FCC REPORT

Applicant:	Autel Robotics Co., Ltd.
Address of Applicant:	9th Floor, Bldg. B1, Zhiyuan, 1001 Xueyuan Rd., Xili, Nanshan, Shenzhen 518055, China

Equipment Under Test (EUT)

Product Name:	Image transmission Module
Model No.:	M240958S
Trade mark:	AUTEL ROBOTICS
FCC ID:	2AGNTMTBS
Applicable standards:	**FCC CFR Title 47 Part 15 Subpart C Section 15.247**
Date of sample receipt:	13 Oct., 2021
Date of Test:	14 Oct., to 01 Nov., 2021
Date of report issued:	02 Nov., 2021
Test Result:	PASS*

* In the configuration tested, the EUT complied with the standards specified above.

Authorized Signature:

Bruce Zhang
Laboratory Manager

2 Version

Version No.	Date	Description
00	*02 Nov., 2021*	*Original*

Tested by: Mike.ou ***Date:*** *02 Nov., 2021*

Test Engineer

Reviewed by: Winner Zhang ***Date:*** *02 Nov., 2021*

Project Engineer

3 Contents

Page

4 Test Summary

Test Items	Section in CFR 47	Test Data	Result
Antenna requirement	15.203 & 15.247 (b)	See Section 6.1	Pass
AC Power Line Conducted Emission	15.207	See Section 6.2	Pass
Duty Cycle	ANSI C63.10-2013	Appendix A – 900MHz Appendix B – 2.4GHz	Pass
Conducted Peak Output Power	15.247 (b)(3)	Appendix A – 900MHz Appendix B – 2.4GHz	Pass
6dB Emission Bandwidth 99% Occupied Bandwidth	15.247 (a)(2)	Appendix A – 900MHz Appendix B – 2.4GHz	Pass
Power Spectral Density	15.247 (e)	Appendix A – 900MHz Appendix B – 2.4GHz	Pass
Conducted Band Edge	15.247 (d)	Appendix A – 900MHz Appendix B – 2.4GHz	Pass
Radiated Band Edge		See Section 6.6.2	Pass
Conducted Spurious Emission	15.205 & 15.209	Appendix A – 900MHz Appendix B – 2.4GHz	Pass
Radiated Spurious Emission		See Section 6.7.2	Pass

Remark:

1. *Pass: The EUT complies with the essential requirements in the standard.*
2. *The cable insertion loss used by "RF Output Power" and other conduction measurement items is 0.5dB (provided by the customer).*

Test Method:	*ANSI C63.10-2013* *KDB 558074 D01 15.247 Meas Guidance v05r02*

5 General Information

5.1 Client Information

Applicant:	Autel Robotics Co., Ltd.
Address:	9th Floor, Bldg. B1, Zhiyuan, 1001 Xueyuan Rd., Xili, Nanshan, Shenzhen 518055, China
Manufacturer/ Factory:	Autel Robotics Co., Ltd.
Address:	9th Floor, Bldg. B1, Zhiyuan, 1001 Xueyuan Rd., Xili, Nanshan, Shenzhen 518055, China

5.2 General Description of E.U.T.

Product Name:	Image transmission Module
Model No.:	M240958S
Operation Frequency:	904.0MHz~926.0MHz, 2403.5MHz~2475.5MHz
Channel numbers:	904.0MHz~926.0MHz: 23 for 1.4MHz Bandwidth 13 for 10 MHz Bandwidth 3 for 20 MHz Bandwidth 2403.5MHz~2475.5MHz: 71 for 1.4MHz Bandwidth 65 for 10 MHz Bandwidth 51 for 20 MHz Bandwidth
Channel separation:	1MHz
Modulation technology:	QPSK and 16QAM
Bandwidth:	1.4MHz, 10MHz, 20MHz
ANT TXRX Type:	MIMO
Antenna Type:	External Antenna
Antenna gain:	Type 1: ANT 1: 904.0MHz~926.0MHz: 0.5dBi(declare by Applicant) 2403.5MHz~2475.5MHz: -0.6dBi(declare by Applicant) ANT 2: 904.0MHz~926.0MHz: 0.5dBi(declare by Applicant) 2403.5MHz~2475.5MHz: -0.6dBi(declare by Applicant) Type 2: ANT 1: 904.0MHz~926.0MHz: 1.4dBi(declare by Applicant) 2403.5MHz~2475.5MHz: 1.3dBi(declare by Applicant) ANT 2: 904.0MHz~926.0MHz: 0.7dBi(declare by Applicant) 2403.5MHz~2475.5MHz: 0.3dBi(declare by Applicant)
Power supply:	DC 20V
Test Sample Condition:	The test samples were provided in good working order with no visible defects.

900MHz:

Operation Frequency each of channel for 1.4MHz Bandwidth					
Channel	Frequency	Channel	Frequency	Channel	Frequency
1	904MHz	….	….	….	….
2	905MHz	11	915MHz	22	925MHz
3	906MHz	….	….	23	926MHz
Note:					
1. Channel 1, 15 & 19 selected as Lowest, Middle and Highest channel.					

Operation Frequency each of channel for 10MHz Bandwidth					
Channel	Frequency	Channel	Frequency	Channel	Frequency
1	909MHz	….	….	….	….
2	910MHz	7	915MHz	12	920MHz
3	911MHz	….	….	13	921MHz
Note:					
1. Channel 1, 7 & 13 selected as Lowest, Middle and Highest channel.					

Operation Frequency each of channel for 20MHz Bandwidth					
Channel	Frequency	Channel	Frequency	Channel	Frequency
1	914	2	915	3	916
Note:					
1. Channel 1, 2 & 3 selected as Lowest, Middle and Highest channel.					

2.4GHz:

Operation Frequency each of channel for 1.4MHz Bandwidth							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
1	2403.5MHz	4	2406.5MHz	….	….	73	2475.5MHz
2	2404.5MHz	5	2407.5MHz	35	2439.5MHz		
3	2405.5MHz	6	2408.5MHz	….	….		
Note:							
1. Channel 1, 35 & 73 selected as Lowest, Middle and Highest channel.							

Operation Frequency each of channel for 10MHz Bandwidth							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
1	2407.5MHz	4	2410.5MHz	….	….	64	2470.5MHz
2	2408.5MHz	5	2411.5MHz	33	2439.5MHz	65	2471.5MHz
3	2409.5MHz	6	2412.5MHz	….	….		
Note:							
1. Channel 1, 33 & 65 selected as Lowest, Middle and Highest channel.							

Operation Frequency each of channel for 20MHz Bandwidth							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
1	2412.5MHz	4	2415.5MHz	….	….	50	2461.5MHz
2	2413.5MHz	5	2416.5MHz	26	2437.5MHz	51	2462.5MHz
3	2414.5MHz	6	2417.5MHz	….	….		
Note:							
1. Channel 1, 26 & 65 selected as Lowest, Middle and Highest channel.							

5.3 Test environment and mode

Operating Environment:	
Temperature:	24.0 °C
Humidity:	54 % RH
Atmospheric Pressure:	1010 mbar
Test mode:	
Transmitting mode	Keep the EUT in continuous transmitting with modulation

Radiated Emission: The sample was placed 0.8m (below 1GHz)/1.5m (above 1GHz) above the ground plane of 3m chamber. Measurements in both Vertical and Horizontal polarities were performed. During the test, each emission was maximized by: having the EUT continuously working, investigated all operating modes, rotated about all 3 axis (X, Y & Z) and considered typical configuration to obtain worst position, manipulating interconnecting cables, rotating the turntable, varying antenna height from 1m to 4m in both Vertical and Horizontal polarizations. The emissions worst-case are shown in Test Results of the following pages.
We have verified the construction and function in typical operation. All the test modes were carried out with the EUT in transmitting operation, which was shown in this test report and defined as follows:

5.4 Description of Support Units

The EUT has been tested as an independent unit.

5.5 Measurement Uncertainty

Parameter	Expanded Uncertainty (Confidence of 95%)
Conducted Emission (150kHz ~ 30MHz) for V-AMN	2.62 dB
Conducted Emission (150kHz ~ 30MHz) for AAN	3.54 dB
Radiated Emission (9kHz ~ 30MHz electric field) for 3m SAC	3.13 dB
Radiated Emission (30MHz ~ 1GHz) for 3m SAC	4.45 dB
Radiated Emission (1GHz ~ 18GHz) for 3m SAC	5.34 dB
Radiated Emission (18GHz ~ 40GHz) for 3m SAC	5.34 dB
Radiated Emission (30MHz ~ 1GHz) for 10m SAC	4.32 dB

5.6 Laboratory Facility

The test facility is recognized, certified, or accredited by the following organizations:

- **FCC - Designation No.: CN1211**

JianYan Testing Group Shenzhen Co., Ltd. has been accredited as a testing laboratory by FCC(Federal Communications Commission). The test firm Registration No. is 727551.

- **ISED – CAB identifier.: CN0021**

The 3m Semi-anechoic chamber and 10m Semi-anechoic chamber of JianYan Testing Group Shenzhen Co., Ltd. has been Registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 10106A-1.

- **A2LA - Registration No.: 4346.01**

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017 General requirements for the competence of testing and calibration laboratories. The test scope can be found as below link: https://portal.a2la.org/scopepdf/4346-01.pdf

5.7 Laboratory Location

JianYan Testing Group Shenzhen Co., Ltd.
Address: No.101, Building 8, Innovation Wisdom Port, No.155 Hongtian Road, Huangpu Community, Xinqiao Street, Bao'an District, Shenzhen, Guangdong, People's Republic of China.
Tel: +86-755-23118282, Fax: +86-755-23116366
Email: info-JYTee@lets.com, Website: http://www.ccis-cb.com

5.8 Test Instruments list

Radiated Emission:					
Test Equipment	**Manufacturer**	**Model No.**	**Serial No.**	**Cal.Date (mm-dd-yy)**	**Cal.Due date (mm-dd-yy)**
3m SAC	ETS	RFD-100	Q1984	04-14-2021	04-13-2024
BiConiLog Antenna	SCHWARZBECK	VULB9163	9163-1246	03-07-2021	03-06-2022
Biconical Antenna	SCHWARZBECK	VUBA 9117	9117#359	06-17-2021	06-17-2022
Horn Antenna	SCHWARZBECK	BBHA9120D	912D-916	03-07-2021	03-06-2022
Broad-Band Horn Antenna	SCHWARZBECK	BBHA9170	1067	04-02-2021	04-01-2022
Broad-Band Horn Antenna	SCHWARZBECK	BBHA9170	1068	04-02-2021	04-01-2022
EMI Test Receiver	Rohde & Schwarz	ESRP7	101070	03-03-2021	03-02-2022
Spectrum analyzer	Rohde & Schwarz	FSP30	101454	03-03-2021	03-02-2022
Spectrum analyzer	Keysight	N9010B	MY60240202	11-27-2020	11-26-2021
Low Pre-amplifier	SCHWARZBECK	BBV9743B	00305	03-07-2021	03-06-2022
High Pre-amplifier	SKET	LNPA_0118G-50	MF280208233	03-07-2021	03-06-2022
Cable	Qualwave	JYT3M-1G-NN-8M	JYT3M-1	03-07-2021	03-06-2022
Cable	Qualwave	JYT3M-18G-NN-8M	JYT3M-2	03-07-2021	03-06-2022
Cable	Qualwave	JYT3M-1G-BB-5M	JYT3M-3	03-07-2021	03-06-2022
Cable	Bost	JYT3M-40G-SS-8M	JYT3M-4	04-02-2021	04-01-2022
EMI Test Software	Tonscend	TS+	Version:3.0.0.1		
EMI Test Software	AUDIX	E3	Version: 6.110919b		

Conducted Emission:					
Test Equipment	**Manufacturer**	**Model No.**	**Serial No.**	**Cal. Date (mm-dd-yy)**	**Cal. Due date (mm-dd-yy)**
EMI Test Receiver	Rohde & Schwarz	ESCI 3	101189	03-03-2021	03-02-2022
LISN	Rohde & Schwarz	ENV432	101602	04-06-2021	04-05-2022
LISN	Rohde & Schwarz	ESH3-Z5	843862/010	06-18-2020	06-17-2022
RF Switch	TOP PRECISION	RSU0301	N/A	03-03-2021	03-02-2022
Cable	Bost	JYTCE-1G-NN-2M	JYTCE-1	03-03-2021	03-02-2022
Cable	Bost	JYTCE-1G-BN-3M	JYTCE-2	03-03-2021	03-02-2022
EMI Test Software	AUDIX	E3	Version: 6.110919b		

Conducted method:					
Test Equipment	**Manufacturer**	**Model No.**	**Serial No.**	**Cal. Date (mm-dd-yy)**	**Cal. Due date (mm-dd-yy)**
Spectrum Analyzer	Keysight	N9010B	MY60240202	11-27-2020	11-26-2021
Vector Signal Generator	Keysight	N5182B	MY59101009	11-27-2020	11-26-2021
Analog Signal Generator	Keysight	N5173B	MY59100765	11-27-2020	11-26-2021
Power Detector Box	MWRF-test	MW100-PSB	MW201020JYT	11-27-2020	11-26-2021
Simulated Station	Rohde & Schwarz	CMW270	102335	11-27-2020	11-26-2021
RF Control Box	MWRF-test	MW100-RFCB	MW200927JYT	N/A	N/A
PDU	MWRF-test	XY-G10	N/A	N/A	N/A
DC Power Supply	Keysight	E3642A	MY60296194	11-27-2020	11-26-2021
Temperature Humidity Chamber	ZhongZhi	CZ－C－150D	ZH16491	11-01-2020	10-31-2021
Test Software	MWRF-tes	MTS 8310	Version: 2.0.0.0		

6 Test results and Measurement Data

6.1 Antenna requirement

Standard requirement:	FCC Part 15 C Section 15.203 /247(b)

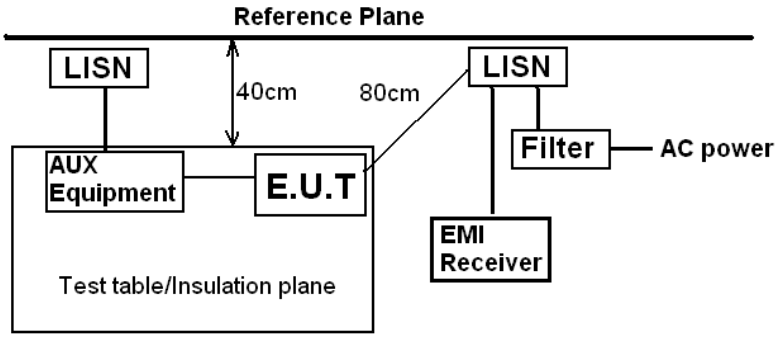
15.203 requirement:
An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer 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.
15.247(b) (4) requirement:
(4) The conducted output power limit specified in paragraph (b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi. Except as shown in paragraph (c) of this section, if transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1), (b)(2), and (b)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

E.U.T Antenna:	

The antenna cannot replace by end-user, the best case gain of the antenna as bellow:

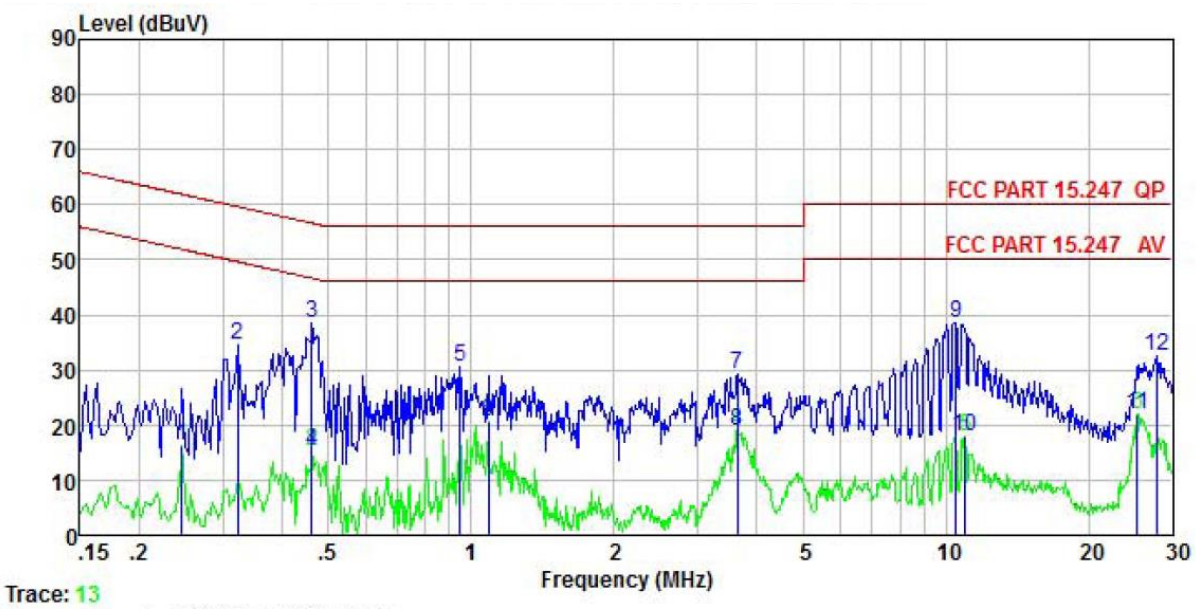
Band	Type 1		Type	
	ANT 1 Gain	ANT 2 Gain	ANT 1 Gain	ANT 2 Gain
900MHz	0.5dBi	0.5dBi	1.4dBi	0.7dBi
2.4GHz	-0.6dBi	-0.6dBi	1.3dBi	0.3dBi

6.2 Conducted Emission

Test Requirement:	FCC Part 15 C Section 15.207		
Test Frequency Range:	150 kHz to 30 MHz		
Class / Severity:	Class B		
Receiver setup:	RBW=9 kHz, VBW=30 kHz		
Limit:	Frequency range (MHz)	Limit (dBuV)	
		Quasi-peak	Average
	0.15-0.5	66 to 56*	56 to 46*
	0.5-5	56	46
	5-30	60	50
	* Decreases with the logarithm of the frequency.		
Test procedure	1. The E.U.T and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.), which provides a 50ohm/50uH coupling impedance for the measuring equipment. 2. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm/50uH coupling impedance with 50ohm termination. (Please refer to the block diagram of the test setup and photographs). 3. Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.10(latest version) on conducted measurement.		
Test setup:	 *Remark:* *E.U.T: Equipment Under Test* *LISN: Line Impedence Stabilization Network* *Test table height=0.8m*		
Test Instruments:	Refer to section 5.8 for details		
Test mode:	Refer to section 5.3 for details		
Test results:	Passed		

Measurement Data:

Product name:	Image transmission Module	**Product model:**	M240958S
Test by:	Mike	**Test mode:**	900MHz Tx mode
Test frequency:	150 kHz ~ 30 MHz	**Phase:**	Line
Test voltage:	AC 120 V/60 Hz	**Environment:**	Temp: 22.5℃ Huni: 55%

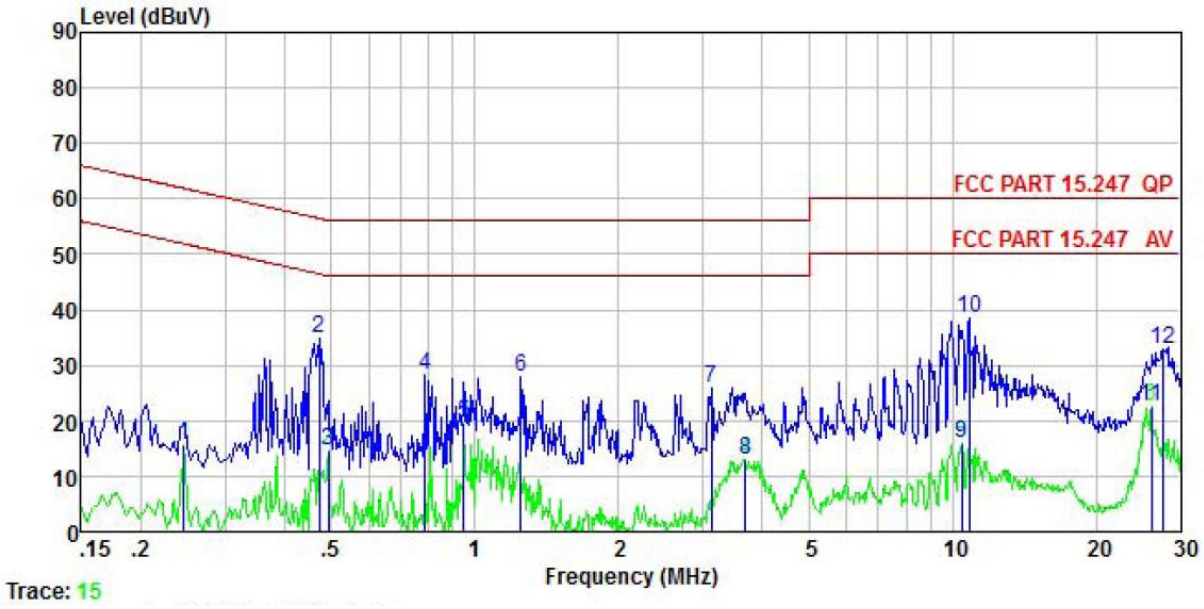


	Freq	Read Level	LISN Factor	Aux Factor	Cable Loss	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dB	dB	dBuV	dBuV	dB	
1	0.246	6.09	10.25	-0.21	0.01	16.14	51.91	-35.77	Average
2	0.322	24.20	10.26	-0.09	0.03	34.40	59.66	-25.26	QP
3	0.461	28.40	10.29	-0.06	0.03	38.66	56.67	-18.01	QP
4	0.461	5.18	10.29	-0.06	0.03	15.44	46.67	-31.23	Average
5	0.948	19.87	10.32	0.32	0.05	30.56	56.00	-25.44	QP
6	1.088	9.90	10.32	0.37	0.07	20.66	46.00	-25.34	Average
7	3.642	18.89	10.38	-0.10	0.08	29.25	56.00	-26.75	QP
8	3.642	8.67	10.38	-0.10	0.08	19.03	46.00	-26.97	Average
9	10.508	25.71	10.62	2.15	0.12	38.60	60.00	-21.40	QP
10	10.963	4.87	10.64	2.32	0.11	17.94	50.00	-32.06	Average
11	25.321	9.70	10.97	0.98	0.20	21.85	50.00	-28.15	Average
12	27.855	20.18	11.00	1.02	0.19	32.39	60.00	-27.61	QP

Notes:

1. *An initial pre-scan was performed on the line and neutral lines with peak detector.*
2. *Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission.*
3. *Final Level =Receiver Read level + LISN Factor + Aux Factor + Cable Loss.*

Product name:	Image transmission Module	Product model:	M240958S
Test by:	Mike	Test mode:	900MHz Tx mode
Test frequency:	150 kHz ~ 30 MHz	Phase:	Neutral
Test voltage:	AC 120 V/60 Hz	Environment:	Temp: 22.5℃ Huni: 55%

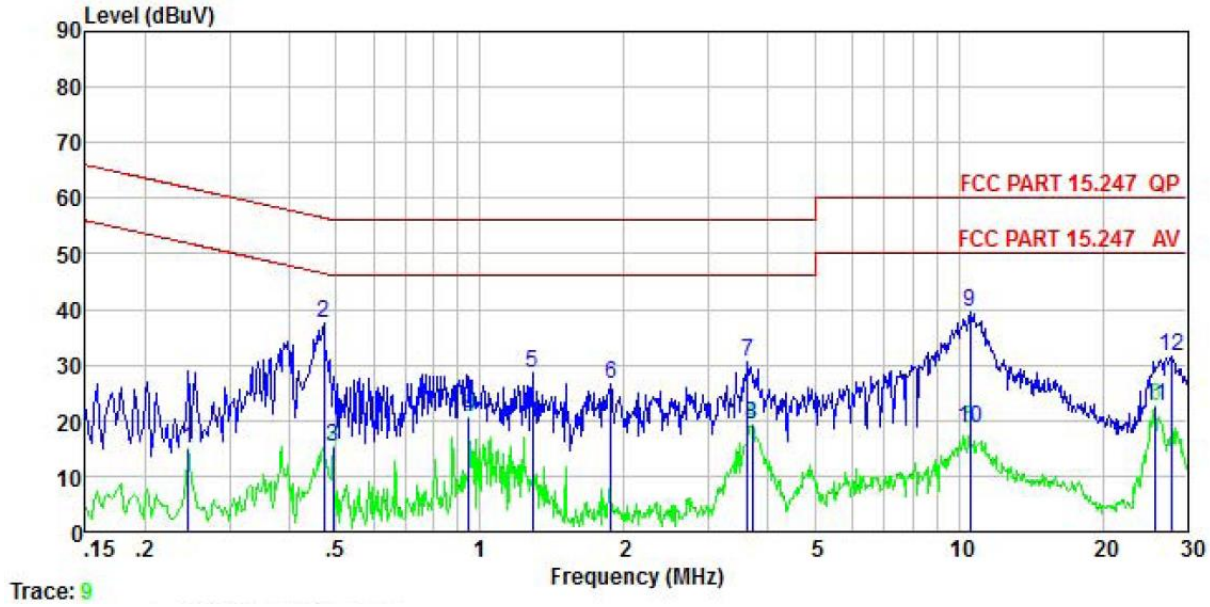


	Freq	Read Level	LISN Factor	Aux Factor	Cable Loss	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dB	dB	dBuV	dBuV	dB	
1	0.246	5.39	10.24	0.01	0.01	15.65	51.91	-36.26	Average
2	0.471	24.61	10.28	0.01	0.03	34.93	56.49	-21.56	QP
3	0.494	4.33	10.28	0.03	0.03	14.67	46.10	-31.43	Average
4	0.788	17.85	10.30	0.05	0.03	28.23	56.00	-27.77	QP
5	0.948	9.23	10.31	0.07	0.05	19.66	46.00	-26.34	Average
6	1.249	17.39	10.31	0.11	0.10	27.91	56.00	-28.09	QP
7	3.123	15.17	10.35	0.34	0.07	25.93	56.00	-30.07	QP
8	3.681	2.09	10.37	0.45	0.08	12.99	46.00	-33.01	Average
9	10.452	3.79	10.60	1.57	0.12	16.08	50.00	-33.92	Average
10	10.847	26.12	10.62	1.74	0.12	38.60	60.00	-21.40	QP
11	26.139	10.52	10.90	0.82	0.21	22.45	50.00	-27.55	Average
12	27.708	20.79	10.90	0.95	0.19	32.83	60.00	-27.17	QP

Notes:

1. *An initial pre-scan was performed on the line and neutral lines with peak detector.*
2. *Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission.*
3. *Final Level =Receiver Read level + LISN Factor + Aux Factor + Cable Loss.*

Product name:	Image transmission Module	Product model:	M240958S
Test by:	Mike	Test mode:	2.4GHz Tx mode
Test frequency:	150 kHz ~ 30 MHz	Phase:	Line
Test voltage:	AC 120 V/60 Hz	Environment:	Temp: 22.5℃ Huni: 55%

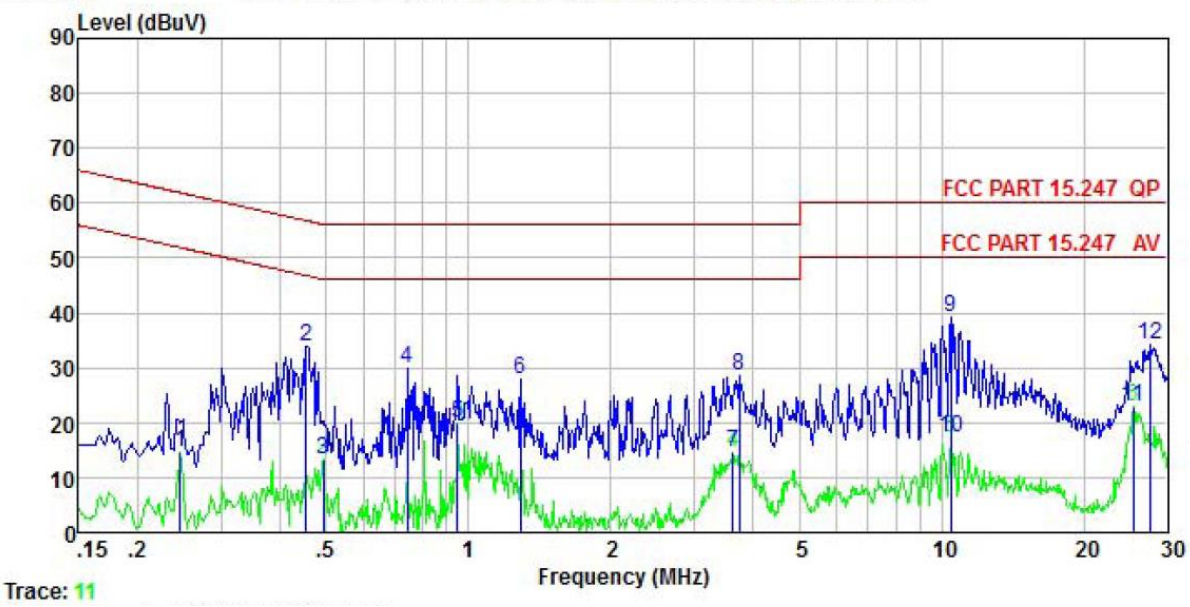


	Freq	Read Level	LISN Factor	Aux Factor	Cable Loss	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dB	dB	dBuV	dBuV	dB	
1	0.246	5.02	10.25	-0.21	0.01	15.07	51.91	-36.84	Average
2	0.471	27.50	10.29	-0.15	0.03	37.67	56.49	-18.82	QP
3	0.494	5.34	10.29	-0.32	0.03	15.34	46.10	-30.76	Average
4	0.948	9.86	10.32	0.32	0.05	20.55	46.00	-25.45	Average
5	1.289	17.79	10.32	0.18	0.11	28.40	56.00	-27.60	QP
6	1.878	16.36	10.33	-0.25	0.19	26.63	56.00	-29.37	QP
7	3.623	20.23	10.38	-0.10	0.08	30.59	56.00	-25.41	QP
8	3.700	8.82	10.38	-0.09	0.08	19.19	46.00	-26.81	Average
9	10.564	26.60	10.62	2.15	0.12	39.49	60.00	-20.51	QP
10	10.564	5.86	10.62	2.15	0.12	18.75	50.00	-31.25	Average
11	25.727	10.30	10.98	0.99	0.21	22.48	50.00	-27.52	Average
12	27.855	19.33	11.00	1.02	0.19	31.54	60.00	-28.46	QP

Notes:

1. *An initial pre-scan was performed on the line and neutral lines with peak detector.*
2. *Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission.*
3. *Final Level =Receiver Read level + LISN Factor + Aux Factor + Cable Loss.*

Product name:	Image transmission Module	Product model:	M240958S
Test by:	Mike	Test mode:	2.4GHz Tx mode
Test frequency:	150 kHz ~ 30 MHz	Phase:	Neutral
Test voltage:	AC 120 V/60 Hz	Environment:	Temp: 22.5℃ Huni: 55%

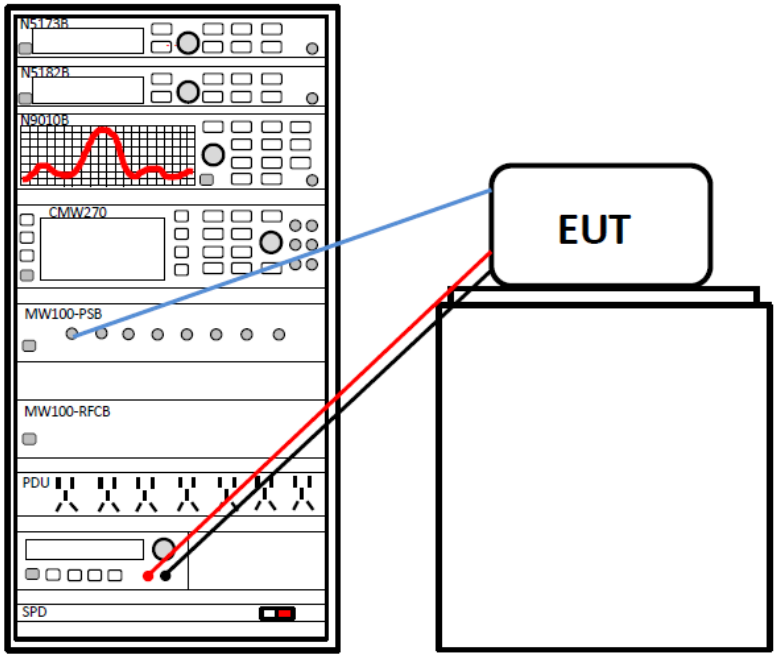


	Freq	Read Level	LISN Factor	Aux Factor	Cable Loss	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dB	dB	dBuV	dBuV	dB	
1	0.246	4.20	10.24	0.01	0.01	14.46	51.91	-37.45	Average
2	0.454	23.74	10.27	-0.01	0.03	34.03	56.80	-22.77	QP
3	0.494	2.91	10.28	0.03	0.03	13.25	46.10	-32.85	Average
4	0.743	19.48	10.30	0.05	0.03	29.86	56.00	-26.14	QP
5	0.948	9.34	10.31	0.07	0.05	19.77	46.00	-26.23	Average
6	1.289	17.32	10.31	0.11	0.11	27.85	56.00	-28.15	QP
7	3.623	3.56	10.37	0.44	0.08	14.45	46.00	-31.55	Average
8	3.740	17.58	10.37	0.46	0.08	28.49	56.00	-27.51	QP
9	10.452	26.80	10.60	1.57	0.12	39.09	60.00	-20.91	QP
10	10.452	4.95	10.60	1.57	0.12	17.24	50.00	-32.76	Average
11	25.456	11.05	10.90	0.77	0.20	22.92	50.00	-27.08	Average
12	27.708	22.03	10.90	0.95	0.19	34.07	60.00	-25.93	QP

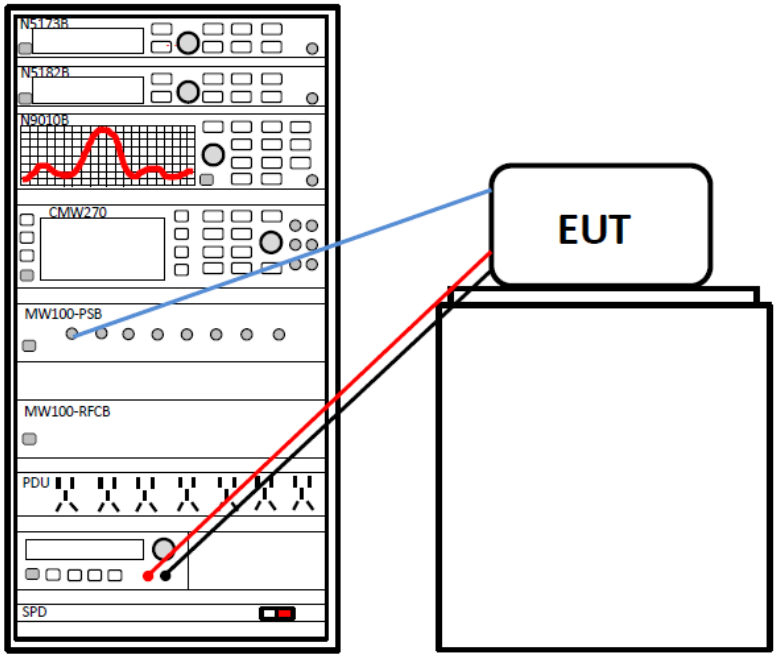
Notes:

1. *An initial pre-scan was performed on the line and neutral lines with peak detector.*
2. *Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission.*
3. *Final Level =Receiver Read level + LISN Factor + Aux Factor + Cable Loss.*

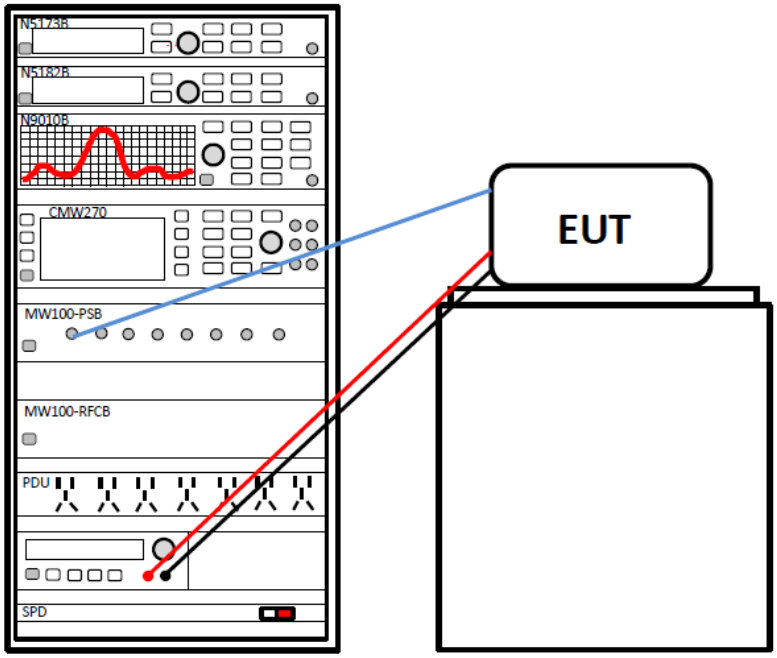
6.3 Conducted Output Power

Test Requirement:	FCC Part 15 C Section 15.247 (b)(3)
Limit:	30dBm
Test setup:	
Test Instruments:	Refer to section 5.8 for details
Test mode:	Refer to section 5.3 for details
Test results:	Passed
Measurement Data:	**Refer to Appendix A – 900MHz, Appendix B – 2.4GHz,**

6.4 Occupy Bandwidth

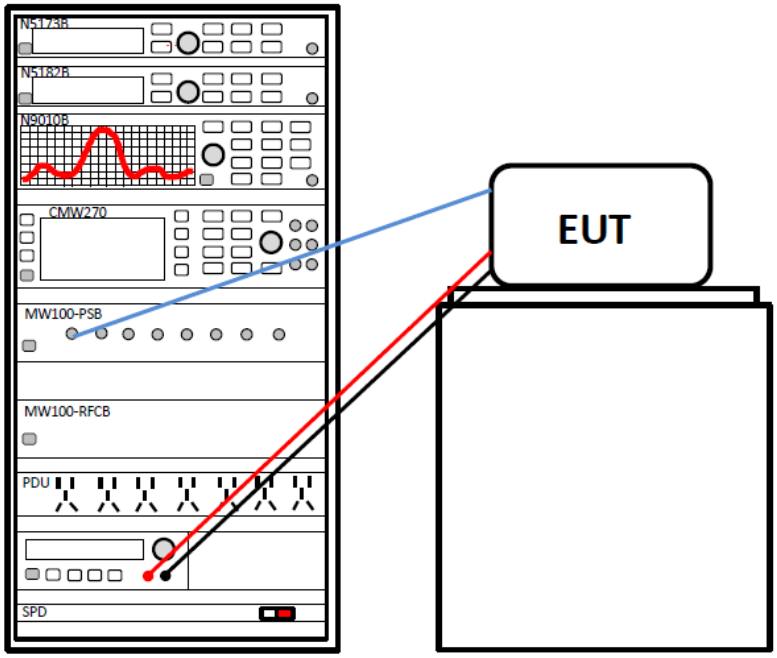
Test Requirement:	FCC Part 15 C Section 15.247 (a)(2)
Limit:	6dB EBW >500kHz
Test setup:	
Test Instruments:	Refer to section 5.8 for details
Test mode:	Refer to section 5.3 for details
Test results:	Passed
Measurement Data:	**Refer to Appendix A – 900MHz, Appendix B – 2.4GHz,**

6.5 Power Spectral Density

Test Requirement:	FCC Part 15 C Section 15.247 (e)
Limit:	8dBm/3kHz
Test setup:	
Test Instruments:	Refer to section 5.8 for details
Test mode:	Refer to section 5.3 for details
Test results:	Passed
Measurement Data:	**Refer to Appendix A – 900MHz, Appendix B – 2.4GHz,**

6.6 Band Edge

6.6.1 Conducted Emission Method

Test Requirement:	FCC Part 15 C Section 15.247 (d)
Limit:	In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement. 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.
Test setup:	
Test Instruments:	Refer to section 5.8 for details
Test mode:	Refer to section 5.3 for details
Test results:	Passed
Measurement Data:	**Refer to Appendix A – 900MHz, Appendix B – 2.4GHz,**

6.6.2 Radiated Emission Method

Test Requirement:	FCC Part 15 C Section 15.209 and 15.205
Test Frequency Range:	900MHz:960 MHz to 1240 MHz 2.4GHz: 2310 MHz to 2390 MHz and 2483.5 MHz to 2500 MHz
Test Distance:	3m

Receiver setup:

Frequency	Detector	RBW	VBW	Remark
Above 1GHz	Peak	1MHz	3MHz	Peak Value
	RMS	1MHz	3MHz	Average Value

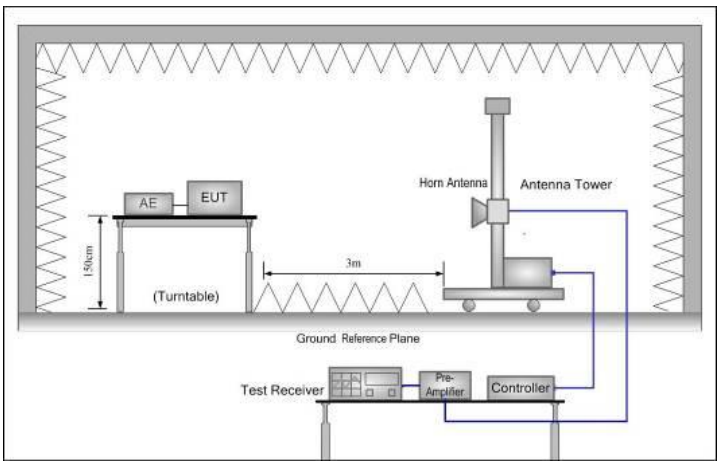
Limit:

Frequency	Limit (dBuV/m @3m)	Remark
Above 1GHz	54.00	Average Value
	74.00	Peak Value

Test Procedure:

1. The EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter camber. The table was rotated 360 degrees to determine the position of the highest radiation.
2. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
3. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both Vertical and Horizontal polarizations of the antenna are set to make the measurement.
4. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rota table was turned from 0 degrees to 360 degrees to find the maximum reading.
5. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
6. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

Test setup:

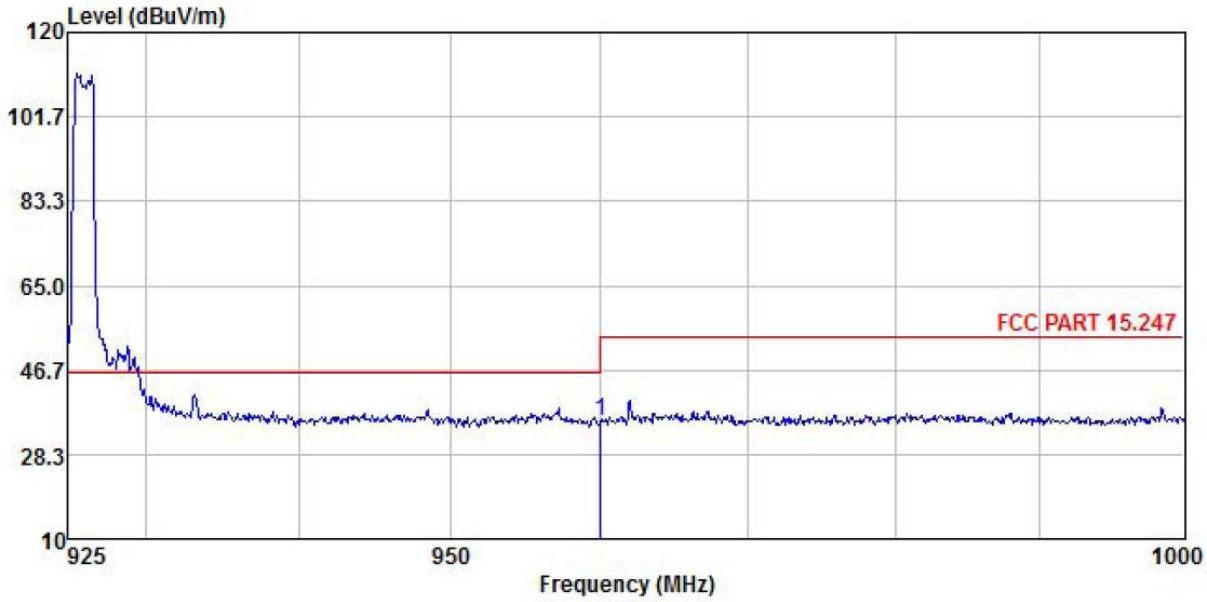


Test Instruments:	Refer to section 5.8 for details
Test mode:	Refer to section 5.3 for details
Test results:	Passed

ANT Type 1:

BW: 1.4MHz

Product Name:	Image transmission Module	**Product Model:**	M240958S
Test By:	Mike	**Test mode:**	900MHz-QPSK Tx mode
Test Channel:	Highest channel	**Polarization:**	Horizontal
Test Voltage:	DC 20V	**Environment:**	Temp: 24℃ Huni: 57%

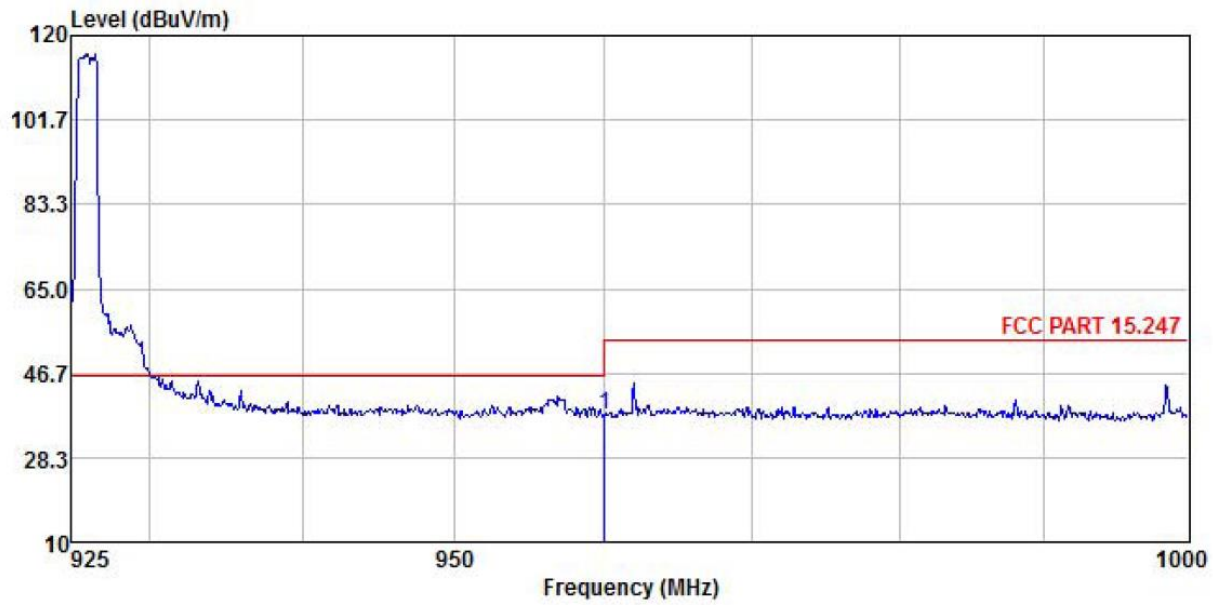


	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	960.046	9.38	22.86	3.51	0.00	35.75	54.00	-18.25	

Remark:

1. *Final Level = Receiver Read level + Factor(Antenna Factor + Cable Loss – Preamplifier Factor).*
2. *The emission levels of other frequencies are lower than the limit 20dB and not show in test report.*

Product Name:	Image transmission Module	Product Model:	M240958S
Test By:	Mike	Test mode:	900MHz-QPSK Tx mode
Test Channel:	Highest channel	Polarization:	Vertical
Test Voltage:	DC 20V	Environment:	Temp: 24℃ Huni: 57%

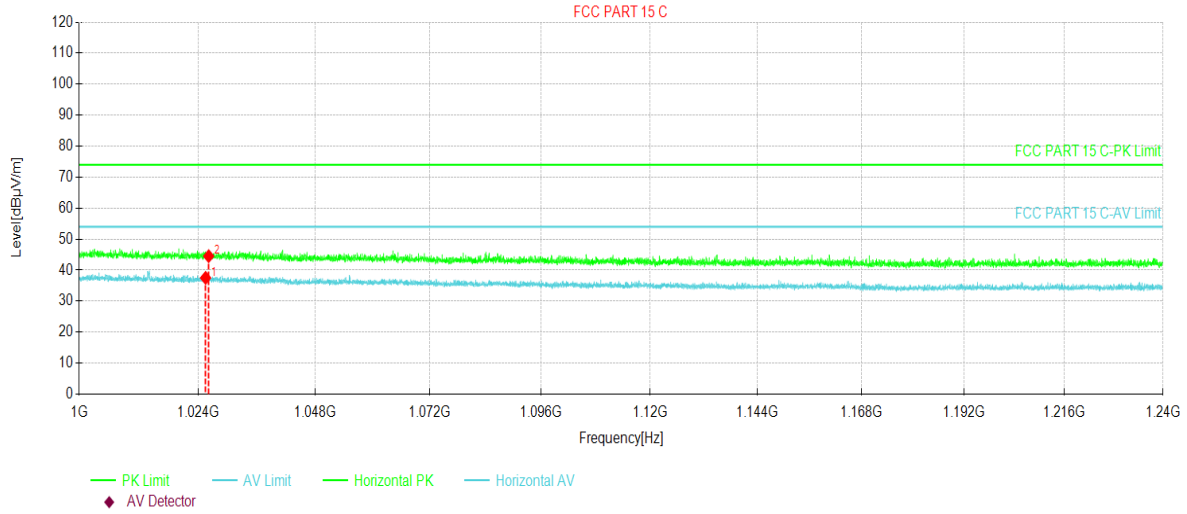


	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	960.046	11.11	22.86	3.51	0.00	37.48	54.00	-16.52	

Remark:

1. *Final Level = Receiver Read level + Factor(Antenna Factor + Cable Loss – Preamplifier Factor).*
2. *The emission levels of other frequencies are lower than the limit 20dB and not show in test report.*

Product Name:	Image transmission Module	Product Model:	M240958S
Test By:	Mike	Test mode:	900MHz-QPSK Tx mode
Test Channel:	Highest channel	Polarization:	Horizontal
Test Voltage:	DC 20V	Environment:	Temp: 24℃ Huni: 57%

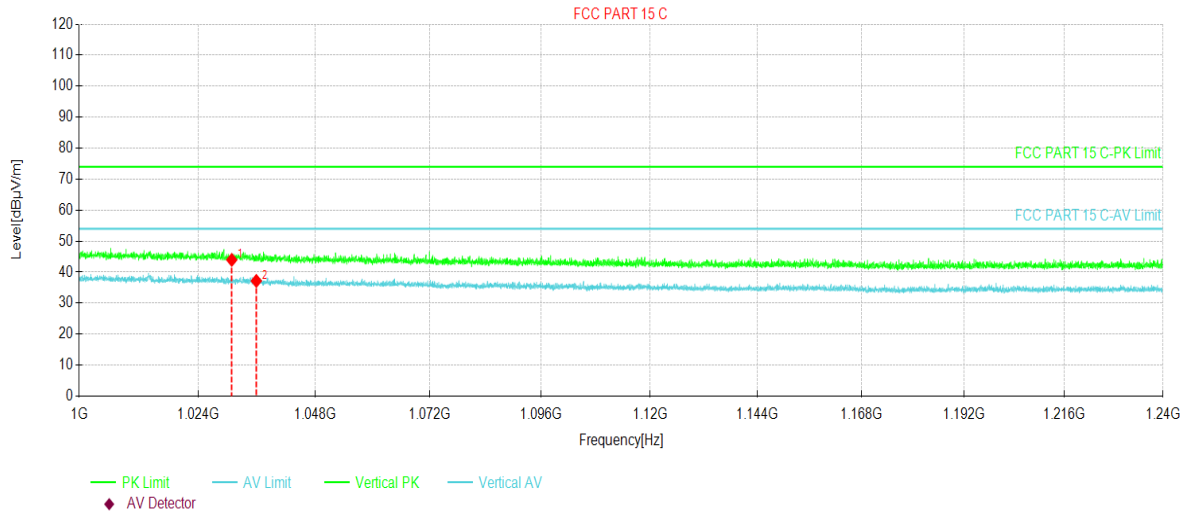


NO.	Freq. [MHz]	Reading [dBµV/m]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Trace	Polarity
1	1025.41	34.77	37.51	2.74	54.00	16.49	AV	Horizontal
2	1026.04	41.79	44.52	2.73	74.00	29.48	PK	Horizontal

Remark:

1. *Final Level = Receiver Read level + Factor(Antenna Factor + Cable Loss – Preamplifier Factor).*
2. *The emission levels of other frequencies are lower than the limit 20dB and not show in test report.*

Product Name:	Image transmission Module	Product Model:	M240958S
Test By:	Mike	Test mode:	900MHz-QPSK Tx mode
Test Channel:	Highest channel	Polarization:	Vertical
Test Voltage:	DC 20V	Environment:	Temp: 24℃ Huni: 57%

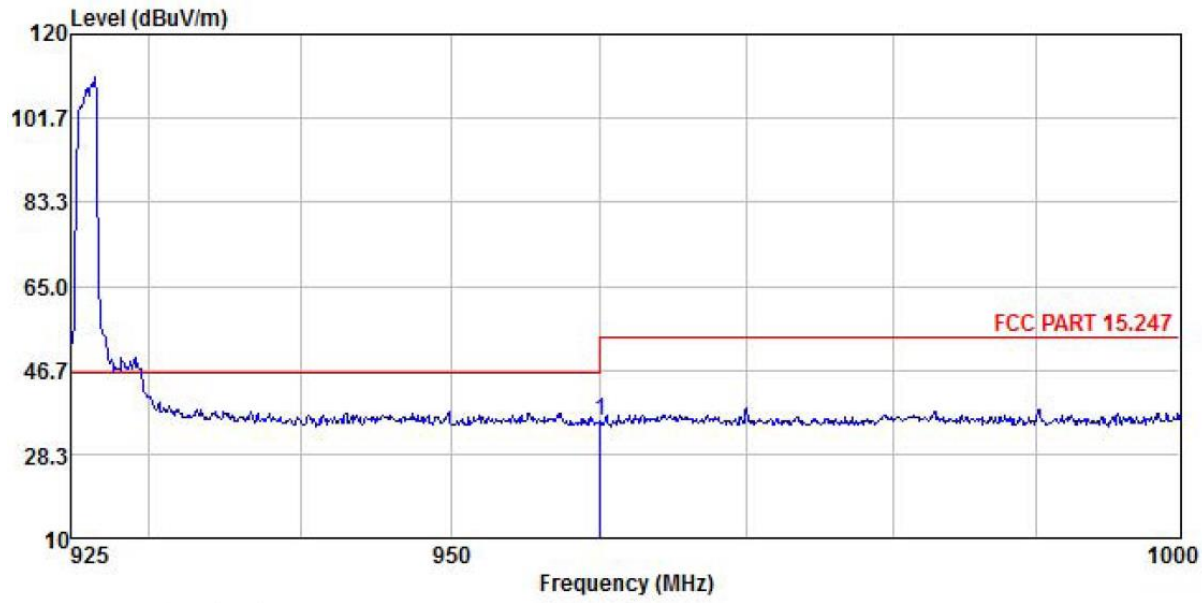


NO.	Freq. [MHz]	Reading [dBµV/m]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Trace	Polarity
1	1030.75	41.31	43.96	2.65	74.00	30.04	PK	Vertical
2	1035.79	34.59	37.16	2.57	54.00	16.84	AV	Vertical

Remark:

1. *Final Level = Receiver Read level + Factor(Antenna Factor + Cable Loss – Preamplifier Factor).*
2. *The emission levels of other frequencies are lower than the limit 20dB and not show in test report.*

Product Name:	Image transmission Module	Product Model:	M240958S
Test By:	Mike	Test mode:	900MHz-16QAM Tx mode
Test Channel:	Highest channel	Polarization:	Horizontal
Test Voltage:	DC 20V	Environment:	Temp: 24℃ Huni: 57%

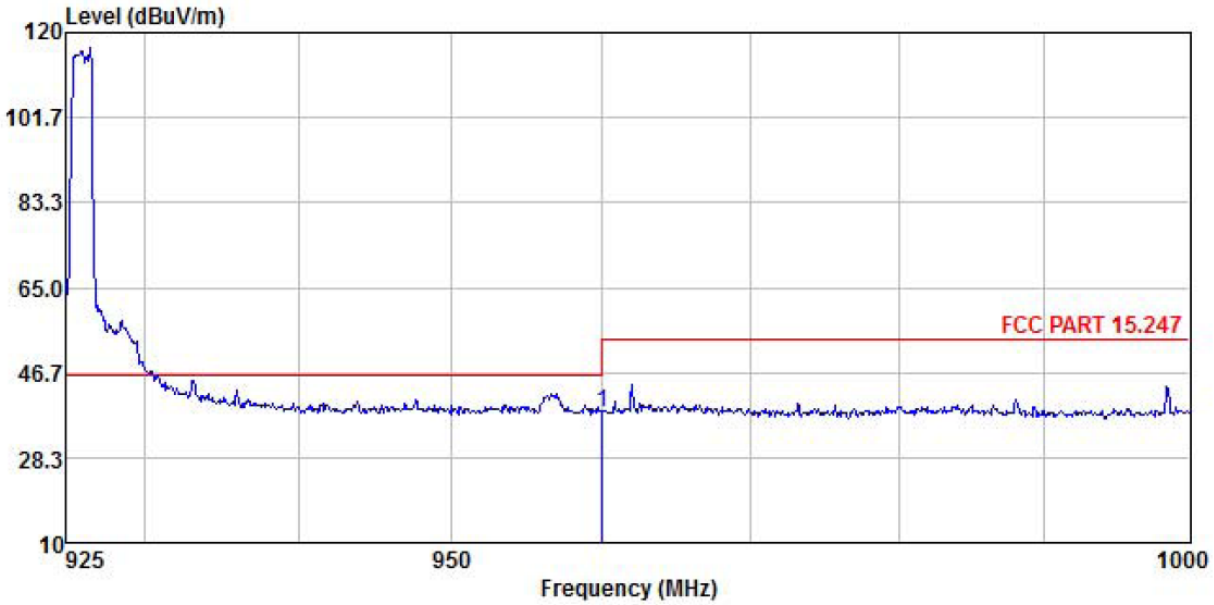


	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	960.046	9.33	22.86	3.51	0.00	35.70	54.00	-18.30	

Remark:

1. *Final Level = Receiver Read level + Factor(Antenna Factor + Cable Loss – Preamplifier Factor).*
2. *The emission levels of other frequencies are lower than the limit 20dB and not show in test report.*

Product Name:	Image transmission Module	Product Model:	M240958S
Test By:	Mike	Test mode:	900MHz-16QAM Tx mode
Test Channel:	Highest channel	Polarization:	Vertical
Test Voltage:	DC 20V	Environment:	Temp: 24℃ Huni: 57%

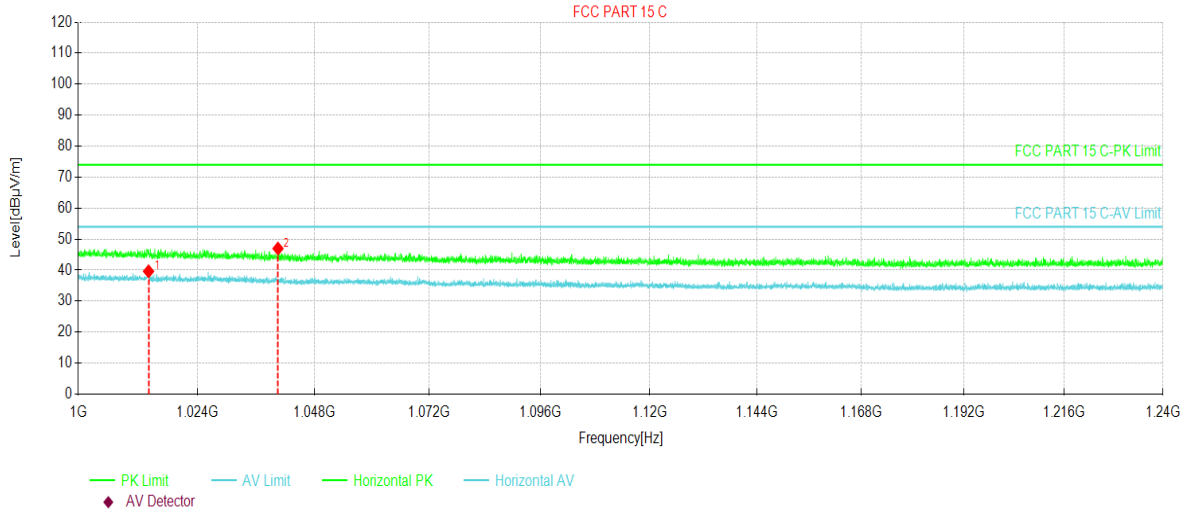


	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	960.046	11.44	22.86	3.51	0.00	37.81	54.00	-16.19	

Remark:

1. *Final Level = Receiver Read level + Factor(Antenna Factor + Cable Loss – Preamplifier Factor).*
2. *The emission levels of other frequencies are lower than the limit 20dB and not show in test report.*

Product Name:	Image transmission Module	Product Model:	M240958S
Test By:	Mike	Test mode:	900MHz-16QAM Tx mode
Test Channel:	Highest channel	Polarization:	Horizontal
Test Voltage:	DC 20V	Environment:	Temp: 24℃ Huni: 57%

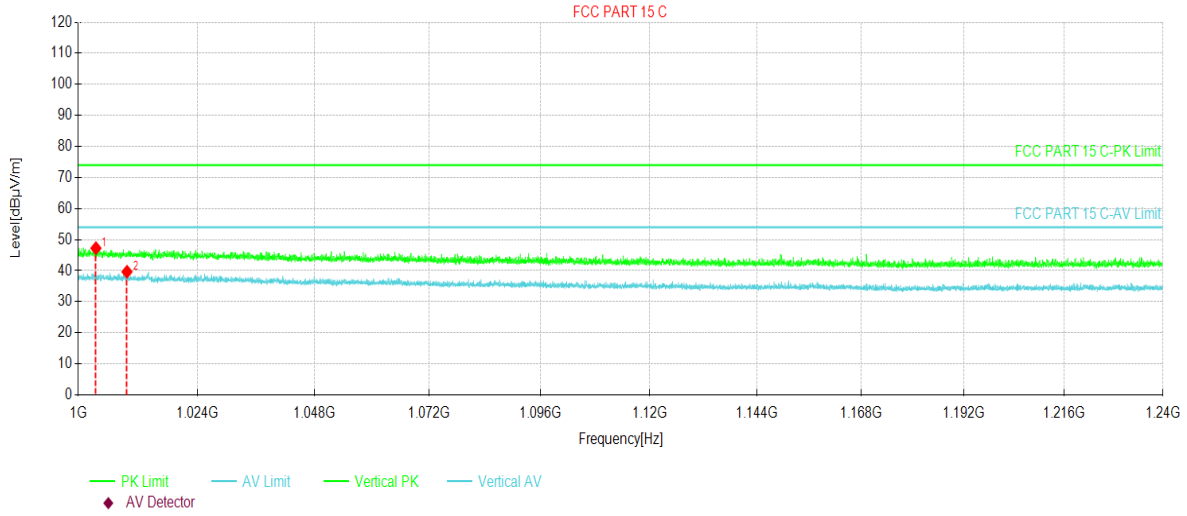


NO.	Freq. [MHz]	Reading [dBµV/m]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Trace	Polarity
1	1014.04	36.70	39.62	2.92	54.00	14.38	AV	Horizontal
2	1040.41	44.47	46.97	2.50	74.00	27.03	PK	Horizontal

Remark:

1. *Final Level = Receiver Read level + Factor(Antenna Factor + Cable Loss – Preamplifier Factor).*
2. *The emission levels of other frequencies are lower than the limit 20dB and not show in test report.*

Product Name:	Image transmission Module	Product Model:	M240958S
Test By:	Mike	Test mode:	900MHz-16QAM Tx mode
Test Channel:	Highest channel	Polarization:	Vertical
Test Voltage:	DC 20V	Environment:	Temp: 24℃ Huni: 57%

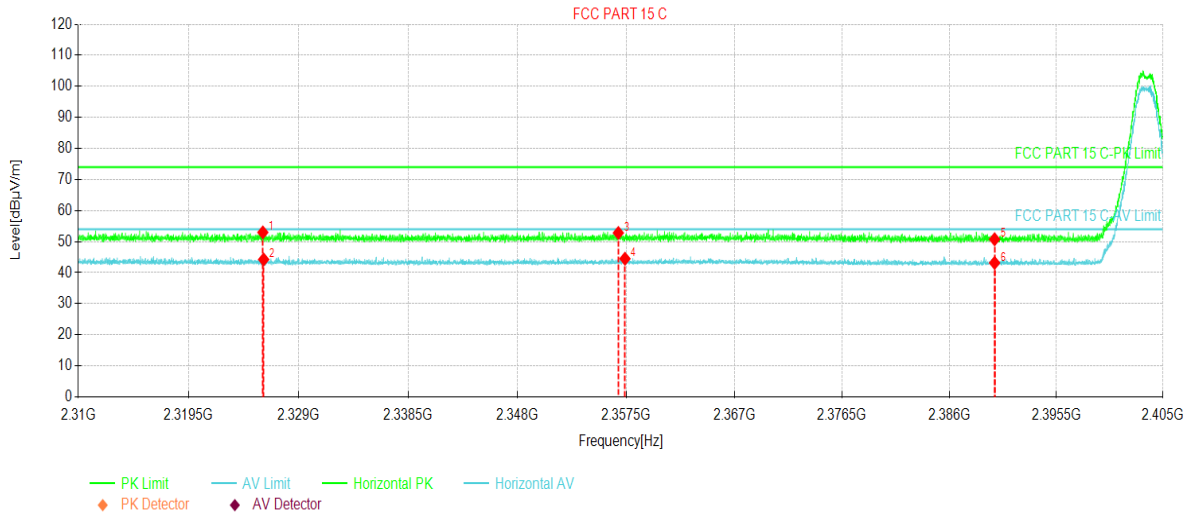


NO.	Freq. [MHz]	Reading [dBµV/m]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Trace	Polarity
1	1003.51	44.16	47.24	3.08	74.00	26.76	PK	Vertical
2	1009.72	36.66	39.65	2.99	54.00	14.35	AV	Vertical

Remark:

1. *Final Level = Receiver Read level + Factor(Antenna Factor + Cable Loss – Preamplifier Factor).*
2. *The emission levels of other frequencies are lower than the limit 20dB and not show in test report.*

Product Name:	Image transmission Module	Product Model:	M240958S
Test By:	Mike	Test mode:	2.4GHz-QPSK Tx mode
Test Channel:	Lowest channel	Polarization:	Horizontal
Test Voltage:	DC 20V	Environment:	Temp: 24℃ Huni: 57%

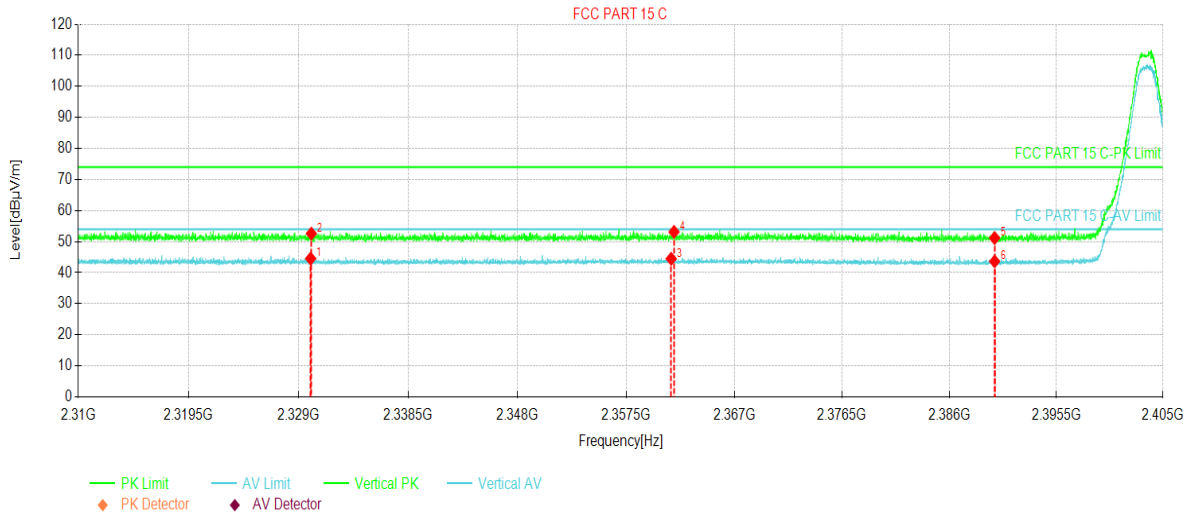


NO.	Freq. [MHz]	Reading [dBµV/m]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Trace	Polarity
1	2325.90	46.11	52.98	6.87	74.00	21.02	PK	Horizontal
2	2325.97	37.38	44.25	6.87	54.00	9.75	AV	Horizontal
3	2356.82	45.82	52.79	6.97	74.00	21.21	PK	Horizontal
4	2357.40	37.52	44.49	6.97	54.00	9.51	AV	Horizontal
5	2390.00	43.68	50.76	7.08	74.00	23.24	PK	Horizontal
6	2390.00	36.07	43.15	7.08	54.00	10.85	AV	Horizontal

Remark:

1. *Final Level = Receiver Read level + Factor(Antenna Factor + Cable Loss – Preamplifier Factor).*
2. *The emission levels of other frequencies are lower than the limit 20dB and not show in test report.*

Product Name:	Image transmission Module	Product Model:	M240958S
Test By:	Mike	Test mode:	2.4GHz-QPSK Tx mode
Test Channel:	Lowest channel	Polarization:	Vertical
Test Voltage:	DC 20V	Environment:	Temp: 24℃ Huni: 57%

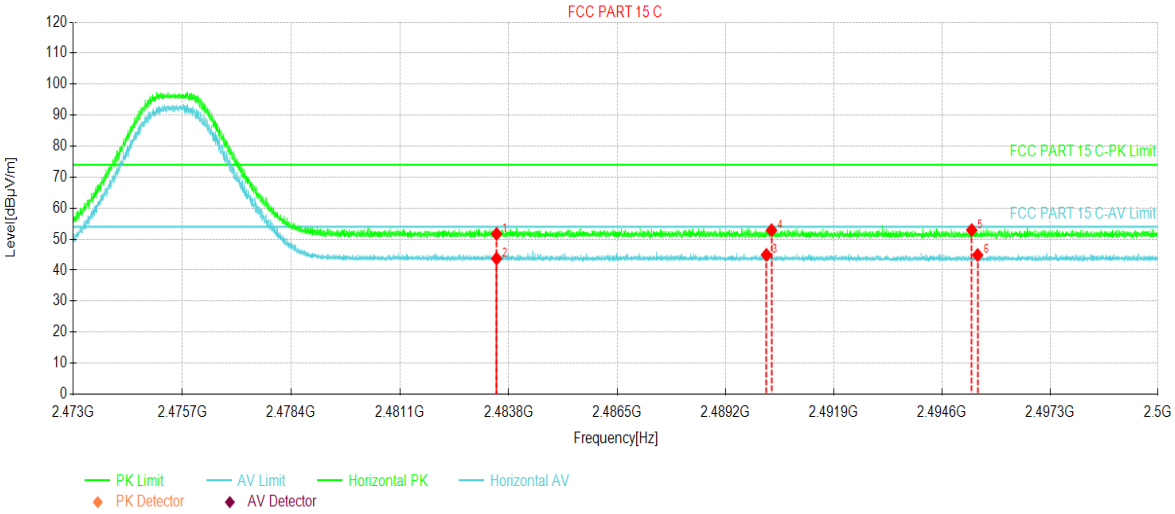


NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Trace	Polarity
1	2330.03	37.67	44.55	6.88	54.00	9.45	AV	Vertical
2	2330.09	45.69	52.57	6.88	74.00	21.43	PK	Vertical
3	2361.45	37.50	44.48	6.98	54.00	9.52	AV	Vertical
4	2361.70	46.17	53.15	6.98	74.00	20.85	PK	Vertical
5	2390.00	44.08	51.16	7.08	74.00	22.84	PK	Vertical
6	2390.00	36.56	43.64	7.08	54.00	10.36	AV	Vertical

Remark:

1. *Final Level = Receiver Read level + Factor(Antenna Factor + Cable Loss – Preamplifier Factor).*
2. *The emission levels of other frequencies are lower than the limit 20dB and not show in test report.*

Product Name:	Image transmission Module	Product Model:	M240958S
Test By:	Mike	Test mode:	2.4GHz-QPSK Tx mode
Test Channel:	Highest channel	Polarization:	Horizontal
Test Voltage:	DC 20V	Environment:	Temp: 24℃ Huni: 57%

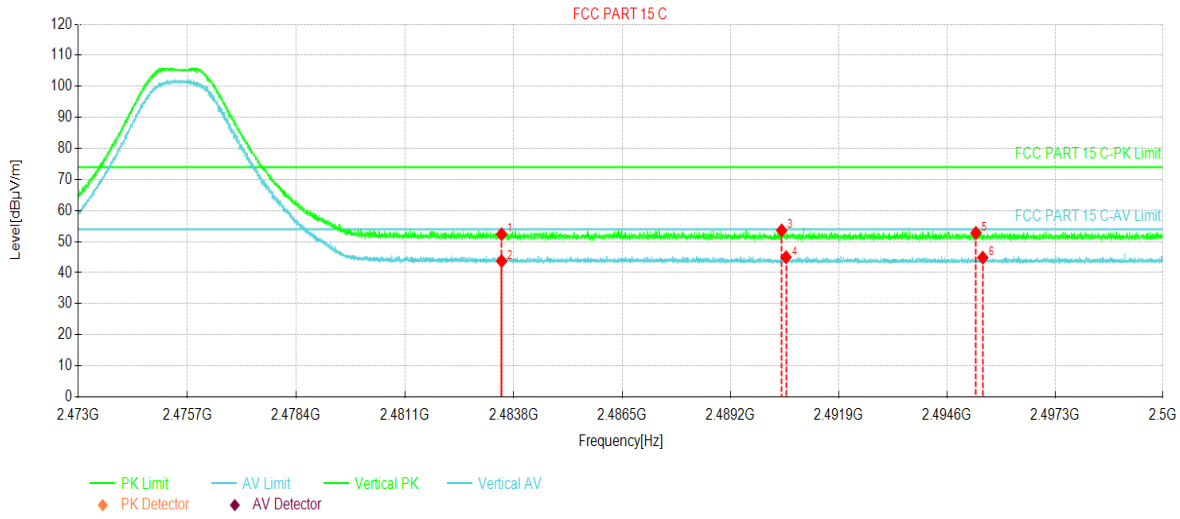


NO.	Freq. [MHz]	Reading [dBµV/m]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Trace	Polarity
1	2483.50	44.00	51.69	7.69	74.00	22.31	PK	Horizontal
2	2483.50	36.04	43.73	7.69	54.00	10.27	AV	Horizontal
3	2490.21	37.20	44.93	7.73	54.00	9.07	AV	Horizontal
4	2490.34	45.15	52.88	7.73	74.00	21.12	PK	Horizontal
5	2495.34	45.16	52.93	7.77	74.00	21.07	PK	Horizontal
6	2495.49	37.12	44.89	7.77	54.00	9.11	AV	Horizontal

Remark:

1. *Final Level = Receiver Read level + Factor(Antenna Factor + Cable Loss – Preamplifier Factor).*
2. *The emission levels of other frequencies are lower than the limit 20dB and not show in test report.*

Product Name:	Image transmission Module	Product Model:	M240958S
Test By:	Mike	Test mode:	2.4GHz-QPSK Tx mode
Test Channel:	Highest channel	Polarization:	Vertical
Test Voltage:	DC 20V	Environment:	Temp: 24℃ Huni: 57%

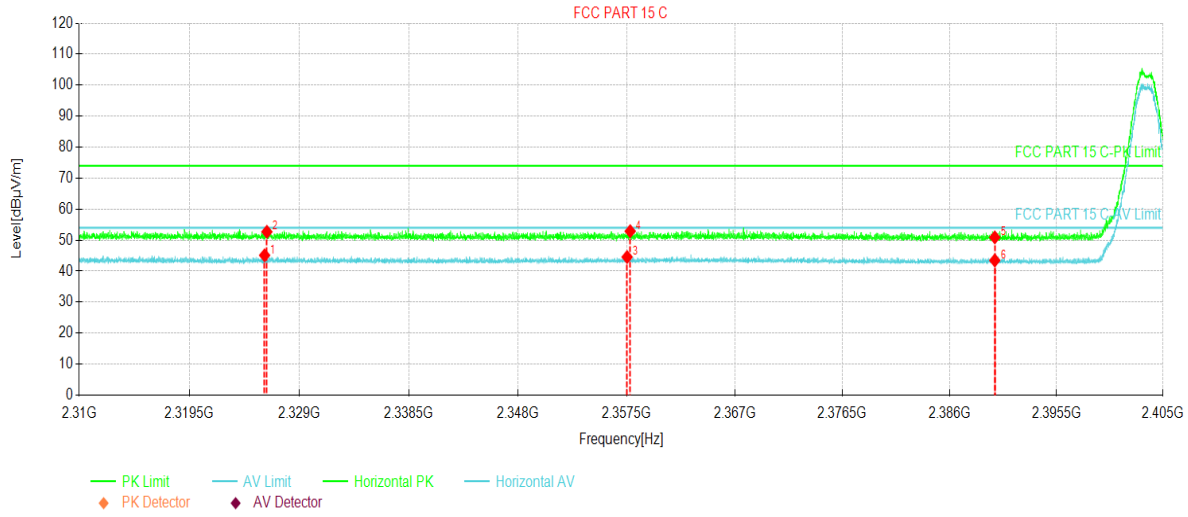


NO.	Freq. [MHz]	Reading [dBµV/m]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Trace	Polarity
1	2483.50	44.67	52.36	7.69	74.00	21.64	PK	Vertical
2	2483.50	36.05	43.74	7.69	54.00	10.26	AV	Vertical
3	2490.47	45.88	53.61	7.73	74.00	20.39	PK	Vertical
4	2490.58	37.25	44.99	7.74	54.00	9.01	AV	Vertical
5	2495.32	45.02	52.79	7.77	74.00	21.21	PK	Vertical
6	2495.49	37.07	44.84	7.77	54.00	9.16	AV	Vertical

Remark:

1. *Final Level = Receiver Read level + Factor(Antenna Factor + Cable Loss – Preamplifier Factor).*
2. *The emission levels of other frequencies are lower than the limit 20dB and not show in test report.*

Product Name:	Image transmission Module	Product Model:	M240958S
Test By:	Mike	Test mode:	2.4GHz-16QAM Tx mode
Test Channel:	Lowest channel	Polarization:	Horizontal
Test Voltage:	DC 20V	Environment:	Temp: 24℃ Huni: 57%

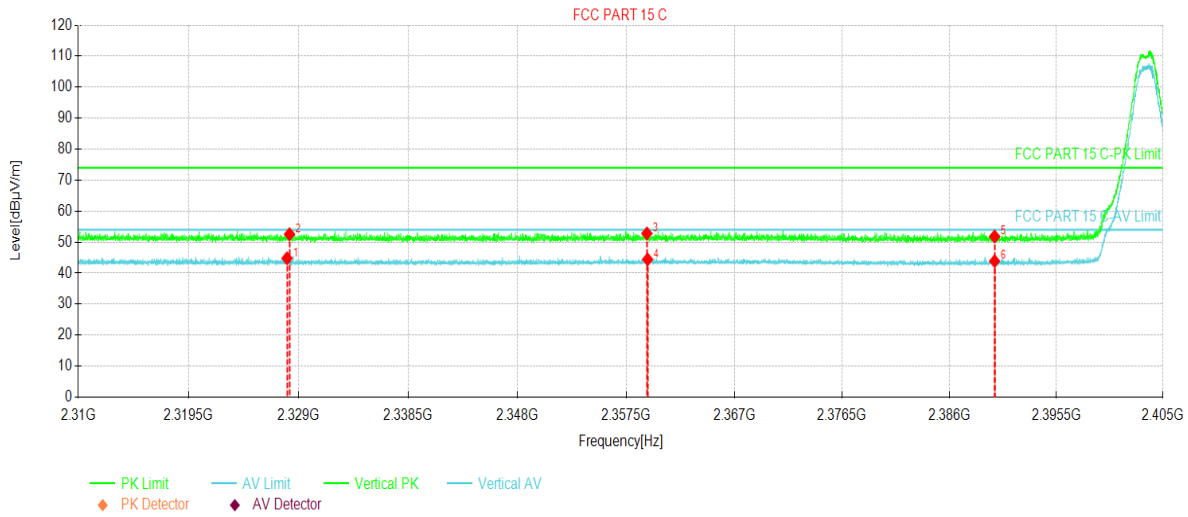


NO.	Freq. [MHz]	Reading [dBµV/m]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Trace	Polarity
1	2325.98	38.24	45.11	6.87	54.00	8.89	AV	Horizontal
2	2326.18	45.82	52.69	6.87	74.00	21.31	PK	Horizontal
3	2357.54	37.59	44.56	6.97	54.00	9.44	AV	Horizontal
4	2357.82	45.90	52.87	6.97	74.00	21.13	PK	Horizontal
5	2390.00	43.81	50.89	7.08	74.00	23.11	PK	Horizontal
6	2390.00	36.39	43.47	7.08	54.00	10.53	AV	Horizontal

Remark:

1. *Final Level = Receiver Read level + Factor(Antenna Factor + Cable Loss – Preamplifier Factor).*
2. *The emission levels of other frequencies are lower than the limit 20dB and not show in test report.*

Product Name:	Image transmission Module	Product Model:	M240958S
Test By:	Mike	Test mode:	2.4GHz-16QAM Tx mode
Test Channel:	Lowest channel	Polarization:	Vertical
Test Voltage:	DC 20V	Environment:	Temp: 24℃ Huni: 57%

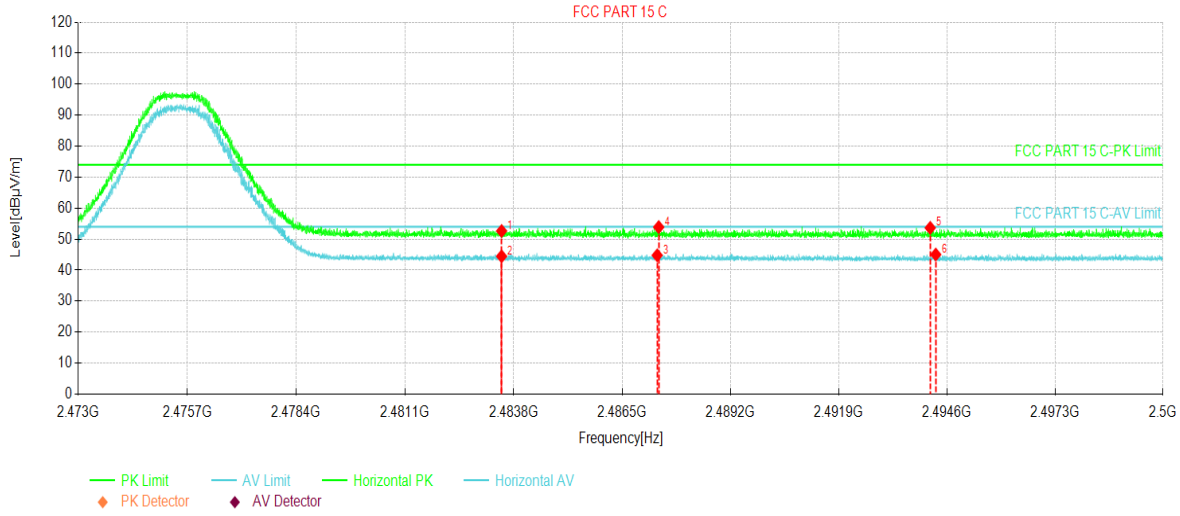


NO.	Freq. [MHz]	Reading [dBµV/m]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Trace	Polarity
1	2327.99	37.92	44.79	6.87	54.00	9.21	AV	Vertical
2	2328.20	45.70	52.57	6.87	74.00	21.43	PK	Vertical
3	2359.32	45.81	52.79	6.98	74.00	21.21	PK	Vertical
4	2359.38	37.45	44.43	6.98	54.00	9.57	AV	Vertical
5	2390.00	44.74	51.82	7.08	74.00	22.18	PK	Vertical
6	2390.00	36.80	43.88	7.08	54.00	10.12	AV	Vertical

Remark:

1. *Final Level = Receiver Read level + Factor(Antenna Factor + Cable Loss – Preamplifier Factor).*
2. *The emission levels of other frequencies are lower than the limit 20dB and not show in test report.*

Product Name:	Image transmission Module	Product Model:	M240958S
Test By:	Mike	Test mode:	2.4GHz-16QAM Tx mode
Test Channel:	Highest channel	Polarization:	Horizontal
Test Voltage:	DC 20V	Environment:	Temp: 24℃ Huni: 57%

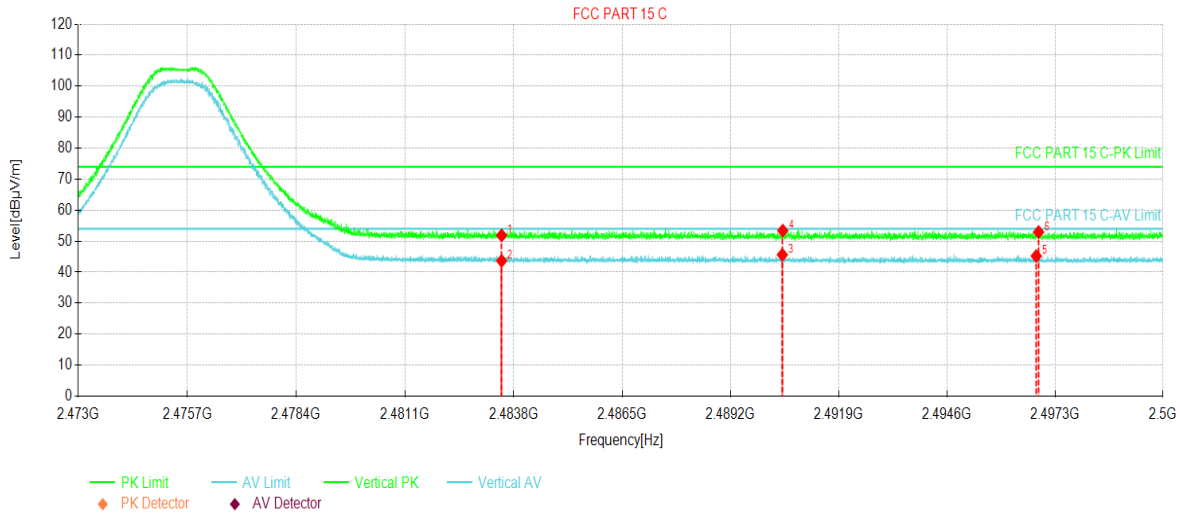


NO.	Freq. [MHz]	Reading [dBµV/m]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Trace	Polarity
1	2483.50	44.94	52.63	7.69	74.00	21.37	PK	Horizontal
2	2483.50	36.78	44.47	7.69	54.00	9.53	AV	Horizontal
3	2487.37	37.08	44.79	7.71	54.00	9.21	AV	Horizontal
4	2487.41	46.17	53.88	7.71	74.00	20.12	PK	Horizontal
5	2494.18	45.88	53.64	7.76	74.00	20.36	PK	Horizontal
6	2494.31	37.27	45.03	7.76	54.00	8.97	AV	Horizontal

Remark:

1. *Final Level = Receiver Read level + Factor(Antenna Factor + Cable Loss – Preamplifier Factor).*
2. *The emission levels of other frequencies are lower than the limit 20dB and not show in test report.*

Product Name:	Image transmission Module	Product Model:	M240958S
Test By:	Mike	Test mode:	2.4GHz-16QAM Tx mode
Test Channel:	Highest channel	Polarization:	Vertical
Test Voltage:	DC 20V	Environment:	Temp: 24℃ Huni: 57%



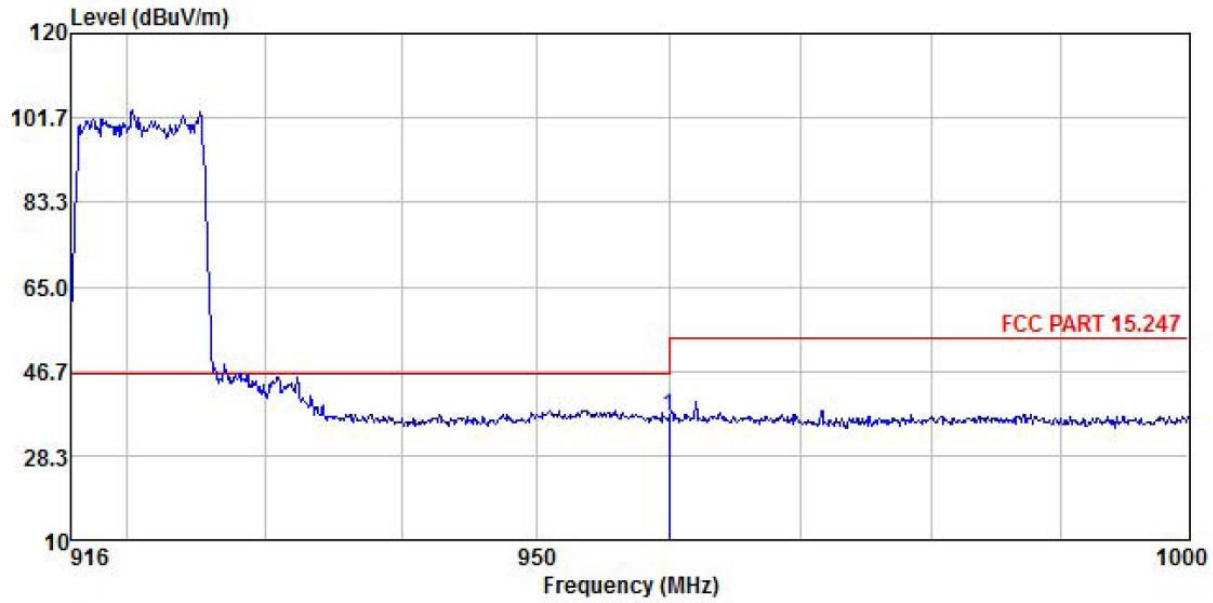
NO.	Freq. [MHz]	Reading [dBµV/m]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Trace	Polarity
1	2483.50	44.17	51.86	7.69	74.00	22.14	PK	Vertical
2	2483.50	35.97	43.66	7.69	54.00	10.34	AV	Vertical
3	2490.49	37.88	45.61	7.73	54.00	8.39	AV	Vertical
4	2490.50	45.66	53.39	7.73	74.00	20.61	PK	Vertical
5	2496.83	37.41	45.19	7.78	54.00	8.81	AV	Vertical
6	2496.88	45.14	52.92	7.78	74.00	21.08	PK	Vertical

Remark:

1. *Final Level = Receiver Read level + Factor(Antenna Factor + Cable Loss – Preamplifier Factor).*
2. *The emission levels of other frequencies are lower than the limit 20dB and not show in test report.*

BW: 10MHz

Product Name:	Image transmission Module	Product Model:	M240958S
Test By:	Mike	Test mode:	900MHz-QPSK Tx mode
Test Channel:	Lowest channel	Polarization:	Horizontal
Test Voltage:	DC 20V	Environment:	Temp: 24℃ Huni: 57%

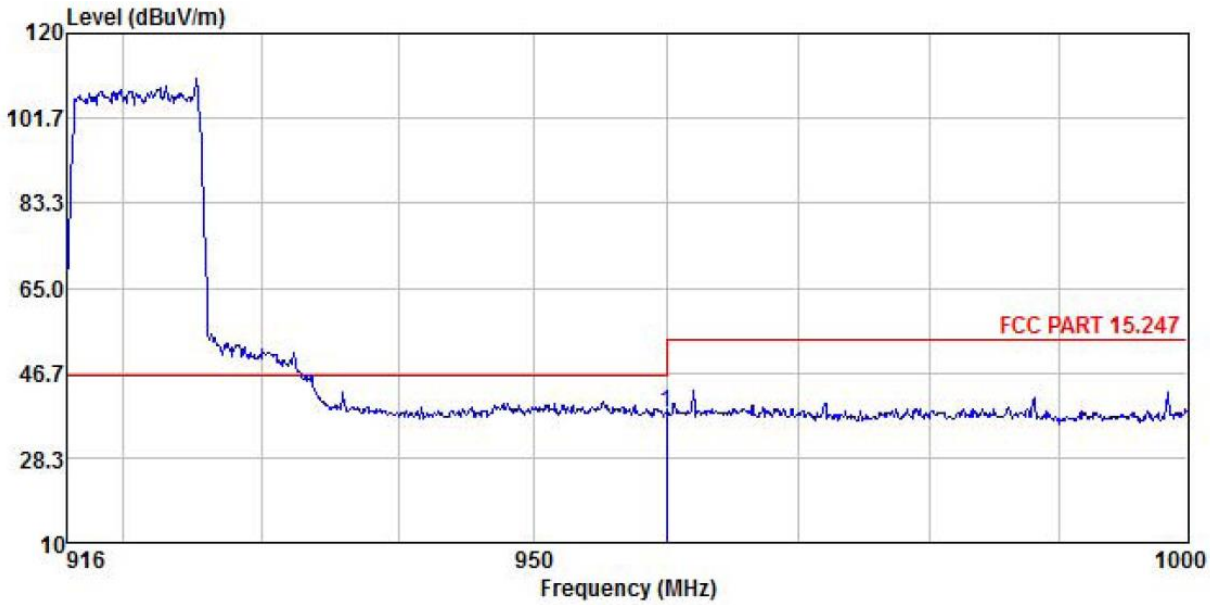


	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	960.023	10.35	22.86	3.51	0.00	36.72	54.00	-17.28	

Remark:

1. *Final Level = Receiver Read level + Factor(Antenna Factor + Cable Loss – Preamplifier Factor).*
2. *The emission levels of other frequencies are lower than the limit 20dB and not show in test report.*

Product Name:	Image transmission Module	Product Model:	M240958S
Test By:	Mike	Test mode:	900MHz-QPSK Tx mode
Test Channel:	Lowest channel	Polarization:	Vertical
Test Voltage:	DC 20V	Environment:	Temp: 24℃ Huni: 57%

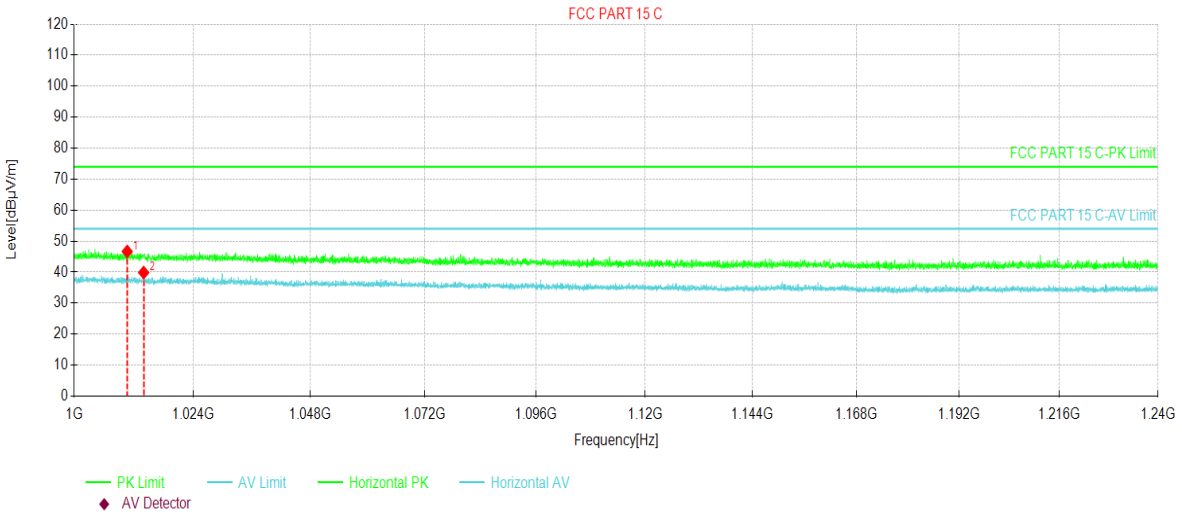


	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	960.023	11.50	22.86	3.51	0.00	37.87	54.00	-16.13	

Remark:

1. *Final Level = Receiver Read level + Factor(Antenna Factor + Cable Loss – Preamplifier Factor).*
2. *The emission levels of other frequencies are lower than the limit 20dB and not show in test report.*

Product Name:	Image transmission Module	Product Model:	M240958S
Test By:	Mike	Test mode:	900MHz-QPSK Tx mode
Test Channel:	Highest channel	Polarization:	Horizontal
Test Voltage:	DC 20V	Environment:	Temp: 24℃ Huni: 57%

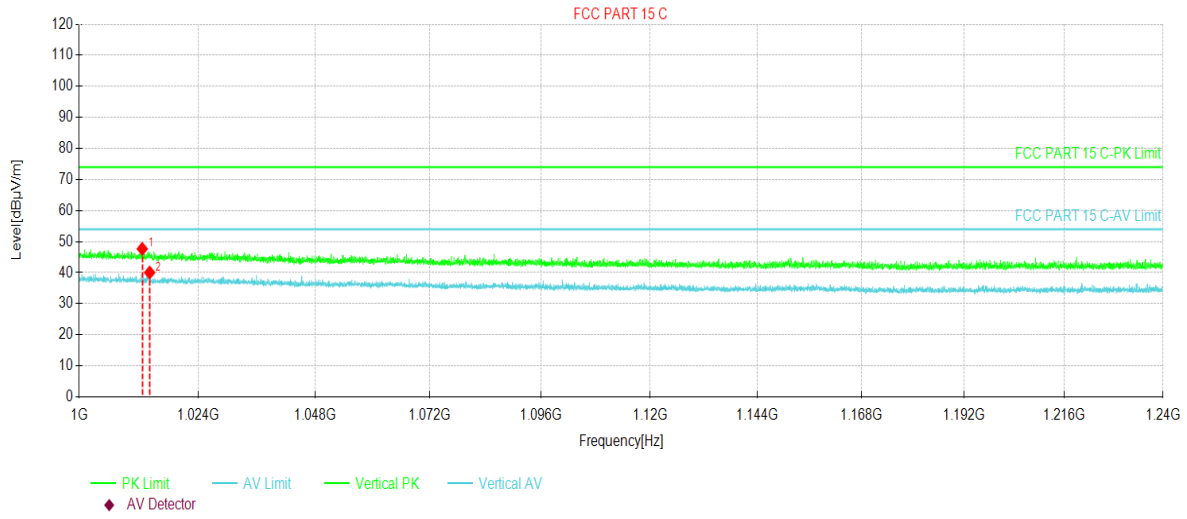


NO.	Freq. [MHz]	Reading [dBµV/m]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Trace	Polarity
1	1010.59	43.69	46.66	2.97	74.00	27.34	PK	Horizontal
2	1013.89	36.95	39.87	2.92	54.00	14.13	AV	Horizontal

Remark:

1. *Final Level = Receiver Read level + Factor(Antenna Factor + Cable Loss – Preamplifier Factor).*
2. *The emission levels of other frequencies are lower than the limit 20dB and not show in test report.*

Product Name:	Image transmission Module	Product Model:	M240958S
Test By:	Mike	Test mode:	900MHz-QPSK Tx mode
Test Channel:	Highest channel	Polarization:	Vertical
Test Voltage:	DC 20V	Environment:	Temp: 24℃ Huni: 57%

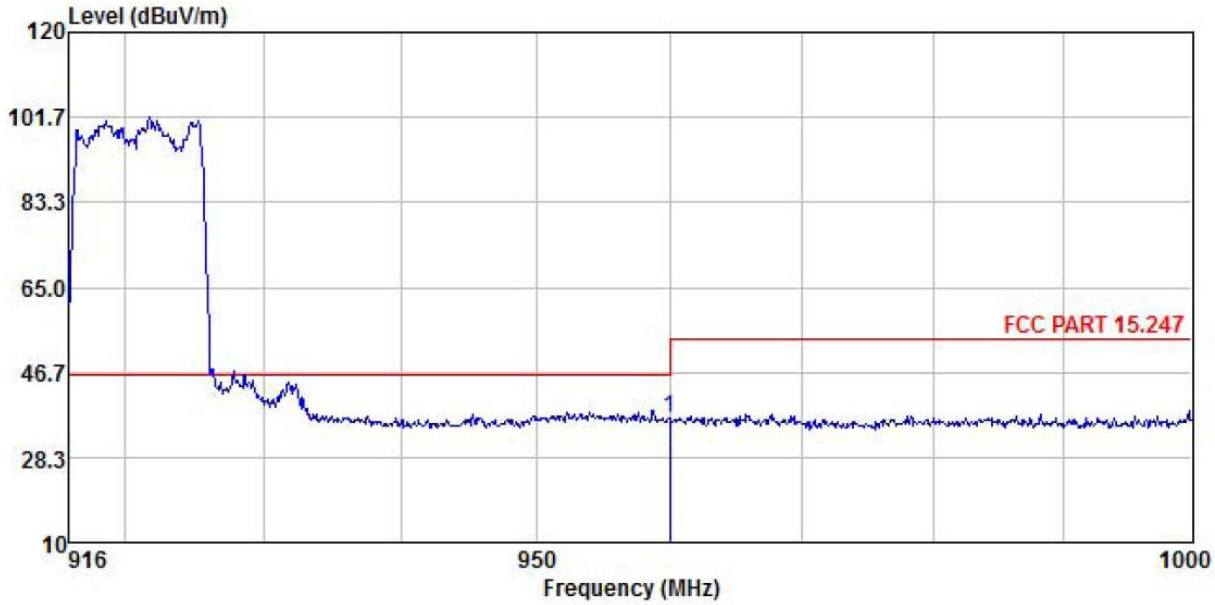


NO.	Freq. [MHz]	Reading [dBµV/m]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Trace	Polarity
1	1012.60	44.72	47.66	2.94	74.00	26.34	PK	Vertical
2	1014.10	37.11	40.03	2.92	54.00	13.97	AV	Vertical

Remark:

1. *Final Level = Receiver Read level + Factor(Antenna Factor + Cable Loss – Preamplifier Factor).*
2. *The emission levels of other frequencies are lower than the limit 20dB and not show in test report.*

Product Name:	Image transmission Module	Product Model:	M240958S
Test By:	Mike	Test mode:	900MHz-16QAM Tx mode
Test Channel:	Lowest channel	Polarization:	Horizontal
Test Voltage:	DC 20V	Environment:	Temp: 24℃ Huni: 57%



	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	960.023	10.41	22.86	3.51	0.00	36.78	54.00	-17.22	

Remark:

1. *Final Level = Receiver Read level + Factor(Antenna Factor + Cable Loss – Preamplifier Factor).*
2. *The emission levels of other frequencies are lower than the limit 20dB and not show in test report.*