

# Test Report No.10050931 002

## Appendix D: Radiated Spurious Emission Data

(File: 10050931AppendixD)

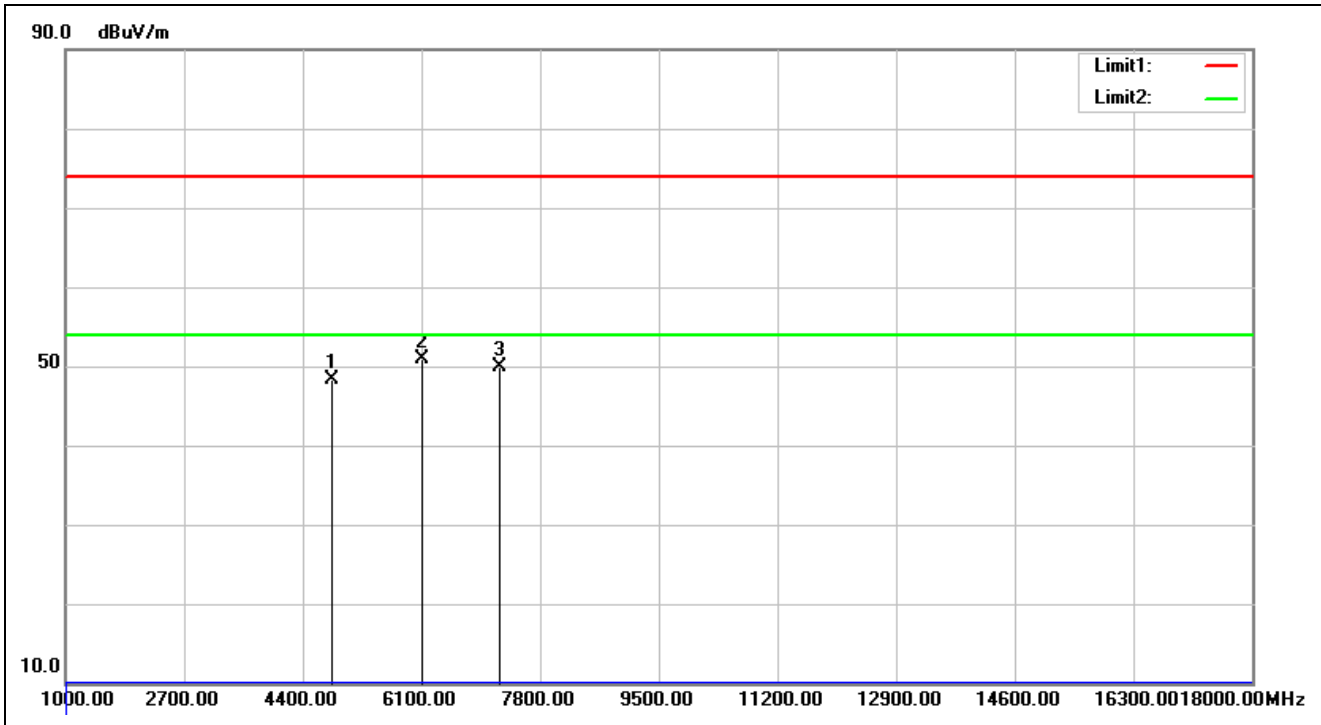
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# Spurious Emissions, TX Mode, 1-18G

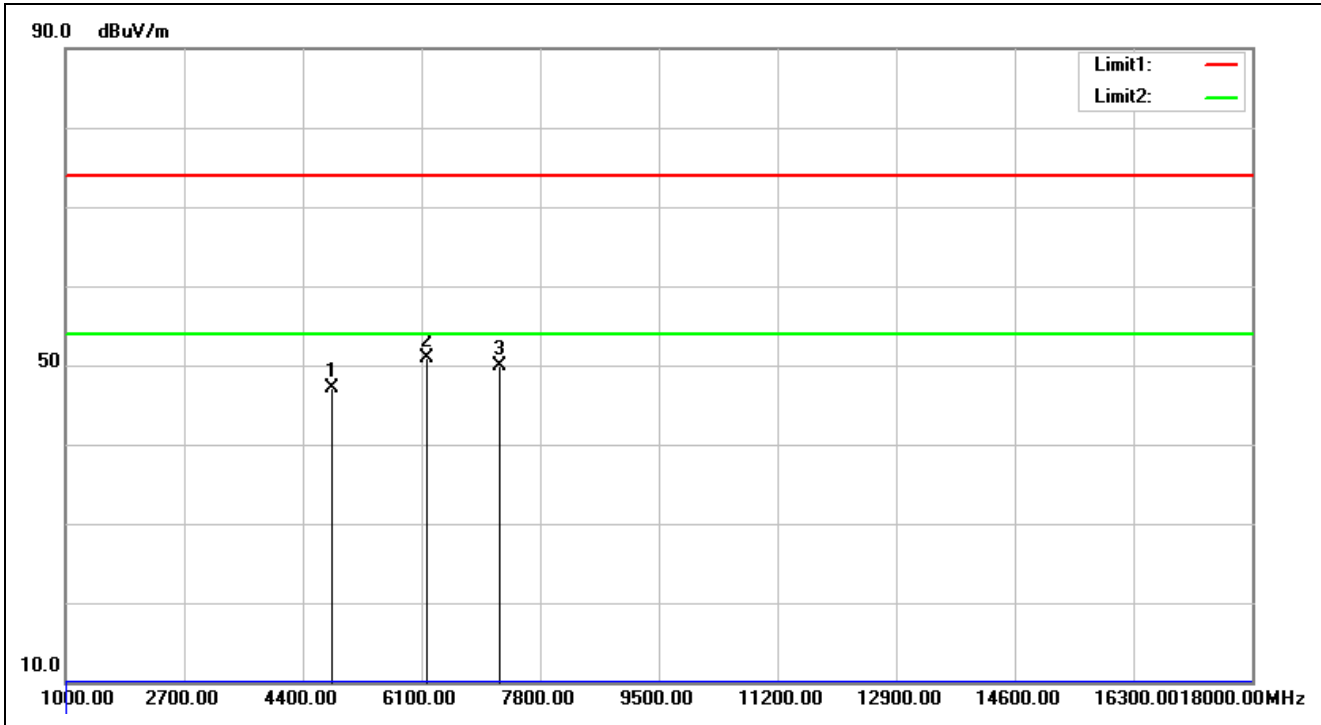


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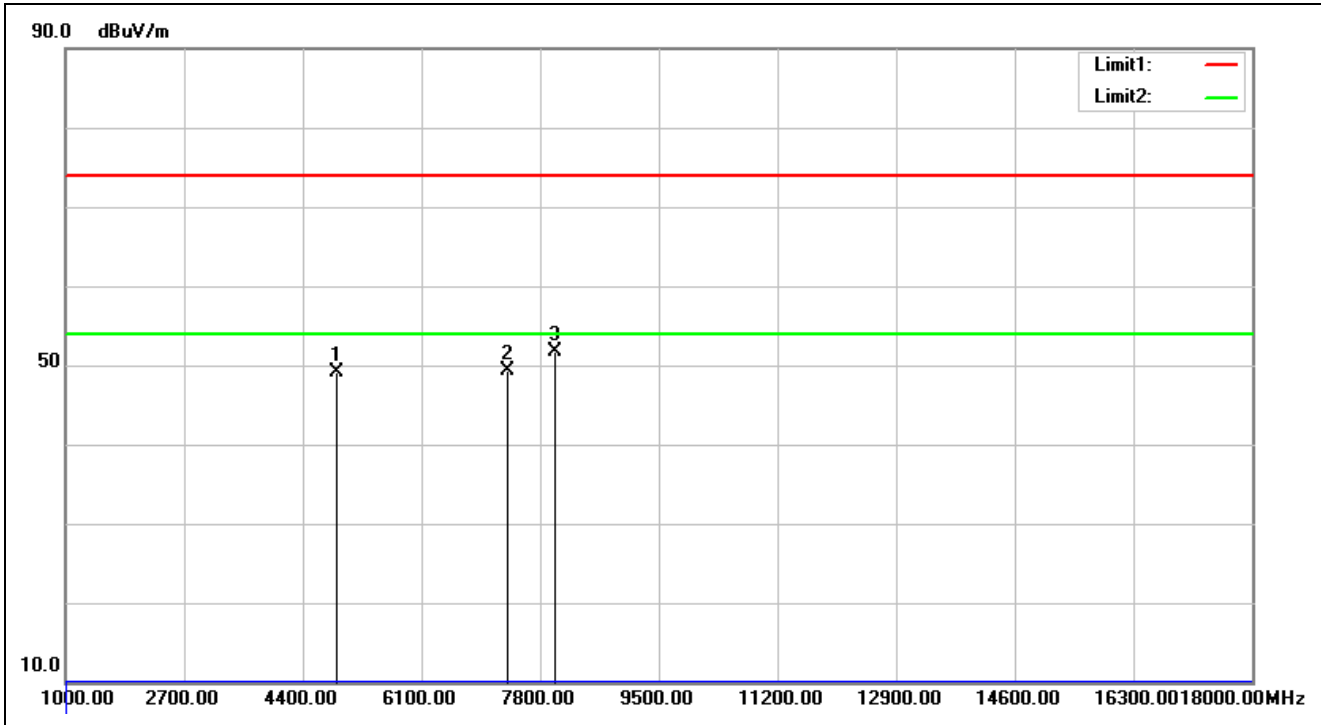
<b>Service No.:</b>	<b>114042704</b>	<b>Test Distance:</b>	<b>3m</b>
<b>Test Standard:</b>	<b>FCC Above 1G PEAK</b>	<b>Ant. Polarization:</b>	<b>Horizontal</b>
<b>Test item:</b>	<b>Radiation Emission</b>	<b>Test Time:</b>	<b>2015/11/3 20:05:22</b>
<b>Applicant:</b>	<b>Microchip</b>	<b>Test Rating:</b>	<b>DC 5V</b>
<b>Product:</b>	<b>Bluetooth module</b>	<b>Temp.(°C)/Hum.(%):</b>	<b>19.5(°C)/67%</b>
<b>Model No.:</b>	<b>FCC:BM20SPKXYNBZ,IC:BM20SPKS1</b>	<b>Test Engineer:</b>	<b>George Yang</b>
<b>Test Mode:</b>	<b>1DH5-2402-TX</b>		
<b>Remark:</b>			

No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.	Height (cm)	Azimuth (°)	Remark
1	4804.000	3.60	44.61	48.21	74.00	-25.79	peak		0	
2	6117.000	6.19	44.77	50.96	74.00	-23.04	peak	100	197	
3	7206.000	5.18	44.75	49.93	74.00	-24.07	peak		0	



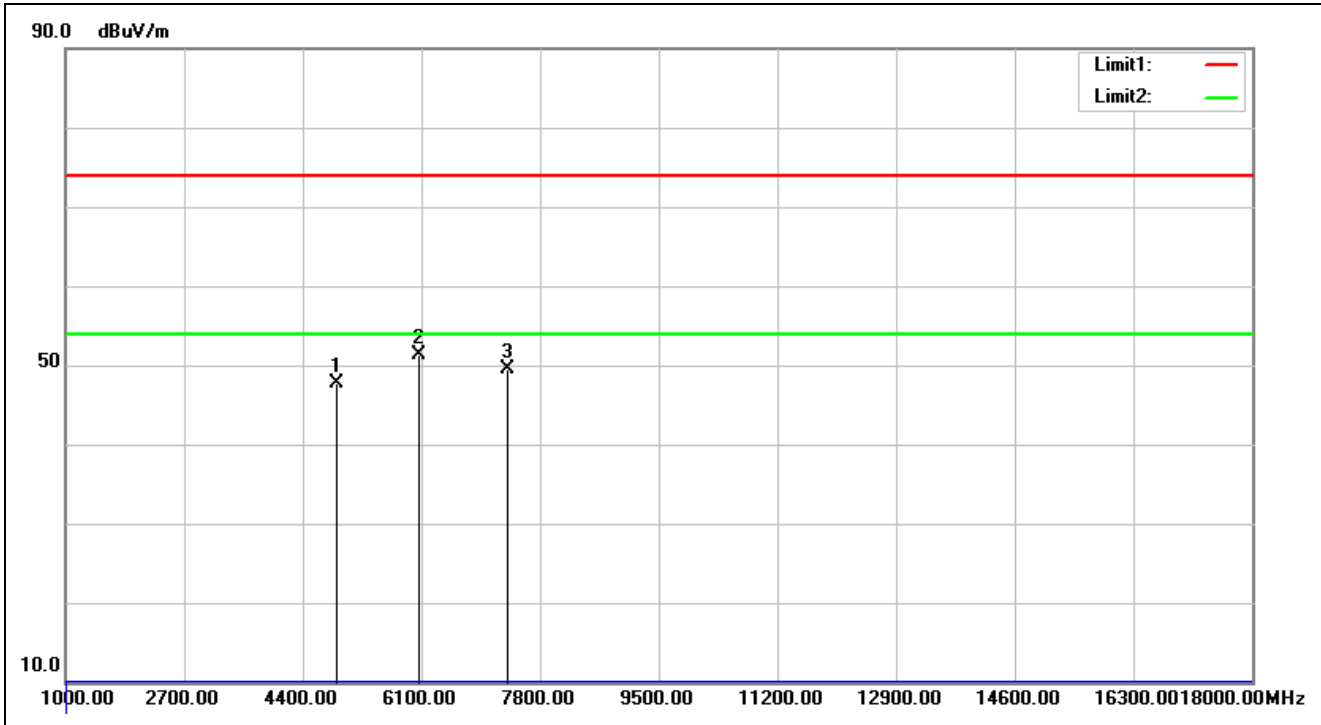
<b>Service No.:</b>	<b>114042704</b>	<b>Test Distance:</b>	<b>3m</b>
<b>Test Standard:</b>	<b>FCC Above 1G PEAK</b>	<b>Ant. Polarization:</b>	<b>Vertical</b>
<b>Test item:</b>	<b>Radiation Emission</b>	<b>Test Time:</b>	<b>2015/11/3 20:06:25</b>
<b>Applicant:</b>	<b>Microchip</b>	<b>Test Rating:</b>	<b>DC 5V</b>
<b>Product:</b>	<b>Bluetooth module</b>	<b>Temp.(°C)/Hum.(%):</b>	<b>19.5(°C)/67%</b>
<b>Model No.:</b>	<b>FCC:BM20SPKXYNBZ,IC:BM20SPKS1</b>	<b>Test Engineer:</b>	<b>George Yang</b>
<b>Test Mode:</b>	<b>1DH5-2402-TX</b>		
<b>Remark:</b>			

No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.	Height (cm)	Azimuth (°)	Remark
1	4804.000	3.60	43.42	47.02	74.00	-26.98	peak			
2	6168.000	6.21	44.61	50.82	74.00	-23.18	peak	100	160	
3	7206.000	5.18	44.69	49.87	74.00	-24.13	peak			



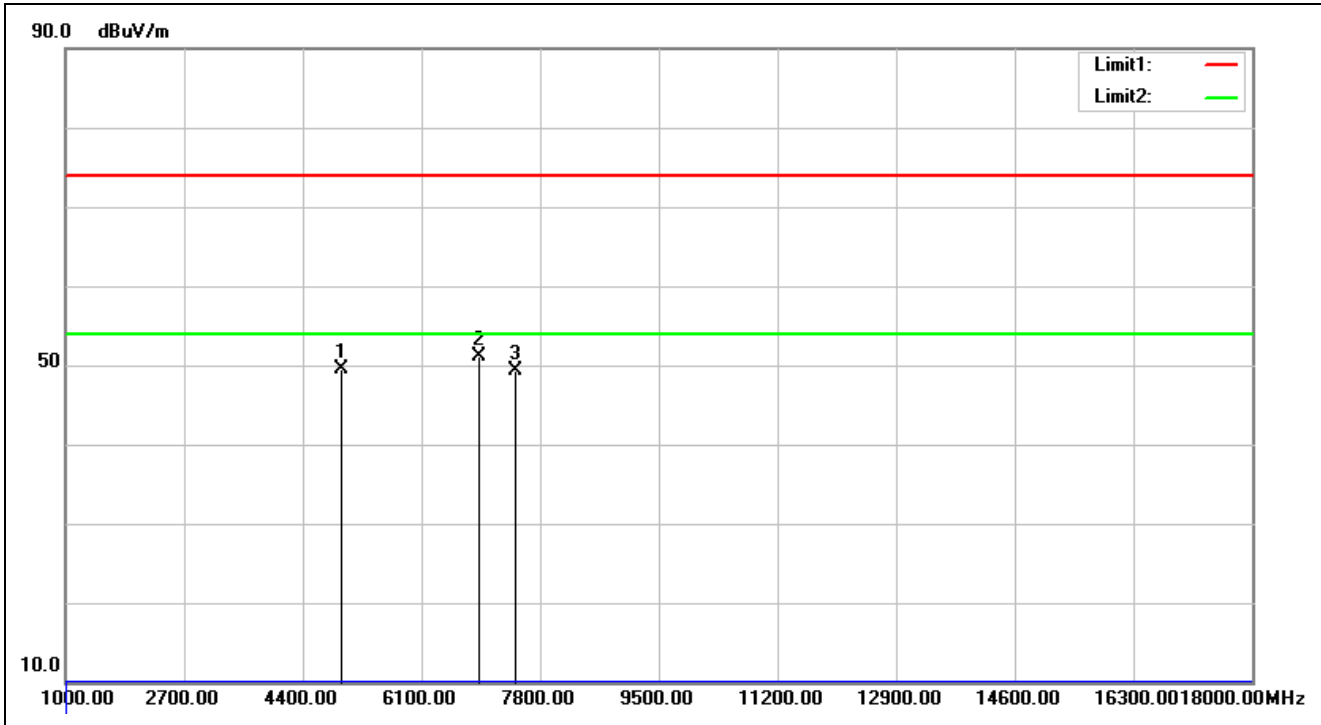
<b>Service No.:</b>	<b>114042704</b>	<b>Test Distance:</b>	<b>3m</b>
<b>Test Standard:</b>	<b>FCC Above 1G PEAK</b>	<b>Ant. Polarization:</b>	<b>Horizontal</b>
<b>Test item:</b>	<b>Radiation Emission</b>	<b>Test Time:</b>	<b>2015/11/3 20:09:47</b>
<b>Applicant:</b>	<b>Microchip</b>	<b>Test Rating:</b>	<b>DC 5V</b>
<b>Product:</b>	<b>Bluetooth module</b>	<b>Temp.(°C)/Hum.(%):</b>	<b>19.5(°C)/67%</b>
<b>Model No.:</b>	<b>FCC:BM20SPKXYNBZ,IC:BM20SPKS1</b>	<b>Test Engineer:</b>	<b>George Yang</b>
<b>Test Mode:</b>	<b>1DH5-2441-TX</b>		
<b>Remark:</b>			

No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.	Height (cm)	Azimuth (°)	Remark
1	4882.000	3.90	45.11	49.01	74.00	-24.99	peak			
2	7323.000	5.14	44.21	49.35	74.00	-24.65	peak			
3	8021.000	5.38	46.42	51.80	74.00	-22.20	peak	100	55	



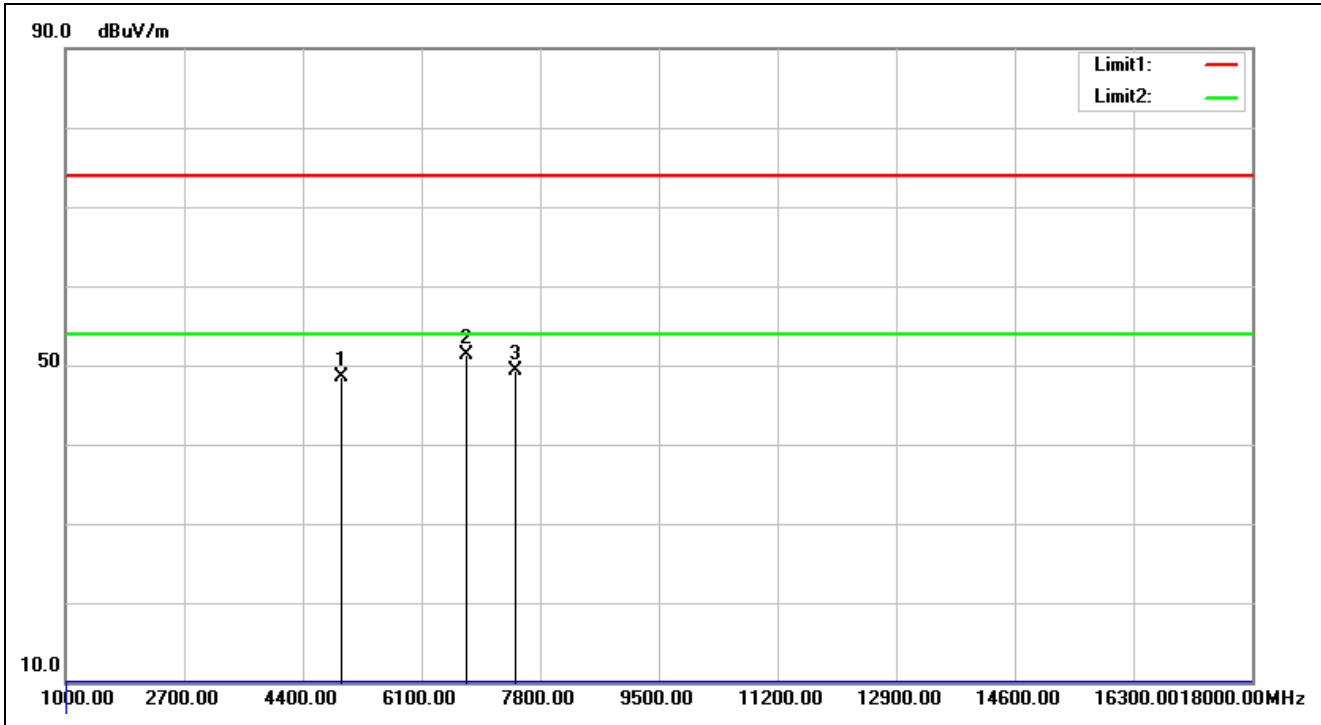
Service No.:	114042704	Test Distance:	3m
Test Standard:	FCC Above 1G PEAK	Ant. Polarization:	Vertical
Test item:	Radiation Emission	Test Time:	2015/11/3 20:10:50
Applicant:	Microchip	Test Rating:	DC 5V
Product:	Bluetooth module	Temp.(°C)/Hum.(%):	19.5(°C)/67%
Model No.:	FCC:BM20SPKXYNBZ,IC:BM20SPKS1	Test Engineer:	George Yang
Test Mode:	1DH5-2441-TX		
Remark:			

No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.	Height (cm)	Azimuth (°)	Remark
1	4882.000	3.90	43.84	47.74	74.00	-26.26	peak			
2	6066.000	6.17	45.07	51.24	74.00	-22.76	peak	100	199	
3	7323.000	5.14	44.33	49.47	74.00	-24.53	peak			



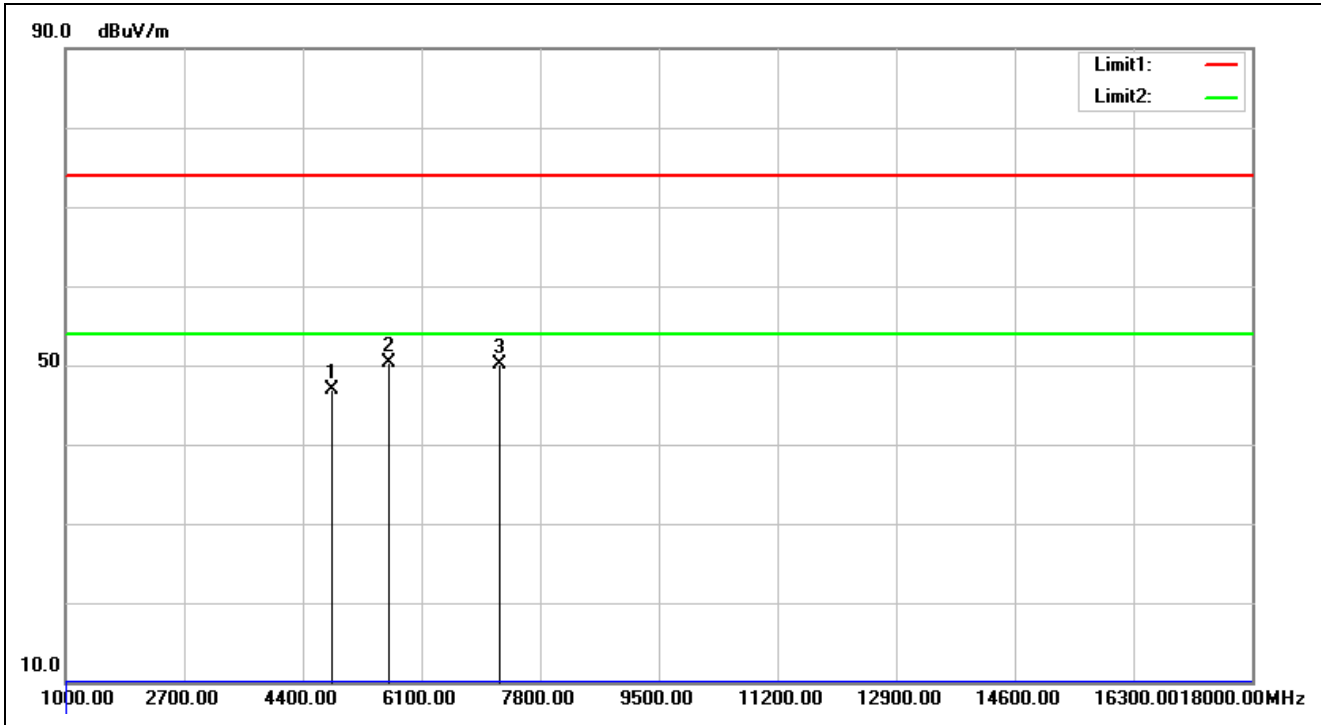
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<b>Test Standard:</b>	<b>FCC Above 1G PEAK</b>	<b>Ant. Polarization:</b>	<b>Horizontal</b>
<b>Test item:</b>	<b>Radiation Emission</b>	<b>Test Time:</b>	<b>2015/11/3 20:14:53</b>
<b>Applicant:</b>	<b>Microchip</b>	<b>Test Rating:</b>	<b>DC 5V</b>
<b>Product:</b>	<b>Bluetooth module</b>	<b>Temp.(°C)/Hum.(%):</b>	<b>19.5(°C)/67%</b>
<b>Model No.:</b>	<b>FCC:BM20SPKXYNBZ,IC:BM20SPKS1</b>	<b>Test Engineer:</b>	<b>George Yang</b>
<b>Test Mode:</b>	<b>1DH5-2480-TX</b>		
<b>Remark:</b>			

No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.	Height (cm)	Azimuth (°)	Remark
1	4960.000	4.19	45.22	49.41	74.00	-24.59	peak			
2	6933.000	5.39	45.62	51.01	74.00	-22.99	peak	100	249	
3	7440.000	5.10	44.16	49.26	74.00	-24.74	peak			



Service No.:	114042704	Test Distance:	3m
Test Standard:	FCC Above 1G PEAK	Ant. Polarization:	Vertical
Test item:	Radiation Emission	Test Time:	2015/11/3 20:15:55
Applicant:	Microchip	Test Rating:	DC 5V
Product:	Bluetooth module	Temp.(°C)/Hum.(%):	19.5(°C)/67%
Model No.:	FCC:BM20SPKXYNBZ,IC:BM20SPKS1	Test Engineer:	George Yang
Test Mode:	1DH5-2480-TX		
Remark:			

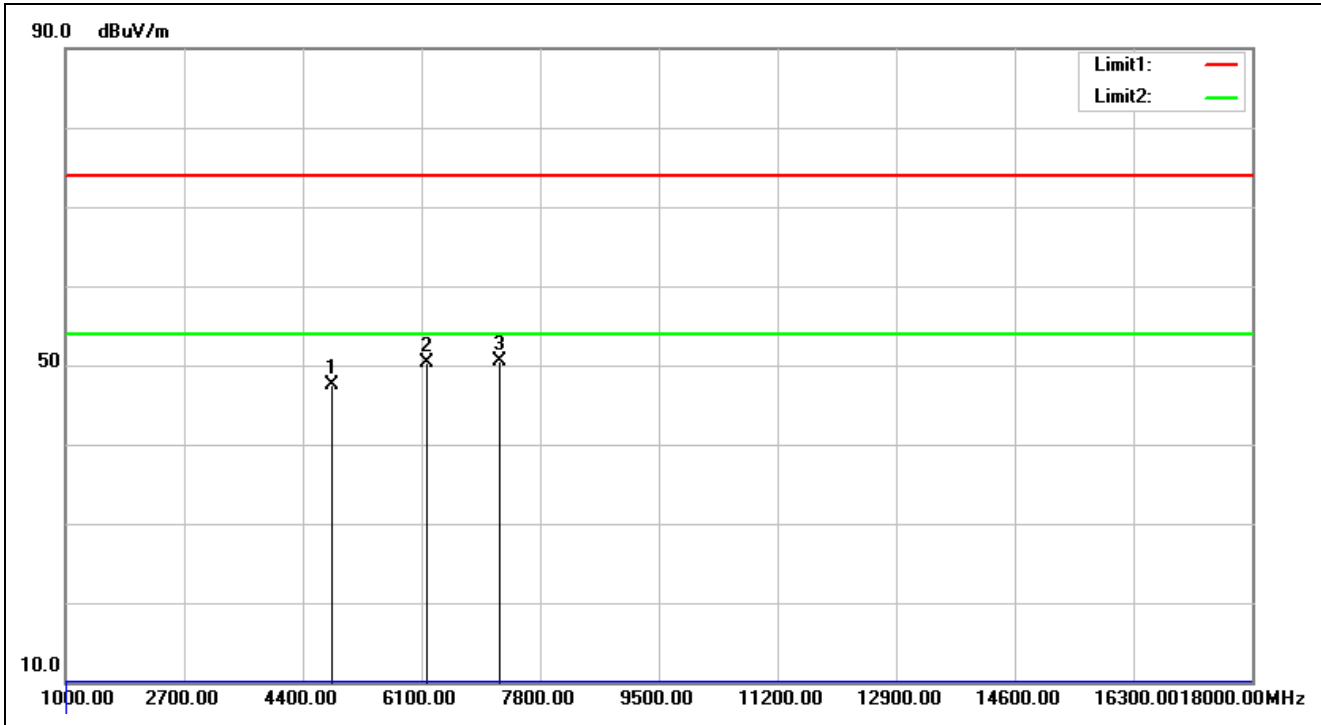
No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.	Height (cm)	Azimuth (°)	Remark
1	4960.000	4.19	44.34	48.53	74.00	-25.47	peak			
2	6746.000	5.79	45.49	51.28	74.00	-22.72	peak	100	359	
3	7440.000	5.10	44.16	49.26	74.00	-24.74	peak			



Service No.:	114042704	Test Distance:	3m
Test Standard:	FCC Above 1G PEAK	Ant. Polarization:	Horizontal
Test item:	Radiation Emission	Test Time:	2015/11/3 20:18:15
Applicant:	Microchip	Test Rating:	DC 5V
Product:	Bluetooth module	Temp.(°C)/Hum.(%):	19.5(°C)/67%
Model No.:	FCC:BM20SPKXYNBZ,IC:BM20SPKS1	Test Engineer:	George Yang
Test Mode:	3DH5-2402-TX		
Remark:			

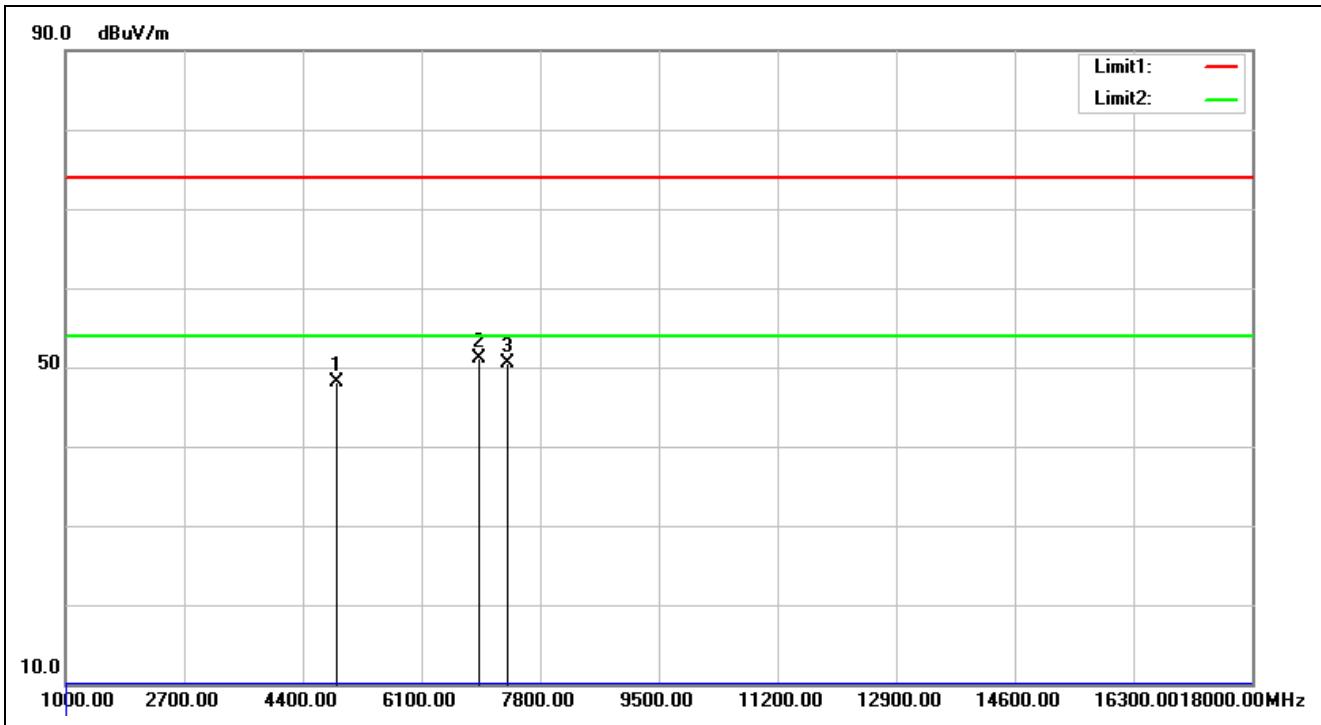
No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.	Height (cm)	Azimuth (°)	Remark
1	4804.000	3.60	43.33	46.93	74.00	-27.07	peak			
2	5641.000	5.47	44.76	50.23	74.00	-23.77	peak	100	208	
3	7206.000	5.18	45.02	50.20	74.00	-23.80	peak			





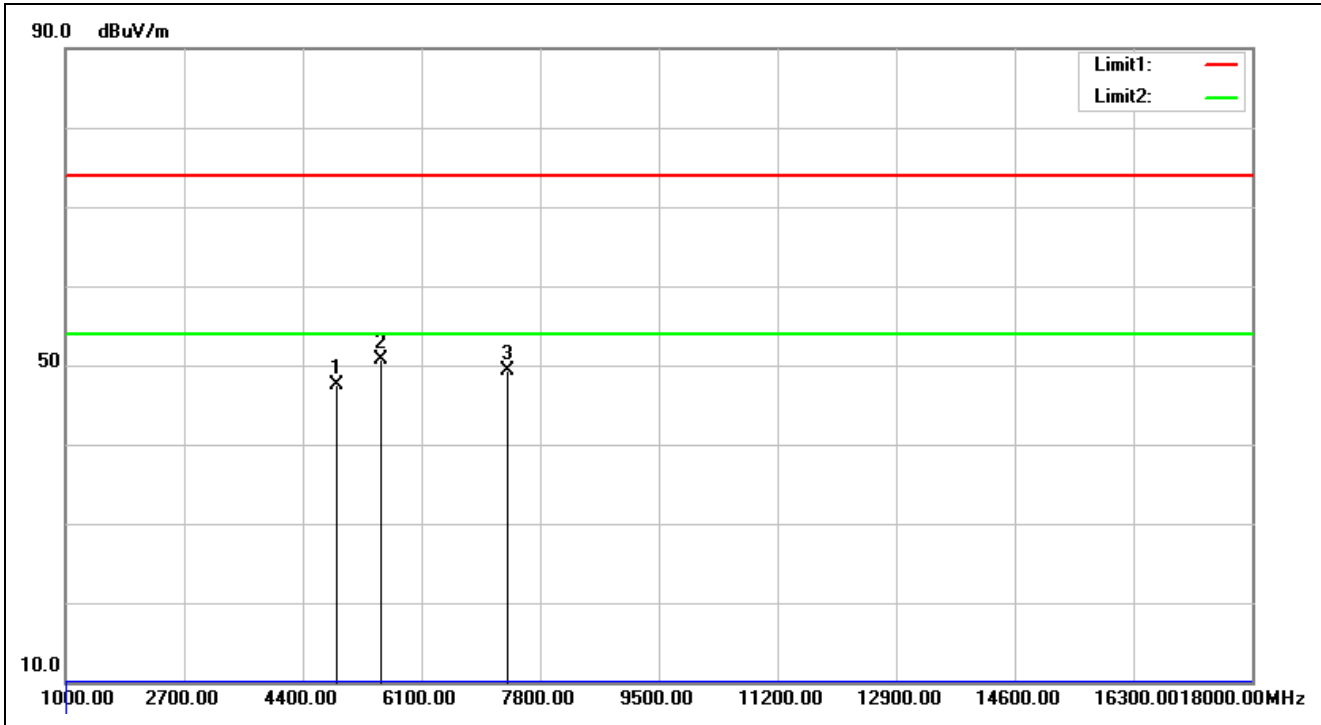
Service No.:	114042704	Test Distance:	3m
Test Standard:	FCC Above 1G PEAK	Ant. Polarization:	Vertical
Test item:	Radiation Emission	Test Time:	2015/11/3 20:19:18
Applicant:	Microchip	Test Rating:	DC 5V
Product:	Bluetooth module	Temp.(°C)/Hum.(%):	19.5(°C)/67%
Model No.:	FCC:BM20SPKXYNBZ,IC:BM20SPKS1	Test Engineer:	George Yang
Test Mode:	3DH5-2402-TX		
Remark:			

No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.	Height (cm)	Azimuth (°)	Remark
1	4804.000	3.60	43.88	47.48	74.00	-26.52	peak			
2	6168.000	6.21	44.17	50.38	74.00	-23.62	peak	100	293	
3	7206.000	5.18	45.37	50.55	74.00	-23.45	peak			



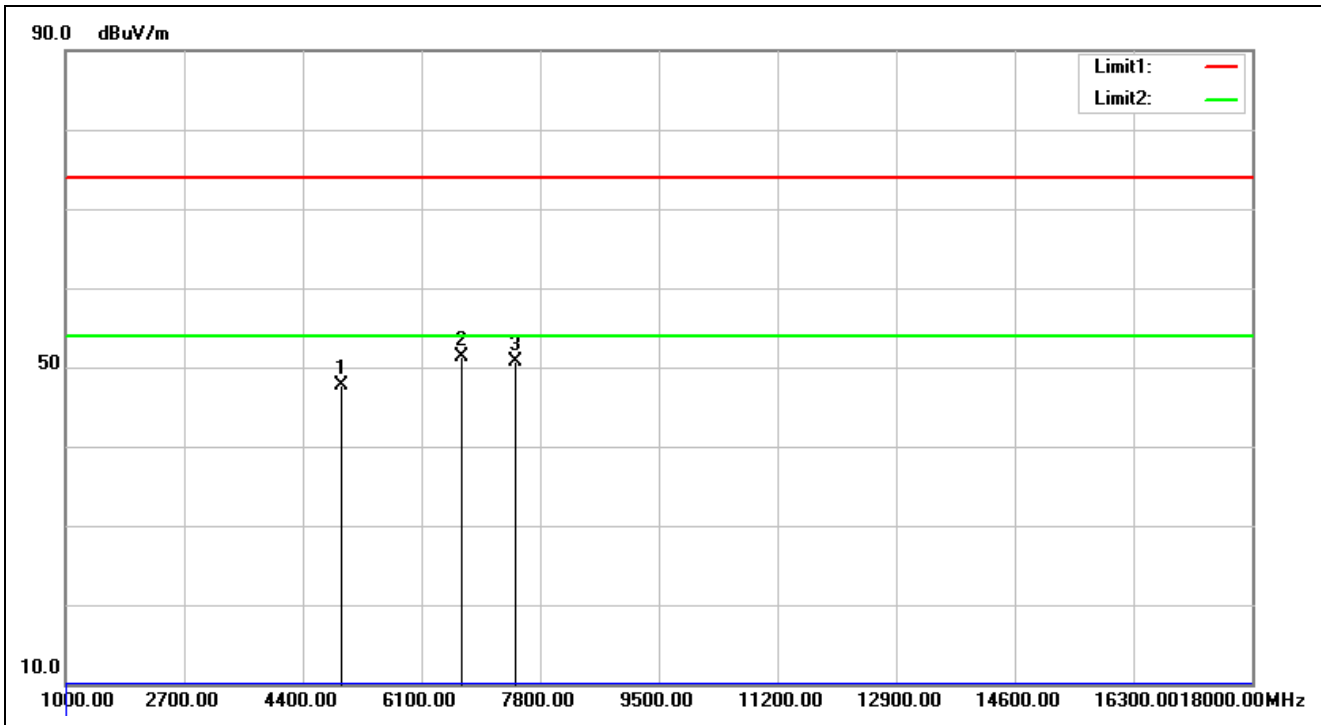
Service No.:	114042704	Test Distance:	3m
Test Standard:	FCC Above 1G PEAK	Ant. Polarization:	Horizontal
Test item:	Radiation Emission	Test Time:	2015/11/3 20:27:46
Applicant:	Microchip	Test Rating:	DC 5V
Product:	Bluetooth module	Temp.(°C)/Hum.(%):	19.5(°C)/67%
Model No.:	FCC:BM20SPKXYNBZ,IC:BM20SPKS1	Test Engineer:	George Yang
Test Mode:	3DH5-2441-TX		
Remark:			

No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.	Height (cm)	Azimuth (°)	Remark
1	4882.000	3.90	44.27	48.17	74.00	-25.83	peak			
2	6933.000	5.39	45.79	51.18	74.00	-22.82	peak	100	255	
3	7323.000	5.14	45.46	50.60	74.00	-23.40	peak			



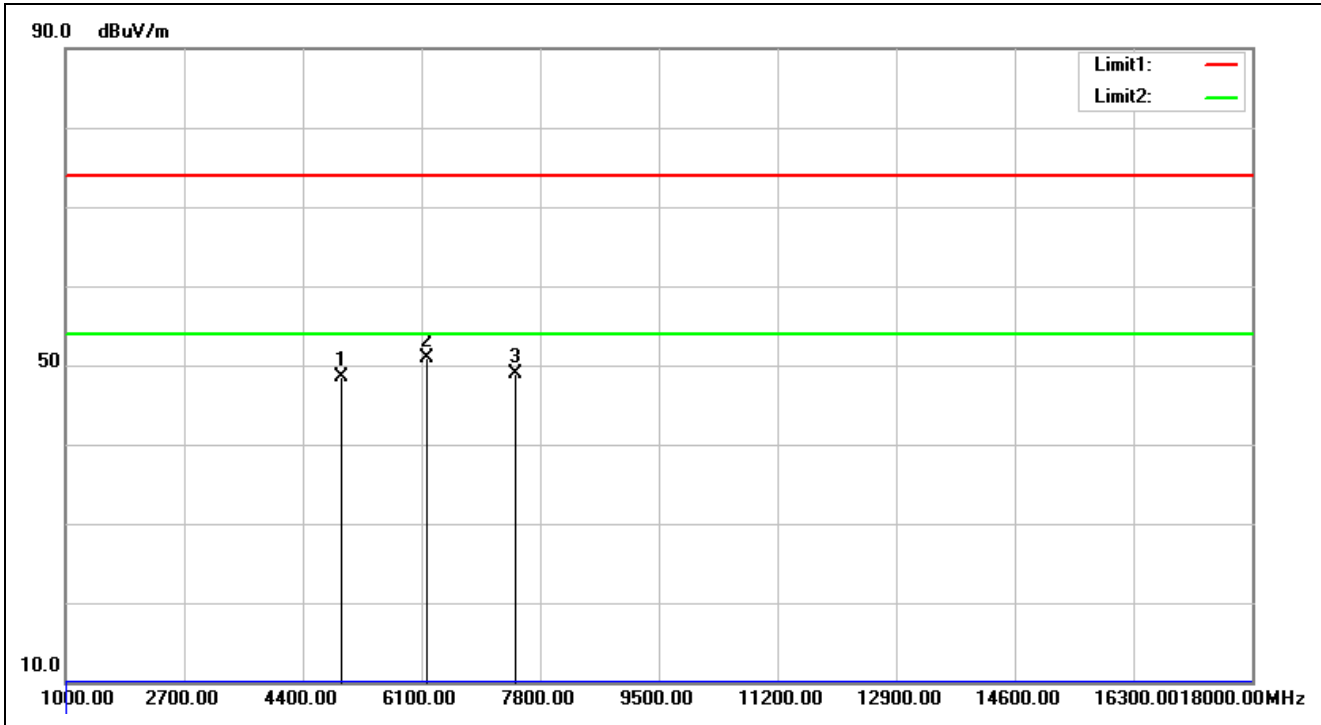
<b>Service No.:</b>	<b>114042704</b>	<b>Test Distance:</b>	<b>3m</b>
<b>Test Standard:</b>	<b>FCC Above 1G PEAK</b>	<b>Ant. Polarization:</b>	<b>Vertical</b>
<b>Test item:</b>	<b>Radiation Emission</b>	<b>Test Time:</b>	<b>2015/11/3 20:28:48</b>
<b>Applicant:</b>	<b>Microchip</b>	<b>Test Rating:</b>	<b>DC 5V</b>
<b>Product:</b>	<b>Bluetooth module</b>	<b>Temp.(°C)/Hum.(%):</b>	<b>19.5(°C)/67%</b>
<b>Model No.:</b>	<b>FCC:BM20SPKXYNBZ,IC:BM20SPKS1</b>	<b>Test Engineer:</b>	<b>George Yang</b>
<b>Test Mode:</b>	<b>3DH5-2441-TX</b>		
<b>Remark:</b>			

No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.	Height (cm)	Azimuth (°)	Remark
1	4882.000	3.90	43.65	47.55	74.00	-26.45	peak			
2	5522.000	5.25	45.55	50.80	74.00	-23.20	peak	100	323	
3	7323.000	5.14	44.13	49.27	74.00	-24.73	peak			



Service No.:	114042704	Test Distance:	3m
Test Standard:	FCC Above 1G PEAK	Ant. Polarization:	Horizontal
Test item:	Radiation Emission	Test Time:	2015/11/3 20:31:39
Applicant:	Microchip	Test Rating:	DC 5V
Product:	Bluetooth module	Temp.(°C)/Hum.(%):	19.5(°C)/67%
Model No.:	FCC:BM20SPKXYNBZ,IC:BM20SPKS1	Test Engineer:	George Yang
Test Mode:	3DH5-2480-TX		
Remark:			

No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.	Height (cm)	Azimuth (°)	Remark
1	4960.000	4.19	43.60	47.79	74.00	-26.21	peak			
2	6678.000	5.94	45.33	51.27	74.00	-22.73	peak	100	131	
3	7440.000	5.10	45.69	50.79	74.00	-23.21	peak			



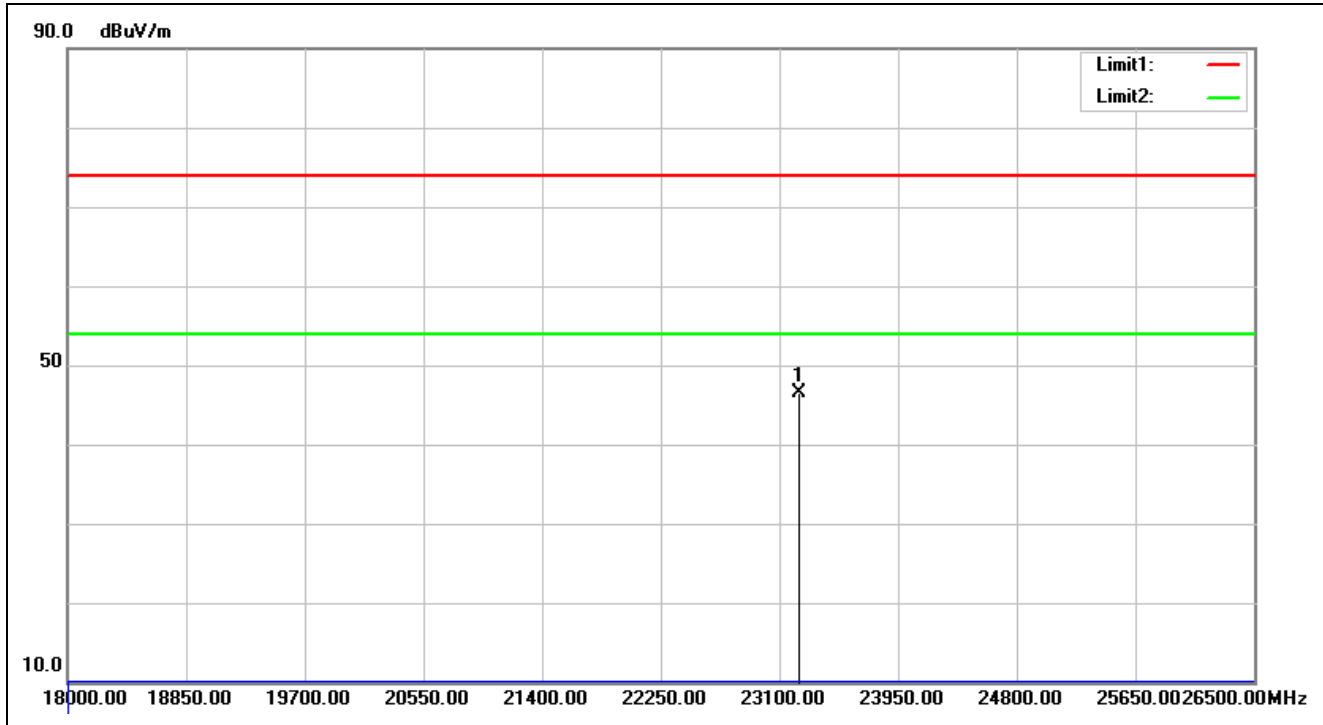
<b>Service No.:</b>	<b>114042704</b>	<b>Test Distance:</b>	<b>3m</b>
<b>Test Standard:</b>	<b>FCC Above 1G PEAK</b>	<b>Ant. Polarization:</b>	<b>Vertical</b>
<b>Test item:</b>	<b>Radiation Emission</b>	<b>Test Time:</b>	<b>2015/11/3 20:32:41</b>
<b>Applicant:</b>	<b>Microchip</b>	<b>Test Rating:</b>	<b>DC 5V</b>
<b>Product:</b>	<b>Bluetooth module</b>	<b>Temp.(°C)/Hum.(%):</b>	<b>19.5(°C)/67%</b>
<b>Model No.:</b>	<b>FCC:BM20SPKXYNBZ,IC:BM20SPKS1</b>	<b>Test Engineer:</b>	<b>George Yang</b>
<b>Test Mode:</b>	<b>3DH5-2480-TX</b>		
<b>Remark:</b>			

No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.	Height (cm)	Azimuth (°)	Remark
1	4960.000	4.19	44.32	48.51	74.00	-25.49	peak			
2	6168.000	6.21	44.62	50.83	74.00	-23.17	peak	100	309	
3	7440.000	5.10	43.72	48.82	74.00	-25.18	peak			

# Spurious Emissions, TX Mode, 18-26G



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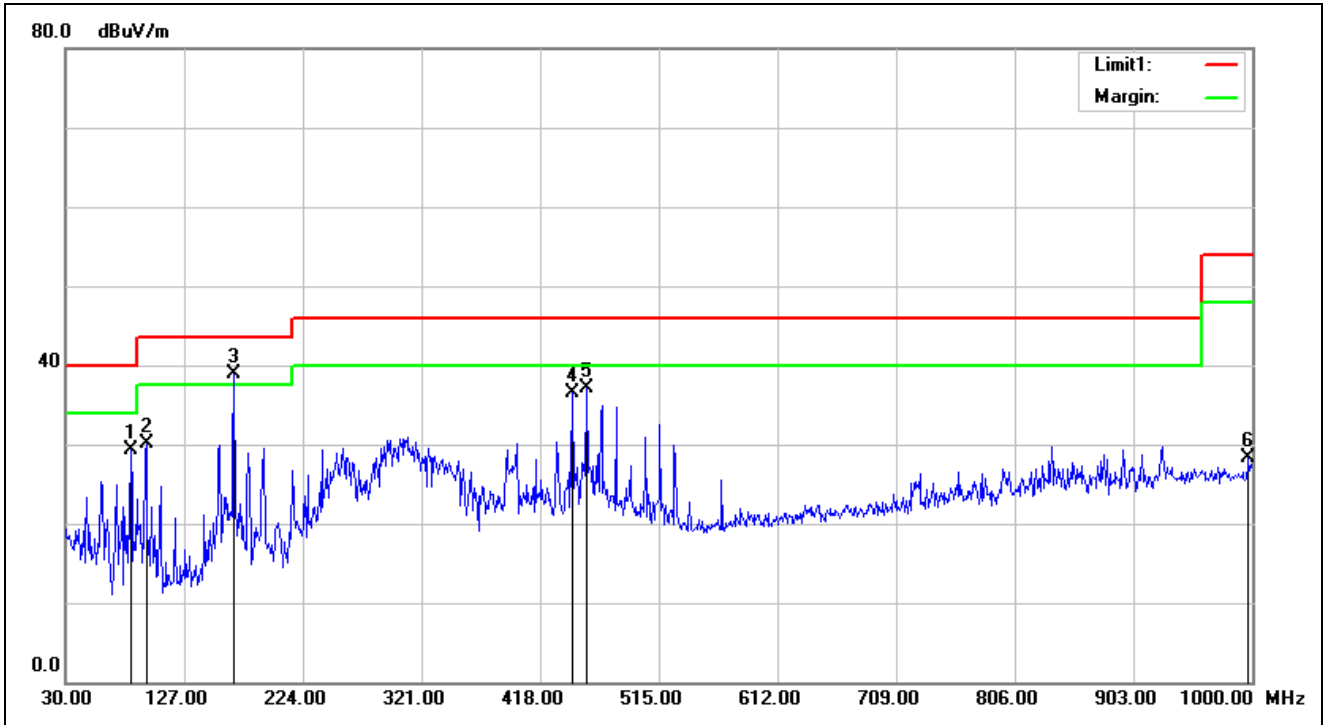
<b>Service No.:</b>	<b>114042704</b>	<b>Test Distance:</b>	<b>3m</b>
<b>Test Standard:</b>	<b>FCC Above 1G PEAK</b>	<b>Ant. Polarization:</b>	<b>Horizontal</b>
<b>Test item:</b>	<b>Radiation Emission</b>	<b>Test Time:</b>	<b>2015/11/3 21:45:23</b>
<b>Applicant:</b>	<b>Microchip</b>	<b>Test Rating:</b>	<b>DC 5V</b>
<b>Product:</b>	<b>Bluetooth module</b>	<b>Temp.(°C)/Hum.(%):</b>	<b>19.5(°C)/67%</b>
<b>Model No.:</b>	<b>FCC:BM20SPKXYNBZ,IC:BM20SPKS1</b>	<b>Test Engineer:</b>	<b>George Yang</b>
<b>Test Mode:</b>	<b>1DH5-2402-TX</b>		
<b>Remark:</b>			

No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.	Height (cm)	Azimuth (°)	Remark
1	23236.000	0.75	45.79	46.54	74.00	-27.46	peak		0	

# Spurious Emissions, TX Mode, 30M-1G

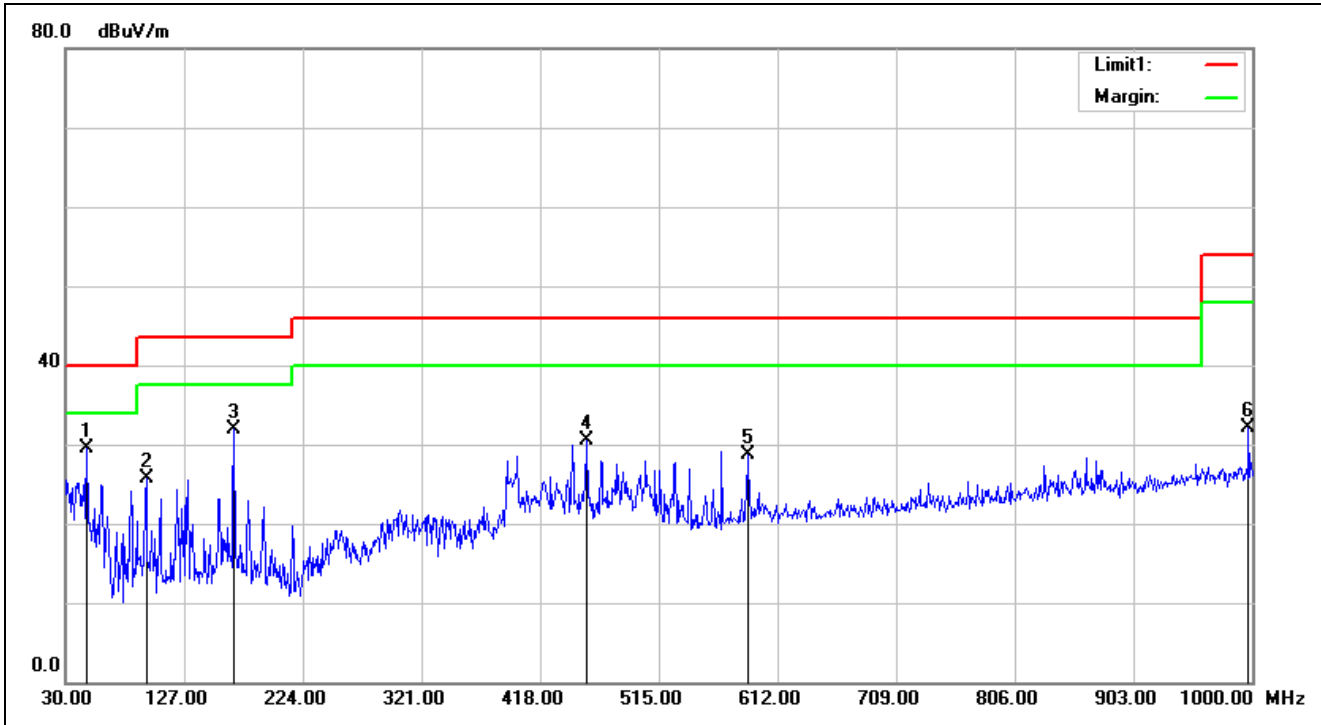


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<b>Service No.:</b>	<b>114042704</b>	<b>Test Distance:</b>	<b>3m</b>
<b>Test Standard:</b>	<b>FCC Class B 3M Radiation</b>	<b>Ant. Polarization:</b>	<b>Horizontal</b>
<b>Test item:</b>	<b>Radiation Emission</b>	<b>Test Time:</b>	<b>2015/11/3 19:52:48</b>
<b>Applicant:</b>	<b>Microchip</b>	<b>Test Rating:</b>	<b>DC 5V</b>
<b>Product:</b>	<b>Bluetooth module</b>	<b>Temp.(°C)/Hum.(%):</b>	<b>19.5(°C)/67%</b>
<b>Model No.:</b>	<b>FCC:BM20SPKXYNBZ,IC:BM20SPKS1</b>	<b>Test Engineer:</b>	<b>George Yang</b>
<b>Test Mode:</b>	<b>1DH5-2441-TX</b>		
<b>Remark:</b>			

No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.	Height (cm)	Azimuth (°)	Remark
1	83.3500	-17.33	46.54	29.21	40.00	-10.79	QP	100	200	
2	95.9599	-15.47	45.51	30.04	43.50	-13.46	QP	100	197	
3	167.7400	-14.60	53.49	38.89	43.50	-4.61	QP	100	219	
4	444.1900	-8.11	44.67	36.56	46.00	-9.44	QP	100	94	
5	455.8300	-7.95	44.98	37.03	46.00	-8.97	QP	100	107	
6	997.0900	-0.03	28.30	28.27	54.00	-25.73	QP	100	83	



Service No.:	114042704	Test Distance:	3m
Test Standard:	FCC Class B 3M Radiation	Ant. Polarization:	Vertical
Test item:	Radiation Emission	Test Time:	2015/11/3 19:53:52
Applicant:	Microchip	Test Rating:	DC 5V
Product:	Bluetooth module	Temp.(°C)/Hum.(%):	19.5(°C)/67%
Model No.:	FCC:BM20SPKXYNBZ,IC:BM20SPKS1	Test Engineer:	George Yang
Test Mode:	1DH5-2441-TX		
Remark:			

No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.	Height (cm)	Azimuth (°)	Remark
1	47.4600	-15.67	45.18	29.51	40.00	-10.49	QP	100	227	
2	95.9600	-15.47	41.24	25.77	43.50	-17.73	QP	100	269	
3	167.7400	-14.60	46.48	31.88	43.50	-11.62	QP	100	192	
4	455.8300	-7.95	38.42	30.47	46.00	-15.53	QP	100	157	
5	587.7500	-6.23	34.89	28.66	46.00	-17.34	QP	100	43	
6	997.0900	-0.03	32.16	32.13	54.00	-21.87	QP	100	285	