 dBm 0 dBm 0 dBm 0 dBm	1     2     3     4     5     6       M     W     W     W     W     W       P     N     N     N     N	Sweep 1.00 n	02 0 GH 1.28 dB 01 01 01 01 01 01 01 01 01 01 01 01 01
es BW 10 ectrum Ar rept SA EYSIGH - →→ Spectrum sale/Div 10 90 00 00 00 00 00 00 00 00 0	00 kHz alyzer 1 T Input: RF Coupling: AC Align: Auto 0 dB 0 dB	3:33:54 PM	Band Edge NV #Atten: 30 dB Preamp: Off #Atten: 30 dB Preamp: Off	PNO: Fast Gate: Off IF Gain: Low Sig Track: Off Ref Lvl Offset Ref Level 20.0 #Video BW 30 #Video BW 30 ************************************	2d < 10MHz 402MHz Ant I En Avg Type: Log-Pc Avg Hold: 100/10 Trig: Free Run 2.47 dB 0 dBm 2.47 dB 0 dBm 0 dBm 0 dBm 0 dBm 0 dBm	1     2     3     4     5     6       M     W     W     W     W     W       P     N     N     N     N	Sweep 1.00 n	02 0 GH 1.28 dB 01 02 0 GH 1.28 dB 01 01 01 01 01 01 01 01 01 01 01 01 01







### 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 120 kHz, 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 = 1MHz.

b) VBW  $\geq$  [3 × RBW].

c) Detector = RMS (power averaging), if [span / (# of points in sweep)]  $\leq$  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.)

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:



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.
 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.
 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 and RSS-GEN 8.10 must comply with the radiated emission limits specified in section 15.209.

Frequency MHz	Field Strength uV/m	Measured Distance Meters
0.009~0.490	2400/F (kHz)	300
0.490~1.705	24000/F (kHz)	30
1.705~30	30	30

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. The only worse case test result is listed in the report.

#### Test result

	Test mode:GFSK 1Mbps (2402MHz)									
Frequency MHz	Measure Level (dBuV/m)	Limit (dBuV/M	Margin (dB)	Detector	Polarization					
2384.59	43.83	74.00	30.17	PK	Horiznotal					
4804.03	43.34	74.00	30.66	PK	Horiznotal					
2381.63	44.04	74.00	29.96	PK	Vertical					
4803.46	44.79	74.00	29.21	PK	Vertical					

	⊤est mode:GFSK 1Mbps (2440MHz)							
Frequency MHz	Measure Level (dBuV/m)	Limit (dBuV/M	Margin (dB)	Detector	Polarization			
4880.53	44.55	74.00	29.45	PK	Horiznotal			
4879.40	45.40	74.00	28.60	PK	Vertical			

	Test mode:GFSK 1Mbps (2480MHz)									
Frequency MHz	Measure Level (dBuV/m)	Limit (dBuV/M	Margin (dB)	Detector	Polarization					
2483.55	47.30	74.00	26.70	PK	Horiznotal					
4959.86	45.50	74.00	28.50	PK	Horiznotal					
2483.66	45.67	74.00	28.33	PK	Vertical					
4959.86	45.22	74.00	28.78	PK	Vertical					

#### Remark:

(1) Emission level= Original Receiver Reading + Correct Factor

- (2) Correct Factor = Antenna Factor + Cable Loss Amplifier gain
- (3) Margin = limit Corrected Reading

TÜV SÜD Certification and Testing (China) Co., Ltd. Shanghai Branch 3-13, No.151, Heng Tong Road, Shanghai, 200070, P.R. China Phone: +86 21 61410123, Fax:+86 21 61408600

Page 37 of 43 Rev. 20.00

The worst case of Radiated Emission below 1GHz:

# **30-1000MHz Radiated Emission**

### **EUT Information**

EUT Name: Model Client: Op Cond Operator: Standard Comment: Sample No.: Infrared Thermal Camera Fotric P7 FOTRIC INC. Power on, TX\_2440MHz, DC 3.6V, T21.3, H56.3%, P100.6kPa Wang Yiquan FCC part 15.209(a) Horizontal SHA-716542-2

### Sweep Setup: RE\_VULB9168\_pre\_Cont\_30-1000 [EMI radiated]

Hardware Setup: Receiver: Level Unit:	RE_V [ESR dBuV	- 1			
Subrange	Step Size	Detectors	Bandwidth	Sweep Time	Preamp
30 MHz - 1 GHz	48.5 kHz	PK+	120 kHz	0.2 s	20 dB

RE\_VULB9168\_pre\_Cont\_30-1000 80 70 60 FCC Part 15 Class\_B Radiated Emission\_QP\_3m 50 Level in dBuV/m 40 × 30 20 10 0 30M 60 80 100M 200 300 400 500 800 50 1G Frequency in Hz





## Limit and Margin

	- J								
Frequency	QuasiPeak	Meas. Time	Bandwidth	Height	Pol	Azimuth	Corr.	Margin -	Limit - QPK
(MHz)	(dBuV/m)	(ms)	(kHz)	(cm)		(deg)	(dB/m)	QPK	(dBuV/m)
								(dB)	
71.400000	23.1	1000.0	120.000	150.0	Н	178.0	18.3	16.9	40.0
123.640000	30.8	1000.0	120.000	180.0	Н	245.0	18.4	12.7	43.5
148.840000	36.2	1000.0	120.000	100.0	Н	325.0	21.0	7.3	43.5
239.600000	35.6	1000.0	120.000	200.0	Н	288.0	19.5	10.4	46.0
334.960000	25.3	1000.0	120.000	250.0	Н	31.0	22.6	20.7	46.0
552.000000	36.7	1000.0	120.000	100.0	Н	103.0	27.5	9.3	46.0



# **30-1000MHz Radiated Emission**

### **EUT Information**

EUT Name: Model Client: Op Cond
Operator: Standard Comment: Sample No.:

Infrared Thermal Camera Fotric P7 FOTRIC INC. Power on, TX\_2440MHz, DC 3.6V, T21.3, H56.3%, P100.6kPa Wang Yiquan FCC part 15.209(a) Vertical SHA-716542-2

### Sweep Setup: RE\_VULB9168\_pre\_Cont\_30-1000 [EMI radiated]

Hardware Setup: Receiver:	RE_VULB9168 [ESR 3]	_	_
Level Unit:	dBuV/m		

Subrange	Step Size	Detectors	Bandwidth	Sweep Time	Preamp
30 MHz - 1 GHz	48.5 kHz	PK+	120 kHz	0.2 s	20 dB

80-70 60 FCC Part 15 Class\_B Radiated Emission\_QP\_3m 50 Level in dBuV/m 40 30 20 10 0-30M 50 60 80 100M 200 300 400 500 800 1G Frequency in Hz

RE\_VULB9168\_pre\_Cont\_30-1000

EMC\_SHA\_F\_R\_02.05E

TÜV SÜD Certification and Testing (China) Co., Ltd. Shanghai Branch 3-13, No.151, Heng Tong Road, Shanghai, 200070, P.R. China Phone: +86 21 61410123, Fax:+86 21 61408600 Page 39 of 43 Rev. 20.00



### **Limit and Margin**

Frequency (MHz)	QuasiPeak (dBuV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Margin - QPK (dB)	Limit - QPK (dBuV/m)
31.080000	32.4	1000.0	120.000	120.0	V	327.0	19.3	7.6	40.0
37.760000	30.7	1000.0	120.000	200.0	V	230.0	19.7	9.3	40.0
71.480000	26.6	1000.0	120.000	150.0	V	60.0	18.3	13.4	40.0
129.920000	34.2	1000.0	120.000	200.0	V	172.0	19.3	9.3	43.5
209.840000	30.6	1000.0	120.000	150.0	V	0.0	17.6	12.9	43.5
552.000000	38.1	1000.0	120.000	100.0	V	118.0	27.5	7.9	46.0

Note 1: Measure Level (dBuV/m) = Reading Level (dBuV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m)

Note 2: The test trace is same as the ambient noise and the amplitude of the emissions are attenuated more than 20dB below the permissible (the test frequency range: 9kHz ~ 30MHz, 18GHz ~ 25GHz), therefore no data appear in the report.



# **10 Test Equipment List**

List of Test Instruments Test Site1						
	DESCRIPTION	MANUFACTURER	MODEL NO.	SERIAL NO.	CAL. DATE	CAL. DUE DATE
С	Signal spectrum analyzer	Agilent	N9020B	MY59050168	2023-2-10	2024-2-9
	EMI Test Receiver	Rohde & Schwarz	ESR3	101906	2022-8-1	2023-7-31
	Signal Analyzer	Rohde & Schwarz	FSV40	101091	2022-8-1	2023-7-31
	Trilog Super Broadband Test Antenna	Schwarzbeck	VULB 9168	961	2019-9-23	2024-9-22
	Horn Antenna	Rohde & Schwarz	HF907	102393	2021-3-15	2024-3-14
	Pre-amplifier	Rohde & Schwarz	SCU-18D	19006451	2022-8-1	2023-7-31
	Loop antenna	Rohde & Schwarz	HFH2-Z2	100443	2022-6-13	2023-6-12
RE	Loop antenna	Rohde & Schwarz	HFH2-Z2	100443	2023-6-12	2024-6-11
	DOUBLE-RIDGE WAVEGUIDE HORN WITH PRE-AMPLIFIE (18 GHZ - 40 GHZ)	ETS-Lindaren	3116C-PA	002222727	2020-9-23	2023-9-22
	3m Semi-anechoic chamber	TDK	9X6X6		2021-5-8	2024-5-7
	EMI Test Receiver	Rohde & Schwarz	ESR3	101907	2022-8-1	2023-7-31
CE	LISN	Rohde & Schwarz	ENV216	101924	2022-8-1	2023-7-31

Measurement Software Information					
Test Item	Software	Manufacturer	Version		
С	MTS 8310	MWRFtest	2.0.0.0		
RE	EMC 32	Rohde & Schwarz	V10.50.40		
CE	EMC 32	Rohde & Schwarz	V9.15.03		

C - Conducted RF tests

- Conducted peak output power
- 6dB bandwidth and 99% Occupied Bandwidth
- Power spectral density\*
- Spurious RF conducted emissions
- Band edge



### **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:

Items	Extended Uncertainty
Conducted Disturbance at Mains Terminals	150kHz to 30MHz, LISN, 3.16dB
Radiated Disturbance	9kHz to 30MHz, 3.52dB
	30MHz to 1GHz, 5.03dB (Horizontal)
	5.12dB (Vertical)
	1GHz to 18GHz, 5.49dB
	18GHz to 40GHz, 5.63dB
RF Conducted Measurement	Power related: 1.16dB
	Frequency related: 6.00×10 <sup>-8</sup>

Measurement Uncertainty Decision Rule:

Determination of conformity with the specification limits is based on the decision rule according to IEC Guide 115: 2021, clause 4.4.3 and 4.5.1.



### 12 Photographs of Test Set-ups

Refer to the < Test Setup photos >.

# 13 Photographs of EUT

Refer to the < External Photos > & < Internal Photos >.

-----End of Test Report-----