

FCC Test Report

Report No.: AGC01518201101FE03

FCC ID : 2ASWH-NC2

APPLICATION PURPOSE : Original Equipment

PRODUCT DESIGNATION: TWS ANC Earbuds

BRAND NAME : TOZO

MODEL NAME : NC2

APPLICANT: Shenzhen Worgo Technology Limited

DATE OF ISSUE : Nov. 26, 2020

STANDARD(S) : FCC Part 15.247

REPORT VERSION : V1.0

Attestation of Global Compliance (Shenzhen) Co., Ltd

AGC O



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REPORT REVISE RECORD

Report Version	Revise Time	Issued Date	Valid Version	Notes
V1.0	· /	Nov. 26, 2020	Valid	Initial Release

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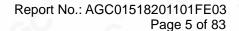
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1. VERIFICATION OF CONFORMITY

Applicant	Shenzhen Worgo Technology Limited		
Address	26th Floor, Building 1, COFCO Innovatino R&D Center, 69 District, Bao'anDistrict, Shenzhen, China		
Manufacturer	Guangdong Transtek Medical Electronics Co., Ltd.		
Address	Zone A No. 105 Dongli Road Torch Development District, Zhongshan City, Guangdong Province, China		
Factory	Guangdong Transtek Medical Electronics Co., Ltd.		
Address	Zone A No. 105 Dongli Road Torch Development District, Zhongshan City, Guangdong Province, China		
Product Designation	TWS ANC Earbuds		
Brand Name	TOZO		
Test Model	NC2		
Date of test	Nov. 16, 2020 to Nov. 25, 2020		
Deviation	No any deviation from the test method		
Condition of Test Sample	Normal		
Test Result	Pass		
Report Template	AGCRT-US-BR/RF		

We hereby certify that:

The above equipment was tested by Attestation of Global Compliance (Shenzhen) Co., Ltd. The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in ANSI C63.10 (2013) and the energy emitted by the sample EUT tested as described in this report is in compliance with radiated emission limits of FCC PART 15.247.

Prepared By	and change	
NGC NG	Cool Cheng (Project Engineer)	Nov. 25, 2020
Reviewed By	Max Zhang	
No Poc	Max Zhang (Reviewer)	Nov. 26, 2020
Approved By	Formerlies	
	Forrest Lei (Authorized Officer)	Nov. 26, 2020

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2. GENERAL INFORMATION

2.1. PRODUCT DESCRIPTION

The EUT is designed as "TWS ANC Earbuds". It is designed by way of utilizing the GFSK, Pi/4 DQPSK and 8DPSK technology to achieve the system operation.

A major technical description of EUT is described as following

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Operation Frequency	2.402 GHz to 2.480 GHz
RF Output Power	9.208dBm (Max)
Bluetooth Version	V5.2
BR ⊠GFSK, EDR ⊠π /4-DQPSK, ⊠8DPSK BLE □GFSK 1Mbps □GFSK 2Mbps	
Number of channels	79
Hardware Version	v1.0
Software Version	V3.0.1.1
Antenna Designation	Ceramic Antenna (Comply with requirements of the FCC part 15.203)
Antenna Gain	1.99dBi
Power Supply	DC 3.7V by battery
NI 4 TI FLIT I 14	A DI F

Note: 1. The EUT doesn't support BLE.

2. The EUT comprises left and right channel headsets, both are the same in SCH but different in the PCB Layout. The RF output power of each headset had been tested and recorded in the report. For the other test items, the right headset had been tested and recorded in this report as the worst case because of the higher power.

2.2. TABLE OF CARRIER FREQUENCYS

Frequency Band	Channel Number	Frequency	
60 6	0	2402 MHz	
	1	2403 MHz	
		10 100	
	38	2440 MHz	
2402~2480MHz	39	2441 MHz	
	40	2442 MHz	
		CO A .	
D. CO	77	2479 MHz	
	78	2480 MHz	

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2.3. RECEIVER INPUT BANDWIDTH

The input bandwidth of the receiver is 1.3MHz, in every connection one Bluetooth device is the master and the other one is slave. The master determines the hopping sequence. The slave follows this sequence. Both devices shift between RX and TX time slot according to the clock of the master. Additionally, the type of connection (e.g. single of multi slot packet) is set up at the beginning of the connection. The master adapts its hopping frequency and its TX/RX timing according to the packet type of the connection. Also, the slave of the connection will use these settings. Repeating of a packet has no influence on the hopping sequence. The hopping sequence generated by the master of the connection will be followed in any case. That means, a repeated packet will not be send on the same frequency, it is send on the next frequency of the hopping sequence.

2.4. EXAMPLE OF A HOPPING SEQUENCY IN DATA MODE

Example of a hopping sequence in data mode:

40, 21, 44, 23, 04, 15, 66, 56, 19, 78, 07, 28, 69, 55,

36, 45, 05, 13, 43, 74, 57, 35, 67, 76, 02, 34, 54, 63,

42, 11, 30, 06, 64, 25, 75, 48, 17, 33, 58, 01, 29, 14,

51, 72, 03, 31, 50, 61, 77, 18, 10, 47, 12, 68, 08, 49,

20, 79, 73, 09, 16, 60, 71, 41, 24, 53, 38, 26, 46, 37,

65, 32, 70, 52, 27, 59, 22, 62, 39

2.5. EQUALLY AVERAGE USE OF FREQUENCIES AND BEHAVIOUR

The generation of the hopping sequence in connection mode depends essentially on two input values:

- 1. LAP/UAP of the master of the connection.
- 2. Internal master clock.

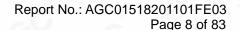
The LAP (lower address part) are the 24 LSB's of the 48 BD_ADDRESS. The BD_ADDRESS is an unambiguous number of every Bluetooth unit. The UAP (upper address part) are the 24MSB's of the 48BD_ADDRESS

The internal clock of a Bluetooth unit is derived from a free running clock which is never adjusted and is never turned off. For behavior action with other units only offset is used. It has no relation to the time of the day. Its resolution is at least half the RX/TX slot length of 312.5us. The clock has a cycle of about one day(23h30). In most case it is implemented as 28 bits counter. For the deriving of the hopping sequence the entire. LAP (24 bits),4LSB's(4bits) (Input 1) and the 27MSB's of the clock (Input 2) are used. With this input values different mathematical procedures (permutations, additions, XOR-operations) are performed to generate the Sequence. This will be done at the beginning of every new transmission.

Regarding short transmissions the Bluetooth system has the following behavior:

The first connection between the two devices is established, a hopping sequence was generated. For Transmitting the wanted data the complete hopping sequence was not used. The connection ended.

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The second connection will be established. A new hopping sequence is generated. Due to the fact the Bluetooth clock has a different value, because the period between the two transmission is longer (and it Cannot be shorter) than the minimum resolution of the clock(312.5us). The hopping sequence will always differ from the first one.

2.6. RELATED SUBMITTAL(S) / GRANT (S)

This submittal(s) (test report) is intended for **FCC ID**: **2ASWH-NC2** filing to comply with the FCC PART 15.247 requirements.

2.7. TEST METHODOLOGY

Both conducted and radiated testing was performed according to the procedures in ANSI C63.10 (2013). Radiated testing was performed at an antenna to EUT distance 3 meters.

2.8. SPECIAL ACCESSORIES

Refer to section 5.2.

2.9. EQUIPMENT MODIFICATIONS

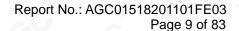
Not available for this EUT intended for grant.

2.10. ANTENNA REQUIREMENT

This intentional radiator is designed with a permanently attached antenna of an antenna to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

For more information of the antenna, please refer to the APPENDIX B: PHOTOGRAPHS OF EUT.

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3. MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement y ±U, 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%.

- Uncertainty of Conducted Emission, Uc = ±3.1 dB
- Uncertainty of Radiated Emission below 1GHz, Uc = ±4.0 dB
- Uncertainty of Radiated Emission above 1GHz, Uc = ±4.8 dB
- Uncertainty of total RF power, conducted, Uc = ±0.8dB
- Uncertainty of spurious emissions, conducted, Uc = ±2.7dB
- Uncertainty of Occupied Channel Bandwidth: Uc = ±2 %
- Uncertainty of Dwell Time: Uc = ±2 %
- Uncertainty of Frequency: Uc = ±2 %

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/Inspection The test results

the test report.



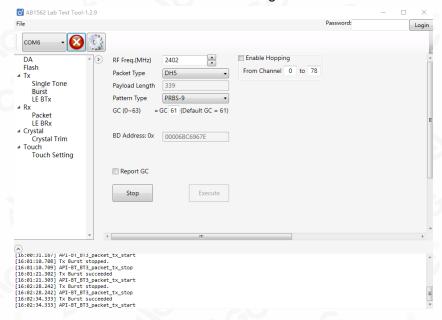
4. DESCRIPTION OF TEST MODES

NO.	TEST MODE DESCRIPTION
1	Low channel GFSK
2	Middle channel GFSK
3	High channel GFSK
4	Low channel π/4-DQPSK
5	Middle channel π/4-DQPSK
6	High channel π/4-DQPSK
· 7	Low channel 8DPSK
8	Middle channel 8DPSK
9	High channel 8DPSK
10	Hopping mode GFSK
11	Hopping mode π/4-DQPSK
12	Hopping mode 8DPSK

Note:

- 1. Only the result of the worst case was recorded in the report, if no other cases.
- 2. For Radiated Emission, 3axis were chosen for testing for each applicable mode.
- 3. For Conducted Test method, a temporary antenna connector is provided by the manufacture.

Software Setting



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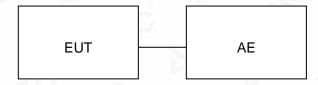
5. SYSTEM TEST CONFIGURATION

5.1. CONFIGURATION OF EUT SYSTEM

Radiated Emission Configure:



Conducted Emission Configure:



5.2. EQUIPMENT USED IN TESTED SYSTEM

Item	Equipment	Model No.	ID or Specification	Remark
1	TWS ANC Earbuds	NC2	2ASWH-NC2	EUT
2	2 Control Box N/A		USB-TTL	AE
3	Charger line N/A		0.26m unshielded	Accessory

5.3. SUMMARY OF TEST RESULTS

FCC RULES	DESCRIPTION OF TEST	RESULT
15.247 (b)(1) Peak Output Power		Compliant
15.247 (a)(1)	20 dB Bandwidth	Compliant
15.247 (d)	15.247 (d) Conducted Spurious Emission	
15.209	15.209 Radiated Emission	
15.247 (a)(1)(iii)	Number of Hopping Frequency	Compliant
15.247 (a)(1)(iii)	Time of Occupancy	Compliant
15.247 (a)(1) Frequency Separation		Compliant
15.207	Conducted Emission	Not applicable

Note: The BT function cannot transmit when charging.

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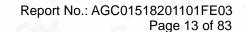
6. TEST FACILITY

Test Site	Attestation of Global Compliance (Shenzhen) Co., Ltd		
Location	1-2/F, Building 19, Junfeng Industrial Park, Chongqing Road, Heping Community, Fuhai Street, Bao'an District, Shenzhen, Guangdong, China		
Designation Number	CN1259		
FCC Test Firm Registration Number	975832		
A2LA Cert. No.	5054.02		
Description Attestation of Global Compliance (Shenzhen) Co., Ltd is accredited by A2LA			

TEST EQUIPMENT OF RADIATED EMISSION TEST

Equipment	Manufacturer	Model	S/N	Cal. Date	Cal. Due
TEST RECEIVER	R&S	ESCI	10096	May 15, 2020	May 14, 2021
EXA Signal Analyzer	Aglient	N9010A	MY53470504	Dec. 12, 2019	Dec. 11, 2020
2.4GHz Filter	EM Electronics	2400-2500MHz	N/A	Mar. 23, 2020	Mar. 22, 2022
Attenuator	ZHINAN	E-002	N/A	Sep. 03, 2020	Sep. 02, 2022
Horn antenna	SCHWARZBECK	BBHA 9170	#768	Sep. 21, 2019	Sep. 20, 2021
Active loop antenna (9K-30MHz)	ZHINAN	ZN30900C	18051	May 22, 2020	May 21, 2022
Double-Ridged Waveguide Horn	ETS LINDGREN	3117	00034609	May 17, 2019	May 16, 2021
Broadband Preamplifier	ETS LINDGREN	3117PA	00225134	Sep. 03, 2020	Sep. 02, 2022
ANTENNA	SCHWARZBECK	VULB9168	494	Jan. 09, 2019	Jan. 08, 2021
Test software	Tonscend	JS32-RE (Ver.2.5)	N/A	N/A	N/A

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7. PEAK OUTPUT POWER

7.1. MEASUREMENT PROCEDURE

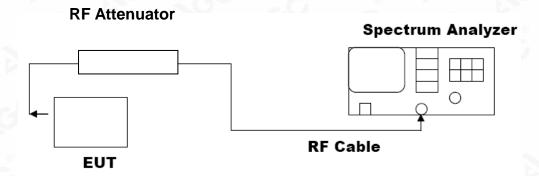
For peak power test:

- 1. Connect EUT RF output port to the Spectrum Analyzer through an RF attenuator
- 2. Span: Approximately five times the 20 dB bandwidth, centered on a hopping channel.
- 3. RBW > 20 dB bandwidth of the emission being measured.
- 4. VBW ≥RBW.
- 5. Sweep: Auto.
- 6. Detector function: Peak.
- 7. Trace: Max hold.

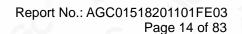
Allow trace to stabilize. Use the marker-to-peak function to set the marker to the peak of the emission. The indicated level is the peak output power, after any corrections for external attenuators and cables.

7.2. TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION)

PEAK POWER TEST SETUP



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7.3. LIMITS AND MEASUREMENT RESULT

PEAK OUTPUT POWER MEASUREMENT RESULT FOR GFSK MOUDULATION			
2.402	8.807	21	Pass
2.441	8.982	21	Pass
2.480	9.192	21	Pass

CH₀



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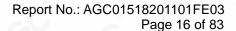
CH39



CH78



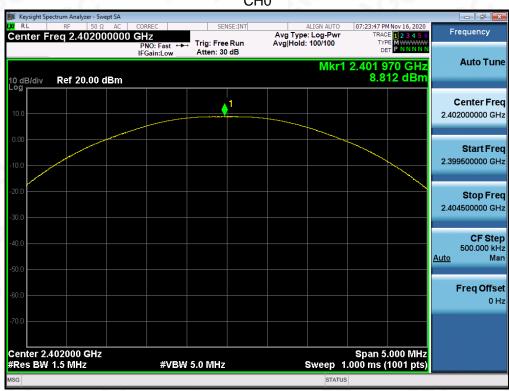
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PEAK OUTPUT POWER MEASUREMENT RESULT				
	FOR Π/4-DQPSK MODULATION			
Frequency (GHz)	Peak Power (dBm)	Applicable Limits (dBm) Pass or F	Pass or Fail	
2.402	8.812	21	Pass	
2.441	8.994	21	Pass	
2.480	9.205	21	Pass	

CH₀



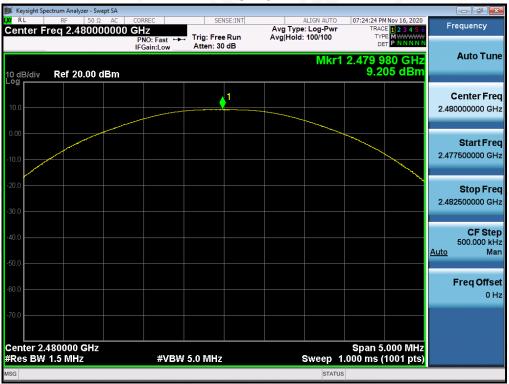
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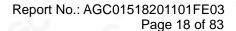
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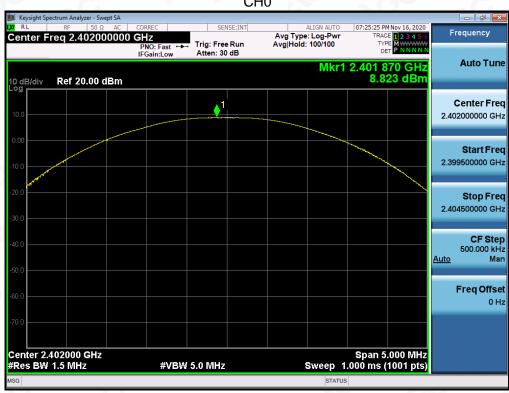
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PEAK OUTPUT POWER MEASUREMENT RESULT				
	FOR 8-DPSK MODULATION			
Frequency (GHz)	Peak Power (dBm)	Applicable Limits (dBm)	Pass or Fail	
2.402	8.823	21	Pass	
2.441	9.004	21	Pass	
2.480	9.208	21	Pass	

CH₀



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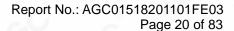
CH39



CH78



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he test results the test report.



Left:

PEAK OUTPUT POWER MEASUREMENT RESULT FOR GFSK MOUDULATION			
2.402	5.578	21	Pass
2.441	6.132	21	Pass
2.480	6.405	21	Pass

CH₀



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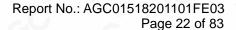
CH39



CH78



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PEAK OUTPUT POWER MEASUREMENT RESULT FOR Π/4-DQPSK MODULATION Frequency **Peak Power Applicable Limits** Pass or Fail (dBm) (GHz) (dBm) 5.607 2.402 21 **Pass** 2.441 6.144 21 **Pass** 21 6.423 2.480 Pass

CH₀



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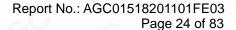
CH39



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PEAK OUTPUT POWER MEASUREMENT RESULT **FOR 8-DPSK MODULATION** Frequency **Peak Power Applicable Limits** Pass or Fail (dBm) (GHz) (dBm) 5.587 2.402 21 **Pass** 2.441 6.155 21 **Pass** 21 6.429 2.480 Pass

CH₀



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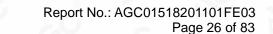
CH39



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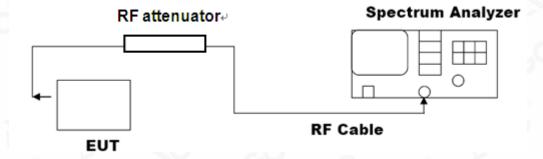


8. 20DB BANDWIDTH

8.1. MEASUREMENT PROCEDURE

- 1. Connect EUT RF output port to the Spectrum Analyzer through an RF attenuator
- 2, Set the EUT Work on the top, the middle and the bottom operation frequency individually.
- 3. Set Span = approximately 2 to 5 times the 20 dB bandwidth, centered on a hoping channel
 The nominal IF filter bandwidth (3 dB RBW) shall be in the range of 1% to 5% of the OBW and video
 bandwidth (VBW) shall be approximately three times RBW; Sweep = auto; Detector function = peak
- 4. Set SPA Trace 1 Max hold, then View.

8.2. TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION)



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8.3. LIMITS AND MEASUREMENT RESULTS

MEASUREMENT RESULT FOR GFSK MOUDULATION			
Applicable Limits	Measurement Result		
	Test Data	(MHz)	Criteria
N/A	Low Channel	0.967	PASS
	Middle Channel	0.965	PASS
	High Channel	0.966	PASS

TEST PLOT OF BANDWIDTH FOR LOW CHANNEL



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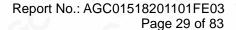
TEST PLOT OF BANDWIDTH FOR MIDDLE CHANNEL



TEST PLOT OF BANDWIDTH FOR HIGH CHANNEL



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 MEASUREMENT RESULT FOR [I] /4-DQPSK MODULATION

 Measurement Result

 Test Data (MHz)
 Criteria

 Low Channel
 1.234
 PASS

 Middle Channel
 1.236
 PASS

 High Channel
 1.237
 PASS

TEST PLOT OF BANDWIDTH FOR LOW CHANNEL



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TEST PLOT OF BANDWIDTH FOR MIDDLE CHANNEL



TEST PLOT OF BANDWIDTH FOR HIGH CHANNEL



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MEASUREMENT RESULT FOR 8-DPSK MODULATION				
Applicable Limits		Measurement Result		
	Test Data	(MHz)	Criteria	
	Low Channel	1.280	PASS	
N/A	Middle Channel	1.284	PASS	
	High Channel	1.278	PASS	

TEST PLOT OF BANDWIDTH FOR LOW CHANNEL



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TEST PLOT OF BANDWIDTH FOR MIDDLE CHANNEL



TEST PLOT OF BANDWIDTH FOR HIGH CHANNEL



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Report No.: AGC01518201101FE03

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9. CONDUCTED SPURIOUS EMISSION

9.1. MEASUREMENT PROCEDURE

- 1. Connect EUT RF output port to the Spectrum Analyzer through an RF attenuator
- 2. Set the EUT Work on the top, the Middle and the bottom operation frequency individually.
- 3. Set the Span = wide enough to capture the peak level of the in-band emission and all spurious emissions from the lowest frequency generated in the EUT up through the 10th harmonic.
 - RBW = 100 kHz; VBW= 300 kHz; Sweep = auto; Detector function = peak.
- 4. Set SPA Trace 1 Max hold, then View.

9.2. TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION)

The same as described in section 8.2

9.3. MEASUREMENT EQUIPMENT USED

The same as described in section 6

9.4. LIMITS AND MEASUREMENT RESULT

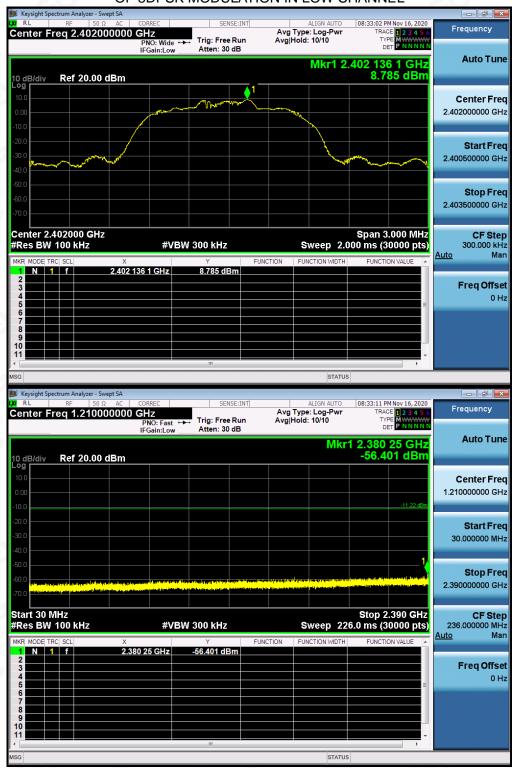
LIMITS AND MEASUREMENT RESULT			
Applicable Limite	Measurement Result		
Applicable Limits	Test Data	Criteria	
In any 100 kHz Bandwidth Outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency	At least -20dBc than the limit Specified on the BOTTOM Channel	PASS	
power that is produce by the intentional radiator shall be at least 20 dB below that in 100KHz bandwidth within the band that contains the highest level of the desired power. In addition, radiation 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))	At least -20dBc than the limit Specified on the TOP Channel	PASS	

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TEST RESULT FOR ENTIRE FREQUENCY RANGE

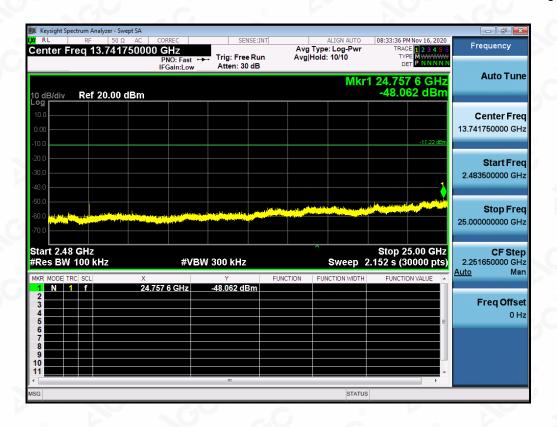
TEST PLOT OF OUT OF BAND EMISSIONS WITH THE WORST CASE OF 8DPSK MODULATION IN LOW CHANNEL



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g/Inspection
The test results
the test report.

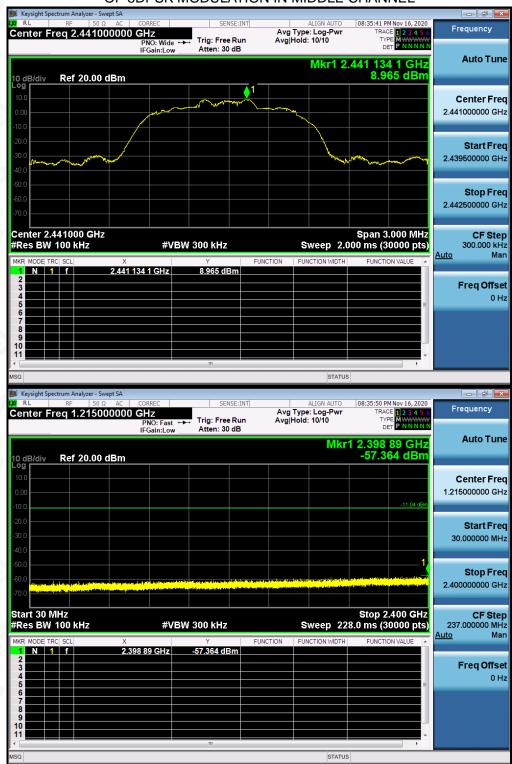




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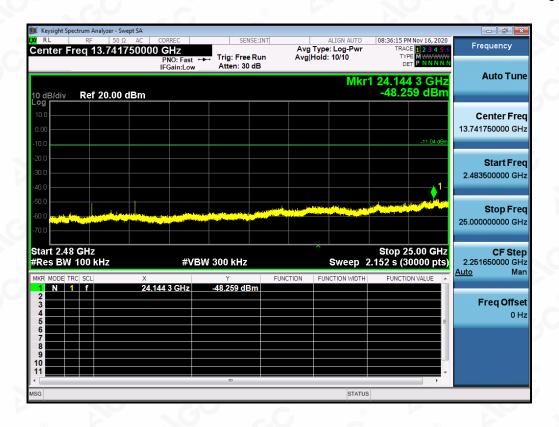
TEST PLOT OF OUT OF BAND EMISSIONS OF 8DPSK MODULATION IN MIDDLE CHANNEL



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g/Inspection
The test results
If the test report.

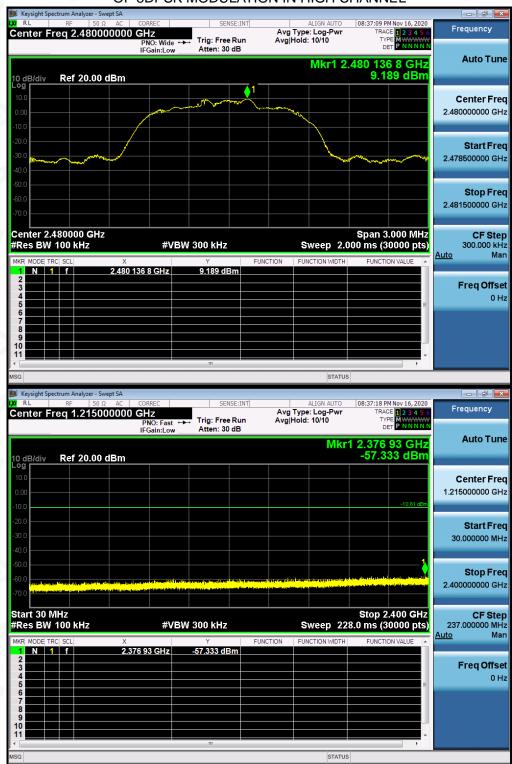




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TEST PLOT OF OUT OF BAND EMISSIONS OF 8DPSK MODULATION IN HIGH CHANNEL



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Note: The 8DPSK modulation is the worst case and only those data recorded in the report.

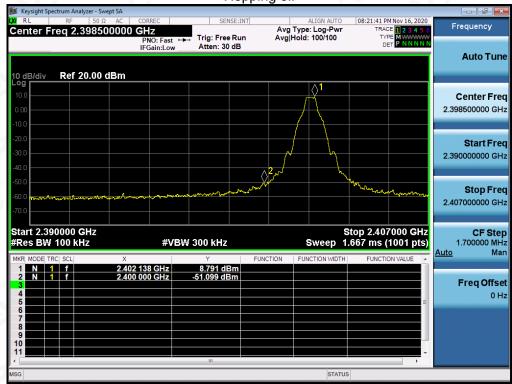
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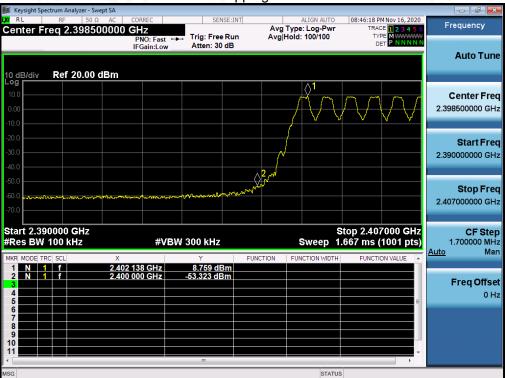
TEST RESULT FOR BAND EDGE

GFSK MODULATION IN LOW CHANNEL

Hopping off



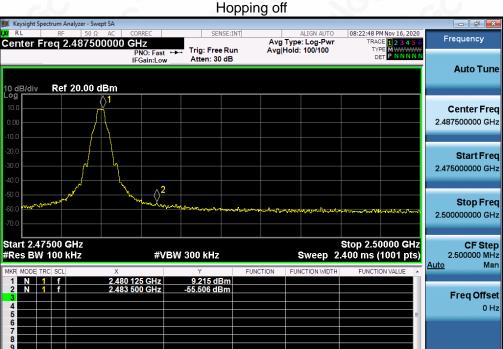




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GFSK MODULATION IN HIGH CHANNEL



M RL RF 50 Ω AC Center Freq 2.487500000 GHz PNO: Fast → IFGain:Low Frequency Avg Type: Log-Pwr Avg|Hold: 100/100 **Auto Tune** Ref 20.00 dBm Center Freq 2.487500000 GHz Start Fred 2.475000000 GHz Stop Freq 2.500000000 GHz Stop 2.50000 GHz Sweep 2.400 ms (1001 pts) Start 2.47500 GHz #Res BW 100 kHz **CF Step** 2.500000 MHz #VBW 300 kHz <u>Auto</u> 9.269 dBm -58.114 dBm **Freq Offset**

Hopping on

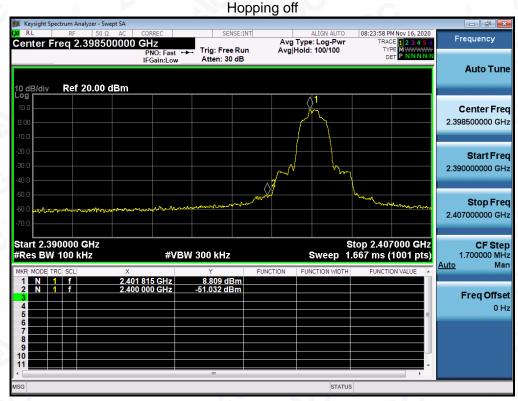
STATUS

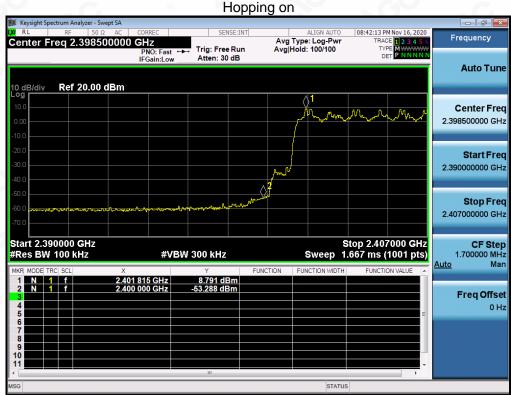
STATUS

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π /4-DQPSK MODULATION IN LOW CHANNEL

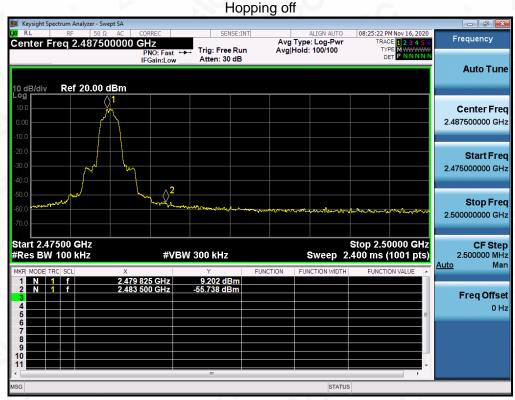


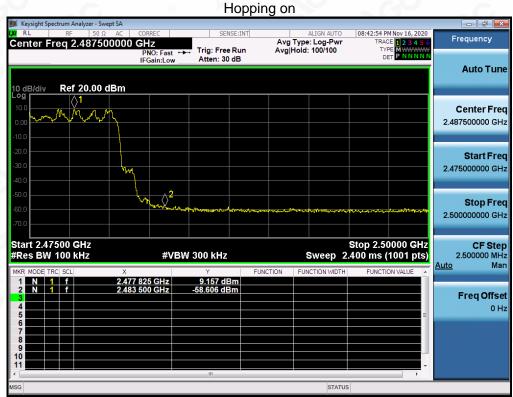


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π /4-DQPSK MODULATION IN HIGH CHANNEL

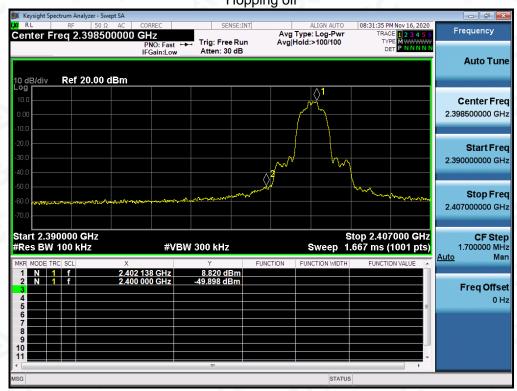


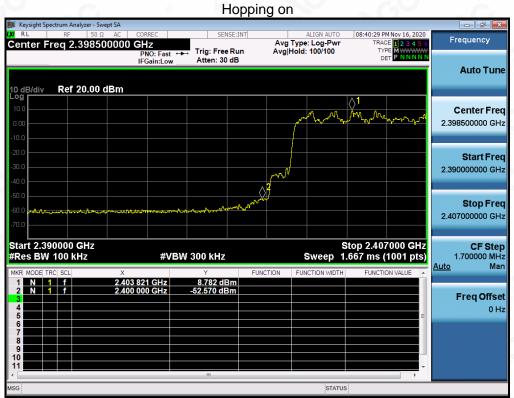


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8-DPSK MODULATION IN LOW CHANNEL Hopping off

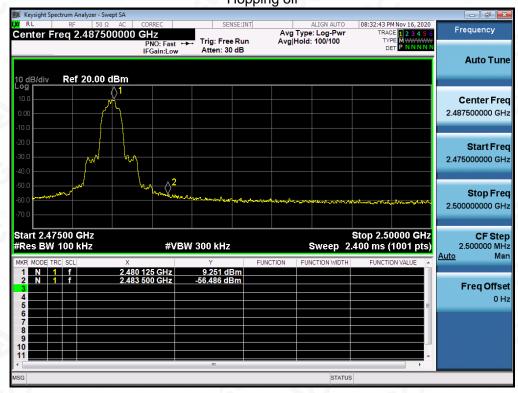


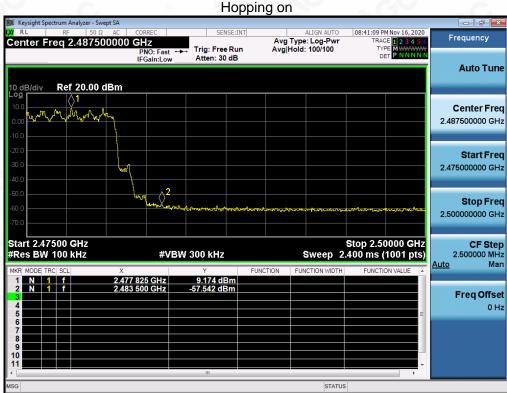


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8-DPSK MODULATION IN HIGH CHANNEL Hopping off





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10. RADIATED EMISSION

10.1. MEASUREMENT PROCEDURE

- 1. The EUT was placed on the top of the turntable 0.8 or 1.5 meter above ground. The phase center of the receiving antenna mounted on the top of a height-variable antenna tower was placed 3 meters far away from the turntable.
- 2. Power on the EUT and all the supporting units. The turntable was rotated by 360 degrees to determine the position of the highest radiation.
- 3. The height of the broadband receiving antenna was varied between one meter and four meters above ground to find the maximum emissions field strength of both horizontal and vertical polarization.
- 4. For each suspected emission, the antenna tower was scan (from 1 M to 4 M) and then the turntable was rotated (from 0 degree to 360 degrees) to find the maximum reading.
- Set the test-receiver system to Peak or CISPR quasi-peak Detect Function with specified bandwidth under Maximum Hold Mode.
- 6. For emissions above 1GHz, use 1MHz RBW and 3MHz VBW for peak reading. Place the measurement antenna away from each area of the EUT determined to be a source of emissions at the specified measurement distance, while keeping the measurement antenna aimed at the source of emissions at each frequency of significant emissions, with polarization oriented for maximum response. The measurement antenna may have to be higher or lower than the EUT, depending on the radiation pattern of the emission and staying aimed at the emission source for receiving the maximum signal. The final measurement antenna elevation shall be that which maximizes the emissions. The measurement antenna elevation for maximum emissions shall be restricted to a range of heights of from 1 m to 4 m above the ground or reference ground plane.
- 7. When the radiated emissions limits are expressed in terms of the average value of the emissions, and pulsed operation is employed, the measurement field strength shall be determined by averaging over one complete pulse train, including blanking intervals, as long as the pulse train does not exceed 0.1 seconds. As an alternative (provided the transmitter operates for longer than 0.1 seconds) or in cases where the pulse train exceeds 0.1 seconds, the measured field strength shall be determined from the average absolute voltage during a 0.1 second interval during which the field strength is at its maximum values.
- 8.If the emissions level of the EUT in peak mode was 3 dB lower than the average limit specified, then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions which do not have 3 dB margin will be repeated one by one using the quasi-peak method for below 1GHz.
- 9. For testing above 1GHz, the emissions level of the EUT in peak mode was lower than average limit (that means the emissions level in peak mode also complies with the limit in average mode), then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions will be measured in average mode again and reported.
- 10. In case the emission is lower than 30MHz, loop antenna has to be used for measurement and the recorded data should be QP measured by receiver. High Low scan is not required in this case.

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The following table is the setting of spectrum analyzer and receiver.

Spectrum Parameter	Setting	
Start ~Stop Frequency	9KHz~150KHz/RB 200Hz for QP	
Start ~Stop Frequency	150KHz~30MHz/RB 9KHz for QP	
Start ~Stop Frequency	30MHz~1000MHz/RB 120KHz for QP	
Start ~Stop Frequency	1GHz~26.5GHz 1MHz/3MHz for Peak, 1MHz/3MHz for Average	

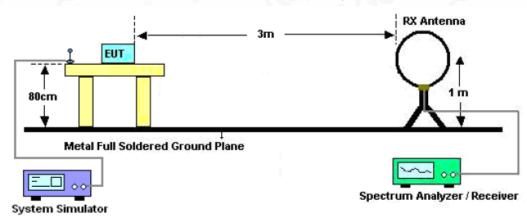
Receiver Parameter	Setting		
Start ~Stop Frequency	9KHz~150KHz/RB 200Hz for QP		
Start ~Stop Frequency	150KHz~30MHz/RB 9KHz for QP		
Start ~Stop Frequency	30MHz~1000MHz/RB 120KHz for QP		

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10.2. TEST SETUP

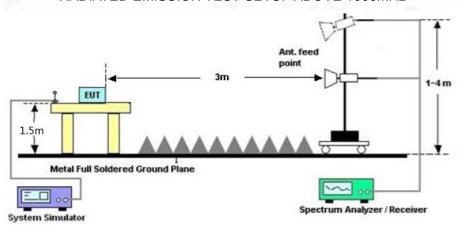
Radiated Emission Test-Setup Frequency Below 30MHz



RADIATED EMISSION TEST SETUP 30MHz-1000MHz



RADIATED EMISSION TEST SETUP ABOVE 1000MHz



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10.3. LIMITS AND MEASUREMENT RESULT

15.209 Limit in the below table has to be followed

Frequencies (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
0.009~0.490	2400/F(kHz)	300
0.490~1.705	24000/F(kHz)	30
1.705~30.0	30	30
30~88	100	3
88~216	150	3
216~960	200	3
Above 960	500	3

Note: All modes were tested for restricted band radiated emission, the test records reported below are the worst result compared to other modes.

10.4. TEST RESULT

RADIATED EMISSION BELOW 30MHz

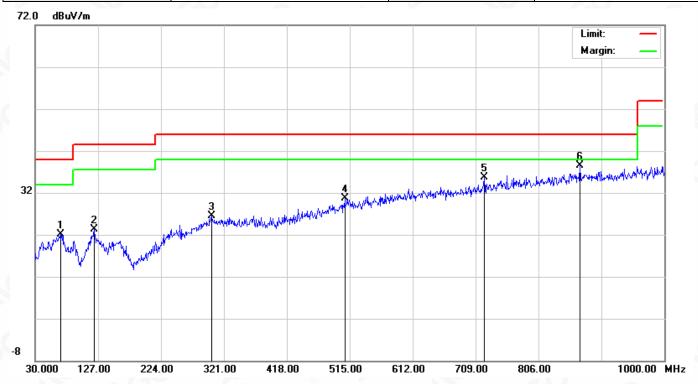
The amplitude of spurious emissions from 9kHz to 30MHz which are attenuated more than 20 dB below the permissible value need not be reported.

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RADIATED EMISSION BELOW 1GHz

EUT	TWS ANC Earbuds	Model Name	NC2
Temperature	25°C	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	Mode 9	Antenna	Horizontal



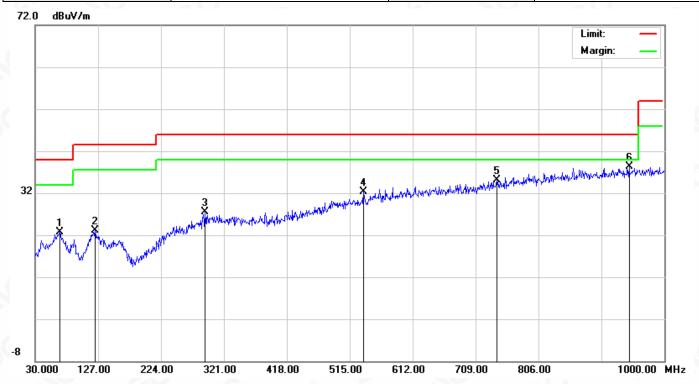
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector
1		69.7699	4.94	17.08	22.02	40.00	-17.98	peak
2	1	121.1800	5.62	17.75	23.37	43.50	-20.13	peak
3	3	301.6000	5.04	21.46	26.50	46.00	-19.50	peak
4	į	507.2400	5.59	25.13	30.72	46.00	-15.28	peak
5	7	722.5800	7.12	28.66	35.78	46.00	-10.22	peak
6	* {	370.0200	7.11	31.31	38.42	46.00	-7.58	peak

RESULT: PASS

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EUT	TWS ANC Earbuds	Model Name	NC2
Temperature	25°C	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	Mode 9	Antenna	Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	,
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector
1		67.8300	5.77	16.84	22.61	40.00	-17.39	peak
2	1	122.1500	5.47	17.57	23.04	43.50	-20.46	peak
3	2	291.9000	6.68	20.85	27.53	46.00	-18.47	peak
4	Ę	536.3400	6.61	25.70	32.31	46.00	-13.69	peak
5	7	741.9800	5.92	29.10	35.02	46.00	-10.98	peak
6	* (945.6800	6.23	32.09	38.32	46.00	-7.68	peak

RESULT: PASS

Note: 1. Factor=Antenna Factor + Cable loss, Margin=Measurement-Limit.

2. All test modes had been pre-tested. The mode 9 is the worst case and recorded in the report.

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/Inspection
The test results
the test report.

RADIATED EMISSION ABOVE 1GHz

EUT	TWS ANC Earbuds	Model Name	NC2
Temperature	25°C	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	Mode 7	Antenna	Horizontal

Meter Reading	Factor	Emission Level	Limits	Margin	Value Type
(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	value Type
45.35	0.08	45.43	74	-28.57	peak
37.86	0.08	37.94	54	-16.06	AVG
40.84	2.21	43.05	74	-30.95	peak
32.44	2.21	34.65	54	-19.35	AVG
-C				-C	
		8			
	(dBµV) 45.35 37.86 40.84	(dBµV) (dB) 45.35 0.08 37.86 0.08 40.84 2.21	(dBμV) (dB) (dBμV/m) 45.35 0.08 45.43 37.86 0.08 37.94 40.84 2.21 43.05	(dBμV) (dB) (dBμV/m) (dBμV/m) 45.35 0.08 45.43 74 37.86 0.08 37.94 54 40.84 2.21 43.05 74	(dBμV) (dB) (dBμV/m) (dBμV/m) (dBμV/m) 45.35 0.08 45.43 74 -28.57 37.86 0.08 37.94 54 -16.06 40.84 2.21 43.05 74 -30.95

Factor = Antenna Factor + Cable Loss - Pre-amplifier.

EUT	TWS ANC Earbuds	Model Name	NC2
Temperature	25°C	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	Mode 7	Antenna	Vertical

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Value Tree
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Value Type
4804.000	44.18	0.08	44.26	74	-29.74	peak
4804.000	36.74	0.08	36.82	54	-17.18	AVG
7206.000	39.52	2.21	41.73	74	-32.27	peak
7206.000	30.63	2.21	32.84	54	-21.16	AVG
-66				30	C	
emark:						
actor = Anter	na Factor + Cable	Loss - Pre-	amplifier.			

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g/Inspection
The test results
the test report.

EUT	TWS ANC Earbuds	Model Name	NC2
Temperature	25°C	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	Mode 8	Antenna	Horizontal

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Value Type	
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	value Type	
4882.000	45.88	0.14	46.02	74	-27.98	peak	
4882.000	38.34	0.14	38.48	54	-15.52	AVG	
7323.000	41.76	2.36	44.12	74	-29.88	peak	
7323.000	34.29	2.36	36.65	54	-17.35	AVG	
	0		9	8	®		
emark:	-0	(8)		40	- 0	8	
actor = Anter	nna Factor + Cable	Loss - Pre-	-amplifier.			C	

EUT	TWS ANC Earbuds	Model Name	NC2
Temperature	25°C	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	Mode 8	Antenna	Vertical

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	
(0)		1 actor			Margin	Value Type
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	,,,,,
4882.000	45.21	0.14	45.35	74	-28.65	peak
4882.000	37.39	0.14	37.53	54	-16.47	AVG
7323.000	40.83	2.36	43.19	74	-30.81	peak
7323.000	31.95	2.36	34.31	54	-19.69	AVG
			-C			
						8
emark:		(8)				©
ctor = Anter	nna Factor + Cable	Loss - Pre-	amplifier			

Any report having not been signed by authorized approver, or having been altered without authorization, or having not been stamped by the "Bedicated Pesture Stamp" is deemed to be invalid. Copying or excerpting portion of, or altering the content of the report is not permitted without the written authorization of AGC presented in the report apply only to the tested sample. Any objections to report issued by AGC should be submitted to AGC within 15day after the issuance of Further enquiry of validity or verification of the test report should be addressed to AGC by agc@agc-cert.com.



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EUT	TWS ANC Earbuds	Model Name	NC2
Temperature	25°C	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	Mode 9	Antenna	Horizontal

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Value Type
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	value Type
4960.000	46.54	0.22	46.76	74	-27.24	peak
4960.000	38.06	0.22	38.28	54	-15.72	AVG
7440.000	41.84	2.64	44.48	74	-29.52	peak
7440.000	32.49	2.64	35.13	54	-18.87	AVG
8				8		
emark:	-6	8		-0G		(®
ctor = Anter	na Factor + Cable	Loss - Pre-	amplifier.			- 6

EUT	TWS ANC Earbuds	Model Name	NC2
Temperature	25°C	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	Mode 9	Antenna	Vertical

Meter Reading	Factor	Emission Level	Limits	Margin	0
(dDu\A				Margini	Value Tree
(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	- Value Type
45.39	0.22	45.61	74	-28.39	peak
38.71	0.22	38.93	54	-15.07	AVG
41.95	2.64	44.59	74	-29.41	peak
33.18	2.64	35.82	54	-18.18	AVG
	- GU	0			
				©	
	38.71 41.95	38.71 0.22 41.95 2.64	38.71 0.22 38.93 41.95 2.64 44.59	38.71 0.22 38.93 54 41.95 2.64 44.59 74	38.71 0.22 38.93 54 -15.07 41.95 2.64 44.59 74 -29.41

RESULT: PASS

Note

The amplitude of other spurious emissions from 1G to 25 GHz which are attenuated more than 20 dB below the permissible value need not be reported.

Factor = Antenna Factor + Cable loss - Amplifier gain, Over=Measure-Limit.

The "Factor" value can be calculated automatically by software of measurement system.

All test modes had been tested. The 8DPSK modulation is the worst case and recorded in the report.

Any report having not been signed by authorized approver, or having been altered without authorization, or having not been stamped by the Bedicated Pesting/Inspection Stamp" is deemed to be invalid. Copying or excerpting portion of, or altering the content of the report is not permitted without the written authorization of AGE. The test results presented in the report apply only to the tested sample. Any objections to report issued by AGC should be submitted to AGC within 15day after the issuance of the test report. Further enquiry of validity or verification of the test report should be addressed to AGC by agc@agc-cert.com.

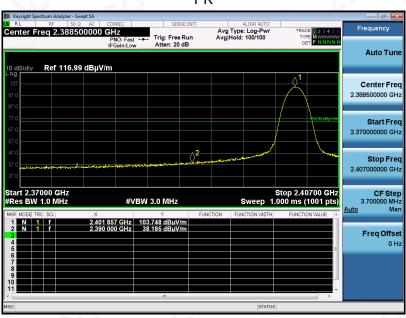
The test results of the test report.



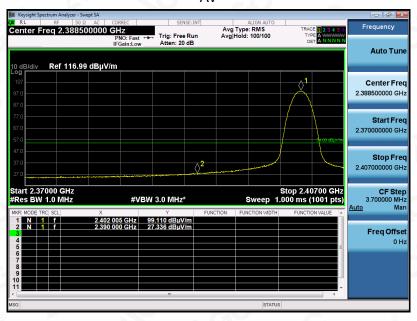
TEST RESULT FOR RESTRICTED BANDS REQUIREMENTS

EUT	TWS ANC Earbuds	Model Name	NC2
Temperature	25°C	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	Mode 7	Antenna	Horizontal

PΚ



ΑV



RESULT: PASS

Any report having not been signed by authorized approver, or having been altered without authorization, or having not been stamped by the "Bedicated Residual Stamp" is deemed to be invalid. Copying or excerpting portion of, or altering the content of the report is not permitted without the written authorization of AGC presented in the report apply only to the tested sample. Any objections to report issued by AGC should be submitted to AGC within 15day after the issuance of Further enquiry of validity or verification of the test report should be addressed to AGC by agc@agc-cert.com.