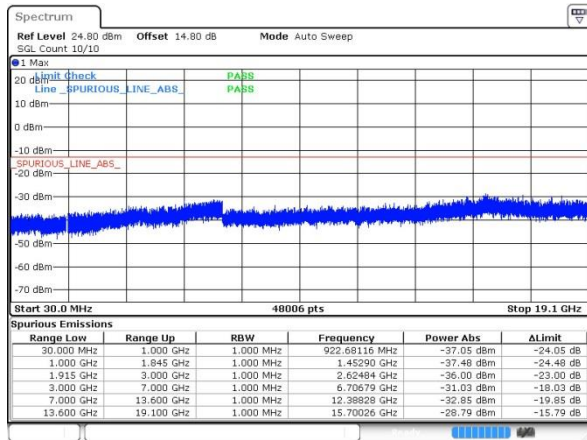




## GSM1900 (GSM)

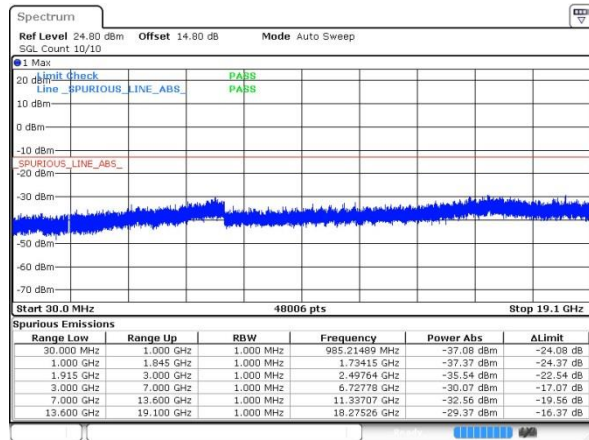
## Lowest Channel



Date: 29 OCT 2018 02:48:10

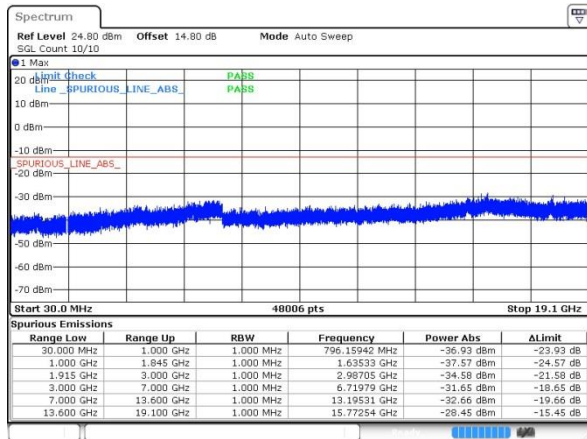
## GSM1900 (EDGE class 8)

## Lowest Channel



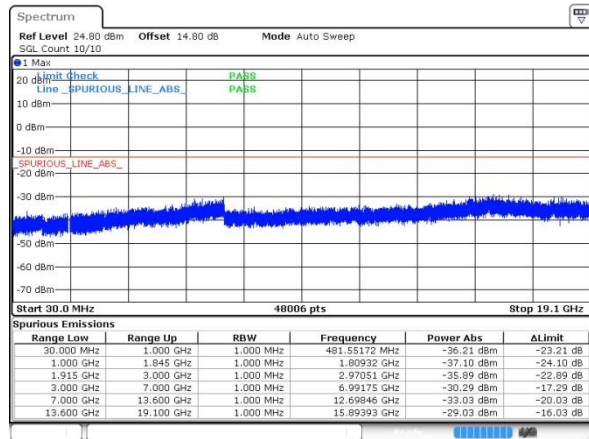
Date: 28 OCT 2018 23:56:00

## Middle Channel



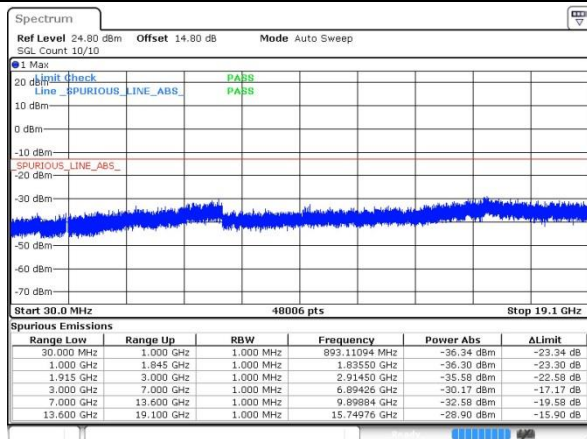
Date: 29 OCT 2018 02:47:41

## Middle Channel



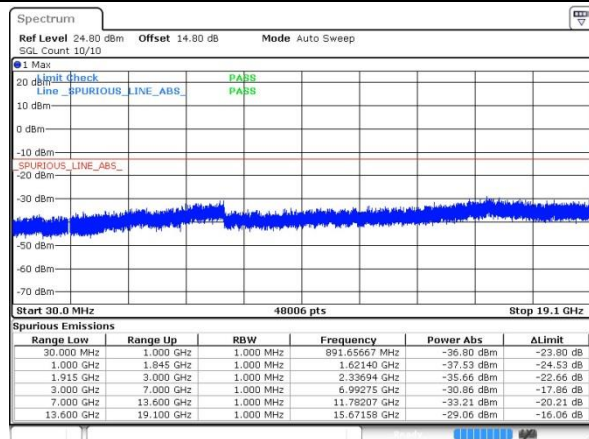
Date: 28 OCT 2018 23:57:23

## Highest Channel



Date: 29 OCT 2018 02:49:21

## Highest Channel

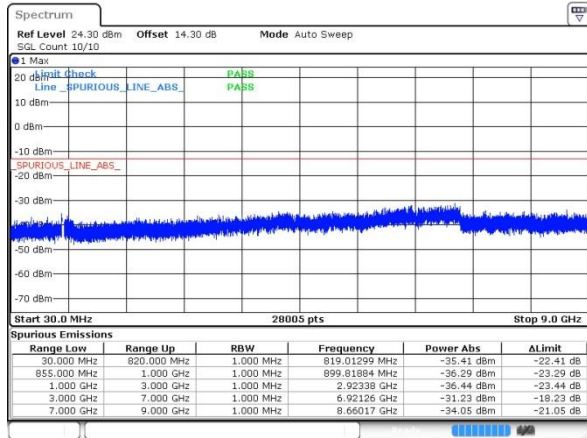


Date: 28 OCT 2018 23:58:51



## WCDMA Band V (RMC 12.2Kbps)

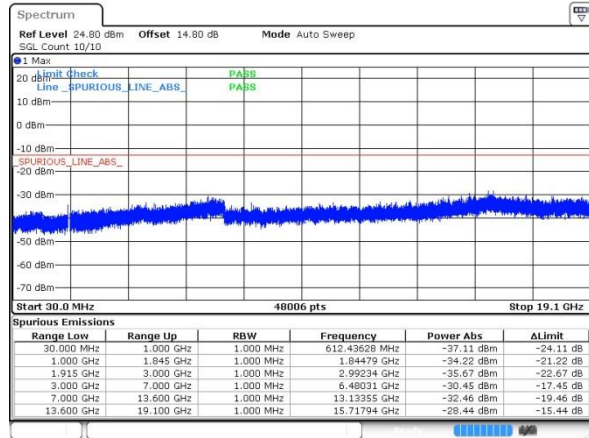
## Lowest Channel



Date: 29 OCT 2018 00:44:41

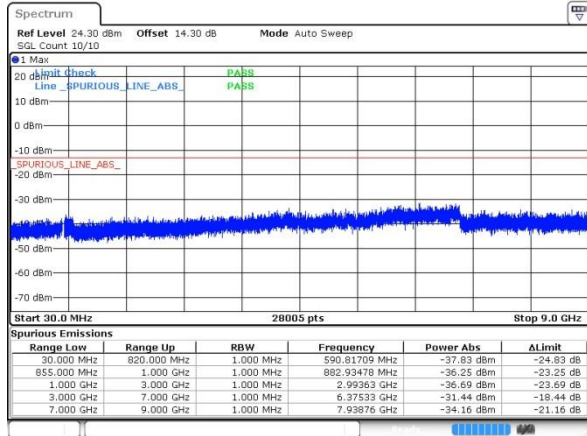
## WCDMA Band II (RMC 12.2Kbps)

## Lowest Channel



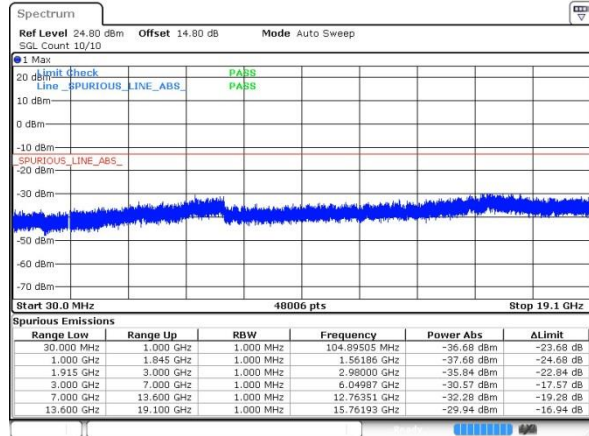
Date: 29 OCT 2018 00:16:59

## Middle Channel



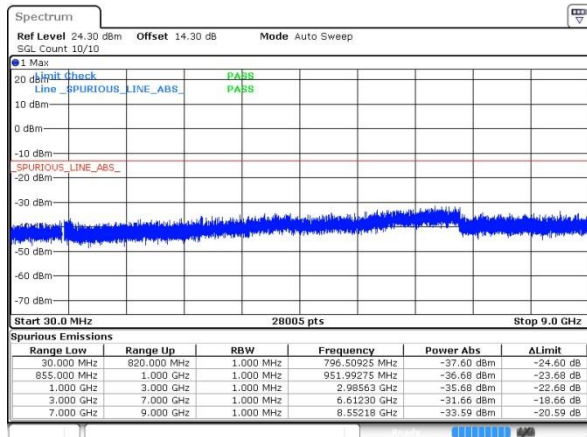
Date: 29 OCT 2018 00:47:16

## Middle Channel



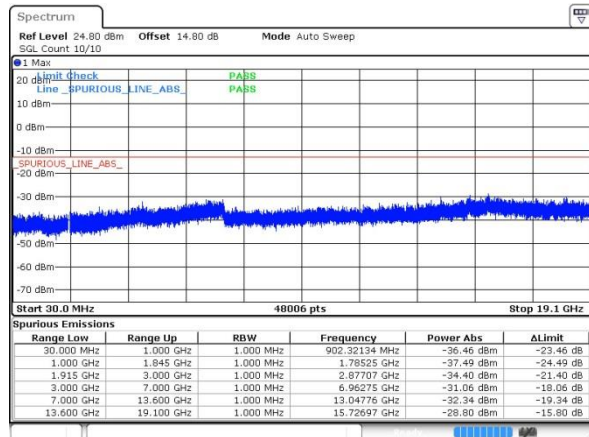
Date: 29 OCT 2018 00:20:37

## Highest Channel



Date: 29 OCT 2018 00:48:41

## Highest Channel



Date: 29 OCT 2018 00:22:25

**Frequency Stability**

| Test Conditions  | Middle Channel    | GSM850<br>(GSM) | GSM850<br>(EDGE class 8) | Limit<br>2.5ppm |
|------------------|-------------------|-----------------|--------------------------|-----------------|
| Temperature (°C) | Voltage (Volt)    | Deviation (ppm) |                          | Result          |
| 50               | Normal Voltage    | 0.0048          | 0.0060                   | PASS            |
| 40               | Normal Voltage    | 0.0526          | 0.0167                   |                 |
| 30               | Normal Voltage    | 0.0120          | 0.0538                   |                 |
| 20(Ref.)         | Normal Voltage    | 0.0000          | 0.0000                   |                 |
| 10               | Normal Voltage    | 0.0574          | 0.0335                   |                 |
| 0                | Normal Voltage    | 0.0191          | 0.0538                   |                 |
| -10              | Normal Voltage    | 0.0084          | 0.0466                   |                 |
| -20              | Normal Voltage    | 0.0143          | 0.0167                   |                 |
| -30              | Normal Voltage    | 0.0108          | 0.0478                   |                 |
| 20               | Maximum Voltage   | 0.0466          | 0.0514                   |                 |
| 20               | Normal Voltage    | 0.0000          | 0.0000                   |                 |
| 20               | Battery End Point | 0.0395          | 0.0395                   |                 |

**Note:** Normal Voltage = 3.85V. : Battery End Point (BEP) =3.5V. : Maximum Voltage =4.4V



| Test Conditions  | Middle Channel    | GSM1900<br>(GSM) | GSM1900<br>(EDGE class 8) | Limit<br>Note 2. |
|------------------|-------------------|------------------|---------------------------|------------------|
| Temperature (°C) | Voltage (Volt)    | Deviation (ppm)  |                           | Result           |
| 50               | Normal Voltage    | 0.0053           | 0.0005                    | PASS             |
| 40               | Normal Voltage    | 0.0016           | 0.0016                    |                  |
| 30               | Normal Voltage    | 0.0027           | 0.0021                    |                  |
| 20(Ref.)         | Normal Voltage    | 0.0000           | 0.0000                    |                  |
| 10               | Normal Voltage    | 0.0170           | 0.0255                    |                  |
| 0                | Normal Voltage    | 0.0074           | 0.0186                    |                  |
| -10              | Normal Voltage    | 0.0160           | 0.0011                    |                  |
| -20              | Normal Voltage    | 0.0218           | 0.0037                    |                  |
| -30              | Normal Voltage    | 0.0005           | 0.0213                    |                  |
| 20               | Maximum Voltage   | 0.0053           | 0.0160                    |                  |
| 20               | Normal Voltage    | 0.0000           | 0.0000                    |                  |
| 20               | Battery End Point | 0.0133           | 0.0011                    |                  |

**Note:**

1. Normal Voltage = 3.85V. ; Battery End Point (BEP) =3.5V. ; Maximum Voltage =4.4V
2. The frequency fundamental emissions stay within the authorized frequency block based on the frequency deviation measured is small.



| Test Conditions  | Middle Channel    | WCDMA Band V<br>(RMC 12.2Kbps) | Limit<br>2.5ppm |
|------------------|-------------------|--------------------------------|-----------------|
| Temperature (°C) | Voltage (Volt)    | Deviation (ppm)                | Result          |
| 50               | Normal Voltage    | 0.0060                         | PASS            |
| 40               | Normal Voltage    | 0.0395                         |                 |
| 30               | Normal Voltage    | 0.0442                         |                 |
| 20(Ref.)         | Normal Voltage    | 0.0000                         |                 |
| 10               | Normal Voltage    | 0.0072                         |                 |
| 0                | Normal Voltage    | 0.0323                         |                 |
| -10              | Normal Voltage    | 0.0048                         |                 |
| -20              | Normal Voltage    | 0.0167                         |                 |
| -30              | Normal Voltage    | 0.0311                         |                 |
| 20               | Maximum Voltage   | 0.0442                         |                 |
| 20               | Normal Voltage    | 0.0000                         |                 |
| 20               | Battery End Point | 0.0012                         |                 |

**Note:** Normal Voltage = 3.85V. : Battery End Point (BEP) =3.5V. : Maximum Voltage =4.4V



| Test Conditions  | Middle Channel    | WCDMA Band II<br>(RMC 12.2Kbps) | Limit<br>Note 2. |
|------------------|-------------------|---------------------------------|------------------|
| Temperature (°C) | Voltage (Volt)    | Deviation (ppm)                 | Result           |
| 50               | Normal Voltage    | 0.0186                          | PASS             |
| 40               | Normal Voltage    | 0.0128                          |                  |
| 30               | Normal Voltage    | 0.0165                          |                  |
| 20(Ref.)         | Normal Voltage    | 0.0000                          |                  |
| 10               | Normal Voltage    | 0.0117                          |                  |
| 0                | Normal Voltage    | 0.0154                          |                  |
| -10              | Normal Voltage    | 0.0239                          |                  |
| -20              | Normal Voltage    | 0.0005                          |                  |
| -30              | Normal Voltage    | 0.0117                          |                  |
| 20               | Maximum Voltage   | 0.0165                          |                  |
| 20               | Normal Voltage    | 0.0000                          |                  |
| 20               | Battery End Point | 0.0032                          |                  |

**Note:**

1. Normal Voltage = 3.85V. ; Battery End Point (BEP) =3.5V. ; Maximum Voltage =4.4V
2. The frequency fundamental emissions stay within the authorized frequency block based on the frequency deviation measured is small.



## Appendix B. Test Results of Conducted Test

### Radiated Spurious Emission

| GSM850 (GSM) |                   |             |               |                   |                    |                      |                       |                    |
|--------------|-------------------|-------------|---------------|-------------------|--------------------|----------------------|-----------------------|--------------------|
| Channel      | Frequency ( MHz ) | ERP ( dBm ) | Limit ( dBm ) | Over Limit ( dB ) | S.G. Power ( dBm ) | TX Cable loss ( dB ) | TX Antenna Gain (dBi) | Polarization (H/V) |
| Middle       | 1672              | -47.29      | -13           | -34.29            | -49.62             | 1.21                 | 5.68                  | H                  |
|              | 2510              | -44.04      | -13           | -31.04            | -46.15             | 1.54                 | 5.80                  | H                  |
|              | 3345              | -59.33      | -13           | -46.33            | -63.33             | 1.73                 | 7.88                  | H                  |
|              | 1672              | -54.65      | -13           | -41.65            | -56.98             | 1.21                 | 5.68                  | V                  |
|              | 2510              | -44.78      | -13           | -31.78            | -46.89             | 1.54                 | 5.80                  | V                  |
|              | 3345              | -59.11      | -13           | -46.11            | -63.11             | 1.73                 | 7.88                  | V                  |

Remark: Spurious emissions within 30-1000MHz were found more than 20dB below limit line.

| GSM850 (EDGE class 8) |                   |             |               |                   |                    |                      |                       |                    |
|-----------------------|-------------------|-------------|---------------|-------------------|--------------------|----------------------|-----------------------|--------------------|
| Channel               | Frequency ( MHz ) | ERP ( dBm ) | Limit ( dBm ) | Over Limit ( dB ) | S.G. Power ( dBm ) | TX Cable loss ( dB ) | TX Antenna Gain (dBi) | Polarization (H/V) |
| Middle                | 1672              | -47.35      | -13           | -34.35            | -49.68             | 1.21                 | 5.68                  | H                  |
|                       | 2510              | -43.37      | -13           | -30.37            | -45.48             | 1.54                 | 5.80                  | H                  |
|                       | 3345              | -59.38      | -13           | -46.38            | -63.38             | 1.73                 | 7.88                  | H                  |
|                       | 1672              | -54.70      | -13           | -41.70            | -57.03             | 1.21                 | 5.68                  | V                  |
|                       | 2510              | -44.54      | -13           | -31.54            | -46.65             | 1.54                 | 5.80                  | V                  |
|                       | 3345              | -59.56      | -13           | -46.56            | -63.56             | 1.73                 | 7.88                  | V                  |

Remark: Spurious emissions within 30-1000MHz were found more than 20dB below limit line.

| GSM1900 (GSM) |                   |              |               |                   |                    |                      |                       |                    |
|---------------|-------------------|--------------|---------------|-------------------|--------------------|----------------------|-----------------------|--------------------|
| Channel       | Frequency ( MHz ) | EIRP ( dBm ) | Limit ( dBm ) | Over Limit ( dB ) | S.G. Power ( dBm ) | TX Cable loss ( dB ) | TX Antenna Gain (dBi) | Polarization (H/V) |
| Middle        | 3759              | -56.68       | -13           | -43.68            | -63.25             | 1.848                | 8.42                  | H                  |
|               | 5640              | -45.40       | -13           | -32.40            | -53.76             | 2.32                 | 10.68                 | H                  |
|               | 7521              | -54.91       | -13           | -41.91            | -64.24             | 2.61                 | 11.94                 | H                  |
|               | 3759              | -55.97       | -13           | -42.97            | -62.54             | 1.85                 | 8.42                  | V                  |
|               | 5640              | -43.95       | -13           | -30.95            | -52.31             | 2.32                 | 10.68                 | V                  |
|               | 7521              | -55.17       | -13           | -42.17            | -64.50             | 2.61                 | 11.94                 | V                  |

Remark: Spurious emissions within 30-1000MHz were found more than 20dB below limit line.



| GSM1900 (EDGE class 8) |                   |              |               |                   |                    |                      |                       |                    |
|------------------------|-------------------|--------------|---------------|-------------------|--------------------|----------------------|-----------------------|--------------------|
| Channel                | Frequency ( MHz ) | EIRP ( dBm ) | Limit ( dBm ) | Over Limit ( dB ) | S.G. Power ( dBm ) | TX Cable loss ( dB ) | TX Antenna Gain (dBi) | Polarization (H/V) |
| Middle                 | 3759              | -57.10       | -13           | -44.10            | -63.67             | 1.848                | 8.42                  | H                  |
|                        | 5640              | -45.89       | -13           | -32.89            | -54.25             | 2.32                 | 10.68                 | H                  |
|                        | 7521              | -54.85       | -13           | -41.85            | -64.18             | 2.61                 | 11.94                 | H                  |
|                        | 3759              | -57.34       | -13           | -44.34            | -63.91             | 1.85                 | 8.42                  | V                  |
|                        | 5640              | -50.21       | -13           | -37.21            | -58.57             | 2.32                 | 10.68                 | V                  |
|                        | 7521              | -55.22       | -13           | -42.22            | -64.55             | 2.61                 | 11.94                 | V                  |

Remark: Spurious emissions within 30-1000MHz were found more than 20dB below limit line.

| WCDMA Band V(RMC 12.2Kbps) |                   |             |               |                   |                    |                      |                       |                    |
|----------------------------|-------------------|-------------|---------------|-------------------|--------------------|----------------------|-----------------------|--------------------|
| Channel                    | Frequency ( MHz ) | ERP ( dBm ) | Limit ( dBm ) | Over Limit ( dB ) | S.G. Power ( dBm ) | TX Cable loss ( dB ) | TX Antenna Gain (dBi) | Polarization (H/V) |
| Middle                     | 1670              | -63.68      | -13           | -50.68            | -66.01             | 1.21                 | 5.68                  | H                  |
|                            | 2512              | -54.58      | -13           | -41.58            | -56.69             | 1.54                 | 5.80                  | H                  |
|                            | 3345              | -59.35      | -13           | -46.35            | -63.35             | 1.73                 | 7.88                  | H                  |
|                            | 1672.8            | -64.88      | -13           | -51.88            | -67.21             | 1.21                 | 5.68                  | V                  |
|                            | 2506              | -55.48      | -13           | -42.48            | -57.59             | 1.54                 | 5.80                  | V                  |
|                            | 3345              | -59.53      | -13           | -46.53            | -63.53             | 1.73                 | 7.88                  | V                  |

Remark: Spurious emissions within 30-1000MHz were found more than 20dB below limit line.

| WCDMA Band II(RMC 12.2Kbps) |                   |              |               |                   |                    |                      |                       |                    |
|-----------------------------|-------------------|--------------|---------------|-------------------|--------------------|----------------------|-----------------------|--------------------|
| Channel                     | Frequency ( MHz ) | EIRP ( dBm ) | Limit ( dBm ) | Over Limit ( dB ) | S.G. Power ( dBm ) | TX Cable loss ( dB ) | TX Antenna Gain (dBi) | Polarization (H/V) |
| Middle                      | 3762              | -56.68       | -13           | -43.68            | -63.25             | 1.848                | 8.42                  | H                  |
|                             | 5643              | -51.57       | -13           | -38.57            | -59.93             | 2.32                 | 10.68                 | H                  |
|                             | 7524              | -53.84       | -13           | -40.84            | -63.17             | 2.61                 | 11.94                 | H                  |
|                             | 3762              | -53.27       | -13           | -40.27            | -59.84             | 1.85                 | 8.42                  | V                  |
|                             | 5643              | -48.19       | -13           | -35.19            | -56.55             | 2.32                 | 10.68                 | V                  |
|                             | 7524              | -52.28       | -13           | -39.28            | -61.61             | 2.61                 | 11.94                 | V                  |

Remark: Spurious emissions within 30-1000MHz were found more than 20dB below limit line.



A calculation example for radiated spurious emission is shown as below:

| GSM850  |                      |                |                  |                         |                          |                            |                             |                       |
|---------|----------------------|----------------|------------------|-------------------------|--------------------------|----------------------------|-----------------------------|-----------------------|
| Channel | Frequency<br>( MHz ) | ERP<br>( dBm ) | Limit<br>( dBm ) | Over<br>Limit<br>( dB ) | S.G.<br>Power<br>( dBm ) | TX Cable<br>loss<br>( dB ) | TX Antenna<br>Gain<br>(dBi) | Polarization<br>(H/V) |
| Middle  | 1672                 | -61.30         | -13              | -48.30                  | -63.21                   | 1.14                       | 5.20                        | H                     |

1. EIRP (dBm) = S.G. Power – Tx Cable Loss + Tx Antenna Gain
2. ERP (dBm) = EIRP - 2.15

**For example:**

1. ERP (dBm)  
= S.G. Power – Tx Cable Loss + Tx Antenna Gain -2.15  
= -63.21(dBm) – 1.14(dB) + 5.2 (dBi) -2.15  
= -61.30 (dBm)
2. Over Limit(dB)  
= ERP (dBm) – Limit Line(dBm)  
= -61.30 (dBm) + 13(dBm)  
= -48.30 (dB)

The test result complies with the limit line, so test result is “PASS”.