

5.7 SPURIOUS EMISSIONS AT ANTENNA TERMINALS

Test Requirement: FCC 47 CFR Part 2.1051,
GSM 850 & WCDMA Band V & LTE Band 5: FCC 47 CFR Part 22.917(a)(b),
GSM 1900 & WCDMA Band II & LTE Band 2: FCC 47 CFR Part 24.238(a)(b),
WCDMA Band IV & LTE Band 4: FCC 47 CFR Part 27.53(h)(1),
LTE Band 12 & Band 17: FCC 47 CFR Part 27.53(g)

Test Method: ANSI/TIA-603-E-2016 & KDB 971168 D01v03r01

Limit:

FCC 47 CFR Part 22 & FCC 47 CFR Part 24: The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log(P)$ dB. The emission limit equal to -13 dBm.

FCC 47 CFR Part 27.53(g): For operations in the 600 MHz band and the 698-746 MHz band, the power of any emission outside a licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, by at least $43 + 10 \log(P)$ dB. Compliance with this provision is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kilohertz or greater. However, in the 100 kilohertz bands immediately outside and adjacent to a licensee's frequency block, a resolution bandwidth of at least 30 kHz may be employed.

FCC 47 CFR Part 27.53(h)(1): Except as otherwise specified below, for operations in the 1695-1710 MHz, 1710-1755 MHz, 1755-1780 MHz, 1915-1920 MHz, 1995-2000 MHz, 2000-2020 MHz, 2110-2155 MHz, 2155-2180 MHz, and 2180-2200 bands, the power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) in watts by at least $43 + 10 \log_{10}(P)$ dB. The emission limit equal to -13 dBm.

Test Procedure:

The EUT makes a phone call to the communication simulator. All measurements were done at low, middle and high operational frequency range. b. Measuring frequency range is from 30 MHz to the tenth harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower. Set RBW & VBW to 100 kHz for the measurement below 1 GHz, and 1 MHz for the measurement above 1 GHz.

Note: The cable loss and attenuator loss were offset into measure device as an amplitude offset.

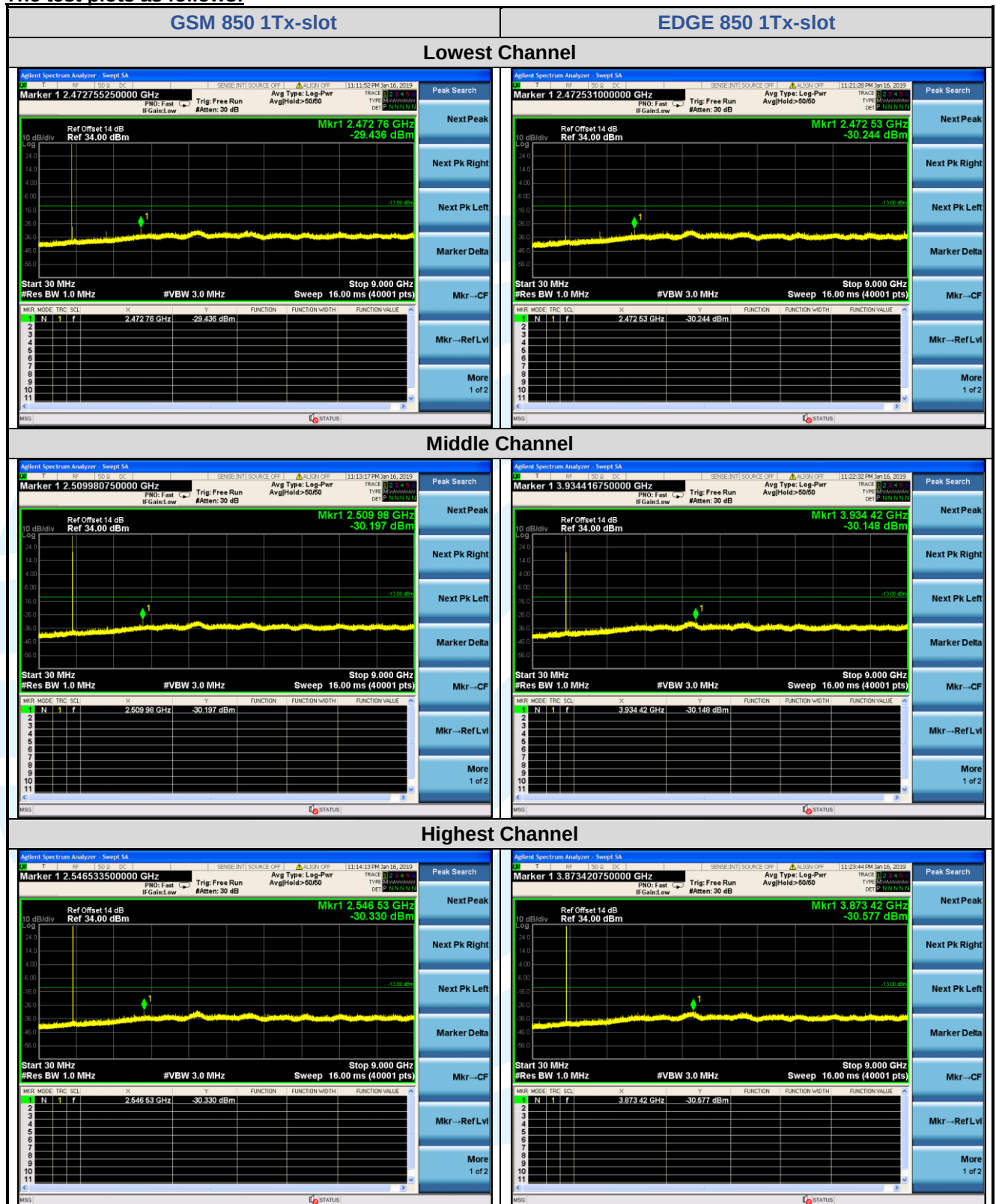
Test Setup: Refer to section 4.2.2 for details.

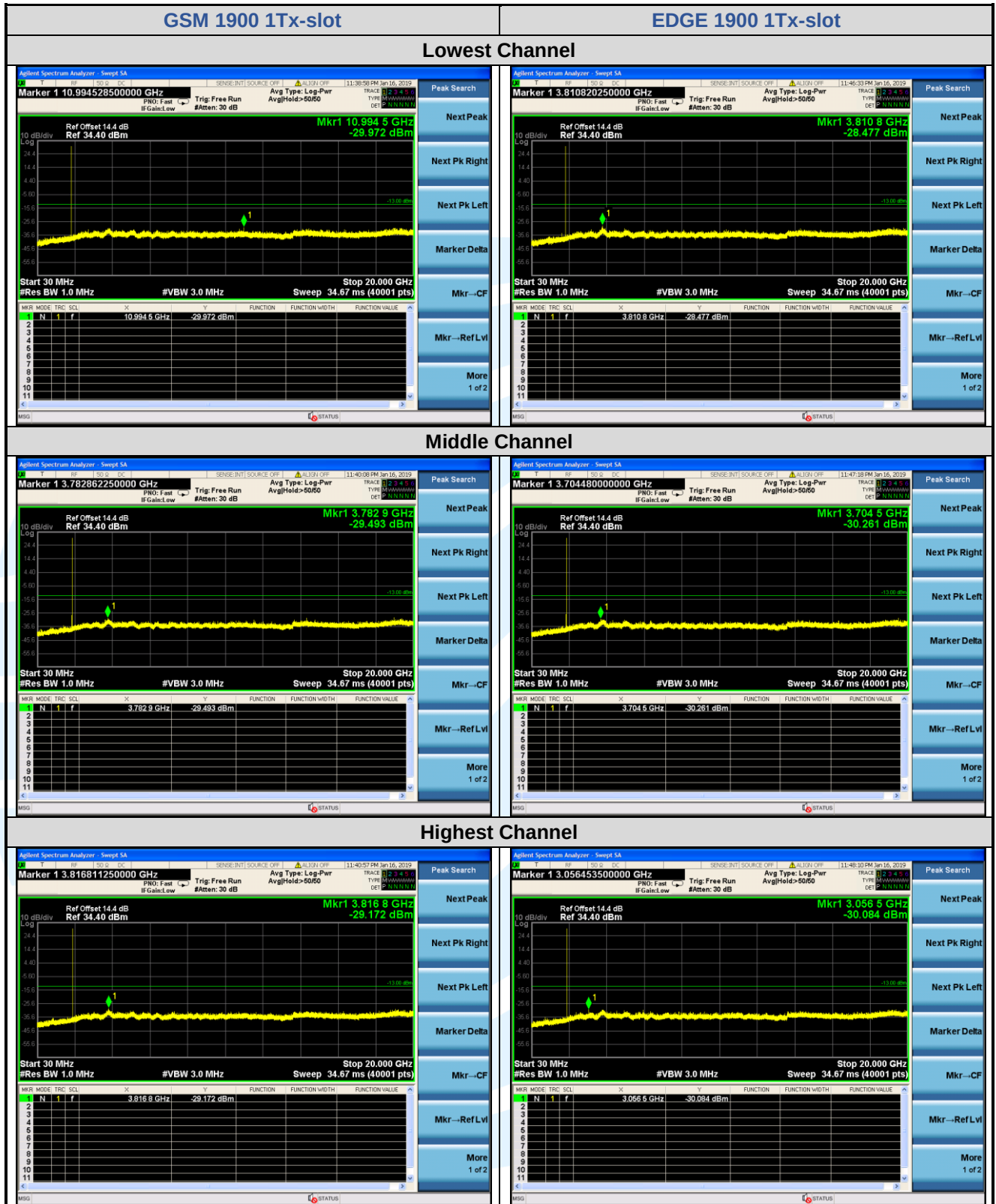
Instruments Used: Refer to section 3 for details

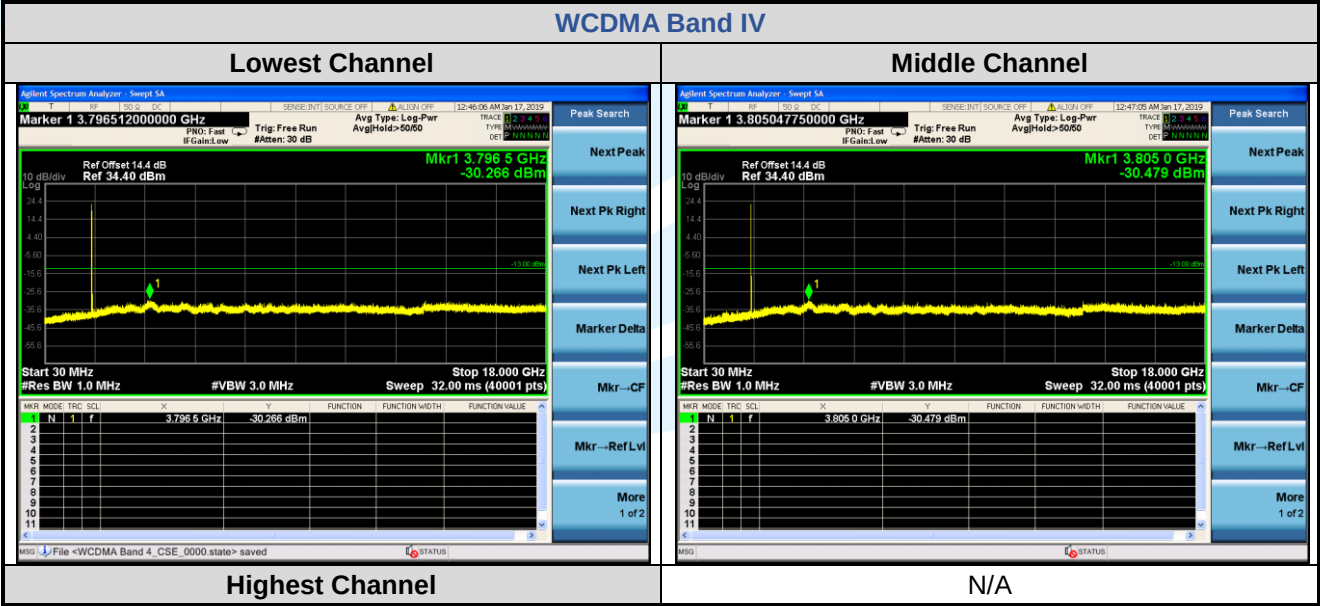
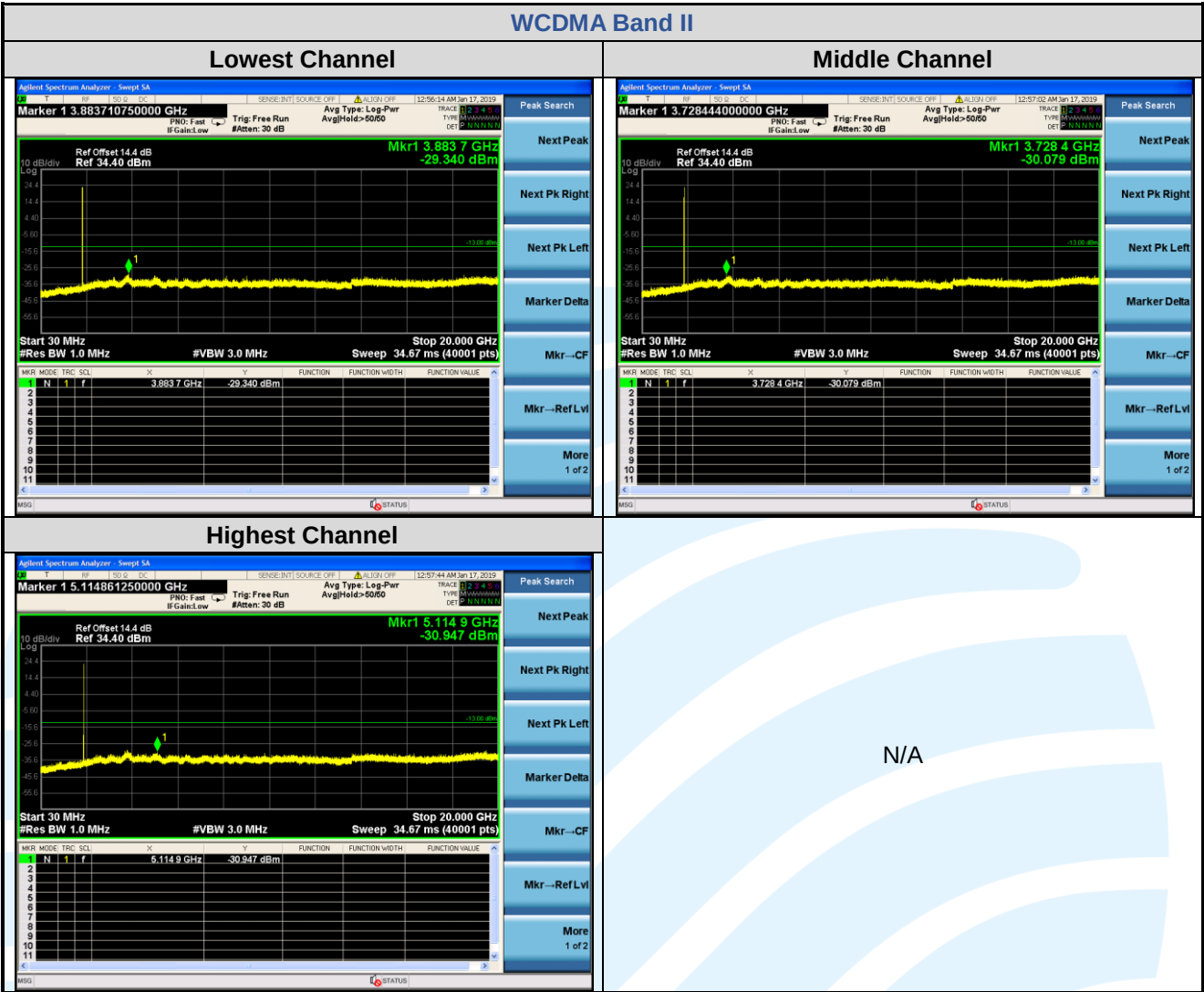
Test Mode: Link mode

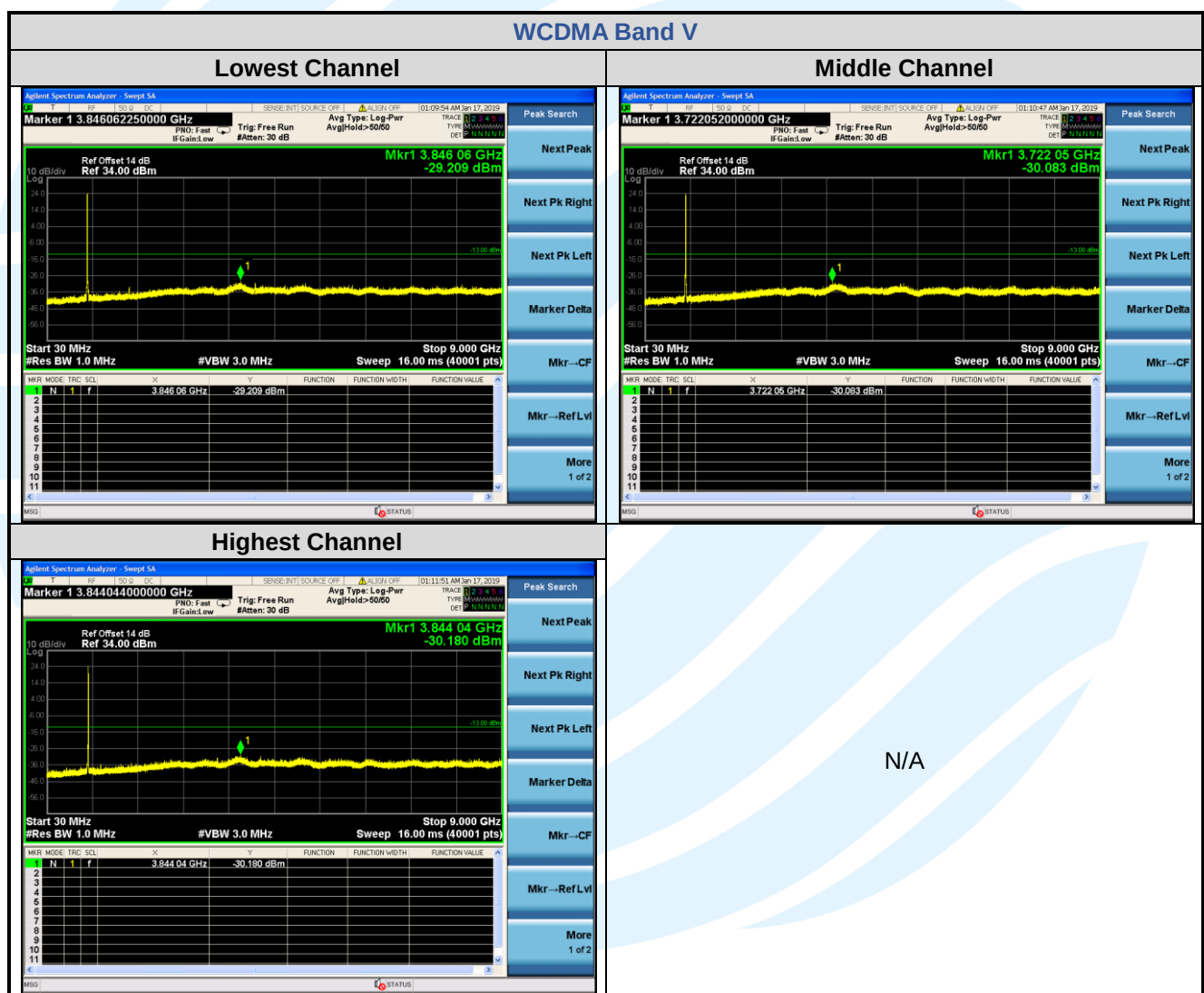
Test Results: Pass

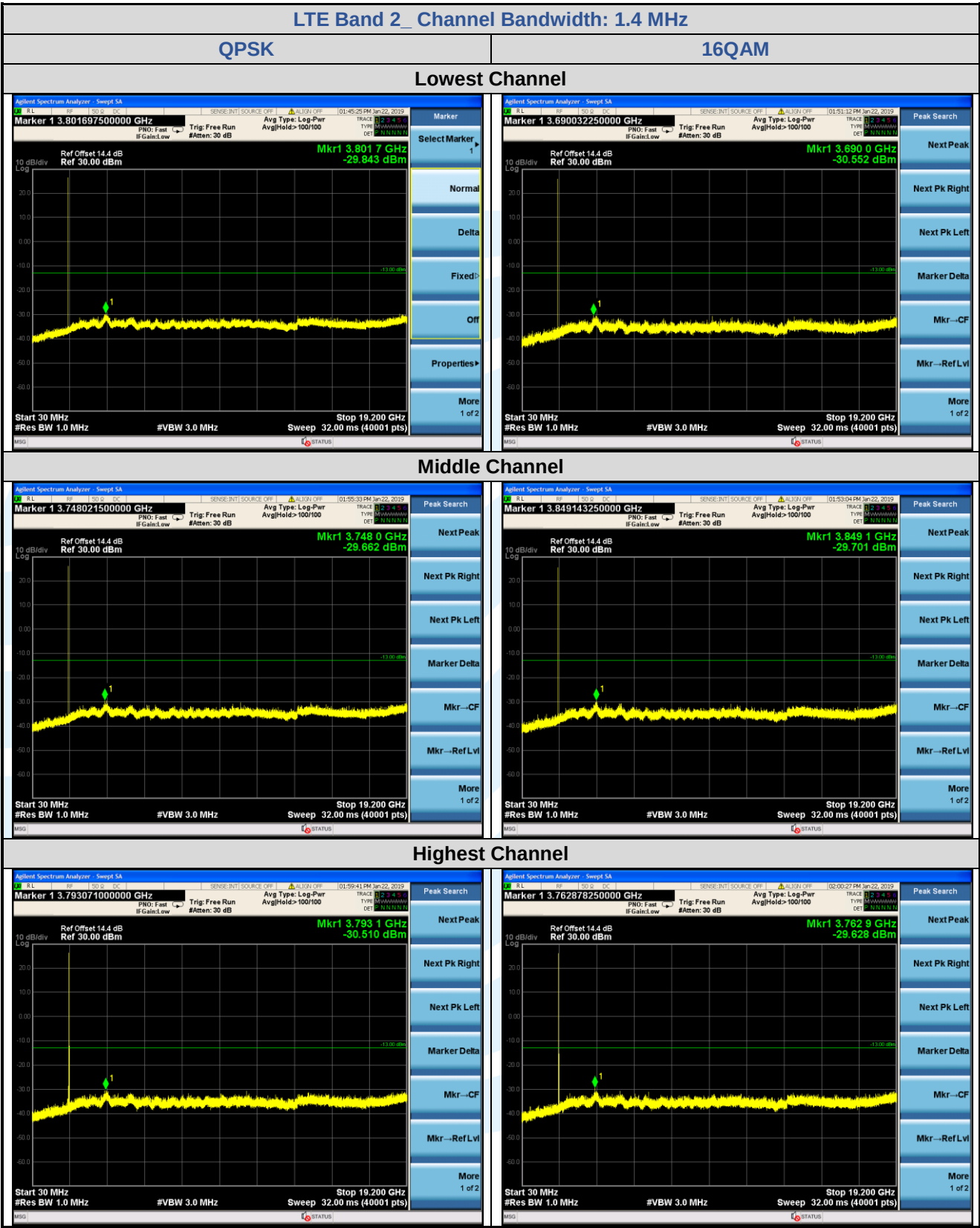
The test plots as follows:











Highest Channel

Agilent Spectrum Analyzer - Sweep SA

Marker 1 3.793071000000 GHz

Ref Offset 14.4 dB
Ref 30.00 dBm

Mkr1 3.7931 GHz
-30.510 dBm

Start 30 MHz
#Res BW 1.0 MHz

#VBW 3.0 MHz

Sweep 32.00 ms (40001 pts)

10 dB/div

Log

20.0

10.0

0.00

-10.0

-20.0

-30.0

-40.0

-50.0

-60.0

Peak Search

Next Peak

Next Pk Right

Next Pk Left

Marker Delta

Mkr--CF

Mkr--Ref Lvl

More

Agilent Spectrum Analyzer - Sweep SA

Marker 1 3.762878250000 GHz

Ref Offset 14.4 dB
Ref 30.00 dBm

Mkr1 3.7629 GHz
-29.628 dBm

Start 30 MHz
#Res BW 1.0 MHz

#VBW 3.0 MHz

Sweep 32.00 ms (40001 pts)

10 dB/div

Log

20.0

10.0

0.00

-10.0

-20.0

-30.0

-40.0

-50.0

-60.0

Peak Search

Next Peak

Next Pk Right

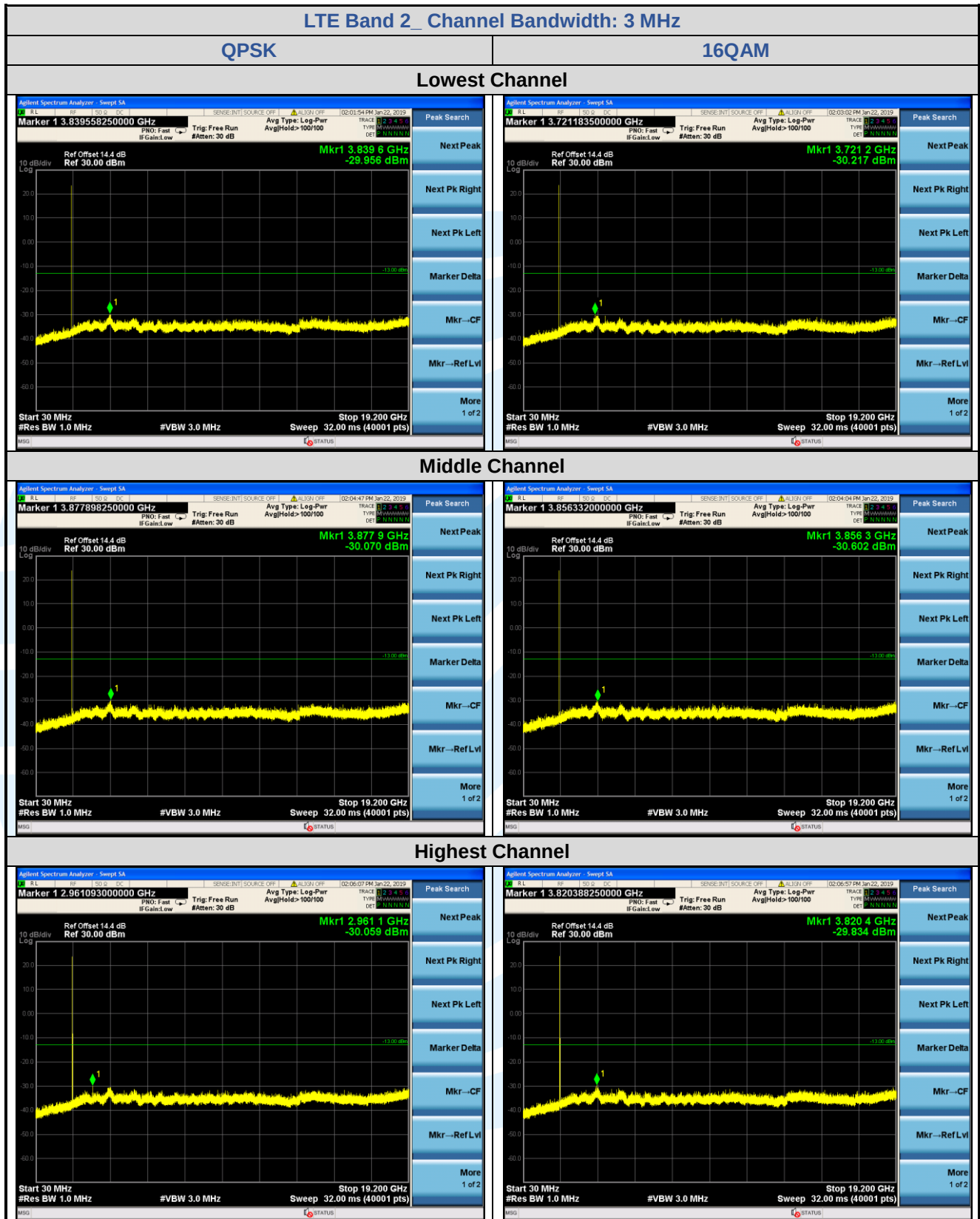
Next Pk Left

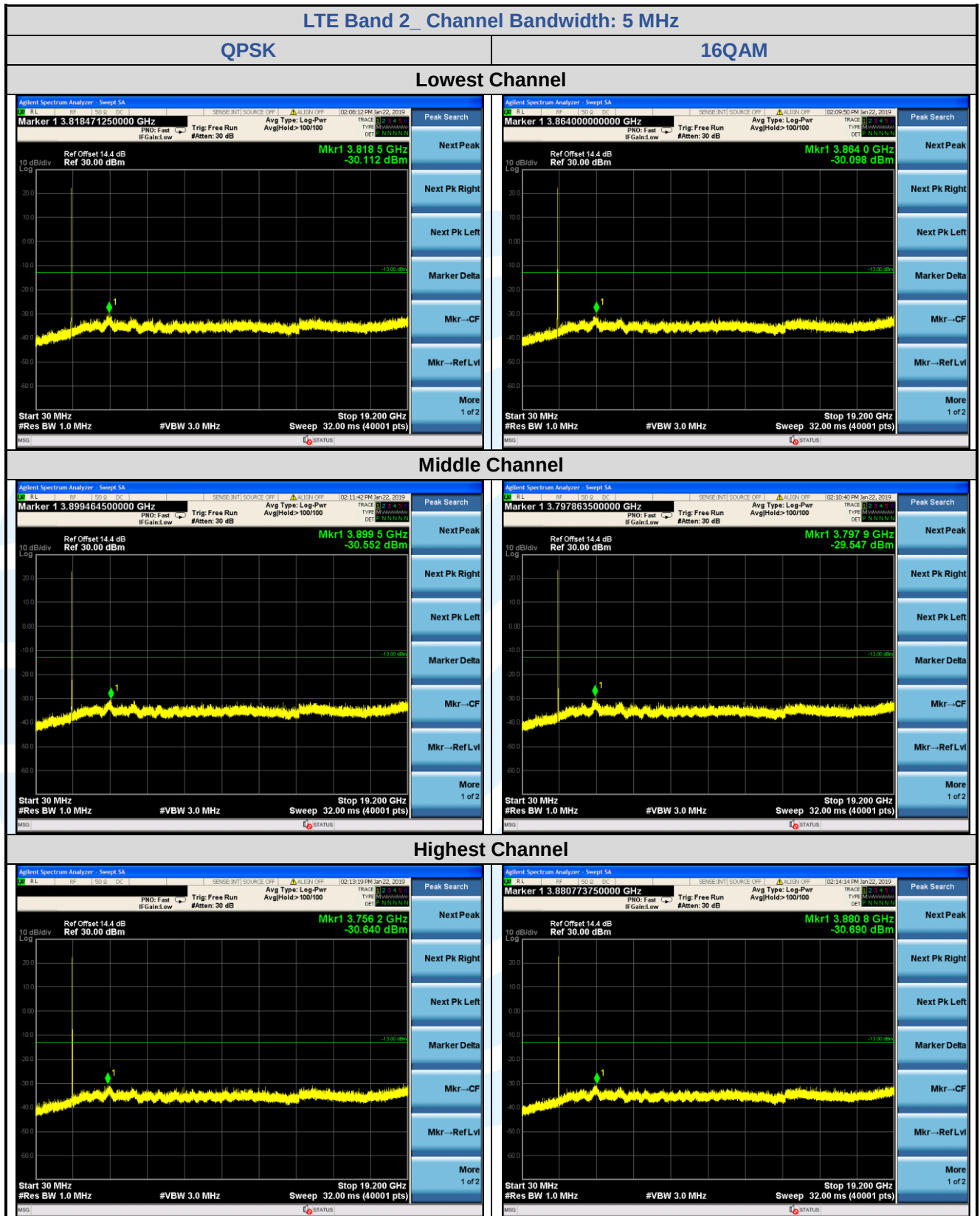
Marker Delta

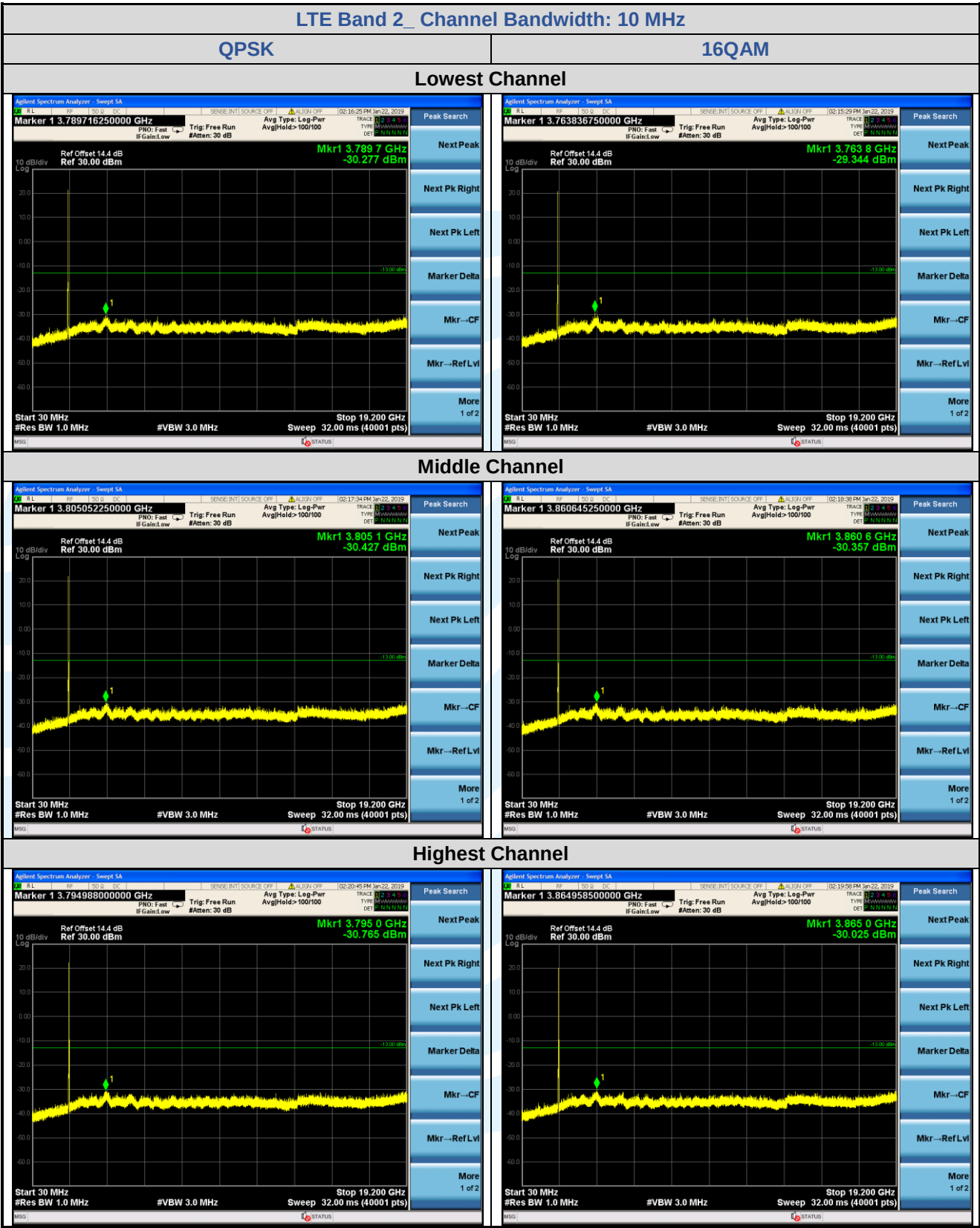
Mkr--CF

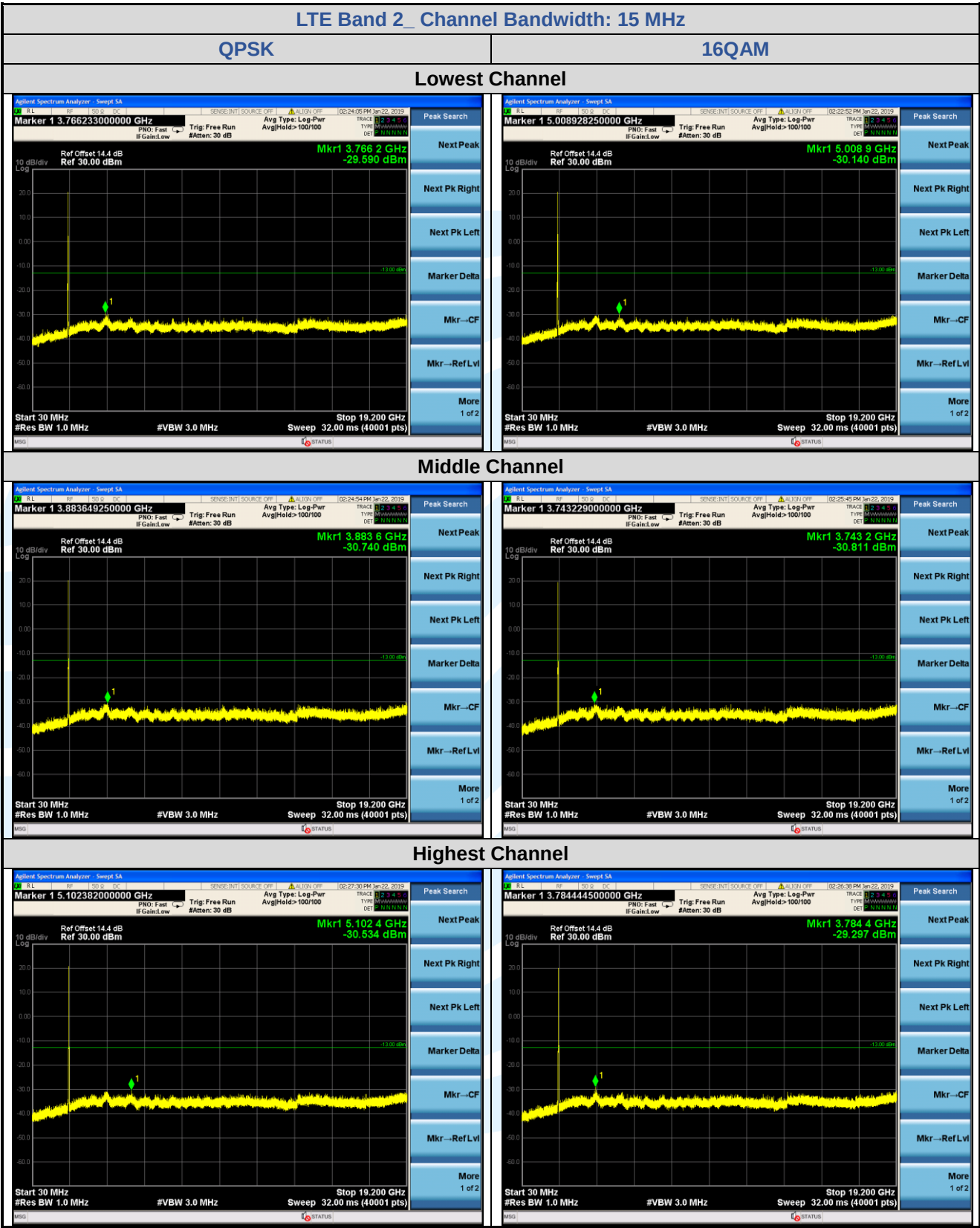
Mkr--Ref Lvl

More









Middle Channel

Agilent Spectrum Analyzer - Sweep SA

Marker 1 3.883649250000 GHz

Ref Offset 14.4 dB
Ref 30.00 dBm

Mkr1 3.883 6 GHz
-30.740 dBm

Start 30 MHz
#Res BW 1.0 MHz

#VBW 3.0 MHz

Sweep 32.00 ms (40001 pts)

Peak Search

NextPeak

Next Pk Right

Next Pk Left

Marker Delta

Mkr--CF

Mkr--RefLvl

More
1 of 2

Agilent Spectrum Analyzer - Sweep SA

Marker 1 3.743229000000 GHz

Ref Offset 14.4 dB
Ref 30.00 dBm

Mkr1 3.743 2 GHz
-30.811 dBm

Start 30 MHz
#Res BW 1.0 MHz

#VBW 3.0 MHz

Sweep 32.00 ms (40001 pts)

Peak Search

NextPeak

Next Pk Right

Next Pk Left

Marker Delta

Mkr--CF

Mkr--RefLvl

More
1 of 2

Highest Channel

Agilent Spectrum Analyzer - Sweep SA

Marker 1 5.102382000000 GHz

Ref Offset 14.4 dB
Ref 30.00 dBm

Mkr1 5.102 4 GHz
-30.534 dBm

Start 30 MHz
#Res BW 1.0 MHz

#VBW 3.0 MHz

Sweep 32.00 ms (40001 pts)

Peak Search

NextPeak

Next Pk Right

Next Pk Left

Marker Delta

Mkr--CF

Mkr--RefLvl

More
1 of 2

Agilent Spectrum Analyzer - Sweep SA

Marker 1 3.784444500000 GHz

Ref Offset 14.4 dB
Ref 30.00 dBm

Mkr1 3.784 4 GHz
-29.297 dBm

Start 30 MHz
#Res BW 1.0 MHz

#VBW 3.0 MHz

Sweep 32.00 ms (40001 pts)

Peak Search

NextPeak

Next Pk Right

Next Pk Left

Marker Delta

Mkr--CF

Mkr--RefLvl

More
1 of 2