



FCC 47 CFR PART 15 SUBPART C AND ANSI C63.10: 2013

TEST REPORT

For

DJ MIXER

Model: DJM-S7

Brand: Pioneer DJ

Issued for

AlphaTheta Corporation

6F, Yokohama i-Mark place, 4-4-5 Minatomirai, Nishi-ku Yokohama,Kanagawa, 220-0012, Japan

Issued by

Compliance Certification Services Inc. Tainan Lab. No.8, Jiucengling, Xinhua Dist., Tainan City, Taiwan Issued Date: November 10, 2020

Note: This report shall not be reproduced except in full, without the written approval of Compliance Certification Services Inc. Ltd. This document may be altered or revised by Compliance Certification Services Inc. personnel only, and shall be noted in the revision section of the document

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only. 除非另有說明,此報告結果僅對測試之樣品負責,同時此樣品僅保留90天。本報告未經本公司書面許可,不可部份複製。

This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at http://www.sgs.com.tw/Terms-and-Conditions and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at http://www.sgs.com.tw/Terms-and-Conditions and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at http://www.sgs.com.tw/Terms-and-Conditions and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at http://www.sgs.com.tw/Terms-and-Conditions. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of client's instruction, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction form exercising all their rights and obligations under the transaction documents. This document cannot be reproduced, except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

Compliance Certification Services Inc. 程智科技股份有限公司- No.8, Jiucengling, Xinhua Dist., Tainan City, Taiwan /台南市新化區礁坑里九層嶺 8 號 t:(886-6) 5802-201 f:(886-6) 5802-202 www.sgs.com.tw www.ccsrf.com



Page: 2 / 62 Rev.: 01

REVISION HISTORY

Rev.	Issue Date	Revisions	Effect Page	Revised By
00	October 29, 2020	Initial Issue	ALL	Polly Wang
01	November 10, 2020	See the following note rev.01	P.5	Polly Wang

Note:

Rev.00Issue Date:October 29, 2020Original report.Rev.01Issue Date:November 10, 2020

Revised the typo.



Page: 3 / 62 Rev.: 01

TABLE OF CONTENTS

1. TEST REPORT CERTIFICATION	4
2. TEST RESULT SUMMARY	5
3. EUT DESCRIPTION	6
3.1 DESCRIPTION OF EUT & POWER	6
4. DESCRIPTION OF TEST MODES	7
5. TEST METHODOLOGY	8
6. FACILITIES AND ACCREDITATIONS	8
6.1 FACILITIES	8
6.2 EQUIPMENT	8
6.3 LABORATORY ACCREDITATIONS LISTINGS	8
6.4 TABLE OF ACCREDITATIONS AND LISTINGS	
7. CALIBRATION AND UNCERTAINTY	10
7.1 MEASURING INSTRUMENT CALIBRATION	11
7.2 MEASUREMENT UNCERTAINTY	
8. SETUP OF EQUIPMENT UNDER TEST	12
8.1 SETUP CONFIGURATION OF EUT	12
8.2 SUPPORT EQUIPMENT	
8.3 EUT OPERATING CONDITION	
9. APPLICABLE LIMITS AND TEST RESULTS	15
9.1 6dB BANDWIDTH	15
9.2 MAXIMUM PEAK OUTPUT POWER	
9.3 DUTY CYCLE	
9.4 POWER SPECTRAL DENSITY	29
9.5 CONDUCTED SPURIOUS EMISSION	33
9.6 RADIATED EMISSIONS	
9.7 POWERLINE CONDUCTED EMISSIONS	53
10. ANTENNA REQUIREMENT	57
10.1 STANDARD APPLICABLE	57
10.2 ANTENNA CONNECTED CONSTRUCTION	
APPENDIX I SETUP PHOTOS	58



Page: 4 / 62 Rev.: 01

1. TEST REPORT CERTIFICATION

Applicant	licant : AlphaTheta Corporation 6F, Yokohama i-Mark place, 4-4-5 Mi Yokohama,Kanagawa, 220-0012, Jap	
Manufacturer	:	AlphaTheta Corporation 6F, Yokohama i-Mark place, 4-4-5 Minatomirai, Nishi-ku Yokohama,Kanagawa, 220-0012, Japan
Equipment Under Test	:	DJ MIXER
Model Number	:	DJM-S7
Brand Name	:	Pioneer DJ
Date of Test	:	August 03, 2020 ~ September 10, 2020

APPLICABLE STANDARD				
STANDARD TEST RESULT				
FCC Part 15 Subpart C AND ANSI C63.10: 2013	No non-compliance noted			

Statements of Conformity

Determining compliance shall be based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.

Approved by:

Eric Huang Section Manager



2. TEST RESULT SUMMARY

Page: 5 / 62 Rev.: 01

FCC Standard Section	Report Section	Test Item	Result
15.247(a)	9.1	6dB BANDWIDTH	Pass
15.247(b)	9.2	MAXIMUM PEAK OUTPUT POWER	Pass
-	9.3	DUTY CYCLE	-
15.247(e)	9.4	POWER SPECTRAL DENSITY	Pass
15.247(d)	9.5	CONDUCTED SPURIOUS EMISSION	Pass
15.209(a)	9.6	RADIATED EMISSIONS	Pass
15.207(a)	9.7	POWERLINE CONDUCTED EMISSIONS	Pass
15.203	10	ANTENNA REQUIREMENT	Pass



3. EUT DESCRIPTION

3.1 DESCRIPTION OF EUT & POWER

Product Name	DJ MIXER		
Model Number	DJM-S7		
Brand Name	Pioneer DJ		
Received Date	July 07, 2020		
Reported Date	September 29, 2020		
Operating Frequency Range	GFSK(4.0) Mode:2402MHz~2480MHz		
Transmit Power	GFSK(4.0) Mode:5.35dBm (3.428mW)		
Channel Spacing	GFSK(4.0) Mode:2 MHz		
Channel Number	GFSK(4.0) Mode:79 Channels		
Transmit Data Rate	GFSK(4.0) Mode:3 Mbps		
Type of Modulation	GFSK、π/4DQPSK、8DPSK		
Antenna Type	Manufacturer: Sunitec Type: PCB Antenna Model: EJ058 Gain: -5.0 dBi		
Power Source	AC 100-240V, 50/60Hz		
Firmware Version	V1.0		
Hardware Version	V1.0		
Software Version	V1.0		

REMARK: 1. The sample selected for test was engineering sample that approximated to production product and was provided by manufacturer.

 This submittal(s) (test report) is intended for FCC ID: <u>2AM73-DJMS7</u> filing to comply with Section 15.207, 15.209 and 15.247 of the FCC Part 15, Subpart C Rules.

3. For more details, please refer to the user manual.



Page: 7 / 62 Rev.: 01

Report No.: T200717N01-RP1-2

4. DESCRIPTION OF TEST MODES

The EUT is a DJ MIXER.

The RF Chip is manufactured by QUALCOMM

The antenna peak gain -5.0 dBi (highest gain) were chosen for full testing.

GFSK(4.0) mode

The EUT had been tested under operating condition.

There are three channels have been tested as following:

Channel	Frequency (MHz)
Low	2402
Middle	2442
High	2480

GFSK(4.0) mode: 1Mbps long data rates (worst case) were chosen for full testing.



Page: 8 / 62 Rev.: 01

Report No.: T200717N01-RP1-2

5. TEST METHODOLOGY

The tests documented in this report were performed in accordance with ANSI C63.10 and FCC CFR 47 15.207, 15.209 and 15.247 and KdB 558074.

6. FACILITIES AND ACCREDITATIONS

6.1 FACILITIES

All measurement facilities used to collect the measurement data are located at

No.8, Jiucengling, Xinhua Dist., Tainan City 712, Taiwan (R.O.C.)

The sites are constructed in conformance with the requirements of ANSI C63.7:1992, ANSI C63.10: 2013 and CISPR Publication 22.

6.2 EQUIPMENT

Radiated emissions are measured with one or more of the following types of linearly polarized antennas: tuned dipole, biconical, log periodic, bi-log, and/or ridged waveguide, horn. Spectrum analyzers with preselectors and quasi-peak detectors are used to perform radiated measurements.

Conducted emissions are measured with Line Impedance Stabilization Networks and EMI Test Receivers.

Calibrated wideband preamplifiers, coaxial cables, and coaxial attenuators are also used for making measurements.

All receiving equipment conforms to CISPR Publication 16-1, "Radio Interference Measuring Apparatus and Measurement Methods."

6.3 LABORATORY ACCREDITATIONS LISTINGS

The test facilities used to perform radiated and conducted emissions tests are accredited by Taiwan Accreditation Foundation for the specific scope of accreditation under Lab Code: 1109 to perform Electromagnetic Interference tests according to FCC PART 15 AND CISPR 22 requirements. No part of this report may be used to claim or imply product endorsement by TAF or any agency of the Government. In addition, the test facilities are listed with Federal Communications Commission (registration no: TW1109).



6.4 TABLE OF ACCREDITATIONS AND LISTINGS

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

Taiwan TAF

The measuring facility of laboratories has been authorized or registered by the following approval agencies.

Canada	Industry Canada (ISED#: 2324H)
Germany	TUV NORD
Taiwan	BSMI
USA	FCC
Japan	VCCI

Copies of granted accreditation certificates are available for downloading from our web site, <u>http://www.ccsrf.com</u>



6.5 MEASUREMENT EQUIPMENT USED

For §9.7

Chamber 966 Room (Radiation Test)						
Name of Equipment	Model	Serial Number	Calibration Date	Calibration Due		
Active Loop Antenna	ETS-LINDREN	6502	8905-2356	08/02/2019	08/01/2021	
Bi-Log Antenna With 6dB Att	Sunol & MCL	JB1 & BW-N6W5	A070506-2 & 0505	08/26/2019	08/25/2020	
Cable	Suhner	SUCOFLEX104 PEA	20520/4264&06		01/29/2021	
Double Ridged Guide Horn Antenna	ETS-LINDGREN	3116	00078900	03/26/2020	03/25/2021	
EMI Test Receiver	R&S	ESCI 7	100856	06/30/2020	06/29/2021	
EXA Spectrum Analyzer	KEYSIGHT	N9010A	MY54430216	07/20/2020	07/19/2021	
Horn Antenna	Com-Power	AH-118	071032	04/29/2020	04/28/2021	
Pre-Amplifier	EMCI	EMC012645	980098	01/30/2020	01/29/2021	
Pre-Amplifier	HP	8447F	2443A01683	01/22/2020	01/21/2021	
Pre-Amplifier	Com-Power	PAM-840A	461378	07/20/2020	07/19/2021	
Type N coaxial cable	Suhner	CHA9513	6	01/21/2020	01/20/2021	
Notch Filter	MICRO-TRONIC S	BRM50702-01	018	N.C.R	N.C.R	

For §9.1~9.6

Chamber 966 Room (Conducted Test)						
Name of Manufacturer Model		Serial Number	Calibration Date	Calibration Due		
EXA Spectrum Analyzer	KEYSIGHT	N9010A	MY54430216	07/20/2020	07/19/2021	
Power Meter	Anritsu	ML2487A	6K00003888	11/20/2019	05/19/2021	
Power Sensor	Anritsu	MA2491A	033265	11/20/2019	05/19/2021	
SMA Cable + 10dB Attenuator	CCS	SMA+10dB ATT	SMA/10dB	01/30/2020	01/29/2021	

For §9.8

Conducted Emission room #1						
Name of Equipment Manufacturer Model Serial Number Calibration Date Calibration					Calibration Due	
BNC Coaxial Cable	CCS	BNC50	11	01/22/2020	01/21/2021	
EMI Test Receiver	R&S	ESCS 30	100348	02/20/2020	02/19/2021	
LISN	SCHWARZBECK	NNLK8130	8130124	01/17/2020	01/16/2021	
LISN	FCC	FCC-LISN-50-32- 2	08009	06/30/2020	06/29/2021	
Pulse Limiter	R&S	ESH3-Z2	100116	01/22/2020	01/21/2021	
Test S/W			e3(6.101222)			

Page: 10 / 62 Rev.: 01



7. CALIBRATION AND UNCERTAINTY

7.1 MEASURING INSTRUMENT CALIBRATION

The measuring equipment utilized to perform the tests documented in this report has been calibrated in accordance with the manufacturer's recommendations, and is traceable to recognized national standards.

7.2 MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus:

PARAMETER	UNCERTAINTY
Radiated Emission, 30 to 200 MHz Test Site : CB966	±3.1dB
Radiated Emission, 200 to 1000 MHz Test Site : CB966	±2.7dB
Radiated Emission, 1 to 6 GHz	± 2.7dB
Radiated Emission, 6 to 18 GHz	± 2.7dB
Radiated Emission, 18 to 26.5 GHz	± 2.7dB
Radiated Emission, 26 to 40 GHz	± 3.7dB
Power Line Conducted Emission	± 2.0dB

This measurement uncertainty is confidence of approximately 95%, k=2

Page: 11 / 62 Rev.: 01



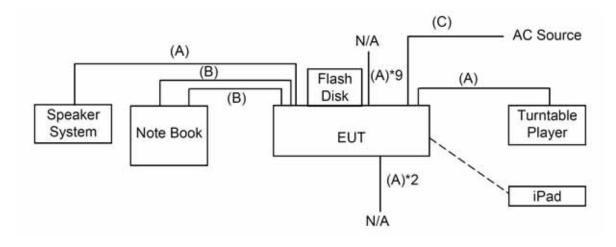
Page: 12 / 62 Rev.: 01

Report No.: T200717N01-RP1-2

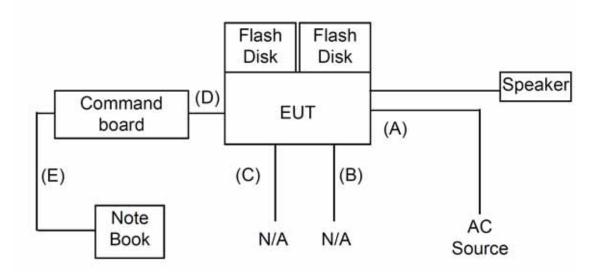
8. SETUP OF EQUIPMENT UNDER TEST

8.1 SETUP CONFIGURATION OF EUT

EMI



RF





8.2 SUPPORT EQUIPMENT

For EMI test

No.	Product	Manufacturer	Model No.	Certify No.	Signal cable
1	iPad	Apple	A1219	DOC	N/A
2	Flash Disk	Transcend	Jet Flash790	DOC	N/A
3	Turntable Player	HANPIN	DP-300F	DOC	Audio cable, shd, 1.6m
4	MIXER	HANPIN	HP-MUI	N/A	N/A
5	Speaker System	T.C.SATR	TCS2285	DOC	Audio cable, unshd, 1.4m
6	Note Book	TOSHIBA	PORTEGE R30-A	DOC	Power cable, unshd, 1.8m

No.	Signal cable description		
А	Audio	Shielded, 1.0m 13 pcs.	
В	USB	Shielded, 1.6m 3 pcs.	
С	AC cable	Unshielded, 1.6m 1 pcs.	

For RF test

No.	Product	Manufacturer	Model No.	Certify No.	Signal cable
1	Note Book	Acer	AS 3830TG	DOC	Power cable, unshd, 1.6m
2	Flask Disk	Transcend	Jet Flash790	DOC	N/A
3	Speaker System	T.C.SATR	TCS2285	DOC	Audio cable, unshd, 1.4m

No.	Signal cable description		
А	Power	Unshielded, 1.8m 1 pcs.	
В	Audio	Unshielded, 1.0m 12 pcs.	
С	USB	Shielded, 1.5m 2 pcs.	
D	Command	Unshielded, 0.5m 1 pcs.	
Е	USB	Shielded, 1.2m 1 pcs with 1 core.	

Note:

- 1) All the equipment/cables were placed in the worst-case configuration to maximize the emission during the test.
- 2) Grounding was established in accordance with the manufacturer's requirements and conditions for the intended use.
- 3) shd. = shielded; unshd. = unshielded

Page: 13 / 62 Rev.: 01



Page: 14 / 62 Rev.: 01

Report No.: T200717N01-RP1-2

8.3 EUT OPERATING CONDITION

RF Setup

- 1. Set up all computers like the setup diagram.
- 2. The "CSR BlueSuite 2.6.4", "Blue Test 3" software was used for testing.
- 3. Choose Transport "SPI" and Port "USB SPI (1001914)".

TX Mode:

GFSK(DH1):

CFG PKT > Packet Type : 4 , Packet Type : 27

TXDATA1 > LO Freq : 2402 (2402,2441,2480) , Power : 255,50 (255,45)

GFSK(DH3):

CFG PKT > Packet Type : 11 , Packet Type : 183

TXDATA1 > LO Freq : 2402 (2402,2441,2480) , Power : 255,50 (255,45)

GFSK(DH5):

CFG PKT > Packet Type : 15 , Packet Type : 339 TXDATA1 > LO Freq : 2402 (2402,2441,2480) , Power : 255,50 (255,45)

8-DPSK(3DH1):

CFG PKT > Packet Type : 24 , Packet Type : 83 TXDATA1 > LO Freq : 2402 (2402,2441,2480) , Power : 255,50

8-DPSK(3DH3):

CFG PKT > Packet Type : 27 , Packet Type : 552 TXDATA1 > LO Freq : 2402 (2402,2441,2480) , Power : 255,50

8-DPSK(3DH5):

CFG PKT > Packet Type : 31 , Packet Type : 1021 TXDATA1 > LO Freq : 2402 (2402,2441,2480) , Power : 255,50

DSSS:

BLE TEST TX > Channel :0 (0,20,39) Length : 37 Bit pattern : 0

RX Mode:

GFSK , 8-DPSK: RXDATA1 DSSS: BLE TEST RX

4. All of the function are under run.

5 .Start test.



Page: 15 / 62 Rev.: 01

Report No.: T200717N01-RP1-2

9. APPLICABLE LIMITS AND TEST RESULTS

9.1 6dB BANDWIDTH

<u>LIMIT</u>

§ 15.207(a) (2) For direct sequence systems, the minimum 6dB bandwidth shall be at least 500kHz

TEST SETUP



TEST PROCEDURE

- a) Set RBW = 100 kHz.
- b) Set the video bandwidth (VBW) \geq 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.



TEST RESULTS

No non-compliance noted.

Model Name	DJM-S7	Test By	Ted Huang
Temp & Humidity	27.5°C, 59%	Test Date	2020/08/04

GFSK(4.0) mode

Channel	Channel Frequency (MHz)	6dB Bandwidth (kHz)	Minimum Limit (kHz)	Pass / Fail
Low	2402	702	500	PASS
Middle	2442	699	500	PASS
High	2480	698	500	PASS

NOTE : 1. At finial test to get the worst-case emission at1Mbps long.

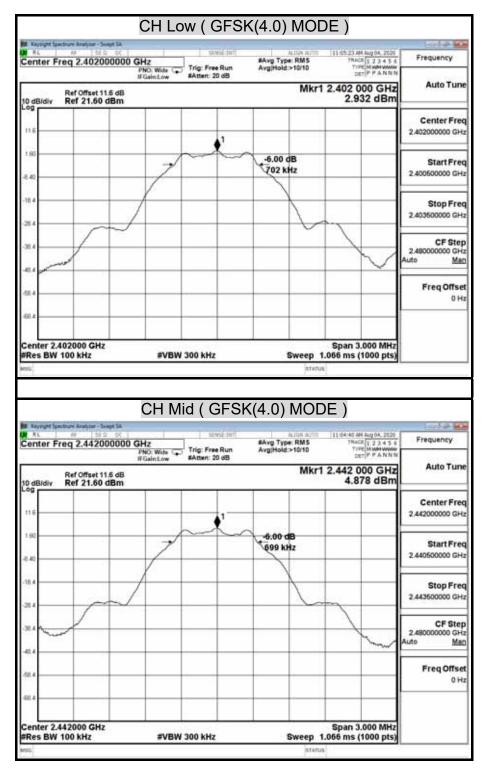
2. The cable assembly insertion loss of 11.1dB (including 10 dB pad and 1.1 dB cable) was entered as an offset in the spectrum analyzer to allow for direct reading of power.

Page: 16 / 62 Rev.: 01



Page: 17 / 62 Rev.: 01

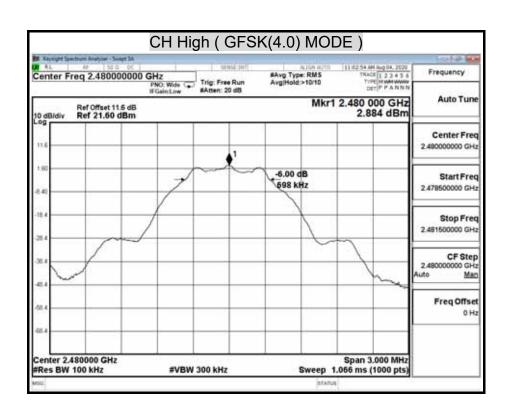
6dB BANDWIDTH (GFSK(4.0) MODE)





Page: 18 / 62 Rev.: 01

Report No.: T200717N01-RP1-2





Page: 19 / 62 Rev.: 01

9.2 MAXIMUM PEAK OUTPUT POWER

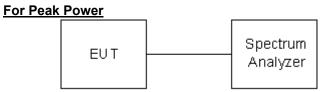
<u>LIMIT</u>

§ 15.247(b) The maximum peak output power of the intentional radiator shall not exceed the following :

§ 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.

§ 15.247(b) (4) Except as shown in paragraphs (c) of this section , if transmitting antennas of directional gain greater than 6 dBi are used the peak output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1) or (b)(2), and (b)(3) of this section , as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

TEST SETUP



For Average Power





Page: 20 / 62 Rev.: 01

TEST PROCEDURE

The tests were performed in accordance with KdB 558074 9.1.1

9.2.1 Measurement Procedure PK2:

- a) Set the RBW \geq DTS bandwidth.
- b) Set VBW \geq 3 RBW.
- c) Set span \ge 3 x RBW
- d) Sweep time = auto couple.
- e) Detector = peak.
- f) Trace mode = max hold.
- g) Allow trace to fully stabilize.
- h) Use peak marker function to determine the peak amplitude level.

Average Power

Connect the EUT to power meter, set the center frequency of the power meter to the channel center frequency.



Page: 21 / 62 Rev.: 01

TEST RESULTS

No non-compliance noted.

Model Name	DJM-S7	Test By	Ted Huang
Temp & Humidity	27.5°C, 59%	Test Date	2020/08/04

GFSK(4.0) mode

Channel	Channel Frequency (MHz)	Peak Power (dBm)	Peak Power Limit (dBm)	Pass / Fail
Low	2402	3.24	30.00	PASS
Middle	2442	5.35	30.00	PASS
High	2480	3.38	30.00	PASS

NOTE : 1. At finial test to get the worst-case emission at 1Mbps long.

2. The cable assembly insertion loss of 11.1dB (including 10 dB pad and 1.1 dB cable) was entered as an offset in the power meter to allow for direct reading of power.



Page: 22 / 62 Rev.: 01

Average Power Data

Model Name	DJM-S7	Test By	Ted Huang
Temp & Humidity	27.5°C, 59%	Test Date	2020/08/04

GFSK(4.0) mode

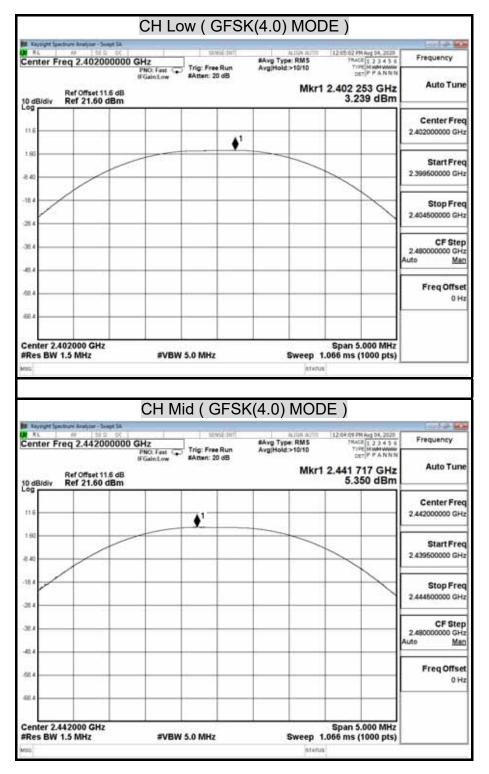
Channel	Channel Frequency (MHz)	Average Power (dBm)
Low	2402	2.81
Middle	2442	4.92
High	2480	2.96



Page: 23 / 62 Rev.: 01

Report No.: T200717N01-RP1-2

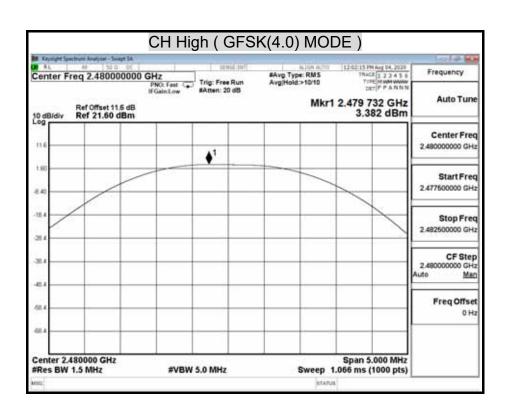
MAXIMUM PEAK OUTPUT POWER (GFSK(4.0) MODE)





Page: 24 / 62 Rev.: 01

Report No.: T200717N01-RP1-2





9.3 DUTY CYCLE

<u>LIMIT</u>

Nil (No dedicated limit specified in the Rules)

TEST SETUP



TEST PROCEDURE

- 1. Place the EUT on the table and set it in transmitting mode.
- 2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.
- 3. The zero-span mode on a spectrum analyzer or EMI receiver if the response time and spacing between bins on the sweep are sufficient to permit accurate measurements of the on and off times of the transmitted signal. Set the center frequency of the instrument to the center frequency of the transmission. Set RBW \geq OBW if possible; otherwise, set RBW to the largest available value. Set VBW \geq RBW. Set detector = peak or average. The zero-span measurement method shall not be used unless both RBW and VBW are > 50/T and the number of sweep points across duration T exceeds 100. (For example, if VBW and/or RBW are limited to 3 MHz, then the zero-span measuring duty cycle shall not be used if T \leq 16.7 microseconds.)

Page: 25 / 62 Rev.: 01



Page: 26 / 62 Rev.: 01

TEST RESULTS

No non-compliance noted.

Model Name	DJM-S7	Test By	Ted Huang
Temp & Humidity	27.5°C, 59%	Test Date	2020/08/04

GFSK(4.0) Mode

	us	Times	Ton	Total Ton time(ms)
Ton1	400.000	1	400	
Ton2		0	0	
Ton3			0	0.4
Тр				0.628

Ton	0.4
Tp(Ton+Toff)	0.628
Duty Cycle	0.637
Duty Factor	1.959



Page: 27 / 62 Rev.: 01

TEST PLOT

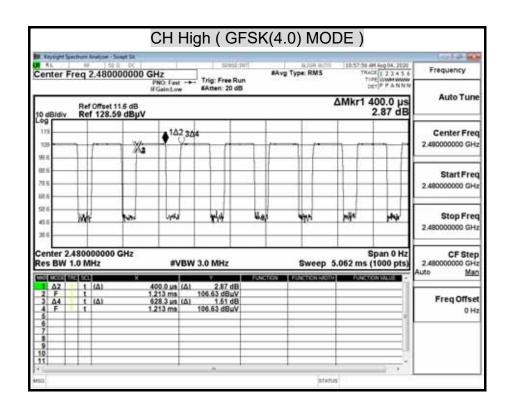
Duty Cycle

	CH	Low (GFS	SK(4.0)	MODI	E)	
AL 0 10 11 enter Freq 2.4020	000000 GHz PNC Fas	Trig: Free Run	sAvg Type	RMS	18:54 50 AM Aug DA TRACE 1 2 3 TIPE Week DET P P A	45.6 Prequency
Ref Offset 1 0 dBidiv Ref 128.5		w #Atten: 20 dB		Δ	Mkr1 400.0 4.39	us Auto Tune
-09 119 109 98.5	1∆2 3∆4		-		-	Center Free 2.402000000 GH
90.6 						Start Free 2.402000000 GH
536 43.5 70 ¥\$4 30.6	eug)	-ten Han	Ph.	HW	40M	Stop Free 2.40200000 GH
Center 2.402000000 Res BW 1.0 MHz		/BW 3.0 MHz	s	weep 5.0	Span 0 62 ms (1000	
	400.0	(Δ) 4.39 dB	MARKAN MARKA	TION MOTH	IUNCION WILL	Auto Mar
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	400.0 µs 762.3 µs 628.3 µs 762.2 µs	105.48 dBuV (Δ) 1.98 dB				Freq Offset 0 Hz
7 8 9 10						
11			1	STATUS	20	*
	CH	Mid (GFS	K(4.0) I	MODE	Ξ)	
Keynight Spectrum Analyser - S R.L. 89 53	a oc	Mid (GFS		JISA W/TID	18:56:38 AH Aug 04.	The Francisco
	1000000 GHz PNO: Fast	Sava der		JISA W/TID	18:56:31 AH Aug DA	2020 Frequency
Center Freq 2.4420 Ref Offset 1 0 dB/div Ref 128.5	IN CONTRACTOR INCOMPANY IF Gain Loo II.6 dB	Sava der		RMS	18:56:38 AH Aug 04.	Prequency A 3 6 Frequency A 3 6 Frequency A 3 6 Auto Tune
Ref Offset 1 0 dBidiv Ref 128.5	000000 GHz INO: Fas IFGain.Lo 11.5 dB 9 dBµV 102 304	Sava der		RMS	12:56:30 AM Aug 04, THACE 1 2 3 TOPE OF P A DET P P A	Prequency A 3 6 Frequency A 3 6 Frequency A 3 6 Auto Tune
Ref Offset 1 0 dBidiv Ref 128.5	000000 GHz INO: Fas IFGain.Lo 11.5 dB 9 dBµV 102 304	Sava der		RMS	12:56:30 AM Aug 04, THACE 1 2 3 TOPE OF P A DET P P A	2000 4 3 3 N IN N Frequency Jas Auto Tune Jas Auto Tune Center Freq 2.442000000 GHz Start Freq Start Freq
%L #9 50 Center Freq 2.4420 Ref Offset 1 100 00 dB/div Ref 0ffset 1 100 100 100 100 100 100	000000 GHz INO: Fas IFGain.Lo 11.5 dB 9 dBµV 102 304	Sava der		RMS	12:56:30 AM Aug 04, THACE 1 2 3 TOPE OF P A DET P P A	Auto Tune
% # %	4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	Trig: Free Run Matten: 20 dB	aAvg Type:	IDE W.M. RMS	Mkr1 400.0 6.57	2000 A 3.6 NHH Frequency Jase Auto Tune JB Auto Tune Center Frequency 2.44200000 GH Start Frequency Start Frequency Start Frequency 2.44200000 GH Start Frequency CF Step DHz CF Step Auto CF Step Auto Mato
NL # ISE Center Freq 2.4420 Ref Offset 1 0 dB/div Ref Offset 1 0 dB/div Ref Offset 1 0 dB/div Ref 128.5 0 g	4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	/BW 3.0 MHz	aAvg Type:	IDE W.M. RMS	Mkr1 400.0 6.57	Prequency Auto Tune UB Auto Tune Center Freq 2.442000000 GH Start Freq 2.44200000 GH Stop Freq 2.44200000 GH CF Step Auto Mar Freq Offse
N. III IIII IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII	000000 GHz PNO: Fee IFGainLo 115 dB 9 dBµV 112 304 115 dB 9 dBµV 112 304 115 dB 9 dBµV 112 304 115 dB 9 dBµV 102 304 102 304 102 304 102 304 102 500 105		aAvg Type:	IDE W.M. RMS	Mkr1 400.0 6.57	2000 Frequency 4 3 4 Auto Tune 4 3 4 Auto Tune 4 3 4 Center Frequency 4 3 4 Center Frequency 2 442000000 GH: Start Frequency 2 442000000 GH: Start Frequency 2 442000000 GH: CF Step PHz CF Step Auto CF Step Auto Mate



Page: 28 / 62 Rev.: 01

Report No.: T200717N01-RP1-2





Page: 29 / 62 Rev.: 01

Report No.: T200717N01-RP1-2

9.4 POWER SPECTRAL DENSITY

<u>LIMIT</u>

§ 15.247(e) For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

TEST SETUP



TEST PROCEDURE

The tests were performed in accordance with 558074 D01 15.247 Meas Guidance v05

10.2 Method PKPSD (peak PSD):

- 1. Set analyzer center frequency to DTS channel center frequency.
- 2. Set the span to 1.5 times the DTS bandwidth.
- 3. Set the RBW to: $3 \text{ kHz} \leq \text{RBW} \leq 100 \text{ kHz}$.
- 4. Set the VBW \geq 3 RBW.
- 5. Detector = peak.
- 6. Sweep time = auto couple.
- 7. Trace mode = max hold.
- 8. Allow trace to fully stabilize.
- 9. Use the peak marker function to determine the maximum amplitude level within the RBW.
- 10. If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat.



Page: 30 / 62 Rev.: 01

Report No.: T200717N01-RP1-2 TEST RESULTS

No non-compliance noted.

Model Name	DJM-S7	Test By	Ted Huang
Temp & Humidity	27.5°C, 59%	Test Date	2020/08/04

GFSK(4.0) mode

Channel	Frequency (MHz)	PPSD/3kHz (dBm)	Limit (dBm)	Margin (dB)	Result
Low	2402	-12.15	8.00	-20.15	PASS
Middle	2442	-10.10	8.00	-18.10	PASS
High	2480	-12.15	8.00	-20.15	PASS

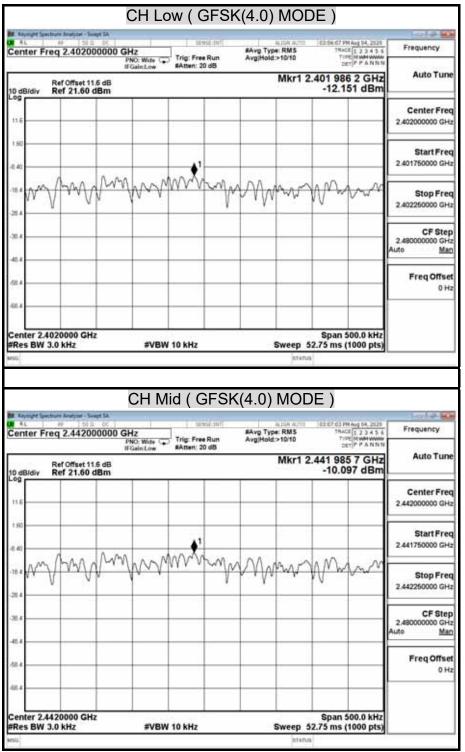
NOTE : 1. At finial test to get the worst-case emission at 1Mbps long.

2. The cable assembly insertion loss of 11.1dB (including 10 dB pad and 1.1 dB cable) was Entered as an offset in the spectrum analyzer to allow for direct reading of power.



Page: 31 / 62 Rev.: 01

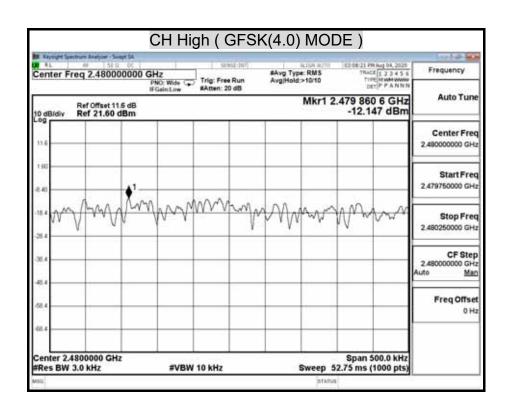
POWER SPECTRAL DENSITY (GFSK(4.0) MODE)





Page: 32 / 62 Rev.: 01

Report No.: T200717N01-RP1-2





Page: 33 / 62 Rev.: 01

Report No.: T200717N01-RP1-2

9.5 CONDUCTED SPURIOUS EMISSION

LIMITS

§ 15.247(d) In any 100 kHz bandwidth outside the frequency band in which the spread spectrum 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 and that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement. Attenuation below the general limits specified in § 15.209(a) is not required. 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 SETUP



TEST PROCEDURE

The transmitter output is connected to a spectrum analyzer. The resolution bandwidth is set to 1 MHz. The video bandwidth is set to 1 MHz.

The spectrum from 30 MHz to 26 GHz is investigated with the transmitter set to the lowest, middle, and highest channels in the 2.4 GHz band.

TEST RESULTS

No non-compliance noted.



Page: 34 / 62 Rev.: 01

TEST DATA

Model Name	DJM-S7	Test By	Ted Huang
Temp & Humidity	27.5°C, 59%	Test Date	2020/08/04

OUT-OF-BAND SPURIOUS EMISSIONS-CONDUCTED MEASUREMENT

Frequency	11:05:23 AM Aug 04, 2020 TRACE 1 2 3 4 5 6 T/PE M MM MMM DET P P A N N N	AURANII II Avg Type: RMS Avg Hold >1010	Trig: Free Run #Atten: 20 dB	00	Freq 2.40200	RL I
Auto Tun	2.402 000 GHz 2.932 dBm	Mkr1 2.4		i dB	Ref Offset 11. Ref 21.60 d	0 dB/div
Center Fre 2.402000000 GH			1			11.6
Start Fre 2.400500000 GH		-6.00 dB 202 kHz		7		8.40
Stop Fre 2.403500000 GH						26.4
CF Ste 2.48000000 GH Auto <u>Ma</u>	\rightarrow					30.4
Freq Offse 0 H						68.4
	Spap 3 000 MHz				402000 GH2	enter 2
Frequency	Span 3.000 MHz 066 ms (1000 pts)	Sweep 1.06	W 300 kHz	eta DC	402000 GHz (100 kHz (100 kHz	Center 2. Res BW
	066 ms (1000 pts)	Sweep 1.06	sawai darit	ot Ba CC DO GHZ PNC: Fast IFGainLow	r 100 kHz	Center 2, Res BW
Frequency	0466 ms (1000 pts)	Sweep 1.06	Trig: Free Run	ot Ba CC DO GHZ PNC: Fast IFGainLow	f 100 kHz mitter Andres - Swa 1 St 0 eq 2.3100000	Center 2. Res BW so tas tas tas tas tas tas tas tas
Frequency Auto Tun Center Fre	066 ms (1000 pts) 744CE [2 2 4 3 4 744CE [2 2 4 3 4 744CE [2 2 4 3 4 744CE [2 2 4 4 3 744CE [2 2 4 4 4 4 4 3 744CE [Sweep 1.06	Trig: Free Run	ot Ba CC DO GHZ PNC: Fast IFGainLow	r 100 kHz	Center 2. Res BW Start Fre 10 dB/div Log 11.6
Frequency Auto Tun Center Fre 2.36000000 GH Start Fre	066 ms (1000 pts)	Sweep 1.06	Trig: Free Run	ot Ba CC DO GHZ PNC: Fast IFGainLow	r 100 kHz	Center 2. Res BW ss ss start Fre 10 dB/div 00 dB/div 11.6 1.60 4.0 10.4 10.4 10.4
Frequency Auto Tun Center Fre 2.36000000 GH Start Fre 2.31000000 GH Stop Fre	0066 ms (1000 pts)	Sweep 1.06	Trig: Free Run #Atten: 20 dB	#DA DO GHZ PNC: Fast C IFGainLow 5 dB Bm #VB	1 100 kHz	Center 2. Res BW 10 Start Fre 15 16 16 10 10 4 10 4 10 4 10 4 10 4 10 4
Frequency Auto Tun Center Fre 2.36000000 GH 2.31000000 GH 2.41000000 GH 2.41000000 GH 2.41000000 GH	066 ms (1000 pts)	Sweep 1.06	Trig: Free Run #Atten: 20 dB	s da PRO: Fast C IFGaintow 5 dB Bm	1 100 kHz	Center 2.7 Res BW 10 11 10 10 10 10 10 10 10 10



Page: 35 / 62 Rev.: 01

Report No.: T200717N01-RP1-2

and the second second	MITCH AND AND A SAME	CILINET IN STREET						rure Analyzer - 5		
Frequency	04:09:35 PH Aug 04, 2020 TRACE 1, 2, 3, 4, 5, 6 TUPE M WHY WHY DET P P A N N N	pe: RM5 d:>10/10	#Avg Ti Avg(Ho			NO: Fast	0 MHz	30.0000		tar
Auto Tun	r1 2.402 4 GHz 2.634 dBm	Mk		9 68	#Atten: 2	GainLow	.6 dB	Ref Offset 1 Ref 21.60	Udiv	0 d
Center Fre 13.265000000 GH								♦ ¹		.0g 11.6 1.60
Start Fre 30.000000 MH	-17.17.dbs									8.40 10.4 20.4
Stop Fre 25.50000000 GH								J ³	مىلىن	38 A 40 A 50 A 50 A
CF Ste 2.48000000 GF Auto Ma	Stop 26.50 GHz 531 s (40001 pts)	The state of the s			N 300 kHz	#VB		00 kHz	-	Re
Freq Offse 0 H	FUNCTION VALUE +		CHON P	Bm Bm	2.634 d -55.049 d -58.739 d	4 GHz 0 GHz 5 GHz	2,400 0		N N N	123456
						+				7 8 9 10 11
		STATUS								11



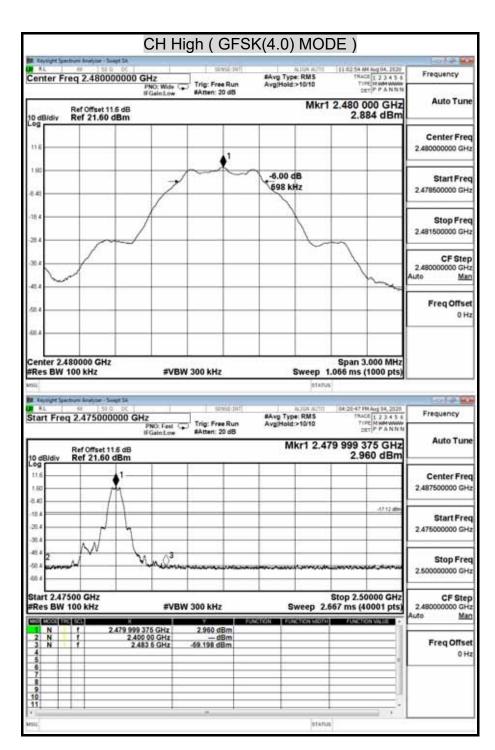
Page: 36 / 62 Rev.: 01

Gyoght Spectrum Analyzer - Swept SA	E	1 Participation of the last	and the second second	And the second second second	
nter Freq 2.4420000	00 GHz PNO: Wide G	Trig: Free Run #Atten: 20 dB	#Avg Type: RMS Avg/Hold:>10/10	11:04:45 AM Aug 04, 2020 TRACE 1 2 3 4 5 6 TYPE IN WHAT WANT	Frequency
Ref Offset 11.6 d Bidiv Ref 21.60 dBn	в		Mkr1	1 2.442 000 GHz 4.878 dBm	Auto Tune
é		•1			Center Free 2.442000000 GH
0	7	\square	-6.00 dB 699 kHz		Start Free 2.440500000 GH
	\square				Stop Free 2.443500000 GH
					CF Step 2.48000000 GH Auto Mar
2					Freq Offset 0 Ha
nter 2.442000 GHz es BW 100 kHz		V 300 kHz	sfatu NJSA NJTD	04:16:27 PR Aug 14, 2020	Frequency
es BW 100 kHz AL 100 kHz art Freq 30.000000 M Ref Offset 11.5 d	HZ PNC: Fast G IFGainLow	i sava ant	ALISA AZTO AAvg Type: RMS AvgHold:>1010	1.066 ms (1000 pts)	Frequency
es BW 100 kHz	HZ PNC: Fast G IFGainLow	Street and	ALISA AZTO AAvg Type: RMS AvgHold:>1010	1.066 ms (1000 pts) s (04:14:27 PH Aug 04,2020 TRACE [1 2 2 4 5 6 7:392 [A use House DET] ^P P A N I M	Frequency
es BW 100 kHz	HZ PNC: Fast G IFGainLow	Street and	ALISA AZTO AAvg Type: RMS AvgHold:>1010	1.066 ms (1000 pts)	Frequency Auto Tune Center Free
es BW 100 kHz	HZ PNC: Fast G IFGainLow	Street and	ALISA AZTO AAvg Type: RMS AvgHold:>1010	1.066 ms (1000 pts) IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII	Frequency Auto Tune Center Free 13.26500000 GH Start Free
es BW 100 kHz	HZ PNO: Fest G IFGaint.ow #VBV	Trig: Free Run #Atten: 20 dB	ALIAN ALIAN ALIAN AvgHold>1010 Mi	1.066 ms (1000 pts)	Frequency Auto Turn Center Free 13.26500000 GH Start Free 30.00000 MH Stop Free
es BW 100 kHz	B n #VBV	Trig: Free Run #Atten: 20 dB	ETATU ALIGN ACTO AvgHoid>1010 MI	1.066 ms (1000 pts)	Frequency Auto Tum Center Freq 13.265000000 GH Start Freq 30.000000 GH Stop Freq 26.50000000 GH CF Steg 2.45000000 GH



Page: 37 / 62 Rev.: 01

Report No.: T200717N01-RP1-2





Page: 38 / 62 Rev.: 01

04:18:41 PH Aug 04, 2020 TRACE 1 2 3 4 5 6 TIPE N MM WWW DET P P A N N N Start Freq 30.000000 MHz #Avg Type: RMS Avg(Hold:>10/10 Frequency PNO: Fast Trig: Free Run #Atten: 20 dB Auto Tun Mkr1 2.479 8 GHz 2.739 dBm Ref Offset 11.5 dB Ref 21.60 dBm 0 dB/div Center Freq 13,265000000 GHz 1.5 医素 -17.12 d 10 Start Freq 30.000000 MHz 38. 48 Stop Freq 68 25.50000000 GHz Start 30 MHz #Res BW 100 kHz Stop 26.50 GHz Sweep 2.531 s (40001 pts) CF Step 2.48000000 GHz #VBW 300 kHz uto Map 1220 (2000) (100 (200)) N N N 2.479 8 GHz 2.400 00 GHz 2.483 5 GHz 2.739 dBm -55.555 dBm -58.019 dBm 23 1 Freq Offset 0 Hz 11 STATUS



Page: 39 / 62 Rev.: 01

Report No.: T200717N01-RP1-2

9.6 RADIATED EMISSIONS

9.6.1 TRANSMITTER RADIATED SUPURIOUS EMSSIONS

§ 15.205 (a) Except as shown in paragraph (d) of this section, only spurious emissions are permitted in any of the frequency bands listed below:

MHz	MHz	MHz	GHz
0.090 - 0.110	16.42 - 16.423	399.9 - 410	4.5 - 5.15
¹ 0.495 - 0.505	16.69475 - 16.69525	608 - 614	5.35 - 5.46
2.1735 - 2.1905	16.80425 - 16.80475	960 - 1240	7.25 - 7.75
4.125 - 4.128	25.5 - 25.67	1300 - 1427	8.025 - 8.5
4.17725 - 4.17775	37.5 - 38.25	1435 - 1626.5	9.0 - 9.2
4.20725 - 4.20775	73 - 74.6	1645.5 - 1646.5	9.3 - 9.5
6.215 - 6.218	74.8 - 75.2	1660 -1710	10.6 -12.7
6.26775 - 6.26825	108 -121.94	1718.8 - 1722.2	13.25 -13.4
6.31175 - 6.31225	123 - 138	2200 - 2300	14.47 – 14.5
8.291 - 8.294	149.9 - 150.05	2310 - 2390	15.35 -16.2
8.362 - 8.366	156.52475 - 156.52525	2483.5 - 2500	17.7 - 21.4
8.37625 - 8.38675	156.7 - 156.9	2655 - 2900	22.01 - 23.12
8.41425 - 8.41475	162.0125 - 167.17	3260 - 3267	23.6 - 24.0
12.29 - 12.293	167.72 - 173.2	3332 - 3339	31.2 - 31.8
12.51975 - 12.52025	240 - 285	3345.8 - 3338	36.43 - 36.5
12.57675 - 12.57725	322 -335.4	3600 - 4400	(2)
13.36 - 13.41			

¹ Until February 1, 1999, this restricted band shall be 0.490-0.510 MHz.

² Above 38.6

§ 15.205 (b) Except as provided in paragraphs (d) and (e), the field strength of emissions appearing within these frequency bands shall not exceed the limits shown is Section 15.209. At frequencies equal to or less than 1000 MHz, compliance with the limits in Section 15.209 shall be demonstrated using measurement instrumentation employing a CISPR quasi-peak detector. Above 1000 MHz, compliance with the emission limits in Section 15.209 shall be demonstrated based on the average value of the measured emissions. The provisions in Section 15.35 apply to these measurements.



Page: 40 / 62 Rev.: 01

Report No.: T200717N01-RP1-2

§ 15.209 (a) Except as provided elsewhere in this Subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table :

Frequency (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
30 - 88	100 **	3
88 - 216	150 **	3
216 - 960	200 **	3
Above 960	500	3

** Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this Section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz, However, operation within these frequency bands is permitted under other sections of this Part, e-g, Sections 15.231 and 15.241.

§ 15.209 (b) In the emission table above, the tighter limit applies at the band edges.

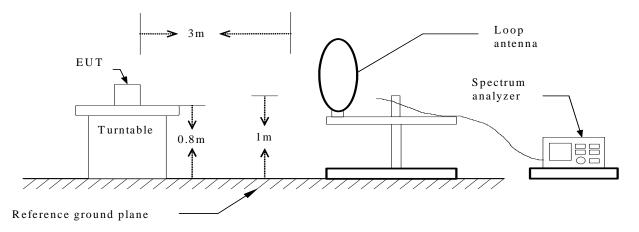


Page: 41 / 62 Rev.: 01

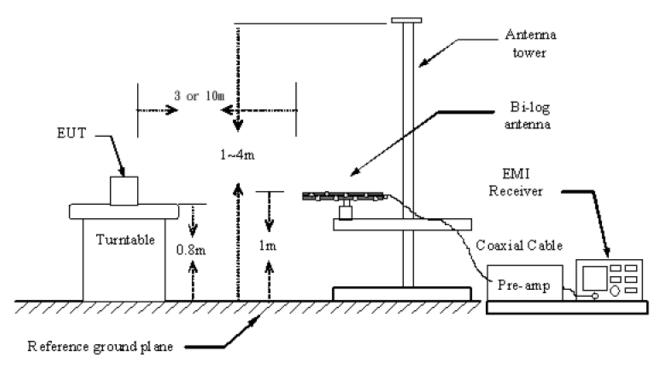
TEST SETUP

The diagram below shows the test setup that is utilized to make the measurements for emission from below 1GHz.

9kHz ~ 30MHz



30MHz ~ 1GHz

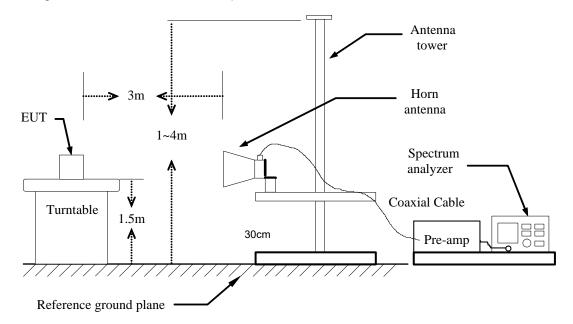




Page: 42 / 62 Rev.: 01



The diagram below shows the test setup that is utilized to make the measurements for emission above 1GHz.



TEST PROCEDURE

- a. The EUT was placed on the top of a rotating table 0.8/1.5 meters above the ground at a 10 meter open area test site. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. White measuring the radiated emission below 1GHz, the EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower. White measuring the radiated emission above 1GHz, the EUT was set 3 meters away from the interference-receiving antenna
- c. The antenna is a broadband antenna, and its 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 polarization of the antenna are set to make the measurement.
- d. 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 table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- f. If the emission level of the EUT in peak mode was 10 dB 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 10 dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.
- g. The tests were performed in accordance with 558074 D01 15.247 Meas Guidance v05



Page: 43 / 62 Rev.: 01

NOTE :

- 1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120 KHz for Peak detection (PK) and Quasi-peak detection (QP) at frequency below 1GHz.
- 2. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 1 MHz for Peak detection and frequency above 1GHz.
- 3. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 10 Hz for Average detection (AV) at frequency above 1GHz.
- 4. No emission is found between lowest internal used/generated frequency to 30MHz (9kHz~30MHz)

TEST RESULTS

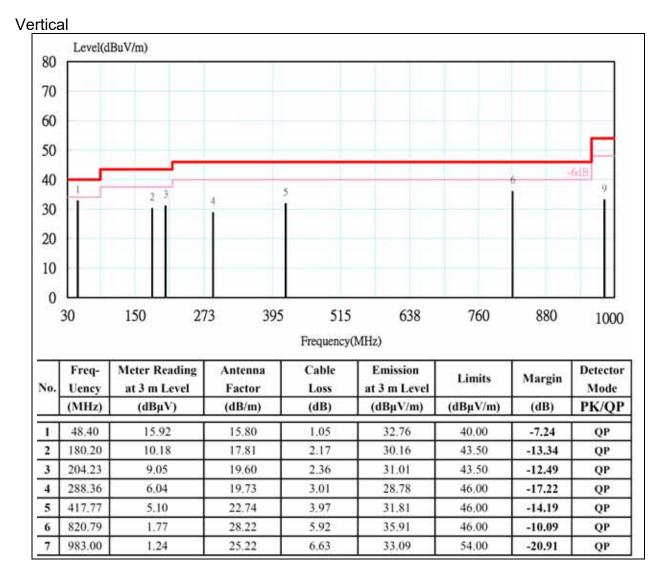
No non-compliance noted.



Page: 44 / 62 Rev.: 01

Report No.: T200717N01-RP1-2 9.6.2 WORST-CASE RADIATED EMISSION BELOW 1 GHz

Product Name	DJ MIXER	Test Date	2020/08/03
Model Name	DJM-S7	Test By	Ted Huang
Test Mode	ТХ	Temp & Humidity	26.2°C, 62%



Remark:

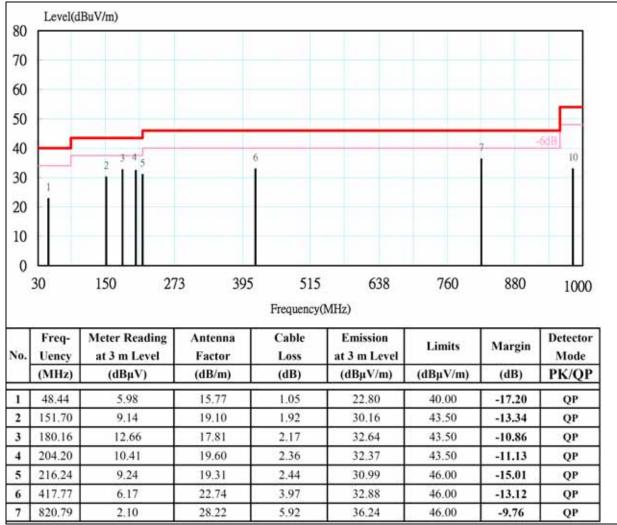
- No emission found between lowest internal used/generated frequency to 30MHz (9kHz~30MHz).
- 2. Radiated emissions measured were made with an instrument using peak/quasi-peak detector mode.
- 3. Quasi-peak test would be performed if the peak result were greater than the quasi-peak limit or as required by the applicant.
- 4. Margin (dB) = Remark result (dBuV/m) Quasi-peak limit (dBuV/m).



Page: 45 / 62 Rev.: 01

Product Name	DJ MIXER	Test Date	2020/08/03
Model Name	DJM-S7	Test By	Ted Huang
Test Mode	ТХ	Temp & Humidity	26.2°C, 62%

Horizontal



Remark:

- 1. No emission found between lowest internal used/generated frequency to 30MHz (9kHz~30MHz).
- 2. Radiated emissions measured were made with an instrument using peak/quasi-peak detector mode.
- 3. Quasi-peak test would be performed if the peak result were greater than the quasi-peak limit or as required by the applicant.
- 4. Margin (dB) = Remark result (dBuV/m) Quasi-peak limit (dBuV/m).



Page: 46 / 62 Rev.: 01

Report No.: T200717N01-RP1-2 9.6.3 TRANSMITTER RADIATED EMISSION ABOVE 1 GHz

Product Name	DJ MIXER	Test Date	2020/08/04
Model	DJM-S7	Test By	Ted Huang
Test Mode	GFSK(4.0) TX (CH Low)	TEMP& Humidity	27.5°C, 59%

Horizontal

	TX / GFSK(4.0) mode / CH Low				Measurement Distance at 3m Horizontal polarity					
	Freq.	Reading	AF	Cable Loss	Pre-amp	Filter	Level	Limit	Margin	Mark
	(MHz)	(dBµV)	(dB/m)	(dB)	(dB)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	(P/Q/A)
*	1185.66	58.32	25.05	2.17	46.30	0.42	39.66	74.00	-34.34	Р
*	1185.66	52.25	25.05	2.17	46.30	0.42	33.59	54.00	-20.41	А
*	4803.92	58.47	33.23	4.30	44.77	0.22	51.46	74.00	-22.54	Р
*	4803.92	49.23	33.23	4.30	44.77	0.22	42.22	54.00	-11.78	А
	7206.74	56.41	38.74	5.39	44.06	0.27	56.75	74.00	-17.25	Р
	7206.74	46.62	38.74	5.39	44.06	0.27	46.96	54.00	-7.04	А

Product Name	DJ MIXER	Test Date	2020/08/04
Model	DJM-S7	Test By	Ted Huang
Test Mode	GFSK(4.0) TX (CH Low)	TEMP& Humidity	27.5°C, 59%

Vertical

	ТХ / С	TX / GFSK(4.0) mode / CH Low				Measurement Distance at 3m Vertical polarity					
	Freq.	Reading	AF	Cable Loss	Pre-amp	Filter	Level	Limit	Margin	Mark	
	(MHz)	(dBµV)	(dB/m)	(dB)	(dB)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	(P/Q/A)	
	1628.63	63.58	27.53	2.54	45.79	0.59	48.45	74.00	-25.55	Р	
	1628.63	53.62	27.53	2.54	45.79	0.59	38.49	54.00	-15.51	А	
۲	4804.48	59.07	33.24	4.30	44.77	0.22	52.06	74.00	-21.94	Р	
ł	4804.48	51.34	33.24	4.30	44.77	0.22	44.33	54.00	-9.67	А	
	7205.37	58.07	38.74	5.39	44.06	0.27	58.41	74.00	-15.59	Р	
	7205.37	49.01	38.74	5.39	44.06	0.27	49.35	54.00	-4.65	А	

REMARK:

1. AF: Antenna Factor, Cable: Cable Loss, Pre-Amp: Preamplifier gain, Filter: 2.4GHz~2.5GHz Filter Insertion Loss

2. Spectrum analyzer setting P(Peak): RBW=1MHz, VBW=1MHz, A(Average): RBW=1MHz, VBW=10Hz

3. The result basic equation calculation is as follow:

Level = Reading + AF + Cable – Preamp + Filter – Dist, Margin = Level-Limit

- 4. The other emission levels were 20dB below the limit
- 5. The test limit distance is 3M limit.
- 6. *=Restricted bands of operation



Page: 47 / 62 Rev.: 01

Report No.: T200717N01-RP1-2

Product Name	DJ MIXER	Test Date	2020/08/04
Model	DJM-S7	Test By	Ted Huang
Test Mode	GFSK(4.0) TX (CH Middle)	TEMP& Humidity	27.5°C, 59%

Horizontal

	TX / G	FSK(4.0) r	node / Cł	H Middle	Measurement Distance at 3m Horizontal polarity					
	Freq.	Reading	AF	Cable Loss	Pre-amp	Filter	Level	Limit	Margin	Mark
	(MHz)	(dBµV)	(dB/m)	(dB)	(dB)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	(P/Q/A)
*	1185.46	57.75	25.05	2.17	46.30	0.42	39.09	74.00	-34.91	Р
*	1185.46	51.53	25.05	2.17	46.30	0.42	32.87	54.00	-21.13	А
*	4883.55	58.88	33.50	4.35	44.78	0.23	52.18	74.00	-21.82	Р
*	4883.55	51.07	33.50	4.35	44.78	0.23	44.37	54.00	-9.63	А
	7325.33	56.39	39.17	5.44	43.94	0.27	57.33	74.00	-16.67	Р
*	7325.33	47.77	39.17	5.44	43.94	0.27	48.71	54.00	-5.29	А

Product Name	DJ MIXER	Test Date	2020/08/04
Model	DJM-S7	Test By	Ted Huang
Test Mode	GFSK(4.0) TX (CH Middle)	TEMP& Humidity	27.5°C, 59%

Vertical

	TX / G	FSK(4.0) r	node / Cl	H Middle	Mea	Measurement Distance at 3m Vertical polarity					
	Freq.	Reading	AF	Cable Loss	Pre-amp	Filter	Level	Limit	Margin	Mark	
	(MHz)	(dBµV)	(dB/m)	(dB)	(dB)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	(P/Q/A)	
*	1624.73	64.12	27.50	2.53	45.80	0.59	48.95	74.00	-25.05	Р	
*	1624.73	53.56	27.50	2.53	45.80	0.59	38.39	54.00	-15.61	А	
*	4883.77	58.97	33.50	4.35	44.78	0.23	52.28	74.00	-21.72	Р	
*	4883.77	52.00	33.50	4.35	44.78	0.23	45.31	54.00	-8.69	А	
*	7325.28	57.69	39.17	5.44	43.94	0.27	58.63	74.00	-15.37	Р	
*	7325.28	50.26	39.17	5.44	43.94	0.27	51.20	54.00	-2.80	А	

REMARK:

1. AF: Antenna Factor, Cable: Cable Loss, Pre-Amp: Preamplifier gain, Filter: 2.4GHz~2.5GHz Filter Insertion Loss

2. Spectrum analyzer setting P(Peak): RBW=1MHz, VBW=1MHz, A(Average): RBW=1MHz, VBW=10Hz

3. The result basic equation calculation is as follow:

Level = Reading + AF + Cable – Preamp + Filter – Dist, Margin = Level-Limit

- 4. The other emission levels were 20dB below the limit
- 5. The test limit distance is 3M limit.

6. *=Restricted bands of operation



Page:	48 / 62
Rev.:	01

Product Name DJ MIXER		Test Date	2020/08/04
Model	DJM-S7	Test By	Ted Huang
Test Mode	GFSK(4.0) TX (CH High)	TEMP& Humidity	27.5°C, 59%

Horizontal

	TX / 0	H High	Measurement Distance at 3m Horizontal polarity					polarity		
	Freq.	Reading	AF	Cable Loss	Pre-amp	Filter	Level	Limit	Margin	Mark
	(MHz)	(dBµV)	(dB/m)	(dB)	(dB)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	(P/Q/A)
¥	1185.52	57.87	25.05	2.17	46.30	0.42	39.21	74.00	-34.79	Р
×	1185.52	51.68	25.05	2.17	46.30	0.42	33.02	54.00	-20.98	А
k	4959.77	58.50	33.76	4.39	44.78	0.24	52.11	74.00	-21.89	Р
k	4959.77	50.15	33.76	4.39	44.78	0.24	43.76	54.00	-10.24	А
×	7439.78	56.61	39.58	5.48	43.81	0.27	58.13	74.00	-15.87	Р
×	7439.78	47.70	39.58	5.48	43.81	0.27	49.22	54.00	-4.78	А

Product Name DJ MIXER		Test Date	2020/08/04
Model	DJM-S7	Test By	Ted Huang
Test Mode	GFSK(4.0) TX (CH High)	TEMP& Humidity	27.5°C, 59%

Vertical

	ТХ / С	GFSK(4.0)	mode / 0	CH High	Measurement Distance at 3m Vertical polarity					polarity
	Freq.	Reading	AF	Cable Loss	Pre-amp	Filter	Level	Limit	Margin	Mark
	(MHz)	(dBµV)	(dB/m)	(dB)	(dB)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	(P/Q/A)
*	1626.46	63.68	27.51	2.54	45.79	0.59	48.53	74.00	-25.47	Р
*	1626.46	53.35	27.51	2.54	45.79	0.59	38.20	54.00	-15.80	А
*	4959.24	59.27	33.76	4.39	44.78	0.24	52.88	74.00	-21.12	Р
*	4959.24	51.83	33.76	4.39	44.78	0.24	45.44	54.00	-8.56	А
*	7439.30	57.90	39.58	5.48	43.81	0.27	59.42	74.00	-14.58	Р
*	7439.30	48.54	39.58	5.48	43.81	0.27	50.06	54.00	-3.94	А

REMARK:

1. AF: Antenna Factor, Cable: Cable Loss, Pre-Amp: Preamplifier gain, Filter: 2.4GHz~2.5GHz Filter Insertion Loss

2. Spectrum analyzer setting P(Peak): RBW=1MHz, VBW=1MHz, A(Average): RBW=1MHz, VBW=10Hz

3. The result basic equation calculation is as follow:

Level = Reading + AF + Cable – Preamp + Filter – Dist, Margin = Level-Limit

- 4. The other emission levels were 20dB below the limit
- 5. The test limit distance is 3M limit.

6. *=Restricted bands of operation



Report No.: T200717N01-RP1-2 9.6.4 RESTRICTED BAND EDGES

Page: 49 / 62 Rev.: 01

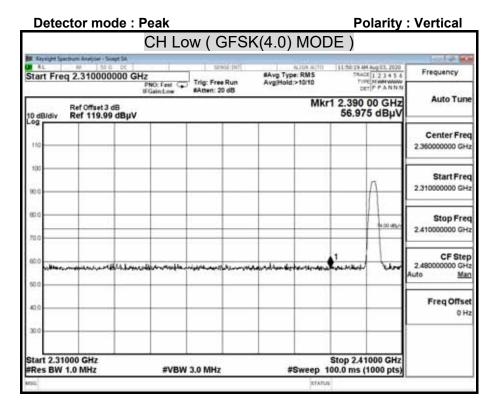
			DE)	MOE	K(4.0)	GFSł	ow ((CH L		
1014	83, 2020	AN ANT	11-42-53 A	A USA AUTO		100	. 1 4		ctrure Analyter - Swept BA	E Keysight Spr
Frequency	23456 PANNN	CE 1	5840 710	e: RMS	#Avg Typ Avg/Hold	ee Run		PNO: Fast -C	q 2.310000000 GH	
Auto Tun	GHz	00	1 2.390 56.94	Mkr		20 00	entien: 4	IFGainLow	Ref Offset 3 dB Ref 119.99 dBµV	0 dB/div
Center Fre 2.36000000 GH										110
Start Fre 2.31000000 GH		A								100
Stop Fre 2.41000000 GH	4.00 mu/									80.0
CF Ste 2.48000000 GF Auto <u>Ma</u>	Loche]	imm	munut	and of these	Rik-Jaluura	hylawoods	man		10.0 10.0 50.0
Freq Offse 0 H		-								400
	-	+				-				20.0
			Stop 2.4 00.0 ms (Sweep 1		z	V 3.0 MHz	#VBV	000 GHz 1.0 MHz	tart 2.31 Res BW

Detector mode		Polarity : Horizontal			
	CH Lo	ow(GFS	K(4.0) MOI	DE)	
Keynet Sectors Andrew Sweet IA KL 00 1510 00 Start Freq 2.310000000 G		Strid: Set	ALIDA AUTO BAvg Type: RMS Avg/Hold:>10/10	11:45:56 AH Aug 23, 202 TRACE 1 2:3:4 5 T/FE N MM WWW	6 Frequency
Ref Offset 3 dB	PNO: Fast G	#Atten: 20 dB	10.000 (10.000)	r1 2.390 00 GH 48.645 dBµ	Auto Tur
					Center Fre 2.36000000 GH
100 90 0				Α	Start Fre 2.31000000 GH
80.0					Stop Fre 2.41000000 GR
000				1 sipc.as,	CF Ste 2.48000000 GF Auto M
40.0					Freq Offs
30.0					
Start 2.31000 GHz FRes BW 1.0 MHz	#VBV	2.7 kHz	Sweep	Stop 2.41000 GH 28.90 ms (1000 pts	



Page: 50 / 62 Rev.: 01

Report No.: T200717N01-RP1-2

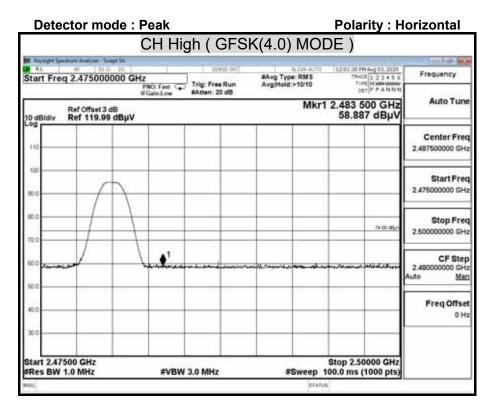


		K(4.0) MO[JE)	
1.1			Marcal Action of the Articles	
PNO: Fast	Trig: Free Run	#Avg Type: RM5 Avg/Hold:>10/10	TRACE 1 2 3 4 5 TYPE MINHWM	6 Frequency
IFGainLow	#Atten: 20 dB	Mk	r1 2.390 00 GH	Z Auto Tun
				Center Fre 2.36000000 GH
			A	Start Fre 2.31000000 GH
				Stop Fre 2.41000000 GH
			1	CF Ste 2.49000000 GH Auto Ma
				Freq Offse
#VBW	2.7 kHz	Sweep 2	Stop 2.41000 GH 28.90 ms (1000 pts	
	PN0: Fest	PNO: Fast C Trig: Free Run	Z Trig: Free Run #Avg Type: RMS Avg[Hold:>10/10 #GainLow #Atten: 20 dB	Z Avg Type RMS Thick Free Run Avg Hold:>10/10 Thick [12:3:4:5 PNC: Feat Trig: Free Run Avg Hold:>10/10 Thick [12:3:4:5 Mkr1 2:390 00 GH 48.715 dBµ



Page: 51 / 62 Rev.: 01

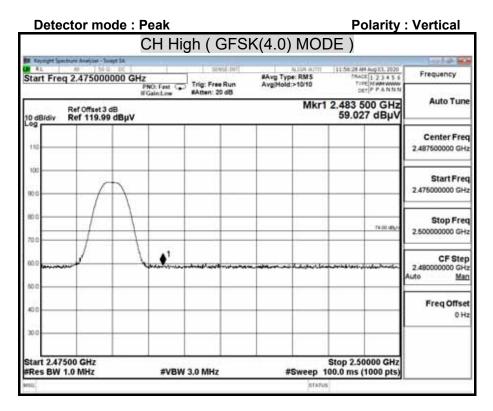
Report No.: T200717N01-RP1-2



Dete	ctor mod	le : Avera		Polarity : Horizontal			
		CH H	K(4.0) MOI	DE)			
R Keysight Sp	ectrum Analyzer - Swept		The second state	Charles and			
	q 2.4750000	00 GHz	Trig: Free Run	#Avg Type: RMS	12:02:29 PR Aug 83, 2020 TRACE 1 2 3 4 5 6 TYPE MWH WWW		
		PNO: Fast C IFGain:Low	#Atten: 20 dB	Avg/Hold:>10/10	DET PPANNS	0.000 992890	
10 dBidiv	Ref Offset 3 dB Ref 119.99 d			Mkr1	2.483 500 GHz 49.269 dBµV		
110						Center Fre 2,487500000 GH	
100						Start Fre 2.475000000 GH	
85 G						Stop Fre 2.50000000 GH	
80.0					54.00 attu/	CF Ste 2.48000000 GH Auto Ma	
40.0						Freq Offse	
30.0							
Start 2.47 FRes BW		#VB	W 2.7 kHz	Sweep 7	Stop 2.50000 GHz .259 ms (1000 pts)		
weis:				STATU			



Page: 52 / 62 Rev.: 01



Detec	ctor mod	de : Averaç	je	Polarity : Vertical				
	DE)							
E Keysight Spec	trure Analyzer - Swep All 158 Q		. I since the	A 104 A 101	11:57:27 AM Aug 83, 2020	per la constante de la constan		
	2.4750000	00 GHz		#Avg Type: RMS Avg/Hold:>10/10	TRACE 1 2 3 4 5 6	Frequency		
		PNO: Fast -G IFGain:Low	#Atten: 20 dB	Avgrout.viens	DET PPANNS	0.000 0.000		
0 dB/div	Ref Offset 3 dE Ref 119.99 d			Mkr1	2.483 500 GHz 48.814 dBµV	Auto Tun		
110						Center Fre		
603 272						2.487500000 GH		
100		\				Start Fre 2.47500000 GH		
800	1							
70.0						Stop Fre 2.50000000 GH		
0.0						CF Ste		
50.0					SA DO JENN	2.48000000 GH Auto <u>Ma</u>		
40.0						Freq Offse		
30.0	-							
tart 2.475 Res BW 1		#VBN	V 2.7 kHz	Sweep 7	Stop 2.50000 GHz .259 ms (1000 pts)			
945	augus - 157			STATU				



Page: 53 / 62 Rev.: 01

Report No.: T200717N01-RP1-2

9.7 POWERLINE CONDUCTED EMISSIONS

LIMITS

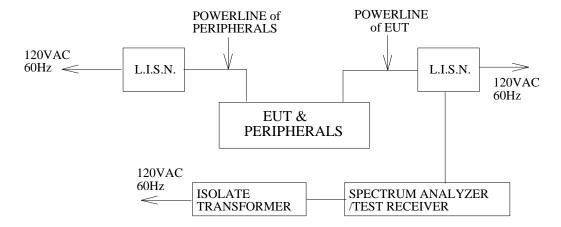
§ 15.207 (a) Except as shown in paragraph (b) and (c) this section, for an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the following table, as measured using a 50 μ H/50 ohms line impedance stabilization network (LISN). Compliance with the provisions of this paragraph shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminal.

The lower limit applies at the boundary between the frequency ranges.

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



Report No.: T200717N01-RP1-2 TEST SETUP Page: 54 / 62 Rev.: 01



TEST PROCEDURE

The EUT is placed on a non-conducting table 40 cm from the vertical ground plane and 80cm above the horizontal ground plane. The EUT IS CONFIGURED IN ACCORDANCE WITH ANSI C63.10.

The resolution bandwidth is set to 9 kHz for both quasi-peak detection and average detection measurements.

Line conducted data is recorded for both NEUTRAL and LINE.



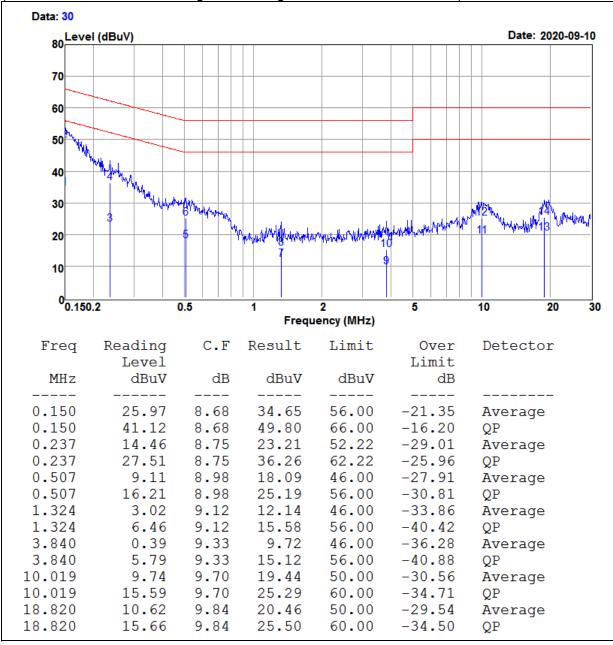
TEST RESULTS

No non-compliance noted.

Model No.	DJM-S7	Test Mode	Normal Operation
Environmental Conditions	258 62% RH	Resolution Bandwidth	9 kHz
Tested by	Yuming Liang		

LINE

(The chart below shows the highest readings taken from the final data.)



REMARKS : 1. Level (dBuV) = Read Level (dBuV) + LISN Factor (dB) + Cable Loss (dB) 2. Over Limit (dBuV) = Measured Level (dBuV) – Limits (dBuV)

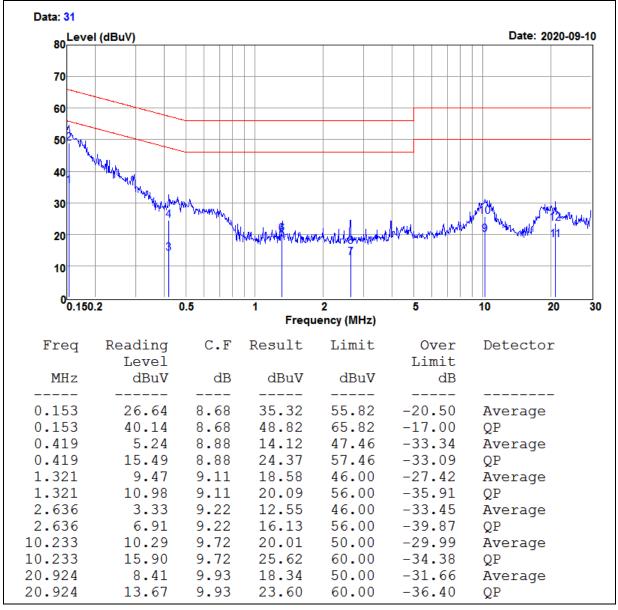


Page: 56 / 62 Rev.: 01

Model No.	DJM-S7	Test Mode	Normal Operation
Environmental Conditions	125 8 62% D L	Resolution Bandwidth	9 kHz
Tested by	Yuming Liang		

NEUTRAL

(The chart below shows the highest readings taken from the final data.)



REMARKS : 1. Level (dBuV) = Read Level (dBuV) + LISN Factor (dB) + Cable Loss (dB) 2. Over Limit (dBuV) = Measured Level (dBuV) – Limits (dBuV)



10. ANTENNA REQUIREMENT

10.1 STANDARD APPLICABLE

For intentional device, according to FCC 47 CFR Section 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. And according to FCC 47 CFR Section 15.247 (b), if transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

10.2 ANTENNA CONNECTED CONSTRUCTION

Manufacturer: Sunitec Type: PCB Antenna Model: EJ058 Gain: -5.0 dBi

=== END of Report ===

Page: 57 / 62 Rev.: 01