

Band/BW	Modulation	RB Size	RB Offset	Low CH 132072	Mid CH 132322	High CH 132572	MPR
				Frequency 1720MHz	Frequency 1745MHz	Frequency 1770MHz	
66/ 15	QPSK	1	0	20.31	20.37	20.28	0
		1	37	20.57	20.71	20.64	0
		1	74	20.31	20.45	20.38	0
		36	0	19.22	19.42	19.43	1
		36	19	19.35	19.38	19.38	1
		36	39	19.11	19.25	19.34	1
		75	0	19.32	19.38	19.39	1
	16QAM	1	0	19.53	19.69	19.58	1
		1	37	19.55	19.65	19.70	1
		1	74	19.64	19.84	19.81	1
		36	0	18.30	18.30	18.43	2
		36	19	17.77	17.97	17.94	2
		36	39	17.94	18.00	18.07	2
		75	0	18.29	18.33	18.26	2
	64QAM	1	0	18.37	18.55	18.52	2
		1	37	18.51	18.53	18.56	2
		1	74	18.64	18.78	18.83	2
		36	0	17.34	17.44	17.31	3
		36	19	17.26	17.36	17.39	3
		36	39	17.22	17.36	17.29	3
		75	0	17.26	17.26	17.39	3

Band/BW	Modulation	RB Size	RB Offset	Low CH 132072	Mid CH 132322	High CH 132572	MPR
				Frequency 1720MHz	Frequency 1745MHz	Frequency 1770MHz	
66/ 20	QPSK	1	0	20.32	20.41	20.36	0
		1	50	20.61	20.74	20.70	0
		1	99	20.33	20.46	20.42	0
		50	0	19.28	19.47	19.44	1
		50	25	19.36	19.40	19.43	1
		50	50	19.19	19.32	19.36	1
		100	0	19.33	19.42	19.42	1
	16QAM	1	0	19.56	19.70	19.64	1
		1	50	19.59	19.70	19.72	1
		1	99	19.70	19.86	19.84	1
		50	0	18.32	18.38	18.44	2
		50	25	17.85	18.01	17.99	2
		50	50	17.97	18.06	18.09	2
		100	0	18.30	18.38	18.34	2
	64QAM	1	0	18.43	18.58	18.56	2
		1	50	18.53	18.60	18.61	2
		1	99	18.70	18.86	18.85	2
		50	0	17.35	17.46	17.39	3
		50	25	17.33	17.44	17.45	3
		50	50	17.24	17.37	17.33	3
		100	0	17.28	17.34	17.40	3

LTE Band 71

Band/BW	Modulation	RB Size	RB Offset	Low CH 133147	Mid CH 133247	High CH 133447	MPR
				Frequency 665.5MHz	Frequency 675.5MHz	Frequency 695.5MHz	
71/ 5	QPSK	1	0	21.00	21.24	21.23	0
		1	12	21.37	21.61	21.65	0
		1	24	21.55	21.82	21.87	0
		12	0	20.09	20.38	20.43	1
		12	6	20.23	20.58	20.52	1
		12	13	20.18	20.47	20.57	1
		25	0	20.14	20.47	20.43	1
	16QAM	1	0	19.52	19.85	19.84	1
		1	12	20.28	20.62	20.63	1
		1	24	20.74	21.01	21.07	1
		12	0	19.43	19.68	19.74	2
		12	6	19.22	19.59	19.55	2
		12	13	19.27	19.55	19.63	2
		25	0	19.08	19.32	19.32	2
	64QAM	1	0	19.26	19.60	19.63	2
		1	12	19.31	19.61	19.60	2
		1	24	19.40	19.84	19.80	2
		12	0	18.37	18.64	18.56	3
		12	6	18.26	18.61	18.63	3
		12	13	18.39	18.68	18.63	3
		25	0	18.38	18.65	18.72	3

Band/BW	Modulation	RB Size	RB Offset	Low CH 133172	Mid CH 133272	High CH 133172	MPR
				Frequency 668MHz	Frequency 678MHz	Frequency 693MHz	
71/ 10	QPSK	1	0	20.97	21.27	21.23	0
		1	24	21.37	21.61	21.66	0
		1	49	21.52	21.86	21.83	0
		25	0	20.10	20.37	20.46	1
		25	12	20.29	20.52	20.52	1
		25	25	20.16	20.44	20.56	1
		50	0	20.19	20.47	20.40	1
	16QAM	1	0	19.52	19.82	19.80	1
		1	24	20.33	20.58	20.66	1
		1	49	20.74	21.02	21.04	1
		25	0	19.45	19.66	19.80	2
		25	12	19.26	19.53	19.60	2
		25	25	19.26	19.56	19.60	2
		50	0	19.12	19.31	19.36	2
	64QAM	1	0	19.25	19.61	19.60	2
		1	24	19.36	19.57	19.64	2
		1	49	19.46	19.78	19.77	2
		25	0	18.35	18.61	18.62	3
		25	12	18.33	18.60	18.57	3
		25	25	18.38	18.65	18.65	3
		50	0	18.43	18.61	18.73	3

Band/BW	Modulation	RB Size	RB Offset	Low CH 133197	Mid CH 133297	High CH 133397	MPR
				Frequency 670.5MHz	Frequency 680.5MHz	Frequency 690.5MHz	
71/ 15	QPSK	1	0	21.04	21.27	21.20	0
		1	37	21.35	21.66	21.61	0
		1	74	21.58	21.89	21.84	0
		36	0	20.07	20.38	20.47	1
		36	19	20.30	20.57	20.52	1
		36	39	20.14	20.45	20.56	1
		75	0	20.19	20.45	20.45	1
	16QAM	1	0	19.56	19.89	19.80	1
		1	37	20.32	20.59	20.66	1
		1	74	20.70	21.07	21.06	1
		36	0	19.49	19.66	19.81	2
		36	19	19.20	19.57	19.56	2
		36	39	19.31	19.54	19.63	2
		75	0	19.13	19.34	19.29	2
	64QAM	1	0	19.27	19.62	19.61	2
		1	37	19.37	19.56	19.61	2
		1	74	19.42	19.77	19.80	2
		36	0	18.40	18.67	18.56	3
		36	19	18.27	18.54	18.59	3
		36	39	18.41	18.72	18.67	3
		75	0	18.42	18.59	18.74	3

Band/BW	Modulation	RB Size	RB Offset	Low CH 133222	Mid CH 133322	High CH 133372	MPR
				Frequency 673MHz	Frequency 683MHz	Frequency 688MHz	
71/ 20	QPSK	1	0	21.05	21.31	21.28	0
		1	50	21.39	21.69	21.67	0
		1	99	21.60	21.90	21.88	0
		50	0	20.13	20.43	20.48	1
		50	25	20.31	20.59	20.57	1
		50	50	20.22	20.52	20.58	1
		100	0	20.20	20.49	20.48	1
	16QAM	1	0	19.59	19.90	19.86	1
		1	50	20.36	20.64	20.68	1
		1	99	20.76	21.09	21.09	1
		50	0	19.51	19.74	19.82	2
		50	25	19.28	19.61	19.61	2
		50	50	19.34	19.60	19.65	2
		100	0	19.14	19.39	19.37	2
	64QAM	1	0	19.33	19.65	19.65	2
		1	50	19.39	19.63	19.66	2
		1	99	19.48	19.85	19.82	2
		50	0	18.41	18.69	18.64	3
		50	25	18.34	18.62	18.65	3
		50	50	18.43	18.73	18.71	3
		100	0	18.44	18.67	18.75	3

EIRP

LTE BAND 4

CHANNEL BANDWIDTH: 1.4MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _c (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
19957	1710.7	20.84	2.55	23.39	218.27	1
20175	1732.5	20.86	2.55	23.41	219.28	1
20393	1754.3	23.24	2.55	25.79	379.31	1

CHANNEL BANDWIDTH: 1.4MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _c (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
19957	1710.7	19.83	2.55	22.38	172.98	1
20175	1732.5	19.83	2.55	22.38	172.98	1
20393	1754.3	19.84	2.55	22.39	173.38	1

CHANNEL BANDWIDTH: 1.4MHz 64QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _c (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
19957	1710.7	18.77	2.55	21.32	135.52	1
20175	1732.5	18.84	2.55	21.39	137.72	1
20393	1754.3	18.76	2.55	21.31	135.21	1

CHANNEL BANDWIDTH: 3MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _c (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
19965	1711.5	20.71	2.55	23.26	211.84	1
20175	1732.5	20.78	2.55	23.33	215.28	1
20385	1753.5	20.73	2.55	23.28	212.81	1

CHANNEL BANDWIDTH: 3MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _c (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
19965	1711.5	19.8	2.55	22.35	171.79	1
20175	1732.5	19.83	2.55	22.38	172.98	1
20385	1753.5	18.72	2.55	21.27	133.97	1

CHANNEL BANDWIDTH: 3MHz 64QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
19965	1711.5	18.8	2.55	21.35	136.46	1
20175	1732.5	18.8	2.55	21.35	136.46	1
20385	1753.5	18.75	2.55	21.3	134.9	1

CHANNEL BANDWIDTH: 5MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
19975	1712.5	20.76	2.55	23.31	214.29	1
20175	1732.5	20.75	2.55	23.3	213.8	1
20375	1752.5	20.73	2.55	23.28	212.81	1

CHANNEL BANDWIDTH: 5MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
19975	1712.5	19.77	2.55	22.32	170.61	1
20175	1732.5	19.86	2.55	22.41	174.18	1
20375	1752.5	19.81	2.55	22.36	172.19	1

CHANNEL BANDWIDTH: 5MHz 64QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
19975	1712.5	18.77	2.55	21.32	135.52	1
20175	1732.5	18.84	2.55	21.39	137.72	1
20375	1752.5	18.75	2.55	21.3	134.9	1

CHANNEL BANDWIDTH: 10MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
20000	1715	20.76	2.55	23.31	214.29	1
20175	1732.5	20.75	2.55	23.3	213.8	1
20350	1750	20.74	2.55	23.29	213.3	1

CHANNEL BANDWIDTH: 10MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
20000	1715	19.82	2.55	22.37	172.58	1
20175	1732.5	19.82	2.55	22.37	172.58	1
20350	1750	19.84	2.55	22.39	173.38	1

CHANNEL BANDWIDTH: 10MHz 64QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
20000	1715	18.82	2.55	21.37	137.09	1
20175	1732.5	18.8	2.55	21.35	136.46	1
20350	1750	18.79	2.55	21.34	136.14	1

CHANNEL BANDWIDTH: 15MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
20025	1717.5	20.74	2.55	23.29	213.3	1
20175	1732.5	20.8	2.55	23.35	216.27	1
20325	1747.5	20.69	2.55	23.24	210.86	1

CHANNEL BANDWIDTH: 15MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
20025	1717.5	19.81	2.55	22.36	172.19	1
20175	1732.5	19.85	2.55	22.4	173.78	1
20325	1747.5	19.84	2.55	22.39	173.38	1

CHANNEL BANDWIDTH: 15MHz 64QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
20025	1717.5	18.83	2.55	21.38	137.4	1
20175	1732.5	18.79	2.55	21.34	136.14	1
20325	1747.5	18.76	2.55	21.31	135.21	1

CHANNEL BANDWIDTH: 20MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _c (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
20050	1720	20.78	2.55	23.33	215.28	1
20175	1732.5	20.83	2.55	23.38	217.77	1
20300	1745	20.75	2.55	23.3	213.8	1

CHANNEL BANDWIDTH: 20MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _c (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
20050	1720	19.85	2.55	22.4	173.78	1
20175	1732.5	19.88	2.55	22.43	174.98	1
20300	1745	19.86	2.55	22.41	174.18	1

CHANNEL BANDWIDTH: 20MHz 64QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _c (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
20050	1720	18.85	2.55	21.4	138.04	1
20175	1732.5	18.86	2.55	21.41	138.36	1
20300	1745	18.81	2.55	21.36	136.77	1

REMARKS: ERP Output Power (dBm) = EIRP (dBm) -2.15(dB).

LTE BAND 12

CHANNEL BANDWIDTH: 1.4MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _c (dB)	ERP (dBm)	ERP (mW)	Limit (W)
23017	699.7	23.33	1.11	22.29	169.43	3
23095	707.5	23.18	1.11	22.14	163.68	3
23173	715.3	23.22	1.11	22.18	165.2	3

CHANNEL BANDWIDTH: 1.4MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _c (dB)	ERP (dBm)	ERP (mW)	Limit (W)
23017	699.7	22.2	1.11	21.16	130.62	3
23095	707.5	22.08	1.11	21.04	127.06	3
23173	715.3	22.03	1.11	20.99	125.6	3

CHANNEL BANDWIDTH: 1.4MHz 64QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _c (dB)	ERP (dBm)	ERP (mW)	Limit (W)
23017	699.7	21.25	1.11	20.21	104.95	3
23095	707.5	21.11	1.11	20.07	101.62	3
23173	715.3	21.09	1.11	20.05	101.16	3

CHANNEL BANDWIDTH: 3MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _c (dB)	ERP (dBm)	ERP (mW)	Limit (W)
23025	700.5	23.17	1.11	22.13	163.31	3
23095	707.5	23.06	1.11	22.02	159.22	3
23165	714.5	23.01	1.11	21.97	157.4	3

CHANNEL BANDWIDTH: 3MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _c (dB)	ERP (dBm)	ERP (mW)	Limit (W)
23025	700.5	22.16	1.11	21.12	129.42	3
23095	707.5	22.07	1.11	21.03	126.77	3
23165	714.5	22.01	1.11	20.97	125.03	3

CHANNEL BANDWIDTH: 3MHz 64QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
23025	700.5	21.31	1.11	20.27	106.41	3
23095	707.5	21.14	1.11	20.1	102.33	3
23165	714.5	21.03	1.11	19.99	99.77	3

CHANNEL BANDWIDTH: 5MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
23035	701.5	23.18	1.11	22.14	163.68	3
23095	707.5	23.01	1.11	21.97	157.4	3
23155	713.5	23.02	1.11	21.98	157.76	3

CHANNEL BANDWIDTH: 5MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
23035	701.5	22.17	1.11	21.13	129.72	3
23095	707.5	22.03	1.11	20.99	125.6	3
23155	713.5	22.01	1.11	20.97	125.03	3

CHANNEL BANDWIDTH: 5MHz 64QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
23035	701.5	21.25	1.11	20.21	104.95	3
23095	707.5	21.11	1.11	20.07	101.62	3
23155	713.5	21.09	1.11	20.05	101.16	3

CHANNEL BANDWIDTH: 10MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
23060	704	23.23	1.11	22.19	165.58	3
23095	707.5	23.08	1.11	22.04	159.96	3
23130	711	23.07	1.11	22.03	159.59	3

CHANNEL BANDWIDTH: 10MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
23060	704	22.24	1.11	21.2	131.83	3
23095	707.5	22.08	1.11	21.04	127.06	3
23130	711	22.03	1.11	20.99	125.6	3

CHANNEL BANDWIDTH: 10MHz 64QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
23060	704	21.32	1.11	20.28	106.66	3
23095	707.5	21.16	1.11	20.12	102.8	3
23130	711	21.11	1.11	20.07	101.62	3

REMARKS: ERP Output Power (dBm) = ERP (dBm) -2.15(dB).



**BUREAU
VERITAS**

Test Report No.: W7L-P21040030RF18

LTE BAND 13

CHANNEL BANDWIDTH: 5MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _c (dB)	ERP (dBm)	ERP (mW)	Limit (W)
23205	779.5	23.64	0.86	22.35	171.79	3
23230	782	23.62	0.86	22.33	171	3
23255	784.5	23.64	0.86	22.35	171.79	3

CHANNEL BANDWIDTH: 5MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _c (dB)	ERP (dBm)	ERP (mW)	Limit (W)
23205	779.5	22.75	0.86	21.46	139.96	3
23230	782	22.77	0.86	21.48	140.6	3
23255	784.5	22.8	0.86	21.51	141.58	3

CHANNEL BANDWIDTH: 5MHz 64QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _c (dB)	ERP (dBm)	ERP (mW)	Limit (W)
23205	779.5	21.82	0.86	20.53	112.98	3
23230	782	21.84	0.86	20.55	113.5	3
23255	784.5	21.87	0.86	20.58	114.29	3

CHANNEL BANDWIDTH: 10MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _c (dB)	ERP (dBm)	ERP (mW)	Limit (W)
-	-	-	-	-	-	-
23230	782	23.69	0.86	22.4	173.78	3
-	-	-	-	-	-	-

CHANNEL BANDWIDTH: 10MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _c (dB)	ERP (dBm)	ERP (mW)	Limit (W)
-	-	-	-	-	-	-
23230	782	22.82	0.86	21.53	142.23	3
-	-	-	-	-	-	-

CHANNEL BANDWIDTH: 10MHz 64QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _c (dB)	ERP (dBm)	ERP (mW)	Limit (W)
-	-	-	-	-	-	-
23230	782	21.89	0.86	20.6	114.82	3
-	-	-	-	-	-	-

REMARKS: ERP Output Power (dBm) = ERP (dBm) -2.15(dB).

LTE BAND 14

CHANNEL BANDWIDTH: 5MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _c (dB)	ERP (dBm)	ERP (mW)	Limit (W)
23305	790.5	23.52	1	22.37	172.58	3
23330	793	23.5	1	22.35	171.79	3
23355	795.5	23.52	1	22.37	172.58	3

CHANNEL BANDWIDTH: 5MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _c (dB)	ERP (dBm)	ERP (mW)	Limit (W)
23305	790.5	22.65	1	21.5	141.25	3
23330	793	22.71	1	21.56	143.22	3
23355	795.5	22.68	1	21.53	142.23	3

CHANNEL BANDWIDTH: 5MHz 64QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _c (dB)	ERP (dBm)	ERP (mW)	Limit (W)
23305	790.5	21.66	1	20.51	112.46	3
23330	793	21.72	1	20.57	114.02	3
23355	795.5	21.68	1	20.53	112.98	3

CHANNEL BANDWIDTH: 10MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _c (dB)	ERP (dBm)	ERP (mW)	Limit (W)
-	-	-	-	-	-	-
23330	793	23.57	1	22.42	174.58	3
-	-	-	-	-	-	-

CHANNEL BANDWIDTH: 10MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _c (dB)	ERP (dBm)	ERP (mW)	Limit (W)
-	-	-	-	-	-	-
23330	793	22.73	1	21.58	143.88	3
-	-	-	-	-	-	-

CHANNEL BANDWIDTH: 10MHz 64QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _c (dB)	ERP (dBm)	ERP (mW)	Limit (W)
-	-	-	-	-	-	-
23330	793	21.74	1	20.59	114.55	3
-	-	-	-	-	-	-

REMARKS: ERP Output Power (dBm) = ERP (dBm) -2.15(dB).

LTE BAND 17

CHANNEL BANDWIDTH: 5MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _c (dB)	ERP (dBm)	ERP (mW)	Limit (W)
23755	706.5	22.89	1.11	21.85	153.11	3
23790	710	22.68	1.11	21.64	145.88	3
23825	713.5	23.23	1.11	22.19	165.58	3

CHANNEL BANDWIDTH: 5MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _c (dB)	ERP (dBm)	ERP (mW)	Limit (W)
23755	706.5	22.03	1.11	20.99	125.6	3
23790	710	22.04	1.11	21	125.89	3
23825	713.5	22.47	1.11	21.43	139	3

CHANNEL BANDWIDTH: 5MHz 64QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _c (dB)	ERP (dBm)	ERP (mW)	Limit (W)
23755	706.5	20.89	1.11	19.85	96.61	3
23790	710	20.91	1.11	19.87	97.05	3
23825	713.5	21.33	1.11	20.29	106.91	3

CHANNEL BANDWIDTH: 10MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _c (dB)	ERP (dBm)	ERP (mW)	Limit (W)
23780	709	22.91	1.11	21.87	153.82	3
23790	710	22.76	1.11	21.72	148.59	3
23800	711	23.25	1.11	22.21	166.34	3

CHANNEL BANDWIDTH: 10MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _c (dB)	ERP (dBm)	ERP (mW)	Limit (W)
23780	709	22.1	1.11	21.06	127.64	3
23790	710	22.06	1.11	21.02	126.47	3
23800	711	22.49	1.11	21.45	139.64	3

CHANNEL BANDWIDTH: 10MHz 64QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _c (dB)	ERP (dBm)	ERP (mW)	Limit (W)
23780	709	20.96	1.11	19.92	98.17	3
23790	710	20.93	1.11	19.89	97.5	3
23800	711	21.35	1.11	20.31	107.4	3

REMARKS: ERP Output Power (dBm) = ERP (dBm) -2.15(dB).

LTE BAND 30

CHANNEL BANDWIDTH: 5MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _c (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
27685	2307.5	22.5	1.17	23.67	232.81	0.25
27710	2310	22.48	1.17	23.65	231.74	0.25
27735	2312.5	22.53	1.17	23.7	234.42	0.25

CHANNEL BANDWIDTH: 5MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _c (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
27685	2307.5	21.7	1.17	22.87	193.64	0.25
27710	2310	21.64	1.17	22.81	190.99	0.25
27735	2312.5	21.7	1.17	22.87	193.64	0.25

CHANNEL BANDWIDTH: 5MHz 64QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _c (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
27685	2307.5	20.58	1.17	21.75	149.62	0.25
27710	2310	20.65	1.17	21.82	152.05	0.25
27735	2312.5	20.64	1.17	21.81	151.71	0.25

CHANNEL BANDWIDTH: 10MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _c (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
-	-	-	-	-	-	-
27710	2310	22.55	1.17	23.72	235.50	0.25
-	-	-	-	-	-	-

CHANNEL BANDWIDTH: 10MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _c (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
-	-	-	-	-	-	-
27710	2310	21.72	1.17	22.89	194.54	0.25
-	-	-	-	-	-	-

CHANNEL BANDWIDTH: 10MHz 64QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _c (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
-	-	-	-	-	-	-
27710	2310	20.66	1.17	21.83	152.41	0.25
-	-	-	-	-	-	-

REMARKS: ERP Output Power (dBm) = ERP (dBm) -2.15(dB).

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CHANNEL BANDWIDTH: 1.4MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _c (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
131979	1710.7	20.58	2.91	23.49	223.36	1
132322	1745	20.68	2.91	23.59	228.56	1
132665	1779.3	20.68	2.91	23.59	228.56	1

CHANNEL BANDWIDTH: 1.4MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _c (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
131979	1710.7	19.65	2.91	22.56	180.3	1
132322	1745	19.78	2.91	22.69	185.78	1
132665	1779.3	19.83	2.91	22.74	187.93	1

CHANNEL BANDWIDTH: 1.4MHz 64QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _c (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
131979	1710.7	18.68	2.91	21.59	144.21	1
132322	1745	18.78	2.91	21.69	147.57	1
132665	1779.3	18.83	2.91	21.74	149.28	1

CHANNEL BANDWIDTH: 3MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _c (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
131987	1711.5	20.54	2.91	23.45	221.31	1
132322	1745	20.69	2.91	23.6	229.09	1
132657	1778.5	20.68	2.91	23.59	228.56	1

CHANNEL BANDWIDTH: 3MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _c (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
131987	1711.5	19.68	2.91	22.59	181.55	1
132322	1745	19.78	2.91	22.69	185.78	1
132657	1778.5	19.83	2.91	22.74	187.93	1

CHANNEL BANDWIDTH: 3MHz 64QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
131987	1711.5	18.69	2.91	21.6	144.54	1
132322	1745	18.8	2.91	21.71	148.25	1
132657	1778.5	18.83	2.91	21.74	149.28	1

CHANNEL BANDWIDTH: 5MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
131997	1712.5	20.59	2.91	23.5	223.87	1
132322	1745	20.66	2.91	23.57	227.51	1
132647	1777.5	20.68	2.91	23.59	228.56	1

CHANNEL BANDWIDTH: 5MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
C	1712.5	19.68	2.91	22.59	181.55	1
132322	1745	19.78	2.91	22.69	185.78	1
132647	1777.5	19.82	2.91	22.73	187.5	1

CHANNEL BANDWIDTH: 5MHz 64QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
C	1712.5	18.62	2.91	21.53	142.23	1
132322	1745	18.85	2.91	21.76	149.97	1
132647	1777.5	18.83	2.91	21.74	149.28	1

CHANNEL BANDWIDTH: 10MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
132022	1715	20.59	2.91	23.5	223.87	1
132322	1745	20.66	2.91	23.57	227.51	1
132622	1775	20.69	2.91	23.6	229.09	1

CHANNEL BANDWIDTH: 10MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
132022	1715	19.68	2.91	22.59	181.55	1
132322	1745	19.79	2.91	22.7	186.21	1
132622	1775	19.79	2.91	22.7	186.21	1

CHANNEL BANDWIDTH: 10MHz 64QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
132022	1715	18.68	2.91	21.59	144.21	1
132322	1745	18.79	2.91	21.7	147.91	1
132622	1775	18.8	2.91	21.71	148.25	1

CHANNEL BANDWIDTH: 15MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
132047	1717.5	20.57	2.91	23.48	222.84	1
132322	1745	20.71	2.91	23.62	230.14	1
132597	1772.5	20.64	2.91	23.55	226.46	1

CHANNEL BANDWIDTH: 15MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
132047	1715	19.64	2.91	22.55	179.89	1
132322	1745	19.84	2.91	22.75	188.36	1
132622	1775	19.81	2.91	22.72	187.07	1

CHANNEL BANDWIDTH: 15MHz 64QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
132047	1715	18.64	2.91	21.55	142.89	1
132322	1745	18.78	2.91	21.69	147.57	1
132622	1775	18.83	2.91	21.74	149.28	1

CHANNEL BANDWIDTH: 20MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _c (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
132072	1720	20.61	2.91	23.52	224.91	1
132322	1745	20.74	2.91	23.65	231.74	1
132572	1770	20.7	2.91	23.61	229.61	1

CHANNEL BANDWIDTH: 20MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _c (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
132072	1720	19.7	2.91	22.61	182.39	1
132322	1745	19.86	2.91	22.77	189.23	1
132572	1770	19.84	2.91	22.75	188.36	1

CHANNEL BANDWIDTH: 20MHz 64QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _c (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
132072	1720	18.7	2.91	21.61	144.88	1
132322	1745	18.86	2.91	21.77	150.31	1
132572	1770	18.85	2.91	21.76	149.97	1

REMARKS: ERP Output Power (dBm) = EIRP (dBm) -2.15(dB).

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CHANNEL BANDWIDTH: 5MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _c (dB)	ERP (dBm)	ERP (mW)	Limit (W)
133147	665.5	21.55	1	20.4	109.65	1
133247	675.5	21.82	1	20.67	116.68	1
133447	695.5	21.87	1	20.72	118.03	1

CHANNEL BANDWIDTH: 5MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _c (dB)	ERP (dBm)	ERP (mW)	Limit (W)
133147	665.5	20.74	1	19.59	90.99	1
133247	675.5	21.01	1	19.86	96.83	1
133447	695.5	21.07	1	19.92	98.17	1

CHANNEL BANDWIDTH: 5MHz 64QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _c (dB)	ERP (dBm)	ERP (mW)	Limit (W)
133147	665.5	19.4	1	18.25	66.83	1
133247	675.5	19.84	1	18.69	73.96	1
133447	695.5	19.8	1	18.65	73.28	1

CHANNEL BANDWIDTH: 10MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _c (dB)	ERP (dBm)	ERP (mW)	Limit (W)
133172	668	21.52	1	20.37	108.89	1
133272	678	21.86	1	20.71	117.76	1
133422	693	21.83	1	20.68	116.95	1

CHANNEL BANDWIDTH: 10MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _c (dB)	ERP (dBm)	ERP (mW)	Limit (W)
133172	668	20.74	1	19.59	90.99	1
133272	678	21.02	1	19.87	97.05	1
133422	693	21.04	1	19.89	97.50	1

CHANNEL BANDWIDTH: 10MHz 64QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
133172	668	19.46	1	18.31	67.76	1
133272	678	19.78	1	18.63	72.95	1
133422	693	19.77	1	18.62	72.78	1

CHANNEL BANDWIDTH: 15MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
133197	670.5	21.58	1	20.43	110.41	1
133297	680.5	21.89	1	20.74	118.58	1
133397	690.5	21.84	1	20.69	117.22	1

CHANNEL BANDWIDTH: 15MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
133197	670.5	20.7	1	19.55	90.16	1
133297	680.5	21.07	1	19.92	98.17	1
133397	690.5	21.06	1	19.91	97.95	1

CHANNEL BANDWIDTH: 15MHz 64QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
133197	670.5	19.42	1	18.27	67.14	1
133297	680.5	19.77	1	18.62	72.78	1
133397	690.5	19.8	1	18.65	73.28	1

CHANNEL BANDWIDTH: 20MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
133222	673	21.6	1	20.45	110.92	1
133322	683	21.9	1	20.75	118.85	1
133372	688	21.88	1	20.73	118.3	1

CHANNEL BANDWIDTH: 20MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
133222	673	20.76	1	19.61	91.41	1
133322	683	21.09	1	19.94	98.63	1
133372	688	21.09	1	19.94	98.63	1

CHANNEL BANDWIDTH: 20MHz 64QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
133222	673	19.48	1	18.33	68.08	1
133322	683	19.85	1	18.7	74.13	1
133372	688	19.82	1	18.67	73.62	1

3.2 FREQUENCY STABILITY MEASUREMENT

3.2.1 LIMITS OF FREQUENCY STABILITY MEASUREMENT

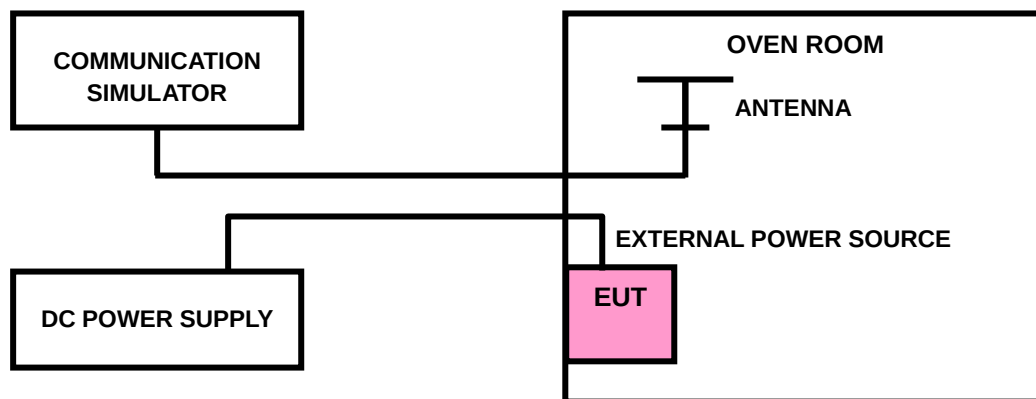
The frequency stability shall be sufficient to ensure that the fundamental emissions stay within the authorized bands of operation.

3.2.2 TEST PROCEDURE

- Device is placed at the oven room. The oven room could control the temperatures and humidity. Power warm up is at least 15 min and power applied should perform before recording frequency error.
- EUT is connected the external power supply to control the DC input power. The test voltage range is from minimum to maximum working voltage. Each step shall be record the frequency error rate.
- The temperature range step is 10 degrees in this test items. All temperature levels shall be hold the $\pm 0.5^{\circ}\text{C}$ during the measurement testing. The each temperature step shall be at least 0.5 hours, consider the EUT could be test under the stability condition.

NOTE: The frequency error was recorded frequency error from the communication simulator.

3.2.3 TEST SETUP



3.2.4 TEST RESULTS

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FREQUENCY ERROR VS. VOLTAGE

VOLTAGE (Volts)	1.4MHz		LIMIT (ppm)
	FREQUENCY ERROR (ppm)		
	Low Channel	High Channel	
V _{nor}	0.002	0.0024	2.5
V _{min}	-0.0031	-0.003	2.5
V _{max}	0.0021	0.002	2.5

NOTE: The applicant defined the normal working voltage of the battery is from V_{min} Vdc to V_{max} Vdc.

FREQUENCY ERROR vs. TEMPERATURE.

TEMP. (°C)	1.4MHz		LIMIT (ppm)
	FREQUENCY ERROR (ppm)		
	Low Channel	High Channel	
-30	-0.0044	-0.0056	2.5
-20	-0.0021	-0.0054	2.5
-10	-0.0043	-0.0037	2.5
0	-0.0074	-0.0072	2.5
10	-0.005	-0.0052	2.5
20	-0.004	-0.004	2.5
30	-0.0031	-0.0027	2.5
40	-0.002	-0.0015	2.5
50	-0.0004	-0.0006	2.5

FREQUENCY ERROR VS. VOLTAGE

VOLTAGE (Volts)	3MHz		LIMIT (ppm)
	FREQUENCY ERROR (ppm)		
	Low Channel	High Channel	
V _{nor}	0.0021	0.0021	2.5
V _{min}	-0.0021	-0.0025	2.5
V _{max}	0.0018	0.0017	2.5

NOTE: The applicant defined the normal working voltage of the battery is from V_{min} Vdc to V_{max} Vdc.

FREQUENCY ERROR vs. TEMPERATURE.

TEMP. (°C)	3MHz		LIMIT (ppm)
	FREQUENCY ERROR (ppm)		
	Low Channel	High Channel	
-30	-0.0033	-0.0067	2.5
-20	-0.0042	-0.0091	2.5
-10	-0.0056	-0.0088	2.5
0	-0.0076	-0.0076	2.5
10	-0.0056	-0.0047	2.5
20	-0.004	-0.0043	2.5
30	-0.0033	-0.0035	2.5
40	-0.0023	-0.0017	2.5
50	-0.0004	-0.0005	2.5

FREQUENCY ERROR VS. VOLTAGE

VOLTAGE (Volts)	5MHz		LIMIT (ppm)
	FREQUENCY ERROR (ppm)		
	Low Channel	High Channel	
V _{nor}	0.0021	0.0023	2.5
V _{min}	-0.0024	-0.003	2.5
V _{max}	0.0021	0.0021	2.5

NOTE: The applicant defined the normal working voltage of the battery is from V_{min} Vdc to V_{max} Vdc.

FREQUENCY ERROR vs. TEMPERATURE.

TEMP. (°C)	5MHz		LIMIT (ppm)
	FREQUENCY ERROR (ppm)		
	Low Channel	High Channel	
-30	-0.0032	-0.0042	2.5
-20	-0.0011	-0.0055	2.5
-10	-0.0023	-0.0067	2.5
0	-0.0076	-0.0076	2.5
10	-0.005	-0.0052	2.5
20	-0.0041	-0.0042	2.5
30	-0.0027	-0.0026	2.5
40	-0.0022	-0.0017	2.5
50	-0.0002	-0.0003	2.5

FREQUENCY ERROR VS. VOLTAGE

VOLTAGE (Volts)	10MHz		LIMIT (ppm)
	FREQUENCY ERROR (ppm)		
	Low Channel	High Channel	
V _{nor}	0.0026	0.0024	2.5
V _{min}	-0.0031	-0.003	2.5
V _{max}	0.0025	0.0026	2.5

NOTE: The applicant defined the normal working voltage of the battery is from V_{min} Vdc to V_{max} Vdc.

FREQUENCY ERROR vs. TEMPERATURE.

TEMP. (°C)	10MHz		LIMIT (ppm)
	FREQUENCY ERROR (ppm)		
	Low Channel	High Channel	
-30	-0.0038	-0.0003	2.5
-20	-0.0042	-0.0042	2.5
-10	-0.0051	-0.0011	2.5
0	-0.0076	-0.0074	2.5
10	-0.005	-0.0044	2.5
20	-0.0043	-0.0042	2.5
30	-0.0029	-0.0038	2.5
40	-0.0021	-0.0021	2.5
50	-0.0002	-0.0004	2.5

FREQUENCY ERROR VS. VOLTAGE

VOLTAGE (Volts)	15MHz		LIMIT (ppm)
	FREQUENCY ERROR (ppm)		
	Low Channel	High Channel	
V _{nor}	0.0026	0.0024	2.5
V _{min}	-0.0031	-0.003	2.5
V _{max}	0.0024	0.0026	2.5

NOTE: The applicant defined the normal working voltage of the battery is from V_{min} Vdc to V_{max} Vdc.

FREQUENCY ERROR vs. TEMPERATURE.

TEMP. (°C)	15MHz		LIMIT (ppm)
	FREQUENCY ERROR (ppm)		
	Low Channel	High Channel	
-30	-0.0024	-0.0049	2.5
-20	-0.0031	-0.0067	2.5
-10	-0.0058	-0.0019	2.5
0	-0.0073	-0.0074	2.5
10	-0.0046	-0.0052	2.5
20	-0.0038	-0.0041	2.5
30	-0.0041	-0.004	2.5
40	-0.0022	-0.0019	2.5
50	-0.0003	-0.0005	2.5

FREQUENCY ERROR VS. VOLTAGE

VOLTAGE (Volts)	20MHz		LIMIT (ppm)
	FREQUENCY ERROR (ppm)		
	Low Channel	High Channel	
V _{nor}	0.0025	0.0024	2.5
V _{min}	-0.0031	-0.003	2.5
V _{max}	0.0026	0.0025	2.5

NOTE: The applicant defined the normal working voltage of the battery is from V_{min} Vdc to V_{max} Vdc.

FREQUENCY ERROR vs. TEMPERATURE.

TEMP. (°C)	20MHz		LIMIT (ppm)
	FREQUENCY ERROR (ppm)		
	Low Channel	High Channel	
-30	-0.0022	-0.0043	2.5
-20	-0.0025	-0.0049	2.5
-10	-0.0032	-0.0061	2.5
0	-0.0073	-0.0074	2.5
10	-0.0046	-0.0052	2.5
20	-0.0038	-0.0041	2.5
30	-0.0041	-0.004	2.5
40	-0.0022	-0.0019	2.5
50	-0.0003	-0.0005	2.5

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FREQUENCY ERROR VS. VOLTAGE

VOLTAGE (Volts)	1.4MHz		LIMIT (ppm)
	FREQUENCY ERROR (ppm)		
	Low Channel	High Channel	
V _{nor}	0.0026	0.003	2.5
V _{min}	-0.0036	-0.0036	2.5
V _{max}	0.0025	0.0025	2.5

NOTE: The applicant defined the normal working voltage of the battery is from V_{min} Vdc to V_{max} Vdc.

FREQUENCY ERROR vs. TEMPERATURE.

TEMP. (°C)	1.4MHz		LIMIT (ppm)
	FREQUENCY ERROR (ppm)		
	Low Channel	High Channel	
-30	-0.0012	-0.0014	2.5
-20	-0.0011	-0.0012	2.5
-10	-0.0033	-0.0030	2.5
0	-0.0088	-0.0087	2.5
10	-0.0056	-0.0052	2.5
20	-0.0051	-0.0049	2.5
30	-0.0032	-0.0031	2.5
40	-0.0023	-0.0019	2.5
50	-0.0003	-0.0006	2.5

FREQUENCY ERROR VS. VOLTAGE

VOLTAGE (Volts)	3MHz		LIMIT (ppm)
	FREQUENCY ERROR (ppm)		
	Low Channel	High Channel	
V _{nor}	0.0025	0.0024	2.5
V _{min}	-0.0025	-0.003	2.5
V _{max}	0.0021	0.0021	2.5

NOTE: The applicant defined the normal working voltage of the battery is from V_{min} Vdc to V_{max} Vdc.

FREQUENCY ERROR vs. TEMPERATURE.

TEMP. (°C)	3MHz		LIMIT (ppm)
	FREQUENCY ERROR (ppm)		
	Low Channel	High Channel	
-30	-0.0043	-0.0031	2.5
-20	-0.0031	-0.0032	2.5
-10	-0.0019	-0.044	2.5
0	-0.0091	-0.0088	2.5
10	-0.0065	-0.0059	2.5
20	-0.0045	-0.005	2.5
30	-0.0047	-0.0035	2.5
40	-0.0017	-0.0025	2.5
50	-0.0004	-0.0003	2.5

FREQUENCY ERROR VS. VOLTAGE

VOLTAGE (Volts)	5MHz		LIMIT (ppm)
	FREQUENCY ERROR (ppm)		
	Low Channel	High Channel	
V _{nor}	0.0025	0.0029	2.5
V _{min}	-0.0027	-0.0036	2.5
V _{max}	0.0025	0.0025	2.5

NOTE: The applicant defined the normal working voltage of the battery is from V_{min} Vdc to V_{max} Vdc.

FREQUENCY ERROR vs. TEMPERATURE.

TEMP. (°C)	5MHz		LIMIT (ppm)
	FREQUENCY ERROR (ppm)		
	Low Channel	High Channel	
-30	-0.0022	-0.0031	2.5
-20	-0.0027	-0.0032	2.5
-10	-0.0039	-0.0011	2.5
0	-0.0091	-0.0088	2.5
10	-0.0065	-0.0059	2.5
20	-0.0045	-0.005	2.5
30	-0.0047	-0.0035	2.5
40	-0.0017	-0.0025	2.5
50	-0.0004	-0.0003	2.5

FREQUENCY ERROR VS. VOLTAGE

VOLTAGE (Volts)	10MHz		LIMIT (ppm)
	FREQUENCY ERROR (ppm)		
	Low Channel	High Channel	
V _{nor}	0.0029	0.0029	2.5
V _{min}	-0.0037	-0.0036	2.5
V _{max}	0.003	0.0029	2.5

NOTE: The applicant defined the normal working voltage of the battery is from V_{min} Vdc to V_{max} Vdc.

FREQUENCY ERROR vs. TEMPERATURE.

TEMP. (°C)	10MHz		LIMIT (ppm)
	FREQUENCY ERROR (ppm)		
	Low Channel	High Channel	
-30	-0.0038	-0.0033	2.5
-20	-0.0034	-0.0021	2.5
-10	-0.0089	-0.0020	2.5
0	-0.0088	-0.0088	2.5
10	-0.0053	-0.0059	2.5
20	-0.0045	-0.005	2.5
30	-0.0032	-0.0035	2.5
40	-0.0022	-0.0025	2.5
50	-0.0005	-0.0003	2.5

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FREQUENCY ERROR VS. VOLTAGE

VOLTAGE (Volts)	5MHz		LIMIT (ppm)
	FREQUENCY ERROR (ppm)		
	Low Channel	High Channel	
V _{nor}	0.0022	0.0025	2.5
V _{min}	-0.0025	-0.0033	2.5
V _{max}	0.0022	0.0023	2.5

NOTE: The applicant defined the normal working voltage of the battery is from V_{min} Vdc to V_{max} Vdc.

FREQUENCY ERROR vs. TEMPERATURE.

TEMP. (°C)	5MHz		LIMIT (ppm)
	FREQUENCY ERROR (ppm)		
	Low Channel	High Channel	
-30	-0.0033	-0.0027	2.5
-20	-0.0031	-0.0019	2.5
-10	-0.0032	-0.0011	2.5
0	-0.0027	-0.0027	2.5
10	-0.0056	-0.0059	2.5
20	-0.0045	-0.0042	2.5
30	-0.0042	-0.0038	2.5
40	-0.0019	-0.002	2.5
50	-0.0006	-0.0004	2.5

FREQUENCY ERROR VS. VOLTAGE

VOLTAGE (Volts)	10MHz	LIMIT (ppm)
	FREQUENCY ERROR (ppm)	
	Mid Channel	
V_{nor}	0.0028	2.5
V_{min}	-0.0033	2.5
V_{max}	0.0028	2.5

NOTE: The applicant defined the normal working voltage of the battery is from V_{min} Vdc to V_{max} Vdc.

FREQUENCY ERROR vs. TEMPERATURE.

TEMP. (°C)	10MHz	LIMIT (ppm)
	FREQUENCY ERROR (ppm)	
	Mid Channel	
-30	-0.0011	2.5
-20	-0.0032	2.5
-10	-0.0018	2.5
0	-0.0078	2.5
10	-0.0056	2.5
20	-0.0042	2.5
30	-0.0042	2.5
40	-0.0023	2.5
50	-0.0002	2.5

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FREQUENCY ERROR VS. VOLTAGE

VOLTAGE (Volts)	5MHz		LIMIT (ppm)
	FREQUENCY ERROR (ppm)		
	Low Channel	High Channel	
V _{nor}	0.0022	0.0026	2.5
V _{min}	-0.0024	-0.0032	2.5
V _{max}	0.0022	0.0022	2.5

NOTE: The applicant defined the normal working voltage of the battery is from V_{min} Vdc to V_{max} Vdc.

FREQUENCY ERROR vs. TEMPERATURE.

TEMP. (°C)	5MHz		LIMIT (ppm)
	FREQUENCY ERROR (ppm)		
	Low Channel	High Channel	
-30	-0.0089	-0.0033	2.5
-20	-0.0072	-0.0048	2.5
-10	-0.0034	-0.0021	2.5
0	-0.008	-0.0078	2.5
10	-0.0056	-0.0047	2.5
20	-0.004	-0.0042	2.5
30	-0.0033	-0.0037	2.5
40	-0.0016	-0.002	2.5
50	-0.0006	-0.0003	2.5

FREQUENCY ERROR VS. VOLTAGE

VOLTAGE (Volts)	10MHz	LIMIT (ppm)
	FREQUENCY ERROR (ppm)	
	Mid Channel	
V_{nor}	0.0028	2.5
V_{min}	-0.0032	2.5
V_{max}	0.0026	2.5

NOTE: The applicant defined the normal working voltage of the battery is from V_{min} Vdc to V_{max} Vdc.

FREQUENCY ERROR vs. TEMPERATURE.

TEMP. (°C)	10MHz	LIMIT (ppm)
	FREQUENCY ERROR (ppm)	
	Mid Channel	
-30	-0.0087	2.5
-20	-0.0074	2.5
-10	-0.0083	2.5
0	-0.0081	2.5
10	-0.0058	2.5
20	-0.0042	2.5
30	-0.0041	2.5
40	-0.0017	2.5
50	-0.0005	2.5

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FREQUENCY ERROR VS. VOLTAGE

VOLTAGE (Volts)	5MHz		LIMIT (ppm)
	FREQUENCY ERROR (ppm)		
	Low Channel	High Channel	
V _{nor}	0.0025	0.0028	2.5
V _{min}	-0.0027	-0.0035	2.5
V _{max}	0.0025	0.0025	2.5

NOTE: The applicant defined the normal working voltage of the battery is from V_{min} Vdc to V_{max} Vdc.

FREQUENCY ERROR vs. TEMPERATURE.

TEMP. (°C)	5MHz		LIMIT (ppm)
	FREQUENCY ERROR (ppm)		
	Low Channel	High Channel	
-30	-0.0044	-0.0012	2.5
-20	-0.0032	-0.0010	2.5
-10	-0.0047	-0.0038	2.5
0	-0.0089	-0.0089	2.5
10	-0.0059	-0.0064	2.5
20	-0.0045	-0.0049	2.5
30	-0.0034	-0.0038	2.5
40	-0.0027	-0.0017	2.5
50	-0.0003	-0.0005	2.5

FREQUENCY ERROR VS. VOLTAGE

VOLTAGE (Volts)	10MHz		LIMIT (ppm)
	FREQUENCY ERROR (ppm)		
	Low Channel	High Channel	
V _{nor}	0.003	0.0029	2.5
V _{min}	-0.0036	-0.0036	2.5
V _{max}	0.0029	0.0029	2.5

NOTE: The applicant defined the normal working voltage of the battery is from V_{min} Vdc to V_{max} Vdc.

FREQUENCY ERROR vs. TEMPERATURE.

TEMP. (°C)	10MHz		LIMIT (ppm)
	FREQUENCY ERROR (ppm)		
	Low Channel	High Channel	
-30	-0.0023	-0.0075	2.5
-20	-0.0065	-0.0032	2.5
-10	-0.0078	-0.0041	2.5
0	-0.0091	-0.009	2.5
10	-0.0065	-0.0059	2.5
20	-0.0044	-0.0044	2.5
30	-0.0029	-0.0031	2.5
40	-0.0026	-0.0022	2.5
50	-0.0005	-0.0004	2.5

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FREQUENCY ERROR VS. VOLTAGE

VOLTAGE (Volts)	5MHz		LIMIT (ppm)
	FREQUENCY ERROR (ppm)		
	Low Channel	High Channel	
V _{nor}	0.0008	0.0016	2.5
V _{min}	-0.0008	-0.002	2.5
V _{max}	0.0008	0.0013	2.5

NOTE: The applicant defined the normal working voltage of the battery is from V_{min} Vdc to V_{max} Vdc.

FREQUENCY ERROR vs. TEMPERATURE.

TEMP. (°C)	5MHz		LIMIT (ppm)
	FREQUENCY ERROR (ppm)		
	Low Channel	High Channel	
-30	-0.0043	-0.0017	2.5
-20	-0.0034	-0.0012	2.5
-10	-0.003	-0.0031	2.5
0	-0.0027	-0.0027	2.5
10	-0.0019	-0.0018	2.5
20	-0.0014	-0.0014	2.5
30	-0.001	-0.0014	2.5
40	-0.0006	-0.0008	2.5
50	-0.0001	-0.0002	2.5

FREQUENCY ERROR VS. VOLTAGE

VOLTAGE (Volts)	10MHz	LIMIT (ppm)
	FREQUENCY ERROR (ppm)	
	Middle Channel	
V_{nor}	0.0009	2.5
V_{min}	-0.0011	2.5
V_{max}	0.0009	2.5

NOTE: The applicant defined the normal working voltage of the battery is from V_{min} Vdc to V_{max} Vdc.

FREQUENCY ERROR vs. TEMPERATURE.

TEMP. (°C)	10MHz	LIMIT (ppm)
	FREQUENCY ERROR (ppm)	
	middle Channel	
-30	-0.0013	2.5
-20	-0.0011	2.5
-10	-0.0009	2.5
0	-0.0027	2.5
10	-0.002	2.5
20	-0.0014	2.5
30	-0.0015	2.5
40	-0.0006	2.5
50	-0.0002	2.5

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FREQUENCY ERROR VS. VOLTAGE

VOLTAGE (Volts)	1.4MHz		LIMIT (ppm)
	FREQUENCY ERROR (ppm)		
	Low Channel	High Channel	
V _{nor}	0.001	0.0011	2.5
V _{min}	-0.0015	-0.0014	2.5
V _{max}	0.001	0.001	2.5

NOTE: The applicant defined the normal working voltage of the battery is from V_{min} Vdc to V_{max} Vdc.

FREQUENCY ERROR vs. TEMPERATURE.

TEMP. (°C)	1.4MHz		LIMIT (ppm)
	FREQUENCY ERROR (ppm)		
	Low Channel	High Channel	
-30	-0.0032	-0.0021	2.5
-20	-0.0078	-0.0099	2.5
-10	-0.0098	-0.0023	2.5
0	-0.0037	-0.0036	2.5
10	-0.0027	-0.0023	2.5
20	-0.002	-0.002	2.5
30	-0.0013	-0.0016	2.5
40	-0.0008	-0.001	2.5
50	-0.0003	-0.0003	2.5

FREQUENCY ERROR VS. VOLTAGE

VOLTAGE (Volts)	3MHz		LIMIT (ppm)
	FREQUENCY ERROR (ppm)		
	Low Channel	High Channel	
V _{nor}	0.001	0.001	2.5
V _{min}	-0.001	-0.0012	2.5
V _{max}	0.0008	0.0008	2.5

NOTE: The applicant defined the normal working voltage of the battery is from V_{min} Vdc to V_{max} Vdc.

FREQUENCY ERROR vs. TEMPERATURE.

TEMP. (°C)	3MHz		LIMIT (ppm)
	FREQUENCY ERROR (ppm)		
	Low Channel	High Channel	
-30	-0.0065	-0.0079	2.5
-20	-0.0034	-0.0087	2.5
-10	-0.0076	-0.0023	2.5
0	-0.0036	-0.0036	2.5
10	-0.0022	-0.0024	2.5
20	-0.0021	-0.0018	2.5
30	-0.0019	-0.0019	2.5
40	-0.0007	-0.0007	2.5
50	-0.0002	-0.0002	2.5

FREQUENCY ERROR VS. VOLTAGE

VOLTAGE (Volts)	5MHz		LIMIT (ppm)
	FREQUENCY ERROR (ppm)		
	Low Channel	High Channel	
V _{nor}	0.001	0.0011	c
V _{min}	-0.0011	-0.0015	2.5
V _{max}	0.001	0.001	2.5

NOTE: The applicant defined the normal working voltage of the battery is from V_{min} Vdc to V_{max} Vdc.

FREQUENCY ERROR vs. TEMPERATURE.

TEMP. (°C)	5MHz		LIMIT (ppm)
	FREQUENCY ERROR (ppm)		
	Low Channel	High Channel	
-30	-0.0054	-0.0062	2.5
-20	-0.0039	-0.0032	2.5
-10	-0.0077	-0.0011	2.5
0	-0.0037	-0.0035	2.5
10	-0.0025	-0.0021	2.5
20	-0.0018	-0.0019	2.5
30	-0.0017	-0.0018	2.5
40	-0.0009	-0.0009	2.5
50	-0.0001	-0.0002	2.5

FREQUENCY ERROR VS. VOLTAGE

VOLTAGE (Volts)	10MHz		LIMIT (ppm)
	FREQUENCY ERROR (ppm)		
	Low Channel	High Channel	
V _{nor}	0.0013	0.0011	2.5
V _{min}	-0.0015	-0.0015	2.5
V _{max}	0.0012	0.0012	2.5

NOTE: The applicant defined the normal working voltage of the battery is from V_{min} Vdc to V_{max} Vdc.

FREQUENCY ERROR vs. TEMPERATURE.

TEMP. (°C)	10MHz		LIMIT (ppm)
	FREQUENCY ERROR (ppm)		
	Low Channel	High Channel	
-30	-0.0087	-0.0076	2.5
-20	-0.0002	-0.0023	2.5
-10	-0.0009	-0.0011	2.5
0	-0.0036	-0.0036	2.5
10	-0.0025	-0.0025	2.5
20	-0.002	-0.0018	2.5
30	-0.0018	-0.0012	2.5
40	-0.0008	-0.001	2.5
50	-0.0001	-0.0002	2.5

FREQUENCY ERROR VS. VOLTAGE

VOLTAGE (Volts)	15MHz		LIMIT (ppm)
	FREQUENCY ERROR (ppm)		
	Low Channel	High Channel	
V _{nor}	0.0012	0.0011	2.5
V _{min}	-0.0015	-0.0015	2.5
V _{max}	0.0013	0.0012	2.5

NOTE: The applicant defined the normal working voltage of the battery is from V_{min} Vdc to V_{max} Vdc.

FREQUENCY ERROR vs. TEMPERATURE.

TEMP. (°C)	15MHz		LIMIT (ppm)
	FREQUENCY ERROR (ppm)		
	Low Channel	High Channel	
-30	-0.0008	-0.0008	2.5
-20	-0.0011	-0.0011	2.5
-10	-0.0005	-0.0023	2.5
0	-0.0036	-0.0035	2.5
10	-0.0025	-0.0021	2.5
20	-0.002	-0.0021	2.5
30	-0.0014	-0.0012	2.5
40	-0.0008	-0.0009	2.5
50	-0.0001	-0.0002	2.5

FREQUENCY ERROR VS. VOLTAGE

VOLTAGE (Volts)	20MHz		LIMIT (ppm)
	FREQUENCY ERROR (ppm)		
	Low Channel	High Channel	
V _{nor}	0.0012	0.0012	2.5
V _{min}	-0.0015	-0.0014	2.5
V _{max}	0.0013	0.0012	2.5

NOTE: The applicant defined the normal working voltage of the battery is from V_{min} Vdc to V_{max} Vdc.

FREQUENCY ERROR vs. TEMPERATURE.

TEMP. (°C)	20MHz		LIMIT (ppm)
	FREQUENCY ERROR (ppm)		
	Low Channel	High Channel	
-30	-0.0020	-0.0068	2.5
-20	-0.0037	-0.0045	2.5
-10	-0.0047	-0.0031	2.5
0	-0.0036	-0.0036	2.5
10	-0.0027	-0.0022	2.5
20	-0.0019	-0.002	2.5
30	-0.0015	-0.0016	2.5
40	-0.0008	-0.001	2.5
50	-0.0001	-0.0002	2.5

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FREQUENCY ERROR VS. VOLTAGE

VOLTAGE (Volts)	5MHz		LIMIT (ppm)
	FREQUENCY ERROR (ppm)		
	Low Channel	High Channel	
V _{nor}	0.0026	0.003	2.5
V _{min}	-0.0029	-0.0037	2.5
V _{max}	0.0026	0.0025	2.5

NOTE: The applicant defined the normal working voltage of the battery is from V_{min} Vdc to V_{max} Vdc.

FREQUENCY ERROR vs. TEMPERATURE.

TEMP. (°C)	5MHz		LIMIT (ppm)
	FREQUENCY ERROR (ppm)		
	Low Channel	High Channel	
-30	-0.0013	-0.0039	2.5
-20	-0.0012	-0.0067	2.5
-10	-0.0042	-0.0045	2.5
0	-0.0092	-0.0088	2.5
10	-0.0057	-0.0065	2.5
20	-0.0049	-0.0047	2.5
30	-0.0051	-0.0043	2.5
40	-0.0025	-0.0024	2.5
50	-0.0003	-0.0003	2.5

FREQUENCY ERROR VS. VOLTAGE

VOLTAGE (Volts)	10MHz		LIMIT (ppm)
	FREQUENCY ERROR (ppm)		
	Low Channel	High Channel	
V _{nor}	0.0033	0.0032	2.5
V _{min}	-0.0038	-0.0037	2.5
V _{max}	0.0033	0.003	2.5

NOTE: The applicant defined the normal working voltage of the battery is from V_{min} Vdc to V_{max} Vdc.

FREQUENCY ERROR vs. TEMPERATURE.

TEMP. (°C)	10MHz		LIMIT (ppm)
	FREQUENCY ERROR (ppm)		
	Low Channel	High Channel	
-30	-0.0041	-0.0012	2.5
-20	-0.0032	-0.0015	2.5
-10	-0.0048	-0.0033	2.5
0	-0.0094	-0.0091	2.5
10	-0.0057	-0.0054	2.5
20	-0.0047	-0.0047	2.5
30	-0.0053	-0.0047	2.5
40	-0.0026	-0.0023	2.5
50	-0.0004	-0.0005	2.5

FREQUENCY ERROR VS. VOLTAGE

VOLTAGE (Volts)	15MHz		LIMIT (ppm)
	FREQUENCY ERROR (ppm)		
	Low Channel	High Channel	
V _{nor}	0.0032	0.0031	2.5
V _{min}	-0.0038	-0.0038	2.5
V _{max}	0.0032	0.0029	2.5

NOTE: The applicant defined the normal working voltage of the battery is from V_{min} Vdc to V_{max} Vdc.

FREQUENCY ERROR vs. TEMPERATURE.

TEMP. (°C)	15MHz		LIMIT (ppm)
	FREQUENCY ERROR (ppm)		
	Low Channel	High Channel	
-30	-0.0033	-0.0023	2.5
-20	-0.0032	-0.0041	2.5
-10	-0.0069	-0.0060	2.5
0	-0.0095	-0.0088	2.5
10	-0.0069	-0.0054	2.5
20	-0.0052	-0.0051	2.5
30	-0.004	-0.0044	2.5
40	-0.0028	-0.0021	2.5
50	-0.0007	-0.0003	2.5

FREQUENCY ERROR VS. VOLTAGE

VOLTAGE (Volts)	20MHz		LIMIT (ppm)
	FREQUENCY ERROR (ppm)		
	Low Channel	High Channel	
V _{nor}	0.0031	0.0029	2.5
V _{min}	-0.0038	-0.0037	2.5
V _{max}	0.003	0.0029	2.5

NOTE: The applicant defined the normal working voltage of the battery is from V_{min} Vdc to V_{max} Vdc.

FREQUENCY ERROR vs. TEMPERATURE.

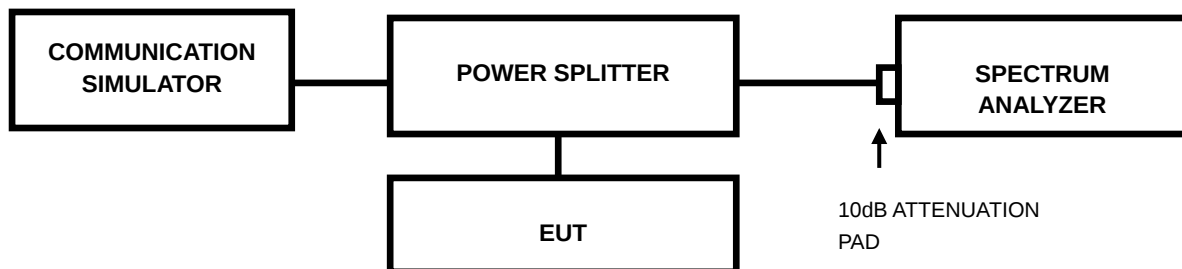
TEMP. (°C)	20MHz		LIMIT (ppm)
	FREQUENCY ERROR (ppm)		
	Low Channel	High Channel	
-30	-0.0048	-0.0063	2.5
-20	-0.0032	-0.0052	2.5
-10	-0.0042	-0.0021	2.5
0	-0.0093	-0.0093	2.5
10	-0.0059	-0.0067	2.5
20	-0.0048	-0.0047	2.5
30	-0.0047	-0.003	2.5
40	-0.0018	-0.0021	2.5
50	-0.0004	-0.0006	2.5

3.3 OCCUPIED BANDWIDTH MEASUREMENT

3.3.1 LIMITS OF OCCUPIED BANDWIDTH MEASUREMENT

The width of a frequency band such that, below the lower and above the upper frequency limits, the mean powers emitted are each equal to a specified percentage 0.5 %of the total mean power of a given emission.

3.3.2 TEST SETUP



3.3.3 TEST PROCEDURES

- The conducted occupied bandwidth used the power splitter via EUT RF power connector between simulation base station and spectrum analyzer.
- Use OBW measurement function of Spectrum analyzer to measure 99 % occupied bandwidth.

3.3.4 TEST RESULTS

LTE BAND 4

CHANNEL BANDWIDTH: 1.4MHz							
CHANNEL	Frequency (MHz)	99% OCCUPIED Bandwidth (MHz)			26 dB bandwidth (MHz)		
		QPSK	16QAM	64QAM	QPSK	16QAM	64QAM
19957	1710.7	1.10	1.10	1.09	1.56	1.64	1.56
20175	1732.5	1.10	1.10	1.10	1.60	1.60	1.59
20393	1754.3	1.10	1.10	1.10	1.61	1.57	1.70

