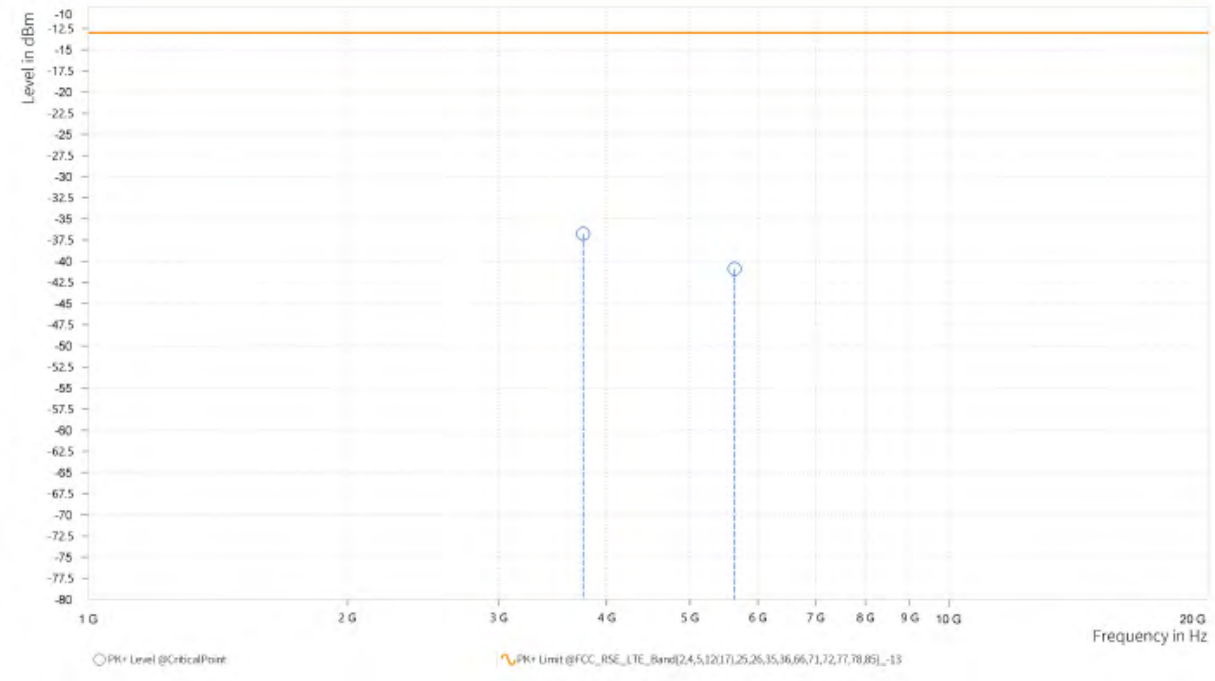
LTE Band 2

CHANNEL BANDWIDTH: 1.4MHz / QPSK

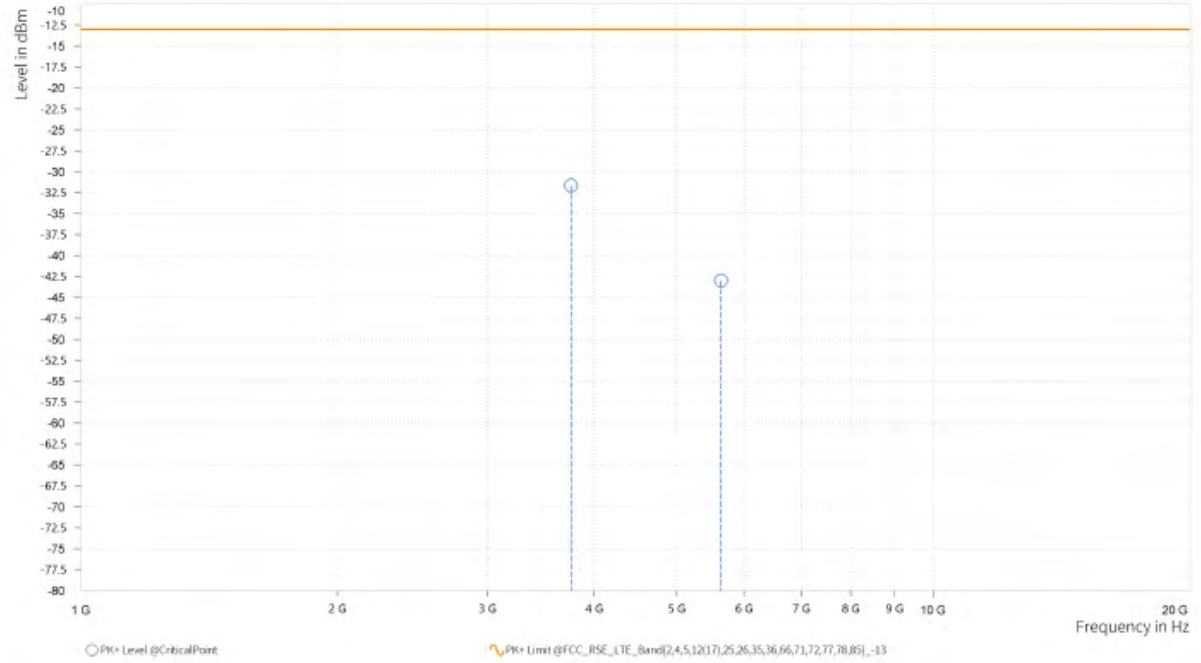
MODE	TX channel 18900	**FREQUENCY RANGE**	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	**INPUT POWER**	DC12V
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
2	3,759.000	-36.75	-13.00	23.75	15.43	H	359	2
2	5,638.500	-40.91	-13.00	27.91	18.57	H	1	1



MODE	TX channel 18900	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	DC12V
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M			

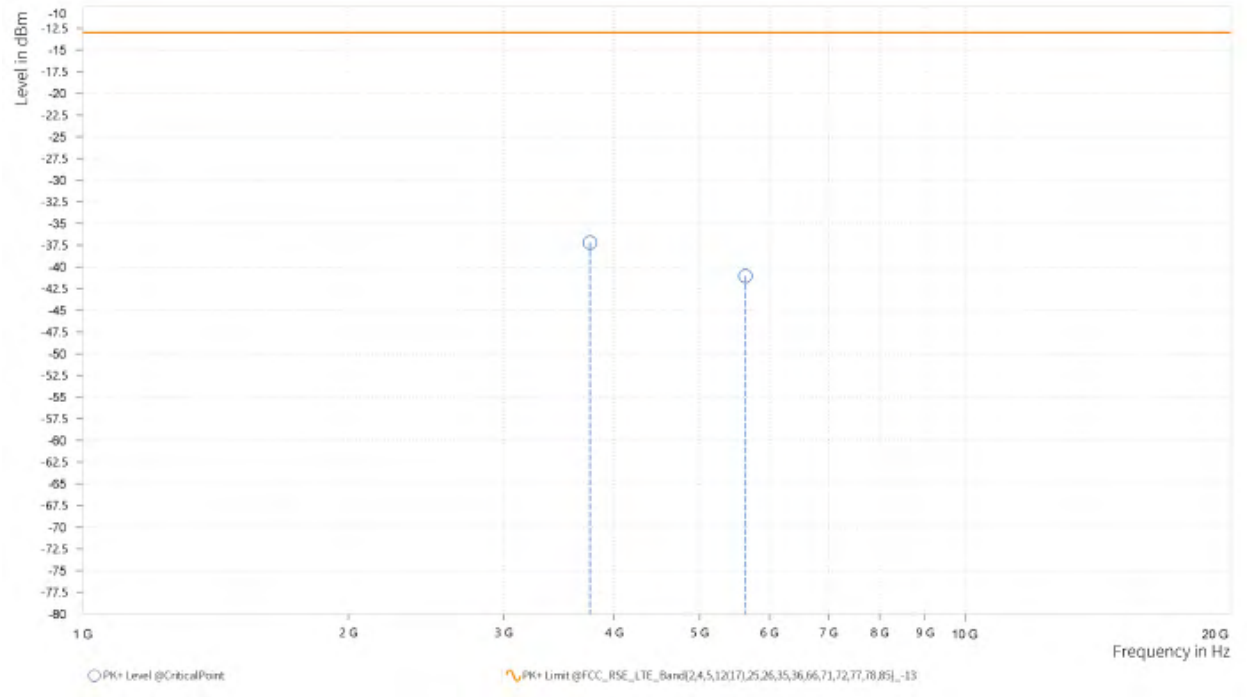
Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
2	3,759.000	-31.65	-13.00	18.65	15.12	V	268.4	1
2	5,637.500	-43.00	-13.00	30.00	18.30	V	92.8	2



CHANNEL BANDWIDTH: 3MHz / QPSK

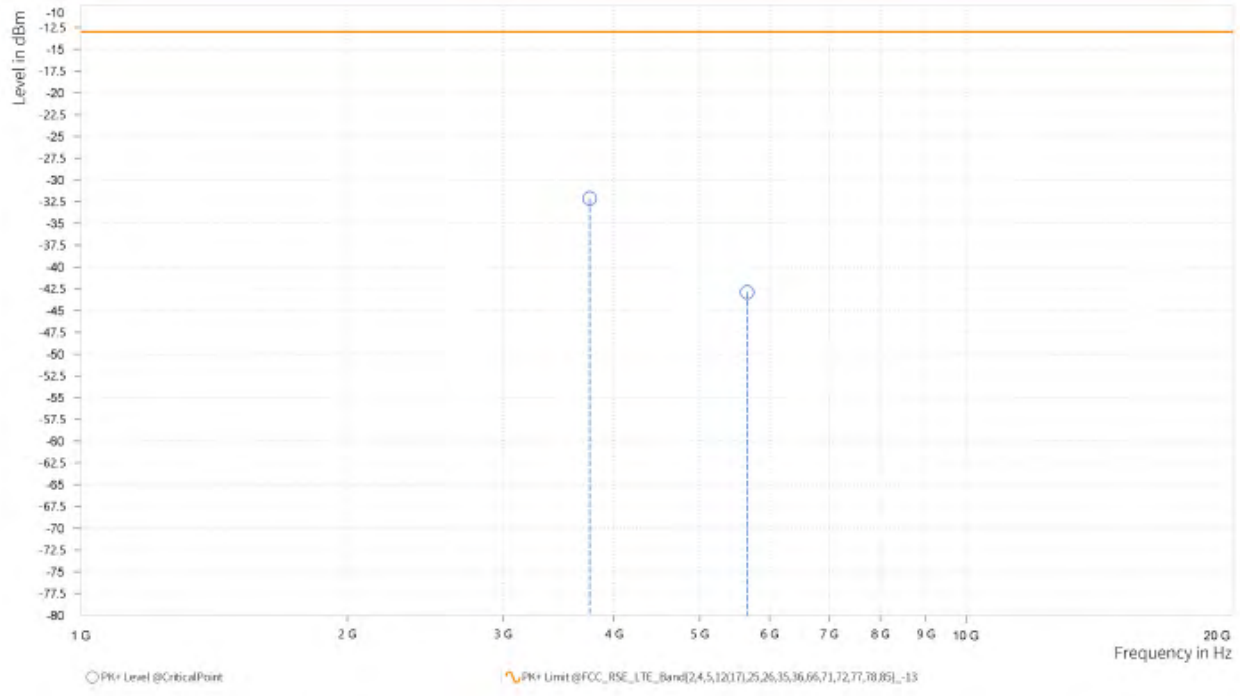
MODE	TX channel 18900	**FREQUENCY RANGE**	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	**INPUT POWER**	DC12V
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
2	3,757.500	-37.21	-13.00	24.21	15.42	H	0.9	2
2	5,636.500	-41.04	-13.00	28.04	18.56	H	1	1



MODE	TX channel 18900	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	DC12V
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M			

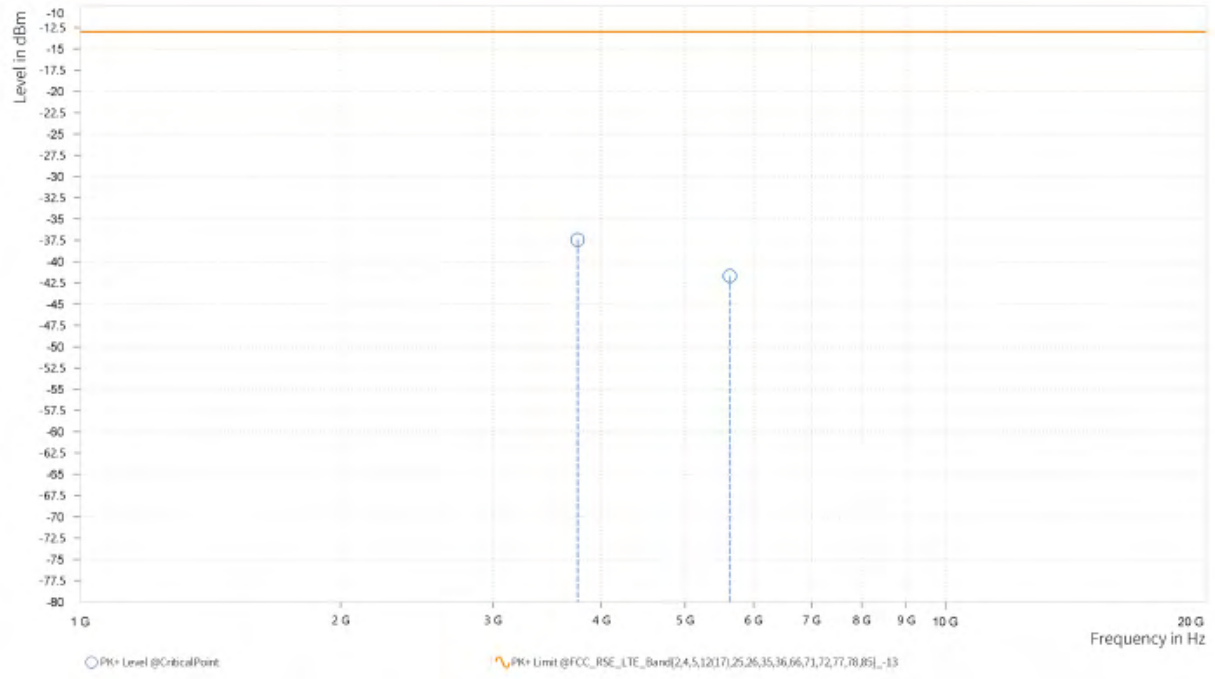
Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
2	3,757.500	-32.11	-13.00	19.11	15.11	V	282.8	1
2	5,657.500	-42.91	-13.00	29.91	18.40	V	1	1



CHANNEL BANDWIDTH: 5MHz / QPSK

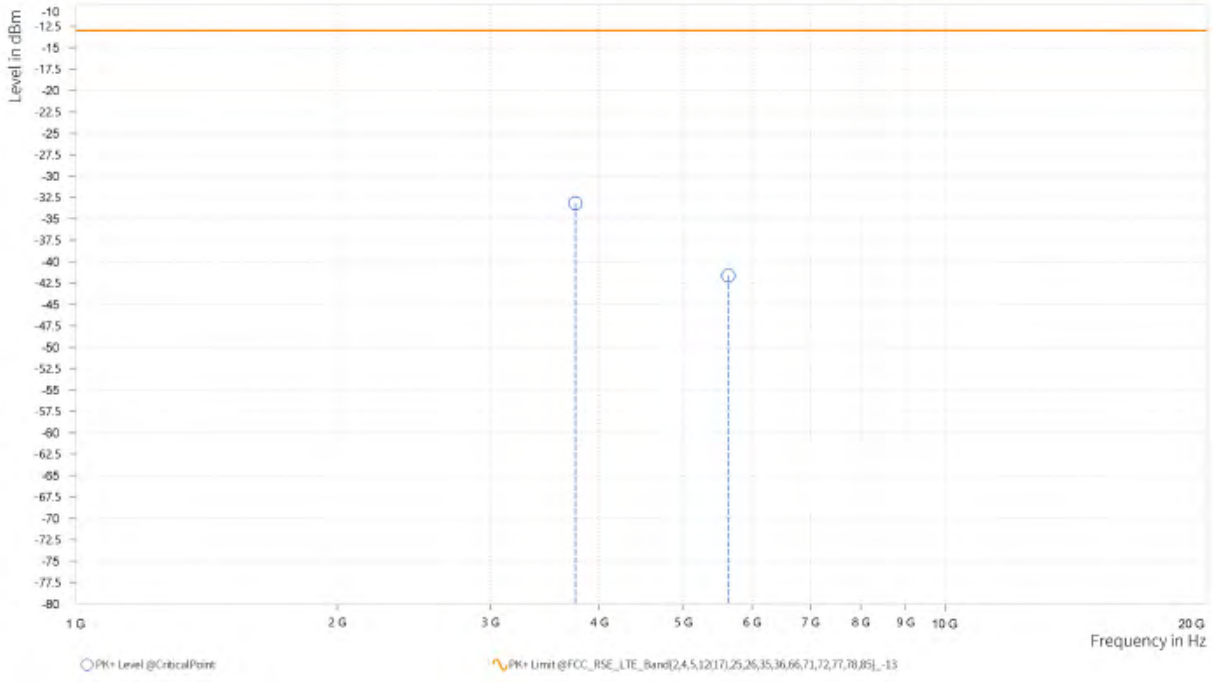
MODE	TX channel 18900	**FREQUENCY RANGE**	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	**INPUT POWER**	DC12V
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
2	3,755.500	-37.43	-13.00	24.43	15.39	H	359	2
2	5,633.000	-41.70	-13.00	28.70	18.54	H	359.1	1



MODE	TX channel 18900	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	DC12V
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M			

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
2	3,755.500	-33.17	-13.00	20.17	15.09	V	282.8	1
2	5,634.000	-41.63	-13.00	28.63	18.28	V	95.2	2

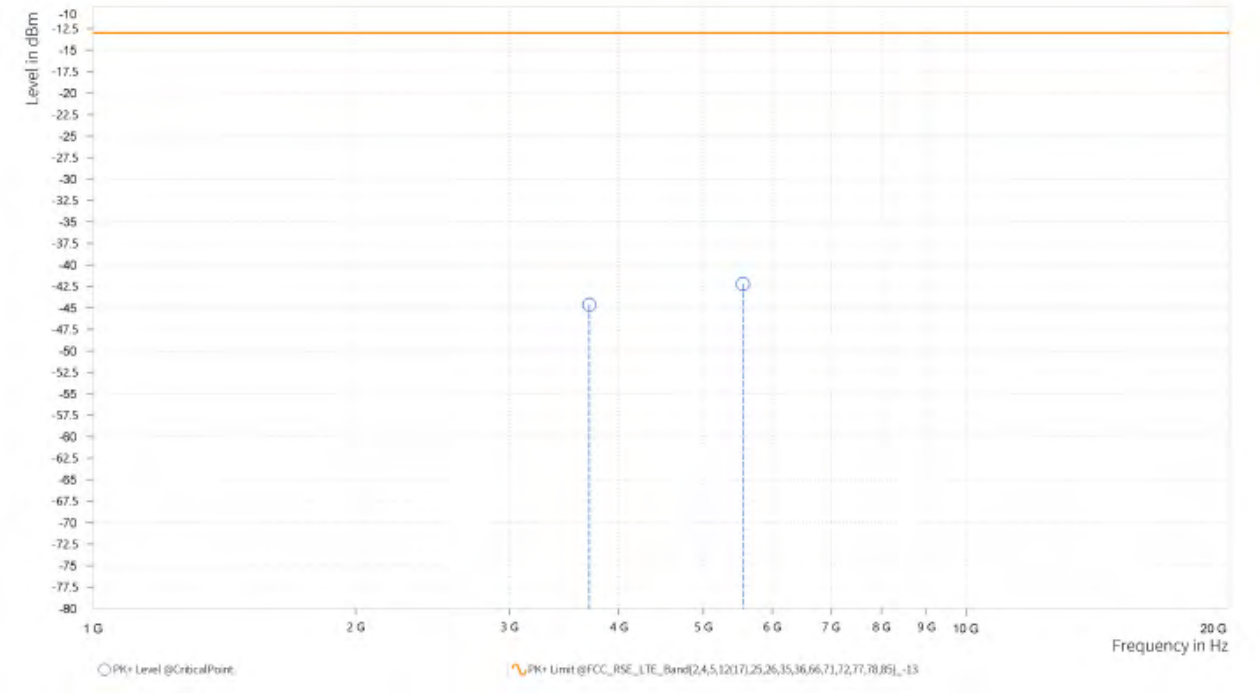


CHANNEL BANDWIDTH: 10MHz / QPSK

CH18650

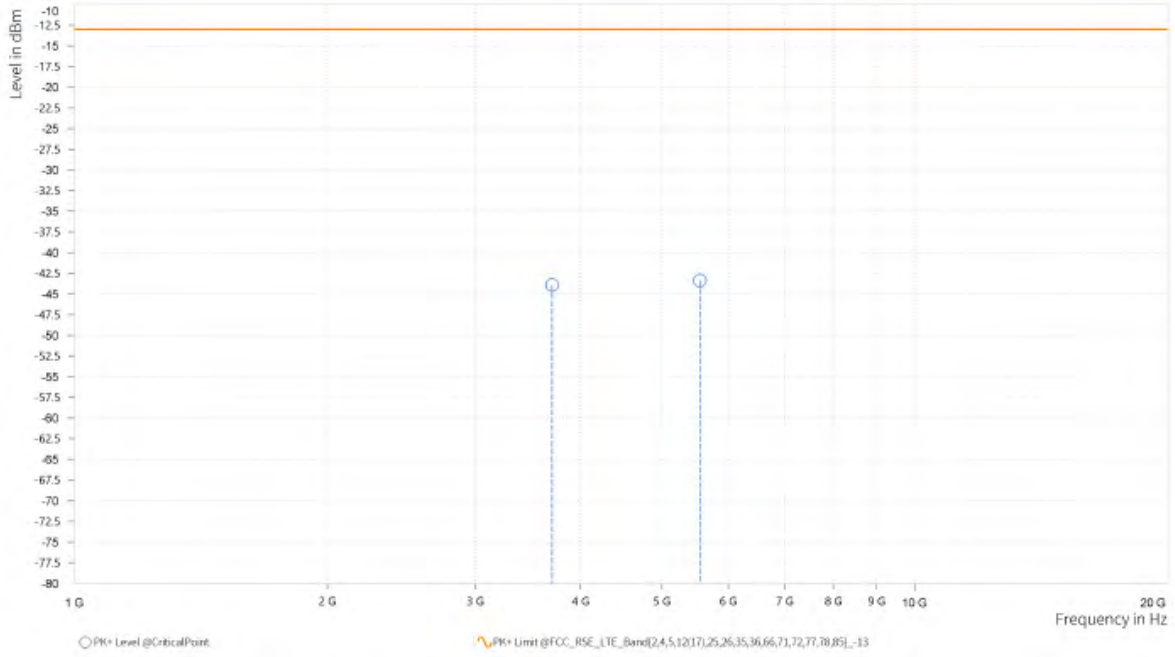
MODE	TX channel 18650	**FREQUENCY RANGE**	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	**INPUT POWER**	DC12V
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
2	3,701.500	-44.62	-13.00	31.62	14.88	H	1	1
2	5,550.500	-42.24	-13.00	29.24	18.30	H	0.9	2



MODE	TX channel 18650	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	DC12V
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M			

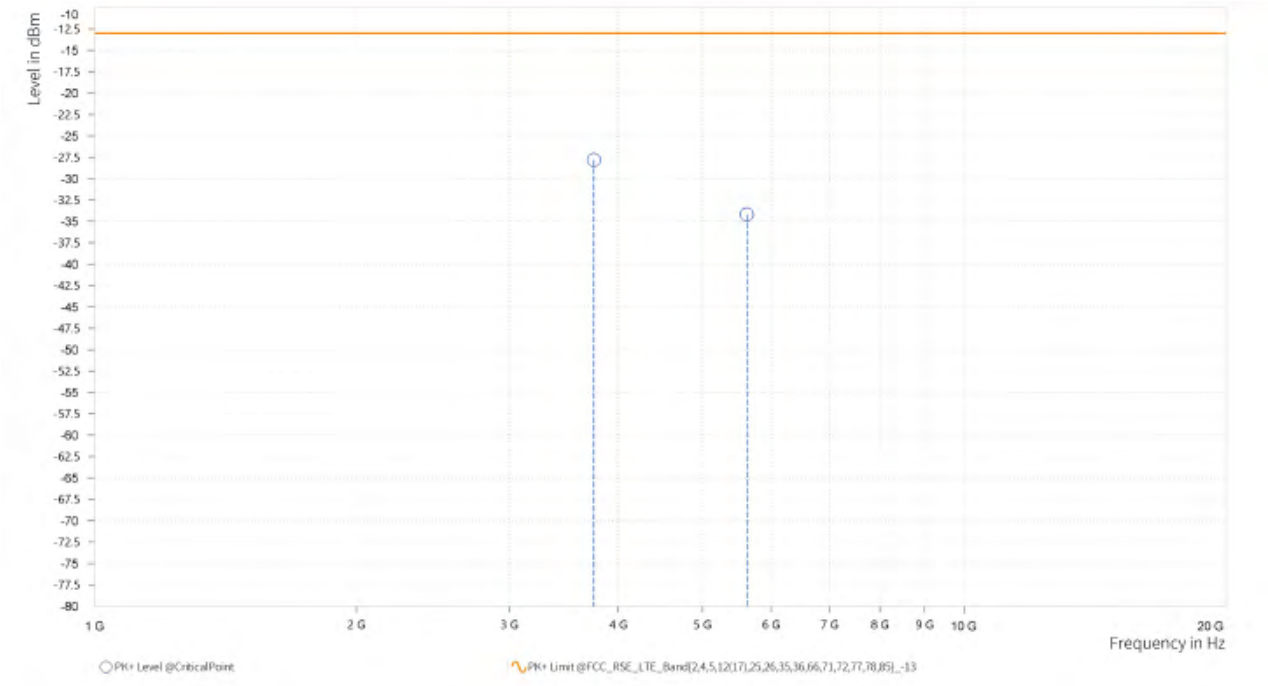
Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
2	3,701.000	-43.93	-13.00	30.93	14.70	V	303.1	1
2	5,551.000	-43.36	-13.00	30.36	18.05	V	303.1	1



CH18900

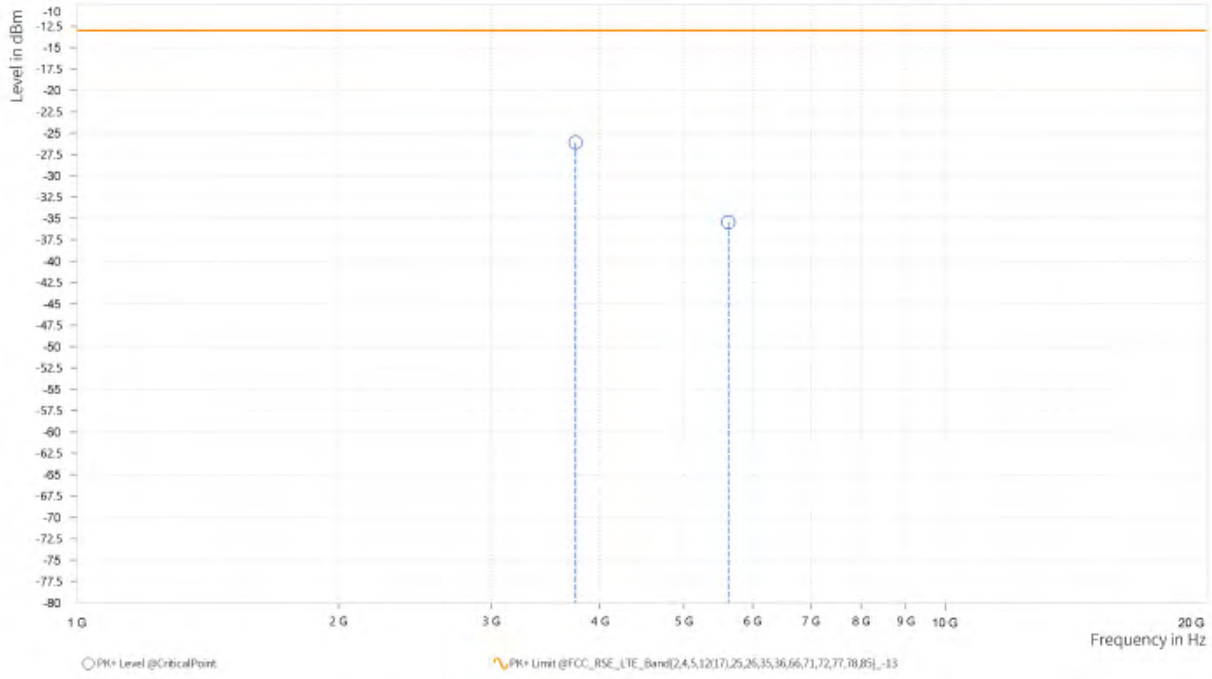
MODE	TX channel 18900	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	DC12V
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
2	3,751.000	-27.79	-13.00	14.79	15.34	H	89.3	1
2	5,627.000	-34.17	-13.00	21.17	18.50	H	267.3	1



MODE	TX channel 18900	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	DC12V
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M			

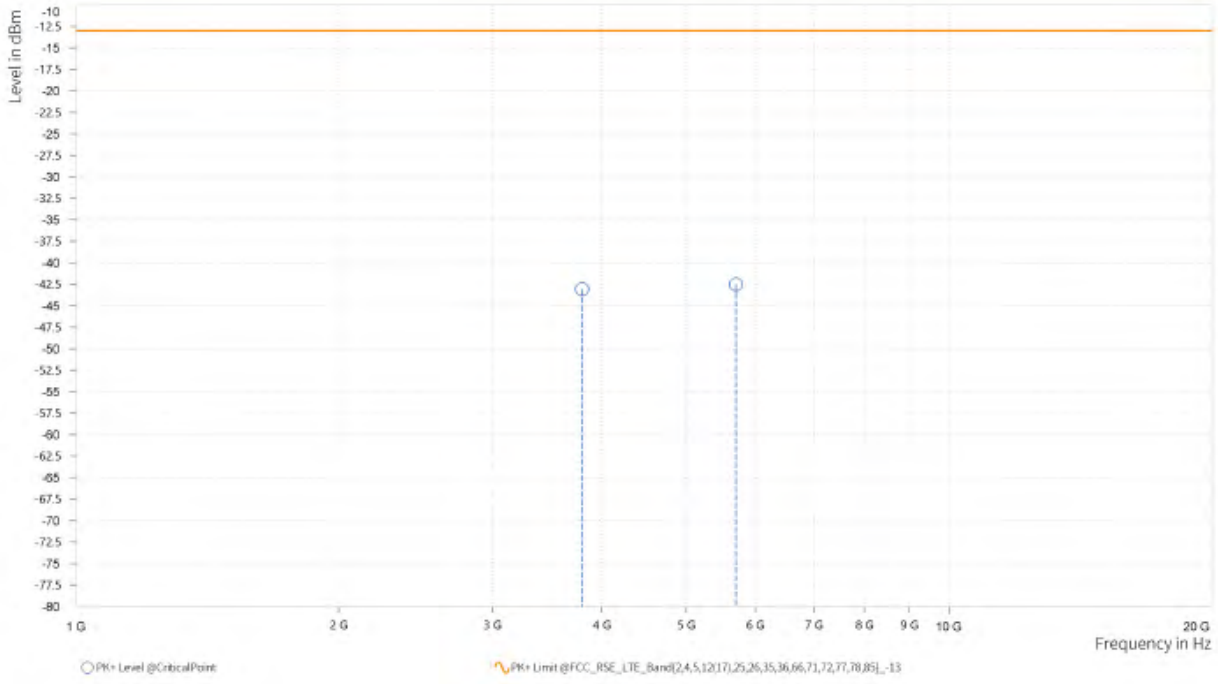
Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
2	3,751.000	-26.12	-13.00	13.12	15.05	V	359	2
2	5,626.500	-35.45	-13.00	22.45	18.24	V	359	1



CH19150

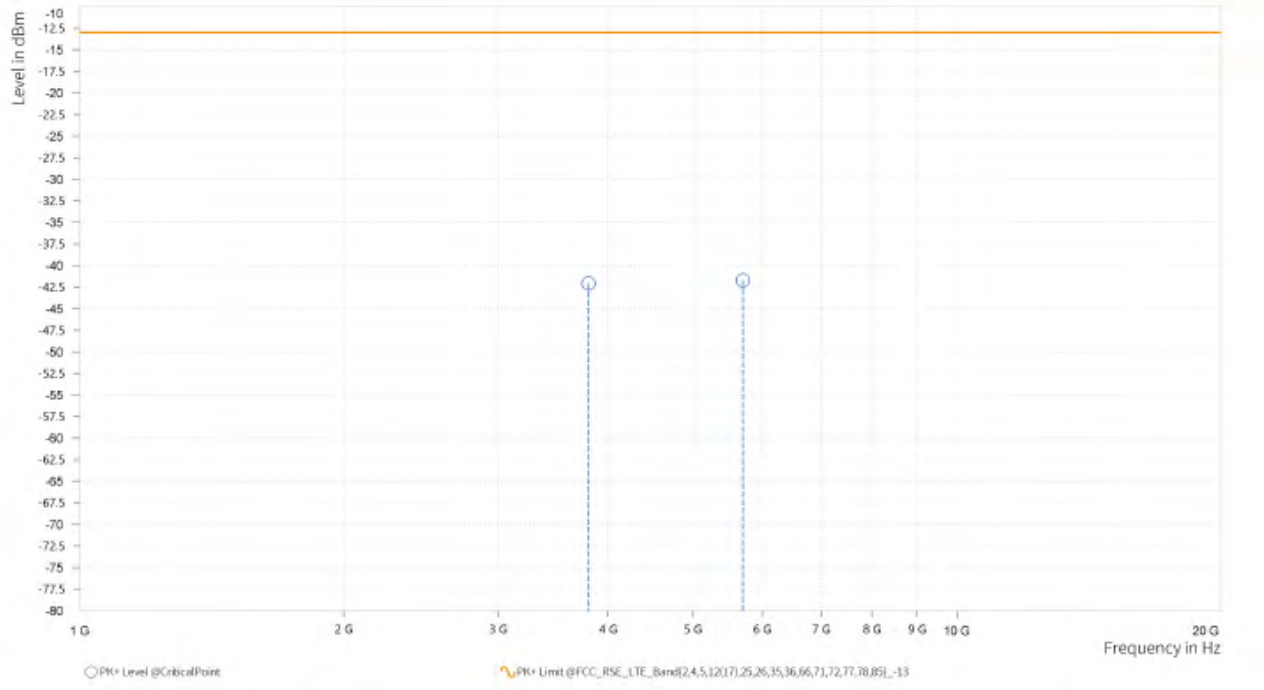
MODE	TX channel 19150	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	DC12V
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
2	3,800.500	-43.07	-13.00	30.07	15.80	H	1	2
2	5,701.000	-42.51	-13.00	29.51	18.89	H	1	1



MODE	TX channel 19150	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	DC12V
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M			

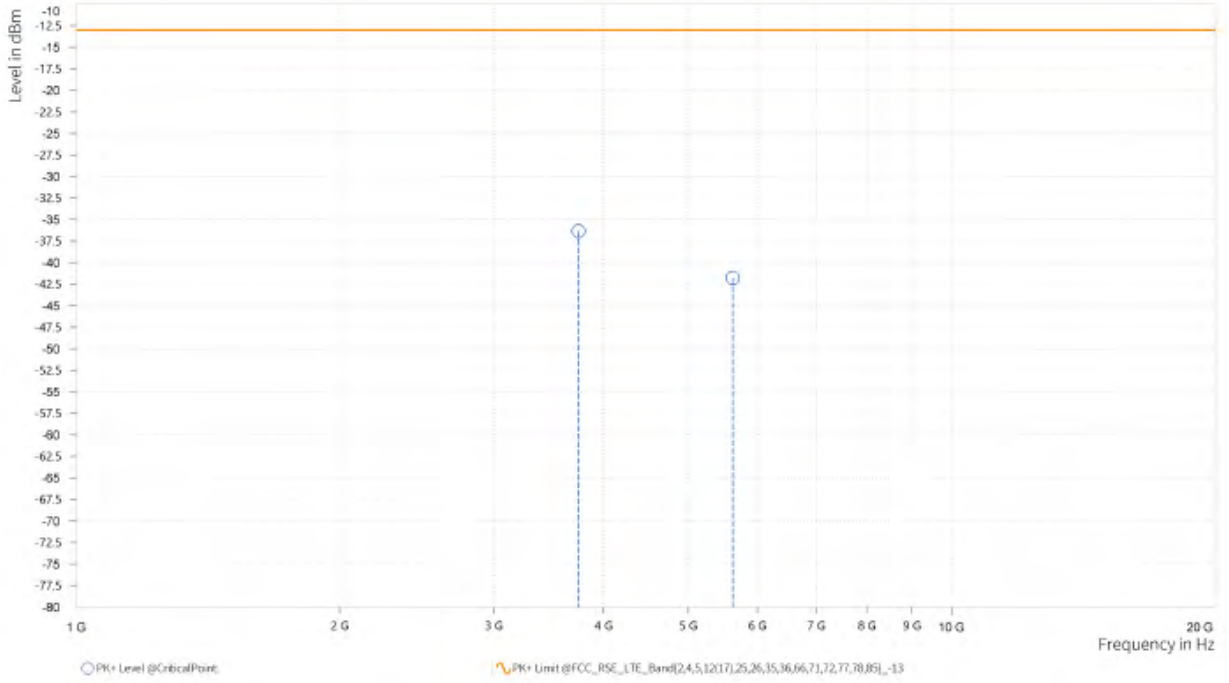
Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
2	3,801.000	-42.07	-13.00	29.07	15.50	V	0.9	2
2	5,701.500	-41.72	-13.00	28.72	18.62	V	359.1	1



CHANNEL BANDWIDTH: 15MHz / QPSK

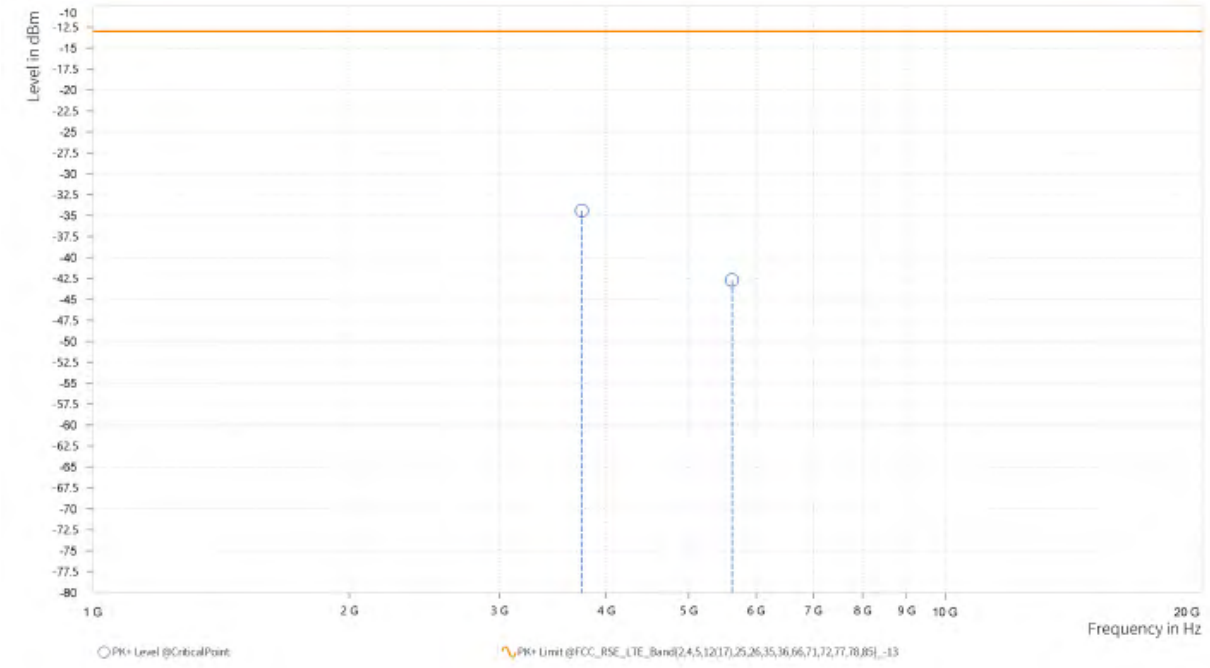
MODE	TX channel 18900	**FREQUENCY RANGE**	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	**INPUT POWER**	DC12V
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
2	3,746.500	-36.36	-13.00	23.36	15.29	H	91.6	2
2	5,620.000	-41.78	-13.00	28.78	18.47	H	1	1



MODE	TX channel 18900	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	DC12V
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M			

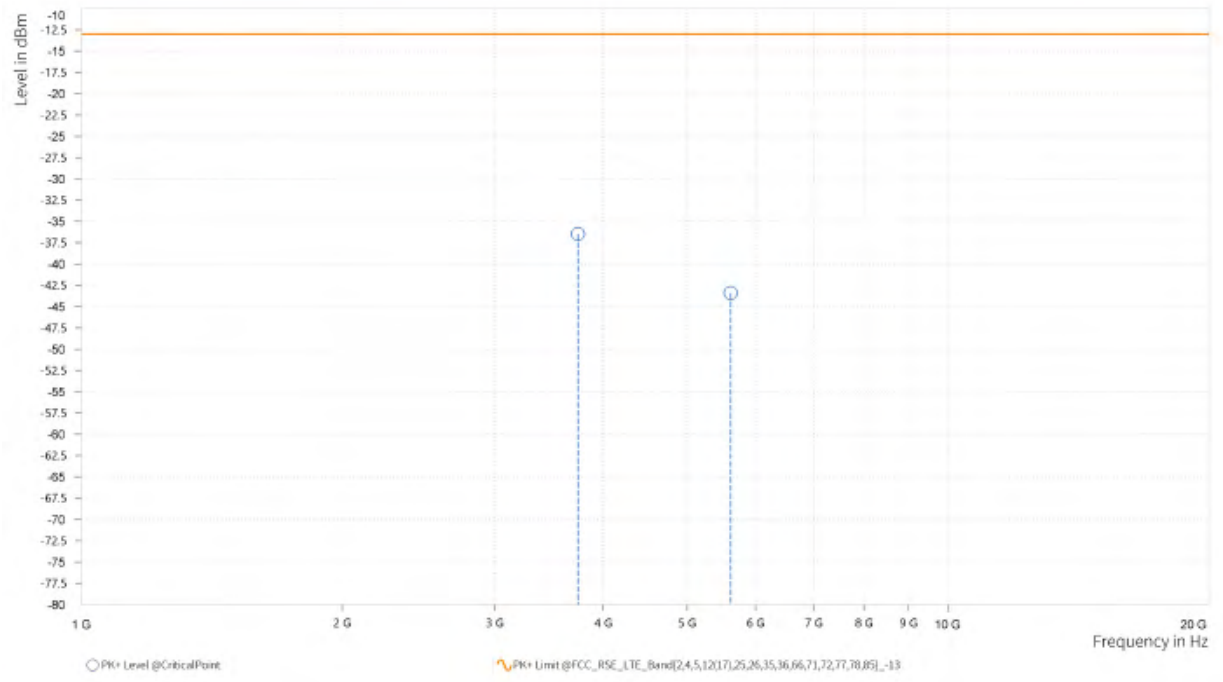
Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
2	3,746.000	-34.42	-13.00	21.42	15.00	V	267.2	1
2	5,620.000	-42.69	-13.00	29.69	18.20	V	92.8	2



CHANNEL BANDWIDTH: 20MHz / QPSK

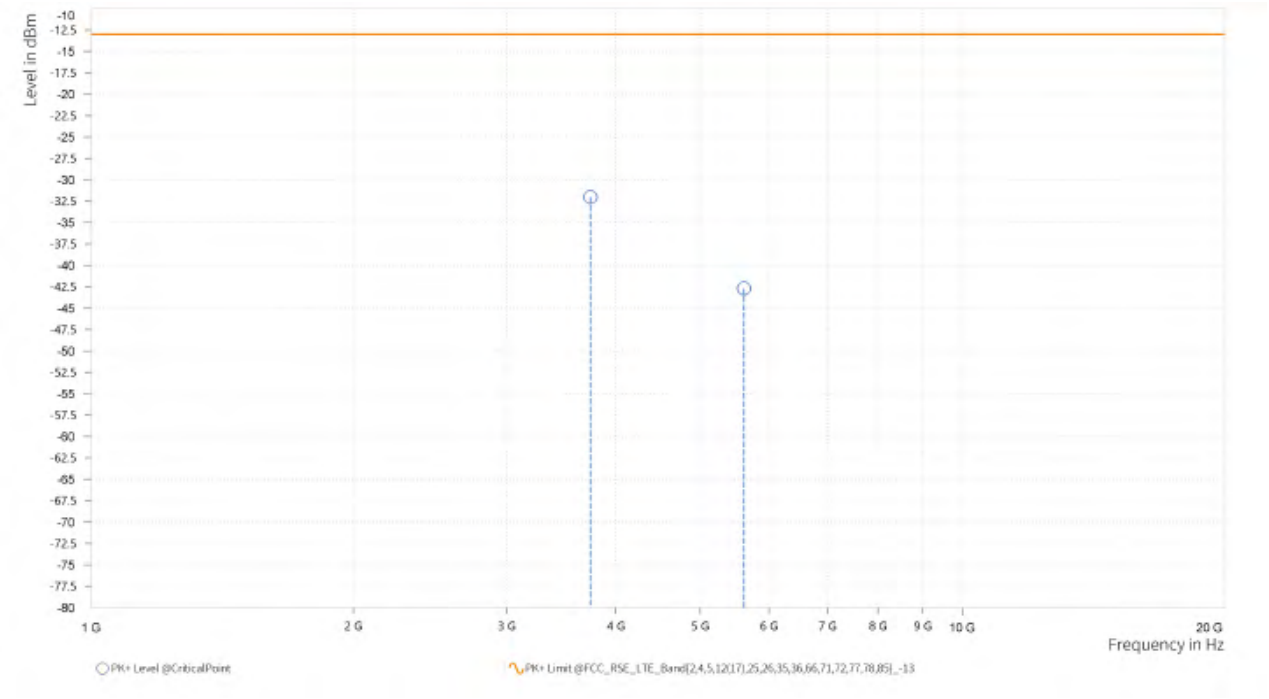
MODE	TX channel 18900	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	DC12V
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
2	3,742.000	-36.48	-13.00	23.48	15.24	H	92.8	2
2	5,613.000	-43.40	-13.00	30.40	18.45	H	359.1	1



MODE	TX channel 18900	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	DC12V
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M			

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
2	3,742.000	-32.02	-13.00	19.02	14.96	V	284	1
2	5,613.000	-42.68	-13.00	29.68	18.19	V	92.9	2

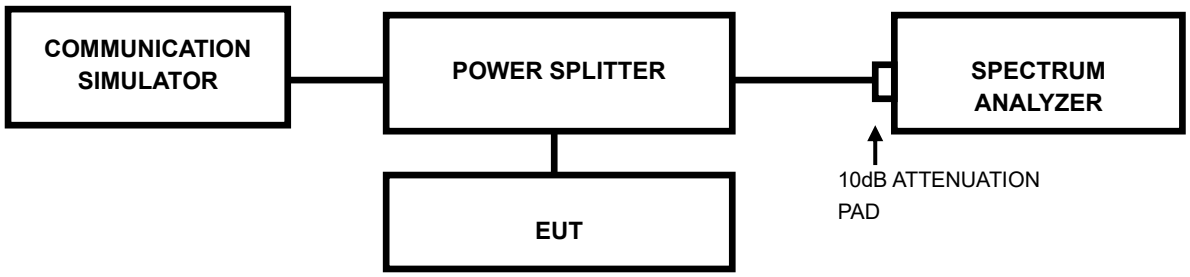


3.7 PEAK TO AVERAGE RATIO

3.7.1 LIMITS OF PEAK TO AVERAGE RATIO MEASUREMENT

In measuring transmissions in this band using an average power technique, the peak to-average ratio (PAR) of the transmission may not exceed 13 dB

3.7.2 TEST SETUP



3.7.3 TEST PROCEDURES

1. Set resolution/measurement bandwidth ≥ signal's occupied bandwidth;
2. Set the number of counts to a value that stabilizes the measured CCDF curve;
3. Record the maximum PAPR level associated with a probability of 0.1%.

3.7.4 TEST RESULTS

Please Refer to Appendix Of this test report.

4 INFORMATION ON THE TESTING LABORATORIES

We, BV 7LAYERS COMMUNICATIONS TECHNOLOGY (SHENZHEN) CO. LTD., were founded in 2015 to provide our best service in EMC, Radio, Telecom and Safety consultation. Our laboratories are accredited and approved according to ISO/IEC 17025.

If you have any comments, please feel free to contact us at the following:

Shenzhen EMC/RF Lab:
Tel: +86-755-88696566
Fax: +86-755-88696577

Email: customerservice.sw@bureauveritas.com
Web Site: www.adt.com.tw

The address and road map of all our labs can be found in our web site also.

5 MODIFICATIONS RECORDERS FOR ENGINEERING CHANGES TO THE EUT BY THE LAB

No any modifications are made to the EUT by the lab during the test.

6 APPENDIX

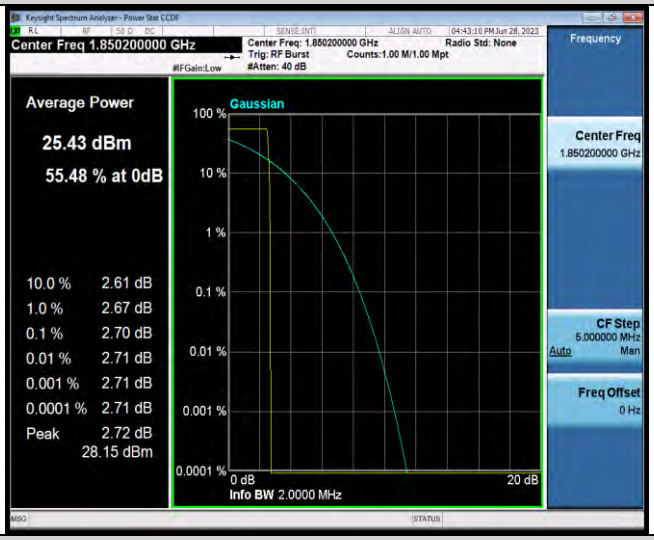
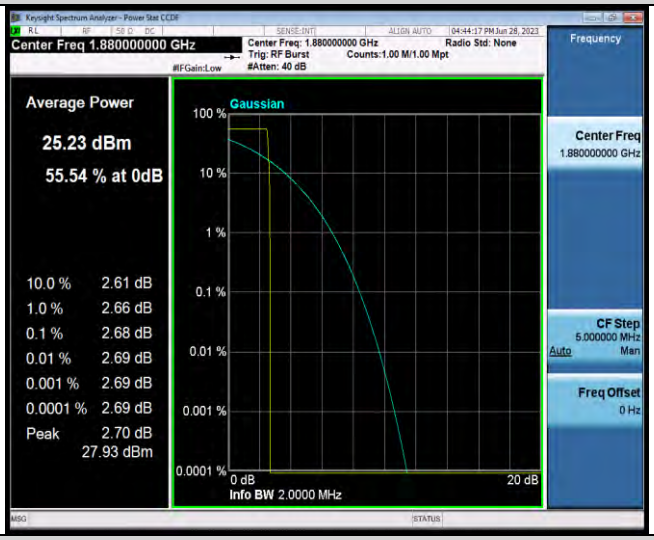
GSM1900

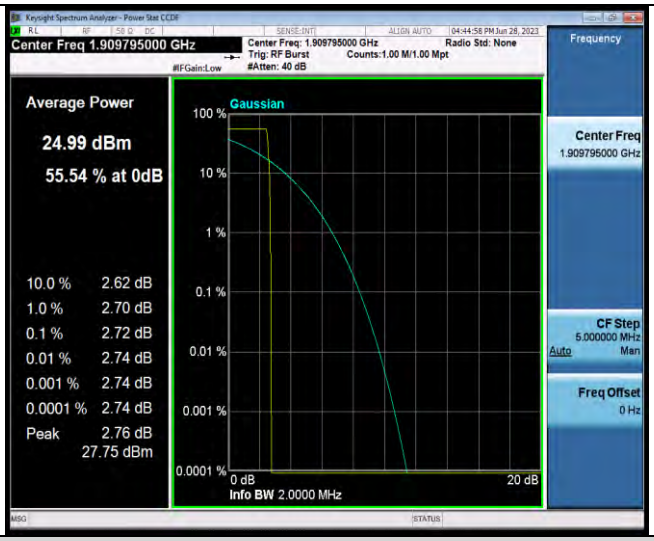
PEAK-TO-AVERAGE RATIO(CCDF)

Test Result

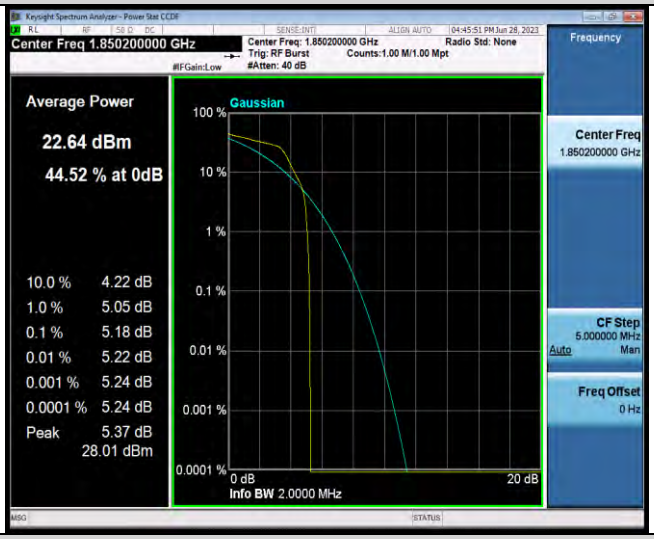
Band	Channel	Result(dB)	Limit(dB)	Verdict
GPRS1900	512	2.7	13	PASS
GPRS1900	661	2.68	13	PASS
GPRS1900	810	2.72	13	PASS
EGPRS1900	512	5.18	13	PASS
EGPRS1900	661	5.01	13	PASS
EGPRS1900	810	5.14	13	PASS

Test Graphs

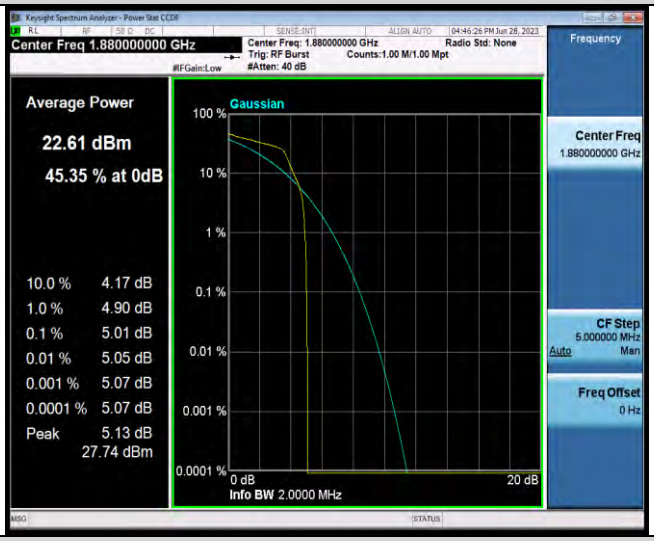
GPRS1900-512

GPRS1900-661

GPRS1900-810



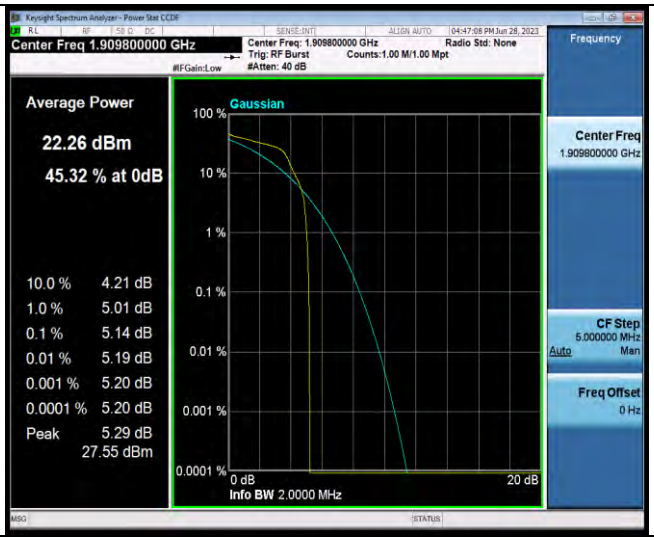
EGPRS1900-512



EGPRS1900-661



EGPRS1900-810

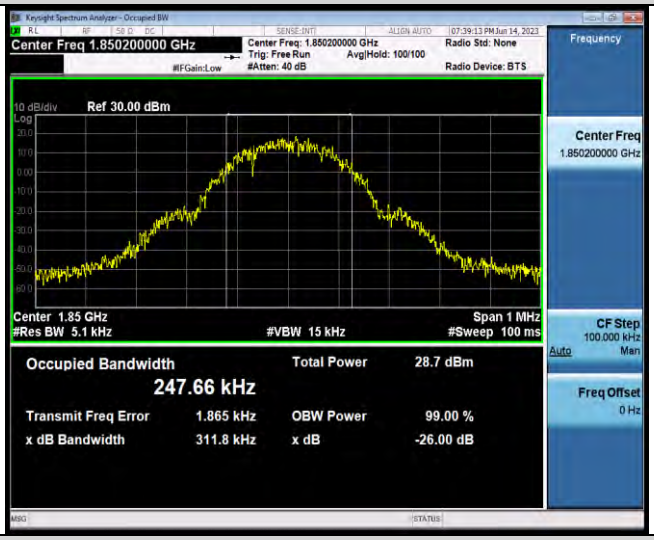
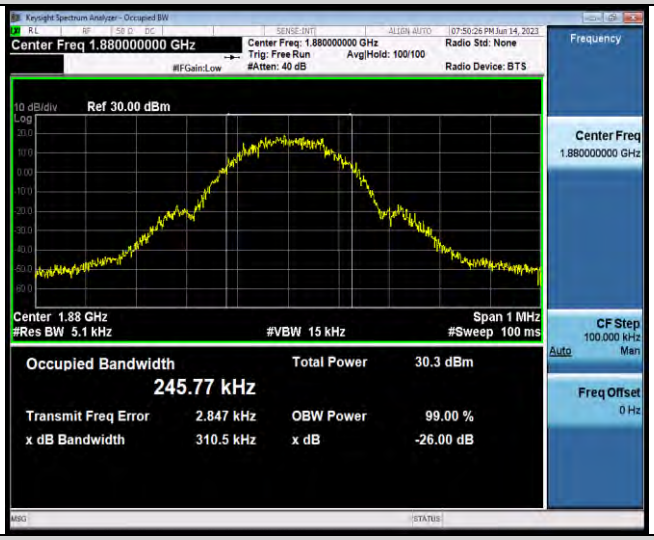

Keysight Spectrum Analyzer - Power Stat CCDF
Center Freq 1.909800000 GHz
Center Freq: 1.909800000 GHz
Trig: RF Burst
#Atten: 40 dB
Counts:1.00 M/1.00 Mpt
Radio Std: None
Frequency
Average Power
22.26 dBm
45.32 % at 0dB
10.0 % 4.21 dB
1.0 % 5.01 dB
0.1 % 5.14 dB
0.01 % 5.19 dB
0.001 % 5.20 dB
0.0001 % 5.20 dB
Peak 5.29 dB
27.55 dBm
Gaussian
100 %
10 %
1 %
0.1 %
0.01 %
0.001 %
0.0001 %
0 dB
20 dB
Info BW 2.0000 MHz
Center Freq
1.909800000 GHz
CF Step
5.000000 MHz
Auto
Man
Freq Offset
0 Hz
MSG
STATUS

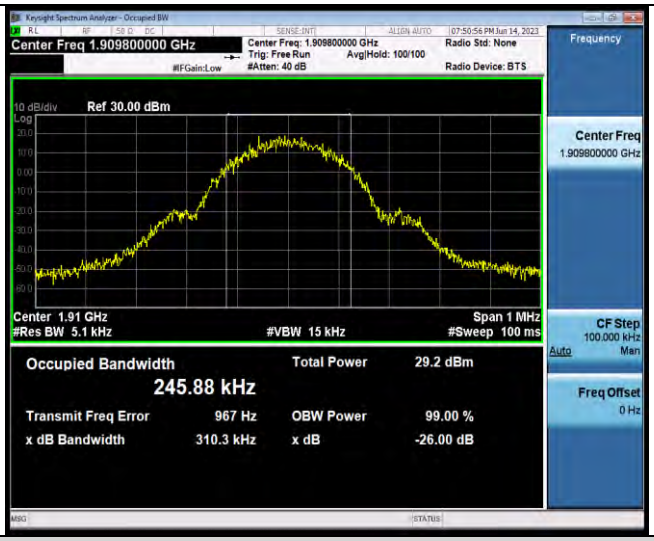
26DB BANDWIDTH AND OCCUPIED BANDWIDTH

Test Result

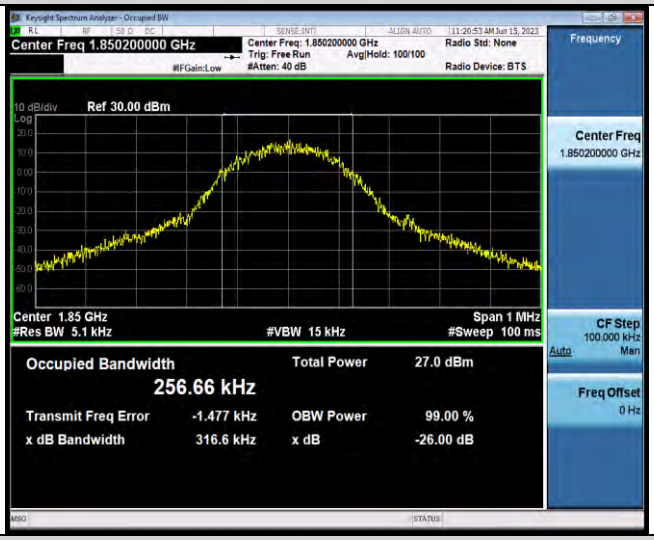
Band	Channel	Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)	Limit (MHz)	Verdict
GPRS1900	512	0.24766	0.3118	---	PASS
GPRS1900	661	0.24577	0.3105	---	PASS
GPRS1900	810	0.24588	0.3103	---	PASS
EGPRS1900	512	0.25666	0.3166	---	PASS
EGPRS1900	661	0.25748	0.3139	---	PASS
EGPRS1900	810	0.25405	0.3139	---	PASS

Test Graphs

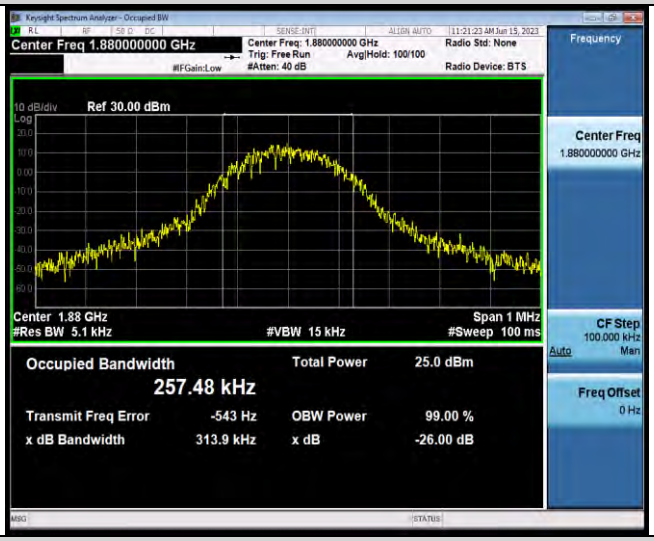
GPRS1900-512

GPRS1900-661

GPRS1900-810



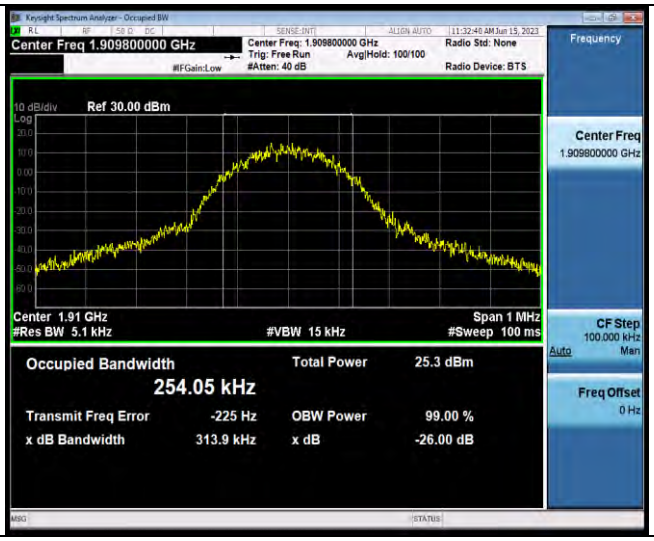
EGPRS1900-512



EGPRS1900-661



EGPRS1900-810

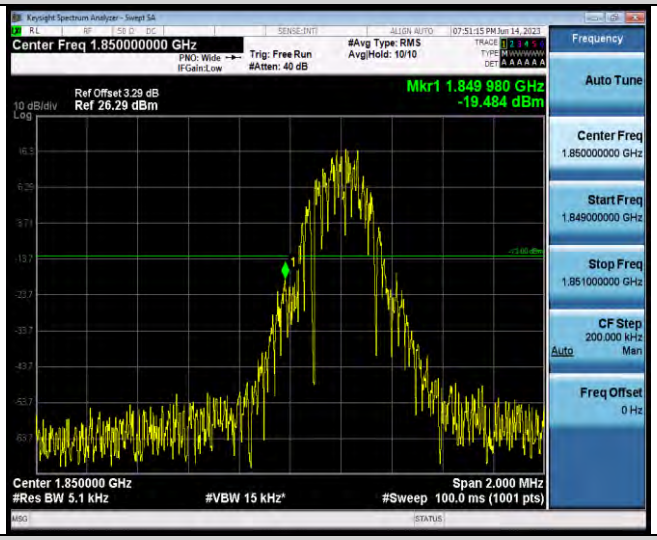
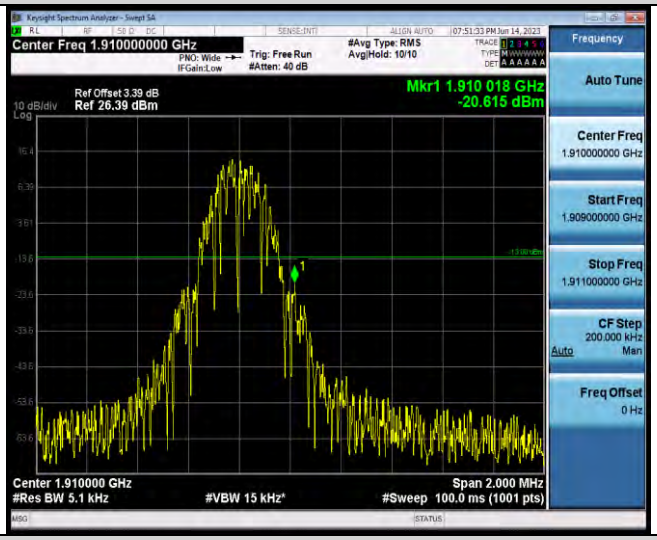

Keysight Spectrum Analyzer - Occupied BW
Center Freq 1.909800000 GHz
Center Freq: 1.909800000 GHz
Trig: Free Run
Avg|Hold: 100/100
#Atten: 40 dB
Radio Std: None
Radio Device: BTS
Frequency
10 dB/div
Ref 30.00 dBm
Log
Center Freq
1.909800000 GHz
Center 1.91 GHz
#Res BW 5.1 kHz
#VBW 15 kHz
Span 1 MHz
#Sweep 100 ms
CF Step
100.000 kHz
Auto
Man
Occupied Bandwidth
254.05 kHz
Total Power
25.3 dBm
Transmit Freq Error
-225 Hz
OBW Power
99.00 %
x dB Bandwidth
313.9 kHz
x dB
-26.00 dB
Freq Offset
0 Hz
MSG
STATUS

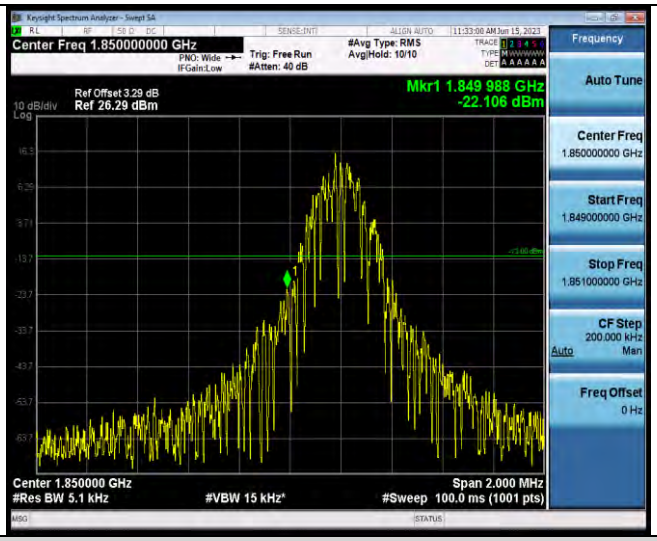
BAND EDGE

Test Result

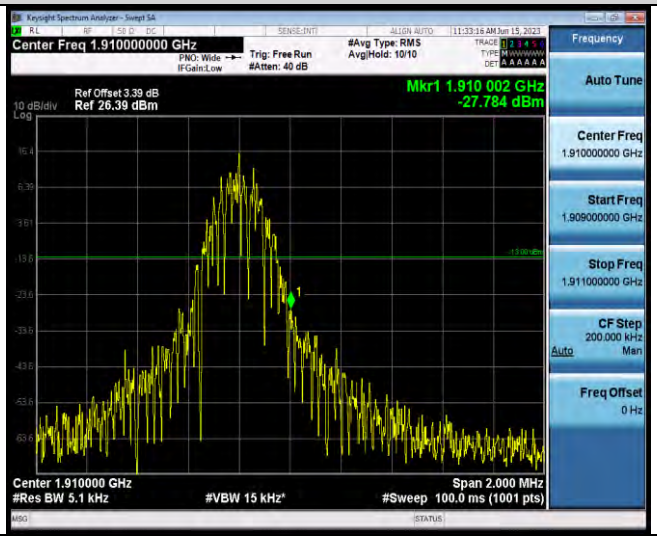
Band	Channel	Freq (MHz)	Result (dBm)	Limit(dBm)	Verdict
GPRS1900	512	1849.98	-19.48	-13	PASS
GPRS1900	810	1910.02	-20.61	-13	PASS
EGPRS1900	512	1849.99	-22.11	-13	PASS
EGPRS1900	810	1910.00	-27.78	-13	PASS

Test Graphs

GPRS1900-512

GPRS1900-810

EGPRS1900-512



EGPRS1900-810

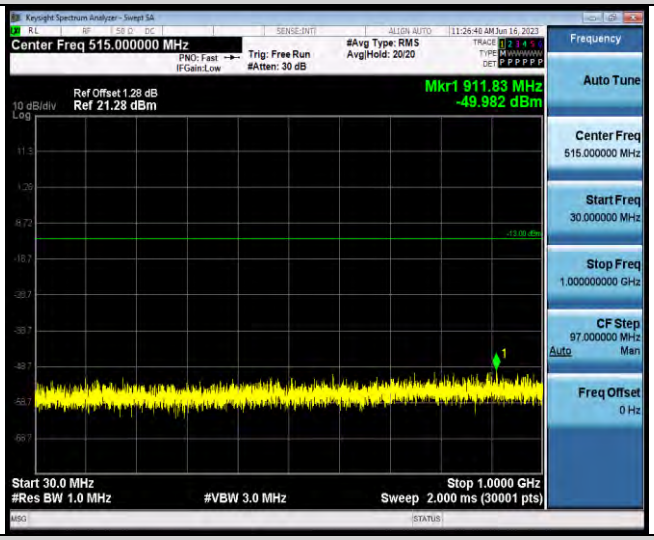
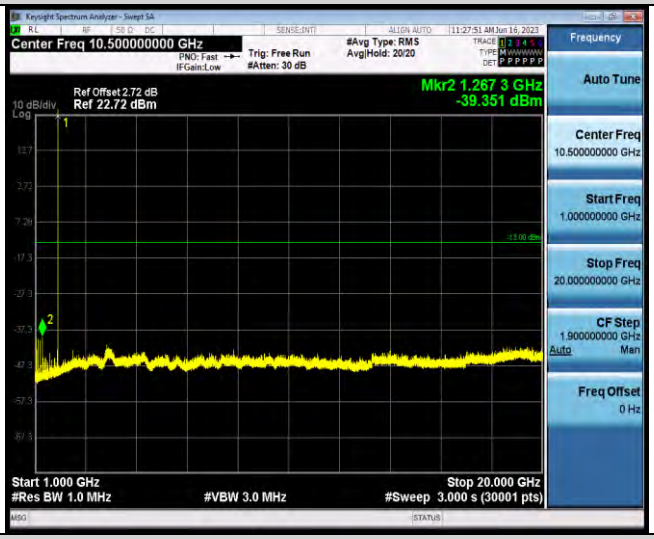


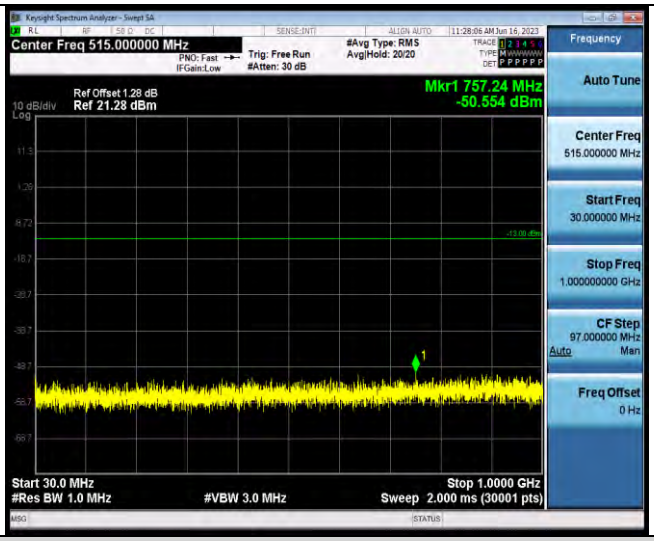
CONDUCTED SPURIOUS EMISSION

Test Result

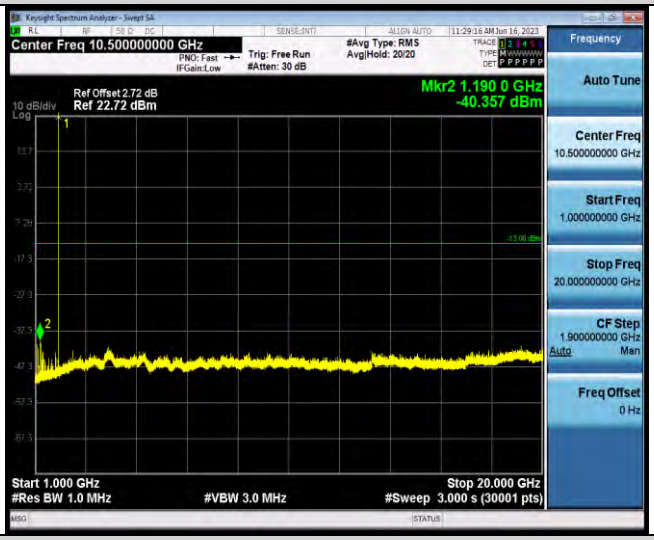
Band	Channel	Frequency Range(MHz)	Max.Freq. (MHz)	Result (dBm)	Limit (dBm)	Verdict
GPRS1900	512	30~1000MHz	911.83	-49.98	-13	PASS
GPRS1900	512	1000~20000MHz	1267.27	-39.35	-13	PASS
GPRS1900	661	30~1000MHz	757.24	-50.55	-13	PASS
GPRS1900	661	1000~20000MHz	1190	-40.36	-13	PASS
GPRS1900	810	30~1000MHz	938.05	-49.47	-13	PASS
GPRS1900	810	1000~20000MHz	1190	-39.93	-13	PASS
EGPRS1900	512	30~1000MHz	818.67	-50.52	-13	PASS
EGPRS1900	512	1000~20000MHz	1228.63	-40.14	-13	PASS
EGPRS1900	661	30~1000MHz	843.8	-50.21	-13	PASS
EGPRS1900	661	1000~20000MHz	1152	-39.93	-13	PASS
EGPRS1900	810	30~1000MHz	998.9	-49.09	-13	PASS
EGPRS1900	810	1000~20000MHz	1152	-41.68	-13	PASS

Test Graphs

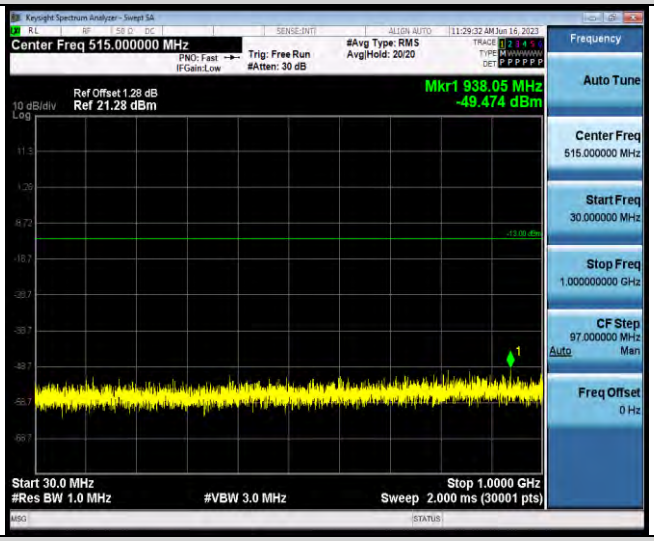
GPRS1900-512-30~1000MHz

GPRS1900-512-1000~20000MHz

GPRS1900-661-30~1000MHz



GPRS1900-661-1000~20000MHz

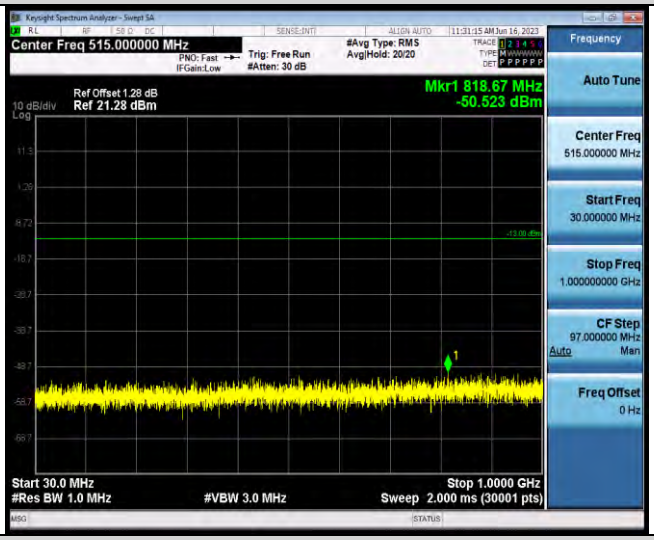


GPRS1900-810-30~1000MHz

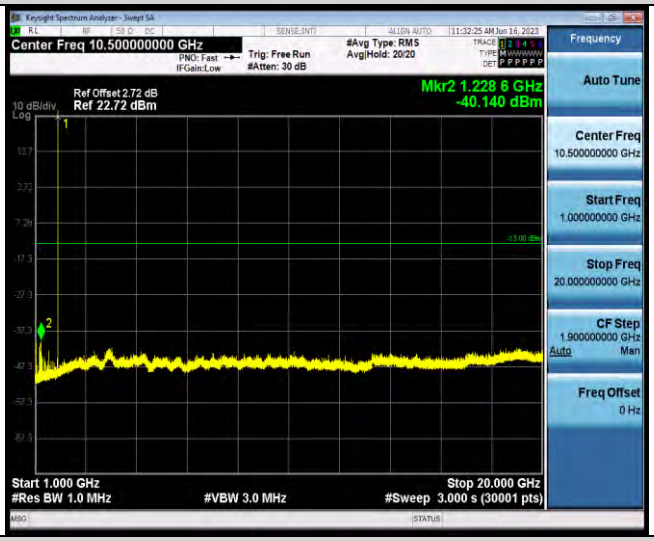


GPRS1900-810-1000~20000MHz

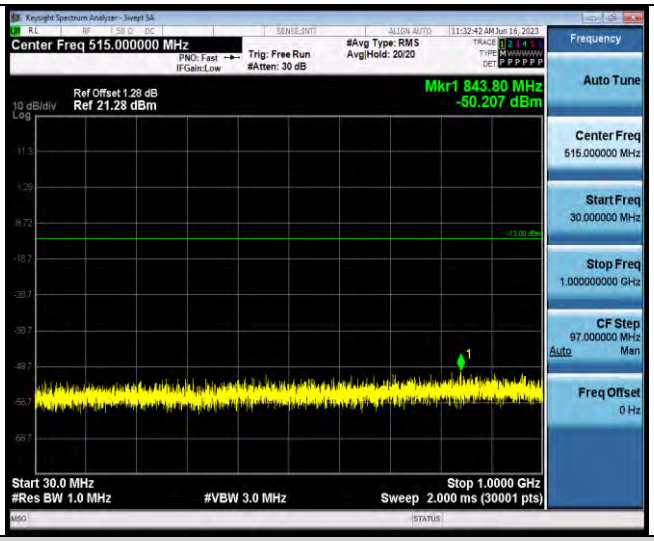
EGPRS1900-512-30~1000MHz



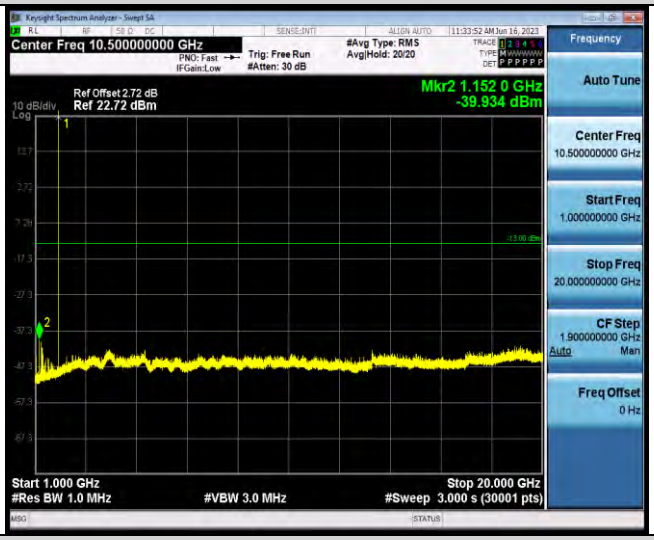
EGPRS1900-512-1000~20000MHz



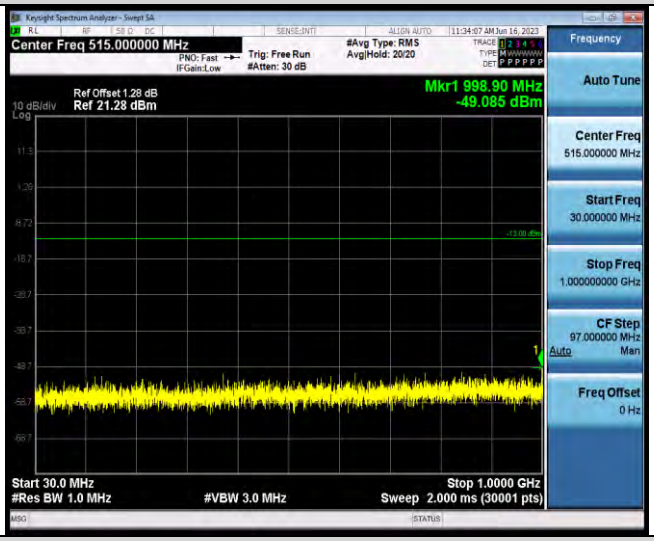
EGPRS1900-661-30~1000MHz



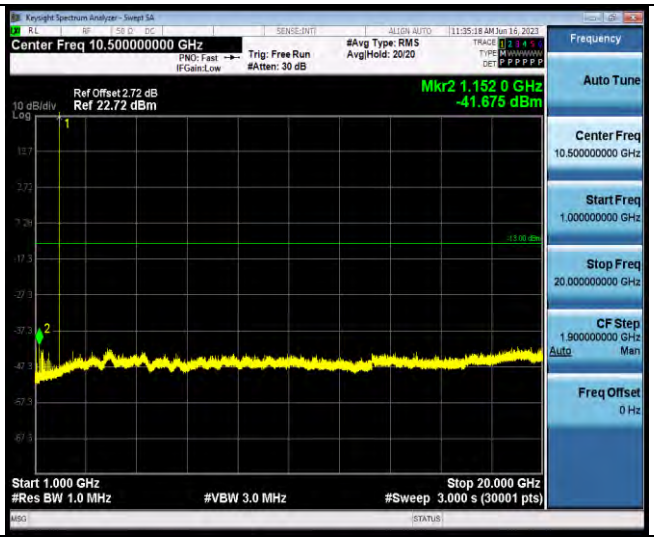
EGPRS1900-661-1000~20000MHz



EGPRS1900-810-30~1000MHz



EGPRS1900-810-1000~20000MHz


Keysight Spectrum Analyzer - Swept SA
Center Freq 10.500000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 30 dB
#Avg Type: RMS
Avg|Hold: 20/20
11:35:18 AM Jun 16, 2023
Ref Offset 2.72 dB
10 dB/div
Log
Ref 22.72 dBm
Mkr2 1.152 0 GHz
-41.675 dBm
Start 1.000 GHz
#Res BW 1.0 MHz
#VBW 3.0 MHz
Stop 20.000 GHz
#Sweep 3.000 s (30001 pts)
Frequency
Auto Tune
Center Freq
10.500000000 GHz
Start Freq
1.000000000 GHz
Stop Freq
20.000000000 GHz
CF Step
1.900000000 GHz
Auto
Man
Freq Offset
0 Hz
MSG
STATUS

FREQUENCY STABILITY

Test Result

Voltage							
Band	Channel	Voltage [Vdc]	Temperature (℃)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
GPRS1900	512	LV	NT	25.89	0.013993	±2.5	PASS
GPRS1900	512	NV	NT	25.99	0.014047	±2.5	PASS
GPRS1900	512	HV	NT	25.99	0.014047	±2.5	PASS
GPRS1900	661	LV	NT	24.76	0.013170	±2.5	PASS
GPRS1900	661	NV	NT	20.86	0.011096	±2.5	PASS
GPRS1900	661	HV	NT	20.21	0.010750	±2.5	PASS
GPRS1900	810	LV	NT	18.98	0.009938	±2.5	PASS
GPRS1900	810	NV	NT	16.69	0.008739	±2.5	PASS
GPRS1900	810	HV	NT	25.34	0.013268	±2.5	PASS
EGPRS1900	512	LV	NT	16.63	0.008988	±2.5	PASS
EGPRS1900	512	NV	NT	19.02	0.010280	±2.5	PASS
EGPRS1900	512	HV	NT	19.63	0.010610	±2.5	PASS
EGPRS1900	661	LV	NT	12.24	0.006511	±2.5	PASS
EGPRS1900	661	NV	NT	17.53	0.009324	±2.5	PASS
EGPRS1900	661	HV	NT	19.34	0.010287	±2.5	PASS
EGPRS1900	810	LV	NT	23.63	0.012373	±2.5	PASS
EGPRS1900	810	NV	NT	16.72	0.008755	±2.5	PASS
EGPRS1900	810	HV	NT	21.24	0.011122	±2.5	PASS

Temperature							
Band	Channel	Voltage [Vdc]	Temperature (℃)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
GPRS1900	512	NV	-30	23.15	0.012512	±2.5	PASS
GPRS1900	512	NV	-20	27.12	0.014658	±2.5	PASS
GPRS1900	512	NV	-10	25.57	0.013820	±2.5	PASS
GPRS1900	512	NV	0	24.28	0.013123	±2.5	PASS
GPRS1900	512	NV	10	26.86	0.014517	±2.5	PASS
GPRS1900	512	NV	20	24.12	0.013036	±2.5	PASS
GPRS1900	512	NV	30	24.67	0.013334	±2.5	PASS
GPRS1900	512	NV	40	21.95	0.011864	±2.5	PASS
GPRS1900	512	NV	50	26.83	0.014501	±2.5	PASS
GPRS1900	661	NV	-30	25.41	0.013516	±2.5	PASS
GPRS1900	661	NV	-20	23.76	0.012638	±2.5	PASS
GPRS1900	661	NV	-10	27.99	0.014888	±2.5	PASS

GPRS1900	661	NV	0	21.37	0.011367	±2.5	PASS
GPRS1900	661	NV	10	26.41	0.014048	±2.5	PASS
GPRS1900	661	NV	20	23.31	0.012399	±2.5	PASS
GPRS1900	661	NV	30	21.92	0.011660	±2.5	PASS
GPRS1900	661	NV	40	20.73	0.011027	±2.5	PASS
GPRS1900	661	NV	50	24.96	0.013277	±2.5	PASS
GPRS1900	810	NV	-30	21.34	0.011174	±2.5	PASS
GPRS1900	810	NV	-20	25.02	0.013101	±2.5	PASS
GPRS1900	810	NV	-10	19.53	0.010226	±2.5	PASS
GPRS1900	810	NV	0	25.31	0.013253	±2.5	PASS
GPRS1900	810	NV	10	21.28	0.011143	±2.5	PASS
GPRS1900	810	NV	20	21.66	0.011342	±2.5	PASS
GPRS1900	810	NV	30	19.08	0.009991	±2.5	PASS
GPRS1900	810	NV	40	26.05	0.013640	±2.5	PASS
GPRS1900	810	NV	50	18.76	0.009823	±2.5	PASS
EGPRS1900	512	NV	-30	19.63	0.010610	±2.5	PASS
EGPRS1900	512	NV	-20	14.75	0.007972	±2.5	PASS
EGPRS1900	512	NV	-10	19.66	0.010626	±2.5	PASS
EGPRS1900	512	NV	0	23.73	0.012826	±2.5	PASS
EGPRS1900	512	NV	10	22.24	0.012020	±2.5	PASS
EGPRS1900	512	NV	20	18.37	0.009929	±2.5	PASS
EGPRS1900	512	NV	30	19.86	0.010734	±2.5	PASS
EGPRS1900	512	NV	40	19.73	0.010664	±2.5	PASS
EGPRS1900	512	NV	50	19.69	0.010642	±2.5	PASS
EGPRS1900	661	NV	-30	14.88	0.007915	±2.5	PASS
EGPRS1900	661	NV	-20	23.08	0.012277	±2.5	PASS
EGPRS1900	661	NV	-10	15.17	0.008069	±2.5	PASS
EGPRS1900	661	NV	0	21.28	0.011319	±2.5	PASS
EGPRS1900	661	NV	10	22.12	0.011766	±2.5	PASS
EGPRS1900	661	NV	20	16.11	0.008569	±2.5	PASS
EGPRS1900	661	NV	30	18.53	0.009856	±2.5	PASS
EGPRS1900	661	NV	40	21.41	0.011388	±2.5	PASS
EGPRS1900	661	NV	50	20.44	0.010872	±2.5	PASS
EGPRS19	810	NV	-30	19.69	0.010310	±2.5	PASS

00							
EGPRS1900	810	NV	-20	20.31	0.010635	±2.5	PASS
EGPRS1900	810	NV	-10	13.66	0.007153	±2.5	PASS
EGPRS1900	810	NV	0	19.27	0.010090	±2.5	PASS
EGPRS1900	810	NV	10	22.70	0.011886	±2.5	PASS
EGPRS1900	810	NV	20	14.95	0.007828	±2.5	PASS
EGPRS1900	810	NV	30	14.79	0.007744	±2.5	PASS
EGPRS1900	810	NV	40	18.63	0.009755	±2.5	PASS
EGPRS1900	810	NV	50	17.24	0.009027	±2.5	PASS

MAX Deviation calculation

Frequency Stability	Frequency (MHz)	Limit Line(MHz)	Result
fL-|MAX(△f)|	1850.076170	≥1850	PASS
fH+|MAX(△f)|	1909.922940	≤1910	

Note：1. |MAX(△f)| = Max Deviation
2. fL = Occ low channel fl(-13dBm/MHz)
3. fH = Occ High channel fH(-13dBm/MHz)
4. |MAX(△f)| = 27.99Hz.

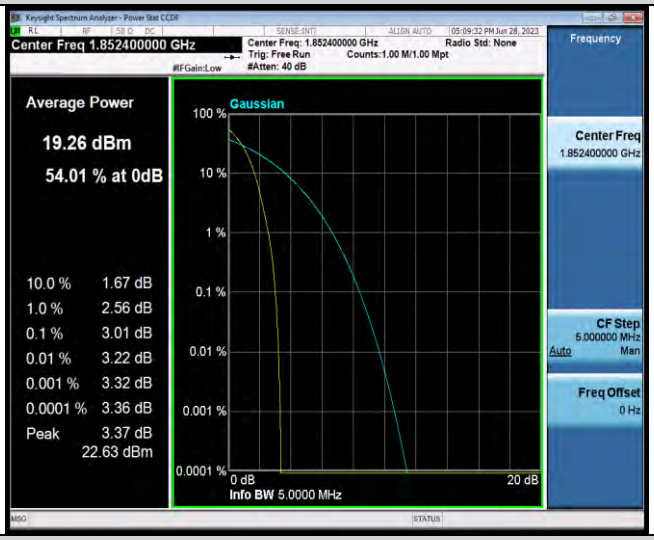
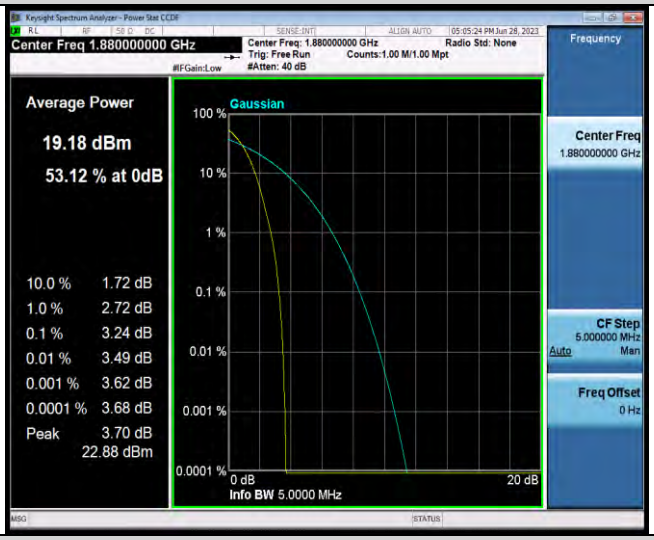
WCDMA BAND2

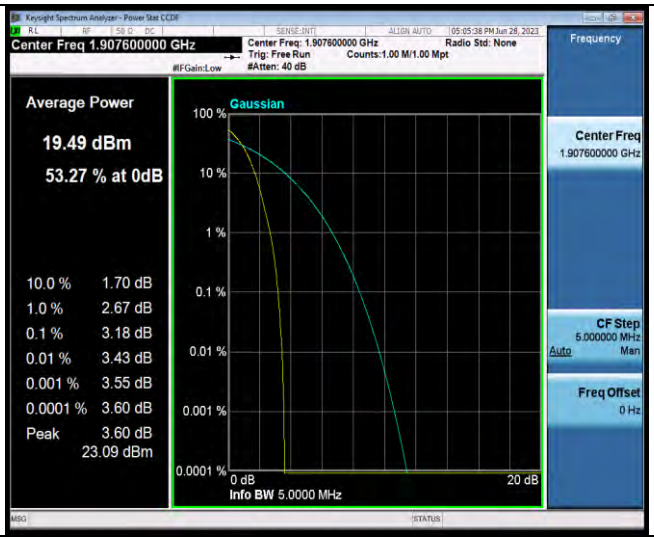
PEAK-TO-AVERAGE RATIO

Test Result

Band	Channel	Peak-to-Average Ratio(dB)	Limit(dBm)	Verdict
Band2	9262	3.01	13	PASS
Band2	9400	3.24	13	PASS
Band2	9538	3.18	13	PASS

Test Graphs

Band2-9262

Band2-9400

Band2-9538


Keysight Spectrum Analyzer - Power Stat CCDF
Center Freq 1.907600000 GHz
Center Freq: 1.907600000 GHz
Trig: Free Run
#Atten: 40 dB
Counts:1.00 M/1.00 Mpt
Radio Std: None
Frequency
Average Power
19.49 dBm
53.27 % at 0dB
Gaussian
100 %
10 %
1 %
0.1 %
0.01 %
0.001 %
0.0001 %
10.0 % 1.70 dB
1.0 % 2.67 dB
0.1 % 3.18 dB
0.01 % 3.43 dB
0.001 % 3.55 dB
0.0001 % 3.60 dB
Peak 3.60 dB
23.09 dBm
0 dB
20 dB
Info BW 5.0000 MHz
Center Freq
1.907600000 GHz
CF Step
5.000000 MHz
Auto
Man
Freq Offset
0 Hz
MSG
STATUS

26DB BANDWIDTH AND OCCUPIED BANDWIDTH

Test Result

Band	Channel	Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)	Limit(kHz)	Verdict
Band2	9262	4.1595	4.781	---	PASS
Band2	9400	4.1408	4.709	---	PASS
Band2	9538	4.1438	4.725	---	PASS

Test Graphs

Band2-9262

Band2-9400

Band2-9538


Keysight Spectrum Analyzer - Occupied BW
Center Freq 1.907600000 GHz
Center Freq: 1.907600000 GHz
Trig: Free Run
Avg|Hold: 100/100
#Atten: 40 dB
Radio Std: None
Radio Device: BTS
Frequency
Ref Offset 3.39 dB
10 dB/div
Ref 30.00 dBm
Log
Center Freq
1.907600000 GHz
Center 1.908 GHz
#Res BW 100 kHz
#VBW 300 kHz
Span 10 MHz
#Sweep 100 ms
CF Step
1.000000 MHz
Auto
Occupied Bandwidth
4.1438 MHz
Total Power
21.0 dBm
Transmit Freq Error
-7.157 kHz
OBW Power
99.00 %
x dB Bandwidth
4.725 MHz
x dB
-26.00 dB
Freq Offset
0 Hz

BAND EDGE

Test Result

Band	Channel	Frequency (MHz)	Result (dBm)	Limit(dBm)	Verdict
Band2	9262	1850.00	-24.11	-13	PASS
Band2	9538	1910.17	-29.11	-13	PASS

Test Graphs

Band2-9262

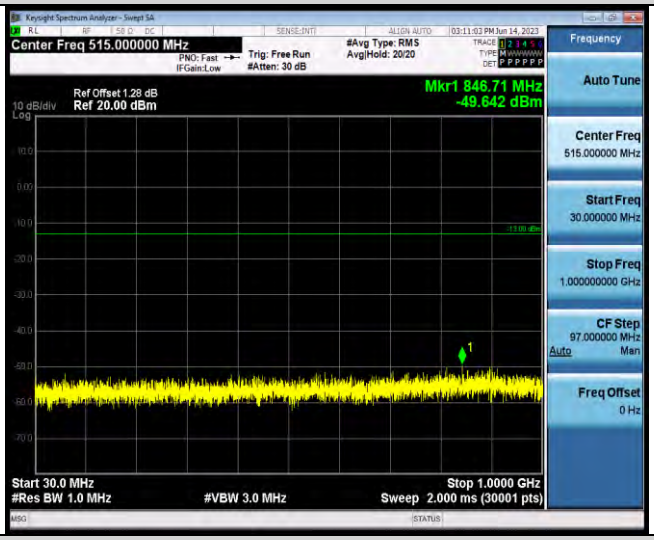
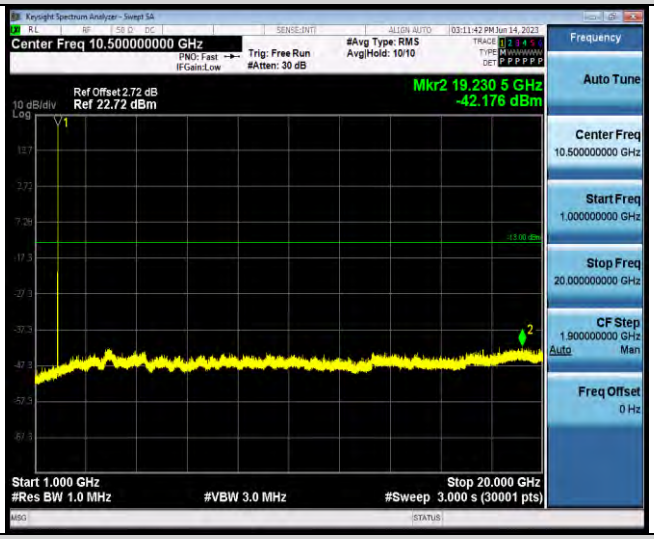
Band2-9538

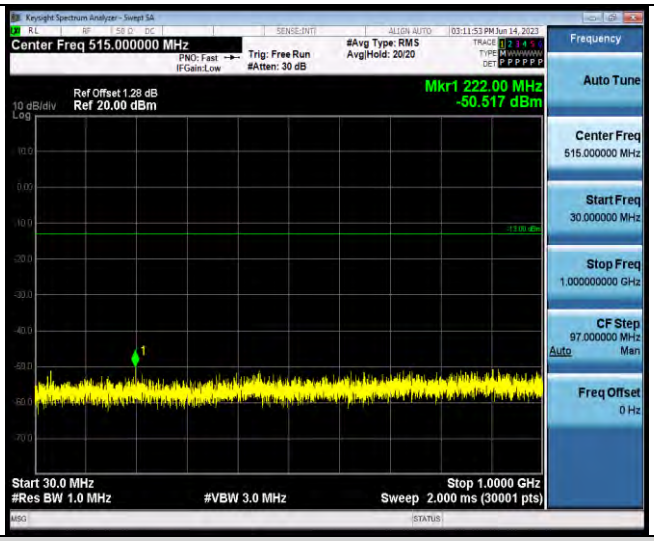

CONDUCTED SPURIOUS EMISSION

Test Result

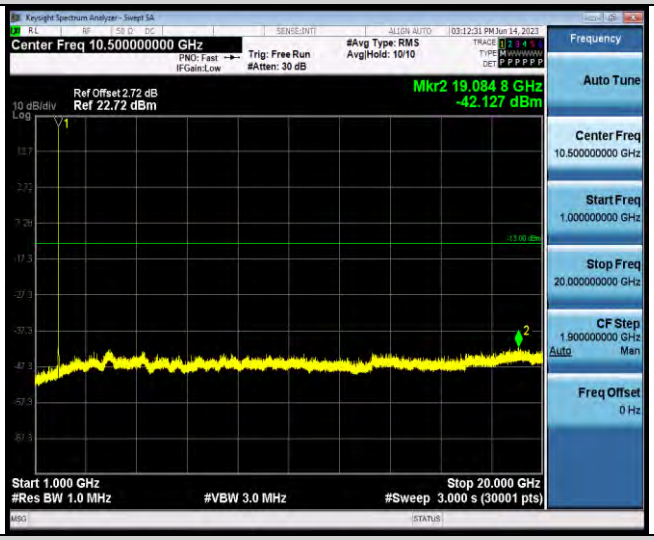
Band	Channel	Frequency Range (Mhz)	Frequency (dBm)	Result (dBm)	Limit (dBm)	Verdict
Band2	9262	30~1000MHz	846.71	-49.64	-13	PASS
Band2	9262	1000~20000MHz	19230.5	-42.18	-13	PASS
Band2	9400	30~1000MHz	222	-50.52	-13	PASS
Band2	9400	1000~20000MHz	19084.83	-42.13	-13	PASS
Band2	9538	30~1000MHz	562.01	-50.56	-13	PASS
Band2	9538	1000~20000MHz	19451.53	-42.22	-13	PASS

Test Graphs

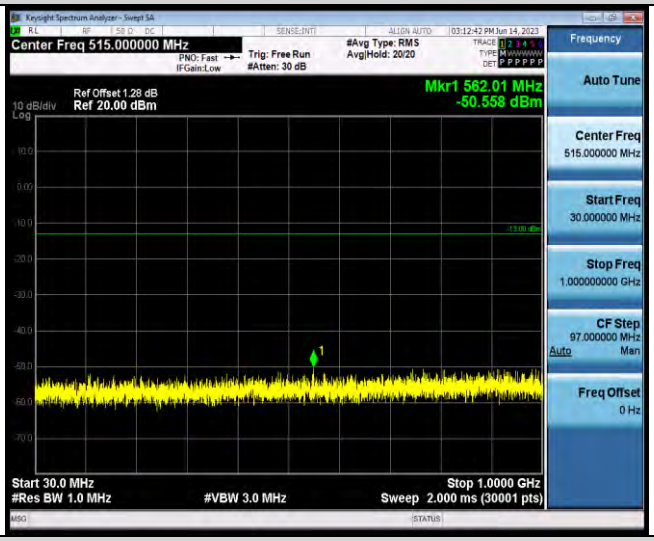
Band2-9262-30~1000MHz

Band2-9262-1000~20000MHz

Band2-9400-30~1000MHz



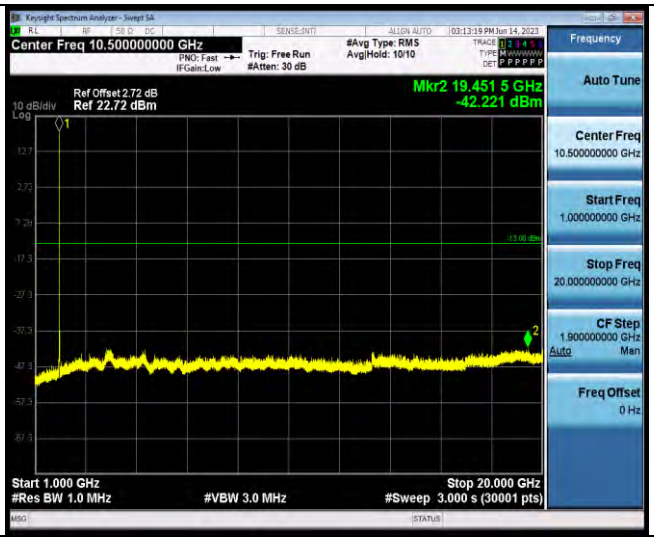
Band2-9400-1000~20000MHz



Band2-9538-30~1000MHz



Band2-9538-1000~20000MHz


Keysight Spectrum Analyzer - Swept SA
Center Freq 10.500000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 30 dB
#Avg Type: RMS
Avg|Hold: 10/10
03:13:19 PM Jun 14, 2023
Ref Offset 2.72 dB
10 dB/div
Log
Ref 22.72 dBm
Mkr2 19.451 5 GHz
-42.221 dBm
Start 1.000 GHz
#Res BW 1.0 MHz
#VBW 3.0 MHz
Stop 20.000 GHz
#Sweep 3.000 s (30001 pts)
Frequency
Auto Tune
Center Freq
10.500000000 GHz
Start Freq
1.000000000 GHz
Stop Freq
20.000000000 GHz
CF Step
1.900000000 GHz
Auto
Man
Freq Offset
0 Hz
MSG
STATUS

FREQUENCY STABILITY

Test Result

Voltage							
Band	Channel	Voltage (Vdc)	Temperature (℃)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
Band2	9262	LV	NT	1.62	0.000875	±2.5	PASS
Band2	9262	NV	NT	1.21	0.000653	±2.5	PASS
Band2	9262	HV	NT	2.22	0.001198	±2.5	PASS
Band2	9400	LV	NT	-1.22	-0.000649	±2.5	PASS
Band2	9400	NV	NT	-1.99	-0.001059	±2.5	PASS
Band2	9400	HV	NT	-1.36	-0.000723	±2.5	PASS
Band2	9538	LV	NT	-6.12	-0.003208	±2.5	PASS
Band2	9538	NV	NT	-6.14	-0.003219	±2.5	PASS
Band2	9538	HV	NT	-6.35	-0.003329	±2.5	PASS

Temperature							
Band	Channel	Voltage (Vdc)	Temperature (℃)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
Band2	9262	NV	-30	2.37	0.001279	±2.5	PASS
Band2	9262	NV	-20	2.87	0.001549	±2.5	PASS
Band2	9262	NV	-10	2.69	0.001452	±2.5	PASS
Band2	9262	NV	0	2.84	0.001533	±2.5	PASS
Band2	9262	NV	10	3.18	0.001717	±2.5	PASS
Band2	9262	NV	20	2.82	0.001522	±2.5	PASS
Band2	9262	NV	30	3.44	0.001857	±2.5	PASS
Band2	9262	NV	40	3.03	0.001636	±2.5	PASS
Band2	9262	NV	50	3.16	0.001706	±2.5	PASS
Band2	9400	NV	-30	-1.61	-0.000856	±2.5	PASS
Band2	9400	NV	-20	-1.50	-0.000798	±2.5	PASS
Band2	9400	NV	-10	-1.19	-0.000633	±2.5	PASS
Band2	9400	NV	0	-0.94	-0.000500	±2.5	PASS
Band2	9400	NV	10	-1.10	-0.000585	±2.5	PASS
Band2	9400	NV	20	-0.76	-0.000404	±2.5	PASS
Band2	9400	NV	30	-0.65	-0.000346	±2.5	PASS
Band2	9400	NV	40	-0.95	-0.000505	±2.5	PASS
Band2	9400	NV	50	-1.13	-0.000601	±2.5	PASS
Band2	9538	NV	-30	-6.44	-0.003376	±2.5	PASS
Band2	9538	NV	-20	-7.85	-0.004115	±2.5	PASS
Band2	9538	NV	-10	-7.32	-0.003837	±2.5	PASS
Band2	9538	NV	0	-7.05	-0.003696	±2.5	PASS
Band2	9538	NV	10	-6.15	-0.003224	±2.5	PASS
Band2	9538	NV	20	-5.95	-0.003119	±2.5	PASS
Band2	9538	NV	30	-6.08	-0.003187	±2.5	PASS

Band2	9538	NV	40	-6.62	-0.003470	±2.5	PASS
Band2	9538	NV	50	-6.47	-0.003392	±2.5	PASS

MAX Deviation calculation

Frequency Stability	Frequency (MHz)	Limit Line(MHz)	Result
fL-|MAX(△f)|	1850.320250	≥1850	PASS
fH+|MAX(△f)|	1909.671900	≤1910	

Note：1. |MAX(△f)| = Max Deviation
2. fL = Occ low channel fl(-13dBm/MHz)
3. fH = Occ High channel fH(-13dBm/MHz)
4. |MAX(△f)| = -7.85Hz.

LTE BAND2

PEAK-TO-AVERAGE RATIO(CCDF)

Test Result

Band	Bandwidth	Modulation	Channel	RB Configuration	Result(dB)	Limit(dB)	Verdict
Band2	20MHz	QPSK	18700	1RB#0	3.40	13	PASS
Band2	20MHz	QPSK	18700	100RB#0	4.67	13	PASS
Band2	20MHz	QPSK	18900	1RB#0	4.72	13	PASS
Band2	20MHz	QPSK	18900	100RB#0	5.33	13	PASS
Band2	20MHz	QPSK	19100	1RB#0	4.27	13	PASS
Band2	20MHz	QPSK	19100	100RB#0	4.93	13	PASS
Band2	20MHz	16QAM	18700	1RB#0	4.48	13	PASS
Band2	20MHz	16QAM	18700	100RB#0	5.48	13	PASS
Band2	20MHz	16QAM	18900	1RB#0	5.53	13	PASS
Band2	20MHz	16QAM	18900	100RB#0	6.21	13	PASS
Band2	20MHz	16QAM	19100	1RB#0	5.08	13	PASS
Band2	20MHz	16QAM	19100	100RB#0	5.76	13	PASS