

FCC - TEST REPORT

Report Number : **68.950.21.0589.01** Date of Issue: **2021-12-22**

Model : **AP-N505L**

Product Type : Wireless AP

Applicant : FS.COM Inc.

Address : 380 Centerpoint Blvd, New Castle, DE 19720, United States

Production Facility : FS.COM LIMITED

Address : 24F, Infore Center, No.19, Haitian 2nd Rd, Binhai Community, Yuehai
Street, Nanshan District, Shenzhen City

Test Result : ☒ **Positive** ☐ **Negative**

Total pages including Appendices : **45**

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2 Details about the Test Laboratory

Details about the Test Laboratory

Test Site 1

Company name: TÜV SÜD Certification and Testing (China) Co., Ltd. Shenzhen Branch
Building 12&13, Zhiheng Wisdomland Business Park,
Nantou Checkpoint Road 2, Nanshan District,
Shenzhen City, 518052,
P. R. China

FCC Designation Number: CN5009

FCC Registration No.: 514049

Telephone: 86 755 8828 6998
Fax: 86 755 8828 5299

Report Version:

Revision	Release Date	History/Memo.
N/A	2021-12-22	Initial Release

3 Description of the Equipment under Test

Product:	Wireless AP
Model no.:	AP-N505L
Trade Mark:	
FCC ID:	2A2PW108705
Rating:	IEEE 802.3af PoE, DC 48V/0.3A
RF Transmission Frequency:	2402MHz-2480MHz
No. of Operated Channel:	40
Modulation:	GFSK
Antenna Type:	Internal antenna
Antenna number:	1 for 2.4GHz Bluetooth Low Energy 2 for 2.4GHzWIFI 2 for 5GHzWIFI ETH1 2 for 5GHzWIFI ETH2
Antenna Gain:	1dBi max for 2.4GHz Bluetooth Low Energy 3dBi max for 2.4GHzWIFI 3dBi Max for 5GHzWIFI
Description of the EUT:	The equipment supports Bluetooth Low Energy/WIFI functions. The TX and RX range is 2402MHz-2480MHz for Bluetooth, 2412MHz – 2462MHz for 2.4GHzWIFI, 5180MHz – 5320MHz, 5500MHz – 5720MHz, 5745MHz – 5825MHz for 5GHzWIFI

4 Summary of Test Standards

Test Standards	
FCC Part 15 Subpart C 10-1-2020 Edition	PART 15 - RADIO FREQUENCY DEVICES Subpart C - Intentional Radiators

All the test methods were according to KDB558074 D01 v05r02 DTS Measurement Guidance and ANSI C63.10 (2013).

5 Summary of Test Results

Technical Requirements			
FCC Part 15 Subpart C			
Test Condition		Test Site	Test Result
§15.207	Conducted emission AC power port	Site 1	PASS
§15.247 (b) (1)	Conducted peak output power	Site 1	PASS
§15.247(a)(1)	20dB bandwidth	---	N/A
§15.247(a)(1)	Carrier frequency separation	---	N/A
§15.247(a)(1)(iii)	Number of hopping frequencies	---	N/A
§15.247(a)(1)(iii)	Dwell Time	---	N/A
§15.247(a)(2)	6dB bandwidth and 99% Occupied Bandwidth	Site 1	PASS
§15.247(e)	Power spectral density	Site 1	PASS
§15.247(d)	Spurious RF conducted emissions	Site 1	PASS
§15.247(d)	Band edge	Site 1	PASS
§15.247(d) & §15.209 & §15.205	Spurious radiated emissions for transmitter	Site 1	PASS
§15.203	Antenna requirement	See note 2	PASS

Remark:

Note 1: N/A=Not Applicable.

Note 2: The EUT uses an Internal antenna, which gain is 1dBi for 2.4GHz Bluetooth Low Energy. In accordance to §15.203, it is considered sufficiently to comply with the provisions of this section.

6 General Remarks

Remarks

This submittal(s) (test report) is intended for FCC ID: 2A2PW108705, complies with Section 15.205, 15.209, 15.247 of the FCC Part 15, Subpart C.

The Equipment Under Test (EUT) is Wireless AP with Bluetooth Low Energy/WIFI functions.

This report is for the Bluetooth Low Energy part.

SUMMARY:

All tests according to the regulations cited on page 5 were

■ - Performed

□ - **Not** Performed

The Equipment under Test

■ - **Fulfills** the general approval requirements.

□ - **Does not** fulfill the general approval requirements.

Sample Received Date: 2021-09-17

Testing Start Date: 2021-09-17

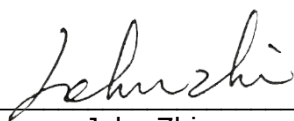
Testing End Date: 2021-11-15

- TÜV SÜD Certification and Testing (China) Co., Ltd. Shenzhen Branch

Reviewed by:

Prepared by:

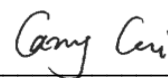
Tested by:



John Zhi
Project Manager



Joe Gu
Project Engineer

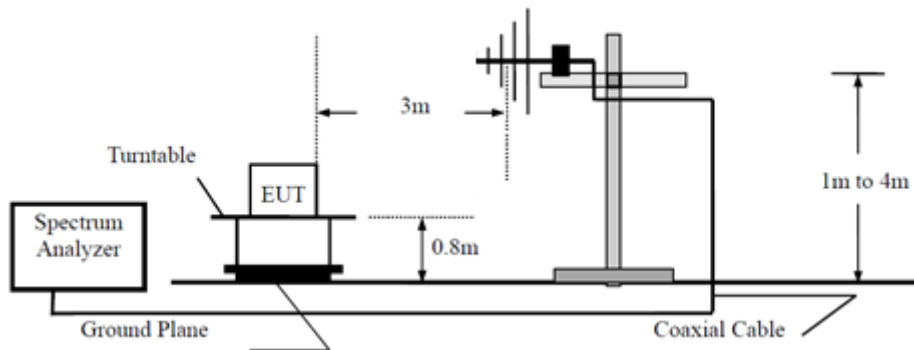


Carry Cai
Test Engineer

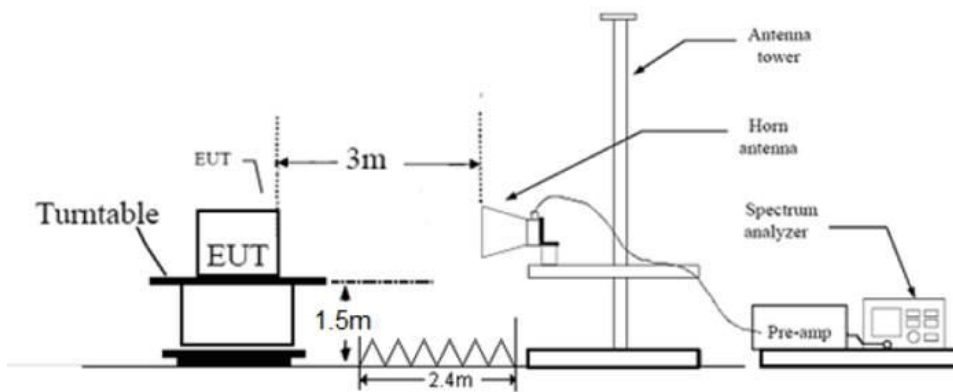
7 Test Setups

7.1 Radiated test setups

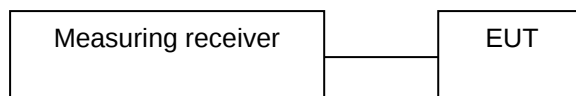
Below 1GHz



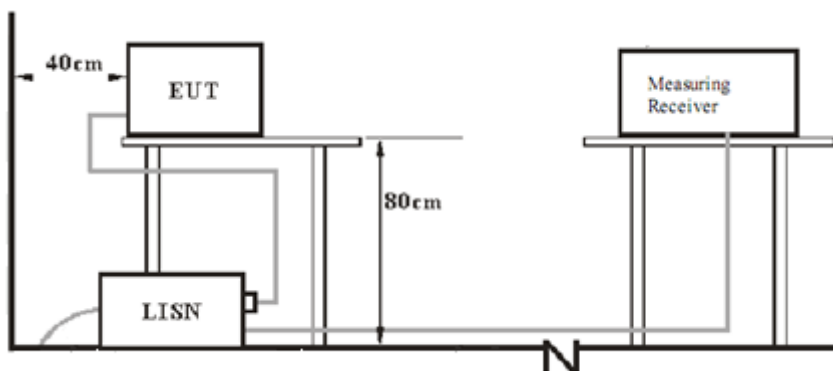
Above 1GHz



7.2 Conducted RF test setups



7.3 AC Power Line Conducted Emission test setups



8 Systems test configuration

Auxiliary Equipment Used during Test:

Name	Model	Manufacturer	S/N	Cal Due Date
Laptop	X200	Lenovo	--	--
Laptop	X240	Lenovo	--	--

The system was configured to channel 0, 19, and 39 for the test.

9 Technical Requirement

9.1 Conducted Emission

Test Method

1. The EUT was placed 0.4 meter from the conducting wall of the shielding room was kept at least 80 centimeters from any other grounded conducting surface.
2. Connect EUT to the power mains through a line impedance stabilization network (LISN).
3. All the support units are connecting to the other LISN.
4. The LISN provides 50 ohm coupling impedance for the measuring instrument.
5. Both sides of AC line were checked for maximum conducted interference.
6. The frequency range from 150 kHz to 30 MHz was searched.
7. Set the test-receiver system to Peak Detect Function and specified bandwidth (IF Bandwidth = 9kHz) with Maximum Hold Mode. Then measurement is also conducted by Average Detector and Quasi-Peak Detector Function respectively.

Limit

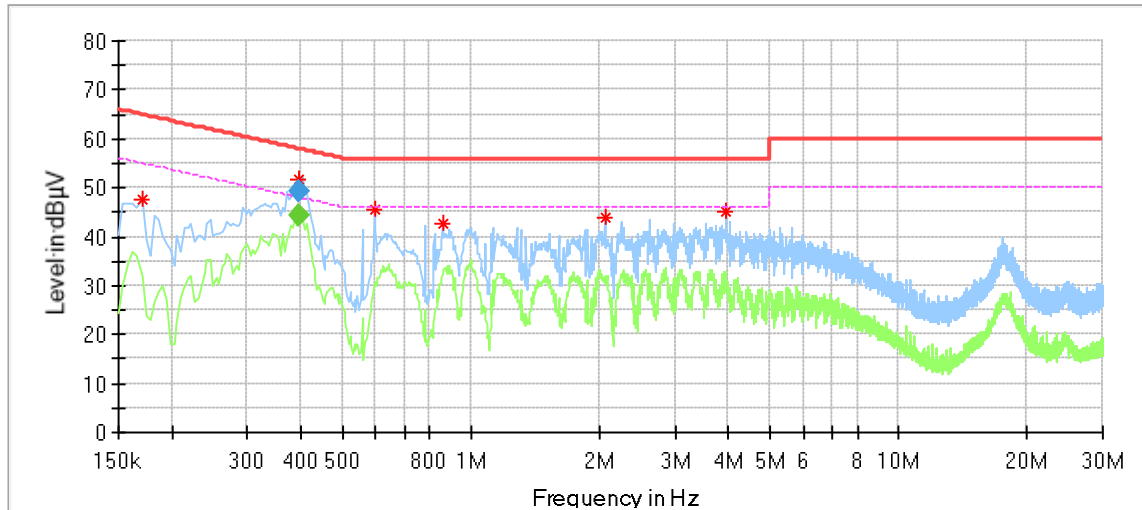
According to §15.207, conducted emissions limit as below:

Frequency MHz	QP Limit dB μ V	AV Limit dB μ V
0.150-0.500	66-56*	56-46*
0.500-5	56	46
5-30	60	50

*Decreasing linearly with logarithm of the frequency

Conducted Emission

Product Type : Wireless AP
 M/N : AP-N505L
 Operating Condition : Charging + Transmit
 Test Specification : Power Line, Live
 Comment : AC 120V/60Hz



Critical Freqs

Frequency (MHz)	MaxPeak (dBμV)	Average (dBμV)	Limit (dBμV)	Margin (dB)	Line	Corr. (dB)
0.170000	47.39	---	64.96	17.57	L1	9.25
0.398000	51.81	---	57.90	6.08	L1	9.21
0.594000	45.53	---	56.00	10.47	L1	9.20
0.858000	42.65	---	56.00	13.35	L1	9.20
2.054000	43.88	---	56.00	12.12	L1	9.23
3.930000	44.93	---	56.00	11.07	L1	9.28

Final Result

Frequency (MHz)	QuasiPeak (dBμV)	Average (dBμV)	Limit (dBμV)	Margin (dB)	Line	Corr. (dB)
0.398000	---	44.17	47.91	3.73	L1	9.21
0.398000	49.29	---	57.91	8.62	L1	9.21

Remark :

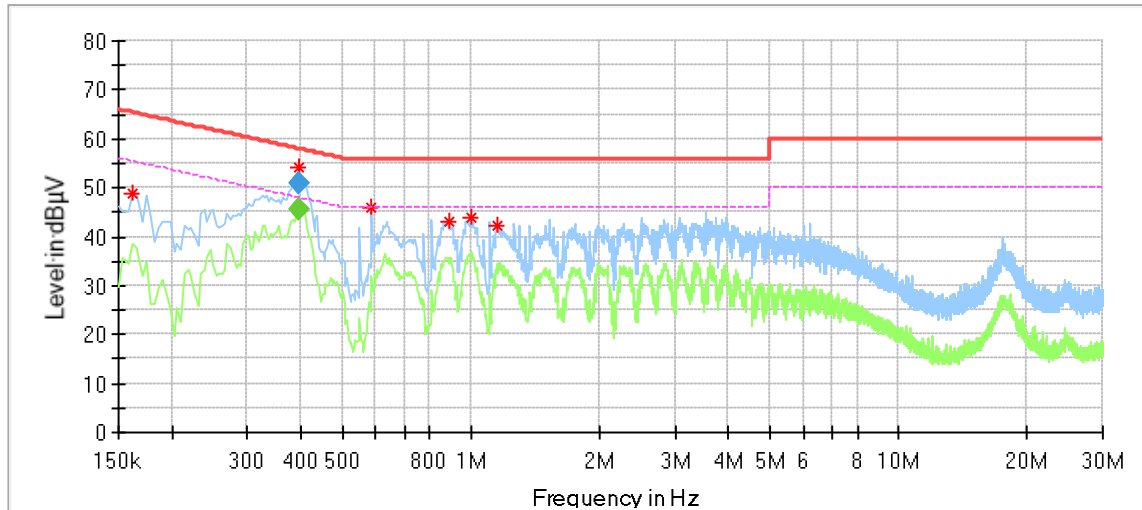
Level=Reading Level + Correction Factor

Correction Factor=Cable Loss + LISN Factor

(The Reading Level is recorded by software which is not shown in the sheet)

Conducted Emission

Product Type : Wireless AP
 M/N : AP-N505L
 Operating Condition : Charging + Transmit
 Test Specification : Power Line, Neutral
 Comment : AC 120V/60Hz



Critical Freqs

Frequency (MHz)	MaxPeak (dBμV)	Average (dBμV)	Limit (dBμV)	Margin (dB)	Line	Corr. (dB)
0.162000	48.63	---	65.36	16.73	N	9.41
0.398000	54.08	---	57.90	3.82	N	9.38
0.586000	45.84	---	56.00	10.16	N	9.39
0.886000	43.28	---	56.00	12.72	N	9.39
1.006000	43.71	---	56.00	12.29	N	9.39
1.154000	42.28	---	56.00	13.72	N	9.40

Final Result

Frequency (MHz)	QuasiPeak (dBμV)	Average (dBμV)	Limit (dBμV)	Margin (dB)	Line	Corr. (dB)
0.398000	---	44.70	47.80	3.10	N	9.38
0.398000	50.75	---	57.80	7.06	N	9.38

Remark :

Level=Reading Level + Correction Factor

Correction Factor=Cable Loss + LISN Factor

(The Reading Level is recorded by software which is not shown in the sheet)

9.2 Conducted peak output power

Test Method

1. The EUT was placed on 0.8m height table, the RF output of EUT was connected to the test receiver by RF cable. The path loss was compensated to the results for each measurement.
2. Use the following spectrum analyzer settings:
RBW > the 6dB bandwidth of the emission being measured, VBW $\geq$ 3RBW, Span $\geq$ 3RBW
Sweep = auto, Detector function = peak, Trace = max hold.
3. Allow the trace to stabilize. Use the marker-to-peak function to set the marker to the peak of the emission. The indicated level is the peak output power.

Limits:

Conducted peak output power:

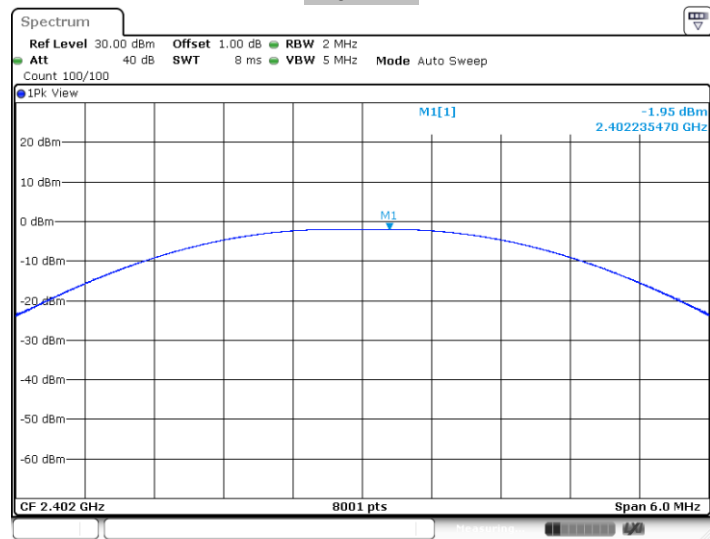
Frequency Range MHz	Limit W	Limit dBm
2400-2483.5	≤ 1	≤ 30

Test result as below table

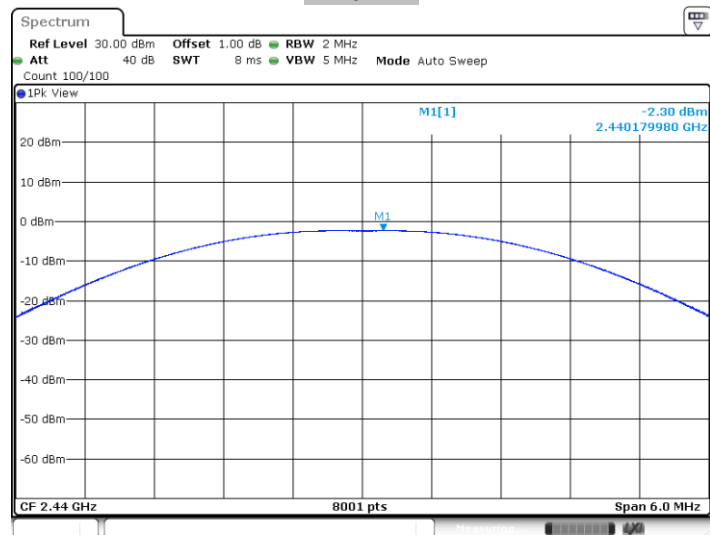
Data rate	Frequency (MHz)	Conducted Output Power (dBm)	Limit (dBm)	Result
1 Mbps	Low channel 2402MHz	-1.95	30	Pass
	Middle channel 2440MHz	-2.30	30	Pass
	High channel 2480MHz	-2.12	30	Pass
2 Mbps	Low channel 2402MHz	-2.09	30	Pass
	Middle channel 2440MHz	-2.30	30	Pass
	High channel 2480MHz	-2.09	30	Pass

1 Mbps:

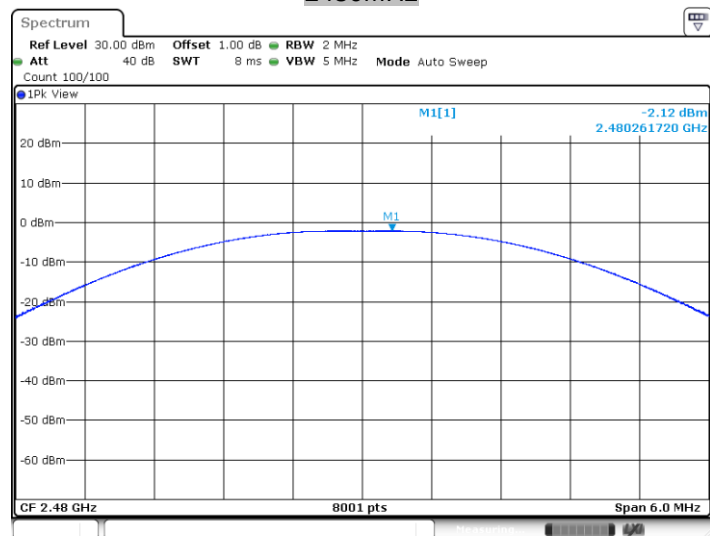
2402MHz



2440MHz

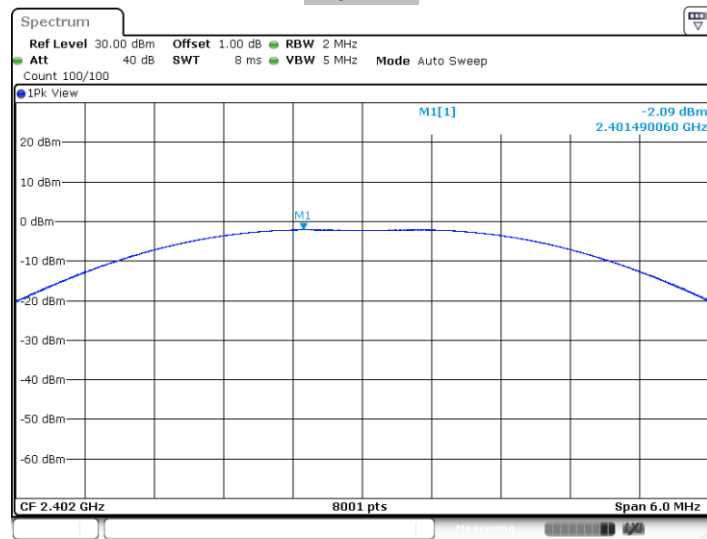


2480MHz

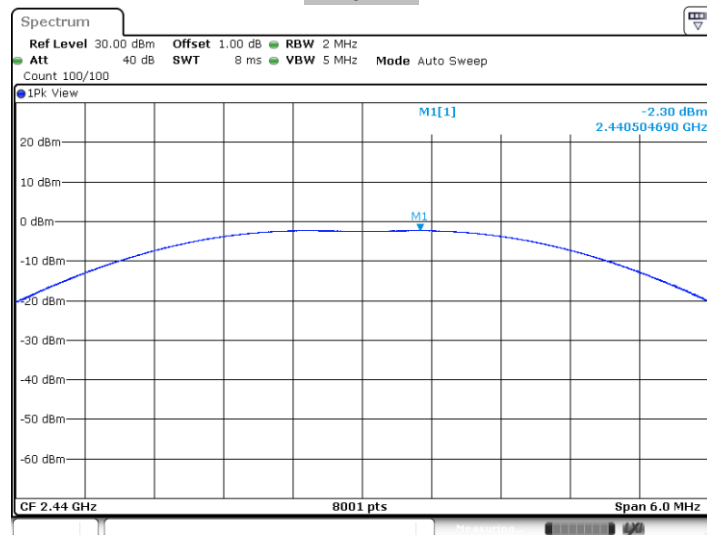


2 Mbps:

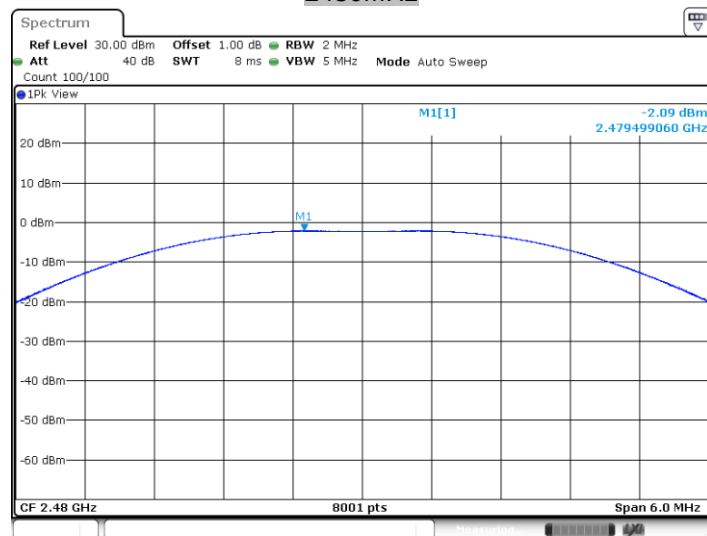
2402MHz



2440MHz



2480MHz



9.3 6dB bandwidth

Test Method

1. Connect EUT test port to spectrum analyzer.
2. Use the following spectrum analyzer settings:
RBW=100K, VBW≥3RBW, Sweep = auto, Detector function = peak, Trace = max hold
3. Use the automatic bandwidth measurement capability of an instrument, may be employed using the X dB bandwidth mode with X set to 6 dB, care shall be taken so that the bandwidth measurement is not influenced by any intermediate power nulls in the fundamental emission that might be ≥ 6 dB.
4. Allow the trace to stabilize, record the X dB Bandwidth value.

Limit

Limit [kHz]

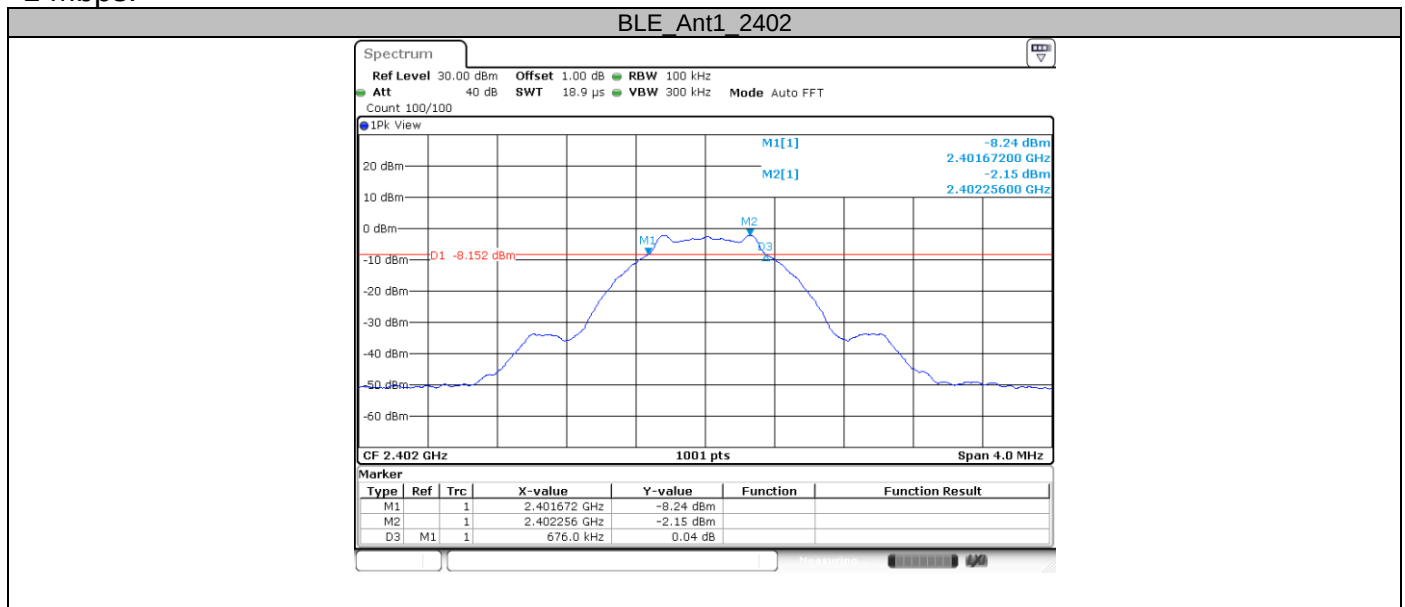
≥500

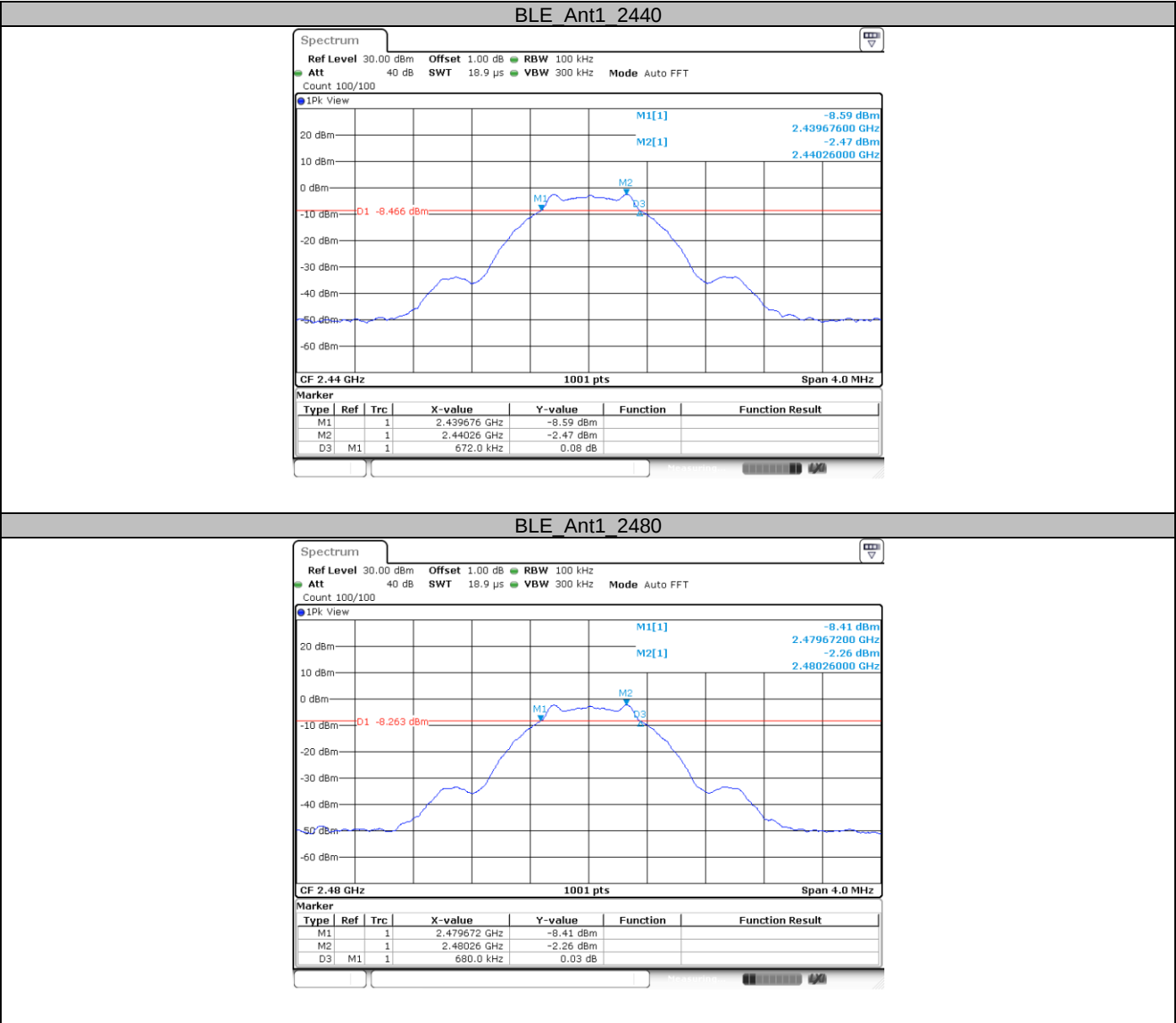
Test result

Data rate	Channel (MHz)	Result (MHz)	Limit	Verdict
1 Mbps	2402	0.676	---	PASS
	2440	0.672	---	PASS
	2480	0.680	---	PASS
2 Mbps	2402	1.380	---	PASS
	2440	1.412	---	PASS
	2480	1.408	---	PASS

Test Graphs

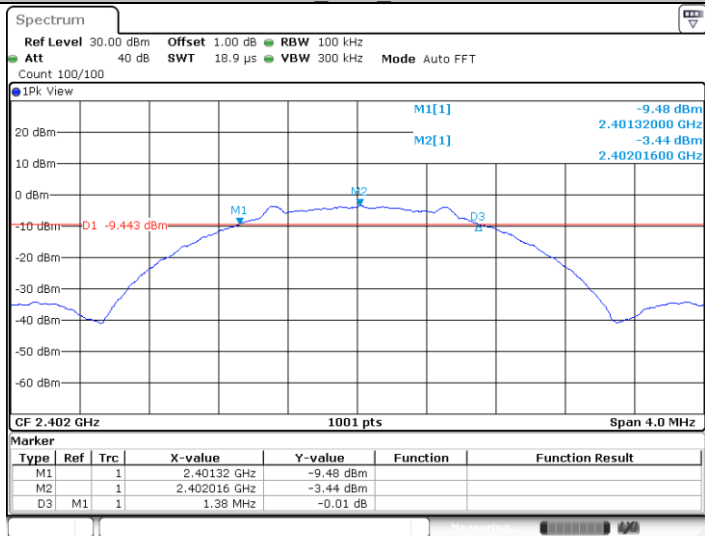
1 Mbps:



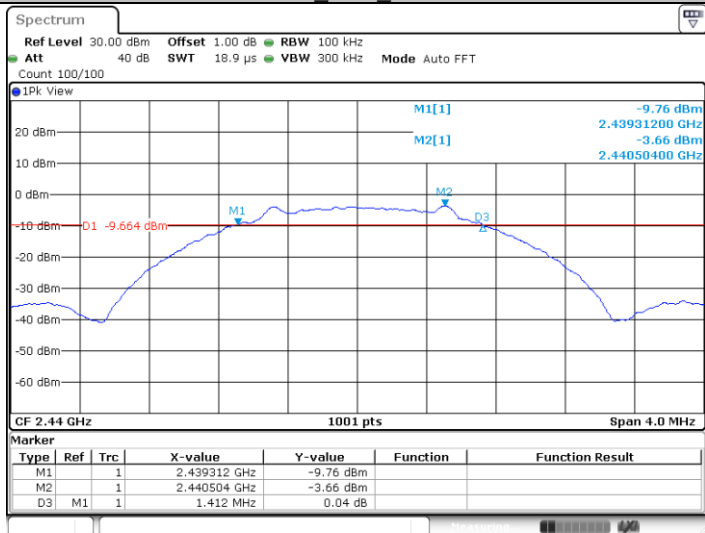


2 Mbps:

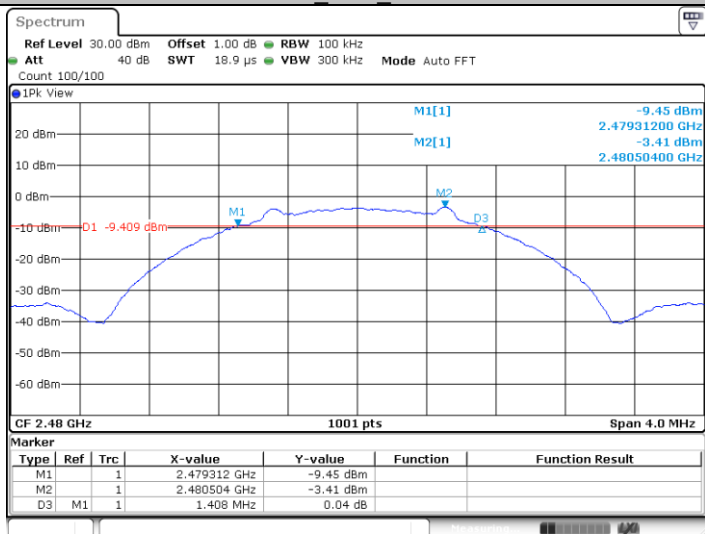
BLE_Ant1_2402



BLE_Ant1_2440



BLE_Ant1_2480



9.4 99% bandwidth

Test Method

1. Connect EUT test port to spectrum analyzer.
2. Use the following spectrum analyzer settings:
RBW=1% to 5% of the actual occupied, VBW $\geq$ 3RBW, Sweep = auto,
Detector function = peak, Trace = max hold
3. Use the automatic bandwidth measurement capability of an instrument, care shall be taken so that the bandwidth measurement is not influenced by any intermediate power nulls in the fundamental emission that might be ≥ 6 dB.
4. Allow the trace to stabilize, record the X dB Bandwidth value.

Limit

Limit [kHz]

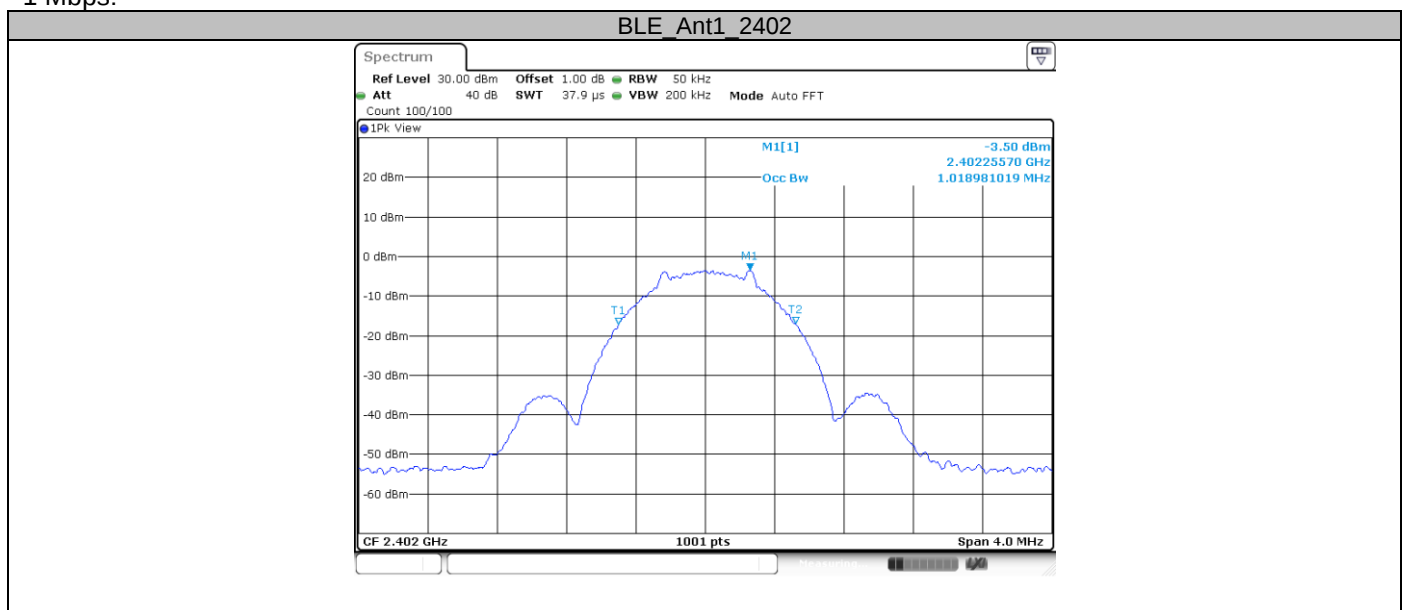
--

Test result

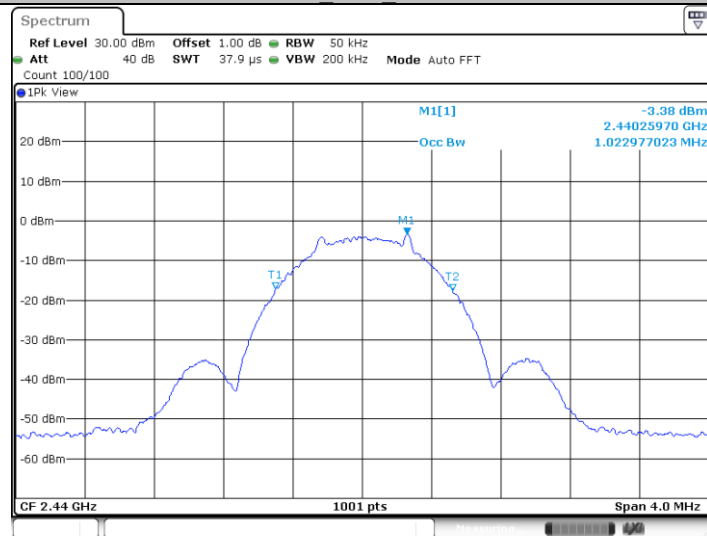
Data rate	Channel (MHz)	Result (MHz)	Limit	Verdict
1 Mbps	2402	1.019	---	PASS
	2440	1.023	---	PASS
	2480	1.023	---	PASS
2 Mbps	2402	2.050	---	PASS
	2440	2.050	---	PASS
	2480	2.046	---	PASS

Test Graphs

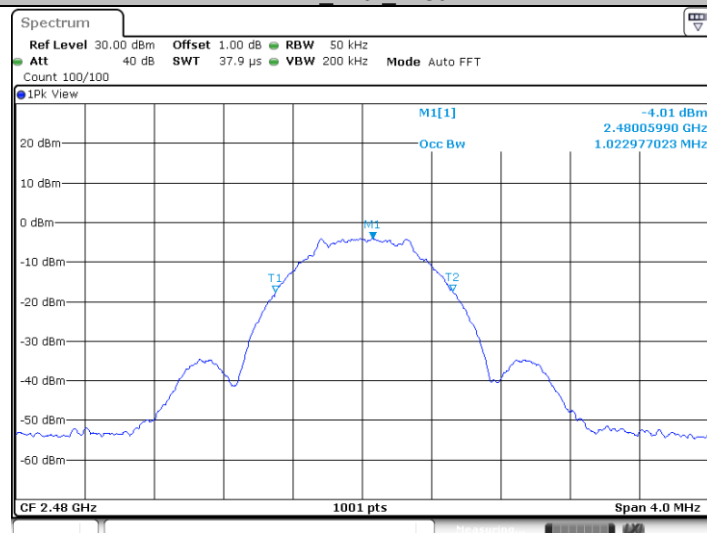
1 Mbps:



BLE_Ant1_2440



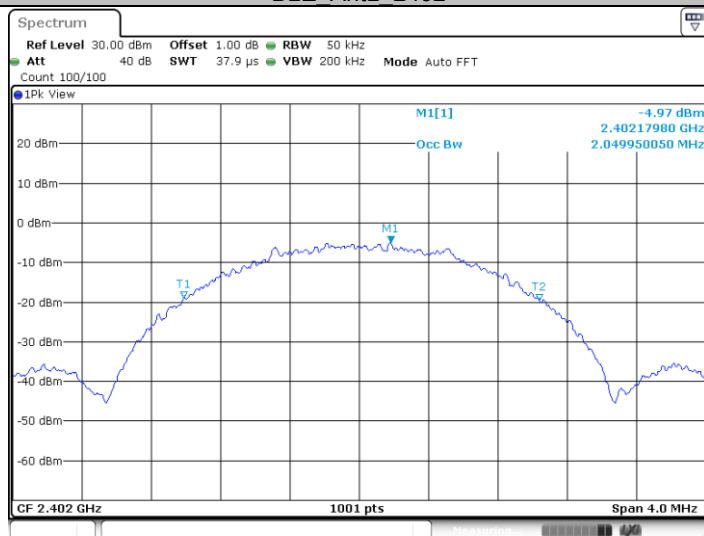
BLE_Ant1_2480



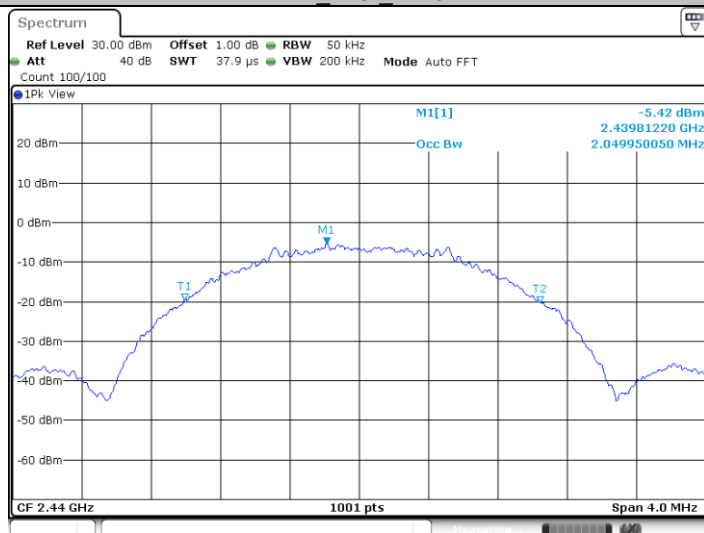
7

2 Mbps:

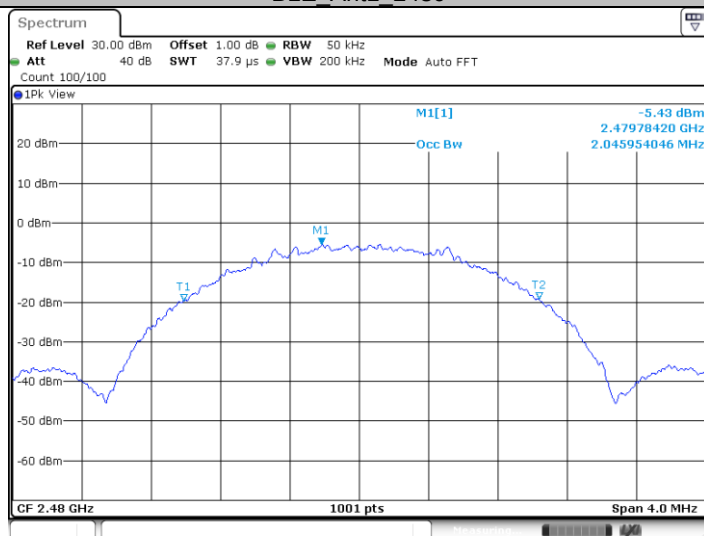
BLE_Ant1_2402



BLE_Ant1_2440



BLE_Ant1_2480



6

9.5 Power spectral density

Test Method

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

1. The RF output of EUT was connected to the test receiver by RF cable. The path loss was compensated to the results for each measurement.
2. Set analyzer center frequency to DTS channel center frequency. RBW=3kHz, VBW $\geq$ 3RBW, Span=1.5 times DTS bandwidth, Detector=Peak, Sweep=auto, Trace= max hold.
3. Allow trace to fully stabilize, use the peak marker function to determine the maximum amplitude level within the RBW.
4. Repeat above procedures until other frequencies measured were completed.

Limit

Limit [dBm/3KHz]

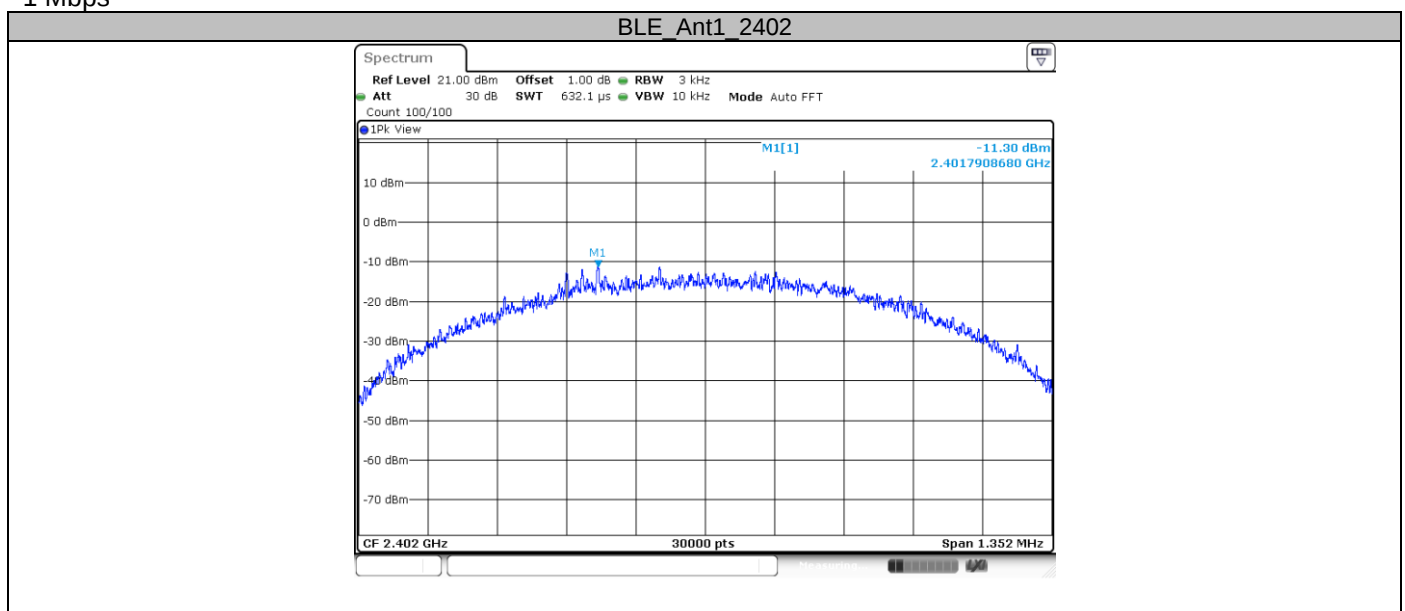
≤ 8

Test result

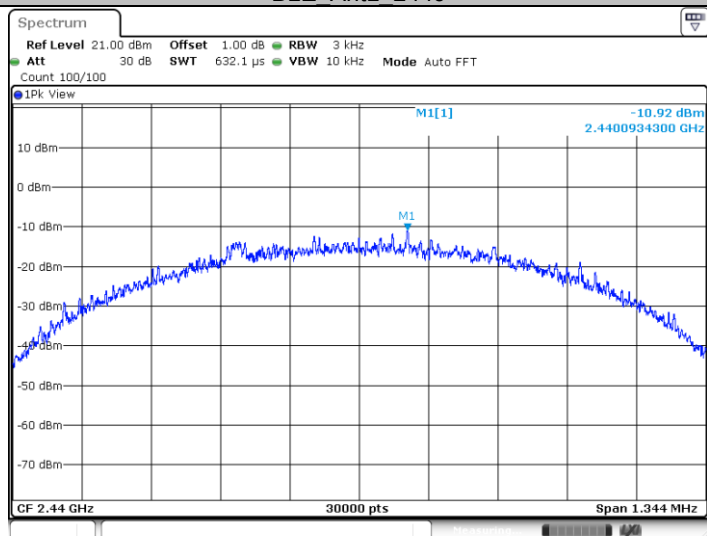
Data rate	Channel (MHz)	Result (dBm/3KHz)	Limit(dBm/3KHz)	Verdict
1 Mbps	2402	-11.30	8	PASS
	2440	-10.92	8	PASS
	2480	-11.58	8	PASS
2 Mbps	2402	-13.70	8	PASS
	2440	-14.03	8	PASS
	2480	-15.23	8	PASS

Test Graphs

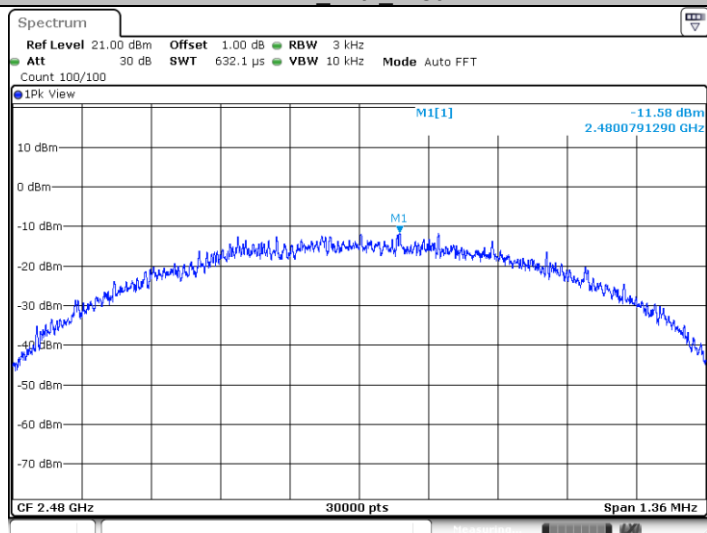
1 Mbps



BLE_Ant1_2440

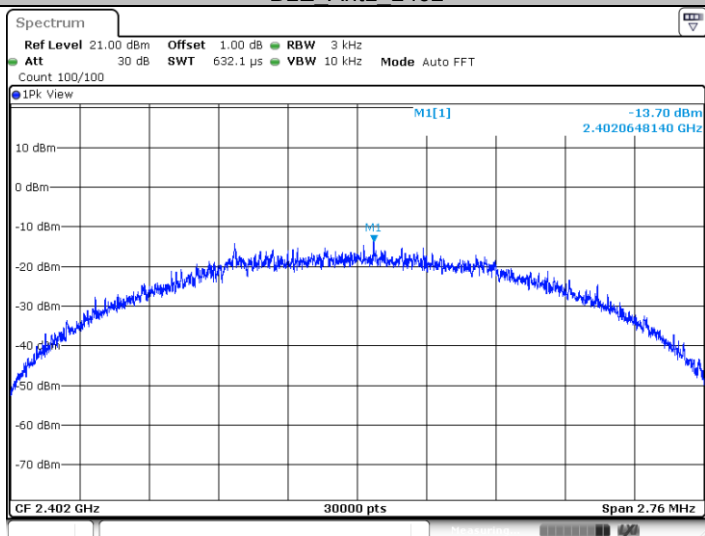


BLE_Ant1_2480

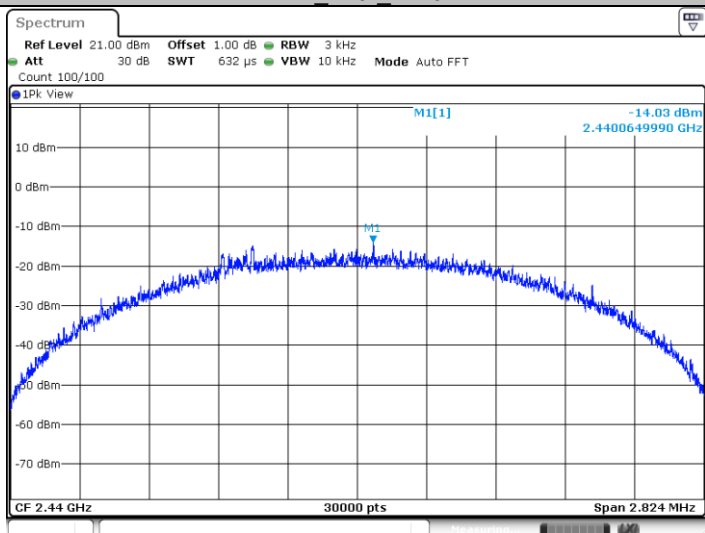


2 Mbps

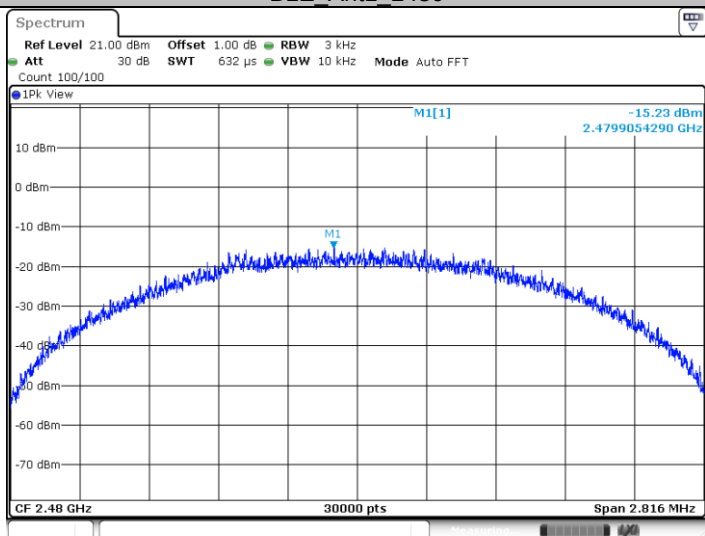
BLE_Ant1_2402



BLE_Ant1_2440



BLE_Ant1_2480



9.6 Spurious RF conducted emissions

Test Method

1. The RF output of EUT was connected to the spectrum analyzer by RF cable. The path loss was compensated to the results for each measurement.
2. Use the following spectrum analyzer settings:
Span = wide enough to capture the peak level of the in-band emission and all spurious emissions (e.g., harmonics) from the lowest frequency generated in the EUT up through the 10th harmonic. Typically, several plots are required to cover this entire span.
RBW = 100 kHz, VBW ≥ RBW, Sweep = auto, Detector function = peak, Trace = max hold
3. Allow the trace to stabilize. Set the marker on the peak of any spurious emission recorded.
4. The level displayed must comply with the limit specified in this Section. Submit these plots.
5. Repeat above procedures until all frequencies measured were complete.

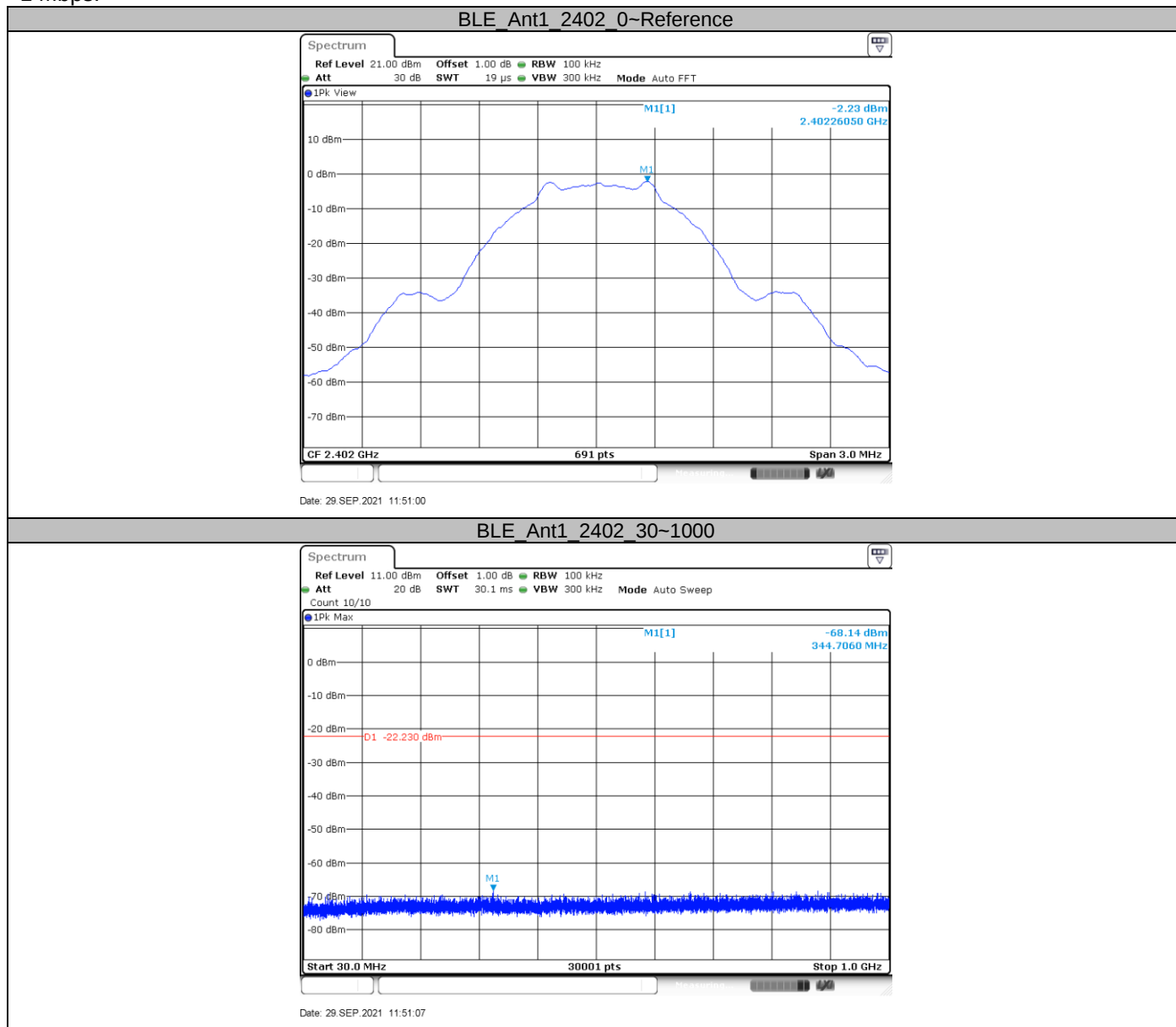
Limit

Frequency Range MHz	Limit (dBc)
30-25000	-20

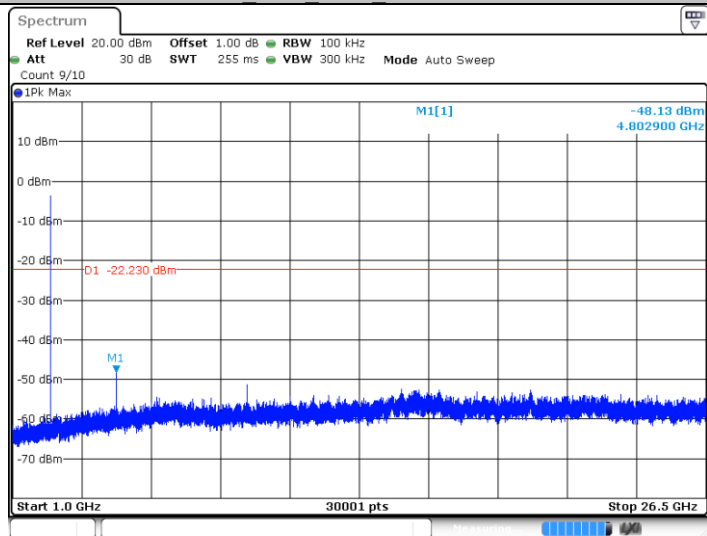
Test Result

Remark: The emissions exceed limit is fundamental signal.

1 Mbps:



BLE Ant1 2402 1000~26500



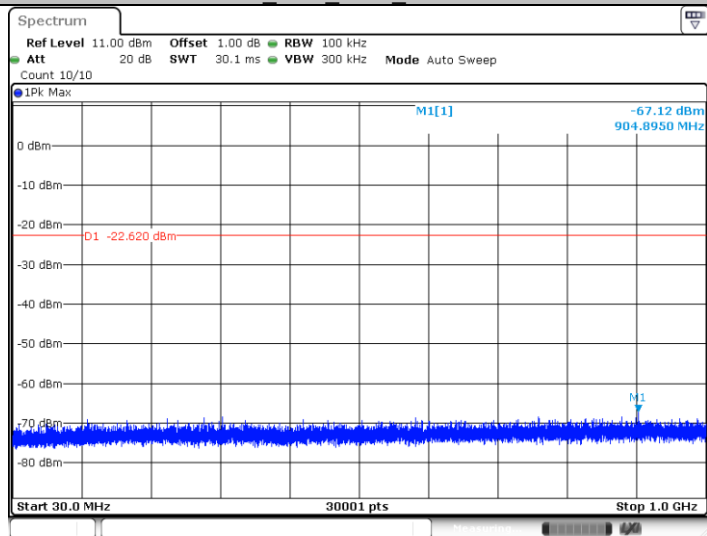
Date: 29 SEP 2021 11:51:15

BLE Ant1 2440 0~Reference



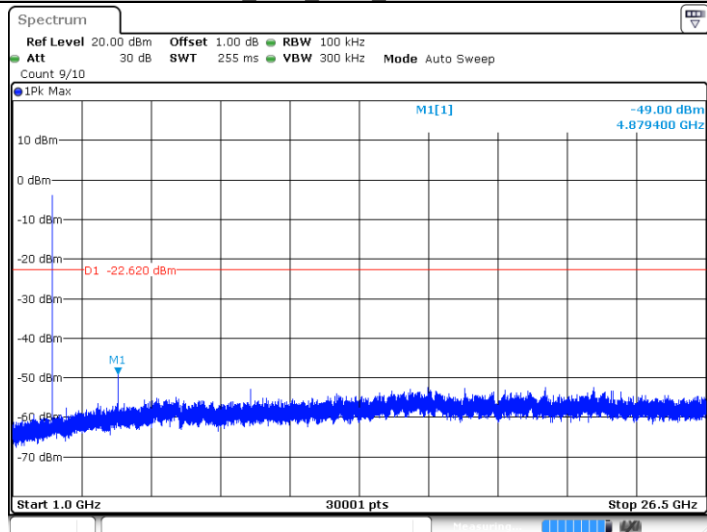
Date: 29 SEP 2021 11:58:00

BLE Ant1 2440 30~1000



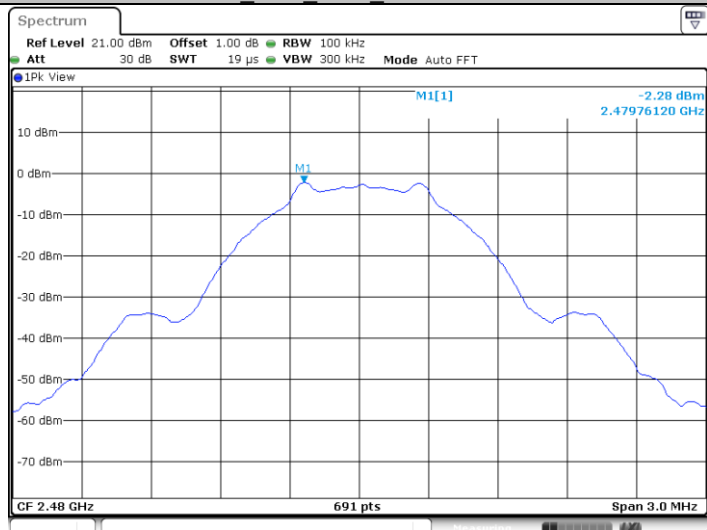
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BLE Ant1 2440 1000~26500



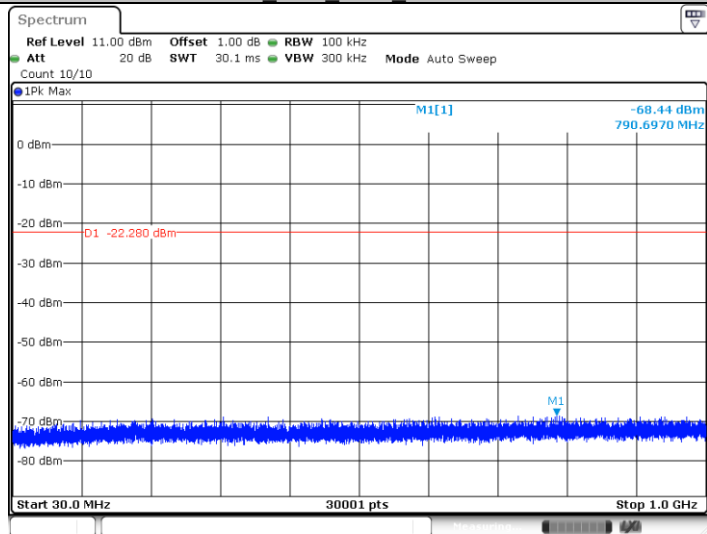
Date: 29 SEP 2021 11:58:13

BLE Ant1 2480_0~Reference

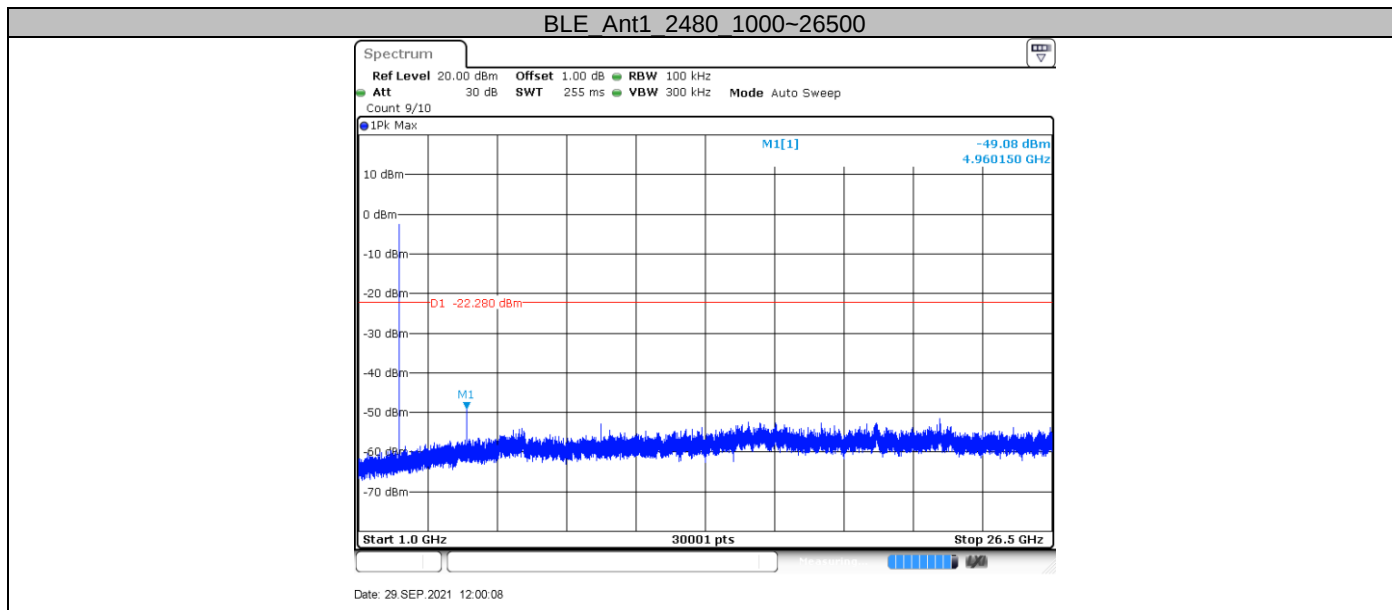


Date: 29 SEP 2021 11:59:54

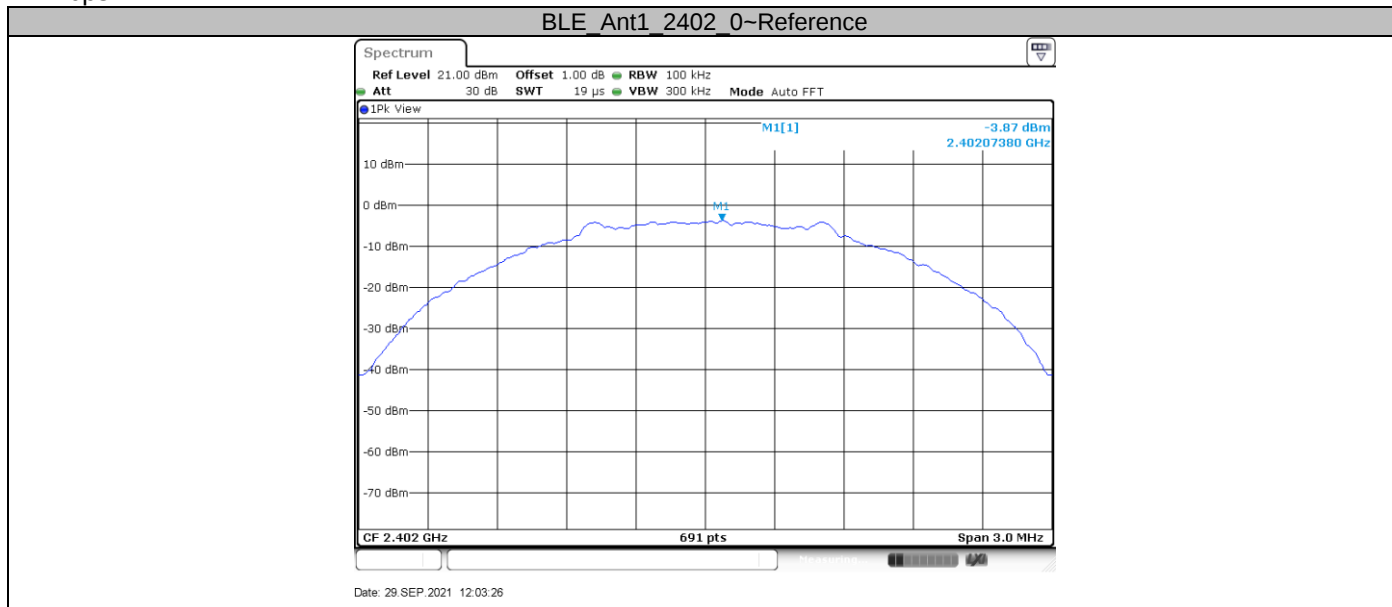
BLE Ant1 2480 30~1000



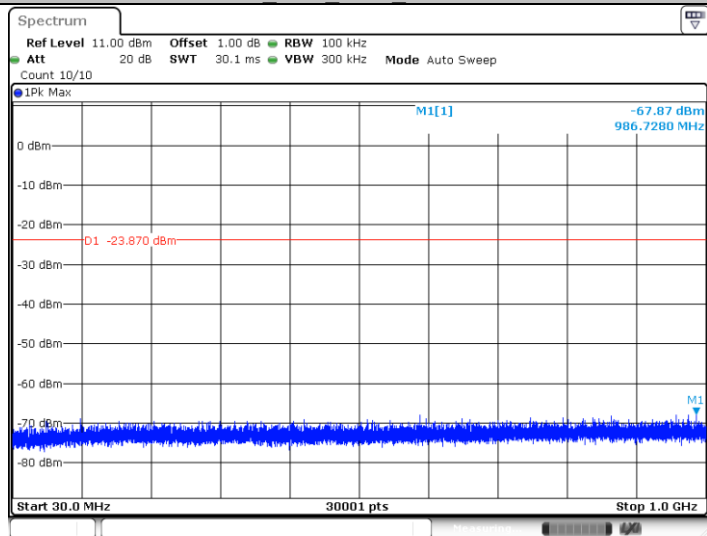
Date: 29 SEP 2021 12:00:00



2 Mbps:

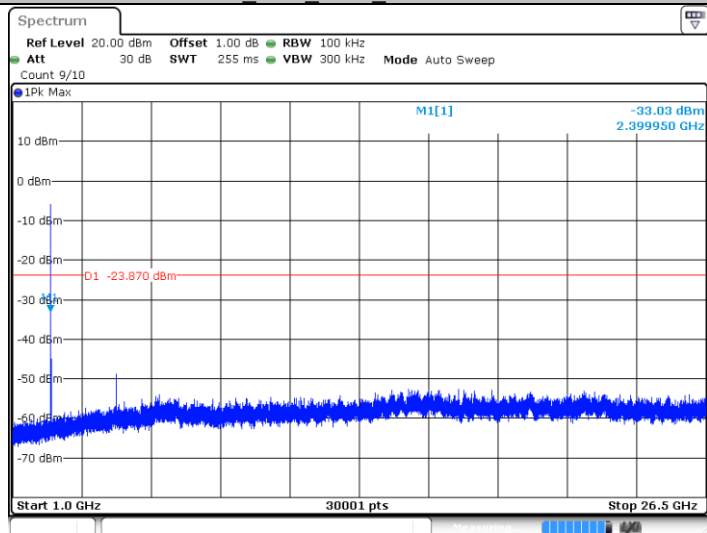


BLE_Ant1_2402_30~1000



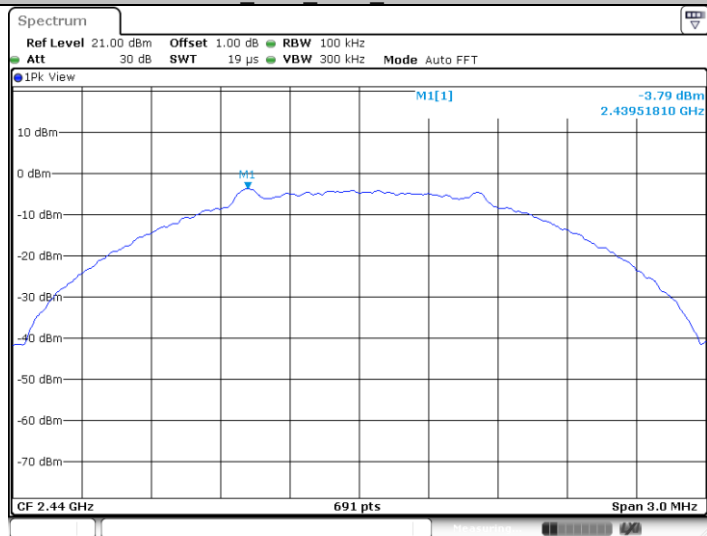
Date: 29 SEP 2021 12:03:32

BLE_Ant1_2402_1000~26500



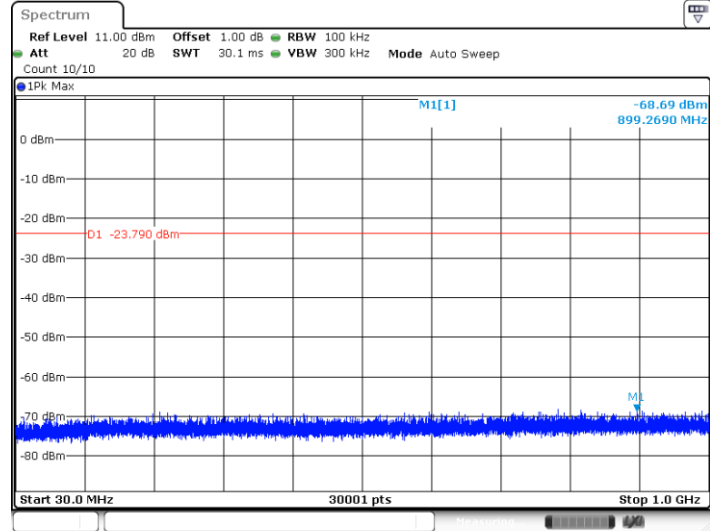
Date: 29 SEP 2021 12:03:40

BLE_Ant1_2440_0~Reference



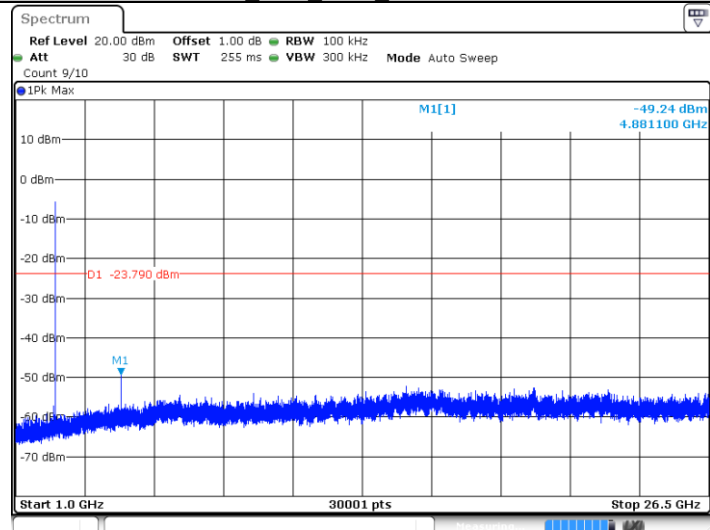
Date: 29 SEP 2021 12:05:23

BLE Ant1 2440 30~1000



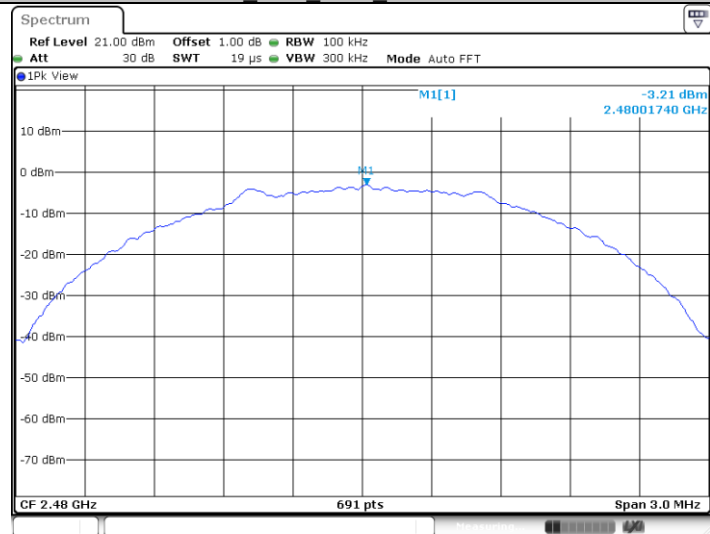
Date: 29 SEP 2021 12:05:29

BLE Ant1 2440 1000~26500



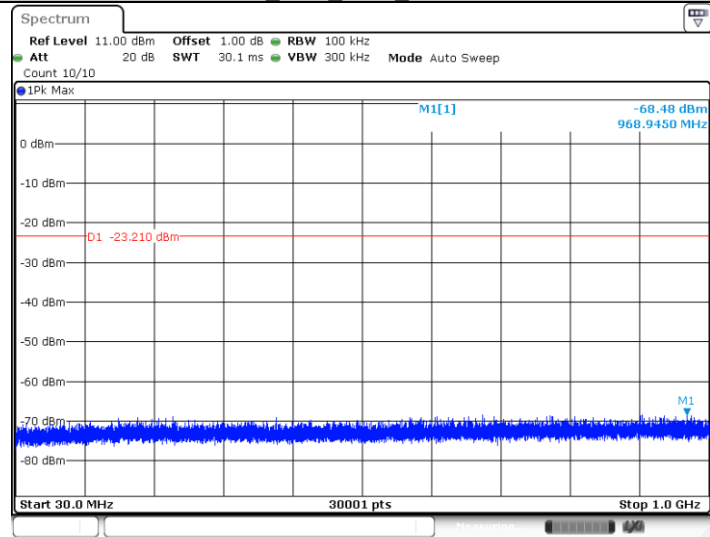
Date: 29 SEP 2021 12:05:37

BLE Ant1 2480 0~Reference



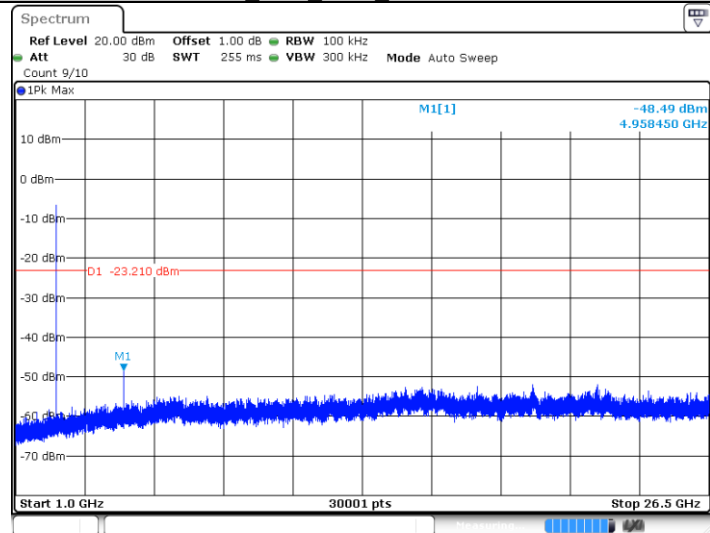
Date: 29 SEP 2021 12:07:03

BLE_Ant1_2480_30~1000



Date: 29 SEP 2021 12:07:09

BLE_Ant1_2480_1000~26500



Date: 29 SEP 2021 12:07:17

9.7 Band edge

Test Method

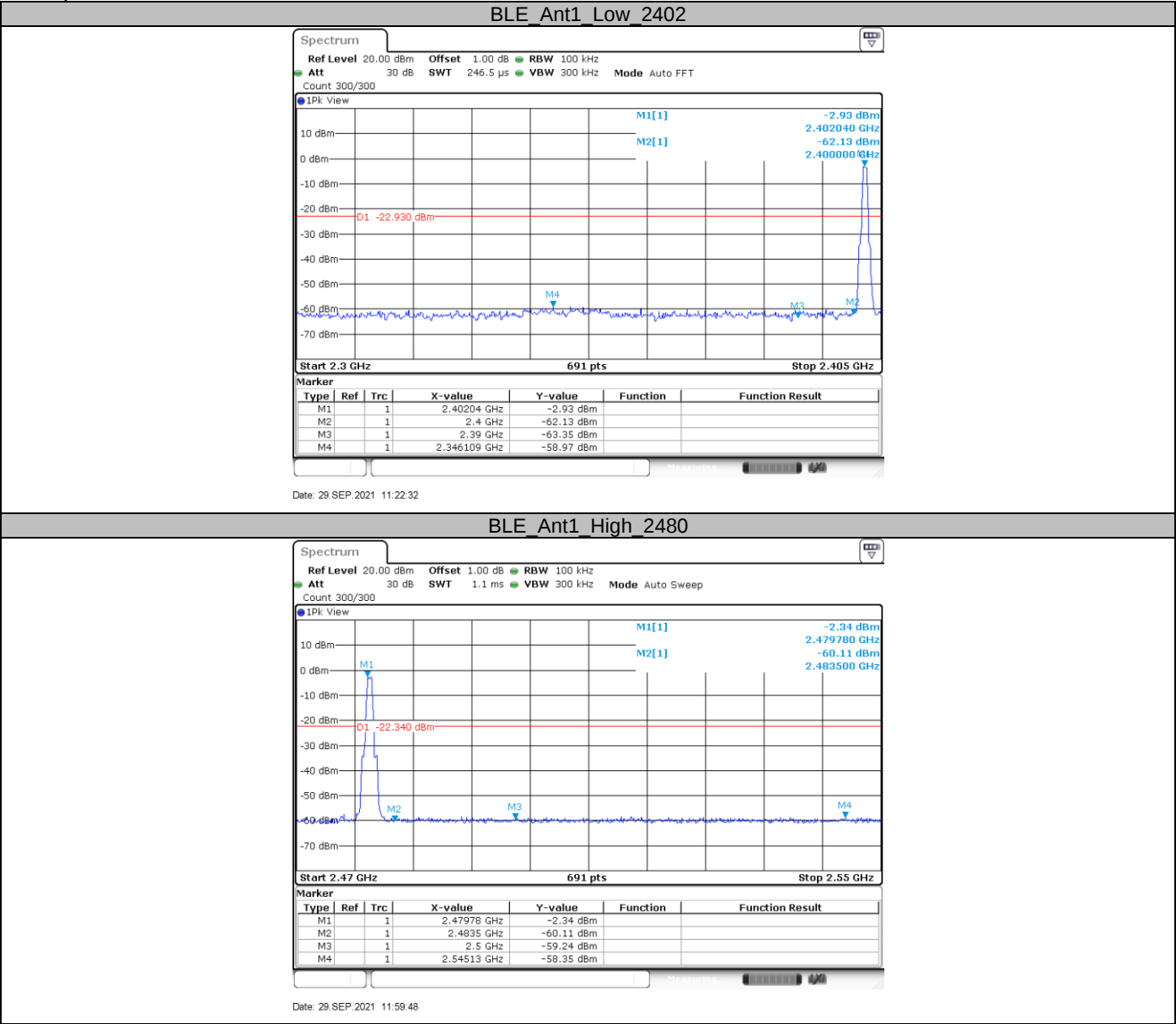
1. The RF output of EUT was connected to the spectrum analyzer by RF cable. The path loss was compensated to the results for each measurement.
2. Use the following spectrum analyzer settings:
Span = wide enough to capture the peak level of the in-band emission and all spurious
RBW = 100 kHz, VBW $\geq$ RBW, Sweep = auto, Detector function = peak, Trace = max hold
3. Allow the trace to stabilize, use the peak and delta measurement to record the result.
4. The level displayed must comply with the limit specified in this Section.
5. Repeat the test at the hopping off and hopping on mode, submit all the plots.

Limit:

Frequency Range MHz	Limit (dBc)
30-25000	-20

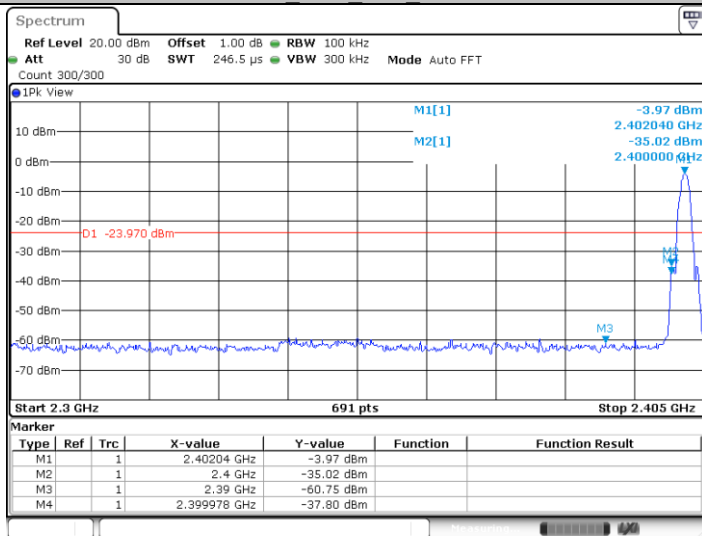


Test result
1 Mbps:



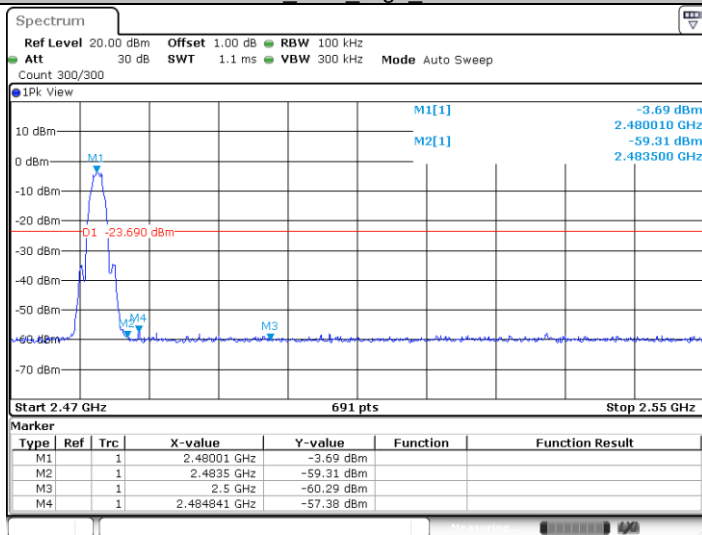
2 Mbps:

BLE Ant1 Low 2402



Date: 29 SEP 2021 12:03:20

BLE Ant1 High 2480



Date: 29 SEP 2021 12:06:58

9.8 Spurious radiated emissions for transmitter

Test Method

- 1: The EUT was placed on a turn table which is 1.5m above ground plane for above 1GHz and 0.8m above ground for below 1GHz at 3 meter chamber room for test. The table was rotated 360 degrees to determine the position of the highest radiation.
- 2: The EUT was set 3 meters away from the interference – receiving antenna, which was mounted on the top of a variable – height antenna tower.
- 3: The height of antenna is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- 4: For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- 5: Use the following spectrum analyzer settings According to C63.10:

For Below 1GHz

Use the following spectrum analyzer settings:

Span = wide enough to capture the peak level of the in-band emission and all spurious
 RBW = 100 KHz to 120KHz, VBW ≥ RBW for peak measurement, Sweep = auto, Detector function = peak, Trace = max hold.

For Peak unwanted emissions Above 1GHz:

Span = wide enough to capture the peak level of the in-band emission and all spurious
 RBW = 1MHz, VBW ≥ RBW for peak measurement, Sweep = auto, Detector function = peak, Trace = max hold.

Procedures for average unwanted emissions measurements above 1000 MHz

a) RBW = 1MHz.

b) VBW \ [3 × RBW].

c) Detector = RMS (power averaging), if [span / (# of points in sweep)] \ RBW / 2.

Satisfying this condition can require increasing the number of points in the sweep or reducing the span. If the condition is not satisfied, then the detector mode shall be set to peak.

d) Averaging type = power (i.e., rms) (As an alternative, the detector and averaging type may be set for linear voltage averaging. Some instruments require linear display mode to use linear voltage averaging. Log or dB averaging shall not be used.)

e) Sweep time = auto.

f) Perform a trace average of at least 100 traces if the transmission is continuous. If the transmission is not continuous, then the number of traces shall be increased by a factor of 1 / D, where D is the duty cycle. For example, with 50% duty cycle, at least 200 traces shall be averaged. (If a specific emission is demonstrated to be continuous—i.e., 100% duty cycle—then rather than turning ON and OFF with the transmit cycle, at least 100 traces shall be averaged.)

g) If tests are performed with the EUT transmitting at a duty cycle less than 98%, then a correction factor shall be added to the measurement results prior to comparing with the emission limit, to compute the emission level that would have been measured had the test been performed at 100% duty cycle. The correction factor is computed as follows:

1) If power averaging (rms) mode was used in the preceding step e), then the correction factor is $[10 \log (1 / D)]$, where D is the duty cycle. For example, if the transmit duty

cycle was 50%, then 3 dB shall be added to the measured emission levels.

2) If linear voltage averaging mode was used in the preceding step e), then the correction factor is $[20 \log (1 / D)]$, where D is the duty cycle. For example, if the transmit duty cycle was 50%, then 6 dB shall be added to the measured emission levels.

3) If a specific emission is demonstrated to be continuous (100% duty cycle) rather than turning ON and OFF with the transmit cycle, then no duty cycle correction is required for that emission (AV) at frequency above 1GHz.

Limit

The radio emission outside the operating frequency band shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power. Radiated emissions which fall in the restricted bands, as defined in section 15.205, must comply with the radiated emission limits specified in section 15.209.

Frequency MHz	Field Strength $\mu\text{V/m}$	Field Strength $\text{dB}\mu\text{V/m}$	Detector
30-88	100	40	QP
88-216	150	43.5	QP
216-960	200	46	QP
960-1000	500	54	QP
Above 1000	500	54	AV
Above 1000	5000	74	PK

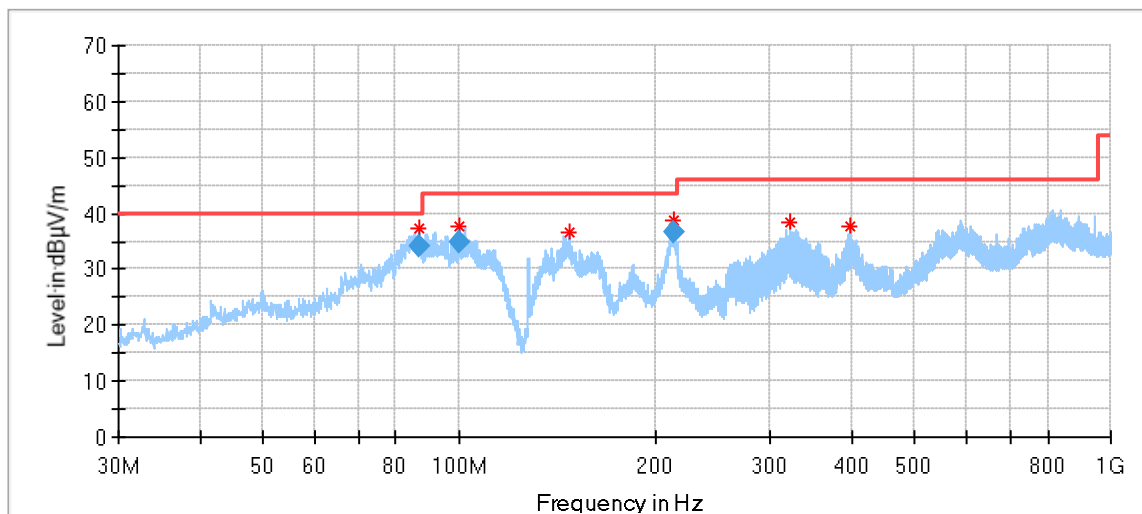
Spurious radiated emissions for transmitter

According to C63.10, if the peak (or quasi-peak) measured value complies with the average limit, it is unnecessary to perform an average measurement, so AV emission value did not show in below table if the peak value complies with average limit.

The only worse case (2 Mbps) test result is listed in the report.

Transmitting spurious emission test result as below:

Below 1G:

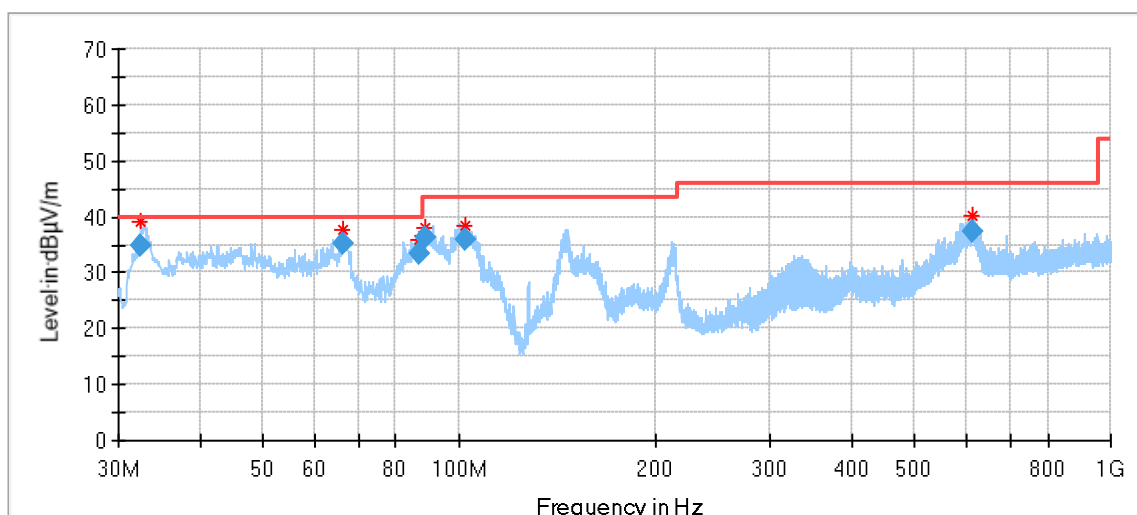


Critical_Freqs

Frequency (MHz)	MaxPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
86.960556	37.35	40.00	2.65	200.0	H	25.0	15.54
100.109444	37.76	43.50	5.74	200.0	H	233.0	18.53
147.908889	36.67	43.50	6.83	200.0	H	212.0	15.07
213.276111	38.65	43.50	4.85	100.0	H	40.0	18.23
322.023889	38.31	46.00	7.69	100.0	H	137.0	21.51
398.600000	37.63	46.00	8.37	100.0	H	336.0	23.55

Final_Result

Frequency (MHz)	QuasiPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
86.960556	34.22	40.00	5.78	200.0	H	25.0	15.54
100.109444	34.97	43.50	8.53	200.0	H	233.0	18.53
213.276111	36.78	43.50	6.72	100.0	H	40.0	18.23



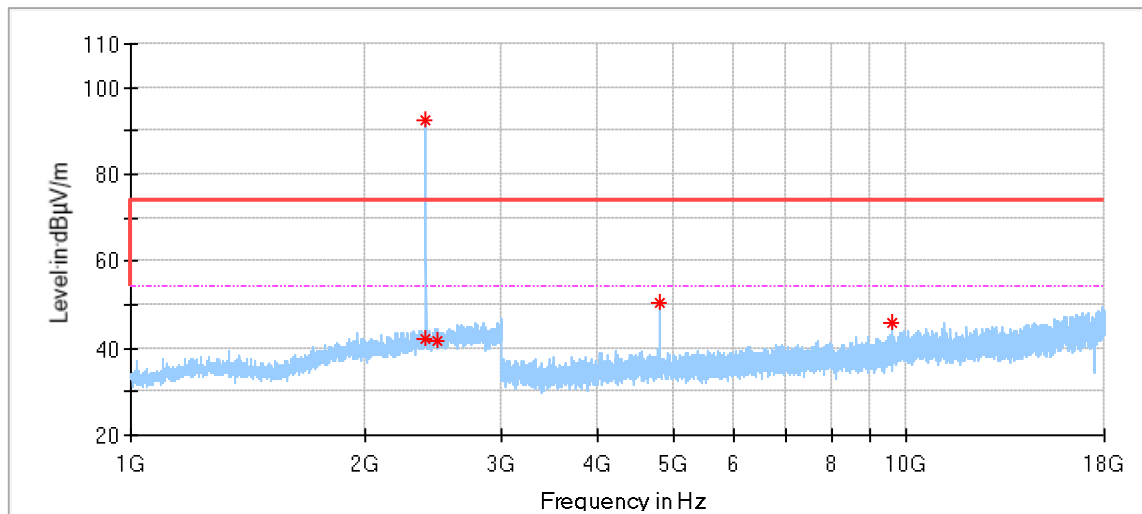
Critical_Freqs

Frequency (MHz)	MaxPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
32.478889	39.14	40.00	0.86	100.0	V	89.0	16.72
66.536667	37.85	40.00	2.15	100.0	V	226.0	17.67
86.691111	35.85	40.00	4.15	100.0	V	100.0	15.43
88.846667	38.16	43.50	5.34	100.0	V	22.0	16.21
101.941667	38.31	43.50	5.19	100.0	V	310.0	18.63
612.323333	40.31	46.00	5.69	100.0	V	0.0	27.69

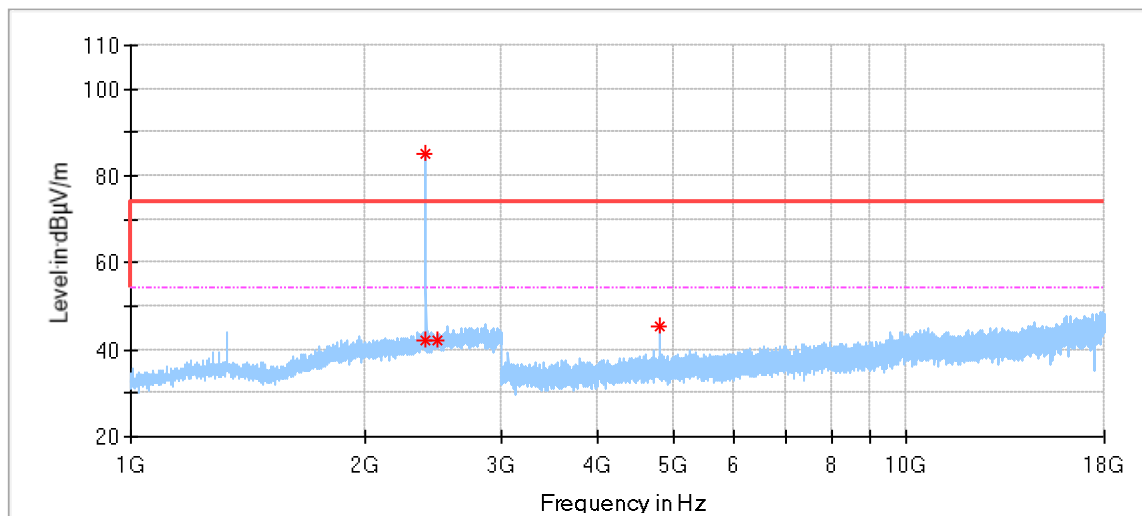
Final Result

Frequency (MHz)	QuasiPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
32.478889	34.90	40.00	5.10	100.0	V	89.0	16.72
66.536667	35.10	40.00	4.90	100.0	V	226.0	17.67
86.691111	33.22	40.00	6.78	100.0	V	100.0	15.43
88.846667	36.19	43.50	7.31	100.0	V	22.0	16.21
101.941667	35.88	43.50	7.62	100.0	V	310.0	18.63
612.323333	37.44	46.00	8.56	100.0	V	0.0	27.69

Low channel 2402MHz

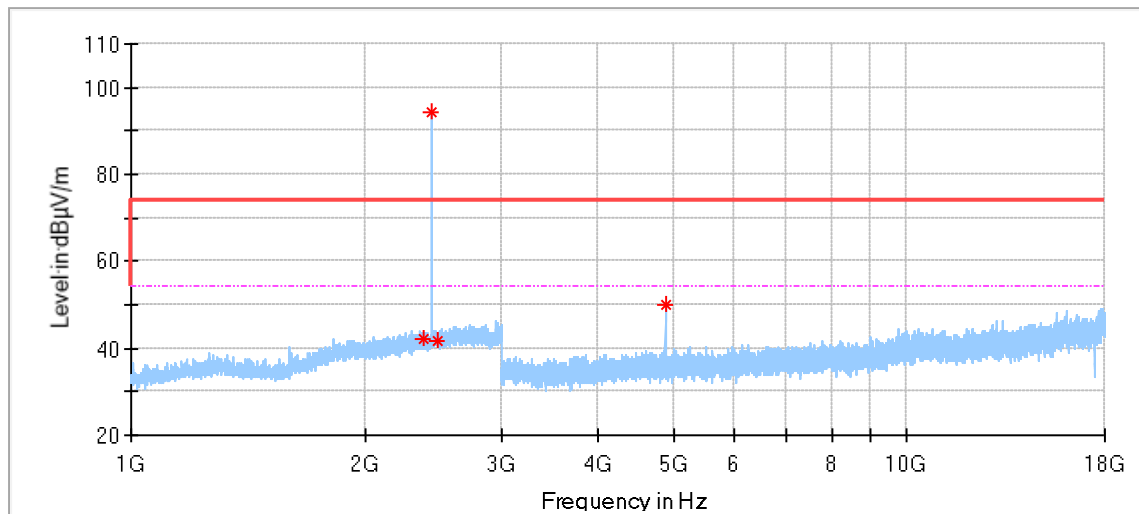


Frequency (MHz)	MaxPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
2390.952381	41.94	74.00	32.06	150.0	H	86.0	-3.12
2402.380952	92.69	74.00	-18.69	150.0	H	0.0	-3.14
2483.809524	41.82	74.00	32.18	150.0	H	268.0	-2.76
4804.000000	50.44	74.00	23.56	150.0	H	4.0	3.52
9608.500000	45.65	74.00	28.35	150.0	H	140.0	9.75

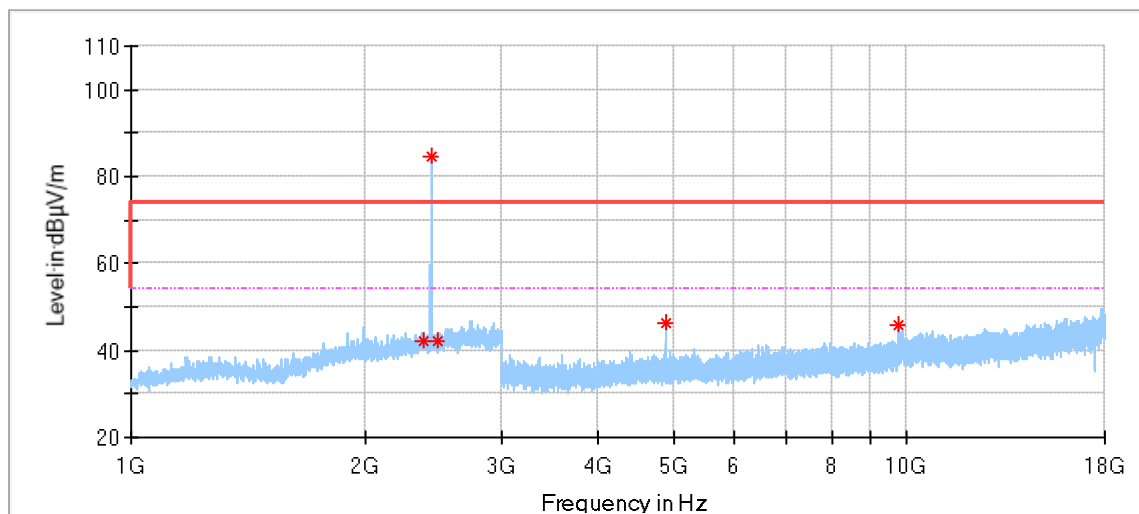


Frequency (MHz)	MaxPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
2390.952381	42.30	74.00	31.70	150.0	V	100.0	-3.12
2402.380952	85.14	74.00	-11.14	150.0	V	309.0	-3.14
2484.285714	42.18	74.00	31.82	150.0	V	4.0	-2.76
4804.000000	45.23	74.00	28.77	150.0	V	290.0	3.52

Middle channel 2440MHz

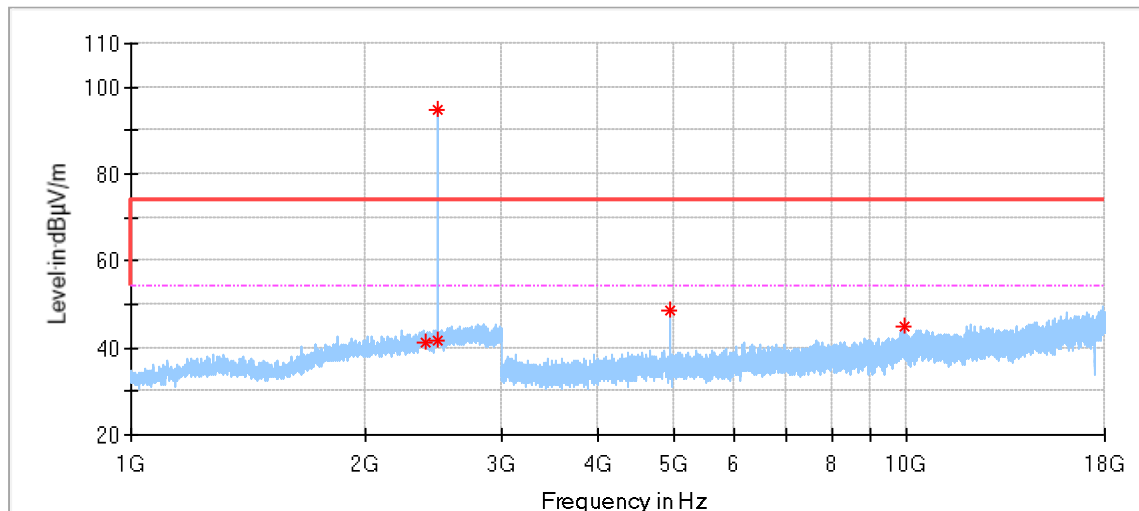


Frequency (MHz)	MaxPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
2389.523810	42.13	74.00	31.87	150.0	H	222.0	-3.12
2440.476191	94.10	74.00	-20.10	150.0	H	356.0	-3.01
2483.333333	41.64	74.00	32.36	150.0	H	0.0	-2.76
4880.000000	49.87	74.00	24.13	150.0	H	9.0	3.69

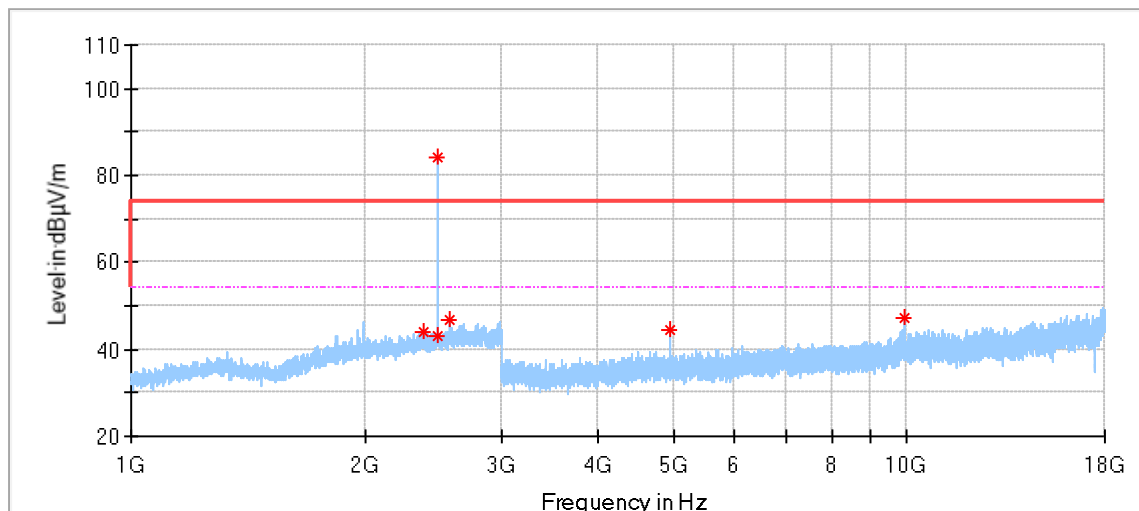


Frequency (MHz)	MaxPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
2389.047619	42.09	74.00	31.91	150.0	V	46.0	-3.11
2440.476191	84.78	74.00	-10.78	150.0	V	235.0	-3.01
2483.809524	42.11	74.00	31.89	150.0	V	29.0	-2.76
4880.000000	46.18	74.00	27.82	150.0	V	197.0	3.69
9760.500000	46.02	74.00	27.98	150.0	V	264.0	10.08

High channel 2480MHz



Frequency (MHz)	MaxPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
2390.000000	41.45	74.00	32.55	150.0	H	8.0	-3.12
2480.476191	94.93	74.00	-20.93	150.0	H	354.0	-2.76
2483.809524	41.74	74.00	32.26	150.0	H	312.0	-2.76
4960.000000	48.67	74.00	25.33	150.0	H	356.0	3.82
9920.500000	45.04	74.00	28.96	150.0	H	241.0	10.78



Frequency (MHz)	MaxPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
2389.523810	44.23	74.00	29.77	150.0	V	278.0	-3.12
2480.476191	84.26	74.00	-10.26	150.0	V	300.0	-2.76
2483.809524	42.93	74.00	31.07	150.0	V	311.0	-2.76
2577.619048	46.65	74.00	27.35	150.0	V	79.0	-2.47
4960.000000	44.63	74.00	29.37	150.0	V	198.0	3.82
9920.000000	47.16	74.00	26.84	150.0	V	263.0	10.79

Remark:

- (1) Data of measurement within frequency range 9kHz-30MHz, 18-26GHz are the noise floor or attenuated more than 20dB below the permissible limits or the field strength is too small to be measured, so test data does not present in this report
- (2) Frequencies which exceed the limit are carrier frequency.

- (3) Level= Reading Level + Correction Factor
- (4) Above 1GHz: Corrector factor = Antenna Factor + Cable Loss- Amplifier Gain
Below 1GHz: Corrector factor = Antenna Factor + Cable Loss
(The Reading Level is recorded by software which is not shown in the sheet)

10 Test Equipment List

Conducted Emission Test

DESCRIPTION	MANUFACTURER	MODEL NO.	EQUIPMENT ID	SERIAL NO.	CAL INTERVAL (YEAR)	CAL. DUE DATE
EMI Test Receiver	Rohde & Schwarz	ESR 3	68-4-74-19-002	102590	1	2022-6-4
LISN	Rohde & Schwarz	ENV216	68-4-87-19-001	102472	1	2022-6-5
Attenuator	Shanghai Huaxiang	TS2-26-3	68-4-81-16-003	080928189	1	2022-6-3
Test software	Rohde & Schwarz	EMC32	68-4-90-19-005-A01	Version10.35.02	N/A	N/A
Shielding Room	TDK	CSR #2	68-4-90-19-005	----	1	2022-11-07

Radiated Emission Test

DESCRIPTION	MANUFACTURER	MODEL NO.	EQUIPMENT ID	SERIAL NO.	CAL INTERVAL (YEAR)	CAL. DUE DATE
Signal Analyzer	Rohde & Schwarz	FSV40	68-4-74-14-003	101031	1	2022-6-3
Trilog Super Broadband Test Antenna	Schwarzbeck	VULB 9163	68-4-80-14-003	708	1	2022-6-27
Horn Antenna	Rohde & Schwarz	HF907	68-4-80-14-004	102295	1	2022-7-21
Wideband Horn Antenna	Q-PAR	QWH-SL-18-40-K-SG	68-4-80-14-008	12827	1	2022-7-21
Loop Antenna	Rohde & Schwarz	HFH2-Z2	68-4-80-14-006	100398	1	2022-8-25
Pre-amplifier	Rohde & Schwarz	SCU 18	68-4-29-14-001	102230	1	2022-6-6
Pre-amplifier	Rohde & Schwarz	SCU 40A	68-4-29-14-002	100432	1	2022-7-27
Fully Anechoic Chamber	TDK	8X4X4	68-4-90-14-002	--	2	2023-9-2
Test software	Rohde & Schwarz	EMC32	68-4-90-14-002-A10	Version 9.15.00	N/A	N/A

RF Conducted Test

DESCRIPTION	MANUFACTURER	MODEL NO.	EQUIPMENT ID	SERIAL NO.	CAL INTERVAL (YEAR)	CAL. DUE DATE
Signal Generator	Rohde & Schwarz	SMB100A	68-4-48-14-001	108272	1	2022-6-3
Vector Signal Generator	Rohde & Schwarz	SMBV100A	68-4-48-18-001	262825	1	2022-6-3
Communication Synthetical Test Instrument	Rohde & Schwarz	CMW 270	68-4-48-18-003	101251	1	2022-6-3
Signal Analyzer	Rohde & Schwarz	FSV40	68-4-74-14-004	101030	1	2022-6-3
Vector Signal Generator	Rohde & Schwarz	SMU 200A	68-4-48-14-003	105324	1	2022-6-3
RF Switch Module	Rohde & Schwarz	OSP120/OS P-B157	68-4-93-14-003	101226/100851	1	2022-6-3
Power Splitter	Weinschel	1580	68-4-85-14-001	SC319	1	2022-6-3
10dB Attenuator	Weinschel	4M-10	68-4-81-14-003	43152	1	2022-6-3
10dB Attenuator	R&S	DNF	68-4-81-14-004	DNF-001	1	2022-6-3
10dB Attenuator	R&S	DNF	68-4-81-14-005	DNF-002	1	2022-6-3
10dB Attenuator	R&S	DNF	68-4-81-14-006	DNF-003	1	2022-6-3
10dB Attenuator	R&S	DNF	68-4-81-14-007	DNF-004	1	2022-6-3
Test software	Rohde & Schwarz	EMC32	68-4-48-14-003-A10	Version 10.60.10	N/A	N/A
Test software	Tonscend	System for BT/WIFI	68-4-74-14-006-A13	Version 2.6.77.0518	N/A	N/A
Shielding Room	TDK	TS8997	68-4-90-19-003	----	3	2022-11-07

11 System Measurement Uncertainty

For a 95% confidence level, the measurement expanded uncertainties for defined systems, in accordance with the recommendations of ISO 17025 were:

System Measurement Uncertainty	
Test Items	Extended Uncertainty
Uncertainty for Conducted Emission 150kHz-30MHz (for test using AMN ENV432 or ENV4200)	3.62dB
Uncertainty for Radiated Emission 25MHz-3000MHz	Horizontal: 4.81dB; Vertical: 4.89dB;
Uncertainty for Radiated Emission 3000MHz- 18000MHz	Horizontal: 4.69dB; Vertical: 4.68dB;
Uncertainty for Radiated Emission 18000MHz- 40000MHz	Horizontal: 4.89dB; Vertical: 4.87dB;
Uncertainty for Conducted RF test	RF Power Conducted: 1.16dB Frequency test involved: 0.6×10^{-7} or 1%

---THE END OF REPORT---