

Test report No.: KES-RF-17T0041 Page (1) of (53)

TEST REPORT

Part 15 Subpart C 15.247

Equipment under test Digital Color Camera

Model name SNC-79440BWN

FCC ID NLMSNC79440BWN

Applicant Hanwha Techwin Co., Ltd.

Manufacturer Hanwha Techwin(Tianjin) Co., Ltd

Date of test(s) 2017.03.17 ~ 2017.03.23

Date of issue 2017.03.24

Issued to

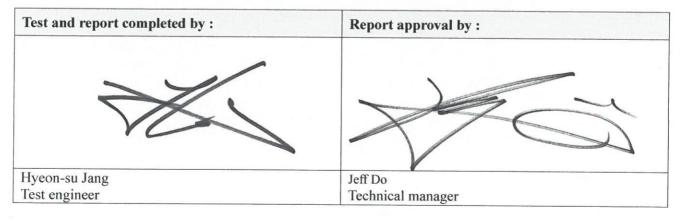
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Test report No .: KES-RF-17T0041 Page (2) of (53)

Revision history

Revision	Date of issue	Test report No.	Description
-	2017.03.24	KES-RF-17T0041	Initial



Test report No.: KES-RF-17T0041 Page (3) of (53)

TABLE OF CONTENTS

1.	General	information	. 4
	1.1.	EUT description	. 4
	1.2.	Test configuration	. 4
	1.3.	Device modifications	. 4
	1.4.	Information about derivative model	. 4
	1.5.	Frequency/channel operations	. 5
	1.6.	Worst case data rate	
	1.7.	Accessory information	. 5
2.		y of tests	
3.	Test resu	lts	. 7
	3.1.	6 dB bandwidth	. 7
	3.2.	Output power	11
	3.3.	Power spectral density	13
	3.4.	Radiated restricted band and emissions	17
	3.5.	Conducted spurious emissions & band edge	45
	3.6.	AC conducted emissions	
App	endix A.	Measurement equipment	52
App	endix B.	Test setup photos	53



1. General information

Applicant:	Hanwha Techwin Co., Ltd.					
Applicant address:	1204, Changwon-daero, See	1204, Changwon-daero, Seongsan-gu, Changwon-si				
	Gyeongsangnam-do, South	Korea				
Test site:	KES Co., Ltd.					
Test site address:	C-3701, 40, Simin-daero 36	55beon-gil, Dongan-gu, Anyang-	si, Gyeonggi-do, Korea			
	473-21, Gayeo-ro, Yeoju-si, Gyeonggi-do, Korea					
FCC rule part(s):	15.247					
FCC ID:	NLMSNC79440BWN					
Test device serial No.:	Production	Pre-production	Engineering			

1.1. EUT description

Equipment under test	Digital Color Camera			
Frequency range	2412 MHz ~ 2462 MHz(11b/g/n_HT20)			
	2422 MHz ~ 2452 MHz(11n_HT40)			
Modulation technique	DSSS, OFDM			
Number of channels	2412 MHz ~ 2462 MHz(11b/g/n_HT20): 11ch			
	2422 MHz ~ 2452 MHz(11n_HT40): 7ch			
Antenna type	Dipole antenna			
Antenna gain	1.87 dBi			
Power source	AC 120 V Adaptor (Output DC 12.0 V)			

1.2. Test configuration

The <u>Hanwha Techwin Co., Ltd. Digital Color Camera FCC ID: NLMSNC79440BWN</u> was tested per the guidance of KDB 558074 D01 v03r05. ANSI C63.10-2013 was used to reference the appropriate EUT setup for radiated spurious emissions testing and AC line conducted testing.

1.3. Device modifications

N/A

1.4. Information about derivative model

N/A



1.5. Frequency/channel operations

Ch.	Frequency (Mz)	Mode
01	2412	802.11b/g/n_HT20
:		- -
06	2437	802.11b/g/n_HT20
· .	•	
11	2462	802.11b/g/n_HT20

Ch.	Frequency (Mz)	Mode
03	2422	802.11n_HT40
06	2437	802.11n_HT40
09	2452	802.11n_HT40

1.6. Worst case data rate

- 1. Radiated emission and power line conducted emission were performed with the EUT set to transmit at the channel with highest output power as worst-case scenario.
- 2. Worst-case data rates were:
 - 802.11b: <u>11 Mbps</u> 802.11g: <u>6 Mbps</u> 802.11n_HT20: <u>MCS0</u> 802.11n_HT40: <u>MCS0</u>

1.7. Accessory information

Equipment	Manufacturer	Model	Serial No.	Power source			
SWITCHING ADAPTOR	FUJIA APPLIANCE	FJ- SW1161200500DU	-	AC 120V (Output : DC 12V / 0.5 A)			



Test report No .: KES-RF-17T0041 Page (6) of (53)

2. Summary of	tests	
Reference	Parameter	Test results
15.247(a)(2)	6 dB bandwidth	Pass
15.247(b)(3)	Peak output power	Pass
15.247(e)	Power spectral density	Pass
15.205 15.209	Radiated restricted band and emission	Pass
15.247(d)	Conducted spurious emission and band edge	Pass
15.207(a)	AC conducted emissions	Pass



Test report No.: KES-RF-17T0041 Page (7) of (53)

3. Test results

3.1. 6 dB bandwidth

Test procedure

KDB 558074 D01 v03r05 – Section 8.1 or 8.2 Used test method is section 8.1.

Section 8.1

- 1. RBW = 100 kHz.
- 2. VBW \geq 3 \times 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 frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

Section 8.2

The automatic bandwidth measurement capability of an instrument may be employed using the X dB bandwidth mode with X set to 6 dB, if the functionality described above (i.e., RBW = 100 kHz, $VBW \ge 3 \times RBW$, peak detector with maximum hold) is implemented by the instrumentation function. When using this capability, care shall be taken so that the bandwidth measurement is not influenced by any intermediate power nulls in the fundamental emission that might be $\ge 6 \text{ dB}$.

Limit

According to \$15.247(a)(2), systems using digital modulation techniques may operate $902 \sim 928$ Mb, $2400 \sim 2483.5$ Mb, and $5725 \sim 5850$ Mb bands. The minimum 6 dB bandwidth shall be at least 500 kb.



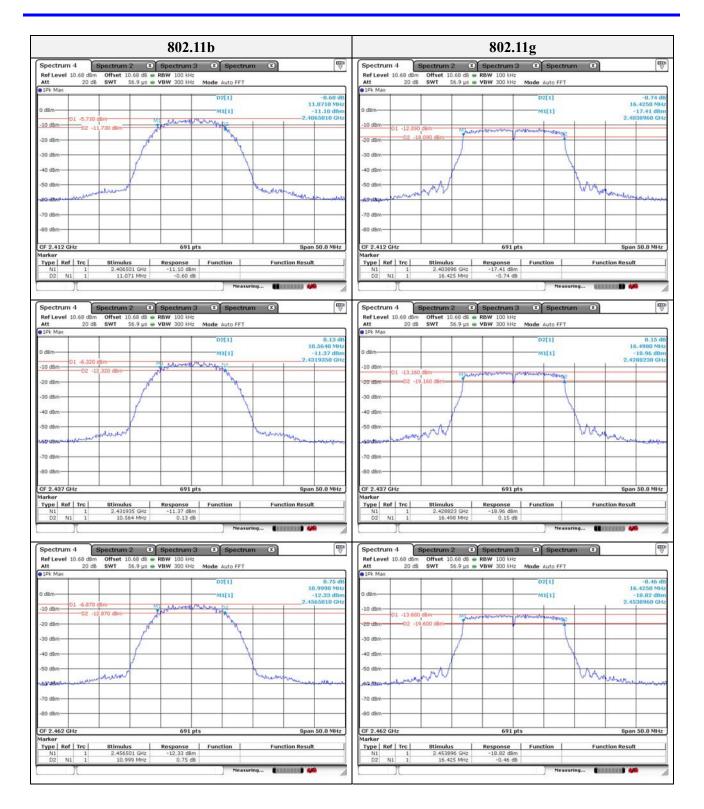
Test results

6 dB bandwidth of 20 Mz bandwidth						
	Limit(M ¹ / ₂)					
Frequency(Mz)	Frequency(MHz) 802.11b 802.11g 802.11n					
2412	11.071	16.425	17.583			
2437	10.564	16.498	17.583	0.5		
2462	10.999	16.425	17.583			

6 dB bandwidth of 40 Mz bandwidth						
Measured 6 dB bandwidth(Mz)						
Frequency(Mz)	Frequency(Mz) 802.11n Limit(Mz)					
2422	36.350					
2437	36.240	0.5				
2452	36.350					

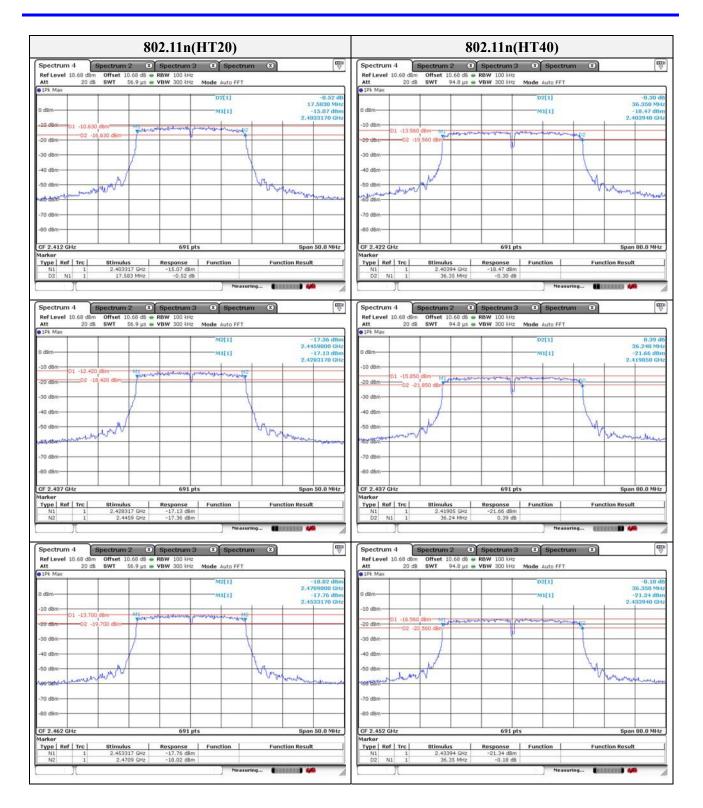


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3.2. Output power

Test procedure KDB 558074 D01 v03r05 – section 9.1.1 or 9.1.2 Used test method is section 9.1.2.

Section 9.1.1

This procedure shall be used when the measurement instrument has available a resolution bandwidth that is gr eater than the DTS bandwidth.

- 1. Set the RBW \geq DTS bandwidth.
- 2. Set VBW \geq 3 \times RBW.
- 3. Set span \geq 3 \times RBW
- 4. Sweep time = auto couple
- 5. Detector = peak
- 6. Trace mode = max hold
- 7. Allow trace to fully stabilize
- 8. Use peak marker function to determine the peak amplitude level

Section 9.1.2

The maximum peak conducted output power may be measured using a broadband peak RF power meter. The power meter shall have a video bandwidth that is greater than or equal to the DTS ba ndwidth and shall utilize a fast-responding diode detector.

Limit

According to \$15.247(b)(3), For systems using digital modulation in the 902~928 MŁ, 2 400~2 483.5 MŁ, and 5 725~5 850 MŁ bands: 1 Watt. As an alternative to a peak power measurement, compliance with the one Watt limit can be based on a measurement of the maximum conducted out-put power. Maximum Conducted Out-put Power is defined as the total transmit power delivered to all antennas and antenna elements averaged across all symbols in the signaling alphabet when the transmitter is operating at its maximum power control level. Power must be summed across all antennas and antenna elements. The average must not include any time intervals during which the transmitter is off or is transmitting at a reduced power level. If multiple modes of operation are possible (e.g., alternative modulation methods), the maximum conducted output power is the highest total transmit power occurring in any mode.

According to \$15.247(b)(4), The conducted output power limit specified in paragraph (b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi. Except as shown in paragraph (c) of this section, if transmit-ting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1), (b)(2), and (b)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.



Test report No.: KES-RF-17T0041 Page (12) of (53)

Test results						
Measured output power (dBm)						
Mada	2412 MHz		2437 MHz		2462 MHz	
Mode	Peak	Average	Peak	Average	Peak	Average
11b	13.20	10.25	12.15	9.47	11.41	9.19
11g	16.32	6.22	15.80	5.75	15.26	5.05
11n_HT 20	15.65	5.83	15.02	5.23	14.50	4.64
M. J.	242	2 MHz	243	7 MHz	245	2 MHz
Mode	Peak	Average	Peak	Average	Peak	Average
11n_HT 40	14.87	5.64	14.64	5.31	13.98	4.55



Test report No.: KES-RF-17T0041 Page (13) of (53)

3.3. Power spectral density Test procedure KDB 558074 D01 v03r05- section 10.2

- 1. Set analyzer center frequency to DTS channel center frequency.
- 2. Set the span to 1.5 times the DTS channel bandwidth.
- 3. Set the RBW : 3 kHz \leq RBW \leq 100 kHz
- 4. Set the VBW \geq 3 \times RBW.
- 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.

Limit

According to \$15.247(e), For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission. This power spectral density shall be determined in accordance with the provisions of paragraph (b) of this section. The same method of determining the conducted output power shall be used to determine the power spectral density.



Test report No.: KES-RF-17T0041 Page (14) of (53)

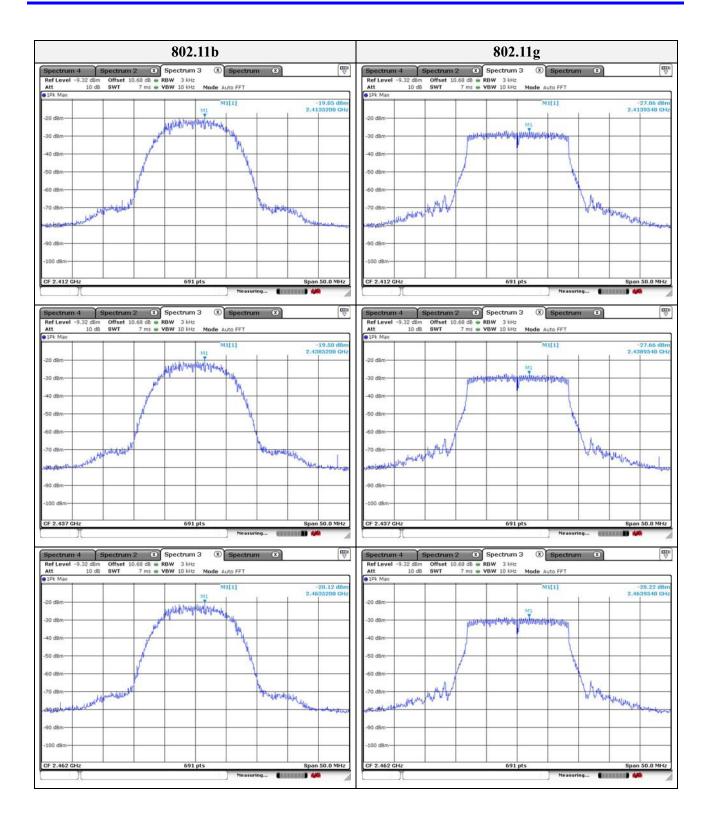
Test results

PSD of 20 Mz bandwidth							
	Limit(dBm)						
Frequency(Mbz)	Frequency(MHz) 802.11b 802.11g 802.11n						
2412	-19.05	-27.06	-25.52				
2437	-19.50	-27.66	-26.73	8			
2462	-20.12	-28.22	-27.69				

PS	PSD of 40 Mz bandwidth										
Measured PDS(dBm)											
Frequency(Mz)											
2422	-27.13										
2437	-27.66	8									
2452	-28.05										



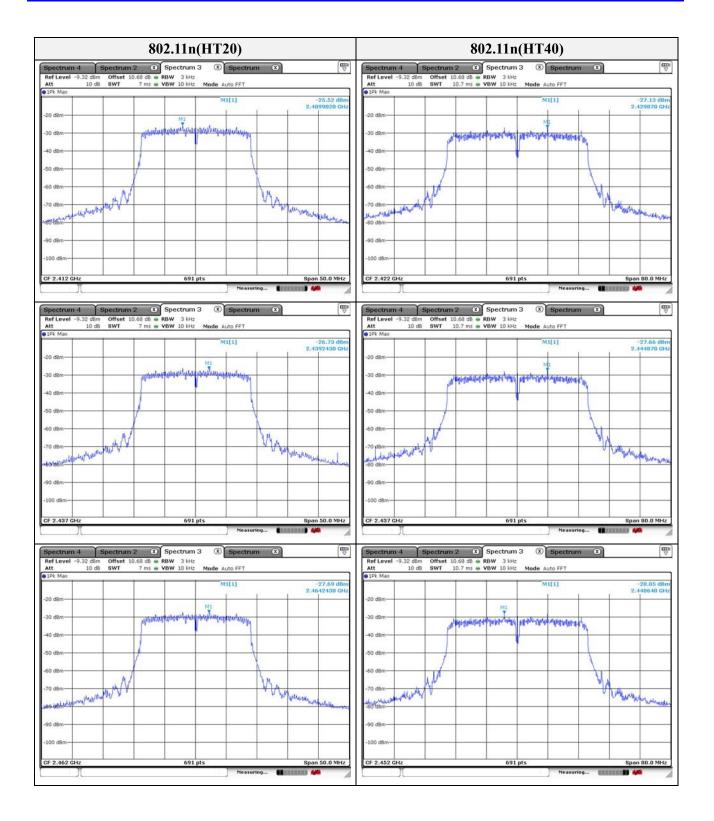
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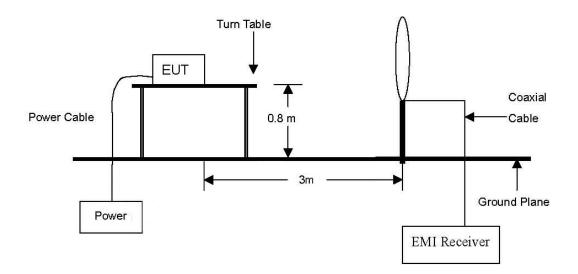




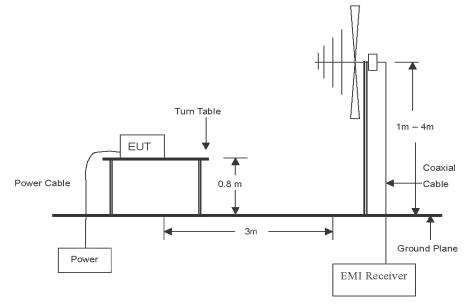
3.4. Radiated restricted band and emissions

Test setup

The diagram below shows the test setup that is utilized to make the measurements for emission from 9 kHz to 30 MHz Emissions.

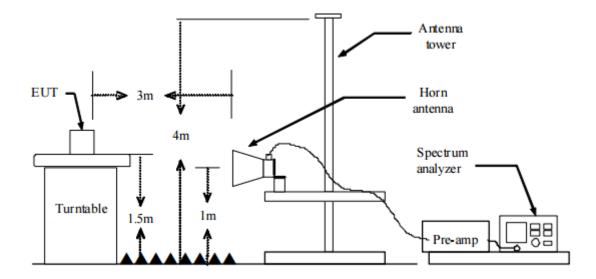


The diagram below shows the test setup that is utilized to make the measurements for emission from 30 Mz to 1 Gz emissions.





The diagram below shows the test setup that is utilized to make the measurements for emission from 1 $\mathbb{G}\mathbb{Z}$ to the tenth harmonic of the highest fundamental frequency or to 40 $\mathbb{G}\mathbb{Z}$ emissions, whichever is lower.



Test procedure below 30 Mz

- 1. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter anechoic chamber test site. The table was rotated 360 degrees to determine the position of the highest radiation.
- 2. Then antenna is a loop antenna is fixed at one meter above the ground to determine the maximum value of the field strength. Both parallel and perpendicular of the antenna are set to make the measurement.
- 3. For each suspected emission, the EUT was arranged to its worst case and then the table was turned from 0 degrees to 360 degrees to find the maximum reading.
- 4. The test-receiver system was set to average or quasi peak detect function and Specified Bandwidth with Maximum hold mode.

Test procedure above 30 MHz

- 1. Spectrum analyzer settings for f < 1 GHz:
 - (1) Span = wide enough to fully capture the emission being measured
 - \bigcirc **RBW** = 100 kHz
 - ③ VBW \ge RBW
 - ④ Detector = quasi peak
 - (5) Sweep time = auto
 - \bigcirc Trace = max hold
- 2. Spectrum analyzer settings for $f \ge 1$ GHz: Peak
 - ① Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
 - 2 RBW = 1 M/z
 - ③ VBW \ge 3 Mz
 - (4) Detector = peak
 - \bigcirc Sweep time = auto
 - 6 Trace = max hold
 - \bigcirc Trace was allowed to stabilize

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- 3. Spectrum analyzer settings for $f \ge 1$ GHz: Average
 - ① Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
 - 2 RBW = 1 MHz

 - (4) Detector = RMS, if span/(# of points in sweep) \leq (RBW/2). Satisfying this condition may require increasing the number of points in the sweep or reducing the span. If this condition cannot be satisfied, then the detector mode shall be set to peak.
 - (5) Averaging type = power(i.e., RMS)
 - 1) As an alternative, the detector and averaging type may be set for linear voltage averaging.
 - 2) Some instruments require linear display mode in order to use linear voltage averaging. Log or dB averaging shall not be used.
 - 6 Sweep = auto
 - \bigcirc Trace = max hold
 - 8 Perform a trace average of at least 100 traces.
 - (9) A correction factor shall be added to the measurement results prior to comparing to the emission limit in order to compute the emission level that would have been measured had the test been performed at 100 percent duty cycle. The correction factor is computed as follows:
 - 1) If power averaging (RMS) mode was used in step (5), then the applicable correction factor is $10 \log(1/x)$, where x is the duty cycle.
 - 2) If linear voltage averaging mode was used in step (5), then the applicable correction factor is 20 log(1/x), where x is the duty cycle.
 - 3) If a specific emission is demonstrated to be continuous (≥ 98 percent duty cycle) rather than turning on and off with the transmit cycle, then no duty cycle correction is required for that emission.

Note.

1. f < 30 MHz, extrapolation factor of 40 dB/decade of distance. $F_d = 40\log(D_m/Ds)$

 $f \ge 30$ Mz, extrapolation factor of 20 dB/decade of distance. $F_d = 20log(D_m/Ds)$ Where:

- F_d = Distance factor in dB
- D_m = Measurement distance in meters
- D_s = Specification distance in meters
- 3. $CF(Correction factors(dB)) = Antenna factor(dB/m) + Cable loss(dB) + or Amp. gain(dB) + or F_d(dB)$
- 4. Field strength($dB\mu N/m$) = Level($dB\mu N$) + CF (dB) + or DCF(dB)
- 5. Margin(dB) = Limit(dB μ V/m) Field strength(dB μ V/m)
- 6. Emissions below 18 GHz were measured at a 3 meter test distance while emissions above 18 GHz were measured at a 1 meter test distance with the application of a distance correction factor.
- The fundamental of the EUT was investigated in three orthogonal orientations X, Y and Z, it was determined that <u>X orientation</u> was worst-case orientation; therefore, all final radiated testing was performed with the EUT in <u>X orientation</u>.
- 8. The worst-case emissions are reported however emissions whose levels were not within 20 dB of respective limits were not reported.

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Limit

According to 15.209(a), for an intentional radiator devices, the general required of field strength of radiated emissions from unintentional radiators at a distance of 3 meters shall not exceed the following values :

Frequency (Mz)	Distance (Meters)	Radiated (µV/m)
0.009 ~ 0.490	300	2400/F(kHz)
0.490 ~ 1.705	30	24000/F(kHz)
1.705 ~ 30.0	30	30
30~88	3	100**
88~216	3	150**
216~960	3	200**
Above 960	3	500

**Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this Section shall not be located in the frequency bands $54 \sim 72$ Mz, $76 \sim 88$ Mz, $174 \sim 216$ Mz or $470 \sim 806$ Mz. However, operation within these frequency bands is permitted under other sections of this Part, e.g., Sections 15.231 and 15.241.



Duty cycle

Regarding to KDB 558074 D01_v03r05, 6.0, the maximum duty cycles of all modes were investigated and set the spectrum analyzer as below.

Set RBW \geq OBW if possible; otherwise, set RBW to the largest available value. Set detector = peak or average. The zero-span measurement method shall not be used unless both RBW and VBW are > 50/T and the number of sweep points across duration T exceeds 100.

Test mode	T _{on} time (ms)	Period (ms)	Duty cycle (Linear)	Duty cycle (%)	Duty cycle correction factor (dB)
802.11b	10.00	10.00	1	100	0
802.11g	10.00	10.00	1	100	0
802.11n(HT20)	10.00	10.00	1	100	0
802.11n(HT40)	10.00	10.00	1	100	0

Duty cycle (Linear) = T_{on} time/Period

DCF(Duty cycle correction factor (dB)) = 10log(1/duty cycle)

8(02.11b // Mid		802.11g // Middle channel										
	t 10.68 dB 👄 RBW 10 MHz	Spectrun	n 🗷		Ref Level 30.68 dBm Offset 10.68 dB RBW 10 MHz								
Att 40 dB 🖝 SWT SGL	10 ms 🖷 VBW 10 MHz				Att	40 dB 💩 SWT	10 ms 🖷	VBW 10 MH	42				
1Pk Max					Pk Max								
								1					
				_			-				_		
20 dBm					20 dBm-							7	
10 dBm-					10 d8m								
10 000					ulsudde	tobal doubt doubt	delardelarde	altrada	andreada	entrutit	nerhould	reliberti	nalitudes
0 d8m			-	-	0 dBm								
-10 dBm	+ + +				-10 dBm		-	-		-			
-20 dBm					-20 dBm		-						
-30 dBm					-30 dBm								
-40 dBm					-40 d8m								
- Ho doin					10 upm			1				1	
-50 dBm					-50 dBm-							-	
-60 d8m				-	-60 d8m		-	-	-			-	-
								691					1.0 ms/
CF 2.437 GHz	691 pt	Read		1.0 ms/	CF 2.437 GH][1 n/UT			Read		al	
802.1	1n(HT20) //	Read Middle c	hannel		CF 2.437 GH	802.1	n 2 🛛	(40) //	/ Mid		hann	-	
802.1 Spectrum 4 Spectrum Ref Level 30.68 dBm Offse Att 40 dB = SWT SGL	1n(HT20) //	Read Middle c	hannel	*	Spectrum Ref Level 3 Att SGL	802.11 4 Spectrus 0.68 dBm Offse	n 2 🛛	(40) // Spectrum RBW 10 MH	/ Mid	dle c	hann	-	• //
802.11 Spectrum 4 Spectrum Ref Level 30.65 dBm Offse Att 40 dB = SWT	1n(HT20) //	Read Middle c	hannel	*	Spectrum Ref Level 3 Att	802.11 4 Spectrus 0.68 dBm Offse	n 2 🛛	(40) // Spectrum RBW 10 MH	/ Mid	dle c	hann	-	
802.1 Spectrum 4 Spectrum Ref Level 30.69 dbm Offsel Att 40 db = SWT SGL	1n(HT20) //	Read Middle c	hannel	*	Spectrum Ref Level 3 Att SGL	802.11 4 Spectrus 0.68 dBm Offse	n 2 🛛	(40) // Spectrum RBW 10 MH	/ Mid	dle c	hann	-	
802.1 Spectrum 4 Spectrum Ref Level 30.69 dbm Offsel Att 40 db = SWT SGL	1n(HT20) //	Read Middle c	hannel	*	Spectrum Ref Level 3 Att SGL	802.11 4 Spectrus 0.68 dBm Offse	n 2 🛛	(40) // Spectrum RBW 10 MH	/ Mid	dle c	hann	-	
Spectrum 4 Spectrum Ref Level 30.69 dbm Offsel Att 40 db SWT SGL •1Pk Max •20 dbm	1n(HT20) //	Read Middle c	hannel	*	Spectrum Ref Level 3 Att SGL 9 1Pk Max 20 dBm	802.11 4 Spectrus 0.68 dBm Offse	n 2 🛛	(40) // Spectrum RBW 10 MH	/ Mid	dle c	hann	-	
802.1 Spectrum 4 Spectrum 6 Ref Level 30.60 dbm Offser 40 db = sWT SGL 40 db = sWT SGL 10 dbm	1n(HT20) // m 2 ③ Spectrum 3 t 10.68 dB ● RBW 10 MHz 10 ms ● VBW 10 MHz	Read Middle C	hannel	(The second seco	Spectrum Ref Level 3 Att SGL P1Pk Max 20 d8m 10 d8m	802.11 5 Spectrum 40 db • SWT	n 2 3) t 10.68 dB 10 ms	Spectrum RBW 10 MH VBW 10 MH	/ Mide	dle c	hann	el	
802.1	1n(HT20) // m 2 ③ Spectrum 3 t 10.68 dB ● RBW 10 MHz 10 ms ● VBW 10 MHz	Read Middle C	hannel	(The second seco	Spectrum Ref Level 3 Att SGL 9 IPk Max 20 dBm 10 dBm	802.11 4 Spectrus 0.68 dBm Offse	n 2 3) t 10.68 dB 10 ms	Spectrum RBW 10 MH VBW 10 MH	/ Mide	dle c	hann	el	
Spectrum 4 Spectrum Ref Level 30.66 dbm Offser Att 40 db SWT SGL 10 dBm 10 dBm	1n(HT20) // m 2 ③ Spectrum 3 t 10.68 dB ● RBW 10 MHz 10 ms ● VBW 10 MHz	Read Middle C	hannel	(The second seco	Spectrum Ref Level 3 Att SGL P1Pk Max 20 d8m 10 d8m	802.11 5 Spectrum 40 db • SWT	n 2 3) t 10.68 dB 10 ms	Spectrum RBW 10 MH VBW 10 MH	/ Mide	dle c	hann	el	
802.1	1n(HT20) // m 2 ③ Spectrum 3 t 10.68 dB ● RBW 10 MHz 10 ms ● VBW 10 MHz	Read Middle C	hannel	(The second seco	Spectrum Ref Level 3 Att SGL 9 IPk Max 20 dBm 10 dBm	802.11 5 Spectrum 40 db • SWT	n 2 3) t 10.68 dB 10 ms	Spectrum RBW 10 MH VBW 10 MH	/ Mide	dle c	hann	el	
Spectrum 4 Spectrum Ref Level 30.60 dbm Offser Att 40 db SWT GL 40 db SWT 91Pk Max 10 dBm 10 dBm 10 dBm Substruction white 0 dBm	1n(HT20) // m 2 ③ Spectrum 3 t 10.68 dB ● RBW 10 MHz 10 ms ● VBW 10 MHz	Read Middle C	hannel	(The second seco	Spectrum Ref Level 3 Att SGL 10 dBm 10 dBm	802.11 5 Spectrum 40 db • SWT	n 2 3) t 10.68 dB 10 ms	Spectrum RBW 10 MH VBW 10 MH	/ Mide	dle c	hann	el	
Spectrum 4 Spectrum Ref Level 30.66 dbm Offser Att 40 db SWT SGL 40 db SWT 9 IPk Max 10 dBm In the set of the set o	1n(HT20) // m 2 ③ Spectrum 3 t 10.68 dB ● RBW 10 MHz 10 ms ● VBW 10 MHz	Read Middle C	hannel	(The second seco	Spectrum Ref Level 3 Att SGL 10 dBm 10 dBm	802.11 5 Spectrum 40 db • SWT	n 2 3) t 10.68 dB 10 ms	Spectrum RBW 10 MH VBW 10 MH	/ Mide	dle c	hann	el	₩
Spectrum 4 Spectrum Ref Level 30.69 dbm Offsel Att 40 db SWT SGL 91Pk Max 91Pk Max 20 dbm 91Pk Max 910 dbm 10 dbm 9 dbm 910 dbm -10 dbm 9 dbm 910 dbm	1n(HT20) // m 2 ③ Spectrum 3 t 10.68 dB ● RBW 10 MHz 10 ms ● VBW 10 MHz	Read Middle C	hannel	(The second seco	Spectrum Ref Level 3 Att SGL 10 dBm -10 dBm -10 dBm	802.11 5 Spectrum 40 db • SWT	n 2 3) t 10.68 dB 10 ms	Spectrum RBW 10 MH VBW 10 MH	/ Mide	dle c	hann	el	₩
Spectrum 4 Spectrum Ref Level 30.69 dbm Offsel Att 40 db SWT SGL 10 km 10 dbm 10 dbm odbm -10 dbm	1n(HT20) // m 2 ③ Spectrum 3 t 10.68 dB ● RBW 10 MHz 10 ms ● VBW 10 MHz	Read Middle C	hannel	(The second seco	Spectrum Ref Level 3 Att SGL 10 dBm -10 dBm -10 dBm	802.11 5 Spectrum 40 db • SWT	n 2 3) t 10.68 dB 10 ms	Spectrum RBW 10 MH VBW 10 MH	/ Mide	dle c	hann	el	₩
Spectrum 4 Spectrum Ref Level 30.66 dbm Offse att 40 db s sWT 5GL PPP Max 20 dbm 10 dbm -10 dbm -20 dbm	1n(HT20) // m 2 ③ Spectrum 3 t 10.68 dB ● RBW 10 MHz 10 ms ● VBW 10 MHz	Read Middle C	hannel	(The second seco	Spectrum Ref Level 3 Att SGL 9 1% Max 20 dBm 10 dBm 0 dBm -10 dBm -20 dBm -30 dBm	802.11 5 Spectrum 40 db • SWT	n 2 3) t 10.68 dB 10 ms	Spectrum RBW 10 MH VBW 10 MH	/ Mide	dle c	hann	el	
802.1 Spectrum 4 Spectrum Ref Level 30.68 dBm Offse Att 40 dB SWT 5GL 10 HBm 10 dBm 10 dBm	1n(HT20) // m 2 ③ Spectrum 3 t 10.68 dB ● RBW 10 MHz 10 ms ● VBW 10 MHz	Read Middle C	hannel	(The second seco	Spectrum Ref Level 3 Att SGL 1Pk Max 20 dBm 10 dBm -10 dBm -20 dBm	802.11 5 Spectrum 40 db • SWT	n 2 3) t 10.68 dB 10 ms	Spectrum RBW 10 MH VBW 10 MH	/ Mide	dle c	hann	el	
Spectrum 4 Spectrum Ref Level 30.68 dbm Offser Att 40 db SWT Size 40 db SWT 20 dbm 10 dbm 10 dbm 10 dbm	1n(HT20) // m 2 ③ Spectrum 3 t 10.68 dB ● RBW 10 MHz 10 ms ● VBW 10 MHz	Read Middle C	hannel	(The second seco	Spectrum Ref Level 3 Att SGL • 1Pk Max 20 dBm 10 dBm -10 dBm -20 dBm -30 dBm -30 dBm	802.11 5 Spectrum 40 db • SWT	n 2 3) t 10.68 dB 10 ms	Spectrum RBW 10 MH VBW 10 MH	/ Mide	dle c	hann	el	
Spectrum 4 Spectrum Ref Level 30.66 dbm Offser Att 40 db SWT SGL 10 dBm 10 dBm 10 dBm -10 dBm -10 dBm -20 dBm -30 dBm -30 dBm	1n(HT20) // m 2 ③ Spectrum 3 t 10.68 dB ● RBW 10 MHz 10 ms ● VBW 10 MHz	Read Middle C	hannel	(The second seco	Spectrum Ref Level 3 Att SGL 9 1% Max 20 dBm 10 dBm 0 dBm -10 dBm -20 dBm -30 dBm	802.11 5 Spectrum 40 db • SWT	n 2 3) t 10.68 dB 10 ms	Spectrum RBW 10 MH VBW 10 MH	/ Mide	dle c	hann	el	
802.1 Spectrum 4 Spectrum Ref Level 30.68 dBm Offse Att 40 dB = SWT 91Pk Max 0 0 10 dBm 0 0 -10 dBm - - -20 dBm - - -30 dBm - - -40 dBm - -	1n(HT20) // m 2 ③ Spectrum 3 t 10.68 dB ● RBW 10 MHz 10 ms ● VBW 10 MHz	Read Middle C	hannel	(The second seco	Spectrum Ref Level 3 Att SGL ● 1Pk Max 20 dBm 10 dBm -10 dBm -20 dBm -30 dBm -40 dBm -50 dBm	802.11 5 Spectrum 40 db • SWT	n 2 3) t 10.68 dB 10 ms	Spectrum RBW 10 MH VBW 10 MH	/ Mide	dle c	hann	el	
802.1 Spectrum 4 Spectrum Ref Level 30.68 dBm Offse Att 40 dB = SWT 50L B/DF Max 20 dBm In dBm 10 dBm In dBm -10 dBm In dBm -20 dBm In dBm -30 dBm In dBm -50 dBm In dBm	1n(HT20) // m 2 ③ Spectrum 3 t 10.68 dB ● RBW 10 MHz 10 ms ● VBW 10 MHz	Read Middle C	hannel	(The second seco	Spectrum Ref Level 3 Att SGL • 1Pk Max 20 dBm 10 dBm -10 dBm -20 dBm -30 dBm -30 dBm	802.11 5 Spectrum 40 db • SWT	n 2 3) t 10.68 dB 10 ms	Spectrum RBW 10 MH VBW 10 MH	/ Mide	dle c	hann	el	₩
Spectrum 4 Spectrum Ref Level 30.68 dbm Offser Att 40 db SWT Size 40 db SWT 20 dbm 10 dbm 10 dbm 10 dbm	1n(HT20) // m 2 ③ Spectrum 3 t 10.68 dB ● RBW 10 MHz 10 ms ● VBW 10 MHz	Read	hannel	(The second seco	Spectrum Ref Level 3 Att SGL ● 1Pk Max 20 dBm 10 dBm -10 dBm -20 dBm -30 dBm -40 dBm -50 dBm	802.1: <u>4 Spectrus</u> <u>40 dB Offse</u> 40 dB SWT	n 2 3) t 10.68 dB 10 ms	Spectrum RBW 10 MH VBW 10 MH		dle c	hann	el	

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Test results (Below 30 Ma)
Mode:	802.11b
Distance of measurement:	3 meter
Channel:	01 (Worst case)

Frequency (MLz)	Level (dBµV)	Ant. Pol. (H/V)	CF (dB)	F _d (dB)	Field strength (dBµV/m)	Limit (dBµV/m)	Margin (dB)
	(uDµV)	(11/)	(00)	(uD)	(uDµV/III)	(uDµv/m)	(00)
		No spurious er	nissions were d	letected within	20 dB of the limit	t	

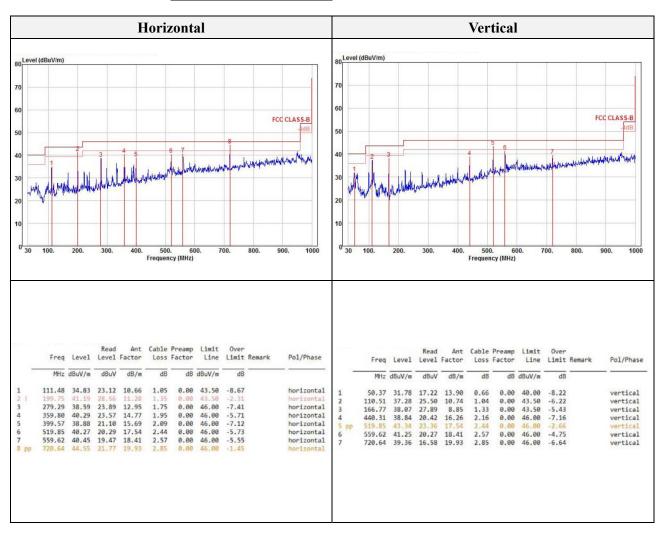
	Horizon	tal		Vertical								
	8											
Ref Level 57.00 dBμV Att 10 dB SWT 13.4 m	 RBW (6dB) 200 Hz VBW 3 kHz 	Mode Auto FFT		Ref Level 57.00 dBµV @ RBW (6dB) 200 Hz Att 10 dB SWT 13.4 ms @ VBW 3 kHz Mode Auto FFT								
1Pk Max				1Pk Max								
50 dBuV		M1[1]	8.72 dBpV 102.760 kHz	S0 dBuV		M1[1]		8.17 dB 102.970 k				
				50 0001				Г Г				
40 dBµV				40 dBµV			-					
30 dBuV				30 dBuV								
								тарана (1996) Генерали (1996)				
20 dBµV				20 dBµV								
10 dBµV		M1		10 dBuV-			Mi					
	-antonimment	an markan	nummen	addien we polled about the	nouter service and	mannorpe	mounder	uppen per	munuber			
0 dBµV				0 dBµV-								
-10 dBµV				-10 dBµV			-					
-20 dBuV				-20 dBuV-								
20 0001				20 0001								
-30 dBµV				-30 dBµV								
-40 dBuV				-40 dBuV			_					
Start 9.0 kHz	691 pts	- L	Stop 150.0 kHz	Start 9.0 kHz	- L. L.	691 pts	-		Stop 150.0 kH			
N1 1 102.76 k	Response I Hz 8.72 dBμV	Function Neasuring	Function Result	Type Ref Trc N1 1 Spectrum Spectrum	Stimulus F 102.97 kHz	8.17 dBµV	Measuri	ng 48888	•••			
NI I 102.76 k Spectrum Spectrum 2 (Ref Level 67.00 dBµV (8.72 dBμV	Neasuring	(IIIII) 🇰 🥠	N1 1 Spectrum Spectrum Ref Level 67.00 dBμV	ectrum 2 (R)	(6dB) 9 kHz		ng				
NI I 102.76 k Spectrum Spectrum 2 (Ref Level 67.00 dBµV Kt I 10 dB SWT 2.1 ms	8.72 dBμV		(IIIII) 🇰 🥠	N1 1 Spectrum Spectrum Ref Level 67.00 dBμV	102.97 kHz	(6dB) 9 kHz		ng (#####				
N1 1 102.76 k Spectrum Spectrum 2 (Ref Level 67.00 dBµV Att Att 10 dB SWT 2.1 ms 1Pk Max Image: Spectrum 2 (8.72 dBμV	Neasuring	(IIIII) 🇰 🥠	N1 1 Spectrum Sp. Ref Level 67.00 dBµV 10 dB ● IPk Max 10 dB	ectrum 2 (R)	(6dB) 9 kHz		ng (#####				
NI I 102.76 k Spectrum Spectrum 2 (Ref Level 67.00 dBµV Kt I 10 dB SWT 2.1 ms	8.72 dBμV	Neasuring	(IIIII) 🇰 🥠	N1 1 Spectrum Sp. Ref Level 67.00 dBµV Att 10 dB	ectrum 2 (R)	(6dB) 9 kHz		ng				
N1 1 102.76 k Spectrum Spectrum 2 (Ref Level 67.00 dbµV Att 10 db Att 10 db SWT 2.1 ms PIPk Max Image: Spectrum 2 Image: Spectrum 2	8.72 dBμV	Neasuring	(IIIII) 🇰 🥠	N1 1 Spectrum Sp. Ref Level 67.00 dBµV 10 dB ● IPk Max 10 dB	ectrum 2 (R)	(6dB) 9 kHz		ng				
N1 1 102.76 k Spectrum Spectrum 2 (Ref Level 67.00 dbµV 10 db SWT 2.1 ms Mt 10 db SWT 2.1 ms Mt 60 dbµV 50 dbµV	8.72 dBμV	Neasuring	(IIIII) 🇰 🥠	N1 1 Spectrum Sp Ref Level 67.00 dbµV 0 db Att 10 db ●1Pk Max 60 dbµV 50 dbµV 50 dbµV	ectrum 2 (R)	(6dB) 9 kHz						
NI 1 102.76 k Spectrum Spectrum 2 (Ref Level 67.00 dBµV 10 dB SWT 2.1 ms B1Pk Max 60 dBµV 60 dBµV	8.72 dBμV	Neasuring	(IIIII) 🇰 🥠	N1 1 Spectrum Spectrum Ref Level 67.00 dBµV 10 dB e1rk Max 60 dBµV	ectrum 2 (R)	(6dB) 9 kHz						
N1 1 102.76 k Spectrum Spectrum 2 (Ref Level 67.00 dBµV Att 10 dB B1Pk Max 60 dBµV 60 dBµV 50 dBµV 40 dBµV 60 dBµV	8.72 dBμV	Neasuring	(IIIII) 🇰 🥠	N1 1 Spectrum Sp. Ref Level 67.00 dBµV Att 0 dBµV 50 dBµV 40 dBµV 40 dBµV	ectrum 2 (R)	(6dB) 9 kHz		ng				
NI I 102.76 k Spectrum Spectrum 2 (Ref Level 67.00 dbµV Att 10 db Att 10 db SWT 2.1 ms D1Pk Max 60 dbµV 50 dbµV	8.72 dBμV	Neasuring	(IIIII) 🇰 🥠	N1 1 Spectrum Sp Ref Level 67.00 dbµV 0 db Att 10 db ●1Pk Max 60 dbµV 50 dbµV 50 dbµV	ectrum 2 (R)	(6dB) 9 kHz		ng				
NI 1 102.76 k Spectrum Spectrum 2 (Ref Level 67.00 dbµV 10 db SWT 2.1 ms Att 10 db SWT 2.1 ms \$0 dbµV 10 db SWT 2.1 ms	B.72 dBµV BW (6dB) 9 kHz VBW 100 kHz M DO kHz M	Neasuring		N1 1 Spectrum Sp. Ref Level 67.00 dBµV Att 10 dB 10 dB 0 dBµV 50 dBµV 40 dBµV 30 dBµV 20 dBµV 20 dBµV	102.97 kHz ectrum 2 (E) SWT 2.1 ms = VBW	(6d8) 9 kHz 100 kHz Me	de Auto FFT		[*			
NI 1 102.76 k Spectrum Spectrum 2 (Ref Level 67.00 dbµV 10 db SWT 2.1 ms Mt 10 db SWT 2.1 ms 10 db yv 40 dbµV 10 db 10 db yv 30 dbµV 10 db 10 db yv 10 db 10 db 10 db yv 10 db 10 db 10 dbµV 10 db 10 db 10 dbµV 10 dbµV 10 dbµV	B.72 dBµV BW (6dB) 9 kHz VBW 100 kHz M DO kHz M	Neasuring		N1 1 Spectrum Sp Ref Level 67.00 dbµv 0 db 0 1Pk Max 0 dbµv 50 dbµv	102.97 kHz ectrum 2 (E) SWT 2.1 ms = VBW	(6d8) 9 kHz 100 kHz Me	de Auto FFT		[*			
NI I 102.76 k Spectrum Spectrum 2 (Ref Level 67.00 dbµV Att 10 dB 19k Max 10 dB SWT 2.1 ms 10 dBµV 10 dB SWT 2.1 ms 10 dBµV 10 dB SWT 2.1 ms 10 dBµV 10 dB Implementation 10 dBµV 10 dBµV 10 dBµV	B.72 dBµV BW (6dB) 9 kHz VBW 100 kHz M DO kHz M	Neasuring		N1 1 Spectrum Sp. Ref Level 67.00 dBµV Att 10 dB 10 dB 0 dBµV 50 dBµV 40 dBµV 30 dBµV 20 dBµV 20 dBµV	ectrum 2 (R)	(6d8) 9 kHz 100 kHz Me	de Auto FFT					
N1 1 102.76 k Spectrum Spectrum 2 (Ref Level 67.00 dbµV 10 db SWT 2.1 ms 1Pk Max 10 db SWT 2.1 ms 10 dbµV 10 dbµV	B.72 dBµV BW (6dB) 9 kHz VBW 100 kHz M DO kHz M	Neasuring		N1 1 Spectrum Sp Ref Level 67.00 dbµv 0 db 0 1Pk Max 0 dbµv 50 dbµv	102.97 kHz ectrum 2 (E) SWT 2.1 ms = VBW	(6d8) 9 kHz 100 kHz Me	de Auto FFT					
NI 1 102.76 k Spectrum Spectrum 2 (Ref Level 67.00 dbµV 10 db SWT 2.1 ms Att 10 db SWT 2.1 ms 10 db UV 0 dbµV 0 00 dbµV 0 0 10 db UV 0 0 10 dbµV 0 0	B.72 dBµV BW (6dB) 9 kHz VBW 100 kHz M DO kHz M	Neasuring		N1 1 Spectrum Sp Ref Level 67.00 dBµV 10 dB 0 Hk Max 60 dBµV 50 dBµV 30 dBµV 20 dBµV 30 dBµV 10 dBµV 10 dBµV 0 dBµV 10 dBµV 0 dBµV 10 dBµV 0 dBµV 10 dBµV	102.97 kHz ectrum 2 (E) SWT 2.1 ms = VBW	(6d8) 9 kHz 100 kHz Me	de Auto FFT					
N1 1 102.76 k ipectrum Spectrum 2 (icert Level 67.00 dbµ/ Nt 10 db SWT 2.1 ms 0 dbµ/ 0 dbµ/ 0 0 dbµ/ 0 0	B.72 dBµV BW (6dB) 9 kHz VBW 100 kHz M DO kHz M	Neasuring		N1 1 Spectrum Sp. Ref Level 67.00 dbµV Att 10 db 10 db 11 k Max 60 dbµV 40 dbµV 30 dbµV 30 dbµV 20 dbµV 10 dbµV 10 dbµV 10 dbµV	102.97 kHz ectrum 2 (E) SWT 2.1 ms = VBW	(6d8) 9 kHz 100 kHz Me	de Auto FFT					
NI 1 102.76 k Spectrum Spectrum 2 (Ref Level 67.00 dbµV 10 db SWT 2.1 ms 19k Max 10 db SWT 2.1 ms 19k Max 10 db SWT 2.1 ms 10 dbµV 10 db SWT 2.1 ms 19k Max 10 db SWT 2.1 ms 10 dbµV 10 db 10 db 10 dbµV 10 dbµV 10 dbµV 10 dbµV 10 dbµV 10 dbµV 10 dbµV 10 dbµV 10 dbµV	B.72 dBµV BW (6dB) 9 kHz VBW 100 kHz M DO kHz M	Neasuring		N1 1 Spectrum Sp. Ref Level 67.00 dbµV 0 db 0 19k Max 60 dbµV 50 dbµV - 40 dbµV - 30 dbµV - 20 dbµV - 0 dbµV - 10 dbµV - 10 dbµV - -10 dbµV -	102.97 kHz ectrum 2 (E) SWT 2.1 ms = VBW	(6d8) 9 kHz 100 kHz Me	de Auto FFT					
NI 1 102.76 k Spectrum Spectrum 2 (Ref Level 67.00 dbµV 10 db SWT 2.1 ms 19k Max 10 db SWT 2.1 ms 19k Max 0 dbµV 0 dbµV 0 10 dbµV 10 dbµV	B.72 dBµV BW (6dB) 9 kHz VBW 100 kHz M DO kHz M	Neasuring		N1 1 Spectrum Sp Ref Level 67.00 dBµV 10 dB 0 Hk Max 60 dBµV 50 dBµV 30 dBµV 20 dBµV 30 dBµV 10 dBµV 10 dBµV 0 dBµV 10 dBµV 0 dBµV 10 dBµV 0 dBµV 10 dBµV	102.97 kHz ectrum 2 (E) SWT 2.1 ms = VBW	(6d8) 9 kHz 100 kHz Me	de Auto FFT					
NI I 102.76 k Spectrum Spectrum 2 (Ref Level 67.00 dbµV I I Att 10 db wY I 1Pk Max I0 db wY I I0 dbµV I I	B.72 dBµV BW (6dB) 9 kHz VBW 100 kHz M DO kHz M	Neasuring		N1 1 Spectrum Sp. Ref Level 67.00 dbµV 0 db 0 19k Max 60 dbµV 50 dbµV - 40 dbµV - 30 dbµV - 20 dbµV - 0 dbµV - 10 dbµV - 10 dbµV - -10 dbµV -	102.97 kHz ectrum 2 (E) SWT 2.1 ms = VBW	(6d8) 9 kHz 100 kHz Me	de Auto FFT		[*			
NI I 102.76 k Spectrum Spectrum 2 (Ref Level 67.00 dbµV 10 db SWT 2.1 ms att 10 db SWT 2.1 ms b1Pk Max 60 dbµV 40 dbµV 30 dbµV 20 dbµV 20 dbµV	B.72 dBµV BW (6dB) 9 kHz VBW 100 kHz M DO kHz M	Neasuring		N1 1 Spectrum Sp. Ref Level 67.00 dbµV Att 10 db 10 db 9 1Pk Max 60 dbµV 50 dbµV 40 dbµV 30 dbµV 20 dbµV 10 dbµV 0 dbµV 10 dbµV -10 dbµV -10 dbµV -20 dbµV	102.97 kHz ectrum 2 (E) SWT 2.1 ms = VBW	(6d8) 9 kHz 100 kHz Me	de Auto FFT					



C-3701, 40, Simin-daero 365beon-gil, Dongan-gu, Anyang-si, Gyeonggi-do, Korea Tel: +82-31-425-6200 / Fax: +82-31-424-0450 www.kes.co.kr Test report No.: KES-RF-17T0041 Page (23) of (53)

Test results (Below 1 000	Mb) – Worst case
Mode:	802.11b

Distance of measurement:3 meterChannel:01 (Worst case)





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Test results (Above 1 000 MHz)

Mode:	802.11b
Distance of measurement:	3 meter
Channel:	01

- Spurio	us							
Frequency (Mbz)	Level (dBµN)	Detect mode	Ant. Pol. (H/V)	CF (dB)	DCF (dB)	Field strength (dBµV/m)	Limit (dBµV/m)	Margin (dB)
1079.60	53.30	Peak	Н	-8.63	-	44.67	74.00	29.33
1374.80	49.69	Peak	Н	-6.74	-	42.95	74.00	31.05
1015.90	53.58	Peak	V	-9.04	-	44.54	74.00	29.46
1736.60	53.46	Peak	V	-3.68	-	49.78	74.00	24.22

Band edge

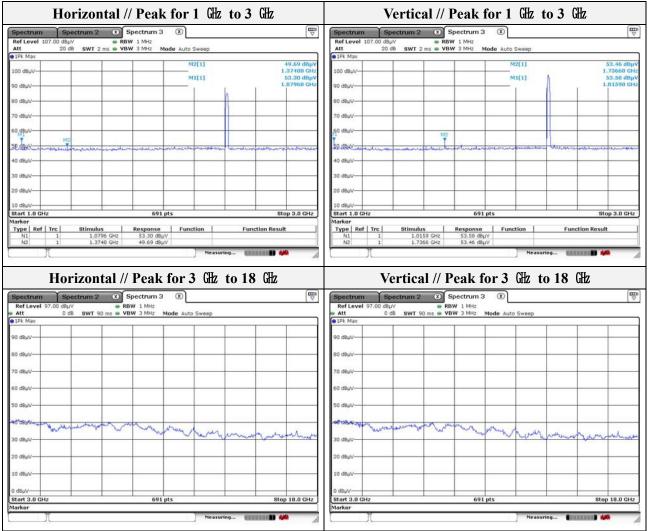
_

Frequency (Mbz)	Level (dBµV)	Detect mode	Ant. Pol. (H/V)	CF (dB)	DCF (dB)	Field strength (dBµN/m)	Limit (dBµN/m)	Margin (dB)
2341.07	47.68	Peak	Н	-0.31	-	47.37	74.00	26.63
2352.19	46.55	Peak	V	-0.29	-	46.26	74.00	27.74

Spectrum	S	ectrum 2 🛛 🛞)			ta a a a a a a a a a a a a a a a a a a	Spectrum	Sp	ectrum 2 💌					
Ref Level 1 Att			RBW 1 MHz VBW 3 MHz Mo				Ref Level		dB SWT1ms ■ V	BW 1 MHz				
1Pk Max	10	OB SWI 1 ms	VBW 3 MH2 MO	de Auto Sweep			1Pk Max	10	db SWI 1 ms 🖷 V	BW 3 MH2 MO	de Auto Sweep			
				M3[1]	-	47.68 d8µV					M3[1]	-		46.55 dBp
Vu8b 00						2.341070 GHz	100 d8µV			+ +			2	353190-0
				M1[1]		43.88 dBpV 2.3/0000 GHz					M1[1]		4	44.20 dB
dBµV-				1	T E	2.310000 012	90 dBµV				1	T.	1 7	.310000 G
dBuy					_		80 dBuV					_		_
													1 1	
dBuV					_		70 dBµV					_		
10000							10000000						1	
dBuV							60 dBµV							
D dBuV		M3					50 dBuV			M3		1.000	were	
MIT		wanter	mansammen		ME	N	So dop 1	A Lenning of Control o	and a come when	un horner	alisten and a second	manter	1	
dBuV	user of	Trade and the second					40 dBµV						-	+
0.000														
dBµV							30 dBµV						-	
dBuV-							20 dBuV							
ophy					F2		20 0000					F2		
dBuV F1							10 dBuV			+ +				
art 2.3 GH	z		691 pt	0		Stop 2.42 GHz	Start 2.3 G	Hz		691 pts	0		Ste	op 2.42 GH
rker			8 ¹⁰ 1	131			Marker	84 - 194 -						
ype Ref		Stimulus	Response	Function	Function	on Result	Type Ref		Stimulus	Response	Function	Fu	nction Resu	ilt
N1 N2	1	2.31 GHz 2.39 GHz	43.88 dBµV 42.78 dBµV				N1 N2	1	2.31 GHz 2.39 GHz	44.20 dBµV 45.46 dBµV				
N2 N3	4	2.39 GHz 2.34107 GHz	47.68 dBµV				N2 N3	1	2.35219 GHz	46.55 dBµV				

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Note.

1. No spurious emission were detected above 3 GHz.

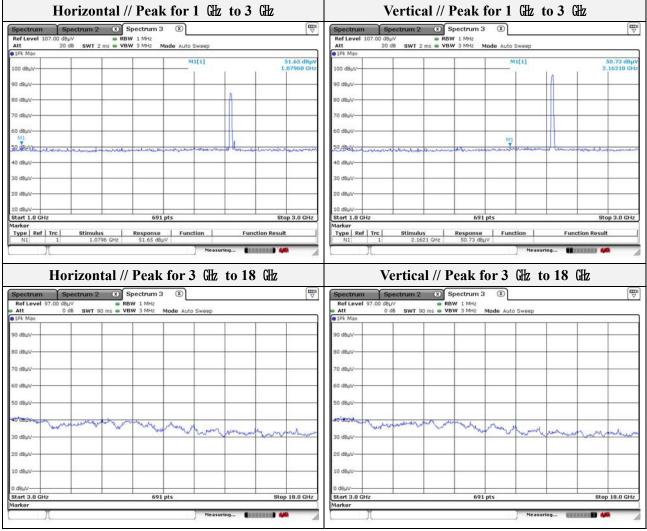


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Mode:	802.11b
Distance of measurement:	3 meter
Channel:	06

- Spurious

- Spurio	Jus							
Frequency (Mz)	Level (dBµV)	Detect mode	Ant. Pol. (H/V)	CF (dB)	DCF (dB)	Field strength (dBµN/m)	Limit (dBµN/m)	Margin (dB)
1079.60	51.65	Peak	Н	-8.63	-	43.02	74.00	30.98
2162.10	50.73	Peak	V	-0.65	-	50.08	74.00	23.92



Note.

1. No spurious emission were detected above 3 GHz.

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Mode:	802.11b
Distance of measurement:	3 meter
Channel:	11

- Spurious

Frequency (Mbz)	Level (dBµV)	Detect mode	Ant. Pol. (H/V)	CF (dB)	DCF (dB)	Field strength (dBµV/m)	Limit (dBµN/m)	Margin (dB)
1079.60	53.51	Peak	Н	-8.63	-	44.88	74.00	29.12
2350.20	51.25	Peak	V		-		74.00	

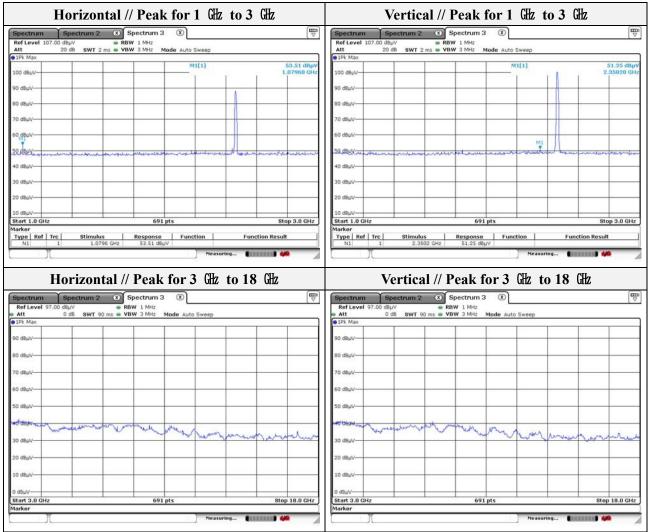
- Band edge

Frequency (Mbz)	Level (dBµV)	Detect mode	Ant. Pol. (H/V)	CF (dB)	DCF (dB)	Field strength (dBµV/m)	Limit (dBµV/m)	Margin (dB)
2492.01	43.96	Peak	Н	-0.03	-	43.93	74.00	30.07
2484.48	45.62	Peak	V	-0.04	-	45.58	74.00	28.42

Spectrum Ref Level 10 Att	Spectr						1.24						
								n St	ectrum 2 🛞	Spectrum 3	×		
Att	7.00 dBµV	- 1	RBW 1 MHz				Ref Leve	107.00 dt	auv e	RBW 1 MHz			
	10 dB	SWT 1 ms .	VBW 3 MHz Mo	de Auto Sweep			Att	10	dB SWT 1 ms .	BW 3 MHz Mo	de Auto Sweep		
1Pk Max							IPk Max						
100 d8uV-				M3[1]		43.96 dBpV 2.4920060 GHz	100 daw				M3[1]		45.62 dt 2.4844800 (
100 0800-				M1[1]		42.26 dBµV	100 0014	-			M1[1]		2.4844800 0 45.61 df
90 dBuV				- out 1		2.4835000 GHz	90 dBuV-	1					2.4835000 0
min	-			1 1	1						1	E 1	
Nueb 08	1					-	80 d8µV						
252													
70 dBuV	1						70 dBµV					-	
							0.000000000						
0 dBµV-						-	60 dBµV			-			-
									Juena				
50 dBµV		1	141	M3	N	2	50 dBµV-	-			2		M2
40 dBuV		manterio	manuelina	mennereles	Mamorane	Lisnewermon	40 d8uV-				menderandrander	manunchan	mannen
+U dBUV							40 08µV						
30 dBuV						-	30 dBuV-	-				-	
io oupre							20 0004						
20 d8µV							20 d8µV						
10.000					F	2	1000			F1			F2
10 dBµV			F1				10 dBµ√			F1		-	
CF 2.4835 GH			691 pts			Span 50.0 MHz	CF 2.4835	GHz		691 pt	s		Span 50.0 M
larker							Marker						
Type Ref 1	inc St	timulus	Response	Function	Function	n Result	Type Re	f Trc	Stimulus	Response	Function	Fund	tion Result
N1	1	2,4835 GHz	42.26 dBµV				N1	1	2.4835 GHz	45.61 dBµV			
N2	1	2.5 GHz	42.73 dBµV				N2	1	2.5 GHz	44.53 dBµV			
N3	1	2.492006 GHz	43.96 dBµV				N3	1	2.48448 GHz	45.62 dBµV			

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Note.

1. No spurious emission were detected above 3 GHz.



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Mode:	802.11g
Distance of measurement:	3 meter
Channel:	01

- Spurious

Frequency (Mbz)	Level (dBµV)	Detect mode	Ant. Pol. (H/V)	CF (dB)	DCF (dB)	Field strength (dBµV/m)	Limit (dBµN/m)	Margin (dB)
1079.60	50.27	Peak	Н	-8.63	-	41.64	74.00	32.36
1079.60	50.34	Peak	V	-8.63	-	41.71	74.00	32.29

Band edge

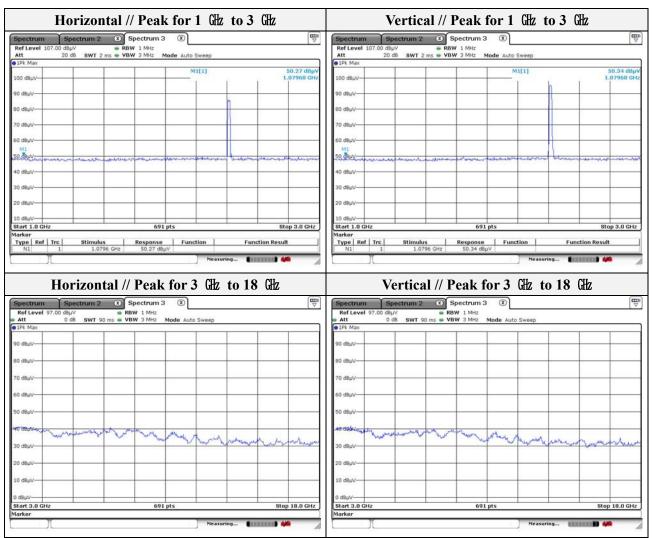
Frequency (Mbz)	Level (dBµV)	Detect mode	Ant. Pol. (H/V)	CF (dB)	DCF (dB)	Field strength (dBµN/m)	Limit (dBµN/m)	Margin (dB)
2341.42	45.86	Peak	Н	-0.31	-	45.55	74.00	28.45
2359.83	48.71	Peak	V	-0.28	-	48.43	74.00	25.57

spectrum S	pectrum 2 🛞			Spectrum Sp	pectrum 2 (*)				9
Ref Level 107.00 d				Ref Level 107.00 di		BW 1 MHz			
	dB SWT 1 ms 🖷 VBW 3 MHz	Mode Auto Sweep			dð SWT 1 ms 🖷 V	BW 3 MHz Mod	e Auto Sweep		
1Pk Max				 1Pk Max 					
00 d8uv		M3[1]	45.86 d8µV 2.341420 GHz	100 d8uV			M3[1]		48.71 dB 2.359830 G
UU dahA		M1[1]	42.78 dBµV	100 0804			M1[1]		2.359830 0
0 dBuV		and al	2.310000 GHz	90 dBuV			seaf 11		2.310000 G
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dBuV				60 d8µV					1
e anos e	1.100					MB		and the second	
0 dBµV	T		M2 N	50 dBµV		1 in the		THAT I	
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o oppo				40 0800					
) dBuV				30 dBuV					
r oopri				00 0001					
) dBµV				20 dBµV		+ +		+ + +	
E.			F2	1				F2	
dBuV		+ + +	+	10 dBµV		+ +			
tart 2.3 GHz	69	1 pts	Stop 2.42 GHz	Start 2.3 GHz		691 pts	0		Stop 2.42 G
orker		¹⁰		Marker			- Wit-		100 M
ype Ref Trc	Stimulus Response		Function Result	Type Ref Trc	Stimulus	Response	Function	Functio	n Result
N1 1 N2 1	2.31 GHz 42.78 d			N1 1	2.31 GHz	43.78 dBµV			
	2.39 GHz 43.65 d			N2 1	2.39 GHz	46.23 dBµV			



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Note.

1. No spurious emission were detected above 3 GHz.

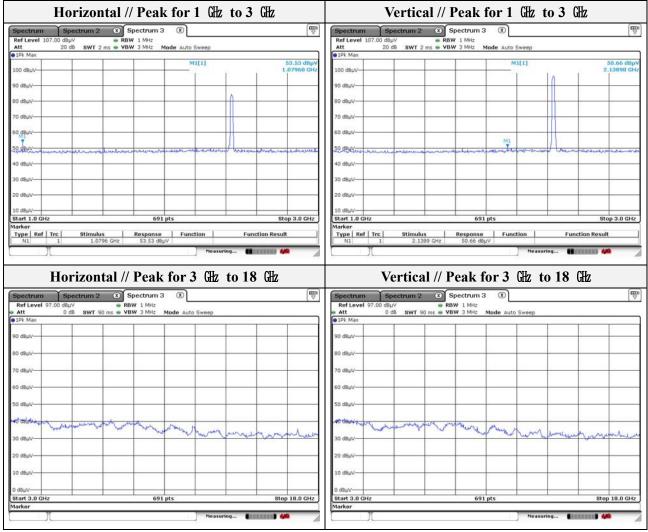


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Mode:	802.11g
Distance of measurement:	3 meter
Channel:	06

- Spurious

- spurio	Jus							
Frequency (Mbz)	Level (dBµV)	Detect mode	Ant. Pol. (H/V)	CF (dB)	DCF (dB)	Field strength (dBµV/m)	Limit (dBµN/m)	Margin (dB)
1079.60	53.53	Peak	Н	-8.63	-	44.90	74.00	29.10
2138.90	50.66	Peak	V	-0.70	-	49.96	74.00	24.04



Note.

1. No spurious emission were detected above 3 GHz.

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Mode:	802.11g
Distance of measurement:	3 meter
Channel:	11

- Spurious

Frequency (Mbz)	Level (dBµV)	Detect mode	Ant. Pol. (H/V)	CF (dB)	DCF (dB)	Field strength (dBµV/m)	Limit (dBµN/m)	Margin (dB)
1079.60	52.99	Peak	Н	-8.63	-	44.36	74.00	29.64
1340.10	49.33	Peak	V	-6.96	-	42.37	74.00	31.63

- Band edge

Bana e								
Frequency (Mb)	Level (dBµV)	Detect mode	Ant. Pol. (H/V)	CF (dB)	DCF (dB)	Field strength (dBµV/m)	Limit (dBµN/m)	Margin (dB)
2485.71	43.71	Peak	Н	-0.04	-	43.67	74.00	30.33
2485.06	50.92	Peak	V	-0.04	-	50.88	74.00	23.12

pectrum	Spectrum 2 🛞	Spectrum 3				Spectrum	Sp	ectrum 2 🛞	Spectrum 3	X		ſ
Ref Level 107.00		RBW 1 MHz				Ref Level	107.00 dE		BW 1 MHz			
	10 dB SWT 1 ms 🖷	VBW 3 MHz Mode	Auto Sweep			Att	10	dB SWT 1 ms 🖷 V	BW 3 MHz Mo	de Auto Sweep		
1Pk Max						1Pk Max						
-Vueb 00			M3[1]		43.71 d8µV 2.4857110 GHz	100 d8µV				M3[1]		50.92 d8 2.4850590 G
0 dBµV		_	M1[1]		43.27 dBµV 2.4835000 GHz	90 dBµV				M1[1]		45.90 d8 2.4835000 0
0 dBµV	m					80 d8µV						
0 dBµV			_			70 dBµV		1				
dBµV	- \	_	_			60 dBµV		br				
) dBµV	h	Ma Ma		M2		50 dBµV		- Un	March 1 111	13 Indered		Mp
dBµV		Ma MI MI	werename	marine	-	40 dBµV				marga whom	harmound	and the second star
dBµV						30 dBµV			-		-	
dBµV			_	F2		20 dBµV					-	F2
0 dBµV		F1				10 dBµV-			F1			
F 2.4835 GHz		691 pts			Span 50.0 MHz	CF 2.4835 0	Hz		691 pt:	s		Span 50.0 MH
orker						Marker						
ype Ref Trc	Stimulus		Function	Function	Result	Type Ref	Trc	Stimulus	Response	Function	Functi	ion Result
N1 1 N2 1	2.4835 GHz 2.5 GHz					N1 N2	1	2.4835 GHz 2.5 GHz	45.90 dBµV 43.57 dBµV			
N3 1	2.485711 GHz					N3	1	2.485059 GHz	50.92 dBµV			

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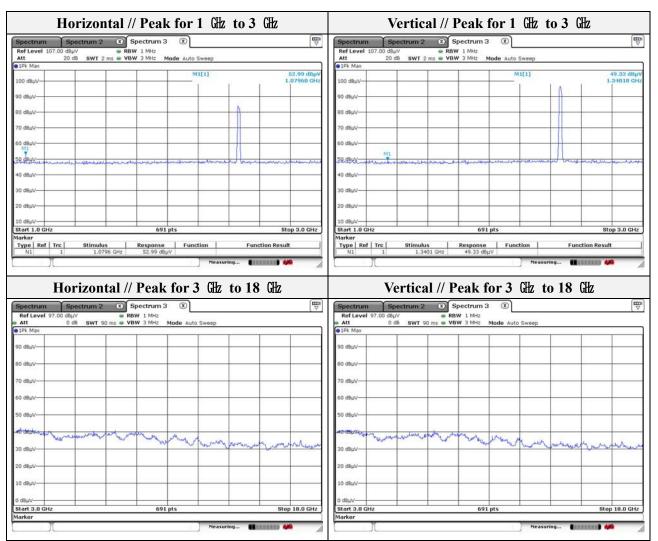


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Test report No.: KES-RF-17T0041 Page (33) of (53)



Note.

1. No spurious emission were detected above 3 GHz.



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Mode:	802.11n(HT20)
Distance of measurement:	3 meter
Channel:	01

- Spurious

Spurio	us							
Frequency (Mbz)	Level (dBµV)	Detect mode	Ant. Pol. (H/V)	CF (dB)	DCF (dB)	Field strength (dBµN/m)	Limit (dBµV/m)	Margin (dB)
(1112)	$(uD\mu i)$		(11/7)	(00)	(uD)	(uDµi/m)	(uDµ1/m)	(00)
1079.60	53.95	Peak	Н	-8.63	-	45.32	74.00	28.68

- Band edge

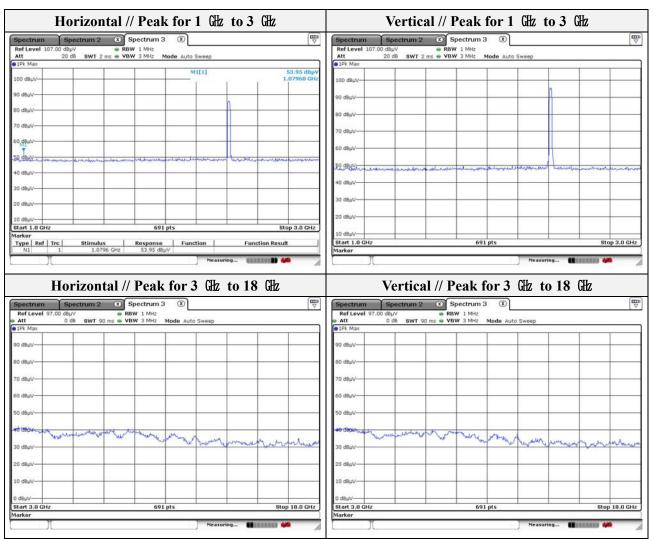
Frequency (Mbz)	Level (dBµV)	Detect mode	Ant. Pol. (H/V)	CF (dB)	DCF (dB)	Field strength (dBµV/m)	Limit (dBµN/m)	Margin (dB)
2341.42	47.01	Peak	Н	-0.31	-	46.70	74.00	27.30
2359.83	50.25	Peak	V	-0.28	-	49.97	74.00	24.03

Spectrum S	ectrum 2 🛛 🕱			um ⊽	Spectrum S	pectrum 2 🛛 🙁				
Ref Level 107.00 d		W 1 MHz		10.000 P	Ref Level 107.00 d		BW 1 MHz			
Att 10 1Pk Max	dB SWT 1 ms 🖷 VB	W 3 MHz Mod	le Auto Sweep		Att 10	dB SWT 1 ms 🖷 V	BW 3 MHz Mod	e Auto Sweep		
THK MAX			M3[1]	47.01 d8µV	The max			M3[1]		50.25 dBu
VUED DOL			ma[1]	2,341420 GHz	100 d8µV		1 I I I I I I I I I I I I I I I I I I I	onatri		2.359830 GH
00 0000			M1[1]	43.01 dBuV	100 0004			M1[1]		ANTIS 04 000
O dBuV		1 I I I I I I I I I I I I I I I I I I I		2.310000 GHz	90 d8uV		-			2.310000 GH
0.000		I I	E E	mound					T E	
0 dBuV					80 dBuV					
and a second		I I			and the second sec					
0 dBµV	<u> </u>	+			70 dBµV-	+	+		+ +	
Constanting of the second s					200400202					
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Statute 1	145				100 100 10		MB		MR. No	P
i0 dBµV	7.			MR walk	50 dBµV		1		1	
10 dBuV	mennenter	muchander	announa man	merth	40 dBuV	the second register and	marchan a	and a superior	Las .	
0 0800					40 0800					
O dBuV					30 dBuV					
o oppy					30 0004					
O dBuV					20 dBuV					
				F2					F2	
LO dBuy					10 dBµV				++++	
Start 2.3 GHz		691 pts		Stop 2.42 GHz	Start 2.3 GHz		691 pts	0		Stop 2.42 GHz
larker			700		Marker			- A21		
Type Ref Trc	Stimulus	Response	Function	Function Result	Type Ref Trc	Stimulus	Response	Function	Functi	on Result
	2.31 GHz	43.01 dBµV			N1 1	2.31 GHz	43.04 dBµV			
N1 1 N2 1	2.39 GHz	42.78 dBuV				2.39 GHz	48.59 dBuV			



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Note.

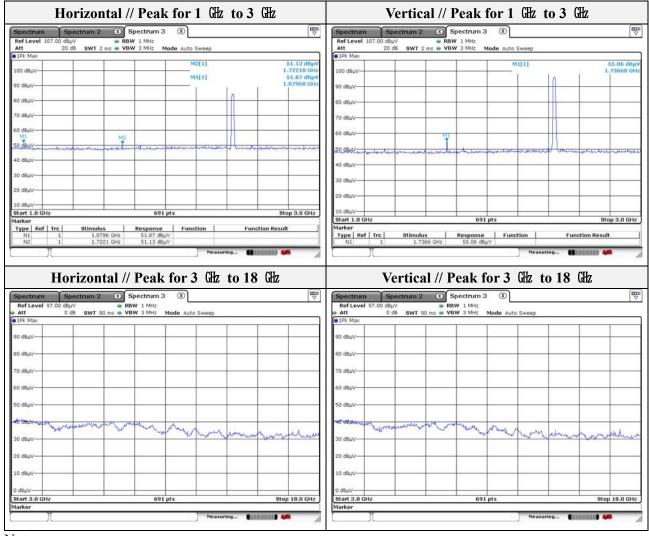
1. No spurious emission were detected above 3 GHz.



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Mode:	802.11n(HT20)
Distance of measurement:	3 meter
Channel:	06

- Spurio	us							
Frequency (Mbz)	Level (dBµV)	Detect mode	Ant. Pol. (H/V)	CF (dB)	DCF (dB)	Field strength (dBµV/m)	Limit (dBµN/m)	Margin (dB)
1079.60	51.87	Peak	Н	-8.63	-	43.24	74.00	30.76
1722.10	51.13	Peak	Н	-3.82	-	47.31	74.00	26.69
1736.60	55.06	Peak	V	-3.68	-	51.38	74.00	22.62



Note.

1. No spurious emission were detected above 3 GHz.

2. Average test would be performed if the peak result were greater than the average limit.

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Test report No.: KES-RF-17T0041 Page (37) of (53)

Mode:	802.11n(HT20)
Distance of measurement:	3 meter
Channel:	11

- Spurious

Frequency (Mz)	Level (dBµV)	Detect mode	Ant. Pol. (H/V)	CF (dB)	DCF (dB)	Field strength (dBµN/m)	Limit (dBµV/m)	Margin (dB)
1079.60	53.42	Peak	Н	-8.63	-	44.79	74.00	29.21
1079.60	50.32	Peak	V	-8.63	-	41.69	74.00	32.31

- Band edge

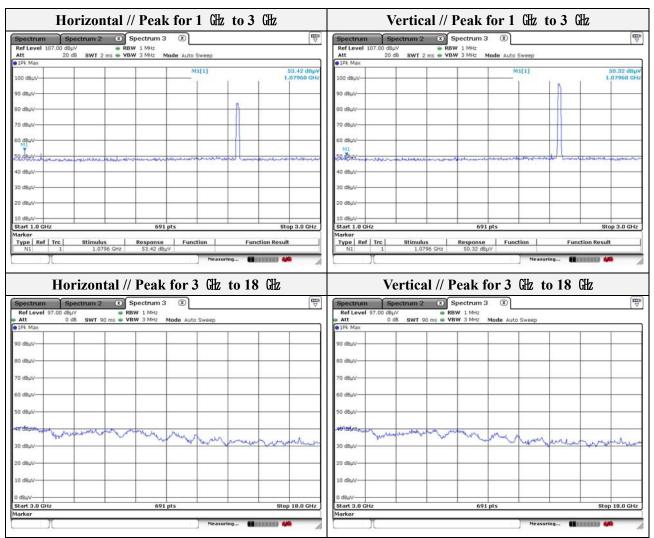
Bana e								
Frequency (Mb)	Level (dBµV)	Detect mode	Ant. Pol. (H/V)	CF (dB)	DCF (dB)	Field strength (dBµV/m)	Limit (dBµN/m)	Margin (dB)
2484.12	44.15	Peak	Н	-0.04	-	44.11	74.00	29.89
2484.63	47.23	Peak	V	-0.04	-	47.19	74.00	26.81

Spectrum	Spectrum	2 🗷 5	pectrum 3	x			Spectrum	S	pectrum 2 🛞	Spectrum 3	X		ſ
Ref Level 10	.00 dBµV		W 1 MHz				Ref Level	107.00 dt		RBW 1 MHz			
Att	10 dB SW1	1 ms 🖷 VB	W 3 MHz Mor	de Auto Sweep			Att	10	dB SWT 1 ms 🖷	VBW 3 MHz Mo	de Auto Sweep		
1Pk Max							1Pk Max						
00 d8µV				M3[1] M1[1]		44.15 dBµV 2.4841190 GHz 42.86 dBµV	100 dBµV-	www			M3[1]		47.23 d8 2.4846250 G 46.42 d8
0 dBµV		-			E	2.4835000 GHz	90 dBµV		- M	-		E E	2.4835000 G
0.00010	manny	-					80 dBµV						
0 dBµV							70 dBµV						
) dBµV		1					60 dBµV		and man	Ayorhammerted	3		
) dBµV		ashowed	mar the		Managerees	2 holomation	40 dBµV			- unnexted	kunnennen	and made greated	minerenew
0 dBµV		-					30 dBµV						
0 dBµV		-			F2		20 d8µV			_			F2
0 dBuV			F1				10 dBuV			F1		_	-
F 2.4835 GHz	-		691 pts	5		Span 50.0 MHz	CF 2.4835	GHz		691 pt	s		Span 50.0 MH
arker				9790			Marker				000		
ype Ref T			Response	Function	Function	Result	Type Ref	Trc	Stimulus	Response	Function	Functi	on Result
N1 N2	1 2.4	4835 GHz 2.5 GHz	42.86 dBµV 42.58 dBµV				N1 N2	1	2.4835 GHz 2.5 GHz	46.42 dBµV 44.68 dBµV			
N2 N3	1	2.5 GHz 119 GHz	44.15 dBµV				N2 N3	1	2.5 GHz	44.68 dBµV 47.23 dBµV			



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Note.

1. No spurious emission were detected above 3 GHz.



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Mode:	802.11n(HT40)
Distance of measurement:	3 meter
Channel:	03

Spurious

Frequency (Mz)	Level (dBµN)	Detect mode	Ant. Pol. (H/V)	CF (dB)	DCF (dB)	Field strength (dBµN/m)	Limit (dBµN/m)	Margin (dB)
1079.60	52.62	Peak	Н	-8.63	-	43.99	74.00	30.01
1739.50	52.30	Peak	Н	-3.66	-	48.64	74.00	25.36
1736.60	52.49	Peak	V	-3.68	-	48.81	74.00	25.19

Band edge

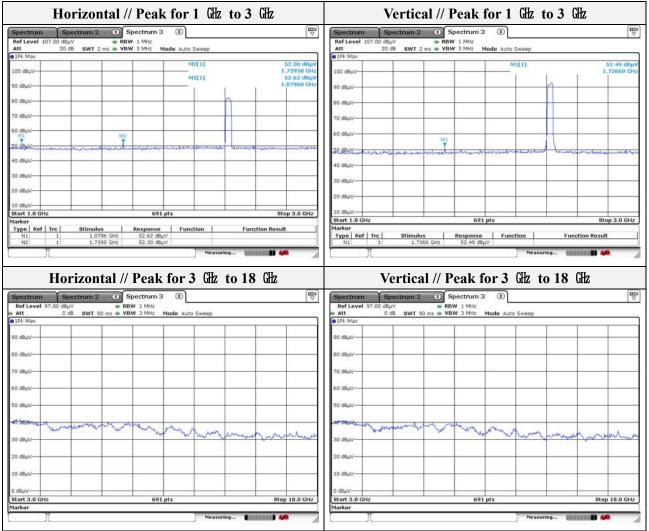
_

Frequency (Mb)	Level (dBµN)	Detect mode	Ant. Pol. (H/V)	CF (dB)	DCF (dB)	Field strength (dBµV/m)	Limit (dBµN/m)	Margin (dB)
2352.01	44.94	Peak	Н	-0.29	-	44.65	74.00	29.35
2386.40	51.87	Peak	V	-0.23	-	51.64	74.00	22.36

pectrum Sp	ectrum 2 🛛 🛞					Spec	trum	Sp	ectrum 2 🛛 🛞					9
Ref Level 107.00 di		BW 1 MHz					evel 1	07.00 dB		BW 1 MHz				
Att 10 1Pk Max	dB SWT 1 ms 🖷 V	BW 3 MHz Mod	e Auto Sweep			Att IPk N		10	dB SWT 1 ms 🖷 V	BW 3 MHz Mo	de Auto Sweep			
тык мах					44.94		tax							
Vueb 00		1	M3[1]		2,352010		100				M3[1]			51.87 dB
00 0004			M1[1]		43.36		44				M1[1]			44.29 dB
0 dBuV					2.310000		N							2.310000 C
100000			1	T I	weren	1000	8				1	T I	1	1
0 dBuV					prenter	80 dBu	N-							1
22.5														1
dBµV						70 dBµ	N			+ +		+-+	1	
1000										1 1			1	
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CODE MIL	munum	The second secon		man	1 SW	50 000	1011	well .	ence an exchange	a design of the second	aluce whether	ANNUN		
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0.000						100000								
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100-00							0			1 1				
) dBµV		-	-	F2		20 dBµ	N-			-	-	F2		
FI				12			FI					12		
art 2.3 GHz		691 pts			Stop 2.42	10 dBp	2.3 GH2			691 pt				Stop 2.42 G
rker		091 prs			atop 2.42	Marker				091 pt	,			3(0p 2.42 G
ype Ref Trc	Stimulus	Response	Function	Eur	nction Result		Ref	Tec I	Stimulus	Response	Function	1	Function F	Posult
N1 1	2.31 GHz	43.36 dBuV	runction	Fui	income we start	NI	roll	1	2.31 GHz	44.29 dBuV	runction		unction	want.
N2 1	2.39 GHz	43.87 dBµV				N2	-	1	2.39 GHz	50.14 dBµV				
N3 1	2.35201 GHz	44.94 dBµV				N3			2.3864 GHz	51.87 dBµV				



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Note.

1. No spurious emission were detected above 3 GHz.

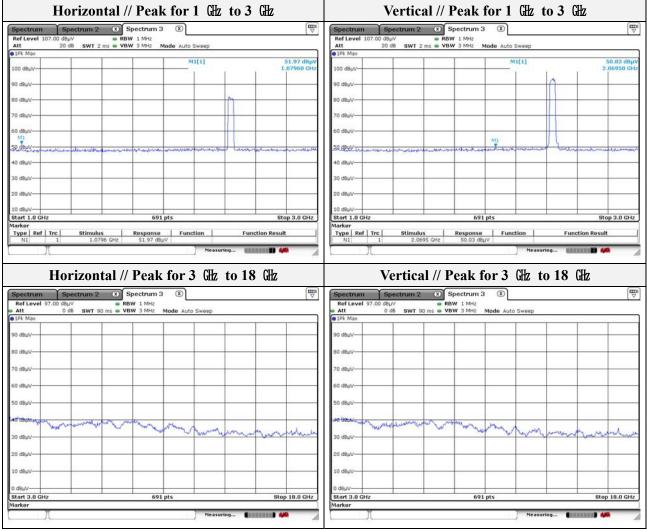


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Mode:	802.11n(HT40)
Distance of measurement:	3 meter
Channel:	06

- Snurious

- spurio	Jus							
Frequency (Mtz)	Level (dBµV)	Detect mode	Ant. Pol. (H/V)	CF (dB)	DCF (dB)	Field strength (dBµV/m)	Limit (dBµV/m)	Margin (dB)
1079.60	51.97	Peak	Н	-8.63	-	43.34	74.00	30.66
2069.50	50.03	Peak	V	-0.83	-	49.20	74.00	24.80



Note.

1. No spurious emission were detected above 3 GHz.

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Mode:	802.11n(HT40)
Distance of measurement:	3 meter
Channel:	09

- Spurious

Frequency (Mb)	Level (dBµV)	Detect mode	Ant. Pol. (H/V)	CF (dB)	DCF (dB)	Field strength (dBµV/m)	Limit (dBµN/m)	Margin (dB)
1079.60	52.20	Peak	Н	-8.63	-	43.57	74.00	30.43
2538.40	51.11	Peak	V	0.12	-	51.23	74.00	22.77

- Band edge

Duna								
Frequency (Mbz)	Level (dBµN)	Detect mode	Ant. Pol. (H/V)	CF (dB)	DCF (dB)	Field strength (dBµV/m)	Limit (dBµV/m)	Margin (dB)
2486.00	44.02	Peak	Н	-0.04	-	43.98	74.00	30.02
2487.52	52.09	Peak	V	-0.04	-	52.05	74.00	21.95

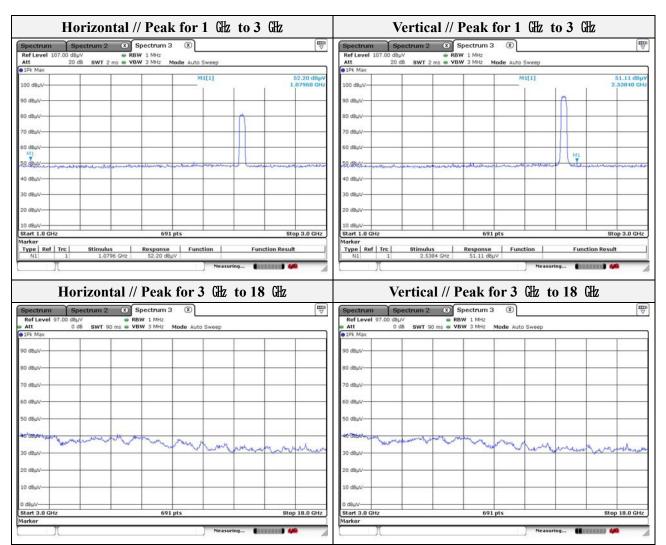
Spectrum	Spectrum 2	2 🗷 Spectru	m 3 🛞			B	Spectrum	Sp	ectrum 2 🛞	Spectrum 3	x		(
Ref Level 10	7.00 dBµV	RBW 1 MH				1.1	Ref Level	107.00 dB		RBW 1 MHz			
Att	10 dB SWT	1 ms 🖷 VBW 3 MH	z Mode Auto	Sweep			Att	10	dB SWT 1 ms 🖷	VBW 3 MHz Mo	de Auto Sweep		
1Pk Max							IPk Max						
00 d8µV				3[1]		44.02 dBµV 2.4860000 GHz	100 d8µV				M3[1]		52.09 d8 2.4875200 G
0 dBµV	-		M	1[1]		43.79 dBpV 2.4835000 GHz	90 dBµV		~	-	M1[1]	E E	49.22 d8 2.4835000 0
0 0814			_				80 dBµV		1	_			
0 dBµV							70 dBµV					-	
0 dBµV				· · · · ·			60 dBµV		July		M3		
0 dBµV		Lamore	MI MB		MZ	manun	50 dBµV			man the	mentionen	manhan	12 Marian
0 dBµV							40 dBµV						
0 dBµV							30 dBµV						
0 dBµV			F1		F2		20 d8µV			F1			F2
0 dBµV			1				10 dBµV-			1 1			
F 2.4835 GHz			691 pts	20	5	pan 50.0 MHz	CF 2.4835 0	HZ		691 pt	5		Span 50.0 Mł
arker Type Ref T	rc Stimul	us Respo	nse Func	tion 1	Function Re		Marker Type Ref	I Tread	Stimulus	Response	Function	Frankl	on Result
N1 N1			9 dBuV	tion	Function Re	suit	N1	1	2.4835 GHz	49.22 dBuV	Function	Functi	on Result
N2			6 dBµV				N2	1	2.5 GHz	46.03 dBµV			
N3			2 dBµV				N3		2.48752 GHz	52.09 dBµV			



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Test report No.: KES-RF-17T0041 Page (43) of (53)



Note.

1. No spurious emission were detected above 3 GHz.



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Test report No .: KES-RF-17T0041 Page (44) of (53)

Test results (18 GHz to 30	(Hz) – Worst case
Mode:	802.11b
Distance of measurement:	3 meter
Channel:	01 (Worst case)

Horizontal						Vertical						
Spectrum Image: Spectrum Ref Level 97.00 dBµV ● RBW 1 MHz Att 0 db SWT 36 ms ● VBW 3 MHz							Spectrum mmi Ref Level 97.00 d8µV ■ RBW 1 MHz ● Att 0 d8 SWT 36 ms ● NBW 3 MHz					
Att IPk View	0 dB SWT	36 ms 🖷 VBW	V 3 MHz Mo	de Auto Sweep			Att 0 dB IPk View	SWT 36 ms 🖷 VB	W 3 MHz Mode	Auto Sweep		
90 dBµV							90 dBµV				2	-
80 dBµV		-					80 d8µV					
70 dBµV	-			-			70 dBµV				0	-
60 dBµV							60 dBµV					
50 d8µV							50 d8µV					+
40 deur	Rectivena	whereven	Lasher mar	ung any section	monum	-Allohunghar and	40 dBUV	where where	wheether	marchenter	Manana	- moren
20 dBuV							20 dBµV					
10 dBµV	_						10 d8µV			_		
0 dBuV							0 dBuV-					
Start 18.0 GHz Marker	N/		691 pts	5		Stop 30.0 GHz	Start 18.0 GHz Marker	19-10 1	691 pts		Sto	op 30.0 GHz
				Measur	ing WAXA					Measuring.	. (1 1111111) 4	in an

Note.

1. No spurious emission were detected above 18 GHz.



Test report No.: KES-RF-17T0041 Page (45) of (53)

3.5. Conducted spurious emissions & band edge Test procedure

Pand adga

Band edge

KDB 558074 D01 v03r05 - Section 11.3

- 1. Start and stop frequency were set such that the band edge would be placed in the center of the plot
- 2. Span was set large enough so as to capture all out of band emissions near the band edge
- 3. RBW = 100 kHz
- 4. VBW = 300 kHz
- 5. Detector = Peak
- 6. Number of sweep points \geq 2 × Span/RBW
- 7. Trace mode = max hold
- 8. Sweep time = auto
- 9. The trace was allowed to stabilize

Out of band emissions

KDB 558074 D01 v03r05 - Section 11.3

- 1. Start frequency was set to 30 MHz and stop frequency was set to 25 GHz for 2.4 GHz frequencies and 40 GHz for 5 GHz frequencies
- 2. RBW = 100 kHz
- 3. VBW = 300 kHz
- 4. Detector = Peak
- 5. Trace mode = max hold
- 6. Sweep time = auto couple
- 7. The trace was allowed to stabilize

Limit

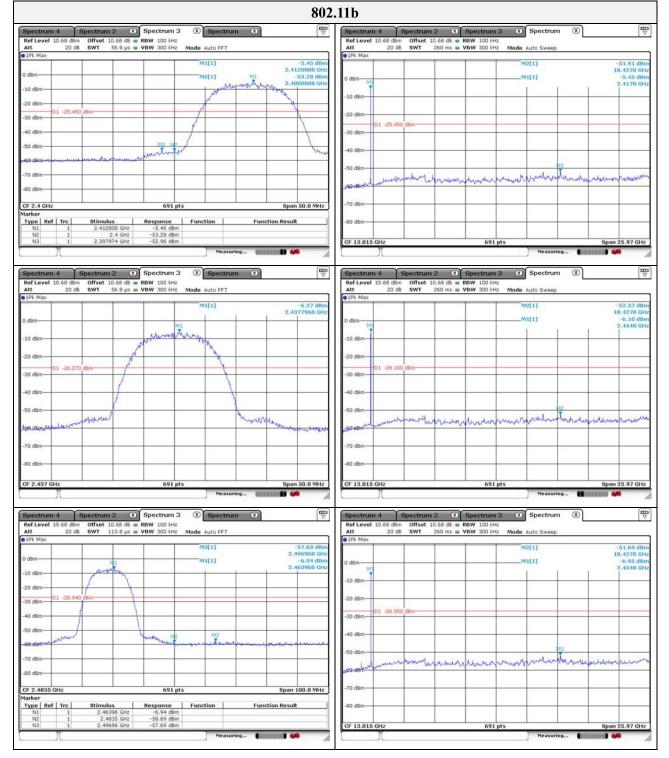
According to 15.247(d), in any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph(b)(3) of this section , the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in section 15.209(a) is not required. In addition, radiated emission which in the restricted band, as define in section 15.205(a), must also comply the radiated emission limits specified in section 15.209(a) (see section 15.205(c))



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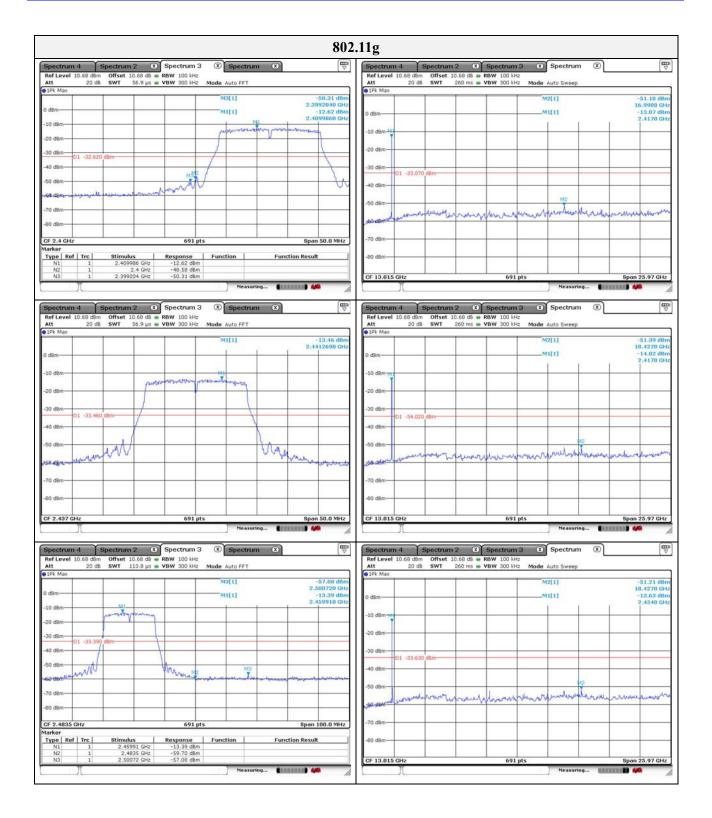
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Test results



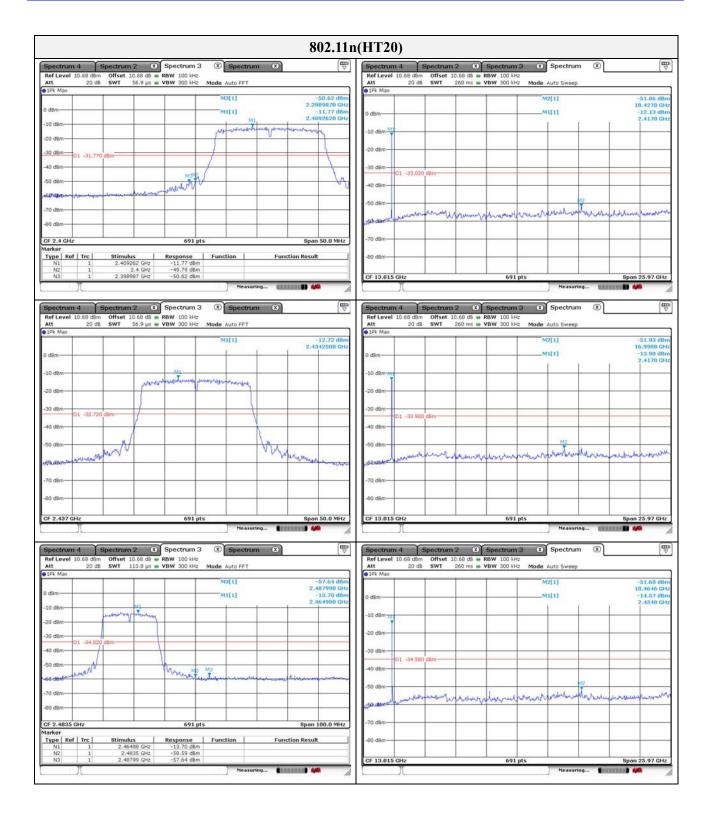


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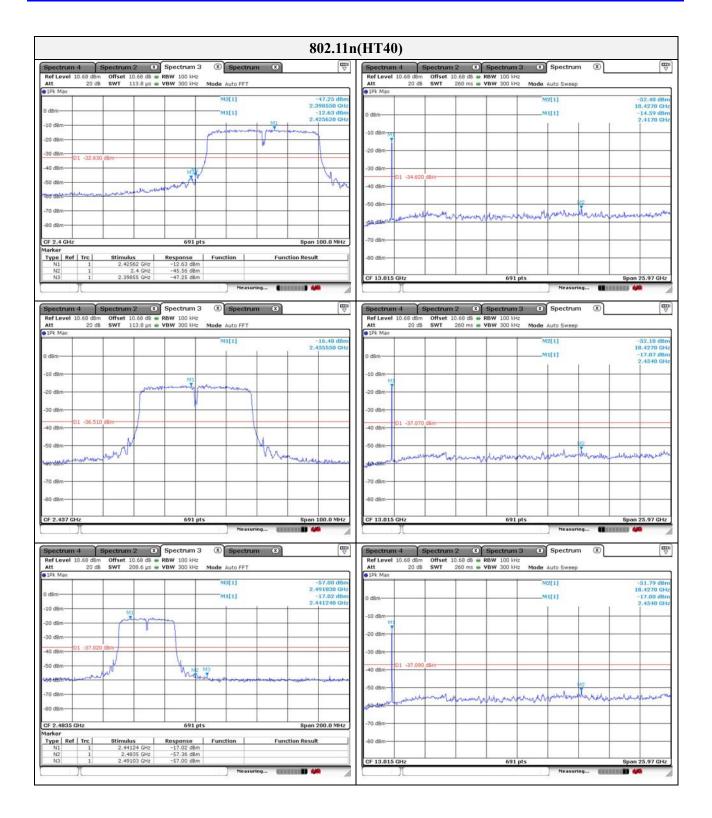


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3.6. AC conducted emissions

Limit

According to 15.207(a), for an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies, within the band 150 kHz to 30 MHz, shall not exceed the limits in the following table, as measured using a 50uH/50 ohm line impedance stabilization network (LISN). Compliance with the provision of this paragraph shall on the measurement of the radio frequency voltage between each power line and ground at the power terminal. The lower applies at the boundary between the frequencies ranges.

Encaused of Emission (Mg)	Conducted limit (dBµN/m)					
Frequency of Emission (Mb)	Quasi-peak	Average				
0.15 - 0.50	66 - 56*	56 - 46*				
0.50 - 5.00	56	46				
5.00 - 30.0	60	50				

Note.

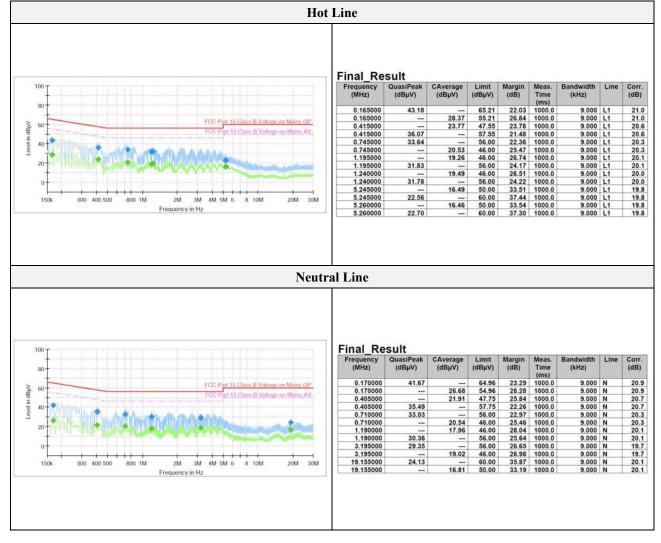
1. All AC line conducted spurious emission are measured with a receiver connected to a grounded LISN while the EUT is operating at its maximum duty cycle, at maximum power, and the appropriate frequencies. All data rates and modes were investigated for conducted spurious emission. Only the conducted emissions of the configuration that produced the worst case emissions are reported in this section.

3. Both Cable loss and LISN factor are included in measurement level (QP Level or AV Level).



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Test results





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Test report No.: KES-RF-17T0041 Page (52) of (53)

Appendix A. Measurement equipment

Equipment	Manufacturer	Model	Serial No.	Calibration interval	Calibration due.
Spectrum Analyzer	R&S	FSV30	100736	1 year	2017.07.06
Spectrum Analyzer	R&S	FSV40	101002	1 year	2017.07.06
8360B Series Swept Signal Generator	HP	83630B	3844A00786	1 year	2018.01.23
Power Meter	Anritsu	ML2495A	1438001	1 year	2018.01.23
Pluse Power Sensor	Anritsu	MA2411B	1339205	1 year	2018.01.23
Attenuator	Keysight	8493C	82506	1 year	2018.01.23
Loop Antenna	ETS-LINDGREN	6502	00148046	2 years	2019.01.05
Trilog-broadband antenna	SCHWARZBECK	VULB 9163	9168-713	2 years	2017.05.15
Horn Antenna	A.H.	SAS-571	781	2 years	2019.02.15
Horn Antenna	SCHWARZBECK	BBHA9170	BBHA9170550	2 years	2017.04.30
High Pass Filter	WAINWRIGHT INSTRUMENT	WHJS3000-10TT	1	1 year	2017.07.04
Low Pass Filter	WEINSCHEL	WLK1.0/18G-10TT	1	1 year	2017.07.04
Preamplifier	HP	8449B	3008A00538	1 year	2017.07.05
Preamplifier	SCHWARZBECK	BBV-9718	9718-246	1 year	2017.10.14
EMI Test Receiver	R&S	ESR3	101781	1 year	2017.05.03
EMI Test Receiver	R&S	ESU26	100552	1 year	2017.04.24
EMI Test Receiver	R&S	ESR3	101783	1 year	2017.05.03
Pulse Limiter	R&S	ESH3-Z2 0357.8810.54	101914	1 year	2017.12.13
LISN	R&S	ENV216	101137	1 year	2018.02.03

Peripheral devices

Device	Device Manufacturer		Serial No.
Notebook Computer	Samsung Electronics Co., Ltd.	NT-RV518-AD6S	HTK99NC600207R
Test Board	N/A	N/A	N/A