Appendix A
RF Test Data for BT(BLE) (Conducted Measurement)

Product Name: X-brain Smart gateway
Trade Mark: Xunison
Test Model: XUS100
FCC ID: 2AP2F-XUS100

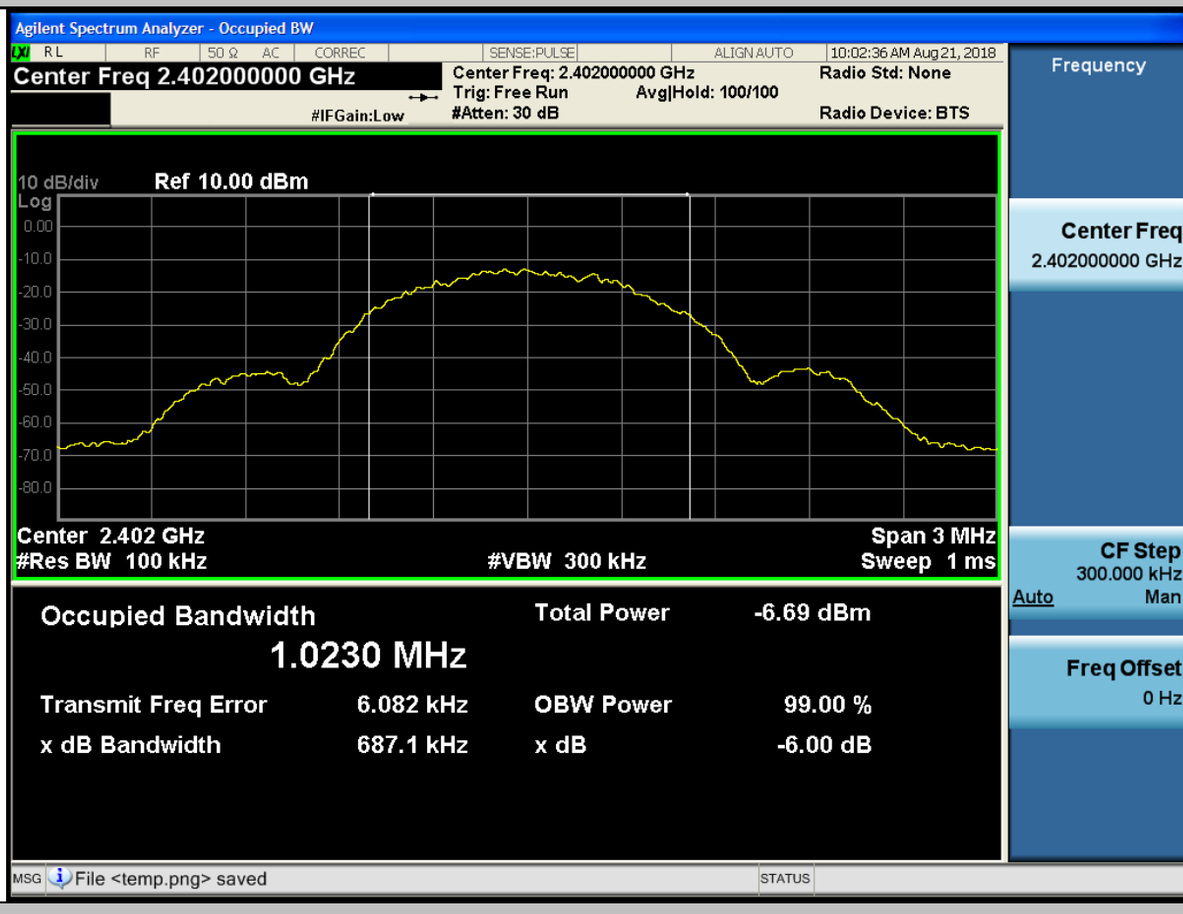
Environmental Conditions

Temperature:	22.9° C
Relative Humidity:	52.3%
ATM Pressure:	100.0 kPa
Test Engineer:	Gary Qian
Supervised by:	Eden Hu

1.6dB Bandwidth

Test Mode	Test Channel	Ant	EBW[MHz]	Limit	Verdict
BLE	2402	Ant1	0.687	0.5	PASS
BLE	2440	Ant1	0.698	0.5	PASS
BLE	2480	Ant1	0.663	0.5	PASS

6dB Bandwidth_BLE_2402_Ant1



6dB Bandwidth_BLE_2440_Ant1

6dB Bandwidth_BLE_2480_Ant1

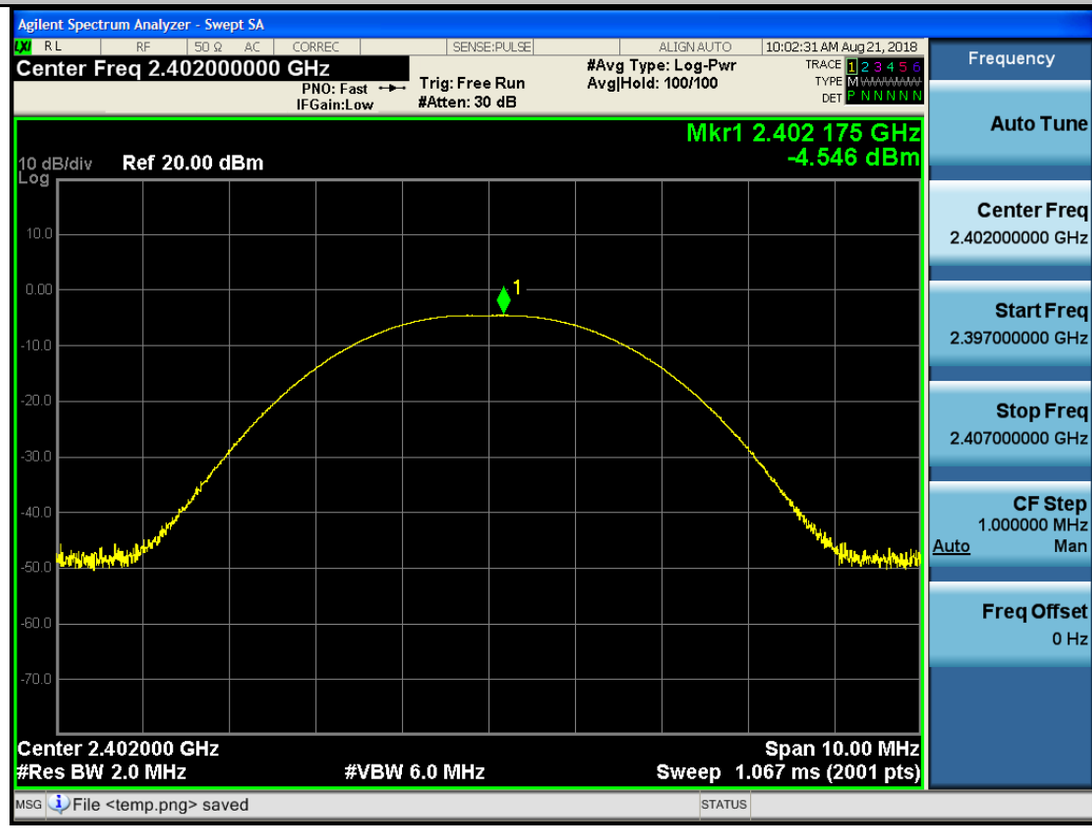
2.Occupied Bandwidth

Test Mode	Test Channel	Ant	OBW[MHz]	Limit[MHz]	Verdict

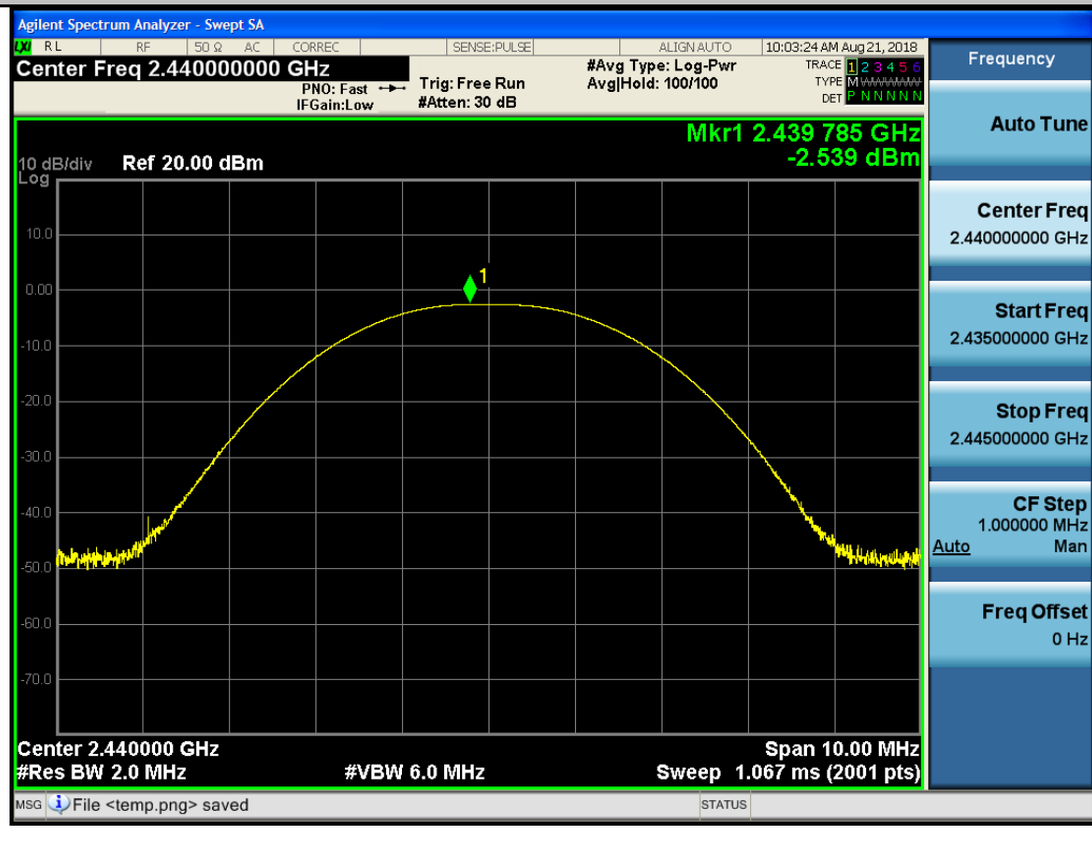
3.Maximum peak conducted output power

Test Mode	Test Channel	Ant	Power[dBm]	Limit[dBm]	Verdict
BLE	2402	Ant1	-4.546	30	PASS
BLE	2440	Ant1	-2.539	30	PASS
BLE	2480	Ant1	-2.501	30	PASS

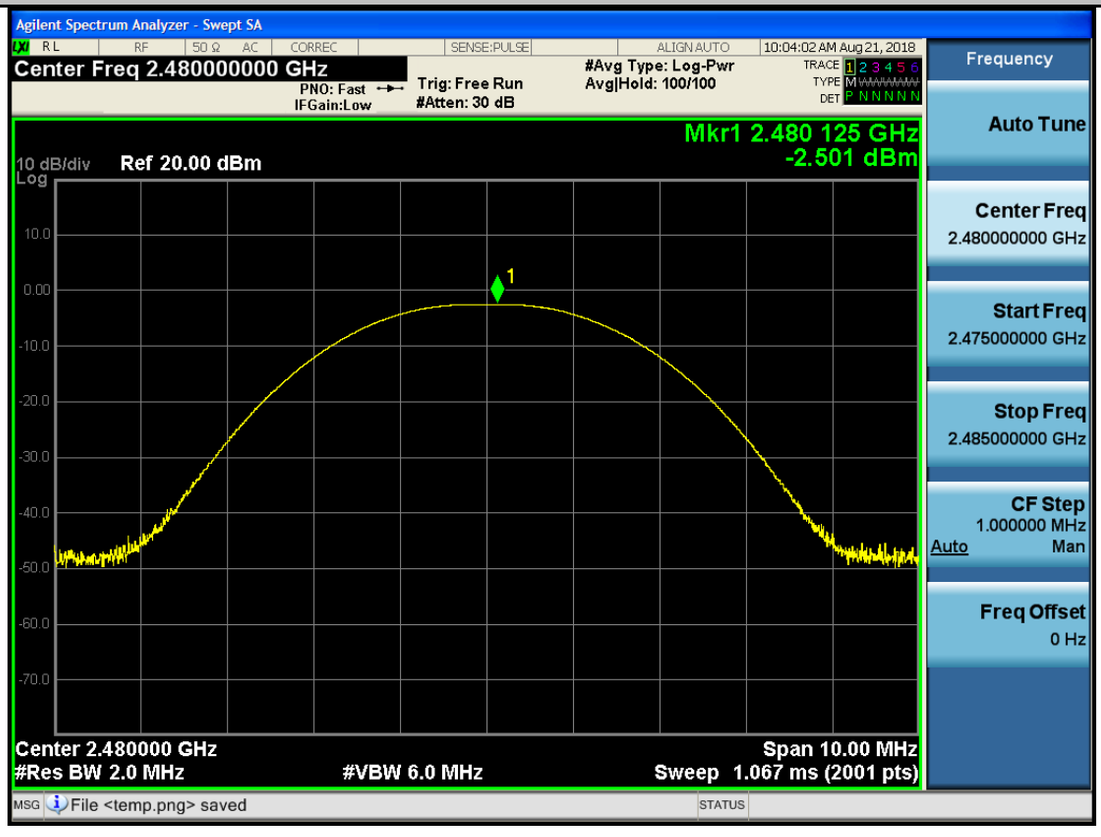
Maximum peak conducted output power_BLE_2402_Ant1



Maximum peak conducted output power_BLE_2440_Ant1



Maximum peak conducted output power_BLE_2480_Ant1

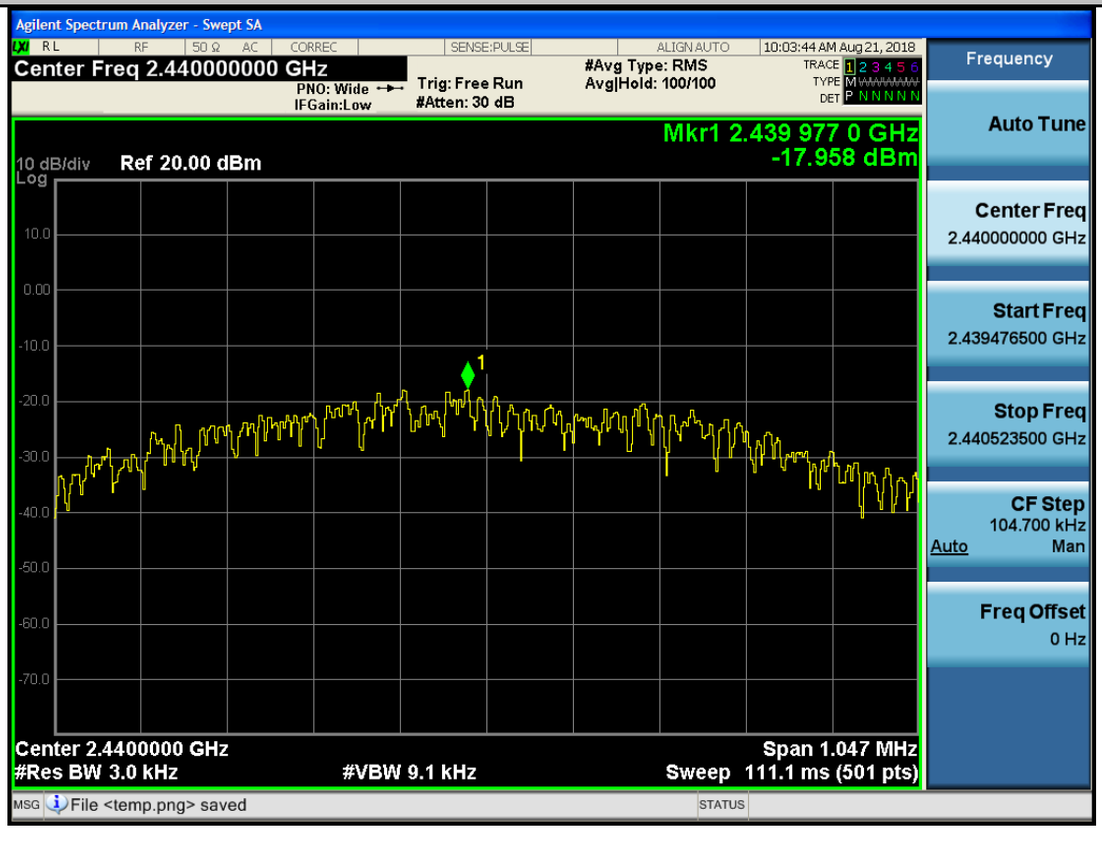


4.Maximum Peak power spectral density

Test Mode	Test Channel	Ant	PSD[dBm/3KHz]	Limit[dBm/3KHz]	Verdict
BLE	2402	Ant1	-19.80	8.00	PASS
BLE	2440	Ant1	-17.96	8.00	PASS
BLE	2480	Ant1	-17.82	8.00	PASS

Maximum Peak power spectral density_BLE_2402_Ant1

Maximum Peak power spectral density_BLE_2440_Ant1

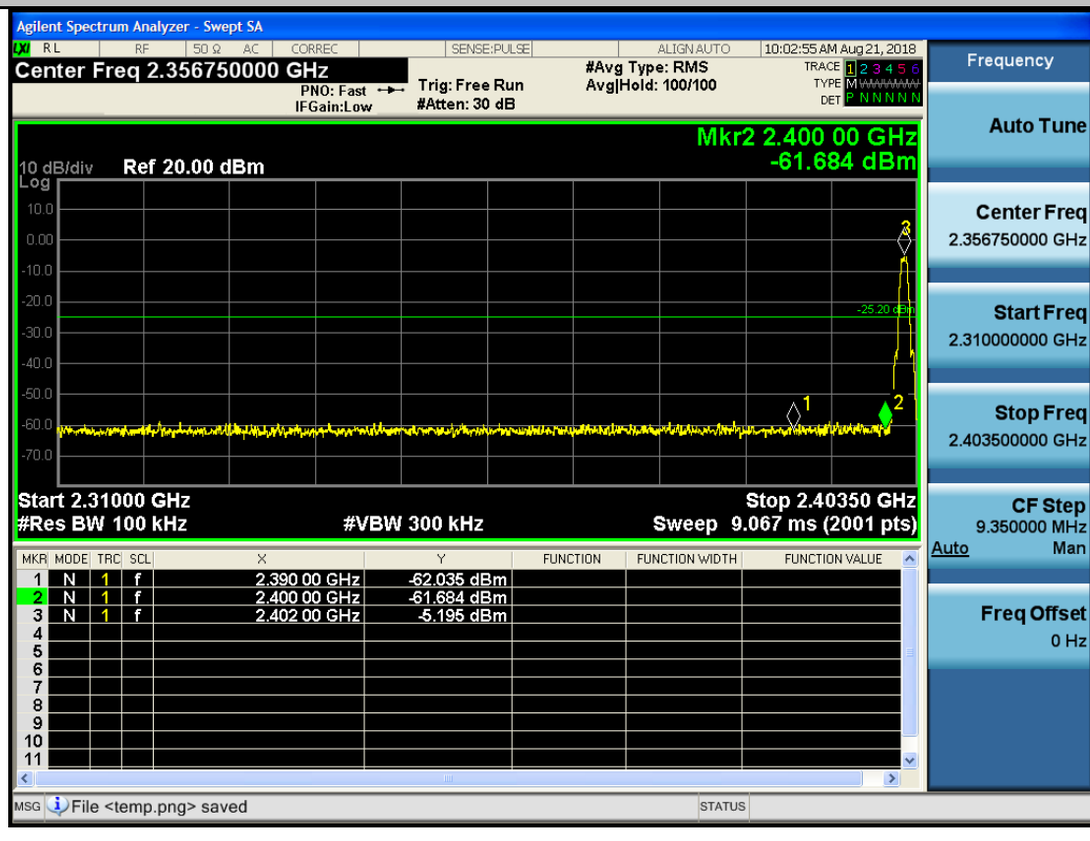


Maximum Peak power spectral density_BLE_2480_Ant1

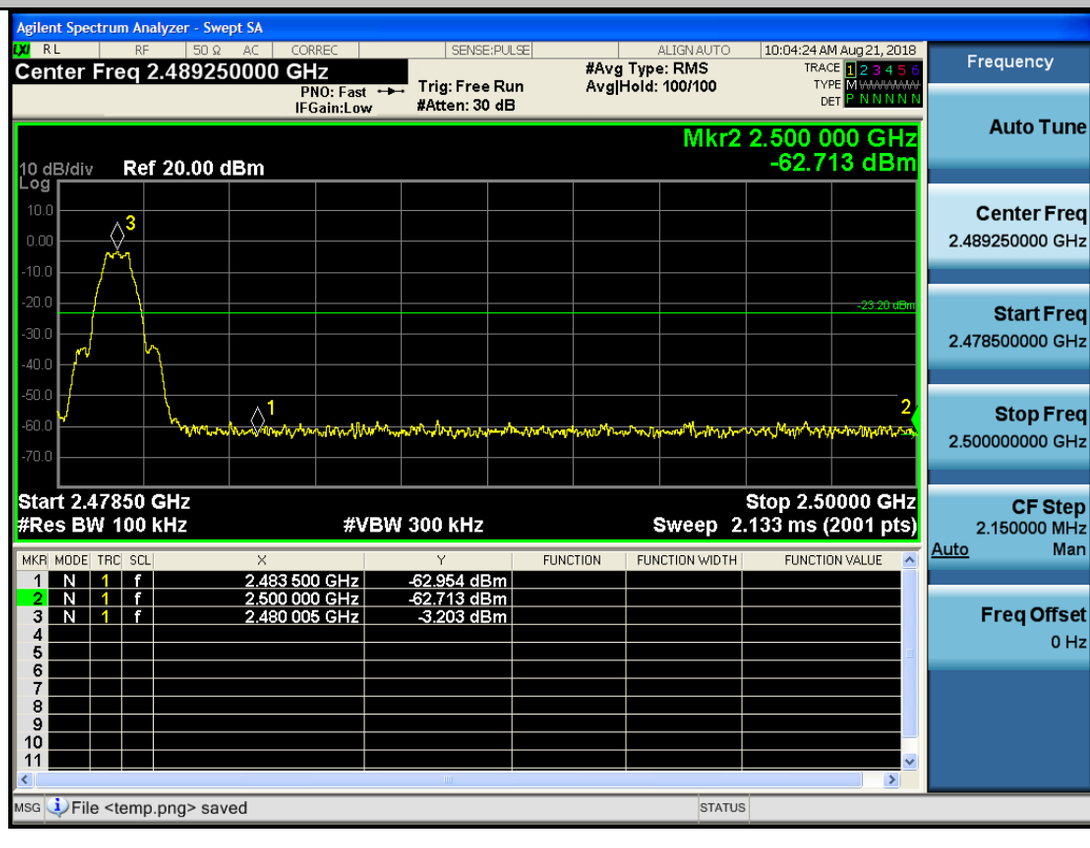
5.Band-edge for RF Conducted Emissions

Test Mode	Test Channel	Ant	Carrier Power[dBm]	Max. Spurious Level [dBm]	Limit [dBm]	Verdict
BLE	2402	Ant1	-5.195	-61.684	-25.20	PASS
BLE	2480	Ant1	-3.203	-62.713	-23.20	PASS

Band-edge for RF Conducted Emissions_BLE_2402_Ant1

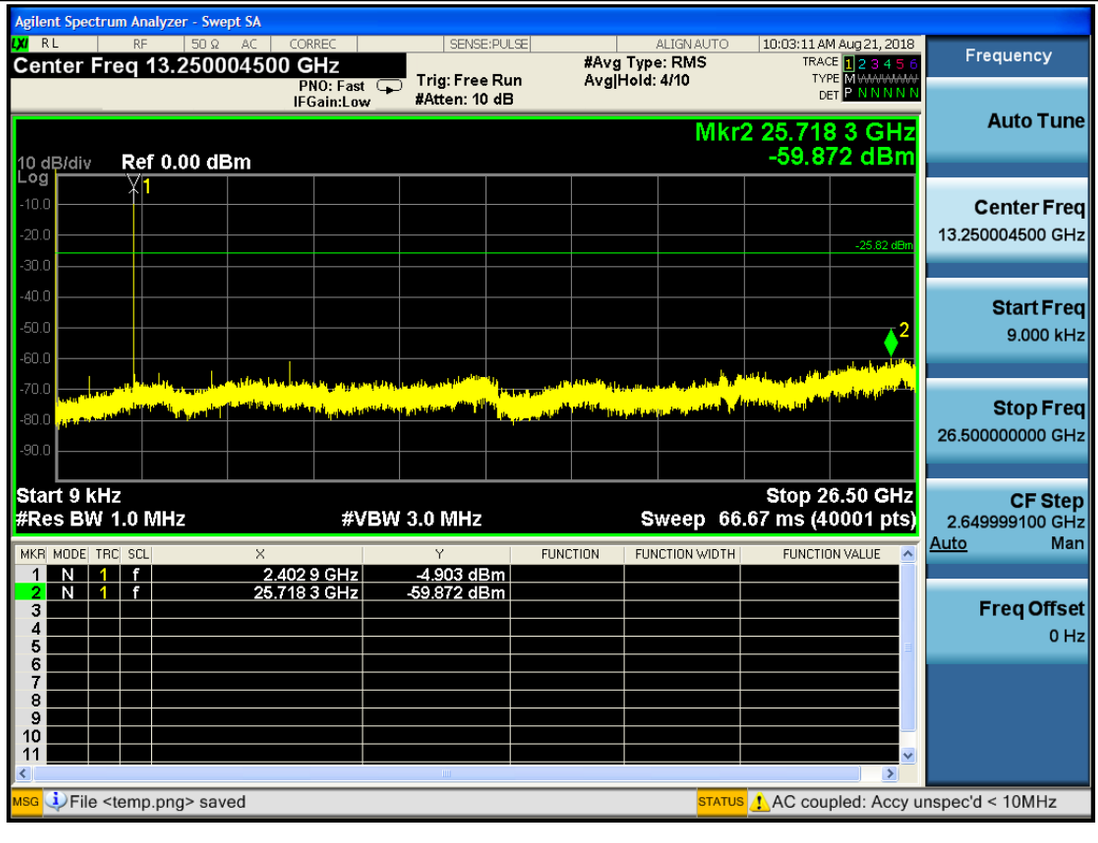


Band-edge for RF Conducted Emissions_BLE_2480_Ant1

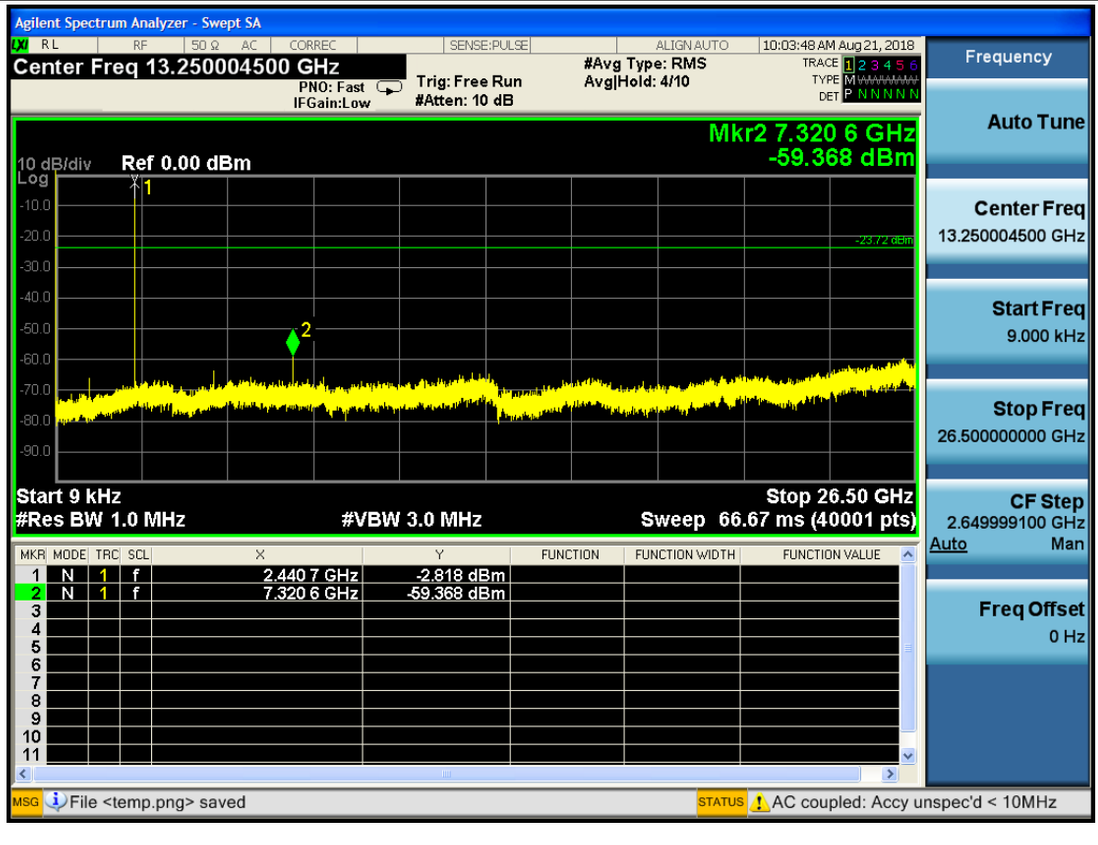


6.RF Conducted Spurious Emissions

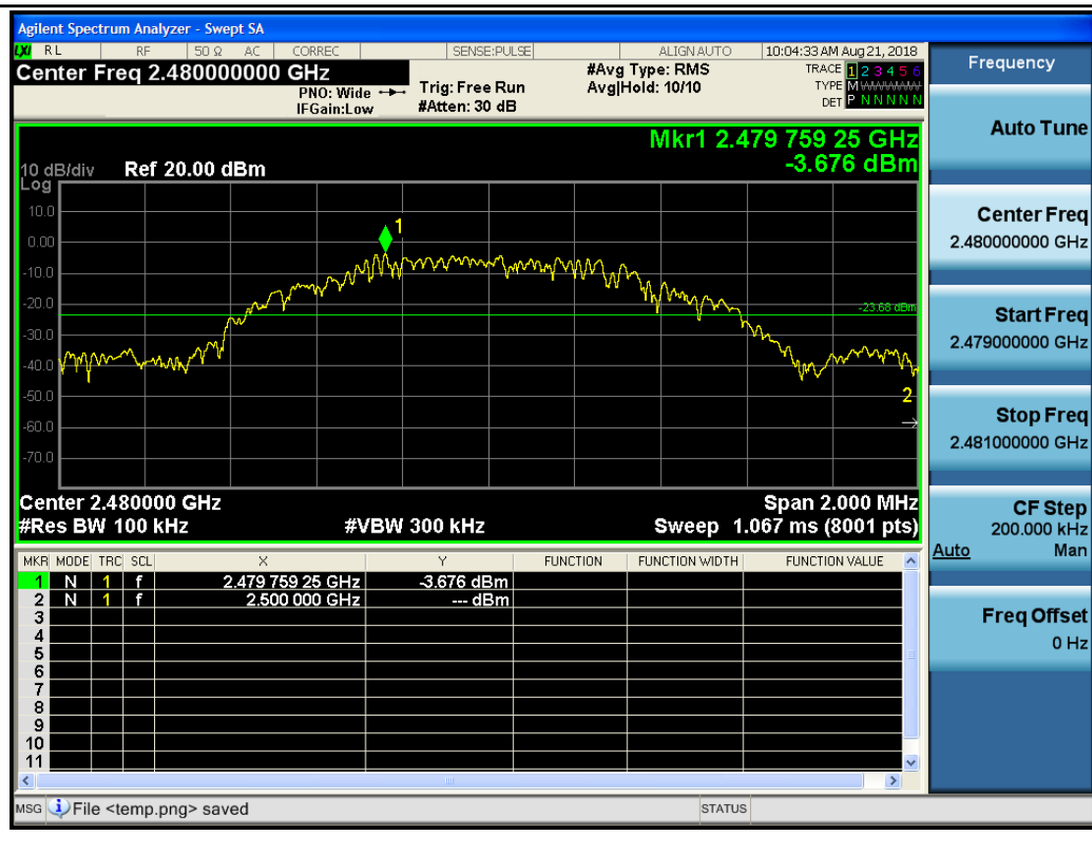
RF Conducted Spurious Emissions_BLE_2402_Ant1

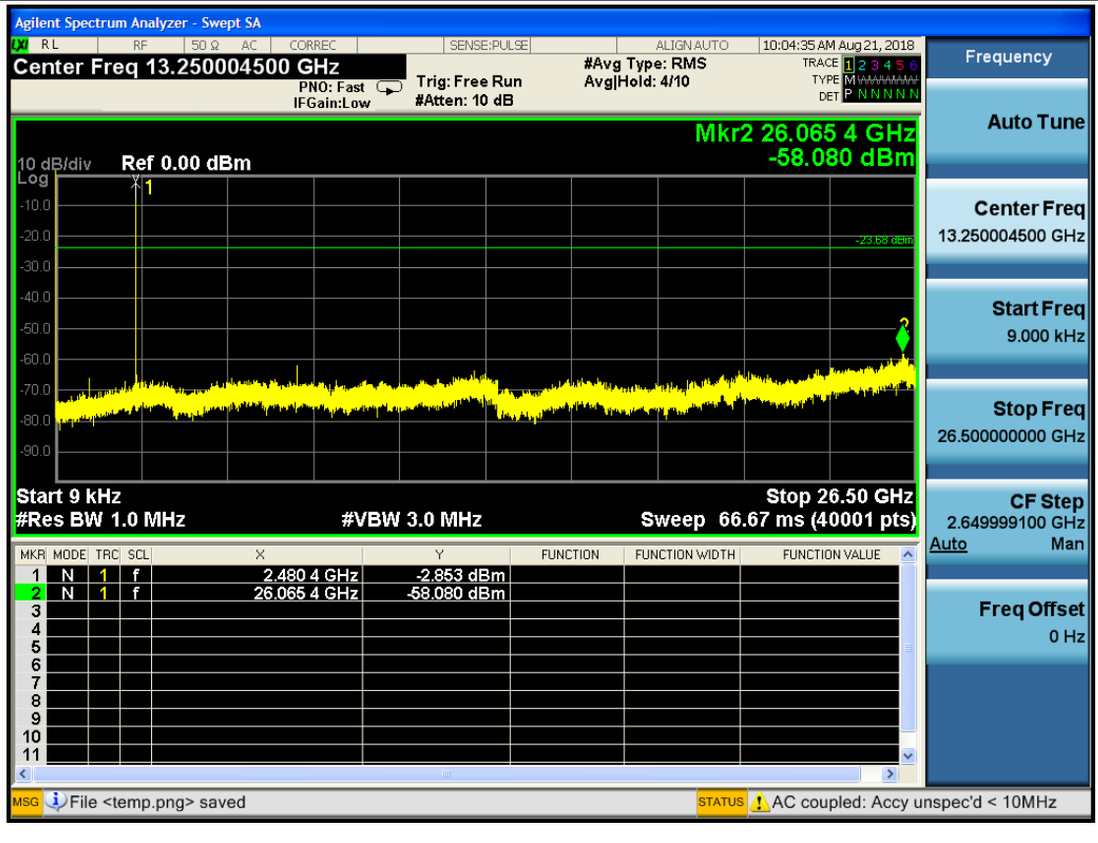


RF Conducted Spurious Emissions_BLE_2440_Ant1



RF Conducted Spurious Emissions_BLE_2480_Ant1

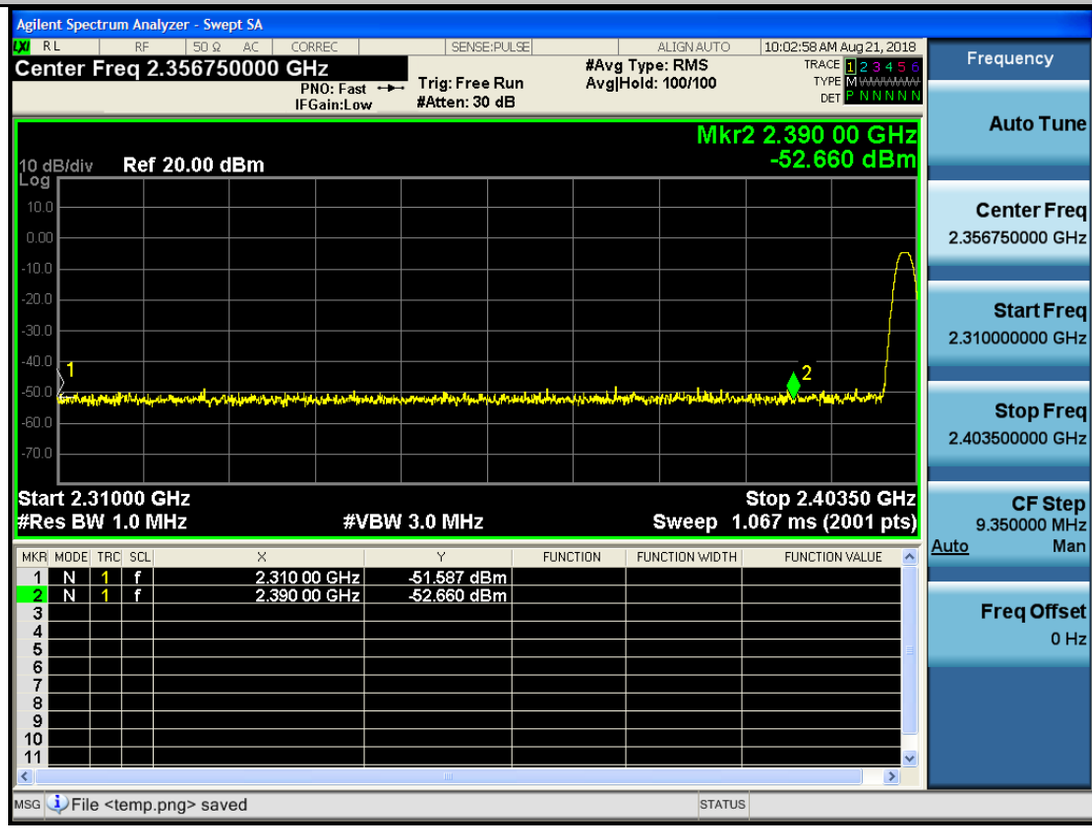

Agilent Spectrum Analyzer - Swept SA
Center Freq 2.480000000 GHz
PNO: Wide
IFGain:Low
Trig: Free Run
#Atten: 30 dB
#Avg Type: RMS
Avg|Hold: 10/10
10:04:33 AM Aug 21, 2018
Mkr1 2.479 759 25 GHz
-3.676 dBm
10 dB/div Ref 20.00 dBm
Log
-23.68 dBm
Center 2.480000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Span 2.000 MHz
Sweep 1.067 ms (8001 pts)
1 N 1 f 2.479 759 25 GHz -3.676 dBm
2 N 1 f 2.500 000 GHz --- dBm
File <temp.png> saved
Frequency
Auto Tune
Center Freq
2.480000000 GHz
Start Freq
2.479000000 GHz
Stop Freq
2.481000000 GHz
CF Step
200.000 kHz
Auto Man
Freq Offset
0 Hz


Agilent Spectrum Analyzer - Swept SA
Center Freq 13.250004500 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 10 dB
#Avg Type: RMS
Avg|Hold: 4/10
10:04:35 AM Aug 21, 2018
Mkr2 26.065 4 GHz
-58.080 dBm
10 dB/div Ref 0.00 dBm
Log
-23.68 dBm
Start 9 kHz
#Res BW 1.0 MHz
#VBW 3.0 MHz
Stop 26.50 GHz
Sweep 66.67 ms (40001 pts)
1 N 1 f 2.480 4 GHz -2.853 dBm
2 N 1 f 26.065 4 GHz -58.080 dBm
File <temp.png> saved
AC coupled: Accy unspec'd < 10MHz
Frequency
Auto Tune
Center Freq
13.250004500 GHz
Start Freq
9.000 kHz
Stop Freq
26.500000000 GHz
CF Step
2.649999100 GHz
Auto Man
Freq Offset
0 Hz

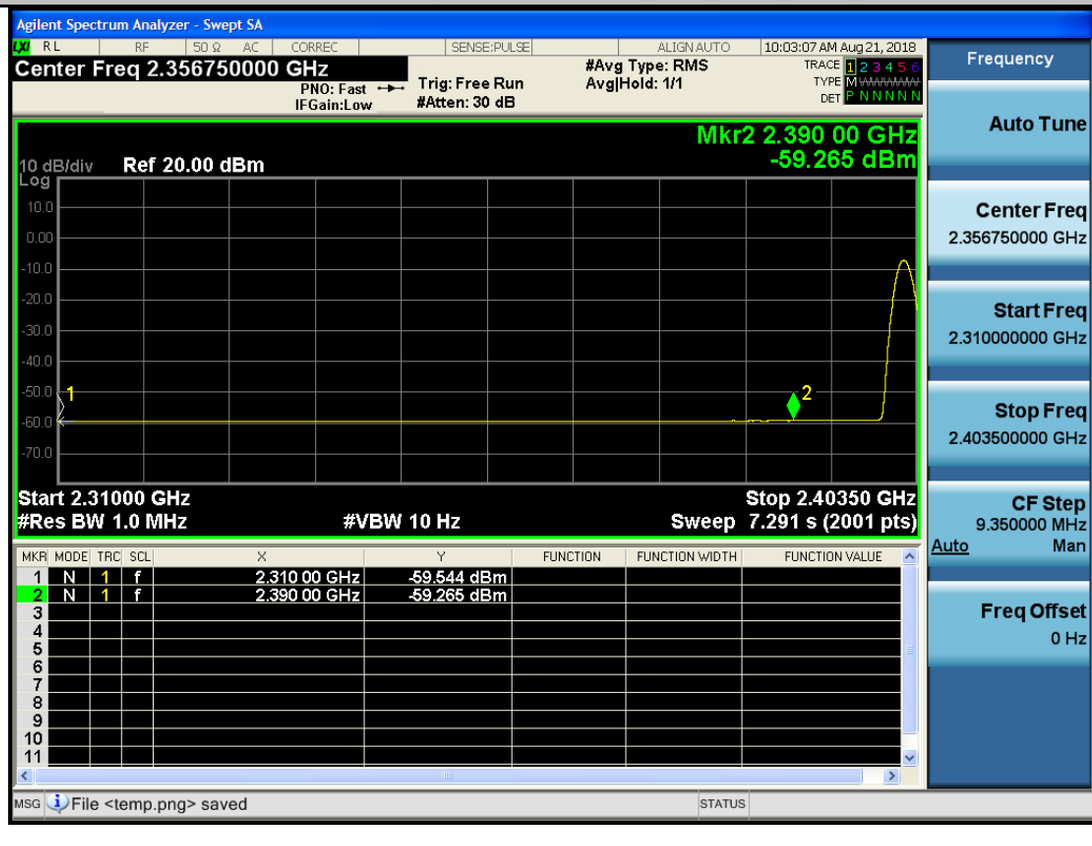
7.Restrict-band band-edge measurements

Test Mode	Test Channel	Ant	Freq.	Power [dBm]	Gain	Ground Factor	E [dBuV/m]	Detector	Limit [dBuV/m]	Verdict
BLE	2402	Ant1	2310.0-2390.0	-51.59	2.00	0	45.61	PEAK	74	PASS
BLE	2402	Ant1	2310.0-2390.0	-59.26	2.00	0	37.94	AV	54	PASS
BLE	2480	Ant1	2483.5-2500.0	-51.52	2.00	0	45.68	PEAK	74	PASS
BLE	2480	Ant1	2483.5-2500.0	-57.89	2.00	0	39.31	AV	54	PASS

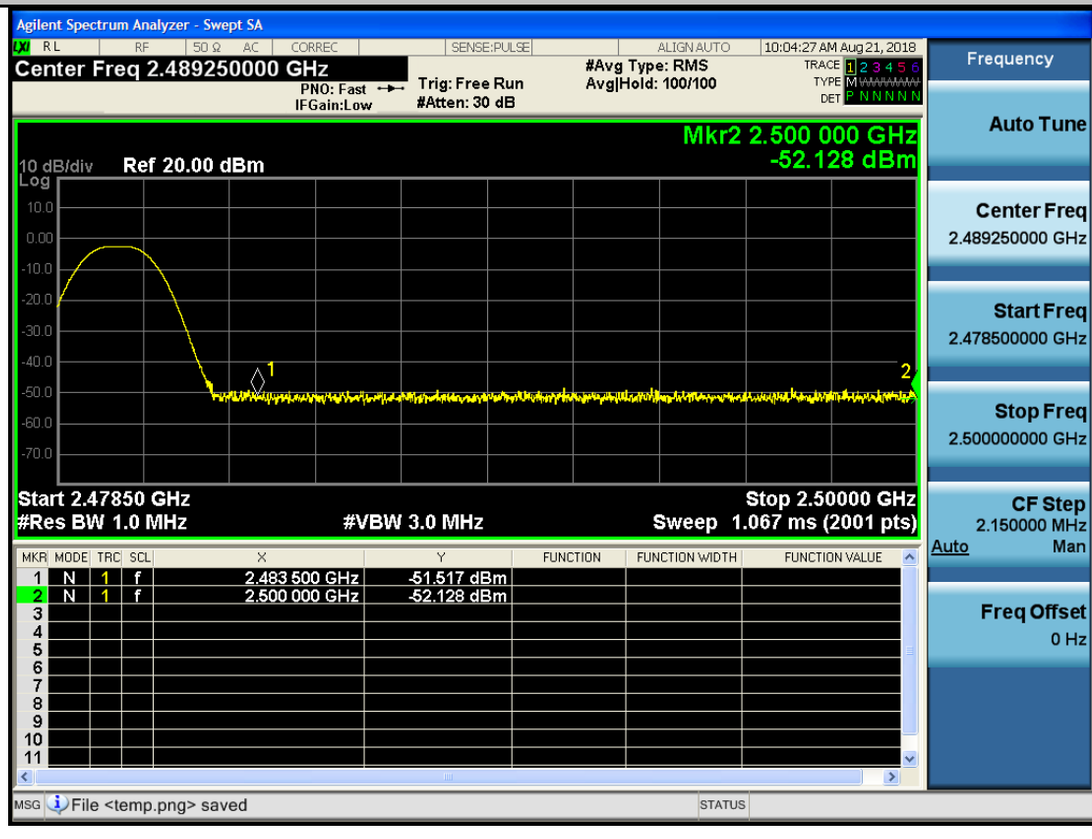
Restrict-band band-edge measurements_BLE_2402_Ant1_PEAK



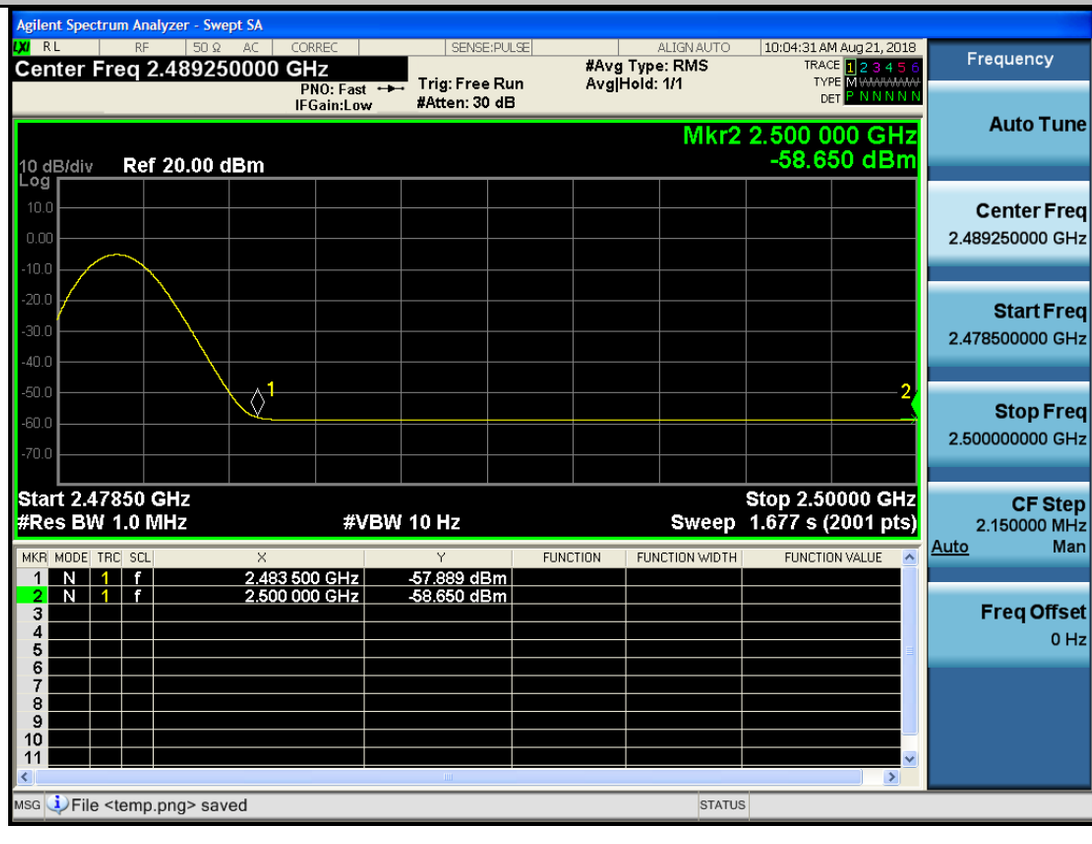
Restrict-band band-edge measurements_BLE_2402_Ant1_AV



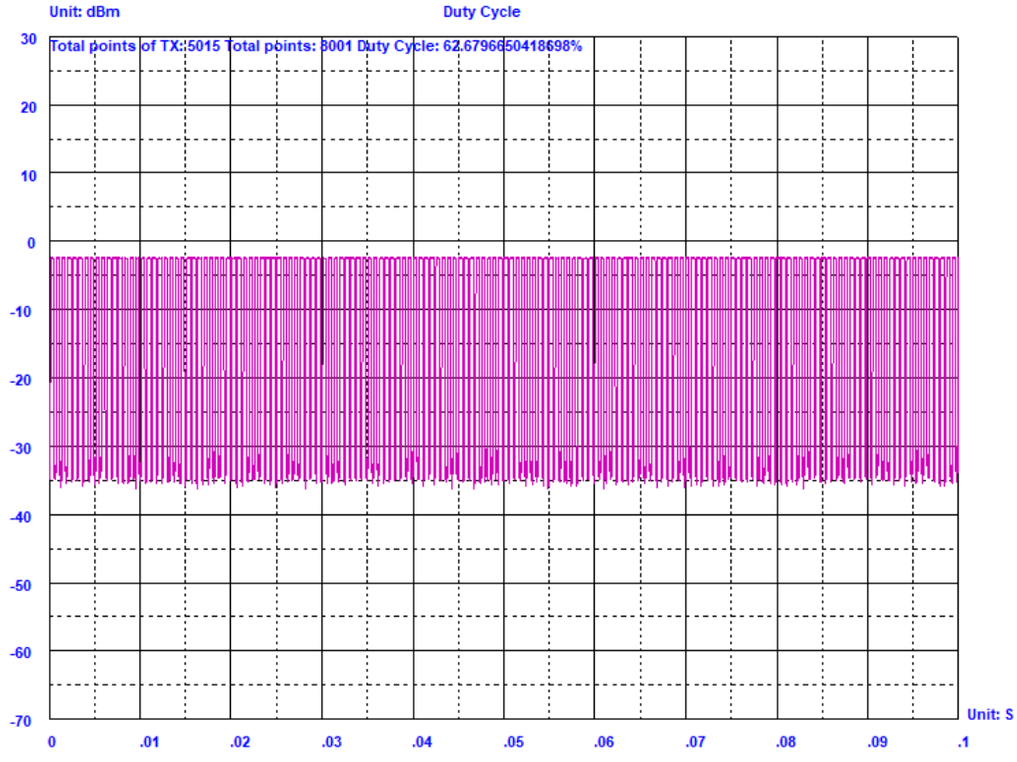
Restrict-band band-edge measurements_BLE_2480_Ant1_PEAK



Restrict-band band-edge measurements_BLE_2480_Ant1_AV



8.Duty Cycle

Test Mode	Test Channel	Ant	Duty Cycle[%]	Verdict
BLE	2440	Ant1	62.68	PASS

Duty Cycle_BLE_2440_Ant1