FCC PART 15.247
TEST REPORT

For

Fujian Newland Payment Technology Co.,Ltd.

No. B602, Building #1, Haixia Jingmao Plaza,Fuzhou Bonded Area 350015, Fuzhou,Fujian, China

FCC ID: 2AM6U-ME30SU

Report Type:	**Product Name:**
Original Report	POS Terminal

Report Number:	2507V68747E-RF-02
Report Date:	2025-08-18
Reviewed By:	Ash Lin
Approved By:	Miles Chen
Prepared By:	Bay Area Compliance Laboratories Corp. (Xiamen) Unit 102, No. 902 Meifeng South Road, Binhai West Avenue, Science and Technology Innovation Park, Torch High tech Zone XiaMen Tel: +86-592-3200111 www.baclcorp.com.cn

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REPORT REVISION HISTORY

Number of Revisions	Report No.	Version	Issue Date	Description
0	2507V68747E-RF-02	R1V1	2025-08-18	Initial Release

GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

Applicant:	Fujian Newland Payment Technology Co.,Ltd.
Product Name:	POS Terminal
Tested Model:	ME30S
Power Supply:	DC 5V from adapter or DC 3.7V from battery
Maximum Peak Output Power:	1.16dBm
RF Function:	Classic BT
Operating Band/Frequency:	2402-2480 MHz
Channel Number:	79
Channel Separation:	1 MHz
Modulation Type:	GFSK
Antenna Type:	PCB antenna
★Maximum Antenna Gain:	1.463 dBi
EUT Received Status:	Good

Note:

1. The Maximum Antenna Gain was declared by manufacturer.

2. The model has a variety of PNs (PN:Q7G-WG700400xx), the difference of PNs shown as below; The PN of EUT is Q7G-WG70040028.

variable	Range of variable	Content
xx(The 13th and 14th letter)	"x" could be "0~9" or"A~Z"	"xx" means the identification of customization options, such as the language of Installation Manual and the color of the cables, which do not have any impact on the electrical specifications.

3. All measurement and test data in this report was gathered from production sample serial number: 36A9-2(RF conducted), 36A9-1(Conducted Emission and Radiated Emission) (Assigned by the BACL(Xiamen). The EUT supplied by the applicant was received on 2025-07-09)

Objective

This test report is prepared for *Fujian Newland Payment Technology Co.,Ltd.* in accordance with Part 2-Subpart J, Part 15-Subparts A and C of the Federal Communication Commissions rules.

The tests were performed in order to determine Compliance with FCC Part 15, Subpart C, section 15.203, 15.205, 15.207, 15.209 and 15.247 rules.

Test Methodology

All measurements contained in this report were conducted with ANSI C63.10-2020, American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices and KDB 558074 D01 15.247 Meas Guidance v05r02.

Test Facility

The Test site used by Bay Area Compliance Laboratories Corp. (Xiamen) to collect test data is located on the Unit 102, No. 902 Meifeng South Road, Binhai West Avenue, Science and Technology Innovation Park, Torch High tech Zone XiaMen.

Bay Area Compliance Laboratories Corp. (Xiamen) Lab is accredited to ISO/IEC 17025 by A2LA (Certificate Number: 7134.01) and the lab has been recognized as the FCC accredited lab under the KDB 974614 D01, the FCC Designation No. : CN1384.

Measurement Uncertainty

Item		U_{lab}
Conducted Emission	150kHz-30MHz	2.45 dB
Radiated Emission	9kHz-150 kHz	2.82 dB
	150kHz-30MHz	2.74 dB
	30MHz~200MHz	3.47 dB
	200MHz~1GHz	4.86 dB
	1GHz~6GHz	4.88 dB
	6GHz-18GHz	4.95 dB
	18GHz~40GHz	4.45 dB
Occupied Channel Bandwidth		2%
Transmitter Conducted Power(Conducted RF power)		±1.49 dB
Conducted Spurious Emission		±2.92 dB
Duty Cycle		1%
Temperature		±1℃
Humidity		±5%
Supply voltages		±1%

Note: The extended uncertainty given in this report is obtained by combining the standard uncertainty times the coverage factor K with the 95% confidence interval. Otherwise required by the applicant or Product Regulations, Decision Rule in this report did not consider the uncertainty.

SYSTEM TEST CONFIGURATION

Test Mode and Voltage

The system was configured for testing in a typical mode (as normally used by a typical user).	
Test mode:	Test Mode: Transmitting
Test voltage:	DC 5V from the Adapter (AC 120V/60Hz)
Remark:	During all emission tests, the EUT was configured to measure its highest possible emission level and the worst case's test data was presented in this test report.

Description of Test Configuration

Channel list:

Channel	Frequency (MHz)	Channel	Frequency (MHz)
0	2402	40	2442
1	2403	…	…
…	…	…	…
…	…	78	2480
39	2441	/	/

EUT was tested with Channel 0, 39 and 78.

★EUT Exercise Software

BT test in the engineer mode.

RF Test Tool: fcc_test_tool v1.6

Test Modes	Power Level Setting		
	Lowest Channel	Middle Channel	Highest Channel
GFSK	default	default	default

Note: The power level was declared by the applicant.

Special Accessories

No special accessory.

Equipment Modifications

No modification was made to the EUT tested.

Support Equipment List and Details

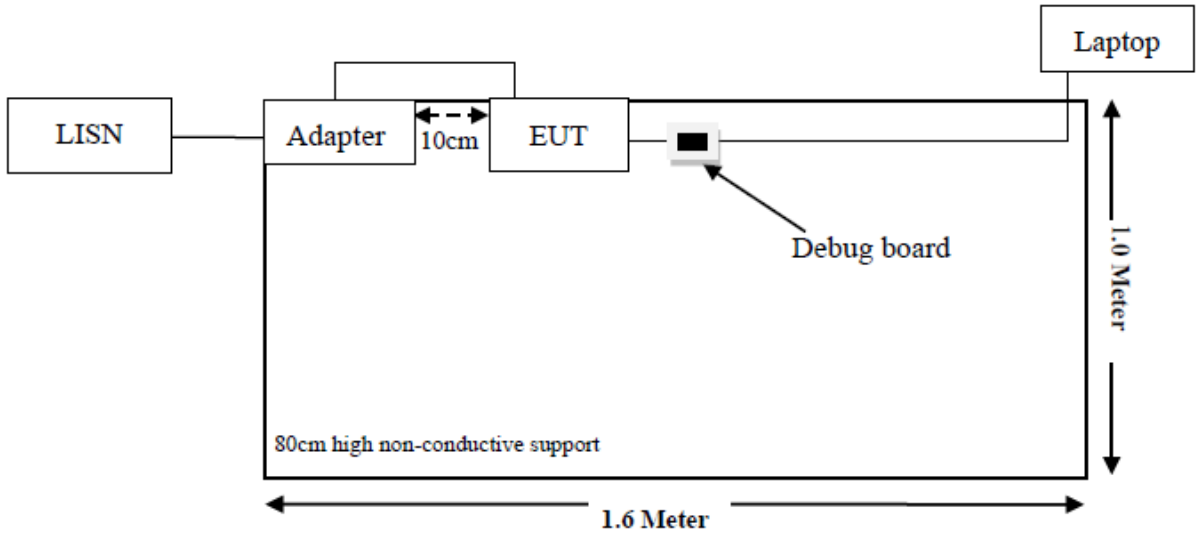
Manufacturer	Description	Model	Serial Number
Lenovo	Laptop	T480	PF1P5K4F
HONOTO	Adapter	ADS-12B-06	Unknown
Unknown	Debug board	Unknown	Unknown

External I/O Cable

Cable Description	Length (m)	From Port	To
Dupont cable	0.2	EUT	Debug board
USB Cable	1	EUT	Adapter
USB Cable	10	Laptop	Debug board

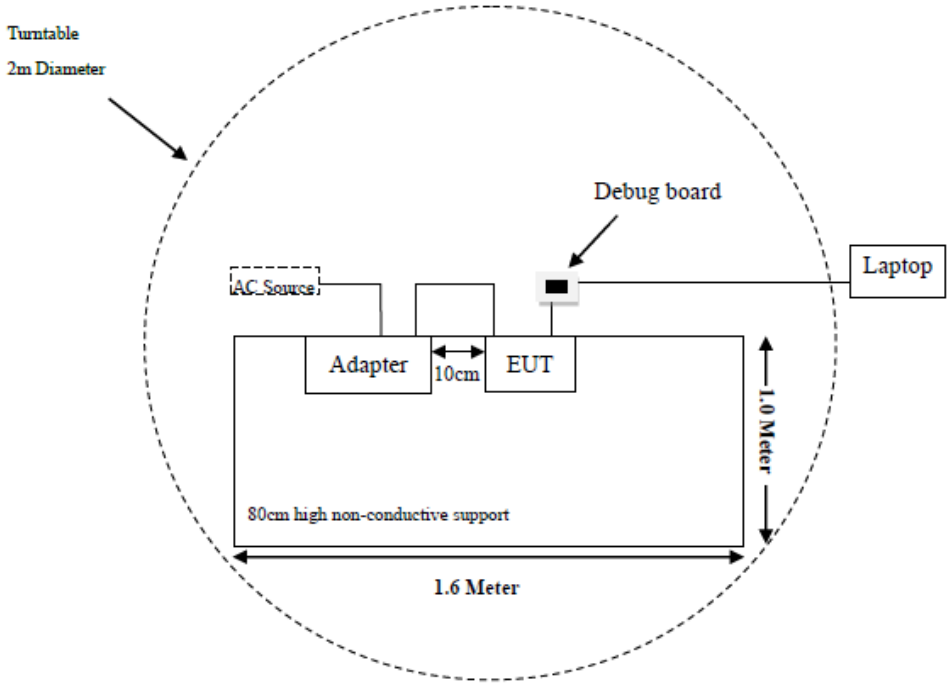
Block Diagram of Test Setup

Conducted Emission:

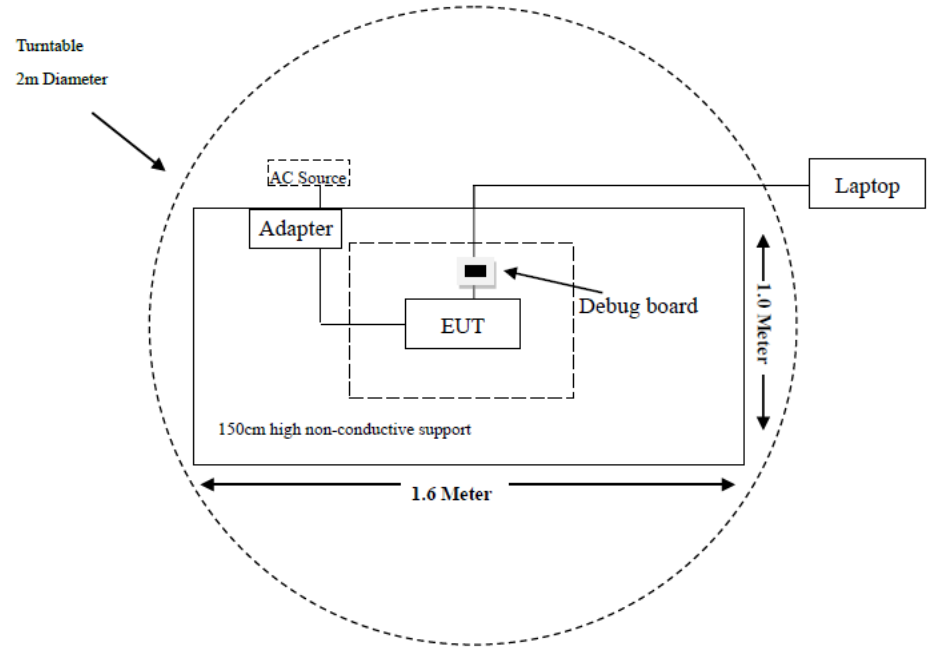


Radiated Emission:

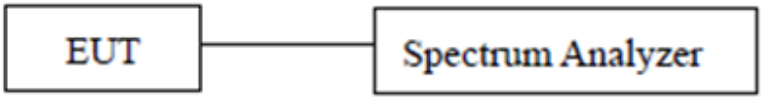
Below 1GHz



Above 1GHz



RF Conduction:



Note: The cable assembly insertion loss of 0.5dB was entered as an offset in the spectrum analyzer. (Actual cable loss was unavailable at the time of testing, therefore loss of 0.5dB was assumed as worst case.) This was later verified to be true by laboratory.

SUMMARY OF TEST RESULTS

FCC Rules	Description of Test	Result
§15.203	Antenna Requirement	Compliant
§15.207(a)	AC Line Conducted Emissions	Compliant
§15.205, §15.209 & §15.247(d)	Radiated Emissions & Restricted Bands Emissions & Antenna-port conducted emission	Compliant
§15.247(a)(1)	20 dB Emission Bandwidth	Compliant
§15.247(a)(1)	Channel Separation Test	Compliant
§15.247(a)(1)(iii)	Time of Occupancy (Dwell Time)	Compliant
§15.247(a)(1)(iii)	Quantity of hopping channel Test	Compliant
§15.247(b)(1)	Peak Output Power Measurement	Compliant
§15.247(d)	Band edges	Compliant

TEST EQUIPMENT LIST

Test Equipment	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due Date
Conducted Emissions					
EMI Test Receiver	Rohde & Schwarz	ESR	103105	2025/02/20	2026/02/19
LISN	Rohde & Schwarz	ENV216	100129	2025/02/20	2026/02/19
Pulse Limiter	Rohde & Schwarz	ESH3-Z2	0357.8810.54	2025/02/20	2026/02/19
Coaxial Cable	XINHANGWEIBO	XH400T-N-4M	CC001	2025/02/20	2026/02/19
EMI Test software	Audix	E3	18621a	N/A	N/A
Radiated Emissions Below 1GHz					
EMI Test Receiver	Rohde & Schwarz	ESR	103103	2025/02/20	2026/02/19
Loop Antenna	Rohde & Schwarz	HFH2-Z2	830749/001	2023/07/27	2026/07/26
Antenna	Sunol Sciences	JB6	A122022-5	2023/07/27	2026/07/26
Amplifier	Sonoma	310B	120903	2025/02/20	2026/02/19
Coaxial Cable	XINHANGWEIBO	XH400T-N-4M	CC002	2025/02/20	2026/02/19
Coaxial Cable	XINHANGWEIBO	XH460B-N-2M	CC006	2025/02/20	2026/02/19
Coaxial Cable	XINHANGWEIBO	XH460B-N-12M	CC007	2025/02/20	2026/02/19
Coaxial Cable	XINHANGWEIBO	HFH2-CC	335.3609	2025/02/20	2026/02/19
Test Software	Audix	E3	18621a	N/A	N/A
Radiated Emissions Above 1 GHz					
Spectrum Analyzer	Rohde & Schwarz	FSV40-N	102051	2025/02/20	2026/02/19
Filter Switch Unit	Decentest	DT7220FSU	DS79904	2025/02/21	2026/02/20
Multiplex Switch Test Control Set	Decentest	DT7220SCU	DS79901	2025/02/21	2026/02/20
Horn Antenna	EMCO	3115	9002-3355	2024/11/19	2027/11/18
Preamplifier	GLOBAL	1313-A100M18G	4121301	2025/01/16	2026/01/15
Coaxial Cable	XINHANGWEIBO	XH800A-N-6M	CC003	2025/02/20	2026/02/19
Coaxial Cable	XINHANGWEIBO	XH800A-N-1M	CC005	2025/02/20	2026/02/19
Horn Antenna	EMCO	3116	9407-2232	2023/07/31	2026/07/30
Preamplifier	A.H.Systems	PAM-1840	200	2025/02/20	2026/02/19
Coaxial Cable	XINHANGWEIBO	XH360A-2.92-3M	CC008	2025/02/20	2026/02/19
Coaxial Cable	XINHANGWEIBO	XH360A-2.92-1M	CC009	2025/02/20	2026/02/19
Test Software	Audix	E3	18621a	N/A	N/A
RF Conducted Test					
Spectrum Analyzer	Rohde & Schwarz	FSV40-N	102051	2025/02/20	2026/02/19
Coaxial Cable	Lianxun	RF113	N/A	Each time	Each time

Statement of Traceability: Bay Area Compliance Laboratories Corp. (Xiamen) attests that all calibrations have been performed in accordance to requirements that traceable to National Primary Standards and International System of Units (SI).

FCC §15.203 – ANTENNA REQUIREMENT

Applicable Standard

According to FCC § 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this Section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited. The structure and application of the EUT were analyzed to determine compliance with section §15.203 of the rules. §15.203 state that the subject device must meet the following criteria:

a. Antenna must be permanently attached to the unit.
b. Antenna must use a unique type of connector to attach to the EUT.
c. Unit must be professionally installed, and installer shall be responsible for verifying that the correct antenna is employed with the unit.

And according to FCC 47 CFR section 15.247 (b), if the transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

Antenna Connector Construction

The EUT has one PCB antenna for Bluetooth, which was permanently attached and the Max. antenna gain is 1.463dBi, fulfill the requirement of this section. Please refer to the EUT photos.

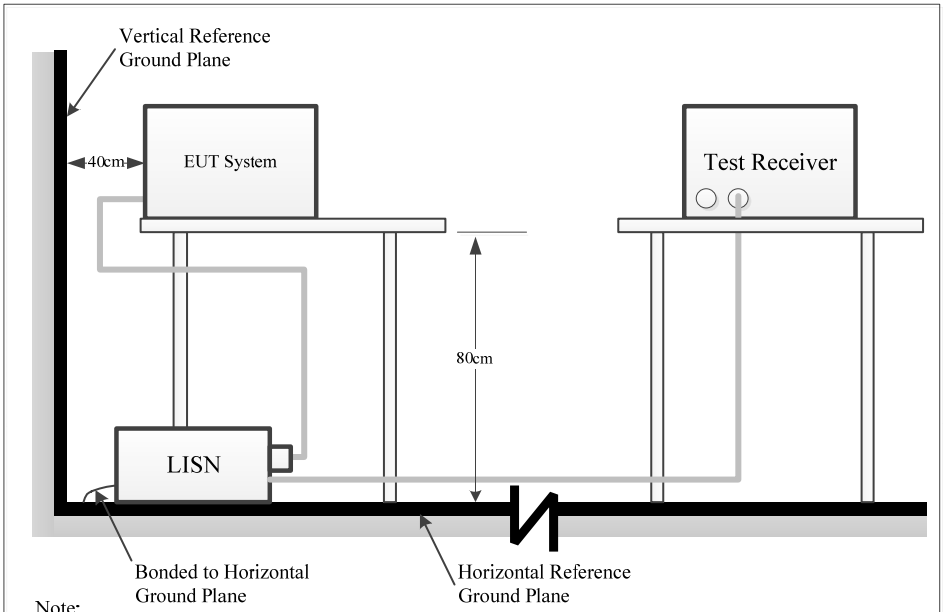
Result: Compliance

FCC §15.207 (a) – AC LINE CONDUCTED EMISSIONS

Applicable Standard

FCC §15.207(a)

Test System Setup



Note:
1. Support units were connected to second LISN.
2. Both of LISNs (AMN) 80 cm from EUT and at least 80 cm from other units and oter metal planes support units.

The measurement procedure of EUT setup is according with ANSI C63.10-2020. The related limit was specified in FCC Part 15.207.

EMI Test Receiver Setup

The EMI test receiver was set to investigate the spectrum from 150 kHz to 30 MHz.

During the conducted emission test, the EMI test receiver was set with the following configurations:

Frequency Range	IF B/W
150 kHz – 30 MHz	9 kHz

Test Procedure

ANSI C63.10-2020 clause 6.2

During the conducted emission test, the adapter was connected to the outlet of the LISN.

Maximizing procedure was performed on the six (6) highest emissions of the EUT.

If the maximum peak value of the emissions is below the average limit, the QP value and average value measurement will not need to be performed and only record the maximum peak measured value to meet the requirements.

Result &Margin Calculation

The Result is calculated by adding LISN VDF (Voltage Division Factor), Cable Loss and Transient Limiter Attenuation from the Meter Reading. The basic equation is as follows:

Factor (dB) = LISN VDF (dB) + Cable Loss (dB) + Transient Limiter Attenuation (dB)
Result (dBμV) = Reading (dBμV) + Factor (dB)

The "**Margin**" column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of 7dB means the emission is 7dB below the limit. The equation for margin calculation is as follows:

Margin (dB) = Limit (dBμV) –Result (dBμV)

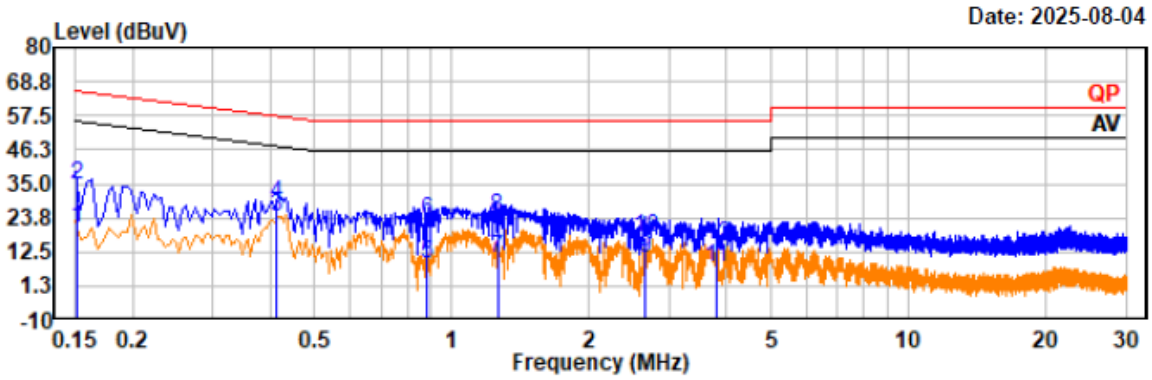
Test Data

Frequency Range:	150kHz~30MHz
Temperature:	22.0℃
Relative Humidity:	56%
ATM Pressure:	100.1kPa
Test Date:	2025-08-04
Test Engineer:	Wlif Wu

Note: The maximum output power mode: BDR 1Mbps low channel was tested.

Project No.: 2507V68747E-RF
Test Mode: BDR DH1 2402MHz
EUT Model: ME30S

Temp/Humi/ATM: 22.0℃/56%/100.1kPa
Tested by: Wlif Wu
Power Source: AC 120V/60Hz

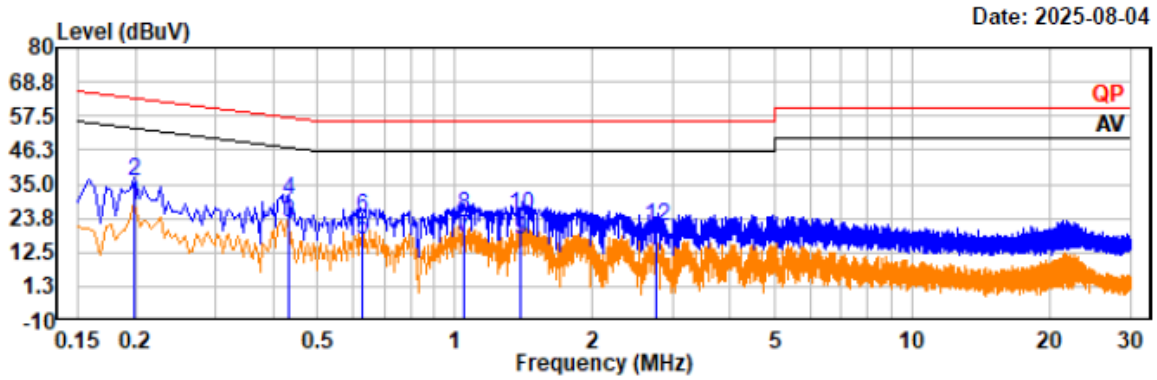


Trace: 1
Condition: IF B/W 9kHz PK/AV

Freq MHz	Reading dBuV	Factor dB	Result dBuV	Limit dBuV	Margin dB	Phase	Remark
0.151	-0.72	20.92	20.20	55.93	35.73	Line	Average
0.151	13.78	20.92	34.70	65.93	31.23	Line	QP
0.413	3.64	20.34	23.98	47.59	23.61	Line	Average
0.413	8.35	20.34	28.69	57.59	28.90	Line	QP
0.882	-12.11	20.77	8.66	46.00	37.34	Line	Average
0.882	2.24	20.77	23.01	56.00	32.99	Line	QP
1.259	-10.20	20.99	10.79	46.00	35.21	Line	Average
1.259	2.93	20.99	23.92	56.00	32.08	Line	QP
2.645	-10.52	20.94	10.42	46.00	35.58	Line	Average
2.645	-3.67	20.94	17.27	56.00	38.73	Line	QP
3.804	-13.29	20.70	7.41	46.00	38.59	Line	Average
3.804	-6.17	20.70	14.53	56.00	41.47	Line	QP

Project No.: 2507V68747E-RF
Test Mode: BDR DH1 2402MHz
EUT Model: ME30S

Temp/Humi/ATM: 22.0℃/56%/100.1kPa
Tested by: Wlif Wu
Power Source: AC 120V/60Hz



Trace: 1
Condition: IF B/W 9kHz PK/AV

Freq MHz	Reading dBuV	Factor dB	Result dBuV	Limit dBuV	Margin dB	Phase	Remark
0.199	7.18	20.67	27.85	53.64	25.79	Neutral	Average
0.199	15.14	20.67	35.81	63.64	27.83	Neutral	QP
0.435	1.53	20.44	21.97	47.16	25.19	Neutral	Average
0.435	9.34	20.44	29.78	57.16	27.38	Neutral	QP
0.626	-3.85	20.33	16.48	46.00	29.52	Neutral	Average
0.626	4.00	20.33	24.33	56.00	31.67	Neutral	QP
1.045	-3.70	20.93	17.23	46.00	28.77	Neutral	Average
1.045	3.99	20.93	24.92	56.00	31.08	Neutral	QP
1.394	-4.24	20.97	16.73	46.00	29.27	Neutral	Average
1.394	3.63	20.97	24.60	56.00	31.40	Neutral	QP
2.759	-7.90	20.90	13.00	46.00	33.00	Neutral	Average
2.759	-0.06	20.90	20.84	56.00	35.16	Neutral	QP

FCC §15.205, §15.209 & §15.247(d) – RADIATED EMISSIONS

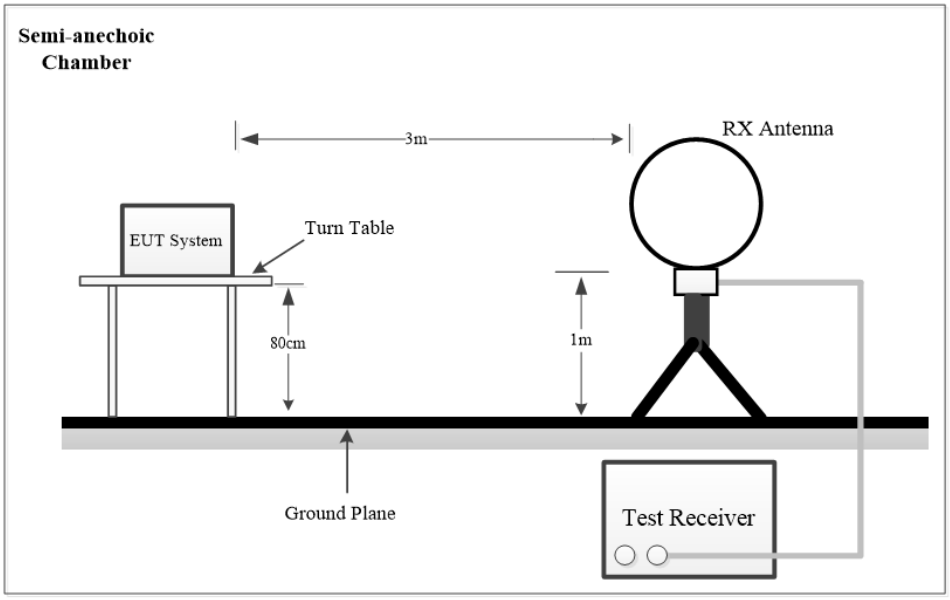
Applicable Standard

FCC §15.205; §15.209; §15.247(d)

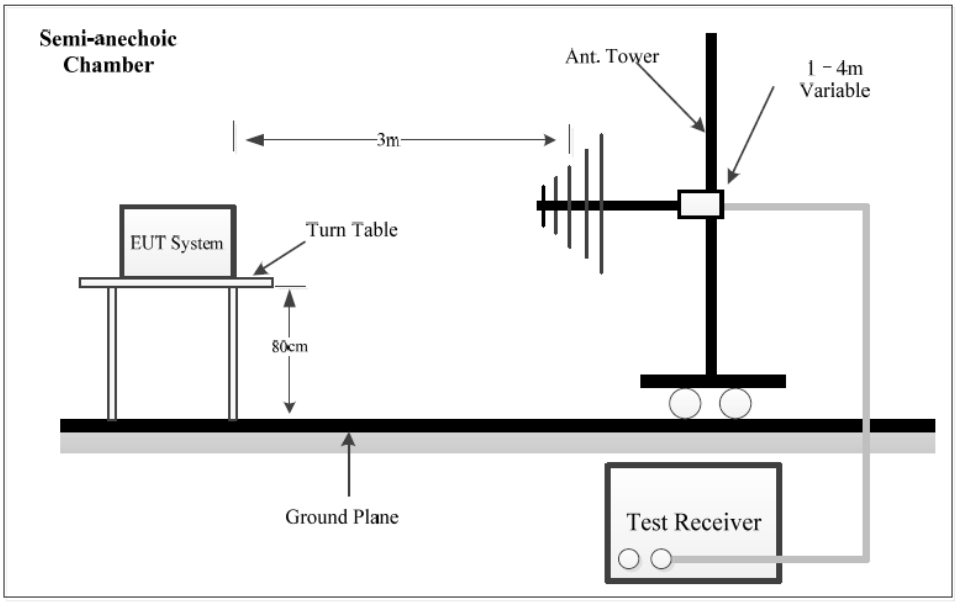
(d) In any 100 kHz bandwidth outside the frequency band in which the spread spectrumor digitally modulated intentional radiator is operating, the radio frequency power that isproduced by the intentional radiator shall be at least 20 dB below that in the 100 kHzbandwidth within the band that contains the highest level of the desired power, based oneither an RF conducted or a radiated measurement, provided the transmitter demonstratescompliance with the peak conducted power limits. If the transmitter complies with theconducted power limits based on the use of RMS averaging over a time interval, as permittedunder paragraph (b)(3) of this section, the attenuation required under this paragraph shall be30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is notrequired. 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§15.205(c)).

Test System Setup

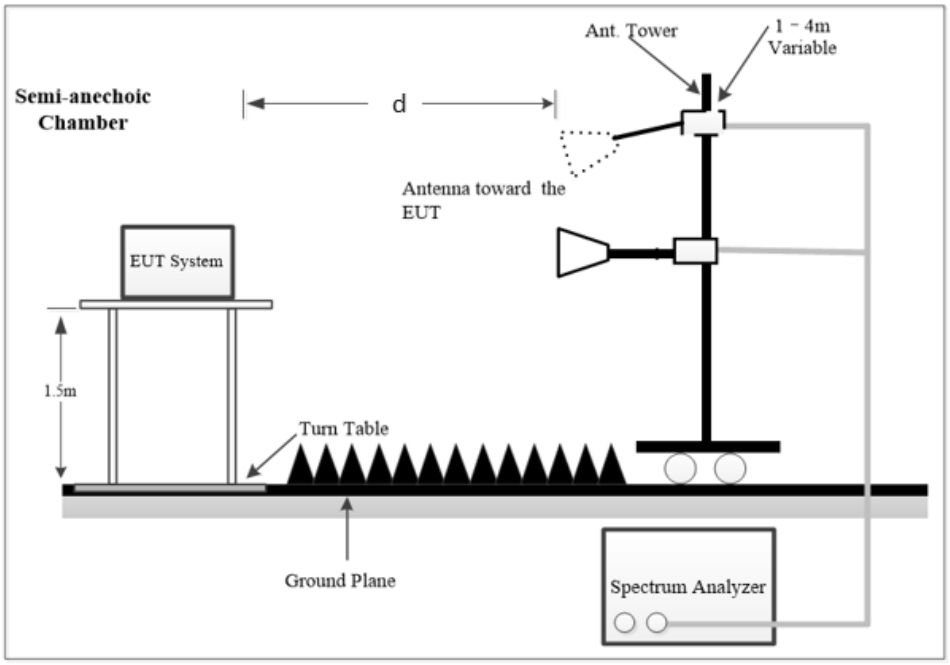
9 kHz-30MHz



Below 1 GHz:



Above 1GHz:



The radiated emission tests using the setup accordance with the ANSI C63.10-2020. The specification used was the FCC 15.209, and FCC 15.247 limits.

NOTE: d is testing distance;
For Radiated Emission test (1GHz-18GHz) and Bandedge Emission test, which was performed at 3 m distance.

For Radiated Emission test (18GHz-25GHz), which was performed at 1.5 m distance, according to ANSI C63.10-2020, the test result shall be extrapolated to the specified distance using an extrapolation Factor of 20dB/decade from 3m to 1.5m.

Distance extrapolation Factor =20 log (specific distance [3m]/test distance [1.5m]) dB= 6 dB

EMI Test Receiver & Spectrum Analyzer Setup

The system was investigated from 9 kHz to 25 GHz.

During the radiated emission test, the EMI test receiver & spectrum analyzer setup was set with the following configurations:

Frequency Range	RBW	Video B/W	IF B/W	Measurement
9 kHz – 150 kHz	300Hz	1 kHz	200Hz	QP
150 kHz – 30 MHz	10 kHz	30 kHz	9 kHz	QP
30 MHz – 1000 MHz	100 kHz	300 kHz	/	PK
	/	/	120kHz	QP

1GHz~25GHz:
Pre-scan:

Measurement	RBW	Video B/W	Detector
PK	1MHz	3MHz	PK
AV	1MHz	5kHz	PK

Final measuurement for emission identifed ding the pre-scan:

Measurement	RBW	Video B/W	Detector
PK	1MHz	3MHz	PK
AV	1MHz	10Hz	PK

Test Procedure

Radiated Emissions:

Maximizing procedure was performed on the highest emissions to ensure that the EUT complied with all installation combinations.

For each measurement antenna alignment, the EUT shall be rotated through 0°to 360°on a turntable. The report shall list the six emissions with the smallest margin relative to the limit, for each of the three antenna orientations (parallel, perpendicular, and ground parallel) unless the margin is greater than 20 dB, then the following statement shall be made: “all emissions were greater than 20 dB below the limit.”

Below 1GHz, if the measured peak level of the emissions that the measuring receiver reading level plus corrected factor is at least 6 dB below the QP emission limit, there's no need to record the measured QP level of the emissions in the report.

Above 1GHz, if the measured peak level of the emissions that the measuring receiver reading level plus corrected factor is below the AV emission limit, there's no need to record the measured AV level of the emissions in the report.

Antenna-port conducted emission:

Connect the primary antenna port through an attenuator to the spectrum analyzer input; in the results, account for all losses between the unlicensed wireless device output and the spectrum analyzer. The frequency range of testing shall span 30 MHz to 10 times the operating frequency and this may be done in a single sweep or, to aid resolution, across a number of sweeps. The resolution bandwidth shall be 100 kHz, video bandwidth 300 kHz, and a coupled sweep time with a peak detector.

The limit is based on the highest in-band level across all channels measured using the same instrument settings (resolution bandwidth of 100 kHz, video bandwidth of 300 kHz, and a coupled sweep time with a peak detector). To help clearly demonstrate compliance a display line may be set at the required offset (typically 20 dB) below the highest in-band level. Where the highest in-band level is not clearly identified in the out-of-band measurements a separate spectral plot showing the in-band level shall be provided. When conducted measurements cannot be made (for example a device with integrated, non-removable antenna) radiated measurements shall be used. The reference level for determining the limit shall be established by maximizing the field strength from the highest power channel and measuring using the resolution and video bandwidth settings and peak detector as described above. The field strength limit for spurious emissions outside of restricted-bands shall then be set at the required offset (typically 20 dB) below the highest in-band level. Radiated measurements will follow the standards measurement procedures described in Clause 6 with the exception that the resolution bandwidth shall be 100 kHz, video bandwidth 300 kHz, and a coupled sweep time with a peak detector. Note that use of wider measurement bandwidths are acceptable for measuring the spurious emissions provided that the peak detector is used and that the measured value of spurious emissions are compared to the highest in-band level measured with the 100 kHz / 300 kHz bandwidth settings to determine compliance.

Result &Margin Calculation

The Result is calculated by adding the Antenna Factor and Cable Loss, and subtracting the Amplifier Gain from the Meter Reading. The basic equation is as follows:

For 9 kHz to 18GHz Radiated emission test and Bandedge emissions test
Factor (dB/m) =Antenna Factor (dB/m) + Cable Loss (dB) - Amplifier Gain (dB)

For 18GHz to 25GHz Radiated emission test
Factor (dB/m) =Antenna Factor (dB/m) + Cable Loss (dB) - Amplifier Gain (dB) - Extrapolation factor (dB)

Extrapolation factor=6dB (distance=1.5m)

Result (dBμV/m) = Reading (dBμV) + Factor (dB/m)

The "**Margin**" column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of 7dB means the emission is 7dB below the limit. The equation for margin calculation is as follows:

Margin (dB) = Limit (dBμV/m) –Result (dBμV/m)

Test Data

Please refer to the below table and plots.

Frequency Range:	Below 1 GHz	Above 1 GHz	Antenna-port conducted emission
Temperature:	24.6℃	24.6℃	25.1℃
Relative Humidity:	58 %	58 %	54 %
ATM Pressure:	100.1kPa	100.1kPa	100kPa
Test Date:	2025-08-12	2025-08-12	2025-07-10
Test Engineer:	Wlif Wu	Wlif Wu	Braylon Ma

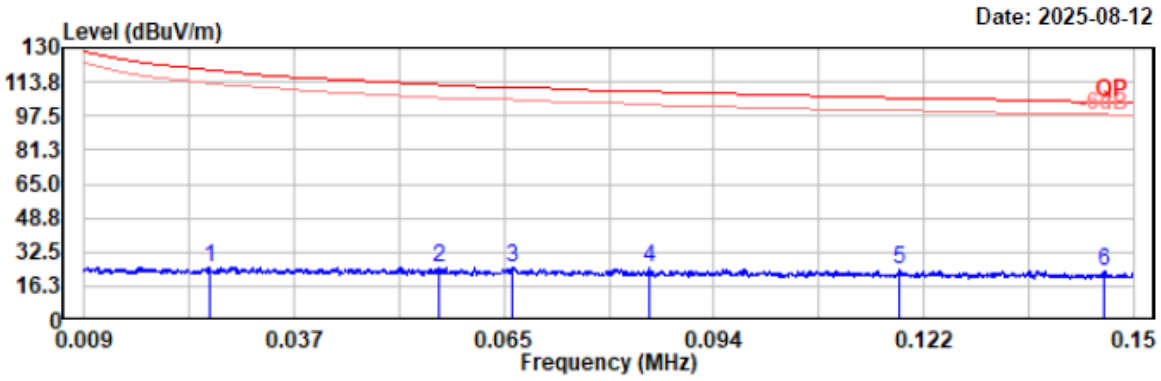
Note: Pre-scan in the X, Y and Z axes of orientation, the worst case Z-axis of orientation was recorded.

1) 9 kHz ~30MHz

Pre-scan in parallel, ground-parallel and perpendicular of orientation of loop antenna, parallel is worst case.
Note: The maximum output power mode: BDR Low channel was tested.

Project No.: 2507V68747E-RF
Test Mode: BDR DH1 2402MHz
EUT Model: ME30S
Test distance: 3m

Temp/Humi/ATM: 24.6℃/58%/100.1kPa
Tested by: Wlif Wu
Power Source: AC 120V/60Hz

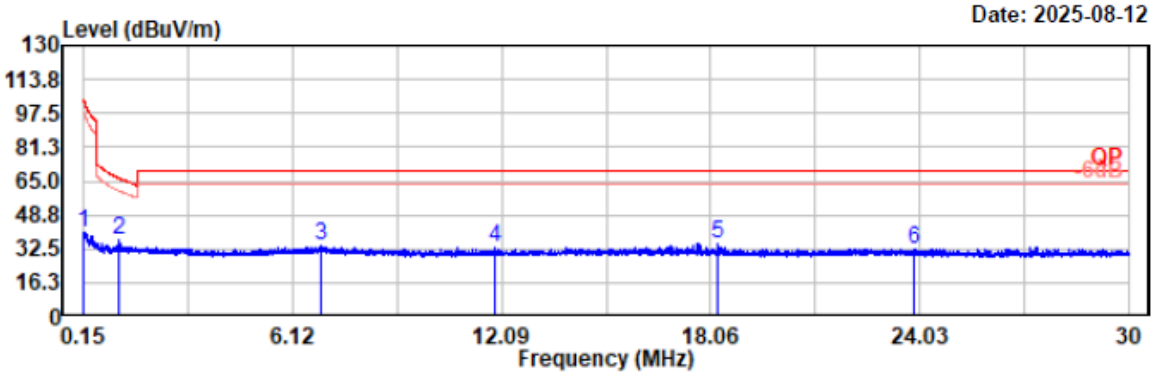


Condition: PK RBW:300Hz VBW:1kHz SWT:auto

Freq	Reading	Factor	Result	Limit	Margin	Remark
MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	
0.026	5.57	19.87	25.44	119.40	93.96	Peak
0.057	5.33	19.91	25.24	112.54	87.30	Peak
0.067	5.52	19.84	25.36	111.15	85.79	Peak
0.085	5.71	19.76	25.47	109.03	83.56	Peak
0.119	4.58	19.73	24.31	106.13	81.82	Peak
0.146	3.95	19.73	23.68	104.32	80.64	Peak

Project No.: 2507V68747E-RF
Test Mode: BDR DH1 2402MHz
EUT Model: ME30S
Test distance: 3m

Temp/Humi/ATM: 24.6℃/58%/100.1kPa
Tested by: Wlif Wu
Power Source: AC 120V/60Hz



Condition: PK RBW:10kHz VBW:30kHz SWT:auto

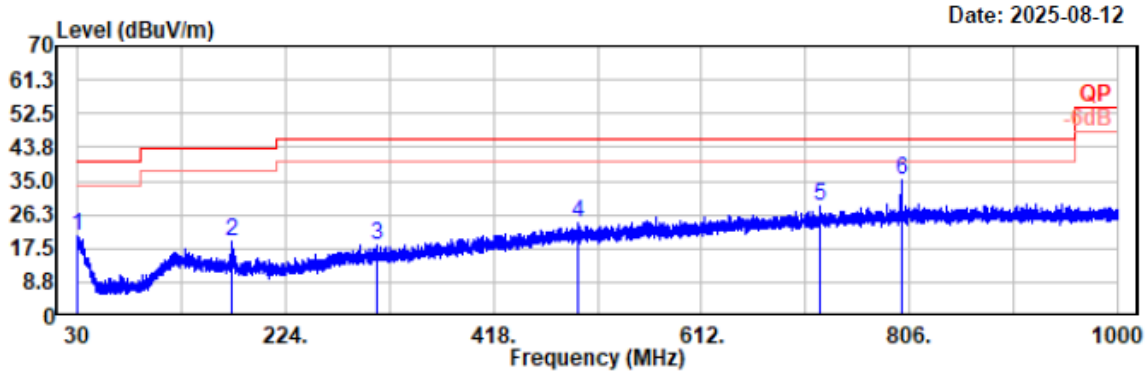
Freq	Reading	Factor	Result	Limit	Margin	Remark
MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	
0.156	20.94	19.70	40.64	103.74	63.10	Peak
1.162	16.92	19.68	36.60	66.30	29.70	Peak
6.953	14.26	19.50	33.76	69.54	35.78	Peak
11.911	13.37	19.50	32.87	69.54	36.67	Peak
18.242	15.59	19.69	35.28	69.54	34.26	Peak
23.854	12.72	19.88	32.60	69.54	36.94	Peak

2) 30MHz-1GHz

Note: The maximum output power mode: BDR Low channel was tested.

Project No.: 2507V68747E-RF
Test Mode: BDR DH1 2402MHz
EUT Model: ME30S
Test distance: 3m

Temp/Humi/ATM: 24.6℃/58%/100.1kPa
Tested by: Wlif Wu
Power Source: AC 120V/60Hz

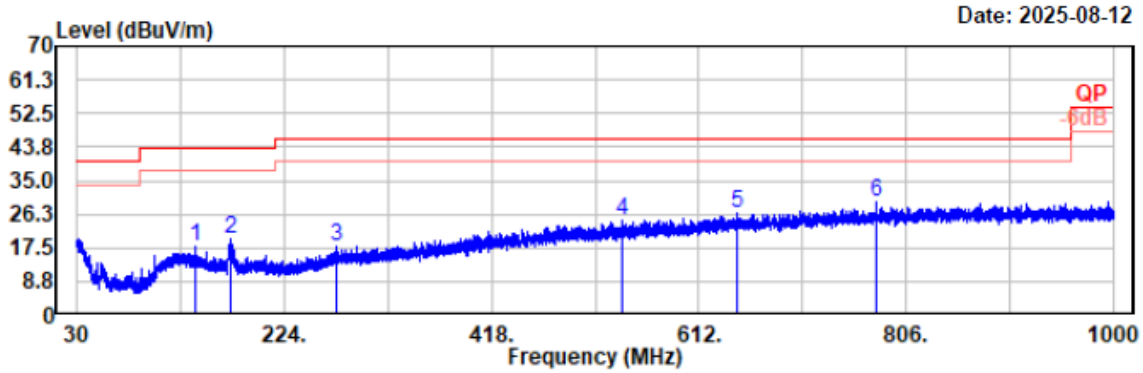


Condition: PK RBW:100kHz VBW:300kHz SWT:auto

Freq	Reading	Factor	Result	Limit	Margin	Polarity	Remark
MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB		
30.00	26.30	-5.60	20.70	40.00	19.30	Horizontal	Peak
174.34	31.23	-12.13	19.10	43.50	24.40	Horizontal	Peak
309.17	27.56	-9.04	18.52	46.00	27.48	Horizontal	Peak
496.96	27.44	-3.48	23.96	46.00	22.04	Horizontal	Peak
722.19	28.42	0.05	28.47	46.00	17.53	Horizontal	Peak
798.14	34.16	1.24	35.40	46.00	10.60	Horizontal	Peak

Project No.: 2507V68747E-RF
Test Mode: BDR DH1 2402MHz
EUT Model: ME30S
Test distance: 3m

Temp/Humi/ATM: 24.6℃/58%/100.1kPa
Tested by: Wlif Wu
Power Source: AC 120V/60Hz



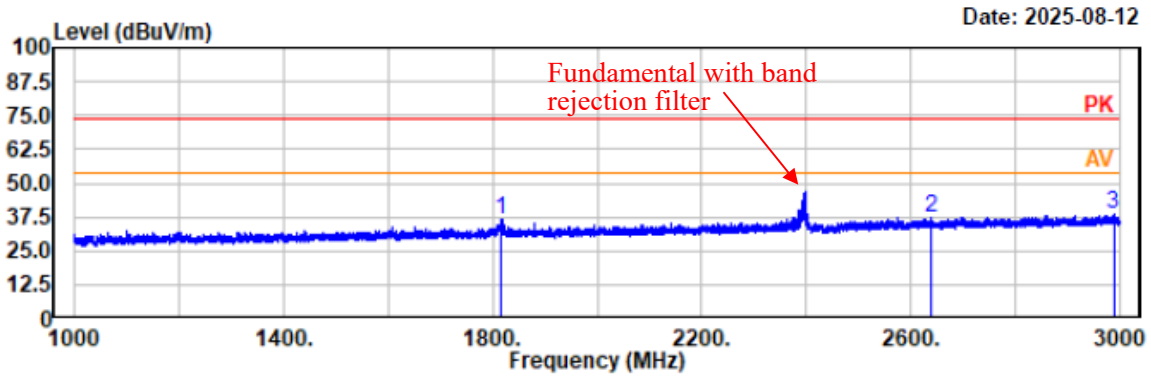
Condition: PK RBW:100kHz VBW:300kHz SWT:auto

Freq	Reading	Factor	Result	Limit	Margin	Polarity	Remark
MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB		
141.55	28.75	-10.86	17.89	43.50	25.61	Vertical	Peak
174.05	32.07	-12.13	19.94	43.50	23.56	Vertical	Peak
273.57	27.69	-9.68	18.01	46.00	27.99	Vertical	Peak
539.74	27.85	-3.01	24.84	46.00	21.16	Vertical	Peak
647.31	27.55	-0.96	26.59	46.00	19.41	Vertical	Peak
777.39	28.37	1.02	29.39	46.00	16.61	Vertical	Peak

3) 1 GHz-3 GHz

Project No.: 2507V68747E-RF
Test Mode: BDR DH1 2402MHz
EUT Model: ME30S
Test distance: 3m

Temp/Humi/ATM: 24.6℃/58%/100.1kPa
Tested by: Wlif Wu
Power Source: AC 120V/60Hz

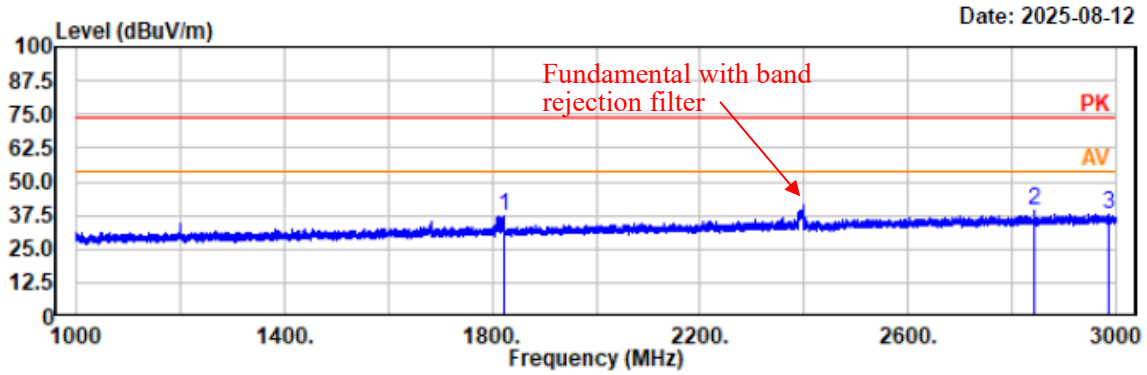


Condition: PK RBW:1MHz VBW:3MHz SWT:auto

Freq	Reading	Factor	Result	Limit	Margin	Polarity	Remark
MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB		
1817.20	49.94	-13.18	36.76	74.00	37.24	horizontal	Peak
2640.80	47.70	-10.24	37.46	74.00	36.54	horizontal	Peak
2988.20	47.35	-9.01	38.34	74.00	35.66	horizontal	Peak

Project No.: 2507V68747E-RF
Test Mode: BDR DH1 2402MHz
EUT Model: ME30S
Test distance: 3m

Temp/Humi/ATM: 24.6℃/58%/100.1kPa
Tested by: Wlif Wu
Power Source: AC 120V/60Hz

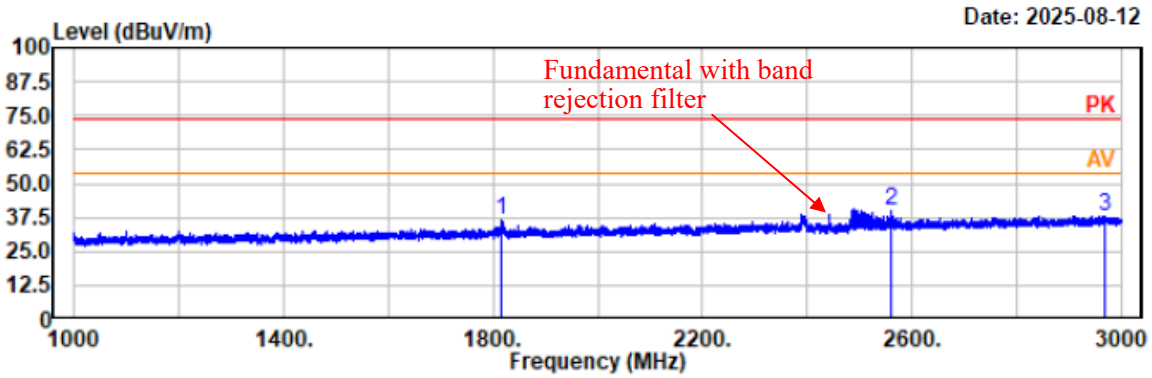


Condition: PK RBW:1MHz VBW:3MHz SWT:auto

Freq	Reading	Factor	Result	Limit	Margin	Polarity	Remark
MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB		
1822.20	50.44	-13.17	37.27	74.00	36.73	vertical	Peak
2843.00	48.80	-9.64	39.16	74.00	34.84	vertical	Peak
2984.80	47.02	-9.02	38.00	74.00	36.00	vertical	Peak

Project No.: 2507V68747E-RF
Test Mode: BDR DH1 2441MHz
EUT Model: ME30S
Test distance: 3m

Temp/Humi/ATM: 24.6℃/58%/100.1kPa
Tested by: Wlif Wu
Power Source: AC 120V/60Hz

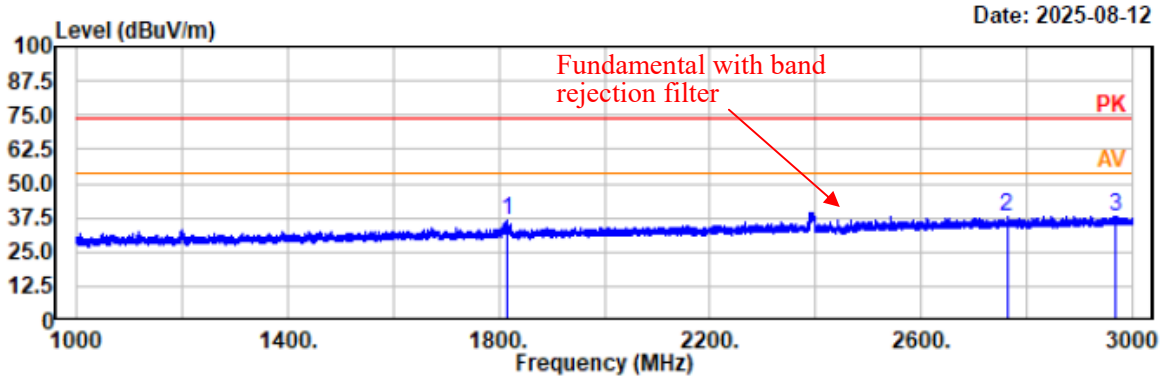


Condition: PK RBW:1MHz VBW:3MHz SWT:auto

Freq	Reading	Factor	Result	Limit	Margin	Polarity	Remark
MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB		
1816.60	49.41	-13.18	36.23	74.00	37.77	horizontal	Peak
2560.20	50.53	-10.56	39.97	74.00	34.03	horizontal	Peak
2967.60	47.24	-9.11	38.13	74.00	35.87	horizontal	Peak

Project No.: 2507V68747E-RF
Test Mode: BDR DH1 2441MHz
EUT Model: ME30S
Test distance: 3m

Temp/Humi/ATM: 24.6℃/58%/100.1kPa
Tested by: Wlif Wu
Power Source: AC 120V/60Hz

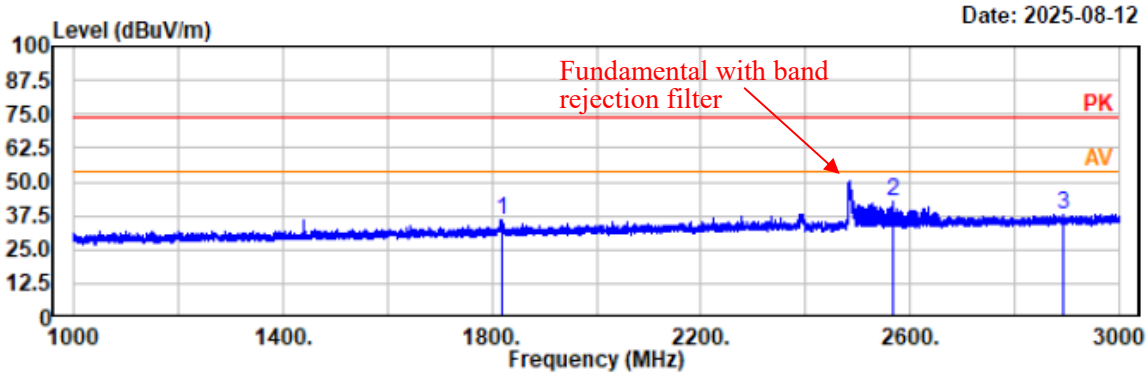


Condition: PK RBW:1MHz VBW:3MHz SWT:auto

Freq	Reading	Factor	Result	Limit	Margin	Polarity	Remark
MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB		
1817.20	49.98	-13.18	36.80	74.00	37.20	vertical	Peak
2762.60	47.53	-9.90	37.63	74.00	36.37	vertical	Peak
2968.80	47.35	-9.10	38.25	74.00	35.75	vertical	Peak

Project No.: 2507V68747E-RF
Test Mode: BDR DH1 2480MHz
EUT Model: ME30S
Test distance: 3m

Temp/Humi/ATM: 24.6℃/58%/100.1kPa
Tested by: Wlif Wu
Power Source: AC 120V/60Hz

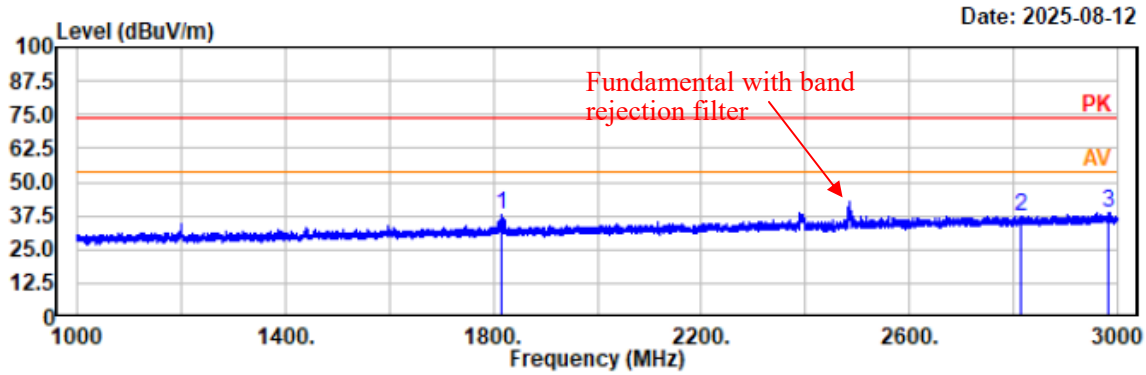


Condition: PK RBW:1MHz VBW:3MHz SWT:auto

Freq	Reading	Factor	Result	Limit	Margin	Polarity	Remark
MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB		
1818.80	49.21	-13.17	36.04	74.00	37.96	horizontal	Peak
2567.20	53.26	-10.53	42.73	74.00	31.27	horizontal	Peak
2894.00	47.74	-9.56	38.18	74.00	35.82	horizontal	Peak

Project No.: 2507V68747E-RF
Test Mode: BDR DH1 2480MHz
EUT Model: ME30S
Test distance: 3m

Temp/Humi/ATM: 24.6℃/58%/100.1kPa
Tested by: Wlif Wu
Power Source: AC 120V/60Hz



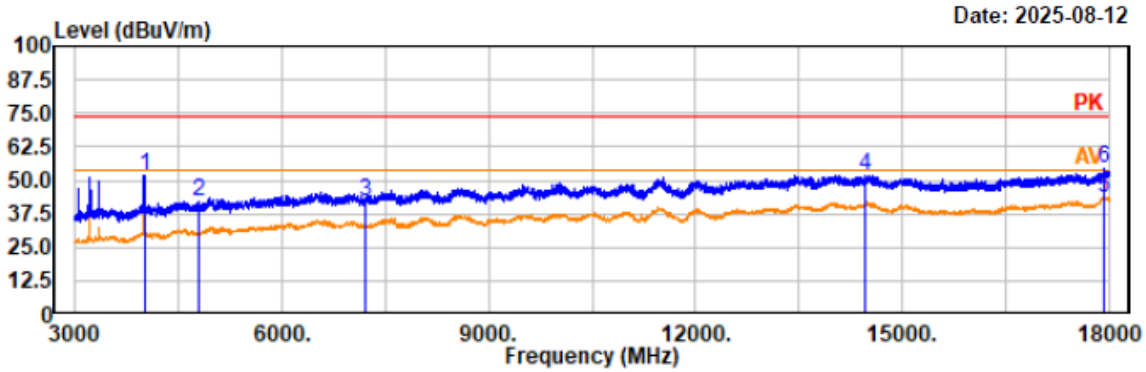
Condition: PK RBW:1MHz VBW:3MHz SWT:auto

Freq	Reading	Factor	Result	Limit	Margin	Polarity	Remark
MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB		
1817.20	50.88	-13.18	37.70	74.00	36.30	vertical	Peak
2813.40	47.12	-9.75	37.37	74.00	36.63	vertical	Peak
2983.20	47.76	-9.04	38.72	74.00	35.28	vertical	Peak

4) 3 GHz-18 GHz

Project No.: 2507V68747E-RF
Test Mode: BDR DH1 2402MHz
EUT Model: ME30S
Test distance: 3m

Temp/Humi/ATM: 24.6℃/58%/100.1kPa
Tested by: Wlif Wu
Power Source: AC 120V/60Hz

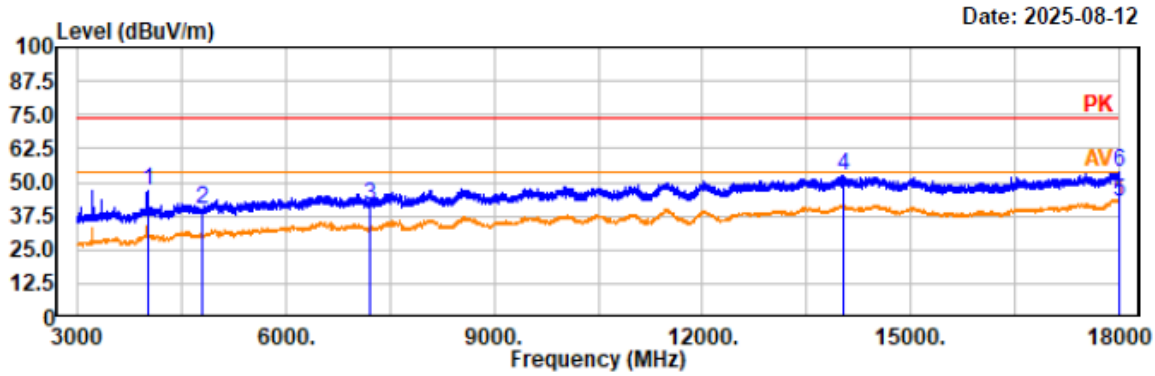


Trace: 1
Condition: PK RBW:1MHz VBW:3MHz SWT:auto
AV RBW:1MHz VBW:5kHz SWT:auto

Freq	Reading	Factor	Result	Limit	Margin	Polarity	Remark
MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB		
4003.50	58.22	-6.49	51.73	74.00	22.27	horizontal	Peak
4804.00	47.32	-5.24	42.08	74.00	31.92	horizontal	Peak
7206.00	44.30	-2.55	41.75	74.00	32.25	horizontal	Peak
14467.50	46.71	5.12	51.83	74.00	22.17	horizontal	Peak
17934.00	36.38	6.83	43.21	54.00	10.79	horizontal	Average
17934.00	47.56	6.83	54.39	74.00	19.61	horizontal	Peak

Project No.: 2507V68747E-RF
Test Mode: BDR DH1 2402MHz
EUT Model: ME30S
Test distance: 3m

Temp/Humi/ATM: 24.6℃/58%/100.1kPa
Tested by: Wlif Wu
Power Source: AC 120V/60Hz

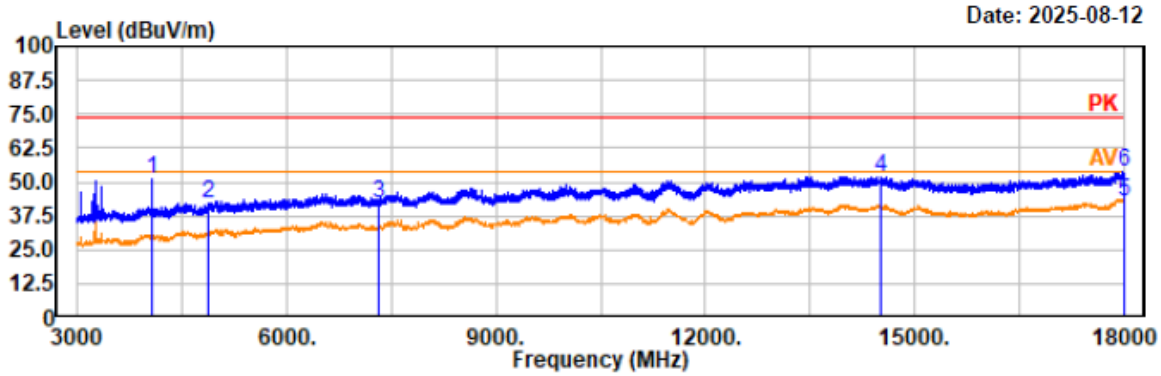


Trace: 1
Condition: PK RBW:1MHz VBW:3MHz SWT:auto
AV RBW:1MHz VBW:5kHz SWT:auto

Freq	Reading	Factor	Result	Limit	Margin	Polarity	Remark
MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB		
4003.50	53.60	-6.49	47.11	74.00	26.89	vertical	Peak
4804.00	45.41	-5.24	40.17	74.00	33.83	vertical	Peak
7206.00	43.66	-2.55	41.11	74.00	32.89	vertical	Peak
14022.00	46.98	5.22	52.20	74.00	21.80	vertical	Peak
17997.00	35.54	6.91	42.45	54.00	11.55	vertical	Average
17997.00	47.04	6.91	53.95	74.00	20.05	vertical	Peak

Project No.: 2507V68747E-RF
Test Mode: BDR DH1 2441MHz
EUT Model: ME30S
Test distance: 3m

Temp/Humi/ATM: 24.6℃/58%/100.1kPa
Tested by: Wlif Wu
Power Source: AC 120V/60Hz

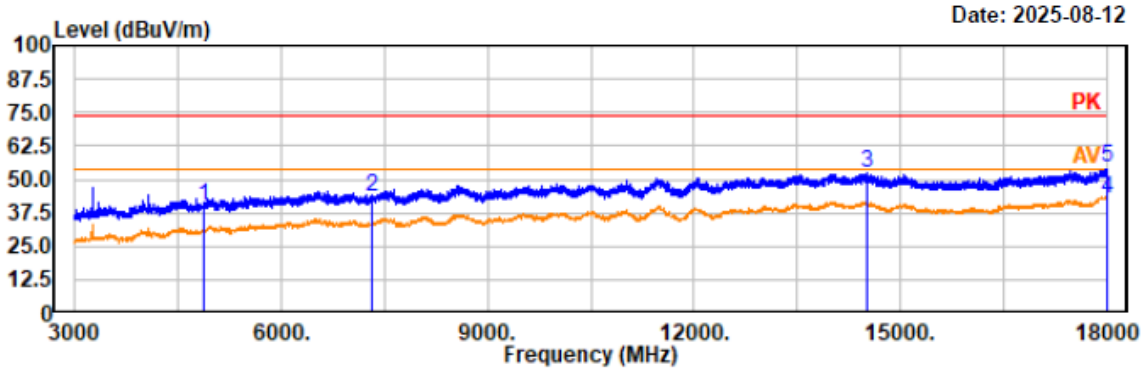


Trace: 1
Condition: PK RBW:1MHz VBW:3MHz SWT:auto
AV RBW:1MHz VBW:5kHz SWT:auto

Freq	Reading	Factor	Result	Limit	Margin	Polarity	Remark
MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB		
4068.00	57.26	-6.29	50.97	74.00	23.03	horizontal	Peak
4882.00	47.33	-5.31	42.02	74.00	31.98	horizontal	Peak
7323.00	44.59	-2.24	42.35	74.00	31.65	horizontal	Peak
14503.50	46.98	5.07	52.05	74.00	21.95	horizontal	Peak
17999.99	35.90	6.91	42.81	54.00	11.19	horizontal	Average
17999.99	46.86	6.91	53.77	74.00	20.23	horizontal	Peak

Project No.: 2507V68747E-RF
Test Mode: BDR DH1 2441MHz
EUT Model: ME30S
Test distance: 3m

Temp/Humi/ATM: 24.6℃/58%/100.1kPa
Tested by: Wlif Wu
Power Source: AC 120V/60Hz

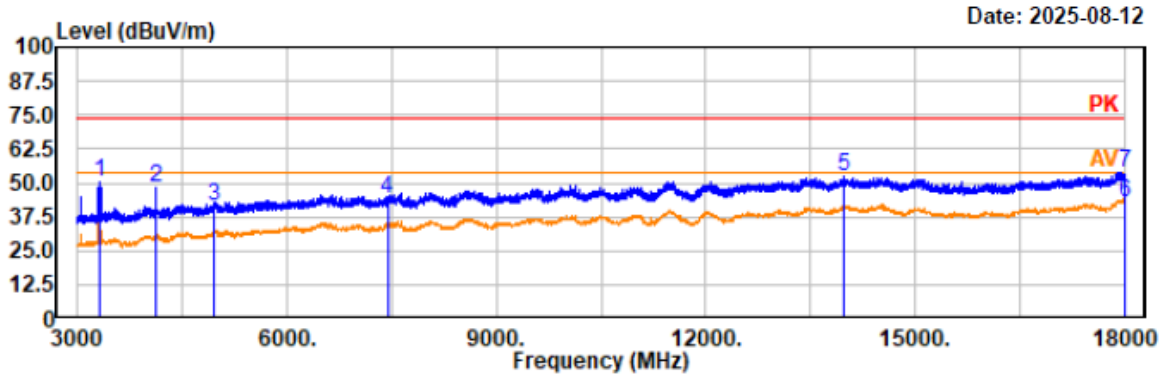


Trace: 1
Condition: PK RBW:1MHz VBW:3MHz SWT:auto
AV RBW:1MHz VBW:5kHz SWT:auto

Freq	Reading	Factor	Result	Limit	Margin	Polarity	Remark
MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB		
4882.00	45.63	-5.31	40.32	74.00	33.68	vertical	Peak
7323.00	45.62	-2.24	43.38	74.00	30.62	vertical	Peak
14506.50	47.11	5.06	52.17	74.00	21.83	vertical	Peak
17999.99	35.97	6.91	42.88	54.00	11.12	vertical	Average
17999.99	47.72	6.91	54.63	74.00	19.37	vertical	Peak

Project No.: 2507V68747E-RF
Test Mode: BDR DH1 2480MHz
EUT Model: ME30S
Test distance: 3m

Temp/Humi/ATM: 24.6℃/58%/100.1kPa
Tested by: Wlif Wu
Power Source: AC 120V/60Hz

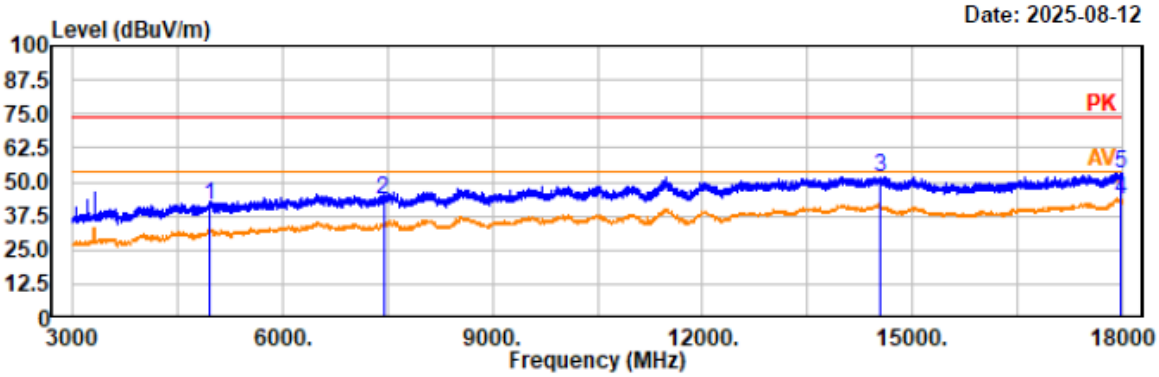


Trace: 1
Condition: PK RBW:1MHz VBW:3MHz SWT:auto
AV RBW:1MHz VBW:5kHz SWT:auto

Freq	Reading	Factor	Result	Limit	Margin	Polarity	Remark
MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB		
3306.00	58.25	-8.20	50.05	74.00	23.95	horizontal	Peak
4134.00	54.47	-5.97	48.50	74.00	25.50	horizontal	Peak
4960.00	46.77	-5.11	41.66	74.00	32.34	horizontal	Peak
7440.00	46.03	-2.03	44.00	74.00	30.00	horizontal	Peak
13975.50	47.29	5.20	52.49	74.00	21.51	horizontal	Peak
17999.99	35.80	6.91	42.71	54.00	11.29	horizontal	Average
17999.99	46.79	6.91	53.70	74.00	20.30	horizontal	Peak

Project No.: 2507V68747E-RF
Test Mode: BDR DH1 2480MHz
EUT Model: ME30S
Test distance: 3m

Temp/Humi/ATM: 24.6℃/58%/100.1kPa
Tested by: Wlif Wu
Power Source: AC 120V/60Hz



Trace: 1
Condition: PK RBW:1MHz VBW:3MHz SWT:auto
AV RBW:1MHz VBW:5kHz SWT:auto

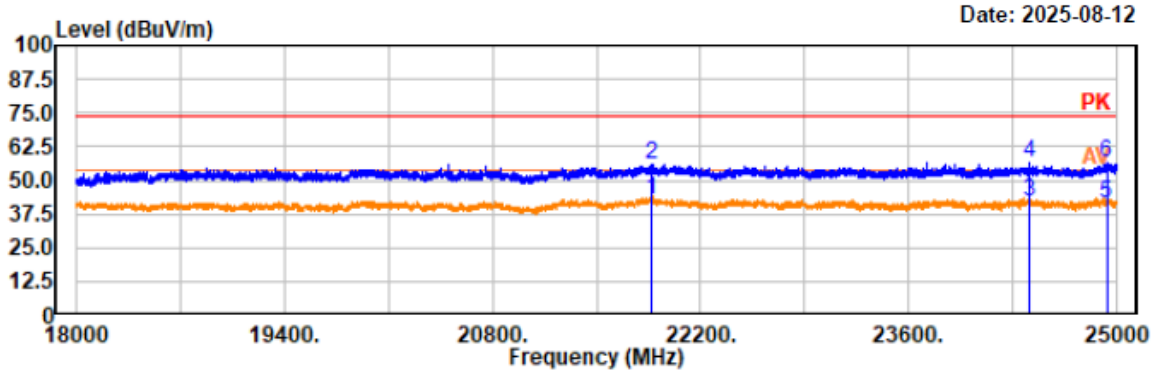
Freq MHz	Reading dBuV	Factor dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Polarity	Remark
4960.00	46.51	-5.11	41.40	74.00	32.60	vertical	Peak
7440.00	45.32	-2.03	43.29	74.00	30.71	vertical	Peak
14532.00	46.88	5.05	51.93	74.00	22.07	vertical	Peak
17991.00	36.45	6.90	43.35	54.00	10.65	vertical	Average
17991.00	46.51	6.90	53.41	74.00	20.59	vertical	Peak

5) 18 GHz-25 GHz

Note: The maximum output power mode: BDR Low channel was tested.

Project No.: 2507V68747E-RF
Test Mode: BDR DH1 2402MHz
EUT Model: ME30S
Test distance: 1.5m

Temp/Humi/ATM: 24.6℃/58%/100.1kPa
Tested by: Wlif Wu
Power Source: AC 120V/60Hz

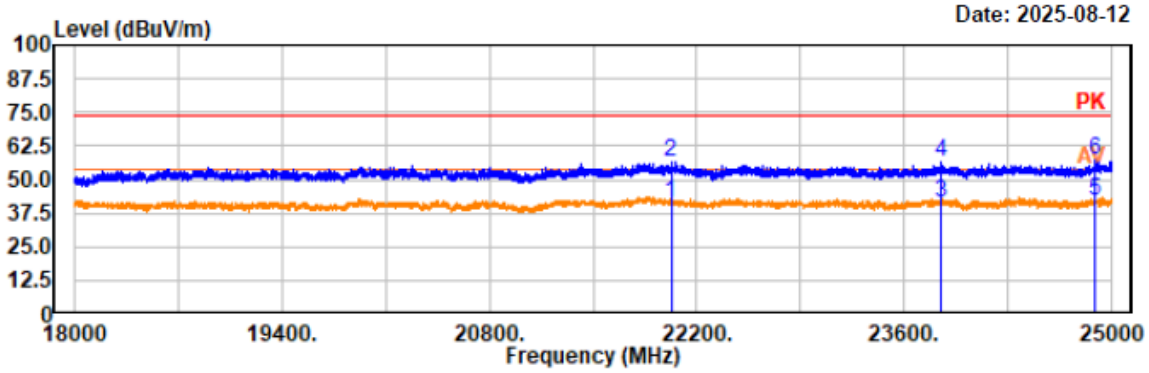


Trace: 1
Condition: PK RBW:1MHz VBW:3MHz SWT:auto
AV RBW:1MHz VBW:5kHz SWT:auto

Freq MHz	Reading dBuV	Factor dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Polarity	Remark
21866.65	37.57	5.17	42.74	54.00	11.26	horizontal	Average
21866.65	50.52	5.17	55.69	74.00	18.31	horizontal	Peak
24416.65	35.70	6.10	41.80	54.00	12.20	horizontal	Average
24416.65	50.77	6.10	56.87	74.00	17.13	horizontal	Peak
24933.45	34.79	6.31	41.10	54.00	12.90	horizontal	Average
24933.45	50.58	6.31	56.89	74.00	17.11	horizontal	Peak

Project No.: 2507V68747E-RF
Test Mode: BDR DH1 2402MHz
EUT Model: ME30S
Test distance: 1.5m

Temp/Humi/ATM: 24.6℃/58%/100.1kPa
Tested by: Wlif Wu
Power Source: AC 120V/60Hz



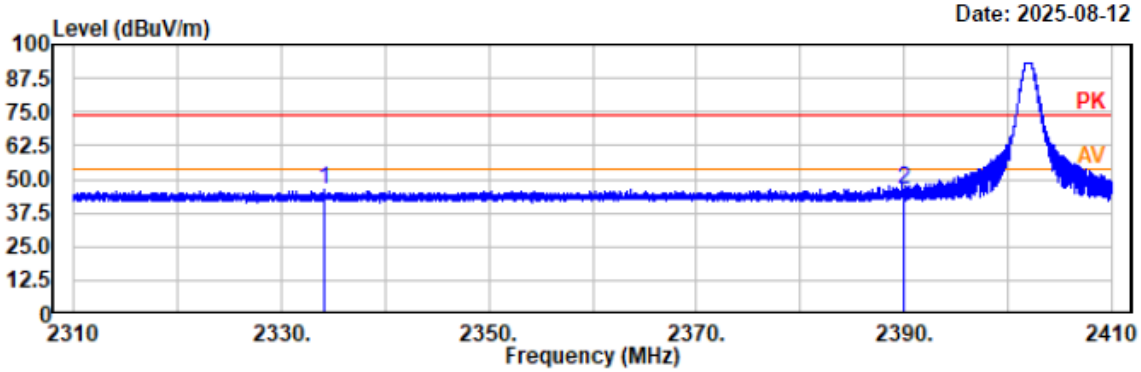
Trace: 1
Condition: PK RBW:1MHz VBW:3MHz SWT:auto
AV RBW:1MHz VBW:5kHz SWT:auto

Freq	Reading	Factor	Result	Limit	Margin	Polarity	Remark
MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB		
22026.45	36.01	5.18	41.19	54.00	12.81	vertical	Average
22026.45	51.26	5.18	56.44	74.00	17.56	vertical	Peak
23847.15	36.35	5.30	41.65	54.00	12.35	vertical	Average
23847.15	51.09	5.30	56.39	74.00	17.61	vertical	Peak
24890.10	35.53	6.31	41.84	54.00	12.16	vertical	Average
24890.10	50.61	6.31	56.92	74.00	17.08	vertical	Peak

Restricted Bands Emissions:

Project No.: 2507V68747E-RF
Test Mode: BDR DH1 2402MHz
EUT Model: ME30S
Test distance: 3m

Temp/Humi/ATM: 24.6℃/58%/100.1kPa
Tested by: Wlif Wu
Power Source: AC 120V/60Hz

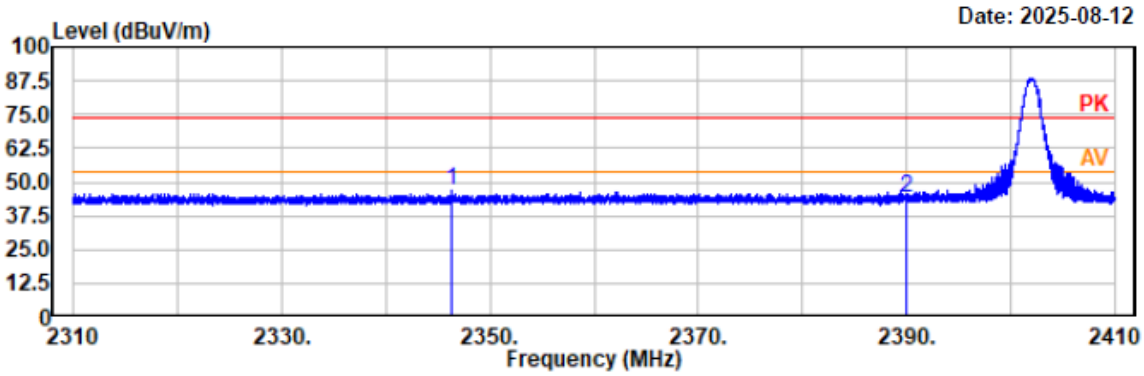


Condition: PK RBW:1MHz VBW:3MHz SWT:auto

Freq	Reading	Factor	Result	Limit	Margin	Polarity	Remark
MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB		
2334.08	47.79	-1.35	46.44	74.00	27.56	horizontal	Peak
2390.00	47.03	-1.15	45.88	74.00	28.12	horizontal	Peak

Project No.: 2507V68747E-RF
Test Mode: BDR DH1 2402MHz
EUT Model: ME30S
Test distance: 3m

Temp/Humi/ATM: 24.6℃/58%/100.1kPa
Tested by: Wlif Wu
Power Source: AC 120V/60Hz

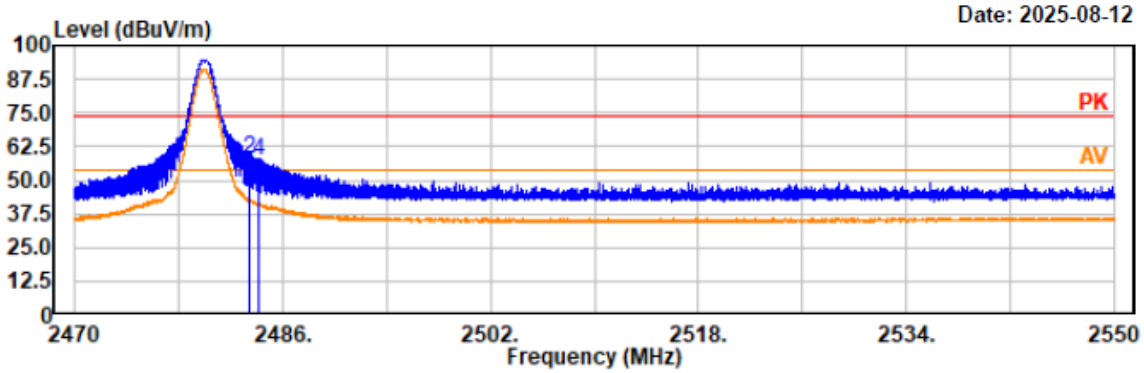


Condition: PK RBW:1MHz VBW:3MHz SWT:auto

Freq	Reading	Factor	Result	Limit	Margin	Polarity	Remark
MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB		
2346.29	48.04	-1.33	46.71	74.00	27.29	vertical	Peak
2390.00	45.12	-1.15	43.97	74.00	30.03	vertical	Peak

Project No.: 2507V68747E-RF
Test Mode: BDR DH1 2480MHz
EUT Model: ME30S
Test distance: 3m

Temp/Humi/ATM: 24.6℃/58%/100.1kPa
Tested by: Wlif Wu
Power Source: AC 120V/60Hz

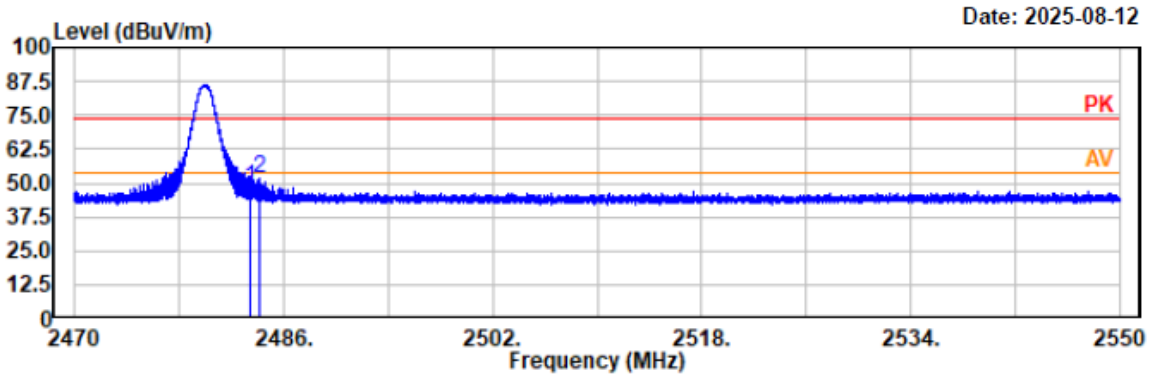


Trace: 1
Condition: PK RBW:1MHz VBW:3MHz SWT:auto
AV RBW:1MHz VBW:5kHz SWT:auto

Freq	Reading	Factor	Result	Limit	Margin	Polarity	Remark
MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB		
2483.50	52.34	-0.77	51.57	54.00	2.43	horizontal	Average
2483.50	58.94	-0.77	58.17	74.00	15.83	horizontal	Peak
2484.14	50.36	-0.76	49.60	54.00	4.40	horizontal	Average
2484.14	58.03	-0.76	57.27	74.00	16.73	horizontal	Peak

Project No.: 2507V68747E-RF
Test Mode: BDR DH1 2480MHz
EUT Model: ME30S
Test distance: 3m

Temp/Humi/ATM: 24.6℃/58%/100.1kPa
Tested by: Wlif Wu
Power Source: AC 120V/60Hz

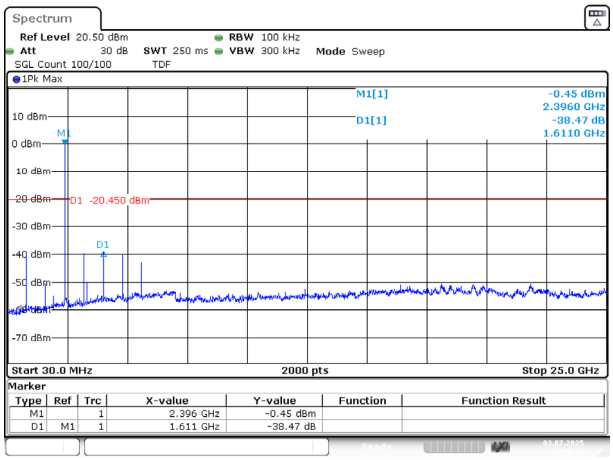


Condition: PK RBW:1MHz VBW:3MHz SWT:auto

Freq	Reading	Factor	Result	Limit	Margin	Polarity	Remark
MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB		
2483.50	49.20	-0.77	48.43	74.00	25.57	vertical	Peak
2484.13	52.59	-0.76	51.83	74.00	22.17	vertical	Peak

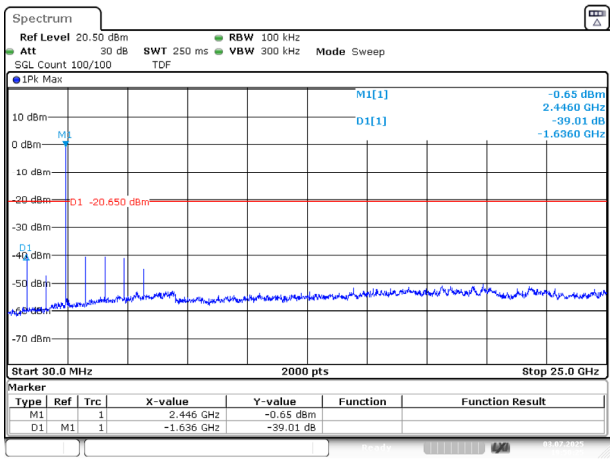
Antenna-port conducted emission:

DH1_Low



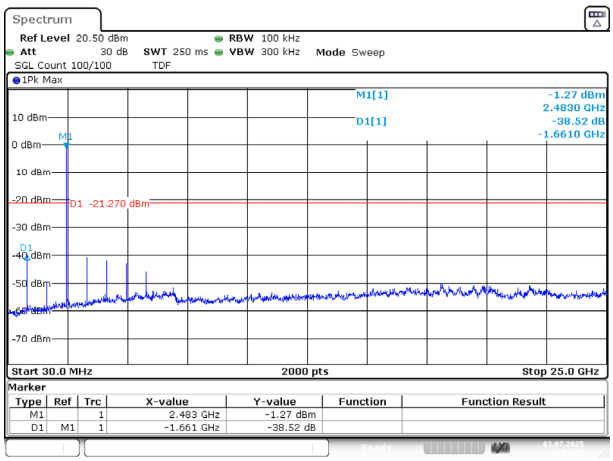
ProjectNo.:2507V68747E-RF Tester:Braylon Ma
Date: 10.JUL.2025 19:46:32

DH1_Middle



ProjectNo.:2507V68747E-RF Tester:Braylon Ma
Date: 10.JUL.2025 19:50:24

DH1_High



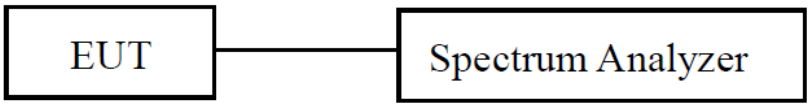
ProjectNo.:2507V68747E-RF Tester:Braylon Ma
Date: 10.JUL.2025 19:54:02

FCC §15.247(a) (1) –CHANNEL SEPARATION TEST

Applicable Standard

Frequency hopping systems shall have hoping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hopping channel, whichever is greater. Alternatively, frequency hopping systems operating in the 2400-2483.5 MHz band may have hopping channel carrier frequencies that are separated by 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel, whichever is greater provided the systems operate with an output power no greater than 125 mW.

EUT Setup



Test Procedure

According to ANSI C63.10-2020 Section 7.8.2

The EUT shall have its hopping function enabled. Use the following spectrum analyzer settings:

a) Span: Wide enough to capture the peaks of two adjacent channels.

b) RBW: Start with the RBW set to approximately 30% of the channel spacing; adjust as necessary to best identify the center of each individual channel.

c) Video (or average) bandwidth (VBW) ≥ RBW.

d) Sweep: No faster than coupled (auto) time.

e) Detector function: Peak.

f) Trace: Max-hold.

g) Allow the trace to stabilize.

Use the marker-delta function to determine the separation between the peaks of the adjacent channels. Compliance of an EUT with the appropriate regulatory limit shall be determined. A plot of the data shall be included in the test report.

Where the device shares the same channel plan (carrier frequencies and number of channels) across multiple data rates or modulation schemes then the carrier separation need only be measured for one of those modulation schemes or data rates.

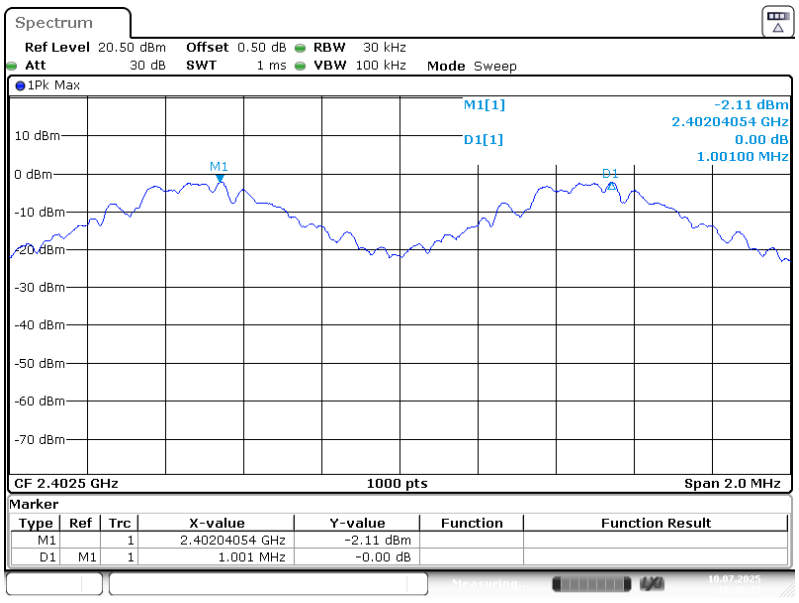
Test Data

Test Mode:	Transmitting	Test Engineer:	Braylon Ma
Test Date:	2025-07-10	Environment:	Temp.: 25.1℃ Humi.: 54% Atm.: 100 kPa

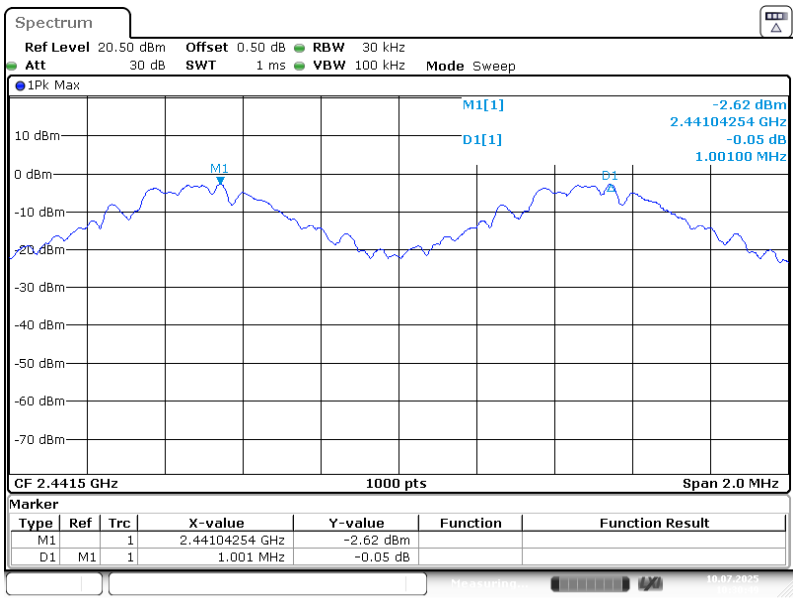
Mode	Channel	Frequency (MHz)	Channel Separation (MHz)	Limit (MHz)	Result
BDR (GFSK)	Low	2402	1.001	0.689	Pass
	Middle	2441	1.001	0.691	Pass
	High	2480	1.003	0.691	Pass

Note:
1. Limit = 20 dB bandwidth*2/3

BDR (GFSK): Low Channel



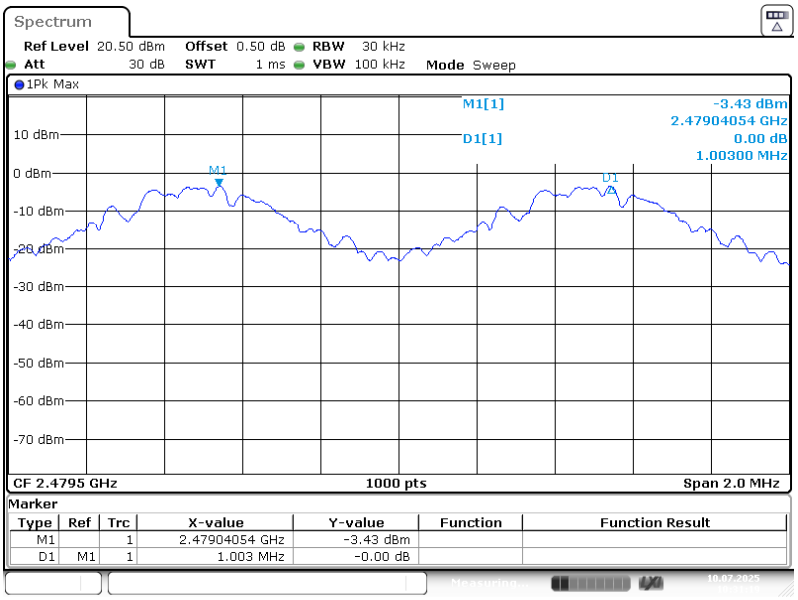
BDR (GFSK): Middle Channel



ProjectNo.:2507V68747E-RF Tester:Braylon Ma

Date: 10.JUL.2025 10:30:50

BDR (GFSK): High Channel



ProjectNo.:2507V68747E-RF Tester:Braylon Ma

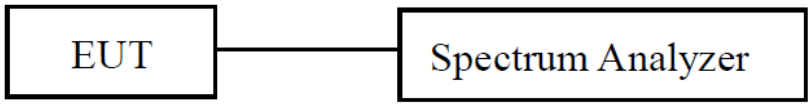
Date: 10.JUL.2025 10:31:20

FCC §15.247(a) (1) – 20 dB EMISSION BANDWIDTH

Applicable Standard

Alternatively, frequency hopping systems operating in the 2400–2483.5 MHz band may have hopping channel carrier frequencies that are separated by 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel, whichever is greater, provided the systems operate with an output power no greater than 125 mW.

EUT Setup



Test Procedure

According to ANSI C63.10-2020 Section 6.9.2

a) The spectrum analyzer center frequency is set to the nominal EUT channel center frequency. The span range for the EMI receiver or spectrum analyzer shall be between two times and five times the OBW.

b) The nominal IF filter bandwidth (3 dB RBW) shall be in the range of 1% to 5% of the OBW and video bandwidth (VBW) shall be at least three times RBW, unless otherwise specified by the applicable requirement.

c) Set the reference level of the instrument as required, keeping the signal from exceeding the maximum input mixer level for linear operation. In general, the peak of the spectral envelope shall be more than [10 log (OBW/RBW)] below the reference level. Specific guidance is given in 4.1.6.2

d) Steps a) through c) might require iteration to adjust within the specified tolerances.

e) The dynamic range of the instrument at the selected RBW shall be more than 10 dB below the target "−xx dB down" requirement; that is, if the requirement calls for measuring the −20 dB OBW, the instrument noise floor at the selected RBW shall be at least 30 dB below the reference value.

f) Set detection mode to peak and trace mode to max-hold.

g) Determine the reference value: Set the EUT to transmit an unmodulated carrier or modulated signal, as applicable. Allow the trace to stabilize. Set the spectrum analyzer marker to the highest level of the displayed trace (this is the reference value).

h) Determine the "−xx dB down amplitude" using [(reference value) − xx]. Alternatively, this calculation may be made by using the marker-delta function of the instrument.

i) If the reference value is determined by an unmodulated carrier, then turn the EUT modulation ON, and either clear the existing trace or start a new trace on the spectrum analyzer and allow the new trace to stabilize. Otherwise, the trace from step g) shall be used for step j).

j) Place two markers, one at the lowest frequency and the other at the highest frequency of the envelope of the spectral display, such that each marker is at or slightly below the "−xx dB down amplitude" determined in step h). If a marker is below this "−xx dB down amplitude" value, then it shall be as close as possible to this value. The occupied bandwidth is the frequency difference between the two markers. Alternatively, set a marker at the lowest frequency of the envelope of the spectral display, such that the marker is at or slightly below the "−xx dB down amplitude" determined in step h). Reset the marker-delta function and move the marker to the other side of the emission until the delta marker amplitude is at the same level as the reference marker amplitude. The marker-delta frequency reading at this point is the specified emission bandwidth.

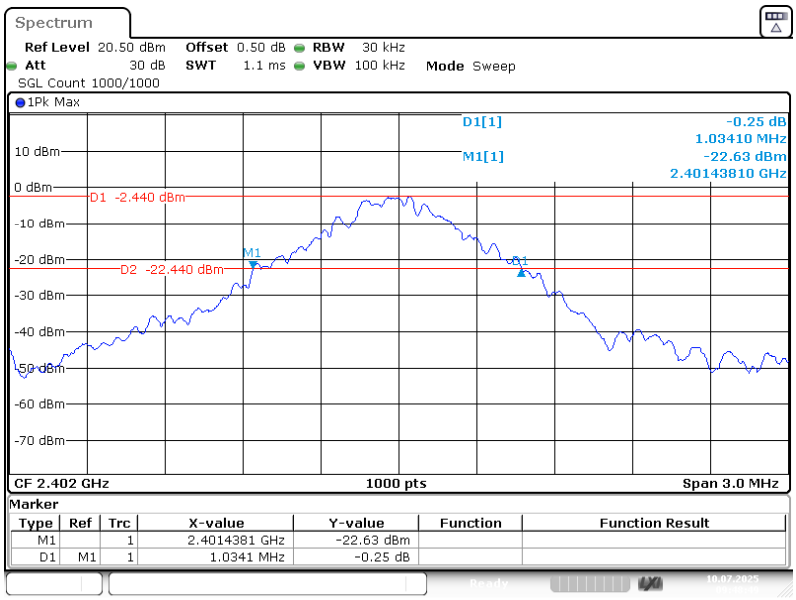
k) The occupied bandwidth shall be reported by providing plot(s) of the measuring instrument display; the plot axes and the scale units per division shall be clearly labeled. Tabular data may be reported in addition to the plot(s).

Test Data

Test Mode:	Transmitting	**Test Engineer:**	Braylon Ma
Test Date:	2025-07-10	**Environment:**	Temp.: 25.1℃ Humi.: 54% Atm.: 100 kPa
Mode	**Channel**	**Frequency (MHz)**	**20 dB Emission Bandwidth (MHz)**
BDR (GFSK)	Low	2402	1.034
	Middle	2441	1.036
	High	2480	1.036

Please refer to below plots:

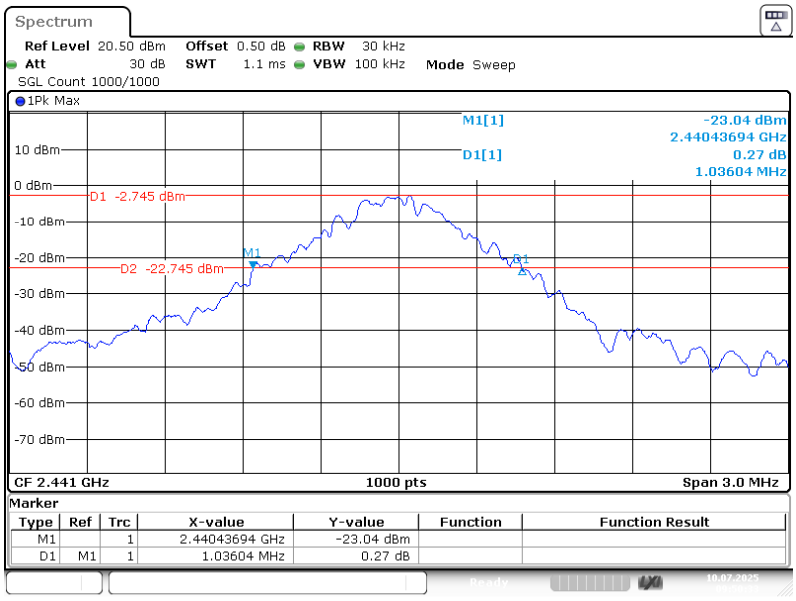
BDR (GFSK): Low Channel



ProjectNo.:2507V68747E-RF Tester:Braylon Ma

Date: 10.JUL.2025 09:48:48

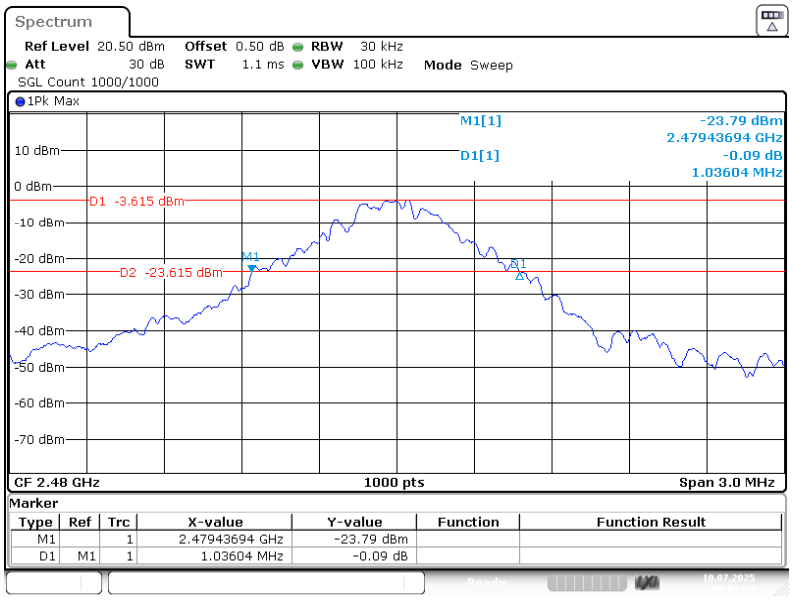
BDR (GFSK): Middle Channel



ProjectNo.:2507V68747E-RF Tester:Braylon Ma

Date: 10.JUL.2025 09:50:33

BDR (GFSK): High Channel



ProjectNo.:2507V68747E-RF Tester:Braylon Ma

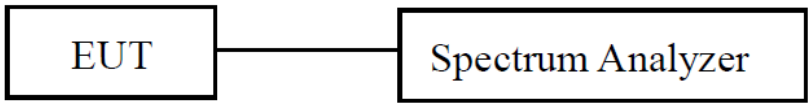
Date: 10.JUL.2025 09:51:23

FCC §15.247(a) (1) (iii)-QUANTITY OF HOPPING CHANNEL TEST

Applicable Standard

Frequency hopping systems in the 2400–2483.5 MHz band shall use at least 15 channels. The average time of occupancy on any channel shall not be greater than 0.4 seconds within a period of 0.4 seconds multiplied by the number of hopping channels employed. Frequency hopping systems may avoid or suppress transmissions on a particular hopping frequency provided that a minimum of 15 channels are used.

EUT Setup



Test Procedure

According to ANSI C63.10-2020 Section 7.8.3

The EUT shall have its hopping function enabled. Use the following spectrum analyzer settings:

a) Span: The frequency band of operation. Depending on the number of channels the device supports, it may be necessary to divide the frequency range of operation across multiple spans, to allow the individual channels to be clearly seen.

b) RBW: To identify clearly the individual channels, set the RBW to less than 30% of the channel spacing or the 20 dB bandwidth, whichever is smaller.

c) VBW ≥ RBW.

d) Sweep: No faster than coupled (auto) time.

e) Detector function: Peak.

f) Trace: Max-hold.

g) Allow the trace to stabilize

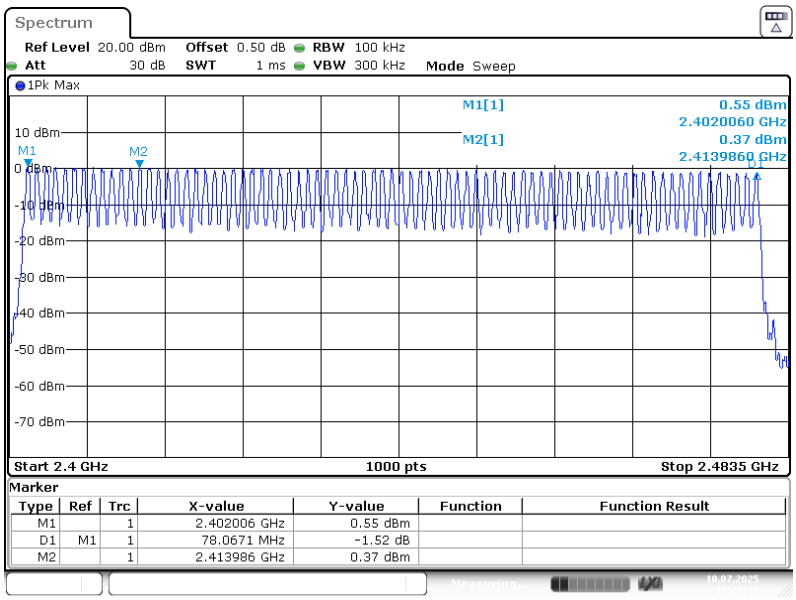
It might prove necessary to break the span up into subranges to show clearly all of the hopping frequencies. Compliance of an EUT with the appropriate regulatory limit shall be determined for the number of hopping channels. A plot of the data shall be included in the test report.

Where the device shares the same channel plan (carrier frequencies and number of channels) across multiple data rates or modulation schemes then the number of channels need only be measured for one of those modulation schemes or data rates.

Test Data

Test Mode:	Transmitting	Test Engineer:	Braylon Ma
Test Date:	2025-07-10	Environment:	Temp.: 25.1℃ Humi.: 54% Atm.: 100 kPa
Mode	**Frequency Range (MHz)**	**Number of Hopping Channel (CH)**	**Limit (CH)**
BDR (GFSK)	2400-2483.5	79	≥15

BDR (GFSK): Number of Hopping Channels

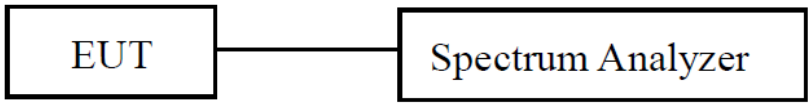


FCC §15.247(a) (1) (iii) - TIME OF OCCUPANCY (DWELL TIME)

Applicable Standard

Frequency hopping systems in the 2400-2483.5 MHz shall use at least 15 channels. The average time of occupancy on any channel shall not be greater than 0.4 seconds within a period of 0.4 seconds multiplied by the number of hopping channels employed. Frequency hopping systems may avoid or suppress transmissions on a particular hopping frequency provided that a minimum of 15 channels are used.

EUT Setup



Test Procedure

According to ANSI C63.10-2020 Section 7.8.4

Use the following spectrum analyzer settings to determine the dwell time per hop:

a) Span: Zero span, centered on a hopping channel.

b) RBW shall be ≤ channel spacing and where possible RBW should be set >> 1 / T, where T is the expected transmission time per hop.

c) Sweep time: Set so that the start of the first transmission and end of the last transmission for the hop are clearly captured. Setting the sweep time to be slightly longer than the hopping period per channel (hopping period = 1/hopping rate) should achieve this.

d) Use a video trigger, where possible with a trigger delay, so that the start of the transmission is clearly observed. The trigger level might need adjustment to reduce the chance of triggering when the system hops on an adjacent channel.

e) Detector function: Peak.

f) Trace: Clear-write, single sweep.

g) Place markers at the start of the first transmission on the channel and at the end of the last transmission. The dwell time per hop is the time between these two markers.

To determine the number of hops on a channel in the regulatory observation period repeat the measurement using a longer sweep time. When the device uses a single hopping sequence the period of measurement should be sufficient to capture at least 2 hops. When the device uses a dynamic hopping sequence, or the sequence varies, the period of measurement may need to capture multiple hops to better determine the average time of occupancy. Count the number of hops on the channel across the sweep time.

The average number of hops on the same channel within the regulatory observation period is calculated from the number of hops on the channel divided by the spectrum analyzer sweep time multiplied by the regulatory observation period. For example, if three hops are counted with an analyzer sweep time of 500

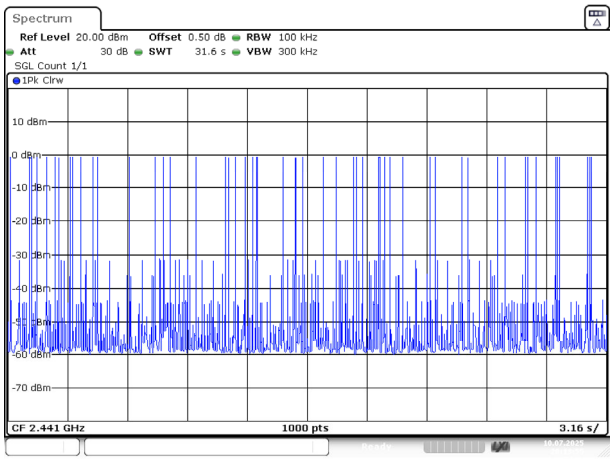
ms and the regulatory observation period is 10 s, then the number of hops in that ten seconds is 3 / 0.5 × 10, or 60 hops.

The average time of occupancy is calculated by multiplying the dwell time per hop by the number of hops in the observation period.

Test Data

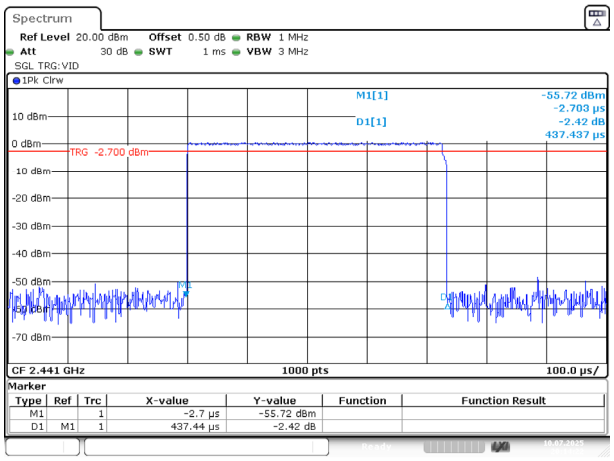
Test Mode:		Transmitting		**Test Engineer:**		Braylon Ma
Test Date:		2025-07-10		**Environment:**		Temp.: 25.1℃ Humi.: 54% Atm.: 100 kPa
Mode	**Packet Type**	**Test Frequency (MHz)**	**BurstWidth (ms)**	**TotalHops (Num)**	**Result (s)**	**Limit (s)**
BDR (GFSK)	DH1	2441	0.437	52	0.023	0.400
	DH3	2441	1.646	34	0.056	0.400
	DH5	2441	2.853	30	0.086	0.400
Note: Note 1: A period time = 0.4*79 = 31.6(S), Result = BurstWidth * Totalhops Note 2: Totalhops = Hopping Number in 31.6s Note 3: Hopping Number in 31.6s = Total of highest signals in 31.6s(Second high signals were other channel)						

DH1_Hopping



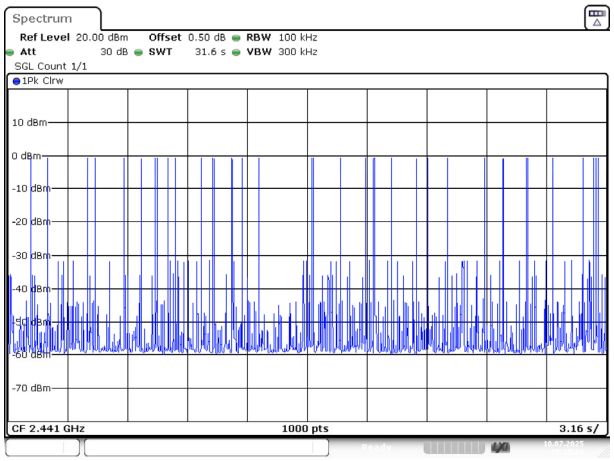
ProjectNo.:2507V68747E-RF Tester:Braylon Ma
Date: 10.JUL.2025 20:13:55

DH1_Hopping



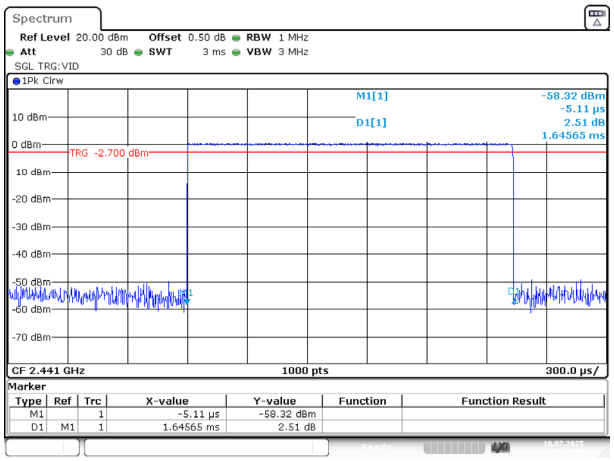
ProjectNo.:2507V68747E-RF Tester:Braylon Ma
Date: 10.JUL.2025 20:14:23

DH3_Hopping



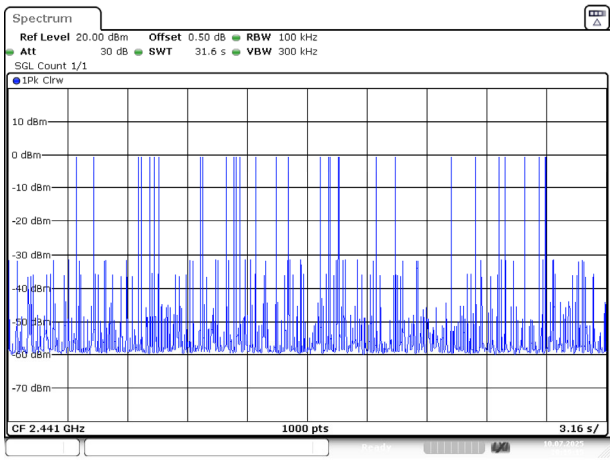
ProjectNo.:2507V68747E-RF Tester:Braylon Ma
Date: 10.JUL.2025 20:15:27

DH3_Hopping



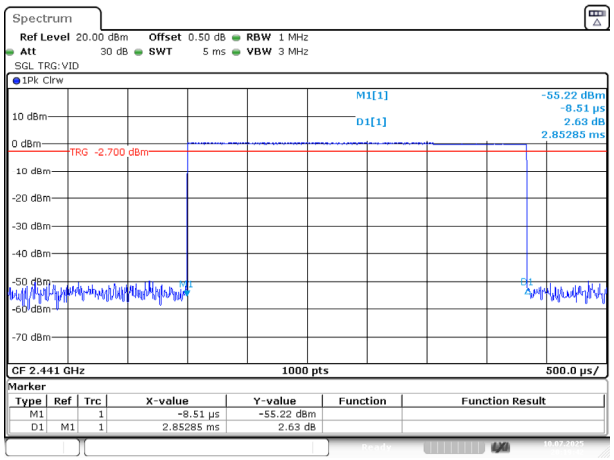
ProjectNo.:2507V68747E-RF Tester:Braylon Ma
Date: 10.JUL.2025 20:15:58

DH5_Hopping



ProjectNo.:2507V68747E-RF Tester:Braylon Ma
Date: 10.JUL.2025 20:19:15

DH5_Hopping



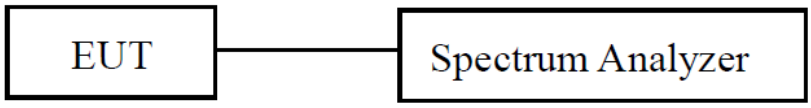
ProjectNo.:2507V68747E-RF Tester:Braylon Ma
Date: 10.JUL.2025 20:19:43

FCC §15.247(b) (1) - PEAK OUTPUT POWER MEASUREMENT

Applicable Standard

According to §15.247(b) (1), for frequency hopping systems operating in the 2400–2483.5 MHz band employing at least 75 non-overlapping hopping channels, and all frequency hopping systems in the 5725-5850 MHz band: 1 watt. And for all other frequency hopping systems in the 2400–2483.5 MHz band: 0.125 watts.

EUT Setup



Test Procedure

According to ANSI C63.10-2020 Section 7.8.5

This is an RF-conducted test to evaluate maximum peak output power. Use a direct connection between the antenna port of the unlicensed wireless device and the spectrum analyzer, through suitable attenuation. Frequency hopping shall be disabled for this test. Use the following spectrum analyzer setting:

a) Span: Approximately five times the 20 dB bandwidth, centered on a hopping channel.

b) RBW > 20 dB bandwidth of the emission being measured.

c) VBW ≥ RBW.

d) Sweep: No faster than coupled (auto) time.

e) Detector function: Peak.

f) Trace: Max-hold.

g) Allow trace to stabilize.

h) Use the marker-to-peak function to set the marker to the peak of the emission.

i) The indicated level is the peak output power, after any corrections for external attenuators and cables.

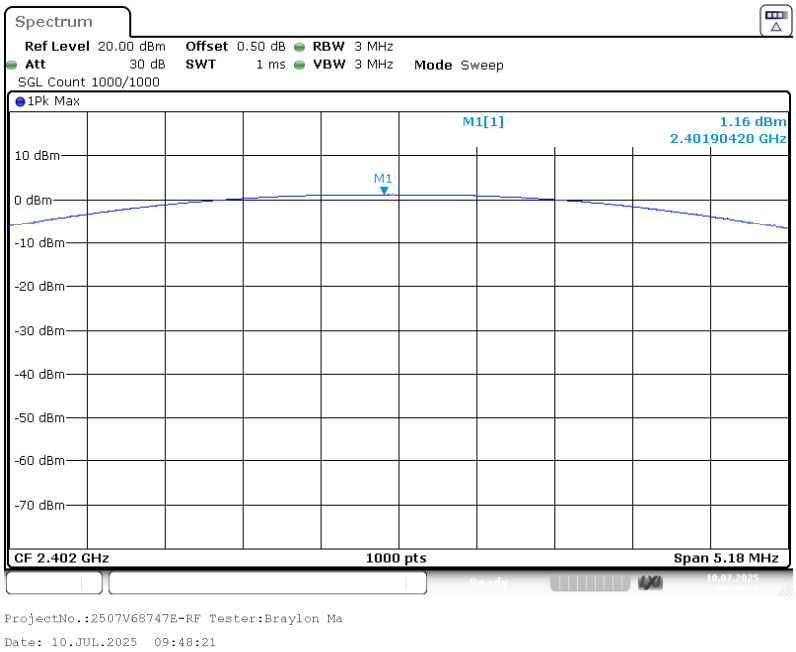
j) A plot of the test results and setup description shall be included in the test report.

Test Data

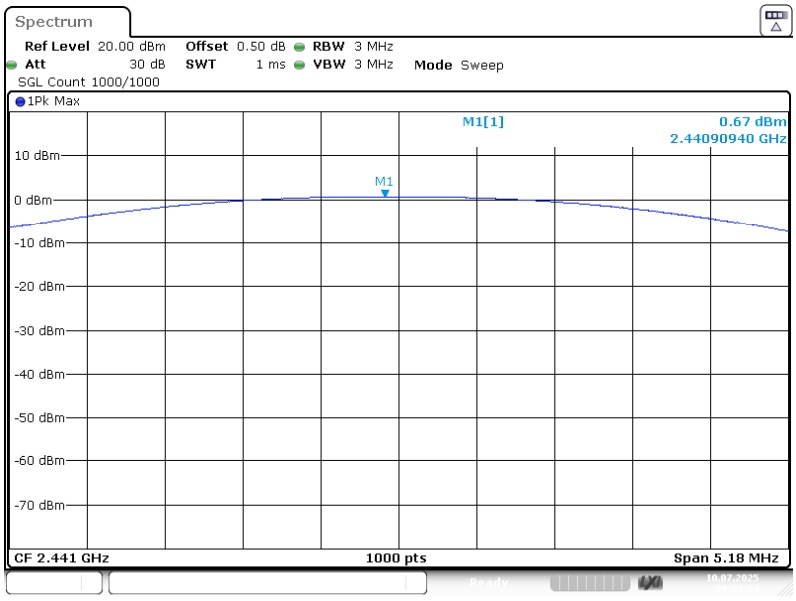
Test Mode:	Transmitting	Test Engineer:	Braylon Ma
Test Date:	2025-07-10	Environment:	Temp.: 25.1℃ Humi.: 54% Atm.: 100 kPa
Mode	**Frequency (MHz)**	**Peak Conducted Output Power (dBm)**	**Limit (dBm)**
BDR (GFSK)	2402	1.16	21
	2441	0.67	21
	2480	-0.14	21

Please refet to below plots:

BDR (GFSK): 2402MHz

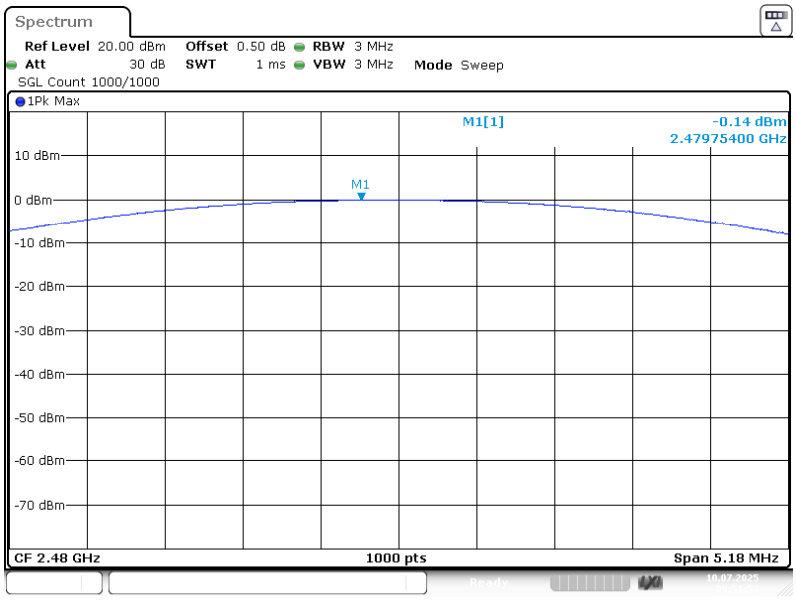


BDR (GFSK): 2441MHz



ProjectNo.:2507V68747E-RF Tester:Braylon Ma
Date: 10.JUL.2025 09:51:05

BDR (GFSK): 2480MHz



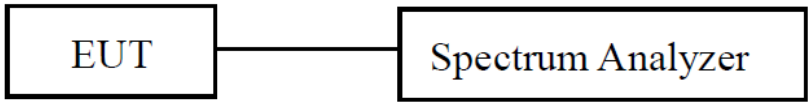
ProjectNo.:2507V68747E-RF Tester:Braylon Ma
Date: 10.JUL.2025 09:51:53

FCC §15.247(d) - BAND EDGES TESTING

Applicable Standard

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 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. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required. 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 §15.205(c)).

EUT Setup



Test Procedure

According to ANSI C63.10-2020 Section 7.8.7.2 & Claus 6.10

1) Span: Wide enough to capture the peak level of the emission operating on the channel closest to the band-edge, as well as any modulation products that fall outside of the authorized band of operation.

2) Reference level: As required to keep the signal from exceeding the maximum instrument input mixer level for linear operation. In general, the peak of the spectral envelope shall be more than [10 log (OBW/RBW)] below the reference level. Specific guidance is given in 4.1.6.2.

3) Attenuation: Auto (at least 10 dB preferred).

4) Sweep time: No faster than coupled (auto) time.

5) Resolution bandwidth: 100 kHz.

6) Video bandwidth: 300 kHz.

7) Detector: Peak.

8) Trace: Max-hold.

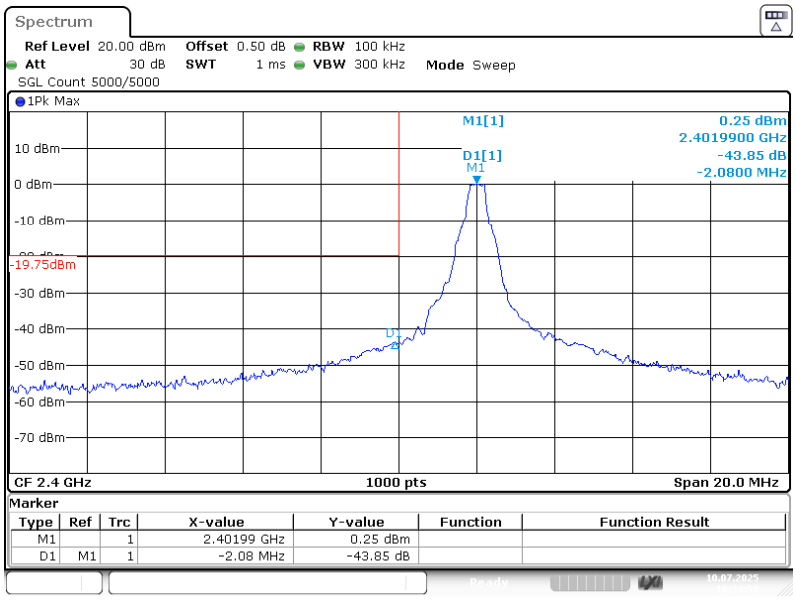
Test Data

Test Mode:	Transmitting	Test Engineer:	Braylon Ma
Test Date:	2025-07-10	Environment:	Temp.: 25.1℃ Humi.: 54% Atm.: 100 kPa

Please refer to the below plots:

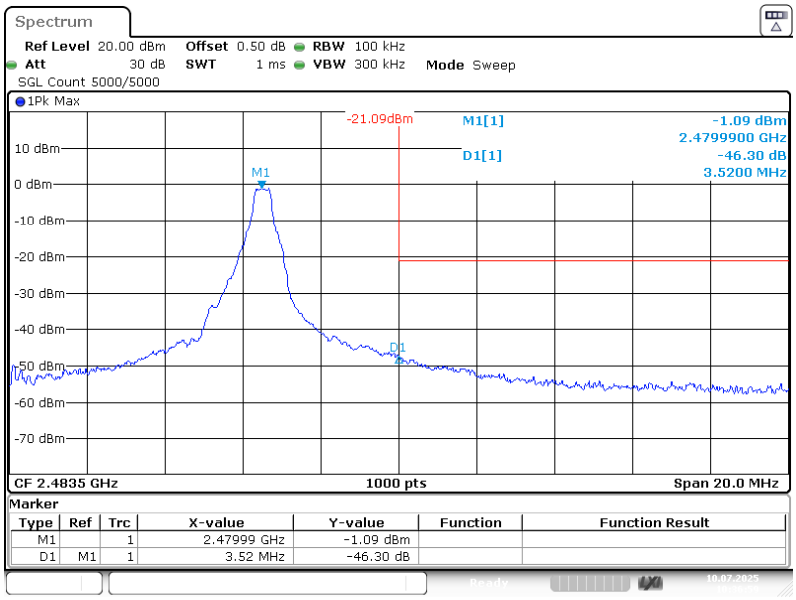
Band Edge

BDR (GFSK): Left Side



ProjectNo.:2507V68747E-RF Tester:Braylon Ma
Date: 10.JUL.2025 10:34:50

BDR (GFSK): Right Side



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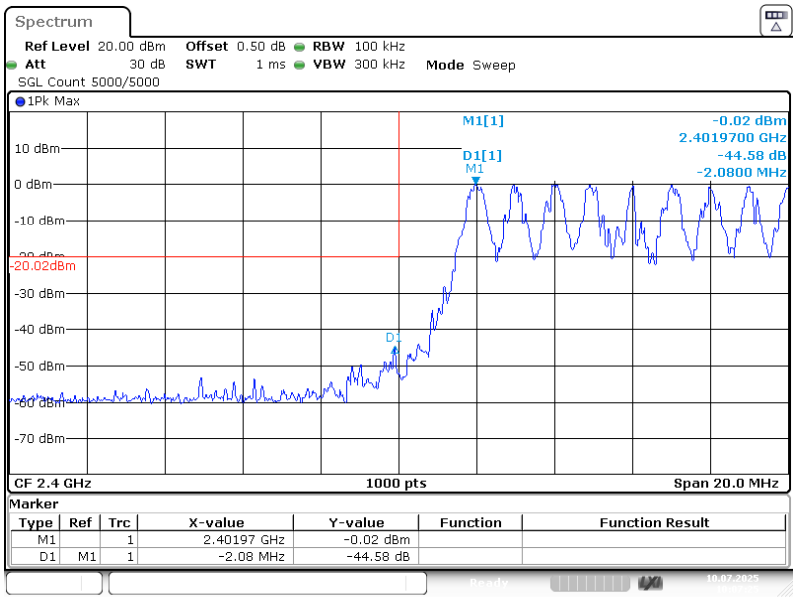
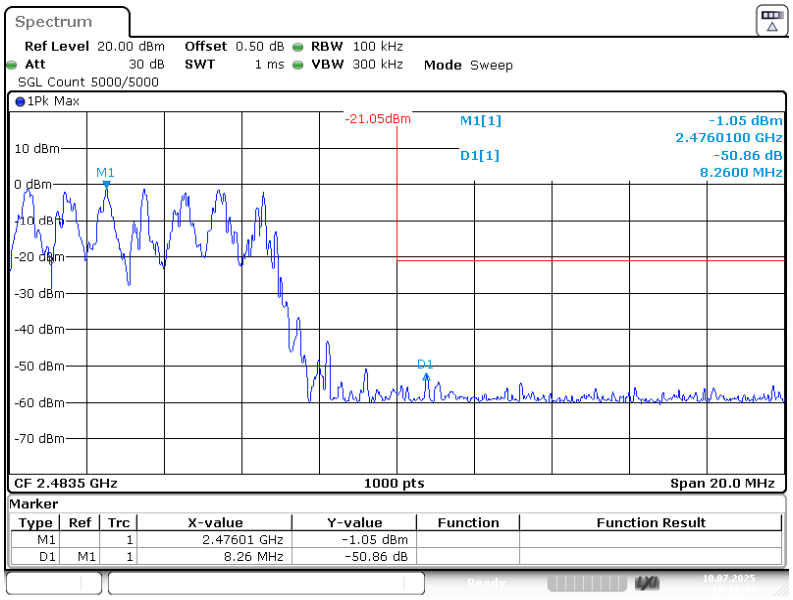
BDR (GFSK): Left Side - Hopping



ProjectNo.:2507V68747E-RF Tester:Braylon Ma

Date: 10.JUL.2025 10:07:25

BDR (GFSK): Right Side - Hopping



ProjectNo.:2507V68747E-RF Tester:Braylon Ma

Date: 10.JUL.2025 10:11:44

EUT PHOTOGRAPHS

Please refer to the attachment2507V68747E-RF-EXP EUT EXTERNAL PHOTOGRAPHS and 2507V68747E-RF-INP EUT INTERNAL PHOTOGRAPHS.

TEST SETUP PHOTOGRAPHS

Please refer to the attachment 2507V68747E-RF-TSP-01 TEST SETUP PHOTOGRAPHS.

Declarations

1. Bay Area Compliance Laboratories Corp. (Xiamen) is not responsible for authenticity of any information provided by the applicant. Information from the applicant that may affect test results are marked with an asterisk "★".

2. Unless otherwise stated, the results shown in this test report refer only to the sample(s) tested.

3. Unless required by the rule provided by the applicant or product regulations, then decision rule in this report did not consider the uncertainty.

4. The extended uncertainty given in this report is obtained by combining the standard uncertainty times the coverage factor k=2 with the 95% confidence interval.

5. This report cannot be reproduced except in full, without prior written approval of Bay Area Compliance Laboratories Corp. (Xiamen).

6. This report is valid only with a valid digital signature. The digital signature may be available only under the adobe software above version 7.0.

******* END OF REPORT *******