

FCC/IC - TEST REPORT

Report Number : **709502300754-00A** Date of Issue: April 10, 2023

Model : DP E161.CAN

Product Type : Display

Applicant : Bafang Electric (Suzhou) Co.,Ltd.

Manufacturer : Bafang Electric (Suzhou) Co.,Ltd.

Address : No.6 Dongyanli Rd, Suzhou Industrial Park 215125, Suzhou, China

Test Result : **n Positive** **o Negative**

Total pages including
Appendices

: 37



TÜV SÜD Certification and Testing (China) Co., Ltd. Shanghai Branch is a subcontractor to TÜV SÜD Product Service GmbH according to the principles outlined in ISO 17025.

TÜV SÜD Certification and Testing (China) Co., Ltd. Shanghai Branch reports apply only to the specific samples tested under stated test conditions. Construction of the actual test samples has been documented. It is the manufacturer's responsibility to assure that additional production units of this model are manufactured with identical electrical and mechanical components. The manufacturer/importer is responsible to the Competent Authorities in Europe for any modifications made to the production units which result in non-compliance to the relevant regulations. TÜV SÜD Certification and Testing (China) Co., Ltd. Shanghai Branch shall have no liability for any deductions, inferences or generalizations drawn by the client or others from TÜV SÜD Certification and Testing (China) Co., Ltd. Shanghai Branch issued reports.

This report is the confidential property of the client. As a mutual protection to our clients, the public and ourselves, extracts from the test report shall not be reproduced except in full without our written approval.



1 Table of Contents

1	Table of Contents.....	2
2	Details about the Test Laboratory	3
3	Description of the Equipment under Test	4
4	Summary of Test Standards.....	5
5	Summary of Test Results.....	6
6	General Remarks	7
7	Test Setups	8
8	Systems test configuration	11
9	Technical Requirement	12
9.1	Conducted Emission	12
9.2	Conducted peak output power	15
9.3	6dB bandwidth and 99% Occupied Bandwidth	17
9.4	Power spectral density.....	20
9.5	Spurious RF conducted emissions	22
9.6	Band edge	26
9.7	Spurious radiated emissions for transmitter.....	29
10	Test Equipment List	34
11	System Measurement Uncertainty	35
12	Photographs of Test Set-ups	36
13	Photographs of EUT	37



China

2 Details about the Test Laboratory

Details about the Test Laboratory

Test Site 1

Company name: TÜV SÜD Certification and Testing (China) Co., Ltd. Shanghai Branch
No.16 Lane, 1951 Du Hui Road,
Shanghai 201108,
P.R. China

FCC Registration Number: 820234

Designation Number: CN1183

IC Company Number: 25988

CAB identifier: CN0101

Telephone: +86 21 6141 0123

Fax: +86 21 6140 8600



3 Description of the Equipment under Test

Description of the Equipment Under Test

Product:	Display
Model no.:	DP E161.CAN
PMN (Product Marketing Name):	DP E161.CAN
HVIN (Hardware Version Identification Number):	DP E161.CAN
FCC ID:	2A9GN-DPE161C
IC:	29737-DPE161C
Options and accessories:	NA
Rating:	12-60V DC
RF Transmission Frequency:	2402~2480 MHz
No. of Operated Channel:	40
Modulation:	GFSK
Data transmission rate:	1 Mbit/s
Antenna Type:	PCB Antenna
Antenna Gain:	-0.41 dBi
Description of the EUT:	The Equipment Under Test (EUT) is a low-power embedded Bluetooth module (5.1). We tested it and listed the worst data in this report.
Test sample no.:	SHA-696195-1

The sample's mentioned in this report is/are submitted/ supplied/ manufactured by client. The laboratory therefore assumes no responsibility for accuracy of information on the brand name, model number, origin of manufacture, consignment, antenna gain, or any information supplied.



China

4 Summary of Test Standards

Test Standards	
FCC Part 15 Subpart C	PART 15 - RADIO FREQUENCY DEVICES Subpart C - Intentional Radiators
RSS-Gen Issue 5 Amendment 2 February 2021	General Requirements for the Certification of Radio Apparatus
RSS-247 Issue 2 February 2017	Digital Transmission Systems (DTSS), Frequency Hopping Systems (FHSS) and License-Exempt Local Area Network (LE-LAN) Devices

All the test methods were according to KDB 558074 D01 15.247 Meas Guidance v05r02 and ANSI C63.10 (2013).



China

5 Summary of Test Results

Technical Requirements						
FCC Part 15 Subpart C						
Test Condition		Pages	Test Site	Test Result		
				Pass	Fail	N/A
§15.207 & RSS-GEN 8.8	Conducted emission AC power port	12-14	Site 1	☒	☐	☐
§15.247 (b) (3) & RSS-247 5.4(d)	Conducted peak output power	15-16	Site 1	☒	☐	☐
§15.247(a)(1) & RSS-247 5.1(b)	20dB bandwidth	---	---	☐	☐	☒
§15.247(a)(1) & RSS-247 5.1(b)	Carrier frequency separation	---	---	☐	☐	☒
§15.247(a)(1)(iii) & RSS-247 5.1(d)	Number of hopping frequencies	---	---	☐	☐	☒
§15.247(a)(1)(iii) & RSS-247 5.1(d)	Dwell Time	---	---	☐	☐	☒
§15.247(a)(2) & RSS-247 5.2(a) & RSSGEN 6.7	6dB bandwidth and 99% Occupied Bandwidth	17-19	Site 1	☒	☐	☐
§15.247(e) & RSS-247 5.2(b)	Power spectral density	20-21	Site 1	☒	☐	☐
§15.247(d) & RSS-247 5.5	Spurious RF conducted emissions	22-25	Site 1	☒	☐	☐
§15.247(d) & RSS-247 5.5	Band edge	26-28	Site 1	☒	☐	☐
§15.247(d) & §15.209 & RSS-247 5.5 & RSS-Gen 6.13	Spurious radiated emissions for transmitter	29-33	Site 1	☒	☐	☐
§15.203 & RSS-Gen 6.8	Antenna requirement	See note 1		☒	☐	☐

Remark 1: N/A – Not Applicable.

Note 1: The EUT uses a PCB Antenna, which gain is -0.41dBi. In accordance to §15.203 and RSS-Gen 6.8, It is considered sufficiently to comply with the provisions of this section.



China

6 General Remarks

Remarks

This submittal(s) (test report) is intended for FCC ID: 2A9GN-DPE161C, IC: 29737-DPE161C complies with Section 15.207, 15.209, 15.247 of the FCC Part 15, Subpart C Rules and RSS-247, RSS-GEN.

SUMMARY:

All tests according to the regulations cited on page 5 were

n - Performed

o - **Not** Performed

The Equipment under Test

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

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

Sample Received Date: February 15, 2023

Testing Start Date: February 17, 2023

Testing End Date: February 21, 2023

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

Reviewed by:

Prepared by:

Tested by:



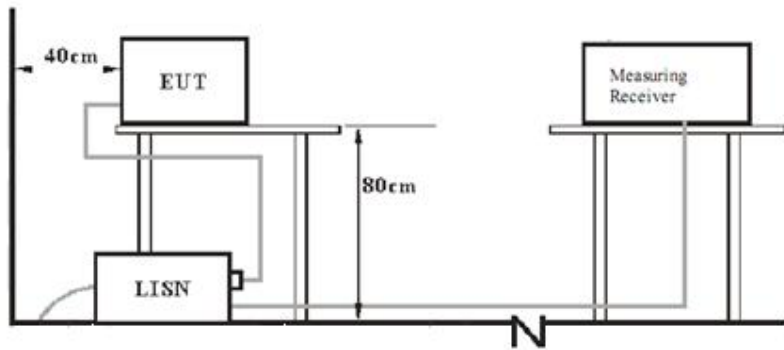
Hui TONG
EMC Section Manager

Wenqiang LU
EMC Project Engineer

Yiquan WANG
EMC Test Engineer

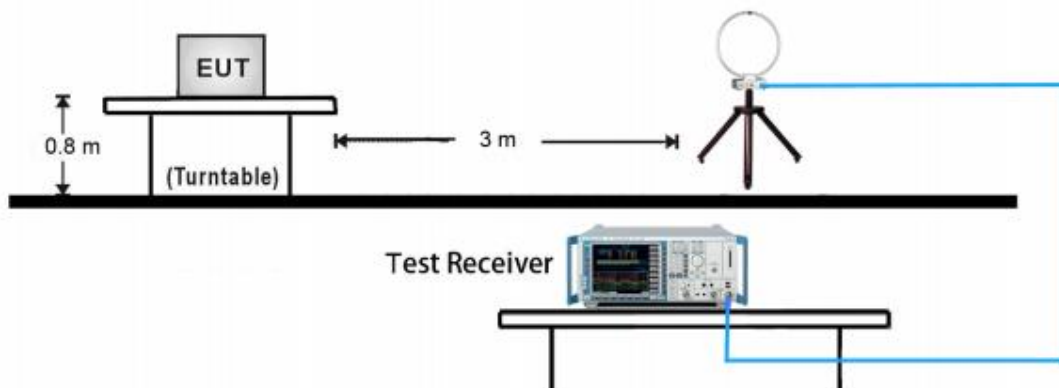
7 Test Setups

7.1 AC Power Line Conducted Emission test setups

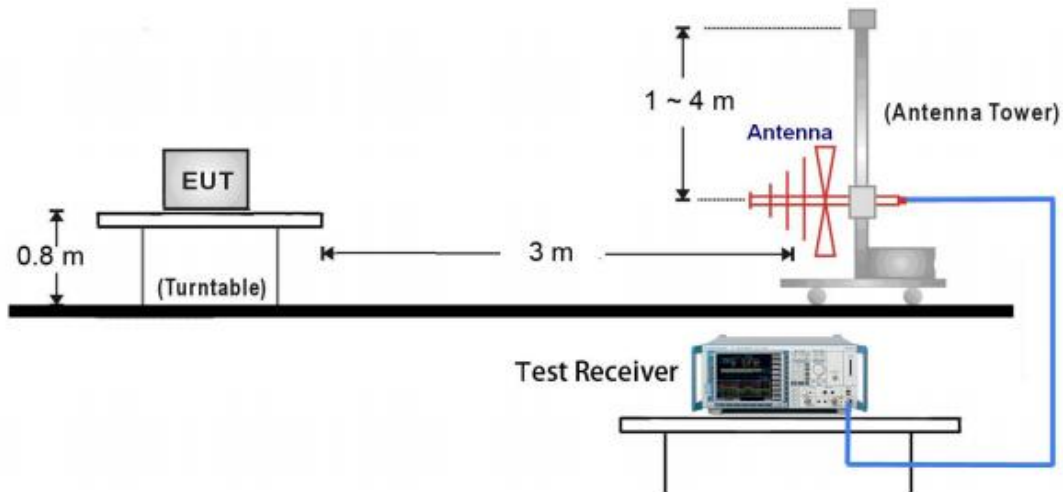


7.2 Radiated test setups

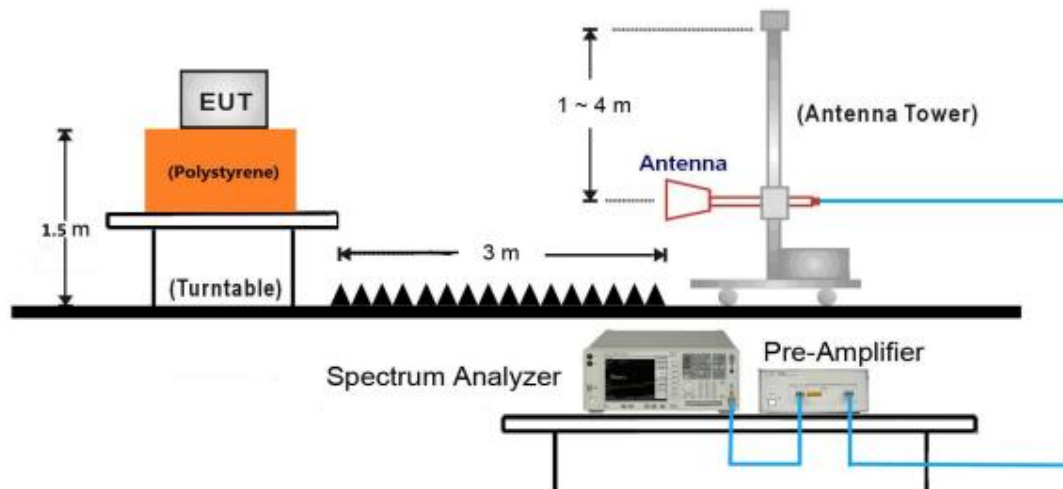
9kHz ~ 30MHz Test Setup:



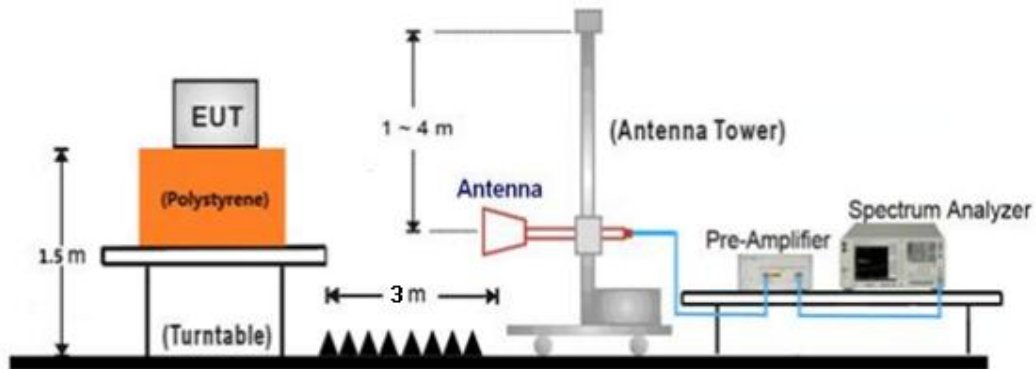
30MHz ~ 1GHz Test Setup:



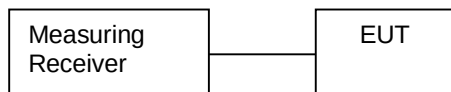
1GHz ~ 25GHz Test Setup:



18GHz ~ 25GHz Test Setup:



7.3 Conducted RF test setups





8 Systems test configuration

Auxiliary Equipment Used during Test:

DESCRIPTION	MANUFACTURER	MODEL NO.(SHIELD)	S/N(LENGTH)
Notebook	Lenove	X240	Notebook

Test software: RTL8762x_RFTestTool.exe

Test Software Version	TX Setting Power	Packet Type (Data Rate)
RTL8762x_RFTestTool.exe	0dBm	1Mbps

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

Non-hopping mode: The system was configured to operate at a signal channel transmitting. The test software allows the configuration and operation at the worst-case duty and the highest transmit power.



9 Technical Requirement

9.1 Conducted Emission

Test Method

1. The EUT was placed on a table, which is 0.8m above ground plane
2. The power line of the EUT is connected to the AC mains through an Artificial Mains Network (A.M.N.).
3. Maximum procedure was performed to ensure EUT compliance
4. An EMI test receiver is used to test the emissions from both sides of AC line

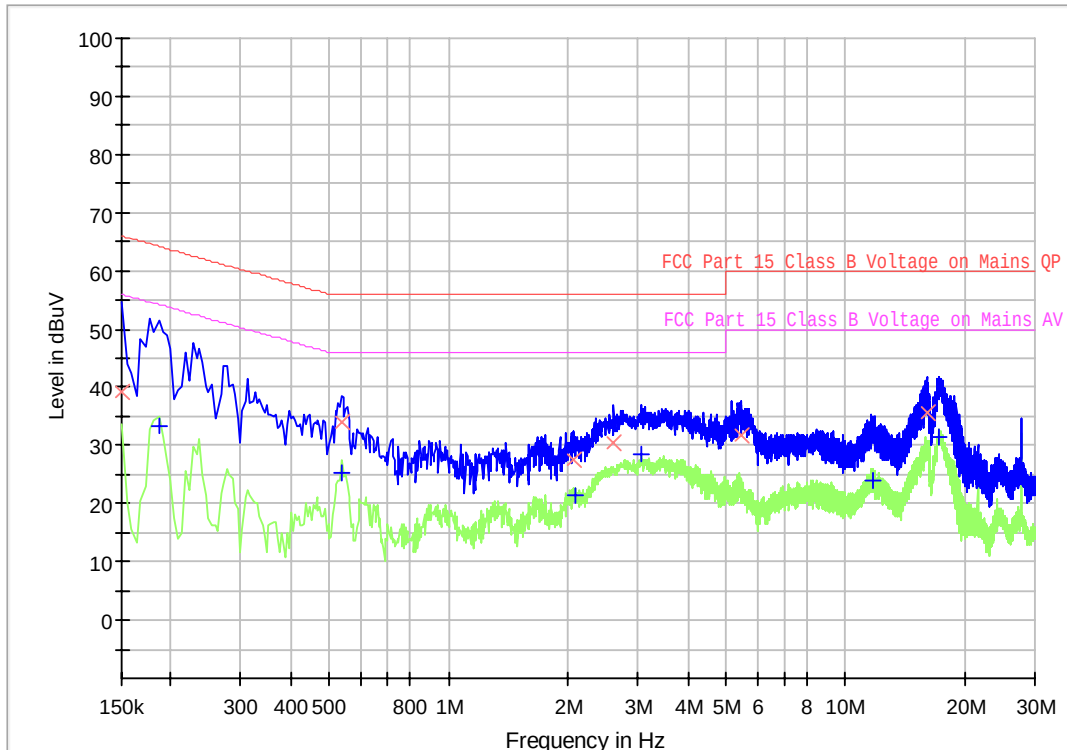
Limit

According to §15.207 & RSS-GEN 8.8, 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

Product Type : Display
 M/N : DP E161.CAN
 Operating Condition : Mode 1: Tx_2480MHz (worst case)
 Test Specification : L-line (transmit mode)
 Comment : AC 120V/60Hz for Laptop, 3.3V DC for EUT

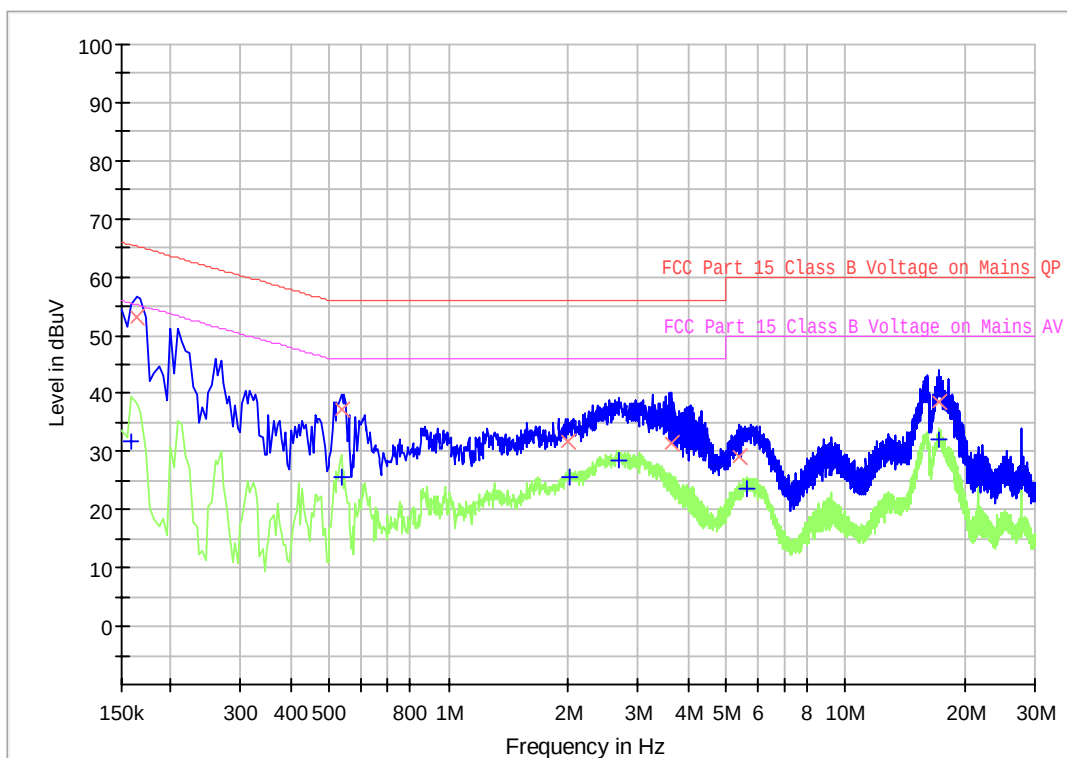


Final Result

Frequency (MHz)	QuasiPeak (dBuV)	CAverage (dBuV)	Limit (dBuV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.150000	39.10	---	66.00	26.90	1000.0	9.000	L1	19.6
0.186000	---	33.37	54.21	20.84	1000.0	9.000	L1	19.6
0.537000	---	25.42	46.00	20.58	1000.0	9.000	L1	19.6
0.537000	33.91	---	56.00	22.09	1000.0	9.000	L1	19.6
2.058000	27.40	---	56.00	28.60	1000.0	9.000	L1	19.6
2.085000	---	21.48	46.00	24.52	1000.0	9.000	L1	19.6
2.607000	30.55	---	56.00	25.45	1000.0	9.000	L1	19.6
3.070500	---	28.43	46.00	17.57	1000.0	9.000	L1	19.6
5.442000	31.70	---	60.00	28.30	1000.0	9.000	L1	19.6
11.719500	---	23.95	50.00	26.05	1000.0	9.000	L1	19.8
16.008000	35.66	---	60.00	24.34	1000.0	9.000	L1	19.9
17.263500	---	31.45	50.00	18.55	1000.0	9.000	L1	19.9

Note 1: Measure Level (dBuV/m) = Reading Level (dBuV) + Factor (dB)
 Factor (dB) = Cable Loss (dB) + LISN Factor (dB) + 10dB Attenuator

Product Type : Display
 M/N : DP E161.CAN
 Operating Condition : Mode 1: Tx_2480MHz (worst case)
 Test Specification : N-line (transmit mode)
 Comment : AC 120V/60Hz for Laptop, 3.3V DC for EUT



Final Result

Frequency (MHz)	QuasiPeak (dBuV)	CAverage (dBuV)	Limit (dBuV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.159000	---	31.58	55.52	23.94	1000.0	9.000	N	19.6
0.163500	52.99	---	65.28	12.29	1000.0	9.000	N	19.6
0.537000	---	25.51	46.00	20.49	1000.0	9.000	N	19.6
0.537000	37.32	---	56.00	18.68	1000.0	9.000	N	19.6
1.990500	31.80	---	56.00	24.20	1000.0	9.000	N	19.6
2.017500	---	25.64	46.00	20.36	1000.0	9.000	N	19.6
2.674500	---	28.61	46.00	17.39	1000.0	9.000	N	19.6
3.642000	31.56	---	56.00	24.44	1000.0	9.000	N	19.7
5.392500	29.06	---	60.00	30.94	1000.0	9.000	N	19.7
5.631000	---	23.78	50.00	26.22	1000.0	9.000	N	19.7
17.254500	---	32.04	50.00	17.96	1000.0	9.000	N	19.9
17.254500	38.40	---	60.00	21.60	1000.0	9.000	N	19.9

Note 1: Measure Level (dBuV/m) = Reading Level (dBuV) + Factor (dB)
 Factor (dB) = Cable Loss (dB) + LISN Factor (dB) + 10dB Attenuator

9.2 Conducted peak output power

Test Method

1. Use the following spectrum analyzer settings:
RBW > the 6 dB bandwidth of the emission being measured, VBW $\geq$ 3RBW, Span $\geq$ 3RBW
Sweep = auto, Detector function = peak, Trace = max hold.
2. Add a correction factor to the display.
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

According to §15.247 (b) (3) & RSS-247 5.4(d), conducted peak output power limit as below:

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

Frequency Range MHz	Limit (EIRP) W	Limit dBm
2400-2483.5	≤ 4	≤ 36

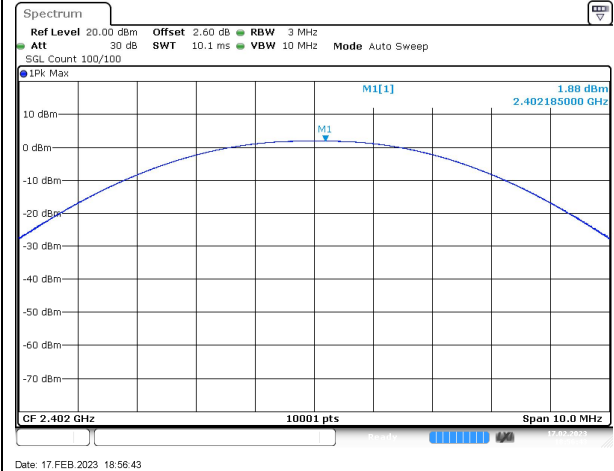
Test result as below table

Frequency MHz	Conducted Peak Output Power dBm	Result
Low channel 2402MHz	1.88	Pass
Middle channel 2440MHz	1.79	Pass
High channel 2480MHz	1.95	Pass

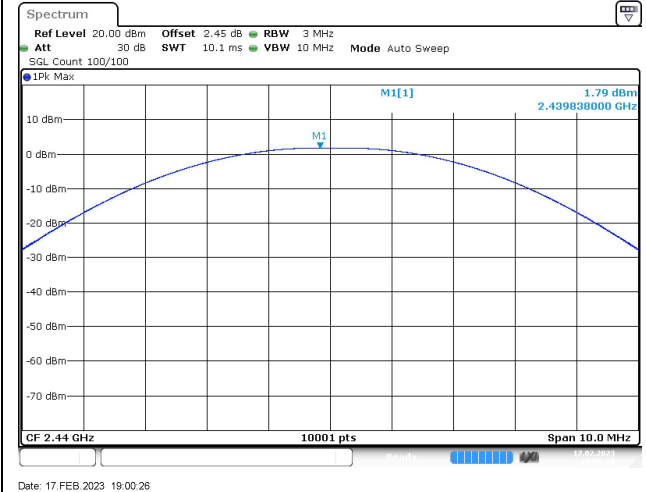
Frequency MHz	EIRP dBm	Result
Low channel 2402MHz	1.47	Pass
Middle channel 2440MHz	1.38	Pass
High channel 2480MHz	1.54	Pass

Conducted Peak output power

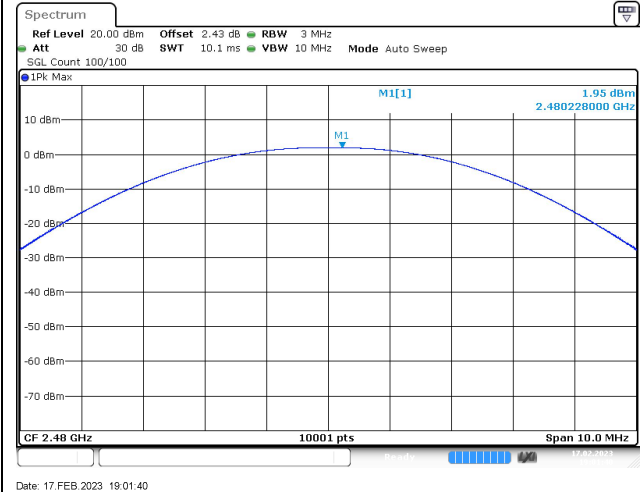
Channel 0 (2402MHz)



Channel 19 (2440MHz)



Channel 39 (2480MHz)



9.3 6dB bandwidth and 99% Occupied Bandwidth

Test Method

1. Use the following spectrum analyzer settings:
RBW=100K, VBW $\geq$ 3RBW, Sweep = auto, Detector function = peak, Trace = max hold
2. 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 $\geq$ 6 dB.
3. Allow the trace to stabilize, record the X dB Bandwidth value.

Limit

Limit [kHz]

≥ 500

Test Method for 99 % Bandwidth

1. 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
2. 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 $\geq$ 6 dB.
3. Allow the trace to stabilize, record the X dB Bandwidth value.

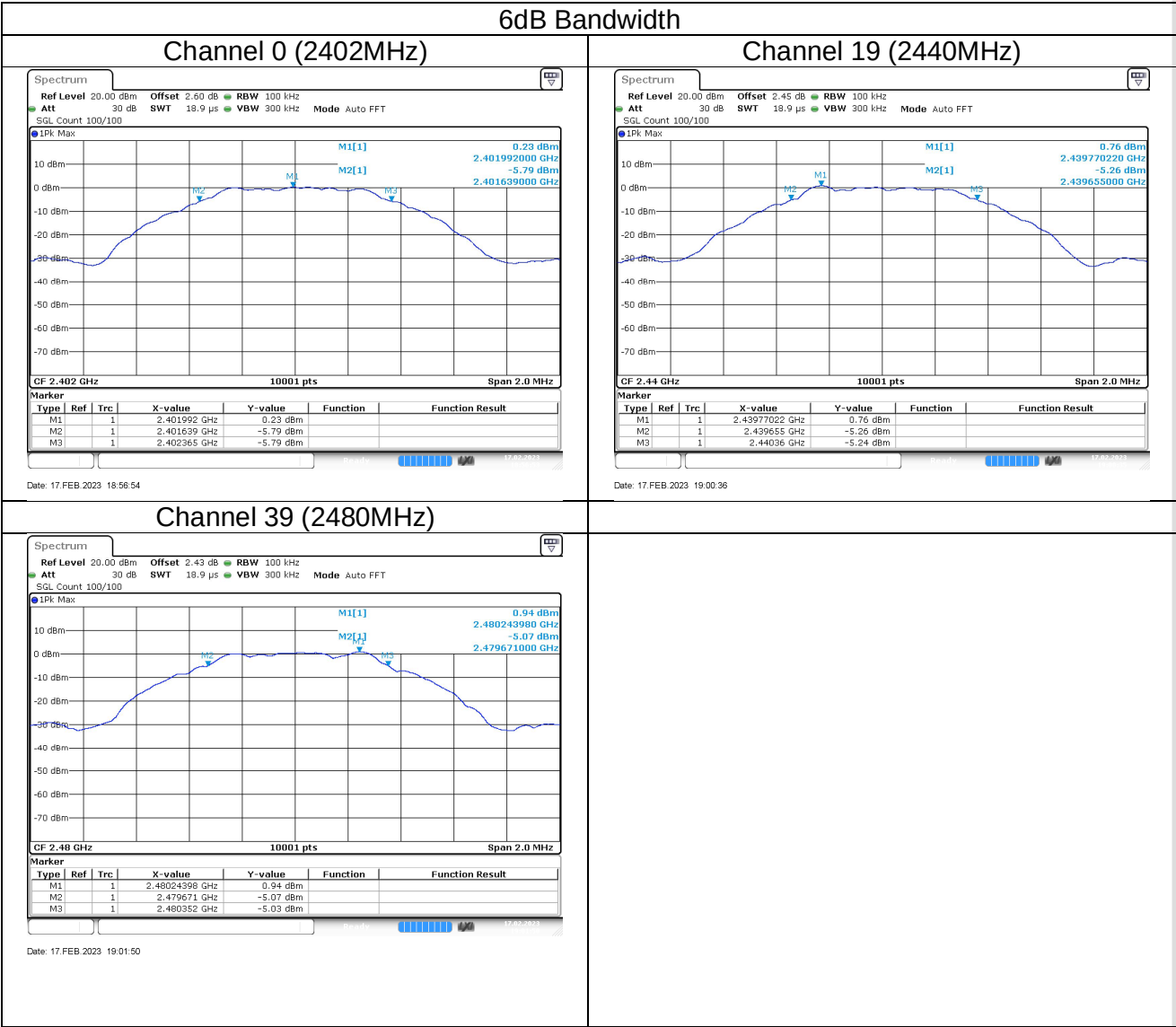
Limit

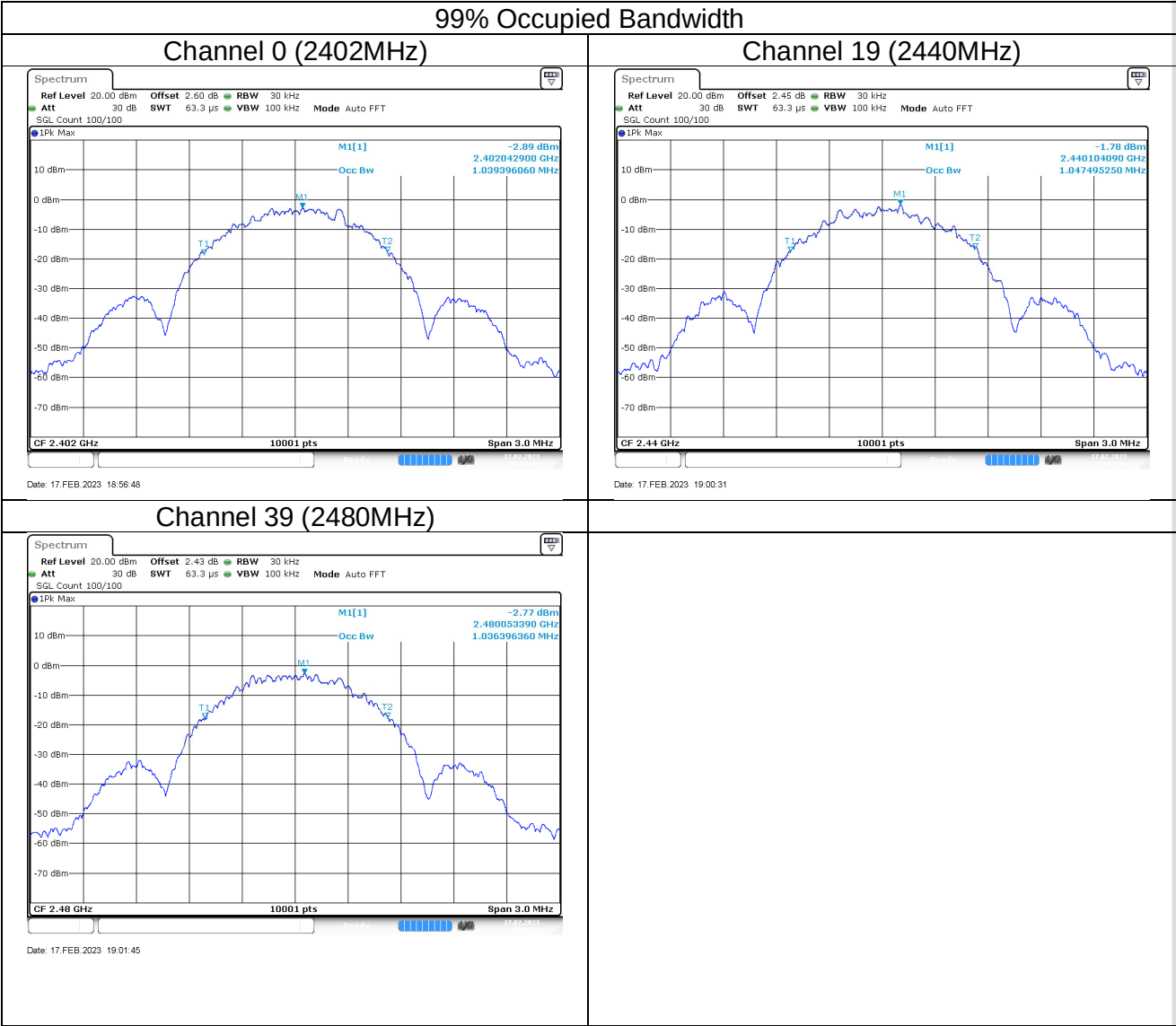
Limit [kHz]

N/A

Test result

Frequency MHz	6dB bandwidth MHz	99% Occupied Bandwidth MHz	Result
Top channel 2402MHz	0.726	1.039	Pass
Middle channel 2440MHz	0.705	1.047	Pass
Bottom channel 2480MHz	0.681	1.036	Pass





9.4 Power spectral density

Test Method

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

1. 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.
2. Allow trace to fully stabilize, use the peak marker function to determine the maximum amplitude level within the RBW.
3. Repeat above procedures until other frequencies measured were completed.

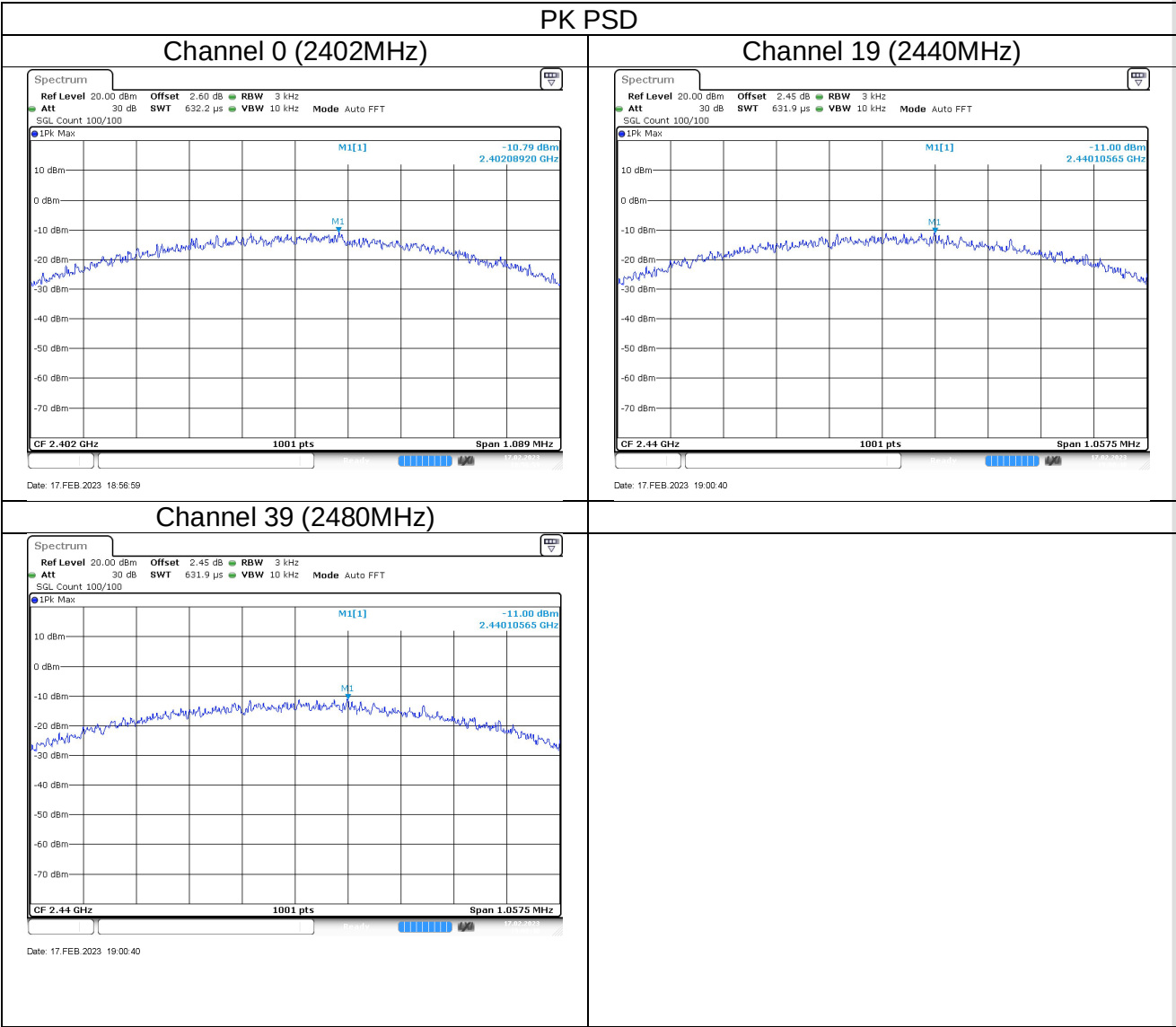
Limit

Limit [dBm/3kHz]

≤ 8

Test result

Frequency MHz	Power spectral density dBm/3kHz	Result
Top channel 2402MHz	-10.79	Pass
Middle channel 2440MHz	-11	Pass
Bottom channel 2480MHz	-10.06	Pass





9.5 Spurious RF conducted emissions

Test Method

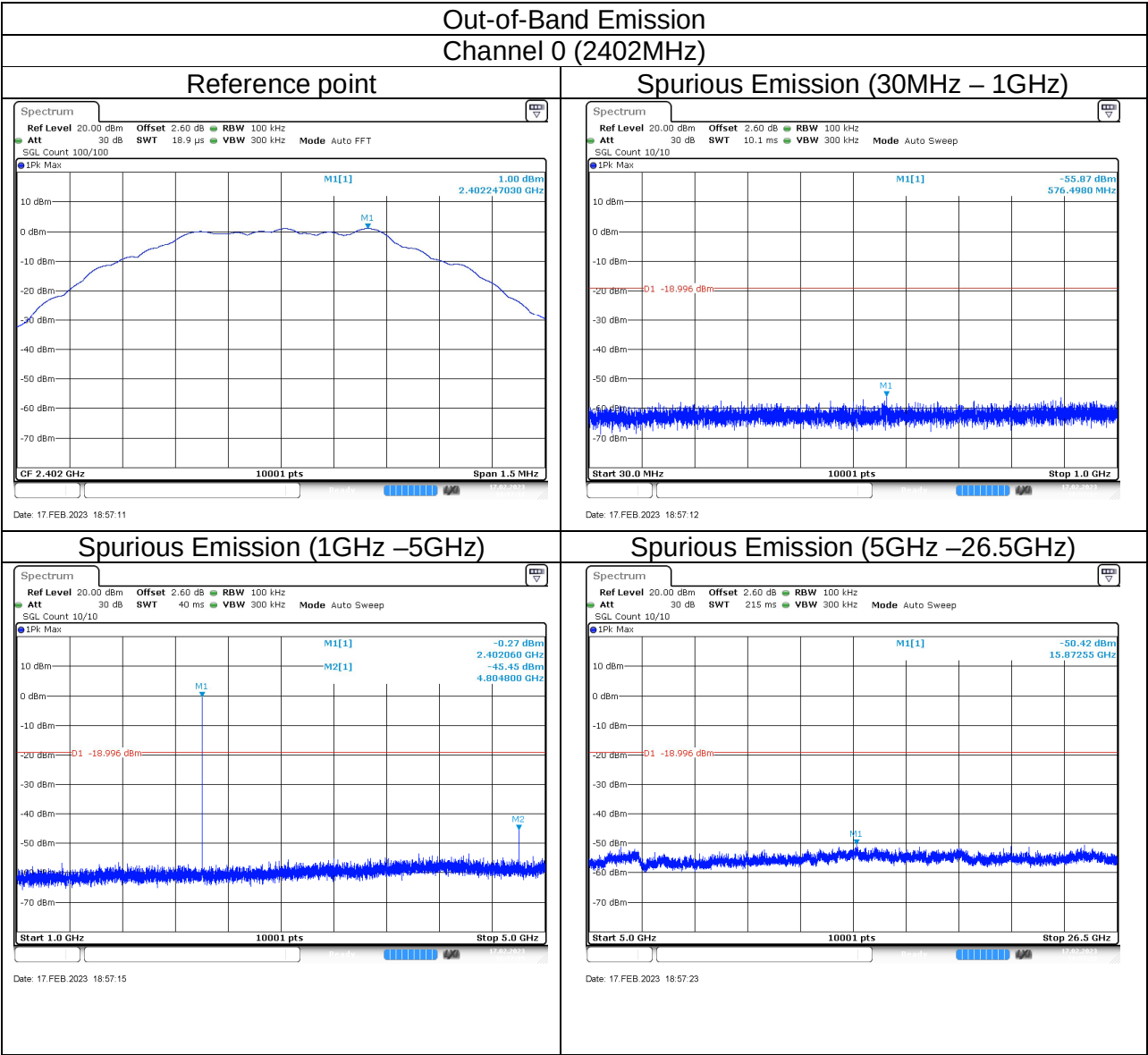
1. Establish a reference level by using the following procedure:
 - a. Set RBW=100 kHz. VBW $\geq$ 3RBW. Detector =peak, Sweep time = auto couple, Trace mode = max hold.
 - b. Allow trace to fully stabilize, use the peak marker function to determine the maximum PSD level.
2. Use the maximum PSD level to establish the reference level.
 - a. Set the center frequency and span to encompass frequency range to be measured.
 - b. Use the peak marker function to determine the maximum amplitude level. Ensure that the amplitude of all unwanted emissions outside of the authorized frequency band (excluding restricted frequency bands) are attenuated by at least the minimum requirements, report the three highest emissions relative to the limit.
3. Repeat above procedures until other frequencies measured were completed.

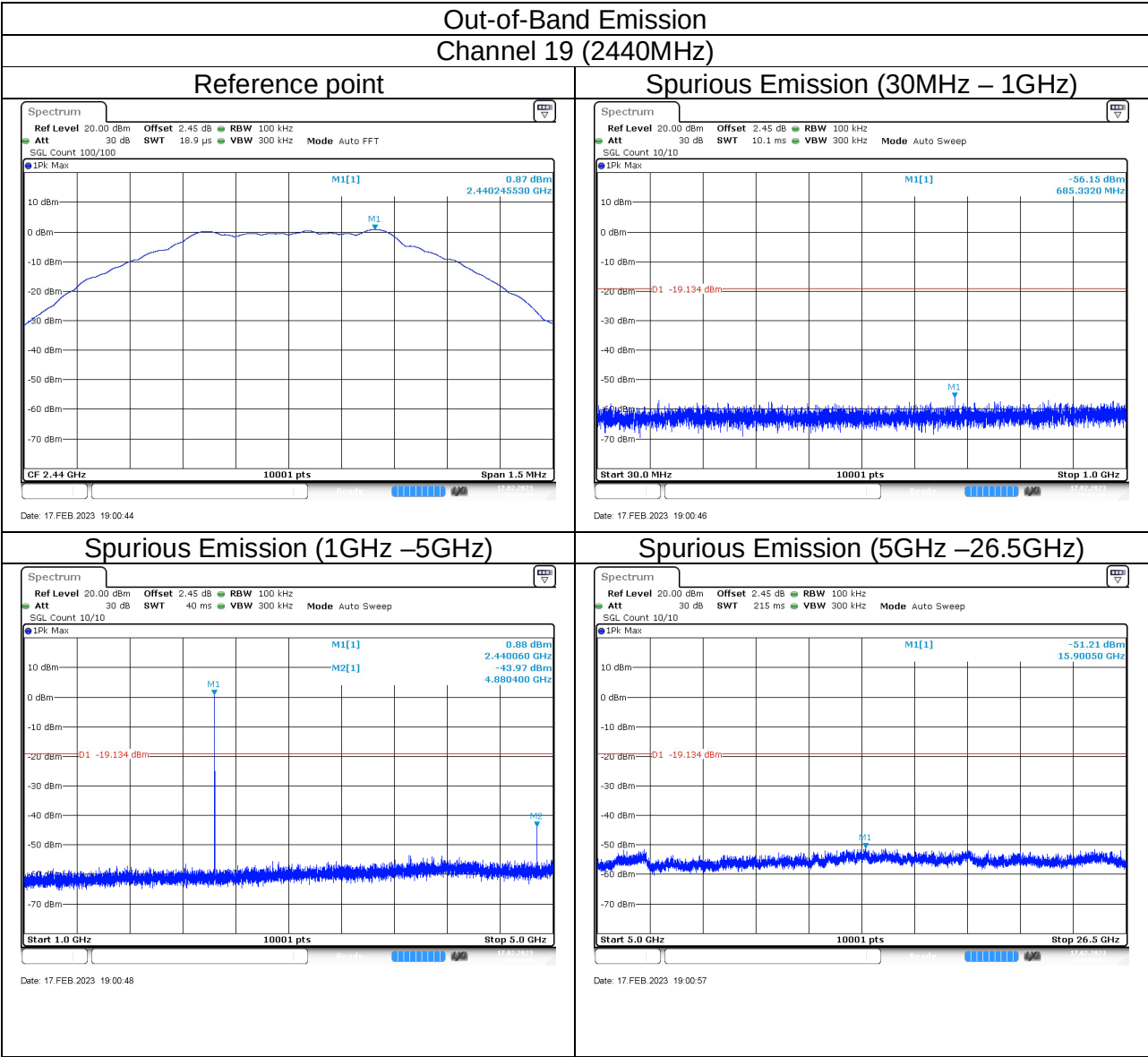
Limit

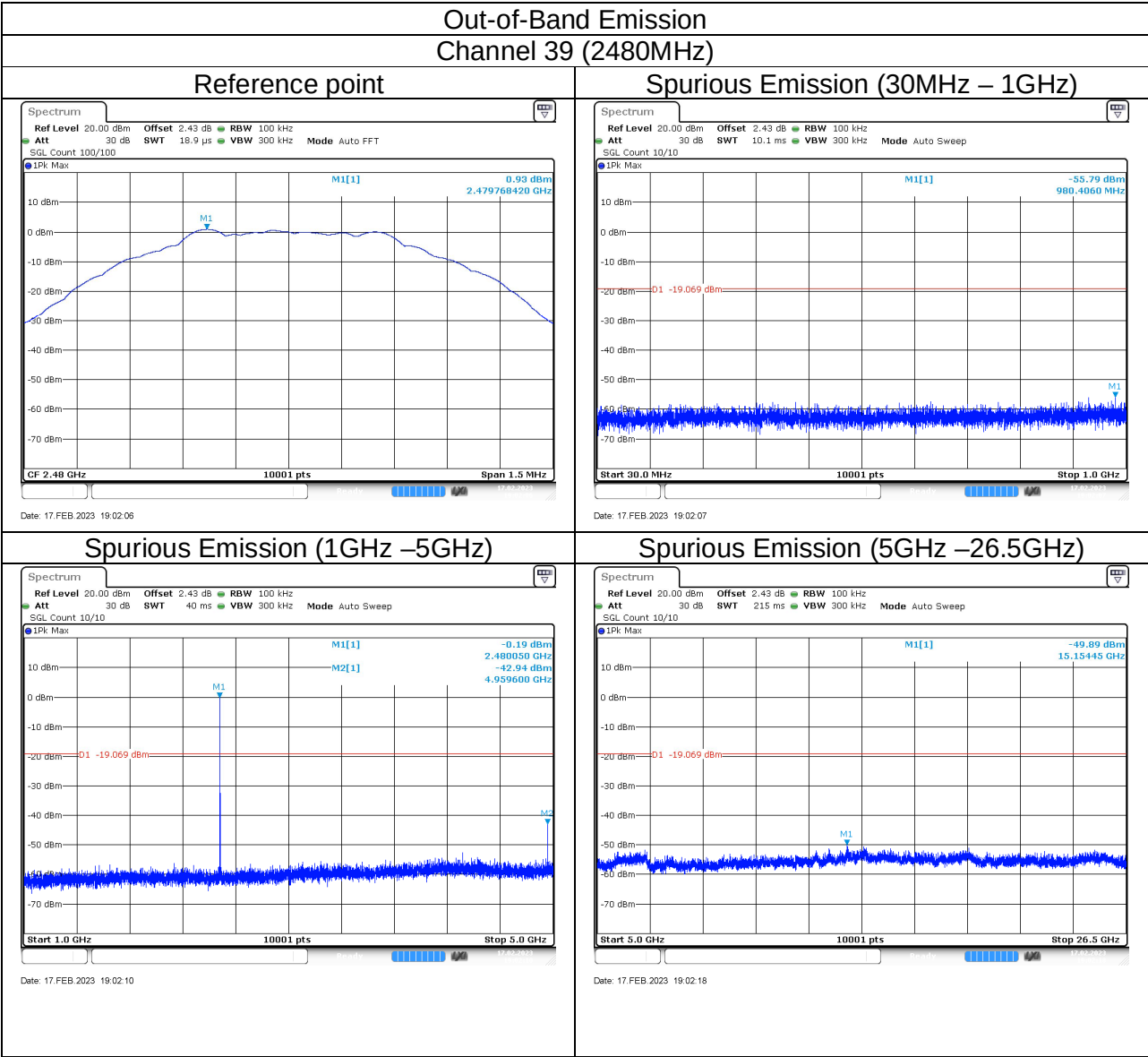
Frequency Range MHz	Limit (dBc)
30-25000	-20



China







Note: The emission which exceed the limit is the fundamental.



China

9.6 Band edge

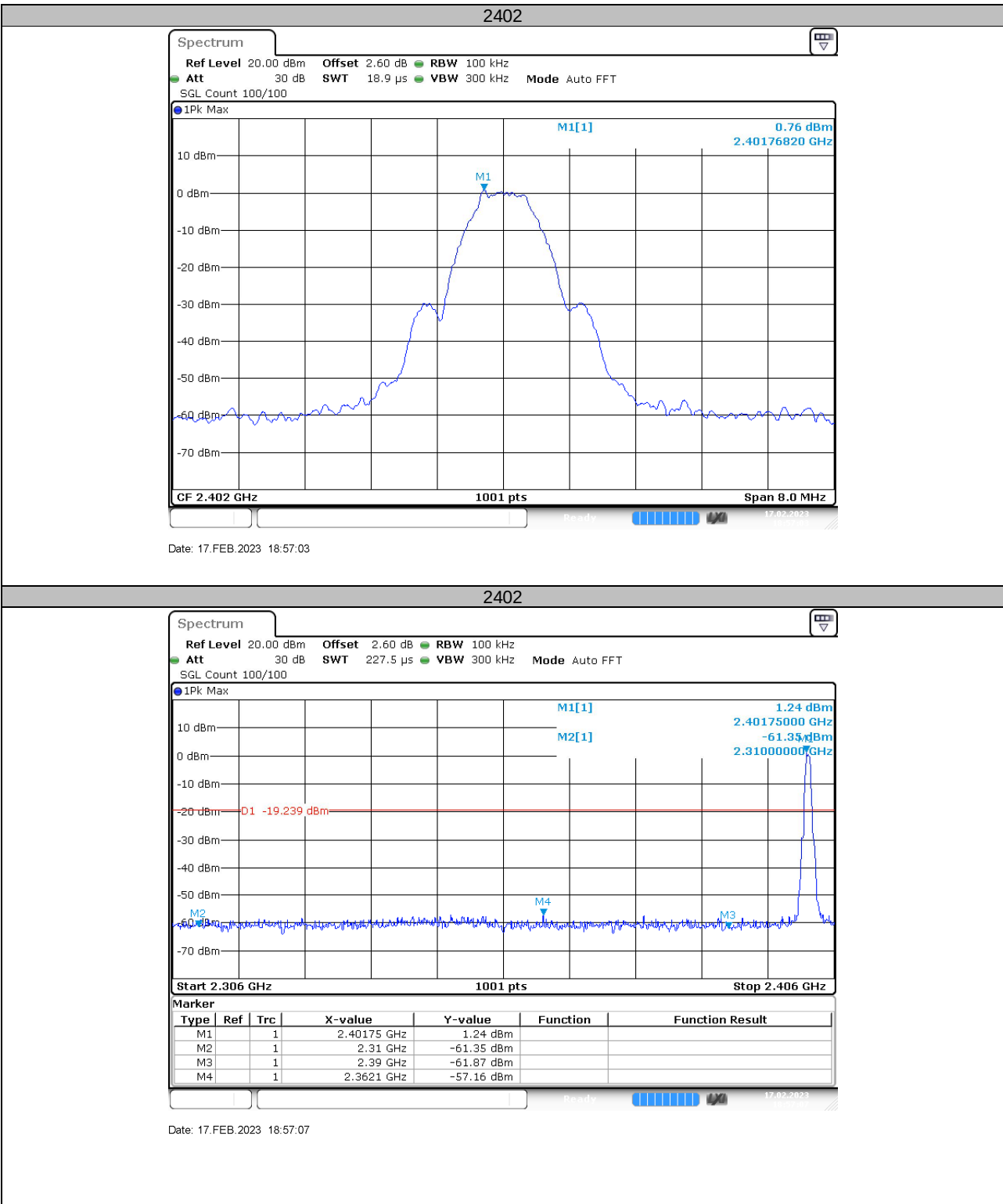
Test Method

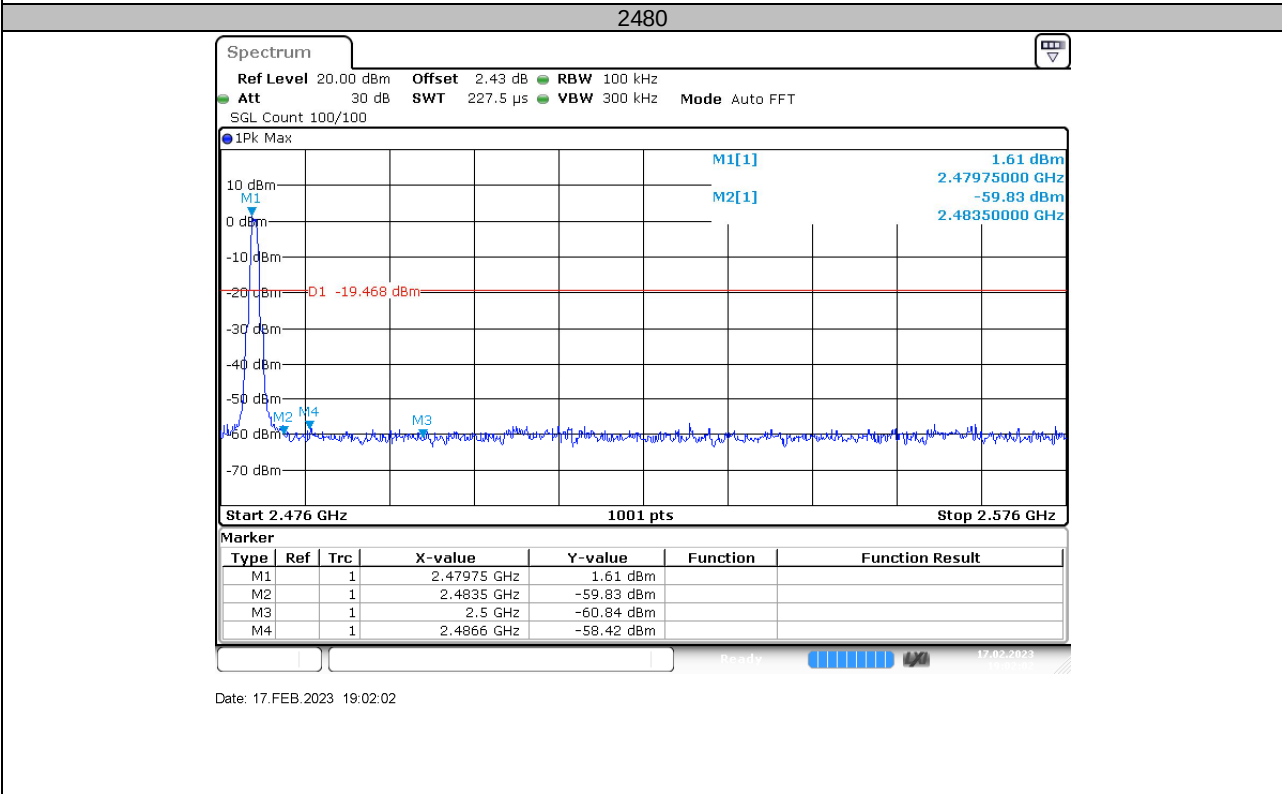
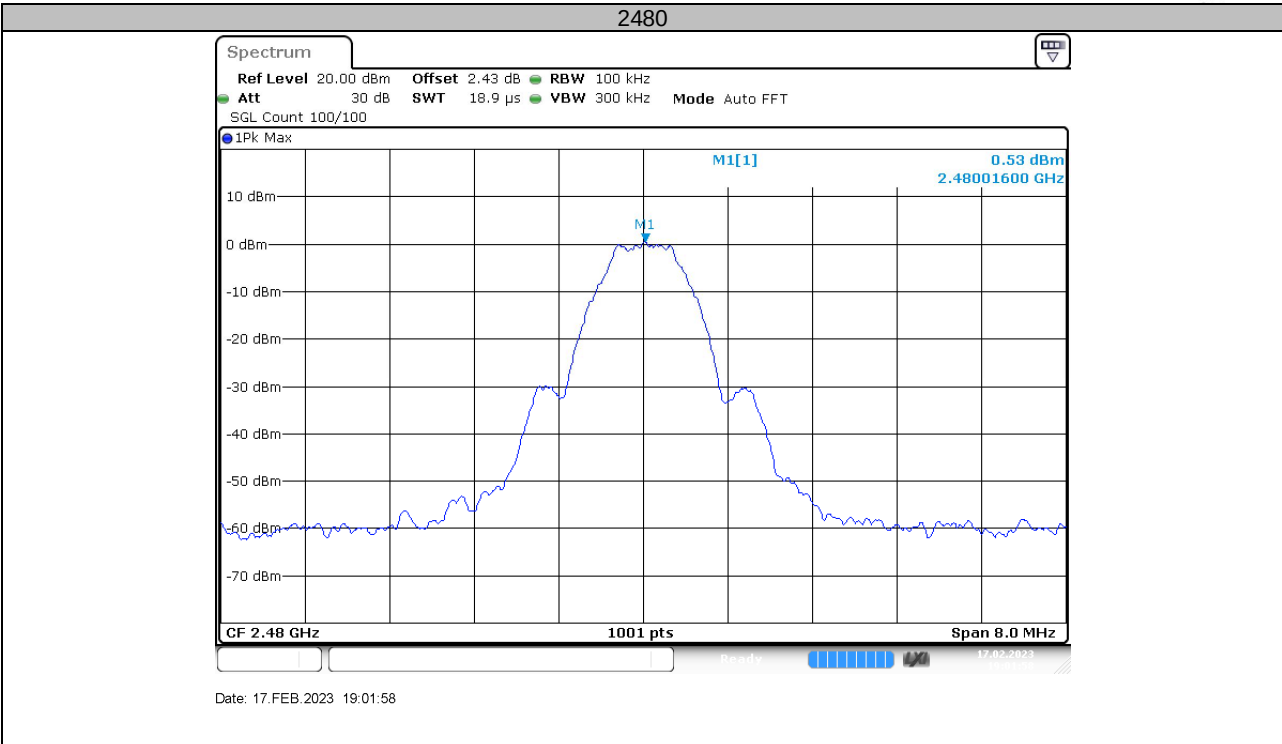
- 1 Use the following spectrum analyzer settings:
Span = wide enough to capture the peak level of the in-band emission and all spurious
RBW = 100 kHz, VBW $\geq$ RBW, Sweep = auto, Detector function = peak, Trace = max hold.
- 2 Allow the trace to stabilize, use the peak and delta measurement to record the result.
- 3 The level displayed must comply with the limit specified in this Section.

Limit

According to §15.247(d) and RSS-247 5.5, in any 100 kHz bandwidth outside the frequency bands in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator 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, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a) and RSS-Gen8.10, must also comply with the radiated emission limits specified in 15.209(a) (see Section 15.205(c)) and RSS-Gen.

Test result





9.7 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 120 kHz, 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) $VBW \geq [3 \times RBW]$.
- c) Detector = RMS (power averaging), if $[\text{span} / (\# \text{ of points in sweep})] \leq RBW / 2$.
 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.

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 and RSS-GEN 8.10 must comply with the radiated emission limits specified in section 15.209.

Frequency MHz	Field Strength uV/m	Measured Distance Meters
0.009~0.490	2400/F (kHz)	300
0.490~1.705	24000/F (kHz)	30
1.705~30	30	30

Frequency MHz	Field Strength uV/m	Field Strength dBuV/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.

Transmitting spurious emission test result as below:

Channel (2402MHz)					
Frequency	Mmission Level	Limit	Margin	Detector	Polarization
MHz	dBuV/m	dBuV/m	dB		
2385.5	44.26	74.0	29.74	Peak	Horizontal
4803.4	44.93	74.0	29.07	Peak	Horizontal
2383.9	43.07	74.0	30.93	Peak	Vertical
4803.4	44.34	74.0	29.66	Peak	Vertical

Channel (2440MHz)					
Frequency	Mmission Level	Limit	Margin	Detector	Polarization
MHz	dBuV/m	dBuV/m	dB		
4879.9	45.51	74.0	28.49	Peak	Horizontal
4879.4	45.53	74.0	28.47	Peak	Vertical

Channel (2480MHz)					
Frequency	Mmission Level	Limit	Margin	Detector	Polarization
MHz	dBuV/m	dBuV/m	dB		
2483.6	44.99	74.0	29.01	Peak	Horizontal
4960.4	45.44	74.0	28.56	Peak	Horizontal
2483.5	46.54	74.0	27.46	Peak	Vertical
4959.8	44.38	74.0	29.62	Peak	Vertical

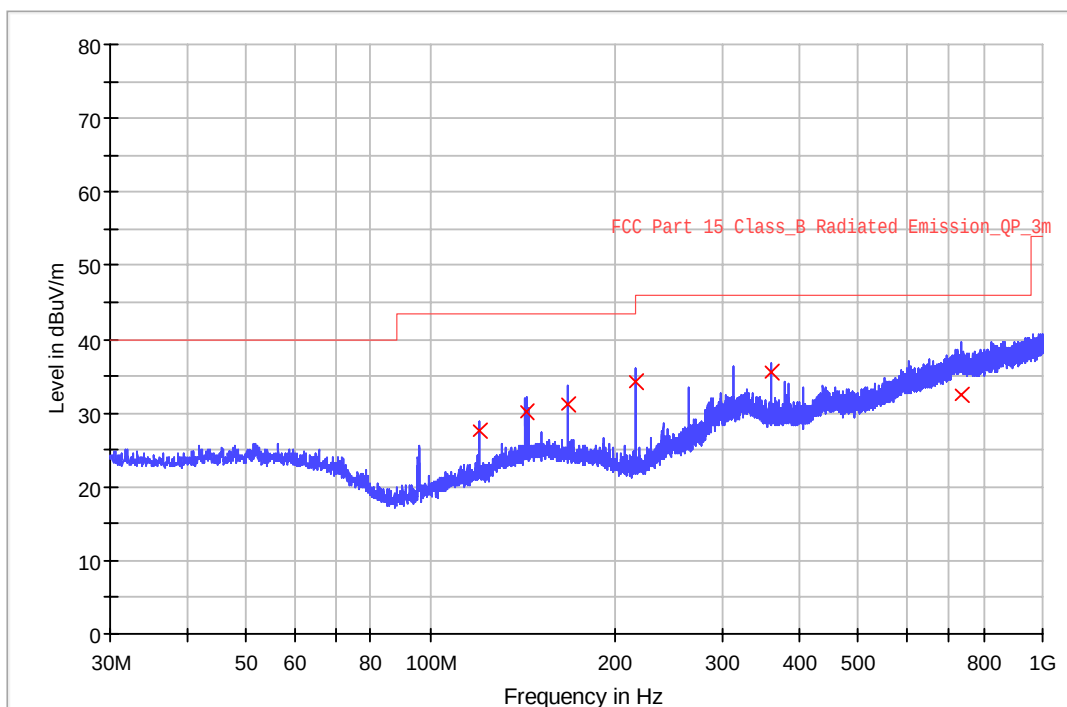
Remark:

- (1) Emission level= Original Receiver Reading + Correct Factor
- (2) Correct Factor = Antenna Factor + Cable Loss -Amplifier gain
- (3) Margin = limit – Corrected Reading

The worst case of Radiated Emission below 1GHz:

Site: 3 meter chamber	Time: 2023/02/17 - 20:03
Limit: FCC Part15.209 and RSS-GEN 8.8 RE(3m)	Engineer: Yiquan WANG China
Probe: VULB9168	Polarity: Horizontal
EUT: Display Model no: DP E161.CAN	Power: AC 120V/60Hz for Laptop, 3.3V DC for EUT
Note: Transmit by at channel 2480MHz.	
Note: Pre-scan with three orthogonal axis and worst case as X axis.	

RE_VULB9168_pre_Cont_30-1000



Limit and Margin

Frequency (MHz)	QuasiPeak (dBuV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Margin - QPK (dB)	Limit - QPK (dBuV/m)
119.960000	27.6	1000.0	120.000	194.0	H	57.0	18.1	15.9	43.5
143.600000	30.1	1000.0	120.000	234.7	H	194.0	20.6	13.4	43.5
168.000000	31.3	1000.0	120.000	157.4	H	142.0	20.4	12.2	43.5
216.000000	34.4	1000.0	120.000	342.8	H	328.0	17.5	11.6	46.0
360.000000	35.6	1000.0	120.000	199.4	H	278.0	23.0	10.4	46.0
738.480000	32.4	1000.0	120.000	266.3	H	3.0	31.7	13.6	46.0

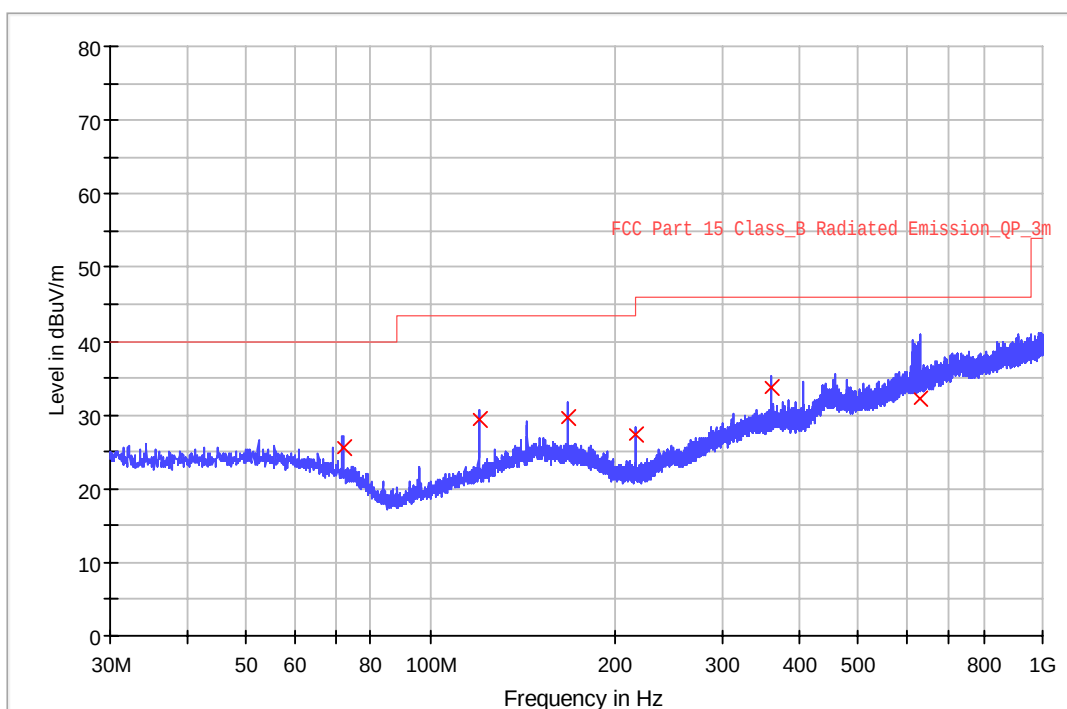
Note 1: Measure Level (dBuV/m) = Reading Level (dBuV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m)

Note 2: The test trace is same as the ambient noise and the amplitude of the emissions are attenuated more than 20dB below the permissible (the test frequency range: 9kHz ~ 30MHz, 18GHz ~ 25GHz), therefore no data appear in the report.

Site: 3 meter chamber	Time: 2023/02/17 - 20:11
Limit: FCC_Part15.209 and RSS-GEN 8.8_RE(3m)	Engineer: Yiquan WANG
Probe: VULB9168	Polarity: Vertical
EUT: Display Model no: DP E161.CAN	Power: Power: AC 120V/60Hz for Laptop, 3.3V DC for EUT
Note: Transmit by at channel 2480MHz.	
Note: Pre-scan with three orthogonal axis and worst case as X axis.	

RE_VULB9168_pre_Cont_30-1000



Limit and Margin

Frequency (MHz)	QuasiPeak (dBuV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Margin - QPK (dB)	Limit - QPK (dBuV/m)
71.960000	25.7	1000.0	120.000	195.2	V	104.0	18.2	14.3	40.0
119.960000	29.5	1000.0	120.000	352.1	V	229.0	18.1	14.0	43.5
168.000000	29.7	1000.0	120.000	292.1	V	180.0	20.4	13.8	43.5
216.000000	27.3	1000.0	120.000	342.5	V	38.0	17.5	18.7	46.0
360.000000	33.8	1000.0	120.000	111.7	V	282.0	23.0	12.2	46.0
630.000000	32.2	1000.0	120.000	323.7	V	323.0	29.3	13.8	46.0

Note 1: Measure Level (dBuV/m) = Reading Level (dBuV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m)

Note 2: The test trace is same as the ambient noise and the amplitude of the emissions are attenuated more than 20dB below the permissible (the test frequency range: 9kHz ~ 30MHz, 18GHz ~ 25GHz), therefore no data appear in the report.



10 Test Equipment List

List of Test Instruments
Test Site1

	DESCRIPTION	MANUFACTURER	MODEL NO.	SERIAL NO.	CAL. DATE	CAL. DUE DATE
C	Signal Analyzer	Rohde & Schwarz	FSV40	101091	2022-8-1	2023-7-31
RE	EMI Test Receiver	Rohde & Schwarz	ESR3	101906	2022-8-1	2023-7-31
	Signal Analyzer	Rohde & Schwarz	FSV40	101091	2022-8-1	2023-7-31
	Trilog Super Broadband Test Antenna	Schwarzbeck	VULB 9168	961	2021-9-23	2024-9-22
	Horn Antenna	Rohde & Schwarz	HF907	102393	2021-4-13	2024-4-12
	Pre-amplifier	Rohde & Schwarz	SCU-18D	19006451	2022-8-1	2023-7-31
	Loop antenna	Rohde & Schwarz	HFH2-Z2	100443	2022-6-13	2023-6-12
	Double Ridged Horn Antenna	ETS-Lindgren	3116C	002222727	2020-9-23	2023-9-22
	Pre-amplifier	ETS-Lindgren	3116C-PA	----	2022-9-23	2023-9-22
	3m Semi-anechoic chamber	TDK	9X6X6	----	2021-5-8	2024-5-7
Measurement Software Information						
Test Item	Software	Manufacturer	Version			
C	Bluetooth and WiFi Test System	Shenzhen JS tonscond co.,ltd	2.6.77.0518			
RE	EMC 32	Rohde & Schwarz	V10.50.40			

C - Conducted RF tests

- Conducted peak output power
- 6dB bandwidth and 99% Occupied Bandwidth
- Power spectral density*
- Spurious RF conducted emissions
- Band edge

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:

Items	Extended Uncertainty
Conducted Disturbance at Mains Terminals	150kHz to 30MHz, LISN, 3.16dB
Radiated Disturbance	30MHz to 1GHz, 5.03dB (Horizontal) 5.12dB (Vertical) 1GHz to 18GHz, 5.49dB 18GHz to 40GHz, 5.63dB
Carrier power conducted measurement	50MHz~18GHz, 1.238dB
Spurious Emission Conducted Measurement	9kHz ~40GHz, 1.224dB

Measurement Uncertainty Decision Rule:

Determination of conformity with the specification limits is based on the decision rule according to IEC Guide 115: 2021, clause 4.4.3 and 4.5.1.



China

12 Photographs of Test Set-ups

Refer to the < Test Setup photos >.



China

13 Photographs of EUT

Refer to the < External Photos > & < Internal Photos >.

THE END