APPLICATION FOR CERTIFICATION
On Behalf of
GoodWe Technologies Co., Ltd.
Smart Dongle

Model No.	:	WiFi/LAN Kit-20
Brand	:	GOODWE
FCC ID	:	2AU7J-WIFILANKIT20

Prepared for

GoodWe Technologies Co., Ltd.
No.90 Zijin Rd., New District, Suzhou, 215011, China

Prepared by

Audix Technology (Wujiang) Co., Ltd. EMC Dept.
No. 1289 Jiangxing East Road, the Eastern Part of Wujiang Economic Development Zone
Jiangsu China 215200

Tel : +86-512-63403993
Fax :+86-512-63403339

Report Number	:	ACWE-F2308008
Date of Test	:	Apr.09~May 10, 2024
Date of Report	:	May 31, 2024

TABLE OF CONTENTS

Description Page

TEST REPORT CERTIFICATION

Applicant	:	GoodWe Technologies Co., Ltd.
Manufacturer	:	GoodWe Technologies Co., Ltd.
EUT Description	:	Smart Dongle
FCC ID	:	2AU7J-WIFILANKIT20
(A) Model No.	:	WiFi/LAN Kit-20
(B) Brand	:	GOODWE
(C) Test Voltage	:	DC 5V

Applicable Standards:

Title 47 CFR FCC Part 15 Subpart C
ANSI C63.10:2020
KDB 558074 D01 DTS Meas Guidance v05r02

The device described above was tested by Audix Technology (Wujiang) Co., Ltd. EMC Dept.to determine the maximum emission levels emanating from the device. The maximum emission levels were compared to the FCC Part 15 subpart C section 15.247 limits.

The measurement results are contained in this test report and Audix Technology (Wujiang) Co., Ltd. EMC Dept. is assumed full responsibility for the accuracy and completeness of these measurements. Also, this report shows that the EUT to be technically compliant with the FCC limits.

This report applies to above tested sample only. This report shall not be reproduced in part without written approval of Audix Technology (Wujiang) Co., Ltd. EMC Dept.

Date of Test: Apr.09~May 10, 2024 Date of Report: May 31, 2024

Prepared by : Emma Hu
(Emma Hu/Assistant Administrator)

Approved & Authorized Signer : K.M Tong
(K.M Tong/Assistant Manager)

TESTING
NVLAP LAB CODE 200786-0

1. DESCRIPTION OF VERSION

Edition No.	Date of Rev.	Summary	Report No.
0	May 31, 2024	Original Report.	ACWE-F2308008

2. SUMMARY OF MEASUREMENTS AND RESULTS

The EUT have been tested according to the applicable standards as referenced below.

Rule	Description	Results
15.207	Conducted Emission	**PASS**
15.247(d)/ 15.205	Radiated Band Edge and Radiated Spurious Emission	**PASS**
15.247(a)(2)	6dB Bandwidth	**PASS**
15.247(b)(3)	Maximum Output Power	**PASS**
15.247(d)	Conducted Band Edges and Conducted Spurious Emission	**PASS**
15.247 (e)	Peak Power Spectral Density	**PASS**
15.203	Antenna Requirement	**Compliance**

3. GENERAL INFORMATION

3.1. Description of Device (EUT)

Product	:	Smart Dongle
Model Number	:	WiFi/LAN Kit-20
FCC ID	:	2AU7J-WIFILANKIT20
Brand	:	GOODWE
Applicant	:	GoodWe Technologies Co.,Ltd. No.90 Zijin Rd., New District, Suzhou, 215011, China
Manufacturer	:	GoodWe Technologies Co.,Ltd. No.90 Zijin Rd., New District, Suzhou, 215011, China
I/O Ports	:	LAN port*1 USB port*1
Date of Receipt of Sample	:	Aug.01, 2023

3.2. Antenna Information

Type	Frequency (MHz)	Gain(dBi)
PCB Antenna	2400-2500	3.76

3.3. EUT Specification Assessed in Current Report

Mode	Fundamental Range (MHz)	Channel Number	Modulation
802.11b	2412-2462	11	DSSS (DBPSK/DQPSK/CCK)
802.11g	2412-2462	11	OFDM (BPSK/QPSK/16QAM/64QAM)
802.11n-HT20			
BLE-1M	2402-2480	40	GFSK
Remark: The information of test software, fixture and antenna gain is provided by customer.			

3.4. Duty Cycle

Mode	Duty Cycle	Duty Cycle Factor
BLE 2402	0.84	0.77
BLE 2440	0.84	0.77
BLE 2480	0.84	0.77

3.5. Tested Supporting System Details (AE)

3.5.1. Notebook

Manufacturer/Brand : DELL
Model Number : Vostro 14-5459
Serial Number : 8P9C4K2

3.6. Description of Test Facility

Name of Firm	:	**Audix Technology (Wujiang) Co., Ltd. EMC Dept.**
Site Location	:	No. 1289 Jiangxing East Road, the Eastern Part of Wujiang Economic Development Zone Jiangsu China 215200
Test Facilities	:	**No.2 Conducted Shielding Enclosure** **No.2 3m Semi-anechoic Chamber** **RF Fully Chamber**
NVLAP Lab Code	:	200786-0 Valid until on Sep.30, 2024 (NVLAP is a signatory member of ILAC MRA) Remark: This report shall not be imply endorsement, certification or approval by NVLAP, NIST, or any agency of the U.S. Federal Government.

3.7. Measurement Uncertainty

Test Item	Range Frequency	Uncertainty
No.2 Conducted Disturbance Measurement	0.15MHz ~ 30MHz	± 3.06dB
Radiated Disturbance Measurement (At 3m Chamber)	30MHz ~ 1GHz	± 3.95dB
	1GHz ~ 6GHz	± 4.46dB
	6GHz ~ 18GHz	± 5.00dB

Test items	Uncertainty
Unwanted Emission(Conducted measurement)	y(dBm/Hz) ±U=y(dBm/Hz) ±0.61dB
RF Output Power	y(dBm) ±U=y(dBm) ±0.73
RF Frequency	y(Volt) ±U=y(Volt) ±1.4x10($^{-3}$)Hz
Temperature and Humidity	y(℃)±U=y(℃) ±0.532℃ y(%)±U=y(%) ±3.36%
RF DC Voltage	y(Volt) ±U=y(Volt) ±0.044
Power Density	y(dBm/Hz) ±U=y(dBm/Hz) ±2.76dB
Radiated Spurious Emission(30MHz~1GHz)	y(dBm) ±U=y(dBm) ±4.96dB
Radiated Spurious Emission(1GHz~26.5GHz)	y(dBm) ±U=y(dBm) ±3.40dB

Remark: Uncertainty = $ku_c(y)$

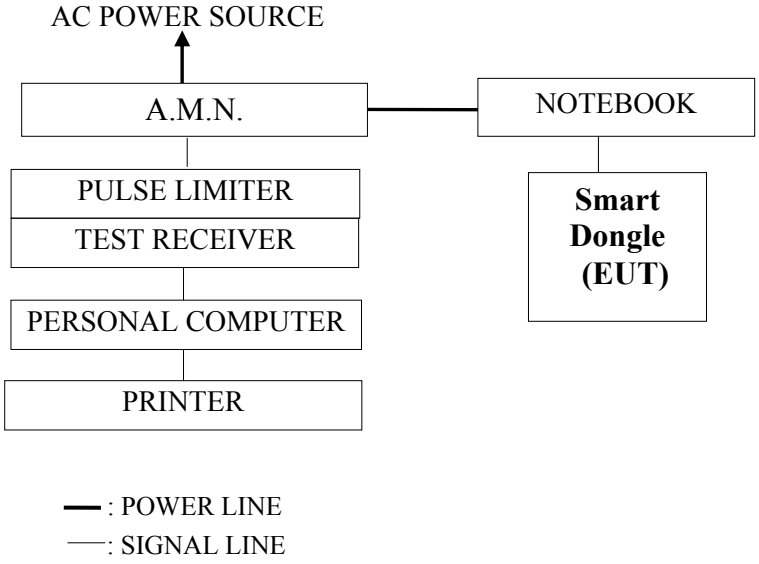
The standards listed in this report only require the uncertainty to be listed, and the measurement uncertainty is not required to be calculated in the measurement results. Therefore, the conformity judgment results are in accordance with the quality document TMC-205, and the test results in this report meet the requirements of the standards listed in this report.

4. CONDUCTED EMISSION MEASUREMET

4.1. Test Equipment

Item	Type	Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Period
1.	Test Receiver	R & S	ESCI	100839	2024-03-24	1 Year
2.	A.M.N.	Schwarzbeck	NNLK 8129	8129-164	2023-12-13	1 Year
3.	L.I.S.N.	Kyoritsu	KNW-407	8-1793-4	2024-03-24	1 Year
4.	I.S.N.	TESEQ	T800	58414	2024-03-24	1 Year
5.	Pulse Limiter	R&S	ESH3-Z2	101832	2023-12-13	1 Year
6.	50Ω Terminator	Tektronis	MS4630B	001-CON	2023-12-13	1 Year
7.	RF Cable	Shengxuan	ROS400	59/3	2023-12-13	1 Year
8.	Software	Audix /e3 (210616)				

4.2. Block Diagram of Test Setup



4.3. Power line Conducted Emission Limit

Frequency	Maximum RF Line Voltage	
	Quasi-Peak Level	Average Level
150kHz ~ 500kHz	66 ~ 56 dBμV	56 ~ 46 dBμV
500kHz ~ 5MHz	56 dBμV	46 dBμV
5MHz ~ 30MHz	60 dBμV	50 dBμV

Remark1: If the average limit is met when using a Quasi-Peak detector, the EUT shall be deemed to meet both limits and measurement with the average detector is unnecessary.

2: The lower limit applies at the band edges.

4.4. Test Procedure

The measuring process is according to ANSI C63.10-2020 and laboratory internal procedure TKC-301-004. (For FCC Part15 Subpart C)

In the conducted emission measurement, the EUT and all peripheral devices were set up on a non-metallic table which was 0.8 meter height above the ground plane, and 0.4 meter far away from the vertical plane. The mains cable of the EUT connected to one Artificial Main Network(AMN). All other unit of the EUT and AE connected to a second Line Impedance Stabilization Network(L.I.S.N.). The telecommunication cable connected to the AE through a Impedance Stabilization Network(ISN) which terminated a 50Ω resistor. For the measurement, the A.M.N measuring port was terminated by a 50Ω measuring equipment and the second L.I.S.N measuring port was terminated by a 50Ω terminator. All measurements were done between the phase lead and the reference ground, and between the neutral lead and the reference ground. All cables or wires placement were verified to find out the maximum emission.

The bandwidth of measuring receiver was set at 9 kHz.

The required frequency band (0.15 MHz ~ 30 MHz) was pre-scanned with peak detector; the final measurement was measured with quasi-peak detector and average detector. (If the average limit is met when using a quasi-peak detector, the average detector is unnecessary).

The emission level is calculated automatically by the test system which uses the following equation:

Emission level (dBμV) = Reading (dBμV) + A.M.N factor (dB) + Cable loss (dB).
(Cable loss includes Pulse Att+Cable+Switch)

4.5. Conducted Emission Measurement Results

For FCC Part15 Subpart C

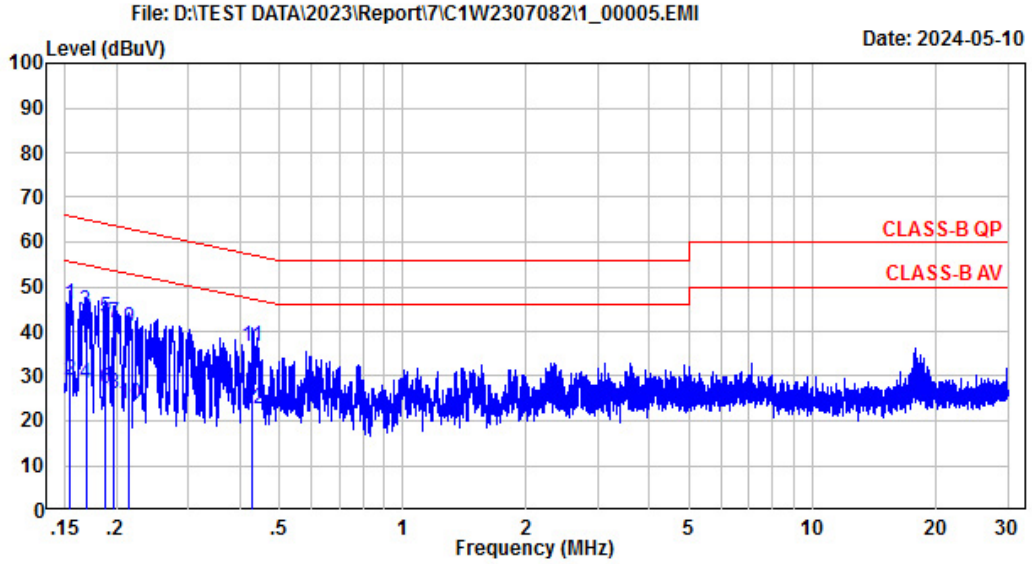
PASSED.

EUT was performed during this section testing and all the test results are attached in next pages.

Test Date: May 10, 2024 Temperature: 22.2℃ Humidity: 49%

Mode	Test Condition	Reference Test Data No.	
		Neutral	Line
1	BLE Mode	# 5	# 6

Audix Technology (Wu Jiang) Co.,Ltd
No.1289,Jiang Xing East Road,The Eastern Part of WuJiang
Economic Development Zone,JiangSu,China
Tel : (0512)63403993 Fax:(0512)63403339



Site NO. : NO.2 shielded Room
Instrument 1 : Receiver ESCI (839)
Instrument 2 : NNLK 8129(164)|59/3|ESH3-Z2 (832)
Dis. / Ant. : NNLK8129-2312
Limit : CLASS-B QP
Env. / Ins. : 22.2℃& 49 %
EUT : Smart Dongle
M/N : WiFi/LAN Kit-20
Power Rating : DC 5V
Test Mode : BLETX Mode
Memo :

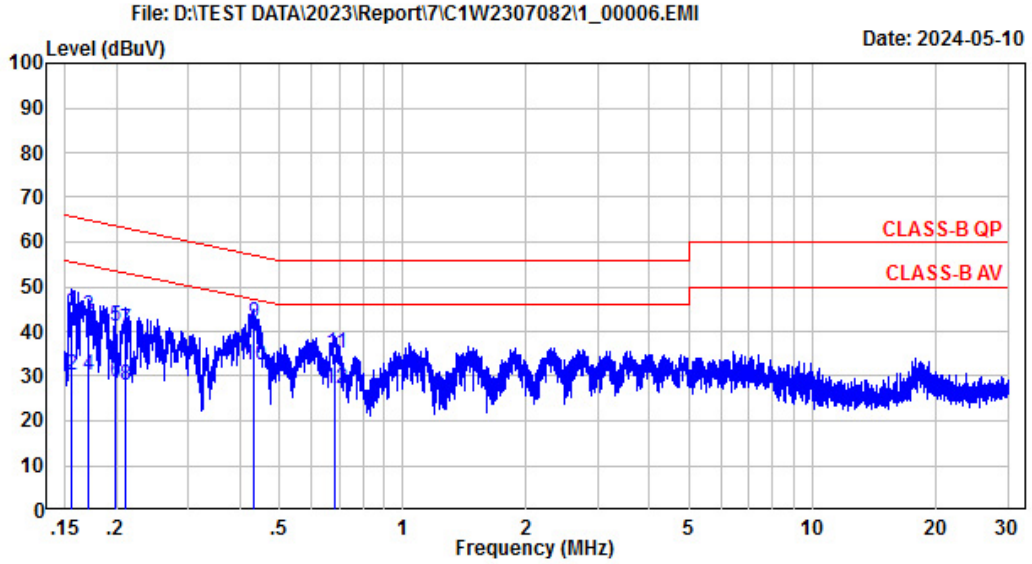
Ant. pol.: Neutral Data NO.:5

Engineer : Yinyarong

Freq. MHz	LISN Factor dB	Cable Loss dB	Reading dBuV	Emission Level dBuV	Limits dBuV	Margin dB	Remark
0.154	0.10	9.93	35.88	45.91	65.77	19.86	QP
0.154	0.10	9.93	19.06	29.09	55.77	26.68	Average
0.169	0.10	9.93	34.36	44.39	65.03	20.64	QP
0.169	0.10	9.93	18.41	28.44	55.03	26.59	Average
0.187	0.10	9.93	32.92	42.95	64.15	21.20	QP
0.187	0.10	9.93	17.29	27.32	54.15	26.83	Average
0.198	0.10	9.93	31.99	42.02	63.70	21.68	QP
0.198	0.10	9.93	15.87	25.90	53.70	27.80	Average
0.215	0.10	9.93	30.57	40.60	63.01	22.41	QP
0.215	0.10	9.93	13.87	23.90	53.01	29.11	Average
0.428	0.10	9.94	26.58	36.62	57.29	20.67	QP
0.428	0.10	9.94	12.46	22.50	47.29	24.79	Average

Remarks:Emisson Level = LISN factor+Cable loss(Cable+Pulse Att+Switch)+Reading

Audix Technology (Wu Jiang) Co.,Ltd
No.1289,Jiang Xing East Road,The Eastern Part of WuJiang
Economic Development Zone,JiangSu,China
Tel : (0512)63403993 Fax:(0512)63403339



Site NO. : NO.2 shielded Room
Instrument 1 : Receiver ESCI (839)
Instrument 2 : NNLK 8129(164)|59/3|ESH3-Z2 (832)
Dis. / Ant. : NNLK8129-2312
Limit : CLASS-B QP
Env. / Ins. : 22.2℃& 49 %
EUT : Smart Dongle
M/N : WiFi/LAN Kit-20
Power Rating : DC 5V
Test Mode : BLETX Mode
Memo :

Ant. pol.: Line1 Data NO.:6

Engineer : Yinyarong

Freq. MHz	LISN Factor dB	Cable Loss dB	Reading dBuV	Emission Level dBuV	Limits dBuV	Margin dB	Remark
0.155	0.10	9.93	34.57	44.60	65.71	21.11	QP
0.155	0.10	9.93	20.29	30.32	55.71	25.39	Average
0.172	0.10	9.93	33.25	43.28	64.87	21.59	QP
0.172	0.10	9.93	20.22	30.25	54.87	24.62	Average
0.200	0.10	9.93	30.97	41.00	63.61	22.61	QP
0.200	0.10	9.93	18.71	28.74	53.61	24.87	Average
0.211	0.10	9.93	30.33	40.36	63.18	22.82	QP
0.211	0.10	9.93	17.87	27.90	53.18	25.28	Average
0.434	0.10	9.94	31.77	41.81	57.17	15.36	QP
0.434	0.10	9.94	22.57	32.61	47.17	14.56	Average
0.686	0.10	9.96	25.02	35.08	56.00	20.92	QP
0.686	0.10	9.96	17.00	27.06	46.00	18.94	Average

Remarks:Emisson Level = LISN factor+Cable loss(Cable+Pulse Att+Switch)+Reading

5. RADIATED EMISSION MEASUREMENT

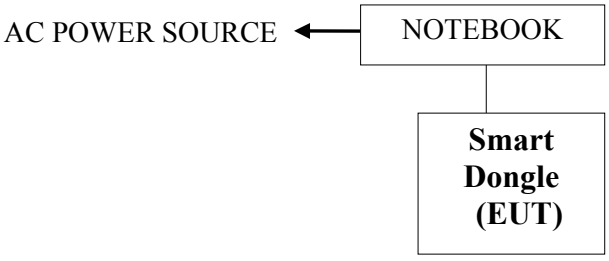
5.1. Test Equipment

The following test equipment was used during the radiated emission measurement:
At 3m Semi-Anechoic Chamber

Item	Type	Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Period
1.	Preamplifier	Agilent	8447D	2944A10918	2023-12-13	1 Year
2.	PXA signal analyzer	Agilent	N9030A	MY53120367	2023-07-12	1 Year
3.	Bi-log Antenna	SCHWARZBECK	VULB 9168	705	2023-12-26	1 Year
4.	Horn Antenna	ETS	3115	00062593	2023-10-23	1 Year
5.	Microwave Preamplifier	Agilent	8449B	3008A02232	2024-03-24	1 Year
6.	EMI Test Receiver	R&S	ESR7	101956	2024-03-24	1 Year
7.	RF Cable	Chengyi+Shengxuan	NM500+ROS400	190945+6000+3000	2023-07-12	1 Year
8.	RF Cable	Chengyi	EMC104-SF-SM-8000/NM-1000	190938+190942	2023-07-11	1 Year
9.	Software	Audix /e3 (210616)				

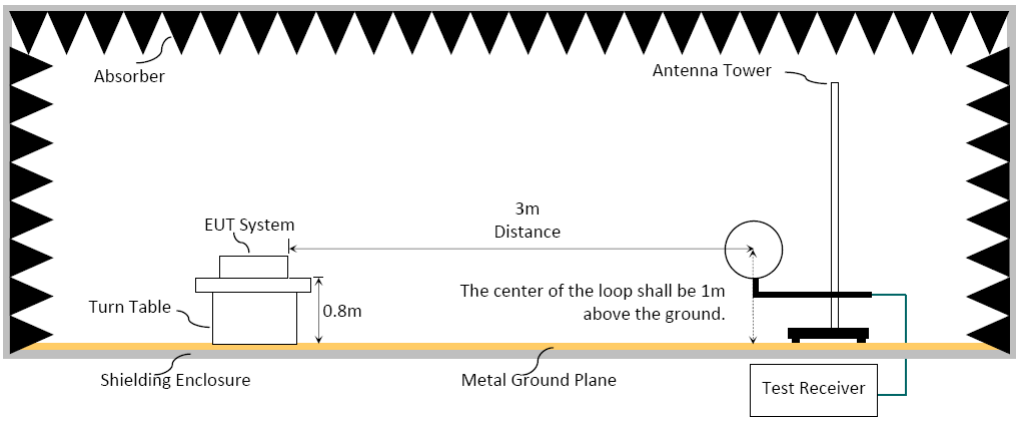
5.2. Block Diagram of Test Setup

5.2.1. Block Diagram of Test Setup between EUT and simulators

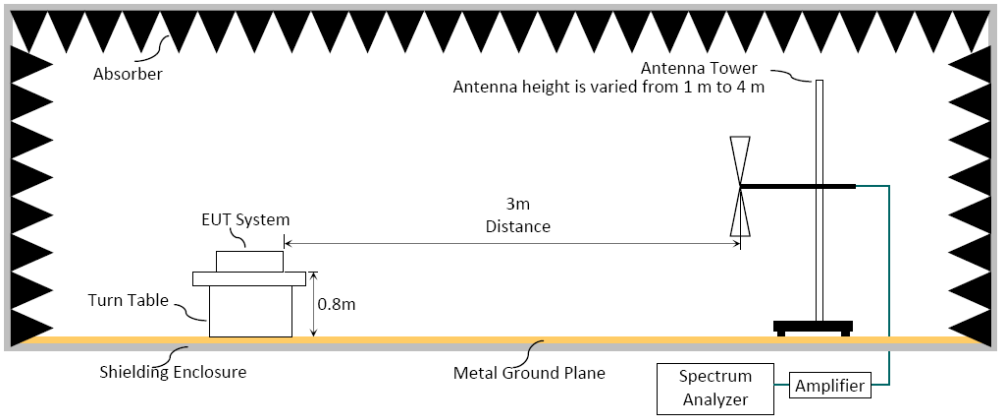


—— : POWER LINE
—— : SIGNAL LINE

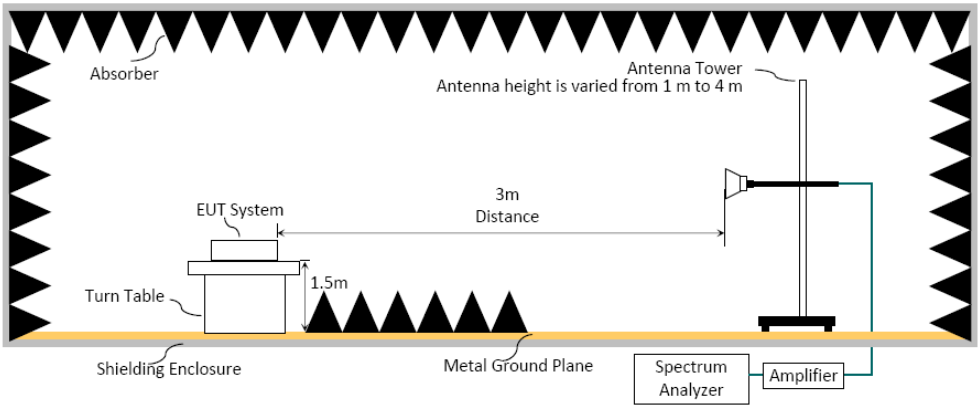
5.2.2. No. 2 3m Semi-Anechoic Chamber Setup Diagram (Test distance: 3m) for 9kHz-30MHz



5.2.3. No. 2 3m Semi-Anechoic Chamber Setup Diagram (Test distance: 3m) for 30MHz-1GHz



5.2.4. No. 2 3m Semi-Anechoic Chamber Setup Diagram (Test distance: 3m) for Above 1GHz



5.3. Radiated Emission Limits

In any 100kHz bandwidth outside the frequency band, the radio frequency power produced by the intentional radiator shall be at least 20dB below that in the 100kHz bandwidth within the band that contains the highest level. In addition, radiated emissions which fall in restricted bands, as defined in Section 15.205, must also comply with the radiated emission limits specified as below.

Frequency (MHz)	Distance (m)	Limits	
		dBμV/m	μV/m
0.009 - 0.490	300	67.6-20 log f(kHz)	2400/f kHz
0.490 - 1.705	30	87.6-20 log f(kHz)	24000/f kHz
1.705 - 30	30	29.5	30
30 - 88	3	40.0	100
88- 216	3	43.5	150
216- 960	3	46.0	200
Above 960	3	54.0	500
Above 1000	3	74.0 dBμV/m (Peak) 54.0 dBμV/m (Average)	

Remark: (1) dBμV/m = 20 log (μV/m)

(2)The tighter limit applies to the edge between two frequency bands.

(3)Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system.

(4)Fundamental and emission fall within operation band are exempted from this section.

(5)Pursuant to ANSI C63.10: 6.6.4.3, if the maximized peak measured value complies with the average limit, then it is unnecessary to perform an average measurement.

5.4. Test Procedure

Frequency Range 9kHz~30MHz:
The EUT setup on the turn table which has 0.8 m height to the ground. The turn table rotated 360 degrees and antenna fixed to 1 m to find the maximum emission level.
In order to find the maximum emission, all of the interface cables were manipulated according to ANSI C63.10-2013 regulation.

(1) RBW = 9kHz with peak and average detector.
(2) Detector: average and peak (9kHz-490kHz)
Q.P. (490kHz-30MHz)

Frequency Range 30MHz ~ 25GHz:
The EUT setup on the turn table which has 80 cm (for 30-1000 MHz) and 1.5m (for above 1GHz) height to the ground. The turn table rotated 360 degrees and antenna varied from 1 m to 4 m to find the maximum emission level. Both horizontal and vertical polarization are required. In order to find the maximum emission, all of the interface cables were manipulated according to ANSI C63.10-2013 regulation.

Frequency below 1 GHz:
Spectrum Analyzer is used for pre-testing with following setting:

(1)RBW = 120KHz
(2)VBW ≥ 3 x RBW.
(3)Detector = Peak.
(4)Sweep time = auto.
(5)Trace mode = max hold.
(6)Allow sweeps to continue until the trace stabilizes.
(7)When peak-detected value is lower than limit that the measurement using the Q.P. detector is not required, otherwise using Q.P. for final measurement.

Frequency above 1GHz to 10th harmonic (up to 25GHz):
Peak Dector:

(1)RBW = 1MHz
(2)VBW ≥ 3 x RBW.
(3)Detector = Peak.
(4)Sweep time = auto.
(5)Trace mode = max hold.
(6)Allow sweeps to continue until the trace stabilizes.
(7)When peak-detected value is lower than limit that the measurement using the average detector is not required, otherwise using average detector for final measurement.

5.5. Measurement Results

PASSED

The EUT was tested in restricted bands and all the test results are listed in next page.
The frequency range from 9kHz to 10th harmonic(25GHz) are checked, and the emission (9kHz~30MHz,18GHz~25GHz)not reported for there is no emission be found.

5.5.1. Emission Measurement Results (For Below 1GHz)

EUT: Smart Dongle
M/N: WiFi/LAN Kit-20
Test Site: No.2 3m Chamber

Test Mode: TX BLE 2402MHz					
Frequency (MHz)	Antenna Polarization	Measure Level (dBm)	Limit (dBm)	Margin (dB)	Conclusion
70.740	H	22.01	40.00	17.99	PASS
111.480	H	23.96	43.50	19.54	PASS
182.290	H	22.93	43.50	20.57	PASS
762.350	H	32.41	46.00	13.59	PASS
870.020	H	33.67	46.00	12.33	PASS
944.710	H	33.05	46.00	12.95	PASS
62.010	V	27.06	40.00	12.94	PASS
109.540	V	31.93	43.50	11.57	PASS
182.290	V	22.63	43.50	20.87	PASS
607.150	V	28.10	46.00	17.90	PASS
767.200	V	32.32	46.00	13.68	PASS
949.560	V	32.28	46.00	13.72	PASS

5.5.2. Emission Measurement Results (For Above 1GHz)

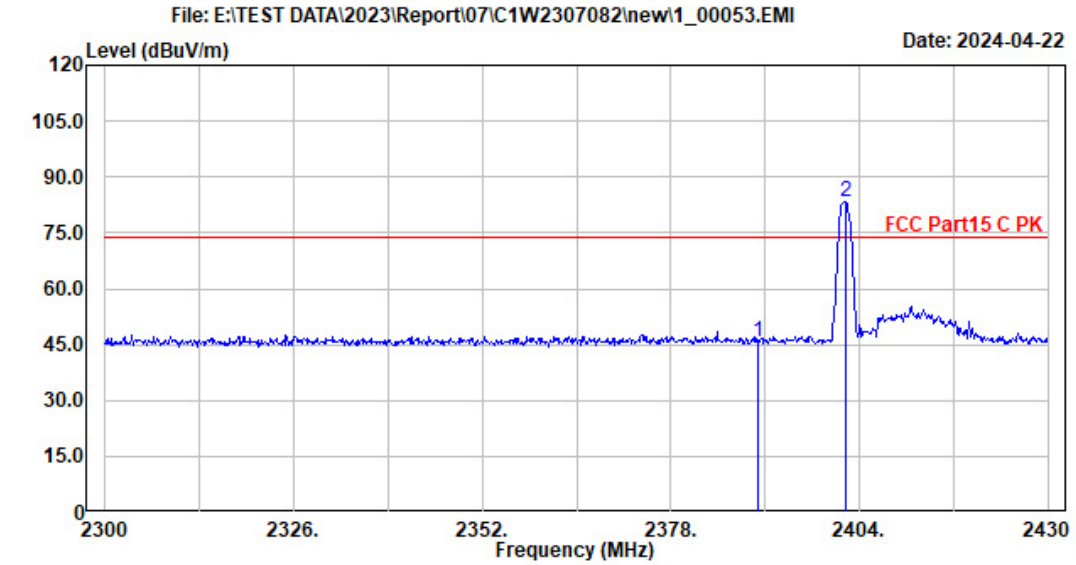
EUT: Smart Dongle
M/N: WiFi/LAN Kit-20
Test Site: No.2 3m Chamber

Test Mode: TX BLE 2402MHz					
Frequency (MHz)	Antenna Polarization	Measure Level (dBm)	Limit (dBm)	Margin (dB)	Conclusion
11302.000	H	52.32	74.00	21.68	PASS
11303.490	H	42.71	54.00	11.29	PASS
14498.000	H	54.65	74.00	19.35	PASS
14499.650	H	42.01	54.00	11.99	PASS
17796.000	H	57.89	74.00	16.11	PASS
17798.540	H	43.21	54.00	10.79	PASS
9855.453	V	41.02	54.00	12.98	PASS
9857.000	V	51.88	74.00	22.12	PASS
14394.530	V	45.24	54.00	8.76	PASS
14396.000	V	53.89	74.00	20.11	PASS
17915.000	V	58.04	74.00	15.96	PASS
17916.330	V	45.78	54.00	8.22	PASS
Test Mode: TX BLE 2440MHz					
10943.460	H	42.32	54.00	11.68	PASS
10945.000	H	51.98	74.00	22.02	PASS
14275.420	H	42.13	54.00	11.87	PASS
14277.000	H	54.97	74.00	19.03	PASS
17813.000	H	58.06	74.00	15.94	PASS
17815.320	H	45.33	54.00	8.67	PASS
10195.450	V	41.43	54.00	12.57	PASS
10197.000	V	51.68	74.00	22.32	PASS
14513.490	V	45.26	54.00	8.74	PASS
14515.000	V	53.79	74.00	20.21	PASS
17932.000	V	58.25	74.00	15.75	PASS
17935.330	V	45.81	54.00	8.19	PASS
Test Mode: TX BLE 2480MHz					
10213.460	H	40.38	54.00	13.62	PASS
10214.000	H	52.16	74.00	21.84	PASS
14377.660	H	45.23	54.00	8.77	PASS
14379.000	H	53.61	74.00	20.39	PASS
17915.000	H	57.69	74.00	16.31	PASS
17915.620	H	43.61	54.00	10.39	PASS
10144.450	V	40.45	54.00	13.55	PASS
10146.000	V	52.64	74.00	21.36	PASS
14549.000	V	54.05	74.00	19.95	PASS
14549.330	V	42.13	54.00	11.87	PASS
17932.000	V	58.11	74.00	15.89	PASS
17935.630	V	46.01	54.00	7.99	PASS

5.5.3. Spurious Emission Measurement Results in Band Edge Emission

Mode	BLE	Frequency	2402MHz

Audix Technology (Wu Jiang) Co.,Ltd
No.1289,Jiang Xing East Road,The Eastern Part of WuJiang
Economic Development Zone,JiangSu,China
Tel : (0512)63403993 Fax:(0512)63403339



Site NO. : NO.2 3M Chamber
Instrument 1 : Spectrum N9030A(367)
Instrument 2 : Preamplifier 8449B(232)|000
Dis. / Ant. : 3115-593-2310
Limit : FCC Part15 C PK
Env. / Ins. : 21.3°C/54%
EUT : Smart Dongle
M/N : Wifi/LAN Kit-20
Power Rating : DC 5V
Test Mode : TX BLE 2402MHz
Memo :

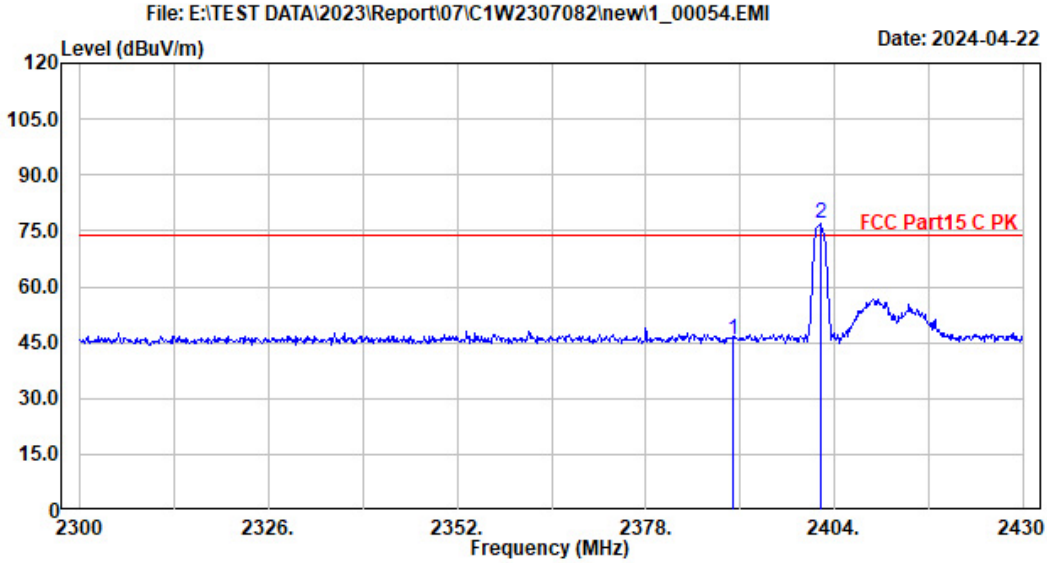
Ant. pol.: Horizontal Data NO.:53

Engineer : Liuyujie

Freq. MHz	Ant. Factor dB/m	Cable Loss dB	Reading dBuV	Preamp Factor dB	Emission Level dBuV/m	Limits dBuV/m	Margin dB	Remark
2390.000	28.46	3.10	46.78	32.51	45.83	74.00	28.17	Peak
2402.050	28.50	3.11	84.40	32.50	83.51	74.00	-9.51	Peak

Remarks:Emission Level = Antenna factor+Cable loss+Reading-Preamp Factor

Audix Technology (Wu Jiang) Co.,Ltd
No.1289,Jiang Xing East Road,The Eastern Part of WuJiang
Economic Development Zone,JiangSu,China
Tel : (0512)63403993 Fax:(0512)63403339



Site NO. : NO.2 3M Chamber
Instrument 1 : Spectrum N9030A(367)
Instrument 2 : Preamplifier 8449B(232)|000
Dis. / Ant. : 3115-593-2310
Limit : FCC Part15 C PK
Env. / Ins. : 21.3°C/54%
EUT : Smart Dongle
M/N : Wifi/LAN Kit-20
Power Rating : DC 5V
Test Mode : TX BLE 2402MHz
Memo :

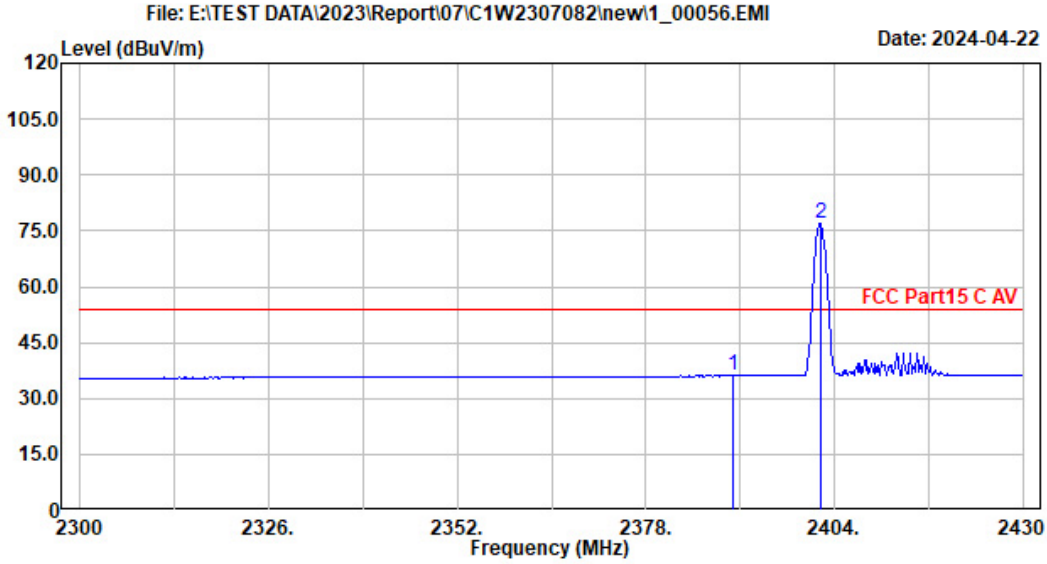
Ant. pol.: Vertical Data NO.:54

Engineer : Liuyujie

Freq. MHz	Ant. Factor dB/m	Cable Loss dB	Reading dBuV	Preamp Factor dB	Emission Level dBuV/m	Limits dBuV/m	Margin dB	Remark
2390.000	28.46	3.10	46.61	32.51	45.66	74.00	28.34	Peak
2402.050	28.50	3.11	77.65	32.50	76.76	74.00	-2.76	Peak

Remarks:Emission Level = Antenna factor+Cable loss+Reading-Preamp Factor

Audix Technology (Wu Jiang) Co.,Ltd
No.1289,Jiang Xing East Road,The Eastern Part of WuJiang
Economic Development Zone,JiangSu,China
Tel : (0512)63403993 Fax:(0512)63403339



Site NO. : NO.2 3M Chamber
Instrument 1 : Spectrum N9030A(367)
Instrument 2 : Preamplifier 8449B(232)|000
Dis. / Ant. : 3115-593-2310
Limit : FCC Part15 C AV
Env. / Ins. : 21.3°C/54%
EUT : Smart Dongle
M/N : Wifi/LAN Kit-20
Power Rating : DC 5V
Test Mode : TX BLE 2402MHz
Memo :

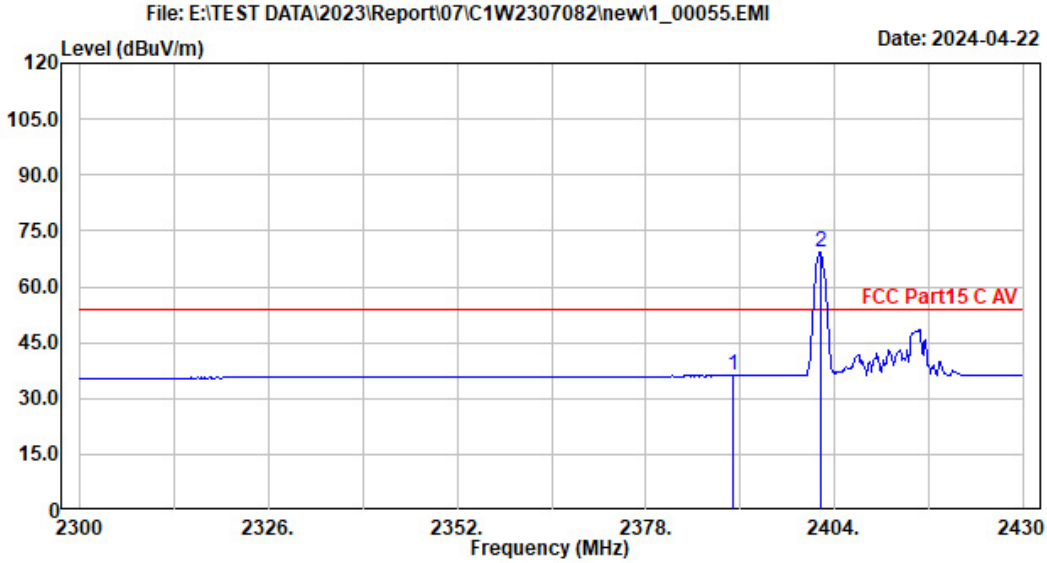
Ant. pol.: Horizontal Data NO.:56

Engineer : Liuyujie

Freq. MHz	Ant. Factor dB/m	Cable Loss dB	Reading dBuV	Preamp Factor dB	Emission Level dBuV/m	Limits dBuV/m	Margin dB	Remark
2390.000	28.46	3.10	37.01	32.51	36.06	54.00	17.94	Average
2402.050	28.50	3.11	77.92	32.50	77.03	54.00	-23.03	Average

Remarks:Emission Level = Antenna factor+Cable loss+Reading-Preamp Factor

Audix Technology (Wu Jiang) Co.,Ltd
No.1289,Jiang Xing East Road,The Eastern Part of WuJiang
Economic Development Zone,JiangSu,China
Tel : (0512)63403993 Fax:(0512)63403339



Site NO. : NO.2 3M Chamber
Instrument 1 : Spectrum N9030A(367)
Instrument 2 : Preamplifier 8449B(232)|000
Dis. / Ant. : 3115-593-2310
Limit : FCC Part15 C AV
Env. / Ins. : 21.3°C/54%
EUT : Smart Dongle
M/N : Wifi/LAN Kit-20
Power Rating : DC 5V
Test Mode : TX BLE 2402MHz
Memo :

Ant. pol.: Vertical Data NO.:55

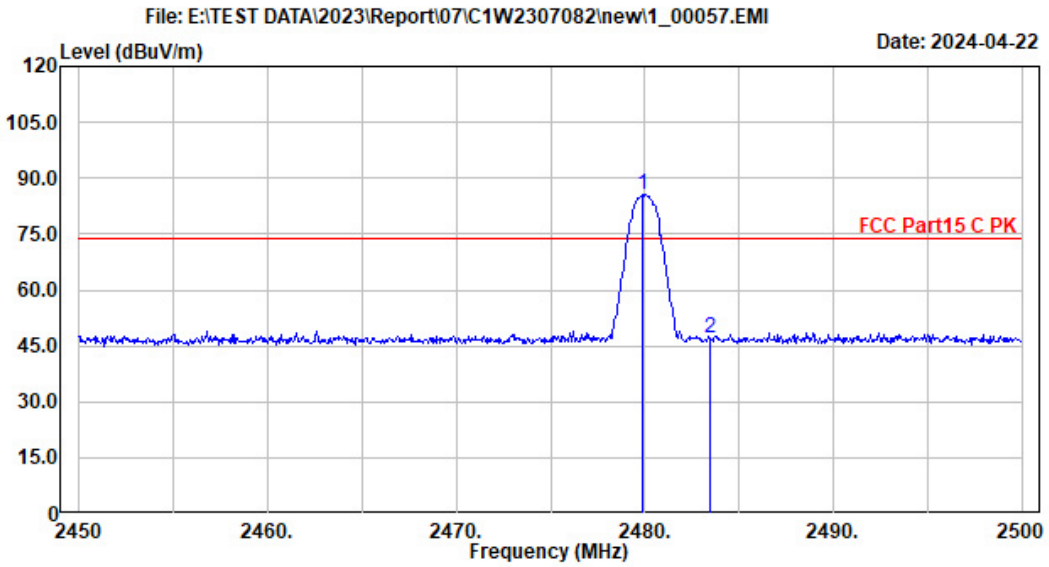
Engineer : Liuyujie

Freq. MHz	Ant. Factor dB/m	Cable Loss dB	Reading dBuV	Preamp Factor dB	Emission Level dBuV/m	Limits dBuV/m	Margin dB	Remark
2390.000	28.46	3.10	37.04	32.51	36.09	54.00	17.91	Average
2402.050	28.50	3.11	70.33	32.50	69.44	54.00	-15.44	Average

Remarks:Emission Level = Antenna factor+Cable loss+Reading-Preamp Factor

Mode	BLE	Frequency	2480MHz

Audix Technology (Wu Jiang) Co.,Ltd
No.1289,Jiang Xing East Road,The Eastern Part of WuJiang
Economic Development Zone,JiangSu,China
Tel : (0512)63403993 Fax:(0512)63403339



Site NO. : NO.2 3M Chamber
Instrument 1 : Spectrum N9030A(367)
Instrument 2 : Preamplifier 8449B(232)|000
Dis. / Ant. : 3115-593-2310
Limit : FCC Part15 C PK
Env. / Ins. : 21.3°C/54%
EUT : Smart Dongle
M/N : Wifi/LAN Kit-20
Power Rating : DC 5V
Test Mode : TX BLE 2480MHz
Memo :

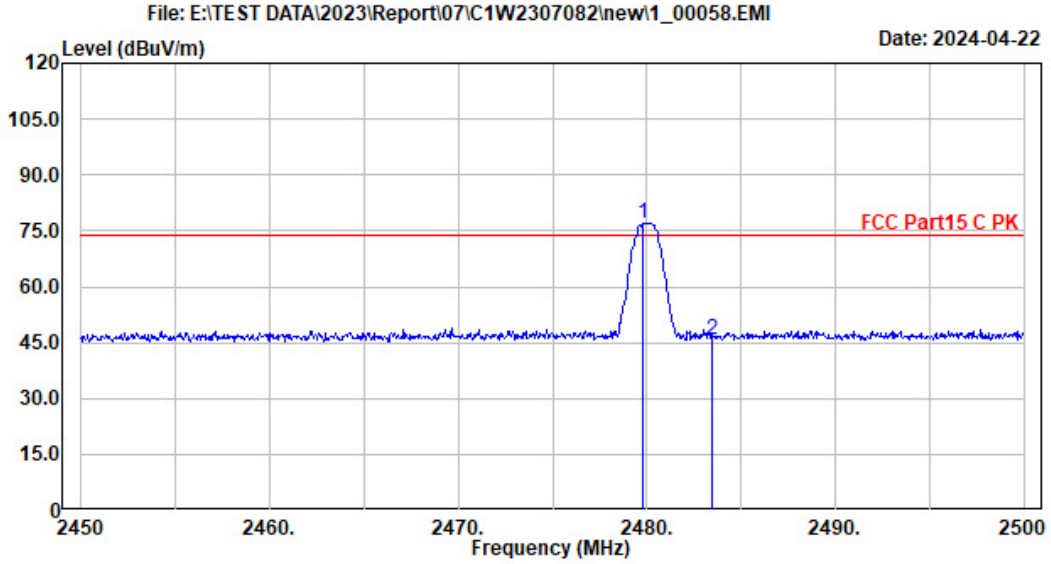
Ant. pol.: Horizontal Data NO.:57

Engineer : Liuyujie

Freq. MHz	Ant. Factor dB/m	Cable Loss dB	Reading dBuV	Preamp Factor dB	Emission Level dBuV/m	Limits dBuV/m	Margin dB	Remark
2479.900	28.50	3.19	86.27	32.46	85.50	74.00	-11.50	Peak
2483.500	28.50	3.19	47.65	32.46	46.88	74.00	27.12	Peak

Remarks:Emission Level = Antenna factor+Cable loss+Reading-Preamp Factor

Audix Technology (Wu Jiang) Co.,Ltd
No.1289,Jiang Xing East Road,The Eastern Part of WuJiang
Economic Development Zone,JiangSu,China
Tel : (0512)63403993 Fax:(0512)63403339



Site NO. : NO.2 3M Chamber
Instrument 1 : Spectrum N9030A(367)
Instrument 2 : Preamplifier 8449B(232)|000
Dis. / Ant. : 3115-593-2310
Limit : FCC Part15 C PK
Env. / Ins. : 21.3°C/54%
EUT : Smart Dongle
M/N : Wifi/LAN Kit-20
Power Rating : DC 5V
Test Mode : TX BLE 2480MHz
Memo :

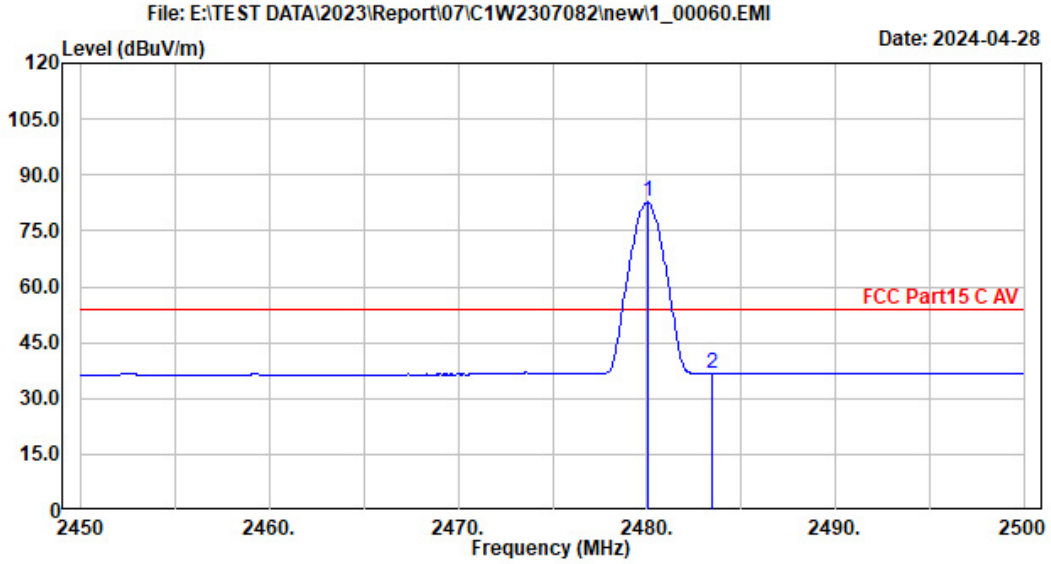
Ant. pol.: Vertical Data NO.:58

Engineer : Liuyujie

Freq. MHz	Ant. Factor dB/m	Cable Loss dB	Reading dBuV	Preamp Factor dB	Emission Level dBuV/m	Limits dBuV/m	Margin dB	Remark
2479.800	28.50	3.19	77.86	32.46	77.09	74.00	-3.09	Peak
2483.500	28.50	3.19	46.44	32.46	45.67	74.00	28.33	Peak

Remarks:Emission Level = Antenna factor+Cable loss+Reading-Preamp Factor

Audix Technology (Wu Jiang) Co.,Ltd
No.1289,Jiang Xing East Road,The Eastern Part of WuJiang
Economic Development Zone,JiangSu,China
Tel : (0512)63403993 Fax:(0512)63403339



Site NO. : NO.2 3M Chamber
Instrument 1 : Spectrum N9030A(367)
Instrument 2 : Preamplifier 8449B(232)|000
Dis. / Ant. : 3115-593-2310
Limit : FCC Part15 C AV
Env. / Ins. : 21.3°C/54%
EUT : Smart Dongle
M/N : Wifi/LAN Kit-20
Power Rating : DC 5V
Test Mode : TX BLE 2480MHz
Memo :

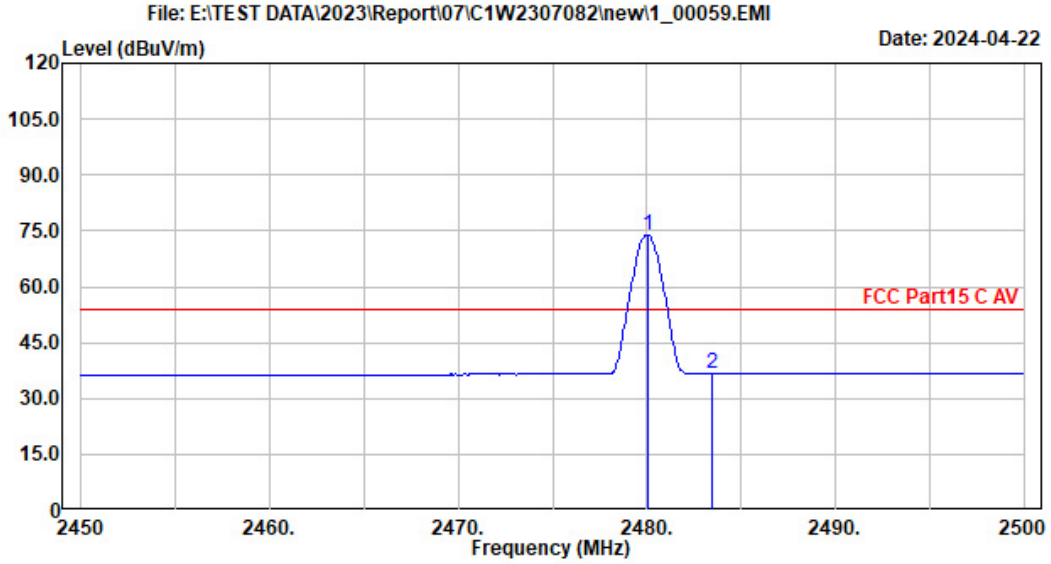
Ant. pol.: Horizontal Data NO.:60

Engineer : Liuyujie

Freq. MHz	Ant. Factor dB/m	Cable Loss dB	Reading dBuV	Preamp Factor dB	Emission Level dBuV/m	Limits dBuV/m	Margin dB	Remark
2480.050	28.50	3.19	83.45	32.46	82.68	54.00	-28.68	Average
2483.500	28.50	3.19	37.35	32.46	36.58	54.00	17.42	Average

Remarks:Emission Level = Antenna factor+Cable loss+Reading-Preamp Factor

Audix Technology (Wu Jiang) Co.,Ltd
No.1289,Jiang Xing East Road,The Eastern Part of WuJiang
Economic Development Zone,JiangSu,China
Tel : (0512)63403993 Fax:(0512)63403339



Site NO. : NO.2 3M Chamber
Instrument 1 : Spectrum N9030A(367)
Instrument 2 : Preamplifier 8449B(232)|000
Dis. / Ant. : 3115-593-2310
Limit : FCC Part15 C AV
Env. / Ins. : 21.3°C/54%
EUT : Smart Dongle
M/N : Wifi/LAN Kit-20
Power Rating : DC 5V
Test Mode : TX BLE 2480MHz
Memo :

Ant. pol.: Vertical Data NO.:59

Engineer : Liuyujie

Freq. MHz	Ant. Factor dB/m	Cable Loss dB	Reading dBuV	Preamp Factor dB	Emission Level dBuV/m	Limits dBuV/m	Margin dB	Remark
2480.050	28.50	3.19	74.77	32.46	74.00	54.00	-20.00	Average
2483.500	28.50	3.19	37.30	32.46	36.53	54.00	17.47	Average

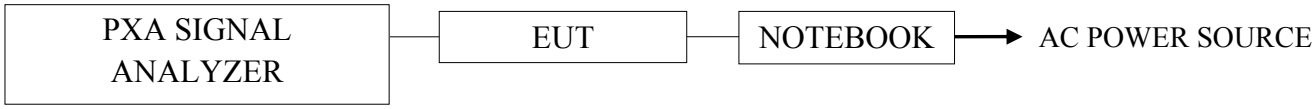
Remarks:Emission Level = Antenna factor+Cable loss+Reading-Preamp Factor

6. 6dB BANDWIDTH MEASUREMENT

6.1. Test Equipment

Item	Type	Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Period
1.	PXA signal analyzer	Agilent	N9030A	MY53120217	2024-03-24	1 Year

6.2. Block Diagram of Test Setup



—— : SIGNAL LINE

6.3. Specification Limits

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

6.4. Test Procedure

Following measurement procedure is reference to KDB 558074 D01 DTS Meas Guidance v05:

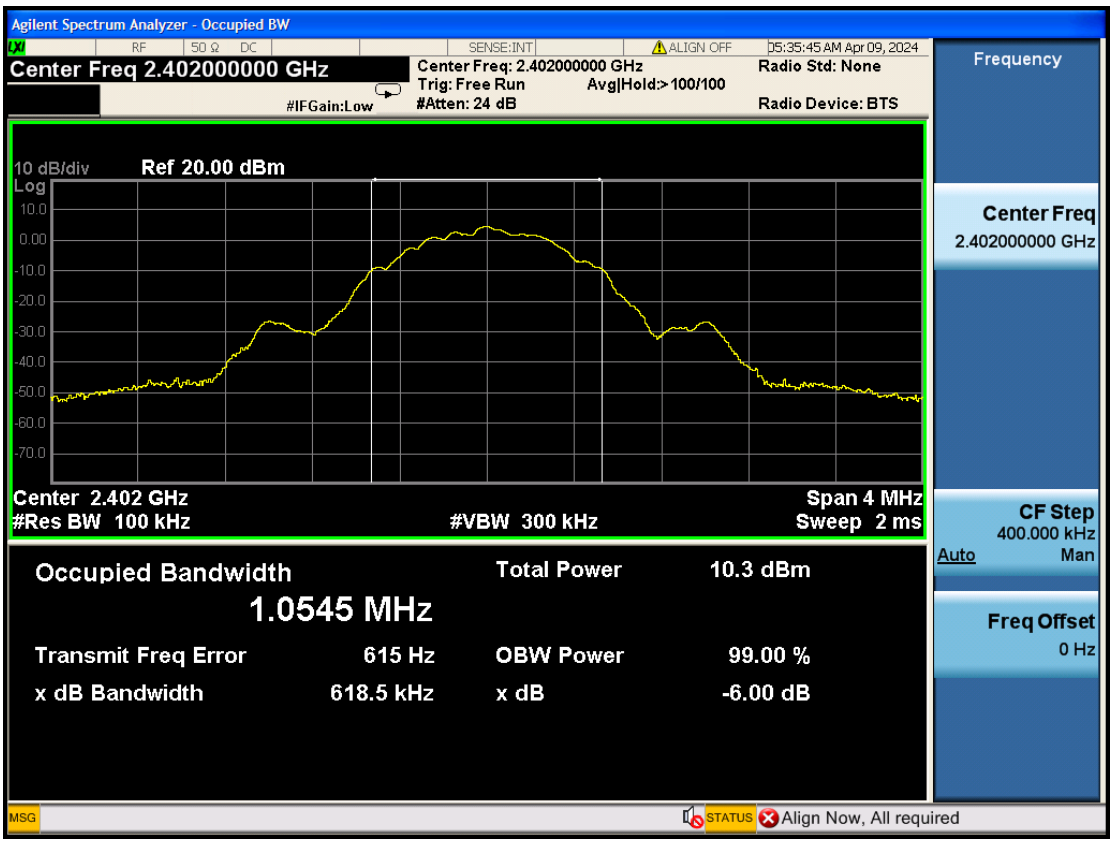
(1) Set RBW = 100 kHz.
(2) Set the video bandwidth (VBW) ≥ 3 × RBW.
(3) Detector = Peak.
(4) Trace mode = max hold.
(5) Sweep = auto couple.
(6) Allow the trace to stabilize.
(7) Setting channel bandwidth function x dB to -6 dB to record the final bandwidth.

6.5. Test Results

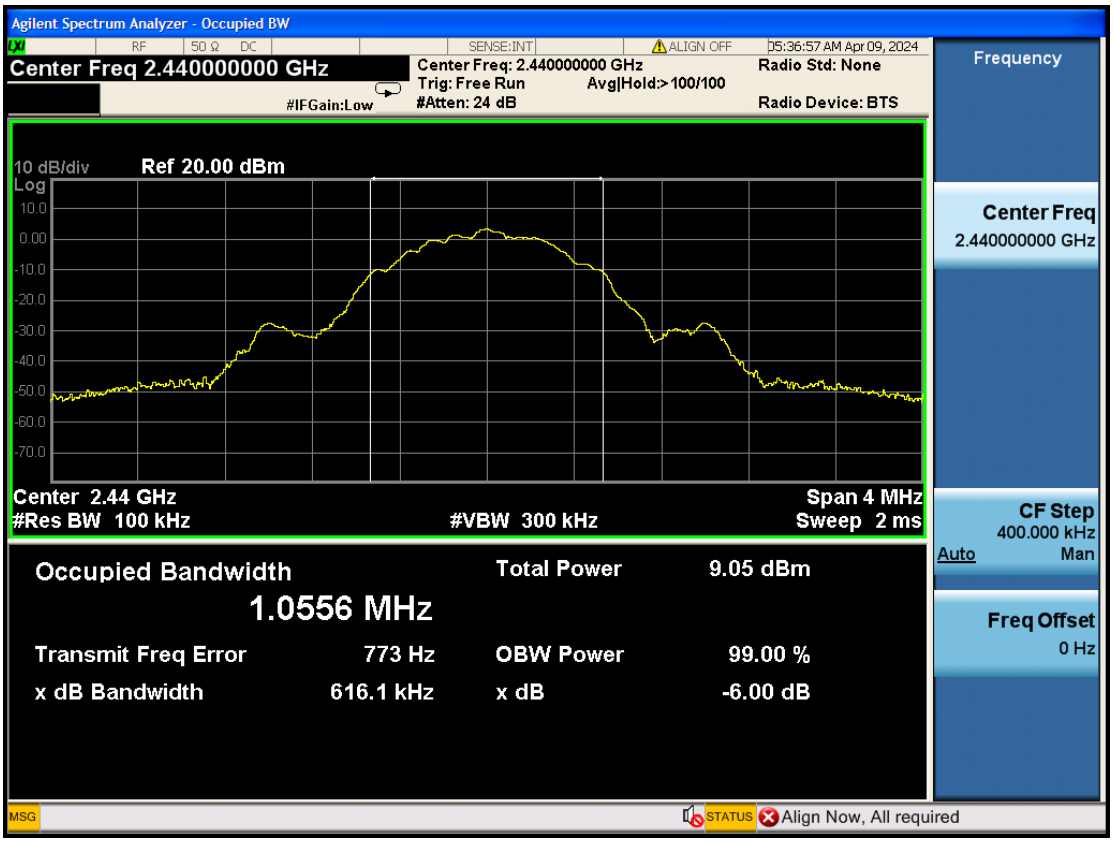
PASSED. All the test results are attached in next pages.

Item	Test Frequency (MHz)	6dB Bandwidth (kHz)
BLE	2402	618.5
	2440	616.1
	2480	619.3

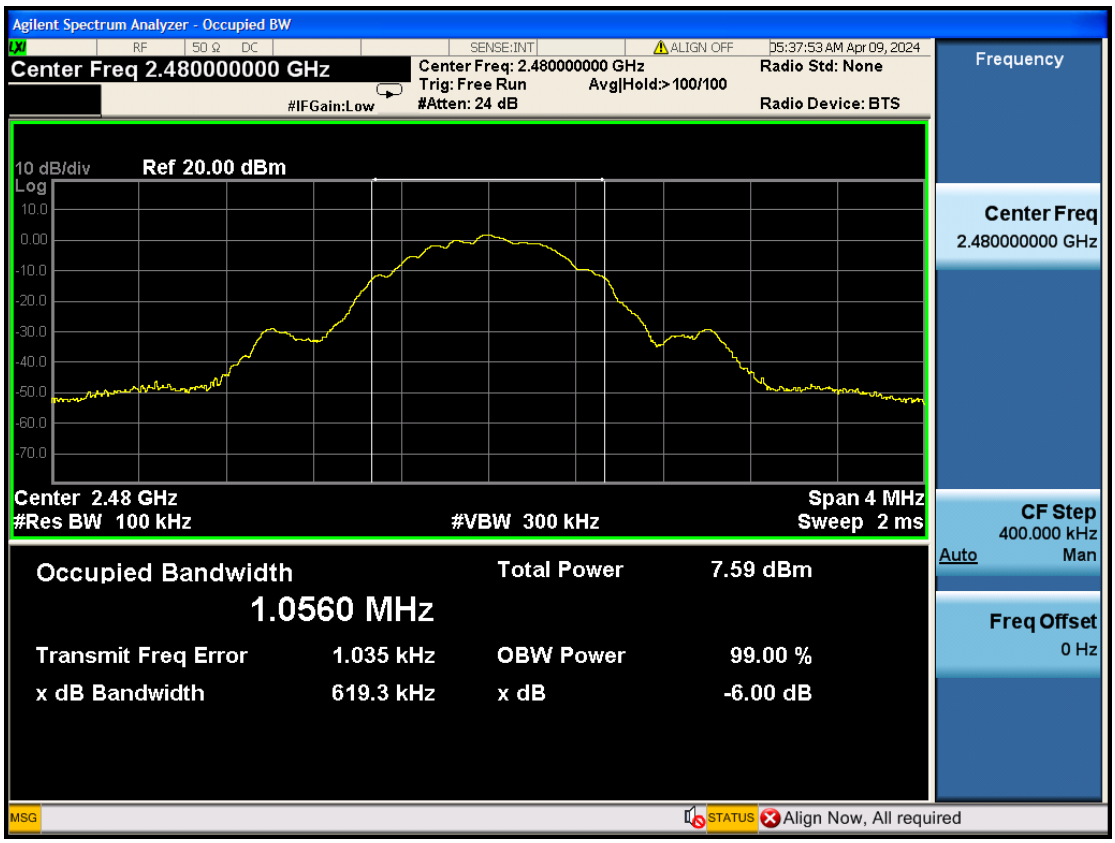
BLE 2402MHz



BLE 2440MHz



BLE 2480MHz

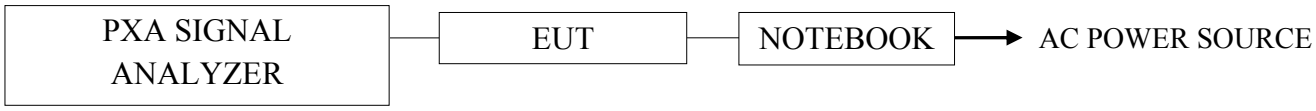

Agilent Spectrum Analyzer - Occupied BW
RF
50 Ω DC
SENSE:INT
ALIGN OFF
05:37:53 AM Apr 09, 2024
Center Freq 2.480000000 GHz
Center Freq: 2.480000000 GHz
Trig: Free Run
Avg|Hold:>100/100
#Atten: 24 dB
#IFGain:Low
Radio Std: None
Radio Device: BTS
Frequency
10 dB/div
Log
Ref 20.00 dBm
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-70.0
Center 2.48 GHz
#Res BW 100 kHz
#VBW 300 kHz
Span 4 MHz
Sweep 2 ms
Occupied Bandwidth
1.0560 MHz
Total Power
7.59 dBm
Transmit Freq Error
1.035 kHz
OBW Power
99.00 %
x dB Bandwidth
619.3 kHz
x dB
-6.00 dB
Center Freq
2.480000000 GHz
CF Step
400.000 kHz
Auto
Man
Freq Offset
0 Hz
MSG
STATUS
Align Now, All required

7. OUTPUT POWER MEASUREMENT

7.1. Test Equipment

Item	Type	Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Period
1.	PXA signal analyzer	Agilent	N9030A	MY53120217	2024-03-24	1 Year

7.2. Block Diagram of Test Setup



—— : SIGNAL LINE

7.3. Specification Limits (§15.247(b)(3))

The Limits of maximum Peak Output Power for digital modulation in 2400-2483.5MHz is : 1Watt. (30dBm), and E.I.R.P.: 4Watt (36dBm)

7.4. Test Procedure

Following measurement procedure is reference to KDB 558074 D01 DTS Meas Guidance v05:

☐**Method AVGSA-2 (Spectrum channel power)**

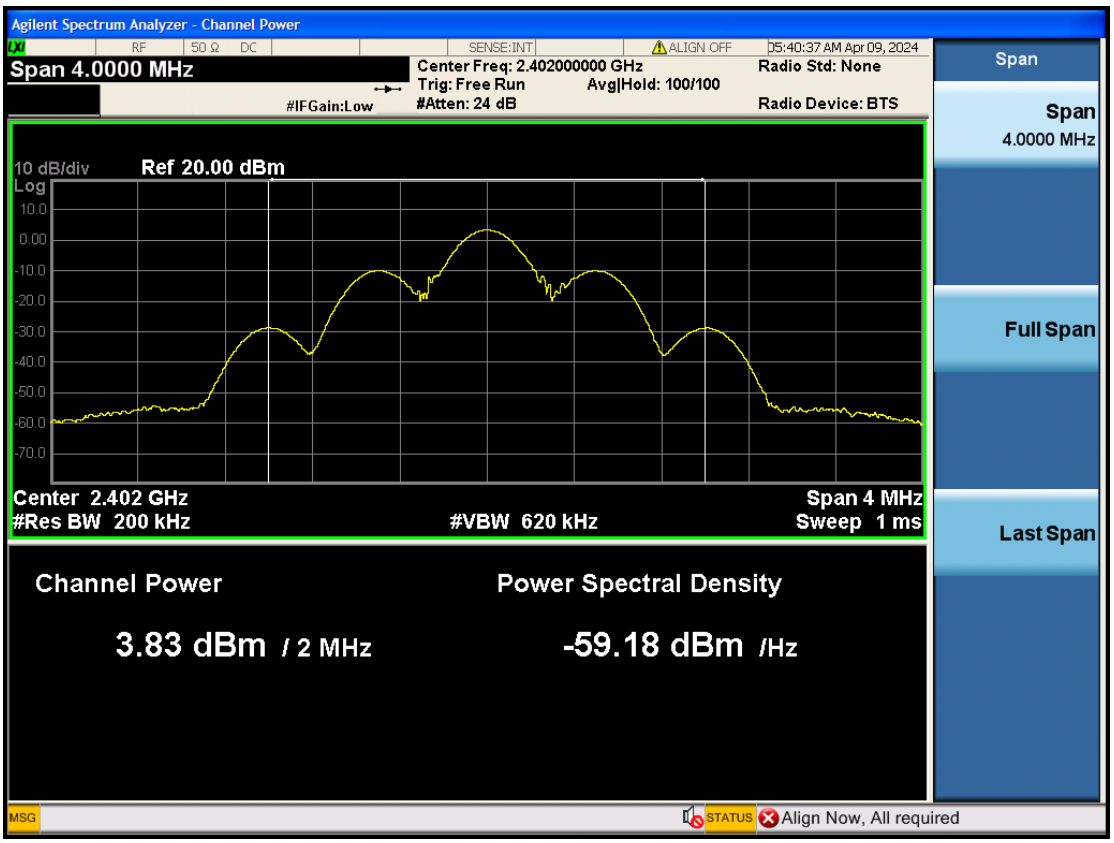
(1) Set span to at least 1.5 times the OBW
(2) Set RBW = 1 -5% of OBW
(3) Set the video bandwidth (VBW) ≥ 3 × RBW.
(4) Detector = RMS.
(5) Trace mode = trace average at least 100 traces
(6) Sweep = auto couple.
(7) Compute power by integrating the spectrum across the OBW of the signal using the instrument's band power measurement function with band limits set equal to the OBW band edges.
(8) Duty cycle factor is added when duty cycle presented in chapter3.5 is < 98%.

7.5. Test Results

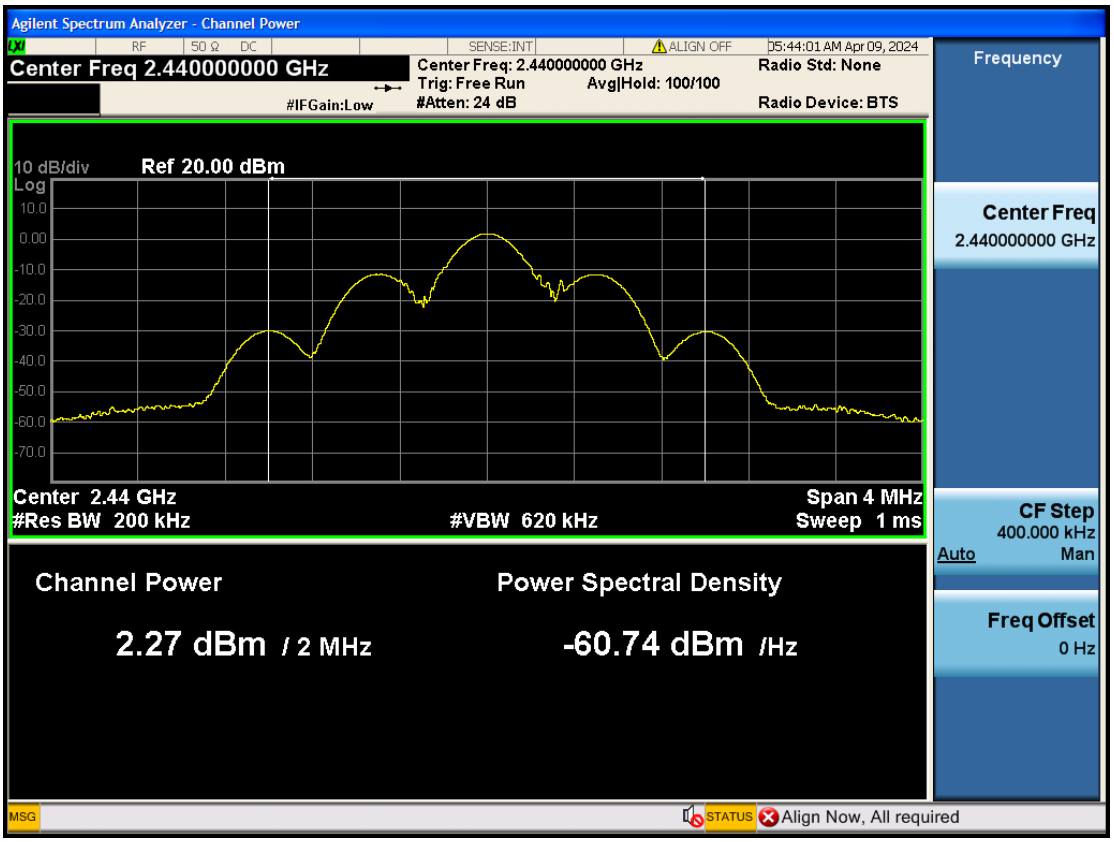
PASSED.

Mode	Frequency (MHz)	Duty Cycle Factor	Reading (dBm)	Average Output Power (dBm)	Limit (dBm)
BLE	2402	0.77	3.83	4.60	30
	2440	0.77	2.27	3.04	
	2480	0.77	3.67	4.44	

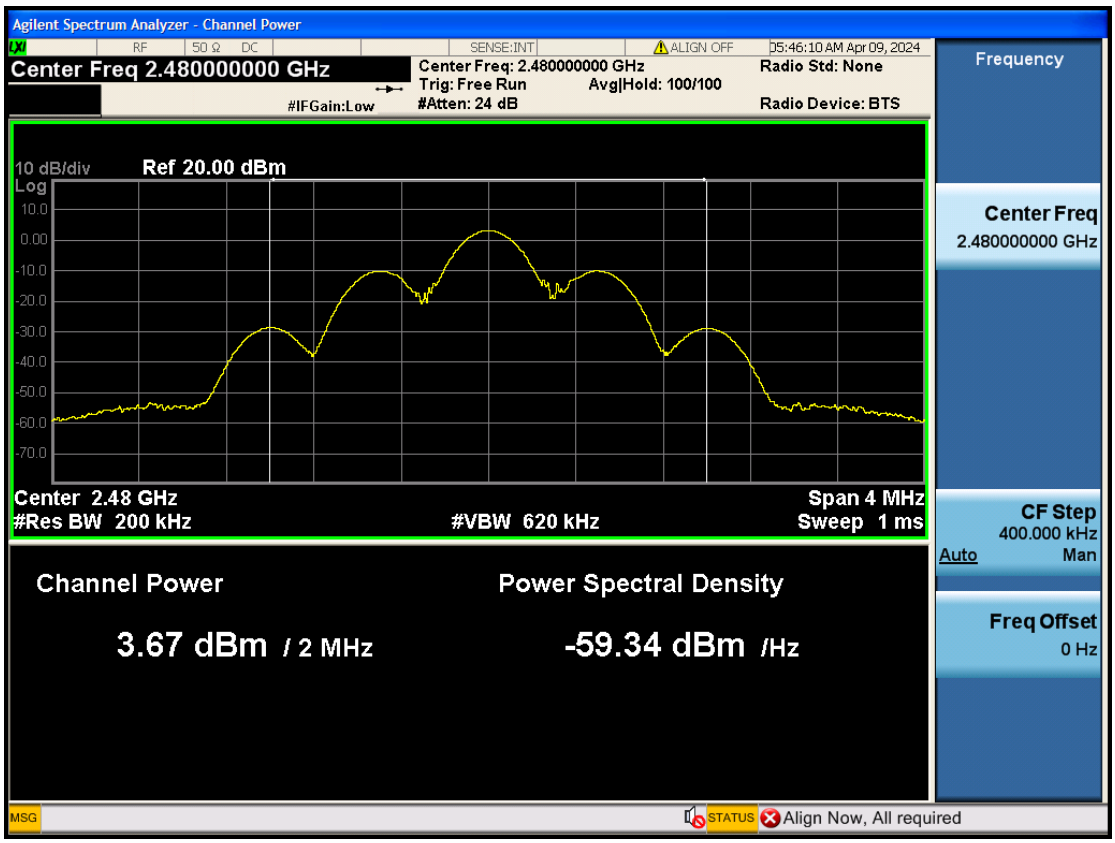
BLE 2402MHz



BLE 2440MHz



BLE 2480MHz


Agilent Spectrum Analyzer - Channel Power
RF
50 Ω DC
SENSE:INT
ALIGN OFF
05:46:10 AM Apr 09, 2024
Center Freq 2.480000000 GHz
Center Freq: 2.480000000 GHz
Trig: Free Run
Avg|Hold: 100/100
#IFGain:Low
#Atten: 24 dB
Radio Std: None
Radio Device: BTS
Frequency
10 dB/div
Ref 20.00 dBm
Log
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-70.0
Center Freq
2.480000000 GHz
Center 2.48 GHz
#Res BW 200 kHz
#VBW 620 kHz
Span 4 MHz
Sweep 1 ms
CF Step
400.000 kHz
Auto
Man
Channel Power
3.67 dBm / 2 MHz
Power Spectral Density
-59.34 dBm /Hz
Freq Offset
0 Hz
MSG
STATUS
Align Now, All required

8. POWER SPECTRAL DENSITY MEASUREMENT

8.1. Test Equipment

Item	Type	Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Period
1.	PXA signal analyzer	Agilent	N9030A	MY53120217	2024-03-24	1 Year

8.2. Block Diagram of Test Setup

The same as section 6.2.

8.3. Specification Limits

The peak power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8dBm in any 3kHz band.

8.4. Test Procedure

(1) Set analyzer center frequency to DTS channel center frequency.
(2) Set the span to 1.5 times the DTS bandwidth.
(3) Set the RBW to: 3 kHz ≤ RBW ≤ 100 kHz.
(4) Set the VBW ≥ 3 × RBW.
(5) Detector = peak.
(6) Sweep time = auto couple.
(7) Trace mode = max hold.
(8) Allow trace to fully stabilize.
(9) Use the peak marker function to determine the maximum amplitude level.

8.5. Test Results

PASSED. All the test results are attached in next page.

Mode	Frequency (MHz)	Duty Cycle Factor	Reading (dBm)	Result (dBm)	Limit (dBm/3kHz)
BLE	2402	0.77	4.223	5.00	8
	2440	0.77	3.090	3.86	
	2480	0.77	4.514	5.29	

BLE 2402MHz

BLE 2440MHz

BLE 2480MHz


Agilent Spectrum Analyzer - Swept SA
RF
50 Ω DC
SENSE:INT
ALIGN OFF
05:57:03 AM Apr 09, 2024
Marker 1 2.480004000000 GHz
PNO: Wide
IFGain:Low
Trig: Free Run
#Atten: 24 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
TRACE 1 2 3 4 5 6
TYPE M
DET P S N N N N
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2
Ref Offset 10.9 dB
10 dB/div
Log
Ref 20.00 dBm
Mkr1 2.480 004 GHz
4.514 dBm
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-70.0
Center 2.480000 GHz
#Res BW 3.0 kHz
#VBW 10 kHz
Span 4.000 MHz
Sweep 421.8 ms (1001 pts)
MSG
STATUS
Align Now, All required

9. EMISSION LIMITATIONS MEASUREMENT

9.1. Test Equipment

Item	Type	Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Period
1.	PXA signal analyzer	Agilent	N9030A	MY53120217	2024-03-24	1 Year

9.2. Block Diagram of Test Setup

The same as section 6.2.

9.3. Specification Limits

In any 100kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20dB below that in the 100kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, that the required attenuation shall be 30 dB instead of 20 dB.

9.4. Test Procedure

Following measurement procedure is reference to KDB 558074 D01 DTS Meas Guidance v05r02:

(1) Set analyzer center frequency to DTS channel center frequency.

(2) Set the span to 1.5 times the DTS bandwidth.

(3) Set the RBW to: 100 kHz.

(4) Set the VBW $\geqslant$ 3 × RBW.

(5) Detector = peak.

(6) Sweep time = auto couple.

(7) Trace mode = max hold.

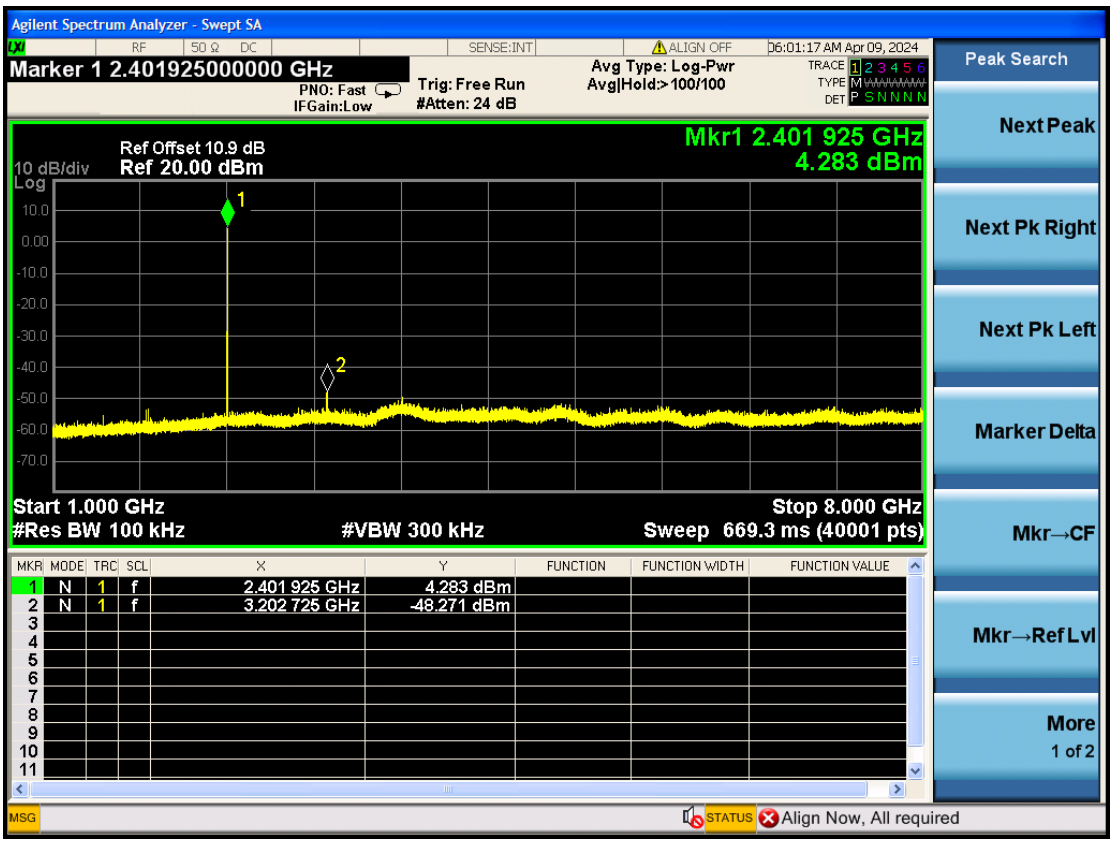
(8) Allow trace to fully stabilize to find the max level.

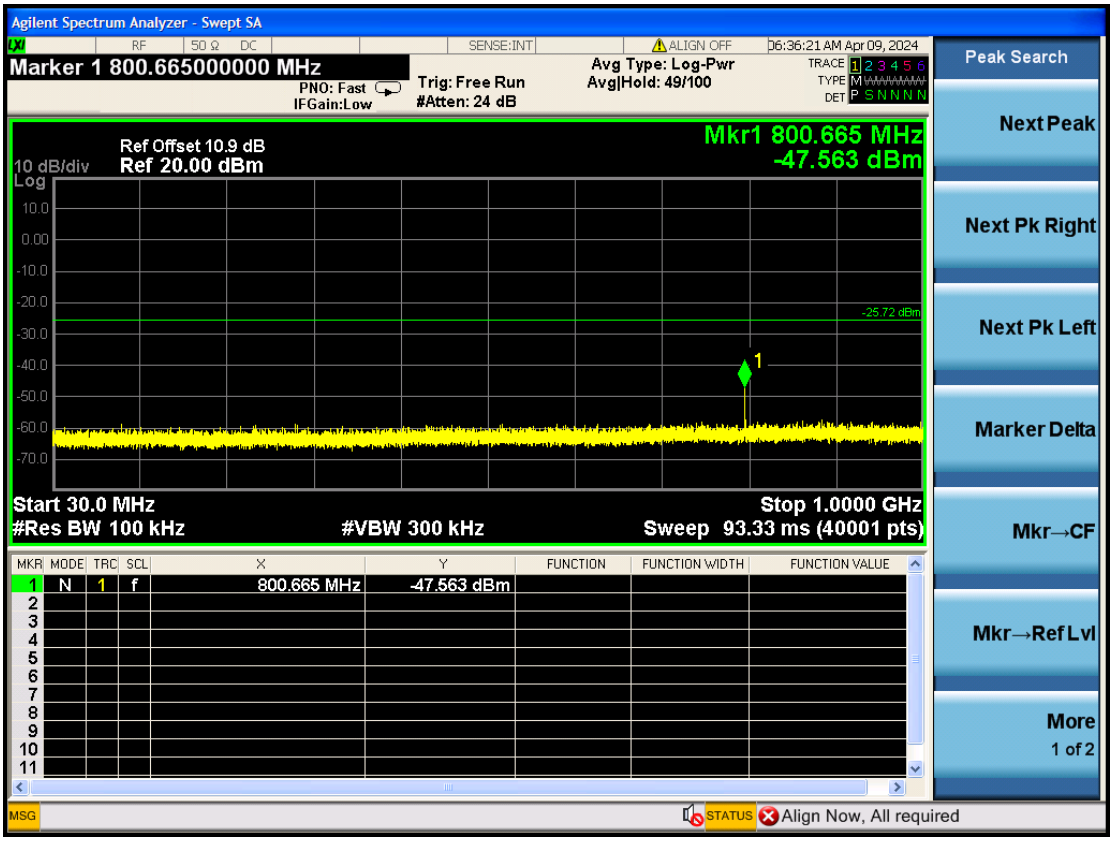
9.5. Test Results

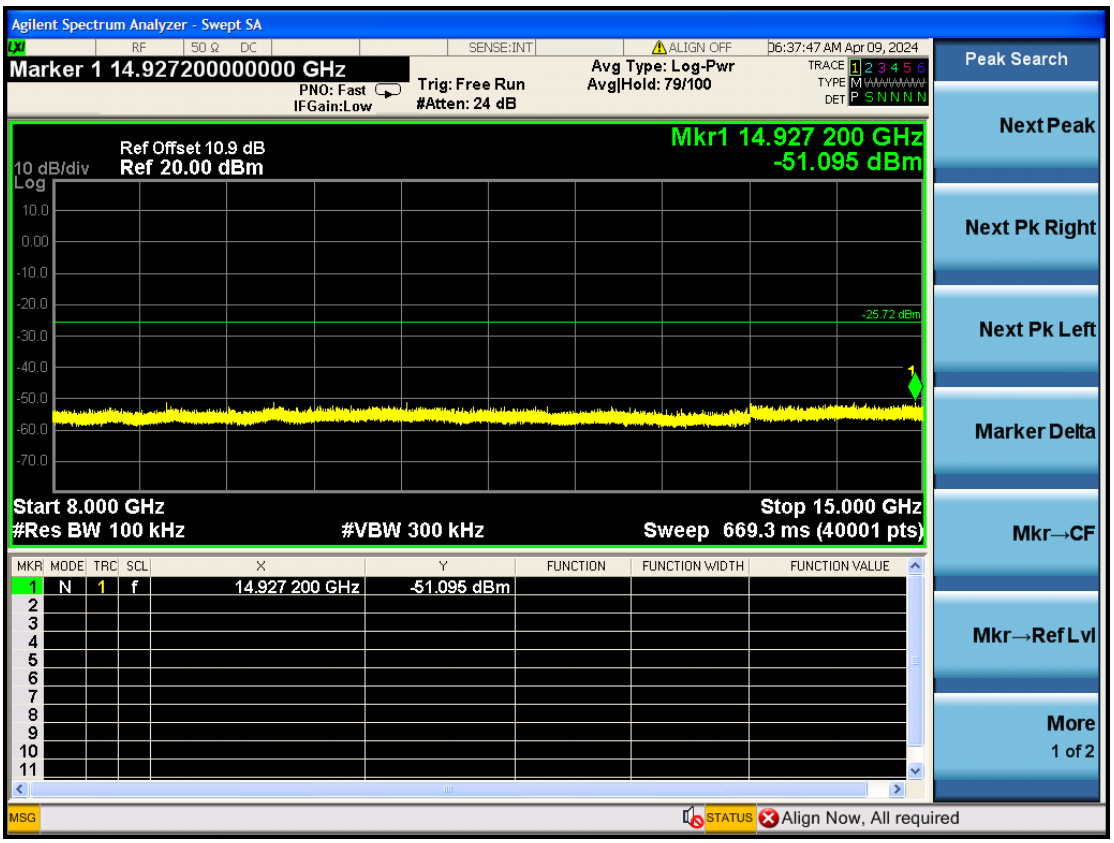
PASSED. All the test results are attached in next pages.

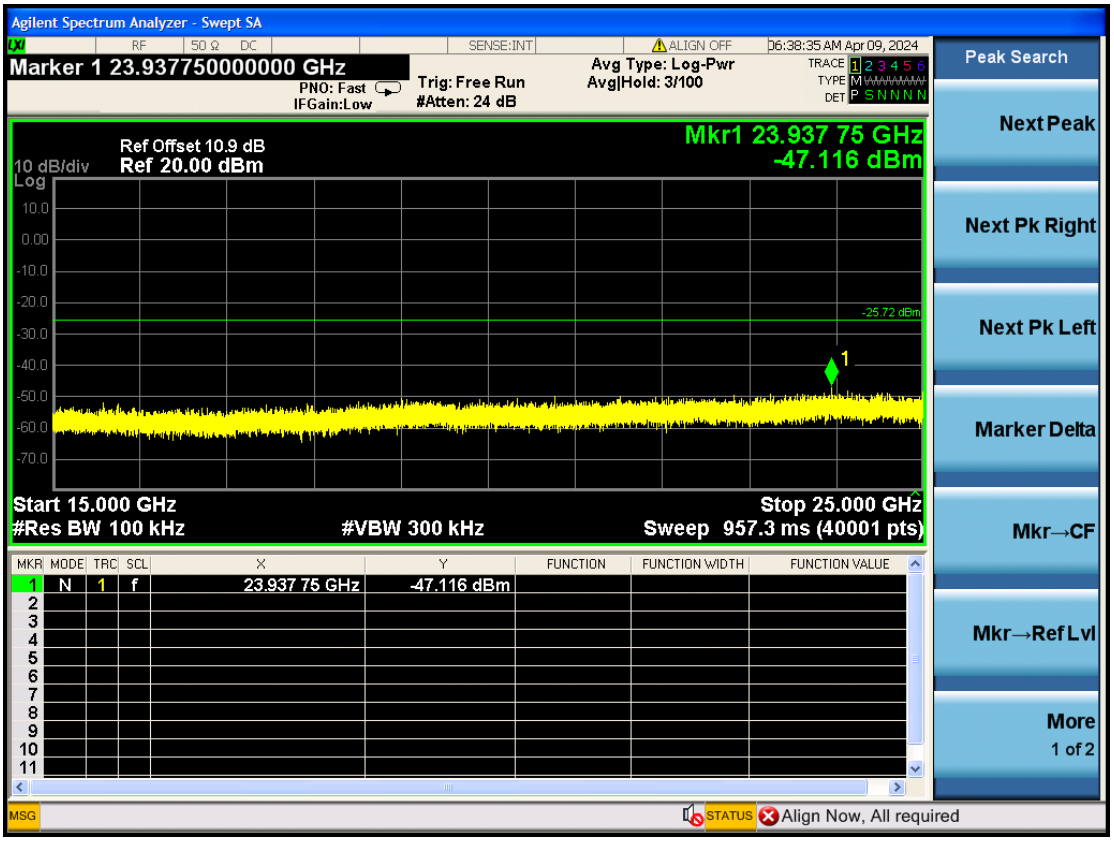
Item	Frequency (MHz)	Frequency (MHz)	Amplitude (dBm)
BLE	2402	2401.925	4.283
		3202.725	-48.271
		800.665	-47.563
		14927.2	-51.095
		23937.75	-47.116
		2390	-59.281
		2400	-53.658
	2440	2440.075	3.165
		3253.3	-47.599
		813.324	-47.403
		14810.125	-51.498
		24904.25	-47.326
	2480	2479.975	4.515
		1766.5	-42.872
		826.661	-45.728
		14187.125	-51.300
		23794.25	-47.830
		2483.5	-55.207

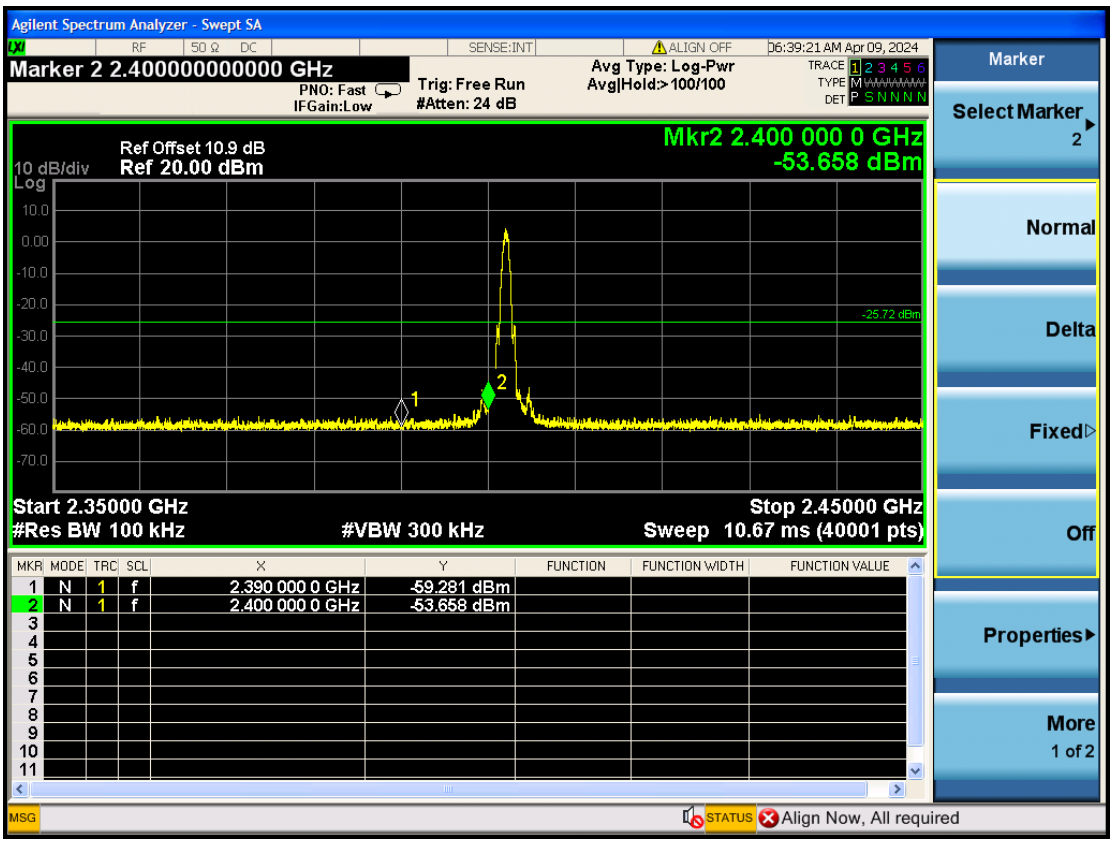
BLE 2402MHz


Agilent Spectrum Analyzer - Swept SA
Marker 1 2.401925000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 24 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
06:01:17 AM Apr 09, 2024
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2
Ref Offset 10.9 dB
10 dB/div
Ref 20.00 dBm
Log
Mkr1 2.401 925 GHz
4.283 dBm
Start 1.000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 8.000 GHz
Sweep 669.3 ms (40001 pts)
1 N 1 f 2.401 925 GHz 4.283 dBm
2 N 1 f 3.202 725 GHz -48.271 dBm
Align Now, All required

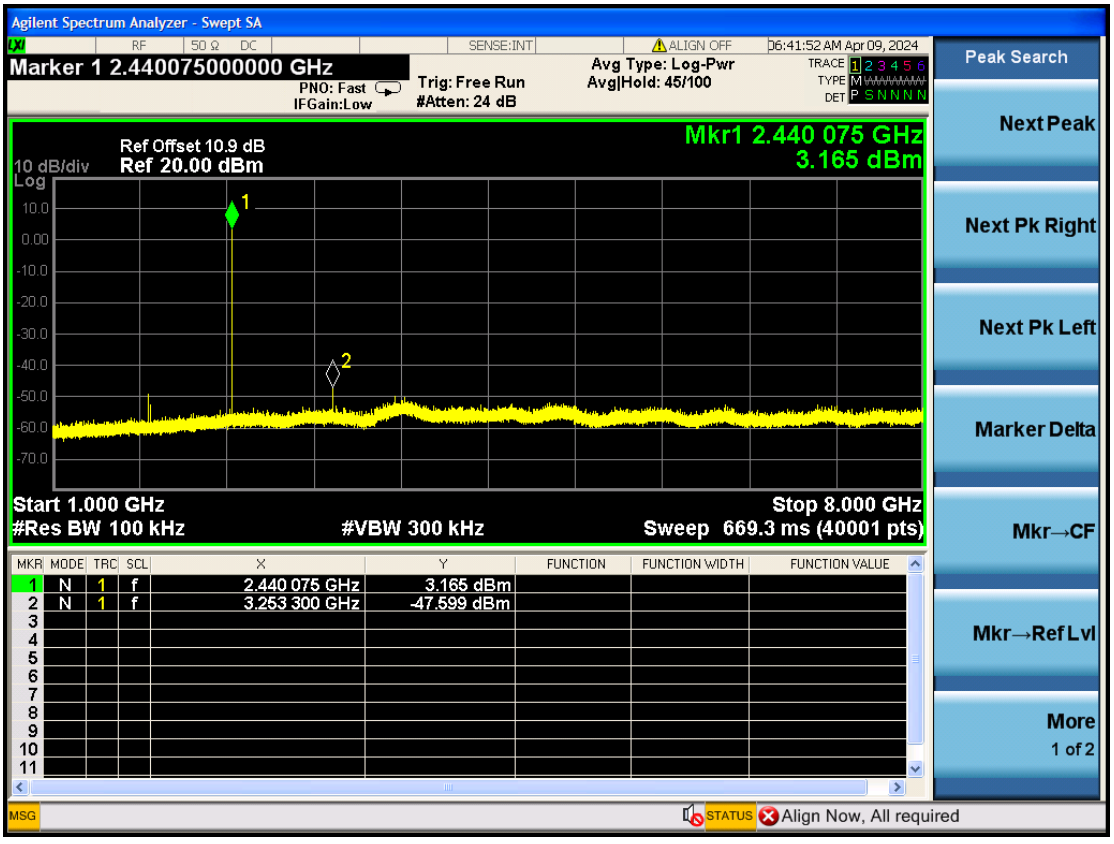

Agilent Spectrum Analyzer - Swept SA
Marker 1 800.665000000 MHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 24 dB
Avg Type: Log-Pwr
Avg|Hold: 49/100
06:36:21 AM Apr 09, 2024
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2
Ref Offset 10.9 dB
10 dB/div
Ref 20.00 dBm
Log
Mkr1 800.665 MHz
-47.563 dBm
-25.72 dBm
Start 30.0 MHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 1.0000 GHz
Sweep 93.33 ms (40001 pts)
1 N 1 f 800.665 MHz -47.563 dBm
Align Now, All required

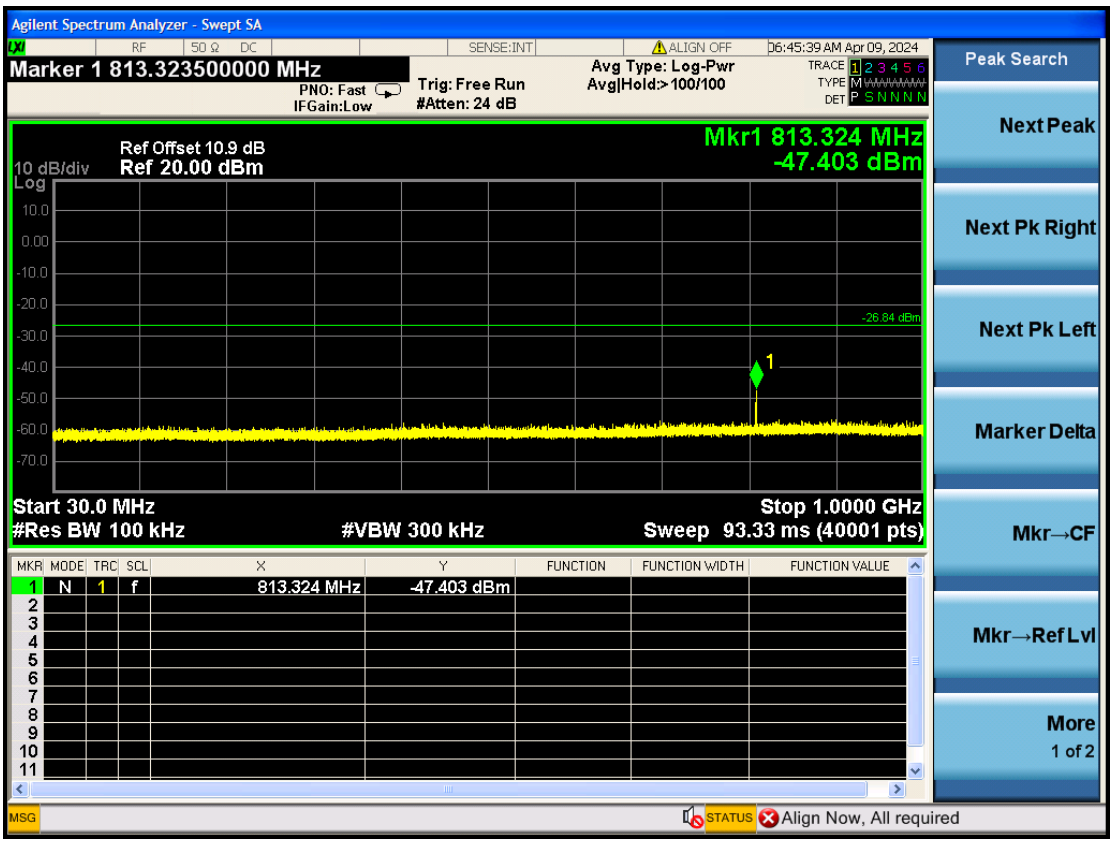

Agilent Spectrum Analyzer - Swept SA
RF 50 Ω DC
SENSE:INT
ALIGN OFF
06:37:47 AM Apr 09, 2024
Marker 1 14.927200000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 24 dB
Avg Type: Log-Pwr
Avg|Hold: 79/100
TRACE 1 2 3 4 5 6
TYPE M
DET P S N N N N
Ref Offset 10.9 dB
10 dB/div
Log
Ref 20.00 dBm
Mkr1 14.927 200 GHz
-51.095 dBm
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-70.0
-25.72 dBm
Start 8.000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 15.000 GHz
Sweep 669.3 ms (40001 pts)
MKR MODE TRC SCL X Y FUNCTION FUNCTION WIDTH FUNCTION VALUE
1 N 1 f 14.927 200 GHz -51.095 dBm
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2
MSG
STATUS
Align Now, All required

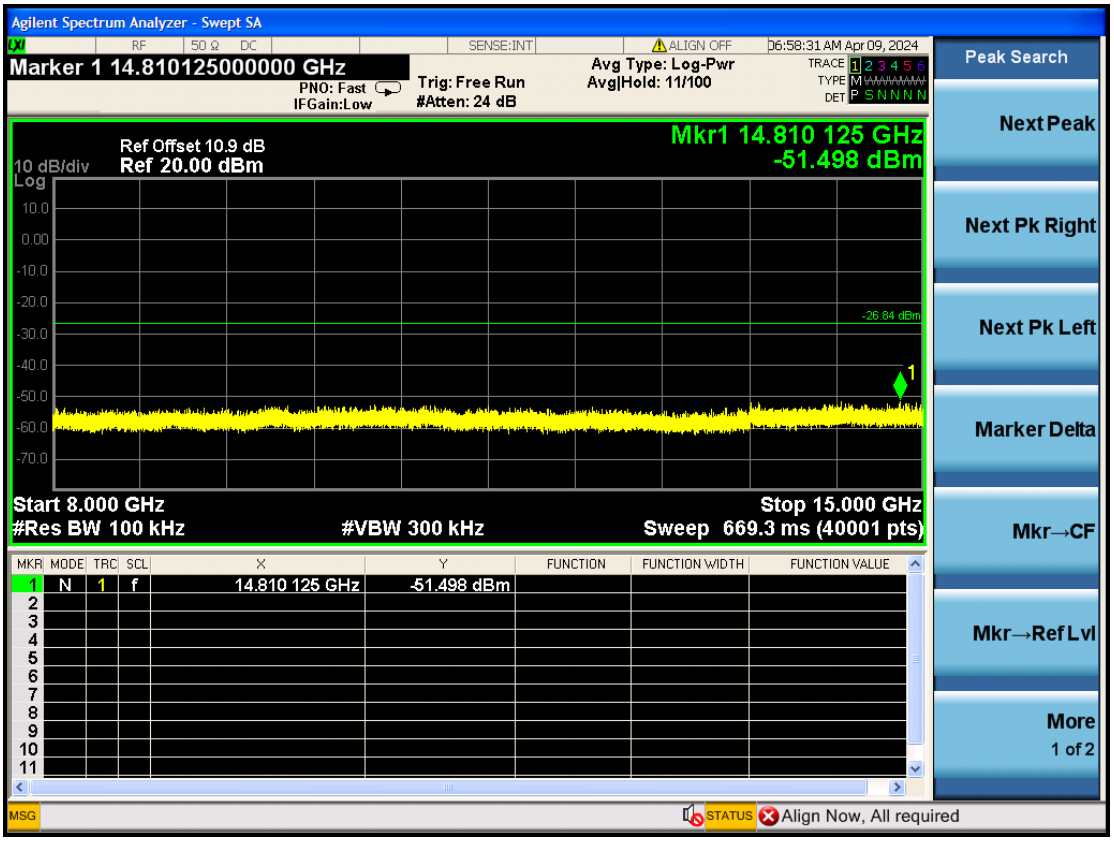

Agilent Spectrum Analyzer - Swept SA
RF 50 Ω DC
SENSE:INT
ALIGN OFF
06:38:35 AM Apr 09, 2024
Marker 1 23.937750000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 24 dB
Avg Type: Log-Pwr
Avg|Hold: 3/100
TRACE 1 2 3 4 5 6
TYPE M
DET P S N N N N
Ref Offset 10.9 dB
10 dB/div
Log
Ref 20.00 dBm
Mkr1 23.937 75 GHz
-47.116 dBm
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-70.0
-25.72 dBm
Start 15.000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 25.000 GHz
Sweep 957.3 ms (40001 pts)
MKR MODE TRC SCL X Y FUNCTION FUNCTION WIDTH FUNCTION VALUE
1 N 1 f 23.937 75 GHz -47.116 dBm
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2
MSG
STATUS
Align Now, All required

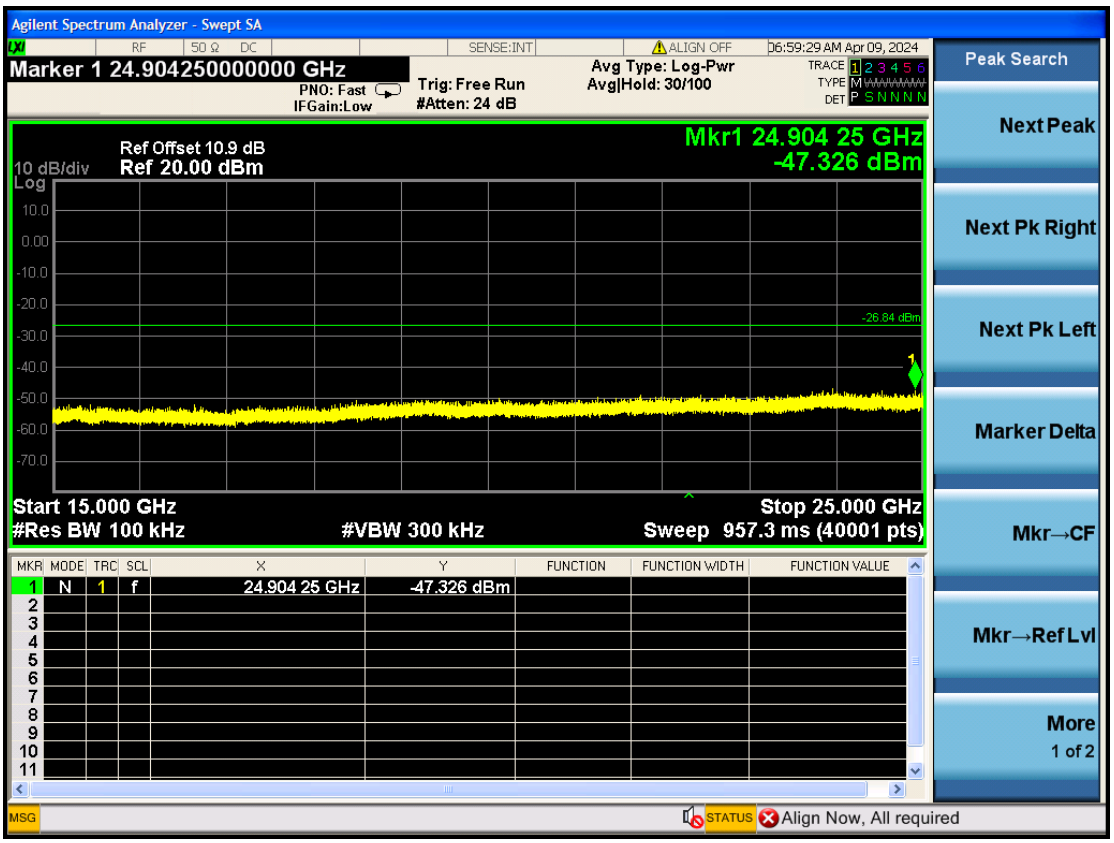

Agilent Spectrum Analyzer - Swept SA
Marker 2 2.400000000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 24 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
06:39:21 AM Apr 09, 2024
Ref Offset 10.9 dB
10 dB/div
Ref 20.00 dBm
Mkr2 2.400 000 0 GHz
-53.658 dBm
-25.72 dBm
Start 2.35000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 2.45000 GHz
Sweep 10.67 ms (40001 pts)
1 N 1 f 2.390 000 0 GHz -59.281 dBm
2 N 1 f 2.400 000 0 GHz -53.658 dBm
Marker
Select Marker
Normal
Delta
Fixed
Off
Properties
More
1 of 2
Align Now, All required

BLE 2440MHz

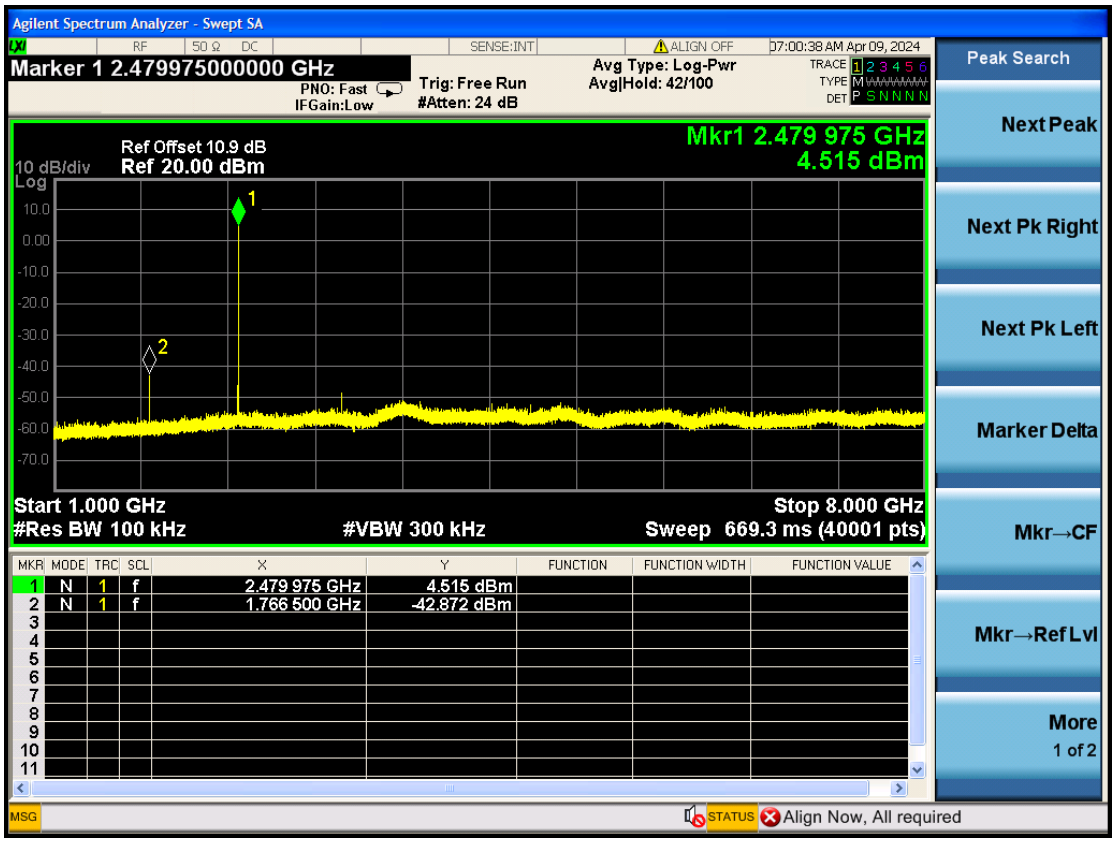

Agilent Spectrum Analyzer - Swept SA
Marker 1 2.440075000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 24 dB
Avg Type: Log-Pwr
Avg|Hold: 45/100
06:41:52 AM Apr 09, 2024
Ref Offset 10.9 dB
10 dB/div
Ref 20.00 dBm
Mkr1 2.440 075 GHz
3.165 dBm
Start 1.000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 8.000 GHz
Sweep 669.3 ms (40001 pts)
1 N 1 f 2.440 075 GHz 3.165 dBm
2 N 1 f 3.253 300 GHz -47.599 dBm
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2
Align Now, All required

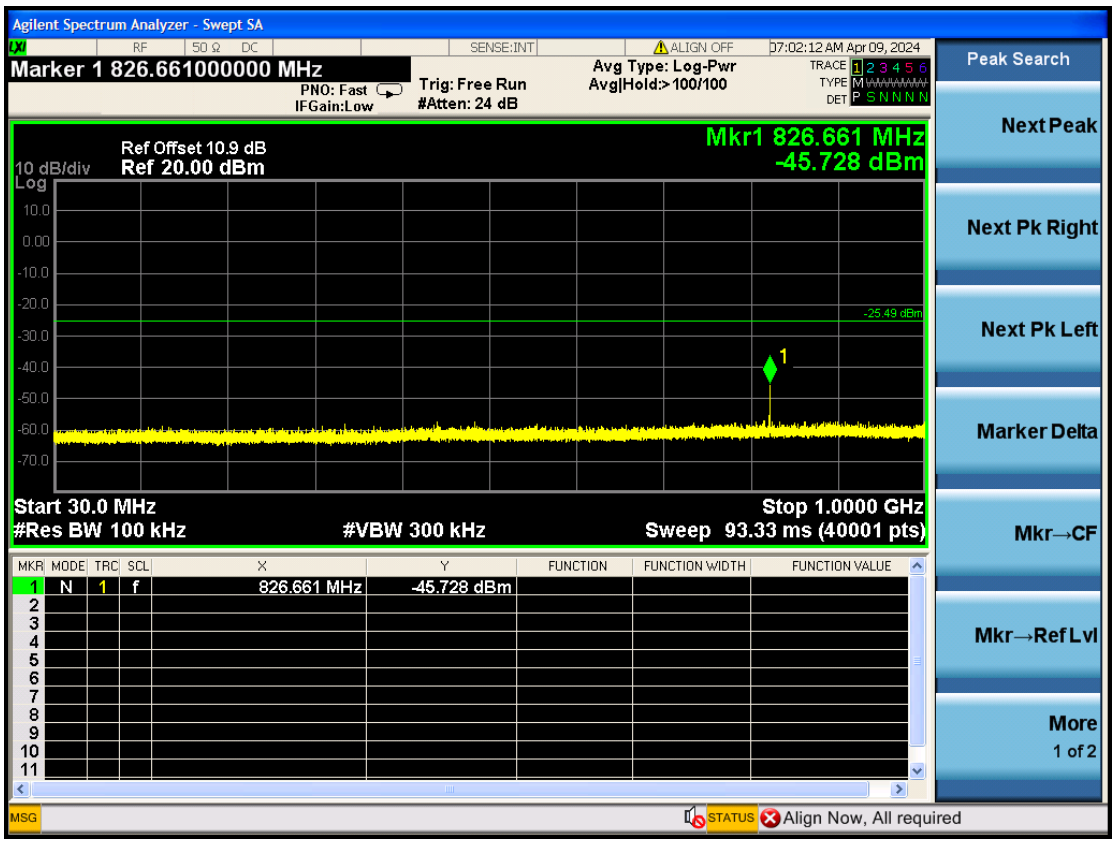

Agilent Spectrum Analyzer - Swept SA
RF 50 Ω DC
SENSE:INT
ALIGN OFF
06:45:39 AM Apr 09, 2024
Marker 1 813.323500000 MHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 24 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
TRACE 1 2 3 4 5 6
TYPE M
DET P S N N N N
Ref Offset 10.9 dB
10 dB/div
Log
Ref 20.00 dBm
Mkr1 813.324 MHz
-47.403 dBm
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-70.0
-26.84 dBm
1
Start 30.0 MHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 1.0000 GHz
Sweep 93.33 ms (40001 pts)
MKR MODE TRC SCL X Y FUNCTION FUNCTION WIDTH FUNCTION VALUE
1 N 1 f 813.324 MHz -47.403 dBm
2
3
4
5
6
7
8
9
10
11
MSG
STATUS
Align Now, All required
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2

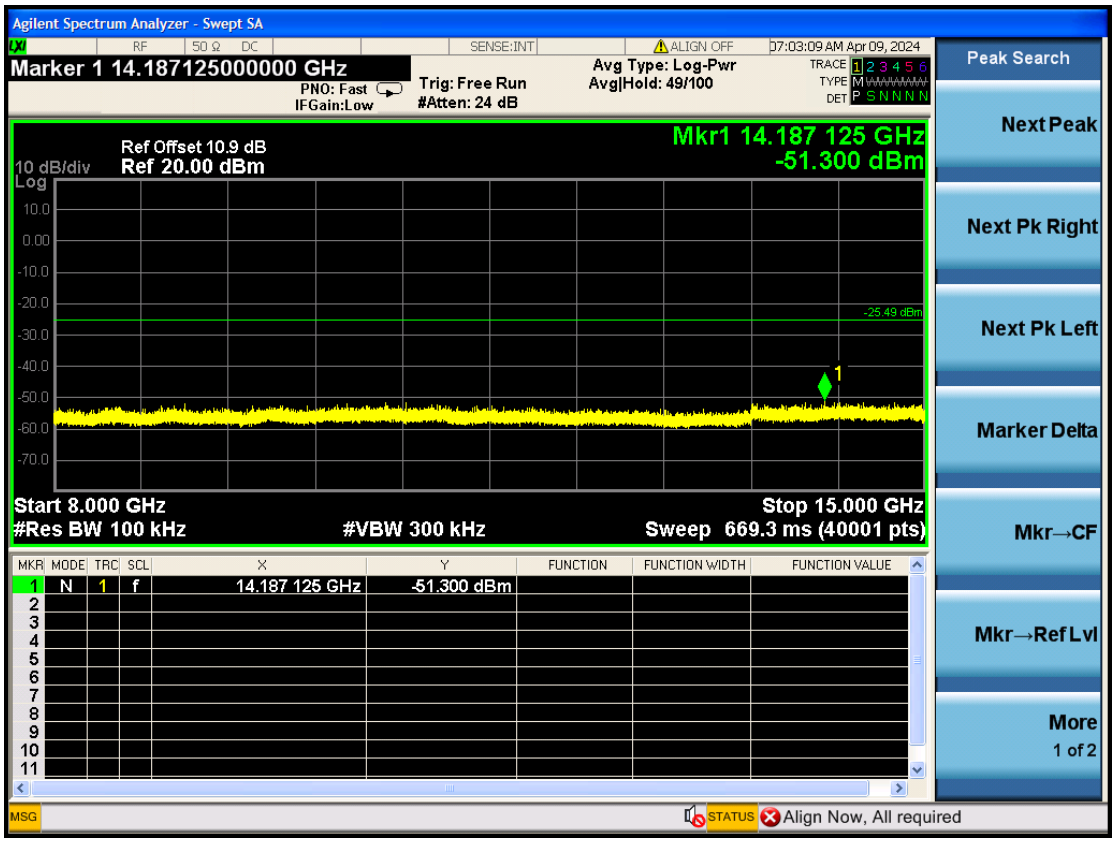

Agilent Spectrum Analyzer - Swept SA
RF 50 Ω DC
SENSE:INT
ALIGN OFF
06:58:31 AM Apr 09, 2024
Marker 1 14.810125000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 24 dB
Avg Type: Log-Pwr
Avg|Hold: 11/100
TRACE 1 2 3 4 5 6
TYPE M
DET P S N N N N
Ref Offset 10.9 dB
10 dB/div
Log
Ref 20.00 dBm
Mkr1 14.810 125 GHz
-51.498 dBm
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-70.0
-26.84 dBm
1
Start 8.000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 15.000 GHz
Sweep 669.3 ms (40001 pts)
MKR MODE TRC SCL X Y FUNCTION FUNCTION WIDTH FUNCTION VALUE
1 N 1 f 14.810 125 GHz -51.498 dBm
2
3
4
5
6
7
8
9
10
11
MSG
STATUS
Align Now, All required
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2

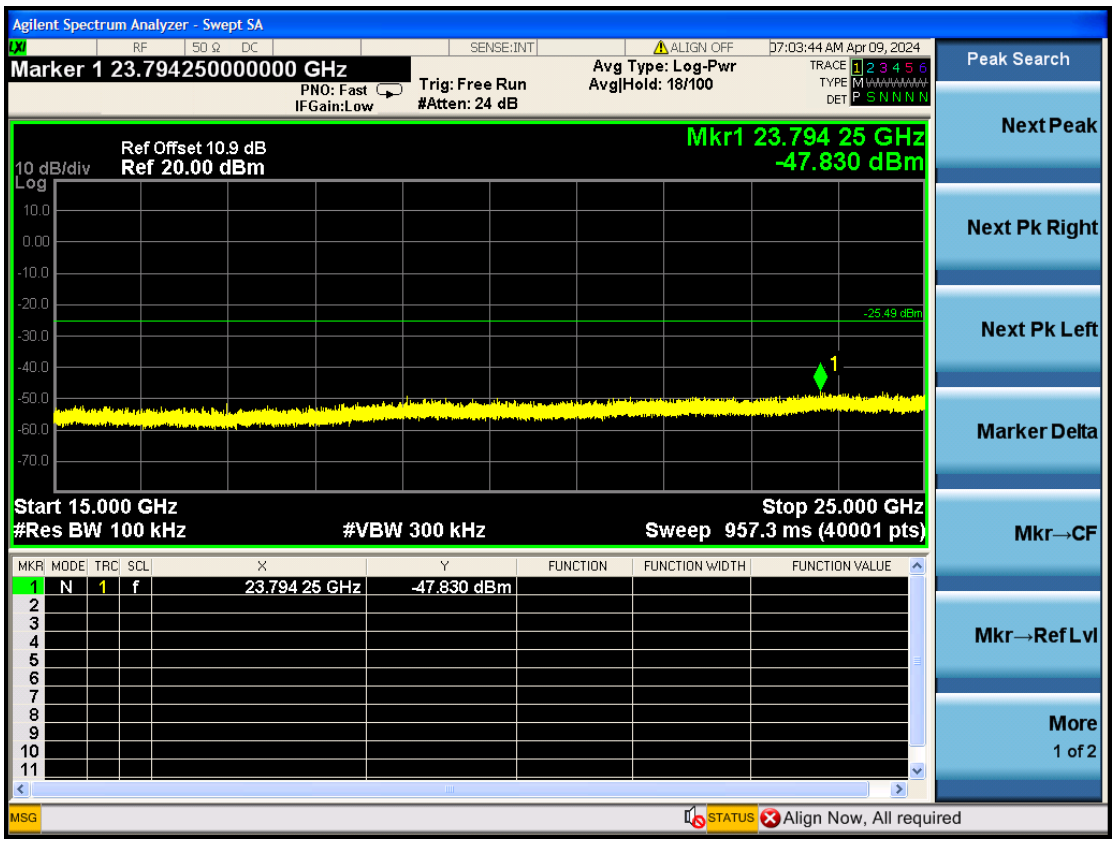

Agilent Spectrum Analyzer - Swept SA
RF 50 Ω DC
SENSE:INT
ALIGN OFF
06:59:29 AM Apr 09, 2024
Marker 1 24.904250000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 24 dB
Avg Type: Log-Pwr
Avg|Hold: 30/100
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2
Ref Offset 10.9 dB
10 dB/div
Log
Ref 20.00 dBm
Mkr1 24.904 25 GHz
-47.326 dBm
-26.84 dBm
Start 15.000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 25.000 GHz
Sweep 957.3 ms (40001 pts)
MKR MODE TRC SCL X Y FUNCTION FUNCTION WIDTH FUNCTION VALUE
1 N 1 f 24.904 25 GHz -47.326 dBm
MSG
STATUS
Align Now, All required

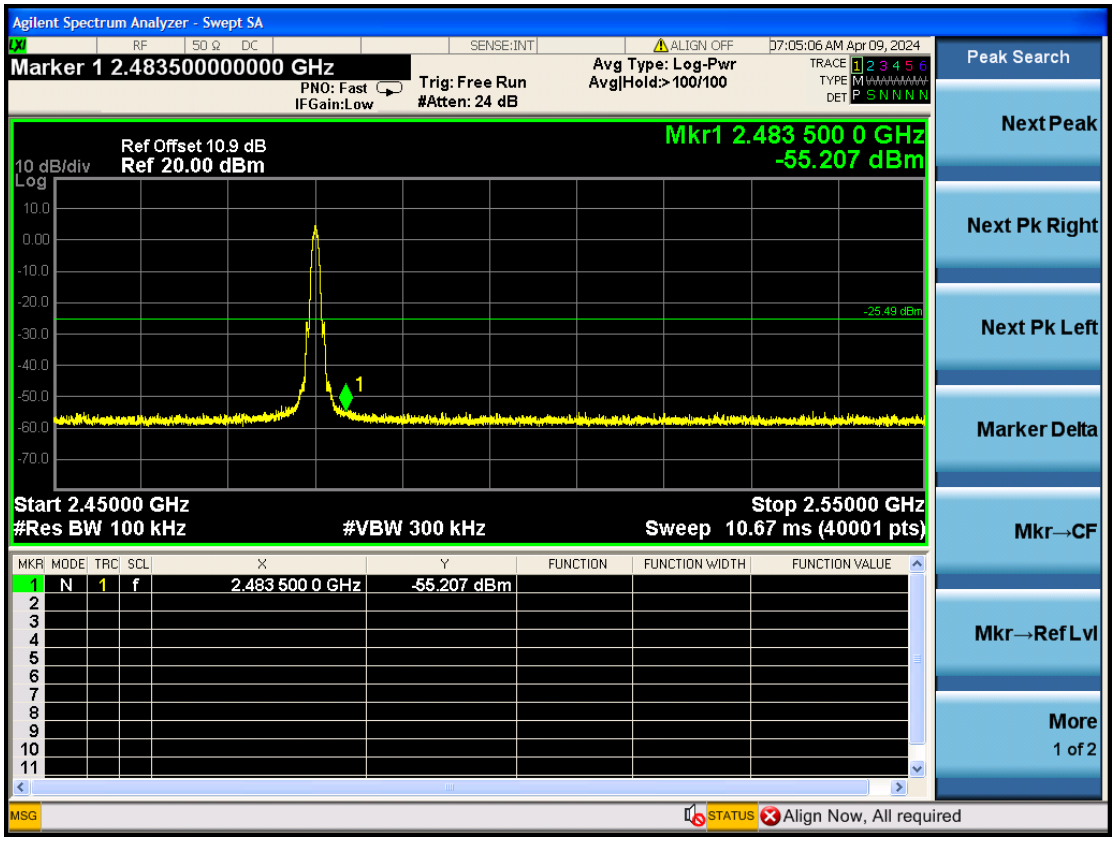
BLE 2480MHz


Agilent Spectrum Analyzer - Swept SA
RF 50 Ω DC
SENSE:INT
ALIGN OFF
07:00:38 AM Apr 09, 2024
Marker 1 2.479975000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 24 dB
Avg Type: Log-Pwr
Avg|Hold: 42/100
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2
Ref Offset 10.9 dB
10 dB/div
Log
Ref 20.00 dBm
Mkr1 2.479 975 GHz
4.515 dBm
Start 1.000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 8.000 GHz
Sweep 669.3 ms (40001 pts)
MKR MODE TRC SCL X Y FUNCTION FUNCTION WIDTH FUNCTION VALUE
1 N 1 f 2.479 975 GHz 4.515 dBm
2 N 1 f 1.766 500 GHz -42.872 dBm
MSG
STATUS
Align Now, All required


Agilent Spectrum Analyzer - Swept SA
RF 50 Ω DC
SENSE:INT
ALIGN OFF
07:02:12 AM Apr 09, 2024
Marker 1 826.661000000 MHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 24 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
TRACE 1 2 3 4 5 6
TYPE M
DET P S N N N N
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2
Ref Offset 10.9 dB
10 dB/div
Ref 20.00 dBm
Log
Mkr1 826.661 MHz
-45.728 dBm
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-70.0
-25.49 dBm
Start 30.0 MHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 1.0000 GHz
Sweep 93.33 ms (40001 pts)
MKR MODE TRC SCL X Y FUNCTION FUNCTION WIDTH FUNCTION VALUE
1 N 1 f 826.661 MHz -45.728 dBm
MSG
STATUS
Align Now, All required


Agilent Spectrum Analyzer - Swept SA
RF 50 Ω DC
SENSE:INT
ALIGN OFF
07:03:09 AM Apr 09, 2024
Marker 1 14.187125000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 24 dB
Avg Type: Log-Pwr
Avg|Hold: 49/100
TRACE 1 2 3 4 5 6
TYPE M
DET P S N N N N
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2
Ref Offset 10.9 dB
10 dB/div
Ref 20.00 dBm
Log
Mkr1 14.187 125 GHz
-51.300 dBm
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-70.0
-25.49 dBm
Start 8.000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 15.000 GHz
Sweep 669.3 ms (40001 pts)
MKR MODE TRC SCL X Y FUNCTION FUNCTION WIDTH FUNCTION VALUE
1 N 1 f 14.187 125 GHz -51.300 dBm
MSG
STATUS
Align Now, All required


Agilent Spectrum Analyzer - Swept SA
RF 50 Ω DC
SENSE:INT
ALIGN OFF
07:03:44 AM Apr 09, 2024
Marker 1 23.794250000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 24 dB
Avg Type: Log-Pwr
Avg|Hold: 18/100
TRACE 1 2 3 4 5 6
TYPE M
DET P S N N N N
Ref Offset 10.9 dB
10 dB/div
Log
Ref 20.00 dBm
Mkr1 23.794 25 GHz
-47.830 dBm
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-70.0
-25.49 dBm
1
Start 15.000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 25.000 GHz
Sweep 957.3 ms (40001 pts)
MKR MODE TRC SCL X Y FUNCTION FUNCTION WIDTH FUNCTION VALUE
1 N 1 f 23.794 25 GHz -47.830 dBm
2
3
4
5
6
7
8
9
10
11
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2
MSG
STATUS
Align Now, All required


Agilent Spectrum Analyzer - Swept SA
RF 50 Ω DC
SENSE:INT
ALIGN OFF
07:05:06 AM Apr 09, 2024
Marker 1 2.483500000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 24 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
TRACE 1 2 3 4 5 6
TYPE M
DET P S N N N N
Ref Offset 10.9 dB
10 dB/div
Log
Ref 20.00 dBm
Mkr1 2.483 500 0 GHz
-55.207 dBm
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-70.0
-25.49 dBm
1
Start 2.45000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 2.55000 GHz
Sweep 10.67 ms (40001 pts)
MKR MODE TRC SCL X Y FUNCTION FUNCTION WIDTH FUNCTION VALUE
1 N 1 f 2.483 500 0 GHz -55.207 dBm
2
3
4
5
6
7
8
9
10
11
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2
MSG
STATUS
Align Now, All required

10. DEVIATION TO TEST SPECIFICATIONS

【NONE】

----------The End----------