

# 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)

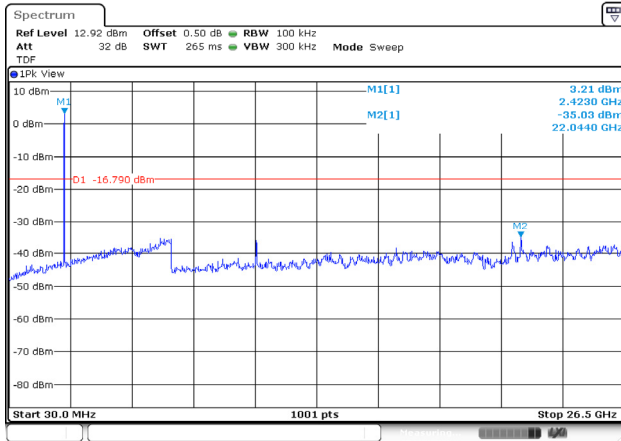
Report No.:  
KR20-SRF0033-A

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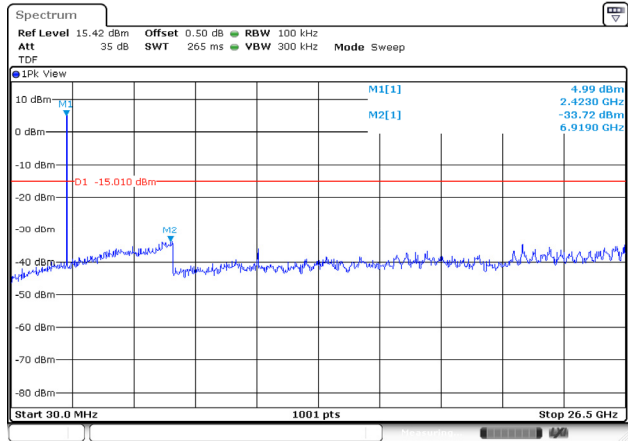
# KCTL

## Conducted Emissions

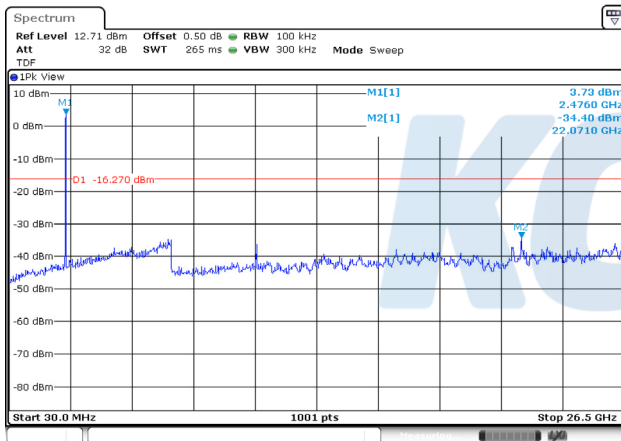
### 802.11b / 1 ch.



### 802.11b / 6 ch.



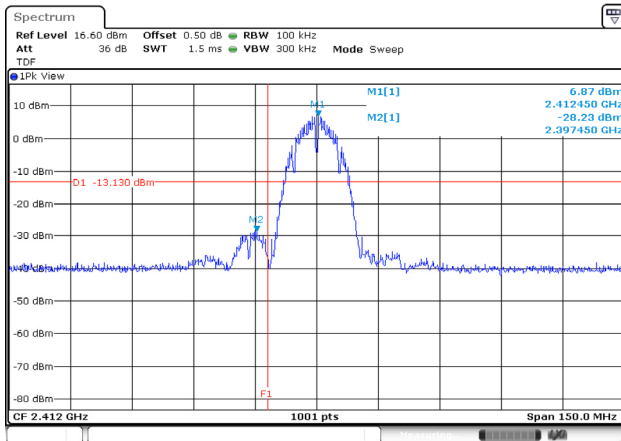
### 802.11b / 11 ch.



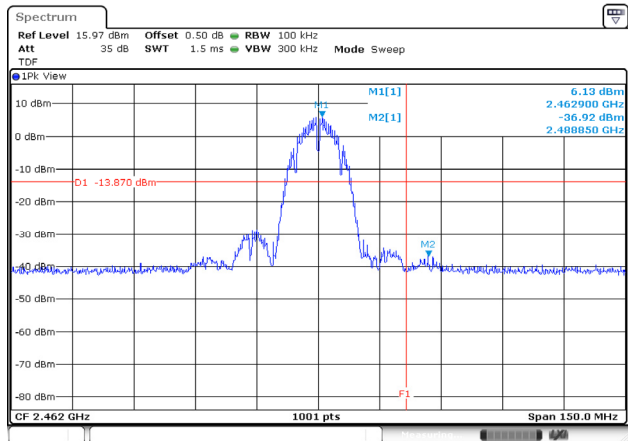
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## Band edge

### 802.11b / 1 ch.



### 802.11b / 11 ch.



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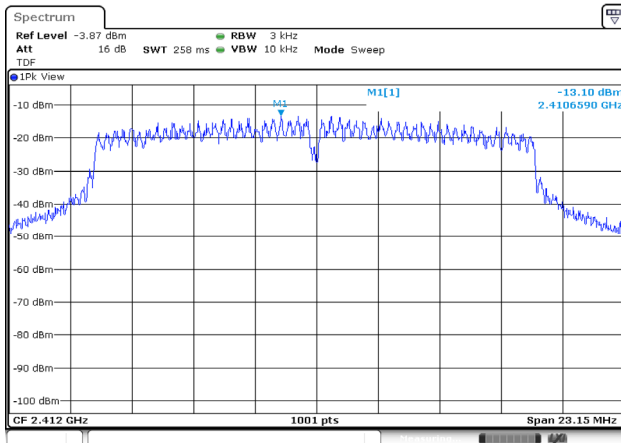
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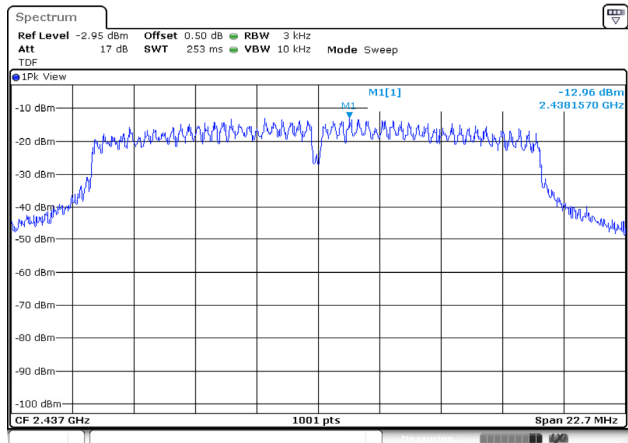
Test mode : 802.11g

## Reference

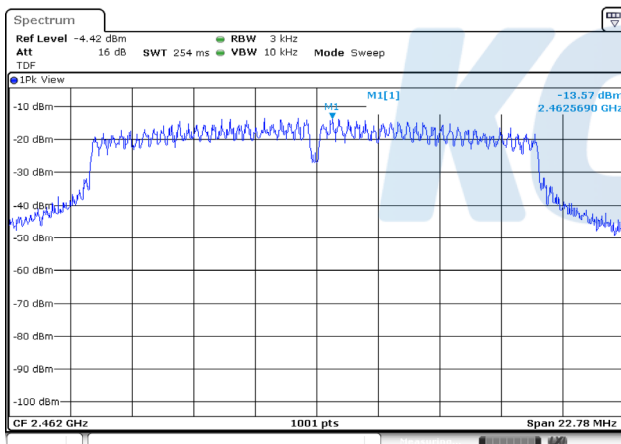
### 802.11g / 1 ch.



### 802.11g / 6 ch.



### 802.11g / 11 ch.



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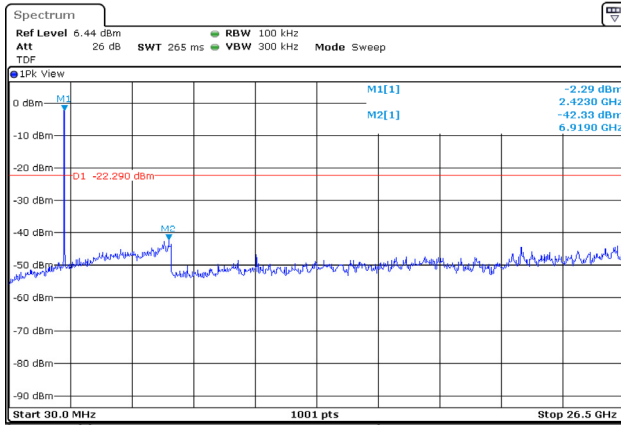
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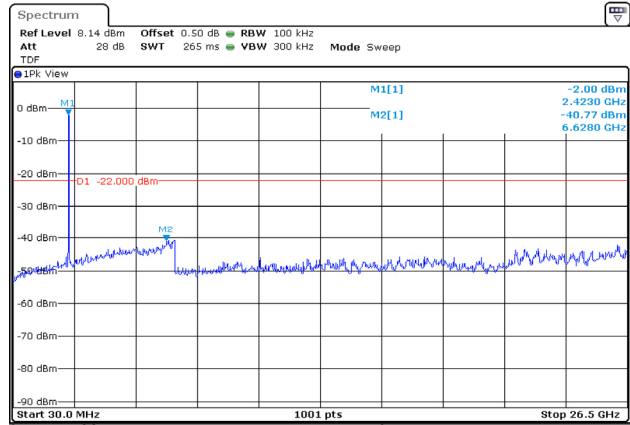
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## Conducted Emissions

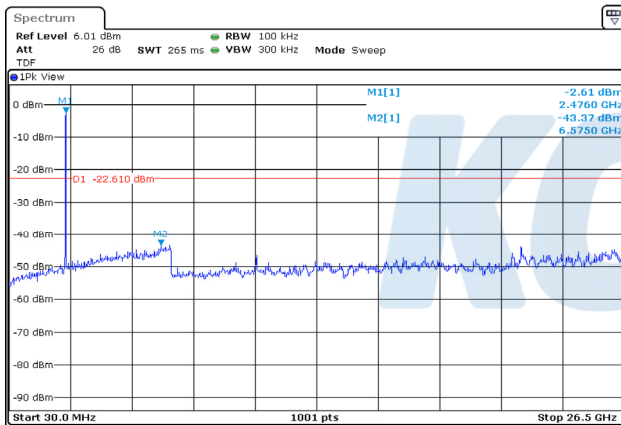
### 802.11g / 1 ch.



### 802.11g / 6 ch.



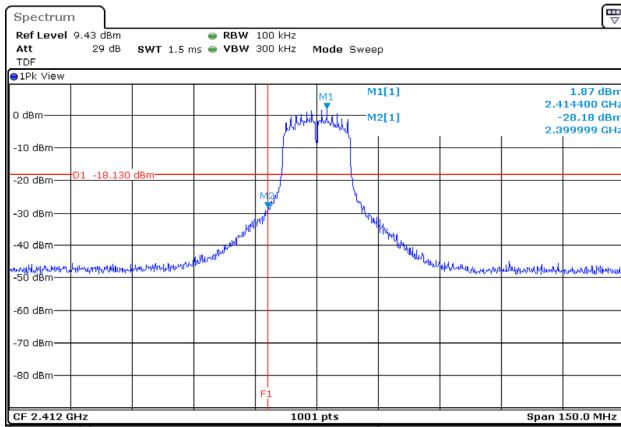
### 802.11g / 11 ch.



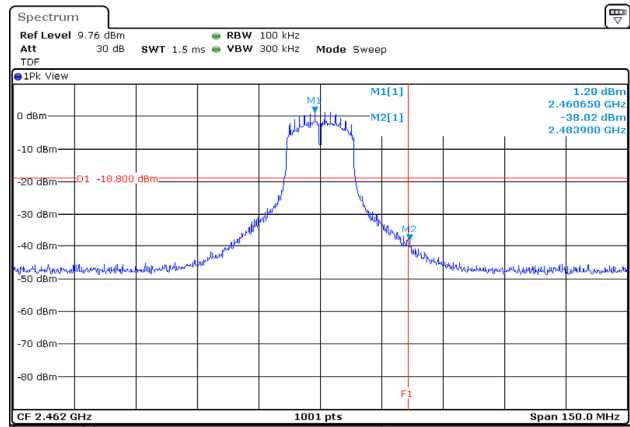
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## Band edge

### 802.11g / 1 ch.



### 802.11g / 11 ch



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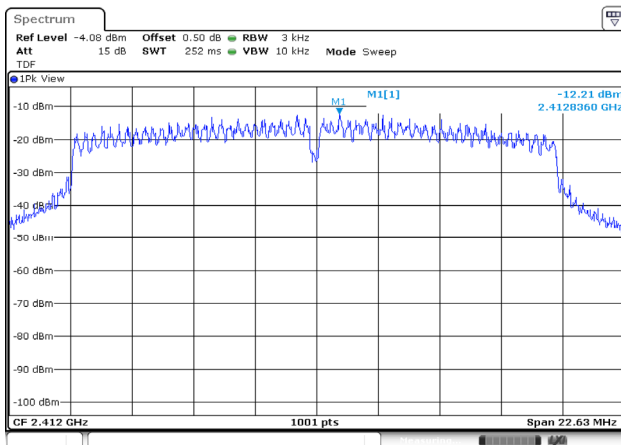
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# KCTL

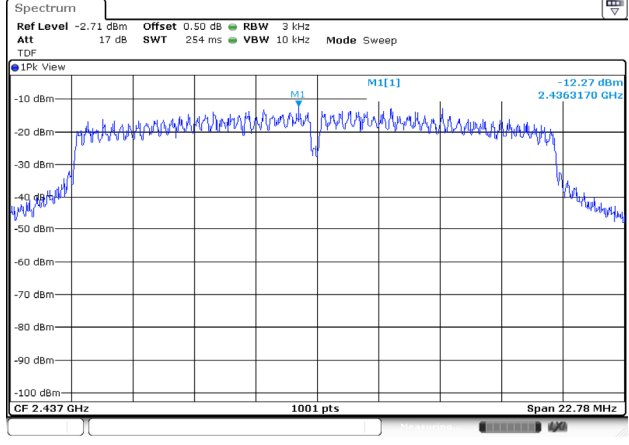
Test mode : 802.11n20

## Reference

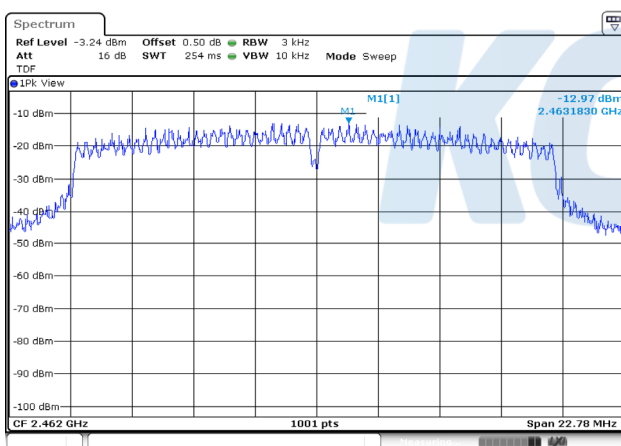
802.11n HT20 / 1 ch.



802.11n HT20 / 6 ch.



802.11n HT20 / 11 ch.



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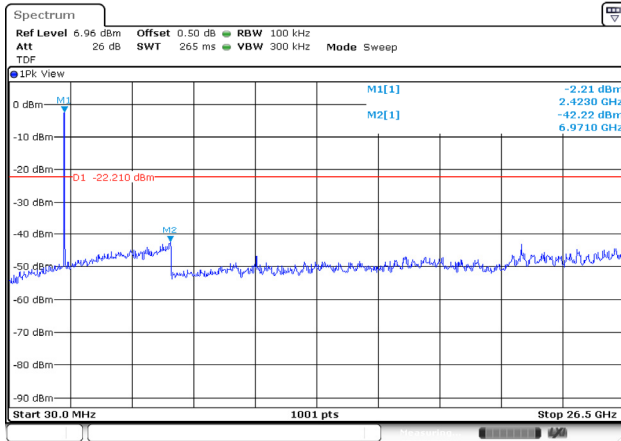
Report No.:  
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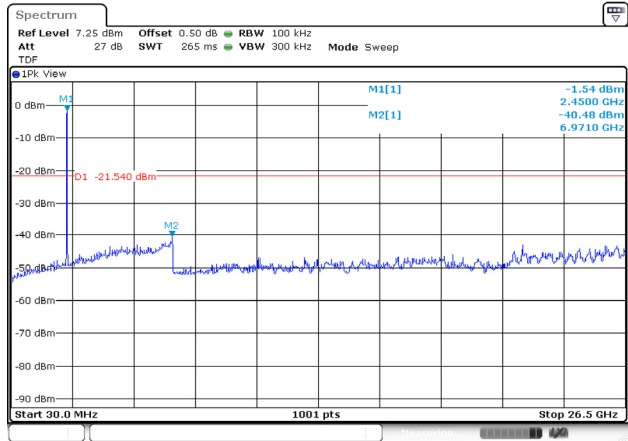
# KCTL

## Conducted Emissions

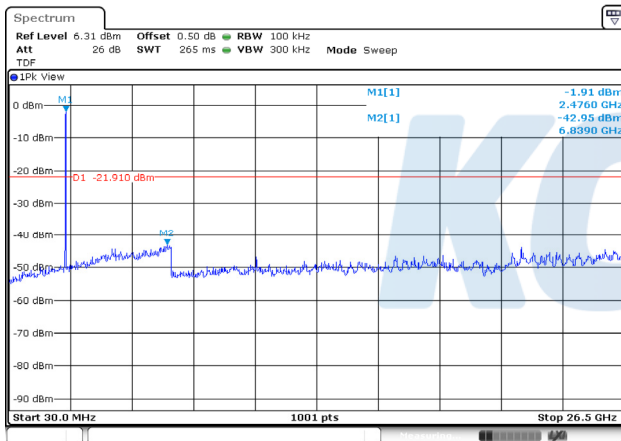
### 802.11n HT20 / 1 ch.



### 802.11n HT20 / 6 ch.



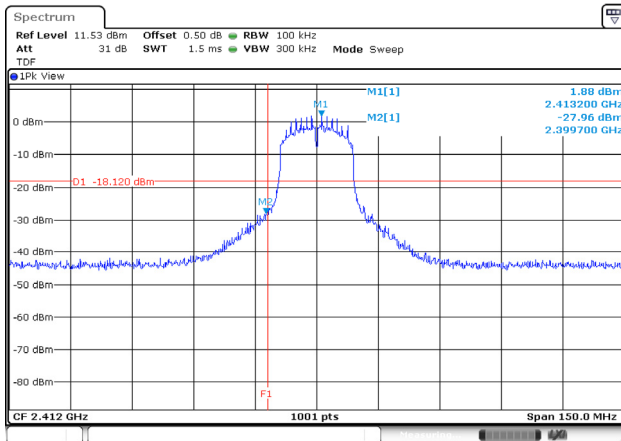
### 802.11n HT20 / 11 ch.



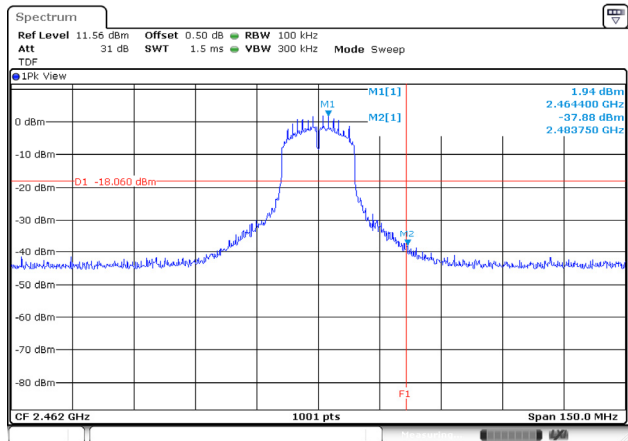
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## Band edge

### 802.11n HT20 / 1 ch.

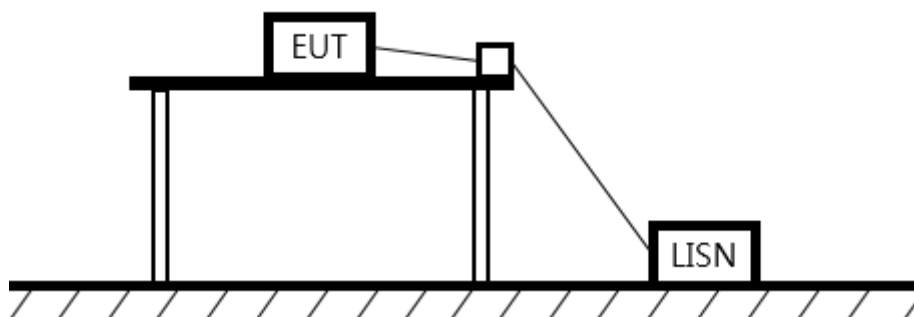


### 802.11n HT20 / 11 ch



## 7.6. AC Conducted emission

### Test setup



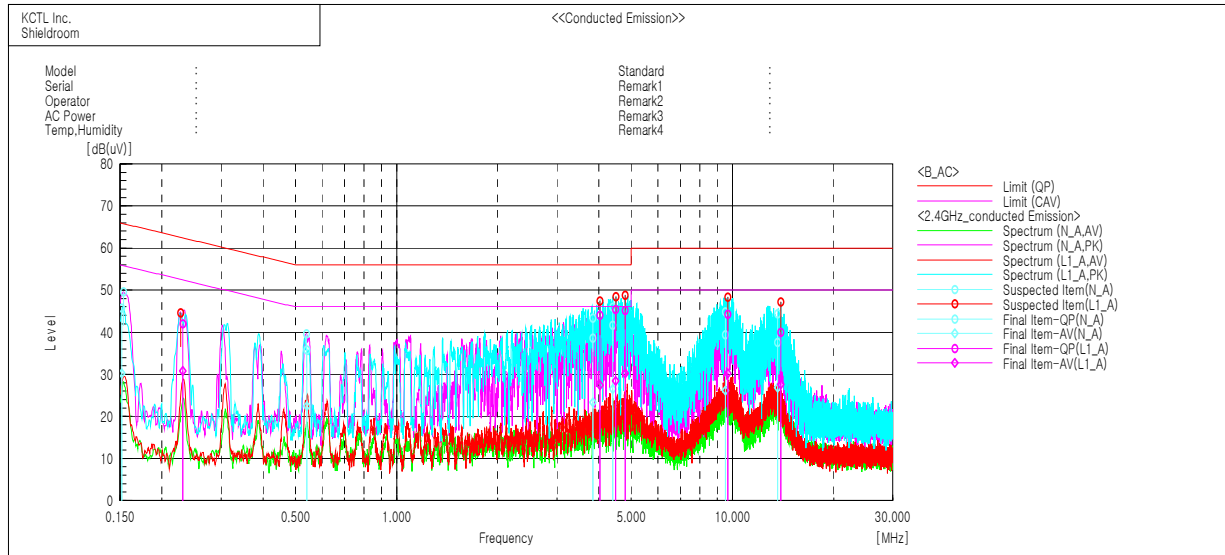
### Limit

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 50 $\mu$ H/50 ohm line impedance stabilization network (LISN). Compliance with the provision of this paragraph shall be 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 in 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.

**Test results**

## Final Result

## --- N\_A Phase ---

| No. | Frequency [MHz] | Reading QP [dB(μV)] | Reading CAV [dB(μV)] | c.f [dB] | Result QP [dB(μV)] | Result CAV [dB(μV)] | Limit QP [dB(μV)] | Limit AV [dB(μV)] | Margin QP [dB] | Margin CAV [dB] |
|-----|-----------------|---------------------|----------------------|----------|--------------------|---------------------|-------------------|-------------------|----------------|-----------------|
| 1   | 0.15176         | 35.7                | 20.2                 | 10.0     | 45.7               | 30.2                | 65.9              | 55.9              | 20.2           | 25.7            |
| 2   | 0.53966         | 25.5                | 12.2                 | 10.2     | 35.7               | 22.4                | 56.0              | 46.0              | 20.3           | 23.6            |
| 3   | 3.84322         | 28.2                | 13.0                 | 10.4     | 38.6               | 23.4                | 56.0              | 46.0              | 17.4           | 22.6            |
| 4   | 4.39542         | 31.2                | 16.1                 | 10.4     | 41.6               | 26.5                | 56.0              | 46.0              | 14.4           | 19.5            |
| 5   | 9.5127          | 28.7                | 15.6                 | 10.6     | 39.3               | 26.2                | 60.0              | 50.0              | 20.7           | 23.8            |
| 6   | 13.63351        | 26.8                | 16.0                 | 10.8     | 37.6               | 26.8                | 60.0              | 50.0              | 22.4           | 23.2            |

## --- L1\_A Phase ---

| No. | Frequency [MHz] | Reading QP [dB(μV)] | Reading CAV [dB(μV)] | c.f [dB] | Result QP [dB(μV)] | Result CAV [dB(μV)] | Limit QP [dB(μV)] | Limit AV [dB(μV)] | Margin QP [dB] | Margin CAV [dB] |
|-----|-----------------|---------------------|----------------------|----------|--------------------|---------------------|-------------------|-------------------|----------------|-----------------|
| 1   | 0.23092         | 32.0                | 20.8                 | 10.0     | 42.0               | 30.8                | 62.4              | 52.4              | 20.4           | 21.6            |
| 2   | 4.02616         | 33.6                | 17.0                 | 10.4     | 44.0               | 27.4                | 56.0              | 46.0              | 12.0           | 18.6            |
| 3   | 4.49066         | 35.0                | 18.0                 | 10.4     | 45.4               | 28.4                | 56.0              | 46.0              | 10.6           | 17.6            |
| 4   | 4.79126         | 34.7                | 19.8                 | 10.4     | 45.1               | 30.2                | 56.0              | 46.0              | 10.9           | 15.8            |
| 5   | 9.68405         | 33.5                | 19.5                 | 10.7     | 44.2               | 30.2                | 60.0              | 50.0              | 15.8           | 19.8            |
| 6   | 13.93647        | 29.0                | 16.7                 | 10.9     | 39.9               | 27.6                | 60.0              | 50.0              | 20.1           | 22.4            |

## 8. Measurement equipment

| Equipment Name              | Manufacturer         | Model No.                                     | Serial No.  | Next Cal. Date |
|-----------------------------|----------------------|-----------------------------------------------|-------------|----------------|
| Spectrum Analyzer           | R & S                | FSV30                                         | 100807      | 20.07.30       |
| Spectrum Analyzer           | R & S                | FSV40                                         | 100988      | 21.01.03       |
| DC Power Supply             | AGILENT              | E3632A                                        | MY40001543  | 20.05.13       |
| Wideband Power Sensor       | R & S                | NRP-Z81                                       | 102398      | 21.01.21       |
| Attenuator                  | API Inmet            | 40AH2W-10                                     | 15          | 20.08.01       |
| Attenuator                  | R & S                | DNF<br>Dämpfungsglied<br>10 dB in<br>N-50 Ohm | 31211       | 20.05.13       |
| EMI TEST RECEIVER           | R & S                | ESCI                                          | 100732      | 21.01.22       |
| Bi-Log Antenna              | SCHWARZBECK          | VULB 9168                                     | 583         | 20.05.04       |
| Amplifier                   | SONOMA<br>INSTRUMENT | 310N                                          | 284608      | 20.08.22       |
| COAXIAL FIXED<br>ATTENUATOR | Agilent              | 8491B-003                                     | 2708A18758  | 20.05.04       |
| Horn antenna                | ETS.lindgren         | 3116                                          | 00086635    | 20.05.09       |
| Horn antenna                | ETS.lindgren         | 3117                                          | 161225      | 20.05.22       |
| AMPLIFIER                   | L-3 Narda-MITEQ      | AMF-7D-01001800-<br>22-10P                    | 2031196     | 20.02.21       |
| AMPLIFIER                   | L-3 Narda-MITEQ      | JS44-18004000-33<br>-8P                       | 2000997     | 20.08.01       |
| Broadband<br>PreAmplifier   | SCHWARZBECK          | BBV9718                                       | 216         | 20.07.30       |
| LOOP Antenna                | R & S                | HFH2-Z2                                       | 100355      | 20.08.24       |
| 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 | 20.05.14       |
| TWO-LINE V -<br>NETWORK     | R&S                  | ENV216                                        | 101584      | 20.04.05       |
| EMI TEST RECEIVER           | R & S                | ESCI                                          | 101408      | 20.02.22       |
| Signal Generator            | R & S                | SMB100A                                       | 176206      | 21.01.21       |
| Cable Assembly              | RadiAll              | 2301761768000PJ                               | 1724.659    | -              |
| Cable Assembly              | gigalane             | RG-400                                        | -           | -              |
| Cable Assembly              | HUER+SUHNER          | SUCOFLEX 104                                  | MY4342/4    | -              |

**End of test report**