

Radiated Band Edge Result

Note:

1. Emissions attenuated more than 20 dB below the permissible value are not reported.
2. The field strength is calculated by adding the antenna factor, high pass filter loss(if used) and cable loss, and subtracting the amplifier gain(if any)from the measured reading. The basic equation calculation is as follows:

Result = Reading + Corrected Factor

3. Display the measurement of peak values.

Test Procedure:

The EUT and its simulators are placed on a turntable, which is 1.5 meter high above ground(Above 1GHz). The turntable can rotate 360 degrees to determine the position of the maximum emission level. EUT is set 3.0 meters away from the receiving antenna, which is mounted on an antenna tower. The antenna can be moved up and down between 1.0 meter and 4 meters to find out the maximum emission level. Broadband antenna (calibrated bi-log antenna) is used as receiving antenna. Both horizontal and vertical polarizations of the antenna are set on measurement. In order to find the maximum emission levels, all of the EUT location must be manipulated according to ANSI C63.10:2013 on radiated emission measurement. The EUT was tested in 3 orthogonal planes.

Let the EUT work in TX (Hopping off, Hopping on) modes measure it.

We select 2402MHz, 2480MHz TX frequency to transmit(Hopping off mode).

We select 2402-2480MHz TX frequency to transmit(Hopping on mode).

During the radiated emission test, the spectrum analyzer was set with the following configurations:

- 1.The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for peak measurement with peak detector at frequency above 1GHz.
- 2.The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 10Hz for Average measurement with peak detection at frequency above 1GHz.
- 3.All modes of operation were investigated and the worst-case emissions are reported.

Non-hopping mode



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Site: 1# Chamber

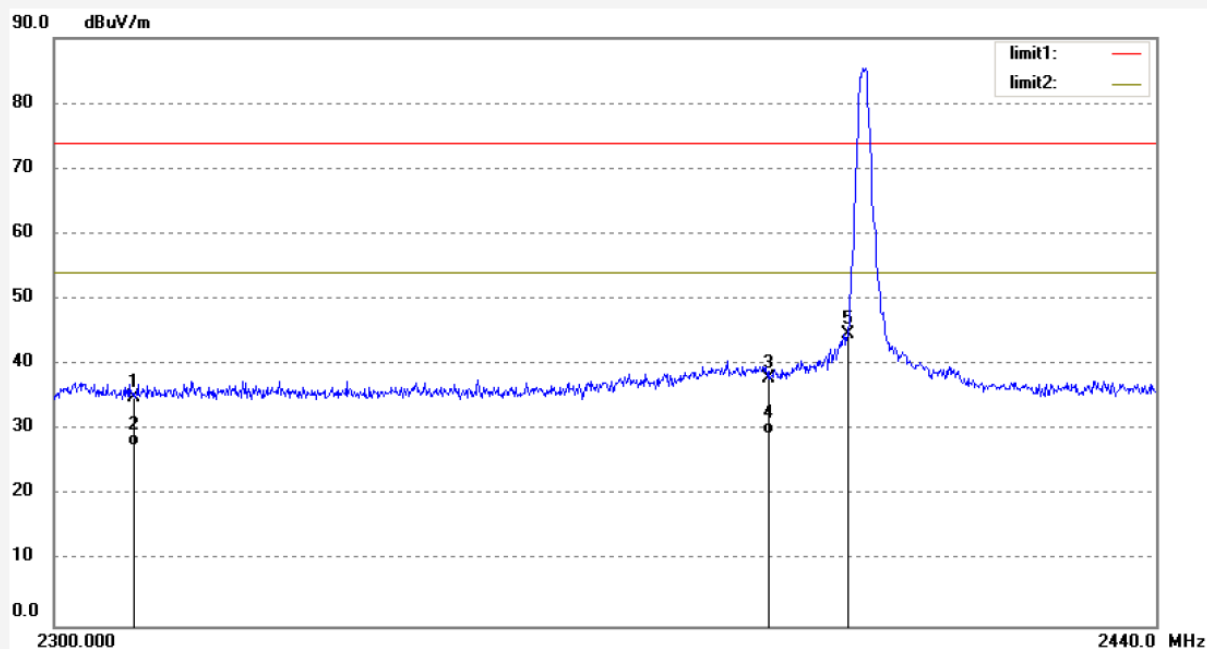
Tel:+86-0755-26503290

Fax:+86-0755-26503396

Job No.: STAR2015 #1605
Standard: FCC PK
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: NYNE REBEL
Mode: TX 2402MHz(GFSK)
Model: NYNE REBEL
Manufacturer: NYNE

Polarization: Horizontal
Power Source: AC 120V/60Hz
Date: 15/11/06/
Time: 10/37/04
Engineer Signature:
Distance: 1m

Note: Report No.:ATE20152366



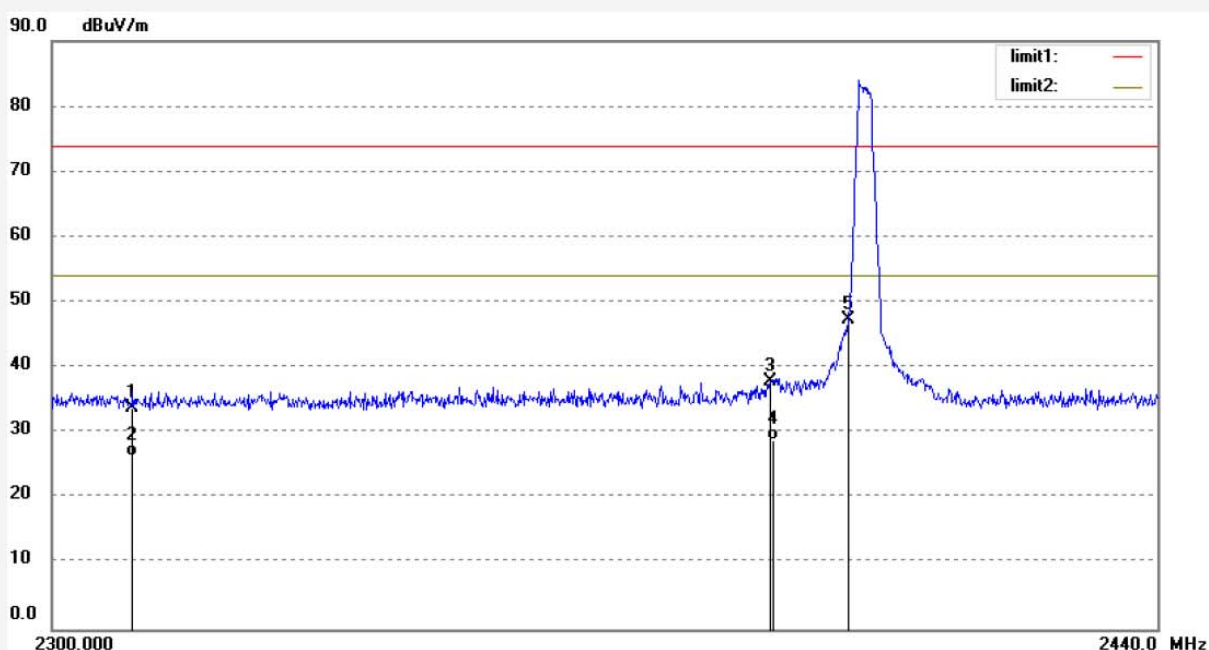
No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2310.000	43.21	-8.21	35.00	74.00	-39.00	peak			
2	2310.000	35.67	-8.21	27.46	54.00	-26.54	AVG			
3	2390.000	45.88	-8.00	37.88	74.00	-36.12	peak			
4	2390.000	37.28	-8.00	29.28	54.00	-24.72	AVG			
5	2400.000	52.56	-7.97	44.59	74.00	-29.41	peak			

Note: Average measurement with peak detection at No.2&4

Job No.: STAR2015 #1604
Standard: FCC PK
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: NYNE REBEL
Mode: TX 2402MHz(GFSK)
Model: NYNE REBEL
Manufacturer: NYNE

Polarization: Vertical
Power Source: AC 120V/60Hz
Date: 15/11/06/
Time: 10/31/11
Engineer Signature:
Distance: 1m

Note: Report No.:ATE20152366



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2310.000	42.15	-8.21	33.94	74.00	-40.06	peak			
2	2310.000	34.61	-8.21	26.40	54.00	-27.60	AVG			
3	2390.000	45.82	-8.00	37.82	74.00	-36.18	peak			
4	2390.000	37.00	-8.00	29.00	54.00	-25.00	AVG			
5	2400.000	55.35	-7.97	47.38	74.00	-26.62	peak			

Note: Average measurement with peak detection at No.2&4

Job No.: STAR2015 #1606

Standard: FCC PK

Test item: Radiation Test

Temp.(C)/Hum.(%) 25 C / 55 %

EUT: NYNE REBEL

Mode: TX 2480MHz(GFSK)

Model: NYNE REBEL

Manufacturer: NYNE

Polarization: Horizontal

Power Source: AC 120V/60Hz

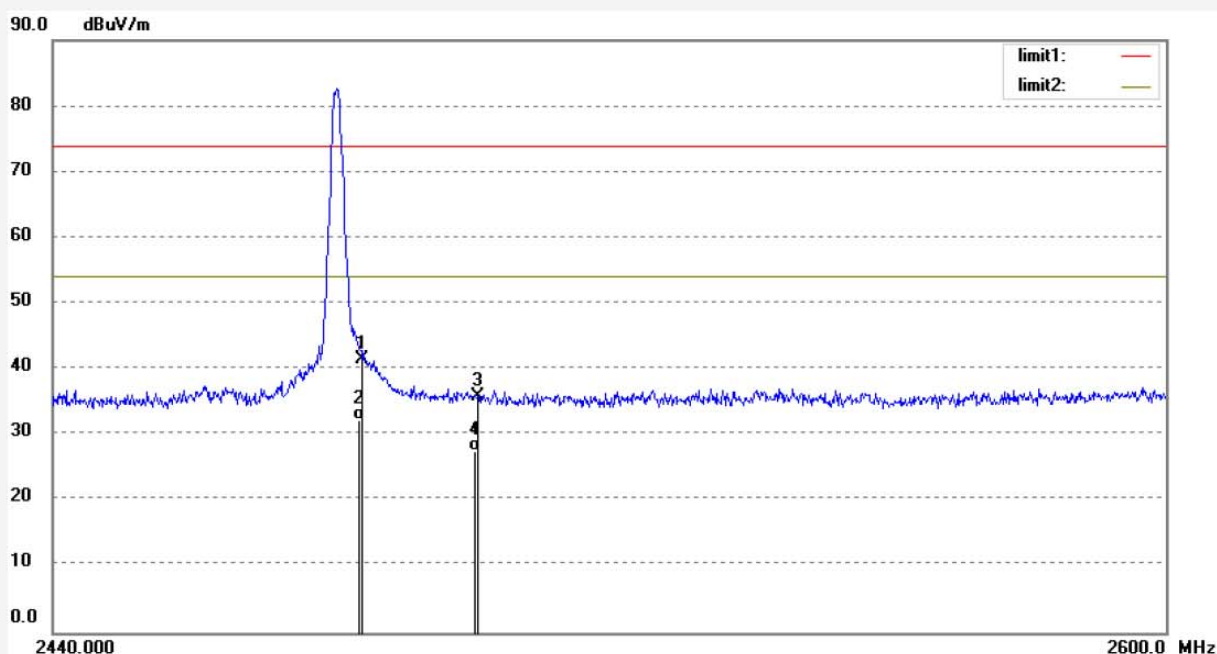
Date: 15/11/06/

Time: 10/40/31

Engineer Signature:

Distance: 1m

Note: Report No.:ATE20152366



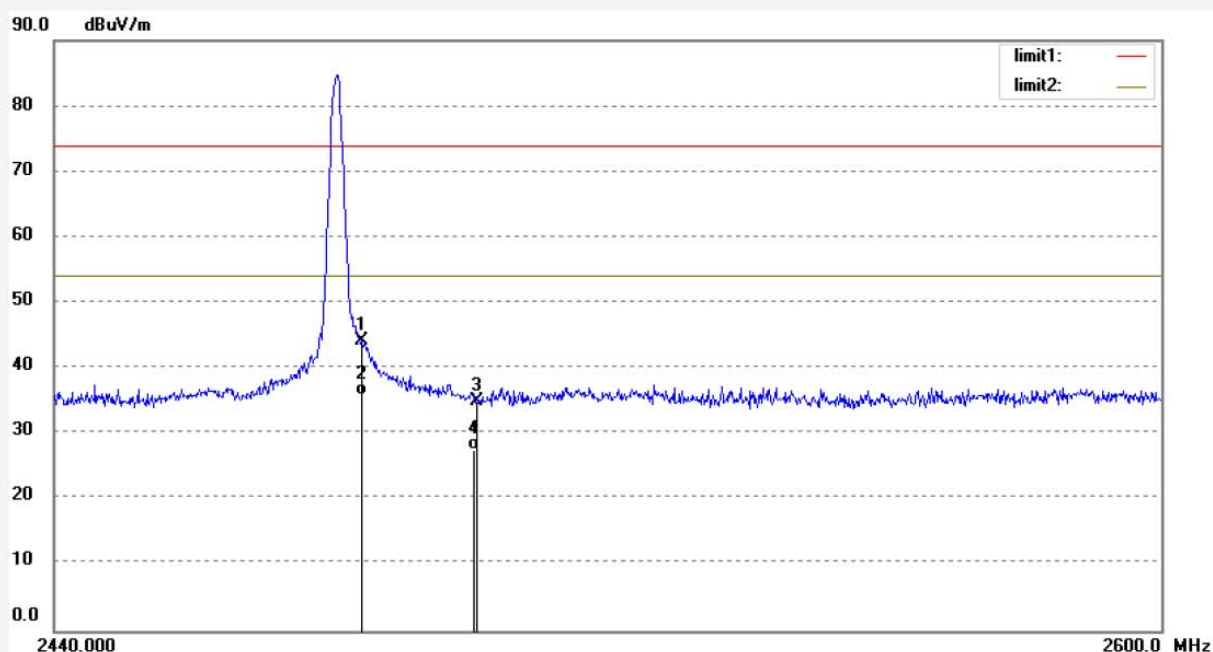
No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2483.500	49.31	-7.76	41.55	74.00	-32.45	peak			
2	2483.500	40.10	-7.76	32.34	54.00	-21.66	AVG			
3	2500.000	43.49	-7.71	35.78	74.00	-38.22	peak			
4	2500.000	35.31	-7.71	27.60	54.00	-26.40	AVG			

Note: Average measurement with peak detection at No.2&4

Job No.: STAR2015 #1607
Standard: FCC PK
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: NYNE REBEL
Mode: TX 2480MHz(GFSK)
Model: NYNE REBEL
Manufacturer: NYNE

Polarization: Vertical
Power Source: AC 120V/60Hz
Date: 15/11/06/
Time: 10/44/45
Engineer Signature:
Distance: 1m

Note: Report No.:ATE20152366



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2483.500	51.95	-7.76	44.19	74.00	-29.81	peak			
2	2483.500	43.67	-7.76	35.91	54.00	-18.09	AVG			
3	2500.000	42.59	-7.71	34.88	74.00	-39.12	peak			
4	2500.000	35.38	-7.71	27.67	54.00	-26.33	AVG			

Note: Average measurement with peak detection at No.2&4

Job No.: STAR2015 #1610

Standard: FCC PK

Test item: Radiation Test

Temp.(C)/Hum.(%) 25 C / 55 %

EUT: NYNE REBEL

Mode: TX 2402MHz(4DQPSK)

Model: NYNE REBEL

Manufacturer: NYNE

Polarization: Horizontal

Power Source: AC 120V/60Hz

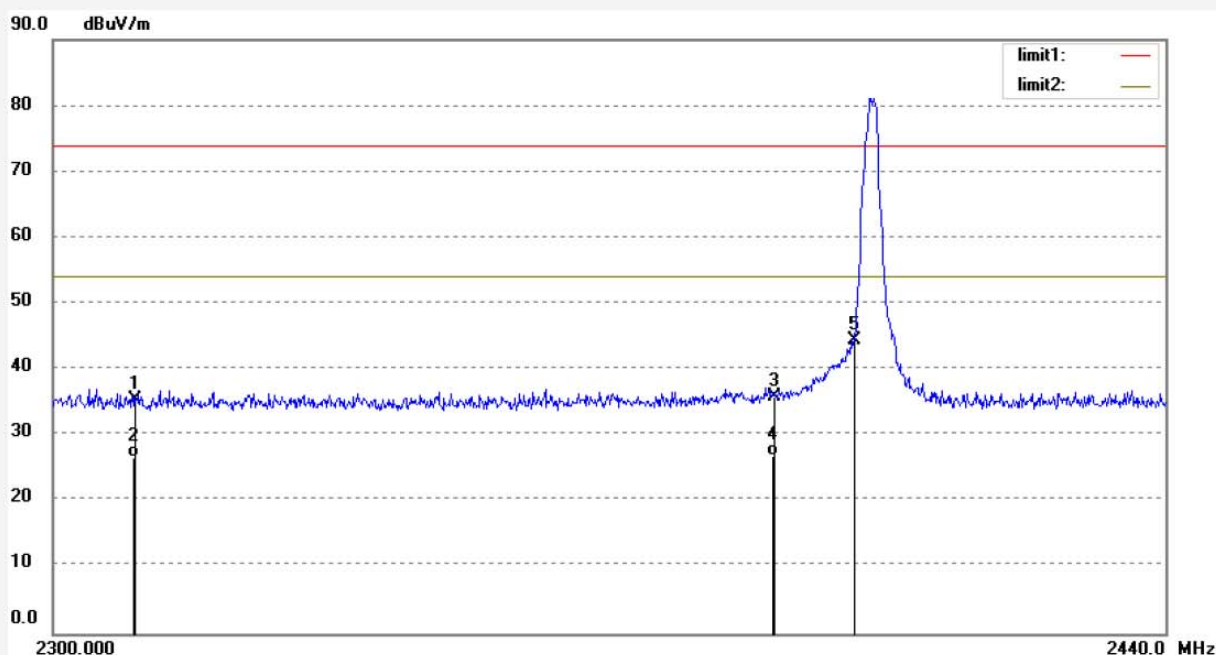
Date: 15/11/06/

Time: 10/55/52

Engineer Signature:

Distance: 1m

Note: Report No.:ATE20152366



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2310.000	43.56	-8.21	35.35	74.00	-38.65	peak			
2	2310.000	34.78	-8.21	26.57	54.00	-27.43	AVG			
3	2390.000	43.93	-8.00	35.93	74.00	-38.07	peak			
4	2390.000	35.00	-8.00	27.00	54.00	-27.00	AVG			
5	2400.000	52.50	-7.97	44.53	74.00	-29.47	peak			

Note: Average measurement with peak detection at No.2&4

Job No.: STAR2015 #1611

Standard: FCC PK

Test item: Radiation Test

Temp.(C)/Hum.(%) 25 C / 55 %

EUT: NYNE REBEL

Mode: TX 2402MHz(4DQPSK)

Model: NYNE REBEL

Manufacturer: NYNE

Polarization: Vertical

Power Source: AC 120V/60Hz

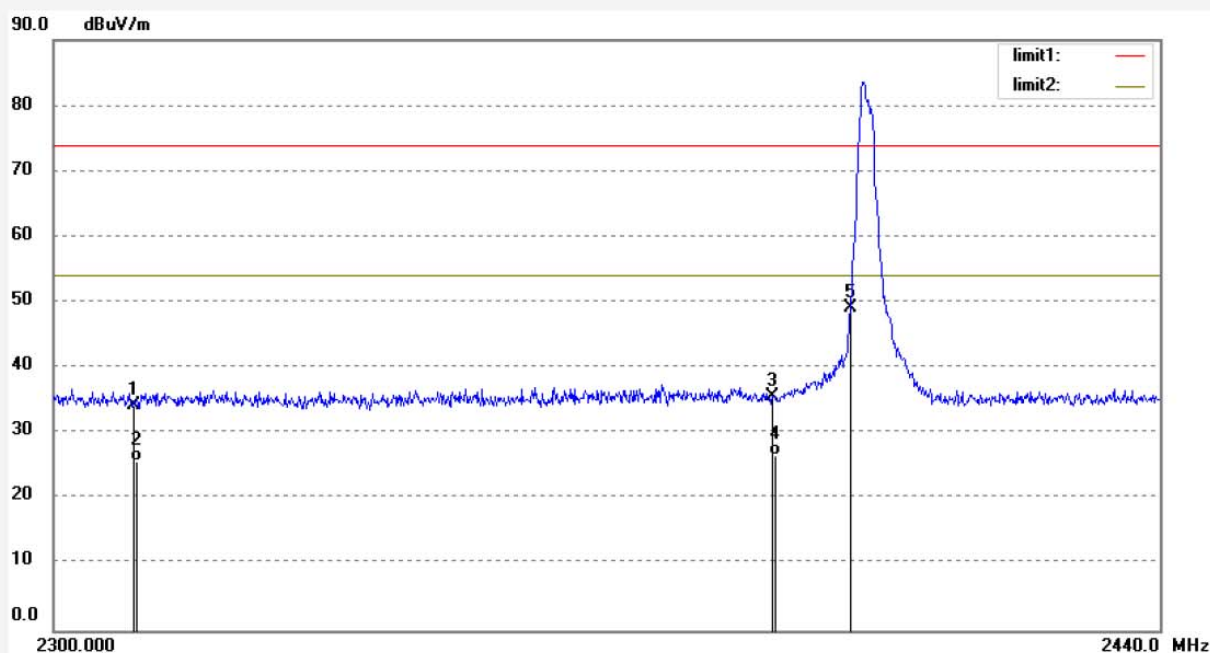
Date: 15/11/06/

Time: 10/59/34

Engineer Signature:

Distance: 1m

Note: Report No.:ATE20152366



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2310.000	42.54	-8.21	34.33	74.00	-39.67	peak			
2	2310.000	33.92	-8.21	25.71	54.00	-28.29	AVG			
3	2390.000	43.60	-8.00	35.60	74.00	-38.40	peak			
4	2390.000	34.67	-8.00	26.67	54.00	-27.33	AVG			
5	2400.000	57.18	-7.97	49.21	74.00	-24.79	peak			

Note: Average measurement with peak detection at No.2&4



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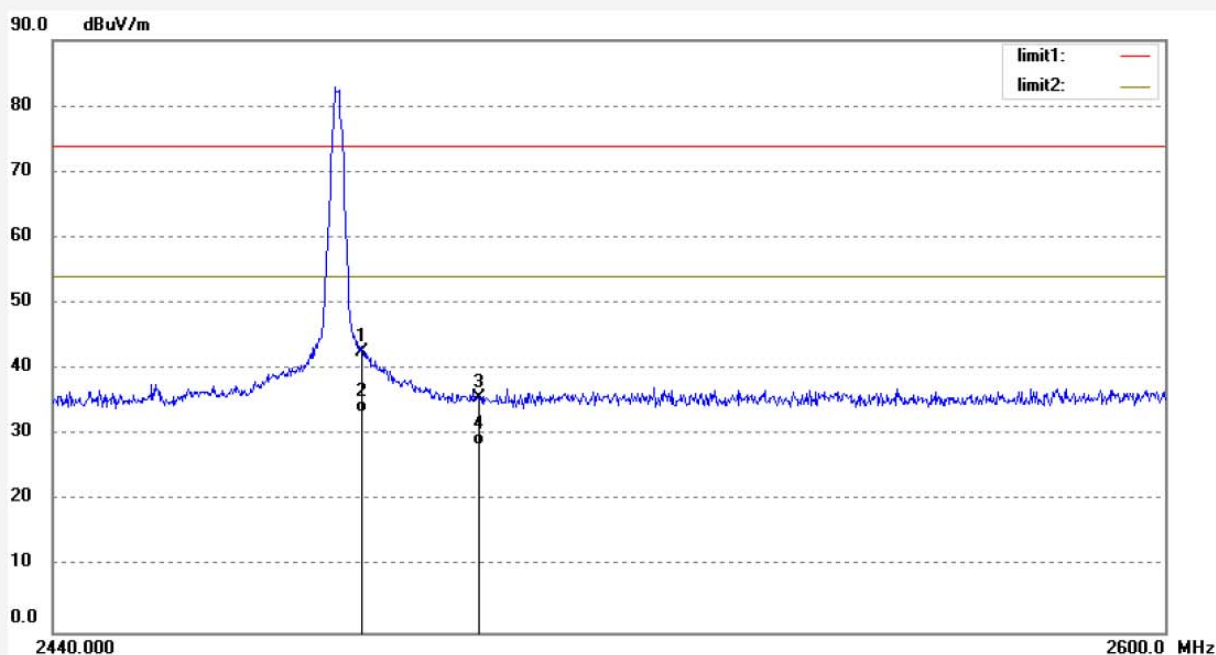
Tel:+86-0755-26503290

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Job No.: STAR2015 #1609
Standard: FCC PK
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: NYNE REBEL
Mode: TX 2480MHz(4DQPSK)
Model: NYNE REBEL
Manufacturer: NYNE

Polarization: Horizontal
Power Source: AC 120V/60Hz
Date: 15/11/06/
Time: 10/52/46
Engineer Signature:
Distance: 1m

Note: Report No.:ATE20152366



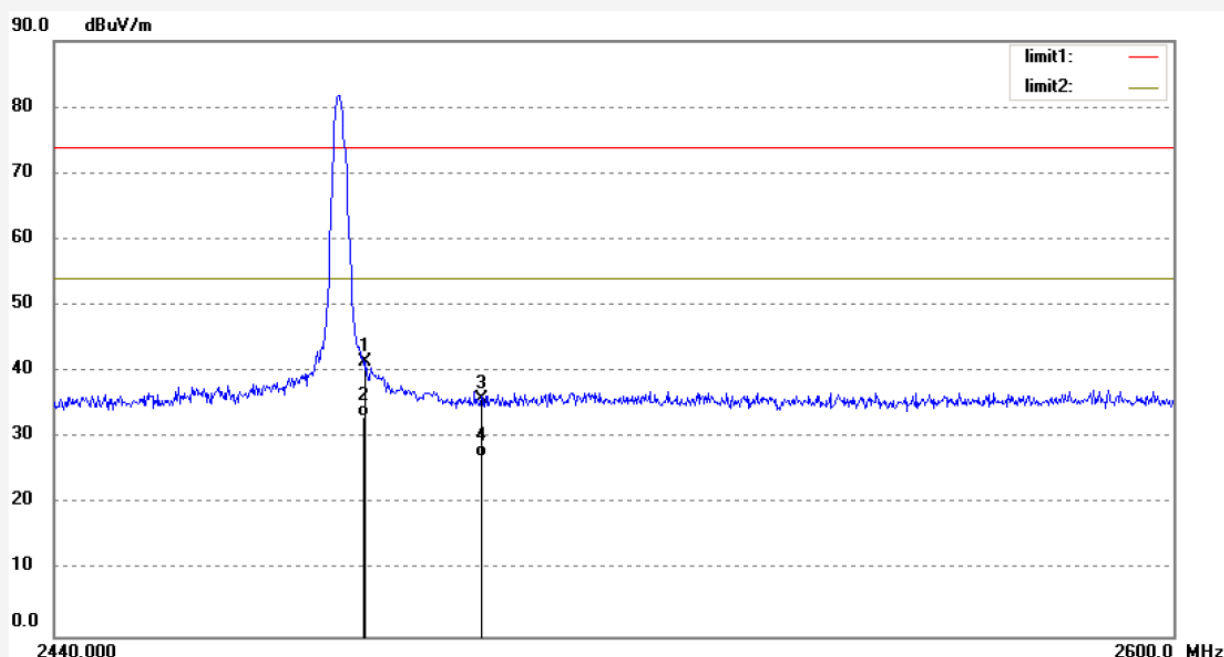
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1	2483.500	50.29	-7.76	42.53	74.00	-31.47	peak			
2	2483.500	41.20	-7.76	33.44	54.00	-20.56	AVG			
3	2500.000	43.43	-7.71	35.72	74.00	-38.28	peak			
4	2500.000	36.13	-7.71	28.42	54.00	-25.58	AVG			

Note: Average measurement with peak detection at No.2&4

Job No.: STAR2015 #1608
Standard: FCC PK
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: NYNE REBEL
Mode: TX 2480MHz(4DQPSK)
Model: NYNE REBEL
Manufacturer: NYNE

Polarization: Vertical
Power Source: AC 120V/60Hz
Date: 15/11/06/
Time: 10/48/25
Engineer Signature:
Distance: 1m

Note: Report No.:ATE20152366



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2483.500	49.28	-7.76	41.52	74.00	-32.48	peak			
2	2483.500	41.00	-7.76	33.24	54.00	-20.76	AVG			
3	2500.000	43.62	-7.71	35.91	74.00	-38.09	peak			
4	2500.000	34.72	-7.71	27.01	54.00	-26.99	AVG			

Note: Average measurement with peak detection at No.2&4

Job No.: STAR2015 #1613

Standard: FCC PK

Test item: Radiation Test

Temp.(C)/Hum.(%) 25 C / 55 %

EUT: NYNE REBEL

Mode: TX 2402MHz(8DPSK)

Model: NYNE REBEL

Manufacturer: NYNE

Polarization: Horizontal

Power Source: AC 120V/60Hz

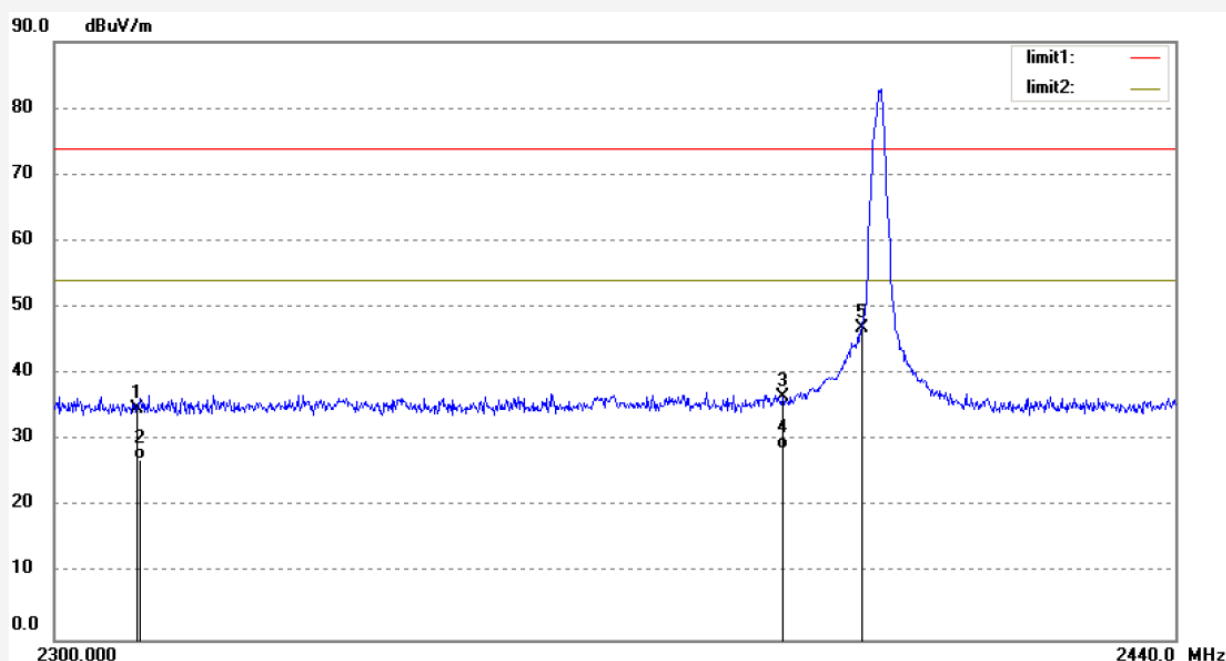
Date: 15/11/06/

Time: 11/07/22

Engineer Signature:

Distance: 1m

Note: Report No.:ATE20152366



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2310.000	43.07	-8.21	34.86	74.00	-39.14	peak			
2	2310.000	35.32	-8.21	27.11	54.00	-26.89	AVG			
3	2390.000	44.47	-8.00	36.47	74.00	-37.53	peak			
4	2390.000	36.71	-8.00	28.71	54.00	-25.29	AVG			
5	2400.000	54.87	-7.97	46.90	74.00	-27.10	peak			

Note: Average measurement with peak detection at No.2&4

Job No.: STAR2015 #1612

Standard: FCC PK

Test item: Radiation Test

Temp.(C)/Hum.(%) 25 C / 55 %

EUT: NYNE REBEL

Mode: TX 2402MHz(8DPSK)

Model: NYNE REBEL

Manufacturer: NYNE

Polarization: Vertical

Power Source: AC 120V/60Hz

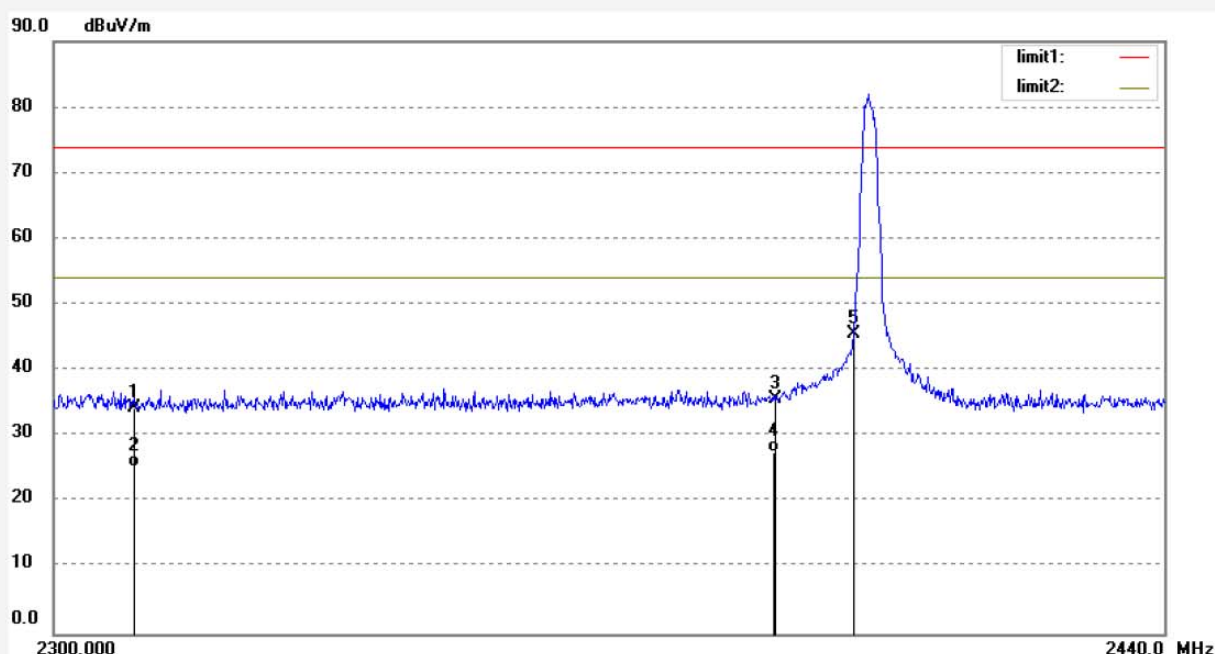
Date: 15/11/06/

Time: 11/03/31

Engineer Signature:

Distance: 1m

Note: Report No.:ATE20152366



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2310.000	42.60	-8.21	34.39	74.00	-39.61	peak			
2	2310.000	33.44	-8.21	25.23	54.00	-28.77	AVG			
3	2390.000	43.68	-8.00	35.68	74.00	-38.32	peak			
4	2390.000	35.61	-8.00	27.61	54.00	-26.39	AVG			
5	2400.000	53.44	-7.97	45.47	74.00	-28.53	peak			

Note: Average measurement with peak detection at No.2&4

Job No.: STAR2015 #1614

Standard: FCC PK

Test item: Radiation Test

Temp.(C)/Hum.(%) 25 C / 55 %

EUT: NYNE REBEL

Mode: TX 2480MHz(8DPSK)

Model: NYNE REBEL

Manufacturer: NYNE

Polarization: Horizontal

Power Source: AC 120V/60Hz

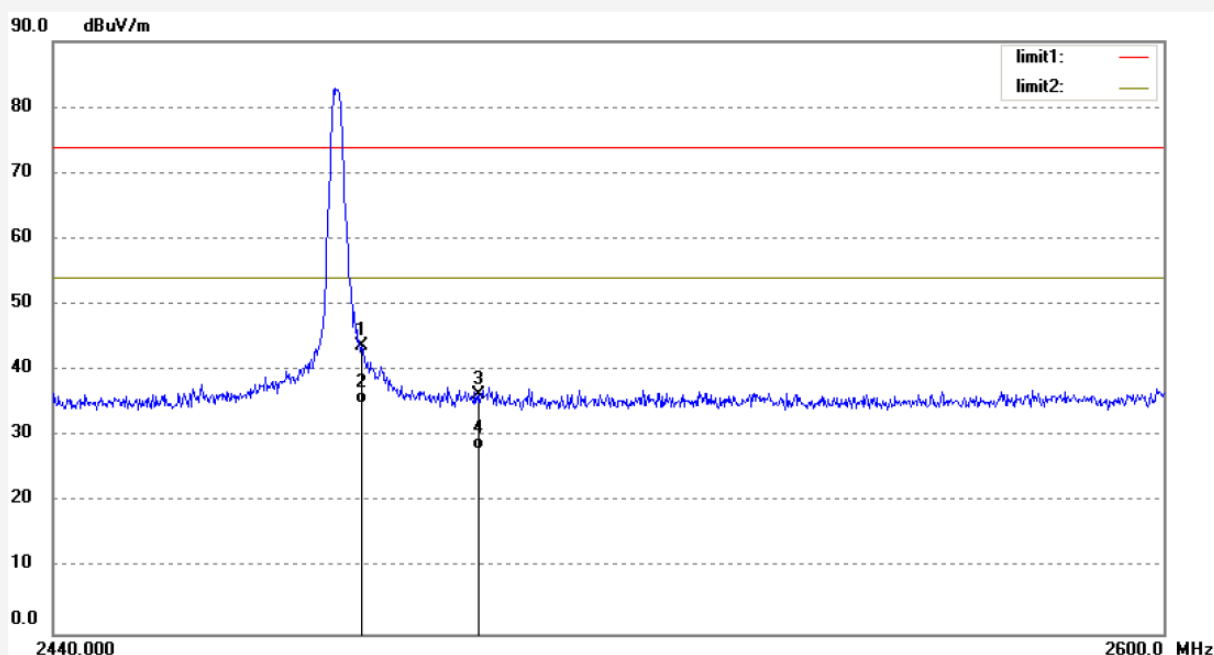
Date: 15/11/06/

Time: 11/11/46

Engineer Signature:

Distance: 1m

Note: Report No.:ATE20152366



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2483.500	51.57	-7.76	43.81	74.00	-30.19	peak			
2	2483.500	42.73	-7.76	34.97	54.00	-19.03	AVG			
3	2500.000	44.13	-7.71	36.42	74.00	-37.58	peak			
4	2500.000	35.62	-7.71	27.91	54.00	-26.09	AVG			

Note: Average measurement with peak detection at No.2&4



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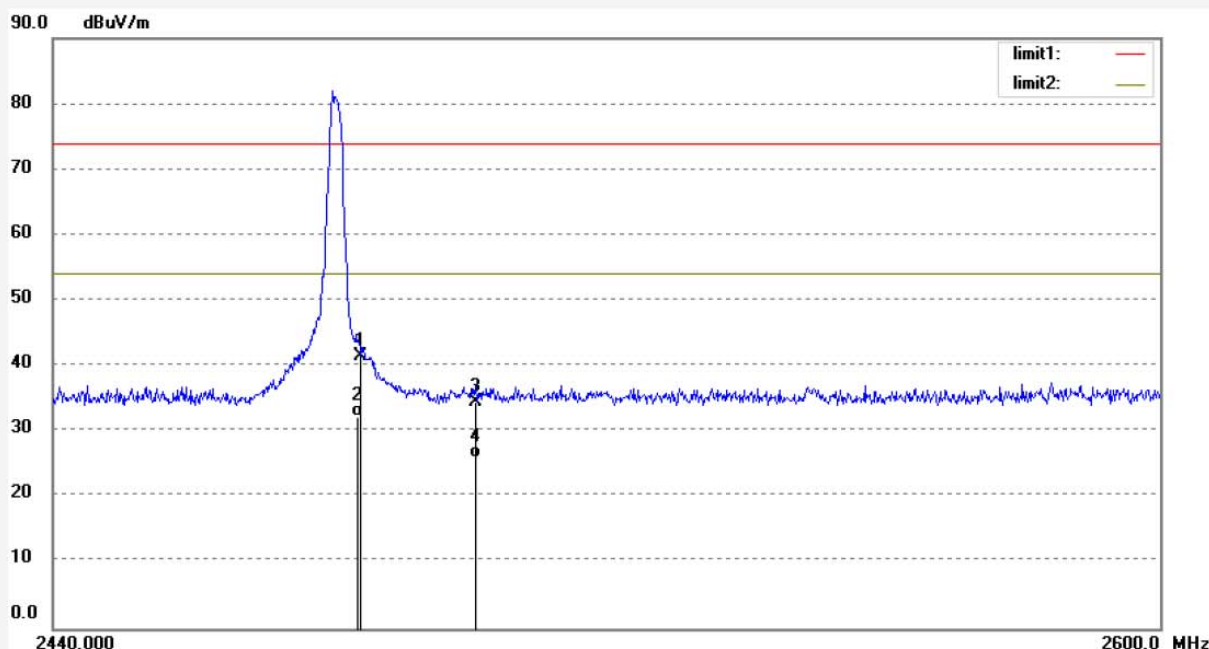
Tel:+86-0755-26503290

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Job No.: STAR2015 #1615
Standard: FCC PK
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: NYNE REBEL
Mode: TX 2480MHz(8DPSK)
Model: NYNE REBEL
Manufacturer: NYNE

Polarization: Vertical
Power Source: AC 120V/60Hz
Date: 15/11/06/
Time: 11/15/37
Engineer Signature:
Distance: 1m

Note: Report No.:ATE20152366



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2483.500	49.38	-7.76	41.62	74.00	-32.38	peak			
2	2483.500	40.00	-7.76	32.24	54.00	-21.76	AVG			
3	2500.000	42.27	-7.71	34.56	74.00	-39.44	peak			
4	2500.000	33.69	-7.71	25.98	54.00	-28.02	AVG			

Note: Average measurement with peak detection at No.2&4

Hopping mode



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Site: 1# Chamber

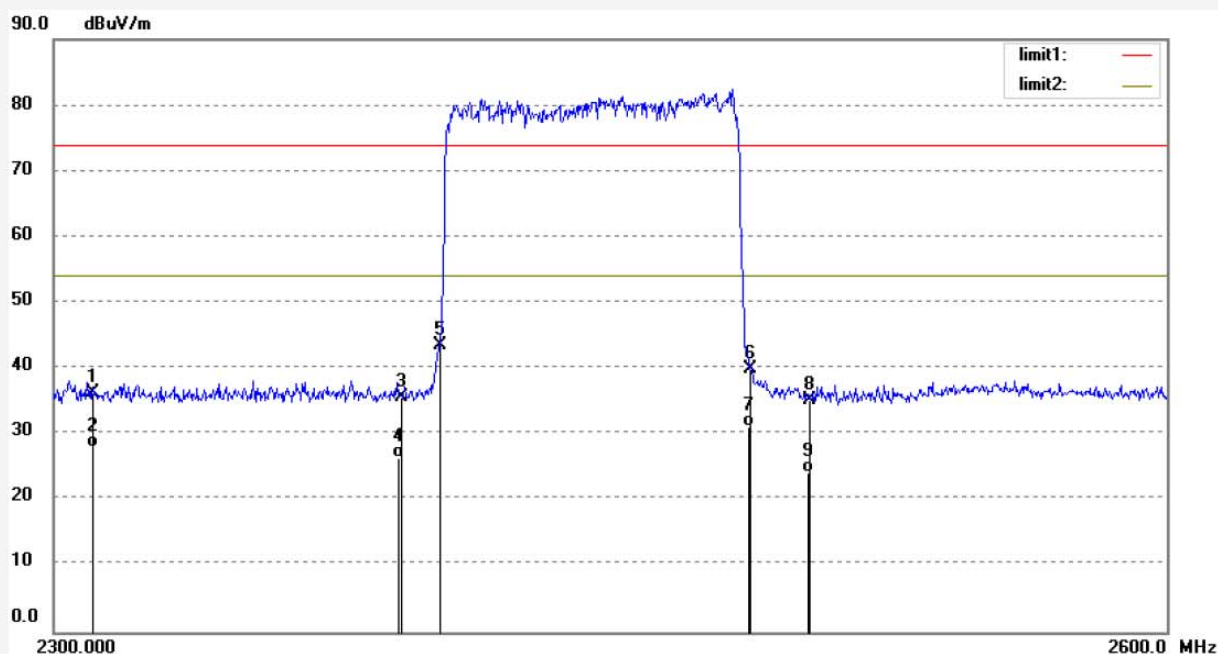
Tel:+86-0755-26503290

Fax:+86-0755-26503396

Job No.: STAR2015 #1617
Standard: FCC PK
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: NYNE REBEL
Mode: HOPPING (GFSK)
Model: NYNE REBEL
Manufacturer: NYNE

Polarization: Horizontal
Power Source: AC 120V/60Hz
Date: 15/11/06/
Time: 11/25/39
Engineer Signature:
Distance: 3m

Note: Report No.:ATE20152366



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2310.000	44.60	-8.21	36.39	74.00	-37.61	peak			
2	2310.000	36.17	-8.21	27.96	54.00	-26.04	AVG			
3	2390.000	43.73	-8.00	35.73	74.00	-38.27	peak			
4	2390.000	34.52	-8.00	26.52	54.00	-27.48	AVG			
5	2400.000	51.61	-7.97	43.64	74.00	-30.36	peak			
6	2483.500	47.66	-7.76	39.90	74.00	-34.10	peak			
7	2483.500	39.00	-7.76	31.24	54.00	-22.76	AVG			
8	2500.000	42.97	-7.71	35.26	74.00	-38.74	peak			
9	2500.000	32.00	-7.71	24.29	54.00	-29.71	AVG			

Note: Average measurement with peak detection at No.2, 4, 6, 8



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Job No.: STAR2015 #1616

Standard: FCC PK

Test item: Radiation Test

Temp.(C)/Hum.(%) 25 C / 55 %

EUT: NYNE REBEL

Mode: HOPPING (GFSK)

Model: NYNE REBEL

Manufacturer: NYNE

Polarization: Vertical

Power Source: AC 120V/60Hz

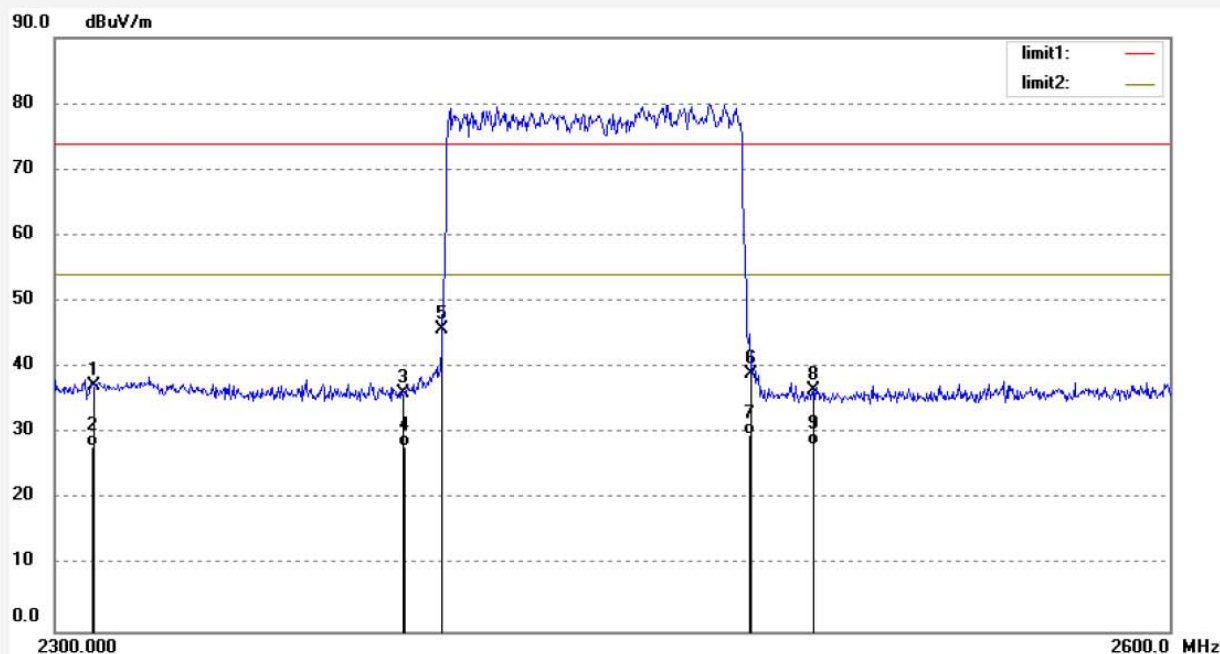
Date: 15/11/06/

Time: 11/20/17

Engineer Signature:

Distance: 3m

Note: Report No.:ATE20152366



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2310.000	45.43	-8.21	37.22	74.00	-36.78	peak			
2	2310.000	36.27	-8.21	28.06	54.00	-25.94	AVG			
3	2390.000	44.09	-8.00	36.09	74.00	-37.91	peak			
4	2390.000	35.97	-8.00	27.97	54.00	-26.03	AVG			
5	2400.000	53.83	-7.97	45.86	74.00	-28.14	peak			
6	2483.500	46.71	-7.76	38.95	74.00	-35.05	peak			
7	2483.500	37.67	-7.76	29.91	54.00	-24.09	AVG			
8	2500.000	44.38	-7.71	36.67	74.00	-37.33	peak			
9	2500.000	36.00	-7.71	28.29	54.00	-25.71	AVG			

Note: Average measurement with peak detection at No.2, 4, 6, 8



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Job No.: STAR2015 #1618

Standard: FCC PK

Test item: Radiation Test

Temp.(C)/Hum.(%) 25 C / 55 %

EUT: NYNE REBEL

Mode: HOPPING (4DQPSK)

Model: NYNE REBEL

Manufacturer: NYNE

Polarization: Horizontal

Power Source: AC 120V/60Hz

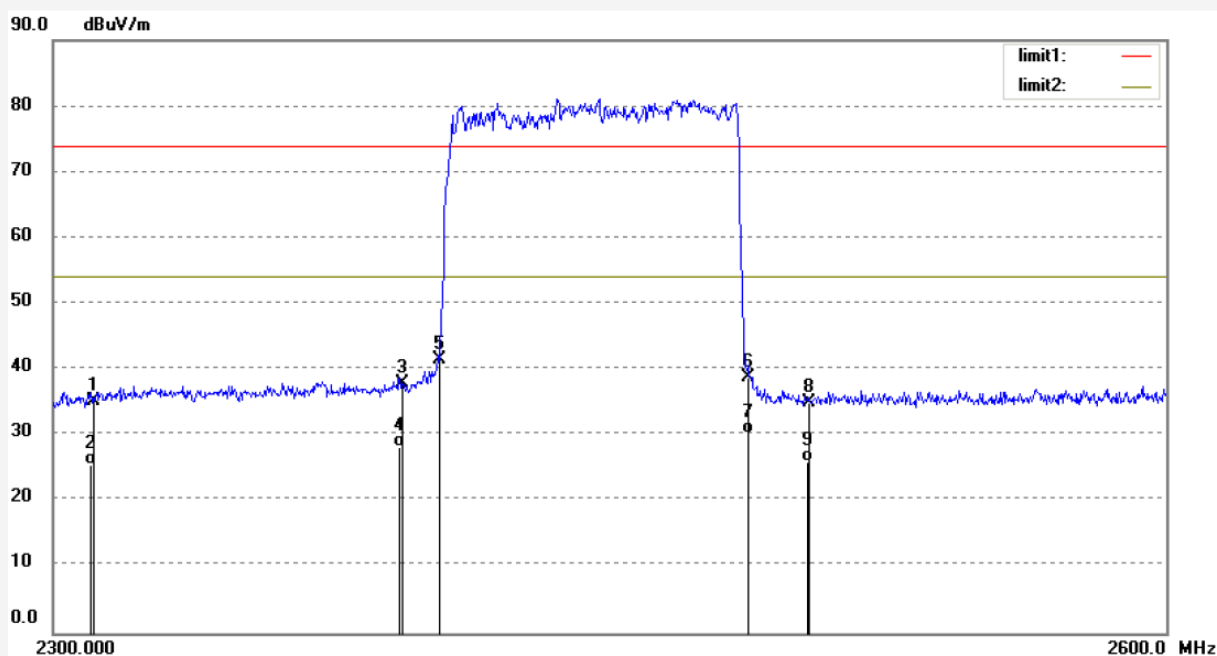
Date: 15/11/06/

Time: 11/31/22

Engineer Signature:

Distance: 3m

Note: Report No.:ATE20152366



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2310.000	43.46	-8.21	35.25	74.00	-38.75	peak			
2	2310.000	33.67	-8.21	25.46	54.00	-28.54	AVG			
3	2390.000	45.83	-8.00	37.83	74.00	-36.17	peak			
4	2390.000	36.17	-8.00	28.17	54.00	-25.83	AVG			
5	2400.000	49.41	-7.97	41.44	74.00	-32.56	peak			
6	2483.500	46.51	-7.76	38.75	74.00	-35.25	peak			
7	2483.500	38.11	-7.76	30.35	54.00	-23.65	AVG			
8	2500.000	42.73	-7.71	35.02	74.00	-38.98	peak			
9	2500.000	33.69	-7.71	25.98	54.00	-28.02	AVG			

Note: Average measurement with peak detection at No.2, 4, 6, 8

Job No.: STAR2015 #1619

Standard: FCC PK

Test item: Radiation Test

Temp.(C)/Hum.(%) 25 C / 55 %

EUT: NYNE REBEL

Mode: HOPPING (4DQPSK)

Model: NYNE REBEL

Manufacturer: NYNE

Polarization: Vertical

Power Source: AC 120V/60Hz

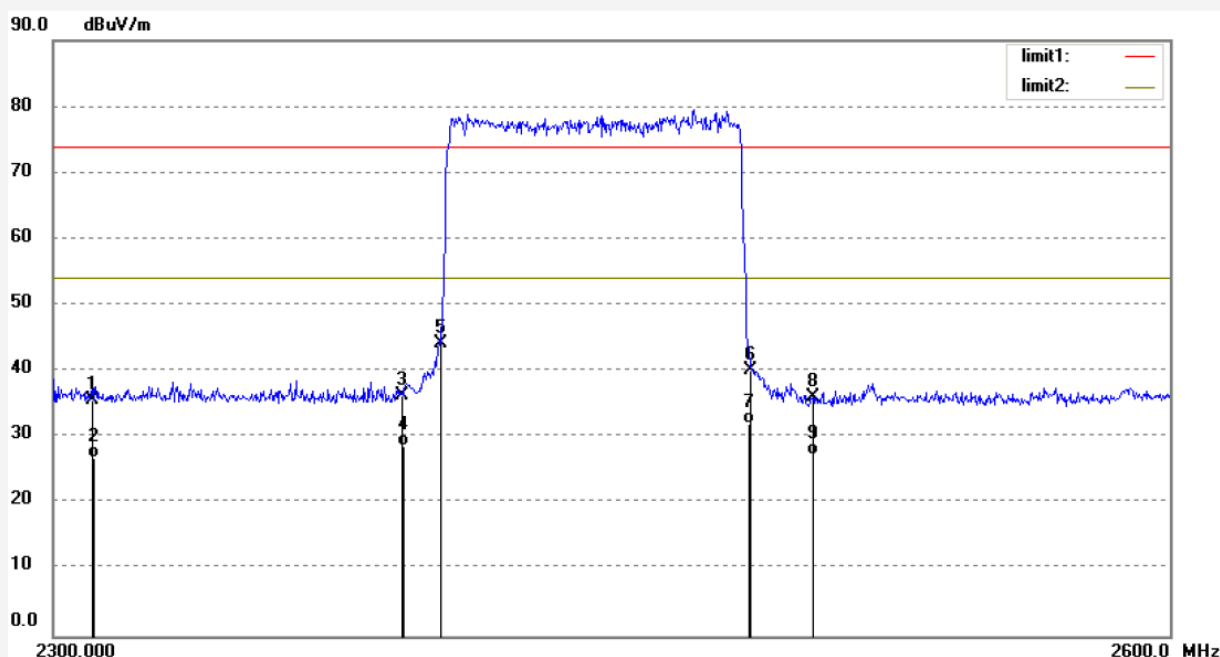
Date: 15/11/06/

Time: 11/37/55

Engineer Signature:

Distance: 3m

Note: Report No.:ATE20152366



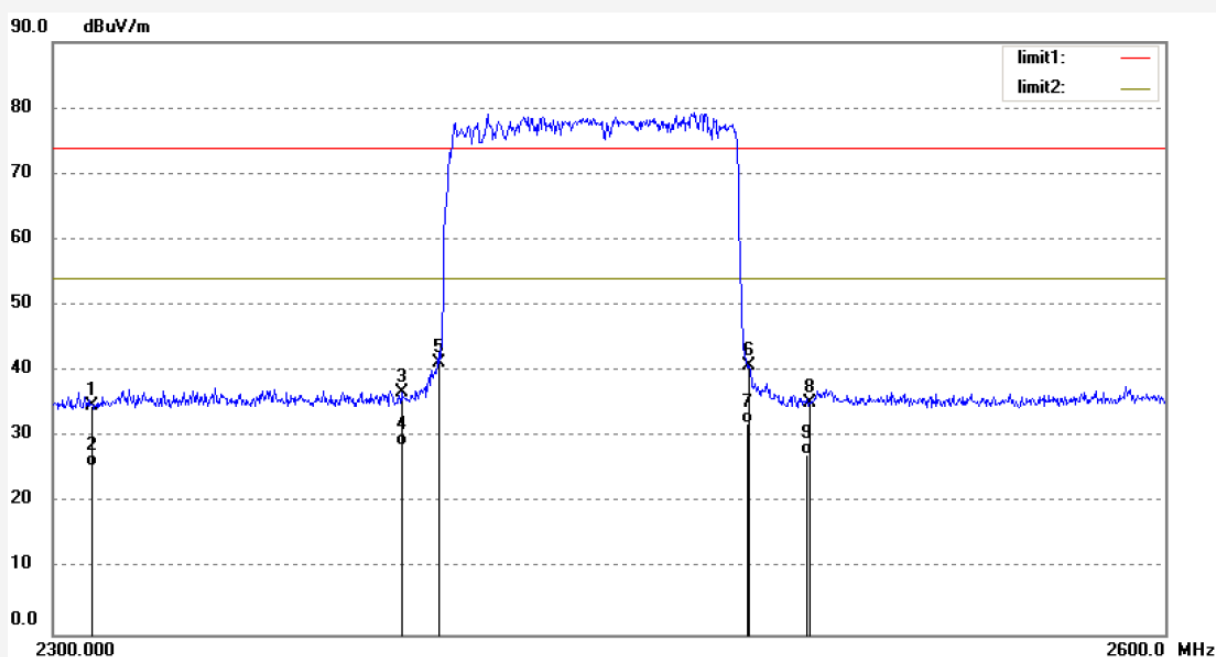
No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2310.000	43.83	-8.21	35.62	74.00	-38.38	peak			
2	2310.000	35.14	-8.21	26.93	54.00	-27.07	AVG			
3	2390.000	44.43	-8.00	36.43	74.00	-37.57	peak			
4	2390.000	36.61	-8.00	28.61	54.00	-25.39	AVG			
5	2400.000	52.26	-7.97	44.29	74.00	-29.71	peak			
6	2483.500	47.94	-7.76	40.18	74.00	-33.82	peak			
7	2483.500	39.87	-7.76	32.11	54.00	-21.89	AVG			
8	2500.000	43.85	-7.71	36.14	74.00	-37.86	peak			
9	2500.000	35.10	-7.71	27.39	54.00	-26.61	AVG			

Note: Average measurement with peak detection at No.2, 4, 6, 8

Job No.: STAR2015 #1621
Standard: FCC PK
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: NYNE REBEL
Mode: HOPPING (8DPSK)
Model: NYNE REBEL
Manufacturer: NYNE

Polarization: Horizontal
Power Source: AC 120V/60Hz
Date: 15/11/06/
Time: 11/48/26
Engineer Signature:
Distance: 3m

Note: Report No.:ATE20152366



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2310.000	42.92	-8.21	34.71	74.00	-39.29	peak			
2	2310.000	33.65	-8.21	25.44	74.00	-48.56	QP			
3	2390.000	44.81	-8.00	36.81	74.00	-37.19	peak			
4	2390.000	36.71	-8.00	28.71	54.00	-25.29	AVG			
5	2400.000	49.25	-7.97	41.28	74.00	-32.72	peak			
6	2483.500	48.64	-7.76	40.88	74.00	-33.12	peak			
7	2483.500	39.77	-7.76	32.01	54.00	-21.99	AVG			
8	2500.000	42.92	-7.71	35.21	74.00	-38.79	peak			
9	2500.000	35.00	-7.71	27.29	54.00	-26.71	AVG			

Note: Average measurement with peak detection at No.2, 4, 6, 8

Job No.: STAR2015 #1620

Standard: FCC PK

Test item: Radiation Test

Temp.(C)/Hum.(%) 25 C / 55 %

EUT: NYNE REBEL

Mode: HOPPING (8DPSK)

Model: NYNE REBEL

Manufacturer: NYNE

Polarization: Vertical

Power Source: AC 120V/60Hz

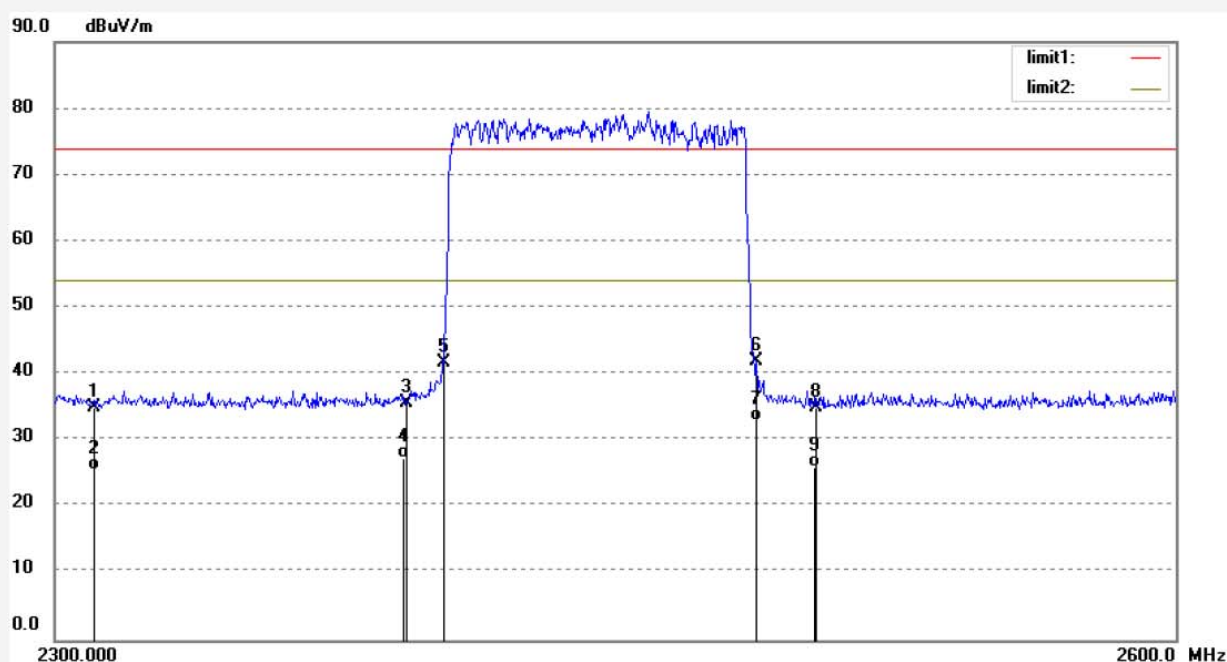
Date: 15/11/06/

Time: 11/42/17

Engineer Signature:

Distance: 3m

Note: Report No.:ATE20152366



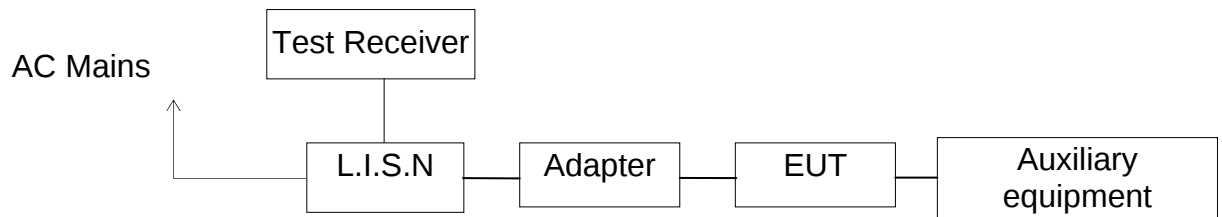
No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2310.000	43.26	-8.21	35.05	74.00	-38.95	peak			
2	2310.000	33.69	-8.21	25.48	54.00	-28.52	AVG			
3	2390.000	43.61	-8.00	35.61	74.00	-38.39	peak			
4	2390.000	35.39	-8.00	27.39	54.00	-26.61	AVG			
5	2400.000	49.63	-7.97	41.66	74.00	-32.34	peak			
6	2483.500	49.72	-7.76	41.96	74.00	-32.04	peak			
7	2483.500	40.64	-7.76	32.88	54.00	-21.12	AVG			
8	2500.000	42.65	-7.71	34.94	74.00	-39.06	peak			
9	2500.000	33.67	-7.71	25.96	54.00	-28.04	AVG			

Note: Average measurement with peak detection at No.2, 4, 6, 8

12.AC POWER LINE CONDUCTED EMISSION FOR FCC PART

15 SECTION 15.207(A)

12.1.Block Diagram of Test Setup



(EUT: NYNE REBEL)

12.2.Power Line Conducted Emission Measurement Limits

Frequency (MHz)	Limit dB(μV)	
	Quasi-peak Level	Average Level
0.15 - 0.50	66.0 – 56.0 *	56.0 – 46.0 *
0.50 - 5.00	56.0	46.0
5.00 - 30.00	60.0	50.0

NOTE1: The lower limit shall apply at the transition frequencies.
 NOTE2: The limit decreases linearly with the logarithm of the frequency in the range 0.15MHz to 0.50MHz.

12.3.Configuration of EUT on Measurement

The following equipments are installed on Power Line Conducted Emission Measurement to meet the commission requirement and operating regulations in a manner, which tends to maximize its emission characteristics in a normal application.

12.4.Operating Condition of EUT

12.4.1.Setup the EUT and simulator as shown as Section 5.1.

12.4.2.Turn on the power of all equipment.

12.4.3.Let the EUT work in test mode and measure it.

12.5. Test Procedure

The EUT is put on the plane 0.8 m high above the ground by insulating support and is connected to the power mains through a line impedance stabilization network (L.I.S.N.). This provides a 50ohm coupling impedance for the EUT system. Please refer the block diagram of the test setup and photographs. Both sides of AC lines are checked to find out the maximum conducted emission. In order to find the maximum emission levels, the relative positions of equipment and all of the interface cables shall be changed according to ANSI C63.4: 2014 on Conducted Emission Measurement.

The bandwidth of test receiver (R & S ESCS30) is set at 9kHz.

The frequency range from 150kHz to 30MHz is checked.

12.6. Power Line Conducted Emission Measurement Results

PASS.

The frequency range from 150kHz to 30MHz is checked.

Test mode : BT communicating(AC 120V/60Hz)

EUT mode : NYNE REBEL

MEASUREMENT RESULT: "NYNE-005_fin"

2015-11-4 15:59

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.158000	51.90	10.4	66	13.7	QP	L1	GND
0.324000	37.00	11.1	60	22.6	QP	L1	GND
11.252000	36.50	11.9	60	23.5	QP	L1	GND

MEASUREMENT RESULT: "NYNE-005_fin2"

2015-11-4 15:59

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.164000	38.50	10.4	55	16.8	AV	L1	GND
0.324000	26.10	11.1	50	23.5	AV	L1	GND
11.252000	28.30	11.9	50	21.7	AV	L1	GND

MEASUREMENT RESULT: "NYNE-006_fin"

2015-11-4 16:02

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.156000	50.90	10.4	66	14.8	QP	N	GND
0.954000	39.00	11.6	56	17.0	QP	N	GND
12.332000	29.80	11.9	60	30.2	QP	N	GND

MEASUREMENT RESULT: "NYNE-006_fin2"

2015-11-4 16:02

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.164000	37.30	10.4	55	18.0	AV	N	GND
0.952000	25.20	11.6	46	20.8	AV	N	GND
12.332000	22.00	11.9	50	28.0	AV	N	GND

Test mode : BT communicating(AC 240V/60Hz)

EUT mode : NYNE REBEL

MEASUREMENT RESULT: "NYNE-013_fin"

2015-11-4 16:27

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.152000	48.70	10.4	66	17.2	QP	L1	GND
0.200000	45.50	10.6	64	18.1	QP	L1	GND
0.400000	36.30	11.3	58	21.6	QP	L1	GND

MEASUREMENT RESULT: "NYNE-013_fin2"

2015-11-4 16:27

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.152000	38.80	10.4	56	17.1	AV	L1	GND
0.200000	38.40	10.6	54	15.2	AV	L1	GND
0.400000	30.80	11.3	48	17.1	AV	L1	GND

MEASUREMENT RESULT: "NYNE-014_fin"

2015-11-4 16:30

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.200000	43.10	10.6	64	20.5	QP	N	GND
0.442000	38.90	11.4	57	18.1	QP	N	GND
0.888000	36.00	11.6	56	20.0	QP	N	GND

MEASUREMENT RESULT: "NYNE-014_fin2"

2015-11-4 16:30

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.198000	37.50	10.6	54	16.2	AV	N	GND
0.446000	32.20	11.4	47	14.7	AV	N	GND
0.888000	27.40	11.6	46	18.6	AV	N	GND

Emissions attenuated more than 20 dB below the permissible value are not reported.

The spectral diagrams are attached as below.

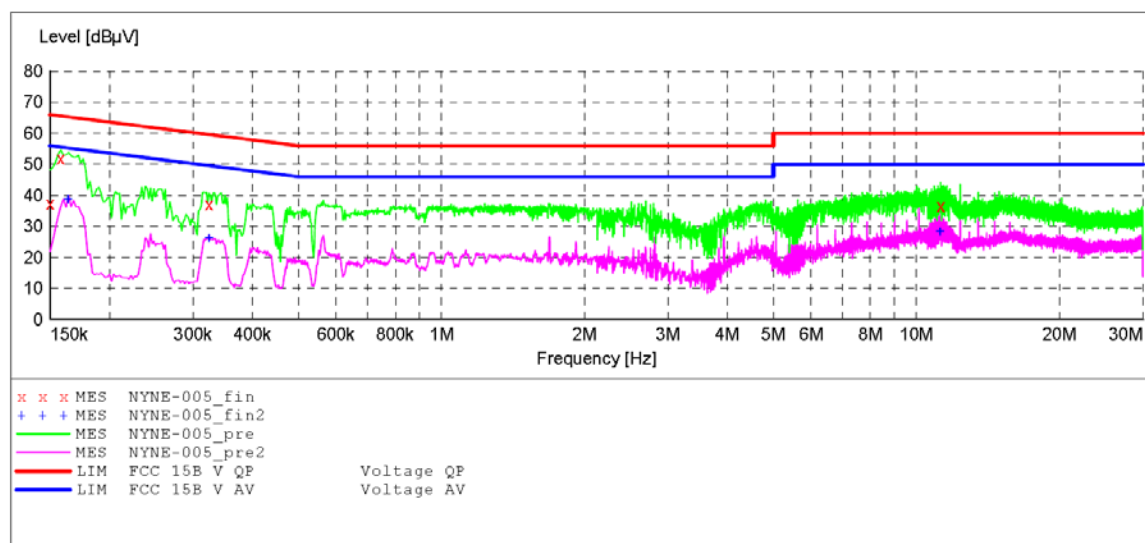
ACCURATE TECHNOLOGY CO., LTD

CONDUCTED EMISSION STANDARD FCC PART 15B

EUT: NYNE REBEL M/N: NYNE REBEL
 Manufacturer: NYNE
 Operating Condition: BT3.0
 Test Site: 2#Shielding Room
 Operator: star
 Test Specification: L 120V/60Hz
 Comment: Report NO: ATE20152366
 Start of Test: 2015-11-4 / 15:57:22

SCAN TABLE: "V 150K-30MHz fin"

Short Description: SUB STD VTERM2 1.70
 Start Stop Step Detector Meas. IF Transducer
 Frequency Frequency Width Time Bandw.
 150.0 kHz 30.0 MHz 4.5 kHz QuasiPeak 1.0 s 9 kHz LISN (ESH3-Z5)
 Average



MEASUREMENT RESULT: "NYNE-005_fin"

2015-11-4 15:59

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.158000	51.90	10.4	66	13.7	QP	L1	GND
0.324000	37.00	11.1	60	22.6	QP	L1	GND
11.252000	36.50	11.9	60	23.5	QP	L1	GND

MEASUREMENT RESULT: "NYNE-005_fin2"

2015-11-4 15:59

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.164000	38.50	10.4	55	16.8	AV	L1	GND
0.324000	26.10	11.1	50	23.5	AV	L1	GND
11.252000	28.30	11.9	50	21.7	AV	L1	GND

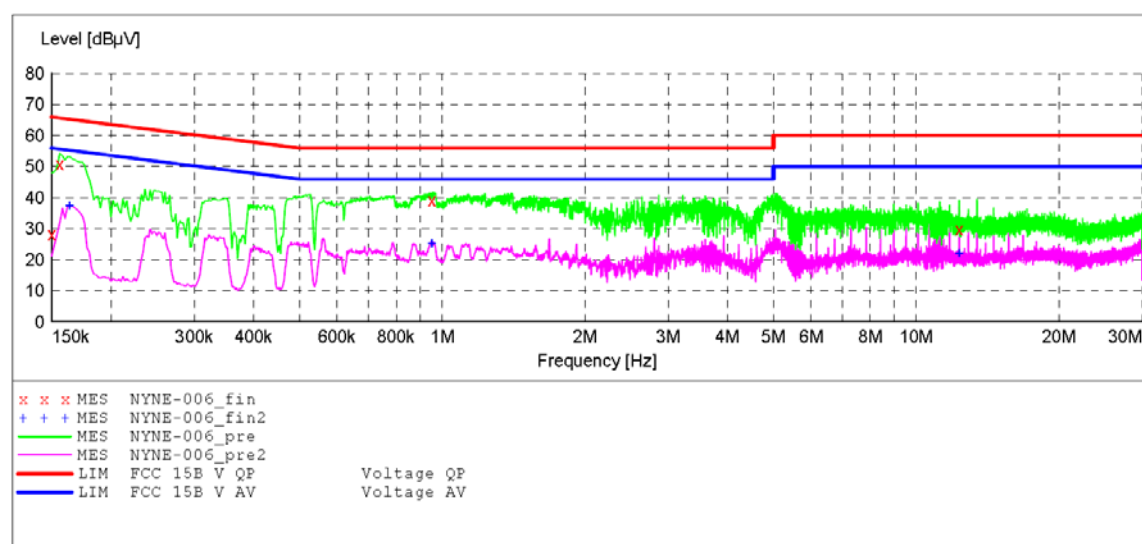
ACCURATE TECHNOLOGY CO., LTD

CONDUCTED EMISSION STANDARD FCC PART 15B

EUT: NYNE REBEL M/N: NYNE REBEL
 Manufacturer: NYNE
 Operating Condition: BT3.0
 Test Site: 2#Shielding Room
 Operator: star
 Test Specification: N 120V/60Hz
 Comment: Report NO: ATE20152366
 Start of Test: 2015-11-4 / 16:00:21

SCAN TABLE: "V 150K-30MHz fin"

Short Description: SUB STD VTERM2 1.70
 Start Stop Step Detector Meas. IF Transducer
 Frequency Frequency Width Time Bandw.
 150.0 kHz 30.0 MHz 4.5 kHz QuasiPeak 1.0 s 9 kHz LISN(ESH3-Z5)
 Average



MEASUREMENT RESULT: "NYNE-006_fin"

2015-11-4 16:02

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.156000	50.90	10.4	66	14.8	QP	N	GND
0.954000	39.00	11.6	56	17.0	QP	N	GND
12.332000	29.80	11.9	60	30.2	QP	N	GND

MEASUREMENT RESULT: "NYNE-006_fin2"

2015-11-4 16:02

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.164000	37.30	10.4	55	18.0	AV	N	GND
0.952000	25.20	11.6	46	20.8	AV	N	GND
12.332000	22.00	11.9	50	28.0	AV	N	GND

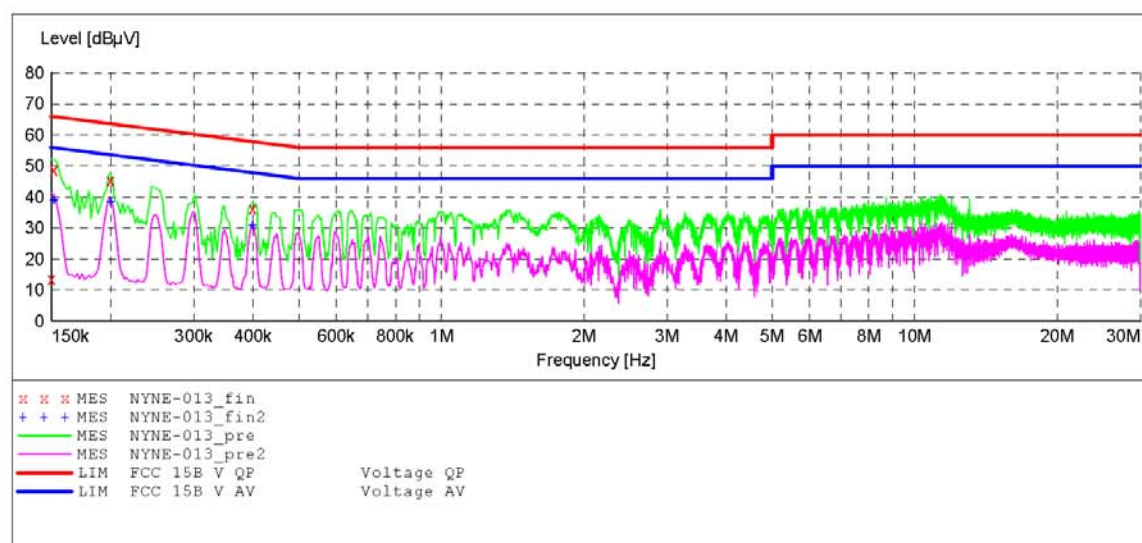
ACCURATE TECHNOLOGY CO., LTD

CONDUCTED EMISSION STANDARD FCC PART 15B

EUT: NYNE REBEL M/N: NYNE REBEL
 Manufacturer: NYNE
 Operating Condition: BT3.0
 Test Site: 2#Shielding Room
 Operator: star
 Test Specification: L 240V/60Hz
 Comment: Report NO: ATE20152366
 Start of Test: 2015-11-4 / 16:25:43

SCAN TABLE: "V 150K-30MHz fin"

Short Description: SUB STD VTERM2 1.70
 Start Stop Step Detector Meas. IF Transducer
 Frequency Frequency Width Time Bandw.
 150.0 kHz 30.0 MHz 4.5 kHz QuasiPeak 1.0 s 9 kHz LISN(ESH3-Z5)
 Average



MEASUREMENT RESULT: "NYNE-013_fin"

2015-11-4 16:27

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.152000	48.70	10.4	66	17.2	QP	L1	GND
0.200000	45.50	10.6	64	18.1	QP	L1	GND
0.400000	36.30	11.3	58	21.6	QP	L1	GND

MEASUREMENT RESULT: "NYNE-013_fin2"

2015-11-4 16:27

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.152000	38.80	10.4	56	17.1	AV	L1	GND
0.200000	38.40	10.6	54	15.2	AV	L1	GND
0.400000	30.80	11.3	48	17.1	AV	L1	GND

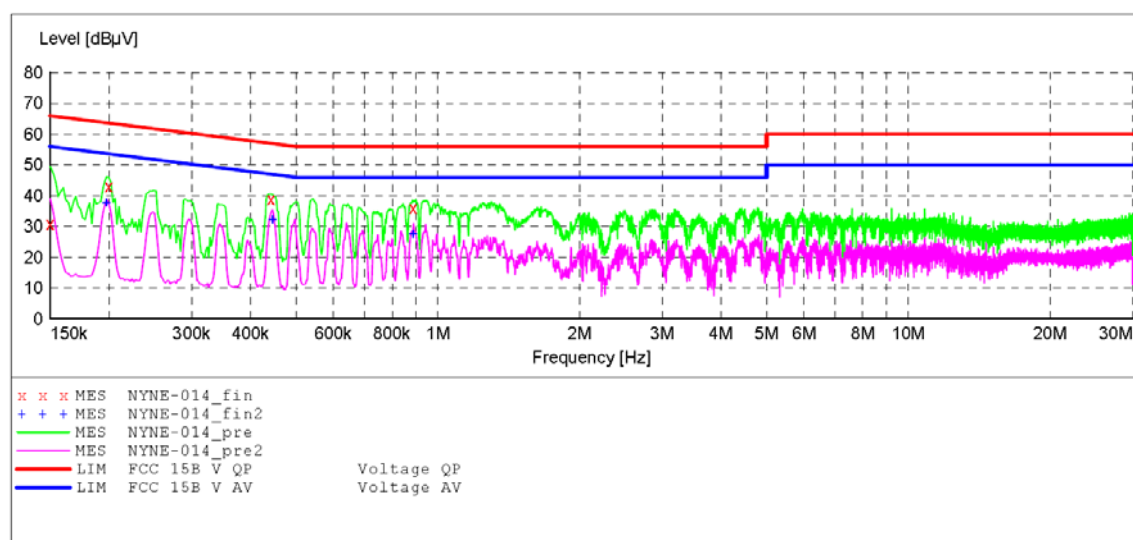
ACCURATE TECHNOLOGY CO., LTD

CONDUCTED EMISSION STANDARD FCC PART 15B

EUT: NYNE REBEL M/N: NYNE REBEL
 Manufacturer: NYNE
 Operating Condition: BT3.0
 Test Site: 2#Shielding Room
 Operator: star
 Test Specification: N 240V/60Hz
 Comment: Report NO: ATE20152366
 Start of Test: 2015-11-4 / 16:28:56

SCAN TABLE: "V 150K-30MHz fin"

Short Description: SUB STD VTERM2 1.70
 Start Stop Step Detector Meas. IF Transducer
 Frequency Frequency Width Time Bandw.
 150.0 kHz 30.0 MHz 4.5 kHz QuasiPeak 1.0 s 9 kHz LISN (ESH3-Z5)
 Average



MEASUREMENT RESULT: "NYNE-014_fin"

2015-11-4 16:30

Frequency MHz	Level dBuV	Transd dB	Limit dBuV	Margin dB	Detector	Line	PE
0.200000	43.10	10.6	64	20.5	QP	N	GND
0.442000	38.90	11.4	57	18.1	QP	N	GND
0.888000	36.00	11.6	56	20.0	QP	N	GND

MEASUREMENT RESULT: "NYNE-014_fin2"

2015-11-4 16:30

Frequency MHz	Level dBuV	Transd dB	Limit dBuV	Margin dB	Detector	Line	PE
0.198000	37.50	10.6	54	16.2	AV	N	GND
0.446000	32.20	11.4	47	14.7	AV	N	GND
0.888000	27.40	11.6	46	18.6	AV	N	GND

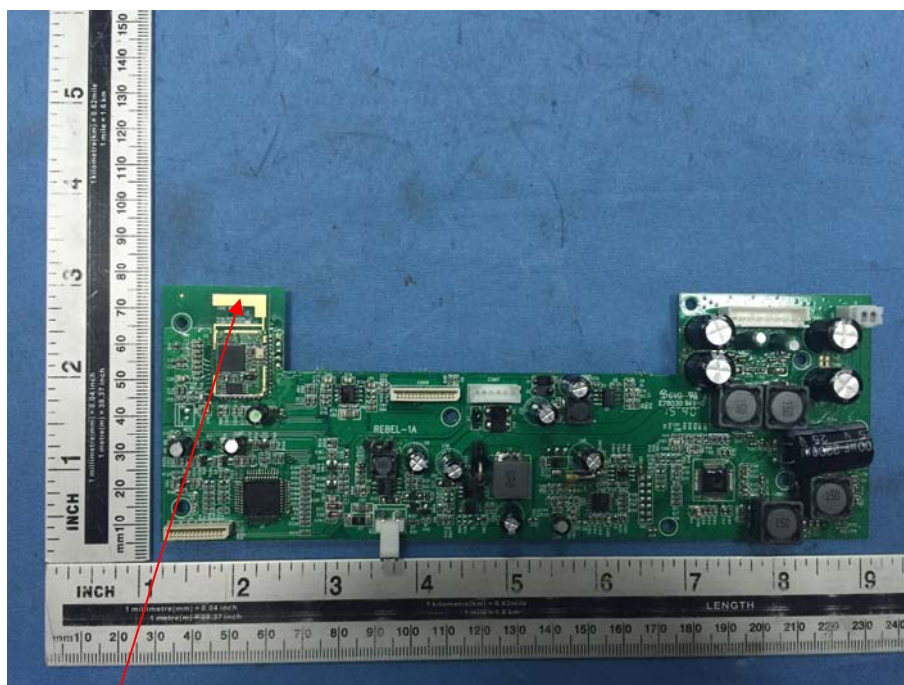
13.ANTENNA REQUIREMENT

13.1.The Requirement

According to Section 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

13.2.Antenna Construction

Device is equipped with PCB Antenna, which isn't displaced by other antenna. The Antenna gain of EUT is 2dBi. Therefore, the equipment complies with the antenna requirement of Section 15.203.



Antenna