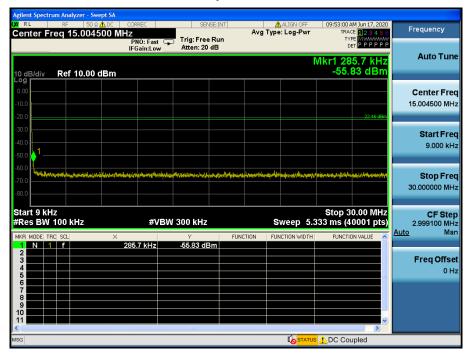
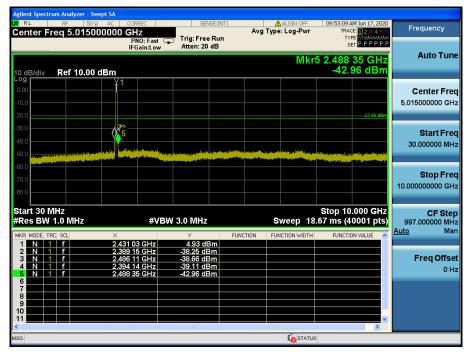
TM 4 & ANT 1 & 2437

Reference

ectrum Analyzer -Swept S/ 09:52:53 AM Jun 17, 2020 TRACE 1 2 3 4 5 6 TYPE MWWWWW DET P P P P P ALIGN OFF Frequency Center Freq 2.437000000 GHz GHz PNO: Fast IFGain:Low Atten: 20 dB Auto Tune Mkr1 2.420 720 GHz -2.46 dBm 10 dB/div Ref 10.00 dBm **Center Freq** 2.437000000 GHz Inderstudius and model where we was a little the model with the second to be had well all Start Freq 2.409685000 GHz Stop Freq 2.464315000 GHz CF Step 5.463000 MHz Man Auto Freq Offset 0 Hz Center 2.43700 GHz #Res BW 100 kHz Span 54.63 MHz Sweep 5.400 ms (3001 pts) #VBW 300 kHz 🕼 STATUS

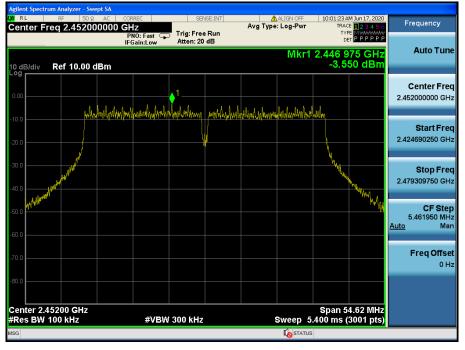




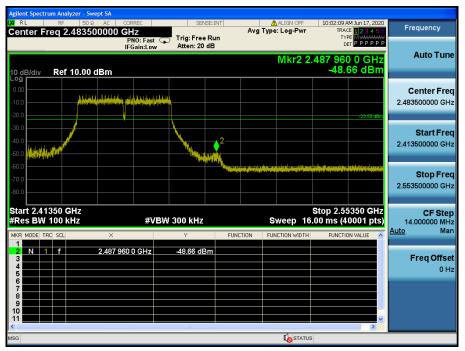
| Agilent Spectrum Analyzer - Swept SA (X RL RF 50Ω AC Center Freq 17.500000000 | | Avg Type: Log-Pwr | 09:53:17 AM Jun 17, 2020 TRACE 123456 | Frequency |
|---|---|-------------------------|--|---------------------------------------|
| 10 dB/div Ref 10.00 dBm | PNO: Fast 💭 Trig: Free Run IFGain:Low Atten: 20 dB | | 4.164 500 GHz -37.66 dBm | Auto Tune |
| -10.0 | | | 22.46.4Bm | Center Freq 17.500000000 GHz |
| -200 | | | ↓ ³ 🔮 | Start Freq 10.000000000 GHz |
| -60.0 | | | | Stop Freq 25.00000000 GHz |
| Start 10.000 GHz #Res BW 1.0 MHz | #VBW 3.0 MHz | | Stop 25.000 GHz .00 ms (40001 pts) | CF Step 1.50000000 GHz Auto Man |
| 2 N 1 f 24.714 | 3 250 GHz | FUNCTION FUNCTION WIDTH | FUNCTION VALUE | Freq Offset 0 Hz |
| 9 10 11 ≮⊓ MSG | ш | I ostatus | × | |

TM 4 & ANT 1 & 2462

Reference

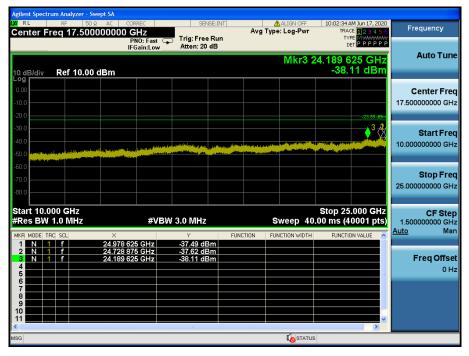


High Band-edge



| Center Freq 15.004500 MHz Trig: Frea Run Rten: 20 dB Avg Type: Log-Pwr Trig: Avg Type: Log-Pwr Trig: Frequency 10 dB/div Ref 10.00 dBm -58.13 dBm -58.13 dBm -58.13 dBm - | Agilent Spectrum A | | | | | | | | | |
|---|---|---|--------------------|---------------------------------|--------------------------|---------------------|-----------------------|-----------------|-------------------------|---------------|
| Plot Fast IF GeintLow Trig: Free Run Atten: 20 dB Mkr1 298.4 kHz -58.13 dBm Center Freq 15.004500 MHz Center Freq 15.004500 MHz Center Freq 15.004500 MHz Start Freq 9.000 kHz Stop 30.00 MHz Stop 30.00 MHz Stop 30.00 MHz Stop 30.00 MHz Stop 30.00 MHz Stop 30.00 MHz Stop 30.00 MHz Stop 30.00 MHz Stop 30.00 MHz Stop 30.00 MHz Stop 30.00 | | | CORREC | SENS | E:INT | | | | | Frequency |
| Index Auto Tune Mkr1 298.4 kHz -58.13 dBm 100 -58.13 dBm 11 -58.13 dBm 12 -58.13 dBm 13 -58.13 dBm 14 -58.13 dBm 15 -58.13 dBm 16 -58.13 dBm 17 -58.13 dBm 18 -58.13 dBm 19 -58.13 dBm 10 -58.13 dBm 10 -58.13 dBm 11 -58.13 | Center Freq | 15.004500 N | PNO: Fast G | | | 1112 1944 | | TYP | E M WWWWWW | |
| Implementation Imple | | | IFGain:Low | Atten: 20 o | iB | | | | | |
| Comparison Teor Force data Comparison Center Freq 100 Center Freq 200 Center Freq 300 Center Freq 300000 MHz Stop Freq 30.00000 MHz Stop Statt Bern 200 Center Freq 30.00000 MHz Stop Freq 30.00000 MHz Stop Statt Bern 200 Center Freq 200 Stop Freq 30.00000 MH | | | | | | | | | | Autorune |
| 0.00 | 10 dB/div Re | ef 10.00 dBm | | | | | | -58.1 | 13 dBm | |
| Start 9 kHz Y Function Function width Function value Function value Freq Offset 0 Hz 1 1 1 298.4 kHz 588.13 dBm 588.13 dBm 588.13 dBm 588.13 dBm 578.13 d | - | | | | | | | | | |
| 200 3000 300 300 | | | | | | | | | | • |
| 300 MHz Stop Freq 300 300 300 MHz CF Step 2.999100 MHz 2.999100 MHz 2.999100 MHz 2.999100 MHz 300 | -10.0 | | | | | | | | | 15.004500 MHz |
| 400 4 | -20.0 | | | | | | | | -23.55 dBm | |
| 400 1 9.000 kHz 500 1 1 <t< td=""><td>-30.0</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>Start From</td></t<> | -30.0 | | | | | | | | | Start From |
| 500 1 | -40.0 | | | | | | | | | |
| And and a state of the stat | .50.0 1 | | | | | | | | | 9.000 KH2 |
| 7.00 Image: Marked and the place of the data of | | | | | | | | | | |
| 2700 30.000000 MHz 800 Start 9 kHz Start 9 kHz #VBW 300 kHz #Res BW 100 kHz #VBW 300 kHz Sweep 5.333 ms (40001 pts) MR MODE TRC Scl. X Y FUNCTION 1 1 7 298.4 kHz 5 5 6 5 7 6 9 6 10 1 11 1 12 1 13 1 14 1 15 1 16 1 17 1 18 1 19 1 10 1 11 1 11 1 11 1 10 1 11 1 | Mark Mark Mark Mark Mark Mark Mark Mark | والمعادة المدارية المعرفة مساولة المساولة | windunglyndyduroda | and the second of the second of | and a static and a state | والمسعود ومعاويها و | d we designed a state | happy white and | adaalaadiidaha yaadadad | Stop Freq |
| Start 9 kHz Stop 30.00 MHz Stop 30.00 MHz CF Step 2.999100 MHz WRE BWD 100 kHz #VBW 300 kHz Sweep 5.333 ms (40001 pts) Auto Man N f 298.4 kHz -58.13 dBm Function Function value Man 1 n f 298.4 kHz -58.13 dBm Function Function value Man 2 a a a a a a a a b b a a b a a a a a a b a | | | | | | | | | | |
| #Res BW 100 kHz #VBW 300 kHz Sweep 5.333 ms (40001 pts) 2.999100 MHz MKR MODE TRC SCL X Y FUNCTION FUNCTION VIDTH FUNCTION | -80.0 | | | | | | | | | |
| #Res BW 100 kHz #VBW 300 kHz Sweep 5.333 ms (40001 pts) 2.999100 MHz MKR MODE TRC SCL X Y FUNCTION FUNCTION VIDTH FUNCTION | Start 0 kHz | | | | | | | Stop 2 | 0.00 MHz | |
| MKR MODE TRC: X Y FUNCTION FUNCTION WIDTH FUNCTION VALUE Auto Man 1 N 1 f 22934 kHz 253413 dBm | | kHz | #VBV | V 300 kHz | | s | ween 5.3 | | | |
| MRR MODE HL X Y FUNCTION FUNCTION WIDTH FUNCTION VALUE Image: Constraint of the state of the stat | | | | | | | | • | | |
| 2 | | | 298.4 kHz | | | TION FUN | ICTION WIDTH | FUNCTIO | IN VALUE | _ |
| 4 6 6 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 | 2 | | 230.4 KHZ | -50.15 GD | | | | | | |
| 6 0 H2 6 0 H2 9 9 0 H2 11 0 0 H2 111 0 H2 11 | | | | | _ | | | | | |
| 7 8 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 | | | | | | | | | = | 0 Hz |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | ~ | |
| اللي STATUS L DC Coupled | < | | | | | | | | | |
| | MSG | | | | | | | DC Cou | pled | |

| Agilent Spectrum Analyzer - Swept SA | | | | | |
|--|------------------------------|--------------------------|--|--|------------------------------|
| M RL RF 50Ω AC Center Freq 5.01500000 | | SENSE:INT | ALIGN OFF Avg Type: Log-Pwr | 10:02:26 AM Jun 17, 2020 TRACE 1 2 3 4 5 6 | Frequency |
| Center Freq 5.01500000 | PNO: Fast 🖕 | Trig: Free Run | | | |
| | IFGain:Low | Atten: 20 dB | | | Auto Tune |
| | | | Mkr | 5 2.616 47 GHz | Auto Tune |
| 10 dB/div Ref 10.00 dBm | | | | -45.02 dBm | |
| 0.00 | Y1 | | | | Center Freq |
| -10.0 | | | | | 5.015000000 GHz |
| -20.0 | | | | | 0.01000000000112 |
| | | | | -23:55 dBm | |
| -30.0 | 5 | | | | Start Freq |
| -40.0 | | | | | 30.000000 MHz |
| -50.0 | | | an a | a na ana ang mpakagan na ang mpakagan ang mpakagan ang mpakagan na ang mpakagan ang mpakagan ang mpakagan ang Na ang mpakagan na ang mpakagan a | |
| -60.0 | | | | | Oton Erog |
| -70.0 | | | | | Stop Freq 10.00000000 GHz |
| -80.0 | | | | | 10.00000000 GHZ |
| | | | | | |
| Start 30 MHz #Res BW 1.0 MHz | #)(B)A | 3.0 MHz | Swoon 19 | Stop 10.000 GHz 67 ms (40001 pts) | CF Step |
| | | | · · · · · | | 997.000000 MHz Auto Man |
| MKR MODE TRC SCL | < 2.448 47 GHz | Y FUN 4.12 dBm | ICTION FUNCTION WIDTH | FUNCTION VALUE | |
| 2 N 1 f 2 | 2.397 88 GHz | -40.35 dBm | | | |
| | 2.390 90 GHz 2.393 89 GHz | -42.79 dBm -43.22 dBm | | | Freq Offset |
| 5 N 1 f 2 | 2.616 47 GHz | -45.02 dBm | | = | 0 Hz |
| 6 | | | | | |
| 8 | | | | | |
| 9 | | | | | |
| 11 | | | | × | |
| MSG | | 10 | I STATUS | | |
| mag | | | LO STATUS | | |

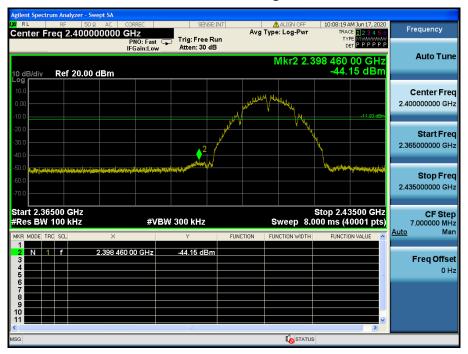


TM 1 & ANT 2 & 2412



Reference

Low Band-edge



| Agilent Spectrum Analyzer - Swept SA | | | | | |
|---|--|---|--|--|------------------------------|
| KL RF 50 Ω ▲ DC Center Freq 15.004500 M | CORREC | SENSE:INT | ALIGN OFF Avg Type: Log-Pwr | 10:08:27 AM Jun 17, 2020 TRACE 123456 | Frequency |
| | PNO: Fast 🖵 IFGain:Low | Trig: Free Run Atten: 30 dB | | TYPE MWWWWWW DET P P P P P P | |
| | II OUIIIEON | | | Vkr1 341.9 kHz | Auto Tune |
| 10 dB/div Ref 20.00 dBm | | | | -47.68 dBm | |
| Log | | | | | Contor From |
| 0.00 | | | | | Center Freq 15.004500 MHz |
| -10.0) | | | | -11.93 dBm | 13.004300 Mil12 |
| -20.0 | | | | | |
| -30.0 | | | | | Start Freq |
| -40.0 1 | | | | | 9.000 kHz |
| | | | | | |
| -50.0 Wile แต่สะกฎป การการสูปในโรงที่ผู้การสะการที่ | one and the states of the stat | الماجا مهجاة السيانية والمأجزة والجراري الطواري | districtioner for the second second second | eprint terry distant second diated | Stop Freq |
| -70.0 | | | | | 30.000000 MHz |
| | | | | | |
| Start 9 kHz | | | | Stop 30.00 MHz | CF Step |
| #Res BW 100 kHz | #VBW : | | | 333 ms (40001 pts) | 2.999100 MHz Auto Man |
| MKR MODE TRC SCL X | 341.9 kHz | -47.68 dBm | CTION FUNCTION WIDTH | FUNCTION VALUE | <u>/(dto</u> |
| 2 | | 41.00 0011 | | | Freq Offset |
| 3 4 | | | | | 0 Hz |
| 5 | | | | | 0112 |
| 7 | | | | | |
| 9 | | | | | |
| 10 | | | | ~ | |
| < | | | | > | |
| MSG | | | | DC Coupled | |

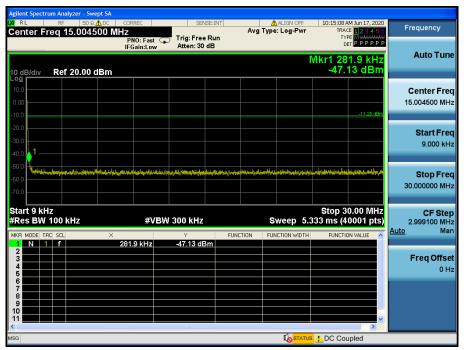
| Agilent Spectrum Analyzer - Swept SA | | | | | |
|---|-----------------------------------|--|--|--|-----------------|
| M RL RF 50 Ω AC Center Freq 5.01500000 | | SENSE:INT | ALIGN OFF Avg Type: Log-Pwr | 10:08:35 AM Jun 17, 2020 TRACE 1 2 3 4 5 6 | Frequency |
| Center Freq 5.01500000 | PNO: Fast C | Trig: Free Run | | | |
| | IFGain:Low | Atten: 30 dB | | | Auto Tune |
| | | | Mkr | 5 3.308 39 GHz | Autorune |
| 10 dB/div Ref 20.00 dBm | | | | -35.54 dBm | |
| Log | ⟩ 1 | | | | Contor From |
| | | | | | Center Freq |
| 0.00 | | | | | 5.015000000 GHz |
| -10.0 | | | | -11.93 dBm | |
| -20.0 | 0 17 | | | | Start Freq |
| -30.0 | - 0 ⁴ - 1 ⁵ | | | | 30.000000 MHz |
| -40.0 | The second second second | and the second second for | and the second state of th | and the sector required the spin of the second | 00.000000 11112 |
| -50.0 | and the second second second | ti ili ili ili ili ili ili ili ili ili i | والمراجع والمتحافظ والمناد والمناد والمرجع والمتشاط المتستلم والالالا | The second s | |
| -60.0 | | | | | Stop Freq |
| | | | | | 10.00000000 GHz |
| -70.0 | | | | | |
| Start 30 MHz | | | | Stop 10.000 GHz | CF Step |
| #Res BW 1.0 MHz | #VB | N 3.0 MHz | Sweep 18 | .67 ms (40001 pts) | 997.000000 MHz |
| MKB MODELTRC SCL X | , | Y | FUNCTION FUNCTION WIDTH | FUNCTION VALUE | <u>Auto</u> Man |
| | .412 08 GHz | 10.92 dBm | Inclusion Fonction within | TONCTION VALUE | |
| 2 N 1 f 3 | .199 71 GHz | -35.11 dBm -35.18 dBm | | | Freq Offset |
| 3 N 1 f 2 4 N 1 f 2 | .664 82 GHZ | -35.18 dBm -35.53 dBm | | | 0 Hz |
| 5 N 1 f 3 | .308 39 GHz | -35.54 dBm | | | 0 HZ |
| 6 | | | | | |
| 8 | | | | | |
| 9 | | | | | |
| 11 | | | | ~ | |
| < | | III | - | | |
| MSG | | | | | |

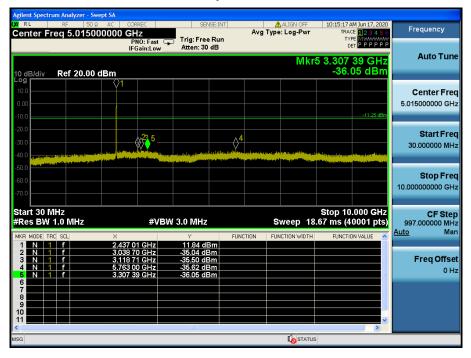


TM 1 & ANT 2 & 2437

Reference







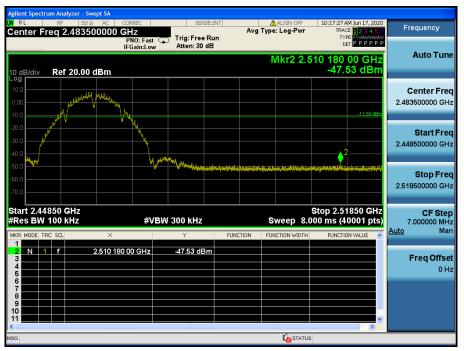
| Agilent Spectrum Analyzer - Swept SA | | |
|--|---|-------------------------------------|
| Center Freg 17,50000000 GHz Avg Type: Log-Pwr | D:15:24 AM Jun 17, 2020 TRACE 123456 | Frequency |
| PNO: Fast Trig: Free Run IFGain:Low Atten: 30 dB | | |
| Mkr3 23.5 | 22 875 GHz | Auto Tune |
| 10 dB/div Ref 20.00 dBm | -28.14 dBm | |
| Log | | Center Freq |
| | | 17.50000000 GHz |
| -10.0 | -11.25 dBm | |
| -20.0 | 3_ <u>∧2 </u> , | StortErog |
| -30.0 | | Start Freq 10.00000000 GHz |
| | and the second difference of the second s | |
| -50.0 | | |
| -60.0 | | Stop Freq 25.00000000 GHz |
| -70.0 | | 25.00000000 GH2 |
| Start 10.000 GHz Sto | op 25.000 GHz | CF Step |
| #Res BW 1.0 MHz #VBW 3.0 MHz Sweep 40.00 | | 1.500000000 GHz |
| MKR MODE TRC SCL X Y FUNCTION FUNCTION WIDTH | FUNCTION VALUE | <u>Auto</u> Man |
| 1 N 1 f 24.752 125 GHz -27.84 dBm 2 N 1 f 24.228 625 GHz -28.12 dBm | | |
| 3 N 1 f 23.522 875 GHz -28.14 dBm | | Freq Offset |
| 5 | = | 0 Hz |
| | | |
| 8 | | |
| | | |
| I = 1 | | |
| MSG Loss Loss Loss Loss Loss Loss Loss Los | | |

TM 1 & ANT 2 & 2462

Reference



High Band-edge



| Agilent Spectrum Analyzer - Swe ເ <mark>XI</mark> RL RF 50 ຊຸ Center Freq 15.0045 | \Lambda DC 🛛 CORREC | SENSE:INT | ALIGN OFF | 10:17:34 AM Jun 17, 2020 TRACE 1 2 3 4 5 6 | Frequency |
|---|---|--|--|---|--|
| 10 dB/div Ref 20.00 d | PNO: Fast G IFGain:Low | Trig: Free Run Atten: 30 dB | | түре | Auto Tune |
| Log 10.0 0.00 -10.0 | | | | -11.50 dBm | Center Freq 15.004500 MHz |
| -20.0 -30.0 -40.0 | | | | | Start Freq 9.000 kHz |
| -50.0 | theorethologeneyi geneyallyalak geneyi tereye | โกษฐโปนกรรมทำเหียงในปัจจุบัตรที่ในคณุหมุศไทยรร | มีสาวารุมีร่างสราปสูดรูปของรูมักรังการเสา ¹ มาตรงสาวารูร่าง | ครารสารและเป็นสู่หลุ่งไปสารที่สุดของได้ _{ไป} ได้ | Stop Freq 30.000000 MHz |
| Start 9 kHz #Res BW 100 kHz | × | | Sweep 5.3 | Stop 30.00 MHz 333 ms (40001 pts) FUNCTION VALUE | CF Step 2.999100 MHz <u>Auto</u> Mar |
| 1 N 1 f 2 3 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 | 281.9 kHz | -47.10 dBm | | | Freq Offset 0 Hz |
| 7 8 9 9 10 11 | | | | ~ | |
| MSG | | | | DC Coupled | |

| Agilent Spectrum Analyze | | | | | |
|---------------------------------|--------------------------------|--------------------------------|--------------------------------|--|----------------------------|
| Center Freq 5.0 ⁴ | 50 Ω AC CORREC 15000000 GH7 | SENSE:INT | ALIGN OFF Avg Type: Log-Pwr | 10:17:42 AM Jun 17, 2020 TRACE 123456 | Frequency |
| Contor Freq 6.0 | PNO: Fast C IFGain:Low | Trig: Free Run Atten: 30 dB | | | |
| | IFGalfi:LUW_ | Atten: 00 dB | Miles | 5 2.741 09 GHz | Auto Tune |
| 10 dB/div Ref 20 | 0.00 dBm | | IVIKI | -36.20 dBm | |
| Log 10.0 | ≬1 | | | | |
| | | | | | Center Freq |
| 0.00 | | | | | 5.015000000 GHz |
| -10.0 | | | | -11.50 dBm | |
| -20.0 | A5 ∧3 | | | | Start Freq |
| -30.0 | | <mark>2</mark> | | | 30.000000 MHz |
| -40.0 | | | | | |
| -50.0 | | | | | |
| -60.0 | | | | | Stop Freq |
| -70.0 | | | | | 10.00000000 GHz |
| | | | | | |
| Start 30 MHz #Res BW 1.0 MHz | #\/P | W 3.0 MHz | Sweep 18 | Stop 10.000 GHz .67 ms (40001 pts) | CF Step |
| - | | | | | 997.000000 MHz Auto Man |
| MKR MODE TRC SCL | × 2.461 18 GHz | Y FUNI 11.57 dBm | CTION FUNCTION WIDTH | FUNCTION VALUE | |
| 2 N 1 f | 5.615 69 GHz | -35.62 dBm | | | E 05 |
| 3 N 1 f 4 N 1 f | 3.241 59 GHz 2.702 46 GHz | -36.06 dBm -36.15 dBm | | | Freq Offset 0 Hz |
| 5 N 1 f | 2.741 09 GHz | -36.20 dBm | | = | 0 Hz |
| 6 7 | | | | | |
| 8 | | | | | |
| 10 | | | | | |
| 11 | | TH | | × | |
| MSG | | | STATUS | | |
| | | | | | |



TM 2 & ANT 2 & 2412

nt Spectrum Analyzer Swept S/ 11:07:10 AM Jun 17, 202 TRACE 1 2 3 4 5 TYPE MWWWW DET P P P P P ALIGN OFF Frequency Center Freq 2.412000000 GHz GHz PNO: Fast IFGain:Low Atten: 20 dB Auto Tune Mkr1 2.413 252 GHz 0.36 dBm 10 dB/div Ref 10.00 dBm ♦1 Center Freq 2.412000000 GHz montantonal man mar march Start Freq 2.399649000 GHz Stop Freq 2.424351000 GHz CF Step 2.470200 MHz Man Auto Freq Offset 0 Hz Center 2.41200 GHz #Res BW 100 kHz Span 24.70 MHz Sweep 2.400 ms (3001 pts) #VBW 300 kHz **STATUS**

Reference

Low Band-edge



| Agilent Spectrum Analyzer - Swept SA | | | | | |
|--|--|---|---|--|----------------------------|
| KE RF 50 Ω ▲ DC Center Freq 15.004500 | | SENSE:INT | ALIGN OFF Avg Type: Log-Pwr | 11:07:45 AM Jun 17, 2020 TRACE 12 3 4 5 6 | Frequency |
| · | PNO: Fast 🖵 IFGain:Low | Trig: Free Run Atten: 20 dB | | DET PPPP | |
| to IDUIN Dof 40.00 dDw | | | | Vkr1 292.4 kHz -56.80 dBm | Auto Tune |
| 10 dB/div Ref 10.00 dBm | | | | | |
| 0.00 | | | | | Center Freq |
| -10.0 | | | | | 15.004500 MHz |
| -20.0 | | | | -19.64 dBm | |
| -30.0 | | | | | Start Freq |
| -40.0 | | | | | 9.000 kHz |
| -50.0 | | | | | |
| -60.0 | والمتحد والمتحد والمحافظ والم | أمحط بالمرال أخليلهم بالمعاركة والدينة الأطرا | ومنافعها وهيم وتراوير فيترارك التراهي | de Alexandra a se a se de la califación de | Oton Enon |
| -70.0 | | A August and a second se | Contraction of the second s | | Stop Freq 30.000000 MHz |
| -80.0 | | | | | 30.000000 MHZ |
| Start 9 kHz | | | | Stop 30.00 MHz | 0.5.01 |
| #Res BW 100 kHz | #VBW | 300 kHz | Sweep 5.3 | 333 ms (40001 pts) | CF Step 2.999100 MHz |
| MKRI MODEL TRCI SCLI | < | Y FUN | ICTION FUNCTION WIDTH | FUNCTION VALUE | <u>Auto</u> Man |
| 1 N 1 f | 292.4 kHz | -56.80 dBm | | | |
| 2 3 | | | | | Freq Offset |
| 4 5 | | | | | 0 Hz |
| 6 7 | | | | | |
| 8 | | | | | |
| 9 | | | | | |
| 11 | | | | × | |
| MSG | | | | DC Coupled | |
| | | | | | |

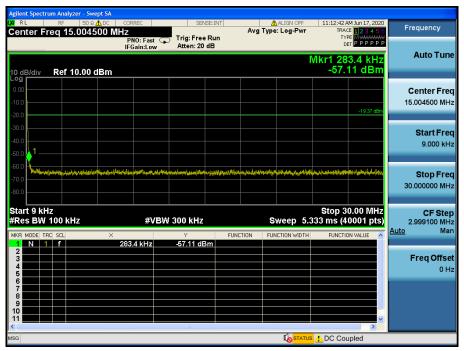
| Image: Note of the state of the st |
|---|
| Microsoft Trig: Free Run Atten: 20 dB Trig: Free Run Atten: 20 dB Trig: Free Run Der PP |
| Iteration Match: 20 dB Mkr5 2.689 00 GHz Auto Tu 10 dB/div Ref 10.00 dBm -45.98 dBm -45.98 dBm -45.98 dBm 100 1 -45.98 dBm -45.98 dBm -45.98 dBm -45.98 dBm 100 200 -45.98 dBm -45.98 dBm -45.98 dBm -45.98 dBm -200 -300 -39.8 dBm -45.98 dBm -45.98 dBm -45.98 dBm |
| Nikro 2.689 00 GH2 10 dB/div Ref 10.00 dBm -45.98 dBm 000 11 -45.98 dBm 100 11 -60 100 11 -60 100 11 -60 100 11 -60 100 11 -60 100 11 -60 100 1100 -790 100 1100 -790 100 1100 -790 100 1100 -790 100 1100 -790 100 1100 -790 100 1100 -790 100 1100 -790 100 1100 -790 100 1100 -790 100 1100 -790 100 1100 -790 100 1100 -790 100 1100 -790 100 1100 -790 100 1100 |
| Cog 1 Center Fr 100 19.64 dBm 5.01500000 G 300 22 Start Fr |
| 0.00 Center Fr -0.0 |
| -10.0 -20.0 |
| -20.0 |
| 2 Start Fr |
| -300 Start Fr |
| |
| -40.0 30.00000 M |
| |
| |
| Stop Er |
| -700 10.00000000 G |
| |
| Start 30 MHz Stop 10.000 GHz |
| Start 30 MHz Stop 10.000 GHz CF St #Res BW 1.0 MHz #VBW 3.0 MHz Sweep 18.67 ms (40001 pts) 997,000000 M |
| Auto |
| MKR MODE TRC SCL X Y FUNCTION FUNCTION WIDTH FUNCTION VALUE Automatical 1 N 1 f 2.407 10 GHz 8.42 dBm Automatical |
| 2 N 1 f 2 393 14 GHz -35 60 dBm |
| 3 N 1 f 2,389 40 GHz 41,43 dBm Freq Offs 4 N 1 f 2,644 63 GHz 45,57 dBm |
| 5 N 1 f 2.689 00 GHz -45.98 dBm |
| |
| |
| |
| |
| |
| MSG Constants |

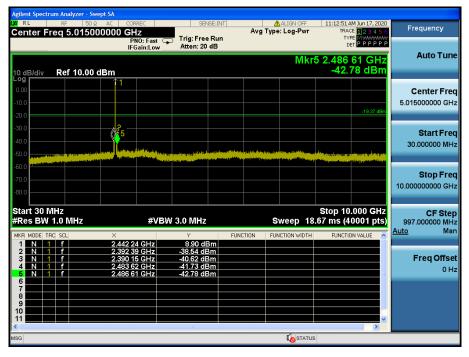


TM 2 & ANT 2 & 2437

Reference







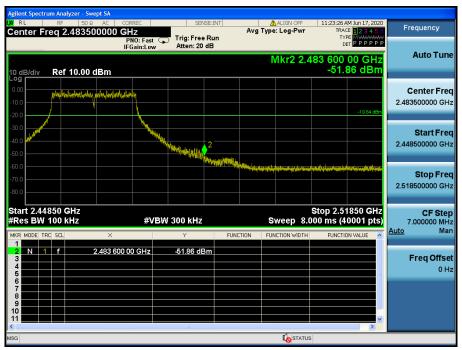
| Agilent Spectrum Analyzer - Swept SA | |
|---|---|
| X RF 50 Ω AC CORREC SENSE:INT Align OFF 11:12:59 AM 3. Center Freq 17.500000000 GHz Avg Type: Log-Pwr TRACE TRACE< | 23456 Frequency |
| PNO: Fast 🕟 Trig: Free Run TYPE | PPPP |
| IFGIN:LUW Atten: 20 40 | Auto Tuno |
| Mkr3 24.073 750 | GHZ |
| 10 dB/div Ref 10.00 dBm -31.12 | CIBIII |
| 0.00 | Center Freq |
| -10.0 | 17.500000000 GHz |
| -20.0 | -19.37 dBm |
| -30.0 | 13 R |
| | Start Freq |
| | 10.00000000 GHz |
| | |
| -60.0 | Stop Freq |
| -70.0 | 25.00000000 GHz |
| -80.0 | 23.00000000 6H2 |
| | |
| Start 10.000 GHz Stop 25.00 #Res BW 1.0 MHz #VBW 3.0 MHz Sweep 40.00 ms (400 | 00 GHZ CF Step 01 pts) 1.500000000 GHz |
| | Auto Man |
| MKR MODE TRC SCL X Y FUNCTION FUNCTION WIDTH FUNCTION V/ 1 N 1 f 24,751 000 GHz -36,96 dBm -36,96 dBm | |
| 2 N 1 f 24.668 500 GHz -37.05 dBm | |
| 3 N 1 f 24.073 750 GHz -37.72 dBm | Freq Offset |
| 5 | 0 Hz |
| | |
| | |
| 9 | |
| 11 | ⊻ |
| MSG Lostatus | |
| | |

TM 2 & ANT 2 & 2462

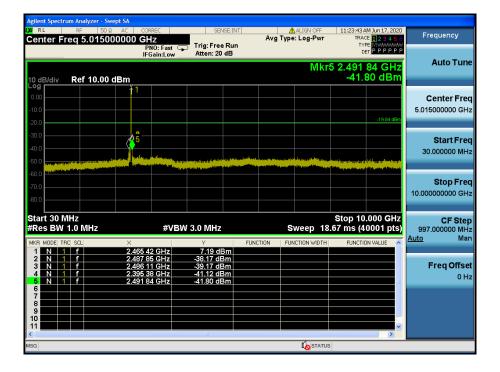
Reference



High Band-edge



| Agilent Spectrum Analyzer - Swe | | SENSE:INT | ALIGN OFF | 11:23:34 AM Jun 17, 2020 | |
|---------------------------------|--|---|---|---|----------------------------|
| Center Freq 15.0045 | 00 MHz | | Avg Type: Log-Pwr | TRACE 123456 TYPE MWWWWW | Frequency |
| | PNO: Fast C IFGain:Low | Atten: 20 dB | | DET PPPPP | Auto Tuno |
| 10 dB/div Ref 10.00 c | lBm | | | Mkr1 297.7 kHz -54.88 dBm | Auto Tune |
| Log 0.00 | | | | | Center Freq |
| -10.0 | | | | | 15.004500 MHz |
| -20.0 | | | | -19.84 dBm | |
| -30.0 | | | | | Start Freq |
| -50.0 | | | | | 9.000 kHz |
| -60.0 | المحمد المراجعة المالية المحمد المحمد المحمد الم | مهاليه المعادلة المالية المالية المعالمة المعالمة المعالمة المعالمة المعالمة المعالمة المعالمة المعالمة المعالم | ور المحافظ المنصورة المراجع المراجع المراجع المراجع | and sector and a sector first data in such as the sector first sector first sector first sector first sector fi | Stop Frog |
| -70.0 | an a | | | | Stop Freq 30.000000 MHz |
| -80.0 | | | | | |
| Start 9 kHz #Res BW 100 kHz | #VB | N 300 kHz | Sweep 5.3 | Stop 30.00 MHz 333 ms (40001 pts) | CF Step 2.999100 MHz |
| MKR MODE TRC SCL | × 297.7 kHz | Y FUN -54.88 dBm | CTION FUNCTION WIDTH | FUNCTION VALUE | <u>Auto</u> Man |
| 2 | 237.7 КП2 | -04.00 dBm | | | Freq Offset |
| 4 | | | | | 0 Hz |
| 6 | | | | | |
| 8 9 9 | | | | | |
| 10 | | | | ~ | |
| < | | Ш | ~ | > | |
| MSG | | | | DC Coupled | |





TM 3 & ANT 2 & 2412

ectrum Analyzer Swept S/ 11:28:35 AM Jun 17, 202 TRACE 1 2 3 4 5 TYPE MWWWWW DET P P P P P ALIGN OFF Frequency Center Freq 2.412000000 GHz GHz PNO: Fast IFGain:Low Atten: 20 dB Auto Tune Mkr1 2.413 242 GHz 0.29 dBm 10 dB/div Ref 10.00 dBm Center Freq particular mandan work have 2.412000000 GHz month and mark and warding Start Freq 2.398782750 GHz Stop Freq which 2.425217250 GHz **CF Step** 2.643450 MHz Man Auto Freq Offset 0 Hz Center 2.41200 GHz #Res BW 100 kHz Span 26.43 MHz Sweep 2.600 ms (3001 pts) #VBW 300 kHz **STATUS**

Reference

Low Band-edge



| Agilent Spectrum Analyze | r - Swept SA 50 Ω 🛕 DC 🔋 CORREC | SENSE | EINT | ALIGN OFF | 11:29:09 AM Jun 17, 2020 | |
|---|---|---------------------------------------|--|--------------------------------------|---|-------------------------------------|
| Center Freq 15.0 | | ast 😱 Trig: Free R | | e: Log-Pwr | TRACE 1 2 3 4 5 6 TYPE M 444444 | Frequency |
| 10 dB/div Ref 10 | IFGain:L | | B | N | _{0er} № ۵۹۲۹ /kr1 281.9 kHz -57.13 dBm | Auto Tune |
| Log 0.00 -10.0 -20.0 | | | | | -19.71 dBm | Center Freq 15.004500 MHz |
| -30.0 -40.0 -50.0 | | | | | | Start Freq 9.000 kHz |
| -60.0 -70.0 -80.0 | ใส้หมูงสาวเพื่อที่เป็นเขาและมีชังตั้งสารที่ไดรมีไดย | uhmendelanden operantiksensen aktivet | janovsta (1) v cripsi o svijest jihosov od pla | หรุงจุ่างเฉาะไสางเลางไม่ไ | transsettentalisetedisseretaastenenses | Stop Freq 30.000000 MHz |
| Start 9 kHz #Res BW 100 kHz | 2 7 | ¢VBW 300 kHz | | Sweep 5.3 | Stop 30.00 MHz 33 ms (40001 pts) | CF Step 2.999100 MHz Auto Man |
| MKR MODE TRC SCL 1 N 1 f 2 - - - 3 - - - 4 - - - 5 - - - | × 281.9 kH | lz -57.13 dBm | | JNCTION WIDTH | FUNCTION VALUE | Freq Offset 0 Hz |
| 6 7 8 9 10 11 | | | | | v | |
| KSG | | | | Te STATUS | DC Coupled | |
| | | | | | | |

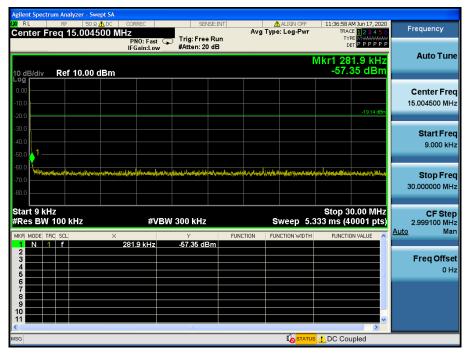
| Agilent Spectrum Analyzer - Swept | | | | | |
|--|------------------------------|---|---------------------------------|--|------------------|
| M RL RF 50Ω / Center Freq 5.0150000 | | SENSE:INT | ALIGN OFF Avg Type: Log-Pwr | 11:29:19 AM Jun 17, 2020 TRACE 1 2 3 4 5 6 | Frequency |
| Center Freq 5.0150000 | PNO: Fast G | 🕤 Trig: Free Run | ing type. Log thi | | |
| | IFGain:Low | Atten: 20 dB | | | Auto Tune |
| | | | Mkr | 5 2.764 27 GHz | Auto Tune |
| 10 dB/div Ref 10.00 dB | m | | | -45.96 dBm | |
| Log 0.00 | 1 | | | | 0 |
| | | | | | Center Freq |
| -10.0 | | | | -19.71 dBm | 5.015000000 GHz |
| -20.0 | | | | -15.71 dbii | |
| -30.0 | 2 10 | | | | Start Freq |
| -40.0 | | | | | 30.000000 MHz |
| -50.0 | all standings with the start | the strength and the strength of the state of the | ويستغلقه ومغاسفها ومورية العاقب | Manager and an and the second second | 00.000000 11112 |
| -60.0 | | | | in the second design of the second design of the | |
| -70.0 | | | | | Stop Freq |
| -80.0 | | | | | 10.000000000 GHz |
| -00.0 | | | | | |
| Start 30 MHz | | | | Stop 10.000 GHz | CF Step |
| #Res BW 1.0 MHz | #VB\ | V 3.0 MHz | Sweep 18 | .67 ms (40001 pts) | 997.000000 MHz |
| MKRI MODEL TRCL SCL | X | Y FI | JNCTION FUNCTION WIDTH | FUNCTION VALUE | <u>Auto</u> Man |
| 1 N 1 f | 2.404 36 GHz | 7.10 dBm | | | |
| 2 N 1 f 3 N 1 f | 2.389 65 GHz 3.292 43 GHz | -38.69 dBm -44.70 dBm | | | Freq Offset |
| 4 N 1 f | 3.187 00 GHz | -45.45 dBm | | | 0 Hz |
| 5 N 1 f | 2.764 27 GHz | -45.96 dBm | | = | |
| 7 | | | | | |
| 8 | | | | | |
| 10 | | | | | |
| | | illi | | ~ | |
| MSG | | | STATUS | | |
| | | | | | |

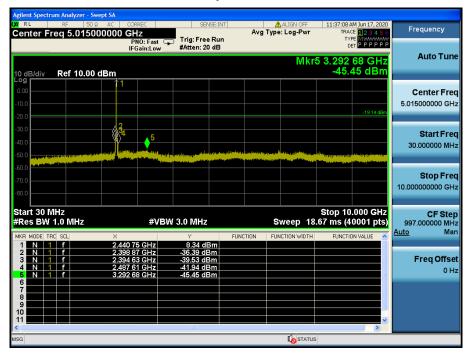
| RL | RF 51 | DΩ AC CORREC | SENSE:INT | 🛕 ALIGN OFF | 11:29:27 AM Jun 17, 2020 | F |
|-----------------------------|--------------------|---|--|--|---|------------------------------------|
| enter F | req 17.50 | 0000000 GHz PNO: Fast IFGain:Low | ➡ Trig: Free Run Atten: 20 dB | Avg Type: Log-Pwr | TRACE 123456 TYPE MWWWW DET PPPPP | Frequency |
| 0 dB/div | Ref 10.0 | 0 dBm | | Mkr3 2 | 4.375 250 GHz -37.98 dBm | Auto Tun |
| .og 0.00 10.0 20.0 | | | | | -19.71 dBm | Center Fre 17.500000000 G⊦ |
| 30.0 40.0 50.0 | | Stratific and International Action of the strategy of the State of the strategy of the State of | | an a fan te an an a gwys ar yn fernan yn a fan ar yn a gwys a gwys a fan a gwys a gwys a gwys a gwys a gwys a Gwys a fan a fan a gwys gwys a gwy | | Start Fre 10.000000000 G⊦ |
| 50.0 70.0 30.0 | | | | | | Stop Fre 25.00000000 G⊦ |
| tart 10.0 Res BW | 000 GHz 1.0 MHz | #VB | W 3.0 MHz | Sweep 40. | Stop 25.000 GHz 00 ms (40001 pts) | CF Ste 1.50000000 GF Auto Ma |
| IKR MODE T | RC SCL | X | , -36.80 dBm | FUNCTION FUNCTION WIDTH | FUNCTION VALUE | Auto Wa |
| 2 N 4 4 5 | f f | 24.704 875 GHz 24.673 375 GHz 24.375 250 GHz | -36.80 dBm -37.40 dBm -37.98 dBm | | | Freq Offso 0 ⊦ |
| 6 7 8 9 | | | | | | |
| 10 | | | | | × | |
| | | | | | | |

TM 3 & ANT 2 & 2437

W RL RF 50 Q AC UNINE Center Freq 2.437000000 GHz PN0: Fast IFGain:Low #Atten: 20 dB ALIGN OFF 11:36:50 AM Jun 17, 2020 Avg Type: Log-Pwr TRACE 23 4 5 6 TYPE MWWWWW DET P P P P SENSE:INT Frequency Auto Tune Mkr1 2.438 240 GHz 0.86 dBm 10 dB/div Ref 10.00 dBm Center Freq **♦**¹ 2.437000000 GHz mounderstanting when the phate when Start Freq 2.423719000 GHz Stop Freq in Minu 2.450281000 GHz CF Step 2.656200 MHz Man Auto Freq Offset 0 Hz Center 2.43700 GHz #Res BW 100 kHz Span 26.56 MHz Sweep 2.600 ms (3001 pts) #VBW 300 kHz In STA

Reference





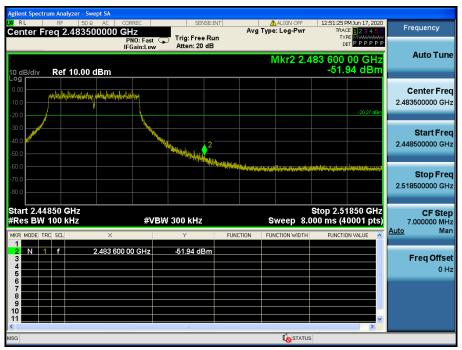
| Agilent Spectr | | | | | | | | | | | |
|-----------------------|-------------|-----------------|----------------------------|--|---|----------|----------|----------------|---------|------------------------------|-------------------------------|
| LXI RL | RF | 50 Ω | | DRREC | 9 | ENSE:INT | Ava | ALIGN OFF | | AM Jun 17, 2020 CE 123456 | Frequency |
| Center F | req 1 | 7.5000 | | GHZ PNO: Fast -Gain:Low | | | - ry | Type. Log-I wi | TY | | |
| | | | | | | | | Mkr3 2 | | 50 GHz | Auto Tune |
| 10 dB/div Log | Ref | 10.00 d | Bm | | | | | | -38. | 55 dBm | |
| 0.00 | | | | | | | | | | | Center Freq |
| -10.0 | | | | | | | | | | | 17.500000000 GHz |
| -20.0 | | | | | | | | | | -19.14 dBm | |
| -30.0 | | | | | | | | | | 3-1 | |
| -40.0 | | | | | | | | | | | Start Freq 10.00000000 GHz |
| -50.0 | الم الوريان | de ministration | and a second second second | and the second s | Constant of the | | | | | | 10.00000000 GHz |
| -60.0 | الأ الفط | | | | | | | | | | |
| -70.0 | | | | | | | | | | | Stop Freq |
| -80.0 | | | | | | | | | | | 25.00000000 GHz |
| -00.0 | | | | | | | | | | | |
| Start 10.0 #Res BW | | | | #V | BW 3.0 MH | 7 | | Sweep 40 | Stop 25 | .000 GHz | CF Step |
| | | 112 | | <i></i> | | 2 | FUNCTION | • | | | Auto Man |
| MKR MODE TH | ft SUL | | × 24.717 2 | 50 GHz | -36,99 | dBm | FUNCTION | FUNCTION WIDTH | FUNCT | JN VALUE | |
| 2 N 1 3 N 1 | f | | 24.557 1: 23.968 7 | 25 GHz | -38.37 -38.55 | dBm | | | | | Freq Offset |
| 4 | | | 23.300 7 | 50 GH2 | -50.55 | | | | | | 0 Hz |
| 5 6 | | | | | | | | | | == | |
| 7 | | | | | | | | | | | |
| 9 | | | | | | | | | | | |
| 10 | | | | | | | | | | ~ | |
| < | | | | | | | | | | | |
| MSG | | | | | | | | | 5 | | |

TM 3 & ANT 2 & 2462

Reference



High Band-edge

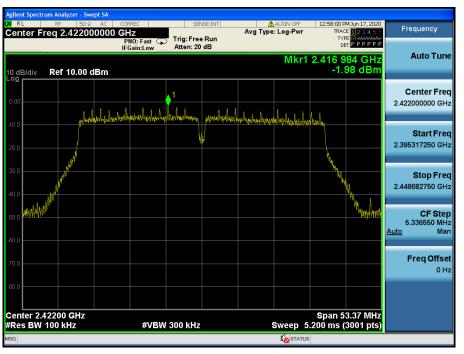


| Agilent Spectrum Analyzer - Swep XI RL RF 50 Ω▲ Center Freq 15.00450 | DC CORREC | SENSE:INT | ALIGN OFF | 12:51:32 PM Jun 17, 2020 TRACE 12 3 4 5 6 | Frequency |
|--|---------------------------|---|--|--|--|
| 10 dB/div Ref 10.00 dE | PNO: Fast G IFGain:Low | Trig: Free Run Atten: 20 dB | | туре Муницика Det P P P P P P Mkr1 281.9 kHz -57.58 dBm | Auto Tune |
| -10.0 | | | | -20.27 dBm | Center Freq 15.004500 MHz |
| -30.0 -40.0 -50.0 | | | | | Start Freq 9.000 kHz |
| -60.0 | \ | tetereningstottheetigepörtmelisteretiinnetyinsipn | มิสสมไหรสร้างสารสุขางสารไข่สารประสารที่มีที่ได้สารปร | t Atter mensen et manen en | Stop Freq 30.000000 MHz |
| Start 9 kHz #Res BW 100 kHz | × | | Sweep 5. | Stop 30.00 MHz 333 ms (40001 pts) FUNCTION VALUE | CF Step 2.999100 MHz <u>Auto</u> Mar |
| 1 N 1 f 2 3 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 | 281 <u>.</u> 9 kHz | -57.58 dBm | | = | Freq Offset 0 Hz |
| 7 8 9 9 9 9 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 | | | | ~ | |
| MSG | | m | | DC Coupled | |

| Agilent Spectrum Analyzer - Swept | | | | | |
|--|---------------------------------|--|---|---|--------------------------------|
| X RL RF 50 Ω A Center Freq 5.0150000 C <thc< <="" td=""><td></td><td>SENSE:INT</td><td>ALIGN OFF</td><td>12:51:43 PM Jun 17, 2020 TRACE 1 2 3 4 5 6</td><td>Frequency</td></thc<> | | SENSE:INT | ALIGN OFF | 12:51:43 PM Jun 17, 2020 TRACE 1 2 3 4 5 6 | Frequency |
| Center Freq 5.0 150000 | PNO: Fast C | Trig: Free Run | ing type. Log t in | | |
| | IFGain:Low | Atten: 20 dB | | | Auto Tune |
| | | | Mkr | 5 2.574 59 GHz | Autorune |
| 10 dB/div Ref 10.00 dB | | | | -46.31 dBm | |
| | 1 | | | | Contor From |
| -10.0 | | | | | Center Freq 5.015000000 GHz |
| | | | | -20.27 dBm | 5.015000000 GHZ |
| -20.0 | | | | -20.27 dbm | |
| -30.0 | | | , | | Start Freq |
| -40.0 | _ <mark></mark> 5 <u>}{\$</u> 2 | | 4 | | 30.000000 MHz |
| -50.0 | | and the local sector of the sector of the | this much second as allowed and the second sec | n deber aller synan om sammer flagter | |
| -60.0 | | and the second | The Minister of the Association | | |
| -70.0 | | | | | Stop Freq |
| -80.0 | | | | | 10.00000000 GHz |
| -00.0 | | | | | |
| Start 30 MHz | | | | Stop 10.000 GHz | CF Step |
| #Res BW 1.0 MHz | #VB | W 3.0 MHz | Sweep 18 | 8.67 ms (40001 pts) | 997.000000 MHz |
| MKR MODE TRC SCL | X | Y F | JNCTION FUNCTION WIDTH | FUNCTION VALUE | <u>Auto</u> Man |
| 1 N 1 f | 2.467 67 GHz | 7.56 dBm | | | |
| 2 N 1 f 3 N 1 f | 3.262 77 GHz 3.145 63 GHz | -45.23 dBm -45.92 dBm | | | Freq Offset |
| 4 N 1 f | 5.661 55 GHz | -45.99 dBm | | | 0 Hz |
| 5 N 1 f | 2.574 59 GHz | -46.31 dBm | | | |
| 7 | | | | | |
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| 11 < | | | | × | |
| MSG | | | STATU | s | |
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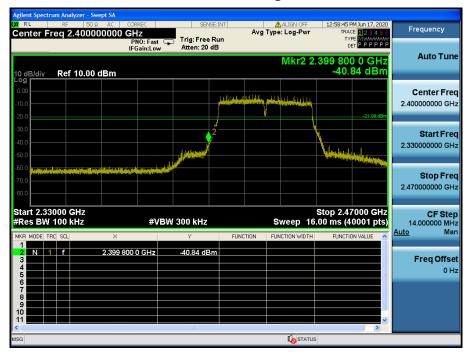


TM 4 & ANT 2 & 2412



Reference

Low Band-edge



| Agilent Spectrum Analyzer - Swept SA | | | | | |
|---|--|----------------------------------|---|---|------------------------------|
| RL RF 50 Ω ▲DC Center Freq 15.004500 M | CORREC | SENSE:INT | ALIGN OFF Avg Type: Log-Pwr | 12:58:52 PM Jun 17, 2020 TRACE 123456 | Frequency |
| | PNO: East | Trig: Free Run Atten: 20 dB | | DET PPPP | |
| | | | | Vikr1 283.4 kHz | Auto Tune |
| 10 dB/div Ref 10.00 dBm | | | | -57.18 dBm | |
| | | | | | Our test |
| -10.0 | | | | | Center Freq 15.004500 MHz |
| -20.0) | | | | -21.99 dBm | 13.004300 Mil12 |
| -30.0 | | | | | |
| -40.0 | | | | | Start Freq |
| -50.0 | | | | | 9.000 kHz |
| | | | | | |
| -50.0 Herety lawely any instance by instance by the | ابغجابي المهداوين ليبالط ومعاومون الية | hip halanaharahasahasahasahihana | han an a | Vergeniserspheriotekstersfeitensitediersk | Stop Freq |
| -80.0 | | | | | 30.000000 MHz |
| | | | | | |
| Start 9 kHz | <i>(</i>) (5) () () | AA 1.11- | | Stop 30.00 MHz | CF Step |
| #Res BW 100 kHz | #VBW 3 | | | 33 ms (40001 pts) | 2.999100 MHz Auto Man |
| MKR MODE TRC SCL X | 283.4 kHz | Y FUNC 57.18 dBm | TION FUNCTION WIDTH | FUNCTION VALUE | <u>Auto</u> Mart |
| 2 | 200.4 KHZ | | | | Freq Offset |
| 3 | | | | | 0 Hz |
| 5 | | | | | 0112 |
| 7 | | | | | |
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| 10 | | | | ~ | |
| < | | | | > | |
| MSG | | | | L DC Coupled | |

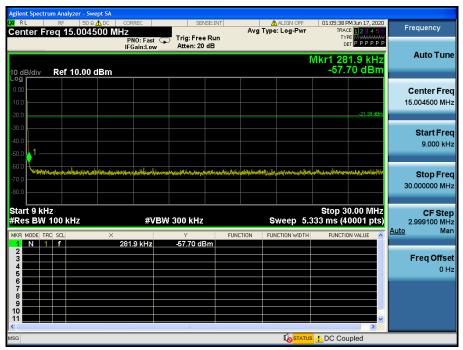
| Agilent Spectrum Analyzer - Swept | | | | | |
|-----------------------------------|--|---|--|--|---------------------------|
| RL RF 50 Ω Center Freq 5.015000 | | SENSE:INT | ALIGN OFF Avg Type: Log-Pwr | 12:59:01 PM Jun 17, 2020 TRACE 1 2 3 4 5 6 | Frequency |
| | PNO: Fast G | Trig: Free Run Atten: 20 dB | | DET P P P P P P | |
| | IFGain:Low | Atten: 20 GB | Mke | 5 2.598 27 GHz | Auto Tune |
| 10 dB/div Ref 10.00 dE | | | | -46.08 dBm | |
| 0.00 | ¥1 | | | | Center Freq |
| -10.0 | | | | | 5.015000000 GHz |
| -20.0 | | | | -21.99 dBm | |
| -30.0 | | | | | |
| -40.0 | ́5 | | 4 | | Start Freq |
| -50.0 | ALL AND A CONTRACTOR OF A CONT | | the set of the stand of the stand of the second stands of the second sta | united and the state of the sta | 30.000000 MHz |
| -60.0 | and the second second second | A had a been a build a share of the state | | | |
| -70.0 | | | | | Stop Freq |
| -80.0 | | | | | 10.000000000 GHz |
| | | | | | |
| Start 30 MHz #Res BW 1.0 MHz | #VBV | V 3.0 MHz | Sweep 18 | Stop 10.000 GHz .67 ms (40001 pts) | CF Step 997.000000 MHz |
| MKR MODE TRC SCL | × | | NCTION FUNCTION WIDTH | FUNCTION VALUE | <u>Auto</u> Man |
| 1 N 1 f 2 N 1 f | 2.424 30 GHz 2.486 11 GHz | 4.45 dBm -42.20 dBm | | | |
| 3 N 1 f | 5.818 83 GHz | -45.17 dBm | | | Freq Offset |
| 4 N 1 f 5 N 1 f | 5.843 76 GHz 2.598 27 GHz | -45.91 dBm -46.08 dBm | | = | 0 Hz |
| 6 | | | | | |
| 8 | | | | | |
| 9 | | | | | |
| 11 | | | | × | |
| MSG | | | | | |
| | | | -0 | | |



TM 4 & ANT 2 & 2437

Reference





| Agilent Spectrum Analyzer - Sw | | | | | |
|--|----------------------------------|---|--|--|---------------------------|
| Center Freq 5.01500 | | SENSE:INT | ALIGN OFF Avg Type: Log-Pwr | 01:05:47 PM Jun 17, 2020 TRACE 123456 | Frequency |
| | PNO: Fast G IFGain:Low | Trig: Free Run Atten: 20 dB | | TYPE MWWWWWW DET P P P P P | |
| | II Gam.cow | | Mkr | 5 3.136 40 GHz | Auto Tune |
| 10 dB/div Ref 10.00 | | | IVIKI | -45.48 dBm | |
| 0.00 | ¥1 | | | | Center Freq |
| -10.0 | | | | | 5.015000000 GHz |
| -20.0 | | | | -21.38 dBm | |
| -30.0 | 2 | | | | |
| -40.0 | 5 | | | | Start Freq |
| -50.0 | a transfer and the second second | the state of the second se | and the second | | 30.000000 MHz |
| -60.0 ********************* *************** | | A STREET, STREE | | | |
| -70.0 | | | | | Stop Freq |
| -80.0 | | | | | 10.00000000 GHz |
| | | | | | |
| Start 30 MHz #Res BW 1.0 MHz | #\/B\ | V 3.0 MHz | Sween 19 | Stop 10.000 GHz .67 ms (40001 pts) | CF Step 997.000000 MHz |
| MKR MODE TRC SCL | × . | | UNCTION FUNCTION WIDTH | FUNCTION VALUE | Auto Man |
| 1 N 1 f | 2.439 50 GHz | 5.16 dBm | ONCTION FONCTION WIDTH | FUNCTION VALUE | |
| 2 N 1 f 3 N 1 f | 2.395 88 GHz 2.490 10 GHz | -37.71 dBm -42.54 dBm | | | Freq Offset |
| 4 N 1 f 5 N 1 f | 2.490 85 GHz 3.136 40 GHz | -42.94 dBm -45.48 dBm | | | 0 Hz |
| 6 | 3.136 40 GHZ | -45.48 dBm | | | |
| 8 | | | | | |
| 9 | | | | | |
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| MSG | | | | | |
| Down | | | LO STATUS | | |

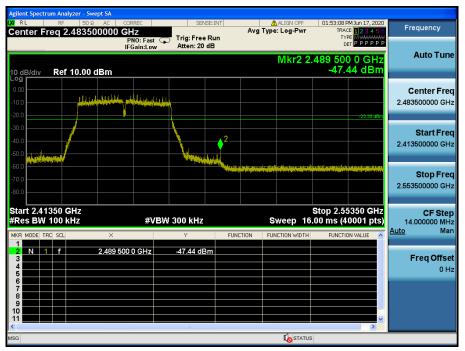
| Agilent Spectrum Analyzer - Swept SA K RF 50 Ω AC Center Freq 17.5000000000 | CORREC SENSE: GHZ PN0: Fast Trig: Free Ri | Avg Type: Log-Pwr | 01:05:55 PM Jun 17, 2020 TRACE 1 2 3 4 5 6 TYPE MWWWWW DET P P P P P | Frequency |
|--|--|--|---|---|
| 10 dB/div Ref 10.00 dBm | IFGain:Low Atten: 20 dE | 3 | оет Р Р Р Р Р Р 24.187 750 GHz -38.10 dBm | Auto Tune |
| -10.0 | | | -21.38 dBm | Center Freq 17.500000000 GHz |
| -30.0 -40.0 -50.0 | | na ng sa sa tanan ing sa | | Start Freq 10.000000000 GHz |
| -60.0 -70.0 -80.0 | | | | Stop Freq 25.00000000 GHz |
| Start 10.000 GHz #Res BW 1.0 MHz | #VBW 3.0 MHz | Sweep 40 | Stop 25.000 GHz 0.00 ms (40001 pts) | CF Step 1.50000000 GHz <u>Auto</u> Man |
| 1 N 1 f 24.938 2 N 1 f 24.656 | 125 GHz -37.30 dBm 125 GHz -38.00 dBm 750 GHz -38.10 dBm | | | Freq Offset 0 Hz |
| 7 8 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 | | | ~ | |
| MSG | | STATU | S | |

TM 4 & ANT 2 & 2462

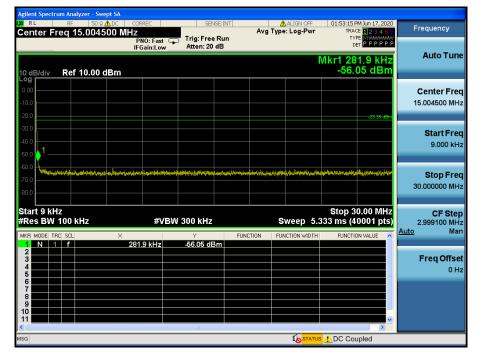
Reference



High Band-edge







| Agilent Spectrum Analyzer - Swep | | or Nor- NIT | | ALIGN OFF | 01:53:24 PMJun 17, 2020 | |
|---|--|--|--|-------------------|--------------------------------------|--------------------------------------|
| Center Freq 5.015000 | 0000 GHz | SENSE:INT | | e: Log-Pwr | TRACE 2 3 4 5 6 TYPE MWWWWWW | Frequency |
| | PNO: Fast G IFGain:Low | Atten: 20 dB | | | DETPPPPP | A |
| 10 dB/div Ref 10.00 dl | | | | Mkr | 5 2.507 30 GHz -45.97 dBm | Auto Tune |
| -10.0 -20.0 | | | | | -23.35 dBm | Center Freq 5.015000000 GHz |
| -30.0 -40.0 -50.0 | 5 <u>43</u> | | and station and free film for factors () as | | | Start Freq 30.000000 MHz |
| -60.0 -70.0 -80.0 | | | | | | Stop Freq 10.000000000 GHz |
| Start 30 MHz #Res BW 1.0 MHz | #VBV | V 3.0 MHz | | Sweep 18. | Stop 10.000 GHz 67 ms (40001 pts) | CF Step 997.000000 MHz |
| MKR MODE TRC SCL | × | | FUNCTION FI | UNCTION WIDTH | FUNCTION VALUE | <u>Auto</u> Man |
| 1 N 1 f 2 N 1 f 3 N 1 f 4 N 1 f 5 N 1 f | 2.454 21 GHz 2.398 62 GHz 3.053 65 GHz 2.930 02 GHz 2.507 30 GHz | 3.41 dBm -40.65 dBm -45.64 dBm -45.87 dBm -45.97 dBm | | | | Freq Offset 0 Hz |
| 6 8 9 10 11 | | | | | ~ | |
| MSG | | | | I o status | | |

Conducted Spurious Emissions





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

adiator 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 |

FCC Part 15.209(a) and (b)

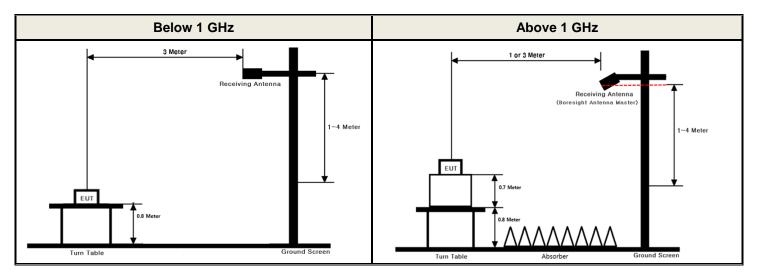
** Except as provided in 15.209(g), fundamental emissions from intentional radiators operating under this Section shall not be located in the frequency bands 54 MHz - 72 MHz, 76 MHz - 88 MHz, 174 MHz - 216 MHz or 470 MHz -806 MHz. However, operation within these frequency bands is permitted under other 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 | | |
| | | 000 1240 | 0000 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 1 000 MHz, compliance with the limits in §15.209 shall be demonstrated using measurement instrumentation employing a CISPR quasi-peak detector. Above 1 000 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 m 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.



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 \ge 3 x RBW, Sweep = Auto, Detector = Peak, Trace mode = Max Hold until the trace stabilizes.

Average Measurement:

- 1. RBW = 1 MHz (unless otherwise specified).
- 2. VBW \geq 3 x RBW.
- 3. Detector = RMS (Number of points \geq 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.

| Test Mode | Date rate | T _{on} (ms) | T _{on+off} (ms) | D = T _{on} / (T _{on+off}) | DCCF = 10 log(1/D) (dB) |
|-----------|-----------|----------------------|--------------------------|--|----------------------------|
| TM 1 | 1 Mbps | 12.200 | 12.300 | 0.991 9 | 0.04 |
| TM 2 | 54 Mbps | 0.244 | 0.333 | 0.733 3 | 1.35 |
| TM 3 | MCS 8 | 0.197 | 0.284 | 0.692 5 | 1.60 |
| TM 4 | MCS 7 | 0.129 | 0.222 | 0.578 8 | 2.37 |

Duty Cycle Correction factor

Note1: Where, T= Transmission duration / D= Duty cycle Note2: Please refer to the appendix I for duty cycle plots.

Test Results: Comply

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



Test Notes.

- 1. The radiated emissions were investigated 9 kHz to 25 GHz. And no other spurious and harmonic emissions were found below listed frequencies.
- 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
- Information of Distance Factor
 For finding emissions, the test distance might be reduced from 3 m to 1 m. In this case, the distance factor(-9.54 dB) is applied to the result.

Calculation of distance factor = 20 log(applied distance / required distance) = 20 log(1 m / 3 m) = -9.54 dB When distance factor is "N/A", the distance is 3 m and distance factor is not applied.

Radiated Spurious Emissions data(9 kHz ~ 25 GHz) : TM 1_ Normal _ ANT 1

| Tested Frequency (MHz) | 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) |
|------------------------------|--------------------|------------|---------------------------|------------------|-------------------|---------------|--------------|-------------|--------------------|-------------------|----------------|
| | 2 388.78 | V | Z | PK | 50.52 | 4.80 | N/A | N/A | 55.32 | 74.00 | 18.68 |
| 2 412 | 2 388.92 | V | Z | AV | 40.91 | 4.80 | N/A | N/A | 45.71 | 54.00 | 8.29 |
| 2 412 | 4 823.93 | Н | Z | PK | 52.39 | 0.93 | N/A | N/A | 53.32 | 74.00 | 20.68 |
| | 4 823.97 | Н | Z | AV | 45.00 | 0.93 | N/A | N/A | 45.93 | 54.00 | 8.07 |
| 2 437 | 4 873.92 | Н | Z | PK | 52.24 | 1.17 | N/A | N/A | 53.41 | 74.00 | 20.59 |
| 2 437 | 4 874.02 | Н | Z | AV | 45.36 | 1.17 | N/A | N/A | 46.53 | 54.00 | 7.47 |
| | 2 484.09 | V | Z | PK | 50.78 | 5.26 | N/A | N/A | 56.04 | 74.00 | 17.96 |
| 2 462 | 2 484.21 | V | Z | AV | 41.07 | 5.26 | N/A | N/A | 46.33 | 54.00 | 7.67 |
| 2 402 | 4 924.04 | Н | Z | PK | 52.92 | 1.45 | N/A | N/A | 54.37 | 74.00 | 19.63 |
| | 4 923.98 | Н | Z | AV | 44.83 | 1.45 | N/A | N/A | 46.28 | 54.00 | 7.72 |

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

| Tested Frequency (MHz) | 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) |
|------------------------------|--------------------|------------|---------------------------|------------------|-------------------|---------------|--------------|-------------|--------------------|-------------------|----------------|
| | 2 389.45 | Н | Z | PK | 50.28 | 4.80 | N/A | N/A | 55.08 | 74.00 | 18.92 |
| 2 412 | 2 389.28 | Н | Z | AV | 40.53 | 4.80 | 1.35 | N/A | 46.68 | 54.00 | 7.32 |
| 2412 | 4 823.84 | Н | Z | PK | 49.11 | 0.93 | N/A | N/A | 50.04 | 74.00 | 23.96 |
| | 4 823.58 | Н | Z | AV | 38.76 | 0.93 | 1.35 | N/A | 41.04 | 54.00 | 12.96 |
| 2 437 | 4 874.04 | Н | Z | PK | 49.83 | 1.17 | N/A | N/A | 51.00 | 74.00 | 23.00 |
| 2 437 | 4 874.16 | Н | Z | AV | 38.91 | 1.18 | 1.35 | N/A | 41.44 | 54.00 | 12.56 |
| | 2 484.22 | Н | Z | PK | 50.84 | 5.26 | N/A | N/A | 56.10 | 74.00 | 17.90 |
| 0.400 | 2 484.15 | Н | Z | AV | 41.31 | 5.26 | 1.35 | N/A | 47.92 | 54.00 | 6.08 |
| 2 462 | 4 924.14 | Н | Z | PK | 49.39 | 1.45 | N/A | N/A | 50.84 | 74.00 | 23.16 |
| | 4 924.12 | Н | Z | AV | 38.89 | 1.45 | 1.35 | N/A | 41.69 | 54.00 | 12.31 |



Radiated Spurious Emissions data(9 kHz ~ 25 GHz) : TM 3_ Normal

| Tested Frequency (MHz) | 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) |
|------------------------------|--------------------|------------|---------------------------|------------------|-------------------|---------------|--------------|-------------|--------------------|-------------------|----------------|
| | 2 389.71 | Н | Z | PK | 53.23 | 4.80 | N/A | N/A | 58.03 | 74.00 | 15.97 |
| 2 412 | 2 389.86 | Н | Z | AV | 42.30 | 4.80 | 1.60 | N/A | 48.70 | 54.00 | 5.30 |
| 2 412 | 4 824.33 | Н | Z | PK | 49.13 | 0.93 | N/A | N/A | 50.06 | 74.00 | 23.94 |
| | 4 824.18 | Н | Z | AV | 38.68 | 0.93 | 1.60 | N/A | 41.21 | 54.00 | 12.79 |
| 2 437 | 4 874.23 | Н | Z | PK | 49.80 | 1.18 | N/A | N/A | 50.98 | 74.00 | 23.02 |
| 2 437 | 4 874.22 | Н | Z | AV | 39.00 | 1.18 | 1.60 | N/A | 41.78 | 54.00 | 12.22 |
| | 2 483.63 | Н | Z | PK | 59.50 | 5.25 | N/A | N/A | 64.75 | 74.00 | 9.25 |
| 2 462 | 2 483.79 | Н | Z | AV | 43.76 | 5.26 | 1.60 | N/A | 50.62 | 54.00 | 3.38 |
| 2 402 | 4 924.04 | Н | Z | PK | 50.49 | 1.45 | N/A | N/A | 51.94 | 74.00 | 22.06 |
| | 4 924.09 | Н | Z | AV | 38.90 | 1.45 | 1.60 | N/A | 41.95 | 54.00 | 12.05 |

Radiated Spurious Emissions data(9 kHz ~ 25 GHz) : <u>TM 4</u> Normal

| Tested Frequency (MHz) | 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) |
|------------------------------|--------------------|------------|---------------------------|------------------|-------------------|---------------|--------------|-------------|--------------------|-------------------|----------------|
| | 2 388.78 | Н | Z | PK | 55.02 | 4.80 | N/A | N/A | 59.82 | 74.00 | 14.18 |
| 2 412 | 2 388.62 | Н | Z | AV | 43.52 | 4.80 | 2.37 | N/A | 50.69 | 54.00 | 3.31 |
| 2 412 | 4 844.20 | Н | Z | PK | 49.41 | 1.09 | N/A | N/A | 50.50 | 74.00 | 23.50 |
| | 4 844.48 | Н | Z | AV | 38.95 | 1.09 | 2.37 | N/A | 42.41 | 54.00 | 11.59 |
| 2 437 | 4 873.61 | Н | Z | PK | 50.01 | 1.17 | N/A | N/A | 51.18 | 74.00 | 22.82 |
| 2 437 | 4 873.64 | Н | Z | AV | 38.87 | 1.17 | 2.37 | N/A | 42.41 | 54.00 | 11.59 |
| | 2 484.58 | Н | Z | PK | 55.86 | 5.27 | N/A | N/A | 61.13 | 74.00 | 12.87 |
| 2.462 | 2 484.71 | Н | Z | AV | 43.44 | 5.27 | 2.37 | N/A | 51.08 | 54.00 | 2.92 |
| 2 462 | 4 904.23 | Н | Z | PK | 50.09 | 1.36 | N/A | N/A | 51.45 | 74.00 | 22.55 |
| | 4 904.40 | Н | Z | AV | 38.89 | 1.36 | 2.37 | N/A | 42.62 | 54.00 | 11.38 |

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 (MHz) | Conducted Limit (dBuV) | | | | |
|--------------------------|------------------------|------------|--|--|--|
| | 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.

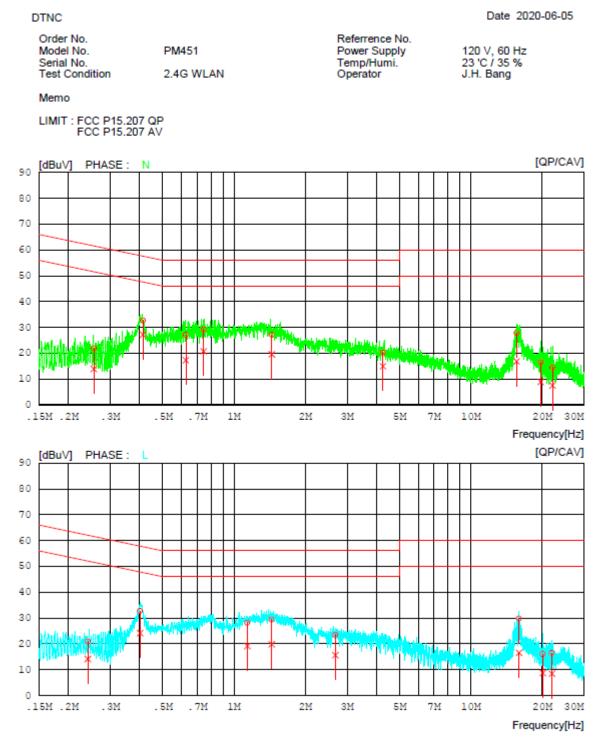


RESULT PLOTS

AC Line Conducted Emissions (Graph)

TM 2 & Highest

Results of Conducted Emission



AC Line Conducted Emissions (List)

TM 2 & Highest

DTNC

Results of Conducted Emission

Date 2020-06-05

| Order No. Model No. Serial No. | PM451 | Referrence No. Power Supply Temp/Humi. | 120 V, 60 Hz 23 'C / 35 % |
|--------------------------------------|-----------|--|------------------------------|
| Test Condition | 2.4G WLAN | Operator | J.H. Bang |

Memo

LIMIT : FCC P15.207 QP FCC P15.207 AV

| NO | FREQ | READING QP CAV [dBuV][dBuV | | RESULT QP CAV [dBuV][dBuV | QP CAV | MARGIN QP CAV J] [dBuV][dBuV] | PHASE /] |
|----|----------|----------------------------------|-------|---------------------------------|-------------|-------------------------------------|-------------|
| 1 | 0.25565 | 12.03 4.00 | 9.95 | 21.9813.95 | 61.57 51.57 | 39.5937.62 | N |
| 2 | 0.41216 | 22.7717.23 | 9.97 | 32.7427.20 | 57.60 47.60 | 24.8620.40 | N |
| 3 | 0.62577 | 17.21 7.32 | 9.97 | 27.1817.29 | 56.00 46.00 | 28.8228.71 | N |
| 4 | 0.74417 | 19.2010.81 | 9.97 | 29.1720.78 | 56.00 46.00 | 26.8325.22 | N |
| 5 | 1.44295 | 17.23 9.57 | 9.99 | 27.2219.56 | 56.00 46.00 | 28.7826.44 | N |
| 6 | 4.25368 | 10.12 4.87 | 10.13 | 20.2515.00 | 56.00 46.00 | 35.7531.00 | N |
| 7 | 15.59949 | 17.37 6.42 | 10.45 | 27.8216.87 | 60.00 50.00 | 32.18 33.13 | N |
| 8 | 19.70551 | 5.94-1.62 | 10.50 | 16.44 8.88 | 60.00 50.00 | 43.5641.12 | N |
| 9 | 22.10058 | 3.85-2.97 | 10.53 | 14.38 7.56 | 60.00 50.00 | 45.6242.44 | N |
| 10 | 0.24161 | 10.95 4.21 | 9.94 | 20.8914.15 | 62.04 52.04 | 41.15 37.89 | L |
| 11 | 0.40079 | 22.7914.14 | 9.95 | 32.7424.09 | 57.84 47.84 | 25.1023.75 | L |
| 12 | 1.13678 | 18.17 9.15 | 9.98 | 28.1519.13 | 56.00 46.00 | 27.8526.87 | L |
| 13 | 1.44215 | 19.37 9.81 | 10.00 | 29.3719.81 | 56.00 46.00 | 26.6326.19 | L |
| 14 | 2.68017 | 13.44 5.56 | 10.05 | 23.4915.61 | 56.00 46.00 | 32.51 30.39 | L |
| 15 | 15.97385 | 19.28 6.09 | 10.44 | 29.7216.53 | 60.00 50.00 | 30.28 33.47 | L |
| 16 | 20.12744 | 5.46-1.81 | 10.47 | 15.93 8.66 | 60.00 50.00 | 44.07 41.34 | L |
| 17 | 21.98730 | 5.99-2.11 | 10.50 | 16.49 8.39 | 60.00 50.00 | 43.5141.61 | L |



Test Requirements, RSS-Gen [6.7]

When an occupied bandwidth value is not specified in the applicable RSS, the transmitted signal bandwidth to be reported is to be its 99 % emission bandwidth, as calculated or measured.

TEST CONFIGURATION

Refer to the APPENDIX I.

TEST PROCEDURE

- The transmitter shall be operated at its maximum carrier power measured under normal test conditions.
- The span of the analyzer shall be set to capture all products of the modulation process, including the emission skirts.
- The resolution bandwidth (RBW) shall be in the range of 1 % to 5 % of the occupied bandwidth (OBW) and video bandwidth (VBW) shall be approximately 3x RBW.

TEST RESULTS: Comply

| Test Made | Eroguopou | Test Res | ults[MHz] | |
|-----------|-----------|----------|-----------|--|
| Test Mode | Frequency | ANT 1 | ANT 2 | |
| | 2 412 | 12.63 | 12.52 | |
| TM 1 | 2 437 | 12.77 | 12.81 | |
| | 2 462 | 12.93 | 12.94 | |
| | 2 412 | 16.92 | 16.95 | |
| TM 2 | 2 437 | 17.00 | 17.00 | |
| | 2 462 | 17.04 | 17.06 | |
| | 2 412 | 18.01 | 18.02 | |
| ТМ 3 | 2 437 | 18.12 | 18.07 | |
| | 2 462 | 18.15 | 18.16 | |
| | 2 422 | 36.81 | 36.41 | |
| TM 4 | 2 437 | 36.83 | 36.42 | |
| | 2 452 | 36.78 | 36.37 | |

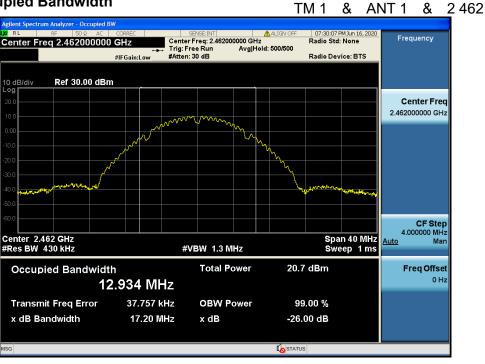
RESULT PLOTS





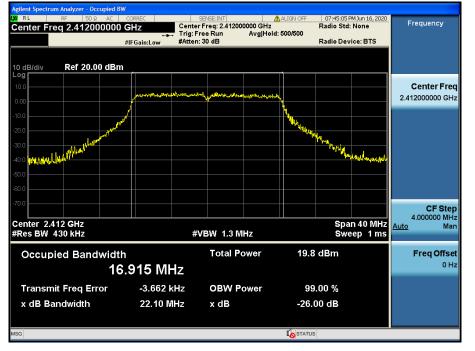








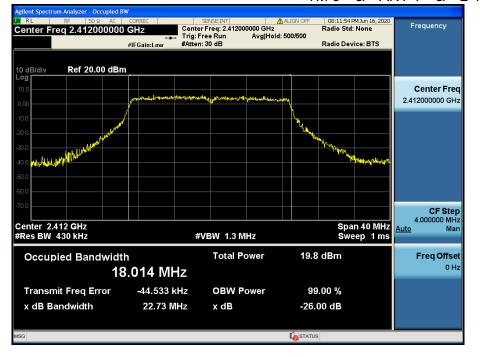






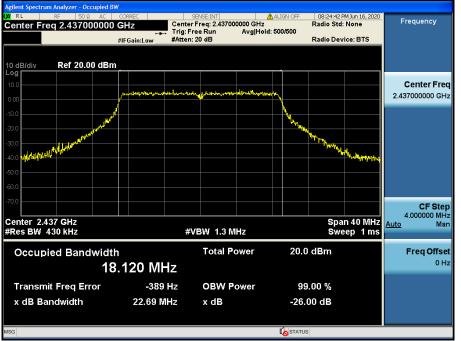


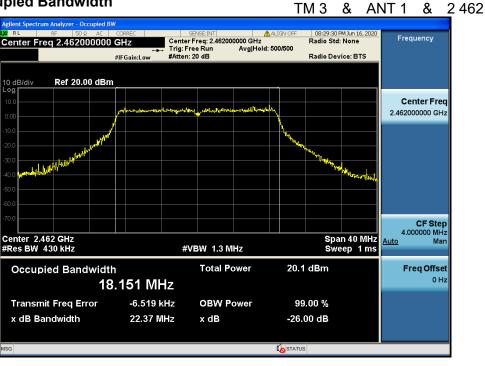
TM 3 & ANT 1 & 2412



Occupied Bandwidth

TM 3 & ANT 1 & 2437

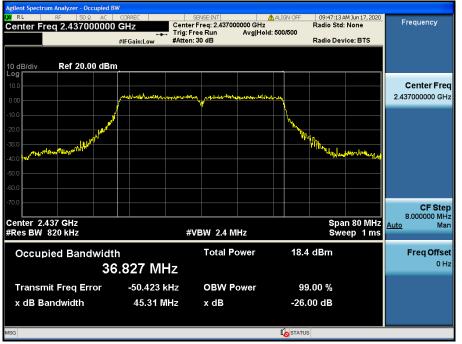






Occupied Bandwidth

TM 4 & ANT 1 & 2437







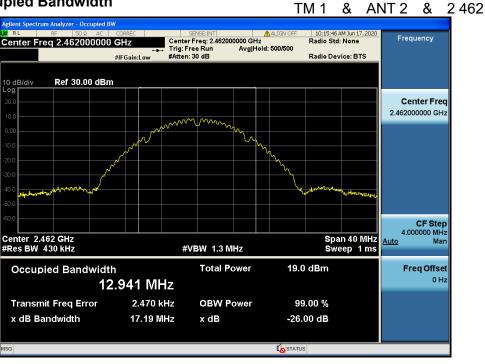
TM 1 & ANT 2 & 2412



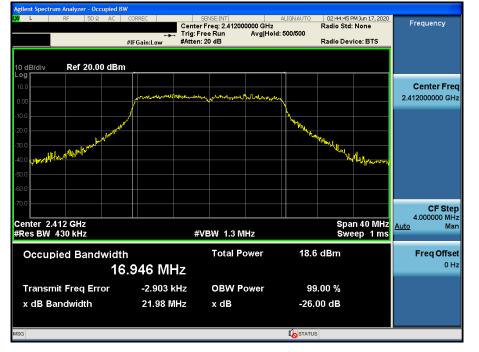
Occupied Bandwidth

TM 1 & ANT 2 & 2437







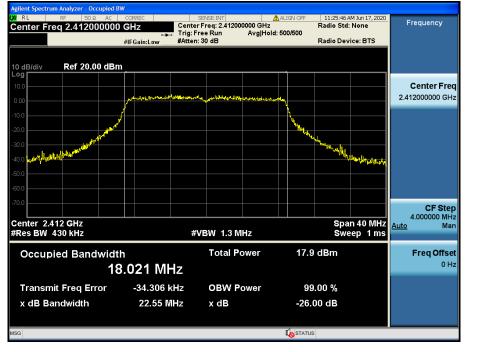








TM 3 & ANT 2 & 2412

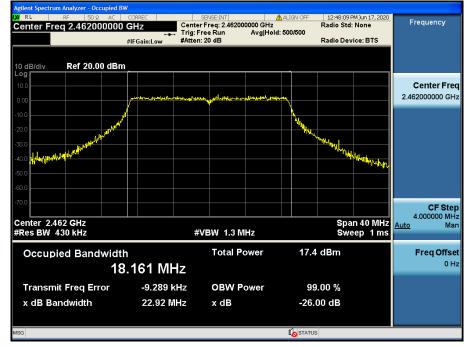


Occupied Bandwidth

TM 3 & ANT 2 & 2437







#VBW 2.4 MHz Total Power

x dB

OBW Power



Occupied Bandwidth

10 dB



17.9 dBm

99.00 %

-26.00 dB

STATUS

Occupied Bandwidth

Center 2.422 GHz #Res BW 820 kHz

Occupied Bandwidth

Transmit Freq Error

x dB Bandwidth

36.413 MHz -31.549 kHz

41.52 MHz

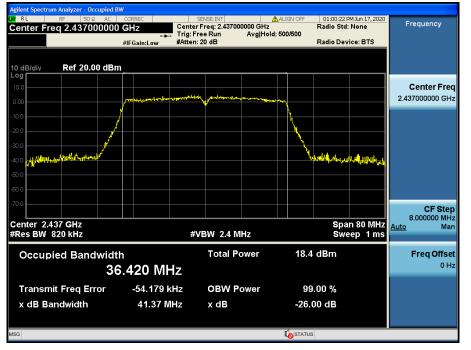
TM 4 & ANT 2 & 2437

Auto

Span 80 MHz Sweep 1 ms

CF Step 8.000000 MHz Man

Freq Offset 0 Hz





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 | 19/12/16 | 20/12/16 | MY50410357 |
| Spectrum Analyzer | Agilent Technologies | N9020A | 19/12/16 | 20/12/16 | MY48011700 |
| Spectrum Analyzer | Agilent Technologies | N9020A | 19/06/16 | 20/12/16 | MY48010133 |
| DC Power Supply | Agilent Technologies | 66332A | 19/06/25 | 20/06/25 | MY43000211 |
| Multimeter | FLUKE | 17B | 19/12/16 | 20/12/16 | 26030065WS |
| Signal Generator | Rohde Schwarz | SMBV100A | 19/12/16 | 20/12/16 | 255571 |
| Signal Generator | ANRITSU | MG3695C | 19/12/16 | 20/12/16 | 173501 |
| Thermohygrometer | BODYCOM | BJ5478 | 19/12/18 | 20/12/18 | 120612-1 |
| Thermohygrometer | BODYCOM | BJ5478 | 19/12/18 | 20/12/18 | 120612-2 |
| Thermohygrometer | BODYCOM | BJ5478 | 19/07/03 | 20/07/03 | N/A |
| Loop Antenna | ETS-Lindgren | 6502 | 19/09/18 | 21/09/18 | 00226186 |
| BILOG ANTENNA | Schwarzbeck | VULB 9160 | 19/04/23 | 21/04/23 | 9160-3362 |
| Horn Antenna | ETS-Lindgren | 3115 | 20/01/30 | 22/01/30 | 6419 |
| Horn Antenna | Schwarzbeck | BBHA 9120C | 19/12/04 | 21/12/04 | 9120C-561 |
| PreAmplifier | tsj | MLA-0118-B01-40 | 19/12/16 | 20/12/16 | 1852267 |
| PreAmplifier | tsj | MLA-1840-J02-45 | 19/06/27 | 20/06/27 | 16966-10728 |
| PreAmplifier | H.P | 8447D | 19/12/16 | 20/12/16 | 2944A07774 |
| High Pass Filter | Wainwright Instruments | WHKX12-935-1000- 15000-40SS | 19/06/26 | 20/06/26 | 8 |
| High Pass Filter | Wainwright Instruments | WHKX10-2838- 3300-18000-60SS | 19/06/26 | 20/06/26 | 1 |
| High Pass Filter | Wainwright Instruments | WHNX8.0/26.5-6SS | 19/06/27 | 20/06/27 | 3 |
| Attenuator | Hefei Shunze | SS5T2.92-10-40 | 19/06/27 | 20/06/27 | 16012202 |
| Attenuator | SRTechnology | F01-B0606-01 | 19/06/27 | 20/06/27 | 13092403 |
| Attenuator | Aeroflex/Weinschel | 20515 | 19/06/27 | 20/06/27 | Y2370 |
| Attenuator | SMAJK | SMAJK-2-3 | 19/06/27 | 20/06/27 | 2 |
| Attenuator | SMAJK | SMAJK-50-10 | 19/08/07 | 20/08/07 | 15081901 |
| Power Meter & Wide Bandwidth Sensor | Anritsu | ML2488B MA2491A | 20/01/02 | 21/01/02 | 0910025 0845333 |
| EMI Receiver | ROHDE&SCHWARZ | ESW44 | 19/07/30 | 20/07/30 | 101645 |
| PULSE LIMITER | Rohde Schwarz | ESH3-Z2 | 19/09/17 | 20/09/17 | 101333 |
| LISN | SCHWARZBECK | NSLK 8128 RC | 19/11/04 | 20/11/04 | 8128 RC-387 |
| Cable | Junkosha | MWX241 | 20/01/13 | 21/01/13 | G-04 |
| Cable | Junkosha | MWX241 | 20/01/13 | 21/01/13 | G-07 |
| Cable | DT&C | Cable | 20/01/13 | 21/01/13 | G-13 |
| Cable | DT&C | Cable | 20/01/13 | 21/01/13 | G-14 |
| Cable | HUBER+SUHNER | SUCOFLEX 104 | 20/01/13 | 21/01/13 | G-15 |
| Cable | Radiall | TESTPRO3 | 20/01/16 | 21/01/16 | M-01 |
| Cable | Junkosha | MWX315 | 20/01/16 | 21/01/16 | M-05 |
| Cable | Junkosha | MWX221 | 20/01/16 | 21/01/16 | M-06 |
| Cable | Radiall | TESTPRO3 | 20/01/16 | 21/01/16 | RF-82 |
| Test Software | tsj | Raidated Emission Measurement | NA | NA | Version 2.00.0177 |
| Test Software | tsj | Noise Terminal Measurement | NA | NA | Version 2.00.0170 |

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

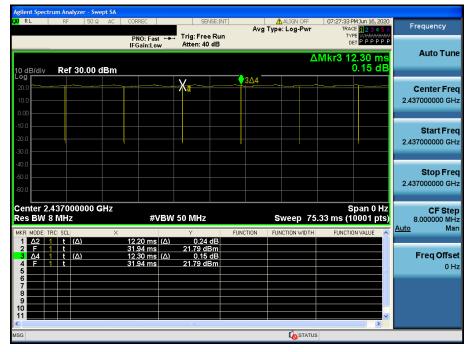
Duty Cycle was measured using section 6.0 b) of KDB558074 D01v05r02 :

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.)

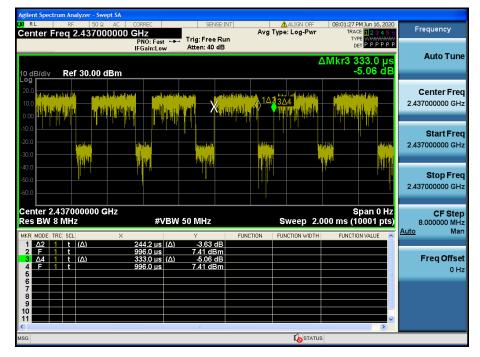
Duty Cycle

TM 1 & ANT 1 & 2 437 MHz & 1 Mbps

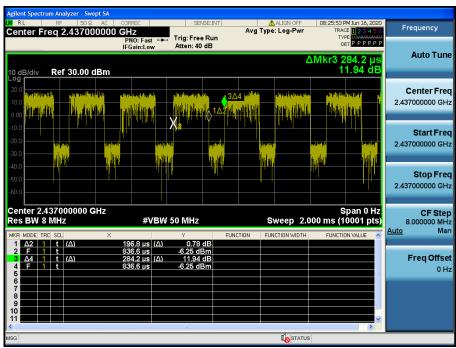


Dt&C

TM 2 & ANT 1 & 2 437 MHz & 54 Mbps



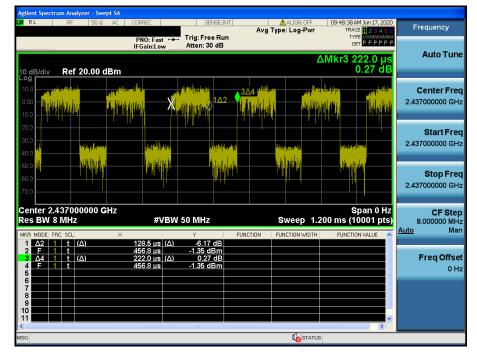
TM 3 & ANT 1 & 2 437 MHz & MCS 8



Duty Cycle



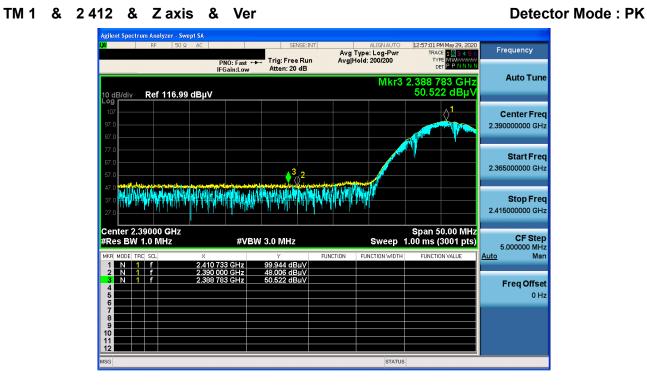
TM 4 & ANT 1 & 2 437 MHz & MCS 7



Duty Cycle

APPENDIX II

Unwanted Emissions (Radiated) Test Plot



TM 1 & 2412 & Zaxis & Ver

Detector Mode : AV

| RF | 50 Ω AC | NO:Fast ↔ Trig:Fr | | ALIGN AUTO g Type: RMS Hold: 200/200 | 01:01:24 PM May 29, 2020 TRACE 1 2 3 4 5 6 TYPE A WWWW DET A P N N N | Frequency |
|--|----------------------|-------------------|-----|---|---|------------------------------------|
| 10 dB/div Ref | | Gain:Low Atten: 2 | | Mkr3 | 2.388 917 GHz 40.907 dBuV | Auto Tur |
| 107 97.0 87.0 | | | | | | Center Fre 2.390000000 GH |
| 77.0 67.0 57.0 | | | 3 2 | | | Start Fre 2.365000000 GI |
| 47.0 37.0 27.0 | | | | | | Stop Fr 2.415000000 G |
| enter 2.39000 GHz Span 50.00 MH: Res BW 1.0 MHz #VBW 3.0 MHz* Sweep 1.00 ms (3001 pts | | | | | | |
| MKR MODE TRC SCL | × 2.410 73 | | | FUNCTION WIDTH | FUNCTION VALUE | Auto M |
| 2 N 1 f | 2.390 00 2.388 91 | | | | | Freq Offs |
| 3 N 1 f 4 5 6 6 | 1 | | | | | |
| 4 5 | | | | | | |



TM 1 & 2462 & Zaxis & Ver



Detector Mode : AV

TM 1 & 2462 & Zaxis & Ver





TM 2 & 2412 & Zaxis & Hor



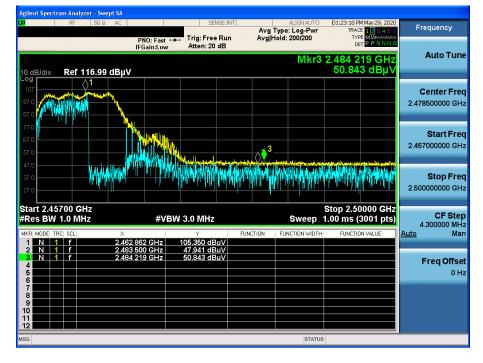
TM 2 & 2412 & Zaxis & Hor

ectrum Analyzer - Swept SA Avg Type: RMS Avg|Hold: 200/200 Frequency TRACE DET A P N N Auto Tune Mkr3 2.389 283 GH 40.533 dBµ' 10 dB/div Ref 116.99 dBµV Center Freq 2.39000000 GHz Start Freq 2.365000000 GHz Stop Freq 2.415000000 GHz Center 2.39000 GHz #Res BW 1.0 MHz Span 50.00 MHz Sweep 1.00 ms (3001 pts) CF Step 5.000000 MHz Man #VBW 3.0 MHz* Auto 00 GHz 39.783 dBµ\ 40.533 dBµ\ Freq Offset 0 Hz 10 STATUS

Detector Mode : AV



TM 2 & 2462 & Zaxis & Hor



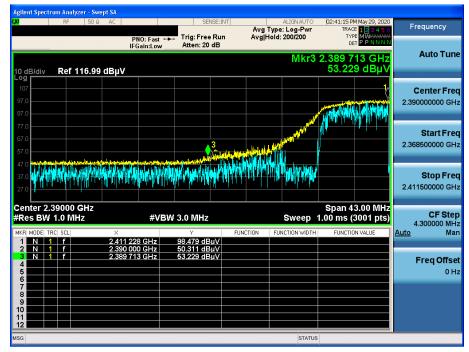
Detector Mode : AV

TM 2 & 2462 & Zaxis & Hor





TM 3 & 2412 & Zaxis & Hor



TM 3 & 2412 & Zaxis & Hor

ectrum Analyzer - Swept SA Frequency Avg Type: RMS Avg|Hold: 200/200 TRAC PNO: Fast +++ Trig: Free Run IFGain:Low Atten: 20 dB DET A P N N Auto Tune Mkr3 2.389 857 GHz 42.296 dBµ\ 10 dB/div Ref 116.99 dBµV **Center Freq** 2.390000000 GHz Start Freq 2.368500000 GHz 3 Stop Freq 2.411500000 GHz Span 43.00 MHz Sweep 1.00 ms (3001 pts) Center 2.39000 GHz #Res BW 1.0 MHz **CF Step** 4.300000 MHz Man #VBW 3.0 MHz* Auto 228 GHZ 000 GHZ 857 GHZ 42.020 dBµ¹ 42.296 dBµ¹ Freq Offset 0 Hz STATUS

Detector Mode : AV



TM 3 & 2462 & Zaxis & Hor



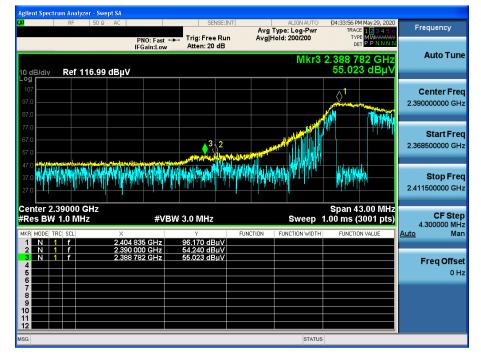
TM 3 & 2462 & Zaxis & Hor

Spectrum Analyzer - Swept SA Avg Type: RMS Avg|Hold: 200/200 Frequency Trig: Free Run Atten: 20 dB DET A P N N PNO: Fast ↔→ IFGain:Low Auto Tune Mkr3 2.483 789 GHz 43.759 dBµ\ 10 dB/div Ref 116.99 dBµV Center Freq 2.478500000 GHz Start Freq 2.457000000 GHz <́́³ Stop Freq 2.50000000 GHz Start 2.45700 GHz #Res BW 1.0 MHz Stop 2.50000 GHz Sweep 1.00 ms (3001 pts) CF Step 4.300000 MHz Man #VBW 3.0 MHz* <u>Auto</u> 2.467 406 GHZ 2.483 500 GHz 2.483 789 GHz 43.260 dBµ\ 43.759 dBµ\ Freq Offset 0 Hz STATUS

Detector Mode : AV



TM 4 & 2 422 & Z axis & Hor



Detector Mode : AV

TM 4 & 2 422 & Z axis & Hor





TM 4 & 2452 & Zaxis & Hor



Detector Mode : AV

TM 4 & 2 452 & Z axis & Hor



Detector Mode : AV

TM 1 & 2 437 & Z axis & Hor



TM 2 & 2462 & Zaxis & Hor

nt Spectrum Analyzer - Swept SA Frequency Avg Type: RMS Avg|Hold: 200/200 Trig: Free Run Atten: 6 dB PNO: Fast +++ IFGain:Low Mkr1 4.924 123 3 GHz 38.888 dBµV Auto Tune Ref 66.99 dBµV 5 dB/div Log **Center Freq** 4.924000000 GHz Start Freq 4.921500000 GHz Stop Freq 4.926500000 GHz **∮**¹ CF Step 2.46200000 GHz Auto Man Freq Offset 0 Hz Center 4.924000 GHz #Res BW 1.0 MHz Span 5.000 MHz Sweep 1.00 ms (3001 pts) #VBW 3.0 MHz*

Detector Mode : AV

Detector Mode : AV

TM 3 & 2462 & Zaxis & Hor



TM 4 & 2 452 & Z axis & Hor

nt Spectrum Analyzer - Swept SA Frequency Avg Type: RMS Avg|Hold: 200/200 Trig: Free Run Atten: 6 dB TYPE A WANNAN DET A P N N N PNO: Fast +++ IFGain:Low Auto Tune 04 400 0 GHz 38.887 dBµ∨ Mkr1 4.9 Ref 66.99 dBµV 5 dB/div Log **Center Freq** 4.904000000 GHz Start Freq 4.901500000 GHz Stop Freq 4.906500000 GHz \$ CF Step 2.45200000 GHz Auto Man Freq Offset 0 Hz Center 4.904000 GHz #Res BW 1.0 MHz Span 5.000 MHz Sweep 1.00 ms (3001 pts) #VBW 3.0 MHz*

Detector Mode : AV