

Test Report No.50175099 001

Appendix D: Radiated and Mains Spurious Emission Data

(File: 50175099AppendixD)

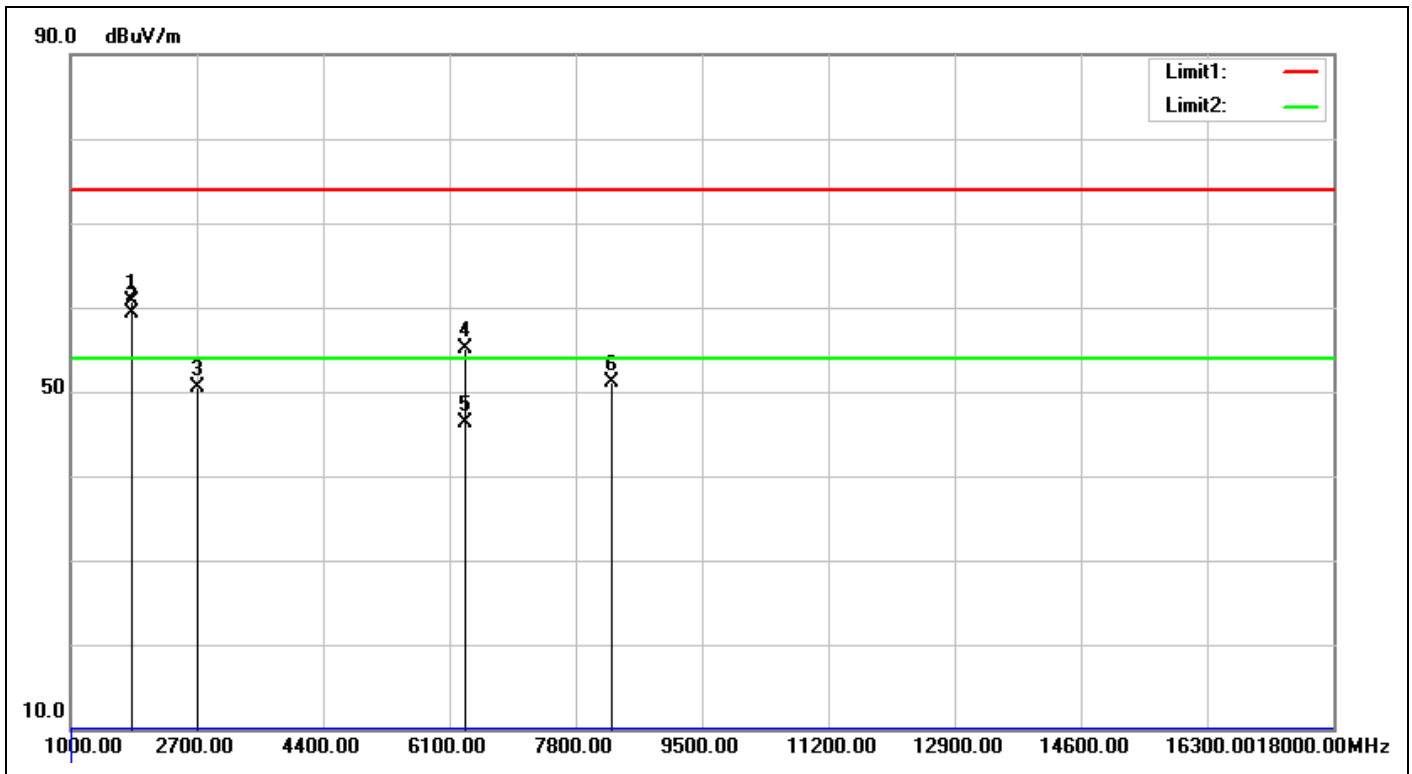
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Spurious Emissions, TX Mode, 1-18G

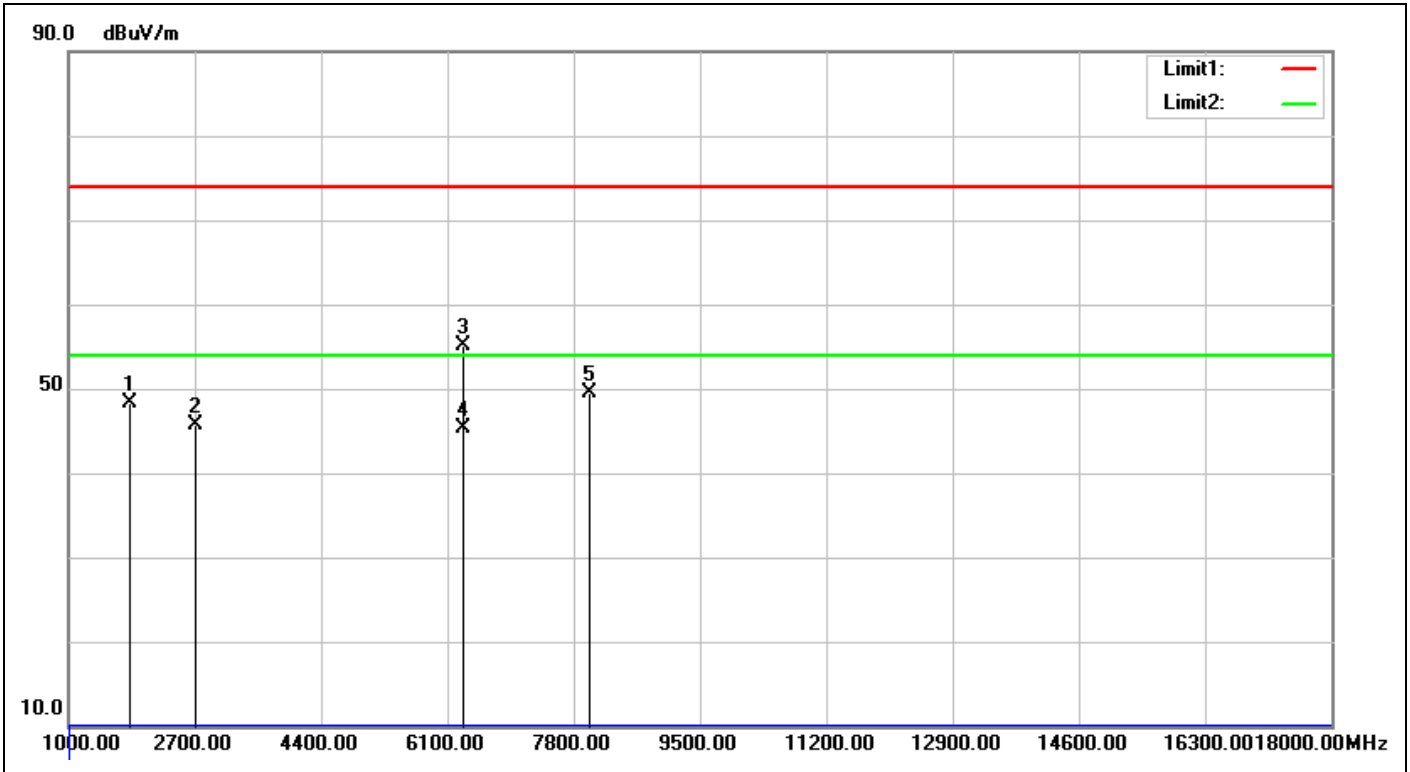


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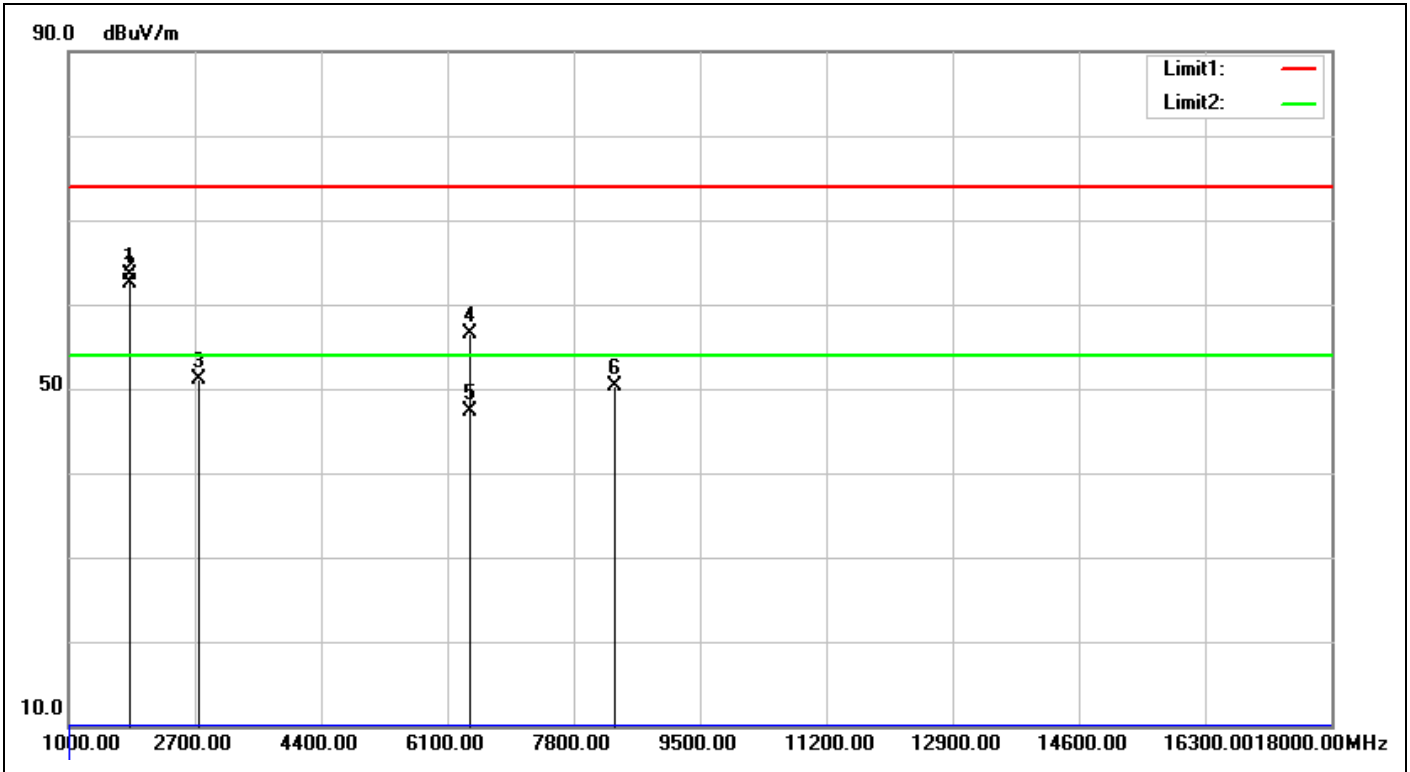
Service No.:	114077828	Test Distance:	3m
Test Standard:	FCC Above 1G PEAK	Ant. Polarization:	Horizontal
Test item:	Radiation Emission	Test Time:	2018/8/7 16:33:05
Applicant:	Microchip Technology Inc.	Test Rating:	DC 5V
Product:	SAM R34 Xplained Pro Evaluation Kit	Temp.(°C)/Hum.(%):	22.1(°C)/60%
Model No.:	A09-3167	Test Engineer:	Curry Chen
Test Mode:	903-TX		
Remark:	Power:20 sf:12 BW:500k		

No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.	Height (cm)	Azimuth (°)	Remark
1/2	1806.000	-9.45	70.12	60.67	N/A	N/A	peak	100	270	Non-Restricted band
3	2709.000	-7.67	58.09	50.42	74.00	-23.58	peak	100	259	
4/5	6321.000	3.64	51.51	55.15	N/A	N/A	peak	100	266	Non-Restricted band
6	8276.000	5.14	45.95	51.09	74.00	-22.91	peak	100	0	



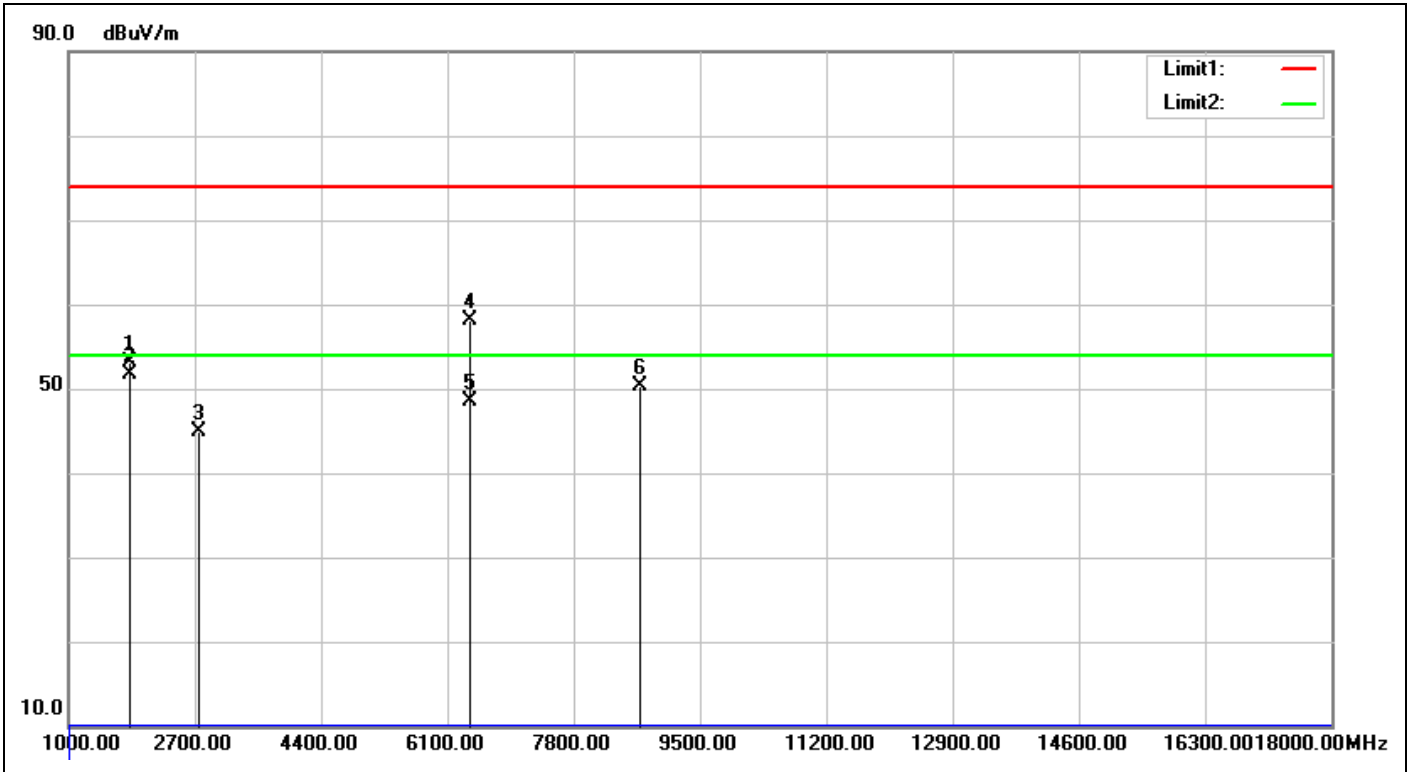
Service No.:	114077828	Test Distance:	3m
Test Standard:	FCC Above 1G PEAK	Ant. Polarization:	Vertical
Test item:	Radiation Emission	Test Time:	2018/8/7 16:33:58
Applicant:	Microchip Technology Inc.	Test Rating:	DC 5V
Product:	SAM R34 Xplained Pro Evaluation Kit	Temp.(°C)/Hum.(%):	22.1(°C)/60%
Model No.:	A09-3167	Test Engineer:	Curry Chen
Test Mode:	903-TX		
Remark:	Power:20 sf:12 BW:500k		

No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.	Height (cm)	Azimuth (°)	Remark
1/2	1806.000	-9.45	57.75	48.30	N/A	N/A	peak	100	135	Non-Restricted band
3	2709.000	-7.67	53.38	45.71	74.00	-28.29	peak	100	350	
4/5	6321.000	3.64	51.47	55.11	N/A	N/A	peak	100	220	Non-Restricted band
6	8021.000	4.76	44.66	49.42	74.00	-24.58	peak	100	135	



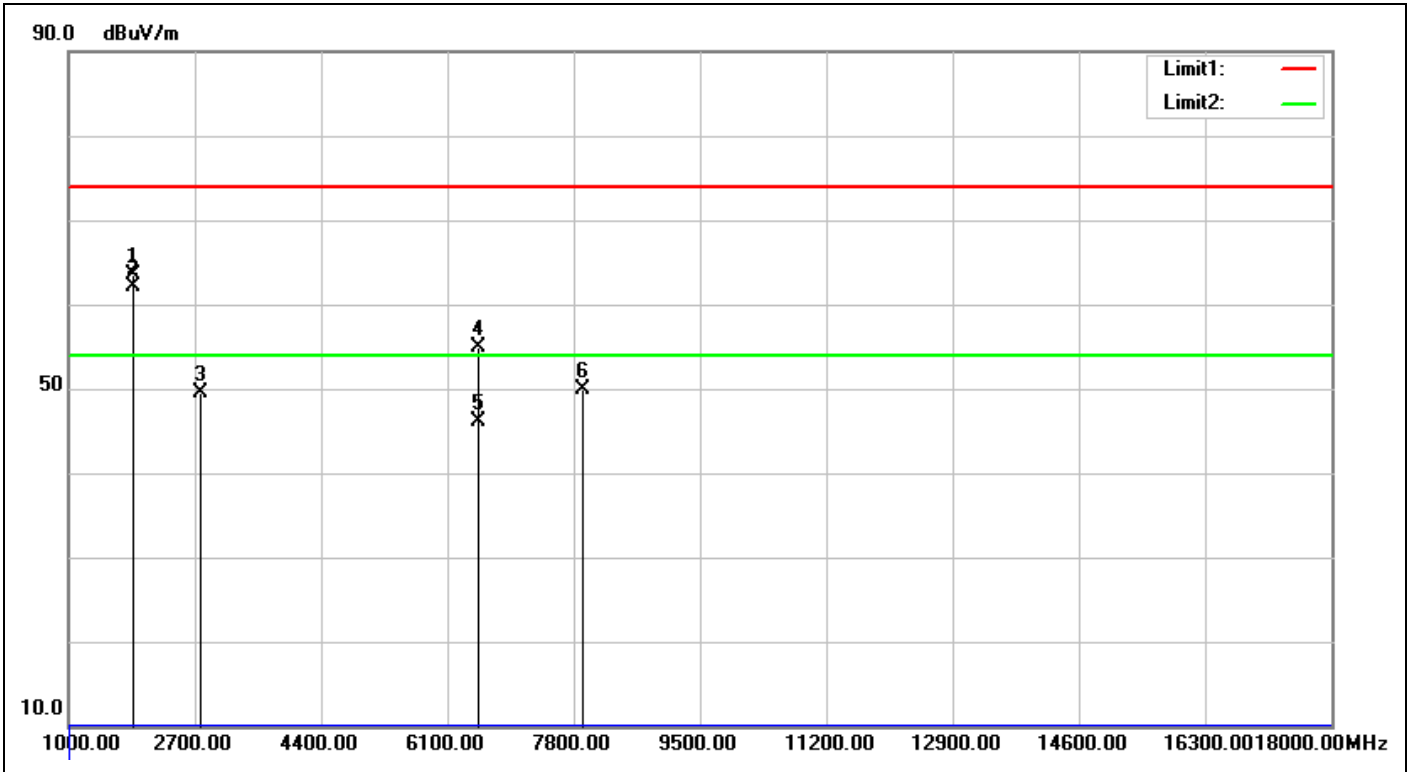
Service No.:	114077828	Test Distance:	3m
Test Standard:	FCC Above 1G PEAK	Ant. Polarization:	Horizontal
Test item:	Radiation Emission	Test Time:	2018/8/7 15:56:29
Applicant:	Microchip Technology Inc.	Test Rating:	DC 5V
Product:	SAM R34 Xplained Pro Evaluation Kit	Temp.(°C)/Hum.(%):	22.1(°C)/60%
Model No.:	A09-3167	Test Engineer:	Curry Chen
Test Mode:	914.2-TX		
Remark:	Power:20 sf:12 BW:500k		

No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.	Height (cm)	Azimuth (°)	Remark
1/2	1828.400	-9.30	72.87	63.57	N/A	N/A	peak	100	274	Non-Restricted band
3	2742.600	-7.62	58.65	51.03	74.00	-22.97	peak	100	267	
4/5	6399.400	3.97	52.58	56.55	N/A	N/A	peak	100	143	Non-Restricted band
6	8344.000	5.24	45.14	50.38	74.00	-23.62	peak	100	304	



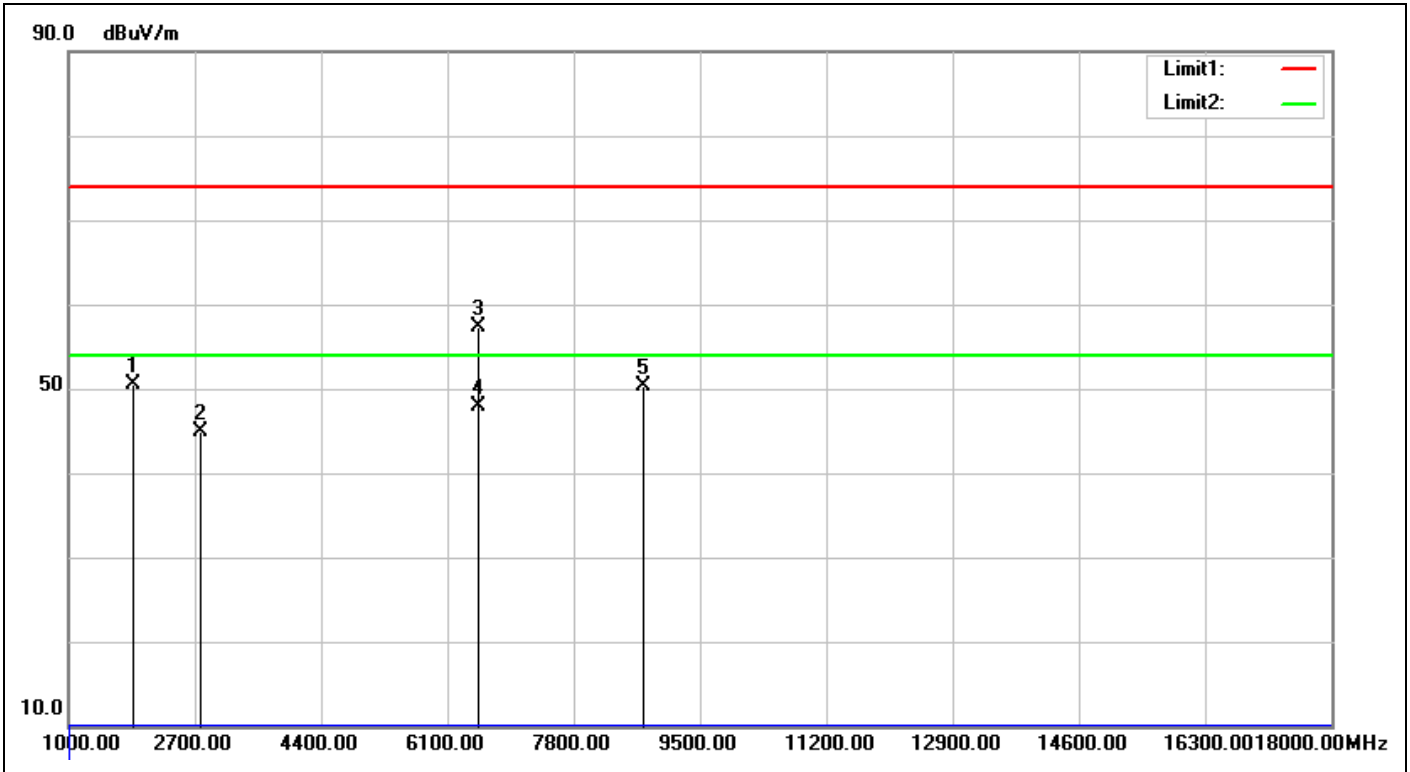
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Test Standard:	FCC Above 1G PEAK	Ant. Polarization:	Vertical
Test item:	Radiation Emission	Test Time:	2018/8/7 15:57:21
Applicant:	Microchip Technology Inc.	Test Rating:	DC 5V
Product:	SAM R34 Xplained Pro Evaluation Kit	Temp.(°C)/Hum.(%):	22.1(°C)/60%
Model No.:	A09-3167	Test Engineer:	Curry Chen
Test Mode:	914.2-TX		
Remark:	Power:20 sf:12 BW:500k		

No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.	Height (cm)	Azimuth (°)	Remark
1/2	1828.400	-9.30	62.35	53.05	N/A	N/A	peak	100	135	Non-Restricted band
3	2742.600	-7.62	52.62	45.00	74.00	-29.00	peak	100	56	
4/5	6399.400	3.97	54.08	58.05	N/A	N/A	peak	100	125	Non-Restricted band
6	8701.000	5.49	44.75	50.24	74.00	-23.76	peak	100	156	



Service No.:	114077828	Test Distance:	3m
Test Standard:	FCC Above 1G PEAK	Ant. Polarization:	Horizontal
Test item:	Radiation Emission	Test Time:	2018/8/7 16:21:40
Applicant:	Microchip Technology Inc.	Test Rating:	DC 5V
Product:	SAM R34 Xplained Pro Evaluation Kit	Temp.(°C)/Hum.(%):	22.1(°C)/60%
Model No.:	A09-3167	Test Engineer:	Curry Chen
Test Mode:	927.5-TX		
Remark:	Power:20 sf:12 BW:500k		

No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.	Height (cm)	Azimuth (°)	Remark
1/2	1855.000	-9.13	72.54	63.41	N/A	N/A	peak	100	90	Non-Restricted band
3	2782.500	-7.55	57.02	49.47	74.00	-24.53	peak	100	268	
4/5	6492.500	4.36	50.60	54.96	N/A	N/A	peak	100	155	Non-Restricted band
6	7919.000	4.75	45.15	49.90	74.00	-24.10	peak	100	2	



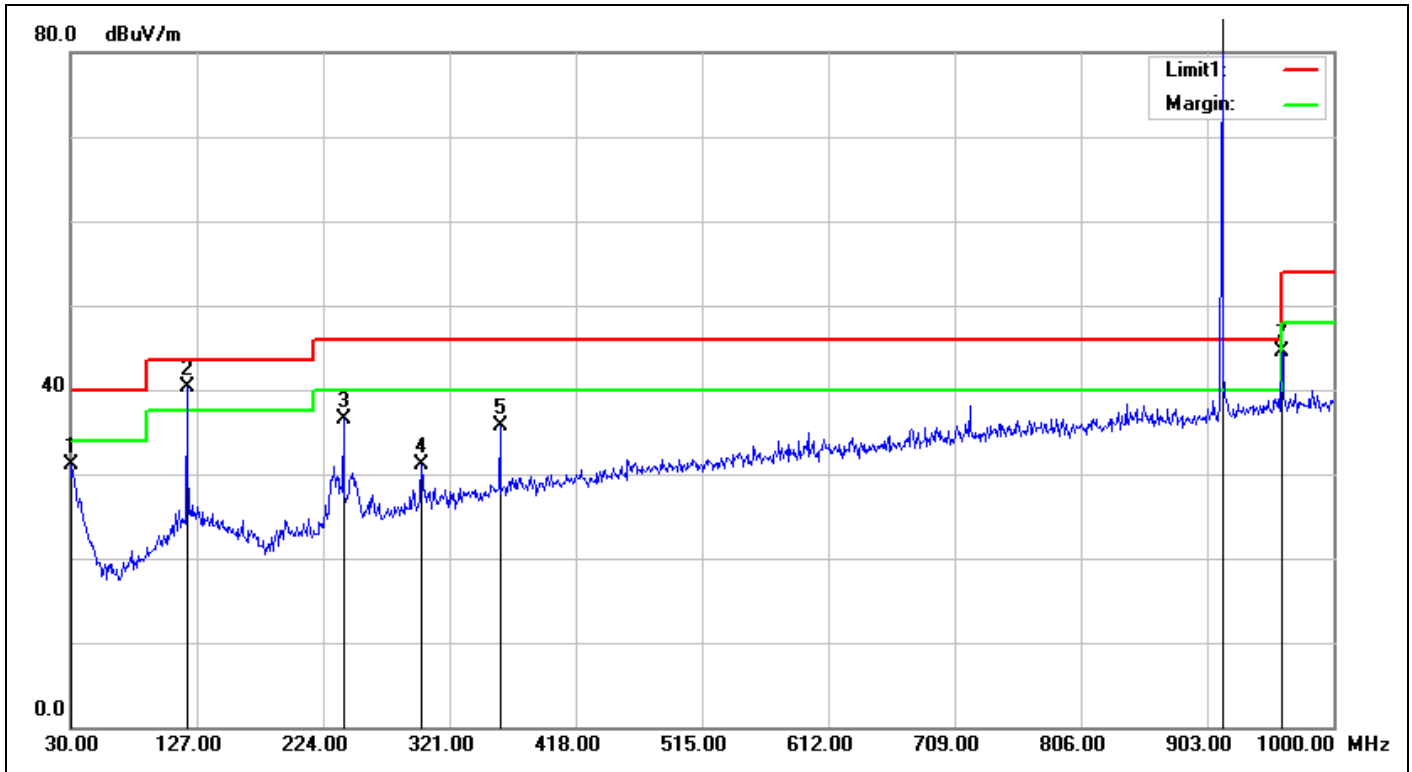
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Test Standard:	FCC Above 1G PEAK	Ant. Polarization:	Vertical
Test item:	Radiation Emission	Test Time:	2018/8/7 16:22:32
Applicant:	Microchip Technology Inc.	Test Rating:	DC 5V
Product:	SAM R34 Xplained Pro Evaluation Kit	Temp.(°C)/Hum.(%):	22.1(°C)/60%
Model No.:	A09-3167	Test Engineer:	Curry Chen
Test Mode:	927.5-TX		
Remark:	Power:20 sf:12 BW:500k		

No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.	Height (cm)	Azimuth (°)	Remark
1	1855.000	-9.13	59.61	50.48	N/A	N/A	peak	100	140	Non-Restricted band
2	2782.500	-7.55	52.38	44.83	74.00	-29.17	peak			
3/4	6492.500	4.36	52.94	57.30	N/A	N/A	peak	100	140	Non-Restricted band
5	8735.000	5.49	44.90	50.39	74.00	-23.61	peak	100	136	

Spurious Emissions, TX Mode, 30M-1G

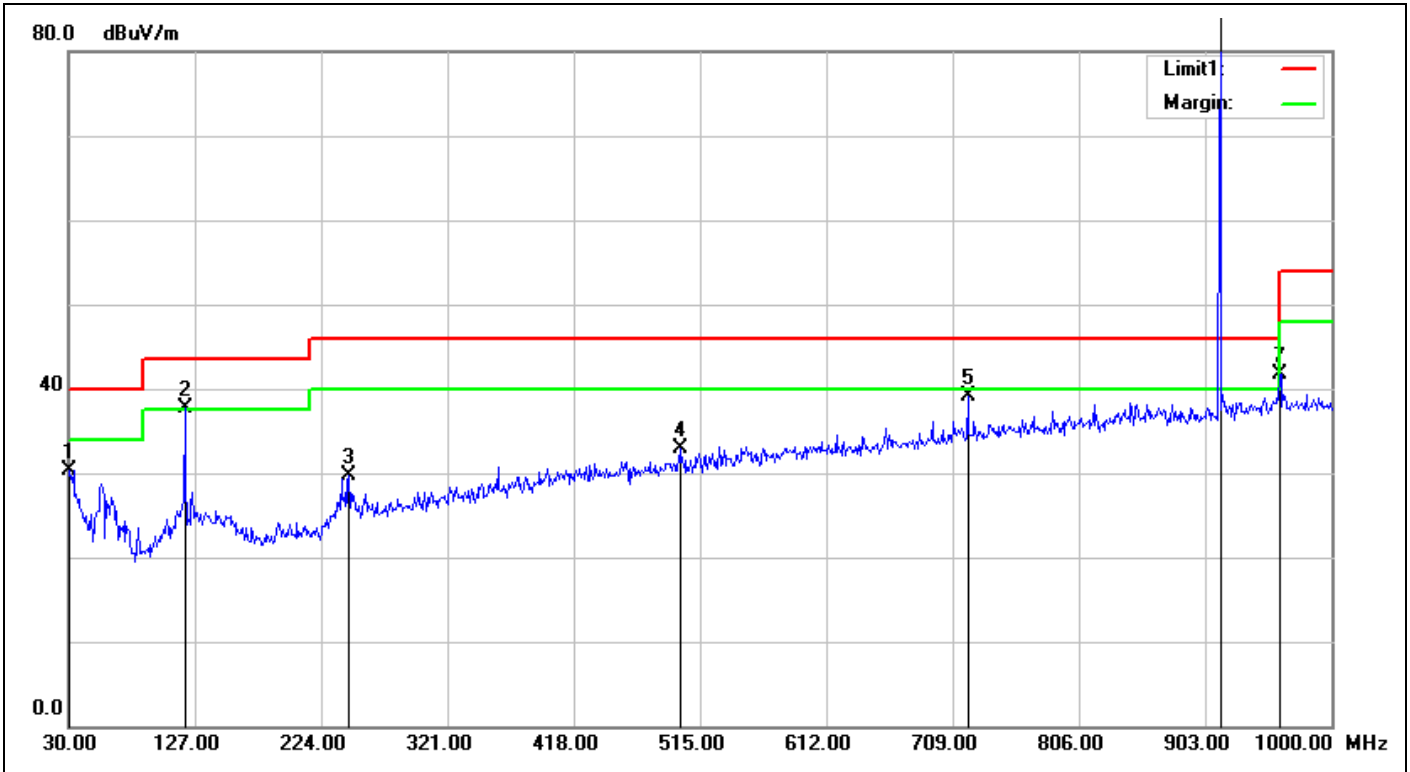


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Service No.:	114077828	Test Distance:	3m
Test Standard:	FCC Class B 3M Radiation	Ant. Polarization:	Horizontal
Test item:	Radiation Emission	Test Time:	2018/8/7 13:12:29
Applicant:	Microchip Technology Inc.	Test Rating:	DC 5V
Product:	SAM R34 Xplained Pro Evaluation Kit	Temp.(°C)/Hum.(%):	22.1(°C)/60%
Model No.:	A09-3167	Test Engineer:	Curry Chen
Test Mode:	914.2-TX		
Remark:			

No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.	Height (cm)	Azimuth (°)	Remark
1	30.9700	-0.76	31.79	31.03	40.00	-8.97	QP	100	110	
2	119.2400	-7.44	47.84	40.40	43.50	-3.10	QP	100	311	
3	239.5200	-6.73	43.14	36.41	46.00	-9.59	QP	100	265	
4	299.6600	-4.42	35.55	31.13	46.00	-14.87	QP	100	150	
5	359.8000	-3.00	38.75	35.75	46.00	-10.25	QP	100	23	
6	914.6400	4.88	94.67	99.55	46.00	53.55	QP	100	89	TX
7	960.2300	5.92	38.67	44.59	54.00	-9.41	QP	100	56	



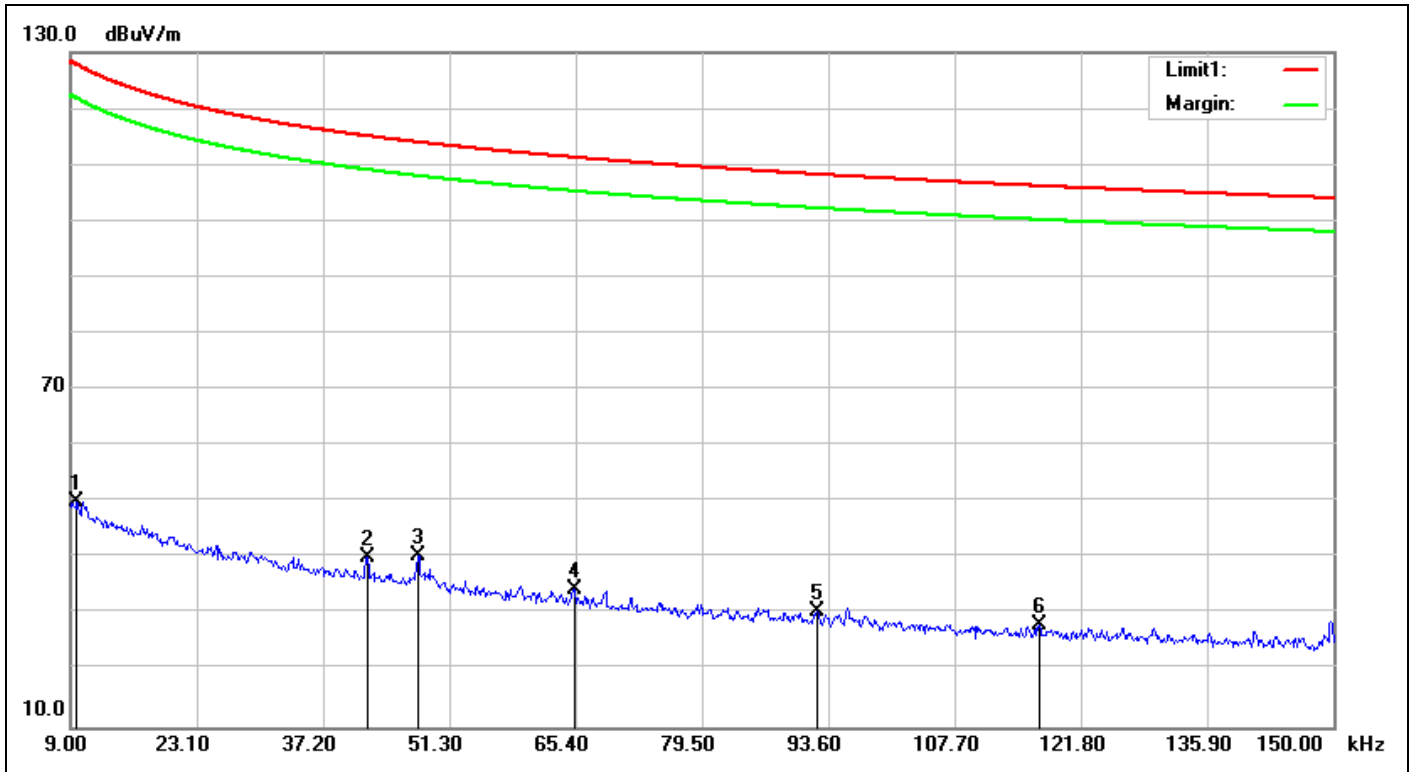
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Test Standard:	FCC Class B 3M Radiation	Ant. Polarization:	Vertical
Test item:	Radiation Emission	Test Time:	2018/8/7 13:13:22
Applicant:	Microchip Technology Inc.	Test Rating:	DC 5V
Product:	SAM R34 Xplained Pro Evaluation Kit	Temp.(°C)/Hum.(%):	22.1(°C)/60%
Model No.:	A09-3167	Test Engineer:	Curry Chen
Test Mode:	914.2-TX		
Remark:			

No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.	Height (cm)	Azimuth (°)	Remark
1	30.0000	-0.21	30.54	30.33	40.00	-9.67	QP	100	87	
2	119.2400	-7.44	45.22	37.78	43.50	-5.72	QP	100	272	
3	245.3400	-6.14	35.80	29.66	46.00	-16.34	QP	100	0	
4	500.4500	-0.92	33.74	32.82	46.00	-13.18	QP	100	26	
5	720.6400	2.10	36.91	39.01	46.00	-6.99	QP	100	242	
6	914.6400	4.88	87.96	92.84	46.00	46.84	QP	100	228	TX
7	960.2300	5.92	35.84	41.76	54.00	-12.24	QP	100	131	

Spurious Emissions, TX Mode, 9k-30M

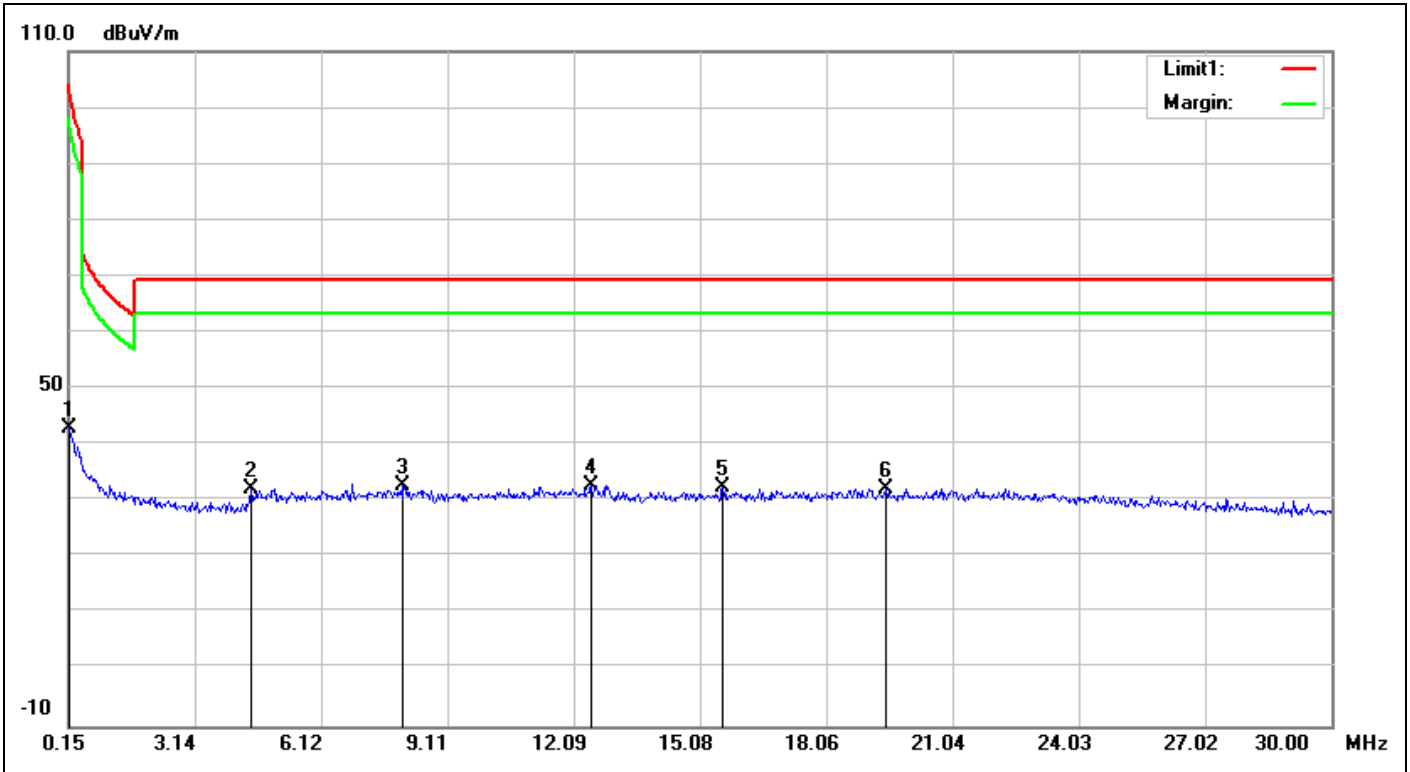


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Service No.:	114077828	Test Distance:	3m
Test Standard:	FCC15.209_9k-30M_3m	Ant. Polarization:	N/A
Test item:	Radiation Emission	Test Time:	2018/8/7 13:29:26
Applicant:	Microchip Technology Inc.	Test Rating:	DC 5V
Product:	SAM R34 Xplained Pro Evaluation Kit	Temp.(°C)/Hum.(%):	22.1(°C)/60%
Model No.:	A09-3167	Test Engineer:	Curry Chen
Test Mode:	914.2-TX		
Remark:			

No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.	Height (cm)	Azimuth (°)	Remark
1	0.0097	18.46	31.47	49.93	127.85	-77.92	QP	100	360	
2	0.0421	19.08	21.10	40.18	115.11	-74.93	QP	100	278	
3	0.0477	18.97	21.58	40.55	114.02	-73.47	QP	100	1	
4	0.0652	18.74	15.69	34.43	111.31	-76.88	QP	100	147	
5	0.0923	18.41	12.03	30.44	108.29	-77.85	QP	100	149	
6	0.1171	18.34	9.67	28.01	106.23	-78.22	QP	100	91	



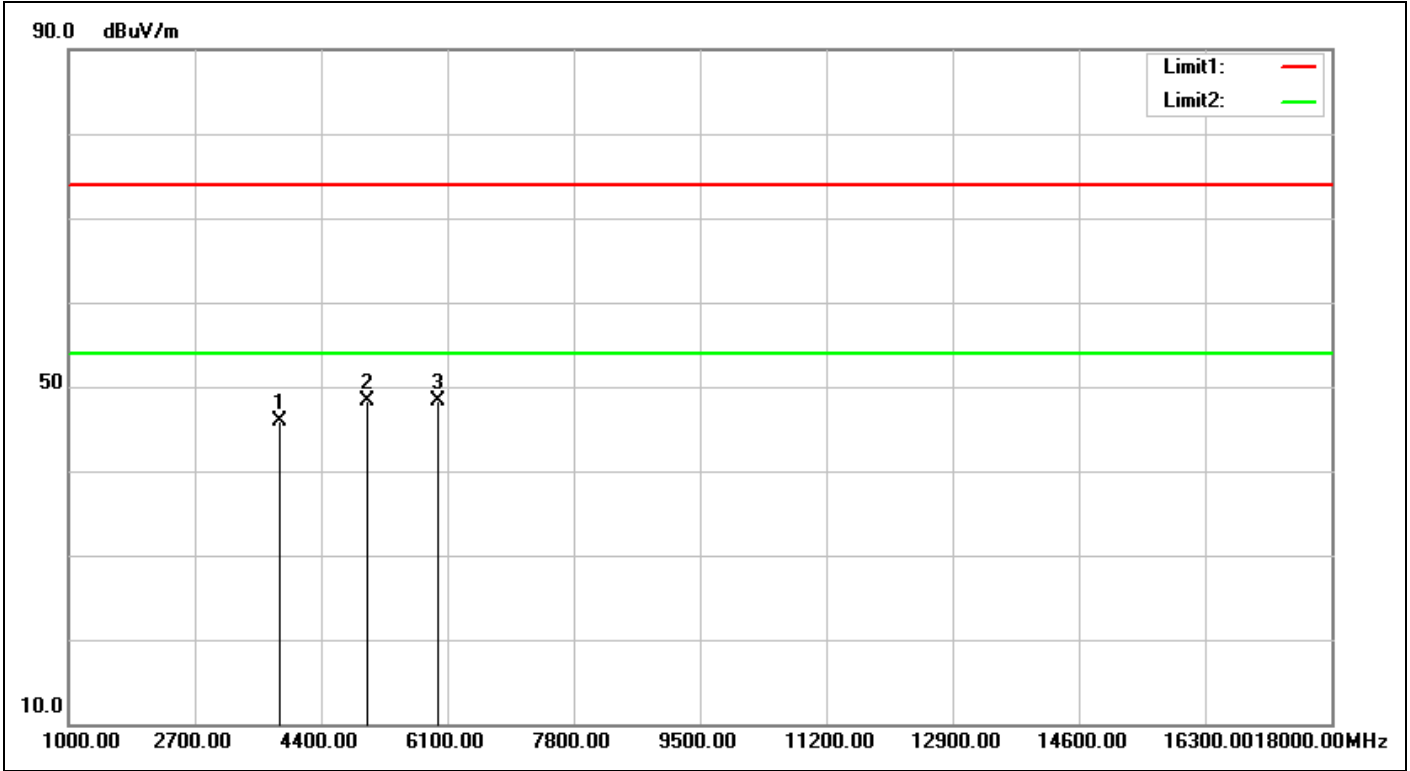
Service No.:	114077828	Test Distance:	3m
Test Standard:	FCC15.209_9k-30M_3m	Ant. Polarization:	N/A
Test item:	Radiation Emission	Test Time:	2018/8/7 13:44:42
Applicant:	Microchip Technology Inc.	Test Rating:	DC 5V
Product:	SAM R34 Xplained Pro Evaluation Kit	Temp.(°C)/Hum.(%):	22.1(°C)/60%
Model No.:	A09-3167	Test Engineer:	Curry Chen
Test Mode:	914.2-TX		
Remark:			

No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.	Height (cm)	Azimuth (°)	Remark
1	0.1500	18.36	24.59	42.95	104.08	-61.13	QP	100	347	
2	4.4782	19.23	12.97	32.20	69.50	-37.30	QP	100	234	
3	8.0602	20.06	12.66	32.72	69.50	-36.78	QP	100	303	
4	12.5079	20.74	12.09	32.83	69.50	-36.67	QP	100	73	
5	15.6123	21.10	11.30	32.40	69.50	-37.10	QP	100	289	
6	19.4629	21.54	10.73	32.27	69.50	-37.23	QP	100	158	

Spurious Emissions, RX Mode, 1-18G

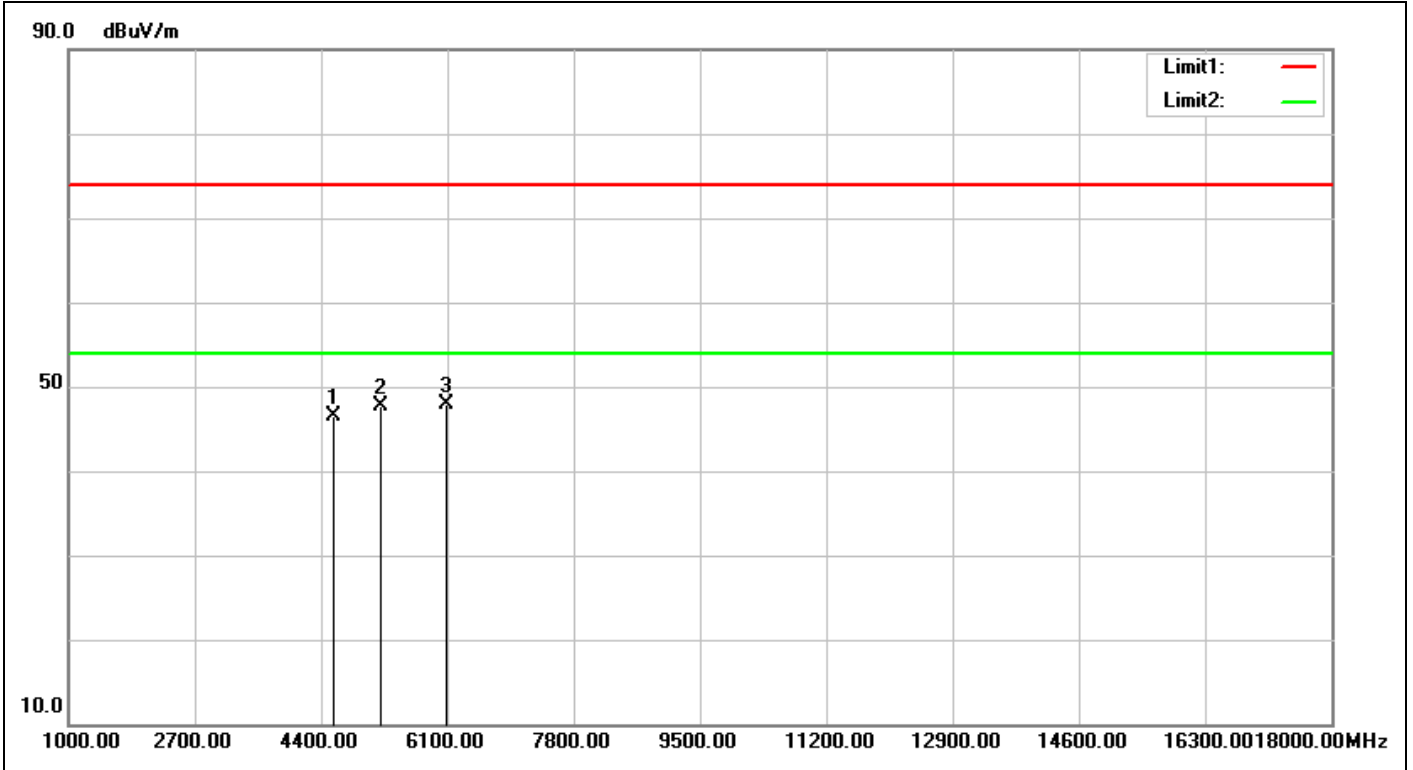


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Service No.:	114077828	Test Distance:	3m
Test Standard:	FCC Above 1G PEAK	Ant. Polarization:	Horizontal
Test item:	Radiation Emission	Test Time:	2018/8/9 09:20:17
Applicant:	Microchip Technology Inc.	Test Rating:	DC 5V
Product:	SAM R34 Xplained Pro Evaluation Kit	Temp.(°C)/Hum.(%):	21(°C)/55%
Model No.:	A09-3167	Test Engineer:	Curry Chen
Test Mode:	914.2-RX		
Remark:	Power:20 sf:12 BW:500k		

No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.	Height (cm)	Azimuth (°)	Remark
1	3839.000	-6.07	51.94	45.87	74.00	-28.13	peak	100	35	
2	5029.000	-3.02	51.36	48.34	74.00	-25.66	peak	100	10	
3	5981.000	2.18	46.14	48.32	74.00	-25.68	peak	100	271	



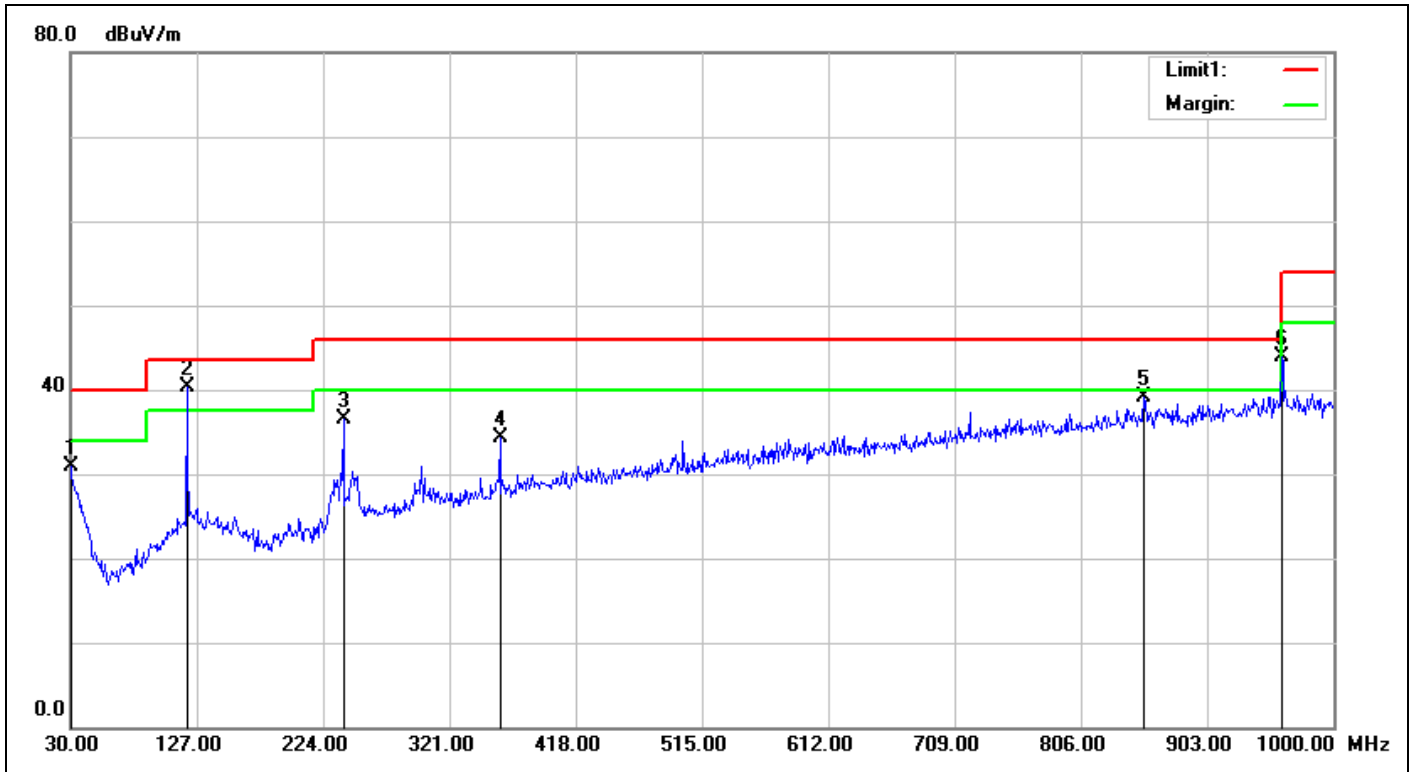
Service No.:	114077828	Test Distance:	3m
Test Standard:	FCC Above 1G PEAK	Ant. Polarization:	Vertical
Test item:	Radiation Emission	Test Time:	2018/8/9 09:21:20
Applicant:	Microchip Technology Inc.	Test Rating:	DC 5V
Product:	SAM R34 Xplained Pro Evaluation Kit	Temp.(°C)/Hum.(%):	21(°C)/55%
Model No.:	A09-3167	Test Engineer:	Curry Chen
Test Mode:	914.2-RX		
Remark:	Power:20 sf:12 BW:500k		

No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.	Height (cm)	Azimuth (°)	Remark
1	4570.000	-3.84	50.34	46.50	74.00	-27.50	peak	100	203	
2	5199.000	-2.24	49.87	47.63	74.00	-26.37	peak	100	333	
3	6083.000	2.65	45.27	47.92	74.00	-26.08	peak	100	12	

Spurious Emissions, RX Mode, 30M-1G

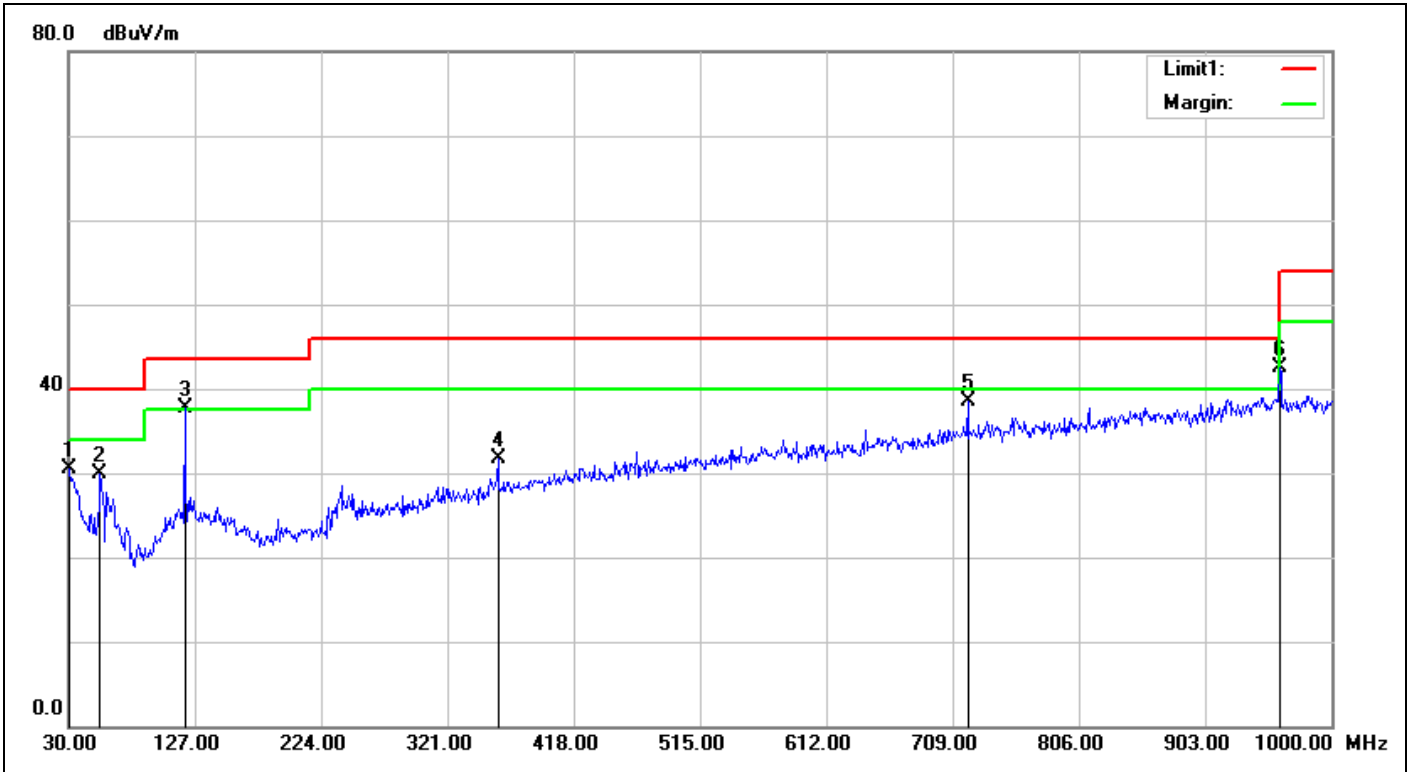


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Service No.:	114077828	Test Distance:	3m
Test Standard:	FCC Class B 3M Radiation	Ant. Polarization:	Horizontal
Test item:	Radiation Emission	Test Time:	2018/8/7 13:20:29
Applicant:	Microchip Technology Inc.	Test Rating:	DC 5V
Product:	SAM R34 Xplained Pro Evaluation Kit	Temp.(°C)/Hum.(%):	22.1(°C)/60%
Model No.:	A09-3167	Test Engineer:	Curry Chen
Test Mode:	914.2-RX		
Remark:			

No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.	Height (cm)	Azimuth (°)	Remark
1	30.0000	-0.21	31.12	30.91	40.00	-9.09	QP	100	122	
2	119.2400	-7.44	47.80	40.36	43.50	-3.14	QP	100	286	
3	239.5200	-6.73	43.23	36.50	46.00	-9.50	QP	100	149	
4	359.8000	-3.00	37.31	34.31	46.00	-11.69	QP	100	250	
5	854.5000	4.17	34.95	39.12	46.00	-6.88	QP	100	119	
6	960.2300	5.92	38.03	43.95	54.00	-10.05	QP	100	357	



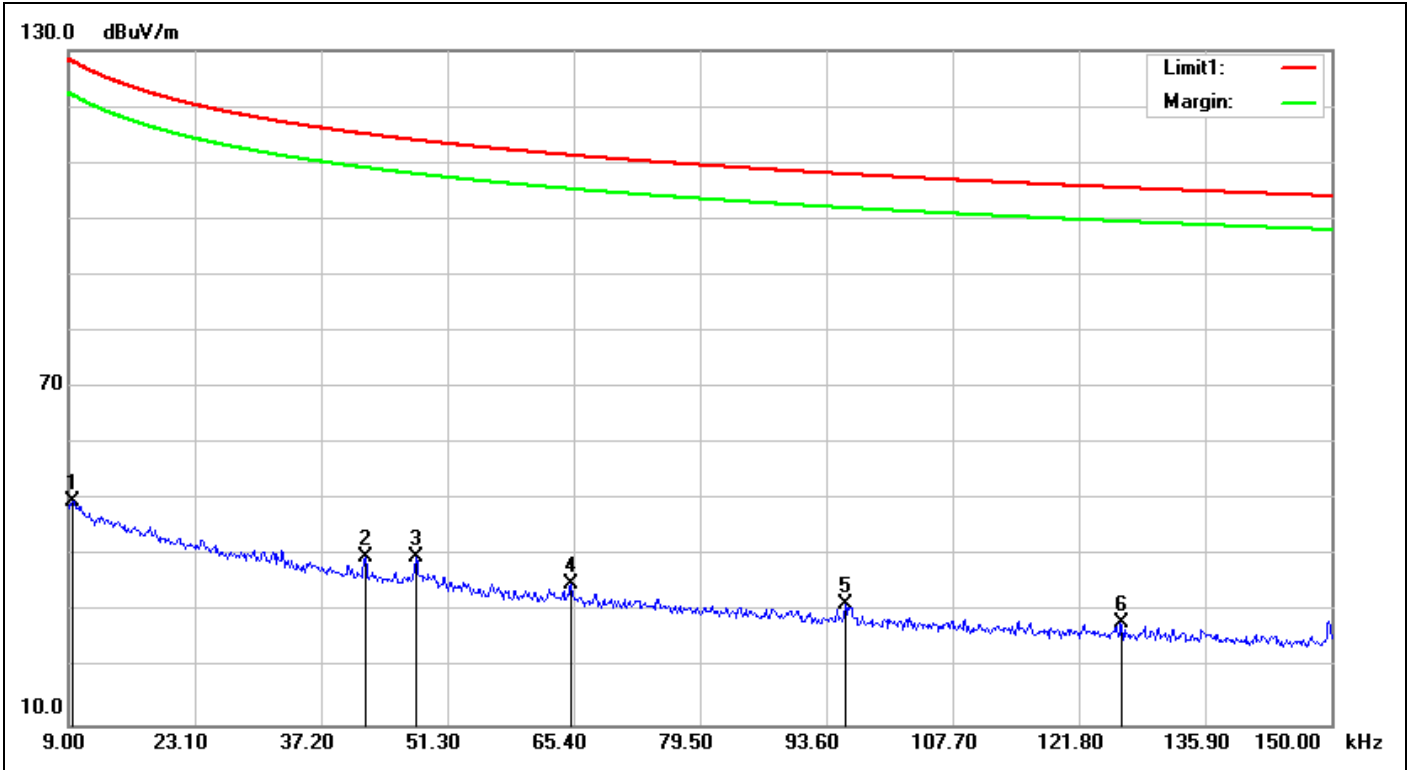
Service No.:	114077828	Test Distance:	3m
Test Standard:	FCC Class B 3M Radiation	Ant. Polarization:	Vertical
Test item:	Radiation Emission	Test Time:	2018/8/7 13:21:22
Applicant:	Microchip Technology Inc.	Test Rating:	DC 5V
Product:	SAM R34 Xplained Pro Evaluation Kit	Temp.(°C)/Hum.(%):	22.1(°C)/60%
Model No.:	A09-3167	Test Engineer:	Curry Chen
Test Mode:	914.2-RX		
Remark:			

No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.	Height (cm)	Azimuth (°)	Remark
1	30.0000	-0.21	30.62	30.41	40.00	-9.59	QP	100	20	
2	54.2500	-12.35	42.25	29.90	40.00	-10.10	QP	100	101	
3	119.2400	-7.44	45.24	37.80	43.50	-5.70	QP	100	135	
4	359.8000	-3.00	34.66	31.66	46.00	-14.34	QP	100	192	
5	720.6400	2.10	36.40	38.50	46.00	-7.50	QP	100	232	
6	960.2300	5.92	36.63	42.55	54.00	-11.45	QP	100	88	

Spurious Emissions, RX Mode, 9k-30M

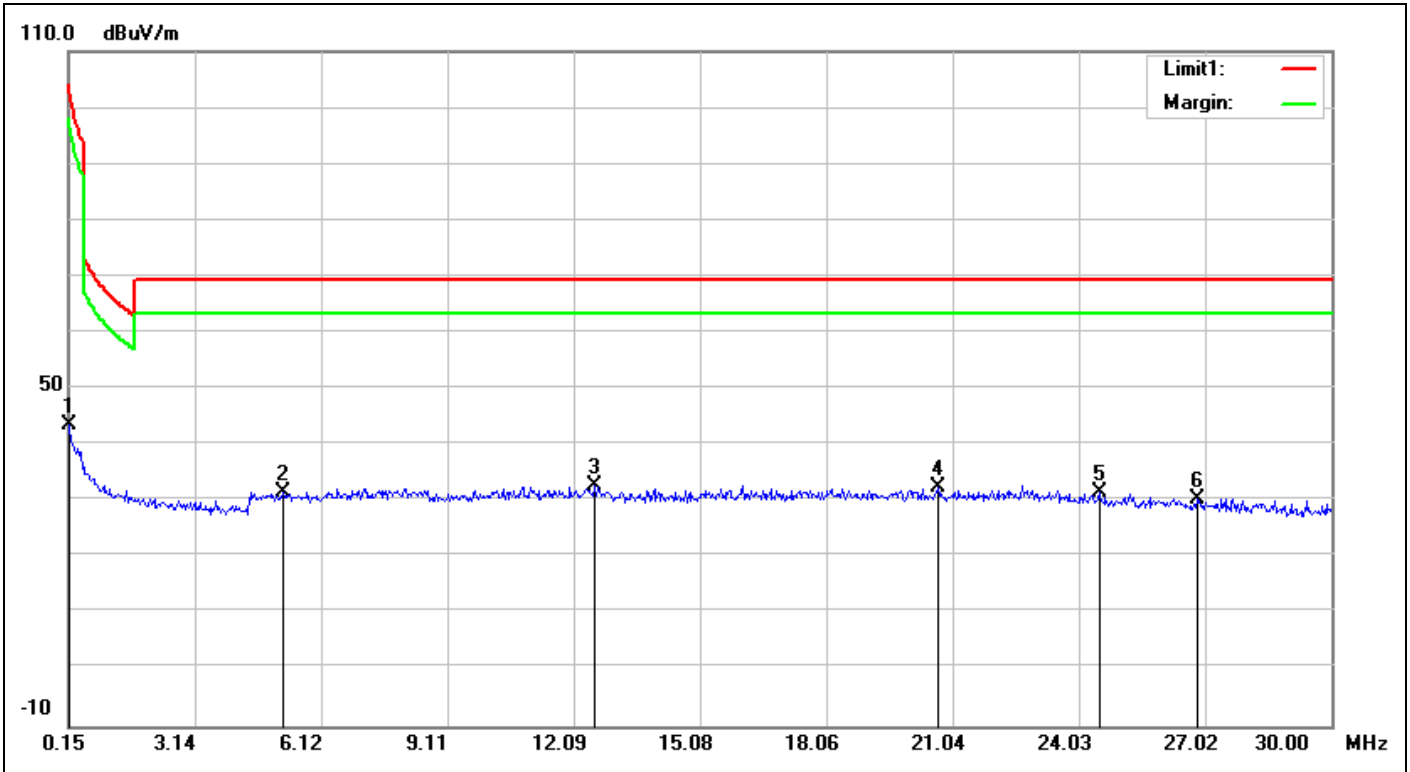


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Service No.:	114077828	Test Distance:	3m
Test Standard:	FCC15.209_9k-30M_3m	Ant. Polarization:	N/A
Test item:	Radiation Emission	Test Time:	2018/8/7 13:30:19
Applicant:	Microchip Technology Inc.	Test Rating:	DC 5V
Product:	SAM R34 Xplained Pro Evaluation Kit	Temp.(°C)/Hum.(%):	22.1(°C)/60%
Model No.:	A09-3167	Test Engineer:	Curry Chen
Test Mode:	914.2-RX		
Remark:			

No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.	Height (cm)	Azimuth (°)	Remark
1	0.0094	18.40	31.34	49.74	128.12	-78.38	QP	100	312	
2	0.0421	19.08	20.64	39.72	115.11	-75.39	QP	100	338	
3	0.0478	18.96	21.01	39.97	114.00	-74.03	QP	100	183	
4	0.0651	18.74	16.26	35.00	111.32	-76.32	QP	100	181	
5	0.0957	18.38	12.97	31.35	107.98	-76.63	QP	100	121	
6	0.1265	18.34	9.77	28.11	105.56	-77.45	QP	100	131	



Service No.:	114077828	Test Distance:	3m
Test Standard:	FCC15.209_9k-30M_3m	Ant. Polarization:	N/A
Test item:	Radiation Emission	Test Time:	2018/8/7 13:45:35
Applicant:	Microchip Technology Inc.	Test Rating:	DC 5V
Product:	SAM R34 Xplained Pro Evaluation Kit	Temp.(°C)/Hum.(%):	22.1(°C)/60%
Model No.:	A09-3167	Test Engineer:	Curry Chen
Test Mode:	914.2-RX		
Remark:			

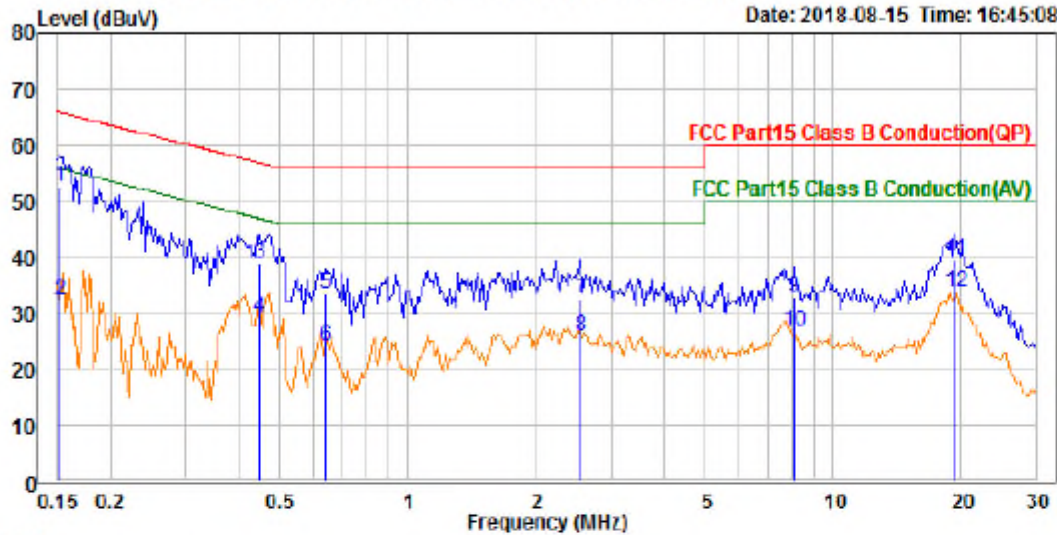
No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.	Height (cm)	Azimuth (°)	Remark
1	0.1799	18.37	25.26	43.63	102.50	-58.87	QP	100	37	
2	5.2245	19.51	12.02	31.53	69.50	-37.97	QP	100	249	
3	12.5975	20.75	12.07	32.82	69.50	-36.68	QP	100	0	
4	20.7167	21.63	10.84	32.47	69.50	-37.03	QP	100	304	
5	24.5076	21.77	9.75	31.52	69.50	-37.98	QP	100	267	
6	26.8359	21.86	8.50	30.36	69.50	-39.14	QP	100	191	

Mains



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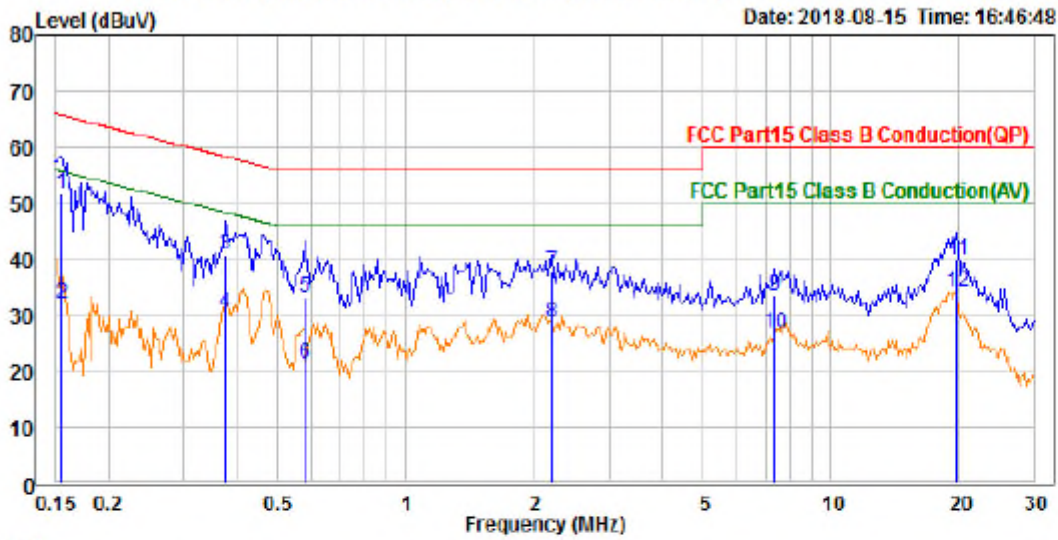


Date: 2018-08-15 Time: 16:45:08

Trace: 1
 Site : Conduction room
 Condition : FCC Part15 Class B Conduction(QP) line1
 Test Engineer: Joe Tien
 Applicant : Microchip Technology Inc.
 Product : SAM R34 Xplained Pro Evaluation Kit
 Model No. : A09-3167
 Test Rating : 120Vac/60Hz
 Temp/Hum : 23.3 °C / 41 %
 Memo : USB & Lora link

	Read Freq	Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	
1	0.151	42.97	9.68	52.65	65.92	-13.27	QP
2	0.151	22.68	9.68	32.36	55.92	-23.56	Average
3	0.448	29.36	9.69	39.05	56.92	-17.87	QP
4	0.448	19.48	9.69	29.17	46.92	-17.75	Average
5	0.640	23.81	9.69	33.50	56.00	-22.50	QP
6	0.640	14.21	9.69	23.90	46.00	-22.10	Average
7	2.550	22.83	9.72	32.55	56.00	-23.45	QP
8	2.550	16.10	9.72	25.82	46.00	-20.18	Average
9	8.077	22.94	9.81	32.75	60.00	-27.25	QP
10	8.077	16.86	9.81	26.67	50.00	-23.33	Average
11	19.372	29.64	9.86	39.50	60.00	-20.50	QP
12	19.372	23.81	9.86	33.67	50.00	-16.33	Average

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Trace: 1
 Site : Conduction room
 Condition : FCC Part15 Class B Conduction(QP) neutral
 Test Engineer: Joe Tien
 Applicant : Microchip Technology Inc.
 Product : SAM R34 Xplained Pro Evaluation Kit
 Model No. : A09-3167
 Test Rating : 120Vac/60Hz
 Tmp/Hum : 23.3 °C / 41 %
 Memo : USB & Lora link

	Read Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	
1	0.155	41.95	9.68	51.63	65.75	-14.12	QP
2	0.155	22.23	9.68	31.91	55.75	-23.84	Average
3	0.374	31.12	9.68	40.80	58.40	-17.60	QP
4	0.374	20.69	9.68	30.37	48.40	-18.03	Average
5	0.580	23.43	9.68	33.11	56.00	-22.89	QP
6	0.580	11.63	9.68	21.31	46.00	-24.69	Average
7	2.196	27.94	9.72	37.66	56.00	-18.34	QP
8	2.196	18.75	9.72	28.47	46.00	-17.53	Average
9	7.386	23.62	9.80	33.42	60.00	-26.58	QP
10	7.386	16.98	9.80	26.78	50.00	-23.22	Average
11	19.761	29.96	9.91	39.87	60.00	-20.13	QP
12	19.761	24.12	9.91	34.03	50.00	-15.97	Average