

Source: KTL
Title: The RF measurement result for the 28 GHz BS
Agenda item: 7.8.1
Document for: Discussion

1 Background

In this contribution, we would like to share the RF measurement results for the 28GHz BS in two different way of using the filed OTA and the conduction.

2 Environments

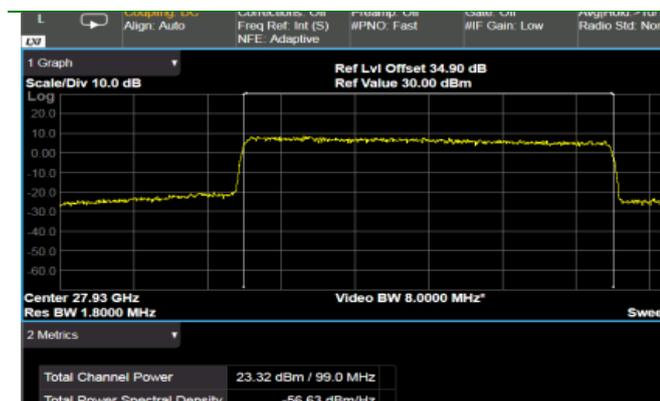
- 5G 28GHz base station
- Conduction and Field OTA measurement at boresight
- BW : 100 MHz
- TRP : 39 dBm (7.9W)
- Power at the antenna port : 24 dBm(0.25W)
- Antenna Gain : 15 dBi @ BS, 14 dBi@ measurement antenna
- Attenuator : 30 dB
- Cable loss : 4.9 dB
- Free Space Loss

Measurement Distance	Free Space Loss
4 m	46.9 dB
2 m	40.9 dB

3 Measurement Result

- Power
 - Conduction : 23.32 dBm
 - Field OTA : 23.43 dBm @2m, 24.1 dBm@4m

Conduction

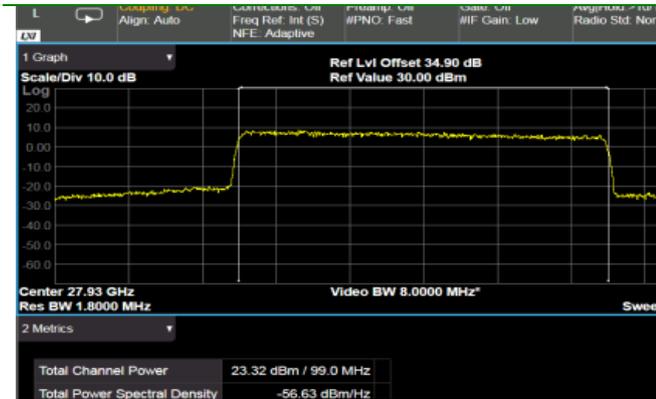


Field OTA @2m

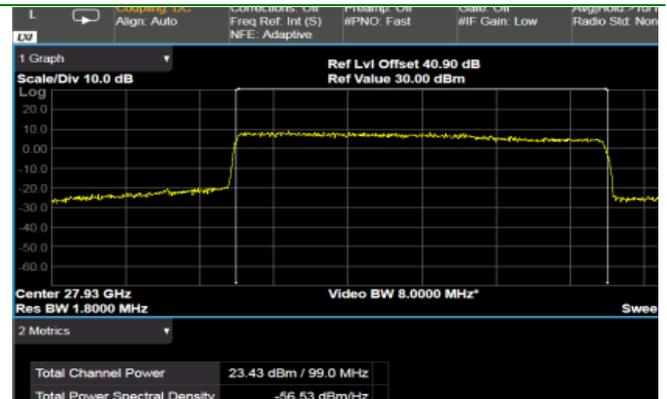


- Occupy Bandwidth
 - Conduction : 97.54 MHz
 - Field OTA : 97.61 MHz @2m, 97.55 @4m

Conduction

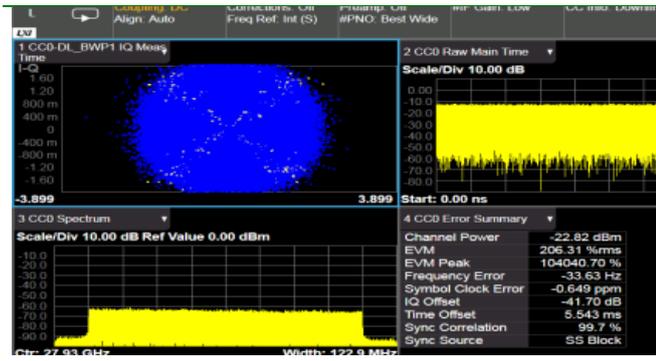


Field OTA @2m

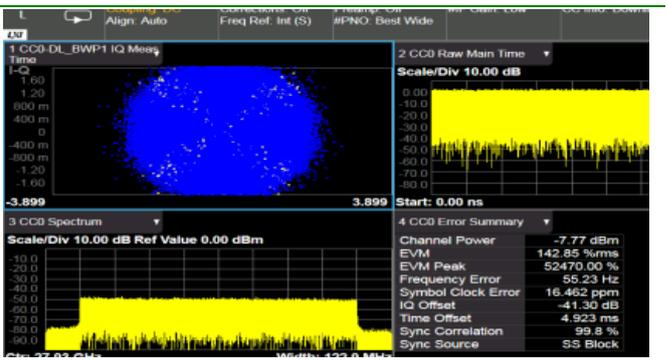


- Frequency Error
 - Conduction : -33 Hz
 - Field OTA : 55 Hz @2m, 242 Hz@4m

Conduction

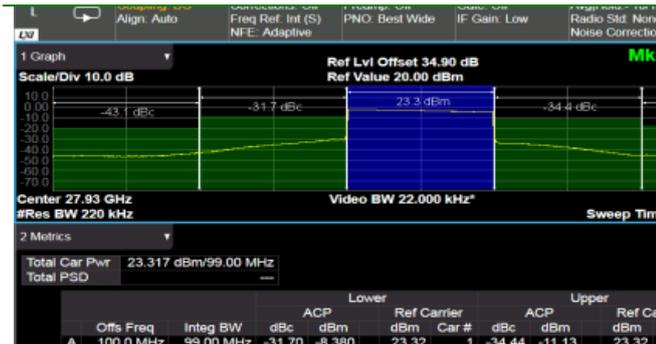


Field OTA @2m

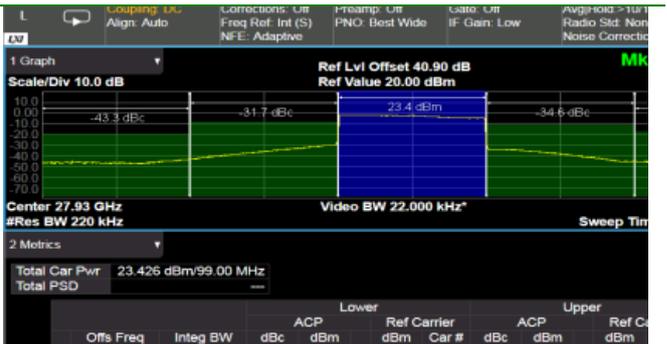


- ACLR
 - Conduction : -45.71 dBm
 - Field OTA : -45.98 dBm, @2m, -45.72dBm@4m

Conduction



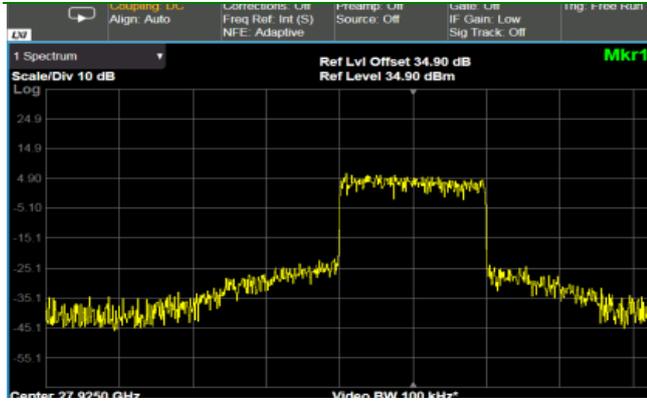
Field OTA @2m



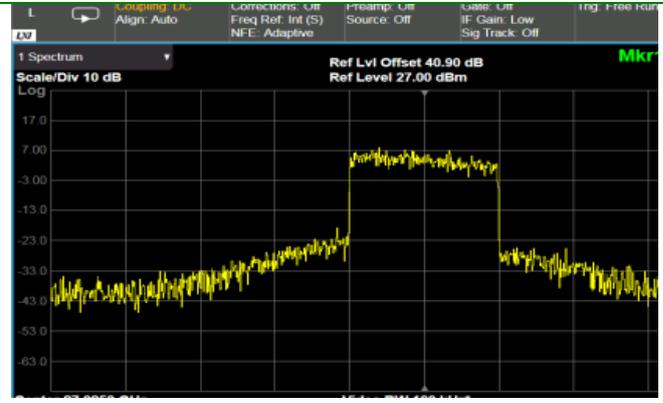
- SEM

- Conduction : -36.96 dBm
- Field OTA : -42.03 dBm, @2m, -38.45dBm@4m

Conduction



Field OTA @2m



- Spurious Emission

- Conduction(Average, Peak)
 - ◆ 30 MHz – 1 GHz : -73.6 dBm
 - ◆ 1 GHz – 10 GHz : -57.8 dBm
 - ◆ 10 GHz – 60 GHz : -51.2 dBm
- Field OTA@2m
 - ◆ 30 MHz – 1 GHz : -68.3 dBm
 - ◆ 1 GHz – 10 GHz : -52.1 dBm
 - ◆ 10 GHz – 60 GHz : -45.5 dBm
- Field OTA@4m (6 dB loss every 2 times of measurement distance)
 - ◆ 30 MHz – 1 GHz : -60.4 dBm
 - ◆ 1 GHz – 10 GHz : -46.0 dBm
 - ◆ 10 GHz – 60 GHz : -39.7 dBm

Conduction (3 0MHz~1 GHz)



Conduction (1 GHz ~ 10 GHz)

Field OTA (2m) (30 MHz~1 GHz)



Field OTA (2m) (1 GHz ~ 10 GHz)



Conduction (10 GHz ~ 50 GHz)



Field OTA (2m) (10 GHz ~ 50 GHz)



Observation 1: we obtained the similar measurement results in two different way of using the conduction measurement and the filed OTA measurement from the boresight.

Observation 2: the unwanted emission value has a lot of margin from the current limit in the both ways.

4 Discussion

It is profitable study that the further investigation of the spurious emission value provides the technical evidence. For clear practical research, it would be better if there were many measurements. The observation 1 and 2 show the possibility to modify the spurious emission value with more stringent.