FCC - TEST REPORT

Report Number	:	**64.790.19.01748.01**	Date of Issue:	May 17, 2019

Model	:	BT119
Product Type	:	Wireless Earphones
Applicant	:	MINISO Corporation
License holder	:	MINISO Corporation
Address	:	Room 2501, No. 486 Heye Square Kangwang Middle Road, Liwan District, Guangzhou, Guangdong, China

Test Result	:	■ **Positive** ☐ **Negative**
Total pages including Appendices	:	51

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1 Table of Contents

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 Registration Number:	514049
IC Registration Number:	10320A
Telephone:	86 755 8828 6998
Fax:	86 755 828 5299

3 Description of the Equipment Under Test

Product: Wireless Earphones

Model no.: BT119

FCC ID: 2ART4BT119

Rating: DC 3.7V

RF Transmission Frequency: 2402MHz to 2480MHz

Modulation: GFSK, π/4-DQPSK, 8DPSK

Antenna Type: PCB Antenna

Antenna Gain: 0dBi

Description of the EUT: The EUT is a Wireless Earphones which can play music by connecting Bluetooth.

4 Summary of Test Standards

Test Standards	
FCC Part 15 Subpart C 10-1-2017 Edition	PART 15 - RADIO FREQUENCY DEVICES Subpart C - Intentional Radiators

All the test methods were according to Public Notice DA 00-705 -Frequency Hopper Spread Spectrum Test Procedure released by FCC on March 30, 2000 and C63.10 (2013).

5 Summary of Test Results

Technical Requirements				
FCC Part 15 Subpart C				
Test Condition		Pages	Test Site	Test Result
§15.207	Conducted emission AC power port	10-12	Site 1	Pass
§15.247(b)(1)	Conducted peak output power	13-18	Site 1	Pass
§15.247(a)(2)	6dB bandwidth	---	---	N/A
§15.247(a)(1)	20dB bandwidth and 99% Occupied Bandwidth	19-28	Site 1	Pass
§15.247(a)(1)	Carrier frequency separation	29-31	Site 1	Pass
§15.247(a)(1)(iii)	Number of hopping frequencies	32-33	Site 1	Pass
§15.247(a)(1)(iii)	Dwell Time	34-36	Site 1	Pass
§15.247(e)	Power spectral density*	---	---	N/A
§15.247(d)	Spurious RF conducted emissions	37-40	Site 1	Pass
§15.247(d)	Band edge	41-47	Site 1	Pass
§15.247(d) & §15.209 &	Spurious radiated emissions for transmitter	48-49	Site 1	Pass
§15.203	Antenna requirement	See note 2		Pass

Note 1: N/A=Not Applicable.
Note 2: The EUT uses a PCB antenna, which gain is 0dBi. 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: 2ART4BT119, complies with Section 15.207, 15.209, 15.247 of the FCC Part 15, Subpart C Rules.

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: April 3, 2019

Testing Start Date: April 5, 2019

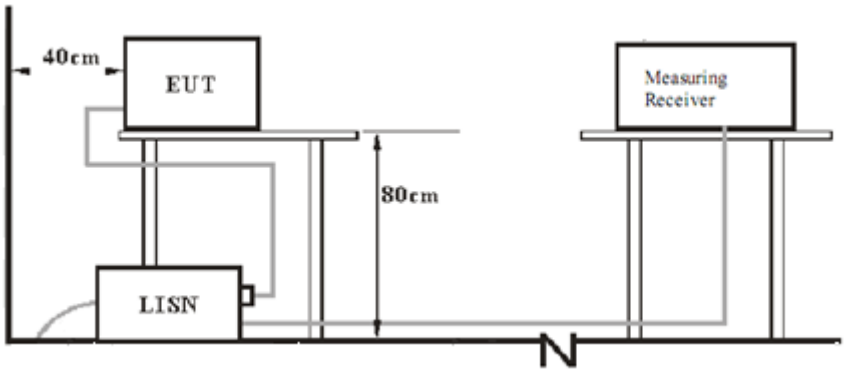
Testing End Date: April 30, 2019

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

Reviewed by:	Prepared by:	Tested by:
Peter Jia	Matt Zhang	Joe Gu

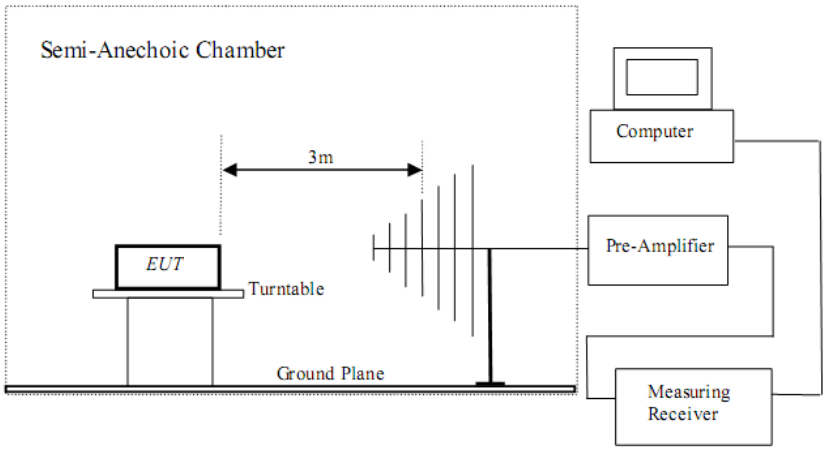
7 Test Setups

7.1 AC Power Line Conducted Emission test setups

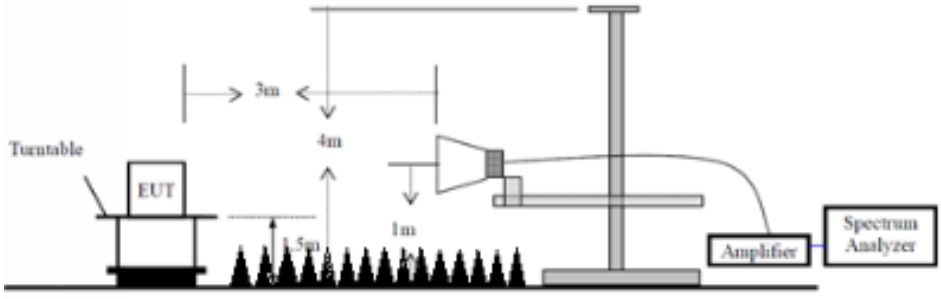


7.2 Radiated test setups

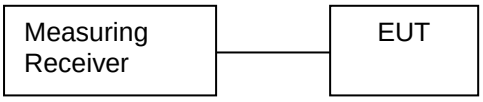
Below 1GHz



Above 1GHz



7.3 Conducted RF test setups



8 Systems test configuration

Auxiliary Equipment Used during Test:

DESCRIPTION	MANUFACTURER	MODEL NO.(SHIELD)	S/N(LENGTH)
Mobile Phone	SAMSUNG	GALAXY S3	---

Test software: BK32XX RF Test V1.5, which used to control the EUT in continues transmitting mode

The system was configured to hopping mode and non-hopping mode.

Hopping mode: typical working mode (normal hopping status)

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 a Artificial Mains Network (A.M.N.).
3. Maximum procedure was performed to ensure EUT compliance
4. A EMI test receiver is used to test the emissions from both sides of AC line

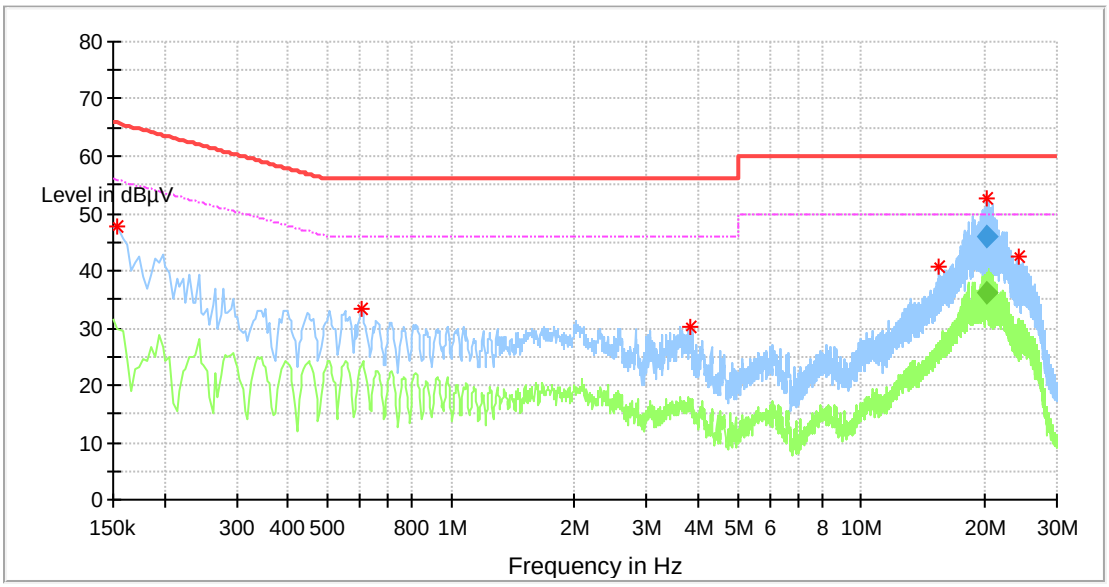
Limit

Frequency MHz	QP Limit dBµV	AV Limit dBµV
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 Earphones
M/N : BT119
Operating Condition : Charging
Conduct Line : L



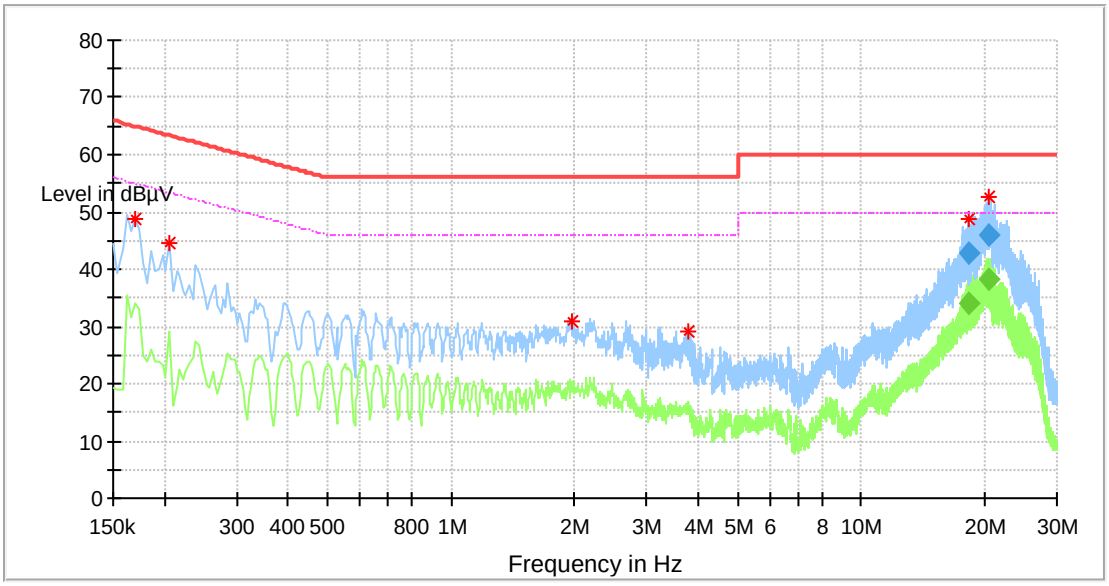
Critical_Freqs

Frequency (MHz)	MaxPeak (dBµV)	Average (dBµV)	Limit (dBµV)	Margin (dB)	Line	Corr. (dB)
0.154000	47.79	---	65.78	18.00	L1	10.2
0.606000	33.38	---	56.00	22.62	L1	10.3
3.818000	30.19	---	56.00	25.81	L1	10.4
15.534000	40.55	---	60.00	19.45	L1	10.8
20.134500	52.70	---	60.00	7.30	L1	11.0
24.338000	42.32	---	60.00	17.68	L1	11.0

Final_Result

Frequency (MHz)	QuasiPeak (dBµV)	Average (dBµV)	Limit (dBµV)	Margin (dB)	Line	Corr. (dB)
20.134500	---	36.10	50.00	13.90	L1	11.0
20.134500	45.80	---	60.00	14.20	L1	11.0

Product Type : Wireless Earphones
M/N : BT119
Operating Condition : Charging
Conduct Line : N



Critical_Freqs

Frequency (MHz)	MaxPeak (dBµV)	Average (dBµV)	Limit (dBµV)	Margin (dB)	Line	Corr. (dB)
0.170000	48.66	---	64.96	16.30	N	10.2
0.206000	44.51	---	63.37	18.86	N	10.2
1.982000	30.94	---	56.00	25.06	N	10.3
3.770000	29.16	---	56.00	26.84	N	10.4
18.261500	48.76	---	60.00	11.24	N	11.1
20.550500	52.70	---	60.00	7.30	N	11.2

Final_Result

Frequency (MHz)	QuasiPeak (dBµV)	Average (dBµV)	Limit (dBµV)	Margin (dB)	Line	Corr. (dB)
18.261500	42.95	---	60.00	17.05	N	11.1
18.261500	---	34.01	50.00	15.99	N	11.1
20.550500	---	38.09	50.00	11.91	N	11.2
20.550500	46.04	---	60.00	13.96	N	11.2

9.2 Conducted peak output power

Test Method

1. Use the following spectrum analyzer settings:
   Span = approximately 5 times the 20 dB bandwidth, centered on a hopping channel
   RBW > the 20 dB bandwidth of the emission being measured, VBW≥RBW,
   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

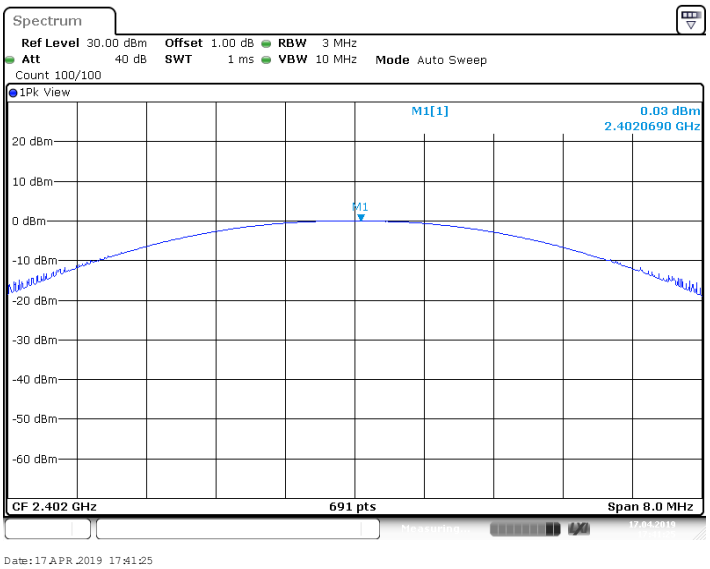
Frequency Range MHz	Limit W	Limit dBm
2400-2483.5	≤1	≤30

Conducted peak output power

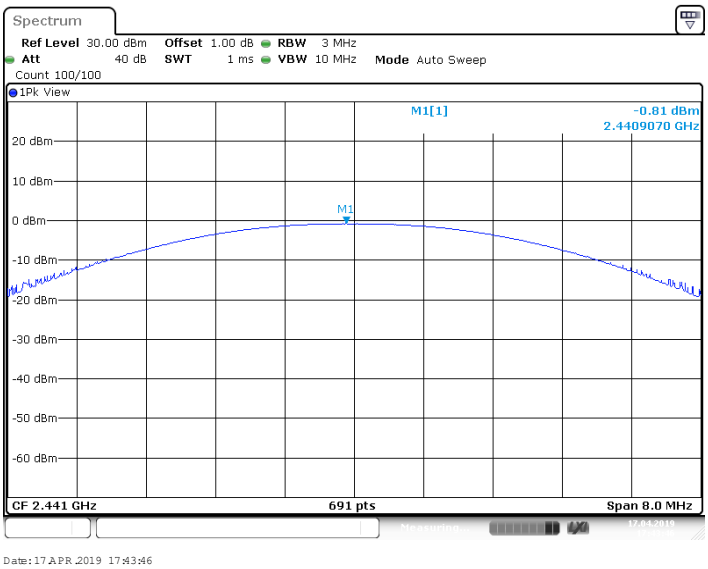
Bluetooth Mode GFSK modulation Test Result

Frequency MHz	Conducted Peak Output Power dBm	Result
Low channel 2402MHz	0.03	Pass
Middle channel 2441MHz	-0.81	Pass
High channel 2480MHz	-2.04	Pass

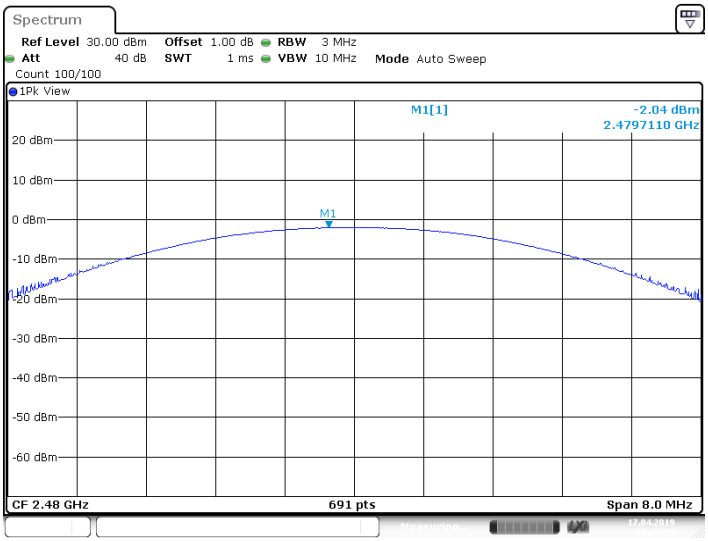
2402MHz



2441MHz



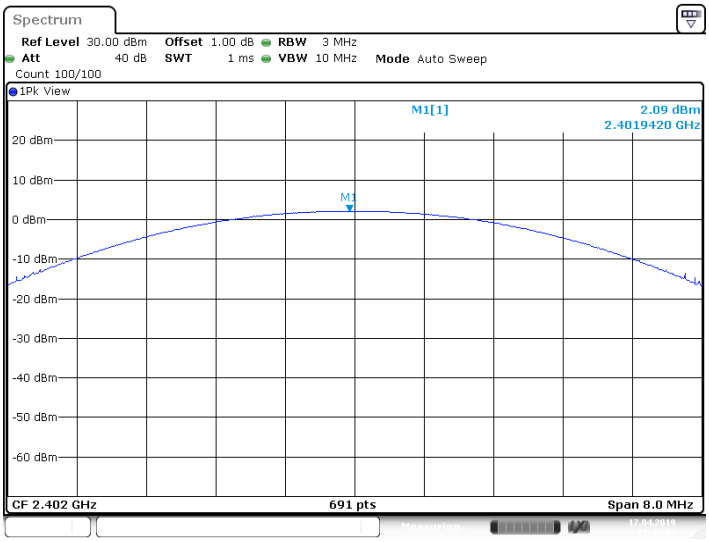
2480MHz



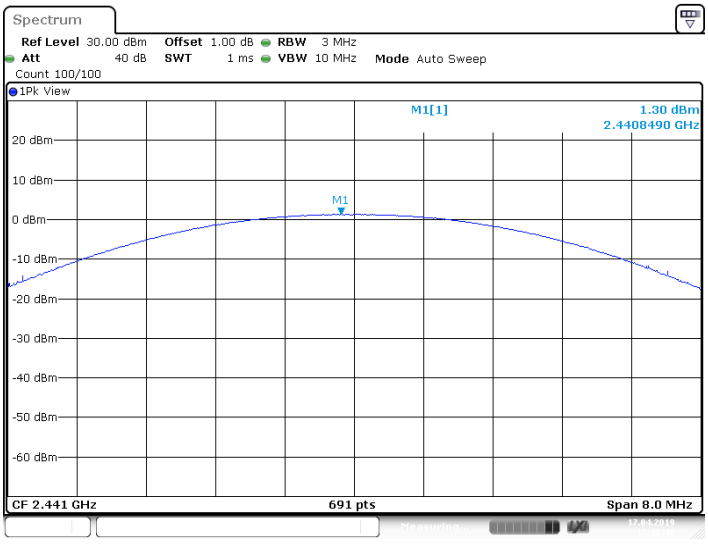
Bluetooth Mode π/4-DQPSK modulation Test Result

Frequency MHz	Conducted Peak Output Power dBm	Result
Low channel 2402MHz	2.09	Pass
Middle channel 2441MHz	1.3	Pass
High channel 2480MHz	0.12	Pass

2402MHz



2441MHz



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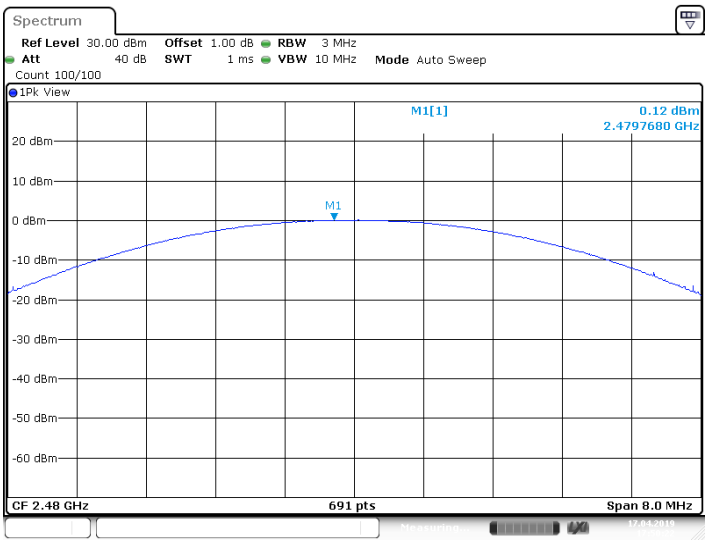
2480MHz



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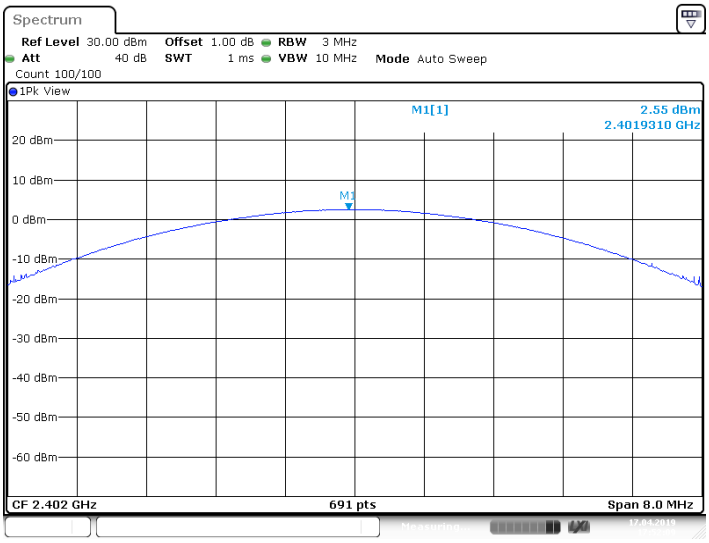
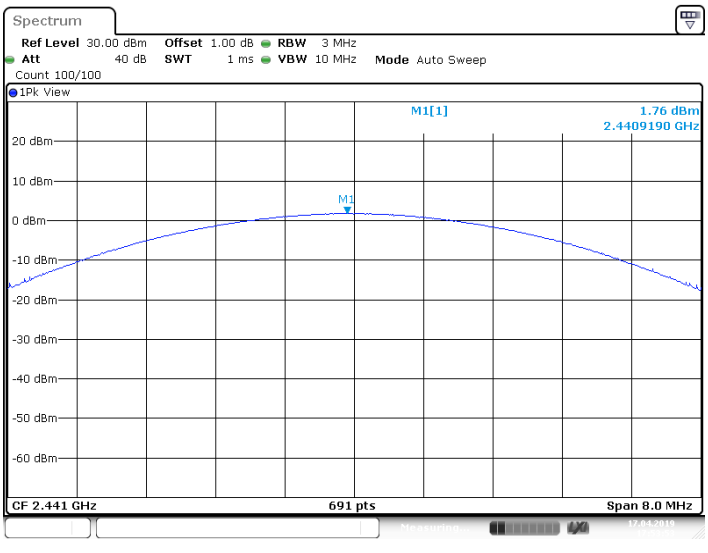
Bluetooth Mode 8DPSK modulation Test Result

Frequency MHz	Conducted Peak Output Power dBm	Result
Low channel 2402MHz	2.55	Pass
Middle channel 2441MHz	1.76	Pass
High channel 2480MHz	0.62	Pass

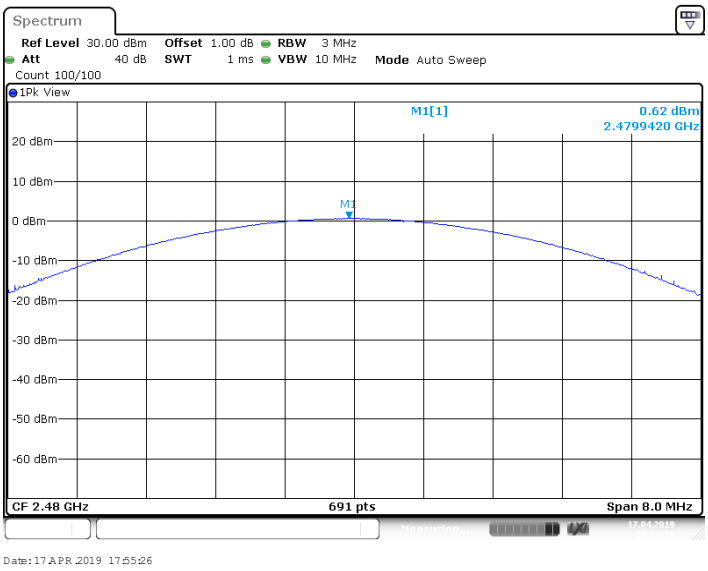
2402MHz



2441MHz



2480MHz



Note：Test result=Power spectrum + antenna gain, Antenna gain=0dBi

9.3 20 dB bandwidth and 99% Occupied Bandwidth

Test Method

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Position the EUT without connection to measurement instrument. Turn on the EUT and connect it to measurement instrument. Then set it to any one convenient frequency within its operating range. Set a reference level on the measuring instrument equal to the highest peak value.
3. Measure the frequency difference of two frequencies that were attenuated 20 dB from the reference level. Record the frequency difference as the emission bandwidth.
4. Repeat above procedures until all frequencies measured were complete.

Limit

Limit [kHz]
N/A

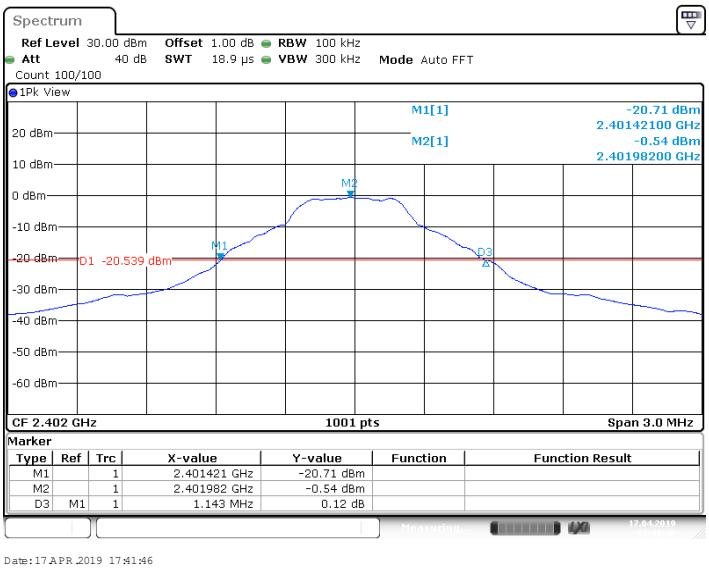
20 dB bandwidth and 99% Occupied Bandwidth

Bluetooth Mode GFSK Modulation test result

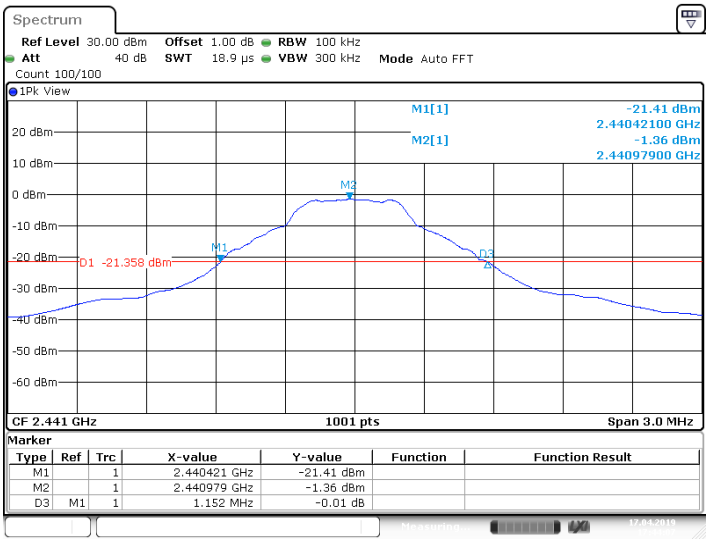
Frequency	20 dB Bandwidth	99% Bandwidth	Limit	Result
MHz	kHz	kHz	kHz	
2402	1143	911	--	Pass
2441	1152	911	--	Pass
2480	1137	914	--	Pass

20db Bandwidth

2402MHz



2441MHz



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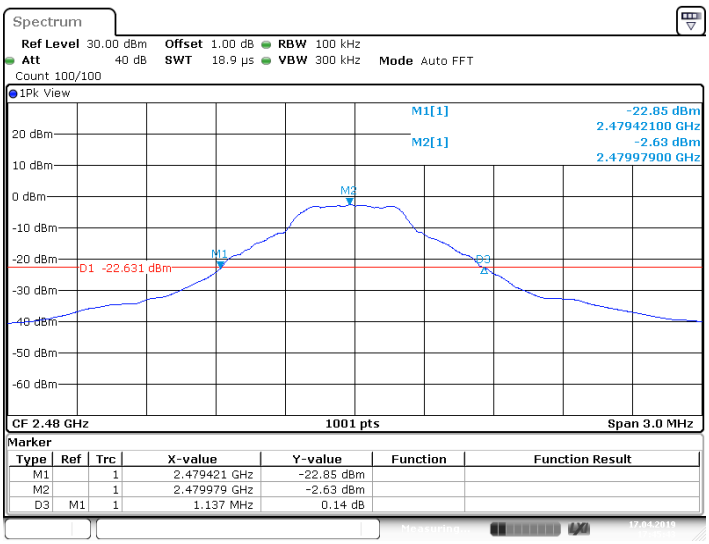
2480MHz



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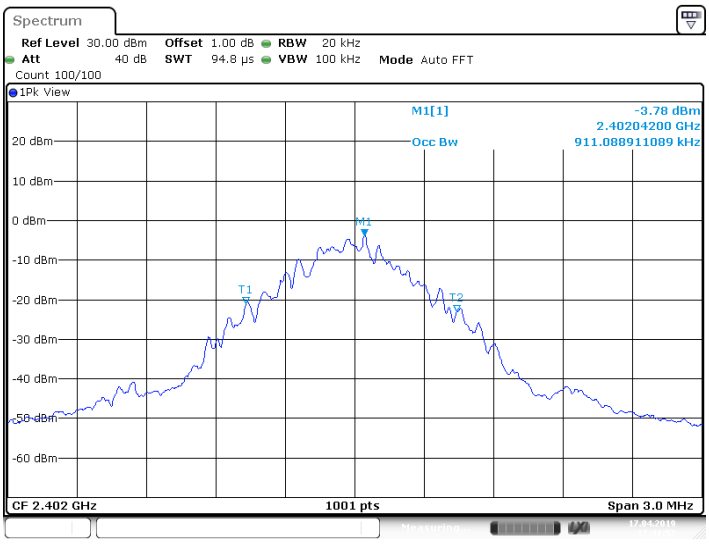
99% Bandwidth

2402MHz



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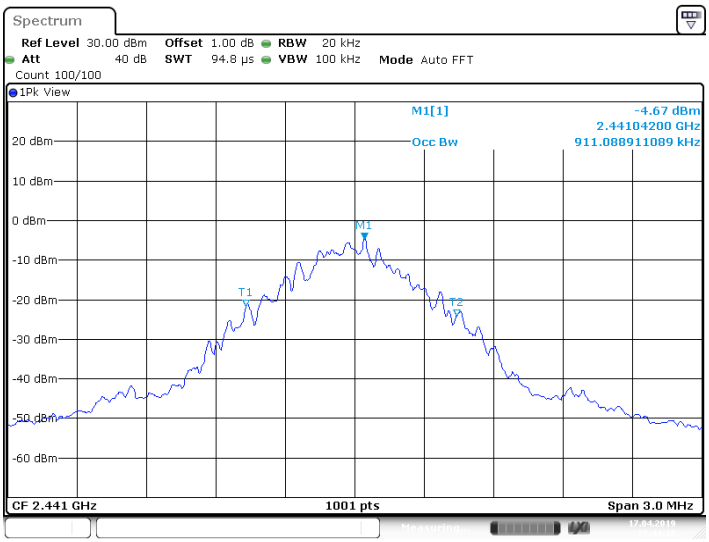
2441MHz



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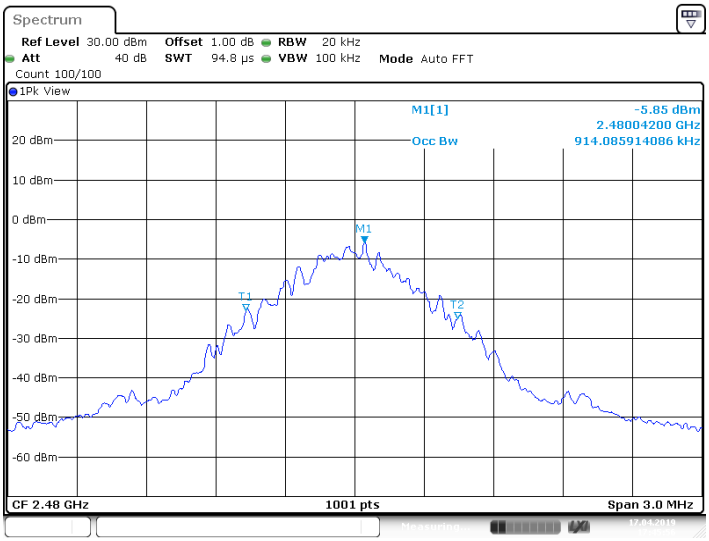
2480MHz



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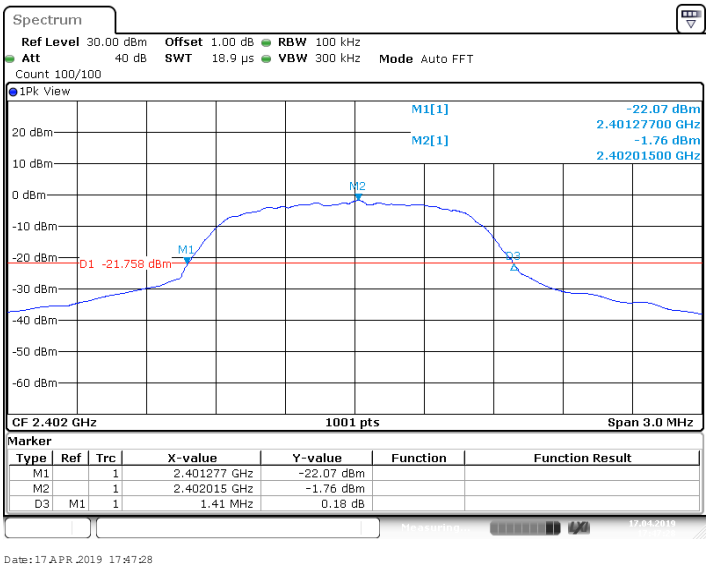
Bluetooth Mode π/4-DQPSK Modulation test result

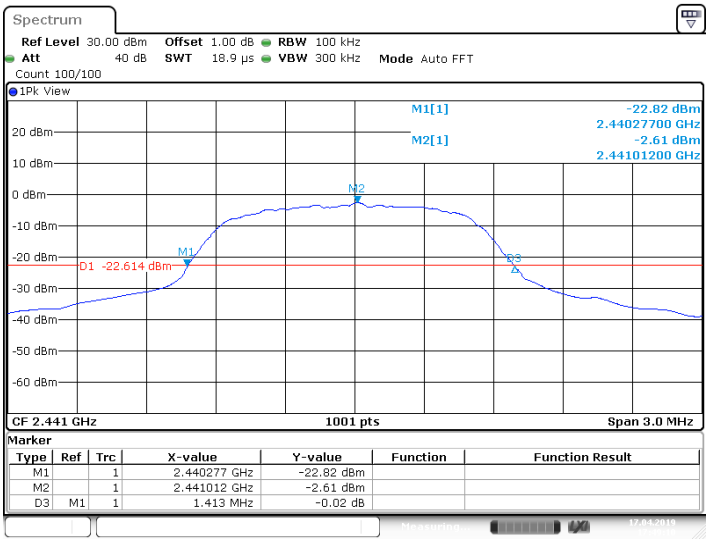
Frequency	20 dB Bandwidth	99% Bandwidth	Limit	Result
MHz	kHz	kHz	kHz	
2402	1410	1199	--	Pass
2441	1413	1199	--	Pass
2480	1410	1199	--	Pass

20db Bandwidth

2402MHz



2441MHz



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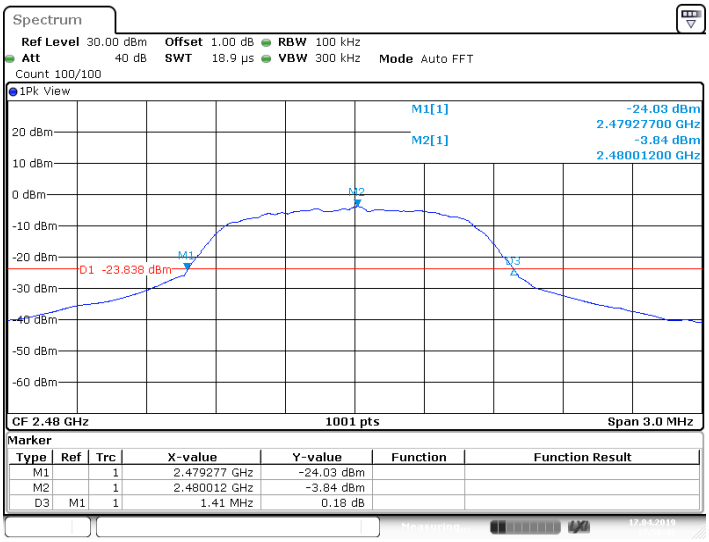
2480MHz



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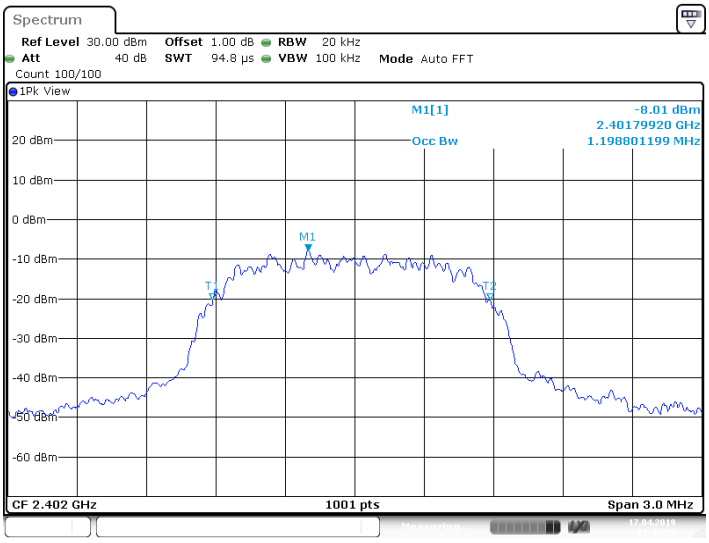
99% Bandwidth

2402MHz



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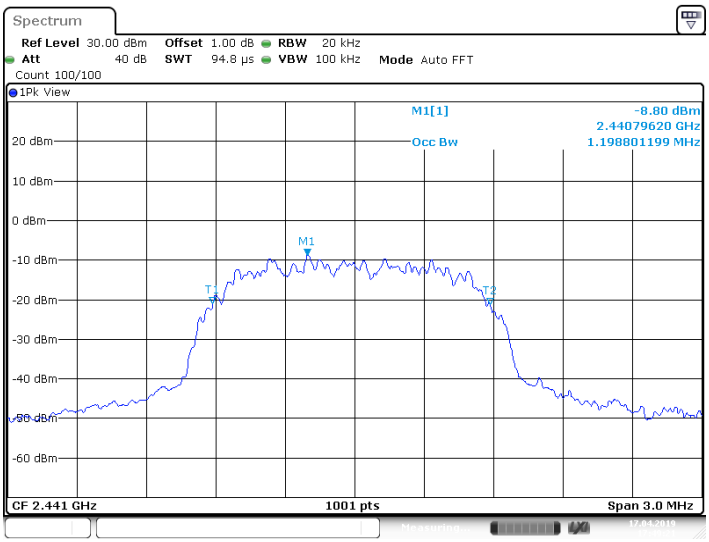
2441MHz



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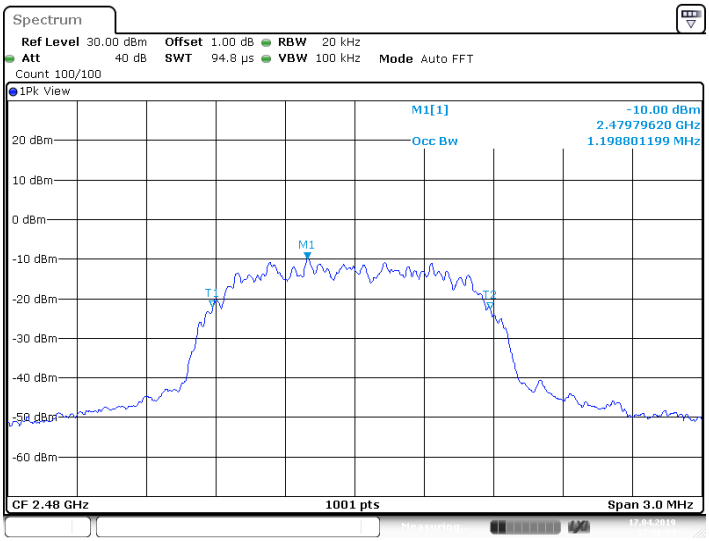
2480MHz



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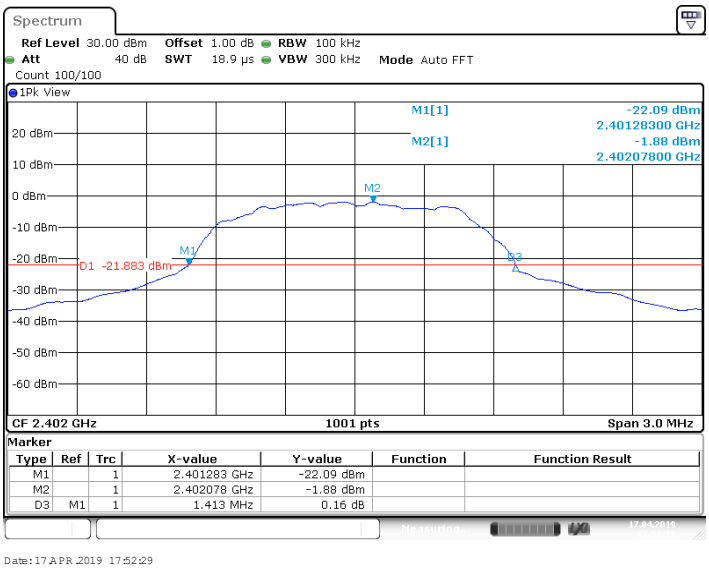
Bluetooth Mode 8DPSK Modulation test result

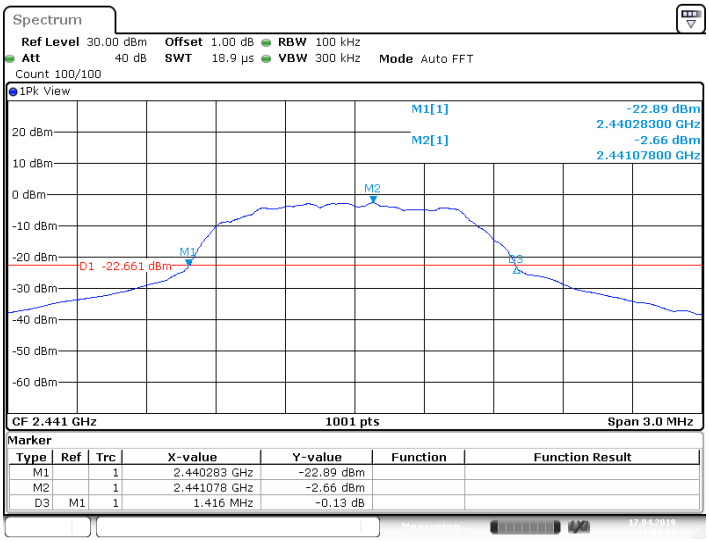
Frequency	20 dB Bandwidth	99% Bandwidth	Limit	Result
MHz	kHz	kHz	kHz	
2402	1413	1208	--	Pass
2441	1416	1205	--	Pass
2480	1419	1205	--	Pass

20db Bandwidth

2402MHz



2441MHz



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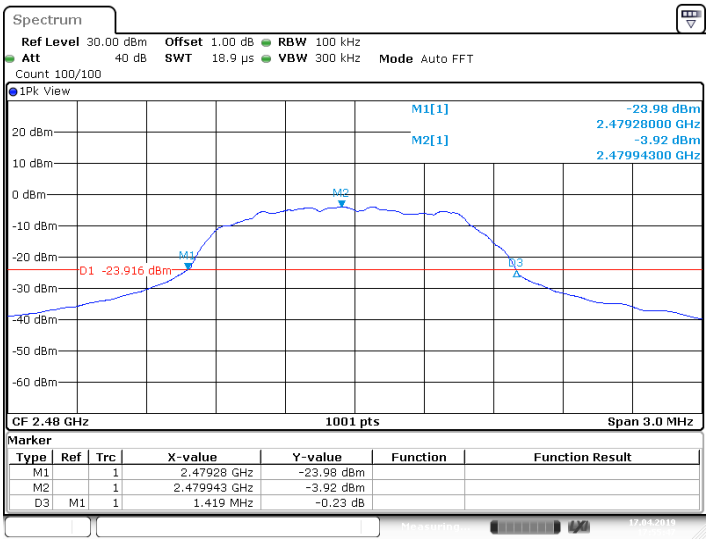
2480MHz



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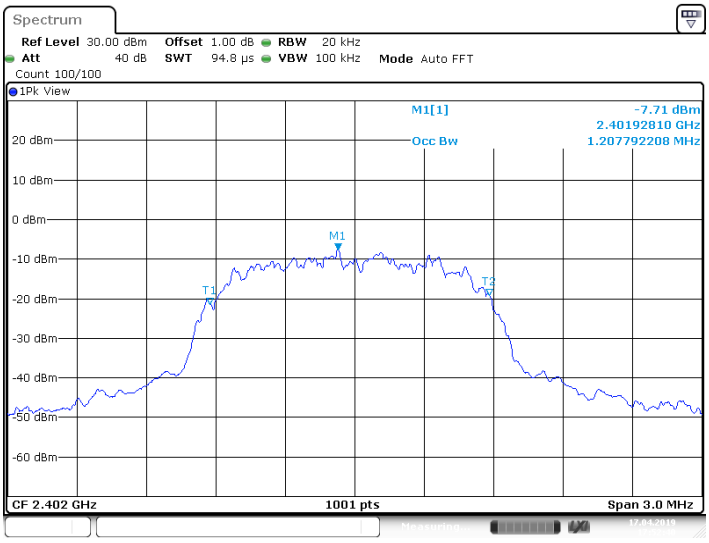
99% Bandwidth

2402MHz



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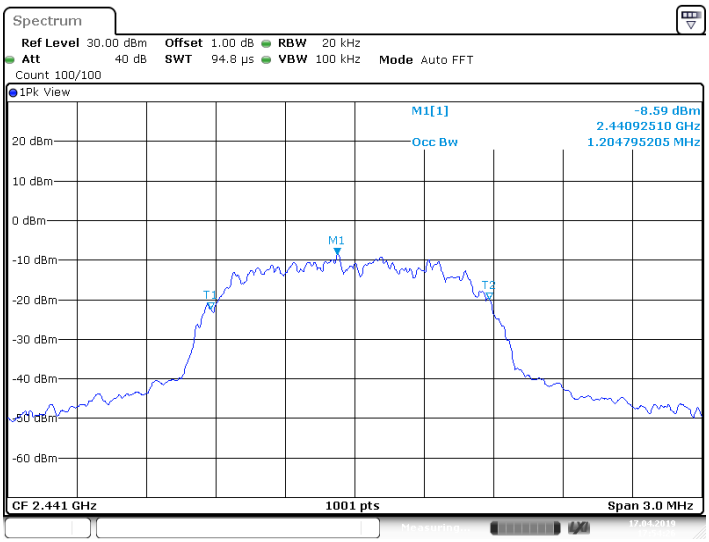
2441MHz



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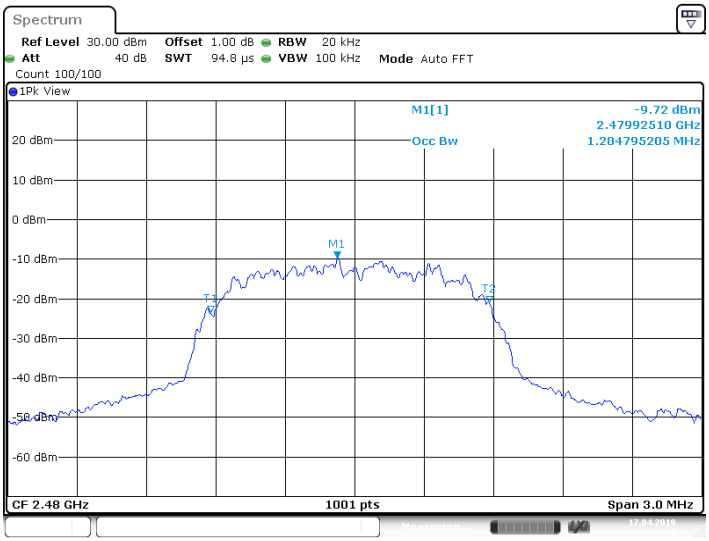
2480MHz



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9.4 Carrier Frequency Separation

Test Method

1. Use the following spectrum analyzer settings:
   Span = wide enough to capture the peaks of two adjacent channels, RBW ≥ 1% of the span, VBW) ≥RBW, Sweep = auto, Detector function = peak
2. By using the Max-Hold function record the separation of two adjacent channels.
3. Measure the frequency difference of these two adjacent channels by spectrum analyzer marker function.
4. Repeat above procedures until all frequencies measured were complete.

Limit

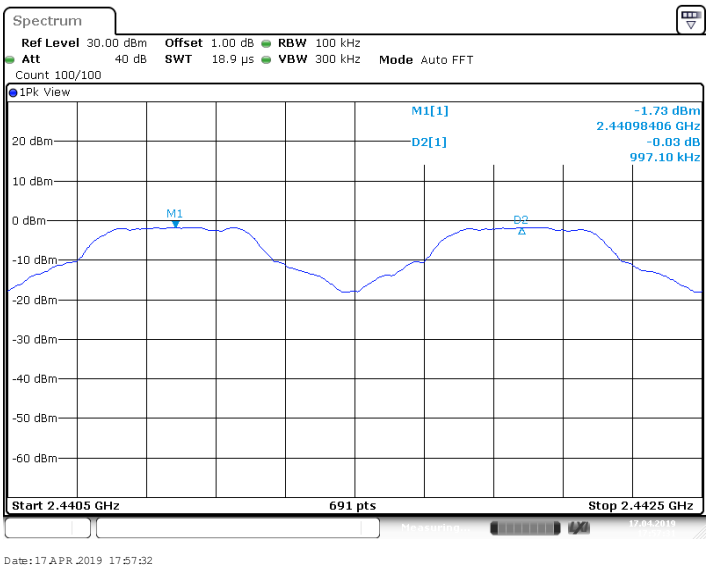
Limit kHz
⩾25KHz or 2/3 of the 20 dB bandwidth which is greater

Carrier Frequency Separation

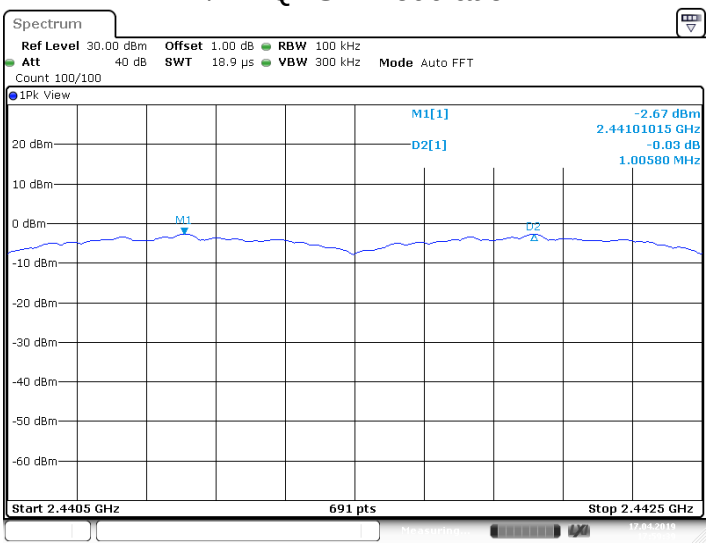
Test result: The measurement was performed with the typical configuration (normal hopping status).

Modulation	Carrier Frequency Separation kHz	Result
GFSK	997	Pass
π/4-DQPSK	1006	Pass
8DPSK	1130	Pass

GFSK Modulation

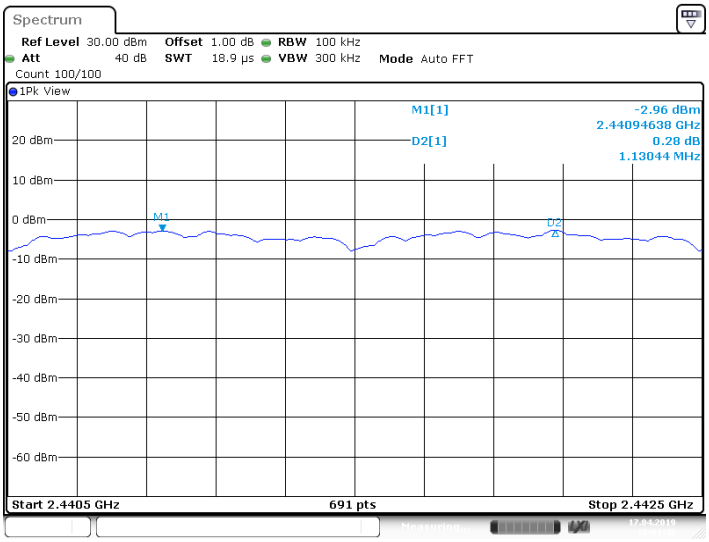


π/4-DQPSK Modulation



Date: 17.APR.2019 17:59:39

8DPSK Modulation



Date: 17.APR.2019 18:01:48

9.5 Number of hopping frequencies

Test Method

1. Use the following spectrum analyzer settings:
   Span = wide enough to capture the peaks of two adjacent channels, RBW ≥ 1% of the span, VBW) ≥RBW, Sweep = auto, Detector function = peak
2. Set the spectrum analyzer on Max-Hold Mode, and then keep the EUT in hopping mode.
3. Record all the signals from each channel until each one has been recorded.
4. Repeat above procedures until all frequencies measured were complete.

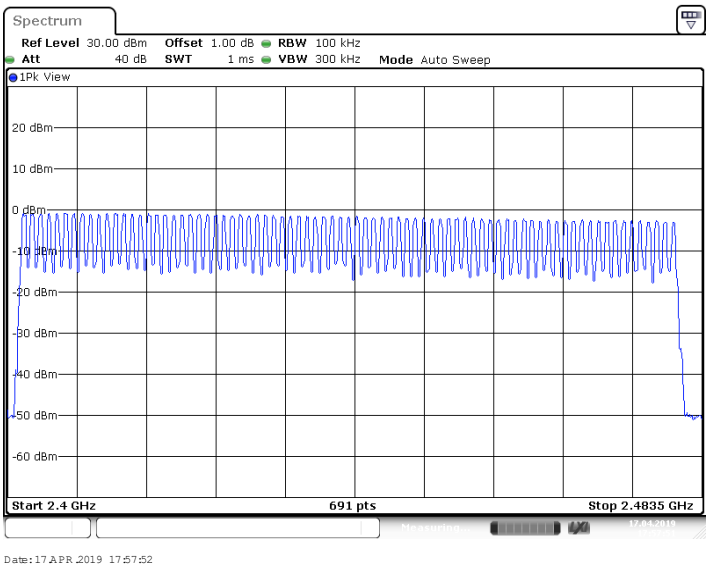
Limit

Limit number
⩾ 15

Number of hopping frequencies

Test result: The measurement was performed with the typical configuration (normal hopping status), and the total hopping channels is constant for the all modulation mode according with the Bluetooth Core Specification. Here GFSK modulation mode was used to show compliance.

Number of hopping frequencies	Result
79	Pass



9.6 Dwell Time

Test Method

1. Connect EUT antenna terminal to the spectrum analyzer with a low loss cable. Equipment mode: Spectrum analyzer
2. RBW: 1MHz; VBW: 1MHz; SPAN: Zero Span
3. Adjust the center frequency of spectrum analyzer on any frequency be measured.
4. Measure the Dwell Time by spectrum analyzer Marker function.
5. Repeat above procedures until all frequencies measured were complete.

Limit

The average time of occupancy on any frequency shall not be greater than 0.4 seconds within a period of 0.4 seconds multiplied by the number of hopping channels employed.

Dwell Time

Dwell time

The maximum dwell time shall be 0,4 s.
According to the Bluetooth Core Specification, the worse result (DH5 mode) was reported to show compliance.

The Dwell Time = Burst Width * Total Hops. The detailed calculations are showed as follows:
The duration for dwell time calculation: 0.4 [s] * hopping number = 0.4 [s] * 79 [ch] = 31.6 [s*ch];

The burst width, which is directly measured, refers to the duration on one channel hop.

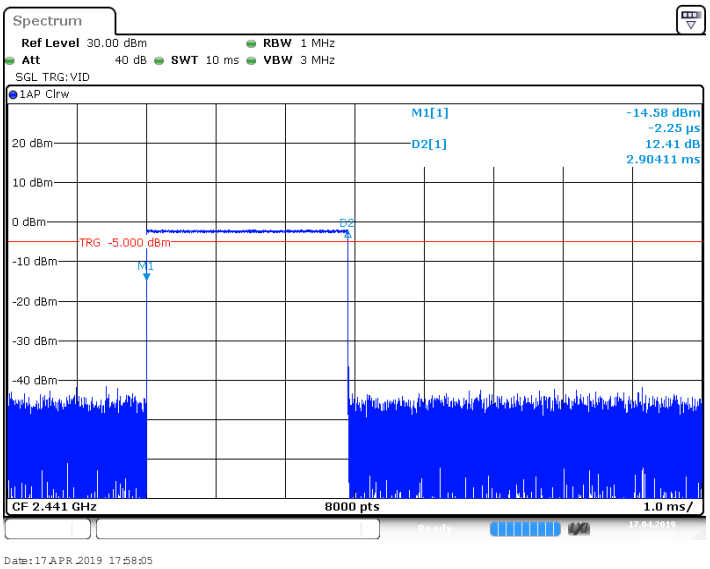
The maximum number of hopping channels in 31.6s for DH5=1600 / 6 / 79 *31.6=106.67

Test Result

Modulation	Mode	Reading (ms)	Total Hops	Test Result (ms)	Limit (ms)	Result
GFSK	DH5	2.90	106.67	309	< 400	Pass
π/4-DQPSK	2DH5	2.90	106.67	309	< 400	Pass
8DPSK	3DH5	2.89	106.67	308	< 400	Pass

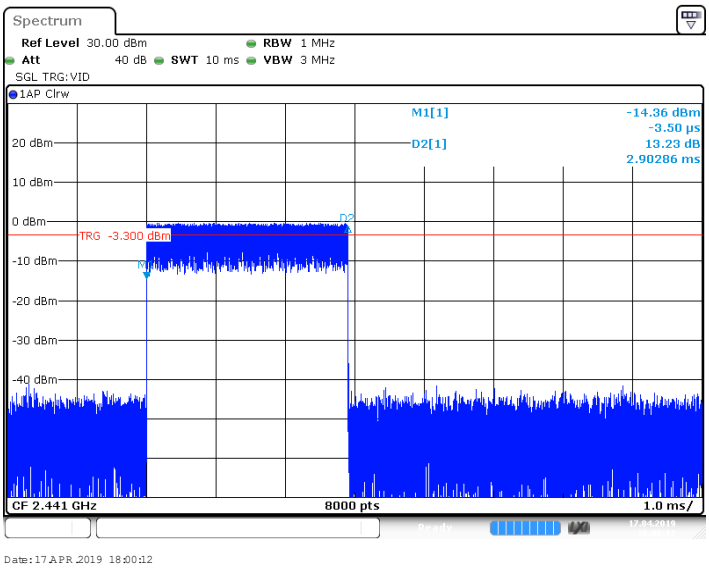
GFSK Modulation

DH5



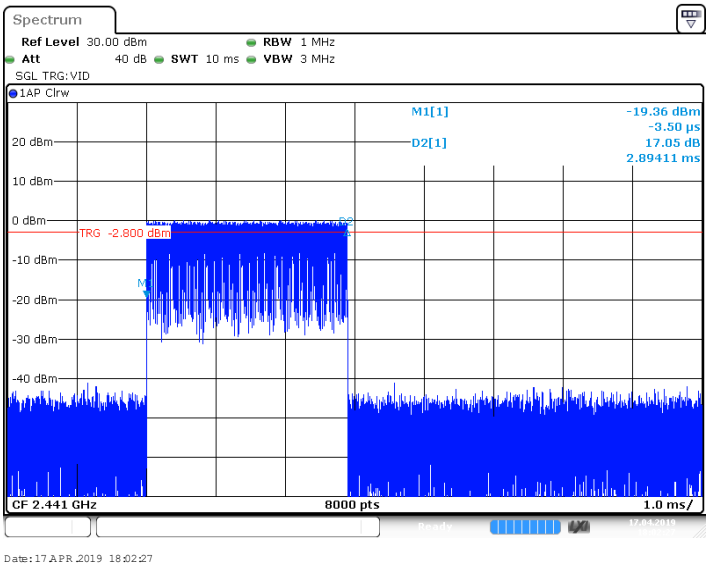
π/4-DQPSK Modulation

2DH5



8DPSK Modulation

3DH5



9.7 Spurious RF conducted emissions

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 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
2. Allow the trace to stabilize. Set the marker on the peak of any spurious emission recorded.
3. The level displayed must comply with the limit specified in this Section. Submit these plots.
4. Repeat above procedures until all frequencies measured were complete.

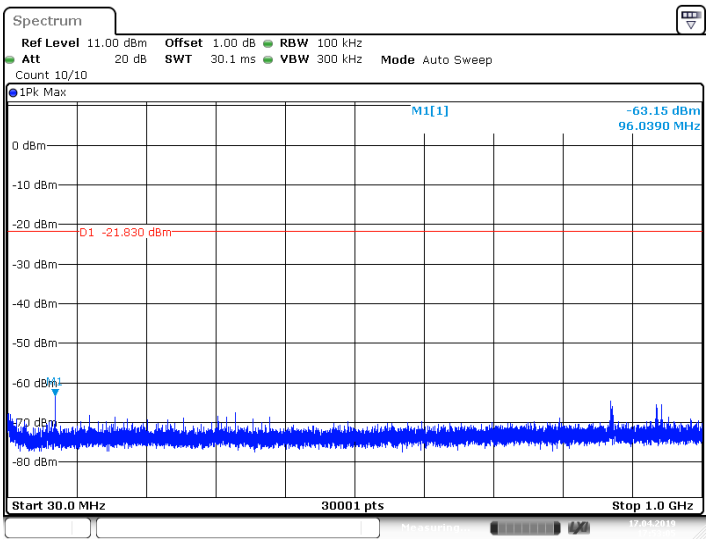
Limit

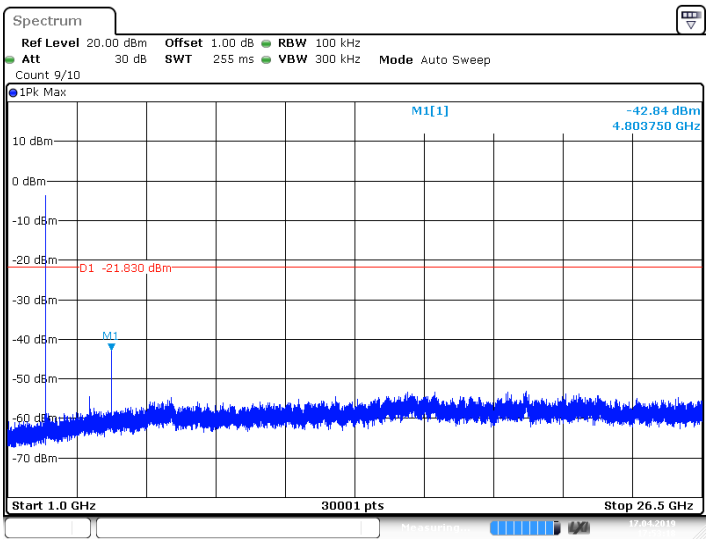
In any 100 kHz bandwidth outside the frequency bands in which the spread spectrum intentional radiator in operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the 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), must also comply with the radiated emission limits specified in 15.209(a) (see Section 15.205(c)).

Spurious RF conducted emissions

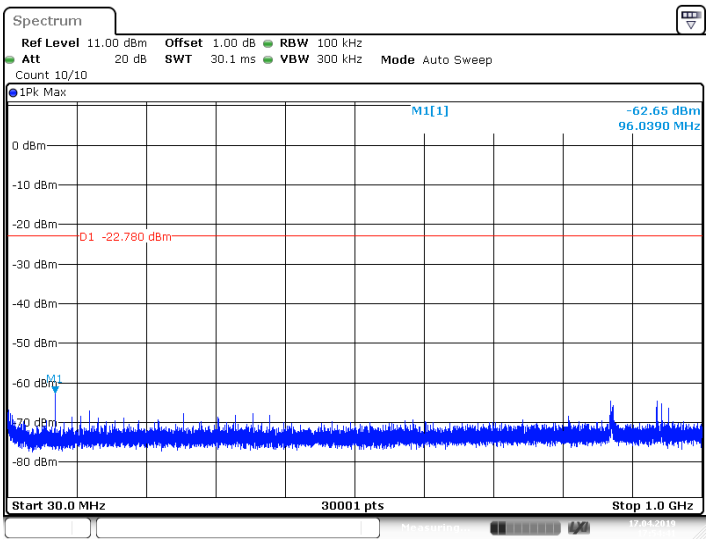
Only the worse case (which is subject to the maximum EIRP, 8DPSK mode) test result is listed in the report.

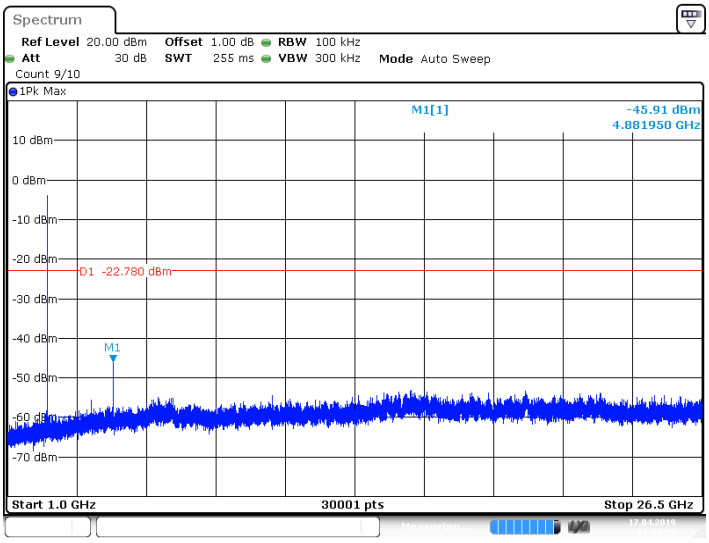
2402MHz



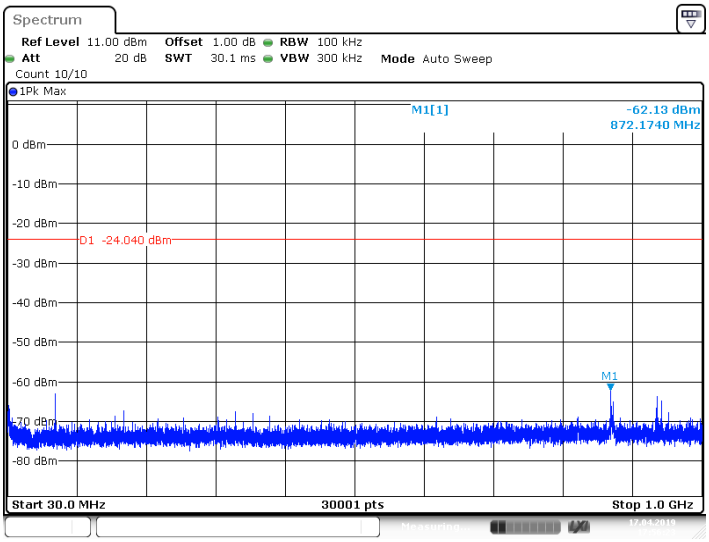


2441MHz

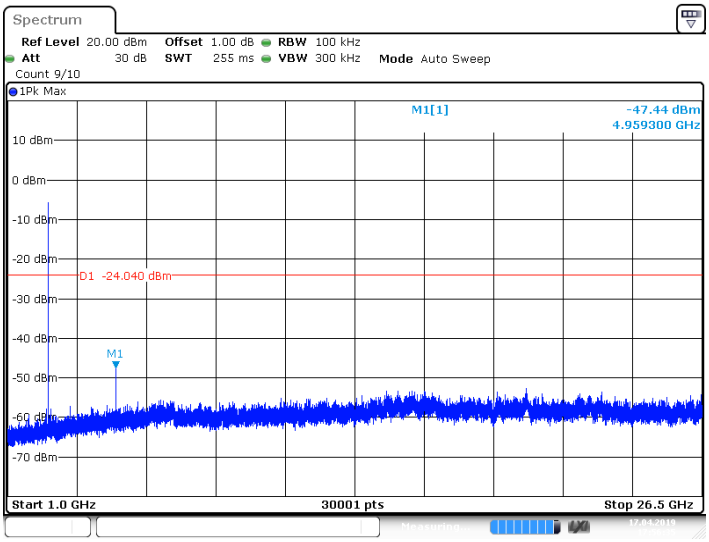

Spectrum
Ref Level 11.00 dBm Offset 1.00 dB RBW 100 kHz
Att 20 dB SWT 30.1 ms VBW 300 kHz Mode Auto Sweep
Count 10/10
1Pk Max
M1[1] -62.65 dBm
96.0390 MHz
0 dBm
-10 dBm
-20 dBm
D1 -22.780 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
-80 dBm
M1
Start 30.0 MHz
30001 pts
Stop 1.0 GHz
Date: 17.APR.2019 17:54:41


Spectrum
Ref Level 20.00 dBm Offset 1.00 dB RBW 100 kHz
Att 30 dB SWT 255 ms VBW 300 kHz Mode Auto Sweep
Count 9/10
1Pk Max
M1[1] -45.91 dBm
4.881950 GHz
10 dBm
0 dBm
-10 dBm
-20 dBm
D1 -22.780 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
M1
Start 1.0 GHz
30001 pts
Stop 26.5 GHz
Date: 17.APR.2019 17:54:53

2480MHz



Date: 17.APR.2019 17:56:24



Date: 17.APR.2019 17:56:35

9.8 Band edge testing

Test Method

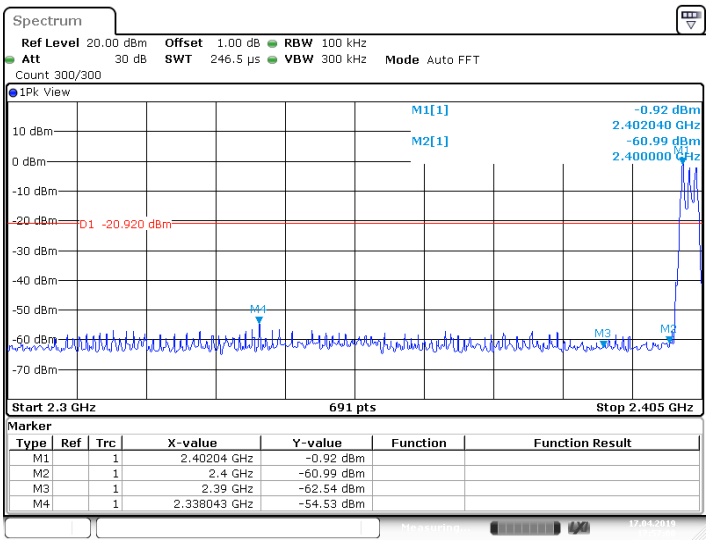
1 Use the following spectrum analyzer settings:
Span = wide enough to capture the peak level of the in-band emission and all spurious
RBW = 100 kHz, VBW≥RBW, Sweep = auto, Detector function = peak, Trace = max hold
2 Allow the trace to stabilize, use the peak and delta measurement to record the result.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

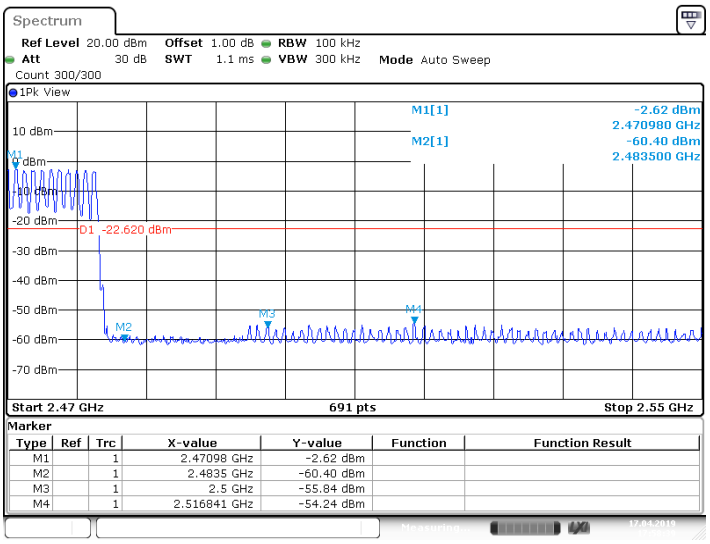
Limit:

In any 100 kHz bandwidth outside the frequency bands in which the spread spectrum intentional radiator in 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), must also comply with the radiated emission limits specified in 15.209(a) (see Section 15.205(c)).

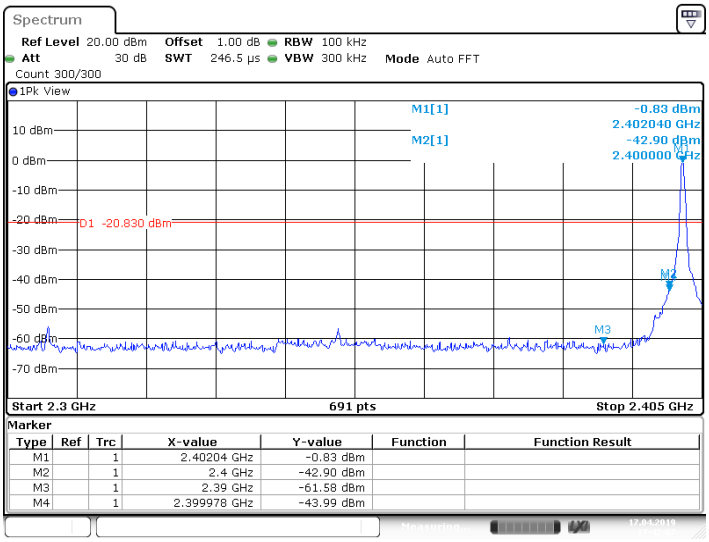
Band edge testing

GFSK Modulation Test Result:
Hopping on mode:

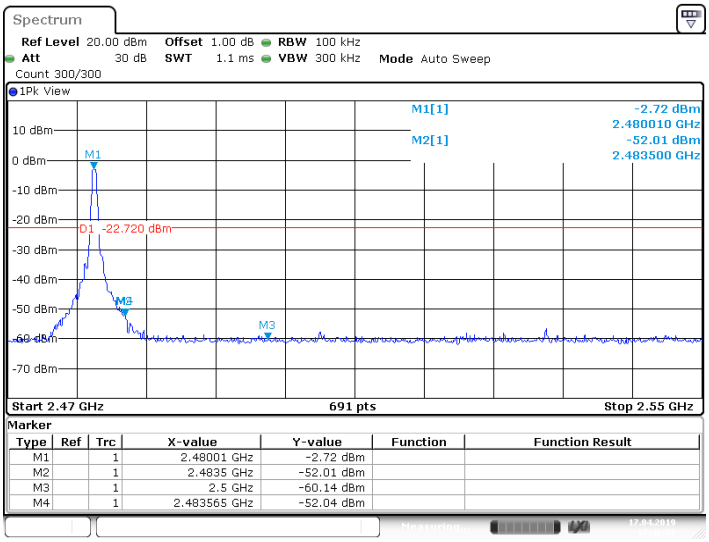




Hopping off mode:

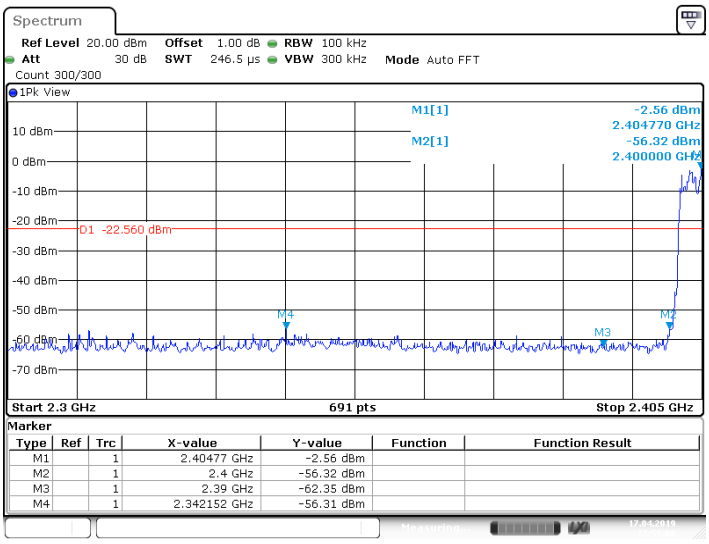


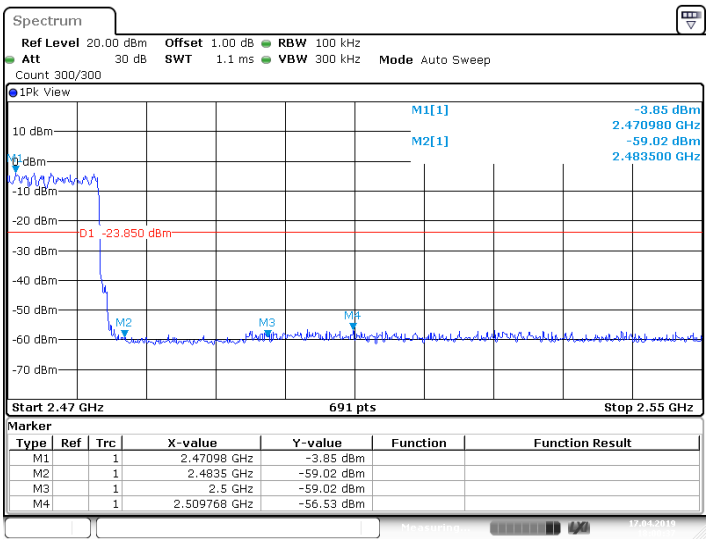
Date: 17.APR.2019 17:42:07



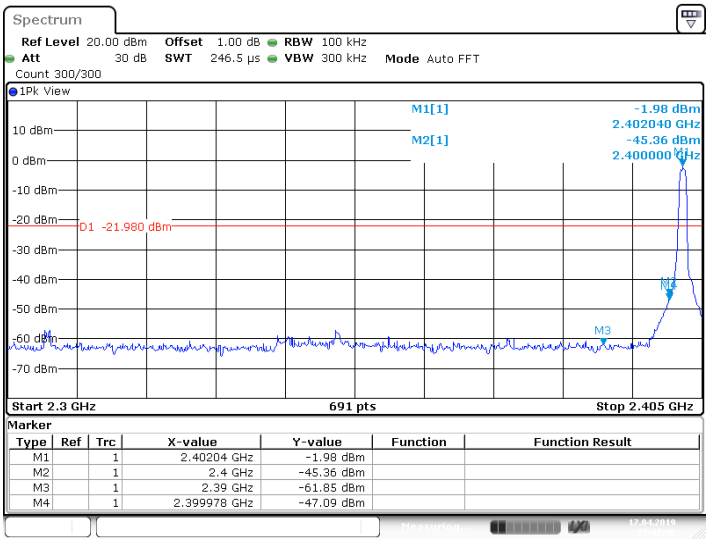
Date: 17.APR.2019 17:46:05

π/4-DQPSK Modulation Test Result:
Hopping on mode:

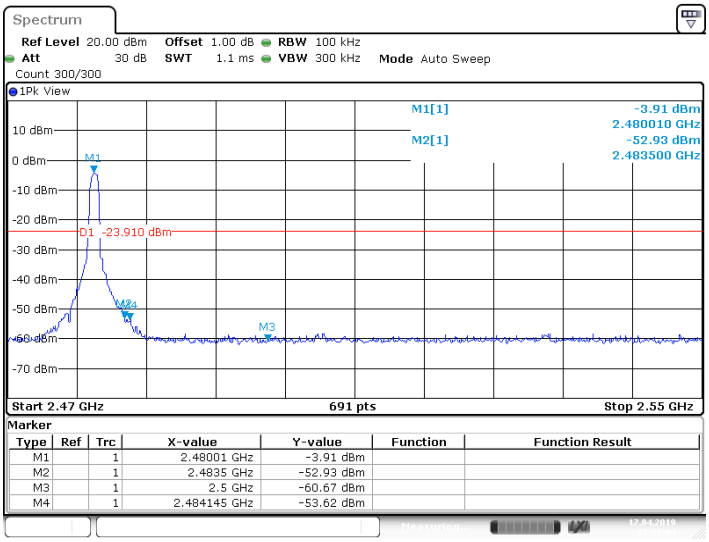




Hopping off mode:

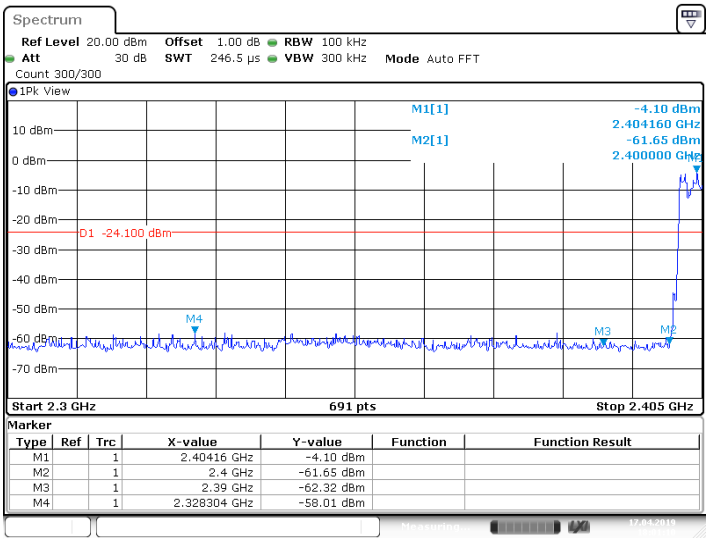


Date: 17.APR.2019 17:47:49

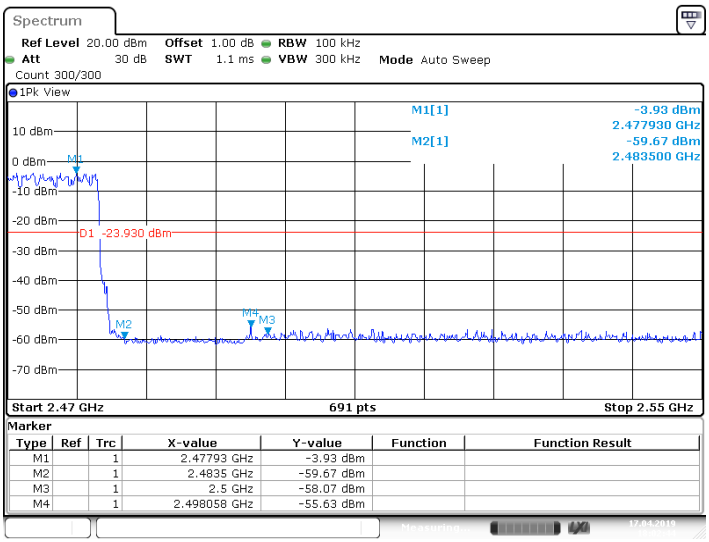


Date: 17.APR.2019 17:51:04

8DPSK Modulation Test Result:
Hopping on mode:

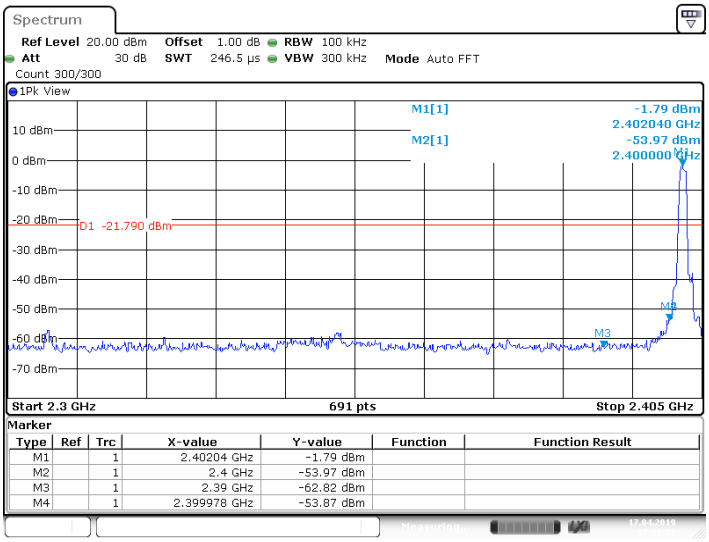


Date: 17.APR.2019 18:01:11

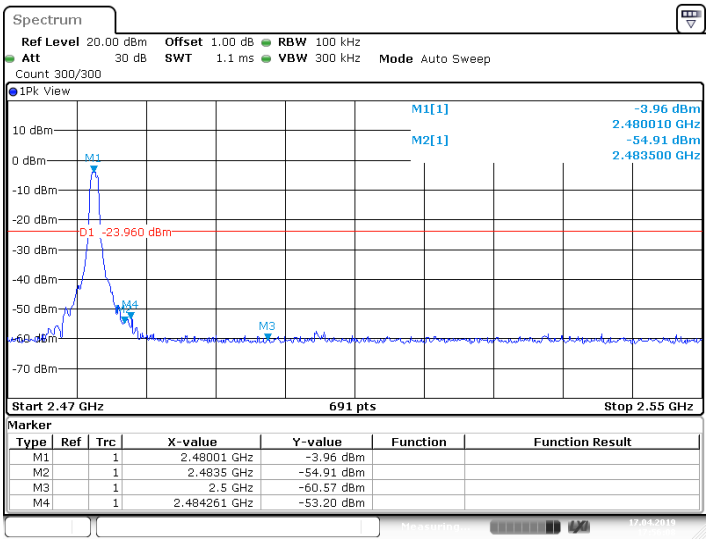


Date: 17.APR.2019 18:02:45

Hopping off mode:



Date: 17.APR.2019 17:52:51



Date: 17.APR.2019 17:56:08

9.9 Spurious radiated emissions for transmitter

Test Method

1. The EUT is placed on a turntable, which is 0.8m above ground plane.
2. EUT is set 3m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emissions.
3. Use the following spectrum analyzer settings:
   Span = wide enough to fully capture the emission being measured, RBW = 1 MHz for f ≥ 1GHz, 100 kHz for f < 1 GHz, VBW ≥ RBW, Sweep = auto, Detector function = peak, Trace = max hold
4. Follow the guidelines in ANSI C63.4-2014 with respect to maximizing the emission by rotating the EUT, adjusting the measurement antenna height and polarization, etc.
   The peak reading of the emission, after being corrected by the antenna factor, cable loss, pre-amp gain, etc., is the peak field strength, submit this data. Each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
5. Set the VBW to 10 Hz, while maintaining all of the other instrument settings. This peak level, once corrected, must comply with the limit specified in Section 15.209. If the duty cycle per channel of the hopping signal is less than 100 ms, then the reading obtained with the 10 Hz VBW may be further adjusted by a “duty cycle correction factor”, derived from 20log(duty cycle/100 ms), in an effort to demonstrate compliance with the 15.209 limit. Submit this data.

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 section15.205, must comply with the radiated emission limits specified in section 15.209.

Frequency MHz	Field Strength uV/m	Field Strength dBµV/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 (which is subject to the maximum EIRP, 8DPSK mode) test result is listed in the report.

Transmitting spurious emission test result as below:

Bluetooth Mode 8DPSK Modulation 2402MHz Test Result

Frequency	Emission Level	Polarization	Limit	Detector	Margin	Result
MHz	dBuV/m		dBμV/m		dBuV/m	
848.30	33.38	H	46.00	PK	12.62	Pass
959.42	33.49	V	46.00	PK	12.51	Pass
9518.59	41.23	H	74.00	PK	32.77	Pass
17857.625	50.56	H	74.00	PK	23.44	Pass
1993.968	41.47	V	74.00	PK	32.53	Pass
17679.123	49.85	V	74.00	PK	24.15	Pass

Bluetooth Mode 8DPSK Modulation 2441MHz Test Result

Frequency	Emission Level	Polarization	Limit	Detector	Margin	Result
MHz	dBuV/m		dBμV/m		dBuV/m	
9480.34	41.41	H	74.00	PK	32.59	Pass
17897.46	50.95	H	74.00	PK	23.05	Pass
13159.25	44.66	V	74.00	PK	29.34	Pass
17807.68	49.92	V	74.00	PK	24.08	Pass

Bluetooth Mode 8DPSK Modulation 2480MHz Test Result

Frequency	Emission Level	Polarization	Limit	Detector	Margin	Result
MHz	dBuV/m		dBμV/m		dBuV/m	
9371.43	41.22	H	74.00	PK	32.78	Pass
17478.84	50.04	H	74.00	PK	23.96	Pass
7027.03	38.30	V	74.00	PK	35.70	Pass
17823.62	50.11	V	74.00	PK	23.89	Pass

Remark:

(1) "*" means the emission(s) appear within the restrict bands shall follow the requirement of section 15.205.

(2) Data of measurement within this frequency range shown "--" in the table above means the reading of emissions are the noise floor or attenuated more than 10dB below the permissible limits or the field strength is too small to be measured.

(3) Above 1GHz: Corrector factor = Antenna Factor + Cable Loss- Amplifier Gain
Below 1GHz: Corrector factor = Antenna Factor + Cable Loss

10 Test Equipment List

List of Test Instruments

	DESCRIPTION	MANUFACTURER	MODEL NO.	SERIAL NO.	CAL. DUE DATE
CE	EMI Test Receiver	Rohde & Schwarz	ESR 3	101782	2019-7-6
	LISN	Rohde & Schwarz	ENV4200	100249	2019-7-6
	LISN	Rohde & Schwarz	ENV216	100326	2019-7-6
	ISN	Rohde & Schwarz	ENY81	100177	2019-7-6
	ISN	Rohde & Schwarz	ENY81-CAT6	101664	2019-7-6
	High Voltage Proble	Rohde & Schwarz	TK9420(VT9420)	9420-584	2019-6-30
	RF Current probe	Rohde & Schwarz	EZ-17	100816	2019-6-30
C	Signal Generator	Rohde & Schwarz	SMB100A	108272	2019-7-6
	Signal Analyzer	Rohde & Schwarz	FSV40	101030	2019-7-6
	Vector Signal Generator	Rohde & Schwarz	SMU 200A	105324	2019-7-6
	RF Switch Module	Rohde & Schwarz	OSP120/OSP-B157	101226/100851	2019-7-6
RE	EMI Test Receiver	Rohde & Schwarz	ESR 26	101269	2019-7-6
	Trilog Super Broadband Test Antenna	Schwarzbeck	VULB 9163	707	2019-6-28
	Horn Antenna	Rohde & Schwarz	HF907	102294	2019-6-28
	Pre-amplifier	Rohde & Schwarz	SCU 18	102230	2019-7-6
	3m Semi-anechoic chamber	TDK	9X6X6	----	2020-7-7

C - Conducted RF tests

- Conducted peak output power
- 6dB bandwidth
- 20dB bandwidth and 99% Occupied Bandwidth
- Carrier frequency separation
- Number of hopping frequencies
- Dwell Time
- Spurious RF conducted emissions
- Band edge

RE - Radiated RF tests

- Spurious radiated emissions for transmitter

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 Radiated Emission in 3m chamber 30MHz-1000MHz	Horizontal: 4.91dB; Vertical: 4.89dB;
Uncertainty for Radiated Emission in 3m chamber 1000MHz-18000MHz	Horizontal: 4.80dB; Vertical: 4.79dB;
Uncertainty for Conducted Emission 150KHz-30MHz	U=3.21dB
RF Power Conducted:	1.16dB
Frequency test involved:	0.6×10^{-7} or 1%
Spurious emissions Conducted measurement	1.43dB