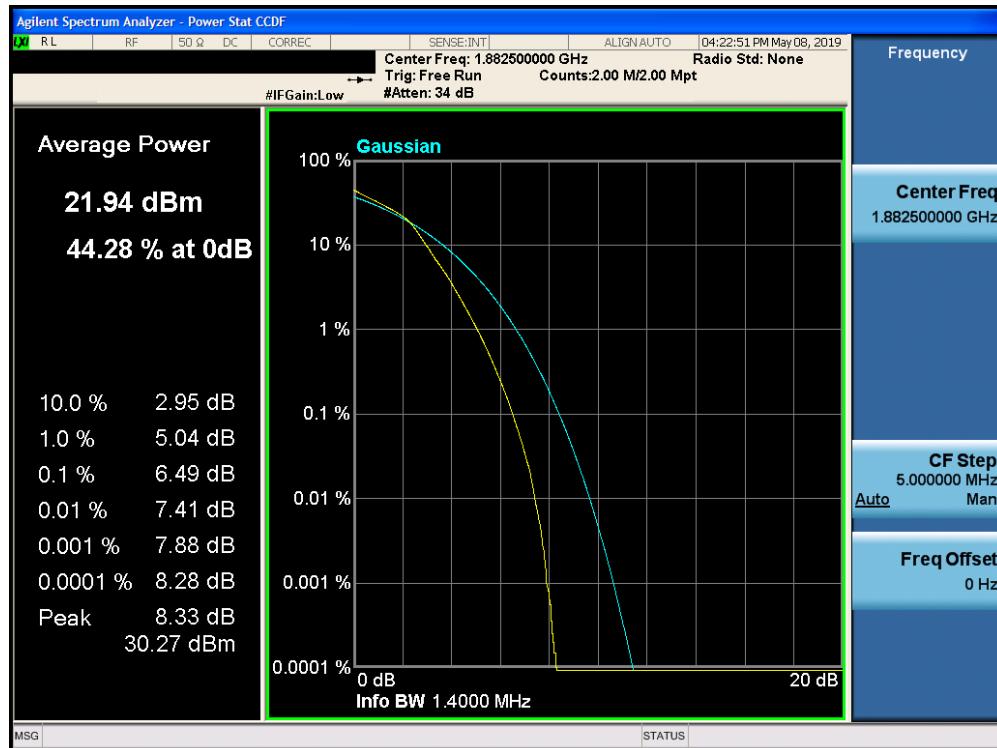


## Band 25



Plot 7-258. PAR Plot (Band 25 - 1.4MHz QPSK - Full RB Configuration)



Plot 7-259. PAR Plot (Band 25 - 1.4MHz 16-QAM - Full RB Configuration)

FCC ID: BCG-A2156	 <b>MEASUREMENT REPORT (CERTIFICATION)</b>		Approved by: Quality Manager
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**Plot 7-260. PAR Plot (Band 25 - 3.0MHz QPSK - Full RB Configuration)**

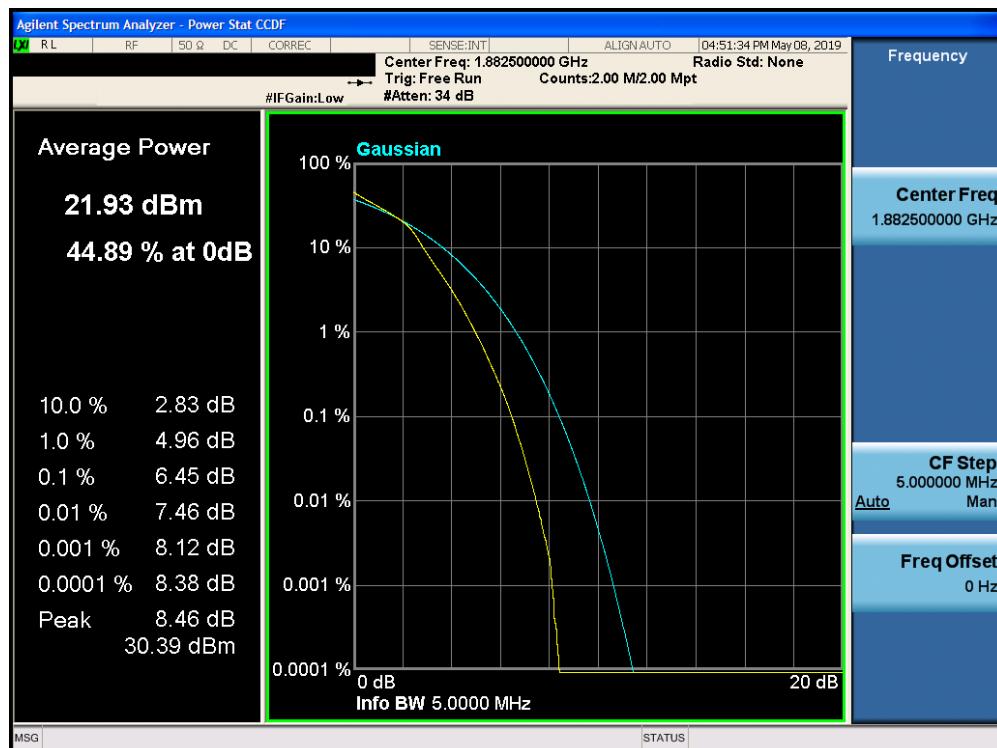


**Plot 7-261. PAR Plot (Band 25 - 3.0MHz 16-QAM - Full RB Configuration)**

FCC ID: BCG-A2156	<b>PCTEST</b> ENGINEERING LABORATORY, INC.		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
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**Plot 7-262. PAR Plot (Band 25 - 5.0MHz QPSK - Full RB Configuration)**



**Plot 7-263. PAR Plot (Band 25 - 5.0MHz 16-QAM - Full RB Configuration)**

FCC ID: BCG-A2156	 <b>MEASUREMENT REPORT (CERTIFICATION)</b>		Approved by: Quality Manager
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Plot 7-264. PAR Plot (Band 25 - 10.0MHz QPSK - Full RB Configuration)



Plot 7-265. PAR Plot (Band 25 - 10.0MHz 16-QAM - Full RB Configuration)

FCC ID: BCG-A2156	<b>PCTEST</b> ENGINEERING LABORATORY, INC.		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
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**Plot 7-266. PAR Plot (Band 25 - 15.0MHz QPSK - Full RB Configuration)**



**Plot 7-267. PAR Plot (Band 25 - 15.0MHz 16-QAM - Full RB Configuration)**

FCC ID: BCG-A2156	<b>PCTEST</b> ENGINEERING LABORATORY, INC.		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
Test Report S/N: 1C1905130009-03.BCG	Test Dates: 05/02/2019 - 08/15/2019	EUT Type: Watch	Page 164 of 203	



Plot 7-268. PAR Plot (Band 25 - 20.0MHz QPSK - Full RB Configuration)



Plot 7-269. PAR Plot (Band 25 - 20.0MHz 16-QAM - Full RB Configuration)

FCC ID: BCG-A2156	 <b>MEASUREMENT REPORT (CERTIFICATION)</b>			Approved by: Quality Manager
Test Report S/N: 1C1905130009-03.BCG	Test Dates: 05/02/2019 - 08/15/2019	EUT Type: Watch	Page 165 of 203	

## 7.6 Radiated Power (ERP/EIRP)

### Test Overview

Effective Radiated Power (ERP) and Equivalent Isotropic Radiated Power (EIRP) 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. All measurements are performed as RMS average measurements while the EUT is operating at its maximum duty cycle, at maximum power, and at the appropriate frequencies.

### Test Procedures Used

KDB 971168 D01 v03r01 – Section 5.2.1

### Test Settings

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

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

Where:

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

PMes = 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: BCG-A2156	 <b>MEASUREMENT REPORT (CERTIFICATION)</b>		Approved by: Quality Manager
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## 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 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.

<b>FCC ID:</b> BCG-A2156	 <b>MEASUREMENT REPORT</b> (CERTIFICATION)		<b>Approved by:</b> Quality Manager
<b>Test Report S/N:</b> 1C1905130009-03.BCG	<b>Test Dates:</b> 05/02/2019 - 08/15/2019	<b>EUT Type:</b> Watch	Page 167 of 203

Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	RB Size/Offset	Conducted Power [dBm]	Ant. Gain [dBi]	ERP [dBm]	ERP [mW]	ERP Limit [dBm]	Margin [dB]	EIRP [dBm]	EIRP [mW]	EIRP Limit [dBm]	Margin [dB]
824.70	1.4	QPSK	3 / 2	24.77	-26.30	<b>-3.68</b>	0.429	38.45	-42.13	<b>-1.53</b>	0.703	40.61	-42.14
836.50	1.4	QPSK	3 / 2	24.72	-26.30	-3.73	0.424	38.45	-42.18	-1.58	0.695	40.61	-42.19
848.30	1.4	QPSK	3 / 2	24.48	-26.30	-3.97	0.401	38.45	-42.42	-1.82	0.658	40.61	-42.43
824.70	1.4	16-QAM	3 / 2	24.10	-26.30	<b>-4.35</b>	0.367	38.45	-42.80	<b>-2.20</b>	0.603	40.61	-42.81
825.50	3	QPSK	1 / 0	24.80	-26.30	<b>-3.65</b>	<b>0.432</b>	38.45	-42.10	<b>-1.50</b>	<b>0.708</b>	40.61	-42.11
836.50	3	QPSK	1 / 0	24.71	-26.30	-3.74	0.423	38.45	-42.19	-1.59	0.693	40.61	-42.20
847.50	3	QPSK	1 / 0	24.46	-26.30	-3.99	0.399	38.45	-42.44	-1.84	0.655	40.61	-42.45
836.50	3	16-QAM	1 / 14	24.21	-26.30	<b>-4.24</b>	0.377	38.45	-42.69	<b>-2.09</b>	0.618	40.61	-42.70
826.50	5	QPSK	1 / 0	24.66	-26.30	-3.79	0.418	38.45	-42.24	-1.64	0.685	40.61	-42.25
836.50	5	QPSK	1 / 0	24.70	-26.30	<b>-3.75</b>	0.422	38.45	-42.20	<b>-1.60</b>	0.692	40.61	-42.21
846.50	5	QPSK	1 / 0	24.56	-26.30	-3.89	0.408	38.45	-42.34	-1.74	0.670	40.61	-42.35
836.50	5	16-QAM	1 / 24	24.20	-26.30	<b>-4.25</b>	0.376	38.45	-42.70	<b>-2.10</b>	0.617	40.61	-42.71
829.00	10	QPSK	1 / 0	24.63	-26.30	<b>-3.82</b>	0.415	38.45	-42.27	<b>-1.67</b>	0.681	40.61	-42.28
836.50	10	QPSK	1 / 49	24.57	-26.30	-3.88	0.409	38.45	-42.33	-1.73	0.671	40.61	-42.34
844.00	10	QPSK	1 / 0	24.60	-26.30	-3.85	0.412	38.45	-42.30	-1.70	0.676	40.61	-42.31
844.00	10	16-QAM	1 / 0	24.28	-26.30	<b>-4.17</b>	0.383	38.45	-42.62	<b>-2.02</b>	0.628	40.61	-42.63

**Table 7-7. ERP Data (Band 5)**

FCC ID: BCG-A2156	MEASUREMENT REPORT (CERTIFICATION)				Approved by: Quality Manager
Test Report S/N: 1C1905130009-03.BCG	Test Dates: 05/02/2019 - 08/15/2019	EUT Type: Watch			Page 168 of 203

Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	RB Size/Offset	Conducted Power [dBm]	Ant. Gain [dBi]	ERP [dBm]	ERP [mW]	ERP Limit [dBm]	Margin [dB]	EIRP [dBm]	EIRP [mW]	EIRP Limit [dBm]	Margin [dB]
824.70	1.4	QPSK	1 / 5	24.97	-26.30	<b>-3.48</b>	0.449	38.45	-41.93	<b>-1.33</b>	0.736	40.61	-41.94
836.50	1.4	QPSK	3 / 2	24.86	-26.30	<b>-3.59</b>	0.438	38.45	-42.04	<b>-1.44</b>	0.718	40.61	-42.05
848.30	1.4	QPSK	1 / 0	24.87	-26.30	<b>-3.58</b>	0.439	38.45	-42.03	<b>-1.43</b>	0.719	40.61	-42.04
824.70	1.4	16-QAM	1 / 5	24.16	-26.30	<b>-4.29</b>	0.372	38.45	-42.74	<b>-2.14</b>	0.611	40.61	-42.75
825.50	3	QPSK	1 / 14	24.74	-26.30	<b>-3.71</b>	0.426	38.45	-42.16	<b>-1.56</b>	0.698	40.61	-42.17
836.50	3	QPSK	1 / 0	24.81	-26.30	<b>-3.64</b>	0.433	38.45	-42.09	<b>-1.49</b>	0.710	40.61	-42.10
847.50	3	QPSK	1 / 14	24.82	-26.30	<b>-3.63</b>	0.434	38.45	-42.08	<b>-1.48</b>	0.711	40.61	-42.09
825.50	3	16-QAM	1 / 14	24.21	-26.30	<b>-4.24</b>	0.377	38.45	-42.69	<b>-2.09</b>	0.618	40.61	-42.70
826.50	5	QPSK	1 / 24	24.90	-26.30	<b>-3.55</b>	0.442	38.45	-42.00	<b>-1.40</b>	0.724	40.61	-42.01
836.50	5	QPSK	1 / 24	24.72	-26.30	<b>-3.73</b>	0.424	38.45	-42.18	<b>-1.58</b>	0.695	40.61	-42.19
846.50	5	QPSK	1 / 0	24.72	-26.30	<b>-3.73</b>	0.424	38.45	-42.18	<b>-1.58</b>	0.695	40.61	-42.19
826.50	5	16-QAM	1 / 0	24.13	-26.30	<b>-4.32</b>	0.370	38.45	-42.77	<b>-2.17</b>	0.607	40.61	-42.78
829.00	10	QPSK	1 / 0	24.91	-26.30	<b>-3.54</b>	0.443	38.45	-41.99	<b>-1.39</b>	0.726	40.61	-42.00
836.50	10	QPSK	1 / 49	24.75	-26.30	<b>-3.70</b>	0.427	38.45	-42.15	<b>-1.55</b>	0.700	40.61	-42.16
844.00	10	QPSK	1 / 0	25.00	-26.30	<b>-3.45</b>	<b>0.452</b>	38.45	-41.90	<b>-1.30</b>	<b>0.741</b>	40.61	-41.91
829.00	10	16-QAM	1 / 0	24.05	-26.30	<b>-4.40</b>	0.363	38.45	-42.85	<b>-2.25</b>	0.596	40.61	-42.86

**Table 7-8. ERP Data (Band 26)**

FCC ID: BCG-A2156	MEASUREMENT REPORT (CERTIFICATION)				Approved by: Quality Manager
Test Report S/N: 1C1905130009-03.BCG	Test Dates: 05/02/2019 - 08/15/2019	EUT Type: Watch			Page 169 of 203

Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	RB Size/Offset	Conducted Power [dBm]	Ant. Gain [dBi]	EIRP [dBm]	EIRP [mW]	EIRP Limit [dBm]	Margin [dB]
1710.70	1.4	QPSK	1 / 0	23.76	-13.60	10.16	10.375	30.00	-19.84
1732.50	1.4	QPSK	3 / 2	23.98	-13.60	<b>10.38</b>	10.914	30.00	-19.62
1754.30	1.4	QPSK	3 / 2	23.91	-13.60	10.31	10.740	30.00	-19.69
1732.50	1.4	16-QAM	1 / 0	23.45	-13.60	<b>9.85</b>	9.661	30.00	-20.15
1711.50	3	QPSK	1 / 0	23.75	-13.60	10.15	10.351	30.00	-19.85
1732.50	3	QPSK	1 / 0	23.94	-13.60	<b>10.34</b>	10.814	30.00	-19.66
1753.50	3	QPSK	1 / 14	23.81	-13.60	10.21	10.495	30.00	-19.79
1732.50	3	16-QAM	1 / 14	23.44	-13.60	<b>9.84</b>	9.638	30.00	-20.16
1712.50	5	QPSK	1 / 0	23.78	-13.60	10.18	10.423	30.00	-19.82
1732.50	5	QPSK	1 / 0	24.00	-13.60	<b>10.40</b>	<b>10.965</b>	30.00	-19.60
1752.50	5	QPSK	1 / 0	23.98	-13.60	10.38	10.914	30.00	-19.62
1732.50	5	16-QAM	1 / 0	23.48	-13.60	<b>9.88</b>	9.727	30.00	-20.12
1715.00	10	QPSK	1 / 0	23.67	-13.60	10.07	10.162	30.00	-19.93
1732.50	10	QPSK	1 / 49	23.98	-13.60	<b>10.38</b>	10.914	30.00	-19.62
1750.00	10	QPSK	1 / 49	23.78	-13.60	10.18	10.423	30.00	-19.82
1732.50	10	16-QAM	1 / 27	23.50	-13.60	<b>9.90</b>	9.772	30.00	-20.10
1717.50	15	QPSK	1 / 0	23.60	-13.60	10.00	10.000	30.00	-20.00
1732.50	15	QPSK	1 / 74	24.00	-13.60	<b>10.40</b>	<b>10.965</b>	30.00	-19.60
1747.50	15	QPSK	1 / 0	24.00	-13.60	<b>10.40</b>	<b>10.965</b>	30.00	-19.60
1732.50	15	16-QAM	1 / 27	23.42	-13.60	<b>9.82</b>	9.594	30.00	-20.18
1720.00	20	QPSK	1 / 99	23.73	-13.60	10.13	10.304	30.00	-19.87
1732.50	20	QPSK	1 / 99	23.87	-13.60	10.27	10.641	30.00	-19.73
1745.00	20	QPSK	1 / 99	24.00	-13.60	<b>10.40</b>	<b>10.965</b>	30.00	-19.60
1732.50	20	16-QAM	1 / 0	23.32	-13.60	<b>9.72</b>	9.376	30.00	-20.28

**Table 7-9. EIRP Data (Band 4)**

FCC ID: BCG-A2156	 <b>PCTEST</b> ENGINEERING LABORATORY, INC.				MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
Test Report S/N: 1C1905130009-03.BCG	Test Dates: 05/02/2019 - 08/15/2019	EUT Type: Watch				

Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	RB Size/Offset	Conducted Power [dBm]	Ant. Gain [dBi]	EIRP [dBm]	EIRP [mW]	EIRP Limit [dBm]	Margin [dB]
1710.70	1.4	QPSK	3 / 2	23.90	-13.60	10.30	10.715	30.00	-19.70
1745.00	1.4	QPSK	3 / 2	23.98	-13.60	<b>10.38</b>	10.914	30.00	-19.62
1779.30	1.4	QPSK	3 / 2	23.86	-13.60	10.26	10.617	30.00	-19.74
1745.00	1.4	16-QAM	1 / 0	23.34	-13.60	<b>9.74</b>	9.419	30.00	-20.26
1711.50	3	QPSK	1 / 14	23.78	-13.60	10.18	10.423	30.00	-19.82
1745.00	3	QPSK	1 / 0	23.82	-13.60	10.22	10.520	30.00	-19.78
1778.50	3	QPSK	1 / 0	23.85	-13.60	<b>10.25</b>	10.593	30.00	-19.75
1745.00	3	16-QAM	1 / 0	23.36	-13.60	<b>9.76</b>	9.462	30.00	-20.24
1712.50	5	QPSK	1 / 0	23.74	-13.60	10.14	10.328	30.00	-19.86
1745.00	5	QPSK	1 / 0	23.99	-13.60	10.39	10.940	30.00	-19.61
1777.50	5	QPSK	1 / 0	24.00	-13.60	<b>10.40</b>	<b>10.965</b>	30.00	-19.60
1777.50	5	16-QAM	1 / 0	23.40	-13.60	<b>9.80</b>	9.550	30.00	-20.20
1715.00	10	QPSK	1 / 0	23.66	-13.60	10.06	10.139	30.00	-19.94
1745.00	10	QPSK	1 / 49	23.86	-13.60	10.26	10.617	30.00	-19.74
1775.00	10	QPSK	1 / 49	23.90	-13.60	<b>10.30</b>	10.715	30.00	-19.70
1775.00	10	16-QAM	1 / 0	23.32	-13.60	<b>9.72</b>	9.376	30.00	-20.28
1717.50	15	QPSK	1 / 0	23.61	-13.60	10.01	10.023	30.00	-19.99
1745.00	15	QPSK	1 / 74	23.91	-13.60	10.31	10.740	30.00	-19.69
1772.50	15	QPSK	1 / 0	23.99	-13.60	<b>10.39</b>	10.940	30.00	-19.61
1745.00	15	16-QAM	1 / 27	23.47	-13.60	<b>9.87</b>	9.705	30.00	-20.13
1720.00	20	QPSK	1 / 99	23.75	-13.60	10.15	10.351	30.00	-19.85
1745.00	20	QPSK	1 / 99	23.82	-13.60	10.22	10.520	30.00	-19.78
1770.00	20	QPSK	1 / 99	23.86	-13.60	<b>10.26</b>	10.617	30.00	-19.74
1745.00	20	16-QAM	1 / 27	23.34	-13.60	<b>9.74</b>	9.419	30.00	-20.26

Table 7-10. EIRP Data (Band 66)

FCC ID: BCG-A2156	MEASUREMENT REPORT (CERTIFICATION)				Approved by: Quality Manager
Test Report S/N: 1C1905130009-03.BCG	Test Dates: 05/02/2019 - 08/15/2019	EUT Type: Watch			

Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	RB Size/Offset	Conducted Power [dBm]	Ant. Gain [dBi]	EIRP [dBm]	EIRP [mW]	EIRP Limit [dBm]	Margin [dB]
1850.70	1.4	QPSK	3 / 2	23.71	-12.30	11.41	13.836	33.01	-21.60
1880.00	1.4	QPSK	3 / 2	23.72	-12.30	<b>11.42</b>	13.868	33.01	-21.59
1909.30	1.4	QPSK	1 / 0	23.67	-12.30	11.37	13.709	33.01	-21.64
1880.00	1.4	16-QAM	1 / 0	23.23	-12.30	<b>10.93</b>	12.388	33.01	-22.08
1851.50	3	QPSK	1 / 0	23.61	-12.30	<b>11.31</b>	13.521	33.01	-21.70
1880.00	3	QPSK	1 / 14	23.58	-12.30	11.28	13.428	33.01	-21.73
1908.50	3	QPSK	1 / 0	23.53	-12.30	11.23	13.274	33.01	-21.78
1880.00	3	16-QAM	1 / 0	23.20	-12.30	<b>10.90</b>	12.303	33.01	-22.11
1852.50	5	QPSK	1 / 0	23.54	-12.30	11.24	13.305	33.01	-21.77
1880.00	5	QPSK	1 / 0	23.69	-12.30	<b>11.39</b>	13.772	33.01	-21.62
1907.50	5	QPSK	1 / 24	23.61	-12.30	11.31	13.521	33.01	-21.70
1880.00	5	16-QAM	1 / 0	23.16	-12.30	<b>10.86</b>	12.190	33.01	-22.15
1855.00	10	QPSK	1 / 0	23.62	-12.30	11.32	13.552	33.01	-21.69
1880.00	10	QPSK	1 / 49	23.60	-12.30	11.30	13.490	33.01	-21.71
1905.00	10	QPSK	1 / 0	23.68	-12.30	<b>11.38</b>	13.740	33.01	-21.63
1880.00	10	16-QAM	1 / 27	23.24	-12.30	<b>10.94</b>	12.417	33.01	-22.07
1857.50	15	QPSK	1 / 0	23.57	-12.30	11.27	13.397	33.01	-21.74
1880.00	15	QPSK	1 / 0	23.64	-12.30	11.34	13.614	33.01	-21.67
1902.50	15	QPSK	1 / 0	23.90	-12.30	<b>11.60</b>	14.454	33.01	-21.41
1880.00	15	16-QAM	1 / 0	23.20	-12.30	<b>10.90</b>	12.303	33.01	-22.11
1860.00	20	QPSK	1 / 0	23.91	-12.30	11.61	14.488	33.01	-21.40
1880.00	20	QPSK	1 / 0	23.75	-12.30	11.45	13.964	33.01	-21.56
1900.00	20	QPSK	1 / 0	23.92	-12.30	<b>11.62</b>	<b>14.521</b>	33.01	-21.39
1860.00	20	16-QAM	1 / 0	23.20	-12.30	<b>10.90</b>	12.303	33.01	-22.11

Table 7-11. EIRP Data (Band 2)

FCC ID: BCG-A2156	MEASUREMENT REPORT (CERTIFICATION)				Approved by: Quality Manager
Test Report S/N: 1C1905130009-03.BCG	Test Dates: 05/02/2019 - 08/15/2019	EUT Type: Watch			Page 172 of 203

Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	RB Size/Offset	Conducted Power [dBm]	Ant. Gain [dBi]	EIRP [dBm]	EIRP [mW]	EIRP Limit [dBm]	Margin [dB]
1850.70	1.4	QPSK	1 / 5	23.75	-12.30	<b>11.45</b>	13.964	33.01	-21.56
1882.50	1.4	QPSK	3 / 2	23.75	-12.30	<b>11.45</b>	13.964	33.01	-21.56
1914.30	1.4	QPSK	3 / 2	23.61	-12.30	11.31	13.521	33.01	-21.70
1882.50	1.4	16-QAM	1 / 0	23.25	-12.30	<b>10.95</b>	12.445	33.01	-22.06
1851.50	3	QPSK	1 / 0	23.63	-12.30	<b>11.33</b>	13.583	33.01	-21.68
1882.50	3	QPSK	1 / 0	23.63	-12.30	<b>11.33</b>	13.583	33.01	-21.68
1913.50	3	QPSK	1 / 0	23.61	-12.30	11.31	13.521	33.01	-21.70
1882.50	3	16-QAM	1 / 14	23.29	-12.30	<b>10.99</b>	12.560	33.01	-22.02
1852.50	5	QPSK	1 / 0	23.62	-12.30	11.32	13.552	33.01	-21.69
1882.50	5	QPSK	1 / 24	23.74	-12.30	<b>11.44</b>	13.932	33.01	-21.57
1912.50	5	QPSK	1 / 0	23.67	-12.30	11.37	13.709	33.01	-21.64
1882.50	5	16-QAM	1 / 0	23.16	-12.30	<b>10.86</b>	12.190	33.01	-22.15
1855.00	10	QPSK	1 / 0	23.59	-12.30	<b>11.29</b>	13.459	33.01	-21.72
1882.50	10	QPSK	1 / 0	23.58	-12.30	11.28	13.428	33.01	-21.73
1910.00	10	QPSK	1 / 49	23.56	-12.30	11.26	13.366	33.01	-21.75
1855.00	10	16-QAM	1 / 0	23.28	-12.30	<b>10.98</b>	12.531	33.01	-22.03
1857.50	15	QPSK	1 / 0	23.60	-12.30	11.30	13.490	33.01	-21.71
1882.50	15	QPSK	1 / 0	23.65	-12.30	11.35	13.646	33.01	-21.66
1907.50	15	QPSK	1 / 0	23.93	-12.30	<b>11.63</b>	<b>14.555</b>	33.01	-21.38
1882.50	15	16-QAM	1 / 27	23.20	-12.30	<b>10.90</b>	12.303	33.01	-22.11
1860.00	20	QPSK	1 / 99	23.63	-12.30	11.33	13.583	33.01	-21.68
1882.50	20	QPSK	1 / 0	23.59	-12.30	11.29	13.459	33.01	-21.72
1905.00	20	QPSK	1 / 0	23.71	-12.30	<b>11.41</b>	13.836	33.01	-21.60
1882.50	20	16-QAM	1 / 27	23.18	-12.30	<b>10.88</b>	12.246	33.01	-22.13

Table 7-12. EIRP Data (Band 25)

FCC ID: BCG-A2156	MEASUREMENT REPORT (CERTIFICATION)				Approved by: Quality Manager
Test Report S/N: 1C1905130009-03.BCG	Test Dates: 05/02/2019 - 08/15/2019	EUT Type: Watch			Page 173 of 203

Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	RB Size/Offset	Conducted Power [dBm]	Ant. Gain [dBi]	EIRP [dBm]	EIRP [mW]	EIRP Limit [dBm]	Margin [dB]
2502.50	5	QPSK	1 / 0	23.50	-13.80	<b>9.70</b>	<b>9.333</b>	33.01	-23.31
2535.00	5	QPSK	1 / 24	23.48	-13.80	9.68	9.290	33.01	-23.33
2567.50	5	QPSK	1 / 24	23.50	-13.80	<b>9.70</b>	<b>9.333</b>	33.01	-23.31
2502.50	5	16-QAM	1 / 24	22.61	-13.80	<b>8.81</b>	7.603	33.01	-24.20
2505.00	10	QPSK	1 / 0	23.37	-13.80	9.57	9.057	33.01	-23.44
2535.00	10	QPSK	1 / 0	23.45	-13.80	9.65	9.226	33.01	-23.36
2565.00	10	QPSK	1 / 49	23.50	-13.80	<b>9.70</b>	<b>9.333</b>	33.01	-23.31
2505.00	10	16-QAM	1 / 27	22.78	-13.80	<b>8.98</b>	7.907	33.01	-24.03
2507.50	15	QPSK	1 / 74	23.23	-13.80	9.43	8.770	33.01	-23.58
2535.00	15	QPSK	1 / 74	23.32	-13.80	9.52	8.954	33.01	-23.49
2562.50	15	QPSK	1 / 74	23.45	-13.80	<b>9.65</b>	9.226	33.01	-23.36
2507.50	15	16-QAM	1 / 27	22.81	-13.80	<b>9.01</b>	7.962	33.01	-24.00
2510.00	20	QPSK	1 / 0	23.31	-13.80	9.51	8.933	33.01	-23.50
2535.00	20	QPSK	1 / 0	23.50	-13.80	<b>9.70</b>	<b>9.333</b>	33.01	-23.31
2560.00	20	QPSK	1 / 99	23.25	-13.80	9.45	8.810	33.01	-23.56
2510.00	20	16-QAM	1 / 27	22.90	-13.80	<b>9.10</b>	8.128	33.01	-23.91

Table 7-13. EIRP Data (Band 7)

FCC ID: BCG-A2156	MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1C1905130009-03.BCG	Test Dates: 05/02/2019 - 08/15/2019	EUT Type: Watch		

Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	RB Size/Offset	Conducted Power [dBm]	Ant. Gain [dBi]	EIRP [dBm]	EIRP [mW]	EIRP Limit [dBm]	Margin [dB]
2498.50	5	QPSK	1 / 24	23.47	-13.80	9.67	9.268	33.01	-23.34
2593.00	5	QPSK	1 / 24	23.50	-13.80	<b>9.70</b>	<b>9.333</b>	33.01	-23.31
2687.50	5	QPSK	1 / 0	23.40	-13.80	9.60	9.120	33.01	-23.41
2593.00	5	16-QAM	1 / 0	22.56	-13.80	<b>8.76</b>	7.516	33.01	-24.25
2501.00	10	QPSK	1 / 0	23.50	-13.80	<b>9.70</b>	<b>9.333</b>	33.01	-23.31
2593.00	10	QPSK	1 / 0	23.50	-13.80	<b>9.70</b>	<b>9.333</b>	33.01	-23.31
2685.00	10	QPSK	1 / 0	23.46	-13.80	9.66	9.247	33.01	-23.35
2501.00	10	16-QAM	1 / 27	23.00	-13.80	<b>9.20</b>	8.318	33.01	-23.81
2503.50	15	QPSK	1 / 74	23.50	-13.80	<b>9.70</b>	<b>9.333</b>	33.01	-23.31
2593.00	15	QPSK	1 / 0	23.50	-13.80	<b>9.70</b>	<b>9.333</b>	33.01	-23.31
2682.50	15	QPSK	1 / 0	23.33	-13.80	9.53	8.974	33.01	-23.48
2503.50	15	16-QAM	15 / 7	22.80	-13.80	<b>9.00</b>	7.943	33.01	-24.01
2506.00	20	QPSK	1 / 99	23.50	-13.80	<b>9.70</b>	<b>9.333</b>	33.01	-23.31
2593.00	20	QPSK	1 / 0	23.37	-13.80	9.57	9.057	33.01	-23.44
2680.00	20	QPSK	1 / 99	23.22	-13.80	9.42	8.750	33.01	-23.59
2506.00	20	16-QAM	15 / 7	22.84	-13.80	<b>9.04</b>	8.017	33.01	-23.97

**Table 7-14. EIRP Data (Band 41)**

FCC ID: BCG-A2156	MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1C1905130009-03.BCG	Test Dates: 05/02/2019 - 08/15/2019	EUT Type: Watch	Page 175 of 203	

## 7.7 Radiated Spurious Emissions Measurements

### 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 v03r01 – Section 5.8

ANSI/TIA-603-E-2016 – Section 2.2.12

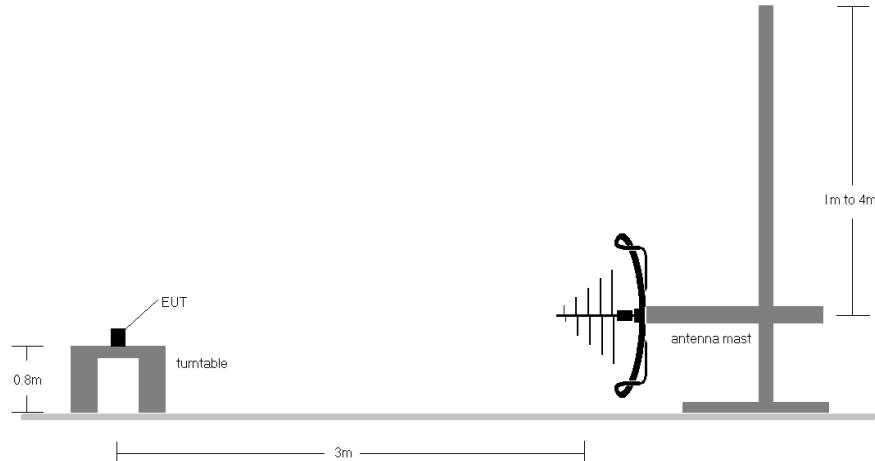
### Test Settings

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

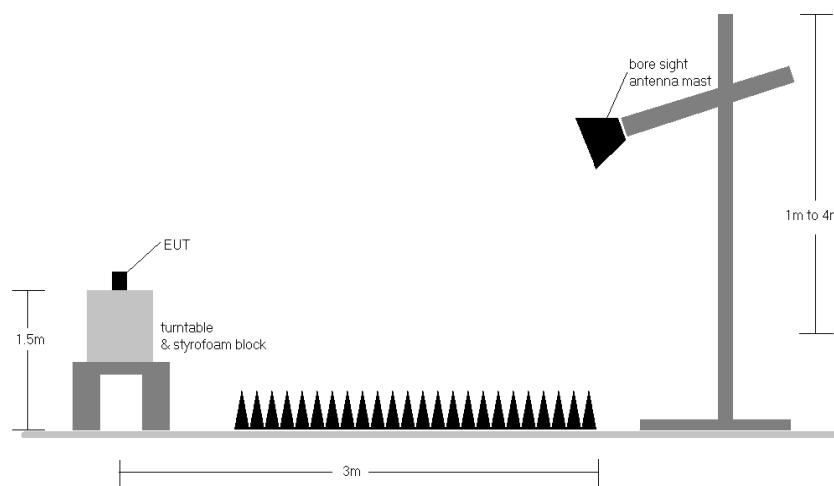
FCC ID: BCG-A2156	 <b>MEASUREMENT REPORT (CERTIFICATION)</b>		Approved by: Quality Manager
Test Report S/N: 1C1905130009-03.BCG	Test Dates: 05/02/2019 - 08/15/2019	EUT Type: Watch	Page 176 of 203

## Test Setup

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



**Figure 7-6. Test Instrument & Measurement Setup < 1GHz**



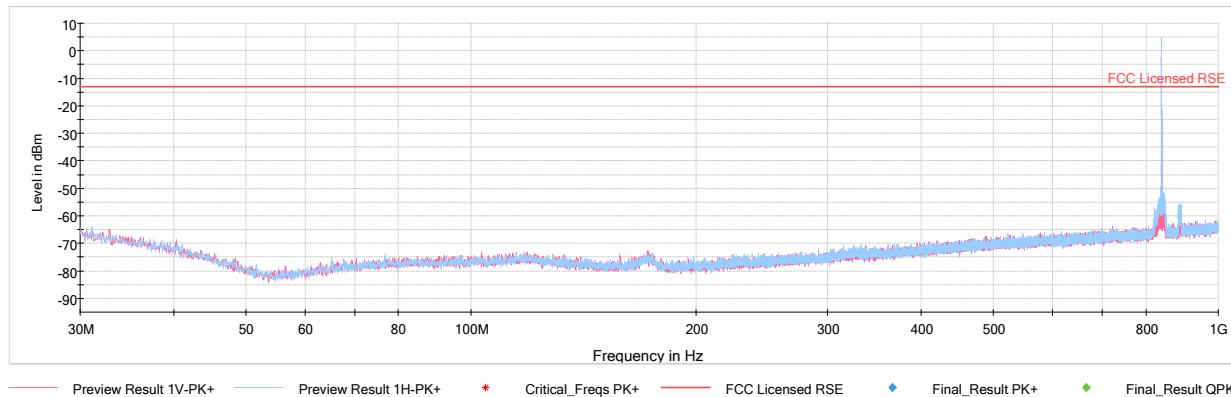
**Figure 7-7. Test Instrument & Measurement Setup > 1GHz**

## Test Notes

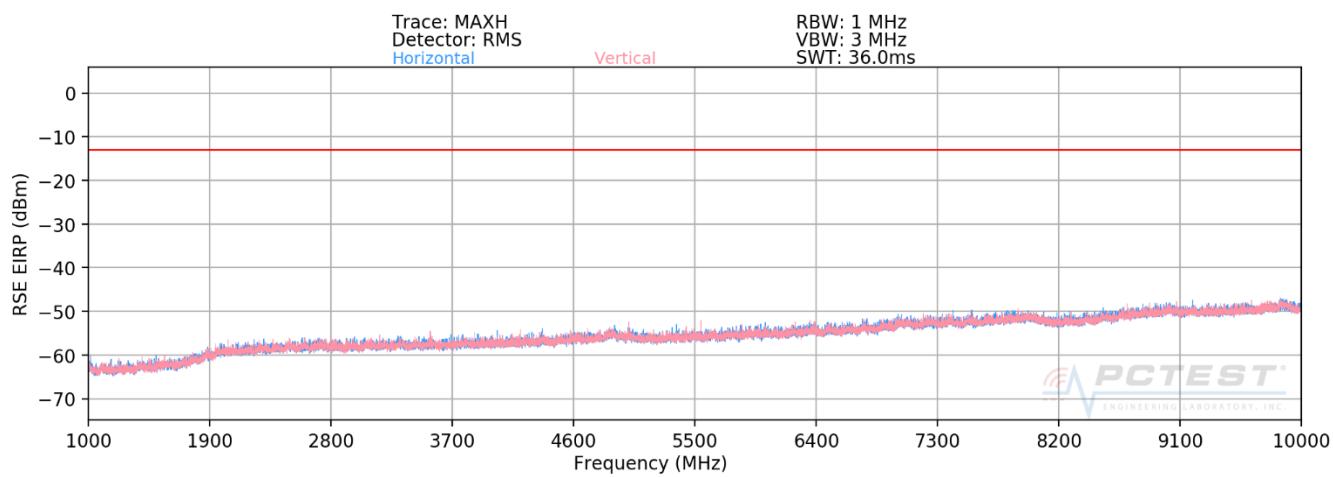
- 1) The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The worst case emissions are reported with the EUT positioning, modulations, RB sizes and offsets, and channel bandwidth configurations shown in the tables below.
- 2) This unit was tested with 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.
- 6) Below 1GHz Pre-scan plot shows no significant emissions.

FCC ID: BCG-A2156	 <b>PCTEST</b> ENGINEERING LABORATORY, INC.		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
Test Report S/N: 1C1905130009-03.BCG	Test Dates: 05/02/2019 - 08/15/2019	EUT Type: Watch		Page 177 of 203

## Band 26/5



**Plot 7-270. Radiated Spurious Plot - Below 1GHz (Band 26/5 High Channel, with WCP + AC/DC Adapter)**



**Plot 7-271. Radiated Spurious Plot above 1GHz (Band 26/5 High Channel)**

OPERATING FREQUENCY: 829.00 MHz  
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]
1658.00	V	166	285	-73.26	5.50	-67.76	-54.8
2487.00	V	106	196	-68.04	5.92	-62.13	-49.1
3316.00	V	-	-	-70.86	7.87	-62.99	-50.0
4145.00	V	106	110	-68.54	9.02	-59.52	-46.5

**Table 7-15. Radiated Spurious Data (Band 26/5 – Low Channel)**

FCC ID: BCG-A2156		MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1C1905130009-03.BCG		Test Dates: 05/02/2019 - 08/15/2019	EUT Type: Watch		Page 178 of 203

OPERATING FREQUENCY: 836.50 MHz  
 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	191	52	-72.99	5.60	-67.39	-54.4
2509.50	V	146	159	-67.50	5.90	-61.60	-48.6
3346.00	V	-	-	-71.11	7.95	-63.17	-50.2
4182.50	V	121	214	-69.63	9.13	-60.50	-47.5

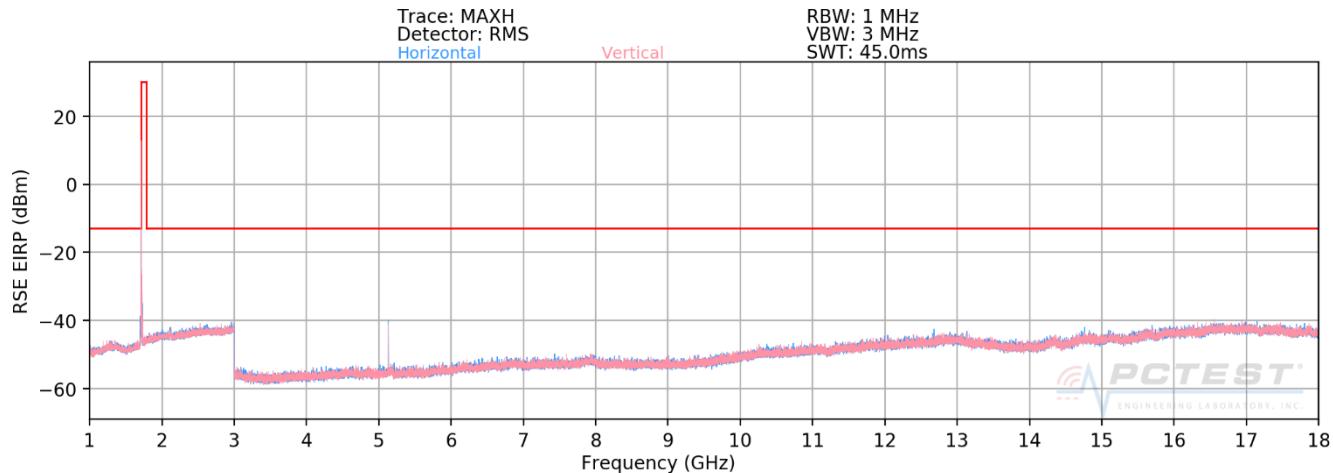
**Table 7-16. Radiated Spurious Data (Band 26/5 – Mid Channel)**

OPERATING FREQUENCY: 844.00 MHz  
 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	125	110	-72.74	5.65	-67.09	-54.1
2532.00	V	102	193	-66.81	5.93	-60.88	-47.9
3376.00	V	-	-	-71.43	8.04	-63.40	-50.4
4220.00	V	110	104	-68.70	9.19	-59.51	-46.5

**Table 7-17. Radiated Spurious Data (Band 26/5 – High Channel)**

FCC ID: BCG-A2156	 PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1C1905130009-03.BCG	Test Dates: 05/02/2019 - 08/15/2019	EUT Type: Watch			

**Band 66/4**

**Plot 7-272. Radiated Spurious Plot above 1GHz (Band 66/4 – Low Channel)**

OPERATING FREQUENCY: 1720.00 MHz  
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	V	136	211	-70.09	8.12	-61.97	-49.0
5160.00	V	103	138	-61.07	10.14	-50.94	-37.9
6880.00	V	-	-	-69.81	11.38	-58.43	-45.4
8600.00	V	-	-	-71.60	13.02	-58.58	-45.6
10320.00	V	-	-	-69.08	13.10	-55.98	-43.0

**Table 7-18. Radiated Spurious Data (Band 66/4 – Low Channel)**

FCC ID: BCG-A2156	 <b>MEASUREMENT REPORT (CERTIFICATION)</b>			Approved by: Quality Manager
Test Report S/N: 1C1905130009-03.BCG	Test Dates: 05/02/2019 - 08/15/2019	EUT Type: Watch	Page 180 of 203	

OPERATING FREQUENCY: 1745.00 MHz  
 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	-	-	-70.84	8.09	-62.75	-49.7
5235.00	H	127	191	-67.51	10.26	-57.25	-44.3
6980.00	H	-	-	-71.26	11.47	-59.79	-46.8
8725.00	H	-	-	-73.39	13.18	-60.21	-47.2
10470.00	H	-	-	-71.41	13.07	-58.34	-45.3

Table 7-19. Radiated Spurious Data (Band 66/4 – Mid Channel)

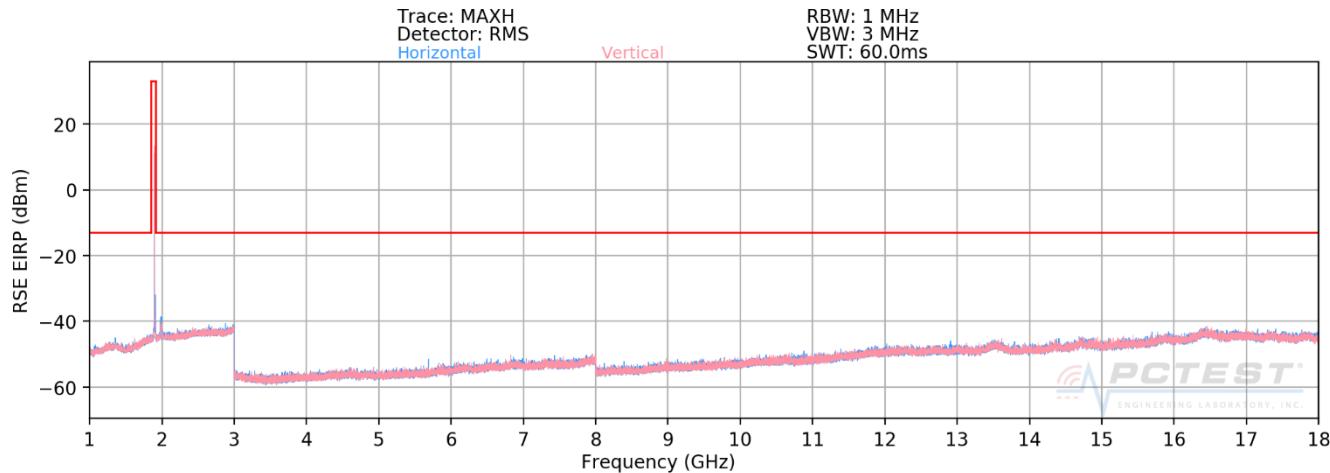
OPERATING FREQUENCY: 1770.00 MHz  
 MODULATION SIGNAL: QPSK  
 BANDWIDTH: 20.0 MHz  
 DISTANCE: 3 meters  
 LIMIT: -13 dBm

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]
3540.00	H	-	-	-71.10	7.99	-63.10	-50.1
5310.00	H	165	164	-67.00	10.28	-56.72	-43.7
7080.00	H	-	-	-71.62	11.58	-60.04	-47.0
8850.00	H	-	-	-73.02	13.14	-59.88	-46.9
10620.00	H	-	-	-70.42	13.05	-57.37	-44.4

Table 7-20. Radiated Spurious Data (Band 66/4 – High Channel)

FCC ID: BCG-A2156	 <b>MEASUREMENT REPORT (CERTIFICATION)</b>			Approved by: Quality Manager
Test Report S/N: 1C1905130009-03.BCG	Test Dates: 05/02/2019 - 08/15/2019	EUT Type: Watch		Page 181 of 203

## Band 25/2



**Plot 7-273. Radiated Spurious Plot above 1GHz (Band 25/2 High Channel)**

OPERATING FREQUENCY: 1860.00 MHz  
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	-	-	-71.17	8.43	-62.74	-49.7
5580.00	H	129	173	-70.00	10.72	-59.28	-46.3
7440.00	H	-	-	-71.63	11.90	-59.73	-46.7
9300.00	H	-	-	-72.67	13.27	-59.40	-46.4
11160.00	H	-	-	-69.91	13.20	-56.71	-43.7
13020.00	H	-	-	-68.17	13.31	-54.85	-41.9

**Table 7-21. Radiated Spurious Data (Band 25/2 – Low Channel)**

FCC ID: BCG-A2156	 <b>MEASUREMENT REPORT (CERTIFICATION)</b>			Approved by: Quality Manager
Test Report S/N: 1C1905130009-03.BCG	Test Dates: 05/02/2019 - 08/15/2019	EUT Type: Watch	Page 182 of 203	

OPERATING FREQUENCY: 1882.50 MHz  
 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]
3765.00	H	-	-	-71.04	8.48	-62.57	-49.6
5647.50	H	102	171	-69.08	10.69	-58.39	-45.4
7530.00	H	-	-	-71.36	11.99	-59.37	-46.4
9412.50	H	-	-	-72.57	13.36	-59.22	-46.2
11295.00	H	-	-	-69.67	13.24	-56.43	-43.4
13177.50	H	-	-	-68.84	13.66	-55.19	-42.2

**Table 7-22. Radiated Spurious Data (Band 25/2 – Mid Channel)**

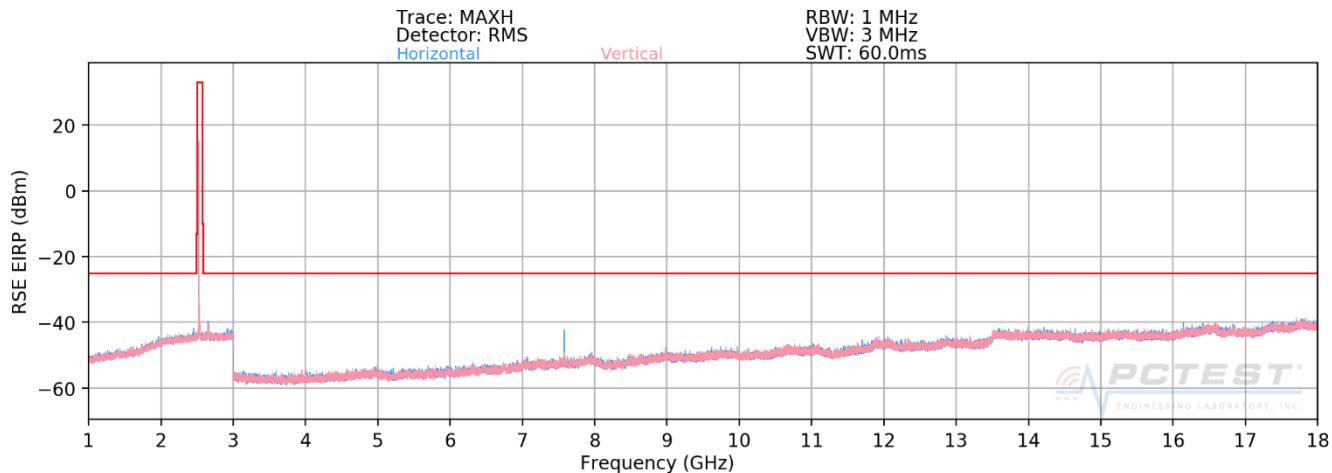
OPERATING FREQUENCY: 1905.00 MHz  
 MODULATION SIGNAL: QPSK  
 BANDWIDTH: 20.0 MHz  
 DISTANCE: 3 meters  
 LIMIT: -13 dBm

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	-	-	-70.88	8.59	-62.28	-49.3
5715.00	H	102	38	-68.61	10.66	-57.95	-44.9
7620.00	H	-	-	-71.90	12.16	-59.74	-46.7
9525.00	H	-	-	-72.87	13.23	-59.64	-46.6
11430.00	H	-	-	-69.78	13.28	-56.50	-43.5
13335.00	H	-	-	-69.51	13.68	-55.83	-42.8

**Table 7-23. Radiated Spurious Data (Band 25/2 – High Channel)**

FCC ID: BCG-A2156	 <b>PCTEST</b> ENGINEERING LABORATORY, INC.			MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
Test Report S/N: 1C1905130009-03.BCG	Test Dates: 05/02/2019 - 08/15/2019	EUT Type: Watch			

## Band 7



**Plot 7-274. Radiated Spurious Plot 1GHz - 18GHz (Band 7 Mid Channel)**

OPERATING FREQUENCY: 2510.00 MHz  
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	398	306	-70.91	10.00	-60.91	-35.9
7530.00	H	341	238	-63.83	11.99	-51.84	-26.8
10040.00	H	-	-	-68.77	13.11	-55.65	-30.7
12550.00	H	-	-	-66.05	13.13	-52.92	-27.9
15060.00	H	-	-	-64.14	14.05	-50.09	-25.1

**Table 7-24. Radiated Spurious Data (Band 7 – Low Channel)**

FCC ID: BCG-A2156	 <b>MEASUREMENT REPORT (CERTIFICATION)</b>			Approved by: Quality Manager
Test Report S/N: 1C1905130009-03.BCG	Test Dates: 05/02/2019 - 08/15/2019	EUT Type: Watch		

OPERATING FREQUENCY: 2535.00 MHz  
 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]
5070.00	H	-	-	-71.31	10.07	-61.25	-36.2
7605.00	H	330	285	-59.24	12.15	-47.09	-22.1
10140.00	H	-	-	-68.35	13.10	-55.25	-30.2
12675.00	H	-	-	-65.91	13.15	-52.76	-27.8
15210.00	H	-	-	-64.04	14.00	-50.04	-25.0

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

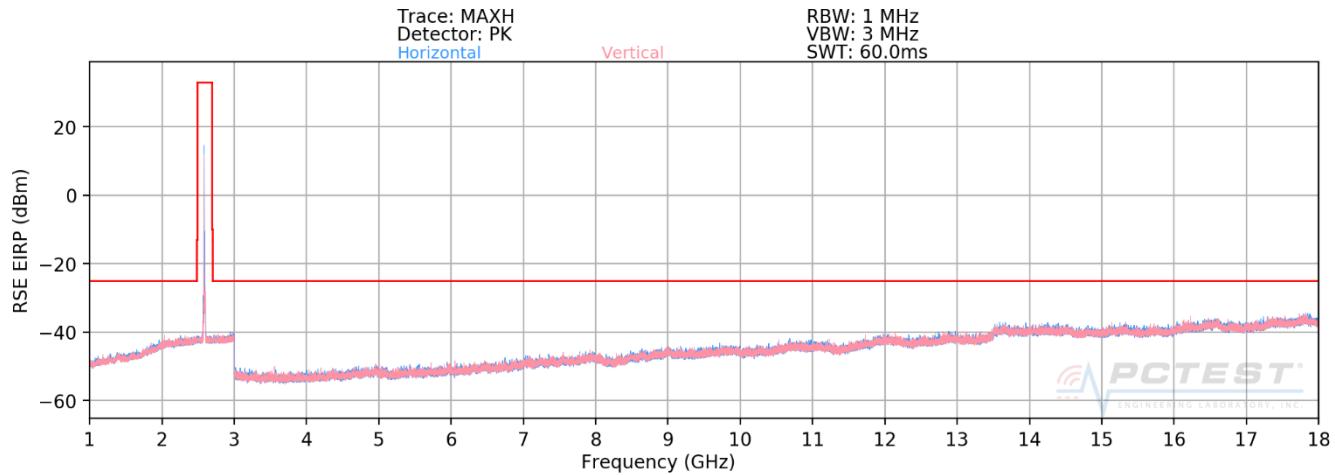
OPERATING FREQUENCY: 2560.00 MHz  
 MODULATION SIGNAL: QPSK  
 BANDWIDTH: 20.0 MHz  
 DISTANCE: 3 meters  
 LIMIT: -25 dBm

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	-	-	-71.73	10.10	-61.63	-36.6
7680.00	H	285	110	-58.68	12.15	-46.53	-21.5
10240.00	H	-	-	-68.73	13.10	-55.63	-30.6
12800.00	H	-	-	-65.40	13.17	-52.23	-27.2
15360.00	H	-	-	-63.47	14.01	-49.46	-24.5

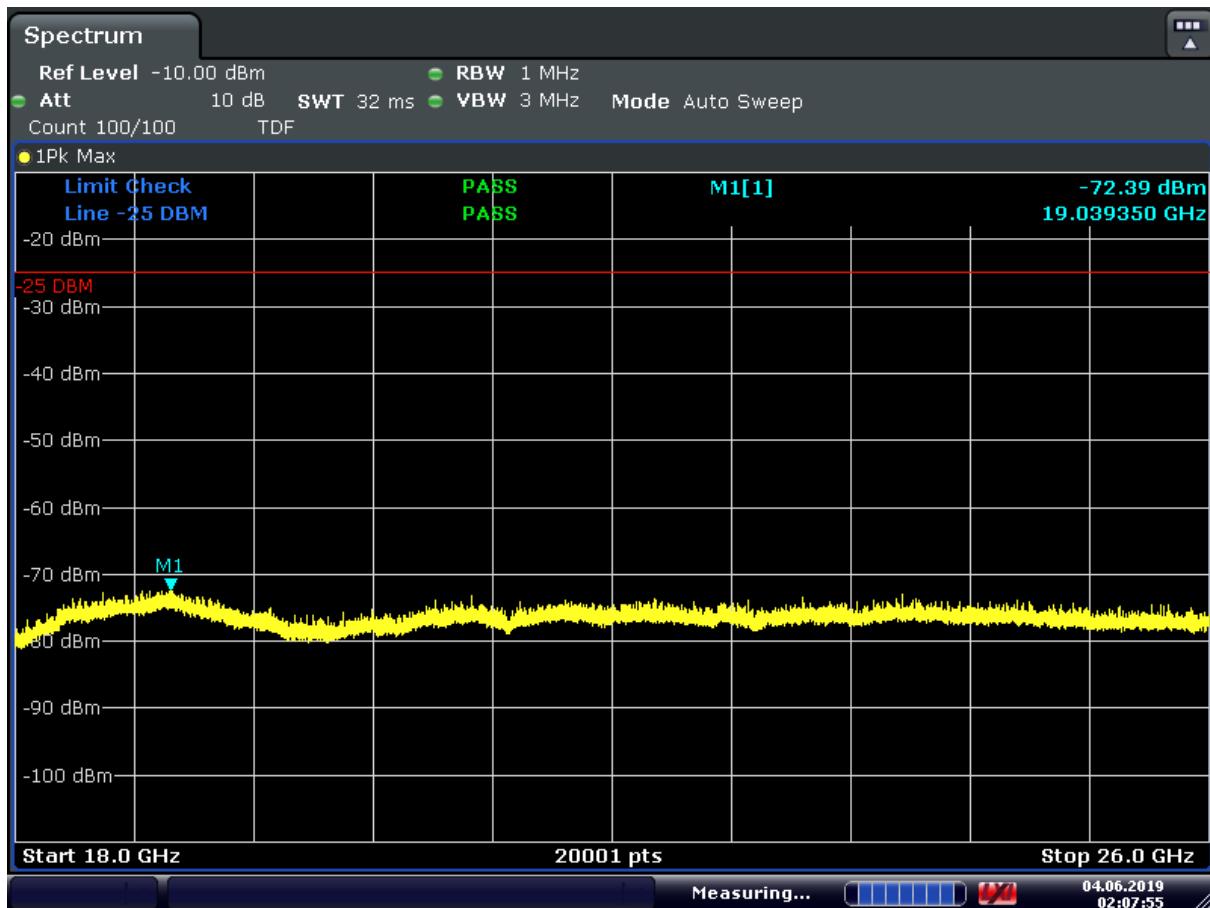
**Table 7-26. Radiated Spurious Data (Band 7 – High Channel)**

FCC ID: BCG-A2156	 PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1C1905130009-03.BCG	Test Dates: 05/02/2019 - 08/15/2019	EUT Type: Watch	Page 185 of 203	

## Band 41

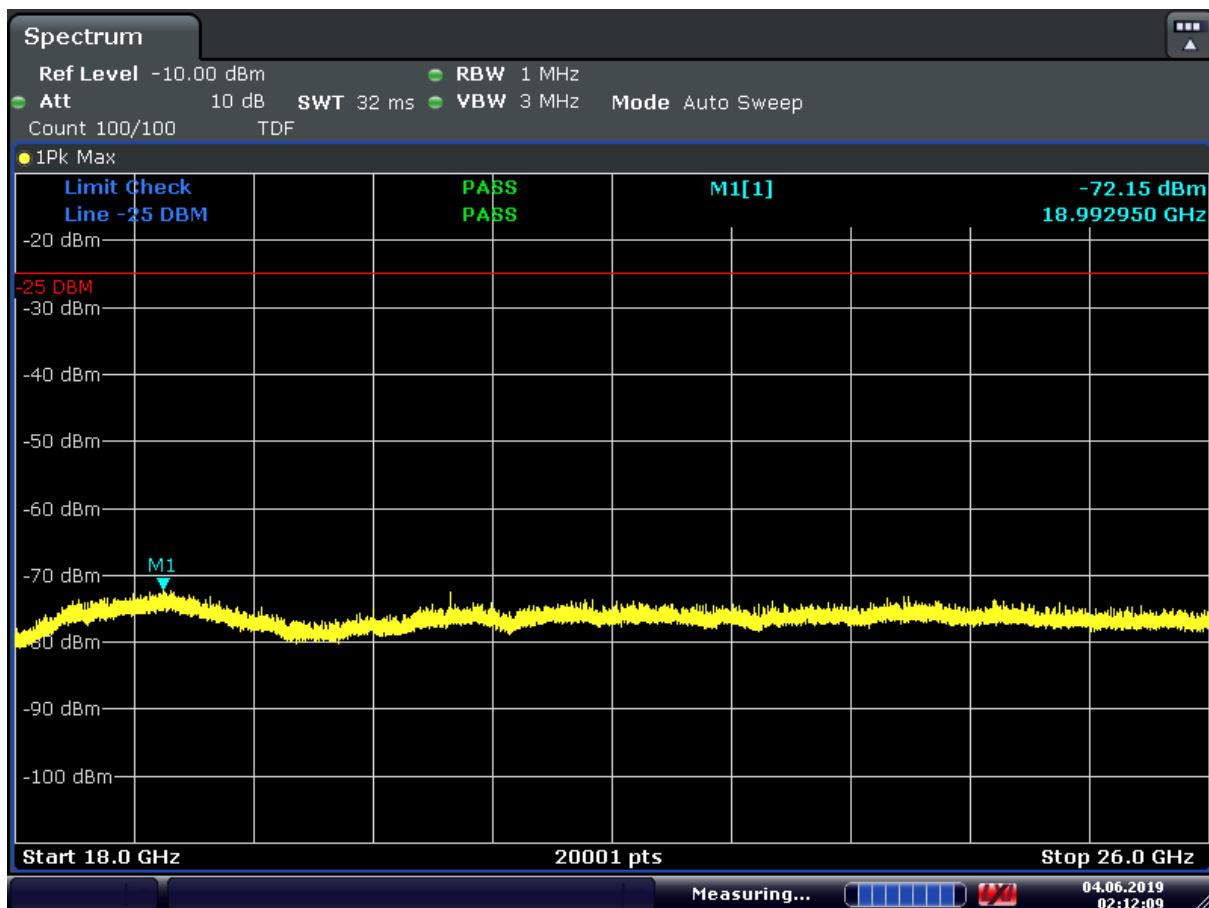


Plot 7-275. Radiated Spurious Plot 1GHz - 18GHz (Band 41 Mid Channel)



Plot 7-276. Radiated Spurious Plot 18GHz – 26GHz (Band 41 Mid Channel, Pol. H)

FCC ID: BCG-A2156	 <b>MEASUREMENT REPORT</b> (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1C1905130009-03.BCG	Test Dates: 05/02/2019 - 08/15/2019	EUT Type: Watch	Page 186 of 203



**Plot 7-277. Radiated Spurious Plot 18GHz – 26GHz (Band 41 Mid Channel, Pol. V)**

OPERATING FREQUENCY: 2506.00 MHz  
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	295	161	-59.46	9.99	-49.46	-24.5
7518.00	H	280	216	-58.00	11.99	-46.01	-21.0
10024.00	H	-	-	-58.96	13.11	-45.85	-20.8
12530.00	H	-	-	-56.16	13.15	-43.02	-18.0
15036.00	H	-	-	-55.06	14.06	-41.00	-16.0

**Table 7-27. Radiated Spurious Data (Band 41 – Low Channel)**

FCC ID: BCG-A2156	MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1C1905130009-03.BCG	Test Dates: 05/02/2019 - 08/15/2019	EUT Type: Watch	Page 187 of 203	

OPERATING FREQUENCY: 2593.00 MHz  
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]
5186.00	V	-	-	-61.65	10.20	-51.45	-26.5
7779.00	V	277	320	-53.23	12.20	-41.03	-16.0
10372.00	V	-	-	-59.40	13.07	-46.33	-21.3
12965.00	V	-	-	-57.41	13.25	-44.16	-19.2
15558.00	V	-	-	-54.95	14.01	-40.94	-15.9

**Table 7-28. Radiated Spurious Data (Band 41 – Mid Channel)**

OPERATING FREQUENCY: 2680.00 MHz  
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	V	105	321	-53.57	10.37	-43.19	-18.2
8040.00	H	150	40	-59.01	12.53	-46.47	-21.5
10720.00	H	-	-	-58.34	13.07	-45.28	-20.3
13400.00	H	-	-	-56.77	13.78	-42.99	-18.0
16080.00	H	-	-	-54.19	13.63	-40.56	-15.6

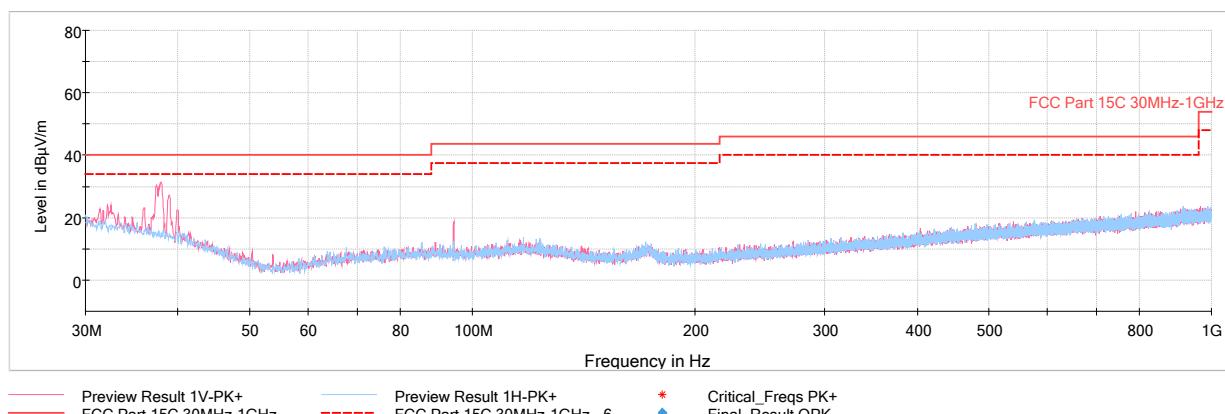
**Table 7-29. Radiated Spurious Data (Band 41 – High Channel)**

FCC ID: BCG-A2156	 PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1C1905130009-03.BCG	Test Dates: 05/02/2019 - 08/15/2019	EUT Type: Watch		

## Simultaneous Tx Radiated Spurious Measurements

Description	Bluetooth	LTE
Antenna	FCM	FCM
Channel	39	40260
Operating Frequency (MHz)	2441	2593
Mode/Modulation	GFSK	QPSK/1RB/20MHz

Table 7-30. Worst Case Simultaneous Transmission Config

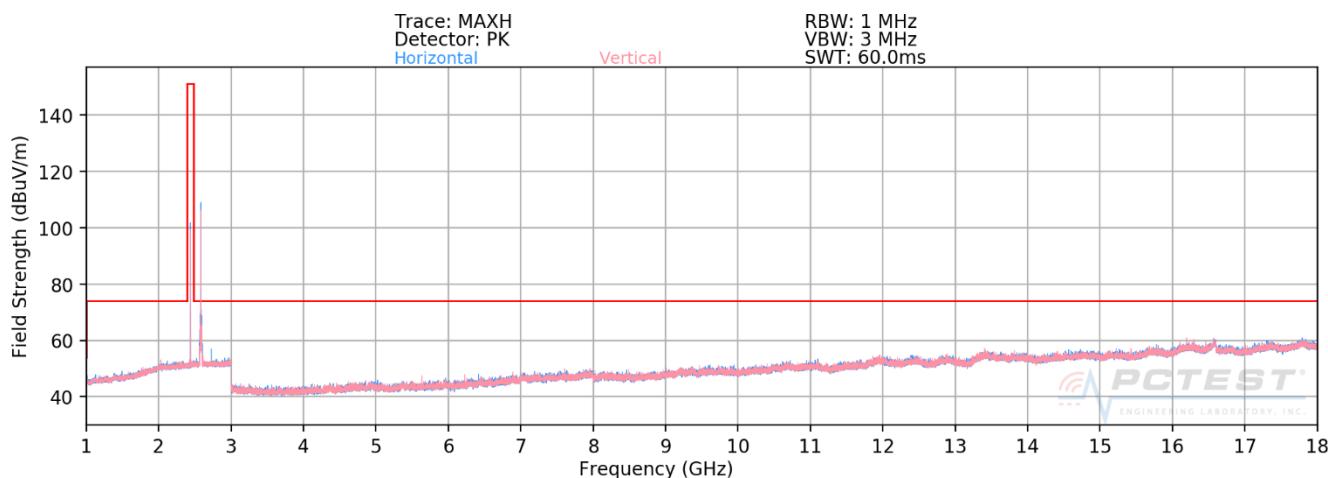


Plot 7-278. Radiated Spurious Plot Below 1GHz (with WCP + AC/DC Adapter)

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
32.09	Max-Peak	V	250	64	-72.61	-10.52	23.87	40.00	-16.13
36.06	Max-Peak	V	250	15	-71.45	-12.55	23.00	40.00	-17.00
37.91	Max-Peak	V	100	30	-62.37	-13.36	31.27	40.00	-8.73
38.88	Max-Peak	V	250	59	-66.05	-14.00	26.95	40.00	-13.05
40.04	Max-Peak	V	100	23	-70.38	-14.61	22.01	40.00	-17.99
94.46	Max-Peak	V	100	304	-70.00	-18.15	18.85	43.52	-24.67

Table 7-31. Worst Case Simultaneous Transmission Config

FCC ID: BCG-A2156	 PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1C1905130009-03.BCG	Test Dates: 05/02/2019 - 08/15/2019	EUT Type: Watch			

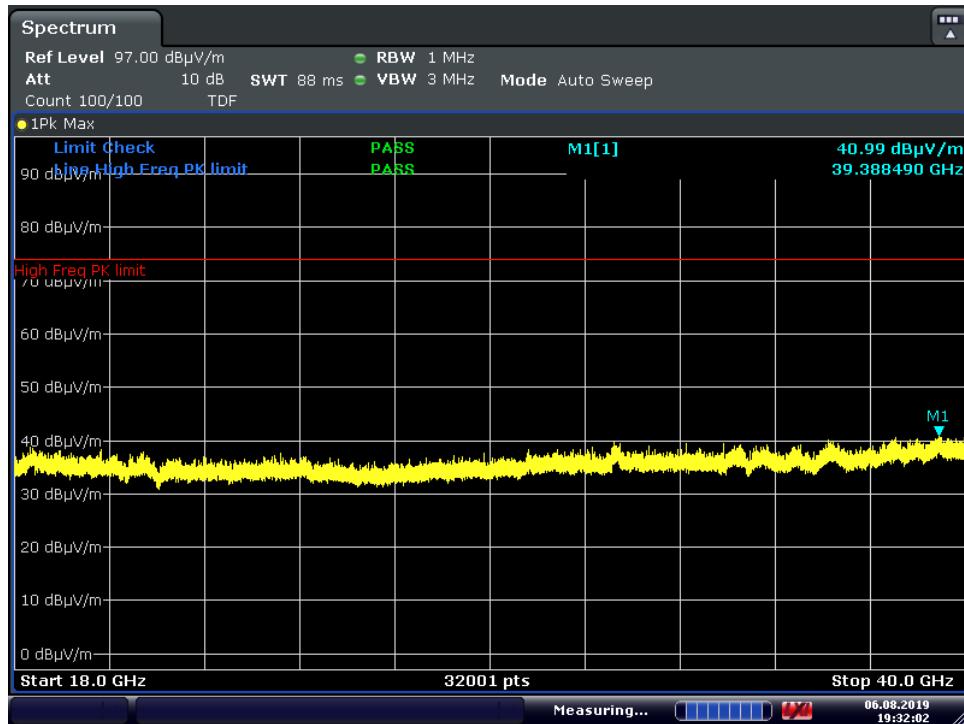


**Plot 7-279. Radiated Spurious Plot Above 1GHz (BT GFSK Mid Ch. + LTE Band 41 Mid Ch.)**

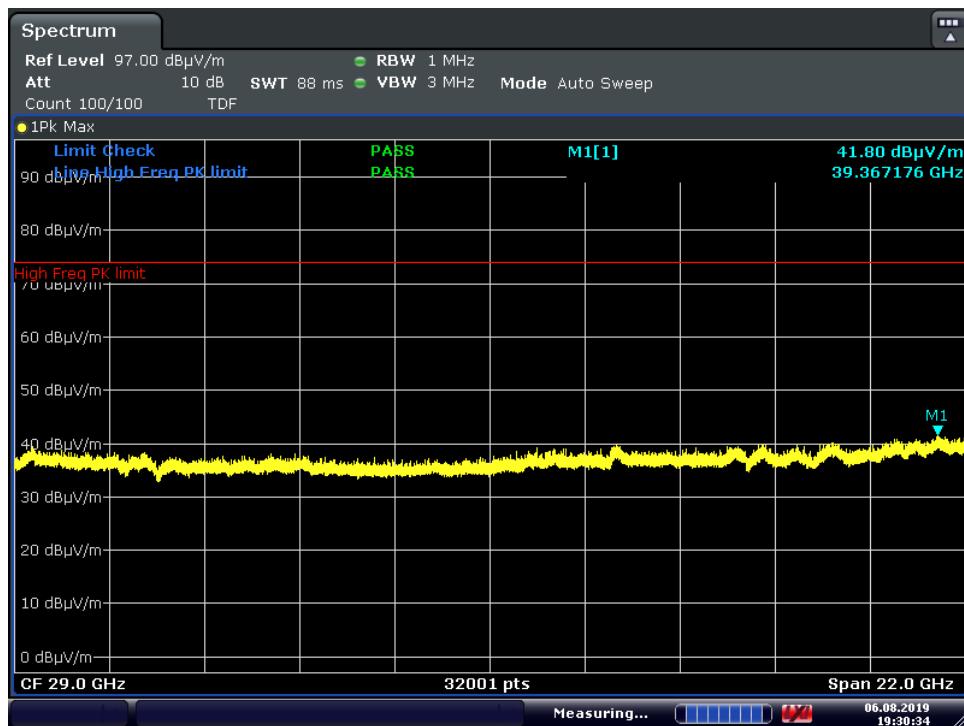
Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Limit	Margin [dB]
5186.00	H	-	-	-63.32	10.20	-53.12	-25.0	-28.1
7779.00	H	-	-	-62.41	12.20	-50.21	-25.0	-25.2
10372.00	H	-	-	-59.91	13.07	-46.84	-25.0	-21.8
2289.00	H	-	-	-48.79	5.97	-42.81	-25.0	-17.8
2745.00	H	-	-	-49.17	6.65	-42.52	-25.0	-17.5
2727.00	H	134	297	-46.94	6.60	-40.34	-25.0	-15.3

**Table 7-32. Radiated Spurious Measurements Above 1GHz (BT GFSK Mid Ch. + LTE Band 41 Mid Ch.)**

FCC ID: BCG-A2156	 <b>MEASUREMENT REPORT (CERTIFICATION)</b>			Approved by: Quality Manager
Test Report S/N: 1C1905130009-03.BCG	Test Dates: 05/02/2019 - 08/15/2019	EUT Type: Watch	Page 190 of 203	



Plot 7-280. Radiated Spurious Plot above 18GHz (BT GFSK Mid Ch. + LTE Band 41 Mid Ch.- Ant. Pol. H)



Plot 7-281. Radiated Spurious Plot above 18GHz (BT GFSK Mid Ch. + LTE Band 41 Mid Ch.- Ant. Pol. V)

FCC ID: BCG-A2156	<b>PCTEST</b> ENGINEERING LABORATORY, INC.		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
Test Report S/N: 1C1905130009-03.BCG	Test Dates: 05/02/2019 - 08/15/2019	EUT Type: Watch		Page 191 of 203

## 7.8 Frequency Stability / Temperature Variation

### 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:

- Temperature:** The temperature is varied from -30°C to +50°C in 10°C increments using an environmental chamber.
- 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, the frequency stability of the transmitter shall be maintained within  $\pm 0.00025\%$  ( $\pm 2.5 \text{ ppm}$ ) of the center frequency. For Part 24, Part 27, 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

- The carrier frequency of the transmitter is measured at room temperature (20°C to provide a reference).
- 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.
- 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



Figure 7-8. Test Instrument & Measurement Setup

### Test Notes

None

FCC ID: BCG-A2156	PCTEST Engineering Laboratory, Inc.		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
Test Report S/N: 1C1905130009-03.BCG	Test Dates: 05/02/2019 - 08/15/2019	EUT Type: Watch	Page 192 of 203	

## Band 26/5 Frequency Stability Measurements

OPERATING FREQUENCY:	836,500,000	Hz
CHANNEL:	26865	
REFERENCE VOLTAGE:	3.80	VDC
DEVIATION LIMIT:	$\pm 0.00025$ % or 2.5 ppm	

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.80	- 30	836,500,005	5	0.0000006
100 %		- 20	836,500,004	4	0.0000005
100 %		- 10	836,500,005	5	0.0000005
100 %		0	836,500,005	5	0.0000005
100 %		+ 10	836,500,005	5	0.0000006
100 %		+ 20	836,500,005	5	0.0000006
100 %		+ 30	836,500,004	4	0.0000005
100 %		+ 40	836,500,005	5	0.0000006
100 %		+ 50	836,500,005	5	0.0000006
BATT. ENDPOINT	3.40	+ 20	836,500,006	6	0.0000008

Table 7-33. Frequency Stability Data (Band 26/5)

FCC ID: BCG-A2156	 <b>MEASUREMENT REPORT (CERTIFICATION)</b>			Approved by: Quality Manager
Test Report S/N: 1C1905130009-03.BCG	Test Dates: 05/02/2019 - 08/15/2019	EUT Type: Watch	Page 193 of 203	

## Band 26/5 Frequency Stability Measurements

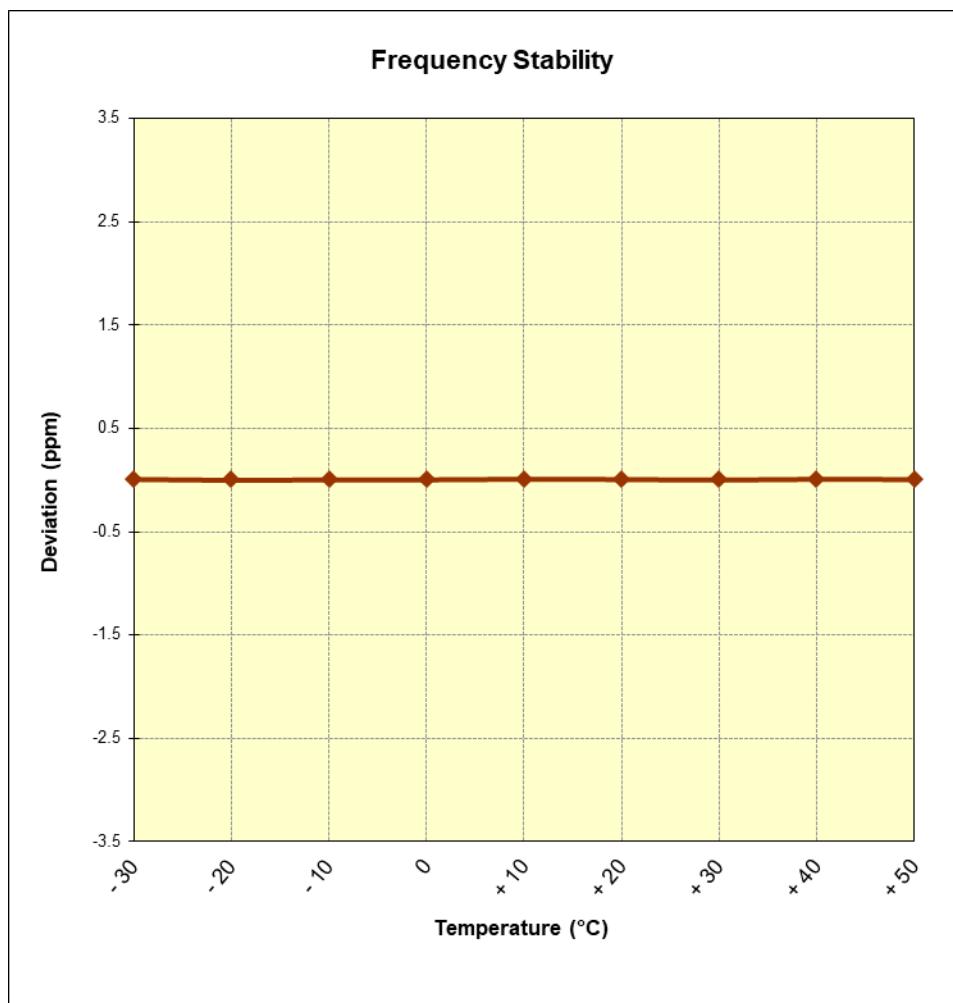


Figure 7-9. Frequency Stability Graph (Band 26/5)

FCC ID: BCG-A2156	 <b>MEASUREMENT REPORT (CERTIFICATION)</b>		Approved by: Quality Manager
Test Report S/N: 1C1905130009-03.BCG	Test Dates: 05/02/2019 - 08/15/2019	EUT Type: Watch	Page 194 of 203

## Band 66/4 Frequency Stability Measurements

OPERATING FREQUENCY: 1,745,000,000 Hz  
 CHANNEL: 132322  
 REFERENCE VOLTAGE: 3.80 VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.80	- 30	1,744,999,995	-5	-0.0000003
100 %		- 20	1,745,000,004	4	0.0000002
100 %		- 10	1,745,000,005	5	0.0000003
100 %		0	1,745,000,006	6	0.0000003
100 %		+ 10	1,744,999,994	-6	-0.0000003
100 %		+ 20	1,744,999,994	-6	-0.0000004
100 %		+ 30	1,744,999,993	-7	-0.0000004
100 %		+ 40	1,745,000,007	7	0.0000004
100 %		+ 50	1,745,000,007	7	0.0000004
BATT. ENDPOINT	3.40	+ 20	1,745,000,006	6	0.0000003

Table 7-34. Frequency Stability Data (Band 66/4)

**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: BCG-A2156	 <b>MEASUREMENT REPORT (CERTIFICATION)</b>			Approved by: Quality Manager
Test Report S/N: 1C1905130009-03.BCG	Test Dates: 05/02/2019 - 08/15/2019	EUT Type: Watch		

## Band 66/4 Frequency Stability Measurements

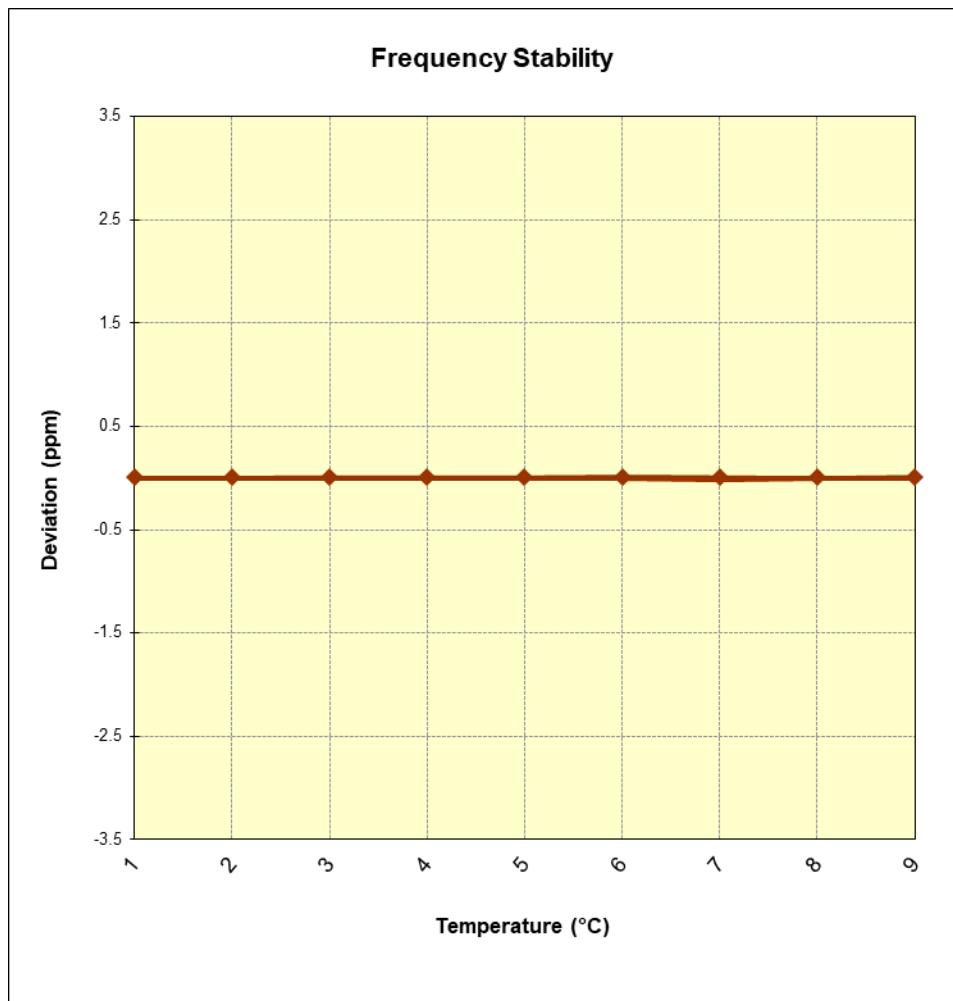


Figure 7-10. Frequency Stability Graph (Band 66/4)

FCC ID: BCG-A2156	 <b>MEASUREMENT REPORT (CERTIFICATION)</b>			Approved by: Quality Manager
Test Report S/N: 1C1905130009-03.BCG	Test Dates: 05/02/2019 - 08/15/2019	EUT Type: Watch		Page 196 of 203

## Band 25/2 Frequency Stability Measurements

OPERATING FREQUENCY: 1,882,500,000 Hz

CHANNEL: 26365

REFERENCE VOLTAGE: 3.80 VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.80	- 30	1,882,500,007	7	0.0000004
100 %		- 20	1,882,500,009	9	0.0000005
100 %		- 10	1,882,500,010	10	0.0000005
100 %		0	1,882,500,010	10	0.0000005
100 %		+ 10	1,882,500,012	12	0.0000006
100 %		+ 20	1,882,500,010	10	0.0000005
100 %		+ 30	1,882,500,011	11	0.0000006
100 %		+ 40	1,882,500,011	11	0.0000006
100 %		+ 50	1,882,500,013	13	0.0000007
BATT. ENDPOINT	3.40	+ 20	1,882,500,010	10	0.0000005

Table 7-35. Frequency Stability Data (Band 25/2)

**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: BCG-A2156	 <b>MEASUREMENT REPORT (CERTIFICATION)</b>			Approved by: Quality Manager
Test Report S/N: 1C1905130009-03.BCG	Test Dates: 05/02/2019 - 08/15/2019	EUT Type: Watch		Page 197 of 203

## Band 25/2 Frequency Stability Measurements

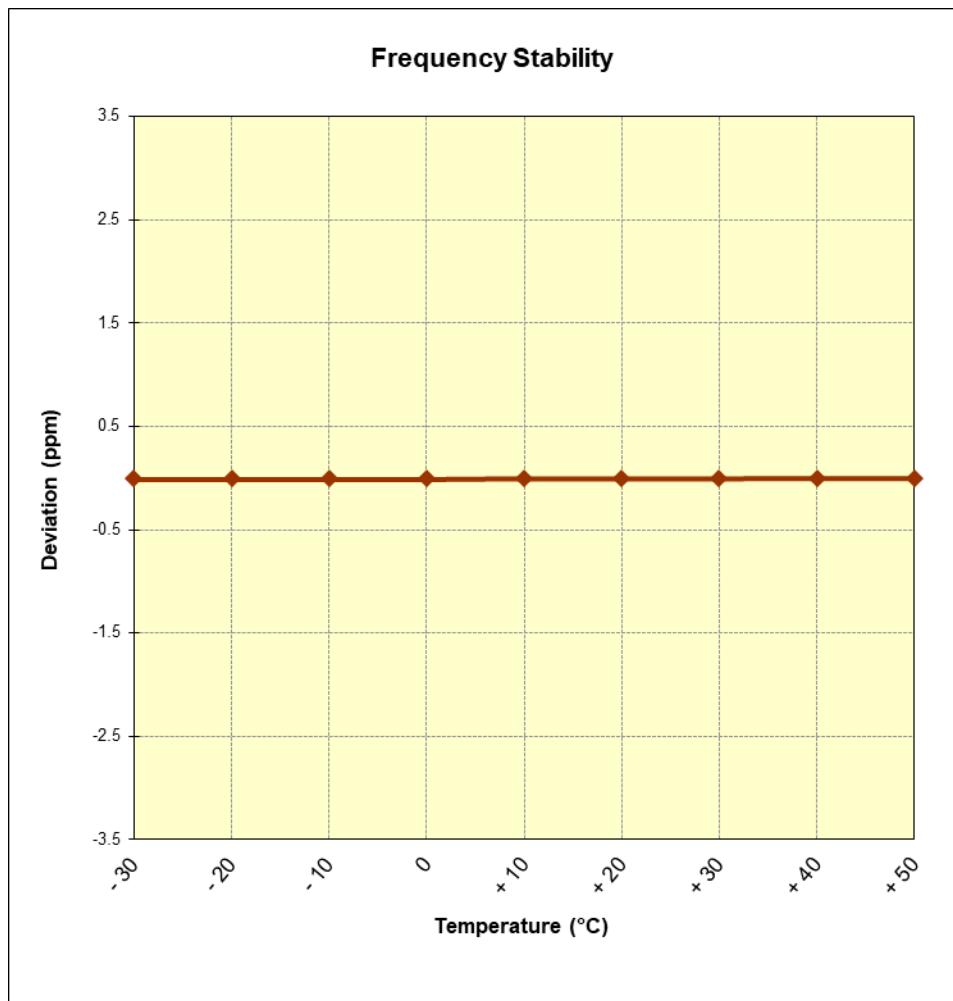


Figure 7-11. Frequency Stability Graph (Band 25/2)

FCC ID: BCG-A2156	 <b>MEASUREMENT REPORT (CERTIFICATION)</b>		Approved by: Quality Manager
Test Report S/N: 1C1905130009-03.BCG	Test Dates: 05/02/2019 - 08/15/2019	EUT Type: Watch	Page 198 of 203

## 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	- 30	2,535,000,006	6	0.0000003
100 %		- 20	2,535,000,011	11	0.0000004
100 %		- 10	2,535,000,009	9	0.0000004
100 %		0	2,535,000,009	9	0.0000004
100 %		+ 10	2,535,000,010	10	0.0000004
100 %		+ 20	2,535,000,011	11	0.0000004
100 %		+ 30	2,535,000,011	11	0.0000004
100 %		+ 40	2,535,000,011	11	0.0000004
100 %		+ 50	2,535,000,013	13	0.0000005
BATT. ENDPOINT	3.40	+ 20	2,535,000,011	11	0.0000004

Table 7-36. 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: BCG-A2156	MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1C1905130009-03.BCG	Test Dates: 05/02/2019 - 08/15/2019	EUT Type: Watch		Page 199 of 203

## Band 7 Frequency Stability Measurements

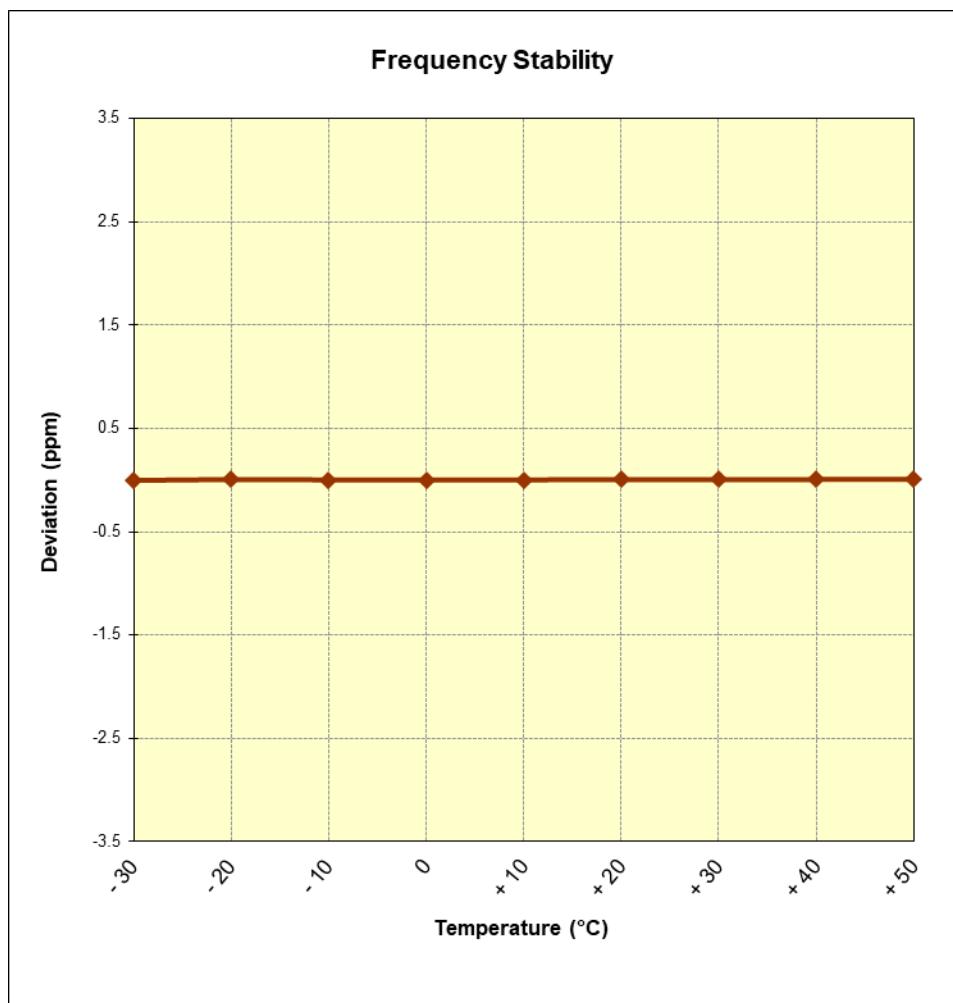


Figure 7-12. Frequency Stability Graph (Band 7)

FCC ID: BCG-A2156	 <b>MEASUREMENT REPORT (CERTIFICATION)</b>			Approved by: Quality Manager
Test Report S/N: 1C1905130009-03.BCG	Test Dates: 05/02/2019 - 08/15/2019	EUT Type: Watch		Page 200 of 203

## 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	- 30	2,593,000,023	23	0.0000009
100 %		- 20	2,593,000,023	23	0.0000009
100 %		- 10	2,593,000,021	21	0.0000008
100 %		0	2,593,000,023	23	0.0000009
100 %		+ 10	2,593,000,021	21	0.0000008
100 %		+ 20	2,593,000,025	25	0.0000010
100 %		+ 30	2,593,000,027	27	0.0000010
100 %		+ 40	2,593,000,025	25	0.0000010
100 %		+ 50	2,593,000,026	26	0.0000010
BATT. ENDPOINT	3.40	+ 20	2,593,000,054	54	0.0000021

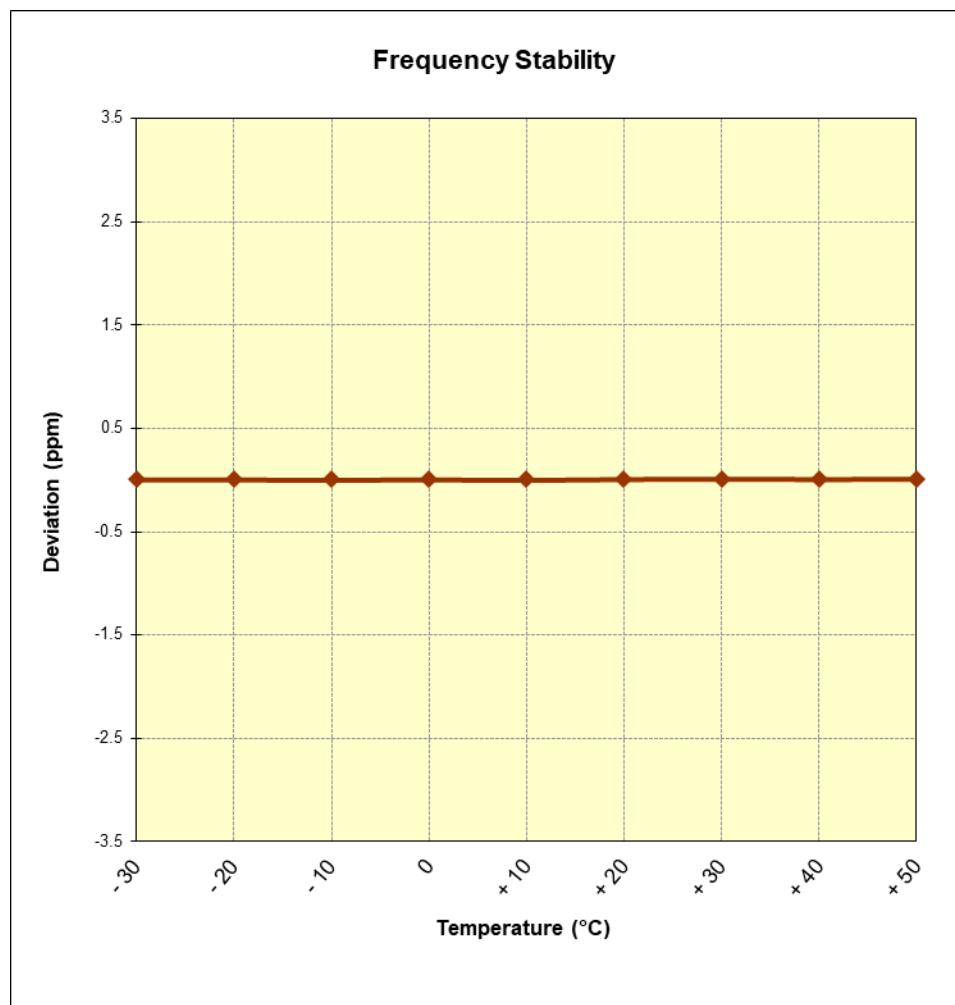
Table 7-37. Frequency Stability Data (Band 41)

**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: BCG-A2156	 <b>MEASUREMENT REPORT (CERTIFICATION)</b>			Approved by: Quality Manager
Test Report S/N: 1C1905130009-03.BCG	Test Dates: 05/02/2019 - 08/15/2019	EUT Type: Watch	Page 201 of 203	

## Band 41 Frequency Stability Measurements



**Figure 7-13. Frequency Stability Graph (Band 41)**

FCC ID: BCG-A2156	MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1C1905130009-03.BCG	Test Dates: 05/02/2019 - 08/15/2019	EUT Type: Watch	Page 202 of 203	

## 8.0 CONCLUSION

The data collected relate only to the item(s) tested and show that the **Apple Watch FCC ID: BCG-A2156** complies with all the requirements of Part 22, 24, & 27 of the FCC Rules for LTE operation only.

<b>FCC ID:</b> BCG-A2156	 <b>MEASUREMENT REPORT (CERTIFICATION)</b>		<b>Approved by:</b> Quality Manager
<b>Test Report S/N:</b> 1C1905130009-03.BCG	<b>Test Dates:</b> 05/02/2019 - 08/15/2019	<b>EUT Type:</b> Watch	Page 203 of 203