



TEST REPORT

Report Reference No......: **TZ230704586-WM**

Applicant's name: Aputure Imaging Industries Co., Ltd

Address: F/3, Building 21, Longjun industrial estate, Longhua,
Bao'an, Shenzhen, P.R.China

Manufacturer.....: Aputure Imaging Industries Co., Ltd

Address.....: F/3, Building 21, Longjun industrial estate, Longhua,
Bao'an, Shenzhen, P.R.China

Test item description: **HEOS Digital Wireless 2ch Kit**

Trade Mark: DEITY

Model/Type reference: Deity DBTX Bodypack Transmitter

List Model: N/A

Standard: **Article 2 paragraph 1 item (1)-12-2**

Date of receipt of test sample.....: 2023/7/18

Date of testing.....: 2023/7/18 - 2023/7/27

Date of issue.....: 2023/7/28

Result.....: **PASS**

Compiled by
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Approved by
(position+printed name+signature)...: General Manager Andy Zhang



Testing Laboratory Name: Shenzhen Tongzhou Testing Co.,Ltd.

Address: 1th Floor, Building 1, Haomai High-tech Park, Huating Road 387,
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1. Test Standards and description

1.1. Test Standards

The tests were performed according to following standards:

Regulation: Article 2 paragraph 1 item (1)-12-2

1.2. Test description

Test Item	Result
Vibration test	Pass
Temperature and Damp heat test	Pass
Frequency Error	Pass
99% Occupied bandwidth	Pass
Spurious Emissions Intensity	Pass
Antenna Power	Pass
Maximum Frequency Deviation	Pass
Adjacent channel Leakage Power	Pass

N/A: means not applicable



2. Summary

2.1. Client Information

Applicant:	Aputure Imaging Industries Co., Ltd
Address:	F/3, Building 21, Longjun industrial estate, Longhua, Bao'an, Shenzhen, P.R.China
Manufacturer:	Aputure Imaging Industries Co., Ltd
Address:	F/3, Building 21, Longjun industrial estate, Longhua, Bao'an, Shenzhen, P.R.China
Factory:	Aputure Imaging Industries Co., Ltd
Address:	F/3, Building 21, Longjun industrial estate, Longhua, Bao'an, Shenzhen, P.R.China

2.2. Product Description

Name of EUT:	HEOS Digital Wireless 2ch Kit
Trade Mark:	DEITY
Model/Type reference :	Deity DBTX Bodypack Transmitter
List Model:	N/A
Hardware Version:	V2.1
Software Version:	1.0
Power supply:	DC 3.0V
Adapter information:	N/A
Bluetooth	
Supported type:	V5.0
Modulation:	GFSK
Operation frequency:	2402MHz~2480MHz
Channel number:	40
Channel separation:	2MHz
Antenna type:	Internal Antenna
Antenna gain:	-2.207dBi
SRD	
Frequency Range:	2440MHz
Channel Number:	1 Channel
Modulation Type:	GFSK
Antenna type:	Internal Antenna
Antenna gain:	-2.207dBi
UHF Band	
Frequency Range:	550-713.7MHz
Channel Number:	1638
Modulation Type:	GFSK
Antenna type:	External Antenna
Antenna gain:	1.62 dBi



2.3. Test frequency list

Frequency range (MHz)	Test channel	Test Frequency (MHz)	
		TX	RX
550~713.7	CH _L	550	/
	CH _M	632	/
	CH _H	713.7	/
1, CH _L means Low channel, CH _M means Middle channel, CH _H means High channel 2, TX means trasmiiter mode,RX means receiver mode			

2.4. EUT operation mode

Test mode	Transmitting	Receiving	Digital	Digital
TX	■	/	■	Not support

■: is operation mode.

2.5. EUT configuration

The following peripheral devices and interface cables were connected during the measurement:

- - supplied by the manufacturer
- - supplied by the lab

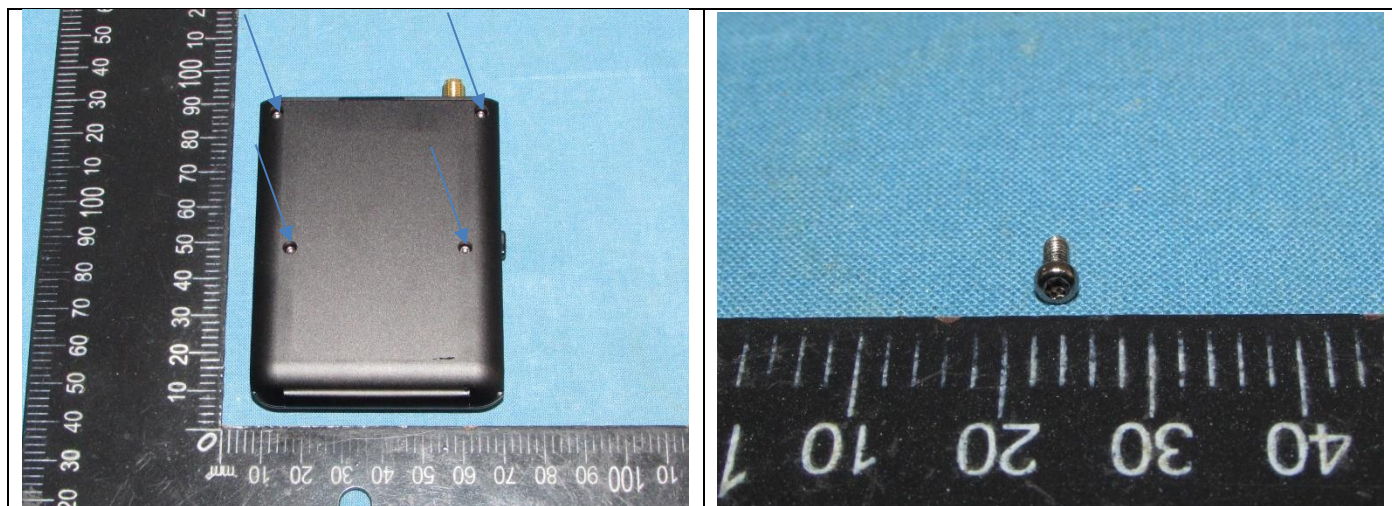
○	PowerCable	Length (m) :	/
		Shield :	/
		Detachable :	/
○	Multimeter	Manufacturer :	/
		Model No. :	/

2.6. Modifications

No modifications were implemented to meet testing criteria.

2.7. Protective Structure

The exterior cover was sealed by Special screws, it can not be easily open.



3. Test Environment

3.1. Address of the test laboratory

Shenzhen Tongzhou Testing Co.,Ltd..

1th Floor, Building 1, Haomai High-tech Park, Huating Road 387, Dalang Street, Longhua, Shenzhen, China

The sites are constructed in conformance with the requirements of ANSI C63.7, ANSI C63.4 (2014) and CISPR Publication 22.



3.2. Statement of the measurement uncertainty

The data and results referenced in this document are true and accurate. The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities. The measurement uncertainty was calculated for all measurements listed in this test report acc. to CISPR 16 - 4 „Specification for radio disturbance and immunity measuring apparatus and methods – Part 4: Uncertainty in EMC Measurements“ and is documented in the Shenzhen Tongzhou Testing Co.,Ltd. quality system acc. to DIN EN ISO/IEC 17025. Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.

Hereafter the best measurement capability for Shenzhen Tongzhou Testing Co.,Ltd. is reported:

Test Items	Measurement Uncertainty	Notes
Frequency error & Occupied bandwidth	25 Hz	(1)
Total RF power, conducted	1.60 dB	(1)
Spurious emissions, conducted	1.60 dB	(1)
Adjacent and alternate channel power Conducted	0.98 dB	(1)

- (1) This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of $k=1.96$.



3.3. Equipments Used during the Test

Test Equipment							
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Cal. Agency	Latest Cal.	Next Cal.
1	MXA Signal Analyzer	Keysight	N9020A	MY52091623	CCICTEST	2022-12-28	2023-12-27
2	EMI Test Receiver	R&S	ESCI	100849/003	CCICTEST	2022-12-28	2023-12-27
3	DC power supply	Chroma	RXN-305D	62012PD02811	CCICTEST	2022-12-28	2023-12-27
4	Power Meter	Agilent	NRVD	835843/014	CCICTEST	2022-12-28	2023-12-27
5	Wideband Radio Communication Tester	R&S	CMW500	101855	CCICTEST	2022-12-28	2023-12-27
6	Oscilloscope	Tektronix	TDS2024 C	C044925	CCIC	2022-12-28	2023-12-27
7	Horn Antenna	schwarzbeck	BBHA 9120D	01989	LISAI	2022-11-13	2025-11-12
8	Controller	MF	MF7802	N/A	N/A	N/A	N/A
9	Horn Antenna	ETS	3117	00218874	LISAI	2022-11-13	2025-11-12
10	Signal Generator	Keysight	N5182A	MY4620709	CCICTEST	2022-12-28	2023-12-27

Calibration by the calibration agencies listed in the table correspond to paragraph 4 (ii) (c) of Article 24-2 in the Radio Law.



4. Test conditions and Results

4.1. Vibration Test

This test determines the ability of equipment to withstand vibration without resulting in mechanical weakness or degradation in performance.

The EUT, complete with any shock and vibration absorbers with which it is provided, shall be clamped to the vibration table by its normal means of support and in its normal attitude. Provision may be made to reduce or nullify any adverse effect on equipment performance which could be caused by the presence of an electromagnetic field due to the vibration unit.

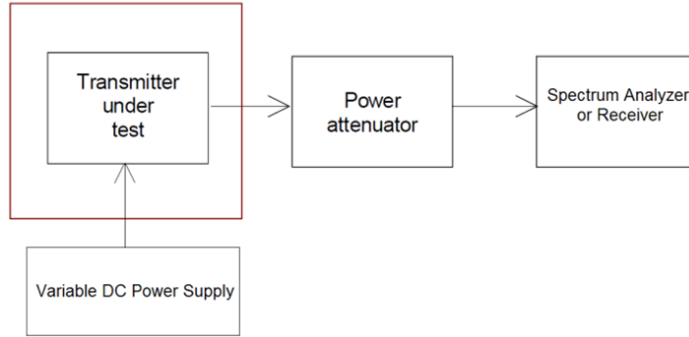
The equipment shall meet the Frequency Error. There shall be no harmful deterioration of the equipment visible.

LIMIT

Frequency Band(MHz)	Frequency Tolerance (ppm)
470 - 714	±20
1240 - 1260	±20

TEST CONFIGURATION

Vibration testing instruments



TEST CONDITION

Continuously transmitting without modulation

TEST RESULTS

☒ **Passed** ☐ **Not Applicable**

Please refer to appendix A on the section 8 appendix report

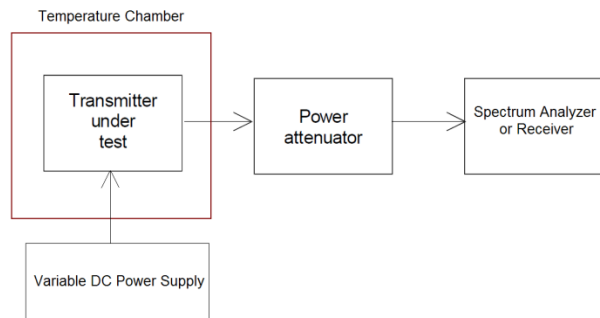


4.2. Temperature and Damp heattest

LIMIT

Frequency Band(MHz)	Frequency Telerance (ppm)
470 - 714	±20
1240 - 1260	±20

TEST CONFIGURATION



TEST CONDITION

Continuously transmitting without modulation

TEST RESULTS

☒ **Passed** ☐ **Not Applicable**

Please refer to appendix B on the section 8 appendix report

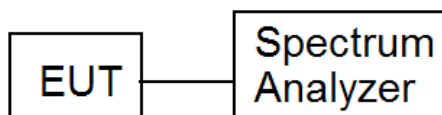


4.3. Frequency Error

LIMIT

Frequency Band(MHz)	Frequency Tolerance (ppm)
470 - 714	± 20
1240 - 1260	± 20

TEST CONFIGURATION



TEST CONDITION

Continuously transmitting without modulation

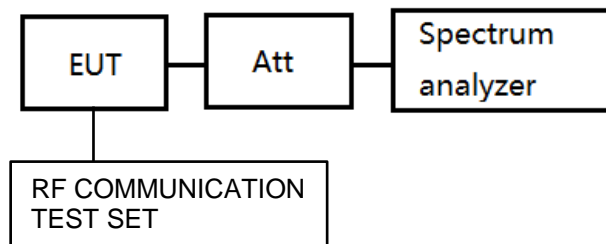
TEST RESULTS

☒ **Passed** ☐ **Not Applicable**

Please refer to appendix C on the section 8 appendix report

**4.4. 99% Occupied bandwidth****LIMIT**

Frequency Band(MHz)	Frequency Tolerance (ppm)
470 - 714	$\leq 288\text{kHz}$
1240 – 1260	$\leq 288\text{kHz}$
1240 – 1260/ Occupied bandwidth > 288kHz	$\leq 600\text{kHz}$

TEST CONFIGURATION**TEST CONDITION**

Test diffusion code and modulate with standard coding test signal

SPECTRUM SET:

Test Frequency: test channel,

RBW=VBW=15kHz, Span=1.5MHz, Sweep time=Auto, Detector mode=Sample

TEST RESULTS

☒ **Passed** ☐ **Not Applicable**

Please refer to appendix D on the section 8 appendix report

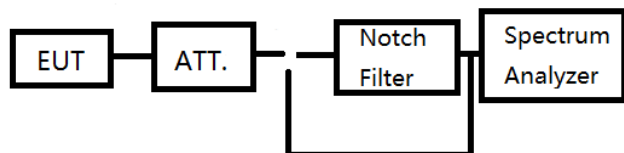


4.5. Spurious emission intensity

LIMIT

$\leq 2.5 \mu\text{W}(-26\text{dBm})$

TEST CONFIGURATION



TEST CONDITION

Test diffusion code and modulate with standard coding test signal

SPECTRUM SET:

Frequency band in the spurious domain	Reference bandwidth
30 MHz - 1 GHz	100 kHz
1 GHz – 12.75 GHz	1 MHz

Spurious domain setup:

Test Frequency: test channel,

Sweep time=Auto, Detector mode=Positive peak

TEST RESULTS

☒ **Passed** ☐ **Not Applicable**

Please refer to appendix E on the section 8 appendix report



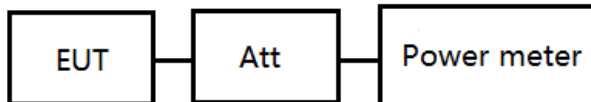
4.6. Antenna Power

LIMIT

Frequency Band(MHz)	Rating output power
470 - 714	<50mW
1240 - 1260	<50mW

Rating output power tolerance: -50% ~ 20%

TEST CONFIGURATION



TEST CONDITION

Without modulation

TEST RESULTS

☒ **Passed** ☐ **Not Applicable**

Please refer to appendix F on the section 8 appendix report

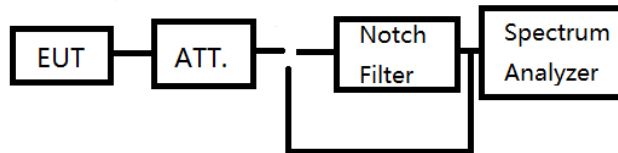


4.7. Adjacent channel Leakage Power

LIMIT

≤ -40 dBC

TEST CONFIGURATION



TEST CONDITION

Test diffusion code and modulate with standard coding test signal

SPECTRUM SET:

Set to adjacent channel mode

Cent Frequency: test channel,

Sweep time=Auto, Detector mode=Positive peak

Sweep time=Auto, Span=enough to cover the adjacent channel

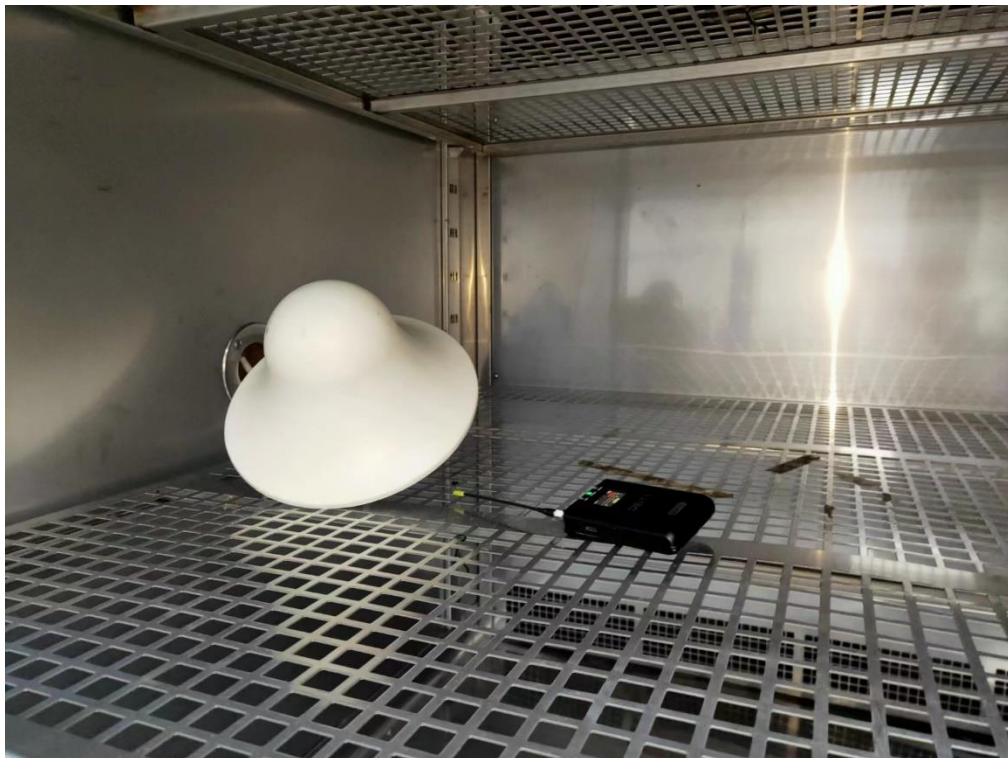
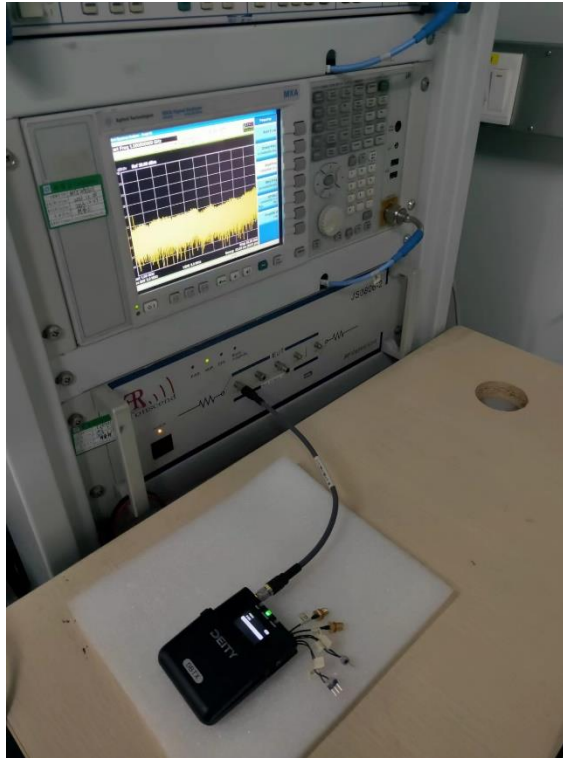
Decleared bandwitdh	Spacing from Cent Frequency	Adjacent channel width
$\leq 288\text{kHz}$	500kHz	288kHz
(288kHz,600kHz)	800kHz	600kHz

TEST RESULTS

☒ Passed ☐ Not Applicable

Please refer to appendix G on the section 8 appendix report

5. Test Setup Photos of the EUT





6. External and Internal Photos of the EUT

Reference to the test report No. TZ230704586-BLE.



7. Appendix Report

Note: V_N : DC 3.0V, V_H : DC 3.3V, V_L : DC 2.7V.

Appendix A: Vibration Test

1mm Vibration Test

Operation Mode	Voltage(V)	Frequency Tolerance(ppm)			Limit(ppm)	Result
		CH _L	CH _M	CH _H		
TX	V_N	7.179	8.234	8.016	±20	PASS
TX	V_H	7.739	7.23	6.926		
TX	V_L	6.202	8.465	6.271		

3mm Vibration Test

Operation Mode	Voltage(V)	Frequency Tolerance(ppm)			Limit(ppm)	Result
		CH _L	CH _M	CH _H		
TX	V_N	6.576	7.105	6.165	±20	PASS
TX	V_H	7.692	8.187	7.747		
TX	V_L	5.568	7.179	7.768		

Appendix B: Temperature and Damp heattest(@Temperature)

Operation Mode	Test conditions		Frequency Tolerance(ppm)			Limit(ppm)	Result
	Temp.(°C)	Voltage(V)	CH _L	CH _M	CH _H		
TX	-10	V_N	7.343	7.102	7.447	±20	PASS
	-20	V_N	7.191	8.32	6.81		
	40	V_N	6.071	6.154	8.971		

Appendix B: Temperature and Damp heattest(&Damp heattest)

Operation Mode	Test conditions			Frequency Tolerance(ppm)			Limit (ppm)	Result
	Humidity(%)	Temp.	Voltage(V)	CH _L	CH _M	CH _H		
TX	95	35	V_N	8.241	7.833	7.305	±20	PASS

**Appendix C: Frequency Error**

Operation Mode	Voltage(V)	Frequency Tolerance(ppm)			Limit(ppm)	Result
		CH _L	CH _M	CH _H		
TX	V _N	6.004	8.474	8.3	±20	PASS
TX	V _H	7.642	7.539	7.468		
TX	V _L	5.543	7.256	7.82		

Appendix D: Occupy Bandwidth (99%)

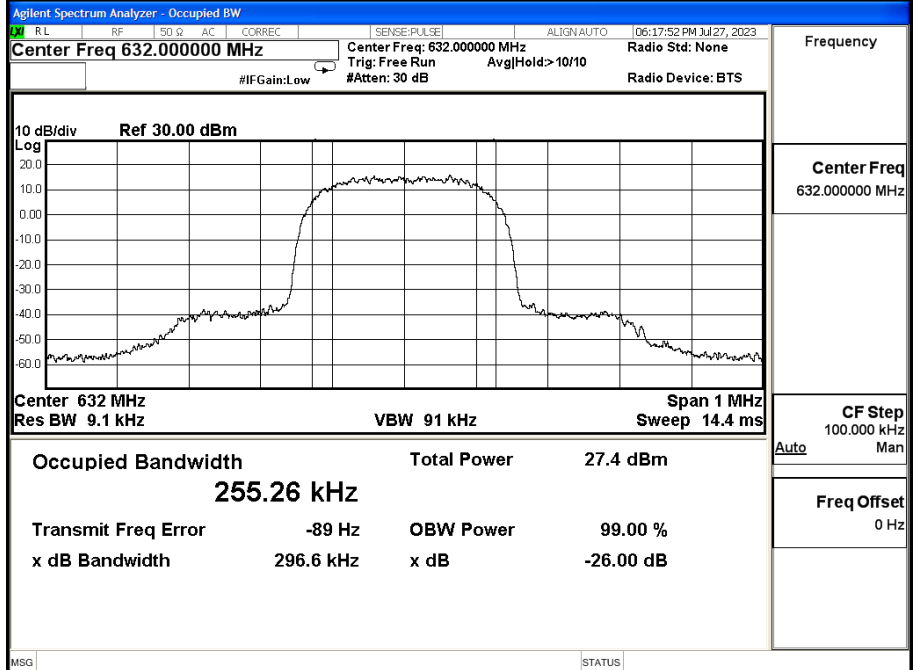
Operation Mode	Test Channel	99% Occupied Bandwidth(kHz)	99% Limit(kHz)	Result
TX	CH _L	255.35	≤288	PASS
TX	CH _M	255.26	≤288	PASS
TX	CH _H	255.54	≤288	PASS

Appendix D: Occupy Bandwidth (99%)

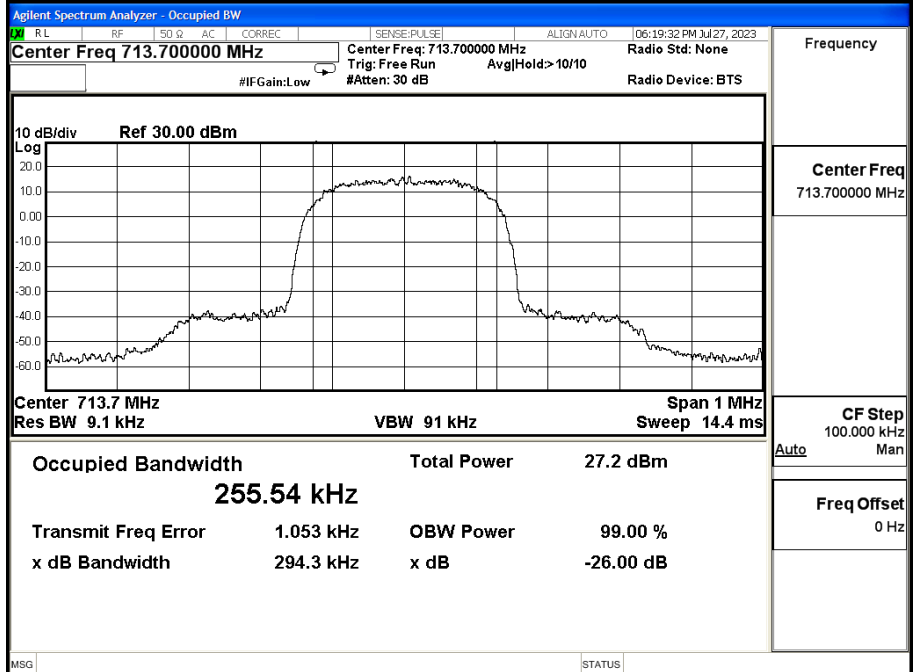
Test Mode	Test Channel	TEST PLOT RESULT
TX	CH _L	<div><p>Agilent Spectrum Analyzer - Occupied BW</p><p>Center Freq 550.000000 MHz Center Freq: 550.000000 MHz Radio Std: None Trace/Detector</p><p>Trig: Free Run Avg/Hold: > 10/10 Radio Device: BTS</p><p>#IF Gain: Low #Atten: 30 dB</p><p>10 dB/div Ref 30.00 dBm</p><p>Log</p><p>Center 550 MHz Span 1 MHz</p><p>Res BW 9.1 kHz VBW 91 kHz Sweep 14.4 ms</p><p>Occupied Bandwidth Total Power 28.1 dBm</p><p>255.35 kHz</p><p>Transmit Freq Error 147 Hz OBW Power 99.00 %</p><p>x dB Bandwidth 296.5 kHz x dB -26.00 dB</p></div>

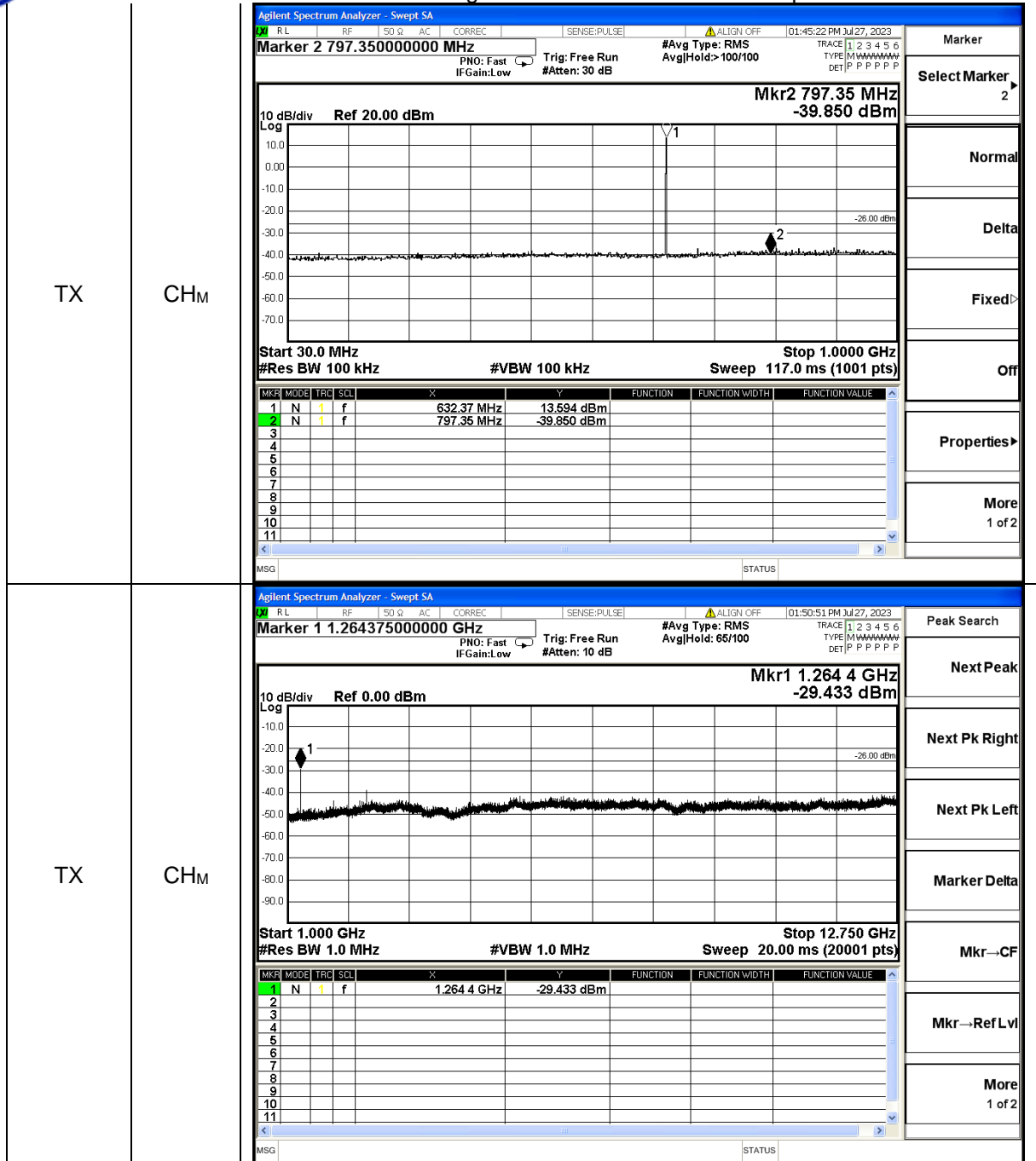


TX

CH_M

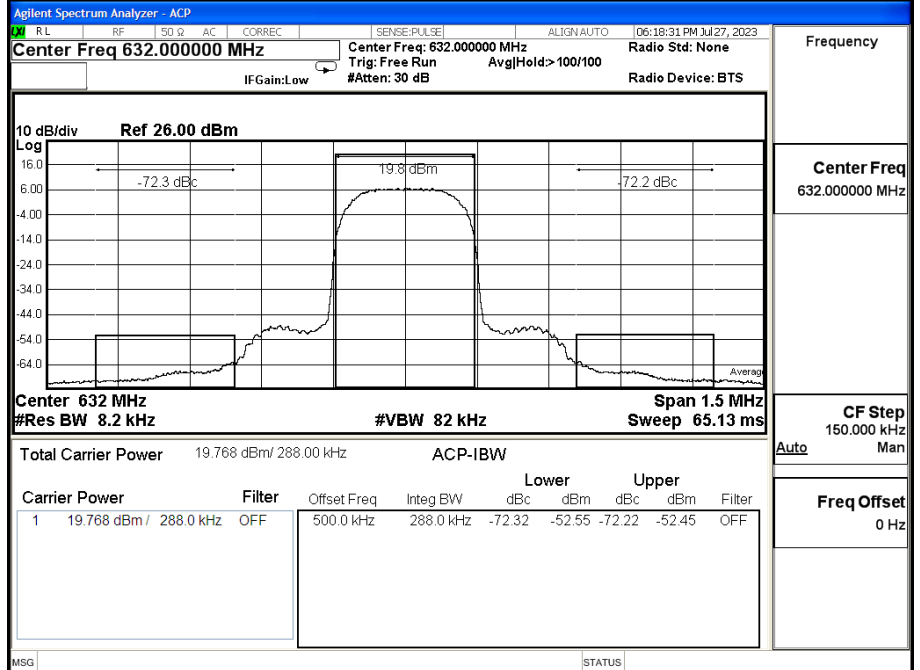
TX

CH_H

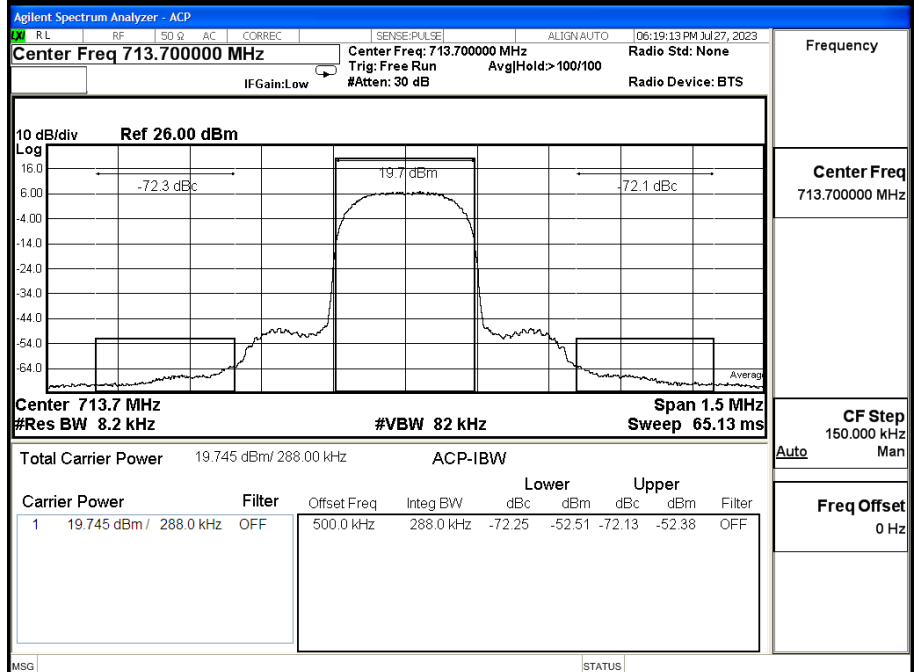




TX

CH_H

TX

CH_H

.....End of Report.....