



BUREAU VERITAS Test Report No.: PSU-NQN2506100110RF02

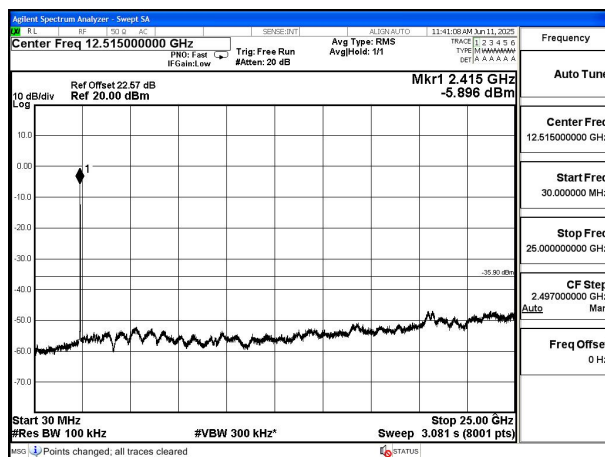


Mode:802.11g Frequency:2437MHz Ant:Chain1

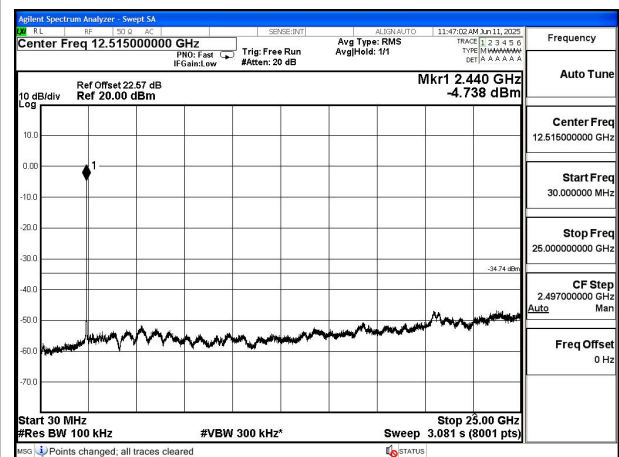


Mode:802.11g Frequency:2462MHz Ant:Chain1

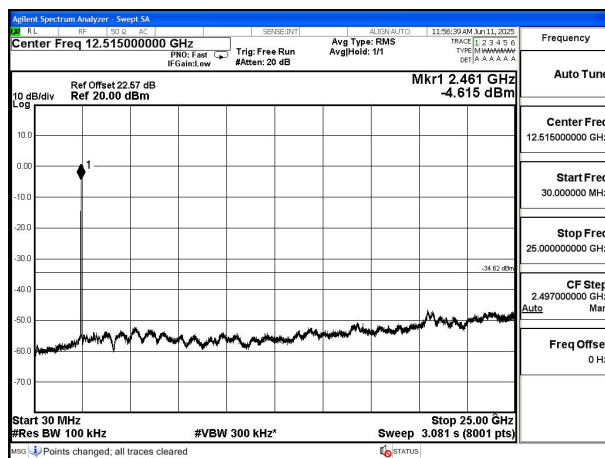
Test Mode: 802.11n HT20



Mode:802.11n HT20 Frequency:2412MHz
Ant:Chain0



Mode:802.11n HT20 Frequency:2437MHz
Ant:Chain0



Mode:802.11n HT20 Frequency:2462MHz



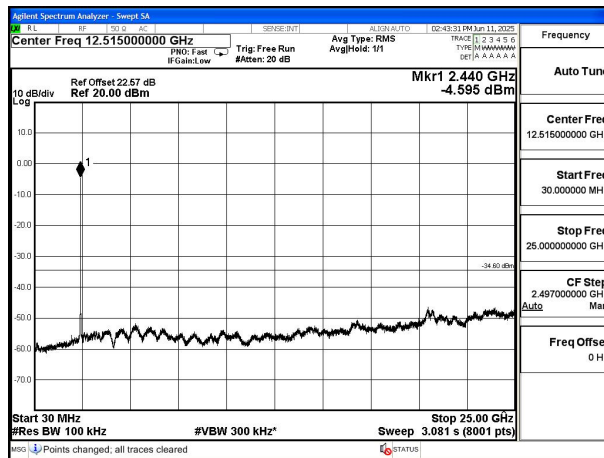
Mode:802.11n HT20 Frequency:2412MHz



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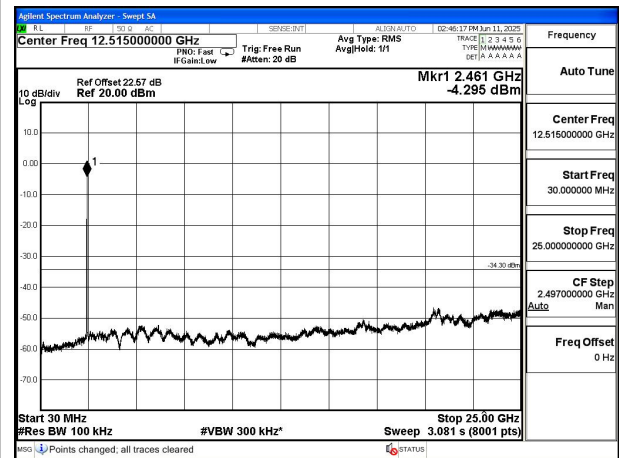
Ant:Chain0



Mode:802.11n HT20 Frequency:2437MHz

Ant:Chain1

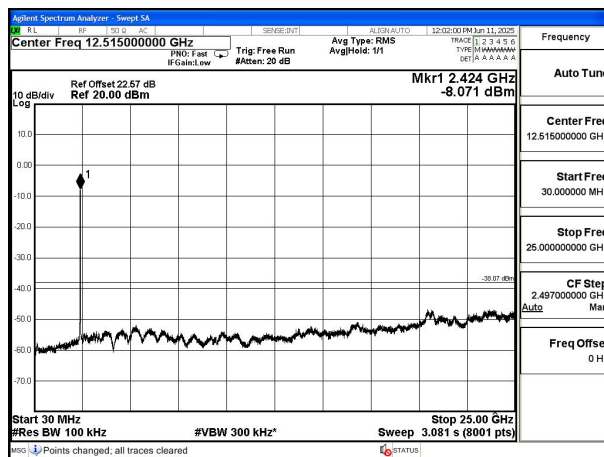
Ant:Chain1



Mode:802.11n HT20 Frequency:2462MHz

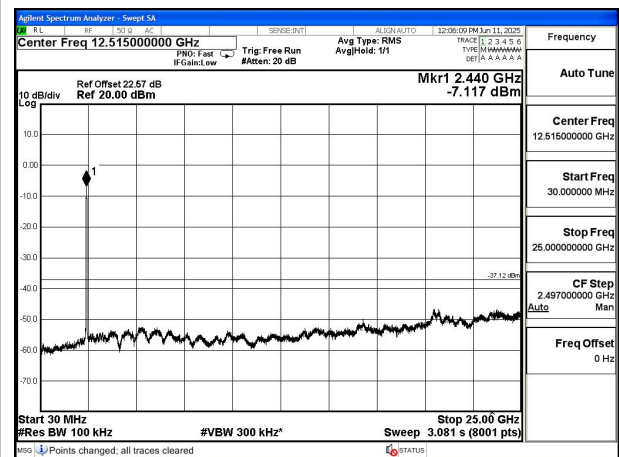
Ant:Chain1

Test Mode: 802.11n HT40



Mode:802.11n HT40 Frequency:2422MHz

Ant:Chain0



Mode:802.11n HT40 Frequency:2437MHz

Ant:Chain0



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Mode:802.11n HT40 Frequency:2452MHz
Ant:Chain0



Mode:802.11n HT40 Frequency:2422MHz
Ant:Chain1



Mode:802.11n HT40 Frequency:2437MHz
Ant:Chain1



Mode:802.11n HT40 Frequency:2452MHz
Ant:Chain1

**DUTY CYCLE****TEST RESULT**

Modulation Type	Frequency (MHz)	Antenna	Plot	Duty Cycle	Correction Factor(dB)
802.11b	2412	Chain0	Fig.1	100.00%	0
802.11b	2412	Chain1	Fig.2	99.99%	0
802.11g	2412	Chain0	Fig.3	99.93%	0
802.11g	2412	Chain1	Fig.4	99.92%	0
802.11n HT20	2412	Chain0	Fig.5	99.93%	0
802.11n HT20	2412	Chain1	Fig.6	99.91%	0
802.11n HT40	2422	Chain0	Fig.7	99.85%	0
802.11n HT40	2422	Chain1	Fig.8	99.85%	0

Note: Correction Factor= $10 \cdot \log (1/\text{Duty Cycle})$



TEST GRAPHS

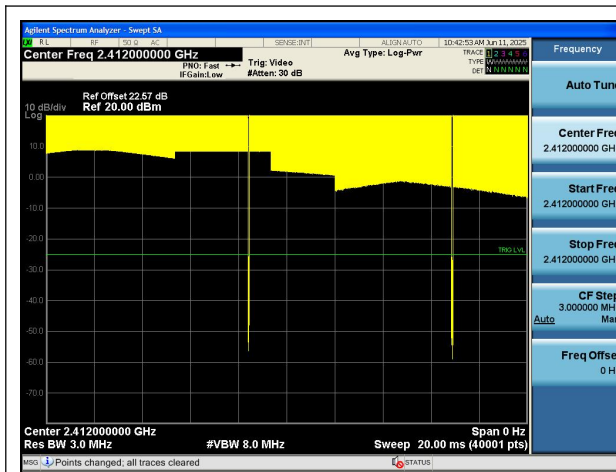


Fig.1

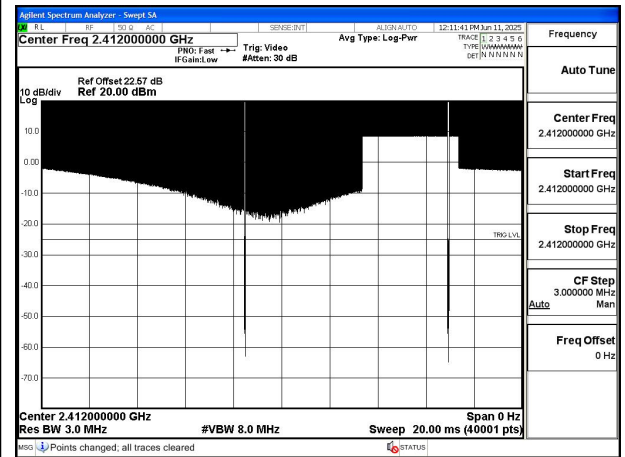


Fig.2

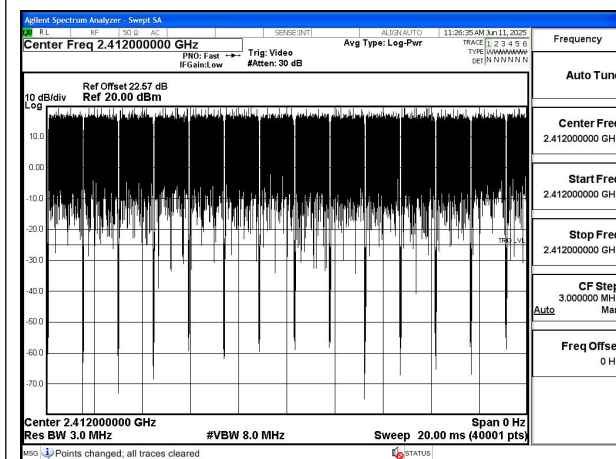


Fig.3

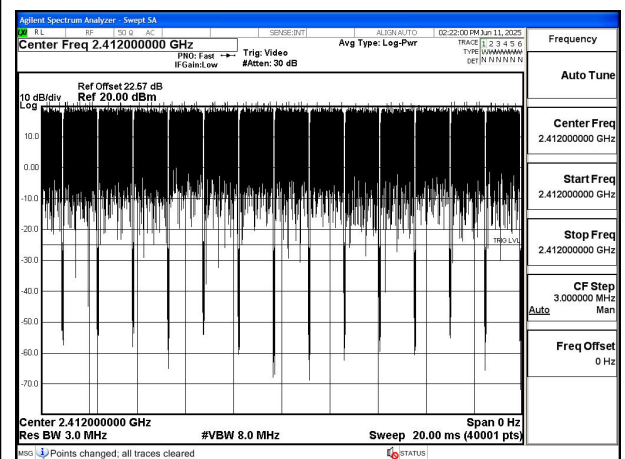


Fig.4

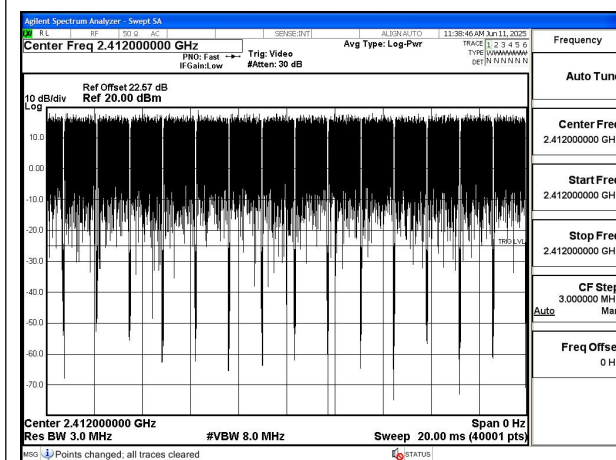


Fig.5

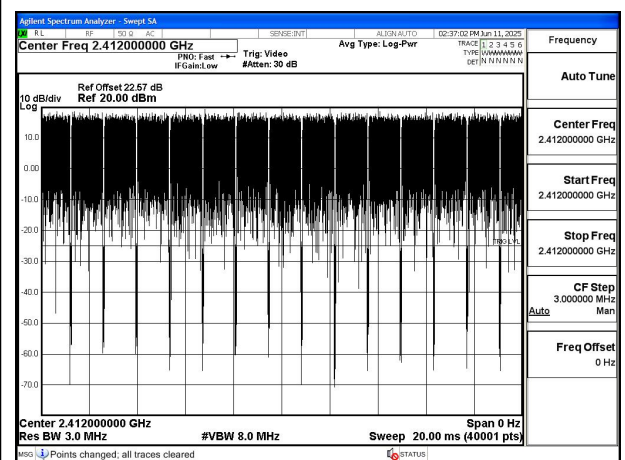


Fig.6

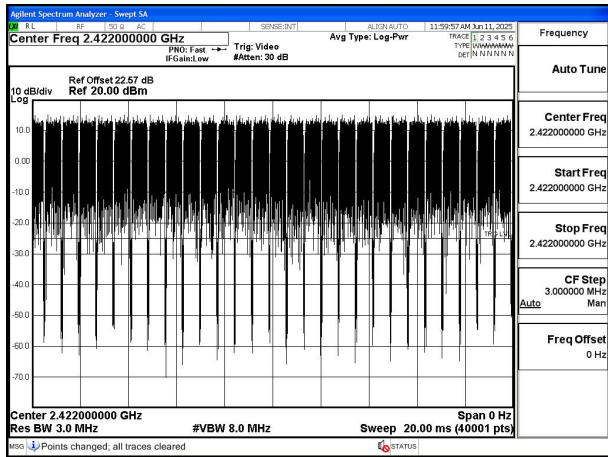


Fig.7

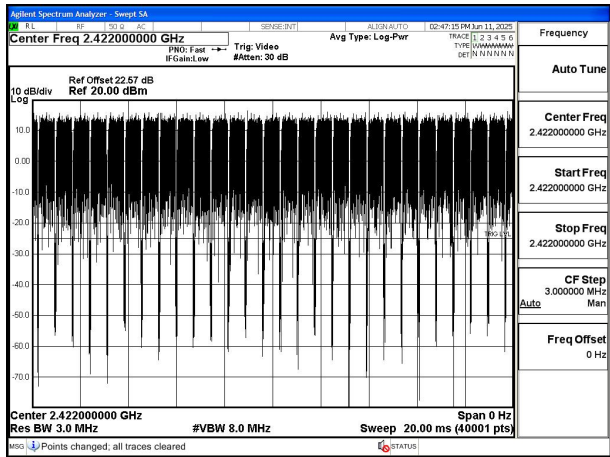


Fig.8



7 APPENDIX 2 BLE

DTS BANDWIDTH

TEST RESULT

Test Mode	Carrier frequency (MHz)	6dB Bandwidth(KHz)
GFSK (LE 1Mbps)	2402	725.7
GFSK (LE 1Mbps)	2440	735.0
GFSK (LE 1Mbps)	2480	734.4

Test Mode	Carrier frequency (MHz)	6dB Bandwidth(KHz)
GFSK (LE 2Mbps)	2402	1407.5
GFSK (LE 2Mbps)	2440	1404.9
GFSK (LE 2Mbps)	2480	1405.7

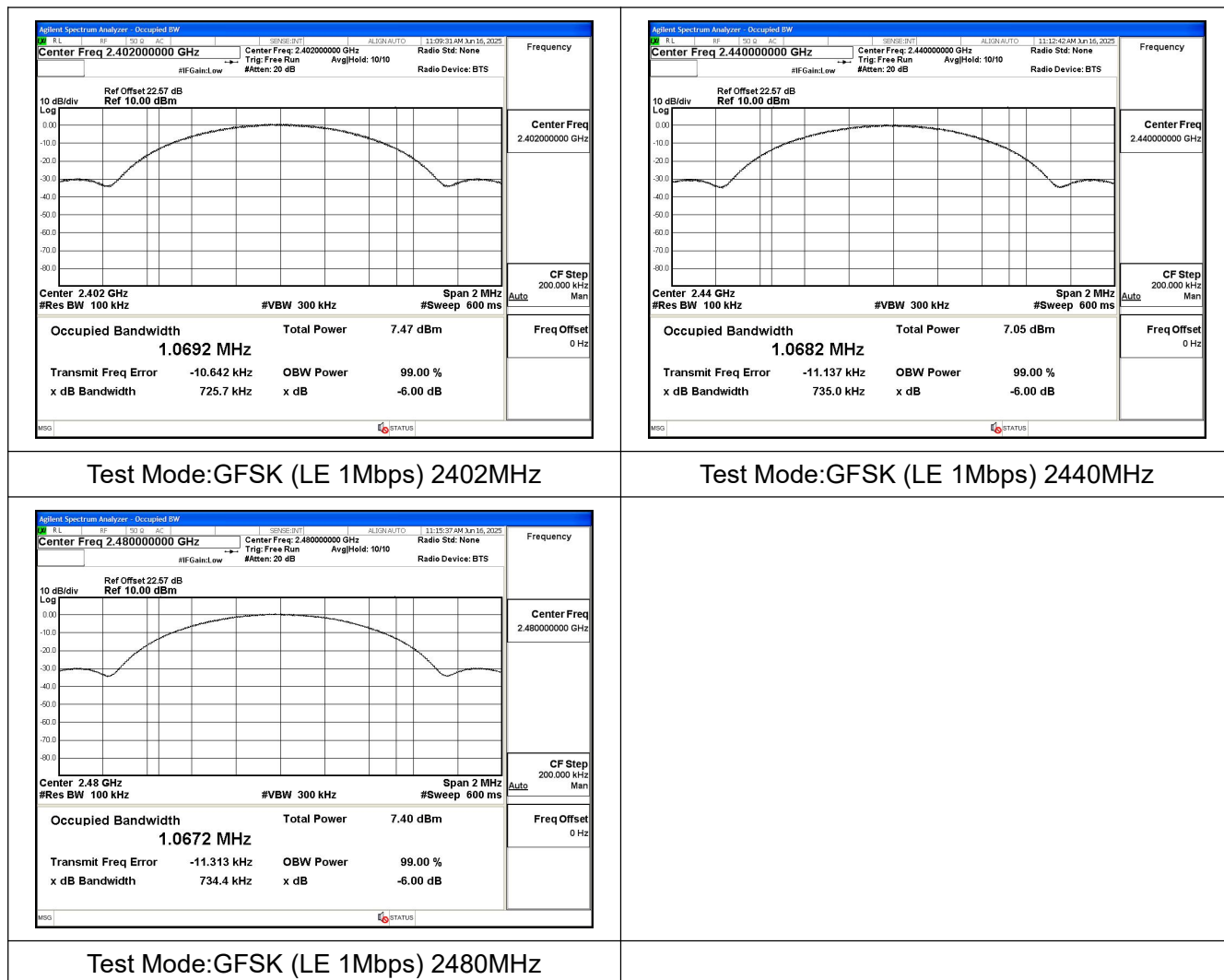
Test Mode	Carrier frequency (MHz)	6dB Bandwidth(KHz)
Coded 125K	2402	650.3
Coded 125K	2440	646.4
Coded 125K	2480	648.6

Test Mode	Carrier frequency (MHz)	6dB Bandwidth(KHz)
Coded 500K	2402	716.0
Coded 500K	2440	717.2
Coded 500K	2480	722.4



TEST GRAPHS

Test Mode: GFSK (LE 1Mbps)





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Test Report No.: PSU-NQN2506100110RF02

Test Mode: GFSK (LE 2Mbps)

<div><p>Agilent Spectrum Analyzer - Occupied BW</p><p>Center Freq 2.402000000 GHz</p><p>Ref Offset 22.57 dB Ref 10.00 dBm</p><p>10 dB/div Log</p><p>Center Freq 2.402000000 GHz</p><p>CF Step 600.000 kHz Man</p><p>Center 2.402 GHz #Res BW 100 kHz #VBW 300 kHz #Sweep 600 ms</p><p>Occupied Bandwidth 2.1018 MHz</p><p>Total Power 5.77 dBm</p><p>Freq Offset 0 Hz</p><p>Transmit Freq Error -9.414 kHz</p><p>OBW Power 99.00 %</p><p>x dB Bandwidth 1.408 MHz</p><p>x dB -6.00 dB</p></div>	<div><p>Agilent Spectrum Analyzer - Occupied BW</p><p>Center Freq 2.440000000 GHz</p><p>Ref Offset 22.57 dB Ref 10.00 dBm</p><p>10 dB/div Log</p><p>Center Freq 2.440000000 GHz</p><p>CF Step 600.000 kHz Man</p><p>Center 2.44 GHz #Res BW 100 kHz #VBW 300 kHz #Sweep 600 ms</p><p>Occupied Bandwidth 2.0995 MHz</p><p>Total Power 5.39 dBm</p><p>Freq Offset 0 Hz</p><p>Transmit Freq Error -10.893 kHz</p><p>OBW Power 99.00 %</p><p>x dB Bandwidth 1.405 MHz</p><p>x dB -6.00 dB</p></div>
Test Mode:GFSK (LE 2Mbps) 2402MHz	Test Mode:GFSK (LE 2Mbps) 2440MHz
<div><p>Agilent Spectrum Analyzer - Occupied BW</p><p>Center Freq 2.480000000 GHz</p><p>Ref Offset 22.57 dB Ref 10.00 dBm</p><p>10 dB/div Log</p><p>Center Freq 2.480000000 GHz</p><p>CF Step 600.000 kHz Man</p><p>Center 2.48 GHz #Res BW 100 kHz #VBW 300 kHz #Sweep 600 ms</p><p>Occupied Bandwidth 2.0976 MHz</p><p>Total Power 5.75 dBm</p><p>Freq Offset 0 Hz</p><p>Transmit Freq Error -8.825 kHz</p><p>OBW Power 99.00 %</p><p>x dB Bandwidth 1.406 MHz</p><p>x dB -6.00 dB</p></div>	
Test Mode:GFSK (LE 2Mbps) 2480MHz	



Test Mode: Coded 125K

<div><p>Agilent Spectrum Analyzer - Occupied BW</p><p>Center Freq 2.402000000 GHz</p><p>Ref Offset 22.67 dB Ref 10.00 dBm</p><p>10 dB/div Log</p><p>Center 2.402 GHz #Res BW 100 kHz #VBW 300 kHz #Sweep 600 ms</p><p>Occupied Bandwidth 1.0535 MHz</p><p>Total Power 8.02 dBm</p><p>Transmit Freq Error -11.191 kHz</p><p>OBW Power 99.00 %</p><p>x dB Bandwidth 650.3 kHz</p><p>x dB -6.00 dB</p><p>CF Step 600.000 kHz Man</p><p>Freq Offset 0 Hz</p><p>MSG STATUS</p></div>	<div><p>Agilent Spectrum Analyzer - Occupied BW</p><p>Center Freq 2.440000000 GHz</p><p>Ref Offset 22.67 dB Ref 10.00 dBm</p><p>10 dB/div Log</p><p>Center 2.44 GHz #Res BW 100 kHz #VBW 300 kHz #Sweep 600 ms</p><p>Occupied Bandwidth 1.0510 MHz</p><p>Total Power 7.63 dBm</p><p>Transmit Freq Error -12.182 kHz</p><p>OBW Power 99.00 %</p><p>x dB Bandwidth 646.4 kHz</p><p>x dB -6.00 dB</p><p>CF Step 600.000 kHz Man</p><p>Freq Offset 0 Hz</p><p>MSG STATUS</p></div>
Test Mode:Coded 125K 2402MHz	Test Mode:Coded 125K 2440MHz
<div><p>Agilent Spectrum Analyzer - Occupied BW</p><p>Center Freq 2.480000000 GHz</p><p>Ref Offset 22.67 dB Ref 10.00 dBm</p><p>10 dB/div Log</p><p>Center 2.48 GHz #Res BW 100 kHz #VBW 300 kHz #Sweep 600 ms</p><p>Occupied Bandwidth 1.0518 MHz</p><p>Total Power 7.95 dBm</p><p>Transmit Freq Error -12.129 kHz</p><p>OBW Power 99.00 %</p><p>x dB Bandwidth 648.6 kHz</p><p>x dB -6.00 dB</p><p>CF Step 600.000 kHz Man</p><p>Freq Offset 0 Hz</p><p>MSG STATUS</p></div>	
Test Mode:Coded 125K 2480MHz	



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Test Mode: Coded 500K

<div><p>Agilent Spectrum Analyzer - Occupied BW</p><p>Center Freq 2.402000000 GHz</p><p>Ref Offset 22.57 dB Ref 10.00 dBm</p><p>10 dB/div Log</p><p>Center Freq 2.402000000 GHz</p><p>CF Step 600.000 kHz Man</p><p>Center 2.402 GHz #Res BW 100 kHz</p><p>Span 6 MHz #Sweep 600 ms</p><p>Occupied Bandwidth 1.0695 MHz</p><p>Total Power 7.74 dBm</p><p>Freq Offset 0 Hz</p><p>Transmit Freq Error -12.141 kHz</p><p>OBW Power 99.00 %</p><p>x dB Bandwidth 716.0 kHz</p><p>x dB -6.00 dB</p></div>	<div><p>Agilent Spectrum Analyzer - Occupied BW</p><p>Center Freq 2.440000000 GHz</p><p>Ref Offset 22.57 dB Ref 10.00 dBm</p><p>10 dB/div Log</p><p>Center Freq 2.440000000 GHz</p><p>CF Step 600.000 kHz Man</p><p>Center 2.44 GHz #Res BW 100 kHz</p><p>Span 6 MHz #Sweep 600 ms</p><p>Occupied Bandwidth 1.0675 MHz</p><p>Total Power 7.33 dBm</p><p>Freq Offset 0 Hz</p><p>Transmit Freq Error -11.957 kHz</p><p>OBW Power 99.00 %</p><p>x dB Bandwidth 717.2 kHz</p><p>x dB -6.00 dB</p></div>
Test Mode:Coded 500K 2402MHz	Test Mode:Coded 500K 2440MHz
<div><p>Agilent Spectrum Analyzer - Occupied BW</p><p>Center Freq 2.480000000 GHz</p><p>Ref Offset 22.57 dB Ref 10.00 dBm</p><p>10 dB/div Log</p><p>Center Freq 2.480000000 GHz</p><p>CF Step 600.000 kHz Man</p><p>Center 2.48 GHz #Res BW 100 kHz</p><p>Span 6 MHz #Sweep 600 ms</p><p>Occupied Bandwidth 1.0669 MHz</p><p>Total Power 7.69 dBm</p><p>Freq Offset 0 Hz</p><p>Transmit Freq Error -12.103 kHz</p><p>OBW Power 99.00 %</p><p>x dB Bandwidth 722.4 kHz</p><p>x dB -6.00 dB</p></div>	
Test Mode:Coded 500K 2480MHz	

**OCCUPIED CHANNEL BANDWIDTH****TEST RESULT**

Test Mode	Carrier frequency (MHz)	99% Bandwidth(kHz)
GFSK (LE 1Mbps)	2402	1047.3
GFSK (LE 1Mbps)	2440	1046.1
GFSK (LE 1Mbps)	2480	1044.6

Test Mode	Carrier frequency (MHz)	99% Bandwidth(kHz)
GFSK (LE 2Mbps)	2402	2088.7
GFSK (LE 2Mbps)	2440	2085.9
GFSK (LE 2Mbps)	2480	2084.7

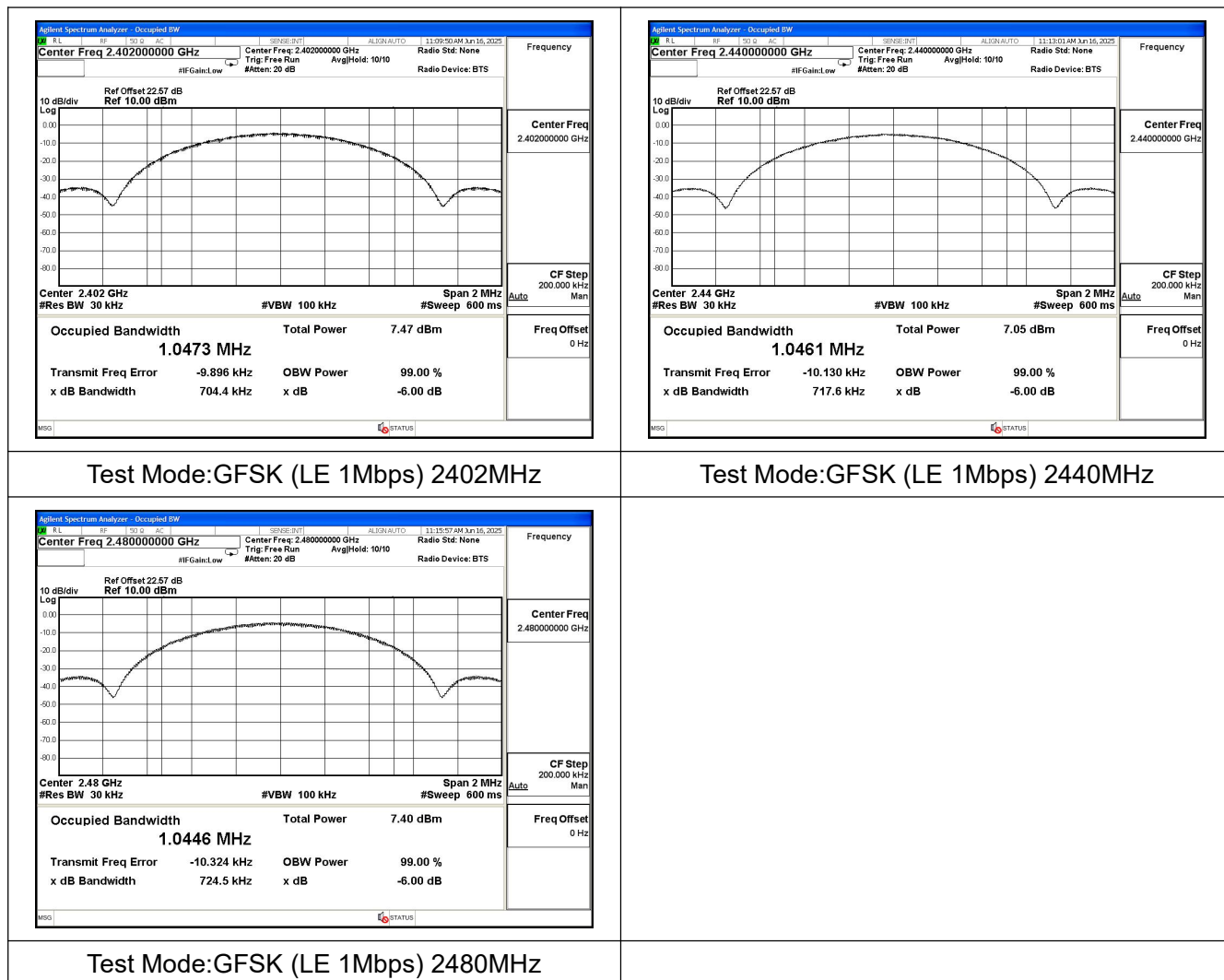
Test Mode	Carrier frequency (MHz)	99% Bandwidth(kHz)
Coded 125K	2402	1031.2
Coded 125K	2440	1029.3
Coded 125K	2480	1030.2

Test Mode	Carrier frequency (MHz)	99% Bandwidth(kHz)
Coded 500K	2402	1045.8
Coded 500K	2440	1044.5
Coded 500K	2480	1043.9



TEST GRAPHS

Test Mode: GFSK (LE 1Mbps)





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Test Report No.: PSU-NQN2506100110RF02

Test Mode: GFSK (LE 2Mbps)

<div><p>Agilent Spectrum Analyzer - Occupied BW</p><p>Center Freq 2.402000000 GHz</p><p>Ref Offset 22.57 dB Ref 10.00 dBm</p><p>10 dB/div Log</p><p>Center 2.402 GHz #Res BW 30 kHz</p><p>Span 6 MHz #Sweep 600 ms</p><p>Occupied Bandwidth 2.0887 MHz</p><p>Total Power 5.79 dBm</p><p>Transmit Freq Error -8.973 kHz</p><p>OBW Power 99.00 %</p><p>x dB Bandwidth 1.394 MHz</p><p>x dB -6.00 dB</p><p>CF Step 600.000 kHz Man</p><p>Freq Offset 0 Hz</p><p>MSG STATUS</p></div>	<div><p>Agilent Spectrum Analyzer - Occupied BW</p><p>Center Freq 2.440000000 GHz</p><p>Ref Offset 22.57 dB Ref 10.00 dBm</p><p>10 dB/div Log</p><p>Center 2.44 GHz #Res BW 30 kHz</p><p>Span 6 MHz #Sweep 600 ms</p><p>Occupied Bandwidth 2.0859 MHz</p><p>Total Power 5.39 dBm</p><p>Transmit Freq Error -9.047 kHz</p><p>OBW Power 99.00 %</p><p>x dB Bandwidth 1.407 MHz</p><p>x dB -6.00 dB</p><p>CF Step 600.000 kHz Man</p><p>Freq Offset 0 Hz</p><p>MSG STATUS</p></div>
Test Mode:GFSK (LE 2Mbps) 2402MHz	Test Mode:GFSK (LE 2Mbps) 2440MHz
<div><p>Agilent Spectrum Analyzer - Occupied BW</p><p>Center Freq 2.480000000 GHz</p><p>Ref Offset 22.57 dB Ref 10.00 dBm</p><p>10 dB/div Log</p><p>Center 2.48 GHz #Res BW 30 kHz</p><p>Span 6 MHz #Sweep 600 ms</p><p>Occupied Bandwidth 2.0847 MHz</p><p>Total Power 5.75 dBm</p><p>Transmit Freq Error -8.963 kHz</p><p>OBW Power 99.00 %</p><p>x dB Bandwidth 1.358 MHz</p><p>x dB -6.00 dB</p><p>CF Step 600.000 kHz Man</p><p>Freq Offset 0 Hz</p><p>MSG STATUS</p></div>	
Test Mode:GFSK (LE 2Mbps) 2480MHz	



Test Mode: Coded 125K

<div><p>Agilent Spectrum Analyzer - Occupied BW</p><p>Center Freq 2.402000000 GHz</p><p>Ref Offset 22.67 dB Ref 10.00 dBm</p><p>Center 2.402 GHz #Res BW 30 kHz</p><p>Occupied Bandwidth 1.0312 MHz</p><p>Transmit Freq Error -11.498 kHz</p><p>x dB Bandwidth 543.2 kHz</p><p>Total Power 8.05 dBm</p><p>OBW Power 99.00 %</p><p>x dB -6.00 dB</p><p>CF Step 600.000 kHz</p><p>Freq Offset 0 Hz</p></div>	<div><p>Agilent Spectrum Analyzer - Occupied BW</p><p>Center Freq 2.440000000 GHz</p><p>Ref Offset 22.67 dB Ref 10.00 dBm</p><p>Center 2.44 GHz #Res BW 30 kHz</p><p>Occupied Bandwidth 1.0293 MHz</p><p>Transmit Freq Error -11.713 kHz</p><p>x dB Bandwidth 542.6 kHz</p><p>Total Power 7.61 dBm</p><p>OBW Power 99.00 %</p><p>x dB -6.00 dB</p><p>CF Step 600.000 kHz</p><p>Freq Offset 0 Hz</p></div>
Test Mode:Coded 125K 2402MHz	Test Mode:Coded 125K 2440MHz
<div><p>Agilent Spectrum Analyzer - Occupied BW</p><p>Center Freq 2.480000000 GHz</p><p>Ref Offset 22.67 dB Ref 10.00 dBm</p><p>Center 2.48 GHz #Res BW 30 kHz</p><p>Occupied Bandwidth 1.0302 MHz</p><p>Transmit Freq Error -11.844 kHz</p><p>x dB Bandwidth 542.8 kHz</p><p>Total Power 7.97 dBm</p><p>OBW Power 99.00 %</p><p>x dB -6.00 dB</p><p>CF Step 600.000 kHz</p><p>Freq Offset 0 Hz</p></div>	
Test Mode:Coded 125K 2480MHz	