

Shenzhen Toby Technology Co., Ltd.



Report No.: TBR-C-202204-0107-12

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Radio Test Report

FCC ID: 2A2GJ-M2802

Report No. : TBR-C-202204-0107-12

Applicant : Heltec Automation Technology Co., Ltd

Equipment Under Test (EUT)

EUT Name : Heltec Indoor Hotspot

Model No. : HT-M2802

Series Model No. : ----

Brand Name : ----

Sample ID : RW-C-202204-0107-1-1# & RW-C-202204-0107-1-2#

Receipt Date : 2022-04-15

Test Date : 2022-04-15 to 2022-04-29

Issue Date : 2022-05-10

Standards : FCC Part 15 Subpart C 15.247

Test Method : ANSI C63.10: 2013

KDB 558074 D01 15.247 Meas Guidance v05r02

Conclusions : PASS

In the configuration tested, the EUT complied with the standards specified above.

Witness Engineer :

Engineer Supervisor : TANK SV

Wade Lv Ivan Su Ray Lai

This report details the results of the testing carried out on one sample. The results contained in this test report do not relate to other samples of the same product. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in the report.

TB-RF-074-1.0



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Revision History

Report No.	Version	Description	Issued Date
TBR-C-202204-0107-12	Rev.01	Initial issue of report	2022-05-10
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1. General Information about EUT

1.1 Client Information

Applicant :		Heltec Automation Technology Co., Ltd	
Address :		1st floor, No. 54, 56, 58 zirui North Street, High-tech Zone, Chengdu city, China	
Manufacturer :		Heltec Automation Technology Co., Ltd	
Address		1st floor, No. 54, 56, 58 zirui North Street, High-tech Zone, Chengdu city, China	

1.2 General Description of EUT (Equipment Under Test)

EUT Name	:	Heltec Indoor Hotspot				
Models No.	3	HT-M2802				
Model Different	F					
	7	Operation Frequency:	LoRa(500KHz): 923.3MHz-927.5MHz			
Product		Number of Channel:	8 channels			
Description		Antenna Gain: 3.0dBi Dipole Antenna				
MOBY		Bit Rate of Transmitter:	5.47kbps			
Power Rating		Adapter(DSS12D-0502000-E) Input: 100-240V~50/60Hz 0.5A Output: 5V2A				
Software Version	70	N/A				
Hardware Version	8	N/A				

- (1) The antenna gain and adapter provided by the applicant, the verified for the RF conduction test provided by TOBY test lab.
- (2) For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.
- (3) Antenna information provided by the applicant. And the type of antenna please see the external photos.



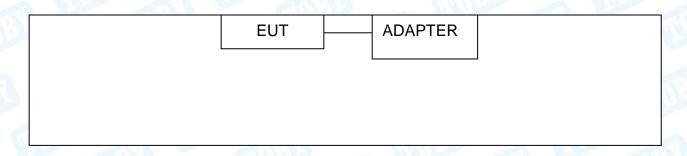
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(4) Channel List:

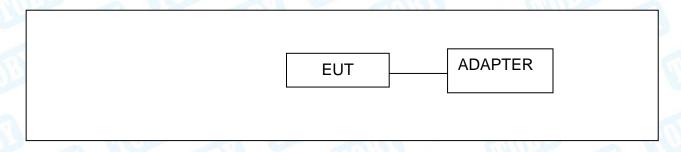
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
01	923.3	04	925.1	07	926.9
02	923.9	05	925.7	08	927.5
03	924.5	06	926.3	m	

1.3 Block Diagram Showing the Configuration of System Tested

Conducted Test



Radiated Test





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1.4 Description of Support Units

Equipment Information							
Name Model FCC ID/SDOC Manufacturer Used "√"							
Adapter DSS12D-0502000-E DSS √							
Cable Information							
Number Shielded Type Ferrite Core Length Note							
Cable 1	Yes	NO	1.0M	Accessory			

1.5 Description of Test Mode

To investigate the maximum EMI emission characteristics generates from EUT, the test system was pre-scanning tested base on the consideration of following EUT operation mode or test configuration mode which possible have effect on EMI emission level. Each of these EUT operation mode(s) or test configuration mode(s) mentioned follow was evaluated respectively.

For Conducted Test					
Final Test Mode Description					
Mode 1 TX Mode					
For Radiated Test					
Final Test Mode Description					
Mode 2 TX Mode					
Mode 3 TX Mode (Channel 01/04/08)					

Note:

- (1) For all test, we have verified the construction and function in typical operation. And all the test modes were carried out with the EUT in transmitting operation in maximum power with all kinds of data rate.
 - According to ANSI C63.10 standards, the measurements are performed at the highest, middle, lowest available channels.
 - (2) During the testing procedure, the continuously transmitting with the maximum power mode was programmed by the customer.
 - (3) The EUT is considered a Mobile unit; in normal use it was positioned on X-plane. The worst case was found positioned on X-plane. Therefore only the test data of this X-plane was used for radiated emission measurement test.



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1.6 Description of Test Software Setting

During testing channel& Power controlling software provided by the customer was used to control the operating channel as well as the output power level. The RF output power selection is for the setting of RF output power expected by the customer and is going to be fixed on the firmware of the final end product power parameters of RF setting.

Test Software Version		SecureCRT.ex	e
Frequency	923.3MHz	925.1MHz	927.5MHz
LoRa	DEF	DEF	DEF

1.7 Measurement Uncertainty

The reported uncertainty of measurement $y \pm U_1$, where expended uncertainty U is based on a standard uncertainty multiplied by a coverage factor of k=2, providing a level of confidence of approximately 95 %.

Test Item	Parameters	Expanded Uncertainty (U _{Lab})
Conducted Emission	Level Accuracy: 9kHz~150kHz 150kHz to 30MHz	±3.50 dB ±3.10 dB
Radiated Emission	Level Accuracy: 9kHz to 30 MHz	±4.60 dB
Radiated Emission	Level Accuracy: 30MHz to 1000 MHz	±4.50 dB
Radiated Emission	Level Accuracy: Above 1000MHz	±4.20 dB



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1.8 Test Facility

The testing report were performed by the Shenzhen Toby Technology Co., Ltd., in their facilities located at 1/F.,Building 6, Rundongsheng Industrial Zone, Longzhu, Xixiang, Bao'an District, Shenzhen, Guangdong, China. At the time of testing, the following bodies accredited the Laboratory:

CNAS (L5813)

The Laboratory has been accredited by CNAS to ISO/IEC 17025: 2017 General Requirements for the Competence of Testing and Calibration Laboratories for the competence in the field of testing. And the Registration No.: CNAS L5813.

A2LA Certificate No.: 4750.01

The laboratory has been accredited by American Association for Laboratory Accreditation(A2LA) to ISO/IEC 17025: 2017 General Requirements for the Competence of Testing and Calibration Laboratories for the technical competence in the field of Electrical Testing. And the A2LA Certificate No.: 4750.01.FCC Accredited Test Site Number: 854351. Designation Number: CN1223.

IC Registration No.: (11950A)

The Laboratory has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing. The site registration: Site# 11950A. CAB identifier: CN0056.



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2. Test Summary

Standard Section	Toot Itom	To at Commission		D
FCC	Test Item	Test Sample(s)	Judgment	Remark
FCC 15.207(a)	Conducted Emission	RW-C-202204-0107-1-1#	PASS	N/A
FCC 15.209 & 15.247(d)	Radiated Unwanted Emissions	RW-C-202204-0107-1-1#	PASS	N/A
FCC 15.203	Antenna Requirement	RW-C-202204-0107-1-2#	PASS	N/A
FCC 15.247(a)(2)	6dB Bandwidth	RW-C-202204-0107-1-2#	N/A	N/A
	99% Occupied bandwidth	RW-C-202204-0107-1-2#	PASS	N/A
FCC 15.247(b)(3)	Peak Output Power and E.I.R.P	RW-C-202204-0107-1-2#	PASS	N/A
FCC 15.247(e)	Power Spectral Density	RW-C-202204-0107-1-2#	PASS	N/A
FCC 15.207	Conducted Unwanted Emissions	RW-C-202204-0107-1-2#	PASS	N/A
FCC 15.247(d)	Emissions in nonrestricted frequency bands	RW-C-202204-0107-1-2#	PASS	N/A
	On Time and Duty Cycle	RW-C-202204-0107-1-2#		N/A

Note: N/A is an abbreviation for Not Applicable.

3. Test Software

Test Item	Test Software	Manufacturer	Version No.
Conducted Emission	EZ-EMC	EZ	CDI-03A2
Radiation Emission	EZ-EMC	EZ	FA-03A2RE
RF Conducted Measurement	MTS-8310	MWRFtest	V2.0.0.0
RF Test System	JS1120	Tonscend	V2.6.88.0336



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4. Test Equipment

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Due Date
<u> </u>					
EMI Test Receiver	Rohde & Schwarz	ESCI	100321	Jul. 02, 2021	Jul. 01, 2022
RF Switching Unit	Compliance Direction Systems Inc	ems Inc		Jul. 02, 2021	Jul. 01, 2022
AMN	SCHWARZBECK	NNBL 8226-2	8226-2/164	Jul. 02, 2021	Jul. 01, 2022
LISN	Rohde & Schwarz	ENV216	101131	Jul. 02, 2021	Jul. 01, 2022
Radiation Emission	n Test (A Site)				
Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Due Date
Spectrum Analyzer	Rohde & Schwarz	FSV40-N	102197	Jul. 02, 2021	Jul. 01, 2022
EMI Test Receiver	Rohde & Schwarz	ESPI	100010/007	Jul. 02, 2021	Jul. 01, 2022
Bilog Antenna	ETS-LINDGREN	3142E	00117537	Feb. 27, 2022	Feb. 26, 2024
Horn Antenna	ETS-LINDGREN	3117	00143207	Feb. 26, 2022	Feb. 25, 2024
Horn Antenna	SCHWARZBECK	BBHA 9170	1118	Feb. 26, 2022	Feb. 25, 2024
Loop Antenna	SCHWARZBECK	FMZB 1519 B	1519B-059	Jul. 06, 2021	Jul. 05, 2022
Pre-amplifier	SONOMA	310N	185903	Feb. 26, 2022	Feb. 25, 2023
Pre-amplifier	HP (8449B	3008A00849	Feb. 26, 2022	Feb. 25, 2023
HF Amplifier	Tonscend	TAP0184050	AP21C806129	Sep. 03, 2021	Sep. 02, 2022
Radiation Emission	Test (B Site)		1		
Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Due Date
Spectrum Analyzer	Rohde & Schwarz	FSV40-N	102197	Jul. 02, 2021	Jul. 01, 2022
MXA Signal Analyzer	Agilent	N9020A	MY47380425	Sep. 03, 2021	Sep. 02, 2022
EMI Test Receiver	Rohde & Schwarz	ESU-8	100472	Feb. 26, 2022	Feb. 25, 2023
Bilog Antenna	SCHWARZBECK	VULB 9168	1225	Dec. 05, 2021	Dec. 04, 2023
Horn Antenna	SCHWARZBECK	BBHA 9120 D	2463	May 20, 2021	May 19, 2022
Horn Antenna	SCHWARZBECK	BBHA 9170	1118	Feb. 26, 2022	Feb. 25, 2024
Loop Antenna	SCHWARZBECK	FMZB 1519 B	1519B-059	Jul. 06, 2021	Jul. 05, 2022
HF Amplifier	Tonscend	TAP9E6343	AP21C806117	Sep. 03, 2021	Sep. 02, 2022
HF Amplifier	Tonscend	TAP051845	AP21C806141	Sep. 03, 2021	Sep. 02, 2022
HF Amplifier	Tonscend	TAP0184050	AP21C806129	Sep. 03, 2021	Sep. 02, 2022
Antenna Conducte					,
Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Due Date
Spectrum Analyzer	Agilent	E4407B	MY45106456	Jul. 02, 2021	Jul. 01, 2022
Spectrum Analyzer	Rohde & Schwarz	FSV40-N	102197	Jul. 02, 2021	Jul. 01, 2022
MXA Signal Analyzer	Agilent	N9020A	MY49100060	Sep. 03, 2021	Sep. 02, 2022
Spectrum Analyzer	KEYSIGT	N9020B	MY60110172	Sep. 03, 2021	Sep. 02, 2022
	DARE!! Instruments	RadiPowerRPR3006W	17I00015SNO26	Sep. 03, 2021	Sep. 02, 2022
	DARE!! Instruments	RadiPowerRPR3006W	17I00015SNO29	Sep. 03, 2021	Sep. 02, 2022
RF Power Sensor	DARE!! Instruments	RadiPowerRPR3006W	17I00015SNO31	Sep. 03, 2021	Sep. 02, 2022
	DARE!! Instruments	RadiPowerRPR3006W	17I00015SNO33	Sep. 03, 2021	Sep. 02, 2022
RF Control Unit	Tonsced	JS0806-2	21F8060439	Sep. 03, 2021	Sep. 02, 2022



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5. Conducted Emission

5.1 Test Standard and Limit

5.1.1 Test Standard

FCC Part 15.207

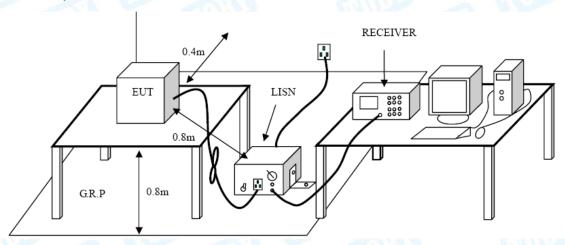
5.1.2 Test Limit

Eroguanov	Maximum RF Line Voltage (dBμV)			
Frequency	Quasi-peak Level	Average Level		
150kHz~500kHz	66 ~ 56 *	56 ~ 46 *		
500kHz~5MHz	56	46		
5MHz~30MHz	60	50		

Notes:

- (1) *Decreasing linearly with logarithm of the frequency.
- (2) The lower limit shall apply at the transition frequencies.
- (3) The limit decrease in line with the logarithm of the frequency in the range of 0.15 to 0.50MHz.

5.2 Test Setup



5.3 Test Procedure

- ●The EUT was placed 0.8 meters from the horizontal ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipments powered from additional LISN(s). The LISN provide 50 Ohm/50uH of coupling impedance for the measuring instrument.
- Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.
- ●I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.
- ●LISN at least 80 cm from nearest part of EUT chassis.
- The bandwidth of EMI test receiver is set at 9 kHz, and the test frequency band is from 0.15MHz to 30MHz.



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5.4 Deviation From Test Standard

No deviation

5.5 EUT Operating Mode

Please refer to the description of test mode.

5.6 Test Data

Please refer to the Attachment A.

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6. Radiated and Conducted Unwanted Emissions

6.1 Test Standard and Limit

6.1.1 Test Standard

FCC Part 15.209 & FCC Part 15.247(d)

6.1.2 Test Limit

General field strength limits at frequencies Below 30MHz						
Frequency Field Strength Field Strength Measurement (MHz) (µA/m)* (microvolt/meter)** Distance (meters)						
0.009~0.490	6.37/F (F in kHz)	2400/F(KHz)	300			
0.490~1.705	63.7/F (F in kHz)	24000/F(KHz)	30			
1.705~30.0	0.08	30	30			

Note: 1, The emission limits for the ranges 9-90 kHz and 110-490 kHz are based on measurements employing a linear average detector.

2, *is for RSS Standard, **is for FCC Standard.

General field strength limits at frequencies above 30 MHz						
Frequency (MHz)	Field strength (µV/m at 3 m)	Measurement Distance (meters)				
30~88	100	3				
88~216	150	3				
216~960	200	3				
Above 960	500	3				

General field strength limits at frequencies Above 1000MHz					
Frequency	Distance of 3m (dBuV/m)				
(MHz)	Peak	Average			
Above 1000	74	54			

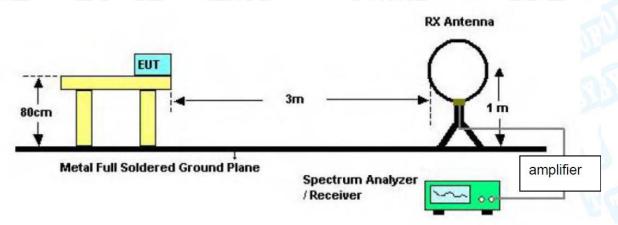
Note:

- (1) The tighter limit applies at the band edges.
- (2) Emission Level(dBuV/m)=20log Emission Level(uV/m)

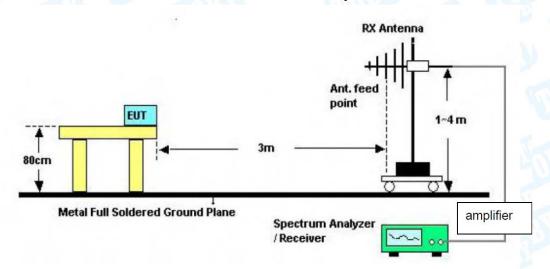
In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated device is operating, the RF power that is produced shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided that the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of root-mean-square averaging over a time interval, as permitted under section 5.4(d), the attenuation required shall be 30 dB instead of 20 dB. Attenuation below the general field strength limits specified in RSS-Gen is not required.

6.2 Test Setup

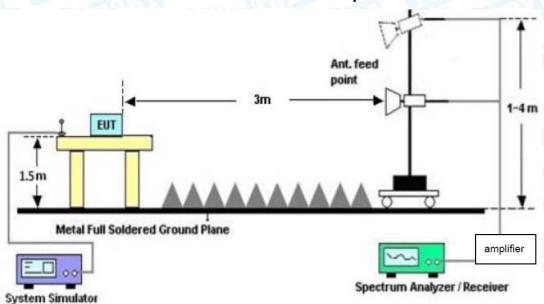
Radiated measurement



Below 30MHz Test Setup



Below 1000MHz Test Setup

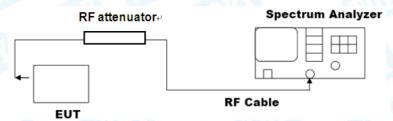


Above 1GHz Test Setup



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Conducted measurement



6.3 Test Procedure

---Radiated measurement

- The measuring distance of 3m shall be used for measurements at frequency up to 1GHz and above 1 GHz. The EUT was placed on a rotating 0.8m high above ground, the table was rotated 360 degrees to determine the position of the highest radiation.
- Measurements at frequency above 1GHz. The EUT was placed on a rotating 1.5m high above the ground. RF absorbers covered the ground plane with a minimum area of 3.0m by 3.0m between the EUT and measurement receiver antenna. The RF absorber shall not exceed 30cm in high above the conducting floor. The table was rotated 360 degrees to determine the position of the highest radiation.
- The Test antenna shall vary between 1m and 4m, Both Horizontal and Vertical antenna are set to make measurement.
- The initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured.
- If the Peak Mode measured value compliance with and lower than Quasi Peak Mode Limit Below 1 GHz, the EUT shall be deemed to meet QP Limits and then no additional QP Mode measurement performed. But the Peak Value and average value both need to comply with applicable limit above 1 GHz.
- Testing frequency range 30MHz-1GHz the measuring instrument use VBW=120 kHz with Quasi-peak detection. Testing frequency range 9KHz-150Hz the measuring instrument use VBW=200Hz with Quasi-peak detection. Testing frequency range 9KHz-30MHz the measuring instrument use VBW=9kHz with Quasi-peak detection.
- Testing frequency range above 1GHz the measuring instrument use RBW=1 MHz and VBW=3 MHz with Peak Detector for Peak Values, and use RBW=1 MHz and VBW=10 Hz with Peak Detector for Average Values.
- For the actual test configuration, please see the test setup photo.



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--- Conducted measurement

Reference level measurement

Establish a reference level by using the following procedure:

- a) Set instrument center frequency to DTS channel center frequency.
- b) Set the span to≥1.5 times the DTS bandwidth.
- c) Set the RBW = 100 kHz.
- d) Set the VBW≥[3*RBW].
- e) Detector = peak.
- f) Sweep time = auto couple.
- g) Trace mode = max hold.
- h) Allow trace to fully stabilize.
- i) Use the peak marker function to determine the maximum PSD level.

Note that the channel found to contain the maximum PSD level can be used to establish the reference level.

Emission level measurement

Establish an emission level by using the following procedure:

- a) Set the center frequency and span to encompass frequency range to be measured.
- b) Set the RBW = 100 kHz.
- c) Set the VBW≥[3*RBW].
- d) Detector = peak.
- e) Sweep time = auto couple.
- f) Trace mode = max hold.
- g) Allow trace to fully stabilize.
- h) Use the peak marker function to determine the maximum amplitude level. Ensure that the amplitude of all unwanted emissions outside of the authorized frequency band (excluding restricted frequency bands) is attenuated by at least the minimum requirements specified in 11.11. Report the three highest emissions relative to the limit.

6.4 Deviation From Test Standard

No deviation

6.5 EUT Operating Mode

Please refer to the description of test mode.

6.6 Test Data

Please refer to the Attachment B.



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7. Emissions in nonrestricted frequency bands

7.1 Test Standard and Limit

7.1.1 Test Standard

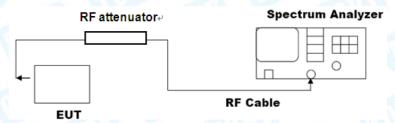
FCC Part 15.205 & FCC Part 15.247(d)

7.1.2 Test Limit

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated device is operating, the RF power that is produced 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 that the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of root-mean-square averaging over a time interval, as permitted under section 5.4(d), the attenuation required shall be 30 dB instead of 20 dB. Attenuation below the general field strength limits specified in RSS-Gen is not required.

7.2 Test Setup

Conducted measurement



7.3 Test Procedure

Reference level measurement

Establish a reference level by using the following procedure:

- a) Set instrument center frequency to DTS channel center frequency.
- b) Set the span to \geq 1.5 times the DTS bandwidth.
- c) Set the RBW = 100 kHz.
- d) Set the VBW ≥ [3*RBW].
- e) Detector = peak.
- f) Sweep time = auto couple.
- g) Trace mode = max hold.
- h) Allow trace to fully stabilize.
- i) Use the peak marker function to determine the maximum PSD level.

Note that the channel found to contain the maximum PSD level can be used to establish the reference level.



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Emission level measurement

Establish an emission level by using the following procedure:

- a) Set the center frequency and span to encompass frequency range to be measured.
- b) Set the RBW = 100 kHz.
- c) Set the VBW ≥ [3*RBW].
- d) Detector = peak.
- e) Sweep time = auto couple.
- f) Trace mode = max hold.
- g) Allow trace to fully stabilize.
- h) Use the peak marker function to determine the maximum amplitude level.

7.4 Deviation From Test Standard

No deviation

7.5 EUT Operating Mode

Please refer to the description of test mode.

7.6 Test Data

Please refer to the Attachment C.



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8. Bandwidth Test

8.1 Test Standard and Limit

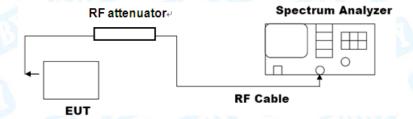
8.1.1 Test Standard

FCC Part 15.205 & FCC Part 15.247(d)

8.1.2 Test Limit

Test Item	Limit
-6dB bandwidth (DTS bandwidth)	>=500 KHz
99% occupied bandwidth	

8.2 Test Setup



8.3 Test Procedure

---DTS bandwidth

- The steps for the first option are as follows:
- 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.

---occupied bandwidth

- The occupied bandwidth is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers are each equal to 0.5% of the total mean power of the given emission. The following procedure shall be used for measuring 99% power bandwidth:
- a) The instrument center frequency is set to the nominal EUT channel center frequency. The frequency span for the spectrum analyzer shall be between 1.5 times and 5.0 times the OBW
- b) The nominal IF filter bandwidth (3 dB RBW) shall be in the range of 1% to 5% of the OBW, and VBW shall be approximately three times the RBW, unless otherwise specified by the applicable requirement.
- c) Set the reference level of the instrument as required, keeping the signal from exceeding



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the maximum input mixer level for linear operation. In general, the peak of the spectral envelope shall be more than [10 log (OBW/RBW)] below the reference level. Specific guidance is given in 4.1.5.2.

- d) Step a) through step c) might require iteration to adjust within the specified range.
- e) Video averaging is not permitted. Where practical, a sample detection and single sweep mode shall be used. Otherwise, peak detection and max hold mode (until the trace stabilizes) shall be used.
- f) Use the 99% power bandwidth function of the instrument (if available) and report the measured bandwidth.
- g) If the instrument does not have a 99% power bandwidth function, then the trace data points are recovered and directly summed in linear power terms. The recovered amplitude data points, beginning at the lowest frequency, are placed in a running sum until 0.5% of the total is reached; that frequency is recorded as the lower frequency. The process is repeated until 99.5% of the total is reached; that frequency is recorded as the upper frequency. The 99% power bandwidth is the difference between these two frequencies.
- h) The occupied bandwidth shall be reported by providing plot(s) of the measuring instrument display; the plot axes and the scale units per division shall be clearly labeled. Tabular data may be reported in addition to the plot(s).

8.4 Deviation From Test Standard

No deviation

8.5 EUT Operating Mode

Please refer to the description of test mode.

8.6 Test Data

Please refer to the Attachment D.



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9. Peak Output Power

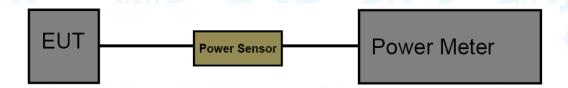
9.1 Test Standard and Limit

9.1.1 Test Standard FCC Part 15.247(b)(3)

9.1.2 Test Limit

Test Item	Limit		
Peak Output Power	not exceed 1 W or 30dBm		
E.I.R.P	not exceed 4 W or 36dBm		

9.2 Test Setup



9.3 Test Procedure

●The EUT was connected to RF power meter via a broadband power sensor as show the block above. The power sensor video bandwidth is greater than or equal to the DTS bandwidth of the equipment.

9.4 Deviation From Test Standard

No deviation

9.5 EUT Operating Mode

Please refer to the description of test mode.

9.6 Test Data

Please refer to the Attachment E.



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10. Power Spectral Density

10.1 Test Standard and Limit

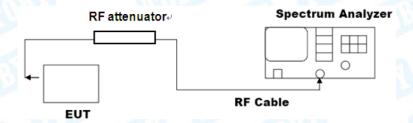
10.1.1 Test Standard

FCC Part 15.247(e)

10.1.2 Test Limit

Test Item	Limit		
Power Spectral Density	8dBm(in any 3 kHz)		

10.2 Test Setup



10.3 Test Procedure

- The following procedure shall be used if maximum peak conducted output power was used to determine compliance, and it is optional if the maximum conducted (average) output power was used to determine compliance:
- a) Set analyzer center frequency to DTS channel center frequency.
- b) Set the span to 1.5 times the DTS bandwidth.
- c) Set the RBW to 3 kHz≤RBW≤100 kHz.
- d) Set the VBW ≥[3*RBW].
- e) Detector = rms.
- f) Sweep time = auto couple.
- g) Employ trace averaging (rms) mode over a minimum of 100 traces.
- h) Allow trace to fully stabilize.
- i) Use the peak marker function to determine the maximum amplitude level.
- j) If the measured value exceeds requirement, then reduce RBW (but no less than 3 kHz) and repeat (note that this may require zooming in on the emission of interest and reducing the span to meet the minimum measurement point requirement as the RBW is reduced).

10.4 Deviation From Test Standard

No deviation

10.5 Antenna Connected Construction

Please refer to the description of test mode.

10.6 Test Data

Please refer to the Attachment F.



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11. Antenna Requirement

11.1 Test Standard and Limit

11.1.1 Test Standard

FCC Part 15.203

11.1.2 Requirement

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. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

11.2 Deviation From Test Standard

No deviation

11.3 Antenna Connected Construction

The gains of the antenna used for transmitting is 3.0dBi, and the antenna de-signed with Unique connector antenna and consideration of replacement. Please see the EUT photo for details.

11.4 Test Data

The EUT antenna is a Dipole Antenna. It complies with the standard requirement.

Antenna Type	
Permanent attached antenna	
⊠Unique connector antenna	
Professional installation antenna	



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Attachment A--Conducted Emission Test Data

Test Vo	rature:	24.5℃		Re	lative Humic	dity: 4	14%	CIND.
	oltage:	AC 12	0V/60Hz		a Wy		17	
Termin	al:	Line				- GN	Miles	
Test Mo	ode:	Mode	1	100			6	MODE
Remar	k:	Only w	orse case is	reported.	ANGE			
80.0 dB	Bu∀						QP:	
30	Maryally States	My Mark	Malando de Malando de Contra de Cont	romedowith which was by flight	A CONTRACTOR OF THE PROPERTY O	Marine Mayle	AVG:	w/hhow peak
-20 0.150		0.5	Reading	(MHz)	Measure-			30.000
No.	Mk.	Freq.	Level dBuV	Factor	ment dBuV	Limit	Over	Detector
		IVIHZ	авиу		авиу	dBuV	dB	Detector
	_	1000	44 44	44.00	00.40	00.00	27 50	\sim
1		0.1980	14.44	11.66	26.10	63.69		QP
2	(0.1980	0.86	11.66	12.52	53.69	-41.17	AVG
	(0.86 24.11			53.69		
2	(0.1980	0.86	11.66	12.52	53.69 57.65	-41.17	AVG
2	* (0.1980 0.4100	0.86 24.11	11.66 11.45	12.52 35.56	53.69 57.65 47.65	-41.17 -22.09	AVG QP
3 4	* (0.1980 0.4100 0.4100	0.86 24.11 15.78	11.66 11.45 11.45	12.52 35.56 27.23	53.69 57.65 47.65 56.00	-41.17 -22.09 -20.42	AVG QP AVG
2 3 4 5	* (0.1980 0.4100 0.4100 0.9220	0.86 24.11 15.78 14.93	11.66 11.45 11.45 11.25	12.52 35.56 27.23 26.18	53.69 57.65 47.65 56.00 46.00	-41.17 -22.09 -20.42 -29.82	AVG QP AVG QP
2 3 4 5 6	* (0.1980 0.4100 0.4100 0.9220 0.9220	0.86 24.11 15.78 14.93 5.96	11.66 11.45 11.45 11.25 11.25	12.52 35.56 27.23 26.18 17.21	53.69 57.65 47.65 56.00 46.00 56.00	-41.17 -22.09 -20.42 -29.82 -28.79	AVG QP AVG QP AVG
2 3 4 5 6 7	* (0.1980 0.4100 0.4100 0.9220 0.9220 1.7220	0.86 24.11 15.78 14.93 5.96 13.57	11.66 11.45 11.45 11.25 11.25 10.74	12.52 35.56 27.23 26.18 17.21 24.31	53.69 57.65 47.65 56.00 46.00 46.00	-41.17 -22.09 -20.42 -29.82 -28.79 -31.69	AVG QP AVG QP AVG
2 3 4 5 6 7 8	* (0.1980 0.4100 0.4100 0.9220 0.9220 1.7220	0.86 24.11 15.78 14.93 5.96 13.57 3.41	11.66 11.45 11.45 11.25 11.25 10.74 10.74	12.52 35.56 27.23 26.18 17.21 24.31 14.15	53.69 57.65 47.65 56.00 46.00 46.00 56.00	-41.17 -22.09 -20.42 -29.82 -28.79 -31.69 -31.85	AVG QP AVG QP AVG QP
2 3 4 5 6 7 8	* (0.1980 0.4100 0.4100 0.9220 0.9220 1.7220 1.7220 4.3499	0.86 24.11 15.78 14.93 5.96 13.57 3.41 14.32	11.66 11.45 11.45 11.25 11.25 10.74 10.74 10.12	12.52 35.56 27.23 26.18 17.21 24.31 14.15 24.44	53.69 57.65 47.65 56.00 46.00 46.00 56.00 46.00	-41.17 -22.09 -20.42 -29.82 -28.79 -31.69 -31.85 -31.56	AVG QP AVG QP AVG QP AVG

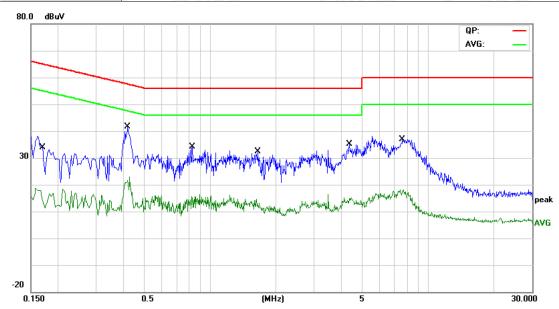
- 1. Corr. Factor (dB) = LISN Factor (dB) + Cable Loss (dB)
- 2. Margin (dB) =QuasiPeak/Average (dBuV)-Limit (dBuV)





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Temperature:	24.5℃	Relative Humidity:	44%
Test Voltage:	AC 120V/60Hz		WILLIAM TO THE PARTY OF THE PAR
Terminal:	Neutral		
Test Mode:	Mode 1		
Remark:	Only worse case is report	ed.	
80.0 dBuV			



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector
1		0.1700	17.68	11.62	29.30	64.96	-35.66	QP
2		0.1700	0.20	11.62	11.82	54.96	-43.14	AVG
3	*	0.4180	25.24	11.48	36.72	57.49	-20.77	QP
4		0.4180	7.71	11.48	19.19	47.49	-28.30	AVG
5		0.8300	16.38	11.34	27.72	56.00	-28.28	QP
6		0.8300	1.77	11.34	13.11	46.00	-32.89	AVG
7		1.6620	12.54	10.72	23.26	56.00	-32.74	QP
8		1.6620	-0.02	10.72	10.70	46.00	-35.30	AVG
9		4.3500	15.98	10.09	26.07	56.00	-29.93	QP
10		4.3500	1.90	10.09	11.99	46.00	-34.01	AVG
11		7.6220	18.84	10.04	28.88	60.00	-31.12	QP
12		7.6220	5.05	10.04	15.09	50.00	-34.91	AVG

- 1. Corr. Factor (dB) = LISN Factor (dB) + Cable Loss (dB)
- 2. Margin (dB) =QuasiPeak/Average (dBuV)-Limit (dBuV)



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Attachment B--Unwanted Emissions Data

---Radiated Unwanted Emissions

9 KHz~30 MHz

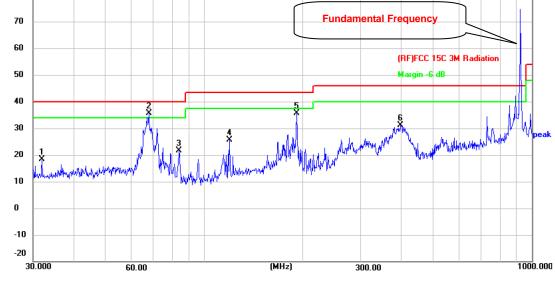
From 9 KHz to 30 MHz: Conclusion: PASS

Note: The amplitude of spurious emissions which are attenuated by more than 20dB

Below the permissible value has no need to be reported.

30MHz~1GHz

Temperature:	24.3 ℃	Relative Humidity:	45%			
Test Voltage:	AC 120V/60Hz					
Ant. Pol.	Horizontal		3 21			
Test Mode:	Mode 2 (923.3MHz)					
Damark	0.1		THE RESERVE			
Kemark:	Only worse case is repo	orted.				
Remark:	Only worse case is repo	orted.				
	Only worse case is repo	Fundamental Frequency				
80.0 dBuV/m	Only worse case is repo	Fundamental Frequence	y 15C 3M Radiation			



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	31.9546	41.48	-23.20	18.28	40.00	-21.72	peak
2 *	67.6751	59.88	-24.14	35.74	40.00	-4.26	peak
3	83.8156	48.28	-26.60	21.68	40.00	-18.32	peak
4	119.4361	49.01	-23.33	25.68	43.50	-17.82	peak
5	191.0738	59.34	-23.65	35.69	43.50	-7.81	peak
6	397.6334	49.53	-18.51	31.02	46.00	-14.98	peak

^{*:}Maximum data x:Over limit !:over margin

- 1. Corr. = Antenna Factor (dB/m) + Cable Loss (dB)
- 2. QuasiPeak (dBμV/m)= Corr. (dB/m)+ Read Level (dBμV)
- 3. Margin (dB) = QuasiPeak (dB μ V/m)-Limit QPK(dB μ V/m)



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Temperat	ture:	23.5°C		R	elative Hun	nidity:	46%			
Test Volta	age:	AC 12	20V/60Hz		6.00	1889				
Ant. Pol.		Vertic	al		aU		Til.	1		
Test Mod	e:	Mode	2 (923.3MH	Hz)		J AM	MANAGE			
Remark:		Only	worse case	is reported.						
80.0 dBuV	//m				+					
70					Fundamenta	I Frequency				
50						(RF)FCC 150 Margin -6 dE	C 3M Radiation			
40										
30	1.	2		4		5	9			
20		/~/ _{4/} /	Maria Mandal	A North March March March	He have been shown to be her	What when the	had been made	White a		
البال			Mayorman Market	3 American Mary Mary Mary Mary Mary Mary Mary Mary	sh haranda shamada da ba	Minhallad	had been had been been been been been been been bee	why Whipea		
20 10 0 -10		YWA WA	Carpenga Market	3 A A A A A A A A A A A A A A A A A A A	Herendark medicilist	All shambourd	had blown was	www.mily Vivilpea		
20		60.00	Caregorna Market	MHz)	300.		had been and	e de la constante de la consta		
20 10 0 -10 -20	Frequ (MF	ency	Reading (dBuV)			Limit	Margin (dB)	1000.00		
20 10 0 -10 -20 30.000		ency Iz)	_	(MHz)	300. Level	Limit		1000.00		
20 10 0 -10 -20 30.000	(MH	ency Hz) 320	(dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	(dB)	1000.00		
20 10 0 -10 -20 30.000 No. 1 *	(MH 41.1	ency Hz) 320 325	(dBuV) 52.95	Factor (dB/m) -22.98	Level (dBuV/m) 29.97	Limit (dBuV/m) 40.00	(dB) -10.03	1000.00 Detector peak		
20 10 0 -10 -20 30.000 No. 1 * 2	(MF 41.1 66.7	ency Hz) 320 325 7725	(dBuV) 52.95 53.81	Factor (dB/m) -22.98 -24.08	Level (dBuV/m) 29.97 29.73	Limit (dBuV/m) 40.00 40.00	(dB) -10.03 -10.27	Detector peak peak		
20 10 0 10 10 10 10 10 10 10 10 10 10 10	(MH 41.1 66.7 117.7	ency Hz) 320 325 7725 0738	(dBuV) 52.95 53.81 48.09	(MHz) Factor (dB/m) -22.98 -24.08 -23.50	Level (dBuV/m) 29.97 29.73 24.59	Limit (dBuV/m) 40.00 40.00 43.50	(dB) -10.03 -10.27 -18.91	Detector peak peak peak		

^{*:}Maximum data x:Over limit !:over margin

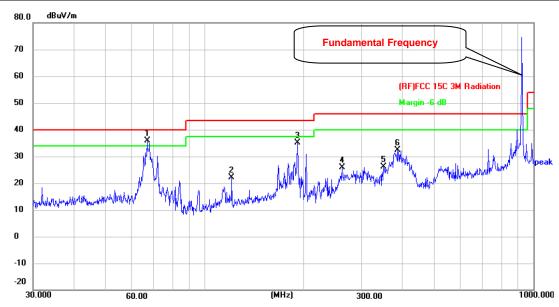
- 1. Corr. = Antenna Factor (dB/m) + Cable Loss (dB)
 2. QuasiPeak (dBμV/m)= Corr. (dB/m)+ Read Level (dBμV)
- 3. Margin (dB) = QuasiPeak (dB μ V/m)-Limit QPK(dB μ V/m)





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Temperature:	23.5℃	Relative Humidity:	46%
Test Voltage:	AC 120V/60Hz		
Ant. Pol.	Horizontal		
Test Mode:	Mode 2 (925.1MHz)		
Remark:	Only worse case is report	ed.	



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1 *	66.7325	60.06	-24.08	35.98	40.00	-4.02	peak
2	120.6991	45.28	-23.25	22.03	43.50	-21.47	peak
3	191.0738	58.67	-23.65	35.02	43.50	-8.48	peak
4	261.9752	48.00	-22.03	25.97	46.00	-20.03	peak
5	350.4767	45.64	-19.61	26.03	46.00	-19.97	peak
6	386.6338	51.22	-18.78	32.44	46.00	-13.56	peak

^{*:}Maximum data x:Over limit !:over margin

- 1. Corr. = Antenna Factor (dB/m) + Cable Loss (dB) 2. QuasiPeak (dB μ V/m)= Corr. (dB/m)+ Read Level (dB μ V)
- 3. Margin (dB) = QuasiPeak (dB μ V/m)-Limit QPK(dB μ V/m)





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Temp	perat	ure:	23.5°C			Itelative	Humidity	/ : ²	16%	
Test \	Volta	age:	AC 12	20V/60H	z	C. Service		3		0111
Ant. F	Pol.		Vertic	al	Min	1	63.		110	
Test I	Mod	e:	Mode	2 (925.	1MHz)	M. S.		HAI	No.	
Rema			Only	vorse c	ase is repo	rted.	133			
80.0	dBuV.	/m								
70						Fund	damental Free	quency		
60										
								RF)FCC 150		ation
50								largin -6 dl		
40										
30	1 *	2	Ž		_	5	6		1	ومرالا لأقريب
- 1						Y				
20			- M - 10 T A	1	*	X	The state of the s	MANAGE PARTY OF THE PROPERTY O	hyddinhepen	WAY ALA
20	hu///		way North	V TANALINALIAN	mulp Malmarkan	LAMPHANIANA	Ward Mary Mary Mary Mary Mary Mary Mary Mary	Market Harden and	hand Handerd	MAAAAAA
10	MAZ/MAZ		wik/V/W	May May have	mulp Million Holonor	AMM MANGANA	Warter Day of the Control	drywyt Johnson	hand the share	MA-MAPA
10	May I I I I I		~ _m ,/ _m ,/ _m ,/ _m	A Section of the Sect	mulp Marmoran	Mayouly	water milater war	dry hard blader went	hand handre	
10 0 -10				2 May Mary Land	Marin Jode Ace		work flood and the said	drybut Johide Luc-V	hought recharge	
10	000		60.00	A SANTONIANO		(MHz)	300.00	elmphirt Johnson de	hand the house	1000
10 -10 -20 30.0			60.00					mit	Margi	in
10 0 -10 -20		Frequ (MI	60.00 Hency	Readi (dBu)	ng Fac	tor Lev			Margi (dB)	in _{Detect}
10 -10 -20 30.0	0.	Frequ	60.00 lency Hz)	Read	ng Fac	tor Lev m) (dBu\	el Li //m) (dBı		_	in Detect
10	O.	Frequ (Mh	60.00 lency Hz)	Readi (dBu	ng Fac V) (dB/ 1 -23.	tor Lev m) (dBu\ 06 28.	el Li //m) (dBi	uV/m)	(dB)	in Detect
10 0 -10 -20 30.0	O.	Frequ (MH	60.00 Hency Hz) 092 765	Readi (dBu)	ng Fac V) (dB/ 1 -23.4 3 -22.5	tor Lev m) (dBu\ 06 28.	rel Li //m) (dBu 15 40	uV/m)).00	(dB) -11.8	in Detect
10 0 -10 -20 30.0 NC	O. *	Frequ (MH 36.5	60.00 Hency Hz) 092 765 751	Readi (dBu) 51.2 52.9	ng Fac /) (dB/ 1 -23. 3 -22. 5 -24.	tor Lev (dBu) 06 28. 98 29.9	el Li //m) (dBu 15 40 95 40	uV/m) 0.00 0.00	(dB) -11.8 -10.0	in Detect
10 0 -10 -20 30.0 NC). *	Frequ (MF 36.5 41.2 67.6	1ency Hz) 092 765 751	Readi (dBu) 51.2 52.9 54.6	ng Fac (dB/) 1 -23. 3 -22. 5 -24. 6 -23.	tor Lev (dBu) 06 28. 98 29.9 14 30.9 33 23.0	el Li //m) (dBu 15 40 95 40 51 40	0.00 0.00 0.00	(dB) -11.8 -10.0 -9.49	in Detect 5 peak 7 peak 7 peak

^{*:}Maximum data x:Over limit !:over margin

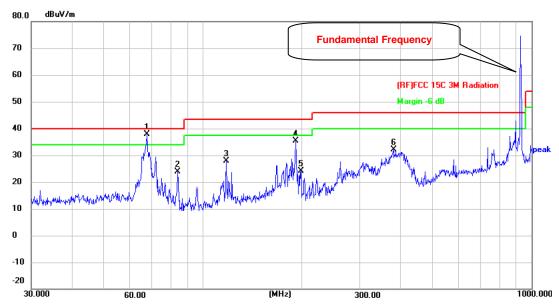
- 1. Corr. = Antenna Factor (dB/m) + Cable Loss (dB)
 2. QuasiPeak (dBμV/m)= Corr. (dB/m)+ Read Level (dBμV)
- 3. Margin (dB) = QuasiPeak (dB μ V/m)-Limit QPK(dB μ V/m)





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e	Temperature:	23.5℃	Relative Humidity:	46%
1	Test Voltage:	AC 120V/60Hz		Ullin
	Ant. Pol.	Horizontal		
	Test Mode:	Mode 2 (927.5MHz)		U
	Remark:	Only worse case is reported	d.	
1				



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1 *	67.4382	62.05	-24.12	37.93	40.00	-2.07	peak
2	83.8156	50.52	-26.60	23.92	40.00	-16.08	peak
3	117.7725	51.50	-23.50	28.00	43.50	-15.50	peak
4	191.7450	59.17	-23.68	35.49	43.50	-8.01	peak
5	198.5880	48.22	-24.05	24.17	43.50	-19.33	peak
6	379.9141	51.09	-18.94	32.15	46.00	-13.85	peak

^{*:}Maximum data x:Over limit !:over margin

- Corr. = Antenna Factor (dB/m) + Cable Loss (dB)
 QuasiPeak (dBμV/m)= Corr. (dB/m)+ Read Level (dBμV)
- 3. Margin (dB) = QuasiPeak (dB μ V/m)-Limit QPK(dB μ V/m)



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Tempera	ature:	23.5℃		R	elative Hun	nidity:	46%	10
est Vol	tage:	AC 12	20V/60Hz		6.11			CHIT:
Ant. Pol	l .	Vertic	al		aV		1	155
Test Mo	de:	Mode	2 (927.5MH	Hz)		- BA		
Remark	:	Only	worse case	is reported.				(1) P
80.0 dB	uV/m							
70					Fundamen	tal Frequency		
60						(RF)FCC 15	C 3M Radiation	
50						Margin -6 dl	В	
40		3						
30 X	2	Ă	4	ı Y		*		peal
								MAY.
20	Mary Mary Land	\m\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\		Maria de la compania	A DESCRIPTION OF THE PARTY OF T	hall waterstown	Mary Mary Commercial C	7
10	Mary Mary Comment	VWV***	LAMPHARA MANAMA	Hadan I month and I would be	Mandrew Market	Al Live Mandage Marie	Market Control	1,100
- Uww	Mary Mary Mary Mary Mary Mary Mary Mary	\m\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	Language and Add	Herry Constant Hersbill	H James War Land Land	Hard Marie Barbara	Bull the state of	
10	Mary Mary Mary Mary	\m\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	Language and the second	Hadarahoran da daga hatalish	H James Wall to the Control of the C	hit Jirdhandadea	had the the same	
10 -10 -20	N. H. W. Colon	\\r\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	Language and Add				And Market Control	
10	N. H. W. W.	60.00	Language and Add	Hadardon or state of the light	300.		haddlatti.	
10 -10 -20	Frequ (MI	iency	Reading (dBuV)			oo Limit	Margin (dB)	1000.00
10 0 -10 -20 30.000		iency Hz)	Reading	(MHz)	300.	oo Limit	_	
-10 -20 30.000 NO.	(MH	iency Hz) 512	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	(dB)	1000.00
10 0 -10 -20 30.000 No.	(MH 35.2	iency Hz) 512	Reading (dBuV) 51.06	Factor (dB/m)	Level (dBuV/m) 27.99	Limit (dBuV/m) 40.00	(dB) -12.01	1000.00 Detector peak
10 -10 -20 30.000 No.	(MH 35.2 40.9	lency Hz) 512 881	Reading (dBuV) 51.06 49.52	Factor (dB/m) -23.07 -22.99	27.99 26.53	Limit (dBuV/m) 40.00 40.00	(dB) -12.01 -13.47	Detector peak peak
10 0 -10 -20 30.000 No. 1 2 3 *	35.2 40.9 66.7	sency Hz) 512 881 325	Reading (dBuV) 51.06 49.52 54.74	Factor (dB/m) -23.07 -22.99 -24.08	27.99 26.53 30.66	Limit (dBuV/m) 40.00 40.00	(dB) -12.01 -13.47 -9.34	Detector peak peak peak

^{*:}Maximum data x:Over limit !:over margin

- 1. Corr. = Antenna Factor (dB/m) + Cable Loss (dB)
 2. QuasiPeak (dBμV/m)= Corr. (dB/m)+ Read Level (dBμV)
- 3. Margin (dB) = QuasiPeak (dB μ V/m)-Limit QPK(dB μ V/m)





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Above 1GHz

Temperature:	26 ℃	Relative Humidity:	54%
Test Voltage:	AC 120V/60Hz	WILLIAM STATE	
Ant. Pol.	Horizontal		1333
Test Mode:	TX 923.3MHz		
Remark:	Only worse case is reported		

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)		Margin (dB)	Detector
1 *	1846.487	51.72	-7.44	44.28	54.00	-9.72	AVG
2	1846.954	62.82	-7.44	55.38	74.00	-18.62	peak

- Corr. = Antenna Factor (dB/m) + Cable Loss (dB)
 Peak/AVG (dBμV/m)= Corr. (dB/m)+ Read Level (dBμV)
- 3. Margin (dB) = Peak/AVG (dB μ V/m)-Limit PK/AVG(dB μ V/m)
- 4. The tests evaluated1-10GHz, The testing has been conformed to the 10th harmonic of the highest fundamental frequency.
- 5. No report for the emission which more than 20dB below the prescribed limit.

		A CONTRACTOR OF THE PARTY OF TH	The state of the s
Temperature:	26℃	Relative Humidity:	54%
Test Voltage:	AC 120V/60Hz		DAG:
Ant. Pol.	Vertical		
Test Mode:	TX 923.3MHz		

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)		Margin (dB)	Detector
1 *	1846.368	52.72	-7.44	45.28	54.00	-8.72	AVG
2	1846.747	63.81	-7.44	56.37	74.00	-17.63	peak

- 1. Corr. = Antenna Factor (dB/m) + Cable Loss (dB)
- 2. Peak/AVG (dBµV/m)= Corr. (dB/m)+ Read Level (dBµV)
- 3. Margin (dB) = Peak/AVG (dB μ V/m)-Limit PK/AVG(dB μ V/m)
- 4. The tests evaluated1-10GHz, The testing has been conformed to the 10th harmonic of the highest fundamental frequency.
- 5. No report for the emission which more than 20dB below the prescribed limit.





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Temperature:	26 ℃	Relative Humidity:	54%
Test Voltage:	AC 120V/60Hz	THE PARTY OF THE P	
Ant. Pol.	Horizontal		11:373
Test Mode:	TX 925.1MHz	O	
Remark:	Only worse case is reported	d. (7(1))))	A VIII

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1 *	1850.758	51.60	-7.40	44.20	54.00	-9.80	AVG
2	1850.855	64.14	-7.40	56.74	74.00	-17.26	peak

- Corr. = Antenna Factor (dB/m) + Cable Loss (dB)
 Peak/AVG (dBμV/m)= Corr. (dB/m)+ Read Level (dBμV)
- 3. Margin (dB) = Peak/AVG (dB μ V/m)-Limit PK/AVG(dB μ V/m)
- 4. The tests evaluated1-10GHz, The testing has been conformed to the 10th harmonic of the highest fundamental frequency.
- 5. No report for the emission which more than 20dB below the prescribed limit.

Temperature:	26℃	Relative Humidity:	54%
Test Voltage:	AC 120V/60Hz	WILLIAM STATE	THU:
Ant. Pol.	Vertical		CIII)
Test Mode:	TX 925.1MHz	7	

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)		Margin (dB)	Detector
1	1850.248	62.48	-7.41	55.07	74.00	-18.93	peak
2 *	1850.366	51.25	-7.41	43.84	54.00	-10.16	AVG

- 1. Corr. = Antenna Factor (dB/m) + Cable Loss (dB)
- 2. Peak/AVG (dBµV/m)= Corr. (dB/m)+ Read Level (dBµV)
- 3. Margin (dB) = Peak/AVG (dB μ V/m)-Limit PK/AVG(dB μ V/m)
- 4. The tests evaluated1-10GHz, The testing has been conformed to the 10th harmonic of the highest fundamental frequency.
- 5. No report for the emission which more than 20dB below the prescribed limit.





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Temperature:	26 ℃	Relative Humidity:	54%
Test Voltage:	AC 120V/60Hz		
Ant. Pol.	Horizontal		
Test Mode:	TX 927.5MHz		
Remark:	Only worse case is reported	d. (1)	A LIVE

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)		Margin (dB)	Detector
1	1855.387	63.78	-7.36	56.42	74.00	-17.58	peak
2 *	1855.476	50.94	-7.36	43.58	54.00	-10.42	AVG

- Corr. = Antenna Factor (dB/m) + Cable Loss (dB)
 Peak/AVG (dBμV/m)= Corr. (dB/m)+ Read Level (dBμV)
- 3. Margin (dB) = Peak/AVG (dB μ V/m)-Limit PK/AVG(dB μ V/m)
- 4. The tests evaluated1-10GHz, The testing has been conformed to the 10th harmonic of the highest fundamental frequency.
- 5. No report for the emission which more than 20dB below the prescribed limit.

Temperature:	26℃	Relative Humidity:	54%
Test Voltage:	AC 120V/60Hz	WILLIAM STATE	THU
Ant. Pol.	Vertical		CILL
Test Mode:	TX 927.5MHz	7	TOP

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)		Margin (dB)	Detector
1 *	1855.247	52.19	-7.37	44.82	54.00	-9.18	AVG
2	1855.871	63.69	-7.36	56.33	74.00	-17.67	peak

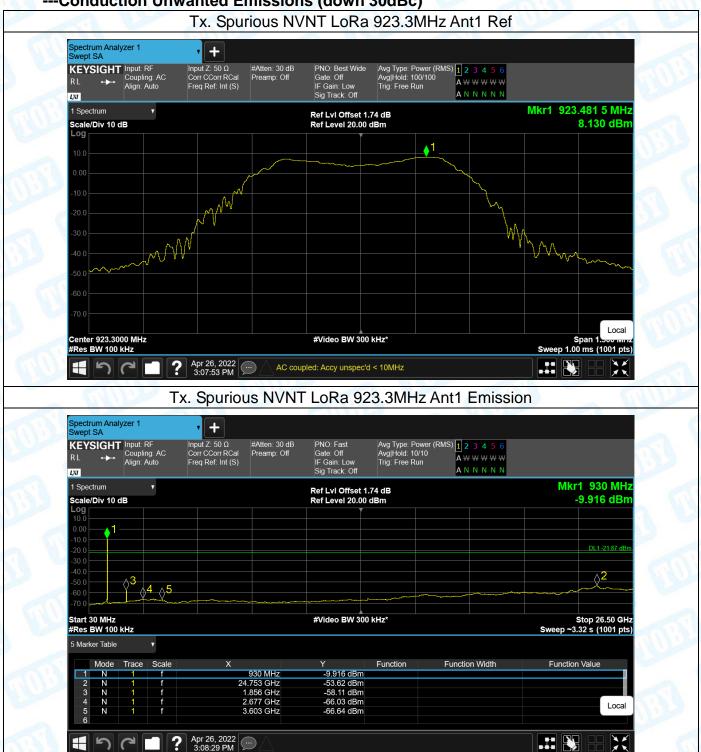
- 1. Corr. = Antenna Factor (dB/m) + Cable Loss (dB)
- 2. Peak/AVG (dBµV/m)= Corr. (dB/m)+ Read Level (dBµV)
- 3. Margin (dB) = Peak/AVG (dB μ V/m)-Limit PK/AVG(dB μ V/m)
- 4. The tests evaluated1-10GHz, The testing has been conformed to the 10th harmonic of the highest fundamental frequency.
- 5. No report for the emission which more than 20dB below the prescribed limit.



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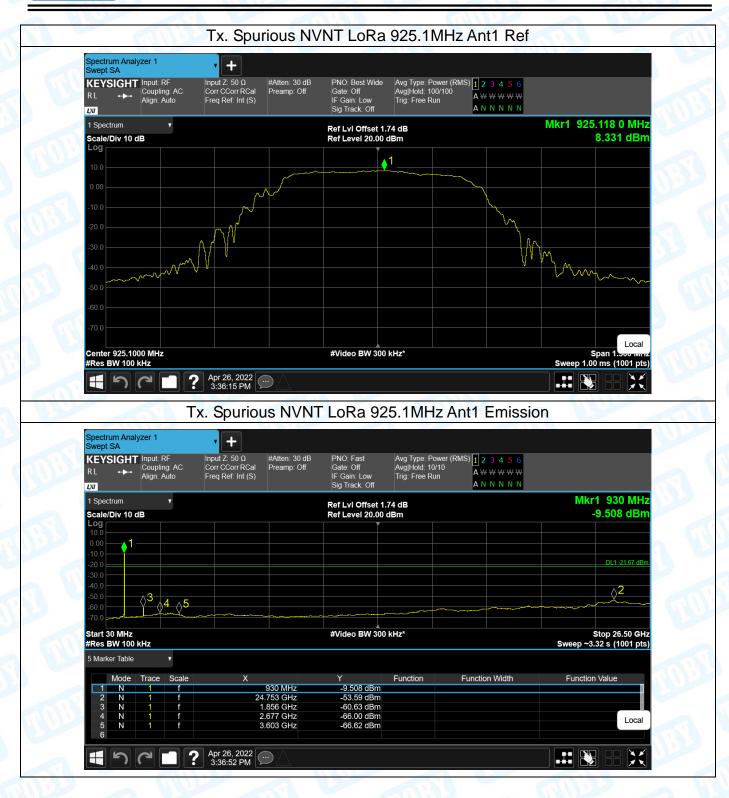
--- Conduction Unwanted Emissions (down 30dBc)







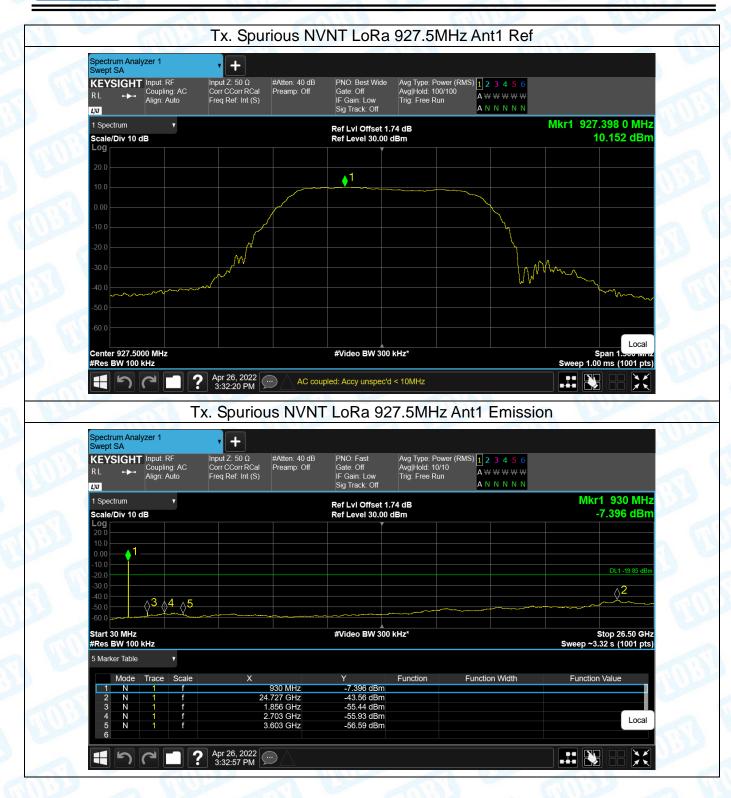
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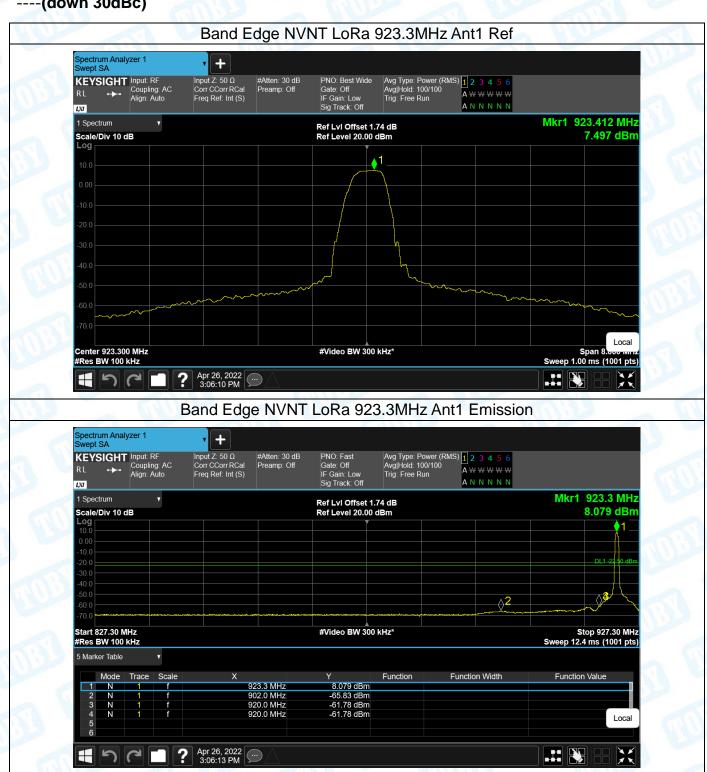


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Attachment C--Emissions In Nonrestricted Frequency Bands Data

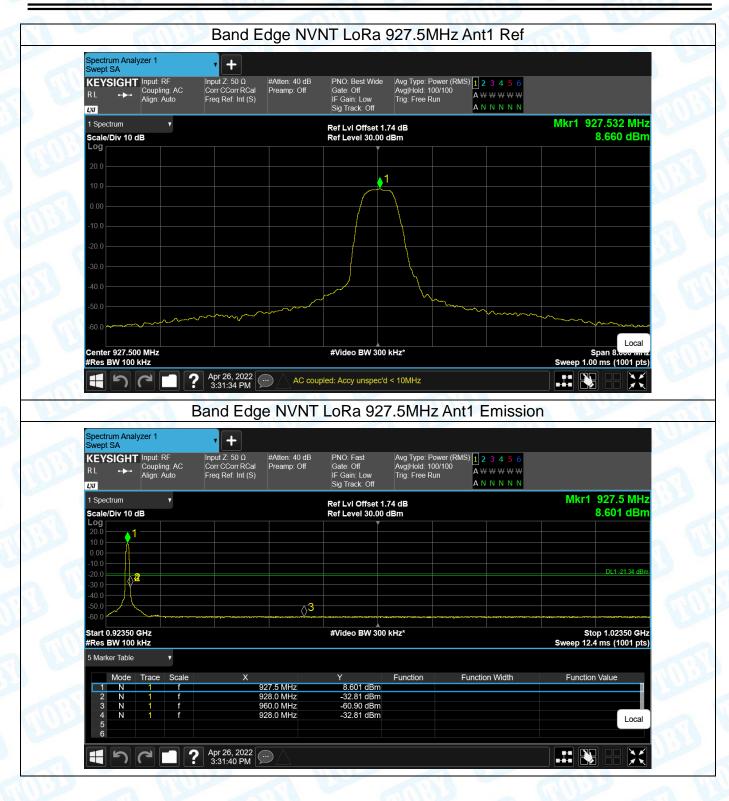
----(down 30dBc)







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Attachment D--Bandwidth Data

Temperature:	25℃		Relative Humidity:	55%
Test Voltage:	DC 5\	V		
Test Mode:	TX M	lode	1373	UDD OF
Channel freque	ency	6dB Baı	ndwidth	Limit
(MHz)		(kl	łz)	(kHz)
923.3		607	7.4	
925.1		600	6.3	>=500
927.5		609	9.1	
		923.3N	1Hz	







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emperature:	25℃	1000		B 10	Relat	ive Humidi	ty:	55%	
est Voltage:	DC 5\	/				Million		F	1830
est Mode:	TX M	ode		610	197		CI	115	
hannel freque	ncy		9	99% Ba	ndwidt	h			Limit
(MHz)				(k	Hz)				(kHz)
923.3				533	3.87				
925.1				533	3.38				/
927.5				519	9.38				
				923.31	VIHz				
Spectrum Analyzer 1 Occupied BW KEYSIGHT Input: RF RL	C Corr C		Atten: 40 dB Preamp: Off	Trig: Free Rur Gate: Off #IF Gain: Low	Avg Hold:				
Coupled BW KEYSIGHT Input: RF RL → Coupling: A Align: Auto 1 Graph Scale/Div 10.0 dB	C Corr C	Z: 50 Ω A CCorr RCal F		Gate: Off	Avg Hold: Radio Std	100/100			
Coupled BW KEYSIGHT RL Align. Auto DU 1 Graph Scale/Div 10.0 dB Log 21.7	C Corr C	Z: 50 Ω A CCorr RCal F		Gate: Off #IF Gain: Low Ref LvI Offse	Avg Hold: Radio Std	100/100			
Cocupled BW KEYSIGHT Input RF R L Align: Auto Coupling: A Align: Auto Scale/Div 10.0 dB Log 217 1.74	C Corr C	Z: 50 Ω A CCorr RCal F		Gate: Off #IF Gain: Low Ref LvI Offse	Avg Hold: Radio Std	100/100			
Cccupied BW KEYSIGHT Input: RF R L → Coupling: A Align: Auto TO 1 Graph Scale/Div 10.0 dB Log 21.7 1.74 8.26 -18.3	C Corr C	Z: 50 Ω A CCorr RCal F		Gate: Off #IF Gain: Low Ref LvI Offse	Avg Hold: Radio Std	100/100 None			
Cocupied BW KEYSIGHT Input RF R L → Coupling: A Align: Auto V Scale/Div 10.0 dB Log 21,7 11,7 1,7 1,7 1,7 1,8 2,8 2,8 3,8 3,8 3,8 3,8 3,8 3,8 3,8 3,8 3,8 3	C Corr C Freq F	Z:50 Q A CCOrr RCal F Ref: Int (S)		Gate: Off #IF Gain: Low Ref LvI Offse	Avg Hold: Radio Std	100/100 None			
Cocupled BW KEYSIGHT Input RF R L → → Coupling. A Align: Auto V Scale/Div 10.0 dB Log 21.7 1.74 -8.26 -18.3 -28.3	C Corr C Freq F	Z: 50 Ω A CCorr RCal F		Gate: Off #IF Gain: Low Ref LvI Offse	Avg Hold: Radio Std	100/100 None	J.,	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	
Cocupled BW KEYSIGHT Input RF R L → Coupling: A Align: Auto TO 1 Graph Scale/Div 10.0 dB Log 21.7 11.7 17.4 8.26 -18.3 -28.3 -38.3 -38.3 -48.3	C Corr C Freq F	Z:50 Q A CCOrr RCal F Ref: Int (S)		Gate: Off #IF Gain: Low Ref LvI Offse	Avg Hold: Radio Std	100/100 None			Span 3 MHz
Cocupled BW KEYSIGHT Input RF RL → Coupling: A Align: Auto V Scale/Div 10.0 dB Log 21.7 1.74 8.26 18.3 -28.3 -38.3 -38.3 Center 923.300 MHz	C Corr C Freq F	Z:50 Q A CCOrr RCal F Ref: Int (S)		Gate Off #IF Gain: Low Ref Lvi Offse Ref Value 31.	Avg Hold: Radio Std	100/100 None			
Cocupled BW KEYSIGHT Input RF R L → Coupling: A Align: Auto Log 21.7 1.74 8.26 -18.3 -28.3 -38.3 -48.3 Center 923.300 MHz #Res BW 30.000 kHz	C Corr Cr	Z: 50 Ω A CCorr RCal F Ref: Int (S)		Gate Off #IF Gain: Low Ref Lvi Offse Ref Value 31.	Avg Hold: Radio Std	100/100 None	J.		
Cecupied BW KEYSIGHT Input: RF R L	C Corr CFreq F	Z:50 Ω A CONTROL PROPERTY OF THE PROPERTY OF T	Preamp. Off	Gate Off #IF Gain: Low Ref Lvi Offse Ref Value 31.	Avg Hold: Radio Std	Total Power		Sweep 3.33	
Cecupied BW KEYSIGHT Input: RF R L	C Corr Creater Freq F	Z:50 Ω A CONTROL PROPERTY OF THE PROPERTY OF T		Gate Off #IF Gain: Low Ref Lvi Offse Ref Value 31.	Avg Hold: Radio Std	100/100 None		Sweep 3.33	





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Attachment E—Peak Output Power Data

Temperature:	25℃	Relative Humid	ity: 55%
Test Voltage:	DC 5V		
Test Mode:	TX Mode		
Channel frequen	cy (MHz)	Test Result (dBm)	Limit (dBm)
923.3		16.13	
925.1		15.53	30
927.5		16.33	



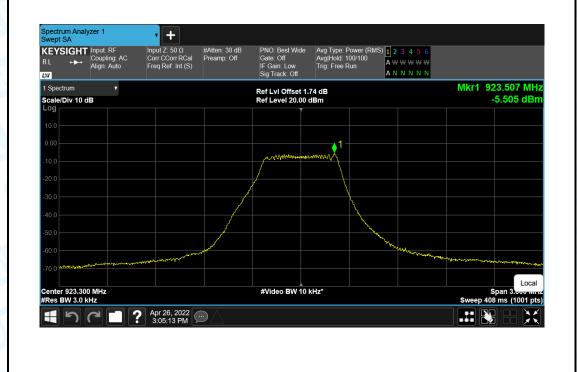


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Attachment F—Power Spectral Density Data

Temperature:	25℃	Relative Humidity: 55%		55%
Test Voltage:	DC 5V			
Test Mode:	TX Mode			Die Co
Channel Frequency		Power Density	Limit	
(MHz)		(dBm/3kHz)	(dBm/3k	Hz)
923.3		-5.505		
925.1		-5.728	8	PASS
927.5		-4.813		

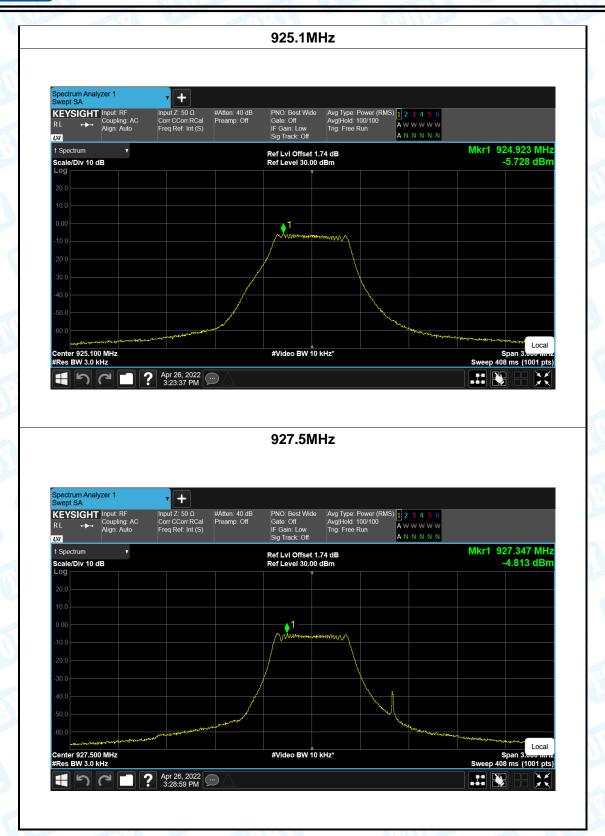
923.3MHz







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----END OF REPORT-----