

# **FCC Test Report**

Report No.: AGC09927200601FE03

: 2ARGT-N10PRO
: Original Equipment
: ANC Truly Wireless Stereo Earbuds
: NUARL
: N10 Pro
: MTI Corporation
: Aug. 06, 2020
: FCC Part 15.247
: V1.0

# Attestation of Global Compliance (Shenzhen) Co., Ltd

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# **REPORT REVISE RECORD**

Report Version	Revise Time	Issued Date	Valid Version	Notes
V1.0	/	Aug. 06, 2020	Valid	Initial Release

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# **1. VERIFICATION OF CONFORMITY**

Applicant	MTI Corporation	
Address	2-18-7 Keian Bldg.4F Higashi Ikebukuro, Toshima-Ku, Tokyo, 170-0013, Japan	
Manufacturer MTI Corporation		
Address 2-18-7 Keian Bldg.4F Higashi Ikebukuro, Toshima-Ku, Tokyo, 170-001 Japan		
Factory	Wanstonic Electronics(Dong Guan) Co., Ltd.	
Address	Tung Fu Rd. West, Shi Jie Town, Dongguan City, Guangdong, China	
Product Designation	on ANC Truly Wireless Stereo Earbuds	
Brand Name NUARL		
Test Model N10 Pro		
Date of test Jun. 05, 2020 to Aug.06, 2020		
Deviation	No any deviation from the test method	
Condition of Test Sample	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

**Reviewed By** 

Then Hurry

Thea Huang Project Engineer

Aug. 06, 2020

Max Zhank

Max 7h

Max Zhang Reviewer

Aug. 06, 2020

Approved By

Forrest Lei Authorized Officer

Aug. 06, 2020

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# 2. GENERAL INFORMATION

# 2.1. PRODUCT DESCRIPTION

The EUT is designed as "ANC Truly Wireless Stereo 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

	3
Operation Frequency         2.402 GHz to 2.480GHz	
RF Output Power	5.789dBm(Max)
Bluetooth Version	V 5.0
Modulation	BR ⊠GFSK, EDR ⊠π /4-DQPSK, ⊠8DPSK BLE □GFSK 1Mbps □GFSK 2Mbps
Number of channels	79
Hardware Version	237
Software Version	64226
Antenna Designation	Chip PCB Antenna(Comply with requirements of the FCC part 15.203)
Antenna Gain	-0.4dBi
Power Supply	DC 3.8V by battery

Note: 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 left 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
SU C	0	2402MHZ
	1	2403MHZ
Sec d	38	2440 MHZ
2402~2480MHZ	39	2441 MHZ
6	40	2442 MHZ
	77	2479 MHZ
	78	2480 MHZ



# 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 multislot 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 79 hopping sequence in data mode: 40,21,44,23,42,53,46,55,48,33,52,35,50,65,54,67 56,37,60,39,58,69,62,71,64,25,68,27,66,57,70,59 72,29,76,31,74,61,78,63,01,41,05,43,03,73,07,75 09,45,13,47,11,77,15,00,64,49,66,53,68,02,70,06 01, 51, 03, 55, 05, 04

# 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 ehavior zation with other units only offset are 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 bit 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 te Sequence. This will be done at the beginning of every new transmission.

Regarding short transmissions the Bluetooth system has the following7ehavior:

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. 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: 2ARGT-N10PRO** 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.

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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,  $Uc = \pm 0.8$ dB
- Uncertainty of spurious emissions, conducted, Uc = ±2.7dB
- Uncertainty of Occupied Channel Bandwidth: Uc = ±2 %
- Uncertainty of Dwell Time:  $Uc = \pm 2\%$
- Uncertainty of Frequency:  $Uc = \pm 2 \%$

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# **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.

4. The test software is the Blue Test3 which can set the EUT into the individual test modes.



# **5. SYSTEM TEST CONFIGURATION**

**5.1. CONFIGURATION OF EUT SYSTEM** 

Radiated Emission Configure :

EUT

Conducted Emission Configure :

	0	
EUT		AE

# **5.2 EQUIPMENT USED IN TESTED SYSTEM**

ltem	Equipment	Model No.	ID or Specification	Remark
1	ANC Truly Wireless Stereo Earbuds	N10 Pro	2ARGT-N10PRO	EUT
2	control board	N/A	USB-TTL	AE

# **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)	Conducted Spurious Emission	Compliant
15.209	Radiated Emission	Compliant
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	Compliant



# 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 CONDUCTED EMISSION TEST

Equipment	Manufacturer	Model	S/N	Cal. Date	Cal. Due
TEST RECEIVER	R&S	ESPI	101206	May 15, 2020	May 14, 2022
LISN	R&S	ESH2-Z5	100086	Aug. 26, 2019	Aug. 25, 2020
Test software	R&S	ES-K1(Ver.V1.71)	N/A	N/A	N/A

# TEST EQUIPMENT OF RADIATED EMISSION TEST

Equipment	Manufacturer	Ianufacturer Model S/N		Cal. Date	Cal. Due	
TEST RECEIVER	R&S	ESCI	10096	May 15, 2020	May 14, 2022	
EXA Signal Analyzer	Aglient	N9010A	MY53470504	Dec. 12, 2019	Dec. 11, 2020	
2.4GHz Fliter	EM Electronics	2400-2500MHz	N/A	Feb. 23, 2020	Feb. 22, 2022	
Attenuator	ZHINAN	E-002	N/A	Sep. 09, 2019	Sep. 08, 2020	
Horn antenna	SCHWARZBECK	BBHA 9170	#768	Sep. 09, 2019	Sep. 08, 2021	
Active loop antenna ZHINAN (9K-30MHz)		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	Oct. 15, 2019	Oct. 16, 2020	
ANTENNA	SCHWARZBECK	VULB9168	494	Jan. 09, 2019	Jan. 08, 2021	
Test software FARA		EZ-EMC (Ver RA-03A)	N/A	N/A	N/A	



# 7. PEAK OUTPUT POWER

# 7.1. MEASUREMENT PROCEDURE

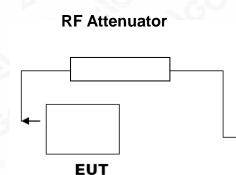
For peak power test:

- 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  $\geq$ RBW.
- 5. Sweep: Auto.
- 6. Detector function: Peak.
- 7. Trace: Max hold.

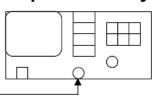
Allow trace to stabilize. Use the marker-to-peak function to set the marker to the peak of the emission. The indicated level is the peak output power, after any corrections for external attenuators and cables.

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

# PEAK POWER TEST SETUP



# Spectrum Analyzer



RF Cable

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#### 7.3. LIMITS AND MEASUREMENT RESULT

	PEAK OUTPUT POWER MEASU			
	FOR GFSK MOUDUL			
Frequency (GHz)	Peak Power (dBm)	Applicable Limits (dBm)	Pass or Fail	
2.402	2.970	30	Pass	
2.441	2.505	30	Pass	
2.480	2.396	30	Pass	



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Center 2.480000 GHz #Res BW 1.5 MHz	#VBW	5.0 MHz	Sween	Span 5.000 MHz .000 ms (1001 pts)	
70.0					01
60.0					Freq Offs
40.0					CF Ste 500.000 ki <u>Auto</u> M
30.0					<b>Stop Fr</b> 2.482500000 G
10.0					<b>Start Fr</b> 2.477500000 G
0.00		1			2.480000000 G
10 dB/div Ref 20.00 dBm				2.480 165 GHz 2.396 dBm	Center Fr
Center Freq 2.48000000	PNO: Fast ++ IFGain:Low	. Trig: Free Run Atten: 30 dB	Avg Type: Log-Pwr Avg Hold: 100/100	TRACE 123456 TYPE MWWWWW DET P NNNNN	Auto Tu

	PEAK OUTPUT POWER MEASURI	EMENT RESULT	
	FOR II /4-DQPSK MODU	LATION	
Frequency (GHz)	Peak Power (dBm)	Applicable Limits (dBm)	Pass or Fail
2.402	5.157	21	Pass
2.441	4.801	21	Pass
2.480	4.575	21	Pass

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PEAK OUTPUT POWER MEASUREMENT RESULT FOR 8-DPSK MODULATION								
Frequency (GHz)	Peak Power (dBm)	Applicable Limits (dBm)	Pass or Fail Pass					
2.402	5.789	21						
2.441	5.419	21	Pass					
2.480	5.254	21	Pass					

CH0



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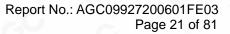
**Right:** 

PEAK OUTPUT POWER MEASUREMENT RESULT									
FOR GFSK MOUDULATION									
Frequency (GHz)	Peak Power (dBm)	Applicable Limits (dBm)	Pass or Fail						
2.402	4.741	30	Pass						
2.441	4.431	30	Pass						
2.480	4.884	30	Pass						



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# CH0





CH39



CH78

SG							STATUS			
	.480000 GHz 1.5 MHz		#VB	₩ 5.0 MHz			Sweep_1	Span 5 .000 ms (	.000 MHz 1001 pts)	1 of
70.0										Mor
60.0										Mkr→RefL
50.0										
40.0										Mkr→C
30.0										
20.0									- Y	Marker Delt
10.0										
0.00										Next Pk Lei
10.0					• <sup>1</sup>					NextTiking
.og										Next Pk Righ
0 dB/div	Ref 20.00 d	Bm					Mkr1	2.480 1 4.8	65 GHz 84 dBm	NextPea
larker '	2.48016500		PNO:Fast ⊂ FGain:Low	Trig: Fre Atten: 3		Avg Type Avg Hold:	:: Log-Pwr :>100/100		E 1 2 3 4 5 6 E M WWWW T P N N N N N	
U L	RF 50 Ω		ORREC	SE	NSE:INT		ALIGN AUTO		1 Aug 06, 2020	Peak Search

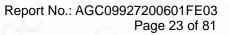


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	PEAK OUTPUT POWER MEASURE	EMENT RESULT	
	FOR II /4-DQPSK MODU	LATION	
Frequency (GHz)	Peak Power (dBm)	Applicable Limits (dBm)	Pass or Fail
2.402	4.113	21	Pass
2.441	4.969	21	Pass
2.480	4.996	21	Pass



CH0





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🚺 Keysight Sp	ectrum Analyzer - Swe									
Marker 1	RF 50 Ω 2.48012500	00000 G	RREC		SE:INT	Avg Type	LIGN AUTO	TRAC	1 Aug 06, 2020 E <b>1 2 3 4 5 6</b>	Peak Search
		Р	NO: Fast G Gain:Low	Trig: Free Atten: 30		Avg Hold:		DE		
							Mkr1	2.480 1	25 GHz 96 dBm	NextPeal
I0 dB/div - <sup>og</sup>	Ref 20.00 d	IBm						4.9	во авт	
										Next Pk Righ
10.0					$\diamond^1$					noxtr it tigh
0.00										
										Next Pk Lef
10.0										
20.0										
										Marker Delta
-30.0										
-40.0										Mkr→Cl
-50.0										
-60.0										Mkr→RefLv
-70.0										More
Center 2	180000 GHz							Snan 5	.000 MHz	1 of 2
#Res BW			#VBV	V 5.0 MHz			Sweep 1	opan 5 .000 ms (	.000 MH2 1001 pts)	
ISG							STATUS			

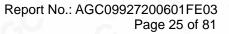


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PEAK OUTPUT POWER MEASUREMENT RESULT FOR 8-DPSK MODULATION								
Frequency (GHz)	Peak Power (dBm)	Applicable Limits (dBm)	Pass or Fail					
2.402	1.629	21	Pass					
2.441	1.996	21	Pass					
2.480	2.098	21	Pass					



CH0





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Keysight Spectrum Analyzer - Swept S           L         RF         50 Ω         A	C CORREC	SENSE:INT	ALIGN AUTO	07:30:47 PM Aug 06, 2020	Peak Search
arker 1 2.480100000	DOO GHZ PNO: Fast	Trig: Free Run	Avg Type: Log-Pwr Avg Hold:>100/100	TRACE 1 2 3 4 5 6 TYPE M WWWW	Peak Search
	IFGain:Low	Atten: 30 dB	Mkr1	2.480 100 GHz	Next Pe
dB/div Ref 20.00 dBr	n			2.098 dBm	
					Next Pk Rig
0.0		<b>▲</b> 1			NEALERAN
00					
					Next Pk L
0.0					
0.0					
					Marker De
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0.0					Mkr→
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.0					Mkr→Ref
.0					M
enter 2.480000 GHz				Span 5.000 MHz	1 c
Res BW 1.5 MHz	#VBW	5.0 MHz	Sweep 1	.000 ms (1001 pts)	
3			STATUS		

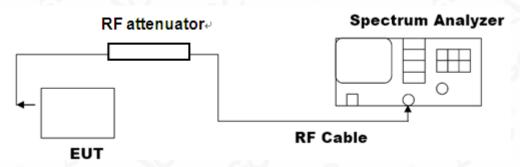


# 8. 20DB BANDWIDTH

#### **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	0.963	PASS
	Middle Channel	0.962	PASS
	High Channel	0.953	PASS

#### 10:55:21 AM Jun 11, 2020 Radio Std: None Frequency Center Freq: 2.402000000 GHz Trig: Free Run Avg|Hold: 100/100 402000000 GH Trig: Free Run #Atten: 30 dB Radio Device: BTS Ref 20.00 dBm **Center Freq** 2.402000000 GHz Center 2.402 GHz #Res BW 30 kHz Span 3 MHz Sweep 3.2 ms **CF** Step #VBW 100 kHz 300.000 kH <u>Auto</u> Ma Occupied Bandwidth **Total Power** 10.4 dBm 867.14 kHz Freq Offset 0 Hz 9.952 kHz **Transmit Freq Error OBW Power** 99.00 % x dB Bandwidth 963.1 kHz x dB -20.00 dB

#### TEST PLOT OF BANDWIDTH FOR LOW CHANNEL





#### TEST PLOT OF BANDWIDTH FOR MIDDLE CHANNEL

#### TEST PLOT OF BANDWIDTH FOR HIGH CHANNEL





MEASUREMENT RESULT FOR II /4-DQPSK MODULATION				
Applicable Limits		Measurement Result		
	Test Data (MHz)		Criteria	
N/A	Low Channel	1.335	PASS	
	Middle Channel	1.334	PASS	
	High Channel	1.336	PASS	

#### TEST PLOT OF BANDWIDTH FOR LOW CHANNEL



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#### TEST PLOT OF BANDWIDTH FOR MIDDLE CHANNEL

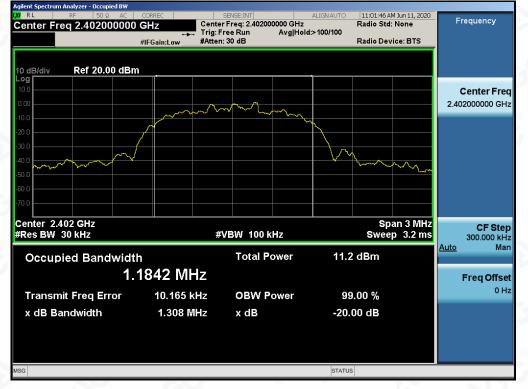
#### TEST PLOT OF BANDWIDTH FOR HIGH CHANNEL





MEASUREMENT RESULT FOR 8-DPSK MODULATION				
Applicable Limits		Measurement Result		
	Test Data	Test Data (MHz)		
	Low Channel	1.308	PASS	
N/A	Middle Channel	1.310	PASS	
	High Channel	1.314	PASS	

#### TEST PLOT OF BANDWIDTH FOR LOW CHANNEL





#### TEST PLOT OF BANDWIDTH FOR MIDDLE CHANNEL

#### TEST PLOT OF BANDWIDTH FOR HIGH CHANNEL





# 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.
- 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)

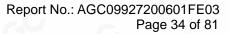
The same as described in section 8.2

# 9.3. MEASUREMENT EQUIPMENT USED

The same as described in section 6

#### 9.4. LIMITS AND MEASUREMENT RESULT

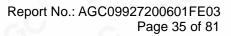
LIMITS AND MEASUREMENT RESULT				
Annlinghla Limita	Measurement Result			
Applicable Limits	Test Data	Criteria		
In any 100 KHz Bandwidth Outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency	At least -20dBc than the limit Specified on the BOTTOM 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		





# TEST RESULT FOR ENTIRE FREQUENCY RANGE TEST PLOT OF OUT OF BAND EMISSIONS WITH THE WORST CASE OF 8DPSK MODULATION IN LOW CHANNEL







Agilent Spectrum Analyzer - Swept SA					
IXI RL RF 50Ω AC	CORREC	SENSE:INT	ALIGNAUTO Ava Type: Loa-Pwr	11:05:20 AM Jun 11, 2020	Frequency
Center Freq 13.74175000	PNO: Fast +++	Trig: Free Run	Avg Type: Log-Pwr Avg Hold: 10/10	TRACE 123456 TYPE MWWWWW	,
		Atten: 30 dB		DET P NNNN	
			Mkr	1 24.985 7 GHz	Auto Tune
			IVINI	-48.551 dBm	
10 dB/div Ref 20.00 dBm				-40.001 abiii	
10.0					Center Freq
					13.741750000 GHz
0.00					13.741750000 GHZ
-10.0				-17.22 dBm	
-20.0				-17.22 dbn	Otort Eron
-30.0					Start Freq
					2.483500000 GHz
-40.0				<u> </u>	
-50.0			a dia mandri ny kaodiminina dia kaodiminina dia kaodiminina dia kaodiminina dia kaodiminina dia kaodiminina dia	an fire and a subscripting and the subscripting of the	01 <b>-</b>
-60.0 delete the second state of the delete	والمراجعة والمراجعة	the strength of the strength o	and the second se		Stop Freq
-70.0					25.00000000 GHz
-70.0					
Start 2.48 GHz				Stop 25.00 GHz	CF Step
#Res BW 100 kHz	#VBW 3	00 kHz	Sween	2.152 s (30000 pts)	2.251650000 GHz
	<b>"•Ви</b> 0				<u>Auto</u> Man
MKR MODE TRC SCL X		Y FUNC	TION FUNCTION WIDTH	FUNCTION VALUE	
1 N 1 f 24	.985 7 GHz -4	8.551 dBm			
3					Freq Offset
4					0 Hz
6					
7					
8					
10					
11				<b>_</b>	
MSG			STATUS	5	

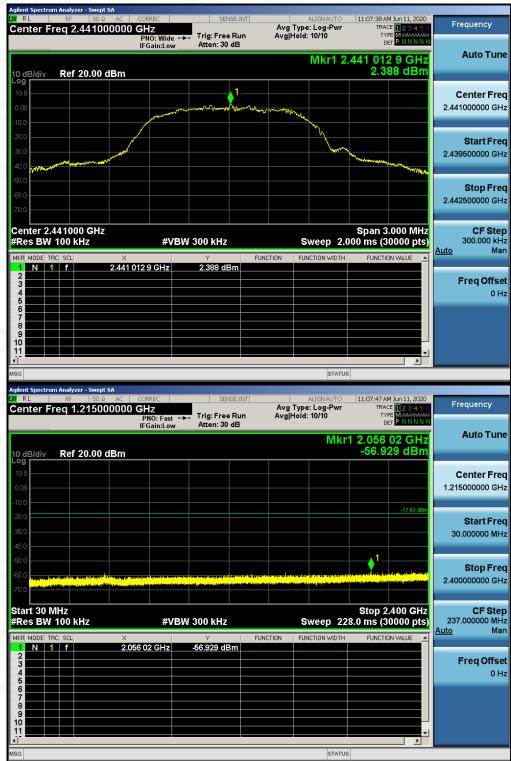
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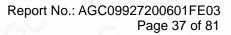
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 Tel: +86-755 2523 4088
 E-mail: agc@agc-cert.com
 Web: http://cn.agc-cert.com/





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







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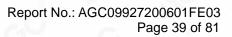
 Tel: +86-755 2523 4088
 E-mail: agc@agc-cert.com



	m Analyzer - Swept 9			OFNOS	a reci		LICHAUTO	11.10.00 4	1 2 - 11 0000	
Center F	req 2.48000	AC CORREC		SENSE:	A	vg Type:	LIGNAUTO	TRA	M Jun 11, 2020 E <mark>1 2 3 4 5 6</mark>	Frequency
		PNO: V IFGain:	Vide 🔸	Trig: Free Ru Atten: 30 dB	n Av	g Hold:	10/10	D		
							Mkr1 2	480 17	6 5 GHz	Auto Tune
10 dB/div	Ref 20.00 d	lBm						2.3	42 dBm	
Log 10.0					1					Center Freq
0.00										2.480000000 GHz
-10.0		ليهم ا	a martine		W	Maria Maria				
-20.0							Mr.			Otant Enga
-30.0		× ·					- Jon	<u> </u>		Start Freq 2.478500000 GHz
-40.0	and the second s							and the second second	and the second division of the second divisio	2.478500000 GH2
-50.0										
-60.0										Stop Freq 2.481500000 GHz
-70.0										2.481500000 GH2
Center 2	480000 GHz							Enan 3	.000 MHz	CF Step
#Res BW	480000 GHZ		#VBW :	300 kHz		Sv	veep 2.0		.000 MH2 0000 pts)	300.000 kHz
MKR MODE T		×		Y	FUNCTION		CTION WIDTH		ON VALUE	<u>Auto</u> Man
1 N 1 2	f	2.480 176 5 GH	lz	2.342 dBm						
3										Freq Offset
4 5										0 Hz
6										
8										
10										
MSG							STATUS	3		
	m Analyzer - Swept 9			SENSE!	NT	۵		11:12:31 4	M Jun 11 2020	
LXI RL	m Analyzer - Swept 9 RF 50 Ω req 1.21500	AC CORREC		SENSE:	A	vg Type:	LIGN AUTO	TRAG	M Jun 11, 2020 CE 123456	Frequency
LXI RL	RF 50 Ω	AC CORREC	Fast ↔ Low	SENSE: Trig: Free Ru Atten: 30 dB	A		Log-Pwr	TRAG		
LXI RL	RF 50 Ω	AC CORREC		Trig: Free Ru	A	vg Type:	Log-Pwr 10/10	TRAG TY D 1 2.363		Frequency Auto Tune
Center F	RF 50 Ω	AC CORREC 100000 GHz PNO: F IFGain:		Trig: Free Ru	A	vg Type:	Log-Pwr 10/10	TRAG TY D 1 2.363	CE 123456 PE MWWWWW ET P NNNNN	
Center F	RF 50 Ω req 1.21500	AC CORREC 100000 GHz PNO: F IFGain:		Trig: Free Ru	A	vg Type:	Log-Pwr 10/10	TRAG TY D 1 2.363		Auto Tune
Center F	RF 50 Ω req 1.21500	AC CORREC 100000 GHz PNO: F IFGain:		Trig: Free Ru	A	vg Type:	Log-Pwr 10/10	TRAG TY D 1 2.363		
Center F	RF 50 Ω req 1.21500	AC CORREC 100000 GHz PNO: F IFGain:		Trig: Free Ru	A	vg Type:	Log-Pwr 10/10	TRAG TY D 1 2.363	E 123456 E M WWWWWW ET P NNNNN 58 GHz 66 dBm	Auto Tune Center Freq
Center F	RF 50 Ω req 1.21500	AC CORREC 100000 GHz PNO: F IFGain:		Trig: Free Ru	A	vg Type:	Log-Pwr 10/10	TRAG TY D 1 2.363		Auto Tune Center Freq 1.215000000 GHz
10 dB/div Center F 10 dB/div Log 10.0 -10.0	RF 50 Ω req 1.21500	AC CORREC 100000 GHz PNO: F IFGain:		Trig: Free Ru	A	vg Type:	Log-Pwr 10/10	TRAG TY D 1 2.363	E 123456 E M WWWWWW ET P NNNNN 58 GHz 66 dBm	Auto Tune Center Freq
M         RL           Center F           10 dB/div           Log           10.0           -0.00           -10.0	RF 50 Ω req 1.21500	AC CORREC 100000 GHz PNO: F IFGain:		Trig: Free Ru	A	vg Type:	Log-Pwr 10/10	TRAG TY D 1 2.363	E 123456 E M WWWWWW ET P NNNNN 58 GHz 66 dBm	Auto Tune Center Freq 1.21500000 GHz Start Freq
M         RL           Center F           10 dB/div           Log           10.0           .00           .00           .00           .00           .00           .00	RF 50 Ω req 1.21500	AC CORREC 100000 GHz PNO: F IFGain:		Trig: Free Ru	A	vg Type:	Log-Pwr 10/10	TRAG TY D 1 2.363	E 123456 E M WWWWWW ET P NNNNN 58 GHz 66 dBm	Auto Tune Center Freq 1.21500000 GHz Start Freq 30.000000 MHz
M         RL           Center F           10 dB/div           Log           10.0           -0.0           -10.0           -30.0           -40.0	RF 50 Ω req 1.21500	AC CORREC 00000 GHz PRO: IEGain: IBM		Trig: Free Ru Atten: 30 dB	A	vg Type:	Log-Pwr 10/10	TRAG TY D 1 2.363	E 123456 E M WWWWWW ET P NNNNN 58 GHz 66 dBm	Auto Tune Center Freq 1.21500000 GHz Start Freq
10         dB/div           10.0         0.00           10.0         0.00           -10.0         0.00           -30.0         0.00           -30.0         0.00	Ref 20.00 c	AC CORREC 00000 GHz PNO: F IFGain: IBm		Trig: Free Ru Atten: 30 dB	A	vg Type:	Log-Pwr 10/10	TRAG TY D 1 2.363	E 123456 E M WWWWWW ET P NNNNN 58 GHz 66 dBm	Auto Tune Center Freq 1.21500000 GHz Start Freq 30.000000 MHz Stop Freq
M         RL           Center F           10 dB/div           0 g           10 0           10 0           20 0           -10 0           -30 0           -40 0           -50 0           -60 0           -70 0	Ref 20.00 c	AC CORREC 00000 GHz PRO: IEGain: IBM		Trig: Free Ru Atten: 30 dB	A	vg Type:	Log-Pwr 10/10	TRAITY TY 1 2.363 -57.2	2 3 4 5 6 MW-MANNAN 58 GHz 66 dBm -17.66 dBm	Auto Tune           Center Freq           1.215000000 GHz           Start Freq           30.000000 MHz           Stop Freq           2.400000000 GHz
10         dB/div           10.0         0.00           10.0         0.00           -10.0         0.00           -30.0         0.00           -30.0         0.00           -50.0         0.00	Ref 20.00 c	AC CORREC 00000 GHz IFGain: IBm		Trig: Free Ru Atten: 30 dB	A	yg Type: g Hold:		1 2.363 -57.2	E 123456 E M WWWWWW ET P NNNNN 58 GHz 66 dBm	Auto Tune Center Freq 1.21500000 GHz Start Freq 30.000000 MHz Stop Freq 2.400000000 GHz CF Step 237.000000 MHz
V/2         RL           Center F           10           0.0           10.0           10.0           10.0           10.0           10.0           10.0           10.0           10.0           10.0           10.0           10.0           10.0           -20.0           -30.0           -40.0           -50.0           -60.0           -70.0           Start 30 M           #Res BW           MKFI MODEL TI	Ref 20.00 c	AC CORREC COUNCIL CALL PROS : IFGain: IBM IBM IBM IBM IBM IBM IBM IBM	Low	Trig: Free Ru Atten: 30 dB	A	vg Type: g Hold:		TRAITY TY 1 2.363 -57.2 Stop 2 8.0 ms (3	2 3 4 5 6 MWWWMT T P NNNNN 58 GHz 66 dBm 	Auto Tune Center Freq 1.21500000 GHz Start Freq 30.00000 MHz Stop Freq 2.400000000 GHz CF Step
V/         RL           Center F           10 dB/div           0 g           10 0           10 0           -0 0           -0 0           -10 0           -20 0           -30 0           -40 0           -50 0           -60 0           -70 0           Start 30 P           #Res BW           MKR MODEL T           2	Ref 20.00 c	AC CORREC 00000 GHZ PRO: F IEGain: IBM	Low	Trig: Free Ru Atten: 30 dB		vg Type: g Hold:	Log-Pwr 10/10 Mkr	TRAITY TY 1 2.363 -57.2 Stop 2 8.0 ms (3	E 1 2 3 4 5 6 M WWWWW T P N N N N N 58 GHz 66 dBm -17.66 dBm -17.66 dBm -400 GHz 0000 pts	Start Freq           30.00000 GHz           Start Freq           30.000000 MHz           Stop Freq           2.400000000 GHz           CF Step           237.000000 MHz           Auto Man
M         RL           Center F           10         dB/div           20         -           -10.0         -           -20.0         -           -30.0         -           -40.0         -           -50.0         -           -60.0         -           -70.0         -           Start 30 M         -           -70.0         -           Start 30 M         -           -70.0         <	Ref 20.00 c	AC CORREC COUNCIL CALL PROS : IFGain: IBM IBM IBM IBM IBM IBM IBM IBM	Low	Trig: Free Ru Atten: 30 dB		vg Type: g Hold:	Log-Pwr 10/10 Mkr	TRAITY TY 1 2.363 -57.2 Stop 2 8.0 ms (3	E 1 2 3 4 5 6 M WWWWW T P N N N N N 58 GHz 66 dBm -17.66 dBm -17.66 dBm -400 GHz 0000 pts	Auto Tune Center Freq 1.21500000 GHz Start Freq 30.000000 MHz Stop Freq 2.400000000 GHz CF Step 237.000000 MHz
M         RL           10         dB/div           10         dB/div           10         0           10         0           10         0           10         0           10         0           10         0           10         0           10         0           10         0           -10         0           -20         0           -30         0           -40         0           -50         0           -50         0           -60         0           -70         0           -70         0           -70         0           -70         0           -70         0           -70         0           -70         0           -70         0           -70         0           -70         0           -70         0           -70         0           -70         0           -70         0           -70         0      -70         0	Ref 20.00 c	AC CORREC COUNCIL CALL PROS : IFGain: IBM IBM IBM IBM IBM IBM IBM IBM	Low	Trig: Free Ru Atten: 30 dB		vg Type: g Hold:	Log-Pwr 10/10 Mkr	TRAITY TY 1 2.363 -57.2 Stop 2 8.0 ms (3	E 1 2 3 4 5 6 M WWWWW T P N N N N N 58 GHz 66 dBm -17.66 dBm -17.66 dBm -400 GHz 0000 pts	Auto Tune
M         RL           Center F           10 dB/div           0 g           10 0           0 00           -10.0           -20.0           -30.0           -40.0           -50.0           -60.0           -70.0           -80.0           -80.0           -80.0           -80.0           -80.0           -80.0           -80.0           -80.0           -80.0           -80.0           -70.0           -80.0           -70.0           -80.0           -80.0           -70.0           -80.0           -70.0           -70.0           -70.0           -70.0           -70.0           -70.0           -70.0           -70.0           -70.0           -70.0           -70.0           -70.0           -70.0           -70.0           -70.0           -70.0           -70.0           -70.0      -	Ref 20.00 c	AC CORREC COUNCIL CALL PROS : IFGain: IBM IBM IBM IBM IBM IBM IBM IBM	Low	Trig: Free Ru Atten: 30 dB		vg Type: g Hold:	Log-Pwr 10/10 Mkr	TRAITY TY 1 2.363 -57.2 Stop 2 8.0 ms (3	E 1 2 3 4 5 6 M WWWWW T P N N N N N 58 GHz 66 dBm -17.66 dBm -17.66 dBm -400 GHz 0000 pts	Auto Tune
M         RL           10         dB/div           Log	Ref 20.00 c	AC CORREC COUNCIL CALL PROS : IFGain: IBM IBM IBM IBM IBM IBM IBM IBM	Low	Trig: Free Ru Atten: 30 dB		vg Type: g Hold:	Log-Pwr 10/10 Mkr	TRAITY TY 1 2.363 -57.2 Stop 2 8.0 ms (3	E 1 2 3 4 5 6 M WWWWW T P N N N N N 58 GHz 66 dBm -17.66 dBm -17.66 dBm -400 GHz 0000 pts	Auto Tune
M         RL           Center F           10         dB/div           Log	Ref 20.00 c	AC CORREC COUNCIL CALL PROS : IFGain: IBM IBM IBM IBM IBM IBM IBM IBM	Low	Trig: Free Ru Atten: 30 dB		vg Type: g Hold:	Log-Pwr 10/10 Mkr	TRAITY TY 1 2.363 -57.2 Stop 2 8.0 ms (3	-17.66 dBm	Auto Tune
M         RL           10         dB/div           20         0           10.0         0           10.0         0           10.0         0           10.0         0           10.0         0           -20.0         0           -30.0         0           -40.0         0           -50.0         0           -70.0         0           WKR MODE IT         1           1         N           2         1           4         1           5         0           9         10	Ref 20.00 c	AC CORREC COUNCIL CALL PROS : IFGain: IBM IBM IBM IBM IBM IBM IBM IBM	Low	Trig: Free Ru Atten: 30 dB		vg Type: g Hold:	Log-Pwr 10/10 Mkr	TRAU TV 1 2.363 -57.2 500 Stop 2 8.0 ms (3 FUNCTION	2 3 4 5 6 M WALUE	Auto Tune

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

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		n Anal	yzer - Swep	t SA										
<b>l,XI</b> RI		RF	00.0		CORREC		SEI	VSE:INT			ALIGN AUTO		M Jun 11, 2020	Frequency
Cen	ter Fi	req	13.750	000000			Trig: Free	Dun			: Log-Pwr 10/10	IRA TV	CE 123456	rioqueriey
					PNO: Fast IFGain:Low		Atten: 30		01810	nona.	10710	C	PE MWWWWW ET P N N N N N	
					II GUIILEON						841	4 00 50		Auto Tune
											IVIKI	1 20.56	9 6 GHz	
10 di	3/div	Re	f 20.00	dBm								-49.2	18 dBm	
Log														
10.0														Center Freq
0.00														13.750000000 GHz
-10.0														
													-17.66 dBm	
-20.0														Start Freq
-30.0	——													2.500000000 GHz
-40.0												. 1		
												♦'		
-50.0									a danta.		and the other states	and the second		Stop Freq
-60.0	digita da ba	, de la			and when	Horace Part			. <mark>Aliman a</mark>	يحظورون	New York Control of State			25.000000000 GHz
-70.0														25.00000000 GH2
-70.0														
Star	t 2.50	GH	7									Stop 2	5.00 GHz	CF Step
	s BW				#V	BW 3	300 kHz				Sweep		0000 pts)	2.250000000 GHz
														<u>Auto</u> Man
MKR	MODE TF			×	69 6 GHz		۲ 49.218 dl		ICTION	FUN	ICTION WIDTH	FUNCTI	ON VALUE 🔺	
2				20.5	09 0 GHZ		49.218 ui	2111						
3														Freq Offset
4														0 Hz
5														
7														
8														
9 10														
11													-	
•														
MSG											STATUS	5		

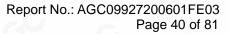
Note: The 8DPSK modulation is the worst case and only those data recorded in the report.

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 E-mail: agc@agc-cert.com

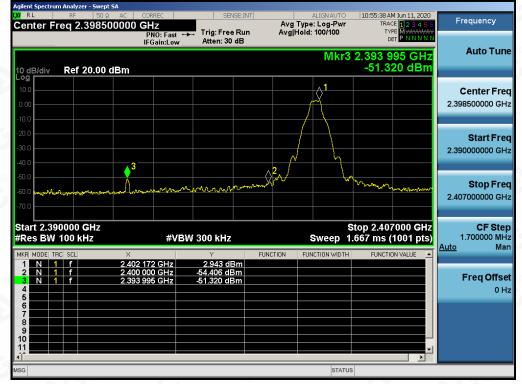




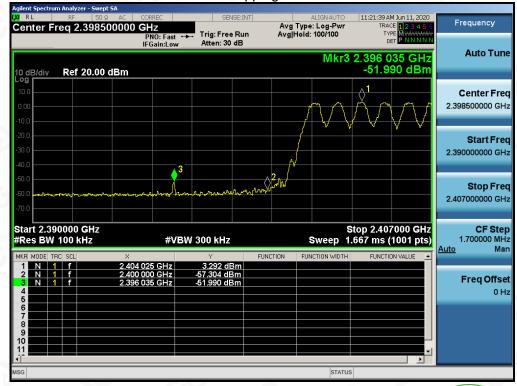
#### TEST RESULT FOR BAND EDGE

#### GFSK MODULATION IN LOW CHANNEL

Hopping off

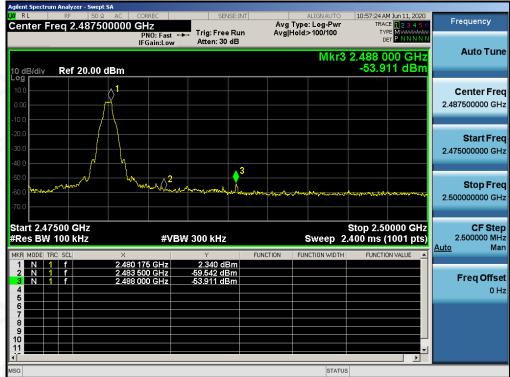


Hopping on



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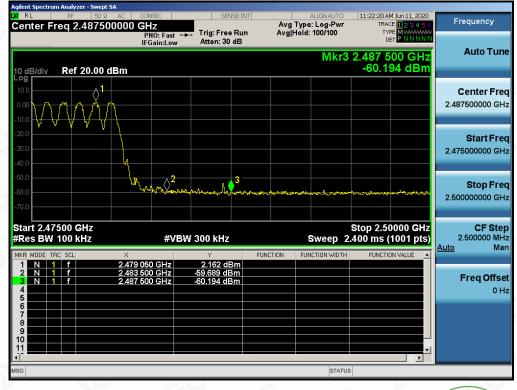




# GFSK MODULATION IN HIGH CHANNEL

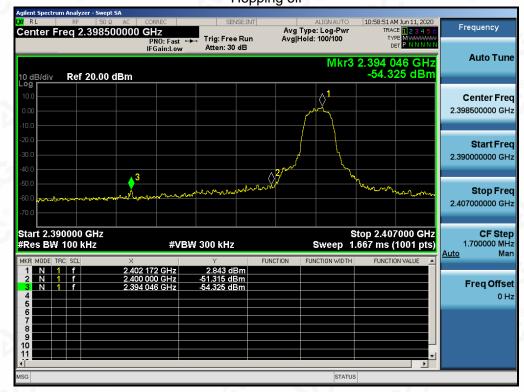
Hopping off

Hopping on



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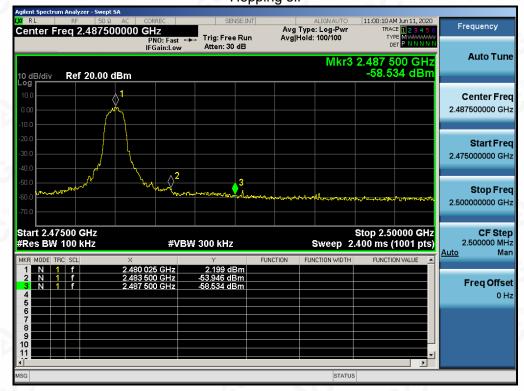
# $\pi$ /4-DQPSK MODULATION IN LOW CHANNEL Hopping off

Hopping on



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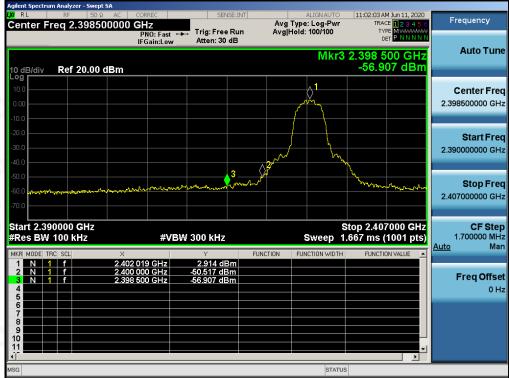
# $\pi$ /4-DQPSK MODULATION IN HIGH CHANNEL Hopping off

Hopping on



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# 8-DPSK MODULATION IN LOW CHANNEL

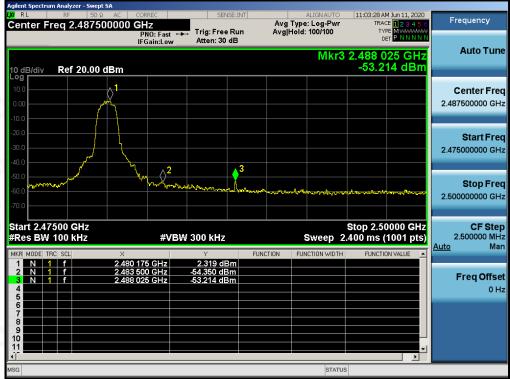
Hopping off

Hopping on



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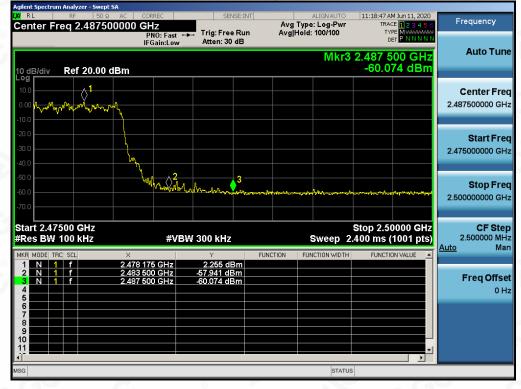




# 8-DPSK MODULATION IN HIGH CHANNEL

Hopping off

Hopping on



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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 emissions, 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.
- 5. 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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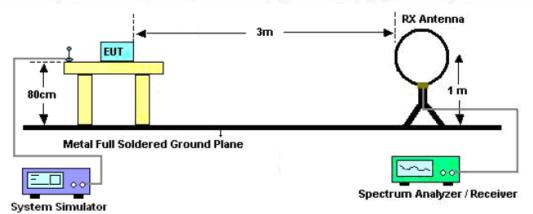
 Attestation of Global Compliance(Shenzhen)Std & Tech Co., Ltd

 Tel: +86-755 2523 4088
 E-mail: agc@agc-cert.com

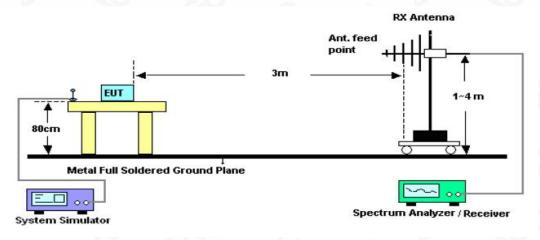


# **10.2. TEST SETUP**

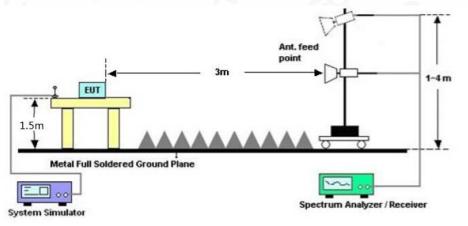
Radiated Emission Test-Setup Frequency Below 30MHz



# 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 (micorvolts/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 result of the lowest internal use/generated frequency to 30MHz is 20dB less than the limit.

Any report having not been signed by authorized approver, or having been altered without authorization, or having not been stamped by the stand of t

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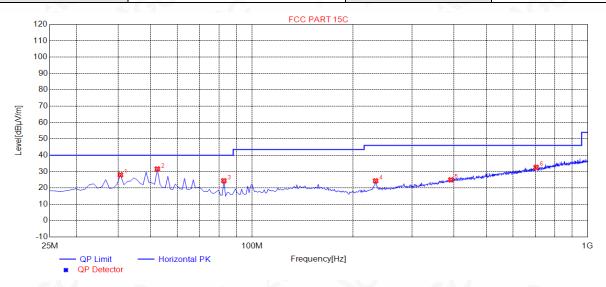
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 Tel: +86-755 2523 4088
 E-mail: agc@agc-cert.com



# **RADIATED EMISSION BELOW 1GHZ**

EUT	ANC Truly Wireless Stereo Earbuds	Model Name	N10 Pro
Temperature	25°C	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	Mode 7	Antenna	Horizontal



			(0)					
NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	40.6000	28.00	14.92	40.00	12.00	100	321	Horizontal
2	52.3000	31.60	14.50	40.00	8.40	200	166	Horizontal
3	82.5250	24.40	10.18	40.00	15.60	200	3	Horizontal
4	233.6500	24.34	14.32	46.00	21.66	100	20	Horizontal
5	391.6000	24.96	19.47	46.00	21.04	100	72	Horizontal
6	702.6250	32.60	26.01	46.00	13.40	100	160	Horizontal

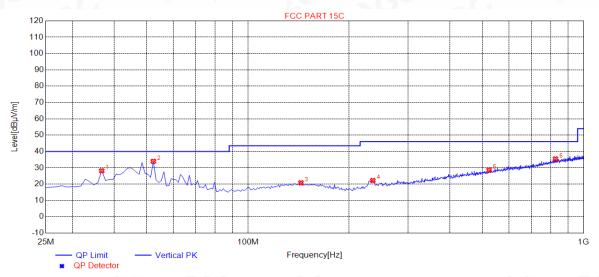
**RESULT: PASS** 

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#### Report No.: AGC09927200601FE03 Page 51 of 81

EUT	ANC Truly Wireless Stereo Earbuds	Model Name	N10 Pro
Temperature	25°C	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	Mode 7	Antenna	Vertical



NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	36.7000	28.18	14.14	40.00	11.82	100	170	Vertical
2	52.3000	33.98	14.50	40.00	6.02	100	303	Vertical
3	143.9500	20.80	14.88	43.50	22.70	100	295	Vertical
4	235.6000	22.20	14.48	46.00	23.80	100	2	Vertical
5	523.2250	28.60	22.68	46.00	17.40	100	165	Vertical
6	824.5000	35.46	28.88	46.00	10.54	100	102	Vertical

## **RESULT: PASS**

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

2. All test modes had been pre-tested. The mode 7 is the worst case and recorded in the report.

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# **RADIATED EMISSION ABOVE 1GHZ**

EUT	ANC Truly Wireless Stereo Earbuds	Model Name	N10 Pro
Temperature	25°C	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	Mode 7	Antenna	Horizontal

leter Reading	Factor	Emission Level	Limits	Margin	Value Type
(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	value Type
53.68	0.08	53.76	74	-20.24	peak
42.69	0.08	42.77	54	-11.23	AVG
52.54	2.21	54.75	74	-19.25	peak
41.75	2.21	43.96	54	-10.04	AVG
C.	6			- C -	0
		C			C
	53.68 42.69 52.54	53.68         0.08           42.69         0.08           52.54         2.21	53.68         0.08         53.76           42.69         0.08         42.77           52.54         2.21         54.75	53.68         0.08         53.76         74           42.69         0.08         42.77         54           52.54         2.21         54.75         74	53.68         0.08         53.76         74         -20.24           42.69         0.08         42.77         54         -11.23           52.54         2.21         54.75         74         -19.25

EUT	ANC Truly Wireless Stereo Earbuds	Model Name	N10 Pro
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 Type
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	value Type
4804.000	52.03	0.08 💿	52.11	74	-21.89	peak
4804.000	41.34	0.08	41.42	54	-12.58	AVG
7206.000	51.96	2.21	54.17	74	-19.83	peak
7206.000	40.83	2.21	43.04	54	-10.96	AVG
	20	0				e e
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Factor = Antenna Factor + Cable Loss – Pre-amplifier.

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#### Report No.: AGC09927200601FE03 Page 53 of 81

EUT	ANC Truly Wireless Stereo Earbuds	Model Name	N10 Pro
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	51.28	0.14	51.42	74	-22.58	peak
4882.000	40.95	0.14	41.09	54	-12.91	AVG 💿
7323.000	50.76	2.36	53.12	74	-20.88	peak
7323.000	40.23	2.36	42.59	54	-11.41	AVG
emark:				G	8	

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

EUT	ANC Truly Wireless Stereo Earbuds	Model Name	N10 Pro
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	Value Type
(MHz)	○ (dBμV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	value Type
4882.000	50.09	0.14	50.23	74	-23.77	peak
4882.000	39.87	0.14	40.01	54	-13.99	AVG
7323.000	49.58	2.36	51.94	74	-22.06	peak
7323.000	39.05	2.36	41.41	54	-12.59	AVG
emark:			N N			

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

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#### Report No.: AGC09927200601FE03 Page 54 of 81

EUT	ANC Truly Wireless Stereo Earbuds	Model Name	N10 Pro
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	49.72	0.22	49.94	74	-24.06	peak
4960.000	38.49	0.22	38.71	54	-15.29	AVG
7440.000	48.97	2.64	51.61	74	-22.39	peak
7440.000	37.49	2.64	40.13	54	-13.87	AVG
mark:				- GG	- G	

ANC Truly Wireless Stereo EUT Model Name N10 Pro Earbuds **Temperature** 25°C **Relative Humidity** 55.4% Pressure 960hPa **Test Voltage** Normal Voltage Mode 9 **Test Mode** Antenna Vertical

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Value Type
4960.000	48.31	0.22	48.53	74	-25.47	peak
4960.000	37.53	0.22	37.75	54	-16.25	AVG
7440.000	47.85	2.64	50.49	74	-23.51	peak
7440.000	36.89	2.64	39.53	54	-14.47	AVG
8		NO	20			

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

#### **RESULT: PASS**

Note: Other emissions from 1G~25GHz are 20dB below the limits. No recording in the test report.

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.

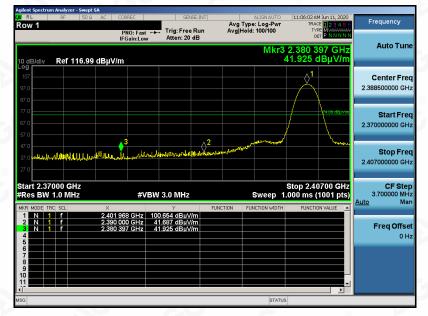
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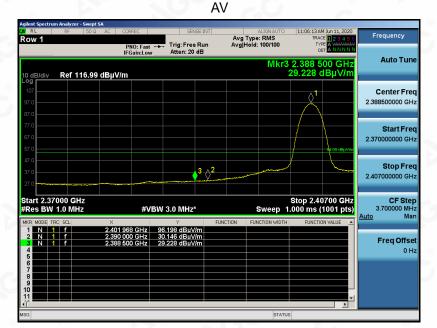


EUT	ANC Truly Wireless Stereo Earbuds	Model Name	N10 Pro		
Temperature	25°C	Relative Humidity	55.4%		
Pressure	960hPa	Test Voltage	Normal Voltage		
Test Mode	Mode 7	Antenna	Horizontal		

#### TEST RESULT FOR RESTRICTED BANDS REQUIREMENTS

PK





# **RESULT: PASS**

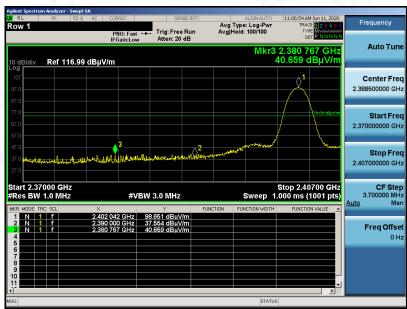
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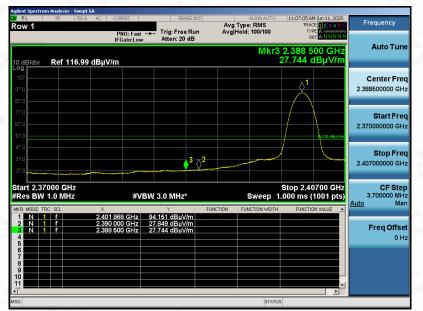
#### Report No.: AGC09927200601FE03 Page 56 of 81

EUT	ANC Truly Wireless Stereo Earbuds	Model Name	N10 Pro
Temperature	25°C	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	Mode 7	Antenna	Vertical

ΡK



AV



# **RESULT: PASS**

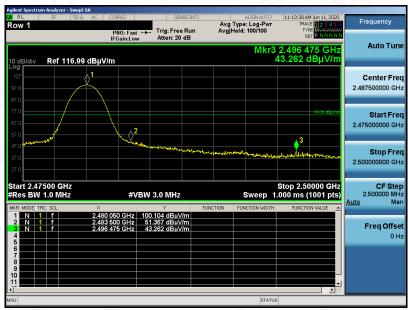
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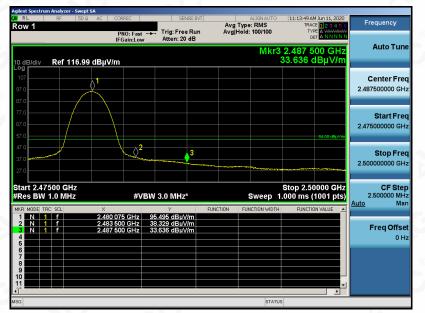
#### Report No.: AGC09927200601FE03 Page 57 of 81

EUT	ANC Truly Wireless Stereo Earbuds	Model Name	N10 Pro
Temperature	25°C	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	Mode 9	Antenna	Horizontal

ΡK



AV



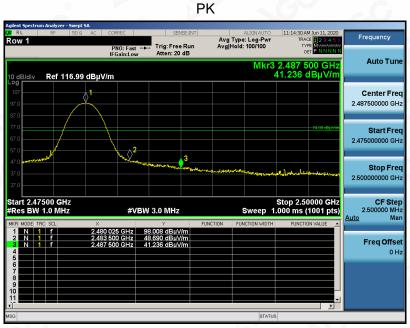
**RESULT: PASS** 

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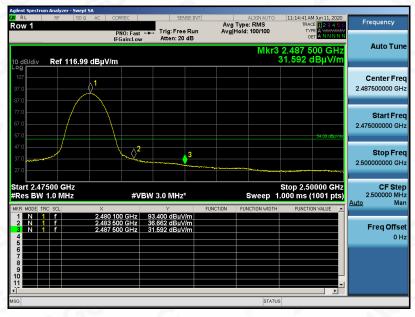


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EUT	ANC Truly Wireless Stereo Earbuds	Model Name	N10 Pro
Temperature	25°C	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	Mode 9	Antenna	Vertical



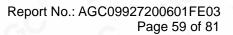
AV



#### **RESULT: PASS**

**Note**: The factor had been edited in the "Input Correction" of the Spectrum Analyzer. The 8DPSK modulation is the worst case and recorded in the report.

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# **11. NUMBER OF HOPPING FREQUENCY**

# **11.1. MEASUREMENT PROCEDURE**

The EUT shall have its hopping function enabled. Use the following spectrum analyzer settings:

1. Span: The frequency band of operation. Depending on the number of channels the device supports, it may be necessary to divide the frequency range of operation across multiple spans, to allow the individual channels to be clearly seen.

2. RBW: To identify clearly the individual channels, set the RBW to less than 30% of the channel spacing or the 20 dB bandwidth, whichever is smaller.

3. VBW  $\geq$  RBW. Sweep: Auto. Detector function: Peak. Trace: Max hold.

4. Allow the trace to stabilize.

# 11.2. TEST SETUP (BLOCK DIAGRAM OF CONFIGURATION)

Same as described in section 8.2

## **11.3. MEASUREMENT EQUIPMENT USED**

The same as described in section 6

## **11.4. LIMITS AND MEASUREMENT RESULT**

TOTAL NO. OF HOPPING CHANNEL	LIMIT (NO. OF CH)	MEASUREMENT (NO. OF CH)	RESULT
	>=15	79	PASS

TEST PLOT FOR NO. OF TOTAL CHANNELS

11:23:06 AM Jun 11, 2020 Frequency Avg Type: Log-Pv Avg|Hold: 100/100 Trig: Free Run PNO: Fast + IFGain:Low Auto Tune Ref 20.00 dBm Center Freq 2.441750000 GHz Start Fred 2.40000000 GHz Stop Fred 2.483500000 GHz **CF** Step 8.350000 MH <u>Auto</u> Ma Freq Offset 0 Hz Start 2.40000 GHz #Res BW 300 kHz Stop 2.48350 GHz Sweep 1.000 ms (1001 pts) #VBW 1.0 MHz

Note: The GFSK modulation is the worst case and recorded in the report.

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# 12. TIME OF OCCUPANCY (DWELL TIME)

# **12.1. MEASUREMENT PROCEDURE**

The EUT shall have its hopping function enabled. Use the following spectrum analyzer settings:

1. Span: Zero span, centered on a hopping channel.

2. RBW shall be  $\leq$  channel spacing and where possible RBW should be set >> 1 / T, where T is the expected dwell time per channel.

3. Sweep: As necessary to capture the entire dwell time per hopping channel; where possible use a video trigger and trigger delay so that the transmitted signal starts a little to the right of the start of the plot. The trigger level might need slight adjustment to prevent triggering when the system hops on an adjacent channel; a second plot might be needed with a longer sweep time to show two successive hops on a channel.

4. Detector function: Peak. Trace: Max hold.

5. Use the marker-delta function to determine the transmit time per hop.

6. Repeat the measurement using a longer sweep time to determine the number of hops over the period specified in the requirements. The sweep time shall be equal to, or less than, the period specified in the requirements. Determine the number of hops over the sweep time and calculate the total number of hops in the period specified in the requirements, using the following equation:

(Number of hops in the period specified in the requirements) = (number of hops on spectrum analyzer) × (period specified in the requirements / analyzer sweep time)

7. The average time of occupancy is calculated from the transmit time per hop multiplied by the number of hops in the period specified in the requirements.

# 12.2. TEST SETUP (BLOCK DIAGRAM OF CONFIGURATION)

Same as described in section 8.2

# 12.3. MEASUREMENT EQUIPMENT USED

The same as described in section 6

# **12.4. LIMITS AND MEASUREMENT RESULT**

Channel	Time of Pulse for DH5 (ms)	Number of hops in the period specified in the requirements	Sweep Time (ms)	Limit (ms)
Low	2.882	26*4	299.771	400
Middle	2.883	26*4	299.781	400
High	2.883	26*4	299.780	400

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

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