

Appendix A

Volume Control Test Data and Plots

For Report No.: SUES240700100201

The DUT shall have at least one volume control setting that will produce a conversational gain of ≥ 6 .

Verdict: Pass.

1.1 For codecs with bit rate, check the bit rate with the worst conversational gain

Codec	Codec Bitrate (kbps)	Conv. Gain(dB)							
		WCDMA B4		LTE B4		NR n2		802.11 b	
		2N	8N	2N	8N	2N	8N	2N	8N
AMR-NB	4.75	6.91	12.48	6.38	11.54	6.59	11.60	7.59	11.81
	5.15	6.98	12.75	6.54	11.64	6.85	11.73	7.71	12.01
	5.90	7.15	12.81	6.68	11.73	7.01	11.84	7.85	12.21
	6.70	7.21	12.89	6.74	11.82	7.14	11.96	7.92	12.55
	7.40	7.30	12.95	6.89	11.90	7.22	12.08	8.02	12.65
	7.95	7.39	13.04	7.12	12.08	7.29	12.26	8.14	12.71
	10.20	7.56	13.08	7.35	12.22	7.35	12.34	8.21	12.80
	12.20	7.62	13.21	7.37	12.49	7.41	12.47	8.29	12.85
AMR-WB	6.60	6.40	12.75	7.10	11.43	6.68	11.65	7.51	12.71
	8.85	6.55	12.83	7.15	11.60	6.82	11.79	7.65	12.85
	12.65	6.60	12.80	7.19	11.85	6.89	11.95	7.71	12.05
	14.25	6.69	12.84	7.27	11.93	7.05	12.05	7.82	12.23
	15.85	6.88	12.90	7.30	12.08	7.11	12.12	7.95	12.45
	18.25	7.02	12.95	7.25	12.11	7.20	12.27	8.02	12.65
	19.85	7.10	13.14	7.20	12.14	7.29	12.38	8.14	12.79
	23.05	7.34	13.29	7.16	12.23	7.32	12.41	8.25	12.84
23.85	7.44	13.43	7.22	12.35	7.45	12.50	8.32	12.90	
EVS-NB	5.90	N/A		6.80	11.81	6.88	11.68	7.54	11.88
	7.20			6.85	11.99	7.01	11.86	7.65	11.97
	8.0			6.91	12.06	7.15	11.99	7.88	12.25
	9.6			6.97	12.16	7.35	12.17	8.07	12.47
	13.20			7.04	12.24	7.40	12.38	8.21	12.66
	16.40			7.18	12.28	7.44	12.47	8.32	12.88
	24.4			7.21	12.31	7.50	12.53	8.41	12.94
EVS-WB	5.90			7.25	11.81	6.61	11.68	7.70	11.75
	7.20			7.15	11.84	6.88	11.72	7.74	11.87
	8.0			7.35	11.89	7.05	11.79	7.85	11.98
	9.6			7.16	11.94	7.10	11.85	7.91	12.19
	13.20			7.21	12.00	7.15	11.99	7.98	12.37
	16.40			7.25	12.02	7.20	12.11	8.00	12.54
	24.4			7.54	12.09	7.28	12.25	8.05	12.69
	32.0	7.52	12.18	7.34	12.37	8.14	12.75		
	48.0	7.48	12.26	7.40	12.42	8.21	12.82		
	64.0	7.36	12.31	7.45	12.48	8.26	12.87		
	96.0	7.44	12.38	7.50	12.51	8.30	12.90		
128.0	7.38	12.46	7.58	12.65	8.35	12.96			

1.2 For codecs with bit rate, tested only bit rate with the worst conversational gain

Air Interface	Band	Limit (dB)	Conv. Gain(dB)					
			HR V1		FR V1		FR V2	
			2N	8N	2N	8N	2N	8N
GSM	850	6	6.38	12.13	6.12	12.38	6.75	12.44
	1900	6	6.5	12.26	6.07	12.21	6.61	12.17

Air Interface	Band	Limit (dB)	Conv. Gain(dB)							
			AMR NB (4.7 kbps)		AMR WB (6.6 kbps)		EVS NB (5.9 kbps)		EVS WB (5.9 kbps)	
			2N	8N	2N	8N	2N	8N	2N	8N
WCDMA	B2	6	6.84	12.45	6.36	12.62	N/A			
	B4	6	6.91	12.48	6.40	12.75				
	B5	6	7.16	12.88	7.03	12.89				
LTE	B2	6	6.17	11.46	7.02	11.36	6.74	11.76	7.19	11.97
	B4	6	6.38	11.54	7.10	11.43	6.80	11.81	7.25	11.81
	B5	6	6.59	11.59	7.19	11.63	6.92	12.10	7.30	12.06
	B12	6	6.56	11.74	7.25	11.82	6.99	12.15	7.42	12.05
	B13	6	6.64	11.88	7.29	11.98	7.15	12.19	7.32	12.09
	B17	6	6.71	11.94	7.26	12.06	7.21	12.12	7.31	11.92
	B25	6	6.82	11.99	7.28	12.12	7.32	12.08	7.41	11.91
	B26	6	6.92	12.05	7.35	12.18	7.36	12.12	7.34	12.09
	B30	6	7.03	12.10	7.32	12.22	7.39	12.16	7.36	12.05
	B41	6	6.20	12.12	7.66	12.19	7.41	12.10	7.37	12.08
	B48	6	6.32	12.26	7.30	12.23	7.47	12.25	7.32	11.99
B66	6	6.41	12.30	7.45	12.26	7.45	12.35	7.27	12.03	
B71	6	6.49	12.45	7.50	12.27	7.55	12.41	7.35	12.05	
NR	N2	6	6.59	11.60	6.68	11.65	6.88	11.68	6.61	11.68
	N5	6	6.45	11.75	6.85	11.84	7.92	11.75	6.85	11.79
	N25	6	6.49	11.86	6.92	11.95	8.01	11.81	6.96	11.86
	N41	6	6.55	11.95	6.99	12.08	8.06	11.95	7.05	11.92
	N48	6	6.61	12.05	7.05	12.21	8.14	12.01	7.21	12.08
	N66	6	6.89	12.19	7.18	12.28	8.25	12.19	7.36	12.19
	N71	6	7.11	12.34	7.35	12.30	8.37	12.32	7.44	12.32
	N77	6	7.35	12.58	7.41	12.35	8.49	12.48	7.58	12.40
WLAN-2.4G	802.11b	6	7.59	11.81	7.51	12.71	7.54	11.88	7.70	11.75
	802.11g	6	7.67	12.05	7.58	12.76	7.58	11.92	7.75	11.85
	802.11n	6	6.89	12.11	7.64	12.82	7.64	12.05	7.82	12.03
WLAN-5G	802.11a	6	7.12	12.21	7.67	12.87	7.71	12.18	7.89	12.23
	802.11ac	6	7.39	12.35	7.71	12.88	7.78	12.37	7.95	12.45

The noise power shall ≥ 20 when tested over the range of 1/3 octave band center frequencies.

Verdict: Pass

2.1 Distortion Test Result for EVS-NB 24.4 kbps and LTE

Center Freq	Limit (dB)	PN-SDNR(dB)									
		LTE Band 2		LTE Band 4		LTE Band 5		LTE Band 12		LTE Band 13	
		2N	8N	2N	8N	2N	8N	2N	8N	2N	8N
400	20	24.93	24.89	25.03	25.04	25.48	25.64	24.8	25.18	26.34	26.14
500		25.39	25.38	25.29	25.32	25.82	25.88	25.94	25.44	26.87	26.95
630		26.21	26.73	24.85	26.48	26.57	26.48	26.36	26.92	29	29.26
800		28.55	30.29	29.45	29.75	28.65	29.75	28.98	29.92	30.86	32.87
1000		32.63	34.51	34.14	33.08	33.55	33.08	31.47	31.88	36.93	36.84
1250		33.36	33.78	30.79	35.04	33.93	35.04	31.02	33.66	34.11	35.06
1600		32.71	31.94	27.54	32.07	31.52	32.07	28.75	27.82	39.26	39.18
2000		32.76	38.54	43.79	39.52	39.75	39.52	32.38	38.81	41.41	31.67
2500		34.75	36.36	44.16	35.07	31.43	35.07	32.97	36.2	39.87	31.67
3150		33.38	33.71	38.55	34.86	28.81	34.86	32.56	33.44	38.8	35.53

Center Freq	Limit (dB)	PN-SDNR(dB)									
		LTE Band 17		LTE Band 25		LTE Band 26		LTE Band 30		LTE Band 41	
		2N	8N	2N	8N	2N	8N	2N	8N	2N	8N
400	20	25.75	25.5	25.46	25.82	25.69	25.71	26.02	26.97	25.48	25.82
500		26.52	26.47	26.57	26.09	26.7	26.34	26.83	26.77	26.79	26.46
630		26.45	26.94	29.14	29.3	27.26	29.47	29.06	29.45	29.07	29.33
800		27.88	29.89	32.12	30.86	32.64	33.87	32.51	33.91	32.46	33.8
1000		36.61	36.63	34.45	32.41	35.95	37.93	35.72	37.82	36.42	37.54
1250		34.96	30.33	36.44	35.77	35.07	35.67	34.82	32.55	33.17	34.98
1600		29.08	28.2	31.02	40.73	38.36	38.48	36.95	38.52	37.75	36.13
2000		41.96	30.1	38.77	41.74	41.27	44.45	38.34	33.35	38.58	39.1
2500		39.37	37.27	40.24	39.51	40.12	41.36	36.31	37.68	36.63	36.18
3150		37.21	40.03	39.63	43.92	38.97	40.09	34.24	35.8	36.45	37.88

Center Freq	Limit (dB)	PN-SDNR(dB)					
		LTE Band 48		LTE Band 66		LTE Band 71	
		2N	8N	2N	8N	2N	8N
400	20	26.12	26.57	25.93	26.09	25.35	25.94
500		26.68	26.6	26.81	26.67	26.98	26.75
630		28.52	29.55	29.15	29.42	29.15	29.61
800		31.42	32.48	32.95	33.96	33.14	34.15
1000		30.15	30.53	36.21	37.2	36.82	35.5
1250		29	30.94	34.56	35.24	33.73	35.29
1600		32.37	33.79	38.08	38.37	39.85	39.81
2000		31.67	33.7	40.68	41.15	37.4	38.59
2500		30.67	31.52	35.85	35.06	39.57	40.75
3150		34.07	35.25	38.27	38.41	34.44	37.79

2.2 Distortion Test Result for EVS-NB 24.4 kbps and NR

Center Freq	Limit (dB)	PN-SDNR(dB)							
		NR Band 2		NR Band 5		NR Band 25		NR Band 41	
		2N	8N	2N	8N	2N	8N	2N	8N
400	20	26.25	26.55	27.15	27.6	28.38	28.63	29.29	29.45
500		28.14	29.56	28.52	29.86	30.5	30.84	31.53	31.44
630		32.01	32.38	32.11	32.51	33.78	33.3	34.52	34.02
800		32.15	32.45	32.28	32.6	37.23	37.77	37.76	37.17
1000		32.89	33.12	33.08	33.13	38.69	38.81	37.35	37
1250		33.56	33.77	31.89	32.39	33.97	34.14	32.29	34.72
1600		37.56	37.86	38.62	38.76	36.44	37.89	32.18	37.24
2000		38.45	38.79	39.57	39.68	38.69	41.24	39.95	39.02
2500		38.59	38.87	38.4	38.81	38.36	38.67	39.34	34.94
3150		37.48	37.63	37.73	37.85	35.36	36.42	36.32	33.63

Center Freq	Limit (dB)	PN-SDNR(dB)							
		NR Band 48		NR Band 66		NR Band 71		NR Band 77	
		2N	8N	2N	8N	2N	8N	2N	8N
400	20	24.9	25.81	28.36	28.66	28.49	28.61	29.25	29.96
500		26.69	27.31	30.65	30.82	30.74	31.01	31.48	31.77
630		31.5	32.18	34.18	34.69	34.21	34.11	34.51	35.05
800		35.11	35.79	37.09	37.98	37.87	37.08	30.31	32.91
1000		36.02	35.32	37.33	38.28	38	36.7	36.4	39.08
1250		35.79	36.45	34.36	34.9	35.47	34.89	34.62	34.58
1600		38.62	39.63	37.06	39.85	35.96	37.18	28.55	39.63
2000		39.07	39.26	38.7	40.03	38.02	38.76	39.81	43.36
2500		39.49	39.53	38.07	39.11	39.78	36.36	40.16	40.84
3150		37.79	37.9	36.18	36.56	37.75	38.38	33.89	38.82

2.3 Distortion Test Result for EVS-NB 24.4 kbps and WLAN

Center Freq	Limit (dB)	PN-SDNR(dB)									
		2.4G - 802.11b		2.4G - 802.11g		2.4G - 802.11n		5G - 802.11a		2.4G - 802.11ac	
		2N	8N	2N	8N	2N	8N	2N	8N	2N	8N
400	20	27.04	27.11	26.65	27.76	27.23	27.71	25.72	25.94	27.69	28.5
500		28.1	28.54	28.18	28.86	28.62	28.64	26.3	27.75	29.04	28.94
630		29.01	29.99	30.79	29.76	30.14	29.91	30.21	30.19	28.59	28.22
800		32.1	32.3	30.47	32.77	29.37	30.52	31.07	31.55	30.58	33.73
1000		33.28	32.24	33.79	33.86	32.99	35.51	33.13	33.47	31.58	35.22
1250		29.5	29.47	31.79	30.31	29.67	32.89	29.85	29.52	31.03	31.27
1600		34.73	35.24	39.17	38.94	32.13	33.54	30.18	31	32.71	39.53
2000		38.86	40.22	33.66	40.63	38.89	34.02	33.58	31.55	37.92	38.23
2500		33.98	38.15	40.96	37.9	36.34	37.01	39.23	40.39	38.39	39.93
3150		36.26	36.27	41.95	42.67	39.79	41.15	40.29	41.8	36.33	37.28

2.4 Distortion Test Result for EVB-WB 128 kbps and LTE

Center Freq	Limit (dB)	PN-SDNR(dB)									
		LTE Band 2		LTE Band 4		LTE Band 5		LTE Band 12		LTE Band 13	
		2N	8N	2N	8N	2N	8N	2N	8N	2N	8N
250	20	22.53	22.70	26.42	26.97	22.68	22.85	22.48	22.86	22.79	22.86
315		24.96	24.99	26.65	27.53	25.39	24.88	24.33	25.24	26.01	25.78
400		25.20	24.27	28.66	28.9	25.74	25.67	24.65	25.46	26.69	26.6
500		25.50	25.24	29.11	29.47	25.95	25.76	24.84	25.58	26.9	26.74
630		26.21	26.44	30.51	30.39	26.65	27.05	24.44	26.85	29.01	27.22
800		28.82	29.64	29.2	30.89	29.42	30.58	29.09	30.47	33.54	34.9
1000		33.70	34.18	34.29	35.33	34.16	35.46	34.01	35.28	38.46	39.36
1250		34.77	35.21	32.97	33.86	34.67	35.74	34.33	35.49	36.06	36.46
1600		36.83	37.78	35.24	36.77	38.44	39.27	37.81	38.45	42.11	45.35
2000		34.69	35.68	35.41	36.84	38.09	40.64	37.82	38.9	42.38	45.66
2500		35.41	36.68	31.43	32.37	38.51	39.07	35.03	36.61	40.75	38.86
3150		33.76	34.89	30.91	31.71	34.27	35.75	33.02	34.62	39.51	39.56
4000		30.11	30.60	32.82	33.96	36.91	38.13	36.53	37.59	41.16	42.87
5000		32.38	33.02	33.99	34.8	39.46	41.48	41.68	41.79	41.85	42.24

Center Freq	Limit (dB)	PN-SDNR(dB)									
		LTE Band 17		LTE Band 25		LTE Band 26		LTE Band 30		LTE Band 41	
		2N	8N	2N	8N	2N	8N	2N	8N	2N	8N
250	20	22.86	23.57	24.03	24.10	24.03	24.12	23.21	24.16	24.41	24.82
315		25.94	25.71	25.67	25.61	25.61	25.62	25.88	24.02	25.34	25.51
400		26.76	26.76	25.75	25.72	25.85	26.01	26.70	26.48	26.62	26.55
500		26.94	26.84	26.59	26.45	26.64	26.58	27.00	26.83	26.83	26.73
630		29.08	29.46	29.30	29.27	28.93	29.36	29.13	29.29	28.55	29.18
800		33.68	34.88	32.57	34.02	32.68	34.27	33.37	33.75	31.63	33.72
1000		38.76	38.93	37.24	38.19	37.03	38.64	38.24	38.65	33.94	36.68
1250		36.22	35.82	33.01	36.37	36.11	36.50	36.20	36.28	33.40	35.10
1600		43.03	42.65	43.23	46.54	43.24	48.07	42.67	42.88	35.83	36.61
2000		43.04	43.75	43.69	48.25	44.61	51.22	43.59	43.81	35.75	36.54
2500		41.69	42.92	42.10	45.40	43.58	49.48	42.03	42.77	33.56	33.71
3150		40.69	41.58	42.70	43.10	40.11	46.80	39.80	39.38	31.04	31.34
4000		40.09	40.29	44.23	45.02	39.45	50.95	41.21	71.54	32.21	32.50
5000		42.74	42.80	46.00	47.61	42.15	52.70	42.34	42.60	32.48	33.37

Center Freq	Limit (dB)	PN-SDNR(dB)					
		LTE Band 48		LTE Band 66		LTE Band 71	
		2N	8N	2N	8N	2N	8N
250	20	22.75	23.18	23.17	23.91	22.50	22.54
315		25.85	25.43	25.82	25.32	25.48	25.72
400		26.94	26.69	26.66	26.29	26.17	26.87
500		27.05	26.76	26.97	26.57	26.77	26.88
630		29.19	29.25	29.14	29.02	29.13	29.47
800		33.69	33.87	32.98	33.10	33.66	35.07
1000		38.34	38.66	38.60	39.52	38.36	38.95
1250		35.96	34.94	36.27	37.20	35.44	36.06
1600		41.07	41.96	43.56	43.88	39.85	41.44
2000		40.17	40.40	44.02	44.29	41.62	41.86
2500		39.20	39.85	42.26	43.18	37.19	38.77
3150		38.17	38.57	41.59	41.86	35.01	36.43
4000		38.52	38.37	43.05	43.54	36.96	37.79
5000		40.50	40.77	43.14	43.39	40.19	40.34

2.5 Distortion Test Result for EVB-WB 128 kbps and NR

Center Freq	Limit (dB)	PN-SDNR(dB)							
		NR Band 2		NR Band 5		NR Band 25		NR Band 41	
		2N	8N	2N	8N	2N	8N	2N	8N
250	20	23.17	23.21	21.88	22.5	25.22	26.19	24.94	24.95
315		25.82	24.02	24.05	24.63	25.27	25.59	27.00	26.53
400		26.66	26.48	26.53	27.05	27.00	27.02	29.31	29.9
500		26.97	26.83	28.74	29.59	28.24	29.11	31.69	32.15
630		29.14	29.29	31.55	32.02	31.64	31.60	35.53	35.33
800		32.98	33.75	34.22	36.62	35.32	36.63	39.00	38.79
1000		38.60	38.65	34.31	40.22	38.29	39.65	41.52	41.02
1250		36.27	36.28	34.85	36.27	36.00	36.34	36.54	36.39
1600		43.56	43.88	36.92	41.67	40.59	40.75	40.9	40.99
2000		44.02	43.81	39.42	41.18	39.79	41.11	40.05	40.54
2500		42.26	42.77	38.20	40.80	40.76	41.27	41.85	42.16
3150		41.59	41.38	37.58	37.70	38.10	37.92	39.44	40.26
4000		43.05	43.14	39.56	42.63	41.74	42.65	41.80	42.65
5000		43.14	43.6	40.63	44.77	42.97	43.63	40.32	41.14

Center Freq	Limit (dB)	PN-SDNR(dB)							
		NR Band 48		NR Band 66		NR Band 71		NR Band 77	
		2N	8N	2N	8N	2N	8N	2N	8N
250	20	22.21	25.23	23.99	24.11	23.96	24.76	25.20	25.22
315		24.23	26.34	25.36	26.17	26.14	25.64	25.88	27.27
400		26.95	28.77	28.46	28.94	28.25	28.92	29.51	29.91
500		28.68	30.26	30.07	31.19	30.28	31.10	31.81	31.94
630		30.99	33.29	34.60	35.16	33.16	34.57	35.39	35.52
800		33.26	34.37	39.00	39.78	37.42	39.05	38.53	36.06
1000		34.98	35.60	42.28	42.17	40.92	41.58	37.13	41.27
1250		33.90	34.09	35.65	35.99	35.54	36.61	34.82	36.61
1600		38.26	39.03	38.73	38.93	38.55	39.57	38.05	40.33
2000		39.42	39.81	40.28	40.37	38.46	39.30	39.03	40.36
2500		37.67	38.51	35.68	35.86	38.95	39.01	39.08	39.99
3150		37.74	38.23	36.25	36.74	36.01	36.04	35.90	36.91
4000		40.02	40.34	40.58	41.05	39.49	39.50	40.36	40.65
5000		42.09	42.77	35.09	37.27	37.01	37.29	37.52	37.82

2.6 Distortion Test Result for EVB-WB 128 kbps and WLAN

Center Freq	Limit (dB)	PN-SDNR(dB)									
		2.4G - 802.11b		2.4G - 802.11g		2.4G - 802.11n		5G - 802.11a		2.4G - 802.11ac	
		2N	8N	2N	8N	2N	8N	2N	8N	2N	8N
250	20	22.47	23.40	23.49	24.25	22.94	23.53	22.25	23.85	22.05	22.33
315		25.89	25.57	24.98	25.08	25.99	26.48	25.72	25.75	25.35	26.02
400		26.96	27.82	27.31	27.40	27.70	27.87	27.12	28.47	27.87	28.40
500		28.13	28.68	28.53	28.62	28.75	29.15	28.51	29.89	28.87	28.66
630		29.43	30.26	28.78	29.96	28.97	30.09	27.58	28.80	29.82	29.35
800		30.63	33.59	33.47	34.35	29.53	30.33	31.54	32.26	28.98	29.91
1000		35.40	36.44	35.72	36.51	35.00	35.88	33.27	34.11	30.49	31.22
1250		34.58	34.93	30.81	31.25	27.49	30.11	33.50	35.99	34.94	35.03
1600		42.81	43.77	43.15	44.11	41.57	42.83	33.54	38.90	36.58	37.31
2000		42.07	42.26	39.42	40.68	41.09	42.96	40.00	41.26	42.54	43.10
2500		40.13	40.89	35.33	37.04	46.40	47.64	39.18	39.96	33.59	34.92
3150		47.43	47.68	40.34	41.72	46.12	47.43	32.87	35.33	44.23	45.09
4000		39.52	48.25	42.21	43.11	38.83	43.01	38.07	40.61	43.97	44.85
5000		42.86	43.23	37.20	39.37	40.26	40.92	39.16	41.98	48.78	49.23

The receive frequency response shall be measured at the DRP in 1/12 octave bands. After translation to the FF, it shall fall between the applicable upper and lower limits.

Volume Control: Max, LRP: FF

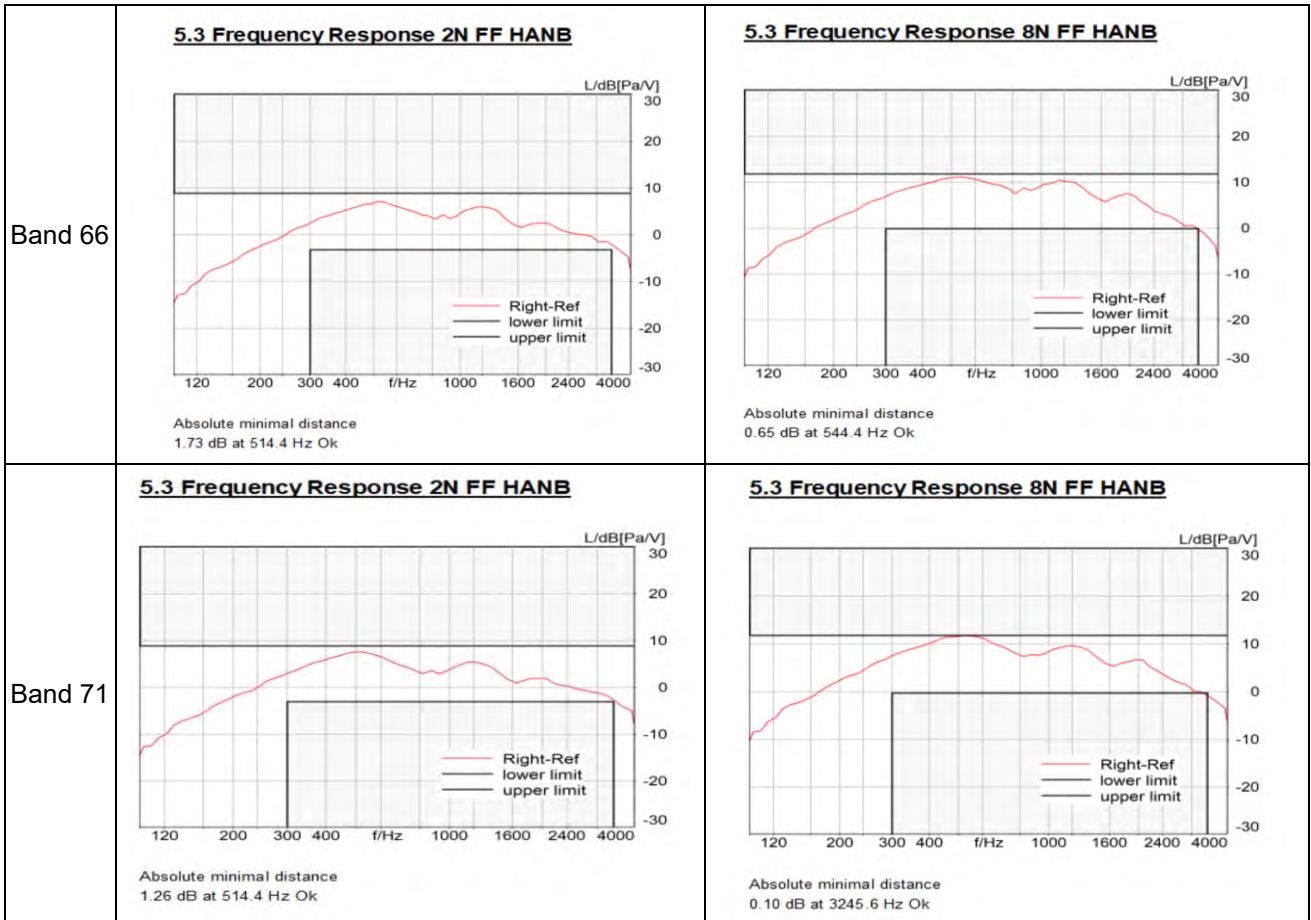
Verdict: Pass

3.1 Frequency Response Graph for EVS-NB 24.4 kbps and LTE

LTE Band	Frequency Response	
	N2	N8
Band 2	<p>5.3 Frequency Response 2N FF HANB</p> <p>Absolute minimal distance 1.28 dB at 544.4 Hz Ok</p>	<p>5.3 Frequency Response 8N FF HANB</p> <p>Absolute minimal distance 0.06 dB at 576.7 Hz Ok</p>
	<p>5.3 Frequency Response 2N FF HANB</p> <p>Absolute minimal distance 1.54 dB at 3058.6 Hz Ok</p>	<p>5.3 Frequency Response 8N FF HANB</p> <p>Absolute minimal distance 0.13 dB at 611.7 Hz Ok</p>
Band 5	<p>5.3 Frequency Response 2N FF HANB</p> <p>Absolute minimal distance 1.42 dB at 514.4 Hz Ok</p>	<p>5.3 Frequency Response 8N FF HANB</p> <p>Absolute minimal distance 0.11 dB at 611.7 Hz Ok</p>

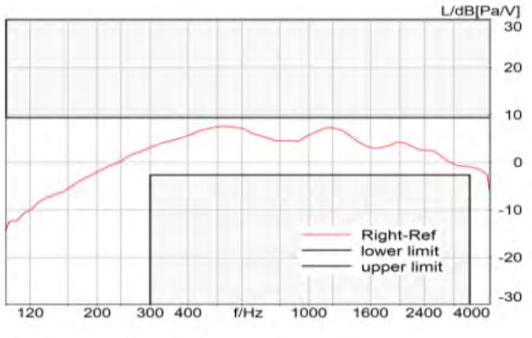
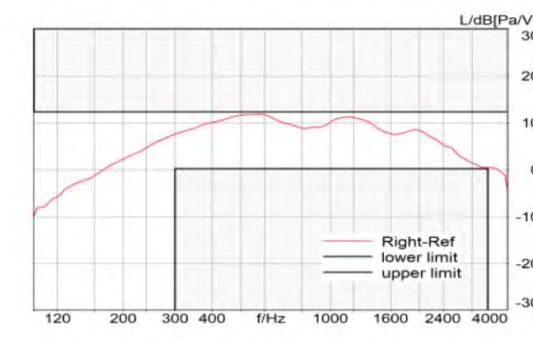
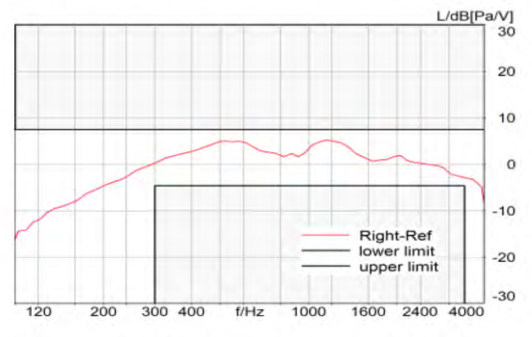
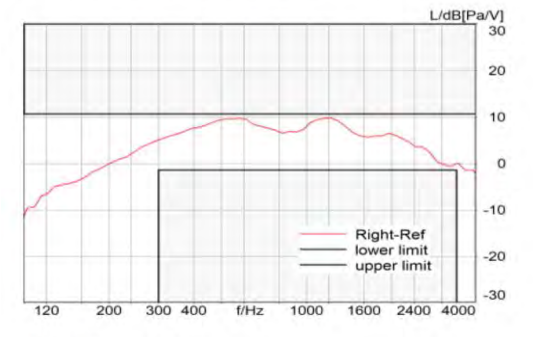
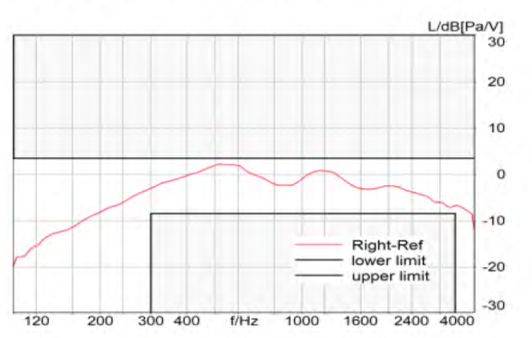
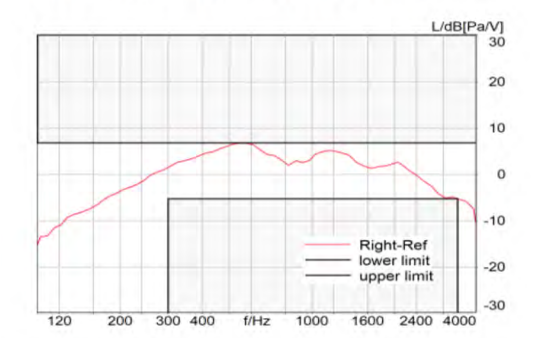
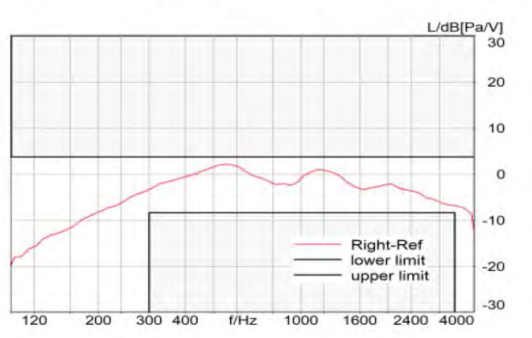
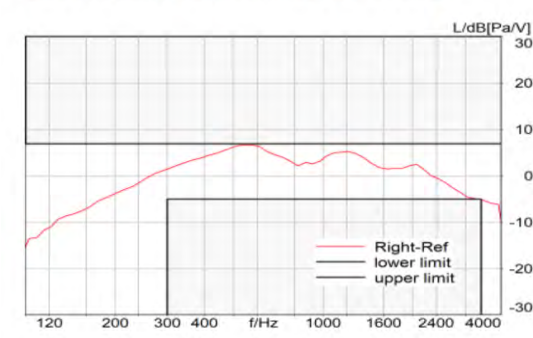
<p>Band 12</p>	<p>5.3 Frequency Response 2N FF HANB</p> <p>Absolute minimal distance 1.51 dB at 514.4 Hz Ok</p>	<p>5.3 Frequency Response 8N FF HANB</p> <p>Absolute minimal distance 0.19 dB at 544.4 Hz Ok</p>
<p>Band 13</p>	<p>5.3 Frequency Response 2N FF HANB</p> <p>Absolute minimal distance 1.64 dB at 514.4 Hz Ok</p>	<p>5.3 Frequency Response 8N FF HANB</p> <p>Absolute minimal distance 0.01 dB at 3245.6 Hz Ok</p>
<p>Band 17</p>	<p>5.3 Frequency Response 2N FF HANB</p> <p>Absolute minimal distance 2.04 dB at 514.4 Hz Ok</p>	<p>5.3 Frequency Response 8N FF HANB</p> <p>Absolute minimal distance 0.70 dB at 1151.2 Hz Ok</p>
<p>Band 25</p>	<p>5.3 Frequency Response 2N FF HANB</p> <p>Absolute minimal distance 2.15 dB at 1216.1 Hz Ok</p>	<p>5.3 Frequency Response 8N FF HANB</p> <p>Absolute minimal distance 0.94 dB at 1216.1 Hz Ok</p>

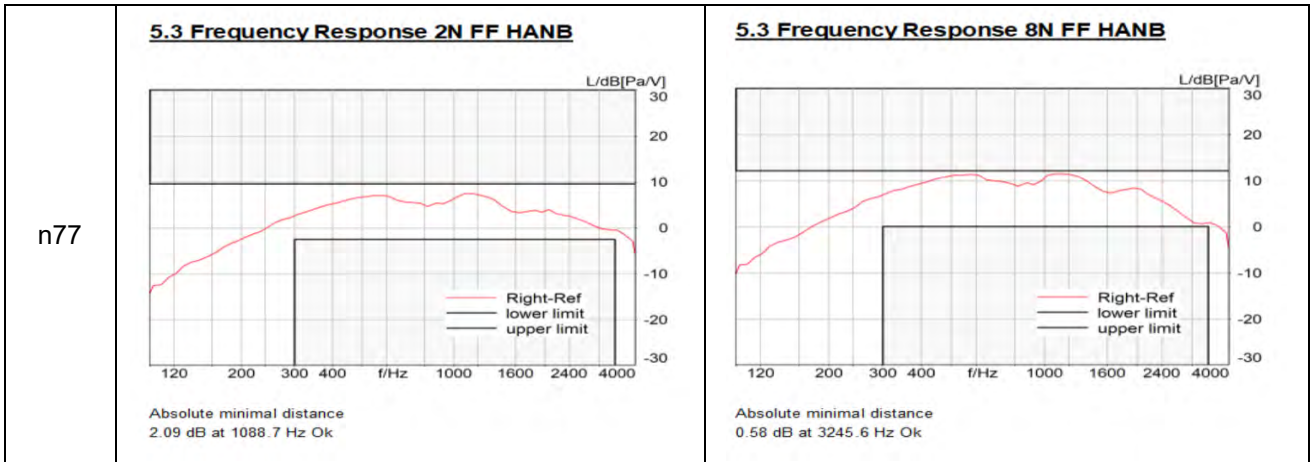
Band 26	<p>5.3 Frequency Response 2N FF HANB</p> <p>Absolute minimal distance 2.01 dB at 514.4 Hz Ok</p>	<p>5.3 Frequency Response 8N FF HANB</p> <p>Absolute minimal distance 0.92 dB at 1151.2 Hz Ok</p>
Band 30	<p>5.3 Frequency Response 2N FF HANB</p> <p>Absolute minimal distance 1.82 dB at 514.4 Hz Ok</p>	<p>5.3 Frequency Response 8N FF HANB</p> <p>Absolute minimal distance 0.71 dB at 3245.6 Hz Ok</p>
Band 41	<p>5.3 Frequency Response 2N FF HANB</p> <p>Absolute minimal distance 1.69 dB at 514.4 Hz Ok</p>	<p>5.3 Frequency Response 8N FF HANB</p> <p>Absolute minimal distance 0.31 dB at 514.4 Hz Ok</p>
Band 48	<p>5.3 Frequency Response 2N FF HANB</p> <p>Absolute minimal distance 1.31 dB at 514.4 Hz Ok</p>	<p>5.3 Frequency Response 8N FF HANB</p> <p>Absolute minimal distance 0.01 dB at 514.4 Hz Ok</p>



3.2 Frequency Response Graph for EVS-NB 24.4 kbps and NR

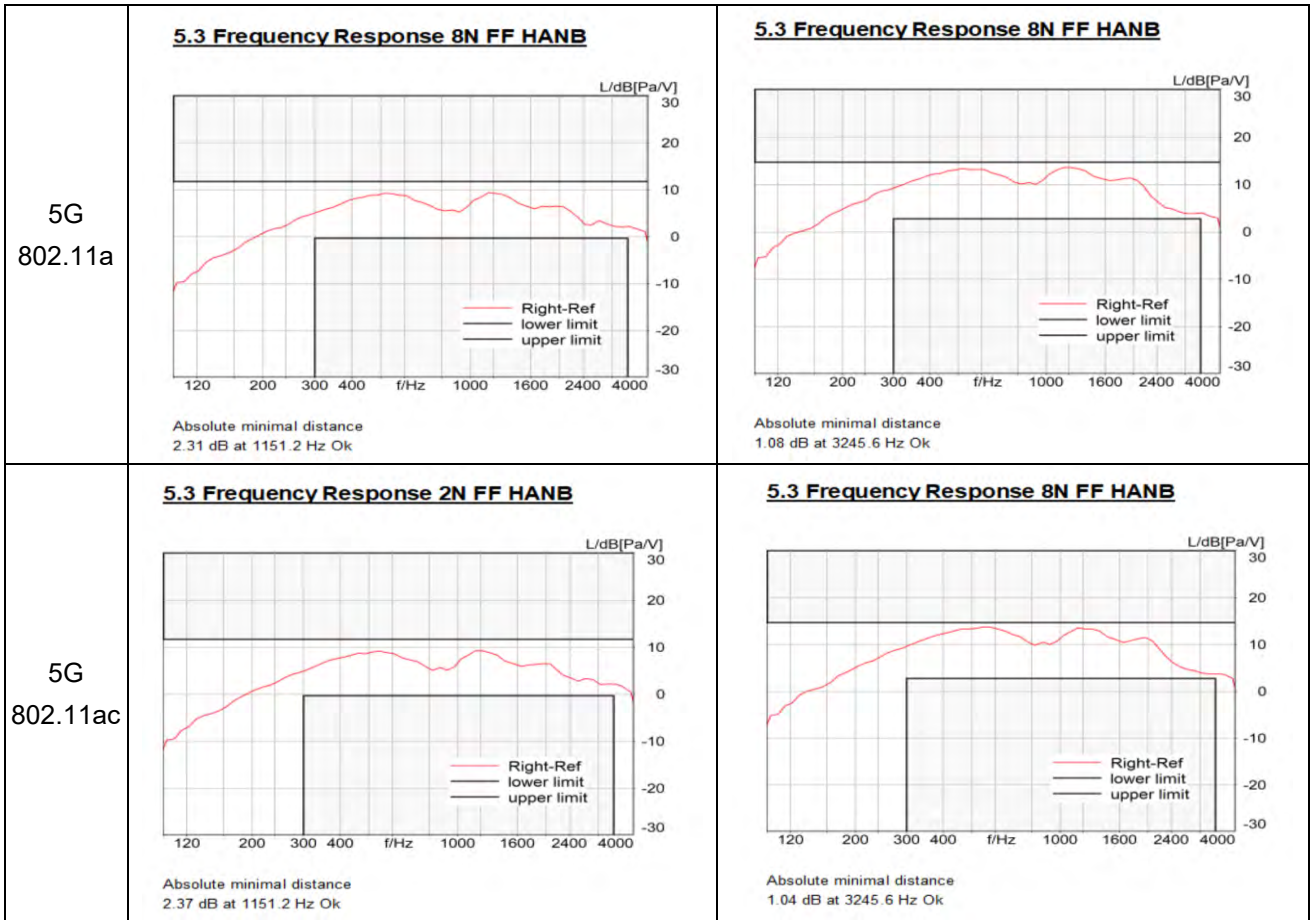
NR Band	Frequency Response	
	N2	N8
n2	<p>5.3 Frequency Response 2N FF HANB</p> <p>Absolute minimal distance 1.81 dB at 514.4 Hz Ok</p>	<p>5.3 Frequency Response 8N FF HANB</p> <p>Absolute minimal distance 0.17 dB at 544.4 Hz Ok</p>
n5	<p>5.3 Frequency Response 2N FF HANB</p> <p>Absolute minimal distance 1.47 dB at 514.4 Hz Ok</p>	<p>5.3 Frequency Response 8N FF HANB</p> <p>Absolute minimal distance 0.11 dB at 514.4 Hz Ok</p>
n25	<p>5.3 Frequency Response 2N FF HANB</p> <p>Absolute minimal distance 1.87 dB at 544.4 Hz Ok</p>	<p>5.3 Frequency Response 8N FF HANB</p> <p>Absolute minimal distance 0.20 dB at 576.7 Hz Ok</p>

<p>n41</p>	<p>5.3 Frequency Response 2N FF HANB</p>  <p>Absolute minimal distance 1.78 dB at 514.4 Hz Ok</p>	<p>5.3 Frequency Response 8N FF HANB</p>  <p>Absolute minimal distance 0.33 dB at 576.7 Hz Ok</p>
<p>n48</p>	<p>5.3 Frequency Response 2N FF HANB</p>  <p>Absolute minimal distance 2.11 dB at 1151.2 Hz Ok</p>	<p>5.3 Frequency Response 8N FF HANB</p>  <p>Absolute minimal distance 0.81 dB at 1216.1 Hz Ok</p>
<p>n66</p>	<p>5.3 Frequency Response 2N FF HANB</p>  <p>Absolute minimal distance 1.34 dB at 514.4 Hz Ok</p>	<p>5.3 Frequency Response 8N FF HANB</p>  <p>Absolute minimal distance 0.13 dB at 544.4 Hz Ok</p>
<p>n71</p>	<p>5.3 Frequency Response 2N FF HANB</p>  <p>Absolute minimal distance 1.58 dB at 544.4 Hz Ok</p>	<p>5.3 Frequency Response 8N FF HANB</p>  <p>Absolute minimal distance 0.26 dB at 544.4 Hz Ok</p>



3.3 Frequency Response Graph for EVS-NB 24.4 kbps and WLAN

WLAN Band	Frequency Response	
	N2	N8
2.4G 802.11b	<p>5.3 Frequency Response 2N FF HANB</p> <p>Absolute minimal distance 2.52 dB at 1216.1 Hz Ok</p>	<p>5.3 Frequency Response 8N FF HANB</p> <p>Absolute minimal distance 1.13 dB at 1151.2 Hz Ok</p>
2.4G 802.11g	<p>5.3 Frequency Response 2N FF HANB</p> <p>Absolute minimal distance 2.52 dB at 1216.1 Hz Ok</p>	<p>5.3 Frequency Response 8N FF HANB</p> <p>Absolute minimal distance 1.04 dB at 1216.1 Hz Ok</p>
5G 802.11n	<p>5.3 Frequency Response 2N FF HANB</p> <p>Absolute minimal distance 2.31 dB at 1216.1 Hz Ok</p>	<p>5.3 Frequency Response 8N FF HANB</p> <p>Absolute minimal distance 1.04 dB at 3245.6 Hz Ok</p>

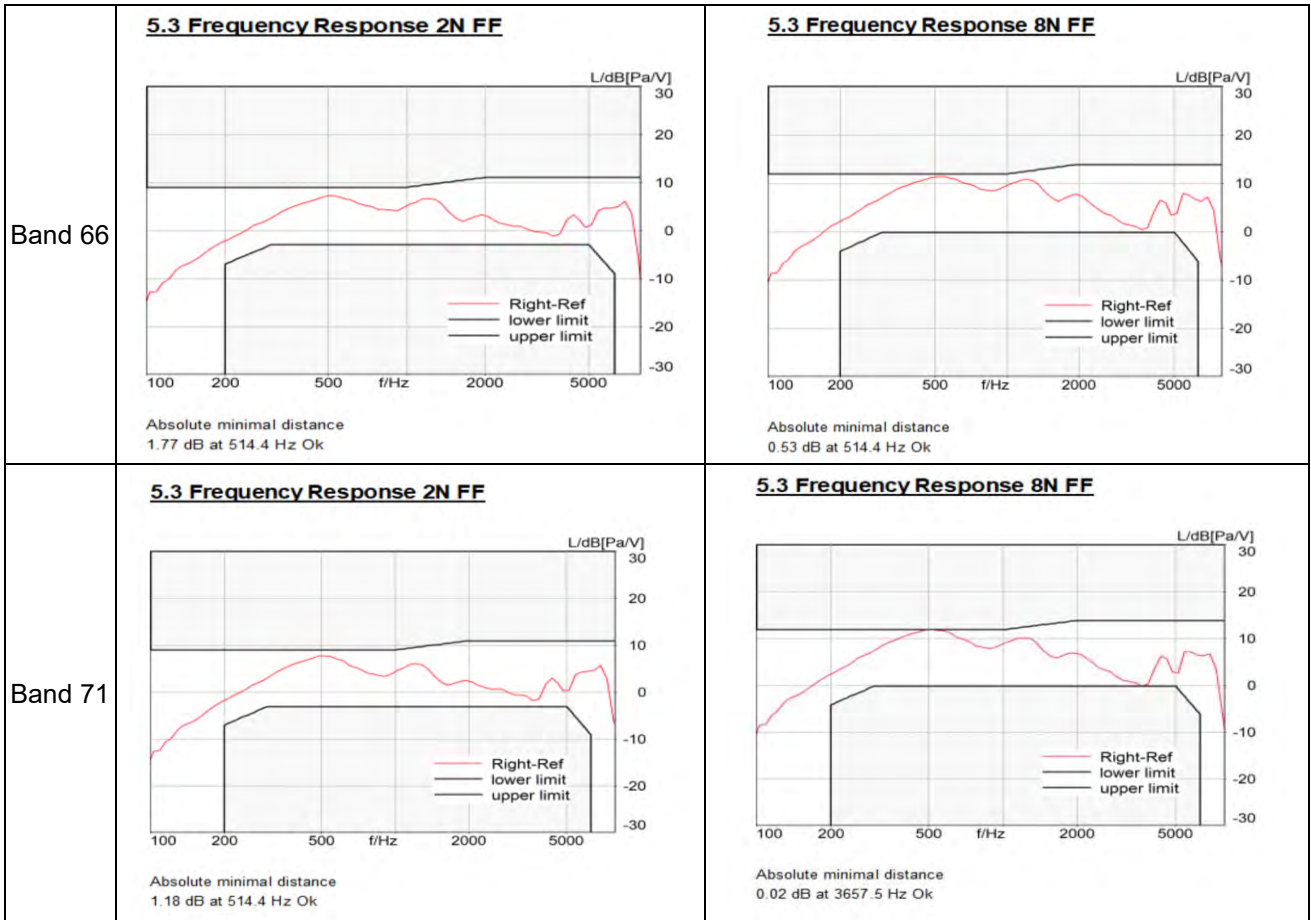


3.4 Frequency Response Graph for EVS-WB 128kbps and LTE

LTE Band	Frequency Response	
	N2	N8
Band 2	<p>5.3 Frequency Response 2N FF</p> <p>Absolute minimal distance 1.66 dB at 514.4 Hz Ok</p>	<p>5.3 Frequency Response 8N FF</p> <p>Absolute minimal distance 0.24 dB at 611.7 Hz Ok</p>
Band 4	<p>5.3 Frequency Response 2N FF</p> <p>Absolute minimal distance 0.53 dB at 544.4 Hz Ok</p>	<p>5.3 Frequency Response 8N FF</p> <p>Absolute minimal distance 0.22 dB at 3657.5 Hz Ok</p>
Band 5	<p>5.3 Frequency Response 2N FF</p> <p>Absolute minimal distance 1.44 dB at 514.4 Hz Ok</p>	<p>5.3 Frequency Response 8N FF</p> <p>Absolute minimal distance 0.13 dB at 3657.5 Hz Ok</p>

<p>Band 12</p>	<p>5.3 Frequency Response 2N FF</p> <p>Absolute minimal distance 1.54 dB at 514.4 Hz Ok</p>	<p>5.3 Frequency Response 8N FF</p> <p>Absolute minimal distance 0.23 dB at 611.7 Hz Ok</p>
<p>Band 13</p>	<p>5.3 Frequency Response 2N FF</p> <p>Absolute minimal distance 1.41 dB at 514.4 Hz Ok</p>	<p>5.3 Frequency Response 8N FF</p> <p>Absolute minimal distance 0.21 dB at 487.0 Hz Ok</p>
<p>Band 17</p>	<p>5.3 Frequency Response 2N FF</p> <p>Absolute minimal distance 1.26 dB at 514.4 Hz Ok</p>	<p>5.3 Frequency Response 8N FF</p> <p>Absolute minimal distance 0.95 dB at 1151.2 Hz Ok</p>
<p>Band 25</p>	<p>5.3 Frequency Response 2N FF</p> <p>Absolute minimal distance 2.16 dB at 1151.2 Hz Ok</p>	<p>5.3 Frequency Response 8N FF</p> <p>Absolute minimal distance 0.97 dB at 1151.2 Hz Ok</p>

<p>Band 26</p>	<p>5.3 Frequency Response 2N FF</p> <p>Absolute minimal distance 2.25 dB at 1151.2 Hz Ok</p>	<p>5.3 Frequency Response 8N FF</p> <p>Absolute minimal distance 1.03 dB at 1151.2 Hz Ok</p>
<p>Band 30</p>	<p>5.3 Frequency Response 2N FF</p> <p>Absolute minimal distance 1.66 dB at 514.4 Hz Ok</p>	<p>5.3 Frequency Response 8N FF</p> <p>Absolute minimal distance 0.47 dB at 514.4 Hz Ok</p>
<p>Band 41</p>	<p>5.3 Frequency Response 2N FF</p> <p>Absolute minimal distance 1.33 dB at 514.4 Hz Ok</p>	<p>5.3 Frequency Response 8N FF</p> <p>Absolute minimal distance 0.13 dB at 514.4 Hz Ok</p>
<p>Band 48</p>	<p>5.3 Frequency Response 2N FF</p> <p>Absolute minimal distance 1.18 dB at 514.4 Hz Ok</p>	<p>5.3 Frequency Response 8N FF</p> <p>Absolute minimal distance 0.05 dB at 3657.5 Hz Ok</p>



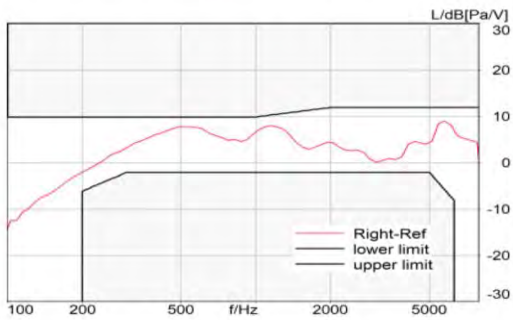
3.5 Frequency Response Graph for EVS-WB 128 kbps and NR

NR Band	Frequency Response	
	N2	N8
n2	<p>5.3 Frequency Response 2N FF</p> <p>Absolute minimal distance 1.77 dB at 514.4 Hz Ok</p>	<p>5.3 Frequency Response 8N FF</p> <p>Absolute minimal distance 0.35 dB at 514.4 Hz Ok</p>
n5	<p>5.3 Frequency Response 2N FF</p> <p>Absolute minimal distance 1.89 dB at 514.4 Hz Ok</p>	<p>5.3 Frequency Response 8N FF</p> <p>Absolute minimal distance 0.44 dB at 544.4 Hz Ok</p>
n25	<p>5.3 Frequency Response 2N FF</p> <p>Absolute minimal distance 2.31 dB at 1151.2 Hz Ok</p>	<p>5.3 Frequency Response 8N FF</p> <p>Absolute minimal distance 0.72 dB at 544.4 Hz Ok</p>

<p>n41</p>	<p>5.3 Frequency Response 2N FF</p> <p>Absolute minimal distance 2.06 dB at 3058.6 Hz Ok</p>	<p>5.3 Frequency Response 8N FF</p> <p>Absolute minimal distance 0.82 dB at 544.4 Hz Ok</p>
<p>n48</p>	<p>5.3 Frequency Response 2N FF</p> <p>Absolute minimal distance 1.82 dB at 5767.3 Hz Ok</p>	<p>5.3 Frequency Response 8N FF</p> <p>Absolute minimal distance 0.65 dB at 544.4 Hz Ok</p>
<p>n66</p>	<p>5.3 Frequency Response 2N FF</p> <p>Absolute minimal distance 1.72 dB at 544.4 Hz Ok</p>	<p>5.3 Frequency Response 8N FF</p> <p>Absolute minimal distance 0.22 dB at 544.4 Hz Ok</p>
<p>n71</p>	<p>5.3 Frequency Response 2N FF</p> <p>Absolute minimal distance 1.86 dB at 544.4 Hz Ok</p>	<p>5.3 Frequency Response 8N FF</p> <p>Absolute minimal distance 0.50 dB at 544.4 Hz Ok</p>

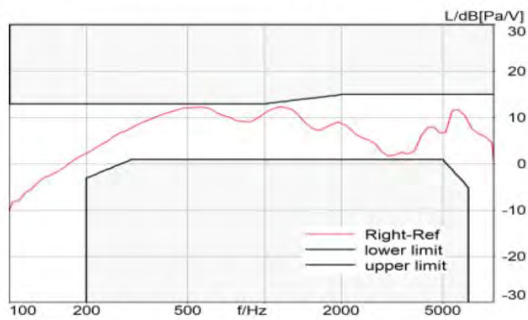
n77

5.3 Frequency Response 2N FF



Absolute minimal distance
2.17 dB at 514.4 Hz Ok

5.3 Frequency Response 8N FF



Absolute minimal distance
0.72 dB at 544.4 Hz Ok

3.6 Frequency Response Graph for EVS-WB 128 kbps and WLAN

WLAN Band	Frequency Response	
	N2	N8
2.4G 802.11b	<p>5.3 Frequency Response 2N FF</p> <p>Absolute minimal distance 1.99 dB at 5443.6 Hz Ok</p>	<p>5.3 Frequency Response 8N FF</p> <p>Absolute minimal distance 1.46 dB at 1151.2 Hz Ok</p>
2.4G 802.11g	<p>5.3 Frequency Response 2N FF</p> <p>Absolute minimal distance 2.31 dB at 5767.3 Hz Ok</p>	<p>5.3 Frequency Response 8N FF</p> <p>Absolute minimal distance 1.40 dB at 3058.6 Hz Ok</p>
2.4G 802.11n	<p>5.3 Frequency Response 2N FF</p> <p>Absolute minimal distance 2.35 dB at 5767.3 Hz Ok</p>	<p>5.3 Frequency Response 8N FF</p> <p>Absolute minimal distance 1.36 dB at 544.4 Hz Ok</p>

