Appendix A

RF Test Data (Conducted Measurement)

Product Name: Sigfox Connected Seal

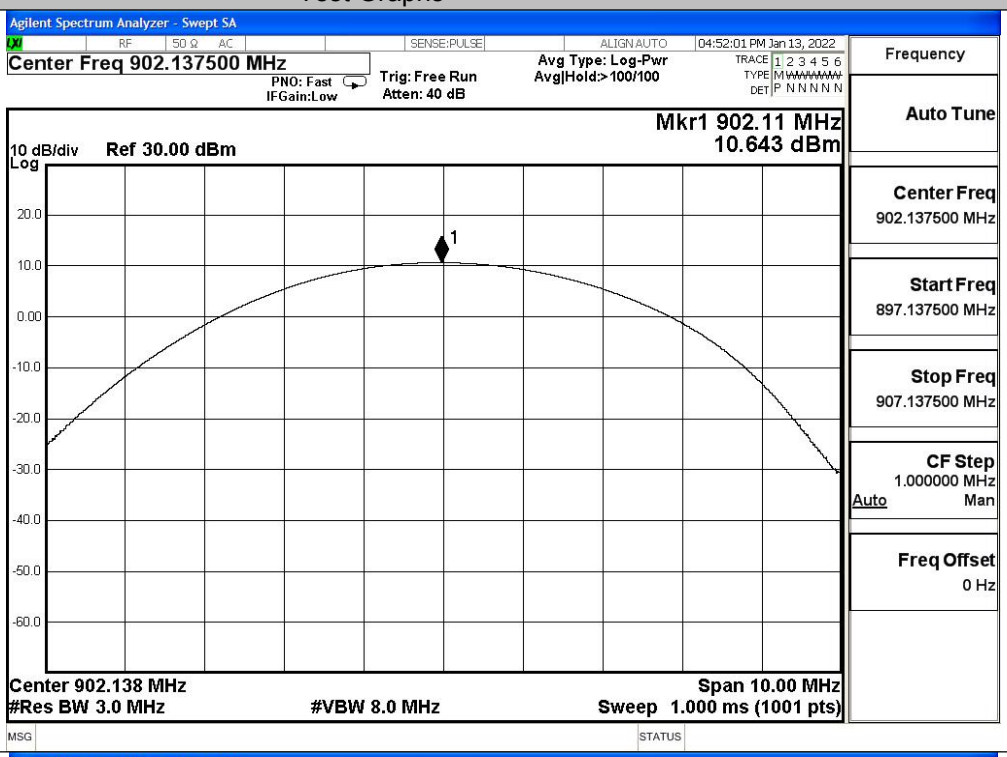
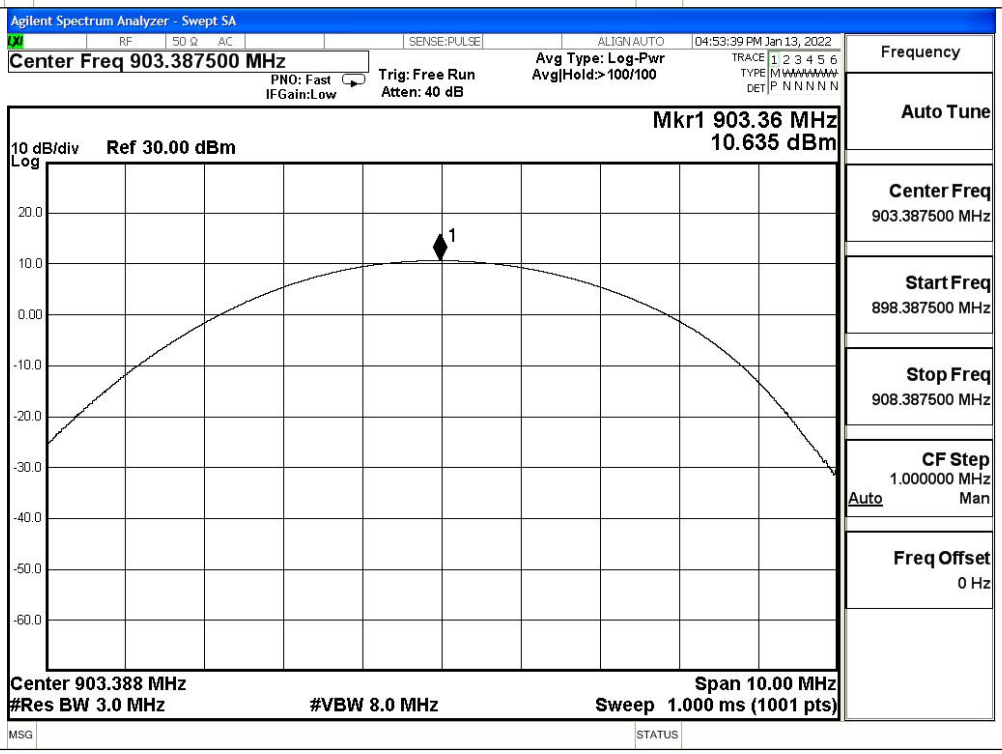
Test Model: Sigfox France

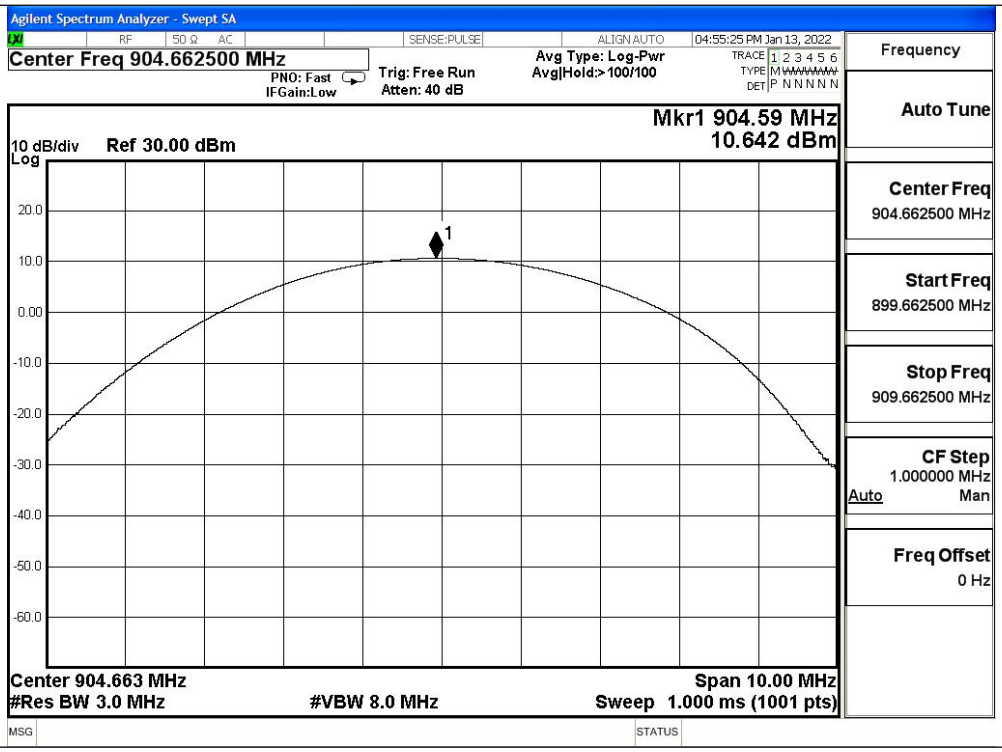
Environmental Conditions

Temperature:	23.5℃
Relative Humidity:	52.2%
ATM Pressure:	100.0 kPa
Test Engineer:	Monkey Li
Supervised by:	Li Huan

A.1 Maximum Conducted Peak Output Power

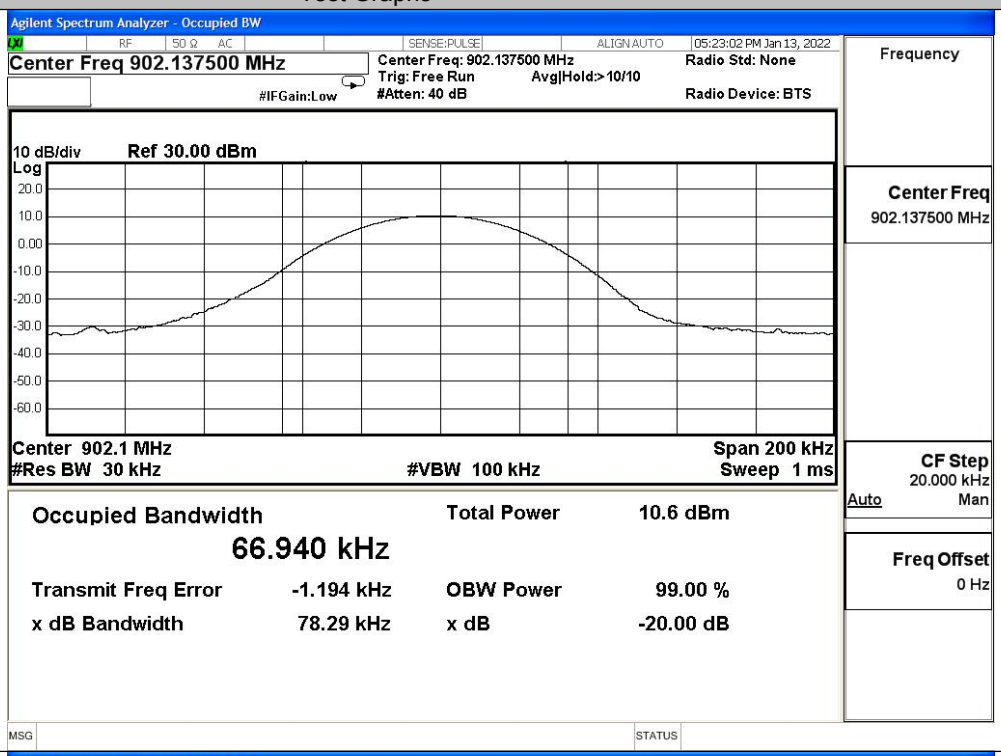
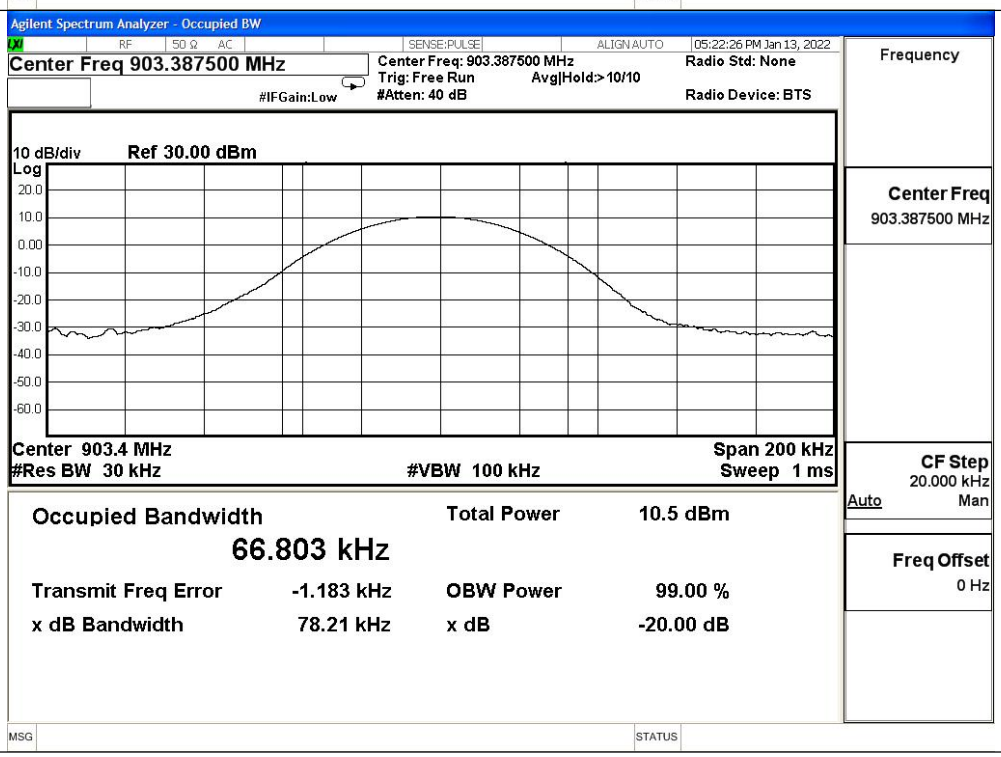
Mode	Channel.	Maximum Peak Output Power [dBm]	Limit [dBm]	Verdict
RF ID	LCH	10.643	30	PASS
	MCH	10.635	30	PASS
	HCH	10.642	30	PASS

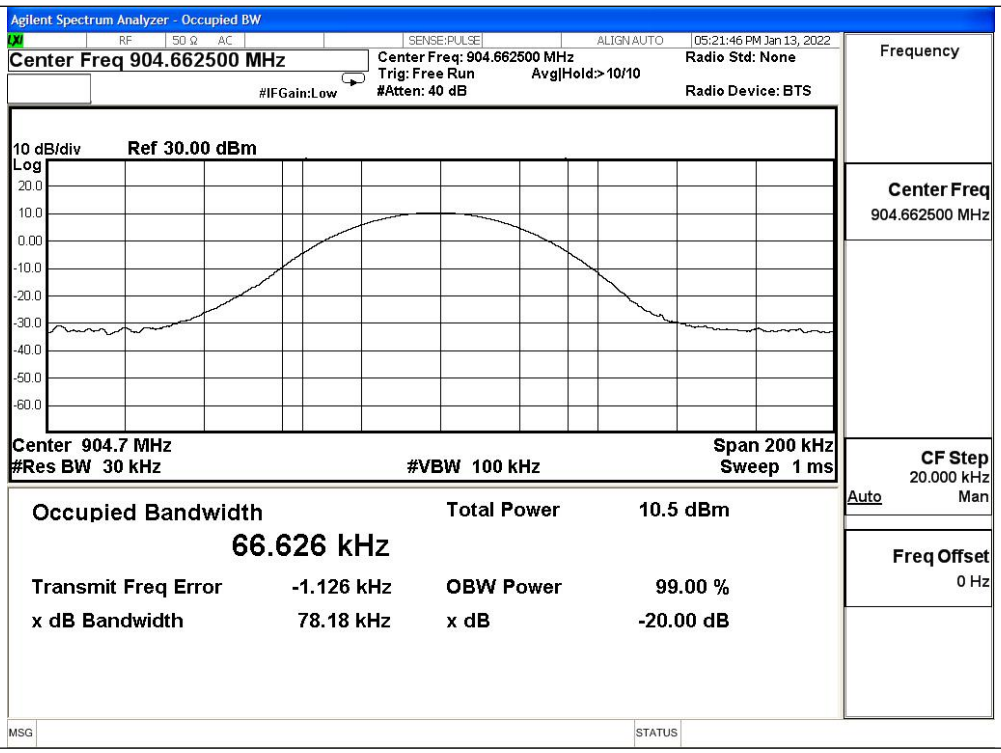
Test Graphs	
RF ID/LCH	
RF ID/MCH	

RF ID/HCH	 Agilent Spectrum Analyzer - Swept SA RF 50 Ω AC SENSE:PULSE ALIGN AUTO 04:55:25 PM Jan 13, 2022 Center Freq 904.662500 MHz PNO: Fast IFGain:Low Trig: Free Run Atten: 40 dB Avg Type: Log-Pwr Avg|Hold:>100/100 TRACE 1 2 3 4 5 6 TYPE M WWWWWW DET P N N N N N Mkr1 904.59 MHz 10.642 dBm 10 dB/div Ref 30.00 dBm Log 20.0 10.0 0.00 -10.0 -20.0 -30.0 -40.0 -50.0 -60.0 1 Center 904.663 MHz #Res BW 3.0 MHz #VBW 8.0 MHz Span 10.00 MHz Sweep 1.000 ms (1001 pts) MSG STATUS Frequency Auto Tune Center Freq 904.662500 MHz Start Freq 899.662500 MHz Stop Freq 909.662500 MHz CF Step 1.000000 MHz Auto Man Freq Offset 0 Hz

A.2 20dB Bandwidth

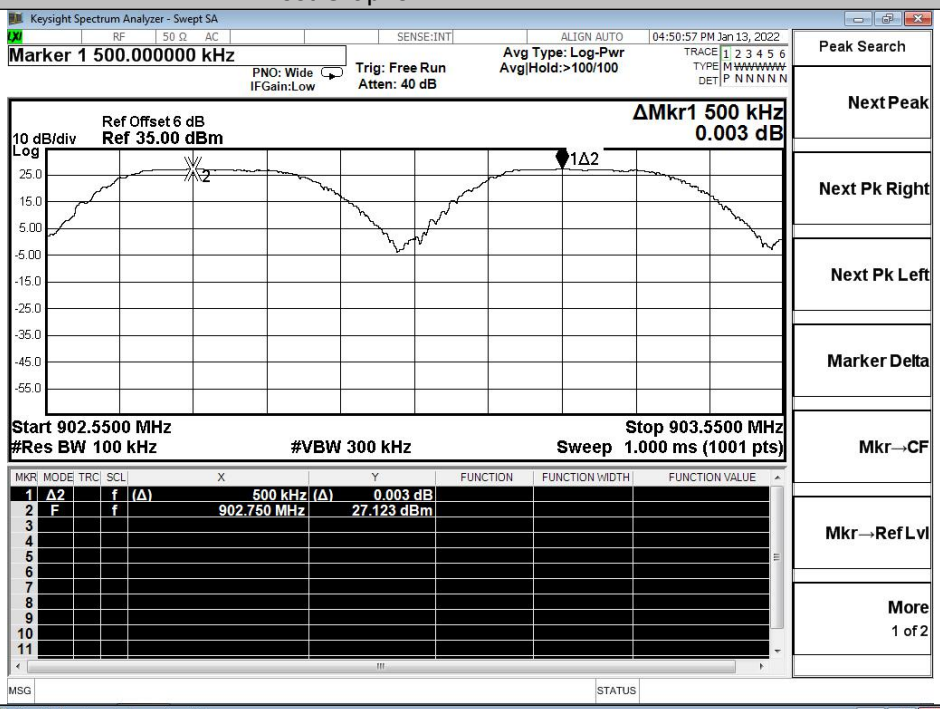
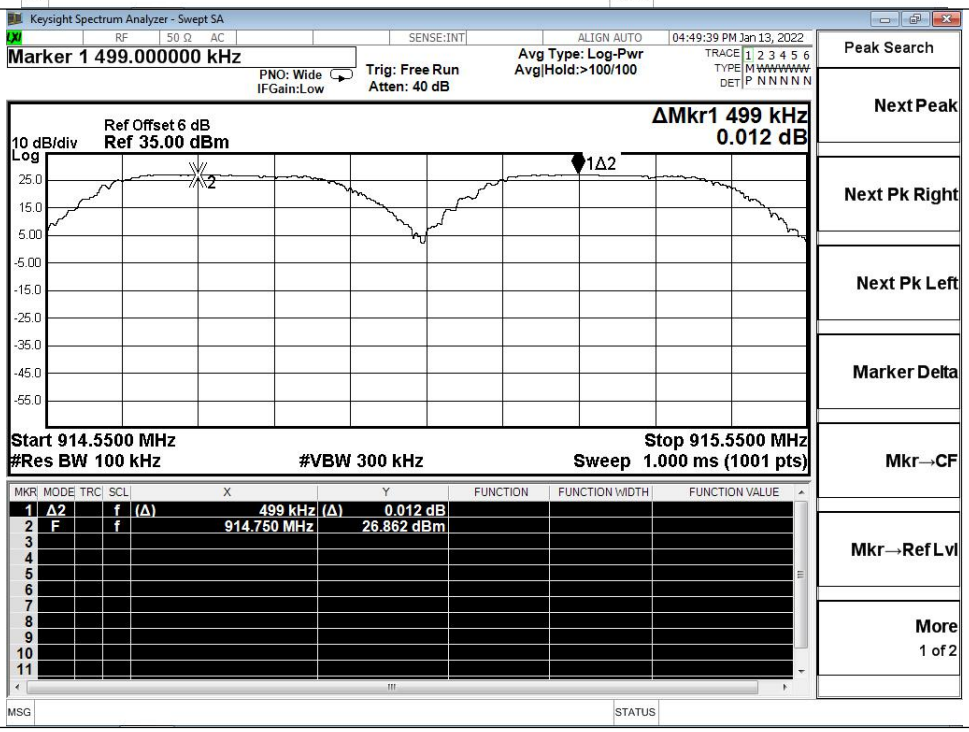
Mode	Channel.	20dB Bandwidth [KHz]	Limit [KHz]	Verdict
RF ID	LCH	78.29	Not Specified	PASS
	MCH	78.21	Not Specified	PASS
	HCH	78.18	Not Specified	PASS

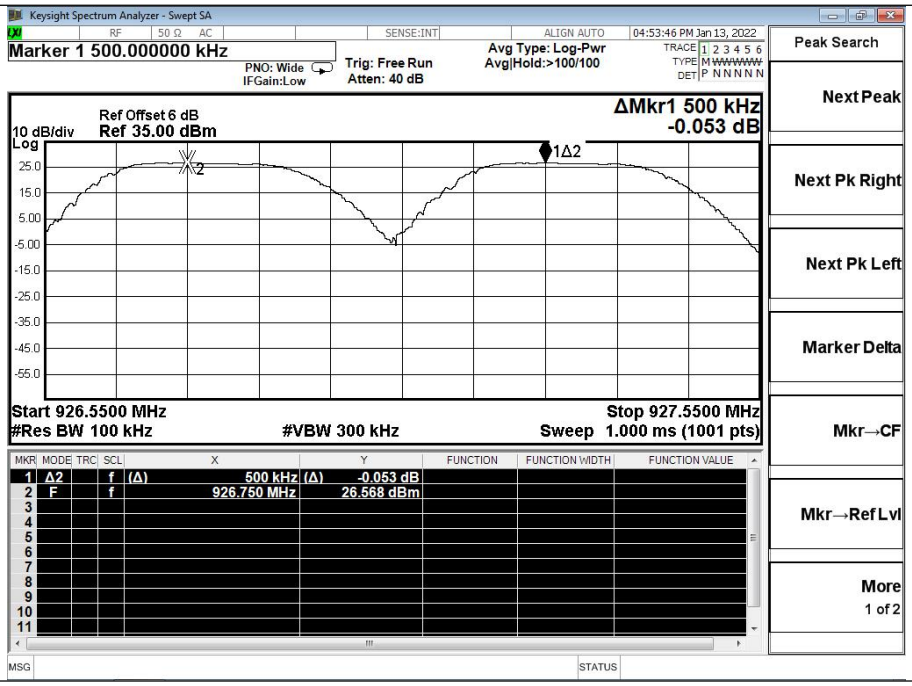
Test Graphs	
RF ID/LCH	
RF ID/MCH	

RF ID/HCH	 Agilent Spectrum Analyzer - Occupied BW RF 50 Ω AC SENSE:PULSE ALIGN AUTO 05:21:46 PM Jan 13, 2022 Center Freq 904.662500 MHz #IFGain:Low Center Freq: 904.662500 MHz Trig: Free Run Avg|Hold:>10/10 #Atten: 40 dB Radio Std: None Radio Device: BTS Frequency 10 dB/div Log Ref 30.00 dBm 20.0 10.0 0.00 -10.0 -20.0 -30.0 -40.0 -50.0 -60.0 Center Freq 904.662500 MHz Center 904.7 MHz #Res BW 30 kHz #VBW 100 kHz Span 200 kHz Sweep 1 ms CF Step 20.000 kHz Auto Man Occupied Bandwidth 66.626 kHz Total Power 10.5 dBm Transmit Freq Error -1.126 kHz OBW Power 99.00 % x dB Bandwidth 78.18 kHz x dB -20.00 dB Freq Offset 0 Hz MSG STATUS

A.3 Carrier Frequency Separation

Mode	Channel.	Carrier Frequency Separation [KHz]	Limit [KHz]	Verdict
RF ID	LCH	500	52.19	PASS
	MCH	499	52.14	PASS
	HCH	500	52.12	PASS

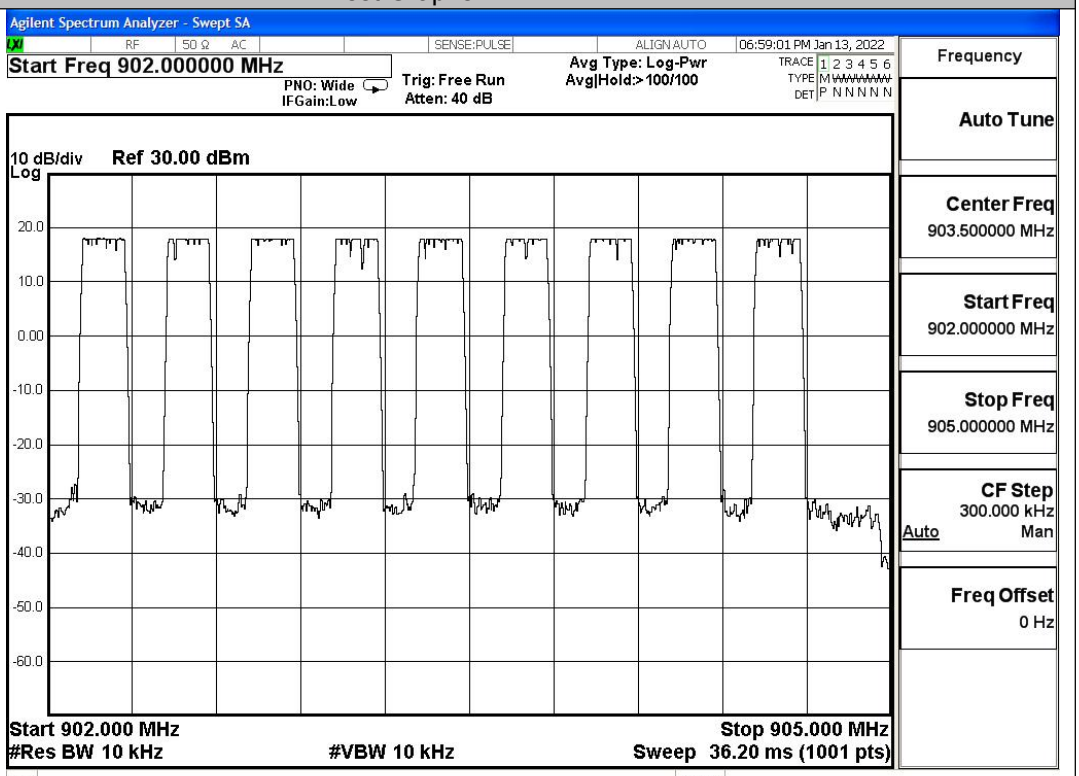
Test Graphs	
RF ID/LCH	
RF ID/MCH	

RF ID/HCH	

Keysight Spectrum Analyzer - Swept SA
Marker 1 500.000000 kHz
PNO: Wide
IFGain:Low
Trig: Free Run
Atten: 40 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
04:53:46 PM Jan 13, 2022
Ref Offset 6 dB
10 dB/div
Ref 35.00 dBm
ΔMkr1 500 kHz
-0.053 dB
Start 926.5500 MHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 927.5500 MHz
Sweep 1.000 ms (1001 pts)
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2
1 Δ2 f (Δ) 500 kHz (Δ) -0.053 dB
2 F f 926.750 MHz 26.568 dBm

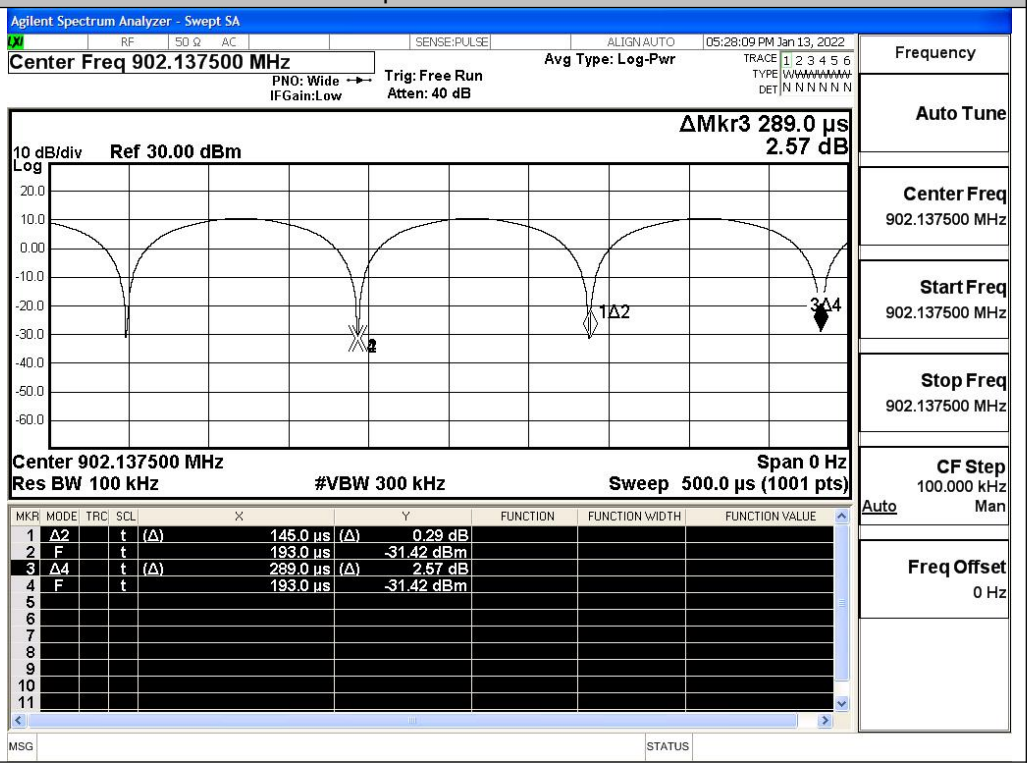
A.4 Hopping Channel Number

Mode	Channel.	Number of Hopping Channel [N]	Limit [N]	Verdict
RF ID	Hop	54	>=50	PASS

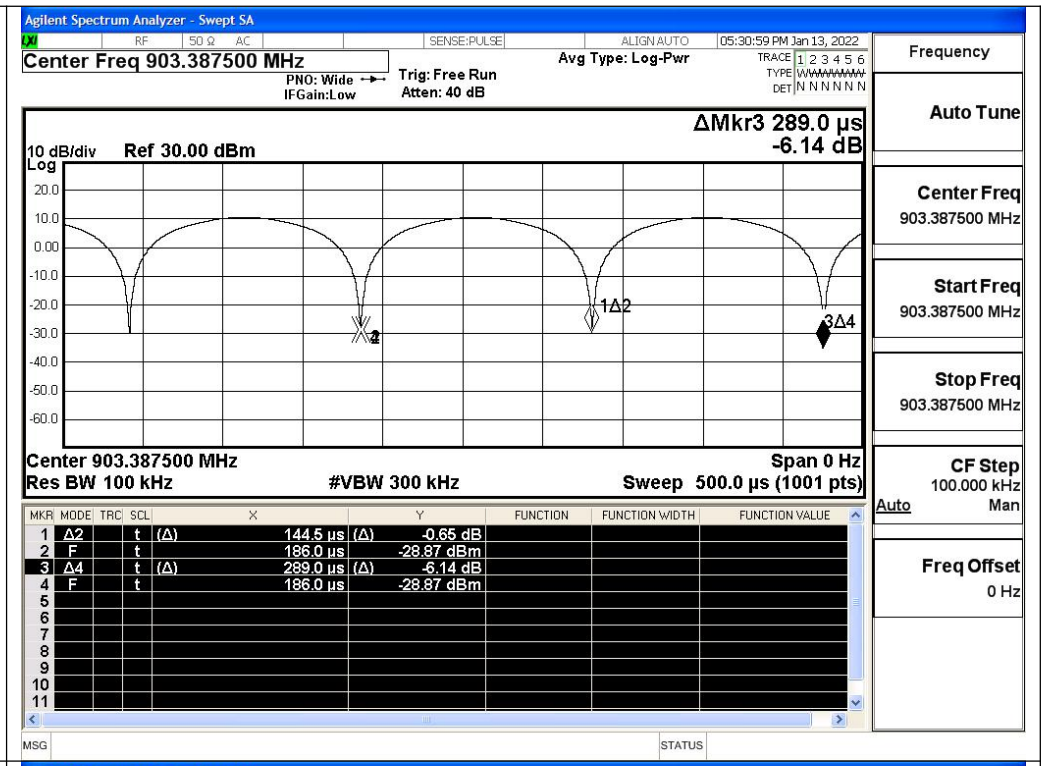
Test Graphs	
RF ID/Hop	

A.5 Dwell Time

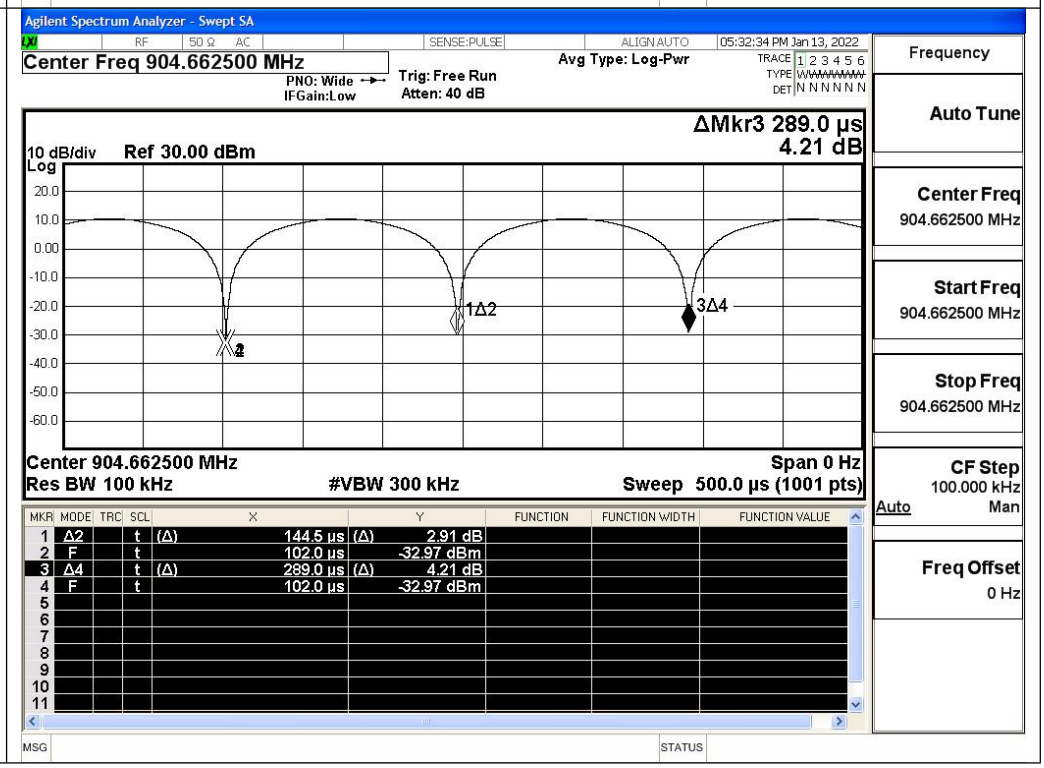
Mode	Channel	Burst Width [ms/hop/ch]	Total Hops[hop*ch]	Dwell Time[s]	Limit [s]	Verdict
RF ID	LCH	0.145	106.7	0.015	0.4	PASS
	MCH	0.145	106.7	0.015	0.4	PASS
	HCH	0.145	106.7	0.015	0.4	PASS

Test Graphs	
RF ID /LCH	

RF ID/MCH

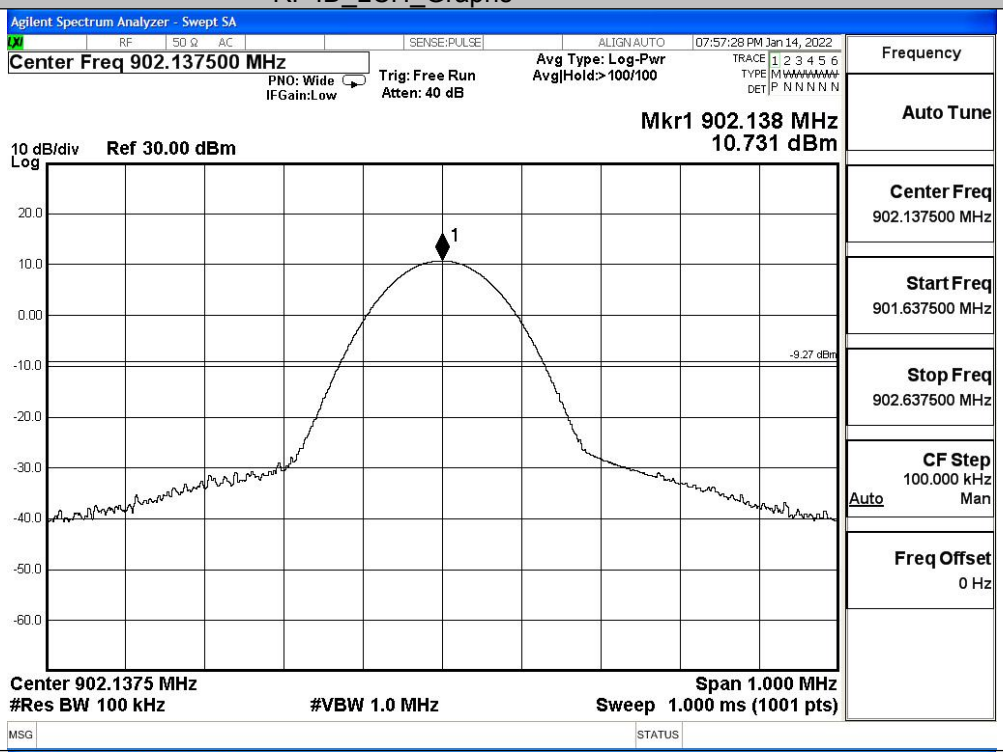


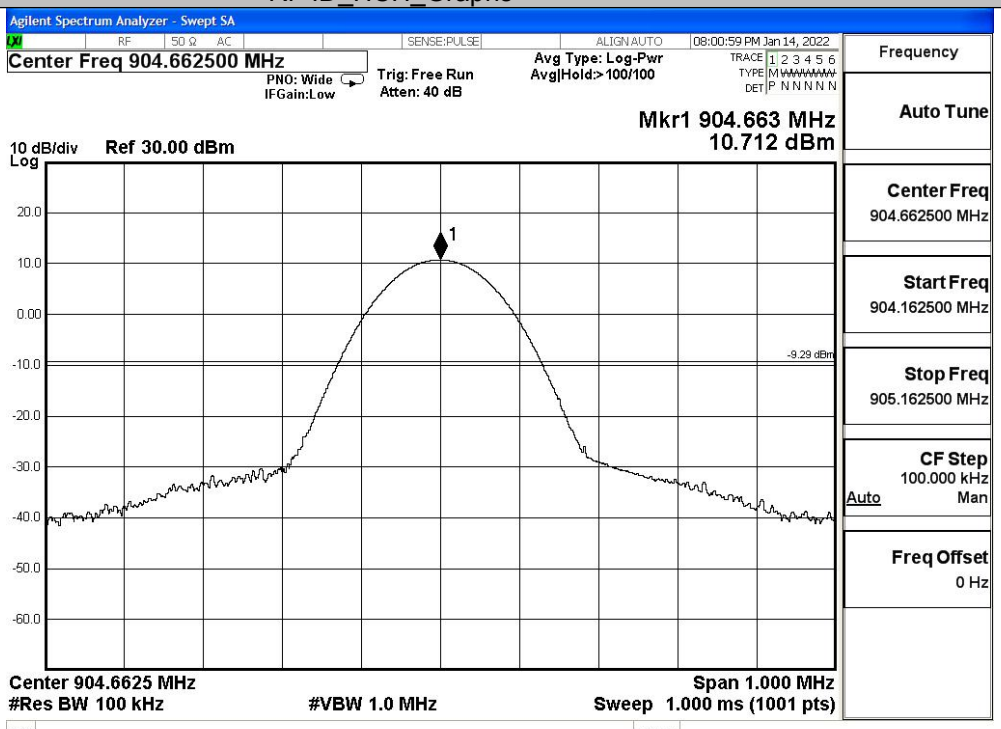
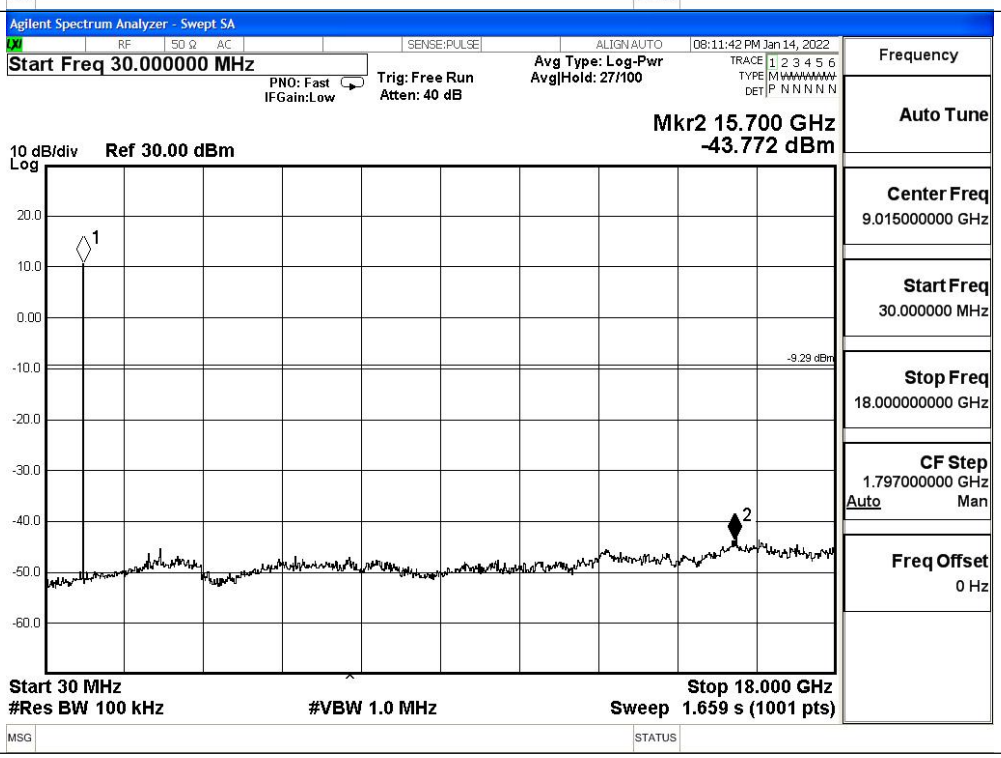
RF ID/HCH



A.6 RF Conducted Spurious Emissions

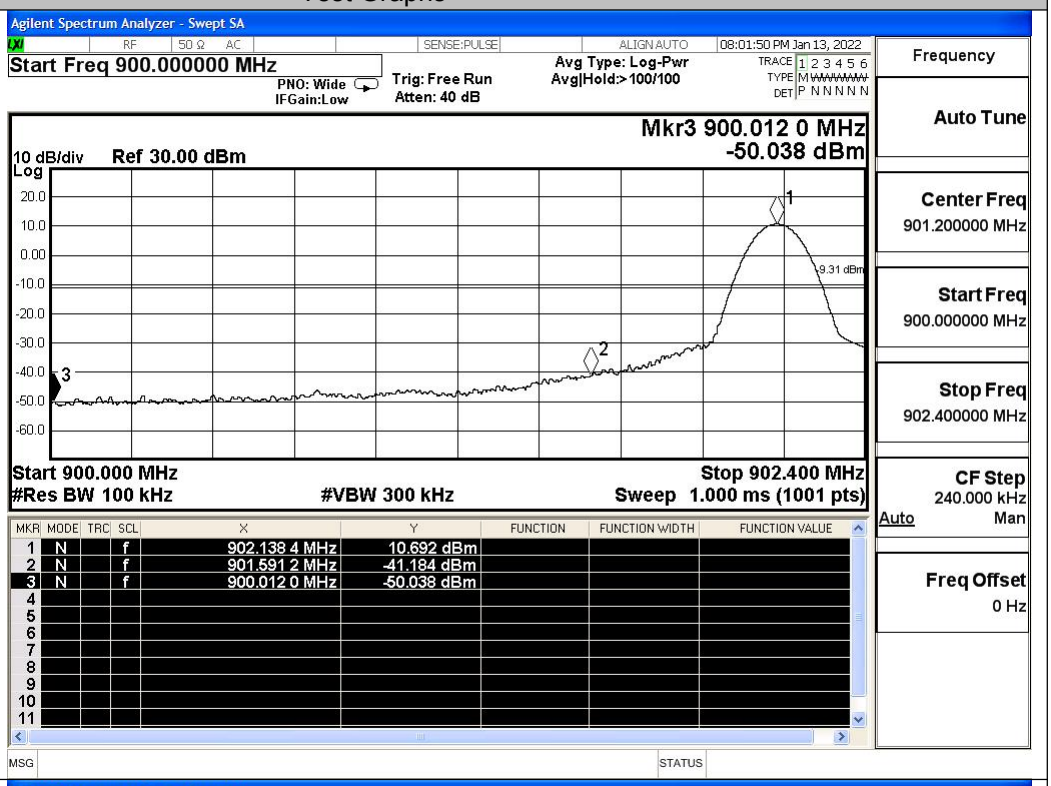
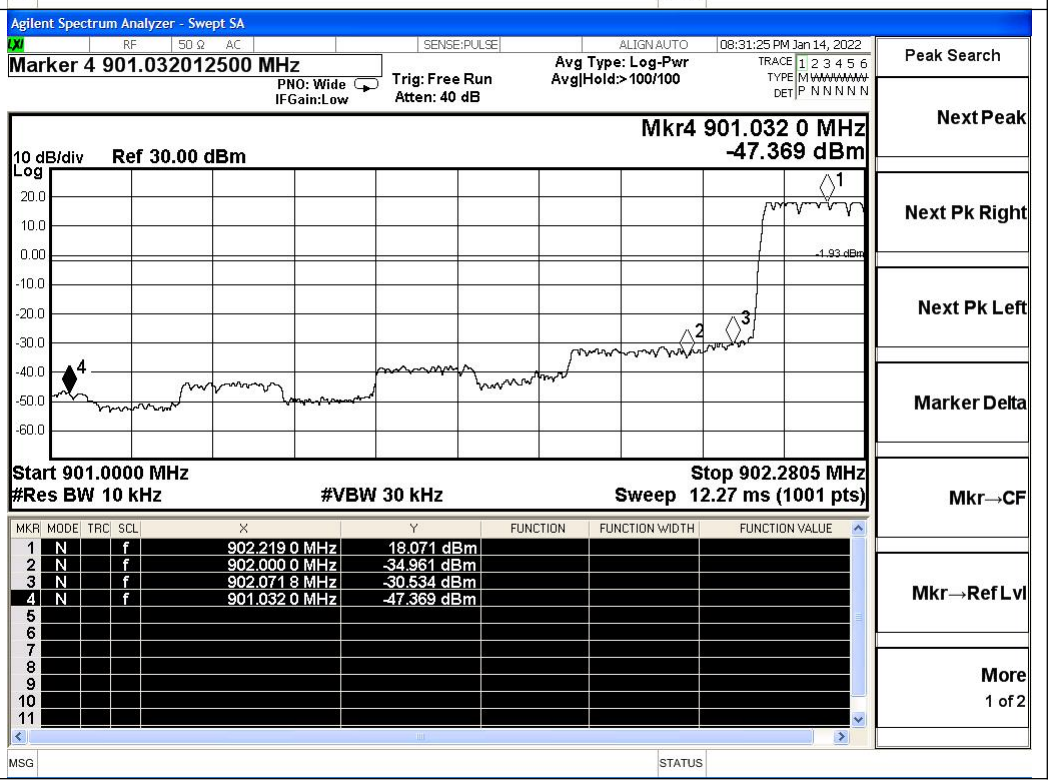
Mode	Channel	Pref [dBm]	Max. Level [dBm]	Limit [dBm]	Verdict
RF ID	LCH	10.73	-42.345	-9.27	PASS
	HCH	10.71	-43.845	-9.29	PASS

RF ID_LCH_Graphs	
Pref	
Puw	

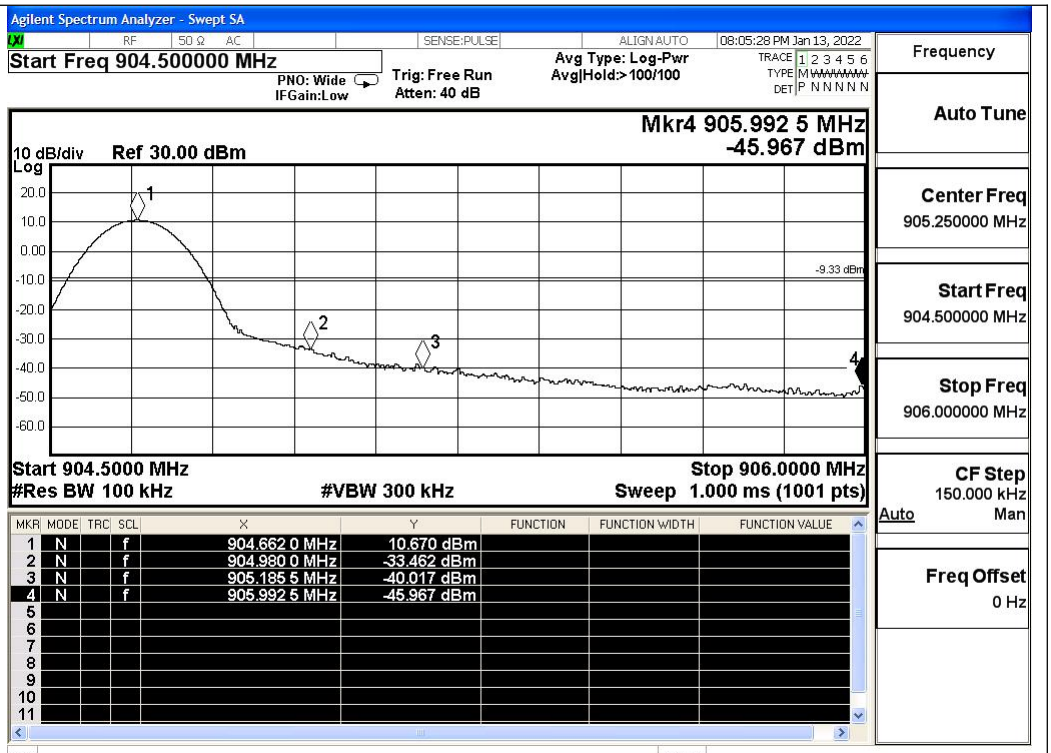
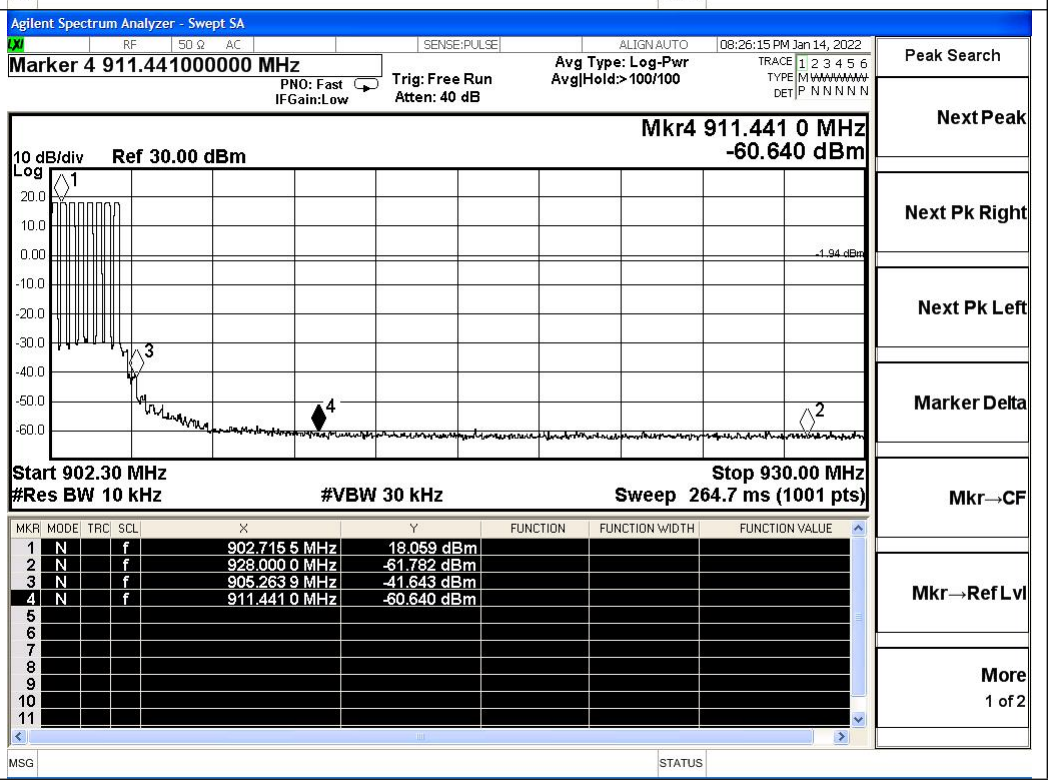
RF ID_HCH_Graphs	
Pref	
Puw	

A.7 Band-edge for RF Conducted Emissions

Mode	Channel	Carrier Frequency [MHz]	Carrier Power [dBm]	Frequency Hopping	Max Spurious Level [dBm]	Limit [dBm]	Verdict
RF ID	LCH	902.1375	10.692	Off	-49.548	-9.31	PASS
			18.071	On	-48.221	-1.93	PASS
	HCH	904.6625	10.670	Off	-48.972	-9.33	PASS
			18.059	On	-48.582	-1.94	PASS

Test Graphs	
RF ID/LCH/No Hop	
RF ID/LCH/Hop	

RF ID/HCH/No Hop



RF ID/HCH/Hop