



Report No.: TW2011170-01E File Reference No.: 2020-11-26

Applicant: Qingdao Hisense Intelligent Commercial System Co. Ltd

Product: Tablet POS

Model No.: HM626R, HM626

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

Jack Chung

Manager

Dated: November 26, 2020

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

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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 17025:2005 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: Qingdao Hisense Intelligent Commercial System Co. Ltd

Address: 399 Songling Road, Laoshan, Qingdao, Shandong

Telephone: -Fax: --

1.3 Description of EUT

Product: Tablet POS

Manufacturer: Qingdao Hisense Intelligent Commercial System Co. Ltd

Address: 399 Songling Road, Laoshan, Qingdao, Shandong

Brand Name: N/A

Model Number: HM626R Additional Model Number: HM626 Hardware Version: WTR288C1 REV:1.2 Software Version: V1.01.KB09.HM626R

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-mcs9

Frequency Selection By software

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

Antenna: Two Integral antennas used. The gain of the antennas is 2.0dBi for each one (get from

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the antenna specification provided the applicant)

Input Voltage:

DC5V

Battey:

DC3.8V, 11000mAh Li-ion battery

Power Supply:

Model: PG241-12020001; Input: 100-240V~, 50/60Hz, 0.8A;

(for simple base)

Output: 12.0V 2.0A,24W

Power Supply:

Model: FSP090-AAAN3; Input: 100-240V~, 50-60Hz, 1.2A;

(for multi-functional

Output: DC24.0V, 3.75A,90W

base)

1.4 Submitted Sample: 1 Samples

1.5 Test Duration

2020-11-12 to 2020-11-26

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

Terry Tang

The sample tested by

Print Name: Terry Tang

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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	2020-06-23	2021-06-22	
Impuls-Begrenzer	R&S	ESH3-Z2	100281	2020-06-23	2021-06-22	
Loop Antenna	EMCO	6507	00078608	2018-06-25	2021-06-24	
Spectrum	R&S	FSIQ26	100292	2020-06-23	2021-06-22	
Horn Antenna	A-INFO	LB-180400-KF	J211060660	2019-06-21	2021-06-20	
Horn Antenna	R&S	BBHA 9120D	9120D-631	2018-07-09	2021-07-08	
Power meter	Anritsu	ML2487A	6K00003613	2020-06-23	2021-06-22	
Power sensor	Anritsu	MA2491A	32263	2020-06-23	2021-06-22	
Bilog Antenna	Schwarebeck	VULB9163	9163/340	2018-07-04	2021-07-03	
9*6*6 Anechoic			N/A	2018-02-07	2021-02-06	
EMI Test Receiver	RS	ESVB	826156/011	2020-06-23	2021-06-22	
EMI Test Receiver	RS	ESH3	860904/006	2020-06-23	2021-06-22	
Spectrum	HP/Agilent	ESA-L1500A	US37451154	2020-06-23	2021-06-22	
Spectrum	HP/Agilent	E4407B	MY50441392	2020-06-23	2021-06-22	
Spectrum	RS	FSP	1164.4391.38	2020-01-16	2021-01-15	
RF Cable	Zhengdi	ZT26-NJ-NJ-8		2020-06-23	2021-06-22	
Ki Cabic	Ziiciigui	M/FA				
RF Cable	Zhengdi	7m		2020-06-23	2021-06-22	
RF Switch	EM	EMSW18	060391	2020-06-23	2021-06-22	
Pre-Amplifier	Schwarebeck	BBV9743	#218	2020-06-23	2021-06-22	
Pre-Amplifier	HP/Agilent	8449B	3008A00160	2020-06-23	2021-06-22	
LISN	SCHAFFNER	NNB42	00012	2020-01-06	2021-01-07	

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: msc0 data rate (worst case) were chosen for full testing

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

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3.0 **Technical Details**

3.1 Summary of test results

The EUT has been tested according to the following specifications:				
Standard	Test Type	Result	Notes	
FCC 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	

Note: the multi-functional base and simple base were tested and only the worst case was reported. The multi-functional base was the worst case.

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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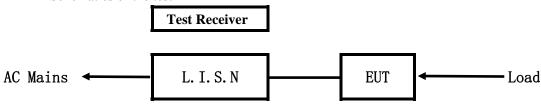
adopt any other remedies which may be appropriate.

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5.0 Power Line Conducted Emission Test

5.1 Schematics of the test

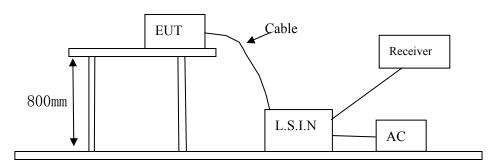


EUT: Equipment Under Test

5.2 Test Method and test Procedure

The EUT was tested according to ANSI C63.10-2013. The Frequency spectrum From 0.15MHz to 30MHz was investigated. The LISN used was 50ohm/50uH 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
Tablet DOS	Qingdao Hisense Intelligent	HM626R,	COV HM626
Tablet POS	Commercial System Co. Ltd	HM626	GQK-HM626

B. Internal Device

Device	Manufacturer	Model	FCC ID/DOC
N/A			

C. Peripherals

Device	Manufacturer	Model	Rating

5.4 EUT Operating Condition

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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 (d	lB μ V)
(MHz)	Quasi-peak Level	Average Level
0.15 ~ 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)

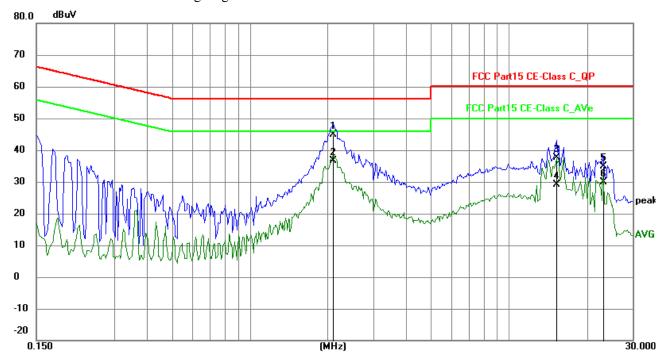
EUT Operating Environment

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	2.0961	35.10	9.80	44.90	56.00	-11.10	QP	Р
2	2.0961	26.78	9.80	36.58	46.00	-9.42	AVG	Р
3	15.1457	27.17	10.39	37.56	60.00	-22.44	QP	Р
4	15.1457	18.78	10.39	29.17	50.00	-20.83	AVG	Р
5	23.1279	24.09	10.87	34.96	60.00	-25.04	QP	Р
6	23.1279	19.10	10.87	29.97	50.00	-20.03	AVG	Р

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

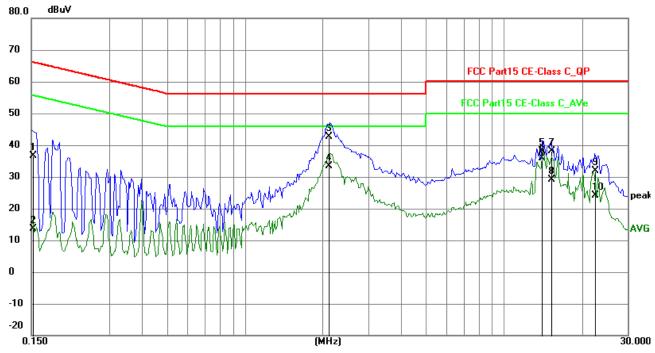
EUT Operating Environment

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	0.1524	26.79	9.78	36.57	65.87	-29.30	QP	Р
2	0.1524	3.96	9.78	13.74	55.87	-42.13	AVG	Р
3	2.1101	32.81	9.80	42.61	56.00	-13.39	QP	Р
4	2.1101	23.69	9.80	33.49	46.00	-12.51	AVG	Р
5	14.0292	27.73	10.34	38.07	60.00	-21.93	Q Q	Р
6	14.0292	25.65	10.34	35.99	50.00	-14.01	AVG	Р
7	15.1457	27.84	10.39	38.23	60.00	-21.77	QP	П
8	15.1457	18.75	10.39	29.14	50.00	-20.86	AVG	Р
9	22.5353	21.13	10.84	31.97	60.00	-28.03	QP	Р
10	22.5353	13.18	10.84	24.02	50.00	-25.98	AVG	Р

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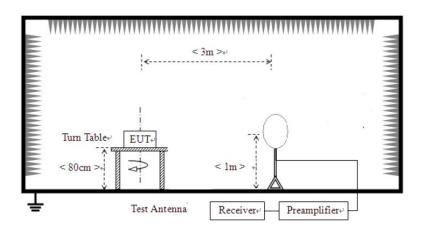


6 Radiated Emission Test

- 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. F 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

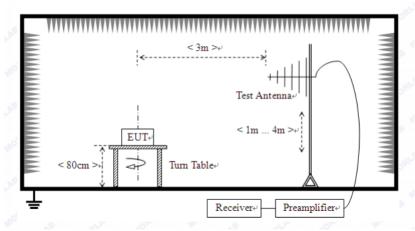
For radiated emissions from 9kHz to 30MHz



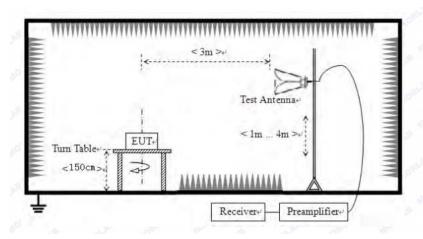
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For radiated emissions from 30MHz to1GHz



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:

Frequencies in restricted band are complied to limit on Paragraph 15.209

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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 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. Worse case were recorded in the test report. 802.11b was the worst case.
- 5. This is a handhold device. The radiated emissions should be tested under 3-axes position (Lying, Side, and Stand), After pre-test. It was found that the worse radiated emission was get at the lying position.

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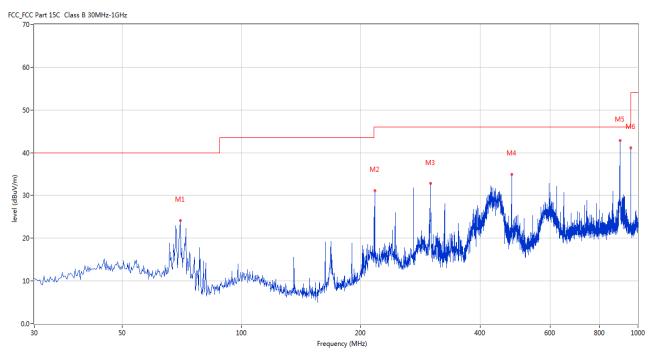


Test result General Radiated Emission Data and Harmonics Radiated Emission Data

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

EUT set Condition: **Keep Transmitting**

Results: Pass



No.	Frequency	Results	Factor	Limit	Over Limit	Detector	Table (o)	Height	ANT	Verdict
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dB)			(cm)		
1	70.002	24.14	-15.67	40.0	-15.86	Peak	43.00	100	Horizontal	Pass
2	216.921	31.14	-13.51	46.0	-14.86	Peak	7.00	100	Horizontal	Pass
3	300.077	32.77	-11.03	46.0	-13.23	Peak	74.00	100	Horizontal	Pass
4	479.968	34.93	-7.40	46.0	-11.07	Peak	51.00	100	Horizontal	Pass
5	900.115	42.78	-1.86	46.0	-3.22	Peak	43.00	100	Horizontal	N/A
6	959.998	41.47	-1.63	46.0	-4.53	Peak	71.00	100	Horizontal	Pass

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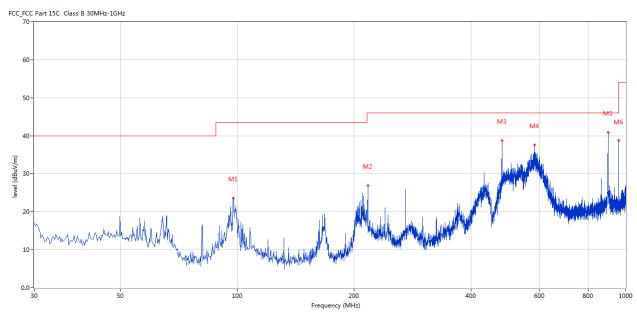


Test result General Radiated Emission Data and Harmonics Radiated Emission Data

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

EUT set Condition: **Keep Transmitting**

Results: Pass



No.	Frequency	Results	Factor	Limit	Over	Detector	Table (o)	Height	ANT	Verdict
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	Limit (dB)			(cm)		
1	97.641	23.65	-13.79	43.5	-19.85	Peak	360.00	100	Vertical	Pass
2	216.921	26.92	-13.51	46.0	-19.08	Peak	349.00	100	Vertical	Pass
3	479.968	38.73	-7.40	46.0	-7.27	Peak	333.00	100	Vertical	Pass
4	583.004	37.56	-5.53	46.0	-8.44	Peak	357.00	100	Vertical	Pass
5	900.115	41.35	-1.86	46.0	-4.65	Peak	357.00	100	Vertical	Pass
6	959.998	38.70	-1.63	46.0	-7.30	Peak	353.00	100	Vertical	Pass

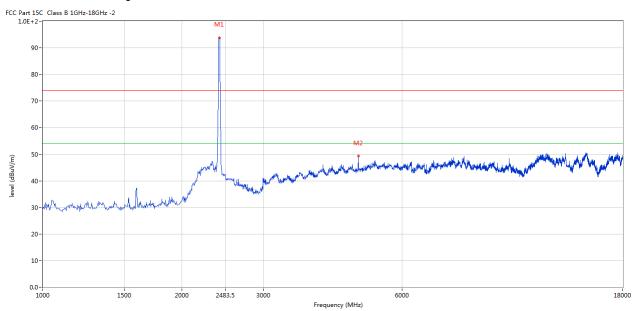
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Please refer to the following test plots for details:

CH01 for 11b at 1Mbps: Horizontal



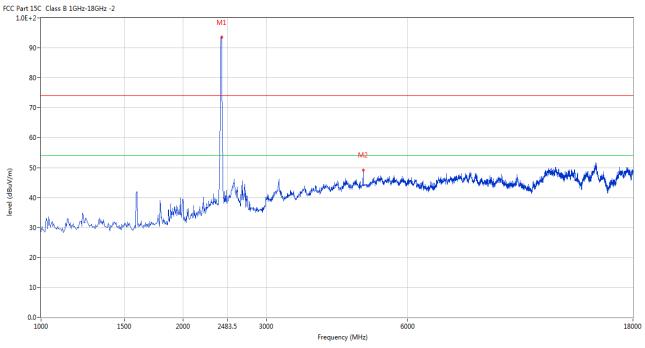
No.	Frequency	Results	Factor	Limit	Over	Detector	Table (o)	Height	ANT	Verdict
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	Limit (dB)			(cm)		
2	4825.000	49.41	3.15	54.0	-4.59	Peak	219.00	100	Horizontal	N/A

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CH01 for 11b at 1Mbps: Vertical



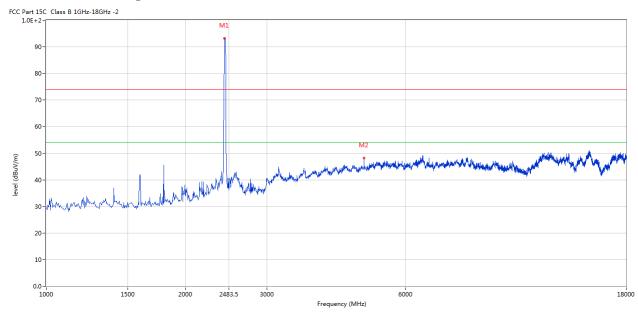
No.	Frequency	Results	Factor	Limit	Over Limit	Detector	Table (o)	Height	ANT	Verdict
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dB)			(cm)		
2	4825.000	49.16	3.15	54.0	-4.84	Peak	259.00	100	Vertical	Pass

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CH06 for 11b at 1Mbps: Vertical



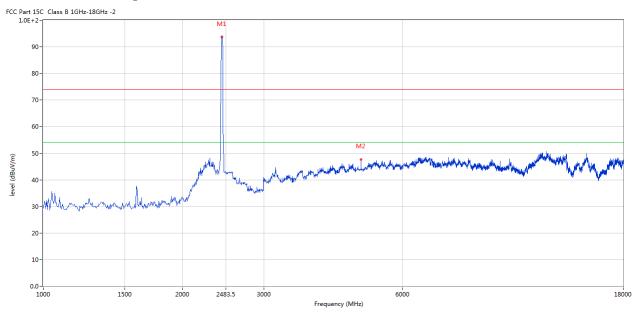
No.	Frequency	Results	Factor	Limit	Over Limit	Detector	Table (o)	Height	ANT	Verdict
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dB)			(cm)		
2	4871.750	48.23	3.19	54.0	-5.77	Peak	209.00	100	Vertical	Pass

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CH06 for 11b at 1Mbps: Horizontal



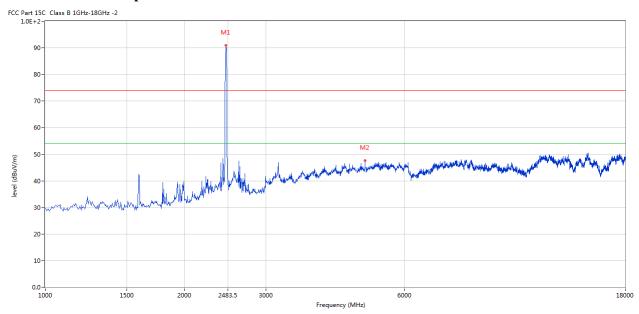
No.	Frequency	Results	Factor	Limit	Over Limit	Detector	Table (o)	Height	ANT	Verdict
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dB)			(cm)		
2	4871.750	47.73	3.19	54.0	-6.27	Peak	211.00	100	Horizontal	N/A

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CH11 for 11b at 1Mbps: Vertical



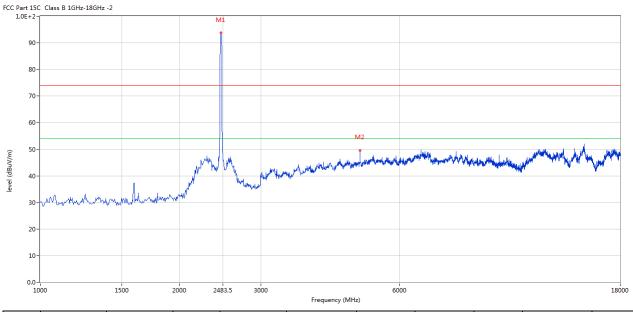
	No.	Frequency	Results	Factor	Limit	Over Limit	Detector	Table (o)	Height	ANT	Verdict
		(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dB)			(cm)		
-	2	4922.750	47.67	3.27	54.0	-6.33	Peak	204.00	100	Vertical	Pass

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CH11 for 11g at 6Mbps: Horizontal



No.	Frequency	Results	Factor	Limit	Over Limit	Detector	Table (o)	Height	ANT	Verdict
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dB)			(cm)		
2	4922.750	49.56	3.27	54.0	-4.44	Peak	222.00	100	Horizontal	N/A

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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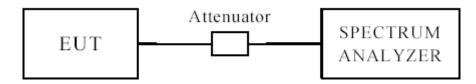
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7.0 6dB Bandwidth Measurement

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		Та	blet POS		Mod	lel	НМ	626R
Mode		8	302.11b		Input Vol	tage	DC	3.8V
Temperat	ure	24	4 deg. C,		Humidity	r	56%	% RH
Channel	el Channel Frequency (MHz)		Data Transfer Rate (Mbps)		andwidth Hz)		mum Limit MHz)	Pass/ Fail
1	1 2412		1	10	.04		0.5	Pass
6		2437	1	10	.04		0.5	Pass
11		2462	1	10.04		0.5		Pass
1		2412	11	9.	32		0.5	Pass
6		2437	11	9.	32		0.5	Pass
11		2462	11	9.	32		0.5	Pass

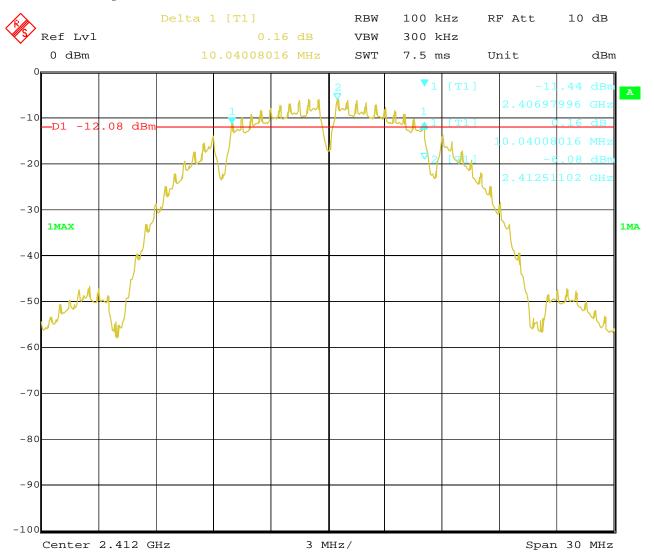
Note: Two antennas were tested and only the worst cased was recorded in the test report. Ant 0 was the worst case.

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1. 802.11b at 1Mbps of CH01



25.NOV.2020 16:06:30 Date:

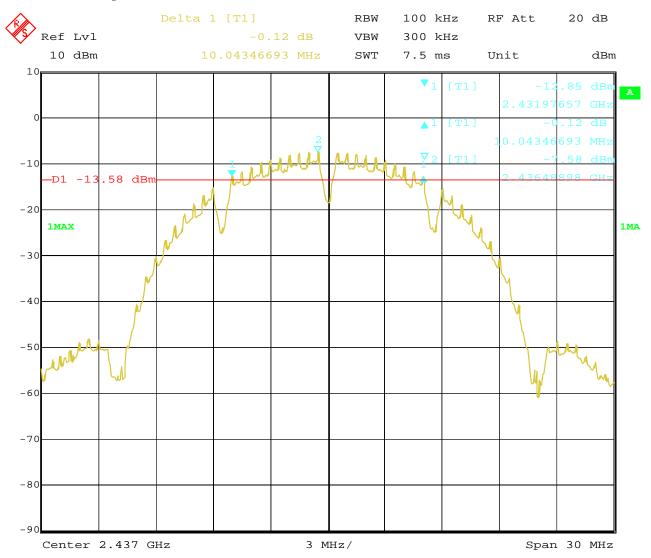
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2. 802.11b at 1Mbps of CH06



25.NOV.2020 16:25:01 Date:

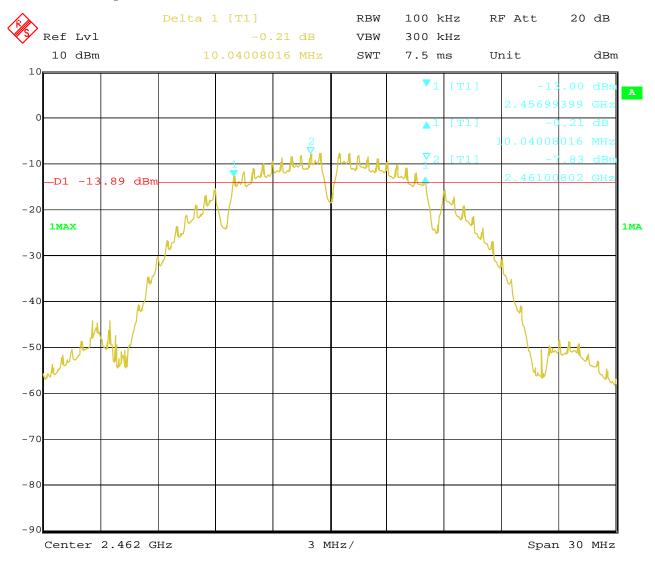
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3. 802.11b at 1Mbps of CH11



25.NOV.2020 16:33:13 Date:

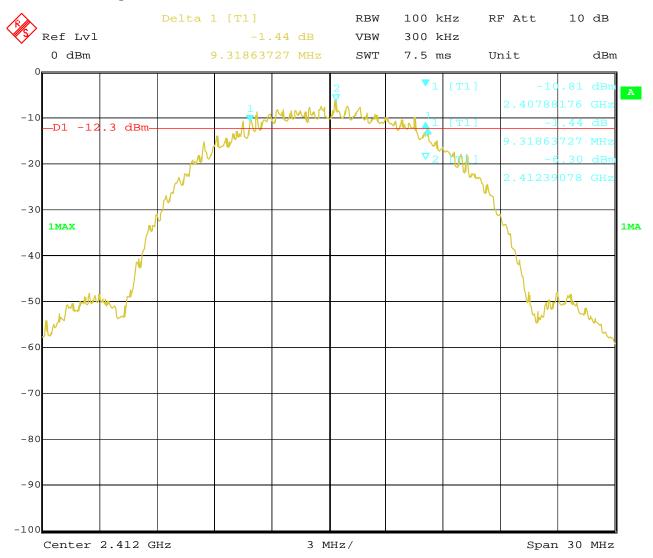
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4. 802.11b at 11Mbps of CH01



25.NOV.2020 16:14:31 Date:

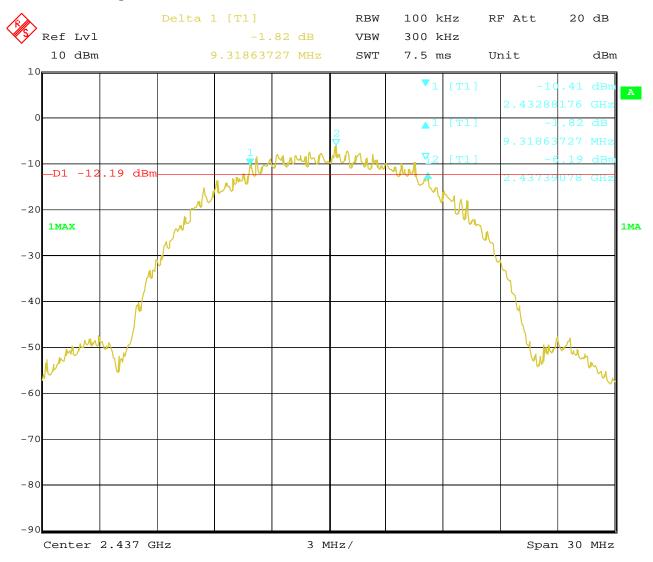
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5. 802.11b at 11Mbps of CH06



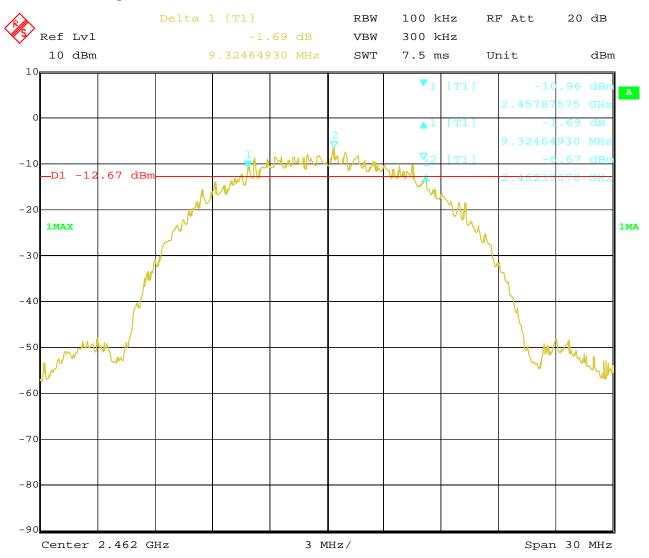
25.NOV.2020 16:18:19 Date:

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6. 802.11b at 11Mbps of CH11



25.NOV.2020 16:58:21 Date:

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6dB Occupied Bandwidth

EUT		Та	blet POS		Mod	lel	Н	M626R
Mode		8	302.11g		Input Vol	tage	Γ	DC3.8V
Temperat	ure	24	4 deg. C,		Humidity	,	5	6% RH
Channel		el Frequency (MHz)	Data Transfer Rate (Mbps)		andwidth Hz)		num Limit MHz)	Pass/ Fail
1		2412	6	16	.42		0.5	Pass
6		2437	6	16	.42	0.5		Pass
11		2462	6	16	.41	0.5		Pass

Note: Two antennas were tested and only the worst cased was recorded in the test report. Ant 0 was the worst case.

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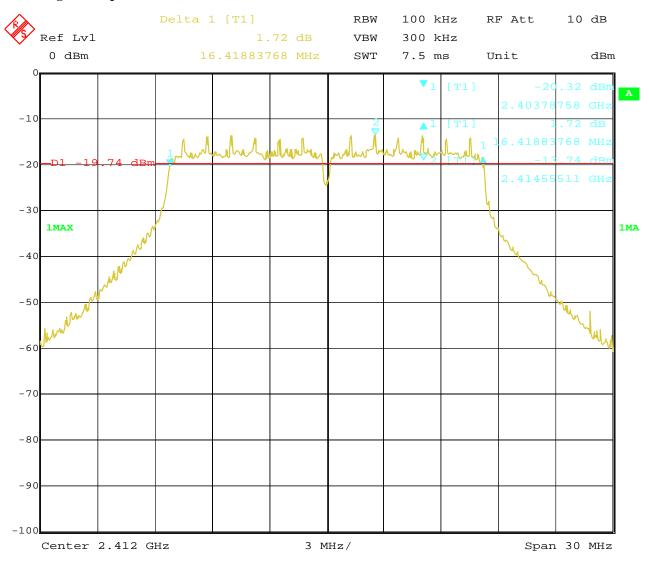
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Test Plots:

1. 802.11g at 6Mbps of CH01



Date: 25.NOV.2020 16:11:48

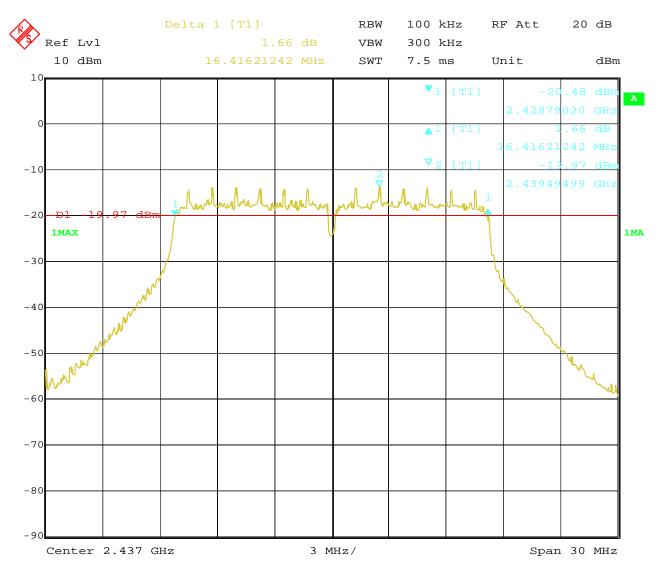
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2. 802.11g at 6Mbps of CH06

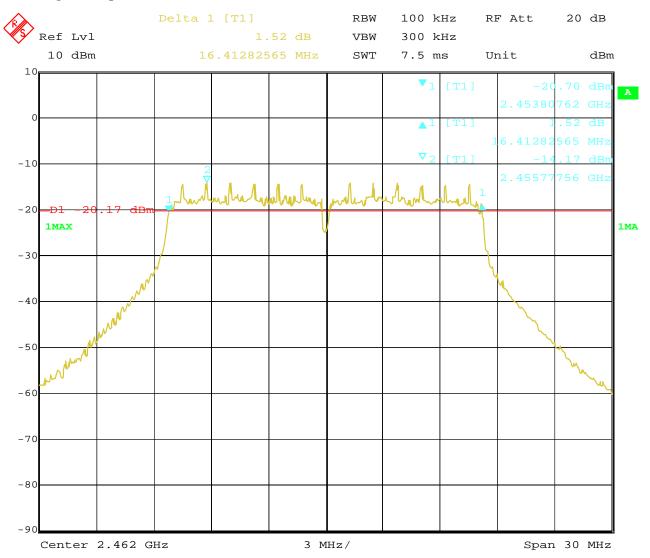


Date: 25.NOV.2020 16:24:15 Report No.: TW2011170-01E Page 35 of 123

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3. 802.11g at 6Mbps of CH11



25.NOV.2020 Date: 16:35:41

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6dB Occupied Bandwidth

EUT		Tablet POS			Model		HM626R	
Mode		802.11n HT20			Input Voltage		DC3.8V	
Temperature		24 deg. C,			Humidity		56% RH	
Channel	Channel Frequency (MHz)		Data Transfer Rate (Mbps)	6 dB Bandwidth (MHz)		Minimum Limit (MHz)		Pass/ Fail
1	2412		mcs0	17.56		0.5		Pass
6	2437 mcs0		17.56		0.5		Pass	
11		2462	mcs0	17	.56		0.5	Pass

Note: Two antennas were tested and only the worst cased was recorded in the test report. Ant 0 was the worst case.

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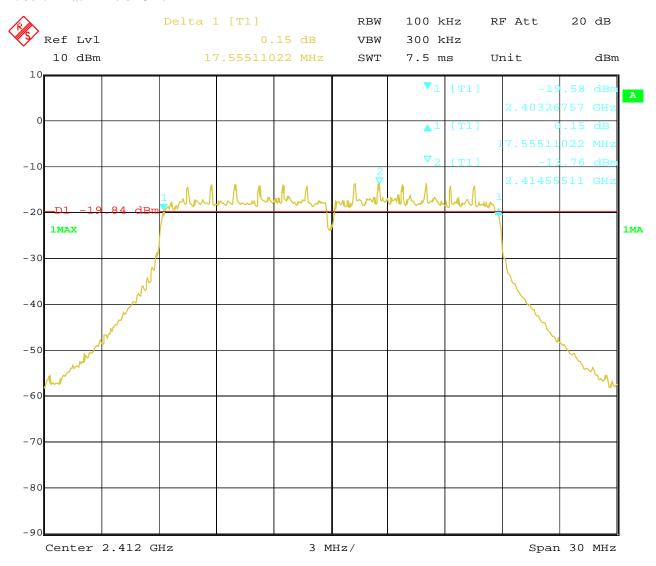
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Test Plots:

1. 802.11n at HT20 of CH01

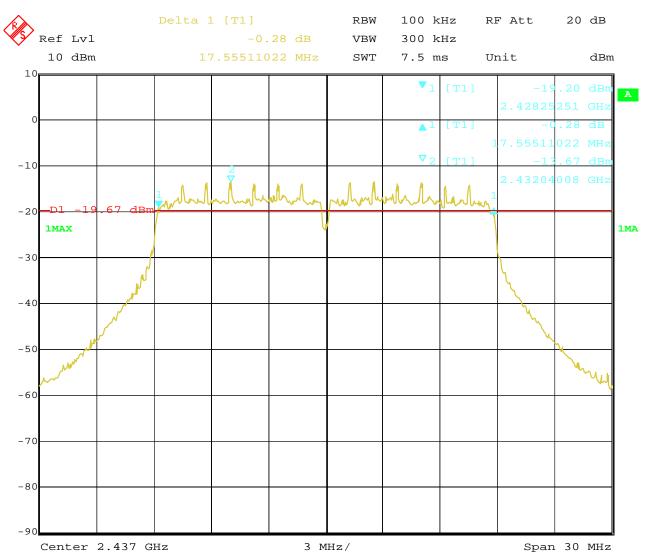


Date: 25.NOV.2020 17:37:04 Report No.: TW2011170-01E Page 38 of 123

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2. 802.11n at HT20 of CH06



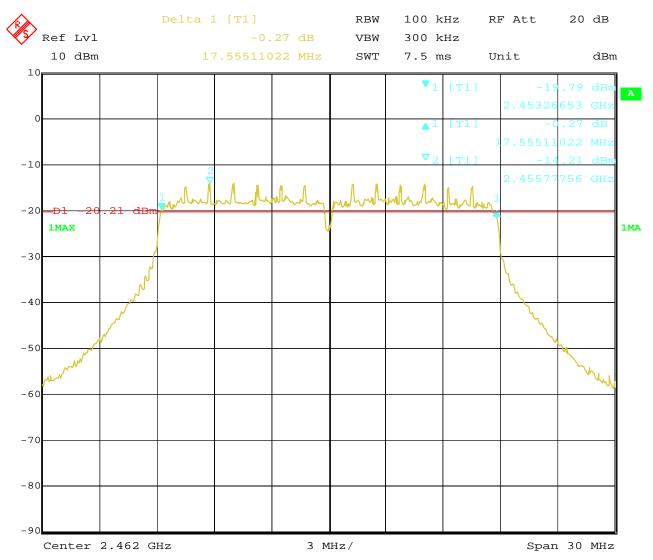
25.NOV.2020 17:06:34 Date:

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3. 802.11n at HT20 of CH11



25.NOV.2020 17:05:06 Date:

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6dB Occupied Bandwidth

EUT		Та	blet POS		Mod	lel	НМ	626R
Mode		802	.11n HT40		Input Voltage		DC3.8V	
Temperature		24 deg. C,			Humidity 5		56%	% RH
Channel		Channel Frequency (MHz)		6 dB Bandwidth (MHz)		Minimum Limit (MHz)		Pass/ Fail
3		2422	mcs0	35	.37		0.5	Pass
6		2437	mcs0	35	.37	37 0.5		Pass
9	2452		mcs0	35	.37		0.5	Pass

Note: Two antennas were tested and only the worst cased was recorded in the test report. Ant 0 was the worst case.

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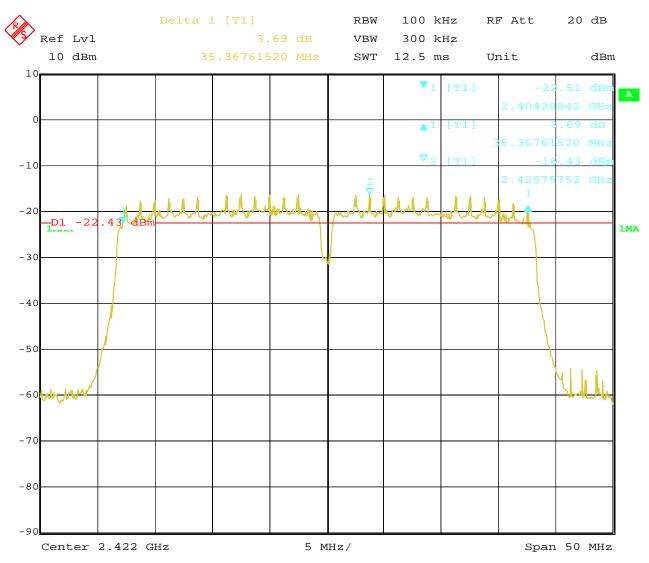
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Test Plots:

1. 802.11n at HT40 of CH03

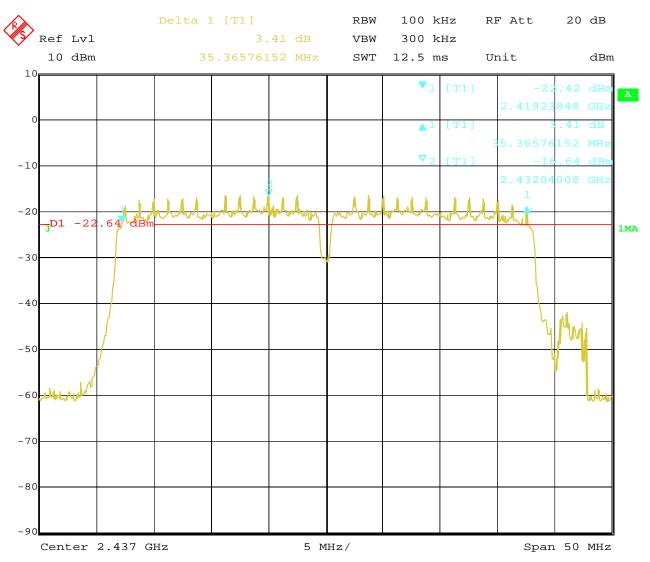


Date: 25.NOV.2020 17:48:28 Report No.: TW2011170-01E Page 42 of 123

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2. 802.11n at HT40 of CH06

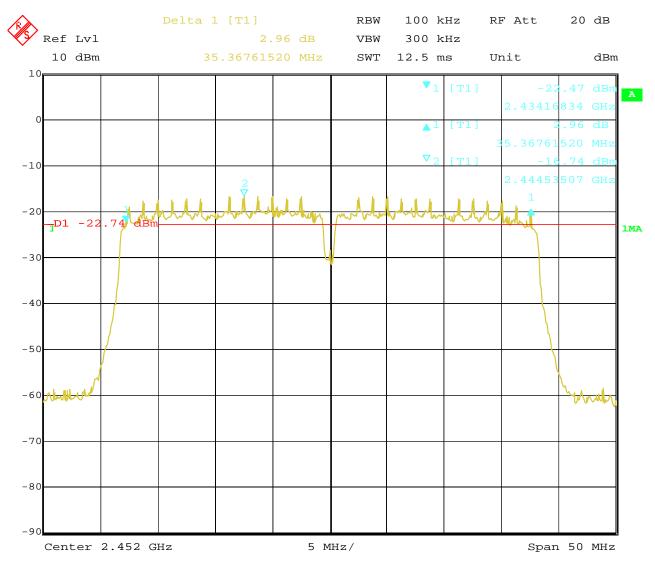


25.NOV.2020 Date: 17:41:46 Report No.: TW2011170-01E Page 43 of 123

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3. 802.11n at HT40 of CH09



25.NOV.2020 Date: 17:46:59 Report No.: TW2011170-01E

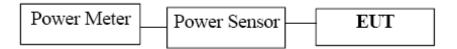
Date: 2020-11-26



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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			Tablet	POS		Mod	el	HM626R	
Mode			802.11b Input Vol			oltage	DC3.8V		
Temperat	ure		24 deg	g. C,		Humio	dity	56% RH	
Channel	Frequency		Ant 0	Power	Ant 1	Power	Total Max. Power	Power Limit	Pass/ Fail
Channel	(MHz	z)	dBm	mW	dBm	mW	Output (dBm)	(dBm)	Pass/ Faii
1	2412		6.28	4.25	6.07	4.05	9.18	30	Pass
6	2437	·	6.28	4.25	6.02	4.00	9.16	30	Pass
11	2462		5.92	3.91	5.76	3.77	8.85	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			Tablet	POS		Mod	el	HM626R		
Mode			802.1	802.11g Input Voltage			oltage	DC3.8V		
Temperat	ure		24 deg	g. C,		Humio	dity	56% RH		
Channel	Frequence (MH	uency z)	Ant 0	Power mW	Ant 1	Power	Total Max. Power Output (dBm)	Power Limit (dBm)	Pass/ Fail	
1	2412		5.12	3.25	4.97	3.14	8.06	30	Pass	
6	2437	,	5.35	3.43	5.19	3.30	8.28	30	Pass	
11	2462		4.96	3.13	4.70	2.95	7.84	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			Tablet	POS		Mod	el	HM626R		
Mode			802.11n (HT20) Input Voltage			oltage	DC3.8V			
Temperat	ure		24 deg	g. C,		Humio	dity	56% RH		
Channel	Frequence (MH.	uency z)	Ant 0	Power	Ant 1	Power	Total Max Power Output (dBm)	Power Limit (dBm)	Pass/ Fail	
1	2412		5.56	3.60	5.37	3.44	8.48	30	Pass	
6	2437		5.46	3.52	5.29	3.38	8.39	30	Pass	
11	2462		5.37	3.44	5.21	3.32	8.30	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			Tablet	POS		Mod	el	HM626R		
Mode			802.11n (2.11n (HT40) Input Voltage			oltage	DC3.8V		
Temperat	ure		24 deg	g. C,		Humio	dity	56% RH		
Channel	Frequency		Ant 0 Pov		Ant 1	Power	Total Max. Power	Power Limit	D/ F. 1	
Chamiei	(MH	z)	dBm	mW	dBm	mW	Output (dBm)	(dBm)	Pass/ Fail	
1	2422		5.72	3.73	5.54	3.58	8.64	30	Pass	
6	2437		5.65	3.67	5.46	3.52	8.57	30	Pass	
11	2452		5.51	3.56	5.33	3.41	8.43	30	Pass	

Note: 1. At finial test to get the worst-case emission at msc0 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

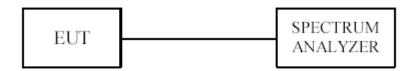
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9. Power Spectral Density Measurement

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			Tablet POS	Mo	del		HM626R			
Mode		80	02.11b 11Mbps	Input V	Input Voltage		DC3.8V			
Temperat	ure		24 deg. C,	Hum	umidity		56% RH			
Channel	Free	quency	Ant 0 Power	Factor	Total Power Spectral		Limit	Pass/ Fail		
	(N	ИHz)	Spectral Density		Density	(dBm/10kHz)	(dBm/3kHz)			
1	2	412	-17.76	3.01		-14.75	8	Pass		
6	2	437	-16.96	3.01	-13.95		8	Pass		
11	2	462	-17.32	3.01	-13.31		8	Pass		

EUT			Tablet POS		N	Model		HM626R		
Mode	:	802.11b 1Mbps Input Voltage		t Voltage	DC3.8V					
Temperat	ture		24 deg. C,		Нι	Humidity		56% RH		
Channel	_	iency Hz)	Ant 0 Power Spectral Density	F	actor	Total Pov Spectral Do (dBm/10k	ensity	Limit (dBm)	Pass/ Fail	
1	24	12	-17.11	(1)	3.01	-14.10)	8	Pass	
6	24	37	-18.15	3	3.01	-15.14	ļ	8	Pass	
11	24	62	-17.99	3	3.01	-13.98	3	8	Pass	

EUT			Tablet POS		N	Model		HM626R	
Mode	:		802.11g 6Mbps Input Voltage			DC3.8V			
Temperat	ture		24 deg. C,		Нι	Humidity		56% RH	
Channel	_	iency Hz)	Ant 0 Power Spectral Density	F	actor	Total Po Spectral I (dBm/10	ensity	Limit (dBm)	Pass/ Fail
1	24	12	-23.51	3	3.01	-20.5	0	8	Pass
6	24	37	-23.62	3	3.01	-20.6	1	8	Pass
11	24	62	-24.51	3	3.01	-21.5	0	8	Pass

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EUT			Tablet POS		N	Model		HM626R		
Mode		802.11n HT20 mcs0			Input Voltage		DC3.8V			
Temperat	ture		24 deg. C,	Humidity		56% RH				
Channel	_	iency Hz)	Ant 0 Power Spectral Density	F	actor	Total Power Dens (dBm/10	sity	Limit (dBm)	Pass/ Fail	
1	24	12	-24.14	9	3.01	-21.	13	8	Pass	
6	24	37	-24.09	3	3.01	-21.	08	8	Pass	
11	24	62	-24.13	3	3.01	-21.	12	8	Pass	

EUT			Tablet POS		N	Model	HM626R		
Mode	;	802.11n HT40 mcs0 Input Voltage		t Voltage	DC3.8V				
Temperat	ture		24 deg. C,		Humidity		56% RH		
Channel	-	iency Hz)	Ant 0 Power Spectral Density	F	actor	Total Power Dens (dBm/10	ity	Limit (dBm)	Pass/ Fail
3	24	22	-25.82	3	3.01	-22.3	81	8	Pass
6	24	37	-26.10	3	3.01	-23.0	09	8	Pass
9	24	52	-26.15	3	3.01	-23.	14	8	Pass

Note: 1. Total Power Spectral Density = Ant 0 Power Spectral Density + Factor

^{2.} Factor=10log2=3.01

^{3.} Ant 0 and Ant 1 were tested and Ant 0 was the worst case

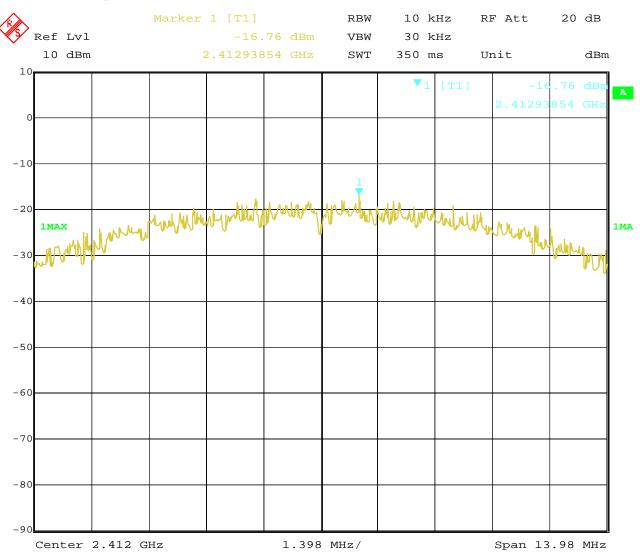
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9.5 Photo of Power Spectral Density Measurement

1.802.11b at 11Mbps of CH01



Date: 25.NOV.2020 16:19:43

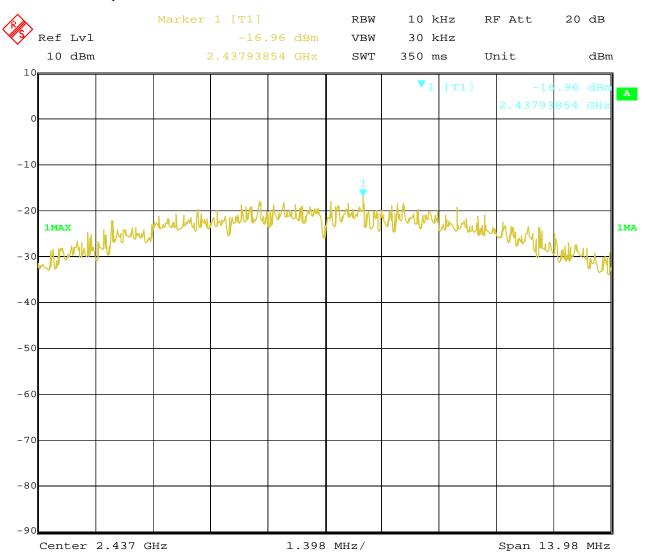
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2. 802.11b at 11Mbps at CH06



25.NOV.2020 16:19:08 Date:

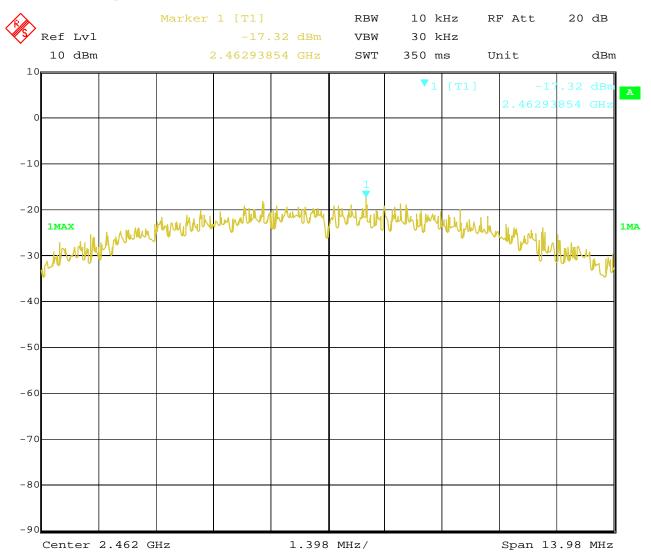
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3. 802.11b at 11Mbps of CH11



25.NOV.2020 16:59:39 Date:

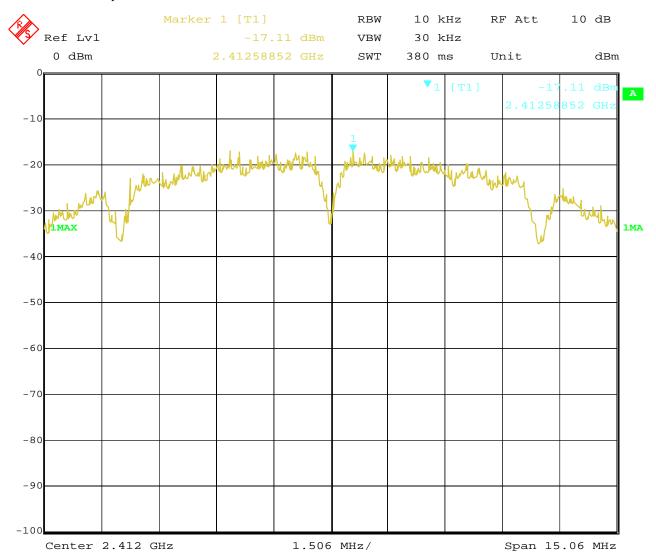
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4. 802.11b at 1Mbps of CH1



25.NOV.2020 16:09:26 Date:

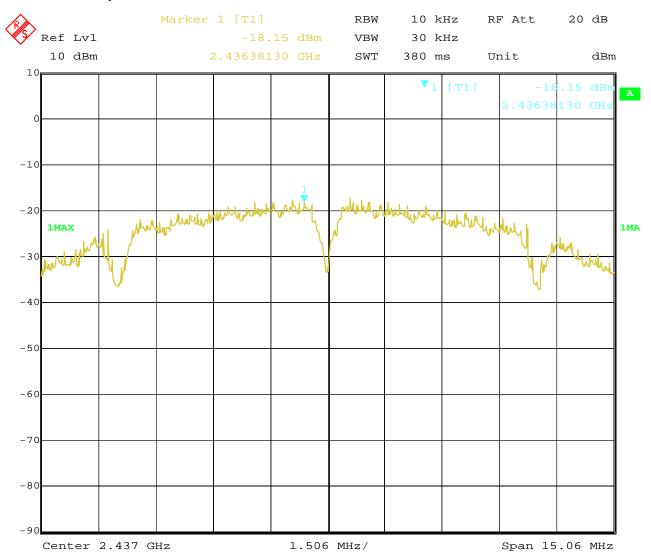
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5. 802.11b at 1Mbps of CH6



25.NOV.2020 16:25:33 Date:

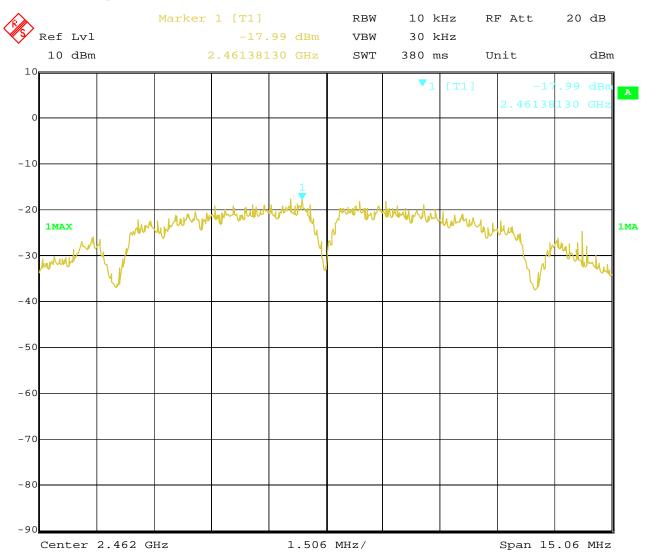
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6. 802.11b at 1Mbps of CH11



25.NOV.2020 16:27:48 Date:

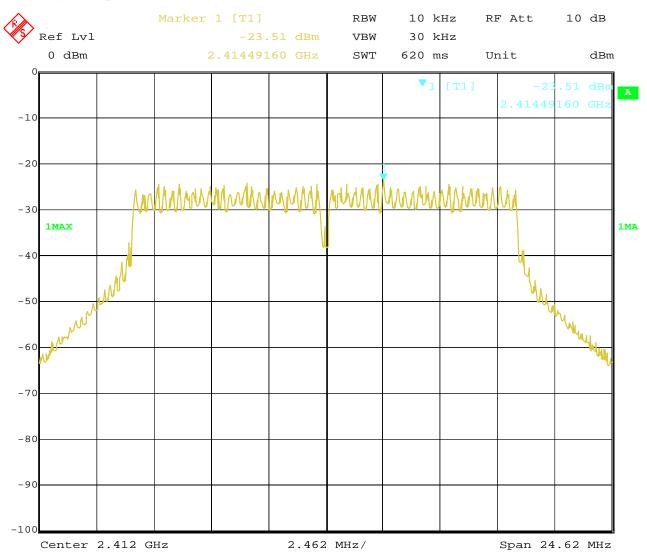
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7. 802.11g at 6Mbps of CH1



25.NOV.2020 Date: 16:13:14

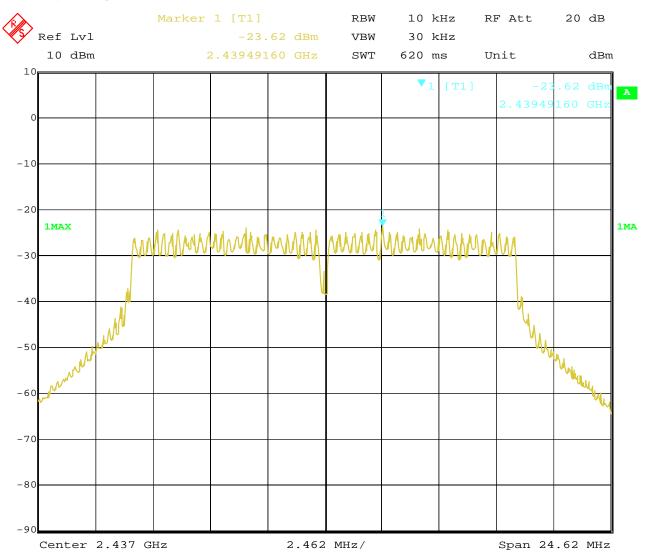
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8. 802.11g at 6Mbps of CH6



Date: 25.NOV.2020 16:22:45

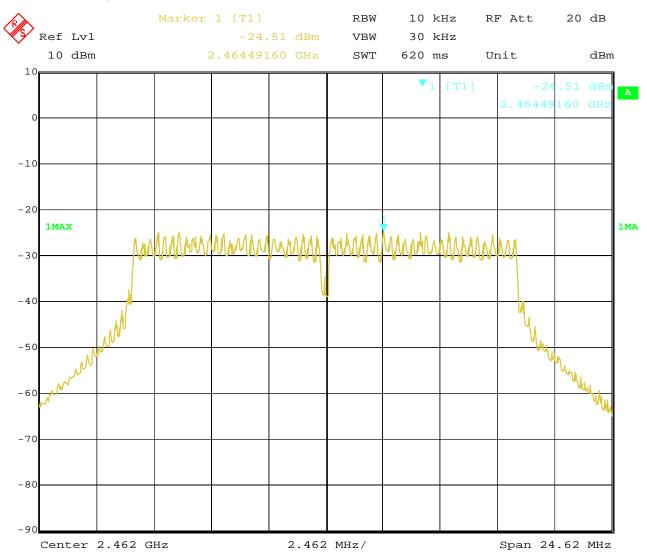
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9. 802.11g at 6Mbps of CH11



25.NOV.2020 Date: 16:55:08

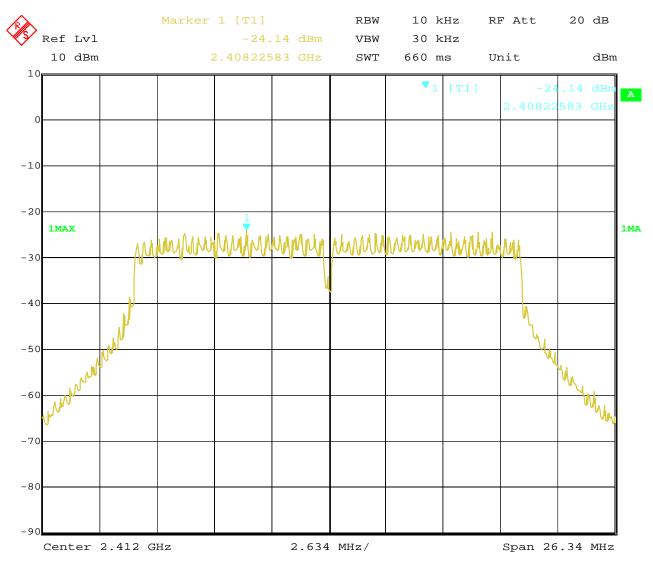
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10. 802.11n at HT20 of CH01



25.NOV.2020 17:34:50 Date:

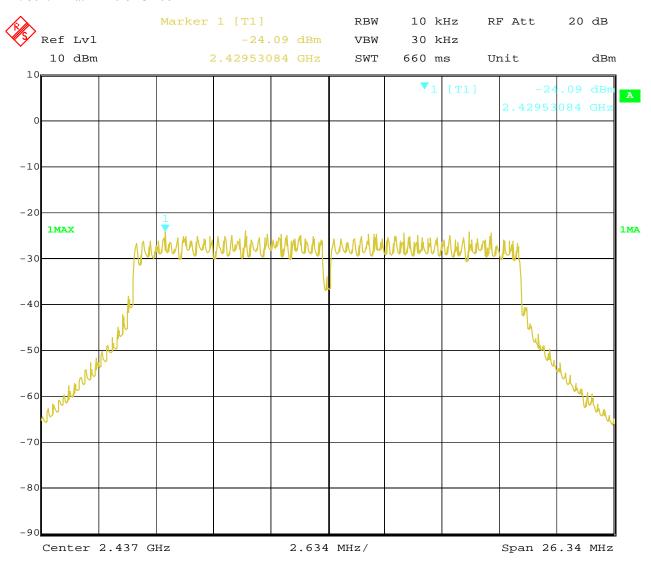
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11. 802.11n at HT20 of CH06



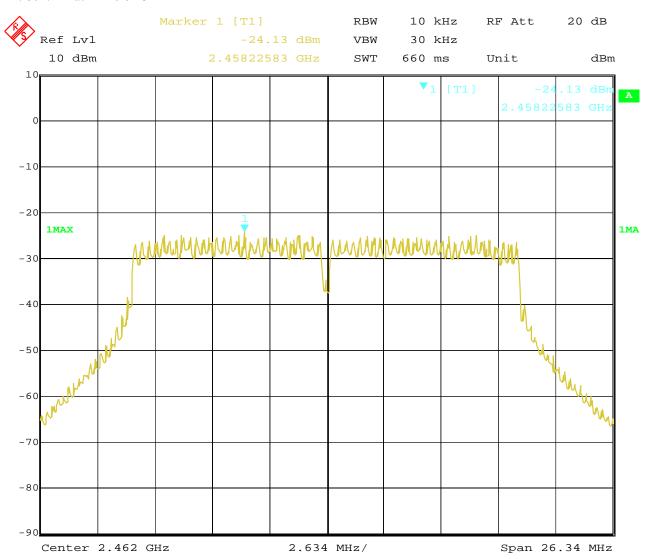
17:07:06 Date: 25.NOV.2020

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12. 802.11n at HT20 of CH11



25.NOV.2020 17:02:13 Date:

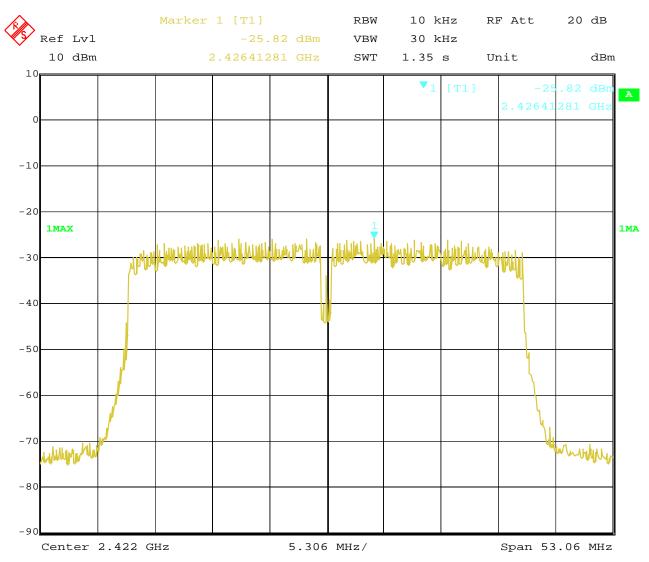
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13. 802.11n at HT40 of CH01



25.NOV.2020 17:38:43 Date:

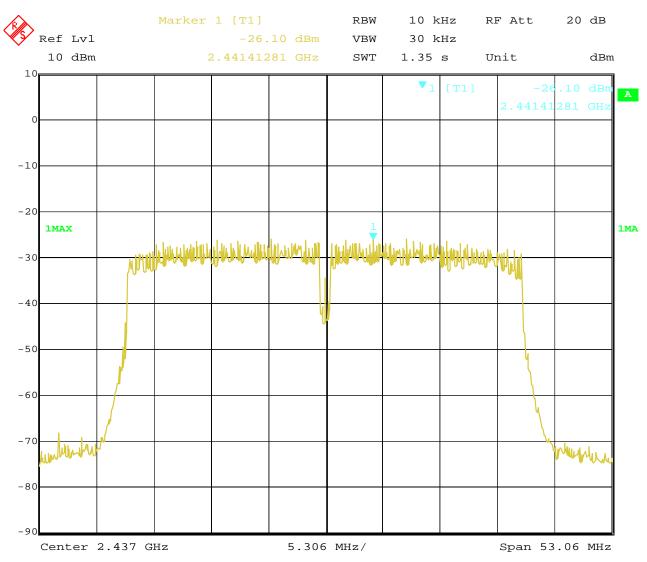
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14. 802.11n at HT40 of CH04



25.NOV.2020 17:42:15 Date:

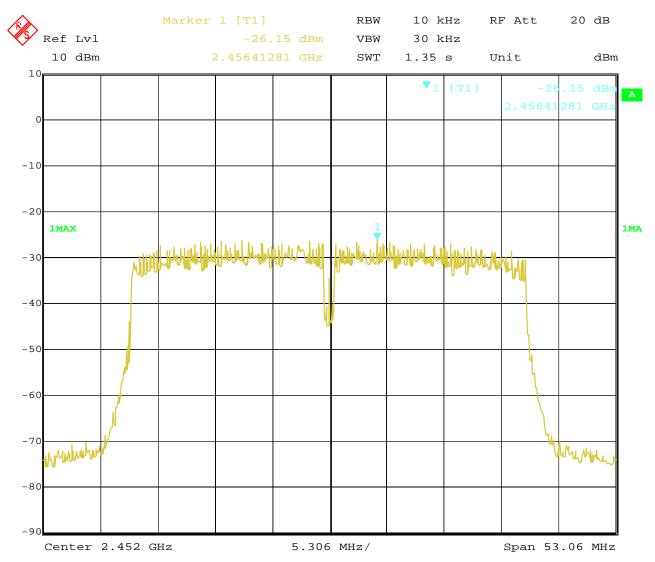
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15. 802.11n at HT40 of CH07



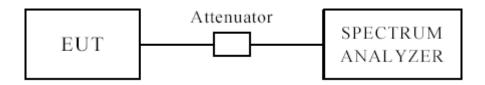
25.NOV.2020 17:44:52 Date:

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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. This is a handhold device. The radiated emissions should be tested under 3-axes position (Lying, Side, and Stand), After pre-test. It was found that the worse radiated emission was get at the lying position.
- 3. Two antennas were tested and only the worst cased was recorded in the test report. Ant 0 was the worst case.

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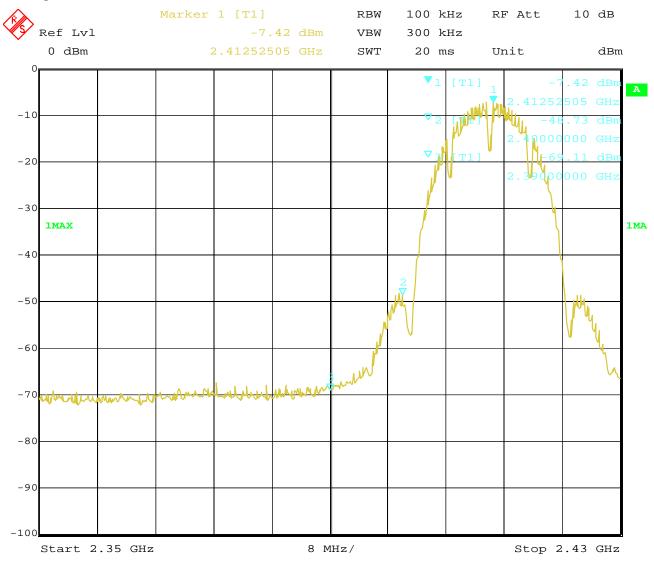
For 802.11b mode

CH01 at 1Mbps

10.4 Band-edge Measurement

EUT	Tablet POS	Model	HM626R
Mode	Keeping Transmitting	Input Voltage	DC3.8V
Temperature	24 deg. C,	Humidity	56% RH
Test Result:	Pass	Detector	PK

Test Figure:



25.NOV.2020 16:10:05 Date:

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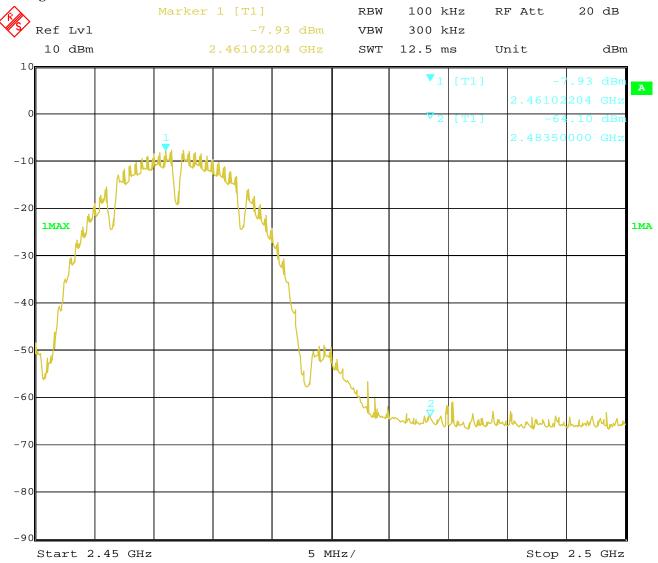


CH11 at 1Mbps

10.4 Band-edge Measurement

EUT	Tablet POS	Model	HM626R
Mode	Keeping Transmitting	Input Voltage	DC3.8V
Temperature	24 deg. C,	Humidity	56% RH
Test Result:	Pass	Detector	PK

Test Figure:



25.NOV.2020 16:28:28 Date:

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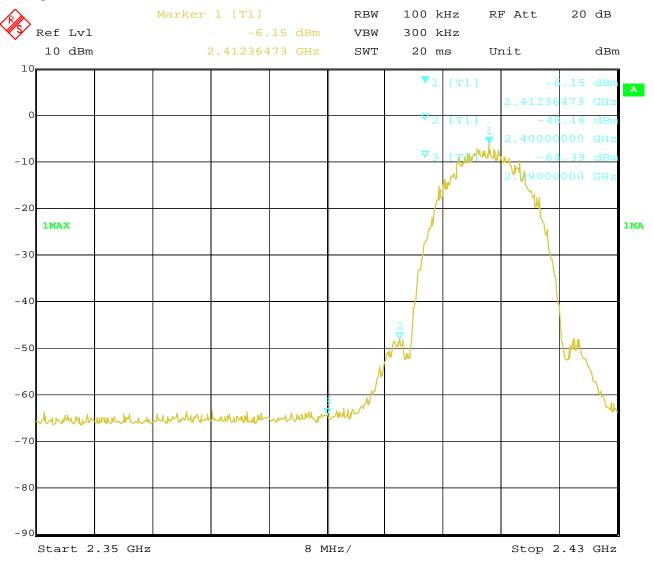
For 802.11b mode

CH01 at 11Mbps

10.4 Band-edge Measurement

EUT	Tablet POS	Model	HM626R
Mode	Keeping Transmitting	Input Voltage	DC3.8V
Temperature	24 deg. C,	Humidity	56% RH
Test Result:	Pass	Detector	PK

Test Figure:



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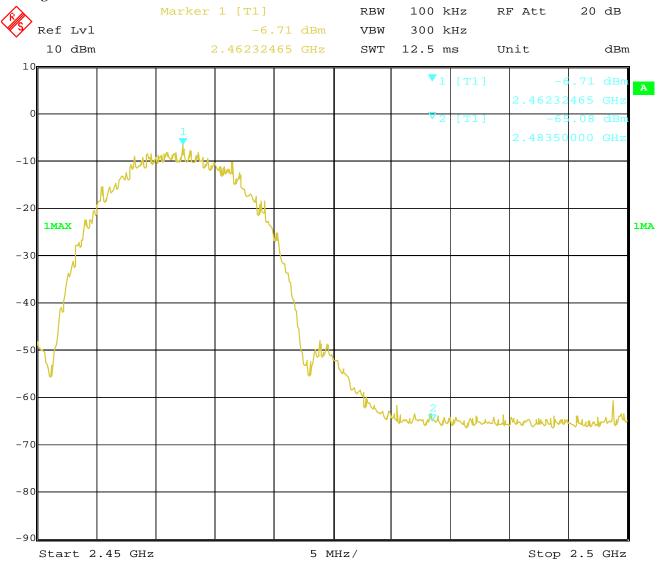


CH11 at 11Mbps

10.4 Band-edge Measurement

EUT	Tablet POS	Model	HM626R
Mode	Keeping Transmitting	Input Voltage	DC3.8V
Temperature	24 deg. C,	Humidity	56% RH
Test Result:	Pass	Detector	PK

Test Figure:



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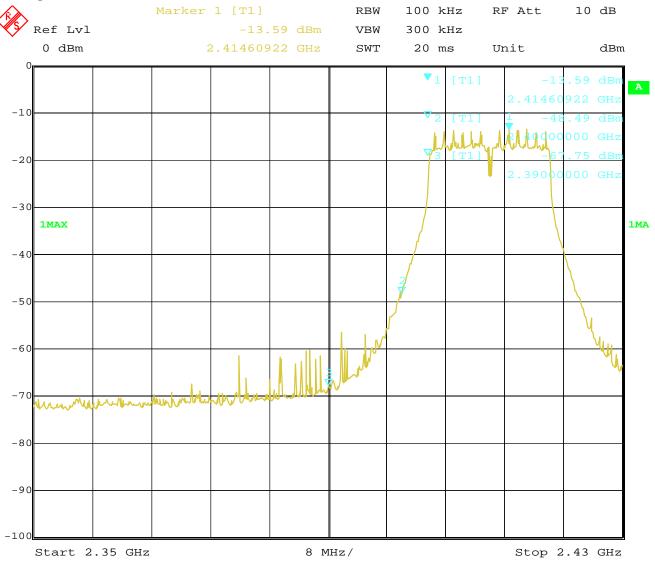
For 802.11g mode

CH01 at 6Mbps

10.4 Band-edge Measurement

EUT	Tablet POS	Model	HM626R
Mode	Keeping Transmitting	Input Voltage	DC3.8V
Temperature	24 deg. C,	Humidity	56% RH
Test Result:	Pass	Detector	PK

Test Figure:



25.NOV.2020 16:10:50 Date:

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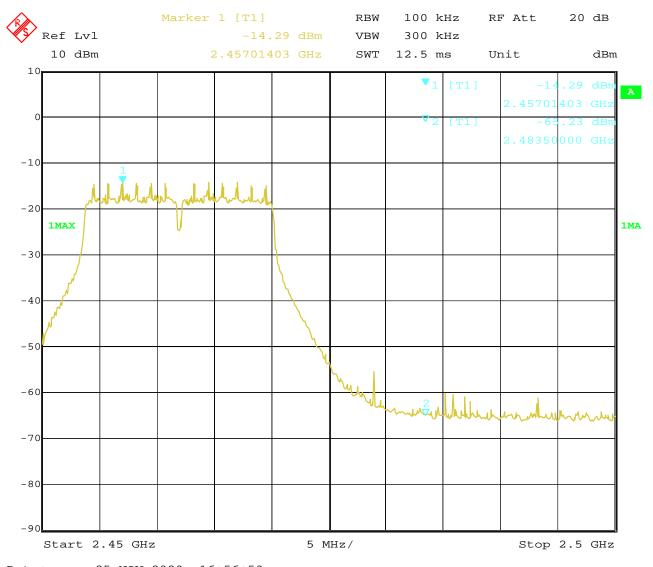


CH11 at 6Mbps

10.4 Band-edge Measurement

EUT	Tablet POS	Model	HM626R
Mode	Keeping Transmitting	Input Voltage	DC3.8V
Temperature	24 deg. C,	Humidity	56% RH
Test Result:	Pass	Detector	PK

Test Figure:



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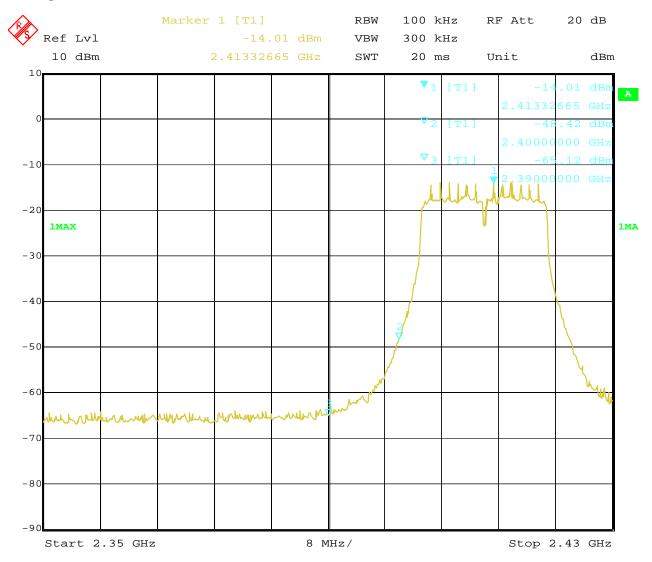
For 802.11n (HT20) mode

CH01 at mcs0

10.4 Band-edge Measurement

EUT	Tablet POS	Model	HM626R
Mode	Keeping Transmitting	Input Voltage	DC3.8V
Temperature	24 deg. C,	Humidity	56% RH
Test Result:	Pass	Detector	PK

Test Figure:



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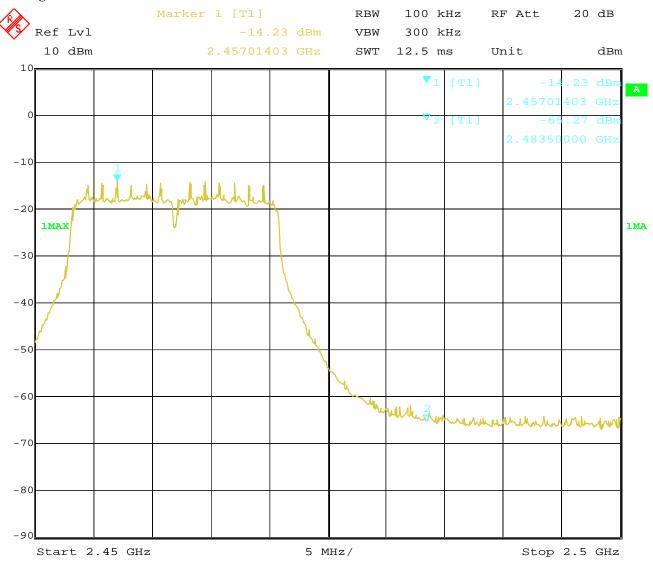


CH11 at mcs0

10.4 Band-edge Measurement

EUT	Tablet POS	Model	HM626R
Mode	Keeping Transmitting	Input Voltage	DC3.8V
Temperature	24 deg. C,	Humidity	56% RH
Test Result:	Pass	Detector	PK

Test Figure:



25.NOV.2020 17:02:44 Date:

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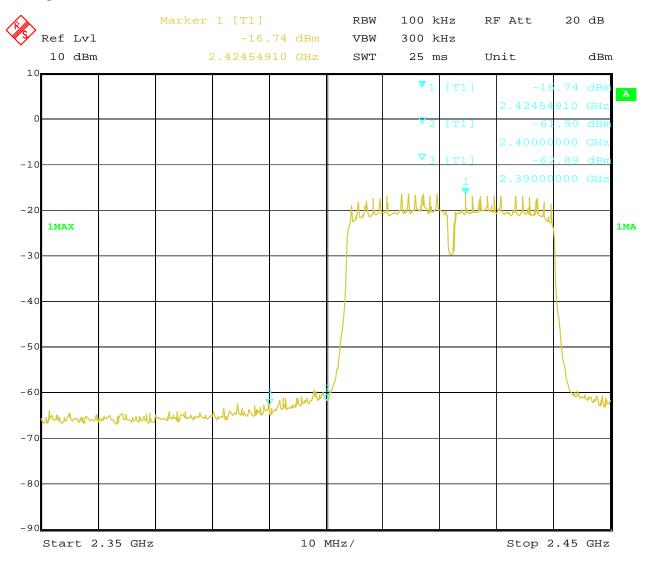
For 802.11n (HT40) mode

CH03 at msc0

10.4 Band-edge and Restricted band Measurement

EUT	Tablet POS	Model	HM626R
Mode	Keeping Transmitting	Input Voltage	DC3.8V
Temperature	24 deg. C,	Humidity	56% RH
Test Result:	Pass	Detector	PK

Test Figure:



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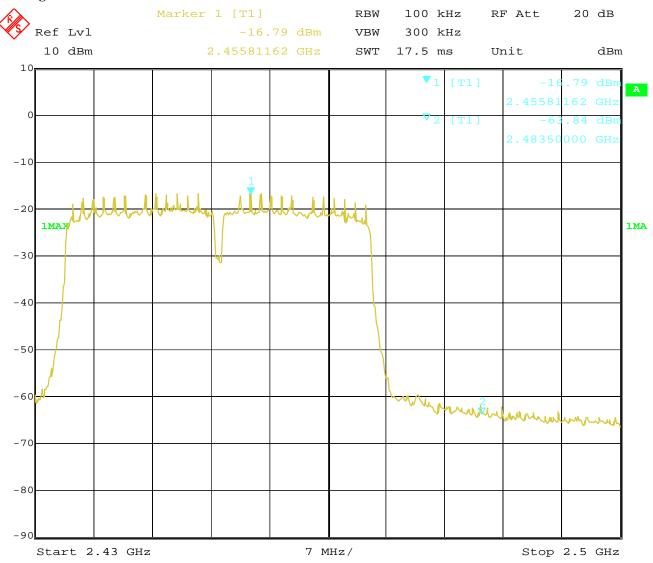


CH09 at msc0

10.4 Band-edge and Restricted band Measurement

EUT	Tablet POS	Model	HM626R
Mode	Keeping Transmitting	Input Voltage	DC3.8V
Temperature	24 deg. C,	Humidity	56% RH
Test Result:	Pass	Detector	PK

Test Figure:



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10.5 Restricted band Measurement

EUT	Tablet POS		Model	HM626R		
Mode	Keeping	Transmitting	Input Voltage	DC3.8V		
Temperature	24	deg. C,	Humidity	56% RH		
Test Result:		Pass	Detector	PK		
	802.11b mode, Low Channel, Horizontal					
2390	PK (dBµV/m)	41.25	T ::4	$74(dB\mu V/m)$		
	AV (dBμV/m)		Limit	54(dBµV/m)		
802.11b mode, Vertical						
2390	PK (dBμV/m)	40.67	Limit	74(dBµV/m)		
	AV (dBμV/m)		Lillit	54(dBμV/m)		

EUT	Tablet POS		Model	HM626R		
Mode	Keeping	Transmitting	Input Voltage	DC3.8V		
Temperature	24	deg. C,	Humidity	56% RH		
Test Result:		Pass	Detector	PK		
802.11b mode, High Channel, Horizontal						
2483.5	PK (dBµV/m)	38.03	T 114	$74(dB\mu V/m)$		
	AV (dBμV/m)		Limit	54(dBμV/m)		
802.11b mode, High Channel, Vertical						
2483.5	PK (dBµV/m)	37.62	Limit	74(dBμV/m)		
	AV (dBμV/m)		Limit	$54(dB\mu V/m)$		

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10.5 Restricted band Measurement

EUT	Tablet POS		Model	HM626R		
Mode	Keeping	Transmitting	Input Voltage	DC3.8V		
Temperature	24	deg. C,	Humidity	56% RH		
Test Result:		Pass	Detector	PK		
	802.11g mode, Low Channel, Horizontal					
2390	PK (dBµV/m)	42.86	T ::4	$74(dB\mu V/m)$		
	AV (dBμV/m)		Limit	54(dBμV/m)		
802.11g mode, Vertical						
2390	PK (dBµV/m)	47.61	Limit	74(dBμV/m)		
	AV (dBμV/m)		Limit	$54(dB\mu V/m)$		

10.5 Restricted band wedstrement						
EUT	Tablet POS		Model	HM626R		
Mode	Keeping	Transmitting	Input Voltage	DC3.8V		
Temperature	24	deg. C,	Humidity	56% RH		
Test Result:		Pass	Detector	PK		
	802.11g mode, High Channel, Horizontal					
2483.5	PK (dBµV/m)	38.89	T ::4	$74(dB\mu V/m)$		
	AV $(dB\mu V/m)$		Limit	$54(dB\mu V/m)$		
802.11g mode, High Channel, Vertical						
2483.5	PK (dBµV/m)	38.22	T ::4	$74(dB\mu V/m)$		
	AV (dBμV/m)		Limit	$54(dB\mu V/m)$		

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10.5 Restricted band Measurement

EUT	Tablet POS		Model	HM626R		
Mode	Keeping	Transmitting	Input Voltage	DC3.8V		
Temperature	24	deg. C,	Humidity	56% RH		
Test Result:		Pass	Detector	PK		
	802.11n HT20 mode, Low Channel, Horizontal					
2390	PK (dBμV/m)	43.59	Limit	$74(dB\mu V/m)$		
	AV (dBμV/m)		Limit	54(dBµV/m)		
	802.11n HT20 mode, Low Channel, Vertical					
2390	PK (dBμV/m)	50.71	Limit	74(dBμV/m)		
	AV (dBμV/m)		Limit	54(dBµV/m)		

EUT	Tablet POS		Model	HM626R		
Mode	Keeping	Transmitting	Input Voltage	DC3.8V		
Temperature	24	deg. C,	Humidity	56% RH		
Test Result:		Pass	Detector	PK		
802.11n HT20 mode, High Channel, Horizontal						
2483.5	PK (dBµV/m)	39.11	T ::4	$74(dB\mu V/m)$		
	AV (dBμV/m)		Limit	$54(dB\mu V/m)$		
802.11n HT20 mode, High Channel, Vertical						
2483.5	PK (dBμV/m)	38.26	Limit	74(dBμV/m)		
	AV (dBμV/m)		LIIIII	$54(dB\mu V/m)$		

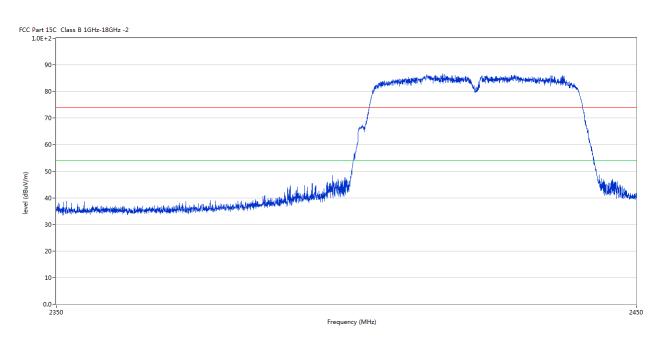
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EUT	Tal	blet POS	Model	HM626R		
Mode	Keeping	g Transmitting	Input Voltage	DC3.8V		
Temperature	24	deg. C,	Humidity	56% RH		
Test Result:		Pass	Detector	PK		
	802.11n HT40 mode, Low Channel, Horizontal					
2390	PK (dBµV/m)	44.72	T ::4	$74(dB\mu V/m)$		
	AV (dBμV/m)		Limit	$54(dB\mu V/m)$		
802.11n HT40 mode, Low Channel, Vertical						
2390	PK (dBμV/m)	51.59	T ::4	74(dBµV/m)		
	AV (dBμV/m)		Limit	54(dBµV/m)		

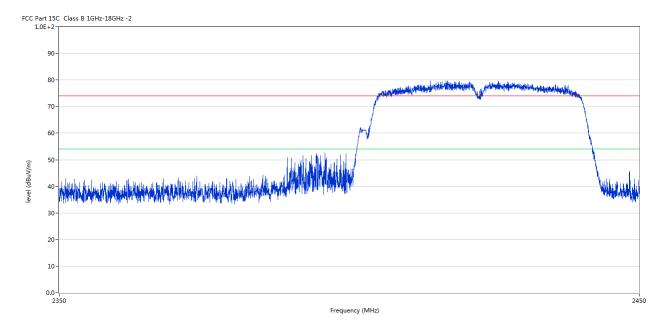


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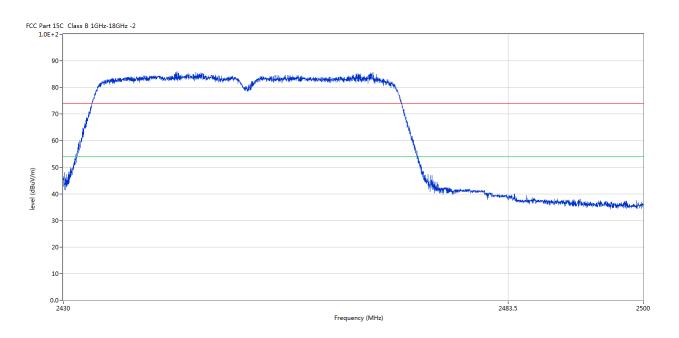
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EUT	Tablet POS		Model	HM626R		
Mode	Keeping	g Transmitting	Input Voltage	120V~ DC3.8V		
Temperature	24	deg. C,	Humidity	56% RH		
Test Result:		Pass	Detector	PK		
802.11n HT40 mode, High Channel, Horizontal						
2483.5	PK (dBμV/m)	39.70	Timi	74(dBμV/m)		
	AV (dBμV/m)		Limit	54(dBμV/m)		
802.11n HT40 mode, High Channel, Vertical						
2483.5	PK (dBμV/m)	39.53	Timi	74(dBμV/m)		
	AV (dBμV/m)		Limit	54(dBμV/m)		

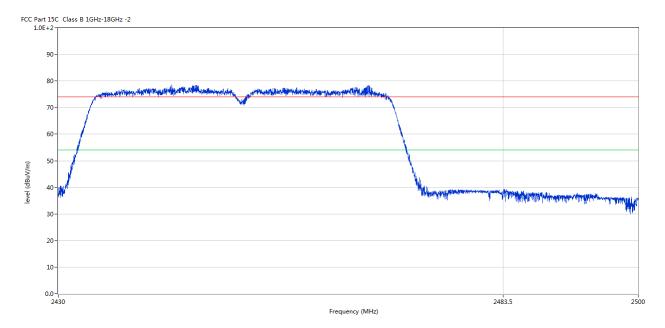


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11.0 Antenna Requirement

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 Integral antenna used. The gain of 2.0dBi for each one.

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12.0 FCC ID Label

FCC ID: GQK-HM626

This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

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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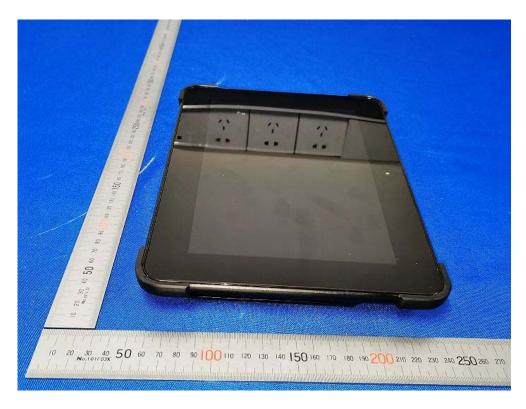
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Photographs - EUT

Outside View





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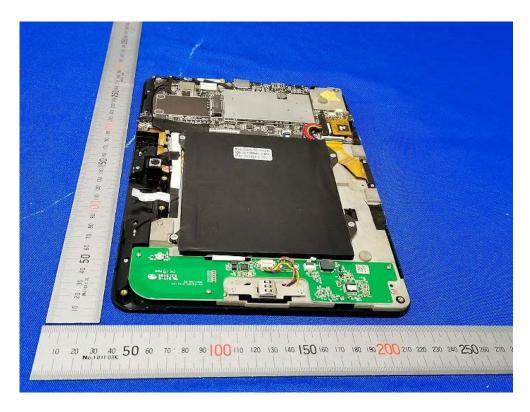
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Inside view





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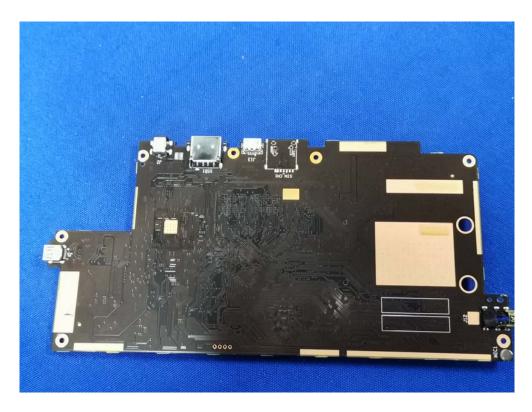
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Inside view





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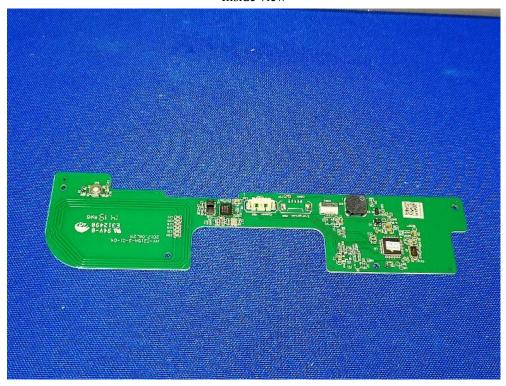
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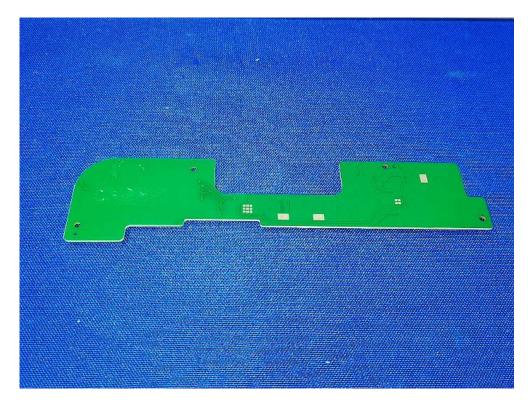
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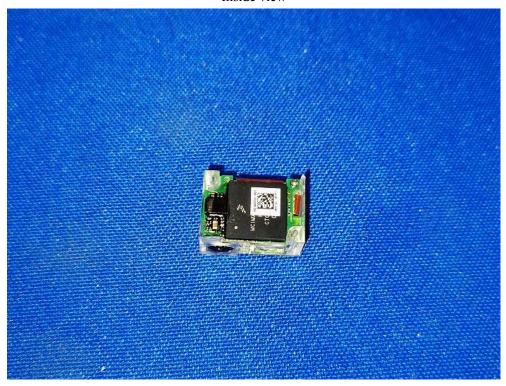
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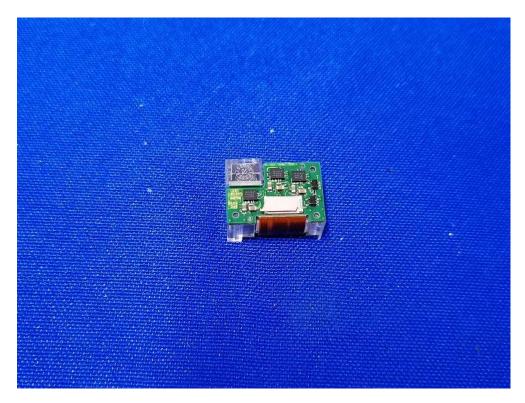
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