## LTE Band 17

LTE Band 17 10MHz QPSK

UL Korea, Ltd Suwon Laboratory
Above 1GHz High Frequency Substitution Measurement

Company: Samsung
Project #: 16K22866
Date: 02-23-16
Test Engineer: Steven Kim
Configuration: EUT / AC Adapter / Ear Phone / Y-Position
Mode: TX, LTE BAND 17, 10MHz BW, QPSK

| Chamber | Pre-amplifer | Filter | Limit |
|---|---|---|---|
| Chamber 2 | AFS42 | Filter 1 | FCC Part 27 |

| f GHz | SG reading (dBm) | Ant. Pol. (H/V) | Distance (m) | Preamp (dB) | Filter (dB) | ERP (dBm) | Limit (dBm) | Delta (dB) | Notes |
|---|---|---|---|---|---|---|---|---|---|
| Low Channel (709MHz) | | | | | | | | | |
| 1.4180 | -25.0 | V | 3.0 | 39.0 | 1.0 | -63.1 | -13.0 | -50.1 | |
| 2.1270 | -11.0 | V | 3.0 | 39.3 | 1.0 | -49.3 | -13.0 | -36.3 | |
| 2.8360 | -22.4 | V | 3.0 | 39.7 | 1.0 | -61.1 | -13.0 | -48.1 | |
| 1.4180 | -27.3 | H | 3.0 | 39.0 | 1.0 | -65.3 | -13.0 | -52.3 | |
| 2.1270 | -14.3 | H | 3.0 | 39.3 | 1.0 | -52.7 | -13.0 | -39.7 | |
| 2.8360 | -22.4 | H | 3.0 | 39.7 | 1.0 | -61.2 | -13.0 | -48.2 | |
| Mid Channel (710MHz) | | | | | | | | | |
| 1.4200 | -22.2 | V | 3.0 | 39.0 | 1.0 | -60.2 | -13.0 | -47.2 | |
| 2.1300 | -11.6 | V | 3.0 | 39.3 | 1.0 | -50.0 | -13.0 | -37.0 | |
| 2.8400 | -23.5 | V | 3.0 | 39.7 | 1.0 | -62.2 | -13.0 | -49.2 | |
| 1.4200 | -26.6 | H | 3.0 | 39.0 | 1.0 | -64.6 | -13.0 | -51.6 | |
| 2.1300 | -13.8 | H | 3.0 | 39.3 | 1.0 | -52.1 | -13.0 | -39.1 | |
| 2.8400 | -23.5 | H | 3.0 | 39.7 | 1.0 | -62.2 | -13.0 | -49.2 | |
| High Channel (711MHz) | | | | | | | | | |
| 1.4220 | -24.6 | V | 3.0 | 39.0 | 1.0 | -62.6 | -13.0 | -49.6 | |
| 2.1330 | -9.0 | V | 3.0 | 39.3 | 1.0 | -47.4 | -13.0 | -34.4 | |
| 2.8440 | -23.2 | V | 3.0 | 39.7 | 1.0 | -61.9 | -13.0 | -48.9 | |
| 1.4220 | -27.6 | H | 3.0 | 39.0 | 1.0 | -65.6 | -13.0 | -52.6 | |
| 2.1330 | -14.0 | H | 3.0 | 39.3 | 1.0 | -52.4 | -13.0 | -39.4 | |
| 2.8440 | -23.4 | H | 3.0 | 39.7 | 1.0 | -62.1 | -13.0 | -49.1 | |

Rev. 03.03.09
Note: No other emissions were detected above the system noise floor.

LTE Band 17 10MHz 16QAM

UL Korea, Ltd Suwon Laboratory
Above 1GHz High Frequency Substitution Measurement

Company: Samsung
Project #: 16K22866
Date: 02-23-16
Test Engineer: Steven Kim
Configuration: EUT / AC Adapter / Ear Phone / Y-Position
Mode: TX, LTE BAND 17, 10MHz BW,16QAM

| Chamber | Pre-amplifer | Filter | Limit |
|---|---|---|---|
| Chamber 2 | AFS42 | Filter 1 | FCC Part 27 |

| f GHz | SG reading (dBm) | Ant. Pol. (H/V) | Distance (m) | Preamp (dB) | Filter (dB) | ERP (dBm) | Limit (dBm) | Delta (dB) | Notes |
|---|---|---|---|---|---|---|---|---|---|
| Low Channel (709MHz) | | | | | | | | | |
| 1.4180 | -25.6 | V | 3.0 | 39.0 | 1.0 | -63.6 | -13.0 | -50.6 | |
| 2.1270 | -12.9 | V | 3.0 | 39.3 | 1.0 | -51.2 | -13.0 | -38.2 | |
| 2.8360 | -22.4 | V | 3.0 | 39.7 | 1.0 | -61.1 | -13.0 | -48.1 | |
| 1.4180 | -27.8 | H | 3.0 | 39.0 | 1.0 | -65.8 | -13.0 | -52.8 | |
| 2.1270 | -15.8 | H | 3.0 | 39.3 | 1.0 | -54.1 | -13.0 | -41.1 | |
| 2.8360 | -22.5 | H | 3.0 | 39.7 | 1.0 | -61.3 | -13.0 | -48.3 | |
| Mid Channel (710MHz) | | | | | | | | | |
| 1.4200 | -23.3 | V | 3.0 | 39.0 | 1.0 | -61.3 | -13.0 | -48.3 | |
| 2.1300 | -14.2 | V | 3.0 | 39.3 | 1.0 | -52.5 | -13.0 | -39.5 | |
| 2.8400 | -23.4 | V | 3.0 | 39.7 | 1.0 | -62.1 | -13.0 | -49.1 | |
| 1.4200 | -27.1 | H | 3.0 | 39.0 | 1.0 | -65.1 | -13.0 | -52.1 | |
| 2.1300 | -16.1 | H | 3.0 | 39.3 | 1.0 | -54.4 | -13.0 | -41.4 | |
| 2.8400 | -23.5 | H | 3.0 | 39.7 | 1.0 | -62.2 | -13.0 | -49.2 | |
| High Channel (711MHz) | | | | | | | | | |
| 1.4220 | -23.4 | V | 3.0 | 39.0 | 1.0 | -61.4 | -13.0 | -48.4 | |
| 2.1330 | -12.4 | V | 3.0 | 39.3 | 1.0 | -50.7 | -13.0 | -37.7 | |
| 2.8440 | -23.2 | V | 3.0 | 39.7 | 1.0 | -62.0 | -13.0 | -49.0 | |
| 1.4220 | -29.2 | H | 3.0 | 39.0 | 1.0 | -67.2 | -13.0 | -54.2 | |
| 2.1330 | -17.0 | H | 3.0 | 39.3 | 1.0 | -55.4 | -13.0 | -42.4 | |
| 2.8440 | -23.2 | H | 3.0 | 39.7 | 1.0 | -61.9 | -13.0 | -48.9 | |

Rev. 03.03.09
Note: No other emissions were detected above the system noise floor.


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LTE

Band 17

5MHz

QPSK

UL Korea, Ltd Suwon Laboratory
Above 1GHz High Frequency Substitution Measurement

Company: Samsung
Project #: 16K22866
Date: 02-23-16
Test Engineer: Steven Kim
Configuration: EUT / AC Adapter / Ear Phone / Y-Position
Mode: TX, LTE BAND 17, 5MHz BW, QPSK

| Chamber | Pre-amplifer | Filter | Limit |
|---|---|---|---|
| Chamber 2 | AFS42 | Filter 1 | FCC Part 27 |

| f GHz | SG reading (dBm) | Ant. Pol. (H/V) | Distance (m) | Preamp (dB) | Filter (dB) | ERP (dBm) | Limit (dBm) | Delta (dB) | Notes |
|---|---|---|---|---|---|---|---|---|---|
| Low Channel (706.5MHz) | | | | | | | | | |
| 1.4130 | -25.4 | V | 3.0 | 39.0 | 1.0 | -63.4 | -13.0 | -50.4 | |
| 2.1195 | -9.4 | V | 3.0 | 39.3 | 1.0 | -47.7 | -13.0 | -34.7 | |
| 2.8260 | -23.9 | V | 3.0 | 39.7 | 1.0 | -62.6 | -13.0 | -49.6 | |
| 1.4130 | -26.2 | H | 3.0 | 39.0 | 1.0 | -64.2 | -13.0 | -51.2 | |
| 2.1195 | -16.2 | H | 3.0 | 39.3 | 1.0 | -54.5 | -13.0 | -41.5 | |
| 2.8260 | -24.0 | H | 3.0 | 39.7 | 1.0 | -62.8 | -13.0 | -49.8 | |
| Mid Channel (710MHz) | | | | | | | | | |
| 1.4200 | -22.8 | V | 3.0 | 39.0 | 1.0 | -60.8 | -13.0 | -47.8 | |
| 2.1300 | -9.2 | V | 3.0 | 39.3 | 1.0 | -47.6 | -13.0 | -34.6 | |
| 2.8400 | -23.6 | V | 3.0 | 39.7 | 1.0 | -62.3 | -13.0 | -49.3 | |
| 1.4200 | -26.9 | H | 3.0 | 39.0 | 1.0 | -64.9 | -13.0 | -51.9 | |
| 2.1300 | -16.6 | H | 3.0 | 39.3 | 1.0 | -54.9 | -13.0 | -41.9 | |
| 2.8400 | -23.1 | H | 3.0 | 39.7 | 1.0 | -61.8 | -13.0 | -48.8 | |
| High Channel (713.5MHz) | | | | | | | | | |
| 1.4270 | -24.2 | V | 3.0 | 39.0 | 1.0 | -62.2 | -13.0 | -49.2 | |
| 2.1405 | -10.0 | V | 3.0 | 39.3 | 1.0 | -48.4 | -13.0 | -35.4 | |
| 2.8540 | -23.8 | V | 3.0 | 39.7 | 1.0 | -62.5 | -13.0 | -49.5 | |
| 1.4270 | -26.2 | H | 3.0 | 39.0 | 1.0 | -64.2 | -13.0 | -51.2 | |
| 2.1405 | -14.1 | H | 3.0 | 39.3 | 1.0 | -52.5 | -13.0 | -39.5 | |
| 2.8540 | -23.9 | H | 3.0 | 39.7 | 1.0 | -62.6 | -13.0 | -49.6 | |

Rev. 03.03.09
Note: No other emissions were detected above the system noise floor.

LTE

Band 17

5MHz

16QAM

UL Korea, Ltd Suwon Laboratory
Above 1GHz High Frequency Substitution Measurement

Company: Samsung
Project #: 16K22866
Date: 02-23-16
Test Engineer: Steven Kim
Configuration: EUT / AC Adapter / Ear Phone / Y-Position
Mode: TX, LTE BAND 17, 5MHz BW,16QAM

| Chamber | Pre-amplifer | Filter | Limit |
|---|---|---|---|
| Chamber 2 | AFS42 | Filter 1 | FCC Part 27 |

| f GHz | SG reading (dBm) | Ant. Pol. (H/V) | Distance (m) | Preamp (dB) | Filter (dB) | ERP (dBm) | Limit (dBm) | Delta (dB) | Notes |
|---|---|---|---|---|---|---|---|---|---|
| Low Channel (706.5MHz) | | | | | | | | | |
| 1.4130 | -26.0 | V | 3.0 | 39.0 | 1.0 | -64.1 | -13.0 | -51.1 | |
| 2.1195 | -10.7 | V | 3.0 | 39.3 | 1.0 | -49.0 | -13.0 | -36.0 | |
| 2.8260 | -24.0 | V | 3.0 | 39.7 | 1.0 | -62.7 | -13.0 | -49.7 | |
| 1.4130 | -26.9 | H | 3.0 | 39.0 | 1.0 | -64.9 | -13.0 | -51.9 | |
| 2.1195 | -17.5 | H | 3.0 | 39.3 | 1.0 | -55.8 | -13.0 | -42.8 | |
| 2.8260 | -24.0 | H | 3.0 | 39.7 | 1.0 | -62.7 | -13.0 | -49.7 | |
| Mid Channel (710MHz) | | | | | | | | | |
| 1.4200 | -24.0 | V | 3.0 | 39.0 | 1.0 | -62.0 | -13.0 | -49.0 | |
| 2.1300 | -12.2 | V | 3.0 | 39.3 | 1.0 | -50.5 | -13.0 | -37.5 | |
| 2.8400 | -23.6 | V | 3.0 | 39.7 | 1.0 | -62.3 | -13.0 | -49.3 | |
| 1.4200 | -27.2 | H | 3.0 | 39.0 | 1.0 | -65.2 | -13.0 | -52.2 | |
| 2.1300 | -18.4 | H | 3.0 | 39.3 | 1.0 | -56.7 | -13.0 | -43.7 | |
| 2.8400 | -23.1 | H | 3.0 | 39.7 | 1.0 | -61.8 | -13.0 | -48.8 | |
| High Channel (713.5MHz) | | | | | | | | | |
| 1.4270 | -25.4 | V | 3.0 | 39.0 | 1.0 | -63.4 | -13.0 | -50.4 | |
| 2.1405 | -13.2 | V | 3.0 | 39.3 | 1.0 | -51.6 | -13.0 | -38.6 | |
| 2.8540 | -23.9 | V | 3.0 | 39.7 | 1.0 | -62.6 | -13.0 | -49.6 | |
| 1.4270 | -27.1 | H | 3.0 | 39.0 | 1.0 | -65.1 | -13.0 | -52.1 | |
| 2.1405 | -17.3 | H | 3.0 | 39.3 | 1.0 | -55.6 | -13.0 | -42.6 | |
| 2.8540 | -23.9 | H | 3.0 | 39.7 | 1.0 | -62.6 | -13.0 | -49.6 | |

Rev. 03.03.09
Note: No other emissions were detected above the system noise floor.


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## LTE Band 5

LTE Band 5 10MHz QPSK

UL Korea, Ltd Suwon Laboratory
Above 1GHz High Frequency Substitution Measurement

Company: Samsung
Project #: 16K22866
Date: 02-23-16
Test Engineer: Steven.Kim
Configuration: EUT / AC Adapter / Earphone, Y Position
Mode: TX, LTE BAND 5, 10MHz BW,QPSK

| Chamber | Pre-amplifer | Filter | Limit |
|---|---|---|---|
| Chamber 2 | AFS42 | Filter 1 | Part 22 |

| f GHz | SG reading (dBm) | Ant. Pol. (H/V) | Distance (m) | Preamp (dB) | Filter (dB) | EIRP (dBm) | Limit (dBm) | Delta (dB) | Notes |
|---|---|---|---|---|---|---|---|---|---|
| Low Channel (829MHz) | | | | | | | | | |
| 1.6580 | -18.1 | V | 3.0 | 39.1 | 1.0 | -56.2 | -13.0 | -43.2 | |
| 2.4870 | -16.3 | V | 3.0 | 39.5 | 1.0 | -54.8 | -13.0 | -41.8 | |
| 3.3160 | -21.9 | V | 3.0 | 40.1 | 1.0 | -61.0 | -13.0 | -48.0 | |
| 1.6580 | -25.7 | H | 3.0 | 39.1 | 1.0 | -63.8 | -13.0 | -50.8 | |
| 2.4870 | -10.3 | H | 3.0 | 39.5 | 1.0 | -48.9 | -13.0 | -35.9 | |
| 3.3160 | -22.3 | H | 3.0 | 40.1 | 1.0 | -61.4 | -13.0 | -48.4 | |
| Mid Channel (836.5MHz) | | | | | | | | | |
| 1.6730 | -21.9 | V | 3.0 | 39.1 | 1.0 | -60.0 | -13.0 | -47.0 | |
| 2.5090 | -16.8 | V | 3.0 | 39.5 | 1.0 | -55.3 | -13.0 | -42.3 | |
| 3.3460 | -22.2 | V | 3.0 | 40.1 | 1.0 | -61.3 | -13.0 | -48.3 | |
| 1.6730 | -23.9 | H | 3.0 | 39.1 | 1.0 | -62.1 | -13.0 | -49.1 | |
| 2.5090 | -9.9 | H | 3.0 | 39.5 | 1.0 | -48.4 | -13.0 | -35.4 | |
| 3.3460 | -22.6 | H | 3.0 | 40.1 | 1.0 | -61.8 | -13.0 | -48.8 | |
| High Channel (844MHz) | | | | | | | | | |
| 1.6880 | -21.9 | V | 3.0 | 39.1 | 1.0 | -60.0 | -13.0 | -47.0 | |
| 2.5320 | -16.5 | V | 3.0 | 39.5 | 1.0 | -55.1 | -13.0 | -42.1 | |
| 3.3760 | -22.6 | V | 3.0 | 40.2 | 1.0 | -61.8 | -13.0 | -48.8 | |
| 1.6880 | -22.0 | H | 3.0 | 39.1 | 1.0 | -60.1 | -13.0 | -47.1 | |
| 2.5320 | -14.4 | H | 3.0 | 39.5 | 1.0 | -53.0 | -13.0 | -40.0 | |
| 3.3760 | -22.9 | H | 3.0 | 40.2 | 1.0 | -62.1 | -13.0 | -49.1 | |

Rev. 03.03.09
Note: No other emissions were detected above the system noise floor.

LTE Band 5 10MHz 16QAM

UL Korea, Ltd Suwon Laboratory
Above 1GHz High Frequency Substitution Measurement

Company: Samsung
Project #: 16K22866
Date: 02-23-16
Test Engineer: Steven.Kim
Configuration: EUT / AC Adapter / Earphone, Y Position
Mode: TX, LTE BAND 5, 10MHz BW,16QAM

| Chamber | Pre-amplifer | Filter | Limit |
|---|---|---|---|
| Chamber 2 | AFS42 | Filter 1 | Part 22 |

| f GHz | SG reading (dBm) | Ant. Pol. (H/V) | Distance (m) | Preamp (dB) | Filter (dB) | EIRP (dBm) | Limit (dBm) | Delta (dB) | Notes |
|---|---|---|---|---|---|---|---|---|---|
| Low Channel (829MHz) | | | | | | | | | |
| 1.6580 | -20.0 | V | 3.0 | 39.1 | 1.0 | -58.1 | -13.0 | -45.1 | |
| 2.4870 | -16.8 | V | 3.0 | 39.5 | 1.0 | -55.3 | -13.0 | -42.3 | |
| 3.3160 | -22.1 | V | 3.0 | 40.1 | 1.0 | -61.2 | -13.0 | -48.2 | |
| 1.6580 | -26.2 | H | 3.0 | 39.1 | 1.0 | -64.3 | -13.0 | -51.3 | |
| 2.4870 | -12.4 | H | 3.0 | 39.5 | 1.0 | -50.9 | -13.0 | -37.9 | |
| 3.3160 | -22.3 | H | 3.0 | 40.1 | 1.0 | -61.4 | -13.0 | -48.4 | |
| Mid Channel (836.5MHz) | | | | | | | | | |
| 1.6730 | -22.7 | V | 3.0 | 39.1 | 1.0 | -60.9 | -13.0 | -47.9 | |
| 2.5090 | -18.1 | V | 3.0 | 39.5 | 1.0 | -56.6 | -13.0 | -43.6 | |
| 3.3460 | -22.3 | V | 3.0 | 40.1 | 1.0 | -61.5 | -13.0 | -48.5 | |
| 1.6730 | -24.1 | H | 3.0 | 39.1 | 1.0 | -62.2 | -13.0 | -49.2 | |
| 2.5090 | -11.6 | H | 3.0 | 39.5 | 1.0 | -50.1 | -13.0 | -37.1 | |
| 3.3460 | -22.6 | H | 3.0 | 40.1 | 1.0 | -61.7 | -13.0 | -48.7 | |
| High Channel (844MHz) | | | | | | | | | |
| 1.6880 | -22.8 | V | 3.0 | 39.1 | 1.0 | -60.9 | -13.0 | -47.9 | |
| 2.5320 | -18.3 | V | 3.0 | 39.5 | 1.0 | -56.9 | -13.0 | -43.9 | |
| 3.3760 | -22.6 | V | 3.0 | 40.2 | 1.0 | -61.7 | -13.0 | -48.7 | |
| 1.6880 | -23.5 | H | 3.0 | 39.1 | 1.0 | -61.7 | -13.0 | -48.7 | |
| 2.5320 | -15.2 | H | 3.0 | 39.5 | 1.0 | -53.8 | -13.0 | -40.8 | |
| 3.3760 | -22.8 | H | 3.0 | 40.2 | 1.0 | -62.0 | -13.0 | -49.0 | |

Rev. 03.03.09
Note: No other emissions were detected above the system noise floor.


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LTE

Band 5

5MHz

QPSK

UL Korea, Ltd Suwon Laboratory
Above 1GHz High Frequency Substitution Measurement

Company: Samsung
Project #: 16K22866
Date: 03-07-16
Test Engineer: Steven.Kim
Configuration: EUT / AC Adapter / Earphone, Y Position
Mode: TX, LTE BAND 5, 5MHz BW,QPSK

| Chamber | Pre-amplifer | Filter | Limit |
|---|---|---|---|
| Chamber 2 | AFS42 | Filter 1 | Part 22 |

| f GHz | SG reading (dBm) | Ant. Pol. (H/V) | Distance (m) | Preamp (dB) | Filter (dB) | EIRP (dBm) | Limit (dBm) | Delta (dB) | Notes |
|---|---|---|---|---|---|---|---|---|---|
| Low Channel (826.5MHz) | | | | | | | | | |
| 1.6530 | -21.3 | V | 3.0 | 39.1 | 1.0 | -59.4 | -13.0 | -46.4 | |
| 2.4790 | -20.5 | V | 3.0 | 39.5 | 1.0 | -59.0 | -13.0 | -46.0 | |
| 3.3060 | -22.9 | V | 3.0 | 40.1 | 1.0 | -62.0 | -13.0 | -49.0 | |
| 1.6530 | -26.5 | H | 3.0 | 39.1 | 1.0 | -64.6 | -13.0 | -51.6 | |
| 2.4790 | -22.0 | H | 3.0 | 39.5 | 1.0 | -60.5 | -13.0 | -47.5 | |
| 3.3060 | -22.9 | H | 3.0 | 40.1 | 1.0 | -62.0 | -13.0 | -49.0 | |
| Mid Channel (836.5MHz) | | | | | | | | | |
| 1.6730 | -20.3 | V | 3.0 | 39.1 | 1.0 | -58.4 | -13.0 | -45.4 | |
| 2.5090 | -22.8 | V | 3.0 | 39.5 | 1.0 | -61.3 | -13.0 | -48.3 | |
| 3.3460 | -22.8 | V | 3.0 | 40.1 | 1.0 | -61.9 | -13.0 | -48.9 | |
| 1.6730 | -25.6 | H | 3.0 | 39.1 | 1.0 | -63.7 | -13.0 | -50.7 | |
| 2.5090 | -21.5 | H | 3.0 | 39.5 | 1.0 | -60.1 | -13.0 | -47.1 | |
| 3.3460 | -22.8 | H | 3.0 | 40.1 | 1.0 | -61.9 | -13.0 | -48.9 | |
| High Channel (846.5MHz) | | | | | | | | | |
| 1.6930 | -23.9 | V | 3.0 | 39.1 | 1.0 | -62.0 | -13.0 | -49.0 | |
| 2.5390 | -23.8 | V | 3.0 | 39.6 | 1.0 | -62.3 | -13.0 | -49.3 | |
| 3.3860 | -22.5 | V | 3.0 | 40.2 | 1.0 | -61.6 | -13.0 | -48.6 | |
| 1.6930 | -25.8 | H | 3.0 | 39.1 | 1.0 | -64.0 | -13.0 | -51.0 | |
| 2.5390 | -22.4 | H | 3.0 | 39.6 | 1.0 | -61.0 | -13.0 | -48.0 | |
| 3.3860 | -22.8 | H | 3.0 | 40.2 | 1.0 | -62.0 | -13.0 | -49.0 | |

Rev. 03.03.09
Note: No other emissions were detected above the system noise floor.

LTE

Band 5

5MHz

16QAM

UL Korea, Ltd Suwon Laboratory
Above 1GHz High Frequency Substitution Measurement

Company: Samsung
Project #: 16K22866
Date: 03-07-16
Test Engineer: Steven.Kim
Configuration: EUT / AC Adapter / Earphone, Y Position
Mode: TX, LTE BAND 5, 5MHz BW,16QAM

| Chamber | Pre-amplifer | Filter | Limit |
|---|---|---|---|
| Chamber 2 | AFS42 | Filter 1 | Part 22 |

| f GHz | SG reading (dBm) | Ant. Pol. (H/V) | Distance (m) | Preamp (dB) | Filter (dB) | EIRP (dBm) | Limit (dBm) | Delta (dB) | Notes |
|---|---|---|---|---|---|---|---|---|---|
| Low Channel (826.5MHz) | | | | | | | | | |
| 1.6530 | -22.3 | V | 3.0 | 39.1 | 1.0 | -60.4 | -13.0 | -47.4 | |
| 2.4790 | -21.2 | V | 3.0 | 39.5 | 1.0 | -59.7 | -13.0 | -46.7 | |
| 3.3060 | -23.1 | V | 3.0 | 40.1 | 1.0 | -62.2 | -13.0 | -49.2 | |
| 1.6530 | -26.7 | H | 3.0 | 39.1 | 1.0 | -64.8 | -13.0 | -51.8 | |
| 2.4790 | -22.3 | H | 3.0 | 39.5 | 1.0 | -60.8 | -13.0 | -47.8 | |
| 3.3060 | -23.1 | H | 3.0 | 40.1 | 1.0 | -62.2 | -13.0 | -49.2 | |
| Mid Channel (836.5MHz) | | | | | | | | | |
| 1.6730 | -22.6 | V | 3.0 | 39.1 | 1.0 | -60.7 | -13.0 | -47.7 | |
| 2.5090 | -23.6 | V | 3.0 | 39.5 | 1.0 | -62.2 | -13.0 | -49.2 | |
| 3.3460 | -23.0 | V | 3.0 | 40.1 | 1.0 | -62.2 | -13.0 | -49.2 | |
| 1.6730 | -26.5 | H | 3.0 | 39.1 | 1.0 | -64.6 | -13.0 | -51.6 | |
| 2.5090 | -23.1 | H | 3.0 | 39.5 | 1.0 | -61.6 | -13.0 | -48.6 | |
| 3.3460 | -23.2 | H | 3.0 | 40.1 | 1.0 | -62.3 | -13.0 | -49.3 | |
| High Channel (846.5MHz) | | | | | | | | | |
| 1.6930 | -24.4 | V | 3.0 | 39.1 | 1.0 | -62.5 | -13.0 | -49.5 | |
| 2.5390 | -24.2 | V | 3.0 | 39.6 | 1.0 | -62.8 | -13.0 | -49.8 | |
| 3.3860 | -22.9 | V | 3.0 | 40.2 | 1.0 | -62.1 | -13.0 | -49.1 | |
| 1.6930 | -26.7 | H | 3.0 | 39.1 | 1.0 | -64.8 | -13.0 | -51.8 | |
| 2.5390 | -23.5 | H | 3.0 | 39.6 | 1.0 | -62.1 | -13.0 | -49.1 | |
| 3.3860 | -23.2 | H | 3.0 | 40.2 | 1.0 | -62.4 | -13.0 | -49.4 | |

Rev. 03.03.09
Note: No other emissions were detected above the system noise floor.


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LTE Band 5 3MHz QPSK

UL Korea, Ltd Suwon Laboratory
Above 1GHz High Frequency Substitution Measurement

Company: Samsung
Project #: 16K22866
Date: 03-07-16
Test Engineer: Steven.Kim
Configuration: EUT / AC Adapter / Earphone, Y Position
Mode: TX LTE BAND 5, 3MHz BW,QPSK

| Chamber | Pre-amplifer | Filter | Limit |
|---|---|---|---|
| Chamber 2 | AFS42 | Filter 1 | Part 22 |

| f GHz | SG reading (dBm) | Ant. Pol. (H/V) | Distance (m) | Preamp (dB) | Filter (dB) | EIRP (dBm) | Limit (dBm) | Delta (dB) | Notes |
|---|---|---|---|---|---|---|---|---|---|
| Low Channel (825.5MHz) | | | | | | | | | |
| 1.6510 | -20.4 | V | 3.0 | 39.1 | 1.0 | -58.5 | -13.0 | -45.5 | |
| 2.4765 | -20.2 | V | 3.0 | 39.5 | 1.0 | -58.7 | -13.0 | -45.7 | |
| 3.3020 | -22.8 | V | 3.0 | 40.1 | 1.0 | -61.9 | -13.0 | -48.9 | |
| 1.6510 | -26.6 | H | 3.0 | 39.1 | 1.0 | -64.7 | -13.0 | -51.7 | |
| 2.4765 | -19.5 | H | 3.0 | 39.5 | 1.0 | -58.0 | -13.0 | -45.0 | |
| 3.3020 | -22.7 | H | 3.0 | 40.1 | 1.0 | -61.8 | -13.0 | -48.8 | |
| Mid Channel (836.5MHz) | | | | | | | | | |
| 1.6730 | -20.0 | V | 3.0 | 39.1 | 1.0 | -58.1 | -13.0 | -45.1 | |
| 2.5090 | -20.7 | V | 3.0 | 39.5 | 1.0 | -59.3 | -13.0 | -46.3 | |
| 3.3460 | -22.7 | V | 3.0 | 40.1 | 1.0 | -61.8 | -13.0 | -48.8 | |
| 1.6730 | -25.2 | H | 3.0 | 39.1 | 1.0 | -63.3 | -13.0 | -50.3 | |
| 2.5090 | -20.6 | H | 3.0 | 39.5 | 1.0 | -59.2 | -13.0 | -46.2 | |
| 3.3460 | -23.0 | H | 3.0 | 40.1 | 1.0 | -62.1 | -13.0 | -49.1 | |
| High Channel (847.5MHz) | | | | | | | | | |
| 1.6950 | -20.7 | V | 3.0 | 39.1 | 1.0 | -58.8 | -13.0 | -45.8 | |
| 2.5425 | -23.0 | V | 3.0 | 39.6 | 1.0 | -61.6 | -13.0 | -48.6 | |
| 3.3900 | -22.7 | V | 3.0 | 40.2 | 1.0 | -61.9 | -13.0 | -48.9 | |
| 1.6950 | -26.5 | H | 3.0 | 39.1 | 1.0 | -64.6 | -13.0 | -51.6 | |
| 2.5425 | -22.3 | H | 3.0 | 39.6 | 1.0 | -60.8 | -13.0 | -47.8 | |
| 3.3900 | -22.6 | H | 3.0 | 40.2 | 1.0 | -61.8 | -13.0 | -48.8 | |

Rev. 03.03.09
Note: No other emissions were detected above the system noise floor.

LTE Band 5 3MHz 16QAM

UL Korea, Ltd Suwon Laboratory
Above 1GHz High Frequency Substitution Measurement

Company: Samsung
Project #: 16K22866
Date: 03-07-16
Test Engineer: Steven.Kim
Configuration: EUT / AC Adapter / Earphone, Y Position
Mode: TX LTE BAND 5, 3MHz BW,16QAM

| Chamber | Pre-amplifer | Filter | Limit |
|---|---|---|---|
| Chamber 2 | AFS42 | Filter 1 | Part 22 |

| f GHz | SG reading (dBm) | Ant. Pol. (H/V) | Distance (m) | Preamp (dB) | Filter (dB) | EIRP (dBm) | Limit (dBm) | Delta (dB) | Notes |
|---|---|---|---|---|---|---|---|---|---|
| Low Channel (825.5MHz) | | | | | | | | | |
| 1.6510 | -21.9 | V | 3.0 | 39.1 | 1.0 | -60.0 | -13.0 | -47.0 | |
| 2.4765 | -21.6 | V | 3.0 | 39.5 | 1.0 | -60.1 | -13.0 | -47.1 | |
| 3.3020 | -23.1 | V | 3.0 | 40.1 | 1.0 | -62.2 | -13.0 | -49.2 | |
| 1.6510 | -26.9 | H | 3.0 | 39.1 | 1.0 | -65.0 | -13.0 | -52.0 | |
| 2.4765 | -21.5 | H | 3.0 | 39.5 | 1.0 | -60.0 | -13.0 | -47.0 | |
| 3.3020 | -23.1 | H | 3.0 | 40.1 | 1.0 | -62.2 | -13.0 | -49.2 | |
| Mid Channel (836.5MHz) | | | | | | | | | |
| 1.6730 | -21.8 | V | 3.0 | 39.1 | 1.0 | -59.9 | -13.0 | -46.9 | |
| 2.5090 | -20.2 | V | 3.0 | 39.5 | 1.0 | -58.7 | -13.0 | -45.7 | |
| 3.3460 | -22.9 | V | 3.0 | 40.1 | 1.0 | -62.1 | -13.0 | -49.1 | |
| 1.6730 | -26.0 | H | 3.0 | 39.1 | 1.0 | -64.1 | -13.0 | -51.1 | |
| 2.5090 | -21.7 | H | 3.0 | 39.5 | 1.0 | -60.3 | -13.0 | -47.3 | |
| 3.3460 | -22.8 | H | 3.0 | 40.1 | 1.0 | -61.9 | -13.0 | -48.9 | |
| High Channel (847.5MHz) | | | | | | | | | |
| 1.6950 | -22.3 | V | 3.0 | 39.1 | 1.0 | -60.4 | -13.0 | -47.4 | |
| 2.5425 | -23.5 | V | 3.0 | 39.6 | 1.0 | -62.1 | -13.0 | -49.1 | |
| 3.3900 | -22.8 | V | 3.0 | 40.2 | 1.0 | -62.0 | -13.0 | -49.0 | |
| 1.6950 | -26.9 | H | 3.0 | 39.1 | 1.0 | -65.0 | -13.0 | -52.0 | |
| 2.5425 | -23.6 | H | 3.0 | 39.6 | 1.0 | -62.1 | -13.0 | -49.1 | |
| 3.3900 | -22.8 | H | 3.0 | 40.2 | 1.0 | -62.0 | -13.0 | -49.0 | |

Rev. 03.03.09
Note: No other emissions were detected above the system noise floor.


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LTE Band 5 1.4MHz QPSK

UL Korea, Ltd Suwon Laboratory
Above 1GHz High Frequency Substitution Measurement

Company: Samsung
Project #: 16K22866
Date: 03-07-16
Test Engineer: Steven.Kim
Configuration: EUT / AC Adapter / Earphone, Y Position
Mode: TX, LTE BAND 5, 1.4MHz BW,QPSK

| Chamber | Pre-amplifer | Filter | Limit |
|---|---|---|---|
| Chamber 2 | AFS42 | Filter 1 | Part 22 |

| f GHz | SG reading (dBm) | Ant. Pol. (H/V) | Distance (m) | Preamp (dB) | Filter (dB) | EIRP (dBm) | Limit (dBm) | Delta (dB) | Notes |
|---|---|---|---|---|---|---|---|---|---|
| Low Channel (824.7MHz) | | | | | | | | | |
| 1.6494 | -19.2 | V | 3.0 | 39.1 | 1.0 | -57.3 | -13.0 | -44.3 | |
| 2.4741 | -20.7 | V | 3.0 | 39.5 | 1.0 | -59.3 | -13.0 | -46.3 | |
| 3.2988 | -23.0 | V | 3.0 | 40.1 | 1.0 | -62.1 | -13.0 | -49.1 | |
| 1.6494 | -27.5 | H | 3.0 | 39.1 | 1.0 | -65.6 | -13.0 | -52.6 | |
| 2.4741 | -20.0 | H | 3.0 | 39.5 | 1.0 | -58.5 | -13.0 | -45.5 | |
| 3.2988 | -22.9 | H | 3.0 | 40.1 | 1.0 | -62.0 | -13.0 | -49.0 | |
| Mid Channel (836.5MHz) | | | | | | | | | |
| 1.6730 | -22.9 | V | 3.0 | 39.1 | 1.0 | -61.0 | -13.0 | -48.0 | |
| 2.5090 | -21.6 | V | 3.0 | 39.5 | 1.0 | -60.2 | -13.0 | -47.2 | |
| 3.3460 | -22.7 | V | 3.0 | 40.1 | 1.0 | -61.8 | -13.0 | -48.8 | |
| 1.6730 | -24.5 | H | 3.0 | 39.1 | 1.0 | -62.6 | -13.0 | -49.6 | |
| 2.5090 | -19.4 | H | 3.0 | 39.5 | 1.0 | -57.9 | -13.0 | -44.9 | |
| 3.3460 | -22.6 | H | 3.0 | 40.1 | 1.0 | -61.7 | -13.0 | -48.7 | |
| High Channel (848.3MHz) | | | | | | | | | |
| 1.6966 | -18.9 | V | 3.0 | 39.1 | 1.0 | -57.0 | -13.0 | -44.0 | |
| 2.5449 | -23.2 | V | 3.0 | 39.6 | 1.0 | -61.8 | -13.0 | -48.8 | |
| 3.3932 | -22.4 | V | 3.0 | 40.2 | 1.0 | -61.6 | -13.0 | -48.6 | |
| 1.6966 | -25.7 | H | 3.0 | 39.1 | 1.0 | -63.9 | -13.0 | -50.9 | |
| 2.5449 | -20.3 | H | 3.0 | 39.6 | 1.0 | -58.8 | -13.0 | -45.8 | |
| 3.3932 | -22.2 | H | 3.0 | 40.2 | 1.0 | -61.4 | -13.0 | -48.4 | |

Rev. 03.03.09
Note: No other emissions were detected above the system noise floor.

LTE Band 5 1.4MHz 16QAM

UL Korea, Ltd Suwon Laboratory
Above 1GHz High Frequency Substitution Measurement

Company: Samsung
Project #: 16K22866
Date: 03-07-16
Test Engineer: Steven.Kim
Configuration: EUT / AC Adapter / Earphone, Y Position
Mode: TX, LTE BAND 5, 1.4MHz BW,16QAM

| Chamber | Pre-amplifer | Filter | Limit |
|---|---|---|---|
| Chamber 2 | AFS42 | Filter 1 | Part 22 |

| f GHz | SG reading (dBm) | Ant. Pol. (H/V) | Distance (m) | Preamp (dB) | Filter (dB) | EIRP (dBm) | Limit (dBm) | Delta (dB) | Notes |
|---|---|---|---|---|---|---|---|---|---|
| Low Channel (824.7MHz) | | | | | | | | | |
| 1.6494 | -20.9 | V | 3.0 | 39.1 | 1.0 | -59.0 | -13.0 | -46.0 | |
| 2.4741 | -22.3 | V | 3.0 | 39.5 | 1.0 | -60.8 | -13.0 | -47.8 | |
| 3.2988 | -23.1 | V | 3.0 | 40.1 | 1.0 | -62.2 | -13.0 | -49.2 | |
| 1.6494 | -27.2 | H | 3.0 | 39.1 | 1.0 | -65.3 | -13.0 | -52.3 | |
| 2.4741 | -21.7 | H | 3.0 | 39.5 | 1.0 | -60.2 | -13.0 | -47.2 | |
| 3.2988 | -23.0 | H | 3.0 | 40.1 | 1.0 | -62.1 | -13.0 | -49.1 | |
| Mid Channel (836.5MHz) | | | | | | | | | |
| 1.6730 | -23.4 | V | 3.0 | 39.1 | 1.0 | -61.5 | -13.0 | -48.5 | |
| 2.5090 | -22.2 | V | 3.0 | 39.5 | 1.0 | -60.7 | -13.0 | -47.7 | |
| 3.3460 | -22.8 | V | 3.0 | 40.1 | 1.0 | -62.0 | -13.0 | -49.0 | |
| 1.6730 | -25.6 | H | 3.0 | 39.1 | 1.0 | -63.8 | -13.0 | -50.8 | |
| 2.5090 | -20.7 | H | 3.0 | 39.5 | 1.0 | -59.3 | -13.0 | -46.3 | |
| 3.3460 | -22.9 | H | 3.0 | 40.1 | 1.0 | -62.1 | -13.0 | -49.1 | |
| High Channel (848.3MHz) | | | | | | | | | |
| 1.6966 | -21.0 | V | 3.0 | 39.1 | 1.0 | -59.1 | -13.0 | -46.1 | |
| 2.5449 | -23.9 | V | 3.0 | 39.6 | 1.0 | -62.4 | -13.0 | -49.4 | |
| 3.3932 | -22.6 | V | 3.0 | 40.2 | 1.0 | -61.8 | -13.0 | -48.8 | |
| 1.6966 | -26.1 | H | 3.0 | 39.1 | 1.0 | -64.2 | -13.0 | -51.2 | |
| 2.5449 | -21.4 | H | 3.0 | 39.6 | 1.0 | -60.0 | -13.0 | -47.0 | |
| 3.3932 | -22.6 | H | 3.0 | 40.2 | 1.0 | -61.8 | -13.0 | -48.8 | |

Rev. 03.03.09
Note: No other emissions were detected above the system noise floor.


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## LTE Band 4

LTE Band 4 20MHz QPSK

UL Korea, Ltd Suwon Laboratory
Above 1GHz High Frequency Substitution Measurement

Company: Samsung
Project #: 16K22866
Date: 02-29-16
Test Engineer: Steven Kim
Configuration: EUT / AC Adapter / Ear Phone / Z-Position
Mode: TX, LTE BAND 4, 20MHz BW, QPSK

| Chamber | Pre-amplifer | Filter | Limit |
|---|---|---|---|
| Chamber 2 | AFS42 | Filter 1 | FCC Part 27 |

| f GHz | SG reading (dBm) | Ant. Pol. (H/V) | Distance (m) | Preamp (dB) | Filter (dB) | ERP (dBm) | Limit (dBm) | Delta (dB) | Notes |
|---|---|---|---|---|---|---|---|---|---|
| Low Channel (1720MHz) | | | | | | | | | |
| 3.4400 | -8.9 | V | 3.0 | 40.2 | 1.0 | -48.1 | -13.0 | -35.1 | |
| 5.1600 | -10.4 | V | 3.0 | 40.9 | 1.0 | -50.3 | -13.0 | -37.3 | |
| 6.8800 | -14.2 | V | 3.0 | 41.0 | 1.0 | -54.2 | -13.0 | -41.2 | |
| 3.4400 | -12.4 | H | 3.0 | 40.2 | 1.0 | -51.6 | -13.0 | -38.6 | |
| 5.1600 | -13.7 | H | 3.0 | 40.9 | 1.0 | -53.6 | -13.0 | -40.6 | |
| 6.8800 | -12.5 | H | 3.0 | 41.0 | 1.0 | -52.5 | -13.0 | -39.5 | |
| Mid Channel (1732.5MHz) | | | | | | | | | |
| 3.4650 | -8.5 | V | 3.0 | 40.3 | 1.0 | -47.7 | -13.0 | -34.7 | |
| 5.1975 | -7.5 | V | 3.0 | 40.9 | 1.0 | -47.4 | -13.0 | -34.4 | |
| 6.9300 | -14.9 | V | 3.0 | 41.0 | 1.0 | -54.9 | -13.0 | -41.9 | |
| 3.4650 | -11.6 | H | 3.0 | 40.3 | 1.0 | -50.9 | -13.0 | -37.9 | |
| 5.1975 | -12.2 | H | 3.0 | 40.9 | 1.0 | -52.0 | -13.0 | -39.0 | |
| 6.9300 | -11.4 | H | 3.0 | 41.0 | 1.0 | -51.4 | -13.0 | -38.4 | |
| High Channel (1745MHz) | | | | | | | | | |
| 3.4900 | -7.2 | V | 3.0 | 40.3 | 1.0 | -46.5 | -13.0 | -33.5 | |
| 5.2350 | -9.3 | V | 3.0 | 40.9 | 1.0 | -49.2 | -13.0 | -36.2 | |
| 6.9800 | -14.8 | V | 3.0 | 41.0 | 1.0 | -54.8 | -13.0 | -41.8 | |
| 3.4900 | -8.4 | H | 3.0 | 40.3 | 1.0 | -47.7 | -13.0 | -34.7 | |
| 5.2350 | -9.5 | H | 3.0 | 40.9 | 1.0 | -49.4 | -13.0 | -36.4 | |
| 6.9800 | -11.9 | H | 3.0 | 41.0 | 1.0 | -51.9 | -13.0 | -38.9 | |

Rev. 03.03.09
Note: No other emissions were detected above the system noise floor.

LTE Band 4 20MHz 16QAM

UL Korea, Ltd Suwon Laboratory
Above 1GHz High Frequency Substitution Measurement

Company: Samsung
Project #: 16K22866
Date: 02-29-16
Test Engineer: Steven Kim
Configuration: EUT / AC Adapter / Ear Phone / Z-Position
Mode: TX, LTE BAND 4, 20MHz BW,16QAM

| Chamber | Pre-amplifer | Filter | Limit |
|---|---|---|---|
| Chamber 2 | AFS42 | Filter 1 | FCC Part 27 |

| f GHz | SG reading (dBm) | Ant. Pol. (H/V) | Distance (m) | Preamp (dB) | Filter (dB) | ERP (dBm) | Limit (dBm) | Delta (dB) | Notes |
|---|---|---|---|---|---|---|---|---|---|
| Low Channel (1720MHz) | | | | | | | | | |
| 3.4400 | -10.7 | V | 3.0 | 40.2 | 1.0 | -49.9 | -13.0 | -36.9 | |
| 5.1600 | -11.8 | V | 3.0 | 40.9 | 1.0 | -51.7 | -13.0 | -38.7 | |
| 6.8800 | -14.9 | V | 3.0 | 41.0 | 1.0 | -54.9 | -13.0 | -41.9 | |
| 3.4400 | -14.0 | H | 3.0 | 40.2 | 1.0 | -53.2 | -13.0 | -40.2 | |
| 5.1600 | -16.1 | H | 3.0 | 40.9 | 1.0 | -56.0 | -13.0 | -43.0 | |
| 6.8800 | -13.7 | H | 3.0 | 41.0 | 1.0 | -53.7 | -13.0 | -40.7 | |
| Mid Channel (1732.5MHz) | | | | | | | | | |
| 3.4650 | -9.2 | V | 3.0 | 40.3 | 1.0 | -48.4 | -13.0 | -35.4 | |
| 5.1975 | -9.6 | V | 3.0 | 40.9 | 1.0 | -49.5 | -13.0 | -36.5 | |
| 6.9300 | -15.3 | V | 3.0 | 41.0 | 1.0 | -55.3 | -13.0 | -42.3 | |
| 3.4650 | -10.7 | H | 3.0 | 40.3 | 1.0 | -49.9 | -13.0 | -36.9 | |
| 5.1975 | -12.5 | H | 3.0 | 40.9 | 1.0 | -52.4 | -13.0 | -39.4 | |
| 6.9300 | -12.1 | H | 3.0 | 41.0 | 1.0 | -52.1 | -13.0 | -39.1 | |
| High Channel (1745MHz) | | | | | | | | | |
| 3.4900 | -8.9 | V | 3.0 | 40.3 | 1.0 | -48.2 | -13.0 | -35.2 | |
| 5.2350 | -8.1 | V | 3.0 | 40.9 | 1.0 | -48.0 | -13.0 | -35.0 | |
| 6.9800 | -15.0 | V | 3.0 | 41.0 | 1.0 | -55.0 | -13.0 | -42.0 | |
| 3.4900 | -10.3 | H | 3.0 | 40.3 | 1.0 | -49.5 | -13.0 | -36.5 | |
| 5.2350 | -11.1 | H | 3.0 | 40.9 | 1.0 | -51.0 | -13.0 | -38.0 | |
| 6.9800 | -13.1 | H | 3.0 | 41.0 | 1.0 | -53.1 | -13.0 | -40.1 | |

Rev. 03.03.09
Note: No other emissions were detected above the system noise floor.


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LTE

Band 4

15MHz

QPSK

UL Korea, Ltd Suwon Laboratory
Above 1GHz High Frequency Substitution Measurement

Company: Samsung
Project #: 16K22866
Date: 02-29-16
Test Engineer: Steven Kim
Configuration: EUT / AC Adapter / Ear Phone / Z-Position
Mode: TX, LTE BAND 4, 15MHz BW,QPSK

| Chamber | Pre-amplifer | Filter | Limit |
|---|---|---|---|
| Chamber 2 | AFS42 | Filter 1 | FCC Part 27 |

| f GHz | SG reading (dBm) | Ant. Pol. (H/V) | Distance (m) | Preamp (dB) | Filter (dB) | ERP (dBm) | Limit (dBm) | Delta (dB) | Notes |
|---|---|---|---|---|---|---|---|---|---|
| Low Channel (1717.5MHz) | | | | | | | | | |
| 3.4350 | -9.0 | V | 3.0 | 40.2 | 1.0 | -48.2 | -13.0 | -35.2 | |
| 5.1525 | -11.3 | V | 3.0 | 40.9 | 1.0 | -51.2 | -13.0 | -38.2 | |
| 6.8700 | -14.9 | V | 3.0 | 41.0 | 1.0 | -54.8 | -13.0 | -41.8 | |
| 3.4350 | -11.5 | H | 3.0 | 40.2 | 1.0 | -50.8 | -13.0 | -37.8 | |
| 5.1525 | -12.9 | H | 3.0 | 40.9 | 1.0 | -52.8 | -13.0 | -39.8 | |
| 6.8700 | -11.9 | H | 3.0 | 41.0 | 1.0 | -51.9 | -13.0 | -38.9 | |
| Mid Channel (1732.5MHz) | | | | | | | | | |
| 3.4650 | -8.5 | V | 3.0 | 40.3 | 1.0 | -47.8 | -13.0 | -34.8 | |
| 5.1975 | -11.0 | V | 3.0 | 40.9 | 1.0 | -50.9 | -13.0 | -37.9 | |
| 6.9300 | -16.2 | V | 3.0 | 41.0 | 1.0 | -56.2 | -13.0 | -43.2 | |
| 3.4650 | -12.7 | H | 3.0 | 40.3 | 1.0 | -52.0 | -13.0 | -39.0 | |
| 5.1975 | -14.1 | H | 3.0 | 40.9 | 1.0 | -53.9 | -13.0 | -40.9 | |
| 6.9300 | -15.3 | H | 3.0 | 41.0 | 1.0 | -55.3 | -13.0 | -42.3 | |
| High Channel (1747.5MHz) | | | | | | | | | |
| 3.4950 | -5.7 | V | 3.0 | 40.3 | 1.0 | -45.0 | -13.0 | -32.0 | |
| 5.2425 | -9.4 | V | 3.0 | 40.9 | 1.0 | -49.3 | -13.0 | -36.3 | |
| 6.9900 | -16.5 | V | 3.0 | 41.0 | 1.0 | -56.5 | -13.0 | -43.5 | |
| 3.4950 | -10.6 | H | 3.0 | 40.3 | 1.0 | -49.9 | -13.0 | -36.9 | |
| 5.2425 | -11.1 | H | 3.0 | 40.9 | 1.0 | -50.9 | -13.0 | -37.9 | |
| 6.9900 | -12.8 | H | 3.0 | 41.0 | 1.0 | -52.8 | -13.0 | -39.8 | |

Rev. 03.03.09
Note: No other emissions were detected above the system noise floor.

LTE

Band 4

15MHz

16QAM

UL Korea, Ltd Suwon Laboratory
Above 1GHz High Frequency Substitution Measurement

Company: Samsung
Project #: 16K22866
Date: 02-29-16
Test Engineer: Steven Kim
Configuration: EUT / AC Adapter / Ear Phone / Z-Position
Mode: TX, LTE BAND 4, 15MHz BW,16QAM

| Chamber | Pre-amplifer | Filter | Limit |
|---|---|---|---|
| Chamber 2 | AFS42 | Filter 1 | FCC Part 27 |

| f GHz | SG reading (dBm) | Ant. Pol. (H/V) | Distance (m) | Preamp (dB) | Filter (dB) | ERP (dBm) | Limit (dBm) | Delta (dB) | Notes |
|---|---|---|---|---|---|---|---|---|---|
| Low Channel (1717.5MHz) | | | | | | | | | |
| 3.4350 | -10.7 | V | 3.0 | 40.2 | 1.0 | -50.0 | -13.0 | -37.0 | |
| 5.1525 | -12.4 | V | 3.0 | 40.9 | 1.0 | -52.3 | -13.0 | -39.3 | |
| 6.8700 | -15.1 | V | 3.0 | 41.0 | 1.0 | -55.1 | -13.0 | -42.1 | |
| 3.4350 | -10.3 | H | 3.0 | 40.2 | 1.0 | -49.5 | -13.0 | -36.5 | |
| 5.1525 | -14.5 | H | 3.0 | 40.9 | 1.0 | -54.4 | -13.0 | -41.4 | |
| 6.8700 | -12.7 | H | 3.0 | 41.0 | 1.0 | -52.6 | -13.0 | -39.6 | |
| Mid Channel (1732.5MHz) | | | | | | | | | |
| 3.4650 | -10.1 | V | 3.0 | 40.3 | 1.0 | -49.4 | -13.0 | -36.4 | |
| 5.1975 | -13.1 | V | 3.0 | 40.9 | 1.0 | -53.0 | -13.0 | -40.0 | |
| 6.9300 | -16.2 | V | 3.0 | 41.0 | 1.0 | -56.2 | -13.0 | -43.2 | |
| 3.4650 | -10.9 | H | 3.0 | 40.3 | 1.0 | -50.2 | -13.0 | -37.2 | |
| 5.1975 | -15.5 | H | 3.0 | 40.9 | 1.0 | -55.4 | -13.0 | -42.4 | |
| 6.9300 | -14.7 | H | 3.0 | 41.0 | 1.0 | -54.7 | -13.0 | -41.7 | |
| High Channel (1747.5MHz) | | | | | | | | | |
| 3.4950 | -8.1 | V | 3.0 | 40.3 | 1.0 | -47.4 | -13.0 | -34.4 | |
| 5.2425 | -11.7 | V | 3.0 | 40.9 | 1.0 | -51.5 | -13.0 | -38.5 | |
| 6.9900 | -16.5 | V | 3.0 | 41.0 | 1.0 | -56.5 | -13.0 | -43.5 | |
| 3.4950 | -12.5 | H | 3.0 | 40.3 | 1.0 | -51.8 | -13.0 | -38.8 | |
| 5.2425 | -13.8 | H | 3.0 | 40.9 | 1.0 | -53.7 | -13.0 | -40.7 | |
| 6.9900 | -13.8 | H | 3.0 | 41.0 | 1.0 | -53.8 | -13.0 | -40.8 | |

Rev. 03.03.09
Note: No other emissions were detected above the system noise floor.


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LTE

Band 4

10MHz

QPSK

UL Korea, Ltd Suwon Laboratory
Above 1GHz High Frequency Substitution Measurement

Company: Samsung
Project #: 16K22866
Date: 02-29-16
Test Engineer: Steven Kim
Configuration: EUT / AC Adapter / Ear Phone / Z-Position
Mode: TX LTE BAND 4, 10MHz BW, QPSK

| Chamber | Pre-amplifer | Filter | Limit |
|---|---|---|---|
| Chamber 2 | AFS42 | Filter 1 | FCC Part 27 |

| f GHz | SG reading (dBm) | Ant. Pol. (H/V) | Distance (m) | Preamp (dB) | Filter (dB) | ERP (dBm) | Limit (dBm) | Delta (dB) | Notes |
|---|---|---|---|---|---|---|---|---|---|
| Low Channel (1715MHz) | | | | | | | | | |
| 3.4300 | -9.5 | V | 3.0 | 40.2 | 1.0 | -48.7 | -13.0 | -35.7 | |
| 5.1450 | -12.1 | V | 3.0 | 40.9 | 1.0 | -52.0 | -13.0 | -39.0 | |
| 6.8600 | -13.6 | V | 3.0 | 41.0 | 1.0 | -53.5 | -13.0 | -40.5 | |
| 3.4300 | -11.3 | H | 3.0 | 40.2 | 1.0 | -50.5 | -13.0 | -37.5 | |
| 5.1450 | -12.5 | H | 3.0 | 40.9 | 1.0 | -52.4 | -13.0 | -39.4 | |
| 6.8600 | -11.4 | H | 3.0 | 41.0 | 1.0 | -51.4 | -13.0 | -38.4 | |
| Mid Channel (1732.5MHz) | | | | | | | | | |
| 3.4650 | -7.8 | V | 3.0 | 40.3 | 1.0 | -47.1 | -13.0 | -34.1 | |
| 5.1975 | -10.5 | V | 3.0 | 40.9 | 1.0 | -50.4 | -13.0 | -37.4 | |
| 6.9300 | -15.6 | V | 3.0 | 41.0 | 1.0 | -55.6 | -13.0 | -42.6 | |
| 3.4650 | -11.8 | H | 3.0 | 40.3 | 1.0 | -51.0 | -13.0 | -38.0 | |
| 5.1975 | -11.4 | H | 3.0 | 40.9 | 1.0 | -51.3 | -13.0 | -38.3 | |
| 6.9300 | -15.6 | H | 3.0 | 41.0 | 1.0 | -55.6 | -13.0 | -42.6 | |
| High Channel (1750MHz) | | | | | | | | | |
| 3.5000 | -6.6 | V | 3.0 | 40.3 | 1.0 | -45.8 | -13.0 | -32.8 | |
| 5.2500 | -9.2 | V | 3.0 | 40.9 | 1.0 | -49.1 | -13.0 | -36.1 | |
| 7.0000 | -15.1 | V | 3.0 | 41.0 | 1.0 | -55.1 | -13.0 | -42.1 | |
| 3.5000 | -10.8 | H | 3.0 | 40.3 | 1.0 | -50.1 | -13.0 | -37.1 | |
| 5.2500 | -12.0 | H | 3.0 | 40.9 | 1.0 | -51.9 | -13.0 | -38.9 | |
| 7.0000 | -12.5 | H | 3.0 | 41.0 | 1.0 | -52.5 | -13.0 | -39.5 | |

Rev. 03.03.09
Note: No other emissions were detected above the system noise floor.

LTE

Band 4

10MHz

16QAM

UL Korea, Ltd Suwon Laboratory
Above 1GHz High Frequency Substitution Measurement

Company: Samsung
Project #: 16K22866
Date: 02-29-16
Test Engineer: Steven Kim
Configuration: EUT / AC Adapter / Ear Phone / Z-Position
Mode: TX LTE BAND 4, 10MHz BW,16QAM

| Chamber | Pre-amplifer | Filter | Limit |
|---|---|---|---|
| Chamber 2 | AFS42 | Filter 1 | FCC Part 27 |

| f GHz | SG reading (dBm) | Ant. Pol. (H/V) | Distance (m) | Preamp (dB) | Filter (dB) | ERP (dBm) | Limit (dBm) | Delta (dB) | Notes |
|---|---|---|---|---|---|---|---|---|---|
| Low Channel (1715MHz) | | | | | | | | | |
| 3.4300 | -10.6 | V | 3.0 | 40.2 | 1.0 | -49.9 | -13.0 | -36.9 | |
| 5.1450 | -13.7 | V | 3.0 | 40.9 | 1.0 | -53.6 | -13.0 | -40.6 | |
| 6.8600 | -14.2 | V | 3.0 | 41.0 | 1.0 | -54.2 | -13.0 | -41.2 | |
| 3.4300 | -12.6 | H | 3.0 | 40.2 | 1.0 | -51.9 | -13.0 | -38.9 | |
| 5.1450 | -14.2 | H | 3.0 | 40.9 | 1.0 | -54.1 | -13.0 | -41.1 | |
| 6.8600 | -11.7 | H | 3.0 | 41.0 | 1.0 | -51.7 | -13.0 | -38.7 | |
| Mid Channel (1732.5MHz) | | | | | | | | | |
| 3.4650 | -9.7 | V | 3.0 | 40.3 | 1.0 | -48.9 | -13.0 | -35.9 | |
| 5.1975 | -12.1 | V | 3.0 | 40.9 | 1.0 | -52.0 | -13.0 | -39.0 | |
| 6.9300 | -15.8 | V | 3.0 | 41.0 | 1.0 | -55.8 | -13.0 | -42.8 | |
| 3.4650 | -13.3 | H | 3.0 | 40.3 | 1.0 | -52.6 | -13.0 | -39.6 | |
| 5.1975 | -13.0 | H | 3.0 | 40.9 | 1.0 | -52.9 | -13.0 | -39.9 | |
| 6.9300 | -15.6 | H | 3.0 | 41.0 | 1.0 | -55.6 | -13.0 | -42.6 | |
| High Channel (1750MHz) | | | | | | | | | |
| 3.5000 | -8.1 | V | 3.0 | 40.3 | 1.0 | -47.4 | -13.0 | -34.4 | |
| 5.2500 | -10.9 | V | 3.0 | 40.9 | 1.0 | -50.8 | -13.0 | -37.8 | |
| 7.0000 | -15.5 | V | 3.0 | 41.0 | 1.0 | -55.6 | -13.0 | -42.6 | |
| 3.5000 | -12.4 | H | 3.0 | 40.3 | 1.0 | -51.7 | -13.0 | -38.7 | |
| 5.2500 | -13.4 | H | 3.0 | 40.9 | 1.0 | -53.2 | -13.0 | -40.2 | |
| 7.0000 | -13.1 | H | 3.0 | 41.0 | 1.0 | -53.1 | -13.0 | -40.1 | |

Rev. 03.03.09
Note: No other emissions were detected above the system noise floor.


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LTE

Band 4

5MHz

QPSK

UL Korea, Ltd Suwon Laboratory
Above 1GHz High Frequency Substitution Measurement

Company: Samsung
Project #: 16K22866
Date: 02-29-16
Test Engineer: Steven Kim
Configuration: EUT / AC Adapter / Ear Phone / Z-Position
Mode: TX, LTE BAND 4, 5MHz BW, QPSK

| Chamber | Pre-amplifer | Filter | Limit |
|---|---|---|---|
| Chamber 2 | AFS42 | Filter 1 | FCC Part 27 |

| f GHz | SG reading (dBm) | Ant. Pol. (H/V) | Distance (m) | Preamp (dB) | Filter (dB) | ERP (dBm) | Limit (dBm) | Delta (dB) | Notes |
|---|---|---|---|---|---|---|---|---|---|
| Low Channel (1712.5MHz) | | | | | | | | | |
| 3.4250 | -8.9 | V | 3.0 | 40.2 | 1.0 | -48.1 | -13.0 | -35.1 | |
| 5.1375 | -11.6 | V | 3.0 | 40.9 | 1.0 | -51.5 | -13.0 | -38.5 | |
| 6.8500 | -14.6 | V | 3.0 | 41.0 | 1.0 | -54.6 | -13.0 | -41.6 | |
| 3.4250 | -11.8 | H | 3.0 | 40.2 | 1.0 | -51.1 | -13.0 | -38.1 | |
| 5.1375 | -15.1 | H | 3.0 | 40.9 | 1.0 | -55.0 | -13.0 | -42.0 | |
| 6.8500 | -10.4 | H | 3.0 | 41.0 | 1.0 | -50.4 | -13.0 | -37.4 | |
| Mid Channel (1732.5MHz) | | | | | | | | | |
| 3.4650 | -7.2 | V | 3.0 | 40.3 | 1.0 | -46.5 | -13.0 | -33.5 | |
| 5.1975 | -11.1 | V | 3.0 | 40.9 | 1.0 | -51.0 | -13.0 | -38.0 | |
| 6.9300 | -16.3 | V | 3.0 | 41.0 | 1.0 | -56.3 | -13.0 | -43.3 | |
| 3.4650 | -13.1 | H | 3.0 | 40.3 | 1.0 | -52.3 | -13.0 | -39.3 | |
| 5.1975 | -15.0 | H | 3.0 | 40.9 | 1.0 | -54.8 | -13.0 | -41.8 | |
| 6.9300 | -12.8 | H | 3.0 | 41.0 | 1.0 | -52.8 | -13.0 | -39.8 | |
| High Channel (1752.5MHz) | | | | | | | | | |
| 3.5050 | -7.0 | V | 3.0 | 40.3 | 1.0 | -46.3 | -13.0 | -33.3 | |
| 5.2575 | -9.5 | V | 3.0 | 40.9 | 1.0 | -49.3 | -13.0 | -36.3 | |
| 7.0100 | -15.3 | V | 3.0 | 41.0 | 1.0 | -55.3 | -13.0 | -42.3 | |
| 3.5050 | -12.1 | H | 3.0 | 40.3 | 1.0 | -51.4 | -13.0 | -38.4 | |
| 5.2575 | -13.1 | H | 3.0 | 40.9 | 1.0 | -53.0 | -13.0 | -40.0 | |
| 7.0100 | -12.1 | H | 3.0 | 41.0 | 1.0 | -52.1 | -13.0 | -39.1 | |

Rev. 03.03.09
Note: No other emissions were detected above the system noise floor.

LTE

Band 4

5MHz

16QAM

UL Korea, Ltd Suwon Laboratory
Above 1GHz High Frequency Substitution Measurement

Company: Samsung
Project #: 16K22866
Date: 02-29-16
Test Engineer: Steven Kim
Configuration: EUT / AC Adapter / Ear Phone / Z-Position
Mode: TX, LTE BAND 7, 5MHz BW,16QAM

| Chamber | Pre-amplifer | Filter | Limit |
|---|---|---|---|
| Chamber 2 | AFS42 | Filter 1 | FCC Part 27 |

| f GHz | SG reading (dBm) | Ant. Pol. (H/V) | Distance (m) | Preamp (dB) | Filter (dB) | ERP (dBm) | Limit (dBm) | Delta (dB) | Notes |
|---|---|---|---|---|---|---|---|---|---|
| Low Channel (1712.5MHz) | | | | | | | | | |
| 3.4250 | -10.5 | V | 3.0 | 40.2 | 1.0 | -49.7 | -13.0 | -36.7 | |
| 5.1375 | -13.7 | V | 3.0 | 40.9 | 1.0 | -53.6 | -13.0 | -40.6 | |
| 6.8500 | -15.0 | V | 3.0 | 41.0 | 1.0 | -55.0 | -13.0 | -42.0 | |
| 3.4250 | -13.7 | H | 3.0 | 40.2 | 1.0 | -52.9 | -13.0 | -39.9 | |
| 5.1375 | -16.2 | H | 3.0 | 40.9 | 1.0 | -56.1 | -13.0 | -43.1 | |
| 6.8500 | -11.7 | H | 3.0 | 41.0 | 1.0 | -51.7 | -13.0 | -38.7 | |
| Mid Channel (1732.5MHz) | | | | | | | | | |
| 3.4650 | -8.8 | V | 3.0 | 40.3 | 1.0 | -48.0 | -13.0 | -35.0 | |
| 5.1975 | -13.1 | V | 3.0 | 40.9 | 1.0 | -53.0 | -13.0 | -40.0 | |
| 6.9300 | -16.2 | V | 3.0 | 41.0 | 1.0 | -56.2 | -13.0 | -43.2 | |
| 3.4650 | -14.6 | H | 3.0 | 40.3 | 1.0 | -53.8 | -13.0 | -40.8 | |
| 5.1975 | -16.1 | H | 3.0 | 40.9 | 1.0 | -56.0 | -13.0 | -43.0 | |
| 6.9300 | -13.7 | H | 3.0 | 41.0 | 1.0 | -53.7 | -13.0 | -40.7 | |
| High Channel (1752.5MHz) | | | | | | | | | |
| 3.5050 | -9.1 | V | 3.0 | 40.3 | 1.0 | -48.4 | -13.0 | -35.4 | |
| 5.2575 | -12.1 | V | 3.0 | 40.9 | 1.0 | -52.0 | -13.0 | -39.0 | |
| 7.0100 | -15.7 | V | 3.0 | 41.0 | 1.0 | -55.7 | -13.0 | -42.7 | |
| 3.5050 | -13.2 | H | 3.0 | 40.3 | 1.0 | -52.5 | -13.0 | -39.5 | |
| 5.2575 | -14.8 | H | 3.0 | 40.9 | 1.0 | -54.6 | -13.0 | -41.6 | |
| 7.0100 | -12.8 | H | 3.0 | 41.0 | 1.0 | -52.8 | -13.0 | -39.8 | |

Rev. 03.03.09
Note: No other emissions were detected above the system noise floor.


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LTE

Band 4

3MHz

QPSK

UL Korea, Ltd Suwon Laboratory
Above 1GHz High Frequency Substitution Measurement

Company: Samsung
Project #: 16K22866
Date: 03-02-16
Test Engineer: Steven Kim
Configuration: EUT / AC Adapter / Ear Phone / Z-Position
Mode: TX LTE BAND 4, 3MHz BW,QPSK

| Chamber | Pre-amplifer | Filter | Limit |
|---|---|---|---|
| Chamber 2 | AFS42 | Filter 1 | FCC Part 27 |

| f GHz | SG reading (dBm) | Ant. Pol. (H/V) | Distance (m) | Preamp (dB) | Filter (dB) | ERP (dBm) | Limit (dBm) | Delta (dB) | Notes |
|---|---|---|---|---|---|---|---|---|---|
| Low Channel (1711.5MHz) | | | | | | | | | |
| 3.4230 | -8.9 | V | 3.0 | 40.2 | 1.0 | -48.1 | -13.0 | -35.1 | |
| 5.1345 | -6.5 | V | 3.0 | 40.9 | 1.0 | -46.4 | -13.0 | -33.4 | |
| 6.8460 | -15.4 | V | 3.0 | 41.0 | 1.0 | -55.3 | -13.0 | -42.3 | |
| 3.4230 | -12.4 | H | 3.0 | 40.2 | 1.0 | -51.6 | -13.0 | -38.6 | |
| 5.1345 | -7.7 | H | 3.0 | 40.9 | 1.0 | -47.6 | -13.0 | -34.6 | |
| 6.8460 | -13.1 | H | 3.0 | 41.0 | 1.0 | -53.1 | -13.0 | -40.1 | |
| Mid Channel (1732.5MHz) | | | | | | | | | |
| 3.4650 | -7.2 | V | 3.0 | 40.3 | 1.0 | -46.5 | -13.0 | -33.5 | |
| 5.1975 | -7.4 | V | 3.0 | 40.9 | 1.0 | -47.3 | -13.0 | -34.3 | |
| 6.9300 | -15.1 | V | 3.0 | 41.0 | 1.0 | -55.1 | -13.0 | -42.1 | |
| 3.4650 | -11.1 | H | 3.0 | 40.3 | 1.0 | -50.3 | -13.0 | -37.3 | |
| 5.1975 | -6.4 | H | 3.0 | 40.9 | 1.0 | -46.3 | -13.0 | -33.3 | |
| 6.9300 | -13.0 | H | 3.0 | 41.0 | 1.0 | -53.0 | -13.0 | -40.0 | |
| High Channel (1753.5MHz) | | | | | | | | | |
| 3.5070 | -6.9 | V | 3.0 | 40.3 | 1.0 | -46.2 | -13.0 | -33.2 | |
| 5.2605 | -8.7 | V | 3.0 | 40.9 | 1.0 | -48.5 | -13.0 | -35.5 | |
| 7.0140 | -15.7 | V | 3.0 | 41.0 | 1.0 | -55.7 | -13.0 | -42.7 | |
| 3.5070 | -8.3 | H | 3.0 | 40.3 | 1.0 | -47.5 | -13.0 | -34.5 | |
| 5.2605 | -4.2 | H | 3.0 | 40.9 | 1.0 | -44.1 | -13.0 | -31.1 | |
| 7.0140 | -13.7 | H | 3.0 | 41.0 | 1.0 | -53.7 | -13.0 | -40.7 | |

Rev. 03.03.09
Note: No other emissions were detected above the system noise floor.

LTE

Band 4

3MHz

16QAM

UL Korea, Ltd Suwon Laboratory
Above 1GHz High Frequency Substitution Measurement

Company: Samsung
Project #: 16K22866
Date: 03-02-16
Test Engineer: Steven Kim
Configuration: EUT / AC Adapter / Ear Phone / Z-Position
Mode: TX LTE BAND 4, 3MHz BW,16QAM

| Chamber | Pre-amplifer | Filter | Limit |
|---|---|---|---|
| Chamber 2 | AFS42 | Filter 1 | FCC Part 27 |

| f GHz | SG reading (dBm) | Ant. Pol. (H/V) | Distance (m) | Preamp (dB) | Filter (dB) | ERP (dBm) | Limit (dBm) | Delta (dB) | Notes |
|---|---|---|---|---|---|---|---|---|---|
| Low Channel (1711.5MHz) | | | | | | | | | |
| 3.4230 | -9.8 | V | 3.0 | 40.2 | 1.0 | -49.0 | -13.0 | -36.0 | |
| 5.1345 | -8.3 | V | 3.0 | 40.9 | 1.0 | -48.2 | -13.0 | -35.2 | |
| 6.8460 | -15.3 | V | 3.0 | 41.0 | 1.0 | -55.3 | -13.0 | -42.3 | |
| 3.4230 | -13.4 | H | 3.0 | 40.2 | 1.0 | -52.6 | -13.0 | -39.6 | |
| 5.1345 | -9.6 | H | 3.0 | 40.9 | 1.0 | -49.5 | -13.0 | -36.5 | |
| 6.8460 | -13.5 | H | 3.0 | 41.0 | 1.0 | -53.5 | -13.0 | -40.5 | |
| Mid Channel (1732.5MHz) | | | | | | | | | |
| 3.4650 | -8.7 | V | 3.0 | 40.3 | 1.0 | -47.9 | -13.0 | -34.9 | |
| 5.1975 | -9.2 | V | 3.0 | 40.9 | 1.0 | -49.1 | -13.0 | -36.1 | |
| 6.9300 | -15.3 | V | 3.0 | 41.0 | 1.0 | -55.3 | -13.0 | -42.3 | |
| 3.4650 | -12.9 | H | 3.0 | 40.3 | 1.0 | -52.2 | -13.0 | -39.2 | |
| 5.1975 | -9.9 | H | 3.0 | 40.9 | 1.0 | -49.8 | -13.0 | -36.8 | |
| 6.9300 | -13.3 | H | 3.0 | 41.0 | 1.0 | -53.3 | -13.0 | -40.3 | |
| High Channel (1752.5MHz) | | | | | | | | | |
| 3.5070 | -5.9 | V | 3.0 | 40.3 | 1.0 | -45.2 | -13.0 | -32.2 | |
| 5.2605 | -5.5 | V | 3.0 | 40.9 | 1.0 | -45.4 | -13.0 | -32.4 | |
| 7.0140 | -15.8 | V | 3.0 | 41.0 | 1.0 | -55.8 | -13.0 | -42.8 | |
| 3.5070 | -9.4 | H | 3.0 | 40.3 | 1.0 | -48.7 | -13.0 | -35.7 | |
| 5.2605 | -7.3 | H | 3.0 | 40.9 | 1.0 | -47.2 | -13.0 | -34.2 | |
| 7.0140 | -14.2 | H | 3.0 | 41.0 | 1.0 | -54.2 | -13.0 | -41.2 | |

Rev. 03.03.09
Note: No other emissions were detected above the system noise floor.


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LTE

Band 4

1.4MHz

QPSK

UL Korea, Ltd Suwon Laboratory
Above 1GHz High Frequency Substitution Measurement

Company: Samsung
Project #: 16K22866
Date: 03-02-16
Test Engineer: Steven Kim
Configuration: EUT / AC Adapter / Ear Phone / Z-Position
Mode: TX, LTE BAND 4, 1.4MHz BW, QPSK

| Chamber | Pre-amplifer | Filter | Limit |
|---|---|---|---|
| Chamber 2 | AFS42 | Filter 1 | FCC Part 27 |

| f GHz | SG reading (dBm) | Ant. Pol. (H/V) | Distance (m) | Preamp (dB) | Filter (dB) | ERP (dBm) | Limit (dBm) | Delta (dB) | Notes |
|---|---|---|---|---|---|---|---|---|---|
| Low Channel (1710.7MHz) | | | | | | | | | |
| 3.4214 | -8.9 | V | 3.0 | 40.2 | 1.0 | -48.1 | -13.0 | -35.1 | |
| 5.1321 | -6.8 | V | 3.0 | 40.9 | 1.0 | -46.7 | -13.0 | -33.7 | |
| 6.8428 | -14.5 | V | 3.0 | 41.0 | 1.0 | -54.4 | -13.0 | -41.4 | |
| 3.4214 | -12.7 | H | 3.0 | 40.2 | 1.0 | -51.9 | -13.0 | -38.9 | |
| 5.1321 | -6.7 | H | 3.0 | 40.9 | 1.0 | -46.6 | -13.0 | -33.6 | |
| 6.8428 | -13.8 | H | 3.0 | 41.0 | 1.0 | -53.8 | -13.0 | -40.8 | |
| Mid Channel (1732.5MHz) | | | | | | | | | |
| 3.4650 | -8.7 | V | 3.0 | 40.3 | 1.0 | -48.0 | -13.0 | -35.0 | |
| 5.1975 | -7.1 | V | 3.0 | 40.9 | 1.0 | -46.9 | -13.0 | -33.9 | |
| 6.9300 | -15.5 | V | 3.0 | 41.0 | 1.0 | -55.5 | -13.0 | -42.5 | |
| 3.4650 | -11.4 | H | 3.0 | 40.3 | 1.0 | -50.7 | -13.0 | -37.7 | |
| 5.1975 | -7.0 | H | 3.0 | 40.9 | 1.0 | -46.8 | -13.0 | -33.8 | |
| 6.9300 | -12.8 | H | 3.0 | 41.0 | 1.0 | -52.8 | -13.0 | -39.8 | |
| High Channel (1754.3MHz) | | | | | | | | | |
| 3.5086 | -5.6 | V | 3.0 | 40.3 | 1.0 | -44.9 | -13.0 | -31.9 | |
| 5.2629 | -6.5 | V | 3.0 | 40.9 | 1.0 | -46.3 | -13.0 | -33.3 | |
| 7.0172 | -14.9 | V | 3.0 | 41.0 | 1.0 | -54.9 | -13.0 | -41.9 | |
| 3.5086 | -11.2 | H | 3.0 | 40.3 | 1.0 | -50.5 | -13.0 | -37.5 | |
| 5.2629 | -4.4 | H | 3.0 | 40.9 | 1.0 | -44.2 | -13.0 | -31.2 | |
| 7.0172 | -14.2 | H | 3.0 | 41.0 | 1.0 | -54.2 | -13.0 | -41.2 | |

Rev. 03.03.09
Note: No other emissions were detected above the system noise floor.

LTE

Band 4

1.4MHz

16QAM

UL Korea, Ltd Suwon Laboratory
Above 1GHz High Frequency Substitution Measurement

Company: Samsung
Project #: 16K22866
Date: 03-02-16
Test Engineer: Steven Kim
Configuration: EUT / AC Adapter / Ear Phone / Z-Position
Mode: TX, LTE BAND 4, 1.4MHz BW,16QAM

| Chamber | Pre-amplifer | Filter | Limit |
|---|---|---|---|
| Chamber 2 | AFS42 | Filter 1 | FCC Part 27 |

| f GHz | SG reading (dBm) | Ant. Pol. (H/V) | Distance (m) | Preamp (dB) | Filter (dB) | ERP (dBm) | Limit (dBm) | Delta (dB) | Notes |
|---|---|---|---|---|---|---|---|---|---|
| Low Channel (1710.7MHz) | | | | | | | | | |
| 3.4214 | -10.6 | V | 3.0 | 40.2 | 1.0 | -49.9 | -13.0 | -36.9 | |
| 5.1321 | -9.4 | V | 3.0 | 40.9 | 1.0 | -49.3 | -13.0 | -36.3 | |
| 6.8428 | -14.9 | V | 3.0 | 41.0 | 1.0 | -54.9 | -13.0 | -41.9 | |
| 3.4214 | -13.5 | H | 3.0 | 40.2 | 1.0 | -52.7 | -13.0 | -39.7 | |
| 5.1321 | -8.9 | H | 3.0 | 40.9 | 1.0 | -48.8 | -13.0 | -35.8 | |
| 6.8428 | -14.3 | H | 3.0 | 41.0 | 1.0 | -54.3 | -13.0 | -41.3 | |
| Mid Channel (1732.5MHz) | | | | | | | | | |
| 3.4650 | -9.9 | V | 3.0 | 40.3 | 1.0 | -49.2 | -13.0 | -36.2 | |
| 5.1975 | -8.2 | V | 3.0 | 40.9 | 1.0 | -48.1 | -13.0 | -35.1 | |
| 6.9300 | -15.3 | V | 3.0 | 41.0 | 1.0 | -55.3 | -13.0 | -42.3 | |
| 3.4650 | -12.6 | H | 3.0 | 40.3 | 1.0 | -51.9 | -13.0 | -38.9 | |
| 5.1975 | -5.9 | H | 3.0 | 40.9 | 1.0 | -45.7 | -13.0 | -32.7 | |
| 6.9300 | -13.4 | H | 3.0 | 41.0 | 1.0 | -53.4 | -13.0 | -40.4 | |
| High Channel (1754.3MHz) | | | | | | | | | |
| 3.5086 | -7.1 | V | 3.0 | 40.3 | 1.0 | -46.4 | -13.0 | -33.4 | |
| 5.2629 | -8.3 | V | 3.0 | 40.9 | 1.0 | -48.2 | -13.0 | -35.2 | |
| 7.0172 | -15.3 | V | 3.0 | 41.0 | 1.0 | -55.3 | -13.0 | -42.3 | |
| 3.5086 | -12.5 | H | 3.0 | 40.3 | 1.0 | -51.8 | -13.0 | -38.8 | |
| 5.2629 | -6.6 | H | 3.0 | 40.9 | 1.0 | -46.4 | -13.0 | -33.4 | |
| 7.0172 | -14.8 | H | 3.0 | 41.0 | 1.0 | -54.8 | -13.0 | -41.8 | |

Rev. 03.03.09
Note: No other emissions were detected above the system noise floor.


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## LTE Band 2

LTE Band 2 20MHz QPSK

UL Korea, Ltd Suwon Laboratory
Above 1GHz High Frequency Substitution Measurement

Company: Samsung
Project #: 16K22866
Date: 03-08-16
Test Engineer: Steven.Kim
Configuration: EUT / AC Adapter / Ear Phone / Z-Position
Mode: TX LTE BAND 2, 20MHz BW, QPSK

Chamber: Chamber 2 | Pre-amplifer: AFS42 | Filter: Filter 1 | Limit: FCC Part 24

| f GHz | SG reading (dBm) | Ant. Pol. (H/V) | Distance (m) | Preamp (dB) | Filter (dB) | ERP (dBm) | Limit (dBm) | Delta (dB) | Notes |
|---|---|---|---|---|---|---|---|---|---|
| Low Channel (1860MHz) | | | | | | | | | |
| 3.7200 | -3.8 | V | 3.0 | 40.5 | 1.0 | -43.3 | -13.0 | -30.3 | |
| 5.5800 | -4.9 | V | 3.0 | 40.8 | 1.0 | -44.7 | -13.0 | -31.7 | |
| 7.4400 | -14.6 | V | 3.0 | 40.8 | 1.0 | -54.3 | -13.0 | -41.3 | |
| 3.7200 | -9.9 | H | 3.0 | 40.5 | 1.0 | -49.4 | -13.0 | -36.4 | |
| 5.5800 | -2.3 | H | 3.0 | 40.8 | 1.0 | -42.1 | -13.0 | -29.1 | |
| 7.4400 | -13.3 | H | 3.0 | 40.8 | 1.0 | -53.0 | -13.0 | -40.0 | |
| Mid Channel (1880MHz) | | | | | | | | | |
| 3.7600 | -4.9 | V | 3.0 | 40.5 | 1.0 | -44.5 | -13.0 | -31.5 | |
| 5.6400 | -3.2 | V | 3.0 | 40.8 | 1.0 | -43.0 | -13.0 | -30.0 | |
| 7.5200 | -14.4 | V | 3.0 | 40.7 | 1.0 | -54.1 | -13.0 | -41.1 | |
| 3.7600 | -8.5 | H | 3.0 | 40.5 | 1.0 | -48.1 | -13.0 | -35.1 | |
| 5.6400 | -3.3 | H | 3.0 | 40.8 | 1.0 | -43.1 | -13.0 | -30.1 | |
| 7.520 | -12.3 | H | 3.0 | 40.7 | 1.0 | -52.0 | -13.0 | -39.0 | |
| High Channel (1900MHz) | | | | | | | | | |
| 3.8000 | -2.7 | V | 3.0 | 40.6 | 1.0 | -42.3 | -13.0 | -29.3 | |
| 5.7000 | -3.9 | V | 3.0 | 40.8 | 1.0 | -43.7 | -13.0 | -30.7 | |
| 7.6000 | -13.9 | V | 3.0 | 40.7 | 1.0 | -53.6 | -13.0 | -40.6 | |
| 3.8000 | -6.5 | H | 3.0 | 40.6 | 1.0 | -46.1 | -13.0 | -33.1 | |
| 5.7000 | 3.5 | H | 3.0 | 40.8 | 1.0 | -36.3 | -13.0 | -23.3 | |
| 7.6000 | -12.5 | H | 3.0 | 40.7 | 1.0 | -52.2 | -13.0 | -39.2 | |

Rev. 03.03.09
Note: No other emissions were detected above the system noise floor.

LTE Band 2 20MHz 16QAM

UL Korea, Ltd Suwon Laboratory
Above 1GHz High Frequency Substitution Measurement

Company: Samsung
Project #: 16K22866
Date: 03-08-16
Test Engineer: Steven.Kim
Configuration: EUT / AC Adapter / Ear Phone / Z-Position
Mode: TX, LTE BAND 2, 20MHz BW,16QAM

Chamber: Chamber 2 | Pre-amplifer: AFS42 | Filter: Filter 1 | Limit: FCC Part 24

| f GHz | SG reading (dBm) | Ant. Pol. (H/V) | Distance (m) | Preamp (dB) | Filter (dB) | ERP (dBm) | Limit (dBm) | Delta (dB) | Notes |
|---|---|---|---|---|---|---|---|---|---|
| Low Channel (1860MHz) | | | | | | | | | |
| 3.7200 | -5.6 | V | 3.0 | 40.5 | 1.0 | -45.1 | -13.0 | -32.1 | |
| 5.5800 | -7.2 | V | 3.0 | 40.8 | 1.0 | -47.0 | -13.0 | -34.0 | |
| 7.4400 | -15.5 | V | 3.0 | 40.8 | 1.0 | -55.3 | -13.0 | -42.3 | |
| 3.7200 | -11.6 | H | 3.0 | 40.5 | 1.0 | -51.1 | -13.0 | -38.1 | |
| 5.5800 | -5.0 | H | 3.0 | 40.8 | 1.0 | -44.8 | -13.0 | -31.8 | |
| 7.4400 | -14.3 | H | 3.0 | 40.8 | 1.0 | -54.0 | -13.0 | -41.0 | |
| Mid Channel (1880MHz) | | | | | | | | | |
| 3.7600 | -6.0 | V | 3.0 | 40.5 | 1.0 | -45.6 | -13.0 | -32.6 | |
| 5.6400 | -4.5 | V | 3.0 | 40.8 | 1.0 | -44.3 | -13.0 | -31.3 | |
| 7.5200 | -14.8 | V | 3.0 | 40.7 | 1.0 | -54.5 | -13.0 | -41.5 | |
| 3.7600 | -9.6 | H | 3.0 | 40.5 | 1.0 | -49.1 | -13.0 | -36.1 | |
| 5.6400 | -4.3 | H | 3.0 | 40.8 | 1.0 | -44.1 | -13.0 | -31.1 | |
| 7.5200 | -12.2 | H | 3.0 | 40.7 | 1.0 | -51.9 | -13.0 | -38.9 | |
| High Channel (1900MHz) | | | | | | | | | |
| 3.8000 | -4.1 | V | 3.0 | 40.6 | 1.0 | -43.7 | -13.0 | -30.7 | |
| 5.7000 | -1.7 | V | 3.0 | 40.8 | 1.0 | -41.5 | -13.0 | -28.5 | |
| 7.6000 | -14.4 | V | 3.0 | 40.7 | 1.0 | -54.0 | -13.0 | -41.0 | |
| 3.8000 | -5.0 | H | 3.0 | 40.6 | 1.0 | -44.5 | -13.0 | -31.5 | |
| 5.7000 | 1.4 | H | 3.0 | 40.8 | 1.0 | -38.4 | -13.0 | -25.4 | |
| 7.6000 | -13.4 | H | 3.0 | 40.7 | 1.0 | -53.0 | -13.0 | -40.0 | |

Rev. 03.03.09
Note: No other emissions were detected above the system noise floor.


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LTE

Band 2

15MHz

QPSK

UL Korea, Ltd Suwon Laboratory
Above 1GHz High Frequency Substitution Measurement

Company: Samsung
Project #: 16K22866
Date: 03-08-16
Test Engineer: Steven.Kim
Configuration: EUT / AC Adapter / Ear Phone / Z-Position
Mode: TX, LTE BAND 2, 15MHz BW, QPSK

| Chamber | Pre-amplifer | Filter | Limit |
|---|---|---|---|
| Chamber 2 | AFS42 | Filter 1 | FCC Part 24 |

| f GHz | SG reading (dBm) | Ant. Pol. (H/V) | Distance (m) | Preamp (dB) | Filter (dB) | ERP (dBm) | Limit (dBm) | Delta (dB) | Notes |
|---|---|---|---|---|---|---|---|---|---|
| Low Channel (1857.5MHz) | | | | | | | | | |
| 3.7150 | -4.1 | V | 3.0 | 40.5 | 1.0 | -43.6 | -13.0 | -30.6 | |
| 5.5725 | -7.8 | V | 3.0 | 40.8 | 1.0 | -47.6 | -13.0 | -34.6 | |
| 7.4300 | -15.7 | V | 3.0 | 40.8 | 1.0 | -55.4 | -13.0 | -42.4 | |
| 3.7150 | -10.3 | H | 3.0 | 40.5 | 1.0 | -49.8 | -13.0 | -36.8 | |
| 5.5725 | -4.4 | H | 3.0 | 40.8 | 1.0 | -44.3 | -13.0 | -31.3 | |
| 7.4300 | -12.9 | H | 3.0 | 40.8 | 1.0 | -52.7 | -13.0 | -39.7 | |
| Mid Channel (1880MHz) | | | | | | | | | |
| 3.7600 | -4.5 | V | 3.0 | 40.5 | 1.0 | -44.1 | -13.0 | -31.1 | |
| 5.6400 | -4.3 | V | 3.0 | 40.8 | 1.0 | -44.1 | -13.0 | -31.1 | |
| 7.5200 | -14.6 | V | 3.0 | 40.7 | 1.0 | -54.3 | -13.0 | -41.3 | |
| 3.7600 | -8.8 | H | 3.0 | 40.5 | 1.0 | -48.3 | -13.0 | -35.3 | |
| 5.6400 | -1.2 | H | 3.0 | 40.8 | 1.0 | -41.0 | -13.0 | -28.0 | |
| 7.5200 | -12.3 | H | 3.0 | 40.7 | 1.0 | -52.0 | -13.0 | -39.0 | |
| High Channel (1902.5MHz) | | | | | | | | | |
| 3.8050 | -7.8 | V | 3.0 | 40.6 | 1.0 | -47.4 | -13.0 | -34.4 | |
| 5.7075 | -0.6 | V | 3.0 | 40.8 | 1.0 | -40.4 | -13.0 | -27.4 | |
| 7.6100 | -15.1 | V | 3.0 | 40.7 | 1.0 | -54.8 | -13.0 | -41.8 | |
| 3.8050 | -4.4 | H | 3.0 | 40.6 | 1.0 | -44.0 | -13.0 | -31.0 | |
| 5.7075 | 3.2 | H | 3.0 | 40.8 | 1.0 | -36.6 | -13.0 | -23.6 | |
| 7.6100 | -13.3 | H | 3.0 | 40.7 | 1.0 | -53.0 | -13.0 | -40.0 | |

Rev. 03.03.09
Note: No other emissions were detected above the system noise floor.

LTE

Band 2

15MHz

16QAM

UL Korea, Ltd Suwon Laboratory
Above 1GHz High Frequency Substitution Measurement

Company: Samsung
Project #: 16K22866
Date: 03-08-16
Test Engineer: Steven.Kim
Configuration: EUT / AC Adapter / Ear Phone / Z-Position
Mode: TX, LTE BAND 2, 15MHz BW,16QAM

| Chamber | Pre-amplifer | Filter | Limit |
|---|---|---|---|
| Chamber 2 | AFS42 | Filter 1 | FCC Part 24 |

| f GHz | SG reading (dBm) | Ant. Pol. (H/V) | Distance (m) | Preamp (dB) | Filter (dB) | ERP (dBm) | Limit (dBm) | Delta (dB) | Notes |
|---|---|---|---|---|---|---|---|---|---|
| Low Channel (1857.5MHz) | | | | | | | | | |
| 3.7150 | -5.5 | V | 3.0 | 40.5 | 1.0 | -45.0 | -13.0 | -32.0 | |
| 5.5725 | -8.3 | V | 3.0 | 40.8 | 1.0 | -48.1 | -13.0 | -35.1 | |
| 7.4300 | -15.4 | V | 3.0 | 40.8 | 1.0 | -55.2 | -13.0 | -42.2 | |
| 3.7150 | -11.9 | H | 3.0 | 40.5 | 1.0 | -51.4 | -13.0 | -38.4 | |
| 5.5725 | -5.9 | H | 3.0 | 40.8 | 1.0 | -45.7 | -13.0 | -32.7 | |
| 7.4300 | -13.5 | H | 3.0 | 40.8 | 1.0 | -53.2 | -13.0 | -40.2 | |
| Mid Channel (1880MHz) | | | | | | | | | |
| 3.7600 | -6.6 | V | 3.0 | 40.5 | 1.0 | -46.2 | -13.0 | -33.2 | |
| 5.6400 | -6.4 | V | 3.0 | 40.8 | 1.0 | -46.2 | -13.0 | -33.2 | |
| 7.5200 | -15.1 | V | 3.0 | 40.7 | 1.0 | -54.8 | -13.0 | -41.8 | |
| 3.7600 | -10.2 | H | 3.0 | 40.5 | 1.0 | -49.7 | -13.0 | -36.7 | |
| 5.6400 | -4.7 | H | 3.0 | 40.8 | 1.0 | -44.5 | -13.0 | -31.5 | |
| 7.5200 | -13.4 | H | 3.0 | 40.7 | 1.0 | -53.1 | -13.0 | -40.1 | |
| High Channel (1902.5MHz) | | | | | | | | | |
| 3.8050 | -3.8 | V | 3.0 | 40.6 | 1.0 | -43.4 | -13.0 | -30.4 | |
| 5.7075 | -3.2 | V | 3.0 | 40.8 | 1.0 | -43.0 | -13.0 | -30.0 | |
| 7.6100 | -14.8 | V | 3.0 | 40.7 | 1.0 | -54.5 | -13.0 | -41.5 | |
| 3.8050 | -6.3 | H | 3.0 | 40.6 | 1.0 | -45.9 | -13.0 | -32.9 | |
| 5.7075 | 1.5 | H | 3.0 | 40.8 | 1.0 | -38.3 | -13.0 | -25.3 | |
| 7.6100 | -14.2 | H | 3.0 | 40.7 | 1.0 | -53.9 | -13.0 | -40.9 | |

Rev. 03.03.09
Note: No other emissions were detected above the system noise floor.


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LTE

Band 2

10MHz

QPSK

UL Korea, Ltd Suwon Laboratory
Above 1GHz High Frequency Substitution Measurement

Company: Samsung
Project #: 16K22866
Date: 03-08-16
Test Engineer: Steven.Kim
Configuration: EUT / AC Adapter / Ear Phone / Z-Position
Mode: TX LTE BAND 2, 10MHz BW,QPSK

| Chamber | Pre-amplifer | Filter | Limit |
|---|---|---|---|
| Chamber 2 | AFS42 | Filter 1 | FCC Part 24 |

| f GHz | SG reading (dBm) | Ant. Pol. (H/V) | Distance (m) | Preamp (dB) | Filter (dB) | ERP (dBm) | Limit (dBm) | Delta (dB) | Notes |
|---|---|---|---|---|---|---|---|---|---|
| Low Channel (1855MHz) | | | | | | | | | |
| 3.7100 | -5.5 | V | 3.0 | 40.5 | 1.0 | -45.0 | -13.0 | -32.0 | |
| 5.5650 | -6.8 | V | 3.0 | 40.8 | 1.0 | -46.6 | -13.0 | -33.6 | |
| 7.4200 | -15.9 | V | 3.0 | 40.8 | 1.0 | -55.7 | -13.0 | -42.7 | |
| 3.7100 | -11.3 | H | 3.0 | 40.5 | 1.0 | -50.8 | -13.0 | -37.8 | |
| 5.5650 | -5.0 | H | 3.0 | 40.8 | 1.0 | -44.8 | -13.0 | -31.8 | |
| 7.4200 | -12.8 | H | 3.0 | 40.8 | 1.0 | -52.6 | -13.0 | -39.6 | |
| Mid Channel (1880MHz) | | | | | | | | | |
| 3.7600 | -4.1 | V | 3.0 | 40.5 | 1.0 | -43.6 | -13.0 | -30.6 | |
| 5.6400 | -3.5 | V | 3.0 | 40.8 | 1.0 | -43.3 | -13.0 | -30.3 | |
| 7.5200 | -14.6 | V | 3.0 | 40.7 | 1.0 | -54.3 | -13.0 | -41.3 | |
| 3.7600 | -7.6 | H | 3.0 | 40.5 | 1.0 | -47.1 | -13.0 | -34.1 | |
| 5.6400 | -3.4 | H | 3.0 | 40.8 | 1.0 | -43.2 | -13.0 | -30.2 | |
| 7.5200 | -12.7 | H | 3.0 | 40.7 | 1.0 | -52.4 | -13.0 | -39.4 | |
| High Channel (1905MHz) | | | | | | | | | |
| 3.8100 | -1.7 | V | 3.0 | 40.6 | 1.0 | -41.2 | -13.0 | -28.2 | |
| 5.7150 | 2.4 | V | 3.0 | 40.8 | 1.0 | -37.4 | -13.0 | -24.4 | |
| 7.6200 | -15.3 | V | 3.0 | 40.7 | 1.0 | -55.0 | -13.0 | -42.0 | |
| 3.8100 | -4.9 | H | 3.0 | 40.6 | 1.0 | -44.5 | -13.0 | -31.5 | |
| 5.7150 | 6.0 | H | 3.0 | 40.8 | 1.0 | -33.8 | -13.0 | -20.8 | |
| 7.620 | -12.3 | H | 3.0 | 40.7 | 1.0 | -52.0 | -13.0 | -39.0 | |

Rev. 03.03.09
Note: No other emissions were detected above the system noise floor.

LTE

Band 2

10MHz

16QAM

UL Korea, Ltd Suwon Laboratory
Above 1GHz High Frequency Substitution Measurement

Company: Samsung
Project #: 16K22866
Date: 03-08-16
Test Engineer: Steven.Kim
Configuration: EUT / AC Adapter / Ear Phone / Z-Position
Mode: TX LTE BAND 2, 10MHz BW,16QAM

| Chamber | Pre-amplifer | Filter | Limit |
|---|---|---|---|
| Chamber 2 | AFS42 | Filter 1 | FCC Part 24 |

| f GHz | SG reading (dBm) | Ant. Pol. (H/V) | Distance (m) | Preamp (dB) | Filter (dB) | ERP (dBm) | Limit (dBm) | Delta (dB) | Notes |
|---|---|---|---|---|---|---|---|---|---|
| Low Channel (1855MHz) | | | | | | | | | |
| 3.7100 | -7.4 | V | 3.0 | 40.5 | 1.0 | -46.9 | -13.0 | -33.9 | |
| 5.5650 | -7.6 | V | 3.0 | 40.8 | 1.0 | -47.4 | -13.0 | -34.4 | |
| 7.4200 | -16.4 | V | 3.0 | 40.8 | 1.0 | -56.2 | -13.0 | -43.2 | |
| 3.7100 | -12.4 | H | 3.0 | 40.5 | 1.0 | -51.9 | -13.0 | -38.9 | |
| 5.5650 | -6.7 | H | 3.0 | 40.8 | 1.0 | -46.5 | -13.0 | -33.5 | |
| 7.4200 | -14.3 | H | 3.0 | 40.8 | 1.0 | -54.1 | -13.0 | -41.1 | |
| Mid Channel (1880MHz) | | | | | | | | | |
| 3.7600 | -5.5 | V | 3.0 | 40.5 | 1.0 | -45.0 | -13.0 | -32.0 | |
| 5.6400 | -5.3 | V | 3.0 | 40.8 | 1.0 | -45.1 | -13.0 | -32.1 | |
| 7.5200 | -15.1 | V | 3.0 | 40.7 | 1.0 | -54.8 | -13.0 | -41.8 | |
| 3.7600 | -9.2 | H | 3.0 | 40.5 | 1.0 | -48.7 | -13.0 | -35.7 | |
| 5.6400 | -1.1 | H | 3.0 | 40.8 | 1.0 | -40.9 | -13.0 | -27.9 | |
| 7.5200 | -13.3 | H | 3.0 | 40.7 | 1.0 | -53.0 | -13.0 | -40.0 | |
| High Channel (1905MHz) | | | | | | | | | |
| 3.8100 | -4.7 | V | 3.0 | 40.6 | 1.0 | -44.3 | -13.0 | -31.3 | |
| 5.7150 | -1.5 | V | 3.0 | 40.8 | 1.0 | -41.3 | -13.0 | -28.3 | |
| 7.6200 | -15.5 | V | 3.0 | 40.7 | 1.0 | -55.1 | -13.0 | -42.1 | |
| 3.8100 | -6.4 | H | 3.0 | 40.6 | 1.0 | -46.0 | -13.0 | -33.0 | |
| 5.7150 | 3.8 | H | 3.0 | 40.8 | 1.0 | -36.0 | -13.0 | -23.0 | |
| 7.6200 | -12.9 | H | 3.0 | 40.7 | 1.0 | -52.5 | -13.0 | -39.5 | |

Rev. 03.03.09
Note: No other emissions were detected above the system noise floor.


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LTE Band 2 5MHz QPSK

UL Korea, Ltd Suwon Laboratory
Above 1GHz High Frequency Substitution Measurement

Company: Samsung
Project #: 16K22866
Date: 03-08-16
Test Engineer: Steven.Kim
Configuration: EUT / AC Adapter / Ear Phone / Z-Position
Mode: TX, LTE BAND 2, 5MHz BW, QPSK

| Chamber | Pre-amplifer | Filter | Limit |
|---|---|---|---|
| Chamber 2 | AFS42 | Filter 1 | FCC Part 24 |

| f GHz | SG reading (dBm) | Ant. Pol. (H/V) | Distance (m) | Preamp (dB) | Filter (dB) | ERP (dBm) | Limit (dBm) | Delta (dB) | Notes |
|---|---|---|---|---|---|---|---|---|---|
| Low Channel (1852.5MHz) | | | | | | | | | |
| 3.7050 | -5.7 | V | 3.0 | 40.5 | 1.0 | -45.2 | -13.0 | -32.2 | |
| 5.5575 | -7.6 | V | 3.0 | 40.8 | 1.0 | -47.4 | -13.0 | -34.4 | |
| 7.4100 | -15.6 | V | 3.0 | 40.8 | 1.0 | -55.4 | -13.0 | -42.4 | |
| 3.7050 | -10.9 | H | 3.0 | 40.5 | 1.0 | -50.4 | -13.0 | -37.4 | |
| 5.5575 | -3.3 | H | 3.0 | 40.8 | 1.0 | -43.1 | -13.0 | -30.1 | |
| 7.4100 | -13.3 | H | 3.0 | 40.8 | 1.0 | -53.1 | -13.0 | -40.1 | |
| Mid Channel (1880MHz) | | | | | | | | | |
| 3.7600 | -4.6 | V | 3.0 | 40.5 | 1.0 | -44.1 | -13.0 | -31.1 | |
| 5.6400 | -3.7 | V | 3.0 | 40.8 | 1.0 | -43.5 | -13.0 | -30.5 | |
| 7.5200 | -15.3 | V | 3.0 | 40.7 | 1.0 | -55.1 | -13.0 | -42.1 | |
| 3.7600 | -8.3 | H | 3.0 | 40.5 | 1.0 | -47.8 | -13.0 | -34.8 | |
| 5.6400 | -0.8 | H | 3.0 | 40.8 | 1.0 | -40.6 | -13.0 | -27.6 | |
| 7.5200 | -14.0 | H | 3.0 | 40.7 | 1.0 | -53.7 | -13.0 | -40.7 | |
| High Channel (1907.5MHz) | | | | | | | | | |
| 3.8150 | -2.7 | V | 3.0 | 40.6 | 1.0 | -42.3 | -13.0 | -29.3 | |
| 5.7225 | 4.3 | V | 3.0 | 40.8 | 1.0 | -35.5 | -13.0 | -22.5 | |
| 7.6300 | -14.9 | V | 3.0 | 40.7 | 1.0 | -54.5 | -13.0 | -41.5 | |
| 3.8150 | -2.4 | H | 3.0 | 40.6 | 1.0 | -42.0 | -13.0 | -29.0 | |
| 5.7225 | 5.2 | H | 3.0 | 40.8 | 1.0 | -34.6 | -13.0 | -21.6 | |
| 7.6300 | -12.9 | H | 3.0 | 40.7 | 1.0 | -52.5 | -13.0 | -39.5 | |

Rev. 03.03.09
Note: No other emissions were detected above the system noise floor.

LTE Band 2 5MHz 16QAM

UL Korea, Ltd Suwon Laboratory
Above 1GHz High Frequency Substitution Measurement

Company: Samsung
Project #: 16K22866
Date: 03-08-16
Test Engineer: Steven.Kim
Configuration: EUT / AC Adapter / Ear Phone / Z-Position
Mode: TX, LTE BAND 2, 5MHz BW,16QAM

| Chamber | Pre-amplifer | Filter | Limit |
|---|---|---|---|
| Chamber 2 | AFS42 | Filter 1 | FCC Part 24 |

| f GHz | SG reading (dBm) | Ant. Pol. (H/V) | Distance (m) | Preamp (dB) | Filter (dB) | ERP (dBm) | Limit (dBm) | Delta (dB) | Notes |
|---|---|---|---|---|---|---|---|---|---|
| Low Channel (1852.5MHz) | | | | | | | | | |
| 3.7050 | -6.3 | V | 3.0 | 40.5 | 1.0 | -45.7 | -13.0 | -32.7 | |
| 5.5575 | -6.5 | V | 3.0 | 40.8 | 1.0 | -46.4 | -13.0 | -33.4 | |
| 7.4100 | -15.8 | V | 3.0 | 40.8 | 1.0 | -55.6 | -13.0 | -42.6 | |
| 3.7050 | -11.7 | H | 3.0 | 40.5 | 1.0 | -51.2 | -13.0 | -38.2 | |
| 5.5575 | -5.3 | H | 3.0 | 40.8 | 1.0 | -45.1 | -13.0 | -32.1 | |
| 7.4100 | -14.2 | H | 3.0 | 40.8 | 1.0 | -53.9 | -13.0 | -40.9 | |
| Mid Channel (1880MHz) | | | | | | | | | |
| 3.7600 | -6.4 | V | 3.0 | 40.5 | 1.0 | -46.0 | -13.0 | -33.0 | |
| 5.6400 | -6.9 | V | 3.0 | 40.8 | 1.0 | -46.7 | -13.0 | -33.7 | |
| 7.5200 | -15.7 | V | 3.0 | 40.7 | 1.0 | -55.5 | -13.0 | -42.5 | |
| 3.7600 | -9.6 | H | 3.0 | 40.5 | 1.0 | -49.2 | -13.0 | -36.2 | |
| 5.6400 | -2.9 | H | 3.0 | 40.8 | 1.0 | -42.7 | -13.0 | -29.7 | |
| 7.5200 | -14.7 | H | 3.0 | 40.7 | 1.0 | -54.4 | -13.0 | -41.4 | |
| High Channel (1907.5MHz) | | | | | | | | | |
| 3.8150 | -0.4 | V | 3.0 | 40.6 | 1.0 | -40.0 | -13.0 | -27.0 | |
| 5.7225 | 1.2 | V | 3.0 | 40.8 | 1.0 | -38.5 | -13.0 | -25.5 | |
| 7.6300 | -15.0 | V | 3.0 | 40.7 | 1.0 | -54.6 | -13.0 | -41.6 | |
| 3.8150 | -3.9 | H | 3.0 | 40.6 | 1.0 | -43.5 | -13.0 | -30.5 | |
| 5.7225 | 3.1 | H | 3.0 | 40.8 | 1.0 | -36.7 | -13.0 | -23.7 | |
| 7.6300 | -13.8 | H | 3.0 | 40.7 | 1.0 | -53.4 | -13.0 | -40.4 | |

Rev. 03.03.09
Note: No other emissions were detected above the system noise floor.


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LTE

Band 2

3MHz

QPSK

UL Korea, Ltd Suwon Laboratory
Above 1GHz High Frequency Substitution Measurement

Company: Samsung
Project #: 16K22866
Date: 03-08-16
Test Engineer: Steven.Kim
Configuration: EUT / AC Adapter / Ear Phone / Z-Position
Mode: TX, LTE BAND 2, 3MHz BW,QPSK

| Chamber | Pre-amplifer | Filter | Limit |
|---|---|---|---|
| Chamber 2 | AFS42 | Filter 1 | FCC Part 24 |

| f GHz | SG reading (dBm) | Ant. Pol. (H/V) | Distance (m) | Preamp (dB) | Filter (dB) | ERP (dBm) | Limit (dBm) | Delta (dB) | Notes |
|---|---|---|---|---|---|---|---|---|---|
| Low Channel (1851.5MHz) | | | | | | | | | |
| 3.7030 | -6.9 | V | 3.0 | 40.5 | 1.0 | -46.4 | -13.0 | -33.4 | |
| 5.5545 | -6.1 | V | 3.0 | 40.8 | 1.0 | -46.0 | -13.0 | -33.0 | |
| 7.4060 | -15.7 | V | 3.0 | 40.8 | 1.0 | -55.5 | -13.0 | -42.5 | |
| 3.7030 | -13.5 | H | 3.0 | 40.5 | 1.0 | -53.0 | -13.0 | -40.0 | |
| 5.5545 | -4.7 | H | 3.0 | 40.8 | 1.0 | -44.6 | -13.0 | -31.6 | |
| 7.4060 | -13.8 | H | 3.0 | 40.8 | 1.0 | -53.6 | -13.0 | -40.6 | |
| Mid Channel (1880MHz) | | | | | | | | | |
| 3.7600 | -5.5 | V | 3.0 | 40.5 | 1.0 | -45.1 | -13.0 | -32.1 | |
| 5.6400 | -4.2 | V | 3.0 | 40.8 | 1.0 | -44.0 | -13.0 | -31.0 | |
| 7.5200 | -14.9 | V | 3.0 | 40.7 | 1.0 | -54.6 | -13.0 | -41.6 | |
| 3.7600 | -9.3 | H | 3.0 | 40.5 | 1.0 | -48.8 | -13.0 | -35.8 | |
| 5.6400 | -2.8 | H | 3.0 | 40.8 | 1.0 | -42.6 | -13.0 | -29.6 | |
| 7.5200 | -13.5 | H | 3.0 | 40.7 | 1.0 | -53.2 | -13.0 | -40.2 | |
| High Channel (1908.5MHz) | | | | | | | | | |
| 3.8170 | -0.1 | V | 3.0 | 40.6 | 1.0 | -39.7 | -13.0 | -26.7 | |
| 5.7255 | 1.0 | V | 3.0 | 40.8 | 1.0 | -38.8 | -13.0 | -25.8 | |
| 7.6340 | -13.2 | V | 3.0 | 40.7 | 1.0 | -52.9 | -13.0 | -39.9 | |
| 3.8170 | -0.9 | H | 3.0 | 40.6 | 1.0 | -40.5 | -13.0 | -27.5 | |
| 5.7255 | 6.7 | H | 3.0 | 40.8 | 1.0 | -33.1 | -13.0 | -20.1 | |
| 7.6340 | -12.9 | H | 3.0 | 40.7 | 1.0 | -52.5 | -13.0 | -39.5 | |

Rev. 03.03.09
Note: No other emissions were detected above the system noise floor.

LTE

Band 2

3MHz

16QAM

UL Korea, Ltd Suwon Laboratory
Above 1GHz High Frequency Substitution Measurement

Company: Samsung
Project #: 16K22866
Date: 03-08-16
Test Engineer: Steven.Kim
Configuration: EUT / AC Adapter / Ear Phone / Z-Position
Mode: TX, LTE BAND 2, 3MHz BW,16QAM

| Chamber | Pre-amplifer | Filter | Limit |
|---|---|---|---|
| Chamber 2 | AFS42 | Filter 1 | FCC Part 24 |

| f GHz | SG reading (dBm) | Ant. Pol. (H/V) | Distance (m) | Preamp (dB) | Filter (dB) | ERP (dBm) | Limit (dBm) | Delta (dB) | Notes |
|---|---|---|---|---|---|---|---|---|---|
| Low Channel (1851.5MHz) | | | | | | | | | |
| 3.7030 | -5.7 | V | 3.0 | 40.5 | 1.0 | -45.2 | -13.0 | -32.2 | |
| 5.5545 | -7.6 | V | 3.0 | 40.8 | 1.0 | -47.4 | -13.0 | -34.4 | |
| 7.4060 | -15.4 | V | 3.0 | 40.8 | 1.0 | -55.2 | -13.0 | -42.2 | |
| 3.7030 | -12.0 | H | 3.0 | 40.5 | 1.0 | -51.5 | -13.0 | -38.5 | |
| 5.5545 | -5.5 | H | 3.0 | 40.8 | 1.0 | -45.3 | -13.0 | -32.3 | |
| 7.4060 | -14.1 | H | 3.0 | 40.8 | 1.0 | -53.8 | -13.0 | -40.8 | |
| Mid Channel (1880MHz) | | | | | | | | | |
| 3.7600 | -6.4 | V | 3.0 | 40.5 | 1.0 | -45.9 | -13.0 | -32.9 | |
| 5.6400 | -5.2 | V | 3.0 | 40.8 | 1.0 | -45.0 | -13.0 | -32.0 | |
| 7.5200 | -15.2 | V | 3.0 | 40.7 | 1.0 | -54.9 | -13.0 | -41.9 | |
| 3.7600 | -7.7 | H | 3.0 | 40.5 | 1.0 | -47.3 | -13.0 | -34.3 | |
| 5.6400 | -3.6 | H | 3.0 | 40.8 | 1.0 | -43.4 | -13.0 | -30.4 | |
| 7.5200 | -14.1 | H | 3.0 | 40.7 | 1.0 | -53.8 | -13.0 | -40.8 | |
| 3.8170 | -2.2 | V | 3.0 | 40.6 | 1.0 | -41.8 | -13.0 | -28.8 | |
| 5.7255 | -2.3 | V | 3.0 | 40.8 | 1.0 | -42.1 | -13.0 | -29.1 | |
| 7.6340 | -14.3 | V | 3.0 | 40.7 | 1.0 | -54.0 | -13.0 | -41.0 | |
| 3.8170 | -3.7 | H | 3.0 | 40.6 | 1.0 | -43.3 | -13.0 | -30.3 | |
| 5.7255 | 4.8 | H | 3.0 | 40.8 | 1.0 | -35.0 | -13.0 | -22.0 | |
| 7.6340 | -14.1 | H | 3.0 | 40.7 | 1.0 | -53.7 | -13.0 | -40.7 | |

Rev. 03.03.09
Note: No other emissions were detected above the system noise floor.


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LTE Band 2 1.4MHz QPSK

UL Korea, Ltd Suwon Laboratory
Above 1GHz High Frequency Substitution Measurement

Company: Samsung
Project #: 16K22866
Date: 03-08-16
Test Engineer: Steven.Kim
Configuration: EUT / AC Adapter / Ear Phone / Z-Position
Mode: TX, LTE BAND 2, 1.4MHz BW,QPSK

Chamber: Chamber 2 | Pre-amplifer: AFS42 | Filter: Filter 1 | Limit: FCC Part 24

| f GHz | SG reading (dBm) | Ant. Pol. (H/V) | Distance (m) | Preamp (dB) | Filter (dB) | ERP (dBm) | Limit (dBm) | Delta (dB) | Notes |
|---|---|---|---|---|---|---|---|---|---|
| Low Channel (1850.7MHz) | | | | | | | | | |
| 3.7014 | -7.2 | V | 3.0 | 40.5 | 1.0 | -46.6 | -13.0 | -33.6 | |
| 5.5521 | -3.9 | V | 3.0 | 40.8 | 1.0 | -43.7 | -13.0 | -30.7 | |
| 7.4028 | -15.4 | V | 3.0 | 40.8 | 1.0 | -55.2 | -13.0 | -42.2 | |
| 3.7014 | -11.2 | H | 3.0 | 40.5 | 1.0 | -50.7 | -13.0 | -37.7 | |
| 5.5521 | -3.8 | H | 3.0 | 40.8 | 1.0 | -43.6 | -13.0 | -30.6 | |
| 7.4028 | -14.5 | H | 3.0 | 40.8 | 1.0 | -54.3 | -13.0 | -41.3 | |
| Mid Channel (1880MHz) | | | | | | | | | |
| 3.7600 | -3.4 | V | 3.0 | 40.5 | 1.0 | -43.0 | -13.0 | -30.0 | |
| 5.6400 | -2.2 | V | 3.0 | 40.8 | 1.0 | -42.0 | -13.0 | -29.0 | |
| 7.5200 | -14.8 | V | 3.0 | 40.7 | 1.0 | -54.6 | -13.0 | -41.6 | |
| 3.7600 | -8.2 | H | 3.0 | 40.5 | 1.0 | -47.8 | -13.0 | -34.8 | |
| 5.6400 | -2.4 | H | 3.0 | 40.8 | 1.0 | -42.2 | -13.0 | -29.2 | |
| 7.5200 | -13.8 | H | 3.0 | 40.7 | 1.0 | -53.6 | -13.0 | -40.6 | |
| High Channel (1909.3MHz) | | | | | | | | | |
| 3.8186 | 1.0 | V | 3.0 | 40.6 | 1.0 | -38.6 | -13.0 | -25.6 | |
| 5.7279 | 3.6 | V | 3.0 | 40.8 | 1.0 | -36.2 | -13.0 | -23.2 | |
| 7.6372 | -13.9 | V | 3.0 | 40.7 | 1.0 | -53.5 | -13.0 | -40.5 | |
| 3.8186 | -0.9 | H | 3.0 | 40.6 | 1.0 | -40.5 | -13.0 | -27.5 | |
| 5.7279 | 7.9 | H | 3.0 | 40.8 | 1.0 | -31.9 | -13.0 | -18.9 | |
| 7.6372 | -12.7 | H | 3.0 | 40.7 | 1.0 | -52.4 | -13.0 | -39.4 | |

Rev. 03.03.09
Note: No other emissions were detected above the system noise floor.

LTE Band 2 1.4MHz 16QAM

UL Korea, Ltd Suwon Laboratory
Above 1GHz High Frequency Substitution Measurement

Company: Samsung
Project #: 16K22866
Date: 03-08-16
Test Engineer: Steven.Kim
Configuration: EUT / AC Adapter / Ear Phone / Z-Position
Mode: TX, LTE BAND 2, 1.4MHz BW,16QAM

Chamber: Chamber 2 | Pre-amplifer: AFS42 | Filter: Filter 1 | Limit: FCC Part 24

| f GHz | SG reading (dBm) | Ant. Pol. (H/V) | Distance (m) | Preamp (dB) | Filter (dB) | ERP (dBm) | Limit (dBm) | Delta (dB) | Notes |
|---|---|---|---|---|---|---|---|---|---|
| Low Channel (1850.7MHz) | | | | | | | | | |
| 3.7014 | -8.1 | V | 3.0 | 40.5 | 1.0 | -47.6 | -13.0 | -34.6 | |
| 5.5521 | -5.8 | V | 3.0 | 40.8 | 1.0 | -45.7 | -13.0 | -32.7 | |
| 7.4028 | -15.7 | V | 3.0 | 40.8 | 1.0 | -55.5 | -13.0 | -42.5 | |
| 3.7014 | -12.6 | H | 3.0 | 40.5 | 1.0 | -52.1 | -13.0 | -39.1 | |
| 5.5521 | -5.8 | H | 3.0 | 40.8 | 1.0 | -45.7 | -13.0 | -32.7 | |
| 7.4028 | -14.8 | H | 3.0 | 40.8 | 1.0 | -54.6 | -13.0 | -41.6 | |
| Mid Channel (1880MHz) | | | | | | | | | |
| 3.7600 | -4.5 | V | 3.0 | 40.5 | 1.0 | -44.0 | -13.0 | -31.0 | |
| 5.6400 | -3.4 | V | 3.0 | 40.8 | 1.0 | -43.2 | -13.0 | -30.2 | |
| 7.5200 | -15.1 | V | 3.0 | 40.7 | 1.0 | -54.8 | -13.0 | -41.8 | |
| 3.7600 | -9.6 | H | 3.0 | 40.5 | 1.0 | -49.1 | -13.0 | -36.1 | |
| 5.6400 | -3.8 | H | 3.0 | 40.8 | 1.0 | -43.6 | -13.0 | -30.6 | |
| 7.5200 | -14.1 | H | 3.0 | 40.7 | 1.0 | -53.9 | -13.0 | -40.9 | |
| High Channel (1909.3MHz) | | | | | | | | | |
| 3.8186 | 0.0 | V | 3.0 | 40.6 | 1.0 | -39.6 | -13.0 | -26.6 | |
| 5.7279 | 0.4 | V | 3.0 | 40.8 | 1.0 | -39.4 | -13.0 | -26.4 | |
| 7.6372 | -14.9 | V | 3.0 | 40.7 | 1.0 | -54.6 | -13.0 | -41.6 | |
| 3.8186 | -2.1 | H | 3.0 | 40.6 | 1.0 | -41.7 | -13.0 | -28.7 | |
| 5.7279 | 5.8 | H | 3.0 | 40.8 | 1.0 | -34.0 | -13.0 | -21.0 | |
| 7.6372 | -13.6 | H | 3.0 | 40.7 | 1.0 | -53.3 | -13.0 | -40.3 | |

Rev. 03.03.09
Note: No other emissions were detected above the system noise floor.


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