

Measurement of Peak Power Spectral Density (PSD) with a spectrum/signal analyzer or EMI receiver:

The following procedure can be used with a spectrum/signal analyzer or EMI receiver to determine the PPSD.

1. Set the analyzer center frequency to the OBW center frequency.
2. Set the span to $2 \times$ to $3 \times$ the OBW.
3. Set the RBW to the specified reference bandwidth
4. Set the VBW $\geq 3 \times$ RBW.
5. Set number of measurement points in sweep $\geq 2 \times$ span / RBW.
6. Sweep time $\geq 10 \times$ (number of points in sweep) $\times$ (transmission symbol period).
7. Trace mode = max hold.
8. Detector = peak.
9. Allow trace to fully stabilize.
10. Use the peak marker function to determine the maximum amplitude level within the specified reference bandwidth (PSD).

Test Setup

The EUT and measurement equipment were set up as shown in the diagram below.

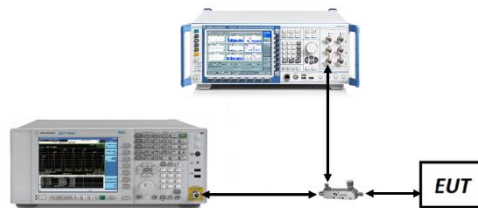


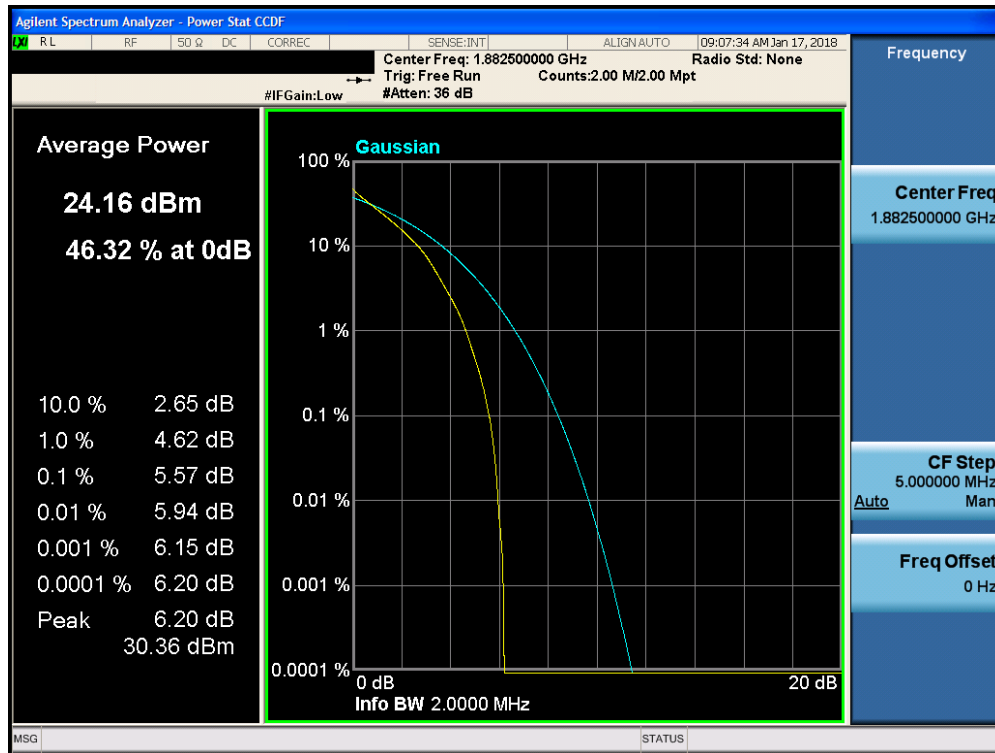
Figure 7-4. Test Instrument & Measurement Setup

Test Notes

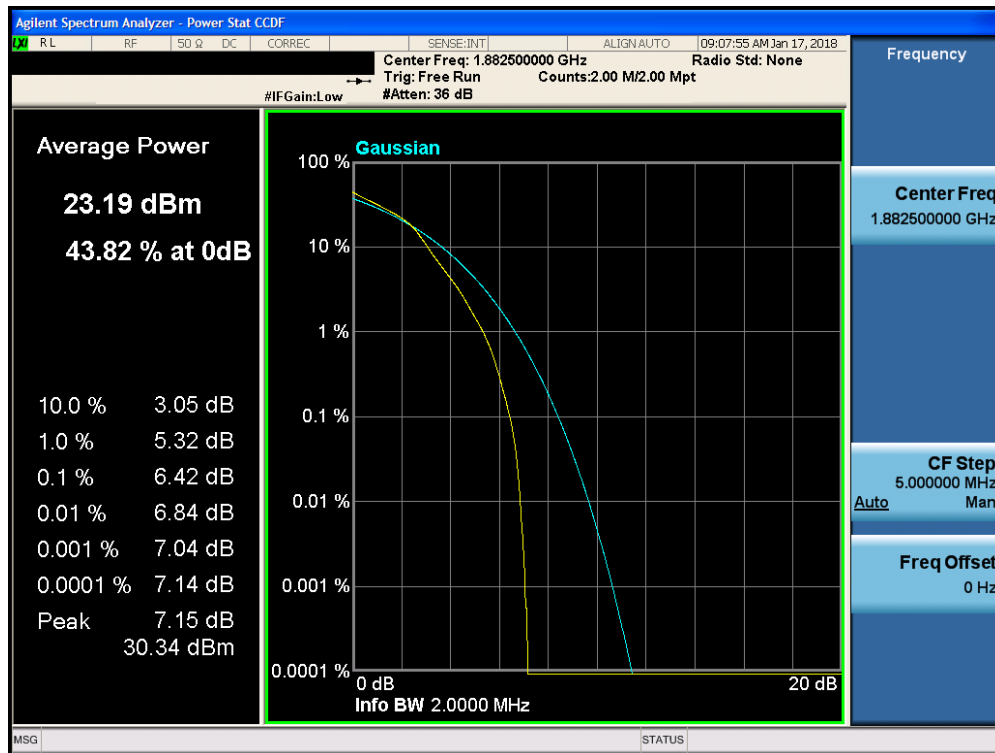
None.

FCC ID: BCGA1954	 MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1C1710060006-03-R2.BCG	Test Dates: 10/31/2017-2/15/2018	EUT Type: Tablet Device	Page 187 of 260

Band 25

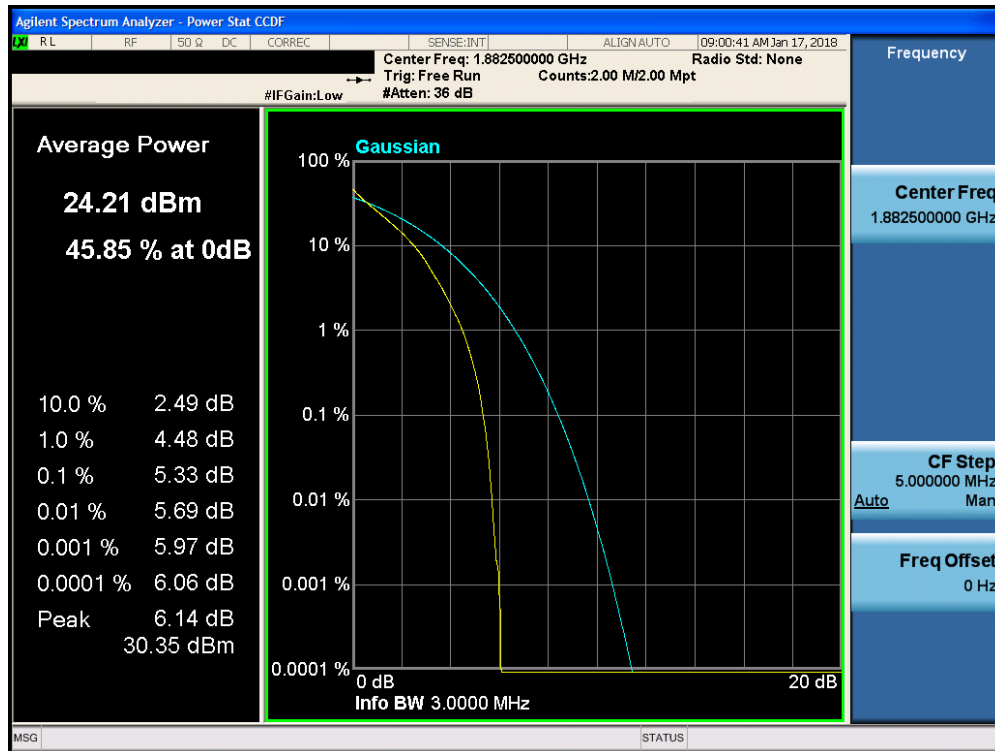


Plot 7-320. PAR Plot (Band 25 - 1.4MHz QPSK - Full RB Configuration)

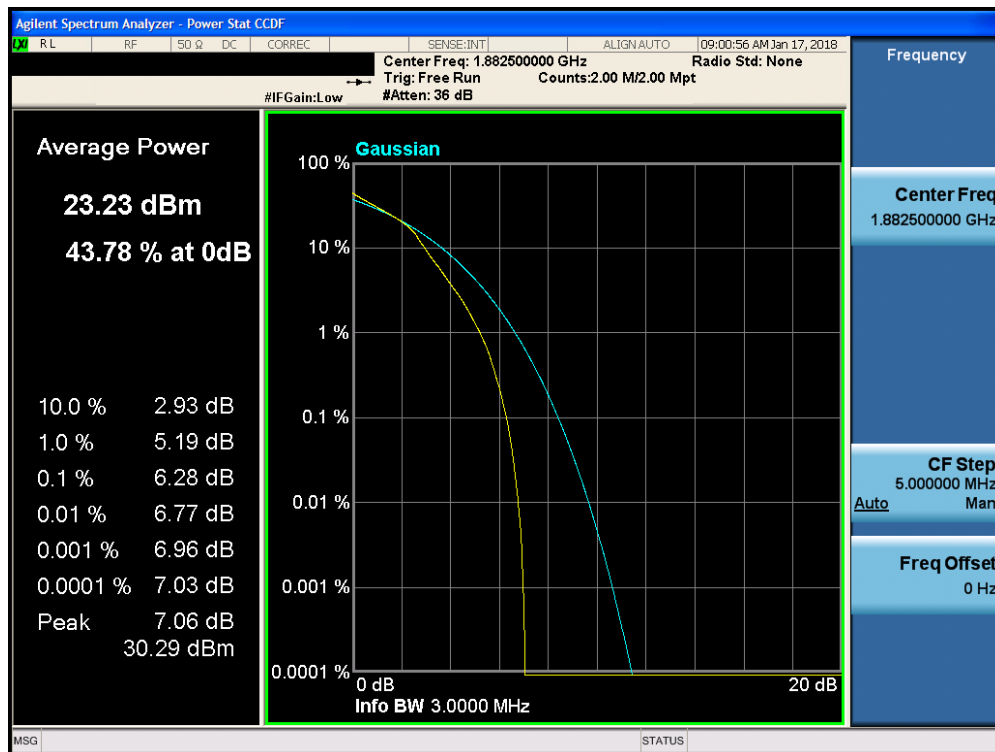


Plot 7-321. PAR Plot (Band 25 - 1.4MHz 16-QAM - Full RB Configuration)

FCC ID: BCGA1954	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1C1710060006-03-R2.BCG	Test Dates: 10/31/2017-2/15/2018	EUT Type: Tablet Device	Page 188 of 260

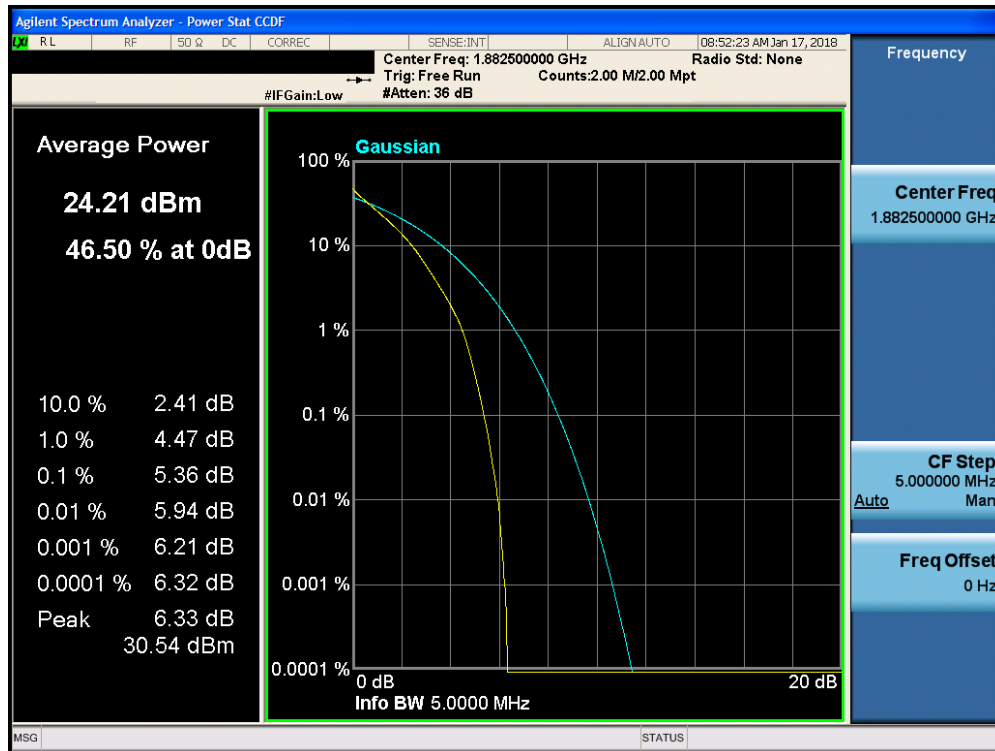


Plot 7-322. PAR Plot (Band 25 - 3.0MHz QPSK - Full RB Configuration)

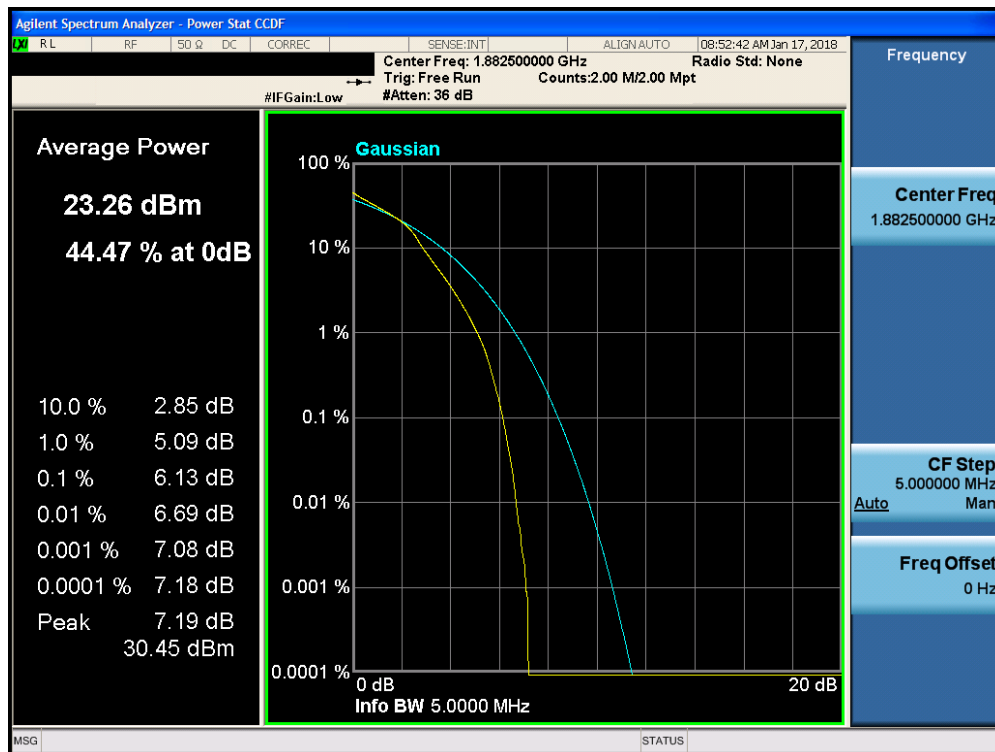


Plot 7-323. PAR Plot (Band 25 - 3.0MHz 16-QAM - Full RB Configuration)

FCC ID: BCGA1954	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1C1710060006-03-R2.BCG	Test Dates: 10/31/2017-2/15/2018	EUT Type: Tablet Device	Page 189 of 260

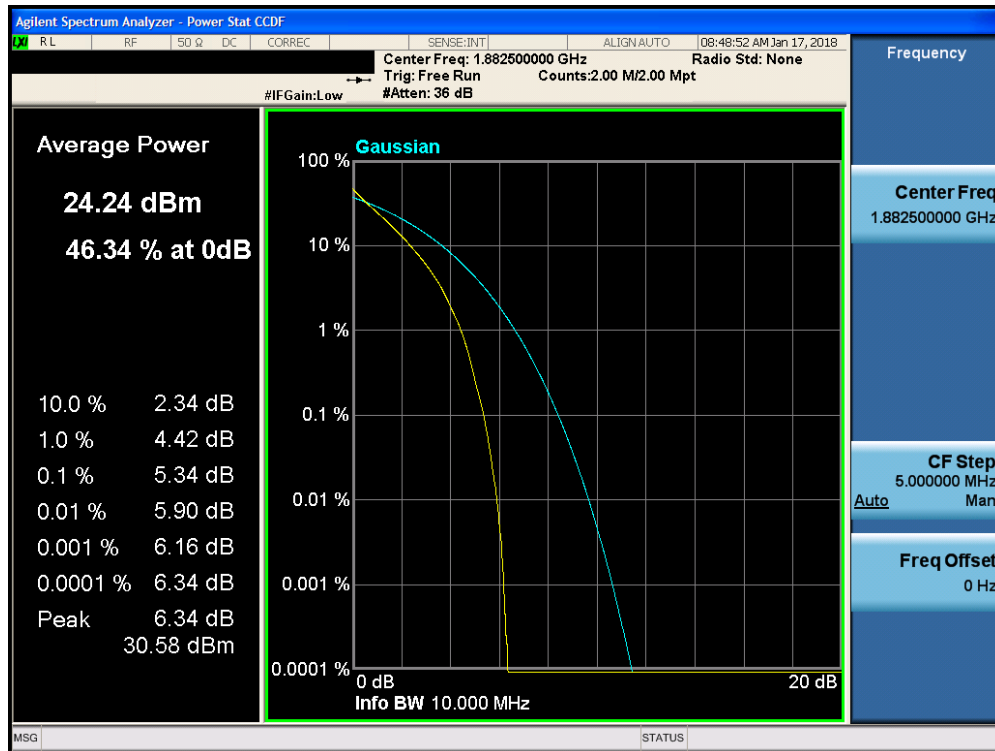


Plot 7-324. PAR Plot (Band 25 - 5.0MHz QPSK - Full RB Configuration)

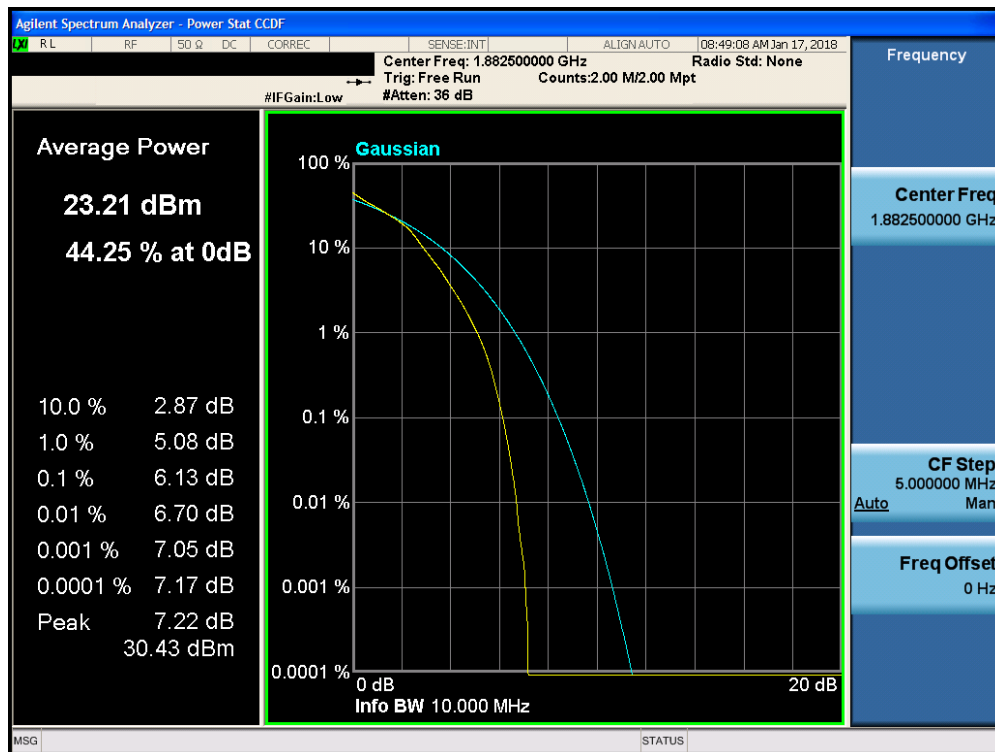


Plot 7-325. PAR Plot (Band 25 - 5.0MHz 16-QAM - Full RB Configuration)

FCC ID: BCGA1954	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1C1710060006-03-R2.BCG	Test Dates: 10/31/2017-2/15/2018	EUT Type: Tablet Device	Page 190 of 260

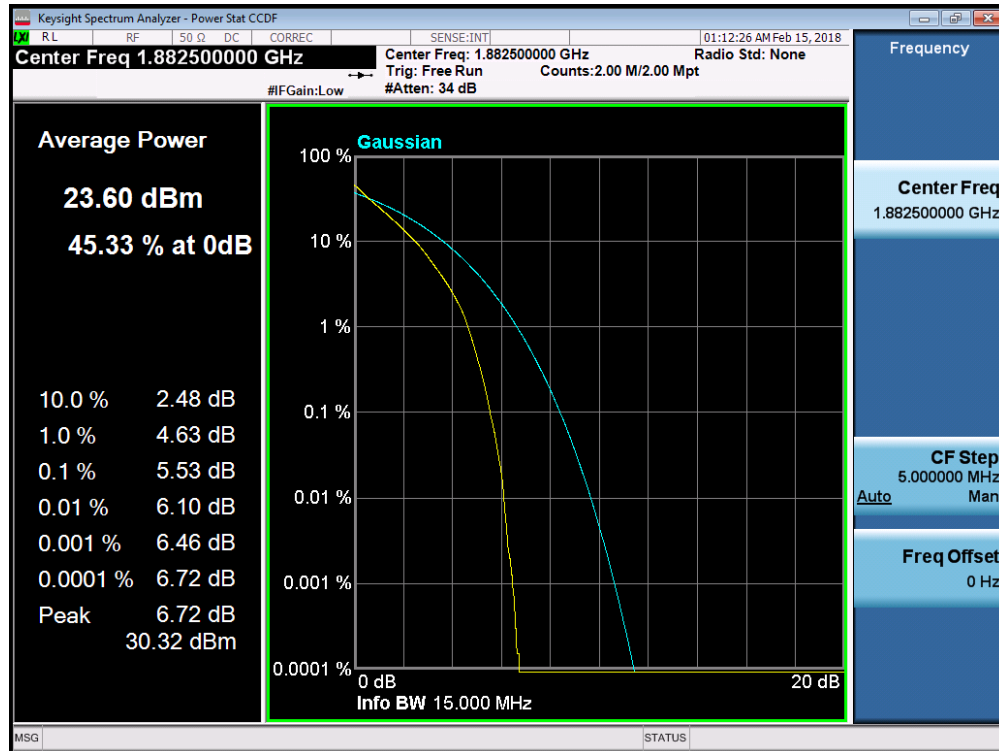


Plot 7-326. PAR Plot (Band 25 - 10.0MHz QPSK - Full RB Configuration)

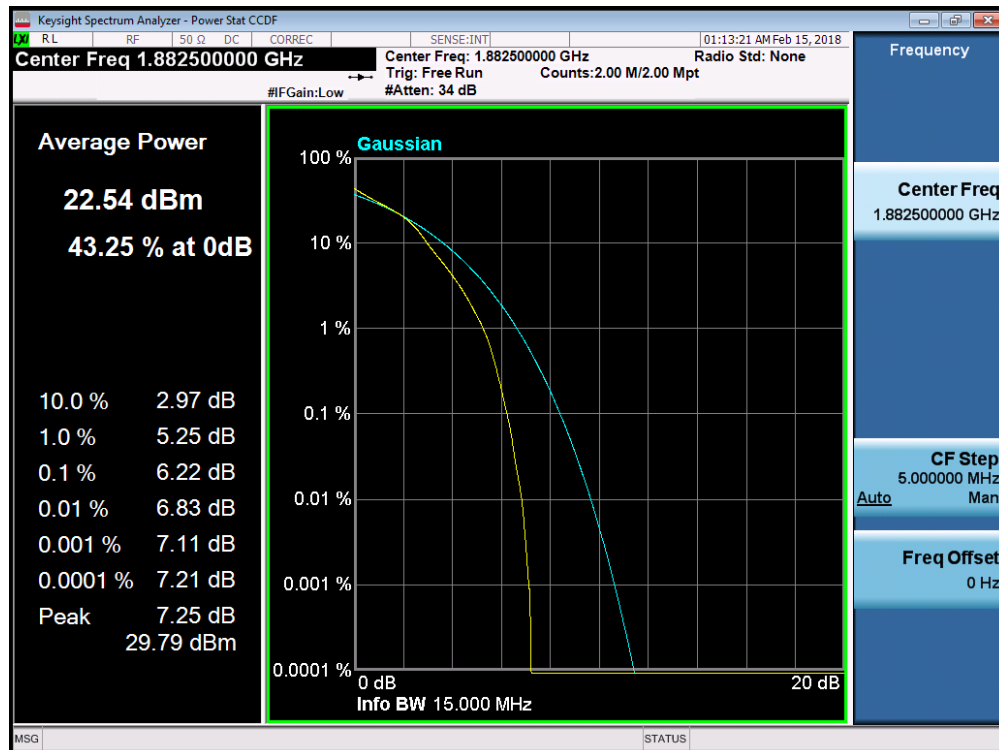


Plot 7-327. PAR Plot (Band 25 - 10.0MHz 16-QAM - Full RB Configuration)

FCC ID: BCGA1954	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1C1710060006-03-R2.BCG	Test Dates: 10/31/2017-2/15/2018	EUT Type: Tablet Device	Page 191 of 260

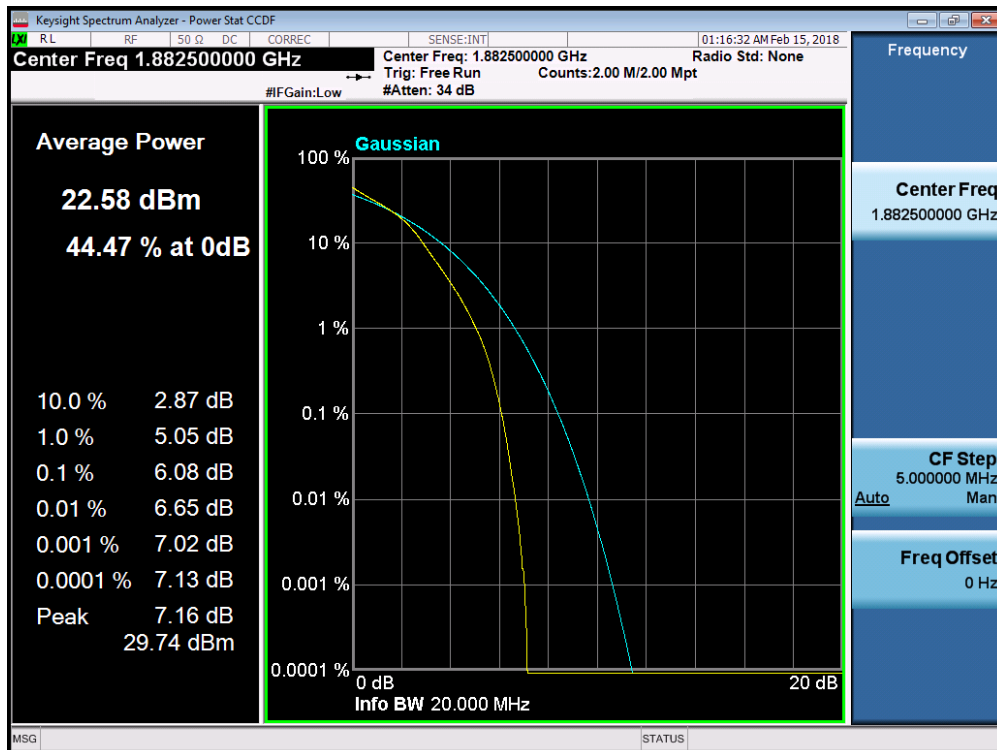
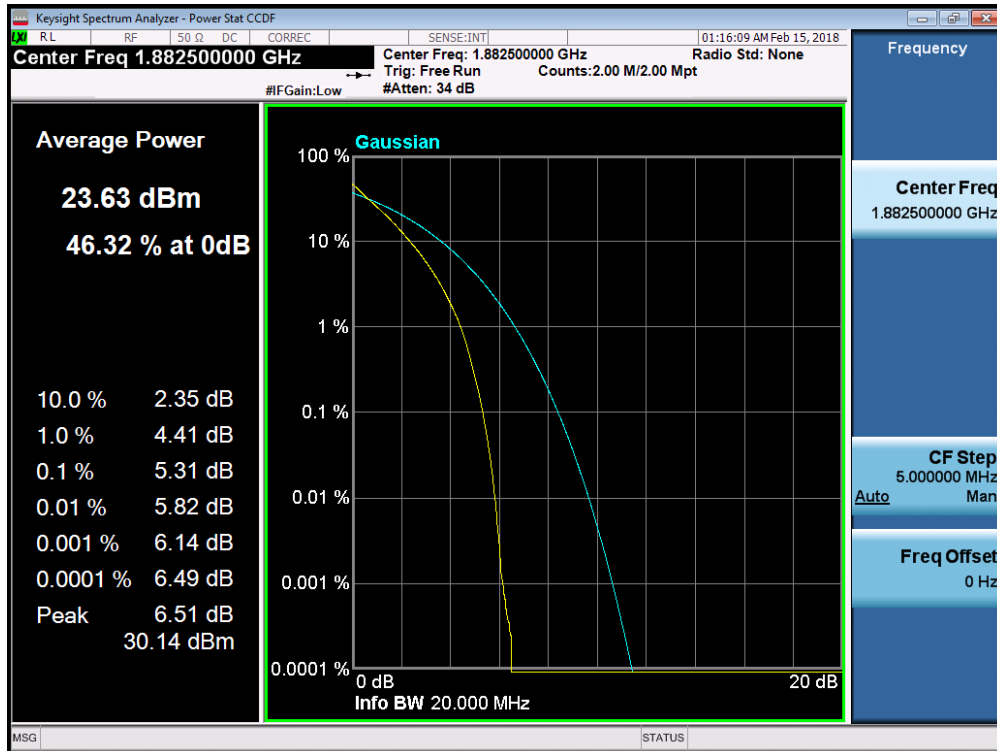


Plot 7-328. PAR Plot (Band 25 - 15.0MHz QPSK - Full RB Configuration)



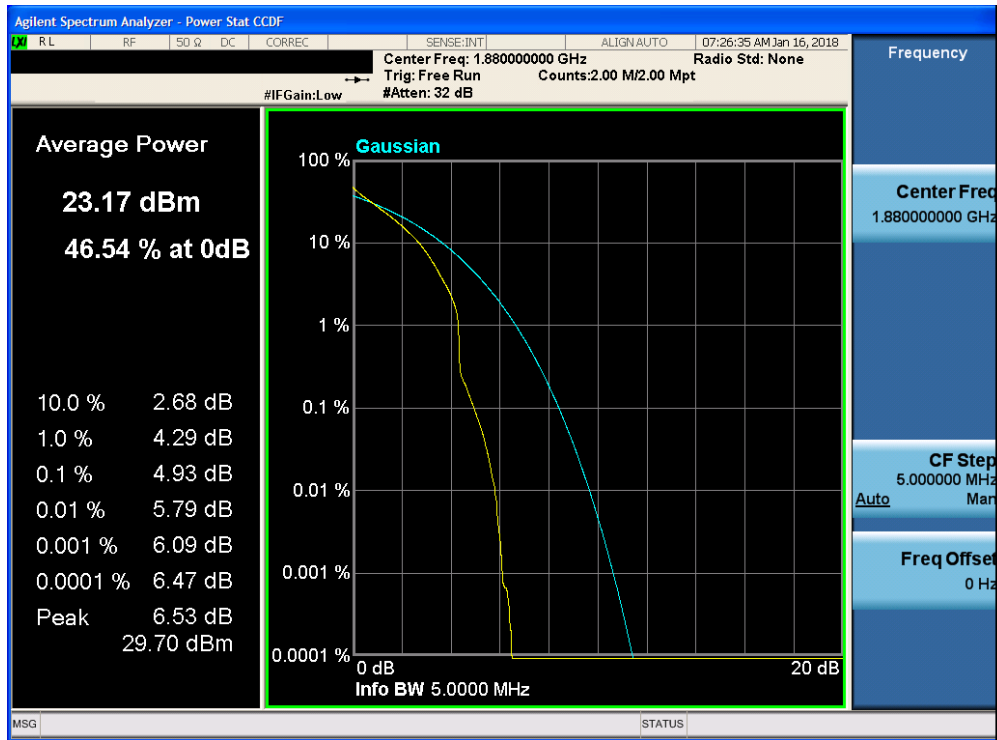
Plot 7-329. PAR Plot (Band 25 - 15.0MHz 16-QAM - Full RB Configuration)

FCC ID: BCGA1954	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1C1710060006-03-R2.BCG	Test Dates: 10/31/2017-2/15/2018	EUT Type: Tablet Device	Page 192 of 260

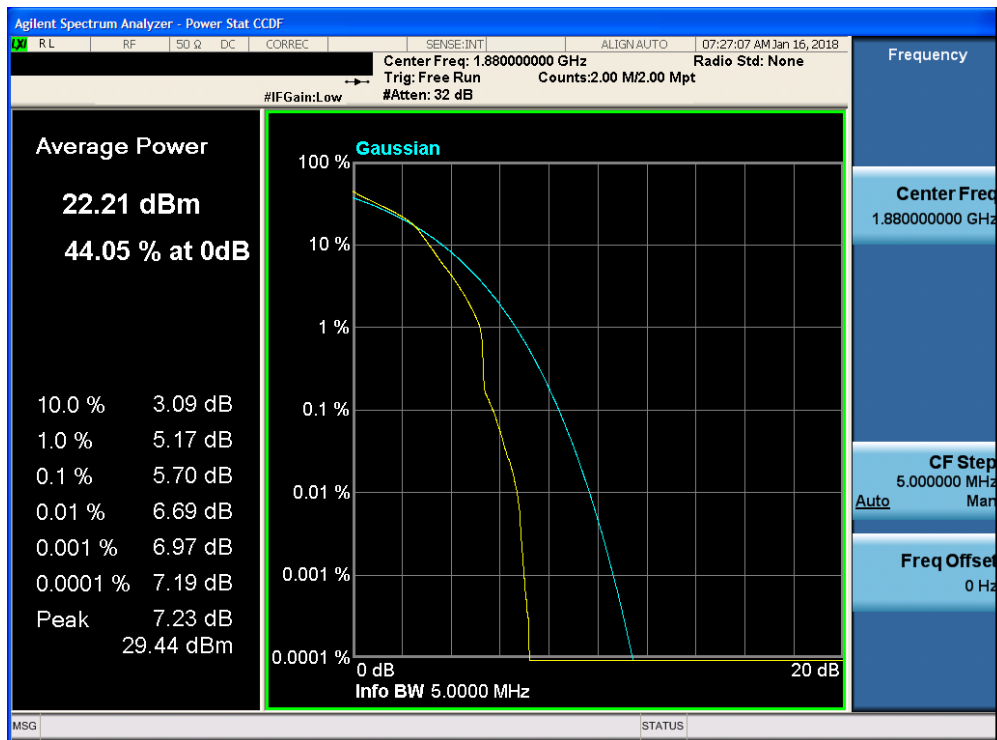


FCC ID: BCGA1954	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1C1710060006-03-R2.BCG	Test Dates: 10/31/2017-2/15/2018	EUT Type: Tablet Device	Page 193 of 260

Band 2

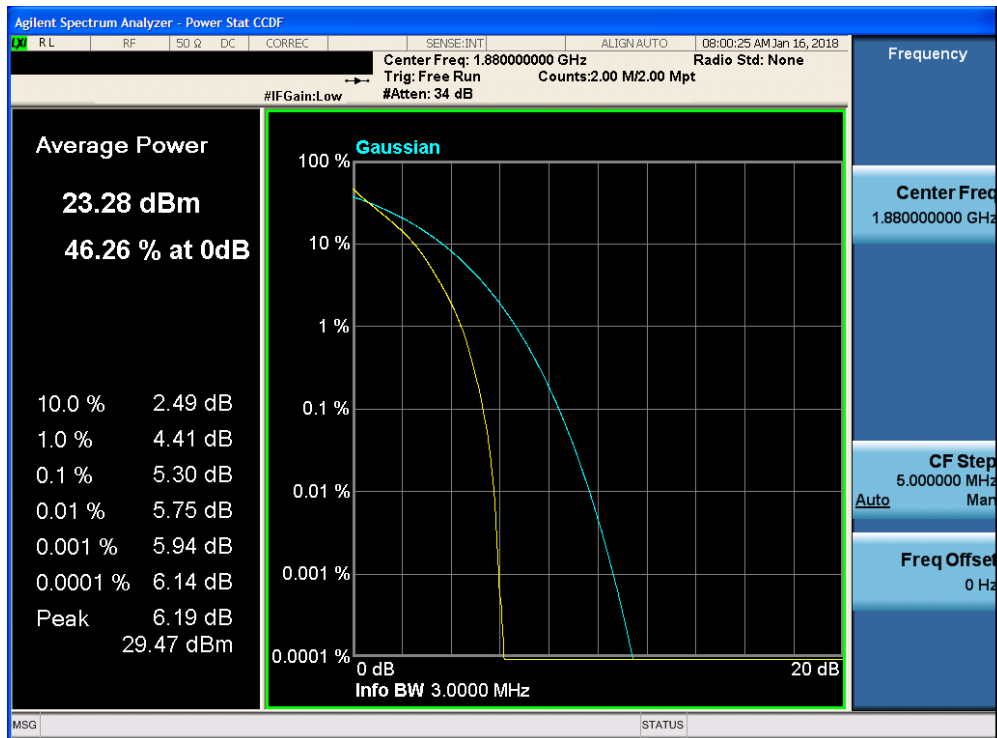


Plot 7-332. PAR Plot (Band 2 - 1.4MHz QPSK - Full RB Configuration)

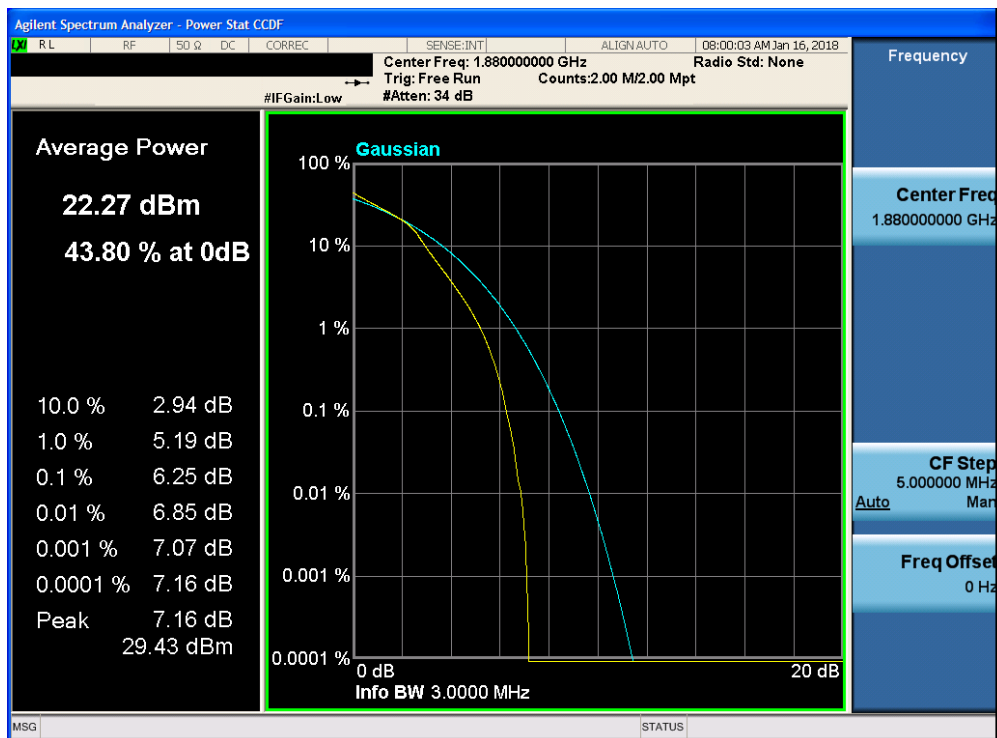


Plot 7-333. PAR Plot (Band 2 - 1.4MHz 16-QAM - Full RB Configuration)

FCC ID: BCGA1954	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1C1710060006-03-R2.BCG	Test Dates: 10/31/2017-2/15/2018	EUT Type: Tablet Device	Page 194 of 260

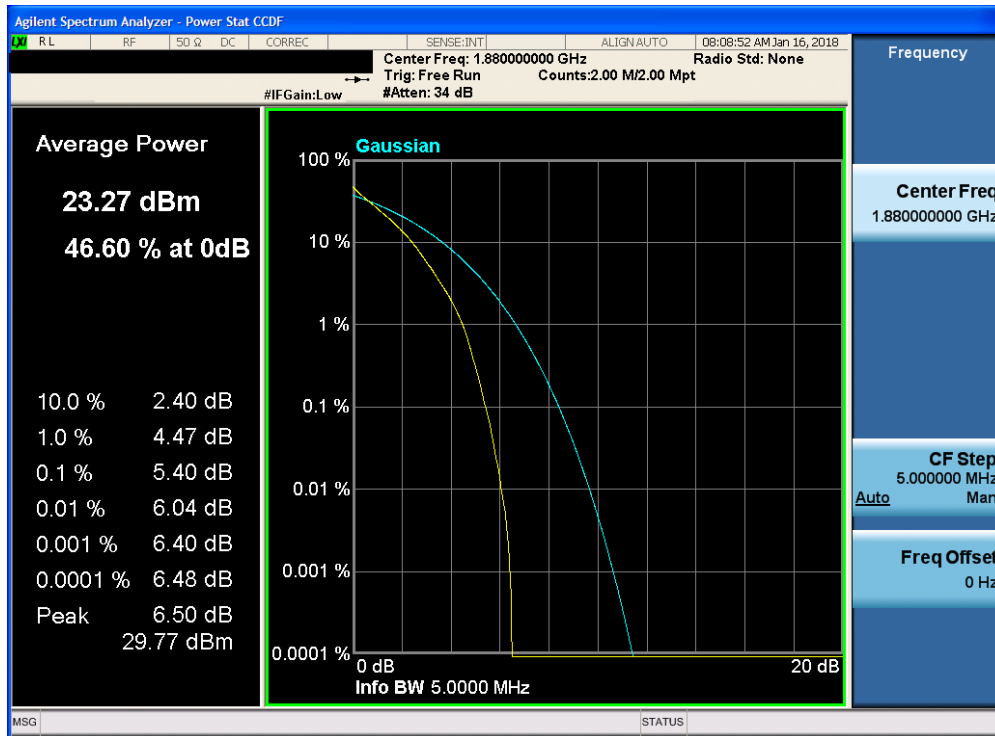


Plot 7-334. PAR Plot (Band 2 - 3.0MHz QPSK - Full RB Configuration)

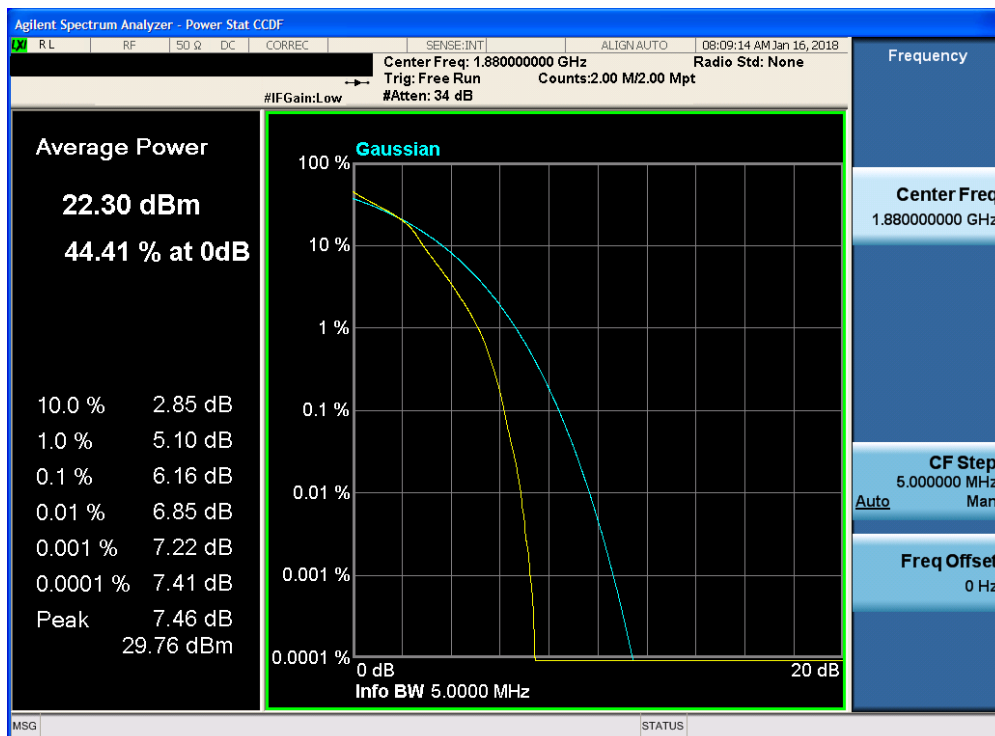


Plot 7-335. PAR Plot (Band 2 - 3.0MHz 16-QAM - Full RB Configuration)

FCC ID: BCGA1954	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1C1710060006-03-R2.BCG	Test Dates: 10/31/2017-2/15/2018	EUT Type: Tablet Device	Page 195 of 260

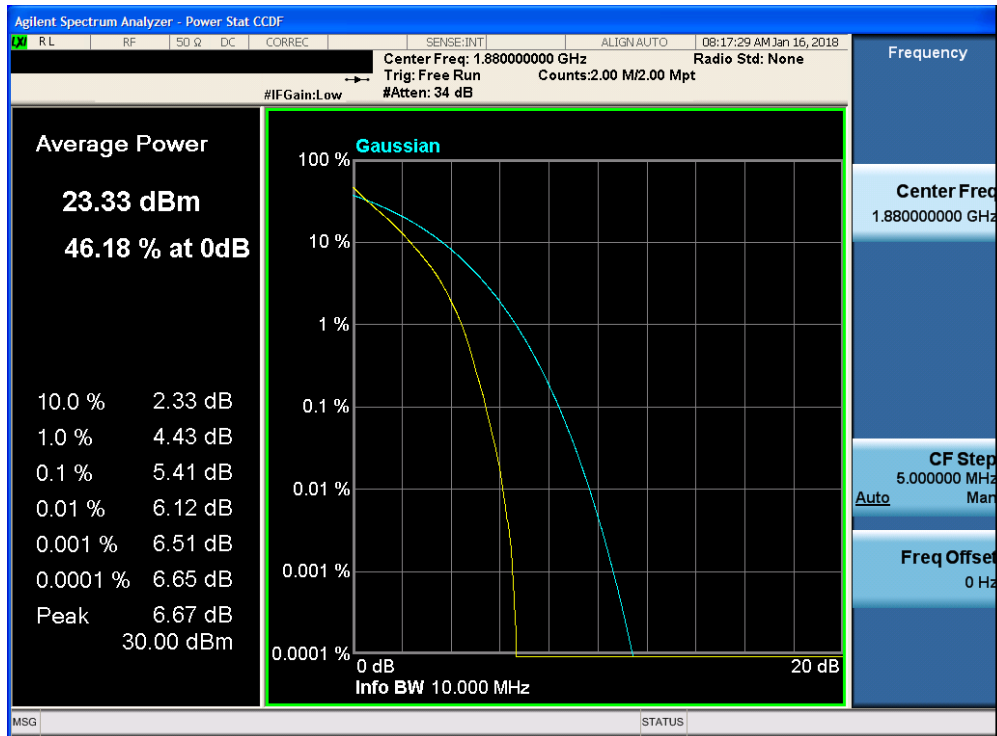


Plot 7-336. PAR Plot (Band 2 - 5.0MHz QPSK - Full RB Configuration)

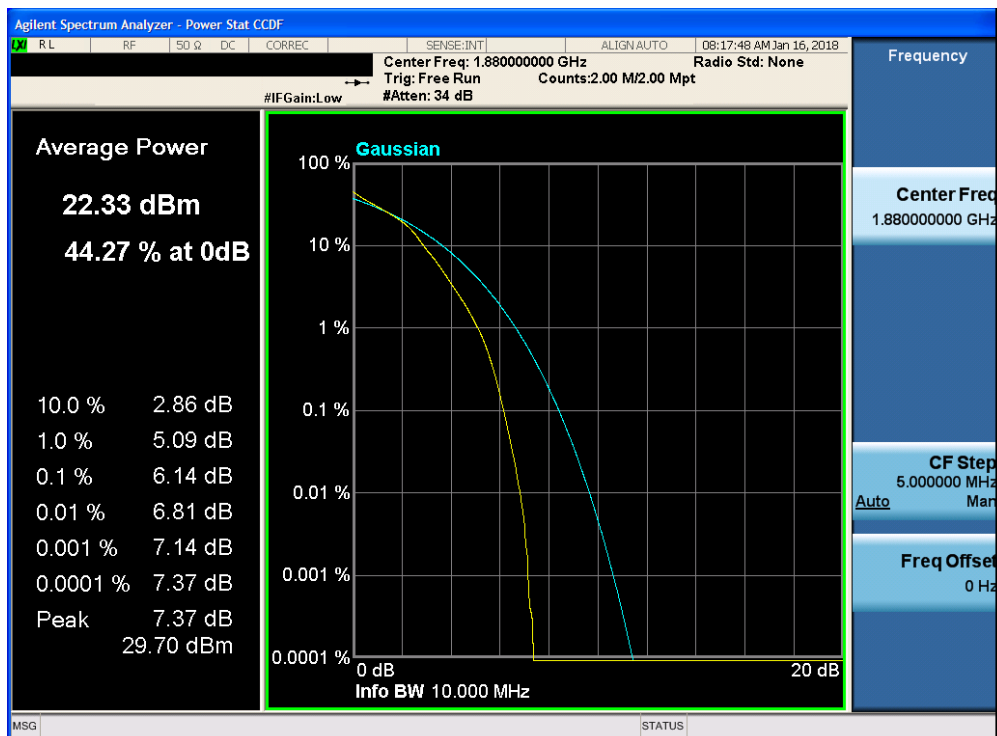


Plot 7-337. PAR Plot (Band 2 - 5.0MHz 16-QAM - Full RB Configuration)

FCC ID: BCGA1954	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1C1710060006-03-R2.BCG	Test Dates: 10/31/2017-2/15/2018	EUT Type: Tablet Device	Page 196 of 260

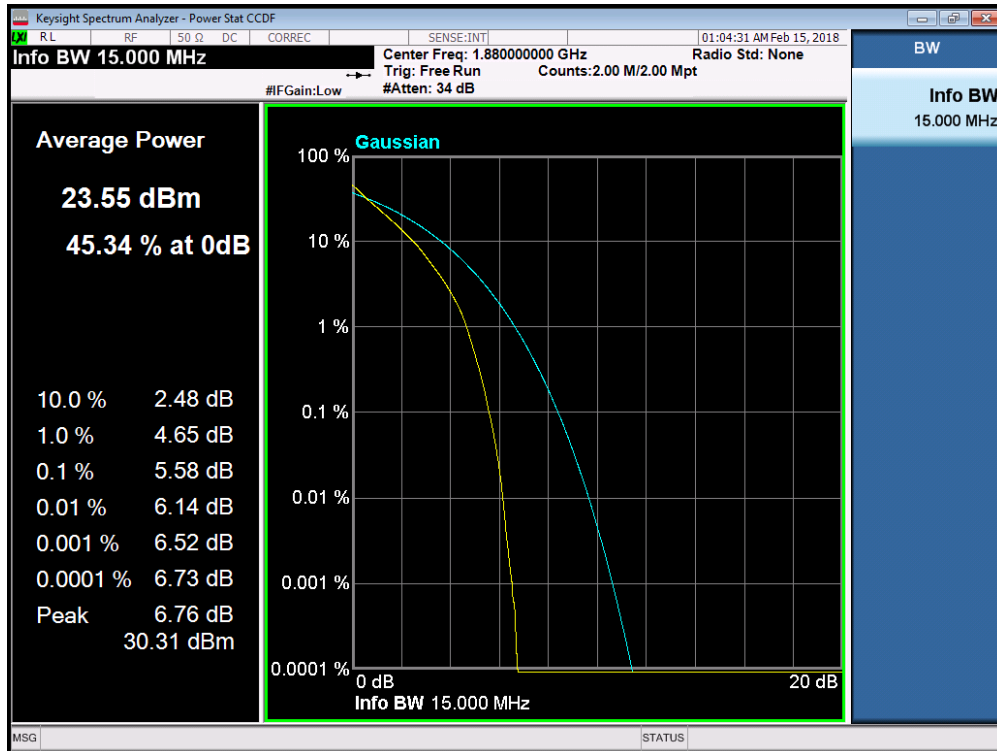


Plot 7-338. PAR Plot (Band 2 - 10.0MHz QPSK - Full RB Configuration)

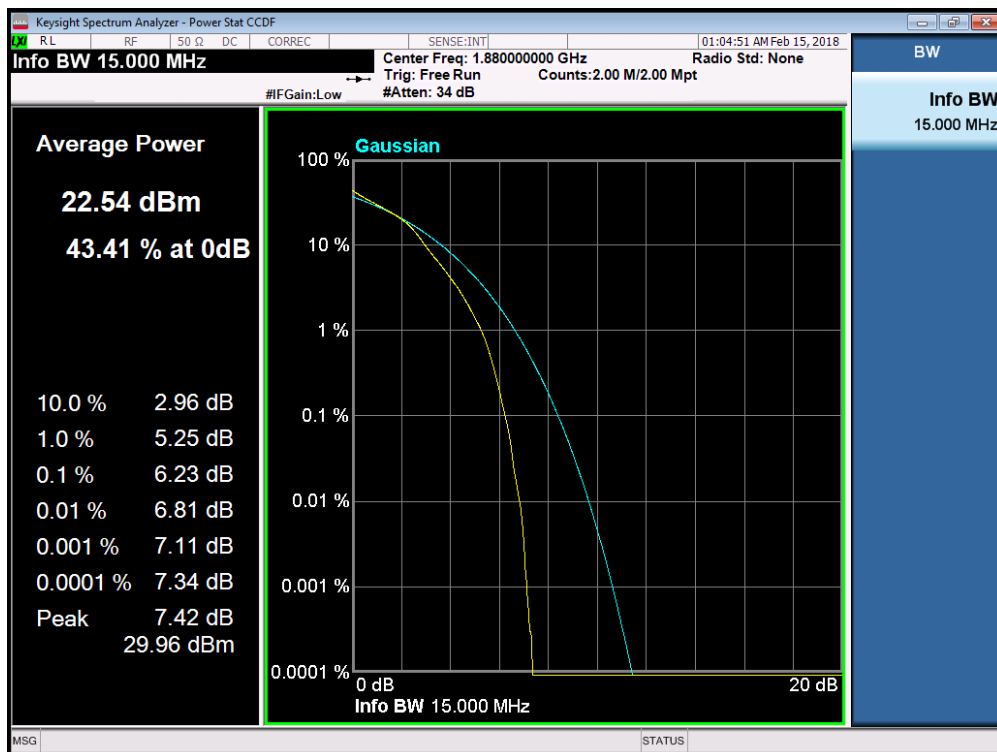


Plot 7-339. PAR Plot (Band 2 - 10.0MHz 16-QAM - Full RB Configuration)

FCC ID: BCGA1954	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1C1710060006-03-R2.BCG	Test Dates: 10/31/2017-2/15/2018	EUT Type: Tablet Device	Page 197 of 260

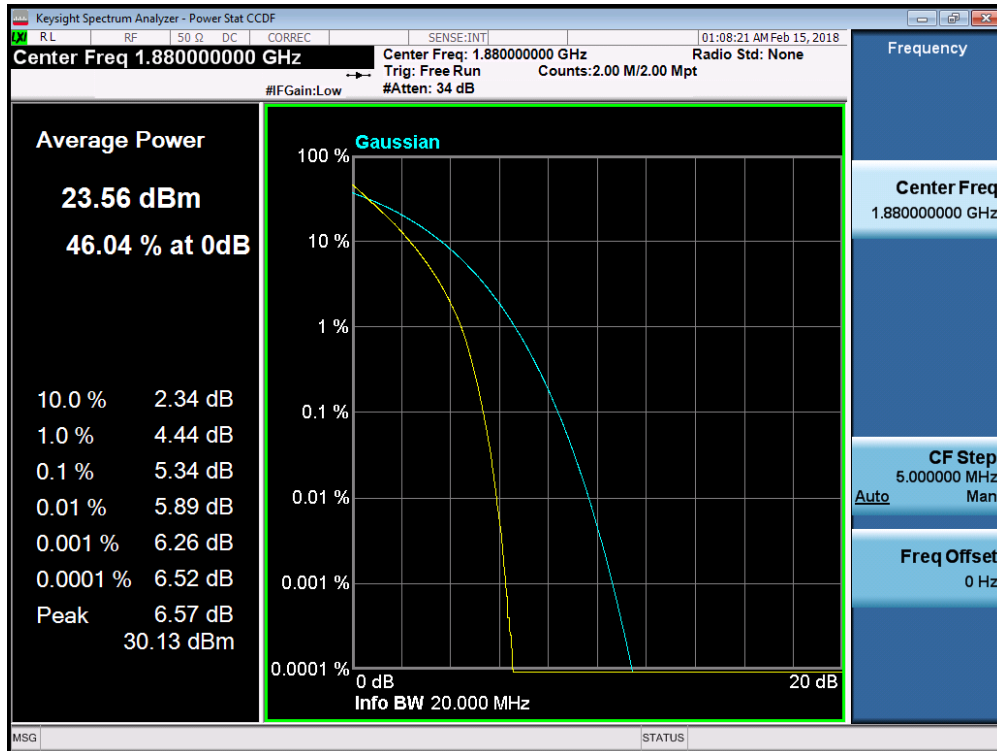


Plot 7-340. PAR Plot (Band 2 - 15.0MHz QPSK - Full RB Configuration)

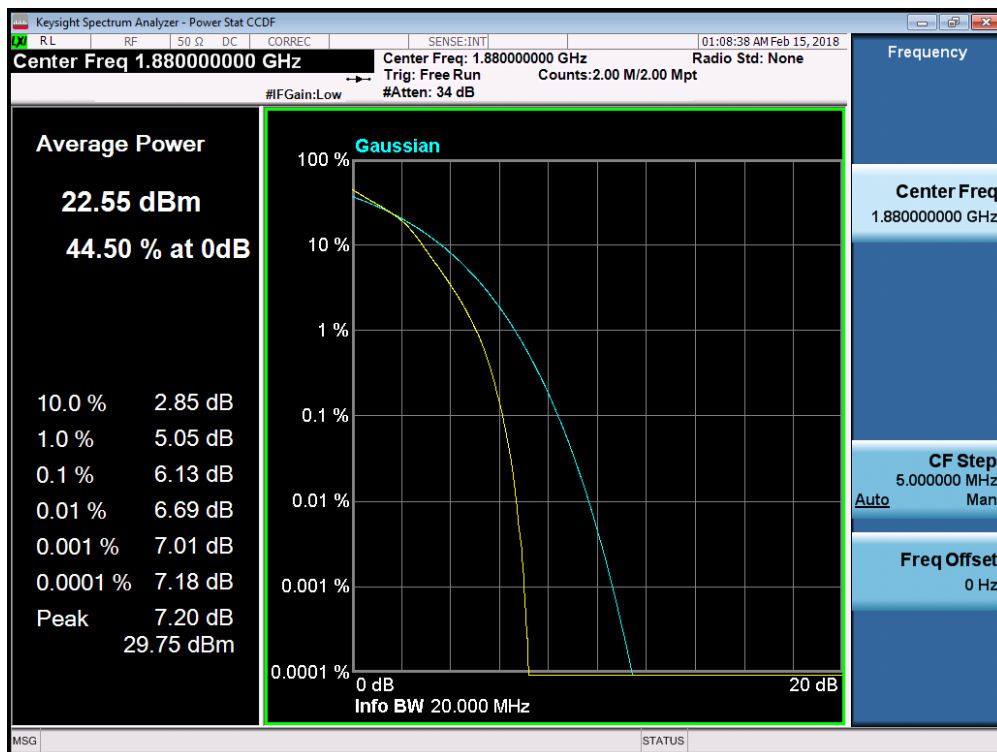


Plot 7-341. PAR Plot (Band 2 - 15.0MHz 16-QAM - Full RB Configuration)

FCC ID: BCGA1954	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1C1710060006-03-R2.BCG	Test Dates: 10/31/2017-2/15/2018	EUT Type: Tablet Device	Page 198 of 260



Plot 7-342. PAR Plot (Band 2 - 20.0MHz QPSK - Full RB Configuration)



Plot 7-343. PAR Plot (Band 2 - 20.0MHz 16-QAM - Full RB Configuration)

FCC ID: BCGA1954	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1C1710060006-03-R2.BCG	Test Dates: 10/31/2017-2/15/2018	EUT Type: Tablet Device	Page 199 of 260

7.6 ERP/EIRP

§22.913(a)(2) §24.232(c.2) §27.50(h)(2) §27.50(b)(10) §27.50(c)(10) §27.50(d)(4) §27.50(a)(3)

Test Overview

Effective Radiated Power (ERP) is specified when the operating frequency is less than or equal to 1 GHz and Equivalent Isotropic Radiated Power (EIRP) is specified when the operating frequency is greater than 1 GHz. Both are determined by adding the transmit antenna gain to the conducted RF output power with the primary difference between the two being that when determining the ERP, the transmit antenna gain is referenced to a dipole antenna (i.e., dBd) whereas when determining the EIRP, the transmit antenna gain is referenced to an isotropic antenna (dBi).

Test Procedures Used

KDB 971168 D01 v03 – Section 5.6

Test Settings

The relevant equation for determining the ERP or EIRP from the conducted RF output power measured is:

$$\text{ERP/EIRP} = \text{PMeas} - \text{LC} + \text{GT}$$

Where:

ERP/EIRP = effective or equivalent radiated power, respectively (expressed in the same units as PMeas, typically dBW or dBm)

PMeas = measured transmitter output power or PSD, in dBW or dBm

LC = signal attenuation in the connecting cable between the transmitter and antenna in dB

GT = gain of the transmitting antenna, in dBd (ERP) or dBi (EIRP)

Test Setup

The EUT and measurement equipment were set up as shown in the diagram below.



Figure 7-5. ERP/EIRP Measurement Setup

FCC ID: BCGA1954	 MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1C1710060006-03-R2.BCG	Test Dates: 10/31/2017-2/15/2018	EUT Type: Tablet Device	Page 200 of 260

Test Notes

- 1) The worst case emissions are reported with the EUT modulations, RB sizes and offsets, and channel bandwidth configurations shown in the tables below.
- 2) This unit was tested with its standard battery.
- 3) The Level (dBm) readings in the table were taken with a correction table loaded into the base station simulator. The correction table was used to account for the signal attenuation in the connecting cable between the transmitter and antenna.
- 4) The Ant. Gains (GT) are listed in dBi.

FCC ID: BCGA1954	 MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1C1710060006-03-R2.BCG	Test Dates: 10/31/2017-2/15/2018	EUT Type: Tablet Device	Page 201 of 260

Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	Conducted Power [dBm]	Ant. Gain [dBi]	ERP [dBm]	ERP [Watts]	ERP Limit [dBm]	Margin [dB]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
699.70	1.4	QPSK	24.79	-1.44	21.20	0.132	34.77	-13.57	23.35	0.216	36.99	-13.64
707.50	1.4	QPSK	24.63	-1.44	21.04	0.127	34.77	-13.73	23.19	0.208	36.99	-13.80
715.30	1.4	QPSK	24.57	-1.44	20.98	0.125	34.77	-13.79	23.13	0.206	36.99	-13.86
699.70	1.4	16-QAM	23.76	-1.44	20.17	0.104	34.77	-14.60	22.32	0.171	36.99	-14.67
700.50	3	QPSK	24.55	-1.44	20.96	0.125	34.77	-13.81	23.11	0.205	36.99	-13.88
707.50	3	QPSK	24.42	-1.44	20.83	0.121	34.77	-13.94	22.98	0.199	36.99	-14.01
714.50	3	QPSK	24.62	-1.44	21.03	0.127	34.77	-13.74	23.18	0.208	36.99	-13.81
714.50	3	16-QAM	23.81	-1.44	20.22	0.105	34.77	-14.55	22.37	0.173	36.99	-14.62
701.50	5	QPSK	24.95	-1.44	21.36	0.137	34.77	-13.41	23.51	0.224	36.99	-13.48
707.50	5	QPSK	24.80	-1.44	21.21	0.132	34.77	-13.56	23.36	0.217	36.99	-13.63
713.50	5	QPSK	24.94	-1.44	21.35	0.136	34.77	-13.42	23.50	0.224	36.99	-13.49
701.50	5	16-QAM	24.00	-1.44	20.41	0.110	34.77	-14.36	22.56	0.180	36.99	-14.43
704.00	10	QPSK	24.52	-1.44	20.93	0.124	34.77	-13.84	23.08	0.203	36.99	-13.91
707.50	10	QPSK	24.45	-1.44	20.86	0.122	34.77	-13.91	23.01	0.200	36.99	-13.98
711.00	10	QPSK	24.60	-1.44	21.01	0.126	34.77	-13.76	23.16	0.207	36.99	-13.83
711.00	10	16-QAM	23.43	-1.44	19.84	0.096	34.77	-14.93	21.99	0.158	36.99	-15.00

Table 7-3. ERP/EIRP Data (Band 12)

Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	Conducted Power [dBm]	Ant. Gain [dBi]	ERP [dBm]	ERP [Watts]	ERP Limit [dBm]	Margin [dB]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
706.50	5	QPSK	24.91	-1.44	21.32	0.136	34.77	-13.45	23.47	0.222	36.99	-13.52
710.00	5	QPSK	24.98	-1.44	21.39	0.138	34.77	-13.38	23.54	0.226	36.99	-13.45
713.50	5	QPSK	24.91	-1.44	21.32	0.136	34.77	-13.45	23.47	0.222	36.99	-13.52
706.50	5	16-QAM	24.00	-1.44	20.41	0.110	34.77	-14.36	22.56	0.180	36.99	-14.43
709.00	10	QPSK	24.70	-1.44	21.11	0.129	34.77	-13.66	23.26	0.212	36.99	-13.73
710.00	10	QPSK	24.48	-1.44	20.89	0.123	34.77	-13.88	23.04	0.201	36.99	-13.95
711.00	10	QPSK	24.81	-1.44	21.22	0.132	34.77	-13.55	23.37	0.217	36.99	-13.62
711.00	10	16-QAM	23.98	-1.44	20.39	0.109	34.77	-14.38	22.54	0.179	36.99	-14.45

Table 7-4. ERP/EIRP Data (Band 17)

FCC ID: BCGA1954	 MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1C1710060006-03-R2.BCG	Test Dates: 10/31/2017-2/15/2018	EUT Type: Tablet Device	Page 202 of 260

Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	Conducted Power [dBm]	Ant. Gain [dBi]	ERP [dBm]	ERP [Watts]	ERP Limit [dBm]	Margin [dB]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
779.50	5	QPSK	23.78	-0.74	20.89	0.123	34.77	-13.88	23.04	0.201	36.99	-13.95
782.00	5	QPSK	23.90	-0.74	21.01	0.126	34.77	-13.76	23.16	0.207	36.99	-13.83
784.50	5	QPSK	23.56	-0.74	20.67	0.117	34.77	-14.10	22.82	0.191	36.99	-14.17
782.00	5	16-QAM	22.91	-0.74	20.02	0.100	34.77	-14.75	22.17	0.165	36.99	-14.82
782.00	10	QPSK	23.40	-0.74	20.51	0.112	34.77	-14.26	22.66	0.185	36.99	-14.33
782.00	10	16-QAM	22.99	-0.74	20.10	0.102	34.77	-14.67	22.25	0.168	36.99	-14.74

Table 7-5. ERP/EIRP Data (Band 13)

FCC ID: BCGA1954	 MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1C1710060006-03-R2.BCG	Test Dates: 10/31/2017-2/15/2018	EUT Type: Tablet Device	Page 203 of 260

Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	Conducted Power [dBm]	Ant. Gain [dBi]	ERP [dBm]	ERP [Watts]	ERP Limit [dBm]	Margin [dB]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
814.70	1.4	QPSK	24.44	0.43	22.72	0.187	38.45	-15.73	24.87	0.307	40.61	-15.74
831.50	1.4	QPSK	24.48	0.43	22.76	0.189	38.45	-15.69	24.91	0.310	40.61	-15.70
848.30	1.4	QPSK	24.28	0.43	22.56	0.180	38.45	-15.89	24.71	0.296	40.61	-15.90
831.50	1.4	16-QAM	23.44	0.43	21.72	0.149	38.45	-16.73	23.87	0.244	40.61	-16.74
815.50	3	QPSK	24.49	0.43	22.77	0.189	38.45	-15.68	24.92	0.310	40.61	-15.69
831.50	3	QPSK	24.40	0.43	22.68	0.185	38.45	-15.77	24.83	0.304	40.61	-15.78
847.50	3	QPSK	24.36	0.43	22.64	0.184	38.45	-15.81	24.79	0.301	40.61	-15.82
815.50	3	16-QAM	23.44	0.43	21.72	0.149	38.45	-16.73	23.87	0.244	40.61	-16.74
816.50	5	QPSK	24.46	0.43	22.74	0.188	38.45	-15.71	24.89	0.308	40.61	-15.72
831.50	5	QPSK	24.49	0.43	22.77	0.189	38.45	-15.68	24.92	0.310	40.61	-15.69
846.50	5	QPSK	24.48	0.43	22.76	0.189	38.45	-15.69	24.91	0.310	40.61	-15.70
831.50	5	16-QAM	23.50	0.43	21.78	0.151	38.45	-16.67	23.93	0.247	40.61	-16.68
819.00	10	QPSK	24.49	0.43	22.77	0.189	38.45	-15.68	24.92	0.310	40.61	-15.69
831.50	10	QPSK	24.43	0.43	22.71	0.187	38.45	-15.74	24.86	0.306	40.61	-15.75
844.00	10	QPSK	24.46	0.43	22.74	0.188	38.45	-15.71	24.89	0.308	40.61	-15.72
831.50	10	16-QAM	23.50	0.43	21.78	0.151	38.45	-16.67	23.93	0.247	40.61	-16.68

Table 7-6. ERP/EIRP Data (Band 26)

FCC ID: BCGA1954	 MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1C1710060006-03-R2.BCG	Test Dates: 10/31/2017-2/15/2018	EUT Type: Tablet Device	Page 204 of 260

Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	Conducted Power [dBm]	Ant. Gain [dBi]	ERP [dBm]	ERP [Watts]	ERP Limit [dBm]	Margin [dB]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
824.70	1.4	QPSK	24.39	0.43	22.67	0.185	38.45	-15.78	24.82	0.303	40.61	-15.79
836.50	1.4	QPSK	24.31	0.43	22.59	0.182	38.45	-15.86	24.74	0.298	40.61	-15.87
848.30	1.4	QPSK	24.33	0.43	22.61	0.182	38.45	-15.84	24.76	0.299	40.61	-15.85
824.70	1.4	16-QAM	23.50	0.43	21.78	0.151	38.45	-16.67	23.93	0.247	40.61	-16.68
825.50	3	QPSK	23.98	0.43	22.26	0.168	38.45	-16.19	24.41	0.276	40.61	-16.20
836.50	3	QPSK	23.96	0.43	22.24	0.167	38.45	-16.21	24.39	0.275	40.61	-16.22
847.50	3	QPSK	24.06	0.43	22.34	0.171	38.45	-16.11	24.49	0.281	40.61	-16.12
847.50	3	16-QAM	23.36	0.43	21.64	0.146	38.45	-16.81	23.79	0.239	40.61	-16.82
826.50	5	QPSK	24.40	0.43	22.68	0.185	38.45	-15.77	24.83	0.304	40.61	-15.78
836.50	5	QPSK	24.02	0.43	22.30	0.170	38.45	-16.15	24.45	0.279	40.61	-16.16
846.50	5	QPSK	24.17	0.43	22.45	0.176	38.45	-16.00	24.60	0.288	40.61	-16.01
846.50	5	16-QAM	23.37	0.43	21.65	0.146	38.45	-16.80	23.80	0.240	40.61	-16.81
829.00	10	QPSK	24.04	0.43	22.32	0.171	38.45	-16.13	24.47	0.280	40.61	-16.14
836.50	10	QPSK	23.90	0.43	22.18	0.165	38.45	-16.27	24.33	0.271	40.61	-16.28
844.00	10	QPSK	24.05	0.43	22.33	0.171	38.45	-16.12	24.48	0.281	40.61	-16.13
836.50	10	16-QAM	23.13	0.43	21.41	0.138	38.45	-17.04	23.56	0.227	40.61	-17.05

Table 7-7. ERP/EIRP Data (Band 5)

FCC ID: BCGA1954	 MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1C1710060006-03-R2.BCG	Test Dates: 10/31/2017-2/15/2018	EUT Type: Tablet Device	Page 205 of 260

Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	Conducted Power [dBm]	Ant. Gain [dBi]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
1710.70	1.4	QPSK	23.81	1.00	24.81	0.303	30.00	-5.19
1732.50	1.4	QPSK	23.87	1.00	24.87	0.307	30.00	-5.13
1754.30	1.4	QPSK	24.00	1.00	25.00	0.316	30.00	-5.00
1754.30	1.4	16-QAM	23.00	1.00	24.00	0.251	30.00	-6.00
1711.50	3	QPSK	23.76	1.00	24.76	0.299	30.00	-5.24
1732.50	3	QPSK	23.76	1.00	24.76	0.299	30.00	-5.24
1753.50	3	QPSK	23.84	1.00	24.84	0.305	30.00	-5.16
1753.50	3	16-QAM	22.88	1.00	23.88	0.244	30.00	-6.12
1712.50	5	QPSK	23.98	1.00	24.98	0.315	30.00	-5.02
1732.50	5	QPSK	23.78	1.00	24.78	0.301	30.00	-5.22
1752.50	5	QPSK	23.69	1.00	24.69	0.294	30.00	-5.31
1712.50	5	16-QAM	23.00	1.00	24.00	0.251	30.00	-6.00
1715.00	10	QPSK	23.84	1.00	24.84	0.305	30.00	-5.16
1732.50	10	QPSK	23.91	1.00	24.91	0.310	30.00	-5.09
1750.00	10	QPSK	23.96	1.00	24.96	0.313	30.00	-5.04
1750.00	10	16-QAM	23.00	1.00	24.00	0.251	30.00	-6.00
1717.50	15	QPSK	23.92	1.00	24.92	0.310	30.00	-5.08
1732.50	15	QPSK	23.71	1.00	24.71	0.296	30.00	-5.29
1747.50	15	QPSK	23.81	1.00	24.81	0.303	30.00	-5.19
1717.50	15	16-QAM	23.00	1.00	24.00	0.251	30.00	-6.00
1720.00	20	QPSK	24.00	1.00	25.00	0.316	30.00	-5.00
1732.50	20	QPSK	24.00	1.00	25.00	0.316	30.00	-5.00
1745.00	20	QPSK	24.00	1.00	25.00	0.316	30.00	-5.00
1720.00	20	16-QAM	23.00	1.00	24.00	0.251	30.00	-6.00

Table 7-8. EIRP Data (Band 4)

FCC ID: BCGA1954	 MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1C1710060006-03-R2.BCG	Test Dates: 10/31/2017-2/15/2018	EUT Type: Tablet Device	Page 206 of 260

Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	Conducted Power [dBm]	Ant. Gain [dBi]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
1850.70	1.4	QPSK	24.51	2.35	26.86	0.485	33.01	-6.15
1882.50	1.4	QPSK	24.35	2.35	26.70	0.468	33.01	-6.31
1914.30	1.4	QPSK	24.29	2.35	26.64	0.461	33.01	-6.37
1850.70	1.4	16-QAM	23.48	2.35	25.83	0.383	33.01	-7.18
1851.50	3	QPSK	24.42	2.35	26.77	0.475	33.01	-6.24
1882.50	3	QPSK	24.45	2.35	26.80	0.479	33.01	-6.21
1913.50	3	QPSK	24.36	2.35	26.71	0.469	33.01	-6.30
1882.50	3	16-QAM	23.31	2.35	25.66	0.368	33.01	-7.35
1852.50	5	QPSK	24.45	2.35	26.80	0.479	33.01	-6.21
1882.50	5	QPSK	24.50	2.35	26.85	0.484	33.01	-6.16
1912.50	5	QPSK	24.39	2.35	26.74	0.472	33.01	-6.27
1882.50	5	16-QAM	23.36	2.35	25.71	0.372	33.01	-7.30
1855.00	10	QPSK	24.32	2.35	26.67	0.465	33.01	-6.34
1882.50	10	QPSK	24.37	2.35	26.72	0.470	33.01	-6.29
1910.00	10	QPSK	24.34	2.35	26.69	0.467	33.01	-6.32
1882.50	10	16-QAM	23.38	2.35	25.73	0.374	33.01	-7.28
1857.50	15	QPSK	24.44	2.35	26.79	0.478	33.01	-6.22
1882.50	15	QPSK	24.30	2.35	26.65	0.462	33.01	-6.36
1907.50	15	QPSK	24.49	2.35	26.84	0.483	33.01	-6.17
1907.50	15	16-QAM	23.36	2.35	25.71	0.372	33.01	-7.30
1860.00	20	QPSK	24.55	2.35	26.90	0.490	33.01	-6.11
1882.50	20	QPSK	24.52	2.35	26.87	0.486	33.01	-6.14
1905.00	20	QPSK	24.52	2.35	26.87	0.486	33.01	-6.14
1860.00	20	16-QAM	23.86	2.35	26.21	0.418	33.01	-6.80

Table 7-9. EIRP Data (Band 25)

FCC ID: BCGA1954	 MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1C1710060006-03-R2.BCG	Test Dates: 10/31/2017-2/15/2018	EUT Type: Tablet Device	Page 207 of 260

Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	Conducted Power [dBm]	Ant. Gain [dBi]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
1850.70	1.4	QPSK	23.59	2.35	25.94	0.393	33.01	-7.07
1880.00	1.4	QPSK	23.56	2.35	25.91	0.390	33.01	-7.10
1909.30	1.4	QPSK	23.65	2.35	26.00	0.398	33.01	-7.01
1880.00	1.4	16-QAM	23.07	2.35	25.42	0.348	33.01	-7.59
1851.50	3	QPSK	23.61	2.35	25.96	0.394	33.01	-7.05
1880.00	3	QPSK	23.62	2.35	25.97	0.395	33.01	-7.04
1908.50	3	QPSK	23.64	2.35	25.99	0.397	33.01	-7.02
1851.50	3	16-QAM	22.90	2.35	25.25	0.335	33.01	-7.76
1852.50	5	QPSK	23.67	2.35	26.02	0.400	33.01	-6.99
1880.00	5	QPSK	23.71	2.35	26.06	0.404	33.01	-6.95
1907.50	5	QPSK	23.72	2.35	26.07	0.405	33.01	-6.94
1852.50	5	16-QAM	22.95	2.35	25.30	0.339	33.01	-7.71
1855.00	10	QPSK	23.73	2.35	26.08	0.406	33.01	-6.93
1880.00	10	QPSK	23.66	2.35	26.01	0.399	33.01	-7.00
1905.00	10	QPSK	23.66	2.35	26.01	0.399	33.01	-7.00
1855.00	10	16-QAM	22.93	2.35	25.28	0.337	33.01	-7.73
1857.50	15	QPSK	24.10	2.35	26.45	0.442	33.01	-6.56
1880.00	15	QPSK	23.93	2.35	26.28	0.425	33.01	-6.73
1902.50	15	QPSK	24.25	2.35	26.60	0.457	33.01	-6.41
1880.00	15	16-QAM	23.20	2.35	25.55	0.359	33.01	-7.46
1860.00	20	QPSK	24.45	2.35	26.80	0.479	33.01	-6.21
1880.00	20	QPSK	24.47	2.35	26.82	0.481	33.01	-6.19
1900.00	20	QPSK	24.24	2.35	26.59	0.456	33.01	-6.42
1880.00	20	16-QAM	23.74	2.35	26.09	0.406	33.01	-6.92

Table 7-10. EIRP Data (Band 2)

FCC ID: BCGA1954	 MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1C1710060006-03-R2.BCG	Test Dates: 10/31/2017-2/15/2018	EUT Type: Tablet Device	Page 208 of 260

Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	Conducted Power [dBm]	Ant. Gain [dBi]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
2307.50	5	QPSK	22.28	0.90	23.18	0.208	23.98	-0.80
2310.00	5	QPSK	22.21	0.90	23.11	0.205	23.98	-0.87
2312.50	5	QPSK	22.30	0.90	23.20	0.209	23.98	-0.78
2312.50	5	16-QAM	21.26	0.90	22.16	0.164	23.98	-1.82
2310.00	10	QPSK	22.30	0.90	23.20	0.209	23.98	-0.78
2310.00	10	16-QAM	21.26	0.90	22.16	0.164	23.98	-1.82

Table 7-11. EIRP Data (Band 30)

FCC ID: BCGA1954	 MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1C1710060006-03-R2.BCG	Test Dates: 10/31/2017-2/15/2018	EUT Type: Tablet Device	Page 209 of 260

Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	Conducted Power [dBm]	Ant. Gain [dBi]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
2502.50	5	QPSK	23.24	1.20	24.44	0.278	33.01	-8.57
2535.00	5	QPSK	23.26	1.20	24.46	0.279	33.01	-8.55
2567.50	5	QPSK	23.42	1.20	24.62	0.290	33.01	-8.39
2567.50	5	16-QAM	22.56	1.20	23.76	0.238	33.01	-9.25
2505.00	10	QPSK	23.03	1.20	24.23	0.265	33.01	-8.78
2535.00	10	QPSK	23.16	1.20	24.36	0.273	33.01	-8.65
2565.00	10	QPSK	23.28	1.20	24.48	0.281	33.01	-8.53
2565.00	10	16-QAM	22.62	1.20	23.82	0.241	33.01	-9.19
2507.50	15	QPSK	23.33	1.20	24.53	0.284	33.01	-8.48
2535.00	15	QPSK	23.12	1.20	24.32	0.270	33.01	-8.69
2562.50	15	QPSK	23.09	1.20	24.29	0.269	33.01	-8.72
2507.50	15	16-QAM	22.85	1.20	24.05	0.254	33.01	-8.96
2510.00	20	QPSK	23.46	1.20	24.66	0.292	33.01	-8.35
2535.00	20	QPSK	23.60	1.20	24.80	0.302	33.01	-8.21
2560.00	20	QPSK	23.40	1.20	24.60	0.288	33.01	-8.41
2535.00	20	16-QAM	22.54	1.20	23.74	0.237	33.01	-9.27

Table 7-12. EIRP Data (Band 7)

FCC ID: BCGA1954	 MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1C1710060006-03-R2.BCG	Test Dates: 10/31/2017-2/15/2018	EUT Type: Tablet Device	Page 210 of 260

Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	Conducted Power [dBm]	Ant. Gain [dBi]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
2498.50	5	QPSK	22.42	1.71	24.13	0.259	33.01	-8.88
2593.00	5	QPSK	22.50	1.71	24.21	0.264	33.01	-8.80
2687.50	5	QPSK	22.50	1.71	24.21	0.264	33.01	-8.80
2593.00	5	16-QAM	21.50	1.71	23.21	0.209	33.01	-9.80
2501.00	10	QPSK	22.35	1.71	24.06	0.255	33.01	-8.95
2593.00	10	QPSK	22.35	1.71	24.06	0.255	33.01	-8.95
2685.00	10	QPSK	22.48	1.71	24.19	0.262	33.01	-8.82
2685.00	10	16-QAM	21.50	1.71	23.21	0.209	33.01	-9.80
2503.50	15	QPSK	22.28	1.71	23.99	0.251	33.01	-9.02
2593.00	15	QPSK	22.17	1.71	23.88	0.244	33.01	-9.13
2682.50	15	QPSK	22.21	1.71	23.92	0.247	33.01	-9.09
2503.50	15	16-QAM	21.34	1.71	23.05	0.202	33.01	-9.96
2506.00	20	QPSK	22.37	1.71	24.08	0.256	33.01	-8.93
2593.00	20	QPSK	22.50	1.71	24.21	0.264	33.01	-8.80
2680.00	20	QPSK	22.47	1.71	24.18	0.262	33.01	-8.83
2593.00	20	16-QAM	21.35	1.71	23.06	0.202	33.01	-9.95

Table 7-13. EIRP Data (Band 41)

FCC ID: BCGA1954	 MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1C1710060006-03-R2.BCG	Test Dates: 10/31/2017-2/15/2018	EUT Type: Tablet Device	Page 211 of 260

7.7 Radiated Spurious Emissions Measurements

§2.1053 §22.917(a) §24.238(a) §27.53(c) §27.53(f) §27.53(g) §27.53(h) §27.53(m) §27.53(a)(4)

Test Overview

Radiated spurious emissions measurements are performed using the substitution method described in ANSI/TIA-603-E-2016 with the EUT transmitting into an integral antenna. Measurements on signals operating below 1GHz are performed using vertically and horizontally polarized tuned dipole antennas. Measurements on signals operating above 1GHz are performed using vertically and horizontally polarized broadband horn antennas.

Test Procedures Used

KDB 971168 D01 v03 – Section 5.8

ANSI/TIA-603-E-2016 – Section 2.2.12

Test Settings

1. RBW = 100kHz for emissions below 1GHz and 1MHz for emissions above 1GHz
2. VBW $\geq 3 \times$ RBW
3. Span = 1.5 times the OBW
4. No. of sweep points $\geq 2 \times$ span / RBW
5. Detector = RMS
6. Trace mode = Average (Max Hold for pulsed emissions)
7. The trace was allowed to stabilize

FCC ID: BCGA1954	 MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1C1710060006-03-R2.BCG	Test Dates: 10/31/2017-2/15/2018	EUT Type: Tablet Device	Page 212 of 260

Test Setup

The EUT and measurement equipment were set up as shown in the diagram below.

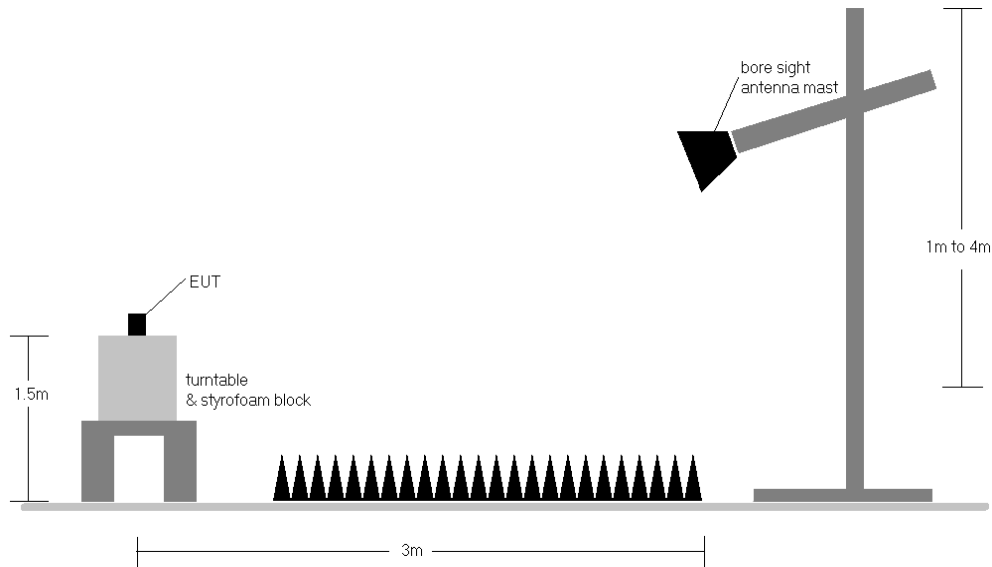


Figure 7-6. Test Instrument & Measurement Setup

Test Notes

- 1) The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The worst case emissions are reported with the EUT positioning, modulations, RB sizes and offsets, and channel bandwidth configurations shown in the tables below.
- 2) This unit was tested with its standard battery.
- 3) The spectrum is measured from 9kHz to the 10th harmonic of the fundamental frequency of the transmitter. The worst-case emissions are reported.
- 4) Emissions below 18GHz were measured at a 3 meter test distance while emissions above 18GHz were measured at a 1 meter test distance with the application of a distance correction factor.
- 5) The "-" shown in the following RSE tables are used to denote a noise floor measurement.

FCC ID: BCGA1954	 MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1C1710060006-03-R2.BCG	Test Dates: 10/31/2017-2/15/2018	EUT Type: Tablet Device	Page 213 of 260

Band 12

OPERATING FREQUENCY: 704.00 MHz
 CHANNEL: 23060
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 10.0 MHz
 DISTANCE: 3 meters
 LIMIT: -13 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
1408.00	V	326	340	-69.60	8.41	-61.18	-48.2
2112.00	V	-	-	-64.55	0.48	-64.07	-51.1
2816.00	V	-	-	-68.28	4.99	-63.29	-50.3

Table 7-14. Radiated Spurious Data (Band 12 – Low Channel)

OPERATING FREQUENCY: 707.50 MHz
 CHANNEL: 23095
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 10.0 MHz
 DISTANCE: 3 meters
 LIMIT: -13 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
1415.00	V	199	324	-67.96	8.47	-59.50	-46.5
2122.50	V	-	-	-64.61	0.42	-64.20	-51.2
2830.00	V	-	-	-68.36	5.01	-63.35	-50.4

Table 7-15. Radiated Spurious Data (Band 12 – Mid Channel)

FCC ID: BCGA1954	 MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1C1710060006-03-R2.BCG	Test Dates: 10/31/2017-2/15/2018	EUT Type: Tablet Device	Page 214 of 260

OPERATING FREQUENCY: 711.00 MHz
 CHANNEL: 23130
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 10.0 MHz
 DISTANCE: 3 meters
 LIMIT: -13 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
1422.00	V	207	324	-68.72	8.52	-60.20	-47.2
2133.00	V	-	-	-64.56	0.36	-64.20	-51.2
2844.00	V	-	-	-68.36	5.03	-63.33	-50.3

Table 7-16. Radiated Spurious Data (Band 12 – High Channel)

FCC ID: BCGA1954	 MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1C1710060006-03-R2.BCG	Test Dates: 10/31/2017-2/15/2018	EUT Type: Tablet Device	Page 215 of 260

Band 17

OPERATING FREQUENCY: 709.00 MHz
 CHANNEL: 23780
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 10.0 MHz
 DISTANCE: 3 meters
 LIMIT: -13 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
1418.00	V	150	133	-73.42	8.50	-64.92	-51.9
2127.00	V	-	-	-62.47	0.38	-62.09	-49.1
2836.00	V	-	-	-65.77	5.03	-60.75	-47.8

Table 7-17. Radiated Spurious Data (Band 17 – Low Channel)

OPERATING FREQUENCY: 710.00 MHz
 CHANNEL: 23790
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 10.0 MHz
 DISTANCE: 3 meters
 LIMIT: -13 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
1420.00	V	174	71	-73.73	8.50	-65.23	-52.2
2130.00	V	-	-	-65.24	0.38	-64.86	-51.9
2840.00	V	-	-	-68.80	5.03	-63.78	-50.8

Table 7-18. Radiated Spurious Data (Band 17 – Mid Channel)

FCC ID: BCGA1954	 MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1C1710060006-03-R2.BCG	Test Dates: 10/31/2017-2/15/2018	EUT Type: Tablet Device	Page 216 of 260

OPERATING FREQUENCY: 711.00 MHz
 CHANNEL: 23800
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 10.0 MHz
 DISTANCE: 3 meters
 LIMIT: -13 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
1422.00	V	150	122	-73.47	8.50	-64.97	-52.0
2133.00	V	150	219	-60.66	0.38	-60.28	-47.3
2844.00	V	-	-	-65.84	5.03	-60.82	-47.8
3555.00	V	-	-	-64.75	4.76	-59.99	-47.0

Table 7-19. Radiated Spurious Data (Band 17 – High Channel)

FCC ID: BCGA1954	 MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1C1710060006-03-R2.BCG	Test Dates: 10/31/2017-2/15/2018	EUT Type: Tablet Device	Page 217 of 260

Band 13

OPERATING FREQUENCY: 782.00 MHz
 CHANNEL: 23230
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 10.0 MHz
 DISTANCE: 3 meters
 LIMIT: -13 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
2346.00	V	-	-	-66.14	1.76	-64.38	-51.4
3128.00	V	-	-	-71.66	7.92	-63.74	-50.7

Table 7-20. Radiated Spurious Data (Band 13 – Mid Channel)

OPERATING FREQUENCY: 782.00 MHz
 CHANNEL: 23230
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 10.0 MHz
 DISTANCE: 3 meters
 LIMIT: -13 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
1564.00	V	344	7	-67.80	2.36	-65.44	-52.4

Table 7-21. Radiated Spurious Data (Band 13 – 1559-1610MHz Band)

FCC ID: BCGA1954	 MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1C1710060006-03-R2.BCG	Test Dates: 10/31/2017-2/15/2018	EUT Type: Tablet Device	Page 218 of 260

Band 26

OPERATING FREQUENCY: 819.00 MHz
CHANNEL: 26740
MODULATION SIGNAL: QPSK
BANDWIDTH: 10.0 MHz
DISTANCE: 3 meters
LIMIT: -13 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
1638.00	V	156	247	-73.44	8.47	-64.97	-52.0
2457.00	V	-	-	-67.92	3.92	-63.99	-51.0
3276.00	V	-	-	-67.68	4.16	-63.52	-50.5

Table 7-22. Radiated Spurious Data (Band 26 – Low Channel)

OPERATING FREQUENCY: 831.50 MHz
CHANNEL: 26865
MODULATION SIGNAL: QPSK
BANDWIDTH: 10.0 MHz
DISTANCE: 3 meters
LIMIT: -13 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
2494.50	V	-	-	-67.77	3.92	-63.85	-50.8
3326.00	V	-	-	-72.02	8.41	-63.61	-50.6

Table 7-23. Radiated Spurious Data (Band 26 – Mid Channel)

FCC ID: BCGA1954	 MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1C1710060006-03-R2.BCG	Test Dates: 10/31/2017-2/15/2018	EUT Type: Tablet Device	Page 219 of 260

OPERATING FREQUENCY: 844.00 MHz
 CHANNEL: 26990
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 10.0 MHz
 DISTANCE: 3 meters
 LIMIT: -13 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
1688.00	V	320	302	-66.55	3.13	-63.41	-50.4
2532.00	V	-	-	-63.05	-1.15	-64.20	-51.2
3376.00	V	-	-	-69.84	6.50	-63.34	-50.3

Table 7-24. Radiated Spurious Data (Band 26 – High Channel)

FCC ID: BCGA1954	 MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1C1710060006-03-R2.BCG	Test Dates: 10/31/2017-2/15/2018	EUT Type: Tablet Device	Page 220 of 260

Band 5

OPERATING FREQUENCY: 829.00 MHz
 CHANNEL: 20450
 MODULATION SIGNAL: QPSK
 DISTANCE: 3 meters
 LIMIT: -13 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
1658.00	V	176	48	-68.03	3.11	-64.91	-51.9
2487.00	V	-	-	-67.25	3.92	-63.33	-50.3
3316.00	V	-	-	-70.99	8.35	-62.64	-49.6

Table 7-25. Radiated Spurious Data (Band 5 – Low Channel)

OPERATING FREQUENCY: 836.50 MHz
 CHANNEL: 20525
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 10.0 MHz
 DISTANCE: 3 meters
 LIMIT: -13 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
1673.00	V	158	61	-68.07	3.12	-64.95	-51.9
2509.50	V	-	-	-62.13	-0.99	-63.12	-50.1
3346.00	V	-	-	-71.02	8.51	-62.51	-49.5

Table 7-26. Radiated Spurious Data (Band 5 – Mid Channel)

FCC ID: BCGA1954	 MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1C1710060006-03-R2.BCG	Test Dates: 10/31/2017-2/15/2018	EUT Type: Tablet Device	Page 221 of 260

OPERATING FREQUENCY: 844.00 MHz
 CHANNEL: 20600
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 10.0 MHz
 DISTANCE: 3 meters
 LIMIT: -13 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
1688.00	V	212	57	-68.81	3.13	-65.67	-52.7
2532.00	V	-	-	-61.01	-1.15	-62.16	-49.2
3376.00	V	-	-	-67.65	6.50	-61.15	-48.2

Table 7-27. Radiated Spurious Data (Band 5 – High Channel)

FCC ID: BCGA1954	 MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1C1710060006-03-R2.BCG	Test Dates: 10/31/2017-2/15/2018	EUT Type: Tablet Device	Page 222 of 260

Band 4

OPERATING FREQUENCY: 1720.00 MHz
 CHANNEL: 20050
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 20.0 MHz
 DISTANCE: 3 meters
 LIMIT: -13 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
3440.00	H	100	18	-65.97	8.54	-57.44	-44.4
5160.00	H	-	-	-69.25	8.08	-61.18	-48.2
6880.00	H	-	-	-67.86	9.24	-58.62	-45.6

Table 7-28. Radiated Spurious Data (Band 4 – Low Channel)

OPERATING FREQUENCY: 1732.50 MHz
 CHANNEL: 20175
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 20.0 MHz
 DISTANCE: 3 meters
 LIMIT: -13 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
5197.50	H	-	-	-69.41	8.07	-61.34	-48.3
6930.00	H	-	-	-68.71	10.28	-58.43	-45.4

Table 7-29. Radiated Spurious Data (Band 4 – Mid Channel)

FCC ID: BCGA1954	 MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1C1710060006-03-R2.BCG	Test Dates: 10/31/2017-2/15/2018	EUT Type: Tablet Device	Page 223 of 260

OPERATING FREQUENCY: 1745.00 MHz
 CHANNEL: 20300
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 20.0 MHz
 DISTANCE: 3 meters
 LIMIT: -13 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
3490.00	H	199	17	-65.19	6.18	-59.01	-46.0
5235.00	H	-	-	-70.59	9.29	-61.30	-48.3
6980.00	H	-	-	-66.87	8.77	-58.10	-45.1

Table 7-30. Radiated Spurious Data (Band 4 – High Channel)

FCC ID: BCGA1954	 MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1C1710060006-03-R2.BCG	Test Dates: 10/31/2017-2/15/2018	EUT Type: Tablet Device	Page 224 of 260

Band 25

OPERATING FREQUENCY: 1860.00 MHz
 CHANNEL: 26140
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 20.0 MHz
 DISTANCE: 3 meters
 LIMIT: -13 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
3720.00	H	326	13	-70.18	8.11	-62.07	-49.1
5580.00	H	-	-	-70.18	8.70	-61.48	-48.5
7440.00	H	-	-	-67.87	9.61	-58.26	-45.3

Table 7-31. Radiated Spurious Data (Band 25 – Low Channel)

OPERATING FREQUENCY: 1882.50 MHz
 CHANNEL: 26365
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 20.0 MHz
 DISTANCE: 3 meters
 LIMIT: -13 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
5647.50	H	-	-	-70.51	9.29	-61.23	-48.2
7530.00	H	-	-	-66.88	8.64	-58.24	-45.2

Table 7-32. Radiated Spurious Data (Band 25 – Mid Channel)

FCC ID: BCGA1954	 MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1C1710060006-03-R2.BCG	Test Dates: 10/31/2017-2/15/2018	EUT Type: Tablet Device	Page 225 of 260

OPERATING FREQUENCY: 1905.00 MHz
 CHANNEL: 26590
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 20.0 MHz
 DISTANCE: 3 meters
 LIMIT: -13 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
3810.00	H	100	17	-62.13	6.38	-55.75	-42.7
5715.00	H	-	-	-71.36	10.16	-61.20	-48.2
7620.00	H	-	-	-67.28	9.20	-58.08	-45.1

Table 7-33. Radiated Spurious Data (Band 25 – High Channel)

FCC ID: BCGA1954	 MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1C1710060006-03-R2.BCG	Test Dates: 10/31/2017-2/15/2018	EUT Type: Tablet Device	Page 226 of 260

Band 2

OPERATING FREQUENCY: 1860.00 MHz
 CHANNEL: 18700
 MODULATION SIGNAL: QPSK
 DISTANCE: 3 meters
 LIMIT: -13 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
3720.00	H	178	29	-69.75	8.11	-61.64	-48.6
5580.00	H	-	-	-70.21	8.70	-61.51	-48.5
7440.00	H	-	-	-67.83	9.61	-58.22	-45.2

Table 7-34. Radiated Spurious Data (Band 2 – Low Channel)

OPERATING FREQUENCY: 1880.00 MHz
 CHANNEL: 18900
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 20.0 MHz
 DISTANCE: 3 meters
 LIMIT: -13 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
3760.00	H	100	16	-64.16	7.40	-56.75	-43.8
5640.00	H	-	-	-70.68	9.28	-61.40	-48.4
7520.00	H	-	-	-67.00	8.66	-58.34	-45.3

Table 7-35. Radiated Spurious Data (Band 2 – Mid Channel)

FCC ID: BCGA1954	 MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1C1710060006-03-R2.BCG	Test Dates: 10/31/2017-2/15/2018	EUT Type: Tablet Device	Page 227 of 260

OPERATING FREQUENCY: 1900.00 MHz
 CHANNEL: 19100
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 20.0 MHz
 DISTANCE: 3 meters
 LIMIT: -13 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
3800.00	H	100	14	-67.48	6.38	-61.09	-48.1
5700.00	H	-	-	-71.18	10.12	-61.05	-48.1
7600.00	H	-	-	-67.43	9.21	-58.22	-45.2

Table 7-36. Radiated Spurious Data (Band 2 – High Channel)

FCC ID: BCGA1954	 MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1C1710060006-03-R2.BCG	Test Dates: 10/31/2017-2/15/2018	EUT Type: Tablet Device	Page 228 of 260

Band 30

OPERATING FREQUENCY: 2310.00 MHz
 CHANNEL: 27710
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 10.0 MHz
 DISTANCE: 3 meters
 LIMIT: -40 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
6930.00	H	-	-	-69.47	10.28	-59.19	-19.2
9240.00	H	-	-	-66.14	9.70	-56.44	-16.4

Table 7-37. Radiated Spurious Data (Band 30 – Mid Channel)

FCC ID: BCGA1954	 MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1C1710060006-03-R2.BCG	Test Dates: 10/31/2017-2/15/2018	EUT Type: Tablet Device	Page 229 of 260

Band 7

OPERATING FREQUENCY: 2510.00 MHz
CHANNEL: 20850
MODULATION SIGNAL: QPSK
BANDWIDTH: 20.0 MHz
DISTANCE: 3 meters
LIMIT: -25 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
5020.00	H	-	-	-70.21	9.04	-61.17	-36.2
7530.00	H	-	-	-66.23	8.64	-57.59	-32.6
10040.00	H	-	-	-64.99	9.79	-55.20	-30.2

Table 7-38. Radiated Spurious Data (Band 7 – Low Channel)

OPERATING FREQUENCY: 2535.00 MHz
CHANNEL: 21100
MODULATION SIGNAL: QPSK
BANDWIDTH: 20.0 MHz
DISTANCE: 3 meters
LIMIT: -25 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
7605.00	H	-	-	-66.54	9.21	-57.33	-32.3
10140.00	H	-	-	-64.07	9.49	-54.58	-29.6

Table 7-39. Radiated Spurious Data (Band 7 – Mid Channel)

FCC ID: BCGA1954	 MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1C1710060006-03-R2.BCG	Test Dates: 10/31/2017-2/15/2018	EUT Type: Tablet Device	Page 230 of 260

OPERATING FREQUENCY: 2560.00 MHz
 CHANNEL: 21350
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 20.0 MHz
 DISTANCE: 3 meters
 LIMIT: -25 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
5120.00	H	-	-	-69.65	8.46	-61.19	-36.2
7680.00	H	-	-	-65.64	8.68	-56.95	-32.0
10240.00	H	-	-	-63.92	9.63	-54.29	-29.3

Table 7-40. Radiated Spurious Data (Band 7 – High Channel)

FCC ID: BCGA1954	 MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1C1710060006-03-R2.BCG	Test Dates: 10/31/2017-2/15/2018	EUT Type: Tablet Device	Page 231 of 260

Band 41

OPERATING FREQUENCY: 2506.00 MHz
 CHANNEL: 39750
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 20.0 MHz
 DISTANCE: 3 meters
 LIMIT: -25 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
5012.00	H	326	10	-70.99	9.03	-61.96	-37.0
7518.00	H	-	-	-67.05	8.66	-58.39	-33.4
10024.00	H	-	-	-65.48	9.78	-55.70	-30.7

Table 7-41. Radiated Spurious Data (Band 41 – Low Channel)

OPERATING FREQUENCY: 2593.00 MHz
 CHANNEL: 40620
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 20.0 MHz
 DISTANCE: 3 meters
 LIMIT: -25 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
7779.00	H	-	-	-65.84	8.69	-57.15	-32.2
10372.00	H	-	-	-63.91	9.25	-54.65	-29.7

Table 7-42. Radiated Spurious Data (Band 41 – Mid Channel)

FCC ID: BCGA1954	 MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1C1710060006-03-R2.BCG	Test Dates: 10/31/2017-2/15/2018	EUT Type: Tablet Device	Page 232 of 260

OPERATING FREQUENCY: 2680.00 MHz
 CHANNEL: 41490
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 20.0 MHz
 DISTANCE: 3 meters
 LIMIT: -25 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
5360.00	H	104	35	-69.80	8.25	-61.55	-36.6
8040.00	H	-	-	-68.24	9.44	-58.81	-33.8
10720.00	H	-	-	-63.07	9.00	-54.07	-29.1

Table 7-43. Radiated Spurious Data (Band 41 – High Channel)

FCC ID: BCGA1954	 MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1C1710060006-03-R2.BCG	Test Dates: 10/31/2017-2/15/2018	EUT Type: Tablet Device	Page 233 of 260

7.8 Radiated Spurious Emissions Measurements – Below 1GHz

§2.1053 §22.917(a) §24.238(a) §27.53(c) §27.53(f) §27.53(g) §27.53(h) §27.53(m)

Test Overview

Radiated spurious emissions measurements are performed using the substitution method described in ANSI/TIA-603-E-2016 with the EUT transmitting into an integral antenna. Measurements on signals operating below 1GHz are performed using vertically and horizontally polarized tuned dipole antennas. Measurements on signals operating above 1GHz are performed using vertically and horizontally polarized broadband horn antennas.

Test Procedures Used

KDB 971168 D01 v02r02 – Section 5.8

ANSI/TIA-603-E-2016 – Section 2.2.12

Test Settings

1. RBW = 100kHz
2. VBW $\geq 3 \times$ RBW
3. Span = 1.5 times the OBW
4. No. of sweep points $\geq 2 \times$ span / RBW
5. Detector = RMS
6. Trace mode = Average (Max Hold for pulsed emissions)
7. The trace was allowed to stabilize

FCC ID: BCGA1954	 MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1C1710060006-03-R2.BCG	Test Dates: 10/31/2017-2/15/2018	EUT Type: Tablet Device	Page 234 of 260

Test Setup

The EUT and measurement equipment were set up as shown in the diagram below.

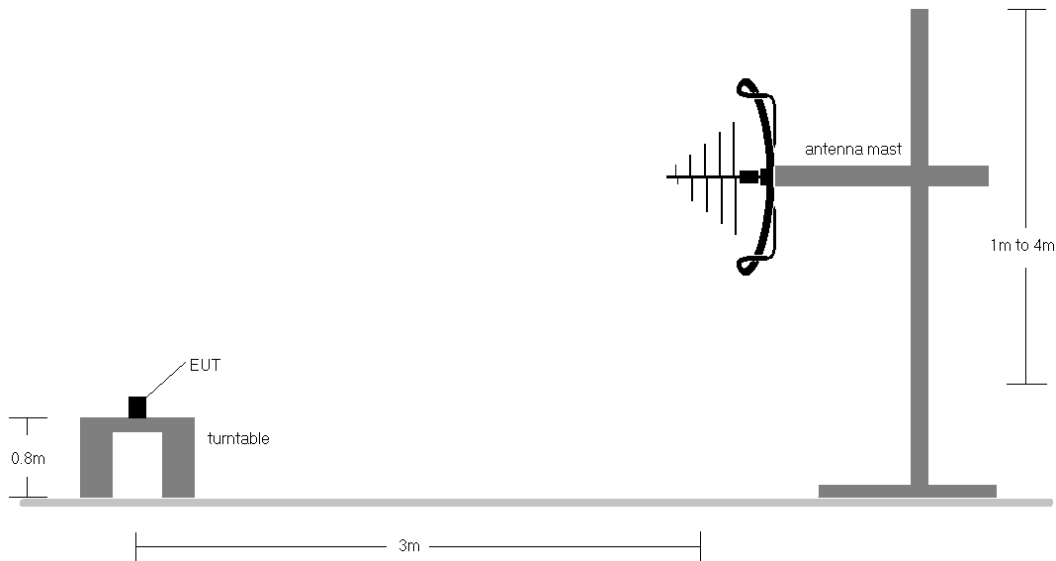
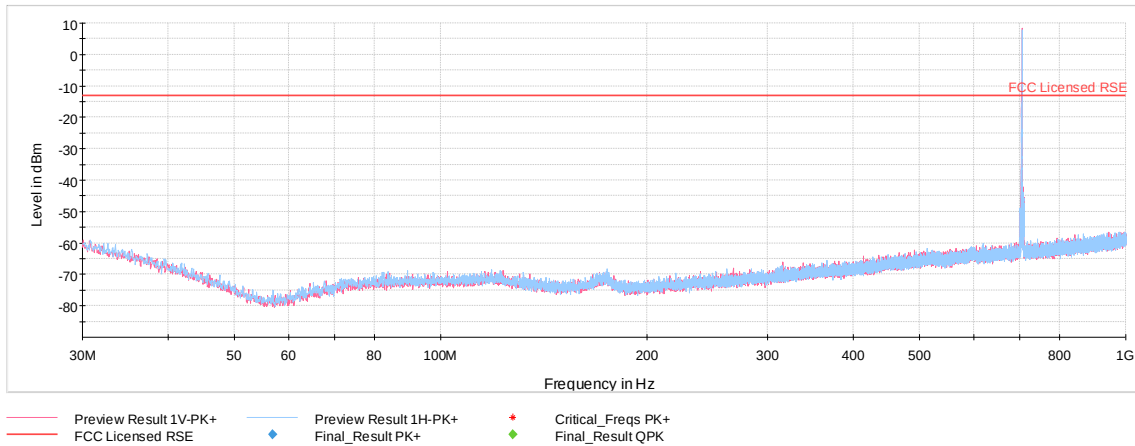


Figure 7-7. Test Instrument & Measurement Setup

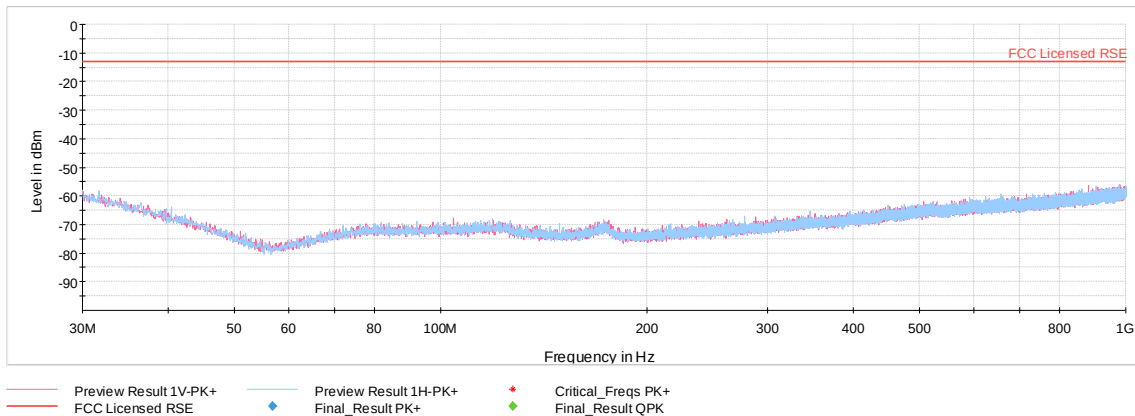
Test Notes

- 1) The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The worst case emissions are reported with the EUT positioning, modulations, RB sizes and offsets, and channel bandwidth configurations shown in the tables below.
- 2) This unit was tested with its standard battery.
- 3) The spectrum is measured from 9kHz to the 10th harmonic of the fundamental frequency of the transmitter.
- 4) Emissions below 18GHz were measured at a 3 meter test distance while emissions above 18GHz were measured at a 1 meter test distance with the application of a distance correction factor.
- 5) The spurious emissions 20dB below the limit is not reported.
- 6) All modes were investigated and the worse case emissions are reported.

FCC ID: BCGA1954	 MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1C1710060006-03-R2.BCG	Test Dates: 10/31/2017-2/15/2018	EUT Type: Tablet Device	Page 235 of 260



Plot 7-44. Radiated Spurious Plot (Band 12 – 5.0MHz QPSK – RB Size 25)



Plot 7-45. Radiated Spurious Plot (Band 7 – 15.0MHz QPSK – RB Size 75)

FCC ID: BCGA1954		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1C1710060006-03-R2.BCG	Test Dates: 10/31/2017-2/15/2018	EUT Type: Tablet Device		Page 236 of 260

7.9 Frequency Stability / Temperature Variation

\$2.1055 \$22.355 \$24.235 \$27.54

Test Overview and Limit

Frequency stability testing is performed in accordance with the guidelines of ANSI/TIA-603-E-2016. The frequency stability of the transmitter is measured by:

- a.) **Temperature:** The temperature is varied from -30°C to +50°C in 10°C increments using an environmental chamber.
- b.) **Primary Supply Voltage:** The primary supply voltage is varied from 85% to 115% of the nominal value for non hand-carried battery and AC powered equipment. For hand-carried, battery-powered equipment, primary supply voltage is reduced to the battery operating end point which shall be specified by the manufacturer.

For Part 22, RSS-132, RSS-133, the frequency stability of the transmitter shall be maintained within $\pm 0.00025\%$ (± 2.5 ppm) of the center frequency. For Part 24, Part 27, RSS-130, RSS-139, RSS-199, the frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.

Test Procedure Used

ANSI/TIA-603-E-2016

Test Settings

1. The carrier frequency of the transmitter is measured at room temperature (20°C to provide a reference).
2. The equipment is turned on in a "standby" condition for fifteen minutes before applying power to the transmitter. Measurement of the carrier frequency of the transmitter is made within one minute after applying power to the transmitter.
3. Frequency measurements are made at 10°C intervals ranging from -30°C to +50°C. A period of at least one half-hour is provided to allow stabilization of the equipment at each temperature level.

Test Setup

The EUT was connected via an RF cable to a spectrum analyzer with the EUT placed inside an environmental chamber.

Test Notes

None

FCC ID: BCGA1954	 MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1C1710060006-03-R2.BCG	Test Dates: 10/31/2017-2/15/2018	EUT Type: Tablet Device	Page 237 of 260

Band 12 Frequency Stability Measurements

OPERATING FREQUENCY: 707,500,000 Hz
 CHANNEL: 23790
 REFERENCE VOLTAGE: 3.80 VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.80	+ 20 (Ref)	707,499,995	-4.84	-0.0000007
100 %		- 30	707,499,996	-3.79	-0.0000005
100 %		- 20	707,500,005	4.58	0.0000006
100 %		- 10	707,500,004	4.09	0.0000006
100 %		0	707,500,004	4.08	0.0000006
100 %		+ 10	707,500,004	3.81	0.0000005
100 %		+ 20	707,500,004	3.81	0.0000005
100 %		+ 30	707,499,997	-3.25	-0.0000005
100 %		+ 40	707,499,996	-3.69	-0.0000005
100 %		+ 50	707,499,996	-3.75	-0.0000005
BATT. ENDPOINT	3.19	+ 20	707,499,995	-5.11	-0.0000007

Table 7-46. Frequency Stability Data (Band 12)

Note:

Based on the results of the frequency stability test at the center channel the frequency deviation results measured are very small. As such it is determined that the channels at the band edge would remain in-band when the maximum measured frequency deviation noted during the frequency stability tests is applied. Therefore the device is determined to remain operating in band over the temperature and voltage range as tested.

FCC ID: BCGA1954	 MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1C1710060006-03-R2.BCG	Test Dates: 10/31/2017-2/15/2018	EUT Type: Tablet Device	Page 238 of 260

Band 12 Frequency Stability Measurements

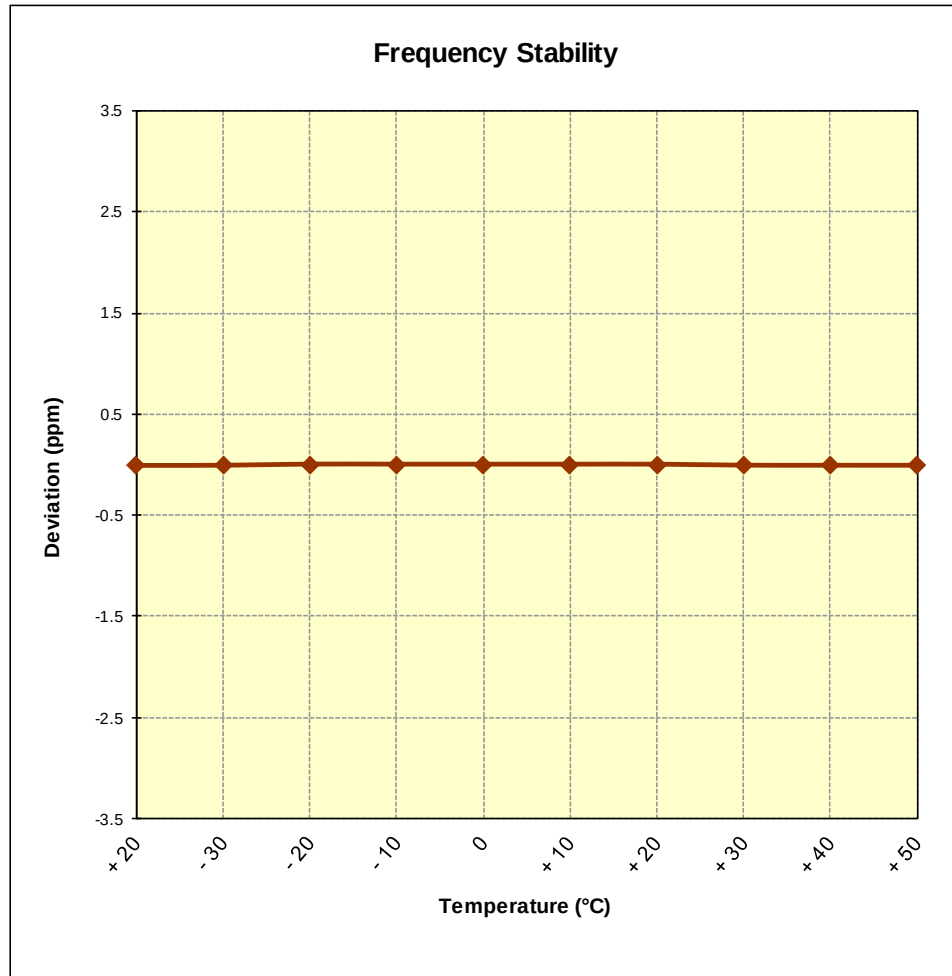


Figure 7-8. Frequency Stability Graph (Band 12)

FCC ID: BCGA1954	 MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1C1710060006-03-R2.BCG	Test Dates: 10/31/2017-2/15/2018	EUT Type: Tablet Device	Page 239 of 260

Band 17 Frequency Stability Measurements

OPERATING FREQUENCY: 710,000,000 Hz
 CHANNEL: 23090
 REFERENCE VOLTAGE: 3.80 VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.80	+ 20 (Ref)	710,000,002	2.40	0.0000003
100 %		- 30	709,999,997	-2.98	-0.0000004
100 %		- 20	710,000,004	4.21	0.0000006
100 %		- 10	710,000,003	3.10	0.0000004
100 %		0	710,000,003	3.02	0.0000004
100 %		+ 10	710,000,004	3.63	0.0000005
100 %		+ 20	710,000,004	3.56	0.0000005
100 %		+ 30	709,999,992	-8.43	-0.0000012
100 %		+ 40	709,999,992	-7.55	-0.0000011
100 %		+ 50	709,999,991	-8.85	-0.0000012
BATT. ENDPOINT	3.19	+ 20	710,000,003	2.89	0.0000004

Table 7-47. Frequency Stability Data (Band 17)

Note:

Based on the results of the frequency stability test at the center channel the frequency deviation results measured are very small. As such it is determined that the channels at the band edge would remain in-band when the maximum measured frequency deviation noted during the frequency stability tests is applied. Therefore the device is determined to remain operating in band over the temperature and voltage range as tested.

FCC ID: BCGA1954	 MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1C1710060006-03-R2.BCG	Test Dates: 10/31/2017-2/15/2018	EUT Type: Tablet Device	Page 240 of 260

Band 17 Frequency Stability Measurements

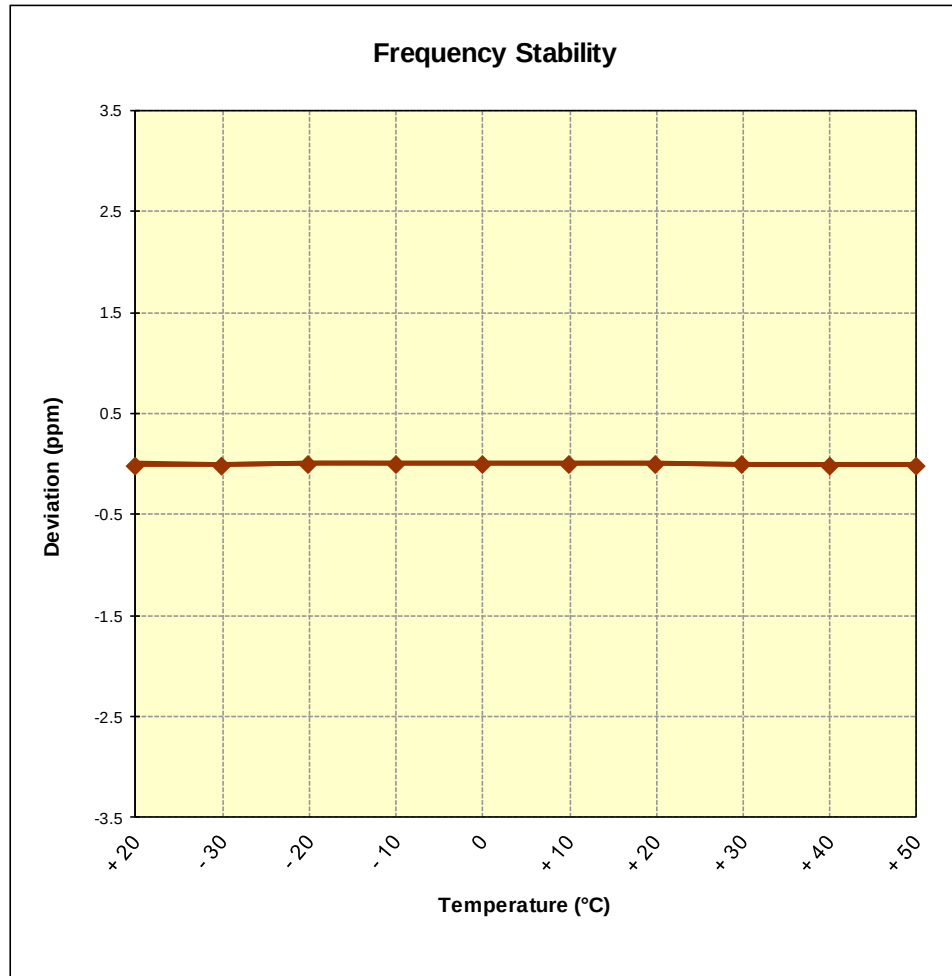


Figure 7-9. Frequency Stability Graph (Band 17)

FCC ID: BCGA1954	 MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1C1710060006-03-R2.BCG	Test Dates: 10/31/2017-2/15/2018	EUT Type: Tablet Device	Page 241 of 260

Band 13 Frequency Stability Measurements

OPERATING FREQUENCY: 782,000,000 Hz
 CHANNEL: 23230
 REFERENCE VOLTAGE: 3.80 VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.80	+ 20 (Ref)	781,999,995	-4.96	-0.0000006
100 %		- 30	781,999,996	-4.13	-0.0000005
100 %		- 20	782,000,004	3.63	0.0000005
100 %		- 10	782,000,004	3.53	0.0000005
100 %		0	782,000,004	4.28	0.0000005
100 %		+ 10	782,000,003	2.93	0.0000004
100 %		+ 20	782,000,004	3.69	0.0000005
100 %		+ 30	781,999,995	-5.12	-0.0000007
100 %		+ 40	781,999,995	-5.17	-0.0000007
100 %		+ 50	781,999,996	-4.18	-0.0000005
BATT. ENDPOINT	3.19	+ 20	781,999,996	-3.91	-0.0000005

Table 7-48. Frequency Stability Data (Band 13)

Note:

Based on the results of the frequency stability test at the center channel the frequency deviation results measured are very small. As such it is determined that the channels at the band edge would remain in-band when the maximum measured frequency deviation noted during the frequency stability tests is applied. Therefore the device is determined to remain operating in band over the temperature and voltage range as tested.

FCC ID: BCGA1954	 MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1C1710060006-03-R2.BCG	Test Dates: 10/31/2017-2/15/2018	EUT Type: Tablet Device	Page 242 of 260

Band 13 Frequency Stability Measurements

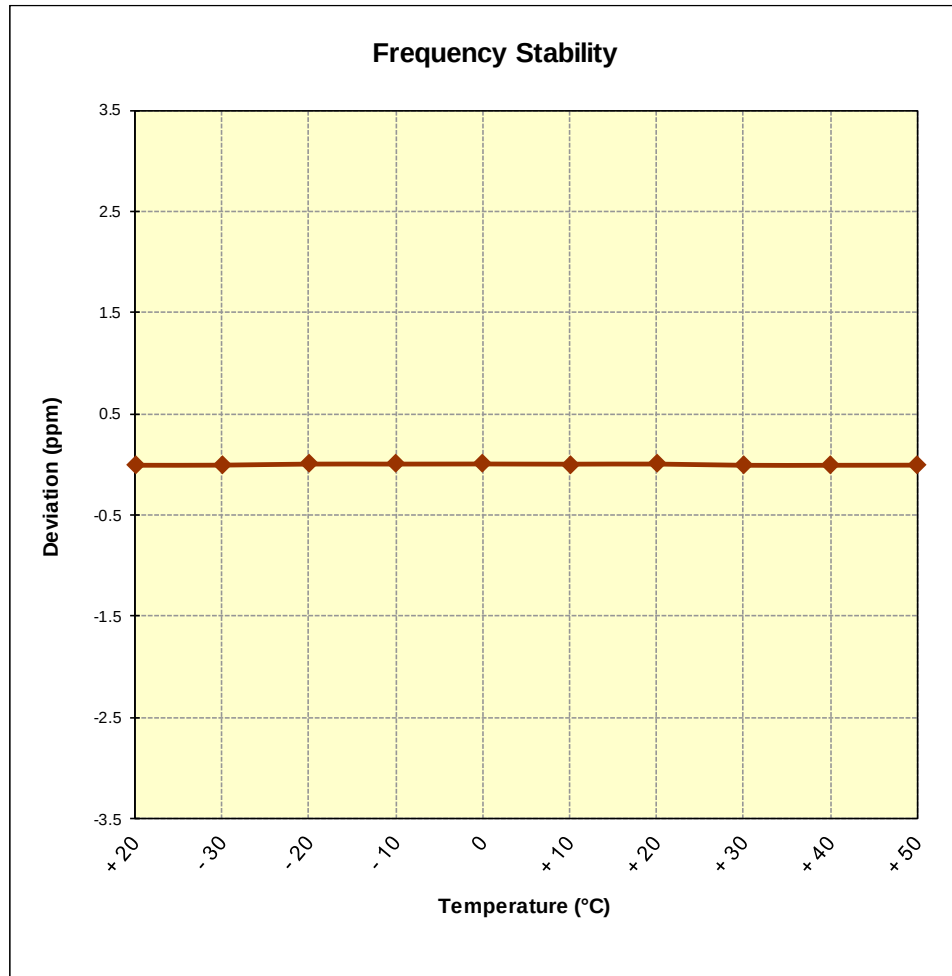


Figure 7-10. Frequency Stability Graph (Band 13)

FCC ID: BCGA1954	 MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1C1710060006-03-R2.BCG	Test Dates: 10/31/2017-2/15/2018	EUT Type: Tablet Device	Page 243 of 260

Band 26 Frequency Stability Measurements

OPERATING FREQUENCY: 831,500,000 Hz
 CHANNEL: 26865
 REFERENCE VOLTAGE: 3.80 VDC
 DEVIATION LIMIT: ± 0.00025 % or 2.5 ppm

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.80	+ 20 (Ref)	831,499,996	-3.93	-0.0000005
100 %		- 30	831,500,004	4.31	0.0000005
100 %		- 20	831,499,992	-8.30	-0.0000010
100 %		- 10	831,500,004	3.95	0.0000005
100 %		0	831,500,004	4.03	0.0000005
100 %		+ 10	831,499,994	-5.79	-0.0000007
100 %		+ 20	831,500,005	4.95	0.0000006
100 %		+ 30	831,500,005	5.23	0.0000006
100 %		+ 40	831,499,995	-5.07	-0.0000006
100 %		+ 50	831,499,996	-4.13	-0.0000005
BATT. ENDPOINT	3.19	+ 20	831,499,996	-4.26	-0.0000005

Table 7-49. Frequency Stability Data (Band 26)

FCC ID: BCGA1954	 MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1C1710060006-03-R2.BCG	Test Dates: 10/31/2017-2/15/2018	EUT Type: Tablet Device	Page 244 of 260

Band 26 Frequency Stability Measurements

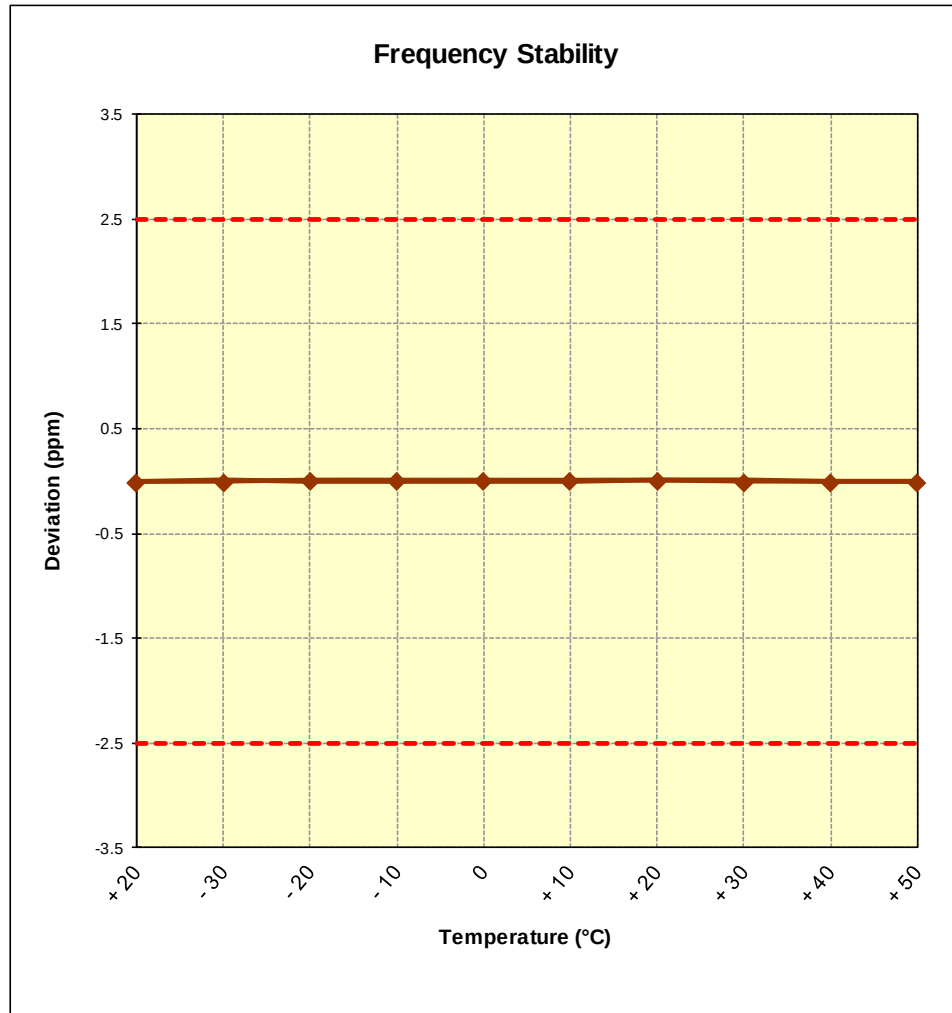


Figure 7-11. Frequency Stability Graph (Band 26)

FCC ID: BCGA1954	 MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1C1710060006-03-R2.BCG	Test Dates: 10/31/2017-2/15/2018	EUT Type: Tablet Device	Page 245 of 260

Band 5 Frequency Stability Measurements

OPERATING FREQUENCY: 836,500,000 Hz
 CHANNEL: 20525
 REFERENCE VOLTAGE: 3.80 VDC
 DEVIATION LIMIT: ± 0.00025 % or 2.5 ppm

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.80	+ 20 (Ref)	836,499,994	-5.74	-0.0000007
100 %		- 30	836,500,003	2.76	0.0000003
100 %		- 20	836,500,003	3.05	0.0000004
100 %		- 10	836,500,003	3.45	0.0000004
100 %		0	836,500,004	3.91	0.0000005
100 %		+ 10	836,500,004	3.99	0.0000005
100 %		+ 20	836,500,003	3.02	0.0000004
100 %		+ 30	836,499,997	-3.47	-0.0000004
100 %		+ 40	836,499,997	-3.21	-0.0000004
100 %		+ 50	836,499,997	-3.20	-0.0000004
BATT. ENDPOINT	3.19	+ 20	836,499,996	-4.06	-0.0000005

Table 7-50. Frequency Stability Data (Band 5)

FCC ID: BCGA1954	 MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1C1710060006-03-R2.BCG	Test Dates: 10/31/2017-2/15/2018	EUT Type: Tablet Device	Page 246 of 260

Band 5 Frequency Stability Measurements

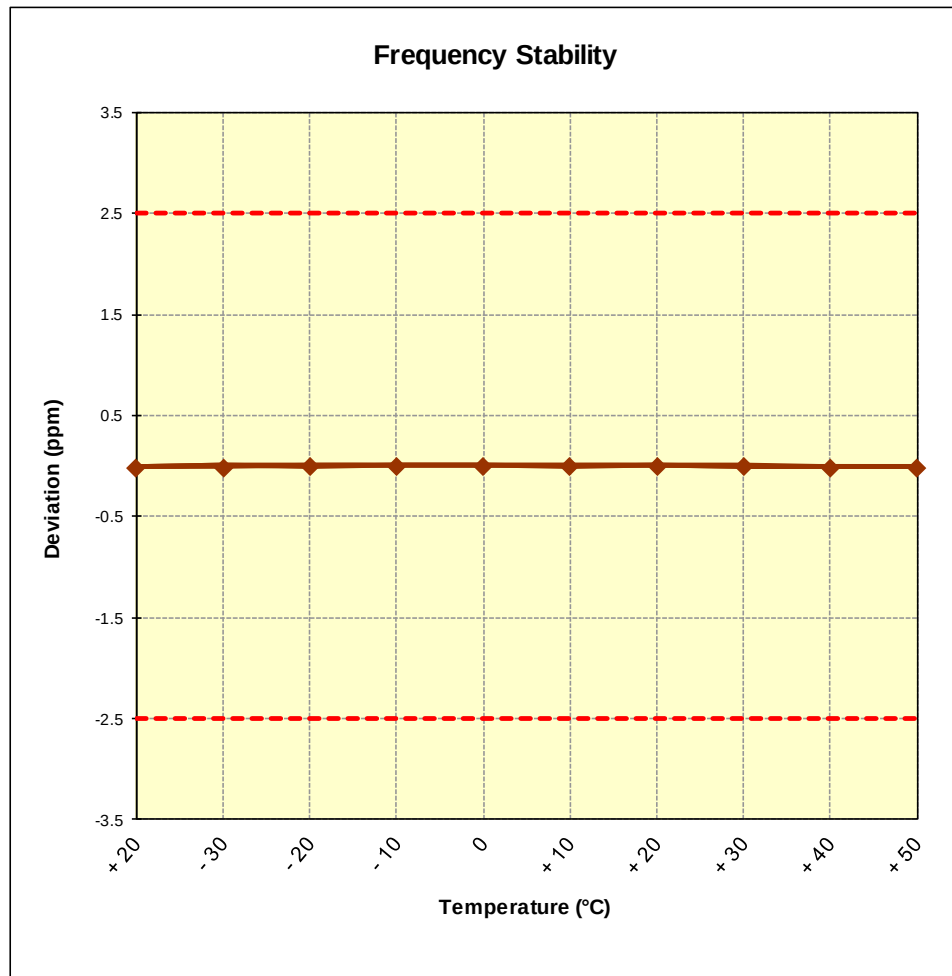


Figure 7-12. Frequency Stability Graph (Band 5)

FCC ID: BCGA1954	 MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1C1710060006-03-R2.BCG	Test Dates: 10/31/2017-2/15/2018	EUT Type: Tablet Device	Page 247 of 260

Band 4 Frequency Stability Measurements

OPERATING FREQUENCY: 1,732,500,000 Hz
 CHANNEL: 20175
 REFERENCE VOLTAGE: 3.80 VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.80	+ 20 (Ref)	1,732,500,007	7.04	0.0000004
100 %		- 30	1,732,500,005	5.36	0.0000003
100 %		- 20	1,732,500,005	4.98	0.0000003
100 %		- 10	1,732,500,007	6.91	0.0000004
100 %		0	1,732,500,023	23.37	0.0000013
100 %		+ 10	1,732,500,012	12.18	0.0000007
100 %		+ 20	1,732,500,004	4.41	0.0000003
100 %		+ 30	1,732,499,995	-5.38	-0.0000003
100 %		+ 40	1,732,499,996	-4.26	-0.0000002
100 %		+ 50	1,732,499,995	-5.22	-0.0000003
BATT. ENDPOINT	3.19	+ 20	1,732,500,005	5.34	0.0000003

Table 7-51. Frequency Stability Data (Band 4)

Note:

Based on the results of the frequency stability test at the center channel the frequency deviation results measured are very small. As such it is determined that the channels at the band edge would remain in-band when the maximum measured frequency deviation noted during the frequency stability tests is applied. Therefore the device is determined to remain operating in band over the temperature and voltage range as tested.

FCC ID: BCGA1954	 MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1C1710060006-03-R2.BCG	Test Dates: 10/31/2017-2/15/2018	EUT Type: Tablet Device	Page 248 of 260

Band 4 Frequency Stability Measurements

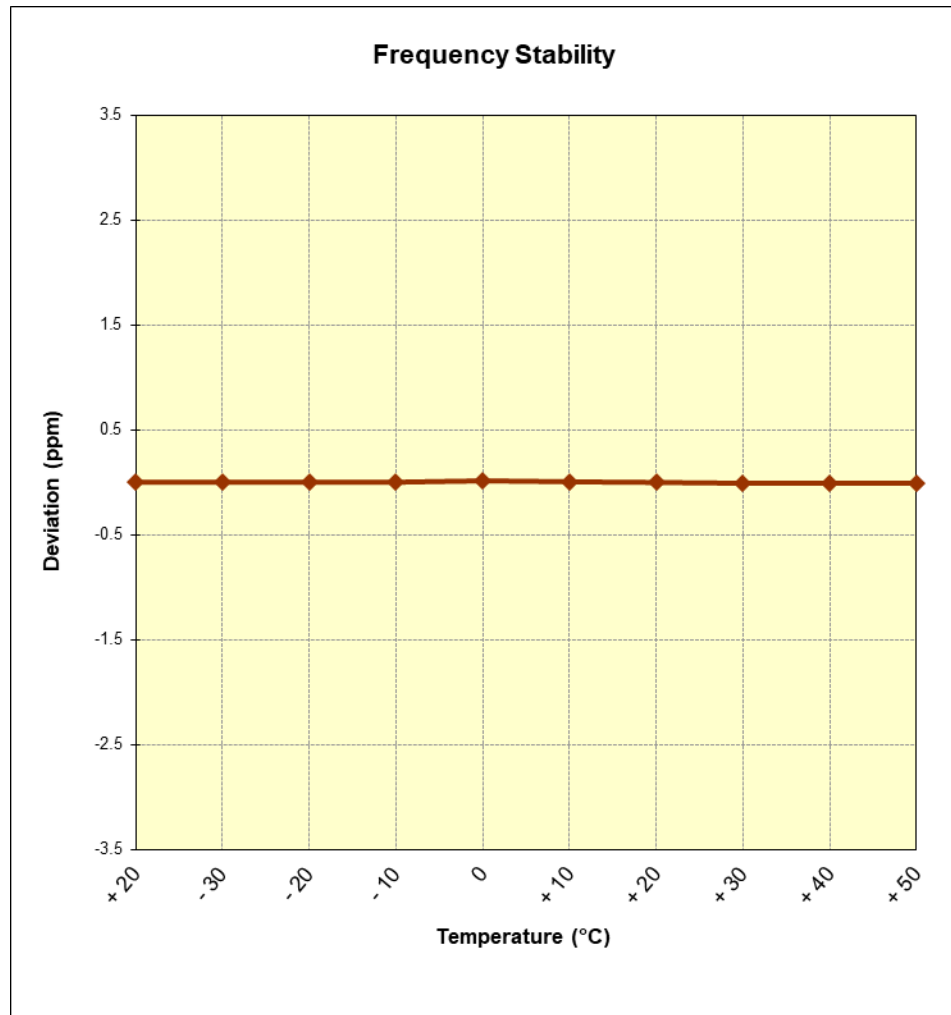


Figure 7-13. Frequency Stability Graph (Band 4)

FCC ID: BCGA1954	 MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1C1710060006-03-R2.BCG	Test Dates: 10/31/2017-2/15/2018	EUT Type: Tablet Device	Page 249 of 260

Band 25 Frequency Stability Measurements

OPERATING FREQUENCY: 1,882,500,000 Hz
 CHANNEL: 26365
 REFERENCE VOLTAGE: 3.80 VDC
 DEVIATION LIMIT: ± 0.00025 % or 2.5 ppm

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.80	+ 20 (Ref)	1,882,500,006	5.58	0.0000003
100 %		- 30	1,882,500,006	5.99	0.0000003
100 %		- 20	1,882,500,006	6.35	0.0000003
100 %		- 10	1,882,500,006	6.12	0.0000003
100 %		0	1,882,500,007	7.10	0.0000004
100 %		+ 10	1,882,500,009	9.23	0.0000005
100 %		+ 20	1,882,500,006	5.87	0.0000003
100 %		+ 30	1,882,500,007	6.78	0.0000004
100 %		+ 40	1,882,499,993	-7.05	-0.0000004
100 %		+ 50	1,882,499,994	-6.49	-0.0000003
BATT. ENDPOINT	3.19	+ 20	1,882,500,025	24.83	0.0000013

Table 7-52. Frequency Stability Data (Band 25)

FCC ID: BCGA1954	 MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1C1710060006-03-R2.BCG	Test Dates: 10/31/2017-2/15/2018	EUT Type: Tablet Device	Page 250 of 260

Band 25 Frequency Stability Measurements

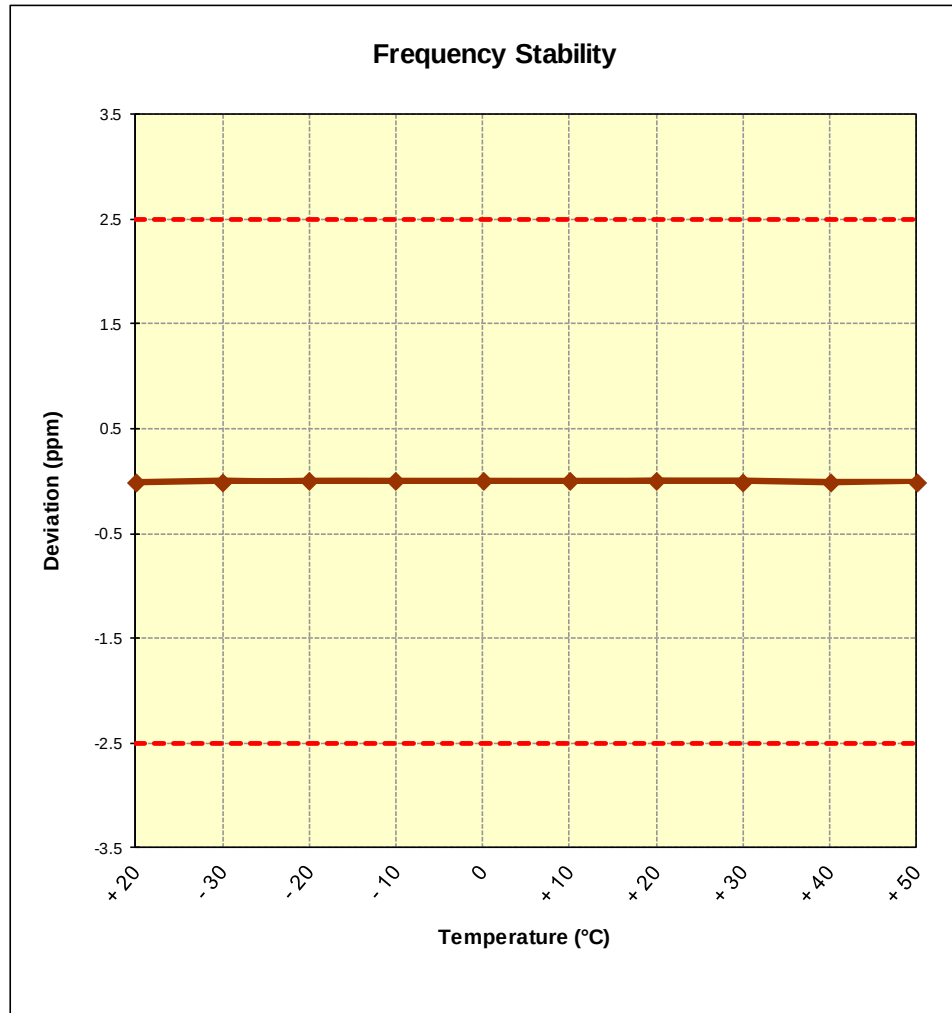


Figure 7-14. Frequency Stability Graph (Band 25)

FCC ID: BCGA1954	 MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1C1710060006-03-R2.BCG	Test Dates: 10/31/2017-2/15/2018	EUT Type: Tablet Device	Page 251 of 260

Band 2 Frequency Stability Measurements

OPERATING FREQUENCY: 1,880,000,000 Hz

CHANNEL: 18900

REFERENCE VOLTAGE: 3.80 VDC

DEVIATION LIMIT: ± 0.00025 % or 2.5 ppm

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.80	+ 20 (Ref)	1,879,999,991	-8.65	-0.0000005
100 %		- 30	1,879,999,991	-8.63	-0.0000005
100 %		- 20	1,879,999,993	-7.11	-0.0000004
100 %		- 10	1,880,000,022	22.09	0.0000012
100 %		0	1,879,999,991	-8.94	-0.0000005
100 %		+ 10	1,879,999,993	-7.10	-0.0000004
100 %		+ 20	1,879,999,994	-6.01	-0.0000003
100 %		+ 30	1,879,999,994	-6.47	-0.0000003
100 %		+ 40	1,879,999,993	-6.89	-0.0000004
100 %		+ 50	1,879,999,991	-8.84	-0.0000005
BATT. ENDPOINT	3.19	+ 20	1,879,999,993	-7.27	-0.0000004

Table 7-53. Frequency Stability Data (Band 2)

FCC ID: BCGA1954	 MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1C1710060006-03-R2.BCG	Test Dates: 10/31/2017-2/15/2018	EUT Type: Tablet Device	Page 252 of 260

Band 2 Frequency Stability Measurements

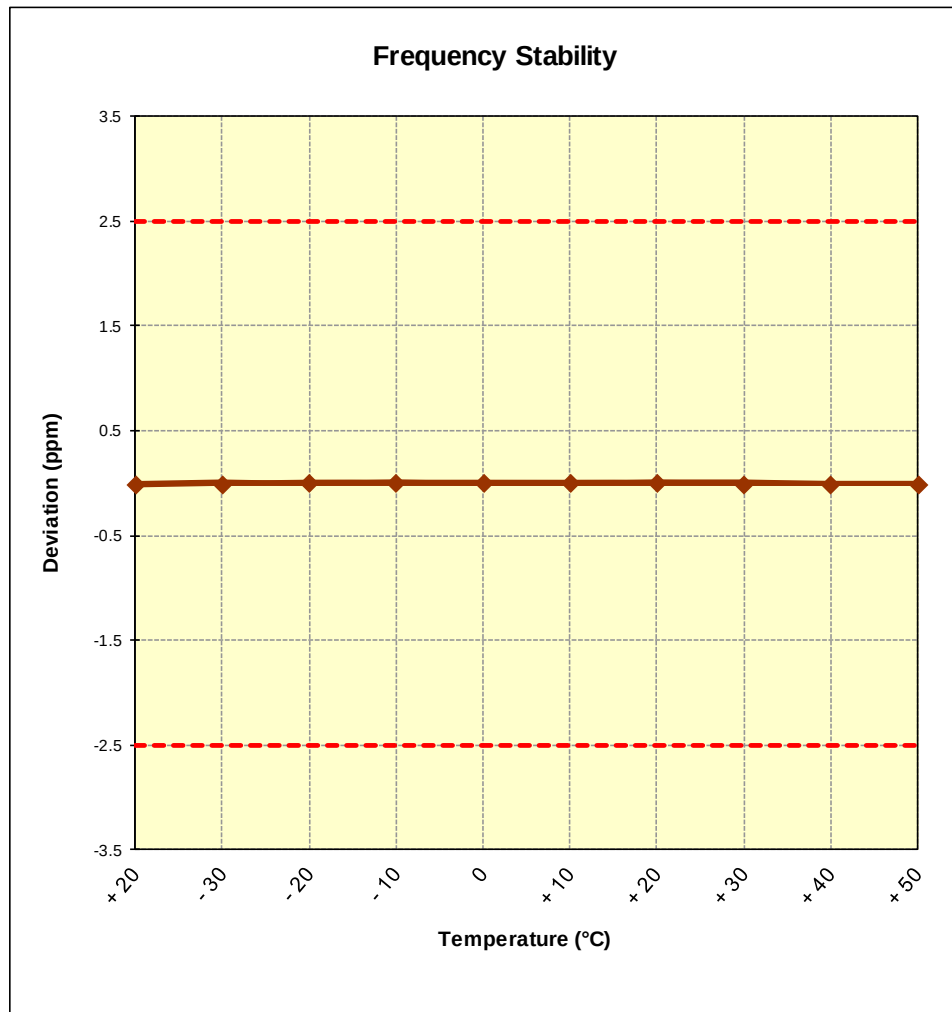


Figure 7-15. Frequency Stability Graph (Band 2)

FCC ID: BCGA1954	 MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1C1710060006-03-R2.BCG	Test Dates: 10/31/2017-2/15/2018	EUT Type: Tablet Device	Page 253 of 260

Band 30 Frequency Stability Measurements

OPERATING FREQUENCY: 2,310,000,000 Hz
 CHANNEL: 27710
 REFERENCE VOLTAGE: 3.80 VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.80	+ 20 (Ref)	2,309,999,992	-8.50	-0.0000004
100 %		- 30	2,309,999,990	-9.64	-0.0000004
100 %		- 20	2,309,999,993	-7.05	-0.0000003
100 %		- 10	2,309,999,992	-7.67	-0.0000003
100 %		0	2,309,999,993	-7.17	-0.0000003
100 %		+ 10	2,309,999,993	-6.65	-0.0000003
100 %		+ 20	2,309,999,994	-6.42	-0.0000003
100 %		+ 30	2,309,999,994	-6.47	-0.0000003
100 %		+ 40	2,309,999,991	-8.51	-0.0000004
100 %		+ 50	2,309,999,992	-7.58	-0.0000003
BATT. ENDPOINT	3.19	+ 20	2,309,999,990	-9.57	-0.0000004

Table 7-54. Frequency Stability Data (Band 30)

Note:

Based on the results of the frequency stability test at the center channel the frequency deviation results measured are very small. As such it is determined that the channels at the band edge would remain in-band when the maximum measured frequency deviation noted during the frequency stability tests is applied. Therefore the device is determined to remain operating in band over the temperature and voltage range as tested.

FCC ID: BCGA1954	 MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1C1710060006-03-R2.BCG	Test Dates: 10/31/2017-2/15/2018	EUT Type: Tablet Device	Page 254 of 260

Band 30 Frequency Stability Measurements

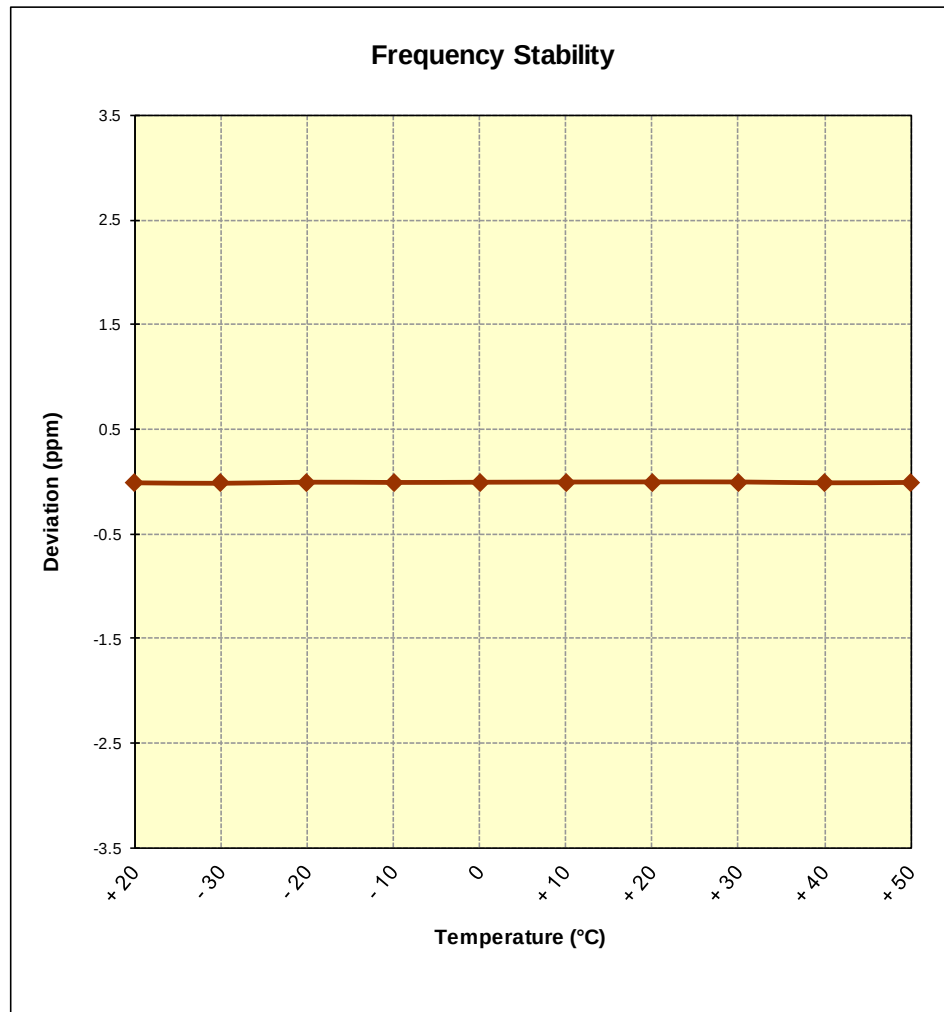


Figure 7-16. Frequency Stability Graph (Band 30)

FCC ID: BCGA1954	 MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1C1710060006-03-R2.BCG	Test Dates: 10/31/2017-2/15/2018	EUT Type: Tablet Device	Page 255 of 260

Band 7 Frequency Stability Measurements

OPERATING FREQUENCY: 2,535,000,000 Hz
 CHANNEL: 21100
 REFERENCE VOLTAGE: 3.80 VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.80	+ 20 (Ref)	2,534,999,992	-7.88	-0.0000003
100 %		- 30	2,534,999,991	-8.97	-0.0000004
100 %		- 20	2,534,999,992	-7.67	-0.0000003
100 %		- 10	2,534,999,993	-7.48	-0.0000003
100 %		0	2,535,000,031	31.21	0.0000012
100 %		+ 10	2,534,999,993	-6.54	-0.0000003
100 %		+ 20	2,534,999,992	-8.34	-0.0000003
100 %		+ 30	2,534,999,991	-8.56	-0.0000003
100 %		+ 40	2,534,999,992	-7.55	-0.0000003
100 %		+ 50	2,534,999,991	-9.07	-0.0000004
BATT. ENDPOINT	3.19	+ 20	2,534,999,991	-8.94	-0.0000004

Table 7-55. Frequency Stability Data (Band 7)

Note:

Based on the results of the frequency stability test at the center channel the frequency deviation results measured are very small. As such it is determined that the channels at the band edge would remain in-band when the maximum measured frequency deviation noted during the frequency stability tests is applied. Therefore the device is determined to remain operating in band over the temperature and voltage range as tested.

FCC ID: BCGA1954	 MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1C1710060006-03-R2.BCG	Test Dates: 10/31/2017-2/15/2018	EUT Type: Tablet Device	Page 256 of 260

Band 7 Frequency Stability Measurements

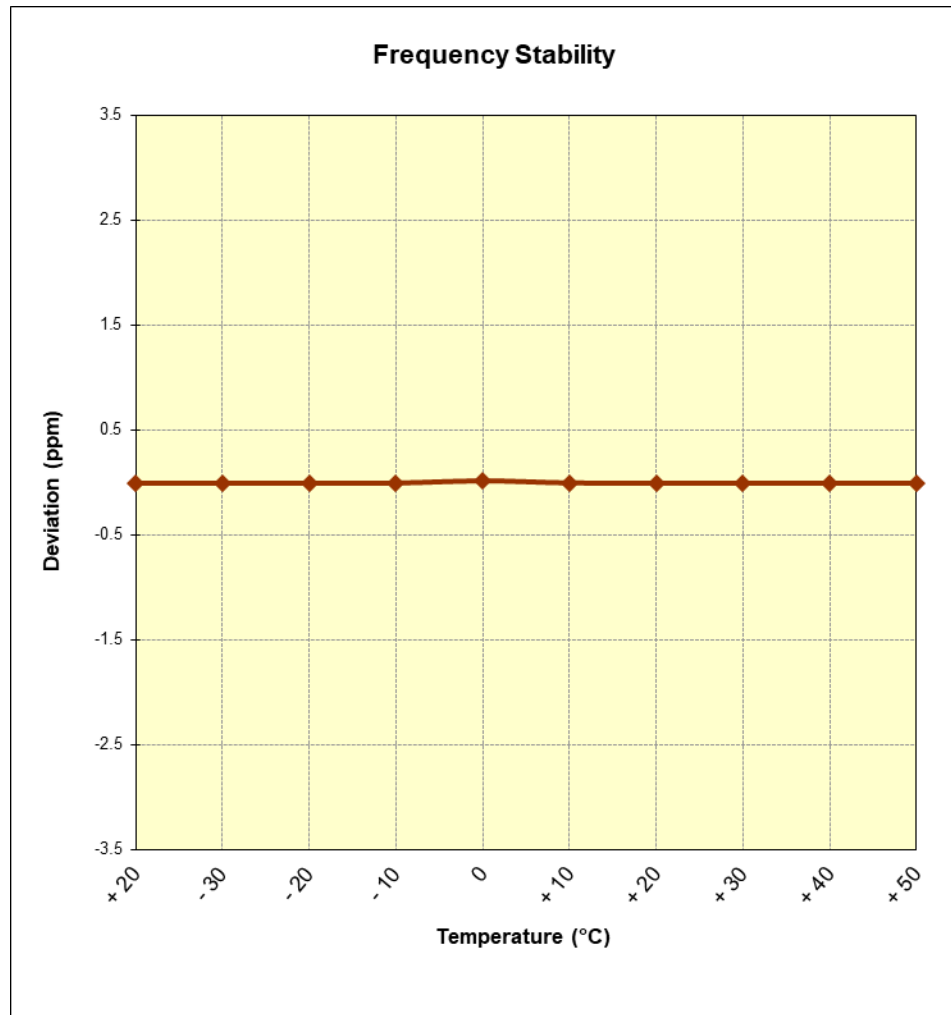


Figure 7-17. Frequency Stability Graph (Band 7)

FCC ID: BCGA1954	 MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1C1710060006-03-R2.BCG	Test Dates: 10/31/2017-2/15/2018	EUT Type: Tablet Device	Page 257 of 260

Band 41 Frequency Stability Measurements

OPERATING FREQUENCY: 2,593,000,000 Hz
 CHANNEL: 40620
 REFERENCE VOLTAGE: 3.80 VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.80	+ 20 (Ref)	2,593,000,027	27.24	0.0000011
100 %		- 30	2,593,000,034	34.26	0.0000013
100 %		- 20	2,593,000,038	38.24	0.0000015
100 %		- 10	2,593,000,041	40.74	0.0000016
100 %		0	2,593,000,038	38.48	0.0000015
100 %		+ 10	2,593,000,037	36.66	0.0000014
100 %		+ 20	2,593,000,031	30.91	0.0000012
100 %		+ 30	2,593,000,030	29.51	0.0000011
100 %		+ 40	2,593,000,036	35.82	0.0000014
100 %		+ 50	2,593,000,036	35.76	0.0000014
BATT. ENDPOINT	3.19	+ 20	2,593,000,033	32.86	0.0000013

Table 7-56. Frequency Stability Data (Band 41)

Note:

Based on the results of the frequency stability test at the center channel the frequency deviation results measured are very small. As such it is determined that the channels at the band edge would remain in-band when the maximum measured frequency deviation noted during the frequency stability tests is applied. Therefore the device is determined to remain operating in band over the temperature and voltage range as tested.

FCC ID: BCGA1954	 MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1C1710060006-03-R2.BCG	Test Dates: 10/31/2017-2/15/2018	EUT Type: Tablet Device	Page 258 of 260

Band 41 Frequency Stability Measurements

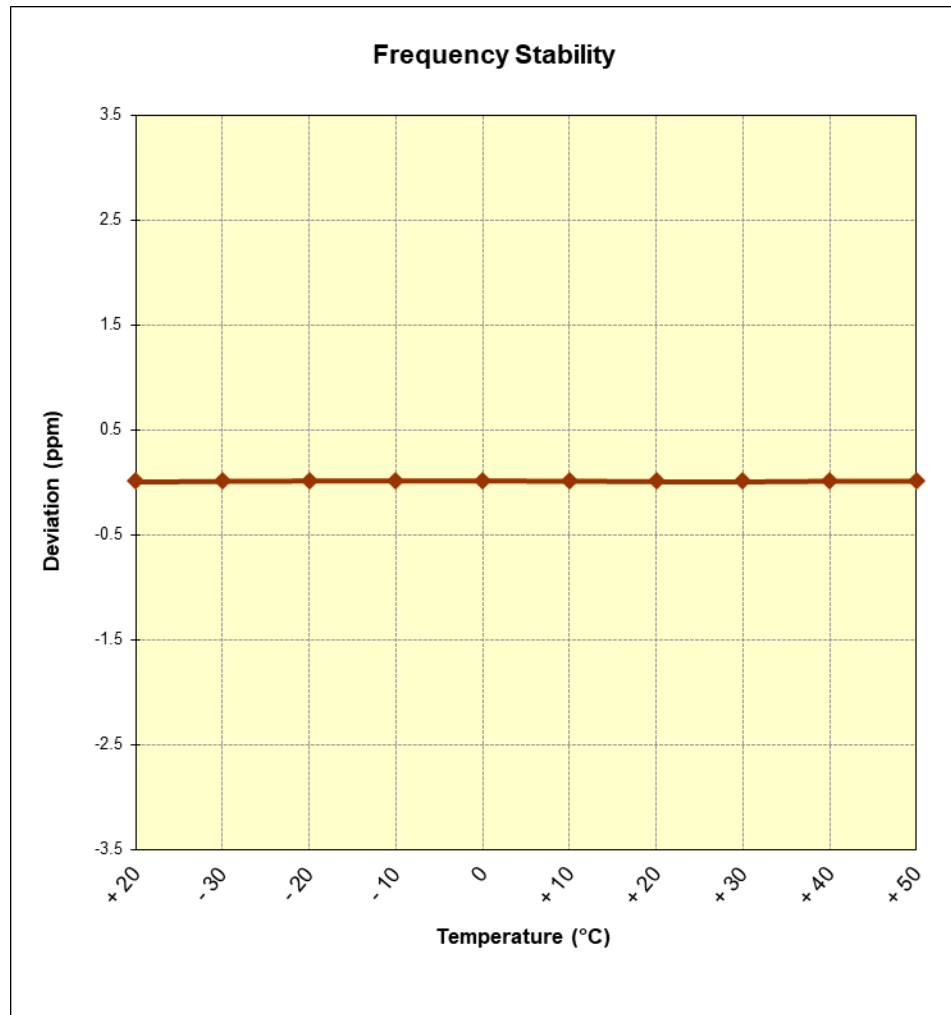


Figure 7-18. Frequency Stability Graph (Band 41)

FCC ID: BCGA1954	 MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1C1710060006-03-R2.BCG	Test Dates: 10/31/2017-2/15/2018	EUT Type: Tablet Device	Page 259 of 260

8.0 CONCLUSION

The data collected relate only to the item(s) tested and show that the **Apple Tablet Device FCC ID: BCGA1954** complies with all the requirements of Part 22, 24, & 27 of the FCC Rules and RSS-130, RSS-132, RSS-133, RSS-139, RSS-195, RSS-199 of the Innovation, Science and Economic Development Canada Rules for LTE operation only.

FCC ID: BCGA1954	 PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
Test Report S/N: 1C1710060006-03-R2.BCG	Test Dates: 10/31/2017-2/15/2018	EUT Type: Tablet Device	Page 260 of 260