

5.7 Number of hopping channels

5.7.1 Limit

Frequency hopping systems in the 2400-2483.5MHz band shall use at least 15 channels.

5.7.2 Test setup

| БЛТ | Spectrum |
|-----|----------|
| EUT | Analyzer |

5.7.3 Test procedure

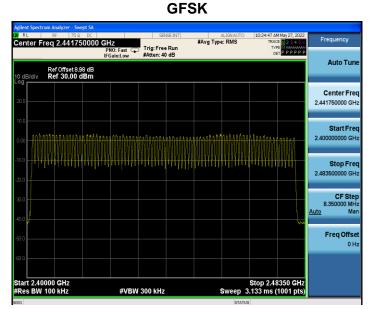
- a) Test method: ANSI C63.10-2013 Section 7.8.3
- b) The EUT was set to hopping mode during the test.
- c) The tranistter output of EUT is connneted to the specturm analyzer.
- d) Spectrum analyzer setting: RBW = 100 kHz, VBW = 300 kHz, Detector = Peak.

5.7.4 Test results

| Mode | Quantity of Hopping Channel | Limit | Results |
|-----------|--------------------------------|-------|---------|
| GFSK | 79 | ≥15 | Pass |
| π/4-DQPSK | 79 | ≥15 | Pass |
| 8DPSK | 79 | ≥15 | Pass |



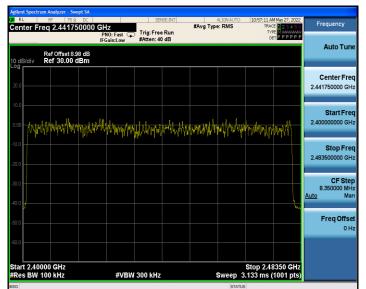
Number of hopping channels



π/4-DQPSK

| RL Center F | ⊮ 75Ω Freq 2.441750 | 0000 GH | | | SE:INT | #Avg Typ | ALIGNAUTO e: RMS | TRAC | M May 27, 2022 | Frequency |
|----------------|---------------------------------|-----------|------------------------|------------|----------|----------|---------------------|-----------|----------------|--------------------------------------|
| 0 dB/div | Ref Offset 8.98 Ref 30.00 di | IFG dB | 10: Fast 😱 Sain:Low | #Atten: 40 | | | | D | PPPPP | Auto Tun |
| 20.0 | | | | | | | | | | Center Fre 2.441750000 GF |
| | hunnththen | MMM | Www. | MMMM | tul/www. | ₩₩₩₩ | Handdyd | ppyyyy | WWA{ | Start Fr 2.400000000 G |
| 0.0 | | | | | | | | | | Stop Fr 2.483500000 G |
| 0.0 | | | | | | | | | | CF St 8.350000 M <u>Auto</u> M |
| 0.0 | | | | | | | | | ~* | Freq Offs 0 |
| 50.0 | 0000 GHz | | | | | | | Stop 2.4 | 3350 GHz | |
| | 100 kHz | | #VBW | 300 kHz | | | Sweep 3 | .133 ms (| 1001 pts) | |

8DPSK



5.8 Conducted emissions at the band edge

5.8.1 Limits

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 §15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).

5.8.2 Test setup



5.8.3 Test procedure

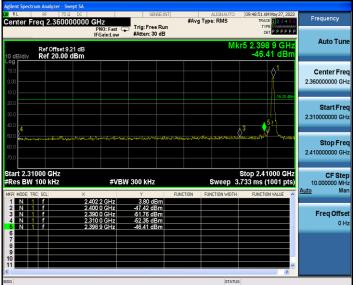
- a) Test method: ANSI C63.10-2013 Section 6.10.4
- b) The EUT was set to non-hopping mode & hopping mode during the test.
- c) The transmitter output of EUT is connected to the spectrum analyzer.
- d) Spectrum analyzer setting: RBW = 100 kHz, VBW = 300 kHz, Detector = Peak.

5.8.4 Test results



GFSK mode - conducted emissions at the band edge

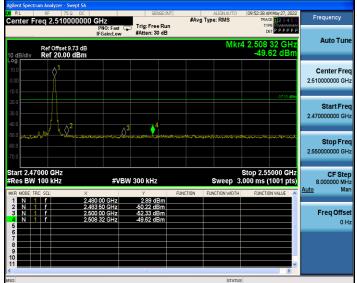
Low band-edge (no-hopping mode mode)



Low band-edge (hopping mode)

| RL | RF | 75Ω DC | | SENSE | | ALIGN AUTO | | M May 27, 2022 | Frequency |
|----------------|--------------------|------------|------------------------|--------------------------|-----------------|-----------------------------|-----------|------------------------|------------------------|
| enter Fi | req 2.35 | 2500000 | CHZ PNO: Fast | Trig: Free R | tun | /g Type: RMS | T | | Trequency |
| | | et 9.79 dB | IFGain:Low | #Atten: 30 d | В | Mkr | 5 2.385 1 | 155 GHz | Auto Tur |
| dB/div | Ref 20 | .00 dBm | | | | | -49. | 25 dBm | |
| 0.0 | | | | | | | | 1 | Center Fre |
| | | | | | | | | M | 2.352500000 GH |
| 1.0 | | | | | | | | -16.36 dBm | |
| 1.0 | | | | | | | | -16.36 0.64 | Start Fre |
| 1.0 | | | | | | | | | 2.300000000 G |
| 1.0 | . 4 | | | | | | 5 3 | <mark>2</mark> | 2.0000000000 |
| 1.0 | | | a abaadaaadaa | and the order to the | at data ta hase | والمعادلة والجروب والمعادات | | - | |
| 1.0 | | | | | | | | | Stop Fre |
| 0.0 | | | | | | | | | 2.40500000 GI |
| | | | | | | | | | |
| | 000 GHz 100 kHz | | #\/B | W 300 kHz | | Sween | Stop 2.4 | 0500 GHz (1001 pts) | CF Ste 10.500000 Mi |
| R MODE TH | | × | <i>"</i> • E | Y | FUNCTION | EINCTION WIDTH | | | Auto Mi |
| IN 1 | f | 2.40 | 5 000 GHz | 3.64 dBn | 1 | FUNCTION WIDTH | 1 FUNCT | UN VALUE | |
| 2 N 1 3 N 1 | f | | 0 000 GHz 0 000 GHz | -48.29 dBn -50.87 dBn | | | | | Freq Offs |
| 1 N 1 | f | 2.31 | 0 000 GHz | -52.24 dBn | 1 | | | | 01 |
| 5 N 1 | - T | 2.38 | 5 155 GHz | -49.25 dBn | 1 | | | | |
| 7 | | | | | | | | | |
| 9 | | | | | | | | | |
| 1 | | | | | | | | ~ | |
| _ | | | | ш | | | | > | |
| 3 | | | | | | STAT | JS | | |

High band-edge (non-hopping mode)



High band-edge (hopping mode)

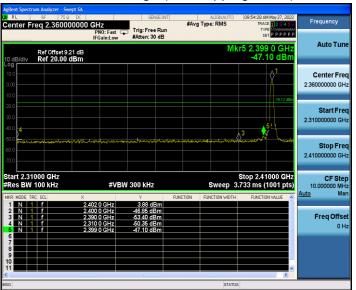
| Agilent Spectrum Analyzer - Swept SA | | | | |
|--------------------------------------|---|--|--|---|
| Center Freq 2.510000000 | GH7 SENS | EINT AL #Avg Type: | | 1 May 27, 2022 E 1 2 3 4 5 6 Frequency |
| Ref Offset 9.32 dB | PNO: Fast Trig: Free F IFGain:Low #Atten: 30 c | lun | TYP DE Mkr4 2.520 | |
| 10 dB/div Ref 20.00 dBm | | | -49.0 | Center Fr 2.510000000 G |
| -20.0 -30.0 -40.0 | | 4 | | 2.470000000 G |
| -50.0 -60.0 -70.0 | | าทุง _{มาก} สารสรรรม _ี เหมือบราย ¹⁴⁴ อาจพุ | nen söknigen giften kinsse kinder. | Stop Fr 2.55000000 G |
| Start 2.47000 GHz #Res BW 100 kHz | #VBW 300 kHz | FUNCTION FUNCT | Stop 2.55 weep 3.000 ms (1 ION WIDTH FUNCTIO | 1001 pts) 8.000000 M |
| 2 N 1 f 2.48 3 N 1 f 2.50 | 18 00 GHz 2.30 dBr 33 50 GHz 51.86 dBn 20 00 GHz 51.76 dBn 20 64 GHz 49.89 dBn | 1 | | Freq Offs 0 |
| 7 8 9 10 11 | | | | |
| MSG | Ш | | STATUS | |



$\pi/4\text{-}DQPSK$ mode - conducted emissions at the band edge

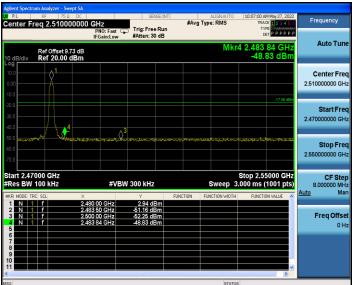
Low band-edge (non-hopping mode)

High band-edge (non-hopping mode)



Low band-edge (hopping mode)

| enter Freq 2.3525 | DC 00000 GHz PNO: Fast | SENSE:INT | ALIGNAUTO #Avg Type: RMS | 10:28:23 AM May 27, 2022 TRACE 2 3 4 5 6 TYPE MINIMUM | Frequency |
|---|--|--|--|---|------------------------------|
| Ref Offset 9. dB/div Ref 20.00 | IFGain:Low | | Mkr5 | 2.388 095 GHz -49.89 dBm | Auto Tur |
| | | | | -15.36 def | Center Fre 2.352500000 GH |
| | | | | -15.8 dell | Start Fre 2.300000000 Gi |
| 0.0 | rtstadjagrenskistart er stadiosofis | , colo (browniki) or office and the | 1999 (1999 (1999 (1999 (1999 (1999 (1999 (1999 (1999 (1999 (1999 (1999 (1999 (1999 (1999 (1999 (1999 (1999 (19 | er op skalden gen en som folk | Stop Fre 2.405000000 Gi |
| tart 2.30000 GHz Res BW 100 kHz | #V | BW 300 kHz | | Stop 2.40500 GHz .867 ms (1001 pts) | CF Ste 10.500000 Mi |
| KR MODE TRC SCL | × 2.403 950 GHz | ۲ 3.64 dBm | FUNCTION FUNCTION WIDTH | FUNCTION VALUE | Auto Ma |
| 2 N 1 f 3 N 1 f 4 N 1 f 5 N 1 f 6 | 2.400 000 GHz 2.390 000 GHz 2.310 000 GHz 2.388 095 GHz | -49.17 dBm -51.61 dBm -52.70 dBm -49.89 dBm | | | Freq Offs 01 |
| 7 8 9 0 1 | | | | | |
| g | | Ш | STATU | > | |



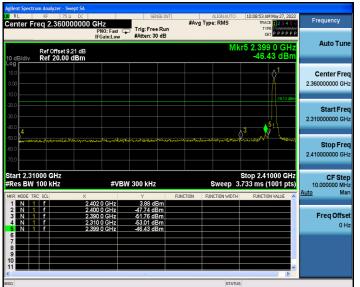
High band-edge (hopping mode)

| Agilent Spectrum Analyzer - Swept SA | | | | | | |
|--|------------------------------|--|------------|---------------------|---|--------------------------------|
| RL RF 75 Q DC Center Freq 2.510000000 | | SENSE:INT | #Avg Typ | ALIGNAUTO e: RMS | 10:50:11 AM May 27, TRACE 1 2 3 TYPE | Frequency |
| Ref Offset 9.32 dB 10 dB/div Ref 20.00 dBm | | tten: 30 dB | | Mkr4 | 2.518 16 G -48.80 dE | Auto Tune |
| | | | | | | Center Free 2.510000000 GHz |
| -20.0 | | | 4 | | -16.75 | Start Fred 2.470000000 GH; |
| -50.0 | | | | | under ander der den der | 2.55000000 GHz |
| Start 2.47000 GHz #Res BW 100 kHz | #VBW 30 | | | Sweep 3. | Stop 2.55000 G 000 ms (1001 p | ets) 8.000000 MH |
| 2 N 1 F 244 3 N 1 F 245 4 N 1 F 255 6 7 8 9 9 | I3 50 GHz -5 I0 00 GHz -5 | Y FU 3.25 dBm 1.02 dBm 1.03 dBm 3.80 dBm | NCTION FUI | NCTION WIDTH | FUNCTION VALUE | Freq Offse |
| 11 | | ш | | STATUS | | |



8DPSK mode - conducted emissions at the band edge

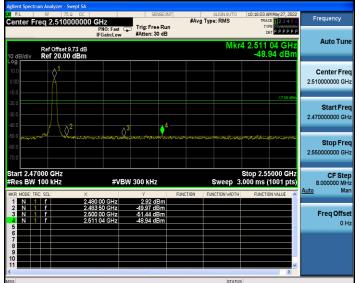
Low band-edge (non-hopping mode)



Low band-edge (hopping mode)

| RL | RF | 75Ω DC | | SENSE: | | ALIGN AUTO | | M May 27, 2022 | Frequency |
|-------------------------|------------|------------|--|--|----------|----------------------|------------------|--|-------------------------|
| enter F | req 2.35 | 2500000 | PNO; Fast | 🔔 Trig: Free Ru | in | g Type: RMS | TV9 | E 1 2 3 4 5 6 E M UMUMU T P P P P P P | . requeitey |
| | | et 9.79 dB | IFGain:Low | #Atten: 30 dE | 3 | Mkr5 | 2.375 9 | | Auto Tur |
| 0 dB/div og r | Ref 20. | .00 dBm | | | | | -47.3 | 93 aBm | |
| 10.0 | | | | | | | | | Center Fre |
| | | | | | | | | jw | 2.352500000 G |
| 0.0 | _ | | | | | | | -15.64 dBm | |
| 0.0 | | | | | | | | | Start Fre |
| 0.0 | | | | | | | | | 2.30000000 G |
| 10.0 | ∕\4 | | | | | ⁵ | | - <u>(</u> | |
| i0.0 | the second | | 10-10-10-10-10-10-10-10-10-10-10-10-10-1 | and a second | | and statements and a | teler and Marine | and the | Stop Fre |
| 50.0 | | | | | | | | | 2.405000000 GH |
| 70.0 | | | | | | | | | |
| | 0000 GHz | | | | | | Stop 2.40 | | CF Ste |
| Res BW | 100 kHz | | #VE | 3W 300 kHz | | Sweep 3 | .867 ms (| 1001 pts) | 10.500000 Mi Auto Mi |
| KR MODE T | RC SCL | × 2.40 | 2 060 GHz | ۲ 4.36 dBm | FUNCTION | FUNCTION WIDTH | FUNCTIO | IN VALUE | Auto Mi |
| 2 N 1 | f | 2.40 | 0 000 GHz | -45.73 dBm | | | | | Freq Offs |
| 3 N 1 4 N 1 | f | 2.31 | 0 000 GHz 0 000 GHz | -50.24 dBm -51.57 dBm | | | | | |
| 5 N 1 | f | 2.37 | 5 915 GHz | -47.93 dBm | | | | | |
| 7 | | | | | | | | | |
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| G | | | | | | STATU | | | |

High band-edge (non-hopping mode)



High band-edge (hopping mode)

| gilent Spectrum Analyzer - Swept SA RL RF 75.0 DC | SENS | E:INT AI | IGNAUTO 11:00:39 A/ | 1 May 27, 2022 | _ |
|--|--|--|--|-----------------------|--------------------------|
| enter Freq 2.51000000 | | #Avg Type: | RMS TRAC | E 1 2 3 4 5 6 Free | luency |
| Ref Offset 9.32 dB 0 dB/div Ref 20.00 dBm | IFGain:Low #Atten: 30 | iB | Mkr4 2.509 | A 20 GHz 58 dBm | uto Tun |
| 10.0 10.0 10.0 10.0 10.0 10.0 10.0 | | | | 2.5100 | nter Fre 00000 GH |
| 20.0 30.0 40.0 | | | | | Start Fre 00000 G⊦ |
| 50.0 | | nalesise is an internet of the second se | 1.41.41.44.44.44.44.44.44.44.44.44.44.44 | | Stop Fre |
| Start 2.47000 GHz Res BW 100 kHz | #VBW 300 kHz | | Stop 2.55 weep 3.000 ms (| 1001 pts) 8.0 | CF Ste 00000 MI Mi |
| 2 N 1 f 2.4 3 N 1 f 2.5 4 N 1 f 2.5 5 5 | 176 00 GHz 2.59 dBi 183 50 GHz -52.13 dBr 500 00 GHz -52.95 dBr 509 20 GHz -49.68 dBr | n n | | Fr | eq Offs 0 I |
| 6 7 8 9 10 | | | | | |
| 36 | Ш | | STATUS | | |



5.9 Conducted spurious emissions

5.9.1 Limits

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 §15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).

5.9.2 Test setup



5.9.3 Test procedure

- a) Test method: ANSI C63.10-2013 Section 6.10.4
- b) The EUT was set to non-hopping mode & hopping mode during the test.
- c) The transmitter output of EUT is connected to the spectrum analyzer.
- d) Spectrum analyzer setting: RBW = 100 kHz, VBW = 300 kHz, Detector = Peak.

5.9.4 Test results

Notes:

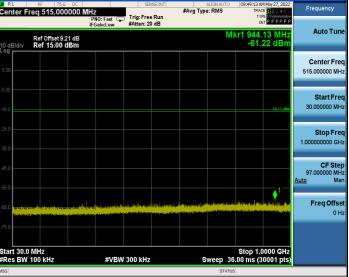
All modes of operation of the EUT were investigated, and only the worst-case results are reported. The worst-case mode: TX mode (GFSK).



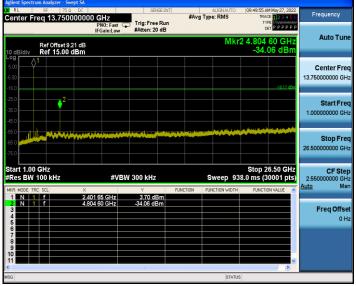
Conducted spurious emissions - GFSK mode

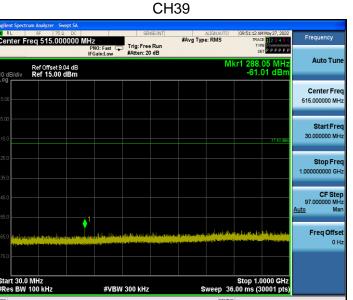


CH0



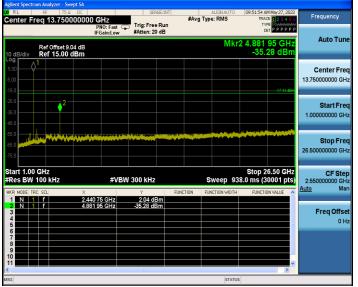
CH0







CH39

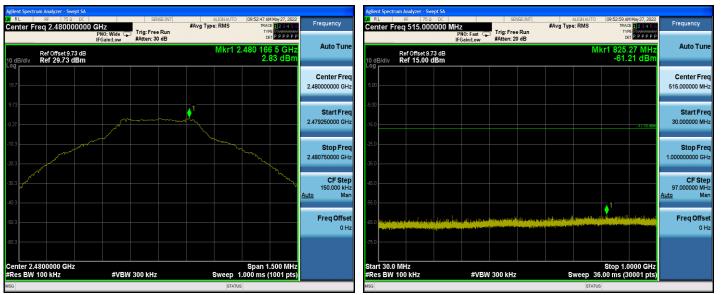


Address: 101, No. 7, Zone 2, Xinxing Industrial Park, Fuhai Avenue, Xinhe Community, Fuhai Street, Bao'an District, Shenzhen, Guangdong, China Tel: (86-755)88850135 Fax: (86-755) 88850136 Web: www.mtitest.com E-mail: mti@51mti.com



Conducted spurious emissions – GFSK mode

CH78



CH78

| RL | um Analyzer - S | | | SENS | - 10.07 | ALIGNAUTO | 09:53:41 AM May 27, 2022 | |
|----------|---------------------------|---------|--------------------------------------|------------------------------|---------------------|----------------|----------------------------------|---------------------------|
| | eq 13.750 | | SHz | | #Av | g Type: RMS | TRACE 123450 | Frequency |
| | | P | NO: Fast G Gain:Low | Trig: Free F #Atten: 20 d | | Mkr | туре Миниции DET P P P P P P | Auto Tur |
| dB/div | Ref Offset 9 Ref 15.00 | dBm | | | | | -36.47 dBm | |
| ¤ —♀ | | | | | | | | Center Fre |
| 0 | | | | | | | | 13.750000000 Gł |
| | | | | | | | -17.16.dBn | |
| | | | | | | | | Start Fre |
| | | | | | | | | 1.00000000 Gi |
| .0 | - | | 6. 2. do (100 - 10 - 4 - 7 - | - | ومروال المراجع والم | | فالموال والمتواجع المرجع المراجع | |
| .0 | | | | | | | | Stop Fre 26.50000000 G |
| .0 | | | | | | | | 20.5000000000 |
| art 1.00 | | | <i>(</i>) () | | | | Stop 26.50 GHz | CF Ste |
| es BW | 100 kHz | x | #VB | N 300 kHz | FUNCTION | Sweep 93 | 8.0 ms (30001 pts) | 2.55000000 Gi Auto M |
| N 1 | f | 2.479 8 | 5 GHz | 1.89 dBr | n | PONCTION WIDTH | FUNCTION VALUE | |
| N 1 | f | 4.960 1 | I5 GHz | -36.47 dBr | n | | | Freq Offs |
| | | | | | | | | 01 |
| | | | | | | | | |
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CH78



5.10 Radiated spurious emission

5.10.1 Limits

§ 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 § 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in § 15.205(a), must also comply with the radiated emission limits specified in § 15.205(c)).

| Frequency (MHz) | Field strength (microvolts/meter) | Measurement distance (meters) |
|--------------------|--------------------------------------|----------------------------------|
| 0.009-0.490 | 2400/F(kHz) | 300 |
| 0.490-1.705 | 24000/F(kHz) | 30 |
| 1.705-30.0 | 30 | 30 |
| 30-88 | 100 | 3 |
| 88-216 | 150 | 3 |
| 216-960 | 200 | 3 |
| Above 960 | 500 | 3 |

§ 15.209 Radiated emission limits; general requirements.

Note 1: the tighter limit applies at the band edges.

Note 2: the emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9-90 kHz, 110-490 kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector

§ 15.35 (b) requirements:

When average radiated emission measurements are specified in this part, including average emission measurements below 1000 MHz, there also is a limit on the peak level of the radio frequency emissions. Unless otherwise specified, e.g., see §§ 15.250, 15.252, 15.253(d), 15.255, 15.256, and 15.509 through 15.519, the limit on peak radio frequency emissions is 20 dB above the maximum permitted average emission limit applicable to the equipment under test.



According to ANSI C63.10-2013, the tests shall be performed in the frequency range shown in the following table:

Frequency range of measurements for unlicensed wireless device

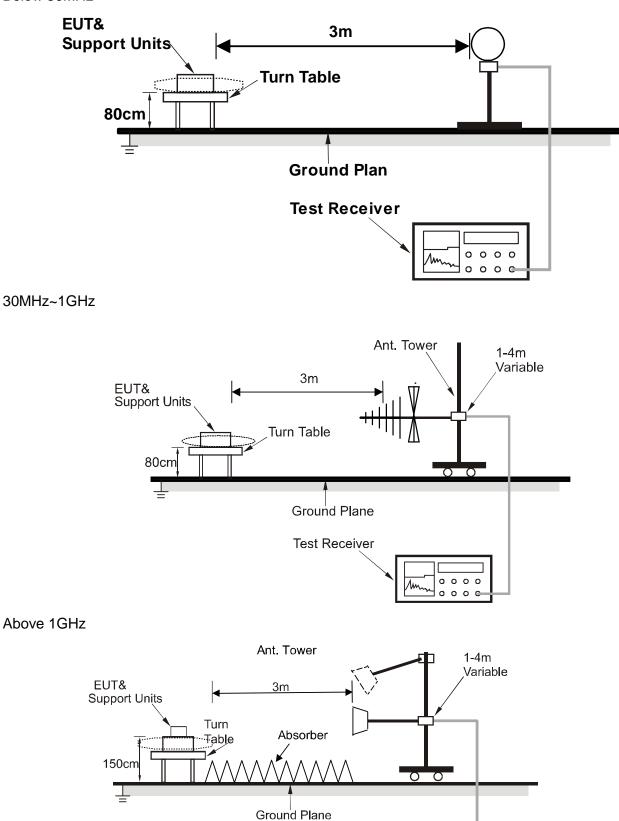
| Lowest frequency generated in the device | Upper frequency range of measurement |
|--|---|
| 9 kHz to below 10 GHz | 10th harmonic of highest fundamental frequency or to 40 GHz, whichever is lower |
| At or above 10 GHz to below 30 GHz | 5th harmonic of highest fundamental frequency or to 100 GHz, whichever is lower |
| At or above 30 GHz | 5th harmonic of highest fundamental frequency or to 200 GHz, whichever is lower, unless otherwise specified |

Frequency range of measurements for unlicensed wireless device with digital device

| Highest frequency generated or used in the device or on which the device operates or tunes | Upper frequency range of measurement |
|--|---|
| Below 1.705 MHz | 30 MHz |
| 1.705 MHz to 108 MHz | 1000 MHz |
| 108 MHz to 500 MHz | 2000 MHz |
| 500 MHz to 1000 MHz | 5000 MHz |
| | 5th harmonic of the highest frequency or 40 GHz, whichever is lower |



5.10.2 Test setup Below 30MHz



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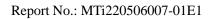
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Pre-amplifier

Spectrum analyzer

For the actual test configuration, please refer to the related item - Photographs of the test setup.





5.10.3 Test procedure

a) Test method: ANSI C63.10-2013 Section 6.3, 6.4, 6.5, 6.6, 6.10.

b) The EUT is placed on an on-conducting table 0.8 meters above the ground plane for measurement below 1GHz, 1.5 meters above the ground plane for measurement above 1GHz.

c) Emission blew 18 GHz were measured at a 3 meters test distance, above 18 GHz were measured at 1.5-meter test distance with the application of a distance correction factor

d) The frequency range of interest is monitored at a fixed antenna height and EUT azimuth. The EUT is rotated through 360 degrees to maximize emissions received. The antenna is scanned from 1 to 4 meters above the ground plane to further maximize the emission. Measurements are made with the antenna polarized in both the vertical and the horizontal positions.

KDB 558074 D01 15.247 Meas Guidance v05r02

The use of a duty cycle correction factor (DCCF) is permitted for calculating average radiated field strength emission levels for an FHSS device in 15.247. This DCCF can be applied when the unwanted emission limit is subject to an average field strength limit (e.g., within a Government Restricted band) and the conditions specified in Section 15.35(c) can be satisfied. The average radiated field strength is calculated by subtracting the DCCF from the maximum radiated field strength level as determined through measurement. The maximum radiated field strength level represents the worst-case (maximum amplitude) RMS measurement of the emission(s) during continuous transmission (i.e., not including any time intervals during which the transmitter is off or is transmitting at a reduced power level). It is also acceptable to apply the DCCF to a measurement performed with a peak detector instead of the specified RMS power averaging detector. Note that Section 15.35(c) specifies that the DCCF shall represent the worst-case (greatest duty cycle) over any 100 msec transmission period.

Test instrument setup

| Frequency | Test receiver / Spectrum analyzer setting |
|------------------|--|
| 9 kHz ~ 150 kHz | Quasi Peak / RBW: 200 Hz |
| 150 kHz ~ 30 MHz | Quasi Peak / RBW: 9 kHz |
| 30 MHz ~ 1 GHz | Quasi Peak / RBW: 120 kHz |
| Above 1 GHz | Peak / RBW: 1 MHz, VBW: 3MHz, Peak detector AVG / RBW: 1 MHz, VBW: 1/T, Peak detector |

5.10.4 Test results

Notes:

The amplitude of spurious emissions which are attenuated more than 20 dB below the limits are not reported.

All modes of operation of the EUT were investigated, and only the worst-case results are reported.

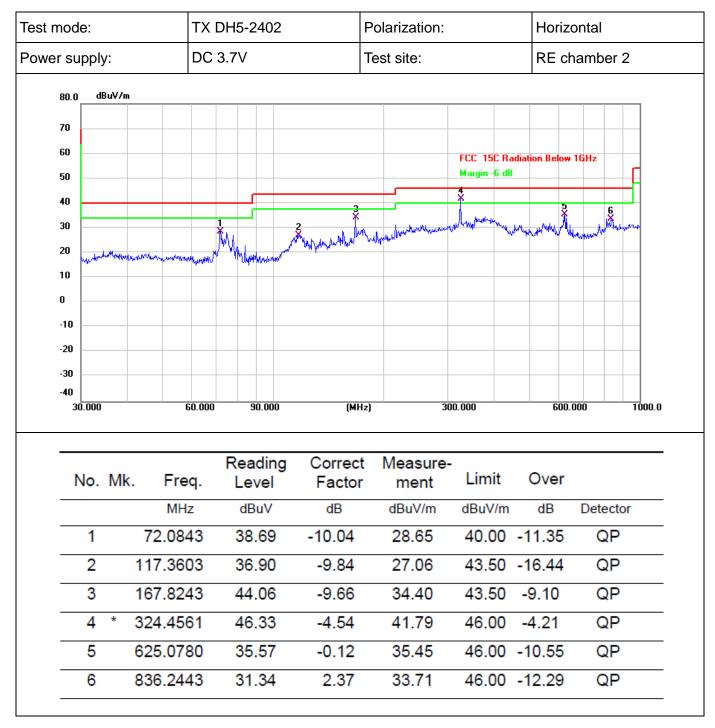
There were no emissions found below 30MHz within 20dB of the limit.

Calculation formula:

Measurement ($dB\mu V/m$) = Reading Level ($dB\mu V$) + Correct Factor (dB/m) Over (dB) = Measurement ($dB\mu V/m$) – Limit ($dB\mu V/m$)

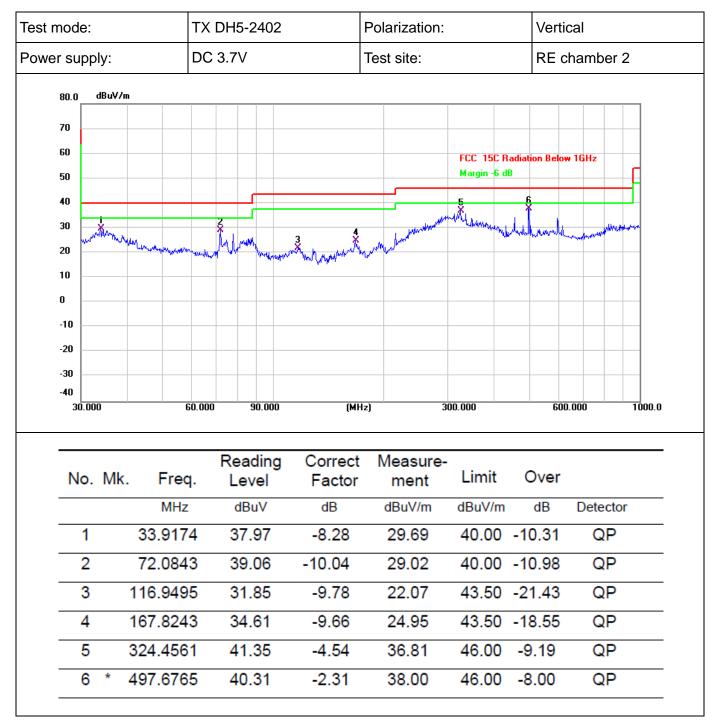


Radiated emissions between 30MHz – 1GHz





Radiated emissions between 30MHz – 1GHz





Radiated emissions 1 GHz ~ 25 GHz

| Frequency | Reading Level | Correct Factor | Measuremen t | Limits | Over | Detector | Polarization | | |
|-------------------------|------------------|-------------------|-----------------|------------|--------|----------|--------------|--|--|
| (MHz) | (dBµV) | (dB/m) | (dBµV/m) | (dBµV/m) | (dB) | Peak/AVG | H/V | | |
| GFSK - 2402 MHz TX mode | | | | | | | | | |
| 4804.000 | 41.47 | 1.52 | 42.99 | 74.00 | -31.01 | Peak | V | | |
| 4804.000 | 35.00 | 1.52 | 36.52 | 54.00 | -17.48 | AVG | V | | |
| 7206.000 | 39.70 | 5.46 | 45.16 | 74.00 | -28.84 | Peak | V | | |
| 7206.000 | 33.59 | 5.46 | 39.05 | 54.00 | -14.95 | AVG | V | | |
| 9608.000 | 41.80 | 6.33 | 48.13 | 74.00 | -25.87 | Peak | V | | |
| 9608.000 | 35.73 | 6.33 | 42.06 | 54.00 | -11.94 | AVG | V | | |
| 4804.000 | 41.58 | 1.52 | 43.10 | 74.00 | -30.90 | Peak | н | | |
| 4804.000 | 35.52 | 1.52 | 37.04 | 54.00 | -16.96 | AVG | н | | |
| 7206.000 | 39.44 | 5.46 | 44.90 | 74.00 | -29.10 | Peak | Н | | |
| 7206.000 | 32.81 | 5.46 | 38.27 | 54.00 | -15.73 | AVG | н | | |
| 9608.000 | 40.21 | 6.33 | 46.54 | 74.00 | -27.46 | Peak | Н | | |
| 9608.000 | 33.80 | 6.33 | 40.13 | 54.00 | -13.87 | AVG | Н | | |
| | | (| GFSK - 2441 I | MHz TX mod | е | | | | |
| 4882.000 | 40.12 | 1.68 | 41.80 | 74.00 | -32.20 | Peak | V | | |
| 4882.000 | 33.52 | 1.68 | 35.20 | 54.00 | -18.80 | AVG | V | | |
| 7323.000 | 39.23 | 5.45 | 44.68 | 74.00 | -29.32 | Peak | V | | |
| 7323.000 | 32.91 | 5.45 | 38.36 | 54.00 | -15.64 | AVG | V | | |
| 9764.000 | 42.65 | 6.37 | 49.02 | 74.00 | -24.98 | Peak | V | | |
| 9764.000 | 36.68 | 6.37 | 43.05 | 54.00 | -10.95 | AVG | V | | |
| 4882.000 | 40.79 | 1.68 | 42.47 | 74.00 | -31.53 | Peak | Н | | |
| 4882.000 | 34.53 | 1.68 | 36.21 | 54.00 | -17.79 | AVG | Н | | |
| 7323.000 | 39.81 | 5.45 | 45.26 | 74.00 | -28.74 | Peak | Н | | |
| 7323.000 | 33.68 | 5.45 | 39.13 | 54.00 | -14.87 | AVG | Н | | |
| 9764.000 | 41.88 | 6.37 | 48.25 | 74.00 | -25.75 | Peak | н | | |
| 9764.000 | 35.80 | 6.37 | 42.17 | 54.00 | -11.83 | AVG | Н | | |



| Frequency | Reading Level | Correct Factor | Measuremen t | Limits | Over | Detector | Polarization | | |
|-----------|-------------------------|-------------------|-----------------|----------|--------|----------|--------------|--|--|
| (MHz) | (dBµV) | (dB/m) | (dBµV/m) | (dBµV/m) | (dB) | Peak/AVG | H/V | | |
| | GFSK - 2480 MHz TX mode | | | | | | | | |
| 4960.000 | 41.66 | 1.83 | 43.49 | 74.00 | -30.51 | Peak | V | | |
| 4960.000 | 35.38 | 1.83 | 37.21 | 54.00 | -16.79 | AVG | V | | |
| 7440.000 | 39.38 | 5.43 | 44.81 | 74.00 | -29.19 | Peak | V | | |
| 7440.000 | 32.71 | 5.43 | 38.14 | 54.00 | -15.86 | AVG | V | | |
| 9920.000 | 42.61 | 6.41 | 49.02 | 74.00 | -24.98 | Peak | V | | |
| 9920.000 | 36.62 | 6.41 | 43.03 | 54.00 | -10.97 | AVG | V | | |
| 4960.000 | 40.97 | 1.83 | 42.80 | 74.00 | -31.20 | Peak | Н | | |
| 4960.000 | 34.51 | 1.83 | 36.34 | 54.00 | -17.66 | AVG | Н | | |
| 7440.000 | 39.24 | 5.43 | 44.67 | 74.00 | -29.33 | Peak | Н | | |
| 7440.000 | 32.81 | 5.43 | 38.24 | 54.00 | -15.76 | AVG | Н | | |
| 9920.000 | 42.02 | 6.41 | 48.43 | 74.00 | -25.57 | Peak | Н | | |
| 9920.000 | 35.75 | 6.41 | 42.16 | 54.00 | -11.84 | AVG | Н | | |



Radiated emissions at band edge

| Frequency | Reading Level | Correct Factor | Measurement | Limits | Over | Detector | Polarization | | |
|-----------|----------------------|-------------------|-------------|-------------|--------|----------|--------------|--|--|
| (MHz) | (dBµV) | (dB/m) | (dBµV/m) | (dBµV/m) | (dB) | Peak/AVG | H/V | | |
| | GFSK – Low band-edge | | | | | | | | |
| (MHz) | (dBµV) | (dB/m) | (dBµV/m) | (dBµV/m) | (dB) | Peak/AVG | H/V | | |
| 2310.000 | 51.11 | -6.60 | 44.51 | 74.00 | -29.49 | Peak | V | | |
| 2310.000 | 41.09 | -6.60 | 34.49 | 54.00 | -19.51 | AVG | V | | |
| 2390.000 | 51.23 | -6.23 | 45.00 | 74.00 | -29.00 | Peak | V | | |
| 2390.000 | 41.34 | -6.23 | 35.11 | 54.00 | -18.89 | AVG | V | | |
| 2310.000 | 51.79 | -6.60 | 45.19 | 74.00 | -28.81 | Peak | Н | | |
| 2310.000 | 41.12 | -6.60 | 34.52 | 54.00 | -19.48 | AVG | Н | | |
| 2390.000 | 50.95 | -6.23 | 44.72 | 74.00 | -29.28 | Peak | Н | | |
| 2390.000 | 41.26 | -6.23 | 35.03 | 54.00 | -18.97 | AVG | Н | | |
| | | | GFSK – High | n band-edge | | | | | |
| 2483.500 | 51.49 | -5.79 | 45.70 | 74.00 | -28.30 | Peak | V | | |
| 2483.500 | 41.33 | -5.79 | 35.54 | 54.00 | -18.46 | AVG | V | | |
| 2500.000 | 50.94 | -5.72 | 45.22 | 74.00 | -28.78 | Peak | V | | |
| 2500.000 | 41.47 | -5.72 | 35.75 | 54.00 | -18.25 | AVG | V | | |
| 2483.500 | 52.18 | -5.79 | 46.39 | 74.00 | -27.61 | Peak | Н | | |
| 2483.500 | 41.81 | -5.79 | 36.02 | 54.00 | -17.98 | AVG | Н | | |
| 2500.000 | 51.05 | -5.72 | 45.33 | 74.00 | -28.67 | Peak | Н | | |
| 2500.000 | 41.58 | -5.72 | 35.86 | 54.00 | -18.14 | AVG | Н | | |



Photographs of the Test Setup

See the appendix – Test Setup Photos.



Photographs of the EUT

See the appendix - EUT Photos.

----End of Report----