

Appendix A

Volume Control Test Data and Plots

For Report No.: SUCR241000040401

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		WIFI 802.11 b		NR N2	
		2N	8N	2N	8N	2N	8N	2N	8N
AMR-NB	4.75	6.74	11.95	7.51	12.42	7.56	11.82	7.55	12.61
	5.15	7.25	12.09	7.65	12.66	7.61	11.91	7.72	12.73
	5.90	7.55	12.34	7.73	12.80	7.70	11.98	7.79	12.82
	6.70	7.57	12.77	7.85	12.97	7.82	12.08	7.88	12.99
	7.40	7.76	12.83	8.07	13.25	7.98	12.62	7.99	13.11
	7.95	7.89	12.84	8.23	13.32	8.05	12.83	8.08	13.27
	10.20	7.91	12.93	8.51	13.46	8.22	12.80	8.20	13.50
	12.20	8.01	13.05	8.74	13.57	8.27	13.15	8.35	13.73
AMR-WB	6.60	8.23	13.00	8.31	12.77	8.40	13.00	8.59	12.63
	8.85	8.33	13.29	8.50	12.88	8.62	13.28	8.67	12.78
	12.65	8.44	13.47	8.58	12.97	8.65	13.40	8.78	12.90
	14.25	8.53	13.51	8.64	13.03	8.67	13.50	8.85	13.05
	15.85	8.65	13.56	8.77	13.10	8.71	13.52	8.89	13.19
	18.25	8.74	13.65	8.85	13.14	8.79	13.66	8.97	13.27
	19.85	8.84	13.75	8.90	13.23	8.81	13.68	8.92	13.40
	23.05	8.85	13.91	8.95	13.60	8.82	13.70	9.20	13.68
	23.85	9.00	13.94	9.00	13.65	9.15	13.80	9.38	13.88
EVS-NB	5.90	N/A		7.66	12.32	7.40	12.42	7.45	12.21
	7.20			7.86	12.41	7.57	12.72	7.79	12.41
	8.0			7.99	12.49	7.56	12.89	7.75	12.55
	9.6			8.07	12.62	7.68	12.96	7.90	12.70
	13.20			8.19	12.72	7.84	13.00	8.03	12.92
	16.40			8.25	12.80	7.90	13.16	8.22	13.22
	24.4			8.57	13.03	8.44	13.54	8.49	13.60
EVS-WB	5.90			8.30	13.16	8.30	12.96	8.00	13.16
	7.20			8.42	13.30	8.55	12.98	8.21	13.30
	8.0			8.62	13.53	8.59	12.93	8.38	13.53
	9.6			8.71	13.61	8.79	13.06	8.55	13.61
	13.20			8.94	13.74	8.82	13.13	8.71	13.74
	16.40			9.15	13.99	8.80	13.22	8.89	13.99
	24.4			9.21	14.01	8.93	13.61	9.06	14.01

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

Air Interface	Band	Limit (dB)	Conv. Gain(dB)					
			FR V1		FR V2		HR V1	
			2N	8N	2N	8N	2N	8N
GSM	850	6	8.50	13.15	8.58	13.44	8.57	13.65
	1900	6	8.48	13.14	8.48	13.58	8.59	13.59

Air Interface	Band	Limit (dB)	Conv. Gain(dB)							
			AMR NB (4.7kbps)		AMR WB (6.6kbps)		EVS NB (5.9kbps)		EVS WB (5.9kbps)	
			2N	8N	2N	8N	2N	8N	2N	8N
WCDMA	B2	6	6.87	11.95	8.13	12.81	N/A			
	B4	6	6.74	11.95	8.23	13.00				
	B5	6	7.01	11.98	7.85	12.94				
LTE	B 2	6	7.49	12.41	8.40	12.71	7.70	12.15	8.54	13.31
	B 4	6	7.51	12.42	8.31	12.77	7.66	12.32	8.30	13.16
	B 5	6	7.46	12.45	8.40	12.75	7.71	12.35	8.18	13.30
	B 7	6	7.46	12.48	8.38	12.73	7.61	12.48	8.21	12.94
	B 12	6	7.52	12.48	8.33	12.65	7.71	12.19	8.07	13.10
	B 13	6	7.45	12.57	8.36	12.70	7.80	12.43	8.25	13.15
	B 14	6	7.50	12.34	8.32	12.72	7.77	12.33	8.48	13.27
	B 25	6	7.47	12.31	8.34	12.79	7.72	12.30	8.43	13.25
	B 26	6	7.51	12.39	8.33	12.80	7.71	12.42	8.45	13.31
	B 30	6	7.53	12.33	8.34	12.71	7.75	12.44	8.52	13.11
	B 38	6	7.56	12.34	8.13	12.81	7.67	12.13	8.40	13.37
	B 41	6	7.57	12.68	8.28	12.79	7.80	12.42	8.49	13.37
	B 42	6	7.59	12.62	8.29	12.72	7.82	12.22	8.50	13.44
	B 43	6	7.63	12.53	8.41	12.77	7.71	12.25	8.33	13.40
	B 48	6	7.60	12.58	8.36	12.77	7.81	12.18	8.46	13.43
	B 66	6	7.61	12.63	8.38	12.79	7.74	12.41	8.41	13.12
	B 71	6	7.63	12.57	8.42	12.80	7.81	12.54	8.54	13.32
WLAN-2.4G	802.11b	6	7.56	11.82	8.40	13.00	7.40	12.42	8.30	12.96
	802.11g	6	7.49	11.86	8.45	13.19	7.34	12.54	8.41	12.74
	802.11n	6	7.35	11.96	8.43	13.03	7.21	12.40	8.16	12.84
	802.11ac	6	7.45	11.92	8.56	12.74	7.45	12.61	8.40	12.95
	802.11ax	6	7.64	11.82	8.44	13.10	7.73	12.48	8.36	12.85
WLAN-5G	802.11a	6	7.30	11.84	8.76	13.29	7.51	12.63	8.29	12.82
	802.11n	6	7.40	11.87	8.61	12.82	7.61	12.50	8.55	12.89
	802.11ac	6	7.60	11.88	8.65	12.99	7.50	12.79	8.41	12.92
	802.11ax	6	7.52	11.90	8.57	12.97	7.52	12.43	8.39	12.87
WLAN-6E	802.11ax	6	7.36	11.99	8.51	13.09	7.42	12.62	8.56	12.86

NR	n 2	6	7.55	12.61	8.59	12.63	7.45	12.21	8.00	13.16
	n 5	6	7.60	12.65	8.65	12.68	7.50	12.31	8.17	13.25
	n 7	6	7.69	12.54	8.61	12.60	7.67	12.40	8.11	13.29
	n 14	6	7.60	12.59	8.54	12.54	7.61	12.22	7.90	13.20
	n 25	6	7.54	12.67	8.58	12.59	7.52	12.29	7.99	13.15
	n 26	6	7.63	12.64	8.51	12.62	7.58	12.37	8.07	13.09
	n 30	6	7.67	12.68	8.57	12.67	7.64	12.31	8.16	13.27
	n 38	6	7.62	12.53	8.63	12.48	7.60	12.25	8.10	13.30
	n 41	6	7.69	12.58	8.60	12.60	7.53	12.22	8.23	13.24
	n 48	6	7.63	12.64	8.68	12.52	7.64	12.30	8.12	13.07
	n 66	6	7.58	12.60	8.50	12.68	7.60	12.37	8.09	13.26
	n 70	6	7.64	12.63	8.58	12.60	7.69	12.40	7.89	13.20
	n 71	6	7.68	12.56	8.64	12.46	7.55	12.33	7.95	13.04
	n 77	6	7.60	12.64	8.62	12.57	7.60	12.33	8.20	13.15
	n 78	6	7.69	12.69	8.68	12.67	7.64	12.38	8.28	13.27

Air Interface	Band	Limit (dB)	Conv. Gain(dB)		Conv. Gain(dB)	
			AMR NB (12.2kbps)		AMR WB (12.65kbps)	
			2N	8N	2N	8N
WCDMA	B2	6	8.10	13.20	8.44	13.25
	B4	6	7.89	13.12	8.44	13.31
	B5	6	8.25	13.17	8.43	13.44
LTE	B 2	6	8.74	13.41	8.65	12.97
	B 4	6	8.76	13.40	8.62	12.99
	B 5	6	8.75	13.44	8.56	12.95
	B 7	6	8.75	13.45	8.60	12.94
	B 12	6	8.77	13.40	8.55	12.91
	B 13	6	8.75	13.42	8.59	12.84
	B 14	6	8.60	13.49	8.58	12.91
	B 25	6	8.83	13.42	8.61	12.89
	B 26	6	8.72	13.47	8.66	12.83
	B 30	6	8.65	13.53	8.53	12.83
	B 38	6	8.77	13.50	8.65	12.96
	B 41	6	8.87	13.45	8.65	12.90
	B 42	6	8.73	13.38	8.66	12.92
	B 43	6	8.83	13.46	8.55	12.84
	B 48	6	8.81	13.43	8.53	12.85
	B 66	6	8.86	13.49	8.66	12.86
	B 71	6	8.75	13.50	8.62	12.91
WLAN-2.4G	802.11b	6	8.12	13.06	8.63	13.44
	802.11g	6	8.10	13.21	8.66	13.39
	802.11n	6	8.08	13.18	8.50	13.32
	802.11ac	6	8.15	13.05	8.61	13.24
	802.11ax	6	8.20	13.20	8.64	13.23
WLAN-5G	802.11a	6	8.42	13.26	8.40	13.25
	802.11n	6	8.48	13.98	8.49	13.40
	802.11ac	6	8.19	13.22	8.58	13.25
	802.11ax	6	8.18	13.15	8.63	13.55
WLAN-6E	802.11ax	6	8.10	13.16	8.58	13.55
NR	n 2	6	8.30	13.65	8.71	12.95
	n 5	6	8.25	13.60	8.64	12.91
	n 7	6	8.32	13.66	8.73	12.95
	n 14	6	8.37	13.61	8.76	12.88
	n 25	6	8.27	13.57	8.70	12.90
	n 26	6	8.32	13.63	8.72	12.93
	n 30	6	8.29	13.64	8.68	12.97
	n 38	6	8.24	13.60	8.79	12.90
	n 41	6	8.36	13.67	8.71	12.84
	n 48	6	8.31	13.60	8.64	12.93
	n 66	6	8.35	13.68	8.78	12.98

	n 70	6	8.38	13.62	8.72	12.84
	n 71	6	8.30	13.58	8.75	12.91
	n 77	6	8.28	13.65	8.86	12.94
	n 78	6	8.37	13.76	8.80	12.83

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 (MHz)	Limit (dB)	PN-SDNR(dB)									
		LTE Band 2		LTE Band 4		LTE Band 5		LTE Band 7		LTE Band 12	
		2N	8N	2N	8N	2N	8N	2N	8N	2N	8N
400	20	35.35	35.94	36.44	36.06	35.91	35.71	32.35	33.01	36.79	36.75
500		31.93	38.31	29.83	29.70	37.75	37.02	29.02	37.94	37.84	29.34
630		40.05	39.48	28.39	40.24	31.22	40.32	40.90	27.94	40.82	40.69
800		33.23	40.12	42.37	41.26	40.50	40.32	42.05	42.08	32.30	41.15
1000		35.47	43.29	41.56	41.09	41.92	43.15	40.58	42.71	32.01	33.55
1250		26.16	32.62	27.75	26.89	33.94	28.98	27.15	30.66	33.78	25.46
1600		39.01	43.64	31.46	39.19	40.84	38.63	27.48	43.17	27.10	38.89
2000		30.92	28.51	45.25	38.32	42.07	38.19	42.48	28.48	32.29	37.88
2500		35.50	40.36	38.73	38.44	40.92	38.25	42.45	39.06	42.24	38.51
3150		38.75	36.28	41.72	38.07	39.34	38.32	36.39	40.49	37.44	38.08

Center Freq (MHz)	Limit (dB)	PN-SDNR(dB)									
		LTE Band 13		LTE Band 14		LTE Band 25		LTE Band 26		LTE Band 30	
		2N	8N	2N	8N	2N	8N	2N	8N	2N	8N
400	20	33.44	33.03	34.51	34.24	35.57	35.80	28.93	35.88	33.28	36.02
500		29.51	29.34	39.14	38.33	30.76	37.23	32.55	38.48	34.89	36.18
630		27.63	28.72	40.91	29.31	39.37	27.87	38.23	41.37	35.50	36.37
800		41.40	27.92	39.95	33.73	39.54	32.72	30.58	33.94	34.25	41.42
1000		30.99	32.70	41.51	41.11	44.13	33.95	28.47	40.96	32.43	44.14
1250		27.60	32.81	28.94	33.17	33.18	30.99	30.36	33.01	25.95	30.36
1600		33.74	31.31	38.09	42.72	42.74	37.24	38.55	40.70	29.23	42.39
2000		43.33	34.43	37.77	44.90	32.72	33.96	41.05	43.44	37.54	42.94
2500		37.08	41.81	39.85	40.49	38.27	40.43	39.77	38.10	38.16	39.39
3150		39.51	35.38	38.78	38.99	41.62	37.66	38.21	34.16	38.04	33.25

Center Freq (MHz)	Limit (dB)	PN-SDNR(dB)									
		LTE Band 38		LTE Band 41		LTE Band 42		LTE Band 43		LTE Band 48	
		2N	8N	2N	8N	2N	8N	2N	8N	2N	8N
400	20	35.04	33.79	36.05	35.85	35.69	35.62	37.27	34.01	35.19	35.65
500		34.85	31.86	27.44	36.15	28.79	28.82	32.92	28.33	37.28	30.77
630		39.55	28.90	39.54	27.88	27.46	28.19	26.88	39.10	30.38	28.22
800		40.53	31.33	35.66	41.62	38.07	40.57	41.61	38.29	31.65	38.33
1000		46.37	28.64	37.86	40.18	41.80	42.12	41.35	33.97	41.38	33.17
1250		32.78	24.02	28.29	32.95	32.74	33.02	27.29	27.36	27.20	29.00
1600		42.35	24.29	30.41	28.86	40.10	42.11	45.18	39.71	30.24	38.54
2000		42.61	27.49	37.68	37.04	41.59	45.40	30.61	38.16	31.67	36.18
2500		32.46	27.45	38.27	39.81	39.51	42.03	41.16	37.93	39.26	38.52
3150		40.30	30.28	37.45	39.20	38.35	40.66	43.64	38.21	38.74	36.92

Center Freq (MHz)	Limit (dB)	PN-SDNR(dB)			
		LTE Band 66		LTE Band 71	
		2N	8N	2N	8N
400	20	35.45	36.26	34.06	37.01
500		34.34	34.72	37.75	35.57
630		39.53	41.06	28.23	27.15
800		41.31	39.88	31.47	35.11
1000		39.53	40.33	41.89	43.81
1250		32.98	26.07	25.05	30.57
1600		42.28	40.71	39.95	34.93
2000		43.37	23.58	38.16	29.86
2500		42.69	33.50	39.53	44.57
3150		41.68	29.07	37.39	42.29

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

Center Freq (MHz)	Limit (dB)	PN-SDNR(dB)									
		2.4G - 802.11b		2.4G - 802.11g		2.4G - 802.11n		2.4G - 802.11ac		2.4G - 802.11ax	
		2N	8N	2N	8N	2N	8N	2N	8N	2N	8N
400	20	35.69	33.98	36.02	37.32	33.98	36.17	36.41	38.04	37.80	36.33
500		36.48	36.65	34.08	37.88	32.11	36.32	30.72	37.34	33.45	36.70
630		36.75	38.36	41.16	39.00	39.40	35.69	31.96	40.02	39.24	40.03
800		39.84	40.93	41.36	40.12	40.22	36.25	33.23	38.33	41.16	36.56
1000		42.78	32.04	47.42	31.62	39.64	32.94	31.82	38.26	45.64	45.08
1250		33.37	30.57	32.72	31.46	25.35	23.86	24.55	29.41	31.73	32.77
1600		28.22	46.26	43.75	24.25	47.14	36.15	34.10	28.22	26.52	27.14
2000		44.97	43.45	22.65	41.24	38.41	24.30	36.55	43.96	43.37	41.92
2500		40.88	29.34	35.52	33.47	35.86	33.79	26.41	30.78	32.29	29.93
3150		43.76	30.99	36.10	29.30	43.17	29.64	35.45	31.50	42.25	33.04

Center Freq (MHz)	Limit (dB)	PN-SDNR(dB)									
		5G - 802.11a		5G - 802.11n		5G - 802.11ac		5G - 802.11ax		6E - 802.11ax	
		2N	8N	2N	8N	2N	8N	2N	8N	2N	8N
400	20	37.68	37.22	35.22	37.85	36.62	36.58	34.63	35.30	35.92	37.67
500		36.81	37.65	35.38	35.31	34.35	32.87	28.40	31.17	32.28	32.90
630		38.91	39.23	37.35	37.94	38.71	38.57	31.07	36.02	38.78	36.73
800		41.89	42.64	38.78	38.63	41.05	33.88	35.29	40.47	38.72	35.86
1000		31.60	34.00	41.59	41.05	46.19	33.87	28.54	43.42	45.30	44.92
1250		32.69	31.68	26.25	32.12	23.68	25.68	24.35	32.25	33.37	31.35
1600		40.48	44.05	26.05	41.21	40.87	41.82	30.61	43.35	26.54	42.81
2000		41.77	27.22	26.67	22.59	30.03	29.42	26.97	41.37	43.96	26.82
2500		39.35	29.74	43.43	34.68	32.58	33.10	30.85	28.40	43.47	36.08
3150		34.39	29.34	30.84	30.42	32.45	28.89	33.88	29.91	41.99	32.20

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

Center Freq (MHz)	Limit (dB)	PN-SDNR(dB)									
		NR Band 2		NR Band 5		NR Band7		NR Band 14		NR Band 25	
		2N	8N	2N	8N	2N	8N	2N	8N	2N	8N
400	20	36.69	36.05	36.87	36.46	35.31	35.18	36.67	31.27	36.71	35.80
500		27.52	32.15	37.33	38.97	27.34	35.98	37.06	30.20	27.40	37.66
630		39.45	38.87	39.02	39.59	39.38	38.95	39.30	29.82	39.27	38.99
800		40.23	40.55	31.98	40.32	40.55	40.56	39.69	28.51	40.60	30.11
1000		29.31	41.41	30.45	44.90	41.97	41.06	41.29	27.91	42.74	43.32
1250		32.03	33.35	32.05	33.24	25.55	33.92	32.37	33.15	33.36	28.90
1600		42.64	41.72	42.54	42.53	37.99	42.43	33.50	40.05	38.24	42.45
2000		42.70	34.64	43.24	42.89	42.72	43.78	31.59	40.73	32.97	42.88
2500		41.32	40.34	37.80	40.77	41.53	38.99	40.44	38.51	42.10	40.57
3150		39.90	38.78	40.18	39.35	40.25	33.48	36.98	31.43	40.07	36.31

Center Freq (MHz)	Limit (dB)	PN-SDNR(dB)									
		NR Band 26		NR Band 30		NR Band 38		NR Band 41		NR Band 48	
		2N	8N	2N	8N	2N	8N	2N	8N	2N	8N
400	20	36.70	36.69	36.73	34.45	36.74	34.13	36.31	35.76	34.97	35.68
500		37.32	30.58	37.23	36.98	37.30	30.78	37.26	37.06	32.25	37.96
630		28.70	28.50	40.07	39.03	27.28	39.35	29.22	39.38	39.77	38.11
800		31.41	35.20	40.23	34.15	40.21	40.66	31.21	40.12	40.47	40.26
1000		41.64	40.75	31.78	43.49	30.38	41.11	31.99	44.28	40.98	42.19
1250		28.17	32.01	26.50	32.95	30.47	34.20	30.18	28.31	32.09	32.86
1600		43.06	36.10	42.89	42.72	43.10	42.14	43.07	41.95	43.14	42.17
2000		43.00	44.52	43.01	44.36	42.99	44.80	37.01	42.65	30.49	38.13
2500		42.14	40.42	41.54	40.74	37.98	39.84	41.86	40.92	35.77	40.83
3150		40.37	39.72	40.31	39.37	38.77	36.36	34.77	38.89	38.65	36.90

Center Freq (MHz)	Limit (dB)	PN-SDNR(dB)									
		NR Band 66		NR Band 70		NR Band 71		NR Band 77		NR Band 78	
		2N	8N	2N	8N	2N	8N	2N	8N	2N	8N
400	20	32.67	34.93	35.94	36.72	35.82	35.34	35.65	35.27	34.30	34.21
500		34.15	37.29	36.37	30.89	36.30	36.79	36.13	38.69	33.80	37.80
630		31.05	34.05	38.37	34.35	26.72	39.46	38.49	40.10	33.02	38.86
800		40.29	40.95	33.67	40.75	35.97	40.41	36.63	38.95	33.15	33.10
1000		29.14	43.16	39.67	41.14	31.98	41.44	33.51	41.60	40.27	43.33
1250		30.89	32.85	26.92	33.46	32.04	31.96	28.31	32.38	32.27	33.13
1600		31.78	42.19	28.54	41.31	31.25	41.98	37.37	41.41	39.71	42.98
2000		34.84	33.59	39.55	43.29	39.53	44.06	36.20	43.08	35.32	43.21
2500		36.94	41.41	36.02	35.79	37.52	36.84	35.92	39.00	37.28	41.50
3150		40.02	38.43	36.51	35.63	36.09	33.21	35.13	38.83	36.17	31.89

2.4 Distortion Test Result for EVB-WB 24.4 kbps and LTE

Center Freq (MHz)	Limit (dB)	PN-SDNR(dB)									
		LTE Band 2		LTE Band 4		LTE Band 5		LTE Band 7		LTE Band 12	
		2N	8N	2N	8N	2N	8N	2N	8N	2N	8N
250	20	29.04	29.02	29.26	28.27	29.78	29.52	32.93	29.89	29.41	31.49
315		31.37	31.08	31.65	31.51	30.83	31.75	32.28	31.92	32.01	31.89
400		34.82	34.69	35.34	35.10	35.50	34.58	35.72	33.71	35.43	35.56
500		37.18	38.02	37.31	37.06	37.76	35.21	36.58	37.00	35.91	38.60
630		40.30	38.60	39.77	39.54	39.40	35.13	40.33	38.96	40.29	36.86
800		39.13	34.77	36.89	37.22	38.10	34.36	36.51	35.16	34.40	41.86
1000		41.21	35.85	34.61	32.09	37.57	38.40	34.56	37.27	31.12	43.78
1250		33.69	29.31	29.73	29.76	22.66	29.51	28.85	29.28	23.06	24.35
1600		41.62	35.37	39.45	38.22	27.62	39.34	38.09	37.43	25.37	43.52
2000		40.08	37.82	37.15	36.72	22.53	38.20	35.03	31.94	37.48	24.99
2500		40.01	31.92	37.82	38.67	33.03	38.07	38.93	33.91	39.14	39.90
3150		39.73	36.64	39.12	37.14	34.42	36.34	39.07	35.95	36.01	35.44
4000		34.83	32.71	31.89	39.46	26.74	26.29	39.54	37.74	40.32	39.06
5000		36.19	34.95	38.25	30.40	37.19	28.33	31.57	37.44	35.34	38.62

Center Freq (MHz)	Limit (dB)	PN-SDNR(dB)									
		LTE Band 13		LTE Band 14		LTE Band 25		LTE Band 26		LTE Band 30	
		2N	8N	2N	8N	2N	8N	2N	8N	2N	8N
250	20	31.26	30.29	31.48	31.51	30.30	30.37	30.01	28.56	30.18	32.37
315		32.21	32.45	31.45	31.77	31.80	31.43	32.17	29.30	33.30	33.29
400		36.13	36.00	34.81	34.53	36.14	36.02	35.51	36.07	36.13	34.31
500		34.16	37.71	36.17	37.76	37.94	37.22	37.22	37.99	37.11	36.37
630		38.91	39.76	39.92	39.79	40.71	38.62	39.61	40.65	38.24	38.59
800		32.63	41.03	40.80	40.84	40.85	36.45	40.97	40.56	36.64	38.65
1000		30.25	44.25	45.77	31.00	43.16	33.50	42.59	45.20	43.20	39.31
1250		29.58	33.58	26.05	28.70	32.64	28.70	34.16	35.06	27.56	28.40
1600		30.08	43.16	28.73	44.37	42.04	37.54	41.47	41.53	42.79	27.49
2000		29.58	28.59	25.92	42.43	45.26	34.99	45.13	41.87	26.00	33.37
2500		34.05	39.89	42.38	39.73	42.73	39.78	44.18	39.13	38.04	34.47
3150		39.53	35.00	42.13	32.41	43.52	37.56	42.67	41.52	42.57	29.55
4000		40.22	38.52	26.04	27.83	30.24	39.24	43.14	38.77	41.56	32.64
5000		37.99	38.73	38.31	28.92	38.85	37.26	38.95	32.21	37.34	39.55

Center Freq (MHz)	Limit (dB)	PN-SDNR(dB)									
		LTE Band 38		LTE Band 41		LTE Band 42		LTE Band 43		LTE Band 48	
		2N	8N	2N	8N	2N	8N	2N	8N	2N	8N
250	20	29.81	29.65	31.03	33.38	29.55	29.91	33.36	32.25	29.53	29.99
315		31.86	32.40	33.78	32.73	31.99	31.97	34.16	32.67	32.01	31.59
400		34.87	35.90	37.31	36.99	35.71	35.91	35.14	34.18	35.96	36.44
500		37.60	38.28	36.35	34.03	37.07	36.70	37.82	34.28	37.86	38.01
630		39.77	37.22	41.22	39.25	39.67	40.12	37.05	37.53	39.57	39.58
800		39.72	37.62	41.29	35.11	40.60	36.84	40.82	35.25	40.56	40.37
1000		32.79	41.51	47.78	39.88	46.40	44.84	35.92	34.63	43.13	42.69
1250		33.35	31.23	23.50	27.58	33.03	33.71	28.21	27.02	33.80	33.26
1600		42.60	28.05	43.86	24.56	43.82	42.71	37.05	37.52	41.53	43.71
2000		25.55	37.81	44.83	40.17	44.30	41.73	27.21	31.70	43.33	42.67
2500		42.34	34.90	32.02	33.55	43.44	39.51	35.14	31.48	44.54	43.30
3150		41.07	33.46	40.82	28.78	42.47	34.39	35.75	28.79	42.55	41.76
4000		41.28	27.53	42.82	31.66	42.24	38.00	30.02	30.55	42.87	40.01
5000		37.63	37.87	39.76	29.57	38.58	35.66	39.16	34.53	34.87	38.59

Center Freq (MHz)	Limit (dB)	PN-SDNR(dB)			
		LTE Band 66		LTE Band 71	
		2N	8N	2N	8N
250	20	29.10	29.35	26.45	28.76
315		31.63	31.58	31.87	31.42
400		34.27	35.37	35.48	35.80
500		33.68	38.47	37.83	38.18
630		36.43	38.19	40.24	39.46
800		34.15	34.97	41.11	36.25
1000		36.13	37.73	43.68	30.39
1250		26.15	27.77	25.55	28.53
1600		26.54	36.69	31.52	25.89
2000		32.80	24.43	32.26	39.00
2500		30.83	35.15	33.60	33.45
3150		38.04	34.34	35.66	28.36
4000		38.58	32.57	28.46	40.23
5000		32.29	38.88	31.03	31.99

2.5 Distortion Test Result for EVB-WB 24.4 kbps and WLAN

Center Freq (MHz)	Limit (dB)	PN-SDNR(dB)									
		2.4G - 802.11b		2.4G - 802.11g		2.4G - 802.11n		2.4G - 802.11ac		2.4G - 802.11ax	
		2N	8N	2N	8N	2N	8N	2N	8N	2N	8N
250	20	32.37	31.98	31.48	32.70	31.38	32.84	31.23	33.20	32.38	31.86
315		34.44	33.38	32.92	33.14	31.47	33.18	32.30	34.00	31.51	32.16
400		37.90	36.72	36.17	36.21	34.62	35.46	33.70	36.27	38.75	33.68
500		35.81	35.58	33.04	33.06	26.40	37.01	35.19	36.14	36.21	34.64
630		40.90	34.84	36.10	36.90	33.99	34.21	37.94	34.19	39.61	33.41
800		38.35	35.65	36.49	37.17	32.32	39.16	32.40	40.06	34.49	32.00
1000		43.42	28.43	30.91	41.55	29.74	35.73	36.65	32.10	43.03	28.51
1250		27.86	27.24	26.91	29.94	23.27	24.66	26.61	27.15	32.81	25.20
1600		43.48	37.17	26.37	35.82	34.60	30.89	35.38	44.55	43.26	23.69
2000		26.00	26.49	27.98	41.26	37.06	23.47	33.25	43.58	42.60	25.72
2500		43.93	31.52	38.16	34.42	37.57	31.18	33.17	32.23	42.20	31.16
3150		33.80	31.65	40.24	31.91	32.96	28.95	33.13	32.88	42.21	29.71
4000		42.12	33.83	40.39	34.50	30.46	33.95	39.40	32.72	41.11	32.21
5000		40.25	36.74	36.41	38.82	36.33	39.70	38.69	37.63	39.25	34.70

Center Freq (MHz)	Limit (dB)	PN-SDNR(dB)									
		5G - 802.11a		5G - 802.11n		5G - 802.11ac		5G - 802.11ax		6E - 802.11ax	
		2N	2N	8N	2N	8N	2N	8N	2N	8N	8N
250	20	32.50	33.89	33.75	32.85	32.70	32.62	27.74	30.84	32.22	31.14
315		33.95	33.65	34.23	32.36	32.28	32.91	31.11	30.79	34.66	32.66
400		36.98	30.62	35.99	35.70	35.67	35.80	30.42	30.16	37.97	32.75
500		32.34	28.46	36.93	36.32	33.95	37.60	33.75	27.52	32.56	35.16
630		32.37	31.61	33.94	32.61	35.11	38.15	30.21	29.27	39.37	33.87
800		35.89	26.87	34.84	34.68	31.22	36.64	31.99	26.01	35.72	32.27
1000		36.56	24.34	29.59	31.92	30.74	32.58	30.50	31.67	47.07	32.44
1250		26.84	22.06	30.38	27.81	25.47	28.47	23.09	23.01	25.99	21.90
1600		35.06	31.61	30.52	40.67	30.43	42.40	31.83	30.75	43.87	33.77
2000		32.11	31.81	37.16	34.00	34.43	34.99	31.91	26.47	43.69	31.52
2500		35.89	25.96	33.37	30.06	33.31	30.07	33.93	26.40	32.53	31.03
3150		35.94	29.88	39.96	29.86	35.38	29.64	33.72	30.90	42.50	30.24
4000		41.04	34.01	40.98	29.10	36.63	31.79	30.28	31.35	41.85	34.14
5000		38.57	32.31	33.12	34.07	37.45	34.16	35.88	37.16	39.47	37.05

2.6 Distortion Test Result for EVB-WB 24.4 kbps and NR

Center Freq (MHz)	Limit (dB)	PN-SDNR(dB)									
		NR Band 2		NR Band 5		NR Band7		NR Band 14		NR Band 25	
		2N	8N	2N	8N	2N	8N	2N	8N	2N	8N
250	20	29.28	29.81	29.55	30.47	28.24	29.05	29.79	29.21	29.25	30.10
315		31.91	32.03	31.82	31.79	30.71	31.56	31.80	31.77	31.78	31.35
400		38.49	35.18	34.93	35.81	35.49	35.69	35.76	35.57	35.34	34.93
500		36.17	36.63	34.21	35.98	37.75	36.28	36.26	35.26	35.37	36.20
630		39.63	37.22	39.67	37.92	39.11	37.41	35.75	35.91	38.90	39.83
800		36.38	38.41	40.22	36.34	39.74	36.95	32.35	38.69	39.68	34.33
1000		43.77	46.10	43.12	46.57	37.31	46.32	22.22	42.45	34.21	38.06
1250		32.18	32.67	24.08	33.66	32.69	30.61	32.00	31.24	34.33	29.48
1600		41.42	41.82	41.45	42.28	40.31	42.32	25.01	27.02	24.94	38.68
2000		41.13	39.98	42.51	43.53	39.93	24.53	40.80	41.96	24.42	36.04
2500		41.82	33.19	30.32	33.54	31.15	39.02	32.56	41.55	40.79	35.15
3150		35.61	34.71	41.05	33.48	32.81	32.99	40.74	35.99	33.68	35.22
4000		27.34	26.36	28.60	37.95	27.71	37.78	25.90	25.78	28.68	37.11
5000		35.43	39.24	39.10	40.18	30.91	39.58	38.46	30.60	38.65	39.39

Center Freq (MHz)	Limit (dB)	PN-SDNR(dB)									
		NR Band 26		NR Band 30		NR Band 38		NR Band 41		NR Band 48	
		2N	2N	8N	2N	8N	2N	8N	2N	8N	8N
250	20	29.25	30.31	29.94	29.11	29.19	30.34	28.70	30.25	29.44	30.13
315		31.68	32.23	32.31	31.64	31.83	31.63	31.11	32.15	31.93	32.16
400		34.49	35.43	35.17	35.76	35.23	35.05	34.03	35.11	35.67	35.73
500		37.05	35.95	38.10	36.73	35.96	36.71	37.82	37.62	38.06	35.87
630		38.97	39.70	37.85	37.45	39.62	38.77	38.99	37.70	39.21	39.81
800		39.95	40.97	33.55	36.08	37.27	40.93	39.01	36.88	35.85	41.24
1000		34.02	42.97	37.62	35.02	43.99	46.57	40.93	35.84	42.18	45.64
1250		34.48	33.45	29.45	30.09	25.92	25.58	33.88	33.48	24.08	33.83
1600		25.69	44.14	24.89	39.94	42.13	27.38	39.79	27.26	26.36	43.74
2000		24.40	29.73	36.80	43.25	33.31	26.40	22.68	27.29	23.34	42.24
2500		33.59	32.45	38.66	30.09	41.63	33.49	39.65	41.88	31.96	40.68
3150		41.12	35.66	34.87	36.51	35.21	30.56	38.88	36.11	40.11	36.38
4000		25.90	27.93	39.32	27.63	28.88	35.78	38.46	38.06	30.38	38.28
5000		32.60	39.87	38.56	30.76	36.26	35.40	29.54	35.04	38.41	39.60

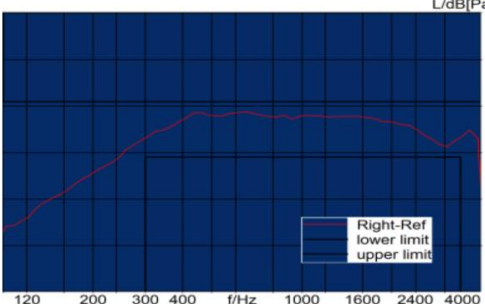
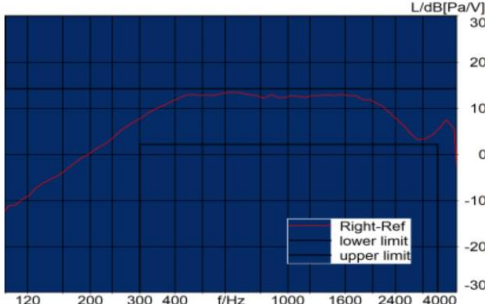
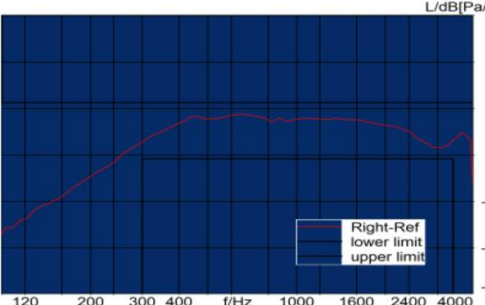
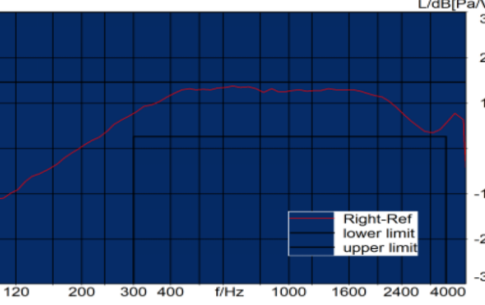
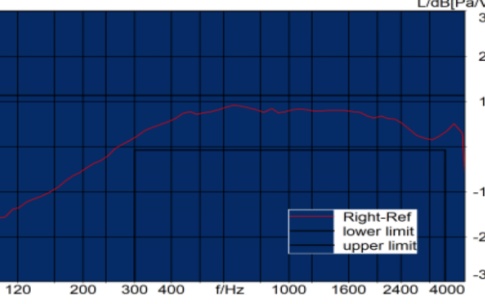
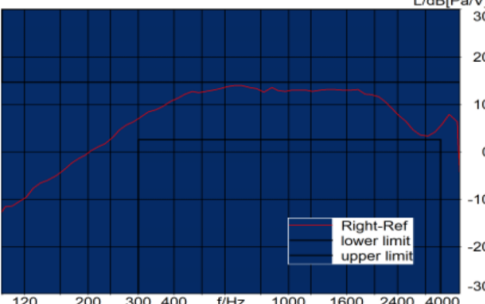
Center Freq (MHz)	Limit (dB)	PN-SDNR(dB)									
		NR Band 66		NR Band 70		NR Band 71		NR Band 77		NR Band 78	
		2N	2N	8N	2N	8N	2N	8N	2N	8N	8N
250	20	29.07	29.15	29.05	30.18	29.49	29.25	29.76	29.96	29.95	29.23
315		31.86	32.09	31.58	31.59	31.77	31.70	31.79	31.64	31.88	32.05
400		35.69	35.71	34.47	35.80	35.72	35.49	35.73	35.23	35.36	35.22
500		36.00	37.76	37.59	36.56	34.61	36.08	29.17	36.27	36.13	37.48
630		39.65	39.39	38.69	39.52	39.13	39.19	37.48	37.50	39.32	37.42
800		39.75	37.73	35.77	40.55	38.33	38.37	36.11	38.65	36.52	38.97
1000		34.14	32.53	31.39	44.87	34.25	33.94	42.52	45.28	33.60	44.54
1250		31.33	25.34	28.05	25.07	33.60	29.55	33.25	33.26	29.03	32.74
1600		25.03	42.69	23.81	43.23	40.05	43.55	24.23	43.16	42.21	29.03
2000		41.54	23.95	40.59	25.25	20.82	43.43	23.81	42.67	42.03	41.92
2500		31.71	30.56	31.99	30.62	31.90	42.31	31.94	41.23	31.08	41.72
3150		37.35	36.84	34.87	36.42	22.53	32.32	40.69	32.78	35.43	34.22
4000		41.00	37.91	29.14	38.21	28.50	26.52	30.48	25.83	40.73	27.81
5000		38.49	39.29	38.53	40.06	33.08	39.68	29.44	31.45	32.82	31.93

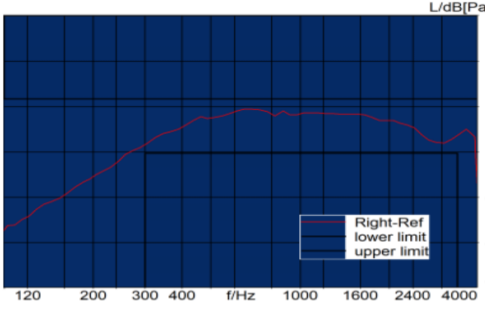
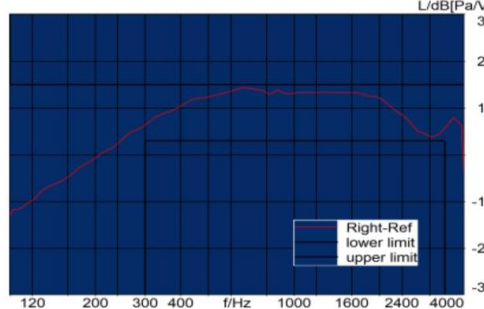
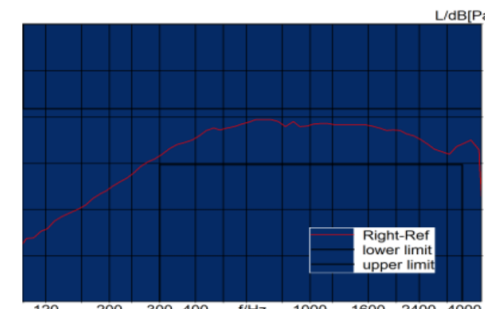
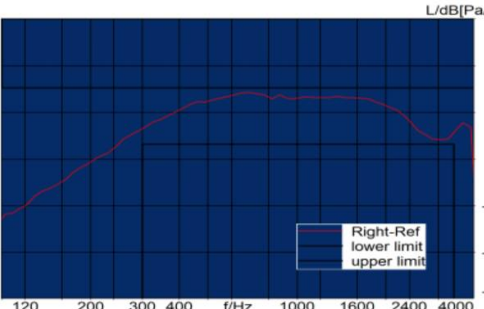
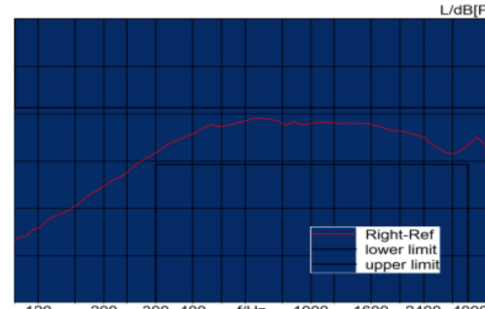
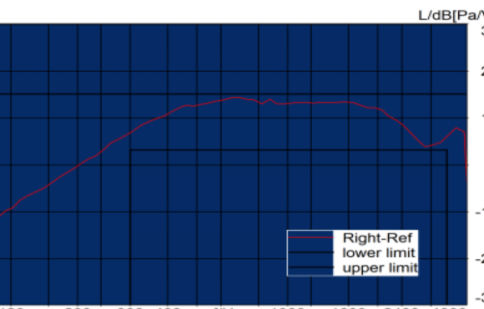
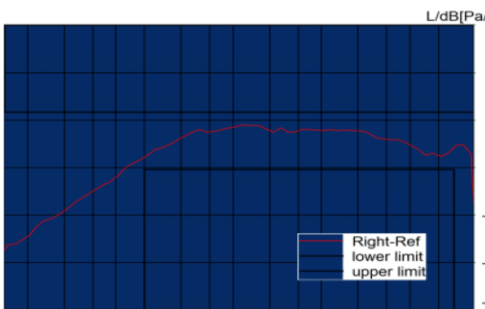
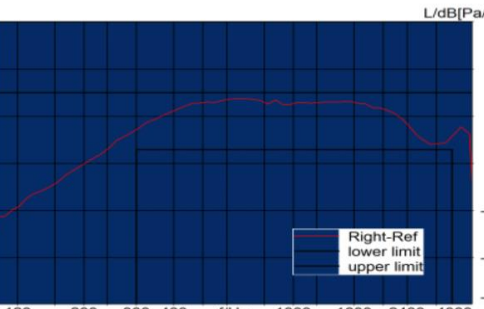
The receive frequency response shall be measured at the DRP in 1/12 octave bands. After translation to the FF, it shall fall between the applicable upper and lower limits.

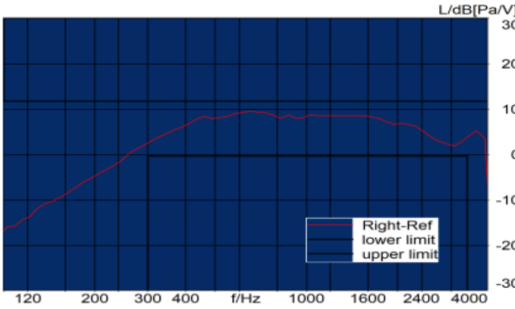
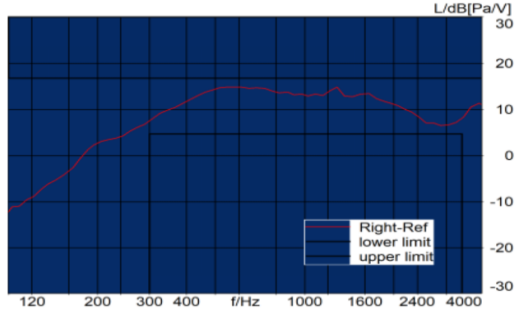
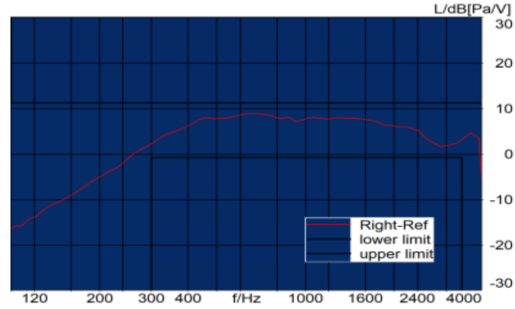
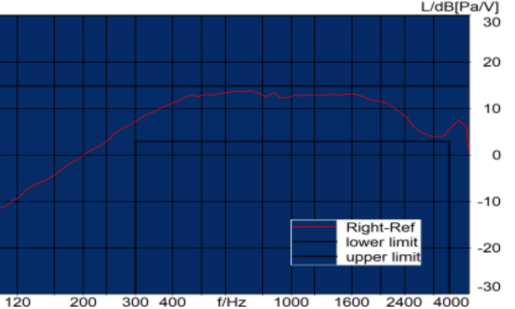
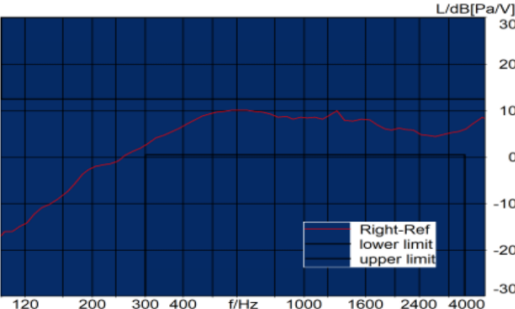
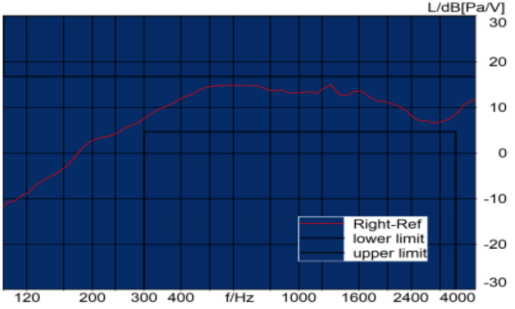
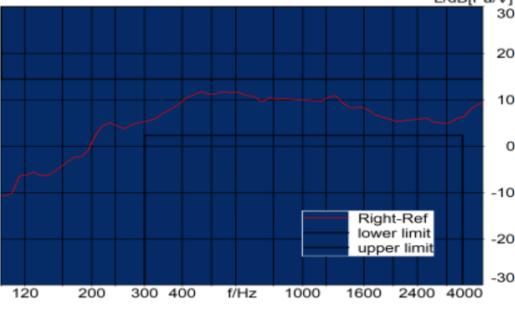
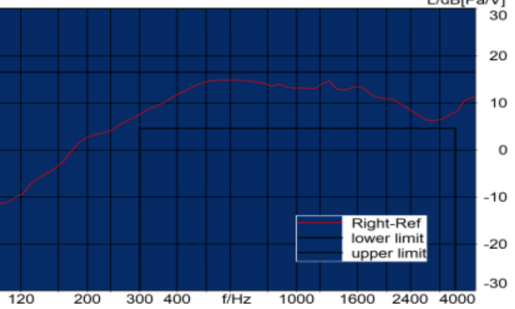
Volume Control: Max, LRP: FF

Verdict: Pass

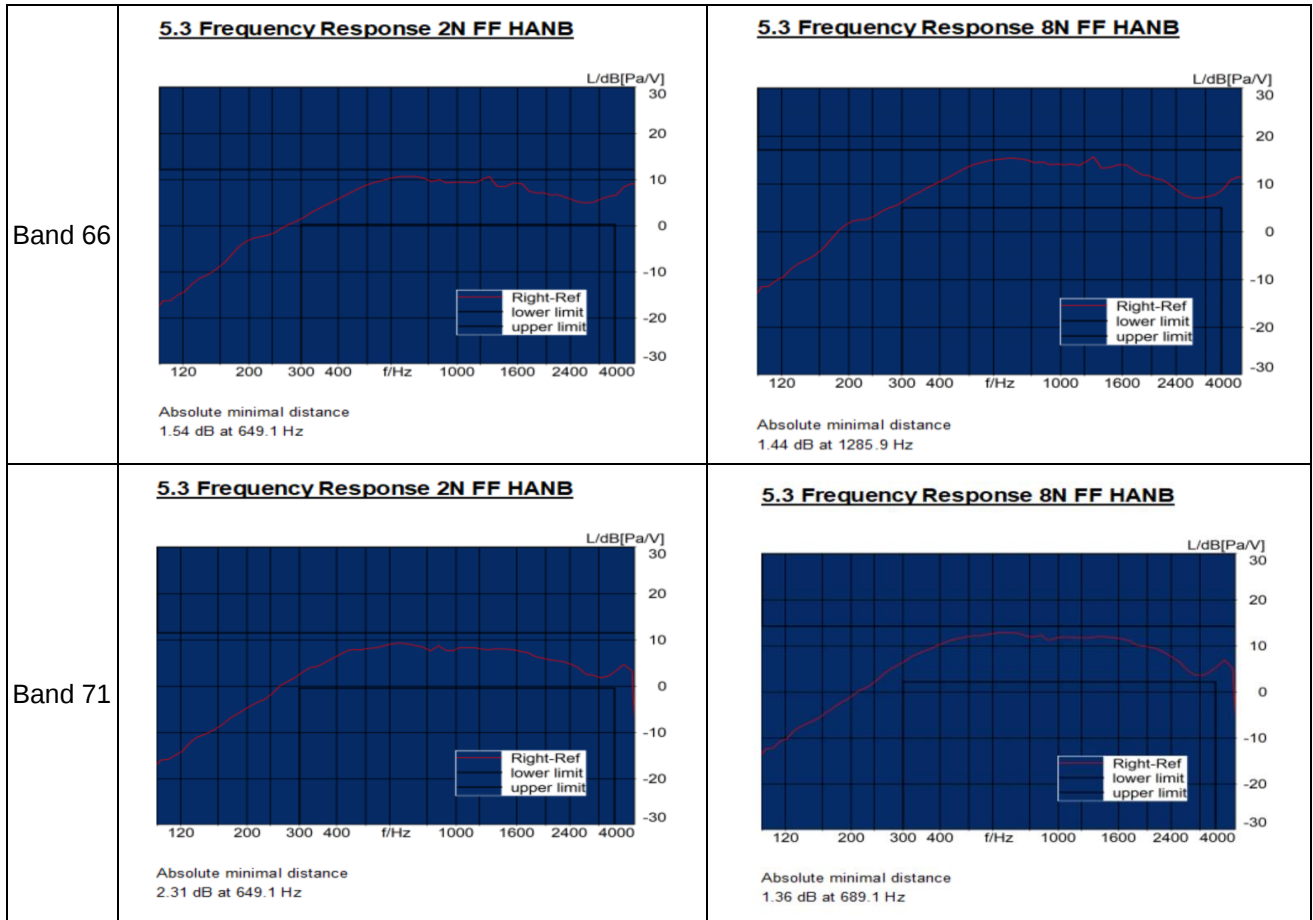
3.1 Frequency Response Graph for EVS-NB 24.4 kbps and LTE

LTE Band	Frequency Response	
	N2	N8
Band 2	5.3 Frequency Response 2N FF HANB  Absolute minimal distance 2.20 dB at 649.1 Hz	5.3 Frequency Response 8N FF HANB  Absolute minimal distance 0.85 dB at 649.1 Hz
Band 4	5.3 Frequency Response 2N FF HANB  Absolute minimal distance 2.32 dB at 649.1 Hz	5.3 Frequency Response 8N FF HANB  Absolute minimal distance 0.90 dB at 3058.6 Hz
Band 5	5.3 Frequency Response 2N FF HANB  Absolute minimal distance 2.25 dB at 649.1 Hz	5.3 Frequency Response 8N FF HANB  Absolute minimal distance 0.70 dB at 689.1 Hz

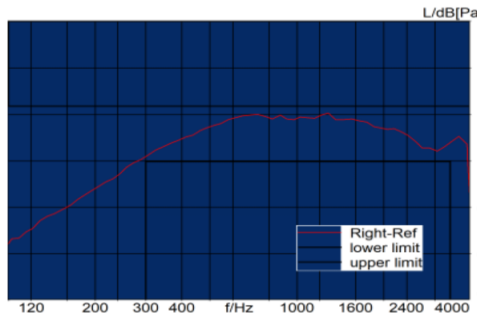
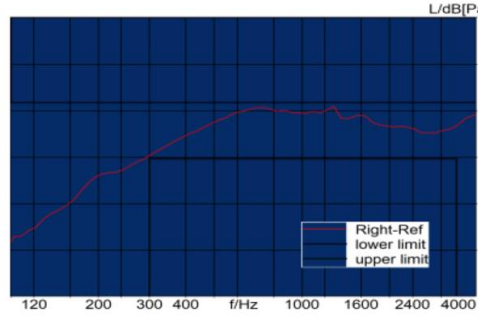
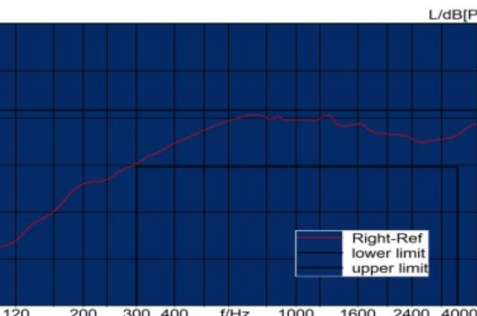
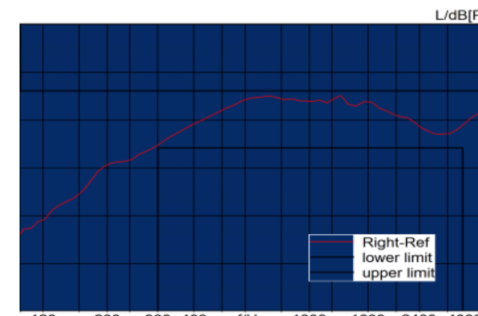
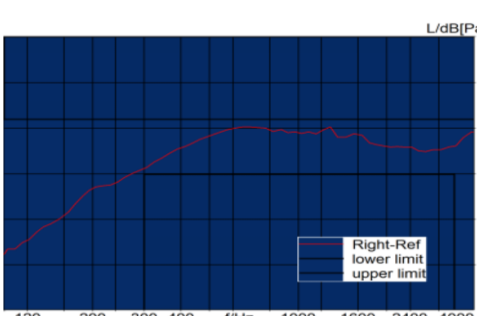
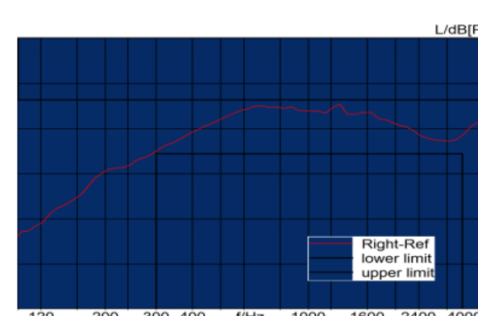
Band 7	5.3 Frequency Response 2N FF HANB  Absolute minimal distance 2.22 dB at 689.1 Hz	5.3 Frequency Response 8N FF HANB  Absolute minimal distance 0.74 dB at 649.1 Hz
Band 12	5.3 Frequency Response 2N FF HANB  Absolute minimal distance 2.22 dB at 689.1 Hz	5.3 Frequency Response 8N FF HANB  Absolute minimal distance 0.97 dB at 689.1 Hz
Band 13	5.3 Frequency Response 2N FF HANB  Absolute minimal distance 2.24 dB at 689.1 Hz	5.3 Frequency Response 8N FF HANB  Absolute minimal distance 0.75 dB at 689.1 Hz
Band 14	5.3 Frequency Response 2N FF HANB  Absolute minimal distance 2.70 dB at 649.1 Hz	5.3 Frequency Response 8N FF HANB  Absolute minimal distance 1.18 dB at 649.1 Hz

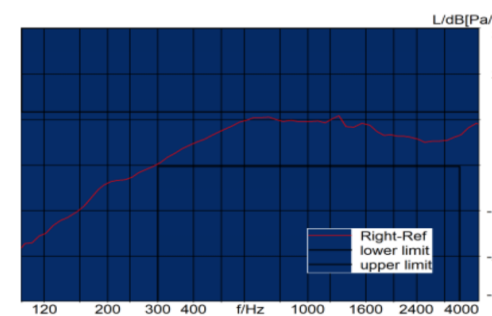
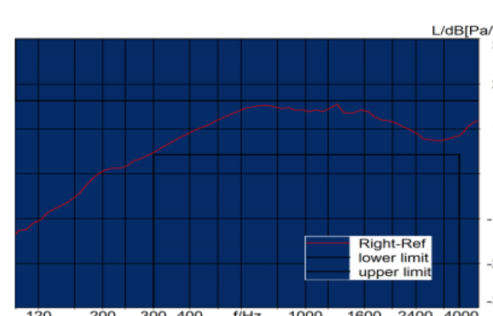
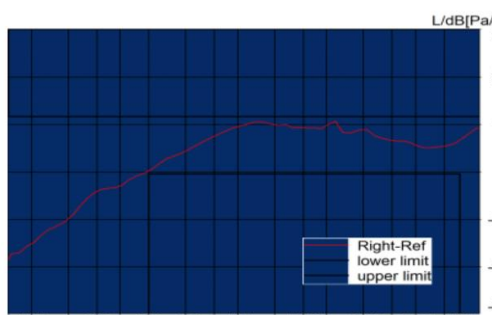
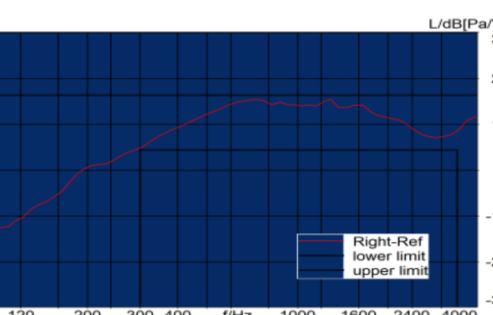
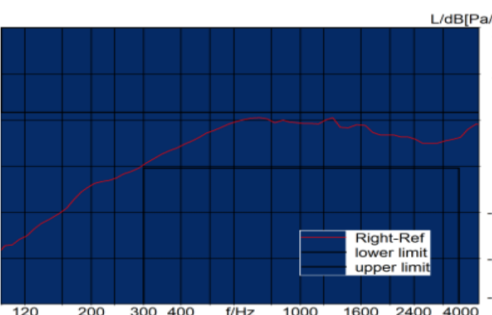
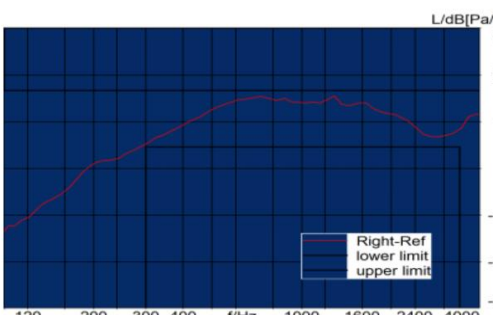
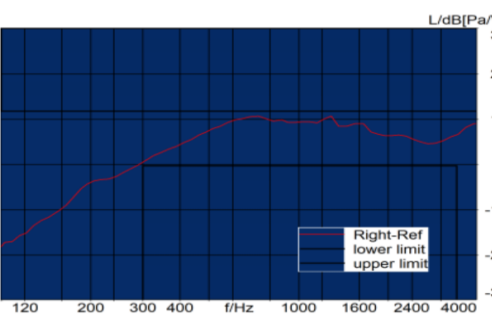
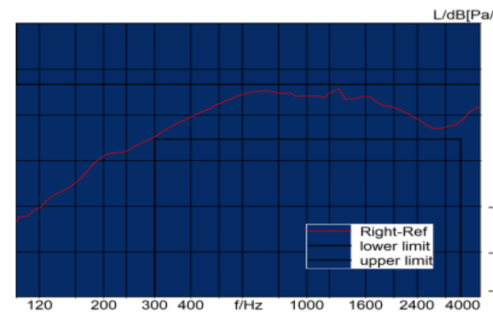
Band 25	5.3 Frequency Response 2N FF HANB  Absolute minimal distance 2.18 dB at 3058.6 Hz	5.3 Frequency Response 8N FF HANB  Absolute minimal distance 1.84 dB at 544.4 Hz
Band 26	5.3 Frequency Response 2N FF HANB  Absolute minimal distance 2.33 dB at 649.1 Hz	5.3 Frequency Response 8N FF HANB  Absolute minimal distance 1.05 dB at 3058.6 Hz
Band 30	5.3 Frequency Response 2N FF HANB  Absolute minimal distance 2.41 dB at 649.1 Hz	5.3 Frequency Response 8N FF HANB  Absolute minimal distance 1.75 dB at 1285.9 Hz
Band 38	5.3 Frequency Response 2N FF HANB  Absolute minimal distance 2.58 dB at 462.0 Hz	5.3 Frequency Response 8N FF HANB  Absolute minimal distance 1.70 dB at 576.7 Hz

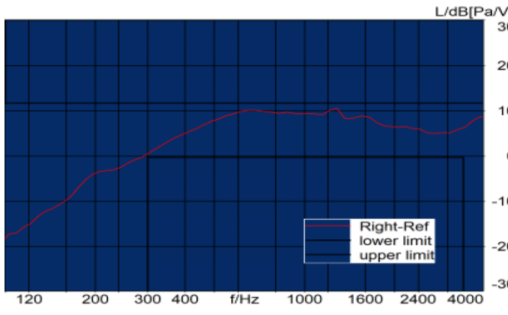
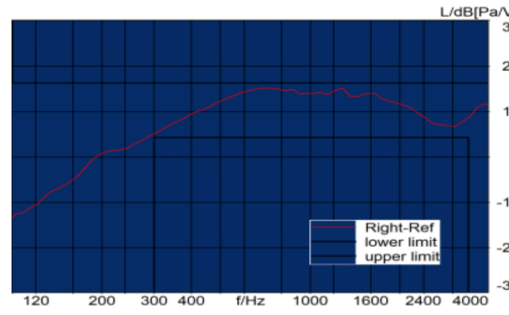
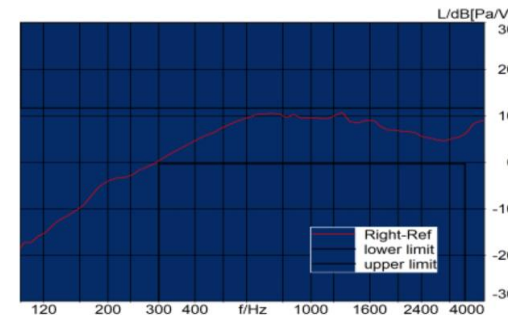
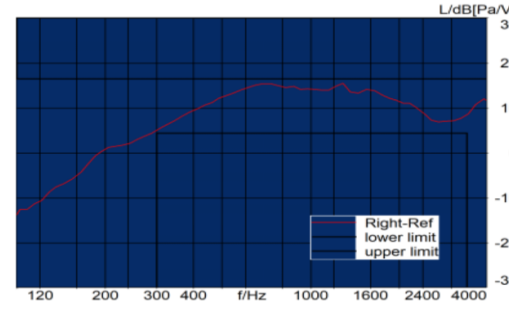
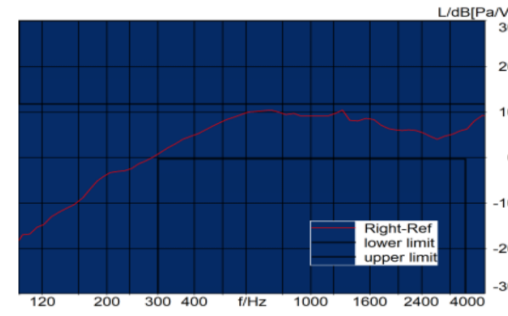
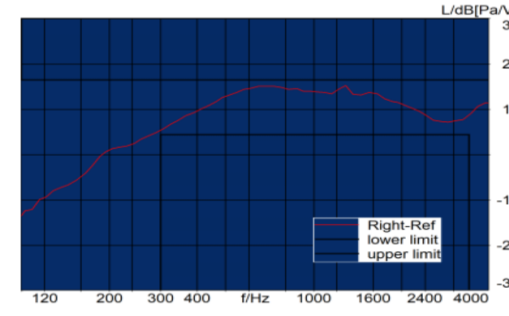
Band 41	5.3 Frequency Response 2N FF HANB Absolute minimal distance 1.18 dB at 1285.9 Hz	5.3 Frequency Response 8N FF HANB Absolute minimal distance 0.57 dB at 3058.6 Hz
Band 42	5.3 Frequency Response 2N FF HANB Absolute minimal distance 2.14 dB at 3058.6 Hz	5.3 Frequency Response 8N FF HANB Absolute minimal distance 1.78 dB at 544.4 Hz
Band 43	5.3 Frequency Response 2N FF HANB Absolute minimal distance 1.58 dB at 1285.9 Hz	5.3 Frequency Response 8N FF HANB Absolute minimal distance 1.76 dB at 2721.8 Hz
Band 48	5.3 Frequency Response 2N FF HANB Absolute minimal distance 2.05 dB at 649.1 Hz	5.3 Frequency Response 8N FF HANB Absolute minimal distance 1.69 dB at 1285.9 Hz



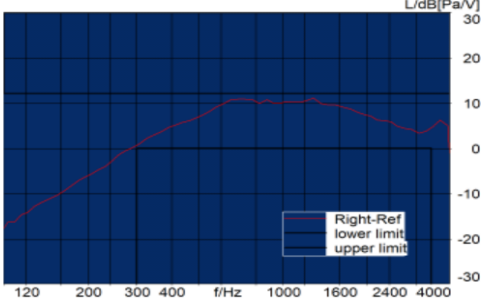
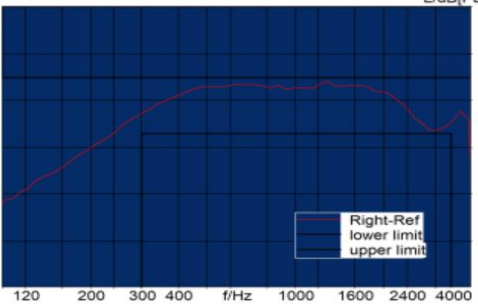
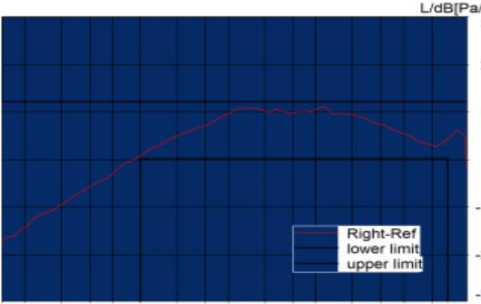
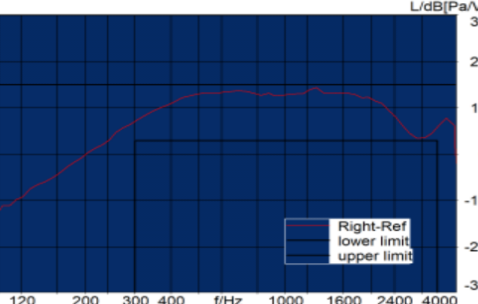
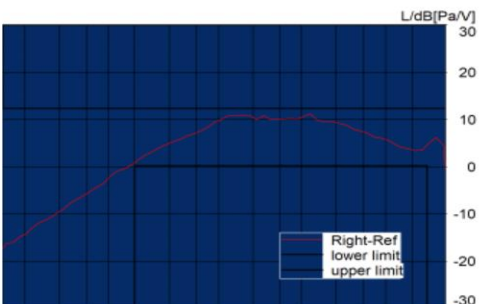
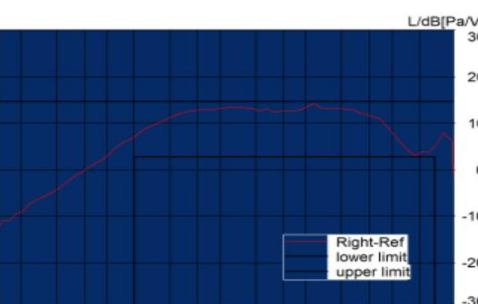
3.2 Frequency Response Graph for EVS-NB 24.4 kbps and WLAN

WLAN Band	Frequency Response	
	N2	N8
2.4G 802.11b	5.3 Frequency Response 2N FF HANB  Absolute minimal distance 1.50 dB at 1285.9 Hz	5.3 Frequency Response 8N FF HANB  Absolute minimal distance 0.87 dB at 1285.9 Hz
2.4G 802.11g	5.3 Frequency Response 2N FF HANB  Absolute minimal distance 0.98 dB at 305.9 Hz	5.3 Frequency Response 8N FF HANB  Absolute minimal distance 0.95 dB at 1285.9 Hz
2.4G 802.11n	5.3 Frequency Response 2N FF HANB  Absolute minimal distance 1.56 dB at 305.9 Hz	5.3 Frequency Response 8N FF HANB  Absolute minimal distance 1.02 dB at 1285.9 Hz

2.4G 802.11ac	5.3 Frequency Response 2N FF HANB  Absolute minimal distance 0.91 dB at 1285.9 Hz	5.3 Frequency Response 8N FF HANB  Absolute minimal distance 0.69 dB at 1285.9 Hz
2.4G 802.11ax	5.3 Frequency Response 2N FF HANB  Absolute minimal distance 0.99 dB at 1285.9 Hz	5.3 Frequency Response 8N FF HANB  Absolute minimal distance 0.83 dB at 1285.9 Hz
5G 802.11a	5.3 Frequency Response 2N FF HANB  Absolute minimal distance 1.05 dB at 305.9 Hz	5.3 Frequency Response 8N FF HANB  Absolute minimal distance 1.01 dB at 1285.9 Hz
5G 802.11n	5.3 Frequency Response 2N FF HANB  Absolute minimal distance 1.08 dB at 1285.9 Hz	5.3 Frequency Response 8N FF HANB  Absolute minimal distance 0.96 dB at 1285.9 Hz

5G 802.11ac	5.3 Frequency Response 2N FF HANB  Absolute minimal distance 1.20 dB at 305.9 Hz	5.3 Frequency Response 8N FF HANB  Absolute minimal distance 1.12 dB at 1285.9 Hz
5G 802.11ax	5.3 Frequency Response 2N FF HANB  Absolute minimal distance 0.99 dB at 305.9 Hz	5.3 Frequency Response 8N FF HANB  Absolute minimal distance 0.93 dB at 1285.9 Hz
6E 802.11ax	5.3 Frequency Response 2N FF HANB  Absolute minimal distance 1.33 dB at 1285.9 Hz	5.3 Frequency Response 8N FF HANB  Absolute minimal distance 1.23 dB at 1285.9 Hz

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

NR Band	Frequency Response	
	N2	N8
Band 2	5.3 Frequency Response 2N FF HANB  Absolute minimal distance 0.91 dB at 1285.9 Hz	5.3 Frequency Response 8N FF HANB  Absolute minimal distance 0.74 dB at 1285.9 Hz
Band 5	5.3 Frequency Response 2N FF HANB  Absolute minimal distance 1.08 dB at 1285.9 Hz	5.3 Frequency Response 8N FF HANB  Absolute minimal distance 0.55 dB at 2883.7 Hz
Band 7	5.3 Frequency Response 2N FF HANB  Absolute minimal distance 1.11 dB at 1285.9 Hz	5.3 Frequency Response 8N FF HANB  Absolute minimal distance 0.39 dB at 1285.9 Hz