



Aerial Facilities Limited

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RE: TC711594 Correspondance No. 21295
FCC ID:NEO55-1515Series.

This equipment has a Downlink path 866-894MHz and an Uplink path 821-849MHz. The passbands are dictated by the bandselective filters used at the mobile and base ports. The amplifier modules used in the equipment are wideband units 800-960MHz, this filtering preventing any unwanted frequencies being amplified.

In the downlink we use a 20W Class A amplifier, the power rating of the amplifier is chosen to ensure the linearity is sufficient for the equipment to comply to FCC regulations. As this equipment is designed for multi-carrier operation, we use a 20W amplifier to achieve the 3rd Order Intercept we require, in this case 56dBm. Using the automatic level control (ALC) the output per carrier is limited to 1W (for 3 Carriers), in this equipment the ALC is set to an output power of 39.5dBm (9W), this is the Peak envelope power of 3, 30dBm (1W) carriers in phase, this is the worst case for intermodulation generation. The ALC setting in conjunction with the amplifiers specified third order intercept point allows us to ensure no intermodulation product can exceed the FCC requirement of -13dBm. Below is a summary of the downlink parameters, remembering that the combined PEP of all carriers cannot exceed 39.5dBm.

Amp OIP3 (dBm)	56	
Amp P1dB (dBm)	43	
Duplexer Loss (dB)	0.7	
Carrier Level (dBm)	30	
Unit OIP3 (dBm)	55.3	
Unit P1dB (dBm)	42.3	
P1m max (dBm)	-13	Desired maximum intermod level

Number of Carriers	PEP (dBm)	IM Att(dBc)	IM Level (dBm)	Pc max
2	36.0	50.6	-20.6	32.5
3	39.5	43.6	-13.6	30.2

Note:

PEP = Peak Envelope Power

IM ATT= Level of the Intermodulation Products below wanted carrier

IM LEVEL= Level of the Intermodulation products

Pc MAX= Maximum Power level for specified number of carriers to met FCC Requirements.

For 8 Carriers the power will be limited to 21.4 dBm (39.5 PEP) with an intermodulation product level of -27.8dBm

Amp OIP3 (dBm)	56	
Amp P1dB (dBm)	43	
Duplexer Loss (dB)	0.7	
Carrier Level (dBm)	21.4	
Unit OIP3 (dBm)	55.3	
Unit P1dB (dBm)	42.3	
Pim max (dBm)	-13	Desired maximum intermod level

Number of Carriers	PEP (dBm)	IM Att(dBc)	IM Level (dBm)	Pc max
2	27.4	67.8	-46.4	32.5
3	30.9	60.8	-39.4	30.2
4	33.4	56.6	-35.2	28.8
5	35.4	54.4	-33	28.1
6	37.0	52.4	-31	27.4
7	38.3	50.6	-29.2	26.8
8	39.5	49.2	-27.8	26.3

Similarly in the uplink we use a 5W amplifier with the ALC set at 35.5dBm, a maximum output per carrier of 26dBm (3 carriers).

Again the uplink calculations are included below.

Amp OIP3 (dBm)	53.5	
Amp P1dB (dBm)	37	
Duplexer Loss (dB)	0.7	
Carrier Level (dBm)	26	
Unit OIP3 (dBm)	52.8	
Unit P1dB (dBm)	36.3	
Pim max (dBm)	-13	Desired maximum intermod level

Number of Carriers	PEP (dBm)	IM Att(dBc)	IM Level (dBm)	Pc max
2	32.0	53.6	-27.6	30.9
3	35.5	46.6	-20.6	28.5

For 8 Carriers the power will be limited to 17.5dBm (35.5 PEP) with an intermodulation product level of -34.5dBm

Amp OIP3 (dBm)	53.5	
Amp P1dB (dBm)	37	
Duplexer Loss (dB)	0.7	
Carrier Level (dBm)	17.5	
Unit OIP3 (dBm)	52.8	
Unit P1dB (dBm)	36.3	
Pim max (dBm)	-13	Desired maximum intermod level

Number of Carriers	PEP (dBm)	IM Att(dBc)	IM Level (dBm)	Pc max
2	23.5	70.6	-53.1	30.9
3	27.0	63.6	-46.1	28.5
4	29.5	59.4	-41.9	27.1
5	31.5	57.2	-39.7	26.4
6	33.1	55.2	-37.7	25.7
7	34.4	53.4	-35.9	25.1
8	35.5	52	-34.5	24.7

I hope this clarifies this outstanding issue. If you have any further questions or comments do not hesitate to contact me.

Yours faithfully

For and on behalf

Aerial Facilities Limited



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