

#### Report No.: AGC09161190901FE03 Page 44 of 63

EUT	Wireless In-Ear Headset	Model Name	MN1
Temperature	25°C	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	Mode 2	Antenna	Horizontal

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin		
(MHz)	(dBµV)	(dB) (dBµV/r		(dBµV/m)	(dB)	Value Type	
4882.000	49.70	0.14	49.84	74	-24.16	peak	
4882.000	41.61	0.14	41.75	54	-12.25	AVG	
7323.000	42.96	2.36	45.32	74	-28.68	peak	
7323.000	35.25	2.36	37.61	54	-16.39	AVG	
mark:	6				0		

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

EUT	Wireless In-Ear Headset	Model Name	MN1
Temperature	25°C	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	Mode 2	Antenna	Vertical

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Malus Trees
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	- Value Type
4882.000	48.40	0.14	48.54	74	-25.46	peak
4882.000	40.52	0.14	40.66	54	-13.34	AVG
7323.000	41.47	2.36	43.83	74	-30.17	peak
7323.000	34.01	2.36	36.37	54	-17.63	AVG
	0					
- (	6					

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



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#### Report No.: AGC09161190901FE03 Page 45 of 63

EUT	Wireless In-Ear Headset	Model Name	MN1
Temperature	25°C	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	Mode 3	Antenna	Horizontal

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Value Tree	
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	- Value Typ	
4960.000	50.05	0.22	50.27	74	-23.73	peak	
4960.000	41.38	0.22	41.6	54	-12.4	AVG	
7440.000	42.49	2.64	45.13	74	-28.87	peak	
7440.000	34.83	2.64	37.47	54	-16.53	AVG	
8				®			
C.	®			C.	®		
emark:	- 6	0		~ 67	- 6	3	
ctor = Anter	nna Factor + Cable	Loss – Pre-	amplifier.				

EUT	Wireless In-Ear Headset	Model Name	MN1
Temperature	25°C	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	Mode 3	Antenna	Vertical

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	- Value Type
4960.000	47.55	0.22	47.77	74	-26.23	peak
4960.000	38.75	0.22	38.97	54	-15.03	AVG
7440.000	39.65	2.64	42.29	74	-31.71	peak
7440.000	31.24	2.64	33.88	54	-20.12	AVG
0		100	0			

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

#### **RESULT: PASS**

#### Note:

Other emissions from 1G to 25 GHz are considered as ambient noise. 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 GFSK modulation is the worst case and recorded in the report.

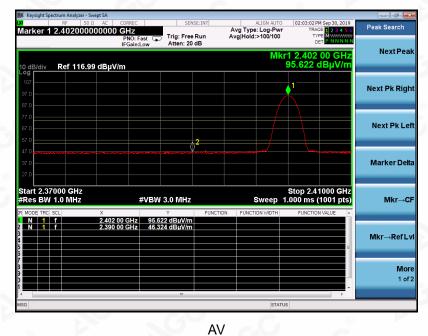




6						
EUT	Wireless In-Ear Headset	Model Name	MN1			
Temperature	25°C	Relative Humidity	55.4%			
Pressure	960hPa	Test Voltage	Normal Voltage			
Test Mode	Mode 1	Antenna	Horizontal			

#### TEST RESULT FOR RESTRICTED BANDS REQUIREMENTS

ΡK



Keysight Spectrum Analy RF	zer - Swept SA 50 Ω AC CORREC	SENSE:	m	ALIGN AUTO	02:03:37 PM Sep	30 2019
	20000000 GHz	ast 😱 Trig: Free Ru	Avg Typ		TRACE	2 3 4 5 6 WWWW NNNNN
I0 dB/div Ref 1	16.99 dBµV/m				l 2.402 12 0.553 dBj	
- <b>og</b> 107 97.0					1	Next Pk Rig
87.0						
67.0 57.0						Next Pk Le
47.0 37.0 27.0		\$ <sup>2</sup>				Marker De
Start 2.37000 GH #Res BW 1.0 MH		#VBW 3.0 MHz*			Stop 2.41000 000 ms (100	1 pts) Mkr→C
MODE TRC SCL N 1 f N 1 f	× 2.402 12 GHz 2.390 00 GHz	Y 90.542 dBµV/m 35.517 dBµV/m	FUNCTION FUNCT	TON WIDTH	FUNCTION VALU	
						Mkr→RefL
						Mo 1 of
						10

**RESULT: PASS** 

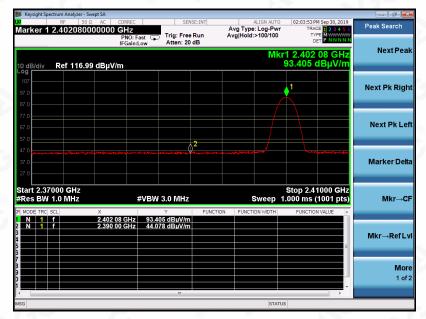




#### Report No.: AGC09161190901FE03 Page 47 of 63

EUT	Wireless In-Ear Headset	Model Name	MN1
Temperature	25°C	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	Mode 1	Antenna	Vertical

ΡK



AV

arker 1 2.4	F 50 Ω AC	CORREC	SENSE:INT	ALIGN AUTO Avg Type: RMS	02:04:02 PM Sep 30, 2019 TRACE 1 2 3 4 5 6	Peak Search
		PNO: Fast IFGain:Low	Trig: Free Run Atten: 20 dB	Avg Hold:>100/100		
) dB/div Re	ef 116.99 dBµ\	//m		Mkr	1 2.402 08 GHz 88.963 dBµV/m	Next Pe
ng 107						Next Pk Rig
97.0 97.0					1	Next PK Rig
7.0						
7.0						Next Pk L
7.0						
37.0			\$ <sup>2</sup>			Marker De
7.0						
tart 2.37000 Res BW 1.0		#VBW	3.0 MHz*	Sweep 1	Stop 2.41000 GHz .000 ms (1001 pts)	Mkr→0
MODE TRC SCL	× 2.402	08 GHz 88,9	Y FUN	CTION FUNCTION WIDTH	FUNCTION VALUE	
N 1 f			37 dBµV/m			Mkr→RefL
					=	
						Ma
						1 0

**RESULT: PASS** 

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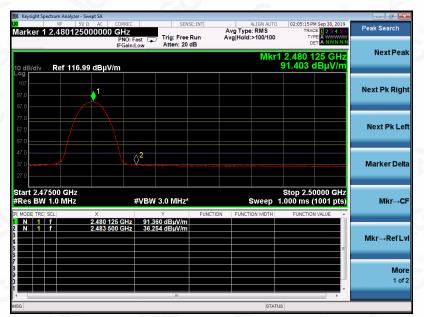
#### Report No.: AGC09161190901FE03 Page 48 of 63

EUT	Wireless In-Ear Headset	Model Name	MN1
Temperature	25°C	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	Mode 3	Antenna	Horizontal

PK



AV



**RESULT: PASS** 



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#### Report No.: AGC09161190901FE03 Page 49 of 63

EUT	Wireless In-Ear Headset	Model Name MN1	
Temperature	25°C	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	Mode 3	Antenna	Vertical



PK

AV



#### **RESULT: PASS**

**Note**: The factor had been edited in the "Input Correction" of the Spectrum Analyzer. So the Amplitude of test plots is equal to Reading level plus the Factor in dB. Use the A dB( $\mu$ V) to represent the Amplitude. Use the F dB( $\mu$ V/m) to represent the Field Strength. So A=F. All test modes had been pre-tested. The GFSK modulation is the worst case and recorded in the report.





### **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)

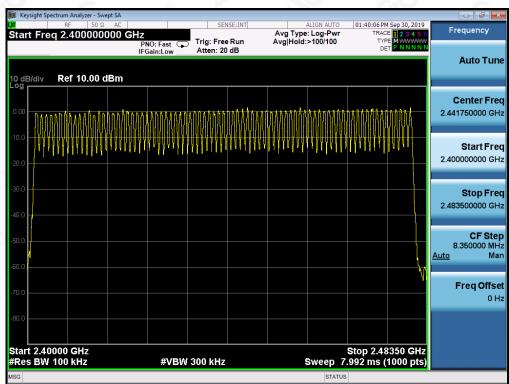
Same as described in section 8.2

#### **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



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



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#### TEST PLOT FOR NO. OF TOTAL CHANNELS



# 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)  $\times$  (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

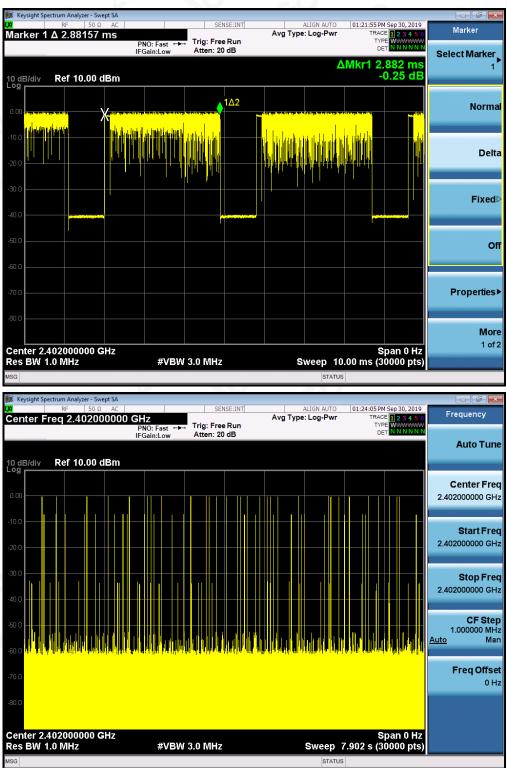
#### **12.4. LIMITS AND MEASUREMENT RESULT**

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	30*4	345.84	400
Middle	2.875	30*4	345.00	400
High	2.880	26*4	299.52	400

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







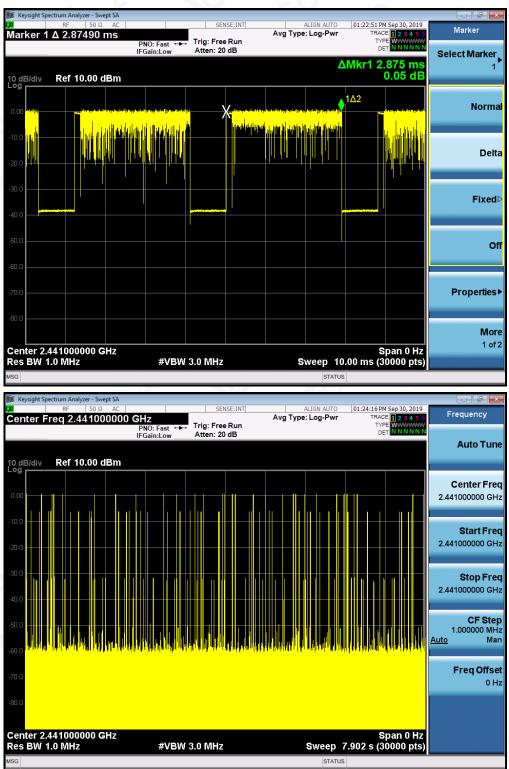
#### TEST PLOT OF LOW CHANNEL



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#### TEST PLOT OF MIDDLE CHANNEL

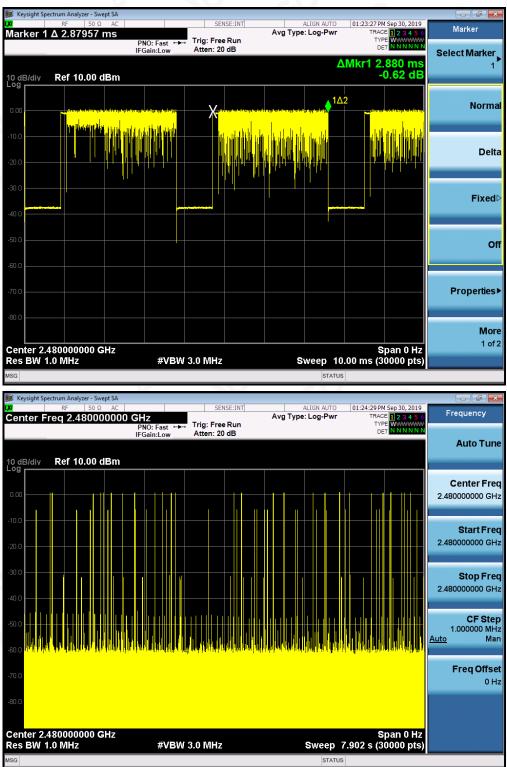


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#### TEST PLOT OF HIGH CHANNEL



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#### **13. FREQUENCY SEPARATION**

#### **13.1. MEASUREMENT PROCEDURE**

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

1. Span: Wide enough to capture the peaks of two adjacent channels.

2. RBW: Start with the RBW set to approximately 30% of the channel spacing; adjust as necessary to best identify the center of each individual channel.

3. Video (or average) bandwidth (VBW)  $\geq$  RBW.

4. Sweep: Auto. e) Detector function: Peak. f) Trace: Max hold. g) Allow the trace to stabilize.

Use the marker-delta function to determine the separation between the peaks of the adjacent channels.

#### **13.2. TEST SETUP (BLOCK DIAGRAM OF CONFIGURATION)**

Same as described in section 6.2

#### 13.3. MEASUREMENT EQUIPMENT USED

The same as described in section 6.3

#### **13.4. LIMITS AND MEASUREMENT RESULT**

CHANNEL	CHANNEL SEPARATION	LIMIT	RESULT	
	KHz	KHz	Daga	
CH01-CH02	1001	>=25 KHz or 2/3 20 dB BW	Pass	

#### TEST PLOT FOR FREQUENCY SEPARATION



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



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Report No.: AGC09161190901FE03 Page 56 of 63

# APPENDIX A: PHOTOGRAPHS OF TEST SETUP RADIATED EMISSION TEST SETUP BELOW 1GHZ



RADIATED EMISSION TEST SETUP ABOVE 1GHZ







Report No.: AGC09161190901FE03 Page 57 of 63

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# APPENDIX B: PHOTOGRAPHS OF EUT TOP VIEW OF EUT

#### BOTTOM VIEW OF EUT





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Report No.: AGC09161190901FE03 Page 58 of 63

#### FRONT VIEW OF EUT



BACK VIEW OF EUT





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Report No.: AGC09161190901FE03 Page 59 of 63

# BIG 520 300 200 JRF-D1005 001 05 091 **RIGHT VIEW OF EUT**

LEFT VIEW OF EUT





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Report No.: AGC09161190901FE03 Page 60 of 63

VIEW OF EU(PORT)



**OPEN VIEW OF EUT-1** 





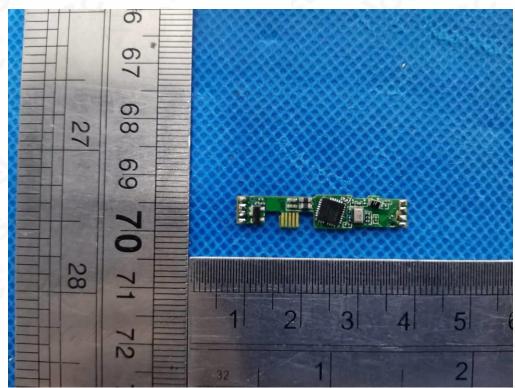


Report No.: AGC09161190901FE03 Page 61 of 63





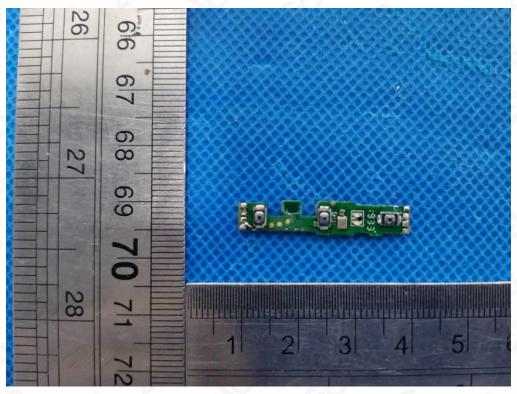
**INTERNAL VIEW OF EUT-1** 





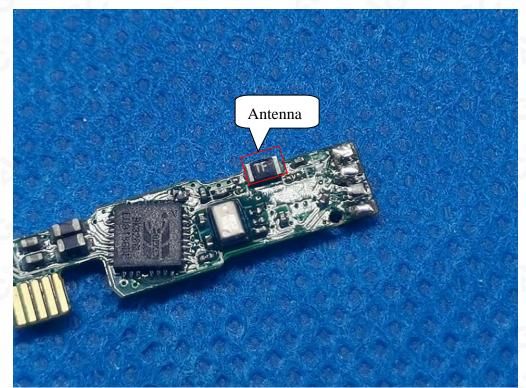


Report No.: AGC09161190901FE03 Page 62 of 63



**INTERNAL VIEW OF EUT-2** 

**INTERNAL VIEW OF EUT-3** 

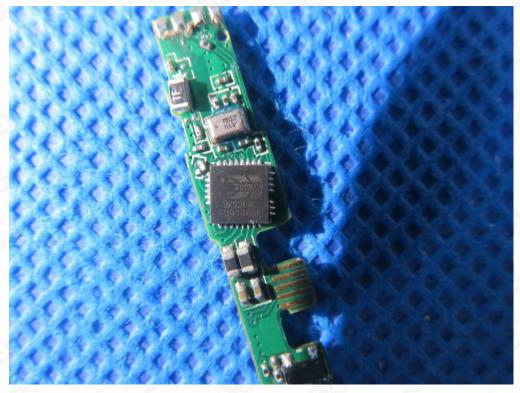




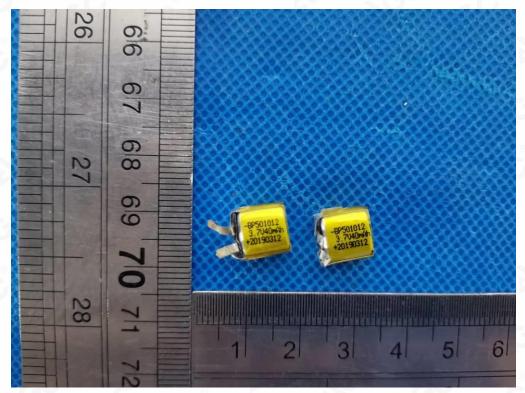


Report No.: AGC09161190901FE03 Page 63 of 63

# INTERNAL VIEW OF EUT-4



VIEW OF BATTERY



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



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