

<b>Prüfbericht-Nr.:</b> <i>Test report no.:</i>	CN232OYL (P15C-BT) 001	<b>Auftrags-Nr.:</b> <i>Order no.:</i>	48224241	Seite 1 von 25 Page 1 of 25
<b>Kunden-Referenz-Nr.:</b> <i>Client reference no.:</i>	N/A	<b>Auftragsdatum:</b> <i>Order date:</i>	2023-09-23	
<b>Auftraggeber:</b> <i>Client:</i>	Getac Technology Corporation. 5F., Building A, No. 209, Sec.1, Nangang Rd., Nangang Dist., Taipei City 11568, Taiwan, R.O.C.			
<b>Prüfgegenstand:</b> <i>Test item:</i>	Tablet PC			
<b>Bezeichnung / Typ-Nr.:</b> <i>Identification / Type no.:</i>	F110,F110-501			
<b>Auftrags-Inhalt:</b> <i>Order content:</i>	FCC Part 15C Test report (BT)			
<b>Prüfgrundlage:</b> <i>Test specification:</i>	FCC 47CFR Part 15: Subpart C Section 15.247			
<b>Wareneingangsdatum:</b> <i>Date of sample receipt:</i>	2023-09-26			
<b>Prüfmuster-Nr.:</b> <i>Test sample no.:</i>	A003570410-001 A003570410-003			
<b>Prüfzeitraum:</b> <i>Testing period:</i>	2023-09-22 - 2023-10-06			
<b>Ort der Prüfung:</b> <i>Place of testing:</i>	EMC/RF Taipei Testing Site			
<b>Prüflaboratorium:</b> <i>Testing laboratory:</i>	Taipei Testing Laboratories			
<b>Prüfergebnis*:</b> <i>Test result*:</i>	Pass			
<b>zusammengestellt von:</b> <i>compiled by:</i>	David Huang		<b>genehmigt von:</b> <i>authorized by:</i>	Brenda Chen
<b>Datum:</b> <i>Date:</i>	2023-10-11		<b>Ausstellungsdatum:</b> <i>Issue date:</i>	2023-10-11
<b>Stellung / Position:</b>	Project Manager		<b>Stellung / Position:</b>	Senior Project Manager
<b>Sonstiges / Other:</b>	Only RF output power, radiated spurious emissions and mains conduction tests were evaluated in this report. For other test results, please refer to module report no.: 180717-02.TR05.			
<b>Zustand des Prüfgegenstandes bei Anlieferung:</b> <i>Condition of the test item at delivery:</i>	Prüfmuster vollständig und unbeschädigt <i>Test item complete and undamaged</i>			
* Legende:	1 = sehr gut P(ass) = entspricht o.g. Prüfgrundlage(n)	2 = gut F(ail) = entspricht nicht o.g. Prüfgrundlage(n)	3 = befriedigend N/A = nicht anwendbar	4 = ausreichend N/T = nicht getestet
* Legend:	1 = very good P(ass) = passed a.m. test specification(s)	2 = good F(ail) = failed a.m. test specification(s)	3 = satisfactory N/A = not applicable	4 = sufficient N/T = not tested
<b>Dieser Prüfbericht bezieht sich nur auf das o.g. Prüfmuster und darf ohne Genehmigung der Prüfstelle nicht auszugsweise vervielfältigt werden. Dieser Bericht berechtigt nicht zur Verwendung eines Prüfzeichens.</b> <i>This test report only relates to the a. m. test sample. Without permission of the test center this test report is not permitted to be duplicated in extracts. This test report does not entitle to carry any test mark.</i>				

## TEST SUMMARY

Report Section	FCC Clause	Test Item	Result
5.1.1	15.247(b) & 15.203	Antenna Requirement	Pass
5.1.2	15.247(b)(1)	Peak Output Power	Pass
-	15.247(a)(1)	20 dB Bandwidth	Note 1
-	2.1049	99% Occupied Bandwidth	N/A
-	15.247(d)	Conducted Spurious Emission and Band Edges	Note 1
5.1.3	15.247(d) & 15.205 & 15.209	Radiated Spurious Emissions and Band Edges	Pass
-	15.247(a)(1)	Hopping Channel Separation	Note 1
-	15.247(a)(1) (iii)	Number of Hopping Frequency Used	Note 1
-	15.247(a)(1) (iii)	Dwell Time on Each Channel	Note 1
5.2.1	15.207	Mains Conducted Emission	Pass

**Note:**

1. Refer to module report for the details.
2. If the Frequency Hopping Systems operating in 2400-2483.5 MHz band and the output power less than 125 mW. The hopping channel carrier frequencies separated by a minimum of 25 kHz or two-thirds of the 20 dB bandwidth of hopping channel whichever is greater.
3. Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.

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**APPENDIX A - TEST RESULT OF RADIATED EMISSIONS & MAINS CONDUCTED EMISSION**

**APPENDIX SP - PHOTOGRAPHS TEST SETUP**

**APPENDIX EP - PHOTOGRAPHS OF EUT**

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### HISTORY OF THIS TEST REPORT

Revision	Description	Date Issued
R01	Original Release	2023-10-11

## 1. General Remarks

### 1.1 Complementary Materials

All attachments are integral parts of this test report. This applies especially to the following appendix:

**Appendix A - Test Result of Radiated Emissions & Mains Conducted Emission**

**Appendix SP - Photographs Test Setup**

**Appendix EP - Photographs of EUT**

### Applied Standard and Test Levels

Radio
FCC 47CFR Part 15: Subpart C Section 15.247
FCC 47CFR Part 2: Subpart J Section 2.1049
ANSI C63.10:2013
KDB 558074 D01 15.247 Meas Guidance v05r02

### 1.2 Decision Rule of Conformity

The decision rule of conformity of this test report is following the requirements of the requested standard in the quotation, and agreed among testing laboratory and manufacturer (applicant) to exclude the consideration of Measurement Uncertainty, unless it is required by the specific standard.

## 2. Test Sites

### 2.1 Test Laboratory

Taipei Testing Laboratories

11F. No.758, Sec. 4, Bade Rd., Songshan Dist.  
Taipei City 105  
Taiwan (R.O.C.)

### 2.2 Test Facility

Taipei Testing Laboratories

No.458-18, Sec. 2, Fenliao Rd., Linkou Dist.,  
New Taipei City 244  
Taiwan (R.O.C.)  
FCC Registration No.: 180491  
ISED Registration No.: 25563

## 2.3 Traceability

All measurement equipment calibrations are traceable to NML(Taiwan)/NIST(USA) or where calibration is performed outside Taiwan, to equivalent nationally recognized standards organizations.

## 2.4 Calibration

Equipment requiring calibration is calibrated periodically in a suitably accredited Calibration Lab. Additionally all equipment is verified for proper performance on a regular basis using in house standards or comparisons.

## 2.5 Measurement Uncertainty

All measurement uncertainty values are shown with a coverage factor of  $k=2$  to indicate a 95% level of confidence.

### Emission Measurement Uncertainty

Parameter	Uncertainty
Radiated Emission (9 kHz ~ 30 MHz)	$\pm 1.15$ dB
Radiated Emission (30 MHz ~ 200 MHz)	$\pm 1.32$ dB
Radiated Emission (200 MHz ~ 1 GHz)	$\pm 1.31$ dB
Radiated Emission (1 GHz ~ 18 GHz)	$\pm 1.53$ dB
Radiated Emission (18 GHz ~ 40 GHz)	$\pm 2.50$ dB
Mains Conducted Emission	$\pm 1.65$ dB

### 3. General Product Information

#### 3.1 Product Function and Intended Use

The EUT is a Tablet PC. It contains a Bluetooth compatible module enabling the user to communicate data through a Wireless interface.

For details refer to the User Guide, Data Sheet and Circuit Diagram.

#### 3.2 System Details and Ratings

##### Basic Information of EUT

Item	EUT information
Kind of Equipment/Test Item	Tablet PC
Type Identification	F110,F110-501
FCC ID	QYLAX201NG

##### Technical Specification of EUT

Item	EUT information
Operating Frequency	2402 MHz ~ 2480 MHz
Channel Spacing	1 MHz
Channel Number	79
Operation Voltage	120 Vac
Modulation	GFSK, $\pi/4$ -DQPSK, 8DPSK
Maximum Output Power (mW)	10.023
Antenna Information	Refer to 5.1.1
Accessory Device	Refer to 4.4

Note:

- All models are listed as below.

Main Model	Series Model	Difference
F110	F110-501	The purpose of model naming different is for market segmentation purpose only.



### **3.3 Noise Generating and Noise Suppressing Parts**

Refer to the Circuit Diagram.

### **3.4 Submitted Documents**

- Circuit Diagram
- Instruction Manual
- Rating Label
- Technical Description

## 4. Test Set-up and Operation Modes

### 4.1 Principle of Configuration Selection

The test modes were adapted accordingly in reference to the instructions for use.

During testing, Channel and Power Controlling Software provided by the customer was used to control the operating channel as well as the output power level. The RF output power selection is for the setting of RF output expected by the customer and is going to be fixed on the firmware of the final end product.

**Table for Parameters of Test Software Setting**

Frequency (MHz)	Power Setting		
	GFSK	$\pi/4$ -DQPSK	8DPSK
2402	11/-3	7/12	7/12
2441	11/-3	7/10	7/12
2480	11/-3	7/10	7/11

### 4.2 Carrier Frequency and Channel

Channel	Freq. (MHz)	Channel	Freq. (MHz)	Channel	Freq. (MHz)	Channel	Freq. (MHz)
0	2402	20	2422	40	2442	60	2462
1	2403	21	2423	41	2443	61	2463
2	2404	22	2424	42	2444	62	2464
3	2405	23	2425	43	2445	63	2465
4	2406	24	2426	44	2446	64	2466
5	2407	25	2427	45	2447	65	2467
6	2408	26	2428	46	2448	66	2468
7	2409	27	2429	47	2449	67	2469
8	2410	28	2430	48	2450	68	2470
9	2411	29	2431	49	2451	69	2471
10	2412	30	2432	50	2452	70	2472
11	2413	31	2433	51	2453	71	2473
12	2414	32	2434	52	2454	72	2474
13	2415	33	2435	53	2455	73	2475
14	2416	34	2436	54	2456	74	2476
15	2417	35	2437	55	2457	75	2477
16	2418	36	2438	56	2458	76	2478
17	2419	37	2439	57	2459	77	2479
18	2420	38	2440	58	2460	78	2480
19	2421	39	2441	59	2461		

### 4.3 Test Operation and Test Software

Setup for testing: Test samples are provided with a USB interface which makes it possible to control them through a test software installed on a notebook computer.

This software was running on the laptop computer connected to the EUT. It was used to enable the operation modes listed as below.

Test Software	DRTU
---------------	------

The samples were used as follows:

A003570410-001

A003570410-003

Full test was applied on all test modes, but only worst case was shown.

EUT Configure Mode	Applicable To				Description
	RF Output Power	Radiated Spurious Emissions above 1 GHz	Radiated Spurious Emissions below 1 GHz	Mains Conducted Emission	
-	√	√	√	√	-

Note:

1. The EUT had been pre-tested on the positioned of each 3 axis. The worst case was found when position on **Z-plane**.
2. "-" means no effect.

#### RF Output Power

- Pre-Scan full test was applied on all test modes, but only worst case was shown.
- Following channel(s) was (were) selected for the final test as listed below.

EUT Configure Mode	Available Frequency (MHz)	Tested Frequency (MHz)	Modulation Type	Packet Type
-	2402 to 2480	2402, 2441, 2480	GFSK	1DH5
-	2402 to 2480	2402, 2441, 2480	$\pi/4$ -DQPSK	2DH5
-	2402 to 2480	2402, 2441, 2480	8DPSK	3DH5

#### Radiated Spurious Emissions (Above 1 GHz)

- Pre-Scan full test was applied on all test modes, but only worst case was shown.
- Following channel(s) was (were) selected for the final test as listed below.

EUT Configure Mode	Available Frequency (MHz)	Tested Frequency (MHz)	Modulation Type	Packet Type
-	2402 to 2480	2480	GFSK	1DH5
-	2402 to 2480	2480	$\pi/4$ -DQPSK	2DH5
-	2402 to 2480	2441	8DPSK	3DH5

#### Radiated Spurious Emissions (Below 1 GHz)

- Pre-Scan full test was applied on all test modes, but only worst case was shown.
- Following channel(s) was (were) selected for the final test as listed below.

EUT Configure Mode	Available Frequency (MHz)	Tested Frequency (MHz)	Modulation Type	Packet Type
-	2402 to 2480	2480	$\pi/4$ -DQPSK	2DH5

#### Mains Conducted Emission Test

- Pre-Scan full test was applied on all test modes, but only worst case was shown.
- Following channel(s) was (were) selected for the final test as listed below.

EUT Configure Mode	Available Frequency (MHz)	Tested Frequency (MHz)	Modulation Type	Packet Type
-	2402 to 2480	2480	$\pi/4$ -DQPSK	2DH5

**Test Condition**

Test Item	Ambient Temperature	Relative Humidity	Tested by
Conducted Measurement	23.4 °C	65 %	Zeke Wang
Radiated Spurious Emissions above 1 GHz	22.6-24.5 °C	52-54 %	Roger Liao
Radiated Spurious Emissions below 1 GHz	22.6-24.5 °C	52-54 %	Roger Liao
Mains Conducted Emission	19.1-25.9 °C	50.2-58.9 %	Roger Liao

## 4.4 Special Accessories and Auxiliary Equipment

The product has been tested together with the following additional accessories:

**Accessory of EUT**

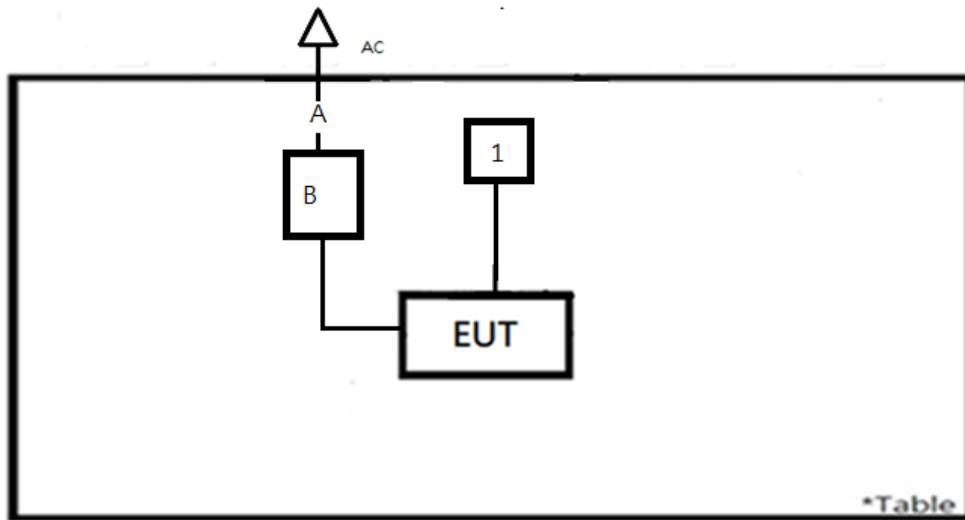
No.	Product	Brand	Model	Description
B	Switching Power Adapter	FSP	FSP090-ABBN3	I/P: 100-240 Vac, 50/60 Hz, 1.2 A O/P: 19 Vdc, 4.74 A A003570410-008

**Support Unit**

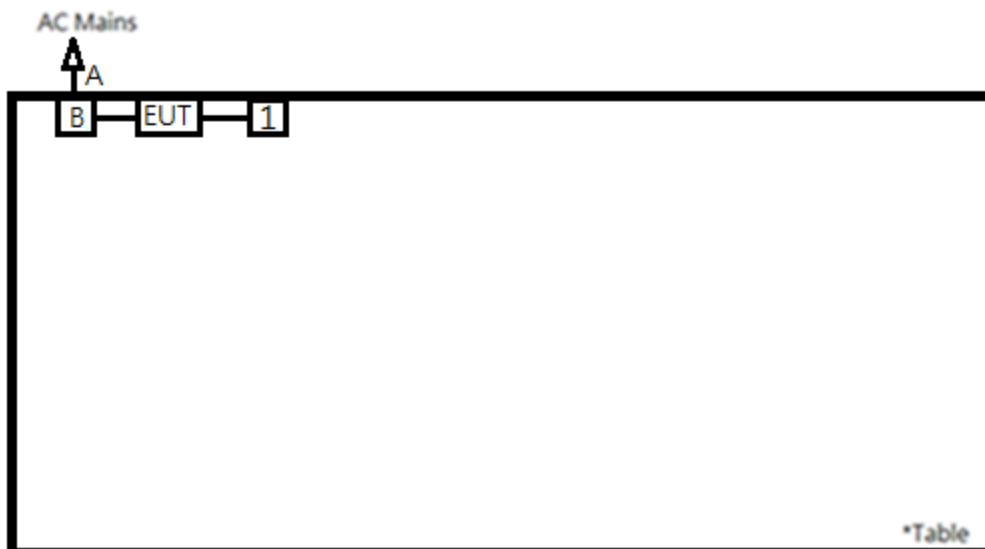
Radiated and Mains Conducted Tests								
No	Description	Brand	Model	S/N	Shielded	Ferrite Core (Qty)	Length (cm)	Remark
A	Power cord	Getac	N/A	N/A	NO	NO	180	--
1	Headset	TUV	N/A	N/A	NO	NO	130	--

### 4.5 Test Setup Diagram

<Radiated Spurious Emissions Mode>

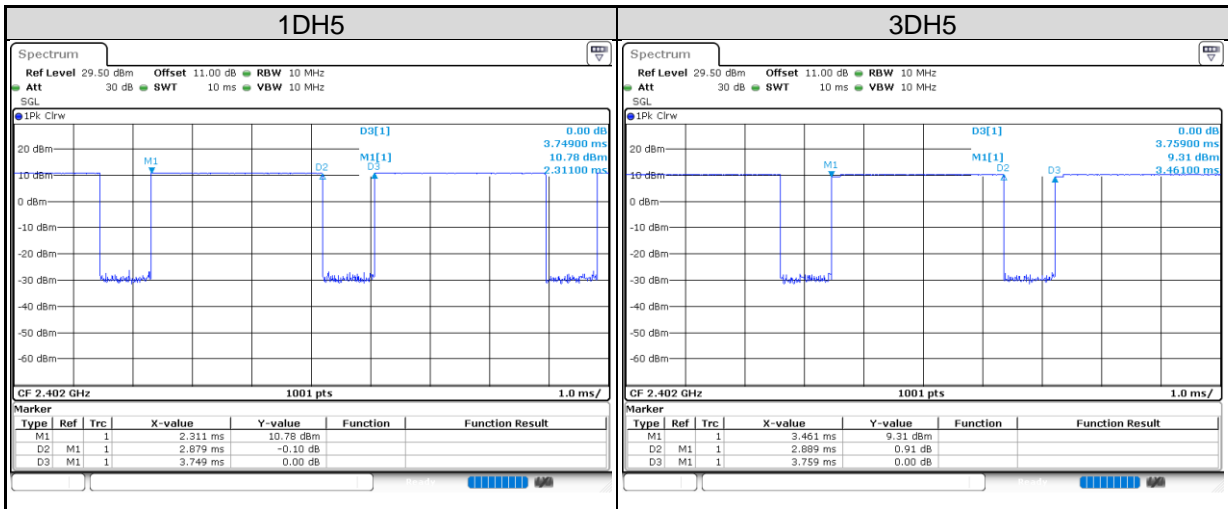


<Mains Conducted Emission Mode>



## 4.6 Duty Cycle of Test Signal

Mode	On + Off Time (ms)	On Time (ms)	Duty Cycle (%)	Duty Factor (dB)
1DH5	3.749	2.879	76.79	1.15
3DH5	3.759	2.889	76.86	1.14



## 5. Test Results

### 5.1 Transmitter Requirement & Test Suites

#### 5.1.1 Antenna Requirement

**Requirement** Use of approved antennas only

According to the manufacturer declaration, the EUT has an antenna with a directional gain of 1.83 dBi. The antenna is a PIFA antenna with no possibility of replacement with a non-approved antenna by the end-user. Therefore, the EUT is considered to comply with this provision. Refer to EUT photo for details.

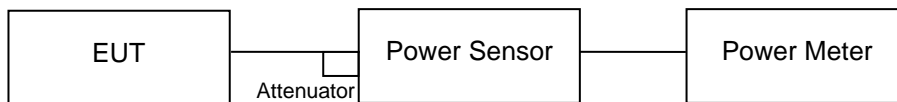
## 5.1.2 Peak Output Power

### Limit

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. For all other frequency hopping systems in the 2400-2483.5 MHz band: 0.125 watts.

**Kind of Test Site**                                  Shielded room

### Test Setup



### Test Instruments

Kind of Equipment	Manufacturer	Type	S/N	Calibration Date	Calibration Due Date	Test Date	
						From	Until
Power Meter	Anritsu	ML2495A	1901008	2023/3/17	2024/3/16	2023/9/22	2023/10/6
Power Sensor	Anritsu	MA2411B	1725269	2023/3/17	2024/3/16	2023/9/22	2023/10/6

### Test Procedures

A peak power sensor was used on the output port of the EUT. A power meter was used to read the response of the peak power sensor. Record the power level.

Average power sensor was used to perform output power measurement, trigger and gating function of wide band power meter is enabled to measure max output power of TX on burst. Duty factor is not added to measured value.



**Test Result**
**Peak Output Power**
**<GFSK>**

Channel	Channel Frequency	Peak Output Power		Limit
	(MHz)	(dBm)	(mW)	(mW)
Low Channel	2402	9.80	9.550	125
Middle Channel	2441	10.01	10.023	125
High Channel	2480	9.84	9.638	125

**< $\pi/4$ -DQPSK>**

Channel	Channel Frequency	Peak Output Power		Limit
	(MHz)	(dBm)	(mW)	(mW)
Low Channel	2402	8.81	7.603	125
Middle Channel	2441	8.97	7.889	125
High Channel	2480	8.80	7.586	125

**<8DPSK>**

Channel	Channel Frequency	Peak Output Power		Limit
	(MHz)	(dBm)	(mW)	(mW)
Low Channel	2402	8.88	7.727	125
Middle Channel	2441	9.15	8.222	125
High Channel	2480	8.91	7.780	125

**Average Power**
**<GFSK>**

Channel	Channel Frequency	Average Power	
	(MHz)	(dBm)	(mW)
Low Channel	2402	9.77	9.484
Middle Channel	2441	9.92	9.817
High Channel	2480	9.81	9.572

**< $\pi/4$ -DQPSK>**

Channel	Channel Frequency	Average Power	
	(MHz)	(dBm)	(mW)
Low Channel	2402	8.73	7.464
Middle Channel	2441	8.92	7.798
High Channel	2480	8.77	7.534

**<8DPSK>**

Channel	Channel Frequency	Average Power	
	(MHz)	(dBm)	(mW)
Low Channel	2402	8.83	7.638
Middle Channel	2441	9.11	8.147
High Channel	2480	8.86	7.691

### 5.1.3 Radiated Spurious Emissions and Band Edges

#### Limit

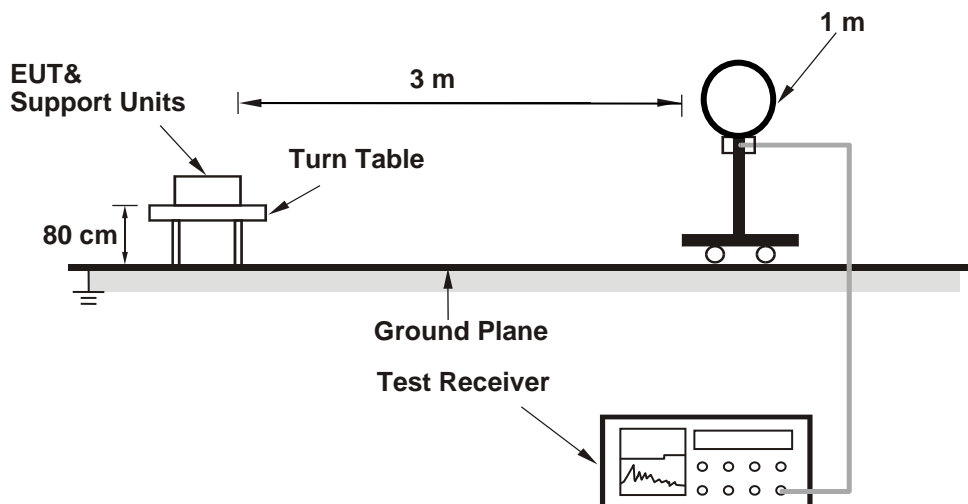
Radiated emissions which fall in the restricted bands, as defined in §15.205(a), must comply with the radiated emission limits specified in §15.209(a).

Emissions radiated outside the restricted and authorized frequency bands must either comply with the radiated emission limits specified for the restricted bands or in §15.247(d).

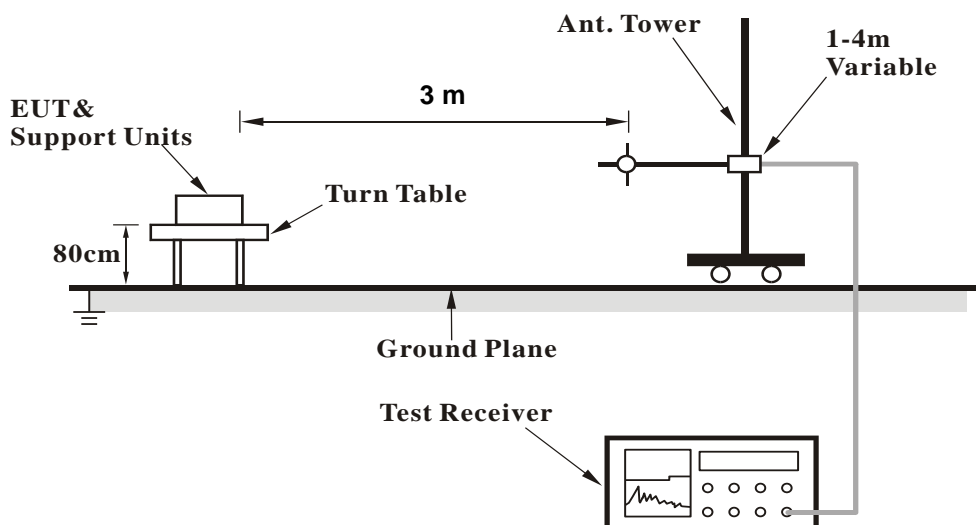
**Kind of Test Site**                      3m Semi-Anechoic Chamber

#### Test Setup

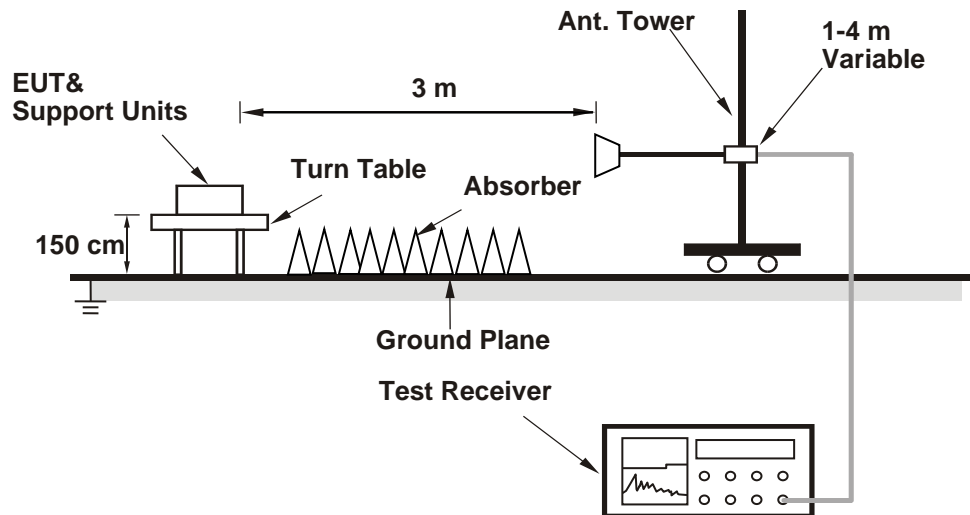
<Radiated Emissions below 30 MHz>



<Radiated Emissions 30 MHz to 1 GHz>



## &lt;Radiated Emissions above 1 GHz&gt;



For the actual test configuration, please refer to the attached file (Test Setup Photo).

**Test Instruments**

Test Date: 2023/10/3 ~ 2023/10/4

Kind of Equipment	Manufacturer	Type	S/N	Calibration Date	Calibration Due Date
Above 1GHz					
Signal Analyzer	R&S	FSV40	101509	2023/4/26	2024/4/24
Horn Antenna	ETS-Lindgren	3117	00218929	2022/11/17	2023/11/16
Horn Antenna	SCHWARZBECK	BBHA 9170	00890	2023/5/4	2024/5/2
HF-AMP + AC source	EMCI	EMC051845SE	980635	2023/2/16	2024/2/15
HF-AMP + AC source	EMCI	EMC051845SE	980656	2023/1/16	2024/1/15
30MHz-1GHz					
Receiver	R&S	ESR7	102109	2023/2/24	2024/2/23
Bilog Antenna	SCHWARZBECK	VULB-9168	00951	2023/3/31	2024/3/29
LF-AMP	Agilent	8447D	2944A107722	2023/3/22	2024/3/20
Below 1GHz					
Receiver	R&S	ESR7	102109	2023/2/24	2024/2/23
Loop Antenna	SCHWARZBECK	FMZB 1519B	00215	2023/1/4	2024/1/3

**Test Procedures****For Radiated Emissions below 30 MHz**

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter chamber room. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. Parallel (OPEN), perpendicular (CLOSE), and ground-parallel (GROUND) orientations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to Quasi-Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

## Note:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 9 kHz at frequency below 30 MHz.
2. All modes of operation were investigated and the worst-case emissions are reported.

**For Radiated Emissions above 30 MHz**

- a. The EUT was placed on the top of a rotating table 0.8 meters (for 30 MHz ~ 1 GHz) / 1.5 meters (for above 1 GHz) above the ground at 3 meter chamber room for test. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. The height of antenna is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to quasi-peak detect function and specified bandwidth with maximum hold mode when the test frequency is below 1 GHz.
- f. The test-receiver system was set to peak and average detected function and specified bandwidth with maximum hold mode when the test frequency is above 1 GHz. If the peak reading value also meets average limit, measurement with the average detector is unnecessary.

## Note:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120 kHz for Quasi-peak detection (QP) or Peak detection (PK) at frequency below 1 GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1 GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is  $\geq 1/T$  (Duty cycle < 98 %) or 10 Hz (Duty cycle  $\geq 98$  %) for Average detection (AV) at frequency above 1 GHz.
4. For fundamental frequency: The average value is "Average = Peak value + 20log(Duty cycle)  
Where the duty factor is calculated from following formula for DH5 packet type which has worst duty factor:  
 $20\log(\text{Duty cycle}) = 20\log(\text{dwell time} / 100\text{ms}) = 20\log(3.125 / 100) = -30.1 \text{ dB}$
5. All modes of operation were investigated and the worst-case emissions are reported.

6. The Radiated Emissions testing was performed in the X, Y and Z axis orientation. The worst-case Axis orientation is recorded in this test report.
7. The emission levels of other frequencies (including the 10th harmonic of the highest fundamental frequency) are very lower than the limit and are not shown in the test report.

#### **Test Results**

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

Level (dBuV/m) = Reading (dBuV) + Factor (dB/m)

Please refer to Appendix A.

## 5.2 Mains Emission

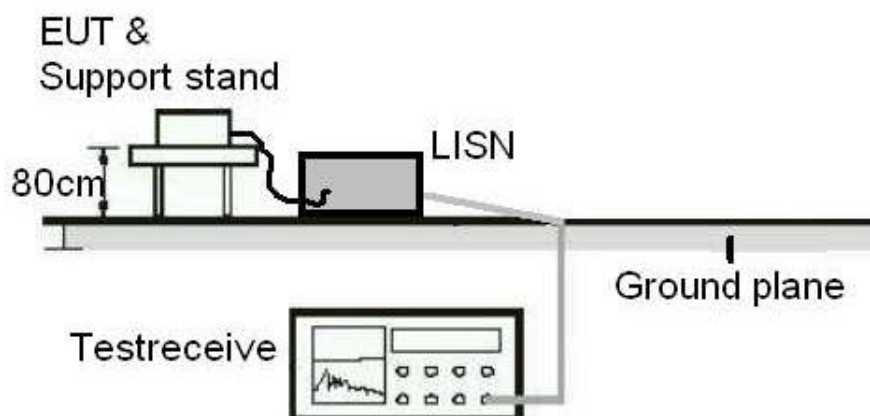
### 5.2.1 Mains Conducted Emission

#### Limit

Mains Conducted Emission as defined in §15.207 must comply with the mains conducted emission limits.

**Kind of Test Site**                      Shielded room

#### Test Setup



#### Test Instruments

Test Date: 2023/9/27

Kind of Equipment	Manufacturer	Type	S/N	Calibration Date	Calibration Due Date
Two-Line V-Network	Rohde & Schwarz	ENV216	101938	2022/10/17	2023/10/16
EMI Test Receiver	R&S	ESCI	101094	2022/11/24	2023/11/23



#### **Test Procedures**

- a. The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/50 uH of coupling impedance for the measuring instrument.
- b. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.
- c. The frequency range from 150 kHz to 30 MHz was searched. Emission levels under (Limit – 20 dB) was not recorded.

Note: The resolution bandwidth and video bandwidth of test receiver is 9 kHz for quasi-peak detection (QP) and average detection (AV) at frequency 0.15 MHz – 30 MHz.

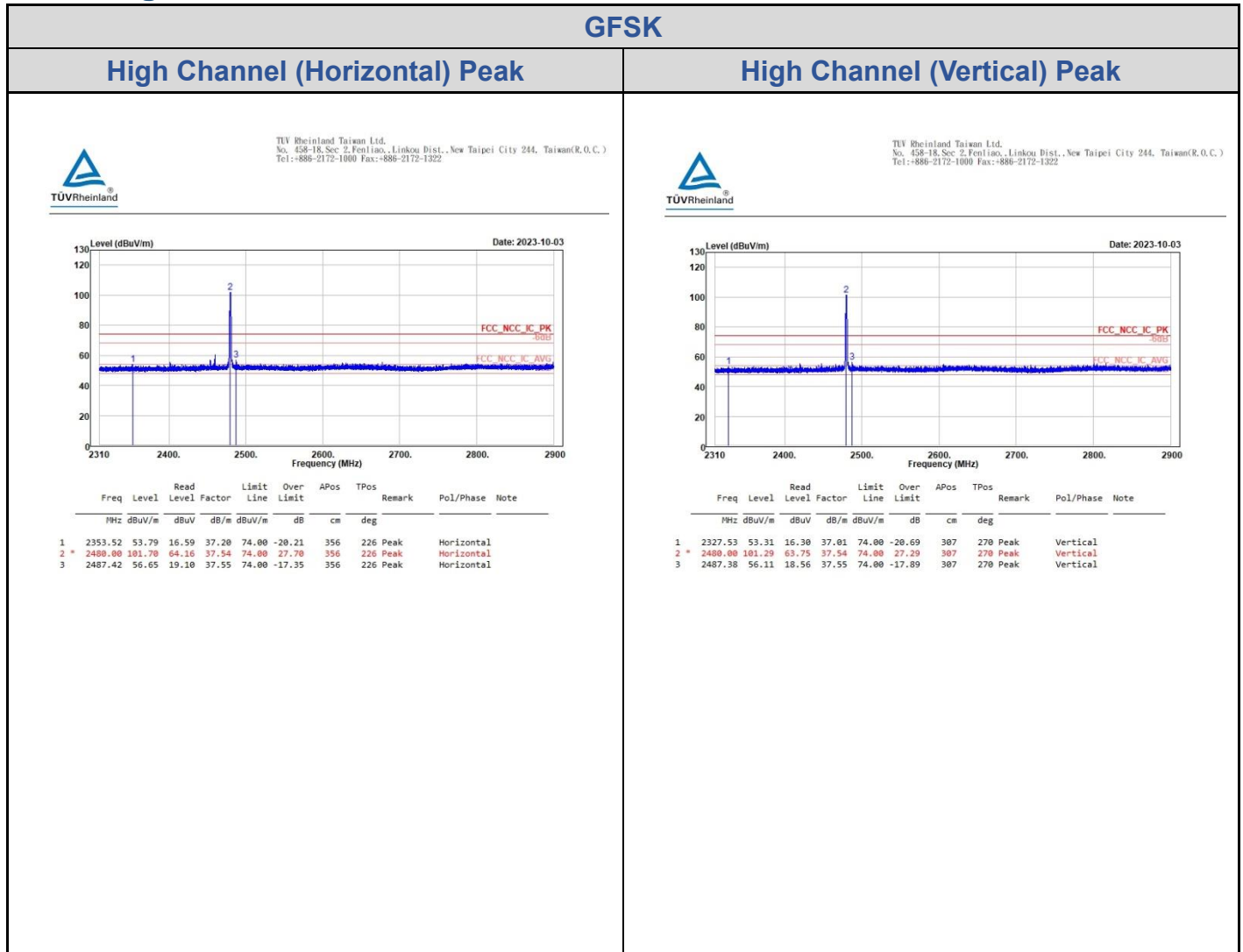
#### **Test Results**

Please refer to Appendix A.

# Appendix A: Test Results of Radiated Spurious Emissions & Mains

## Conducted Emission Test

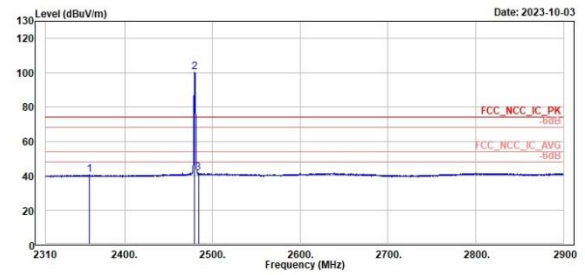
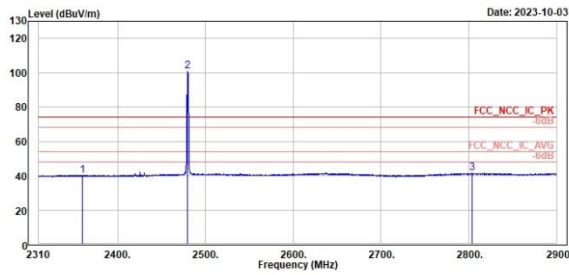
### Band Edges, 2.31GHz ~ 2.9GHz



GFSK

High Channel (Horizontal) Average

High Channel (Vertical) Average



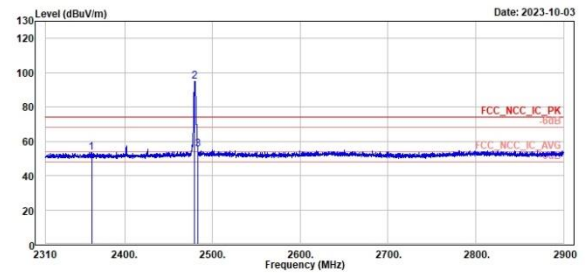
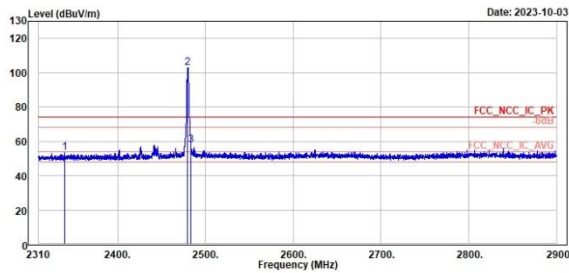
Freq	Level	Read Level	Factor	Limit Line	Over Limit	APos	TPos	Remark	Pol/Phase	Note
MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg			
1	2369.83	40.18	2.90	37.28	54.00	-13.90	356	226 Average	Horizontal	
2 *	2488.00	100.75	63.21	37.54	54.00	46.75	356	226 Average	Horizontal	
3	2803.36	41.39	3.65	37.74	54.00	-12.61	356	226 Average	Horizontal	

Freq	Level	Read Level	Factor	Limit Line	Over Limit	APos	TPos	Remark	Pol/Phase	Note
MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg			
1	2359.91	40.34	3.14	37.20	54.00	-13.66	307	270 Average	Vertical	
2 *	2488.00	100.20	62.66	37.54	54.00	46.20	307	270 Average	Vertical	
3	2483.93	41.40	3.86	37.54	54.00	-12.60	307	270 Average	Vertical	

π/4-DQPSK

High Channel (Horizontal) Peak

High Channel (Vertical) Peak



Peak	Freq (MHz)	Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit Line (dBuV/m)	Over Limit (dB)	APos (cm)	TPos (deg)	Remark	Pol/Phase	Note
1	2339.97	53.27	16.15	37.12	74.00	-20.73	358	222	Peak	Horizontal	
2 *	2488.00	102.60	65.06	37.54	74.00	28.60	358	222	Peak	Horizontal	
3	2483.46	57.95	20.41	37.54	74.00	-16.05	358	222	Peak	Horizontal	

Peak	Freq (MHz)	Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit Line (dBuV/m)	Over Limit (dB)	APos (cm)	TPos (deg)	Remark	Pol/Phase	Note
1	2362.39	53.49	16.29	37.20	74.00	-20.51	177	34	Peak	Vertical	
2 *	2488.00	94.78	57.24	37.54	74.00	20.78	177	34	Peak	Vertical	
3	2483.46	55.17	17.63	37.54	74.00	-18.83	177	34	Peak	Vertical	

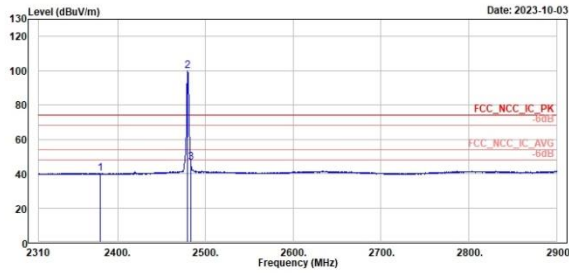
π/4-DQPSK

High Channel (Horizontal) Average

High Channel (Vertical) Average



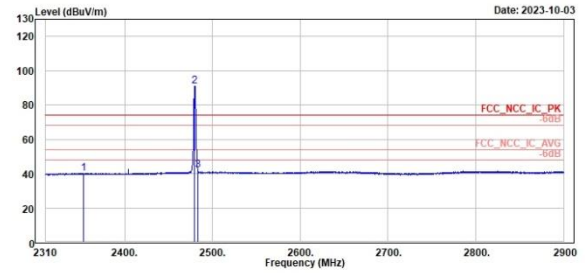
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Freq	Level	Read	Level	Factor	Limit	Over	APos	TPos	Remark	Pol/Phase	Note
MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg				
1	2380.68	40.14	2.96	37.18	54.00	-13.86	358	222	Average	Horizontal	
2 *	2480.00	99.70	62.16	37.54	54.00	45.70	358	222	Average	Horizontal	
3	2483.46	46.24	8.70	37.54	54.00	-7.76	358	222	Average	Horizontal	



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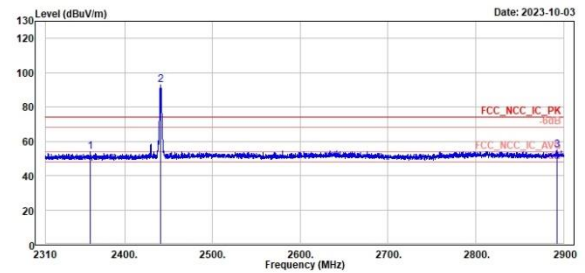
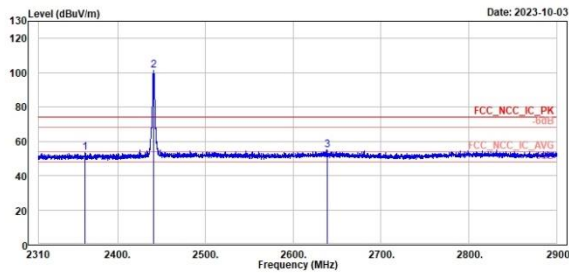


Freq	Level	Read	Level	Factor	Limit	Over	APos	TPos	Remark	Pol/Phase	Note
MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg				
1	2352.83	40.06	2.86	37.20	54.00	-13.94	177	34	Average	Vertical	
2 *	2480.00	91.07	53.53	37.54	54.00	37.07	177	34	Average	Vertical	
3	2483.46	42.08	4.54	37.54	54.00	-11.92	177	34	Average	Vertical	

8DPSK

Middle Channel (Horizontal) Peak

Middle Channel (Vertical) Peak



Freq	Level	Read Level	Factor	Limit Line	Over Limit	APos	TPos	Remark	Pol/Phase	Note
MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg			
1	2362.98	53.17	15.98	37.19	74.00	-20.83	328	225 Peak	Horizontal	
2 *	2441.00	101.33	63.88	37.45	74.00	27.33	328	225 Peak	Horizontal	
3	2638.39	54.98	17.37	37.61	74.00	-19.02	328	225 Peak	Horizontal	

Freq	Level	Read Level	Factor	Limit Line	Over Limit	APos	TPos	Remark	Pol/Phase	Note
MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg			
1	2361.33	53.72	16.52	37.20	74.00	-20.28	178	30 Peak	Vertical	
2 *	2441.00	92.74	55.29	37.45	74.00	18.74	178	30 Peak	Vertical	
3	2892.57	54.69	16.78	37.91	74.00	-19.31	178	30 Peak	Vertical	

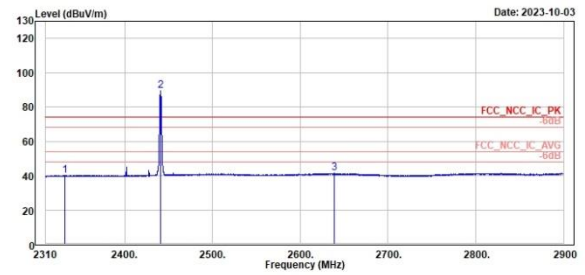
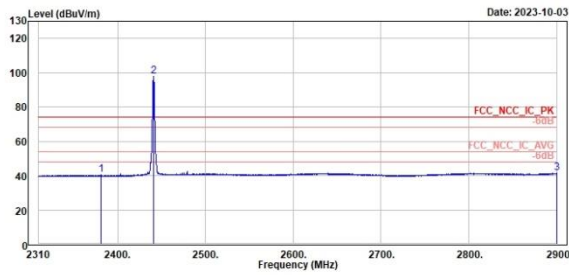
8DPSK

Middle Channel (Horizontal) Average

Middle Channel (Vertical) Average

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Freq	Level	Read	Limit	Over	APos	TPos	Remark	Pol/Phase	Note
MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg		
1	2380.00	40.30	3.12	37.18	54.00	-13.70	328	225 Average	Horizontal
2 *	2441.00	97.91	60.46	37.45	54.00	43.91	328	225 Average	Horizontal
3	2899.88	41.49	3.56	37.93	54.00	-12.51	328	225 Average	Horizontal

Freq	Level	Read	Limit	Over	APos	TPos	Remark	Pol/Phase	Note
MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg		
1	2331.95	40.06	3.01	37.05	54.00	-13.94	178	30 Average	Vertical
2 *	2441.00	89.54	52.09	37.45	54.00	35.54	178	30 Average	Vertical
3	2638.63	41.40	3.79	37.61	54.00	-12.60	178	30 Average	Vertical

Spurious Emissions, Tx Mode, 9kHz ~ 30MHz

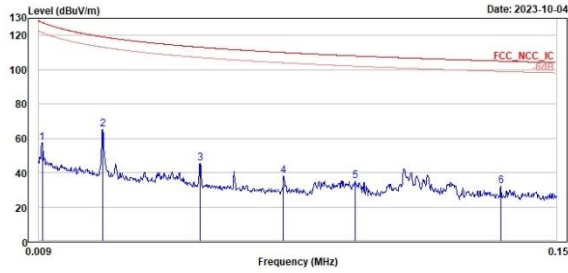
π/4-DQPSK

High Channel(Open) 9kHz~150kHz

High Channel(Open) 150kHz~30MHz



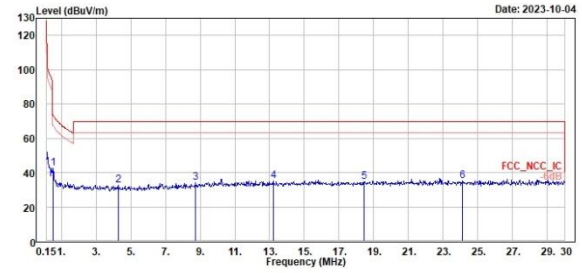
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Peak	Freq (MHz)	Level (dBuV/m)	Read Level (dBuV)	Level Factor (dB/m)	Limit Line (dBuV/m)	Over Limit (dB)	APos (cm)	TPos (deg)	Remark	Pol/Phase	Note
1	0.01	57.33	39.61	17.72	127.60	-70.27	100	283	Peak	Open	
2	0.03	65.08	46.13	18.95	119.13	-54.05	100	229	Peak	Open	
3	0.05	45.56	26.52	19.04	113.11	-67.55	100	178	Peak	Open	
4	0.08	37.82	19.32	18.50	110.01	-72.19	100	146	Peak	Open	
5	0.10	35.33	17.29	18.04	108.03	-72.70	100	204	Peak	Open	
6	0.13	31.99	13.93	18.06	105.01	-73.02	100	294	Peak	Open	



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Peak	Freq (MHz)	Level (dBuV/m)	Read Level (dBuV)	Level Factor (dB/m)	Limit Line (dBuV/m)	Over Limit (dB)	APos (cm)	TPos (deg)	Remark	Pol/Phase	Note
1	0.51	42.65	23.00	18.05	73.40	-30.83	100	191	Peak	Open	
2	4.27	32.74	13.18	19.56	69.50	-36.76	100	106	Peak	Open	
3	8.72	33.93	12.88	21.05	69.50	-35.57	100	191	Peak	Open	
4	13.22	35.03	13.22	21.81	69.50	-34.47	100	360	Peak	Open	
5	18.45	34.46	12.27	22.19	69.50	-35.04	100	89	Peak	Open	
6	24.09	35.26	12.93	22.33	69.50	-34.24	100	15	Peak	Open	



Spurious Emissions, Tx Mode, 30MHz ~ 1GHz

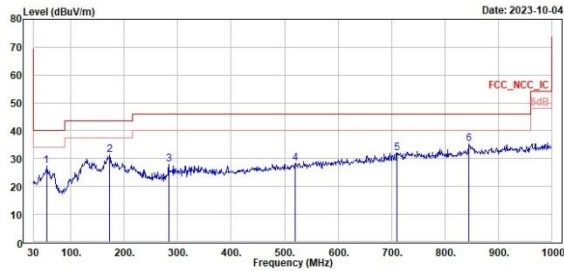
$\pi/4$ -DQPSK

High Channel (Horizontal)

High Channel (Vertical)



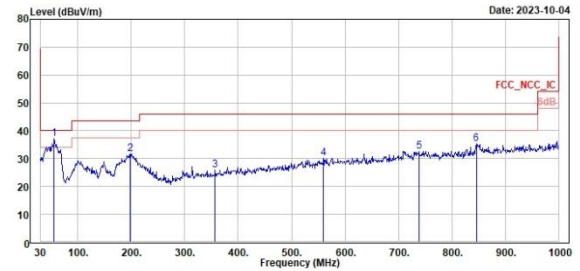
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Peak	Freq (MHz)	Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit Line (dBuV/m)	Over Limit (dB)	APos (cm)	TPos (deg)	Remark	Pol/Phase	Note
1	54.25	27.25	32.99	-5.74	46.00	-12.75	100	183	Peak	Horizontal	
2	172.59	31.42	37.49	-6.07	43.50	-12.08	200	125	Peak	Horizontal	
3	283.17	27.86	32.96	-5.10	46.00	-18.14	100	353	Peak	Horizontal	
4	519.85	28.18	29.22	-1.04	46.00	-17.82	100	225	Peak	Horizontal	
5	709.97	32.03	29.84	2.19	46.00	-13.97	200	221	Peak	Horizontal	
6	844.80	35.38	31.26	4.12	46.00	-10.62	200	85	Peak	Horizontal	



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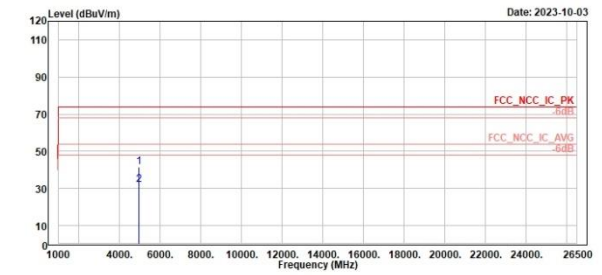
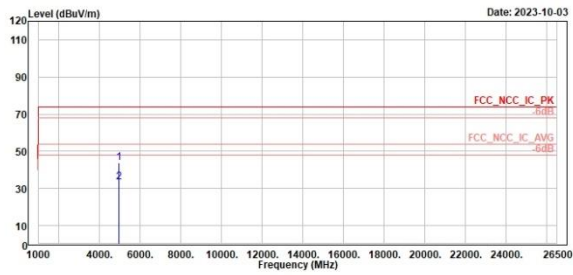
Peak	Freq (MHz)	Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit Line (dBuV/m)	Over Limit (dB)	APos (cm)	TPos (deg)	Remark	Pol/Phase	Note
1	55.22	37.19	43.13	-5.94	46.00	-2.81	100	264	Peak	Vertical	
2	197.81	31.60	40.09	-8.49	43.50	-11.90	100	68	Peak	Vertical	
3	356.89	25.93	29.58	-3.65	46.00	-20.07	200	233	Peak	Vertical	
4	559.62	30.17	30.29	-0.12	46.00	-15.83	100	302	Peak	Vertical	
5	738.10	32.65	30.02	2.63	46.00	-13.35	200	91	Peak	Vertical	
6	845.77	35.20	31.10	4.10	46.00	-10.80	100	24	Peak	Vertical	

Spurious Emissions, Tx Mode, 1GHz ~ 26.5GHz

GFSK

High Channel (Horizontal)

High Channel (Vertical)



Freq	Level	Read	Level	Factor	Limit	Over	APos	TPos	Remark	Pol/Phase	Note
MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	dB	cm	deg			
1	4968.00	43.91	52.75	-8.84	74.00	-30.09	380	219	Peak	Horizontal	
2	4968.00	33.48	42.32	-8.84	54.00	-20.52	380	219	Average	Horizontal	

Freq	Level	Read	Level	Factor	Limit	Over	APos	TPos	Remark	Pol/Phase	Note
MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	dB	cm	deg			
1	4968.00	41.44	50.28	-8.84	74.00	-32.56	280	184	Peak	Vertical	
2	4968.00	31.72	40.56	-8.84	54.00	-22.28	280	184	Average	Vertical	

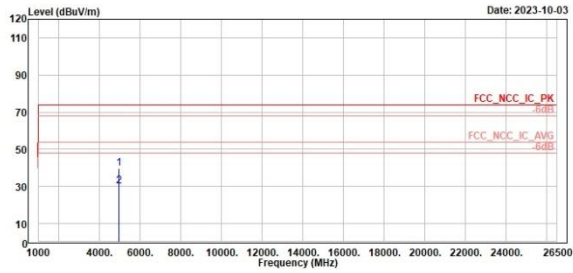
π/4-DQPSK

High Channel (Horizontal)

High Channel (Vertical)



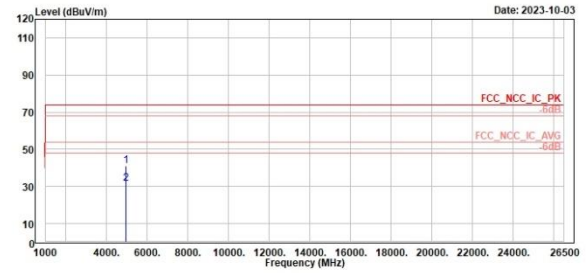
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Freq	Level	Read Level	Factor	Limit Line	Over Limit	APos	TPos	Remark	Pol/Phase	Note
MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg			
1	4968.00	39.76	48.60	-8.84	74.00	-34.24	180	195 Peak	Horizontal	
2	4968.00	29.92	38.76	-8.84	54.00	-24.08	180	195 Average	Horizontal	



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Freq	Level	Read Level	Factor	Limit Line	Over Limit	APos	TPos	Remark	Pol/Phase	Note
MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg			
1	4968.00	41.02	49.86	-8.84	74.00	-32.98	180	295 Peak	Vertical	
2	4968.00	31.41	40.25	-8.84	54.00	-22.59	180	295 Average	Vertical	

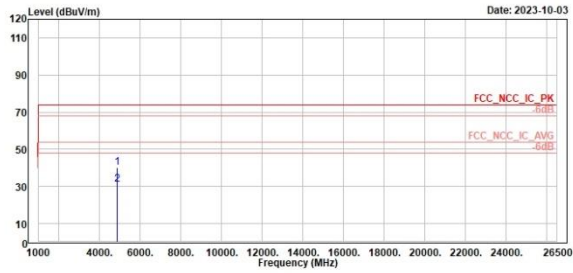
8DPSK

Middle Channel (Horizontal)

Middle Channel (Vertical)



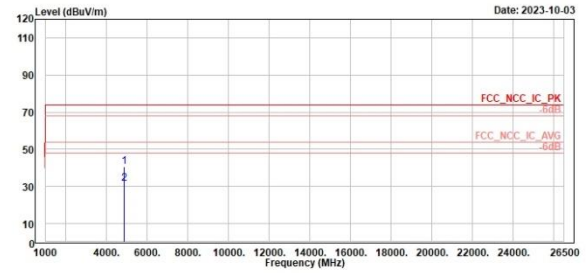
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1	2								
Freq	Level	Read	Limit	Over	APos	TPos	Remark	Pol/Phase	Note
MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg		
4882.00	40.38	49.41	-9.03	74.00	-33.62	380	243	Peak	Horizontal
4882.00	39.94	39.97	-9.03	54.00	-23.06	380	243	Average	Horizontal



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1	2								
Freq	Level	Read	Limit	Over	APos	TPos	Remark	Pol/Phase	Note
MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg		
4882.00	40.83	49.86	-9.03	74.00	-33.17	380	262	Peak	Vertical
4882.00	31.59	40.62	-9.03	54.00	-22.41	380	262	Average	Vertical

Mains Conducted Emission, Tx Mode, 150kHz ~ 30MHz

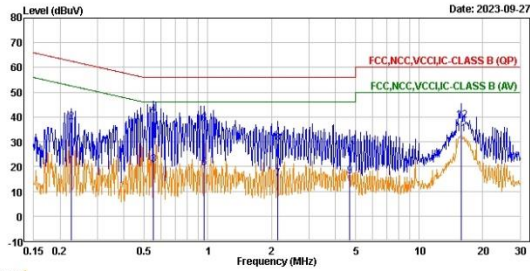
Worst Band

(Line)

(Neutral)



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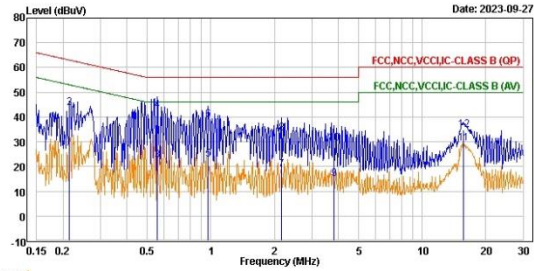


Trace: 1

Line	Freq (MHz)	Level (dBuV)	Read Level (dBuV)	Factor (dB)	Limit Line (dBuV)	Over Limit (dB)	Remark	Pol/Phase	Note
1	0.23	20.22	10.60	9.62	52.56	-32.34	Average	line1	
2	0.23	38.05	28.43	9.62	62.56	-24.51	QP	line1	
3	0.55	20.69	11.06	9.63	46.00	-25.31	Average	line1	
4	0.55	40.85	31.22	9.63	56.00	-15.15	QP	line1	
5	0.96	19.38	9.74	9.64	46.00	-26.62	Average	line1	
6	0.96	37.32	27.68	9.64	56.00	-18.68	QP	line1	
7	2.14	14.88	5.22	9.66	46.00	-31.12	Average	line1	
8	2.14	29.19	19.53	9.66	56.00	-26.81	QP	line1	
9	4.70	16.00	6.30	9.70	46.00	-30.00	Average	line1	
10	4.70	27.84	18.14	9.70	56.00	-28.16	QP	line1	
11	15.77	33.26	23.50	9.76	50.00	-16.74	Average	line1	
12	15.77	38.52	28.76	9.76	60.00	-21.48	QP	line1	



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Trace: 1

Line	Freq (MHz)	Level (dBuV)	Read Level (dBuV)	Factor (dB)	Limit Line (dBuV)	Over Limit (dB)	Remark	Pol/Phase	Note
1	0.21	25.23	15.61	9.62	53.02	-27.79	Average	neutral	
2	0.21	43.65	34.03	9.62	63.02	-19.37	QP	neutral	
3	0.56	22.34	12.71	9.63	46.00	-23.66	Average	neutral	
4	0.56	42.63	33.00	9.63	56.00	-13.37	QP	neutral	
5	0.97	22.76	13.12	9.64	46.00	-23.24	Average	neutral	
6	0.97	39.03	29.39	9.64	56.00	-16.97	QP	neutral	
7	2.17	18.68	9.02	9.66	46.00	-27.32	Average	neutral	
8	2.17	33.47	23.81	9.66	56.00	-22.53	QP	neutral	
9	3.81	15.06	5.37	9.69	46.00	-30.54	Average	neutral	
10	3.81	29.25	19.56	9.69	56.00	-26.75	QP	neutral	
11	15.62	29.31	19.48	9.83	50.00	-20.69	Average	neutral	
12	15.62	34.75	24.92	9.83	60.00	-25.25	QP	neutral	