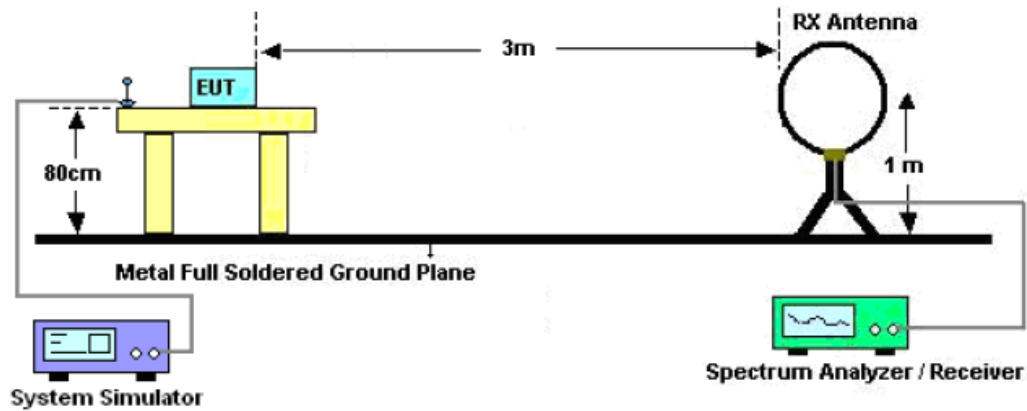
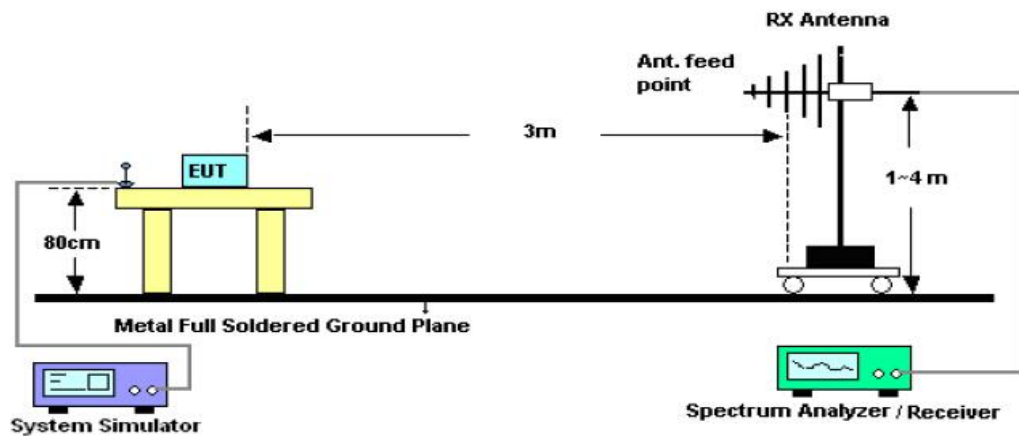


6.2. Test Setup

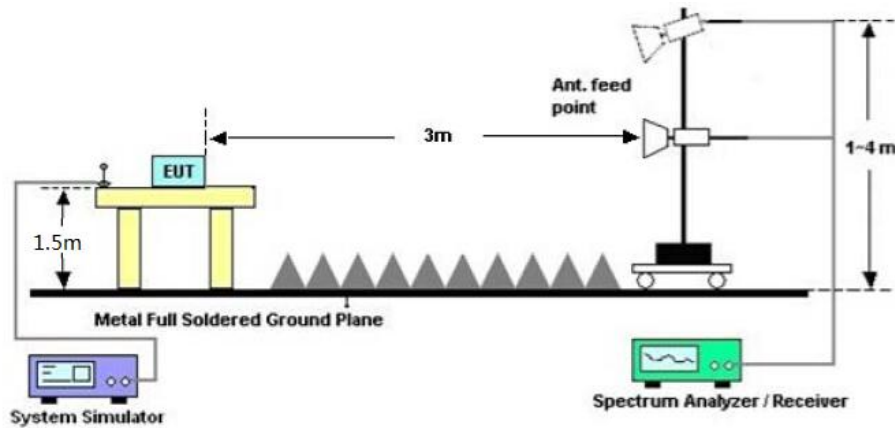
Radiated Emission Test-Setup Frequency Below 30MHz



RADIATED EMISSION TEST SETUP 30MHz-1000MHz



RADIATED EMISSION TEST SETUP ABOVE 1000MHz





6.3. Limits and Measurement Result

15.209&RSS-GEN 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

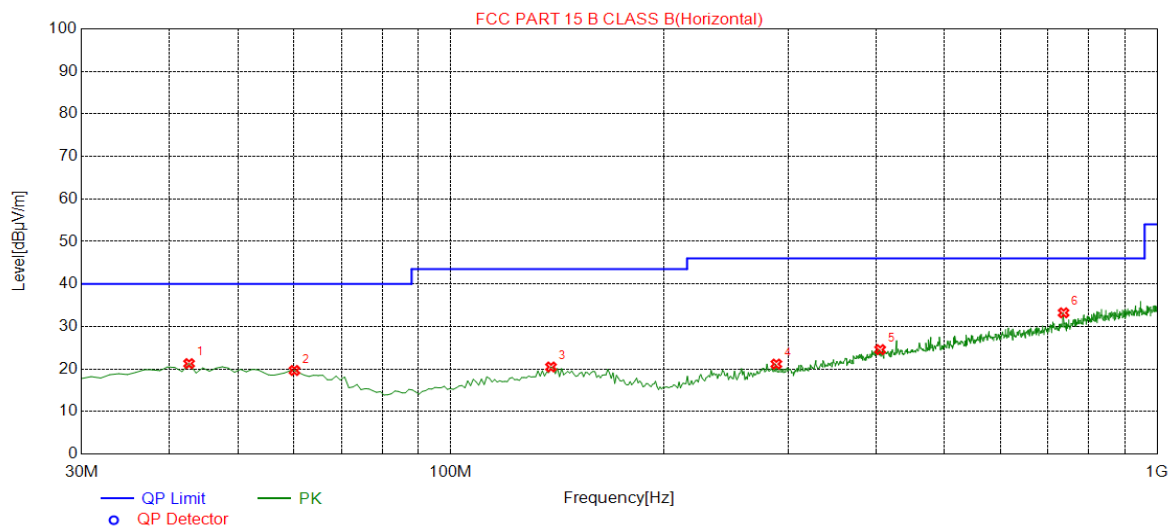
Note: All modes were tested For restricted band radiated emission,
the test records reported below are the worst result compared to other modes.

**RADIATED EMISSION BELOW 30MHZ**

No emission found between lowest internal used/generated frequencies to 30MHz.

RADIATED EMISSION BELOW 1GHZ

EUT	Wireless Hands-free Car Kit	Model Name	JBuds Band
Temperature	25°C	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	Mode 4	Antenna	Horizontal

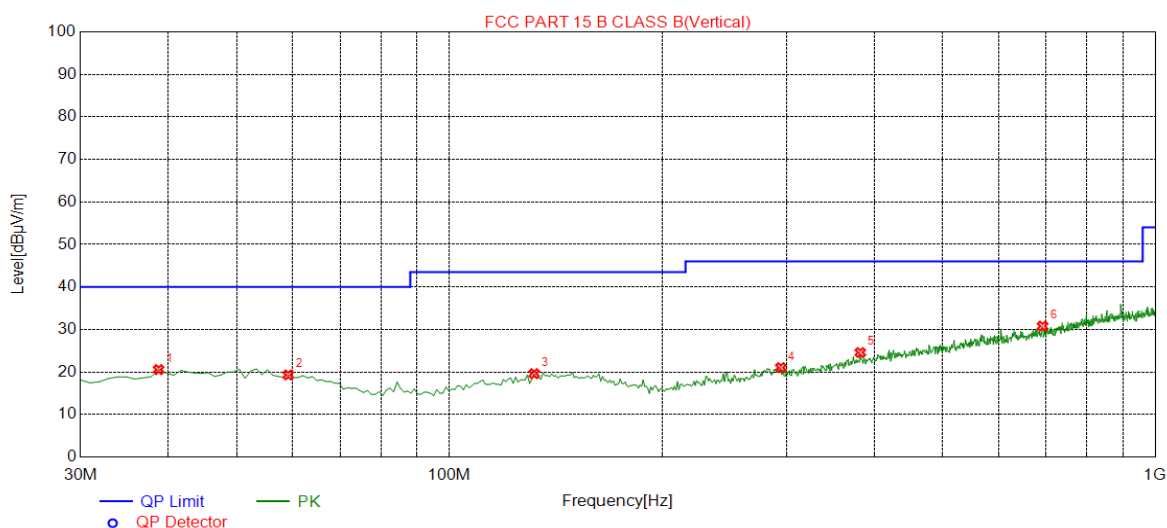


Suspected Data List								
NO.	Freq. [MHz]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	42.6100	21.27	14.56	40.00	18.73	150	160	Horizontal
2	60.0700	19.65	13.53	40.00	20.35	200	80	Horizontal
3	138.6400	20.48	14.15	43.50	23.02	150	310	Horizontal
4	288.9900	21.17	15.18	46.00	24.83	100	10	Horizontal
5	405.3900	24.56	18.79	46.00	21.44	100	230	Horizontal
6	737.1300	33.21	25.31	46.00	12.79	100	30	Horizontal

RESULT: PASS



EUT	Wireless Hands-free Car Kit	Model Name	JBuds Band
Temperature	25°C	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	Mode 4	Antenna	Vertical



Suspected Data List								
NO.	Freq. [MHz]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	38.7300	20.56	14.34	40.00	19.44	150	340	Vertical
2	59.1000	19.31	13.61	40.00	20.69	150	50	Vertical
3	131.8500	19.60	13.69	43.50	23.90	150	350	Vertical
4	294.8100	21.02	15.06	46.00	24.98	150	250	Vertical
5	382.1100	24.57	17.99	46.00	21.43	200	220	Vertical
6	692.5100	30.78	24.32	46.00	15.22	150	30	Vertical

RESULT: PASS

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

2. All test modes had been pre-tested. The mode 4 is the worst case and recorded in the report.

**RADIATED EMISSION ABOVE 1GHZ**

EUT	Wearing Bluetooth Headset	Model Name	JBuds Band
Temperature	25°C	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	Mode 1	Antenna	Horizontal

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Value Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
4804.042	49.88	3.76	53.64	74.00	-20.36	peak
4804.042	46.49	3.76	50.25	54.00	-3.75	AVG
7206.063	40.37	8.17	48.54	74.00	-25.46	peak
7206.063	36.99	8.17	45.16	54.00	-8.84	AVG

Remark:

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

EUT	Wearing Bluetooth Headset	Model Name	JBuds Band
Temperature	25°C	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	Mode 1	Antenna	Vertical

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Value Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
4804.042	48.99	3.76	52.75	74.00	-21.25	peak
4804.042	45.75	3.76	49.51	54.00	-4.49	AVG
7206.063	39.98	8.17	48.15	74.00	-25.85	peak
7206.063	36.69	8.17	44.86	54.00	-9.14	AVG

Remark:

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



EUT	Wearing Bluetooth Headset	Model Name	JBuds Band
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	Value Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
4882.042	49.73	3.78	53.51	74.00	-20.49	peak
4882.042	45.90	3.78	49.68	54.00	-4.32	AVG
7323.063	43.93	8.23	52.16	74.00	-21.84	peak
7323.063	40.51	8.23	48.74	54.00	-5.26	AVG

Remark:

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

EUT	Wearing Bluetooth Headset	Model Name	JBuds Band
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	Value Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
4882.042	48.76	3.78	52.54	74.00	-21.46	peak
4882.042	44.87	3.78	48.65	54.00	-5.35	AVG
7323.063	43.29	8.23	51.52	74.00	-22.48	peak
7323.063	39.26	8.23	47.49	54.00	-6.51	AVG

Remark:

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

EUT	Wearing Bluetooth Headset	Model Name	JBuds Band
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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 Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
4960.042	49.60	3.81	53.41	74.00	-20.59	peak
4960.042	46.00	3.81	49.81	54.00	-4.19	AVG
7440.063	44.06	8.27	52.33	74.00	-21.67	peak
7440.063	39.87	8.27	48.14	54.00	-5.86	AVG
Remark:						
Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

EUT	Wearing Bluetooth Headset	Model Name	JBuds Band
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	Value Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
4960.042	48.90	3.81	52.71	74.00	-21.29	peak
4960.042	44.87	3.81	48.68	54.00	-5.32	AVG
7440.063	42.15	8.27	50.42	74.00	-23.58	peak
7440.063	38.98	8.27	47.25	54.00	-6.75	AVG
Remark:						
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.

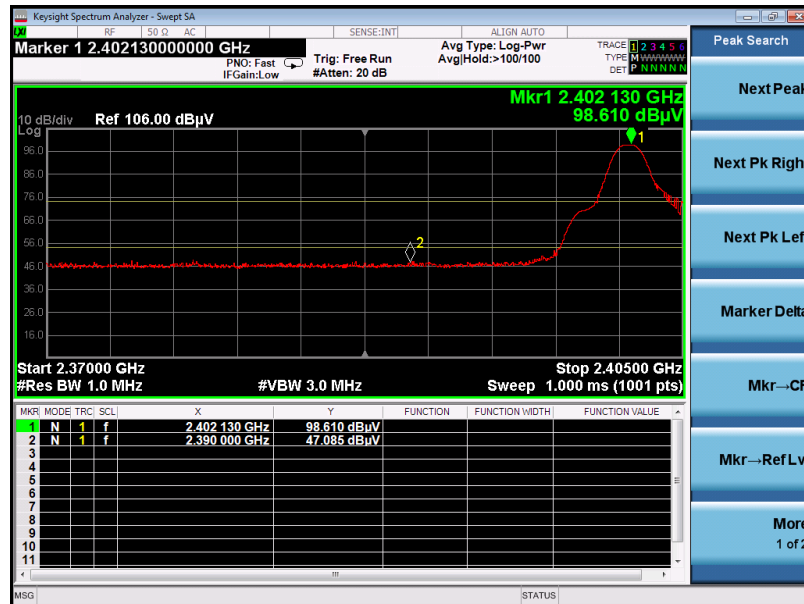
All test modes had been tested. The GFSK modulation is the worst case and recorded in the report.



TEST RESULT FOR RESTRICTED BANDS REQUIREMENTS

EUT	Wearing Bluetooth Headset	Model Name	JBuds Band
Temperature	25°C	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	Mode 1	Antenna	Horizontal

PK



AV

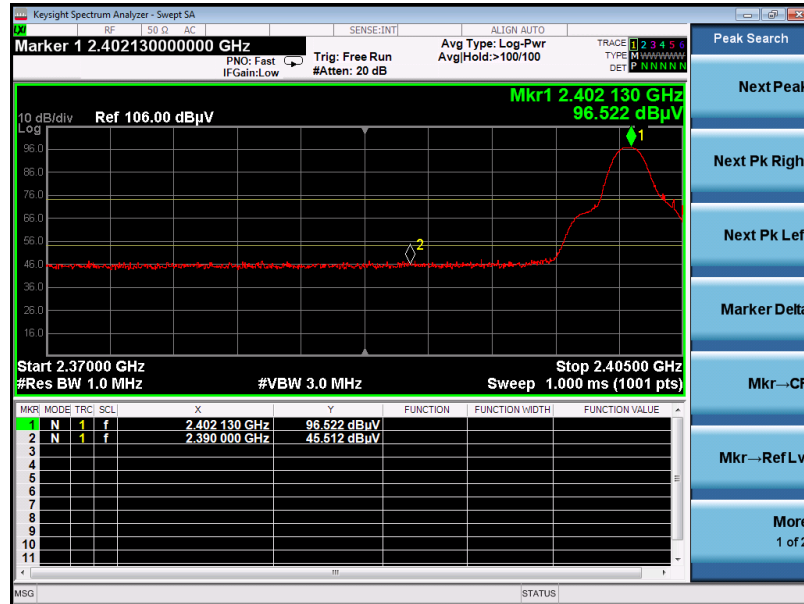


RESULT: PASS

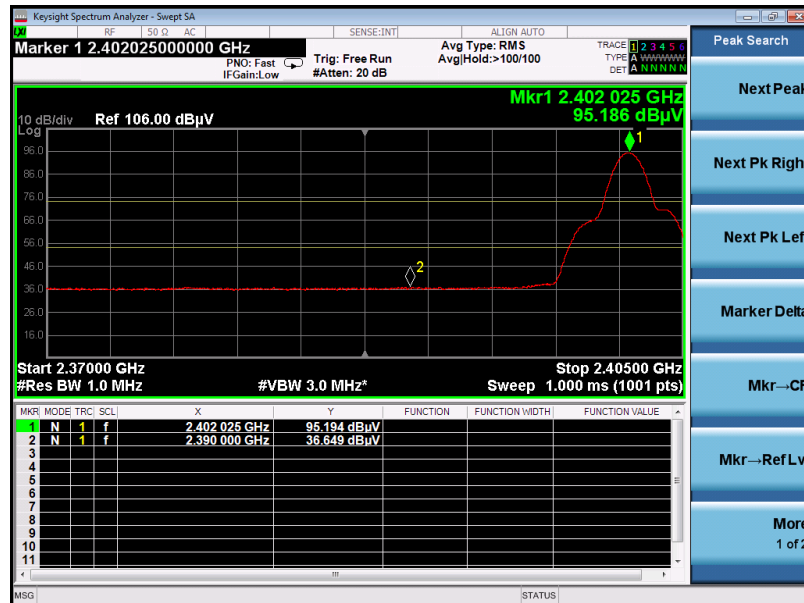


EUT	Wearing Bluetooth Headset	Model Name	JBuds Band
Temperature	25°C	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	Mode 1	Antenna	Vertical

PK



AV



RESULT: PASS

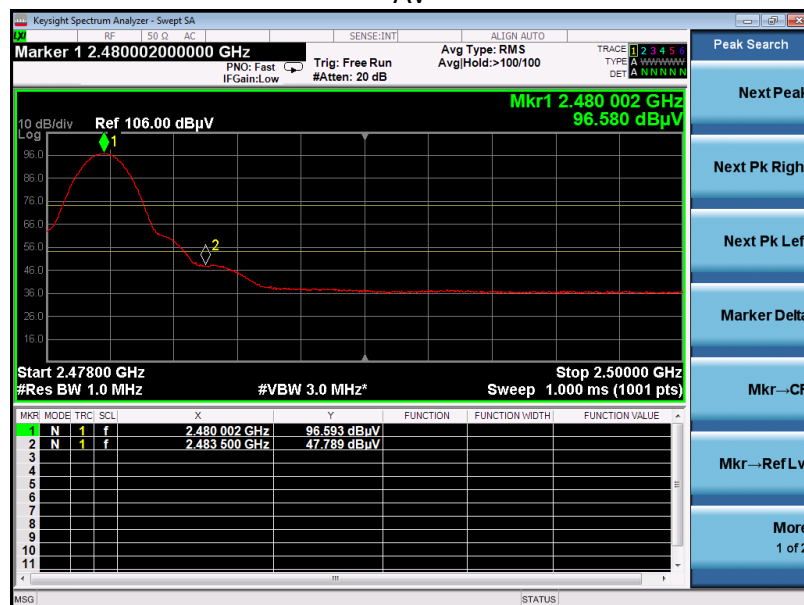


EUT	Wearing Bluetooth Headset	Model Name	JBuds Band
Temperature	25°C	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	Mode 3	Antenna	Horizontal

PK



AV

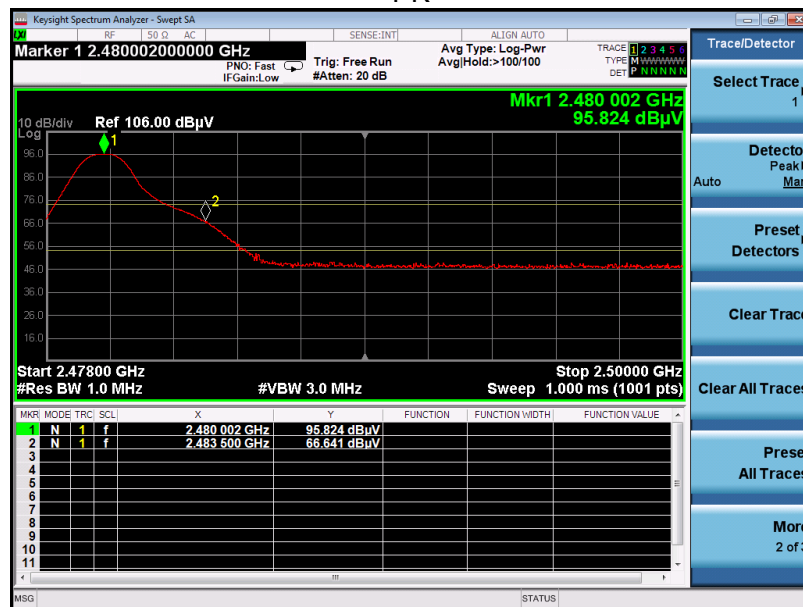


RESULT: PASS

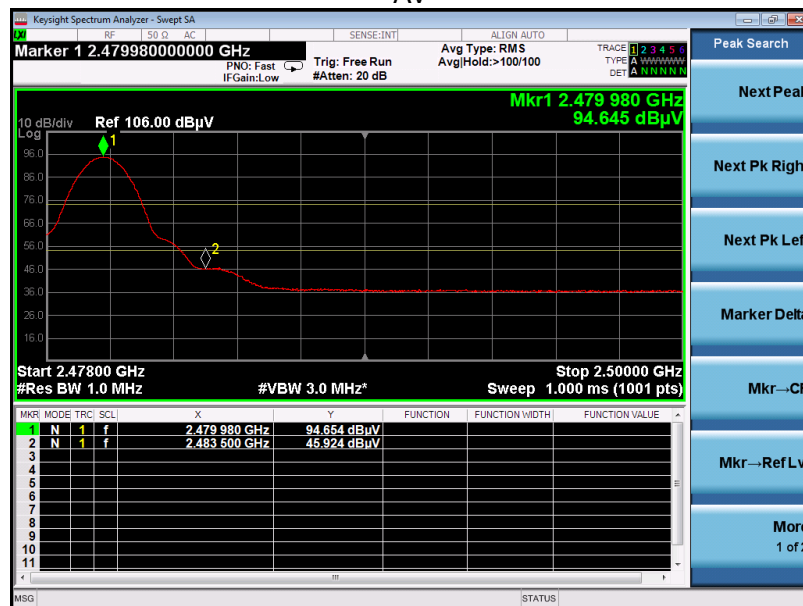


EUT	Wearing Bluetooth Headset	Model Name	JBuds Band
Temperature	25°C	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	Mode 3	Antenna	Vertical

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(μV) to represent the Amplitude. Use the F dB(μV/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.



7. Number of Hopping Frequency

7.1. 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.

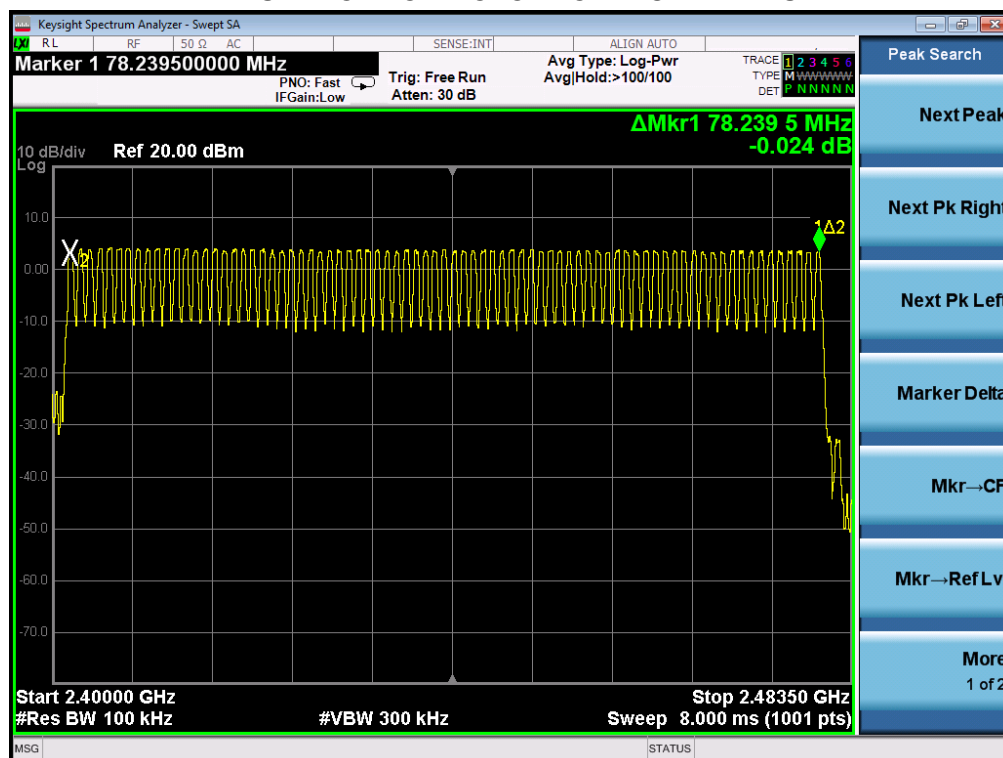
7.2. Test Setup (Block Diagram of Configuration)

Same as described in section 4.2

7.3. 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



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



8. Time Of Occupancy (Dwell Time)

8.1. 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 $\gg 1 / T$, 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.

8.2. Test Setup (Block Diagram of Configuration)

Same as described in section 4.2

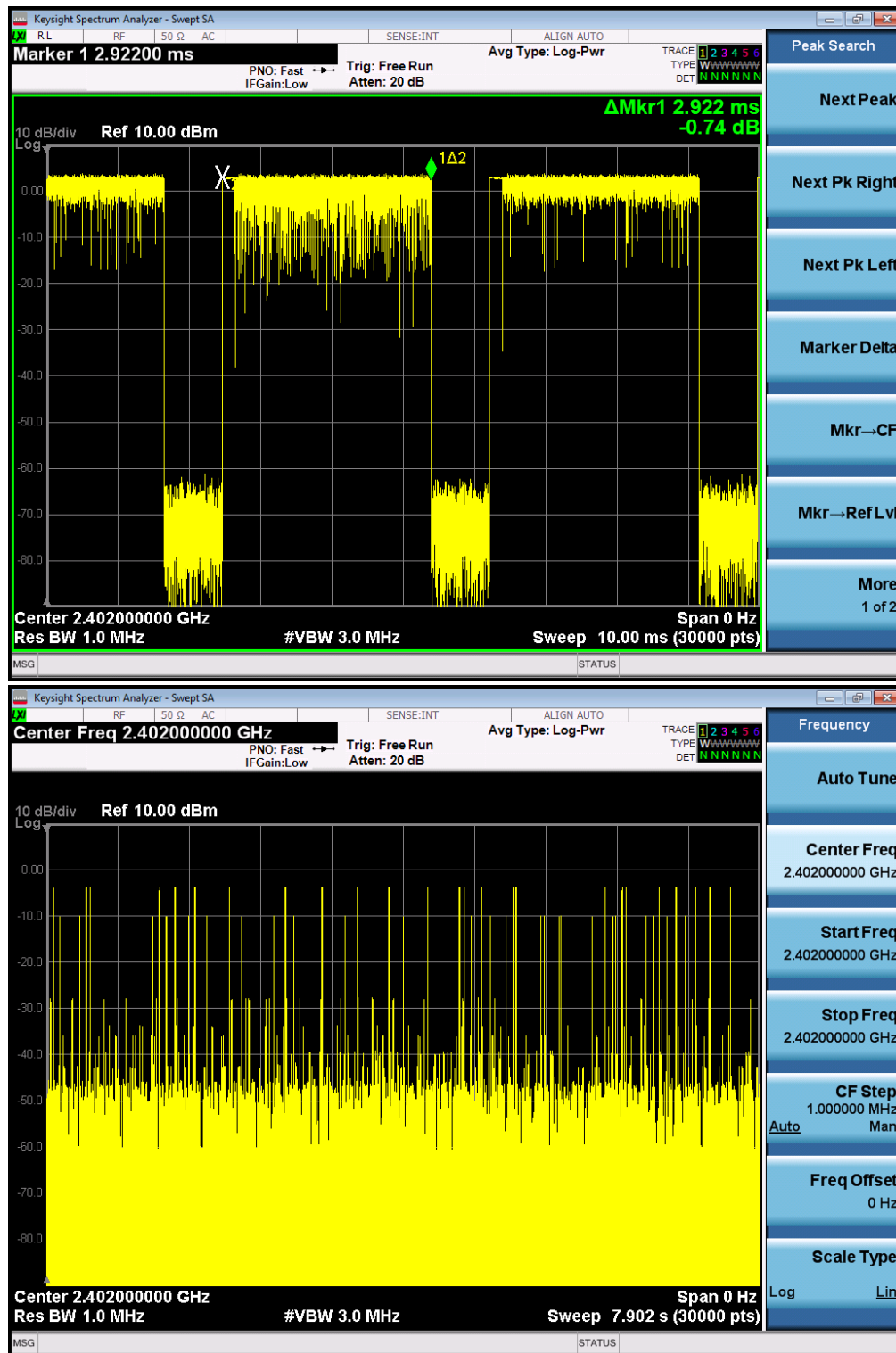
8.3. Limits and Measurement Result

Channel	Time of Pulse for DH5 (ms)	Number of hops in the period specified in the requirements	Sweep Time (ms)	Limit (ms)
Low	2.922	25*4	303.888	400
Middle	2.894	26*4	300.976	400
High	2.912	29*4	337.792	400

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

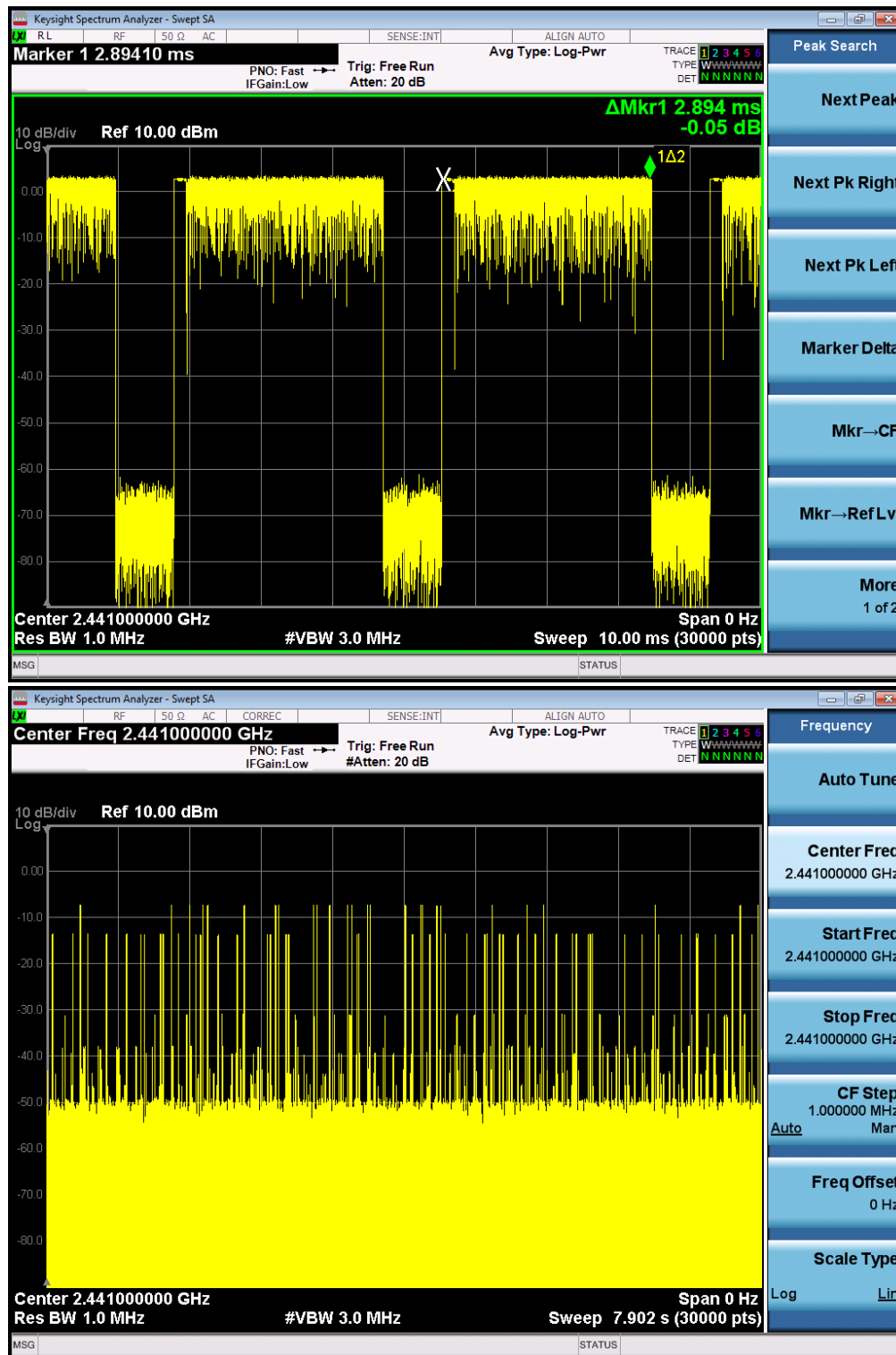


TEST PLOT OF LOW CHANNEL



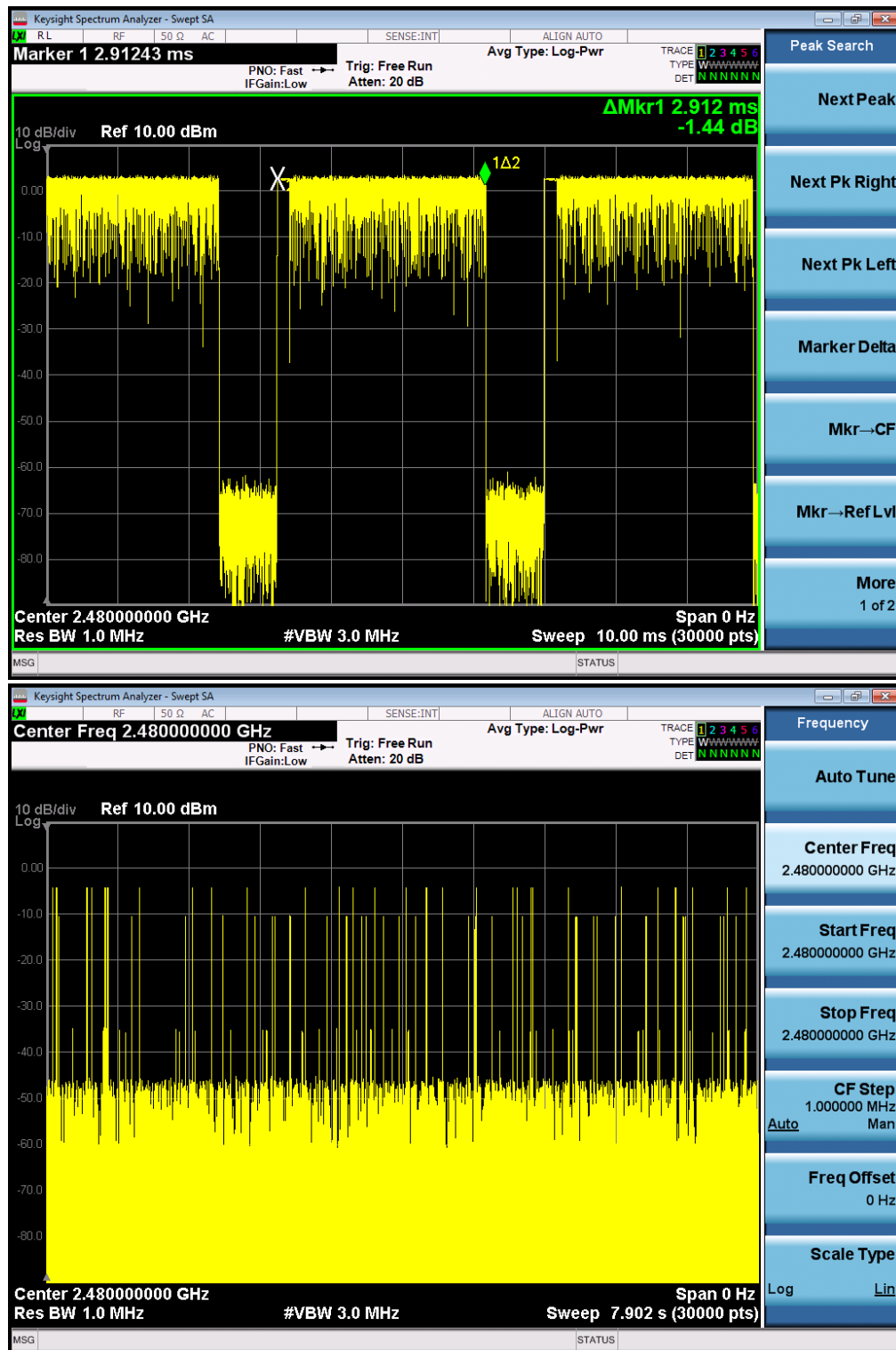


TEST PLOT OF MIDDLE CHANNEL





TEST PLOT OF HIGH CHANNEL





9. Frequency Separation

9.1. 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.

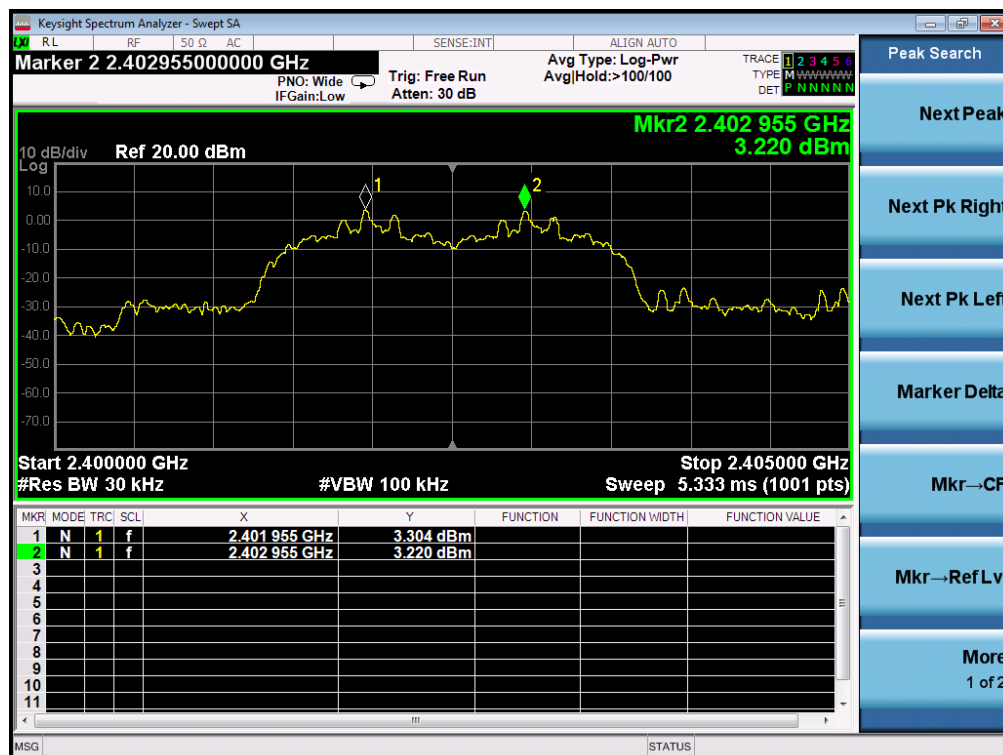
9.2. Test Setup (Block Diagram of Configuration)

Same as described in section 4.2

9.3. Limits and Measurement Result

CHANNEL	CHANNEL SEPARATION	LIMIT	RESULT
	KHz	KHz	
CH01-CH02	1000	≥ 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.

10. Test Setup Photos of the EUT

Radiated Emission



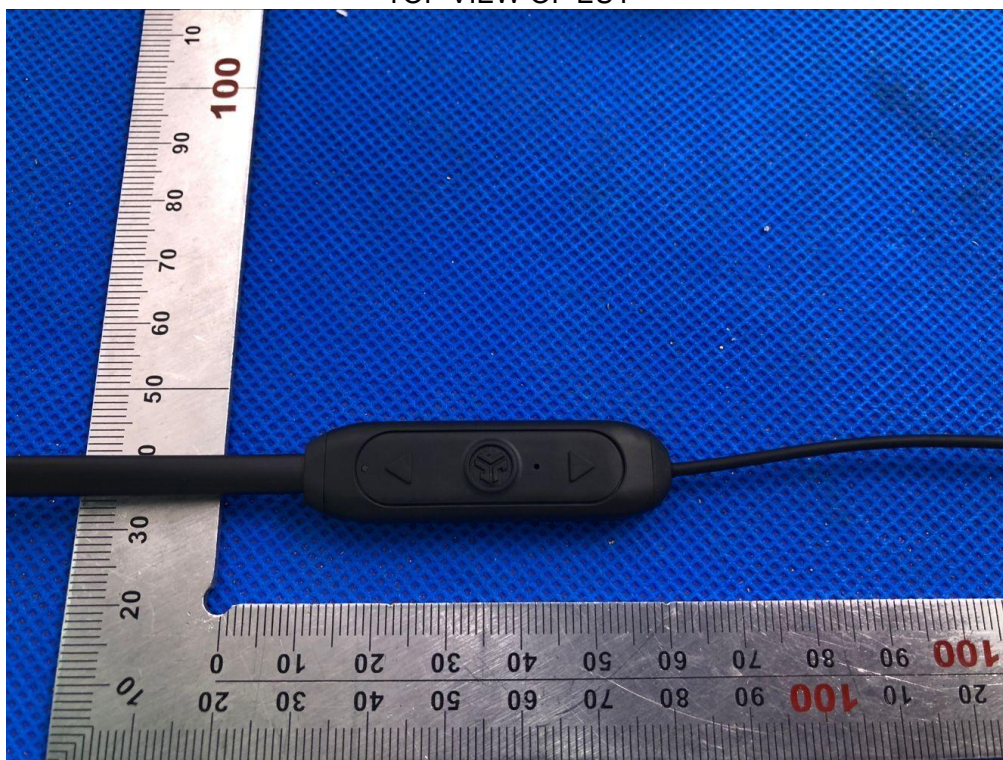
11. Photograph of EUT

ALL VIEW OF EUT

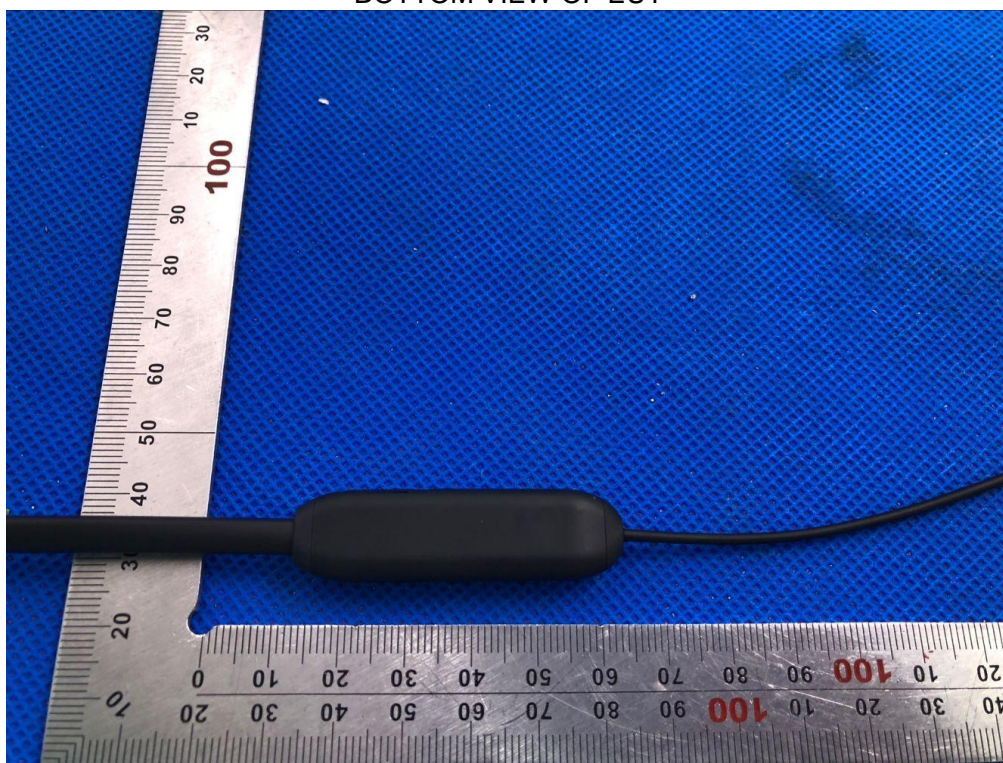




TOP VIEW OF EUT

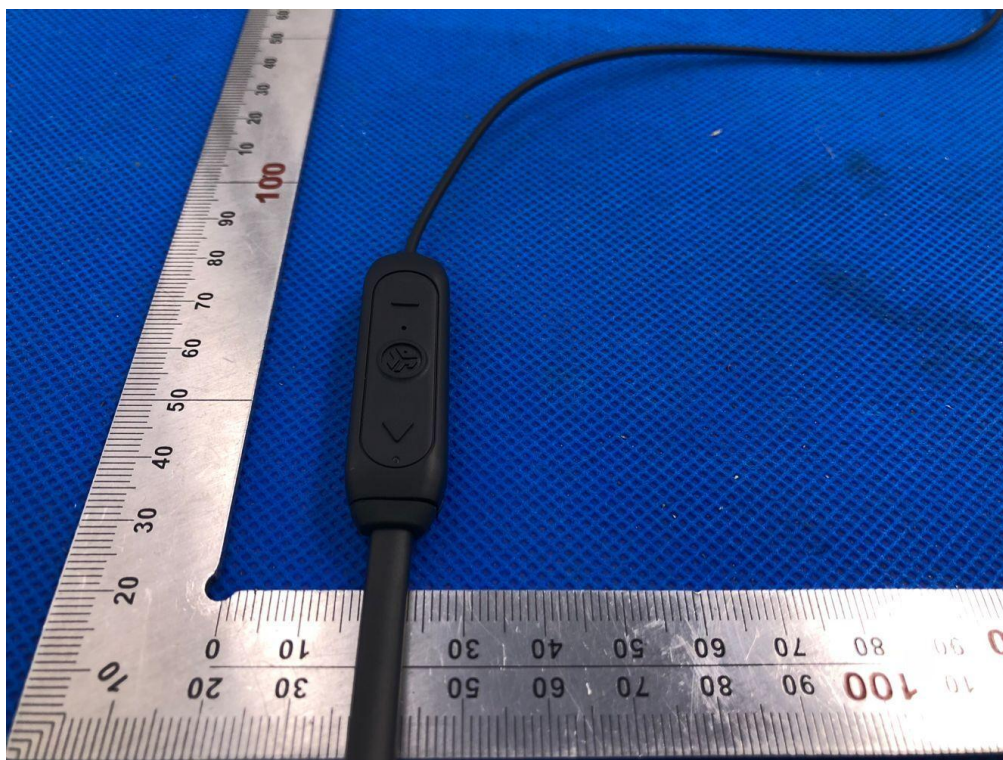


BOTTOM VIEW OF EUT





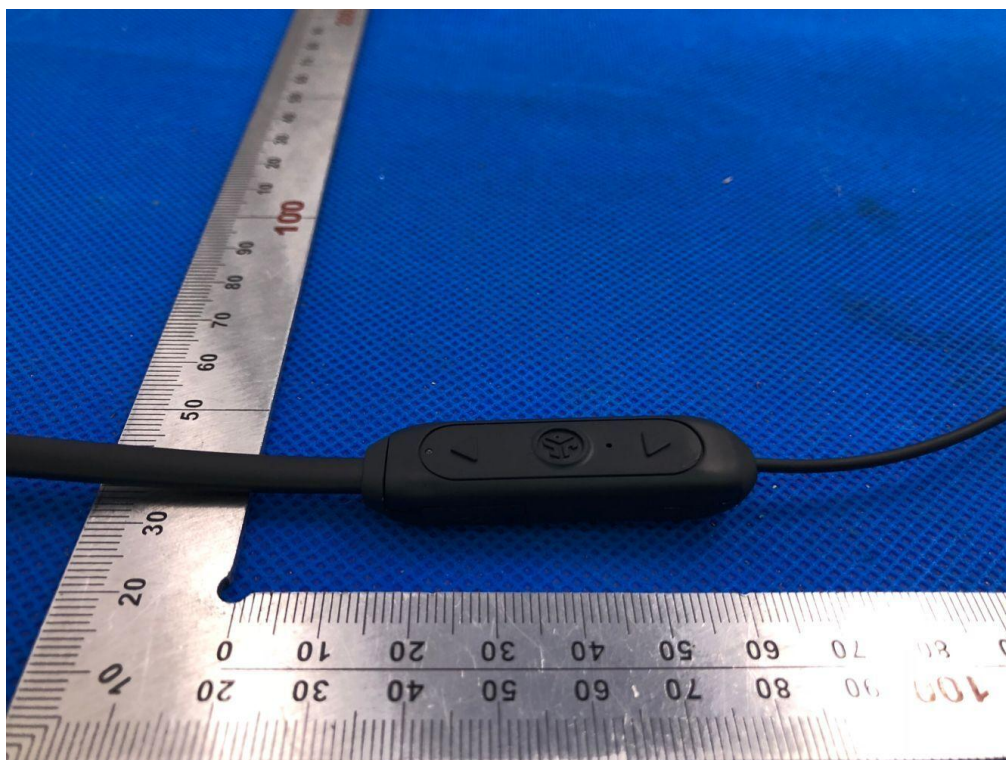
FRONT VIEW OF EUT



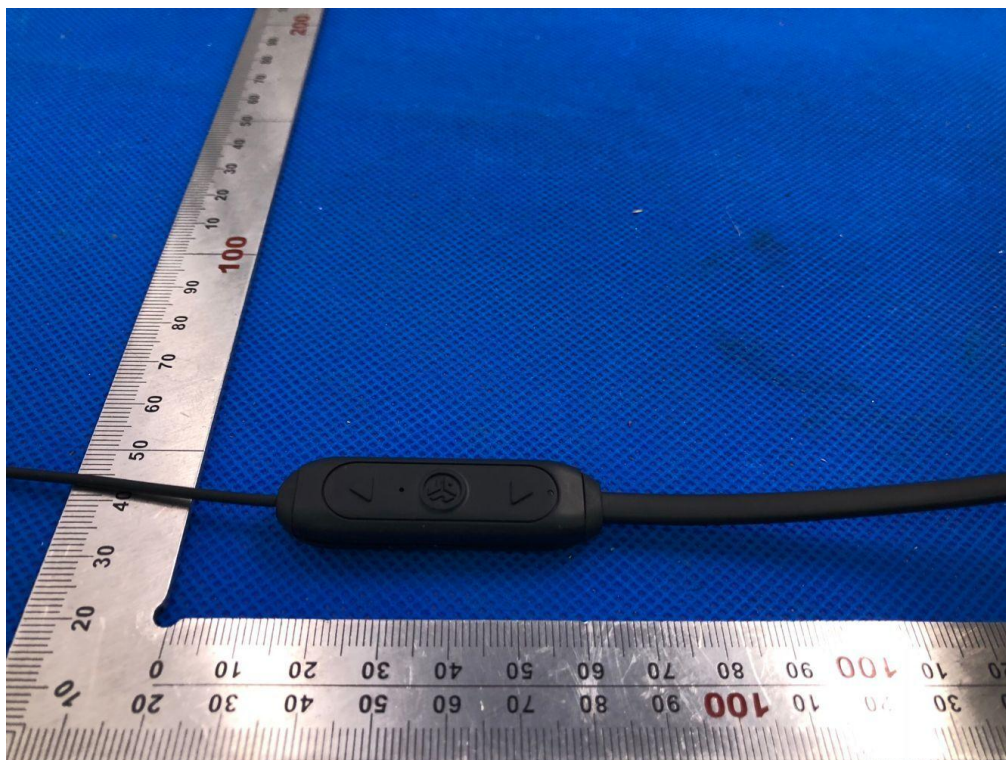
BACK VIEW OF EUT



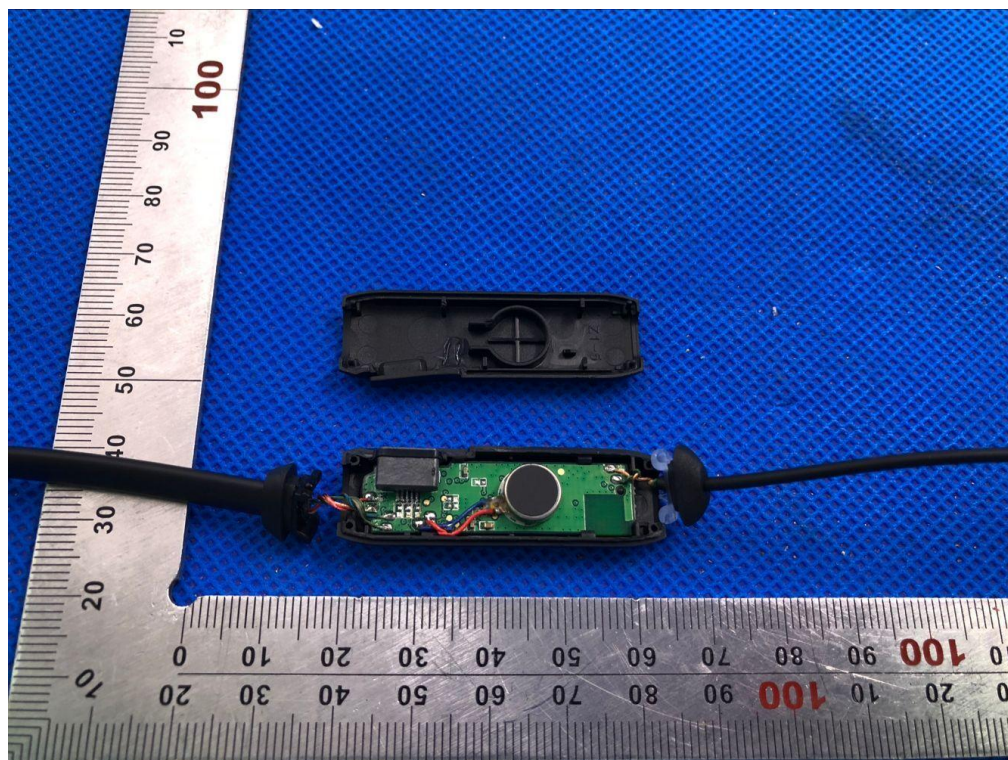
LEFT VIEW OF EUT



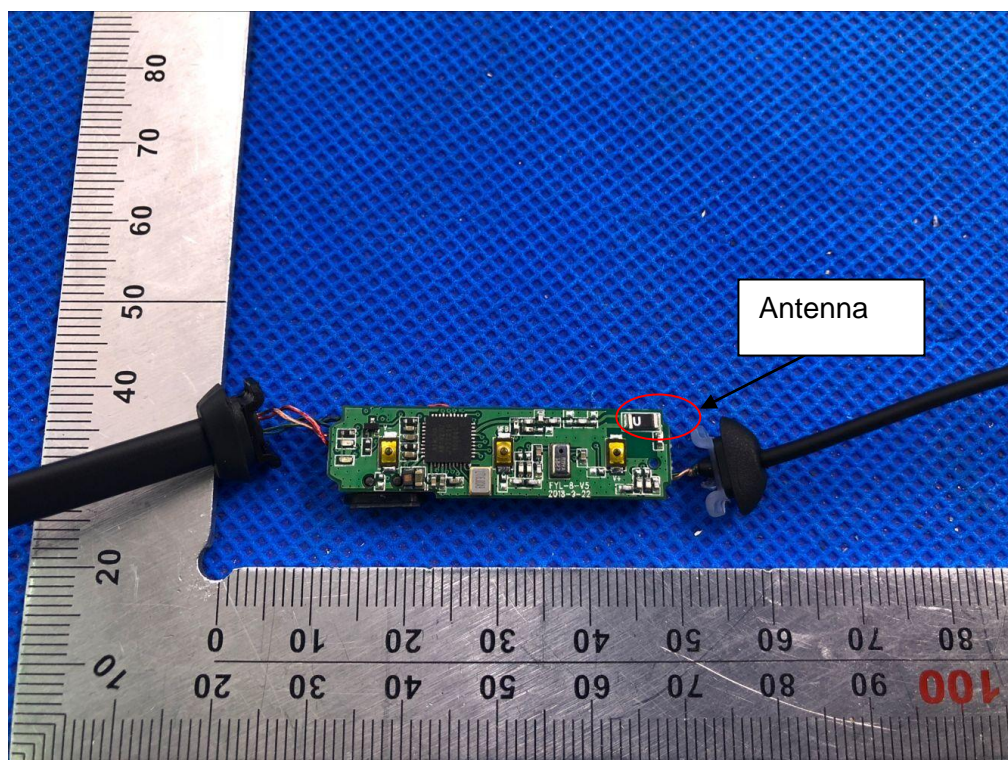
RIGHT VIEW OF EUT



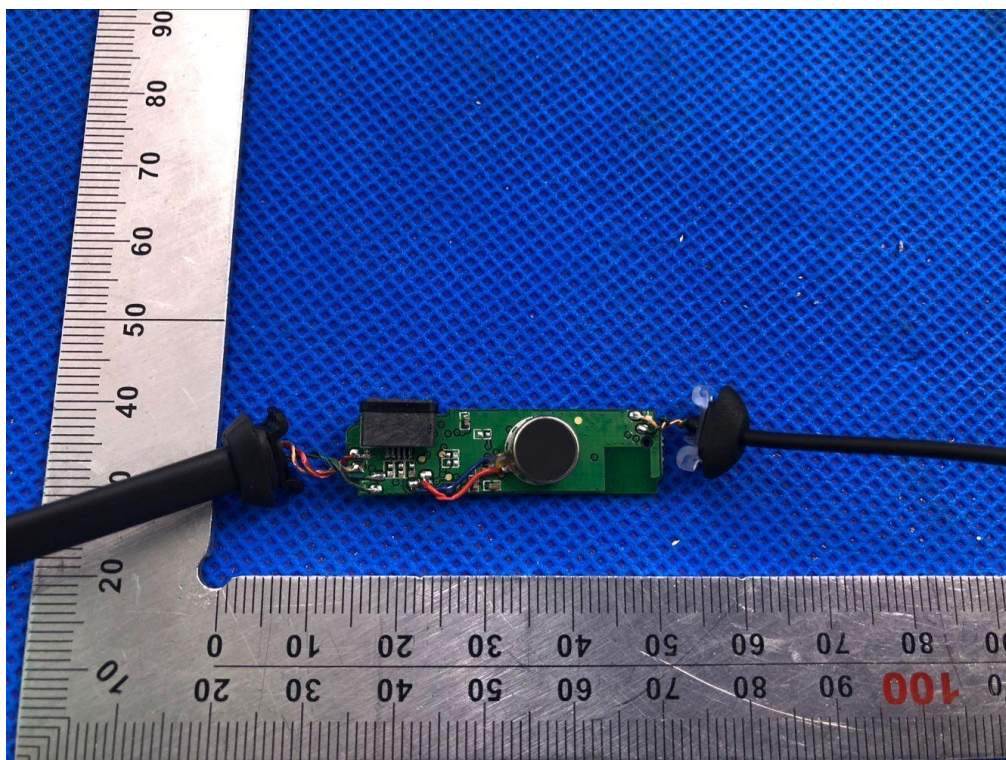
OPEN VIEW OF EUT



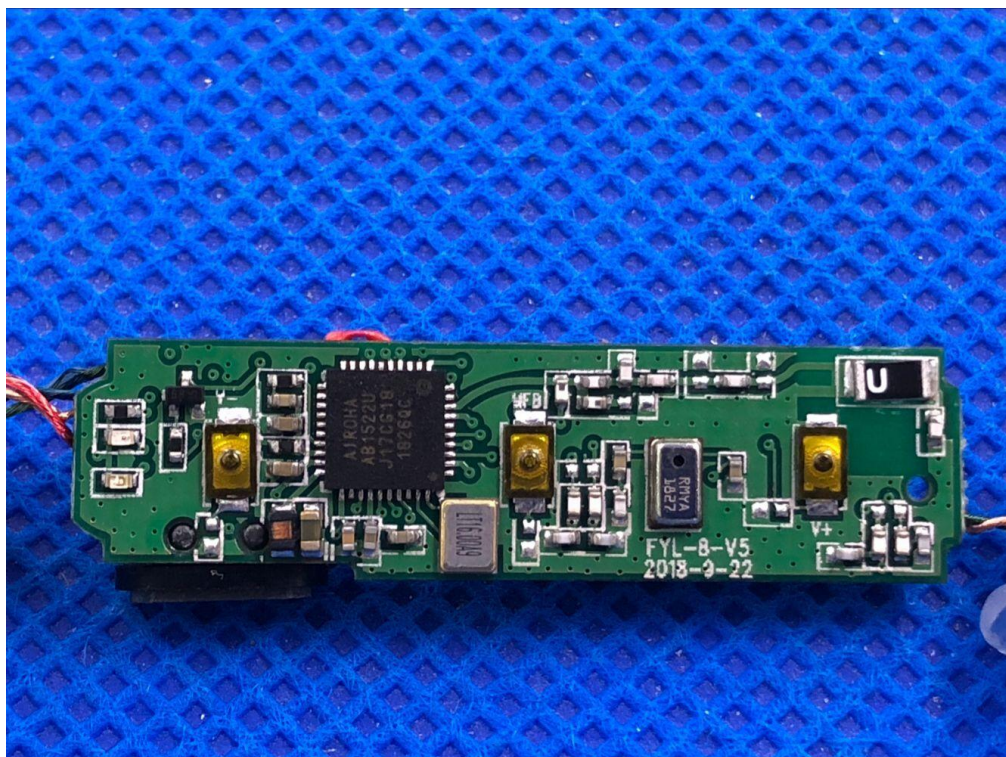
INTERNAL VIEW OF EUT-1



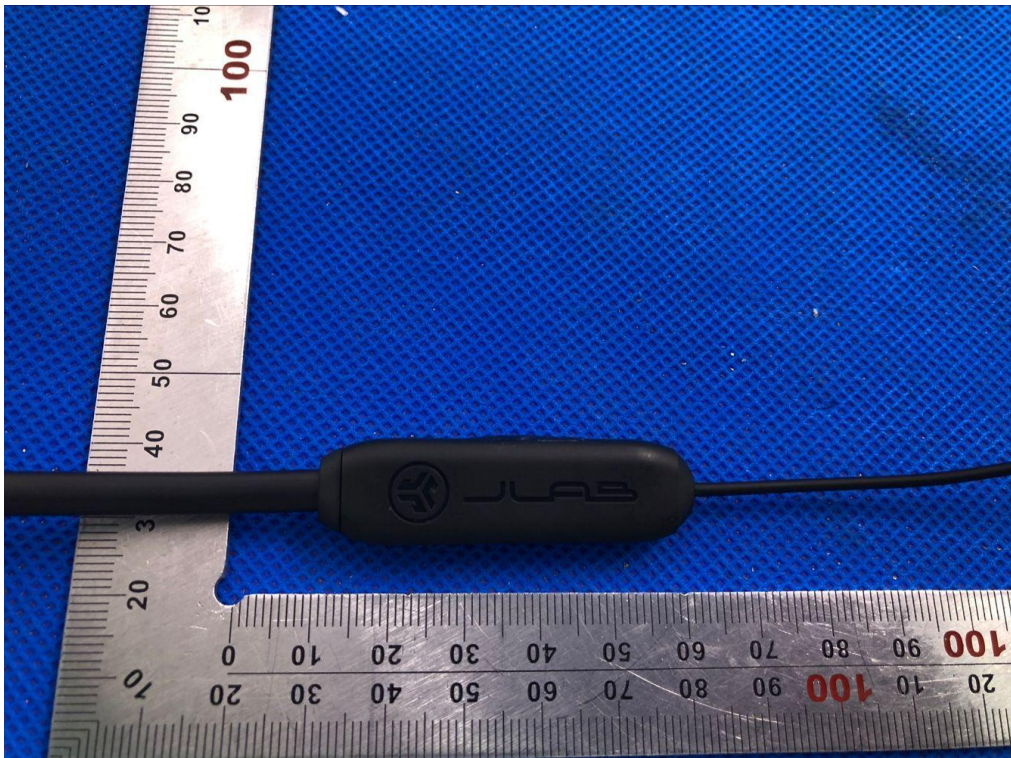
INTERNAL VIEW OF EUT-2



INTERNAL VIEW OF EUT-3



INTERNAL VIEW OF EUT-4



INTERNAL VIEW OF EUT-5

