

TEST REPORT

Product Name : Bluetooth Karaoke with 2 Wireless
Microphone
Model Number : KP-542.EXV26, X-542 Y (X and Y could be
single or multiple digits by any alphabets and
punctuation marks denoting different year
version, buyers and cabinet colors)
FCC ID : EMO542AM

Prepared for : SDI Technologies Inc.
Address : 1299 Main Street, Rahway, NJ 07065, U.S.A

Prepared by : EMTEK (DONGGUAN) CO., LTD.
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1 TEST RESULT CERTIFICATION

Applicant : SDI Technologies Inc.

Address : 1299 Main Street, Rahway, NJ 07065, U.S.A

Manufacturer : eKids, LLC. / KIDDESIGNS INC.

Address : 1299, Main Street, Rahway, NJ 07065, U.S.A.

Factory : SHENZHEN CHINAOWL CO., LTD.

Address : 1501 Building A, Huafeng Financial Harbor, Xin' an 6th Road, Bao' an Dist, Shenzhen, China

EUT : Bluetooth Karaoke with 2 Wireless Microphone

Model Name : KP-542.EXV26, X-542 Y (X and Y could be single or multiple digits by any alphabets and punctuation marks denoting different year version, buyers and cabinet colors)

Trademark : eKids / iHome

Measurement Procedure Used:

APPLICABLE STANDARDS	
STANDARD	TEST RESULT
FCC 47 CFR Part 2, Subpart J FCC 47 CFR Part 15, Subpart C	PASS
IC RSS-GEN, Issue 5(04-2018)+A1(03-2019)+A2(02-2021) IC RSS-247 Issue 4(07-2025)	PASS

The above equipment was tested by EMTEK(DONGGUAN) 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 (2020) and the energy emitted by the sample EUT tested as described in this report is in compliance with the requirements of FCC Rules Part 2, Part 15.247, IC RSS-247 Issue 4 and IC RSS-GEN, Issue 5.

The test results of this report relate only to the tested sample identified in this report.

Date of Test : Apr 07, 2026 to May 28, 2026

Prepared by :

Jessica Zhang
Jessica Zhang /Editor

Reviewer :

Warren Deng
Warren Deng /Supervisor

Approve & Authorized Signer :

Sam Lv
Sam Lv / Manager

Modified History

Version	Report No.	Revision Date	Summary
	EDG2604070329E00201R	/	Original Report



2 EUT TECHNICAL DESCRIPTION

Characteristics	Description
Product:	Bluetooth Karaoke with 2 Wireless Microphone
Model Number:	KP-542.EXV26, X-542 Y (X and Y could be single or multiple digits by any alphabets and punctuation marks denoting different year version, buyers and cabinet colors) (Note: These models are the same, except for the model names, year version, buyers and cabinet color; KP-542.EXV26 was selected for full test.)
Sample number:	1#
Data Rate :	1Mbps, 2Mbps
Modulation:	GFSK
Operating Frequency Range:	2402-2480MHz
Number of Channels:	40 Channels
Transmit Power Max:	7.07 dBm(0.005093 W)
Antenna Type:	PCB Antenna
Antenna Gain:	-0.58 dBi
Power Supply:	DC 5V from USB DC 3.7V from battery
Product SW/HW version:	N/A
Radio SW/HW version:	N/A
Temperature Range:	0~45℃

Note: for more details, please refer to the User's manual of the EUT.

3 SUMMARY OF TEST RESULT

FCC Part Clause	IC Part Clause	Test Parameter	Verdict	Remark
15.247(a)(2)	RSS-247 6.3.1 RSS-Gen 6.7	Emission Bandwidth	PASS	
15.247(b)(3)	RSS-247 6.3.2 RSS-Gen 6.12	Maximum Peak Conducted Output Power	PASS	
15.247(e)	RSS-247 6.3.1 RSS-Gen 6.12	Maximum Power Spectral Density Level	PASS	
15.247(d)	RSS-247 6.6	Unwanted Emission Into Non-Restricted Frequency Bands	PASS	
15.247(d)	RSS-247 6.6	Unwanted Emission Into Restricted Frequency Bands (conducted)	PASS	
15.247(d) 15.209 15.205	RSS-Gen 8.9 RSS-Gen 8.10 RSS-Gen 6.13 RSS-247 6.6	Radiated Spurious Emission	PASS	
15.207	RSS-Gen 8.8	Conducted Emission Test	PASS	
15.203 15.247(b)	RSS-Gen 6.8 RSS-247 6.5	Antenna Application	PASS	
NOTE1: N/A (Not Applicable) NOTE2: According to FCC OET KDB 558074, the report use radiated measurements in the restricted frequency bands. In addition, the radiated test is also performed to ensure the emissions emanating from the device cabinet also comply with the applicable limits.				

RELATED SUBMITTAL(S)/GRANT(S):

This submittal(s) (test report) is intended for **FCC ID: EMO542AM** filing to comply with Section 15.247 of the FCC Part 15, Subpart C Rules.

4 TEST METHODOLOGY

4.1 GENERAL DESCRIPTION OF APPLIED STANDARDS

According to its specifications, the EUT must comply with the requirements of the following standards:

FCC 47 CFR Part 2, Subpart J

FCC 47 CFR Part 15, Subpart C

IC RSS-GEN, Issue 5(04-2018)+A1(03-2019)+A2(02-2021)

IC RSS-247 Issue 4(07-2025)

FCC KDB 558074 D01 15.247 Meas Guidance v05r02

4.2 MEASUREMENT EQUIPMENT USED

Conducted Emission Test Equipment

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
EMI Test Receiver	Rohde&Schwarz	ESCI	100137	2025/4/28 2026/4/23	1Year
AMN	Rohde&Schwarz	ENV216	101209	2025/4/28 2026/4/23	1Year
AMN	Rohde&Schwarz	ENV216	100017	2025/4/28 2026/4/23	1Year
RF Switching Unit	CDS	RSU-M2	38401	2025/4/29 2026/4/23	1Year
AMN	Schwarzbeck	NNLK8121	8121-641	2025/4/28 2026/4/23	1Year
AMN	Rohde&Schwarz	ESH3-Z6	101101	2025/4/28 2026/4/23	1Year
AMN	Rohde&Schwarz	ESH3-Z6	101102	2025/4/28 2026/4/23	1Year
Power Splitters & Dividers	Weinschel Associates	WA1506A	A1066	2025/4/29 2026/4/23	1Year
Current Probe	FCC	F-52	8377	2025/4/28 2026/4/23	1Year
Passive voltage probe	Rohde&Schwarz	ESH2-Z3	100122	2025/4/28 2026/4/23	1Year
Cable	Rosenberger	RG 223/U	525178	2025/4/28 2026/4/23	1Year
Cable	Rosenberger	RG223/U	525179	2025/4/28 2026/4/23	1Year
Test Software	Farad	Ver.CON-03A1	--	N/A	N/A

For Spurious Emissions Test

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
EMI Test Receiver	Rohde&Schwarz	ESCI	101415	2025/4/29 2026/4/23	1Year
Bi-log Hybrid Antenna	Schwarzbeck	VULB9163	141	2025/5/1 2026/4/25	1Year
Pre-Amplifie	HP	8447F	OPTH64	2025/4/29 2026/4/23	1 Year
Signal Analyzer	R&S	FSV30	103039	2025/4/29 2026/4/23	1 Year

Horn Antenna	Schwarzbeck	BBHA9120D	1272	2025/5/1 2026/4/25	1Year
Horn Antenna	Schwarzbeck	BBHA9170	9170-567	2025/5/1 2026/4/25	1Year
Pre-Amplifie	LUNAR EM	PM1-18-40	J10100000081	2025/4/29 2026/4/23	1Year
Loop antenna	Schwarzbeck	FMZB1519	1519-012	2025/5/1 2026/4/25	1Year
Cable	Rosenberger	CIL02	A0783566	2025/4/28 2026/4/23	1Year
Cable	HTS	CBL-26	D1245	2025/4/28 2026/4/23	1Year
Cable	HTS	CBL-26	D8503	2025/4/28 2026/4/23	1Year
Cable	HTS	CBL-26	/	2025/4/28 2026/4/23	1Year
6 db attenuator	AR-WORLDWIDE	6dB/50FH-006-100	324011	2025/4/28 2026/4/23	1Year
Test Software	Farad	Ver.RA-03A1	--	N/A	N/A

For other test items:

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
Wireless Connectivity Tester	R&S	CMW270	102543	2025/4/28 2026/4/23	1Year
Automatic Control Unit	Tonscend	JS0806-2	2118060480	2025/4/28 2026/4/23	1Year
Signal Analyzer	KEYSIGHT	N9010B	MY60242456	2025/4/28 2026/4/23	1Year
Analog Signal Generator	KEYSIGHT	N5173B	MY61252625	2025/4/28 2026/4/23	1Year
UP/DOWN-Converter	R&S	CMW-Z800A	100274	2025/4/28 2026/4/23	1Year
Vector Signal Generator	KEYSIGHT	N5182B	MY61252674	2025/4/28 2026/4/23	1Year
Frequency Extender	KEYSIGHT	N5182BX07	MY59362541	2025/4/28 2026/4/23	1Year
Temperature&Humidity test chamber	ESPEC	EL-02KA	12107166	2025/4/28 2026/4/23	1 Year
Radio frequency test system	Tonscend	JS1120-3	--	N/A	N/A

For measurement cables(It is from the antenna end of EUT to the test port of test equipment.)

Equipment	Manufacturer	cable loss	Application frequency band	Measurement data of line loss comes from	Last Cal.	Cal. Interval
Measurement cable	Provided by the applicant	0.5 dBm	2402-2480MHz	Manufacturers claim themselves.	N/A	N/A

4.3 DESCRIPTION OF TEST MODES

The EUT has been tested under its typical operating condition.

The EUT configuration for testing is installed on RF field strength measurement to meet the Commissions requirement and operating in a manner which intends to maximize its emission characteristics in a continuous normal application.

The Transmitter was operated in the normal operating mode. The TX frequency was fixed which was for the purpose of the measurements.

Test of channel included the lowest and middle and highest frequency to perform the test, then record on this report.

Those data rates (Bluetooth DTS :1Mbps, 2Mbps) were used for all test.

Pre-defined engineering program for regulatory testing used to control the EUT for staying in continuous transmitting and receiving mode is programmed.

Frequency and Channel list for Bluetooth DTS:

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
0	2402	19	2440	...	...
1	2404	20	2442	37	2476
2	2406	21	2444	38	2478
...	...	...	...	39	2480
Note: $f_c = 2402\text{MHz} + k \times 2\text{MHz}$ $k=1$ to 39					

Test Frequency and channel for Bluetooth DTS:

Lowest Frequency		Middle Frequency		Highest Frequency	
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
0	2402	19	2440	39	2480

5 FACILITIES AND ACCREDITATIONS

5.1 FACILITIES

All measurement facilities used to collect the measurement data are located at:

EMTEK (DONGGUAN) CO., LTD.

1&2/F., Building 2, Zone A, Zhongda Marine Biotechnology Research and Development Base, No.9, Xincheng Avenue, Songshanhu High-technology Industrial Development Zone, Dongguan, Guangdong, China

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

5.2 EQUIPMENT

Radiated emissions are measured with one or more of the following types of linearly polarized antennas: tuned dipole, biconical, log periodic, bi-log, and/or ridged waveguide, horn. Spectrum analyzers with preselectors and quasi-peak detectors are used to perform radiated measurements.

Conducted emissions are measured with Line Impedance Stabilization Networks and EMI Test Receivers.

Calibrated wideband preamplifiers, coaxial cables, and coaxial attenuators are also used for making measurements.

All receiving equipment conforms to CISPR Publication 16-1, "Radio Interference Measuring Apparatus and Measurement Methods."

5.3 LABORATORY ACCREDITATIONS AND LISTINGS

Site Description

EMC Lab. : Accredited by CNAS, 2024.07.06
The certificate is valid until 2030.07.05
The Laboratory has been assessed and proved to be in compliance with CNAS/CL01:2018
The Certificate Registration Number is L3150

Accredited by FCC
Designation Number: CN1451
Test Firm Registration Number: 846861

Accredited by A2LA
The Certificate Registration Number is 4321.02

Accredited by Industry Canada
The Certificate Registration Number is CN0113

Name of Firm : EMTEK (DONGGUAN) CO., LTD.

Site Location : 1&2/F., Building 2, Zone A, Zhongda Marine Biotechnology Research and Development Base, No.9, Xincheng Avenue, Songshanhu High-technology Industrial Development Zone, Dongguan, Guangdong, China

6 TEST SYSTEM UNCERTAINTY

The following measurement uncertainty levels have been estimated for tests performed on the apparatus:

Table 1

Test Parameter	Measurement Uncertainty
Radio Frequency	$\pm 1 \times 10^{-5}$
Maximum Peak Output Power Test	$\pm 1.0\text{dB}$
Conducted Emissions Test	See below
Radiated Emission Test	$\pm 2.0\text{dB}$
Power Density	$\pm 2.0\text{dB}$
Occupied Bandwidth Test	$\pm 1.0\text{dB}$
Band Edge Test	$\pm 3\text{dB}$
All emission, radiated	See below
Antenna Port Emission	$\pm 3\text{dB}$
Temperature	$\pm 0.5^\circ\text{C}$
Humidity	$\pm 3\%$

Table 2

Test Item

Conducted Emission Uncertainty

Uncertainty

: 2.08dB(9K-150KHz)
2.42dB(150K-30MHz)

Radiated Emission Uncertainty
(3m Chamber)

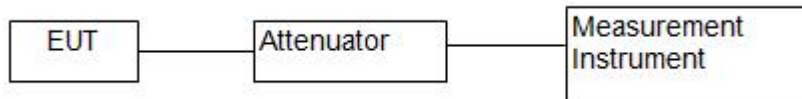
: 3.32dB (30M~1GHz Polarize: H)
3.34dB (30M~1GHz Polarize: V)
4.98dB (1~6GHz)
5.20dB (6~18GHz)

Measurement Uncertainty for a level of Confidence of 95%

7 SETUP OF EQUIPMENT UNDER TEST

7.1 RADIO FREQUENCY TEST SETUP 1

The Bluetooth component's antenna ports(s) of the EUT are connected to the measurement instrument per an appropriate attenuator. The EUT is controlled by PC/software to emit the specified signals for the purpose of measurements.



7.2 RADIO FREQUENCY TEST SETUP 2

The test site semi-anechoic chamber has met the requirement of NSA tolerance 4 dB according to the standards: ANSI C63.10. The test distance is 3m. The setup is according to the requirements in ANSI C63.10-2020 and CAN/CSA-CEI/IEC CISPR 22.

The maximal emission value is acquired by adjusting the antenna height, polarisation and turntable azimuth. Normally, the height range of antenna is 1 m to 4 m, the azimuth range of turntable is 0° to 360°, and the receive antenna has two polarizations Vertical (V) and Horizontal (H).

Below 30MHz:

The EUT is placed on a turntable 0.8 meters above the ground in the chamber, 3 meter away from the antenna (loop antenna). The Antenna should be positioned with its plane vertical at the specified distance from the EUT and rotated about its vertical axis for maximum response at each azimuth about the EUT. The center of the loop shall be 1 m above the ground. For certain applications, the loop antenna plane may also need to be positioned horizontally at the specified distance from the EUT.

Above 30MHz:

The EUT is placed on a turntable 0.8 meters above the ground in the chamber, 3 meter away from the antenna. The maximal emission value is acquired by adjusting the antenna height, polarisation and turntable azimuth. Normally, the height range of antenna is 1 m to 4 m, the azimuth range of turntable is 0° to 360°, and the receive antenna has two polarizations Vertical (V) and Horizontal (H).

Above 1GHz:

The EUT is placed on a turntable 1.5 meters above the ground in the chamber, 3 meter away from the antenna. The maximal emission value is acquired by adjusting the antenna height, polarisation and turntable azimuth. Normally, the height range of antenna is 1 m to 4 m, the azimuth range of turntable is 0° to 360°, and the receive antenna has two polarizations Vertical (V) and Horizontal (H).

Measurements shall be taken, using the following steps, at a test site that has been validated using the procedures of ANSI C63.4 or the latest CISPR 16-1-4 for measurements above 1 GHz, so as to simulate a near free-space environment (see RSS-Gen for applicable versions of ANSI and CISPR standards).

- (1) Line the ground plane with absorbers between the transmitter and the receive antenna to minimize reflections. The absorbers used should have a minimum-rated attenuation of 20 dB through the measurement frequency range of interest. The absorbers shall be positioned to replicate the layout used when compliance with the applicable acceptability criterion was achieved, as set forth in the aforementioned standards on site validation.
- (2) Set the height of the receive antenna to 1.5 m. The receive antenna must be one that was designed and fabricated to operate over the entire frequency range of interest, for example, an appropriate standard gain horn.
- (3) The distance between the receive antenna and the radiating source shall be sufficient in order to ensure far-field conditions.
- (4) Mount the transmitter at a height of 1.5 m.
- (5) Configure the device under test (DUT) to produce the maximum power spectral density as measured while assessing compliance with Section 6.2.2 (i.e. channel frequency, modulation type and data rate). If the DUT is equipped with a detachable antenna and the antenna is intended for remote installation (i.e.

tower-mounted), the DUT may be substituted with a suitable signal generator. The level and frequency settings on the generator shall be set so as to reproduce the maximum power spectral density, measured within a 1 MHz bandwidth, obtained while assessing compliance to Section 6.2.2.

(6) Position the transmitter or the radiating antenna so that elevation pattern measurements can be taken.

(7) Find the 0° reference point in the horizontal plane.

(8) Care should be taken when positioning the receive antenna to avoid cross-polarization. Antennas of known mounting polarization should be assessed with the receive antenna oriented in the same polarity. If the polarization of the transmit antenna is unknown or the transmit antenna can be mounted in either polarization, e.i.r.p. measurements should be performed to find which mounting polarity provides the highest e.i.r.p. value. Testing shall be carried out with the receive antenna and the DUT mounted in each polarity.

(9) The emission shall be centred on the display of the spectrum analyzer with the following settings:

i. If the power spectral density of the DUT was assessed with a peak detector and the antenna cannot be detached from the DUT, the spectrum analyzer shall be set to a peak detector with a resolution bandwidth and video bandwidth of 1 MHz.

ii. If the power spectral density of the DUT was assessed using a sample detector with power averaging and the antenna cannot be detached from the DUT, the spectrum analyzer shall be set to a sample detector, configured to produce 100 power averages and set with a resolution bandwidth, as well as a video bandwidth of 1 MHz.

iii. If the antenna can be detached from the DUT, a continuous wave (CW) signal equal to that of the power spectral density measurement may be used, the spectrum analyzer shall be set to peak detector with a resolution bandwidth and video bandwidth of 1 MHz.

(10) Rotate the turntable 360° recording the field strength at each step. Throughout the main beam of the antenna, the step size shall be kept to a maximum of 1°.

Once outside the main beam of the antenna, the maximum step size shall be as follows, when compared to the requirements of Section 6.2.2:

i. Between 0° and 8°, maximum step size of 2°;

ii. Between 8° and 40°, maximum step size of 4°;

iii. Between 40° and 45°, maximum step size of 1°;

iv. Between 45° and 90°, maximum step size of 5°.

Once the mask reaches 90°, the mask will be inverted and the step size will follow in the same manner as above.

For the purpose of this procedure, the main beam of the antenna is defined as the 3 dB beamwidth.

(11) Convert the measured field strength values in terms of e.i.r.p. density (dBW/1 MHz) using the following equation:

$$\text{e.i.r.p. density (dBW/MHz)} = 10 \log((E \cdot r)^2 / 30)$$

E = field strength in V/m

r = measurement distance in metres

(12) Plot the results against the emission mask with reference to the horizontal plane.

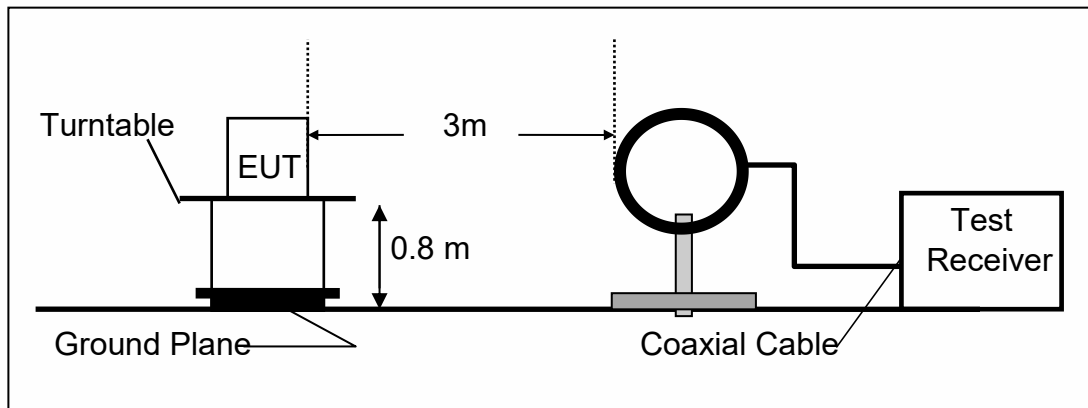
(13) Using the plot, the 0° can be rotated to determine the worst-case installation tilt angle.

(14) Testing shall be performed using the highest gain antenna for every antenna type, if applicable.

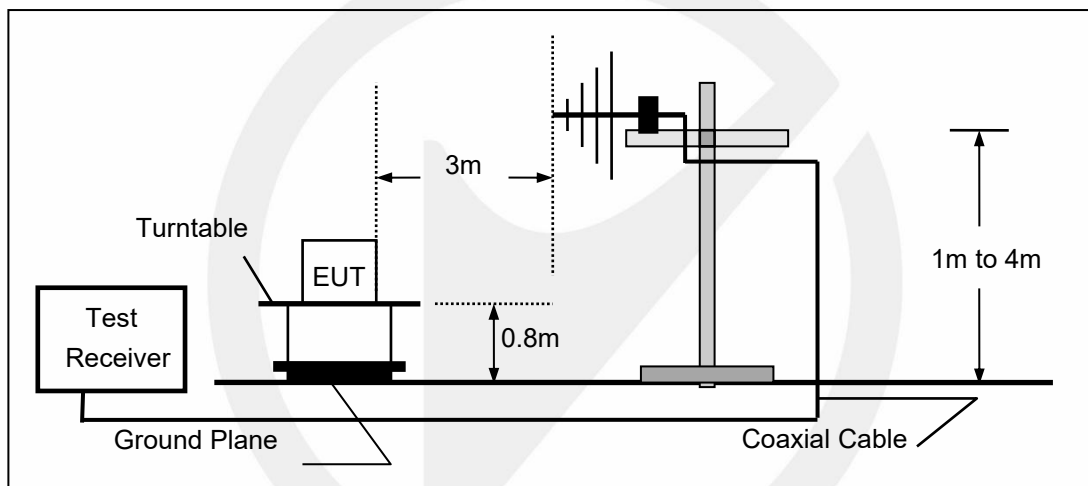
(15) Antenna type(s), antenna model number(s), and worst-case tilt angle(s) necessary to remain compliant with the elevation mask requirement set forth in Section 6.2.2(3) of RSS-247 shall be clearly indicated in the user manual.

The following figure is an example of a polar elevation mask measured using the Method 1 reference to dBµV/m at 3 m.

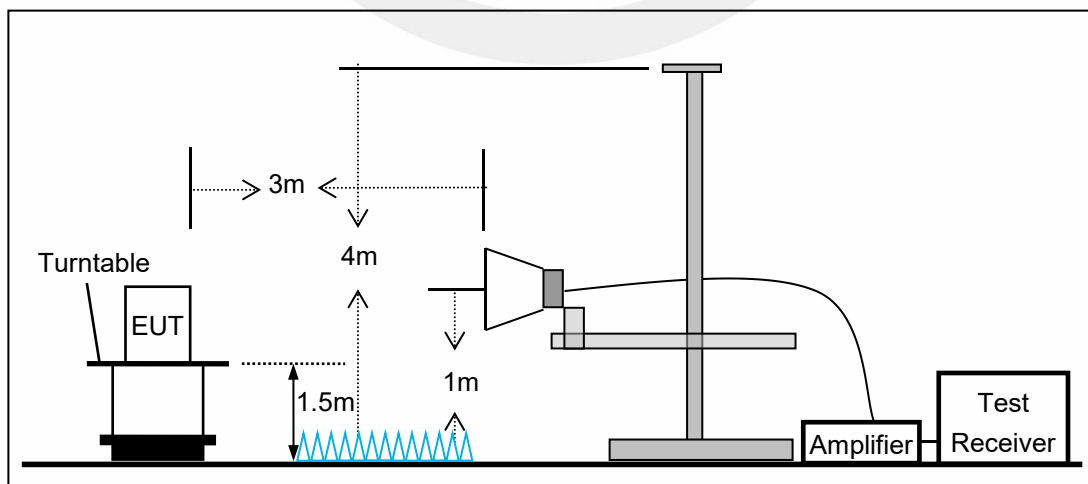
(a) Radiated Emission Test Set-Up, Frequency Below 30MHz



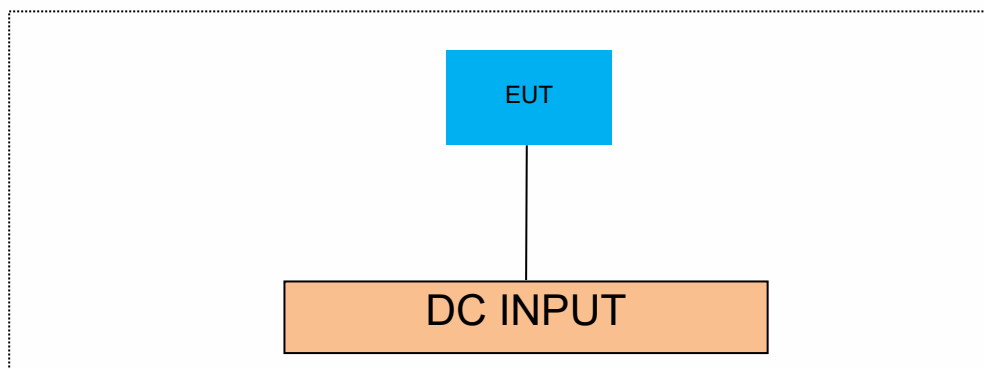
(b) Radiated Emission Test Set-Up, Frequency Below 1000MHz



(c) Radiated Emission Test Set-Up, Frequency above 1000MHz



7.3 BLOCK DIAGRAM CONFIGURATION OF TEST SYSTEM



7.4 SUPPORT EQUIPMENT

EUT Cable List and Details			
Description	Manufacturer	Model	Serial Number
/	/	/	/

EUT Cable List and Details			
Cable Description	Length (m)	Shielded/Unshielded	With / Without Ferrite
/	/	/	/

Auxiliary Cable List and Details			
Cable Description	Length (m)	Shielded/Unshielded	With / Without Ferrite
/	/	/	/
/	/	/	/

Auxiliary Equipment List and Details			
Description	Manufacturer	Model	Serial Number
Notebook	Lenovo	E46L	11S168003748Z0LR06E0HG
Adaptor	Apple	/	/
/	/	/	/

Notes:

1. All the equipment/cables were placed in the worst-case configuration to maximize the emission during the test.
2. Grounding was established in accordance with the manufacturer's requirements and conditions for the intended use.

8 TEST REQUIREMENTS

8.1 DTS 6DB BANDWIDTH

8.1.1 Applicable Standard

According to FCC Part 15.247(a)(2) and KDB 558074 D01 15.247 Meas Guidance v05r02
According to RSS-247 6.3.1

8.1.2 Conformance Limit

The minimum -6 dB bandwidth shall be at least 500 kHz.

8.1.3 Test Configuration

Test according to clause 7.1 radio frequency test setup 1

8.1.4 Test Procedure

The EUT was operating in Bluetooth mode and controlled its channel. Printed out the test result from the spectrum by hard copy function.

The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.

Set to the maximum power setting and enable the EUT transmit continuously

Set RBW = 100 kHz.

Set the video bandwidth (VBW) = 300 kHz.

Set Span = 2 times OBW

Set Detector = Peak.

Set Trace mode = max hold.

Set Sweep = auto couple.

Allow the trace to stabilize.

Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

Measure and record the results in the test report.

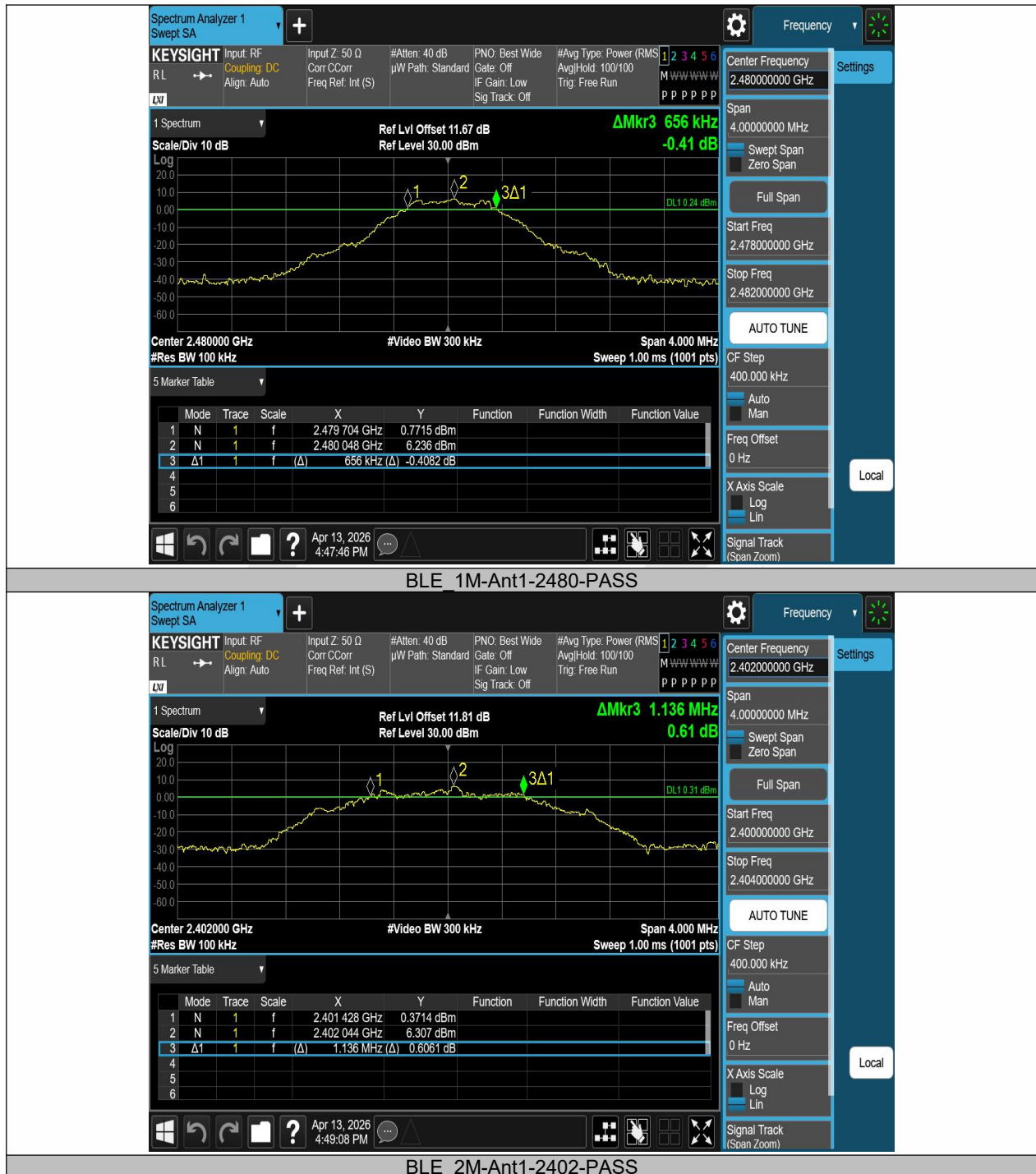
Test Results

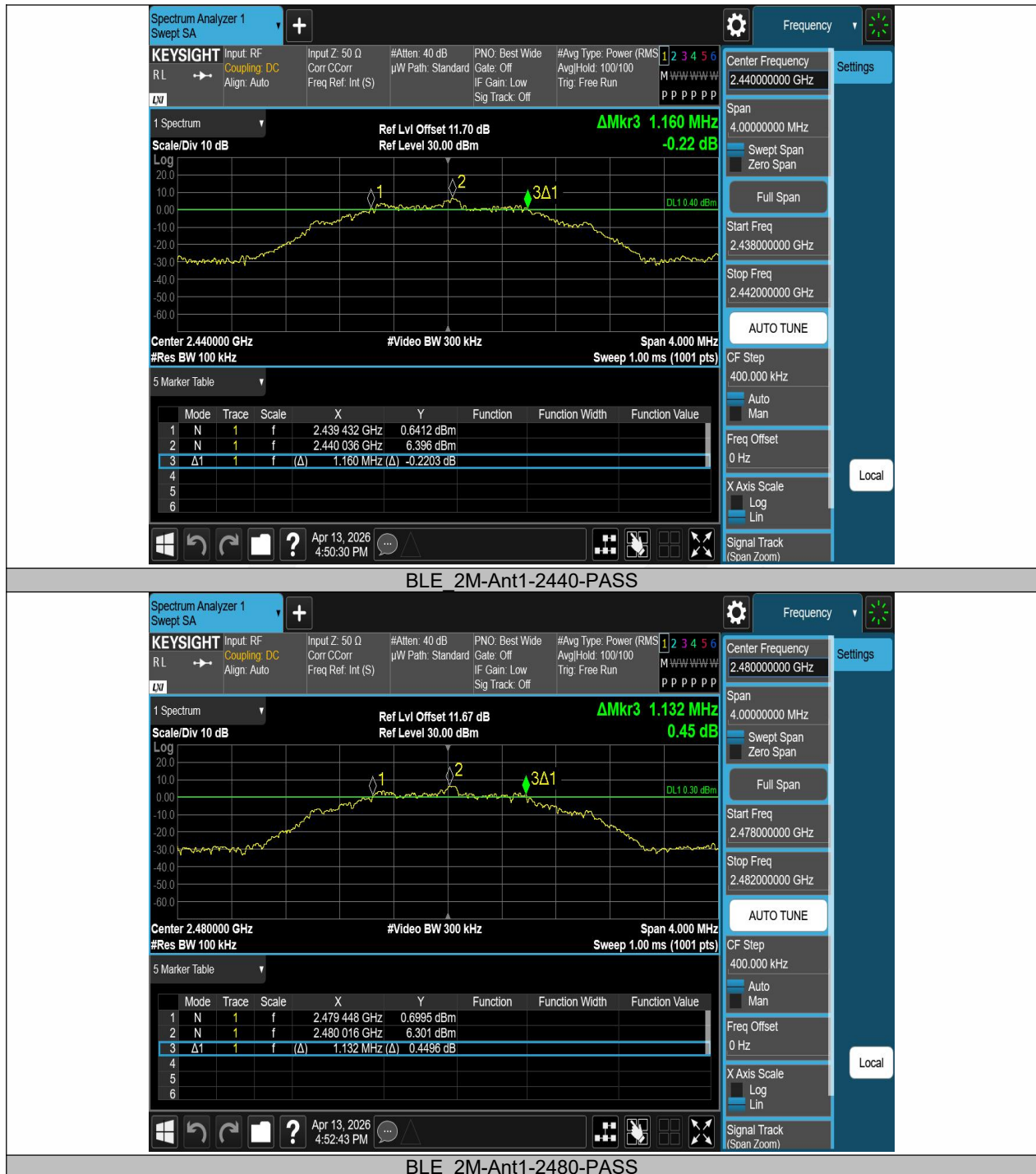
Temperature:	25°C
Relative Humidity:	45%
ATM Pressure:	1011 mbar

Note: N/A

TestMode	Antenna	Frequency[MHz]	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
BLE_1M	Ant1	2402	0.668	2401.680	2402.348	0.5	PASS
BLE_1M	Ant1	2440	0.664	2439.688	2440.352	0.5	PASS
BLE_1M	Ant1	2480	0.656	2479.704	2480.360	0.5	PASS
BLE_2M	Ant1	2402	1.136	2401.428	2402.564	0.5	PASS
BLE_2M	Ant1	2440	1.160	2439.432	2440.592	0.5	PASS
BLE_2M	Ant1	2480	1.132	2479.448	2480.580	0.5	PASS







8.2 DTS 99% BANDWIDTH

8.2.1 Applicable Standard

According to RSS-Gen 6.7 and KDB 558074 D01 DTS Meas Guidance v05r02

8.2.2 Test Configuration

Test according to clause 7.1 radio frequency test setup 1

8.2.3 Test Procedure

The EUT was operating in Bluetooth mode and controlled its channel. Printed out the test result from the spectrum by hard copy function.

The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.

Set to the maximum power setting and enable the EUT transmit continuously

Set RBW = 1%-5% OBW(43 KHz).

Set the video bandwidth (VBW) =130 kHz.

Set Span=4 MHz

Set Detector = Peak.

Set Trace mode = max hold.

Set Sweep = auto couple.

Allow the trace to stabilize.

Use the 99 % power bandwidth function of the instrument

Measure the maximum width of the emission.

Measure and record the results in the test report.

8.2.4 Test Results

Temperature:	25°C
Relative Humidity:	45%
ATM Pressure:	1011 mbar

Note: N/A

TestMode	Antenna	Frequency[MHz]	OCB [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
BLE_1M	Ant1	2402	1.0516	2401.5067	2402.5583	---	---
BLE_1M	Ant1	2440	1.0519	2439.5057	2440.5576	---	---
BLE_1M	Ant1	2480	1.0513	2479.5070	2480.5583	---	---
BLE_2M	Ant1	2402	2.0423	2401.0194	2403.0617	---	---
BLE_2M	Ant1	2440	2.0338	2439.0199	2441.0537	---	---
BLE_2M	Ant1	2480	2.0457	2479.0194	2481.0651	---	---







8.3 MAXIMUM PEAK CONDUCTED OUTPUT POWER

8.3.1 Applicable Standard

According to FCC Part 15.247(b)(3) and KDB 558074 D01 15.247 Meas Guidance v05r02
According to RSS-247 6.3.2 and RSS-Gen 6.12

8.3.2 Conformance Limit

The maximum peak conducted output power of the intentional radiator for systems using digital modulation in the 2400 - 2483.5 MHz bands shall not exceed: 1 Watt (30 dBm), and the e.i.r.p. shall not exceed 4 W(36 dBm)

8.3.3 Test Configuration

Test according to clause 7.1 radio frequency test setup 1

8.3.4 Test Procedure

As an alternative to a peak power measurement, compliance with the one Watt limit can be based on a measurement of the maximum conducted output power. For smart system, Maximum Conducted Output Power is defined as the total transmit power delivered to all antennas and antenna elements averaged across all symbols in the signaling alphabet when the transmitter is operating at its maximum power control level. Power must be summed across all antennas and antenna elements. If multiple modes of operation are possible (e.g., alternative modulation methods), the maximum conducted output power is the highest total transmit power occurring in any mode.

Set the RBW $\geq$ DTS bandwidth(about 2MHz).

Set VBW $= 3 \times$ RBW(about 6MHz)

Set the span $\geq 3 \times$ RBW

Set Sweep time = auto couple.

Set Detector = peak.

Set Trace mode = max hold.

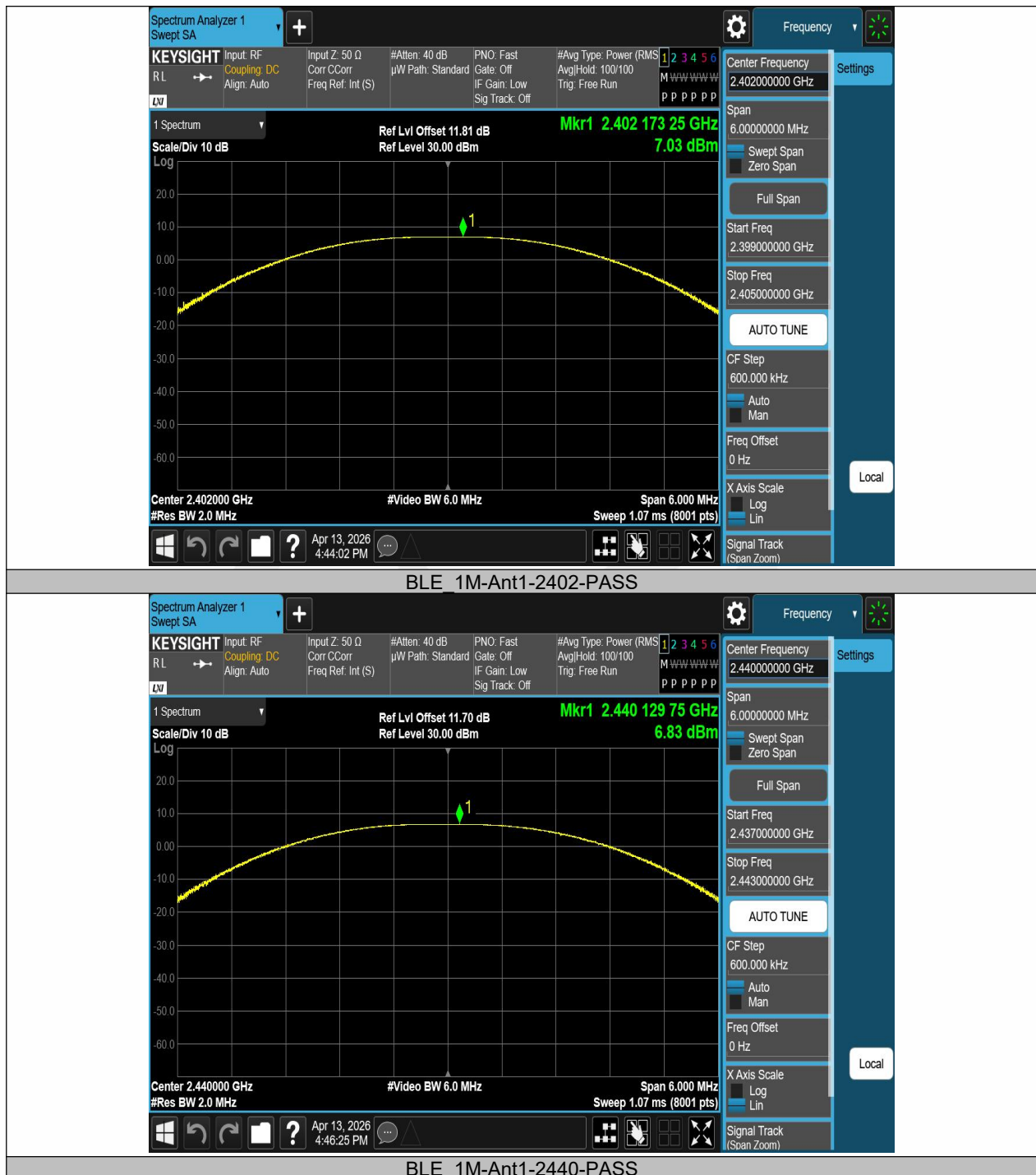
Allow trace to fully stabilize. Use peak marker function to determine the peak amplitude level.

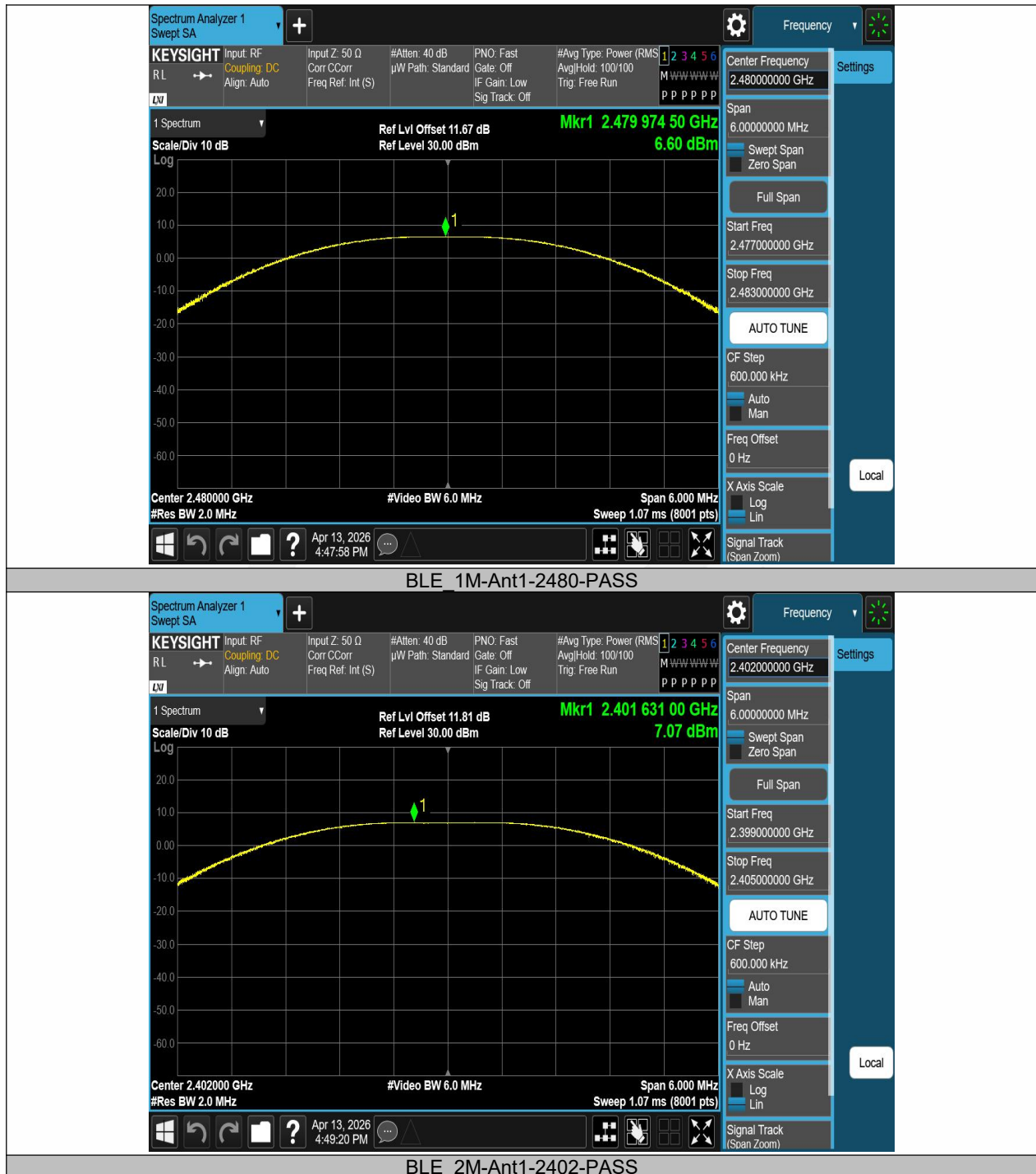
Conducted output power limit specified in paragraph (b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi. If transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

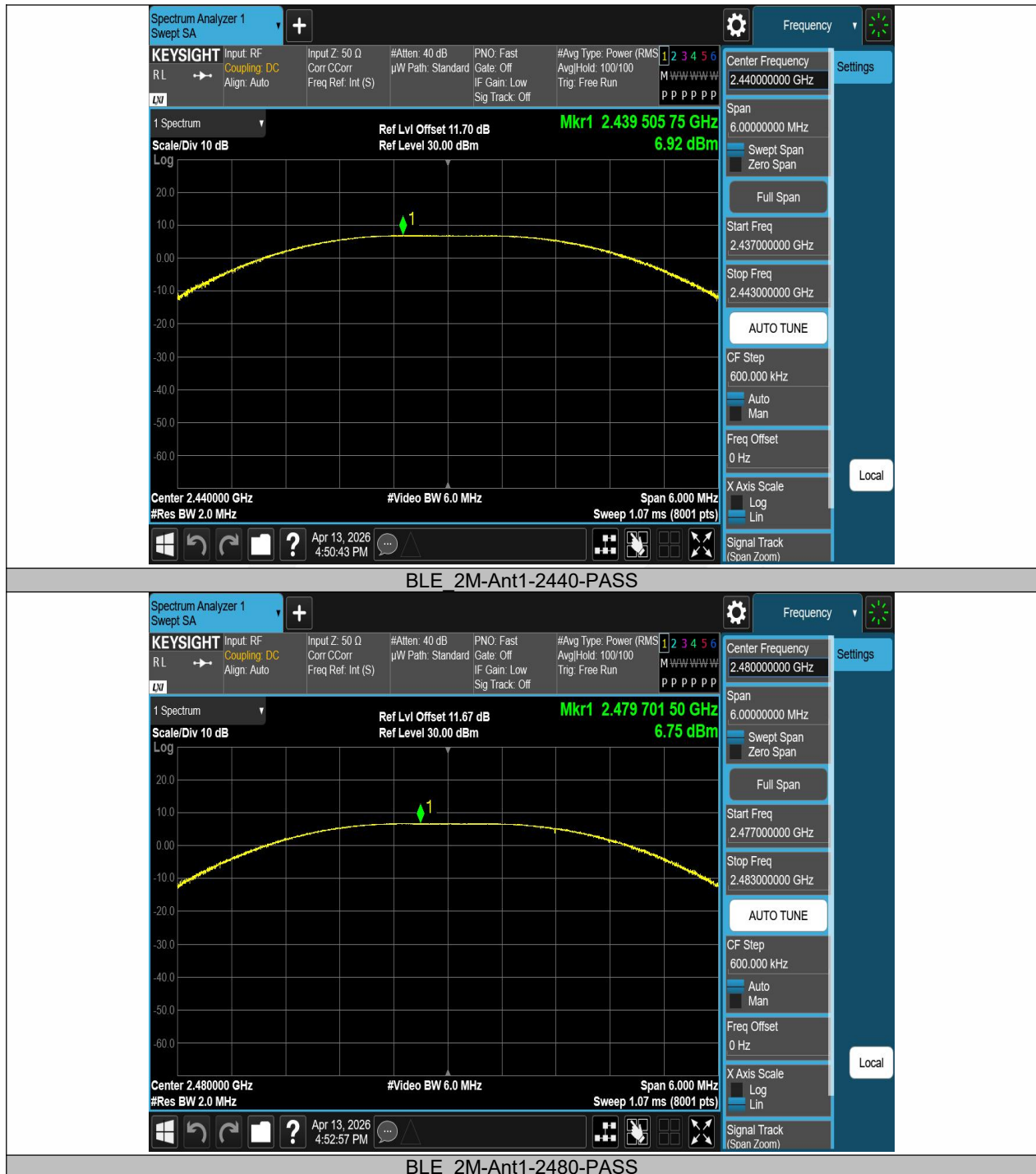
8.3.5 Test Results

Temperature:	25 °C
Relative Humidity:	45%
ATM Pressure:	1011 mbar

TestMode	Antenna	Frequency[MHz]	Conducted Peak Power[dBm]	Conducted Limit[dBm]	EIRP[dBm]	EIRP Limit[dBm]	Verdict
BLE_1M	Ant1	2402	7.03	≤ 30	6.45	≤ 36	PASS
BLE_1M	Ant1	2440	6.83	≤ 30	6.25	≤ 36	PASS
BLE_1M	Ant1	2480	6.60	≤ 30	6.02	≤ 36	PASS
BLE_2M	Ant1	2402	7.07	≤ 30	6.49	≤ 36	PASS
BLE_2M	Ant1	2440	6.92	≤ 30	6.34	≤ 36	PASS
BLE_2M	Ant1	2480	6.75	≤ 30	6.17	≤ 36	PASS







8.4 MAXIMUM POWER SPECTRAL DENSITY

8.4.1 Applicable Standard

According to FCC Part 15.247(e) and KDB 558074 D01 15.247 Meas Guidance v05r02
According to RSS-247 6.3.1 and RSS-Gen 6.12

8.4.2 Conformance Limit

The transmitter power spectral density conducted from the transmitter to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

8.4.3 Test Configuration

Test according to clause 7.1 radio frequency test setup 1

8.4.4 Test Procedure

This procedure shall be used if maximum peak conducted output power was used to demonstrate compliance

The transmitter output (antenna port) was connected to the spectrum analyzer

Set analyzer center frequency to DTS channel center frequency.

Set the span to 1.5 times the DTS bandwidth.

Set the RBW to: 3 kHz

Set the VBW to: 10 kHz.

Set Detector = peak.

Set Sweep time = auto couple.

Set Trace mode = max hold.

Allow trace to fully stabilize.

Use the peak marker function to determine the maximum amplitude level within the RBW.

8.4.5 Test Results

Temperature:	25 °C
Relative Humidity:	45%
ATM Pressure:	1011 mbar

Note: N/A

TestMode	Antenna	Frequency[MHz]	Result[dBm/3kHz]	Limit[dBm/3kHz]	Verdict
BLE_1M	Ant1	2402	-8.37	≤8.00	PASS
BLE_1M	Ant1	2440	-8.39	≤8.00	PASS
BLE_1M	Ant1	2480	-8.17	≤8.00	PASS
BLE_2M	Ant1	2402	-11.38	≤8.00	PASS
BLE_2M	Ant1	2440	-11.30	≤8.00	PASS
BLE_2M	Ant1	2480	-11.50	≤8.00	PASS

