

Response to questions about Smartrunk submittal FCC ID# NZSST-880RSU, (Correspondence ID: 3297), 731 Confirmation Number: EA89955.

1. We are submitting occupied bandwidth plots for scrambled voice, FAX and data via FCC Web Site.
2. Necessary bandwidth calculations $2M+2DK$:

Voice and scrambled voice:

$$\begin{aligned} M &= 3\text{kHz} & D &= 5\text{kHz} & K &= 1 \\ 2M+2DK &= 16\text{kHz} \end{aligned}$$

Data and FAX:

$$\begin{aligned} M &= 2\text{kHz} & D &= 5\text{kHz} & K &= 1.1 \\ 2M+2DK &= 15.4\text{kHz} \end{aligned}$$

3. Yes submittal for FCC part 90.
4. Masks G and H are applicable to transmitters without audio low pass filter. All types of emissions from this unit pass through the audio low filter. As indicated in Smartrunk document no:502-4908, page 2 of 3 " 7. TX Audio path : Higher Audio Frequency Attenuating: The low pass amplifier (U12A) attenuates the higher audio frequency that cut of the TX audio frequency above 3000MHz." Also please refer block diagram " Summing Amp (U12/R42).
5. We are providing the test procedure used to determine modulation limiting data previously provided for FCC sect. 2.987(b):
EUT's input was connected to audio generator, output was connected to test receiver. EUT was adjusted according to tune up procedure. A 1000Hz tone was applied from audio generator, the level of the tone was adjusted to give 60% of full rated system deviation. The level was increased by 20dB in less than 0.1 seconds. Instantaneous and steady state deviation was measured at and after increase in audio level. Keeping same level the audio frequency was slowly swept from 300Hz 3000Hz and maximum deviation was measured. This procedure was done for positive and negative deviation.

6. Chart below showing frequencies at temperatures and voltages:

FREQUENCY STABILITY

TEMP DEG C	FREQ MHZ	FREQ MHZ	FREQ MHZ
-30	806.01080	815.51080	824.98580
-20	806.01080	815.51085	824.98585
-10	806.01115	815.51105	824.98610
0	806.01120	815.51110	824.98620
10	806.01135	815.51120	824.98630
20	806.01130	815.51130	824.98630
30	806.01130	815.51120	824.98630
40	806.01125	815.51125	824.98625
50	806.01135	815.51130	824.98640
TOTAL DRIFT	550HZ	500HZ	600HZ
VOLTAGE			
93.5 TO	806.01133	815.51160	824.98644
138VAC	806.01179	815.51165	824.98700
TOTAL DRIFT	490HZ	50HZ	560HZ

7. Instructions are changed for antenna installation in Guide to Installation and Operation (Exhibit 6 page 1-2). Revised page is submitted via FCC Web Site.

Calculations for permissible distance are given below:

$$\text{Limit from FCC sect. 1.1310:} \quad 812\text{MHz}/1500 = 0.54 \text{ mW/cm}^2$$

$$\begin{aligned} \text{Convert to E field:} \quad E &= \sqrt{0.54\text{mW/cm}^2 \times 3770} \\ E &= 45\text{v/m} \end{aligned}$$

$$\begin{aligned} \text{Distance calculation:} \quad D &= \frac{\sqrt{30 \times P \times G}}{45} & D &= \frac{\sqrt{30 \times 1 \times 6}}{45} \\ D &= .298\text{meters} \end{aligned}$$