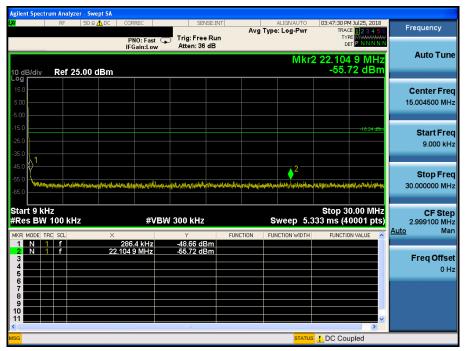
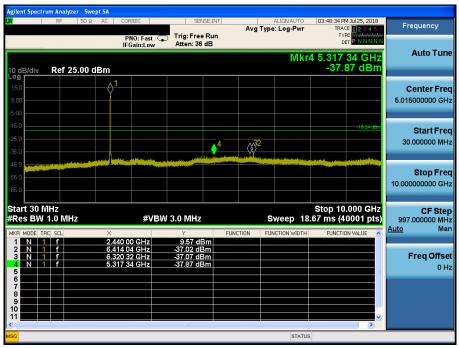
TM 2 & 2437

Reference





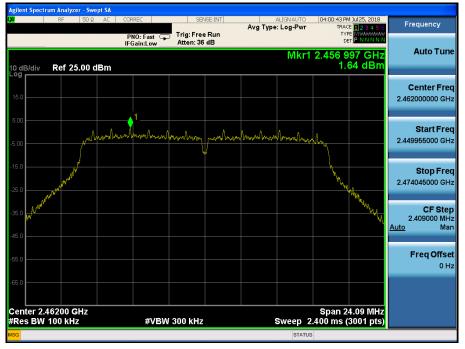




| Agilent Spectr | um Anal | yzer - Swe | pt SA | | | | | | | | | |
|-------------------|---------|------------|-------|----------------------|---------------|-------------------------|--------|--------------|----------------------------|----------------------------|--|-----------------------------|
| L <mark>XI</mark> | RF | 50 Ω | AC | CORREC | | SEN | SE:INT | Aur | ALIGNAUTO Type: Log-Pwr | | 4 Jul 25, 2018 E 1 2 3 4 5 6 | Frequency |
| | | | | PNO: F IFGain: | ∃ast ⊂ Low | Trig: Free Atten: 36 | | Avg | Type. Log-Fwi | TY | | |
| | | | | | | | | | Mkr2 2 | 21.413 1 | | Auto Tune |
| 10 dB/div Log | Ref | 25.00 c | IBm | | | | | | | -27.3 | 90 dBm | |
| 15.0 | | | | | | | | | | | | Center Freq |
| 5.00 | | | | | | | | | | | | 17.50000000 GHz |
| -5.00 | | | | | | | | | | | | |
| -15.0 | | | | | | | | | | | -18 24 d 5 a | |
| -25.0 | | | | | | | | | 2 | | Ŷ | Start Freq |
| -35.0 | | | | | | | | Lucito Maria | None of Contraction | Same and the second second | | 10.00000000 GHz |
| -45.0 | | | | | | | | | | | | |
| -55.0 | | | | | | | | | | | | Stop Freq |
| -65.0 | | | | | | | | | | | | 25.00000000 GHz |
| -03.0 | | | | | | | | | | | | |
| Start 10.0 | | | | | | | | | | Stop 25 | .000 GHz | CF Step |
| #Res BW | 1.0 M | HZ | | | #VBW | 3.0 MHz | | | Sweep 40 | .00 ms (4 | 0001 pts) | 1.500000000 GHz Auto Man |
| MKR MODE TH | | | X | 6 125 GH | | ۲ -25.31 dE | | ICTION | FUNCTION WIDTH | FUNCTIO | IN VALUE | Auto Mari |
| 2 N 1 | | | | 6 125 GF 3 125 GF | | -25.31 dE -27.90 dE | | | | | | |
| 3 | | | | | | | | | | | | Freq Offset |
| 5 | | | | | | | | | | | = | 0 Hz |
| 6 7 | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | |
| < | | | | | | | | | | | × | |
| MSG | | | | | | | | | STATUS | 3 | | |

TM 2 & 2462

Reference



High Band-edge



| Agilent Spectrum Analyzer - Swept | | SENSE: INT | ALIGNAUTO | 04:02:22 PM Jul 25, 2018 | |
|--|--|-------------------------------------|--|--|---------------------------------|
| | PNO: Fast G | | Avg Type: Log-Pwr | TRACE 123456 TYPE MWWWWW DET P N N N N N | Frequency |
| 10 dB/div Ref 25.00 dB | im | | Mk | r2 5.987 7 MHz -55.04 dBm | Auto Tune |
| 15.0 5.00 -5.00 | | | | | Center Freq 15.004500 MHz |
| -15.0 | | | | -16.36 dBm | Start Freq 9.000 kHz |
| -45.0 | 2 รูปพูลประเทศไทร์ มีหน่ารูปหน้ามาระทุมไร้หูรู้ | dennegative Alexandre i ban etrefte | กล่องแรง _{มีเ} ก็เห็ชน์ครั้งสือสู่เกาส์ในสร | รมสรีระการขางหนึ่งที่เหร่างขางการที่ม | Stop Freq 30.000000 MHz |
| Start 9 kHz #Res BW 100 kHz | #VBW | 300 kHz | Sweep 5.3 | Stop 30.00 MHz 333 ms (40001 pts) | CF Step 2.999100 MHz |
| MKR MODE TRC SCL 1 N 1 F 2 N 1 F 3 4 4 | × 288.7 kHz 5.987 7 MHz | Y FU -48.94 dBm -55.04 dBm | NCTION FUNCTION WIDTH | FUNCTION VALUE | Auto Man Freq Offset 0 Hz |
| 6 7 8 9 10 11 | | | | | |
| MSG | | III | STATUS | DC Coupled | |

| Agilent Spectrum Analyzer - Swep | | | | | |
|----------------------------------|--|--------------------------------|--------------------------------|---|------------------------------|
| LXI RF 50 Ω | AC CORREC | SENSE:INT | ALIGNAUTO Avg Type: Log-Pwr | 04:03:37 PM Jul 25, 2018 TRACE 1 2 3 4 5 6 | Frequency |
| | PNO: Fast 🕞 IFGain:Low | Trig: Free Run Atten: 36 dB | 0 / 0 | TYPE MWWWWWW DET P NNNNN | |
| | IFGain:Low | Atten: 50 dB | D.4 Low | | Auto Tune |
| 10 dB/div Ref 25.00 d | 3m | | IVIKE | 3 6.950 92 GHz -37.64 dBm | |
| Log | | | | | |
| 15.0 | \ 1 | | | | Center Freq |
| 5.00 | | | | | 5.015000000 GHz |
| -5.00 | | | | | |
| -15.0 | | | | -18.36 dBm | Start Freq |
| -25.0 | | | A2 A3 | | 30.000000 MHz |
| -35.0 | | at a she was | | | |
| -45.0 | terio de la constante de la co | | | | Otras Essa |
| -55.0 | | | | | Stop Freq 10.00000000 GHz |
| -65.0 | | | | | 10.000000000 GH2 |
| Start 30 MHz | | | | Stop 10.000 GHz | |
| #Res BW 1.0 MHz | #VBV | / 3.0 MHz | Sweep 18 | .67 ms (40001 pts) | CF Step 997.000000 MHz |
| MKB MODE TRC SCL | × | Y FL | INCTION FUNCTION WIDTH | FUNCTION VALUE | <u>Auto</u> Man |
| 1 N 1 f | 2.456 70 GHz | 9.49 dBm | | | |
| 2 N 1 f 3 N 1 f | 5.810 36 GHz 6.950 92 GHz | -37.21 dBm -37.64 dBm | | | Freq Offset |
| 4 | | | | | 0 Hz |
| 6 | | | | | |
| 8 | | | | | |
| 9 | | | | | |
| 11 | | | | ~ | |
| K MSG | | | STATUS | | |
| | | | STATUS | | |

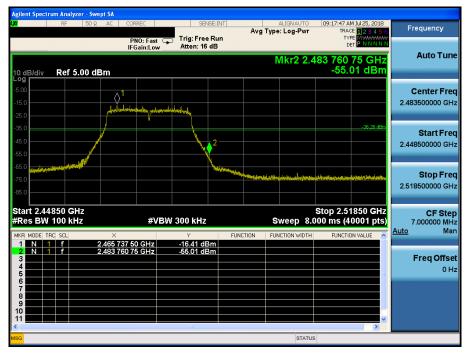


TM 2 & 2472

Reference

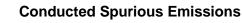


High Band-edge



| Agilent Spectrum Analyzer - Swept S | | | | | | | |
|--|---|--------------------------------|---------------------|--|-----------------------|----------------------|--------------------------------|
| 🕅 RF 50 Ω 🧘 D | C CORREC | SENSE:INT | Ava | ALIGNAUTO Type: Log-Pwr | 09:18:31 AM TRACE | Jul 25, 2018 | Frequency |
| | PNO: Fast 🕞 IFGain:Low | Trig: Free Run Atten: 16 dB | | ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,, | TYPE | PNNNN | |
| 10 dB/div Ref 5.00 dBm | | | | Mk | r2 3.418 -75.1 | 2 MHz 5 dBm | Auto Tune |
| | | | | | | | Center Fred |
| -15.0 | | | | | | | 15.004500 MH; |
| -25.0 | | | | | | -36.26 dBm | 04 |
| -45.0 | | | | | | | Start Fred 9.000 kH; |
| -55.0 | | | | | | | |
| | | | | | | | Stop Free |
| -85.0 | hteriologik sitted to an anna an a | dunlassitetaraninistraistidas | er menen er feldene | ngalihatstangeptopolatistensetang N | antifician (Minister) | ihendrich haberendet | 30.000000 MH |
| Start 9 kHz #Res BW 100 kHz | #VBV | / 300 kHz | | Sweep 5.3 | Stop 30 33 ms (40 | .00 MHz 001 pts) | CF Step 2.999100 MH |
| MKR MODE TRC SCL | × | Y | FUNCTION | FUNCTION WIDTH | FUNCTION | VALUE | <u>Auto</u> Mai |
| 1 N 1 f 2 N 1 f | 291.7 kHz 3.418 2 MHz | -69.29 dBm -75.15 dBm | | | | | |
| 3 | | | | | | | Freq Offse |
| 5 | | | | | | = | 011 |
| 8 | | | | | | | |
| 9 10 10 10 10 10 10 10 10 10 10 10 10 10 | | | | | | | |
| 11 | | | | | | ~ | |
| < | | | | | | | |

| Agilent Spectrum Analyzer - Swep | t SA | | | | |
|----------------------------------|------------------------------|--------------------------------|--------------------------------|--|---------------------------|
| LXU RF 50 Ω | AC CORREC | SENSE:INT | ALIGNAUTO Avg Type: Log-Pwr | 09:19:50 AM Jul 25, 2018 TRACE 1 2 3 4 5 6 | Frequency |
| | PNO: Fast 🖵 | Trig: Free Run Atten: 16 dB | | TYPE MWAAAAAAAA DET P N N N N N | |
| | IFGain:Low | Atten: 10 db | | | Auto Tune |
| 10 dB/div Ref 5.00 dB | - | | IVIKI | 4 8.316 07 GHz -59.28 dBm | |
| Log | | | | | |
| -5.00 | _ <u>Ŷ</u> ' | | | | Center Freq |
| -15.0 | | | | | 5.015000000 GHz |
| -25.0 | | | | | |
| -35.0 | | | | -36.26 dBm | Start Freq |
| -45.0 | . 2 | | 2 | | 30.000000 MHz |
| -55.0 | 3 | | | 4 | |
| -65.0 | | | | and and in a particular state of the second st | |
| -75.0 | | | | | Stop Freq |
| -85.0 | | | | | 10.00000000 GHz |
| | | | | | |
| Start 30 MHz #Res BW 1.0 MHz | #\/B\A | 3.0 MHz | Sween 18 | Stop 10.000 GHz .67 ms (40001 pts) | CF Step 997.000000 MHz |
| MKR MODE TRC SCL | × | | OCTION FUNCTION WIDTH | FUNCTION VALUE | Auto Man |
| 1 N 1 f | 2.467 42 GHz | -8.43 dBm | PONCTION WIDTH | FONCTION VALUE | |
| 2 N 1 f 3 N 1 f | 5.783 94 GHz 2.611 48 GHz | -57.04 dBm -58.42 dBm | | | Freq Offset |
| 4 N 1 f | 8.316 07 GHz | -59.28 dBm | | | 0 Hz |
| 6 | | | | | |
| 8 | | | | | |
| 9 | | | | | |
| 10 | | | | ~ | |
| < | | | | <u> </u> | |
| <mark>MSG</mark> | | | STATUS | 6 | |





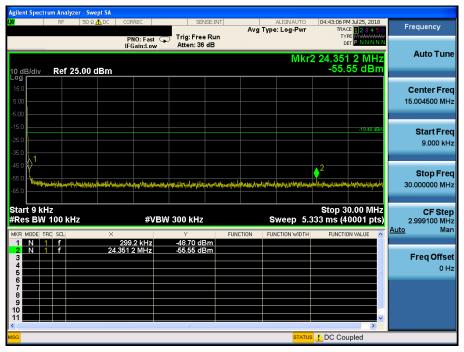
TM 3 & 2412

Reference



Low Band-edge





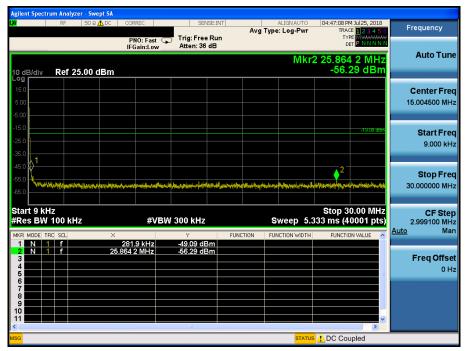
| Agilent Spectrum Analyzer - Swept SA | | | | | |
|--------------------------------------|---------------|---------------------------|--------------------------------|---|--------------------------------|
| LXI RF 50 Ω AC | CORREC | SENSE:INT | ALIGNAUTO Avg Type: Log-Pwr | 04:44:11 PM Jul 25, 2018 TRACE 1 2 3 4 5 6 | Frequency |
| | | g: Free Run ten: 36 dB | | DET P N N N N N | |
| | ii Gam.eow | | Mkr | 9.377 37 GHz | Auto Tune |
| 10 dB/div Ref 25.00 dBm | | | | -39.76 dBm | |
| Log 15.0 | | | | | |
| 5.00 | | | | | Center Freq 5.015000000 GHz |
| -5.00 | | | | | 3.013000000 GH2 |
| -15.0 | | | | | |
| -25.0 | | | | -19.48 dBm | Start Freq |
| -35.0 | | 0² | | <mark>4</mark> | 30.000000 MHz |
| -45.0 | | | | And the second | |
| -55.0 | | | | | Stop Freq |
| -65.0 | | | | | 10.00000000 GHz |
| Start 30 MHz | | | | Stop 10.000 GHz | |
| #Res BW 1.0 MHz | #VBW 3.0 | MHz | Sweep 18. | 67 ms (40001 pts) | CF Step 997.000000 MHz |
| MKR MODE TRC SCL X | | Y FUNCTI | ON FUNCTION WIDTH | FUNCTION VALUE | <u>Auto</u> Man |
| | | 3.39 dBm 7.64 dBm | | | |
| 3 N 1 f 3.1 | 68 06 GHz -39 |).65 dBm).76 dBm | | | Freq Offset |
| 5 | -// 3/ GHz | 9.76 dBm | | | 0 Hz |
| 6 | | | | | |
| 8 | | | | | |
| 10 | | | | | |
| < | | | | > | |
| <mark>MSG</mark> | | | STATUS | | |



TM 3 & 2437

Reference











TM 3 & 2462

Reference



High Band-edge



| | er - Swept SA | | | | | | | |
|---|------------------------------------|-------------------------|--|--|--|---|---------------------------|--|
| RF | 50 Ω <u>Å</u> DC | CORREC | SENS | E:INT Ave | ALIGNAUTO | 04:52:29 PM | Jul 25, 2018 | Frequency |
| | | PNO: Fast IFGain:Low | Trig: Free I Atten: 36 d | Run | Trype. Log Thi | TYPE | PNNNN | |
| 0 dB/div Ref 2 | 5.00 dBm | | | | Mkr | 2 27.359 -55.9 | 3 MHz 4 dBm | Auto Tune |
| 5.00 | | | | | | | | Center Fred 15.004500 MH; |
| 15.0 25.0 35.0 | | | | | | | -19.25 dBm | Start Fred 9.000 kH; |
| 45 n 🗛 ' | | | | | | | | |
| 55.0 | halistopanaharatahatahat | vletare yskiljugi lege | itemperiya bigin tana bayan fajilafi | ungunharakanikadi yanghirahariyate, | Maqualahydiinatirratiinlanteelaity | n An fhathar la sharan an a | 2 Instantol in pinetol | |
| 55.0 | n na roje i njenik armija kratije. | | turing the second s | ม ครูเสร็จร้อง ได้เสร็จ (สิ่งไป เริงกิน | Sweep 5.3 | Stop 30 | .00 MHz | 30.000000 MH CF Ster 2.999100 MH |
| 55.0 65.0 Start 9 kHz | | | | FUNCTION | and the specified sector in the specified sector of the specified sector is a specified sector of the specified sector is a specified sector of the specified sector is a specified sector of the spec | Stop 30 | .00 MHz | 30.000000 MH CF Ster 2.999100 MH |
| 50 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | | #VE | BW 300 kHz Y | FUNCTION | Sweep 5.3 | Stop 30 333 ms (40 | .00 MHz | 30.000000 MH CF Stej 2.999100 MH <u>Auto</u> Ma Freq Offse |
| 560 0 570 0 571 0 572 0 573 0 1 0 1 1 2 0 3 1 4 5 5 0 7 0 8 0 9 0 | | #VE | 3W 300 kHz -49.48 dBi | FUNCTION | Sweep 5.3 | Stop 30 333 ms (40 | .00 MHz | 30.000000 MH CF Step 2.999100 MH <u>Auto</u> Mai Freq Offse |
| 550 500 550 500 550 500 561 500 562 500 563 500 564 500 565 500 565 500 565 500 565 500 565 500 565 500 565 500 565 500 565 500 565 500 560 500 560 500 560 500 560 500 560 500 560 500 560 500 560 500 560 500 560 500 560 500 560 500 560 500 560 500 560 500 560 500 560 | | #VE | 3W 300 kHz -49.48 dBi | FUNCTION | Sweep 5.3 | Stop 30 333 ms (40 | .00 MHz | Stop Fred 30.00000 MH: 2.999100 MH: <u>Auto</u> Mar Freq Offse 0 H: |

| Agilent Spectrum Analyzer - Swept SA | | | | | |
|--------------------------------------|---------------------------|--------------------------------|--------------------------------|---|-----------------------------------|
| LXI RF 50Ω AC | CORREC | SENSE:INT | ALIGNAUTO Avg Type: Log-Pwr | 04:53:31 PM Jul 25, 2018 TRACE 1 2 3 4 5 6 | Frequency |
| | PNO: Fast 🖵 IFGain:Low | Trig: Free Run Atten: 36 dB | | TYPE MWWWWWW DET P N N N N N | |
| | II Gam.cow | | Mkı | 4 8.142 34 GHz | Auto Tune |
| 10 dB/div Ref 25.00 dBm | | | | -39.49 dBm | |
| 15.0 A | 1 | | | | Center Freq |
| 5.00 | | | | | 5.015000000 GHz |
| -5.00 | | | | | |
| -15.0 | | | | -19:25 dBm | Start Freq |
| -25.0 | | | . 2 | | 30.000000 MHz |
| -35.0 | | | 24 | - ♦ ⁴ | |
| -45.0 | | | | | Stop Freq |
| -55.0 | | | | | 10.000000000 GHz |
| -65.0 | | | | | |
| Start 30 MHz | | | | Stop 10.000 GHz | CF Step |
| #Res BW 1.0 MHz | #VBW | 3.0 MHz | Sweep 18 | 3.67 ms (40001 pts) | 997.000000 MHz <u>Auto</u> Man |
| MKR MODE TRC SCL X | 457 70 GHz | Y FL 8.33 dBm | JNCTION FUNCTION WIDTH | FUNCTION VALUE | Adto Mari |
| 2 N 1 f 5.8 | 318 08 GHz 150 36 GHz | -38.20 dBm -39.45 dBm | | | Freq Offset |
| 4 N 1 f 8.4 | 142 34 GHz | -39.49 dBm | | | 0 Hz |
| 5 | | | | | |
| 8 | | | | | |
| 9 | | | | | |
| 11 < | | | | ~ | |
| MSG | | | STATU | | |





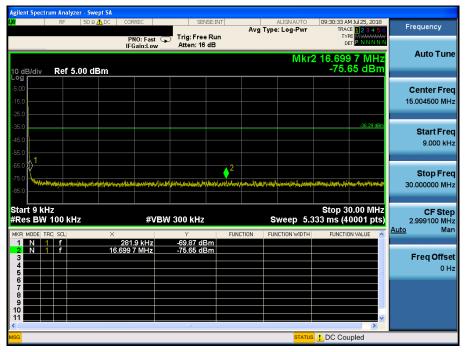
TM 3 & 2472

Reference



High Band-edge





| Agilent Spectrum Analyze | | | | | |
|--------------------------|---|---|--------------------------------|--|-----------------------------------|
| L <mark>XI</mark> RF | 50 Ω AC CORREC | SENSE:INT | ALIGNAUTO Avg Type: Log-Pwr | 09:32:11 AM Jul 25, 2018 TRACE 1 2 3 4 5 6 | Frequency |
| | PNO: Fast | Trig: Free Run Atten: 16 dB | | TYPE MWWWWWW DET P N N N N N | |
| | IFGain:Low | Atten: 16 dB | 841 | | Auto Tune |
| Dec. | 00 JB | | IVIKI | 2 5.713 65 GHz -57.07 dBm | |
| 10 dB/div Ref 5.0 | 00 dBm | | | -07.07 abiii | |
| -5.00 | 0 1 | | | | Center Freq |
| -15.0 | | | | | 5.015000000 GHz |
| -25.0 | | | | | |
| -35.0 | | | | -36.29 dBm | Ctort From |
| -45.0 | | | | | Start Freq 30.000000 MHz |
| -55.0 | | | 2 | | 30.000000 WH2 |
| -65.0 | and the second | Same and the second state of the second state | | And the state of t | |
| -75.0 | | | | | Stop Freq |
| -85.0 | | | | | 10.00000000 GHz |
| | | | | | |
| Start 30 MHz | | | | Stop 10.000 GHz | CF Step |
| #Res BW 1.0 MHz | 2 #V | BW 3.0 MHz | Sweep 18 | .67 ms (40001 pts) | 997.000000 MHz <u>Auto</u> Man |
| MKR MODE TRC SCL | × | | UNCTION FUNCTION WIDTH | FUNCTION VALUE | <u>Auto</u> Man |
| | 2.467 91 GHz 5.713 65 GHz | -8.44 dBm -57.07 dBm | | | |
| 3 | | | | | Freq Offset |
| 5 | | | | £ | 0 Hz |
| 6 | | | | | |
| 8 | | | | | |
| 10 | | | | | |
| | | | | ~ | |
| MSG | | | STATU | 1 | |
| | | | | 1 | |





8.5 Radiated spurious emissions

Test Requirements and limit, §15.247(d), §15.205, §15.209

In any 100 kHz bandwidth outside the operating frequency band, 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. In case the emission fall within the restricted band specified on 15.205(a) and (b), then the 15.209(a) limit in the table below has to be followed.

• FCC Part 15.209(a) and (b)

| Frequency (MHz) | Limit (uV/m) | Measurement Distance (meter) |
|-----------------|---------------|------------------------------|
| 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 |

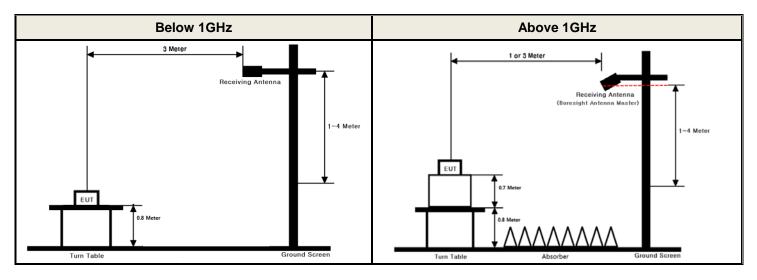
** Except as provided in 15.209(g), fundamental emissions from intentional radiators operating under this Section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this Part, e.g. 15.231 and 15.241.

• FCC Part 15.205 (a): Only spurious emissions are permitted in any of the frequency bands listed below:

| MHz | MHz | MHz | MHz | GHz | GHz |
|-------------------|---------------------|-------------------|-----------------|--------------|---------------|
| 0.009 ~ 0.110 | 8.41425 ~ 8.41475 | 108 ~ 121.94 | 1300 ~ 1427 | 4.5 ~ 5.15 | 14.47 ~ 14.5 |
| 0.495 ~ 0.505 | 12.29 ~ 12.293 | 123 ~ 138 | 1435 ~ 1626.5 | 5.35 ~ 5.46 | 15.35 ~ 16.2 |
| 2.1735 ~ 2.1905 | 12.51975 ~ 12.52025 | 149.9 ~ 150.05 | 1645.5 ~ 1646.5 | 7.25 ~ 7.75 | 17.7 ~ 21.4 |
| 4.125 ~ 4.128 | 12.57675 ~ 12.57725 | 156.52475 ~ | 1660 ~ 1710 | 8.025 ~ 8.5 | 22.01 ~ 23.12 |
| 4.17725 ~ 4.17775 | 13.36 ~ 13.41 | 156.52525 | 1718.8 ~ 1722.2 | 9.0 ~ 9.2 | 23.6 ~ 24.0 |
| 4.20725 ~ 4.20775 | 16.42 ~ 16.423 | 156.7 ~ 156.9 | 2200 ~ 2300 | 9.3 ~ 9.5 | 31.2 ~ 31.8 |
| 6.215 ~ 6.218 | 16.69475 ~ 16.69525 | 162.0125 ~ 167.17 | 2310 ~ 2390 | 10.6 ~ 12.7 | 36.43 ~ 36.5 |
| 6.26775 ~ 6.26825 | 16.80425 ~ 16.80475 | 167.72 ~ 173.2 | 2483.5 ~ 2500 | 13.25 ~ 13.4 | Above 38.6 |
| 6.31175 ~ 6.31225 | 25.5 ~ 25.67 | 240 ~ 285 | 2655 ~ 2900 | | |
| 8.291 ~ 8.294 | 37.5 ~ 38.25 | 322 ~ 335.4 | 3260 ~ 3267 | | |
| 8.362 ~ 8.366 | 73 ~ 74.6 | 399.90 ~ 410 | 3332 ~ 3339 | | |
| 8.37625 ~ 8.38675 | 74.8 ~ 75.2 | 608 ~ 614 | 3345.8 ~ 3358 | | |
| | | 960 ~ 1240 | 3600 ~ 4400 | | |
| | | | | | |

• FCC Part 15.205(b): The field strength of emissions appearing within these frequency bands shall not exceed the limits shown in §15.209. At frequencies equal to or less than 1000 MHz, compliance with the limits in §15.209 shall be demonstrated using measurement instrumentation employing a CISPR quasi-peak detector. Above 1000 MHz, compliance with the emission limits in §15.209 shall be demonstrated based on the average value of the measured emissions. The provisions in §15.35 apply to these measurements.

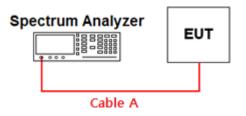
Test Configuration



Test Procedure

- 1. The EUT is placed on a non-conductive table, emission measurements at below 1 GHz, the table height is 80 cm and above 1 GHz, the table height is 1.5 m.
- 2. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
- 3. EUT is set 1 or 3 m away from the receiving antenna, which is varied from 1 m to 4 m to find out the highest emissions.
- 4. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
- 5. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
- 6. Repeat above procedures until the measurements for all frequencies are complete.

Conducted Measurement



Path loss information

| Frequency (GHz) | Path Loss (dB) | Frequency (GHz) | Path Loss (dB) |
|--|----------------|-----------------|----------------|
| 0.03 | 0.46 | 15 | 3.64 |
| 1 | 0.88 | 20 | 5.16 |
| 2.402 & 2.441 & 2480 (2410 & 2445 & 2475) | 1.51 | 25 | 5.17 |
| 5 | 2.56 | - | - |
| 10 | 2.61 | - | - |

Note 1: The path loss from EUT to Spectrum analyzer was measured and used for test.

Path loss (S/A's correction factor) = Cable A

(Attenuator, Applied only when it was used externally)



Measurement Instrument Setting for Radiated Emission Measurements.

The radiated emission was tested according to the section 6.3, 6.4, 6.5 and 6.6 of the ANSI C63.10-2013 with following settings.

Peak Measurement

RBW = As specified in below table, VBW \geq 3 x RBW, Sweep = Auto, Detector = Peak, Trace mode = Max Hold until the trace stabilizes.

| Frequency | RBW |
|-------------|-------------|
| 9-150 kHz | 200-300 Hz |
| 0.15-30 MHz | 9-10 kHz |
| 30-1000 MHz | 100-120 kHz |
| >1000 MHz | 1 MHz |

Average Measurement:

- 1. RBW = 1 MHz (unless otherwise specified).
- 2. VBW \geq 3 x RBW.
- 3. Detector = RMS (Number of points ≥ 2 x Span / RBW)
- 4. Averaging type = power. (i.e., RMS)
- 5. Sweep time = auto.
- 6. Perform a trace average of at least 100 traces.
- 7. 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 4, 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 4, 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.

Duty Cycle Correction factor

| Test Mode | Date rate | Duty Cycle (%) | Duty Cycle Correction Factor (dB) |
|-----------|-----------|-------------------|--------------------------------------|
| TM 1 | 1 Mbps | 99.76 | 0.02 |
| TM 2 | 6 Mbps | 99.84 | 0.01 |
| TM 3 | MCS 0 | 98.90 | 0.05 |

Test Results: Comply

Please refer to next page for data table and the appendix I for worst data plots.

| Tested Frequency | Frequency (MHz) | ANT Pol | EUT Position (Axis) | Detector Mode | Reading (dBuV) | T.F (dB/m) | DCCF (dB) | DCF (dB) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) |
|---------------------|--------------------|------------|---------------------------|------------------|-------------------|---------------|--------------|-------------|--------------------|-------------------|----------------|
| | 2389.14 | V | Z | PK | 51.86 | 2.70 | N/A | N/A | 54.56 | 74.00 | 19.44 |
| 2412 | 2389.25 | V | Z | AV | 41.80 | 2.70 | N/A | N/A | 44.50 | 54.00 | 9.50 |
| 2412 | 4823.67 | Н | Х | PK | 51.47 | 1.49 | N/A | N/A | 52.96 | 74.00 | 21.04 |
| | 4823.88 | Н | Х | AV | 43.95 | 1.49 | N/A | N/A | 45.44 | 54.00 | 8.56 |
| 2437 | 4874.21 | Н | Х | PK | 50.05 | 1.62 | N/A | N/A | 51.67 | 74.00 | 22.33 |
| 2437 | 4873.91 | Н | Х | AV | 42.60 | 1.62 | N/A | N/A | 44.22 | 54.00 | 9.78 |
| | 2483.53 | Н | Х | PK | 53.75 | 3.10 | N/A | N/A | 56.85 | 74.00 | 17.15 |
| 2462 | 2483.60 | Н | Х | AV | 42.50 | 3.10 | N/A | N/A | 45.60 | 54.00 | 8.40 |
| 2402 | 4924.09 | Н | Х | PK | 50.97 | 1.78 | N/A | N/A | 52.75 | 74.00 | 21.25 |
| | 4923.98 | Н | Х | AV | 43.33 | 1.78 | N/A | N/A | 45.11 | 54.00 | 8.89 |
| | 2483.66 | н | Х | PK | 51.41 | 3.10 | N/A | N/A | 54.51 | 74.00 | 19.49 |
| 2472 | 2483.58 | н | Х | AV | 42.55 | 3.10 | N/A | N/A | 45.65 | 54.00 | 8.35 |
| 2472 | 4944.72 | Н | Х | PK | 50.26 | 1.83 | N/A | N/A | 52.09 | 74.00 | 21.91 |
| | 4943.86 | Н | Х | AV | 39.25 | 1.83 | N/A | N/A | 41.08 | 54.00 | 12.92 |

Radiated Spurious Emissions data(9 kHz ~ 25 GHz) : Test Mode 1(TM 1)

Note.

1. The radiated emissions were investigated 9kHz to 25GHz. And no other spurious and harmonic emissions were found above listed frequencies.

2. Sample Calculation.

Margin = Limit – Result / Result = Reading + T.F + DCCF + DCF / T.F = AF + CL – AG Where, T.F = Total Factor, AF = Antenna Factor, CL = Cable Loss, AG = Amplifier Gain, DCCF = Duty Cycle Correction Factor, DCF = Distance Correction Factor

3. Information of Distance Factor.

For finding emissions, the test distance might be reduced from 3m to 1m. In this case, the distance factor(-9.54dB) is applied to the result.

- Calculation of distance factor = 20 log(applied distance / required distance) = 20 log(1 m / 3 m) = -9.54 dB

| Tested Frequency | Frequency (MHz) | ANT Pol | EUT Position (Axis) | Detector Mode | Reading (dBuV) | T.F (dB/m) | DCCF (dB) | DCF (dB) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) |
|---------------------|--------------------|------------|---------------------------|------------------|-------------------|---------------|--------------|-------------|--------------------|-------------------|----------------|
| | 2388.84 | V | Z | PK | 53.23 | 2.69 | N/A | N/A | 55.92 | 74.00 | 18.08 |
| 2412 | 2389.75 | V | Z | AV | 42.80 | 2.70 | N/A | N/A | 45.50 | 54.00 | 8.50 |
| 2412 | 4824.55 | Н | Х | PK | 50.59 | 1.49 | N/A | N/A | 52.08 | 74.00 | 21.92 |
| | 4823.68 | Н | Х | AV | 40.19 | 1.49 | N/A | N/A | 41.68 | 54.00 | 12.32 |
| 0407 | 4873.44 | Н | Х | PK | 50.35 | 1.62 | N/A | N/A | 51.97 | 74.00 | 22.03 |
| 2437 | 4873.32 | Н | Х | AV | 40.08 | 1.62 | N/A | N/A | 41.70 | 54.00 | 12.30 |
| | 2483.78 | Н | Х | PK | 60.73 | 3.10 | N/A | N/A | 63.83 | 74.00 | 10.17 |
| 2462 | 2483.78 | Н | Х | AV | 46.55 | 3.10 | N/A | N/A | 49.65 | 54.00 | 4.35 |
| 2462 | 4923.27 | Н | Х | PK | 49.97 | 1.78 | N/A | N/A | 51.75 | 74.00 | 22.25 |
| | 4923.53 | н | Х | AV | 39.59 | 1.78 | N/A | N/A | 41.37 | 54.00 | 12.63 |
| | 2483.58 | Н | Х | PK | 60.10 | 3.10 | N/A | N/A | 63.20 | 74.00 | 10.80 |
| 0.470 | 2483.63 | Н | Х | AV | 46.09 | 3.10 | N/A | N/A | 49.19 | 54.00 | 4.81 |
| 2472 | 4944.05 | Н | Х | PK | 49.94 | 1.83 | N/A | N/A | 51.77 | 74.00 | 22.23 |
| | 4944.08 | Н | Х | AV | 39.45 | 1.83 | N/A | N/A | 41.28 | 54.00 | 12.72 |

Radiated Spurious Emissions data(9 kHz ~ 25 GHz) : Test Mode 2(TM 2)

Note.

1. The radiated emissions were investigated 9kHz to 25GHz. And no other spurious and harmonic emissions were found above listed frequencies.

2. Sample Calculation.

Margin = Limit – Result / Result = Reading + T.F + DCCF + DCF / T.F = AF + CL – AG Where, T.F = Total Factor, AF = Antenna Factor, CL = Cable Loss, AG = Amplifier Gain, DCCF = Duty Cycle Correction Factor, DCF = Distance Correction Factor

3. Information of Distance Factor.

For finding emissions, the test distance might be reduced from 3m to 1m. In this case, the distance factor(-9.54dB) is applied to the result.

- Calculation of distance factor = 20 log(applied distance / required distance) = 20 log(1 m / 3 m) = -9.54 dB

| Tested Frequency | Frequency (MHz) | ANT Pol | EUT Position (Axis) | Detector Mode | Reading (dBuV) | T.F (dB/m) | DCCF (dB) | DCF (dB) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) |
|---------------------|--------------------|------------|---------------------------|------------------|-------------------|---------------|--------------|-------------|--------------------|-------------------|----------------|
| | 2389.71 | V | Z | PK | 52.61 | 2.70 | N/A | N/A | 55.31 | 74.00 | 18.69 |
| 2412 | 2389.28 | V | Z | AV | 42.59 | 2.70 | N/A | N/A | 45.29 | 54.00 | 8.71 |
| 2412 | 4823.49 | Н | Х | PK | 51.14 | 1.49 | N/A | N/A | 52.63 | 74.00 | 21.37 |
| | 4823.02 | Н | Х | AV | 39.95 | 1.49 | N/A | N/A | 41.44 | 54.00 | 12.56 |
| 2437 | 4874.59 | Н | Х | PK | 50.84 | 1.62 | N/A | N/A | 52.46 | 74.00 | 21.54 |
| 2437 | 4874.46 | Н | Х | AV | 39.76 | 1.62 | N/A | N/A | 41.38 | 54.00 | 12.62 |
| | 2483.78 | Н | Х | PK | 59.39 | 3.10 | N/A | N/A | 62.49 | 74.00 | 11.51 |
| 2462 | 2483.50 | Н | Х | AV | 46.52 | 3.10 | N/A | N/A | 49.62 | 54.00 | 4.38 |
| 2402 | 4923.87 | Н | Х | PK | 50.19 | 1.78 | N/A | N/A | 51.97 | 74.00 | 22.03 |
| | 4923.67 | Н | Х | AV | 39.80 | 1.78 | N/A | N/A | 41.58 | 54.00 | 12.42 |
| | 2483.52 | Н | Х | PK | 61.33 | 3.10 | N/A | N/A | 64.43 | 74.00 | 9.57 |
| 2472 | 2483.51 | Н | Х | AV | 46.57 | 3.10 | N/A | N/A | 49.67 | 54.00 | 4.33 |
| 2412 | 4943.59 | Н | Х | PK | 49.70 | 1.83 | N/A | N/A | 51.53 | 74.00 | 22.47 |
| | 4944.14 | Н | Х | AV | 39.35 | 1.83 | N/A | N/A | 41.18 | 54.00 | 12.82 |

Radiated Spurious Emissions data(9 kHz ~ 25 GHz) : Test Mode 3(TM 3)

Note.

1. The radiated emissions were investigated 9kHz to 25GHz. And no other spurious and harmonic emissions were found above listed frequencies.

2. Sample Calculation.

Margin = Limit – Result / Result = Reading + T.F + DCCF + DCF / T.F = AF + CL – AG Where, T.F = Total Factor, AF = Antenna Factor, CL = Cable Loss, AG = Amplifier Gain, DCCF = Duty Cycle Correction Factor, DCF = Distance Correction Factor

3. Information of Distance Factor.

For finding emissions, the test distance might be reduced from 3m to 1m. In this case, the distance factor(-9.54dB) is applied to the result.

- Calculation of distance factor = 20 log(applied distance / required distance) = 20 log(1 m / 3 m) = -9.54 dB

8.6 Power-line conducted emissions

Test Requirements and limit, §15.207

For an intentional radiator which 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 uH/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 frequency ranges.

| Frequency Range | Conducted Limit (dBuV) | | | | | | |
|-----------------|------------------------|------------|--|--|--|--|--|
| (MHz) | Quasi-Peak | Average | | | | | |
| 0.15 ~ 0.5 | 66 to 56 * | 56 to 46 * | | | | | |
| 0.5 ~ 5 | 56 | 46 | | | | | |
| 5 ~ 30 | 60 | 50 | | | | | |

* Decreases with the logarithm of the frequency

Compliance with this provision shall be based on the measurement of the radio frequency voltage between each power line (LINE and NEUTRAL) and ground at the power terminals.

Test Procedure

- 1. The EUT is placed on a wooden table 80 cm above the reference ground plane.
- 2. The EUT is connected via LISN to the test power supply.
- 3. The measurement results are obtained as described below:
- 4. Detectors Quasi Peak and Average Detector.

Test Results: Comply(Refer to next page.)

The worst data was reported.

RESULT PLOTS TM2 & 2437MHz

AC Line Conducted Emissions (Graph)

Results of Conducted Emission

DTNC Date 2018-08-03 Order No. Referrence No. 120V, 60Hz Model No. LET Power Supply Serial No. Temp/Humi. 25'C, 48% Test Condition Operator InHee Bae 2.4G WLAN Memo LIMIT : FCC P15.207 QP FCC P15.207 AV [QP/CAV] [dBuV] PHASE : Ν 90 80 70 60 50 40 30 T n Uchiel والعا منا a 19 Kontilika 14 20 11 100 10 0 20M 30M .15M .2M . 3M . 5M .7M 1M 2M 3M 5M 7M10M Frequency[Hz] [QP/CAV] PHASE : [dBuV] 90 80 70 60 50 40 30 1.14 P φ 20 10 0 .15M .2M .7M 20M 30M . 3M . 5M 1M2M 3M 5M 7M10M Frequency[Hz]



DTNC

9 10

11

0.50072 13.56 4.58 9.99 1.04640 14.82 8.10 9.99 1.84200 13.06 5.27 10.03

12 2.52000 14.03 6.50 10.05

AC Line Conducted Emissions (List)

Results of Conducted Emission

23.5514.57 56.00 46.00 32.4531.43 24.8118.09 56.00 46.00 31.1927.91

23.0915.30 56.00 46.00 32.9130.70

24.0816.55 56.00 46.00 31.9229.45

Date 2018-08-03

L1

L1

L1

L1

L1 L1 L1

| Order Model Serial Test C | No. | LET | Referrence No. Power Supply Temp/Humi. Operator | 120V, 60Hz 25'C , 48% InHee Bae |
|------------------------------------|--------------------|---|--|--|
| Memo | 1 | 2.4G WLAN | | |
| LIMIT | FCC P15 FCC P15 | | | |
| NO | FREQ | READING C.FACTOR QP CAV [dBuV][dBuV] [dB] | RESULT LIMIT QP CAV QP CAV [dBuV][dBuV] [dBuV][dBuV] | MARGIN PHASE QP CAV [dBuV][dBuV] |
| 1 | 0.30082 | 21.2212.77 9.96 | 31.18 22.73 60.22 50.22 2 | 9.0427.49 N |
| 2 | 0.53220 | 25.1418.01 9.99 | 35.1328.00 56.00 46.00 2 | 0.8718.00 N |
| 3 | | 20.6912.31 10.00 | | 5.3123.69 N |
| 4 | | 19.7812.15 10.03 | | 6.1923.82 N |
| 5 | 3.19800 | | | 9.0127.18 N |
| 6 | 6.48680 | | | 4.0932.72 N |
| 7 | 9.88160 | | | 6.4335.06 N |
| 8 | 0.26378 | 12.90 6.55 9.95 | 22.8516.50 61.31 51.31 3 | 8.4634.81 L1 |

 13
 3.90600
 12.34
 4.05
 10.07
 22.41
 14.12
 56.00
 46.00
 33.59
 31.88

 14
 6.76060
 9.08
 2.21
 10.13
 19.21
 12.34
 60.00
 50.00
 40.79
 37.66

 15
 12.53460
 8.41
 2.66
 10.25
 18.66
 12.91
 60.00
 50.00
 41.34
 37.09

TRF-RF-236(04)170516

9. LIST OF TEST EQUIPMENT

| Туре | Manufacturer | Model | Cal.Date (yy/mm/dd) | Next.Cal.Date (yy/mm/dd) | S/N |
|--|------------------------|--------------------------|------------------------|-----------------------------|-------------|
| Spectrum Analyzer | Agilent Technologies | N9020A | 17/12/28 | 18/12/28 | US50200816 |
| Spectrum Analyzer | Agilent Technologies | N9020A | 18/01/03 | 19/01/03 | MY48011700 |
| DC Power Supply | Agilent Technologies | 66332A | 17/12/27 | 18/12/27 | US37473833 |
| Multimeter | FLUKE | 17B | 17/12/26 | 18/12/26 | 26030065WS |
| Signal Generator | Rohde Schwarz | SMBV100A | 17/12/27 | 18/12/27 | 255571 |
| Signal Generator | ANRITSU | MG3695C | 18/02/12 | 19/02/12 | 173501 |
| Thermohygrometer | BODYCOM | BJ5478 | 18/07/09 | 19/07/09 | N/A |
| Loop Antenna | Schwarzbeck | FMZB1513 | 18/01/30 | 19/01/30 | 1513-128 |
| BILOG ANTENNA | Schwarzbeck | VULB 9160 | 16/08/05 | 18/08/05 | 9160-3362 |
| Horn Antenna | ETS-Lindgren | 3115 | 17/01/13 | 19/01/13 | 9202-3820 |
| Horn Antenna | Schwarzbeck | BBHA 9120C | 17/12/04 | 19/12/04 | 9120C-561 |
| Horn Antenna | A.H.Systems Inc. | SAS-574 | 17/07/31 | 19/07/31 | 155 |
| PreAmplifier | tsj | MLA-010K01-B01- 27 | 18/02/27 | 19/02/27 | 1844538 |
| PreAmplifier | tsj | MLA-0118-J01-45 | 18/02/08 | 19/02/08 | 17138 |
| PreAmplifier | tsj | MLA-1840-J02-45 | 18/07/06 | 19/07/06 | 16966-10728 |
| EMI Test Receiver | ROHDE&SCHWARZ | ESR7 | 18/02/13 | 19/02/13 | 101061 |
| Attenuator | SMAJK | SMAJK-2-3 | 18/07/02 | 19/07/02 | 3 |
| Attenuator | Aeroflex/Weinschel | 56-3 | 17/12/27 | 18/12/27 | Y2370 |
| Attenuator | SRTechnology | F01-B0606-01 | 18/07/02 | 19/07/02 | 13092403 |
| Attenuator | Hefei Shunze | SS5T2.92-10-40 | 17/12/27 | 18/12/27 | 16012202 |
| Attenuator | SMAJK | SMAJK-50-10 | 18/07/04 | 19/07/04 | 15081903 |
| High Pass Filter | Wainwright Instruments | WHNX8.0/26.5- 6SS | 18/07/02 | 19/07/02 | 3 |
| High Pass Filter | Wainwright Instruments | WHKX10-2838- | 18/07/02 | 19/07/02 | 1 |
| EMI TEST RECEIVER | Rohde Schwarz | 3300-18000-60SS ESCI7 | 18/02/12 | 19/02/12 | 100910 |
| PULSE LIMITER | Rohde Schwarz | ESH3-Z2 | 17/09/29 | 18/09/29 | 101333 |
| LISN | SCHWARZBECK | NNLK 8121 | 18/03/20 | 19/03/20 | 06183 |
| | | ML2495A | 18/04/17 | 19/04/17 | 1306007 |
| Power Meter & Wide Bandwidth Sensor | Anritsu | MA2490A | 18/04/17 | 19/04/17 | 1249001 |
| Cable | DT&C | CABLE | 18/03/26 | 19/03/26 | RF-68 |
| Cable | DT&C | CABLE | 18/03/26 | 19/03/26 | P-IN |
| Cable | DT&C | CABLE | 18/03/26 | 19/03/26 | RF-71 |
| Cable | DT&C | CABLE | 18/06/22 | 19/06/22 | RF-82 |
| Cable | DT&C | CABLE | 18/06/22 | 19/06/22 | C-016-4 |
| Cable | DT&C | CABLE | 18/06/22 | 19/06/22 | RF-81 |
| Cable | Radiall | TESTPRO3 | 18/06/22 | 19/06/22 | RF-74 |
| Cable | Radiall | TESTPRO3 | 18/06/22 | 19/06/22 | RF-66 |

Note 1: The measurement antennas were calibrated in accordance to the requirements of ANSI C63.5-2017

Note 2: The cable is not a regular calibration item, so it has been calibrated by DT & C itself.

APPENDIX I

Duty cycle plots

Test Procedure

Duty Cycle was measured using section 6.0 b) of KDB558074 D01V04 :

The zero-span mode on a spectrum analyzer or EMI receiver if the response time and spacing between bins on the sweep are sufficient to permit accurate measurements of the on and off times of the transmitted signal. Set the center frequency of the instrument to the center frequency of the transmission. Set RBW \geq OBW if possible; otherwise, set RBW to the largest available value. Set VBW \geq RBW. 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. (For example, if VBW and/or RBW are limited to 3 MHz, then the zero-span method of measuring duty cycle shall not be used if T \leq 16.7 microseconds.)

Duty Cycle

TM 1(1Mbps) & 2437

| | RF | 50 Ω ι | AC CORREC | | SENSE: If | TV | ALIGN AUTO | | 4 Jul 25, 2018 | _ |
|---|--|----------|---------------------------------------|----------|--------------------------------------|--------------|----------------|-----------------|-----------------------------------|--|
| | | | PNO: Fast IFGain:Low | | rig: Free Ru Atten: 40 dB | | Type: Log-Pwr | TYP | E 123456 E W NNNN F P NNNNN | Frequency |
| 0 dB/di | v Ref | 30.00 dB | im | | | | Δ | Mkr3 12 | 2.25 ms 0.04 dB | Auto Tun |
| .og 20.0 | | | | | | V | | 3∆4 | | Center Fre |
| 10.0 | | | | | | - X <u>a</u> | | | | 2.437000000 GH |
| 0.00 | | | | | | | | | | |
| 10.0 | | | | | | | | | | Start Fre |
| 20.0 | | | | | | | | | | 2.437000000 GI |
| 30.0 | | | | | | | | | | |
| 40.0 | | | | | | | | | | Stop Fre |
| 60.0 | | | | | | | | | | 2.437000000 GI |
| | 0.10700 | | | | | | | | | |
| | | UUUU GH | Z | | | | Sweep 5 | S 0 12 ma // | pan 0 Hz | CF Ste |
| Center Res BV | 2.43700 V 8 MHz | | #V | BW 50 | | | Sweep 5 | u. rə ms (a | | |
| Res BV | V 8 MHZ | A) | X | | Y | FUNCTION | FUNCTION WIDTH | | | |
| Res BV | V 8 MHz TRC SCL 1 t (, 1 t | | × 12.22 ms 30.46 ms | (Δ) · | Y 0.22 dB 18.01 dBm | FUNCTION | | | | <u>Auto</u> Mi |
| Res BV 4KR MODE 1 Δ2 2 F 3 Δ4 4 F | V 8 MHz TRC SCL 1 t (, 1 t | | × 12.22 ms | (Δ) · | ⊻ 0.22 dB | FUNCTION | | | | Auto Mi Freq Offs |
| Res BV 1 Δ2 2 F 3 Δ4 4 F 5 6 | V 8 MHz TRC SCL 1 t (, 1 t (, 1 t (, | | × 12.22 ms 30.46 ms 12.25 ms | (Δ) · | Y 0.22 dB 18.01 dBm 0.04 dB | FUNCTION | | | | Auto Mi Freq Offs |
| Res BV 1 A2 2 F 3 A4 4 F 5 6 7 8 | V 8 MHz TRC SCL 1 t (, 1 t (, 1 t (, | | × 12.22 ms 30.46 ms 12.25 ms | (Δ) · | Y 0.22 dB 18.01 dBm 0.04 dB | FUNCTION | | | | Auto Ma Freq Offs |
| Res BW 1 A2 2 F 3 A4 5 6 7 8 9 10 | V 8 MHz TRC SCL 1 t (, 1 t (, 1 t (, | | × 12.22 ms 30.46 ms 12.25 ms | (Δ) · | Y 0.22 dB 18.01 dBm 0.04 dB | FUNCTION | | | IN VALUE | Auto Mi Freq Offs |
| Res BV 1 A2 2 F 3 A4 4 F 5 6 7 8 | V 8 MHz TRC SCL 1 t (, 1 t (, 1 t (, | | × 12.22 ms 30.46 ms 12.25 ms | (Δ) · | Y 0.22 dB 18.01 dBm 0.04 dB | FUNCTION | | | | 8.000000 MH Auto Mi Freq Offs 0 H |

Dt&C

TM 2(6Mbps) & 2437

Duty Cycle

| Agilent Spectr | | | | | | | | | | | | | | | | |
|------------------------------|-------|-------|-----|-------------------------|-----------------|-----------------------|---------|-------|------------------|-----|------------------------|-------|---------|------------|-----|---------------------------------------|
| L <mark>XI</mark> | RF | 50 Ω | AC | CORREC | C | | ENSE:IN | | Avg | | ALIGNAUTO : Log-Pwr | 02:04 | TRACE | ul 25, 201 | 6 | Frequency |
| | | | | PNO: IFGair | Fast ← n:Low | Atten: | | 1 | | | Δ | Mkr | DET | 25 m | S N | Auto Tune |
| 10 dB/div 20.0 10.0 | Ref | 30.00 | dBm | | | | | > | < <mark>.</mark> | | | | 3∆4 | .04 u | | Center Frec 2.437000000 GHz |
| -10.0 -20.0 -30.0 | | | | | | | | | | | | | | | | Start Fred 2.437000000 GHz |
| -40.0 -50.0 -60.0 | | | | | | | | | | | | | | | | Stop Freq 2.437000000 GHz |
| Center 2. Res BW 8 | 3 MHz | | | | #VB\ | N 50 MH | z | | | | Sweep 5 | | ns (8 | | s) | CF Step 8.000000 MHz Auto Mar |
| | | (Δ) | × | | ms (A | | 4 dB | FUNCT | TON | FUN | CTION WIDTH | FL | JNCTION | VALUE | - | |
| 2 F 3 Δ4 4 F 5 | | (Δ) | | 30.21 12.25 30.21 | ms (Δ | 18.05 0.0 18.05 | 4 dB | | | | | | | | = | Freq Offset 0 Hz |
| 6 7 8 9 10 11 | | | | | | | | | | | | | | > | | |
| MSG | | | | | | | | | | | STATUS | 3 | | | | |

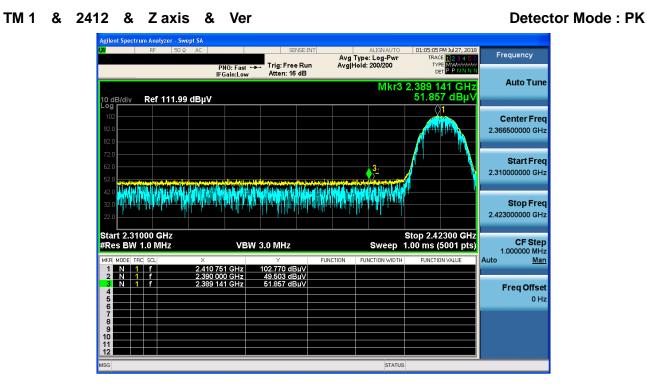
TM 3(MCS0) & 2437

44 PM TRACE TYPE DE1 SENSE:INT ALIGNAUTO Avg Type: Log-Pwr Frequency Trig: Free Run Atten: 40 dB PNO: Fast IFGain:Low ∆Mkr3 1.901 ms -0.12 dB Auto Tune Ref 30.00 dBm 3∆4 Center Freq 2.437000000 GHz Start Freq 2.437000000 GHz Stop Freq 2.437000000 GHz Center 2.437000000 GHz Res BW 8 MHz Span 0 Hz Sweep 10.20 ms (3001 pts) CF Step 8.000000 MHz Man #VBW 50 MHz <u>Auto</u> FUNCTION FUNCTION 1.35 dB 13.50 dBm -0.12 dB 13.50 dBm <u>(Δ)</u> (Δ) $\begin{array}{c|c|c|c|c|c|c|c|c|} \hline F & 1 & t \\ \hline \Delta 4 & 1 & t \\ \hline F & 1 & t \\ \hline \end{array}$ Freq Offset ms (Δ) 4 0 Hz Alignment Completed STATUS

Duty Cycle

APPENDIX II

Unwanted Emissions (Radiated) Test Plot



TM 1 & 2412 & Zaxis & Ver

| | PNO: Fast ↔ | SENSE:INT | ALIGN AUTO Avg Type: RMS Avg Hold: 200/200 | 01:03:57 PM Jul27, 2018 TRACE 1 2 3 4 5 6 TYPE A WWWWW | Frequency |
|--|--|------------------|--|--|--------------------------------------|
| 0 dB/div Ref 111.99 dE | IFGain:Low | Atten: 16 dB | Mkr3 | 2.389 254 GHz 41.801 dBµV | Auto Tu |
| | | | | | Center Fr 2.366500000 G |
| | akta ka alakta ta sha ta shi a | | alitan karati antiki s <mark>13</mark> | | Start Fr 2.310000000 G |
| | | u milit u al di | | | Stop Fr 2.423000000 G |
| | | | | Oton 2 42200 CH- | |
| tart 2.31000 GHz Res BW 1.0 MHz | VBW | 3.0 MHz* | Sweep | Stop 2.42300 GHz 1.00 ms (5001 pts) | CF St |
| Res BW 1.0 MHz KR MODE TRC SCL 1 N 1 f 2 | VBW × 2.410 932 GHz 2.390 000 GHz | Y 99.542 dBµV | Sweep | Stop 2.42300 GHz 1.00 ms (5001 pts) FUNCTION VALUE | CF St 1.000000 M Auto <u>M</u> |
| Res BW 1.0 MHz KR MODE TRC SCL 1 N 1 f 2 2 N 1 f 2 | × 2.410 932 GHz | Y | Sweep | 1.00 ms (5001 pts) | CF St 1.000000 M |



TM 1 & 2462 & X axis & Hor

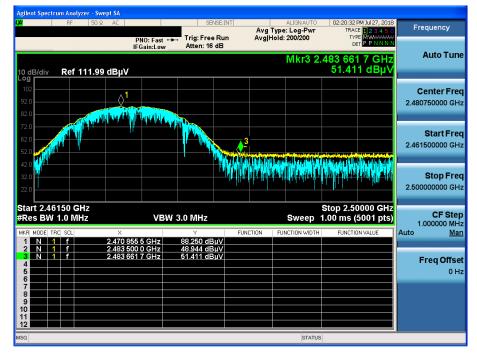


TM 1 & 2462 & X axis & Hor

Avg Type: RMS Avg|Hold: 200/200 Frequency A WWWA Trig: Free Run Atten: 16 dB TYPE DE1 PNO: Fast IFGain:Low Auto Tune Mkr3 2.483 599 0 GH 42.500 dBµ Ref 111.99 dBµV **Center Freq** 2.475250000 GHz Start Freq 2.450500000 GHz ditter dating dat **MAN** teri i yana ya ter 1,1,1,1,1,1,1 Stop Freq 2.50000000 GHz Start 2.45050 GHz #Res BW 1.0 MHz Stop 2.50000 GHz 1.00 ms (5001 pts) CF Step 1.000000 MHz VBW 3.0 MHz* Sweep FUNCTION Auto Man 99.518 dBµ\ 41.784 dBµ\ 42.500 dBµ\ 2.483 500 0 GHz 2.483 599 0 GHz Freq Offset 0 Hz 11 12 STATUS



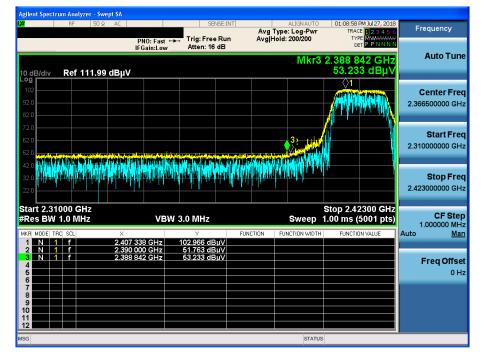
TM 1 & 2472 & X axis & Hor



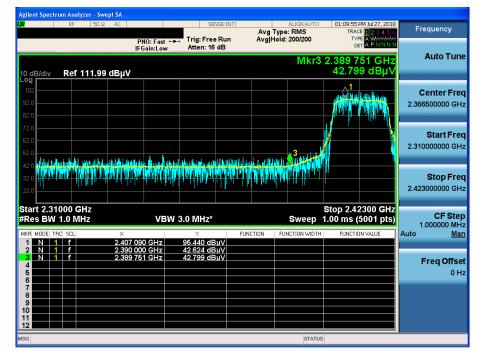
TM 1 & 2472 & X axis & Hor

zer - Swept SA Frequency Avg Type: RMS Avg|Hold: 200/200 Trig: Free Run Atten: 16 dB PNO: Fast ↔→ IFGain:Low Mkr3 2.483 577 0 GH: 42.546 dBµ Auto Tune Ref 111.99 dBµV 0 dB/div **Center Freq** Δ1 2.480750000 GHz Start Freq 2.461500000 GHz k rei S³an telekter allerand salaran ak lalaraha Manager ng sara provinsi kalanan ak lalaraha Stop Freq 2.50000000 GHz Start 2.46150 GHz #Res BW 1.0 MHz Stop 2.50000 GHz 1.00 ms (5001 pts) **CF Step** 1.000000 MHz <u>Man</u> VBW 3.0 MHz* Sweep Auto 2.483 500 0 GHz 2.483 577 0 GHz 41.968 dBµ 42.546 dBµ N Freq Offset 0 Hz

TM 2 & 2412 & Zaxis & Ver

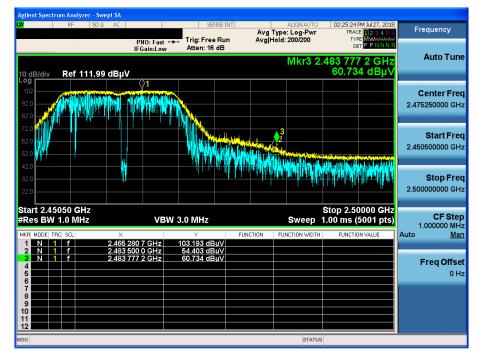


TM 2 & 2412 & Zaxis & Ver





TM 2 & 2462 & X axis & Hor



TM 2 & 2462 & X axis & Hor

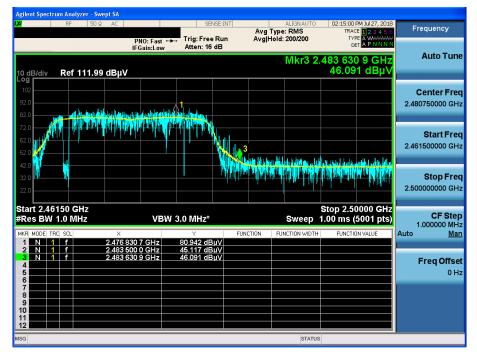
er - Swept SA Frequency Avg Type: RMS Avg|Hold: 200/200 Trig: Free Run Atten: 16 dB A WW PNO: Fast +++ IFGain:Low Mkr3 2.483 777 2 GH 46.553 dBµ Auto Tune Ref 111.99 dBµV $\hat{\Omega}_{n}^{1}$ **Center Freq** 2.475250000 GHz Start Freq 2.450500000 GHz ha kan si ka ku shi ku Stop Freq 2.50000000 GHz Start 2.45050 GHz #Res BW 1.0 MHz Stop 2.50000 GHz 1.00 ms (5001 pts) **CF Step** 1.000000 MHz <u>Man</u> VBW 3.0 MHz* Sweep Auto 46.197 dBu 46.553 dBu 2.483 500 0 GHz 2.483 777 2 GHz N Freq Offset 0 Hz



02:13:55 PM Jul 27, 201 Frequency TRACE 1 2 3 4 TYPE MWWW DET P P N N Avg Type: Log-Pwr Avg|Hold: 200/200 Trig: Free Run Atten: 16 dB PNO: Fast + IFGain:Low Auto Tune Mkr3 2.483 577 0 GH 60.097 dBµ Ref 111.99 dBµV 0 dB/div **Center Freq** 0¹ 2.480750000 GHz A PROPERTY AND ANY O أللاطلاب ألال 1 Start Freq 2.461500000 GHz Stop Freq 2.50000000 GHz Start 2.46150 GHz #Res BW 1.0 MHz Stop 2.50000 GHz 1.00 ms (5001 pts) CF Step 1.000000 MHz VBW 3.0 MHz Sweep Auto Man FUNCTION FUNCTION VALU FUNCTION W 2.477 700 8 GHz 2.483 500 0 GHz 2.483 577 0 GHz 89.221 dBµ\ 57.768 dBµ\ 60.097 dBµ\ Freq Offset 0 Hz STATUS

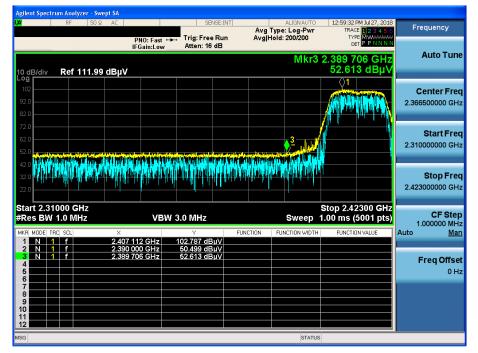
TM 2 & 2472 & X axis & Hor

TM 2 & 2472 & X axis & Hor





TM 3 & 2412 & Zaxis & Ver



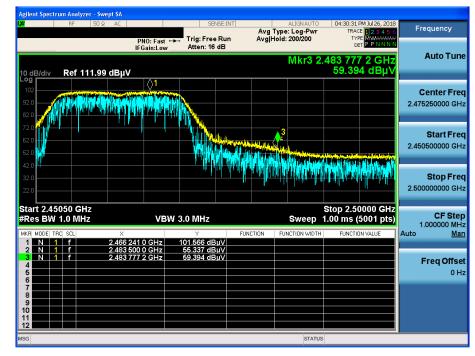
TM 3 & 2412 & Zaxis & Ver

/zer - Swept SA Frequency Avg Type: RMS Avg|Hold: 200/200 Trig: Free Run Atten: 16 dB PNO: Fast IFGain:Low Auto Tune Mkr3 2.389 277 42 586 dBi l0 dB/div .og Ref 111.99 dBµV **Center Freq** 2.366500000 GHz **WALING AND** Start Freq 2.310000000 GHz Stop Freq 2.423000000 GHz Start 2.31000 GHz #Res BW 1.0 MHz Stop 2.42300 GHz 1.00 ms (5001 pts) CF Step 1.000000 MHz VBW 3.0 MHz* Sweep Man Auto 41.474 dBi 42.586 dBi Ň 2 389 277 GH Freq Offset 0 Hz



TM 3 & 2462 & X axis & Hor

Detector Mode : PK



TM 3 & 2462 & X axis & Hor

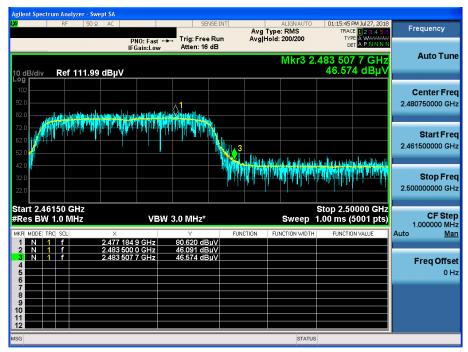
zer - Swept SA Frequency Avg Type: RMS Avg|Hold: 200/200 TYPE A WANAA DET A P N N Trig: Free Run Atten: 16 dB PNO: Fast ↔→ IFGain:Low Mkr3 2.483 500 0 GH 46.523 dBµ Auto Tune Ref 111.99 dBµV 0 dB/div **Center Freq** 2.475250000 GHz Start Freq 2.450500000 GHz Stop Freq 2.50000000 GHz Start 2.45050 GHz #Res BW 1.0 MHz Stop 2.50000 GHz 1.00 ms (5001 pts) **CF Step** 1.000000 MHz <u>Man</u> VBW 3.0 MHz* Sweep Auto 2.483 500 0 GHz 2.483 500 0 GHz 46.523 dBi 46.523 dBi N Freq Offset 0 Hz



01:14:50 PM Jul 27, 201 Frequency TRACE 1 2 3 4 TYPE MWWW DET P P N N Avg Type: Log-Pwr Avg|Hold: 200/200 Trig: Free Run Atten: 16 dB PNO: Fast + IFGain:Low Auto Tune Mkr3 2.483 83 523 1 GH 61.326 dBµ` Ref 111.99 dBµV 0 dB/div **Center Freq** 2.480750000 GHz <mark>, }</mark> Start Freq 2.461500000 GHz Stop Freq 2.50000000 GHz Start 2.46150 GHz #Res BW 1.0 MHz Stop 2.50000 GHz 1.00 ms (5001 pts) CF Step 1.000000 MHz VBW 3.0 MHz Sweep Auto Man FUNCTION FUNCTION FUNCTION W 88.170 dBµ\ 57.463 dBµ\ 61.326 dBµ\ 2.473 812 3 GHz 2.483 500 0 GHz 2.483 523 1 GHz Freq Offset 0 Hz STATUS

TM 3 & 2472 & X axis & Hor

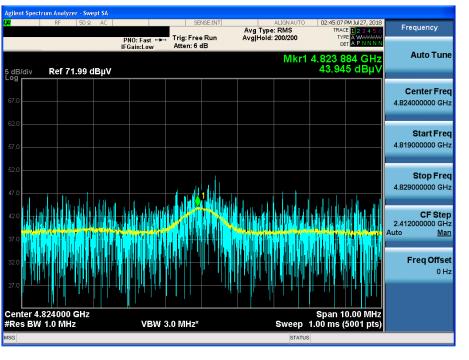
TM 3 & 2472 & X axis & Hor



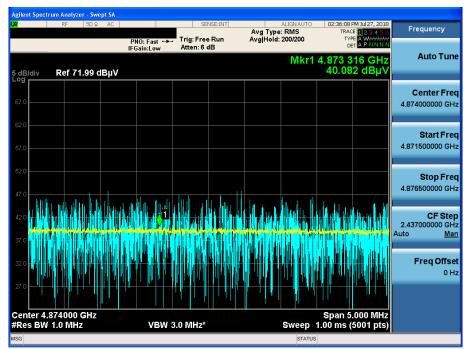
Detector Mode : AV



TM 1 & 2412 & X axis & Hor



TM 2 & 2437 & X axis & Hor





TM 3 & 2462 & X axis & Hor



