		DAG	Report No.: I	DACE241105007RF001
	DAC			a
		RF TEST R	EPORT 🤝	
		For		
		Kool Brand	s, LLC.	
	Prod	uct Name: Retro-	Bit Arcade Stick	
	6	Test Model(s).: F	B-SGA-057	
2				
	Report Reference No.	: DACE241105007RF00		
	FCC ID	: 2ARPVRB-SGA-057		
	Applicant's Name	: Kool Brands, LLC.		
	Address	: 1450 Vassar Street Re	no, Nevada 89502 United States	
	Testing Laboratory	: Shenzhen DACE Testi	ng Technology Co., Ltd.	
	Address		E., Building H, Hongfa Science & T hiyan Subdistrict, Bao'an District,	
	Test Specification Standard	: 47 CFR Part 15.247		
	Date of Receipt	: November 5, 2024		
	Date of Test	: November 5, 2024 to N	lovember 18, 2024	
	Data of Issue	: November 18, 2024		
	Result	: Pass		
	Testing Technology Co., Ltd. Th	is document may be altered all be noted in the revision s	out the written approval of Shenzh or revised by Shenzhen DACE Te ection of the document. The test r	sting Technology
	102, Building H1, & 1/F., Building H, Hongfa Scie Web: http://www.dace-lab.com		y, Shiyan Subdistrict, Bao'an District, Shenzhen, Gu E-mail: service@dace-lab.com	angdong, China Page 1 of 78





Apply for company information

Applicant's Name	:	Kool Brands, LLC.	
Address	:	1450 Vassar Street Reno, Nevada 89502 United States	. 6
Product Name	:	Retro-Bit Arcade Stick	2
Test Model(s)	:	RB-SGA-057	V
Series Model(s)	è	RB-SGA-058,RB-SGA-059	
Test Specification Standard(s)	2	47 CFR Part 15.247	
26		DAC	

NOTE1:

)De

DA

Ne

The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards.

C

Compiled by: Keren Huang

Keren Huang / Test Engineer November 18, 2024

Supervised by:

Ben Tang

Ben Tang / Project Engineer November 18, 2024

Approved by:

Machael Mrs

Machael Mo / Manager November 18, 2024

AC

C

102, Building H1, & 1/F., Building H, Hongfa Science & Technology Park, Tangtou Community, Shiyan Subdistrict, Bao'an District, Shenzhen, Guangdong, China Web: http://www.dace-lab.com Tel: +86-755-23010613 E-mail: service@dace-lab.com

		vision History Of Repo	rt DAG
Version	Description	REPORT No.	Issue Date
V1.0	Original	DACE241105007RF001	November 18, 2024
	DAG	40	E

١

CONTENTS

V1.0	
	Report No.: DACE241105007RF007
C.	
CC	ONTENTS
1 TEST SUMMARY	
2.4 DESCRIPTION OF SUPPORT UNITS	<u></u>
	RTAINTY1
	(RF)1
4.1 CONDUCTED EMISSION AT AC POWER LINE	E1
4.1.1 E.U.T. Operation:	
	1
	1
•	
4 4 1 F U T Operation	
4.5 EMISSIONS IN NON-RESTRICTED FREQUENCE	Y BANDS 1
4.5.2 Test Setup Diagram:	
4.5.3 Test Data:	······
4.6 BAND EDGE EMISSIONS (RADIATED)	
4.6.1 E.U.T. Operation:	
	1GHz)
	2017)
•	1GHz)2
4.0.Z TESI Data	gtou Community, Shiyan Subdistrict, Bao'an District, Shenzhen, Guangdong, China

6 PHOTOS OF	P PHOTOS THE EUT	 	
2. 99%	BANDWIDTH OCCUPIED BANDWIDTH	 	
4. PEAK	CYCLE OUTPUT POWER ER SPECTRAL DENSITY	 _	
6. BAND	DEDGE		

C

-

TEST SUMMARY 1

1.1 Test Standards

DAG

NE

The tests were performed according to following standards:

47 CFR Part 15.247: Operation within the bands 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz

1.2 Summary of Test Result

Item	Standard	Method	Requirement	Result
Antenna requirement	47 CFR Part 15.247		47 CFR 15.203	Pass
Conducted Emission at AC power line	47 CFR Part 15.247	ANSI C63.10-2013 section 6.2	47 CFR 15.207(a)	Pass
6dB Bandwidth	47 CFR Part 15.247	ANSI C63.10-2013, section 11.8 KDB 558074 D01 15.247 Meas Guidance v05r02	47 CFR 15.247(a)(2)	Pass
Maximum Conducted Output Power	47 CFR Part 15.247	ANSI C63.10-2013, section 11.9.1 KDB 558074 D01 15.247 Meas Guidance v05r02	47 CFR 15.247(b)(3)	Pass
Power Spectral Density	47 CFR Part 15.247	ANSI C63.10-2013, section 11.10 KDB 558074 D01 15.247 Meas Guidance v05r02	47 CFR 15.247(e)	Pass
Emissions in non-restricted frequency bands	47 CFR Part 15.247	ANSI C63.10-2013 section 11.11 KDB 558074 D01 15.247 Meas Guidance v05r02	47 CFR 15.247(d), 15.209, 15.205	Pass
Band edge emissions (Radiated)	47 CFR Part 15.247	ANSI C63.10-2013 section 6.10 KDB 558074 D01 15.247 Meas Guidance v05r02	47 CFR 15.247(d), 15.209, 15.205	Pass
Emissions in frequency bands (below 1GHz)	47 CFR Part 15.247	ANSI C63.10-2013 section 6.6.4 KDB 558074 D01 15.247 Meas Guidance v05r02	47 CFR 15.247(d), 15.209, 15.205	Pass
Emissions in frequency bands (above 1GHz)	47 CFR Part 15.247	ANSI C63.10-2013 section 6.6.4 KDB 558074 D01 15.247 Meas Guidance v05r02	47 CFR 15.247(d), 15.209, 15.205	Pass

102, Building H1, & 1/F., Building H, Hongfa Science & Technology Park, Tangtou Community, Shiyan Subdistrict, Bao'an District, Shenzhen, Guangdong, China Tel: +86-755-23010613 Web: http://www.dace-lab.com E-mail: service@dace-lab.com

C

Page 6 of 78

)AC

<u>v1.</u> с	0 Report No.: DACE241105007RF
2 GENERAL INF 2.1 Client Information	
Applicant's Name Address	Kool Brands, LLC.1450 Vassar Street Reno, Nevada 89502 United States
Manufacturer Address	 MAYFLASH LIMITED 3/F,Buiding No.1,TingWei Industrial Park,LiuFang Rd,No.67,BaoAn,Shenzhen,China.
2.2 Description of Dev	
Product Name:	Retro-Bit Arcade Stick
Model/Type reference:	RB-SGA-057
Series Model: Model Difference:	RB-SGA-058,RB-SGA-059 The product has many models, only the model name is different, and the other parts such as the circuit principle, pcb and electrical structure are the same.
Trade Mark:	Retro-Bit
Trade Mark: Power Supply:	Retro-Bit DC 5V/1A from adapter
Power Supply:	DC 5V/1A from adapter
Power Supply: Operation Frequency:	DC 5V/1A from adapter 2402MHz to 2480MHz
Power Supply: Operation Frequency: Number of Channels:	DC 5V/1A from adapter 2402MHz to 2480MHz 40
Power Supply: Operation Frequency: Number of Channels: Modulation Type:	DC 5V/1A from adapter 2402MHz to 2480MHz 40 GFSK
Power Supply: Operation Frequency: Number of Channels: Modulation Type: Antenna Type:	DC 5V/1A from adapter 2402MHz to 2480MHz 40 GFSK PCB

This data and the related calculations associated with it)

Operation Frequency each of channel							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
1	2402 MHz	11	2422 MHz	21	2442 MHz	31	2462 MHz
2	2404 MHz	12	2424 MHz	22	2444 MHz	32	2464 MHz
3	2406 MHz	13	2426 MHz	23	2446 MHz	33	2466 MHz
4	2408 MHz	14	2428 MHz	24	2448 MHz	34	2468 MHz
5	2410 MHz	15	2430 MHz	25	2450 MHz	35	2470 MHz
6	2412 MHz	16	2432 MHz	26	2452 MHz	36	2472 MHz
7	2414 MHz	17	2434 MHz	27	2454 MHz	37	2474 MHz
8	2416 MHz	18	2436 MHz	28	2456 MHz	38	2476 MHz
9	2418 MHz	19	2438 MHz	29	2458 MHz	39	2478 MHz
10	2420 MHz	20	2440 MHz	30	2460 MHz	40	2480 MHz

Note:

In section 15.31(m), regards to the operating frequency range over 10 MHz, the Lowest frequency, the middle frequency, and the highest frequency of channel were selected to perform the test, and the selected channel see below:

102, Building H1, & 1/F., Building H, Hongfa Science & Technology Park, Tangtou Community, Shiyan Subdistrict, Bao'an District, Shenzhen, Guangdong, China Web: http://www.dace-lab.com Tel: +86-755-23010613 E-mail: service@dace-lab.com

2.3 Description of Test Modes

DAG

NE

No	Title	Description
TM1	Lowest channel	Keep the EUT connect to AC power line and works in continuously transmitting mode with GFSK modulation.
TM2	Middle channel	Keep the EUT connect to AC power line and works in continuously transmitting mode with GFSK modulation.
TM3	Highest channel	Keep the EUT connect to AC power line and works in continuously transmitting mode with GFSK modulation.

2.4 Description of Support Units

Title	Manufacturer	Model No.	Serial No.
PC	Lenovo	Air 14 Plus	

-

2.5 Equipments Used During The Test

Conducted Emission a	It AC power line				
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
Power absorbing clamp	SCHWARZ BECK	MESS- ELEKTRONIK			2025-03-24
Electric Network	SCHWARZ BECK	CAT5 8158	CAT5 8158#207	1º	/
Cable	SCHWARZ BECK	1	/	2024-03-20	2025-03-19
Pulse Limiter	SCHWARZ BECK	VTSD 9561-F Pulse limiter 10dB Attenuation	561-G071	2023-12-12	2024-12-11
50ΩCoaxial Switch	Anritsu	MP59B	M20531	\overline{N}	1
Test Receiver	Rohde & Schwarz	ESPI TEST RECEIVER	ID:1164.6607K 03-102109- MH	2024-06-12	2025-06-11
L.I.S.N	R&S	ESH3-Z5	831.5518.52	2023-12-12	2024-12-11
L.I.S.N	SCHWARZ BECK	NSLK 8126	05055	2024-06-14	2025-06-13
Pulse Limiter	CYBERTEK	EM5010A	/	2024-09-27	2025-09-26
EMI test software	EZ -EMC	EZ	V1.1.42	/	1
	DAC		DAG		

C

)AC

e

Emissions in non-restricted frequency bands
6dB Bandwidth
Maximum Conducted Output Power
Power Spectral Density

DγG

Power Spectral Densit	ty	-			
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
RF Test Software	TACHOY	RTS-01	V1.0.0	/	/
Power divider	MIDEWEST	PWD-2533	SMA-79	2023-05-11	2026-05-10
RF Sensor Unit	Tachoy Information Technology(she nzhen) Co.,Ltd.	TR1029-2	000001	/	DYC
Wideband radio communication tester	R&S	CMW500	113410	2024-06-12	2025-06-11
Signal Generator	Keysight	N5181A	MY48180415	2023-12-11	2024-12-10
Signal Generator	Keysight	N5182A	MY50143455	2023-12-12	2024-12-11
Spectrum Analyzer	Keysight	N9020A	MY53420323	2023-12-12	2024-12-11

Band edge emissions (Radiated) Emissions in frequency bands (below 1GHz) Emissions in frequency bands (above 1GHz)

Emissions in frequence	y bands (above 10	3HZ)		· · · · · · · · · · · · · · · · · · ·	-
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
EMI Test software	Farad	EZ -EMC	V1.1.42	/	/
Positioning Controller	/	MF-7802	/	/	E'
Amplifier(18-40G)	COM-POWER	AH-1840	10100008-1	2022-04-05	2025-04-04
Horn antenna	COM-POWER	AH-1840 (18-40G)	10100008	2023-04-05	2025-04-04
Loop antenna	ZHINAN	ZN30900C	ZN30900C	2024-06-14	2026-06-13
Cable(LF)#2	Schwarzbeck	/		2024-02-19	2025-02-18
Cable(LF)#1	Schwarzbeck		/	2024-02-19	2025-02-18
Cable(HF)#2	Schwarzbeck	AK9515E	96250	2024-03-20	2025-03-19
Cable(HF)#1	Schwarzbeck	SYV-50-3-1	/	2024-03-20	2025-03-19
Power amplifier(LF)	Schwarzbeck	BBV9743	9743-151	2024-06-12	2025-06-11
Power amplifier(HF)	Schwarzbeck	BBV9718	9718-282	2024-06-12	2025-06-11
Wideband radio communication tester	R&S	CMW500	113410	2024-06-12	2025-06-11
Spectrum Analyzer	R&S	FSP30	1321.3008K40 -101729-jR	2024-06-12	2025-06-11
Test Receiver	R&S	ESCI 3	1166.5950K03 -101431-Jq	2024-06-13	2025-06-12
Horn Antenna	Sunol Sciences	DRH-118	A091114	2023-05-13	2025-05-12
Broadband Antenna	Sunol Sciences	JB6 Antenna	A090414	2024-09-28	2026-09-27
			•		•

102, Building H1, & 1/F., Building H, Hongfa Science & Technology Park, Tangtou Community, Shiyan Subdistrict, Bao'an District, Shenzhen, Guangdong, China

Tel: +86-755-23010613

Web: http://www.dace-lab.com

E-mail: service@dace-lab.com

Page 9 of 78

DAG

2.6 Statement Of The Measurement Uncertainty

Test Item	Measurement Uncertainty
Conducted Disturbance (0.15~30MHz)	±3.41dB
Occupied Bandwidth	±3.63%
RF conducted power 🥢	±0.733dB
RF power density	±0.234%
Conducted Spurious emissions	±1.98dB
Radiated Emission (Above 1GHz)	±5.46dB
Radiated Emission (Below 1GHz)	±5.79dB
Note: (1) This uncertainty represents an expanded up	ncertainty expressed at approximately the 05%

Note: (1) This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

2.7 Identification of Testing Laboratory

Company Name:	Shenzhen DACE Testing Technology Co., Ltd.			
Address:	102, Building H1, & 1/F., Building H, Hongfa Science & Technology Park, Tangtou Community, Shiyan Subdistrict, Bao'an District, Shenzhen, Guangdong, China			
Phone Number:	+86-13267178997			
Fax Number:	86-755-29113252			
Identification of the Respons	ible Testing Location			
Company Name:	Shenzhen DACE Testing Technology Co., Ltd.			
Address:	102, Building H1, & 1/F., Building H, Hongfa Science & Technology Park, Tangtou Community, Shiyan Subdistrict, Bao'an District, Shenzhen, Guangdong, China			
Phone Number:	+86-13267178997			
Fax Number:	86-755-29113252			
FCC Registration Number:	0032847402			
Designation Number:	CN1342			
Test Firm Registration Number:	778666			
A2LA Certificate Number:	6270.01			

2.8 Announcement

(1) The test report reference to the report template version v0.

(2) The test report is invalid if not marked with the signatures of the persons responsible for preparing, reviewing and approving the test report.

(3) The test report is invalid if there is any evidence and/or falsification.

(4) This document may not be altered or revised in any way unless done so by DACE and all revisions are duly noted in the revisions section.

(5) Content of the test report, in part or in full, cannot be used for publicity and/or promotional purposes without prior written approval from the laboratory.

(6) The laboratory is only responsible for the data released by the laboratory, except for the part provided by the applicant.

102, Building H1, & 1/F., Building H, Hongfa Science & Technology Park, Tangtou Community, Shiyan Subdistrict, Bao'an District, Shenzhen, Guangdong, China Web: http://www.dace-lab.com Tel: +86-755-23010613 E-mail: service@dace-lab.com

Evaluation Results (Evaluation) 3

3.1 Antenna requirement

Refer to 47 CFR Part 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section.

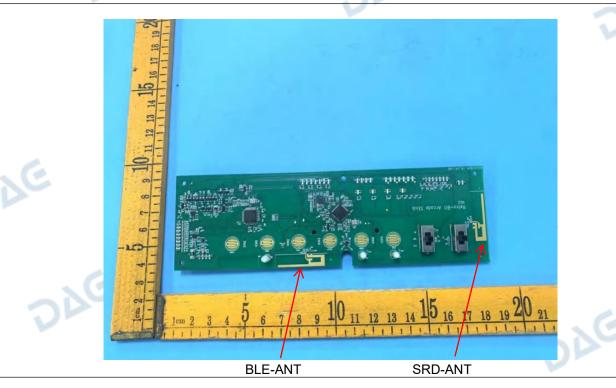
3.1.1 Conclusion:

V

24C

Test Requirement:

DΔG







)AC

102, Building H1, & 1/F., Building H, Hongfa Science & Technology Park, Tangtou Community, Shiyan Subdistrict, Bao'an District, Shenzhen, Guangdong, China Web: http://www.dace-lab.com Tel: +86-755-23010613 E-mail: service@dace-lab.com

NG

Page 11 of 78

-

Report No.: DACE241105007RF001

Radio Spectrum Matter Test Results (RF) 4

4.1 Conducted Emission at AC power line

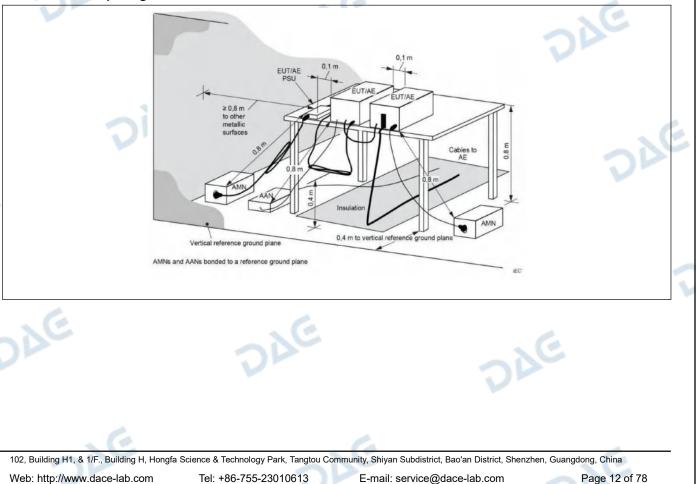
Test Requirement:	Refer to 47 CFR 15.207(a), Except a section, for an intentional radiator th utility (AC) power line, the radio freq AC power line on any frequency or f MHz, shall not exceed the limits in th μ H/50 ohms line impedance stabilize	at is designed to be conne uency voltage that is cond requencies, within the ban ne following table, as meas	cted to the public ucted back onto the d 150 kHz to 30
Test Limit:	Frequency of emission (MHz)	Conducted limit (dBµV)	
		Quasi-peak	Average
	0.15-0.5	66 to 56*	56 to 46*
	0.5-5	56	46
	5-30	60	50
	*Decreases with the logarithm of the	frequency.	
Test Method:	ANSI C63.10-2013 section 6.2	VE	4
Procedure:	Refer to ANSI C63.10-2013 section conducted emissions from unlicense		for ac power-line
4.1.1 E.U.T. Operation:	.e		4

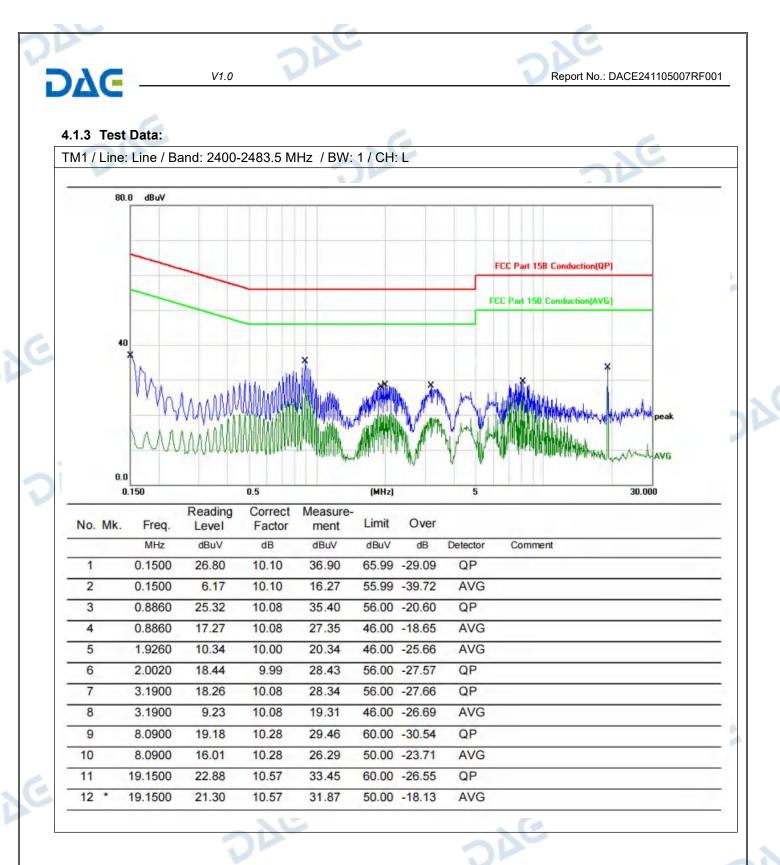
4.1.1 E.U.T. Operation:

DAG

Operating Envir	onment:		20			C
Temperature:	22.2 °C		Humidity:	52 %	Atmospheric Pressure:	101 kPa
Pretest mode:		TM1,	TM2,TM3		V	
Final test mode:		TM1				

4.1.2 Test Setup Diagram:





102, Building H1, & 1/F., Building H, Hongfa Science & Technology Park, Tangtou Community, Shiyan Subdistrict, Bao'an District, Shenzhen, Guangdong, China Web: http://www.dace-lab.com Tel: +86-755-23010613 E-mail: service@dace-lab.com

)De

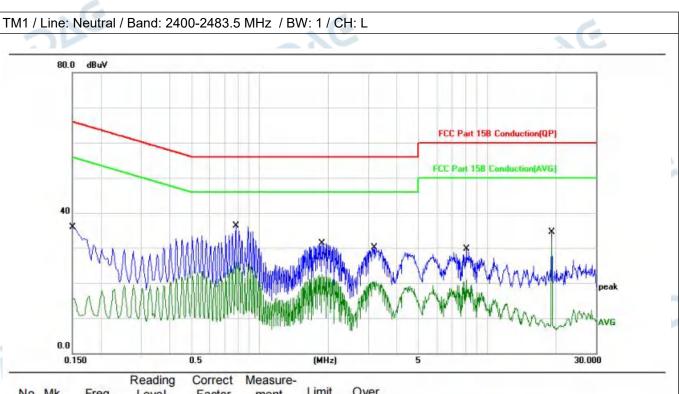
DAG

DAG

DAG

DAG

Report No.: DACE241105007RF001



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.1500	25.86	10.10	35.96	65.99	-30.03	QP	
2		0.1500	5.63	10.10	15.73	55.99	-40.26	AVG	
3		0.7860	26.23	10.08	36.31	56.00	-19.69	QP	
4		0.7860	15.76	10.08	25.84	46.00	-20.16	AVG	
5		1.8740	21.32	10.00	31.32	56.00	-24.68	QP	
6		1.8740	12.43	10.00	22.43	46.00	-23.57	AVG	
7		3.1900	20.08	10.08	30.16	56.00	-25.84	QP	
8		3.1900	10.42	10.08	20.50	46.00	-25.50	AVG	
9		8.0740	19.42	10.28	29.70	60.00	-30.30	QP	
10		8.0740	10.53	10.28	20.81	50.00	-29.19	AVG	
11		19.1580	23.90	10.57	34.47	60.00	-25.53	QP	
12	*	19.1580	22.06	10.57	32.63	50.00	-17.37	AVG	

102, Building H1, & 1/F., Building H, Hongfa Science & Technology Park, Tangtou Community, Shiyan Subdistrict, Bao'an District, Shenzhen, Guangdong, China Tel: +86-755-23010613 Web: http://www.dace-lab.com E-mail: service@dace-lab.com

NE

DAG

4.2 6dB Bandwidth

DAG

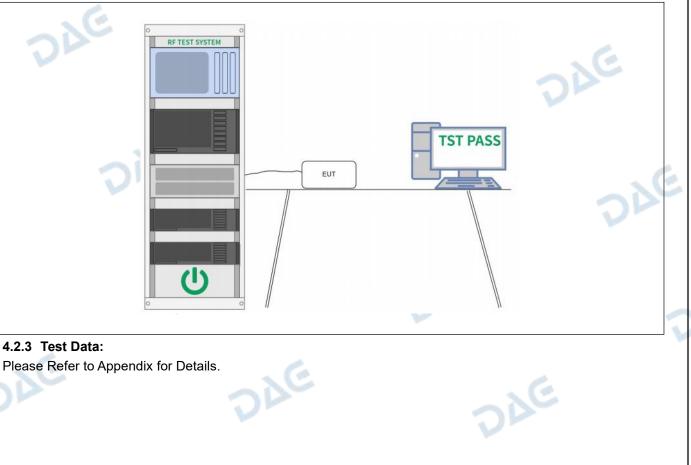
Test Requirement:	47 CFR 15.247(a)(2)
Test Limit:	Refer to 47 CFR 15.247(a)(2), Systems using digital modulation techniques may operate in the 902-928 MHz, and 2400-2483.5 MHz bands. The minimum 6 dB bandwidth shall be at least 500 kHz.
Test Method:	ANSI C63.10-2013, section 11.8 KDB 558074 D01 15.247 Meas Guidance v05r02
Procedure:	 a) Set RBW = 100 kHz. b) Set the VBW >= [3 × RBW]. c) Detector = peak. d) Trace mode = max hold. e) Sweep = auto couple. f) Allow the trace to stabilize. g) Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

e.

4.2.1 E.U.T. Operation:

Operating Envir	onment:					
Temperature:	22.2 °C	_	Humidity:	52 %	Atmospheric Pressure:	101 kPa
Pretest mode:		TM1,	TM2, TM3			6
Final test mode	:	TM1,	TM2, TM3			
400 Test Ost						

4.2.2 Test Setup Diagram:



102, Building H1, & 1/F., Building H, Hongfa Science & Technology Park, Tangtou Community, Shiyan Subdistrict, Bao'an District, Shenzhen, Guangdong, China Web: http://www.dace-lab.com Tel: +86-755-23010613 E-mail: service@dace-lab.com

DAG

Report No.: DACE241105007RF001

4.3 Maximum Conducted Output Power

Test Requirement:	47 CFR 15.247(b)(3)
Test Limit:	Refer to 47 CFR 15.247(b)(3), For systems using digital modulation in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz bands: 1 Watt. As an alternative to a peak power measurement, compliance with the one Watt limit can be based on a measurement of the maximum conducted output power. Maximum Conducted Output Power is defined as the total transmit power delivered to all antennas and antenna elements averaged across all symbols in the signaling alphabet when the transmitter is operating at its maximum power control level. Power must be summed across all antennas and antenna elements. The average must not include any time intervals during which the transmitter is off or is transmitting at a reduced power level. If multiple modes of operation are possible (e.g., alternative modulation methods), the maximum conducted output power is the highest total transmit power occurring in any mode.
Test Method:	ANSI C63.10-2013, section 11.9.1 KDB 558074 D01 15.247 Meas Guidance v05r02
Procedure:	ANSI C63.10-2013, section 11.9.1 Maximum peak conducted output power Note: Per ANSI C63.10-2013, if there are two or more antnnas, the conducted powers at Core 0, Core 1,, Core i were first measured separately, as shown in the section above(this product olny have one antenna). The measured values were then summed in linear power units then converted back to dBm. Per ANSI C63.10-2013 Section 14.4.3.2.3, the directional gain is calculated using the following formula, where GN is the gain of the nth antenna and NANT, the total number of antennas used. For correlated unequal antenna gain Directional gain = 10*log[(10G1/20 + 10G2/20 + + 10GN/20)2 / NANT] dBi For completely uncorrelated unequal antenna gain Directional gain = 10*log[(10G1/10 + 10G2/10 + + 10GN/10)/ NANT] dBi Sample Multiple antennas Calculation: Core 0 + Core 1 +Core i. = MIMO/CDD (i is the number of antennas) (#VALUE! mW + mW) = #VALUE! mW = dBm Sample e.i.r.p. Calculation: e.i.r.p. (dBm) = Conducted Power (dBm) + Ant gain (dBi)

. 6

4.3.1 E.U.T. Operation:

Operating Envir	onment:				_	NC		
Temperature:	22.2 °C		Humidity:	52 %		Atmospheric Pressure:	101 kPa	~ ~ ~
Pretest mode:		TM1,	TM2, TM3	•			•	NC
Final test mode:		TM1,	TM2, TM3					

)De

,AC

9

4.3.2 Test Setup Diagram:

NE

102, Building H1, & 1/F., Building H, Hongfa Science & Technology Park, Tangtou Community, Shiyan Subdistrict, Bao'an District, Shenzhen, Guangdong, ChinaWeb: http://www.dace-lab.comTel: +86-755-23010613E-mail: service@dace-lab.comPage 16 of 78

NE

		. (*
DAG	V1.0	Report No.: DACE241105007RF001
DAG	O O RF TEST SYSTEM	DAE
Ð		TST PASS
4.3.3 Test Data: Please Refer to App	endix for Details.	

Report No.: DACE241105007RF001

4.4 Power Spectral Density

DΔC

4.4.1 E.U.T. Operation:	
Procedure:	ANSI C63.10-2013, section 11.10, Maximum power spectral density level in the fundamental emission
Test Method:	ANSI C63.10-2013, section 11.10 KDB 558074 D01 15.247 Meas Guidance v05r02
Test Limit:	Refer to 47 CFR 15.247(e), For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission. This power spectral density shall be determined in accordance with the provisions of paragraph (b) of this section. The same method of determining the conducted output power shall be used to determine the power spectral density.
Test Requirement:	47 CFR 15.247(e)

6

4.4.1 E.U.T. Operation:

Operating Environment:								
Temperature:	22.2 °C		Humidity:	52 %	Atmospheric Pressure:	101 kPa		
Pretest mode: TM1,			TM2, TM3					
Final test mode:			TM2, TM3					

4.4.2 Test Setup Diagram:

4.4.2 Test Setup Diagram			
•	O RF TEST SYSTEM		
DAE			C
	EUT	TST PASS	AE
			240
0		N	
4.4.3 Test Data: Please Refer to Appendix		DAG	
Flease Relei to Appendix	or Details.		

Tel: +86-755-23010613

Web: http://www.dace-lab.com

E-mail: service@dace-lab.com

Report No.: DACE241105007RF001

4.5 Emissions in non-restricted frequency bands

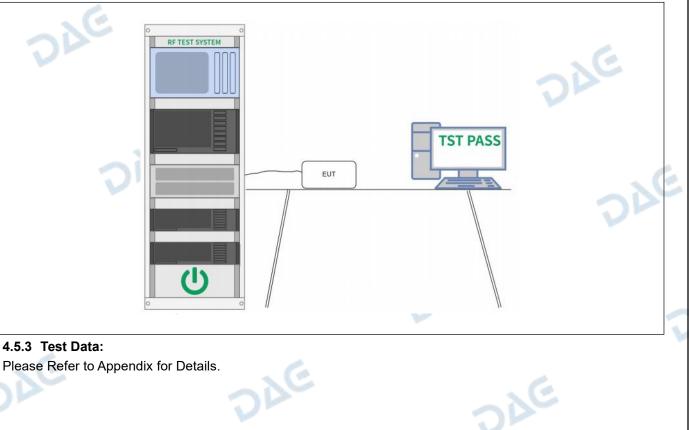
Test Requirement:	47 CFR 15.247(d), 15.209, 15.205
Test Limit:	Refer to 47 CFR 15.247(d), In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall 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. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in § 15.209(a) is not required.
Test Method:	ANSI C63.10-2013 section 11.11 KDB 558074 D01 15.247 Meas Guidance v05r02
Procedure:	ANSI C63.10-2013 Section 11.11.1, Section 11.11.2, Section 11.11.3

4.5.1 E.U.T. Operation:

DAG

Operating Environment:									
Temperature:	22.2 °C		Humidity:	52 %	Atmospheric Pressure:	101 kPa			
Pretest mode:	Pretest mode: TM1, TM2, TM3					6			
Final test mode: TM1, TM2, TM3			TM2, TM3						
4 5 0 Test 0 . 4									

4.5.2 Test Setup Diagram:



Report No.: DACE241105007RF001

4.6 Band edge emissions (Radiated)

DAG

4

NE

	ne sana sage enne			
	Test Requirement:		n addition, radiated emissions wh in § 15.205(a), must also comply 15.209(a)(see § 15.205(c)).`	
	Test Limit:	Frequency (MHz)	Field strength (microvolts/meter)	Measurement distance (meters)
	20	0.009-0.490	2400/F(kHz)	300
		0.490-1.705	24000/F(kHz)	30
		1.705-30.0	30	30
		30-88	100 **	3
		88-216	150 **	3
	-	216-960	200 **	3
		Above 960	500	3
	AE	radiators operating under this 54-72 MHz, 76-88 MHz, 174 these frequency bands is per and 15.241. In the emission table above, The emission limits shown in employing a CISPR quasi-per 110–490 kHz and above 100	agraph (g), fundamental emission s section shall not be located in th -216 MHz or 470-806 MHz. Howe rmitted under other sections of thi the tighter limit applies at the ban the above table are based on me eak detector except for the freque 0 MHz. Radiated emission limits a employing an average detector.	ne frequency bands ever, operation within is part, e.g., §§ 15.231 nd edges. easurements ncy bands 9–90 kHz,
	Test Method:	ANSI C63.10-2013 section 6 KDB 558074 D01 15.247 Me		
	Procedure:	ANSI C63.10-2013 section 6	.10.5.2	1C
	4.6.1 E.U.T. Operation:			2P
	Operating Environment:			
I	1	1 1		

Operating Environment.								
Temperature:	22.2 °C		Humidity:	52 %	Atmospheric Pressure:	101 kPa		
Pretest mode:		TM1,	TM2, TM3		6			
Final test mode:	OP	TM1,	TM3		200			

)De

DAG

NE

102, Building H1, & 1/F., Building H, Hongfa Science & Technology Park, Tangtou Community, Shiyan Subdistrict, Bao'an District, Shenzhen, Guangdong, China Web: http://www.dace-lab.com Tel: +86-755-23010613 E-mail: service@dace-lab.com

NE

		Report No.: DACE241105007RF001
4.6.2 Test Setup Diagram:	6	l.
EUT·SYS# # Turntable# Table#	Antennae Towere 3me J Ground-Planee	To'EMI'Receiver#
DAC	DIE	DIE

DΔC V1.0 Report No.: DACE241105007RF001 4.6.3 Test Data: TM1 / Polarization: Horizontal / Band: 2400-2483.5 MHz / BW: 1 / CH: L dBuV/m 110.0 100 90 80 FCC Part 15C (P 70 60 FCC Part 15C (4vi 50 40 30 20 AVG 10 0.0 2340.000 2350.000 (MHz) 2370.000 2380.000 2390.000 2400.000 2410.000 2310.000 2320.000 2330.000

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	2310.000	33.75	-3.63	30.12	74.00	-43.88	peak	150		P	
2	2310.000	22.91	-3.63	19.28	54.00	-34.72	AVG	150		Р	
3	2390.000	34.81	-3.42	31.39	74.00	-42.61	peak	150		P	
4 *	2390.000	22.99	-3.42	19.57	54.00	-34.43	AVG	150		P	

DAG

)De

DAG

102, Building H1, & 1/F., Building H, Hongfa Science & Technology Park, Tangtou Community, Shiyan Subdistrict, Bao'an District, Shenzhen, Guangdong, China Web: http://www.dace-lab.com Tel: +86-755-23010613 E-mail: service@dace-lab.com

)AC

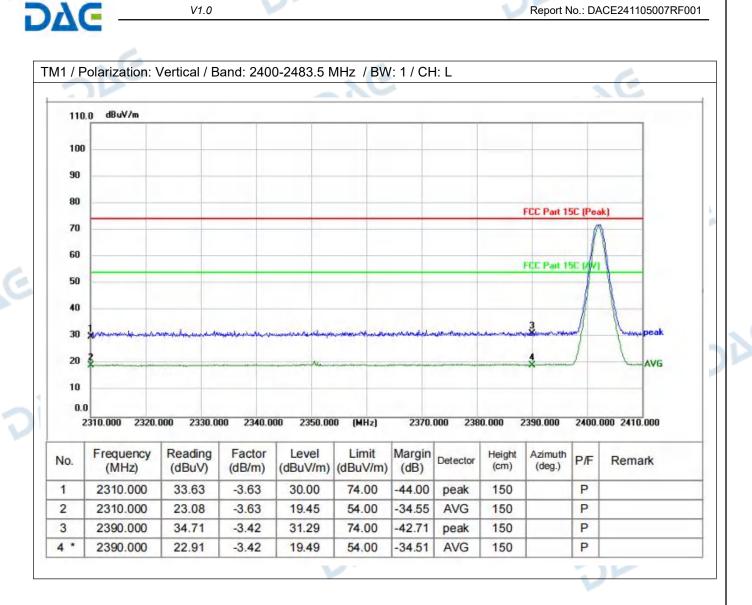
NE

DAG

DAG

Se

Report No.: DACE241105007RF001



DAE

4

DAG

DAG

24C

DAG

102, Building H1, & 1/F., Building H, Hongfa Science & Technology Park, Tangtou Community, Shiyan Subdistrict, Bao'an District, Shenzhen, Guangdong, China Web: http://www.dace-lab.com Tel: +86-755-23010613 E-mail: service@dace-lab.com

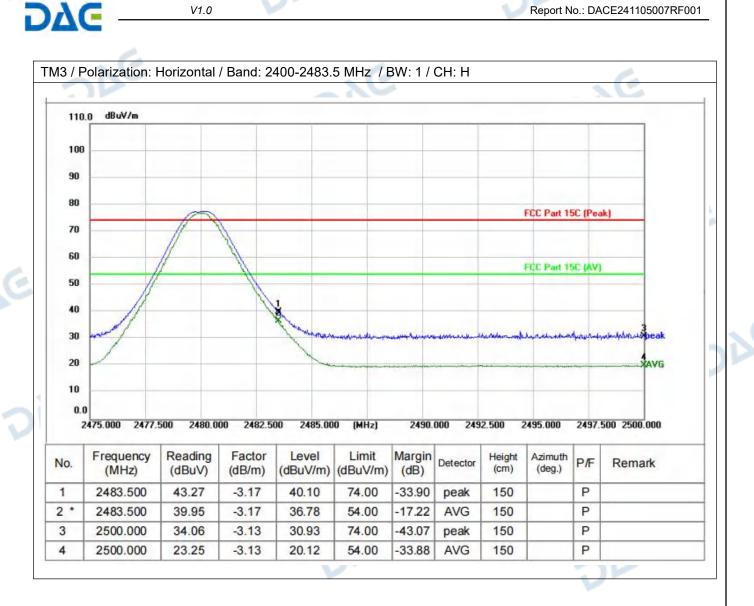
DAE

DAG

Page 23 of 78

)De

Report No.: DACE241105007RF001



DAG

4

DAG

DAE

2AC

DAG

102, Building H1, & 1/F., Building H, Hongfa Science & Technology Park, Tangtou Community, Shiyan Subdistrict, Bao'an District, Shenzhen, Guangdong, China Web: http://www.dace-lab.com Tel: +86-755-23010613 E-mail: service@dace-lab.com

DAE

DAG

Page 24 of 78

)DE

DAC

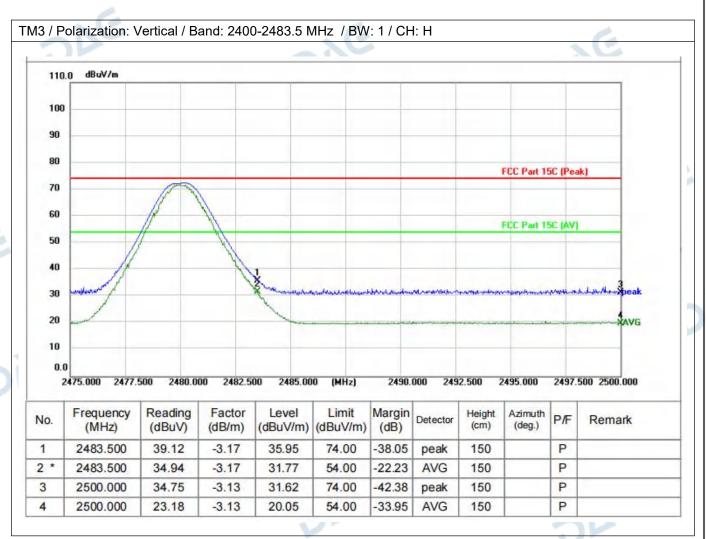
DAG

)De

\$

DΔG

Report No.: DACE241105007RF001



The test software will only record the worst test angle and height, and only the worst case will be recorded in the test report.

DAG

)De

DAG

102, Building H1, & 1/F., Building H, Hongfa Science & Technology Park, Tangtou Community, Shiyan Subdistrict, Bao'an District, Shenzhen, Guangdong, China Web: http://www.dace-lab.com Tel: +86-755-23010613 E-mail: service@dace-lab.com

)DE

Page 25 of 78

NE

DγG

4.7 Emissions in frequency bands (below 1GHz)

Test Requirement:	Refer to 47 CFR 15.247(d), 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 § 15.205(c)).`					
Test Limit:	Frequency (MHz)	Field strength (microvolts/meter)	Measurement distance (meters)			
	0.009-0.490	2400/F(kHz)	300			
	0.490-1.705	24000/F(kHz)	30			
	1.705-30.0	30	30			
	30-88	100 **	3			
	88-216	150 **	3			
,	216-960	200 **	3			
	Above 960	500	3			
	and 15.241. In the emission table above, the tighter limit applies at the band edges. The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9–90 kHz, 110–490 kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector.					
Test Method:	ANSI C63.10-2013 section KDB 558074 D01 15.247					
Procedure:	above the ground at a 3 of 360 degrees to determine b. For above 1GHz, the E above the ground at a 3 of degrees to determine the c. The EUT was set 3 or which was mounted on th d. The antenna height is determine the maximum polarizations of the anten e. For each suspected en the antenna was tuned to below 30MHz, the antenna was turned from 0 degree f. The test-receiver syste Bandwidth with Maximum g. If the emission level of specified, then testing co reported. Otherwise the e tested one by one using reported in a data sheet. h. Test the EUT in the low i. The radiation measurer Transmitting mode, and f j. Repeat above procedure	the EUT in peak mode was 10dl uld be stopped and the peak valu emissions that did not have 10dB peak, quasi-peak or average met	ber. The table was rotate ation. otating table 1.5 meters ne table was rotated 360 ence-receiving antenna, na tower. eters above the ground to norizontal and vertical ment. o its worst case and then rs (for the test frequency of and the rotatable table kimum reading. on and Specified B lower than the limit ues of the EUT would be margin would be re- thod as specified and the , the Highest channel. kis positioning for h it is the worst case.			
.C.	Remark: 1) For emission below 10	GHz, through pre-scan found the	worst case is the lowest			

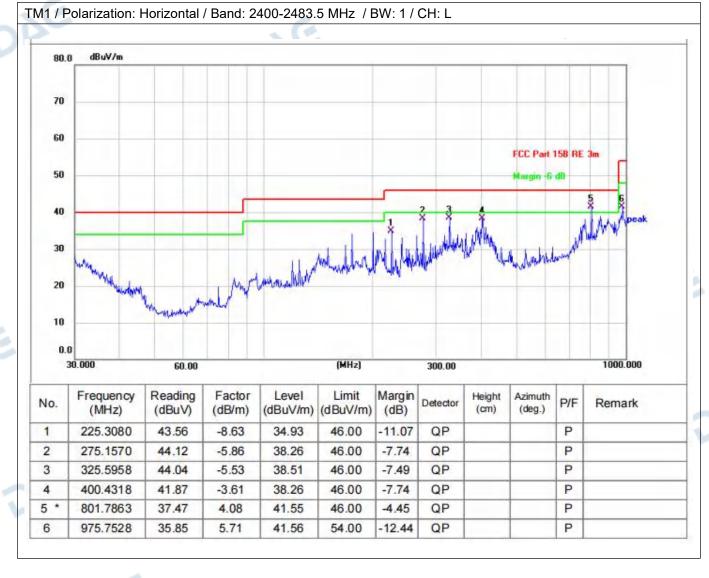
ong, China 102, Building H ng H, Hongfa Science & Technology Park, Tangtou Commu nity, Shiyan Sub Bao'an District, Shenzh ien, Guang Web: http://www.dace-lab.com Tel: +86-755-23010613 E-mail: service@dace-lab.com

DAG	V1.0	DAG	Report No.: DACE241105007RF001
DAC	2) The Pream Final To Pream 3) Scar was ve found v spuriou the limi	field strength is calc plifier. The basic equ est Level =Receiver plifier Factor n from 9kHz to 25GI ry low. The points m when testing, so only is emissions from th	se is recorded in the report. culated by adding the Antenna Factor, Cable Factor & uation with a sample calculation is as follows: Reading + Antenna Factor + Cable Factor "C Hz, the disturbance above 12.75GHz and below 30MHz harked on above plots are the highest emissions could be y above points had been displayed. The amplitude of he radiator which are attenuated more than 20dB below ted. Fundamental frequency is blocked by filter, and only n.

4.7.1 E.U.T. Operation:

Operating Environment:								
Temperature:		Humidity:	52 %	Atmospheric Pressure:	101 kPa			
Pretest mode:	-	TM1,	TM2,TM3		. 6			
Final test mode:	TM1,	TM2,TM3						

4.7.2 Test Data:



102, Building H1, & 1/F., Building H, Hongfa Science & Technology Park, Tangtou Community, Shiyan Subdistrict, Bao'an District, Shenzhen, Guangdong, China Tel: +86-755-23010613 Web: http://www.dace-lab.com

E-mail: service@dace-lab.com

Page 27 of 78

DAC V1.0 Report No.: DACE241105007RF001 TM1 / Polarization: Vertical / Band: 2400-2483.5 MHz / BW: 1 / CH: L 80.0 dBuV/m 70 60 FCC Part 15B RE 3m 50 40 30 20 10 0.0 (MHz) 30.000 60.00 300.00 1000.000 Reading Factor Level Limit Margin Frequency Height Azimuth No. Detector P/F Remark (MHz) (dBuV) (dB/m)(dBuV/m) (dBuV/m) (dB) (cm) (deg.) QP P 1 45.0583 42.37 -9.51 32.86 40.00 -7.14 40.00 -3.22 2 * 82.9384 48.46 -11.68 36.78 QP P 3 175.0367 44.26 -7.96 36.30 43.50 -7.20 QP P

The test software will only record the worst test angle and height, and only the worst case will be recorded in the test report.

46.00

46.00

46.00

-9.76

-9.37

-3.91

QP

QP

QP

)De

P

P

P

)AC

225.3080

399.0302

881.4067

4 5

6 !

DAG

44.87

40.29

37.40

-8.63

-3.66

4.69

NE

36.24

36.63

42.09

102, Building H1, & 1/F., Building H, Hongfa Science & Technology Park, Tangtou Community, Shiyan Subdistrict, Bao'an District, Shenzhen, Guangdong, China Web: http://www.dace-lab.com Tel: +86-755-23010613 E-mail: service@dace-lab.com

)De

DγG

Report No.: DACE241105007RF001

4.8 Emissions in frequency bands (above 1GHz)

Test Requirement:	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 § 15.205(c)).						
Test Limit:	Frequency (MHz)	Field strength (microvolts/meter)	Measurement distance (meters)				
	0.009-0.490	2400/F(kHz)	300				
	0.490-1.705	24000/F(kHz)	30				
	1.705-30.0	30	30				
	30-88	100 **	3				
	88-216	150 **	3				
	216-960	200 **	3				
	Above 960	500	3				
	 these frequency bands is permitted under other sections of this part, e.g., §§ 15.23 and 15.241. In the emission table above, the tighter limit applies at the band edges. The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9–90 kHz, 110–490 kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector. 						
Test Method:	ANSI C63.10-2013 section 6.6.4 KDB 558074 D01 15.247 Meas Guidance v05r02						
Procedure:	 a. For below 1GHz, the EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 or 10 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation. b. For above 1GHz, the EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter fully-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation. c. The EUT was set 3 or 10 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower. d. The antenna height 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. e. 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 (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading. f. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode. g. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be retested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet. h. Test the EUT in the lowest channel, the middle channel, the Highest channel. i. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is the worst case. j. Repeat above procedures until all frequencies measured was complete. 						
	Remark:						

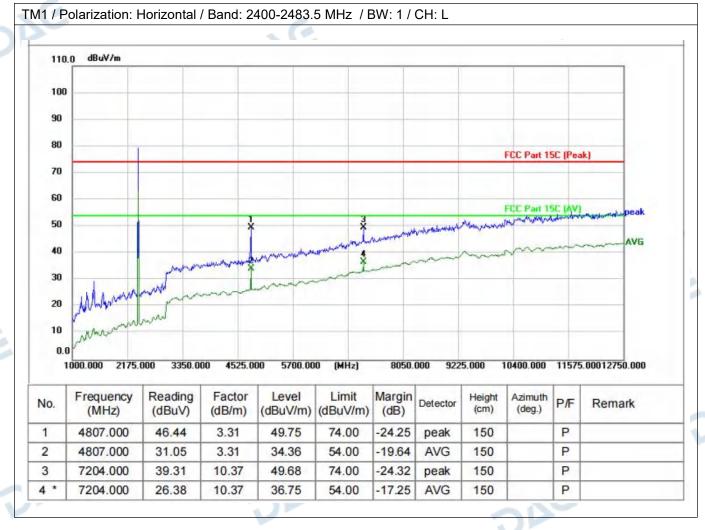
Web: http://www.dace-lab.com Tel: +86-755-23010613 E-mail: service@dace-lab.com

DAG	V1.0	Report No.: DACE241105007RF001
DAC	 2) The field strength is call Preamplifier. The basic eq Final Test Level =Receive Preamplifier Factor 3) Scan from 9kHz to 25G was very low. The points r found when testing, so on spurious emissions from the 	ase is recorded in the report. culated by adding the Antenna Factor, Cable Factor & uation with a sample calculation is as follows: r Reading + Antenna Factor + Cable Factor "C Hz, the disturbance above 12.75GHz and below 30MHz narked on above plots are the highest emissions could be y above points had been displayed. The amplitude of ne radiator which are attenuated more than 20dB below ted. Fundamental frequency is blocked by filter, and only n.

4.8.1 E.U.T. Operation:

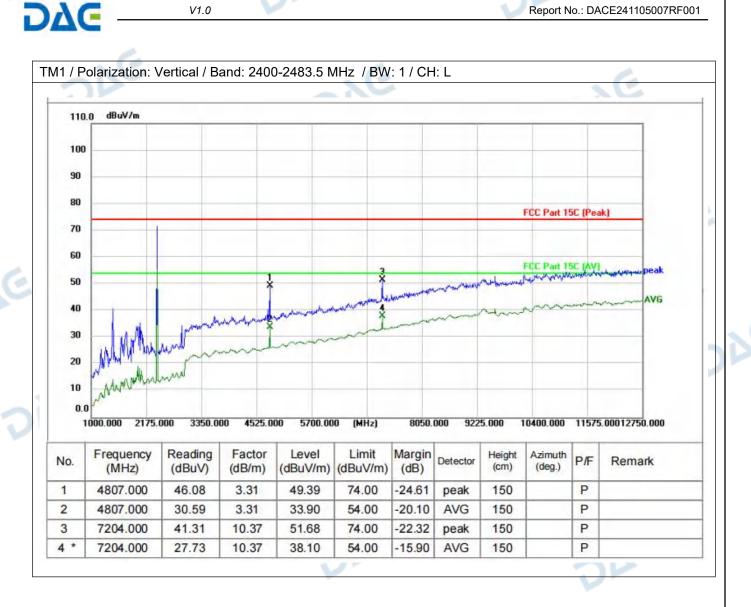
Operating Environment:							
Temperature:	22.2 °C		Humidity:	52 %	Atmospheric Pressure:	101 kPa	
Pretest mode:	-	TM1,	TM2, TM3	13			
Final test mode:		TM1,	TM2, TM3				

4.8.2 Test Data:



102, Building H1, & 1/F., Building H, Hongfa Science & Technology Park, Tangtou Community, Shiyan Subdistrict, Bao'an District, Shenzhen, Guangdong, China Web: http://www.dace-lab.com Tel: +86-755-23010613 E-mail: service@dace-lab.com

Report No.: DACE241105007RF001



DAE

4

DAG

DAG

)AC

DAG

102, Building H1, & 1/F., Building H, Hongfa Science & Technology Park, Tangtou Community, Shiyan Subdistrict, Bao'an District, Shenzhen, Guangdong, China Web: http://www.dace-lab.com Tel: +86-755-23010613 E-mail: service@dace-lab.com

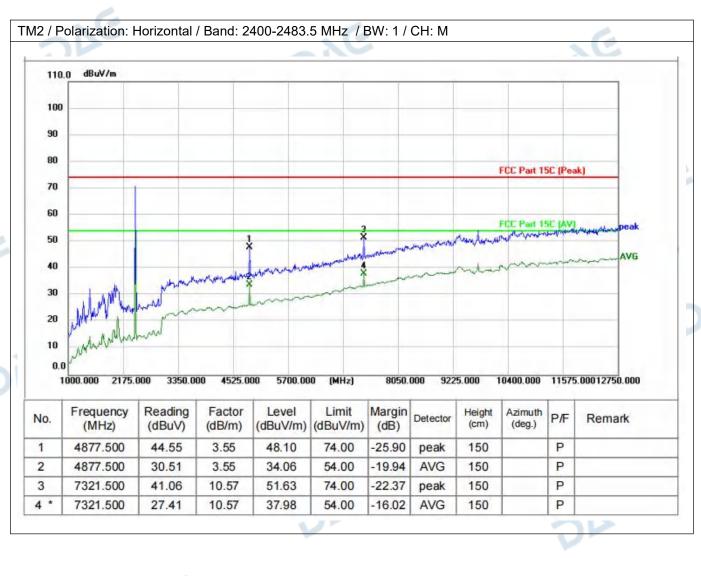
DAG

DAG

)DE

DAC

Report No.: DACE241105007RF001



DAE

DAG

DAG

)De

DAG

102, Building H1, & 1/F., Building H, Hongfa Science & Technology Park, Tangtou Community, Shiyan Subdistrict, Bao'an District, Shenzhen, Guangdong, China Web: http://www.dace-lab.com Tel: +86-755-23010613 E-mail: service@dace-lab.com

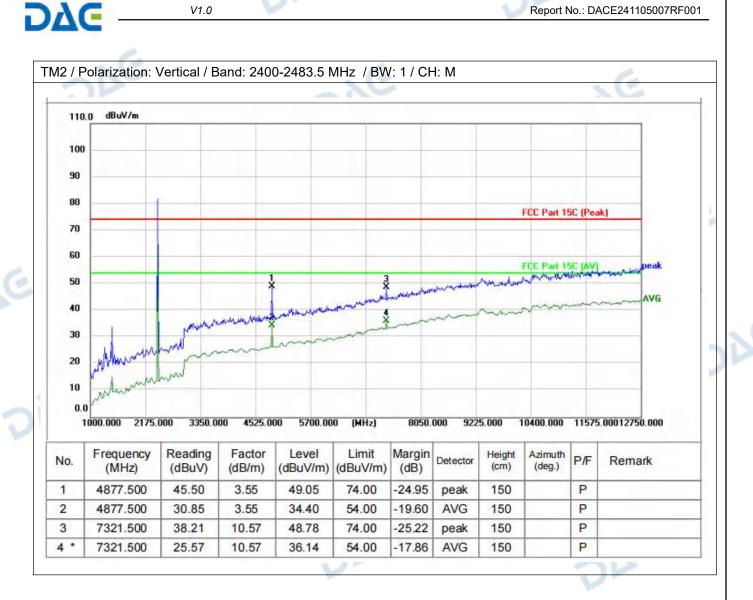
DAG

DAG

Page 32 of 78

DE

Report No.: DACE241105007RF001



DAE

DAG

DAG

)AC

DAG

102, Building H1, & 1/F., Building H, Hongfa Science & Technology Park, Tangtou Community, Shiyan Subdistrict, Bao'an District, Shenzhen, Guangdong, China Web: http://www.dace-lab.com Tel: +86-755-23010613 E-mail: service@dace-lab.com

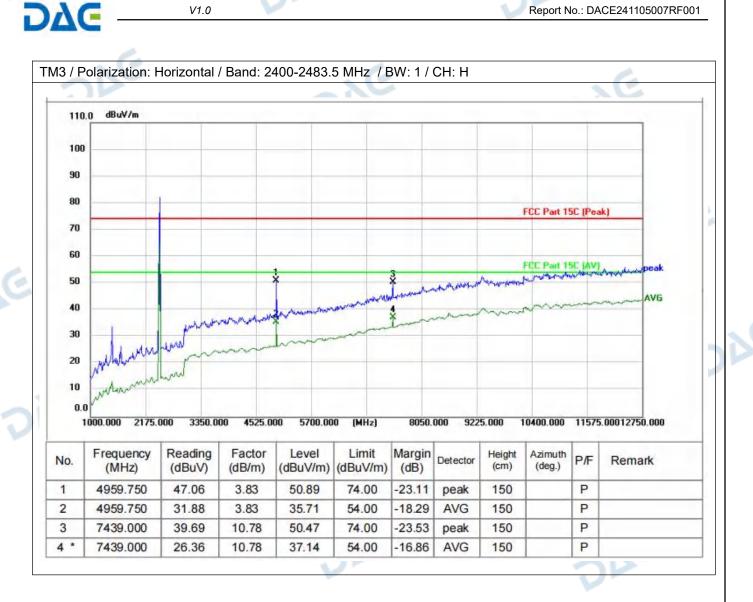
DAG

DAG

Page 33 of 78

)DE

Report No.: DACE241105007RF001



DAE

DAG

DAG

)AC

DAG

102, Building H1, & 1/F., Building H, Hongfa Science & Technology Park, Tangtou Community, Shiyan Subdistrict, Bao'an District, Shenzhen, Guangdong, China Web: http://www.dace-lab.com Tel: +86-755-23010613 E-mail: service@dace-lab.com

DAE

DAG

Page 34 of 78

)DE

DΔG V1.0 Report No.: DACE241105007RF001 TM3 / Polarization: Vertical / Band: 2400-2483.5 MHz / BW: 1 / CH: H dBuV/m 110.0 100 90 80 FCC Part 15C (Peak) 70 60 50 ł AVG 40 30 20 10 0.0 3350.000 4525.000 (MHz) 9225.000 10400.000 11575.00012750.000 1000.000 2175.000 5700.000 8050.000 Frequency Reading Factor Level Limit Margin Height Azimuth Detector P/F No. Remark (MHz) (dBuV) (dB/m) (dBuV/m) (dBuV/m) (dB) (cm) (deg.) 4959.750 44.65 3.83 P 1 48.48 74.00 25.52 150 peak P 4959.750 30.12 3.83 54.00 -20.05 150 2 33.95 AVG 3 7439.000 40.80 10.78 51.58 74.00 22.42 150 P

The test software will only record the worst test angle and height, and only the worst case will be recorded in the test report.

54.00

4 *

DAG

7439.000

27.41

DAE

10.78

)De

Ŷ

38.19

peak

AVG

150

)AC

DAG

P

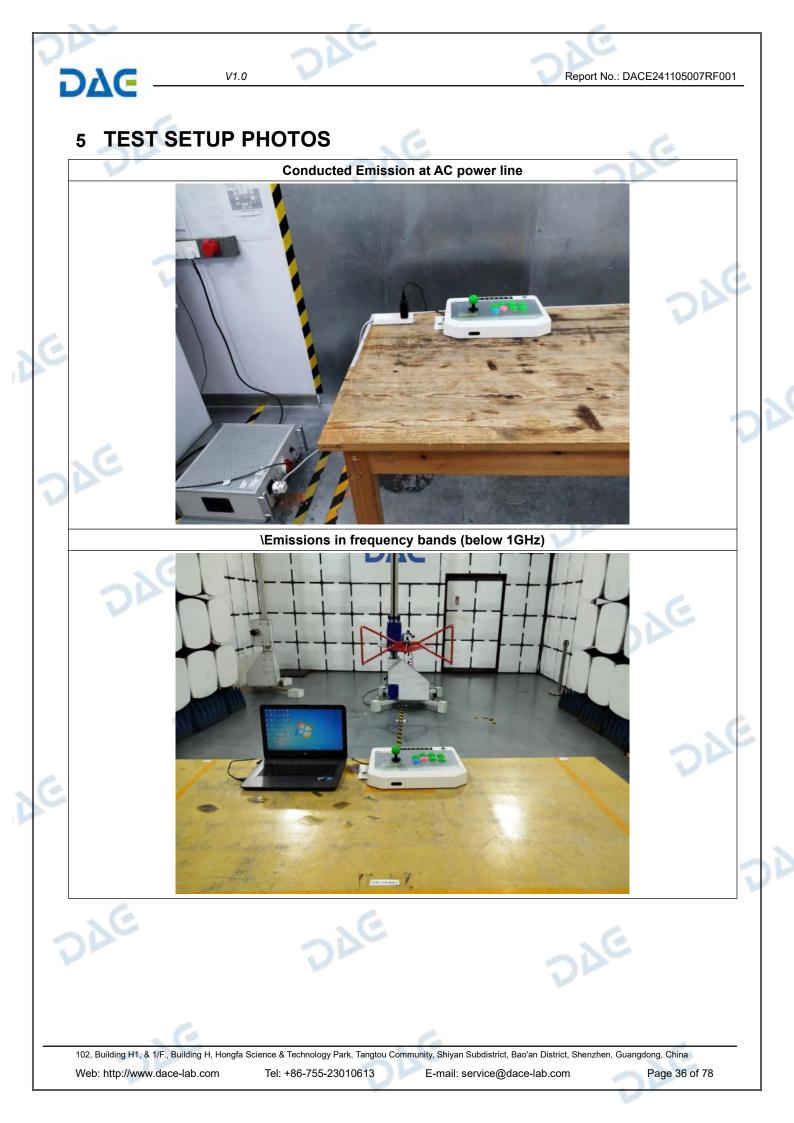
-15.81

DAG

102, Building H1, & 1/F., Building H, Hongfa Science & Technology Park, Tangtou Community, Shiyan Subdistrict, Bao'an District, Shenzhen, Guangdong, China Web: http://www.dace-lab.com Tel: +86-755-23010613 E-mail: service@dace-lab.com

)AC

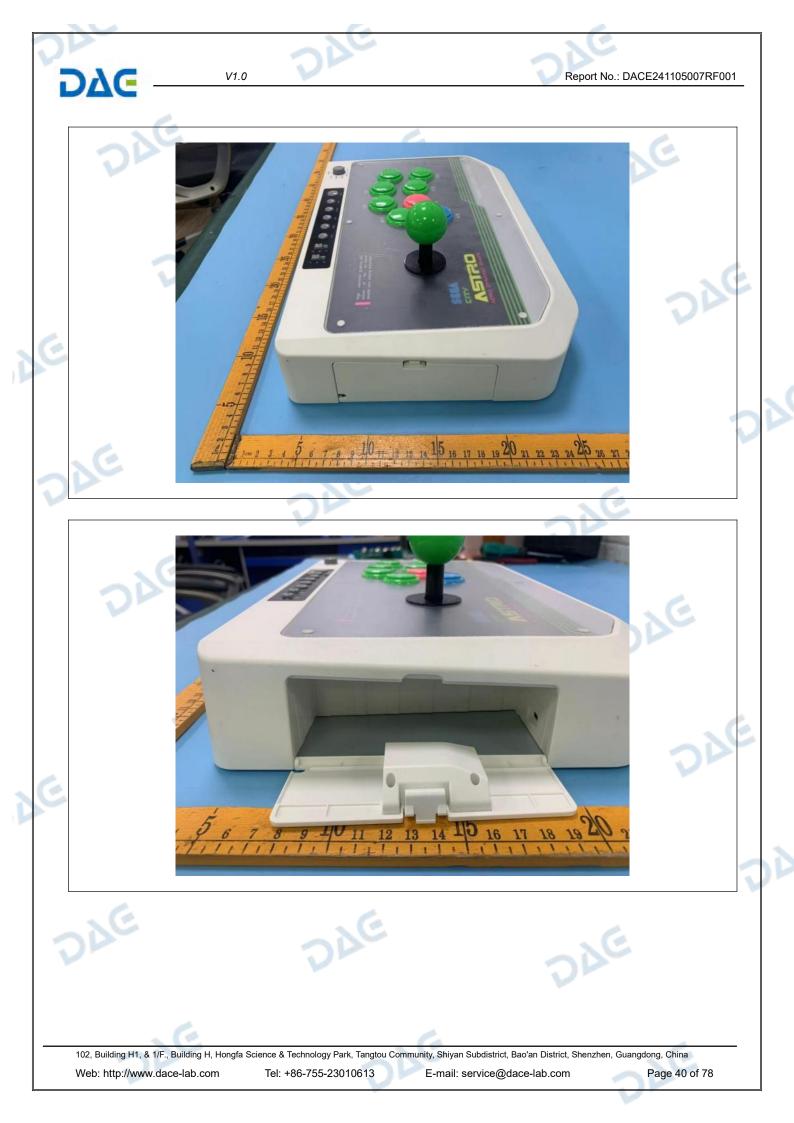
NE







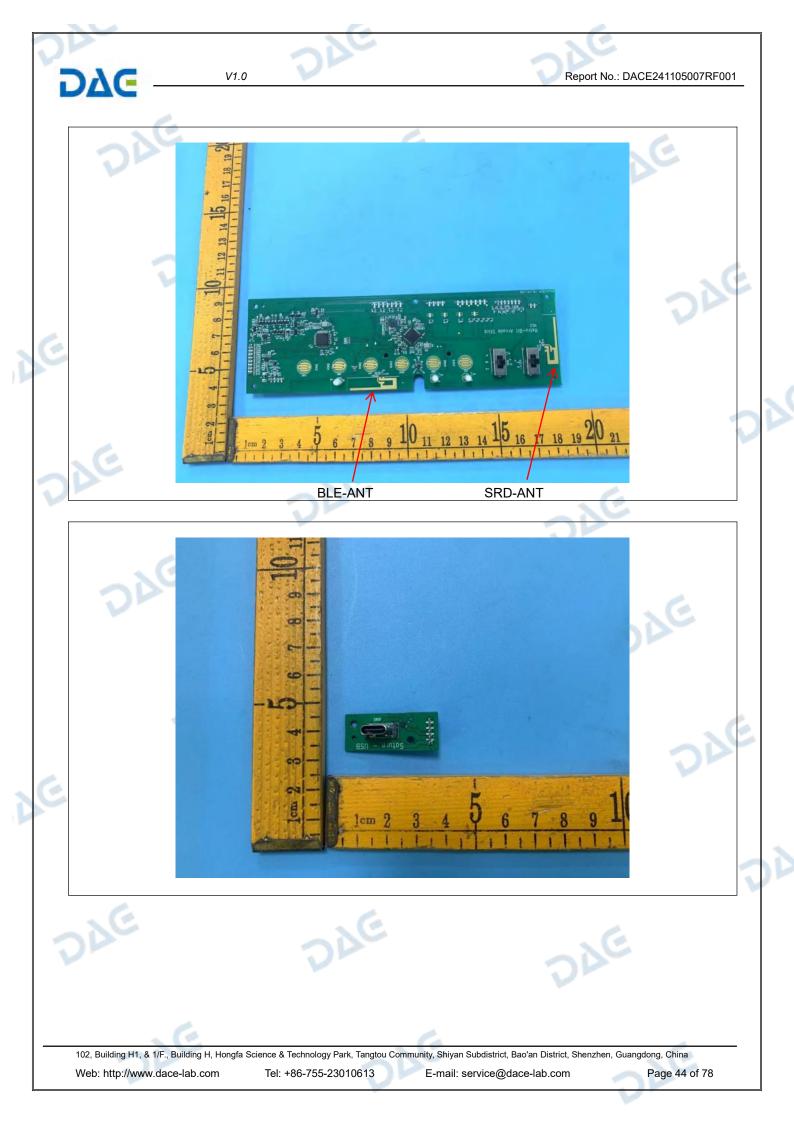


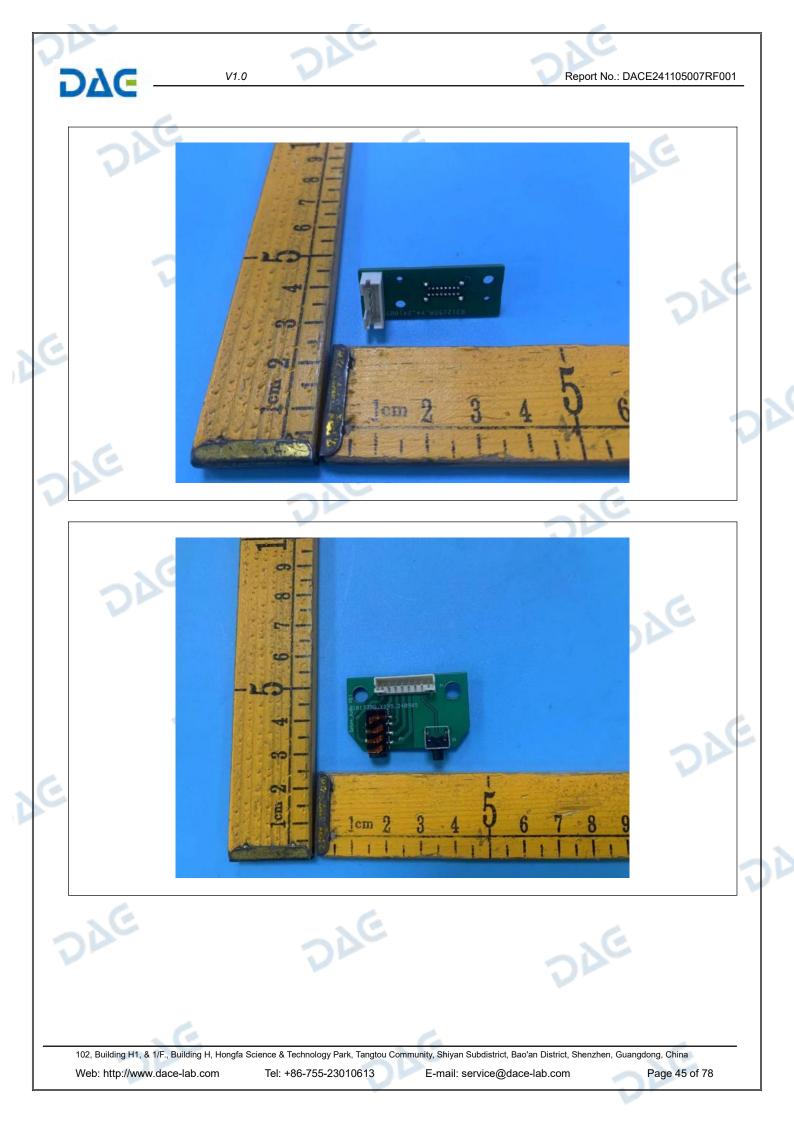


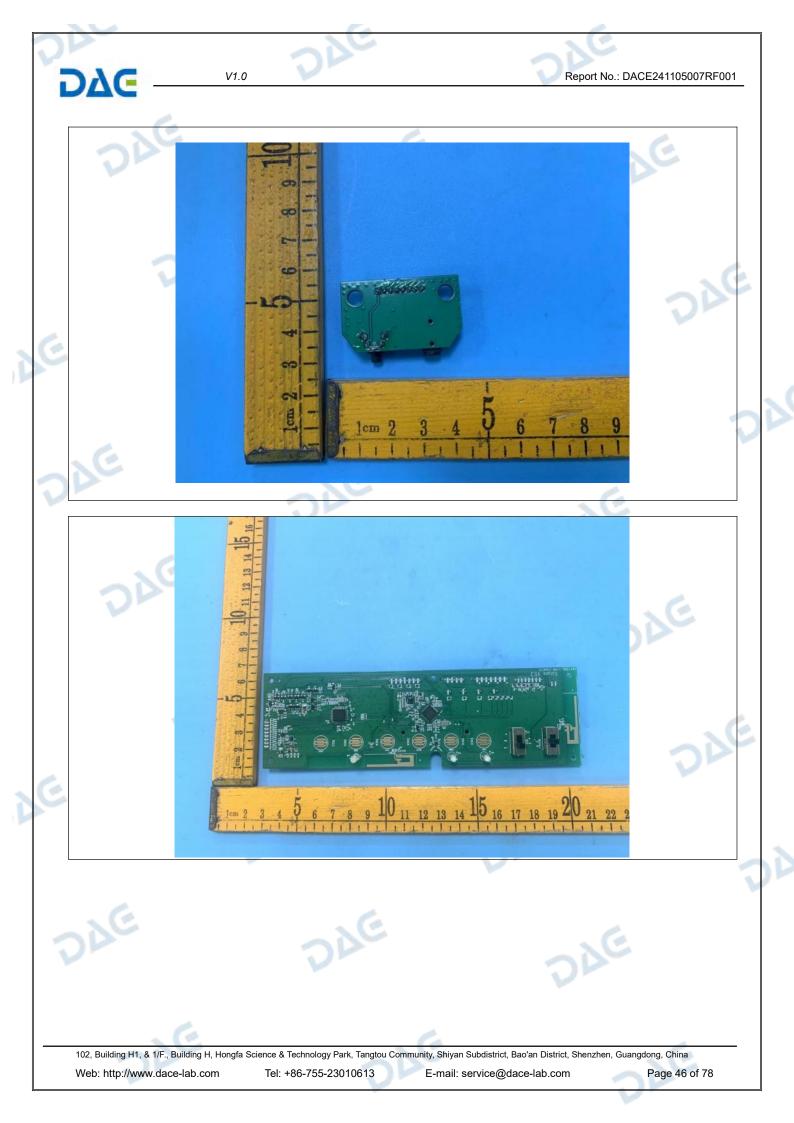


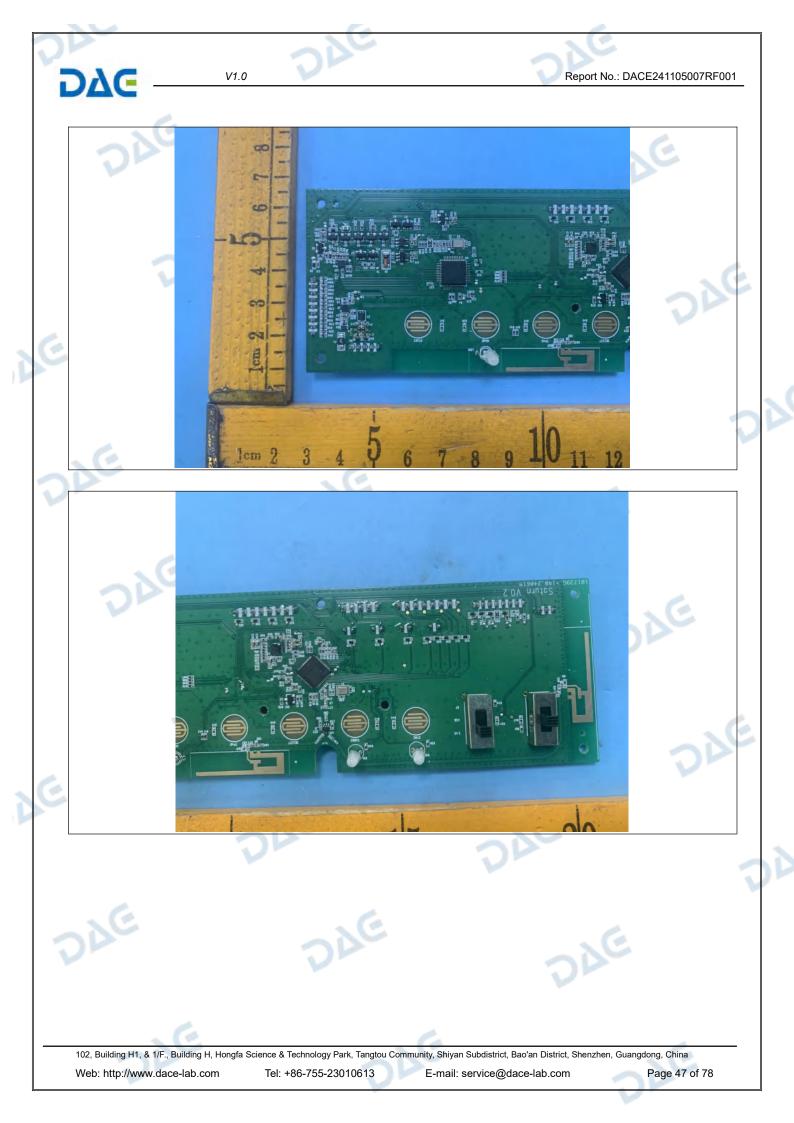














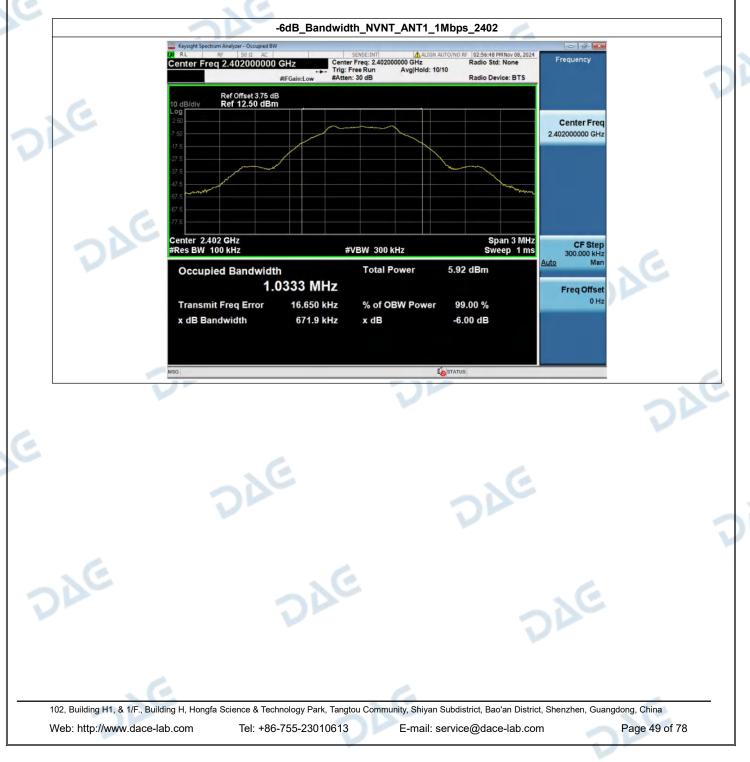
HT241105011--RB-SGA-057--BLE--FCC FCC_BLE (Part15.247) Test Data

1. -6dB Bandwidth

V1.0

DΔC

Condition	Antenna	Rate	Frequency (MHz)	-6dB BW(kHz)	limit(kHz)	Result
NVNT	ANT1	1Mbps	2402.00	671.93	500	Pass
NVNT	ANT1	1Mbps	2440.00	681.59	500	Pass
NVNT 🔰	ANT1	1Mbps	2480.00	684.34	500	Pass
NVNT	ANT1	2Mbps	2402.00	1391.89	500	Pass
NVNT	ANT1	2Mbps	2440.00	1355.30	500	Pass
NVNT	ANT1	2Mbps	2480.00	1411.49	500	Pass



DAG V1.0 Report No.: DACE241105007RF001 -6dB_Bandwidth_NVNT_ANT1_1Mbps_2440 10 SENSE:INT ALL Center Freq: 2.44000000 GHz Trig: Free Run Avg|Hold #Atten: 30 dB 03:00:40 PM Nov 08, 2024 Radio Std: None Frequency Center Freq 2.440000000 GHz Avg|Hold: 10/10 #IFGain:Low Radio Device: BTS Ref Offset 3.72 dB Ref 12.44 dBm **Center Freq** 2.44000000 GHz Span 3 MHz Sweep 1 ms Center 2.44 GHz #Res BW 100 kHz CF Step #VBW 300 kHz **Occupied Bandwidth** Total Power 5.95 dBm 1.0440 MHz Freq Offset % of OBW Power 0 Hz Transmit Freq Error 17.178 kHz 99.00 % x dB Bandwidth 681.6 kHz x dB -6.00 dB . STATUS -6dB_Bandwidth_NVNT_ANT1_1Mbps_2480 67 🛛 Center Freq: 2.48000000 GHz Trig: Free Run Avg|Hold: 10/10 #Atten: 30 dB 03:04:26 PM Nov 08, 2024 Radio Std: None Frequency Center Freq 2.480000000 GHz ø #IFGain:Low Radio Device: BTS Ref Offset 3.85 dB Ref 18.70 dBm **Center Freq** 2.48000000 GHz Center 2.48 GHz #Res BW 100 kHz Span 3 MHz Sweep 1 ms CF Step 300.000 kH #VBW 300 kHz Auto 6.57 dBm Occupied Bandwidth Total Power 1.0418 MHz Freq Offset 0 Hz Transmit Freg Error 17.266 kHz % of OBW Power 99.00 % 684.3 kHz x dB Bandwidth x dB -6 00 dB TATL STATL DAG NE DAG 102, Building H1, & 1/F., Building H, Hongfa Science & Technology Park, Tangtou Community, Shiyan Subdistrict, Bao'an District, Shenzhen, Guangdong, China Web: http://www.dace-lab.com Tel: +86-755-23010613 E-mail: service@dace-lab.com Page 50 of 78

DAG V1.0 Report No.: DACE241105007RF001 -6dB_Bandwidth_NVNT_ANT1_2Mbps_2402 10 SENSE:INT Center Freq: 2.402000000 GHz Trig: Free Run Avg|Hold #Atten: 30 dB 03:08:19 PM Nov 08, 2024 Radio Std: None Frequency Center Freg 2.402000000 GHz Avg|Hold:>10/10 #IFGain:Low Radio Device: BTS Ref Offset 3.75 dB Ref 16.50 dBm Center Freq 2.40200000 GHz Center 2.402 GHz #Res BW 100 kHz Span 6 MHz Sweep 1 ms CF Step #VBW 300 kHz **Occupied Bandwidth** Total Power 7.55 dBm 2.0262 MHz Freq Offset % of OBW Power 0 Hz Transmit Freq Error 16.865 kHz 99.00 % -6.00 dB x dB Bandwidth 1.392 MHz x dB . STATUS -6dB_Bandwidth_NVNT_ANT1_2Mbps_2440 1 B X Center Freq: 2.44000000 GHz Trig: Free Run Avg|Hold: 10/10 #Atten: 30 dB 03:13:03 PM Nov 08, 2024 Radio Std: None Frequency Center Freq 2.440000000 GHz ø #IFGain:Low Radio Device: BTS Ref Offset 3.72 dB Ref 16.44 dBm **Center Freq** 2.44000000 GHz Center 2.44 GHz #Res BW 100 kHz Span 6 MHz Sweep 1 ms CF Step 600.000 kH #VBW 300 kHz Auto **Occupied Bandwidth** Total Power 7.58 dBm 2.0148 MHz Freq Offset 0 Hz Transmit Freq Error 22.205 kHz % of OBW Power 99.00 % 1.355 MHz x dB Bandwidth x dB -6 00 dB TATL STATL DAG)AC DAG 102, Building H1, & 1/F., Building H, Hongfa Science & Technology Park, Tangtou Community, Shiyan Subdistrict, Bao'an District, Shenzhen, Guangdong, China Web: http://www.dace-lab.com Tel: +86-755-23010613 E-mail: service@dace-lab.com Page 51 of 78

	~	C		20	
DAG —	V1.0		2	Report No.: DACE24	105007RF001
E	6dB_E	andwidth_NVNT_ANT1_	2Mbps_2480		
DA	Keysight Spectrum Analyzer - Occupied BW Keysight Spectrum Analyzer - Occupied BW	SENSE:INT	N AUTO/NO RF 03:16:58 PM Nov 08, 2024	Frequency	
	Center Freq 2.480000000 GHz #IFGain:Low	Center Freq: 2.48000000 GHz Trig: Free Run Avg Hold: W #Atten: 30 dB	10/10 Radio Std: None Radio Device: BTS	Trequency	
	Ref Offset 3.85 dB 10 dB/div Ref 12.70 dBm				
	2.70			Center Freq 2.48000000 GHz	
2	-17.3				6
	-37.3				200
	-57.3				
6	Center 2.48 GHz		Span 6 MHz	CF Step	
	#Res BW 100 kHz Occupied Bandwidth	#VBW 300 kHz Total Power	Sweep 1 ms 8.22 dBm	600.000 kHz Auto Man	
	2.0249		0.22 (10)	Freq Offset	
		69 kHz % of OBW Powe 1 MHz x dB	r 99.00 % -6.00 dB	0 Hz	
			0.00 d2		
ale	MSG		STATUS		
				. (.	
	ling H, Hongfa Science & Technology F	Park, Tangtou Community, Shiya	n Subdistrict, Bao'an District	, Shenzhen, Guangdong, (China
Web: http://www.dace-la	nb.com Tel: +86-755-23	3010613 E-mail:	service@dace-lab.con	n Pag	e 52 of 78

V1.0

2. 99% Occupied Bandwidth

DΔC

Condition	Antenna	Rate	Frequency (MHz)	99%%BW(MHz)
NVNT	ANT1	1Mbps	2402.00	1.022
NVNT	ANT1	1Mbps	2440.00	1.031
NVNT	ANT1	1Mbps	2480.00	1.025
NVNT	ANT1	2Mbps	2402.00	2.024
NVNT	ANT1	2Mbps	2440.00	2.052
NVNT	ANT1	2Mbps	2480.00	2.024







DAC -		upied_Bandwidth_NVNT_AN		ort No.: DACE241105007RF0
	Reysight Spectrum Analyzer - Occupied BW Rt RF So 0 AC Center Freq 2.480000000 GHz #FGal Ref Offset 3.85 dB Ref 14.70 dBm Log 470 53 -15.3 -25.3 4		1/10 Radio Device: BTS	Center Freq
E	Center 2.48 GHz #Res BW 30 kHz Occupied Bandwidth 2.023	#VBW 100 kHz Total Power B7 MHz	Span 6 MHz Sweep 6.333 ms 9.82 dBm	CF Step 600.000 kHz Man Freq Offset
DIE		1.963 kHz % of OBW Power 2.578 MHz x dB	99.00 % -26.00 dB	0 Hz

D

V1.0

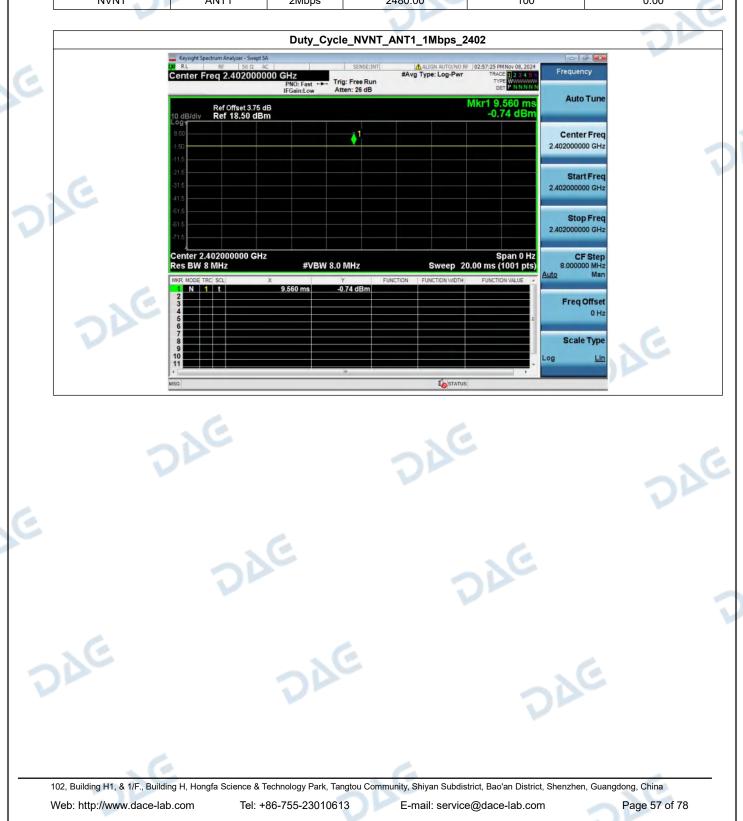
Report No.: DACE241105007RF001

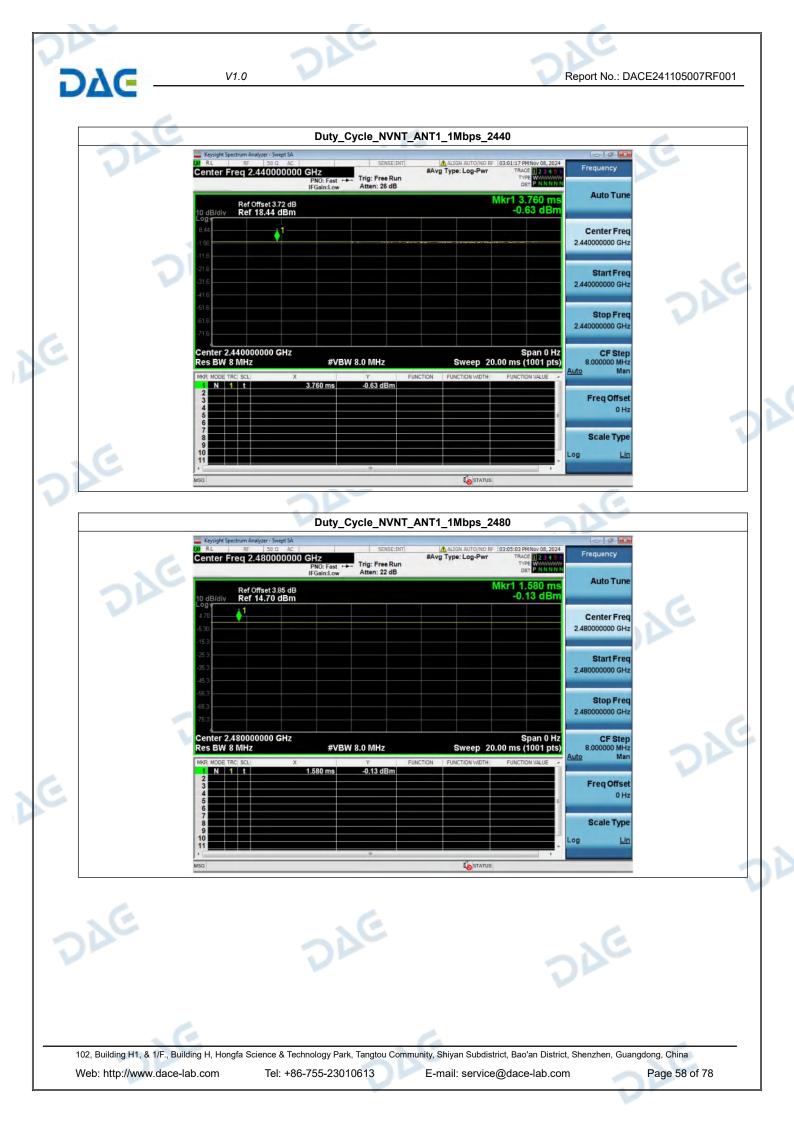
3. Duty Cycle

DVC

Condition	Antenna	Rate	Frequency (MHz)	Dutycycle(%)	Duty_factor
NVNT	ANT1	1Mbps	2402.00	100	0.00
NVNT	ANT1	1Mbps	2440.00	100	0.00
NVNT	ANT1	1Mbps	2480.00	100	0.00
NVNT	ANT1	2Mbps	2402.00	100	0.00
NVNT	ANT1	2Mbps	2440.00	100	0.00
NVNT	ANT1	2Mbps	2480.00	100	0.00

e







DVG	V1.0	Report No.: DACE241105007RF001
ave	Duty_Cycle_NVNT_ANT	
Ē	Rcyclight Spectrum Analyzer - Swept SA SENSE::IVIT RL PF S0 0. AC SENSE::IVIT Parter Freq 2.480000000 GHz PN0: Fast +> Trig: Free Run Atten: 22 dB Ref Offset 3.85 dB Ref 14.70 dBm	Matter Autor No. RF 03:17:36 PM Nov.08, 2024 Vig Type: Log-Pwr TRACE 2.84 Autor Mikri 17,54 ms 0.04 dBm Autor Tune Mikri 17,54 ms 0.04 dBm Center Freq 2.480000000 GHz Start Freq 2.480000000 GHz
	State State <th< td=""><td>Span 0 Hz Sweep 20.00 ms (1001 pts) FUNCTION WIDTH FUNCTION VALUE B SUBSTREE FUNCTION VALUE FUNCTION VALUE B SUBSTREE CF Step 8.000000 MHz Auto Man Freq Offset 0 Hz</td></th<>	Span 0 Hz Sweep 20.00 ms (1001 pts) FUNCTION WIDTH FUNCTION VALUE B SUBSTREE FUNCTION VALUE FUNCTION VALUE B SUBSTREE CF Step 8.000000 MHz Auto Man Freq Offset 0 Hz
	1	Log Lin

Report No.: DACE241105007RF001

4. Peak Output Power

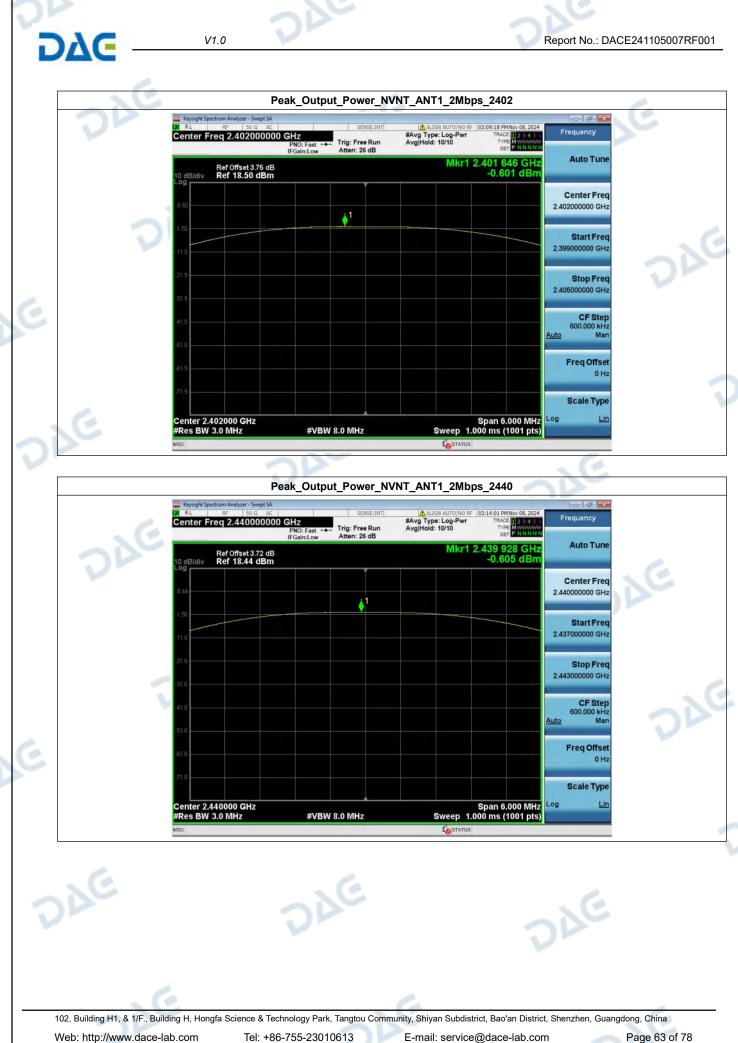
DVG

Condition	Antenna	Rate	Frequency (MHz)	Max. Conducted Power(dBm)	Max. Conducted Power(mW)	Limit(mW)	Result
NVNT	ANT1	1Mbps	2402.00	-0.76	0.84	1000	Pass
NVNT	ANT1	1Mbps	2440.00	-0.68	0.86	1000	Pass
NVNT	ANT1	1Mbps	2480.00	-0.16	0.96	1000	Pass
NVNT	ANT1	2Mbps	2402.00	-0.60	0.87	1000	Pass
NVNT	ANT1	2Mbps	2440.00	-0.60	0.87	1000	Pass
NVNT	ANT1	2Mbps	2480.00	-0.02	1.00	1000	Pass

C







Tel: +86-755-23010613

DVG -	V1.0	Rep	ort No.: DACE241105007RF001
ane	Peak_Output_Power_N	VNT_ANT1_2Mbps_2480	
2	Ref Offset 3.85 dB 10 dB/div Ref 14.70 dBm -15.3 -25.3	AvgHold: 10/10 Mkr1 2.479 676 GHz -0.018 dBm 2.46 	Auto Tune Center Freq 0000000 GHz Start Freq 7000000 GHz Stop Freq 3000000 GHz
	-35.3 -45.3 -65.3 -65.3 -75.3 Center 2.480000 GHz #Res BW 3.0 MHz #VBW 8.0 MHz #VBW 8.0 MHz	Auto Span 6.000 MHz Sweep 1.000 ms (1001 pts)	CF Step 600.000 kHz Man Freq Offset 0 Hz Scale Type Lin
		6	

Report No.: DACE241105007RF001

V1.0

5. Power Spectral Density

DΔC

1

4

DAG

Antenna	Rate	Frequency (MHz)	Power Spectral Density(dBm)	Limit(dBm/3kHz)	Result
ANT1	1Mbps	2402.00	-10.54	8	Pass
ANT1	1Mbps	2440.00	-9.77	8	Pass
ANT1	1Mbps	2480.00	-11.06	8	Pass
ANT1	2Mbps	2402.00	-13.42	8	Pass
ANT1	2Mbps	2440.00	-12.99	8	Pass
ANT1	2Mbps	2480.00	-13.22	8	Pass
	ANT1 ANT1 ANT1 ANT1 ANT1	ANT11MbpsANT11MbpsANT11MbpsANT12MbpsANT12Mbps	ANT1 1Mbps 2402.00 ANT1 1Mbps 2440.00 ANT1 1Mbps 2480.00 ANT1 2Mbps 2402.00 ANT1 2Mbps 2402.00 ANT1 2Mbps 2402.00 ANT1 2Mbps 2402.00	ANT1 1Mbps 2402.00 -10.54 ANT1 1Mbps 2440.00 -9.77 ANT1 1Mbps 2480.00 -11.06 ANT1 2Mbps 2402.00 -13.42 ANT1 2Mbps 2440.00 -12.99	ANT1 1Mbps 2402.00 -10.54 8 ANT1 1Mbps 2440.00 -9.77 8 ANT1 1Mbps 2480.00 -11.06 8 ANT1 1Mbps 2402.00 -11.06 8 ANT1 2Mbps 2402.00 -13.42 8 ANT1 2Mbps 2440.00 -12.99 8

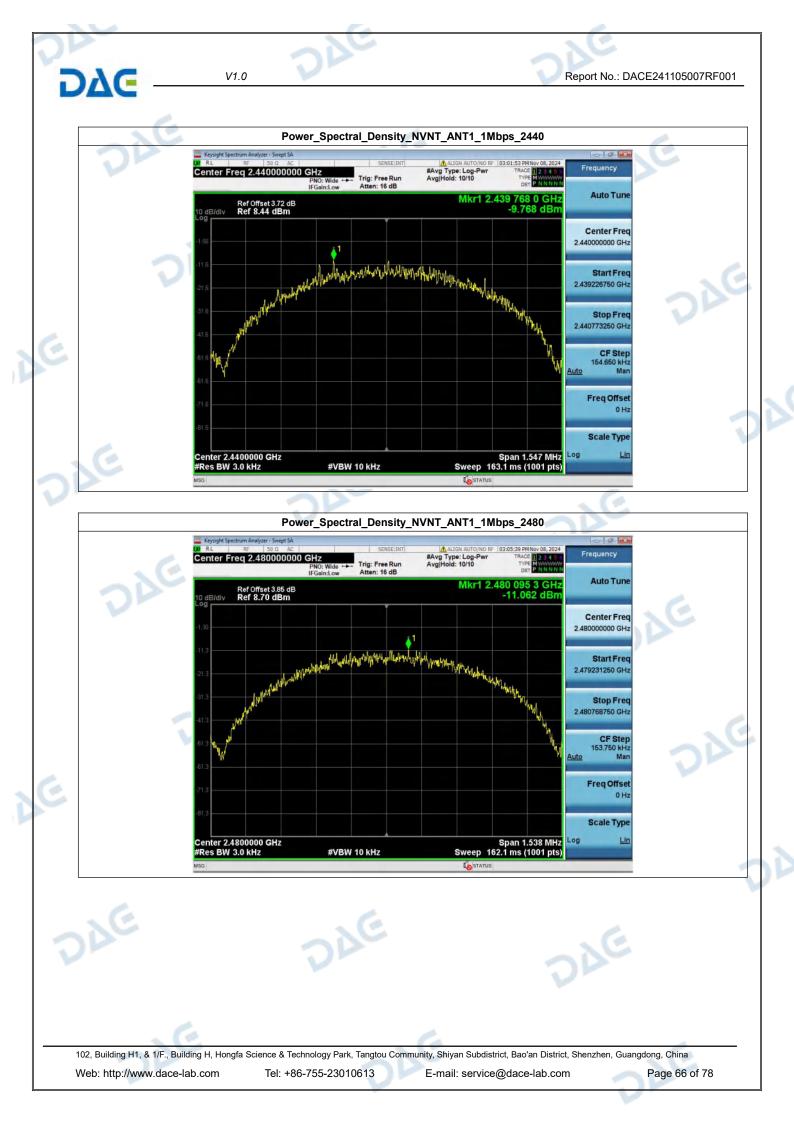


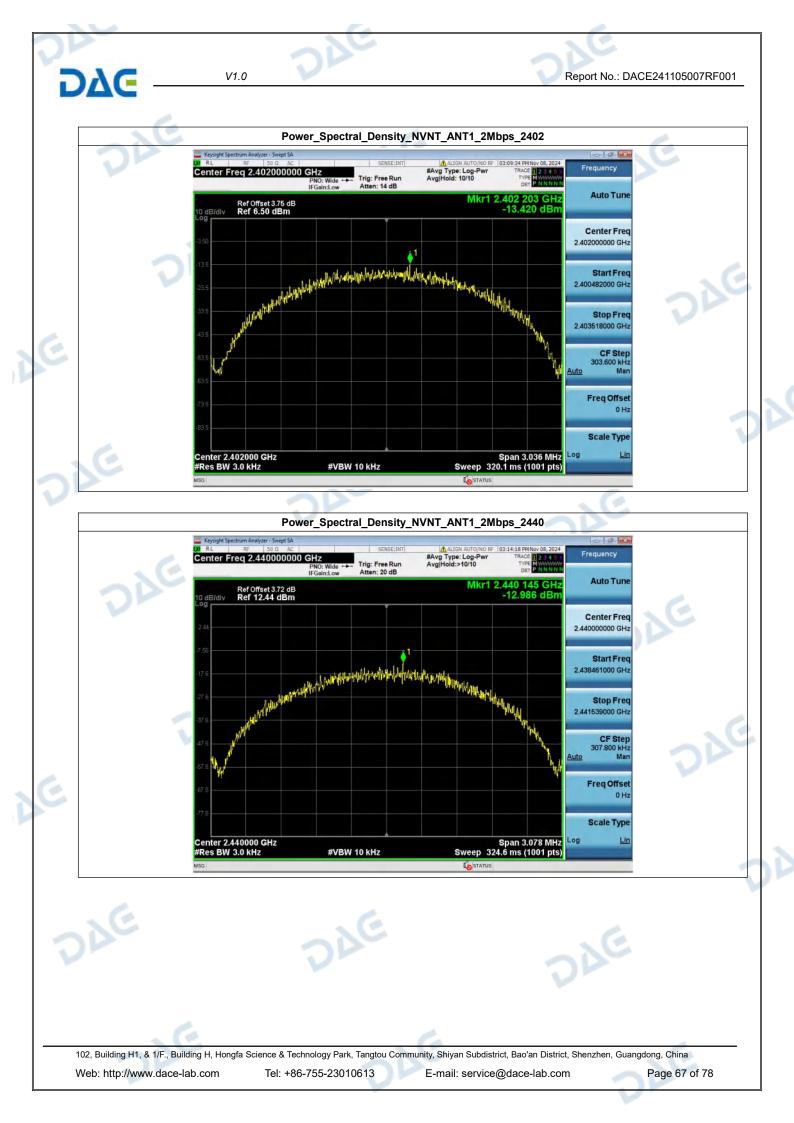
102, Building H1, & 1/F., Building H, Hongfa Science & Technology Park, Tangtou Community, Shiyan Subdistrict, Bao'an District, Shenzhen, Guangdong, China Web: http://www.dace-lab.com Tel: +86-755-23010613 E-mail: service@dace-lab.com

DAE

0

DAG





DAG	Repsight Spectrum Analyzer - Swept SA RL RF 50 0 AC Center Freq 2.480000000 GHz PNO: Wilde IFGain:Low Trig: Free Run Atten: 18 dB	#Avg Type: Log-Pwr Avg Hold: 10/10 Der P.N.N.N. Mkr1 2.480 064 GHz	Frequency Auto Tune
E	Ref Offset 3.86 dB 10 dB/div Ref 10.70 dBm 10 g 10 dB/div Ref 10.70 dBm 10 g 10	MANNAMANNA WALAND	Center Freq 480000000 GHz Start Freq 478482000 GHz Stop Freq 481518000 GHz CF Step 303.600 KHz a Man Freq Offset 0 Hz
016 016	Center 2.480000 GHz #Res BW 3.0 kHz #VBW 10 kHz vsg	Span 3.036 MHz Sweep 320.1 ms (1001 pts)	Scale Type
	DÀE DÀE		DL
			Je

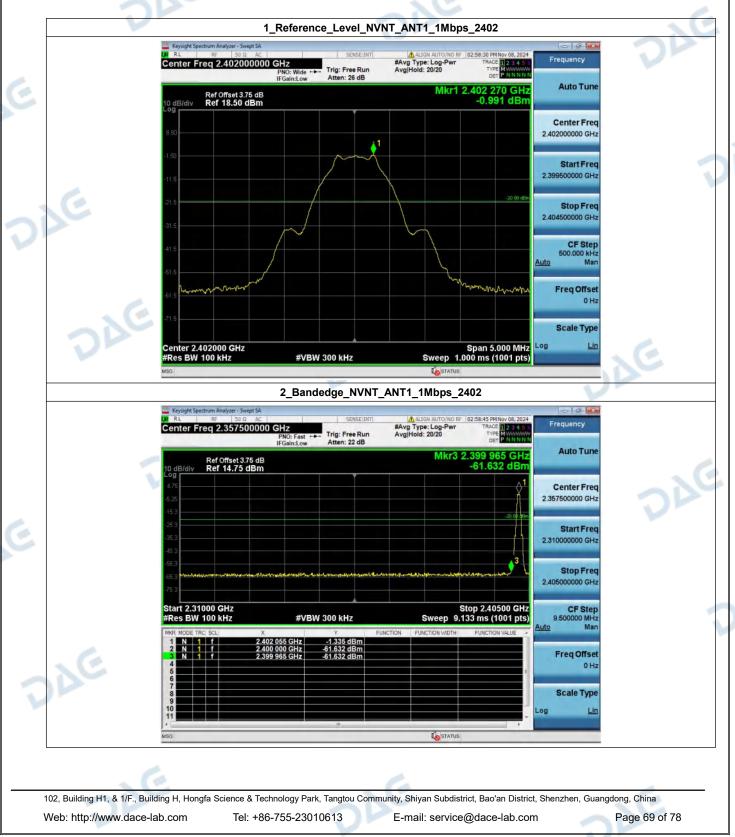
V1.0

Report No.: DACE241105007RF001

6. Bandedge

DAG

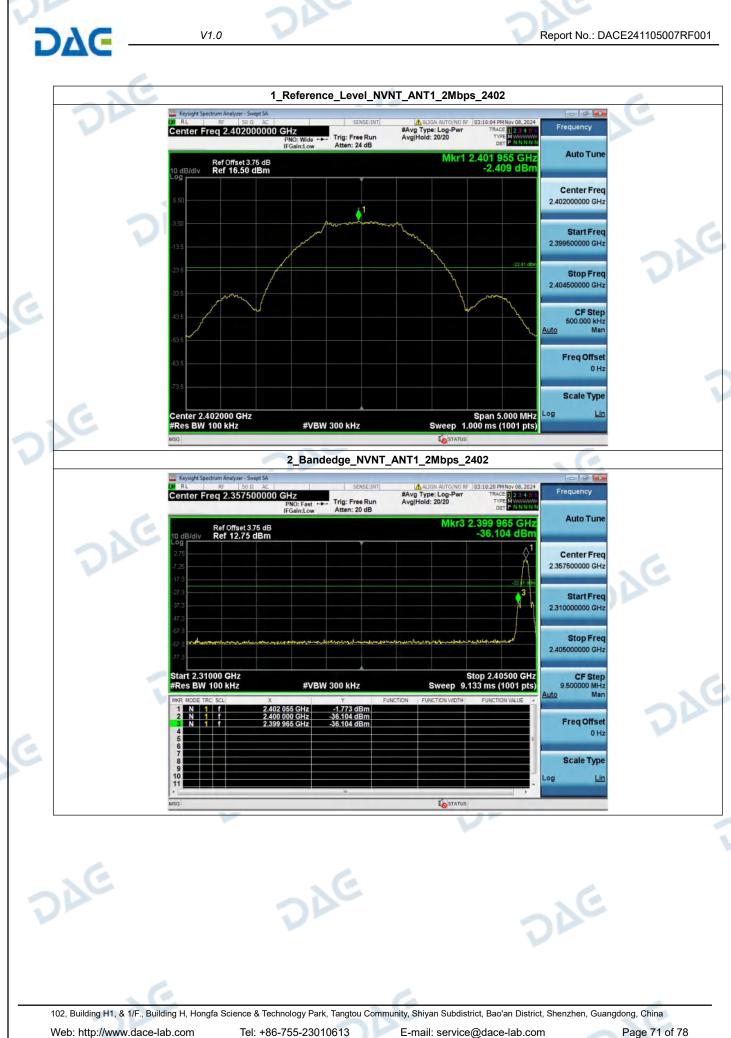
	3-			- C -			
Condition	Antenna	Rate	TX_Frequency (MHz)	Max. Mark Frequency (MHz)	Spurious level(dBm)	limit(dBm)	Result
NVNT	ANT1	1Mbps	2402.00	2399.965	-61.632	-20.991	Pass
NVNT	ANT1	1Mbps	2480.00	2496.400	-61.392	-20.543	Pass
NVNT	ANT1	2Mbps	2402.00	2399.965	-36.104	-22.409	Pass
NVNT	ANT1	2Mbps	2480.00	2483.525	-62.911	-21.403	Pass

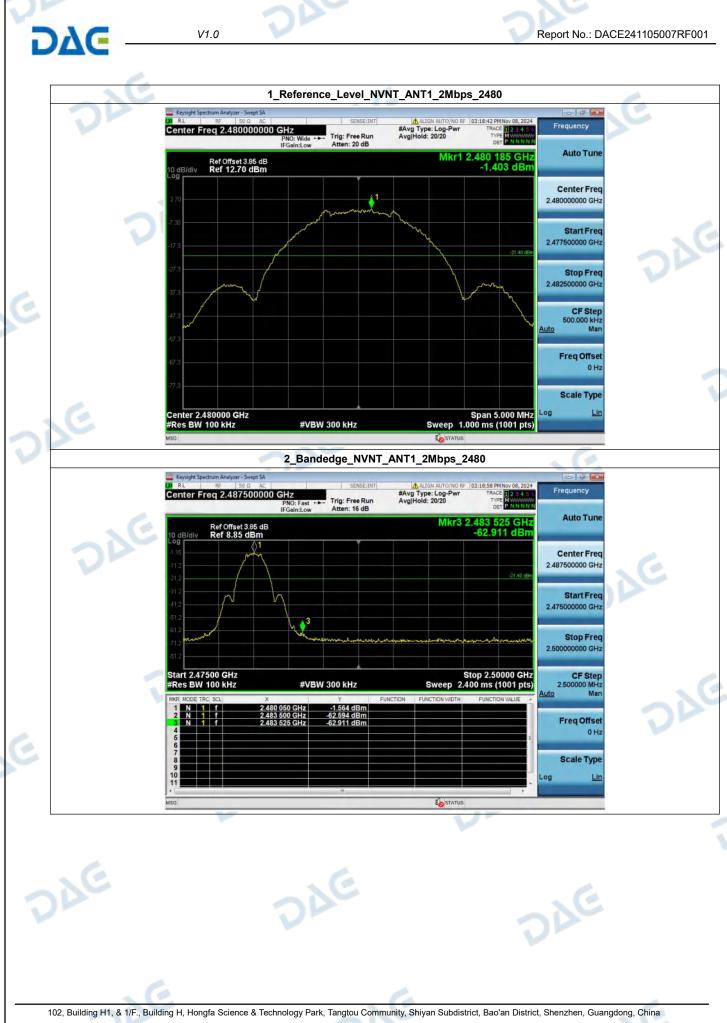




Page 70 of 78

Tel: +86-755-23010613





Web: http://www.dace-lab.com Tel: +86-755-23010613

Report No.: DACE241105007RF001

V1.0

7. Spurious Emission

DΔG

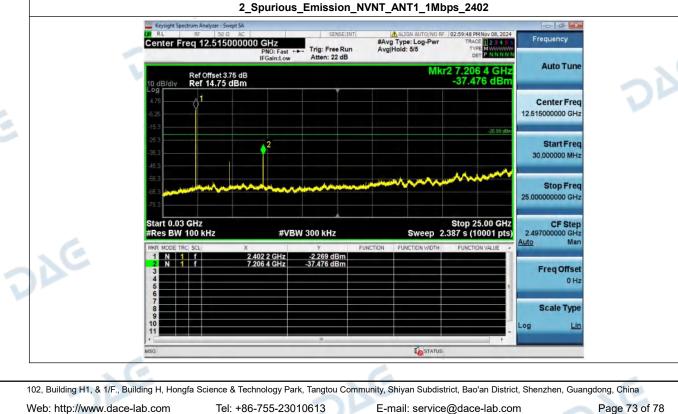
0

4

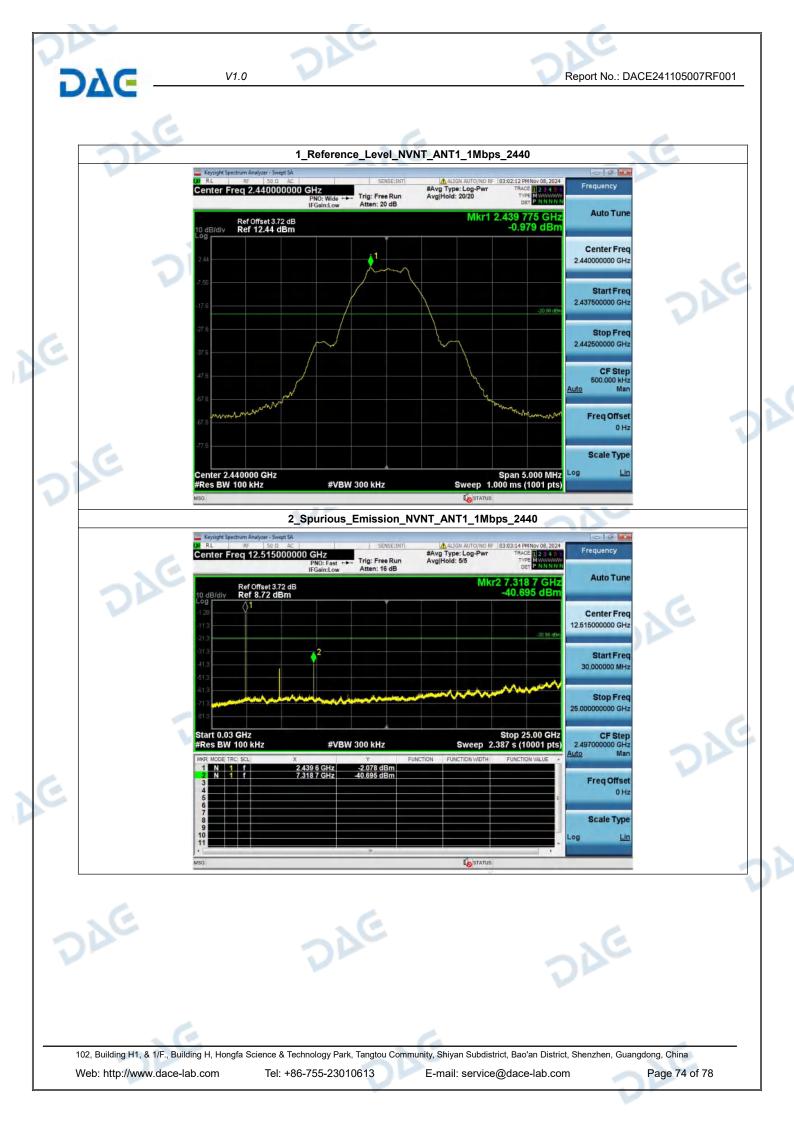
Condition	Antenna	Rate	TX_Frequency(MHz)	Spurious MAX.Value(dBm)	Limit	Result
NVNT	ANT1	1Mbps	2402.00	-37.476	-20.991	Pass
NVNT	ANT1	1Mbps	2440.00	-40.695	-20.979	Pass
NVNT	ANT1	1Mbps	2480.00	-38.120	-20.543	Pass
NVNT	ANT1	2Mbps	2402.00	-42.241	-22.409	Pass
NVNT	ANT1	2Mbps	2440.00	-41.511	-21.786	Pass
NVNT	ANT1	2Mbps	2480.00	-40.824	-21.403	Pass

C





Web: http://www.dace-lab.com





Page 75 of 78

Tel: +86-755-23010613



Page 76 of 78

Tel: +86-755-23010613



E-mail: service@dace-lab.com

Page 77 of 78

