

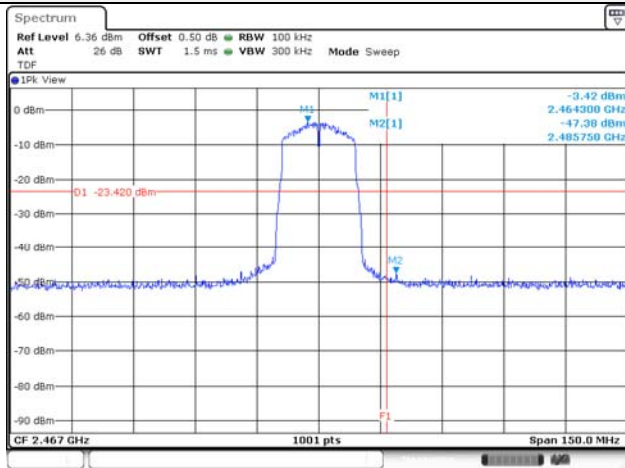
# KCTL Inc.

65, Sinwon-ro, Yeongtong-gu,  
Suwon-si, Gyeonggi-do, 16677, Korea  
TEL: 82-31-285-0894 FAX: 82-505-299-8311  
[www.kctl.co.kr](http://www.kctl.co.kr)

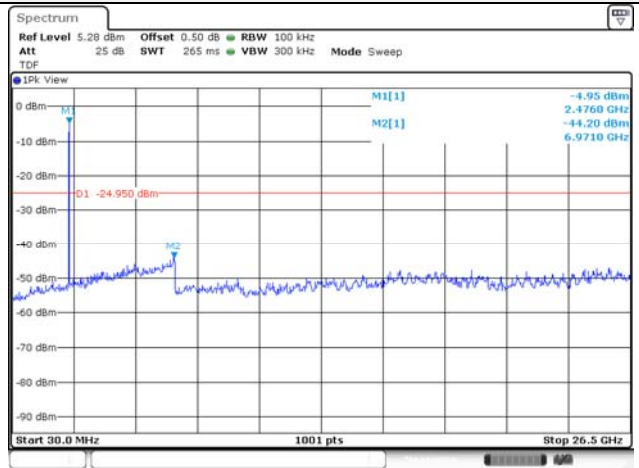
Report No.:  
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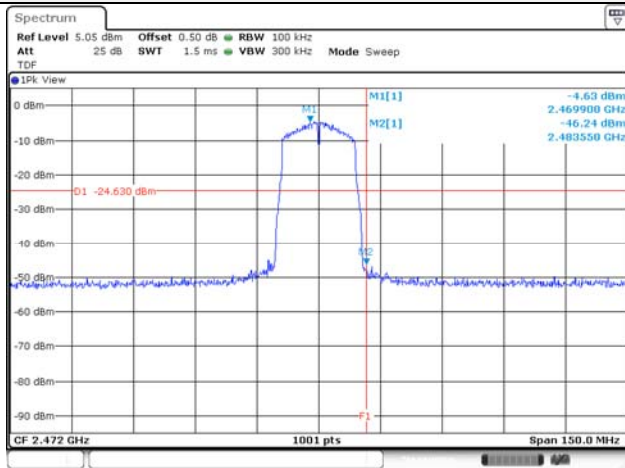
## Conducted band-edge / 2 467 MHz



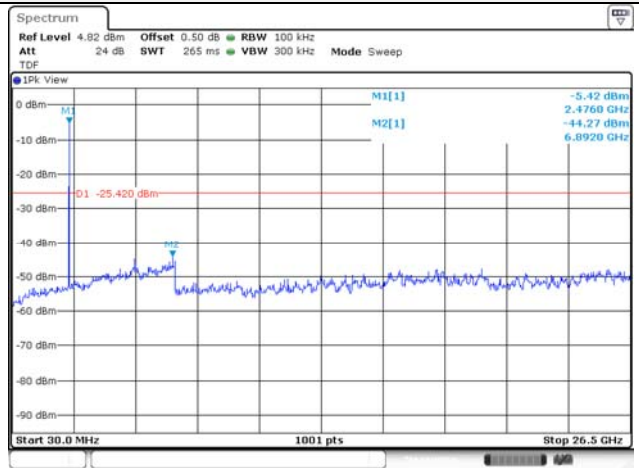
## Conducted spurious / 2 467 MHz



## Conducted band-edge / 2 472 MHz



## Conducted spurious / 2 472 MHz



# KCTL Inc.

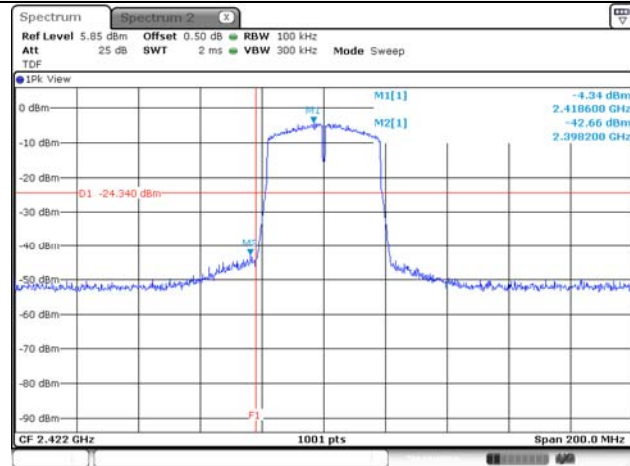
65, Sinwon-ro, Yeongtong-gu,  
Suwon-si, Gyeonggi-do, 16677, Korea  
TEL: 82-31-285-0894 FAX: 82-505-299-8311  
[www.kctl.co.kr](http://www.kctl.co.kr)

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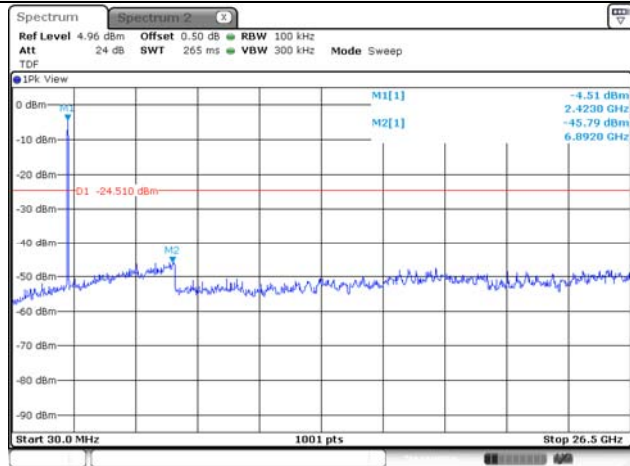


## 802.11n HT40

### Conducted band-edge / 2 422 MHz



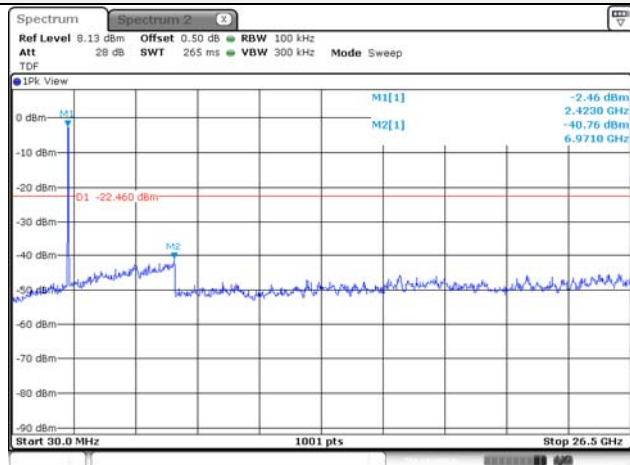
### Conducted spurious / 2 422 MHz



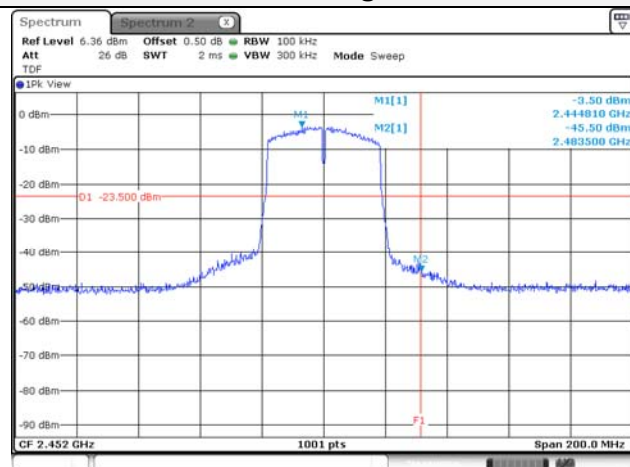
### Conducted band-edge / 2 437 MHz

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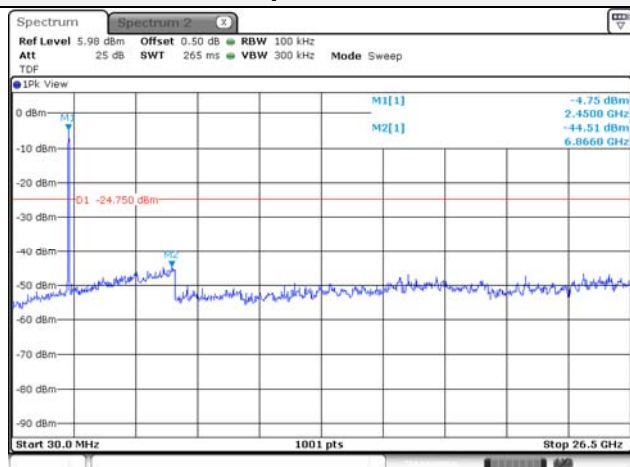
### Conducted spurious / 2 437 MHz



### Conducted band-edge / 2 452 MHz



### Conducted spurious / 2 452 MHz



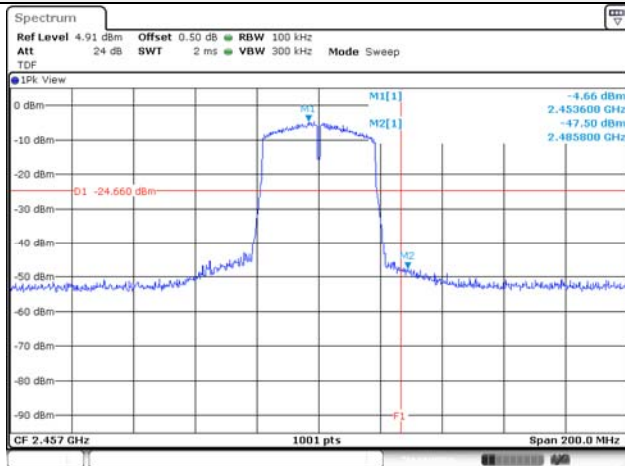
# KCTL Inc.

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Suwon-si, Gyeonggi-do, 16677, Korea  
TEL: 82-31-285-0894 FAX: 82-505-299-8311  
[www.kctl.co.kr](http://www.kctl.co.kr)

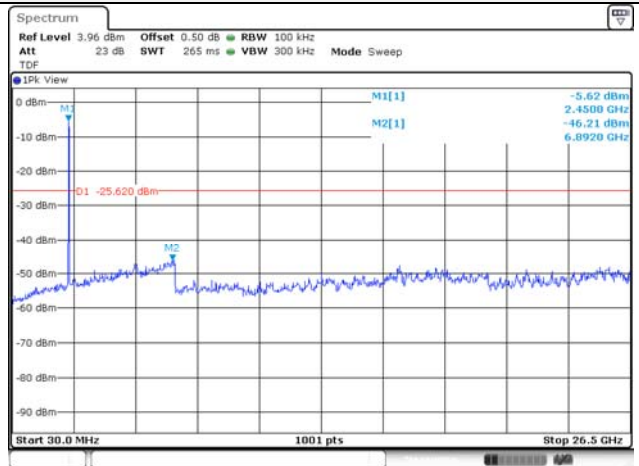
Report No.:  
KR21-SRF0064-A  
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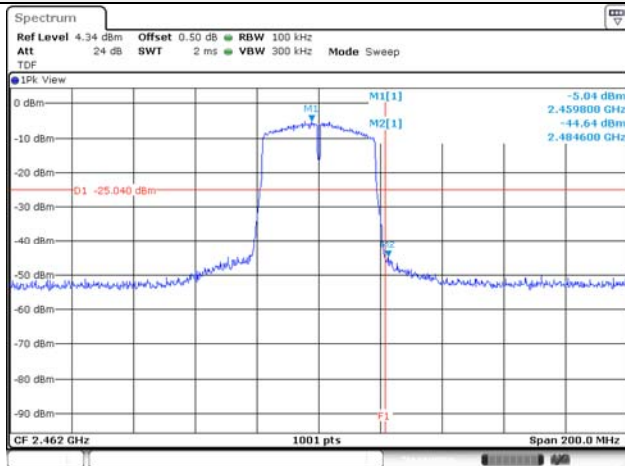
## Conducted band-edge / 2 457 MHz



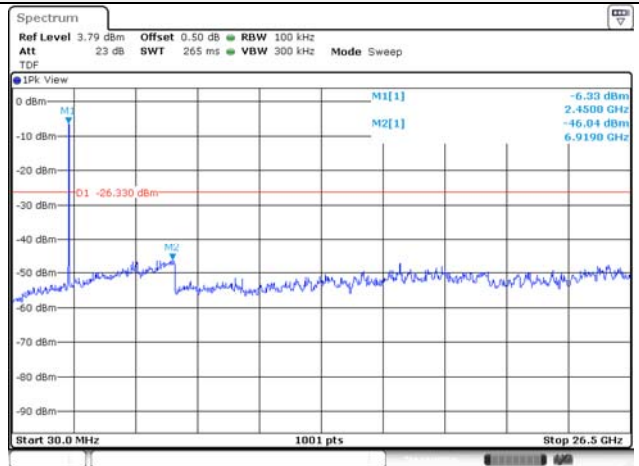
## Conducted spurious / 2 457 MHz



## Conducted band-edge / 2 462 MHz



## Conducted spurious / 2 462 MHz



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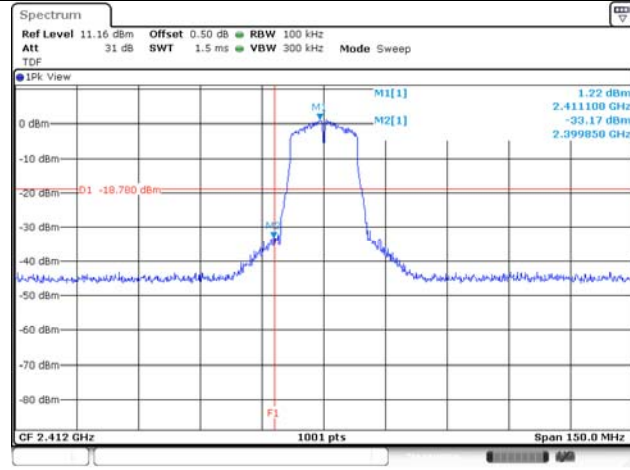
Report No.:  
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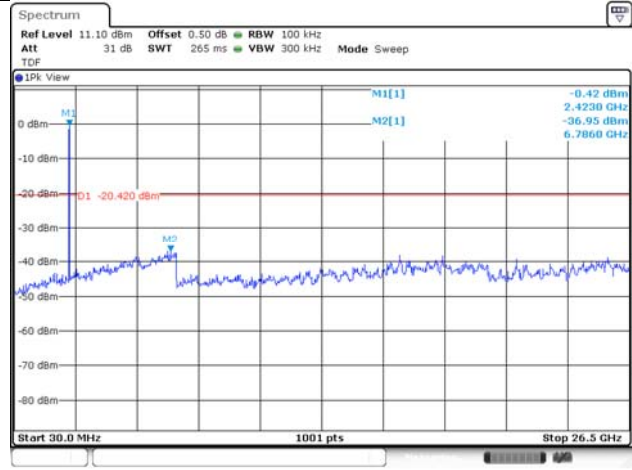
## MIMO\_ANT 1

802.11g

### Conducted band-edge / 2 412 MHz



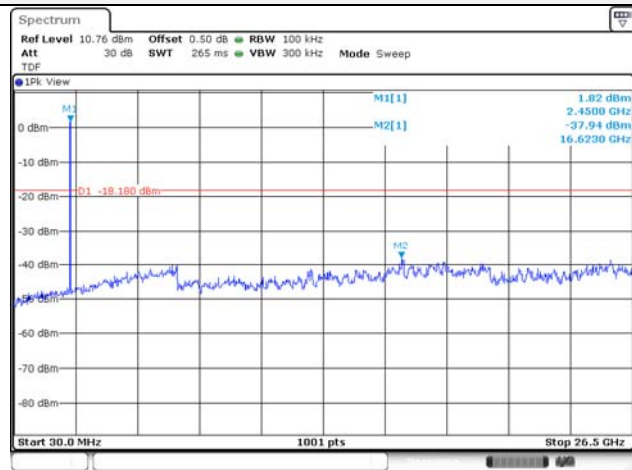
### Conducted spurious / 2 412 MHz



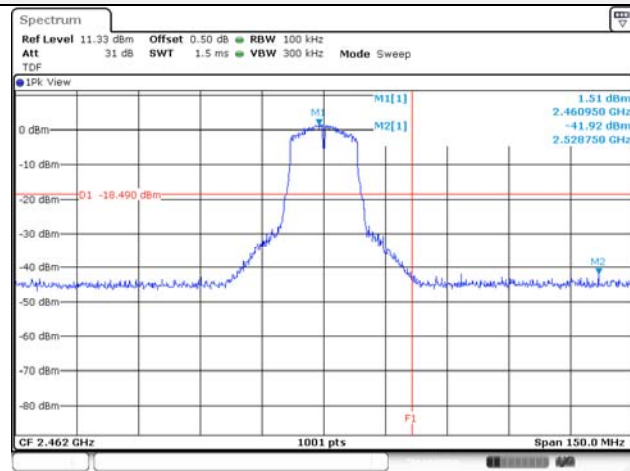
### Conducted band-edge / 2 437 MHz

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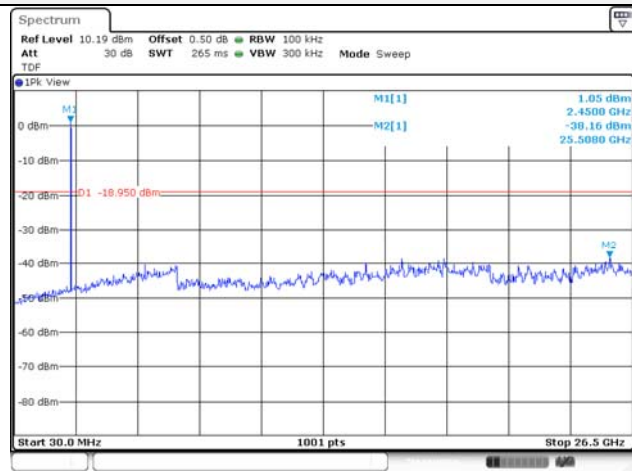
### Conducted spurious / 2 437 MHz



### Conducted band-edge / 2 462 MHz



### Conducted spurious / 2 462 MHz



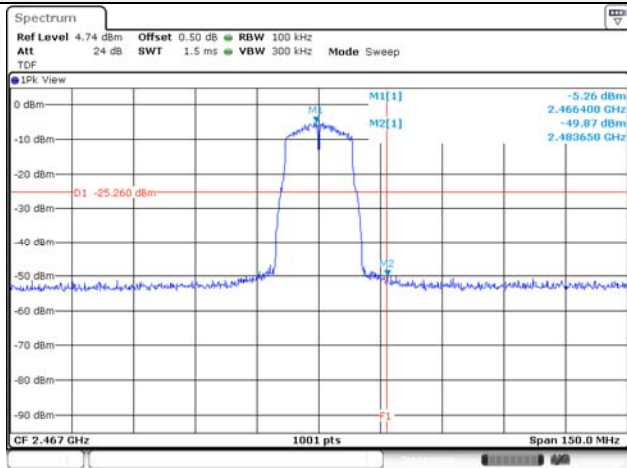
# KCTL Inc.

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Suwon-si, Gyeonggi-do, 16677, Korea  
TEL: 82-31-285-0894 FAX: 82-505-299-8311  
[www.kctl.co.kr](http://www.kctl.co.kr)

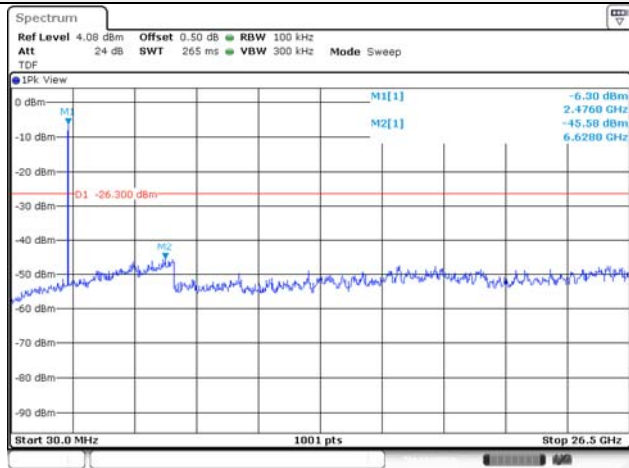
Report No.:  
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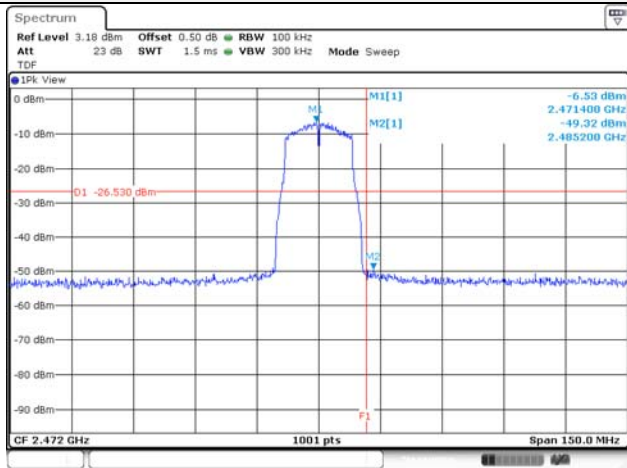
## Conducted band-edge / 2 467 MHz



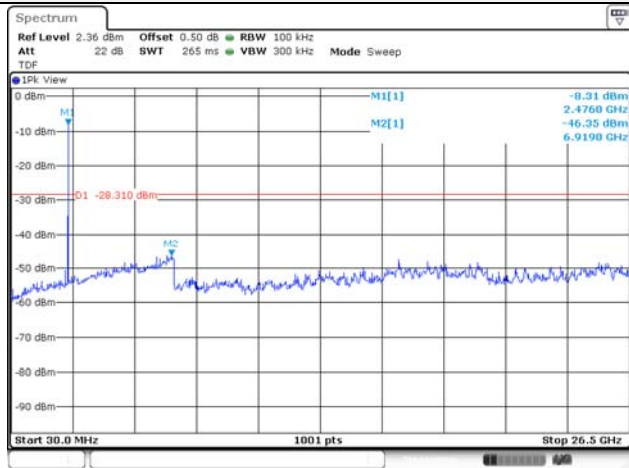
## Conducted spurious / 2 467 MHz



## Conducted band-edge / 2 472 MHz



## Conducted spurious / 2 472 MHz



# KCTL Inc.

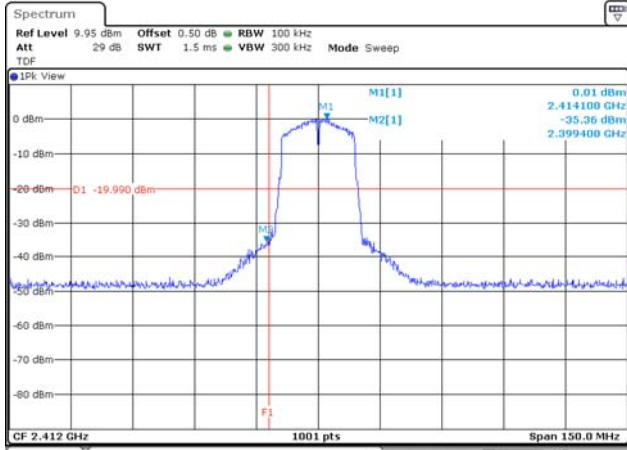
65, Sinwon-ro, Yeongtong-gu,  
Suwon-si, Gyeonggi-do, 16677, Korea  
TEL: 82-31-285-0894 FAX: 82-505-299-8311  
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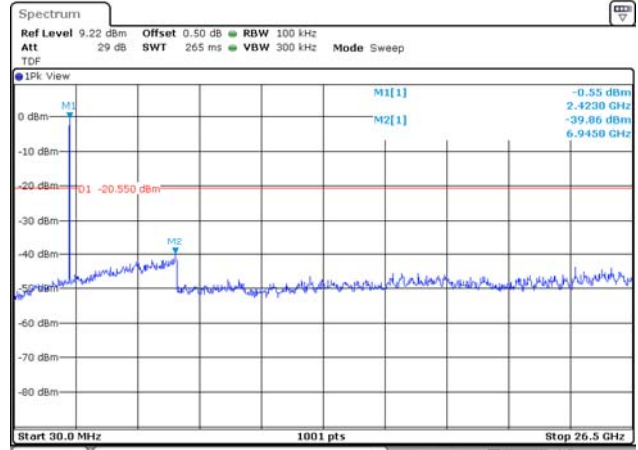


## 802.11n HT20

### Conducted band-edge / 2 412 MHz



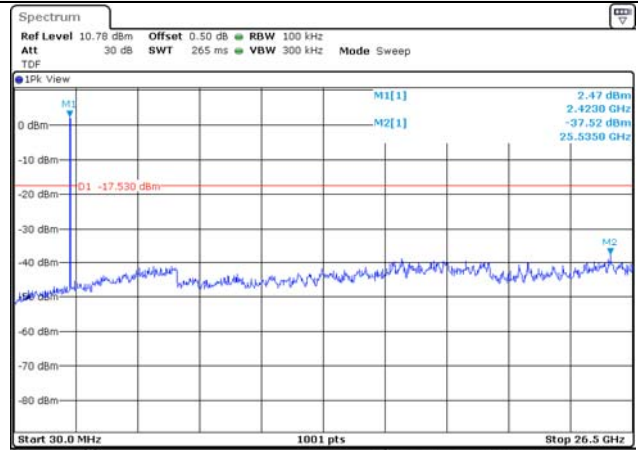
### Conducted spurious / 2 412 MHz



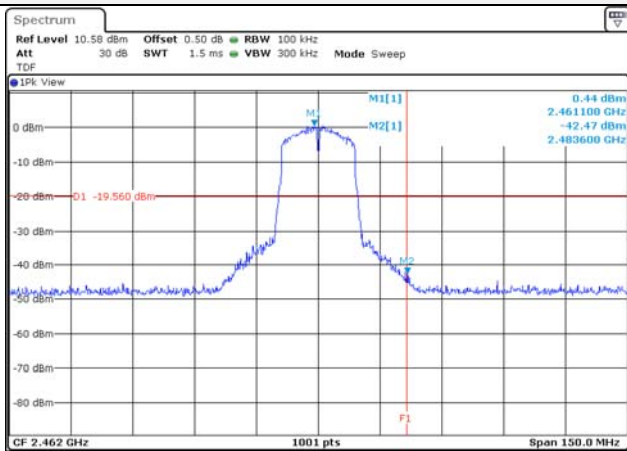
### Conducted band-edge / 2 437 MHz

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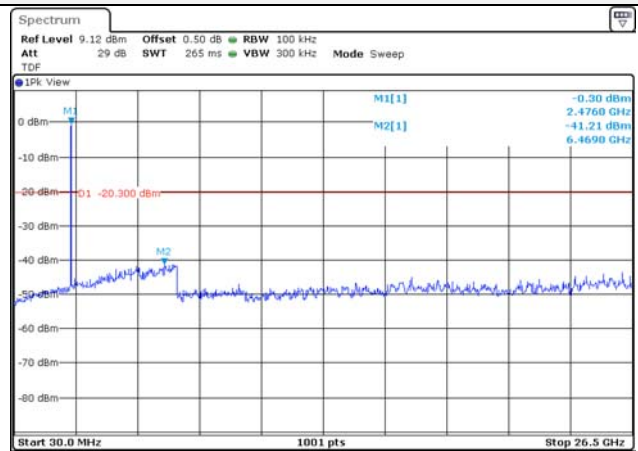
### Conducted spurious / 2 437 MHz



### Conducted band-edge / 2 462 MHz



### Conducted spurious / 2 462 MHz



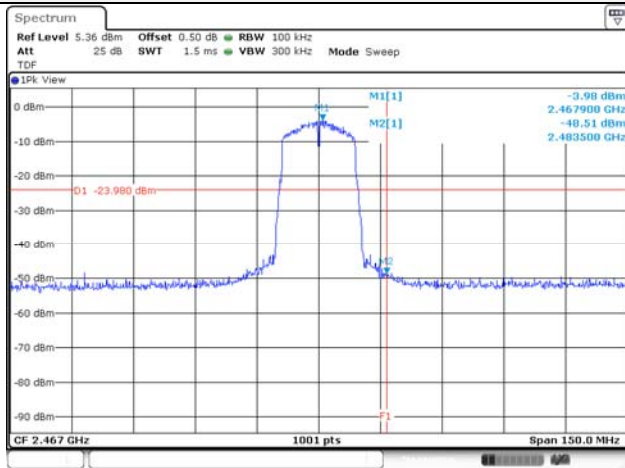
# KCTL Inc.

65, Sinwon-ro, Yeongtong-gu,  
Suwon-si, Gyeonggi-do, 16677, Korea  
TEL: 82-31-285-0894 FAX: 82-505-299-8311  
[www.kctl.co.kr](http://www.kctl.co.kr)

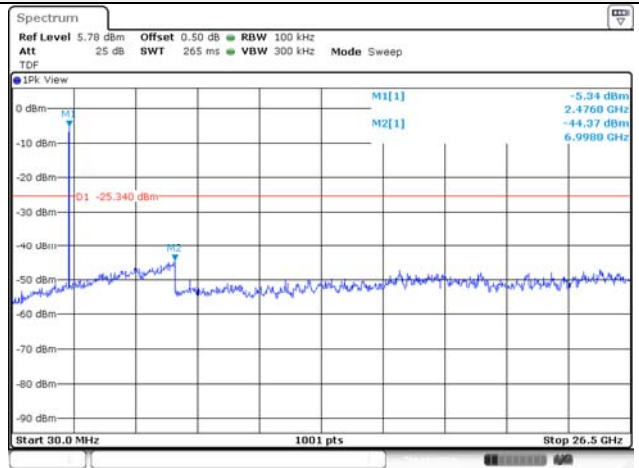
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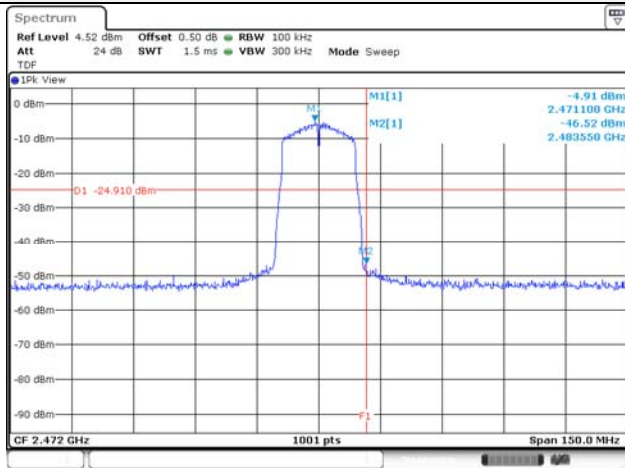
## Conducted band-edge / 2 467 MHz



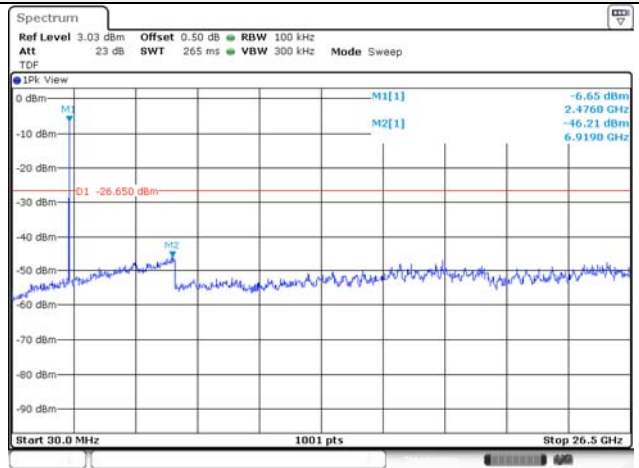
## Conducted spurious / 2 467 MHz



## Conducted band-edge / 2 472 MHz



## Conducted spurious / 2 472 MHz



# KCTL Inc.

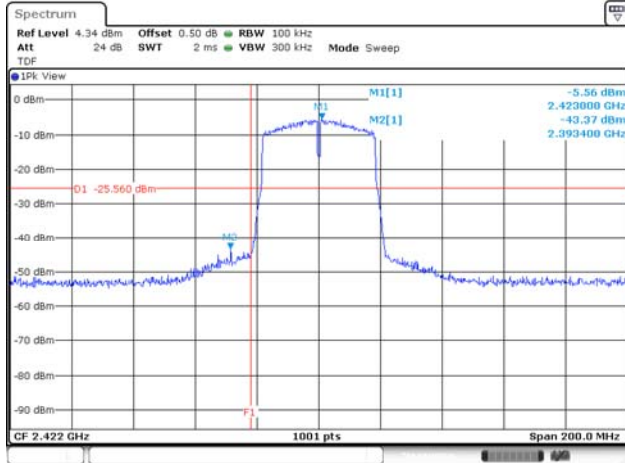
65, Sinwon-ro, Yeongtong-gu,  
Suwon-si, Gyeonggi-do, 16677, Korea  
TEL: 82-31-285-0894 FAX: 82-505-299-8311  
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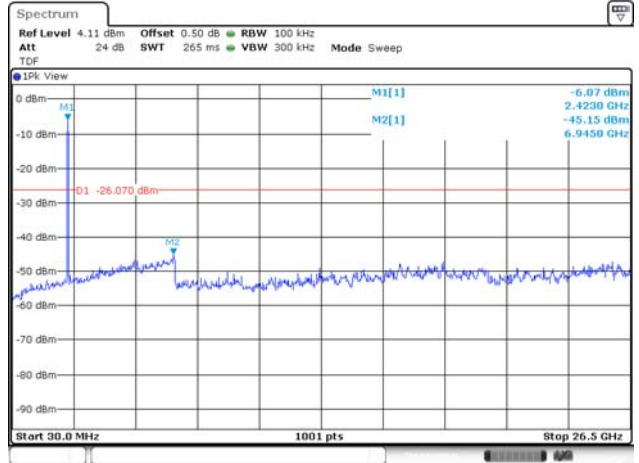


## 802.11n HT40

### Conducted band-edge / 2 422 MHz



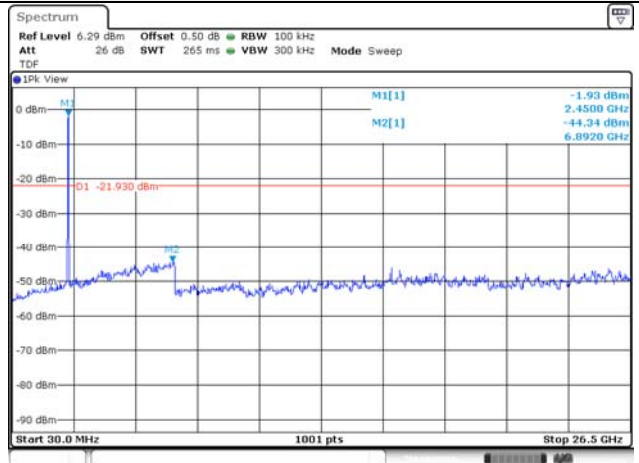
### Conducted spurious / 2 422 MHz



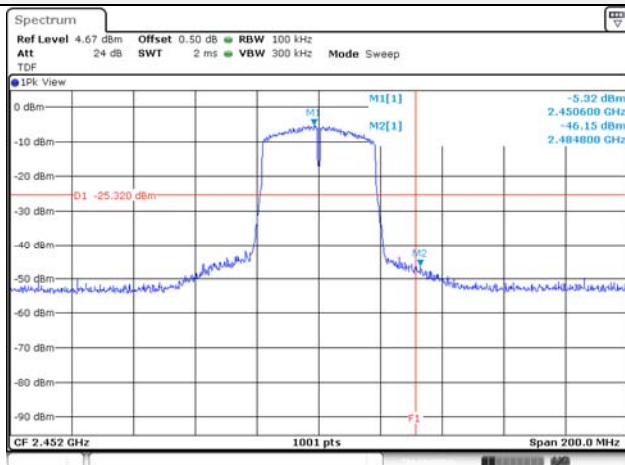
### Conducted band-edge / 2 437 MHz

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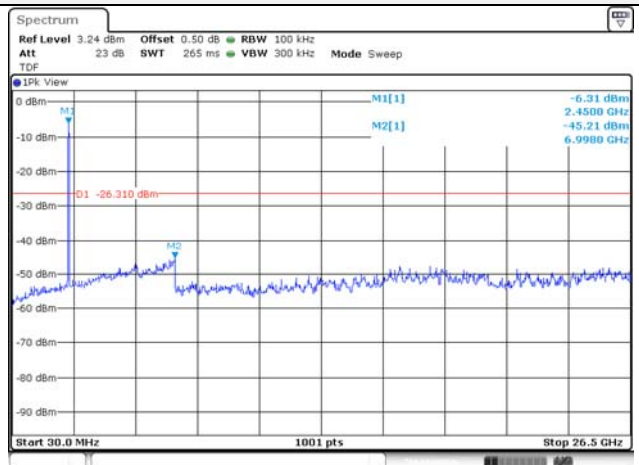
### Conducted spurious / 2 437 MHz



### Conducted band-edge / 2 452 MHz



### Conducted spurious / 2 452 MHz





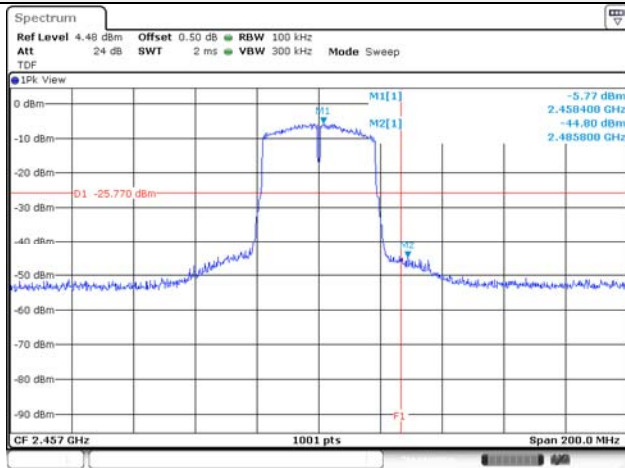
# KCTL Inc.

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Suwon-si, Gyeonggi-do, 16677, Korea  
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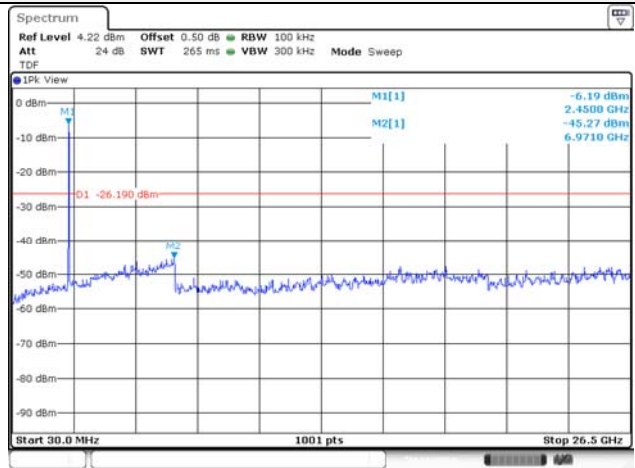
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KR21-SRF0064-A  
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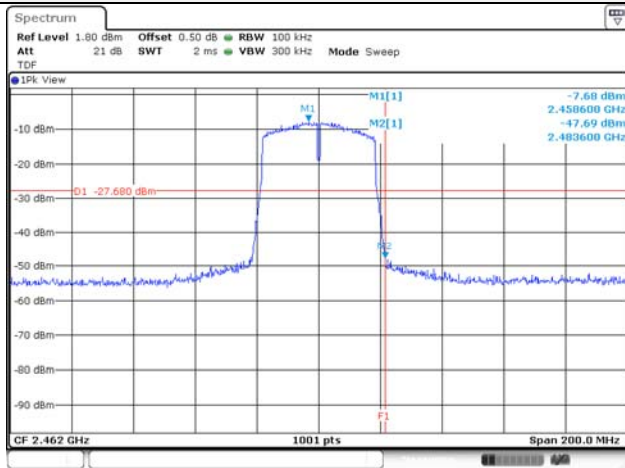
## Conducted band-edge / 2 457 MHz



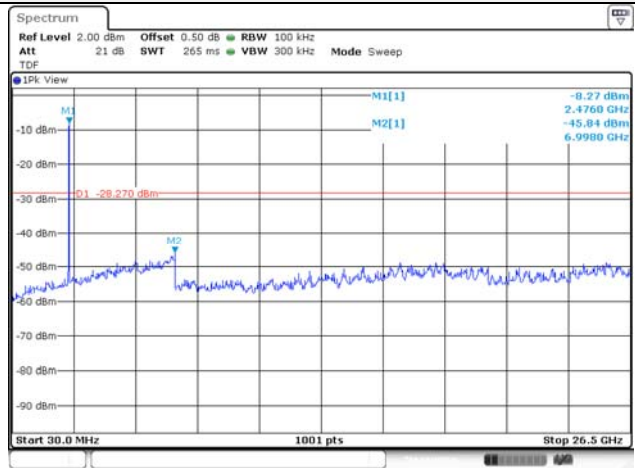
## Conducted spurious / 2 457 MHz



## Conducted band-edge / 2 462 MHz



## Conducted spurious / 2 462 MHz



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[www.kctl.co.kr](http://www.kctl.co.kr)

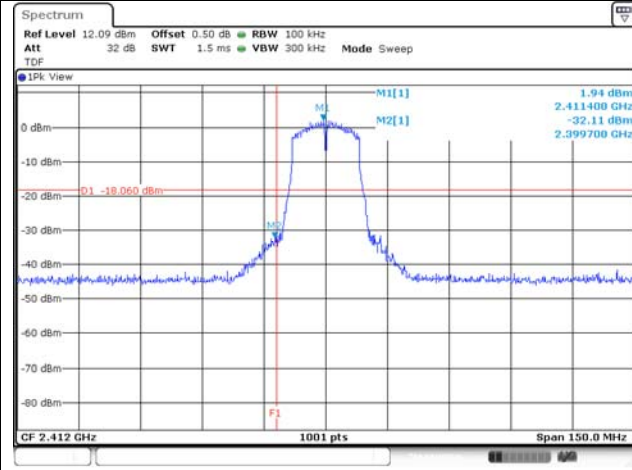
Report No.:  
KR21-SRF0064-A  
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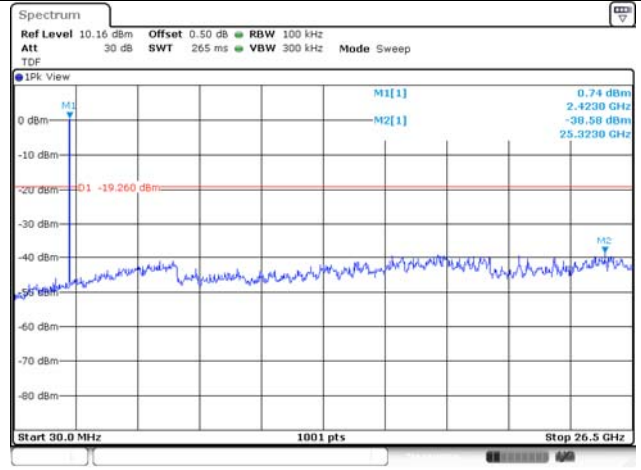
## MIMO\_ANT 2

802.11g

### Conducted band-edge / 2 412 MHz



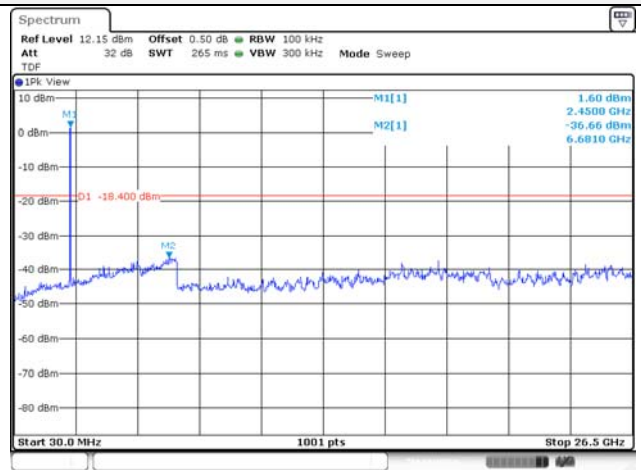
### Conducted spurious / 2 412 MHz



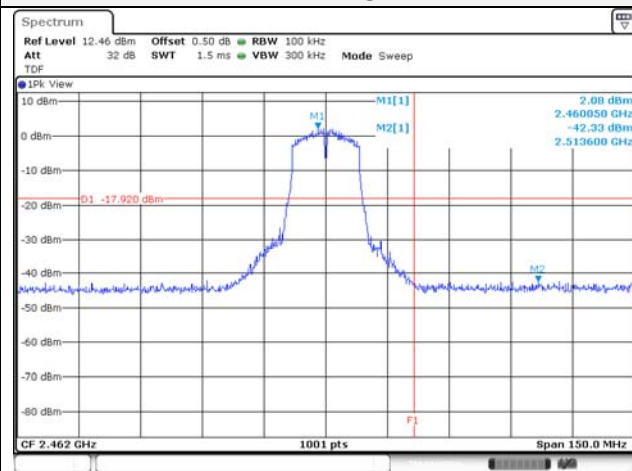
### Conducted band-edge / 2 437 MHz

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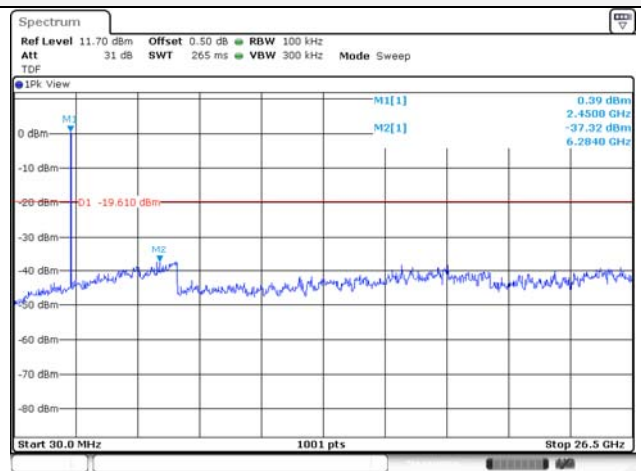
### Conducted spurious / 2 437 MHz



### Conducted band-edge / 2 462 MHz



### Conducted spurious / 2 462 MHz



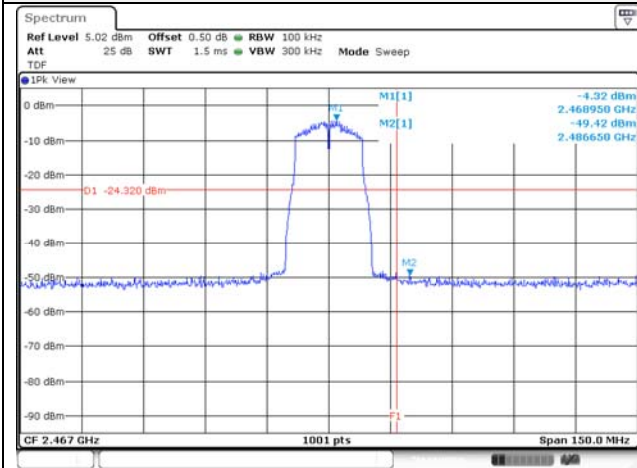
# KCTL Inc.

65, Sinwon-ro, Yeongtong-gu,  
Suwon-si, Gyeonggi-do, 16677, Korea  
TEL: 82-31-285-0894 FAX: 82-505-299-8311  
[www.kctl.co.kr](http://www.kctl.co.kr)

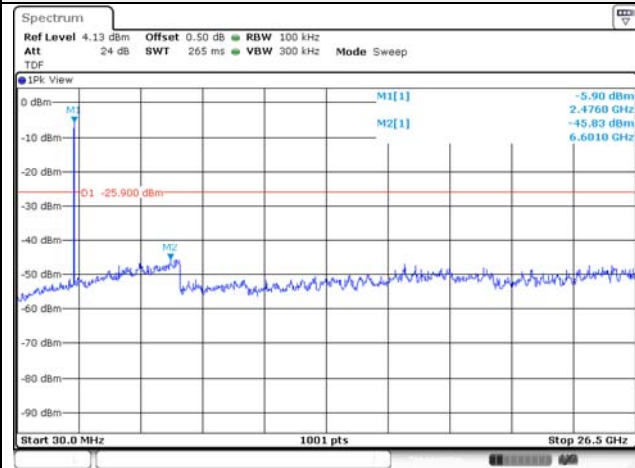
Report No.:  
KR21-SRF0064-A  
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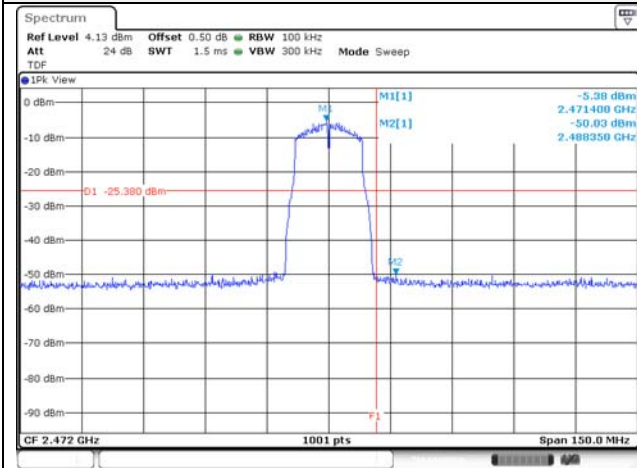
## Conducted band-edge / 2 467 MHz



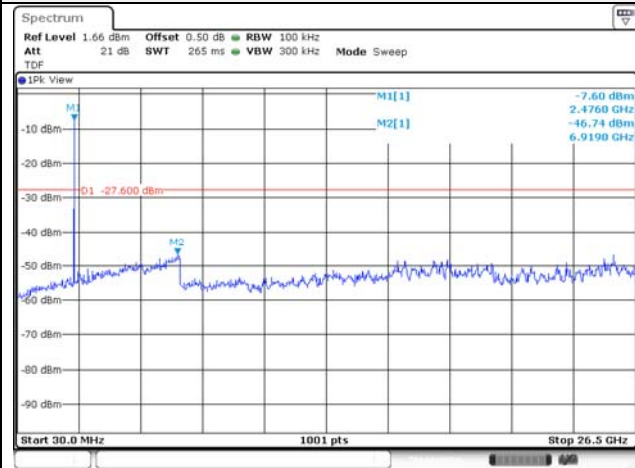
## Conducted spurious / 2 467 MHz



## Conducted band-edge / 2 472 MHz



## Conducted spurious / 2 472 MHz



# KCTL Inc.

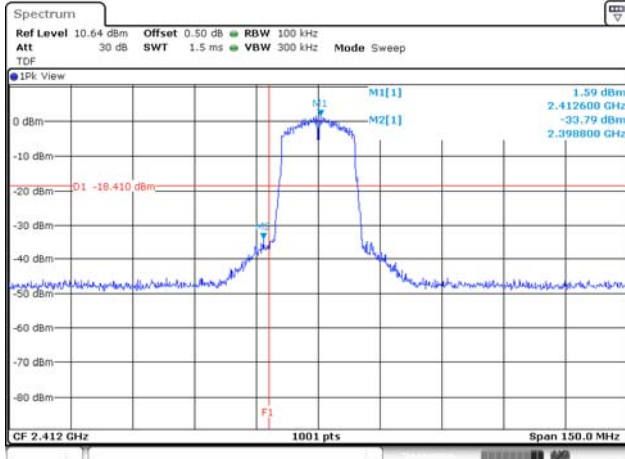
65, Sinwon-ro, Yeongtong-gu,  
Suwon-si, Gyeonggi-do, 16677, Korea  
TEL: 82-31-285-0894 FAX: 82-505-299-8311  
[www.kctl.co.kr](http://www.kctl.co.kr)

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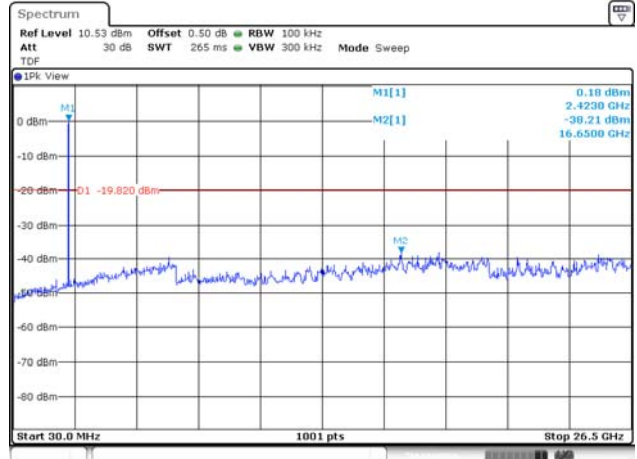


## 802.11n HT20

### Conducted band-edge / 2 412 MHz



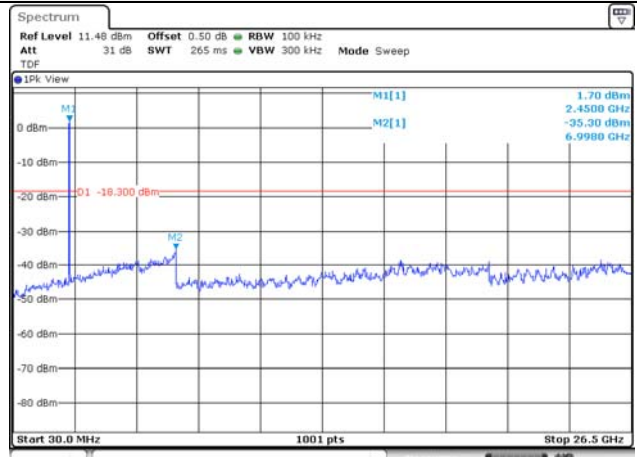
### Conducted spurious / 2 412 MHz



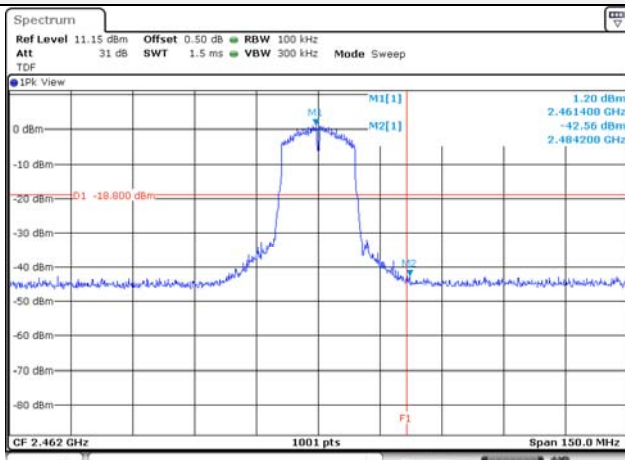
### Conducted band-edge / 2 437 MHz

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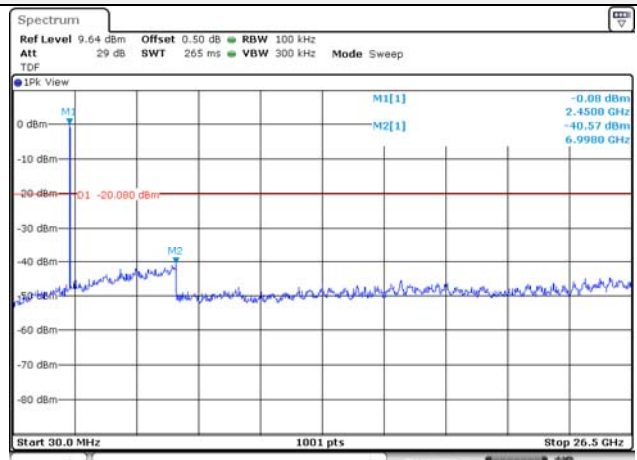
### Conducted spurious / 2 437 MHz



### Conducted band-edge / 2 462 MHz



### Conducted spurious / 2 462 MHz



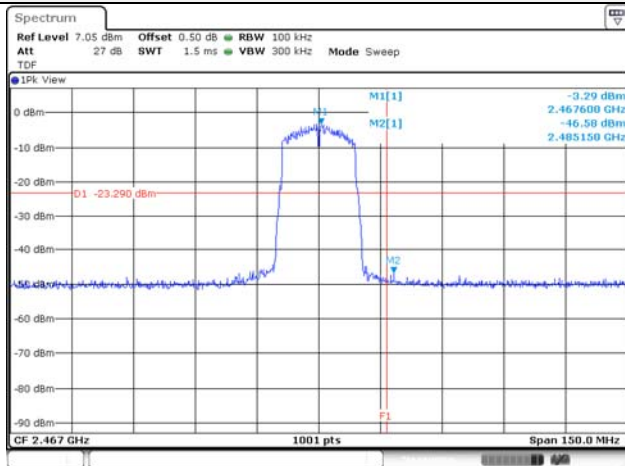
# KCTL Inc.

65, Sinwon-ro, Yeongtong-gu,  
Suwon-si, Gyeonggi-do, 16677, Korea  
TEL: 82-31-285-0894 FAX: 82-505-299-8311  
[www.kctl.co.kr](http://www.kctl.co.kr)

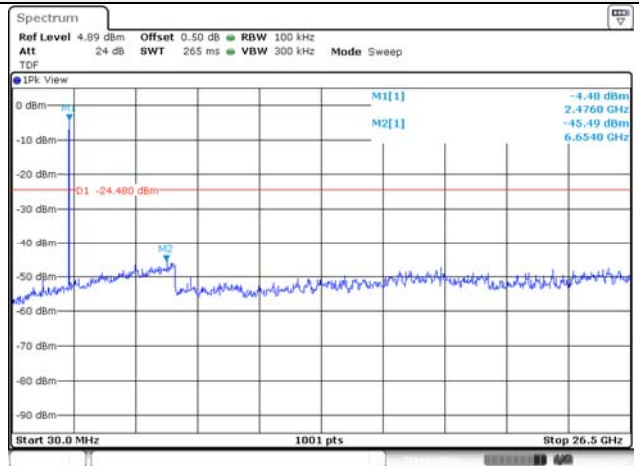
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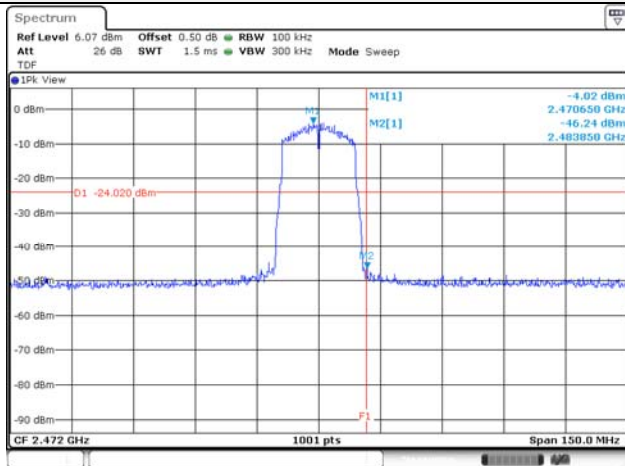
## Conducted band-edge / 2 467 MHz



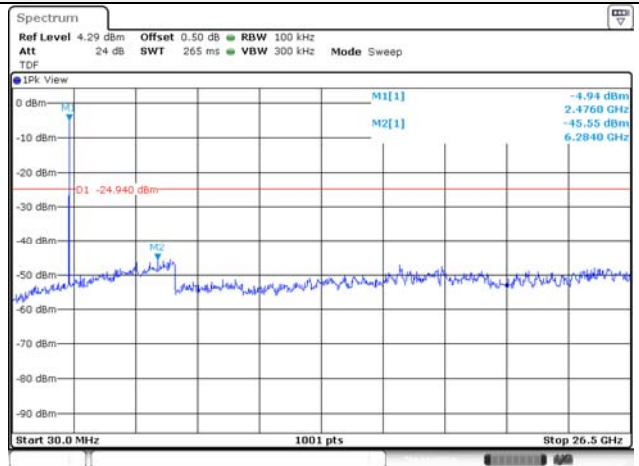
## Conducted spurious / 2 467 MHz



## Conducted band-edge / 2 472 MHz



## Conducted spurious / 2 472 MHz



# KCTL Inc.

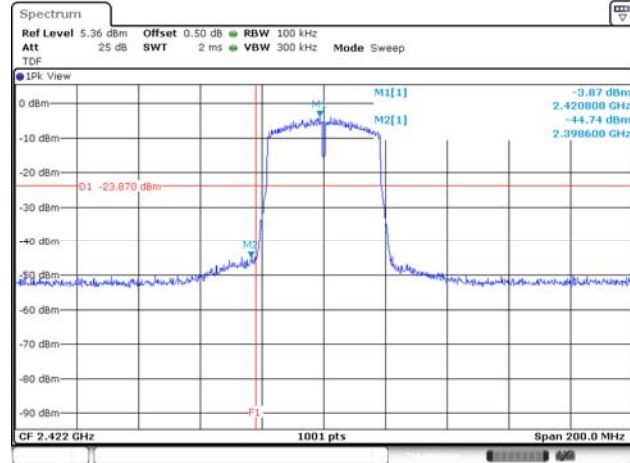
65, Sinwon-ro, Yeongtong-gu,  
Suwon-si, Gyeonggi-do, 16677, Korea  
TEL: 82-31-285-0894 FAX: 82-505-299-8311  
[www.kctl.co.kr](http://www.kctl.co.kr)

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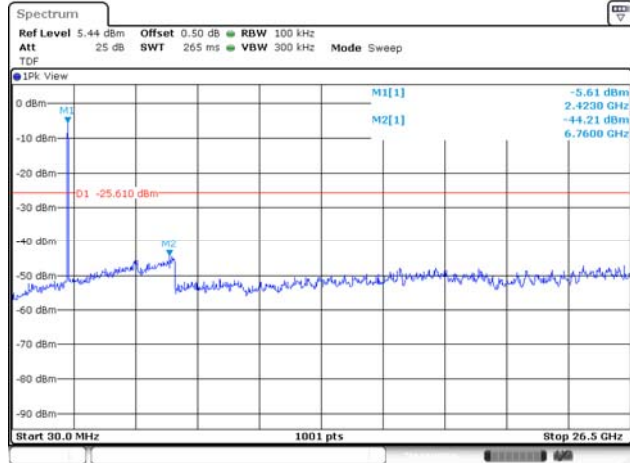


## 802.11n HT40

### Conducted band-edge / 2 422 MHz



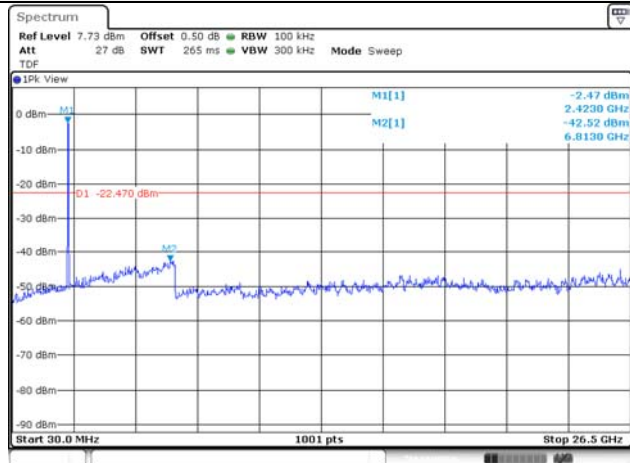
### Conducted spurious / 2 422 MHz



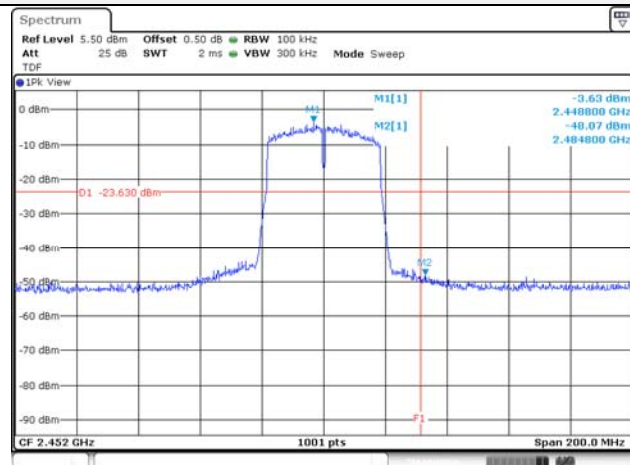
### Conducted band-edge / 2 437 MHz

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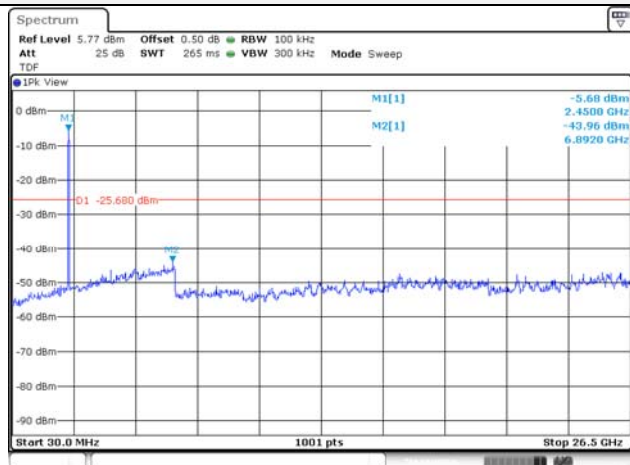
### Conducted spurious / 2 437 MHz



### Conducted band-edge / 2 452 MHz



### Conducted spurious / 2 452 MHz



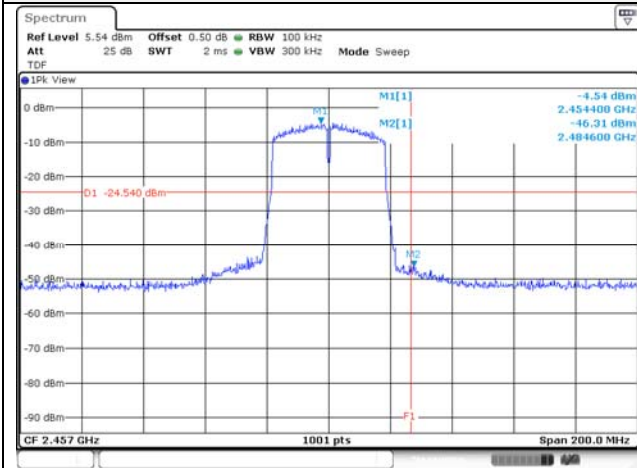
# KCTL Inc.

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Suwon-si, Gyeonggi-do, 16677, Korea  
TEL: 82-31-285-0894 FAX: 82-505-299-8311  
[www.kctl.co.kr](http://www.kctl.co.kr)

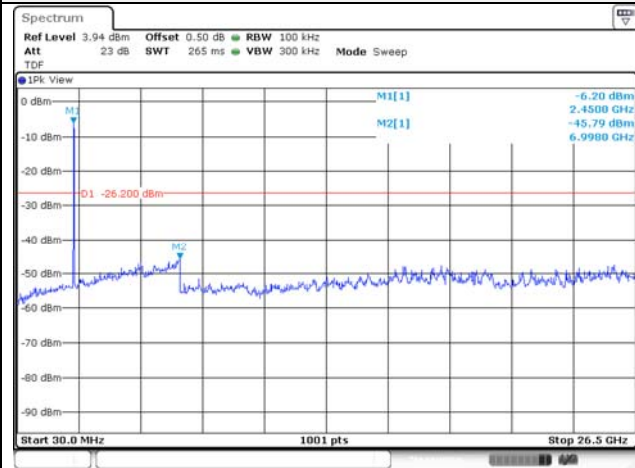
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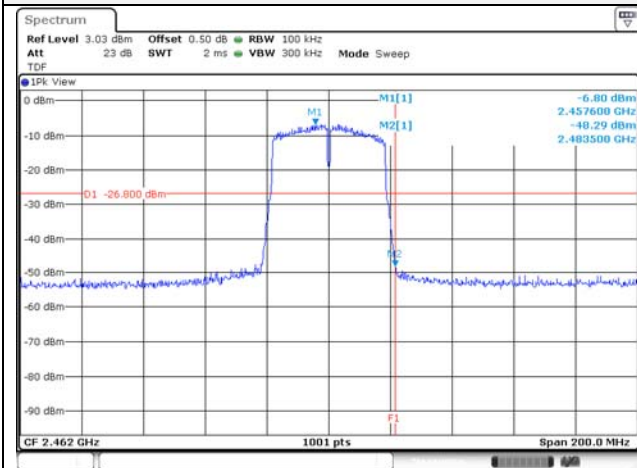
## Conducted band-edge / 2 457 MHz



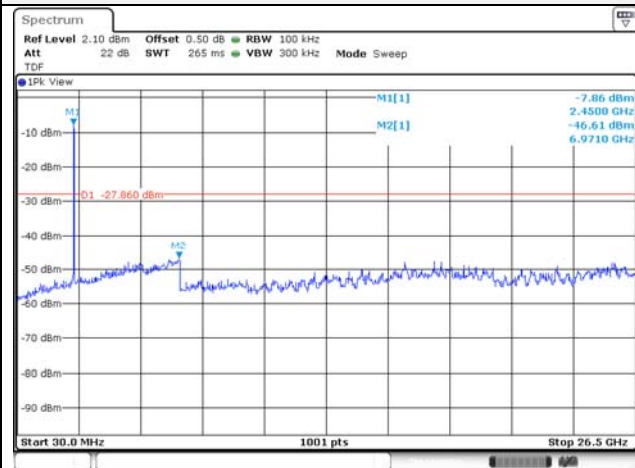
## Conducted spurious / 2 457 MHz



## Conducted band-edge / 2 462 MHz

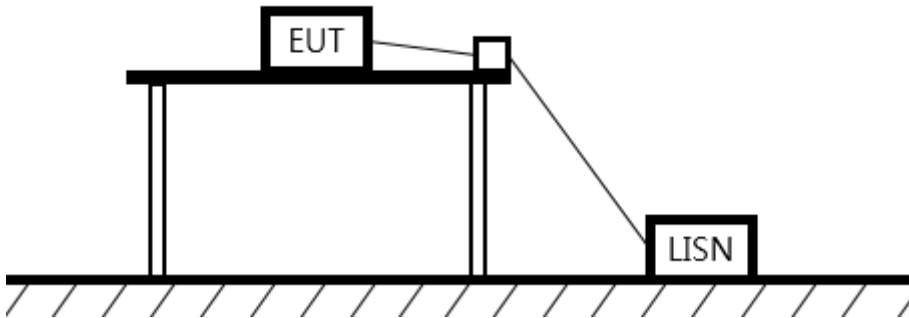


## Conducted spurious / 2 462 MHz



## 7.6. AC Conducted emission

### Test setup



### Limit

According to 15.207(a) and RSS-Gen(8.8), 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.

Frequency of Emission (MHz)	Conducted limit (dB $\mu$ V/m)	
	Quasi-peak	Average
0.15 – 0.50	66 - 56*	56 - 46*
0.50 – 5.00	56	46
5.00 – 30.0	60	50

### Measurement procedure

1. The EUT was placed on a wooden table of size, 1 m by 1.5 m, raised 80 cm in which is located 40 cm away from the vertical wall and 1.5m away from the side wall of the shielded room.
2. Each current-carrying conductor of the EUT power cord was individually connected through a 50 $\Omega$ /50 $\mu$ H LISN, which is an input transducer to a spectrum analyzer or an EMI/Field Intensity Meter, to the input power source.
3. Exploratory measurements were made to identify the frequency of the emission that had the highest amplitude relative to the limit by operating the EUT in a range of typical modes of operation, cable position, and with a typical system equipment configuration and arrangement. Based on the exploratory tests of the EUT, the one EUT cable configuration and arrangement and mode of operation that had produced the emission with the highest amplitude relative to the limit was selected for the final measurement.
4. The final test on all current-carrying conductors of all of the power cords to the equipment that comprises the EUT (but not the cords associated with other non-EUT equipment is the system) was then performed over the frequency range of 0.15 MHz to 30 MHz.
5. The measurements were made with the detector set to peak amplitude within a bandwidth of 10 kHz or to quasi-peak and average within a bandwidth of 9 kHz. The EUT was in transmitting mode during the measurements.



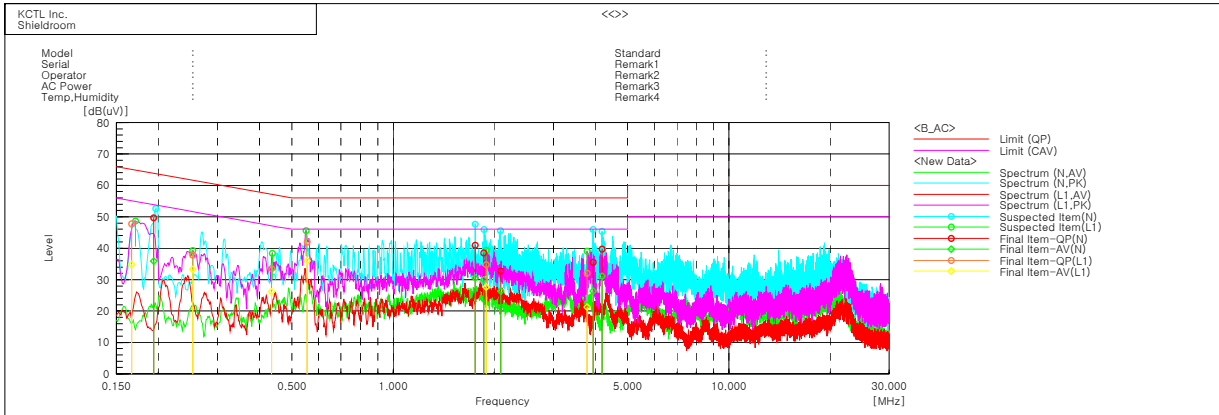
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Suwon-si, Gyeonggi-do, 16677, Korea  
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## Test results – Worst case: MIMO\_802.11n HT20 mode / 2 437 MHz



### Final Result

#### --- N Phase ---

No.	Frequency [MHz]	Reading QP [dB(uV)]	Reading CAV [dB(uV)]	c.f [dB]	Result QP [dB(uV)]	Result CAV [dB(uV)]	Limit QP [dB(uV)]	Limit AV [dB(uV)]	Margin QP [dB]	Margin CAV [dB]
1	0.19383	39.7	25.9	10.0	49.7	35.9	63.9	53.9	14.2	18.0
2	1.75501	31.3	20.9	9.7	41.0	30.6	56.0	46.0	15.0	15.4
3	1.86296	28.8	20.3	9.7	38.5	30.0	56.0	46.0	17.5	16.0
4	2.0919	23.0	16.7	9.7	32.7	26.4	56.0	46.0	23.3	19.6
5	3.94194	25.8	16.7	9.7	35.5	26.4	56.0	46.0	20.5	19.6
6	4.18725	30.1	21.4	9.7	39.8	31.1	56.0	46.0	16.2	14.9

#### --- L1 Phase ---

No.	Frequency [MHz]	Reading QP [dB(uV)]	Reading CAV [dB(uV)]	c.f [dB]	Result QP [dB(uV)]	Result CAV [dB(uV)]	Limit QP [dB(uV)]	Limit AV [dB(uV)]	Margin QP [dB]	Margin CAV [dB]
1	0.16643	37.7	24.7	10.1	47.8	34.8	65.1	55.1	17.3	20.3
2	0.25344	28.1	23.6	9.7	37.8	33.3	61.6	51.6	23.8	18.3
3	0.43478	23.6	16.2	9.9	33.5	26.1	57.2	47.2	23.7	21.1
4	0.55436	32.0	26.1	9.9	41.9	36.0	56.0	46.0	14.1	10.0
5	1.89209	25.0	17.9	9.7	34.7	27.6	56.0	46.0	21.3	18.4
6	3.78578	22.3	11.6	9.7	32.0	21.3	56.0	46.0	24.0	24.7

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**KCTL****8. Measurement equipment**

Equipment Name	Manufacturer	Model No.	Serial No.	Next Cal. Date
Spectrum Analyzer	R&S	FSV40	100989	21.12.23
Spectrum Analyzer	R&S	FSV30	100810	21.07.29
Attenuator	API Inmet	40AH2W-10	17	22.05.11
Pulse Power Meter	ANRITSU	ML2495A	1608009	21.07.29
Pulse Power Sensor	ANRITSU	MA2411B	1726174	21.07.29
EMI TEST RECEIVER	R&S	ESCI7	100732	22.03.05
Bi-Log Antenna	SCHWARZBECK	VULB9168	583	22.04.23
Amplifier	SONOMA INSTRUMENT	310N	284608	21.08.20
COAXIAL FIXED ATTENUATOR	Agilent	8491B-003	2708A18758	22.04.23
Horn antenna	ETS.lindgren	3117	155787	21.10.28
Horn antenna	ETS.lindgren	3116	86632	22.01.29
Attenuator	API Inmet	40AH2W-10	12	22.05.11
Broadband PreAmplifier	SCHWARZBECK	BBV9718	216	21.07.28
AMPLIFIER	L-3 Narda-MITEQ	AMF-7D-01001800-22-10P	2003683	21.08.28
AMPLIFIER	L-3 Narda-MITEQ	JS44-18004000-33-8P	2000996	22.01.21
LOOP Antenna	R&S	HFH2-Z2	100355	22.08.21
Antenna Mast	Innco Systems	MA4640-XP-ET	-	-
Turn Table	Innco Systems	DT2000	79	-
Antenna Mast	Innco Systems	MA4000-EP	303	-
Turn Table	Innco Systems	DT2000	79	-
Highpass Filter	WT	WT-A1698-HS	WT160411001	22.05.10
TWO-LINE V - NETWORK	R&S	ENV216	101358	21.09.29
Antenna Mast	Innco Systems	MA4640-XP-ET	-	-
EMI TEST RECEIVER	R&S	ESCI	100001	21.08.20
Vector Signal Generator	R&S	SMBV100A	257566	21.07.13
Signal Generator	R&S	SMB100A	176206	22.01.20
Cable Assembly	RadiAll	2301761768000PJ	1724.659	-
Cable Assembly	gigalane	RG-400	-	-
Cable Assembly	HUER+SUHNER	SUCOFLEX 104	MY4342/4	-

**End of test report**