

Test Report No.10040508 001

Appendix D: Radiated Spurious Emission Data

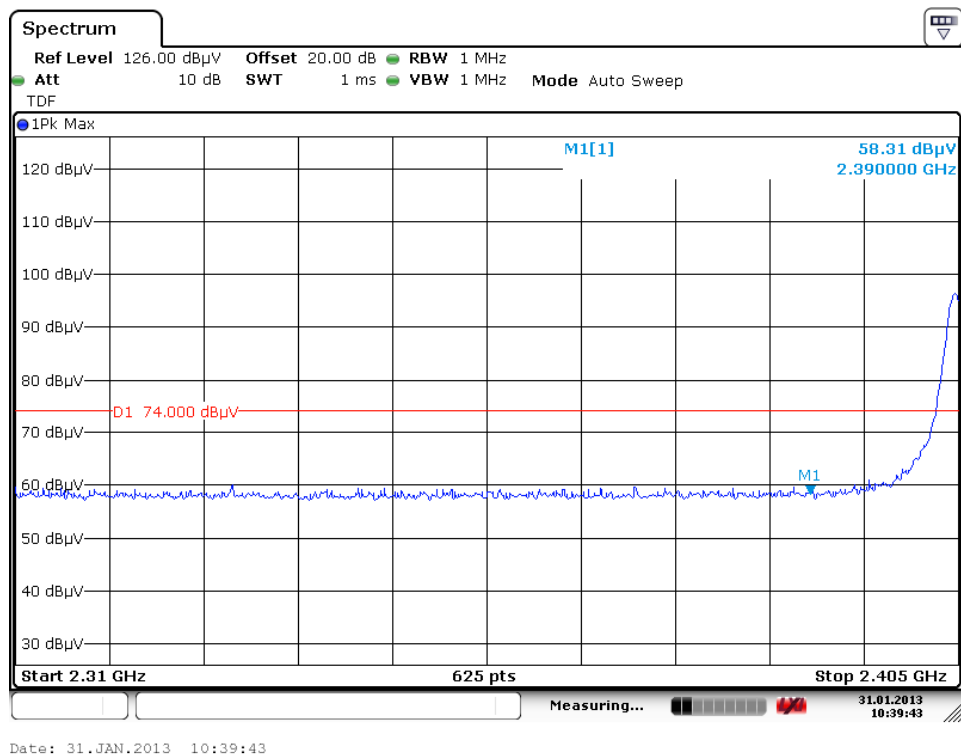
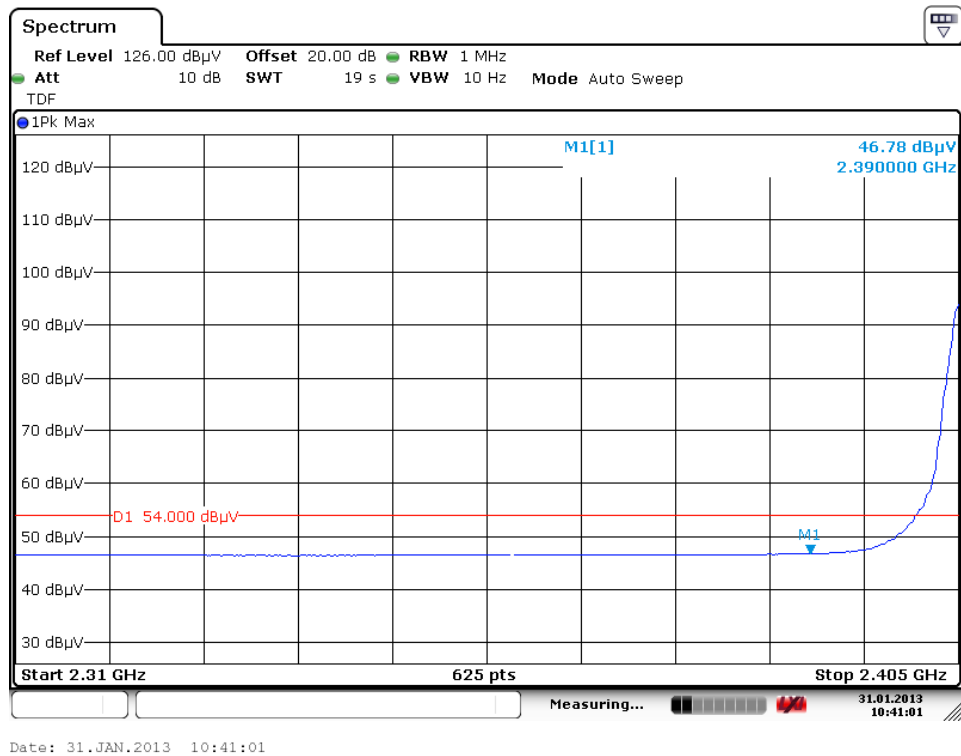
(File: 10040508AppendixD)

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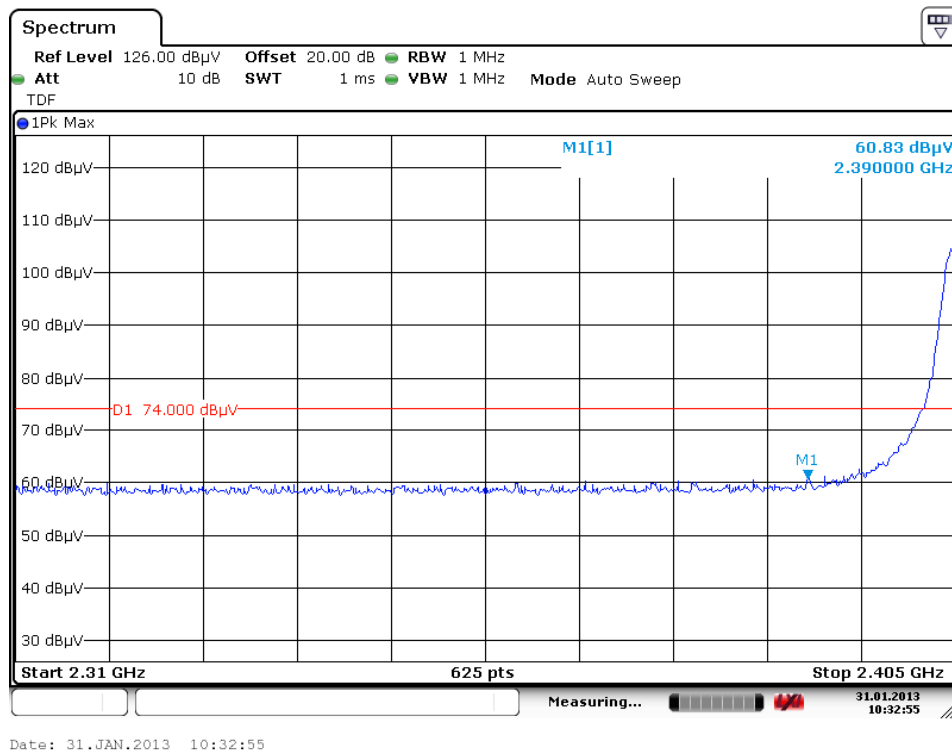
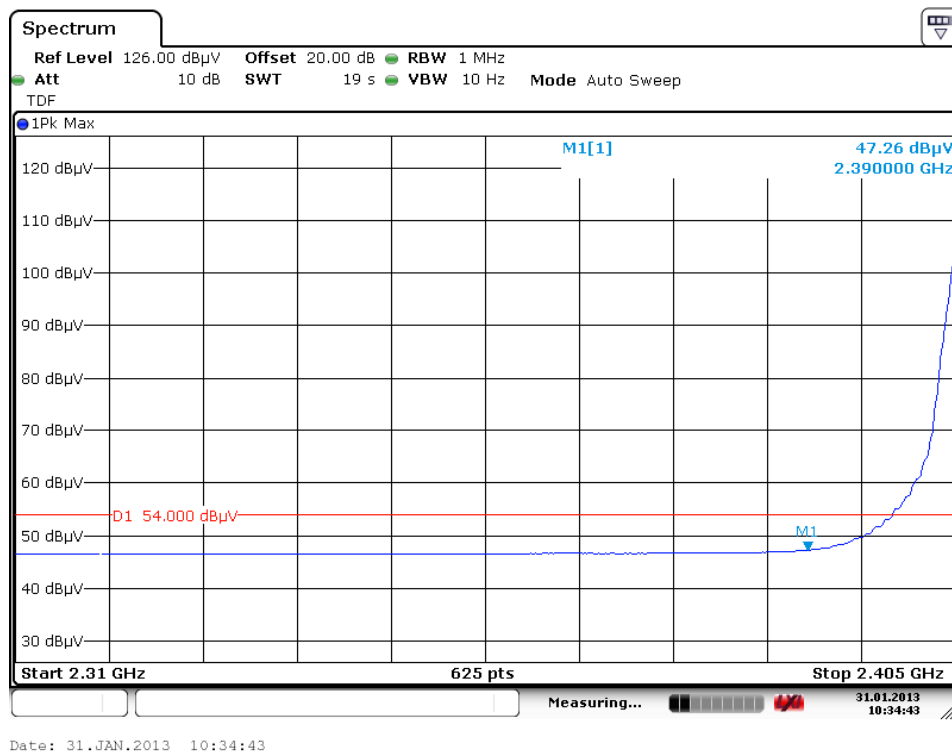
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Radiated Bandedge

Low Channel (Hor)



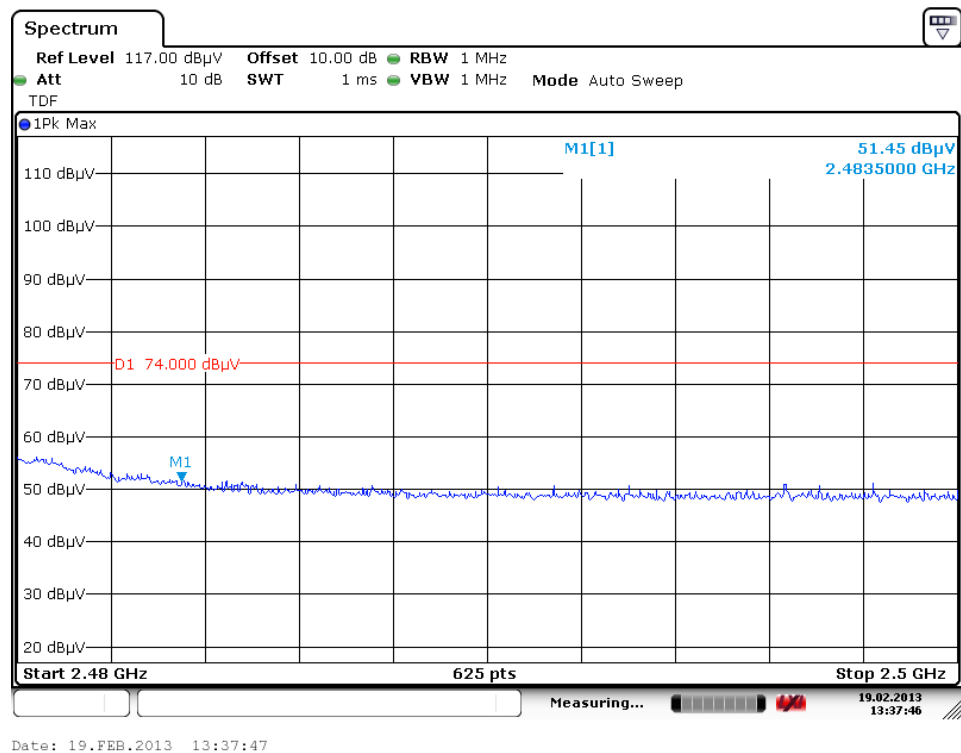
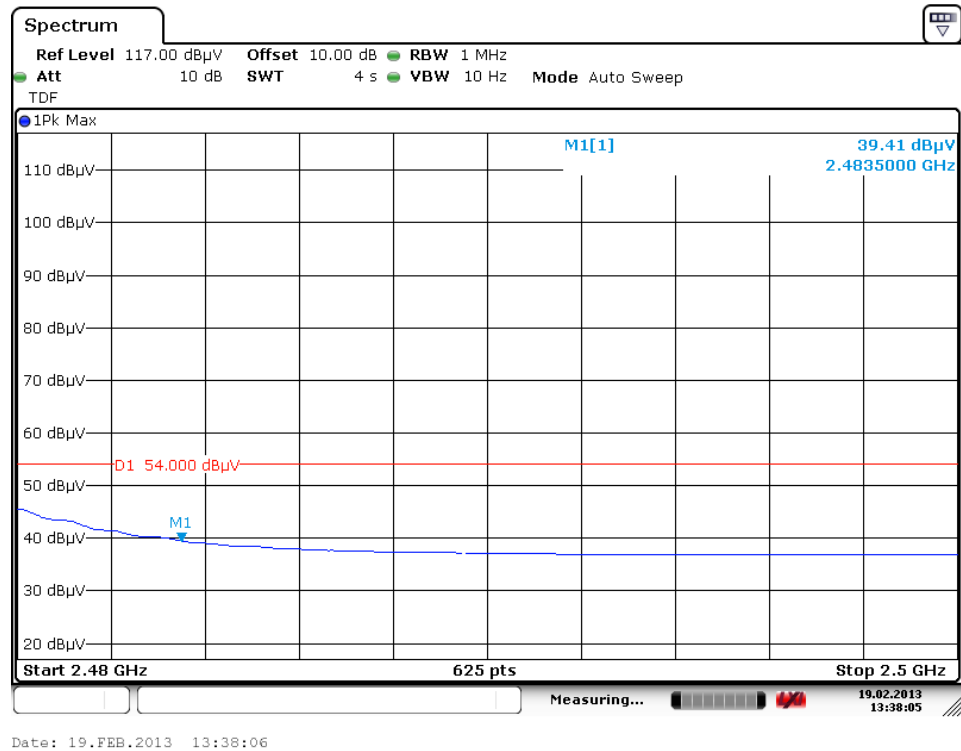
Low Channel (Ver)



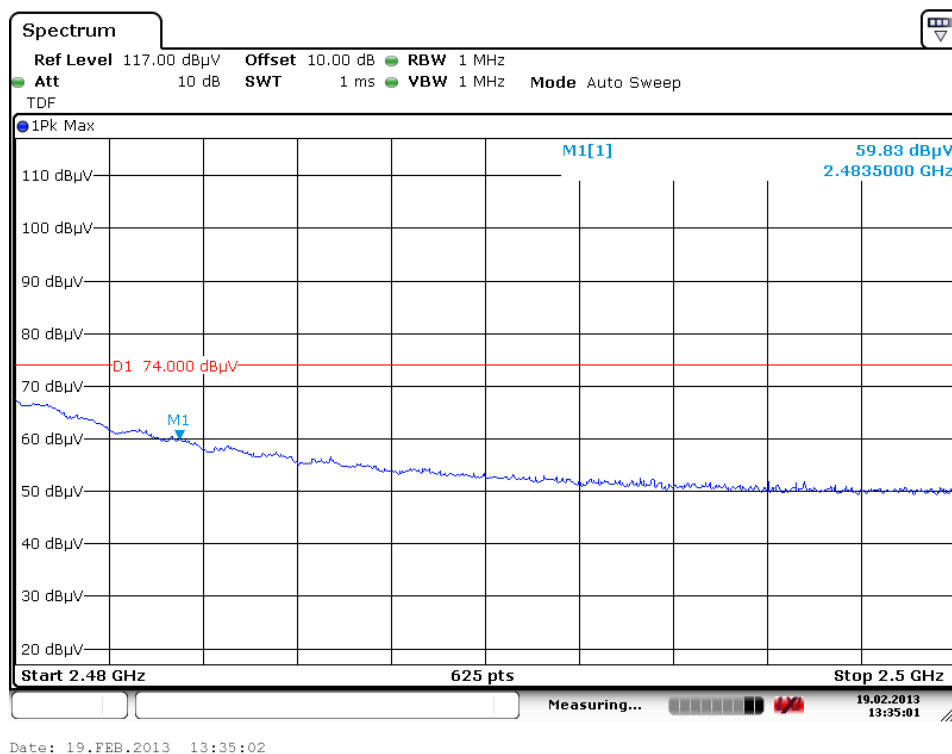
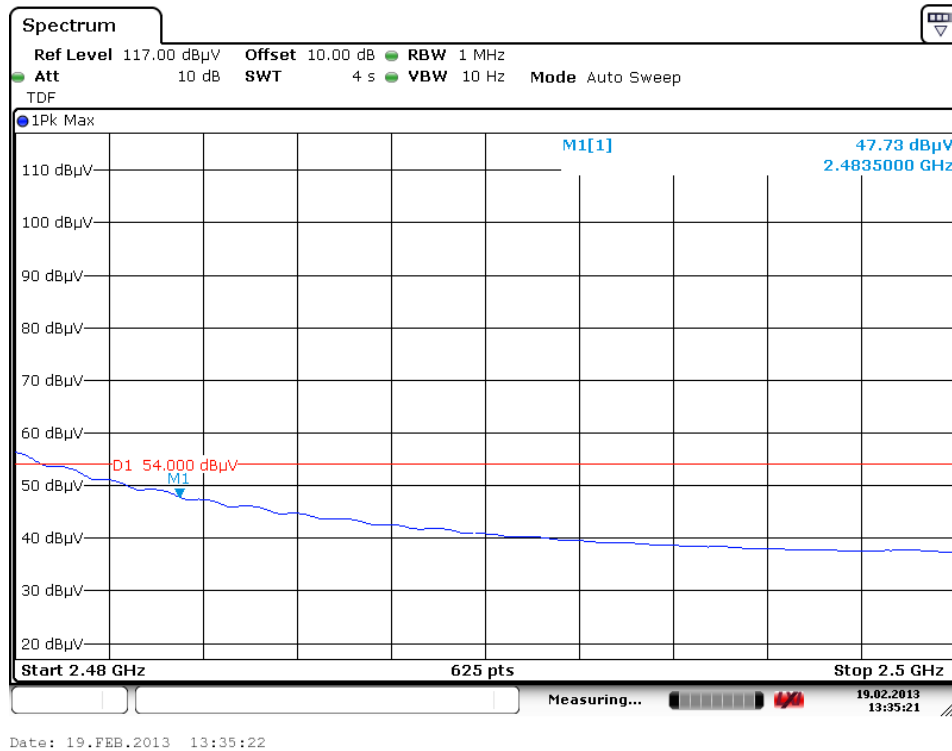
Spurious Emissions, Band Edge, 2.35-2.5G

Radiated Bandedge

High Channel (Hor) 2475

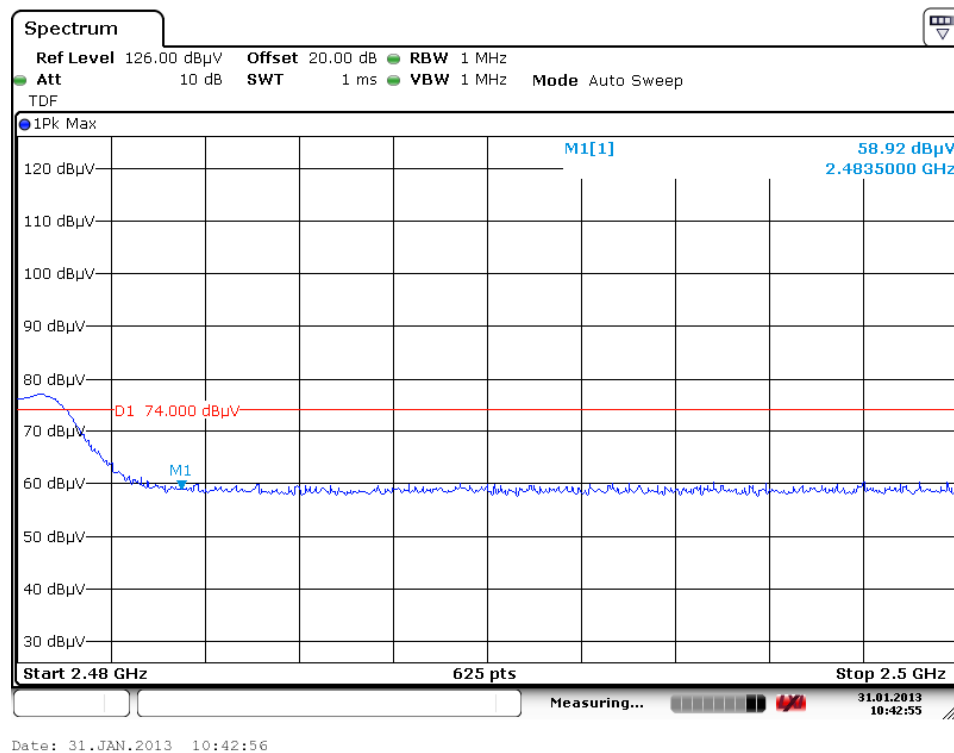
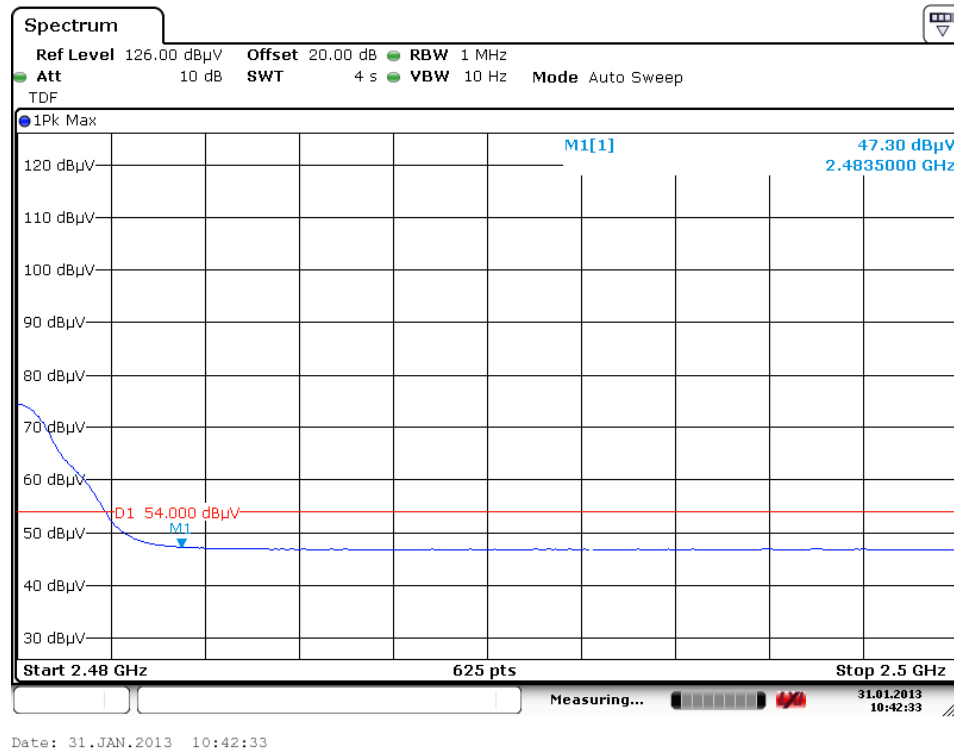


High Channel (Ver) 2475

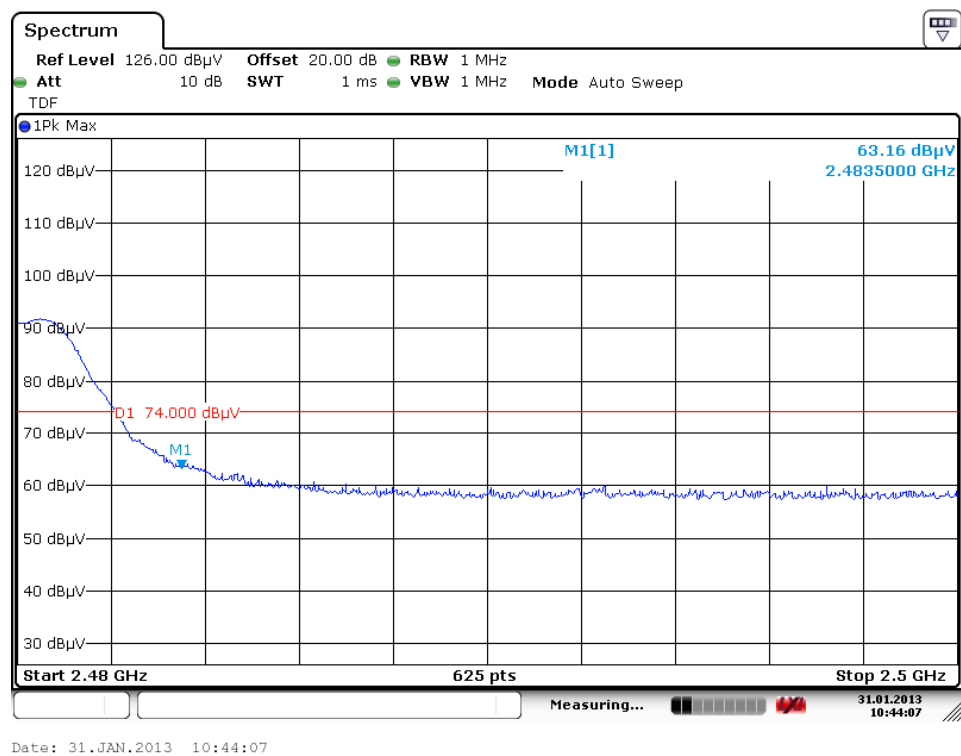
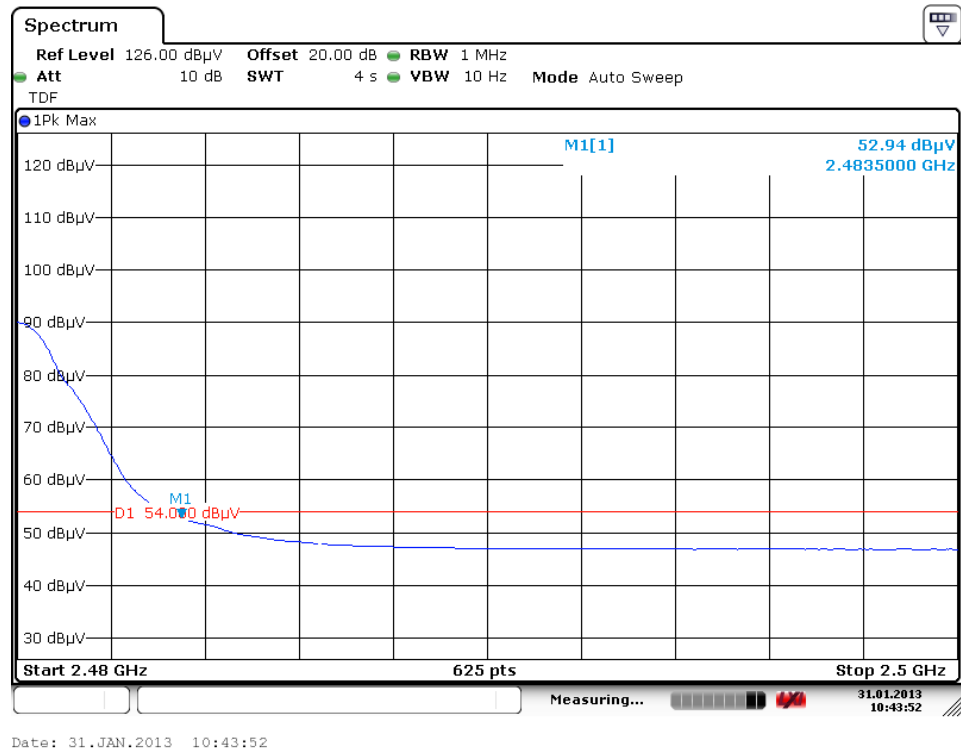


Radiated Bandedge

High Channel (Hor) 2480



High Channel (Ver) 2480



Spurious Emissions, Band Edge, 2.35-2.5G

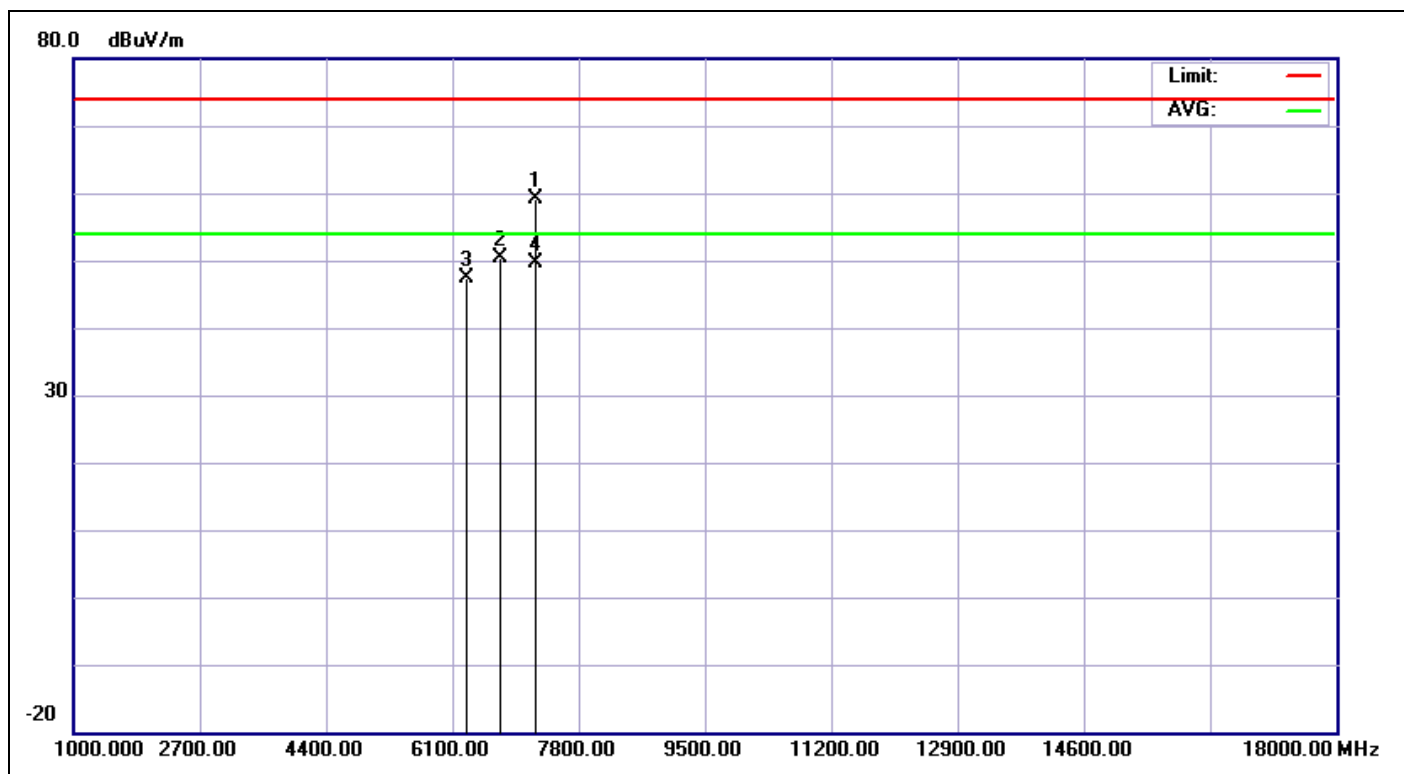
Spurious Emissions, TX Mode, 1-18G



TUV Taiwan

11F., No.758, Sec.4 Bade Road. Songshan Dist, Taipei City 105

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Service No.: 113162303-AT357

Test Distance: 3M

Test Standard: FCC above 1G PEAK

Ant. Polarization: Horizontal

Test item: Radiation Emission

Test Time: 2013/1/31 AM 11:18:48

Applicant: TUVR Singapore

Test Rating: DC 3.3V

Product: Zigbee Module

Temp.(°C)/Hum.(%): 22(°C)/59%

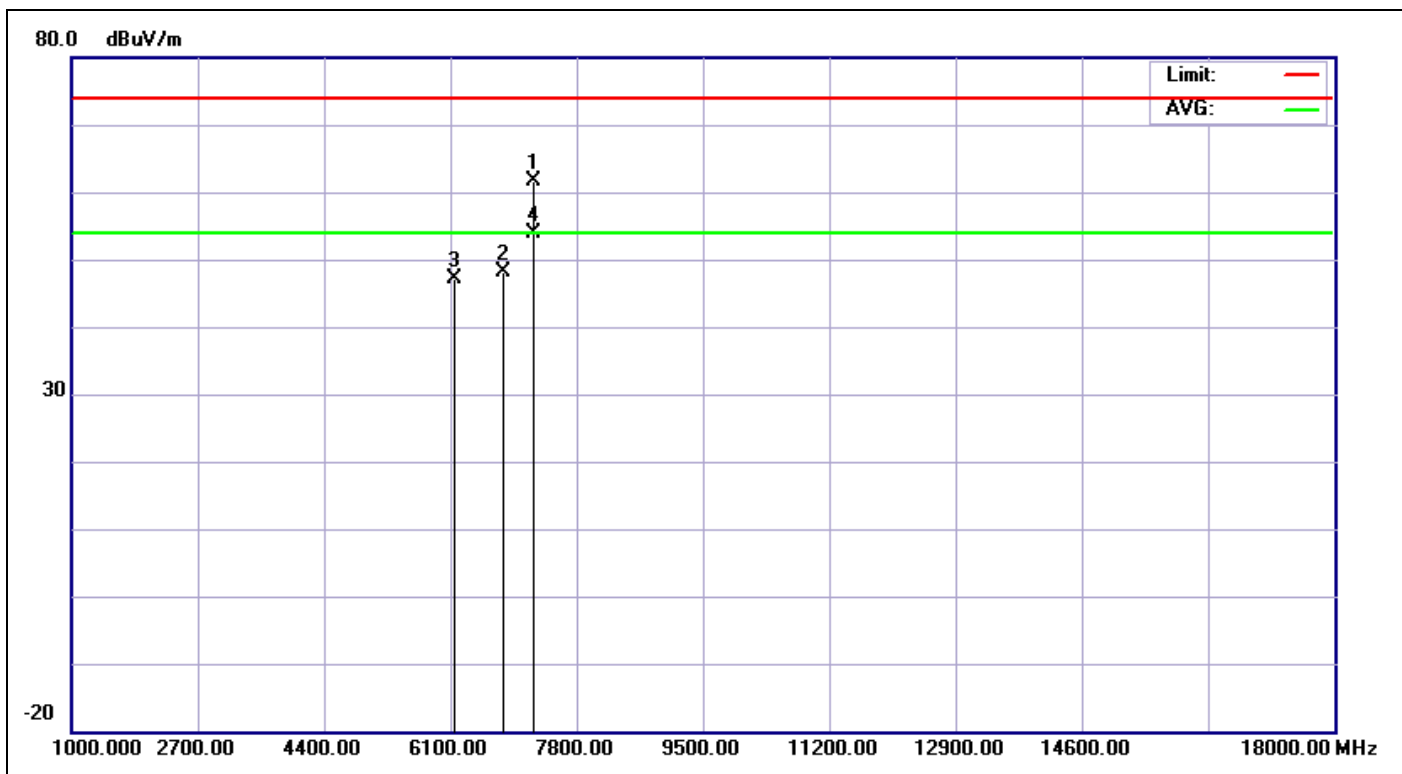
Model No.: AT357

Test Engineer: Hugo Chang

Test Mode: CH2405 TX

Remark:

No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.	Height (cm)	Azimuth (°)	Remark
1	7214.000	6.40	52.66	59.06	75.81	-16.75	peak	100	360	
2	6751.000	5.24	45.22	50.46	74.00	-23.54	peak	100	360	
3	6289.000	4.03	43.23	47.26	74.00	-26.74	peak	100	360	
4	7214.000	6.40	43.13	49.53	73.82	-24.29	AVG			



Service No.: 113162303-AT357

Test Distance: 3M

Test Standard: FCC above 1G PEAK

Ant. Polarization: Vertical

Test item: Radiation Emission

Test Time: 2013/1/31 AM 11:00:31

Applicant: TUVR Singapore

Test Rating: DC 3.3V

Product: Zigbee Module

Temp.(°C)/Hum.(%): 22(°C)/59%

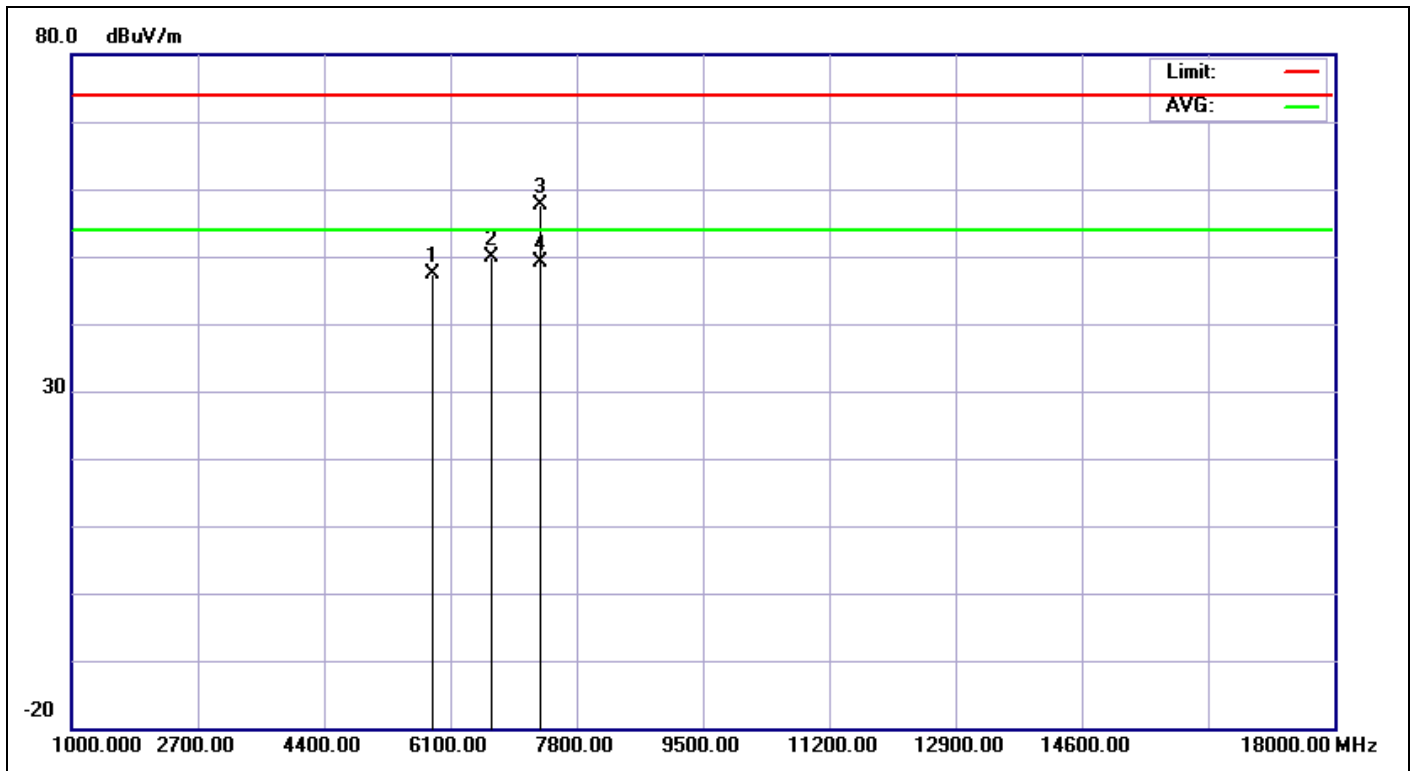
Model No.: AT357

Test Engineer: Hugo Chang

Test Mode: CH2405 TX

Remark:

No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.	Height (cm)	Azimuth (°)	Remark
1	7225.000	6.44	55.15	61.59	84.78	-23.19	peak	100	0	
2	6817.000	5.32	42.70	48.02	74.00	-25.98	peak	100	0	
3	6164.000	3.48	43.69	47.17	74.00	-26.83	peak	100	0	
4	7225.000	6.44	47.40	53.84	82.63	-28.79	AVG			



Service No.: 113162303-AT357

Test Distance: 3M

Test Standard: FCC above 1G PEAK

Ant. Polarization: Horizontal

Test item: Radiation Emission

Test Time: 2013/1/31 AM 10:51:02

Applicant: TUVR Singapore

Test Rating: DC 3.3V

Product: Zigbee Module

Temp.(°C)/Hum.(%): 22(°C)/59%

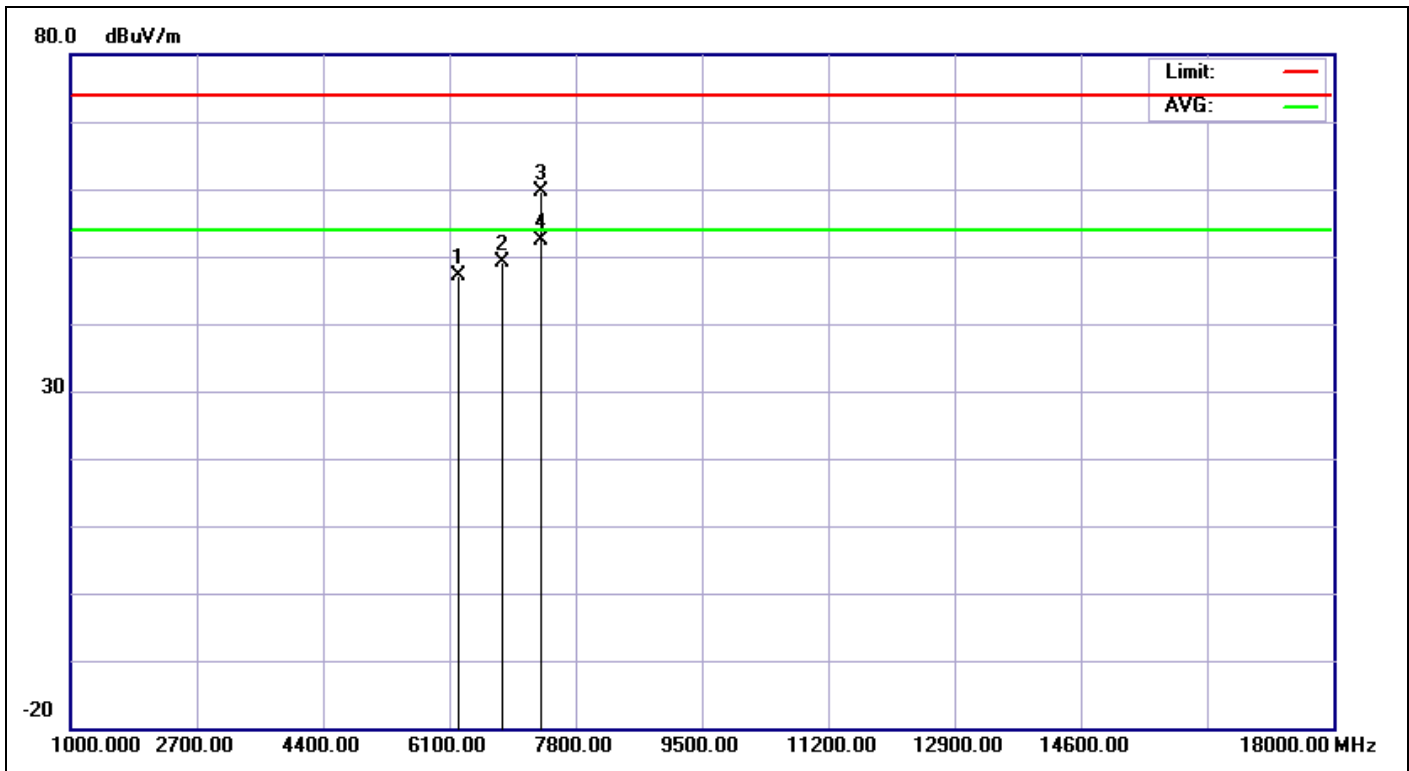
Model No.: AT357

Test Engineer: Hugo Chang

Test Mode: CH2445 TX

Remark:

No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.	Height (cm)	Azimuth (°)	Remark
1	5855.000	1.81	45.49	47.30	74.00	-26.70	peak	100	360	
2	6644.000	5.11	44.83	49.94	74.00	-24.06	peak	100	360	
3	7324.000	6.84	50.82	57.66	74.00	-16.34	peak	100	360	
4	7324.000	6.84	42.30	49.14	54.00	-4.86	AVG			



Service No.: 113162303-AT357

Test Distance: 3M

Test Standard: FCC above 1G PEAK

Ant. Polarization: Vertical

Test item: Radiation Emission

Test Time: 2013/1/31 AM 10:55:42

Applicant: TUVS Singapore

Test Rating: DC 3.3V

Product: Zigbee Module

Temp.(°C)/Hum.(%): 22(°C)/59%

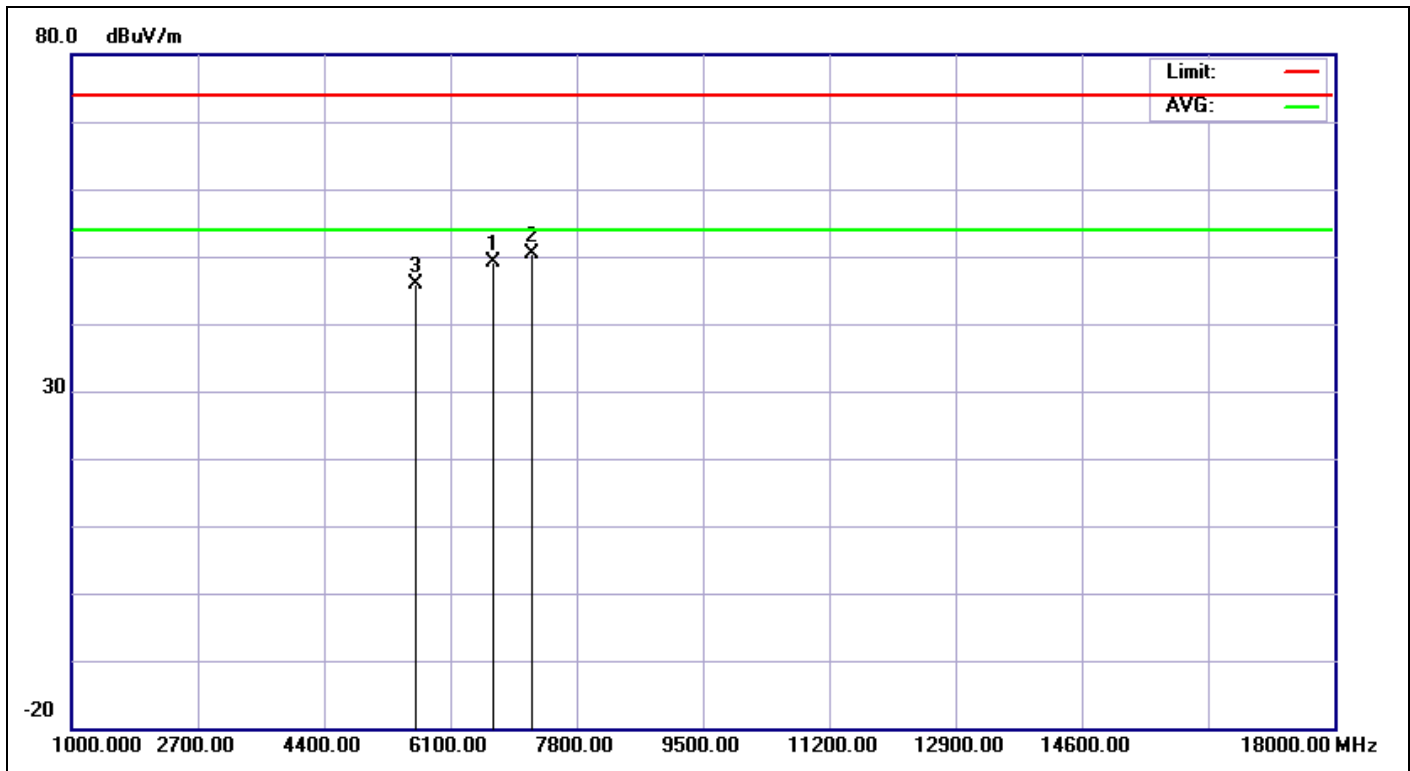
Model No.: AT357

Test Engineer: Hugo Chang

Test Mode: CH2445 TX

Remark:

No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.	Height (cm)	Azimuth (°)	Remark
1	6221.000	3.73	43.39	47.12	74.00	-26.88	peak	100	360	
2	6820.000	5.33	43.78	49.11	74.00	-24.89	peak	100	360	
3	7336.000	6.90	52.81	59.71	74.00	-14.29	peak	100	360	
4	7336.000	6.90	45.43	52.33	54.00	-1.67	AVG			



Service No.: 113162303-AT357

Test Distance: 3M

Test Standard: FCC above 1G PEAK

Ant. Polarization: Horizontal

Test item: Radiation Emission

Test Time: 2013/1/31 AM 10:46:25

Applicant: TUVR Singapore

Test Rating: DC 3.3V

Product: Zigbee Module

Temp.(°C)/Hum.(%): 22(°C)/59%

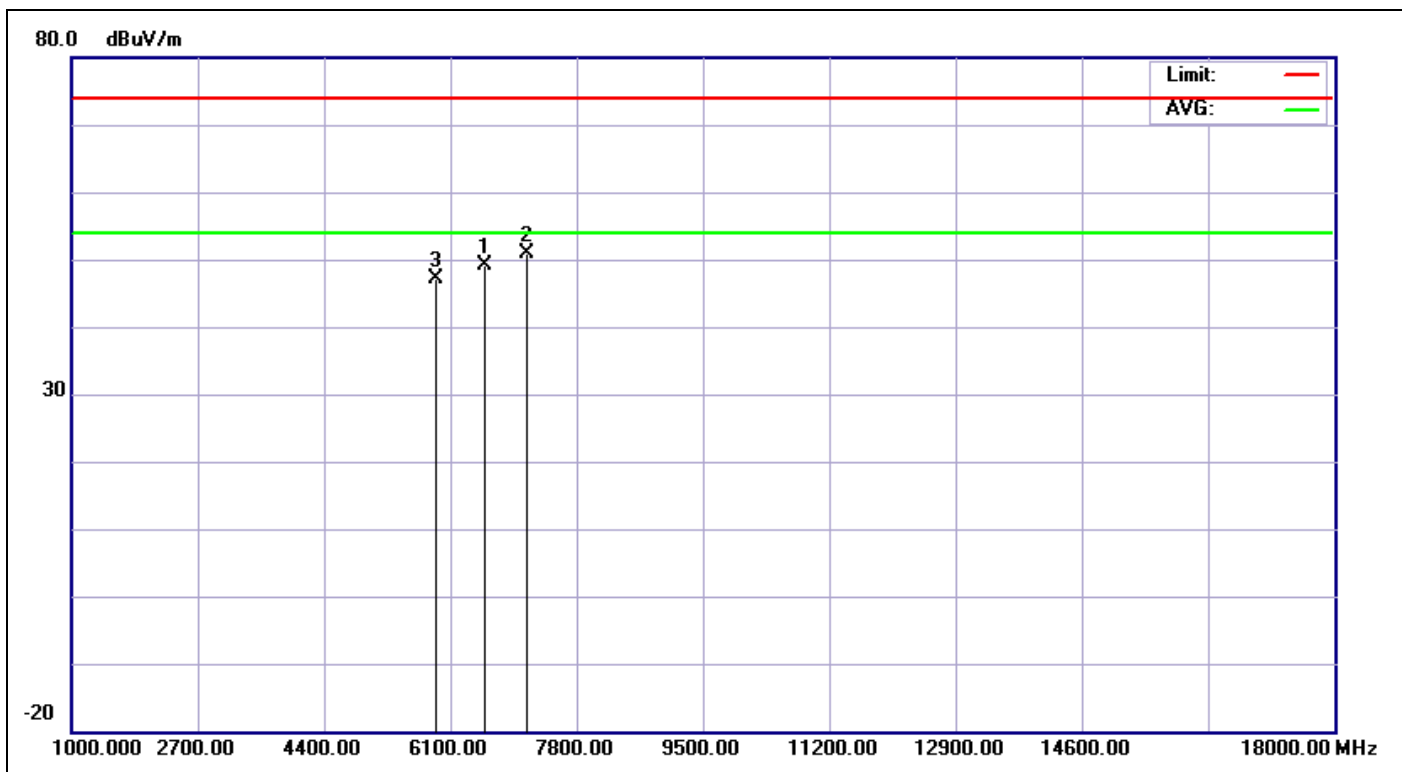
Model No.: AT357

Test Engineer: Hugo Chang

Test Mode: CH2480 TX

Remark:

No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.	Height (cm)	Azimuth (°)	Remark
1	6671.000	5.14	43.88	49.02	74.00	-24.98	peak	100	360	
2	7188.000	6.30	44.04	50.34	74.00	-23.66	peak	100	360	
3	5638.000	0.36	45.56	45.92	74.00	-28.08	peak	100	360	



Service No.: 113162303-AT357

Test Distance: 3M

Test Standard: FCC above 1G PEAK

Ant. Polarization: Vertical

Test item: Radiation Emission

Test Time: 2013/1/31 AM 10:49:08

Applicant: TUVR Singapore

Test Rating: DC 3.3V

Product: Zigbee Module

Temp.(°C)/Hum.(%): 22(°C)/59%

Model No.: AT357

Test Engineer: Hugo Chang

Test Mode: CH2480 TX

Remark:

No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.	Height (cm)	Azimuth (°)	Remark
1	6562.000	5.02	44.03	49.05	74.00	-24.95	peak	100	0	
2	7134.000	6.09	44.73	50.82	74.00	-23.18	peak	100	0	
3	5910.000	2.18	44.95	47.13	74.00	-26.87	peak	100	0	

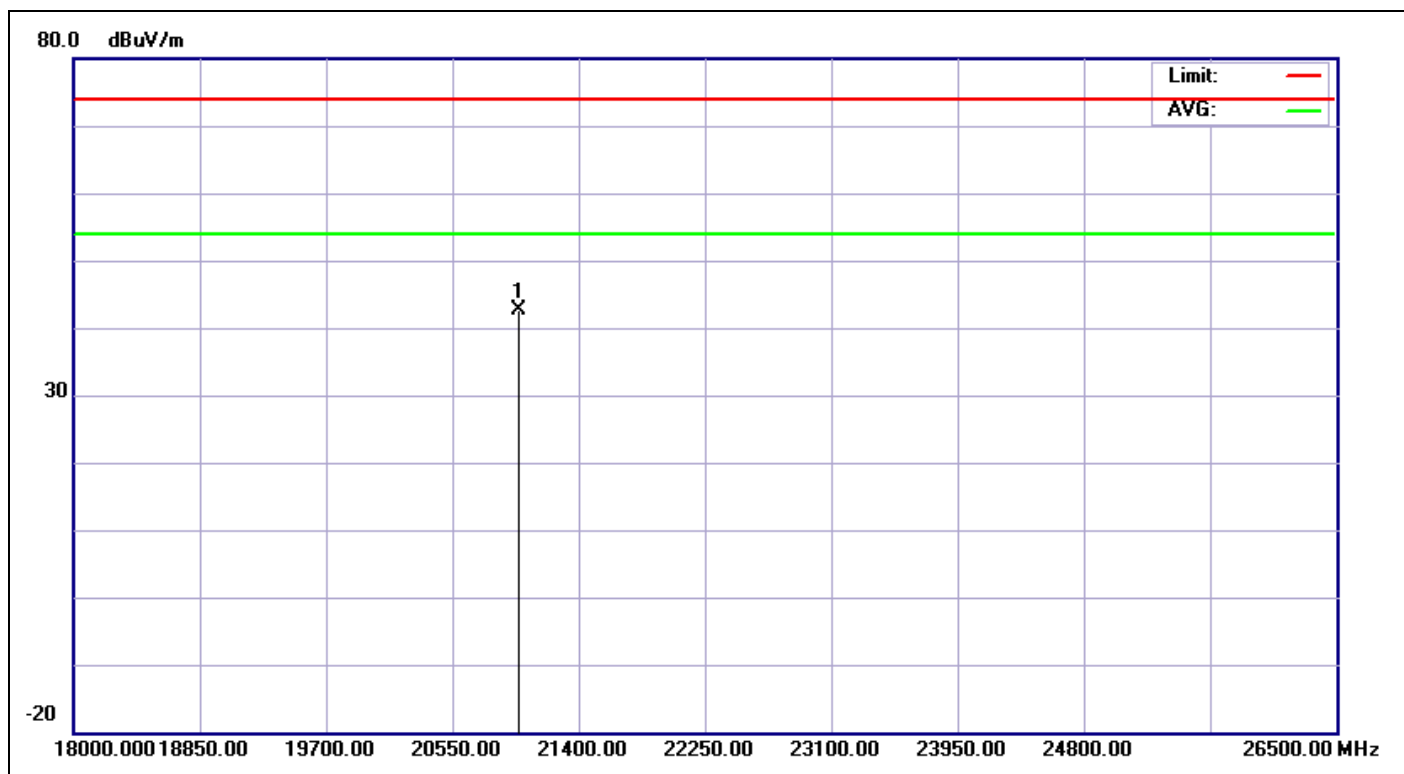
Spurious Emissions, TX Mode, 18-26G



TUV Taiwan

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Service No.: 113162303-AT357

Test Distance: 3M

Test Standard: FCC above 1G PEAK

Ant. Polarization: Horizontal

Test item: Radiation Emission

Test Time: 2013/1/31 AM 11:40:57

Applicant: TUVR Singapore

Test Rating: DC 3.3V

Product: Zigbee Module

Temp.(°C)/Hum.(%): 22(°C)/59%

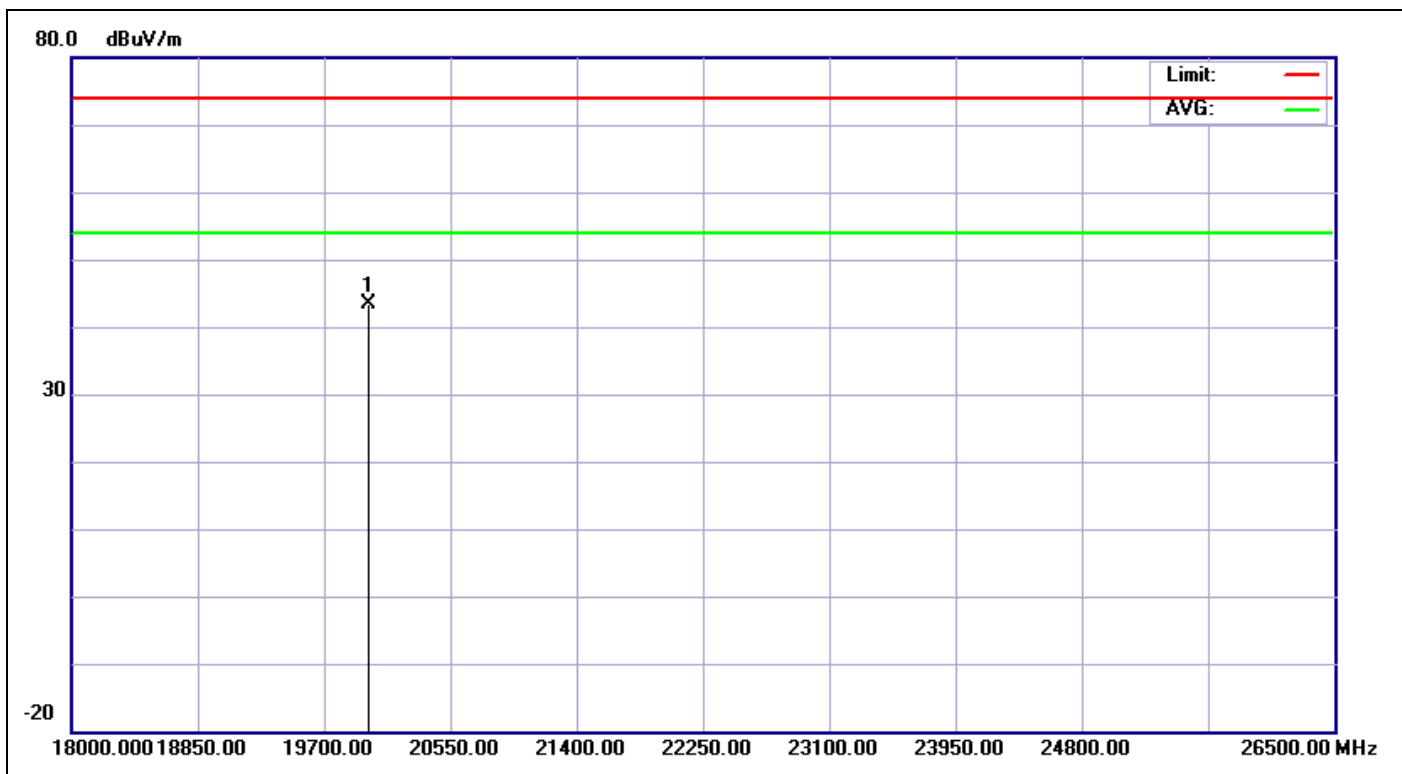
Model No.: AT357

Test Engineer: Hugo Chang

Test Mode: CH2405 TX

Remark:

No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.	Height (cm)	Azimuth (°)	Remark
1	20999.000	25.14	17.45	42.59	74.00	-31.41	peak	100	141	



Service No.: 113162303-AT357

Test Distance: 3M

Test Standard: FCC above 1G PEAK

Ant. Polarization: Vertical

Test item: Radiation Emission

Test Time: 2013/1/31 AM 11:41:48

Applicant: TUVR Singapore

Test Rating: DC 3.3V

Product: Zigbee Module

Temp.(°C)/Hum.(%): 22(°C)/59%

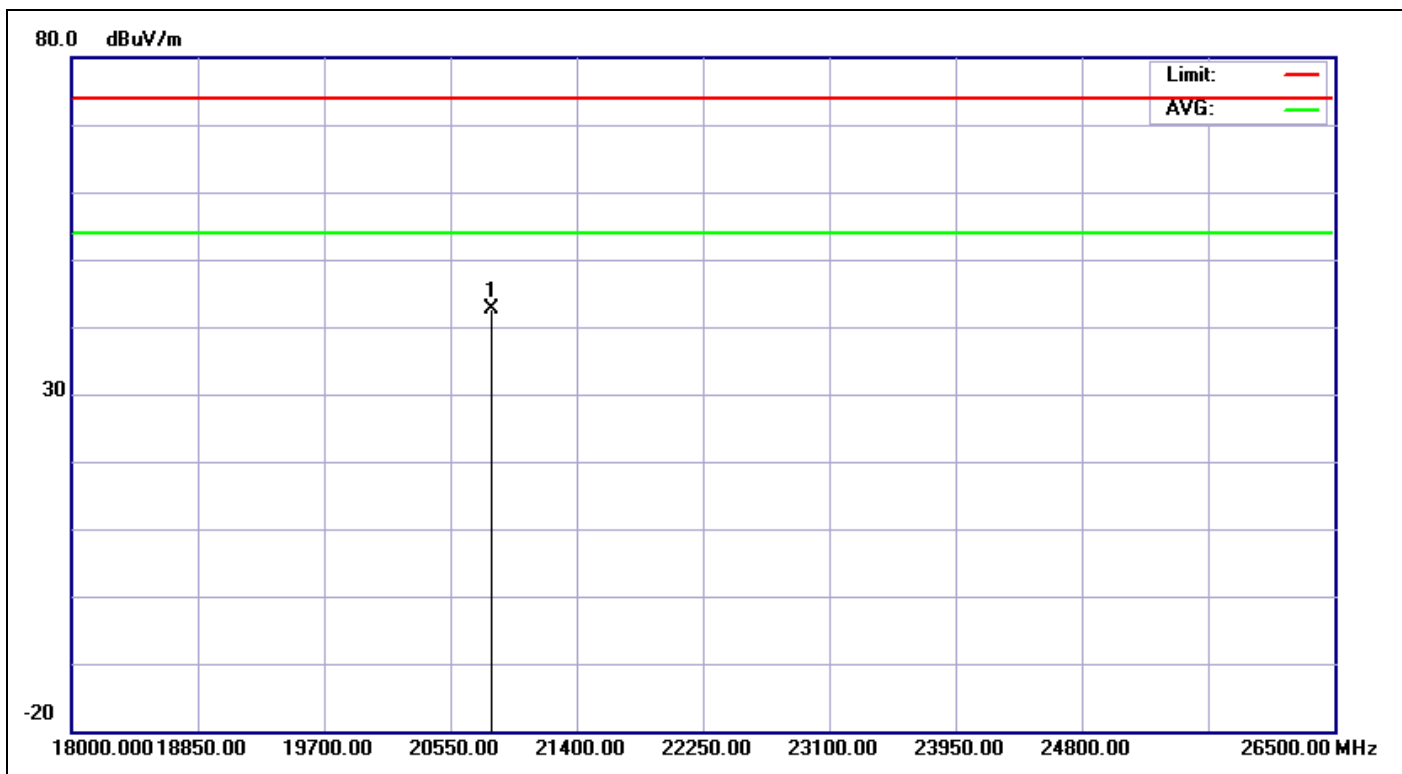
Model No.: AT357

Test Engineer: Hugo Chang

Test Mode: CH2405 TX

Remark:

No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.	Height (cm)	Azimuth (°)	Remark
1	20006.000	26.29	17.20	43.49	74.00	-30.51	peak	100	141	



Service No.: 113162303-AT357

Test Distance: 3M

Test Standard: FCC above 1G PEAK

Ant. Polarization: Horizontal

Test item: Radiation Emission

Test Time: 2013/1/31 AM 11:42:28

Applicant: TUVR Singapore

Test Rating: DC 3.3V

Product: Zigbee Module

Temp.(°C)/Hum.(%): 22(°C)/59%

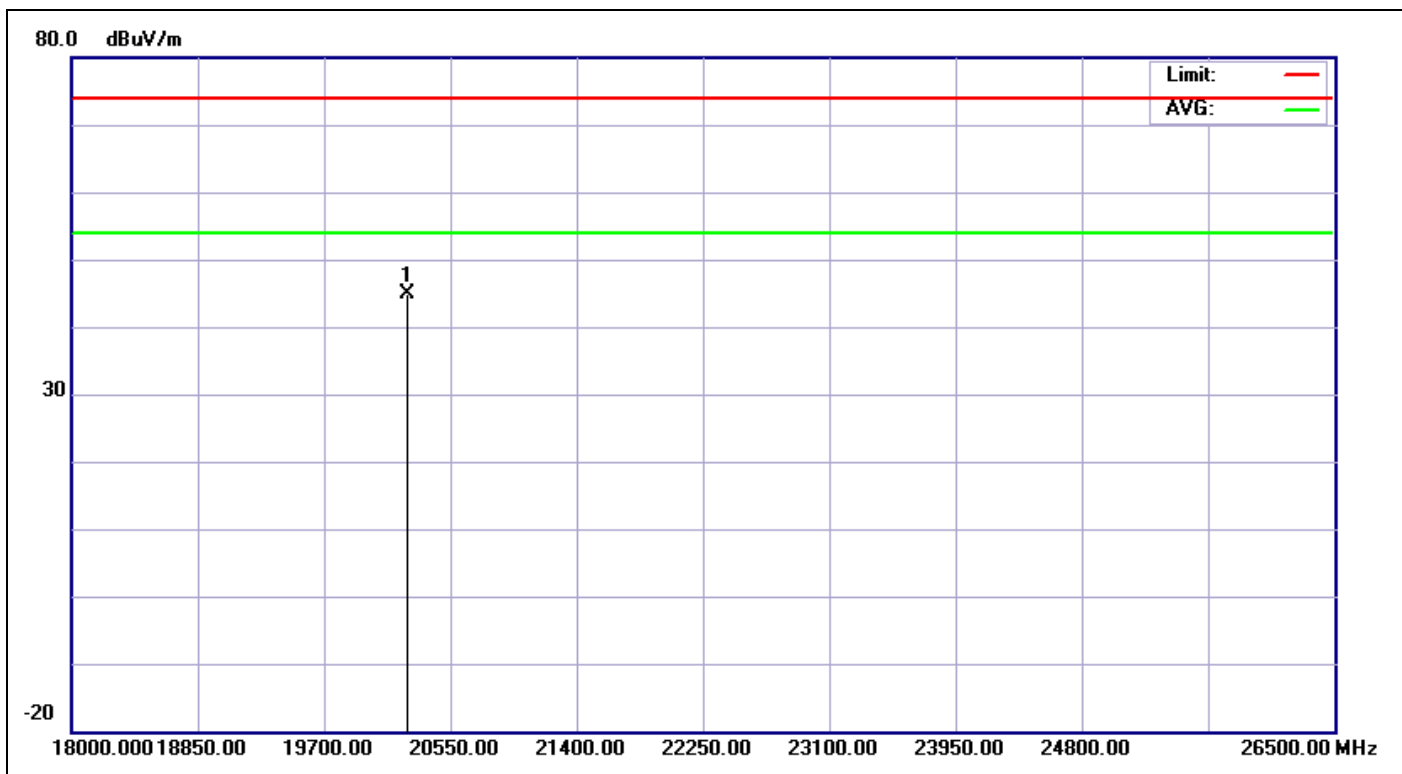
Model No.: AT357

Test Engineer: Hugo Chang

Test Mode: CH2445 TX

Remark:

No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.	Height (cm)	Azimuth (°)	Remark
1	20822.000	25.68	16.85	42.53	74.00	-31.47	peak	100	141	



Service No.: 113162303-AT357

Test Distance: 3M

Test Standard: FCC above 1G PEAK

Ant. Polarization: Vertical

Test item: Radiation Emission

Test Time: 2013/1/31 AM 11:43:05

Applicant: TUVR Singapore

Test Rating: DC 3.3V

Product: Zigbee Module

Temp.(°C)/Hum.(%): 22(°C)/59%

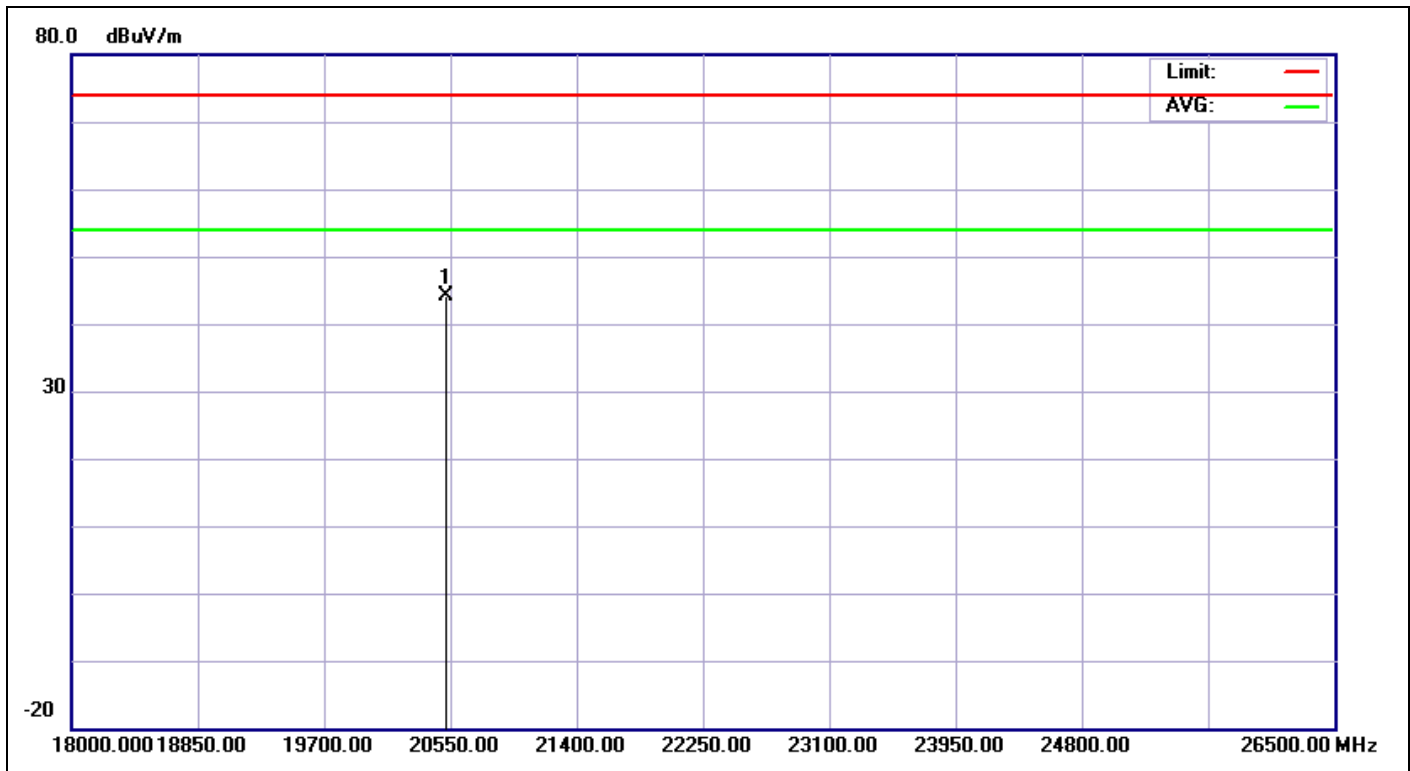
Model No.: AT357

Test Engineer: Hugo Chang

Test Mode: CH2445 TX

Remark:

No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.	Height (cm)	Azimuth (°)	Remark
1	20264.000	26.47	18.40	44.87	74.00	-29.13	peak	100	141	



Service No.: 113162303-AT357

Test Distance: 3M

Test Standard: FCC above 1G PEAK

Ant. Polarization: Horizontal

Test item: Radiation Emission

Test Time: 2013/1/31 AM 11:43:48

Applicant: TUVR Singapore

Test Rating: DC 3.3V

Product: Zigbee Module

Temp.(°C)/Hum.(%): 22(°C)/59%

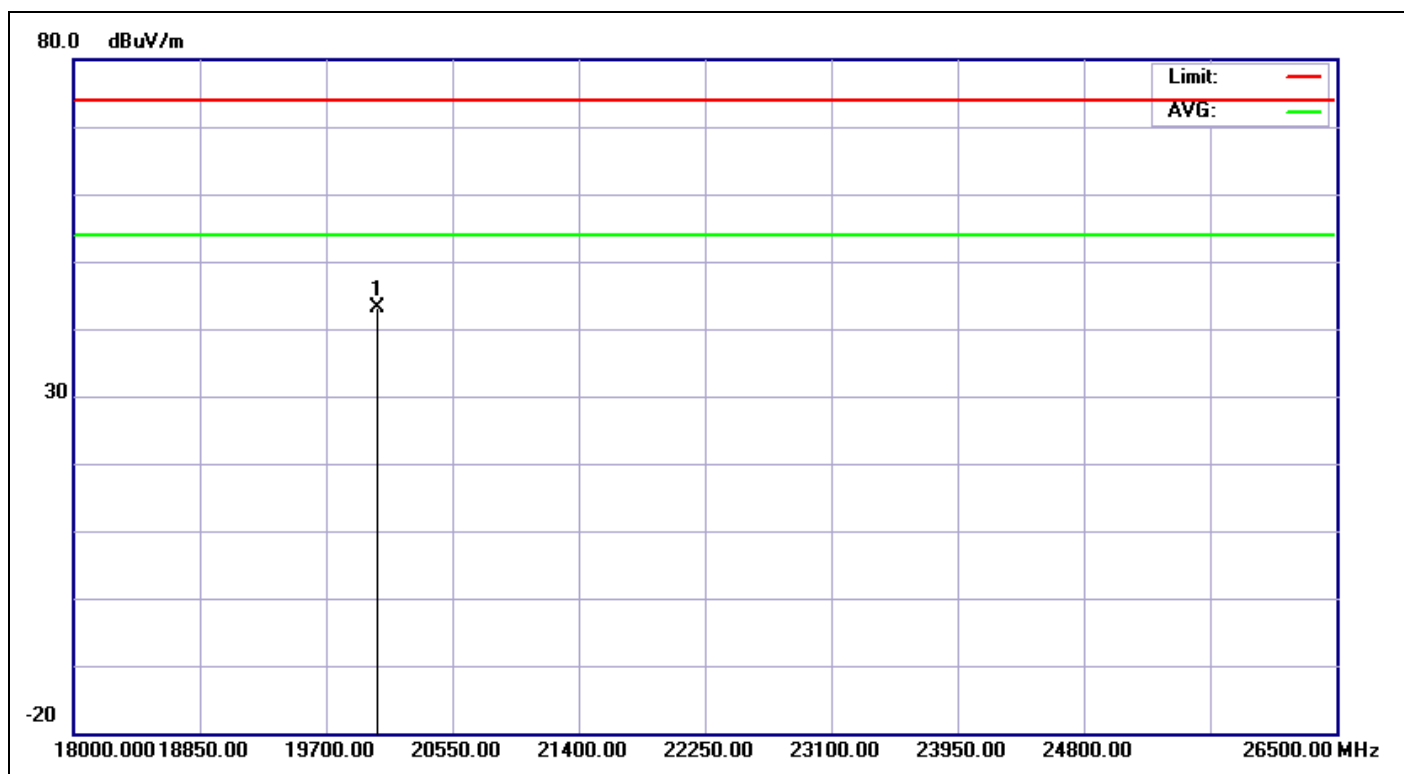
Model No.: AT357

Test Engineer: Hugo Chang

Test Mode: CH2480 TX

Remark:

No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.	Height (cm)	Azimuth (°)	Remark
1	20523.000	26.59	17.63	44.22	74.00	-29.78	peak	100	141	



Service No.:	113162303-AT357	Test Distance:	3M
Test Standard:	FCC above 1G PEAK	Ant. Polarization:	Vertical
Test item:	Radiation Emission	Test Time:	2013/1/31 AM 11:44:16
Applicant:	TUVR Singapore	Test Rating:	DC 3.3V
Product:	Zigbee Module	Temp.(°C)/Hum.(%):	22(°C)/59%
Model No.:	AT357	Test Engineer:	Hugo Chang
Test Mode:	CH2480 TX		
Remark:			

No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.	Height (cm)	Azimuth (°)	Remark
1	20047.000	26.32	16.83	43.15	74.00	-30.85	peak	100	141	

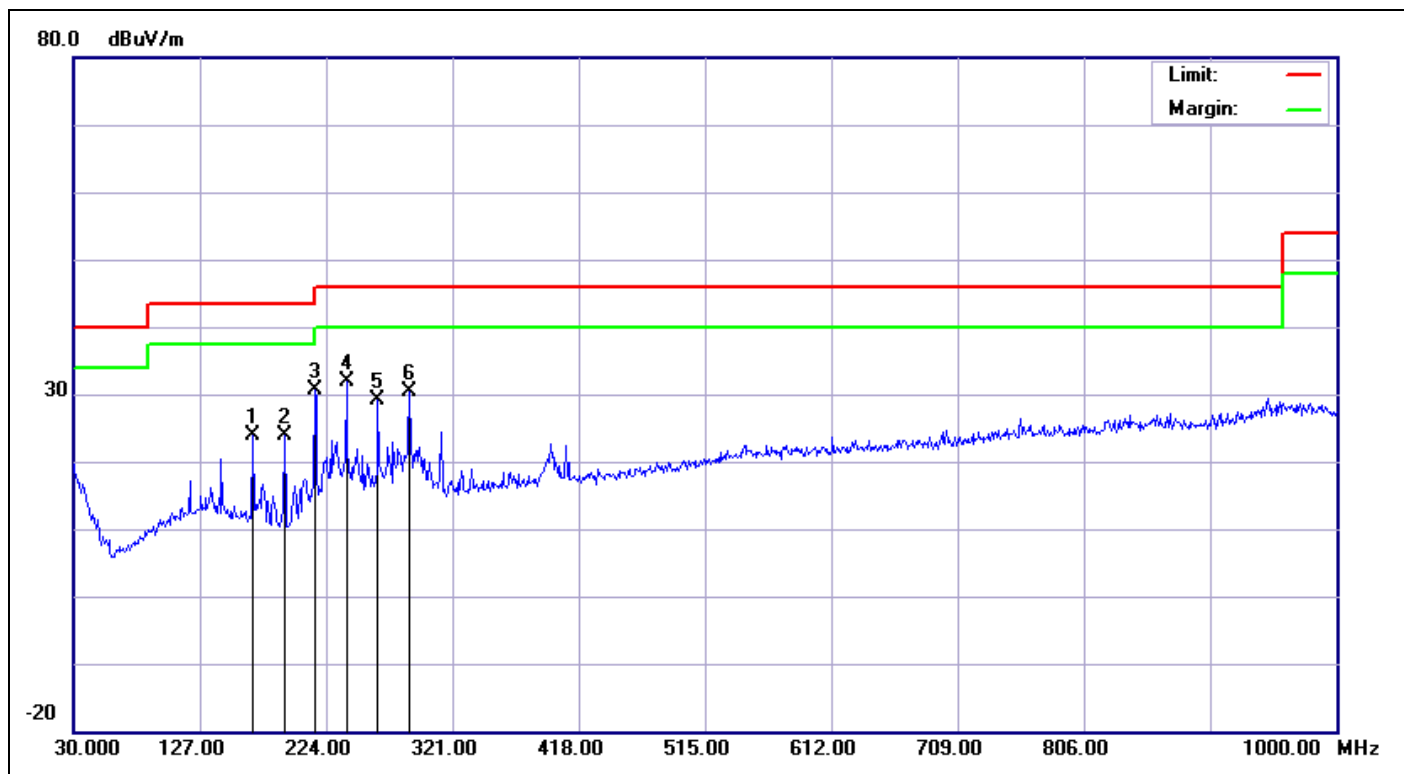
Spurious Emissions, TX Mode, 30M-1G



TUV Taiwan

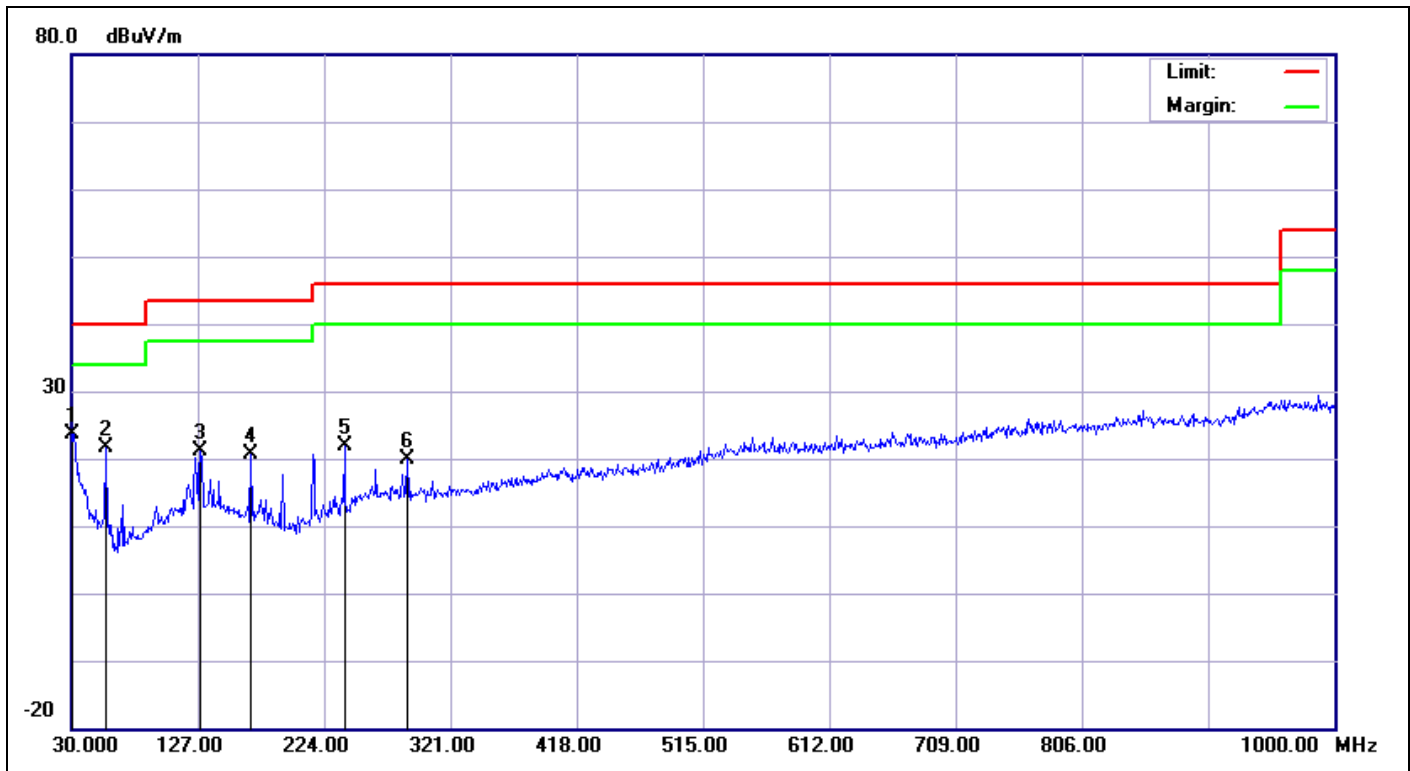
11F., No.758, Sec.4 Bade Road. Songshan Dist, Taipei City 105

Tel:+886-2172-7000 fax:+886-2528-0018



Service No.:	113162303-AT357	Test Distance:	3M
Test Standard:	FCC Class B 3M Radiation	Ant. Polarization:	Horizontal
Test item:	Radiation Emission	Test Time:	2012/12/28 AM 09:41:57
Applicant:	TUVR Singapore	Test Rating:	DC 3.3V
Product:	Zigbee Module	Temp.(°C)/Hum.(%)	21(°C)/56%
Model No.:	AT357	Test Engineer:	Hugo Chang
Test Mode:			
Remark:			

No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.	Height (cm)	Azimuth (°)	Remark
1	167.7400	-15.50	39.30	23.80	43.50	-19.70	QP	200	319	
2	191.9900	-16.89	40.86	23.97	43.50	-19.53	QP	200	0	
3	215.2700	-15.84	46.44	30.60	43.50	-12.90	QP	100	213	
4	239.5200	-14.27	46.19	31.92	46.00	-14.08	QP	100	180	
5	263.7699	-11.51	40.61	29.10	46.00	-16.90	QP	100	184	
6	288.0199	-11.70	42.16	30.46	46.00	-15.54	QP	100	194	



Service No.:	113162303-AT357	Test Distance:	3M
Test Standard:	FCC Class B 3M Radiation	Ant. Polarization:	Vertical
Test item:	Radiation Emission	Test Time:	2012/12/28 AM 09:46:56
Applicant:	TUVR Singapore	Test Rating:	DC 3.3V
Product:	Zigbee Module	Temp.(°C)/Hum.(%):	21(°C)/56%
Model No.:	AT357	Test Engineer:	Hugo Chang
Test Mode:			
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	-7.72	31.41	23.69	40.00	-16.31	QP	100	101	
2	56.1900	-20.04	41.70	21.66	40.00	-18.34	QP	100	18	
3	128.9400	-13.71	34.89	21.18	43.50	-22.32	QP	100	211	
4	167.7400	-15.50	36.22	20.72	43.50	-22.78	QP	100	121	
5	239.5200	-14.27	36.06	21.79	46.00	-24.21	QP	200	239	
6	288.0200	-11.70	31.56	19.86	46.00	-26.14	QP	100	218	