

Applicant: Nanjing Magewell Electronics CO., Ltd.

Product: Video Encoder

Model No.: Director Mini

Trademark: N/A

Test Standards: FCC Part 15.247

Test Result:

It is herewith confirmed and found to comply with the

requirements set up by ANSI C63.10, FCC Part 15.247 for the

evaluation of electromagnetic compatibility

Approved By

Term long

Terry Tang

Manager

Dated: November 21, 2022

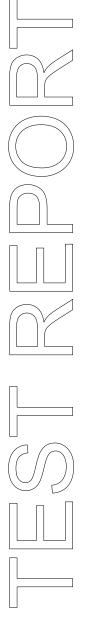
Results appearing herein relate only to the sample tested

The technical reports is issued errors and omissions exempt and is subject to withdrawal at

SHENZHEN TIMEWAY TESTING LABORATORIES

Zone C, 1st Floor, Block B, Jun Xiang Da Building, Zhongshan Park Road West, Tong Le Village, Nanshan District, Shenzhen, China

Tel (755) 83448688, Fax (755) 83442996, E-Mail:info@timeway-lab.com



Date: 2022-11-21



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Special Statement:

The testing quality ability of our laboratory meet with "Quality Law of People's Republic of China" Clause 19.

The testing quality system of our laboratory meet with ISO/IEC-17025 requirements, which is approved by CNAL. This approval result is accepted by MRA of APLAC.

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

CNAS-LAB Code: L2292

The EMC Laboratory has been assessed and in compliance with CNAS-CL01 accreditation criteria for testing Laboratories (identical to ISO/IEC 17025:2017 General Requirements) for the Competence of testing Laboratories.

FCC-Registration No.: 744189

The EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications commission. The acceptance letter from the FCC is maintained in our files. Registration No.: 744189.

Industry Canada (IC) — Registration No.:5205A

The EMC Laboratory has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 5205A.

A2LA (Certification Number:5013.01)

The EMC Laboratory has been accredited by the American Association for Laboratory Accreditation (A2LA). Certification Number:5013.01

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Test Report Conclusion

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1.0 General Details

1.1 Test Lab Details

Name: SHENZHEN TIMEWAY TESTING LABORATORIES.

Address: Zone C, 1st Floor, Block B, Jun Xiang Da Building, Zhongshan Park Road West, Tong Le

Village, Nanshan District, Shenzhen, China

Telephone: (755) 83448688 Fax: (755) 83442996

Site Listed with Federal Communications commission (FCC)

Registration Number:744189 For 3m Anechoic Chamber

Site Listed with Industry Canada of Ottawa, Canada

Registration Number: IC: 5205A

For 3m Anechoic Chamber

1.2 Applicant Details

Applicant: Nanjing Magewell Electronics CO., Ltd.

Address: 14th Floor, Building 3, No.89 Shengli Road, Jiangning Economic and Technological

Development Zone, Nanjing, China.

Telephone: -Fax: --

1.3 Description of EUT

Product: Video Encoder

Manufacturer: Nanjing Magewell Electronics CO., Ltd.

Address: 14th Floor, Building 3, No.89 Shengli Road, Jiangning Economic and

Technological Development Zone, Nanjing, China.

Trademark: N/A

Model Number: Director Mini

Additional Model Number: N/A Serial No.: A511221018001

Type of Modulation IEEE 802.11b: DSSS (CCK, QPSK, DBPSK)

IEEE 802.11g/n (HT20, HT40): OFDM (64QAM, 16QAM, QPSK, BPSK)

Frequency range IEEE 802.11b/g/n (HT20): 2412-2462MHz; 802.11n HT40: 2422-2452MHz

Channel Spacing 5MHz for IEEE 802.11b/g/n HT20, HT40

Air Data Rate IEEE 802.11b: 11, 5.5, 2, 1 Mbps

IEEE 802.11g: 54, 48,36, 24, 18, 12, 9, 6 Mbps

IEEE 802.11n HT20/HT40: mcs0-mcs7

Frequency Selection By software

Channel Number IEEE 802.11b/g/n (HT20): 11 Channels; EEE 802.11n (HT40): 7 Channels;

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Antenna: Two FPC Antennas used. The gain of the antennas is 3.0dBi Max for each (Get from

the antenna specification)

Rating: Input: DC12V, 1.5A, 18W Max

Switching Adapter: Model:PA1015-120IB150

Input: 100-240V~, 50/60Hz, 0.4A; Output: DC12V, 1.5A, 18W Max

1.4 Submitted Sample: 2 Samples

1.5 Test Duration: 2022-10-21 to 2022-11-21

1.6 Test Uncertainty

Conducted Emissions Uncertainty = 3.6dB

Radiated Emissions below 1GHz Uncertainty =4.7dB

Radiated Emissions above 1GHz Uncertainty =6.0dB

Conducted Power Uncertainty = 6.0dB

Occupied Channel Bandwidth Uncertainty =5%

Note: The measurement uncertainty is for coverage factor of k=2 and a level of confidence of 95%.

1.7 Test Engineer

The sample tested by

Print Name: Andy Xing

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2.0 Test Equipment							
Instrument Type	Manufacturer	Model	Serial No.	Date of Cal.	Due Date		
ESPI Test Receiver	R&S	ESPI 3	100379	2022-07-15	2023-07-14		
LISN	R&S	EZH3-Z5	100294	2022-07-18	2023-07-17		
LISN	R&S	EZH3-Z5	100253	2022-07-18	2023-07-17		
Impuls-Begrenzer	R&S	ESH3-Z2	100281	2022-07-18	2023-07-17		
Loop Antenna	EMCO	6507	00078608	2022-07-18	2025-07-17		
Spectrum	R&S	FSIQ26	100292	2022-07-15	2023-07-14		
Horn Antenna	A-INFO	LB-180400-KF	J211060660	2022-07-18	2025-07-17		
Horn Antenna	R&S	BBHA 9120D	9120D-631	2022-07-18	2024-07-17		
Power meter	Anritsu	ML2487A	6K00003613	2022-07-18	2023-07-17		
Power sensor	Anritsu	MA2491A	32263	2022-07-18	2023-07-17		
Bilog Antenna	Schwarebeck	VULB9163	9163/340	2022-07-18	2025-07-17		
9*6*6 Anechoic			N/A	2022-07-26	2025-07-25		
EMI Test Receiver	RS	ESVB	826156/011	2022-07-15	2023-07-14		
EMI Test Receiver	RS	ESCS 30	834115/006	2022-07-15	2023-07-14		
Spectrum	HP/Agilent	E4407B	MY50441392	2022-07-15	2023-07-14		
Spectrum	RS	FSP	1164.4391.38	2022-07-15	2023-07-14		
RF Cable	Zhengdi	ZT26-NJ-NJ-8		2022-07-15	2023-07-14		
KI Caule	Zileligui	M/FA					
RF Cable	Zhengdi	7m		2022-07-15	2023-07-14		
Pre-Amplifier	Schwarebeck	BBV9743	#218	2022-07-15	2023-07-14		
Pre-Amplifier	HP/Agilent	8449B	3008A00160	2022-07-15	2023-07-14		
LISN	SCHAFFNER	NNB42	00012	2022-08-18	2023-07-17		
ESPI Test Receiver	R&S	ESPI 3	100379	2022-07-15	2023-07-14		
LISN	R&S	EZH3-Z5	100294	2022-07-18	2023-07-17		
LISN	R&S	EZH3-Z5	100253	2022-07-18	2023-07-17		

2.2 Automation Test Software

For Conducted Emission Test

Name	Version
EZ-EMC	Ver.EMC-CON 3A1.1
For Radiated Emissions	
Name	Version
EMI Test Software BL410-EV18.91	V18.905
EMI Test Software BL410-EV18.806 High Frequency	V18.06

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3. DESCRIPTION OF TEST MODES

IEEE 802.11b, 802.11g, 802.11n (HT20) mode

The EUT had been tested under operating condition. There are three channels have been tested as following:

Channel	Frequency (MHz)
Low	2412
Middle	2437
High	2462

IEEE 802.11b mode: 1Mbps data rate (worst case) was chosen for full testing. IEEE 802.11g mode: 6Mbps data rate (worst case) was chosen for full testing. IEEE 802.11n (HT20) mode: mcs0 (worst case) were chosen for full testing

IEEE 802.11n (HT40) mode

The EUT had been tested under operating condition. There are three channels have been tested as following:

Channel	Frequency (MHz)
Low	2422
Middle	2437
High	2452

IEEE 802.11n (HT40) mode: mcs0 data rate (worst case) were chosen for full testing

Note: 1. during the test, the duty cycle was set up to 100%.

2. 802.11b/g test mode is SISO mode, 802.11n H20 and 802.11n H40 test mode is MIMO Mode.

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3.0 **Technical Details**

3.1 **Summary of test results**

Standard	Test Type	Result	Notes
CC Part 15, Paragraph 15.107 & 15.207	Conducted Emission Test	Pass	Complies
FCC Part 15 Subpart C Paragraph 15.247(a)(2) Limit	Spectrum bandwidth of a Orthogonal Frequency Division Multiplex System Limit: 6dB bandwidth>500kHz	Pass	Complies
FCC Part 15, Paragraph 15.247(b)	Maximum peak output power Limit: max. 30dBm	Pass	Complies
FCC Part 15, Paragraph 15.109,15.205 & 15.209	Transmitter Radiated Emission Limit: Table 15.209	Pass	Complies
FCC Part 15, Paragraph 15.247(e)	Power Spectral Density Limit: max. 8dBm	Pass	Complies
FCC Part 15, Paragraph 15.247(d)	Out of Band Emission and Restricted Band Radiation Limit: 20dB less than peak value of fundamental frequency Restricted band limit: Table 15.209	Pass	Complies

3.2 **Test Standards**

FCC Part 15 Subpart & Subpart C, Paragraph 15.247

EUT Modification 4.0

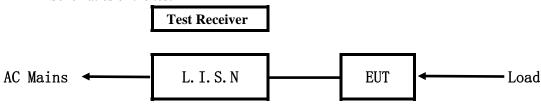
No modification by SHENZHEN TIMEWAY TESTING LABORATORIES.

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5.0 Power Line Conducted Emission Test

5.1 Schematics of the test

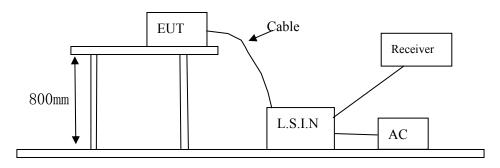


EUT: Equipment Under Test

5.2 Test Method and test Procedure

The EUT was tested according to ANSI C63.10-2013. The Frequency spectrum from 0.15 MHz to 30MHz was investigated. The LISN used was 50 ohm/50 uH as specified by section 5.1 of ANSI C63.10 -2013.

Test Voltage: 120V~, 60Hz Block diagram of Test setup



5.3 Configuration of the EUT

The EUT was configured according to ANSI C63.10-2013. All interface ports were connected to the appropriate peripherals. All peripherals and cables are listed below.

A. EUT

Device	Manufacturer	Model	FCC ID
Video Encoder	Nanjing Magewell Electronics CO., Ltd.	Director Mini	2AP6W-ENCODER5511

B. Internal Device

Device	Manufacturer	Model	FCC ID/DOC
N/A			

C. Peripherals

Device	Manufacturer	Model	Rating
N/A			

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5.4 EUT Operating Condition

Operating condition is according to ANSI C63.10-2013.

- A Setup the EUT and simulators as shown on follow
- B Enable AF signal and confirm EUT active to normal condition

5.5 Power line conducted Emission Limit according to Paragraph 15.207

Frequency	Limits (dB μ V)			
(MHz)	Quasi-peak Level	Average Level		
$0.15 \sim 0.50$	66.0~56.0*	56.0~46.0*		
$0.50 \sim 5.00$	56.0	46.0		
5.00 ~ 30.00	60.0	50.0		

Notes:

- 1. *Decreasing linearly with logarithm of frequency.
- 2. The tighter limit shall apply at the transition frequencies

5.6 Test Results

The frequency spectrum from 0.15MHz to 30MHz was investigated. All reading are quasi-peak values with a resolution bandwidth of 9kHz.

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A: Conducted Emission on Live Terminal (150kHz to 30MHz)

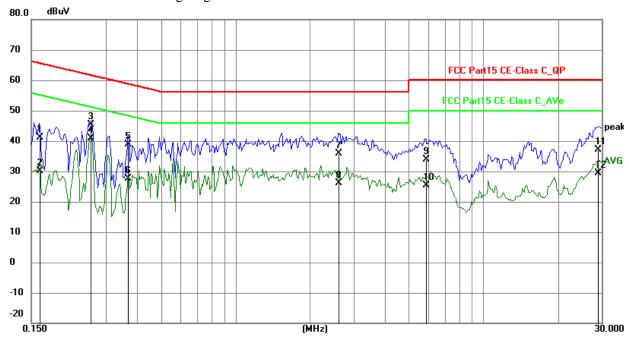
EUT Operating Environment

Temperature: 26°C Humidity: 65%RH Atmospheric Pressure: 101 kPa

EUT set Condition: Keep WIFI Transmitting

Results: Pass

Please refer to following diagram for individual



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F
1	0.1617	31.45	9.78	41.23	65.38	-24.15	QP	Р
2	0.1617	20.34	9.78	30.12	55.38	-25.26	AVG	Р
3	0.2615	35.58	9.75	45.33	61.38	-16.05	QP	Р
4	0.2615	31.08	9.75	40.83	51.38	-10.55	AVG	Р
5	0.3684	29.14	9.76	38.90	58.54	-19.64	QP	Р
6	0.3684	17.94	9.76	27.70	48.54	-20.84	AVG	Р
7	2.5953	26.09	9.83	35.92	56.00	-20.08	QP	Р
8	2.5953	16.36	9.83	26.19	46.00	-19.81	AVG	Р
9	5.8587	24.01	9.96	33.97	60.00	-26.03	QP	Р
10	5.8587	15.40	9.96	25.36	50.00	-24.64	AVG	Р
11	29.0613	25.86	11.24	37.10	60.00	-22.90	QP	Р
12	29.0613	18.18	11.24	29.42	50.00	-20.58	AVG	Р

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B: Conducted Emission on Neutral Terminal (150kHz to 30MHz)

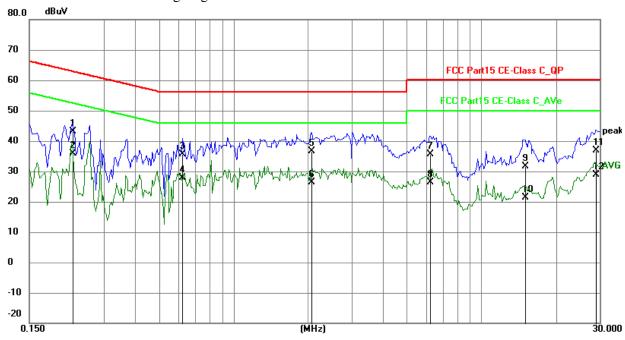
EUT Operating Environment

Humidity: 65%RH Atmospheric Pressure: 101 kPa Temperature: 26°C

EUT set Condition: Keep WIFI Transmitting

Results: Pass

Please refer to following diagram for individual



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F
1	0.2241	33.43	9.75	43.18	62.67	-19.49	QP	Р
2	0.2241	26.09	9.75	35.84	52.67	-16.83	AVG	П
3	0.6219	25.95	9.78	35.73	56.00	-20.27	QP	Р
4	0.6219	18.17	9.78	27.95	46.00	-18.05	AVG	Р
5	2.0610	26.95	9.80	36.75	56.00	-19.25	QP	Р
6	2.0610	16.57	9.80	26.37	46.00	-19.63	AVG	Р
7	6.2058	25.71	9.98	35.69	60.00	-24.31	QP	Р
8	6.2058	16.47	9.98	26.45	50.00	-23.55	AVG	Р
9	15.0549	21.33	10.38	31.71	60.00	-28.29	QP	Р
10	15.0549	11.07	10.38	21.45	50.00	-28.55	AVG	Р
11	28.9974	25.69	11.24	36.93	60.00	-23.07	QP	Р
12	28.9974	17.65	11.24	28.89	50.00	-21.11	AVG	Р

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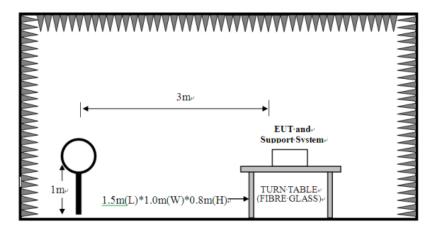


6 Radiated Emission Test

- 6.1 Test Method and test Procedure:
- (1) The EUT was tested according to ANSI C63.10-2013. The radiated test was performed at Timeway EMC Laboratory. This site is on file with the FCC laboratory division, Registration No. 744189
- (2) The EUT, peripherals were put on the turntable which table size is 1m x 1.5 m, table high 0.8 m. All set up is according to ANSI C63.10-2013.
- (3) The frequency spectrum from 30 MHz to 25 GHz was investigated. All readings from 30 MHz to 1 GHz are Quasi-peak values with a resolution bandwidth of 120 kHz. For measurement above 1GHz, peak values with RBW=1MHz VBW=3MHz and PK detector. AV value with RBW=1MHz, VBW=3MHz and RMS detector. Measurements were made at 3 meters.
- (4) The antenna high is varied from 1 m to 4 m high to find the maximum emission for each frequency.
- (5) Maximizing procedure was performed on the six (6) highest emissions to ensure EUT compliance is with all installation combinations. All data was recorded in the peak detection mode. Quasi-peak readings was performed only when an emission was found to be marginal (within -4 dB of specification limit), and are distinguished with a "QP" in the data table.
- (6) The antenna polarization: Vertical polarization and Horizontal polarization.

Block diagram of Test setup

For radiated emissions from 9kHz to 30MHz



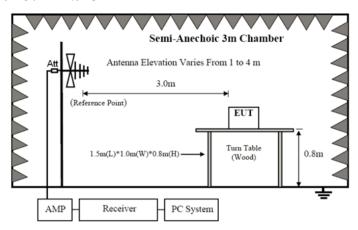
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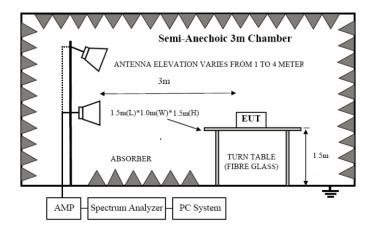
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For radiated emissions from 30MHz to1GHz



For radiated emissions above 1GHz



- 6.2 Configuration of the EUT
 Same as section 5.3 of this report
- 6.3 EUT Operating Condition

 Same as section 5.4 of this report.
- 6.4 Radiated Emission Limit

All emission from a digital device, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strength specified below:

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Frequencies in restricted band are complied to limit on Paragraph 15.209

Frequency Range (MHz)	Distance (m)	Field strength (dB μ V/m)
30-88	3	40.0
88-216	3	43.5
216-960	3	46.0
Above 960	3	54.0

Note:

- 1. RF Voltage $(dBuV) = 20 \log RF \text{ Voltage } (uV)$
- 2. In the Above Table, the higher limit applies at the band edges.
- 3. Distance refers to the distance in meters between the measuring instrument antenna and the EUT
- 4. 802.11b/g ANT 0 and ANT 1 SISO mode, 802.11n H20 and 802.11n H40 MIMO Mode all have been tested, only worse case 802.11b ANT 0 mode is reported.

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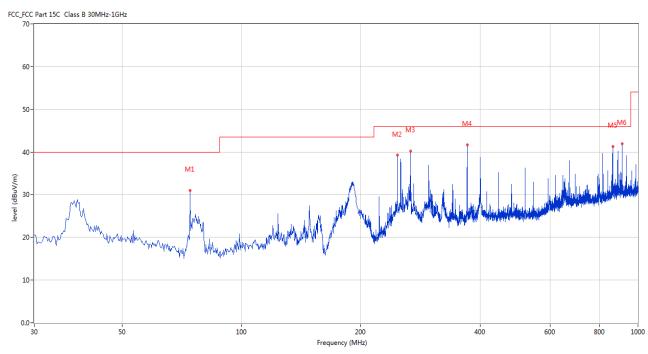


Test result General Radiated Emission Data and Harmonics Radiated Emission Data

Radiated Emission In Horizontal (30MHz----1000MHz)

EUT set Condition: **Keep Transmitting**

Results: Pass



No.	Frequency	Results	Factor	Limit	Over	Detector	Table	Height	ANT	Verdict
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	Limit		(o)	(cm)		
					(dB)					
1	74.124	30.99	-17.14	40.0	-9.01	Peak	0.00	200	Horizontal	Pass
2	247.226	39.22	-12.10	46.0	-6.78	Peak	347.00	100	Horizontal	Pass
3	266.863	40.26	-11.76	46.0	-5.74	Peak	0.00	200	Horizontal	Pass
4	370.870	41.68	-9.53	46.0	-4.32	Peak	32.00	100	Horizontal	Pass
5	865.204	41.32	-2.36	46.0	-4.68	Peak	0.00	200	Horizontal	Pass
6	912.479	41.97	-1.81	46.0	-4.03	Peak	0.00	200	Horizontal	Pass

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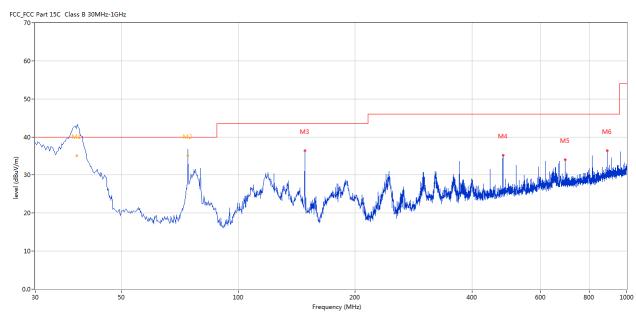


Test result General Radiated Emission Data and Harmonics Radiated Emission Data

Radiated Emission In Vertical (30MHz----1000MHz)

EUT set Condition: **Keep Transmitting**

Results: Pass



No.	Frequency	Results	Factor	Limit	Over Limit	Detector	Table	Height	ANT	Verdict
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dB)		(o)	(cm)		
1	38.432	41.44	-12.66	40.0	1.44	Peak	275.00	185	Vertical	N/A
1*	38.432	35.03	-12.66	40.0	-4.97	QP	275.00	185	Vertical	Pass
2	74.179	40.25	-17.14	40.0	0.25	Peak	287.00	104	Vertical	N/A
2*	74.179	35.13	-17.14	40.0	-4.87	QP	287.00	104	Vertical	Pass
3	148.310	36.43	-17.16	43.5	-7.07	Peak	306.00	100	Vertical	Pass
4	479.968	35.21	-7.40	46.0	-10.79	Peak	0.00	200	Vertical	Pass
5	695.011	33.98	-4.25	46.0	-12.02	Peak	336.00	100	Vertical	Pass
6	890.175	36.44	-1.89	46.0	-9.56	Peak	37.00	100	Vertical	Pass

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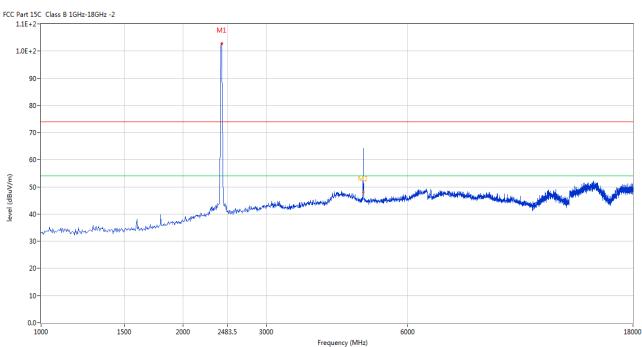
Report No.: TW2210208-01E

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Please refer to the following test plots for details:

CH01 for 11b at 1Mbps: Horizontal



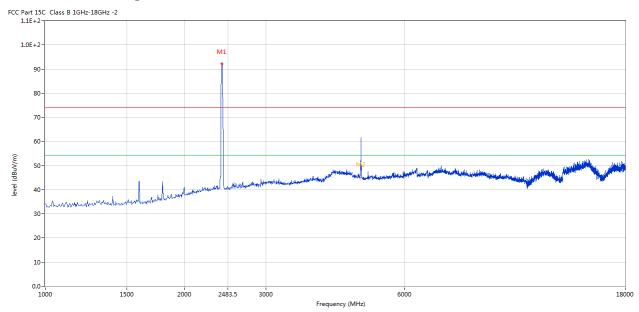
No.	Frequency	Results	Factor	Limit	Over	Detector	Table	Height	ANT	Verdict
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	Limit (dB)		(o)	(cm)		
1	2414.896	102.75	-3.57	74.0	28.75	Peak	94.00	100	Horizontal	N/A
2	4824.044	64.16	3.14	74.0	-9.84	Peak	94.00	100	Horizontal	Pass
2**	4824.044	48.15	3.14	54.0	-5.85	AV	94.00	100	Horizontal	Pass

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CH01 for 11b at 1Mbps: Vertical



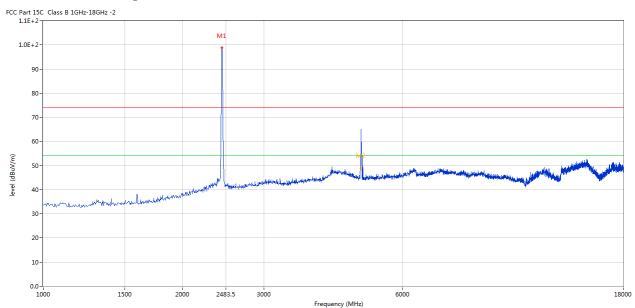
No.	Frequency	Results	Factor	Limit	Over Limit	Detector	Table	Height	ANT	Verdict
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dB)		(o)	(cm)		
1	2410.647	92.14	-3.57	74.0	18.14	Peak	249.00	100	Vertical	N/A
2	4824.044	61.55	3.14	74.0	-12.45	Peak	311.00	100	Vertical	Pass
2**	4824.044	45.52	3.14	54.0	-8.48	AV	311.00	100	Vertical	Pass

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CH06 for 11b at 1Mbps: Horizontal



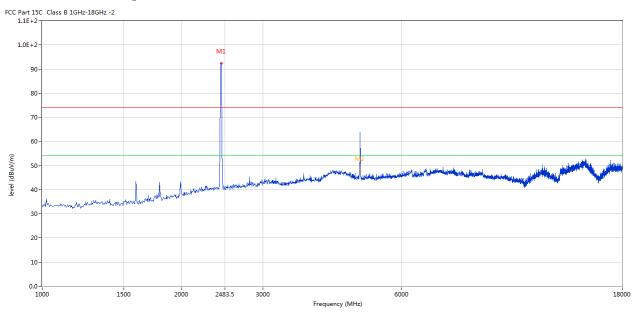
No.	Frequency	Results	Factor	Limit	Over	Detector	Table	Height	ANT	Verdict
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	Limit (dB)		(o)	(cm)		
1	2436.141	98.72	-3.57	74.0	24.72	Peak	144.00	100	Horizontal	N/A
2	4875.031	65.07	3.19	74.0	-8.93	Peak	80.00	100	Horizontal	Pass
2**	4875.031	48.94	3.19	54.0	-5.06	AV	80.00	100	Horizontal	Pass

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CH06 for 11b at 1Mbps: Vertical



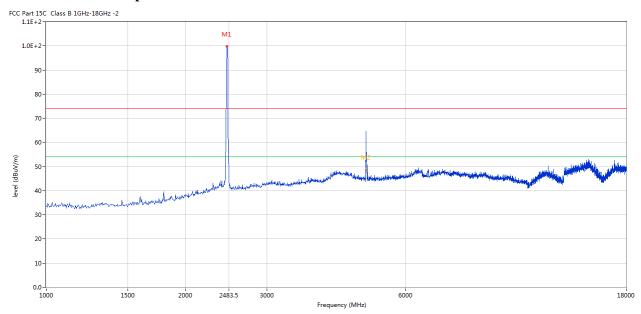
No.	Frequency	Results	Factor	Limit	Over Limit	Detector	Table	Height	ANT	Verdict
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dB)		(o)	(cm)		
1	2440.390	92.46	-3.57	74.0	18.46	Peak	318.00	100	Vertical	N/A
2	4875.031	63.87	3.19	74.0	-10.13	Peak	313.00	100	Vertical	Pass
2**	4875.031	47.75	3.19	54.0	-6.25	AV	313.00	100	Vertical	Pass

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CH11 for 11b at 1Mbps: Horizontal



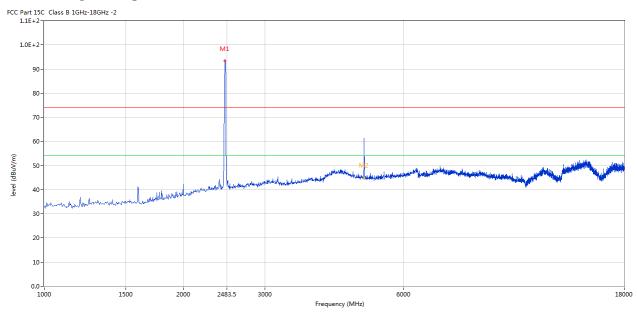
No.	Frequency	Results	Factor	Limit	Over	Detector	Table	Height	ANT	Verdict
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	Limit (dB)		(o)	(cm)		
1	2461.635	99.87	-3.57	74.0	25.87	Peak	94.00	100	Horizontal	N/A
2	4921.770	64.65	3.27	74.0	-9.35	Peak	89.00	100	Horizontal	Pass
2**	4921.770	48.61	3.27	54.0	-5.39	AV	89.00	100	Horizontal	Pass

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CH11 for 11g at 6Mbps: Vertical



No.	Frequency	Results	Factor	Limit	Over Limit	Detector	Table	Height	ANT	Verdict
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dB)		(o)	(cm)		
1	2461.635	93.38	-3.57	74.0	19.38	Peak	1.00	100	Vertical	N/A
2	4921.770	61.25	3.27	74.0	-12.75	Peak	1.00	100	Vertical	Pass
2**	4921.770	45.13	3.27	54.0	-8.87	AV	1.00	100	Vertical	Pass

Note: 1. Result Level = Reading + Factor

- 2. Factor= AF + Cable Loss- Preamp
- 3. Margin = Result– Limit
- 4. For radiated Emissions from 18-25GHz and below 30MHz, it is only the floor noise.
- 5. The peak value less than the AV limit, no necessary to take down the AV measurement result.

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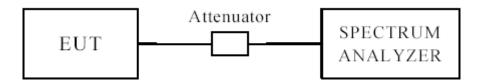
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7.0 6dB Bandwidth Measurement

7.1 Test Setup



7.2 Limits of 6dB Bandwidth Measurement

The minimum of 6dB Bandwidth Measurement is >500 kHz

7.3 Test Procedure

- 1. Set resolution bandwidth (RBW) = 100 kHz
- 2. Set the video bandwidth (VBW) \geq 3 x RBW.
- 3. Detector = Peak.
- 4. Trace mode = max hold.
- 5. Sweep = auto couple.
- 6. Allow the trace to stabilize.
- 7. Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

7.4 Test Result

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6dB Occupied Bandwidth

EUT		Vide	eo Encoder		Mod	lel	Direct	or Mini
Mode		8	302.11b		Input Vol	tage	12	0V~
Temperat	ure	24	4 deg. C,		Humidity	r	56%	6 RH
Channel	Channel Frequency (MHz)		Data Transfer Rate (Mbps)	6 dB Bandwidth (MHz)			mum Limit MHz)	Pass/ Fail
1		2412	1	10.16		0.5		Pass
6		2437	1	10	.16		0.5	Pass
11		2462	1	10	.16		0.5	Pass
1		2412	11	11	.30		0.5	Pass
6	2437		11	11	.30		0.5	Pass
11	2462		11	11.30			0.5	Pass

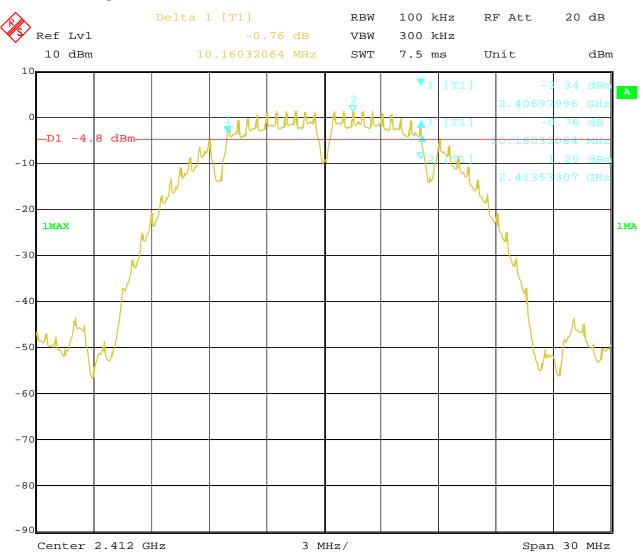
Note: Two antennas (ANT-CH0 and ANT-CH1) were tested and only the worst cased was recorded in the test report. ANT-CH0 was the worst case.

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1. 802.11b at 1Mbps of CH01



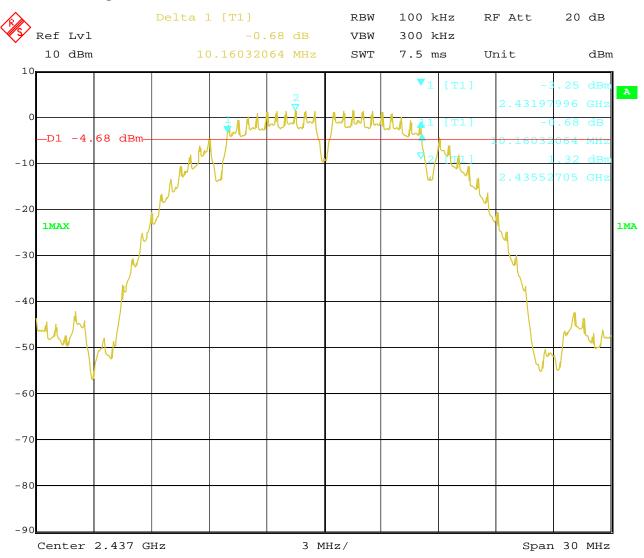
17.NOV.2022 15:08:22 Date:

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2. 802.11b at 1Mbps of CH06



17.NOV.2022 15:20:11 Date:

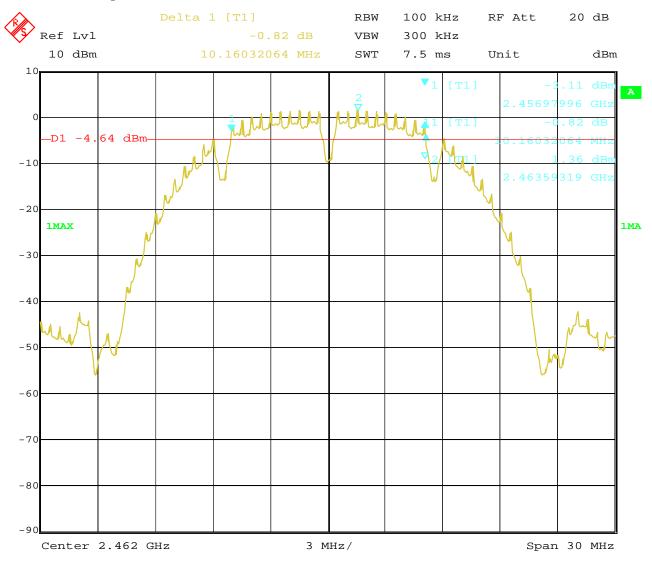
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3. 802.11b at 1Mbps of CH11



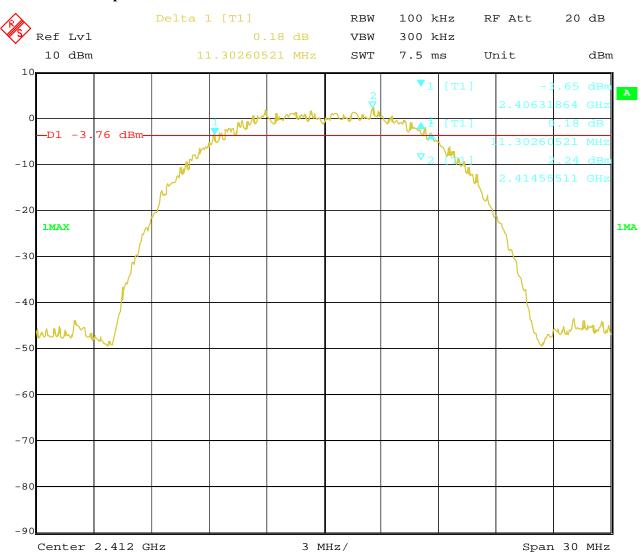
17.NOV.2022 15:22:55 Date:

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4. 802.11b at 11Mbps of CH01



17.NOV.2022 15:15:32 Date:

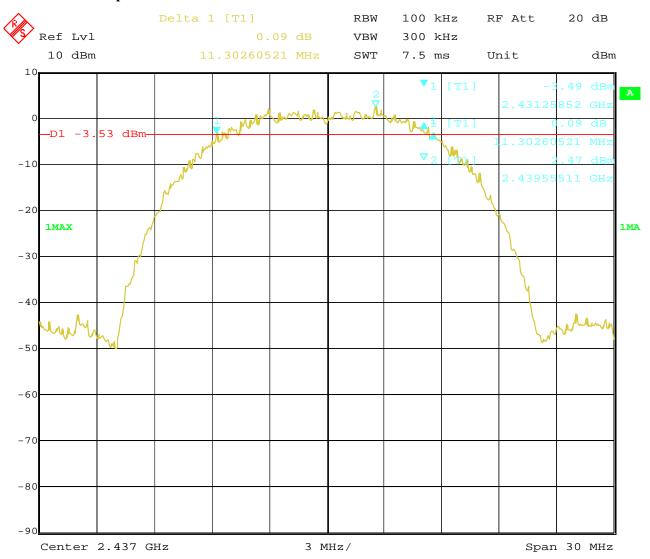
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5. 802.11b at 11Mbps of CH06



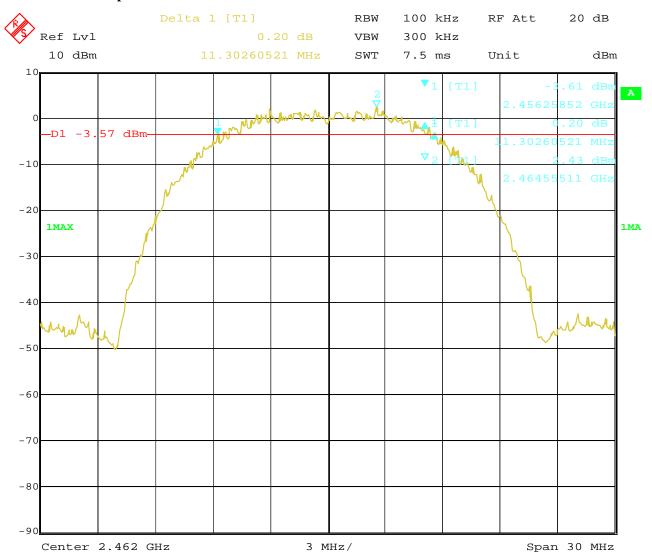
17.NOV.2022 15:18:05 Date:

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6. 802.11b at 11Mbps of CH11



17.NOV.2022 15:24:48 Date:

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6dB Occupied Bandwidth

EUT		Vide	eo Encoder		Mod	lel	Dire	ector Mini
Mode		8	302.11g		Input Vol	tage		120V~
Temperat	nperature		4 deg. C,		Humidity	,	5	6% RH
Channel		el Frequency (MHz)	Data Transfer Rate (Mbps)		ndwidth Hz)		num Limit MHz)	Pass/ Fail
1		2412	6	16.35			0.5	Pass
6		2437	6	16	3.35	0.5		Pass
11		2462	6	16	5.35		0.5	Pass

Note: Two antennas (ANT-CH0 and ANT-CH1) were tested and only the worst cased was recorded in the test report. ANT-CH0 was the worst case.

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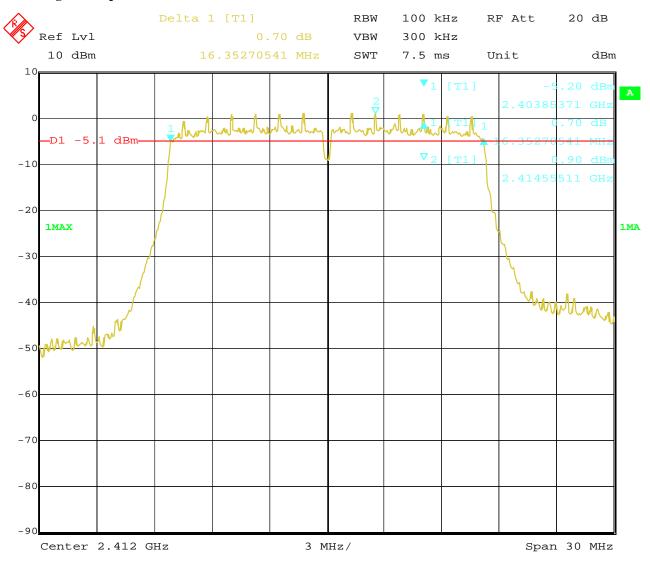
Report No.: TW2210208-01E

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Test Plots:

1. 802.11g at 6Mbps of CH01



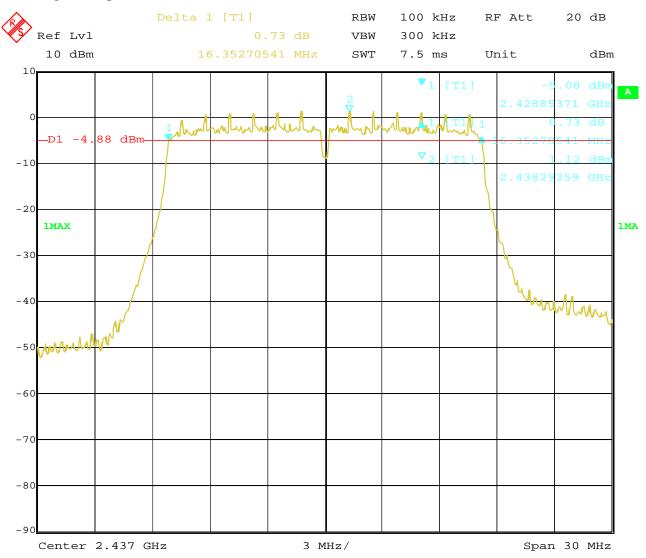
17.NOV.2022 15:01:53 Date:

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2. 802.11g at 6Mbps of CH06



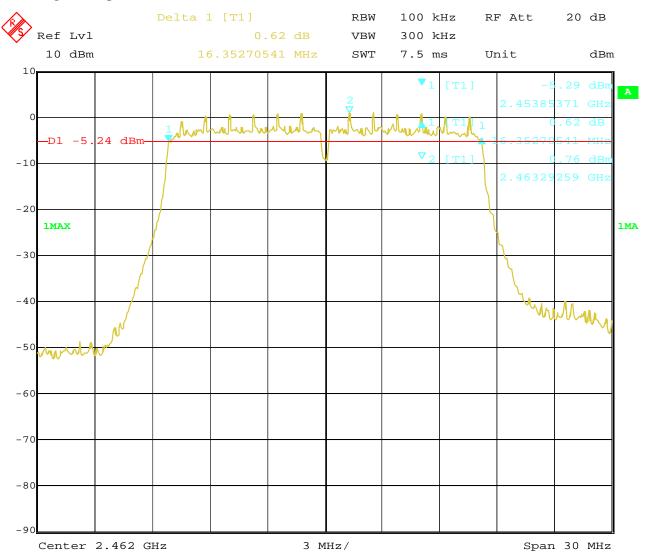
17.NOV.2022 14:49:29 Date:

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3. 802.11g at 6Mbps of CH11



17.NOV.2022 14:44:12 Date:

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6dB Occupied Bandwidth

EUT		Vide	eo Encoder		Mod	lel	Direct	or Mini
Mode		802	.11n HT20		Input Vol	tage	120	0V~
Temperat	perature 2		4 deg. C,		Humidity		56%	% RH
Channel		el Frequency (MHz)	Data Transfer Rate (Mbps)		ndwidth Hz)		mum Limit MHz)	Pass/ Fail
1		2412	mcs0	17	.63		0.5	Pass
6		2437	mcs0	17	.61		0.5	Pass
11	2462		mcs0	17	.61		0.5	Pass

Note: Two antennas (ANT-CH0 and ANT-CH1) were tested and only the worst cased was recorded in the test report. ANT-CH0 was the worst case.

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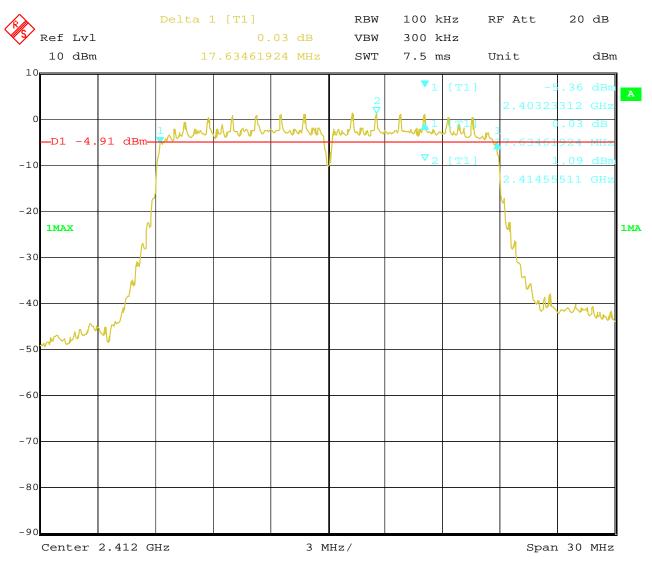
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Test Plots:

1. 802.11n at HT20 of CH01



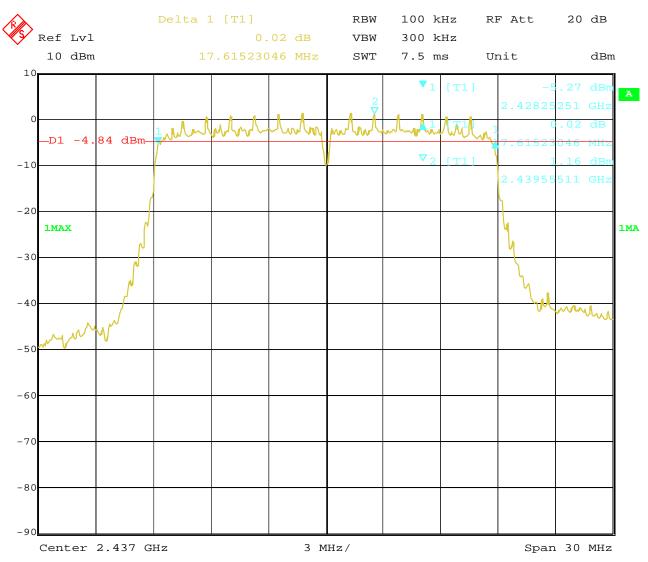
17.NOV.2022 14:27:40 Date:

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2. 802.11n at HT20 of CH06



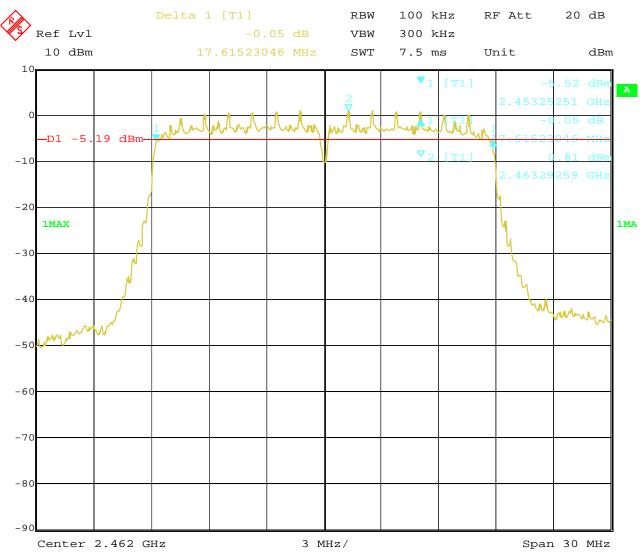
17.NOV.2022 14:35:53 Date:

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3. 802.11n at HT20 of CH11



17.NOV.2022 14:39:52 Date:

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6dB Occupied Bandwidth

EUT		Vide	eo Encoder		Mod	lel	Director Mini		
Mode		802	.11n HT40		Input Vol	tage	nge 120V~		
Temperat	ure	24	4 deg. C,		Humidity		56%	% RH	
Channel		el Frequency (MHz)	Data Transfer Rate (Mbps)		ndwidth Hz)	Minimum Limit (MHz)		Pass/ Fail	
3		2422	mcs0	36	.87	0.5		Pass	
6		2437	mcs0	36	.02		0.5	Pass	
9	2452		mcs0	36	.05		0.5	Pass	

Note: Two antennas (ANT-CH0 and ANT-CH1) were tested and only the worst cased was recorded in the test report. ANT-CH0 was the worst case.

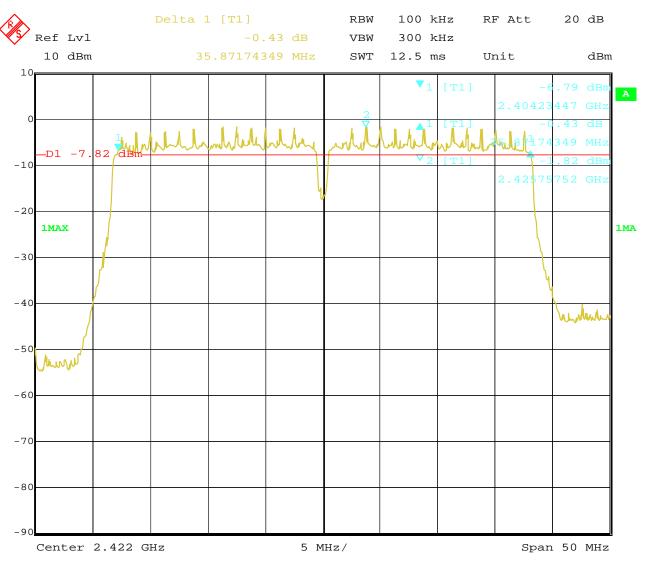
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Test Plots:

1. 802.11n at HT40 of CH03



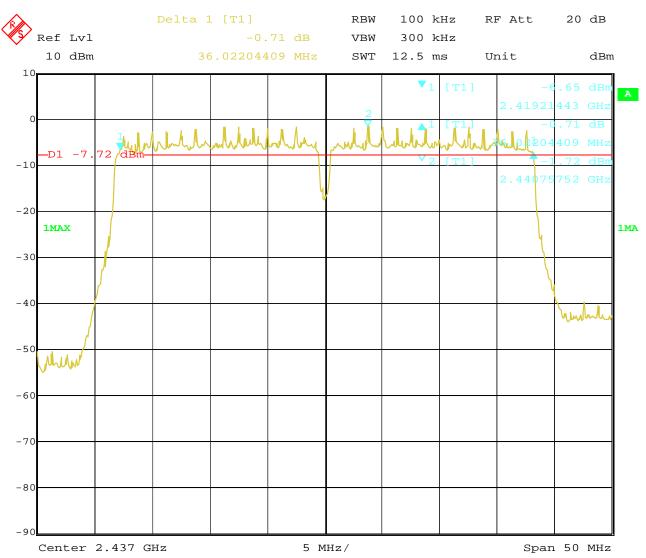
17.NOV.2022 15:27:08 Date:

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2. 802.11n at HT40 of CH06



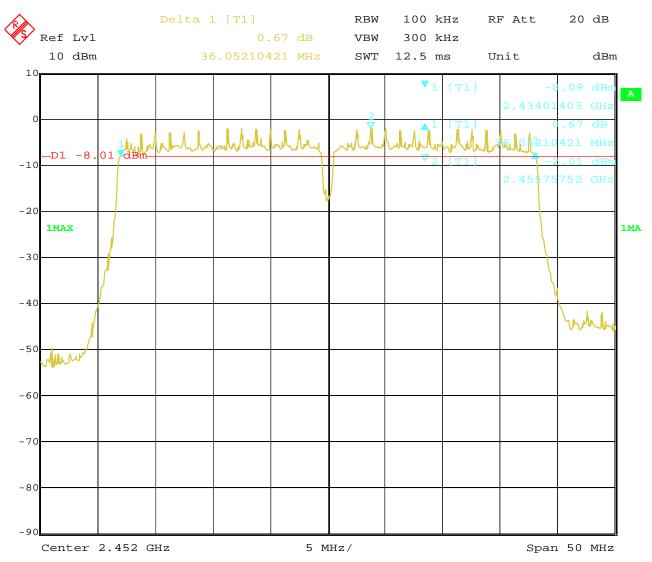
17.NOV.2022 15:29:12 Date:

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3. 802.11n at HT40 of CH09



17.NOV.2022 15:33:16 Date:

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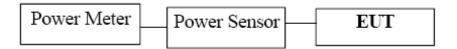
Date: 2022-11-21



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8. Maximum Output Power

8.1 Test Setup



8.2 Limits of Maximum Output Power

The Maximum Output Power Measurement is 30dBm.

8.3 Test Procedure

The RF power output was measured with a Power meter connected to the RF Antenna connector (conducted measurement) while EUT was operating in transmit mode at the appropriate centre frequency.

Note: The Peak power was measured

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8.4Test Results

EUT		Video Encoder				Model	Direc	ctor Mini		
Mode			802.11b				Test Voltage	1:	120V~	
Temperat	ure		2	24 deg. C	Ξ,		Humidity	Humidity 56% RH		
Channel	Frequ (MH	uency	ANT-CH0 Power		ANT: Pov		Power Li (dBm)		Pass/ Fail	
	(17111	<i>L)</i>	dBm	mW	dBm	mW	(ubin)	1		
1	2412		15.50	35.48	15.32	34.04	30		Pass	
6	2437		15.56	35.97	15.03	31.84	30		Pass	
11	2462		15.71	37.24	15.49	35.40	30		Pass	

Note: 1. At finial test to get the worst-case emission at 1Mbps for CH01, CH06 and CH11

2. The result basic equation calculation as follow:

Power Output = Power Reading + Cable loss + Attenuator

3. The worse case was recorded

EUT			Video	o Encoder		N	Iodel	Directo	r Mini	
Mode			80	02.11g		Test Voltage 120V~			V~	
Temperat	ure		24	deg. C,		Hu	midity	56% RH		
Channel	Frequ (MH	uency		T-CH0 wer	ANT- Pov			ver Limit dBm)	Pass/ Fail	
	(IVIII	<i>L)</i>	dBm	mW	dBm	mW	(ubiii)		
1	2412		17.99	62.95	17.16	52.00		30	Pass	
6	2437		18.16	65.46	18.13	65.01		30	Pass	
11	2462		17.84	60.81	17.29	53.58		30	Pass	

Note: 1. At finial test to get the worst-case emission at 6Mbps for CH01, CH06 and CH11

2. The result basic equation calculation as follow:

Power Output = Power Reading + Cable loss + Attenuator

3. The worse case was recorded

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EUT			Video	Encoder	-	N	Iodel		Director N	⁄lini	
Mode			802.11n (HT20) Test Voltage				120V~				
Temperat	ure		24	deg. C,		Humidity			56% RH		
Channel	Frequ (MH	uency z)	Po	C-CH0 wer	ANT- Pov	ver	Total Max. Power Output		Power Limit	Pass/ Fail	
	Ì		dBm	mW	dBm	mW	-MIMO (dl	Bm)	(dBm)		
1	2412		18.18	65.77	18.02	63.39	21.11		30	Pass	
6	2437		18.31	67.76	18.21	66.22	21.27		30	Pass	
11	2462		18.18	65.77	18.11	64.71	21.16		30	Pass	

Note: 1. At finial test to get the worst-case emission at mcs0 of 11n HT20 for CH01, CH06 and CH11

2. The result basic equation calculation as follow: Power Output = Power Reading + Cable loss + Attenuator

3. The worse case was recorded

EUT			Vide	eo Encode	er]	Model		Director Mini		
Mode		802.11n (HT40) Test Voltage			120	V~					
Temperat	ure		24	4 deg. C,		Humidity			56% RH		
Channel	Frequ (MH	uency z)		r-CH0 wer mW	ANT- Pov dBm	_	Total Ma Power Output-MI (dBm)		Power Limit (dBm)	Pass/ Fail	
3	2422		18.58	72.11	18.32	67.92	21.46		30	Pass	
6	2437		18.74	74.82	18.66	73.45	21.71		30	Pass	
9	2452		18.36	68.55	18.23	66.53	21.31		30	Pass	

Note: 1. At finial test to get the worst-case emission at mcs0 of 11n HT40 for CH03, CH06 and CH09

2. The result basic equation calculation as follow: Power Output = Power Reading + Cable loss + Attenuator

3. The worse case was recorded

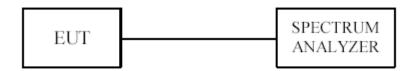
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9. Power Spectral Density Measurement

9.1 Test Setup



9.2 Limits of Power Spectral Density Measurement

The Maximum Power Spectral Density Measurement is 8dBm/3kHz.

9.3 Test Procedure

- 1. Use this procedure when the maximum peak conducted output power in the fundamental emission is used to demonstrate compliance.
- 2. Set the RBW = 10 kHz.
- 3. Set the VBW \geq 30 kHz.
- 4. Set the span to 1.5 times the DTS channel bandwidth.
- 5. Detector = peak.
- 6. Sweep time = auto couple.
- 7. Trace mode = max hold.
- 8. Allow trace to fully stabilize.
- 9. Use the peak marker function to determine the maximum amplitude level.
- 10. If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat.
- 11. The resulting peak PSD level must be $\leq 8 \text{ dBm/3kHz}$.

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9.4Test Result

EUT		Video Encoder		Model	Director	Mini
Mode		802.11b 11Mbps		Test Voltage	120V	′ ~
Temperat	ure		24 deg. C,	Humidity	56% I	RH
Channel	-	uency IHz)	ANT-CH0 Power Spe	ectral Density (dBm/10kHz)	Limit (dBm/3kHz	Pass/ Fail
1	24	412		-9.05	8	Pass
6	24	437		-8.86	8	Pass
11	24	462		-8.70	8	Pass

Note: ANT-CH0 and ANT-CH1 were tested and ANT-CH0 was the worst case

EUT			Video Encoder	Model	Director I	Mini
Mode		802.11b 1Mbps		Test Voltage	120V~	
Temperat	ure	24 deg. C,		Humidity	56% R	Н
Channel	Freq	uency	ANT-CH0 Power Spectr	al Density (dBm/10kHz)	Limit	Pass/ Fail
	(M	(Hz)			(dBm/3kHz)	
1	24	112	-10	.13	8	Pass
6	24	-10		.30	8	Pass
11	24	162	-9.	89	8	Pass

Note: ANT-CH0 and ANT-CH1 were tested and ANT-CH0 was the worst case

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(2)	

EUT		Video Encoder		Model		Director Mi	ni
Mode			802.11g 6Mbps	Test Voltage		120V~	
Temperat	ure		24 deg. C, Humidity		56% RH		
Channel	Freq	uency	ANT-CH0 Power Spec	tral Density (dBm/10kH	Limit	Pass/ Fail	
	(M	(Hz)				(dBm/3kHz)	
1	24	412	-1	10.38		8	Pass
6	24	437	-1	10.33		8	Pass
11	24	162	-1	10.40		8	Pass

Note: ANT-CH0 and ANT-CH1 were tested and ANT-CH0 was the worst case

EUT			Video Encoder		Model		Director N	Mini
Mode	;	802.11n HT20 mcs0		s0	Test Voltage		120V~	
Temperar	ture		24 deg. C,		Humidity	56% RH		Н
Channel	Frequ	uency	ANT-CH0	Factor	Total Power Spectra	al	Limit	Pass/ Fail
	(M	Hz)	Power		Density-MIMO		(dBm/3kHz)	
			Spectral Density		(dBm/10kHz)			
1	24	12	-11.06	3.01	-8.05		8	Pass
6	24	37	-11.00	3.01	-7.99		8	Pass
11	24	62	-11.26	3.01	-8.25		8	Pass

Note: 1. Total Power Spectral Density = Ant1 Power Spectral Density + Factor

^{2.} Factor=10log2=3.01

^{3.} ANT-CH0 and ANT-CH1 were tested and ANT-CH0 was the worst case

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EUT		Video Encoder			Model		Director Mi	ni	
Mode	,	802.11n HT40 mcs0			Test Voltage		120V~		
Temperat	ture		24 deg. C,		Humidity	56% RH			
Channel	Freq	uency	ANT-CH0	Factor	Total Power Spe	ectral	Limit	Pass/ Fail	
	(M	MHz) Power		Density-MIM	O	(dBm/3kHz)			
			Spectral Density		(dBm/10kHz	z)			
3	24	122	-14.51	3.01	-11.50		8	Pass	
6	24	137	-13.78	3.01	-10.77		8	Pass	
9	24	152	-14.52	3.01	-11.51		8	Pass	

Note: 1. Total Power Spectral Density = Ant1 Power Spectral Density + Factor

^{2.} Factor=10log2=3.01

^{3.} ANT-CH0 and ANT-CH1 were tested and ANT-CH0 was the worst case

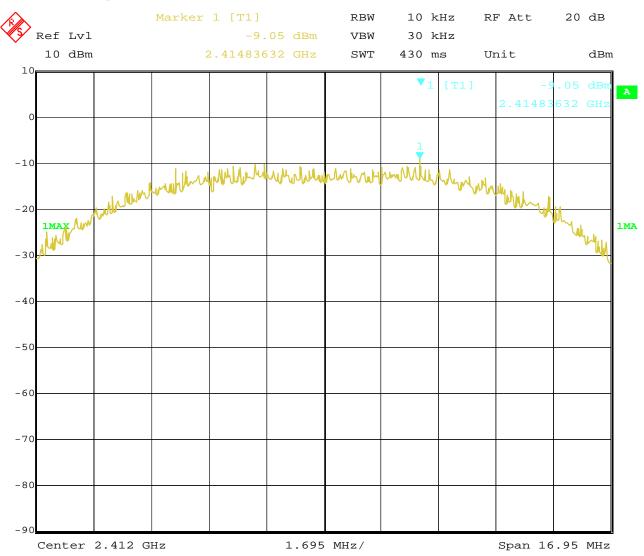
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9.5 Photo of Power Spectral Density Measurement

1.802.11b at 11Mbps of CH01



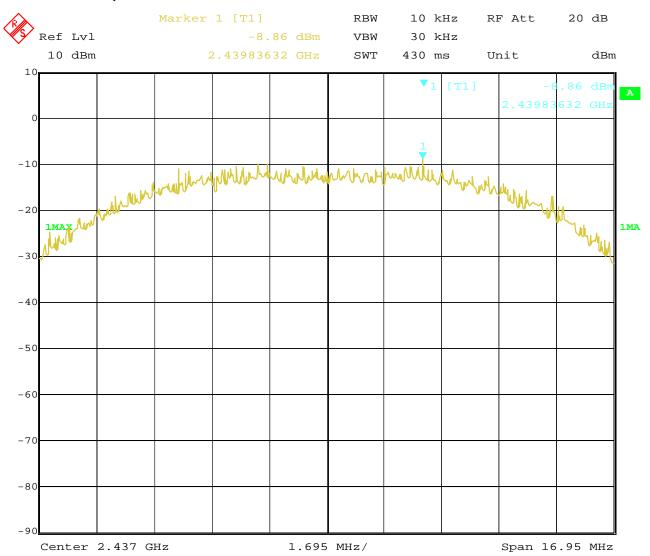
17.NOV.2022 16:55:57 Date:

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2. 802.11b at 11Mbps at CH06



17.NOV.2022 16:57:32 Date:

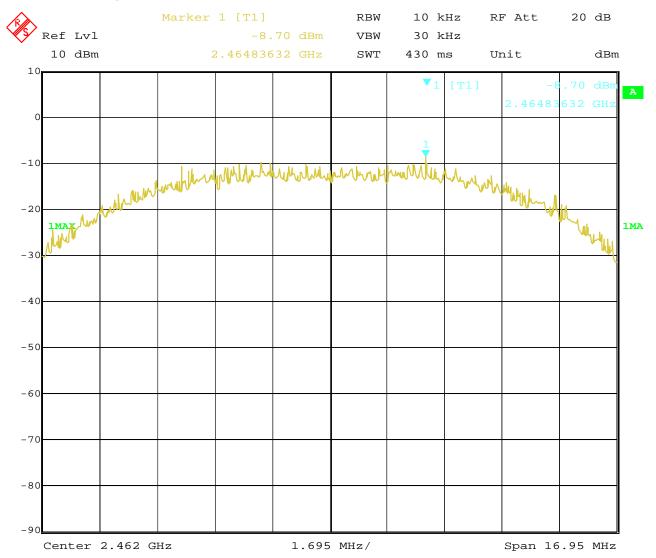
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3. 802.11b at 11Mbps of CH11



17.NOV.2022 16:59:40 Date:

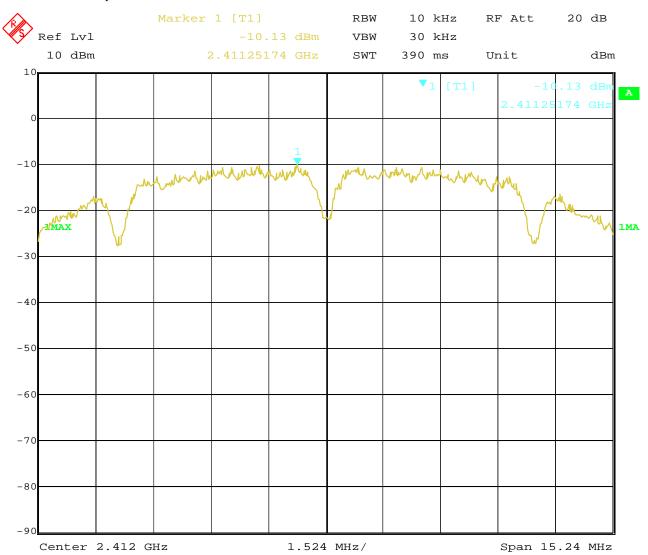
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4. 802.11b at 1Mbps of CH1



17.NOV.2022 16:53:36 Date:

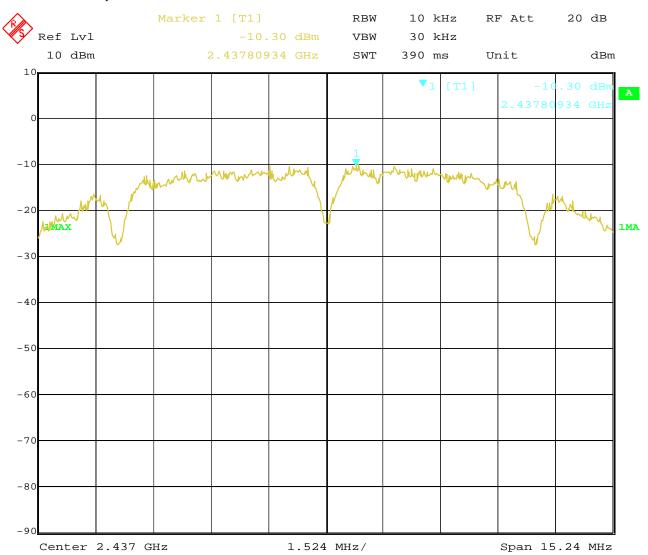
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5. 802.11b at 1Mbps of CH6



17.NOV.2022 16:52:48 Date:

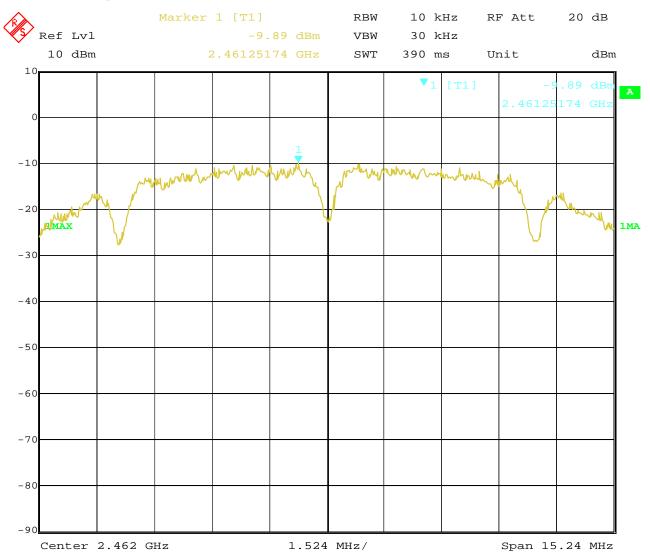
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6. 802.11b at 1Mbps of CH11



17.NOV.2022 16:52:15 Date:

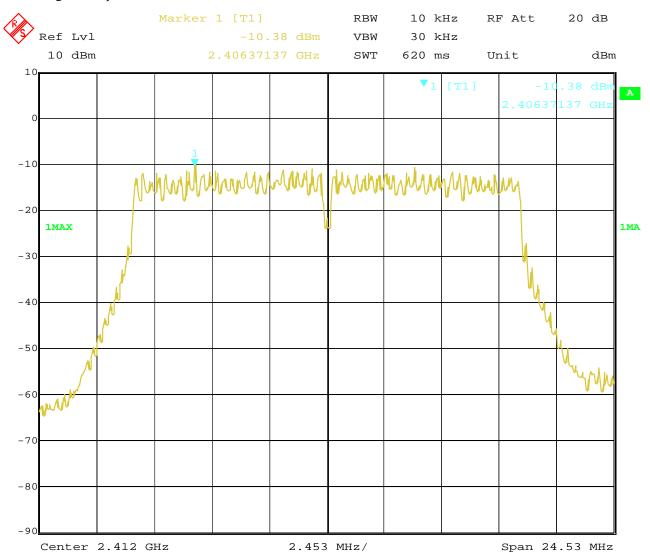
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7. 802.11g at 6Mbps of CH1



17.NOV.2022 17:06:54 Date:

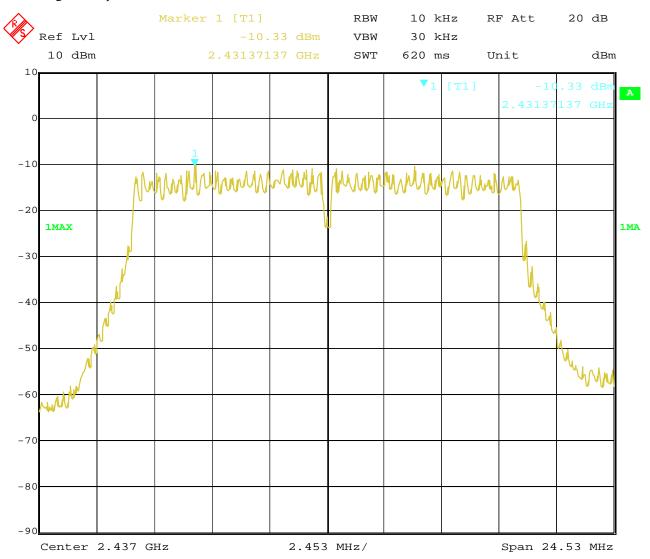
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8. 802.11g at 6Mbps of CH6



17.NOV.2022 17:05:15 Date:

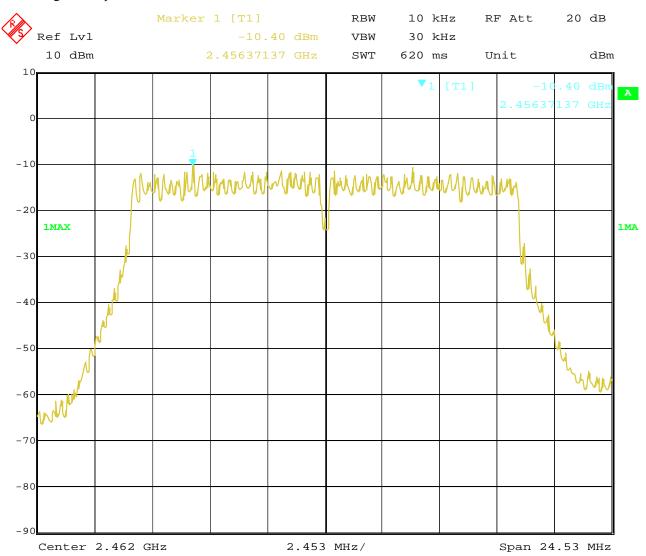
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9. 802.11g at 6Mbps of CH11



17.NOV.2022 17:02:20 Date:

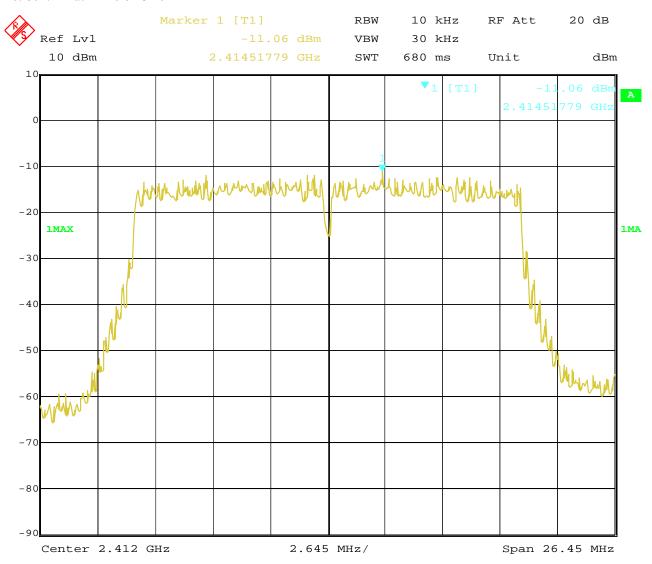
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10. 802.11n at HT20 of CH01



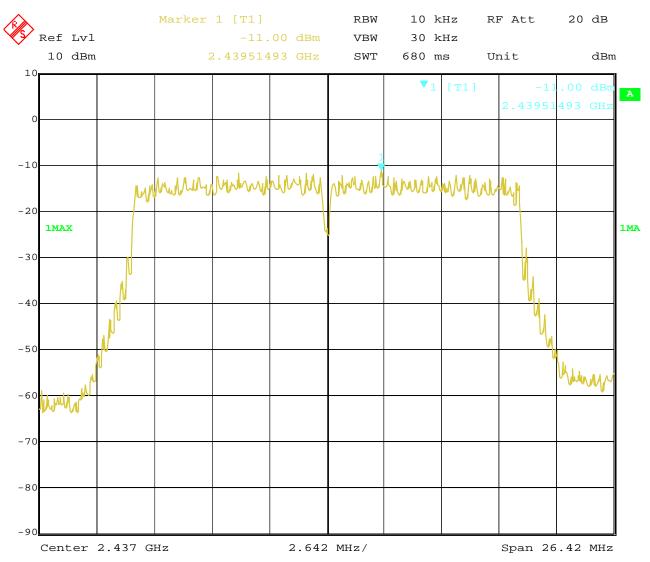
17.NOV.2022 16:43:33 Date:

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11. 802.11n at HT20 of CH06



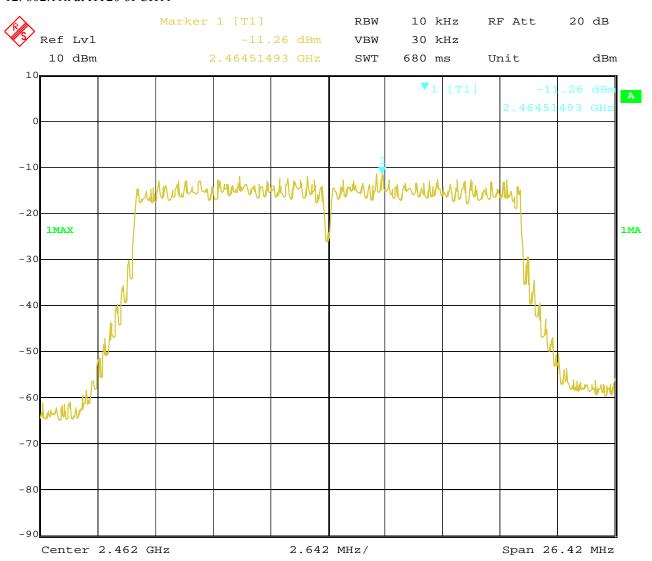
17.NOV.2022 16:47:14 Date:

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12. 802.11n at HT20 of CH11



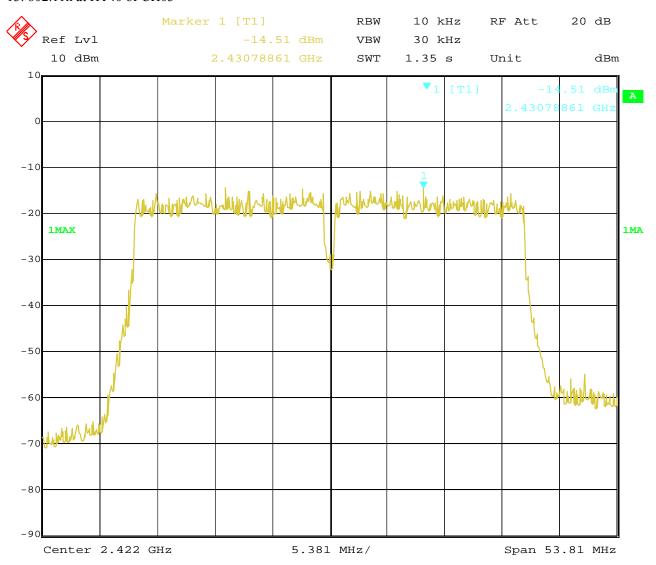
17.NOV.2022 16:51:22 Date:

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13. 802.11n at HT40 of CH03



17.NOV.2022 17:08:54 Date:

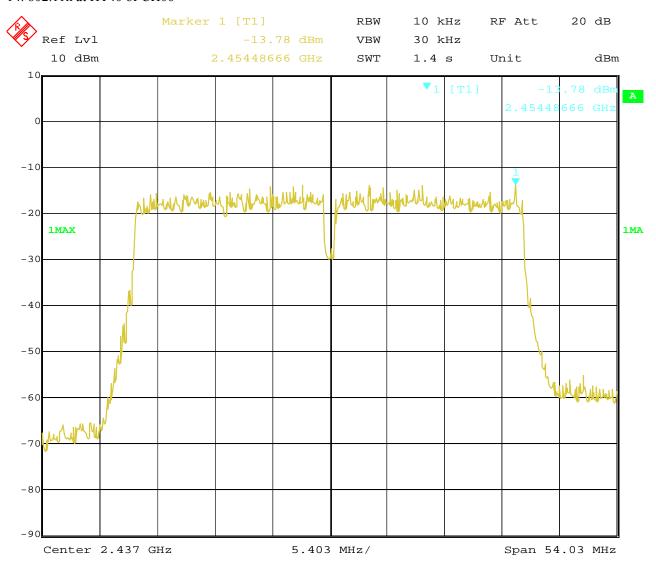
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14. 802.11n at HT40 of CH06



17.NOV.2022 17:09:51 Date:

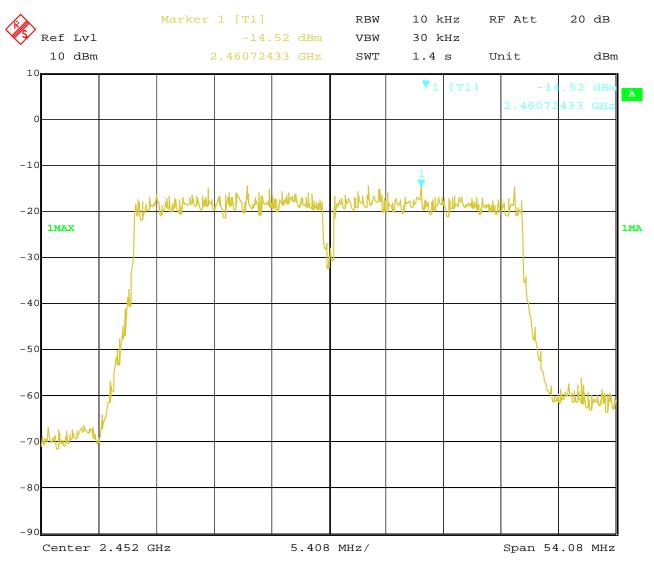
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15. 802.11n at HT40 of CH09



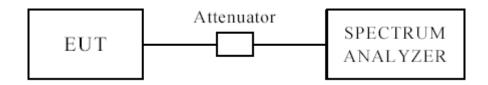
17.NOV.2022 17:10:39 Date:

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10 Out of Band Measurement 10.1 Test Setup for band edge



The restricted band requirement based on radiated emission test; please see the clause 6 for the test setup

10.2 Limits of Out of Band Emissions Measurement

- 1. Below –20dB of the highest emission level of operating band (in 100kHz Resolution Bandwidth).
- 2. Fall in the restricted bands listed in section 15.205. The maximum permitted average field strength is listed in section 15.209.

10.3 Test Procedure

For signals in the restricted bands above and below the 2.4-2.483GHz allocated band a measurement was made of radiated emission test. (Peak values with RBW=VBW=1MHz and PK detector. AV value with RBW=1MHz, VBW=10Hz and PK detector)

For bandage test, the spectrum set as follows: RBW=100, VBW=300 kHz. A conducted measurement used

10.4 Test Result

Please see next pages

Note: 1. For band-edge measurement, the frequency from 30MHz-25GHz was tested. And It met the FCC rule.

2. Two antennas were tested and only the worst cased was recorded in the test report. Ant 2 was the worst case.

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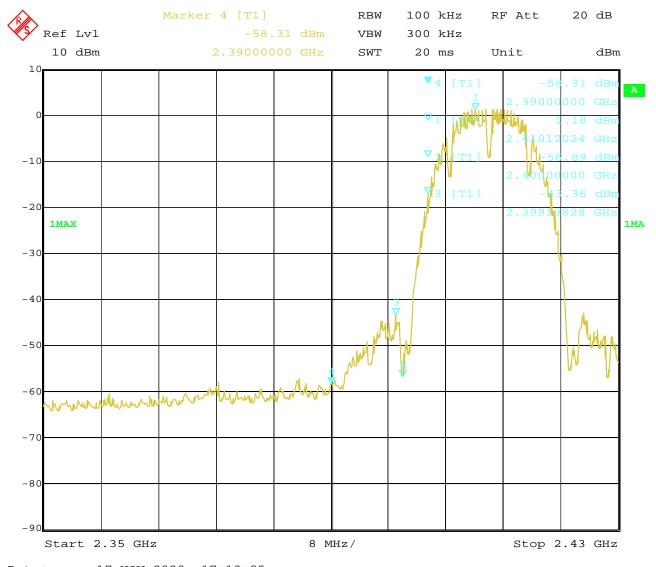
For 802.11b mode

CH01 at 1Mbps

Band-edge Measurement 10.4

EUT	Video Encoder	Model	Director Mini
Mode	Keeping Transmitting	Input Voltage	120V~
Temperature	24 deg. C,	Humidity	56% RH
Test Result:	Pass	Detector	PK

Test Figure:



Date: 17.NOV.2022 17:13:25

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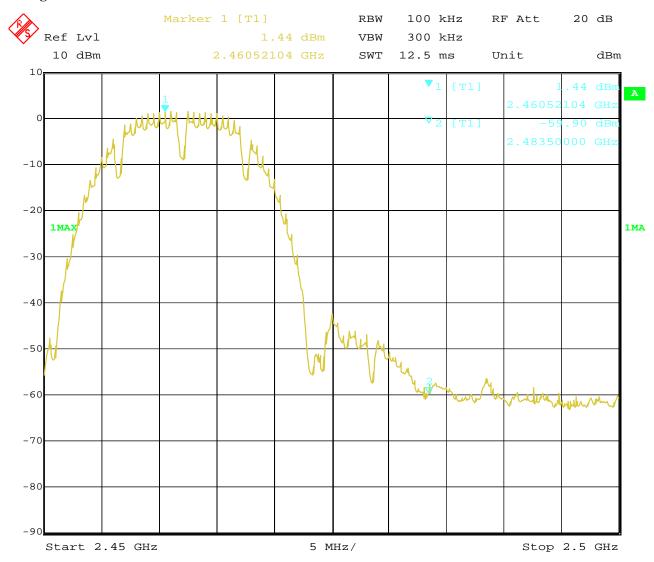


CH11 at 1Mbps

10.4 Band-edge Measurement

EUT	Video Encoder	Model	Director Mini
Mode	Keeping Transmitting	Input Voltage	120V~
Temperature	24 deg. C,	Humidity	56% RH
Test Result:	Pass	Detector	PK

Test Figure:



Date: 17.NOV.2022 17:19:35

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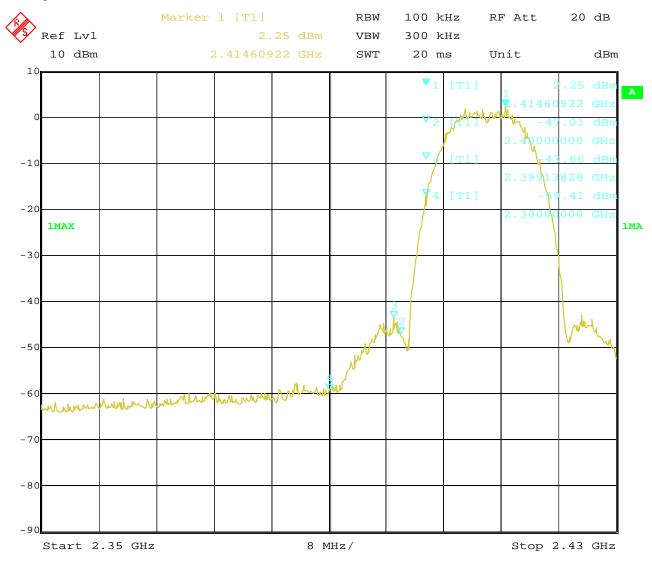
For 802.11b mode

CH01 at 11Mbps

Band-edge Measurement 10.4

EUT	Video Encoder	Model	Director Mini
Mode	Keeping Transmitting	Input Voltage	120V~
Temperature	24 deg. C,	Humidity	56% RH
Test Result:	Pass	Detector	PK

Test Figure:



Date: 17.NOV.2022 17:14:16

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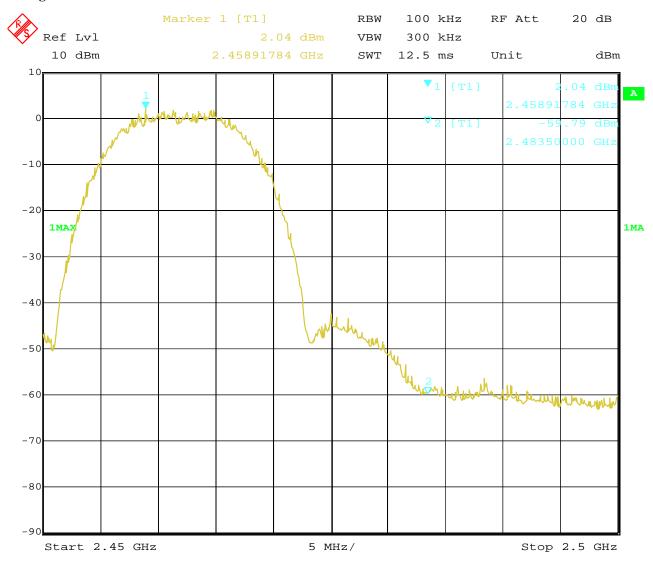


CH11 at 11Mbps

10.4 Band-edge Measurement

EUT	Video Encoder	Model	Director Mini
Mode	Keeping Transmitting	Input Voltage	120V~
Temperature	24 deg. C,	Humidity	56% RH
Test Result:	Pass	Detector	PK

Test Figure:



Date: 17.NOV.2022 17:20:07

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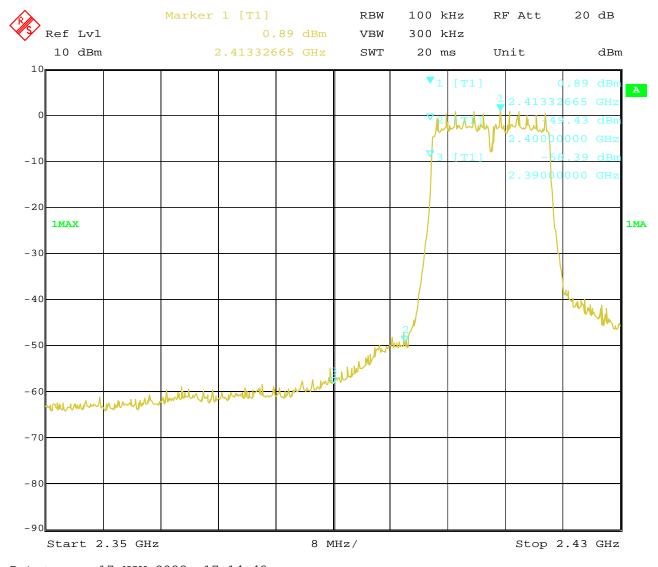
For 802.11g mode

CH01 at 6Mbps

10.4 Band-edge Measurement

EUT	Video Encoder	Model	Director Mini
Mode	Keeping Transmitting	Input Voltage	120V~
Temperature	24 deg. C,	Humidity	56% RH
Test Result:	Pass	Detector	PK

Test Figure:



Date: 17.NOV.2022 17:14:48

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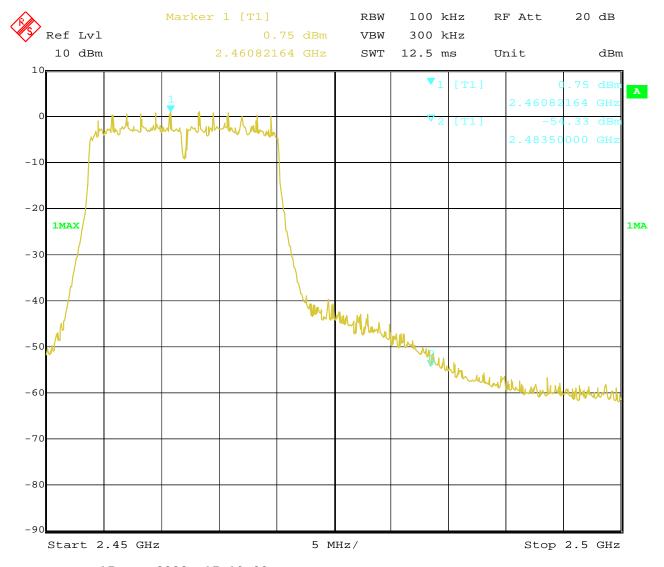


CH11 at 6Mbps

10.4 Band-edge Measurement

EUT	Video Encoder	Model	Director Mini
Mode	Keeping Transmitting	Input Voltage	120V~
Temperature	24 deg. C,	Humidity	56% RH
Test Result:	Pass	Detector	PK

Test Figure:



17.NOV.2022 17:19:00 Date:

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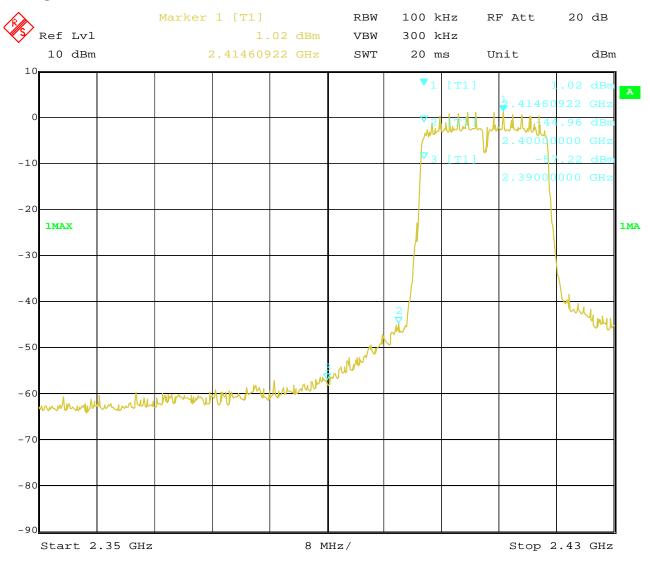
For 802.11n (HT20) mode

CH01 at mcs0

10.4 Band-edge Measurement

EUT	Video Encoder	Model	Director Mini
Mode	Keeping Transmitting	Input Voltage	120V∼
Temperature	24 deg. C,	Humidity	56% RH
Test Result:	Pass	Detector	PK

Test Figure:



Date: 17.NOV.2022 17:15:26

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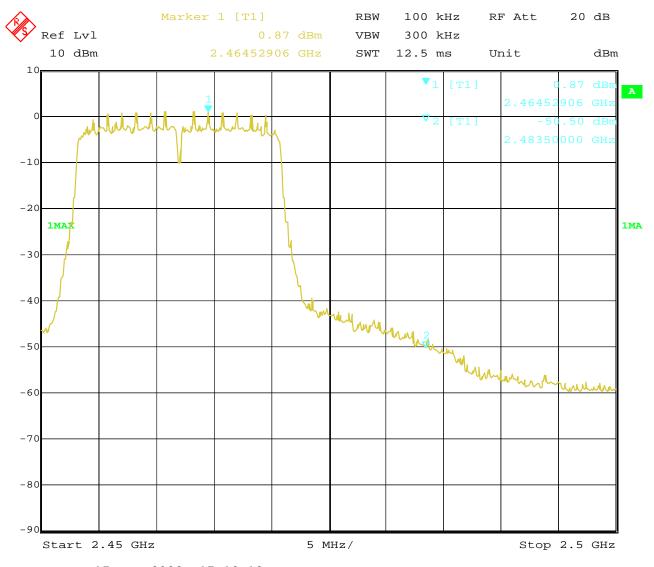


CH11 at mcs0

10.4 Band-edge Measurement

EUT	Video Encoder	Model	Director Mini
Mode	Keeping Transmitting	Input Voltage	120V~
Temperature	24 deg. C,	Humidity	56% RH
Test Result:	Pass	Detector	PK

Test Figure:



Date: 17.NOV.2022 17:18:13

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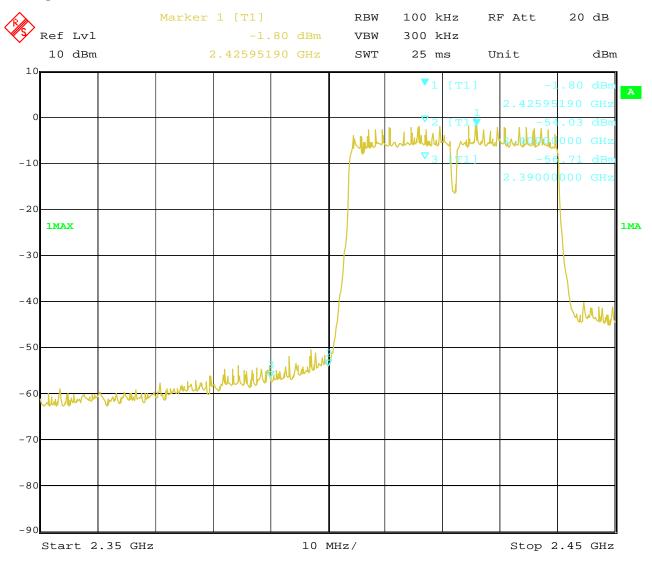
For 802.11n (HT40) mode

CH03 at mcs0

10.4 Band-edge and Restricted band Measurement

EUT	Video Encoder	Model	Director Mini
Mode	Keeping Transmitting	Input Voltage	120V~
Temperature	24 deg. C,	Humidity	56% RH
Test Result:	Pass	Detector	PK

Test Figure:



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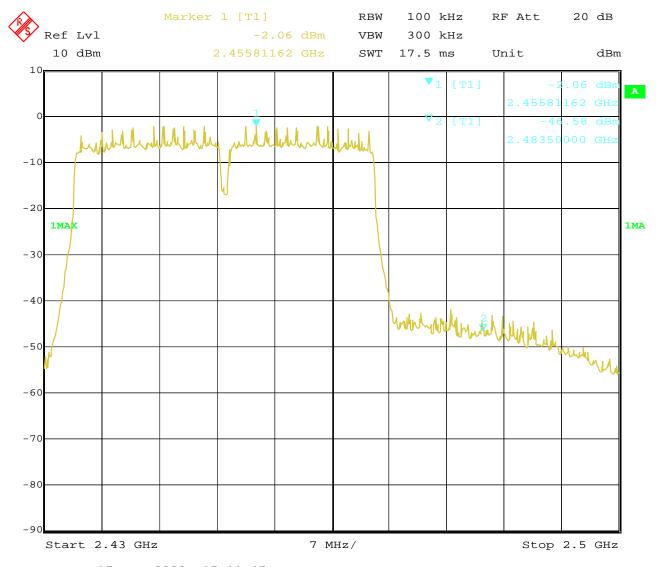


CH09 at mcs0

10.4 Band-edge and Restricted band Measurement

EUT	Video Encoder	Model	Director Mini
Mode	Keeping Transmitting	Input Voltage	120V~
Temperature	24 deg. C,	Humidity	56% RH
Test Result:	Pass	Detector	PK

Test Figure:



Date: 17.NOV.2022 17:11:47

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10.5 Restricted band Measurement

EUT	Video Encoder			Mo	del	Director Mini	
Mode	Kee	eping Transmitting		Test V	oltage	120V~	
Temperature		24 deg. C,		Hum	idity	56% RH	
Test Result:		Pass		Dete	ector	PK	
	802.11b mode, Low Channel				l		
2390	PK (dBµV/m)	54.59	т:.	:4		$74(dB\mu V/m)$	
	AV (dBμV/m)	28.61	Lli	Limit		54(dBµV/m)	
		802.11b mode, Low	Channel,	Vertical			
2390	PK (dBμV/m)	44.18	Limit			74(dBµV/m)	
	AV (dBμV/m)		LII	IIII		54(dBµV/m)	

10.5 Restricted band Measurement

EUT		Video Encoder			odel	Director Mini	
Mode	Ke	eping Transmitting		Test Voltage		120V~	
Temperature		24 deg. C,		Hur	nidity	56% RH	
Test Result:		Pass		Det	tector	PK	
	802.11b mode, High Channel, Horizontal						
2483.5	PK (dBµV/m)	55.93	т::	:4		$74(dB\mu V/m)$	
	AV (dBμV/m)	36.58	Lim	It		$54(dB\mu V/m)$	
		802.11b mode, High	Channel, V	ertical			
2483.5	PK (dBµV/m)	46.78	Limit			74(dBµV/m)	
	AV ($dB\mu V/m$)		LIIII	ıı		$54(dB\mu V/m)$	

Note: 802.11b ANT 0 and ANT 1 SISO mode all have been tested, only worse case ANT 1 mode is reported.

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10.5 Restricted band Measurement

EUT	Video Encoder			Mo	del	Director Mini	
Mode	Kee	eping Transmitting		Test V	oltage/	120V~	
Temperature		24 deg. C,		Hum	nidity	56% RH	
Test Result:		Pass		Dete	ector	PK	
		802.11g mode, Low C	hannel, F	Iorizonta	1		
2390	PK (dBµV/m)	57.61	т:.	:4		$74(dB\mu V/m)$	
	AV (dBμV/m)	40.23	Lli	Limit		54(dBµV/m)	
		802.11g mode, Low	Channel,	Vertical			
2390	PK (dBμV/m)	45.37	т:.	Limit		74(dBµV/m)	
	AV (dBμV/m)		LII	IIII		54(dBµV/m)	

10.5 Restricted band Measurement

EUT	Video Encoder			M	odel	Director Mini	
Mode	Ke	eeping Transmitting		Test Voltage		120V~	
Temperature		24 deg. C,		Hur	nidity	56% RH	
Test Result:		Pass		Det	tector	PK	
802.11g mode, High Channel, Horizontal							
2483.5	PK (dBµV/m)	59.32	т::	:4		$74(dB\mu V/m)$	
	AV (dBμV/m)	41.08	Limi	It		$54(dB\mu V/m)$	
		802.11g mode, High	Channel, V	ertical			
2483.5	PK (dBμV/m)	48.03	Limi	T in it		74(dBμV/m)	
	AV (dBμV/m)		LIIII	ıı		$54(dB\mu V/m)$	

Note: 802.11g ANT 0 and ANT 1 SISO mode all have been tested, only worse case ANT 1 mode is reported.

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10.5 Restricted band Measurement

EUT	Video Encoder			Mo	del	Director Mini	
Mode	Ke	eping Transmitting		Test V	oltage/	120V~	
Temperature		24 deg. C,		Hun	nidity	56% RH	
Test Result:		Pass		Dete	ector	PK	
	802.11n HT20 mode, Low Chann						
2390	PK (dBμV/m)	58.36	т:.	nit		$74(dB\mu V/m)$	
	AV (dBμV/m)	40.19	LII	IIIL		$54(dB\mu V/m)$	
		802.11n HT20 mode, Lo	ow Chanr	nel, Vertic	al		
2390	PK (dBµV/m)	45.76	Limit		74(dBμV/m)		
	AV (dBμV/m)			IIIt		$54(dB\mu V/m)$	

Restricted band Measurement 10.5

EUT		Video Encoder			odel	Director Mini	
Mode	Ke	eeping Transmitting		Test Voltage		120V~	
Temperature		24 deg. C,		Hur	nidity	56% RH	
Test Result:		Pass		De	tector	PK	
	802.11n HT20 mode, High Channel, Horizontal						
2483.5	PK (dBµV/m)	60.53	т :	:4		$74(dB\mu V/m)$	
	AV (dBμV/m)	42.39	Lim	Limit		$54(dB\mu V/m)$	
	8	302.11n HT20 mode, Hi	igh Channe	l, Verti	cal		
2483.5	PK (dBµV/m)	49.71	Limit			74(dBµV/m)	
	AV (dBμV/m)			ıı		$54(dB\mu V/m)$	

Note: 802.11n H20 is tested at MIMO mode.

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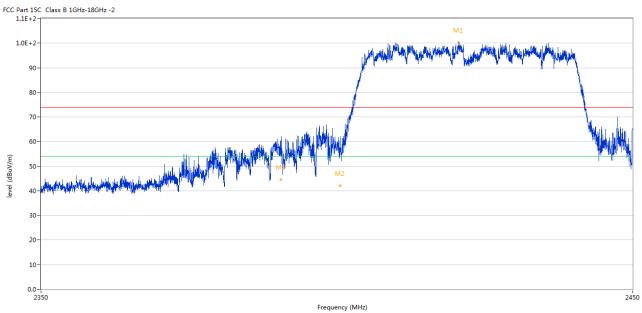


10.5 Restricted band Measurement

EUT	Video Encoder			Model		Director Mini	
Mode	Kee	eping Transmitting		Test	Voltage	120V~	
Temperature		24 deg. C,		Hui	nidity	56% RH	
Test Result:		Pass		De	tector	PK	
	802.11n HT40 mode, Low Channe				ntal		
2390	PK (dBμV/m)	60.53	т:.	mit		$74(dB\mu V/m)$	
	AV (dBμV/m)	44.50	Lli	mıı		54(dBμV/m)	
		802.11n HT40 mode, L	ow Chan	nel Vertic	al		
2390	PK (dBμV/m)	46.31	т.:	mit 74(74(dBμV/m)	
	AV ($dB\mu V/m$)		Lu	mit	54(dBμV/m)		

Note: 802.11n H40 is tested at MIMO mode.

Test Plots



No.	Frequency	Results	Factor	Limit	Over Limit	Detector	Table	Height	ANT	Verdict
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dB)		(o)	(cm)		
1	2420.157	100.23	-3.57	74.0	26.23	Peak	103.00	100	Horizontal	N/A
2	2400.012	58.28	-3.57	74.0	-15.72	Peak	92.00	100	Horizontal	Pass
2**	2400.012	42.10	-3.57	54.0	-11.90	AV	92.00	100	Horizontal	Pass
3	2390.025	63.53	-3.53	74.0	-10.47	Peak	103.00	100	Horizontal	Pass
3**	2390.025	44.50	-3.53	54.0	-9.50	AV	103.00	100	Horizontal	Pass

The report refers only to the sample tested and does not apply to the bulk.

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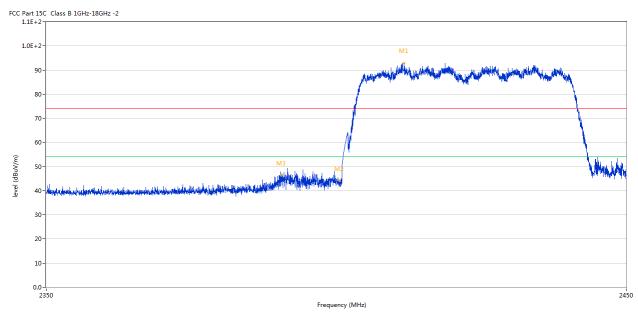
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No.	Frequency	Results	Factor	Limit	Over Limit	Detector	Table	Height	ANT	Verdict
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dB)		(o)	(cm)		
1	2411.185	92.90	-3.57	74.0	18.90	Peak	178.00	100	Vertical	N/A
2	2400.013	44.10	-3.57	74.0	-29.90	Peak	242.00	100	Vertical	Pass
3	2390.015	46.31	-3.53	74.0	-27.69	Peak	105.00	100	Vertical	Pass

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10.5 Restricted band Measurement

EUT		Video Encoder	Model		Director Mini				
Mode	Ke	eeping Transmitting	Test	Voltage	120V~				
Temperature		24 deg. C,	Hu	midity	56% RH				
Test Result:		Pass	De	etector	PK				
802.11n HT40 mode, High Channel, Horizontal									
2483.5	PK (dBµV/m)	63.66	т :	.,		$74(dB\mu V/m)$			
	AV ($dB\mu V/m$)	43.15	Lim	Ιτ	$54(dB\mu V/m)$				
802.11n HT40 mode, High Channel, Vertical									
2483.5	PK (dBµV/m)	51.14	T :	:4		74(dBμV/m)			
	AV ($dB\mu V/m$)		Limit		$54(dB\mu V/m)$				

Note: 802.11n H40 is tested at MIMO mode.



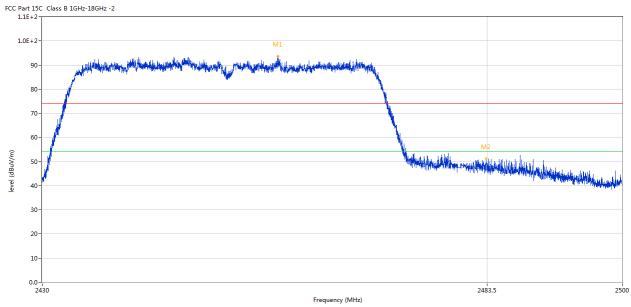
No.	Frequency	Results	Factor	Limit	Over Limit	Detector	Table	Height	ANT	Verdict
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dB)		(o)	(cm)		
1	2458.430	100.98	-3.57	74.0	26.98	Peak	104.00	100	Horizontal	N/A
2	2483.464	63.66	-3.57	74.0	-10.34	Peak	104.00	100	Horizontal	Pass
2**	2483.464	43.15	-3.57	54.0	-10.85	AV	104.00	100	Horizontal	Pass

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No.	Frequency	Results	Factor	Limit	Over Limit	Detector	Table	Height	ANT	Verdict
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dB)		(o)	(cm)		
1	2458.185	93.60	-3.57	74.0	19.60	Peak	188.00	100	Vertical	N/A
2	2483.412	51.14	-3.57	74.0	-22.86	Peak	2.00	100	Vertical	Pass

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11.0 Antenna Requirement

11.1 Standard Applicable

For intentional device, according to FCC 47 CFR Section 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.

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

11.2 Antenna Connected construction

Two FPC antennas used. The gain of the antenna is 3.0dBi for each one.

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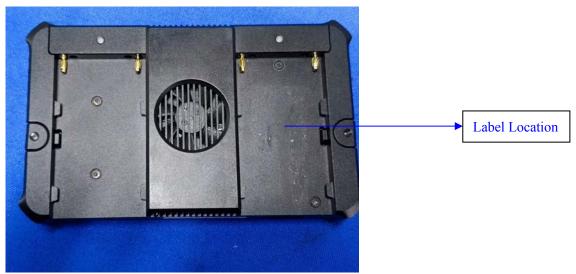


12.0 FCC ID Label

FCC ID: 2AP6W-ENCODER5511

The label must not be a stick-on paper label. The label on these products must be permanently affixed to the product and readily visible at the time of purchase and must last the expected lifetime of the equipment not be readily detachable.

Mark Location:



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13.0 Photo of testing

Conducted Emission Test Setup:



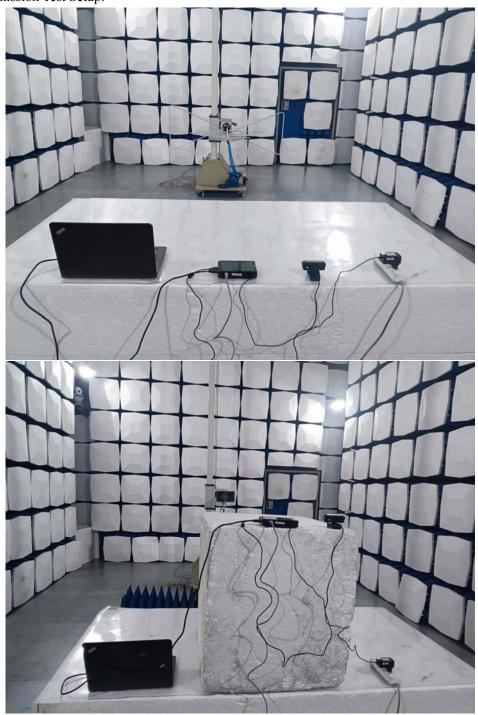
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Radiated Emission Test Setup:



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Photographs – EUT

Outside View



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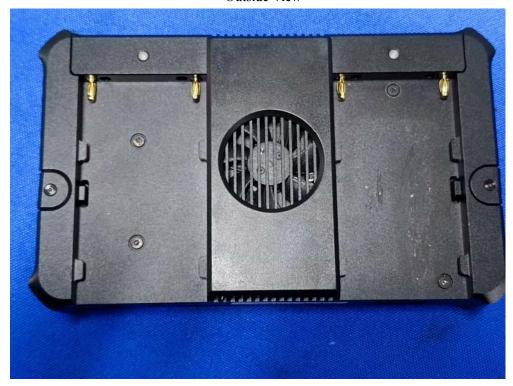
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Outside View



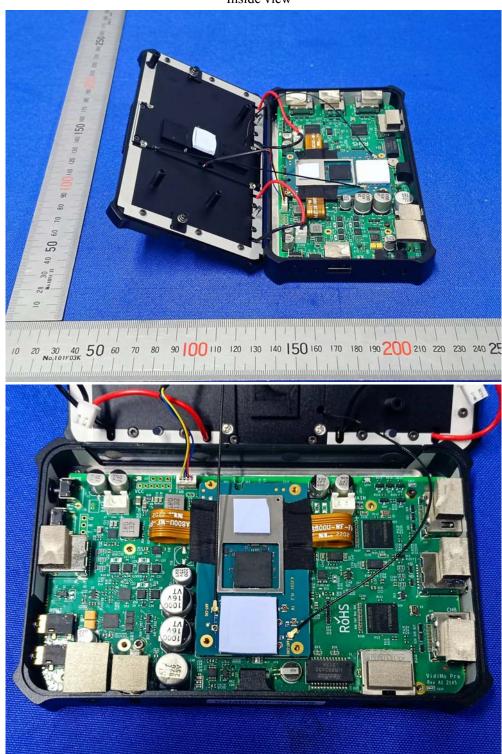
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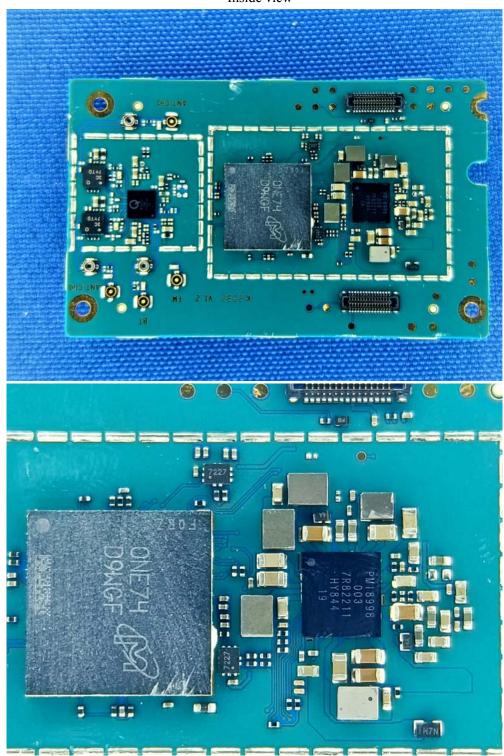
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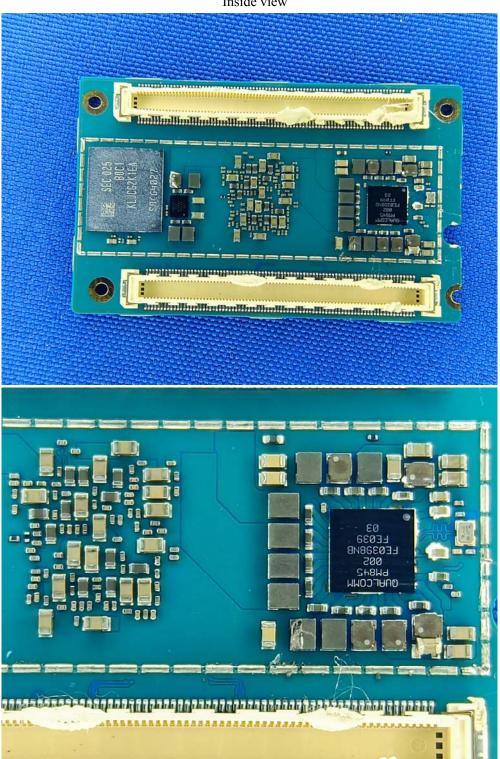
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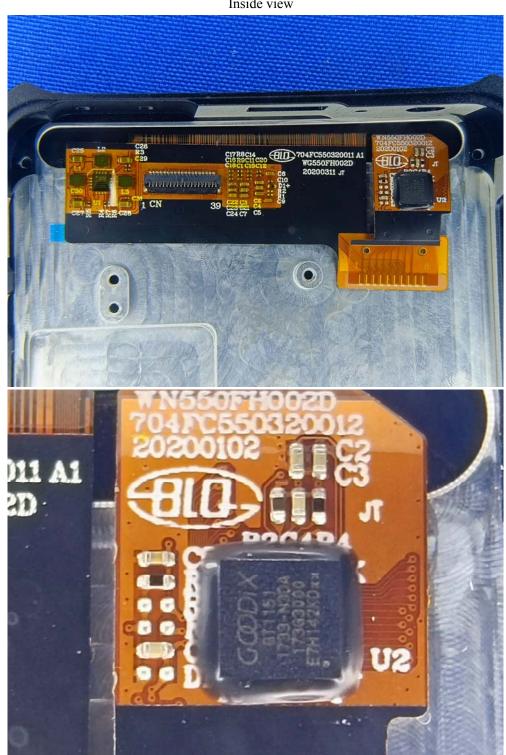
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