

Response to TCB Findings

1. Please describe the differences and similarities of the RF modules used in the base and the conference phone unit.
 - The console and base units employ the same NS chip set for control the RF protocol and functions
 - Different antennas are employed on the base and console due to physical design considerations
 - The components supporting the RF chipset were fine tuned to achieve the same RF output and receiver sensitivity, hence the small differences in schematics
 - The NS chipsets controls all the performance aspects of the RF communications
 - Finally the console and base are intended to work together only and will not be compatible with any other product
2. Please confirm that the antennas in both transmitter boards (base and conference phone) are internal and permanent parts of the PCB's.

Yes they are, as seen in FAB silkscreen and internal photographs.

3. On Pages 12 and 13 of the report the frequency point at 18GHz are in the restricted band, therefore 15.209 limit apply at those points. Please clarify.

Measurement corresponds to noise floor of measurement system. Measurement originally made without low noise preamp. Retest with preamp gave reading of 47.4 dB μ V/m Av. See Additional Spurious Emissions document for details.

4. Please specify the measurement system settings for radiated emissions test (pages 12 and 13) namely RBW and VBW settings for QP and AV detectors. Above 1 GHz Peak readings are also required (15.35(b)). Please supply peak data for frequency points above 1GHz.

Tests performed using 100 kHz RBW/VBW for QP emissions below 1 GHz. and above 1GHz outside restricted bands. In restricted bands tests were performed using a 1 MHz RBW/VBW for peak measurements and 1MHz/10 Hz RBW/VBW for average measurements. Peak data is included in Additional Spurious Emissions document.

5. Please supply the plots used for 20dB bandwidth determination.

Plots contained in 20dB Bandwidth and Channel Spacing document.

6. As required in 15.247(a)(1) the hopping channel carrier frequencies should be separated by 20dB bandwidth. Please supply plots showing the channel separation.

Plots contained in 20dB Bandwidth and Channel Spacing document.

7. Please supply plots to show 95 hopping channels.

Plots contained in Hopping Frequencies document.

8. Please supply peak power readings at lowest and highest channels. Only one channel in the mid-range is listed. Please specify the RBW used for this measurement.

Power levels for lowest channel (0) mid channel (48) highest channel (94) and channel with highest power (93) contained in carrier output power document.

RBW Used for measurements was 1MHz.

9. Please justify the difference in power readings between the base station and the conference phone in the test report (602mW vs 158mW). Are their ratings different?

Conference phone sample originally submitted for test found to be faulty. Tests re-performed on new sample.

10. Please explain the method of the channel occupancy calculation. Supporting plots are needed.

Channel occupancy measured on each channel in turn. Firstly the spectrum analyser was setup in zero span mode at the centre frequency of the first channel. Using video triggering the SA, the ON time of the transmitter at that frequency can be determined. By adjusting the sweep time and trigger delay, the time between transmissions can be determined. This repeated for all channels to ensure that all channels were used equally i.e the time between transmissions was not less than the occupancy time multiplied by the number of channels used. In the case of this particular equipment, the time between transmissions is greater than the occupancy time multiplied by the number of channels as the total duty cycle is less than 100 %.

Supporting plots contained in Dwell and Repetition Time document.

According to the plots supplied;

In 38 Seconds the EUT will have performed $38/0.44 = 86.36$ hopping cycles.

Occupancy time per hopping channel = 0.8325 ms

Therefore Total Occupancy Time = $86.36 \times 0.8325 \text{ ms} = 71.9\text{ms}$

11. Has band-edge compliance been checked? Please supply peak and average readings at 2400MHz and 2483.5MHz band-edge frequencies.

[See Additional Spurious Emissions document for band-edge readings.](#)

12. Have the base and the conference phone complied with the 15.31(e) requirement.

[The carrier power was measured with the supply voltage varied between 85 and 115% of nominal and there was no appreciable difference in the radiated power \(<0.1dB\) between these extremes. The maximum power achieved was recorded.](#)

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